Analytical Resources, Incorporated
Analytical Chemists and Consultants

12 October 2021

Cindy Fields
Anchor QEA, LLC
1201 3rd Ave, Suite 2600
Seattle, WA 98101

RE: Lower Duwamish AOC4

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21G0127	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.10.12 10:40:43 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Susan Dunnihoo, Director, Client Services

Cert# 100006-012

21G0127

1 of 2

CHAIN-OF-CUSTODY/TEST REQUEST FORM

№ 3179

Tier 1

Project/Client Name: Duwamish AOC4
Project Number: 180667-02.02
Contact Name: Amara Vandervort
Sampled By: Windward

Ship to: ARI
Attn: Sue Dunnihoo
Shipper: courier
Form filled out by: S. Replinger

Shipping Date: 7.12.2021
Airbill Number: —
Turnaround requested: STD

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	PCBs	Dioxins/Furans	TOC/TS	Archive	BBP	Mercury		Comments / Instructions [Jar tag number(s)]
7.12.2021	0710	LDW21-SS668	4	sediment	X	X	X	X				
	0712	LDW21-SS667	4		X	X	X	X				
	0735	LDW21-SS651	5		X	X	X	X		X		Mercury
	0755	LDW21-SS636	3		X		X	X				
	0808	LDW21-SS633	4		X	X	X	X				BEHP, cPAHs, As
SP	~~0823~~	~~LDW21-SS600~~	~~5~~		~~X~~	SP	~~X~~	~~X~~				~~All chems w/ benthic RALs.~~
	0838	LDW21-SS643	3		X		X	X	X			BBP
	0838	LDW21-SS643-FD	2		X		X		X			BBP
	0855	LDW21-SS645	4		X	X	X	X	X			BBP, BEHP, cPAHs, As
	1005	LDW21-SS694	3		X		X	X				
	1025	LDW21-SS656	4		X	X	X	X				
	1035	LDW21-SS647	5		X	X	X	X		X		Mercury
		Total Number of Containers	41	Purchase Order / Statement of Work #	CFL-052021-ARI							

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: Suzanne Replinger	Jacob Luth	Print name:	
Signature:	Company: ARI	Signature:	Company:
Company: Windward		Company:	
Date/Time: 7/12/21 1700	Date/Time: 07/12/2021 1700	Date/Time:	Date/Time:

* Distribution: White copies accompany shipment; yellow retained by consignor.

Windward environmental LLC

200 1st Ave W, Suite 500
Seattle, WA 98119

206.378.1364

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

2160127

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Tier 1

№ 3181

Project/Client Name: Duwamish AOC4
Project Number: 18067-02.02
Contact Name: Amara Vandervort
Sampled By: Windward

Ship to: ARI
Attn: Sue Dunnihoo
Shipper: courier
Form filled out by: S. Replinger

Shipping Date: 7.12.2021
Airbill Number: —
Turnaround requested: Std.

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	PCBs	Dioxins/ Furans	TOC/TS	Archive	BBP	Mercury		Comments / Instructions [Jar tag number(s)]
7.12.2021	1122	LDW21-SS634	4	sediment	x	x	x	x				
	1135	LDW21-SS623	4		x		x	x	x	x		Zn, Pb, Hg
	1150	LDW21-SS620	4		x		x	x	x	x		Zn, Pb, Hg
	1202	LDW21-SS599	5		x		x	x		x		all chems w/ benthic RALs
	1202	LDW21-SS599-FD	5		x		x	x		x		all chems w/ benthic RALs
	~~1345~~ 1245 (SP)	LDW21-IT616A	3		x		x	x				
	1320	LDW21-SS616	4		x		x	x	x	x		Zn, Pb, Hg
	1345	LDW21-IT619A	3		x		x	x				
	1415	LDW21-SS619	4		x		x	x	x	x		Zn, Pb, Hg
		Total Number of Containers	36	Purchase Order / Statement of Work # CFL-052021-ARI								

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: Suzanne Replinger	Jacob Hatter	Print name:	
Signature:	Company: ARI	Signature:	Company:
Company: Windward		Company:	
Date/Time: 7/12/21 1700	Date/Time: 07/12/2021 1700	Date/Time:	Date/Time:

* Distribution: White copies accompany shipment; yellow retained by consignor.

Wind Ward environmental LLC

200 1st Ave W, Suite 500
Seattle, WA 98119

206.378.1364

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Windward/Anchor

Project Name: Lower Duwamish AOCY

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21G0127

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1743 5.1 2.8 ___ ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: DOO 5206

Cooler Accepted by: JJ Date: 07/12/2021 Time: 1700

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	(Individually)	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...	NA	YES	(NO)
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)	_____	

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: DL Date: 07/13/21 Time: 1019 Labels checked by: _____

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Anchor QEA, LLC	Project:	Lower Duwamish AOC4	
1201 3rd Ave, Suite 2600	Project Number:	180067-02.03	**Reported:**
Seattle, WA 98101	Project Manager:	Cindy Fields	10/12/2021 09:48

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
21G0127-01	LDW21-SS668	Solid	07/12/21 07:10	07/13/21 17:00
21G0127-02	LDW21-SS667	Solid	07/12/21 07:22	07/13/21 17:00
21G0127-03	LDW21-SS651	Solid	07/12/21 07:35	07/13/21 17:00
21G0127-04	LDW21-SS636	Solid	07/12/21 07:55	07/13/21 17:00
21G0127-05	LDW21-SS633	Solid	07/12/21 08:08	07/13/21 17:00
21G0127-06	LDW21-SS643	Solid	07/12/21 08:38	07/13/21 17:00
21G0127-07	LDW21-SS643-FD	Solid	07/12/21 08:38	07/13/21 17:00
21G0127-08	LDW21-SS645	Solid	07/12/21 08:55	07/13/21 17:00
21G0127-09	LDW21-SS694	Solid	07/12/21 10:05	07/13/21 17:00
21G0127-10	LDW21-SS656	Solid	07/12/21 10:25	07/13/21 17:00
21G0127-11	LDW21-SS647	Solid	07/12/21 10:35	07/13/21 17:00
21G0127-12	LDW21-SS634	Solid	07/12/21 11:22	07/13/21 17:00
21G0127-13	LDW21-SS623	Solid	07/12/21 11:35	07/13/21 17:00
21G0127-14	LDW21-SS620	Solid	07/12/21 11:50	07/13/21 17:00
21G0127-15	LDW21-SS599	Solid	07/12/21 12:02	07/13/21 17:00
21G0127-16	LDW21-SS599-FD	Solid	07/12/21 12:02	07/13/21 17:00
21G0127-17	LDW21-IT616A	Solid	07/12/21 12:40	07/13/21 17:00
21G0127-18	LDW21-SS616	Solid	07/12/21 13:20	07/13/21 17:00
21G0127-19	LDW21-IT619A	Solid	07/12/21 13:45	07/13/21 17:00
21G0127-20	LDW21-SS619	Solid	07/12/21 14:15	07/13/21 17:00

Anchor QEA, LLC	Project: Lower Duwamish AOC4	
1201 3rd Ave, Suite 2600	Project Number: 180067-02.03	**Reported:**
Seattle WA, 98101	Project Manager: Cindy Fields	12-Oct-2021 09:48

Case Narrative

Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Work Order: 21G0127

Sample receipt

Samples as listed on the preceding page were received 13-Jul-2021 17:00 under ARI work order 21G0127. For details regarding sample receipt, please refer to the Cooler Receipt Form. Mercury aliquots were frozen to meet QAPP requirements.

Dioxin/Furans - EPA Method 1613

The sample(s) were extracted and analyzed within the recommended holding times. Analysis was performed using an application specific column developed by Restek. The RTX-Dloxin2 column has unique isomer separation for the 2378-TCDF, eliminating the need for confirmation analysis.

Samples LDW21-SS647 and LDW21-SS634 required re-extraction due to low recovery of tetras.

Initial and continuing calibrations were within method requirements.

Labeled internal standard areas were within limits.

The cleanup surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits, with response for OCDD in both and for 1,2,3,4,6,7,8-HpCDD in BJH0186-BLK1. Associated positive results have been "B"-flagged.

The OPR (Ongoing Precision and Recovery) standard percent recoveries were within control limits.

The reference material (SRM) percent recoveries were within control limits.

Both the duplicate (DUP) relative percent differences (RPD) were high of advisory control limits.

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
EMPC	Estimated Maximum Possible Concentration qualifier for HRGCMS Dioxin
B	This analyte was detected in the method blank.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS668

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0127-01 A	File ID:	21082417
Sampled:	07/12/21 07:10	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 01:18
% Solids:	53.74	Preparation:	EPA 1613	Initial/Final:	18.66 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.685	0.655-0.886	0.202	0.997	0.649	ng/kg	J
1746-01-6	2,3,7,8-TCDD	1	0.327	0.655-0.886	0.213	0.997	0.443	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1	1.646	1.318-1.783	0.250	0.997	0.412	ng/kg	J
57117-31-4	2,3,4,7,8-PeCDF	1	4.601	1.318-1.783	0.234	0.997	0.456	ng/kg	EMPC, J
40321-76-4	1,2,3,7,8-PeCDD	1	1.406	1.318-1.783	0.389	0.997	1.14	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.201	1.054-1.426	0.303	0.997	1.98	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.357	1.054-1.426	0.298	0.997	0.722	ng/kg	J
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.112	1.054-1.426	0.311	0.997	0.414	ng/kg	J
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.286	1.054-1.426	0.320	0.997	1.01	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.374	1.054-1.426	0.400	0.997	1.96	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.345	1.054-1.426	0.400	0.997	5.94	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.368	1.054-1.426	0.429	0.997	3.01	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.051	0.893-1.208	0.224	0.997	25.8	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.081	0.893-1.208	0.312	0.997	2.80	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.070	0.893-1.208	0.972	2.49	611	ng/kg	B
39001-02-0	OCDF	1	0.889	0.757-1.024	0.328	2.49	139	ng/kg	
3268-87-9	OCDD	1	0.897	0.757-1.024	1.05	9.97	6270	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.997	4.50	ng/kg
41903-57-5	Total TCDD	1	0.000			0.997	0.276	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.997	6.33	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.997	1.83	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.997	32.8	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.997	228	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.997	133	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.997	4450	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 11.62
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 11.62

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS668

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0127-01	File ID:	21082417
Sampled:	07/12/21 07:10	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 01:18
Solids Wt%:	53.74	Preparation:	EPA 1613	Initial/Final:	18.66 g / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.790	0.655-0.886	0.147	75.3	24 - 169 %	
13C12-2,3,7,8-TCDD		0.760	0.655-0.886	0.203	75.5	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.582	1.318-1.783	0.289	77.2	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.594	1.318-1.783	0.304	77.6	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.589	1.318-1.783	0.191	74.1	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.517	0.434-0.587	0.284	65.2	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.514	0.434-0.587	0.262	62.5	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.524	0.434-0.587	0.290	64.8	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.516	0.434-0.587	0.350	67.7	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.299	1.054-1.426	0.281	71.7	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.277	1.054-1.426	0.259	69.4	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.466	0.374-0.506	0.306	70.4	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.442	0.374-0.506	0.374	70.6	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.044	0.893-1.208	0.403	73.1	23 - 140 %	
13C12-OCDD		0.940	0.757-1.024	0.255	85.8	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.057	87.5	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:12 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.262	1.001	9.965e2	1.455e3	1.108	0.685	0.770	2177	1528	1.29e4	1.76e4	5.9	11.5	NO	bd	bd	0.325
12378-PeCDF	29.425	1.000	8.266e2	5.023e2	1.015	1.646	1.550	2073	1859	1.50e4	7.14e3	7.2	3.8	NO	bb	bb	0.206
23478-PeCDF	30.762	1.000	1.286e3	2.795e2	1.126	4.601	1.550	2073	1859	1.80e4	6.24e3	8.7	3.4	YES	db	MM	0.229
123478-HxCDF	34.439	1.001	2.702e3	2.250e3	1.017	1.201	1.240	2114	1605	4.16e4	3.42e4	19.7	21.3	NO	dd	bd	0.991
234678-HxCDF	35.486	1.001	5.492e2	4.939e2	1.052	1.112	1.240	2114	1605	1.12e4	8.62e3	5.3	5.4	NO	db	db	0.208
123678-HxCDF	34.584	1.001	1.100e3	8.106e2	1.037	1.357	1.240	2114	1605	1.88e4	1.38e4	8.9	8.6	NO	db	db	0.362
123789-HxCDF	36.444	0.999	1.214e3	9.434e2	1.030	1.286	1.240	2114	1605	1.33e4	9.53e3	6.3	5.9	NO	bb	bb	0.506
1234678-HpCDF	38.361	1.000	3.478e4	3.308e4	1.327	1.051	1.050	1902	1170	5.66e5	5.48e5	297.7	468.2	NO	bb	bb	12.915
1234789-HpCDF	40.533	1.000	3.042e3	2.813e3	1.283	1.081	1.050	1902	1170	4.27e4	4.17e4	22.5	35.7	NO	bb	bb	1.406
OCDF	44.674	1.005	1.244e5	1.399e5	1.447	0.889	0.890	1368	1241	1.48e6	1.68e6	1082.3	1352.1	NO	bb	bb	69.732
2378-TCDD	25.912	1.001	2.690e2	8.224e2	0.920	0.327	0.770	1370	1122	5.16e3	1.08e4	3.8	9.6	YES	bb	bd	0.222
12378-PeCDD	31.007	1.000	1.138e3	8.098e2	0.995	1.406	1.550	1381	1867	1.27e4	1.17e4	9.2	6.2	NO	MM	bb	0.570
123478-HxCDD	35.598	1.000	2.442e3	1.778e3	1.027	1.374	1.240	1985	2431	3.73e4	3.03e4	18.8	12.4	NO	bd	bd	0.985
123678-HxCDD	35.720	1.001	7.554e3	5.616e3	1.009	1.345	1.240	1985	2431	1.23e5	9.53e4	62.0	39.2	NO	dd	db	2.980
123789-HxCDD	36.110	1.012	3.538e3	2.586e3	0.950	1.368	1.240	1985	2431	5.09e4	4.50e4	25.7	18.5	NO	bb	bb	1.507
1234678-HpCDD	39.820	1.000	4.739e5	4.429e5	1.068	1.070	1.050	3896	3403	7.27e6	6.77e6	1867.0	1987.9	NO	bb	bb	306.228
OCDD	44.455	1.000	4.598e6	5.124e6	1.181	0.897	0.890	3641	3159	5.83e7	6.46e7	16023.9	20444.8	NO	bb	bb	3142.701
13C-2378-TCDF	25.247	1.007	3.002e5	3.799e5	1.427	0.790	0.770	2061	1342	4.37e6	5.44e6	2122.6	4051.1	NO	bb	bd	75.256
13C-12378-PeCDF	29.414	1.173	3.887e5	2.458e5	1.297	1.582	1.550	3922	2183	5.67e6	3.53e6	1446.8	1617.9	NO	bb	bb	77.204
13C-23478-PeCDF	30.751	1.227	3.737e5	2.344e5	1.236	1.594	1.550	3922	2183	5.49e6	3.40e6	1400.2	1556.9	NO	bb	bb	77.634
13C-123478-HxCDF	34.417	0.954	1.675e5	3.238e5	1.242	0.517	0.510	2986	2913	2.46e6	4.65e6	824.7	1597.5	NO	bd	bd	65.207
13C-123678-HxCDF	34.562	0.958	1.728e5	3.362e5	1.343	0.514	0.510	2986	2913	2.44e6	4.81e6	818.0	1649.6	NO	db	db	62.471
13C-234678-HxCDF	35.464	0.983	1.641e5	3.130e5	1.215	0.524	0.510	2986	2913	2.34e6	4.55e6	782.9	1562.0	NO	bd	bb	64.752
13C-123789-HxCDF	36.467	1.010	1.407e5	2.729e5	1.008	0.516	0.510	2986	2913	2.29e6	4.54e6	768.3	1557.4	NO	bb	bb	67.693
13C-1234678-HpCDF	38.349	1.063	1.259e5	2.699e5	0.926	0.466	0.440	1955	2786	1.97e6	4.26e6	1006.7	1527.7	NO	bb	bb	70.448
13C-1234789-HpCDF	40.522	1.123	9.942e4	2.250e5	0.758	0.442	0.440	1955	2786	1.41e6	3.15e6	720.6	1130.3	NO	bb	bb	70.586
13C-1234-TCDD	25.065	0.000	2.748e5	3.587e5	1.000	0.766	0.770	2107	1586	4.22e6	5.49e6	2004.0	3461.7	NO	bb	bb	100.000
13C-2378-TCDD	25.882	1.033	2.305e5	3.034e5	1.116	0.760	0.770	2107	1586	3.28e6	4.28e6	1558.9	2699.1	NO	bb	bb	75.479
13C-12378-PeCDD	31.007	1.237	2.108e5	1.327e5	0.732	1.589	1.550	1215	1057	3.08e6	1.92e6	2535.1	1814.4	NO	bb	bb	74.067
13C-123478-HxCDD	35.586	0.986	2.357e5	1.814e5	0.960	1.299	1.240	2275	2243	3.63e6	2.84e6	1596.2	1267.2	NO	bd	bd	71.663
13C-123678-HxCDD	35.698	0.989	2.456e5	1.924e5	1.041	1.277	1.240	2275	2243	3.67e6	2.96e6	1613.8	1317.9	NO	db	db	69.366
13C-1234678-HpCDD	39.809	1.103	1.432e5	1.371e5	0.632	1.044	1.050	2760	1506	2.15e6	2.05e6	778.7	1361.0	NO	bb	bb	73.084
13C-OCDD	44.437	1.231	2.539e5	2.701e5	0.504	0.940	0.890	1215	936	3.19e6	3.39e6	2620.9	3617.3	NO	bb	bb	171.524
13C-123789-HxCDD	36.088	0.000	3.343e5	2.721e5	1.000	1.229	1.240	2275	2243	5.52e6	4.42e6	2426.9	1969.5	NO	bb	bb	100.000
37CL-2378-TCDD	25.912	1.034	2.402e5		1.084			1003		3.42e6		3410.2			bb		34.993

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:12 Pacific Daylight Time

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.754	0.862	4.103e2	4.312e2	1.425	0.951	0.770	2177	1528	5.38e3	6.79e3	2.5	4.4	YES	bb	bb	0.087
1289-TCDF					1.043		0.770	2177	1528								
13468-PECDF	26.713	0.908	9.156e3	5.171e3	1.376	1.771	1.550	972	1270	1.22e5	6.96e4	125.3	54.8	NO	bb	bb	1.641
12389-PECDF					1.000		1.550	2073	1859								
123468-HXCDF	32.745	0.951	3.490e3	2.838e3	1.087	1.230	1.240	2114	1605	5.48e4	3.99e4	25.9	24.9	NO	bb	bb	1.185
1368-TCDD	23.039	0.890	7.644e2	8.427e2	0.923	0.907	0.770	1370	1122	1.38e4	1.24e4	10.1	11.1	YES	bb	bd	0.326
1289-TCDD					0.794		0.770	1370	1122								
12479-PECDD	28.389	0.916	2.417e3	1.190e3	1.843	2.031	1.550	1381	1867	3.76e4	1.94e4	27.2	10.4	YES	db	db	0.570
12389-PECDD	31.442	1.014	3.034e2	1.506e2	1.154	2.014	1.550	1381	1867	4.70e3	2.92e3	3.4	1.6	YES	bb	bb	0.115
124679-HXCDD	33.536	0.942	1.250e5	1.021e5	1.125	1.224	1.240	1985	2431	1.83e6	1.46e6	920.4	602.1	NO	bb	bb	48.383
1234679-HPCDD	38.806	0.975	3.359e6	3.170e6	1.211	1.059	1.050	3896	3403	5.64e7	5.36e7	14475.6	15737.1	NO	bb	bb	1923.716
Total-tetrafurans			7.913e3		1.192			2177		1.18e5							2.256
Total-penta1			9.156e3					972		1.22e5							1.641
Total-pentafurans			6.205e3		1.047			2073		9.49e4							1.531
Total-hexafurans			4.507e4		1.045			2114		6.68e5							16.442
Total-heptafurans			1.643e5		1.305			1902		2.54e6							66.621
Total-Furans			3.571e5		1.158			2177		5.02e6							158.222
Total-tetradioxins			3.021e2		0.879			1370		4.54e3							0.138
Total-pentadioxins			2.090e3		1.331			1381		2.54e4							0.919
Total-hexadioxins			2.875e5		1.028			1985		3.90e6							114.159
Total-heptadioxins			3.833e6		1.140			3896		6.37e7							2229.943
Total-Dioxins			8.721e6		1.092			1370		1.26e8							5487.861
Total-TEQ			9.078e6					1370		1.31e8							5646.083
FUNCTION1 PFK			9.025e5					693868		8.22e6							
FUNCTION2 PFK			1.040e7					306499		1.90e7							0.000
FUNCTION3 PFK			1.039e7					544728		1.85e7							0.000
FUNCTION4 PFK			1.151e6					309693		2.51e7							
FUNCTION5 PFK			0.000e0					220979		0.00e0							
FUNCTION1 HXCD...			2.195e3					1061		3.53e4							0.000
FUNCTION1 HPCD...			9.130e3					947		1.56e5							0.000
FUNCTION2 HPCD...			3.702e2					953		8.65e3							0.000
FUNCTION3 OCDPE			1.812e3					1266		4.13e4							0.000
FUNCTION4 NCDPE			2.832e4					1090		4.84e5							0.000
FUNCTION5 DCDPE			1.565e2					657		4.58e3							0.000

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	1.751e3	2.182e3	1.192	0.80	0.77	9.8	YES	NO	dd	dd	0.485
2	Total-tetrafurans	23.37	7.196e2	8.451e2	1.192	0.85	0.77	5.1	YES	NO	dd	dd	0.193
3	Total-tetrafurans	22.92	7.287e2	9.393e2	1.192	0.78	0.77	4.9	YES	NO	dd	dd	0.206
4	Total-tetrafurans	22.72	3.274e2	4.900e2	1.192	0.67	0.77	3.2	YES	NO	dd	dd	0.101
5	Total-tetrafurans	22.62	1.984e3	2.260e3	1.192	0.88	0.77	14.3	YES	NO	bd	bd	0.524
6	2378-TCDF	25.26	9.965e2	1.455e3	1.108	0.68	0.77	5.9	YES	NO	bd	bd	0.325
7	Total-tetrafurans	25.00	4.512e2	6.211e2	1.192	0.73	0.77	4.2	YES	NO	dd	dd	0.132
8	Total-tetrafurans	26.88	9.540e2	1.398e3	1.192	0.68	0.77	7.1	YES	NO	bb	bb	0.290

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.71	9.156e3	5.171e3	1.376	1.77	1.55	125.3	YES	NO	bb	bb	1.641

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.43	8.266e2	5.023e2	1.015	1.65	1.55	7.2	YES	NO	bb	bb	0.206
2	Total-pentafurans	28.41	3.946e3	2.340e3	1.047	1.69	1.55	26.6	YES	NO	dd	dd	0.967
3	Total-pentafurans	28.34	1.432e3	8.943e2	1.047	1.60	1.55	12.0	YES	NO	dd	bd	0.358

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.44	1.214e3	9.434e2	1.030	1.29	1.24	6.3	YES	NO	bb	bb	0.506
2	234678-HxCDF	35.49	5.492e2	4.939e2	1.052	1.11	1.24	5.3	YES	NO	db	db	0.208
3	123678-HxCDF	34.58	1.100e3	8.106e2	1.037	1.36	1.24	8.9	YES	NO	db	db	0.362
4	123478-HxCDF	34.44	2.702e3	2.250e3	1.017	1.20	1.24	19.7	YES	NO	dd	bd	0.991
5	Total-hexafurans	33.80	2.445e4	1.941e4	1.045	1.26	1.24	171.3	YES	NO	bb	bb	8.882
6	Total-hexafurans	32.97	1.157e4	9.702e3	1.045	1.19	1.24	78.6	YES	NO	bb	bb	4.307
7	123468-HXCDF	32.75	3.490e3	2.838e3	1.087	1.23	1.24	25.9	YES	NO	bb	bb	1.185

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.53	3.042e3	2.813e3	1.283	1.08	1.05	22.5	YES	NO	bb	bb	1.406
2	Total-heptafurans	39.00	1.233e5	1.160e5	1.305	1.06	1.05	998.3	YES	NO	bd	bb	50.907
3	Total-heptafurans	38.80	3.228e3	3.321e3	1.305	0.97	1.05	15.0	YES	NO	db	db	1.393
4	1234678-HpCDF	38.36	3.478e4	3.308e4	1.327	1.05	1.05	297.7	YES	NO	bb	bb	12.915

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	1.751e3	2.182e3	1.192	0.80	0.77	9.8	YES	NO	dd	dd	0.485
2	Total-tetrafurans	23.37	7.196e2	8.451e2	1.192	0.85	0.77	5.1	YES	NO	dd	dd	0.193
3	Total-tetrafurans	22.92	7.287e2	9.393e2	1.192	0.78	0.77	4.9	YES	NO	dd	dd	0.206
4	Total-tetrafurans	22.72	3.274e2	4.900e2	1.192	0.67	0.77	3.2	YES	NO	dd	dd	0.101
5	Total-tetrafurans	22.62	1.984e3	2.260e3	1.192	0.88	0.77	14.3	YES	NO	bd	bd	0.524
6	2378-TCDF	25.26	9.965e2	1.455e3	1.108	0.68	0.77	5.9	YES	NO	bd	bd	0.325
7	Total-tetrafurans	25.00	4.512e2	6.211e2	1.192	0.73	0.77	4.2	YES	NO	dd	dd	0.132
8	Total-tetrafurans	26.88	9.540e2	1.398e3	1.192	0.68	0.77	7.1	YES	NO	bb	bb	0.290
9	12378-PeCDF	29.43	8.266e2	5.023e2	1.015	1.65	1.55	7.2	YES	NO	bb	bb	0.206
10	Total-pentafurans	28.41	3.946e3	2.340e3	1.047	1.69	1.55	26.6	YES	NO	dd	dd	0.967
11	Total-pentafurans	28.34	1.432e3	8.943e2	1.047	1.60	1.55	12.0	YES	NO	dd	bd	0.358
12	123789-HxCDF	36.44	1.214e3	9.434e2	1.030	1.29	1.24	6.3	YES	NO	bb	bb	0.506
13	234678-HxCDF	35.49	5.492e2	4.939e2	1.052	1.11	1.24	5.3	YES	NO	db	db	0.208
14	123678-HxCDF	34.58	1.100e3	8.106e2	1.037	1.36	1.24	8.9	YES	NO	db	db	0.362
15	123478-HxCDF	34.44	2.702e3	2.250e3	1.017	1.20	1.24	19.7	YES	NO	dd	bd	0.991
16	Total-hexafurans	33.80	2.445e4	1.941e4	1.045	1.26	1.24	171.3	YES	NO	bb	bb	8.882
17	Total-hexafurans	32.97	1.157e4	9.702e3	1.045	1.19	1.24	78.6	YES	NO	bb	bb	4.307
18	123468-HXCDF	32.75	3.490e3	2.838e3	1.087	1.23	1.24	25.9	YES	NO	bb	bb	1.185
19	1234789-HpCDF	40.53	3.042e3	2.813e3	1.283	1.08	1.05	22.5	YES	NO	bb	bb	1.406
20	Total-heptafurans	39.00	1.233e5	1.160e5	1.305	1.06	1.05	998.3	YES	NO	bd	bb	50.907
21	Total-heptafurans	38.80	3.228e3	3.321e3	1.305	0.97	1.05	15.0	YES	NO	db	db	1.393
22	1234678-HpCDF	38.36	3.478e4	3.308e4	1.327	1.05	1.05	297.7	YES	NO	bb	bb	12.915
23	OCDF	44.67	1.244e5	1.399e5	1.447	0.89	0.89	1082.3	YES	NO	bb	bb	69.732
24	13468-PECDF	26.71	9.156e3	5.171e3	1.376	1.77	1.55	125.3	YES	NO	bb	bb	1.641

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.31	3.021e2	3.471e2	0.879	0.87	0.77	3.3	YES	NO	bb	bb	0.138

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:12 Pacific Daylight Time

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.44	9.521e2	6.445e2	1.331	1.48	1.55	9.2	YES	NO	bb	bb	0.349
2	12378-PeCDD	31.01	1.138e3	8.098e2	0.995	1.41	1.55	9.2	YES	NO	MM	bb	0.570

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	35.72	7.554e3	5.616e3	1.009	1.35	1.24	62.0	YES	NO	dd	db	2.980
2	123478-HxCDD	35.60	2.442e3	1.778e3	1.027	1.37	1.24	18.8	YES	NO	bd	bd	0.985
3	Total-hexadioxins	34.80	5.887e4	4.582e4	1.028	1.28	1.24	410.8	YES	NO	db	db	23.819
4	Total-hexadioxins	34.67	5.847e4	4.631e4	1.028	1.26	1.24	289.4	YES	NO	bd	bd	23.839
5	Total-hexadioxins	34.32	2.454e4	1.884e4	1.028	1.30	1.24	180.3	YES	NO	bb	bb	9.869
6	124679-HXCDD	33.54	1.250e5	1.021e5	1.125	1.22	1.24	920.4	YES	NO	bb	bb	48.383
7	123789-HxCDD	36.11	3.538e3	2.586e3	0.950	1.37	1.24	25.7	YES	NO	bb	bb	1.507
8	Total-hexadioxins	35.88	7.118e3	5.090e3	1.028	1.40	1.24	56.6	YES	NO	db	bb	2.777

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.82	4.739e5	4.429e5	1.068	1.07	1.05	1867.0	YES	NO	bb	bb	306.228
2	1234679-HPCDD	38.81	3.359e6	3.170e6	1.211	1.06	1.05	14475.6	YES	NO	bb	bb	1923.7...

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.31	3.021e2	3.471e2	0.879	0.87	0.77	3.3	YES	NO	bb	bb	0.138
2	Total-pentadioxins	29.44	9.521e2	6.445e2	1.331	1.48	1.55	9.2	YES	NO	bb	bb	0.349
3	12378-PeCDD	31.01	1.138e3	8.098e2	0.995	1.41	1.55	9.2	YES	NO	MM	bb	0.570
4	123678-HxCDD	35.72	7.554e3	5.616e3	1.009	1.35	1.24	62.0	YES	NO	dd	db	2.980
5	123478-HxCDD	35.60	2.442e3	1.778e3	1.027	1.37	1.24	18.8	YES	NO	bd	bd	0.985
6	Total-hexadioxins	34.80	5.887e4	4.582e4	1.028	1.28	1.24	410.8	YES	NO	db	db	23.819
7	Total-hexadioxins	34.67	5.847e4	4.631e4	1.028	1.26	1.24	289.4	YES	NO	bd	bd	23.839
8	Total-hexadioxins	34.32	2.454e4	1.884e4	1.028	1.30	1.24	180.3	YES	NO	bb	bb	9.869
9	124679-HXCDD	33.54	1.250e5	1.021e5	1.125	1.22	1.24	920.4	YES	NO	bb	bb	48.383
10	123789-HxCDD	36.11	3.538e3	2.586e3	0.950	1.37	1.24	25.7	YES	NO	bb	bb	1.507
11	Total-hexadioxins	35.88	7.118e3	5.090e3	1.028	1.40	1.24	56.6	YES	NO	db	bb	2.777
12	1234678-HpCDD	39.82	4.739e5	4.429e5	1.068	1.07	1.05	1867.0	YES	NO	bb	bb	306.228
13	1234679-HPCDD	38.81	3.359e6	3.170e6	1.211	1.06	1.05	14475.6	YES	NO	bb	bb	1923.7...
14	OCDD	44.45	4.598e6	5.124e6	1.181	0.90	0.89	16023.9	YES	NO	bb	bb	3142.7...

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	1.751e3	2.182e3	1.192	0.80	0.77	9.8	YES	NO	dd	dd	0.485
2	Total-tetrafurans	23.37	7.196e2	8.451e2	1.192	0.85	0.77	5.1	YES	NO	dd	dd	0.193
3	Total-tetrafurans	22.92	7.287e2	9.393e2	1.192	0.78	0.77	4.9	YES	NO	dd	dd	0.206
4	Total-tetrafurans	22.72	3.274e2	4.900e2	1.192	0.67	0.77	3.2	YES	NO	dd	dd	0.101
5	Total-tetrafurans	22.62	1.984e3	2.260e3	1.192	0.88	0.77	14.3	YES	NO	bd	bd	0.524
6	2378-TCDF	25.26	9.965e2	1.455e3	1.108	0.68	0.77	5.9	YES	NO	bd	bd	0.325
7	Total-tetrafurans	25.00	4.512e2	6.211e2	1.192	0.73	0.77	4.2	YES	NO	dd	dd	0.132
8	Total-tetrafurans	26.88	9.540e2	1.398e3	1.192	0.68	0.77	7.1	YES	NO	bb	bb	0.290
9	12378-PeCDF	29.43	8.266e2	5.023e2	1.015	1.65	1.55	7.2	YES	NO	bb	bb	0.206
10	Total-pentafurans	28.41	3.946e3	2.340e3	1.047	1.69	1.55	26.6	YES	NO	dd	dd	0.967
11	Total-pentafurans	28.34	1.432e3	8.943e2	1.047	1.60	1.55	12.0	YES	NO	dd	bd	0.358
12	123789-HxCDF	36.44	1.214e3	9.434e2	1.030	1.29	1.24	6.3	YES	NO	bb	bb	0.506
13	234678-HxCDF	35.49	5.492e2	4.939e2	1.052	1.11	1.24	5.3	YES	NO	db	db	0.208
14	123678-HxCDF	34.58	1.100e3	8.106e2	1.037	1.36	1.24	8.9	YES	NO	db	db	0.362
15	123478-HxCDF	34.44	2.702e3	2.250e3	1.017	1.20	1.24	19.7	YES	NO	dd	bd	0.991
16	Total-hexafurans	33.80	2.445e4	1.941e4	1.045	1.26	1.24	171.3	YES	NO	bb	bb	8.882
17	Total-hexafurans	32.97	1.157e4	9.702e3	1.045	1.19	1.24	78.6	YES	NO	bb	bb	4.307
18	123468-HXCDF	32.75	3.490e3	2.838e3	1.087	1.23	1.24	25.9	YES	NO	bb	bb	1.185
19	1234789-HpCDF	40.53	3.042e3	2.813e3	1.283	1.08	1.05	22.5	YES	NO	bb	bb	1.406
20	Total-heptafurans	39.00	1.233e5	1.160e5	1.305	1.06	1.05	998.3	YES	NO	bd	bb	50.907
21	Total-heptafurans	38.80	3.228e3	3.321e3	1.305	0.97	1.05	15.0	YES	NO	db	db	1.393
22	1234678-HpCDF	38.36	3.478e4	3.308e4	1.327	1.05	1.05	297.7	YES	NO	bb	bb	12.915
23	OCDF	44.67	1.244e5	1.399e5	1.447	0.89	0.89	1082.3	YES	NO	bb	bb	69.732
24	13468-PECDF	26.71	9.156e3	5.171e3	1.376	1.77	1.55	125.3	YES	NO	bb	bb	1.641
25	Total-tetradioxins	23.31	3.021e2	3.471e2	0.879	0.87	0.77	3.3	YES	NO	bb	bb	0.138
26	Total-pentadioxins	29.44	9.521e2	6.445e2	1.331	1.48	1.55	9.2	YES	NO	bb	bb	0.349
27	12378-PeCDD	31.01	1.138e3	8.098e2	0.995	1.41	1.55	9.2	YES	NO	MM	bb	0.570
28	123678-HxCDD	35.72	7.554e3	5.616e3	1.009	1.35	1.24	62.0	YES	NO	dd	db	2.980
29	123478-HxCDD	35.60	2.442e3	1.778e3	1.027	1.37	1.24	18.8	YES	NO	bd	bd	0.985
30	Total-hexadioxins	34.80	5.887e4	4.582e4	1.028	1.28	1.24	410.8	YES	NO	db	db	23.819
31	Total-hexadioxins	34.67	5.847e4	4.631e4	1.028	1.26	1.24	289.4	YES	NO	bd	bd	23.839
32	Total-hexadioxins	34.32	2.454e4	1.884e4	1.028	1.30	1.24	180.3	YES	NO	bb	bb	9.869
33	124679-HXCDD	33.54	1.250e5	1.021e5	1.125	1.22	1.24	920.4	YES	NO	bb	bb	48.383
34	123789-HxCDD	36.11	3.538e3	2.586e3	0.950	1.37	1.24	25.7	YES	NO	bb	bb	1.507
35	Total-hexadioxins	35.88	7.118e3	5.090e3	1.028	1.40	1.24	56.6	YES	NO	db	bb	2.777
36	1234678-HpCDD	39.82	4.739e5	4.429e5	1.068	1.07	1.05	1867.0	YES	NO	bb	bb	306.228
37	1234679-HPCDD	38.81	3.359e6	3.170e6	1.211	1.06	1.05	14475.6	YES	NO	bb	bb	1923.7...

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Printed: Wednesday, August 25, 2021 12:42:12 Pacific Daylight Time

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	OCDD	44.45	4.598e6	5.124e6	1.181	0.90	0.89	16023.9	YES	NO	bb	bb	3142.7...

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.21	9.622e4					2.6	NO		bb		
2	FUNCTION1 PFK	27.06	3.026e5					4.7	YES		bb		
3	FUNCTION1 PFK	25.11	4.646e5					2.9	NO		bb		
4	FUNCTION1 PFK	24.13	3.900e4					1.6	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.21	1.506e5					0.0	NO		bb		0.000
2	FUNCTION2 PFK	31.94	2.893e5					8.0	YES		bb		0.000
3	FUNCTION2 PFK	29.33	4.243e6					18.2	YES		bb		0.000
4	FUNCTION2 PFK	28.63	5.721e6					35.9	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.93	4.450e6					4.1	YES		bb		0.000
2	FUNCTION3 PFK	36.23	5.564e6					26.2	YES		bb		0.000
3	FUNCTION3 PFK	33.20	3.759e5					3.8	YES		bb		0.000

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.85	5.338e4					2.5	NO		bd		
2	FUNCTION4 PFK	38.75	3.495e3					0.6	NO		bb		
3	FUNCTION4 PFK	38.72	1.366e3					0.4	NO		bb		
4	FUNCTION4 PFK	38.61	3.787e4					1.6	NO		db		
5	FUNCTION4 PFK	38.49	3.029e4					2.5	NO		dd		
6	FUNCTION4 PFK	38.45	2.506e4					1.6	NO		dd		
7	FUNCTION4 PFK	38.39	9.670e3					1.4	NO		bd		
8	FUNCTION4 PFK	38.31	1.234e4					1.7	NO		bb		
9	FUNCTION4 PFK	38.25	1.204e4					1.2	NO		bb		
10	FUNCTION4 PFK	38.05	3.052e4					2.4	NO		db		
11	FUNCTION4 PFK	38.02	1.471e4					2.0	NO		bd		
12	FUNCTION4 PFK	37.93	4.051e4					2.5	NO		bb		
13	FUNCTION4 PFK	37.80	1.574e4					1.1	NO		bb		
14	FUNCTION4 PFK	37.56	1.043e4					1.4	NO		db		
15	FUNCTION4 PFK	37.51	4.642e4					2.9	NO		bd		
16	FUNCTION4 PFK	40.12	4.116e3					0.6	NO		bb		
17	FUNCTION4 PFK	40.08	1.939e4					2.0	NO		bb		
18	FUNCTION4 PFK	39.94	2.086e4					1.6	NO		db		
19	FUNCTION4 PFK	39.86	2.887e4					1.6	NO		bd		
20	FUNCTION4 PFK	39.69	1.164e4					1.2	NO		db		
21	FUNCTION4 PFK	39.63	2.018e4					1.9	NO		dd		
22	FUNCTION4 PFK	39.58	1.746e4					1.8	NO		dd		
23	FUNCTION4 PFK	39.54	2.842e4					2.3	NO		dd		
24	FUNCTION4 PFK	39.47	2.005e4					1.8	NO		bd		
25	FUNCTION4 PFK	39.40	4.181e4					3.0	NO		db		
26	FUNCTION4 PFK	39.30	6.104e4					2.9	NO		dd		
27	FUNCTION4 PFK	39.26	6.947e4					2.9	NO		bd		
28	FUNCTION4 PFK	39.13	2.891e4					2.3	NO		db		
29	FUNCTION4 PFK	39.08	2.445e4					2.2	NO		dd		
30	FUNCTION4 PFK	39.03	5.699e4					3.1	YES		dd		
31	FUNCTION4 PFK	38.94	2.866e4					2.0	NO		dd		
32	FUNCTION4 PFK	41.77	7.831e3					0.9	NO		db		
33	FUNCTION4 PFK	41.75	7.599e3					0.8	NO		bd		
34	FUNCTION4 PFK	41.60	3.255e4					1.8	NO		bb		
35	FUNCTION4 PFK	41.34	1.166e5					2.4	NO		db		
36	FUNCTION4 PFK	41.29	3.034e3					0.6	NO		bd		
37	FUNCTION4 PFK	41.25	3.084e3					0.9	NO		bb		

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	41.20	8.910e3					0.9	NO		bb		
39	FUNCTION4 PFK	41.15	2.677e3					0.8	NO		bb		
40	FUNCTION4 PFK	41.10	2.317e4					2.2	NO		bb		
41	FUNCTION4 PFK	41.00	3.141e3					0.7	NO		db		
42	FUNCTION4 PFK	40.97	1.038e4					1.1	NO		bd		
43	FUNCTION4 PFK	40.67	3.482e3					0.6	NO		bb		
44	FUNCTION4 PFK	40.62	1.380e3					0.4	NO		bb		
45	FUNCTION4 PFK	40.49	7.580e3					1.1	NO		bb		
46	FUNCTION4 PFK	40.38	1.329e3					0.4	NO		bb		
47	FUNCTION4 PFK	40.32	5.396e3					0.7	NO		bb		
48	FUNCTION4 PFK	42.34	2.123e4					0.6	NO		bb		
49	FUNCTION4 PFK	42.04	2.837e4					1.9	NO		db		
50	FUNCTION4 PFK	41.98	2.927e4					1.7	NO		bd		
51	FUNCTION4 PFK	41.87	5.804e3					0.9	NO		bb		
52	FUNCTION4 PFK	41.83	1.865e3					0.5	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.29	2.590e2					3.3	YES		bd		0.000
2	FUNCTION1 HXCD...	24.78	7.597e1					1.4	NO		bb		0.000
3	FUNCTION1 HXCD...	23.96	9.785e1					2.9	NO		bb		0.000
4	FUNCTION1 HXCD...	23.28	1.567e2					3.5	YES		bb		0.000
5	FUNCTION1 HXCD...	22.89	2.923e2					2.2	NO		bb		0.000
6	FUNCTION1 HXCD...	22.22	1.034e2					2.3	NO		db		0.000
7	FUNCTION1 HXCD...	22.15	1.657e2					1.6	NO		bd		0.000
8	FUNCTION1 HXCD...	21.84	8.521e1					2.0	NO		db		0.000
9	FUNCTION1 HXCD...	21.77	1.278e2					1.6	NO		bd		0.000
10	FUNCTION1 HXCD...	26.99	7.039e1					1.3	NO		db		0.000
11	FUNCTION1 HXCD...	26.92	9.782e1					1.2	NO		bd		0.000
12	FUNCTION1 HXCD...	26.32	2.434e2					3.6	YES		db		0.000
13	FUNCTION1 HXCD...	26.21	8.672e1					1.0	NO		bd		0.000
14	FUNCTION1 HXCD...	25.62	1.244e2					2.1	NO		bb		0.000
15	FUNCTION1 HXCD...	25.43	2.087e2					3.4	YES		db		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	22.84	1.160e3					20.8	YES		bb		0.000
2	FUNCTION1 HPCD...	22.49	1.659e2					4.0	YES		bb		0.000
3	FUNCTION1 HPCD...	22.31	8.342e1					2.9	NO		bb		0.000
4	FUNCTION1 HPCD...	21.54	7.721e3					136.7	YES		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.95	1.060e2					2.1	NO		bb		0.000
2	FUNCTION2 HPCD...	28.31	1.220e2					3.1	YES		bb		0.000
3	FUNCTION2 HPCD...	28.08	1.422e2					3.8	YES		bb		0.000

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.99	9.084e1					3.0	NO		db		0.000
2	FUNCTION3 OCDPE	36.96	1.831e2					4.6	YES		bd		0.000
3	FUNCTION3 OCDPE	36.67	2.316e2					3.7	YES		db		0.000
4	FUNCTION3 OCDPE	36.59	1.344e2					2.8	NO		dd		0.000
5	FUNCTION3 OCDPE	36.52	1.124e2					3.0	YES		dd		0.000
6	FUNCTION3 OCDPE	36.46	2.739e2					3.2	YES		dd		0.000
7	FUNCTION3 OCDPE	36.38	2.058e2					3.7	YES		bd		0.000
8	FUNCTION3 OCDPE	36.09	1.924e2					1.8	NO		bb		0.000
9	FUNCTION3 OCDPE	35.58	7.185e1					1.7	NO		bb		0.000
10	FUNCTION3 OCDPE	35.11	8.685e1					1.4	NO		bb		0.000
11	FUNCTION3 OCDPE	34.33	9.863e1					1.9	NO		bb		0.000
12	FUNCTION3 OCDPE	33.73	1.300e2					1.8	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.12	2.376e2					7.8	YES		db		0.000
2	FUNCTION4 NCDPE	37.98	2.332e4					352.1	YES		bd		0.000
3	FUNCTION4 NCDPE	37.79	7.857e1					1.7	NO		bb		0.000
4	FUNCTION4 NCDPE	40.91	1.008e2					1.8	NO		bb		0.000
5	FUNCTION4 NCDPE	40.53	1.376e2					3.1	YES		bb		0.000
6	FUNCTION4 NCDPE	40.25	1.674e2					3.4	YES		bb		0.000
7	FUNCTION4 NCDPE	39.08	7.398e2					10.6	YES		db		0.000
8	FUNCTION4 NCDPE	38.97	1.021e3					13.5	YES		dd		0.000
9	FUNCTION4 NCDPE	38.82	1.109e3					16.0	YES		dd		0.000
10	FUNCTION4 NCDPE	38.77	3.755e2					12.9	YES		dd		0.000
11	FUNCTION4 NCDPE	38.72	6.233e2					11.4	YES		dd		0.000
12	FUNCTION4 NCDPE	38.66	3.296e2					7.5	YES		bd		0.000
13	FUNCTION4 NCDPE	38.51	8.100e1					1.9	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.77	7.839e1					4.5	YES		bb		0.000
2	FUNCTION5 DCDPE	43.37	7.813e1					2.4	NO		bb		0.000

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ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

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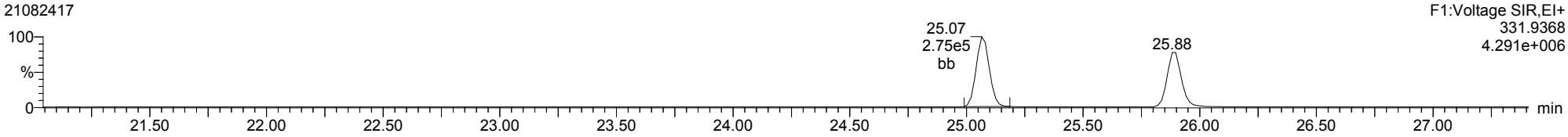

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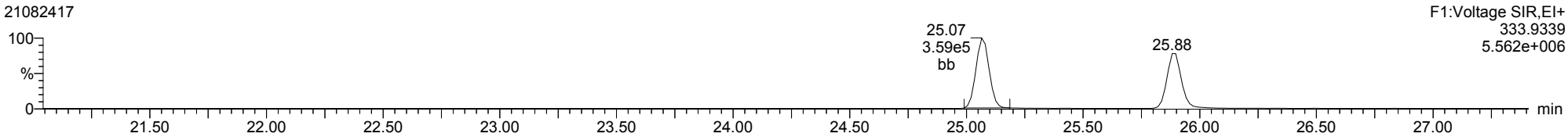

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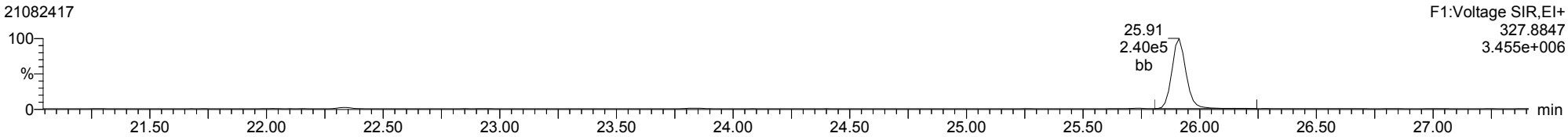

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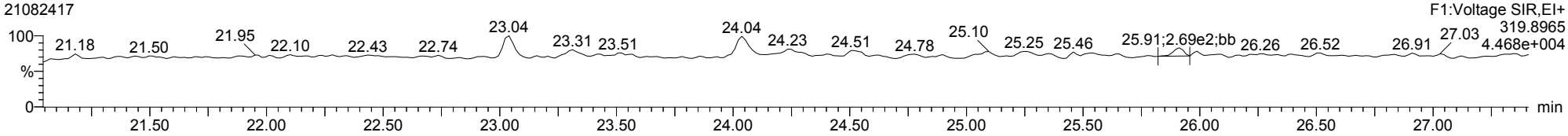
2378-TCDD



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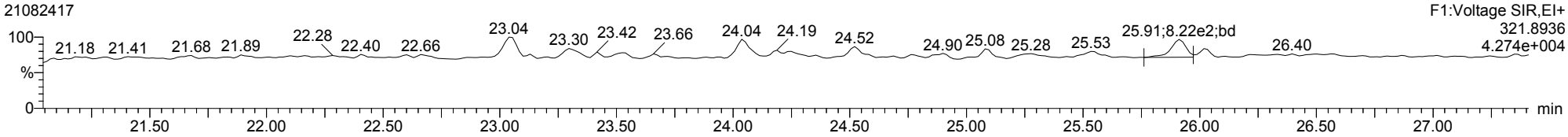

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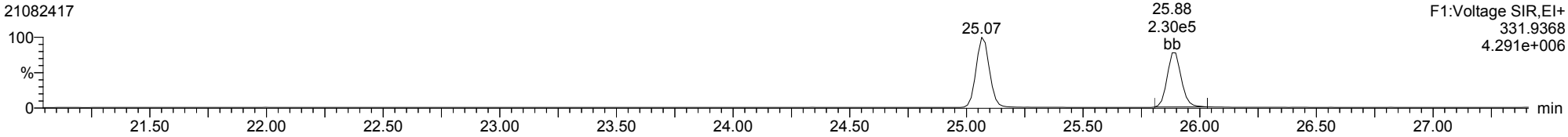

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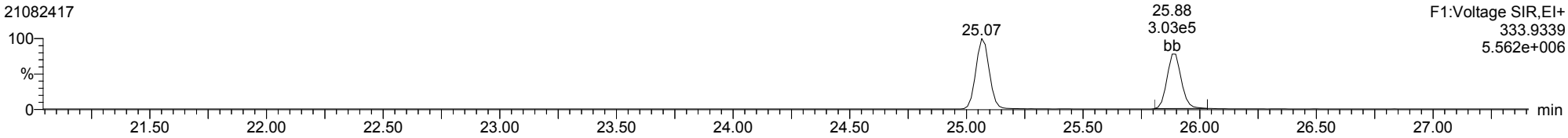
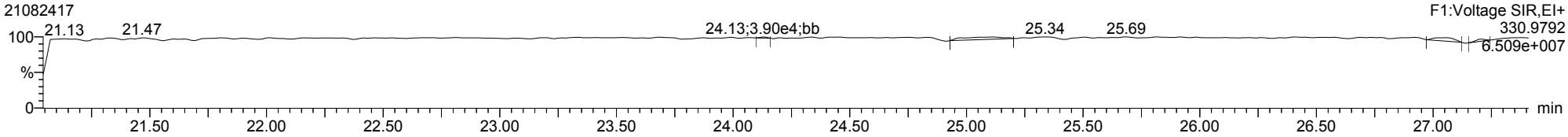


FUNCTION1 PFK



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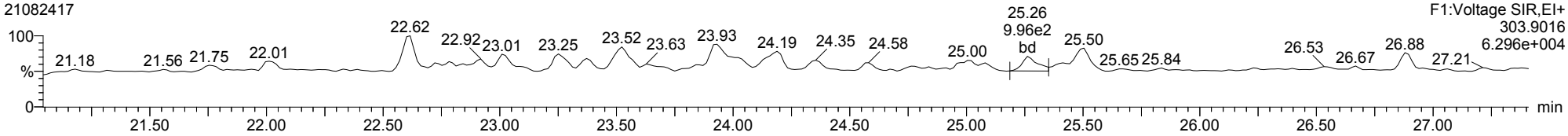
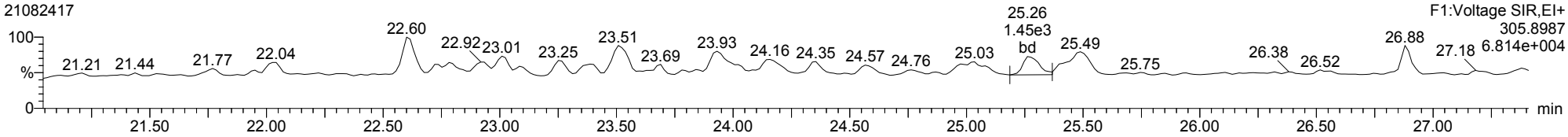
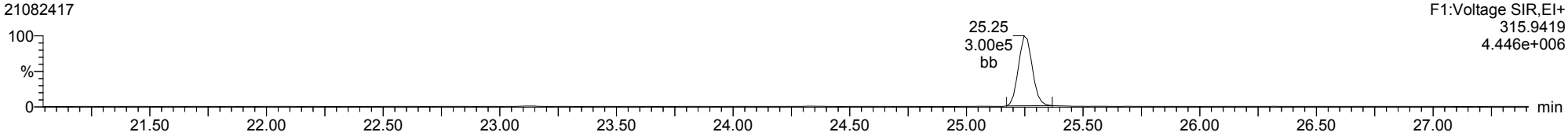
2378-TCDF



2378-TCDF



13C-2378-TCDF



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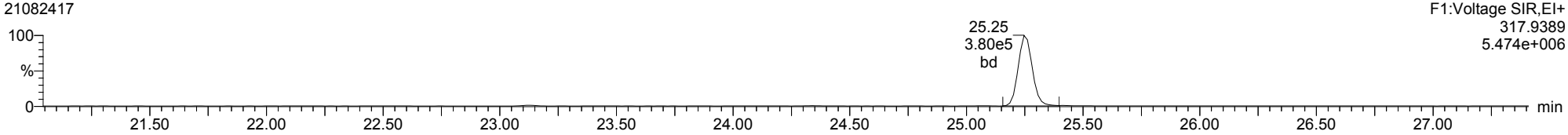

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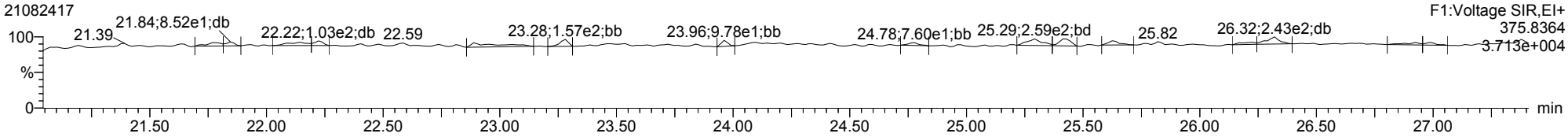

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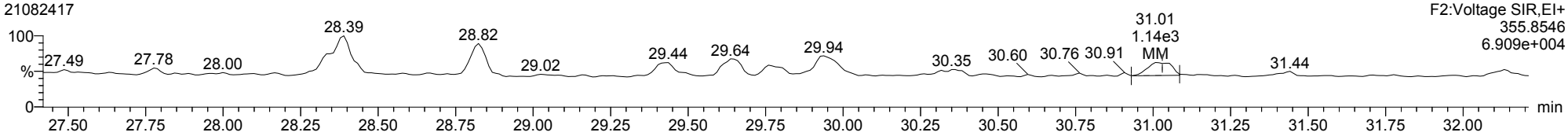
12378-PeCDD



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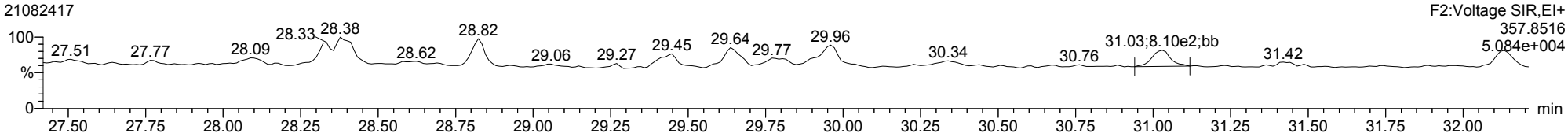

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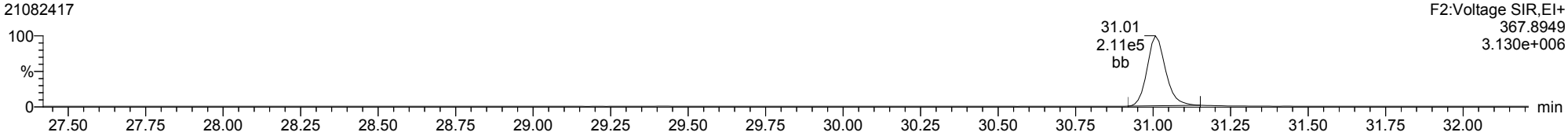

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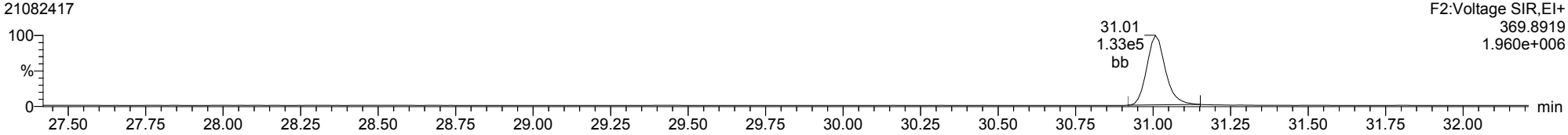
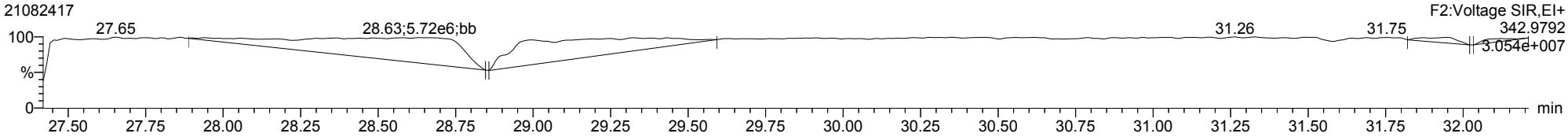


FUNCTION2 PFK



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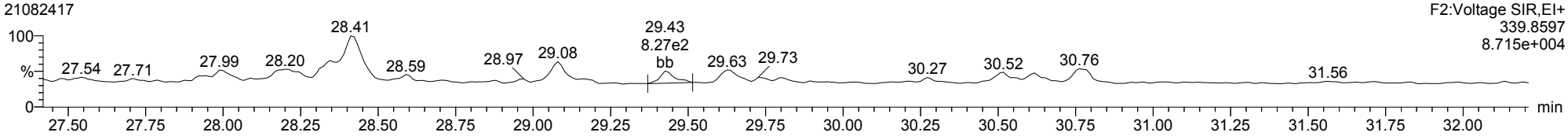

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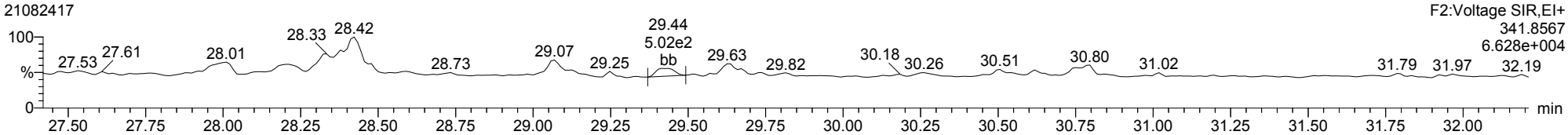

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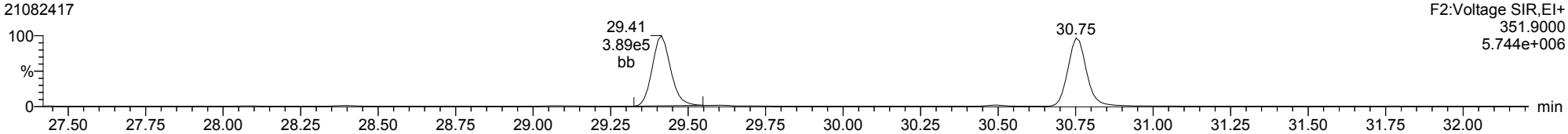

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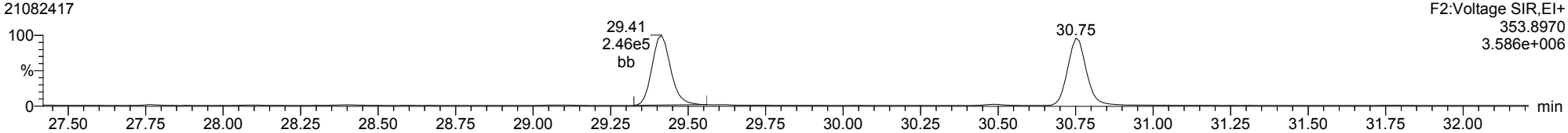
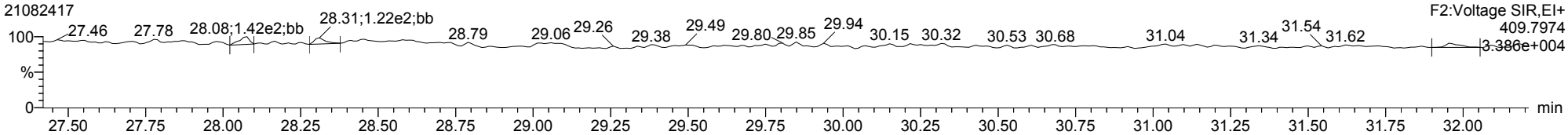


FUNCTION2 HPCDPE



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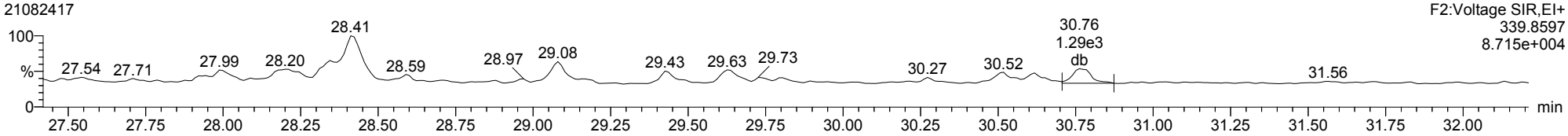

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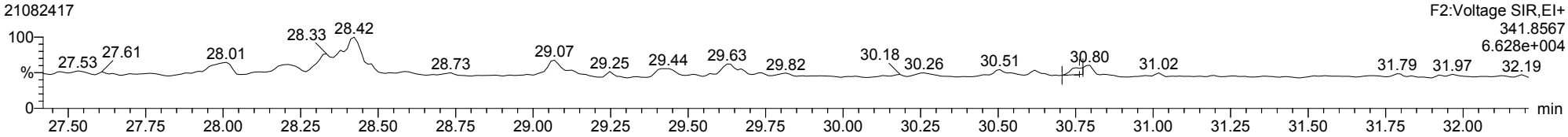

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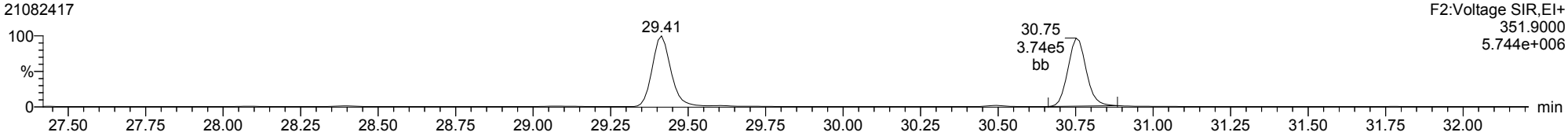

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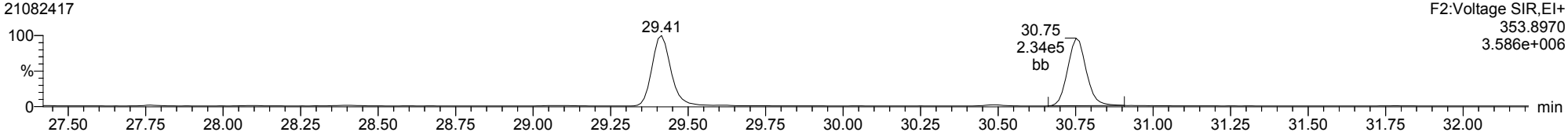
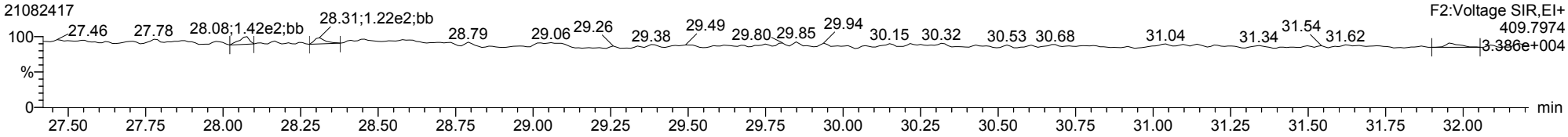


FUNCTION2 HPCDPE



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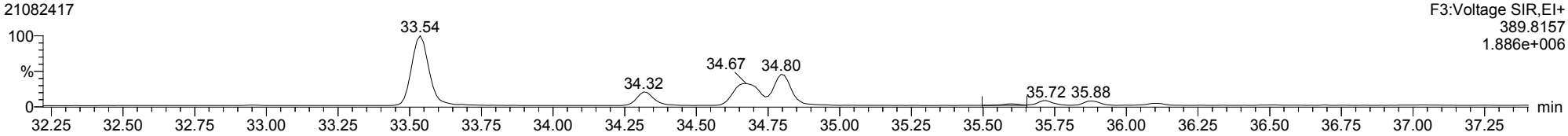
123478-HxCDD



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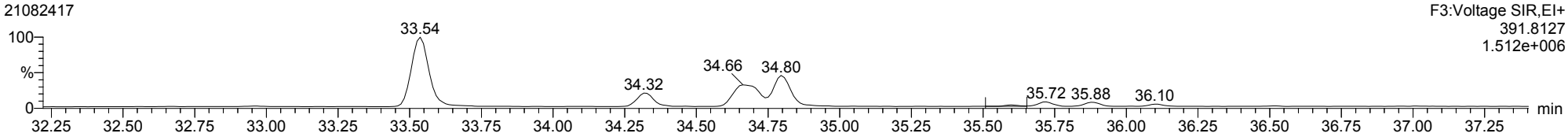

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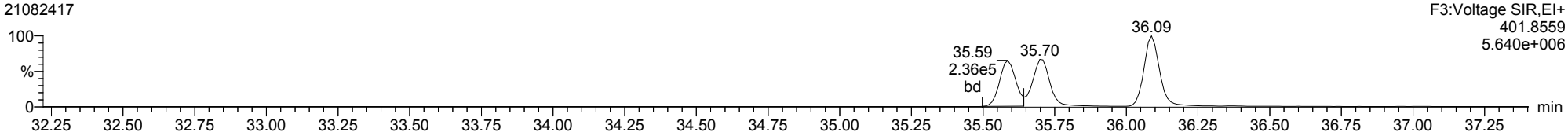

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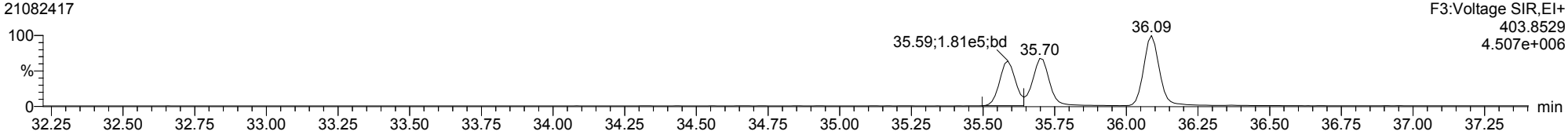

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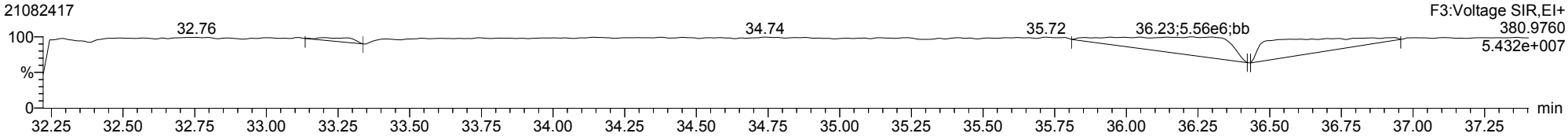

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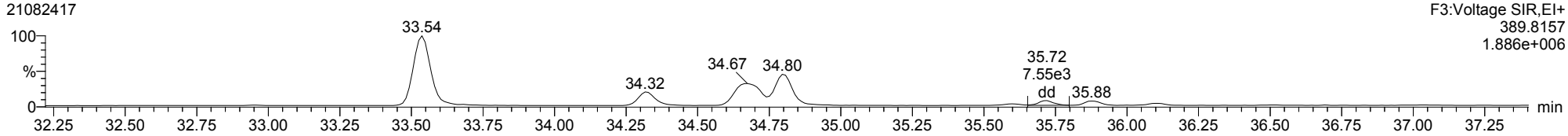

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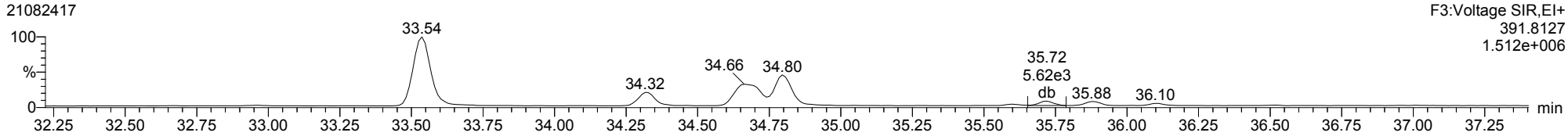

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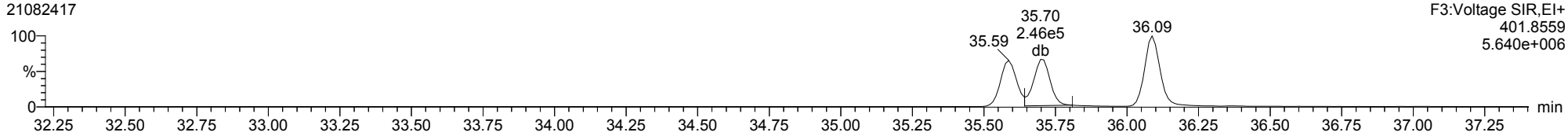

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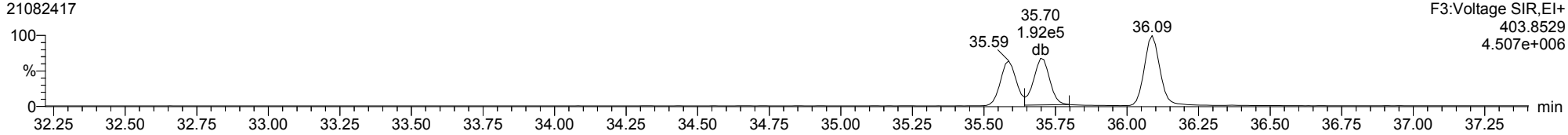

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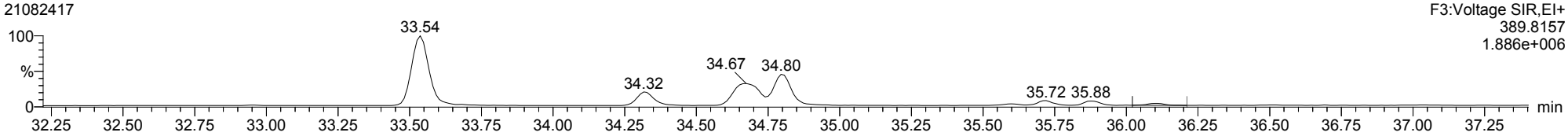

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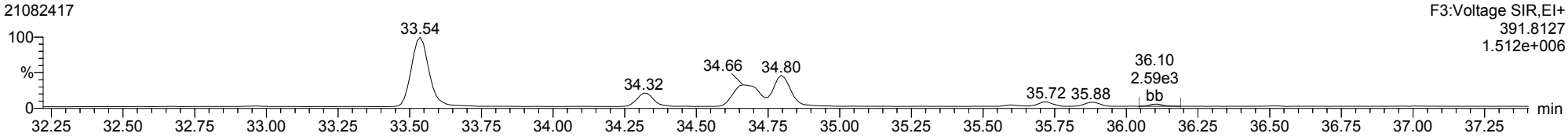

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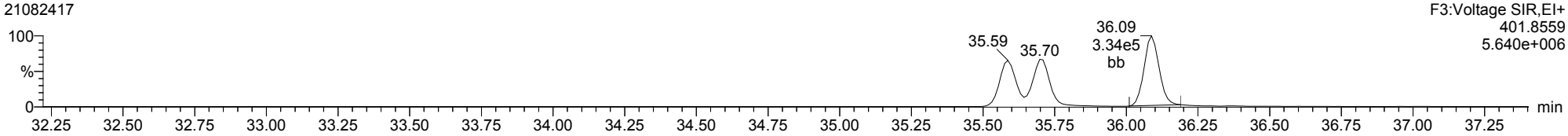

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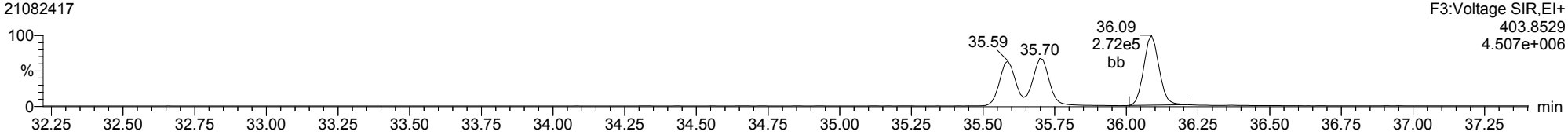

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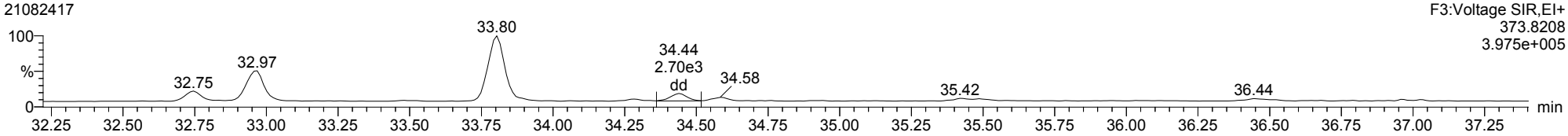

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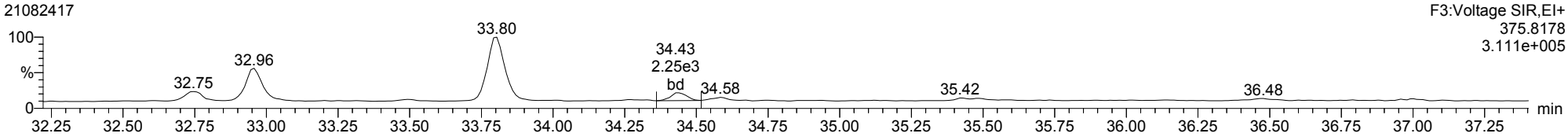

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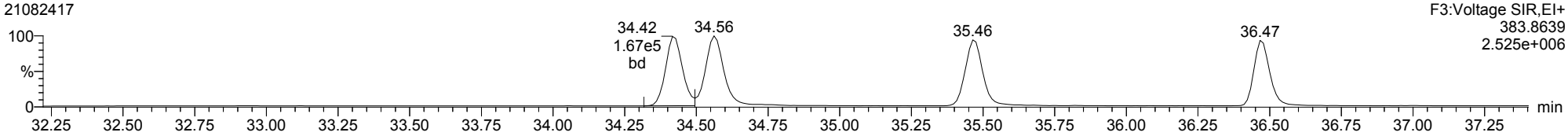

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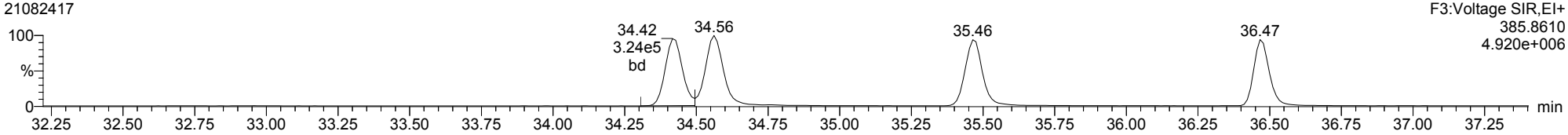
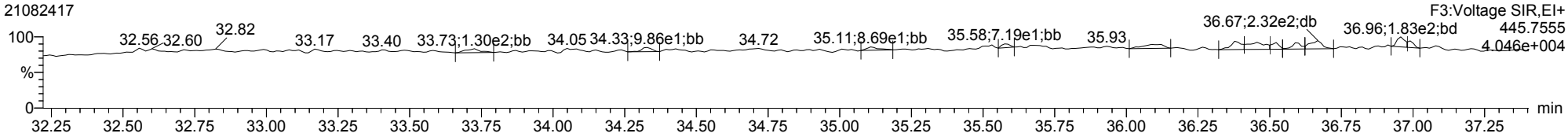


FUNCTION3 OCDPE



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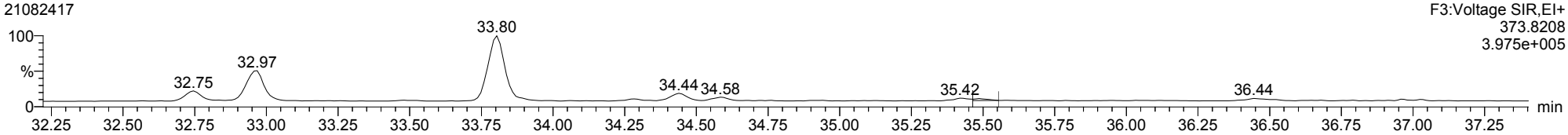
234678-HxCDF



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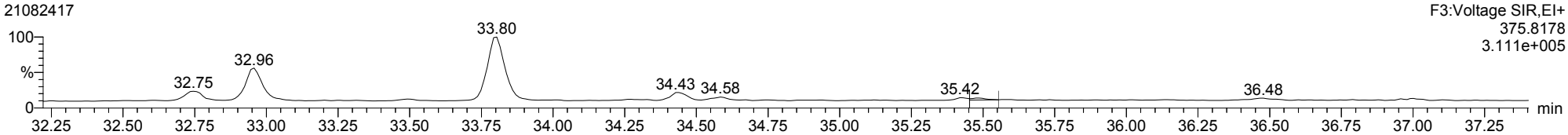

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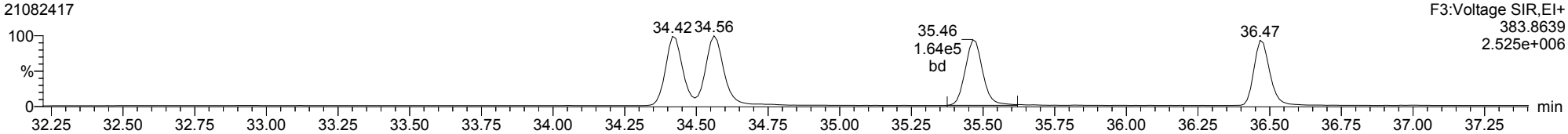

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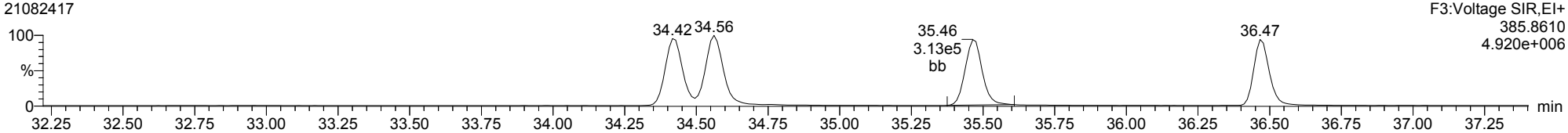
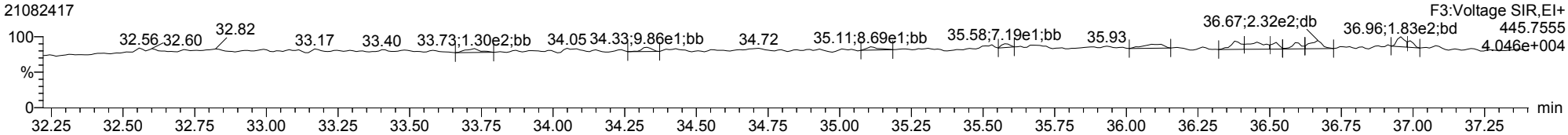


FUNCTION3 OCDPE



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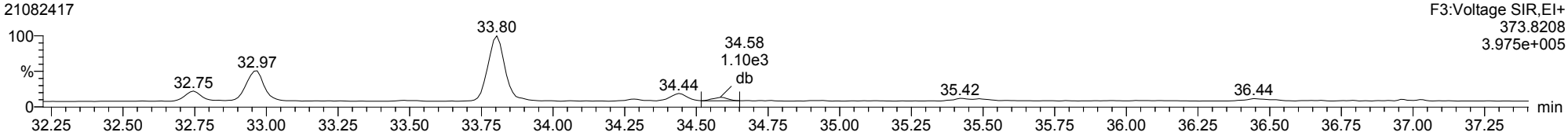
123678-HxCDF



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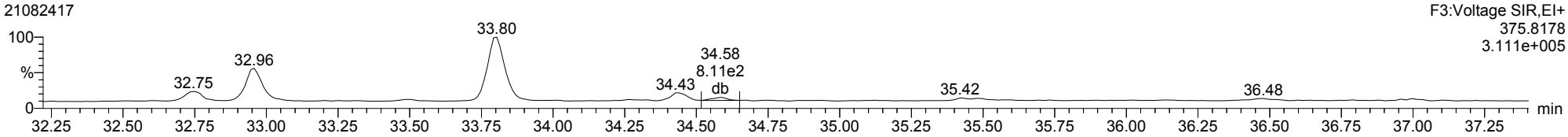

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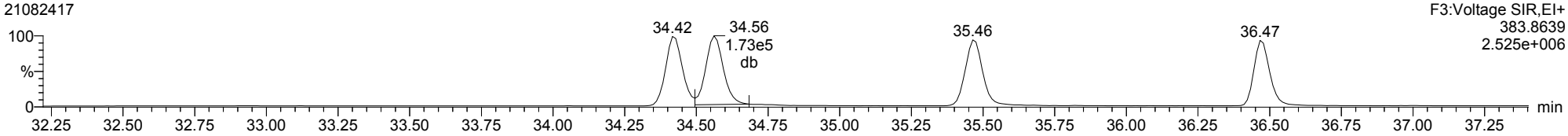

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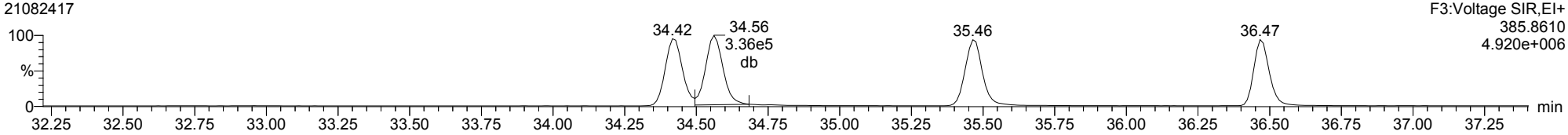
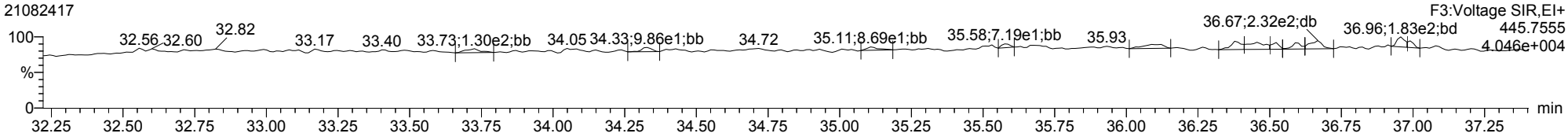


FUNCTION3 OCDPE



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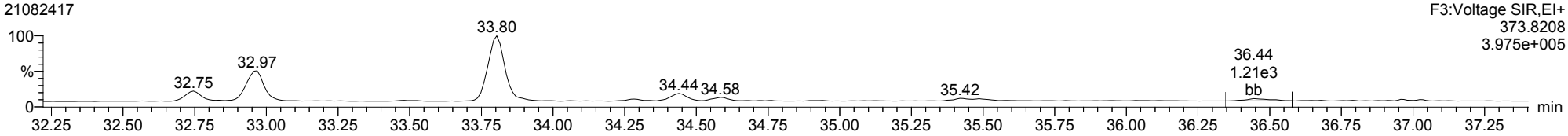
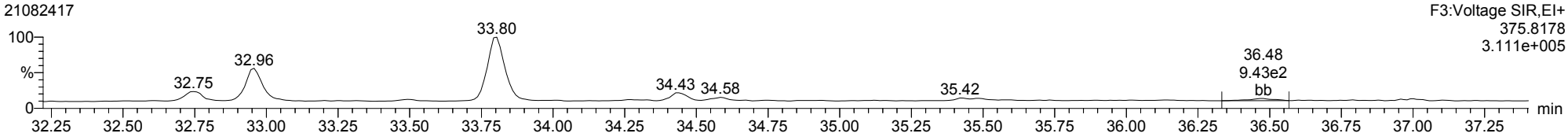
123789-HxCDF



123789-HxCDF



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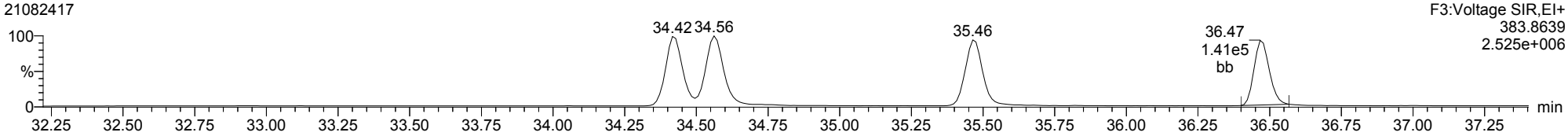

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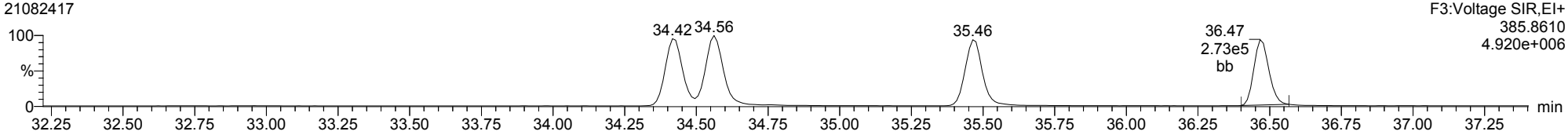

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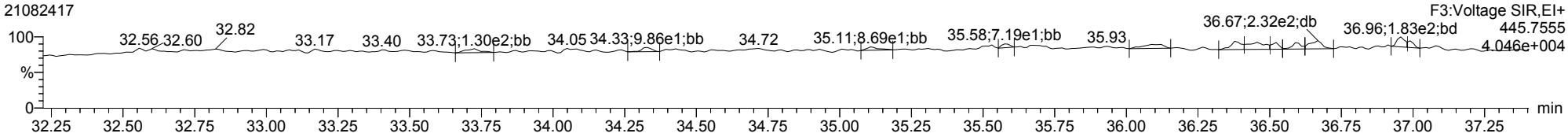

ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

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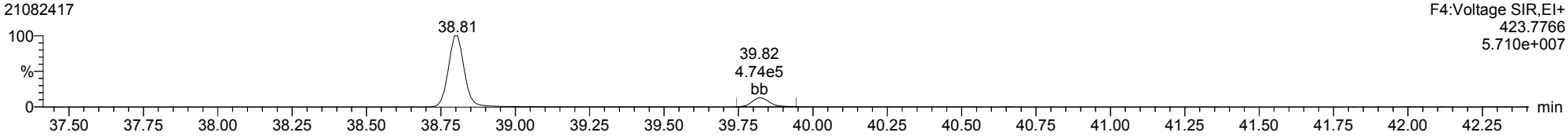

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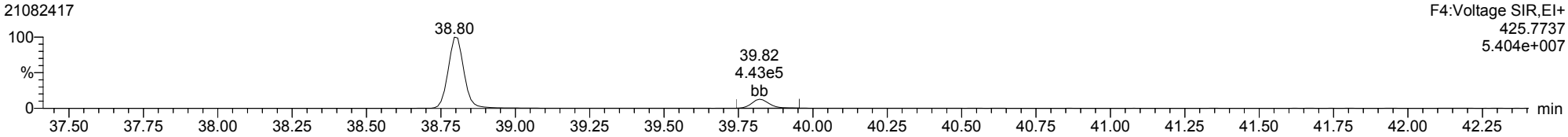

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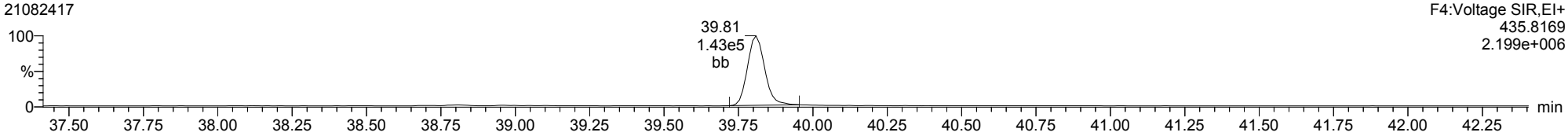

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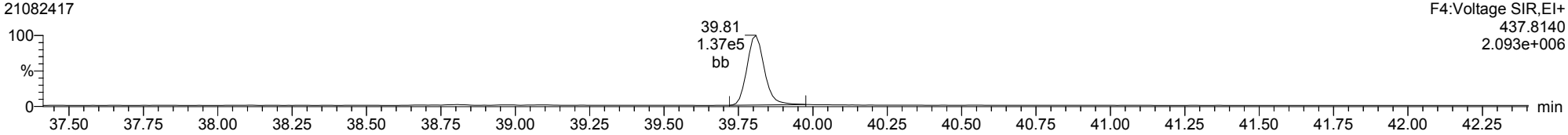
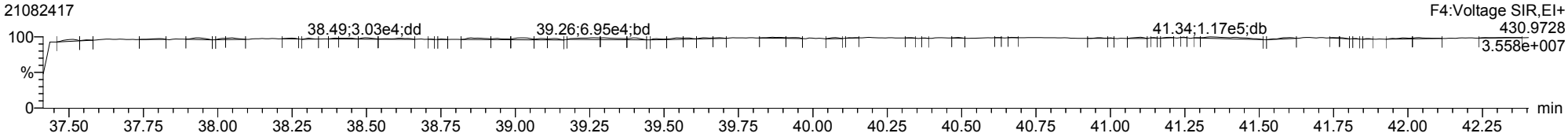


FUNCTION4 PFK



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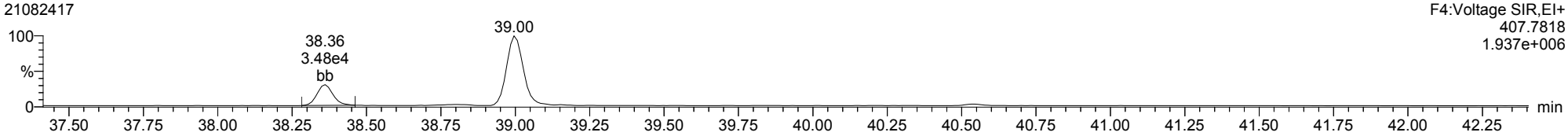

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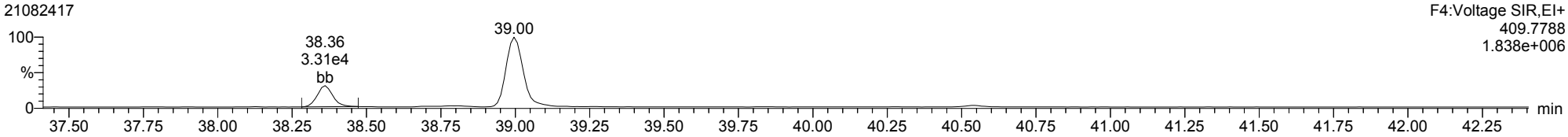

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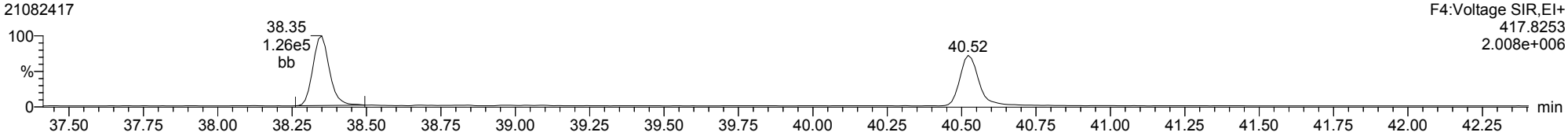

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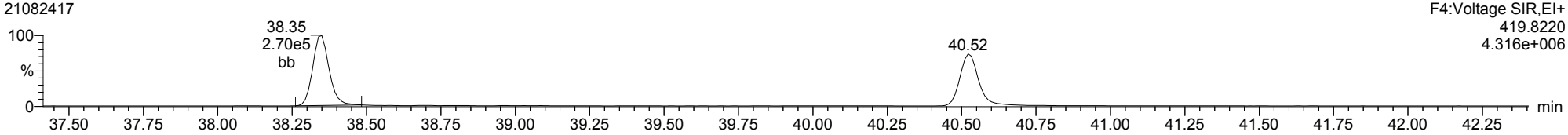
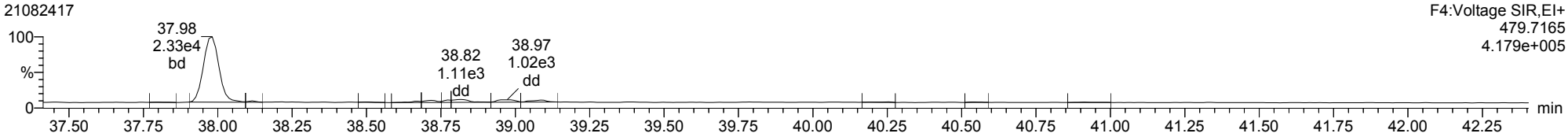


FUNCTION4 NCDPE



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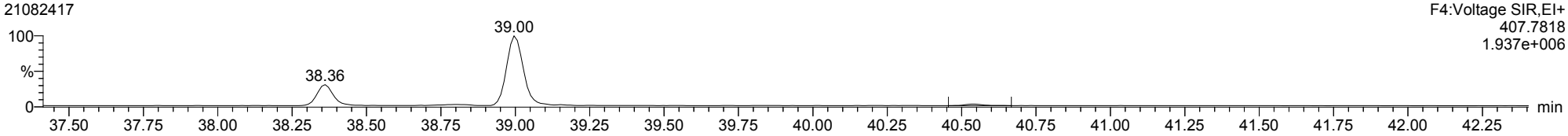
1234789-HpCDF



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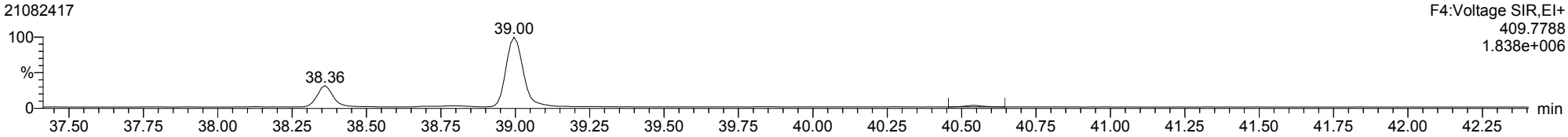

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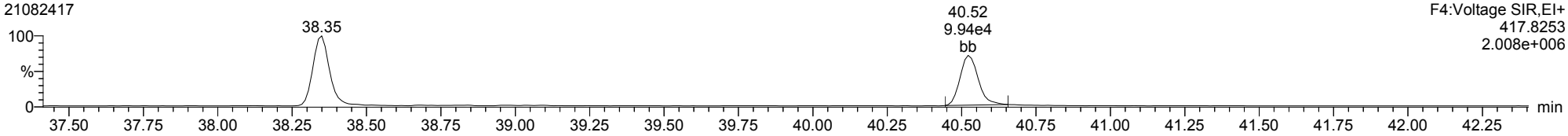

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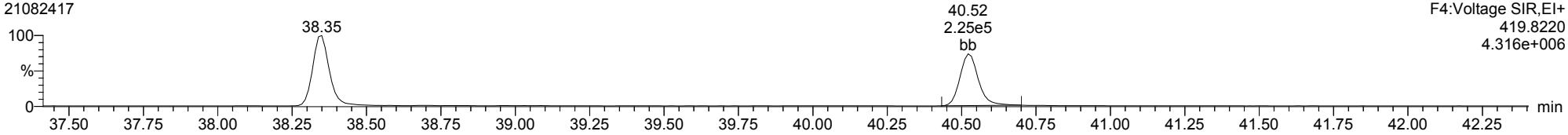
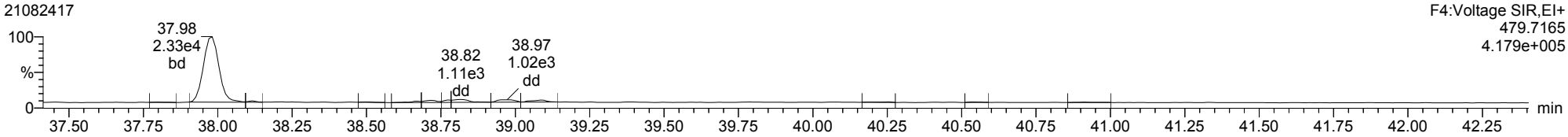
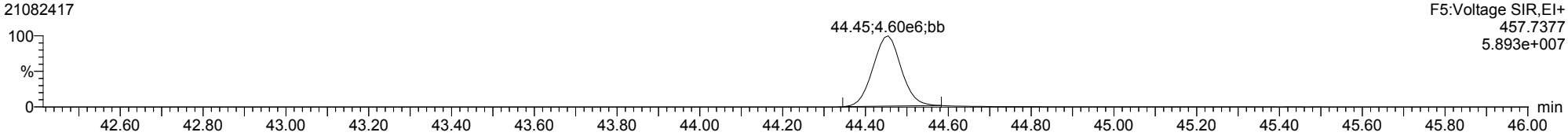


FUNCTION4 NCDPE



ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

OCDD



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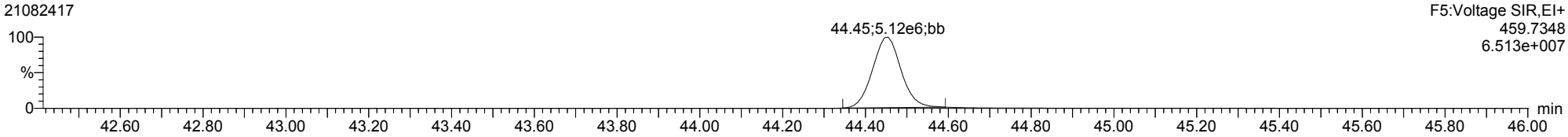
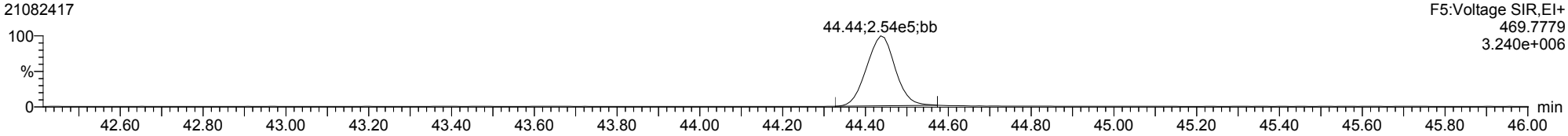


13C-OCDD



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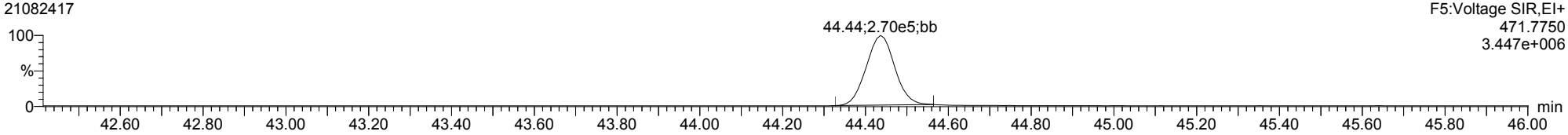
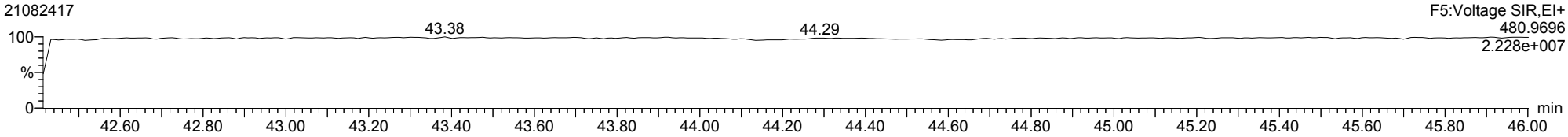
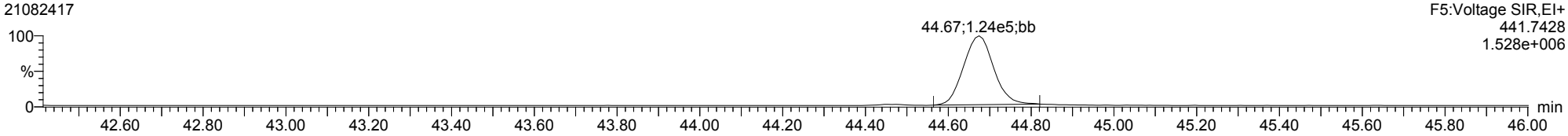


FUNCTION5 PFK



ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

OCDF



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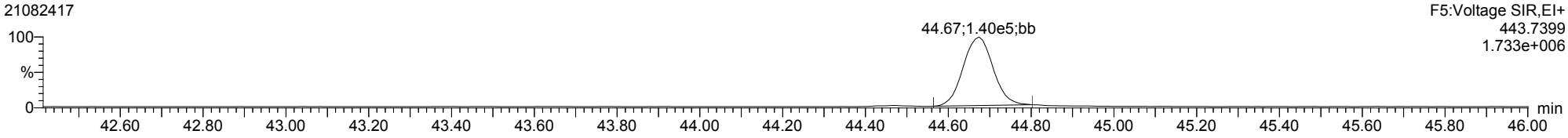
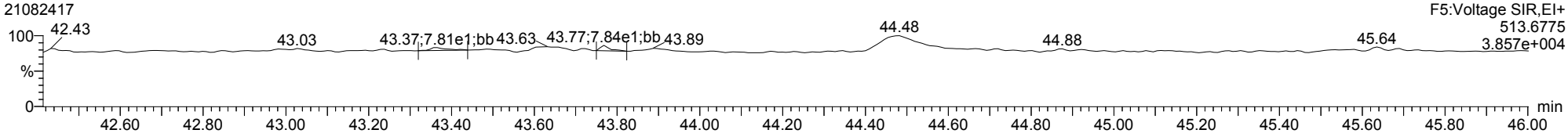
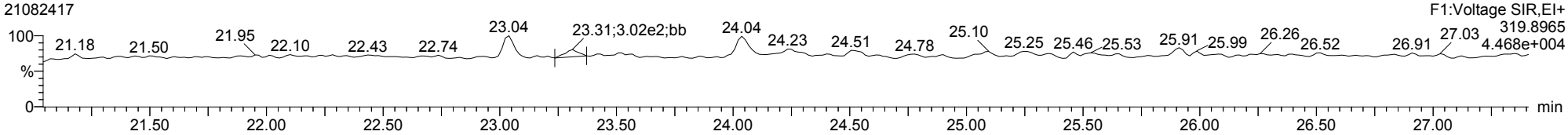


FUNCTION5 DCDPE

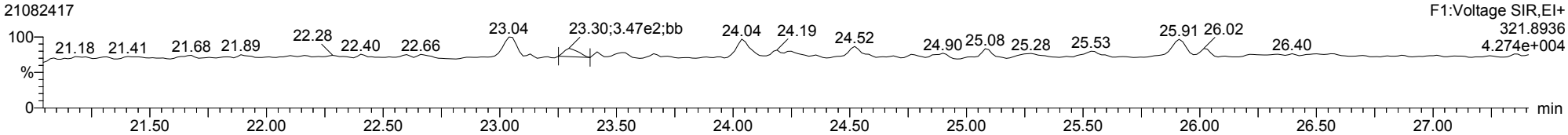


ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

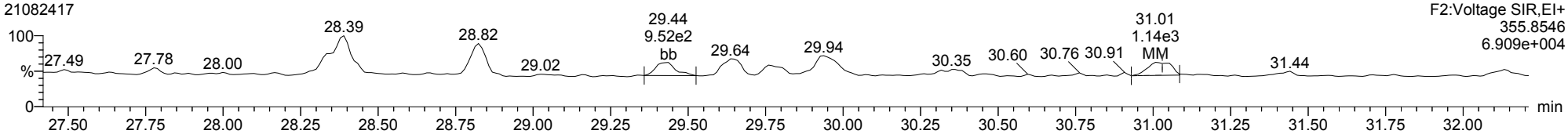
Total-tetradioxins



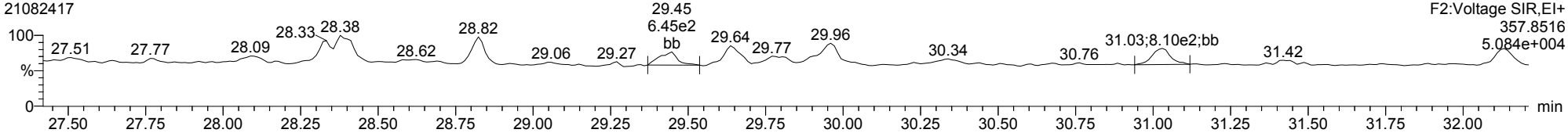
Total-tetradioxins



Total-pentadioxins

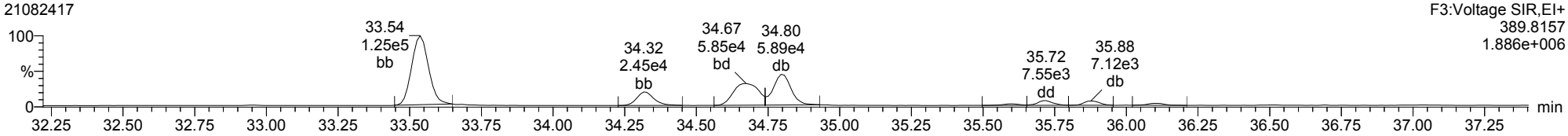


Total-pentadioxins

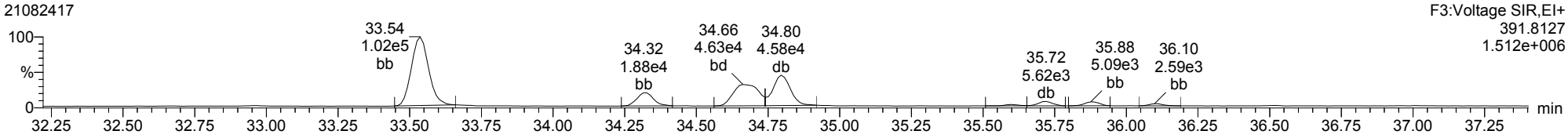


ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

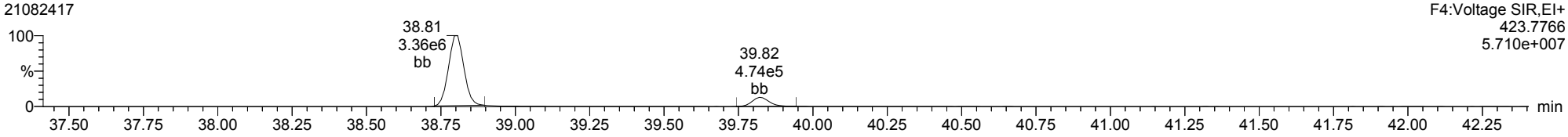
Total-hexadioxins



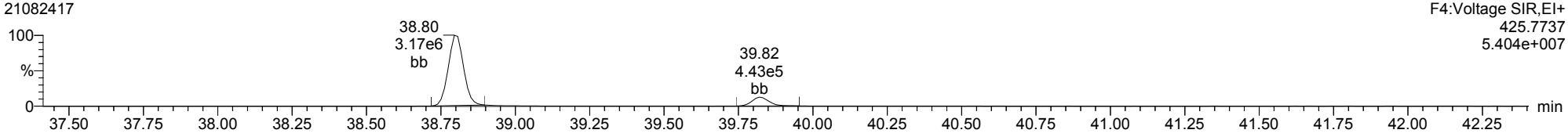
Total-hexadioxins



Total-heptadioxins

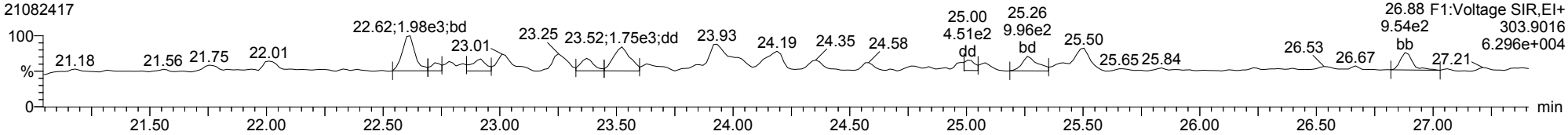


Total-heptadioxins



ID: 21G0127-01, Name: 21082417, Date: 25-Aug-2021, Time: 01:18:58, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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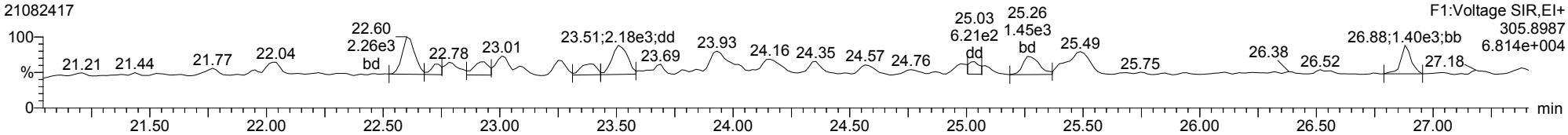

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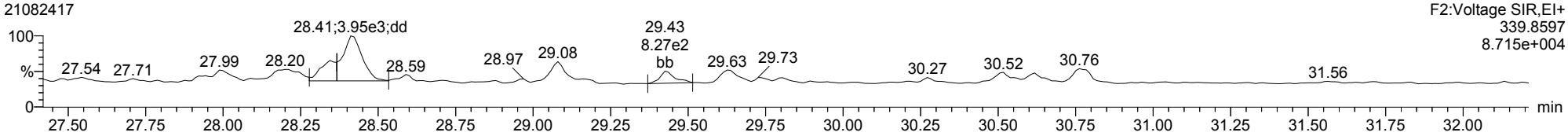

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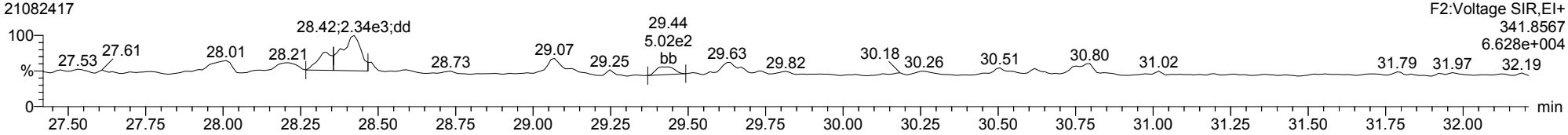

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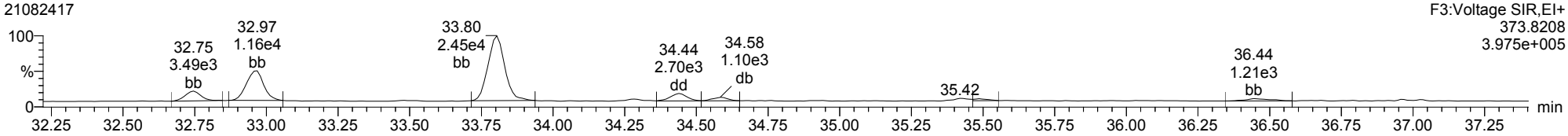
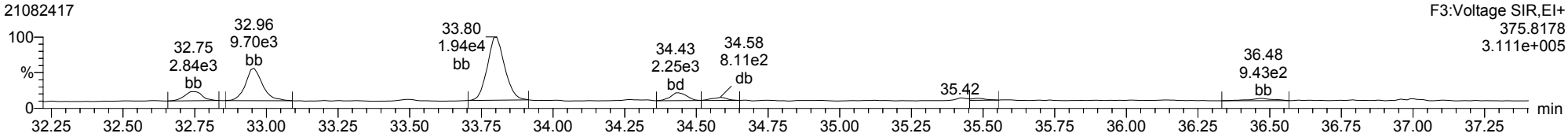
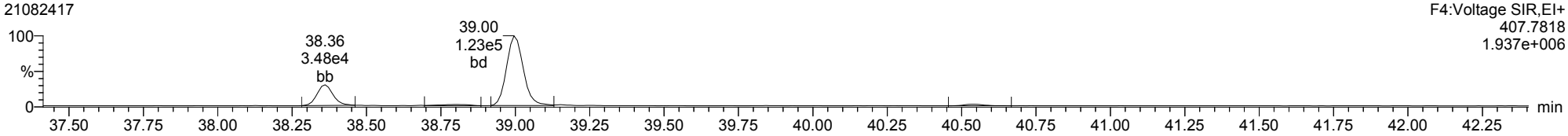


Total-hexafurans



Total-heptafurans



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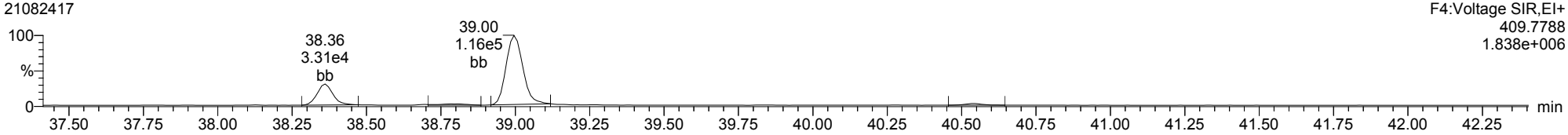

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS667

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0127-02 A	File ID:	21082418
Sampled:	07/12/21 07:22	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 02:08
% Solids:	61.21	Preparation:	EPA 1613	Initial/Final:	16.38 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	1.034	0.655-0.886	0.151	0.997	0.357	ng/kg	EMPC, J
1746-01-6	2,3,7,8-TCDD	1		0.655-0.886	0.126	0.997	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	1.664	1.318-1.783	0.137	0.997	0.270	ng/kg	J
57117-31-4	2,3,4,7,8-PeCDF	1	1.213	1.318-1.783	0.130	0.997	0.321	ng/kg	EMPC, J
40321-76-4	1,2,3,7,8-PeCDD	1	1.708	1.318-1.783	0.216	0.997	0.720	ng/kg	J
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.199	1.054-1.426	0.107	0.997	1.25	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.057	1.054-1.426	0.108	0.997	0.395	ng/kg	J
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.803	1.054-1.426	0.109	0.997	0.319	ng/kg	EMPC, J
72918-21-9	1,2,3,7,8,9-HxCDF	1		1.054-1.426	0.116	0.997	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.310	1.054-1.426	0.153	0.997	0.704	ng/kg	J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.288	1.054-1.426	0.155	0.997	2.08	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.308	1.054-1.426	0.165	0.997	1.48	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.044	0.893-1.208	0.120	0.997	9.59	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.111	0.893-1.208	0.162	0.997	0.858	ng/kg	J
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.081	0.893-1.208	0.429	2.49	114	ng/kg	B
39001-02-0	OCDF	1	0.879	0.757-1.024	0.199	2.49	34.1	ng/kg	
3268-87-9	OCDD	1	0.903	0.757-1.024	0.519	9.97	1090	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.997	3.09	ng/kg
41903-57-5	Total TCDD	1	0.000			0.997	0.193	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.997	4.08	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.997	2.01	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.997	12.0	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.997	34.4	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.997	37.0	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.997	492	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 3.06
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 3.13

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS667

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0127-02	File ID:	21082418
Sampled:	07/12/21 07:22	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 02:08
Solids Wt%:	61.21	Preparation:	EPA 1613	Initial/Final:	16.38 g / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.807	0.655-0.886	0.165	90.9	24 - 169 %	
13C12-2,3,7,8-TCDD		0.760	0.655-0.886	0.178	91.2	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.591	1.318-1.783	0.217	96.6	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.602	1.318-1.783	0.227	97.0	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.573	1.318-1.783	0.173	94.4	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.520	0.434-0.587	0.173	77.5	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.512	0.434-0.587	0.160	74.5	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.523	0.434-0.587	0.177	76.5	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.507	0.434-0.587	0.213	84.7	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.264	1.054-1.426	0.215	86.1	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.262	1.054-1.426	0.198	83.8	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.459	0.374-0.506	0.196	88.5	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.470	0.374-0.506	0.240	89.8	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.032	0.893-1.208	0.243	88.3	23 - 140 %	
13C12-OCDD		0.923	0.757-1.024	0.352	107	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.079	91.8	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:23 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.277	1.001	9.664e2	9.346e2	1.108	1.034	0.770	1816	2156	1.27e4	1.45e4	7.0	6.7	YES	bd	bd	0.179
12378-PeCDF	29.437	1.001	7.967e2	4.787e2	1.015	1.664	1.550	1620	1533	1.29e4	8.44e3	7.9	5.5	NO	bd	bb	0.136
23478-PeCDF	30.773	1.001	8.813e2	7.267e2	1.126	1.213	1.550	1620	1533	1.24e4	1.49e4	7.7	9.7	YES	bb	dd	0.161
123478-HxCDF	34.439	1.001	2.563e3	2.139e3	1.017	1.199	1.240	1096	941	3.38e4	3.21e4	30.8	34.1	NO	bd	dd	0.628
234678-HxCDF	35.475	1.001	5.323e2	6.628e2	1.052	0.803	1.240	1096	941	1.26e4	1.00e4	11.5	10.7	YES	db	MM	0.160
123678-HxCDF	34.584	1.001	8.058e2	7.626e2	1.037	1.057	1.240	1096	941	1.17e4	1.21e4	10.7	12.9	NO	db	db	0.198
123789-HxCDF					1.030		1.240	1096	941								
1234678-HpCDF	38.361	1.000	2.044e4	1.957e4	1.327	1.044	1.050	1144	1444	3.12e5	3.03e5	272.8	209.6	NO	bb	bb	4.808
1234789-HpCDF	40.533	1.000	1.511e3	1.360e3	1.283	1.111	1.050	1144	1444	2.34e4	2.41e4	20.4	16.7	NO	bb	bb	0.430
OCDF	44.675	1.005	4.764e4	5.416e4	1.447	0.879	0.890	1210	1234	5.52e5	6.49e5	456.3	525.7	NO	bb	bb	17.101
2378-TCDD					0.920		0.770	1102	971								
12378-PeCDD	31.041	1.001	1.158e3	6.779e2	0.995	1.708	1.550	1576	1070	1.37e4	8.23e3	8.7	7.7	NO	MM	MM	0.361
123478-HxCDD	35.586	1.000	1.298e3	9.915e2	1.027	1.310	1.240	1283	1361	1.86e4	1.49e4	14.5	10.9	NO	bd	bd	0.353
123678-HxCDD	35.698	1.000	3.948e3	3.066e3	1.009	1.288	1.240	1283	1361	6.00e4	5.34e4	46.7	39.3	NO	dd	db	1.043
123789-HxCDD	36.099	1.012	2.602e3	1.989e3	0.950	1.308	1.240	1283	1361	3.72e4	3.09e4	29.0	22.7	NO	db	bb	0.744
1234678-HpCDD	39.831	1.001	1.354e5	1.253e5	1.068	1.081	1.050	2369	2596	2.04e6	1.92e6	862.2	738.2	NO	bb	bb	57.191
OCDD	44.455	1.000	1.262e6	1.398e6	1.181	0.903	0.890	2784	2421	1.53e7	1.70e7	5504.1	7009.0	NO	bb	bb	547.414
13C-2378-TCDF	25.247	1.007	4.284e5	5.310e5	1.427	0.807	0.770	2479	1736	6.36e6	7.81e6	2564.7	4498.0	NO	bb	bb	90.919
13C-12378-PeCDF	29.414	1.173	5.692e5	3.577e5	1.297	1.591	1.550	1930	3099	8.33e6	5.32e6	4316.7	1717.1	NO	bb	bb	96.579
13C-23478-PeCDF	30.751	1.227	5.460e5	3.408e5	1.236	1.602	1.550	1930	3099	7.95e6	4.91e6	4119.4	1585.7	NO	bb	bb	96.955
13C-123478-HxCDF	34.417	0.954	2.517e5	4.841e5	1.242	0.520	0.510	2193	2398	3.83e6	7.24e6	1744.4	3017.7	NO	bd	bd	77.472
13C-123678-HxCDF	34.562	0.958	2.589e5	5.058e5	1.343	0.512	0.510	2193	2398	3.69e6	7.26e6	1680.4	3027.0	NO	db	db	74.463
13C-234678-HxCDF	35.453	0.983	2.440e5	4.667e5	1.215	0.523	0.510	2193	2398	3.65e6	6.97e6	1665.0	2905.4	NO	bb	bb	76.536
13C-123789-HxCDF	36.466	1.011	2.195e5	4.326e5	1.008	0.507	0.510	2193	2398	3.43e6	6.74e6	1564.0	2809.6	NO	bb	bb	84.664
13C-1234678-HpCDF	38.349	1.063	1.973e5	4.297e5	0.926	0.459	0.440	1997	1883	3.05e6	6.54e6	1526.1	3473.7	NO	bd	bb	88.548
13C-1234789-HpCDF	40.522	1.123	1.662e5	3.539e5	0.758	0.470	0.440	1997	1883	2.38e6	5.05e6	1192.8	2682.1	NO	bb	bb	89.786
13C-1234-TCDD	25.065	0.000	3.218e5	4.179e5	1.000	0.770	0.770	2353	1205	4.66e6	6.25e6	1979.1	5185.7	NO	bb	bb	100.000
13C-2378-TCDD	25.897	1.033	3.253e5	4.280e5	1.116	0.760	0.770	2353	1205	4.61e6	6.11e6	1959.0	5071.2	NO	bb	bb	91.201
13C-12378-PeCDD	31.007	1.237	3.123e5	1.986e5	0.732	1.573	1.550	1301	966	4.49e6	2.85e6	3453.9	2954.1	NO	bb	bb	94.353
13C-123478-HxCDD	35.575	0.986	3.527e5	2.790e5	0.960	1.264	1.240	2749	1654	5.63e6	4.39e6	2049.0	2656.6	NO	bd	bd	86.099
13C-123678-HxCDD	35.687	0.989	3.721e5	2.948e5	1.041	1.262	1.240	2749	1654	5.63e6	4.47e6	2047.6	2699.8	NO	db	db	83.779
13C-1234678-HpCDD	39.809	1.104	2.167e5	2.101e5	0.632	1.032	1.050	1617	1661	3.29e6	3.20e6	2035.5	1926.1	NO	bb	bb	88.292
13C-OCDD	44.437	1.232	3.949e5	4.280e5	0.504	0.923	0.890	2317	1473	4.88e6	5.18e6	2104.9	3514.3	NO	bb	bb	213.717
13C-123789-HxCDD	36.076	0.000	4.257e5	3.387e5	1.000	1.257	1.240	2749	1654	7.12e6	5.61e6	2589.2	3390.7	NO	bb	bb	100.000
37CL-2378-TCDD	25.912	1.034	2.943e5		1.084			1530		4.20e6		2744.0			bb		36.711

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:23 Pacific Daylight Time

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.769	0.862	1.961e2	3.476e2	1.425	0.564	0.770	1816	2156	3.68e3	5.85e3	2.0	2.7	YES	bb	bb	0.040
1289-TCDF					1.043		0.770	1816	2156								
13468-PECDF	26.713	0.908	7.273e3	4.570e3	1.376	1.591	1.550	1105	1451	8.90e4	6.44e4	80.5	44.4	NO	db	bb	0.929
12389-PECDF					1.000		1.550	1620	1533								
123468-HXCDF	32.734	0.951	2.404e3	2.391e3	1.087	1.005	1.240	1096	941	3.55e4	3.20e4	32.4	34.0	YES	bb	bb	0.600
1368-TCDD	23.024	0.889	5.120e2	5.602e2	0.923	0.914	0.770	1102	971	8.28e3	1.02e4	7.5	10.5	YES	bb	bb	0.154
1289-TCDD					0.794		0.770	1102	971								
12479-PECDD	28.356	0.914	2.035e3	5.328e2	1.843	3.819	1.550	1576	1070	2.17e4	1.03e4	13.8	9.6	YES	bb	db	0.273
12389-PECDD	31.420	1.013	2.088e2	1.139e2	1.154	1.834	1.550	1576	1070	4.41e3	1.74e3	2.8	1.6	YES	bd	bb	0.055
124679-HXCDD	33.536	0.943	2.963e4	2.376e4	1.125	1.247	1.240	1283	1361	4.31e5	3.40e5	336.1	249.6	NO	bb	bb	7.514
1234679-HPCDD	38.806	0.975	5.091e5	4.696e5	1.211	1.084	1.050	2369	2596	8.09e6	7.56e6	3414.5	2912.6	NO	bb	bb	189.375
Total-tetrafurans			7.525e3		1.192			1816		9.71e4							1.548
Total-penta1			7.273e3					1105		8.90e4							0.929
Total-pentafurans			6.578e3		1.047			1620		1.05e5							1.114
Total-hexafurans			2.469e4		1.045			1096		3.42e5							6.020
Total-heptafurans			7.192e4		1.305			1144		1.15e6							18.555
Total-Furans			1.660e5		1.158			1816		2.34e6							45.358
Total-tetradioxins			2.547e2		0.879			1102		4.13e3							0.097
Total-pentadioxins			3.761e3		1.331			1576		4.77e4							1.005
Total-hexadioxins			6.559e4		1.028			1283		8.53e5							17.251
Total-heptadioxins			6.445e5		1.140			2369		1.01e7							246.566
Total-Dioxins			1.976e6		1.092			1102		2.64e7							812.333
Total-TEQ			2.142e6					1102		2.87e7							857.691
FUNCTION1 PFK			4.902e5					722053		4.27e6							
FUNCTION2 PFK			6.700e6					487528		2.15e7							0.000
FUNCTION3 PFK			3.775e6					519101		1.38e7							0.000
FUNCTION4 PFK			1.119e6					342029		2.71e7							
FUNCTION5 PFK			0.000e0					242131		0.00e0							
FUNCTION1 HXCD...			3.700e3					1068		5.95e4							0.000
FUNCTION1 HPCD...			1.167e4					872		1.90e5							0.000
FUNCTION2 HPCD...			4.421e2					728		6.28e3							0.000
FUNCTION3 OCDPE			1.415e3					939		2.76e4							0.000
FUNCTION4 NCDPE			1.658e4					893		2.82e5							0.000
FUNCTION5 DCDPE			0.000e0					782		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:23 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.93	2.007e3	2.551e3	1.192	0.79	0.77	8.5	YES	NO	bd	dd	0.399
2	Total-tetrafurans	23.52	1.334e3	1.783e3	1.192	0.75	0.77	9.5	YES	NO	dd	bb	0.273
3	Total-tetrafurans	23.27	6.206e2	9.074e2	1.192	0.68	0.77	5.6	YES	NO	bd	bd	0.134
4	Total-tetrafurans	23.01	4.705e2	6.716e2	1.192	0.70	0.77	3.6	YES	NO	dd	dd	0.100
5	Total-tetrafurans	22.62	1.220e3	1.815e3	1.192	0.67	0.77	10.3	YES	NO	bb	bb	0.265
6	Total-tetrafurans	26.89	1.872e3	2.452e3	1.192	0.76	0.77	16.0	YES	NO	bb	bd	0.378

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.71	7.273e3	4.570e3	1.376	1.59	1.55	80.5	YES	NO	db	bb	0.929

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.44	7.967e2	4.787e2	1.015	1.66	1.55	7.9	YES	NO	bd	bb	0.136
2	Total-pentafurans	29.07	1.456e3	8.614e2	1.047	1.69	1.55	12.9	YES	NO	bd	bb	0.244
3	Total-pentafurans	28.39	3.293e3	2.033e3	1.047	1.62	1.55	31.5	YES	NO	dd	dd	0.561
4	Total-pentafurans	28.32	1.032e3	6.134e2	1.047	1.68	1.55	12.2	YES	NO	dd	bd	0.173

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.58	8.058e2	7.626e2	1.037	1.06	1.24	10.7	YES	NO	db	db	0.198
2	123478-HxCDF	34.44	2.563e3	2.139e3	1.017	1.20	1.24	30.8	YES	NO	bd	dd	0.628
3	Total-hexafurans	33.80	1.290e4	1.042e4	1.045	1.24	1.24	170.0	YES	NO	bb	bb	3.120
4	Total-hexafurans	32.96	8.421e3	7.085e3	1.045	1.19	1.24	100.2	YES	NO	bb	bb	2.074

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.36	2.044e4	1.957e4	1.327	1.04	1.05	272.8	YES	NO	bb	bb	4.808
2	1234789-HpCDF	40.53	1.511e3	1.360e3	1.283	1.11	1.05	20.4	YES	NO	bb	bb	0.430
3	Total-heptafurans	39.00	4.996e4	4.975e4	1.305	1.00	1.05	710.0	YES	NO	bb	bb	13.317

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.93	2.007e3	2.551e3	1.192	0.79	0.77	8.5	YES	NO	bd	dd	0.399
2	Total-tetrafurans	23.52	1.334e3	1.783e3	1.192	0.75	0.77	9.5	YES	NO	dd	bb	0.273
3	Total-tetrafurans	23.27	6.206e2	9.074e2	1.192	0.68	0.77	5.6	YES	NO	bd	bd	0.134
4	Total-tetrafurans	23.01	4.705e2	6.716e2	1.192	0.70	0.77	3.6	YES	NO	dd	dd	0.100
5	Total-tetrafurans	22.62	1.220e3	1.815e3	1.192	0.67	0.77	10.3	YES	NO	bb	bb	0.265
6	Total-Furans	27.35	4.113e2	6.056e2	1.158	0.68	0.77	3.9	YES	NO	bb	bb	0.092
7	Total-tetrafurans	26.89	1.872e3	2.452e3	1.192	0.76	0.77	16.0	YES	NO	bb	bd	0.378
8	12378-PeCDF	29.44	7.967e2	4.787e2	1.015	1.66	1.55	7.9	YES	NO	bd	bb	0.136
9	Total-pentafurans	29.07	1.456e3	8.614e2	1.047	1.69	1.55	12.9	YES	NO	bd	bb	0.244
10	Total-pentafurans	28.39	3.293e3	2.033e3	1.047	1.62	1.55	31.5	YES	NO	dd	dd	0.561
11	Total-pentafurans	28.32	1.032e3	6.134e2	1.047	1.68	1.55	12.2	YES	NO	dd	bd	0.173
12	123678-HxCDF	34.58	8.058e2	7.626e2	1.037	1.06	1.24	10.7	YES	NO	db	db	0.198
13	123478-HxCDF	34.44	2.563e3	2.139e3	1.017	1.20	1.24	30.8	YES	NO	bd	dd	0.628
14	Total-hexafurans	33.80	1.290e4	1.042e4	1.045	1.24	1.24	170.0	YES	NO	bb	bb	3.120
15	Total-hexafurans	32.96	8.421e3	7.085e3	1.045	1.19	1.24	100.2	YES	NO	bb	bb	2.074
16	1234678-HpCDF	38.36	2.044e4	1.957e4	1.327	1.04	1.05	272.8	YES	NO	bb	bb	4.808
17	OCDF	44.67	4.764e4	5.416e4	1.447	0.88	0.89	456.3	YES	NO	bb	bb	17.101
18	1234789-HpCDF	40.53	1.511e3	1.360e3	1.283	1.11	1.05	20.4	YES	NO	bb	bb	0.430
19	Total-heptafurans	39.00	4.996e4	4.975e4	1.305	1.00	1.05	710.0	YES	NO	bb	bb	13.317
20	13468-PECDF	26.71	7.273e3	4.570e3	1.376	1.59	1.55	80.5	YES	NO	db	bb	0.929

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.07	2.547e2	3.875e2	0.879	0.66	0.77	3.7	YES	NO	bb	db	0.097

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.04	1.158e3	6.779e2	0.995	1.71	1.55	8.7	YES	NO	MM	MM	0.361
2	Total-pentadioxins	29.95	1.019e3	6.753e2	1.331	1.51	1.55	5.7	YES	NO	MM	MM	0.249
3	Total-pentadioxins	29.77	6.815e2	4.815e2	1.331	1.42	1.55	5.8	YES	NO	dd	dd	0.171
4	Total-pentadioxins	29.64	9.027e2	6.206e2	1.331	1.45	1.55	10.1	YES	NO	bd	bd	0.224

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.10	2.602e3	1.989e3	0.950	1.31	1.24	29.0	YES	NO	db	bb	0.744
2	123678-HxCDD	35.70	3.948e3	3.066e3	1.009	1.29	1.24	46.7	YES	NO	dd	db	1.043
3	123478-HxCDD	35.59	1.298e3	9.915e2	1.027	1.31	1.24	14.5	YES	NO	bd	bd	0.353
4	Total-hexadioxins	34.80	4.691e3	3.502e3	1.028	1.34	1.24	50.0	YES	NO	dd	db	1.228
5	Total-hexadioxins	34.67	1.870e4	1.529e4	1.028	1.22	1.24	134.1	YES	NO	dd	bd	5.093
6	Total-hexadioxins	34.32	4.712e3	3.809e3	1.028	1.24	1.24	54.9	YES	NO	bd	bb	1.277
7	124679-HXCDD	33.54	2.963e4	2.376e4	1.125	1.25	1.24	336.1	YES	NO	bb	bb	7.514

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.83	1.354e5	1.253e5	1.068	1.08	1.05	862.2	YES	NO	bb	bb	57.191
2	1234679-HPCDD	38.81	5.091e5	4.696e5	1.211	1.08	1.05	3414.5	YES	NO	bb	bb	189.375

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.07	2.547e2	3.875e2	0.879	0.66	0.77	3.7	YES	NO	bb	db	0.097
2	12378-PeCDD	31.04	1.158e3	6.779e2	0.995	1.71	1.55	8.7	YES	NO	MM	MM	0.361
3	Total-pentadioxins	29.95	1.019e3	6.753e2	1.331	1.51	1.55	5.7	YES	NO	MM	MM	0.249
4	Total-pentadioxins	29.77	6.815e2	4.815e2	1.331	1.42	1.55	5.8	YES	NO	dd	dd	0.171
5	Total-pentadioxins	29.64	9.027e2	6.206e2	1.331	1.45	1.55	10.1	YES	NO	bd	bd	0.224
6	123789-HxCDD	36.10	2.602e3	1.989e3	0.950	1.31	1.24	29.0	YES	NO	db	bb	0.744
7	123678-HxCDD	35.70	3.948e3	3.066e3	1.009	1.29	1.24	46.7	YES	NO	dd	db	1.043
8	123478-HxCDD	35.59	1.298e3	9.915e2	1.027	1.31	1.24	14.5	YES	NO	bd	bd	0.353
9	Total-hexadioxins	34.80	4.691e3	3.502e3	1.028	1.34	1.24	50.0	YES	NO	dd	db	1.228
10	Total-hexadioxins	34.67	1.870e4	1.529e4	1.028	1.22	1.24	134.1	YES	NO	dd	bd	5.093
11	Total-hexadioxins	34.32	4.712e3	3.809e3	1.028	1.24	1.24	54.9	YES	NO	bd	bb	1.277
12	124679-HXCDD	33.54	2.963e4	2.376e4	1.125	1.25	1.24	336.1	YES	NO	bb	bb	7.514
13	1234678-HpCDD	39.83	1.354e5	1.253e5	1.068	1.08	1.05	862.2	YES	NO	bb	bb	57.191
14	1234679-HPCDD	38.81	5.091e5	4.696e5	1.211	1.08	1.05	3414.5	YES	NO	bb	bb	189.375
15	OCDD	44.46	1.262e6	1.398e6	1.181	0.90	0.89	5504.1	YES	NO	bb	bb	547.414

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.93	2.007e3	2.551e3	1.192	0.79	0.77	8.5	YES	NO	bd	dd	0.399
2	Total-tetrafurans	23.52	1.334e3	1.783e3	1.192	0.75	0.77	9.5	YES	NO	dd	bb	0.273
3	Total-tetrafurans	23.27	6.206e2	9.074e2	1.192	0.68	0.77	5.6	YES	NO	bd	bd	0.134
4	Total-tetrafurans	23.01	4.705e2	6.716e2	1.192	0.70	0.77	3.6	YES	NO	dd	dd	0.100
5	Total-tetrafurans	22.62	1.220e3	1.815e3	1.192	0.67	0.77	10.3	YES	NO	bb	bb	0.265
6	Total-Furans	27.35	4.113e2	6.056e2	1.158	0.68	0.77	3.9	YES	NO	bb	bb	0.092
7	Total-tetrafurans	26.89	1.872e3	2.452e3	1.192	0.76	0.77	16.0	YES	NO	bb	bd	0.378
8	12378-PeCDF	29.44	7.967e2	4.787e2	1.015	1.66	1.55	7.9	YES	NO	bd	bb	0.136
9	Total-pentafurans	29.07	1.456e3	8.614e2	1.047	1.69	1.55	12.9	YES	NO	bd	bb	0.244
10	Total-pentafurans	28.39	3.293e3	2.033e3	1.047	1.62	1.55	31.5	YES	NO	dd	dd	0.561
11	Total-pentafurans	28.32	1.032e3	6.134e2	1.047	1.68	1.55	12.2	YES	NO	dd	bd	0.173
12	123678-HxCDF	34.58	8.058e2	7.626e2	1.037	1.06	1.24	10.7	YES	NO	db	db	0.198
13	123478-HxCDF	34.44	2.563e3	2.139e3	1.017	1.20	1.24	30.8	YES	NO	bd	dd	0.628
14	Total-hexafurans	33.80	1.290e4	1.042e4	1.045	1.24	1.24	170.0	YES	NO	bb	bb	3.120
15	Total-hexafurans	32.96	8.421e3	7.085e3	1.045	1.19	1.24	100.2	YES	NO	bb	bb	2.074
16	1234678-HpCDF	38.36	2.044e4	1.957e4	1.327	1.04	1.05	272.8	YES	NO	bb	bb	4.808
17	OCDF	44.67	4.764e4	5.416e4	1.447	0.88	0.89	456.3	YES	NO	bb	bb	17.101
18	1234789-HpCDF	40.53	1.511e3	1.360e3	1.283	1.11	1.05	20.4	YES	NO	bb	bb	0.430
19	Total-heptafurans	39.00	4.996e4	4.975e4	1.305	1.00	1.05	710.0	YES	NO	bb	bb	13.317
20	13468-PECDF	26.71	7.273e3	4.570e3	1.376	1.59	1.55	80.5	YES	NO	db	bb	0.929
21	Total-tetradioxins	25.07	2.547e2	3.875e2	0.879	0.66	0.77	3.7	YES	NO	bb	db	0.097
22	12378-PeCDD	31.04	1.158e3	6.779e2	0.995	1.71	1.55	8.7	YES	NO	MM	MM	0.361
23	Total-pentadioxins	29.95	1.019e3	6.753e2	1.331	1.51	1.55	5.7	YES	NO	MM	MM	0.249
24	Total-pentadioxins	29.77	6.815e2	4.815e2	1.331	1.42	1.55	5.8	YES	NO	dd	dd	0.171
25	Total-pentadioxins	29.64	9.027e2	6.206e2	1.331	1.45	1.55	10.1	YES	NO	bd	bd	0.224
26	123789-HxCDD	36.10	2.602e3	1.989e3	0.950	1.31	1.24	29.0	YES	NO	db	bb	0.744
27	123678-HxCDD	35.70	3.948e3	3.066e3	1.009	1.29	1.24	46.7	YES	NO	dd	db	1.043
28	123478-HxCDD	35.59	1.298e3	9.915e2	1.027	1.31	1.24	14.5	YES	NO	bd	bd	0.353
29	Total-hexadioxins	34.80	4.691e3	3.502e3	1.028	1.34	1.24	50.0	YES	NO	dd	db	1.228
30	Total-hexadioxins	34.67	1.870e4	1.529e4	1.028	1.22	1.24	134.1	YES	NO	dd	bd	5.093
31	Total-hexadioxins	34.32	4.712e3	3.809e3	1.028	1.24	1.24	54.9	YES	NO	bd	bb	1.277
32	124679-HXCDD	33.54	2.963e4	2.376e4	1.125	1.25	1.24	336.1	YES	NO	bb	bb	7.514
33	1234678-HpCDD	39.83	1.354e5	1.253e5	1.068	1.08	1.05	862.2	YES	NO	bb	bb	57.191
34	1234679-HPCDD	38.81	5.091e5	4.696e5	1.211	1.08	1.05	3414.5	YES	NO	bb	bb	189.375
35	OCDD	44.46	1.262e6	1.398e6	1.181	0.90	0.89	5504.1	YES	NO	bb	bb	547.414

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:23 Pacific Daylight Time

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.81	2.685e5					2.9	NO		bb		
2	FUNCTION1 PFK	23.86	1.056e5					1.8	NO		bb		
3	FUNCTION1 PFK	23.69	1.162e5					1.1	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.15	1.076e6					3.2	YES		db		0.000
2	FUNCTION2 PFK	28.88	2.238e5					10.5	YES		bd		0.000
3	FUNCTION2 PFK	28.59	2.063e6					12.0	YES		bb		0.000
4	FUNCTION2 PFK	32.18	5.845e5					5.9	YES		bb		0.000
5	FUNCTION2 PFK	31.76	2.753e6					12.5	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.56	1.966e6					15.6	YES		bb		0.000
2	FUNCTION3 PFK	36.20	1.810e6					10.9	YES		bb		0.000

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.02	3.778e4					2.4	NO		dd		
2	FUNCTION4 PFK	37.98	1.707e4					1.9	NO		dd		
3	FUNCTION4 PFK	37.94	4.129e4					2.6	NO		dd		
4	FUNCTION4 PFK	37.86	4.338e4					2.8	NO		dd		
5	FUNCTION4 PFK	37.81	9.429e4					3.5	YES		dd		
6	FUNCTION4 PFK	37.73	4.434e4					3.3	YES		dd		
7	FUNCTION4 PFK	37.68	7.927e4					3.8	YES		dd		
8	FUNCTION4 PFK	37.60	6.797e3					1.2	NO		dd		
9	FUNCTION4 PFK	37.56	3.619e4					2.7	NO		dd		
10	FUNCTION4 PFK	37.49	2.737e4					2.1	NO		bd		
11	FUNCTION4 PFK	40.30	9.731e3					0.7	NO		bb		
12	FUNCTION4 PFK	39.56	3.818e3					0.5	NO		bb		
13	FUNCTION4 PFK	39.39	5.842e4					1.9	NO		db		
14	FUNCTION4 PFK	39.27	4.144e4					1.7	NO		bd		
15	FUNCTION4 PFK	39.00	4.886e3					0.5	NO		bb		
16	FUNCTION4 PFK	38.82	1.050e4					1.0	NO		db		
17	FUNCTION4 PFK	38.75	2.520e4					1.6	NO		bd		
18	FUNCTION4 PFK	38.71	4.091e3					0.6	NO		db		
19	FUNCTION4 PFK	38.64	1.148e4					0.9	NO		bd		
20	FUNCTION4 PFK	38.59	1.384e3					0.4	NO		bb		
21	FUNCTION4 PFK	38.37	2.186e4					1.6	NO		db		
22	FUNCTION4 PFK	38.27	2.661e4					1.8	NO		dd		
23	FUNCTION4 PFK	38.19	4.551e4					2.2	NO		dd		
24	FUNCTION4 PFK	38.14	2.023e4					1.8	NO		dd		
25	FUNCTION4 PFK	38.10	1.381e4					1.6	NO		dd		
26	FUNCTION4 PFK	38.07	2.496e4					2.3	NO		dd		
27	FUNCTION4 PFK	41.48	1.166e3					0.3	NO		bb		
28	FUNCTION4 PFK	41.35	1.429e4					1.5	NO		db		
29	FUNCTION4 PFK	41.31	8.727e3					1.0	NO		bd		
30	FUNCTION4 PFK	41.13	2.269e4					1.5	NO		db		
31	FUNCTION4 PFK	41.10	2.067e4					1.6	NO		bd		
32	FUNCTION4 PFK	41.03	9.934e3					0.8	NO		db		
33	FUNCTION4 PFK	40.97	1.053e4					1.2	NO		bd		
34	FUNCTION4 PFK	40.87	6.340e3					0.8	NO		bb		
35	FUNCTION4 PFK	40.82	5.137e3					0.9	NO		bb		
36	FUNCTION4 PFK	40.77	2.802e4					1.9	NO		db		
37	FUNCTION4 PFK	40.69	1.039e4					1.0	NO		bd		

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	40.63	5.394e3					0.8	NO		bb		
39	FUNCTION4 PFK	40.59	1.652e3					0.4	NO		bb		
40	FUNCTION4 PFK	40.53	1.143e4					1.2	NO		db		
41	FUNCTION4 PFK	40.49	1.182e4					1.2	NO		bd		
42	FUNCTION4 PFK	40.43	8.835e3					0.8	NO		bb		
43	FUNCTION4 PFK	42.36	8.853e3					0.7	NO		bb		
44	FUNCTION4 PFK	42.32	1.856e4					1.7	NO		db		
45	FUNCTION4 PFK	42.29	1.211e4					1.4	NO		bd		
46	FUNCTION4 PFK	42.19	1.872e4					1.3	NO		db		
47	FUNCTION4 PFK	42.09	2.588e4					2.2	NO		dd		
48	FUNCTION4 PFK	42.06	3.006e4					2.4	NO		bd		
49	FUNCTION4 PFK	41.83	2.521e4					1.6	NO		bb		
50	FUNCTION4 PFK	41.69	3.523e3					0.5	NO		db		
51	FUNCTION4 PFK	41.65	9.477e3					1.2	NO		dd		
52	FUNCTION4 PFK	41.61	3.742e4					1.6	NO		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.81	2.060e2					2.8	NO		bd		0.000
2	FUNCTION1 HXCD...	21.65	1.023e2					2.2	NO		bb		0.000
3	FUNCTION1 HXCD...	21.54	1.000e2					2.6	NO		db		0.000
4	FUNCTION1 HXCD...	21.48	8.110e1					1.7	NO		bd		0.000
5	FUNCTION1 HXCD...	25.61	2.962e2					3.3	YES		db		0.000
6	FUNCTION1 HXCD...	25.43	3.967e2					5.4	YES		bd		0.000
7	FUNCTION1 HXCD...	25.07	1.991e2					2.3	NO		bb		0.000
8	FUNCTION1 HXCD...	24.78	1.753e2					1.9	NO		db		0.000
9	FUNCTION1 HXCD...	24.69	1.217e2					2.3	NO		dd		0.000
10	FUNCTION1 HXCD...	24.61	1.449e2					2.2	NO		bd		0.000
11	FUNCTION1 HXCD...	23.73	2.275e2					3.6	YES		db		0.000
12	FUNCTION1 HXCD...	23.61	1.987e2					1.9	NO		dd		0.000
13	FUNCTION1 HXCD...	23.54	7.165e1					1.5	NO		bd		0.000
14	FUNCTION1 HXCD...	23.27	1.526e2					2.5	NO		bb		0.000
15	FUNCTION1 HXCD...	22.53	2.094e2					2.1	NO		bb		0.000
16	FUNCTION1 HXCD...	22.33	7.841e1					1.2	NO		db		0.000
17	FUNCTION1 HXCD...	22.24	1.222e2					1.4	NO		dd		0.000
18	FUNCTION1 HXCD...	22.12	7.757e1					1.4	NO		dd		0.000
19	FUNCTION1 HXCD...	22.01	1.549e2					2.0	NO		dd		0.000
20	FUNCTION1 HXCD...	21.88	8.294e1					1.5	NO		dd		0.000
21	FUNCTION1 HXCD...	27.15	8.731e1					2.3	NO		bb		0.000
22	FUNCTION1 HXCD...	26.37	7.248e1					1.3	NO		db		0.000
23	FUNCTION1 HXCD...	26.29	1.228e2					2.2	NO		bd		0.000
24	FUNCTION1 HXCD...	25.88	1.352e2					2.2	NO		db		0.000
25	FUNCTION1 HXCD...	25.82	8.276e1					1.9	NO		bd		0.000

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	23.60	1.068e2					2.5	NO		dd		0.000
2	FUNCTION1 HPCD...	23.51	8.502e1					2.3	NO		bd		0.000
3	FUNCTION1 HPCD...	22.86	1.388e3					26.4	YES		bb		0.000
4	FUNCTION1 HPCD...	22.54	3.424e2					5.1	YES		db		0.000
5	FUNCTION1 HPCD...	22.31	1.028e2					1.3	NO		bd		0.000
6	FUNCTION1 HPCD...	21.54	7.476e3					142.2	YES		bb		0.000
7	FUNCTION1 HPCD...	21.33	1.246e2					2.7	NO		db		0.000
8	FUNCTION1 HPCD...	21.25	1.162e2					2.2	NO		dd		0.000
9	FUNCTION1 HPCD...	21.15	2.243e2					3.7	YES		dd		0.000
10	FUNCTION1 HPCD...	21.12	1.075e2					2.5	NO		bd		0.000
11	FUNCTION1 HPCD...	27.33	9.065e1					1.9	NO		db		0.000
12	FUNCTION1 HPCD...	27.17	1.897e2					1.9	NO		bd		0.000
13	FUNCTION1 HPCD...	26.62	7.057e1					2.2	NO		bb		0.000
14	FUNCTION1 HPCD...	25.88	8.485e1					1.7	NO		db		0.000
15	FUNCTION1 HPCD...	25.84	1.246e2					3.0	YES		bd		0.000
16	FUNCTION1 HPCD...	25.61	7.402e1					1.0	NO		bb		0.000
17	FUNCTION1 HPCD...	25.08	7.077e1					1.3	NO		bb		0.000
18	FUNCTION1 HPCD...	24.28	8.855e1					2.0	NO		db		0.000
19	FUNCTION1 HPCD...	24.17	1.785e2					2.6	NO		dd		0.000
20	FUNCTION1 HPCD...	24.07	2.742e2					2.8	NO		bd		0.000
21	FUNCTION1 HPCD...	23.72	2.083e2					3.0	NO		db		0.000
22	FUNCTION1 HPCD...	23.66	1.415e2					3.4	YES		dd		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.83	1.149e2					1.5	NO		bb		0.000
2	FUNCTION2 HPCD...	28.63	1.844e2					4.0	YES		bb		0.000
3	FUNCTION2 HPCD...	28.46	1.428e2					3.1	YES		bb		0.000

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.04	2.492e2					3.6	YES		bb		0.000
2	FUNCTION3 OCDPE	35.69	1.722e2					2.4	NO		db		0.000
3	FUNCTION3 OCDPE	35.58	1.671e2					2.9	NO		bd		0.000
4	FUNCTION3 OCDPE	35.04	9.342e1					3.0	NO		bb		0.000
5	FUNCTION3 OCDPE	34.88	7.028e1					1.8	NO		bb		0.000
6	FUNCTION3 OCDPE	34.77	1.096e2					2.0	NO		bb		0.000
7	FUNCTION3 OCDPE	34.37	7.435e1					2.0	NO		bb		0.000
8	FUNCTION3 OCDPE	34.02	8.810e1					2.5	NO		bb		0.000
9	FUNCTION3 OCDPE	33.71	1.050e2					2.6	NO		bb		0.000
10	FUNCTION3 OCDPE	33.47	7.306e1					1.8	NO		bb		0.000
11	FUNCTION3 OCDPE	32.89	1.363e2					2.6	NO		bb		0.000
12	FUNCTION3 OCDPE	32.58	7.684e1					2.2	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	37.98	1.658e4					315.7	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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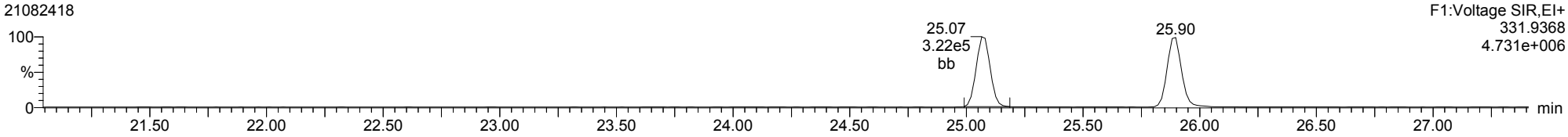
ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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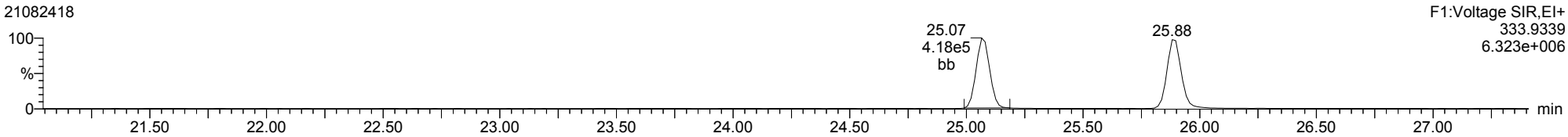
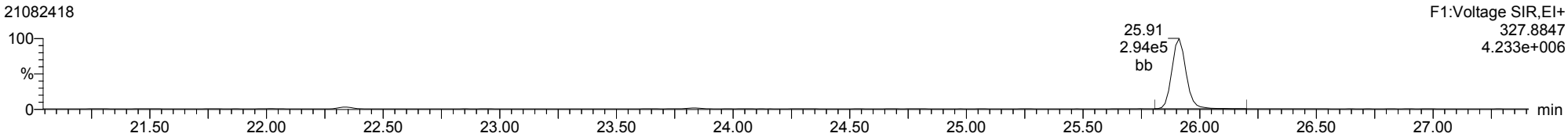


37CL-2378-TCDD



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ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

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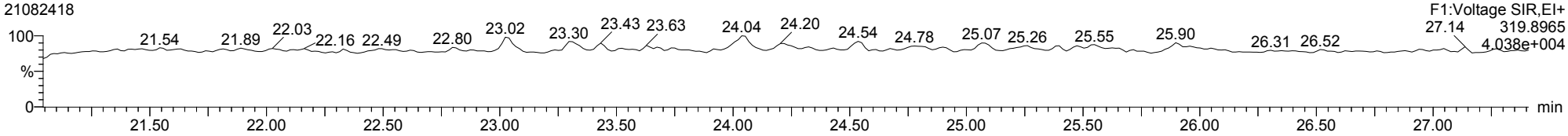

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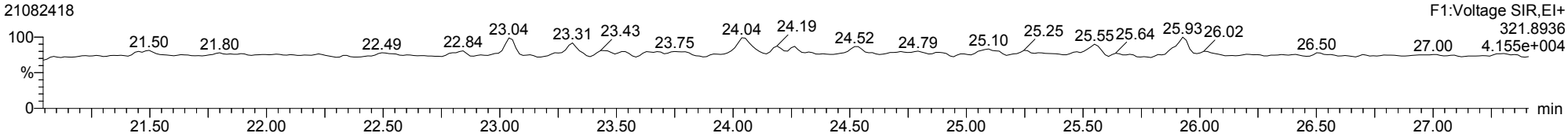

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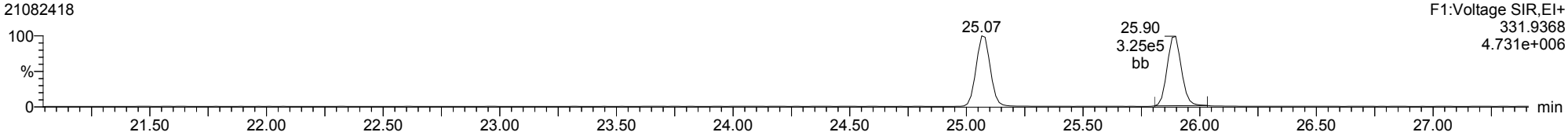

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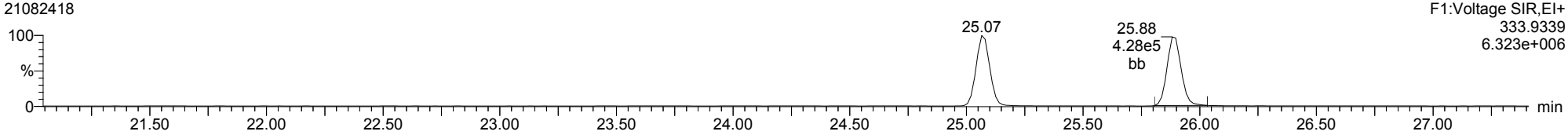

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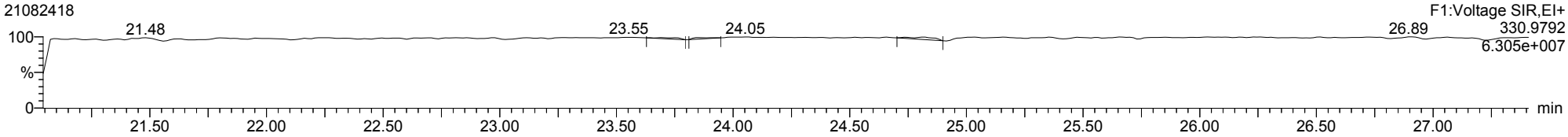

ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

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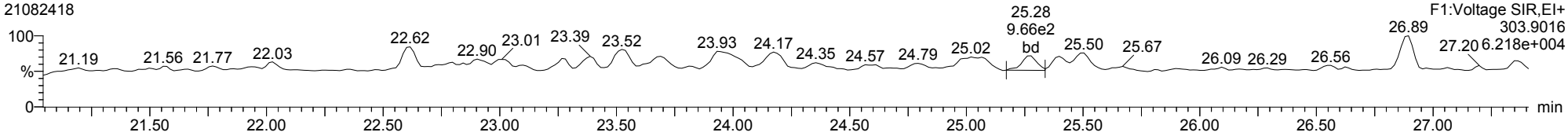

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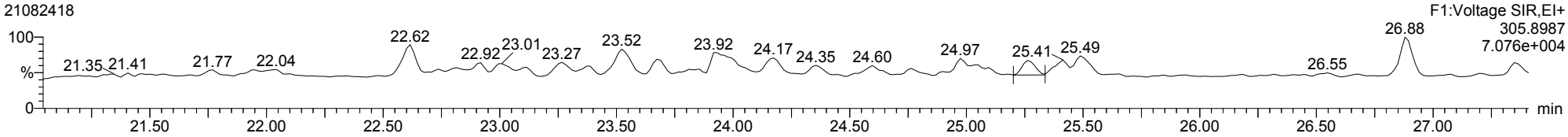

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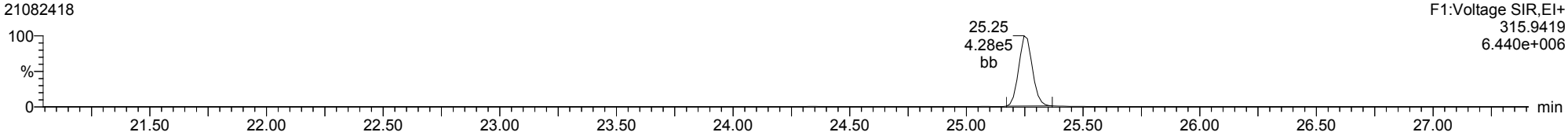

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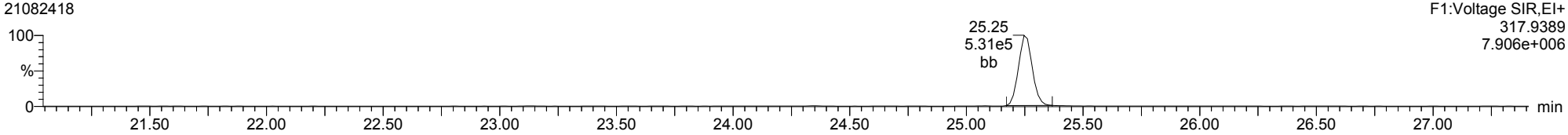

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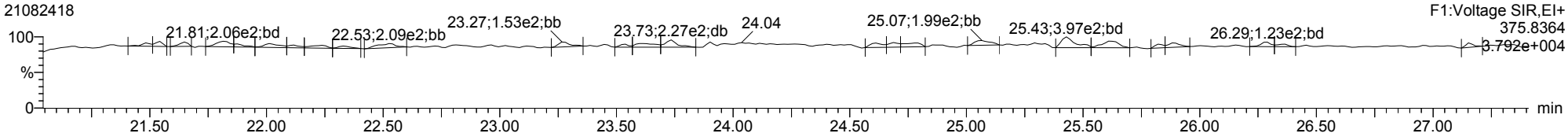

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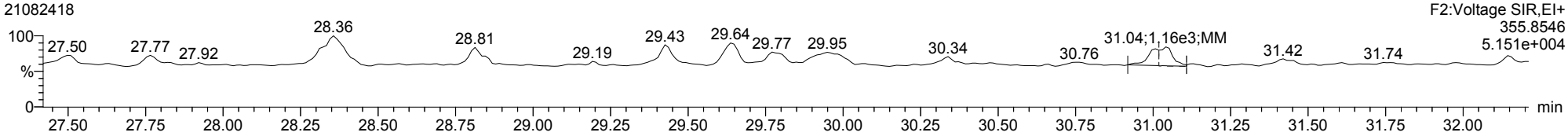
12378-PeCDD



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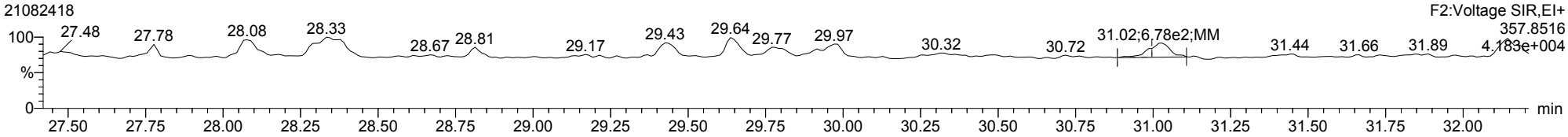

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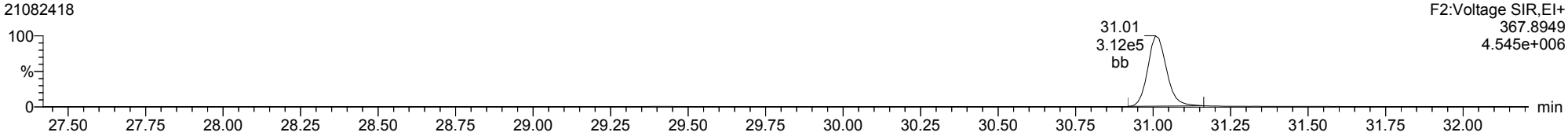

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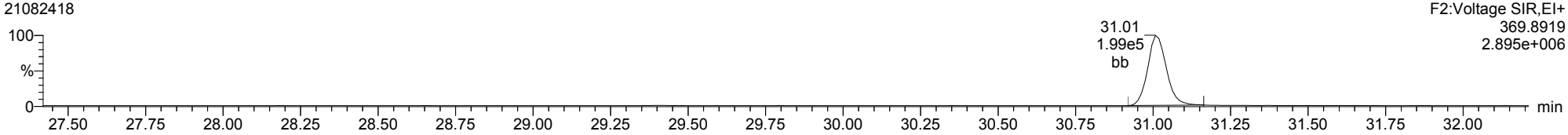

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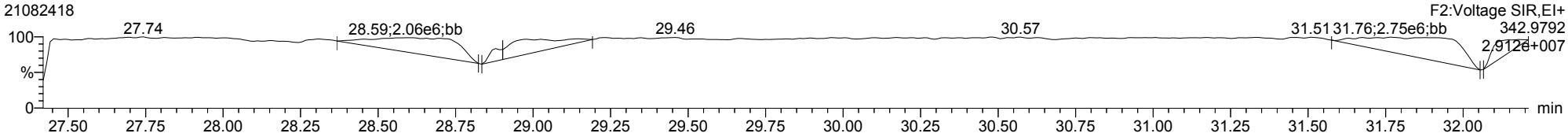

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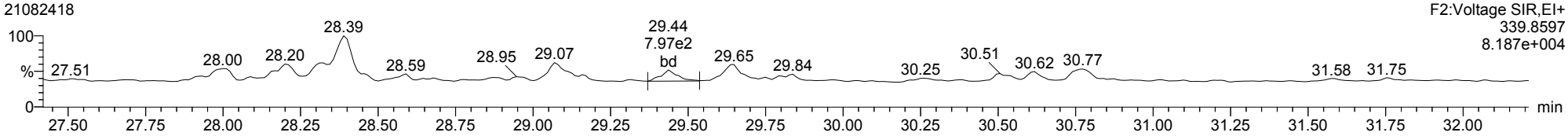

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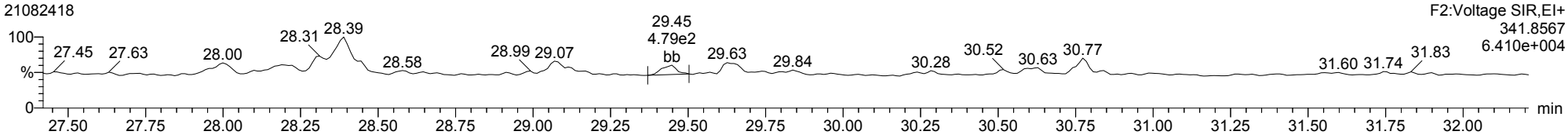

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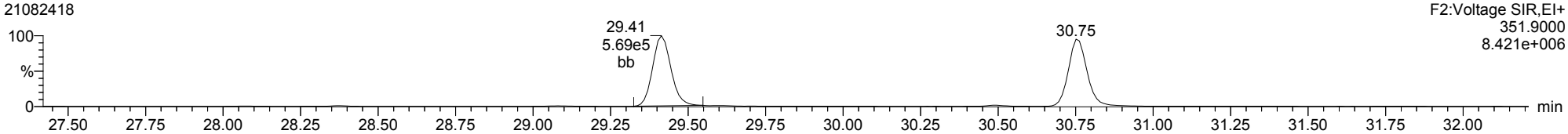

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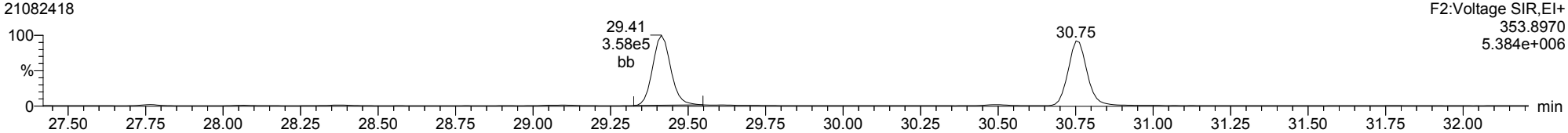
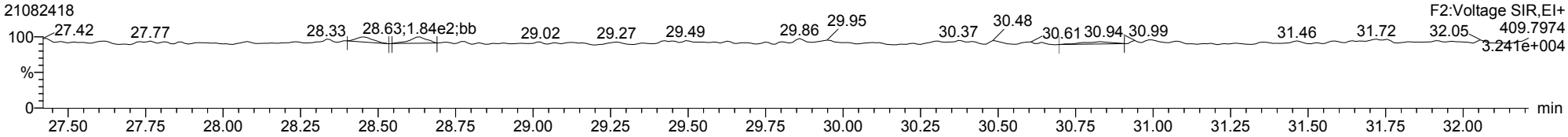


FUNCTION2 HPCDPE



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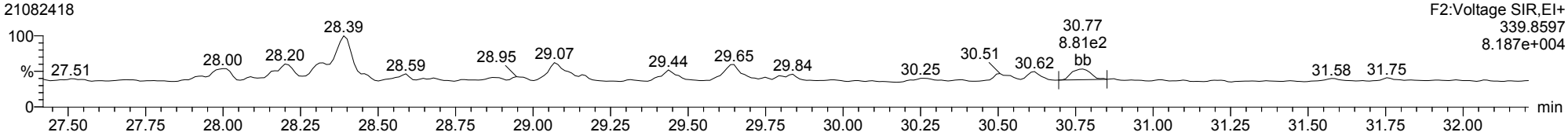
23478-PeCDF



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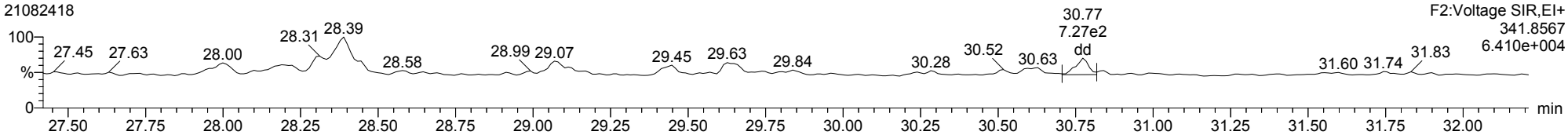

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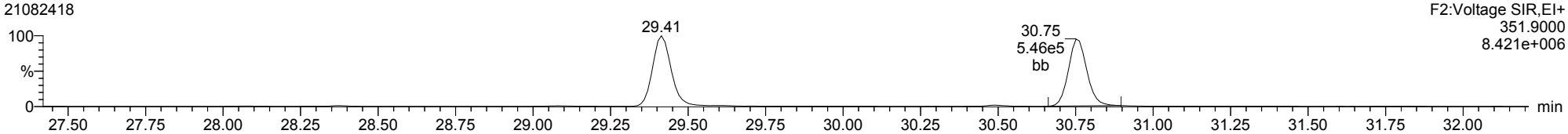

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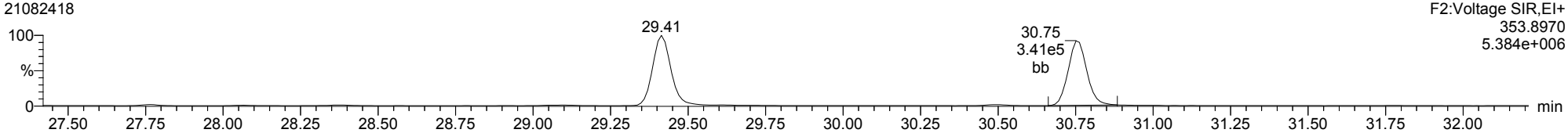

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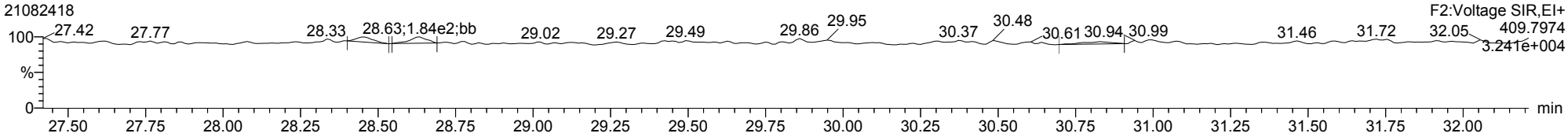

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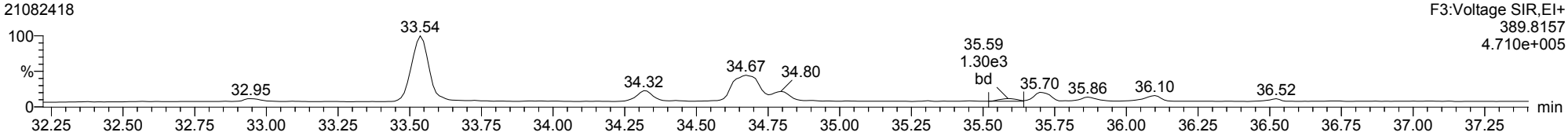
123478-HxCDD



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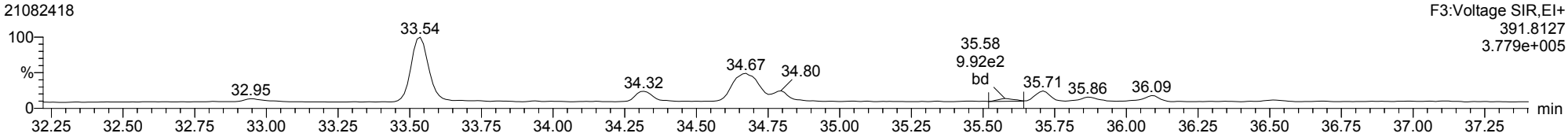

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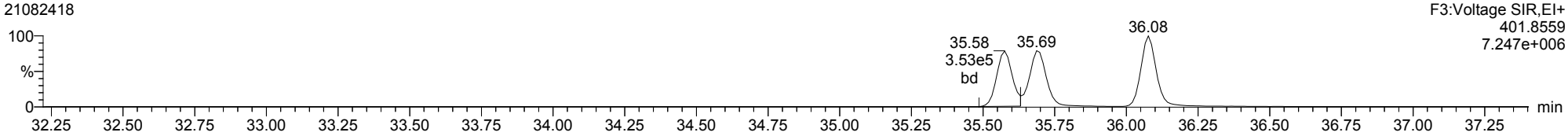

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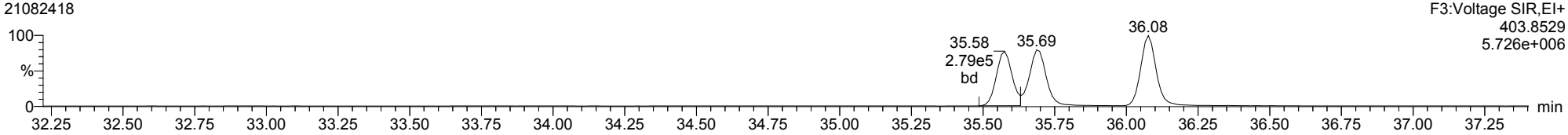

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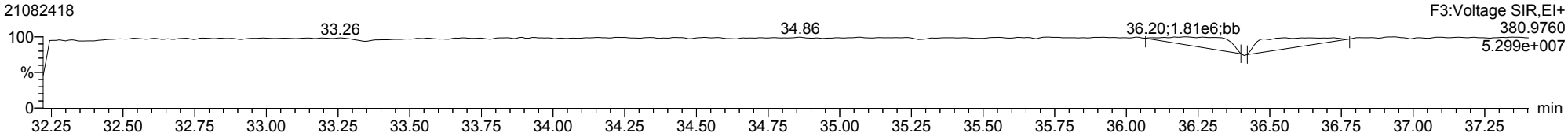

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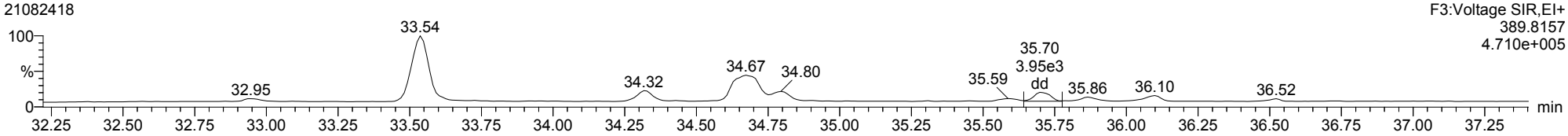

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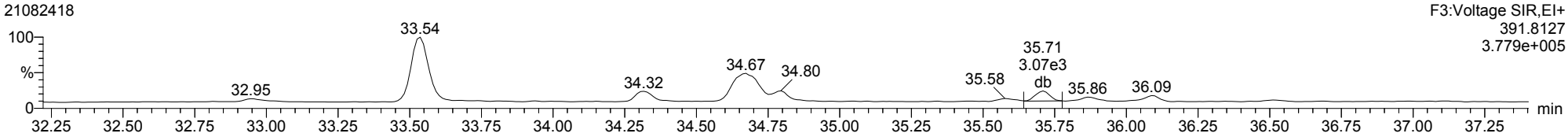

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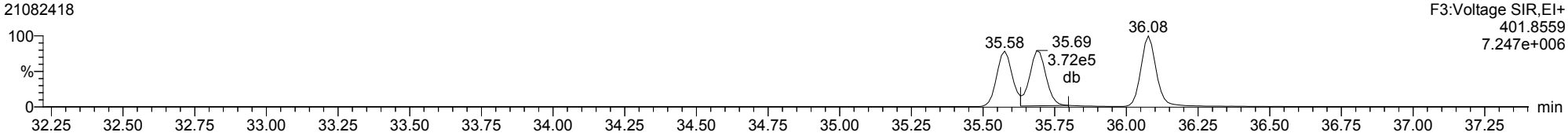

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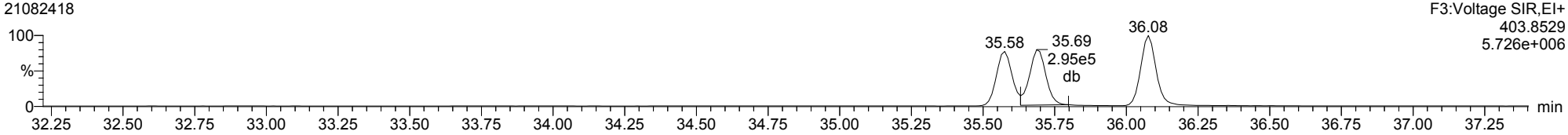

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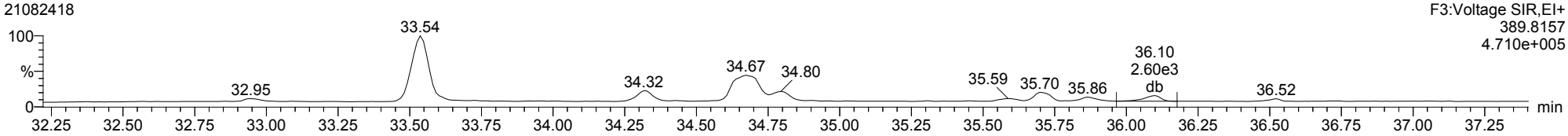

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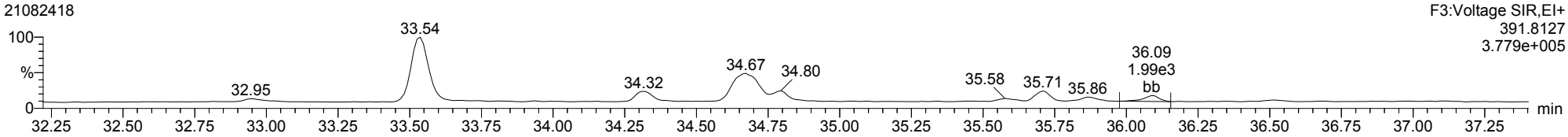

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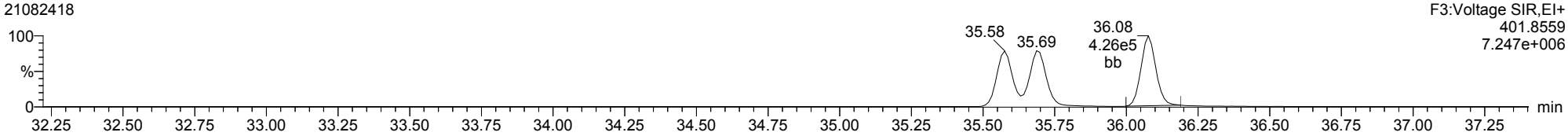

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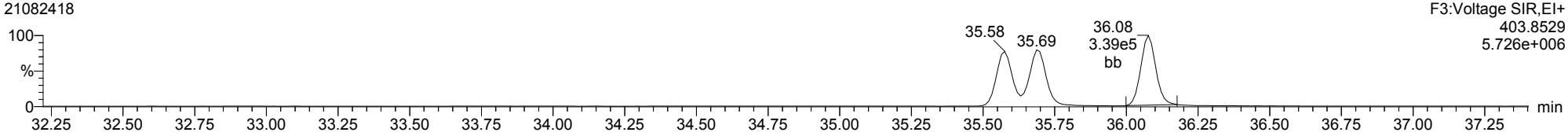

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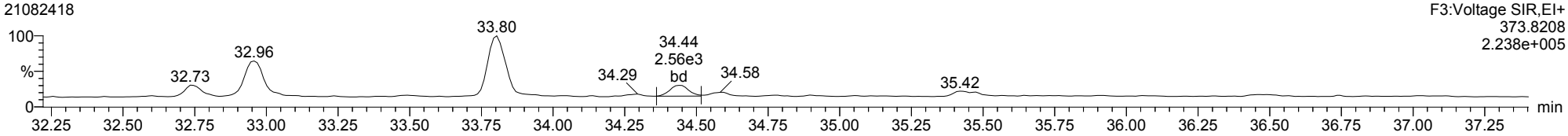

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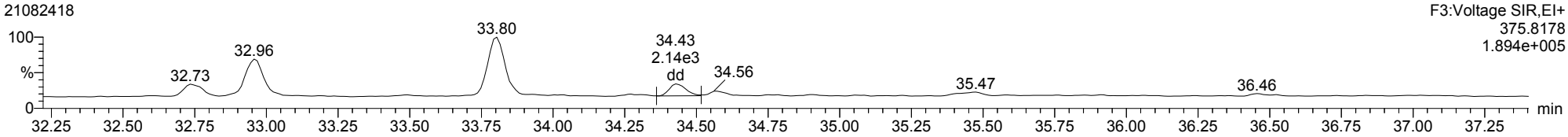

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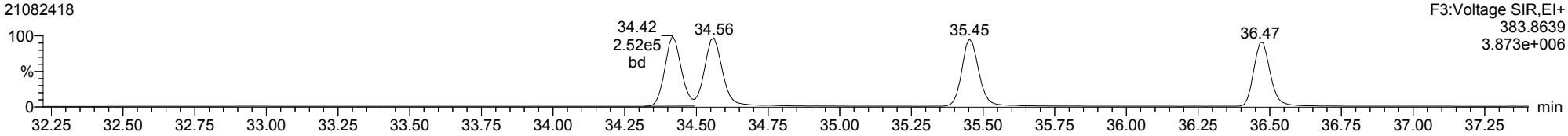

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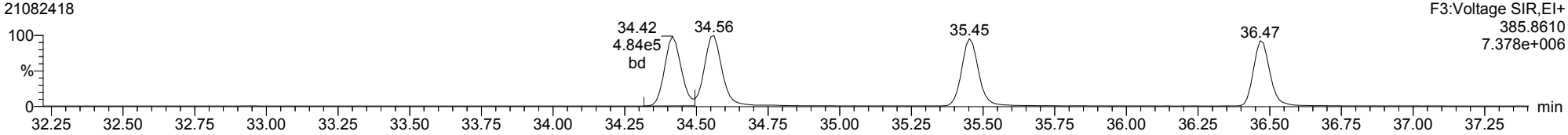

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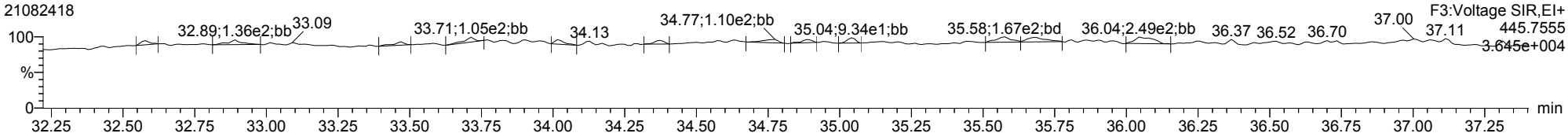

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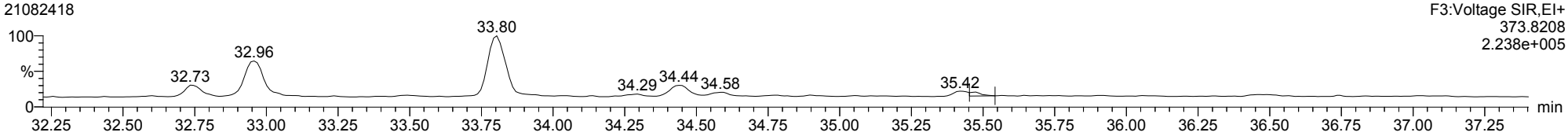

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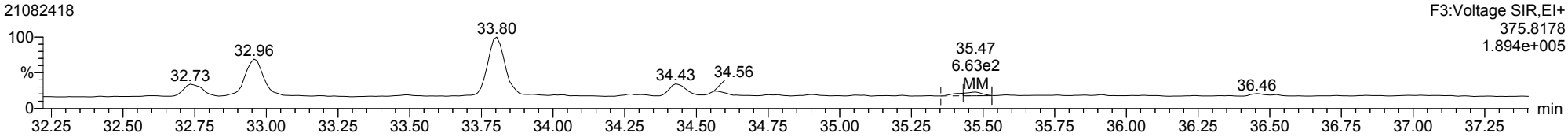

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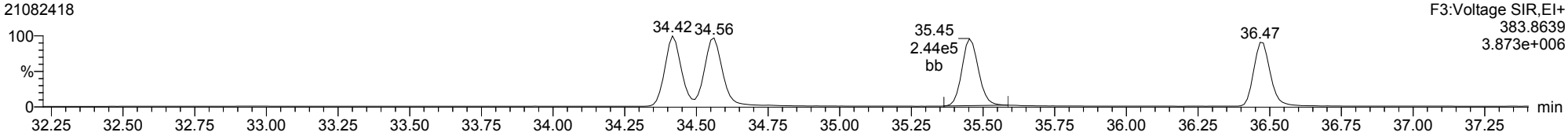

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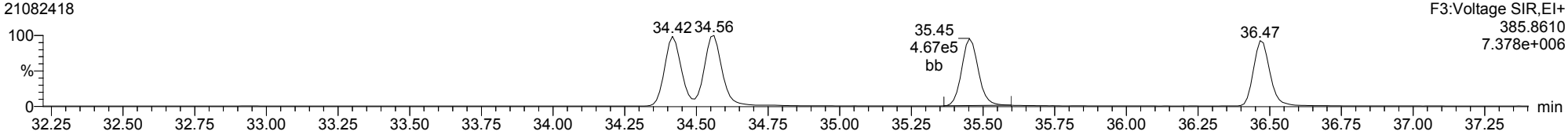

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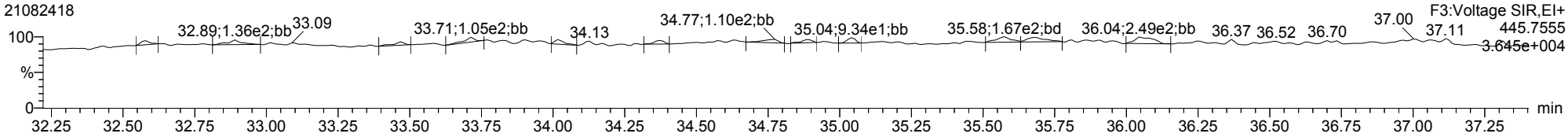

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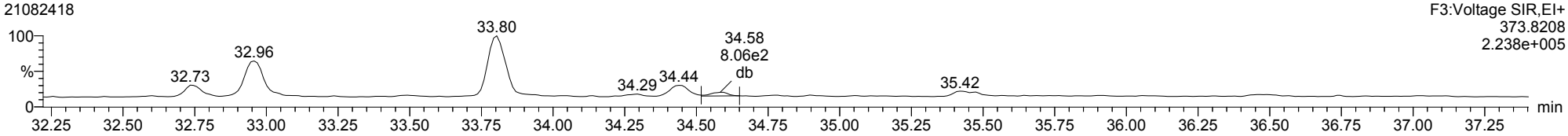

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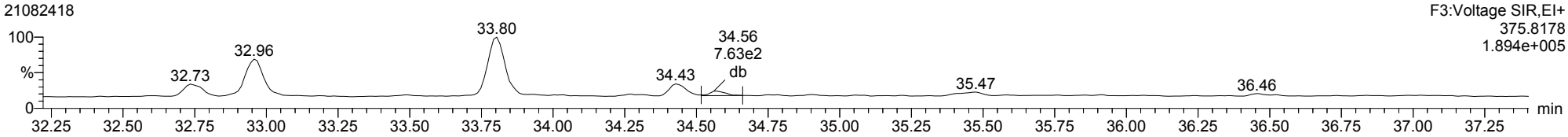

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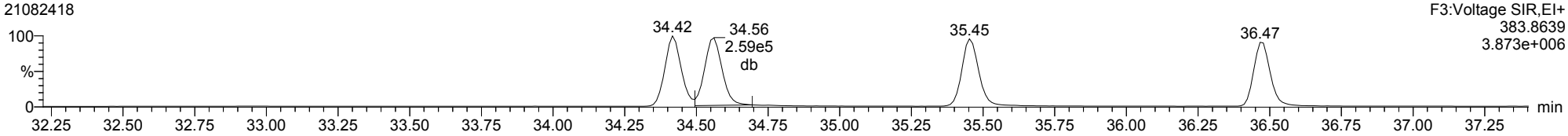

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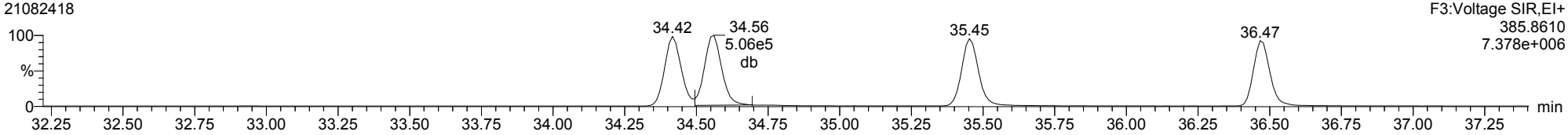

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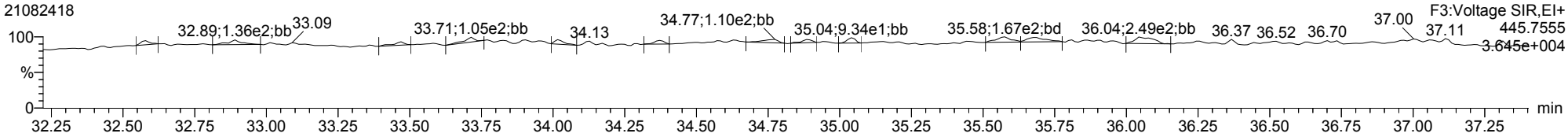

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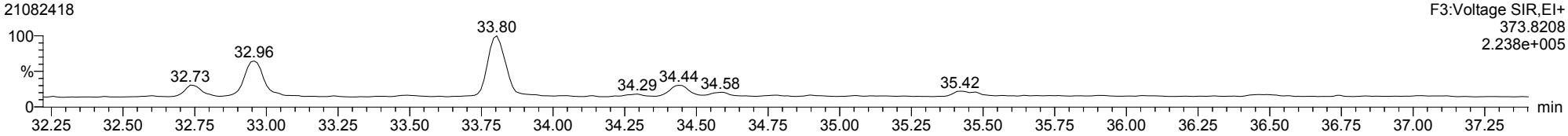

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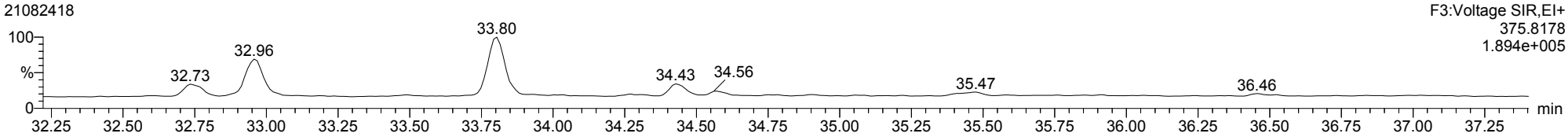

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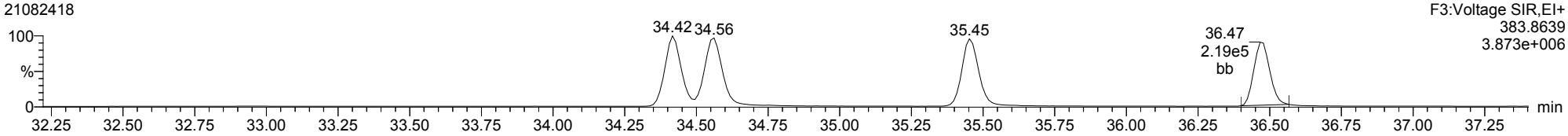

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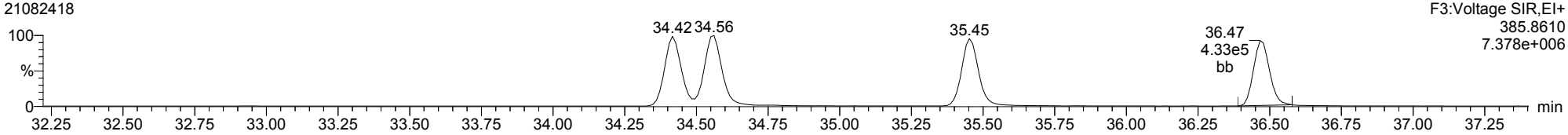

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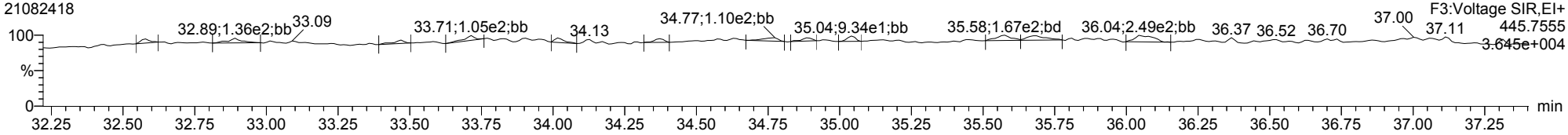

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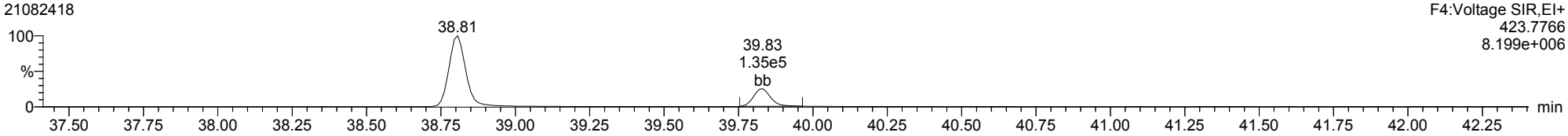

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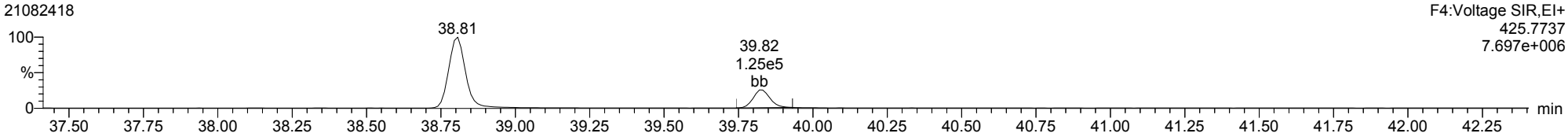

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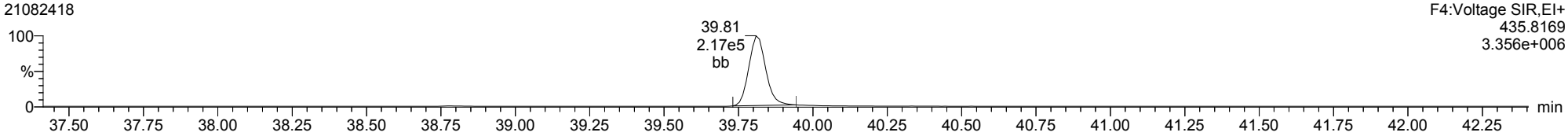

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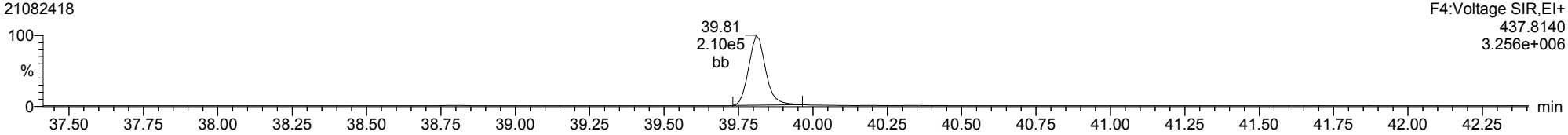

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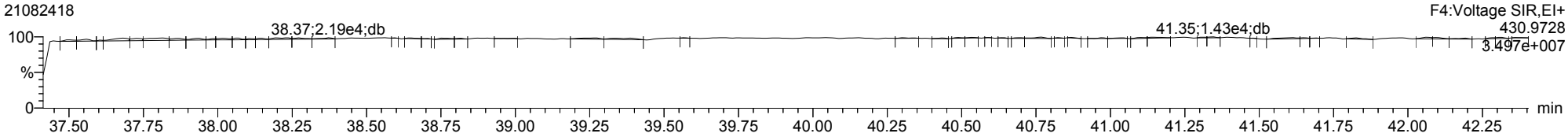

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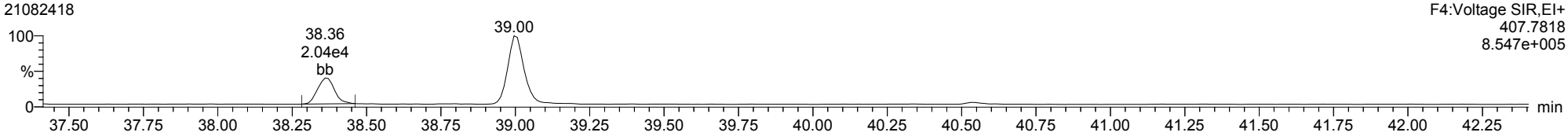

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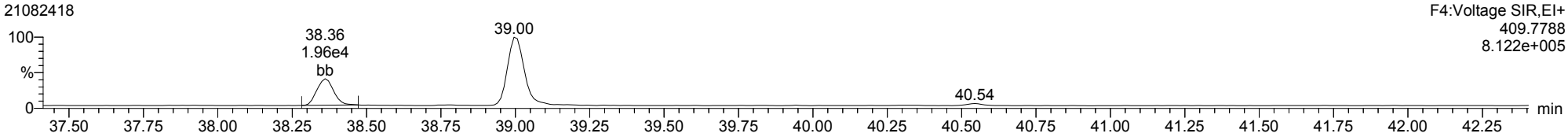

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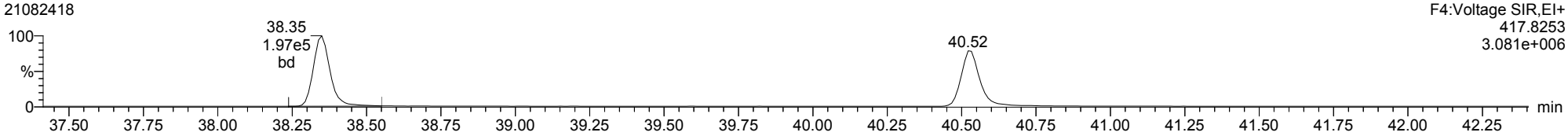

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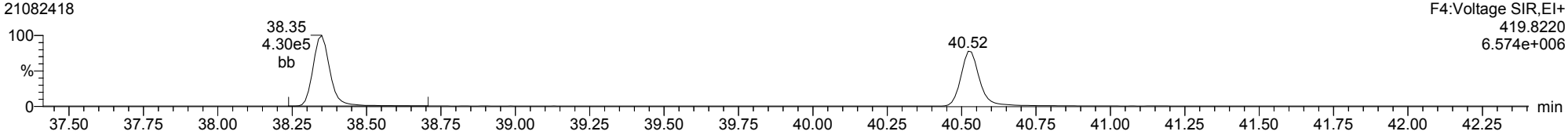

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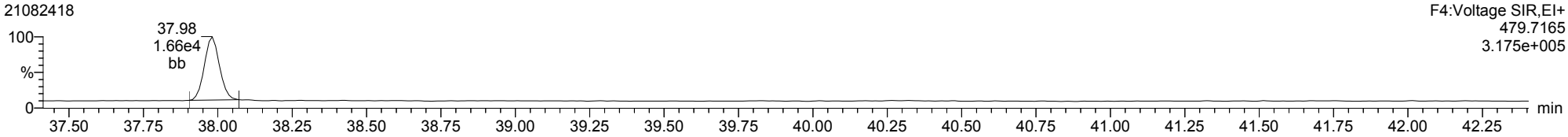

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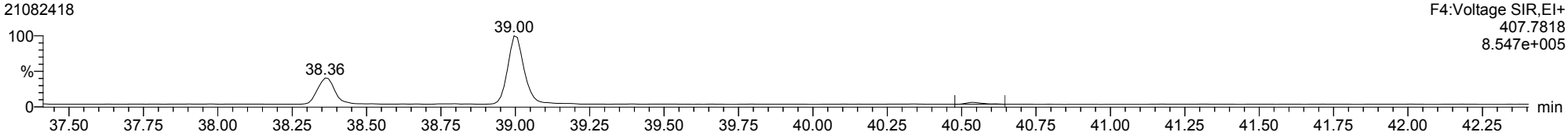

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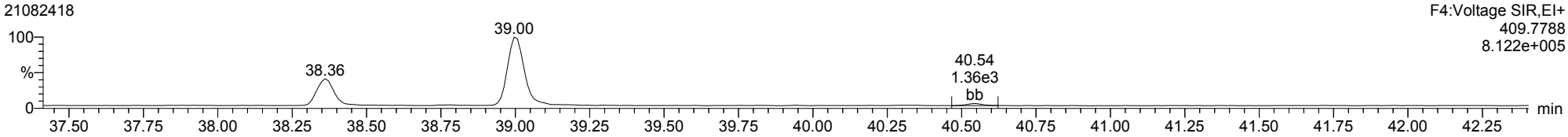

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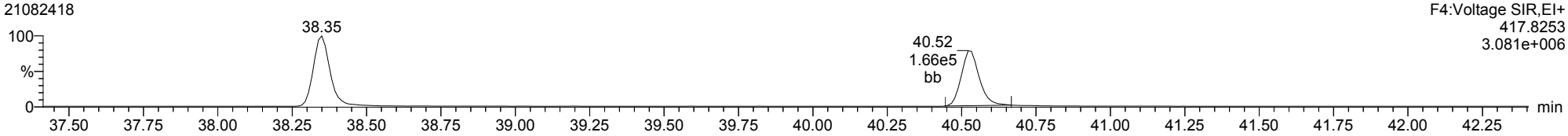

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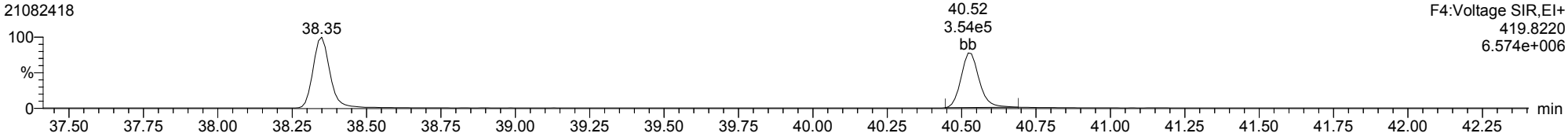

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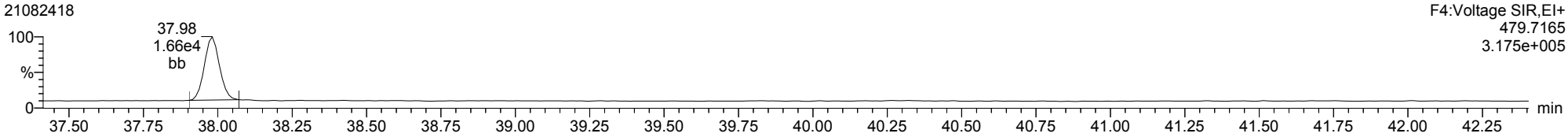

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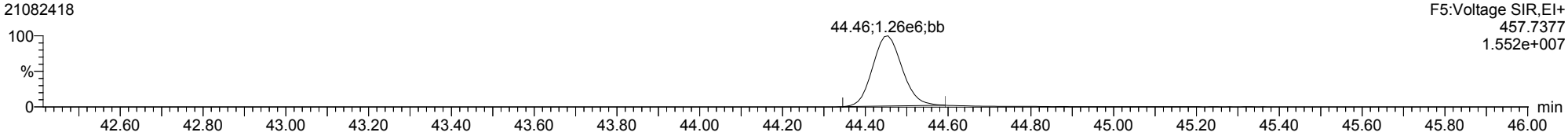

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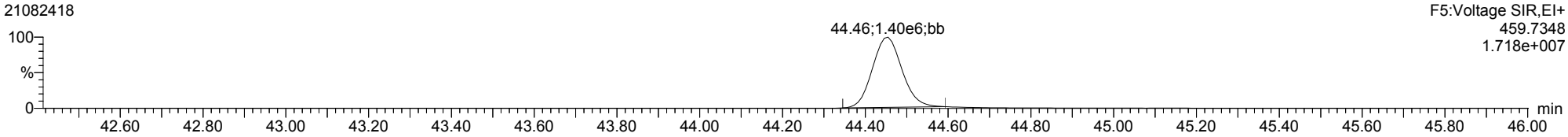

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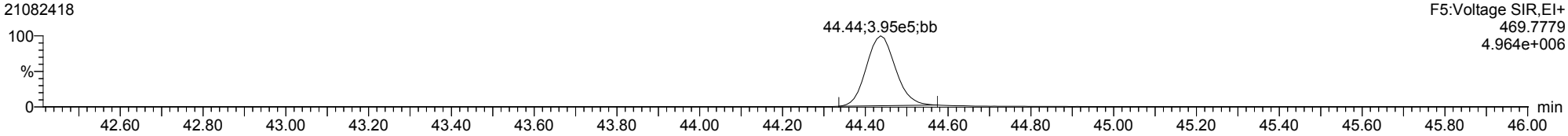

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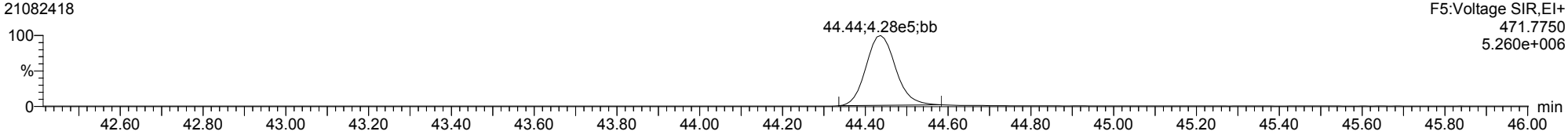

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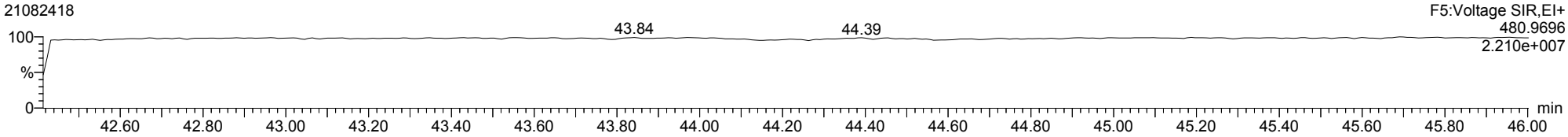

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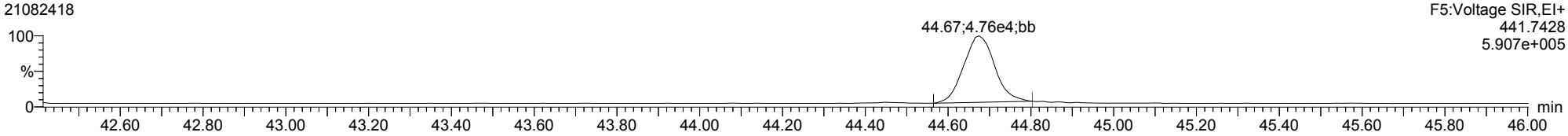

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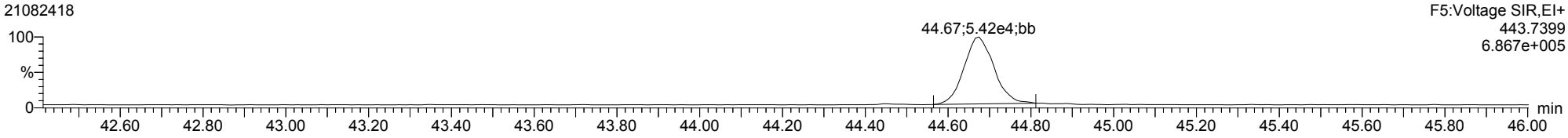

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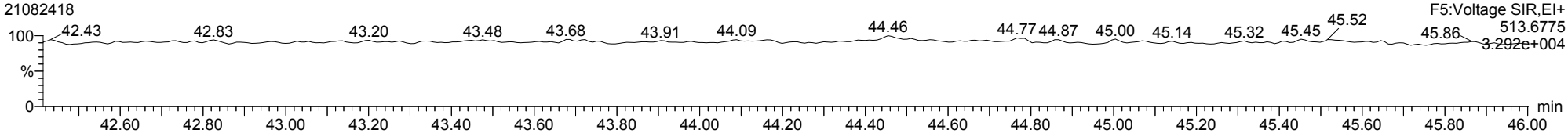

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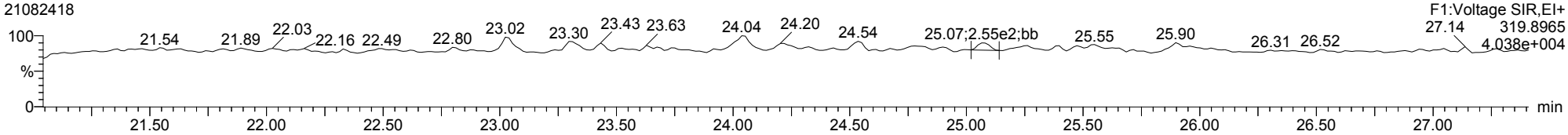

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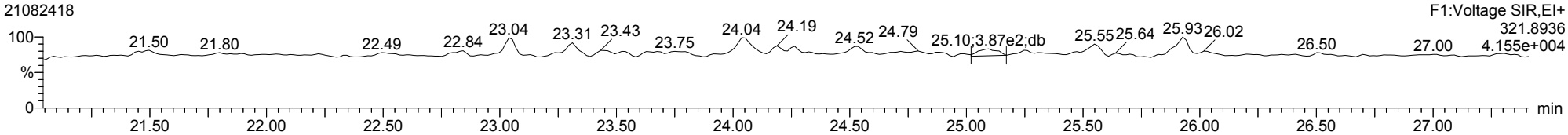

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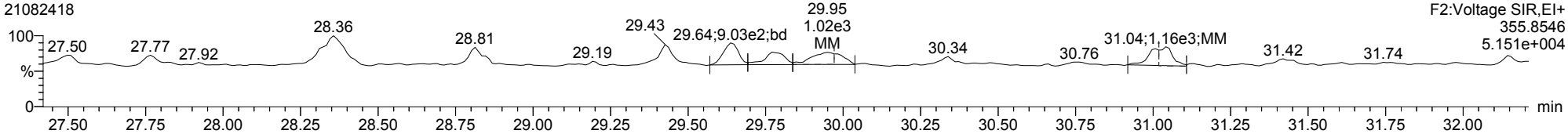

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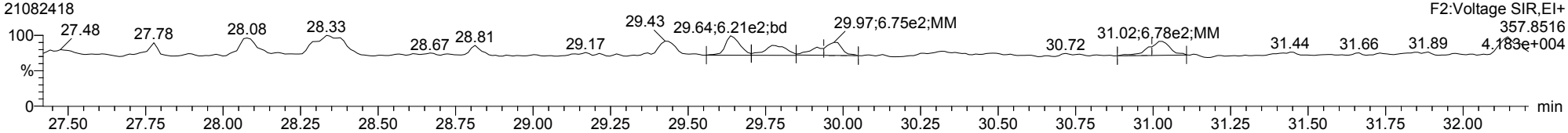

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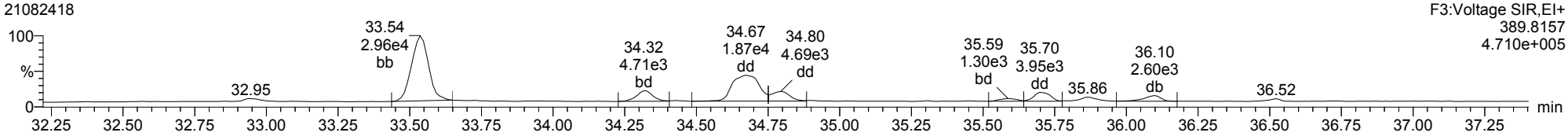

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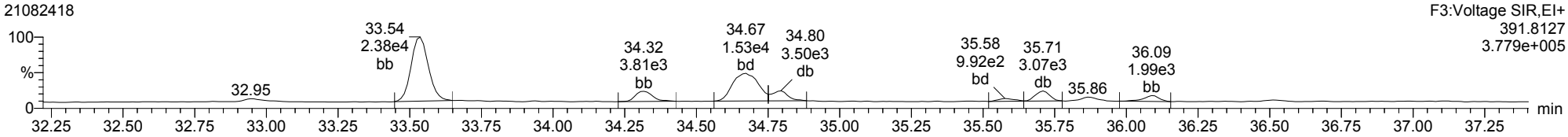

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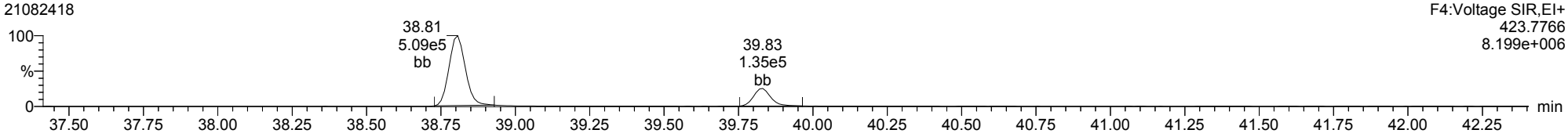

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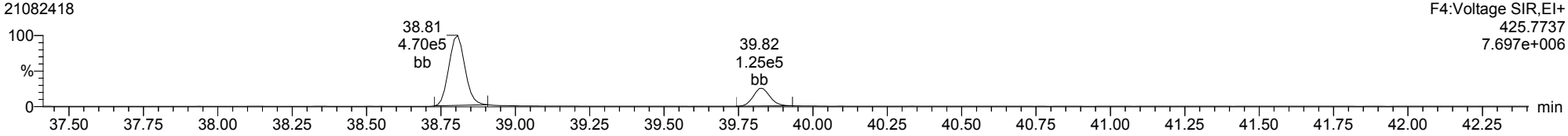

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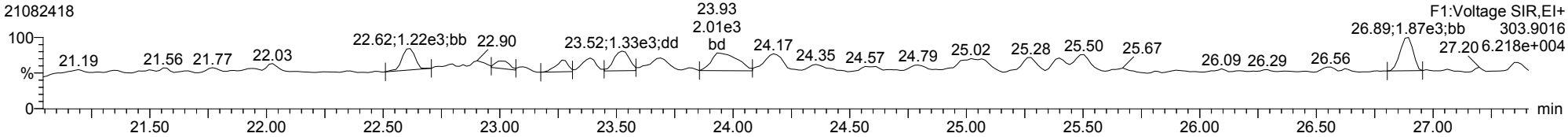
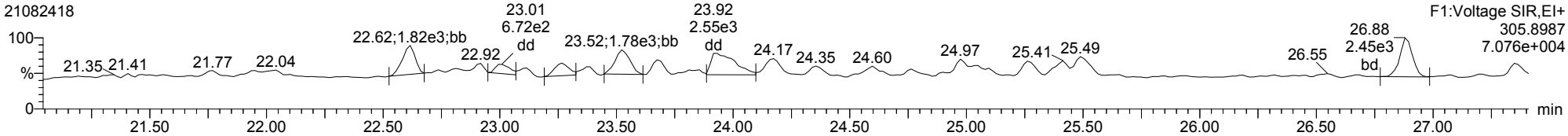
Total-tetrafurans



Total-tetrafurans



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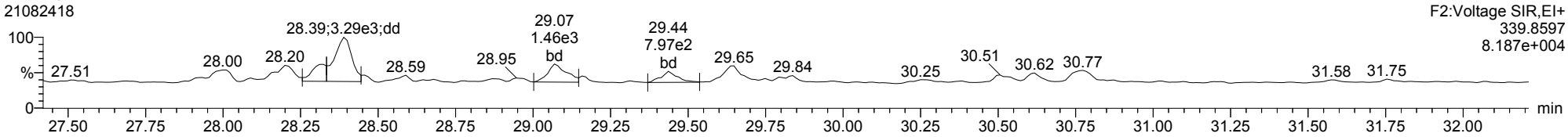

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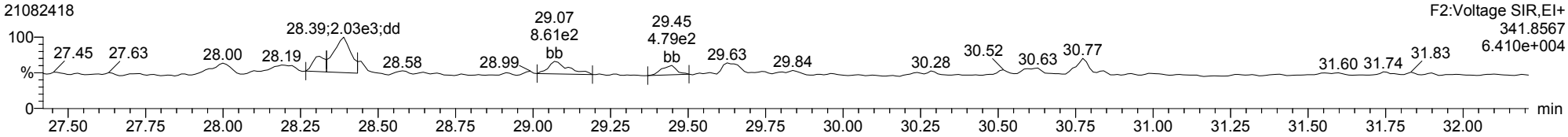
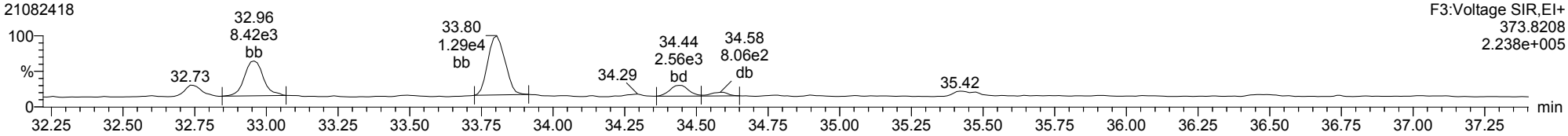
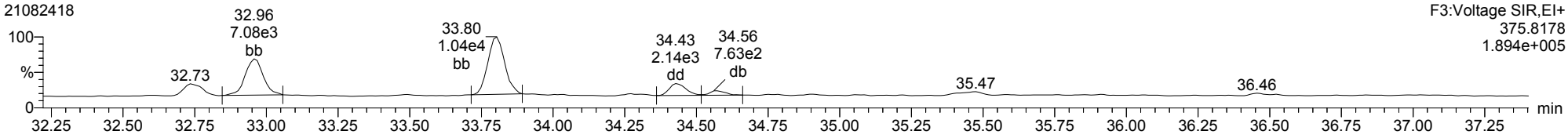


ID: 21G0127-02, Name: 21082418, Date: 25-Aug-2021, Time: 02:08:04, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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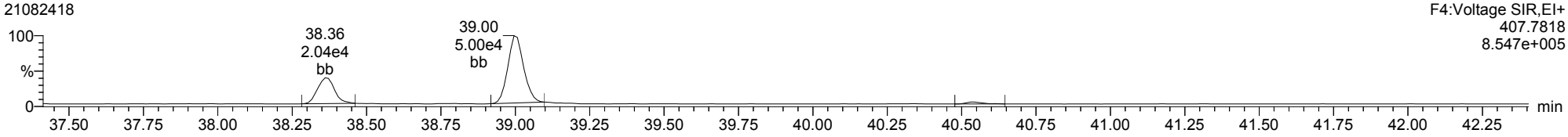

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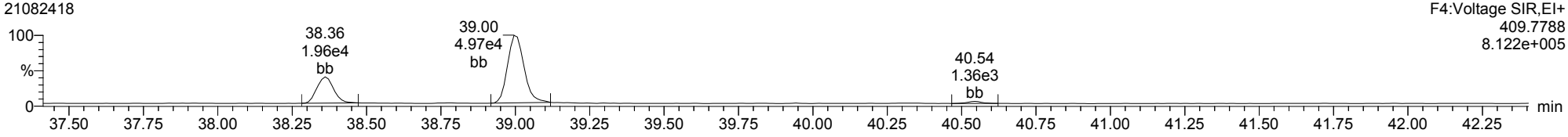

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS651

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0127-03 A	File ID:	21082419
Sampled:	07/12/21 07:35	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 02:56
% Solids:	54.77	Preparation:	EPA 1613	Initial/Final:	18.26 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.852	0.655-0.886	0.202	1.00	0.650	ng/kg	J
1746-01-6	2,3,7,8-TCDD	1	0.332	0.655-0.886	0.177	1.00	0.557	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1	1.788	1.318-1.783	0.168	1.00	0.387	ng/kg	EMPC, J
57117-31-4	2,3,4,7,8-PeCDF	1	2.711	1.318-1.783	0.158	1.00	0.525	ng/kg	EMPC, J
40321-76-4	1,2,3,7,8-PeCDD	1	1.111	1.318-1.783	0.234	1.00	1.04	ng/kg	EMPC
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.237	1.054-1.426	0.245	1.00	2.73	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.129	1.054-1.426	0.240	1.00	0.951	ng/kg	J
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.185	1.054-1.426	0.247	1.00	1.31	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.964	1.054-1.426	0.274	1.00	0.528	ng/kg	EMPC, J
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.281	1.054-1.426	0.205	1.00	1.05	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.072	1.054-1.426	0.202	1.00	4.63	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.185	1.054-1.426	0.218	1.00	2.81	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.964	0.893-1.208	0.142	1.00	25.2	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.082	0.893-1.208	0.195	1.00	2.12	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.059	0.893-1.208	0.494	2.50	137	ng/kg	B
39001-02-0	OCDF	1	0.880	0.757-1.024	0.343	2.50	95.2	ng/kg	
3268-87-9	OCDD	1	0.903	0.757-1.024	0.688	10.0	1130	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	7.60	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	1.48	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	3.88	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	0.960	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	32.9	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	36.6	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	98.7	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	325	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 5.24
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 5.24

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS651

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0127-03	File ID:	21082419
Sampled:	07/12/21 07:35	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 02:56
Solids Wt%:	54.77	Preparation:	EPA 1613	Initial/Final:	18.26 g / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.816	0.655-0.886	0.134	84.4	24 - 169 %	
13C12-2,3,7,8-TCDD		0.755	0.655-0.886	0.149	84.7	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.524	1.318-1.783	0.168	85.9	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.576	1.318-1.783	0.177	85.0	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.600	1.318-1.783	0.233	82.6	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.511	0.434-0.587	0.250	72.5	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.510	0.434-0.587	0.231	69.1	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.521	0.434-0.587	0.256	69.7	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.510	0.434-0.587	0.308	76.8	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.289	1.054-1.426	0.163	78.8	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.240	1.054-1.426	0.150	76.1	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.468	0.374-0.506	0.237	76.6	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.477	0.374-0.506	0.290	78.0	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.092	0.893-1.208	0.200	79.0	23 - 140 %	
13C12-OCDD		0.924	0.757-1.024	0.243	85.9	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.055	92.7	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:33 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.262	1.001	1.452e3	1.704e3	1.108	0.852	0.770	1621	3232	2.15e4	2.32e4	13.2	7.2	NO	dd	dd	0.325
12378-PeCDF	29.425	1.001	1.022e3	5.719e2	1.015	1.788	1.550	1755	1571	1.48e4	1.06e4	8.4	6.8	YES	bd	bb	0.193
23478-PeCDF	30.762	1.000	1.654e3	6.099e2	1.126	2.711	1.550	1755	1571	2.67e4	1.22e4	15.2	7.7	YES	bb	MM	0.263
123478-HxCDF	34.428	1.001	4.809e3	3.889e3	1.017	1.237	1.240	1190	2670	7.14e4	6.11e4	60.0	22.9	NO	dd	bd	1.367
234678-HxCDF	35.430	1.000	2.203e3	1.859e3	1.052	1.185	1.240	1190	2670	2.21e4	2.01e4	18.5	7.5	NO	bb	bb	0.656
123678-HxCDF	34.572	1.001	1.687e3	1.494e3	1.037	1.129	1.240	1190	2670	2.62e4	2.08e4	22.0	7.8	NO	db	db	0.475
123789-HxCDF	36.444	0.999	7.176e2	7.442e2	1.030	0.964	1.240	1190	2670	1.38e4	1.22e4	11.6	4.6	YES	bd	MM	0.264
1234678-HpCDF	38.360	1.001	4.045e4	4.198e4	1.327	0.964	1.050	1207	1158	6.46e5	6.70e5	534.8	578.7	NO	bb	bb	12.595
1234789-HpCDF	40.533	1.000	2.906e3	2.686e3	1.283	1.082	1.050	1207	1158	4.05e4	4.01e4	33.5	34.7	NO	bb	bb	1.061
OCDF	44.665	1.005	9.695e4	1.102e5	1.447	0.880	0.890	1330	1651	1.16e6	1.30e6	870.6	786.6	NO	bd	bd	47.612
2378-TCDD	25.897	1.001	4.402e2	1.326e3	0.920	0.332	0.770	1467	1350	4.79e3	1.14e4	3.3	8.4	YES	bb	bb	0.279
12378-PeCDD	31.018	1.000	1.195e3	1.076e3	0.995	1.111	1.550	1504	995	1.95e4	1.46e4	13.0	14.7	YES	db	bb	0.518
123478-HxCDD	35.575	1.001	1.596e3	1.246e3	1.027	1.281	1.240	1687	1214	2.32e4	2.07e4	13.7	17.0	NO	bd	bd	0.527
123678-HxCDD	35.687	1.001	6.658e3	6.209e3	1.009	1.072	1.240	1687	1214	1.11e5	1.01e5	65.5	83.5	NO	db	db	2.316
123789-HxCDD	36.076	1.012	3.895e3	3.288e3	0.950	1.185	1.240	1687	1214	6.24e4	5.34e4	37.0	44.0	NO	bb	bb	1.405
1234678-HpCDD	39.820	1.000	1.302e5	1.229e5	1.068	1.059	1.050	2199	2201	1.98e6	1.89e6	898.3	857.7	NO	bb	bb	68.311
OCDD	44.455	1.000	9.504e5	1.053e6	1.181	0.903	0.890	1835	3038	1.15e7	1.27e7	6250.6	4174.4	NO	bb	bb	564.235
13C-2378-TCDF	25.247	1.007	3.939e5	4.829e5	1.427	0.816	0.770	2096	1468	5.84e6	7.11e6	2784.8	4845.8	NO	bb	bb	84.352
13C-12378-PeCDF	29.403	1.173	4.903e5	3.218e5	1.297	1.524	1.550	2405	1680	7.08e6	4.55e6	2944.5	2708.2	NO	bb	bd	85.904
13C-23478-PeCDF	30.751	1.227	4.682e5	2.972e5	1.236	1.576	1.550	2405	1680	6.85e6	4.33e6	2845.9	2577.3	NO	bb	bb	84.952
13C-123478-HxCDF	34.405	0.954	2.116e5	4.142e5	1.242	0.511	0.510	2324	3313	3.15e6	6.09e6	1354.4	1839.2	NO	bd	bd	72.515
13C-123678-HxCDF	34.550	0.958	2.179e5	4.273e5	1.343	0.510	0.510	2324	3313	3.14e6	6.10e6	1350.3	1840.0	NO	db	db	69.134
13C-234678-HxCDF	35.430	0.983	2.016e5	3.869e5	1.215	0.521	0.510	2324	3313	3.06e6	5.88e6	1315.0	1773.4	NO	bb	bb	69.738
13C-123789-HxCDF	36.466	1.011	1.815e5	3.561e5	1.008	0.510	0.510	2324	3313	2.77e6	5.46e6	1193.2	1646.3	NO	bb	bb	76.820
13C-1234678-HpCDF	38.338	1.063	1.572e5	3.358e5	0.926	0.468	0.440	1403	2580	2.41e6	5.23e6	1715.3	2025.5	NO	bd	bb	76.617
13C-1234789-HpCDF	40.522	1.124	1.326e5	2.779e5	0.758	0.477	0.440	1403	2580	1.83e6	3.87e6	1304.8	1499.8	NO	bd	bb	77.971
13C-1234-TCDD	25.065	0.000	3.159e5	4.127e5	1.000	0.766	0.770	2149	951	4.86e6	6.36e6	2263.1	6687.1	NO	bb	bb	100.000
13C-2378-TCDD	25.882	1.033	2.963e5	3.926e5	1.116	0.755	0.770	2149	951	4.47e6	5.84e6	2078.3	6143.6	NO	bb	bb	84.676
13C-12378-PeCDD	31.007	1.237	2.712e5	1.695e5	0.732	1.600	1.550	1296	1893	3.96e6	2.46e6	3055.0	1299.4	NO	bb	bb	82.621
13C-123478-HxCDD	35.553	0.986	2.958e5	2.295e5	0.960	1.289	1.240	1386	1447	4.65e6	3.64e6	3357.5	2518.0	NO	bd	bd	78.779
13C-123678-HxCDD	35.664	0.989	3.048e5	2.459e5	1.041	1.240	1.240	1386	1447	4.73e6	3.81e6	3408.6	2632.6	NO	db	db	76.133
13C-1234678-HpCDD	39.809	1.104	1.811e5	1.658e5	0.632	1.092	1.050	1162	1133	2.61e6	2.50e6	2250.0	2207.5	NO	bd	bb	78.974
13C-OCDD	44.436	1.232	2.888e5	3.125e5	0.504	0.924	0.890	950	1268	3.46e6	3.81e6	3642.1	3006.4	NO	bb	bb	171.848
13C-123789-HxCDD	36.054	0.000	3.843e5	3.103e5	1.000	1.239	1.240	1386	1447	6.02e6	4.93e6	4344.2	3408.6	NO	bb	bb	100.000
37CL-2378-TCDD	25.897	1.033	2.929e5		1.084			1119		4.08e6		3642.6			bb		37.097

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
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ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.754	0.862	5.019e2	6.171e2	1.425	0.813	0.770	1621	3232	7.34e3	1.04e4	4.5	3.2	NO	bd	bb	0.090
1289-TCDF	26.743	1.059	8.677e1	8.963e1	1.043	0.968	0.770	1621	3232	2.06e3	2.22e3	1.3	0.7	YES	dd	dd	0.019
13468-PECDF	26.698	0.908	1.184e4	8.319e3	1.376	1.423	1.550	1096	1151	1.64e5	1.13e5	149.5	97.8	NO	bb	db	1.804
12389-PECDF					1.000		1.550	1755	1571								
123468-HXCDF	32.734	0.951	5.337e3	4.122e3	1.087	1.295	1.240	1190	2670	7.45e4	5.90e4	62.6	22.1	NO	bb	bb	1.391
1368-TCDD	23.039	0.890	8.936e2	1.307e3	0.923	0.684	0.770	1467	1350	1.18e4	1.72e4	8.0	12.7	NO	bb	bb	0.346
1289-TCDD	26.532	1.025	1.223e2	7.511e1	0.794	1.628	0.770	1467	1350	2.47e3	2.00e3	1.7	1.5	YES	bb	bb	0.036
12479-PECDD	28.333	0.914	1.854e3	1.503e3	1.843	1.233	1.550	1504	995	3.20e4	2.18e4	21.3	21.9	YES	db	db	0.413
12389-PECDD					1.154		1.550	1504	995								
124679-HXCDD	33.525	0.943	1.920e4	1.543e4	1.125	1.244	1.240	1687	1214	2.80e5	2.16e5	166.2	178.2	NO	bd	bb	5.862
1234679-HPCDD	38.795	0.975	2.021e5	1.940e5	1.211	1.042	1.050	2199	2201	3.28e6	3.18e6	1490.7	1443.7	NO	bb	bb	94.280
Total-tetrafurans			1.741e4		1.192			1621		2.43e5							3.802
Total-penta1			1.184e4					1096		1.64e5							1.804
Total-pentafurans			6.891e2		1.047			1755		1.72e4							0.139
Total-hexafurans			5.724e4		1.045			1190		8.09e5							16.448
Total-heptafurans			1.523e5		1.305			1207		2.39e6							49.370
Total-Furans			3.370e5		1.158			1621		4.79e6							119.299
Total-tetradioxins			1.988e3		0.879			1467		2.82e4							0.740
Total-pentadioxins			1.791e3		1.331			1504		2.55e4							0.480
Total-hexadioxins			5.661e4		1.028			1687		7.57e5							18.298
Total-heptadioxins			3.323e5		1.140			2199		5.25e6							162.591
Total-Dioxins			1.343e6		1.092			1467		1.75e7							746.344
Total-TEQ			1.680e6					1467		2.23e7							865.643
FUNCTION1 PFK			2.480e4					594248		9.80e5							
FUNCTION2 PFK			2.810e5					364747		1.30e6							0.000
FUNCTION3 PFK			6.169e5					526524		1.83e7							0.000
FUNCTION4 PFK			0.000e0					304183		0.00e0							
FUNCTION5 PFK			4.057e6					212919		1.22e7							
FUNCTION1 HXCD...			1.617e3					631		2.97e4							0.000
FUNCTION1 HPCD...			1.028e4					767		1.59e5							0.000
FUNCTION2 HPCD...			6.046e2					830		1.18e4							0.000
FUNCTION3 OCDPE			8.314e2					731		1.27e4							0.000
FUNCTION4 NCDPE			2.515e4					799		4.28e5							0.000
FUNCTION5 DCDPE			1.942e2					753		2.44e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:33 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.39	1.055e3	1.335e3	1.192	0.79	0.77	7.8	YES	NO	dd	dd	0.229
2	Total-tetrafurans	23.01	1.109e3	1.626e3	1.192	0.68	0.77	8.8	YES	NO	dd	dd	0.262
3	Total-tetrafurans	22.92	1.187e3	1.635e3	1.192	0.73	0.77	9.4	YES	NO	dd	dd	0.270
4	Total-tetrafurans	22.74	5.150e2	5.951e2	1.192	0.87	0.77	4.9	YES	NO	dd	dd	0.106
5	Total-tetrafurans	22.60	2.309e3	3.230e3	1.192	0.71	0.77	21.4	YES	NO	bd	bd	0.530
6	Total-tetrafurans	22.03	8.057e2	9.791e2	1.192	0.82	0.77	6.2	YES	NO	db	bb	0.171
7	1368-TCDF	21.75	5.019e2	6.171e2	1.425	0.81	0.77	4.5	YES	NO	bd	bb	0.090
8	Total-tetrafurans	25.49	1.634e3	1.903e3	1.192	0.86	0.77	14.4	YES	NO	db	dd	0.338
9	2378-TCDF	25.26	1.452e3	1.704e3	1.108	0.85	0.77	13.2	YES	NO	dd	dd	0.325
10	Total-tetrafurans	24.35	1.081e3	1.275e3	1.192	0.85	0.77	10.1	YES	NO	dd	db	0.225
11	Total-tetrafurans	23.52	3.117e3	3.808e3	1.192	0.82	0.77	25.7	YES	NO	dd	dd	0.663
12	Total-tetrafurans	26.89	2.641e3	3.560e3	1.192	0.74	0.77	23.6	YES	NO	db	dd	0.593

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.70	1.184e4	8.319e3	1.376	1.42	1.55	149.5	YES	NO	bb	db	1.804

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	27.99	6.891e2	4.555e2	1.047	1.51	1.55	9.8	YES	NO	bb	bb	0.139

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	32.95	1.652e4	1.333e4	1.045	1.24	1.24	198.2	YES	NO	bd	bb	4.769
2	123468-HXCDF	32.73	5.337e3	4.122e3	1.087	1.29	1.24	62.6	YES	NO	bb	bb	1.391
3	234678-HxCDF	35.43	2.203e3	1.859e3	1.052	1.19	1.24	18.5	YES	NO	bb	bb	0.656
4	123678-HxCDF	34.57	1.687e3	1.494e3	1.037	1.13	1.24	22.0	YES	NO	db	db	0.475
5	123478-HxCDF	34.43	4.809e3	3.889e3	1.017	1.24	1.24	60.0	YES	NO	dd	bd	1.367
6	Total-hexafurans	33.79	2.669e4	2.208e4	1.045	1.21	1.24	318.0	YES	NO	bb	bb	7.790

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.00	1.090e5	1.016e5	1.305	1.07	1.05	1411.5	YES	NO	bb	bb	35.713
2	1234678-HpCDF	38.36	4.045e4	4.198e4	1.327	0.96	1.05	534.8	YES	NO	bb	bb	12.595
3	1234789-HpCDF	40.53	2.906e3	2.686e3	1.283	1.08	1.05	33.5	YES	NO	bb	bb	1.061

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.39	1.055e3	1.335e3	1.192	0.79	0.77	7.8	YES	NO	dd	dd	0.229
2	Total-tetrafurans	23.01	1.109e3	1.626e3	1.192	0.68	0.77	8.8	YES	NO	dd	dd	0.262
3	Total-tetrafurans	22.92	1.187e3	1.635e3	1.192	0.73	0.77	9.4	YES	NO	dd	dd	0.270
4	Total-tetrafurans	22.74	5.150e2	5.951e2	1.192	0.87	0.77	4.9	YES	NO	dd	dd	0.106
5	Total-tetrafurans	22.60	2.309e3	3.230e3	1.192	0.71	0.77	21.4	YES	NO	bd	bd	0.530
6	Total-tetrafurans	22.03	8.057e2	9.791e2	1.192	0.82	0.77	6.2	YES	NO	db	bb	0.171
7	1368-TCDF	21.75	5.019e2	6.171e2	1.425	0.81	0.77	4.5	YES	NO	bd	bb	0.090
8	Total-tetrafurans	25.49	1.634e3	1.903e3	1.192	0.86	0.77	14.4	YES	NO	db	dd	0.338
9	2378-TCDF	25.26	1.452e3	1.704e3	1.108	0.85	0.77	13.2	YES	NO	dd	dd	0.325
10	Total-tetrafurans	24.35	1.081e3	1.275e3	1.192	0.85	0.77	10.1	YES	NO	dd	db	0.225
11	Total-tetrafurans	23.52	3.117e3	3.808e3	1.192	0.82	0.77	25.7	YES	NO	dd	dd	0.663
12	Total-Furans	27.36	5.420e2	7.218e2	1.158	0.75	0.77	6.9	YES	NO	bb	bb	0.124
13	Total-tetrafurans	26.89	2.641e3	3.560e3	1.192	0.74	0.77	23.6	YES	NO	db	dd	0.593
14	Total-pentafurans	27.99	6.891e2	4.555e2	1.047	1.51	1.55	9.8	YES	NO	bb	bb	0.139
15	Total-hexafurans	32.95	1.652e4	1.333e4	1.045	1.24	1.24	198.2	YES	NO	bd	bb	4.769
16	123468-HXCDF	32.73	5.337e3	4.122e3	1.087	1.29	1.24	62.6	YES	NO	bb	bb	1.391
17	234678-HxCDF	35.43	2.203e3	1.859e3	1.052	1.19	1.24	18.5	YES	NO	bb	bb	0.656
18	123678-HxCDF	34.57	1.687e3	1.494e3	1.037	1.13	1.24	22.0	YES	NO	db	db	0.475
19	123478-HxCDF	34.43	4.809e3	3.889e3	1.017	1.24	1.24	60.0	YES	NO	dd	bd	1.367
20	Total-hexafurans	33.79	2.669e4	2.208e4	1.045	1.21	1.24	318.0	YES	NO	bb	bb	7.790
21	Total-heptafurans	39.00	1.090e5	1.016e5	1.305	1.07	1.05	1411.5	YES	NO	bb	bb	35.713
22	1234678-HpCDF	38.36	4.045e4	4.198e4	1.327	0.96	1.05	534.8	YES	NO	bb	bb	12.595
23	1234789-HpCDF	40.53	2.906e3	2.686e3	1.283	1.08	1.05	33.5	YES	NO	bb	bb	1.061
24	OCDF	44.67	9.695e4	1.102e5	1.447	0.88	0.89	870.6	YES	NO	bd	bd	47.612
25	13468-PECDF	26.70	1.184e4	8.319e3	1.376	1.42	1.55	149.5	YES	NO	bb	db	1.804

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:33 Pacific Daylight Time

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.54	4.116e2	4.774e2	0.879	0.86	0.77	4.5	YES	NO	bd	bb	0.147
2	Total-tetradioxins	23.31	6.831e2	8.122e2	0.879	0.84	0.77	6.7	YES	NO	bd	bd	0.247
3	1368-TCDD	23.04	8.936e2	1.307e3	0.923	0.68	0.77	8.0	YES	NO	bb	bb	0.346

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.77	1.162e3	6.590e2	1.331	1.76	1.55	9.1	YES	NO	dd	dd	0.311
2	Total-pentadioxins	28.80	6.289e2	3.659e2	1.331	1.72	1.55	7.9	YES	NO	bb	bb	0.170

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	34.31	2.956e3	2.684e3	1.028	1.10	1.24	28.2	YES	NO	bb	bb	1.020
2	124679-HXCDD	33.53	1.920e4	1.543e4	1.125	1.24	1.24	166.2	YES	NO	bd	bb	5.862
3	123789-HxCDD	36.08	3.895e3	3.288e3	0.950	1.18	1.24	37.0	YES	NO	bb	bb	1.405
4	123678-HxCDD	35.69	6.658e3	6.209e3	1.009	1.07	1.24	65.5	YES	NO	db	db	2.316
5	123478-HxCDD	35.58	1.596e3	1.246e3	1.027	1.28	1.24	13.7	YES	NO	bd	bd	0.527
6	Total-hexadioxins	34.67	2.230e4	1.735e4	1.028	1.29	1.24	138.2	YES	NO	bd	bd	7.170

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.82	1.302e5	1.229e5	1.068	1.06	1.05	898.3	YES	NO	bb	bb	68.311
2	1234679-HPCDD	38.79	2.021e5	1.940e5	1.211	1.04	1.05	1490.7	YES	NO	bb	bb	94.280

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.54	4.116e2	4.774e2	0.879	0.86	0.77	4.5	YES	NO	bd	bb	0.147
2	Total-tetradioxins	23.31	6.831e2	8.122e2	0.879	0.84	0.77	6.7	YES	NO	bd	bd	0.247
3	1368-TCDD	23.04	8.936e2	1.307e3	0.923	0.68	0.77	8.0	YES	NO	bb	bb	0.346
4	Total-pentadioxins	29.77	1.162e3	6.590e2	1.331	1.76	1.55	9.1	YES	NO	dd	dd	0.311
5	Total-pentadioxins	28.80	6.289e2	3.659e2	1.331	1.72	1.55	7.9	YES	NO	bb	bb	0.170
6	Total-hexadioxins	34.31	2.956e3	2.684e3	1.028	1.10	1.24	28.2	YES	NO	bb	bb	1.020
7	124679-HXCDD	33.53	1.920e4	1.543e4	1.125	1.24	1.24	166.2	YES	NO	bd	bb	5.862
8	123789-HxCDD	36.08	3.895e3	3.288e3	0.950	1.18	1.24	37.0	YES	NO	bb	bb	1.405
9	123678-HxCDD	35.69	6.658e3	6.209e3	1.009	1.07	1.24	65.5	YES	NO	db	db	2.316
10	123478-HxCDD	35.58	1.596e3	1.246e3	1.027	1.28	1.24	13.7	YES	NO	bd	bd	0.527
11	Total-hexadioxins	34.67	2.230e4	1.735e4	1.028	1.29	1.24	138.2	YES	NO	bd	bd	7.170
12	1234678-HpCDD	39.82	1.302e5	1.229e5	1.068	1.06	1.05	898.3	YES	NO	bb	bb	68.311
13	1234679-HPCDD	38.79	2.021e5	1.940e5	1.211	1.04	1.05	1490.7	YES	NO	bb	bb	94.280
14	OCDD	44.45	9.504e5	1.053e6	1.181	0.90	0.89	6250.6	YES	NO	bb	bb	564.235

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.39	1.055e3	1.335e3	1.192	0.79	0.77	7.8	YES	NO	dd	dd	0.229
2	Total-tetrafurans	23.01	1.109e3	1.626e3	1.192	0.68	0.77	8.8	YES	NO	dd	dd	0.262
3	Total-tetrafurans	22.92	1.187e3	1.635e3	1.192	0.73	0.77	9.4	YES	NO	dd	dd	0.270
4	Total-tetrafurans	22.74	5.150e2	5.951e2	1.192	0.87	0.77	4.9	YES	NO	dd	dd	0.106
5	Total-tetrafurans	22.60	2.309e3	3.230e3	1.192	0.71	0.77	21.4	YES	NO	bd	bd	0.530
6	Total-tetrafurans	22.03	8.057e2	9.791e2	1.192	0.82	0.77	6.2	YES	NO	db	bb	0.171
7	1368-TCDF	21.75	5.019e2	6.171e2	1.425	0.81	0.77	4.5	YES	NO	bd	bb	0.090
8	Total-tetrafurans	25.49	1.634e3	1.903e3	1.192	0.86	0.77	14.4	YES	NO	db	dd	0.338
9	2378-TCDF	25.26	1.452e3	1.704e3	1.108	0.85	0.77	13.2	YES	NO	dd	dd	0.325
10	Total-tetrafurans	24.35	1.081e3	1.275e3	1.192	0.85	0.77	10.1	YES	NO	dd	db	0.225
11	Total-tetrafurans	23.52	3.117e3	3.808e3	1.192	0.82	0.77	25.7	YES	NO	dd	dd	0.663
12	Total-Furans	27.36	5.420e2	7.218e2	1.158	0.75	0.77	6.9	YES	NO	bb	bb	0.124
13	Total-tetrafurans	26.89	2.641e3	3.560e3	1.192	0.74	0.77	23.6	YES	NO	db	dd	0.593
14	Total-pentafurans	27.99	6.891e2	4.555e2	1.047	1.51	1.55	9.8	YES	NO	bb	bb	0.139
15	Total-hexafurans	32.95	1.652e4	1.333e4	1.045	1.24	1.24	198.2	YES	NO	bd	bb	4.769
16	123468-HXCDF	32.73	5.337e3	4.122e3	1.087	1.29	1.24	62.6	YES	NO	bb	bb	1.391
17	234678-HxCDF	35.43	2.203e3	1.859e3	1.052	1.19	1.24	18.5	YES	NO	bb	bb	0.656
18	123678-HxCDF	34.57	1.687e3	1.494e3	1.037	1.13	1.24	22.0	YES	NO	db	db	0.475
19	123478-HxCDF	34.43	4.809e3	3.889e3	1.017	1.24	1.24	60.0	YES	NO	dd	bd	1.367
20	Total-hexafurans	33.79	2.669e4	2.208e4	1.045	1.21	1.24	318.0	YES	NO	bb	bb	7.790
21	Total-heptafurans	39.00	1.090e5	1.016e5	1.305	1.07	1.05	1411.5	YES	NO	bb	bb	35.713
22	1234678-HpCDF	38.36	4.045e4	4.198e4	1.327	0.96	1.05	534.8	YES	NO	bb	bb	12.595
23	1234789-HpCDF	40.53	2.906e3	2.686e3	1.283	1.08	1.05	33.5	YES	NO	bb	bb	1.061
24	OCDF	44.67	9.695e4	1.102e5	1.447	0.88	0.89	870.6	YES	NO	bd	bd	47.612
25	13468-PECDF	26.70	1.184e4	8.319e3	1.376	1.42	1.55	149.5	YES	NO	bb	db	1.804
26	Total-tetradioxins	24.54	4.116e2	4.774e2	0.879	0.86	0.77	4.5	YES	NO	bd	bb	0.147
27	Total-tetradioxins	23.31	6.831e2	8.122e2	0.879	0.84	0.77	6.7	YES	NO	bd	bd	0.247
28	1368-TCDD	23.04	8.936e2	1.307e3	0.923	0.68	0.77	8.0	YES	NO	bb	bb	0.346
29	Total-pentadioxins	29.77	1.162e3	6.590e2	1.331	1.76	1.55	9.1	YES	NO	dd	dd	0.311
30	Total-pentadioxins	28.80	6.289e2	3.659e2	1.331	1.72	1.55	7.9	YES	NO	bb	bb	0.170
31	Total-hexadioxins	34.31	2.956e3	2.684e3	1.028	1.10	1.24	28.2	YES	NO	bb	bb	1.020
32	124679-HXCDD	33.53	1.920e4	1.543e4	1.125	1.24	1.24	166.2	YES	NO	bd	bb	5.862
33	123789-HxCDD	36.08	3.895e3	3.288e3	0.950	1.18	1.24	37.0	YES	NO	bb	bb	1.405
34	123678-HxCDD	35.69	6.658e3	6.209e3	1.009	1.07	1.24	65.5	YES	NO	db	db	2.316
35	123478-HxCDD	35.58	1.596e3	1.246e3	1.027	1.28	1.24	13.7	YES	NO	bd	bd	0.527
36	Total-hexadioxins	34.67	2.230e4	1.735e4	1.028	1.29	1.24	138.2	YES	NO	bd	bd	7.170
37	1234678-HpCDD	39.82	1.302e5	1.229e5	1.068	1.06	1.05	898.3	YES	NO	bb	bb	68.311

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234679-HPCDD	38.79	2.021e5	1.940e5	1.211	1.04	1.05	1490.7	YES	NO	bb	bb	94.280
39	OCDD	44.45	9.504e5	1.053e6	1.181	0.90	0.89	6250.6	YES	NO	bb	bb	564.235

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.24	2.480e4					1.6	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.96	2.810e5					3.6	YES		bb		0.000

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.68	3.682e4					1.4	NO		bb		0.000
2	FUNCTION3 PFK	35.56	1.396e4					0.9	NO		bb		0.000
3	FUNCTION3 PFK	35.30	2.169e3					0.4	NO		bb		0.000
4	FUNCTION3 PFK	34.95	3.747e4					1.8	NO		bb		0.000
5	FUNCTION3 PFK	34.07	2.343e4					1.5	NO		db		0.000
6	FUNCTION3 PFK	34.04	1.488e4					1.2	NO		bd		0.000
7	FUNCTION3 PFK	33.86	1.443e4					1.1	NO		bb		0.000
8	FUNCTION3 PFK	33.75	3.401e4					1.2	NO		bb		0.000
9	FUNCTION3 PFK	33.31	4.349e3					0.5	NO		bb		0.000
10	FUNCTION3 PFK	33.10	2.178e3					0.4	NO		bb		0.000
11	FUNCTION3 PFK	32.70	3.410e4					1.7	NO		bb		0.000
12	FUNCTION3 PFK	37.16	1.193e4					1.0	NO		bd		0.000
13	FUNCTION3 PFK	37.06	2.339e4					1.2	NO		bb		0.000
14	FUNCTION3 PFK	36.93	8.722e3					0.9	NO		bb		0.000
15	FUNCTION3 PFK	36.89	3.248e3					0.6	NO		bb		0.000
16	FUNCTION3 PFK	36.79	2.348e3					0.4	NO		bb		0.000
17	FUNCTION3 PFK	36.73	9.013e3					0.6	NO		bb		0.000
18	FUNCTION3 PFK	36.62	2.192e4					0.9	NO		bb		0.000
19	FUNCTION3 PFK	36.48	3.197e4					1.5	NO		db		0.000
20	FUNCTION3 PFK	36.44	2.308e4					1.4	NO		bd		0.000
21	FUNCTION3 PFK	36.32	4.592e4					2.4	NO		db		0.000
22	FUNCTION3 PFK	36.27	3.407e4					1.6	NO		dd		0.000
23	FUNCTION3 PFK	36.22	1.961e4					1.5	NO		bd		0.000
24	FUNCTION3 PFK	36.09	1.771e4					1.1	NO		bb		0.000
25	FUNCTION3 PFK	36.02	2.950e4					1.4	NO		db		0.000
26	FUNCTION3 PFK	35.93	3.002e4					1.5	NO		bd		0.000
27	FUNCTION3 PFK	35.79	2.935e4					1.9	NO		bb		0.000
28	FUNCTION3 PFK	37.24	3.955e4					1.6	NO		db		0.000
29	FUNCTION3 PFK	37.19	1.773e4					1.1	NO		dd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.78	4.885e3					1.2	NO		bb		
2	FUNCTION5 PFK	44.99	1.150e3					0.6	NO		bb		
3	FUNCTION5 PFK	44.67	1.769e4					1.8	NO		bb		
4	FUNCTION5 PFK	44.04	1.723e3					0.6	NO		bb		
5	FUNCTION5 PFK	43.68	2.913e3					0.7	NO		bb		
6	FUNCTION5 PFK	43.64	3.957e3					0.7	NO		bb		
7	FUNCTION5 PFK	43.49	8.835e3					1.4	NO		bb		
8	FUNCTION5 PFK	43.25	3.404e3					0.9	NO		bb		
9	FUNCTION5 PFK	42.97	1.507e6					14.2	YES		db		
10	FUNCTION5 PFK	42.67	2.506e6					35.3	YES		bd		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.53	7.941e1					1.5	NO		bb		0.000
2	FUNCTION1 HXCD...	25.64	1.626e2					5.6	YES		bb		0.000
3	FUNCTION1 HXCD...	25.43	2.159e2					8.8	YES		db		0.000
4	FUNCTION1 HXCD...	25.40	2.165e2					8.4	YES		dd		0.000
5	FUNCTION1 HXCD...	25.29	2.257e2					4.5	YES		dd		0.000
6	FUNCTION1 HXCD...	25.14	7.315e1					2.1	NO		dd		0.000
7	FUNCTION1 HXCD...	25.08	1.477e2					3.9	YES		bd		0.000
8	FUNCTION1 HXCD...	24.58	7.441e1					1.8	NO		bb		0.000
9	FUNCTION1 HXCD...	23.49	9.166e1					2.4	NO		bb		0.000
10	FUNCTION1 HXCD...	23.28	1.723e2					3.6	YES		bb		0.000
11	FUNCTION1 HXCD...	21.81	1.580e2					4.5	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	25.91	2.163e2					4.7	YES		bb		0.000
2	FUNCTION1 HPCD...	22.84	1.544e3					27.7	YES		bb		0.000
3	FUNCTION1 HPCD...	22.07	7.857e1					2.0	NO		bb		0.000
4	FUNCTION1 HPCD...	21.81	1.279e2					4.3	YES		bb		0.000
5	FUNCTION1 HPCD...	21.53	8.239e3					166.4	YES		bb		0.000
6	FUNCTION1 HPCD...	26.09	7.894e1					2.3	NO		bb		0.000

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Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:33 Pacific Daylight Time

ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.63	7.180e1					2.2	NO		bb		0.000
2	FUNCTION2 HPCD...	30.88	1.208e2					2.6	NO		bb		0.000
3	FUNCTION2 HPCD...	29.49	9.097e1					2.3	NO		bb		0.000
4	FUNCTION2 HPCD...	28.47	2.019e2					4.3	YES		db		0.000
5	FUNCTION2 HPCD...	28.37	1.191e2					2.9	NO		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.88	7.207e1					1.8	NO		bb		0.000
2	FUNCTION3 OCDPE	36.20	7.065e1					2.0	NO		db		0.000
3	FUNCTION3 OCDPE	36.05	2.108e2					4.0	YES		bd		0.000
4	FUNCTION3 OCDPE	35.69	1.283e2					2.8	NO		bb		0.000
5	FUNCTION3 OCDPE	34.41	1.157e2					2.2	NO		bb		0.000
6	FUNCTION3 OCDPE	32.58	2.339e2					4.5	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	37.98	2.490e4					526.7	YES		bd		0.000
2	FUNCTION4 NCDPE	40.87	1.015e2					2.6	NO		bb		0.000
3	FUNCTION4 NCDPE	38.10	1.433e2					6.5	YES		db		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.49	1.942e2					3.2	YES		bb		0.000

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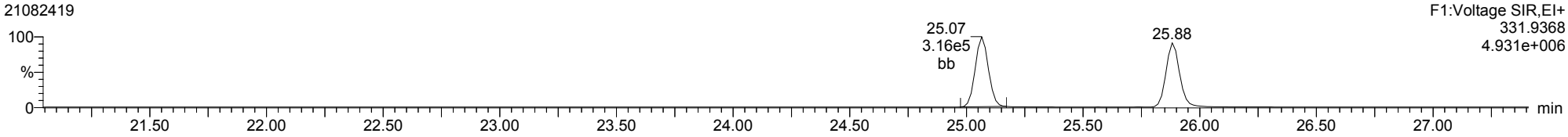

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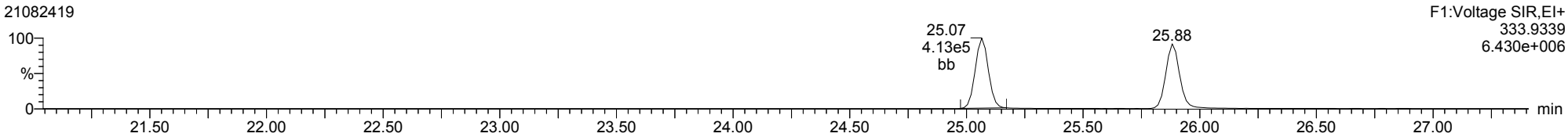

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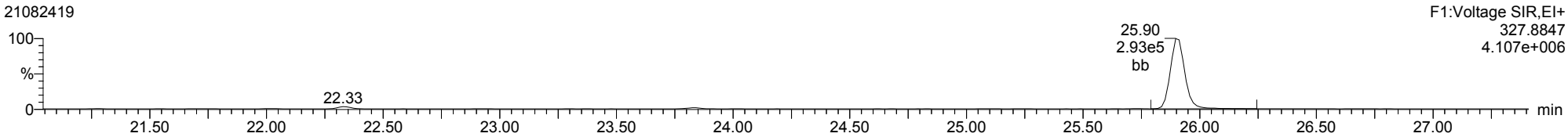

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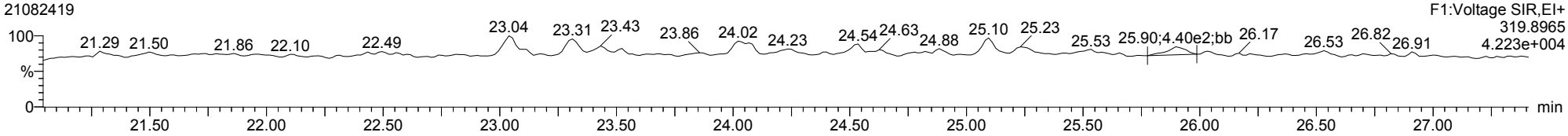

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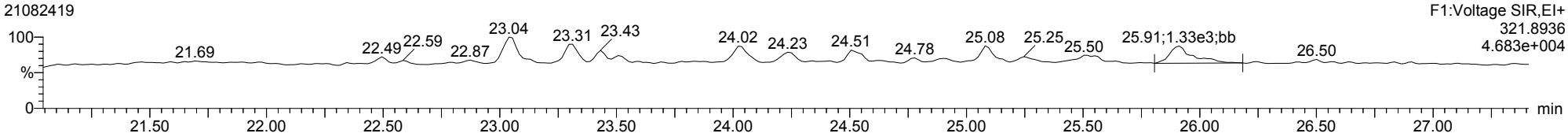

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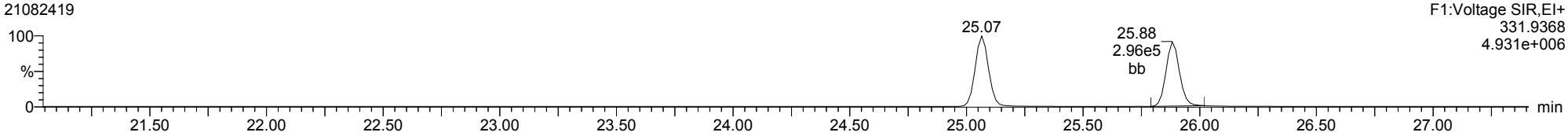

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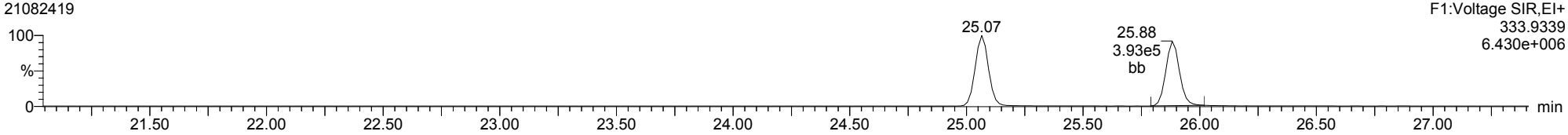

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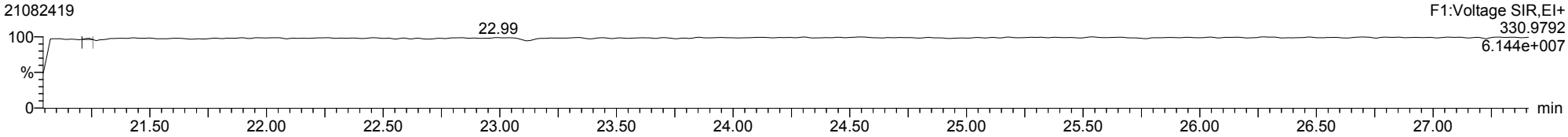

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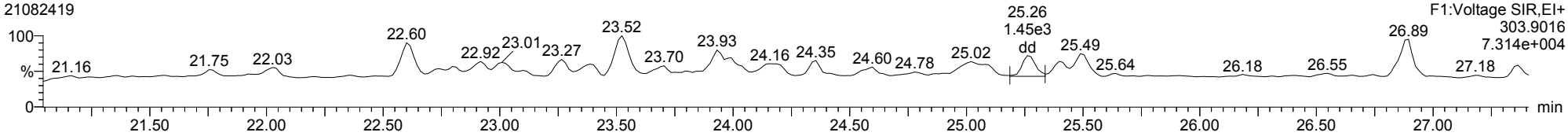

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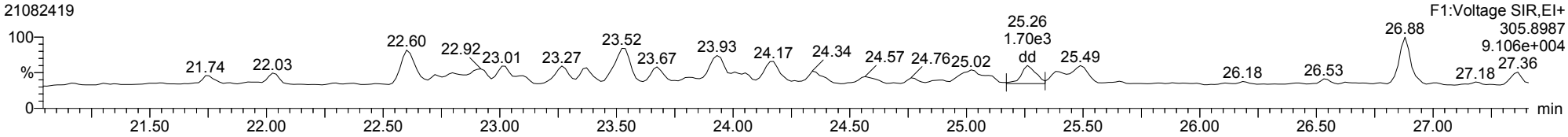

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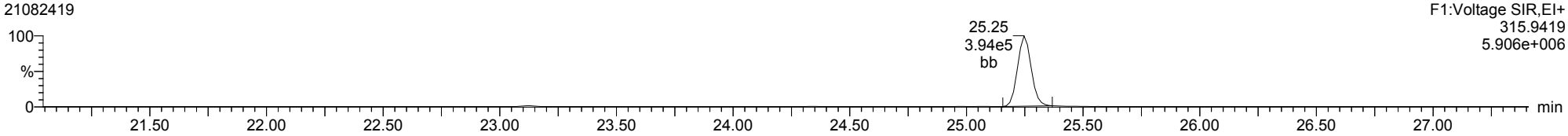

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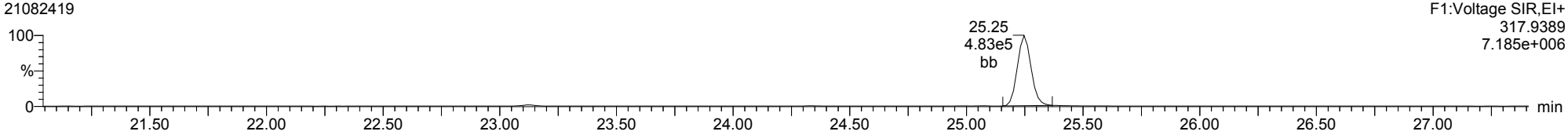

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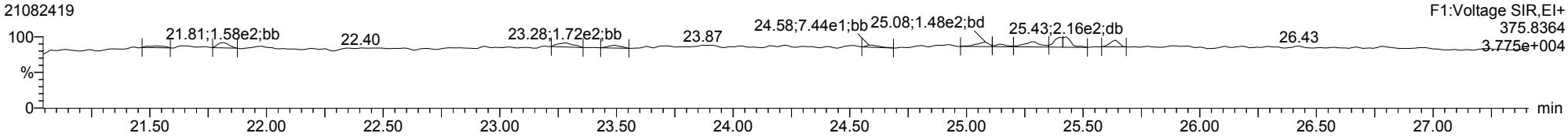

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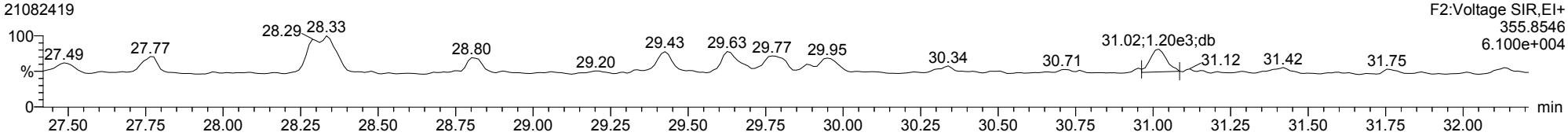

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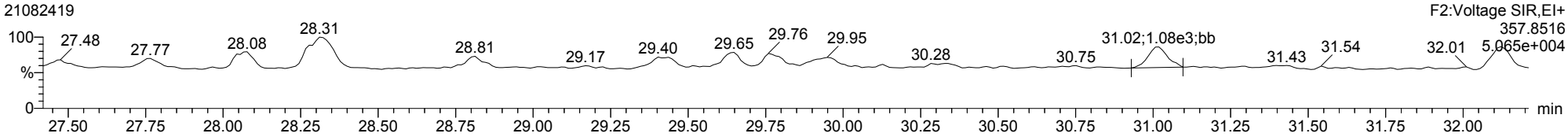

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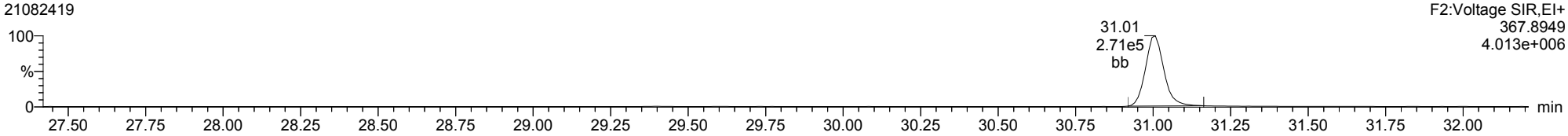

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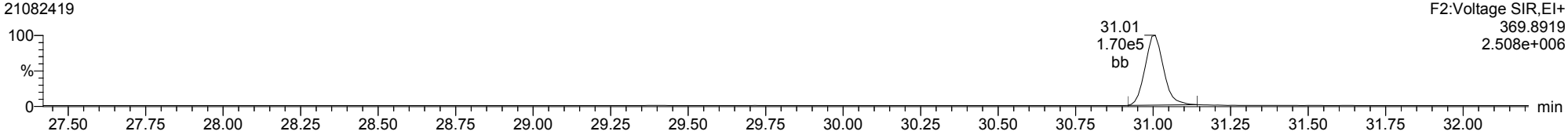
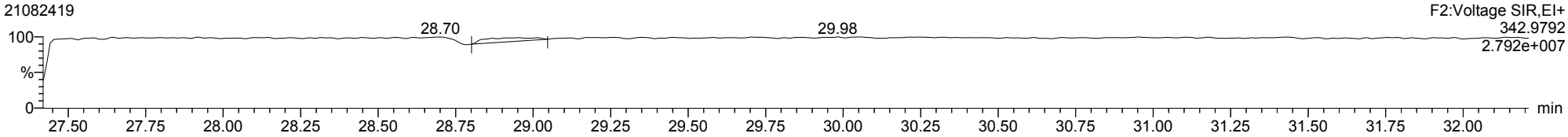


FUNCTION2 PFK



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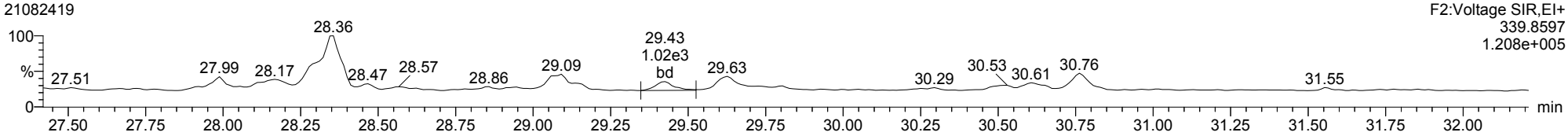

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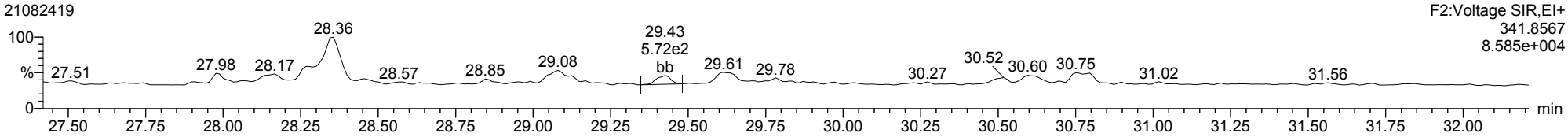

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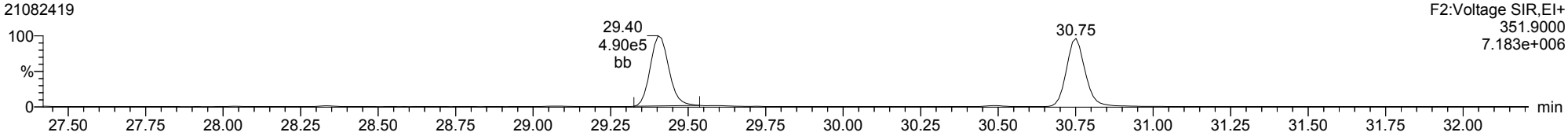

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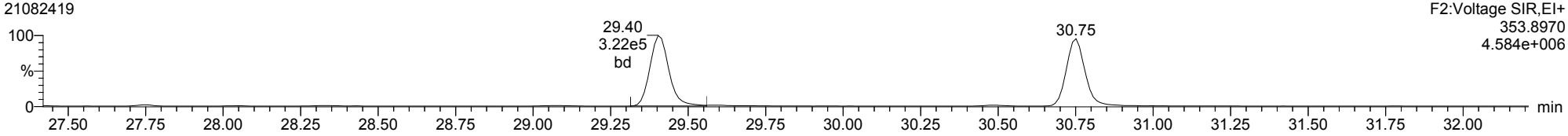
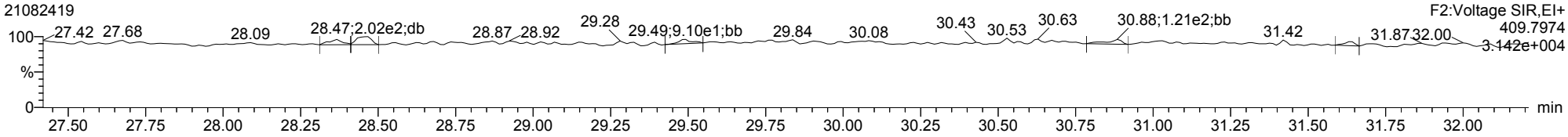


FUNCTION2 HPCDPE



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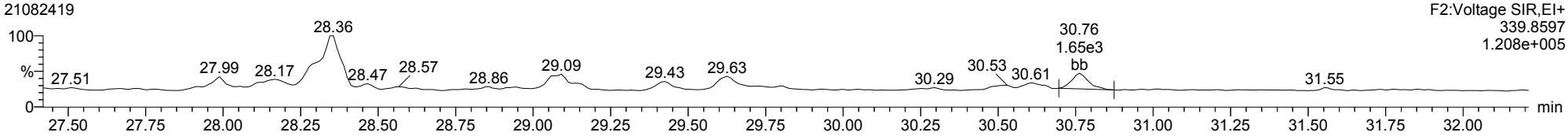
23478-PeCDF



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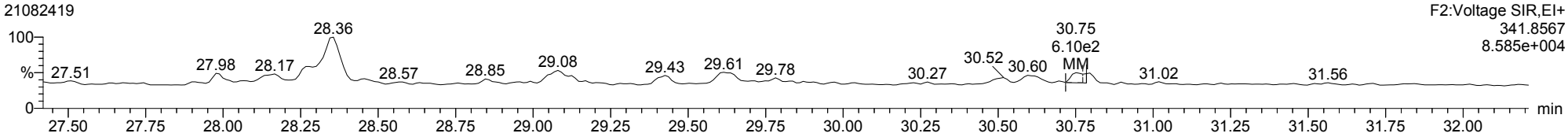

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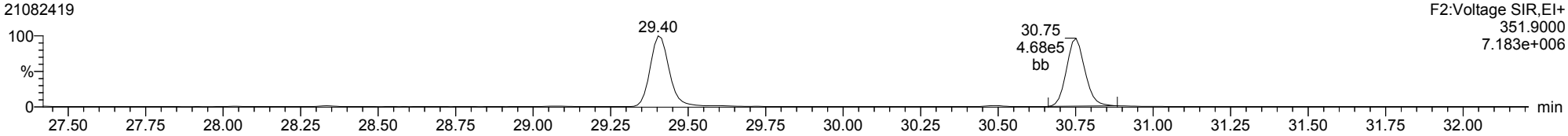

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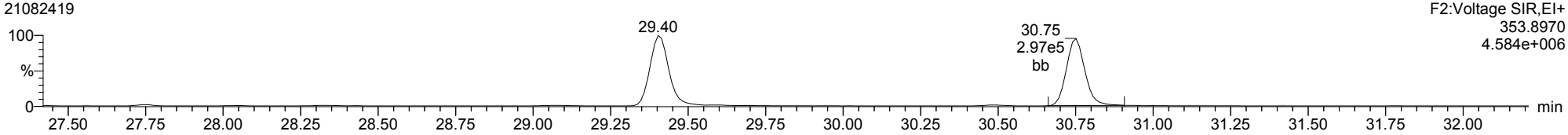

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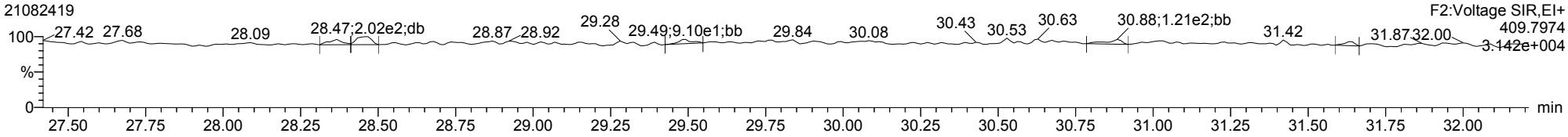

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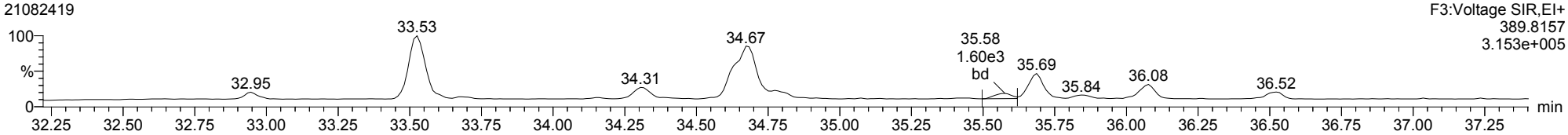

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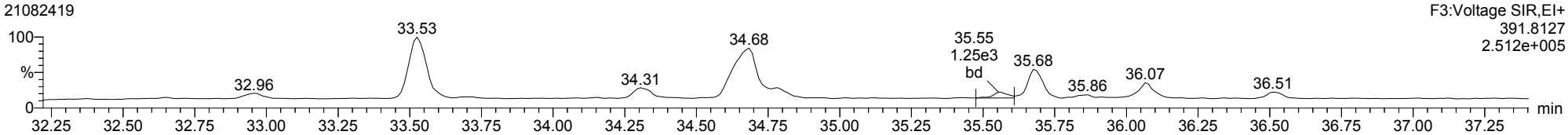

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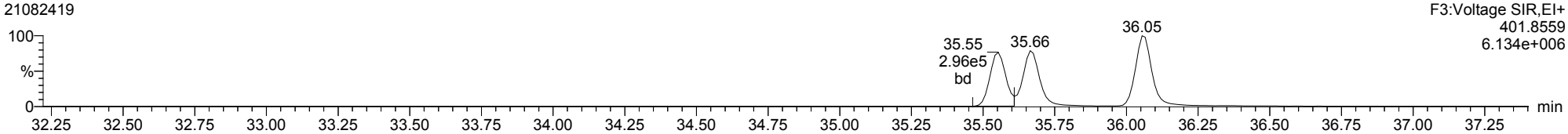

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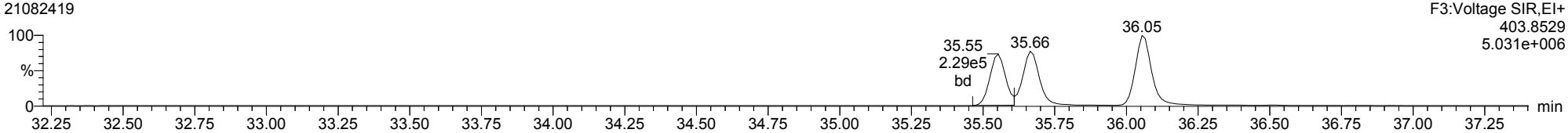

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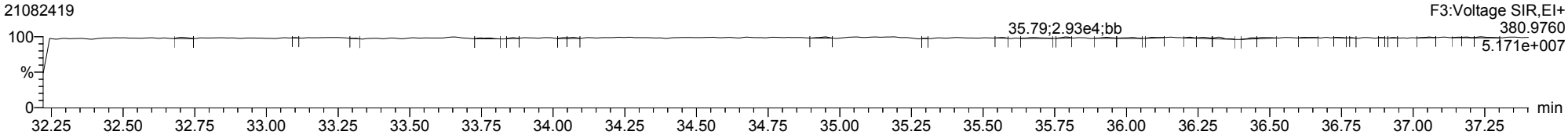

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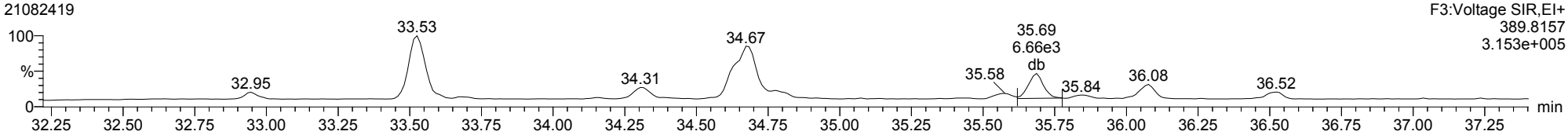

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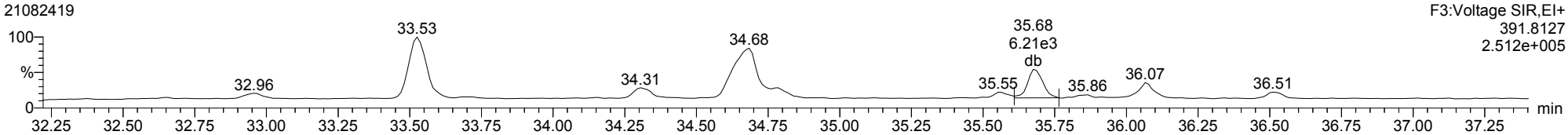

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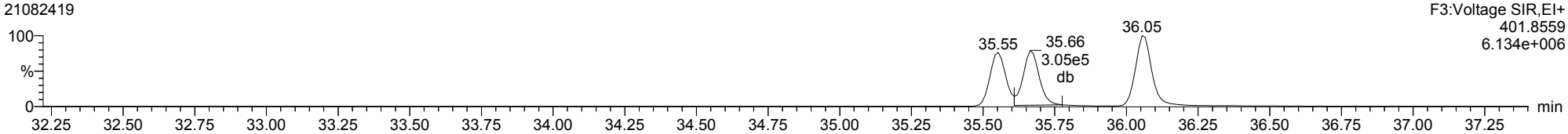

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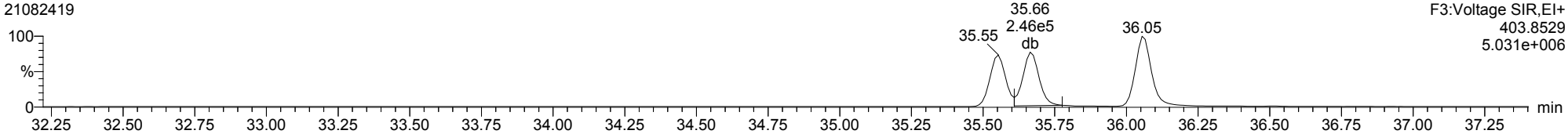

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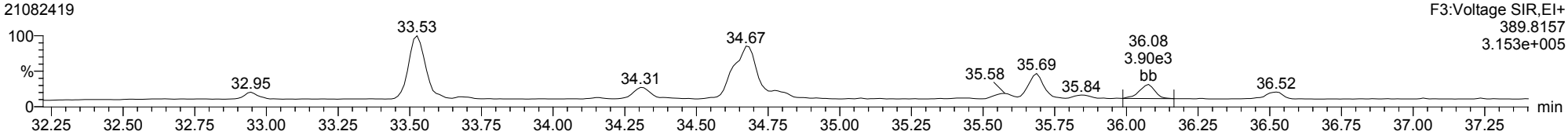

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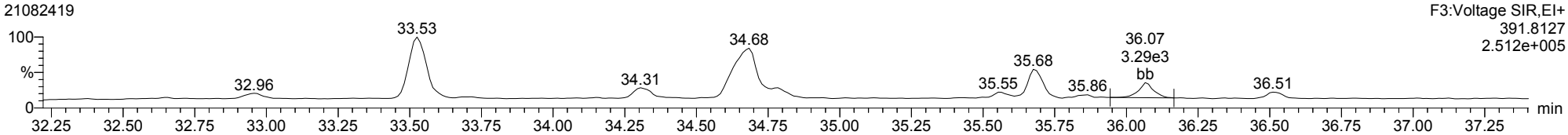

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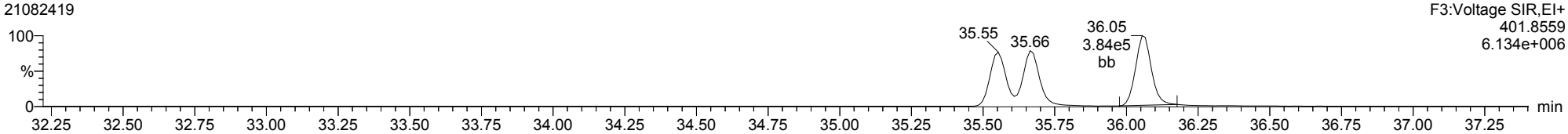

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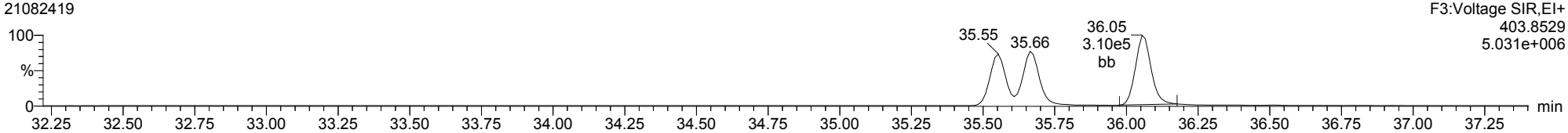

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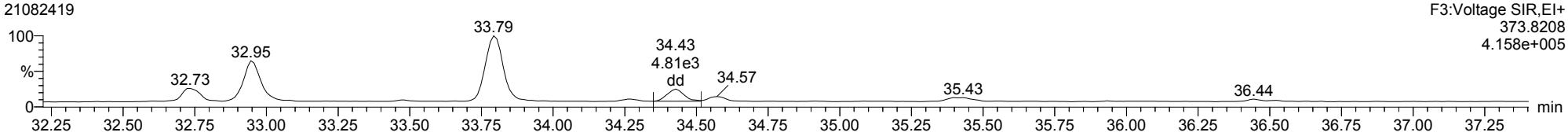

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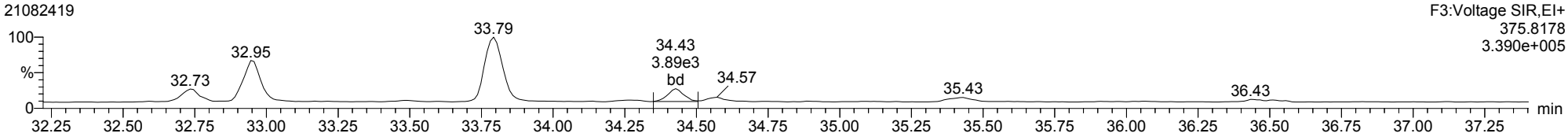

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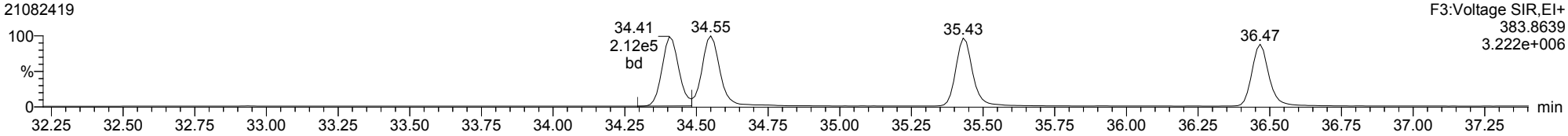

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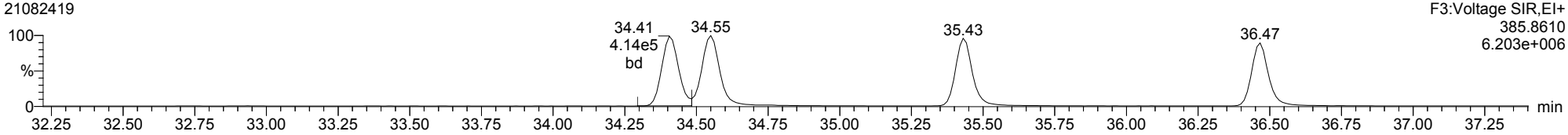

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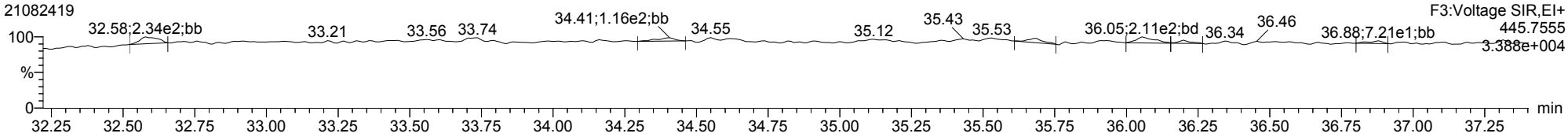

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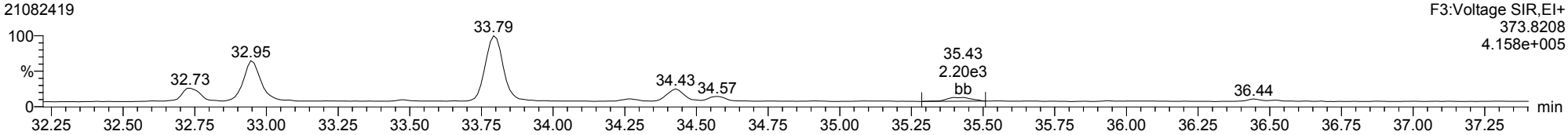

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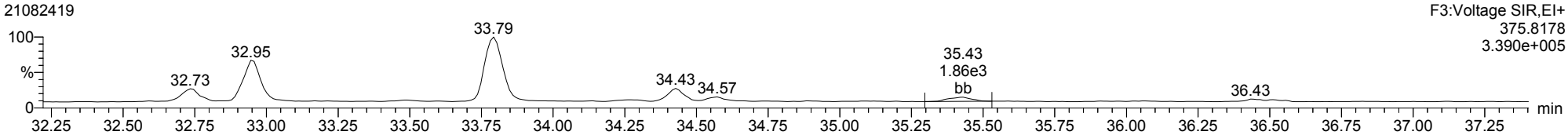

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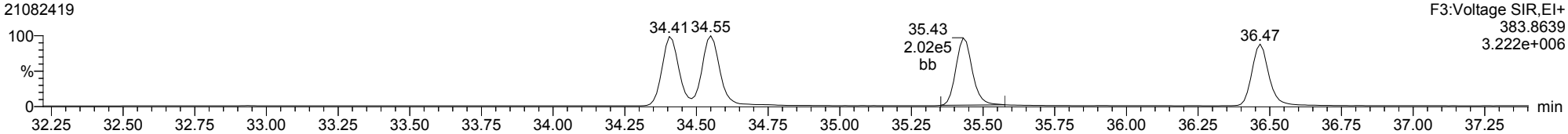

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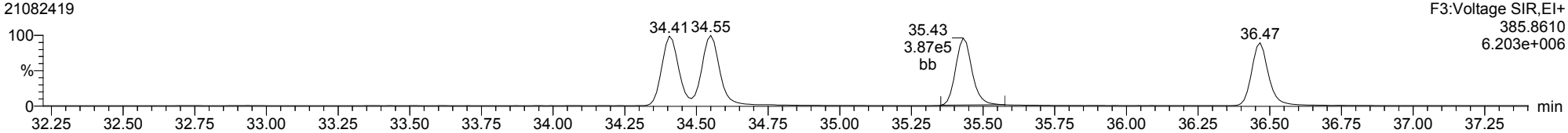

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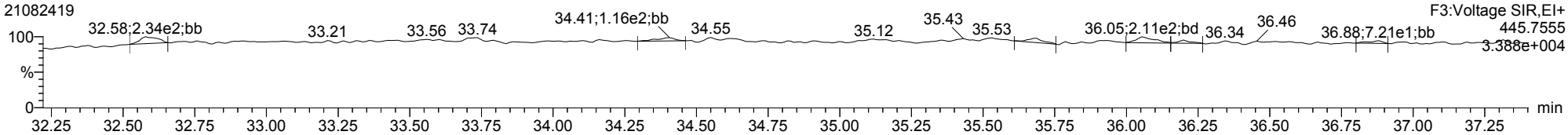

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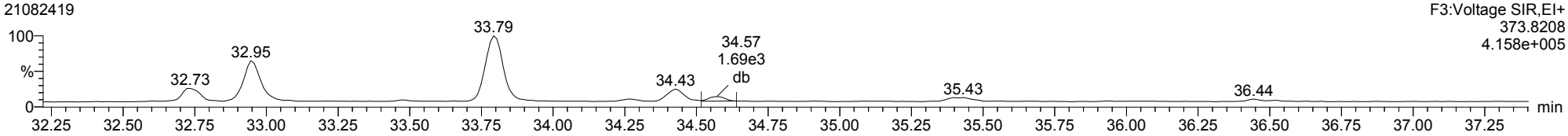

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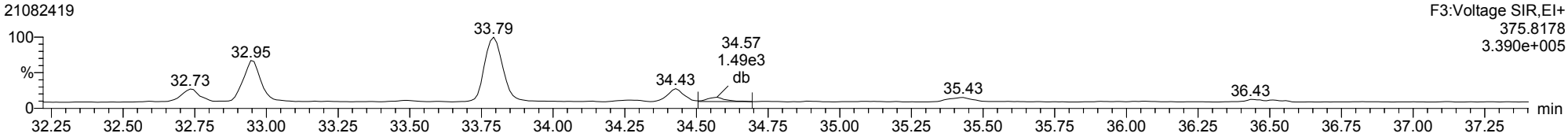

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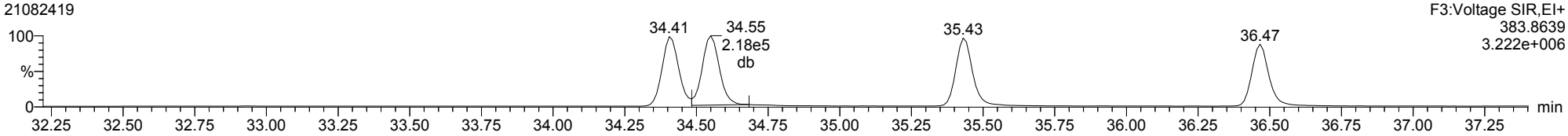

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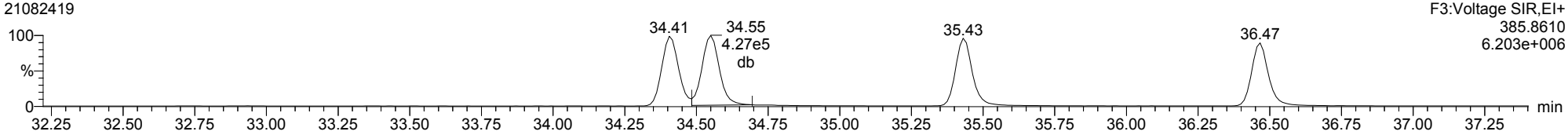

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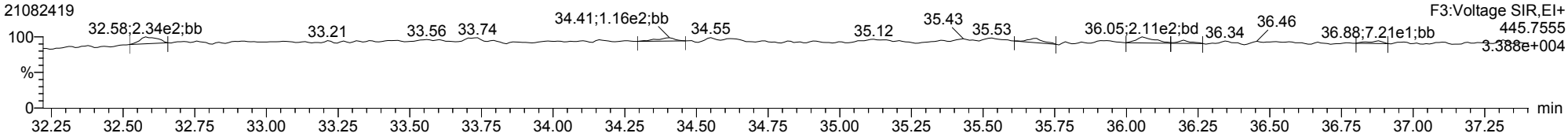

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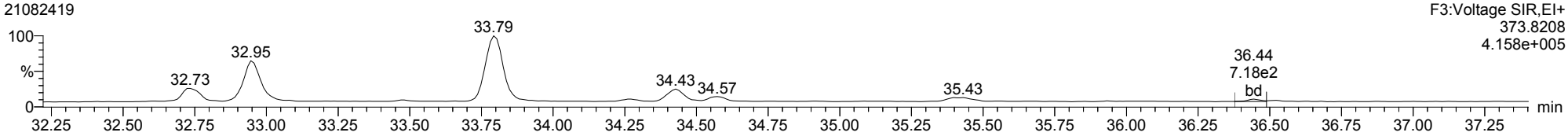

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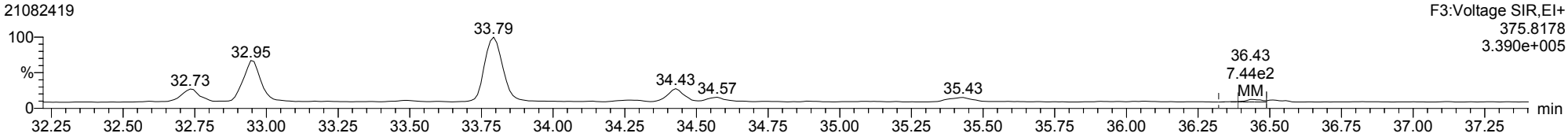

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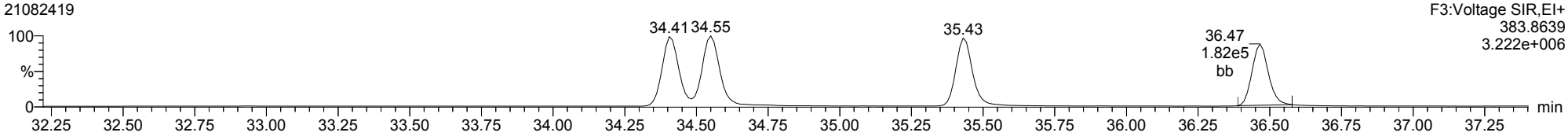

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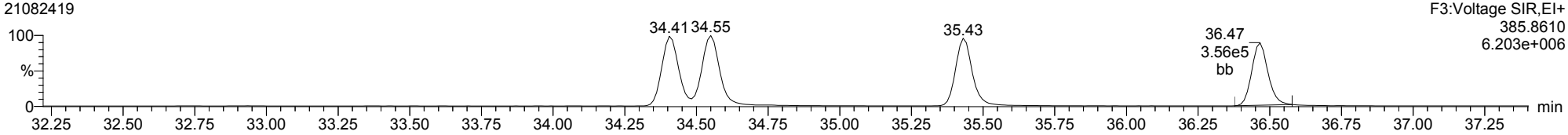

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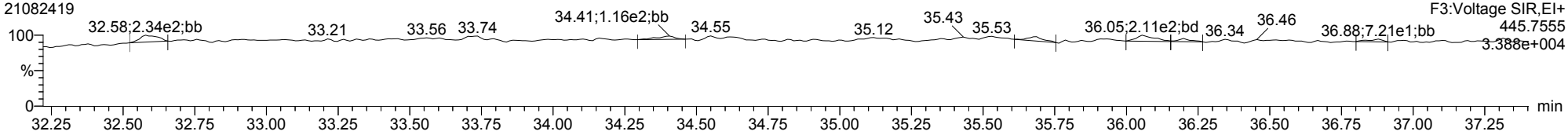

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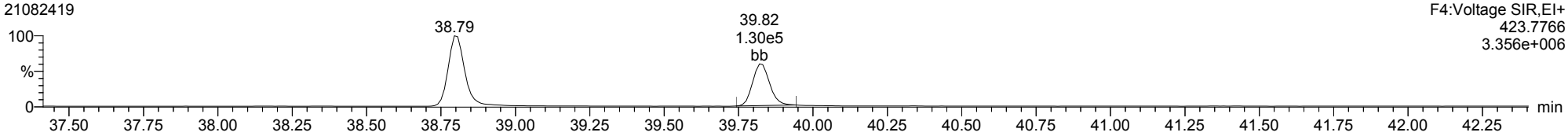

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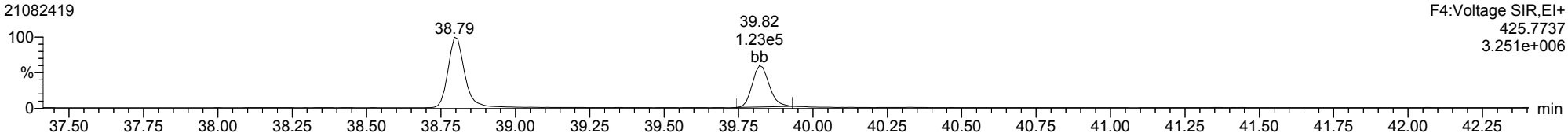

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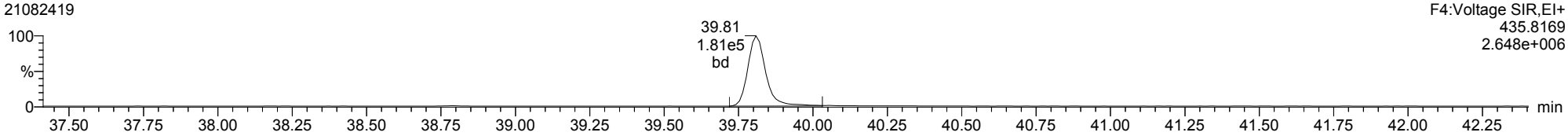

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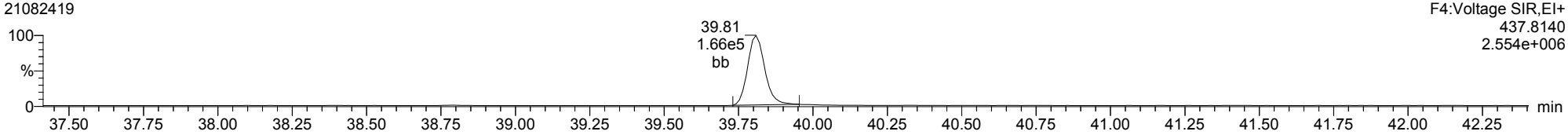
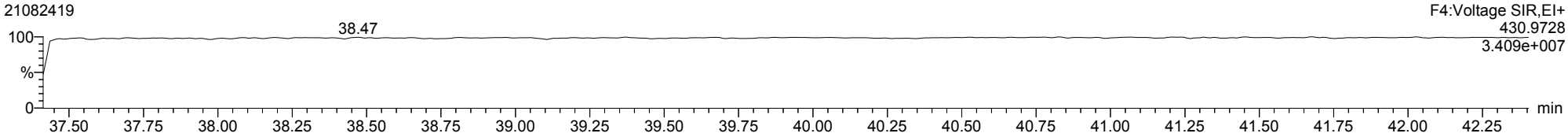


FUNCTION4 PFK



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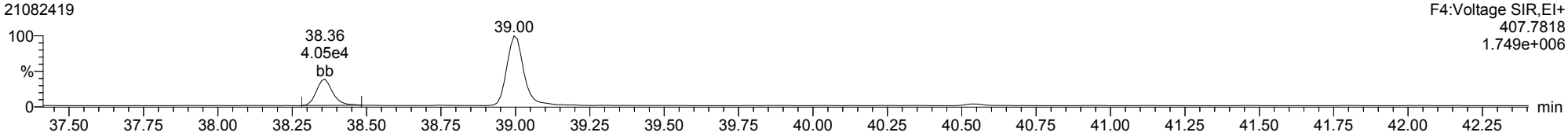

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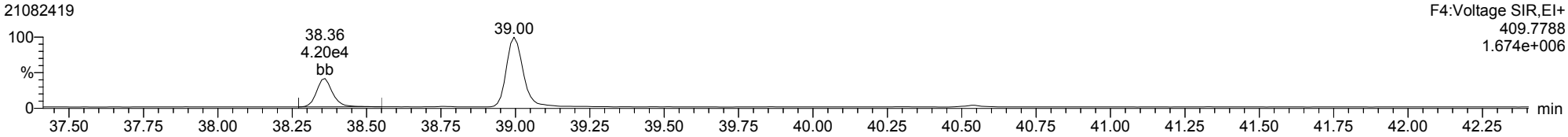

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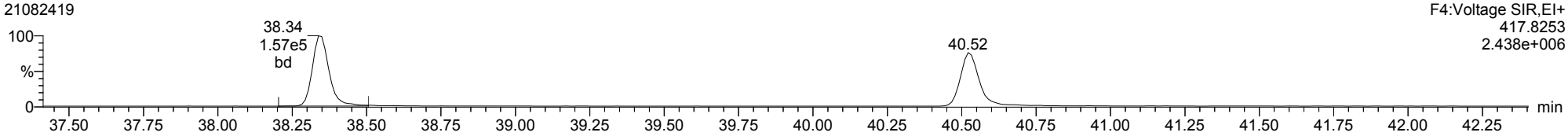

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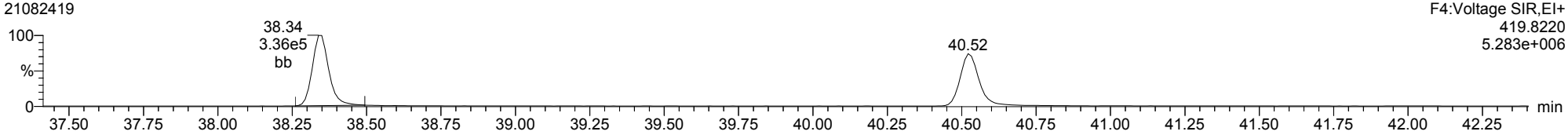

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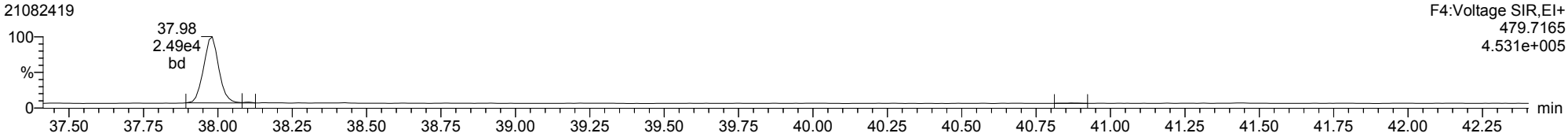

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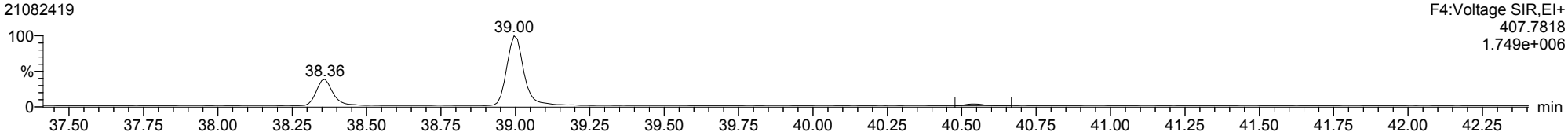

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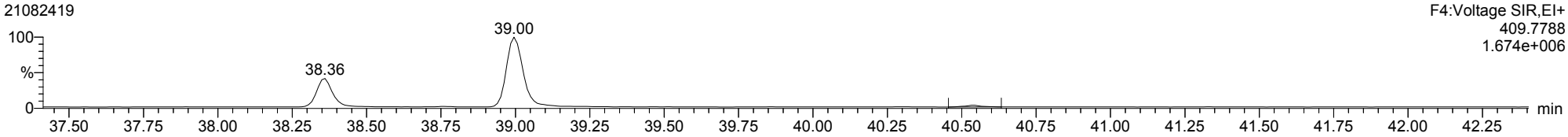

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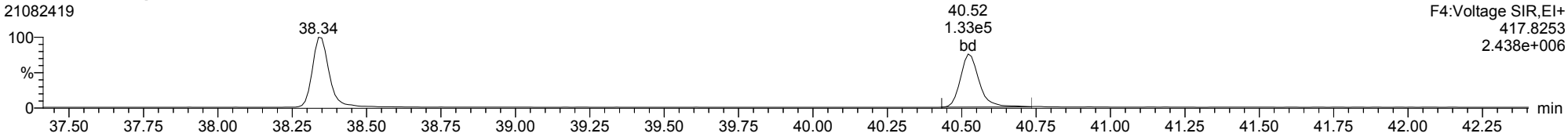

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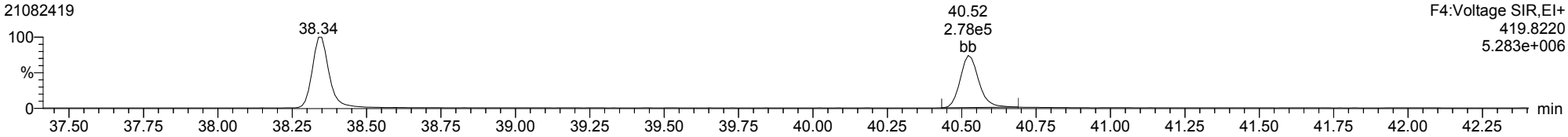

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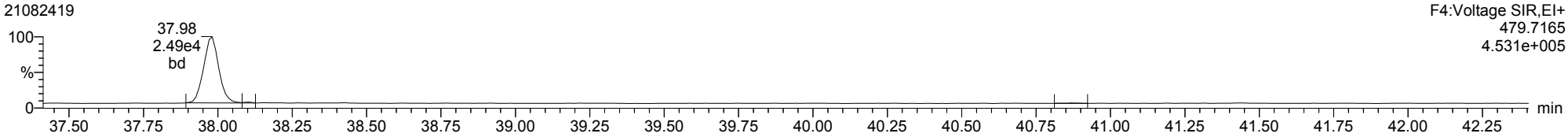

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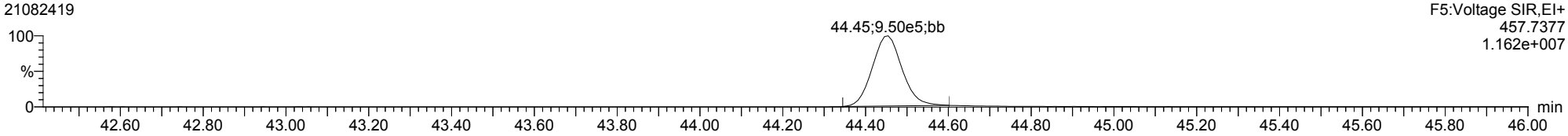

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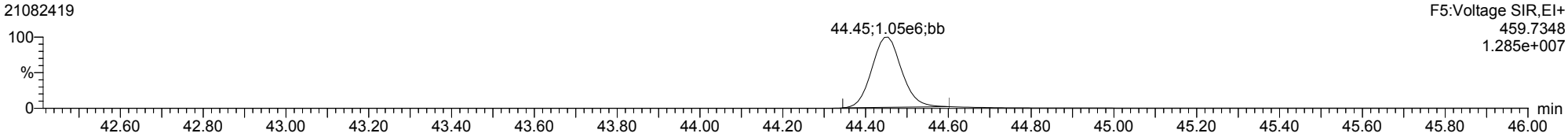

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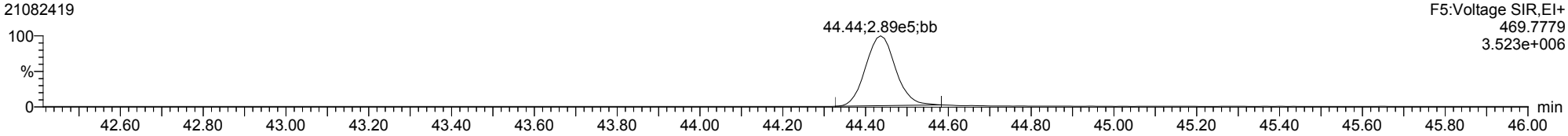

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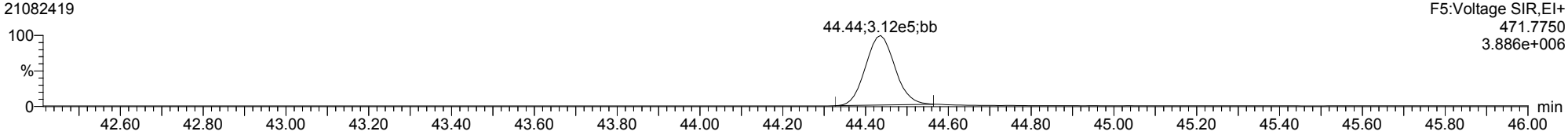
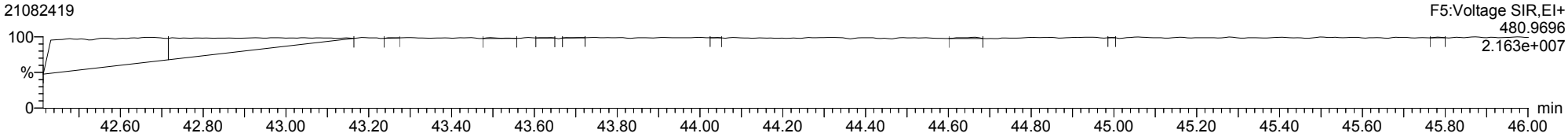


FUNCTION5 PFK



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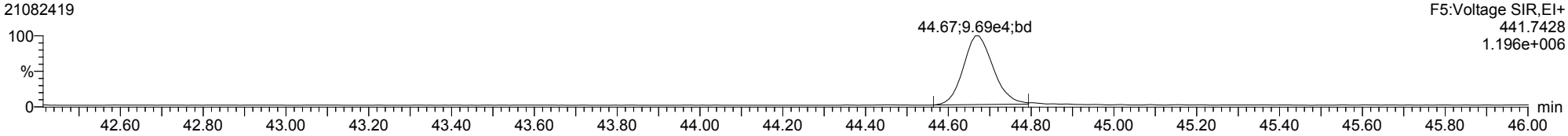

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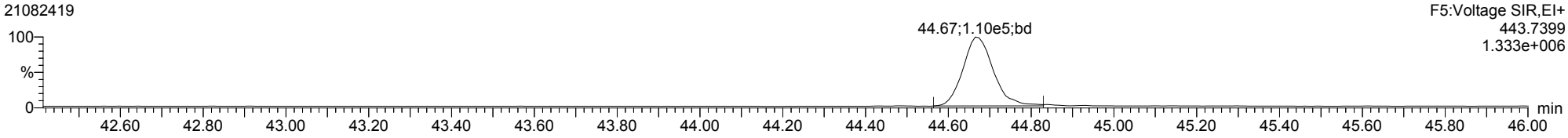
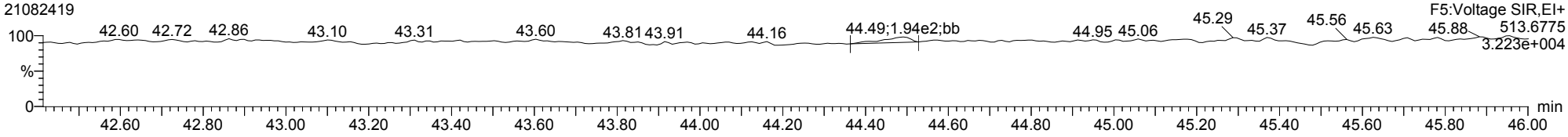


FUNCTION5 DCDPE



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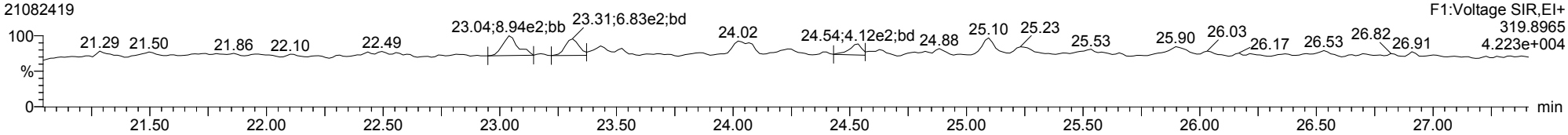
Total-tetradioxins



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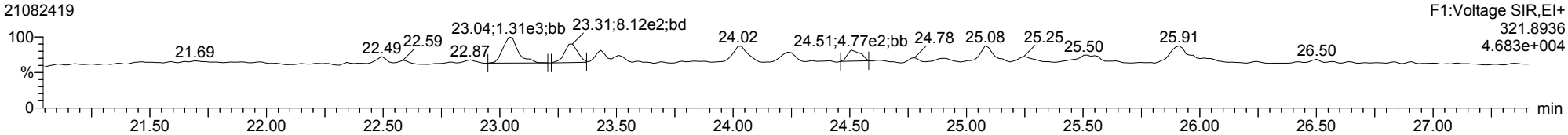

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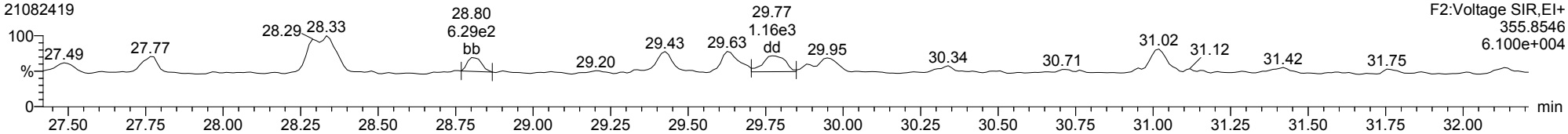
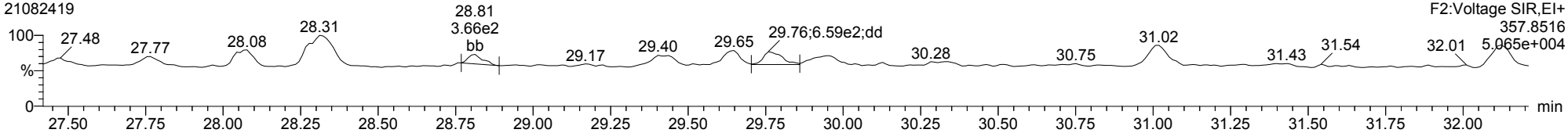
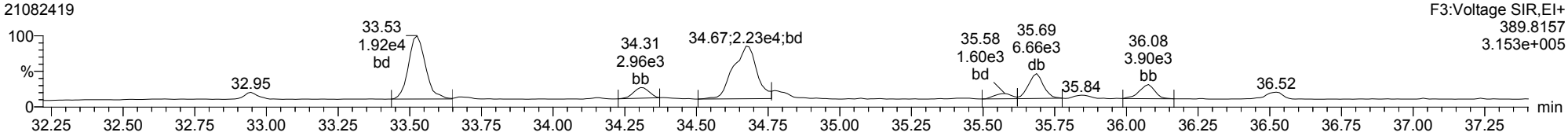


Total-pentadioxins

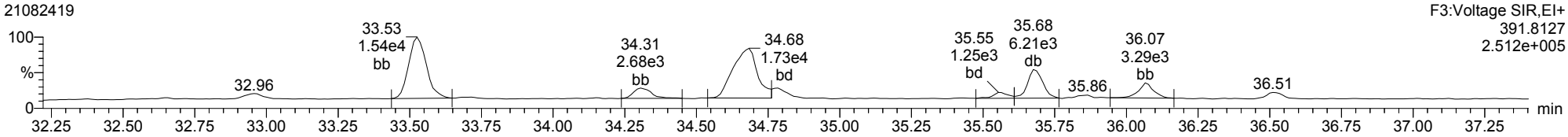


ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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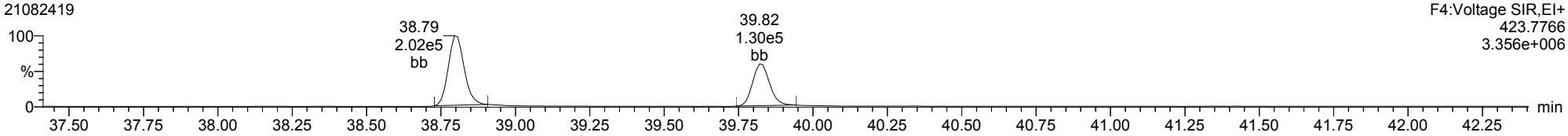

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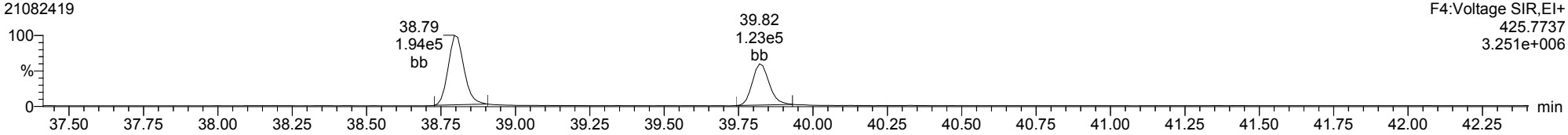
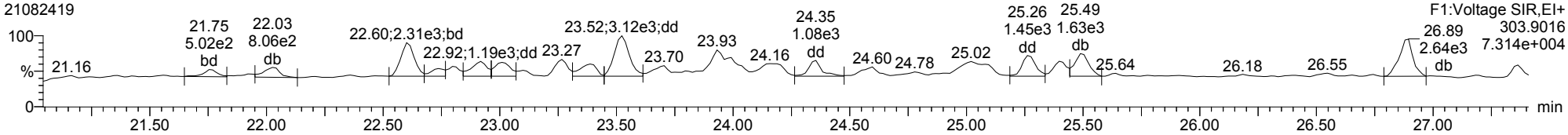


ID: 21G0127-03, Name: 21082419, Date: 25-Aug-2021, Time: 02:56:57, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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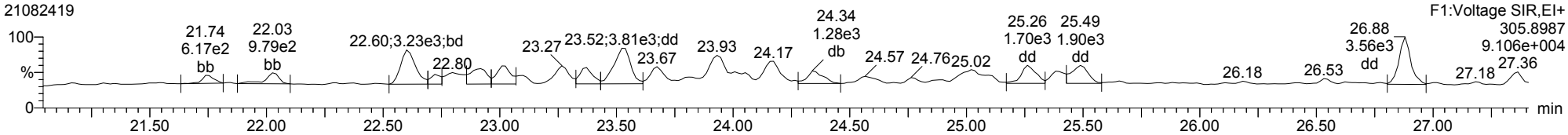

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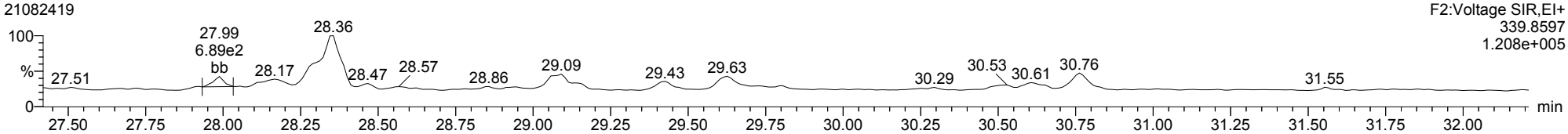

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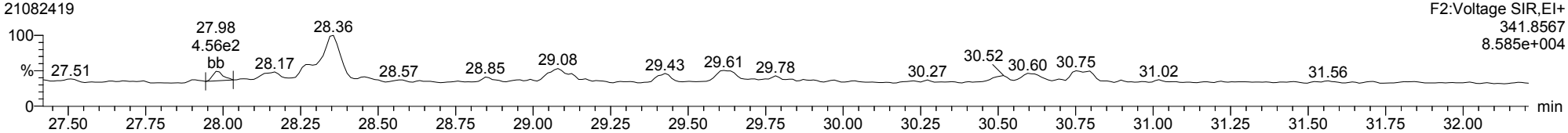

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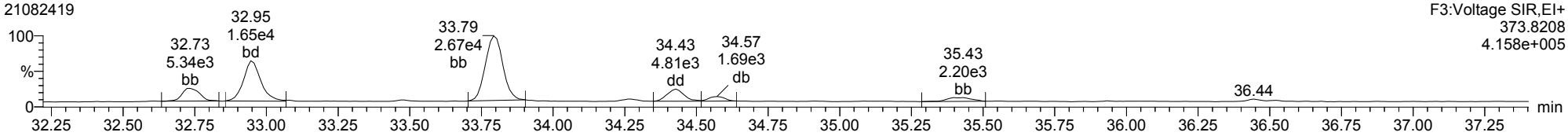
Total-hexafurans



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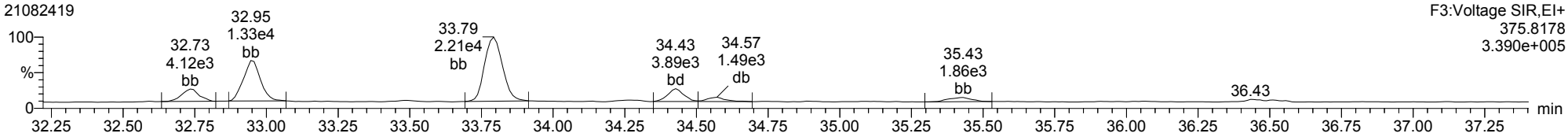
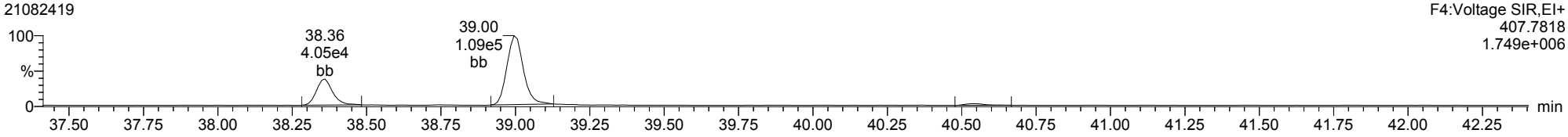


Total-heptafurans



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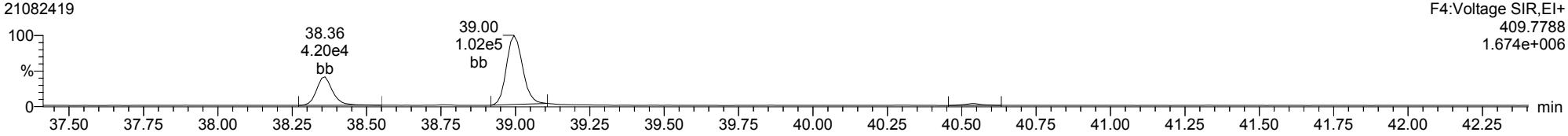

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS633

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0127-05 A	File ID:	21082420
Sampled:	07/12/21 08:08	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 03:45
% Solids:	47.73	Preparation:	EPA 1613	Initial/Final:	21.05 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.678	0.655-0.886	0.287	0.995	0.893	ng/kg	J
1746-01-6	2,3,7,8-TCDD	1	0.419	0.655-0.886	0.216	0.995	0.425	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1	0.902	1.318-1.783	0.298	0.995	0.259	ng/kg	EMPC, J
57117-31-4	2,3,4,7,8-PeCDF	1	1.500	1.318-1.783	0.272	0.995	1.20	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1		1.318-1.783	0.480	0.995	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.228	1.054-1.426	0.169	0.995	3.12	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.330	1.054-1.426	0.161	0.995	1.37	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.412	1.054-1.426	0.161	0.995	1.17	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.363	1.054-1.426	0.180	0.995	0.682	ng/kg	J
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.230	1.054-1.426	0.215	0.995	1.21	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.190	1.054-1.426	0.219	0.995	4.66	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.275	1.054-1.426	0.232	0.995	2.86	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.020	0.893-1.208	0.182	0.995	25.4	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.005	0.893-1.208	0.241	0.995	2.18	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.073	0.893-1.208	0.449	2.49	148	ng/kg	B
39001-02-0	OCDF	1	0.858	0.757-1.024	0.265	2.49	79.4	ng/kg	
3268-87-9	OCDD	1	0.907	0.757-1.024	0.553	9.95	1160	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.995	4.66	ng/kg
41903-57-5	Total TCDD	1	0.000			0.995	1.16	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.995	8.25	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.995	ND	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.995	36.3	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.995	41.6	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.995	88.3	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.995	404	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 4.52
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 4.76

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS633

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0127-05	File ID:	21082420
Sampled:	07/12/21 08:08	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 03:45
Solids Wt%:	47.73	Preparation:	EPA 1613	Initial/Final:	21.05 g / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.823	0.655-0.886	0.141	68.8	24 - 169 %	
13C12-2,3,7,8-TCDD		0.764	0.655-0.886	0.189	70.6	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.623	1.318-1.783	0.193	76.5	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.603	1.318-1.783	0.203	77.6	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.566	1.318-1.783	0.268	75.6	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.517	0.434-0.587	0.157	63.7	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.518	0.434-0.587	0.145	61.1	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.520	0.434-0.587	0.161	62.4	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.524	0.434-0.587	0.194	69.4	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.268	1.054-1.426	0.189	71.5	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.261	1.054-1.426	0.174	66.1	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.457	0.374-0.506	0.173	69.0	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.450	0.374-0.506	0.211	73.1	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.042	0.893-1.208	0.170	72.0	23 - 140 %	
13C12-OCDD		0.947	0.757-1.024	0.211	84.6	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.075	88.7	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:43 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.262	1.001	1.539e3	2.270e3	1.108	0.678	0.770	2164	3850	2.31e4	3.34e4	10.7	8.7	NO	dd	bd	0.449
12378-PeCDF	29.403	1.000	4.845e2	5.369e2	1.015	0.902	1.550	1941	3682	1.41e4	1.28e4	7.3	3.5	YES	MM	bd	0.130
23478-PeCDF	30.762	1.000	3.051e3	2.034e3	1.126	1.500	1.550	1941	3682	3.91e4	2.50e4	20.1	6.8	NO	db	db	0.603
123478-HxCDF	34.428	1.001	5.482e3	4.463e3	1.017	1.228	1.240	1205	1423	8.53e4	6.84e4	70.8	48.1	NO	bd	bd	1.568
234678-HxCDF	35.442	1.000	2.165e3	1.533e3	1.052	1.412	1.240	1205	1423	3.37e4	2.55e4	28.0	17.9	NO	db	MM	0.588
123678-HxCDF	34.561	1.000	2.645e3	1.989e3	1.037	1.330	1.240	1205	1423	3.64e4	2.93e4	30.3	20.6	NO	db	db	0.691
123789-HxCDF	36.444	0.999	1.120e3	8.223e2	1.030	1.363	1.240	1205	1423	1.63e4	1.29e4	13.5	9.0	NO	bd	MM	0.342
1234678-HpCDF	38.360	1.001	4.302e4	4.218e4	1.327	1.020	1.050	1619	1556	6.77e5	6.69e5	418.4	430.1	NO	bb	bb	12.743
1234789-HpCDF	40.544	1.000	3.068e3	3.052e3	1.283	1.005	1.050	1619	1556	4.67e4	4.00e4	28.8	25.7	NO	bb	bb	1.093
OCDF	44.665	1.005	8.958e4	1.044e5	1.447	0.858	0.890	1311	1192	1.08e6	1.22e6	826.6	1024.4	NO	bb	bb	39.907
2378-TCDD	25.912	1.001	3.570e2	8.512e2	0.920	0.419	0.770	1867	1226	6.08e3	1.12e4	3.3	9.1	YES	bd	bd	0.213
12378-PeCDD					0.995		1.550	2124	2917								
123478-HxCDD	35.575	1.001	1.868e3	1.519e3	1.027	1.230	1.240	1497	1596	2.89e4	2.43e4	19.3	15.2	NO	bd	bd	0.610
123678-HxCDD	35.687	1.000	6.967e3	5.854e3	1.009	1.190	1.240	1497	1596	1.01e5	8.93e4	67.2	55.9	NO	dd	dd	2.342
123789-HxCDD	36.076	1.011	4.145e3	3.252e3	0.950	1.275	1.240	1497	1596	6.46e4	5.73e4	43.2	35.9	NO	bb	bb	1.437
1234678-HpCDD	39.820	1.000	1.472e5	1.371e5	1.068	1.073	1.050	2224	2107	2.19e6	2.11e6	985.6	999.7	NO	bb	bb	74.218
OCDD	44.455	1.000	1.100e6	1.213e6	1.181	0.907	0.890	1878	2395	1.30e7	1.46e7	6936.2	6078.3	NO	bb	bb	583.002
13C-2378-TCDF	25.247	1.007	3.460e5	4.203e5	1.427	0.823	0.770	2271	1789	5.10e6	6.21e6	2243.9	3469.1	NO	bb	bb	68.815
13C-12378-PeCDF	29.403	1.173	4.796e5	2.954e5	1.297	1.623	1.550	2286	2766	6.86e6	4.24e6	3002.8	1533.4	NO	bb	bb	76.528
13C-23478-PeCDF	30.751	1.227	4.612e5	2.877e5	1.236	1.603	1.550	2286	2766	6.76e6	4.15e6	2956.0	1500.2	NO	bb	bb	77.587
13C-123478-HxCDF	34.405	0.954	2.125e5	4.113e5	1.242	0.517	0.510	1793	2466	3.12e6	6.06e6	1738.1	2457.4	NO	bd	bd	63.724
13C-123678-HxCDF	34.550	0.958	2.209e5	4.262e5	1.343	0.518	0.510	1793	2466	3.20e6	6.23e6	1785.9	2527.7	NO	db	db	61.138
13C-234678-HxCDF	35.442	0.983	2.044e5	3.929e5	1.215	0.520	0.510	1793	2466	3.16e6	6.00e6	1763.3	2434.6	NO	bb	bb	62.405
13C-123789-HxCDF	36.466	1.011	1.894e5	3.614e5	1.008	0.524	0.510	1793	2466	2.91e6	5.66e6	1621.8	2296.0	NO	bb	bb	69.373
13C-1234678-HpCDF	38.338	1.063	1.579e5	3.458e5	0.926	0.457	0.440	1706	1788	2.46e6	5.45e6	1443.6	3047.7	NO	bb	bb	69.006
13C-1234789-HpCDF	40.522	1.124	1.354e5	3.009e5	0.758	0.450	0.440	1706	1788	1.90e6	4.16e6	1115.0	2329.4	NO	bb	bd	73.067
13C-1234-TCDD	25.065	0.000	3.381e5	4.426e5	1.000	0.764	0.770	2492	1758	5.22e6	6.79e6	2093.6	3865.6	NO	bb	bb	100.000
13C-2378-TCDD	25.882	1.033	2.666e5	3.490e5	1.116	0.764	0.770	2492	1758	4.02e6	5.18e6	1611.5	2946.6	NO	bb	bb	70.630
13C-12378-PeCDD	31.007	1.237	2.636e5	1.684e5	0.732	1.566	1.550	1798	2161	3.84e6	2.40e6	2135.9	1110.9	NO	bb	bd	75.606
13C-123478-HxCDD	35.553	0.986	3.024e5	2.385e5	0.960	1.268	1.240	1916	2043	4.68e6	3.68e6	2443.4	1803.3	NO	bd	bd	71.530
13C-123678-HxCDD	35.675	0.989	3.025e5	2.400e5	1.041	1.261	1.240	1916	2043	4.67e6	3.74e6	2437.7	1829.4	NO	db	db	66.122
13C-1234678-HpCDD	39.809	1.104	1.830e5	1.756e5	0.632	1.042	1.050	1131	1216	2.75e6	2.60e6	2430.5	2141.3	NO	bb	bb	71.978
13C-OCDD	44.436	1.232	3.267e5	3.451e5	0.504	0.947	0.890	1094	1223	3.80e6	4.13e6	3471.0	3381.1	NO	bd	bb	169.264
13C-123789-HxCDD	36.065	0.000	4.400e5	3.478e5	1.000	1.265	1.240	1916	2043	7.27e6	5.68e6	3794.4	2781.4	NO	bb	bb	100.000
37CL-2378-TCDD	25.897	1.033	3.001e5		1.084			1643		4.27e6		2598.5			bb		35.475

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:43 Pacific Daylight Time

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.754	0.862	2.513e2	5.929e2	1.425	0.424	0.770	2164	3850	4.58e3	8.84e3	2.1	2.3	YES	bb	bb	0.077
1289-TCDF					1.043		0.770	2164	3850								
13468-PECDF	26.698	0.908	1.433e4	1.070e4	1.376	1.340	1.550	1316	1570	1.90e5	1.29e5	144.6	82.1	NO	dd	db	2.347
12389-PECDF					1.000		1.550	1941	3682								
123468-HXCDF	32.734	0.951	5.927e3	4.485e3	1.087	1.321	1.240	1205	1423	8.82e4	6.81e4	73.2	47.8	NO	bd	bd	1.536
1368-TCDD	23.024	0.890	5.848e2	1.164e3	0.923	0.502	0.770	1867	1226	1.07e4	1.92e4	5.7	15.6	YES	bb	bd	0.308
1289-TCDD					0.794		0.770	1867	1226								
12479-PECDD	28.345	0.914	4.023e3	1.404e3	1.843	2.864	1.550	2124	2917	3.86e4	2.68e4	18.2	9.2	YES	bb	dd	0.682
12389-PECDD					1.154		1.550	2124	2917								
124679-HXCDD	33.525	0.943	2.290e4	1.879e4	1.125	1.219	1.240	1497	1596	3.42e5	2.81e5	228.7	176.1	NO	bb	bb	6.852
1234679-HPCDD	38.795	0.975	2.880e5	2.701e5	1.211	1.066	1.050	2224	2107	4.59e6	4.31e6	2063.4	2047.2	NO	bb	bb	128.512
Total-tetrafurans			8.814e3		1.192			2164		1.33e5							2.343
Total-penta1			1.491e4					1316		2.01e5							2.479
Total-pentafurans			8.011e3		1.047			1941		9.02e4							1.663
Total-hexafurans			6.433e4		1.045			1205		9.67e5							18.217
Total-heptafurans			1.417e5		1.305			1619		2.26e6							44.359
Total-Furans			3.274e5		1.158			2164		4.73e6							108.968
Total-tetradioxins			1.324e3		0.879			1867		1.81e4							0.584
Total-pentadioxins			0.000e0		1.331			2124		0.00e0							
Total-hexadioxins			6.547e4		1.028			1497		8.85e5							20.893
Total-heptadioxins			4.351e5		1.140			2224		6.78e6							202.730
Total-Dioxins			1.602e6		1.092			1867		2.07e7							807.210
Total-TEQ			1.929e6					1867		2.54e7							916.178
FUNCTION1 PFK			2.518e7					612165		1.62e8							
FUNCTION2 PFK			6.161e5					334643		4.06e6							0.000
FUNCTION3 PFK			1.731e6					458924		1.34e7							0.000
FUNCTION4 PFK			6.177e5					375996		1.50e7							
FUNCTION5 PFK			0.000e0					207140		0.00e0							
FUNCTION1 HXCD...			4.488e3					1218		6.85e4							0.000
FUNCTION1 HPCD...			1.614e4					1253		2.63e5							0.000
FUNCTION2 HPCD...			4.174e3					1839		1.02e5							0.000
FUNCTION3 OCDPE			9.468e2					546		1.72e4							0.000
FUNCTION4 NCDPE			1.839e4					859		3.10e5							0.000
FUNCTION5 DCDPE			2.498e2					539		4.68e3							0.000

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.02	1.866e3	2.726e3	1.192	0.68	0.77	10.0	YES	NO	db	dd	0.503
2	Total-tetrafurans	22.60	2.324e3	3.415e3	1.192	0.68	0.77	15.8	YES	NO	bd	bd	0.628
3	Total-tetrafurans	22.03	8.721e2	1.197e3	1.192	0.73	0.77	7.8	YES	NO	bb	db	0.227
4	Total-tetrafurans	25.40	2.214e3	2.692e3	1.192	0.82	0.77	17.0	YES	NO	dd	dd	0.537
5	2378-TCDF	25.26	1.539e3	2.270e3	1.108	0.68	0.77	10.7	YES	NO	dd	bd	0.449

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.70	1.433e4	1.070e4	1.376	1.34	1.55	144.6	YES	NO	dd	db	2.347
2	Total-penta1	26.56	5.806e2	3.629e2		1.60	1.55	8.2	YES	NO	bd	bd	0.133

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.16	3.543e3	2.515e3	1.047	1.41	1.55	17.6	YES	NO	dd	dd	0.760
2	23478-PeCDF	30.76	3.051e3	2.034e3	1.126	1.50	1.55	20.1	YES	NO	db	db	0.603
3	Total-pentafurans	30.51	1.417e3	9.746e2	1.047	1.45	1.55	8.8	YES	NO	bd	bd	0.300

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.44	1.120e3	8.223e2	1.030	1.36	1.24	13.5	YES	NO	bd	MM	0.342
2	234678-HxCDF	35.44	2.165e3	1.533e3	1.052	1.41	1.24	28.0	YES	NO	db	MM	0.588
3	123678-HxCDF	34.56	2.645e3	1.989e3	1.037	1.33	1.24	30.3	YES	NO	db	db	0.691
4	123478-HxCDF	34.43	5.482e3	4.463e3	1.017	1.23	1.24	70.8	YES	NO	bd	bd	1.568
5	Total-hexafurans	34.27	1.127e3	8.738e2	1.045	1.29	1.24	16.0	YES	NO	bb	bb	0.317
6	Total-hexafurans	33.79	2.585e4	2.098e4	1.045	1.23	1.24	325.7	YES	NO	bb	bb	7.414
7	Total-hexafurans	32.95	2.002e4	1.637e4	1.045	1.22	1.24	245.5	YES	NO	db	db	5.761
8	123468-HXCDF	32.73	5.927e3	4.485e3	1.087	1.32	1.24	73.2	YES	NO	bd	bd	1.536

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.54	3.068e3	3.052e3	1.283	1.01	1.05	28.8	YES	NO	bb	bb	1.093
2	Total-heptafurans	40.30	7.260e2	7.715e2	1.305	0.94	1.05	5.3	YES	NO	bb	bb	0.244
3	Total-heptafurans	39.00	9.490e4	9.086e4	1.305	1.04	1.05	942.4	YES	NO	bb	bb	30.280
4	1234678-HpCDF	38.36	4.302e4	4.218e4	1.327	1.02	1.05	418.4	YES	NO	bb	bb	12.743

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.02	1.866e3	2.726e3	1.192	0.68	0.77	10.0	YES	NO	db	dd	0.503
2	Total-tetrafurans	22.60	2.324e3	3.415e3	1.192	0.68	0.77	15.8	YES	NO	bd	bd	0.628
3	Total-tetrafurans	22.03	8.721e2	1.197e3	1.192	0.73	0.77	7.8	YES	NO	bb	db	0.227
4	Total-tetrafurans	25.40	2.214e3	2.692e3	1.192	0.82	0.77	17.0	YES	NO	dd	dd	0.537
5	2378-TCDF	25.26	1.539e3	2.270e3	1.108	0.68	0.77	10.7	YES	NO	dd	bd	0.449
6	Total-pentafurans	28.16	3.543e3	2.515e3	1.047	1.41	1.55	17.6	YES	NO	dd	dd	0.760
7	23478-PeCDF	30.76	3.051e3	2.034e3	1.126	1.50	1.55	20.1	YES	NO	db	db	0.603
8	Total-pentafurans	30.51	1.417e3	9.746e2	1.047	1.45	1.55	8.8	YES	NO	bd	bd	0.300
9	123789-HxCDF	36.44	1.120e3	8.223e2	1.030	1.36	1.24	13.5	YES	NO	bd	MM	0.342
10	234678-HxCDF	35.44	2.165e3	1.533e3	1.052	1.41	1.24	28.0	YES	NO	db	MM	0.588
11	123678-HxCDF	34.56	2.645e3	1.989e3	1.037	1.33	1.24	30.3	YES	NO	db	db	0.691
12	123478-HxCDF	34.43	5.482e3	4.463e3	1.017	1.23	1.24	70.8	YES	NO	bd	bd	1.568
13	Total-hexafurans	34.27	1.127e3	8.738e2	1.045	1.29	1.24	16.0	YES	NO	bb	bb	0.317
14	Total-hexafurans	33.79	2.585e4	2.098e4	1.045	1.23	1.24	325.7	YES	NO	bb	bb	7.414
15	Total-hexafurans	32.95	2.002e4	1.637e4	1.045	1.22	1.24	245.5	YES	NO	db	db	5.761
16	123468-HXCDF	32.73	5.927e3	4.485e3	1.087	1.32	1.24	73.2	YES	NO	bd	bd	1.536
17	1234789-HpCDF	40.54	3.068e3	3.052e3	1.283	1.01	1.05	28.8	YES	NO	bb	bb	1.093
18	Total-heptafurans	40.30	7.260e2	7.715e2	1.305	0.94	1.05	5.3	YES	NO	bb	bb	0.244
19	Total-heptafurans	39.00	9.490e4	9.086e4	1.305	1.04	1.05	942.4	YES	NO	bb	bb	30.280
20	1234678-HpCDF	38.36	4.302e4	4.218e4	1.327	1.02	1.05	418.4	YES	NO	bb	bb	12.743
21	OCDF	44.67	8.958e4	1.044e5	1.447	0.86	0.89	826.6	YES	NO	bb	bb	39.907
22	13468-PECDF	26.70	1.433e4	1.070e4	1.376	1.34	1.55	144.6	YES	NO	dd	db	2.347
23	Total-penta1	26.56	5.806e2	3.629e2		1.60	1.55	8.2	YES	NO	bd	bd	0.133

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.51	6.773e2	9.441e2	0.879	0.72	0.77	5.0	YES	NO	bb	bd	0.300
2	Total-tetradioxins	24.04	6.466e2	8.950e2	0.879	0.72	0.77	4.7	YES	NO	bd	dd	0.285

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	34.68	2.277e4	1.867e4	1.028	1.22	1.24	159.2	YES	NO	bd	bd	7.442
2	Total-hexadioxins	34.31	5.304e3	4.194e3	1.028	1.26	1.24	57.4	YES	NO	bb	bb	1.706
3	124679-HXCDD	33.53	2.290e4	1.879e4	1.125	1.22	1.24	228.7	YES	NO	bb	bb	6.852
4	123789-HxCDD	36.08	4.145e3	3.252e3	0.950	1.27	1.24	43.2	YES	NO	bb	bb	1.437
5	Total-hexadioxins	35.85	1.516e3	1.294e3	1.028	1.17	1.24	16.3	YES	NO	db	db	0.505
6	123678-HxCDD	35.69	6.967e3	5.854e3	1.009	1.19	1.24	67.2	YES	NO	dd	dd	2.342
7	123478-HxCDD	35.58	1.868e3	1.519e3	1.027	1.23	1.24	19.3	YES	NO	bd	bd	0.610

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.82	1.472e5	1.371e5	1.068	1.07	1.05	985.6	YES	NO	bb	bb	74.218
2	1234679-HPCDD	38.79	2.880e5	2.701e5	1.211	1.07	1.05	2063.4	YES	NO	bb	bb	128.512

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.51	6.773e2	9.441e2	0.879	0.72	0.77	5.0	YES	NO	bb	bd	0.300
2	Total-tetradioxins	24.04	6.466e2	8.950e2	0.879	0.72	0.77	4.7	YES	NO	bd	dd	0.285
3	Total-hexadioxins	34.68	2.277e4	1.867e4	1.028	1.22	1.24	159.2	YES	NO	bd	bd	7.442
4	Total-hexadioxins	34.31	5.304e3	4.194e3	1.028	1.26	1.24	57.4	YES	NO	bb	bb	1.706
5	124679-HXCDD	33.53	2.290e4	1.879e4	1.125	1.22	1.24	228.7	YES	NO	bb	bb	6.852
6	123789-HxCDD	36.08	4.145e3	3.252e3	0.950	1.27	1.24	43.2	YES	NO	bb	bb	1.437
7	Total-hexadioxins	35.85	1.516e3	1.294e3	1.028	1.17	1.24	16.3	YES	NO	db	db	0.505
8	123678-HxCDD	35.69	6.967e3	5.854e3	1.009	1.19	1.24	67.2	YES	NO	dd	dd	2.342
9	123478-HxCDD	35.58	1.868e3	1.519e3	1.027	1.23	1.24	19.3	YES	NO	bd	bd	0.610
10	1234678-HpCDD	39.82	1.472e5	1.371e5	1.068	1.07	1.05	985.6	YES	NO	bb	bb	74.218
11	1234679-HPCDD	38.79	2.880e5	2.701e5	1.211	1.07	1.05	2063.4	YES	NO	bb	bb	128.512
12	OCDD	44.45	1.100e6	1.213e6	1.181	0.91	0.89	6936.2	YES	NO	bb	bb	583.002

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:43 Pacific Daylight Time

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.02	1.866e3	2.726e3	1.192	0.68	0.77	10.0	YES	NO	db	dd	0.503
2	Total-tetrafurans	22.60	2.324e3	3.415e3	1.192	0.68	0.77	15.8	YES	NO	bd	bd	0.628
3	Total-tetrafurans	22.03	8.721e2	1.197e3	1.192	0.73	0.77	7.8	YES	NO	bb	db	0.227
4	Total-tetrafurans	25.40	2.214e3	2.692e3	1.192	0.82	0.77	17.0	YES	NO	dd	dd	0.537
5	2378-TCDF	25.26	1.539e3	2.270e3	1.108	0.68	0.77	10.7	YES	NO	dd	bd	0.449
6	Total-pentafurans	28.16	3.543e3	2.515e3	1.047	1.41	1.55	17.6	YES	NO	dd	dd	0.760
7	23478-PeCDF	30.76	3.051e3	2.034e3	1.126	1.50	1.55	20.1	YES	NO	db	db	0.603
8	Total-pentafurans	30.51	1.417e3	9.746e2	1.047	1.45	1.55	8.8	YES	NO	bd	bd	0.300
9	123789-HxCDF	36.44	1.120e3	8.223e2	1.030	1.36	1.24	13.5	YES	NO	bd	MM	0.342
10	234678-HxCDF	35.44	2.165e3	1.533e3	1.052	1.41	1.24	28.0	YES	NO	db	MM	0.588
11	123678-HxCDF	34.56	2.645e3	1.989e3	1.037	1.33	1.24	30.3	YES	NO	db	db	0.691
12	123478-HxCDF	34.43	5.482e3	4.463e3	1.017	1.23	1.24	70.8	YES	NO	bd	bd	1.568
13	Total-hexafurans	34.27	1.127e3	8.738e2	1.045	1.29	1.24	16.0	YES	NO	bb	bb	0.317
14	Total-hexafurans	33.79	2.585e4	2.098e4	1.045	1.23	1.24	325.7	YES	NO	bb	bb	7.414
15	Total-hexafurans	32.95	2.002e4	1.637e4	1.045	1.22	1.24	245.5	YES	NO	db	db	5.761
16	123468-HXCDF	32.73	5.927e3	4.485e3	1.087	1.32	1.24	73.2	YES	NO	bd	bd	1.536
17	1234789-HpCDF	40.54	3.068e3	3.052e3	1.283	1.01	1.05	28.8	YES	NO	bb	bb	1.093
18	Total-heptafurans	40.30	7.260e2	7.715e2	1.305	0.94	1.05	5.3	YES	NO	bb	bb	0.244
19	Total-heptafurans	39.00	9.490e4	9.086e4	1.305	1.04	1.05	942.4	YES	NO	bb	bb	30.280
20	1234678-HpCDF	38.36	4.302e4	4.218e4	1.327	1.02	1.05	418.4	YES	NO	bb	bb	12.743
21	OCDF	44.67	8.958e4	1.044e5	1.447	0.86	0.89	826.6	YES	NO	bb	bb	39.907
22	13468-PECDF	26.70	1.433e4	1.070e4	1.376	1.34	1.55	144.6	YES	NO	dd	db	2.347
23	Total-penta1	26.56	5.806e2	3.629e2		1.60	1.55	8.2	YES	NO	bd	bd	0.133
24	Total-tetradioxins	24.51	6.773e2	9.441e2	0.879	0.72	0.77	5.0	YES	NO	bb	bd	0.300
25	Total-tetradioxins	24.04	6.466e2	8.950e2	0.879	0.72	0.77	4.7	YES	NO	bd	dd	0.285
26	Total-hexadioxins	34.68	2.277e4	1.867e4	1.028	1.22	1.24	159.2	YES	NO	bd	bd	7.442
27	Total-hexadioxins	34.31	5.304e3	4.194e3	1.028	1.26	1.24	57.4	YES	NO	bb	bb	1.706
28	124679-HXCDD	33.53	2.290e4	1.879e4	1.125	1.22	1.24	228.7	YES	NO	bb	bb	6.852
29	123789-HxCDD	36.08	4.145e3	3.252e3	0.950	1.27	1.24	43.2	YES	NO	bb	bb	1.437
30	Total-hexadioxins	35.85	1.516e3	1.294e3	1.028	1.17	1.24	16.3	YES	NO	db	db	0.505
31	123678-HxCDD	35.69	6.967e3	5.854e3	1.009	1.19	1.24	67.2	YES	NO	dd	dd	2.342
32	123478-HxCDD	35.58	1.868e3	1.519e3	1.027	1.23	1.24	19.3	YES	NO	bd	bd	0.610
33	1234678-HpCDD	39.82	1.472e5	1.371e5	1.068	1.07	1.05	985.6	YES	NO	bb	bb	74.218
34	1234679-HPCDD	38.79	2.880e5	2.701e5	1.211	1.07	1.05	2063.4	YES	NO	bb	bb	128.512
35	OCDD	44.45	1.100e6	1.213e6	1.181	0.91	0.89	6936.2	YES	NO	bb	bb	583.002

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.89	6.895e3					0.5	NO		bb		
2	FUNCTION1 PFK	22.72	5.665e4					2.3	NO		db		
3	FUNCTION1 PFK	22.49	2.071e6					8.8	YES		dd		
4	FUNCTION1 PFK	22.25	4.019e5					15.2	YES		dd		
5	FUNCTION1 PFK	21.98	8.290e6					22.8	YES		dd		
6	FUNCTION1 PFK	21.65	1.708e6					30.8	YES		dd		
7	FUNCTION1 PFK	21.45	2.872e6					37.4	YES		dd		
8	FUNCTION1 PFK	21.38	2.122e6					39.1	YES		dd		
9	FUNCTION1 PFK	21.24	2.981e6					41.6	YES		dd		
10	FUNCTION1 PFK	21.16	3.976e6					43.7	YES		bd		
11	FUNCTION1 PFK	25.67	4.014e4					1.3	NO		bb		
12	FUNCTION1 PFK	25.32	5.021e4					1.0	NO		bb		
13	FUNCTION1 PFK	25.11	4.755e3					0.5	NO		bb		
14	FUNCTION1 PFK	25.05	2.929e4					1.4	NO		bb		
15	FUNCTION1 PFK	24.76	3.591e4					1.0	NO		db		
16	FUNCTION1 PFK	24.64	2.378e4					0.6	NO		bd		
17	FUNCTION1 PFK	24.57	1.724e4					0.8	NO		bb		
18	FUNCTION1 PFK	24.37	2.704e4					1.3	NO		bb		
19	FUNCTION1 PFK	23.90	4.410e3					0.5	NO		bb		
20	FUNCTION1 PFK	23.84	6.724e3					0.4	NO		db		
21	FUNCTION1 PFK	23.72	3.748e4					1.0	NO		bd		
22	FUNCTION1 PFK	23.60	1.841e4					0.9	NO		bb		
23	FUNCTION1 PFK	23.49	1.876e4					0.7	NO		bb		
24	FUNCTION1 PFK	23.34	1.307e4					0.8	NO		bb		
25	FUNCTION1 PFK	23.28	2.939e3					0.3	NO		bb		
26	FUNCTION1 PFK	23.16	7.242e3					0.5	NO		bb		
27	FUNCTION1 PFK	27.29	5.135e3					0.6	NO		bb		
28	FUNCTION1 PFK	26.85	1.963e5					3.0	NO		db		
29	FUNCTION1 PFK	26.77	9.259e4					2.8	NO		bd		
30	FUNCTION1 PFK	26.65	4.694e4					1.4	NO		bb		
31	FUNCTION1 PFK	26.27	1.473e4					0.8	NO		bb		
32	FUNCTION1 PFK	25.85	3.715e3					0.4	NO		bb		

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Printed: Wednesday, August 25, 2021 12:42:43 Pacific Daylight Time

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.85	4.745e4					3.2	YES		bb		0.000
2	FUNCTION2 PFK	28.68	5.686e5					8.9	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.31	5.959e5					14.4	YES		db		0.000
2	FUNCTION3 PFK	36.24	1.111e6					12.8	YES		bd		0.000
3	FUNCTION3 PFK	32.78	2.331e4					2.0	NO		bb		0.000

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.57	2.442e3					0.5	NO		bb		
2	FUNCTION4 PFK	37.51	2.432e4					1.2	NO		bb		
3	FUNCTION4 PFK	39.29	1.901e4					1.5	NO		bd		
4	FUNCTION4 PFK	39.20	2.227e3					0.5	NO		bb		
5	FUNCTION4 PFK	38.88	2.127e4					1.8	NO		db		
6	FUNCTION4 PFK	38.84	1.534e4					1.5	NO		dd		
7	FUNCTION4 PFK	38.79	1.645e4					1.3	NO		bd		
8	FUNCTION4 PFK	38.69	7.342e3					0.6	NO		bb		
9	FUNCTION4 PFK	38.62	1.329e4					0.6	NO		bb		
10	FUNCTION4 PFK	38.55	1.681e3					0.4	NO		bb		
11	FUNCTION4 PFK	38.17	1.572e3					0.4	NO		bb		
12	FUNCTION4 PFK	38.09	1.696e4					1.5	NO		db		
13	FUNCTION4 PFK	38.04	2.022e4					1.4	NO		dd		
14	FUNCTION4 PFK	37.97	1.774e4					1.2	NO		bd		
15	FUNCTION4 PFK	37.90	5.532e3					0.7	NO		bb		
16	FUNCTION4 PFK	37.77	1.912e3					0.5	NO		bb		
17	FUNCTION4 PFK	37.73	1.441e4					1.5	NO		db		
18	FUNCTION4 PFK	37.66	3.502e4					1.7	NO		bd		
19	FUNCTION4 PFK	41.66	4.628e4					1.5	NO		bb		
20	FUNCTION4 PFK	41.52	1.566e3					0.4	NO		bb		
21	FUNCTION4 PFK	41.28	1.695e4					1.1	NO		db		
22	FUNCTION4 PFK	41.22	9.699e3					1.0	NO		bd		
23	FUNCTION4 PFK	41.18	8.470e3					0.7	NO		bb		
24	FUNCTION4 PFK	41.09	1.576e4					0.8	NO		bb		
25	FUNCTION4 PFK	40.71	2.436e4					1.4	NO		bb		
26	FUNCTION4 PFK	40.25	7.115e3					0.6	NO		bb		
27	FUNCTION4 PFK	40.15	9.157e3					0.8	NO		bb		
28	FUNCTION4 PFK	40.09	1.470e3					0.4	NO		bb		
29	FUNCTION4 PFK	39.75	6.111e3					0.6	NO		bb		
30	FUNCTION4 PFK	39.71	1.131e4					1.3	NO		db		
31	FUNCTION4 PFK	39.66	1.776e4					1.3	NO		dd		
32	FUNCTION4 PFK	39.60	8.423e3					0.6	NO		bd		
33	FUNCTION4 PFK	39.49	1.558e4					1.2	NO		bb		
34	FUNCTION4 PFK	39.36	8.164e4					3.0	YES		db		
35	FUNCTION4 PFK	42.16	1.365e3					0.3	NO		bb		
36	FUNCTION4 PFK	42.06	2.412e4					2.0	NO		db		
37	FUNCTION4 PFK	41.97	7.382e4					2.1	NO		bd		

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	24.25	1.906e2					2.6	NO		bd		0.000
2	FUNCTION1 HXCD...	23.99	1.767e2					2.0	NO		db		0.000
3	FUNCTION1 HXCD...	23.92	1.047e2					2.2	NO		dd		0.000
4	FUNCTION1 HXCD...	23.81	1.295e2					1.6	NO		bd		0.000
5	FUNCTION1 HXCD...	23.64	8.386e1					1.2	NO		db		0.000
6	FUNCTION1 HXCD...	23.57	9.412e1					1.7	NO		bd		0.000
7	FUNCTION1 HXCD...	23.46	2.695e2					1.5	NO		db		0.000
8	FUNCTION1 HXCD...	23.25	1.169e2					1.8	NO		bd		0.000
9	FUNCTION1 HXCD...	21.91	1.263e2					1.1	NO		bb		0.000
10	FUNCTION1 HXCD...	21.63	1.586e2					2.1	NO		bb		0.000
11	FUNCTION1 HXCD...	21.13	1.765e2					2.2	NO		bb		0.000
12	FUNCTION1 HXCD...	27.30	1.606e2					1.7	NO		db		0.000
13	FUNCTION1 HXCD...	27.15	1.355e2					2.0	NO		bd		0.000
14	FUNCTION1 HXCD...	26.32	1.819e2					1.9	NO		bb		0.000
15	FUNCTION1 HXCD...	26.03	1.420e2					1.7	NO		bb		0.000
16	FUNCTION1 HXCD...	25.61	8.368e1					1.8	NO		db		0.000
17	FUNCTION1 HXCD...	25.56	7.776e1					1.5	NO		bd		0.000
18	FUNCTION1 HXCD...	25.43	3.742e2					5.5	YES		db		0.000
19	FUNCTION1 HXCD...	25.34	3.845e2					4.3	YES		dd		0.000
20	FUNCTION1 HXCD...	25.26	2.019e2					2.5	NO		dd		0.000
21	FUNCTION1 HXCD...	25.19	1.645e2					2.6	NO		bd		0.000
22	FUNCTION1 HXCD...	24.87	9.974e1					1.8	NO		db		0.000
23	FUNCTION1 HXCD...	24.81	9.398e1					1.9	NO		bd		0.000
24	FUNCTION1 HXCD...	24.67	3.244e2					2.3	NO		db		0.000
25	FUNCTION1 HXCD...	24.52	3.019e2					2.8	NO		bd		0.000
26	FUNCTION1 HXCD...	24.29	1.345e2					2.0	NO		db		0.000

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	25.32	1.995e2					3.5	YES		db		0.000
2	FUNCTION1 HPCD...	25.26	1.419e2					2.2	NO		dd		0.000
3	FUNCTION1 HPCD...	25.19	1.530e2					2.0	NO		dd		0.000
4	FUNCTION1 HPCD...	25.08	1.445e2					3.1	YES		bd		0.000
5	FUNCTION1 HPCD...	24.64	2.473e2					2.4	NO		bb		0.000
6	FUNCTION1 HPCD...	24.51	8.979e1					1.6	NO		bb		0.000
7	FUNCTION1 HPCD...	24.29	1.596e2					2.7	NO		db		0.000
8	FUNCTION1 HPCD...	24.23	1.716e2					2.6	NO		dd		0.000
9	FUNCTION1 HPCD...	24.14	8.805e1					1.7	NO		dd		0.000
10	FUNCTION1 HPCD...	24.10	1.113e2					1.9	NO		dd		0.000
11	FUNCTION1 HPCD...	23.92	5.816e2					3.8	YES		dd		0.000
12	FUNCTION1 HPCD...	23.80	1.646e2					2.9	NO		bd		0.000
13	FUNCTION1 HPCD...	23.64	8.464e1					1.8	NO		bb		0.000
14	FUNCTION1 HPCD...	22.84	1.847e3					20.0	YES		bb		0.000
15	FUNCTION1 HPCD...	22.54	2.362e2					3.5	YES		bb		0.000
16	FUNCTION1 HPCD...	21.54	1.095e4					142.6	YES		bb		0.000
17	FUNCTION1 HPCD...	26.52	1.209e2					1.4	NO		bb		0.000
18	FUNCTION1 HPCD...	26.32	9.995e1					1.4	NO		bb		0.000
19	FUNCTION1 HPCD...	26.14	1.213e2					1.6	NO		db		0.000
20	FUNCTION1 HPCD...	26.05	1.134e2					2.0	NO		bd		0.000
21	FUNCTION1 HPCD...	25.75	9.235e1					1.2	NO		bb		0.000
22	FUNCTION1 HPCD...	25.55	2.205e2					3.3	YES		bb		0.000

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.91	7.575e1					1.4	NO		bd		0.000
2	FUNCTION2 HPCD...	28.69	7.633e1					1.3	NO		db		0.000
3	FUNCTION2 HPCD...	28.62	2.615e2					3.3	YES		dd		0.000
4	FUNCTION2 HPCD...	28.55	8.899e1					1.3	NO		bd		0.000
5	FUNCTION2 HPCD...	28.42	3.206e2					3.8	YES		db		0.000
6	FUNCTION2 HPCD...	28.38	6.951e2					5.3	YES		bd		0.000
7	FUNCTION2 HPCD...	28.03	1.370e2					1.2	NO		bb		0.000
8	FUNCTION2 HPCD...	27.91	1.361e2					1.3	NO		bb		0.000
9	FUNCTION2 HPCD...	27.69	7.089e1					1.2	NO		bb		0.000
10	FUNCTION2 HPCD...	30.80	1.306e2					1.5	NO		db		0.000
11	FUNCTION2 HPCD...	30.67	8.772e1					0.9	NO		bd		0.000
12	FUNCTION2 HPCD...	30.57	2.154e2					2.9	NO		bb		0.000
13	FUNCTION2 HPCD...	30.45	1.108e2					0.9	NO		bb		0.000
14	FUNCTION2 HPCD...	30.16	8.270e1					1.2	NO		bb		0.000
15	FUNCTION2 HPCD...	30.04	8.211e1					0.9	NO		bb		0.000
16	FUNCTION2 HPCD...	29.56	1.535e2					3.6	YES		db		0.000
17	FUNCTION2 HPCD...	29.53	1.819e2					2.3	NO		dd		0.000
18	FUNCTION2 HPCD...	29.46	3.802e2					6.7	YES		dd		0.000
19	FUNCTION2 HPCD...	29.41	1.290e2					2.5	NO		bd		0.000
20	FUNCTION2 HPCD...	29.34	1.240e2					2.3	NO		db		0.000
21	FUNCTION2 HPCD...	29.30	1.021e2					2.5	NO		dd		0.000
22	FUNCTION2 HPCD...	29.21	1.542e2					2.0	NO		dd		0.000
23	FUNCTION2 HPCD...	29.17	8.359e1					1.5	NO		dd		0.000
24	FUNCTION2 HPCD...	29.12	1.843e2					2.6	NO		bd		0.000
25	FUNCTION2 HPCD...	28.97	1.096e2					1.1	NO		db		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.51	7.453e1					3.4	YES		bb		0.000
2	FUNCTION3 OCDPE	36.05	2.743e2					5.8	YES		bb		0.000
3	FUNCTION3 OCDPE	35.68	1.318e2					4.0	YES		bb		0.000
4	FUNCTION3 OCDPE	35.56	7.503e1					2.9	NO		db		0.000
5	FUNCTION3 OCDPE	35.42	1.009e2					2.5	NO		bd		0.000
6	FUNCTION3 OCDPE	35.03	9.478e1					5.5	YES		bb		0.000
7	FUNCTION3 OCDPE	34.16	9.252e1					3.1	YES		bb		0.000
8	FUNCTION3 OCDPE	32.60	1.029e2					4.3	YES		bb		0.000

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.30	1.136e2					3.2	YES		bb		0.000
2	FUNCTION4 NCDPE	40.00	8.108e1					2.9	NO		bb		0.000
3	FUNCTION4 NCDPE	38.09	1.031e2					5.6	YES		db		0.000
4	FUNCTION4 NCDPE	37.97	1.809e4					349.1	YES		bd		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.46	1.653e2					4.5	YES		bb		0.000
2	FUNCTION5 DCDPE	45.37	8.453e1					4.2	YES		bb		0.000

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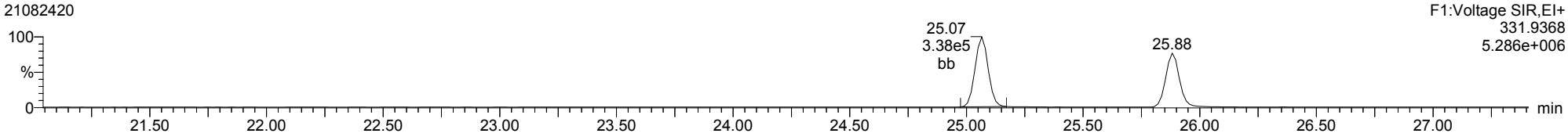
ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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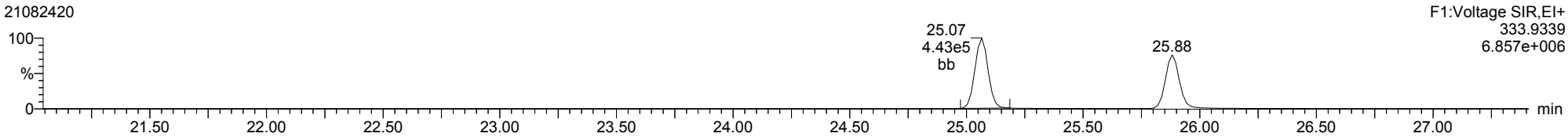

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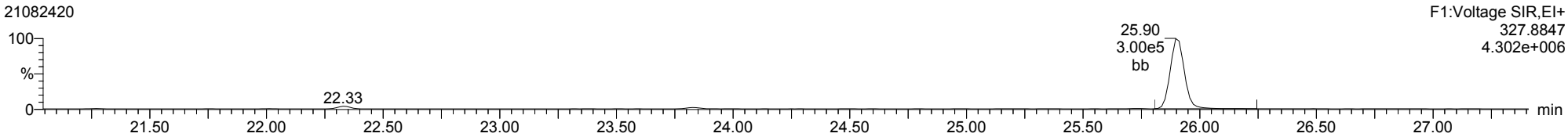

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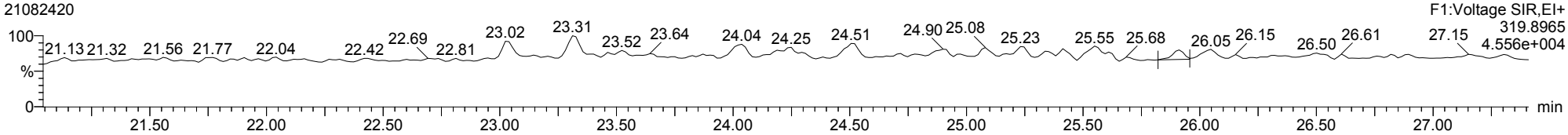
2378-TCDD



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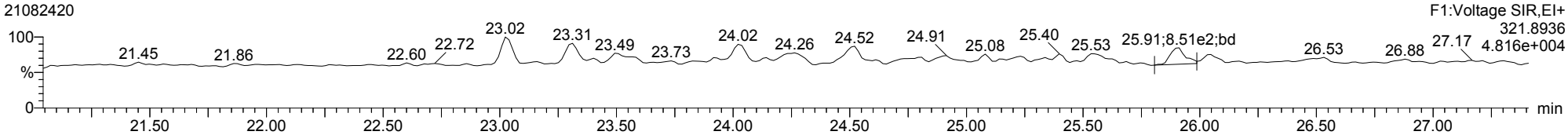

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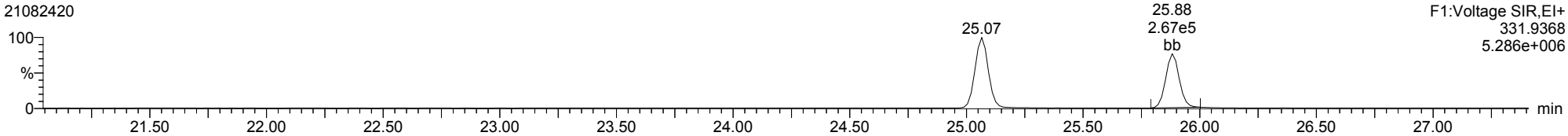

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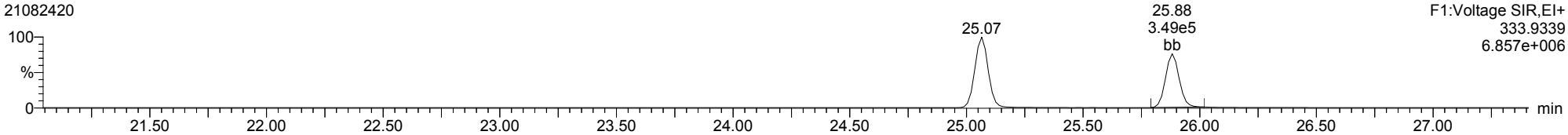

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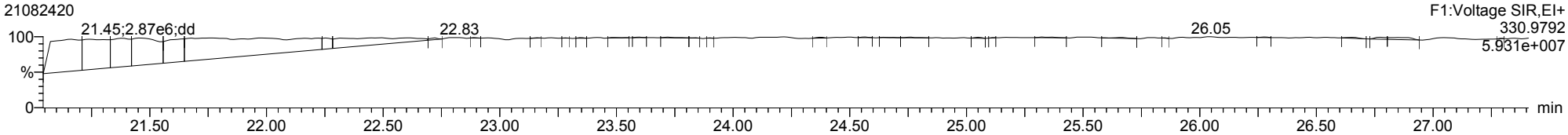

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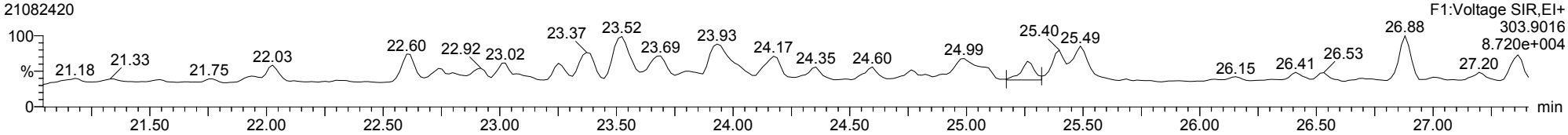
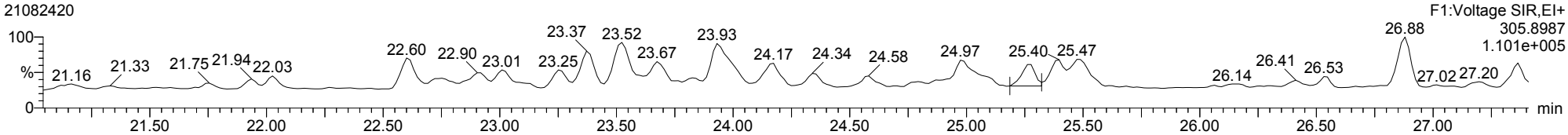
2378-TCDF



2378-TCDF



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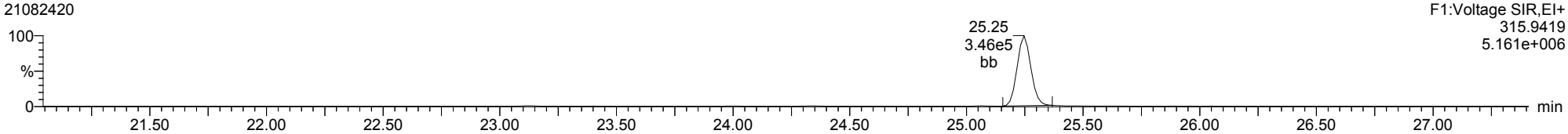

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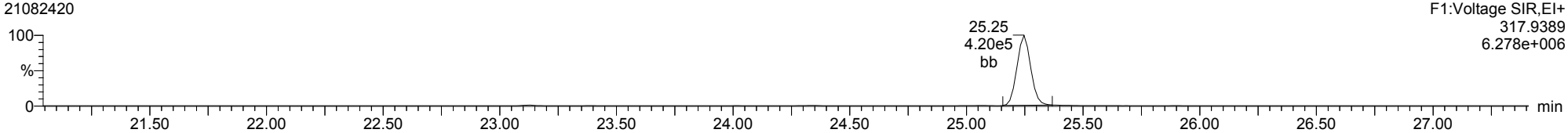

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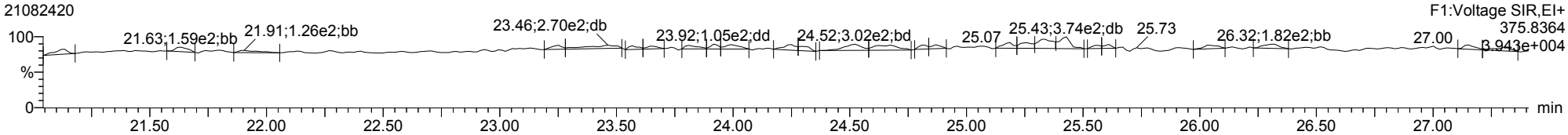

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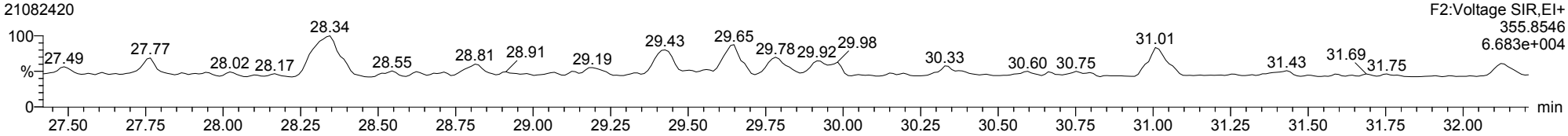
12378-PeCDD



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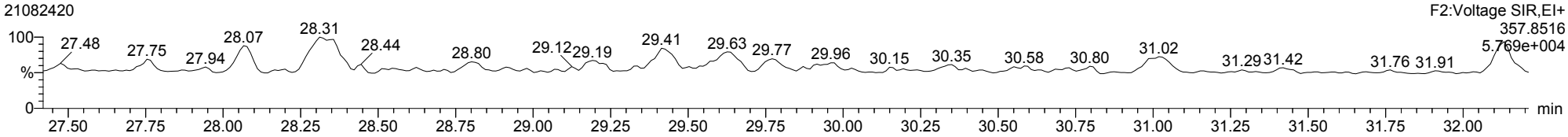

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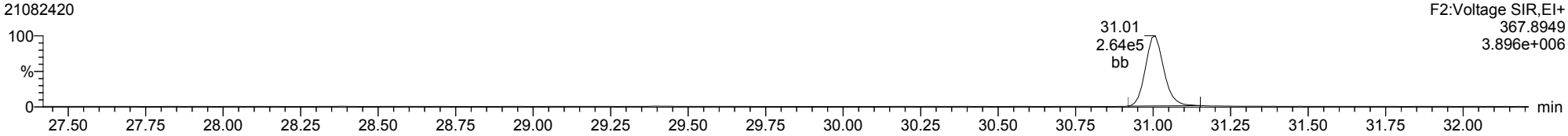

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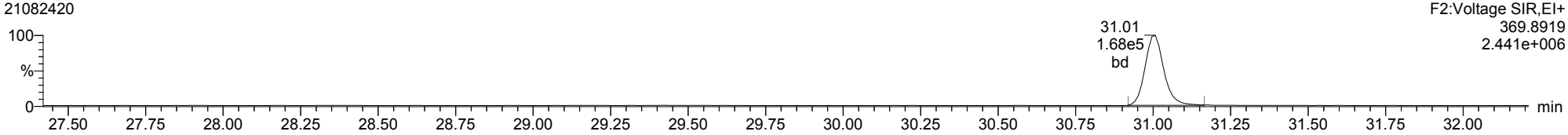

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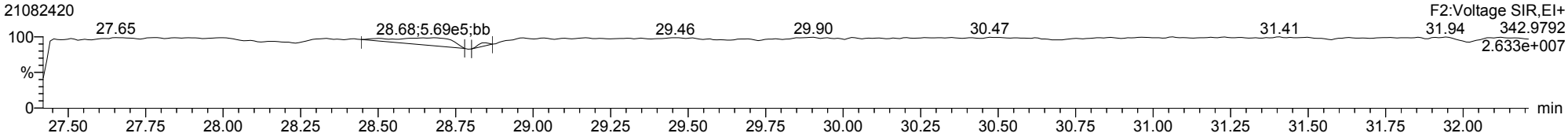

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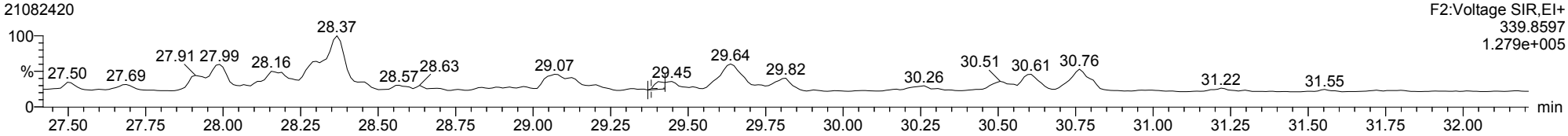

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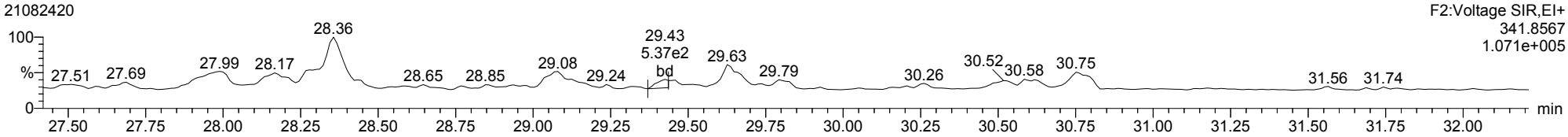

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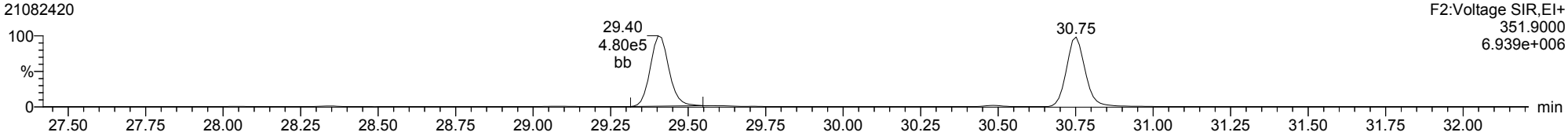

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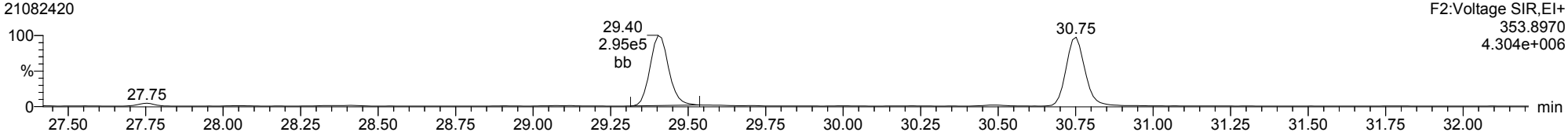
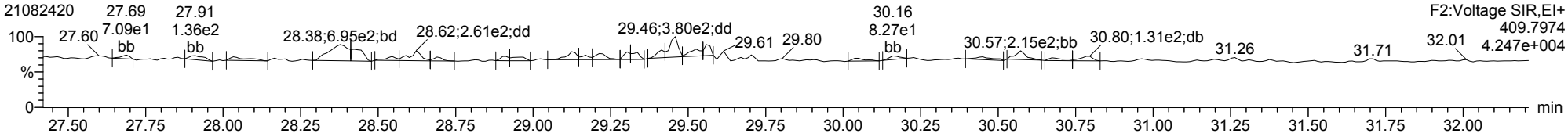


FUNCTION2 HPCDPE



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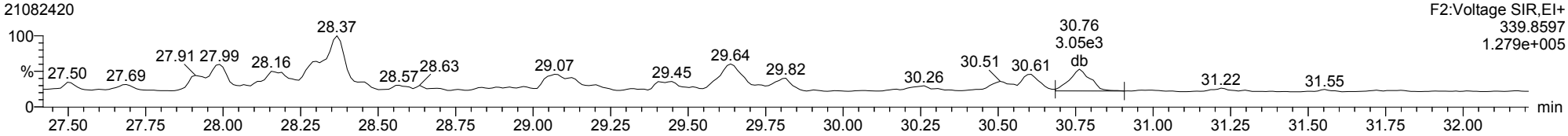
23478-PeCDF



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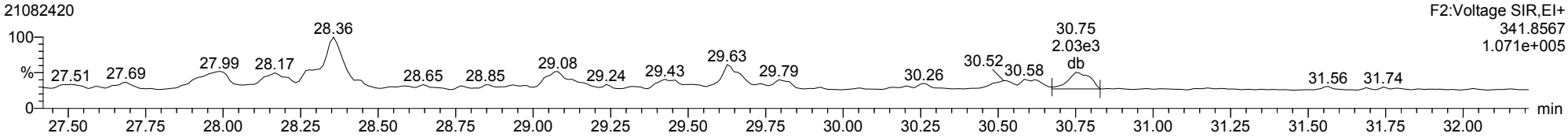

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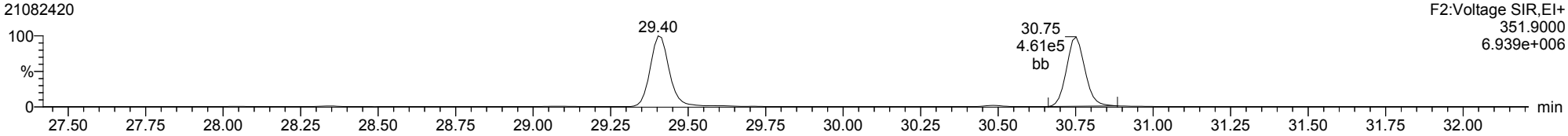

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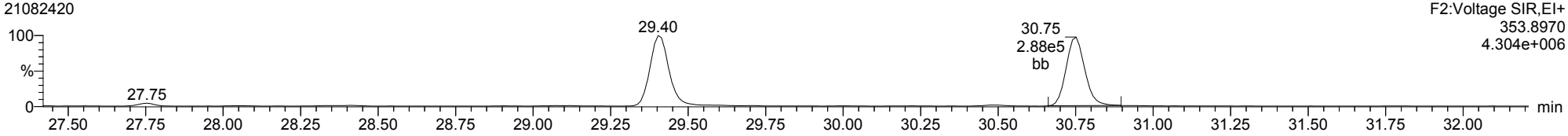
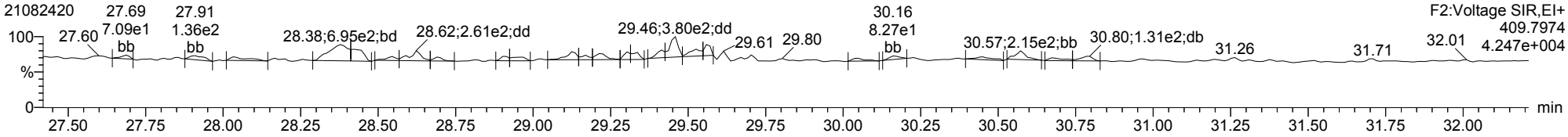


FUNCTION2 HPCDPE



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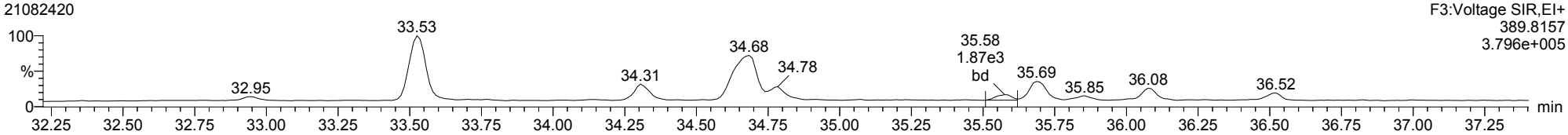
123478-HxCDD



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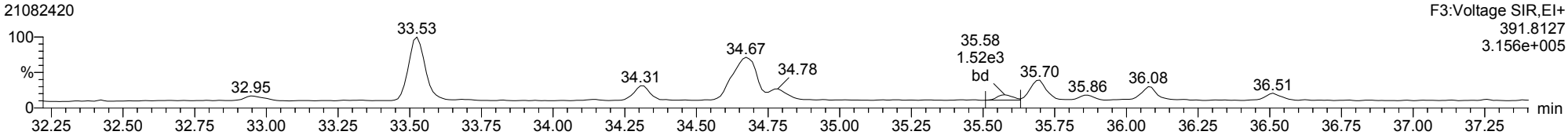

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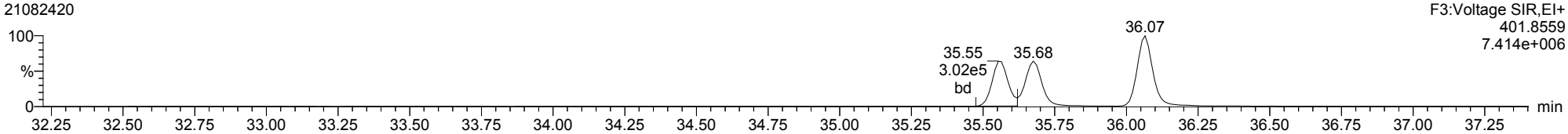

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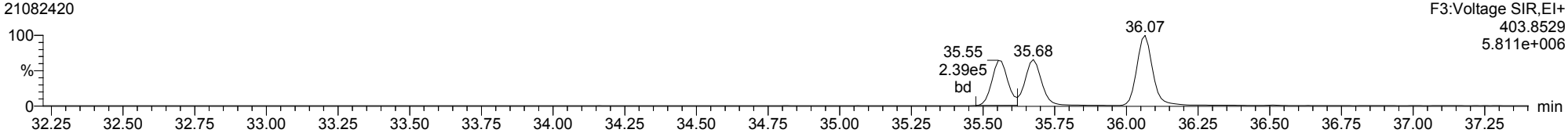
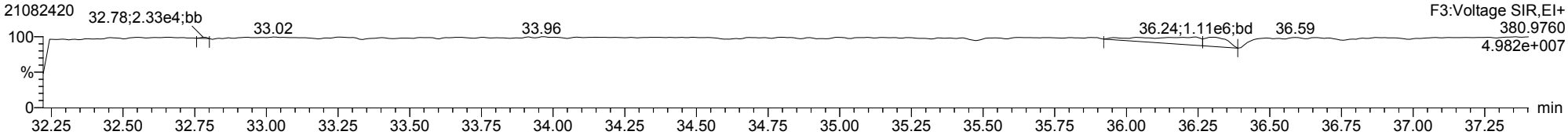


FUNCTION3 PFK



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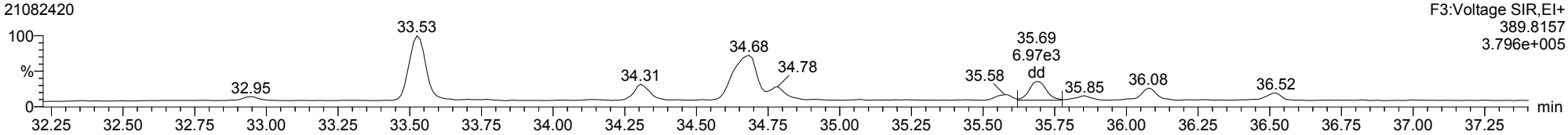

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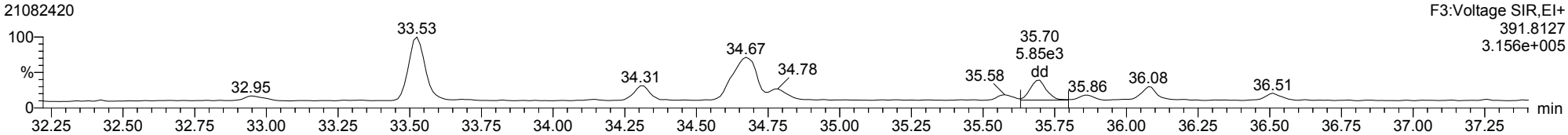

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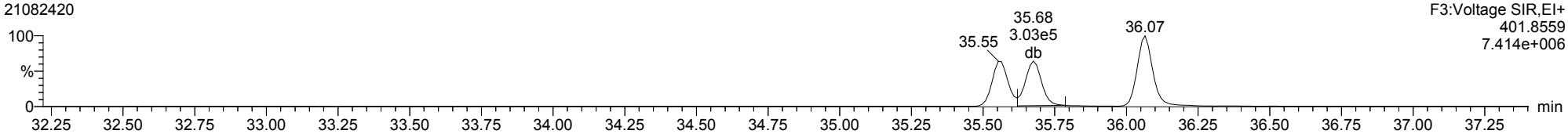

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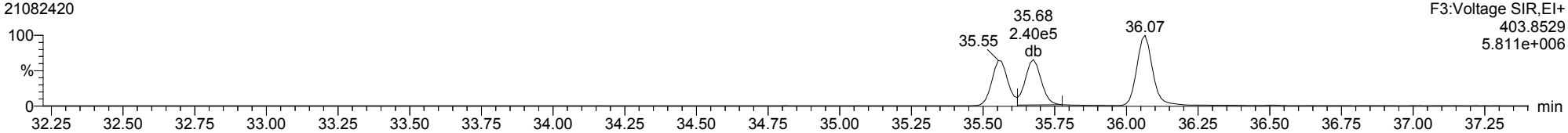

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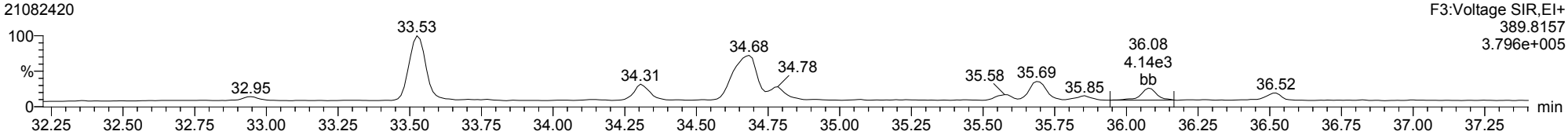

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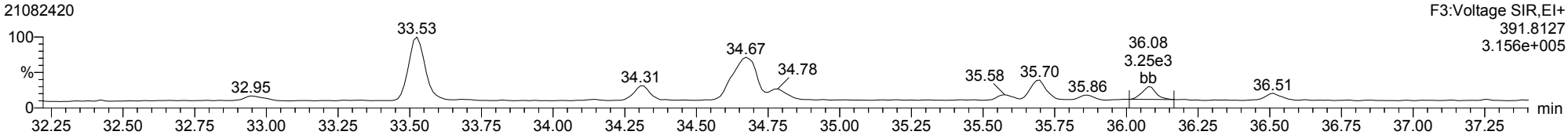

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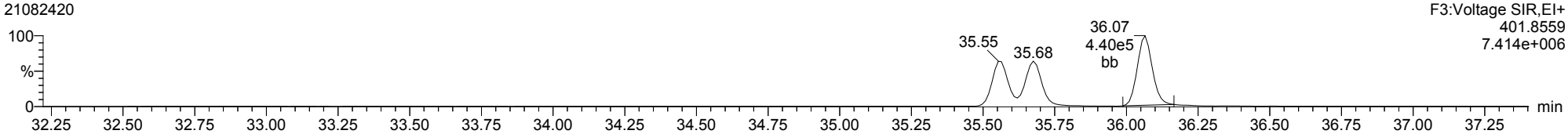

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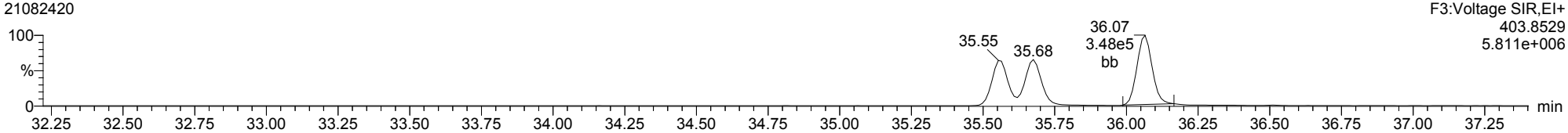

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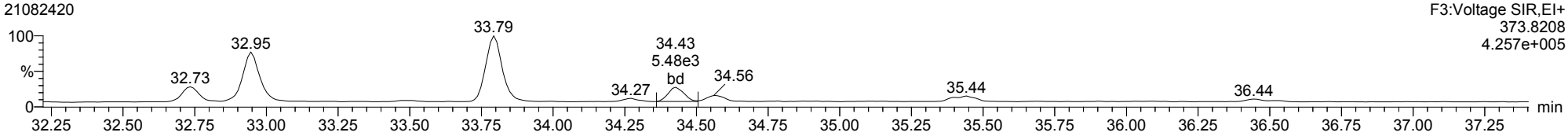

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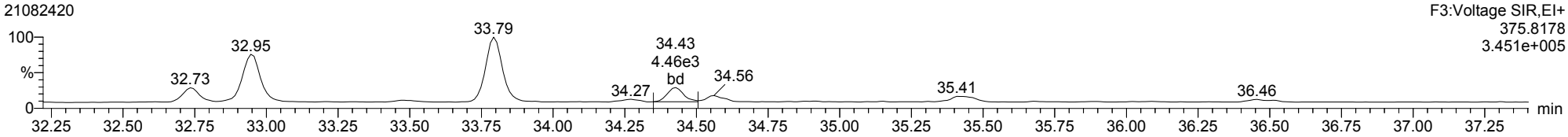

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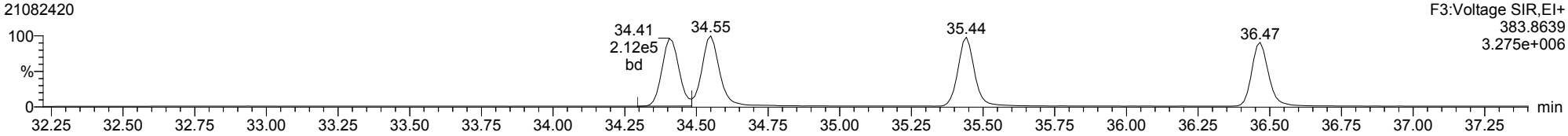

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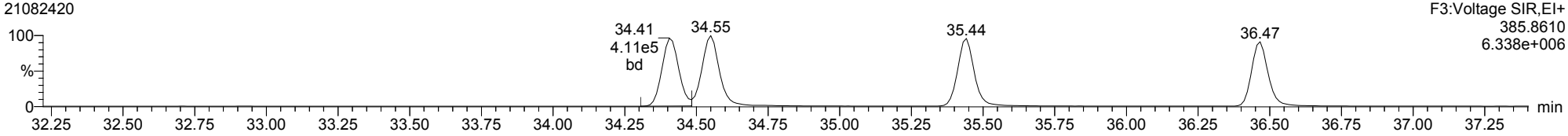
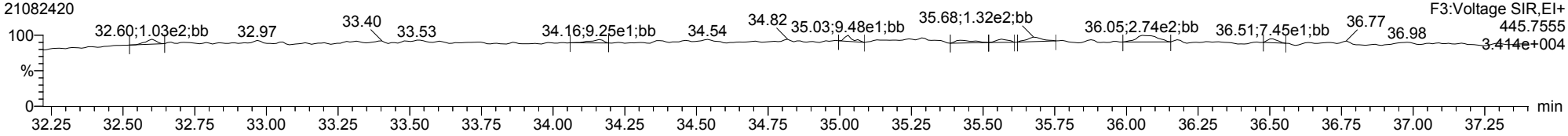


FUNCTION3 OCDPE



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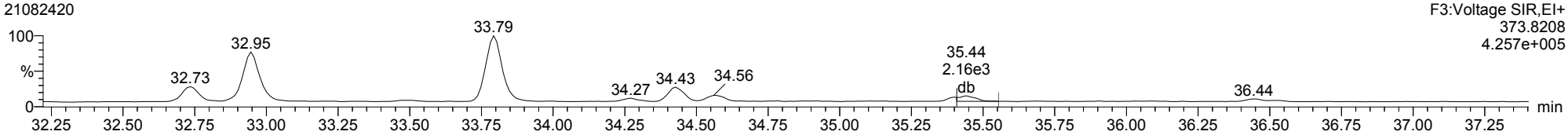
234678-HxCDF



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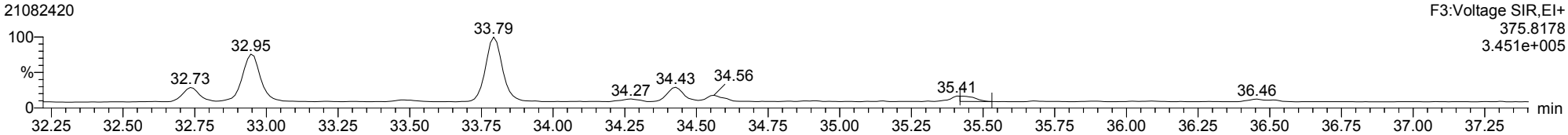

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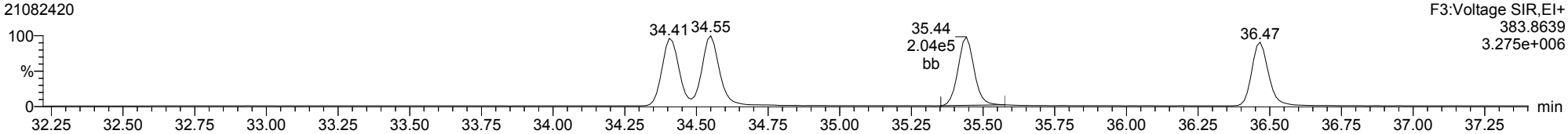

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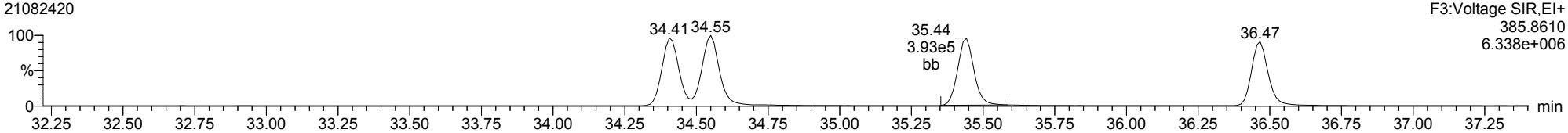
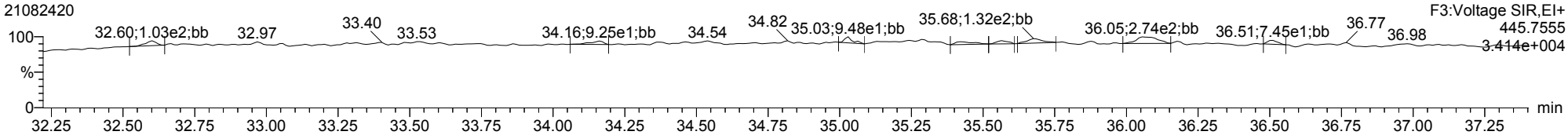


FUNCTION3 OCDPE



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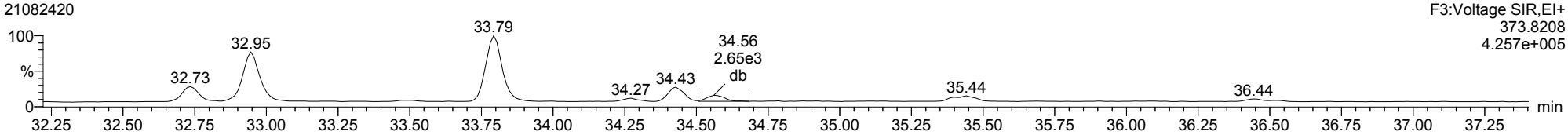
123678-HxCDF



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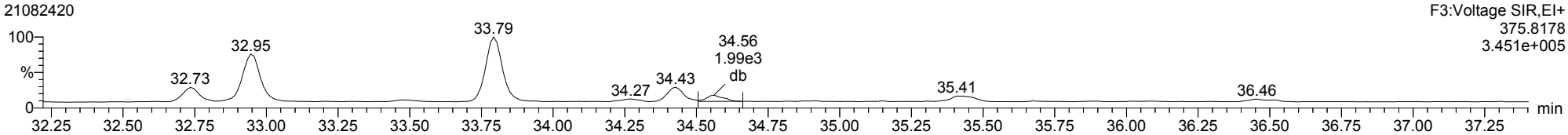

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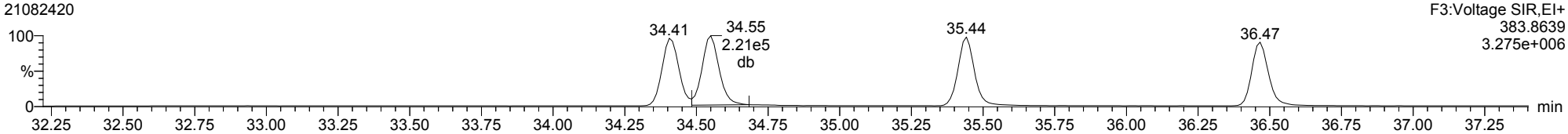

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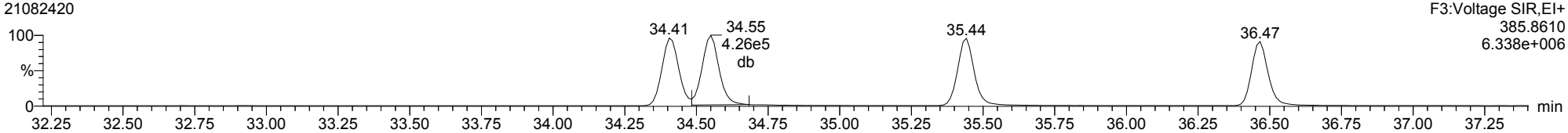
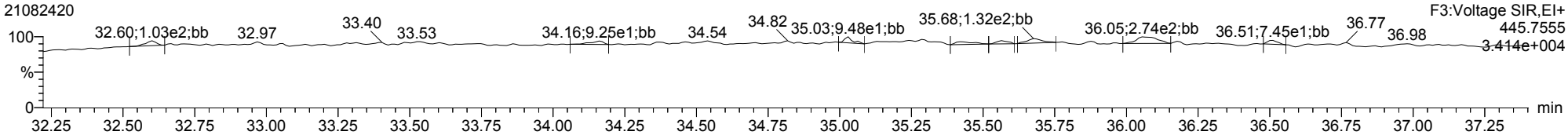


FUNCTION3 OCDPE



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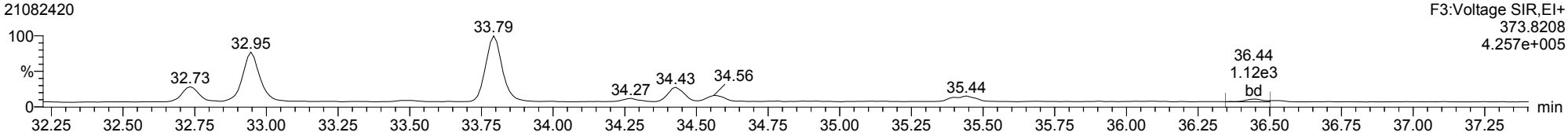

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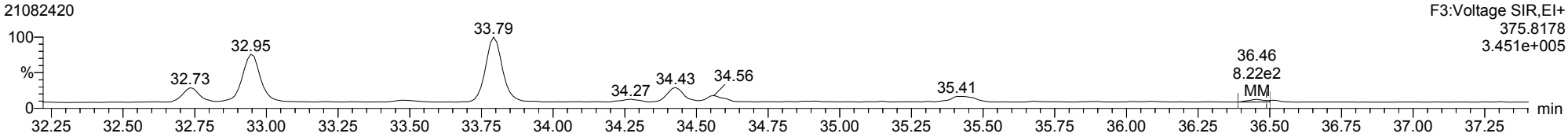

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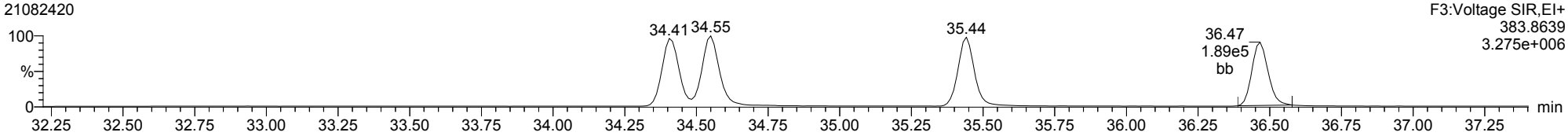

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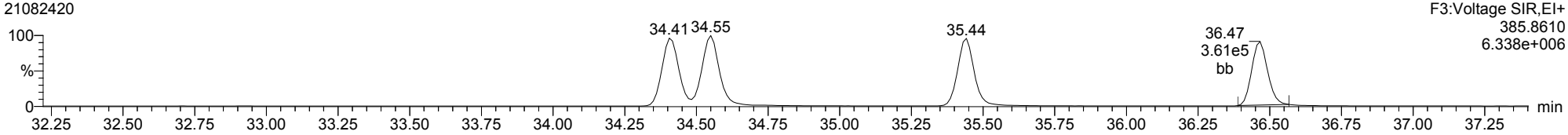

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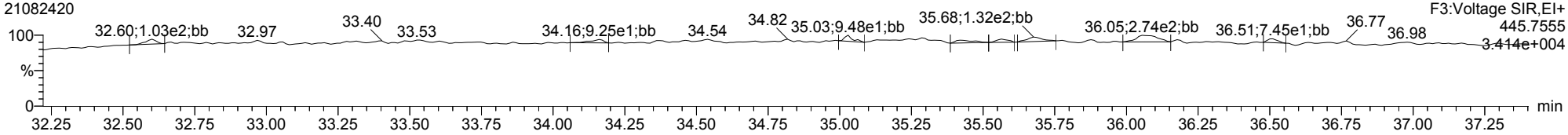
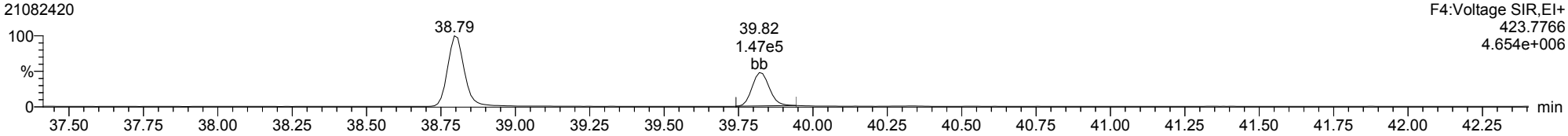


ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

1234678-HpCDD



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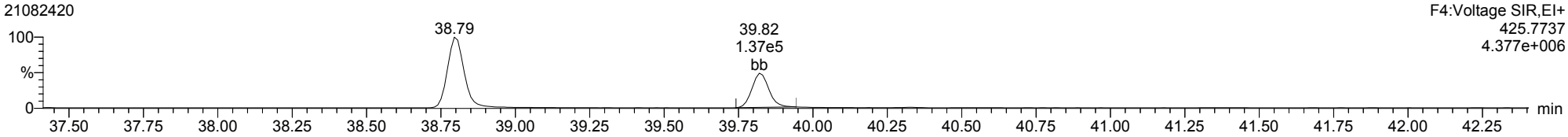

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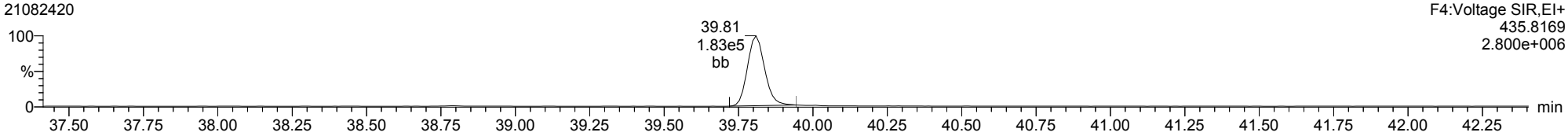

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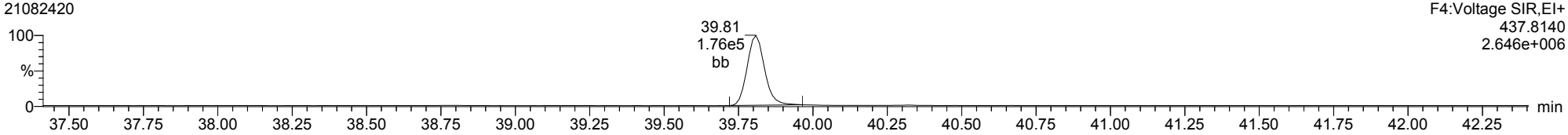

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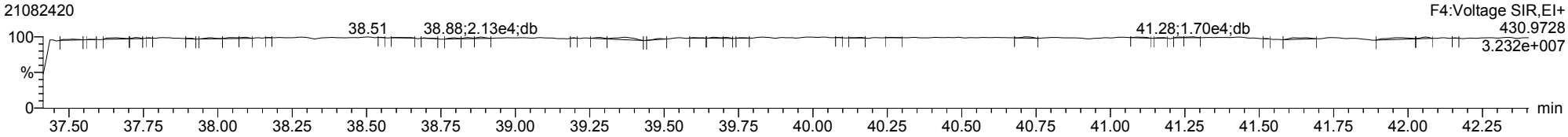

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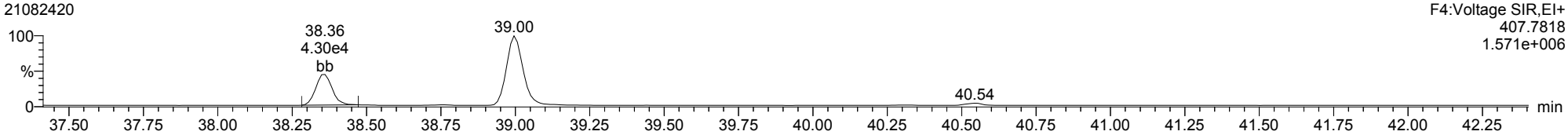

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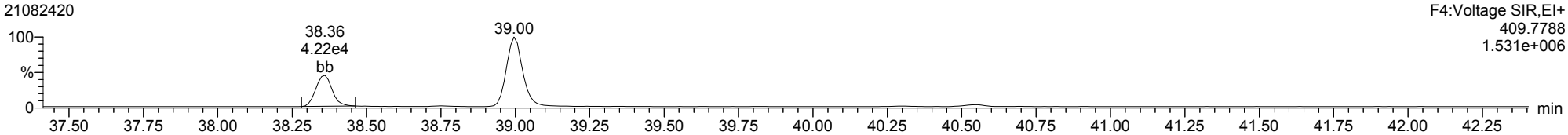

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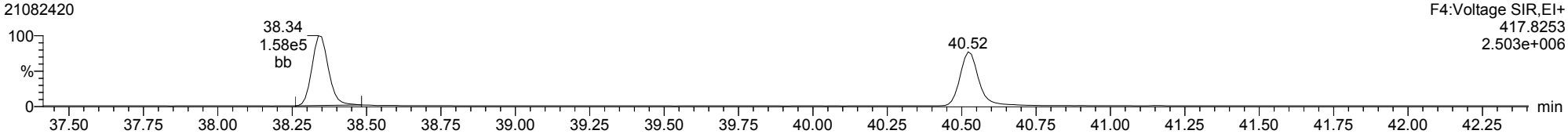

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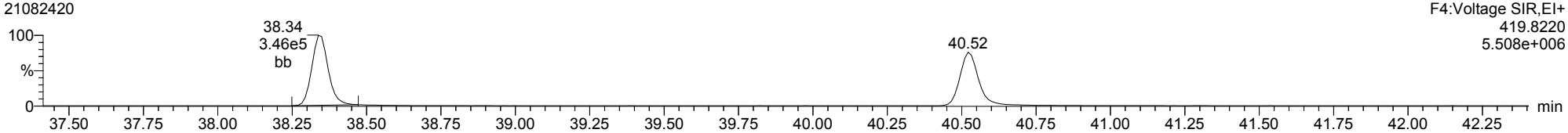

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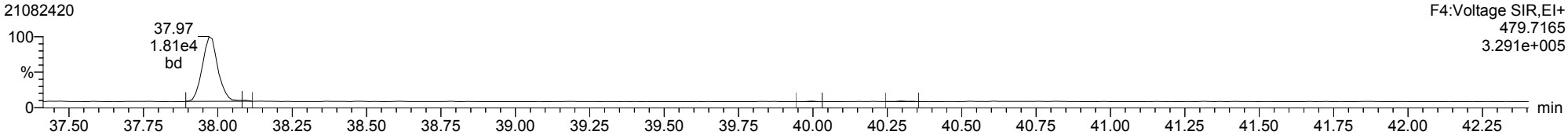

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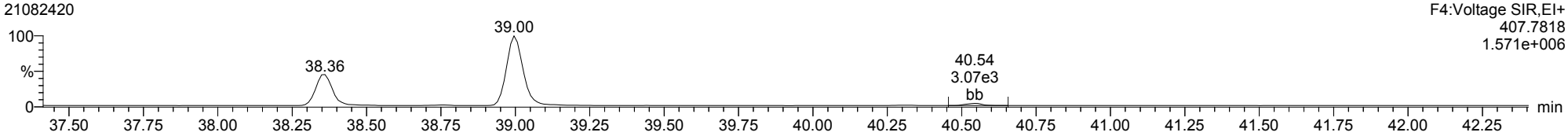
1234789-HpCDF



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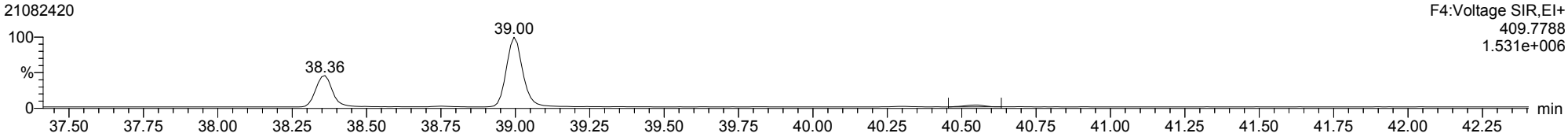

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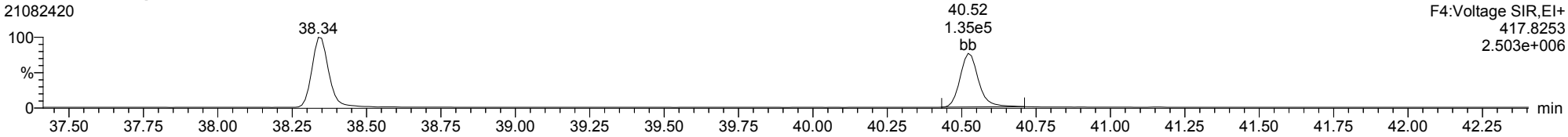

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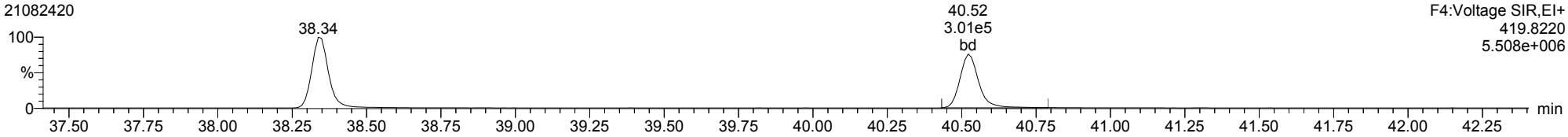
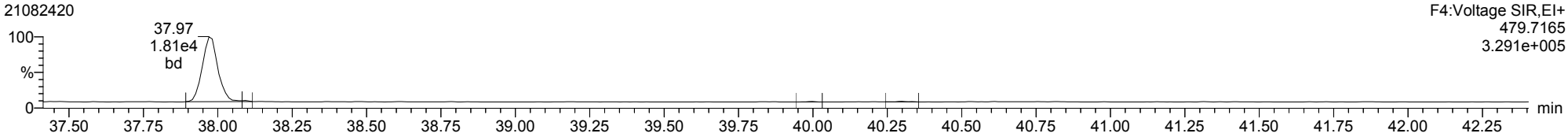


FUNCTION4 NCDPE



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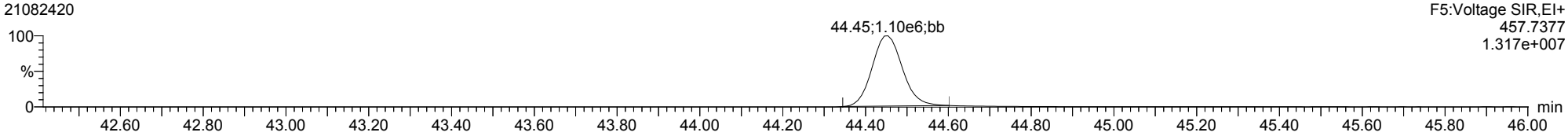

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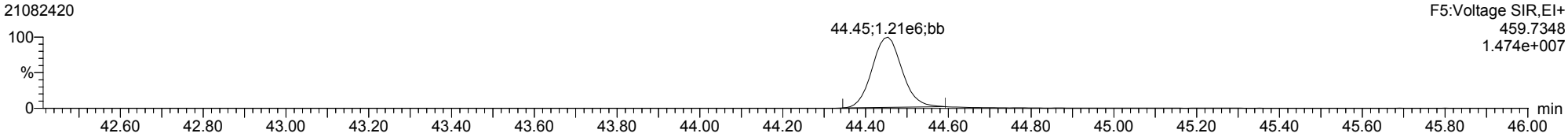

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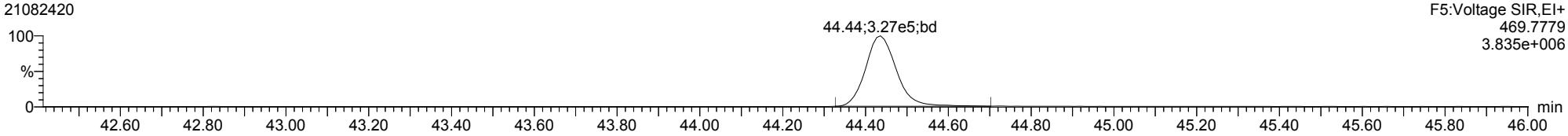

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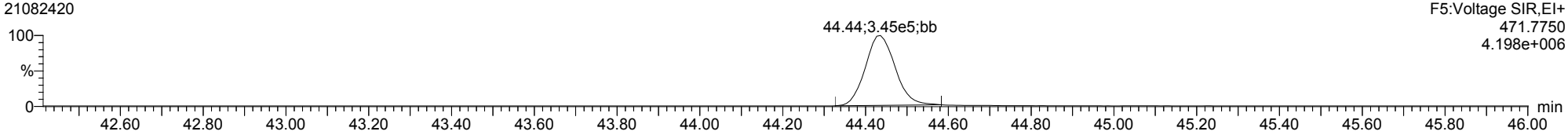
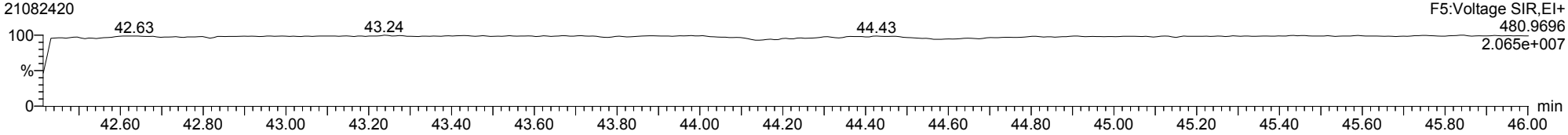


FUNCTION5 PFK



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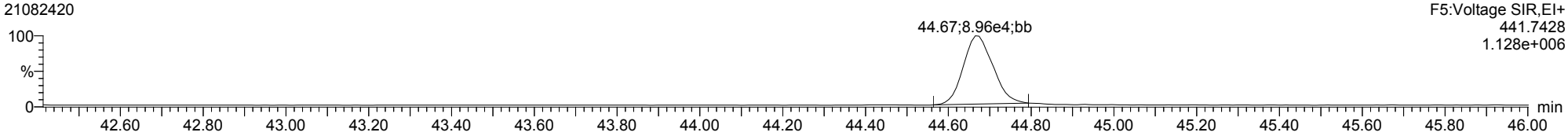

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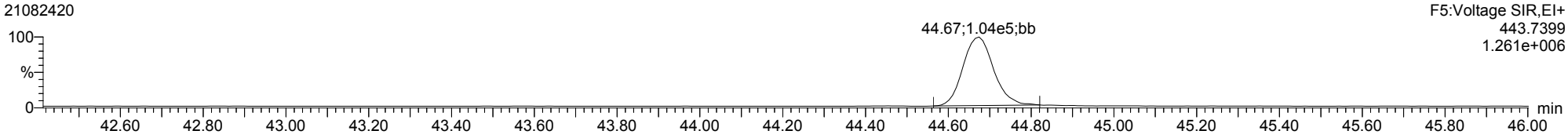
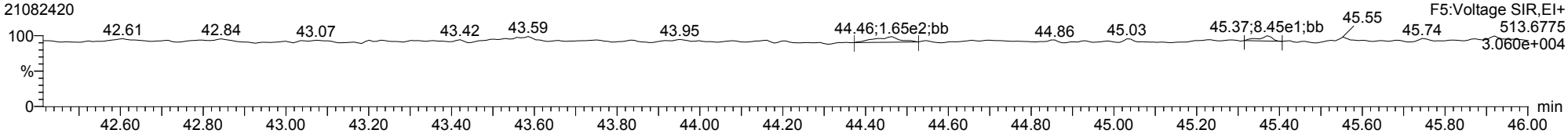


FUNCTION5 DCDPE



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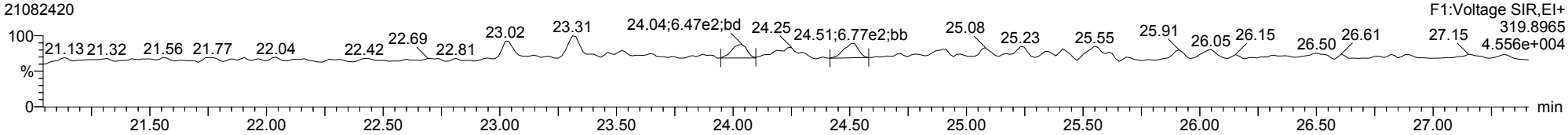
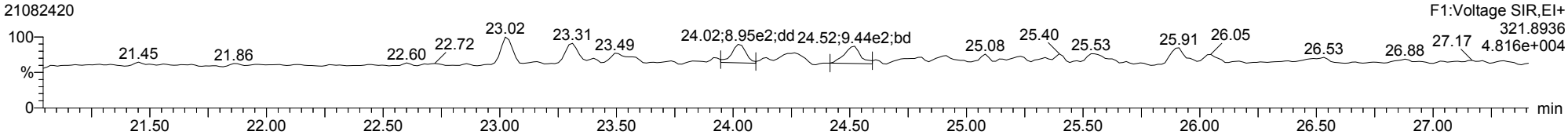
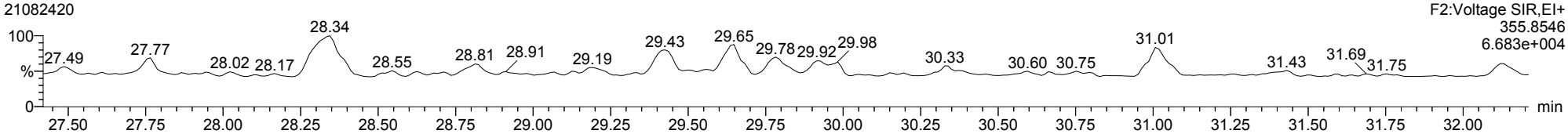


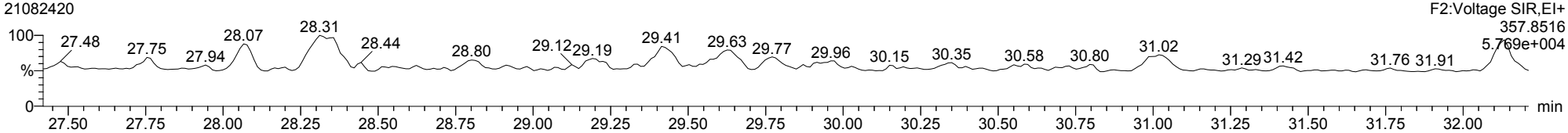
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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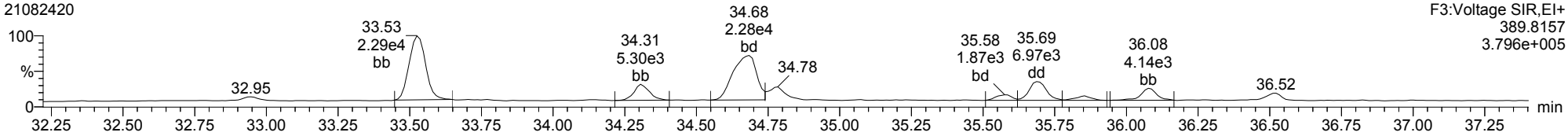

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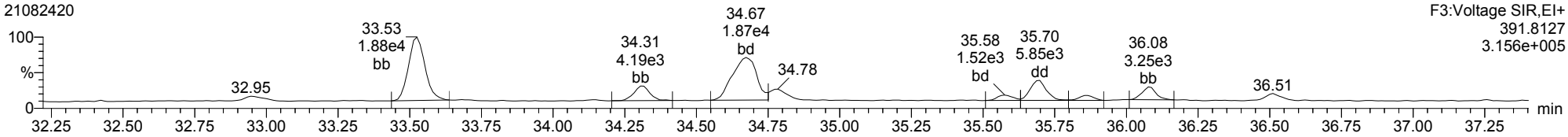

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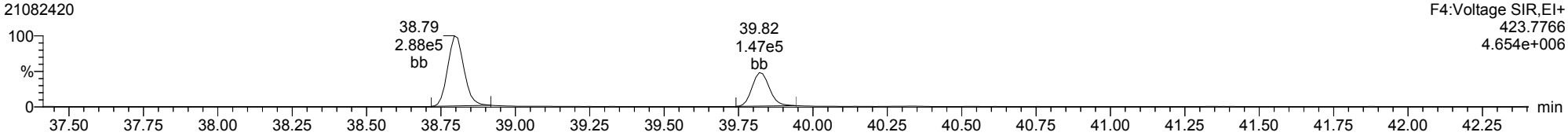

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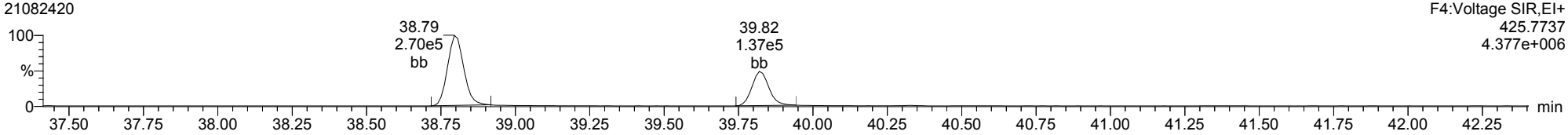

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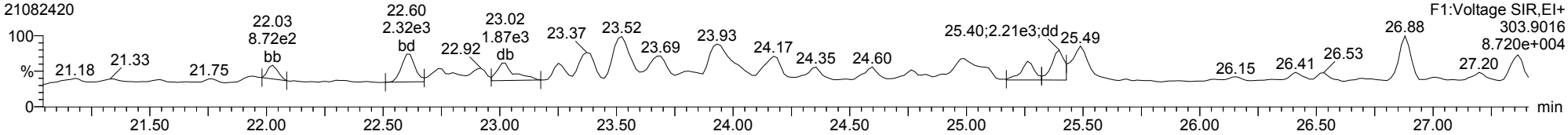
Total-tetrafurans



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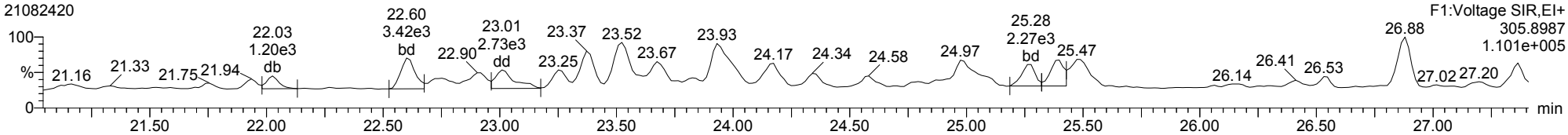

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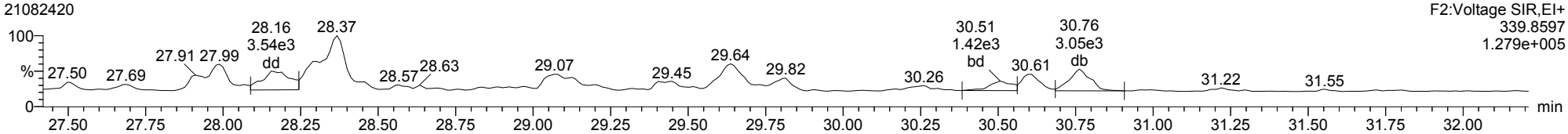

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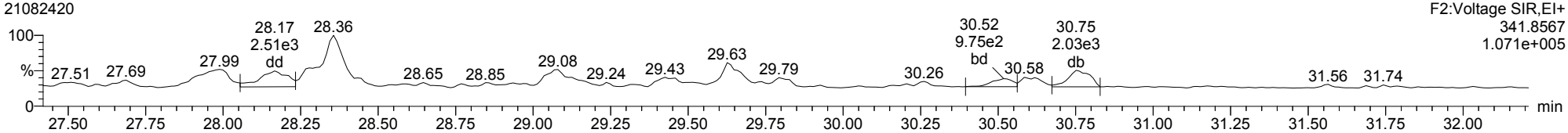

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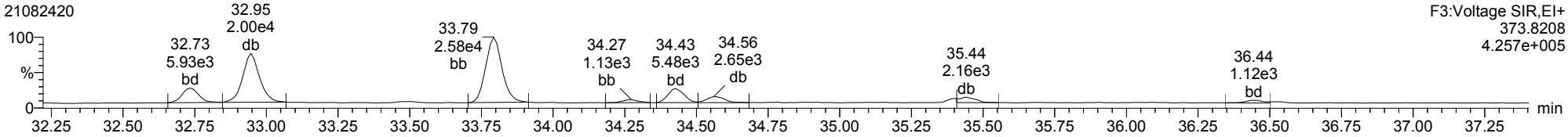
Printed: Wednesday, August 25, 2021 12:42:43 Pacific Daylight Time

ID: 21G0127-05, Name: 21082420, Date: 25-Aug-2021, Time: 03:45:54, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



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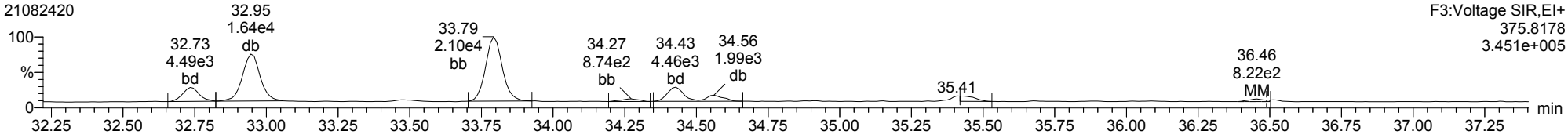

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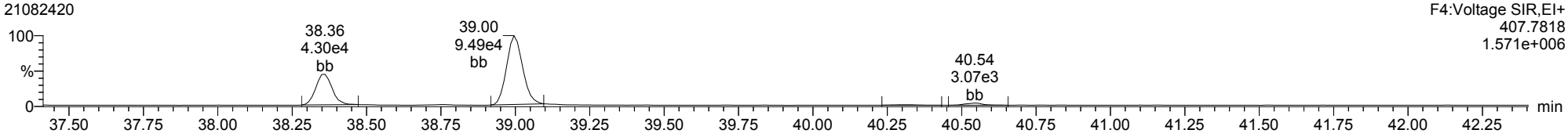

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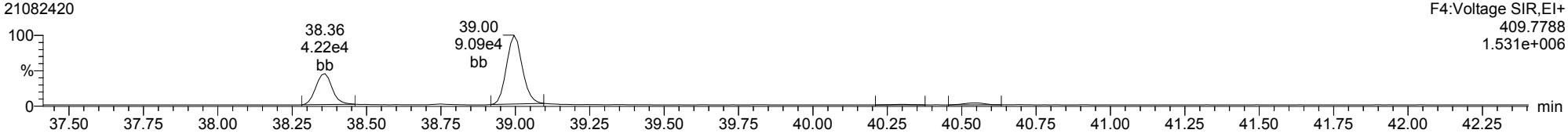

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS645

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0127-08 A	File ID:	21082421
Sampled:	07/12/21 08:55	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 04:34
% Solids:	53.61	Preparation:	EPA 1613	Initial/Final:	18.65 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.621	0.655-0.886	0.352	1.00	0.717	ng/kg	EMPC, J
1746-01-6	2,3,7,8-TCDD	1	0.655	0.655-0.886	0.226	1.00	0.408	ng/kg	J
57117-41-6	1,2,3,7,8-PeCDF	1	1.620	1.318-1.783	0.335	1.00	0.800	ng/kg	J
57117-31-4	2,3,4,7,8-PeCDF	1	1.930	1.318-1.783	0.310	1.00	1.56	ng/kg	EMPC
40321-76-4	1,2,3,7,8-PeCDD	1	1.334	1.318-1.783	0.457	1.00	1.12	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.183	1.054-1.426	0.251	1.00	12.0	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.221	1.054-1.426	0.233	1.00	2.85	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.306	1.054-1.426	0.244	1.00	3.98	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.208	1.054-1.426	0.269	1.00	2.21	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.122	1.054-1.426	0.236	1.00	1.09	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.270	1.054-1.426	0.228	1.00	5.80	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.337	1.054-1.426	0.249	1.00	2.93	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.025	0.893-1.208	0.220	1.00	51.8	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.989	0.893-1.208	0.294	1.00	6.76	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.079	0.893-1.208	0.625	2.50	184	ng/kg	B
39001-02-0	OCDF	1	0.911	0.757-1.024	0.327	2.50	188	ng/kg	
3268-87-9	OCDD	1	0.902	0.757-1.024	0.802	10.0	1360	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	8.68	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	0.675	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	21.7	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	2.67	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	92.3	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	41.9	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	219	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	426	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 8.07
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 8.07

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS645

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0127-08	File ID:	21082421
Sampled:	07/12/21 08:55	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 04:34
Solids Wt%:	53.61	Preparation:	EPA 1613	Initial/Final:	18.65 g / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.802	0.655-0.886	0.133	58.4	24 - 169 %	
13C12-2,3,7,8-TCDD		0.761	0.655-0.886	0.191	60.9	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.626	1.318-1.783	0.241	64.7	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.581	1.318-1.783	0.253	64.7	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.528	1.318-1.783	0.147	63.0	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.515	0.434-0.587	0.185	54.9	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.515	0.434-0.587	0.171	52.9	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.516	0.434-0.587	0.190	53.6	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.517	0.434-0.587	0.229	58.7	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.253	1.054-1.426	0.194	61.5	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.286	1.054-1.426	0.179	56.8	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.470	0.374-0.506	0.213	60.4	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.462	0.374-0.506	0.260	63.3	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.058	0.893-1.208	0.242	60.6	23 - 140 %	
13C12-OCDD		0.910	0.757-1.024	0.329	69.8	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.062	77.9	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:54 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.262	1.001	1.054e3	1.696e3	1.108	0.621	0.770	3745	3031	1.65e4	2.63e4	4.4	8.7	YES	bd	bd	0.358
12378-PeCDF	29.426	1.001	1.752e3	1.081e3	1.015	1.620	1.550	2858	2794	2.76e4	1.84e4	9.7	6.6	NO	bb	bd	0.400
23478-PeCDF	30.774	1.001	3.842e3	1.991e3	1.126	1.930	1.550	2858	2794	5.10e4	2.93e4	17.9	10.5	YES	db	bb	0.778
123478-HxCDF	34.428	1.001	1.829e4	1.546e4	1.017	1.183	1.240	1788	1663	2.80e5	2.28e5	156.4	136.9	NO	dd	dd	6.015
234678-HxCDF	35.408	0.999	6.242e3	4.778e3	1.052	1.306	1.240	1788	1663	6.77e4	5.06e4	37.9	30.4	NO	bb	bb	1.988
123678-HxCDF	34.573	1.001	4.658e3	3.816e3	1.037	1.221	1.240	1788	1663	6.76e4	5.39e4	37.8	32.4	NO	db	db	1.423
123789-HxCDF	36.456	1.000	2.977e3	2.465e3	1.030	1.208	1.240	1788	1663	3.83e4	3.25e4	21.4	19.5	NO	bb	bb	1.104
1234678-HpCDF	38.361	1.000	7.879e4	7.687e4	1.327	1.025	1.050	1805	1585	1.27e6	1.27e6	701.7	802.3	NO	bb	bb	25.912
1234789-HpCDF	40.544	1.001	8.368e3	8.463e3	1.283	0.989	1.050	1805	1585	1.34e5	1.25e5	74.2	78.7	NO	bb	bb	3.380
OCDF	44.674	1.005	1.842e5	2.022e5	1.447	0.911	0.890	1414	1333	2.17e6	2.47e6	1533.9	1849.0	NO	bd	bb	93.916
2378-TCDD	25.912	1.001	4.207e2	6.426e2	0.920	0.655	0.770	1453	1420	7.89e3	1.07e4	5.4	7.6	NO	bd	bd	0.204
12378-PeCDD	31.019	1.000	1.222e3	9.159e2	0.995	1.334	1.550	2492	1731	1.93e4	1.48e4	7.7	8.6	NO	bb	bb	0.560
123478-HxCDD	35.576	1.001	1.414e3	1.260e3	1.027	1.122	1.240	1776	1168	2.54e4	2.41e4	14.3	20.7	NO	bd	bd	0.545
123678-HxCDD	35.687	1.000	7.838e3	6.169e3	1.009	1.270	1.240	1776	1168	1.26e5	9.51e4	71.2	81.4	NO	dd	db	2.899
123789-HxCDD	36.077	1.011	3.805e3	2.845e3	0.950	1.337	1.240	1776	1168	5.96e4	4.05e4	33.6	34.7	NO	bb	bb	1.464
1234678-HpCDD	39.831	1.001	1.576e5	1.461e5	1.068	1.079	1.050	2417	2683	2.36e6	2.21e6	976.1	823.0	NO	bb	bb	91.768
OCDD	44.455	1.000	1.080e6	1.198e6	1.181	0.902	0.890	2866	2636	1.33e7	1.48e7	4653.6	5613.6	NO	bb	bb	678.500
13C-2378-TCDF	25.247	1.007	3.084e5	3.846e5	1.427	0.802	0.770	2338	1711	4.64e6	5.72e6	1985.0	3341.9	NO	bb	bb	58.366
13C-12378-PeCDF	29.403	1.173	4.324e5	2.659e5	1.297	1.626	1.550	4304	2386	6.17e6	3.91e6	1434.3	1638.3	NO	bd	bb	64.665
13C-23478-PeCDF	30.751	1.227	4.079e5	2.580e5	1.236	1.581	1.550	4304	2386	5.96e6	3.77e6	1384.2	1581.4	NO	bb	bb	64.699
13C-123478-HxCDF	34.405	0.954	1.876e5	3.641e5	1.242	0.515	0.510	2017	2876	2.76e6	5.32e6	1366.5	1848.6	NO	bd	bd	54.886
13C-123678-HxCDF	34.550	0.958	1.952e5	3.792e5	1.343	0.515	0.510	2017	2876	2.91e6	5.59e6	1443.9	1942.4	NO	db	db	52.851
13C-234678-HxCDF	35.442	0.983	1.792e5	3.474e5	1.215	0.516	0.510	2017	2876	2.74e6	5.21e6	1358.2	1810.8	NO	bb	bb	53.575
13C-123789-HxCDF	36.467	1.011	1.631e5	3.156e5	1.008	0.517	0.510	2017	2876	2.54e6	4.93e6	1260.9	1715.8	NO	bb	bb	58.714
13C-1234678-HpCDF	38.349	1.063	1.448e5	3.078e5	0.926	0.470	0.440	1698	2485	2.23e6	4.90e6	1314.7	1970.8	NO	bd	bb	60.379
13C-1234789-HpCDF	40.522	1.124	1.226e5	2.654e5	0.758	0.462	0.440	1698	2485	1.70e6	3.62e6	1003.9	1455.0	NO	bb	bd	63.273
13C-1234-TCDD	25.065	0.000	3.630e5	4.694e5	1.000	0.773	0.770	3279	1295	5.60e6	7.24e6	1709.3	5589.1	NO	bb	bb	100.000
13C-2378-TCDD	25.882	1.033	2.448e5	3.216e5	1.116	0.761	0.770	3279	1295	3.59e6	4.73e6	1094.7	3654.3	NO	bb	bb	60.949
13C-12378-PeCDD	31.007	1.237	2.319e5	1.518e5	0.732	1.528	1.550	1161	1149	3.37e6	2.20e6	2901.5	1912.3	NO	bb	bb	62.963
13C-123478-HxCDD	35.553	0.986	2.654e5	2.118e5	0.960	1.253	1.240	2187	1767	4.05e6	3.27e6	1851.7	1850.0	NO	bd	bd	61.460
13C-123678-HxCDD	35.676	0.989	2.693e5	2.095e5	1.041	1.286	1.240	2187	1767	4.32e6	3.36e6	1976.4	1903.0	NO	db	db	56.834
13C-1234678-HpCDD	39.809	1.104	1.593e5	1.505e5	0.632	1.058	1.050	1553	1703	2.36e6	2.27e6	1518.9	1332.1	NO	bb	bb	60.557
13C-OCDD	44.436	1.232	2.710e5	2.977e5	0.504	0.910	0.890	1741	1783	3.32e6	3.68e6	1908.9	2063.5	NO	bb	bb	139.560
13C-123789-HxCDD	36.065	0.000	4.496e5	3.594e5	1.000	1.251	1.240	2187	1767	7.09e6	5.63e6	3240.7	3186.9	NO	bb	bb	100.000
37CL-2378-TCDD	25.912	1.034	2.809e5		1.084			1448		3.93e6		2716.7			bb		31.144

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
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ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.769	0.862	4.824e2	4.569e2	1.425	1.056	0.770	3745	3031	7.73e3	7.67e3	2.1	2.5	YES	bd	bb	0.095
1289-TCDF	26.743	1.059	3.436e2	3.579e2	1.043	0.960	0.770	3745	3031	7.30e3	7.17e3	1.9	2.4	YES	dd	bd	0.097
13468-PECDF	26.698	0.908	1.982e4	1.331e4	1.376	1.489	1.550	1395	1435	2.71e5	1.79e5	194.0	125.0	NO	bb	bb	3.447
12389-PECDF					1.000		1.550	2858	2794								
123468-HXCDF	32.734	0.951	9.400e3	7.360e3	1.087	1.277	1.240	1788	1663	1.39e5	1.05e5	78.0	63.4	NO	bb	bb	2.796
1368-TCDD	23.039	0.890	1.189e3	1.167e3	0.923	1.019	0.770	1453	1420	1.57e4	1.83e4	10.8	12.9	YES	bb	db	0.450
1289-TCDD	26.517	1.025	1.511e2	1.216e2	0.794	1.242	0.770	1453	1420	2.69e3	2.75e3	1.9	1.9	YES	dd	bb	0.061
12479-PECDD	28.345	0.914	3.205e3	2.655e3	1.843	1.207	1.550	2492	1731	3.51e4	2.67e4	14.1	15.4	YES	MM	MM	0.829
12389-PECDD	31.431	1.014	4.619e2	1.791e2	1.154	2.579	1.550	2492	1731	7.59e3	4.05e3	3.0	2.3	YES	bb	bb	0.145
124679-HXCDD	33.526	0.943	1.882e4	1.458e4	1.125	1.291	1.240	1776	1168	2.80e5	2.12e5	157.7	181.8	NO	bb	bb	6.221
1234679-HPCDD	38.806	0.975	2.352e5	2.190e5	1.211	1.074	1.050	2417	2683	3.86e6	3.57e6	1597.2	1331.0	NO	bb	bb	121.052
Total-tetrafurans			1.555e4		1.192			3745		2.14e5							4.337
Total-penta1			1.982e4					1395		2.71e5							3.447
Total-pentafurans			3.127e4		1.047			2858		4.11e5							7.380
Total-hexafurans			1.420e5		1.045			1788		2.08e6							46.132
Total-heptafurans			3.136e5		1.305			1805		4.94e6							109.280
Total-Furans			7.064e5		1.158			3745		1.01e7							264.492
Total-tetradioxins			7.244e2		0.879			1453		1.55e4							0.337
Total-pentadioxins			3.630e3		1.331			2492		5.56e4							1.337
Total-hexadioxins			5.847e4		1.028			1776		7.99e5							20.951
Total-heptadioxins			3.928e5		1.140			2417		6.22e6							212.820
Total-Dioxins			1.536e6		1.092			1453		2.04e7							914.013
Total-TEQ			2.243e6					1453		3.05e7							1178.505
FUNCTION1 PFK			2.521e6					524109		3.81e7							
FUNCTION2 PFK			0.000e0					327449		0.00e0							
FUNCTION3 PFK			2.159e6					452304		2.09e7							0.000
FUNCTION4 PFK			1.743e7					348473		1.76e8							
FUNCTION5 PFK			0.000e0					234872		0.00e0							
FUNCTION1 HXCD...			3.936e3					1110		7.17e4							0.000
FUNCTION1 HPCD...			9.222e3					786		1.52e5							0.000
FUNCTION2 HPCD...			1.070e3					862		2.65e4							0.000
FUNCTION3 OCDPE			1.967e3					1050		4.14e4							0.000
FUNCTION4 NCDPE			1.091e4					1626		1.95e5							0.000
FUNCTION5 DCDPE			6.771e2					1193		2.49e4							0.000

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
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Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.25	1.595e3	2.208e3	1.192	0.72	0.77	6.5	YES	NO	bd	bd	0.460
2	Total-tetrafurans	23.01	1.735e3	2.150e3	1.192	0.81	0.77	6.8	YES	NO	dd	dd	0.470
3	Total-tetrafurans	22.92	1.498e3	1.935e3	1.192	0.77	0.77	5.7	YES	NO	dd	dd	0.416
4	Total-tetrafurans	22.62	3.280e3	4.547e3	1.192	0.72	0.77	12.5	YES	NO	bd	bd	0.947
5	Total-tetrafurans	22.03	8.185e2	9.285e2	1.192	0.88	0.77	3.5	YES	NO	db	bb	0.211
6	Total-tetrafurans	26.88	1.164e3	1.357e3	1.192	0.86	0.77	4.3	YES	NO	db	db	0.305
7	Total-tetrafurans	25.49	1.629e3	2.069e3	1.192	0.79	0.77	4.9	YES	NO	db	db	0.448
8	Total-tetrafurans	25.03	1.673e3	2.129e3	1.192	0.79	0.77	4.8	YES	NO	bb	db	0.460
9	Total-tetrafurans	24.17	2.157e3	2.952e3	1.192	0.73	0.77	8.1	YES	NO	db	db	0.619

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.70	1.982e4	1.331e4	1.376	1.49	1.55	194.0	YES	NO	bb	bb	3.447

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.17	1.889e3	1.406e3	1.047	1.34	1.55	8.5	YES	NO	bd	dd	0.461
2	Total-pentafurans	30.62	3.113e3	1.769e3	1.047	1.76	1.55	18.1	YES	NO	dd	db	0.684
3	Total-pentafurans	29.63	2.900e3	2.178e3	1.047	1.33	1.55	14.2	YES	NO	bd	dd	0.711
4	12378-PeCDF	29.43	1.752e3	1.081e3	1.015	1.62	1.55	9.7	YES	NO	bb	bd	0.400
5	Total-pentafurans	29.15	1.086e3	7.659e2	1.047	1.42	1.55	8.8	YES	NO	db	db	0.259
6	Total-pentafurans	29.06	2.936e3	1.876e3	1.047	1.56	1.55	10.9	YES	NO	dd	dd	0.674
7	Total-pentafurans	28.47	4.282e2	2.716e2	1.047	1.58	1.55	3.1	NO	NO	db	db	0.098
8	Total-pentafurans	28.36	1.716e4	1.205e4	1.047	1.42	1.55	70.5	YES	NO	dd	dd	4.092

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ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	34.27	1.893e3	1.712e3	1.045	1.11	1.24	17.7	YES	NO	bd	bd	0.648
2	Total-hexafurans	33.79	6.498e4	5.318e4	1.045	1.22	1.24	551.8	YES	NO	bb	bb	21.230
3	Total-hexafurans	32.95	3.355e4	2.727e4	1.045	1.23	1.24	262.7	YES	NO	bb	bb	10.928
4	123468-HXCDF	32.73	9.400e3	7.360e3	1.087	1.28	1.24	78.0	YES	NO	bb	bb	2.796
5	123789-HxCDF	36.46	2.977e3	2.465e3	1.030	1.21	1.24	21.4	YES	NO	bb	bb	1.104
6	234678-HxCDF	35.41	6.242e3	4.778e3	1.052	1.31	1.24	37.9	YES	NO	bb	bb	1.988
7	123678-HxCDF	34.57	4.658e3	3.816e3	1.037	1.22	1.24	37.8	YES	NO	db	db	1.423
8	123478-HxCDF	34.43	1.829e4	1.546e4	1.017	1.18	1.24	156.4	YES	NO	dd	dd	6.015

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.54	8.368e3	8.463e3	1.283	0.99	1.05	74.2	YES	NO	bb	bb	3.380
2	Total-heptafurans	39.00	2.264e5	2.124e5	1.305	1.07	1.05	1961.1	YES	NO	bb	bb	79.988
3	1234678-HpCDF	38.36	7.879e4	7.687e4	1.327	1.02	1.05	701.7	YES	NO	bb	bb	25.912

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.25	1.595e3	2.208e3	1.192	0.72	0.77	6.5	YES	NO	bd	bd	0.460
2	Total-tetrafurans	23.01	1.735e3	2.150e3	1.192	0.81	0.77	6.8	YES	NO	dd	dd	0.470
3	Total-tetrafurans	22.92	1.498e3	1.935e3	1.192	0.77	0.77	5.7	YES	NO	dd	dd	0.416
4	Total-tetrafurans	22.62	3.280e3	4.547e3	1.192	0.72	0.77	12.5	YES	NO	bd	bd	0.947
5	Total-tetrafurans	22.03	8.185e2	9.285e2	1.192	0.88	0.77	3.5	YES	NO	db	bb	0.211
6	Total-tetrafurans	26.88	1.164e3	1.357e3	1.192	0.86	0.77	4.3	YES	NO	db	db	0.305
7	Total-tetrafurans	25.49	1.629e3	2.069e3	1.192	0.79	0.77	4.9	YES	NO	db	db	0.448
8	Total-tetrafurans	25.03	1.673e3	2.129e3	1.192	0.79	0.77	4.8	YES	NO	bb	db	0.460
9	Total-tetrafurans	24.17	2.157e3	2.952e3	1.192	0.73	0.77	8.1	YES	NO	db	db	0.619
10	Total-pentafurans	28.17	1.889e3	1.406e3	1.047	1.34	1.55	8.5	YES	NO	bd	dd	0.461
11	Total-pentafurans	30.62	3.113e3	1.769e3	1.047	1.76	1.55	18.1	YES	NO	dd	db	0.684
12	Total-pentafurans	29.63	2.900e3	2.178e3	1.047	1.33	1.55	14.2	YES	NO	bd	dd	0.711
13	12378-PeCDF	29.43	1.752e3	1.081e3	1.015	1.62	1.55	9.7	YES	NO	bb	bd	0.400
14	Total-pentafurans	29.15	1.086e3	7.659e2	1.047	1.42	1.55	8.8	YES	NO	db	db	0.259
15	Total-pentafurans	29.06	2.936e3	1.876e3	1.047	1.56	1.55	10.9	YES	NO	dd	dd	0.674
16	Total-pentafurans	28.47	4.282e2	2.716e2	1.047	1.58	1.55	3.1	NO	NO	db	db	0.098
17	Total-pentafurans	28.36	1.716e4	1.205e4	1.047	1.42	1.55	70.5	YES	NO	dd	dd	4.092
18	Total-hexafurans	34.27	1.893e3	1.712e3	1.045	1.11	1.24	17.7	YES	NO	bd	bd	0.648
19	Total-hexafurans	33.79	6.498e4	5.318e4	1.045	1.22	1.24	551.8	YES	NO	bb	bb	21.230
20	Total-hexafurans	32.95	3.355e4	2.727e4	1.045	1.23	1.24	262.7	YES	NO	bb	bb	10.928
21	123468-HXCDF	32.73	9.400e3	7.360e3	1.087	1.28	1.24	78.0	YES	NO	bb	bb	2.796
22	123789-HxCDF	36.46	2.977e3	2.465e3	1.030	1.21	1.24	21.4	YES	NO	bb	bb	1.104
23	234678-HxCDF	35.41	6.242e3	4.778e3	1.052	1.31	1.24	37.9	YES	NO	bb	bb	1.988
24	123678-HxCDF	34.57	4.658e3	3.816e3	1.037	1.22	1.24	37.8	YES	NO	db	db	1.423
25	123478-HxCDF	34.43	1.829e4	1.546e4	1.017	1.18	1.24	156.4	YES	NO	dd	dd	6.015
26	1234789-HpCDF	40.54	8.368e3	8.463e3	1.283	0.99	1.05	74.2	YES	NO	bb	bb	3.380
27	Total-heptafurans	39.00	2.264e5	2.124e5	1.305	1.07	1.05	1961.1	YES	NO	bb	bb	79.988
28	1234678-HpCDF	38.36	7.879e4	7.687e4	1.327	1.02	1.05	701.7	YES	NO	bb	bb	25.912
29	OCDF	44.67	1.842e5	2.022e5	1.447	0.91	0.89	1533.9	YES	NO	bd	bb	93.916
30	13468-PECDF	26.70	1.982e4	1.331e4	1.376	1.49	1.55	194.0	YES	NO	bb	bb	3.447

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	22.86	3.037e2	3.597e2	0.879	0.84	0.77	5.2	YES	NO	db	dd	0.133
2	2378-TCDD	25.91	4.207e2	6.426e2	0.920	0.65	0.77	5.4	YES	NO	bd	bd	0.204

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:54 Pacific Daylight Time

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.02	1.222e3	9.159e2	0.995	1.33	1.55	7.7	YES	NO	bb	bb	0.560
2	Total-pentadioxins	29.78	1.122e3	6.359e2	1.331	1.76	1.55	6.4	YES	NO	dd	dd	0.344
3	Total-pentadioxins	29.65	1.286e3	9.228e2	1.331	1.39	1.55	8.2	YES	NO	bd	bd	0.433

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.08	3.805e3	2.845e3	0.950	1.34	1.24	33.6	YES	NO	bb	bb	1.464
2	123678-HxCDD	35.69	7.838e3	6.169e3	1.009	1.27	1.24	71.2	YES	NO	dd	db	2.899
3	123478-HxCDD	35.58	1.414e3	1.260e3	1.027	1.12	1.24	14.3	YES	NO	bd	bd	0.545
4	Total-hexadioxins	34.78	2.053e3	1.780e3	1.028	1.15	1.24	20.1	YES	NO	dd	db	0.780
5	Total-hexadioxins	34.68	2.066e4	1.654e4	1.028	1.25	1.24	116.7	YES	NO	bd	bd	7.571
6	Total-hexadioxins	34.32	3.875e3	3.350e3	1.028	1.16	1.24	36.2	YES	NO	bb	bb	1.470
7	124679-HXCDD	33.53	1.882e4	1.458e4	1.125	1.29	1.24	157.7	YES	NO	bb	bb	6.221

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.83	1.576e5	1.461e5	1.068	1.08	1.05	976.1	YES	NO	bb	bb	91.768
2	1234679-HPCDD	38.81	2.352e5	2.190e5	1.211	1.07	1.05	1597.2	YES	NO	bb	bb	121.052

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	22.86	3.037e2	3.597e2	0.879	0.84	0.77	5.2	YES	NO	db	dd	0.133
2	Total-Dioxins	26.79	1.672e2	2.502e2	1.092	0.67	0.77	2.5	NO	NO	db	bb	0.067
3	2378-TCDD	25.91	4.207e2	6.426e2	0.920	0.65	0.77	5.4	YES	NO	bd	bd	0.204
4	12378-PeCDD	31.02	1.222e3	9.159e2	0.995	1.33	1.55	7.7	YES	NO	bb	bb	0.560
5	Total-pentadioxins	29.78	1.122e3	6.359e2	1.331	1.76	1.55	6.4	YES	NO	dd	dd	0.344
6	Total-pentadioxins	29.65	1.286e3	9.228e2	1.331	1.39	1.55	8.2	YES	NO	bd	bd	0.433
7	123789-HxCDD	36.08	3.805e3	2.845e3	0.950	1.34	1.24	33.6	YES	NO	bb	bb	1.464
8	123678-HxCDD	35.69	7.838e3	6.169e3	1.009	1.27	1.24	71.2	YES	NO	dd	db	2.899
9	123478-HxCDD	35.58	1.414e3	1.260e3	1.027	1.12	1.24	14.3	YES	NO	bd	bd	0.545
10	Total-hexadioxins	34.78	2.053e3	1.780e3	1.028	1.15	1.24	20.1	YES	NO	dd	db	0.780
11	Total-hexadioxins	34.68	2.066e4	1.654e4	1.028	1.25	1.24	116.7	YES	NO	bd	bd	7.571
12	Total-hexadioxins	34.32	3.875e3	3.350e3	1.028	1.16	1.24	36.2	YES	NO	bb	bb	1.470
13	124679-HXCDD	33.53	1.882e4	1.458e4	1.125	1.29	1.24	157.7	YES	NO	bb	bb	6.221
14	1234678-HpCDD	39.83	1.576e5	1.461e5	1.068	1.08	1.05	976.1	YES	NO	bb	bb	91.768
15	1234679-HPCDD	38.81	2.352e5	2.190e5	1.211	1.07	1.05	1597.2	YES	NO	bb	bb	121.052
16	OCDD	44.45	1.080e6	1.198e6	1.181	0.90	0.89	4653.6	YES	NO	bb	bb	678.500

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.25	1.595e3	2.208e3	1.192	0.72	0.77	6.5	YES	NO	bd	bd	0.460
2	Total-tetrafurans	23.01	1.735e3	2.150e3	1.192	0.81	0.77	6.8	YES	NO	dd	dd	0.470
3	Total-tetrafurans	22.92	1.498e3	1.935e3	1.192	0.77	0.77	5.7	YES	NO	dd	dd	0.416
4	Total-tetrafurans	22.62	3.280e3	4.547e3	1.192	0.72	0.77	12.5	YES	NO	bd	bd	0.947
5	Total-tetrafurans	22.03	8.185e2	9.285e2	1.192	0.88	0.77	3.5	YES	NO	db	bb	0.211
6	Total-tetrafurans	26.88	1.164e3	1.357e3	1.192	0.86	0.77	4.3	YES	NO	db	db	0.305
7	Total-tetrafurans	25.49	1.629e3	2.069e3	1.192	0.79	0.77	4.9	YES	NO	db	db	0.448
8	Total-tetrafurans	25.03	1.673e3	2.129e3	1.192	0.79	0.77	4.8	YES	NO	bb	db	0.460
9	Total-tetrafurans	24.17	2.157e3	2.952e3	1.192	0.73	0.77	8.1	YES	NO	db	db	0.619
10	Total-pentafurans	28.17	1.889e3	1.406e3	1.047	1.34	1.55	8.5	YES	NO	bd	dd	0.461
11	Total-pentafurans	30.62	3.113e3	1.769e3	1.047	1.76	1.55	18.1	YES	NO	dd	db	0.684
12	Total-pentafurans	29.63	2.900e3	2.178e3	1.047	1.33	1.55	14.2	YES	NO	bd	dd	0.711
13	12378-PeCDF	29.43	1.752e3	1.081e3	1.015	1.62	1.55	9.7	YES	NO	bb	bd	0.400
14	Total-pentafurans	29.15	1.086e3	7.659e2	1.047	1.42	1.55	8.8	YES	NO	db	db	0.259
15	Total-pentafurans	29.06	2.936e3	1.876e3	1.047	1.56	1.55	10.9	YES	NO	dd	dd	0.674
16	Total-pentafurans	28.47	4.282e2	2.716e2	1.047	1.58	1.55	3.1	NO	NO	db	db	0.098
17	Total-pentafurans	28.36	1.716e4	1.205e4	1.047	1.42	1.55	70.5	YES	NO	dd	dd	4.092
18	Total-hexafurans	34.27	1.893e3	1.712e3	1.045	1.11	1.24	17.7	YES	NO	bd	bd	0.648
19	Total-hexafurans	33.79	6.498e4	5.318e4	1.045	1.22	1.24	551.8	YES	NO	bb	bb	21.230
20	Total-hexafurans	32.95	3.355e4	2.727e4	1.045	1.23	1.24	262.7	YES	NO	bb	bb	10.928
21	123468-HXCDF	32.73	9.400e3	7.360e3	1.087	1.28	1.24	78.0	YES	NO	bb	bb	2.796
22	123789-HxCDF	36.46	2.977e3	2.465e3	1.030	1.21	1.24	21.4	YES	NO	bb	bb	1.104
23	234678-HxCDF	35.41	6.242e3	4.778e3	1.052	1.31	1.24	37.9	YES	NO	bb	bb	1.988
24	123678-HxCDF	34.57	4.658e3	3.816e3	1.037	1.22	1.24	37.8	YES	NO	db	db	1.423
25	123478-HxCDF	34.43	1.829e4	1.546e4	1.017	1.18	1.24	156.4	YES	NO	dd	dd	6.015
26	1234789-HpCDF	40.54	8.368e3	8.463e3	1.283	0.99	1.05	74.2	YES	NO	bb	bb	3.380
27	Total-heptafurans	39.00	2.264e5	2.124e5	1.305	1.07	1.05	1961.1	YES	NO	bb	bb	79.988
28	1234678-HpCDF	38.36	7.879e4	7.687e4	1.327	1.02	1.05	701.7	YES	NO	bb	bb	25.912
29	OCDF	44.67	1.842e5	2.022e5	1.447	0.91	0.89	1533.9	YES	NO	bd	bb	93.916
30	13468-PECDF	26.70	1.982e4	1.331e4	1.376	1.49	1.55	194.0	YES	NO	bb	bb	3.447
31	Total-tetradioxins	22.86	3.037e2	3.597e2	0.879	0.84	0.77	5.2	YES	NO	db	dd	0.133
32	Total-Dioxins	26.79	1.672e2	2.502e2	1.092	0.67	0.77	2.5	NO	NO	db	bb	0.067
33	2378-TCDD	25.91	4.207e2	6.426e2	0.920	0.65	0.77	5.4	YES	NO	bd	bd	0.204
34	12378-PeCDD	31.02	1.222e3	9.159e2	0.995	1.33	1.55	7.7	YES	NO	bb	bb	0.560
35	Total-pentadioxins	29.78	1.122e3	6.359e2	1.331	1.76	1.55	6.4	YES	NO	dd	dd	0.344
36	Total-pentadioxins	29.65	1.286e3	9.228e2	1.331	1.39	1.55	8.2	YES	NO	bd	bd	0.433
37	123789-HxCDD	36.08	3.805e3	2.845e3	0.950	1.34	1.24	33.6	YES	NO	bb	bb	1.464

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:42:54 Pacific Daylight Time

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	123678-HxCDD	35.69	7.838e3	6.169e3	1.009	1.27	1.24	71.2	YES	NO	dd	db	2.899
39	123478-HxCDD	35.58	1.414e3	1.260e3	1.027	1.12	1.24	14.3	YES	NO	bd	bd	0.545
40	Total-hexadioxins	34.78	2.053e3	1.780e3	1.028	1.15	1.24	20.1	YES	NO	dd	db	0.780
41	Total-hexadioxins	34.68	2.066e4	1.654e4	1.028	1.25	1.24	116.7	YES	NO	bd	bd	7.571
42	Total-hexadioxins	34.32	3.875e3	3.350e3	1.028	1.16	1.24	36.2	YES	NO	bb	bb	1.470
43	124679-HXCDD	33.53	1.882e4	1.458e4	1.125	1.29	1.24	157.7	YES	NO	bb	bb	6.221
44	1234678-HpCDD	39.83	1.576e5	1.461e5	1.068	1.08	1.05	976.1	YES	NO	bb	bb	91.768
45	1234679-HPCDD	38.81	2.352e5	2.190e5	1.211	1.07	1.05	1597.2	YES	NO	bb	bb	121.052
46	OCDD	44.45	1.080e6	1.198e6	1.181	0.90	0.89	4653.6	YES	NO	bb	bb	678.500

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.21	2.039e4					1.3	NO		db		
2	FUNCTION1 PFK	21.15	6.672e4					2.8	NO		bd		
3	FUNCTION1 PFK	23.63	1.038e4					0.4	NO		bb		
4	FUNCTION1 PFK	23.36	9.432e4					1.1	NO		db		
5	FUNCTION1 PFK	23.16	6.941e4					1.8	NO		bd		
6	FUNCTION1 PFK	23.07	1.284e4					0.8	NO		bb		
7	FUNCTION1 PFK	22.90	2.371e3					0.3	NO		bb		
8	FUNCTION1 PFK	22.62	2.057e4					1.2	NO		bb		
9	FUNCTION1 PFK	22.53	7.083e3					0.3	NO		bb		
10	FUNCTION1 PFK	22.31	8.504e3					0.5	NO		bb		
11	FUNCTION1 PFK	22.07	4.349e4					1.7	NO		db		
12	FUNCTION1 PFK	22.01	5.286e4					2.2	NO		dd		
13	FUNCTION1 PFK	21.94	6.865e4					2.2	NO		dd		
14	FUNCTION1 PFK	21.74	3.151e5					4.2	YES		dd		
15	FUNCTION1 PFK	21.68	8.770e4					3.9	YES		dd		
16	FUNCTION1 PFK	21.65	1.099e5					3.4	YES		bd		
17	FUNCTION1 PFK	21.45	2.272e5					4.7	YES		db		
18	FUNCTION1 PFK	21.35	2.386e5					4.2	YES		bd		
19	FUNCTION1 PFK	26.00	6.020e4					1.6	NO		bd		
20	FUNCTION1 PFK	25.82	2.994e4					1.0	NO		bb		
21	FUNCTION1 PFK	25.70	5.683e4					1.3	NO		bb		
22	FUNCTION1 PFK	25.34	3.086e4					1.0	NO		bb		
23	FUNCTION1 PFK	25.20	1.605e4					0.8	NO		db		
24	FUNCTION1 PFK	25.10	3.202e4					0.8	NO		bd		
25	FUNCTION1 PFK	24.84	6.218e4					1.9	NO		db		
26	FUNCTION1 PFK	24.76	2.681e4					1.1	NO		bd		
27	FUNCTION1 PFK	24.69	6.101e4					1.9	NO		db		
28	FUNCTION1 PFK	24.58	3.877e4					1.7	NO		dd		
29	FUNCTION1 PFK	24.52	4.897e4					1.9	NO		dd		
30	FUNCTION1 PFK	24.46	2.233e4					1.0	NO		bd		
31	FUNCTION1 PFK	24.38	4.239e4					1.5	NO		bb		
32	FUNCTION1 PFK	23.98	4.290e3					0.5	NO		db		
33	FUNCTION1 PFK	23.92	5.115e4					1.3	NO		bd		
34	FUNCTION1 PFK	23.75	6.207e3					0.4	NO		bb		
35	FUNCTION1 PFK	27.29	1.368e4					1.0	NO		bb		
36	FUNCTION1 PFK	27.02	1.135e5					2.4	NO		db		
37	FUNCTION1 PFK	26.92	5.191e4					2.0	NO		dd		

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	26.86	3.831e4					1.6	NO		dd		
39	FUNCTION1 PFK	26.76	4.271e4					1.4	NO		dd		
40	FUNCTION1 PFK	26.68	4.274e4					1.8	NO		dd		
41	FUNCTION1 PFK	26.62	7.271e3					0.5	NO		bd		
42	FUNCTION1 PFK	26.41	3.154e4					1.5	NO		db		
43	FUNCTION1 PFK	26.29	4.467e4					1.4	NO		dd		
44	FUNCTION1 PFK	26.23	2.851e4					1.3	NO		bd		
45	FUNCTION1 PFK	26.11	5.986e4					1.3	NO		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.38	1.842e4					1.7	NO		bb		0.000
2	FUNCTION3 PFK	32.31	2.388e4					1.5	NO		db		0.000
3	FUNCTION3 PFK	32.28	6.123e3					0.9	NO		bd		0.000
4	FUNCTION3 PFK	35.99	1.116e5					2.8	NO		bd		0.000
5	FUNCTION3 PFK	35.61	1.090e4					1.1	NO		db		0.000
6	FUNCTION3 PFK	35.56	4.528e4					2.1	NO		bd		0.000
7	FUNCTION3 PFK	35.37	7.182e3					0.8	NO		bb		0.000
8	FUNCTION3 PFK	35.32	7.914e3					0.8	NO		bb		0.000
9	FUNCTION3 PFK	34.91	8.198e3					0.8	NO		bb		0.000
10	FUNCTION3 PFK	34.44	2.406e3					0.5	NO		bb		0.000
11	FUNCTION3 PFK	34.13	6.163e4					1.9	NO		bb		0.000
12	FUNCTION3 PFK	33.95	3.690e4					1.5	NO		bb		0.000
13	FUNCTION3 PFK	33.60	1.890e4					1.6	NO		bb		0.000
14	FUNCTION3 PFK	33.33	6.257e3					0.7	NO		bb		0.000
15	FUNCTION3 PFK	33.27	6.815e3					0.6	NO		bb		0.000
16	FUNCTION3 PFK	33.11	2.399e3					0.5	NO		bb		0.000
17	FUNCTION3 PFK	32.79	4.543e4					1.6	NO		bb		0.000
18	FUNCTION3 PFK	32.60	1.223e4					1.1	NO		bb		0.000
19	FUNCTION3 PFK	32.52	1.840e4					1.2	NO		bb		0.000
20	FUNCTION3 PFK	37.30	1.624e4					1.2	NO		db		0.000
21	FUNCTION3 PFK	37.24	2.449e4					1.5	NO		bd		0.000
22	FUNCTION3 PFK	37.06	1.358e4					1.3	NO		bb		0.000
23	FUNCTION3 PFK	36.93	9.254e3					1.0	NO		bb		0.000
24	FUNCTION3 PFK	36.80	5.095e3					0.6	NO		bb		0.000
25	FUNCTION3 PFK	36.62	7.136e5					4.6	YES		bb		0.000
26	FUNCTION3 PFK	36.20	7.112e5					6.9	YES		db		0.000
27	FUNCTION3 PFK	36.12	2.141e5					5.6	YES		dd		0.000

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.12	1.220e6					31.8	YES		dd		
2	FUNCTION4 PFK	37.99	1.168e6					34.3	YES		dd		
3	FUNCTION4 PFK	37.76	3.968e6					39.8	YES		dd		
4	FUNCTION4 PFK	37.66	7.917e5					40.5	YES		dd		
5	FUNCTION4 PFK	37.57	9.712e5					42.8	YES		dd		
6	FUNCTION4 PFK	37.50	6.692e5					44.4	YES		dd		
7	FUNCTION4 PFK	37.47	1.012e6					44.2	YES		bd		
8	FUNCTION4 PFK	39.68	6.346e3					0.7	NO		bb		
9	FUNCTION4 PFK	39.56	9.385e3					1.2	NO		db		
10	FUNCTION4 PFK	39.53	1.988e4					1.9	NO		bd		
11	FUNCTION4 PFK	39.49	3.185e4					1.2	NO		db		
12	FUNCTION4 PFK	39.36	1.151e5					5.1	YES		dd		
13	FUNCTION4 PFK	39.26	2.006e5					7.4	YES		dd		
14	FUNCTION4 PFK	39.21	1.743e5					7.9	YES		dd		
15	FUNCTION4 PFK	39.14	1.642e5					9.1	YES		dd		
16	FUNCTION4 PFK	39.03	4.112e5					12.0	YES		dd		
17	FUNCTION4 PFK	38.90	6.186e5					15.3	YES		dd		
18	FUNCTION4 PFK	38.84	2.991e5					16.1	YES		dd		
19	FUNCTION4 PFK	38.77	5.265e5					17.9	YES		dd		
20	FUNCTION4 PFK	38.63	9.105e5					21.2	YES		dd		
21	FUNCTION4 PFK	38.55	4.950e5					22.2	YES		dd		
22	FUNCTION4 PFK	38.26	2.560e6					28.9	YES		dd		
23	FUNCTION4 PFK	38.19	6.923e5					30.3	YES		dd		
24	FUNCTION4 PFK	40.99	5.523e3					0.8	NO		bb		
25	FUNCTION4 PFK	40.83	1.760e4					1.1	NO		bb		
26	FUNCTION4 PFK	40.79	1.163e3					0.3	NO		bb		
27	FUNCTION4 PFK	40.71	1.876e4					1.2	NO		bb		
28	FUNCTION4 PFK	40.60	1.806e4					0.9	NO		bb		
29	FUNCTION4 PFK	40.49	8.258e3					1.0	NO		bb		
30	FUNCTION4 PFK	40.44	5.832e3					0.7	NO		db		
31	FUNCTION4 PFK	40.41	1.486e4					0.9	NO		bd		
32	FUNCTION4 PFK	40.25	3.534e3					0.6	NO		bb		
33	FUNCTION4 PFK	40.17	3.962e4					1.7	NO		db		
34	FUNCTION4 PFK	40.10	1.127e4					1.3	NO		dd		
35	FUNCTION4 PFK	40.07	3.508e4					1.7	NO		dd		
36	FUNCTION4 PFK	39.97	3.407e3					0.5	NO		dd		
37	FUNCTION4 PFK	39.92	1.764e4					1.6	NO		dd		

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	39.86	9.468e3					1.1	NO		bd		
39	FUNCTION4 PFK	39.76	9.119e3					0.9	NO		bb		
40	FUNCTION4 PFK	42.29	1.667e4					1.4	NO		bb		
41	FUNCTION4 PFK	41.84	3.836e3					0.4	NO		bb		
42	FUNCTION4 PFK	41.75	4.892e3					0.6	NO		db		
43	FUNCTION4 PFK	41.70	4.742e3					0.6	NO		bd		
44	FUNCTION4 PFK	41.66	2.326e4					1.6	NO		bb		
45	FUNCTION4 PFK	41.46	2.470e4					2.3	NO		db		
46	FUNCTION4 PFK	41.42	4.299e4					2.5	NO		dd		
47	FUNCTION4 PFK	41.36	2.277e4					1.9	NO		dd		
48	FUNCTION4 PFK	41.30	2.550e4					1.7	NO		bd		
49	FUNCTION4 PFK	41.18	2.593e3					0.4	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.81	1.268e2					2.4	NO		db		0.000
2	FUNCTION1 HXCD...	21.77	9.835e1					2.4	NO		bd		0.000
3	FUNCTION1 HXCD...	21.63	1.067e2					1.8	NO		bb		0.000
4	FUNCTION1 HXCD...	21.13	8.676e1					1.9	NO		bb		0.000
5	FUNCTION1 HXCD...	26.73	1.464e2					3.7	YES		bb		0.000
6	FUNCTION1 HXCD...	26.31	1.399e2					1.7	NO		bb		0.000
7	FUNCTION1 HXCD...	25.61	1.273e2					1.9	NO		bb		0.000
8	FUNCTION1 HXCD...	25.43	3.992e2					5.1	YES		db		0.000
9	FUNCTION1 HXCD...	25.26	9.406e1					1.7	NO		bd		0.000
10	FUNCTION1 HXCD...	24.60	6.466e2					7.1	YES		db		0.000
11	FUNCTION1 HXCD...	24.54	1.618e2					4.2	YES		dd		0.000
12	FUNCTION1 HXCD...	24.49	8.390e1					2.3	NO		dd		0.000
13	FUNCTION1 HXCD...	24.42	2.078e2					4.5	YES		dd		0.000
14	FUNCTION1 HXCD...	24.37	1.972e2					4.0	YES		bd		0.000
15	FUNCTION1 HXCD...	23.95	2.147e2					4.4	YES		bb		0.000
16	FUNCTION1 HXCD...	23.64	1.404e2					2.3	NO		db		0.000
17	FUNCTION1 HXCD...	23.55	2.303e2					2.6	NO		bd		0.000
18	FUNCTION1 HXCD...	23.27	3.473e2					5.1	YES		bb		0.000
19	FUNCTION1 HXCD...	22.81	1.876e2					2.4	NO		bb		0.000
20	FUNCTION1 HXCD...	22.33	8.245e1					1.6	NO		bb		0.000
21	FUNCTION1 HXCD...	27.09	1.105e2					1.5	NO		bb		0.000

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	26.73	3.074e2					6.7	YES		bb		0.000
2	FUNCTION1 HPCD...	24.63	5.653e2					7.6	YES		db		0.000
3	FUNCTION1 HPCD...	24.51	1.490e2					4.5	YES		dd		0.000
4	FUNCTION1 HPCD...	24.43	2.859e2					8.9	YES		dd		0.000
5	FUNCTION1 HPCD...	24.37	9.652e1					3.7	YES		bd		0.000
6	FUNCTION1 HPCD...	23.95	2.116e2					6.4	YES		bb		0.000
7	FUNCTION1 HPCD...	23.55	1.044e2					3.2	YES		bb		0.000
8	FUNCTION1 HPCD...	22.86	1.437e3					28.0	YES		bb		0.000
9	FUNCTION1 HPCD...	22.54	1.015e2					3.5	YES		bb		0.000
10	FUNCTION1 HPCD...	22.24	1.260e2					2.6	NO		db		0.000
11	FUNCTION1 HPCD...	22.13	2.014e2					4.4	YES		bd		0.000
12	FUNCTION1 HPCD...	21.83	7.405e1					3.1	YES		bb		0.000
13	FUNCTION1 HPCD...	21.54	5.562e3					110.7	YES		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.71	7.318e1					2.3	NO		db		0.000
2	FUNCTION2 HPCD...	31.62	7.028e1					2.2	NO		bd		0.000
3	FUNCTION2 HPCD...	30.08	6.164e2					15.0	YES		bb		0.000
4	FUNCTION2 HPCD...	28.82	1.025e2					2.6	NO		bb		0.000
5	FUNCTION2 HPCD...	27.64	1.104e2					4.0	YES		db		0.000
6	FUNCTION2 HPCD...	27.60	9.745e1					4.6	YES		bd		0.000

ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.68	1.694e2					4.9	YES		bd		0.000
2	FUNCTION3 OCDPE	33.18	8.631e1					2.5	NO		bb		0.000
3	FUNCTION3 OCDPE	33.06	8.216e1					1.9	NO		bb		0.000
4	FUNCTION3 OCDPE	32.91	1.200e2					2.3	NO		db		0.000
5	FUNCTION3 OCDPE	32.82	3.097e2					4.7	YES		dd		0.000
6	FUNCTION3 OCDPE	32.77	2.351e2					3.2	YES		dd		0.000
7	FUNCTION3 OCDPE	32.66	2.598e2					5.2	YES		dd		0.000
8	FUNCTION3 OCDPE	32.65	1.490e2					4.4	YES		dd		0.000
9	FUNCTION3 OCDPE	32.56	2.956e2					5.3	YES		bd		0.000
10	FUNCTION3 OCDPE	36.42	8.435e1					1.7	NO		bb		0.000
11	FUNCTION3 OCDPE	36.05	9.194e1					1.6	NO		bb		0.000
12	FUNCTION3 OCDPE	33.73	8.376e1					1.9	NO		db		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.16	1.947e2					1.7	NO		bb		0.000
2	FUNCTION4 NCDPE	41.66	1.127e2					2.1	NO		db		0.000
3	FUNCTION4 NCDPE	41.58	1.273e2					1.8	NO		bd		0.000
4	FUNCTION4 NCDPE	41.47	8.280e1					1.6	NO		bb		0.000
5	FUNCTION4 NCDPE	40.44	7.403e1					1.6	NO		bb		0.000
6	FUNCTION4 NCDPE	39.19	1.446e2					2.4	NO		bb		0.000
7	FUNCTION4 NCDPE	39.04	1.031e2					1.6	NO		bb		0.000
8	FUNCTION4 NCDPE	38.82	9.930e1					1.9	NO		bb		0.000
9	FUNCTION4 NCDPE	37.98	9.971e3					105.2	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.75	9.576e1					2.2	NO		bb		0.000
2	FUNCTION5 DCDPE	42.56	8.146e1					2.0	NO		bb		0.000
3	FUNCTION5 DCDPE	45.97	9.279e1					4.4	YES		bb		0.000
4	FUNCTION5 DCDPE	45.22	1.015e2					1.2	NO		bb		0.000
5	FUNCTION5 DCDPE	45.03	1.435e2					4.8	YES		db		0.000
6	FUNCTION5 DCDPE	44.99	8.452e1					3.4	YES		bd		0.000
7	FUNCTION5 DCDPE	44.68	7.757e1					2.7	NO		bb		0.000

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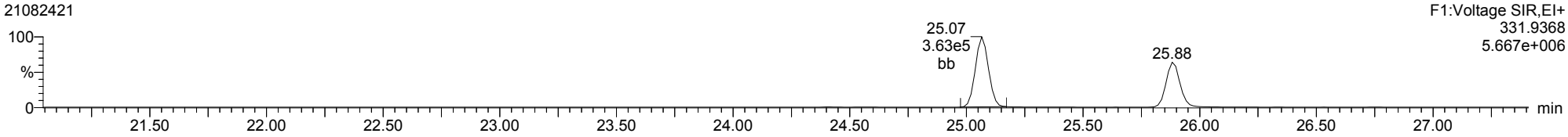

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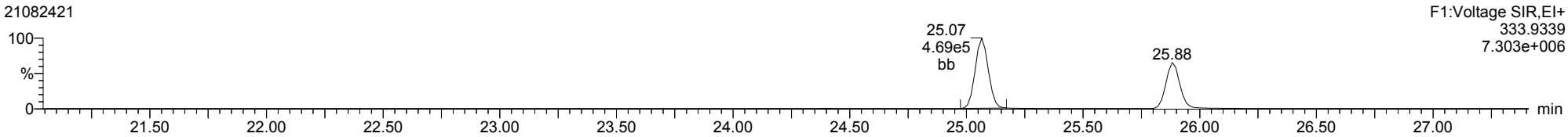

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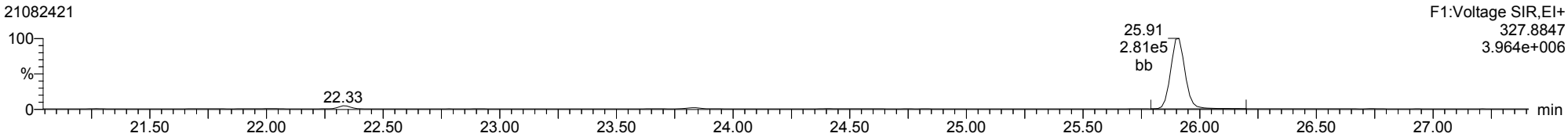

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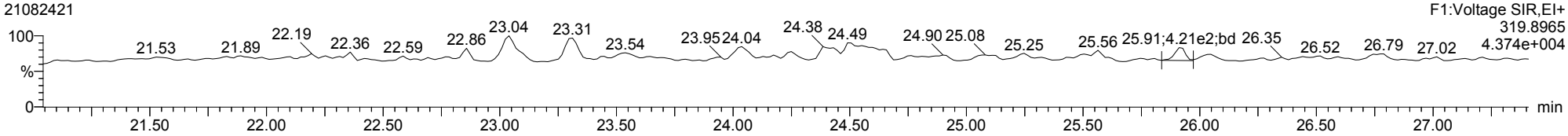

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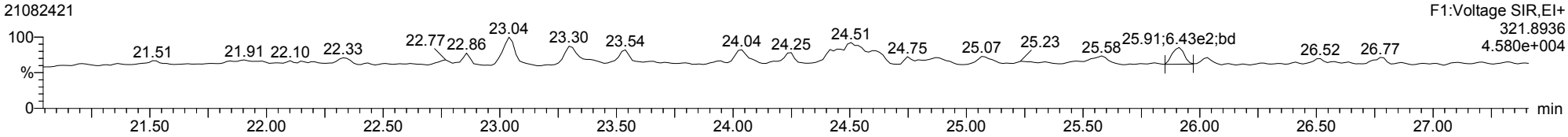

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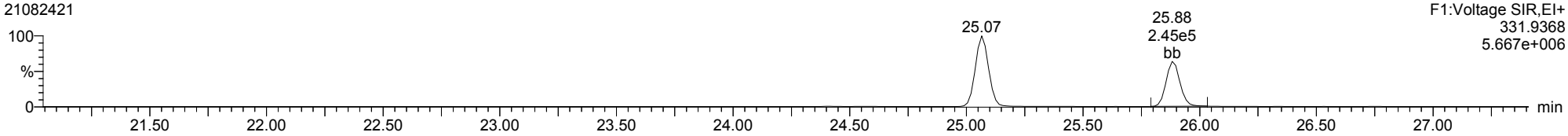

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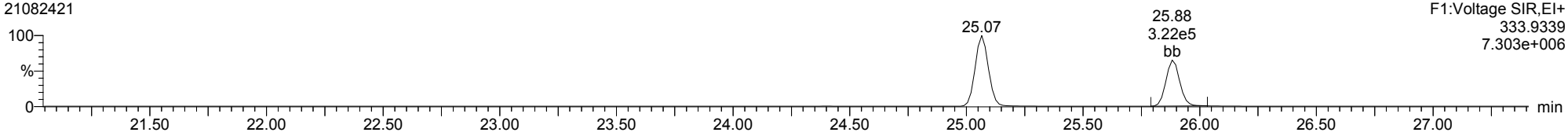

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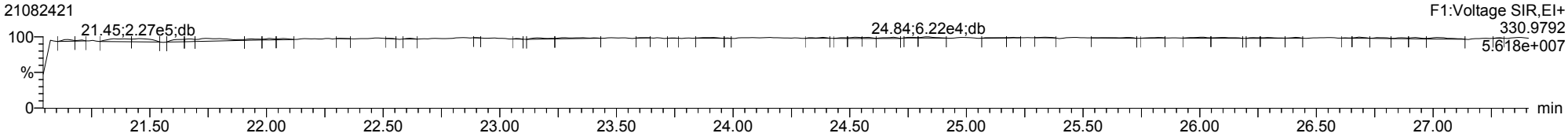

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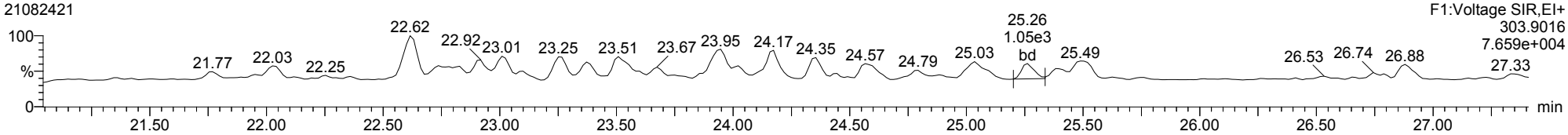

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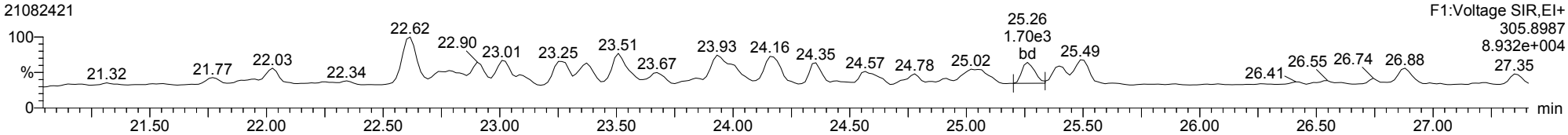

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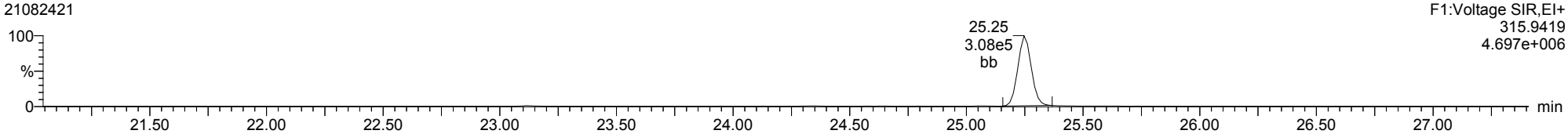

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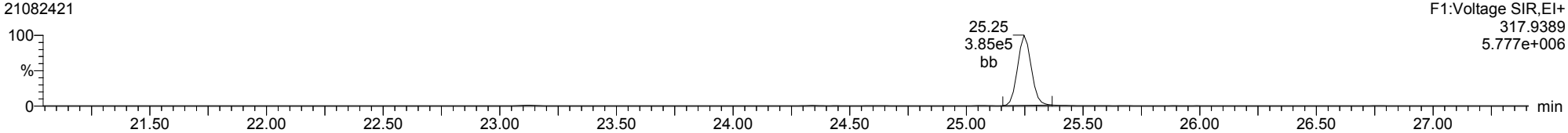

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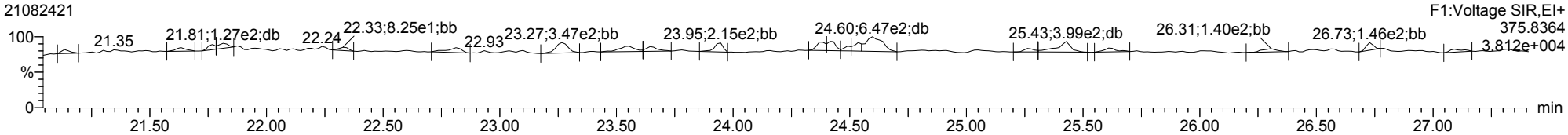

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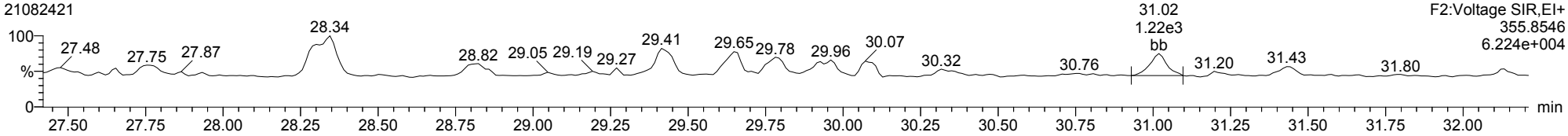

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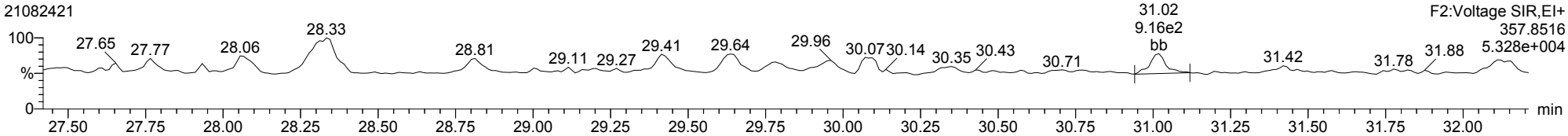

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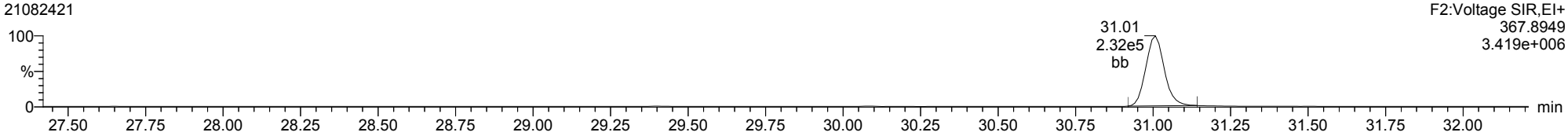

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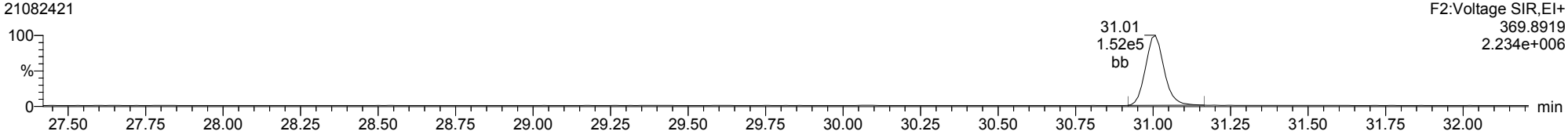

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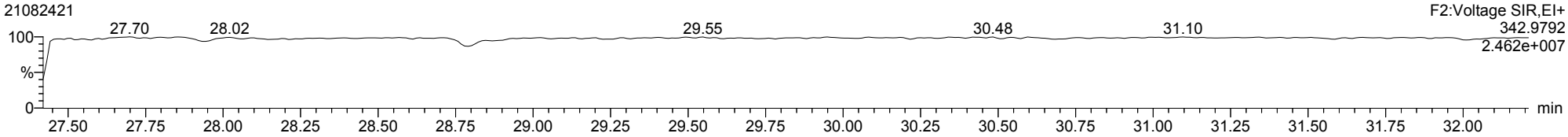

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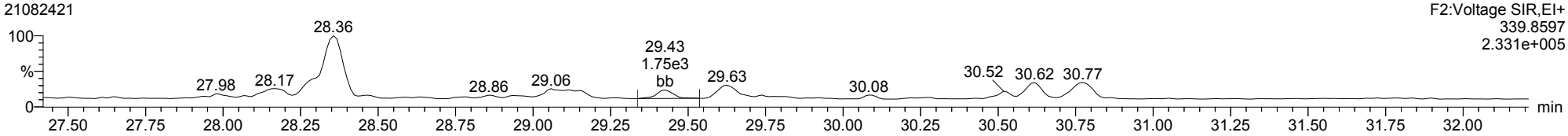
12378-PeCDF



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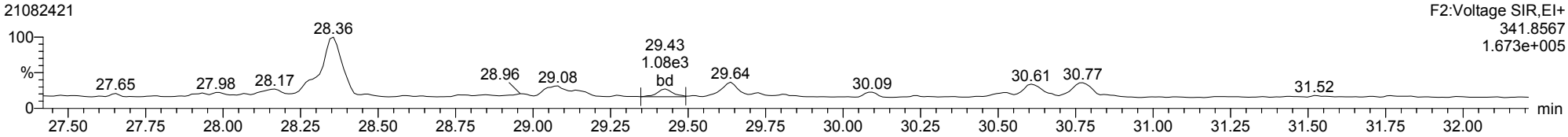

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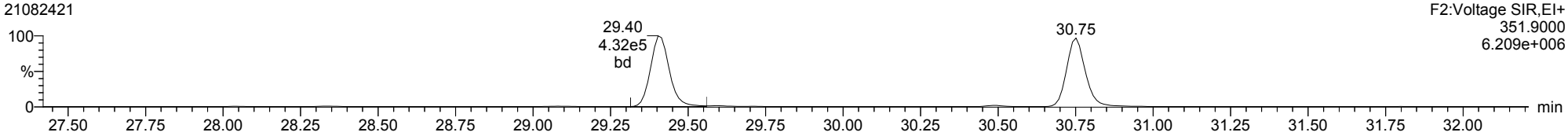

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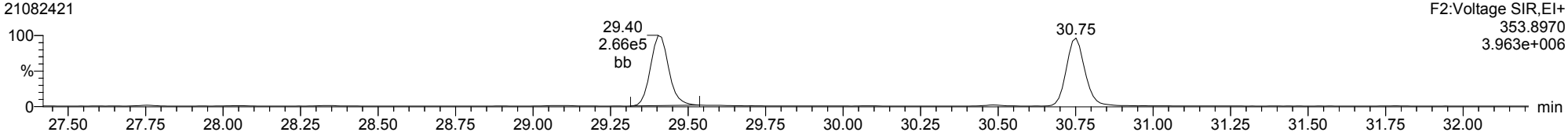

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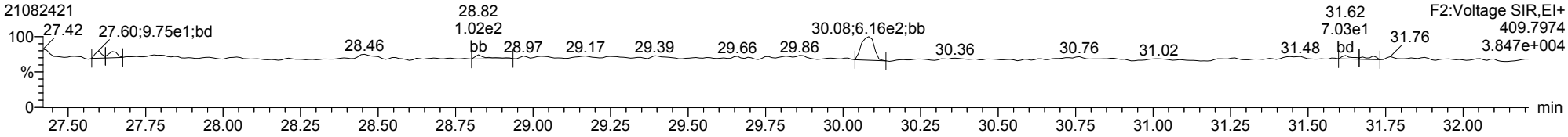

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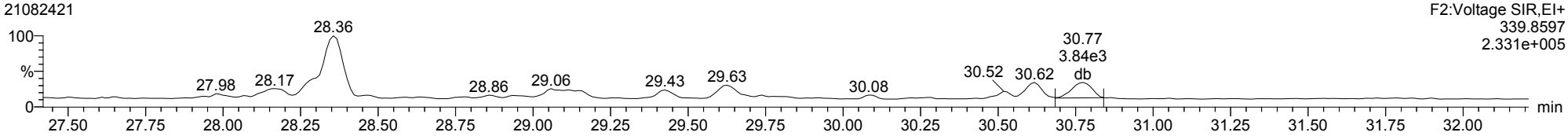
23478-PeCDF



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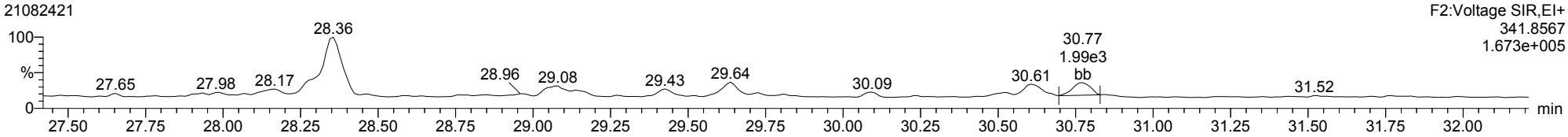

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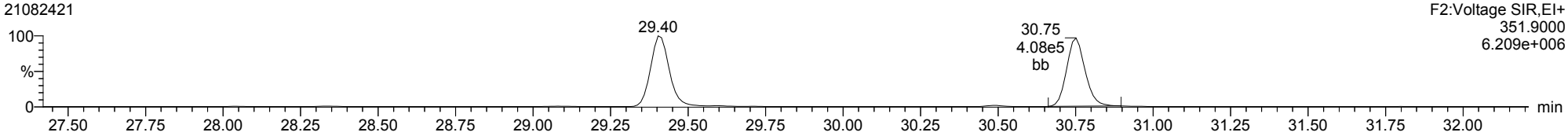

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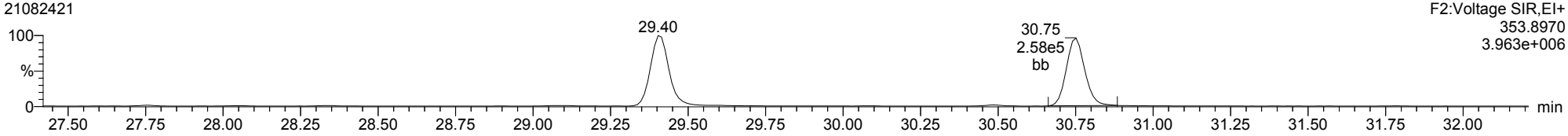

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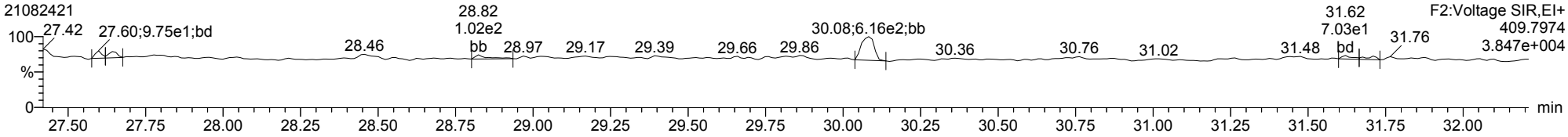

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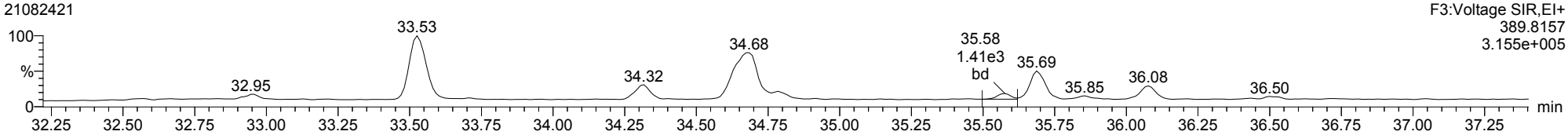

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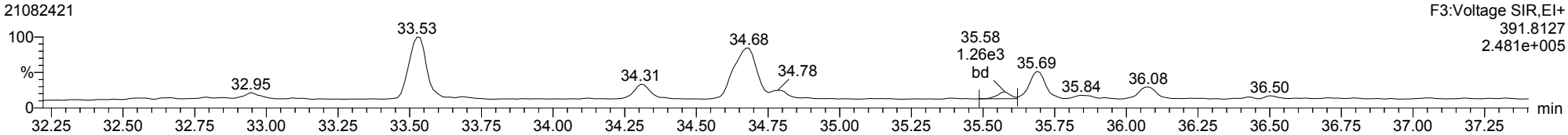

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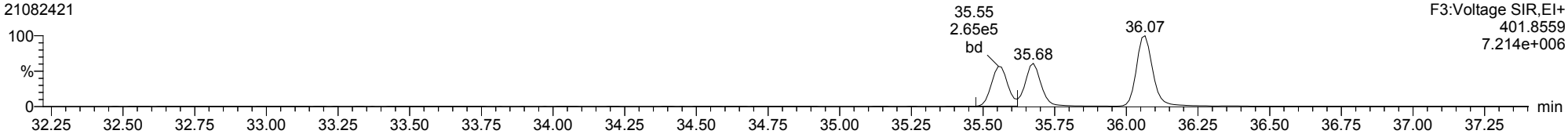

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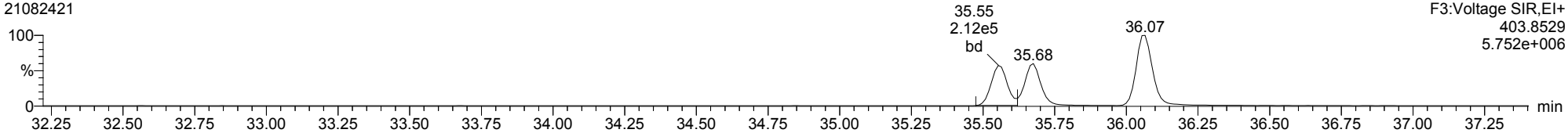

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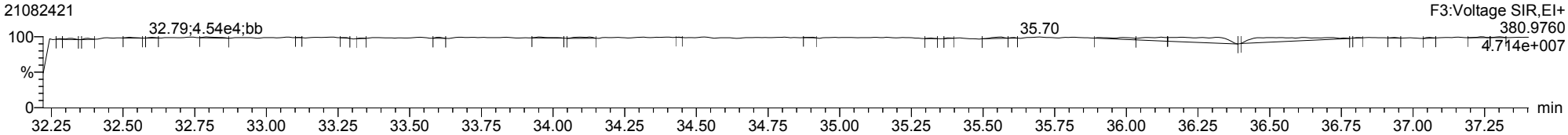

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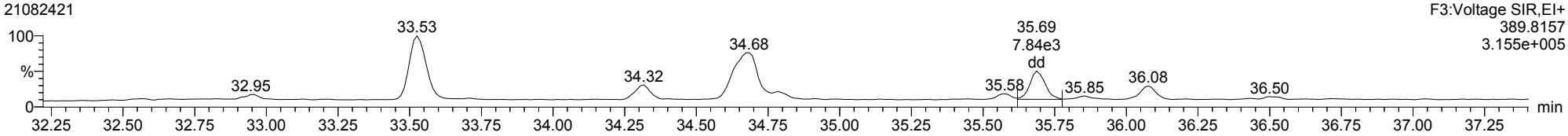

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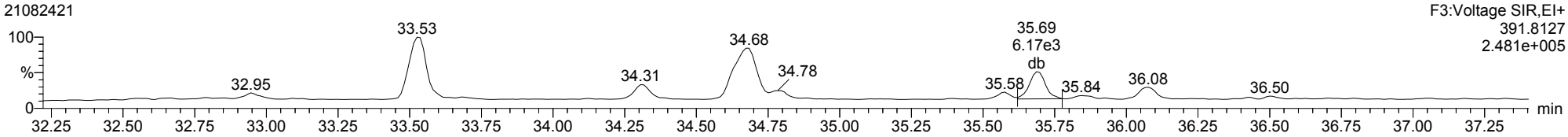

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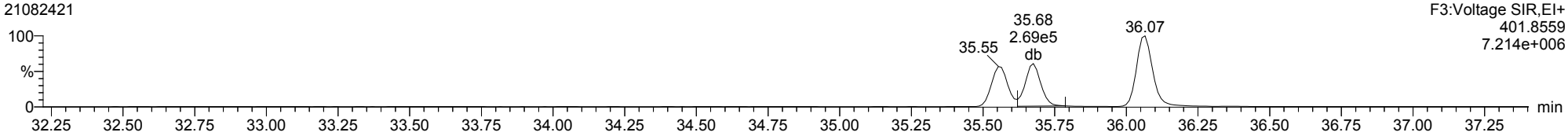

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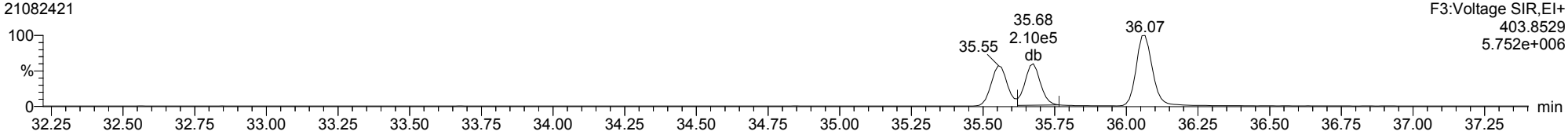

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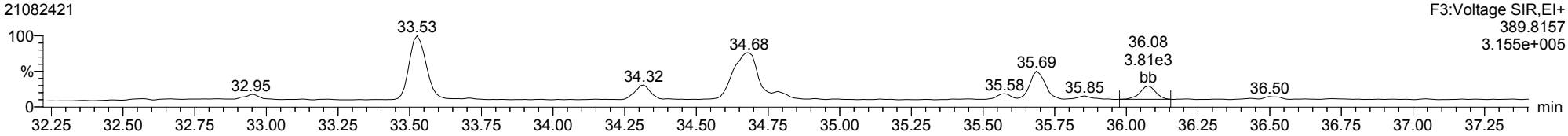

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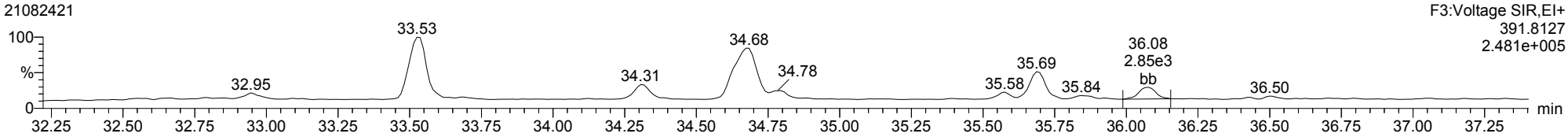

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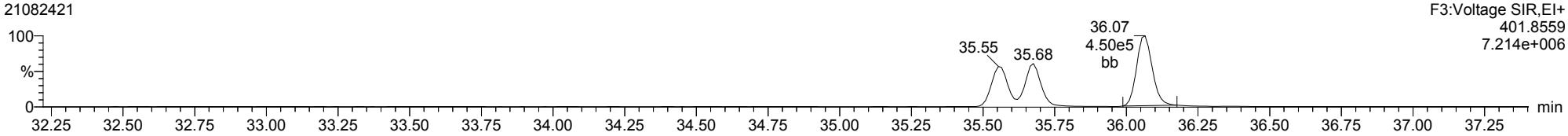

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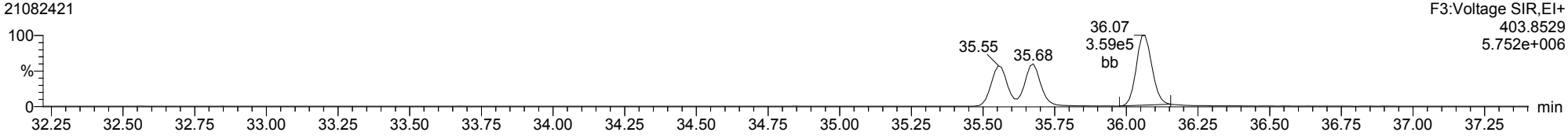

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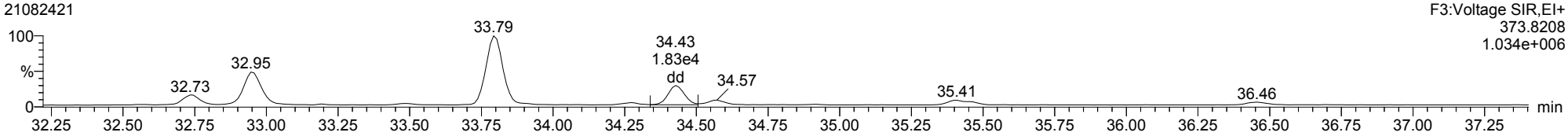

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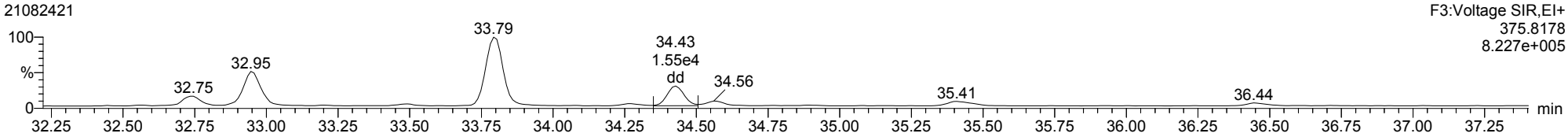

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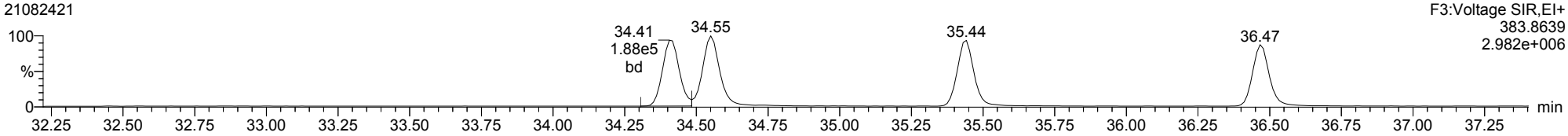

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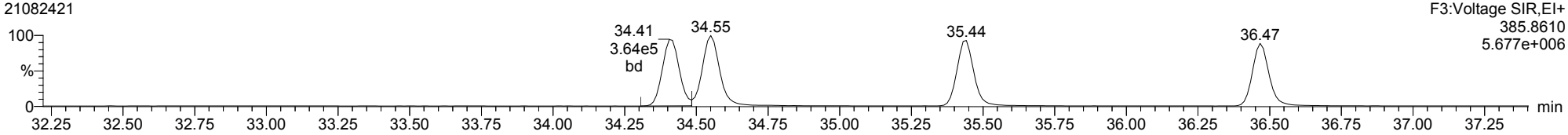

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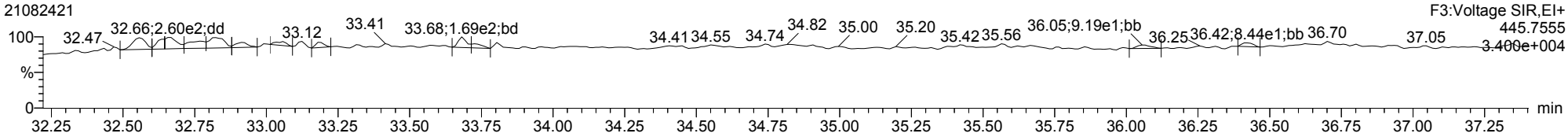

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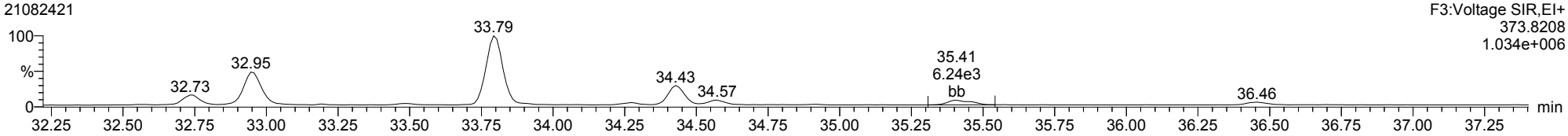
234678-HxCDF



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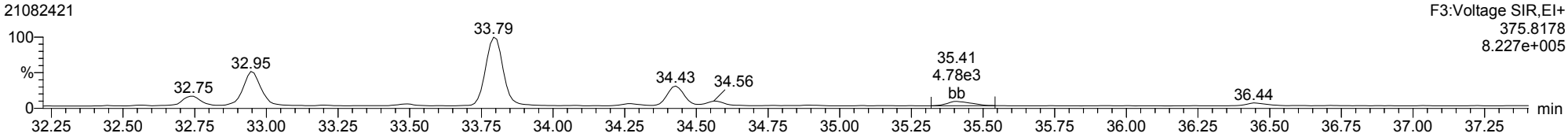

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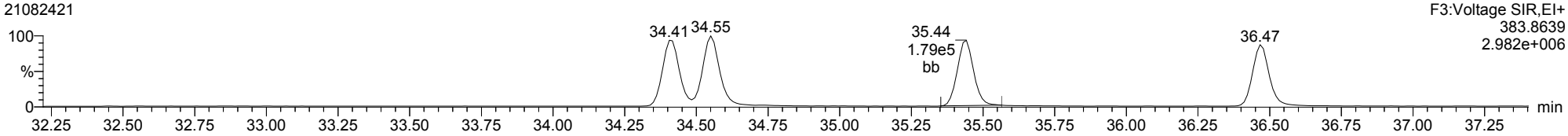

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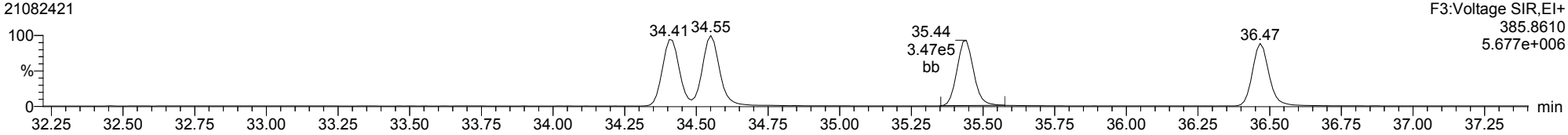

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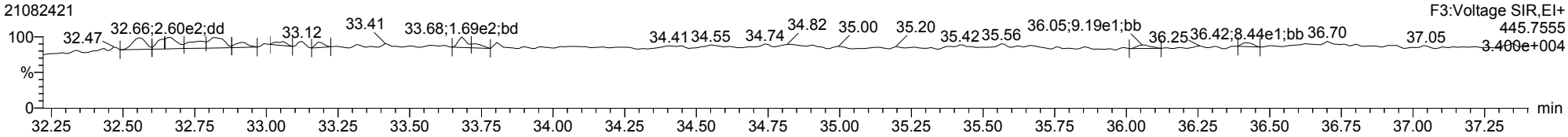

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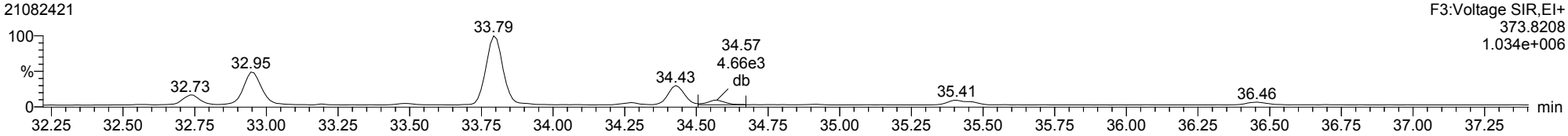
123678-HxCDF



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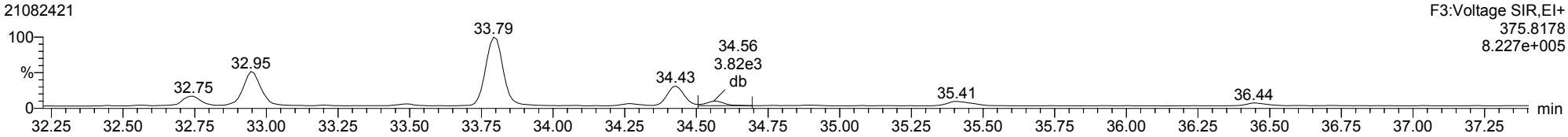

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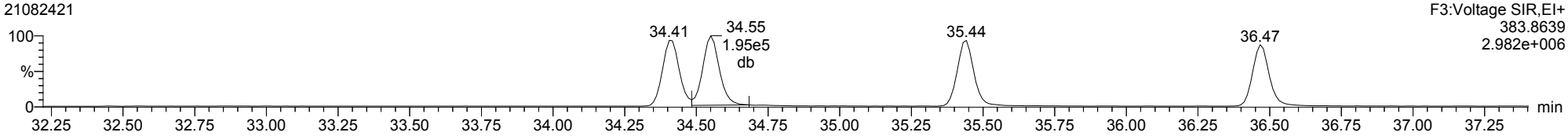

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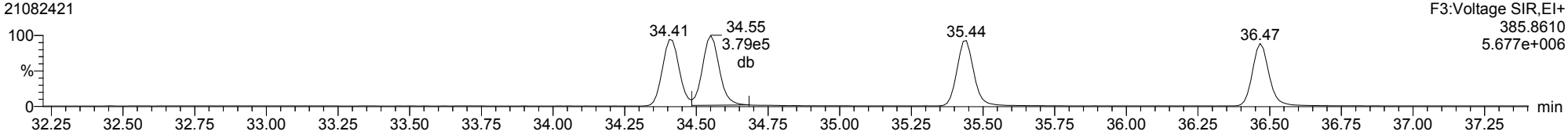

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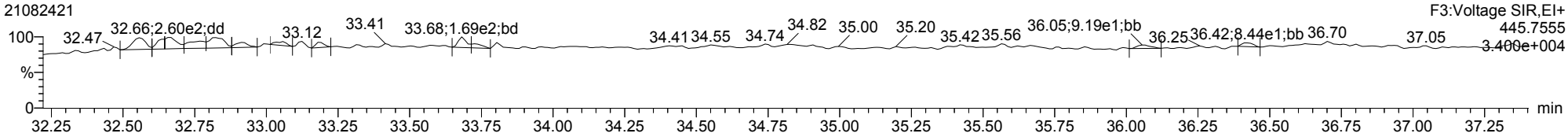

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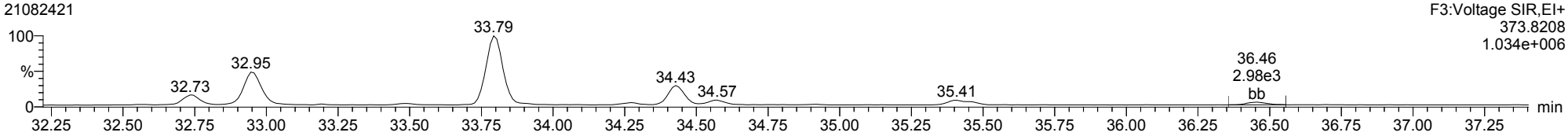

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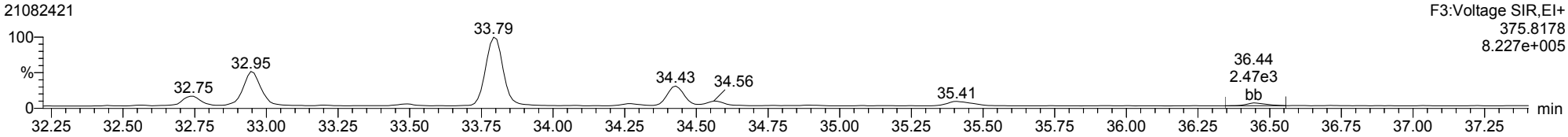

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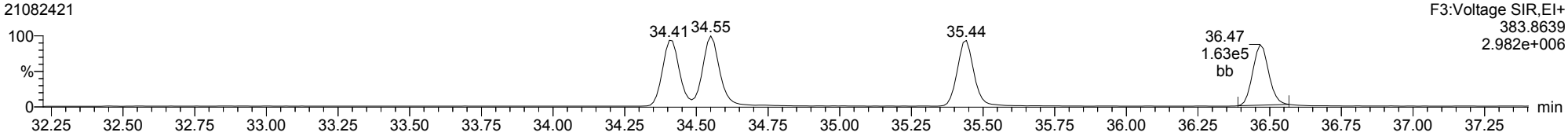

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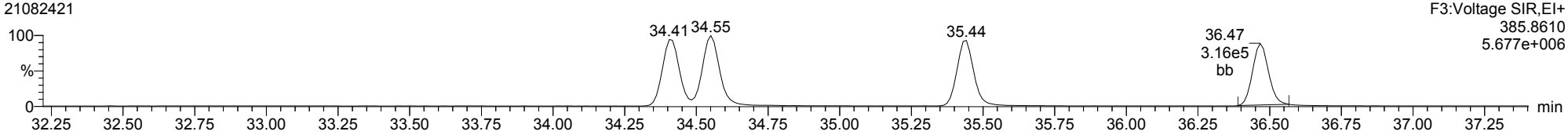
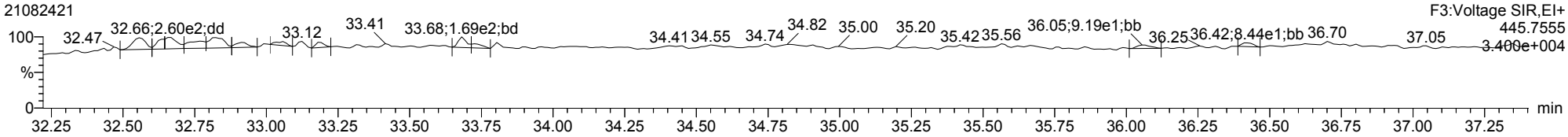


FUNCTION3 OCDPE



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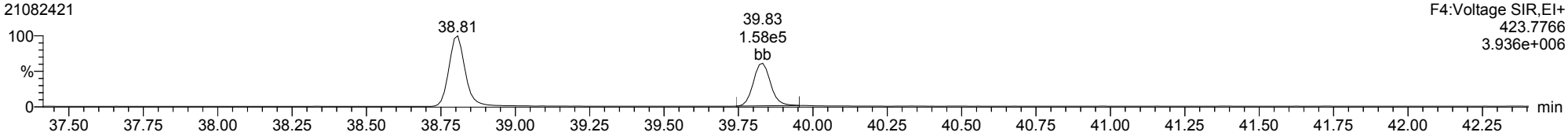
1234678-HpCDD



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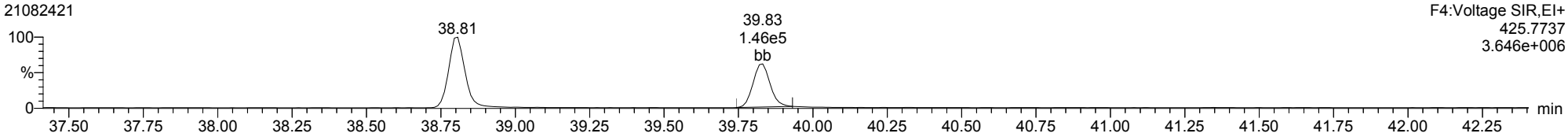

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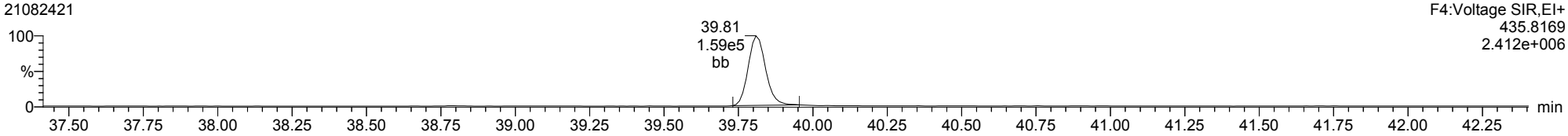

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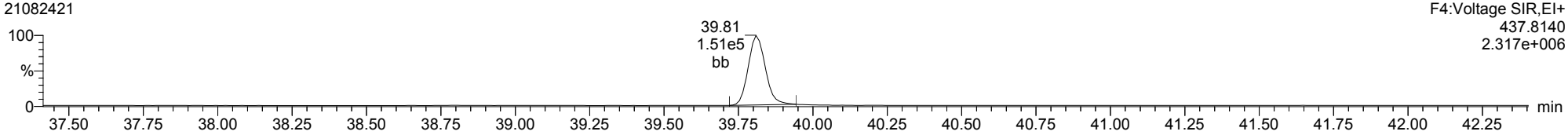
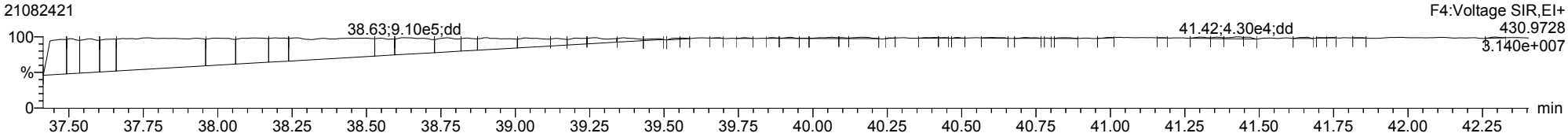


FUNCTION4 PFK



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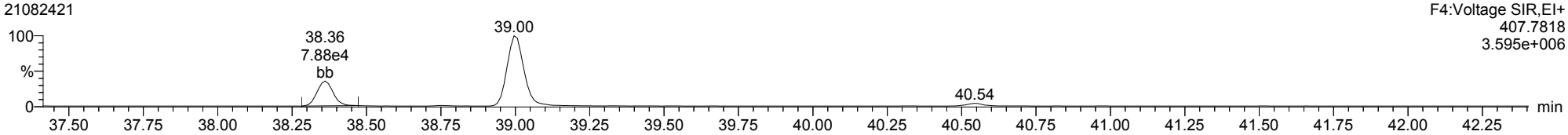
1234678-HpCDF



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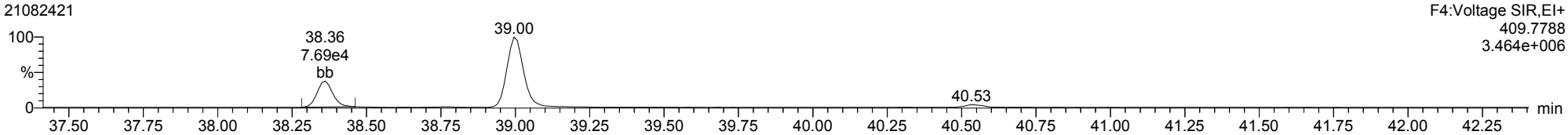
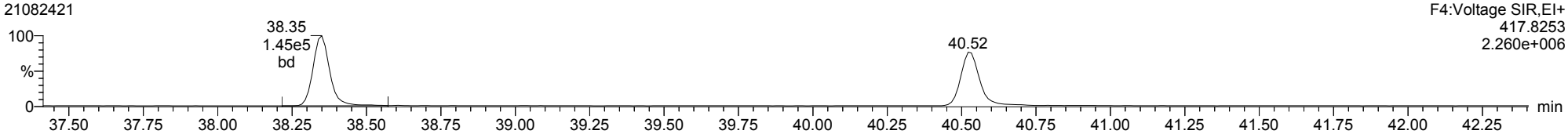


13C-1234678-HpCDF



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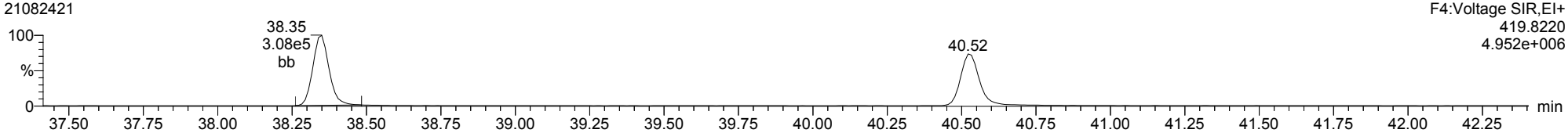
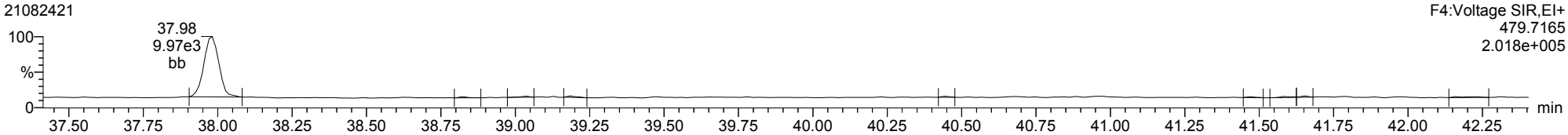
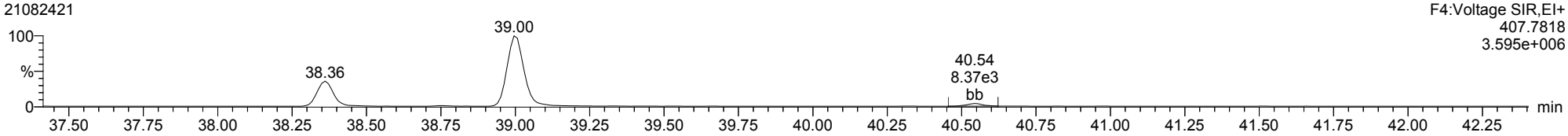


FUNCTION4 NCDPE



ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

1234789-HpCDF



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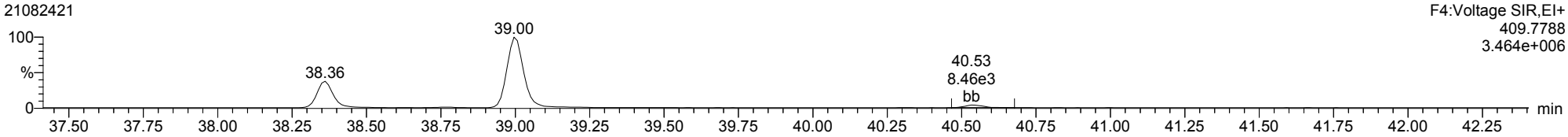

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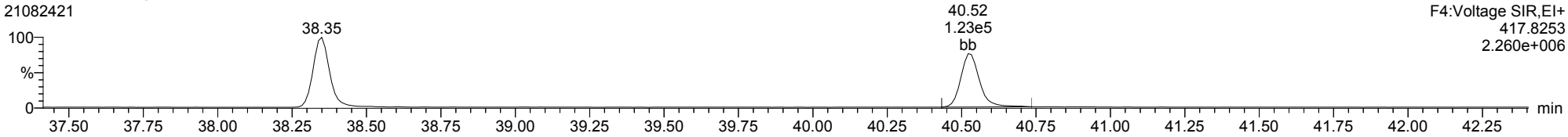

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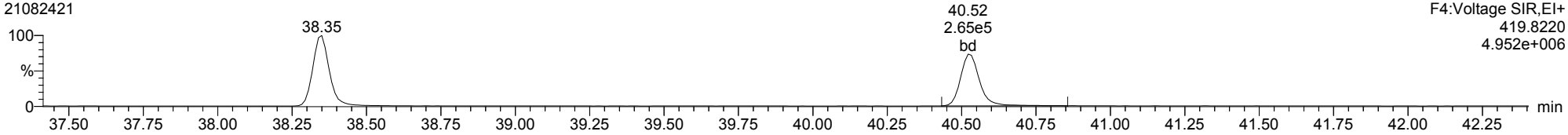
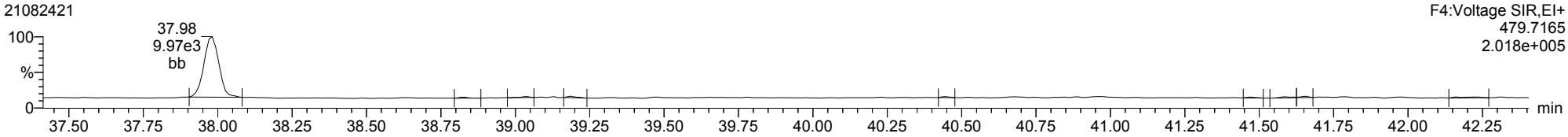
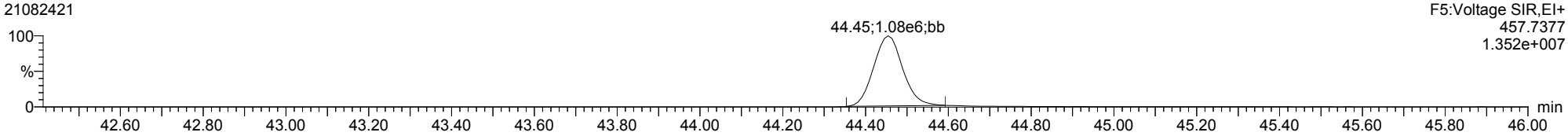


FUNCTION4 NCDPE

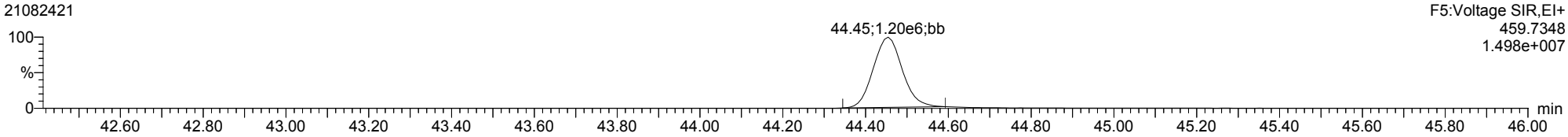


ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

OCDD



OCDD



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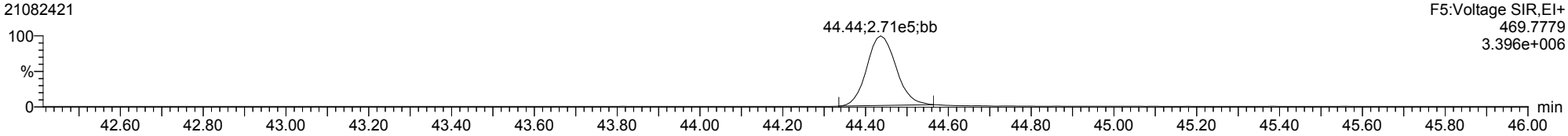

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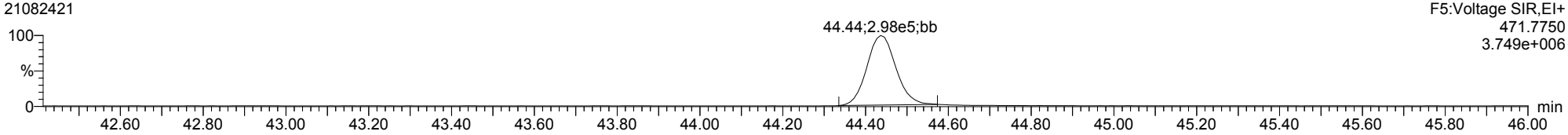
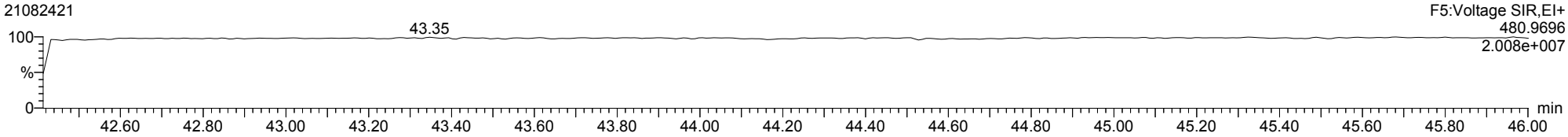
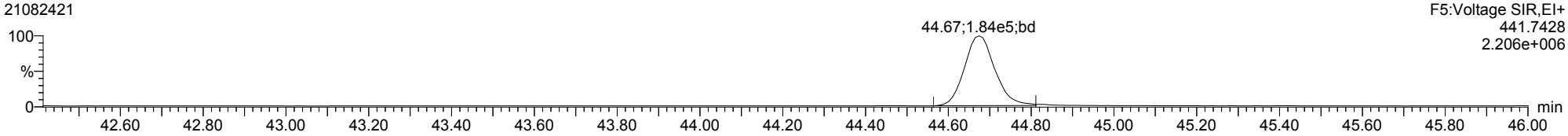


FUNCTION5 PFK

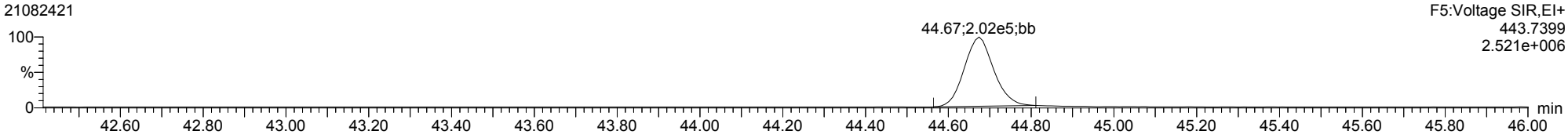


ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

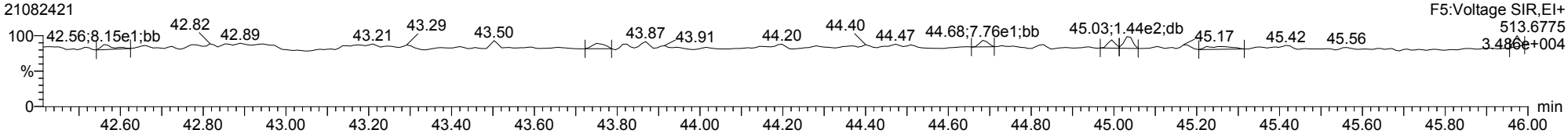
OCDF



OCDF

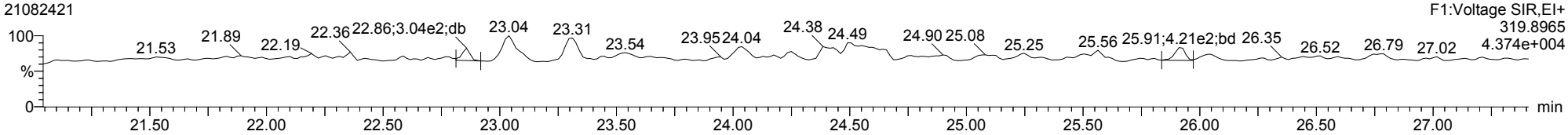


FUNCTION5 DCDPE

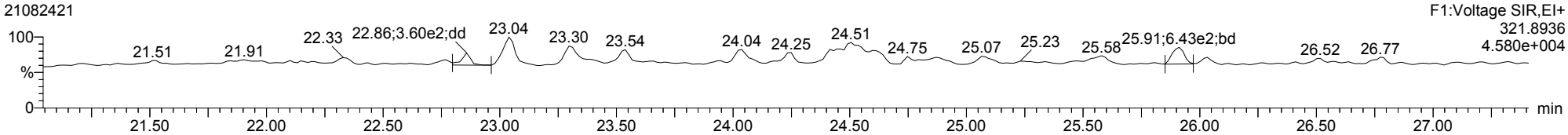


ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

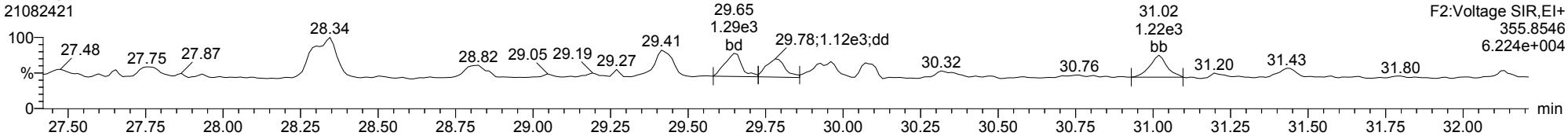
Total-tetradioxins



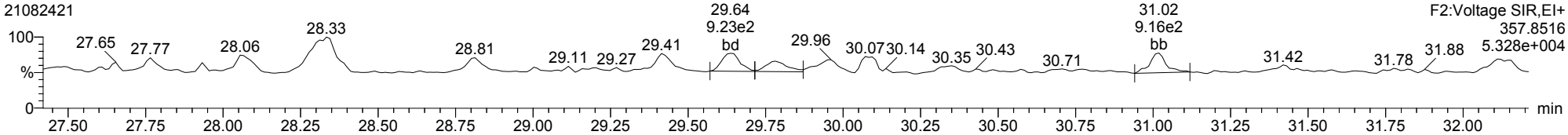
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

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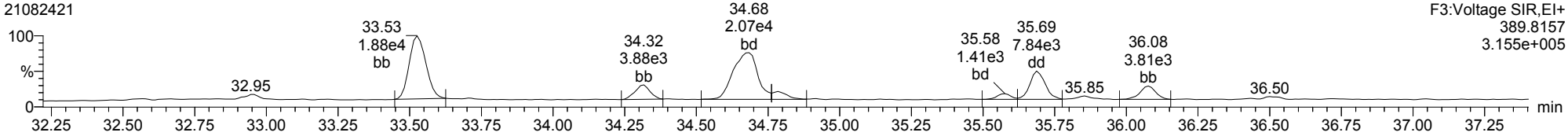
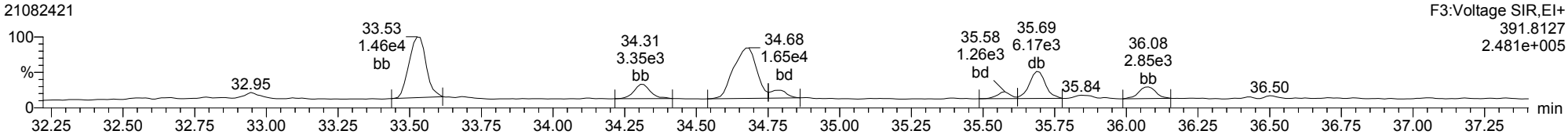
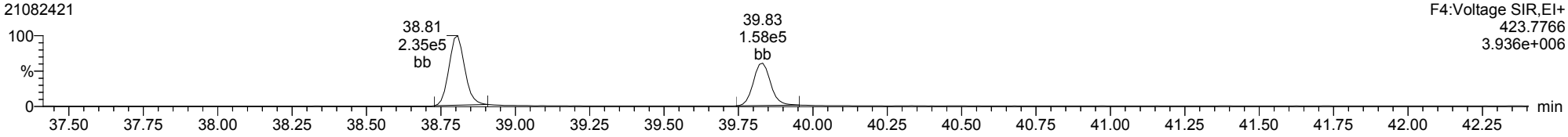


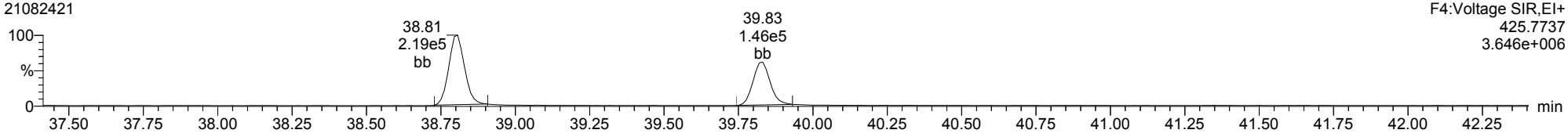
Total-hexadioxins



Total-heptadioxins

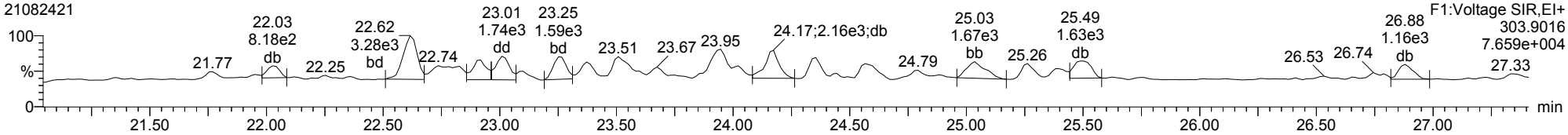


Total-heptadioxins

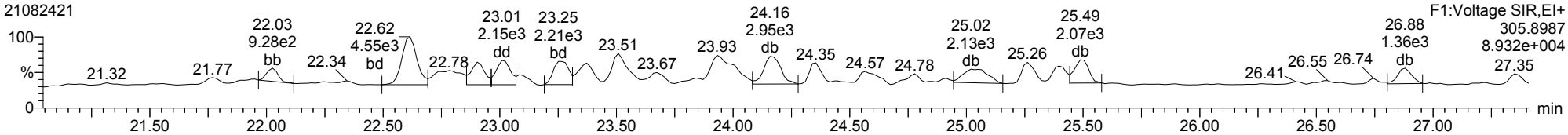


ID: 21G0127-08, Name: 21082421, Date: 25-Aug-2021, Time: 04:34:47, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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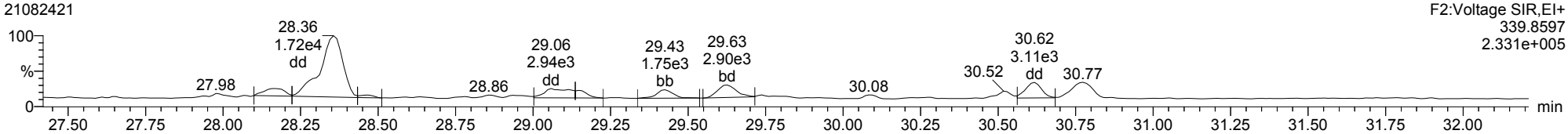
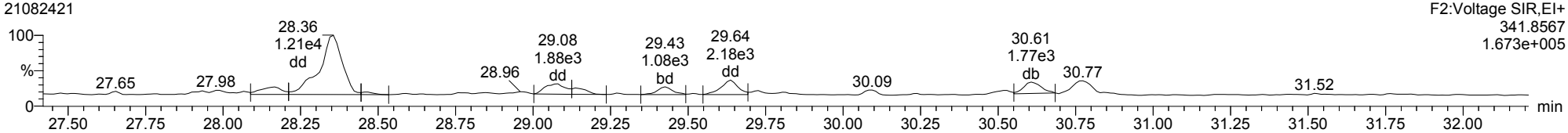


Total-pentafurans



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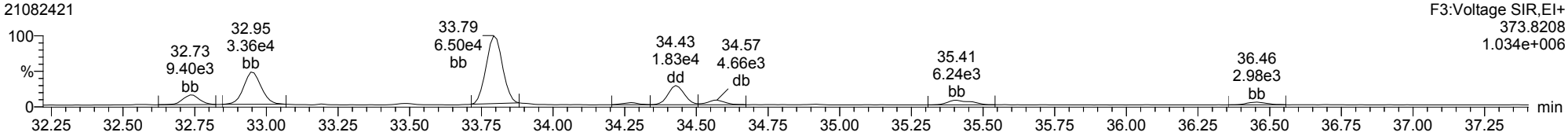
Total-hexafurans



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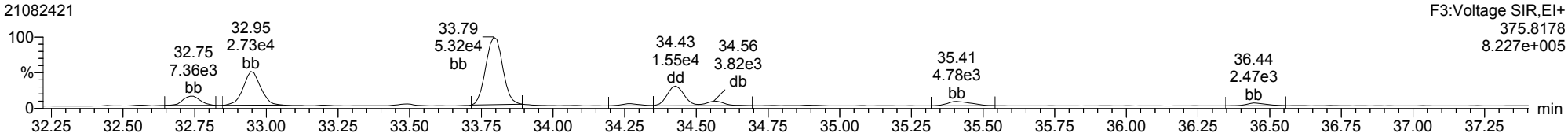
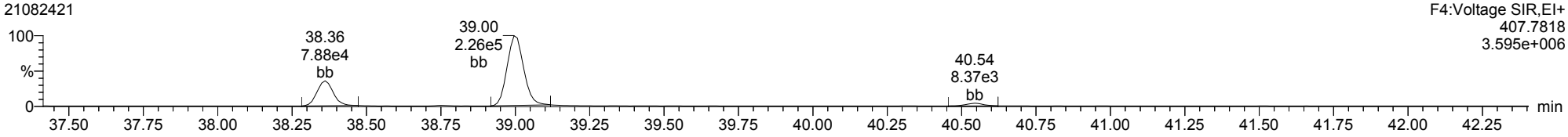


Total-heptafurans



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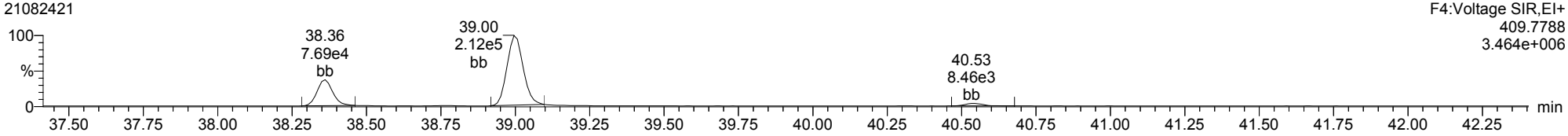

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS656

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0127-10 A	File ID:	21082422
Sampled:	07/12/21 10:25	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 05:23
% Solids:	52.46	Preparation:	EPA 1613	Initial/Final:	19.03 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.835	0.655-0.886	0.180	1.00	0.327	ng/kg	J
1746-01-6	2,3,7,8-TCDD	1		0.655-0.886	0.302	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	1.912	1.318-1.783	0.199	1.00	0.321	ng/kg	EMPC, J
57117-31-4	2,3,4,7,8-PeCDF	1	1.319	1.318-1.783	0.186	1.00	0.431	ng/kg	J
40321-76-4	1,2,3,7,8-PeCDD	1	1.737	1.318-1.783	0.306	1.00	0.788	ng/kg	J
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.952	1.054-1.426	0.179	1.00	1.81	ng/kg	EMPC
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.131	1.054-1.426	0.175	1.00	0.830	ng/kg	J
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.138	1.054-1.426	0.178	1.00	0.866	ng/kg	J
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.169	1.054-1.426	0.198	1.00	0.274	ng/kg	J
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.796	1.054-1.426	0.187	1.00	0.796	ng/kg	EMPC, J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.192	1.054-1.426	0.195	1.00	2.72	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.103	1.054-1.426	0.205	1.00	1.62	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.049	0.893-1.208	0.163	1.00	18.2	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.912	0.893-1.208	0.226	1.00	1.51	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.041	0.893-1.208	0.574	2.50	120	ng/kg	B
39001-02-0	OCDF	1	0.881	0.757-1.024	0.268	2.50	80.3	ng/kg	
3268-87-9	OCDD	1	0.898	0.757-1.024	0.549	10.0	1040	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	3.93	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	0.567	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	6.29	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	0.788	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	21.1	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	32.9	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	74.4	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	476	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 3.58
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 3.74

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS656

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0127-10	File ID:	21082422
Sampled:	07/12/21 10:25	Prepared:	08/09/21 16:30	Analyzed:	08/25/21 05:23
Solids Wt%:	52.46	Preparation:	EPA 1613	Initial/Final:	19.03 g / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.802	0.655-0.886	0.157	58.2	24 - 169 %	
13C12-2,3,7,8-TCDD		0.757	0.655-0.886	0.146	62.8	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.630	1.318-1.783	0.142	69.2	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.616	1.318-1.783	0.149	68.8	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.589	1.318-1.783	0.189	67.3	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.515	0.434-0.587	0.153	59.3	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.513	0.434-0.587	0.142	56.7	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.514	0.434-0.587	0.157	58.5	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.512	0.434-0.587	0.189	63.0	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.253	1.054-1.426	0.165	65.1	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.280	1.054-1.426	0.152	63.8	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.463	0.374-0.506	0.155	62.2	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.455	0.374-0.506	0.189	63.1	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.034	0.893-1.208	0.168	63.2	23 - 140 %	
13C12-OCDD		0.921	0.757-1.024	0.199	69.6	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.067	63.5	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:43:06 Pacific Daylight Time

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Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.277	1.001	5.239e2	6.273e2	1.108	0.835	0.770	1746	1455	9.35e3	1.04e4	5.4	7.1	NO	bd	bb	0.163
12378-PeCDF	29.437	1.001	7.349e2	3.843e2	1.015	1.912	1.550	1445	1896	9.81e3	7.18e3	6.8	3.8	YES	MM	bb	0.160
23478-PeCDF	30.774	1.001	8.998e2	6.823e2	1.126	1.319	1.550	1445	1896	1.67e4	1.08e4	11.6	5.7	NO	bb	bb	0.215
123478-HxCDF	34.439	1.001	2.415e3	2.537e3	1.017	0.952	1.240	1370	1080	3.53e4	3.74e4	25.8	34.7	YES	bd	dd	0.906
234678-HxCDF	35.419	0.999	1.256e3	1.104e3	1.052	1.138	1.240	1370	1080	1.08e4	1.11e4	7.9	10.3	NO	bb	bb	0.432
123678-HxCDF	34.595	1.001	1.269e3	1.122e3	1.037	1.131	1.240	1370	1080	1.76e4	1.50e4	12.8	13.9	NO	db	db	0.414
123789-HxCDF	36.456	1.000	3.525e2	3.014e2	1.030	1.169	1.240	1370	1080	5.72e3	5.48e3	4.2	5.1	NO	bb	MM	0.137
1234678-HpCDF	38.361	1.000	2.603e4	2.481e4	1.327	1.049	1.050	1378	1026	4.19e5	3.78e5	303.9	368.2	NO	bb	bb	9.103
1234789-HpCDF	40.556	1.001	1.612e3	1.768e3	1.283	0.912	1.050	1378	1026	2.79e4	2.12e4	20.3	20.7	NO	bb	MM	0.754
OCDF	44.674	1.005	6.952e4	7.894e4	1.447	0.881	0.890	822	1188	8.52e5	9.12e5	1035.9	767.7	NO	bd	bd	40.071
2378-TCDD					0.920		0.770	1781	1887								
12378-PeCDD	31.019	1.000	9.400e2	5.412e2	0.995	1.737	1.550	1137	1689	1.23e4	7.42e3	10.8	4.4	NO	bb	bb	0.394
123478-HxCDD	35.586	1.000	8.257e2	1.038e3	1.027	0.796	1.240	1136	1198	1.70e4	1.51e4	15.0	12.6	YES	bd	bd	0.397
123678-HxCDD	35.709	1.000	3.612e3	3.029e3	1.009	1.192	1.240	1136	1198	6.09e4	5.09e4	53.6	42.5	NO	db	dd	1.357
123789-HxCDD	36.099	1.011	1.900e3	1.722e3	0.950	1.103	1.240	1136	1198	3.28e4	2.75e4	28.9	23.0	NO	db	bb	0.810
1234678-HpCDD	39.831	1.001	9.541e4	9.165e4	1.068	1.041	1.050	2493	1980	1.41e6	1.33e6	565.6	673.8	NO	bb	bb	60.000
OCDD	44.455	1.000	7.432e5	8.276e5	1.181	0.898	0.890	1301	2061	9.16e6	1.01e7	7042.6	4882.2	NO	bb	bb	519.513
13C-2378-TCDF	25.247	1.007	2.839e5	3.538e5	1.427	0.802	0.770	2537	1794	4.28e6	5.34e6	1688.5	2977.6	NO	bb	bb	58.207
13C-12378-PeCDF	29.414	1.173	4.271e5	2.620e5	1.297	1.630	1.550	1625	1942	6.15e6	3.85e6	3784.7	1983.7	NO	bd	bb	69.167
13C-23478-PeCDF	30.751	1.227	4.035e5	2.497e5	1.236	1.616	1.550	1625	1942	5.92e6	3.64e6	3643.7	1875.3	NO	bb	bb	68.782
13C-123478-HxCDF	34.417	0.954	1.827e5	3.550e5	1.242	0.515	0.510	1762	2040	2.74e6	5.25e6	1556.5	2572.7	NO	bd	bd	59.264
13C-123678-HxCDF	34.562	0.958	1.888e5	3.678e5	1.343	0.513	0.510	1762	2040	2.75e6	5.39e6	1562.6	2640.4	NO	db	db	56.733
13C-234678-HxCDF	35.453	0.983	1.761e5	3.426e5	1.215	0.514	0.510	1762	2040	2.67e6	5.17e6	1514.0	2535.3	NO	bb	bb	58.462
13C-123789-HxCDF	36.467	1.011	1.571e5	3.069e5	1.008	0.512	0.510	1762	2040	2.44e6	4.78e6	1384.4	2343.3	NO	bb	bb	63.048
13C-1234678-HpCDF	38.349	1.063	1.331e5	2.877e5	0.926	0.463	0.440	902	1962	2.11e6	4.56e6	2336.4	2325.7	NO	bb	bb	62.187
13C-1234789-HpCDF	40.533	1.123	1.093e5	2.400e5	0.758	0.455	0.440	902	1962	1.56e6	3.36e6	1730.9	1714.6	NO	bb	bb	63.094
13C-1234-TCDD	25.065	0.000	3.327e5	4.353e5	1.000	0.764	0.770	1821	1347	5.05e6	6.64e6	2770.8	4927.4	NO	bb	bb	100.000
13C-2378-TCDD	25.882	1.033	2.321e5	3.064e5	1.116	0.757	0.770	1821	1347	3.41e6	4.52e6	1874.1	3354.3	NO	bb	bb	62.806
13C-12378-PeCDD	31.007	1.237	2.321e5	1.461e5	0.732	1.589	1.550	1311	1369	3.42e6	2.15e6	2609.7	1569.2	NO	bb	bb	67.269
13C-123478-HxCDD	35.575	0.986	2.539e5	2.027e5	0.960	1.253	1.240	1877	1278	4.06e6	3.25e6	2162.1	2541.9	NO	bd	bd	65.138
13C-123678-HxCDD	35.698	0.989	2.723e5	2.126e5	1.041	1.280	1.240	1877	1278	4.01e6	3.19e6	2135.8	2493.4	NO	db	db	63.761
13C-1234678-HpCDD	39.809	1.104	1.484e5	1.435e5	0.632	1.034	1.050	960	1159	2.23e6	2.13e6	2322.9	1842.3	NO	bb	bb	63.197
13C-OCDD	44.437	1.232	2.455e5	2.666e5	0.504	0.921	0.890	810	1189	2.99e6	3.23e6	3686.1	2713.4	NO	bb	bb	139.213
13C-123789-HxCDD	36.077	0.000	4.040e5	3.262e5	1.000	1.239	1.240	1877	1278	6.64e6	5.29e6	3536.8	4139.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.912	1.034	2.114e5		1.084			1412		3.06e6		2166.6			bb		25.399

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:43:06 Pacific Daylight Time

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.754	0.862	1.373e2	3.227e2	1.425	0.426	0.770	1746	1455	2.97e3	5.39e3	1.7	3.7	YES	bb	bb	0.051
1289-TCDF					1.043		0.770	1746	1455								
13468-PECDF	26.698	0.908	8.588e3	5.590e3	1.376	1.536	1.550	1033	1344	1.08e5	7.32e4	104.9	54.5	NO	bb	bb	1.495
12389-PECDF					1.000		1.550	1445	1896								
123468-HXCDF	32.746	0.951	2.635e3	2.421e3	1.087	1.089	1.240	1370	1080	3.54e4	3.51e4	25.9	32.5	NO	bb	bb	0.865
1368-TCDD	23.039	0.890	5.848e2	8.212e2	0.923	0.712	0.770	1781	1887	8.51e3	1.01e4	4.8	5.4	NO	bb	bd	0.283
1289-TCDD					0.794		0.770	1781	1887								
12479-PECDD	28.323	0.913	1.032e3	1.540e3	1.843	0.670	1.550	1137	1689	2.17e4	1.58e4	19.1	9.4	YES	bd	bb	0.369
12389-PECDD					1.154		1.550	1137	1689								
124679-HXCDD	33.536	0.943	1.751e4	1.456e4	1.125	1.203	1.240	1136	1198	2.55e5	2.09e5	224.8	174.6	NO	bb	bb	6.245
1234679-HPCDD	38.806	0.975	3.248e5	3.027e5	1.211	1.073	1.050	2493	1980	5.22e6	4.84e6	2093.4	2442.4	NO	bb	bb	177.559
Total-tetrafurans			6.274e3		1.192			1746		9.47e4							1.963
Total-penta1			8.588e3					1033		1.08e5							1.495
Total-pentafurans			6.797e3		1.047			1445		8.77e4							1.644
Total-hexafurans			3.211e4		1.045			1370		4.55e5							10.541
Total-heptafurans			9.601e4		1.305			1378		1.53e6							37.133
Total-Furans			2.195e5		1.158			1746		3.14e6							92.920
Total-tetradioxins			5.848e2		0.879			1781		8.51e3							0.283
Total-pentadioxins			9.400e2		1.331			1137		1.23e4							0.394
Total-hexadioxins			4.439e4		1.028			1136		5.82e5							16.416
Total-heptadioxins			4.202e5		1.140			2493		6.63e6							237.559
Total-Dioxins			1.209e6		1.092			1781		1.64e7							774.165
Total-TEQ			1.429e6					1781		1.95e7							867.085
FUNCTION1 PFK			1.713e6					570842		1.83e7							
FUNCTION2 PFK			2.243e6					303419		7.25e6							0.000
FUNCTION3 PFK			8.843e6					500119		1.61e7							0.000
FUNCTION4 PFK			1.418e7					289559		6.31e7							
FUNCTION5 PFK			5.398e3					225166		3.73e5							
FUNCTION1 HXCD...			1.460e3					1006		3.08e4							0.000
FUNCTION1 HPCD...			9.633e3					992		1.62e5							0.000
FUNCTION2 HPCD...			4.165e2					1053		1.24e4							0.000
FUNCTION3 OCDPE			2.264e2					650		2.77e3							0.000
FUNCTION4 NCDPE			1.100e4					662		1.79e5							0.000
FUNCTION5 DCDPE			0.000e0					522		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:43:06 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	1.309e3	1.914e3	1.192	0.68	0.77	9.9	YES	NO	dd	bd	0.424
2	Total-tetrafurans	23.28	5.056e2	6.727e2	1.192	0.75	0.77	4.3	YES	NO	bd	bd	0.155
3	Total-tetrafurans	22.62	1.413e3	2.038e3	1.192	0.69	0.77	12.1	YES	NO	bd	bd	0.454
4	2378-TCDF	25.28	5.239e2	6.273e2	1.108	0.84	0.77	5.4	YES	NO	bd	bb	0.163
5	Total-tetrafurans	24.37	3.872e2	5.705e2	1.192	0.68	0.77	3.4	YES	NO	bb	bb	0.126
6	Total-tetrafurans	24.19	9.385e2	1.189e3	1.192	0.79	0.77	6.5	YES	NO	db	db	0.280
7	Total-tetrafurans	23.69	3.700e2	4.792e2	1.192	0.77	0.77	4.3	YES	NO	dd	db	0.112
8	Total-tetrafurans	26.89	8.266e2	1.067e3	1.192	0.78	0.77	8.4	YES	NO	bb	bb	0.249

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.70	8.588e3	5.590e3	1.376	1.54	1.55	104.9	YES	NO	bb	bb	1.495

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.77	8.998e2	6.823e2	1.126	1.32	1.55	11.6	YES	NO	bb	bb	0.215
2	Total-pentafurans	30.51	5.845e2	4.217e2	1.047	1.39	1.55	5.7	YES	NO	bd	bd	0.143
3	Total-pentafurans	29.07	1.684e3	1.092e3	1.047	1.54	1.55	11.8	YES	NO	bb	bd	0.395
4	Total-pentafurans	28.37	3.629e3	2.628e3	1.047	1.38	1.55	31.6	YES	NO	db	db	0.891

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.46	3.525e2	3.014e2	1.030	1.17	1.24	4.2	YES	NO	bb	MM	0.137
2	234678-HxCDF	35.42	1.256e3	1.104e3	1.052	1.14	1.24	7.9	YES	NO	bb	bb	0.432
3	123678-HxCDF	34.60	1.269e3	1.122e3	1.037	1.13	1.24	12.8	YES	NO	db	db	0.414
4	Total-hexafurans	33.80	1.596e4	1.255e4	1.045	1.27	1.24	171.4	YES	NO	bb	bb	5.257
5	Total-hexafurans	32.96	1.063e4	8.002e3	1.045	1.33	1.24	109.7	YES	NO	bb	bb	3.436
6	123468-HXCDF	32.75	2.635e3	2.421e3	1.087	1.09	1.24	25.9	YES	NO	bb	bb	0.865

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.56	1.612e3	1.768e3	1.283	0.91	1.05	20.3	YES	NO	bb	MM	0.754
2	Total-heptafurans	39.01	6.837e4	6.870e4	1.305	1.00	1.05	789.4	YES	NO	bb	bb	27.276
3	1234678-HpCDF	38.36	2.603e4	2.481e4	1.327	1.05	1.05	303.9	YES	NO	bb	bb	9.103

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	1.309e3	1.914e3	1.192	0.68	0.77	9.9	YES	NO	dd	bd	0.424
2	Total-tetrafurans	23.28	5.056e2	6.727e2	1.192	0.75	0.77	4.3	YES	NO	bd	bd	0.155
3	Total-tetrafurans	22.62	1.413e3	2.038e3	1.192	0.69	0.77	12.1	YES	NO	bd	bd	0.454
4	2378-TCDF	25.28	5.239e2	6.273e2	1.108	0.84	0.77	5.4	YES	NO	bd	bb	0.163
5	Total-tetrafurans	24.37	3.872e2	5.705e2	1.192	0.68	0.77	3.4	YES	NO	bb	bb	0.126
6	Total-tetrafurans	24.19	9.385e2	1.189e3	1.192	0.79	0.77	6.5	YES	NO	db	db	0.280
7	Total-tetrafurans	23.69	3.700e2	4.792e2	1.192	0.77	0.77	4.3	YES	NO	dd	db	0.112
8	Total-Furans	27.36	2.154e2	3.199e2	1.158	0.67	0.77	3.1	YES	NO	bb	bb	0.072
9	Total-tetrafurans	26.89	8.266e2	1.067e3	1.192	0.78	0.77	8.4	YES	NO	bb	bb	0.249
10	23478-PeCDF	30.77	8.998e2	6.823e2	1.126	1.32	1.55	11.6	YES	NO	bb	bb	0.215
11	Total-pentafurans	30.51	5.845e2	4.217e2	1.047	1.39	1.55	5.7	YES	NO	bd	bd	0.143
12	Total-pentafurans	29.07	1.684e3	1.092e3	1.047	1.54	1.55	11.8	YES	NO	bb	bd	0.395
13	Total-pentafurans	28.37	3.629e3	2.628e3	1.047	1.38	1.55	31.6	YES	NO	db	db	0.891
14	123789-HxCDF	36.46	3.525e2	3.014e2	1.030	1.17	1.24	4.2	YES	NO	bb	MM	0.137
15	234678-HxCDF	35.42	1.256e3	1.104e3	1.052	1.14	1.24	7.9	YES	NO	bb	bb	0.432
16	123678-HxCDF	34.60	1.269e3	1.122e3	1.037	1.13	1.24	12.8	YES	NO	db	db	0.414
17	Total-hexafurans	33.80	1.596e4	1.255e4	1.045	1.27	1.24	171.4	YES	NO	bb	bb	5.257
18	Total-hexafurans	32.96	1.063e4	8.002e3	1.045	1.33	1.24	109.7	YES	NO	bb	bb	3.436
19	123468-HXCDF	32.75	2.635e3	2.421e3	1.087	1.09	1.24	25.9	YES	NO	bb	bb	0.865
20	1234789-HpCDF	40.56	1.612e3	1.768e3	1.283	0.91	1.05	20.3	YES	NO	bb	MM	0.754
21	Total-heptafurans	39.01	6.837e4	6.870e4	1.305	1.00	1.05	789.4	YES	NO	bb	bb	27.276
22	1234678-HpCDF	38.36	2.603e4	2.481e4	1.327	1.05	1.05	303.9	YES	NO	bb	bb	9.103
23	OCDF	44.67	6.952e4	7.894e4	1.447	0.88	0.89	1035.9	YES	NO	bd	bd	40.071
24	13468-PECDF	26.70	8.588e3	5.590e3	1.376	1.54	1.55	104.9	YES	NO	bb	bb	1.495

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.04	5.848e2	8.212e2	0.923	0.71	0.77	4.8	YES	NO	bb	bd	0.283

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.02	9.400e2	5.412e2	0.995	1.74	1.55	10.8	YES	NO	bb	bb	0.394

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.54	1.751e4	1.456e4	1.125	1.20	1.24	224.8	YES	NO	bb	bb	6.245
2	123789-HxCDD	36.10	1.900e3	1.722e3	0.950	1.10	1.24	28.9	YES	NO	db	bb	0.810
3	123678-HxCDD	35.71	3.612e3	3.029e3	1.009	1.19	1.24	53.6	YES	NO	db	dd	1.357
4	Total-hexadioxins	34.80	3.963e3	3.496e3	1.028	1.13	1.24	51.8	YES	NO	db	db	1.542
5	Total-hexadioxins	34.68	1.383e4	1.132e4	1.028	1.22	1.24	112.9	YES	NO	bd	bd	5.197
6	Total-hexadioxins	34.33	3.581e3	2.546e3	1.028	1.41	1.24	40.2	YES	NO	bb	bb	1.266

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.83	9.541e4	9.165e4	1.068	1.04	1.05	565.6	YES	NO	bb	bb	60.000
2	1234679-HPCDD	38.81	3.248e5	3.027e5	1.211	1.07	1.05	2093.4	YES	NO	bb	bb	177.559

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.04	5.848e2	8.212e2	0.923	0.71	0.77	4.8	YES	NO	bb	bd	0.283
2	12378-PeCDD	31.02	9.400e2	5.412e2	0.995	1.74	1.55	10.8	YES	NO	bb	bb	0.394
3	124679-HXCDD	33.54	1.751e4	1.456e4	1.125	1.20	1.24	224.8	YES	NO	bb	bb	6.245
4	123789-HxCDD	36.10	1.900e3	1.722e3	0.950	1.10	1.24	28.9	YES	NO	db	bb	0.810
5	123678-HxCDD	35.71	3.612e3	3.029e3	1.009	1.19	1.24	53.6	YES	NO	db	dd	1.357
6	Total-hexadioxins	34.80	3.963e3	3.496e3	1.028	1.13	1.24	51.8	YES	NO	db	db	1.542
7	Total-hexadioxins	34.68	1.383e4	1.132e4	1.028	1.22	1.24	112.9	YES	NO	bd	bd	5.197
8	Total-hexadioxins	34.33	3.581e3	2.546e3	1.028	1.41	1.24	40.2	YES	NO	bb	bb	1.266
9	1234678-HpCDD	39.83	9.541e4	9.165e4	1.068	1.04	1.05	565.6	YES	NO	bb	bb	60.000
10	1234679-HPCDD	38.81	3.248e5	3.027e5	1.211	1.07	1.05	2093.4	YES	NO	bb	bb	177.559
11	OCDD	44.46	7.432e5	8.276e5	1.181	0.90	0.89	7042.6	YES	NO	bb	bb	519.513

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	1.309e3	1.914e3	1.192	0.68	0.77	9.9	YES	NO	dd	bd	0.424
2	Total-tetrafurans	23.28	5.056e2	6.727e2	1.192	0.75	0.77	4.3	YES	NO	bd	bd	0.155
3	Total-tetrafurans	22.62	1.413e3	2.038e3	1.192	0.69	0.77	12.1	YES	NO	bd	bd	0.454
4	2378-TCDF	25.28	5.239e2	6.273e2	1.108	0.84	0.77	5.4	YES	NO	bd	bb	0.163
5	Total-tetrafurans	24.37	3.872e2	5.705e2	1.192	0.68	0.77	3.4	YES	NO	bb	bb	0.126
6	Total-tetrafurans	24.19	9.385e2	1.189e3	1.192	0.79	0.77	6.5	YES	NO	db	db	0.280
7	Total-tetrafurans	23.69	3.700e2	4.792e2	1.192	0.77	0.77	4.3	YES	NO	dd	db	0.112
8	Total-Furans	27.36	2.154e2	3.199e2	1.158	0.67	0.77	3.1	YES	NO	bb	bb	0.072
9	Total-tetrafurans	26.89	8.266e2	1.067e3	1.192	0.78	0.77	8.4	YES	NO	bb	bb	0.249
10	23478-PeCDF	30.77	8.998e2	6.823e2	1.126	1.32	1.55	11.6	YES	NO	bb	bb	0.215
11	Total-pentafurans	30.51	5.845e2	4.217e2	1.047	1.39	1.55	5.7	YES	NO	bd	bd	0.143
12	Total-pentafurans	29.07	1.684e3	1.092e3	1.047	1.54	1.55	11.8	YES	NO	bb	bd	0.395
13	Total-pentafurans	28.37	3.629e3	2.628e3	1.047	1.38	1.55	31.6	YES	NO	db	db	0.891
14	123789-HxCDF	36.46	3.525e2	3.014e2	1.030	1.17	1.24	4.2	YES	NO	bb	MM	0.137
15	234678-HxCDF	35.42	1.256e3	1.104e3	1.052	1.14	1.24	7.9	YES	NO	bb	bb	0.432
16	123678-HxCDF	34.60	1.269e3	1.122e3	1.037	1.13	1.24	12.8	YES	NO	db	db	0.414
17	Total-hexafurans	33.80	1.596e4	1.255e4	1.045	1.27	1.24	171.4	YES	NO	bb	bb	5.257
18	Total-hexafurans	32.96	1.063e4	8.002e3	1.045	1.33	1.24	109.7	YES	NO	bb	bb	3.436
19	123468-HXCDF	32.75	2.635e3	2.421e3	1.087	1.09	1.24	25.9	YES	NO	bb	bb	0.865
20	1234789-HpCDF	40.56	1.612e3	1.768e3	1.283	0.91	1.05	20.3	YES	NO	bb	MM	0.754
21	Total-heptafurans	39.01	6.837e4	6.870e4	1.305	1.00	1.05	789.4	YES	NO	bb	bb	27.276
22	1234678-HpCDF	38.36	2.603e4	2.481e4	1.327	1.05	1.05	303.9	YES	NO	bb	bb	9.103
23	OCDF	44.67	6.952e4	7.894e4	1.447	0.88	0.89	1035.9	YES	NO	bd	bd	40.071
24	13468-PECDF	26.70	8.588e3	5.590e3	1.376	1.54	1.55	104.9	YES	NO	bb	bb	1.495
25	1368-TCDD	23.04	5.848e2	8.212e2	0.923	0.71	0.77	4.8	YES	NO	bb	bd	0.283
26	12378-PeCDD	31.02	9.400e2	5.412e2	0.995	1.74	1.55	10.8	YES	NO	bb	bb	0.394
27	124679-HXCDD	33.54	1.751e4	1.456e4	1.125	1.20	1.24	224.8	YES	NO	bb	bb	6.245
28	123789-HxCDD	36.10	1.900e3	1.722e3	0.950	1.10	1.24	28.9	YES	NO	db	bb	0.810
29	123678-HxCDD	35.71	3.612e3	3.029e3	1.009	1.19	1.24	53.6	YES	NO	db	dd	1.357
30	Total-hexadioxins	34.80	3.963e3	3.496e3	1.028	1.13	1.24	51.8	YES	NO	db	db	1.542
31	Total-hexadioxins	34.68	1.383e4	1.132e4	1.028	1.22	1.24	112.9	YES	NO	bd	bd	5.197
32	Total-hexadioxins	34.33	3.581e3	2.546e3	1.028	1.41	1.24	40.2	YES	NO	bb	bb	1.266
33	1234678-HpCDD	39.83	9.541e4	9.165e4	1.068	1.04	1.05	565.6	YES	NO	bb	bb	60.000
34	1234679-HPCDD	38.81	3.248e5	3.027e5	1.211	1.07	1.05	2093.4	YES	NO	bb	bb	177.559
35	OCDD	44.46	7.432e5	8.276e5	1.181	0.90	0.89	7042.6	YES	NO	bb	bb	519.513

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.25	8.711e4					2.7	NO		bd		
2	FUNCTION1 PFK	21.15	4.379e3					0.5	NO		bb		
3	FUNCTION1 PFK	26.41	4.324e3					0.5	NO		bb		
4	FUNCTION1 PFK	26.29	1.172e4					0.8	NO		bb		
5	FUNCTION1 PFK	25.87	5.708e4					1.6	NO		db		
6	FUNCTION1 PFK	25.79	1.872e4					0.9	NO		bd		
7	FUNCTION1 PFK	25.32	4.384e4					1.0	NO		bb		
8	FUNCTION1 PFK	25.26	4.595e3					0.5	NO		bb		
9	FUNCTION1 PFK	24.97	5.381e4					1.6	NO		bb		
10	FUNCTION1 PFK	24.84	3.299e4					1.7	NO		bb		
11	FUNCTION1 PFK	23.25	1.631e4					1.0	NO		bb		
12	FUNCTION1 PFK	23.19	3.889e3					0.5	NO		bb		
13	FUNCTION1 PFK	22.86	3.816e3					0.4	NO		bb		
14	FUNCTION1 PFK	22.54	3.672e3					0.4	NO		bb		
15	FUNCTION1 PFK	22.27	1.154e5					1.4	NO		bb		
16	FUNCTION1 PFK	21.74	5.741e5					4.3	YES		bb		
17	FUNCTION1 PFK	21.45	5.178e5					6.9	YES		db		
18	FUNCTION1 PFK	21.35	1.369e5					3.9	YES		dd		
19	FUNCTION1 PFK	26.65	3.622e3					0.4	NO		bb		
20	FUNCTION1 PFK	26.56	1.888e4					1.0	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.84	1.564e5					2.0	NO		bb		0.000
2	FUNCTION2 PFK	29.17	8.327e5					6.0	YES		db		0.000
3	FUNCTION2 PFK	28.86	1.111e5					8.1	YES		bd		0.000
4	FUNCTION2 PFK	28.51	1.142e6					7.8	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.08	1.473e4					1.4	NO		bb		0.000
2	FUNCTION3 PFK	37.03	7.781e4					3.5	YES		db		0.000
3	FUNCTION3 PFK	36.92	3.555e6					7.5	YES		bd		0.000
4	FUNCTION3 PFK	36.20	5.195e6					19.8	YES		bb		0.000

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.83	3.754e6					41.8	YES		dd		
2	FUNCTION4 PFK	37.67	5.874e5					45.8	YES		dd		
3	FUNCTION4 PFK	37.61	3.057e6					46.8	YES		bd		
4	FUNCTION4 PFK	41.07	8.503e3					1.1	NO		bd		
5	FUNCTION4 PFK	40.82	2.585e4					1.9	NO		bb		
6	FUNCTION4 PFK	40.50	9.345e3					1.3	NO		bb		
7	FUNCTION4 PFK	40.43	1.015e4					1.0	NO		bb		
8	FUNCTION4 PFK	40.37	1.466e3					0.5	NO		bb		
9	FUNCTION4 PFK	40.21	8.291e3					1.1	NO		bb		
10	FUNCTION4 PFK	40.17	1.387e4					1.7	NO		bb		
11	FUNCTION4 PFK	39.94	2.866e3					0.6	NO		bb		
12	FUNCTION4 PFK	39.68	4.676e3					0.8	NO		bb		
13	FUNCTION4 PFK	39.63	2.138e4					1.7	NO		bb		
14	FUNCTION4 PFK	39.20	7.345e4					2.6	NO		db		
15	FUNCTION4 PFK	39.12	4.362e4					5.3	YES		dd		
16	FUNCTION4 PFK	39.04	1.656e5					8.1	YES		dd		
17	FUNCTION4 PFK	39.00	7.320e4					8.2	YES		dd		
18	FUNCTION4 PFK	38.87	3.541e5					12.4	YES		dd		
19	FUNCTION4 PFK	38.24	5.905e6					30.6	YES		dd		
20	FUNCTION4 PFK	42.27	2.288e3					0.7	NO		bb		
21	FUNCTION4 PFK	41.57	1.423e4					1.4	NO		bb		
22	FUNCTION4 PFK	41.52	3.541e3					0.7	NO		bb		
23	FUNCTION4 PFK	41.17	4.165e4					1.8	NO		db		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.78	4.202e3					1.1	NO		bb		
2	FUNCTION5 PFK	43.58	1.196e3					0.6	NO		bb		

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.37	1.551e2					3.5	YES		bd		0.000
2	FUNCTION1 HXCD...	24.48	1.199e2					1.9	NO		db		0.000
3	FUNCTION1 HXCD...	24.38	7.234e1					2.0	NO		bd		0.000
4	FUNCTION1 HXCD...	23.73	1.238e2					2.7	NO		bb		0.000
5	FUNCTION1 HXCD...	23.54	7.370e1					1.4	NO		bb		0.000
6	FUNCTION1 HXCD...	22.83	1.513e2					2.8	NO		bb		0.000
7	FUNCTION1 HXCD...	21.98	7.963e1					1.8	NO		bb		0.000
8	FUNCTION1 HXCD...	21.65	2.124e2					3.2	YES		bb		0.000
9	FUNCTION1 HXCD...	26.53	7.808e1					2.2	NO		bb		0.000
10	FUNCTION1 HXCD...	26.29	9.948e1					1.8	NO		bb		0.000
11	FUNCTION1 HXCD...	25.99	7.829e1					1.9	NO		bb		0.000
12	FUNCTION1 HXCD...	25.69	1.040e2					2.8	NO		bb		0.000
13	FUNCTION1 HXCD...	25.41	1.120e2					2.5	NO		db		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	22.84	9.869e2					13.9	YES		bd		0.000
2	FUNCTION1 HPCD...	22.60	7.633e1					2.2	NO		db		0.000
3	FUNCTION1 HPCD...	22.53	2.840e2					3.3	YES		bd		0.000
4	FUNCTION1 HPCD...	22.00	1.112e2					1.6	NO		db		0.000
5	FUNCTION1 HPCD...	21.95	8.922e1					2.2	NO		bd		0.000
6	FUNCTION1 HPCD...	21.71	1.339e2					2.0	NO		db		0.000
7	FUNCTION1 HPCD...	21.54	6.992e3					119.6	YES		bd		0.000
8	FUNCTION1 HPCD...	21.39	8.529e1					1.5	NO		bb		0.000
9	FUNCTION1 HPCD...	21.15	1.469e2					2.1	NO		db		0.000
10	FUNCTION1 HPCD...	21.09	1.090e2					2.5	NO		bd		0.000
11	FUNCTION1 HPCD...	27.24	1.854e2					2.0	NO		bb		0.000
12	FUNCTION1 HPCD...	24.57	7.274e1					2.0	NO		bb		0.000
13	FUNCTION1 HPCD...	23.90	1.057e2					2.1	NO		bb		0.000
14	FUNCTION1 HPCD...	23.10	7.901e1					1.8	NO		db		0.000
15	FUNCTION1 HPCD...	23.04	9.877e1					2.4	NO		dd		0.000
16	FUNCTION1 HPCD...	22.95	7.681e1					1.7	NO		dd		0.000

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.17	1.243e2					3.3	YES		bb		0.000
2	FUNCTION2 HPCD...	29.86	7.153e1					2.4	NO		db		0.000
3	FUNCTION2 HPCD...	29.82	1.112e2					4.2	YES		bd		0.000
4	FUNCTION2 HPCD...	29.41	1.094e2					1.9	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.69	1.437e2					2.7	NO		bb		0.000
2	FUNCTION3 OCDPE	32.66	8.268e1					1.5	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	37.69	8.648e1					2.8	NO		bb		0.000
2	FUNCTION4 NCDPE	37.98	1.092e4					268.0	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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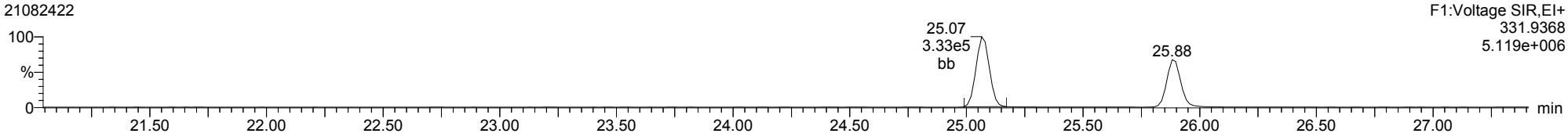
ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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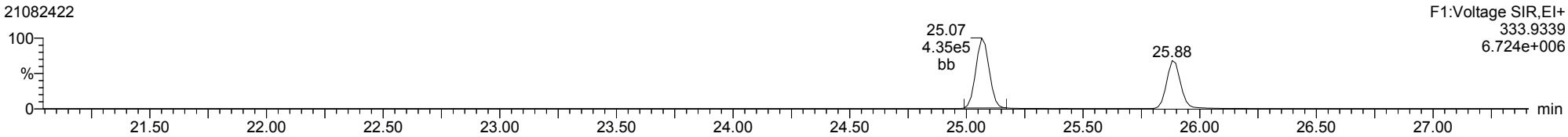

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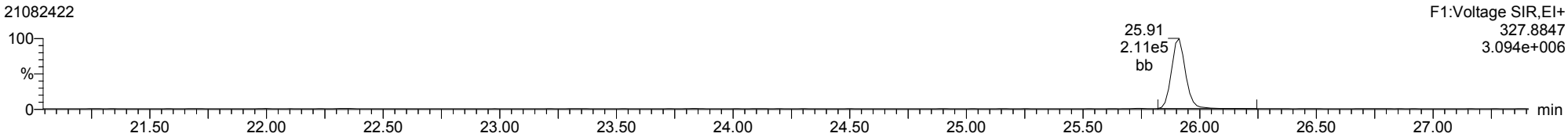
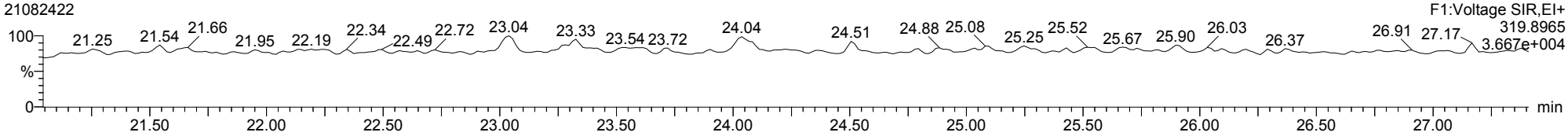


ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

2378-TCDD



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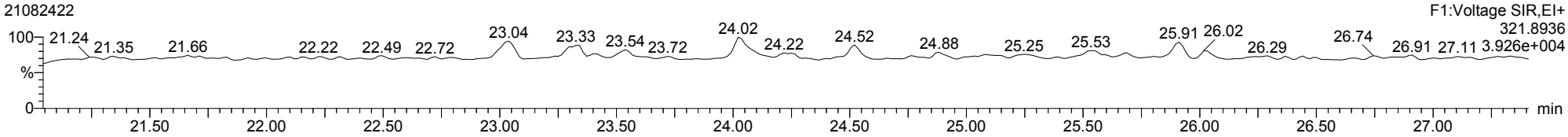

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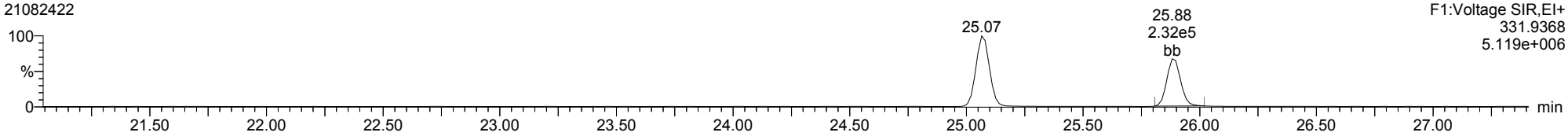

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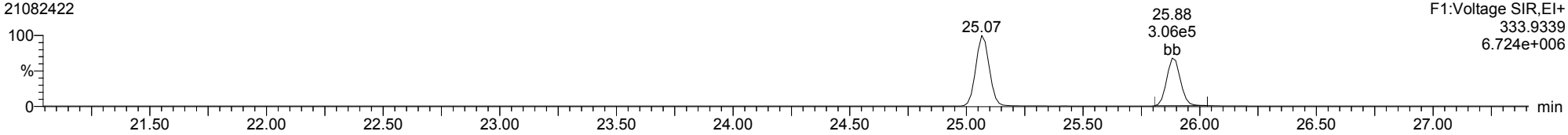

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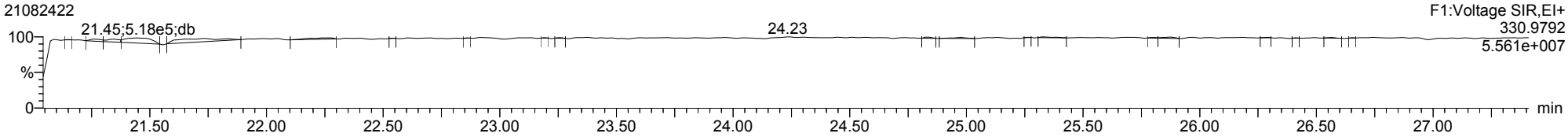
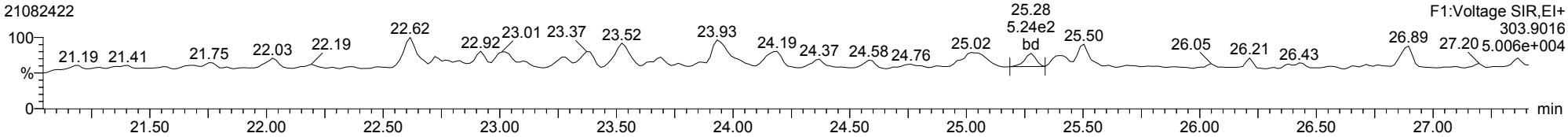


ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

2378-TCDF



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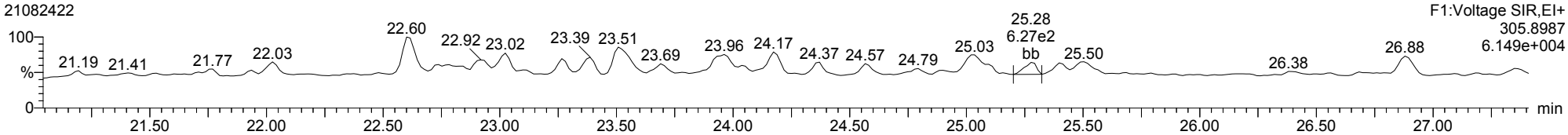
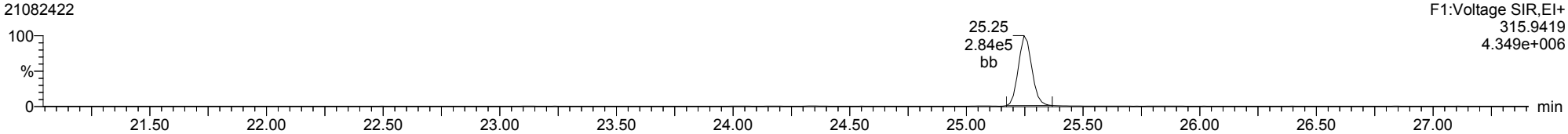


13C-2378-TCDF



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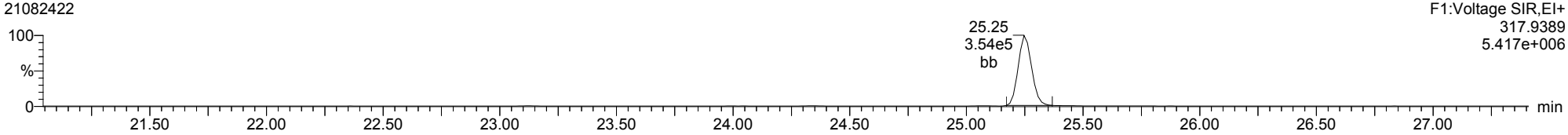

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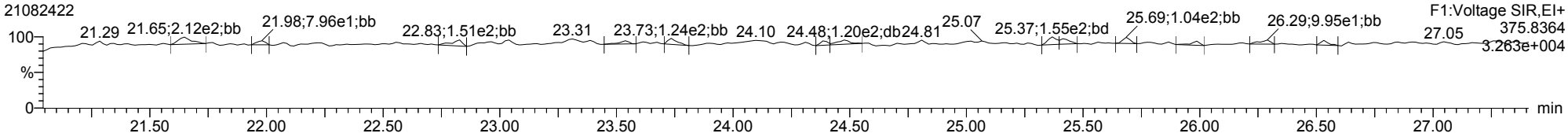

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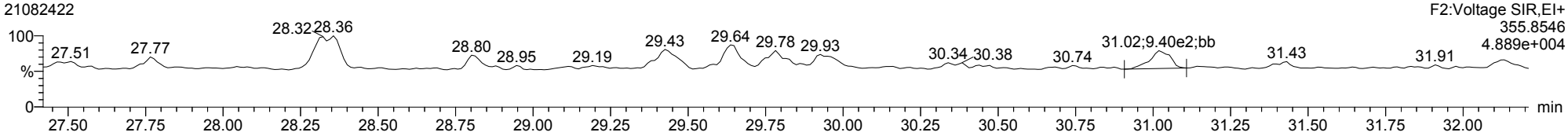
12378-PeCDD



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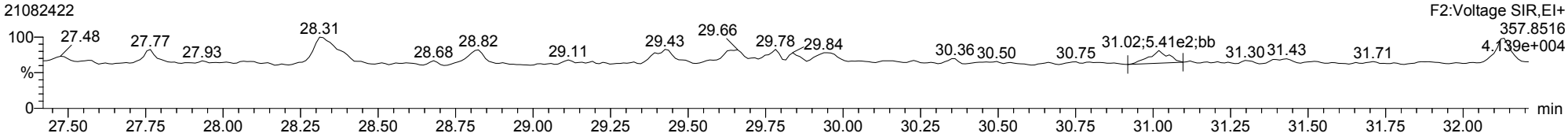

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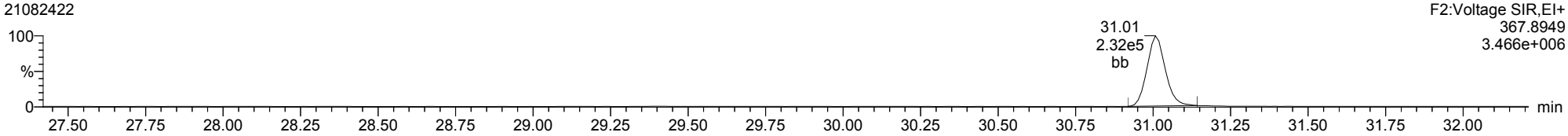

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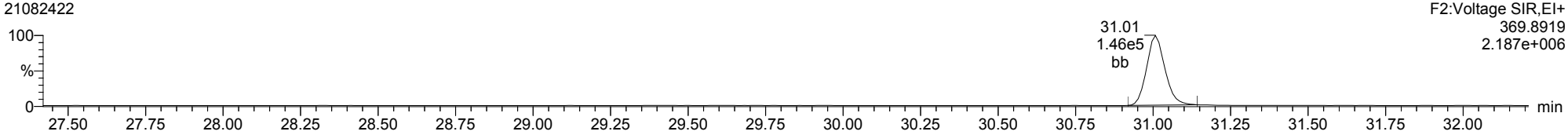

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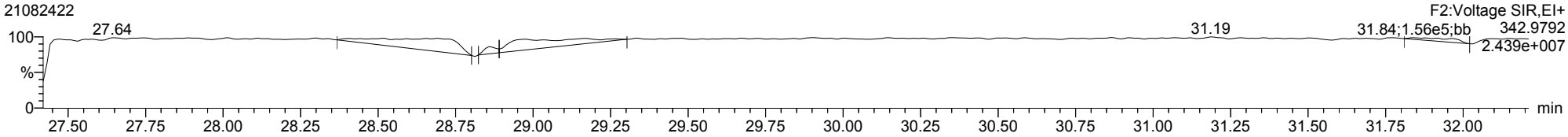

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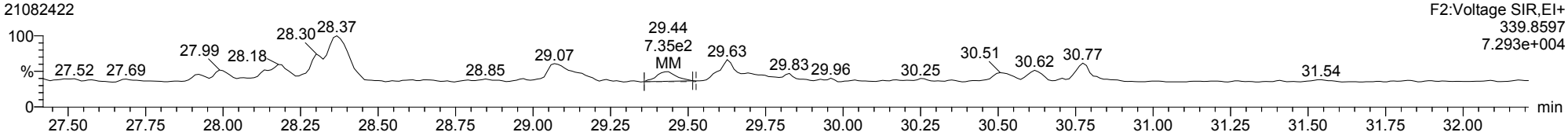

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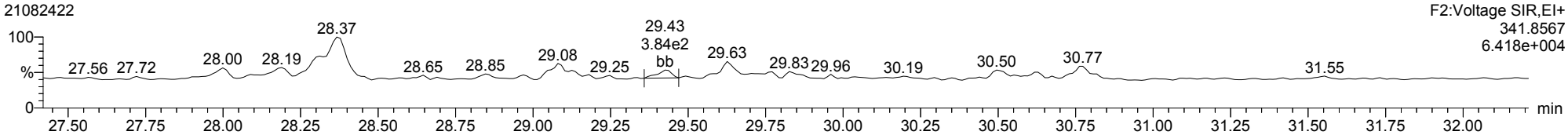

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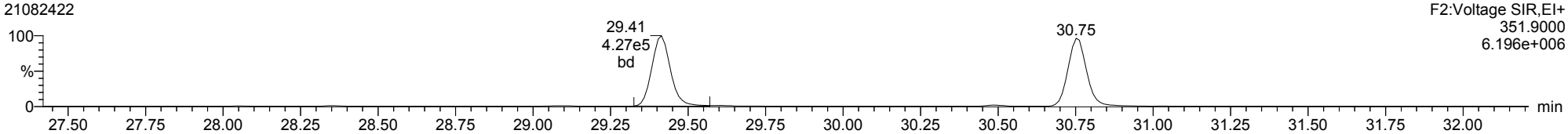

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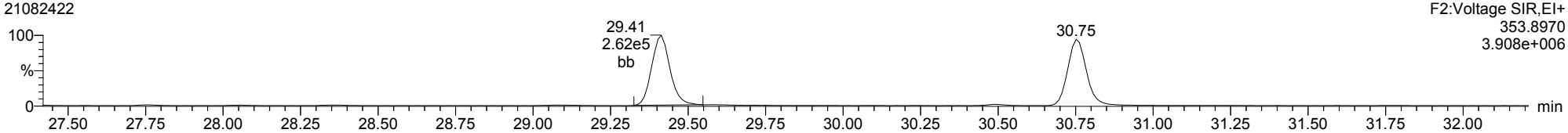

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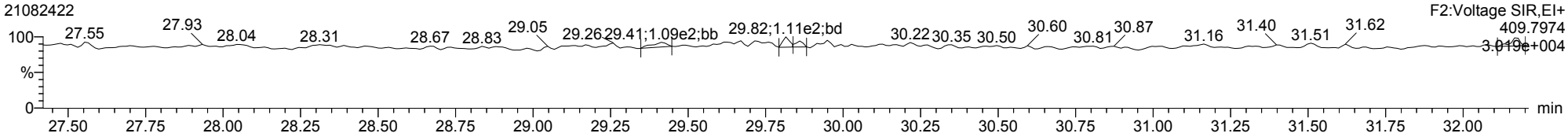

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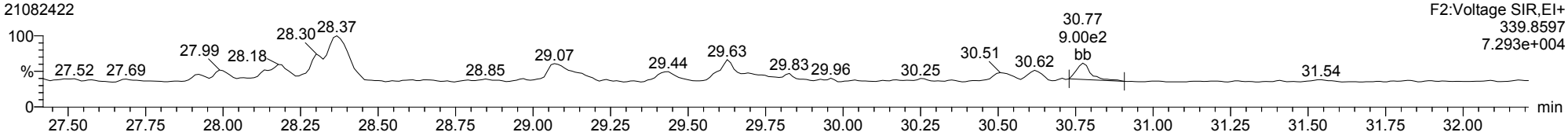
23478-PeCDF



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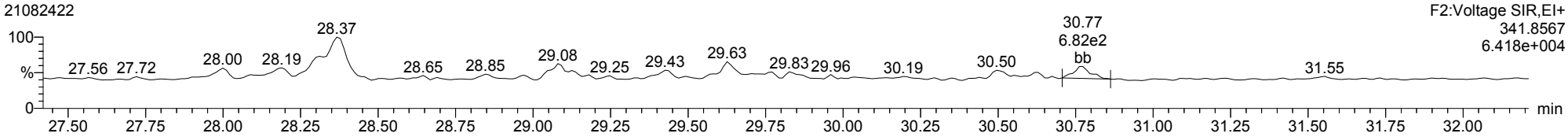

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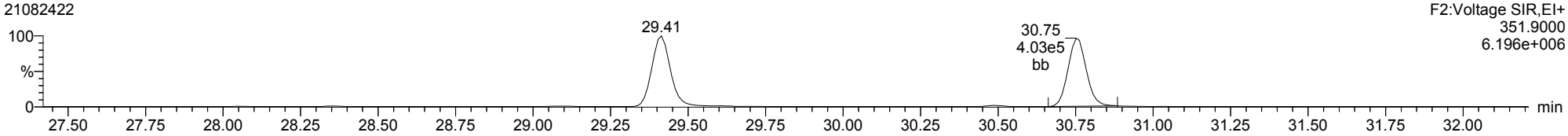

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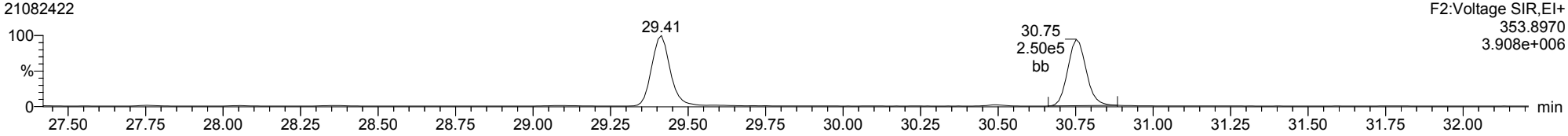

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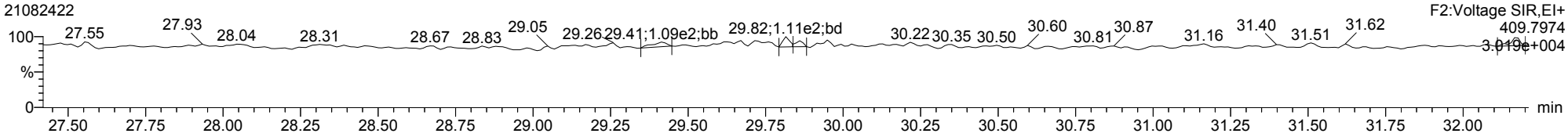

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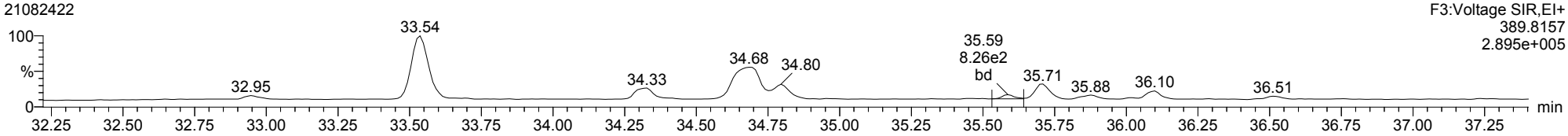

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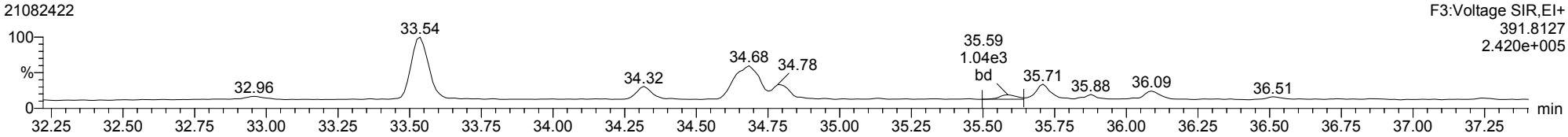

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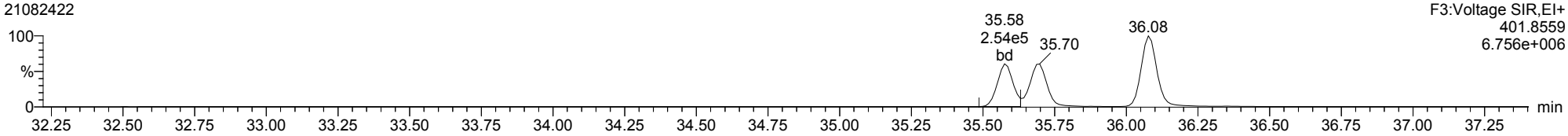

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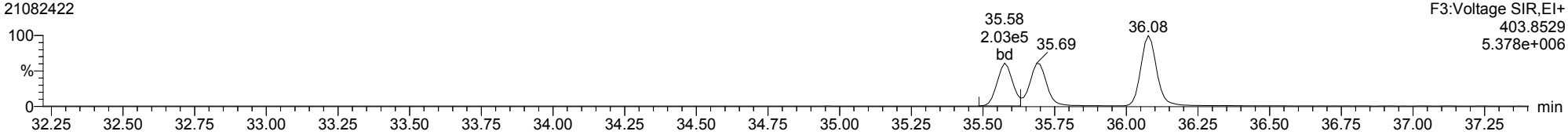
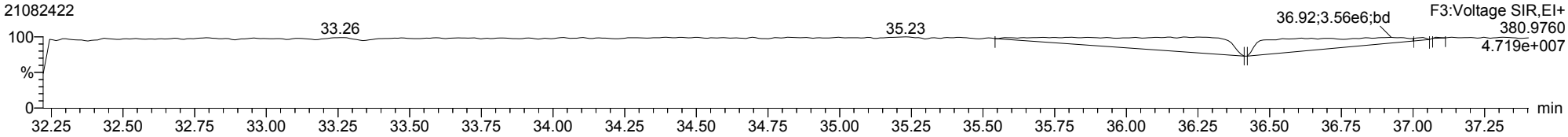


FUNCTION3 PFK



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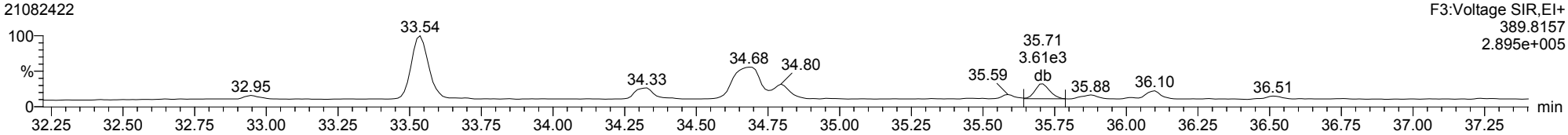

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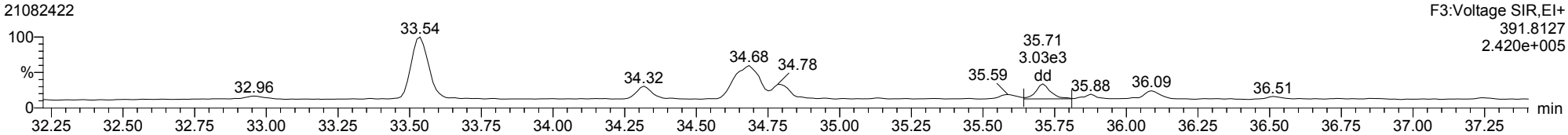

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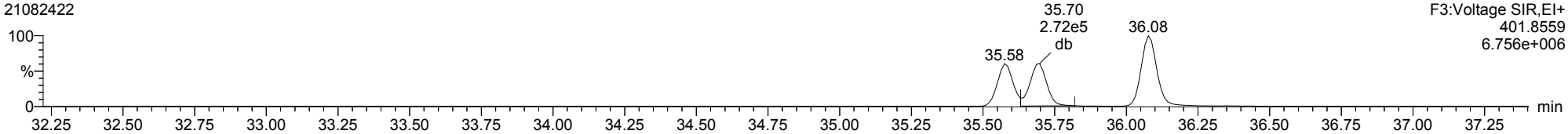

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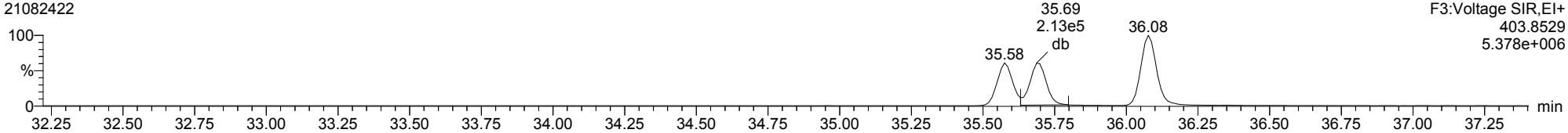

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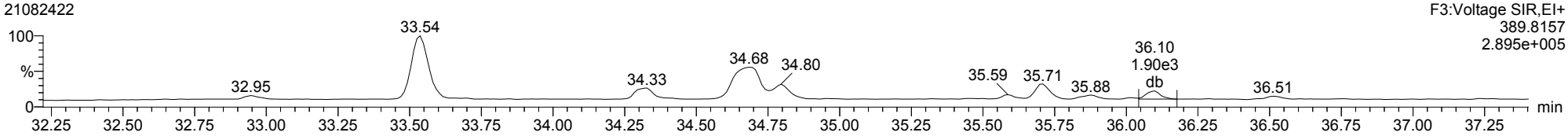
123789-HxCDD



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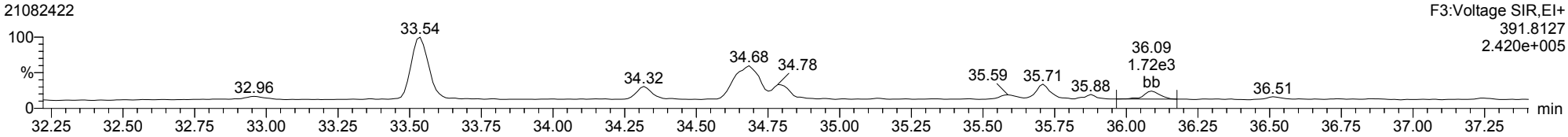

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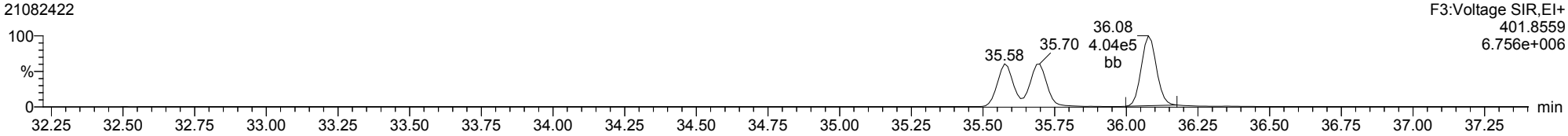

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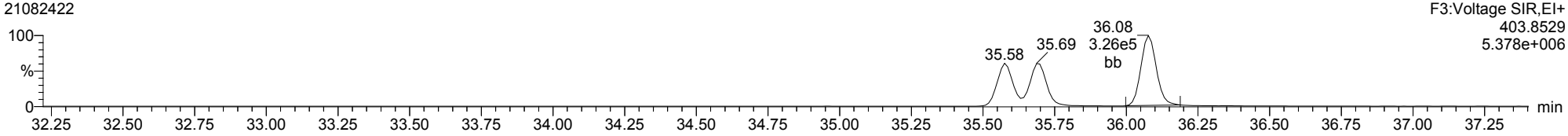

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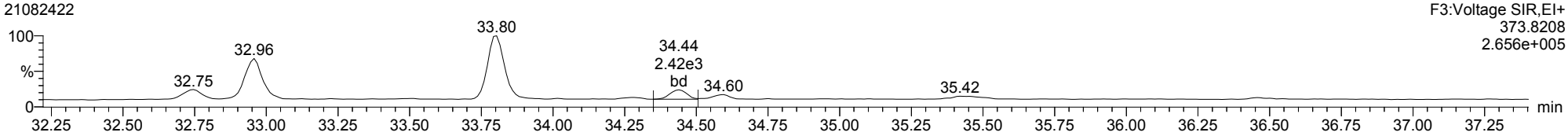

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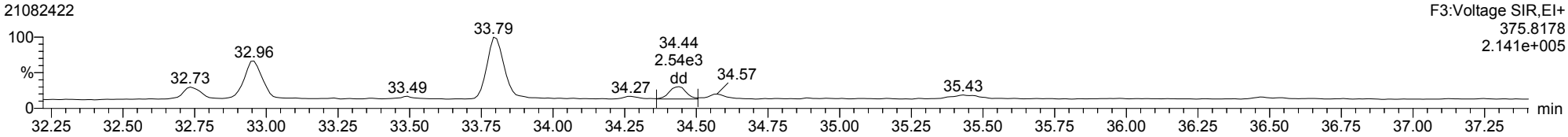

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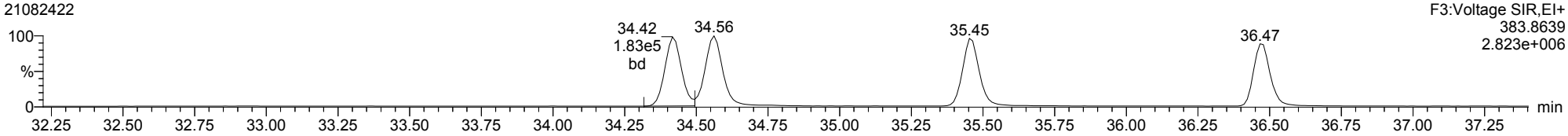

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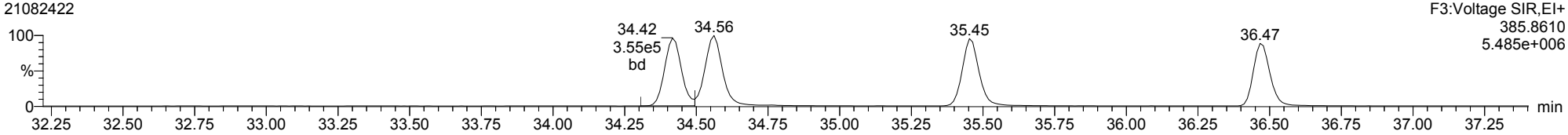

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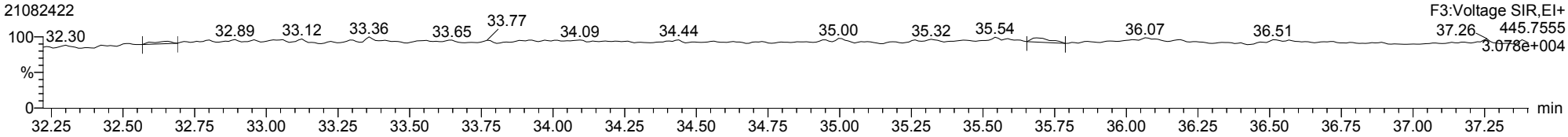

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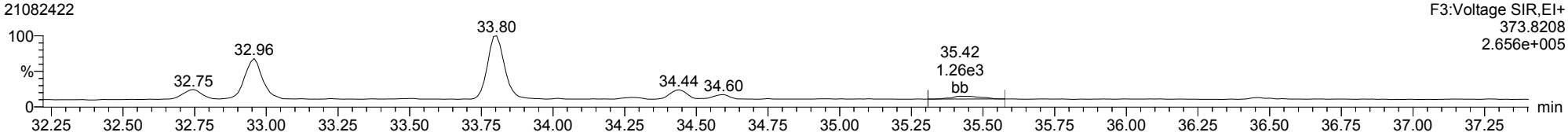

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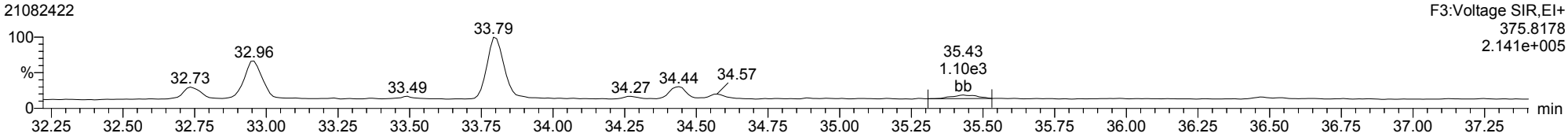

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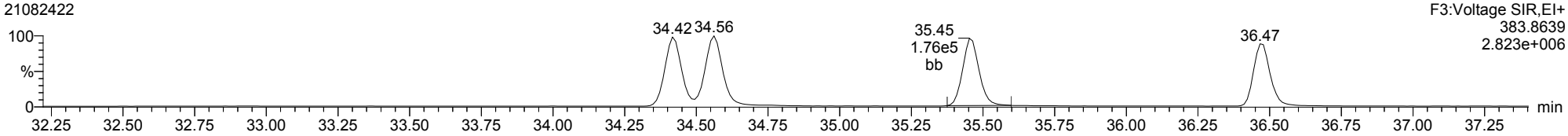

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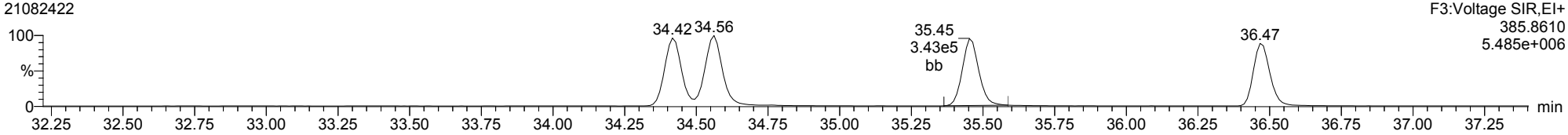

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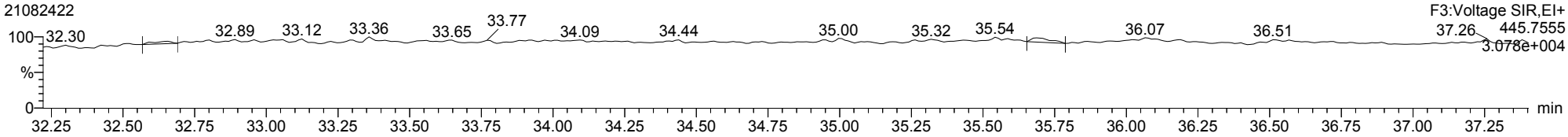

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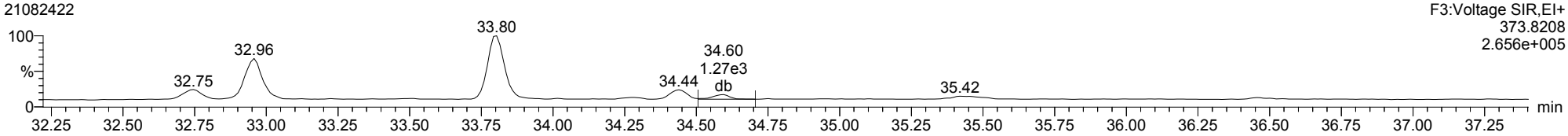

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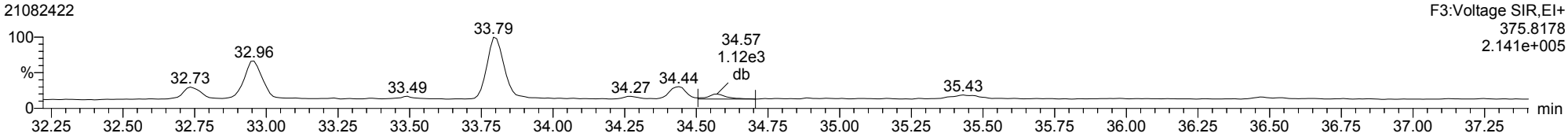

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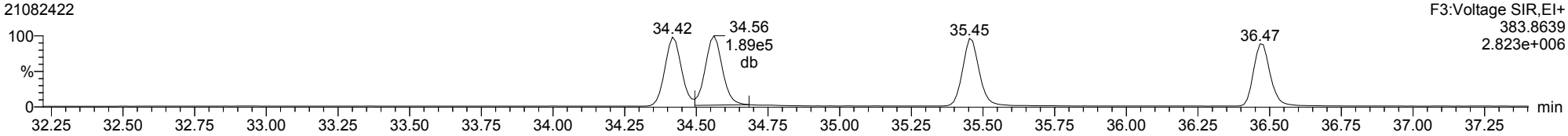

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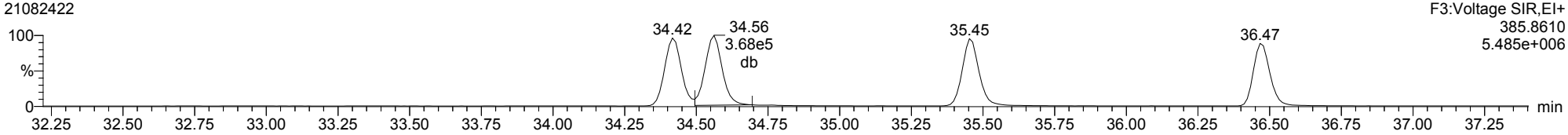

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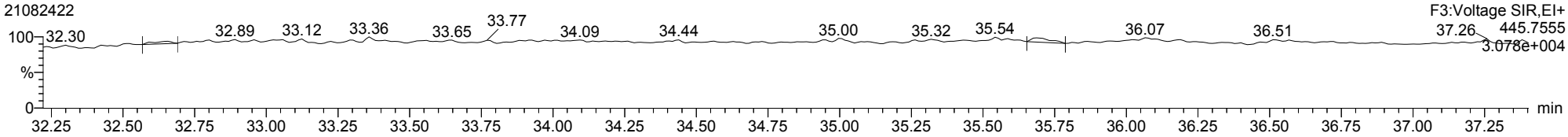

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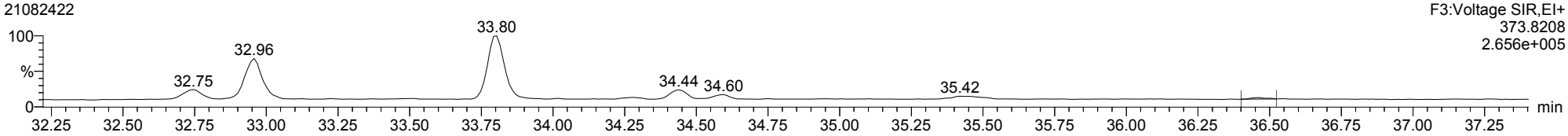

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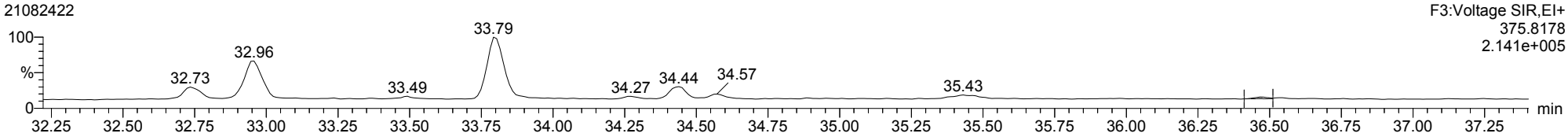

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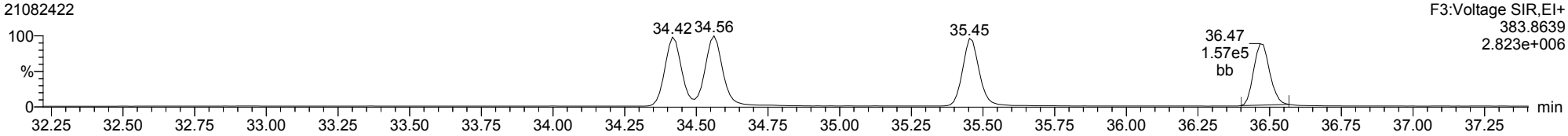

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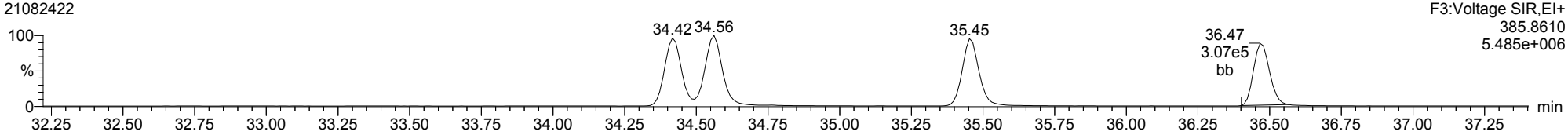
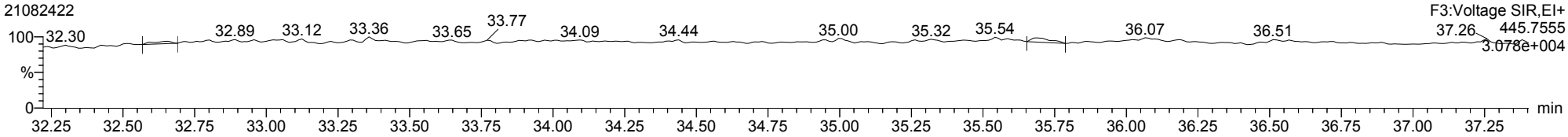
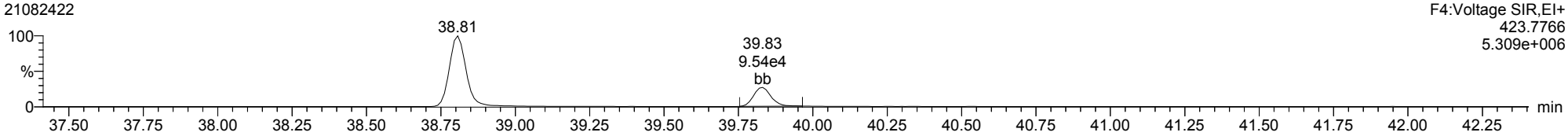


FUNCTION3 OCDPE

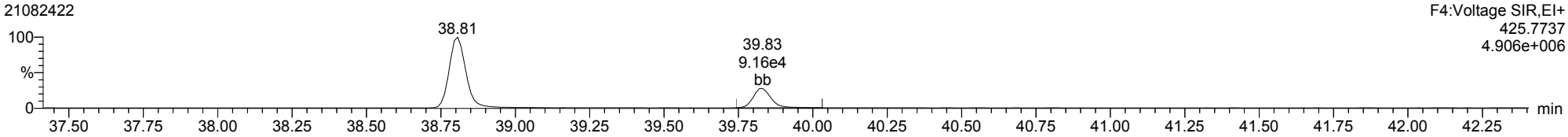


ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

1234678-HpCDD



1234678-HpCDD



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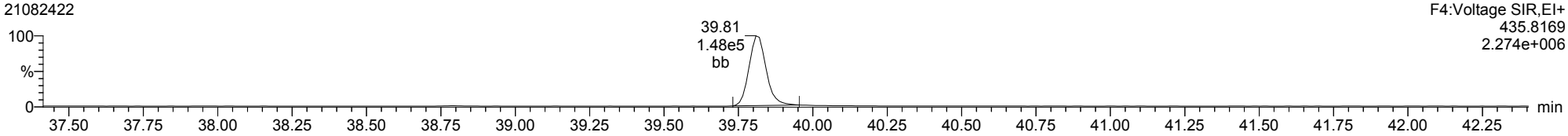

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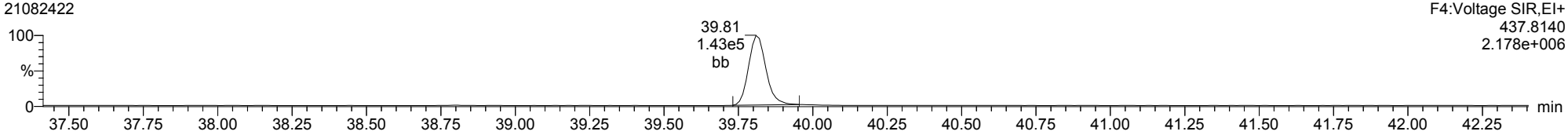

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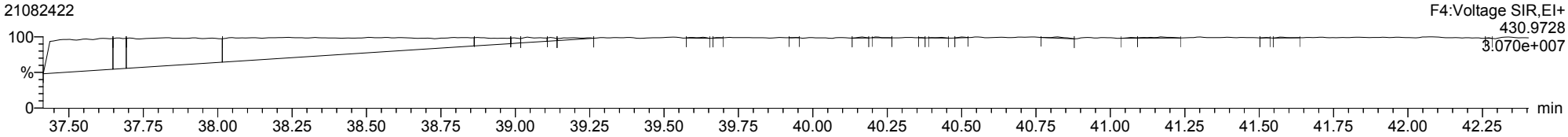

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

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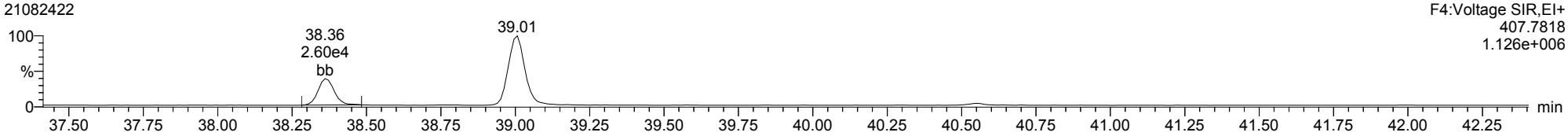

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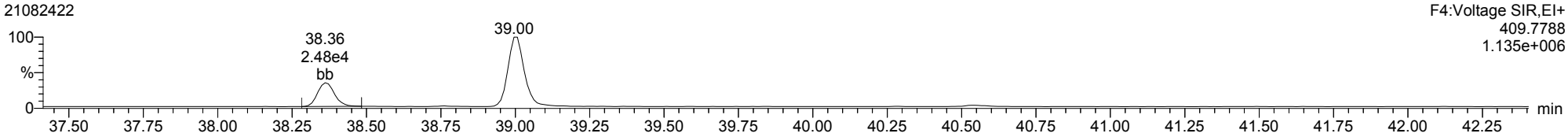

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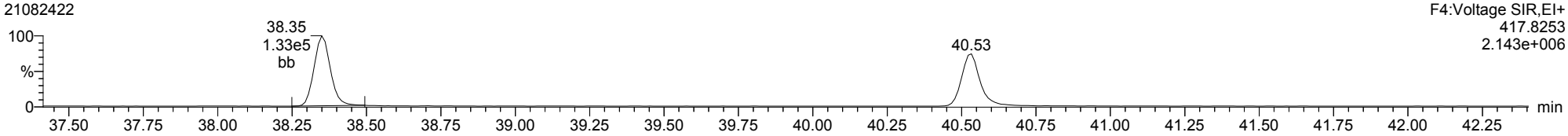

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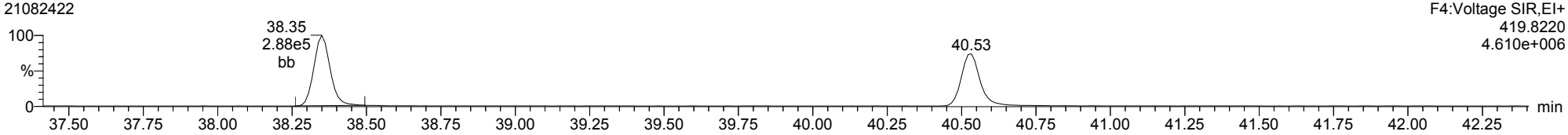
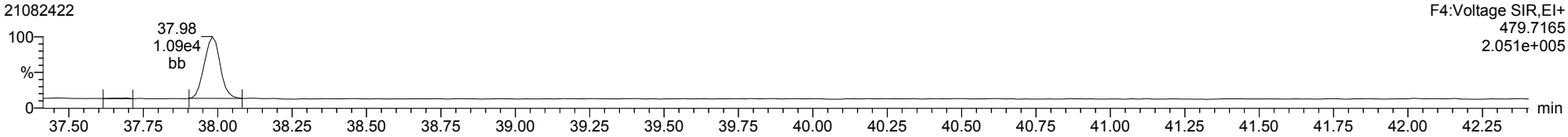


FUNCTION4 NCDPE



ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

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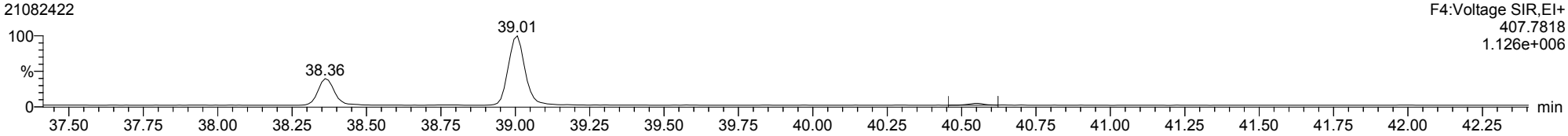

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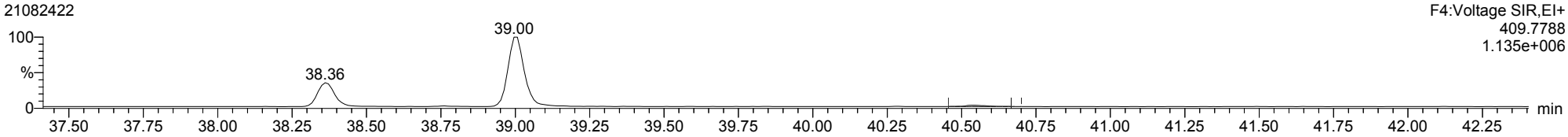

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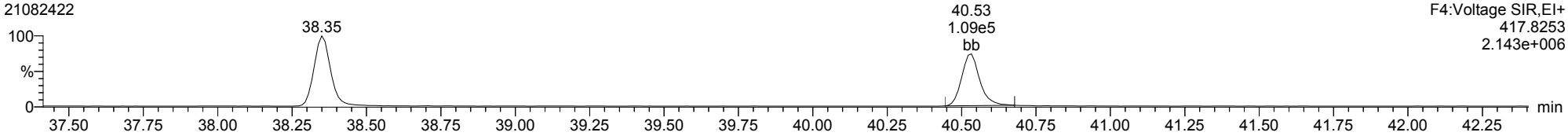

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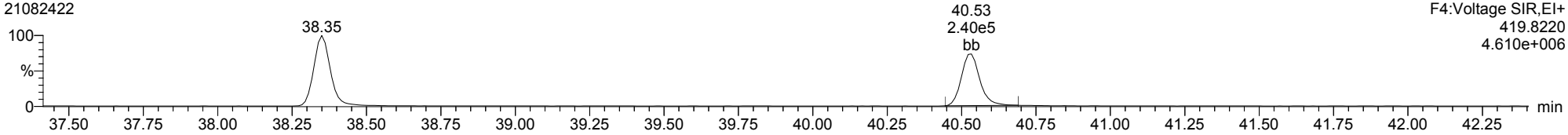
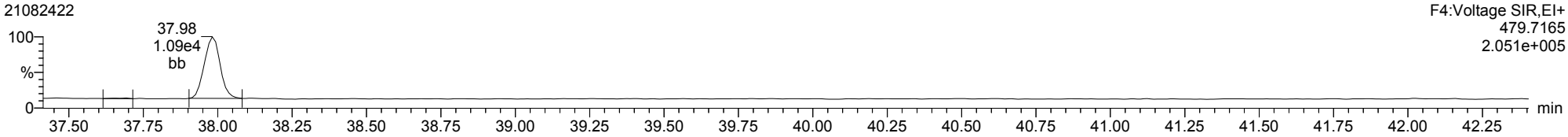
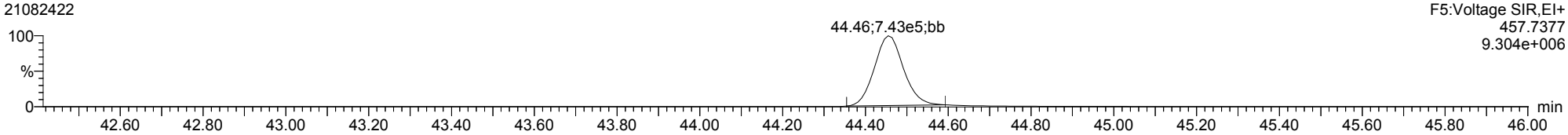


FUNCTION4 NCDPE



ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

OCDD



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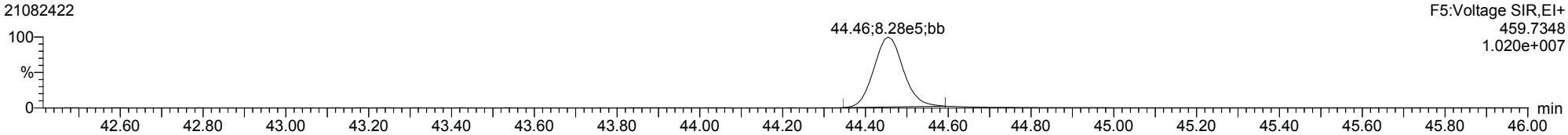
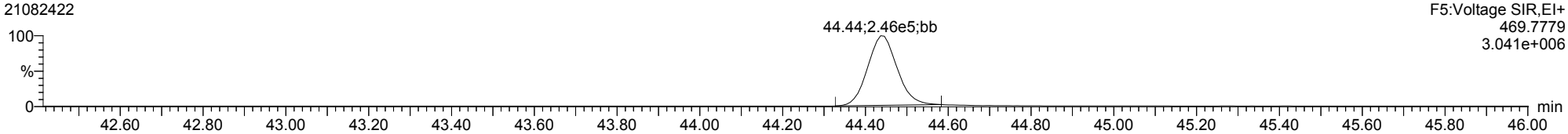


13C-OCDD



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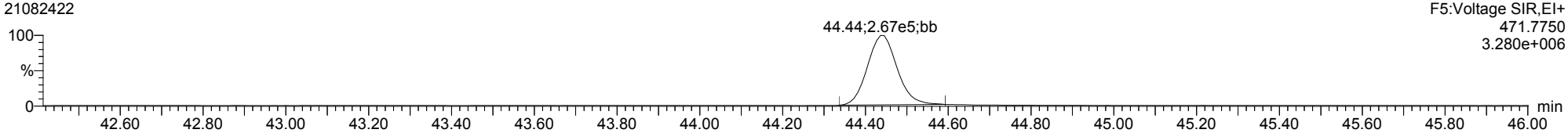
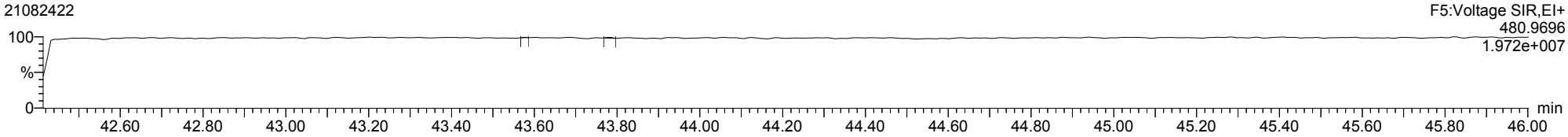
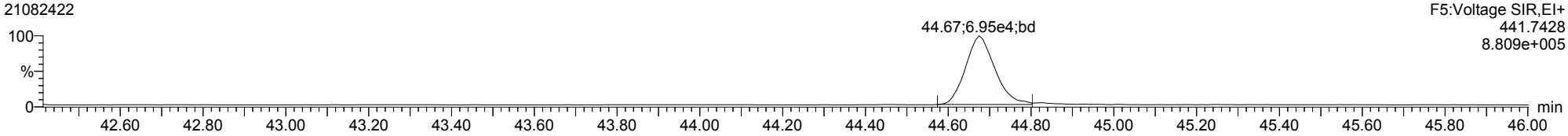


FUNCTION5 PFK



ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

OCDF



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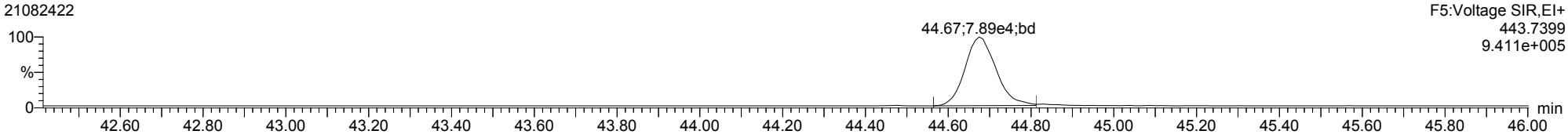
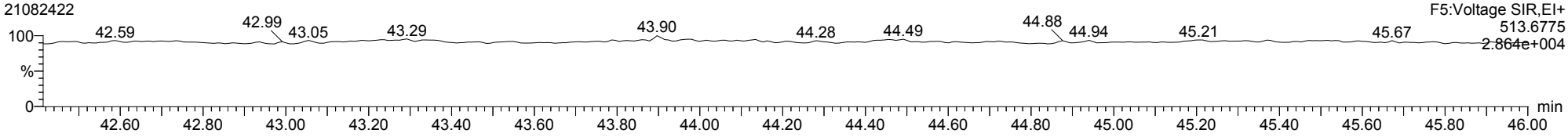
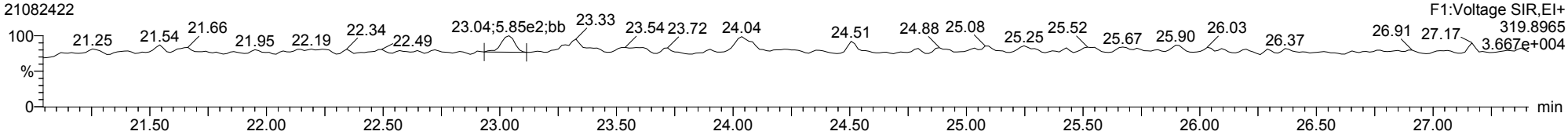


FUNCTION5 DCDPE

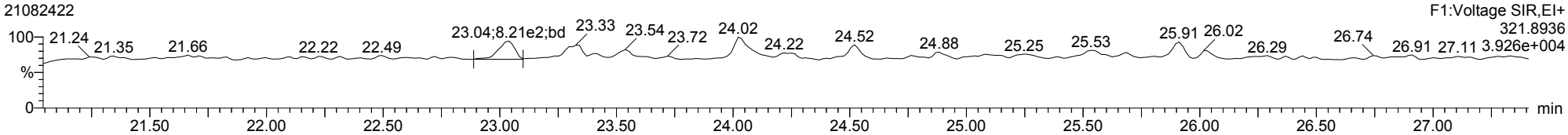


ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

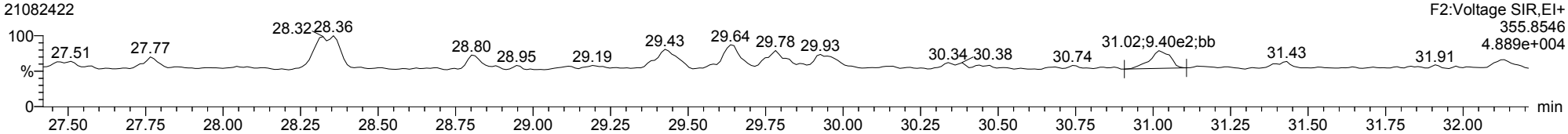
Total-tetradioxins



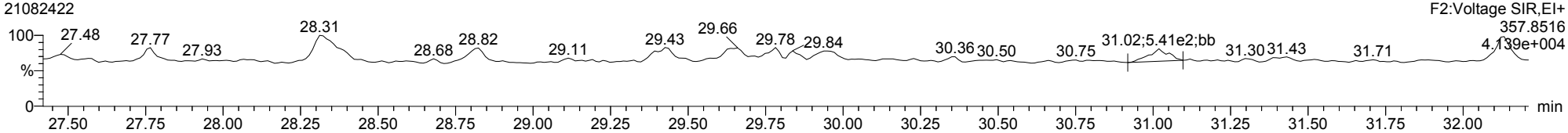
Total-tetradioxins



Total-pentadioxins

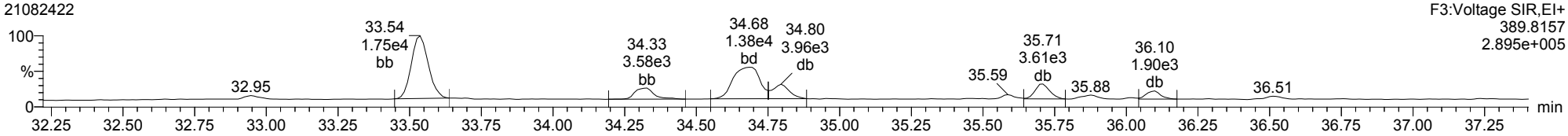


Total-pentadioxins

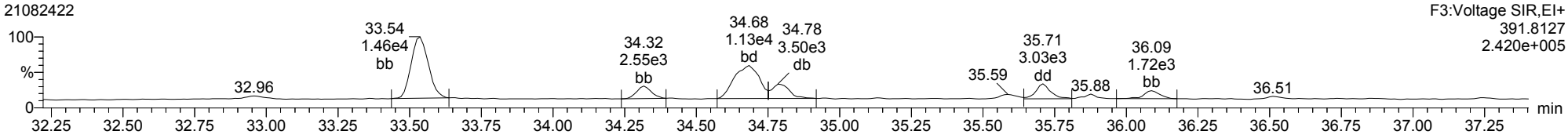


ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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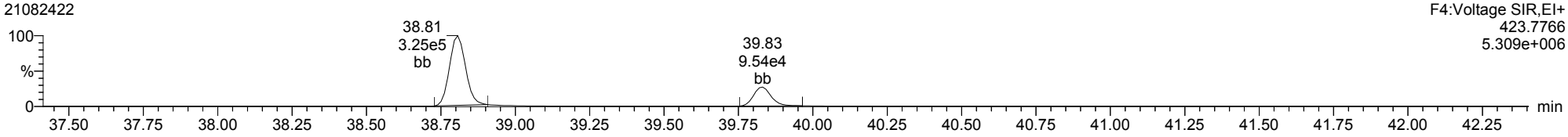
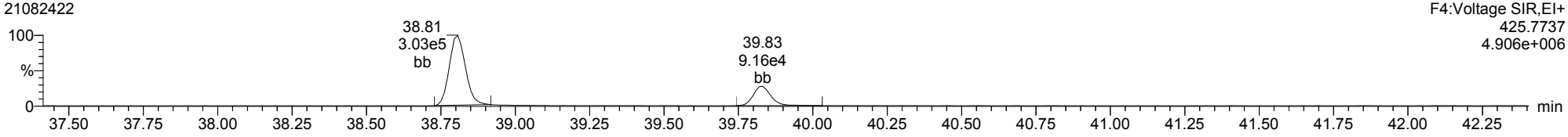
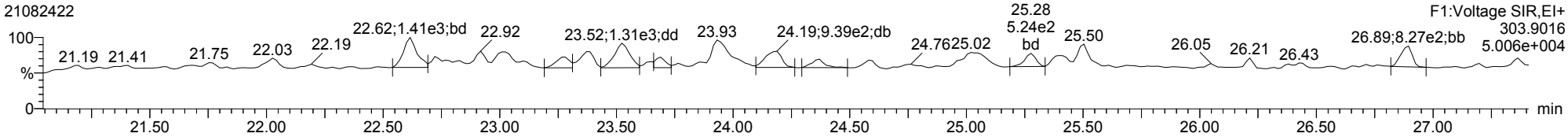


Total-heptadioxins



ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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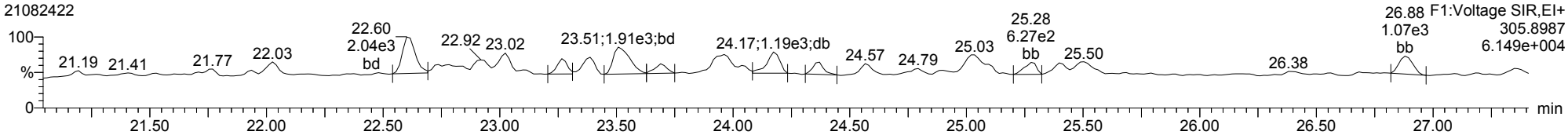

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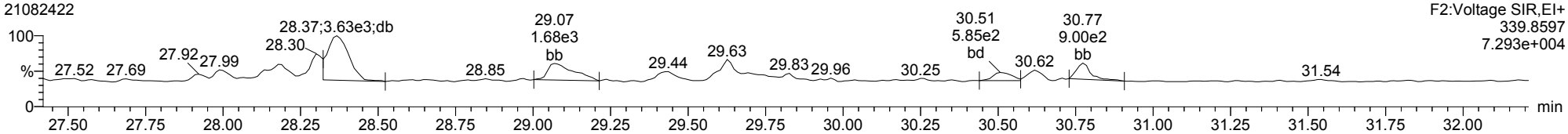

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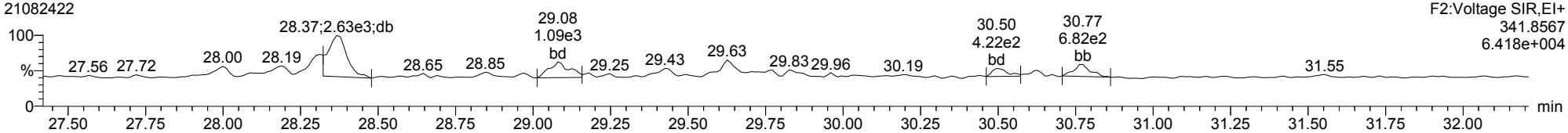

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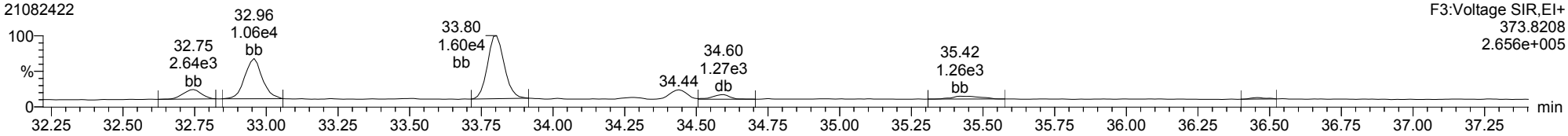
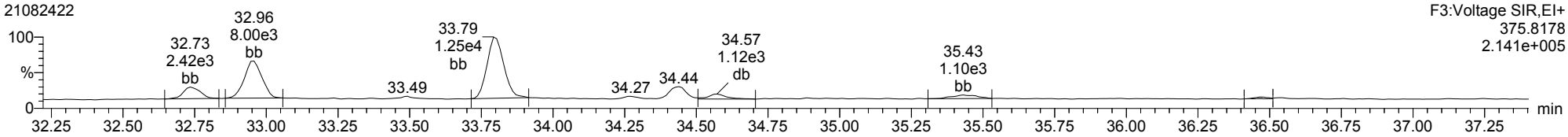
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:43:06 Pacific Daylight Time

ID: 21G0127-10, Name: 21082422, Date: 25-Aug-2021, Time: 05:23:44, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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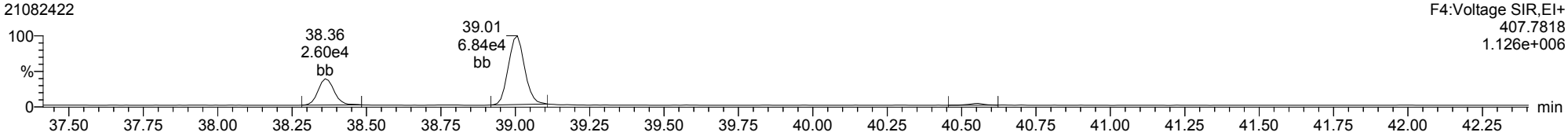

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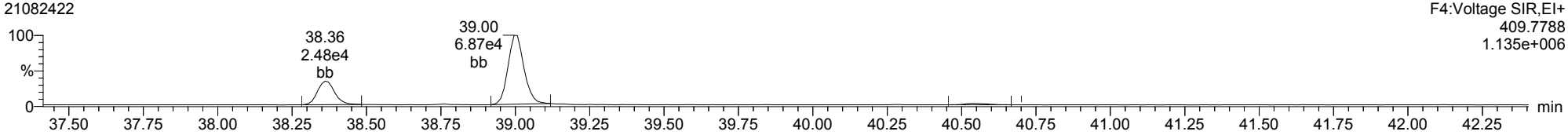

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS647

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0127-11RE1 A	File ID:	21091505
Sampled:	07/12/21 10:35	Prepared:	08/26/21 12:23	Analyzed:	09/15/21 19:21
% Solids:	48.95	Preparation:	EPA 1613	Initial/Final:	20.43 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0232	Calibration:	EH00030
Batch:	BJH0645	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.643	0.655-0.886	0.269	1.00	0.837	ng/kg	EMPC, J
1746-01-6	2,3,7,8-TCDD	1	0.680	0.655-0.886	0.196	1.00	0.378	ng/kg	J
57117-41-6	1,2,3,7,8-PeCDF	1	1.783	1.318-1.783	0.213	1.00	0.527	ng/kg	J
57117-31-4	2,3,4,7,8-PeCDF	1	1.510	1.318-1.783	0.208	1.00	0.992	ng/kg	J
40321-76-4	1,2,3,7,8-PeCDD	1	1.416	1.318-1.783	0.240	1.00	1.42	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.372	1.054-1.426	0.138	1.00	2.80	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.676	1.054-1.426	0.137	1.00	1.23	ng/kg	EMPC
60851-34-5	2,3,4,6,7,8-HxCDF	1	2.379	1.054-1.426	0.148	1.00	1.23	ng/kg	EMPC
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.533	1.054-1.426	0.159	1.00	0.694	ng/kg	EMPC, J
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.222	1.054-1.426	0.410	1.00	1.46	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.298	1.054-1.426	0.427	1.00	4.48	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.156	1.054-1.426	0.449	1.00	3.38	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.956	0.893-1.208	0.201	1.00	22.9	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.078	0.893-1.208	0.294	1.00	1.94	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.086	0.893-1.208	0.525	2.50	146	ng/kg	
39001-02-0	OCDF	1	0.896	0.757-1.024	0.426	2.50	66.4	ng/kg	
3268-87-9	OCDD	1	0.904	0.757-1.024	0.778	10.0	1180	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	9.77	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	4.46	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	15.3	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	3.07	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	33.5	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	47.3	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	80.4	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	439	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 5.80
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 5.80

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS647

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0127-11RE1	File ID:	21091505
Sampled:	07/12/21 10:35	Prepared:	08/26/21 12:23	Analyzed:	09/15/21 19:21
Solids Wt%:	48.95	Preparation:	EPA 1613	Initial/Final:	20.43 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0232	Calibration:	EH00030
Batch:	BJH0645	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.826	0.655-0.886	0.173	65.8	24 - 169 %	
13C12-2,3,7,8-TCDD		0.752	0.655-0.886	0.176	68.0	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.622	1.318-1.783	0.135	71.2	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.588	1.318-1.783	0.142	68.7	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.549	1.318-1.783	0.162	65.8	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.519	0.434-0.587	0.190	72.7	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.518	0.434-0.587	0.176	67.4	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.509	0.434-0.587	0.195	67.9	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.511	0.434-0.587	0.235	75.3	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.253	1.054-1.426	0.191	75.1	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.248	1.054-1.426	0.176	70.7	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.463	0.374-0.506	0.210	66.2	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.467	0.374-0.506	0.257	62.2	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.041	0.893-1.208	0.245	64.6	23 - 140 %	
13C12-OCDD		0.898	0.757-1.024	0.301	66.0	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.052	77.3	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:45 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.761	1.001	7.733e2	1.203e3	1.108	0.643	0.770	1210	2103	1.30e4	1.62e4	10.7	7.7	YES	dd	bd	0.419
12378-PeCDF	29.909	1.000	7.175e2	4.025e2	1.015	1.783	1.550	1617	805	1.08e4	6.45e3	6.7	8.0	YES	bb	bb	0.263
23478-PeCDF	31.280	1.001	1.294e3	8.572e2	1.126	1.510	1.550	1617	805	1.84e4	1.13e4	11.4	14.1	NO	db	db	0.496
123478-HxCDF	34.878	1.000	2.355e3	1.716e3	1.017	1.372	1.240	624	491	3.59e4	2.77e4	57.5	56.4	NO	dd	bb	1.398
234678-HxCDF	35.903	1.001	1.194e3	5.018e2	1.052	2.379	1.240	624	491	1.24e4	1.03e4	19.9	21.1	YES	MM	MM	0.616
123678-HxCDF	35.023	1.000	1.147e3	6.847e2	1.037	1.676	1.240	624	491	1.84e4	1.47e4	29.5	30.0	YES	db	bb	0.615
123789-HxCDF	36.906	1.000	5.204e2	3.395e2	1.030	1.533	1.240	624	491	8.36e3	6.87e3	13.4	14.0	YES	bb	bb	0.347
1234678-HpCDF	38.767	1.001	1.446e4	1.512e4	1.327	0.956	1.050	771	672	2.49e5	2.60e5	322.6	386.6	NO	bb	bb	11.458
1234789-HpCDF	41.017	1.001	9.631e2	8.937e2	1.283	1.078	1.050	771	672	1.67e4	1.49e4	21.7	22.2	NO	bb	bb	0.968
OCDF	45.243	1.006	2.392e4	2.669e4	1.447	0.896	0.890	561	823	3.09e5	3.45e5	550.4	418.6	NO	bb	bb	33.187
2378-TCDD	26.396	1.001	2.422e2	3.564e2	0.920	0.680	0.770	989	592	3.37e3	6.16e3	3.4	10.4	NO	bb	bb	0.189
12378-PeCDD	31.514	1.001	9.051e2	6.391e2	0.995	1.416	1.550	761	630	1.32e4	9.24e3	17.4	14.7	NO	bb	bb	0.710
123478-HxCDD	36.015	1.001	9.403e2	7.692e2	1.027	1.222	1.240	1719	1020	1.64e4	1.25e4	9.6	12.2	NO	bd	bd	0.728
123678-HxCDD	36.126	1.001	2.976e3	2.294e3	1.009	1.298	1.240	1719	1020	4.76e4	4.11e4	27.7	40.3	NO	db	db	2.238
123789-HxCDD	36.516	1.011	1.987e3	1.719e3	0.950	1.156	1.240	1719	1020	3.51e4	2.76e4	20.4	27.0	NO	bb	bb	1.688
1234678-HpCDD	40.259	1.000	5.249e4	4.836e4	1.068	1.086	1.050	1033	931	8.75e5	8.04e5	847.1	864.2	NO	bb	bb	72.915
OCDD	44.995	1.000	3.488e5	3.857e5	1.181	0.904	0.890	1031	1032	4.31e6	4.76e6	4181.5	4611.1	NO	bb	bb	590.277
13C-2378-TCDF	25.746	1.007	1.927e5	2.334e5	1.427	0.826	0.770	1831	1189	3.01e6	3.68e6	1645.7	3091.9	NO	bb	bb	65.840
13C-12378-PeCDF	29.898	1.170	2.593e5	1.599e5	1.297	1.622	1.550	1051	1089	4.16e6	2.60e6	3957.8	2385.7	NO	bb	bb	71.222
13C-23478-PeCDF	31.246	1.222	2.366e5	1.490e5	1.236	1.588	1.550	1051	1089	3.81e6	2.38e6	3624.4	2187.2	NO	bb	bb	68.733
13C-123478-HxCDF	34.867	0.955	9.778e4	1.885e5	1.242	0.519	0.510	1109	1025	1.62e6	3.15e6	1463.2	3078.4	NO	bd	bd	72.678
13C-123678-HxCDF	35.012	0.959	9.797e4	1.893e5	1.343	0.518	0.510	1109	1025	1.60e6	3.09e6	1443.5	3011.7	NO	db	db	67.432
13C-234678-HxCDF	35.881	0.983	8.818e4	1.732e5	1.215	0.509	0.510	1109	1025	1.45e6	2.83e6	1306.5	2764.7	NO	bb	bb	67.864
13C-123789-HxCDF	36.906	1.011	8.141e4	1.592e5	1.008	0.511	0.510	1109	1025	1.38e6	2.73e6	1248.3	2668.3	NO	bb	bb	75.314
13C-1234678-HpCDF	38.744	1.062	6.161e4	1.329e5	0.926	0.463	0.440	655	1101	1.03e6	2.28e6	1570.1	2070.2	NO	bd	bb	66.227
13C-1234789-HpCDF	40.995	1.123	4.755e4	1.019e5	0.758	0.467	0.440	655	1101	7.30e5	1.55e6	1113.9	1404.4	NO	bd	bb	62.179
13C-1234-TCDD	25.564	0.000	1.962e5	2.575e5	1.000	0.762	0.770	1563	833	3.17e6	4.15e6	2028.2	4978.2	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	1.477e5	1.965e5	1.116	0.752	0.770	1563	833	2.26e6	3.03e6	1446.1	3640.4	NO	bb	bb	67.953
13C-12378-PeCDD	31.491	1.232	1.329e5	8.577e4	0.732	1.549	1.550	757	696	2.13e6	1.37e6	2807.1	1963.2	NO	bb	bb	65.828
13C-123478-HxCDD	35.993	0.986	1.271e5	1.015e5	0.960	1.253	1.240	892	762	2.17e6	1.75e6	2430.9	2302.8	NO	bd	bd	75.127
13C-123678-HxCDD	36.104	0.989	1.296e5	1.038e5	1.041	1.248	1.240	892	762	2.12e6	1.70e6	2373.2	2230.5	NO	db	db	70.690
13C-1234678-HpCDD	40.248	1.103	6.605e4	6.345e4	0.632	1.041	1.050	702	698	1.07e6	1.02e6	1527.5	1456.2	NO	bb	bb	64.579
13C-OCDD	44.977	1.232	9.974e4	1.110e5	0.504	0.898	0.890	684	682	1.28e6	1.39e6	1864.1	2041.5	NO	bb	bb	131.970
13C-123789-HxCDD	36.494	0.000	1.754e5	1.416e5	1.000	1.239	1.240	892	762	2.99e6	2.44e6	3356.4	3196.1	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	1.520e5		1.084			684		2.34e6		3423.4			bb		30.915

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Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
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ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.404	0.870	3.534e2	3.237e2	1.425	1.092	0.770	1210	2103	5.25e3	4.43e3	4.3	2.1	YES	bd	dd	0.111
1289-TCDF	27.363	1.063	9.883e2	1.467e3	1.043	0.674	0.770	1210	2103	1.68e4	2.20e4	13.9	10.4	NO	bb	bb	0.552
13468-PECDF					1.376		1.550	723	809								
12389-PECDF					1.000		1.550	1617	805								
123468-HXCDF	33.218	0.953	2.666e3	2.331e3	1.087	1.144	1.240	624	491	4.31e4	3.69e4	69.1	75.2	NO	bb	bb	1.606
1368-TCDD	23.523	0.892	6.253e2	7.212e2	0.923	0.867	0.770	989	592	1.01e4	1.16e4	10.2	19.6	NO	bb	db	0.424
1289-TCDD					0.794		0.770	989	592								
12479-PECDD	28.817	0.915	1.451e3	1.454e3	1.843	0.998	1.550	761	630	2.13e4	1.66e4	28.0	26.4	YES	db	bb	0.721
12389-PECDD					1.154		1.550	761	630								
124679-HXCDD	33.987	0.944	1.119e4	9.252e3	1.125	1.209	1.240	1719	1020	1.79e5	1.41e5	104.3	138.2	NO	bb	bb	7.948
1234679-HPCDD	39.212	0.974	1.194e5	1.107e5	1.211	1.079	1.050	1033	931	2.09e6	1.90e6	2024.4	2038.4	NO	bb	bb	146.710
Total-tetrafurans			1.026e4		1.192			1210		1.54e5							4.887
Total-penta1			9.652e3					723		1.40e5							4.118
Total-pentafurans			9.264e3		1.047			1617		1.15e5							3.543
Total-hexafurans			2.603e4		1.045			624		4.16e5							16.771
Total-heptafurans			4.765e4		1.305			771		8.05e5							40.208
Total-Furans			1.271e5		1.158			1210		1.94e6							102.844
Total-tetradioxins			2.947e3		0.879			989		4.77e4							2.230
Total-pentadioxins			2.366e3		1.331			761		4.02e4							1.533
Total-hexadioxins			3.115e4		1.028			1719		4.58e5							23.653
Total-heptadioxins			1.719e5		1.140			1033		2.97e6							219.626
Total-Dioxins			5.572e5		1.092			989		7.83e6							837.318
Total-TEQ			6.842e5					989		9.77e6							940.162
FUNCTION1 PFK			1.235e7					495379		3.44e7							
FUNCTION2 PFK			1.047e6					428546		5.40e6							0.000
FUNCTION3 PFK			1.843e6					416297		4.10e6							0.000
FUNCTION4 PFK			1.158e7					246524		6.98e7							
FUNCTION5 PFK			3.115e3					159278		1.77e5							
FUNCTION1 HXCD...			1.556e3					779		2.16e4							0.000
FUNCTION1 HPCD...			5.019e3					748		8.26e4							0.000
FUNCTION2 HPCD...			1.548e2					667		3.14e3							0.000
FUNCTION3 OCDPE			5.093e2					507		8.86e3							0.000
FUNCTION4 NCDPE			3.487e3					686		6.54e4							0.000
FUNCTION5 DCDPE			0.000e0					501		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
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Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.73	6.989e2	8.587e2	1.192	0.81	0.77	8.9	YES	NO	bd	dd	0.307
2	Total-tetrafurans	23.49	9.118e2	1.327e3	1.192	0.69	0.77	11.6	YES	NO	dd	dd	0.441
3	Total-tetrafurans	23.08	1.892e3	2.384e3	1.192	0.79	0.77	25.7	YES	NO	bd	bd	0.842
4	Total-tetrafurans	22.51	5.122e2	7.544e2	1.192	0.68	0.77	6.3	YES	NO	db	db	0.249
5	Total-tetrafurans	26.02	1.123e3	1.715e3	1.192	0.65	0.77	12.5	YES	NO	dd	dd	0.559
6	Total-tetrafurans	25.08	3.734e2	4.942e2	1.192	0.76	0.77	5.8	YES	NO	bb	bb	0.171
7	Total-tetrafurans	24.66	1.043e3	1.347e3	1.192	0.77	0.77	12.5	YES	NO	db	db	0.470
8	Total-tetrafurans	24.01	1.815e3	2.647e3	1.192	0.69	0.77	21.0	YES	NO	bd	dd	0.879
9	Total-tetrafurans	23.87	9.055e2	1.215e3	1.192	0.75	0.77	9.5	YES	NO	db	dd	0.418
10	1289-TCDF	27.36	9.883e2	1.467e3	1.043	0.67	0.77	13.9	YES	NO	bb	bb	0.552

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.18	9.652e3	6.179e3		1.56	1.55	194.2	YES	NO	bb	bb	4.118

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.85	5.587e3	3.461e3	1.047	1.61	1.55	34.9	YES	NO	MM	MM	2.148
2	23478-PeCDF	31.28	1.294e3	8.572e2	1.126	1.51	1.55	11.4	YES	NO	db	db	0.496
3	Total-pentafurans	31.02	8.093e2	4.555e2	1.047	1.78	1.55	8.1	YES	NO	bd	bd	0.300
4	Total-pentafurans	29.64	2.706e2	1.979e2	1.047	1.37	1.55	4.6	YES	NO	db	db	0.111
5	Total-pentafurans	29.55	1.303e3	7.518e2	1.047	1.73	1.55	12.5	YES	NO	dd	bd	0.488

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	34.27	1.157e4	9.582e3	1.045	1.21	1.24	311.8	YES	NO	bb	bb	7.533
2	Total-hexafurans	33.43	9.035e3	7.736e3	1.045	1.17	1.24	218.3	YES	NO	bb	bb	5.971
3	123468-HXCDF	33.22	2.666e3	2.331e3	1.087	1.14	1.24	69.1	YES	NO	bb	bb	1.606
4	123478-HxCDF	34.88	2.355e3	1.716e3	1.017	1.37	1.24	57.5	YES	NO	dd	bb	1.398
5	Total-hexafurans	34.73	3.988e2	3.397e2	1.045	1.17	1.24	10.2	YES	NO	bd	bb	0.263

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.42	3.188e4	2.981e4	1.305	1.07	1.05	691.4	YES	NO	bb	bb	27.480
2	Total-heptafurans	39.17	3.484e2	3.313e2	1.305	1.05	1.05	8.2	YES	NO	bb	bb	0.303
3	1234678-HpCDF	38.77	1.446e4	1.512e4	1.327	0.96	1.05	322.6	YES	NO	bb	bb	11.458
4	1234789-HpCDF	41.02	9.631e2	8.937e2	1.283	1.08	1.05	21.7	YES	NO	bb	bb	0.968

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.73	6.989e2	8.587e2	1.192	0.81	0.77	8.9	YES	NO	bd	dd	0.307
2	Total-tetrafurans	23.49	9.118e2	1.327e3	1.192	0.69	0.77	11.6	YES	NO	dd	dd	0.441
3	Total-tetrafurans	23.08	1.892e3	2.384e3	1.192	0.79	0.77	25.7	YES	NO	bd	bd	0.842
4	Total-tetrafurans	22.51	5.122e2	7.544e2	1.192	0.68	0.77	6.3	YES	NO	db	db	0.249
5	Total-tetrafurans	26.02	1.123e3	1.715e3	1.192	0.65	0.77	12.5	YES	NO	dd	dd	0.559
6	Total-tetrafurans	25.08	3.734e2	4.942e2	1.192	0.76	0.77	5.8	YES	NO	bb	bb	0.171
7	Total-tetrafurans	24.66	1.043e3	1.347e3	1.192	0.77	0.77	12.5	YES	NO	db	db	0.470
8	Total-tetrafurans	24.01	1.815e3	2.647e3	1.192	0.69	0.77	21.0	YES	NO	bd	dd	0.879
9	Total-tetrafurans	23.87	9.055e2	1.215e3	1.192	0.75	0.77	9.5	YES	NO	db	dd	0.418
10	Total-Furans	27.85	2.743e2	3.602e2	1.158	0.76	0.77	3.3	YES	NO	bb	bb	0.129
11	1289-TCDF	27.36	9.883e2	1.467e3	1.043	0.67	0.77	13.9	YES	NO	bb	bb	0.552
12	Total-pentafurans	28.85	5.587e3	3.461e3	1.047	1.61	1.55	34.9	YES	NO	MM	MM	2.148
13	23478-PeCDF	31.28	1.294e3	8.572e2	1.126	1.51	1.55	11.4	YES	NO	db	db	0.496
14	Total-pentafurans	31.02	8.093e2	4.555e2	1.047	1.78	1.55	8.1	YES	NO	bd	bd	0.300
15	Total-pentafurans	29.64	2.706e2	1.979e2	1.047	1.37	1.55	4.6	YES	NO	db	db	0.111
16	Total-pentafurans	29.55	1.303e3	7.518e2	1.047	1.73	1.55	12.5	YES	NO	dd	bd	0.488
17	Total-hexafurans	34.27	1.157e4	9.582e3	1.045	1.21	1.24	311.8	YES	NO	bb	bb	7.533
18	Total-hexafurans	33.43	9.035e3	7.736e3	1.045	1.17	1.24	218.3	YES	NO	bb	bb	5.971
19	123468-HXCDF	33.22	2.666e3	2.331e3	1.087	1.14	1.24	69.1	YES	NO	bb	bb	1.606
20	123478-HxCDF	34.88	2.355e3	1.716e3	1.017	1.37	1.24	57.5	YES	NO	dd	bb	1.398
21	Total-hexafurans	34.73	3.988e2	3.397e2	1.045	1.17	1.24	10.2	YES	NO	bd	bb	0.263
22	Total-heptafurans	39.42	3.188e4	2.981e4	1.305	1.07	1.05	691.4	YES	NO	bb	bb	27.480
23	Total-heptafurans	39.17	3.484e2	3.313e2	1.305	1.05	1.05	8.2	YES	NO	bb	bb	0.303
24	1234678-HpCDF	38.77	1.446e4	1.512e4	1.327	0.96	1.05	322.6	YES	NO	bb	bb	11.458
25	OCDF	45.24	2.392e4	2.669e4	1.447	0.90	0.89	550.4	YES	NO	bb	bb	33.187
26	1234789-HpCDF	41.02	9.631e2	8.937e2	1.283	1.08	1.05	21.7	YES	NO	bb	bb	0.968
27	Total-penta1	27.18	9.652e3	6.179e3		1.56	1.55	194.2	YES	NO	bb	bb	4.118

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.40	2.422e2	3.564e2	0.920	0.68	0.77	3.4	YES	NO	bb	bb	0.189
2	Total-tetradioxins	26.00	2.947e2	4.291e2	0.879	0.69	0.77	4.7	YES	NO	bb	bb	0.239
3	Total-tetradioxins	25.59	2.789e2	3.587e2	0.879	0.78	0.77	5.6	YES	NO	db	bb	0.211
4	Total-tetradioxins	25.00	3.990e2	4.769e2	0.879	0.84	0.77	6.1	YES	NO	bb	bb	0.289
5	Total-tetradioxins	24.52	5.733e2	7.467e2	0.879	0.77	0.77	8.8	YES	NO	bd	bb	0.436
6	Total-tetradioxins	23.80	5.339e2	8.024e2	0.879	0.67	0.77	9.4	YES	NO	bb	bb	0.442
7	1368-TCDD	23.52	6.253e2	7.212e2	0.923	0.87	0.77	10.2	YES	NO	bb	db	0.424

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.51	9.051e2	6.391e2	0.995	1.42	1.55	17.4	YES	NO	bb	bb	0.710
2	Total-pentadioxins	30.28	6.225e2	4.027e2	1.331	1.55	1.55	13.1	YES	NO	bb	bb	0.352
3	Total-pentadioxins	30.12	8.384e2	5.304e2	1.331	1.58	1.55	22.4	YES	NO	bb	bb	0.471

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.12	9.931e3	8.662e3	1.028	1.15	1.24	62.7	YES	NO	bd	bd	7.830
2	Total-hexadioxins	34.76	2.216e3	1.846e3	1.028	1.20	1.24	23.3	YES	NO	bb	bb	1.710
3	124679-HXCDD	33.99	1.119e4	9.252e3	1.125	1.21	1.24	104.3	YES	NO	bb	bb	7.948
4	123789-HxCDD	36.52	1.987e3	1.719e3	0.950	1.16	1.24	20.4	YES	NO	bb	bb	1.688
5	123678-HxCDD	36.13	2.976e3	2.294e3	1.009	1.30	1.24	27.7	YES	NO	db	db	2.238
6	123478-HxCDD	36.01	9.403e2	7.692e2	1.027	1.22	1.24	9.6	YES	NO	bd	bd	0.728
7	Total-hexadioxins	35.25	1.909e3	1.680e3	1.028	1.14	1.24	18.2	YES	NO	db	db	1.511

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.26	5.249e4	4.836e4	1.068	1.09	1.05	847.1	YES	NO	bb	bb	72.915
2	1234679-HPCDD	39.21	1.194e5	1.107e5	1.211	1.08	1.05	2024.4	YES	NO	bb	bb	146.710

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.40	2.422e2	3.564e2	0.920	0.68	0.77	3.4	YES	NO	bb	bb	0.189
2	Total-tetradioxins	26.00	2.947e2	4.291e2	0.879	0.69	0.77	4.7	YES	NO	bb	bb	0.239
3	Total-tetradioxins	25.59	2.789e2	3.587e2	0.879	0.78	0.77	5.6	YES	NO	db	bb	0.211
4	Total-tetradioxins	25.00	3.990e2	4.769e2	0.879	0.84	0.77	6.1	YES	NO	bb	bb	0.289
5	Total-tetradioxins	24.52	5.733e2	7.467e2	0.879	0.77	0.77	8.8	YES	NO	bd	bb	0.436
6	Total-tetradioxins	23.80	5.339e2	8.024e2	0.879	0.67	0.77	9.4	YES	NO	bb	bb	0.442
7	1368-TCDD	23.52	6.253e2	7.212e2	0.923	0.87	0.77	10.2	YES	NO	bb	db	0.424
8	12378-PeCDD	31.51	9.051e2	6.391e2	0.995	1.42	1.55	17.4	YES	NO	bb	bb	0.710
9	Total-pentadioxins	30.28	6.225e2	4.027e2	1.331	1.55	1.55	13.1	YES	NO	bb	bb	0.352
10	Total-pentadioxins	30.12	8.384e2	5.304e2	1.331	1.58	1.55	22.4	YES	NO	bb	bb	0.471
11	Total-hexadioxins	35.12	9.931e3	8.662e3	1.028	1.15	1.24	62.7	YES	NO	bd	bd	7.830
12	Total-hexadioxins	34.76	2.216e3	1.846e3	1.028	1.20	1.24	23.3	YES	NO	bb	bb	1.710
13	124679-HXCDD	33.99	1.119e4	9.252e3	1.125	1.21	1.24	104.3	YES	NO	bb	bb	7.948
14	123789-HxCDD	36.52	1.987e3	1.719e3	0.950	1.16	1.24	20.4	YES	NO	bb	bb	1.688
15	123678-HxCDD	36.13	2.976e3	2.294e3	1.009	1.30	1.24	27.7	YES	NO	db	db	2.238
16	123478-HxCDD	36.01	9.403e2	7.692e2	1.027	1.22	1.24	9.6	YES	NO	bd	bd	0.728
17	Total-hexadioxins	35.25	1.909e3	1.680e3	1.028	1.14	1.24	18.2	YES	NO	db	db	1.511
18	1234678-HpCDD	40.26	5.249e4	4.836e4	1.068	1.09	1.05	847.1	YES	NO	bb	bb	72.915
19	1234679-HPCDD	39.21	1.194e5	1.107e5	1.211	1.08	1.05	2024.4	YES	NO	bb	bb	146.710
20	OCDD	45.00	3.488e5	3.857e5	1.181	0.90	0.89	4181.5	YES	NO	bb	bb	590.277

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:45 Pacific Daylight Time

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.73	6.989e2	8.587e2	1.192	0.81	0.77	8.9	YES	NO	bd	dd	0.307
2	Total-tetrafurans	23.49	9.118e2	1.327e3	1.192	0.69	0.77	11.6	YES	NO	dd	dd	0.441
3	Total-tetrafurans	23.08	1.892e3	2.384e3	1.192	0.79	0.77	25.7	YES	NO	bd	bd	0.842
4	Total-tetrafurans	22.51	5.122e2	7.544e2	1.192	0.68	0.77	6.3	YES	NO	db	db	0.249
5	Total-tetrafurans	26.02	1.123e3	1.715e3	1.192	0.65	0.77	12.5	YES	NO	dd	dd	0.559
6	Total-tetrafurans	25.08	3.734e2	4.942e2	1.192	0.76	0.77	5.8	YES	NO	bb	bb	0.171
7	Total-tetrafurans	24.66	1.043e3	1.347e3	1.192	0.77	0.77	12.5	YES	NO	db	db	0.470
8	Total-tetrafurans	24.01	1.815e3	2.647e3	1.192	0.69	0.77	21.0	YES	NO	bd	dd	0.879
9	Total-tetrafurans	23.87	9.055e2	1.215e3	1.192	0.75	0.77	9.5	YES	NO	db	dd	0.418
10	Total-Furans	27.85	2.743e2	3.602e2	1.158	0.76	0.77	3.3	YES	NO	bb	bb	0.129
11	1289-TCDF	27.36	9.883e2	1.467e3	1.043	0.67	0.77	13.9	YES	NO	bb	bb	0.552
12	Total-pentafurans	28.85	5.587e3	3.461e3	1.047	1.61	1.55	34.9	YES	NO	MM	MM	2.148
13	23478-PeCDF	31.28	1.294e3	8.572e2	1.126	1.51	1.55	11.4	YES	NO	db	db	0.496
14	Total-pentafurans	31.02	8.093e2	4.555e2	1.047	1.78	1.55	8.1	YES	NO	bd	bd	0.300
15	Total-pentafurans	29.64	2.706e2	1.979e2	1.047	1.37	1.55	4.6	YES	NO	db	db	0.111
16	Total-pentafurans	29.55	1.303e3	7.518e2	1.047	1.73	1.55	12.5	YES	NO	dd	bd	0.488
17	Total-hexafurans	34.27	1.157e4	9.582e3	1.045	1.21	1.24	311.8	YES	NO	bb	bb	7.533
18	Total-hexafurans	33.43	9.035e3	7.736e3	1.045	1.17	1.24	218.3	YES	NO	bb	bb	5.971
19	123468-HXCDF	33.22	2.666e3	2.331e3	1.087	1.14	1.24	69.1	YES	NO	bb	bb	1.606
20	123478-HxCDF	34.88	2.355e3	1.716e3	1.017	1.37	1.24	57.5	YES	NO	dd	bb	1.398
21	Total-hexafurans	34.73	3.988e2	3.397e2	1.045	1.17	1.24	10.2	YES	NO	bd	bb	0.263
22	Total-heptafurans	39.42	3.188e4	2.981e4	1.305	1.07	1.05	691.4	YES	NO	bb	bb	27.480
23	Total-heptafurans	39.17	3.484e2	3.313e2	1.305	1.05	1.05	8.2	YES	NO	bb	bb	0.303
24	1234678-HpCDF	38.77	1.446e4	1.512e4	1.327	0.96	1.05	322.6	YES	NO	bb	bb	11.458
25	OCDF	45.24	2.392e4	2.669e4	1.447	0.90	0.89	550.4	YES	NO	bb	bb	33.187
26	1234789-HpCDF	41.02	9.631e2	8.937e2	1.283	1.08	1.05	21.7	YES	NO	bb	bb	0.968
27	Total-penta1	27.18	9.652e3	6.179e3		1.56	1.55	194.2	YES	NO	bb	bb	4.118
28	2378-TCDD	26.40	2.422e2	3.564e2	0.920	0.68	0.77	3.4	YES	NO	bb	bb	0.189
29	Total-tetradioxins	26.00	2.947e2	4.291e2	0.879	0.69	0.77	4.7	YES	NO	bb	bb	0.239
30	Total-tetradioxins	25.59	2.789e2	3.587e2	0.879	0.78	0.77	5.6	YES	NO	db	bb	0.211
31	Total-tetradioxins	25.00	3.990e2	4.769e2	0.879	0.84	0.77	6.1	YES	NO	bb	bb	0.289
32	Total-tetradioxins	24.52	5.733e2	7.467e2	0.879	0.77	0.77	8.8	YES	NO	bd	bb	0.436
33	Total-tetradioxins	23.80	5.339e2	8.024e2	0.879	0.67	0.77	9.4	YES	NO	bb	bb	0.442
34	1368-TCDD	23.52	6.253e2	7.212e2	0.923	0.87	0.77	10.2	YES	NO	bb	db	0.424
35	12378-PeCDD	31.51	9.051e2	6.391e2	0.995	1.42	1.55	17.4	YES	NO	bb	bb	0.710
36	Total-pentadioxins	30.28	6.225e2	4.027e2	1.331	1.55	1.55	13.1	YES	NO	bb	bb	0.352
37	Total-pentadioxins	30.12	8.384e2	5.304e2	1.331	1.58	1.55	22.4	YES	NO	bb	bb	0.471

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-hexadioxins	35.12	9.931e3	8.662e3	1.028	1.15	1.24	62.7	YES	NO	bd	bd	7.830
39	Total-hexadioxins	34.76	2.216e3	1.846e3	1.028	1.20	1.24	23.3	YES	NO	bb	bb	1.710
40	124679-HXCDD	33.99	1.119e4	9.252e3	1.125	1.21	1.24	104.3	YES	NO	bb	bb	7.948
41	123789-HxCDD	36.52	1.987e3	1.719e3	0.950	1.16	1.24	20.4	YES	NO	bb	bb	1.688
42	123678-HxCDD	36.13	2.976e3	2.294e3	1.009	1.30	1.24	27.7	YES	NO	db	db	2.238
43	123478-HxCDD	36.01	9.403e2	7.692e2	1.027	1.22	1.24	9.6	YES	NO	bd	bd	0.728
44	Total-hexadioxins	35.25	1.909e3	1.680e3	1.028	1.14	1.24	18.2	YES	NO	db	db	1.511
45	1234678-HpCDD	40.26	5.249e4	4.836e4	1.068	1.09	1.05	847.1	YES	NO	bb	bb	72.915
46	1234679-HPCDD	39.21	1.194e5	1.107e5	1.211	1.08	1.05	2024.4	YES	NO	bb	bb	146.710
47	OCDD	45.00	3.488e5	3.857e5	1.181	0.90	0.89	4181.5	YES	NO	bb	bb	590.277

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.25	1.222e6					6.7	YES		db		
2	FUNCTION1 PFK	21.97	8.494e5					17.1	YES		dd		
3	FUNCTION1 PFK	21.68	8.501e6					28.3	YES		bd		
4	FUNCTION1 PFK	21.15	1.776e6					17.2	YES		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.56	1.972e5					1.6	NO		db		0.000
2	FUNCTION2 PFK	29.37	7.002e4					4.4	YES		bd		0.000
3	FUNCTION2 PFK	29.15	7.803e5					6.6	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.24	1.035e6					2.6	NO		bb		0.000
2	FUNCTION3 PFK	36.69	8.073e5					7.3	YES		bb		0.000

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.30	5.234e4					4.2	YES		db		
2	FUNCTION4 PFK	39.15	3.760e5					11.0	YES		dd		
3	FUNCTION4 PFK	38.98	1.204e6					18.4	YES		dd		
4	FUNCTION4 PFK	38.74	6.501e5					28.9	YES		dd		
5	FUNCTION4 PFK	38.58	1.443e6					36.3	YES		dd		
6	FUNCTION4 PFK	38.41	1.661e6					43.7	YES		dd		
7	FUNCTION4 PFK	38.05	4.556e6					59.3	YES		dd		
8	FUNCTION4 PFK	37.98	1.462e6					60.9	YES		bd		
9	FUNCTION4 PFK	41.75	5.831e3					0.8	NO		bb		
10	FUNCTION4 PFK	41.63	1.508e4					1.4	NO		bb		
11	FUNCTION4 PFK	41.41	1.027e4					1.1	NO		bb		
12	FUNCTION4 PFK	41.08	9.141e3					0.8	NO		bb		
13	FUNCTION4 PFK	40.93	6.868e3					1.1	NO		db		
14	FUNCTION4 PFK	40.88	2.354e3					0.5	NO		bd		
15	FUNCTION4 PFK	40.36	2.984e3					0.7	NO		bb		
16	FUNCTION4 PFK	40.32	2.143e3					0.7	NO		db		
17	FUNCTION4 PFK	40.28	3.379e3					0.6	NO		bd		
18	FUNCTION4 PFK	40.24	8.760e2					0.3	NO		bb		
19	FUNCTION4 PFK	39.93	7.476e3					0.7	NO		bb		
20	FUNCTION4 PFK	39.68	3.778e3					0.6	NO		db		
21	FUNCTION4 PFK	39.64	1.853e4					2.0	NO		dd		
22	FUNCTION4 PFK	39.56	9.103e3					1.6	NO		bd		
23	FUNCTION4 PFK	39.50	1.036e4					1.5	NO		db		
24	FUNCTION4 PFK	39.46	7.253e3					1.0	NO		bd		
25	FUNCTION4 PFK	42.92	2.468e4					0.8	NO		bb		
26	FUNCTION4 PFK	42.69	6.435e3					0.8	NO		bb		
27	FUNCTION4 PFK	41.93	1.192e4					1.5	NO		db		
28	FUNCTION4 PFK	41.84	1.486e4					1.7	NO		bd		
29	FUNCTION4 PFK	41.80	1.261e3					0.5	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.06	3.115e3					1.1	NO		bb		

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.12	7.498e1					2.7	NO		db		0.000
2	FUNCTION1 HXCD...	26.08	1.841e2					2.8	NO		dd		0.000
3	FUNCTION1 HXCD...	25.90	3.725e2					5.5	YES		dd		0.000
4	FUNCTION1 HXCD...	25.75	1.402e2					2.0	NO		dd		0.000
5	FUNCTION1 HXCD...	25.56	1.933e2					2.3	NO		bd		0.000
6	FUNCTION1 HXCD...	24.54	7.445e1					2.4	NO		bb		0.000
7	FUNCTION1 HXCD...	24.04	7.179e1					1.4	NO		bb		0.000
8	FUNCTION1 HXCD...	22.13	1.059e2					1.8	NO		bb		0.000
9	FUNCTION1 HXCD...	27.77	1.083e2					1.9	NO		bb		0.000
10	FUNCTION1 HXCD...	27.53	7.071e1					0.9	NO		bb		0.000
11	FUNCTION1 HXCD...	27.09	7.885e1					1.9	NO		bb		0.000
12	FUNCTION1 HXCD...	26.76	8.094e1					2.1	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	26.00	2.590e2					2.8	NO		bb		0.000
2	FUNCTION1 HPCD...	25.59	8.584e1					2.5	NO		bb		0.000
3	FUNCTION1 HPCD...	23.83	1.251e2					2.8	NO		bb		0.000
4	FUNCTION1 HPCD...	23.36	7.851e2					12.1	YES		bb		0.000
5	FUNCTION1 HPCD...	23.07	9.288e1					2.1	NO		bb		0.000
6	FUNCTION1 HPCD...	22.04	3.671e3					88.1	YES		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.32	8.127e1					2.3	NO		bb		0.000
2	FUNCTION2 HPCD...	29.08	7.349e1					2.4	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.06	9.860e1					6.3	YES		bb		0.000
2	FUNCTION3 OCDPE	36.51	1.368e2					3.8	YES		db		0.000
3	FUNCTION3 OCDPE	36.39	7.320e1					2.6	NO		bd		0.000
4	FUNCTION3 OCDPE	36.20	7.180e1					1.7	NO		bb		0.000
5	FUNCTION3 OCDPE	34.15	1.289e2					3.0	YES		bb		0.000

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Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:45 Pacific Daylight Time

ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.41	3.487e3					95.3	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
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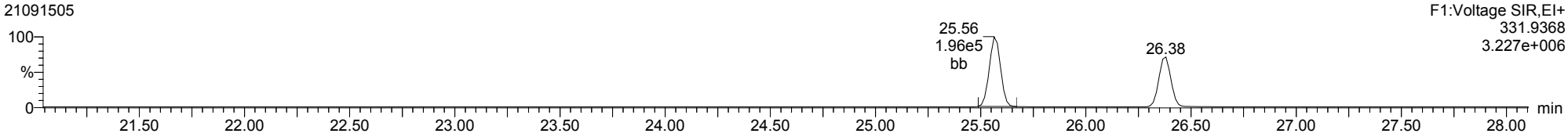
ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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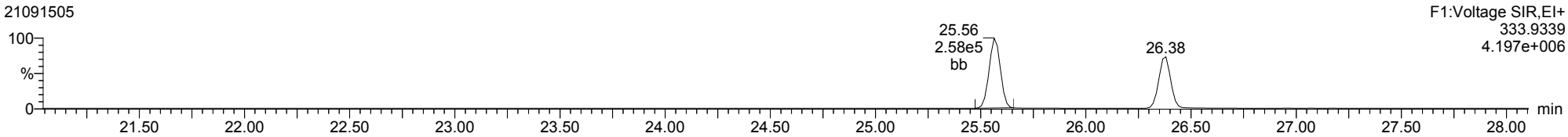

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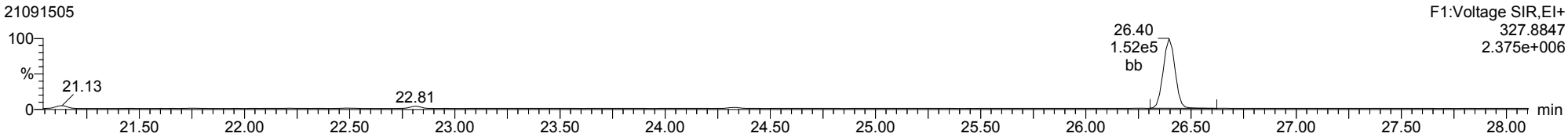

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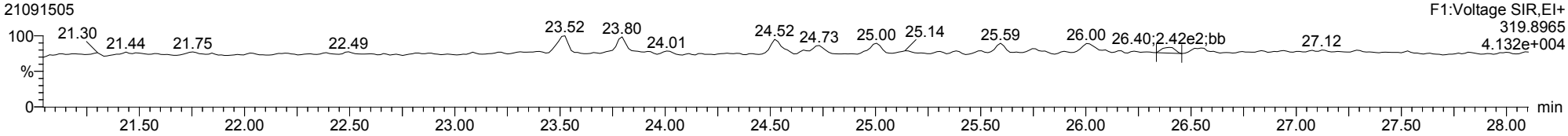

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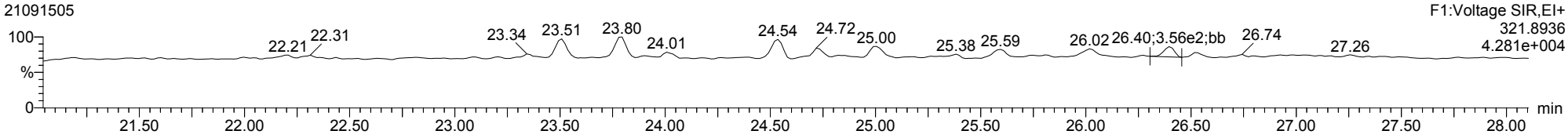

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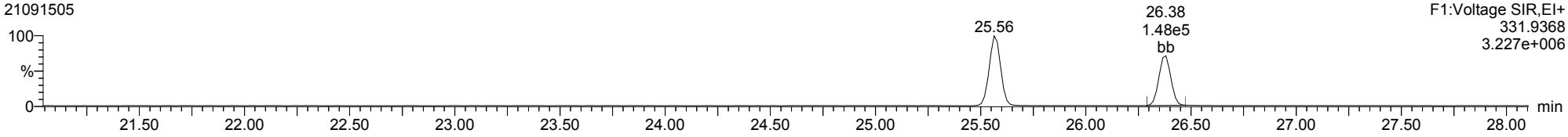

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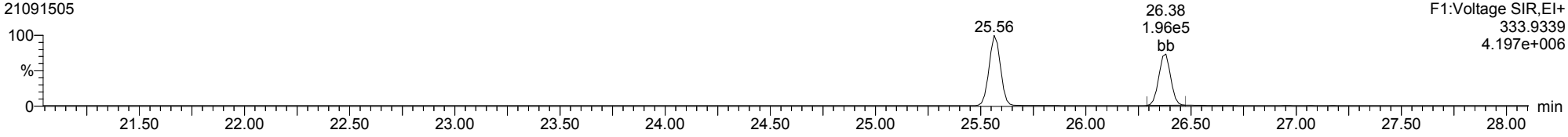

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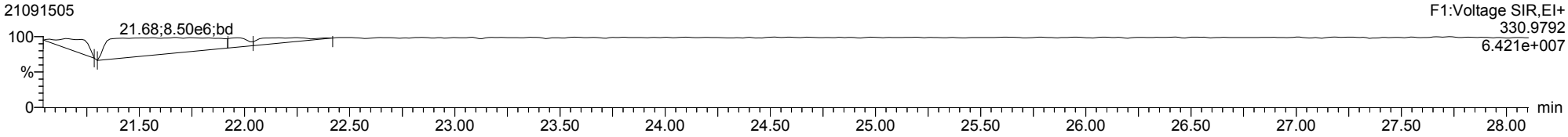

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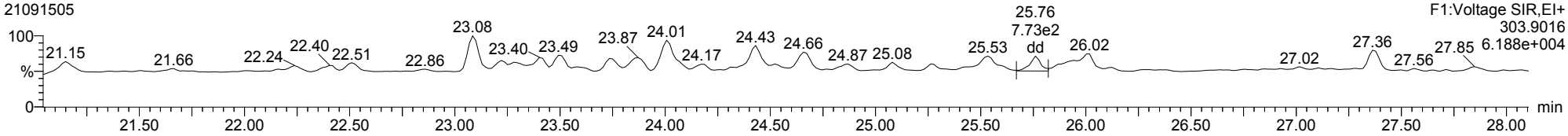
ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

2378-TCDF



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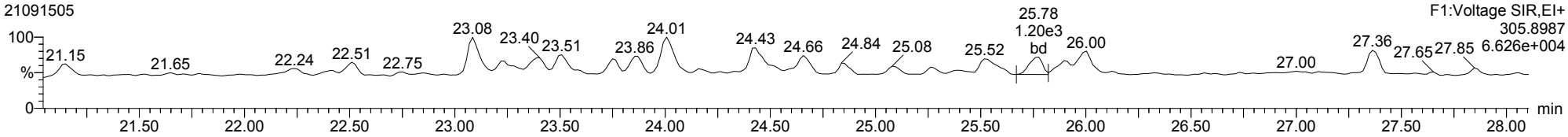

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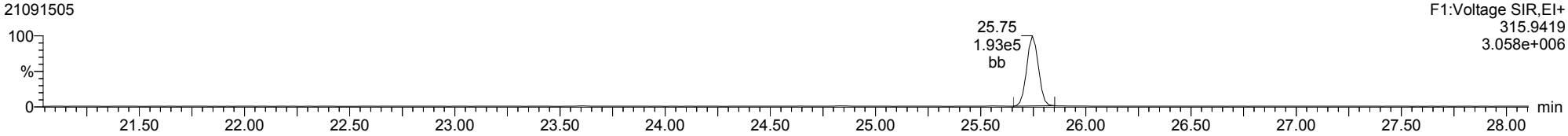

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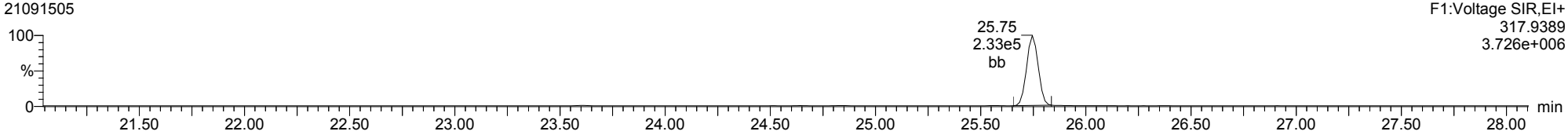

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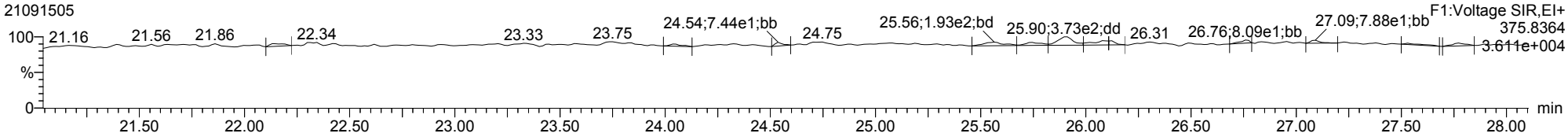

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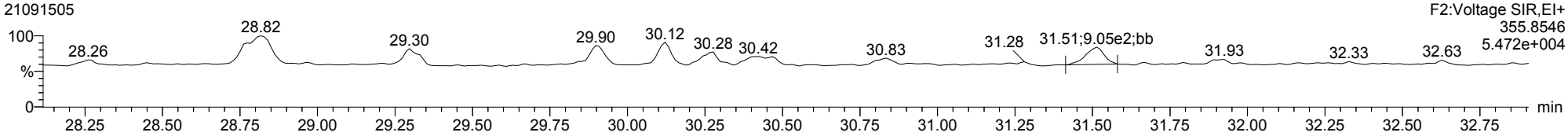
12378-PeCDD



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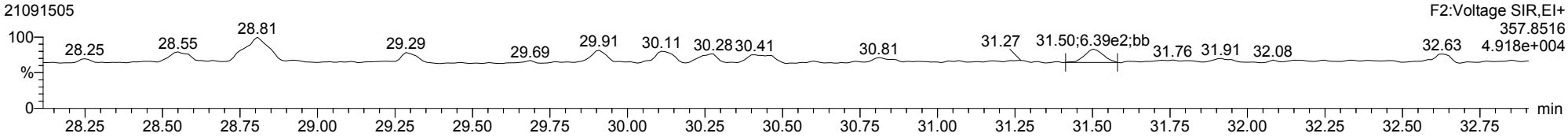

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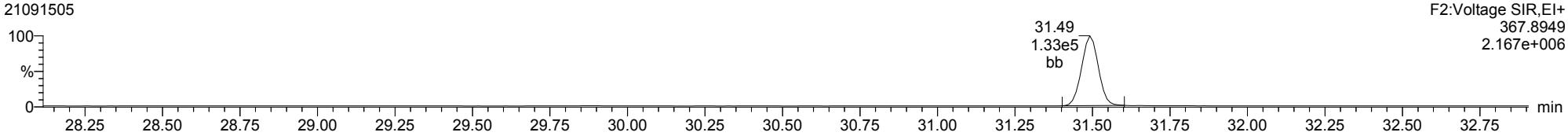

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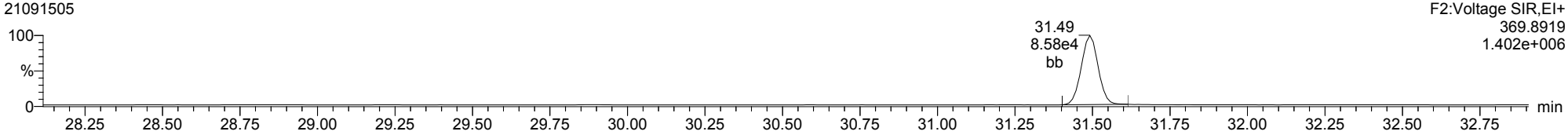

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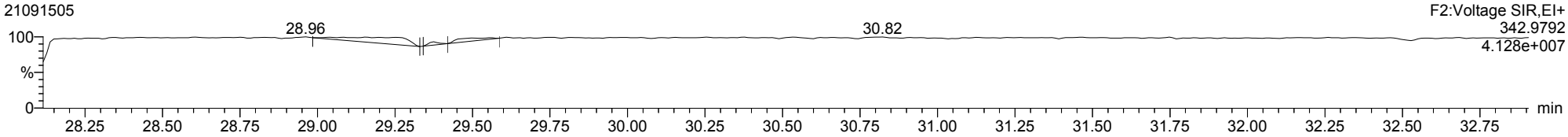

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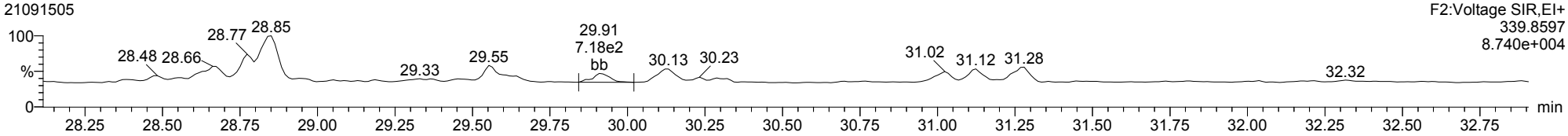

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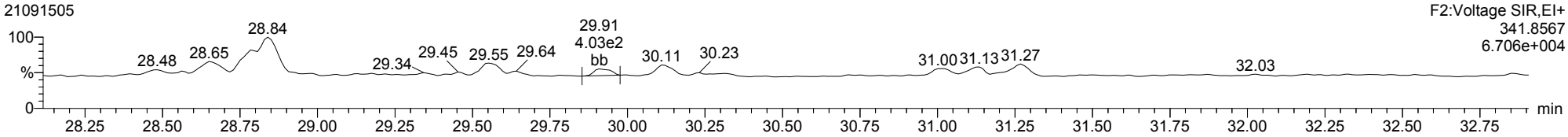

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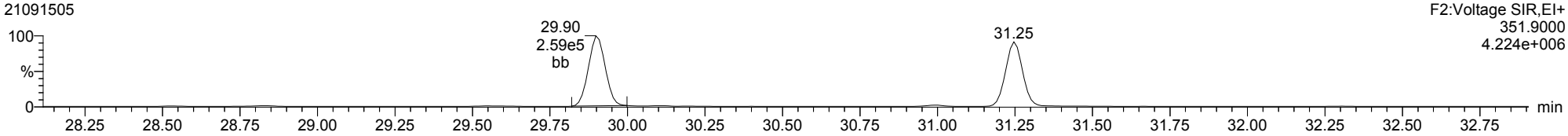

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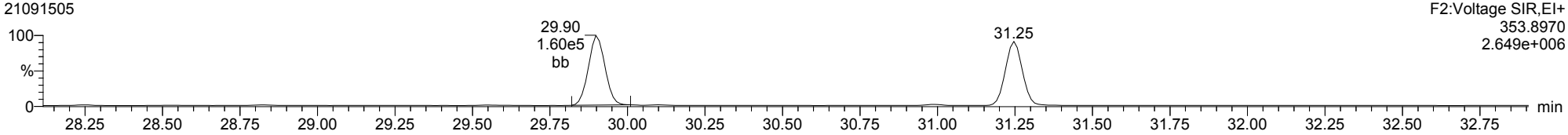
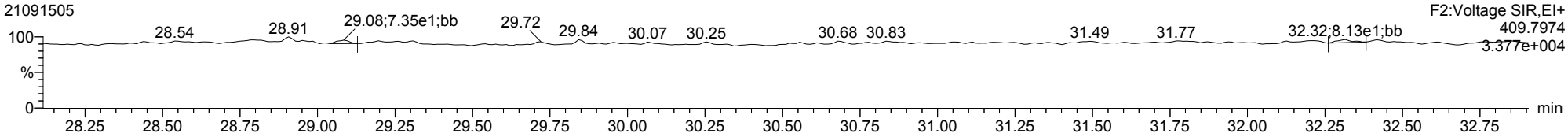


FUNCTION2 HPCDPE



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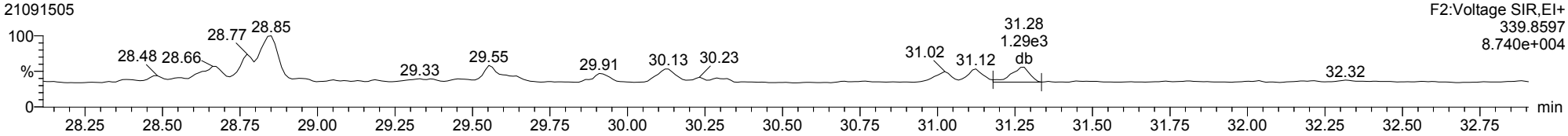

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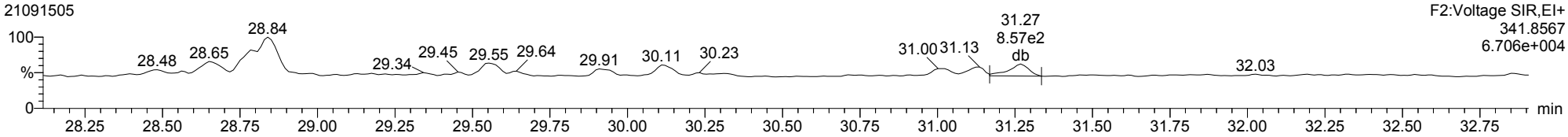

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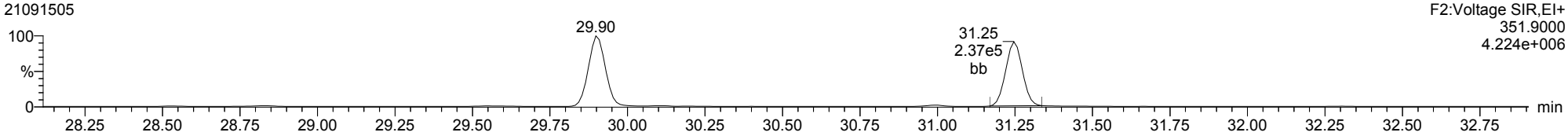

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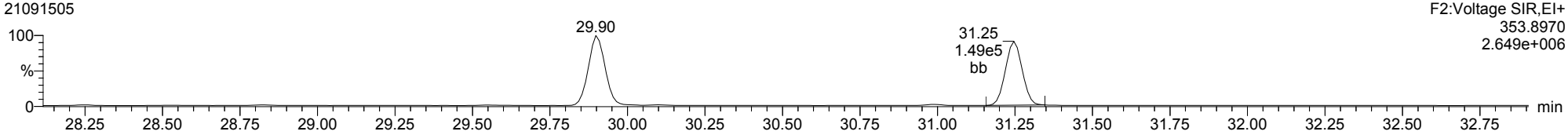

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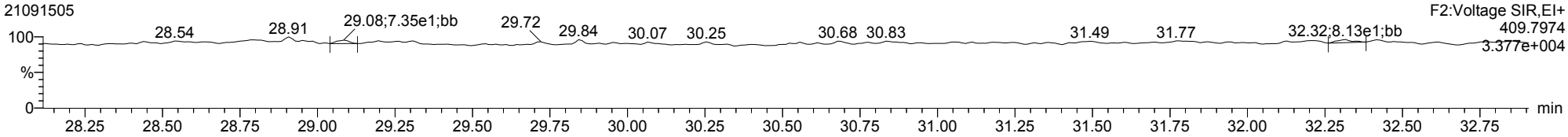

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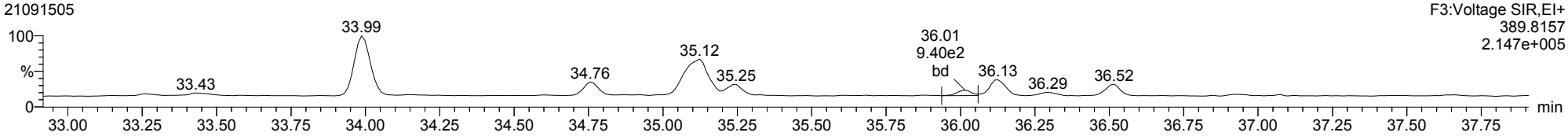

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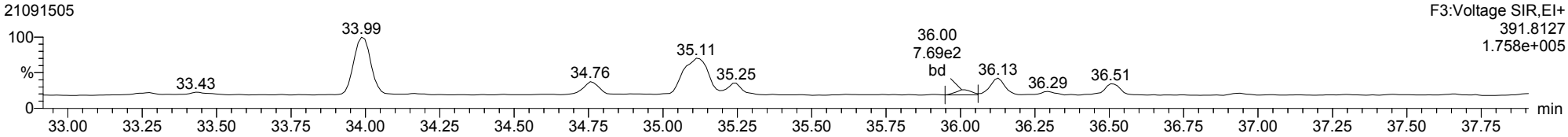

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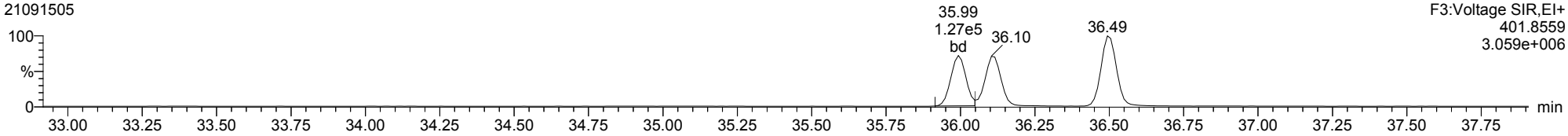

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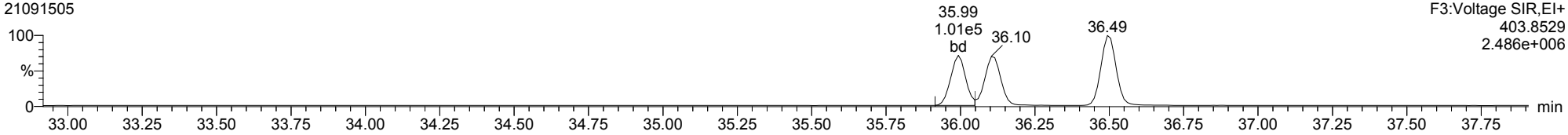

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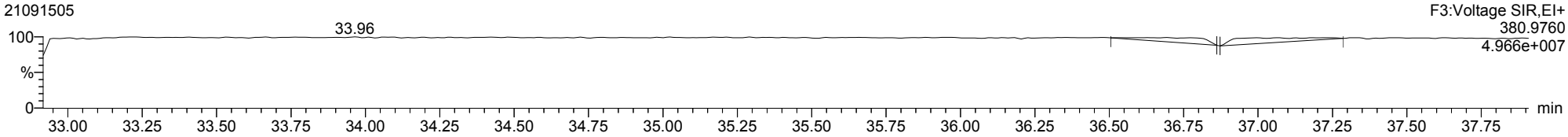

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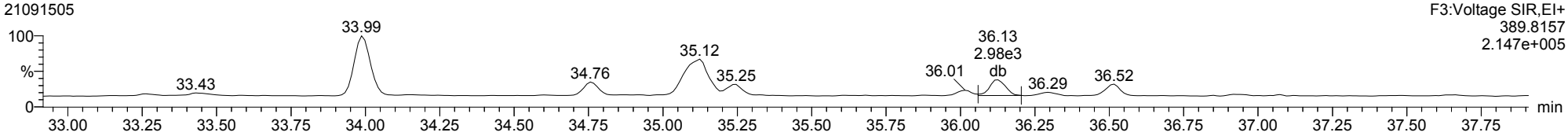

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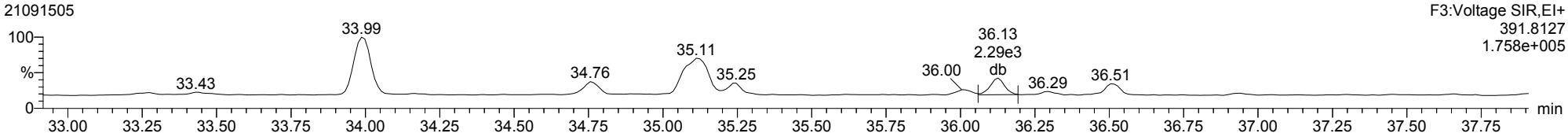

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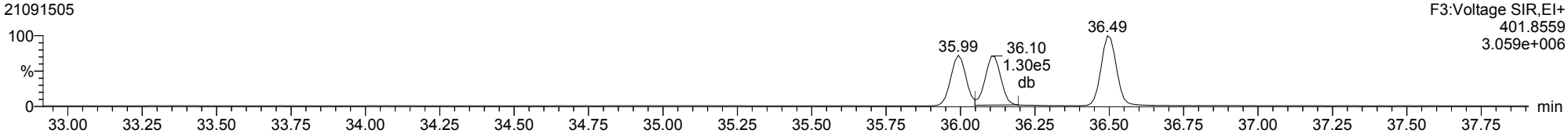

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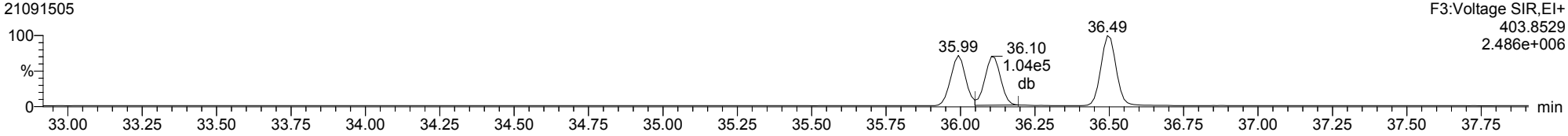

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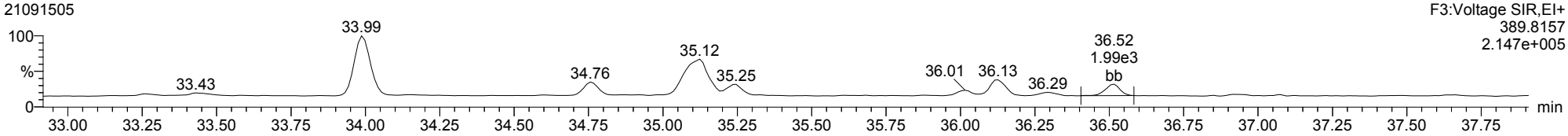

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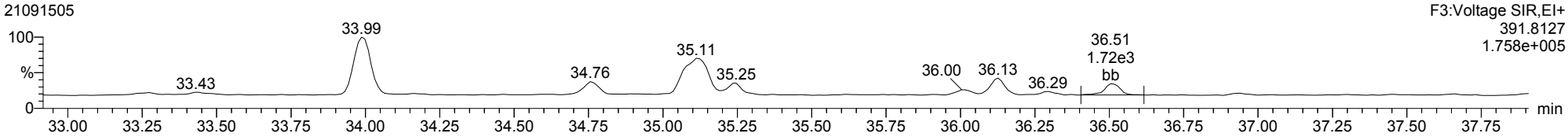

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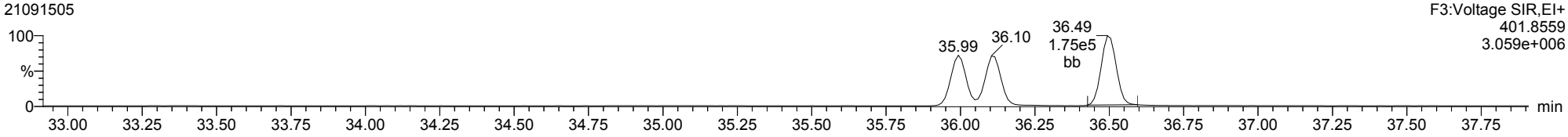

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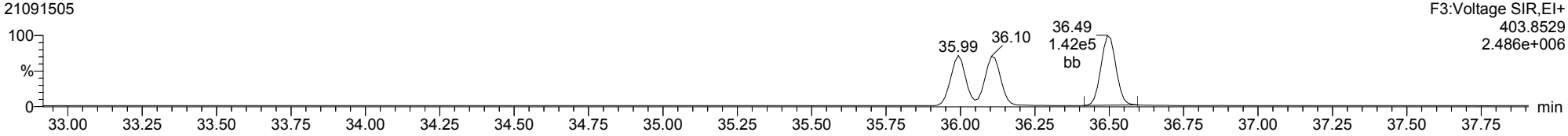

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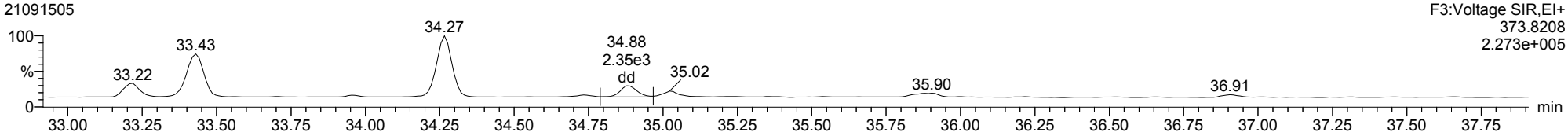

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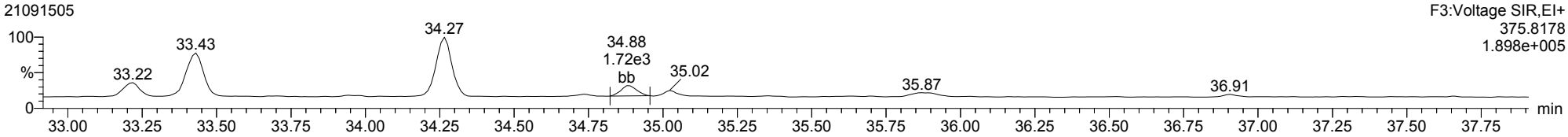

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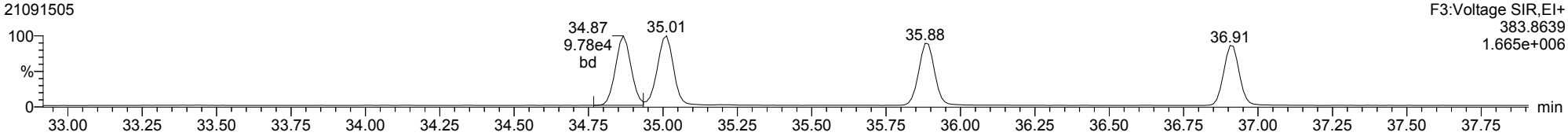

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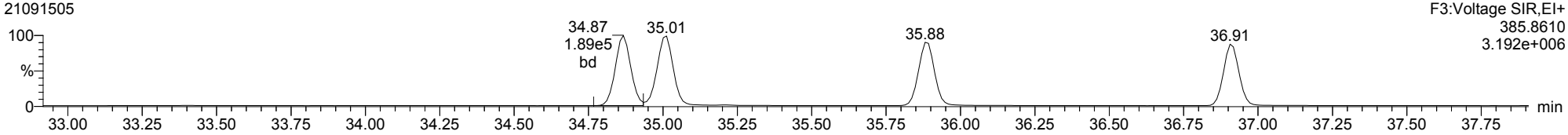

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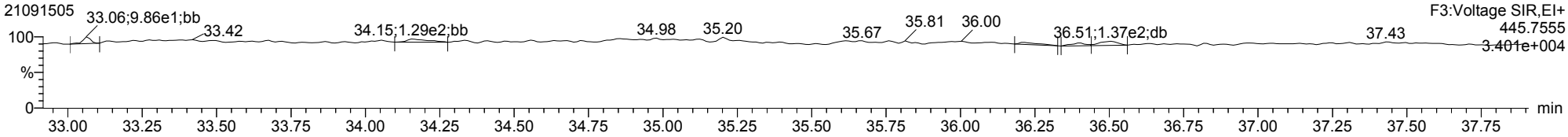

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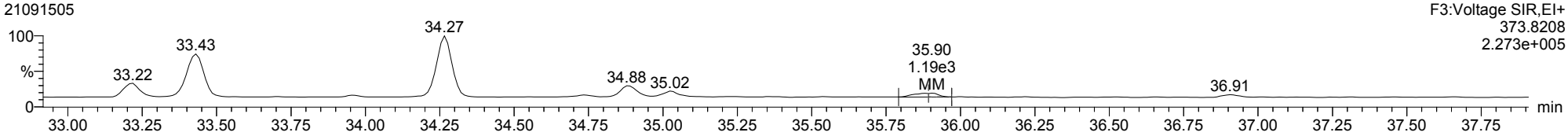

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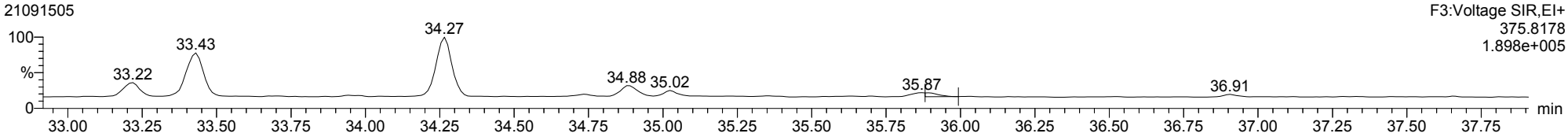

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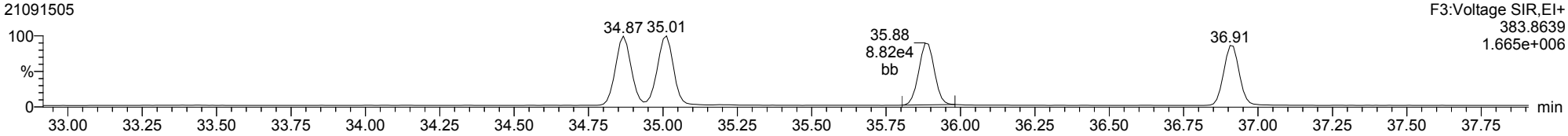

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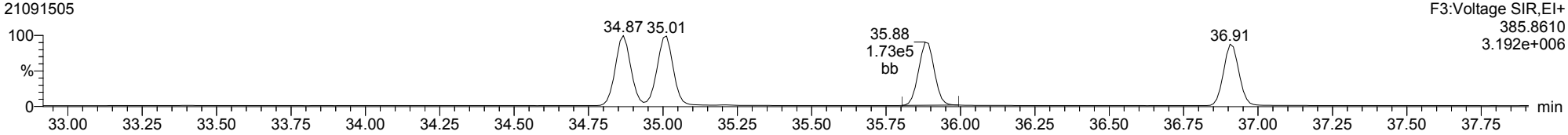

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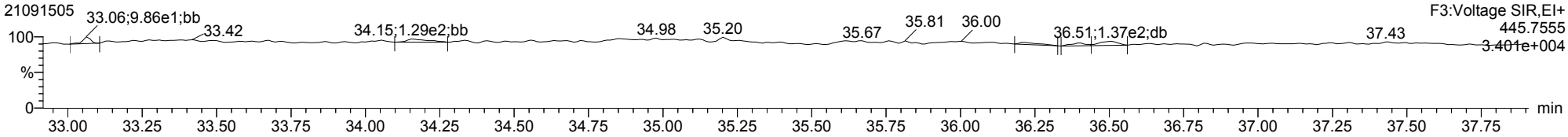

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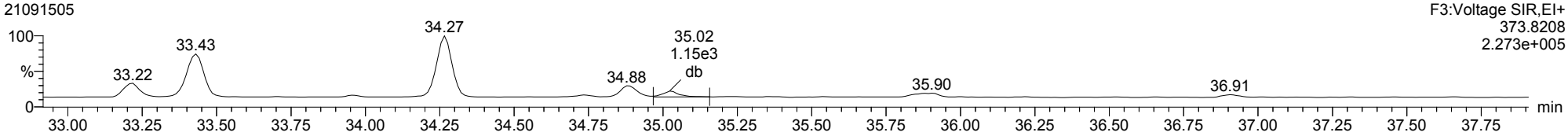

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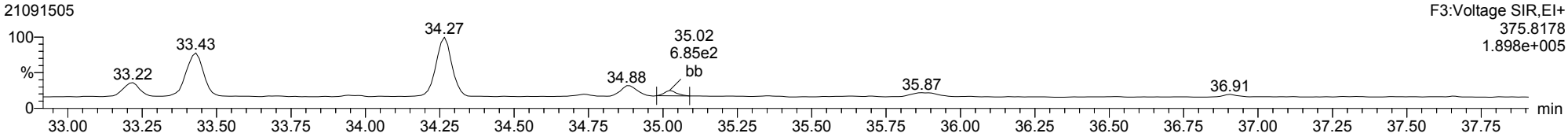

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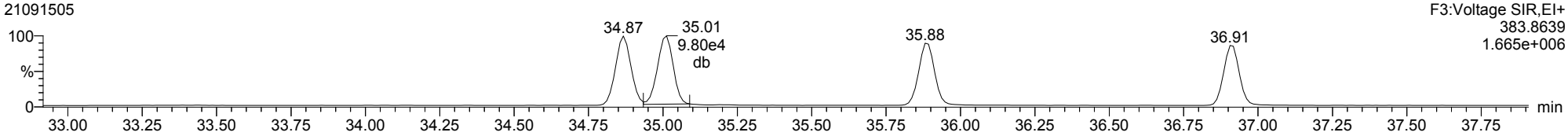

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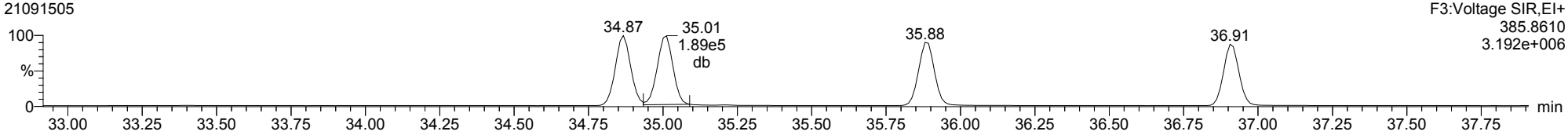

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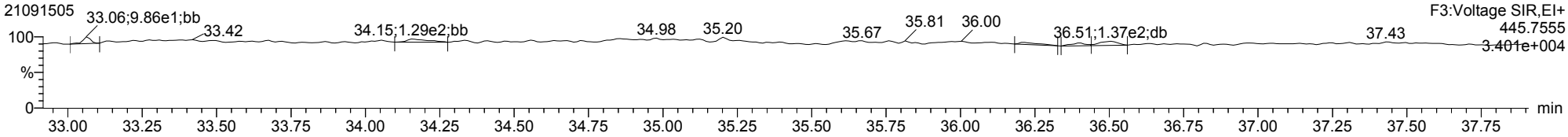

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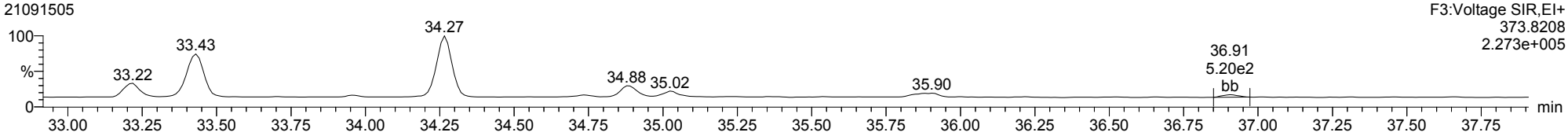

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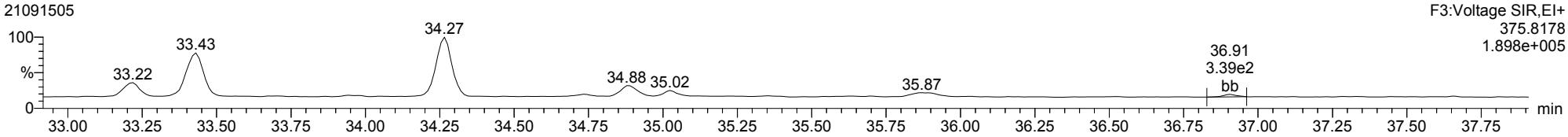

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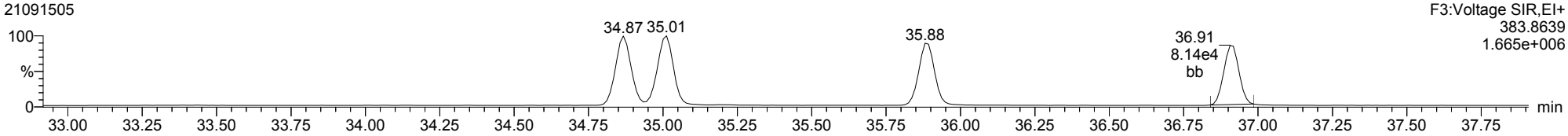

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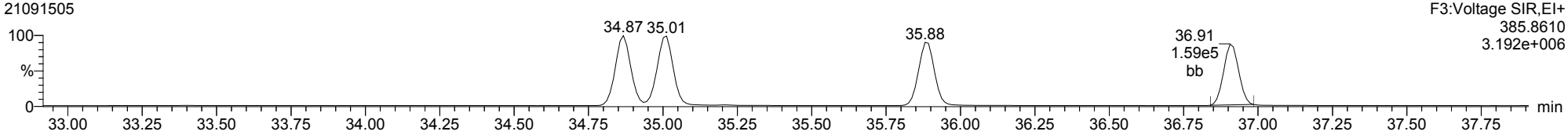

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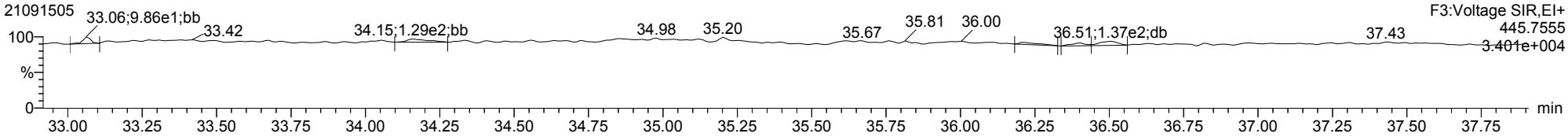

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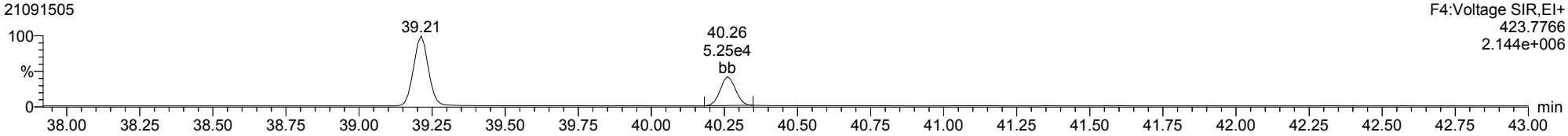

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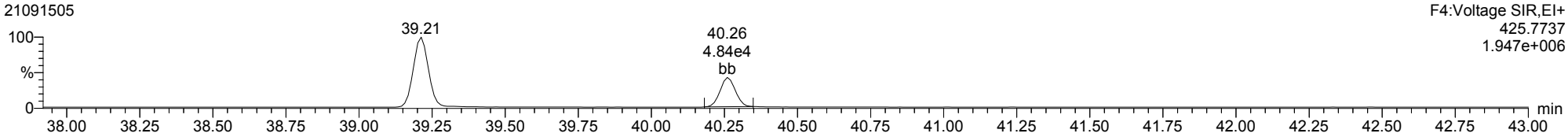

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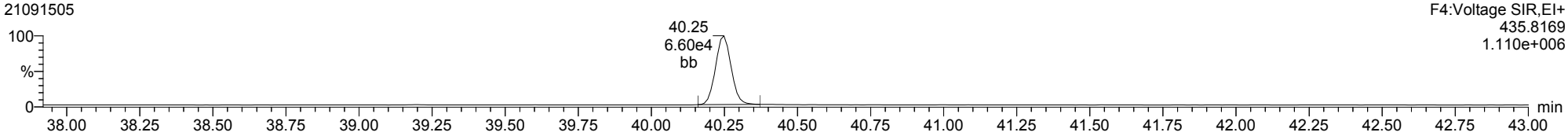

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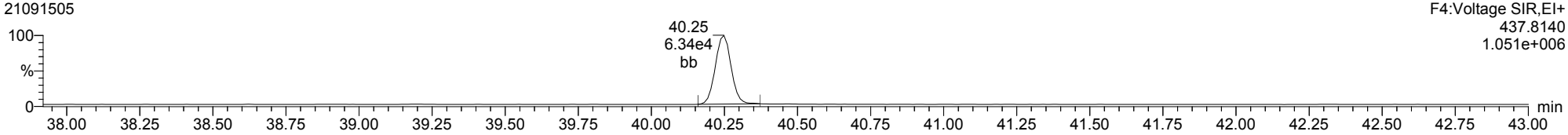

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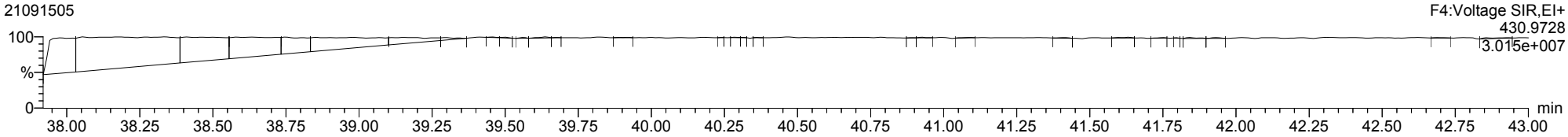

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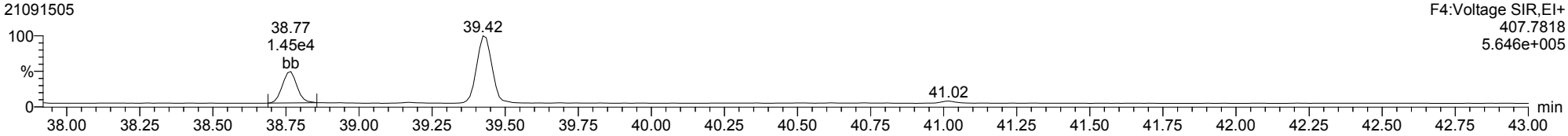

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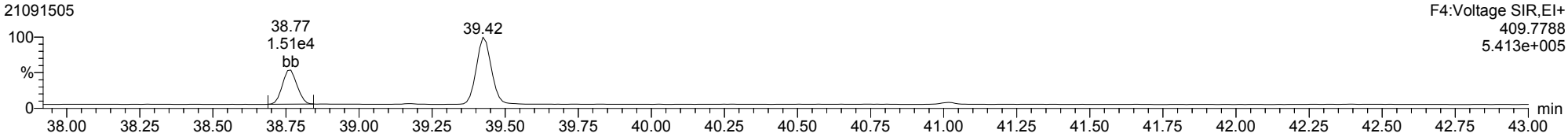

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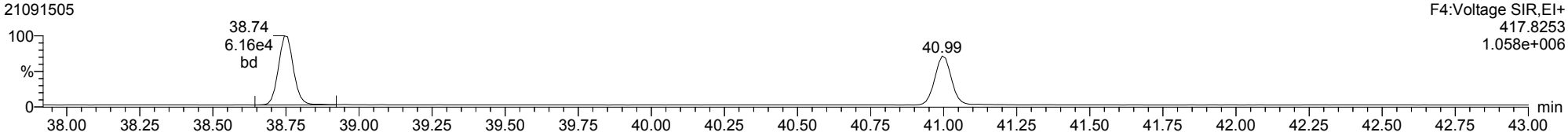

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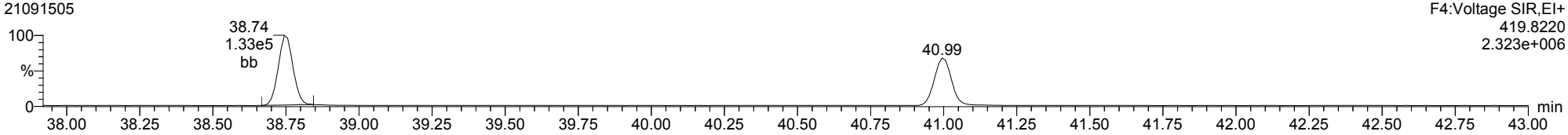

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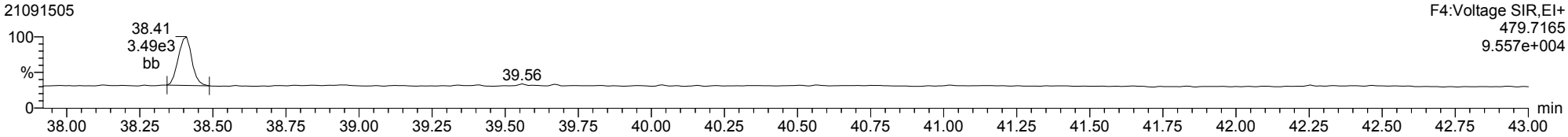

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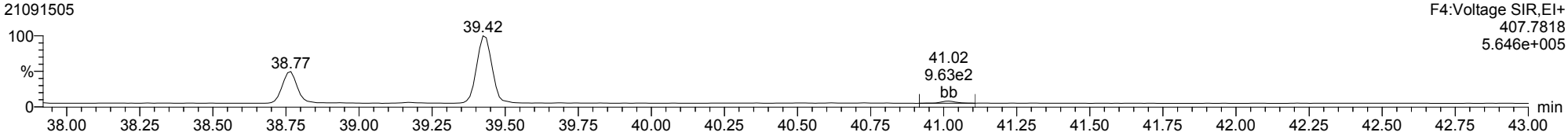

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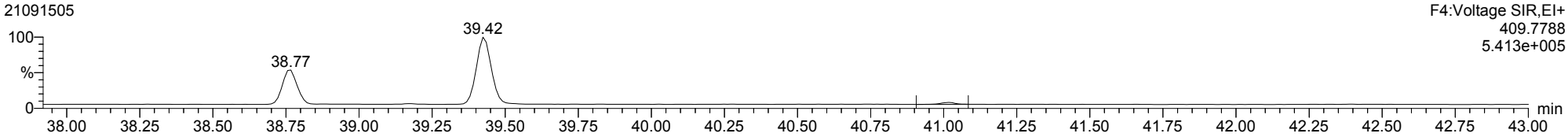

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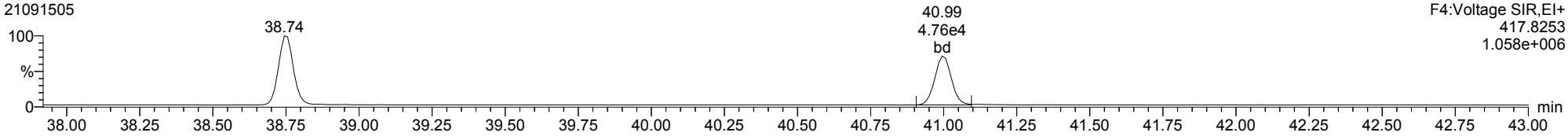

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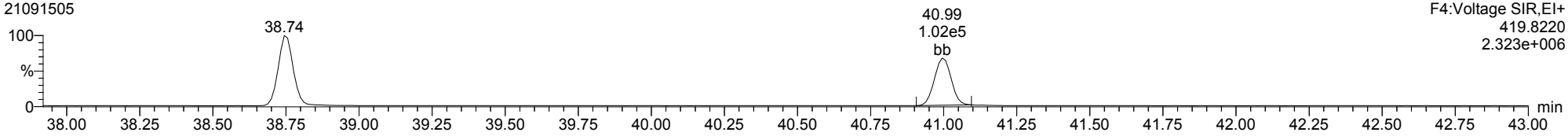

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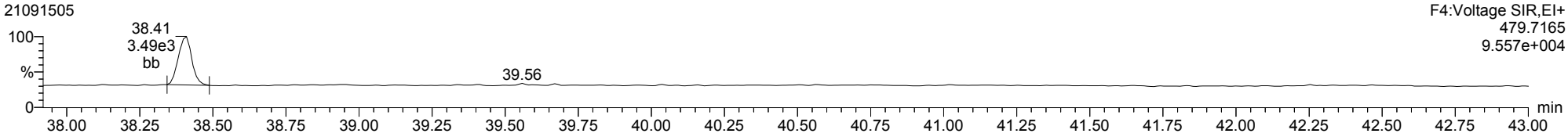

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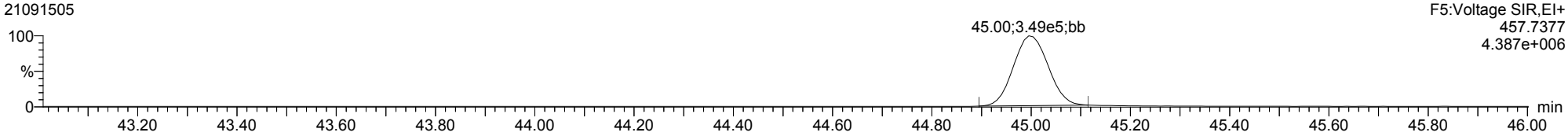
OCDD



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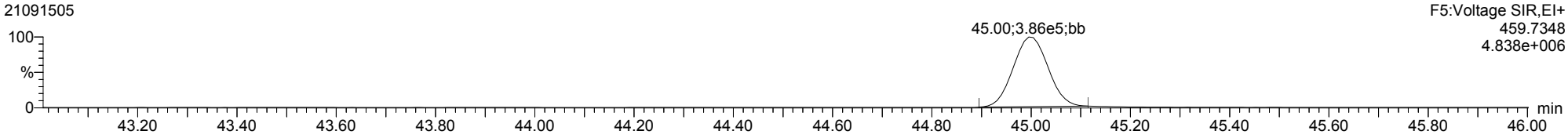

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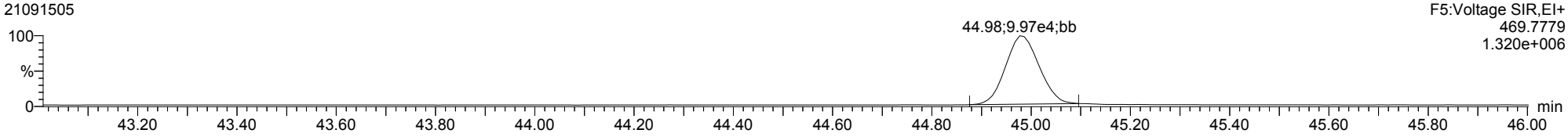

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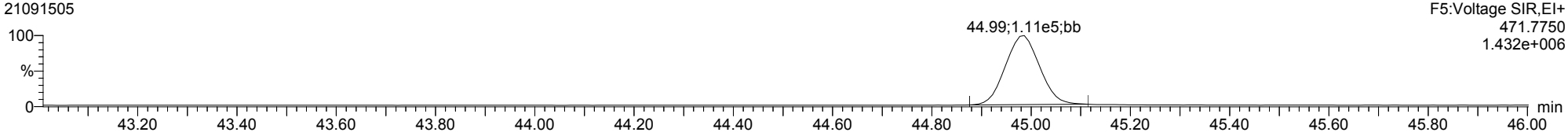
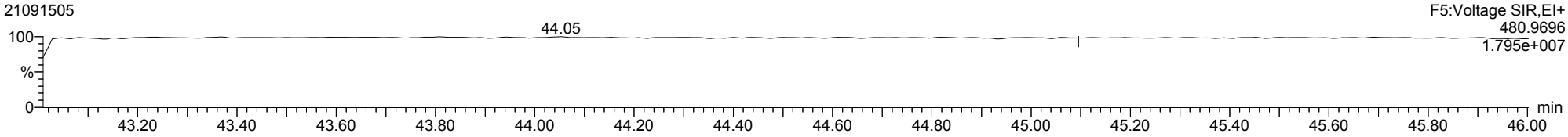


FUNCTION5 PFK



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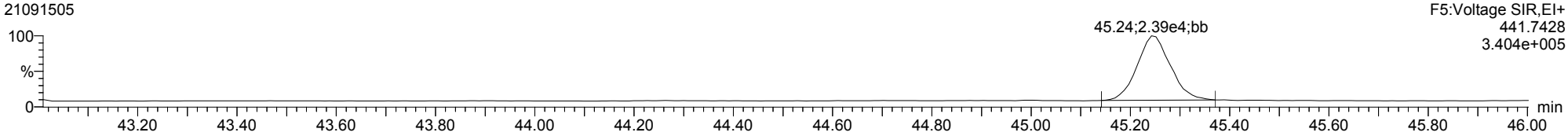
OCDF



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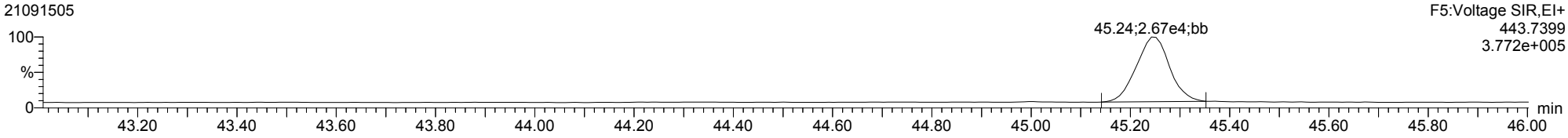

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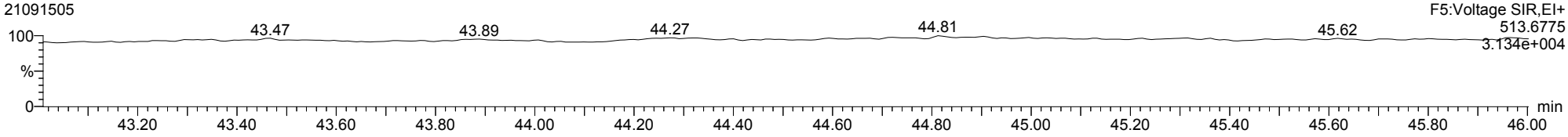

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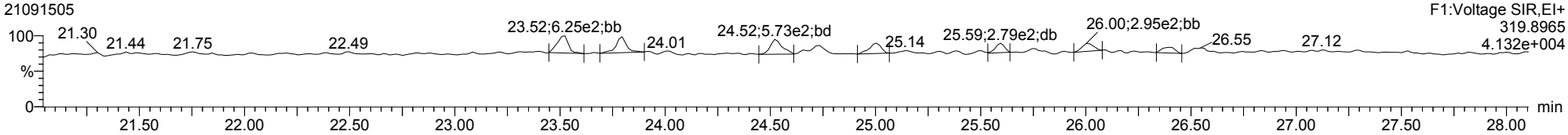

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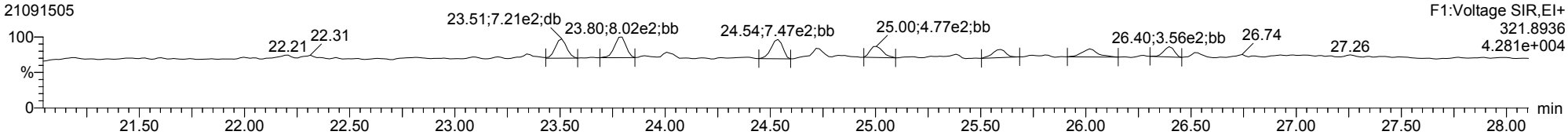

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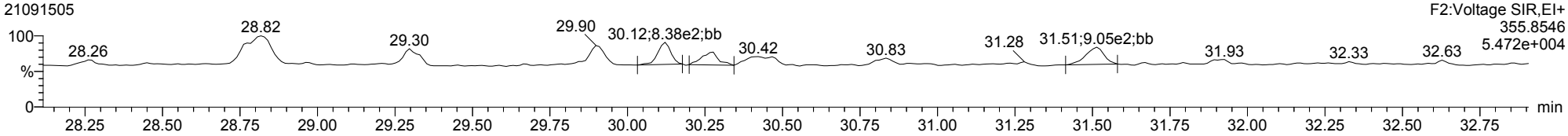

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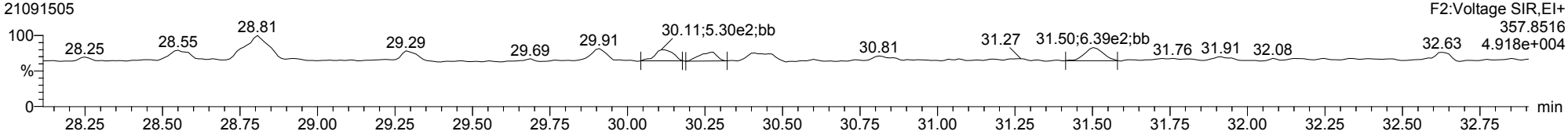

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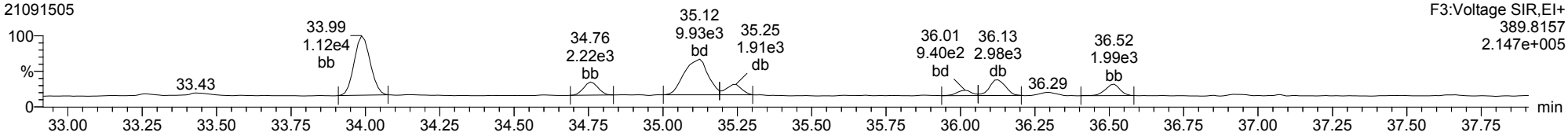

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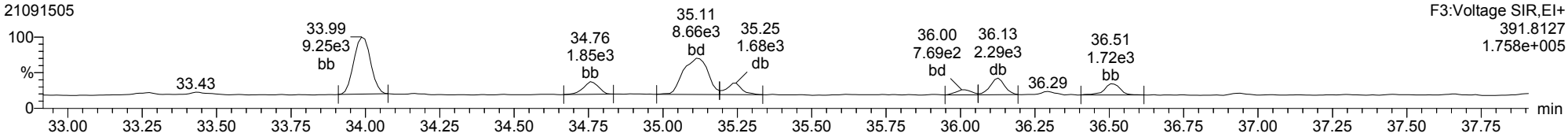

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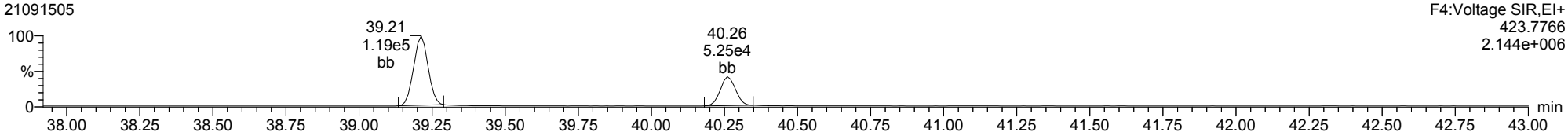

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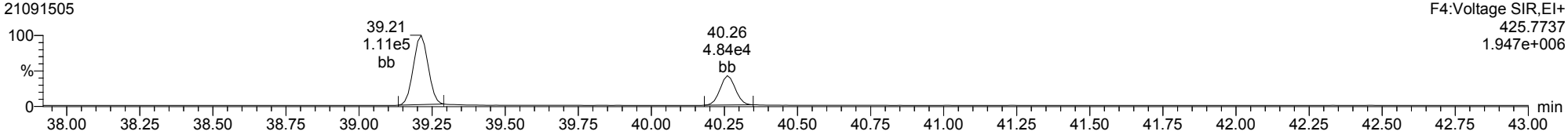

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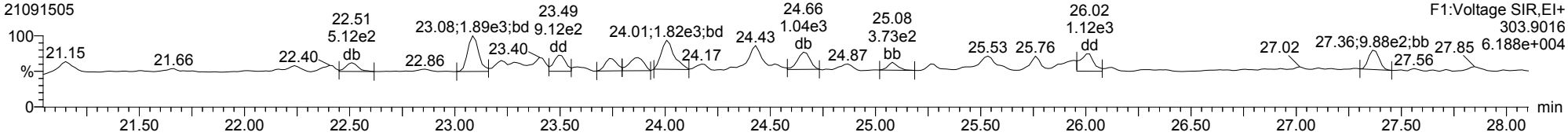
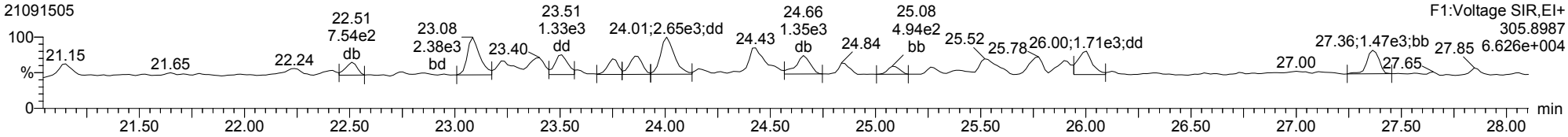
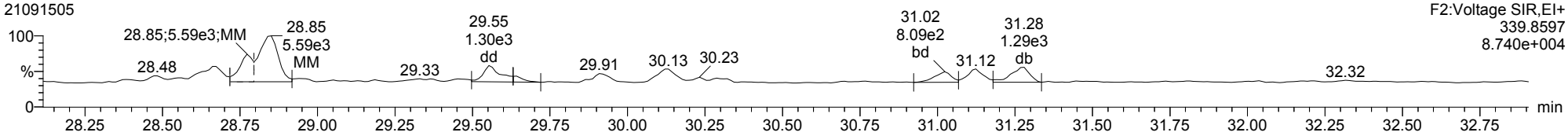
Total-tetrafurans



Total-tetrafurans



Total-pentafurans



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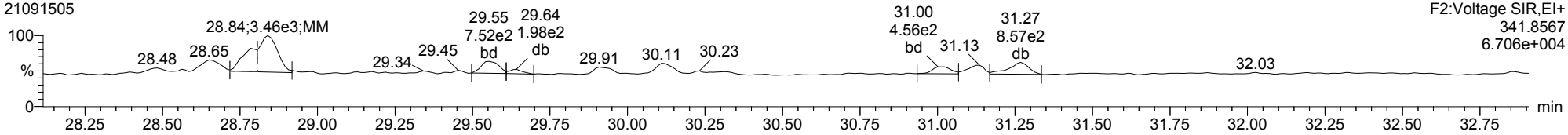

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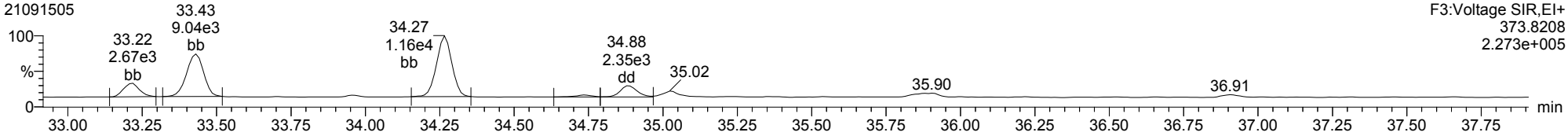
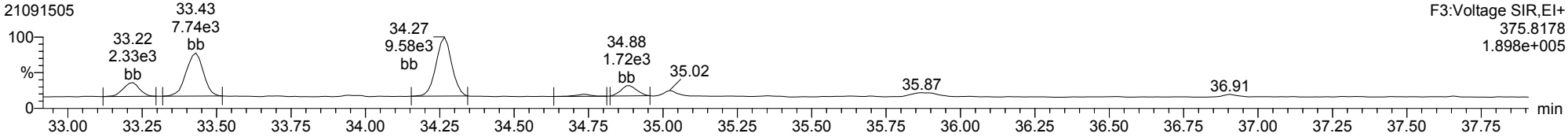
ID: 21G0127-11RE1, Name: 21091505, Date: 15-Sep-2021, Time: 19:21:19, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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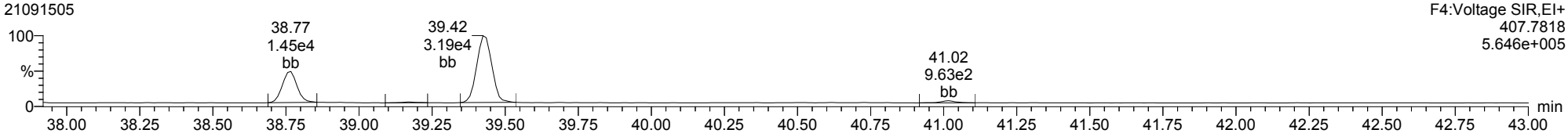

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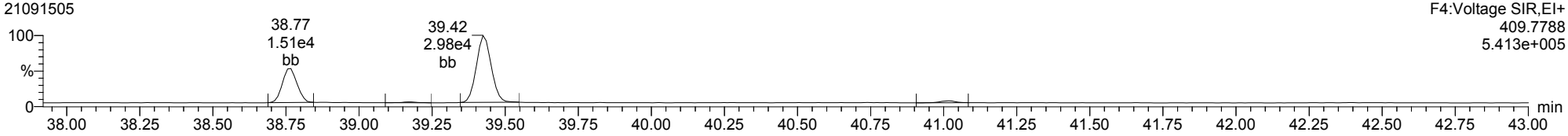

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS634

Form 1
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0127-12RE1 A	File ID:	21091506
Sampled:	07/12/21 11:22	Prepared:	08/26/21 12:23	Analyzed:	09/15/21 20:10
% Solids:	42.71	Preparation:	EPA 1613	Initial/Final:	23.41 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0232	Calibration:	EH00030
Batch:	BJH0645	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.756	0.655-0.886	0.213	1.00	0.783	ng/kg	J
1746-01-6	2,3,7,8-TCDD	1	0.362	0.655-0.886	0.171	1.00	0.397	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1	1.438	1.318-1.783	0.193	1.00	0.559	ng/kg	J
57117-31-4	2,3,4,7,8-PeCDF	1	1.249	1.318-1.783	0.183	1.00	1.03	ng/kg	EMPC
40321-76-4	1,2,3,7,8-PeCDD	1	1.472	1.318-1.783	0.185	1.00	1.37	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.258	1.054-1.426	0.171	1.00	3.83	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.084	1.054-1.426	0.167	1.00	1.28	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.821	1.054-1.426	0.172	1.00	1.11	ng/kg	EMPC
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.120	1.054-1.426	0.177	1.00	0.852	ng/kg	J
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.200	1.054-1.426	0.245	1.00	1.25	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.273	1.054-1.426	0.249	1.00	5.15	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.224	1.054-1.426	0.264	1.00	3.22	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.011	0.893-1.208	0.182	1.00	34.4	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.142	0.893-1.208	0.263	1.00	2.79	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.089	0.893-1.208	0.454	2.50	164	ng/kg	
39001-02-0	OCDF	1	0.877	0.757-1.024	0.438	2.50	133	ng/kg	
3268-87-9	OCDD	1	0.896	0.757-1.024	0.427	10.0	1290	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	7.81	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	1.33	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	17.4	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	5.62	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	43.8	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	44.9	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	136	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	400	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 6.28
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 6.28

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS634

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0127-12RE1	File ID:	21091506
Sampled:	07/12/21 11:22	Prepared:	08/26/21 12:23	Analyzed:	09/15/21 20:10
Solids Wt%:	42.71	Preparation:	EPA 1613	Initial/Final:	23.41 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0232	Calibration:	EH00030
Batch:	BJH0645	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.801	0.655-0.886	0.147	76.5	24 - 169 %	
13C12-2,3,7,8-TCDD		0.751	0.655-0.886	0.169	80.3	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.604	1.318-1.783	0.147	88.0	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.590	1.318-1.783	0.154	87.5	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.580	1.318-1.783	0.162	82.4	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.512	0.434-0.587	0.216	77.4	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.517	0.434-0.587	0.199	72.1	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.519	0.434-0.587	0.220	74.5	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.510	0.434-0.587	0.266	84.1	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.266	1.054-1.426	0.184	82.1	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.244	1.054-1.426	0.170	77.5	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.469	0.374-0.506	0.166	79.1	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.456	0.374-0.506	0.203	76.4	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.037	0.893-1.208	0.240	79.2	23 - 140 %	
13C12-OCDD		0.908	0.757-1.024	0.235	89.9	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.049	83.7	35 - 197 %	

* Values outside of QC limits

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Printed: Thursday, September 16, 2021 14:32:56 Pacific Daylight Time

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Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.761	1.001	1.037e3	1.373e3	1.108	0.756	0.770	1630	1759	1.90e4	1.92e4	11.7	10.9	NO	bd	bd	0.392
12378-PeCDF	29.910	1.000	9.711e2	6.755e2	1.015	1.438	1.550	835	2182	1.80e4	1.14e4	21.6	5.2	NO	bb	MM	0.279
23478-PeCDF	31.269	1.001	1.770e3	1.417e3	1.126	1.249	1.550	835	2182	2.87e4	2.09e4	34.4	9.6	YES	db	dd	0.514
123478-HxCDF	34.879	1.000	4.765e3	3.788e3	1.017	1.258	1.240	1175	883	7.34e4	6.01e4	62.5	68.1	NO	bd	dd	1.914
234678-HxCDF	35.893	1.000	1.092e3	1.331e3	1.052	0.821	1.240	1175	883	2.13e4	2.01e4	18.2	22.7	YES	db	MM	0.557
123678-HxCDF	35.023	1.001	1.533e3	1.414e3	1.037	1.084	1.240	1175	883	2.60e4	2.08e4	22.1	23.5	NO	db	db	0.642
123789-HxCDF	36.918	1.000	8.968e2	8.006e2	1.030	1.120	1.240	1175	883	1.25e4	1.00e4	10.6	11.4	NO	bb	bb	0.426
1234678-HpCDF	38.767	1.001	3.845e4	3.803e4	1.327	1.011	1.050	1347	961	6.50e5	6.46e5	482.5	672.2	NO	bb	bb	17.211
1234789-HpCDF	41.007	1.000	2.525e3	2.212e3	1.283	1.142	1.050	1347	961	4.10e4	3.57e4	30.4	37.2	NO	bb	bb	1.396
OCDF	45.252	1.006	9.270e4	1.057e5	1.447	0.877	0.890	2080	705	1.16e6	1.31e6	559.9	1863.6	NO	bb	bb	66.297
2378-TCDD	26.396	1.001	2.218e2	6.124e2	0.920	0.362	0.770	962	847	3.62e3	9.24e3	3.8	10.9	YES	bb	MM	0.199
12378-PeCDD	31.503	1.000	1.243e3	8.440e2	0.995	1.472	1.550	675	823	1.98e4	1.26e4	29.4	15.4	NO	bb	bd	0.683
123478-HxCDD	36.004	1.000	1.261e3	1.051e3	1.027	1.200	1.240	1677	907	2.11e4	1.83e4	12.6	20.2	NO	bd	bd	0.625
123678-HxCDD	36.126	1.001	5.369e3	4.219e3	1.009	1.273	1.240	1677	907	8.79e4	7.06e4	52.5	77.8	NO	dd	dd	2.577
123789-HxCDD	36.516	1.011	3.069e3	2.507e3	0.950	1.224	1.240	1677	907	4.88e4	4.24e4	29.1	46.8	NO	bb	bb	1.610
1234678-HpCDD	40.260	1.000	1.043e5	9.582e4	1.068	1.089	1.050	1734	1223	1.70e6	1.57e6	980.7	1283.2	NO	bb	bb	81.910
OCDD	45.005	1.000	7.420e5	8.286e5	1.181	0.896	0.890	1129	1088	9.60e6	1.07e7	8497.8	9802.9	NO	bb	bb	643.073
13C-2378-TCDF	25.746	1.007	2.471e5	3.085e5	1.427	0.801	0.770	1838	973	3.83e6	4.77e6	2083.6	4895.0	NO	bb	bb	76.528
13C-12378-PeCDF	29.898	1.170	3.577e5	2.230e5	1.297	1.604	1.550	1494	1048	5.69e6	3.60e6	3807.9	3436.3	NO	bb	bb	87.956
13C-23478-PeCDF	31.247	1.222	3.382e5	2.127e5	1.236	1.590	1.550	1494	1048	5.41e6	3.38e6	3617.6	3221.2	NO	bb	bb	87.548
13C-123478-HxCDF	34.868	0.955	1.489e5	2.907e5	1.242	0.512	0.510	1278	2223	2.41e6	4.65e6	1884.9	2093.9	NO	bd	bd	77.431
13C-123678-HxCDF	35.001	0.959	1.508e5	2.917e5	1.343	0.517	0.510	1278	2223	2.43e6	4.67e6	1902.1	2103.0	NO	db	db	72.086
13C-234678-HxCDF	35.882	0.983	1.413e5	2.722e5	1.215	0.519	0.510	1278	2223	2.33e6	4.47e6	1827.1	2011.5	NO	bb	bb	74.508
13C-123789-HxCDF	36.907	1.011	1.307e5	2.563e5	1.008	0.510	0.510	1278	2223	2.28e6	4.40e6	1786.8	1980.3	NO	bb	bb	84.058
13C-1234678-HpCDF	38.745	1.062	1.069e5	2.279e5	0.926	0.469	0.440	827	1185	1.83e6	3.97e6	2219.2	3349.8	NO	bb	bb	79.089
13C-1234789-HpCDF	40.995	1.123	8.288e4	1.816e5	0.758	0.456	0.440	827	1185	1.28e6	2.83e6	1553.9	2388.6	NO	bb	bb	76.365
13C-1234-TCDD	25.564	0.000	2.187e5	2.902e5	1.000	0.754	0.770	1630	898	3.45e6	4.65e6	2116.2	5182.6	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	1.958e5	2.607e5	1.116	0.751	0.770	1630	898	2.96e6	3.98e6	1813.3	4431.6	NO	bb	bb	80.341
13C-12378-PeCDD	31.492	1.232	1.880e5	1.190e5	0.732	1.580	1.550	717	864	2.99e6	1.88e6	4167.7	2171.4	NO	bb	bb	82.407
13C-123478-HxCDD	35.993	0.986	2.011e5	1.589e5	0.960	1.266	1.240	1323	987	3.44e6	2.71e6	2598.1	2751.4	NO	bd	bd	82.105
13C-123678-HxCDD	36.104	0.989	2.044e5	1.643e5	1.041	1.244	1.240	1323	987	3.43e6	2.76e6	2589.7	2795.6	NO	db	db	77.495
13C-1234678-HpCDD	40.249	1.103	1.165e5	1.123e5	0.632	1.037	1.050	1131	852	1.86e6	1.81e6	1646.1	2121.1	NO	bb	bb	79.165
13C-OCDD	44.987	1.233	1.968e5	2.168e5	0.504	0.908	0.890	704	847	2.51e6	2.77e6	3564.1	3266.0	NO	bb	bb	179.723
13C-123789-HxCDD	36.494	0.000	2.560e5	2.009e5	1.000	1.275	1.240	1323	987	4.40e6	3.49e6	3321.1	3535.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	1.846e5		1.084			717		2.84e6		3960.5			db		33.483

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ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.238	0.864	4.465e2	5.529e2	1.425	0.808	0.770	1630	1759	7.98e3	6.38e3	4.9	3.6	NO	bb	bb	0.126
1289-TCDF					1.043		0.770	1630	1759								
13468-PECDF					1.376		1.550	662	785								
12389-PECDF					1.000		1.550	835	2182								
123468-HXCDF	33.219	0.953	4.926e3	3.835e3	1.087	1.285	1.240	1175	883	7.39e4	6.21e4	62.9	70.3	NO	bb	bb	1.834
1368-TCDD	23.508	0.891	9.054e2	9.995e2	0.923	0.906	0.770	962	847	1.37e4	1.70e4	14.3	20.0	YES	bb	bb	0.452
1289-TCDD					0.794		0.770	962	847								
12479-PECDD	28.795	0.914	1.728e3	8.082e2	1.843	2.138	1.550	675	823	2.67e4	1.69e4	39.5	20.5	YES	bd	bd	0.448
12389-PECDD					1.154		1.550	675	823								
124679-HXCDD	33.987	0.944	1.549e4	1.299e4	1.125	1.192	1.240	1677	907	2.58e5	2.10e5	153.7	231.9	NO	bb	bb	7.032
1234679-HPCDD	39.213	0.974	1.695e5	1.581e5	1.211	1.072	1.050	1734	1223	2.92e6	2.69e6	1683.3	2202.1	NO	bb	bb	118.243
Total-tetrafurans			1.122e4		1.192			1630		1.64e5							3.905
Total-penta1			1.426e4					662		1.97e5							4.421
Total-pentafurans			1.537e4		1.047			835		2.36e5							4.296
Total-hexafurans			5.367e4		1.045			1175		8.63e5							21.897
Total-heptafurans			1.385e5		1.305			1347		2.36e6							68.126
Total-Furans			3.257e5		1.158			1630		4.98e6							168.942
Total-tetradioxins			1.181e3		0.879			962		1.97e4							0.665
Total-pentadioxins			6.353e3		1.331			675		1.03e5							2.810
Total-hexadioxins			4.703e4		1.028			1677		6.86e5							22.447
Total-heptadioxins			2.738e5		1.140			1734		4.62e6							200.153
Total-Dioxins			1.070e6		1.092			962		1.50e7							869.148
Total-TEQ			1.396e6					962		2.00e7							1038.090
FUNCTION1 PFK			5.325e6					460574		3.76e7							
FUNCTION2 PFK			1.006e6					406316		1.09e7							0.000
FUNCTION3 PFK			8.861e5					447969		3.00e6							0.000
FUNCTION4 PFK			8.164e6					243603		7.88e7							
FUNCTION5 PFK			5.878e4					149831		1.60e6							
FUNCTION1 HXCD...			9.263e2					694		1.68e4							0.000
FUNCTION1 HPCD...			7.874e3					706		1.33e5							0.000
FUNCTION2 HPCD...			1.645e2					747		5.36e3							0.000
FUNCTION3 OCDPE			8.500e2					456		1.83e4							0.000
FUNCTION4 NCDPE			8.149e3					466		1.48e5							0.000
FUNCTION5 DCDPE			0.000e0					521		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:56 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.75	1.025e3	1.327e3	1.192	0.77	0.77	9.8	YES	NO	dd	bd	0.355
2	Total-tetrafurans	23.49	1.330e3	1.746e3	1.192	0.76	0.77	11.4	YES	NO	dd	dd	0.465
3	Total-tetrafurans	23.08	2.343e3	3.214e3	1.192	0.73	0.77	18.3	YES	NO	bd	bd	0.839
4	1368-TCDF	22.24	4.465e2	5.529e2	1.425	0.81	0.77	4.9	YES	NO	bb	bb	0.126
5	Total-tetrafurans	25.91	6.703e2	8.999e2	1.192	0.74	0.77	5.9	YES	NO	dd	dd	0.237
6	2378-TCDF	25.76	1.037e3	1.373e3	1.108	0.76	0.77	11.7	YES	NO	bd	bd	0.392
7	Total-tetrafurans	25.28	4.746e2	6.183e2	1.192	0.77	0.77	4.8	YES	NO	bb	bb	0.165
8	Total-tetrafurans	25.07	6.939e2	8.659e2	1.192	0.80	0.77	4.8	YES	NO	bb	bb	0.236
9	Total-tetrafurans	24.66	1.596e3	2.080e3	1.192	0.77	0.77	14.0	YES	NO	db	db	0.555
10	Total-tetrafurans	24.01	1.604e3	1.941e3	1.192	0.83	0.77	15.2	YES	NO	dd	bd	0.535

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.18	1.426e4	9.277e3		1.54	1.55	297.6	YES	NO	bb	bb	4.421

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.65	1.857e3	1.408e3	1.047	1.32	1.55	25.2	YES	NO	bd	dd	0.551
2	Total-pentafurans	31.12	1.513e3	9.446e2	1.047	1.60	1.55	27.9	YES	NO	dd	dd	0.415
3	Total-pentafurans	31.00	9.653e2	6.018e2	1.047	1.60	1.55	20.2	YES	NO	bd	bd	0.265
4	Total-pentafurans	30.12	1.819e3	1.180e3	1.047	1.54	1.55	34.9	YES	NO	bd	bb	0.506
5	12378-PeCDF	29.91	9.711e2	6.755e2	1.015	1.44	1.55	21.6	YES	NO	bb	MM	0.279
6	Total-pentafurans	28.84	6.228e3	3.860e3	1.047	1.61	1.55	106.2	YES	NO	db	db	1.704
7	Total-pentafurans	28.77	2.020e3	1.390e3	1.047	1.45	1.55	46.6	YES	NO	dd	dd	0.576

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:56 Pacific Daylight Time

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.92	8.968e2	8.006e2	1.030	1.12	1.24	10.6	YES	NO	bb	bb	0.426
2	123678-HxCDF	35.02	1.533e3	1.414e3	1.037	1.08	1.24	22.1	YES	NO	db	db	0.642
3	123478-HxCDF	34.88	4.765e3	3.788e3	1.017	1.26	1.24	62.5	YES	NO	bd	dd	1.914
4	Total-hexafurans	34.74	7.933e2	6.642e2	1.045	1.19	1.24	11.4	YES	NO	bb	bd	0.332
5	Total-hexafurans	34.27	2.402e4	1.941e4	1.045	1.24	1.24	341.8	YES	NO	bb	bb	9.885
6	Total-hexafurans	33.97	5.130e2	3.782e2	1.045	1.36	1.24	6.8	YES	NO	bb	bb	0.203
7	Total-hexafurans	33.43	1.622e4	1.305e4	1.045	1.24	1.24	216.2	YES	NO	bb	bb	6.662
8	123468-HXCDF	33.22	4.926e3	3.835e3	1.087	1.28	1.24	62.9	YES	NO	bb	bb	1.834

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.01	2.525e3	2.212e3	1.283	1.14	1.05	30.4	YES	NO	bb	bb	1.396
2	Total-heptafurans	39.42	9.754e4	9.613e4	1.305	1.01	1.05	1235.1	YES	NO	bb	bd	49.519
3	1234678-HpCDF	38.77	3.845e4	3.803e4	1.327	1.01	1.05	482.5	YES	NO	bb	bb	17.211

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.75	1.025e3	1.327e3	1.192	0.77	0.77	9.8	YES	NO	dd	bd	0.355
2	Total-tetrafurans	23.49	1.330e3	1.746e3	1.192	0.76	0.77	11.4	YES	NO	dd	dd	0.465
3	Total-tetrafurans	23.08	2.343e3	3.214e3	1.192	0.73	0.77	18.3	YES	NO	bd	bd	0.839
4	1368-TCDF	22.24	4.465e2	5.529e2	1.425	0.81	0.77	4.9	YES	NO	bb	bb	0.126
5	Total-tetrafurans	25.91	6.703e2	8.999e2	1.192	0.74	0.77	5.9	YES	NO	dd	dd	0.237
6	2378-TCDF	25.76	1.037e3	1.373e3	1.108	0.76	0.77	11.7	YES	NO	bd	bd	0.392
7	Total-tetrafurans	25.28	4.746e2	6.183e2	1.192	0.77	0.77	4.8	YES	NO	bb	bb	0.165
8	Total-tetrafurans	25.07	6.939e2	8.659e2	1.192	0.80	0.77	4.8	YES	NO	bb	bb	0.236
9	Total-tetrafurans	24.66	1.596e3	2.080e3	1.192	0.77	0.77	14.0	YES	NO	db	db	0.555
10	Total-tetrafurans	24.01	1.604e3	1.941e3	1.192	0.83	0.77	15.2	YES	NO	dd	bd	0.535
11	Total-pentafurans	28.65	1.857e3	1.408e3	1.047	1.32	1.55	25.2	YES	NO	bd	dd	0.551
12	Total-pentafurans	31.12	1.513e3	9.446e2	1.047	1.60	1.55	27.9	YES	NO	dd	dd	0.415
13	Total-pentafurans	31.00	9.653e2	6.018e2	1.047	1.60	1.55	20.2	YES	NO	bd	bd	0.265
14	Total-pentafurans	30.12	1.819e3	1.180e3	1.047	1.54	1.55	34.9	YES	NO	bd	bb	0.506
15	12378-PeCDF	29.91	9.711e2	6.755e2	1.015	1.44	1.55	21.6	YES	NO	bb	MM	0.279
16	Total-pentafurans	28.84	6.228e3	3.860e3	1.047	1.61	1.55	106.2	YES	NO	db	db	1.704
17	Total-pentafurans	28.77	2.020e3	1.390e3	1.047	1.45	1.55	46.6	YES	NO	dd	dd	0.576
18	123789-HxCDF	36.92	8.968e2	8.006e2	1.030	1.12	1.24	10.6	YES	NO	bb	bb	0.426
19	123678-HxCDF	35.02	1.533e3	1.414e3	1.037	1.08	1.24	22.1	YES	NO	db	db	0.642
20	123478-HxCDF	34.88	4.765e3	3.788e3	1.017	1.26	1.24	62.5	YES	NO	bd	dd	1.914
21	Total-hexafurans	34.74	7.933e2	6.642e2	1.045	1.19	1.24	11.4	YES	NO	bb	bd	0.332
22	Total-hexafurans	34.27	2.402e4	1.941e4	1.045	1.24	1.24	341.8	YES	NO	bb	bb	9.885
23	Total-hexafurans	33.97	5.130e2	3.782e2	1.045	1.36	1.24	6.8	YES	NO	bb	bb	0.203
24	Total-hexafurans	33.43	1.622e4	1.305e4	1.045	1.24	1.24	216.2	YES	NO	bb	bb	6.662
25	123468-HXCDF	33.22	4.926e3	3.835e3	1.087	1.28	1.24	62.9	YES	NO	bb	bb	1.834
26	1234789-HpCDF	41.01	2.525e3	2.212e3	1.283	1.14	1.05	30.4	YES	NO	bb	bb	1.396
27	Total-heptafurans	39.42	9.754e4	9.613e4	1.305	1.01	1.05	1235.1	YES	NO	bb	bd	49.519
28	1234678-HpCDF	38.77	3.845e4	3.803e4	1.327	1.01	1.05	482.5	YES	NO	bb	bb	17.211
29	OCDF	45.25	9.270e4	1.057e5	1.447	0.88	0.89	559.9	YES	NO	bb	bb	66.297
30	Total-penta1	27.18	1.426e4	9.277e3		1.54	1.55	297.6	YES	NO	bb	bb	4.421

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.78	5.865e2	7.629e2	0.879	0.77	0.77	10.7	YES	NO	bb	bb	0.336
2	Total-tetradioxins	25.58	1.716e2	2.043e2	0.879	0.84	0.77	3.1	YES	NO	bb	bd	0.094
3	Total-tetradioxins	24.99	4.229e2	5.201e2	0.879	0.81	0.77	6.7	YES	NO	bb	bb	0.235

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.50	1.243e3	8.440e2	0.995	1.47	1.55	29.4	YES	NO	bb	bd	0.683
2	Total-pentadioxins	30.82	2.854e2	2.051e2	1.331	1.39	1.55	8.6	YES	NO	bb	bb	0.120
3	Total-pentadioxins	30.44	8.065e2	5.598e2	1.331	1.44	1.55	15.1	YES	NO	bb	dd	0.334
4	Total-pentadioxins	30.25	8.680e2	5.437e2	1.331	1.60	1.55	21.2	YES	NO	db	dd	0.346
5	Total-pentadioxins	30.11	1.193e3	8.353e2	1.331	1.43	1.55	27.7	YES	NO	bd	bd	0.496
6	Total-pentadioxins	29.91	1.142e3	8.305e2	1.331	1.38	1.55	31.0	YES	NO	bb	bb	0.483
7	Total-pentadioxins	29.30	8.162e2	6.049e2	1.331	1.35	1.55	20.2	YES	NO	bb	bb	0.348

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.24	1.949e3	1.677e3	1.028	1.16	1.24	18.9	YES	NO	db	db	0.968
2	Total-hexadioxins	35.12	1.668e4	1.359e4	1.028	1.23	1.24	107.9	YES	NO	bd	bd	8.083
3	Total-hexadioxins	34.76	3.210e3	2.603e3	1.028	1.23	1.24	34.3	YES	NO	bb	bb	1.552
4	124679-HXCDD	33.99	1.549e4	1.299e4	1.125	1.19	1.24	153.7	YES	NO	bb	bb	7.032
5	123789-HxCDD	36.52	3.069e3	2.507e3	0.950	1.22	1.24	29.1	YES	NO	bb	bb	1.610
6	123678-HxCDD	36.13	5.369e3	4.219e3	1.009	1.27	1.24	52.5	YES	NO	dd	dd	2.577
7	123478-HxCDD	36.00	1.261e3	1.051e3	1.027	1.20	1.24	12.6	YES	NO	bd	bd	0.625

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.26	1.043e5	9.582e4	1.068	1.09	1.05	980.7	YES	NO	bb	bb	81.910
2	1234679-HPCDD	39.21	1.695e5	1.581e5	1.211	1.07	1.05	1683.3	YES	NO	bb	bb	118.243

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.78	5.865e2	7.629e2	0.879	0.77	0.77	10.7	YES	NO	bb	bb	0.336
2	Total-tetradioxins	25.58	1.716e2	2.043e2	0.879	0.84	0.77	3.1	YES	NO	bb	bd	0.094
3	Total-tetradioxins	24.99	4.229e2	5.201e2	0.879	0.81	0.77	6.7	YES	NO	bb	bb	0.235
4	12378-PeCDD	31.50	1.243e3	8.440e2	0.995	1.47	1.55	29.4	YES	NO	bb	bd	0.683
5	Total-pentadioxins	30.82	2.854e2	2.051e2	1.331	1.39	1.55	8.6	YES	NO	bb	bb	0.120
6	Total-pentadioxins	30.44	8.065e2	5.598e2	1.331	1.44	1.55	15.1	YES	NO	bb	dd	0.334
7	Total-pentadioxins	30.25	8.680e2	5.437e2	1.331	1.60	1.55	21.2	YES	NO	db	dd	0.346
8	Total-pentadioxins	30.11	1.193e3	8.353e2	1.331	1.43	1.55	27.7	YES	NO	bd	bd	0.496
9	Total-pentadioxins	29.91	1.142e3	8.305e2	1.331	1.38	1.55	31.0	YES	NO	bb	bb	0.483
10	Total-pentadioxins	29.30	8.162e2	6.049e2	1.331	1.35	1.55	20.2	YES	NO	bb	bb	0.348
11	Total-hexadioxins	35.24	1.949e3	1.677e3	1.028	1.16	1.24	18.9	YES	NO	db	db	0.968
12	Total-hexadioxins	35.12	1.668e4	1.359e4	1.028	1.23	1.24	107.9	YES	NO	bd	bd	8.083
13	Total-hexadioxins	34.76	3.210e3	2.603e3	1.028	1.23	1.24	34.3	YES	NO	bb	bb	1.552
14	124679-HXCDD	33.99	1.549e4	1.299e4	1.125	1.19	1.24	153.7	YES	NO	bb	bb	7.032
15	123789-HxCDD	36.52	3.069e3	2.507e3	0.950	1.22	1.24	29.1	YES	NO	bb	bb	1.610
16	123678-HxCDD	36.13	5.369e3	4.219e3	1.009	1.27	1.24	52.5	YES	NO	dd	dd	2.577
17	123478-HxCDD	36.00	1.261e3	1.051e3	1.027	1.20	1.24	12.6	YES	NO	bd	bd	0.625
18	1234678-HpCDD	40.26	1.043e5	9.582e4	1.068	1.09	1.05	980.7	YES	NO	bb	bb	81.910
19	1234679-HPCDD	39.21	1.695e5	1.581e5	1.211	1.07	1.05	1683.3	YES	NO	bb	bb	118.243
20	OCDD	45.01	7.420e5	8.286e5	1.181	0.90	0.89	8497.8	YES	NO	bb	bb	643.073

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.75	1.025e3	1.327e3	1.192	0.77	0.77	9.8	YES	NO	dd	bd	0.355
2	Total-tetrafurans	23.49	1.330e3	1.746e3	1.192	0.76	0.77	11.4	YES	NO	dd	dd	0.465
3	Total-tetrafurans	23.08	2.343e3	3.214e3	1.192	0.73	0.77	18.3	YES	NO	bd	bd	0.839
4	1368-TCDF	22.24	4.465e2	5.529e2	1.425	0.81	0.77	4.9	YES	NO	bb	bb	0.126
5	Total-tetrafurans	25.91	6.703e2	8.999e2	1.192	0.74	0.77	5.9	YES	NO	dd	dd	0.237
6	2378-TCDF	25.76	1.037e3	1.373e3	1.108	0.76	0.77	11.7	YES	NO	bd	bd	0.392
7	Total-tetrafurans	25.28	4.746e2	6.183e2	1.192	0.77	0.77	4.8	YES	NO	bb	bb	0.165
8	Total-tetrafurans	25.07	6.939e2	8.659e2	1.192	0.80	0.77	4.8	YES	NO	bb	bb	0.236
9	Total-tetrafurans	24.66	1.596e3	2.080e3	1.192	0.77	0.77	14.0	YES	NO	db	db	0.555
10	Total-tetrafurans	24.01	1.604e3	1.941e3	1.192	0.83	0.77	15.2	YES	NO	dd	bd	0.535
11	Total-pentafurans	28.65	1.857e3	1.408e3	1.047	1.32	1.55	25.2	YES	NO	bd	dd	0.551
12	Total-pentafurans	31.12	1.513e3	9.446e2	1.047	1.60	1.55	27.9	YES	NO	dd	dd	0.415
13	Total-pentafurans	31.00	9.653e2	6.018e2	1.047	1.60	1.55	20.2	YES	NO	bd	bd	0.265
14	Total-pentafurans	30.12	1.819e3	1.180e3	1.047	1.54	1.55	34.9	YES	NO	bd	bb	0.506
15	12378-PeCDF	29.91	9.711e2	6.755e2	1.015	1.44	1.55	21.6	YES	NO	bb	MM	0.279
16	Total-pentafurans	28.84	6.228e3	3.860e3	1.047	1.61	1.55	106.2	YES	NO	db	db	1.704
17	Total-pentafurans	28.77	2.020e3	1.390e3	1.047	1.45	1.55	46.6	YES	NO	dd	dd	0.576
18	123789-HxCDF	36.92	8.968e2	8.006e2	1.030	1.12	1.24	10.6	YES	NO	bb	bb	0.426
19	123678-HxCDF	35.02	1.533e3	1.414e3	1.037	1.08	1.24	22.1	YES	NO	db	db	0.642
20	123478-HxCDF	34.88	4.765e3	3.788e3	1.017	1.26	1.24	62.5	YES	NO	bd	dd	1.914
21	Total-hexafurans	34.74	7.933e2	6.642e2	1.045	1.19	1.24	11.4	YES	NO	bb	bd	0.332
22	Total-hexafurans	34.27	2.402e4	1.941e4	1.045	1.24	1.24	341.8	YES	NO	bb	bb	9.885
23	Total-hexafurans	33.97	5.130e2	3.782e2	1.045	1.36	1.24	6.8	YES	NO	bb	bb	0.203
24	Total-hexafurans	33.43	1.622e4	1.305e4	1.045	1.24	1.24	216.2	YES	NO	bb	bb	6.662
25	123468-HXCDF	33.22	4.926e3	3.835e3	1.087	1.28	1.24	62.9	YES	NO	bb	bb	1.834
26	1234789-HpCDF	41.01	2.525e3	2.212e3	1.283	1.14	1.05	30.4	YES	NO	bb	bb	1.396
27	Total-heptafurans	39.42	9.754e4	9.613e4	1.305	1.01	1.05	1235.1	YES	NO	bb	bd	49.519
28	1234678-HpCDF	38.77	3.845e4	3.803e4	1.327	1.01	1.05	482.5	YES	NO	bb	bb	17.211
29	OCDF	45.25	9.270e4	1.057e5	1.447	0.88	0.89	559.9	YES	NO	bb	bb	66.297
30	Total-penta1	27.18	1.426e4	9.277e3		1.54	1.55	297.6	YES	NO	bb	bb	4.421
31	Total-tetradioxins	23.78	5.865e2	7.629e2	0.879	0.77	0.77	10.7	YES	NO	bb	bb	0.336
32	Total-tetradioxins	25.58	1.716e2	2.043e2	0.879	0.84	0.77	3.1	YES	NO	bb	bd	0.094
33	Total-tetradioxins	24.99	4.229e2	5.201e2	0.879	0.81	0.77	6.7	YES	NO	bb	bb	0.235
34	12378-PeCDD	31.50	1.243e3	8.440e2	0.995	1.47	1.55	29.4	YES	NO	bb	bd	0.683
35	Total-pentadioxins	30.82	2.854e2	2.051e2	1.331	1.39	1.55	8.6	YES	NO	bb	bb	0.120
36	Total-pentadioxins	30.44	8.065e2	5.598e2	1.331	1.44	1.55	15.1	YES	NO	bb	dd	0.334
37	Total-pentadioxins	30.25	8.680e2	5.437e2	1.331	1.60	1.55	21.2	YES	NO	db	dd	0.346

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:56 Pacific Daylight Time

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-pentadioxins	30.11	1.193e3	8.353e2	1.331	1.43	1.55	27.7	YES	NO	bd	bd	0.496
39	Total-pentadioxins	29.91	1.142e3	8.305e2	1.331	1.38	1.55	31.0	YES	NO	bb	bb	0.483
40	Total-pentadioxins	29.30	8.162e2	6.049e2	1.331	1.35	1.55	20.2	YES	NO	bb	bb	0.348
41	Total-hexadioxins	35.24	1.949e3	1.677e3	1.028	1.16	1.24	18.9	YES	NO	db	db	0.968
42	Total-hexadioxins	35.12	1.668e4	1.359e4	1.028	1.23	1.24	107.9	YES	NO	bd	bd	8.083
43	Total-hexadioxins	34.76	3.210e3	2.603e3	1.028	1.23	1.24	34.3	YES	NO	bb	bb	1.552
44	124679-HXCDD	33.99	1.549e4	1.299e4	1.125	1.19	1.24	153.7	YES	NO	bb	bb	7.032
45	123789-HxCDD	36.52	3.069e3	2.507e3	0.950	1.22	1.24	29.1	YES	NO	bb	bb	1.610
46	123678-HxCDD	36.13	5.369e3	4.219e3	1.009	1.27	1.24	52.5	YES	NO	dd	dd	2.577
47	123478-HxCDD	36.00	1.261e3	1.051e3	1.027	1.20	1.24	12.6	YES	NO	bd	bd	0.625
48	1234678-HpCDD	40.26	1.043e5	9.582e4	1.068	1.09	1.05	980.7	YES	NO	bb	bb	81.910
49	1234679-HPCDD	39.21	1.695e5	1.581e5	1.211	1.07	1.05	1683.3	YES	NO	bb	bb	118.243
50	OCDD	45.01	7.420e5	8.286e5	1.181	0.90	0.89	8497.8	YES	NO	bb	bb	643.073

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.71	2.631e4					1.5	NO		db		
2	FUNCTION1 PFK	22.62	2.976e4					1.4	NO		bd		
3	FUNCTION1 PFK	22.15	2.544e4					1.8	NO		db		
4	FUNCTION1 PFK	22.13	1.084e5					1.7	NO		bd		
5	FUNCTION1 PFK	21.83	9.988e5					11.6	YES		db		
6	FUNCTION1 PFK	21.62	2.343e6					15.2	YES		dd		
7	FUNCTION1 PFK	21.39	9.544e5					18.8	YES		bd		
8	FUNCTION1 PFK	21.19	4.765e5					10.5	YES		bb		
9	FUNCTION1 PFK	27.20	1.031e4					0.9	NO		bd		
10	FUNCTION1 PFK	26.61	4.438e4					1.7	NO		db		
11	FUNCTION1 PFK	26.55	2.064e4					1.2	NO		bd		
12	FUNCTION1 PFK	26.20	5.174e4					1.3	NO		bb		
13	FUNCTION1 PFK	26.08	1.330e4					0.9	NO		bb		
14	FUNCTION1 PFK	25.84	3.256e3					0.5	NO		bb		
15	FUNCTION1 PFK	25.69	6.490e3					0.6	NO		bb		
16	FUNCTION1 PFK	25.62	4.613e3					0.5	NO		bb		
17	FUNCTION1 PFK	25.35	1.007e4					0.7	NO		bb		
18	FUNCTION1 PFK	25.29	4.338e3					0.5	NO		bb		
19	FUNCTION1 PFK	25.08	1.272e4					0.9	NO		bb		
20	FUNCTION1 PFK	24.67	1.733e4					1.0	NO		db		
21	FUNCTION1 PFK	24.63	6.467e3					0.7	NO		bd		
22	FUNCTION1 PFK	24.55	2.350e4					1.4	NO		bb		
23	FUNCTION1 PFK	23.83	3.324e4					1.0	NO		bb		
24	FUNCTION1 PFK	23.36	3.425e4					1.4	NO		bb		
25	FUNCTION1 PFK	27.65	2.536e4					1.4	NO		bb		
26	FUNCTION1 PFK	27.32	1.214e4					0.7	NO		bb		
27	FUNCTION1 PFK	27.26	2.883e4					2.0	NO		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.37	6.904e4					5.1	YES		bb		0.000
2	FUNCTION2 PFK	29.24	4.394e5					8.3	YES		bb		0.000
3	FUNCTION2 PFK	28.26	3.626e4					4.0	YES		db		0.000
4	FUNCTION2 PFK	28.20	4.617e5					9.5	YES		bd		0.000

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:56 Pacific Daylight Time

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.19	8.193e5					2.4	NO		bb		0.000
2	FUNCTION3 PFK	33.13	6.105e4					3.2	YES		bb		0.000
3	FUNCTION3 PFK	33.08	5.759e3					1.2	NO		bb		0.000

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.14	7.592e5					41.8	YES		dd		
2	FUNCTION4 PFK	38.10	9.165e5					42.3	YES		dd		
3	FUNCTION4 PFK	37.99	1.084e6					45.4	YES		bd		
4	FUNCTION4 PFK	40.95	3.470e4					1.4	NO		bb		
5	FUNCTION4 PFK	40.83	1.764e3					0.7	NO		bb		
6	FUNCTION4 PFK	40.43	8.861e3					1.0	NO		bb		
7	FUNCTION4 PFK	39.79	8.145e3					1.4	NO		bb		
8	FUNCTION4 PFK	39.73	3.687e3					0.8	NO		bb		
9	FUNCTION4 PFK	39.50	1.184e3					0.4	NO		bb		
10	FUNCTION4 PFK	39.19	7.866e4					4.5	YES		db		
11	FUNCTION4 PFK	39.12	5.870e4					6.1	YES		dd		
12	FUNCTION4 PFK	39.08	5.527e4					7.5	YES		dd		
13	FUNCTION4 PFK	39.03	1.390e5					9.3	YES		dd		
14	FUNCTION4 PFK	38.98	1.113e5					10.9	YES		dd		
15	FUNCTION4 PFK	38.92	1.734e5					13.8	YES		dd		
16	FUNCTION4 PFK	38.78	5.726e5					18.7	YES		dd		
17	FUNCTION4 PFK	38.60	1.484e6					25.5	YES		dd		
18	FUNCTION4 PFK	38.32	1.550e6					35.6	YES		dd		
19	FUNCTION4 PFK	38.22	8.994e5					38.9	YES		dd		
20	FUNCTION4 PFK	42.89	1.956e4					1.8	NO		db		
21	FUNCTION4 PFK	42.84	5.067e3					0.8	NO		dd		
22	FUNCTION4 PFK	42.79	1.148e4					1.5	NO		bd		
23	FUNCTION4 PFK	42.68	1.163e4					0.8	NO		bb		
24	FUNCTION4 PFK	42.51	7.032e3					0.6	NO		bb		
25	FUNCTION4 PFK	42.34	9.291e3					1.2	NO		db		
26	FUNCTION4 PFK	42.28	1.640e4					1.7	NO		bd		
27	FUNCTION4 PFK	41.82	3.128e3					0.8	NO		bb		
28	FUNCTION4 PFK	41.69	1.057e4					1.3	NO		bb		
29	FUNCTION4 PFK	41.54	4.653e3					0.9	NO		bb		
30	FUNCTION4 PFK	41.43	3.750e4					1.7	NO		bb		
31	FUNCTION4 PFK	41.31	3.033e4					1.4	NO		db		
32	FUNCTION4 PFK	41.24	5.859e3					0.9	NO		bd		
33	FUNCTION4 PFK	41.17	5.080e4					2.3	NO		bb		

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.06	3.417e4					4.7	YES		bb		
2	FUNCTION5 PFK	45.90	2.908e3					1.0	NO		bb		
3	FUNCTION5 PFK	45.22	1.564e4					3.2	YES		bb		
4	FUNCTION5 PFK	44.15	5.109e3					1.1	NO		bb		
5	FUNCTION5 PFK	43.17	9.510e2					0.7	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.39	1.104e2					2.4	NO		bb		0.000
2	FUNCTION1 HXCD...	26.77	8.230e1					2.2	NO		bb		0.000
3	FUNCTION1 HXCD...	25.90	2.738e2					7.7	YES		bb		0.000
4	FUNCTION1 HXCD...	23.75	1.132e2					3.1	YES		bb		0.000
5	FUNCTION1 HXCD...	23.45	8.301e1					2.5	NO		bb		0.000
6	FUNCTION1 HXCD...	22.28	1.315e2					2.6	NO		db		0.000
7	FUNCTION1 HXCD...	22.15	1.321e2					3.6	YES		bd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	23.34	1.491e3					35.9	YES		bb		0.000
2	FUNCTION1 HPCD...	23.04	1.609e2					5.2	YES		bb		0.000
3	FUNCTION1 HPCD...	22.04	6.222e3					146.7	YES		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.17	7.296e1					1.9	NO		bb		0.000
2	FUNCTION2 HPCD...	28.71	9.158e1					5.3	YES		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:56 Pacific Daylight Time

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.49	2.214e2					4.7	YES		bb		0.000
2	FUNCTION3 OCDPE	36.00	8.637e1					3.5	YES		bb		0.000
3	FUNCTION3 OCDPE	35.41	2.779e2					20.9	YES		bb		0.000
4	FUNCTION3 OCDPE	34.74	8.872e1					4.7	YES		bb		0.000
5	FUNCTION3 OCDPE	33.88	9.745e1					2.6	NO		bb		0.000
6	FUNCTION3 OCDPE	33.68	7.821e1					3.7	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.41	8.149e3					318.7	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

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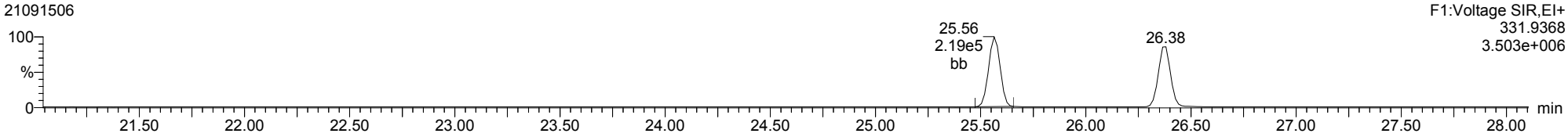

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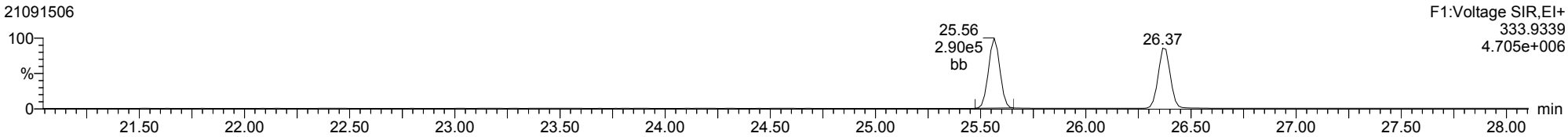

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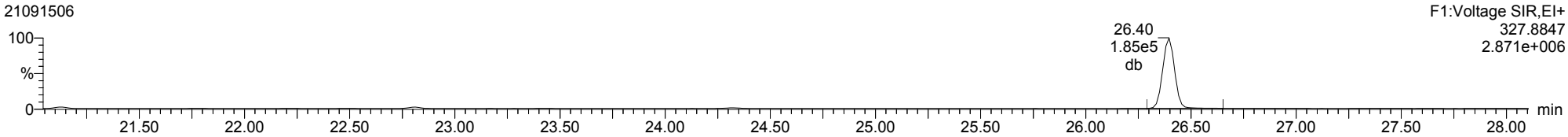

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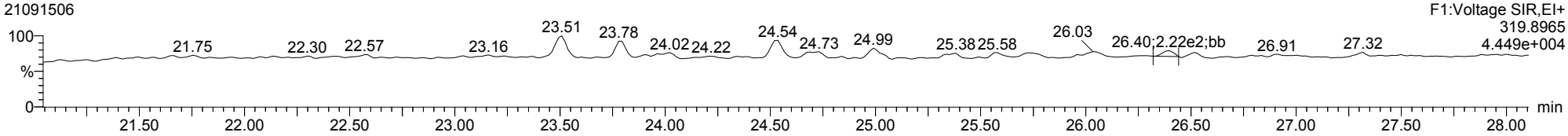
2378-TCDD



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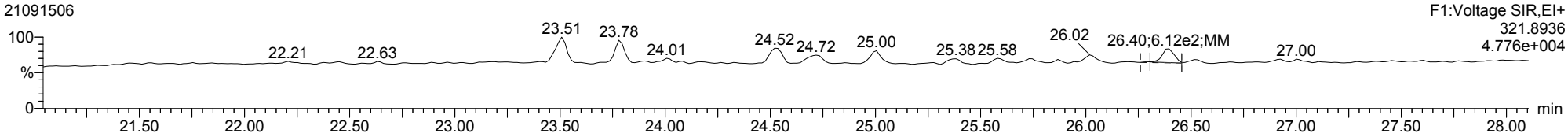

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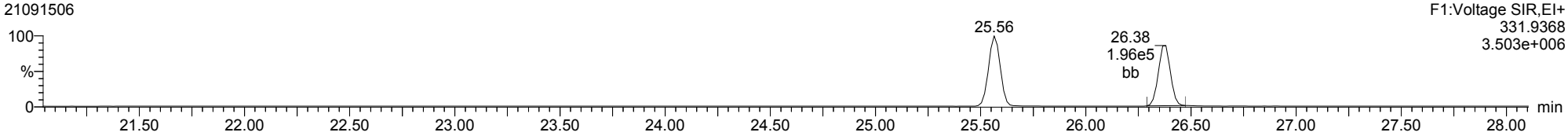

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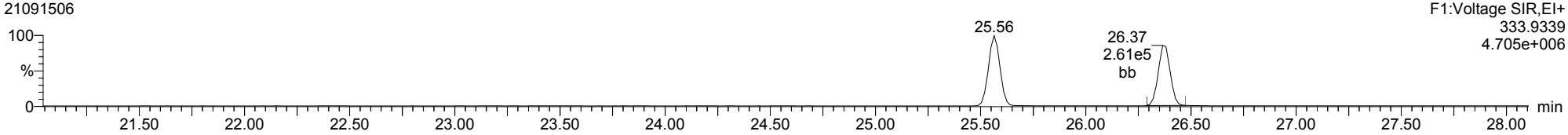

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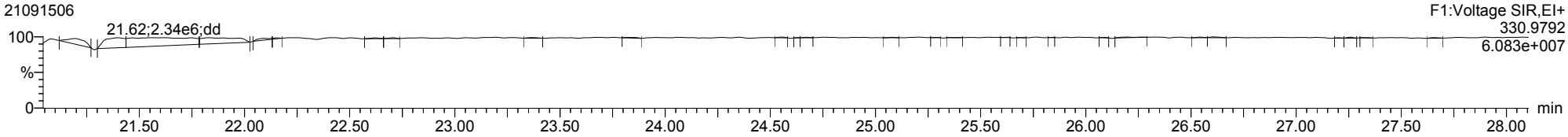

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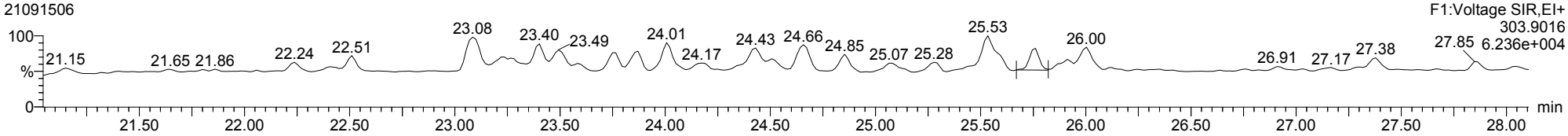

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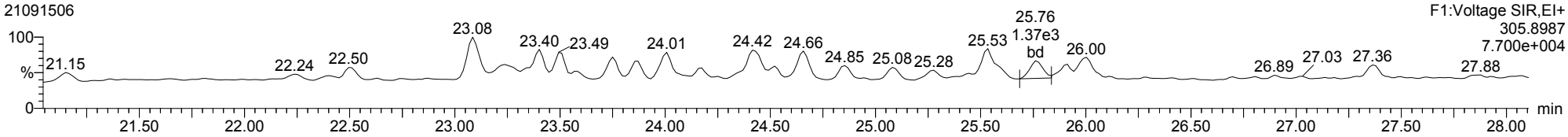

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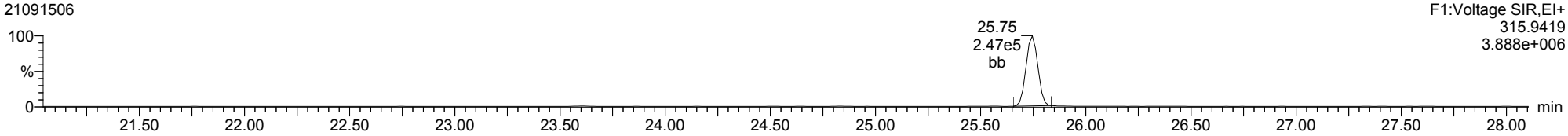

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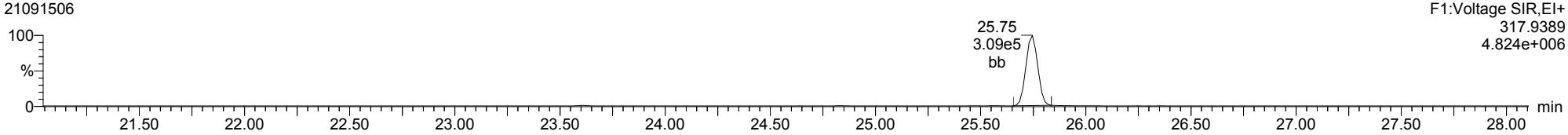
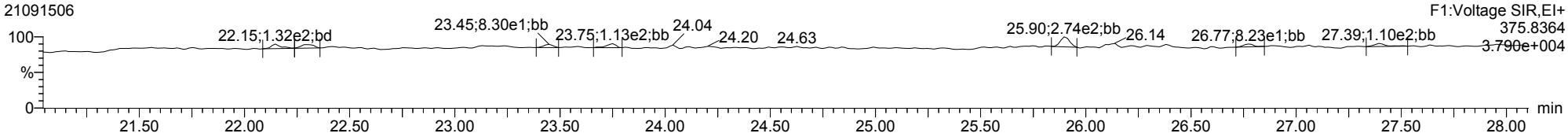


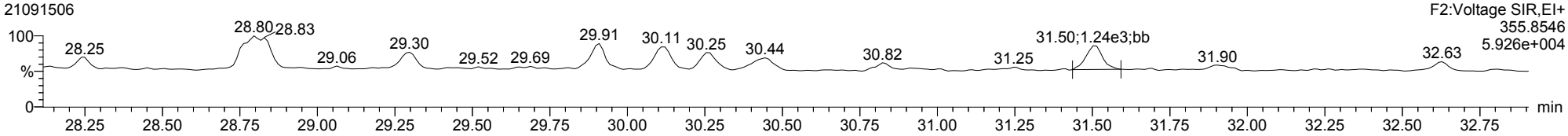
FUNCTION1 HXCDPE



Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:56 Pacific Daylight Time

ID: 21G0127-12RE1, Name: 21091506, Date: 15-Sep-2021, Time: 20:10:23, Conditions: AUTOSPEC01, User: pk

12378-PeCDD



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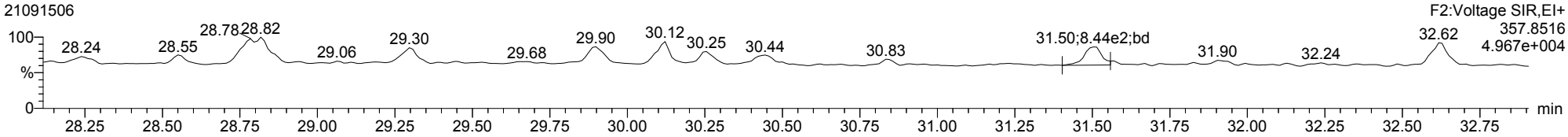

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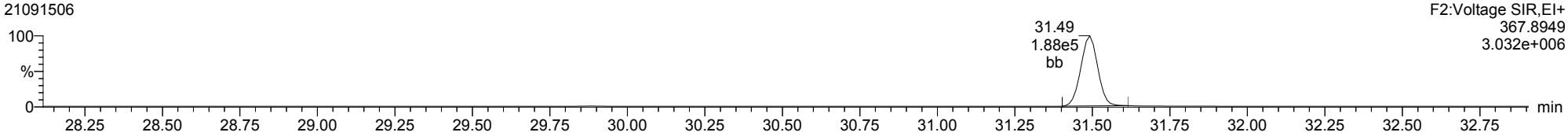

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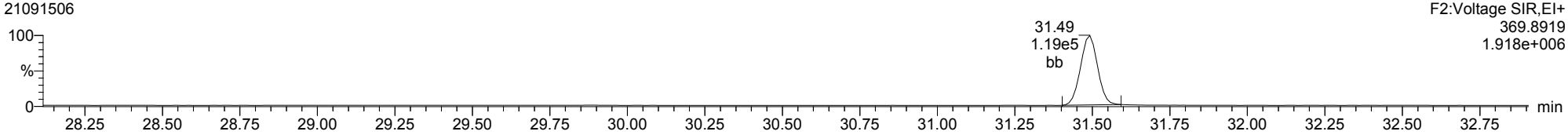
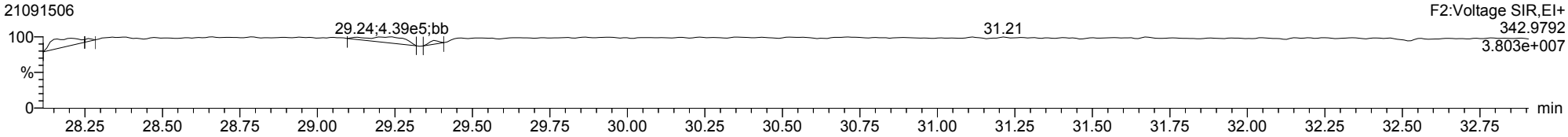


FUNCTION2 PFK



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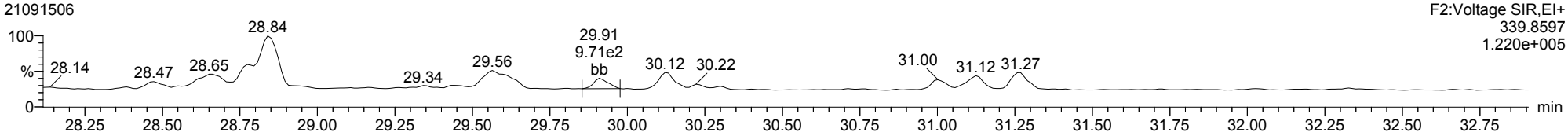
12378-PeCDF



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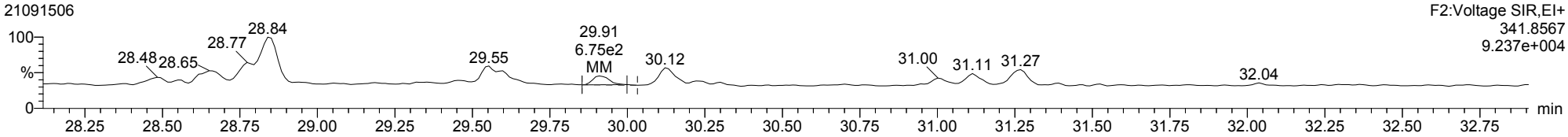

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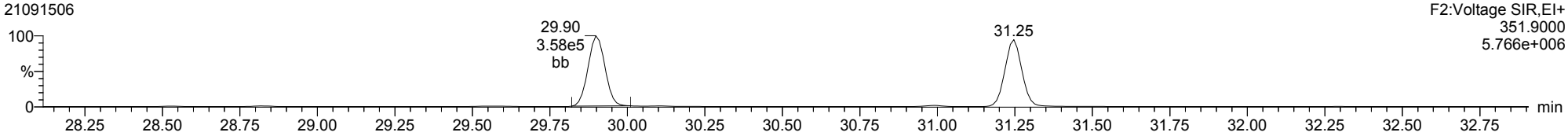

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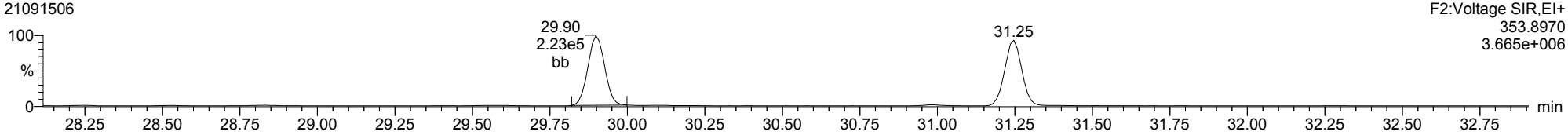

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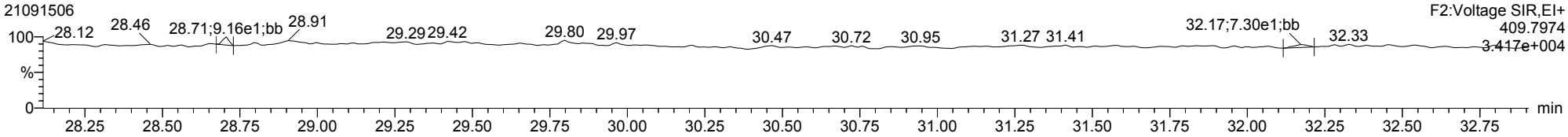

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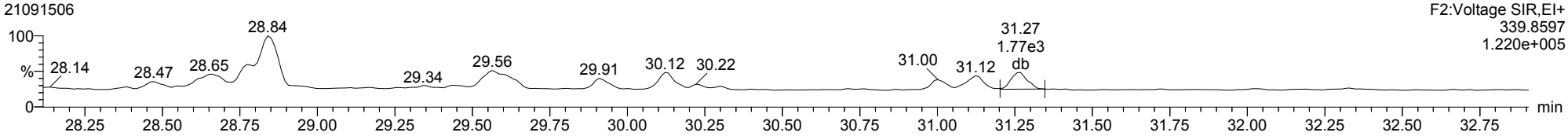

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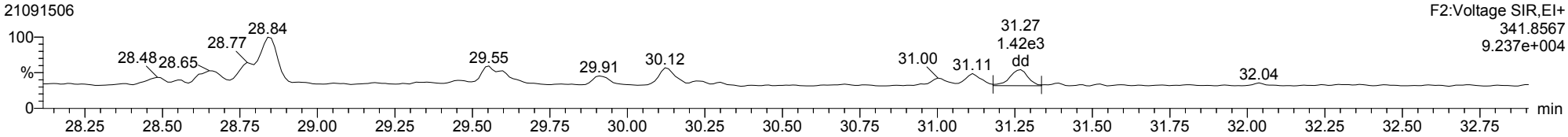

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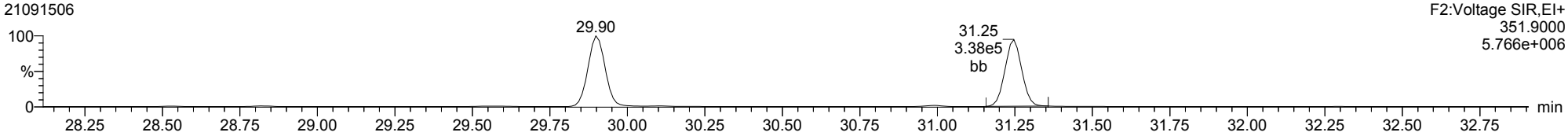

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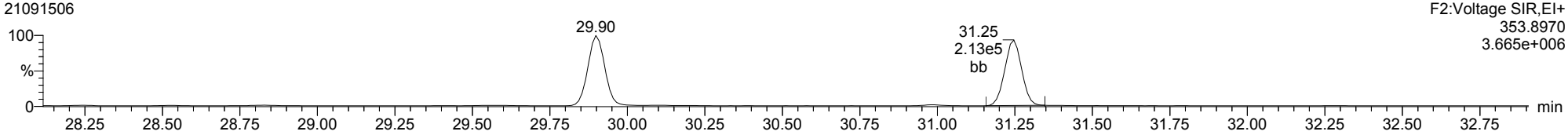

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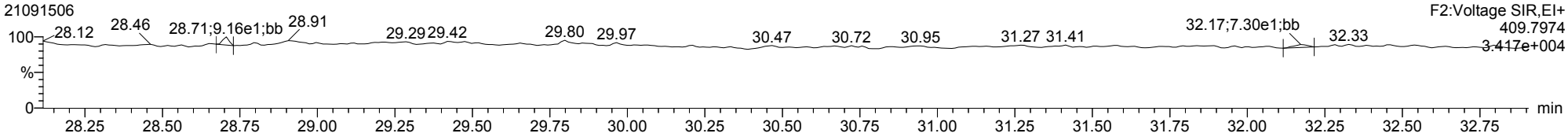

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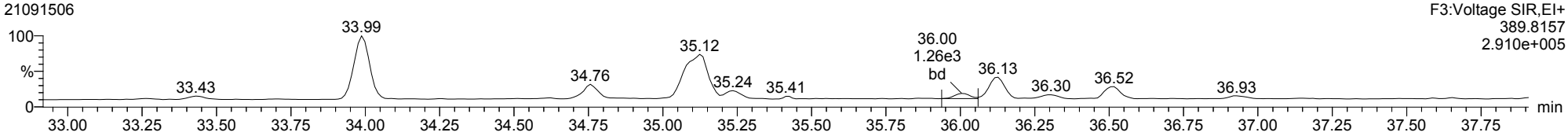

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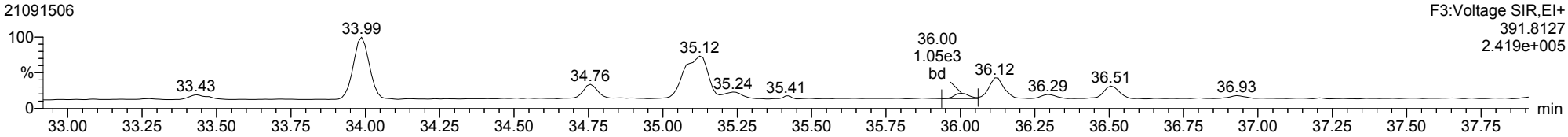

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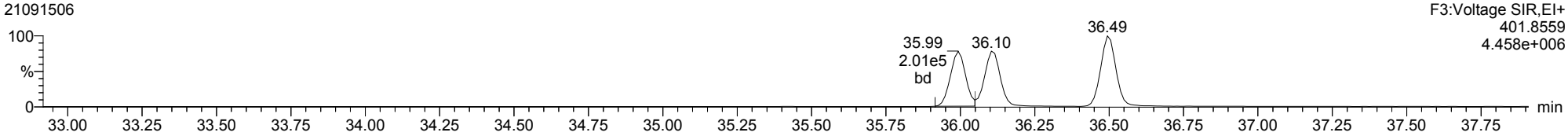

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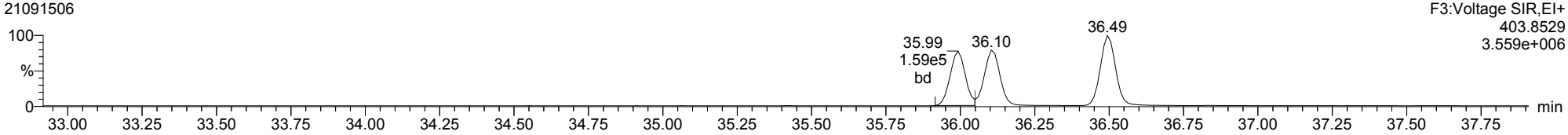

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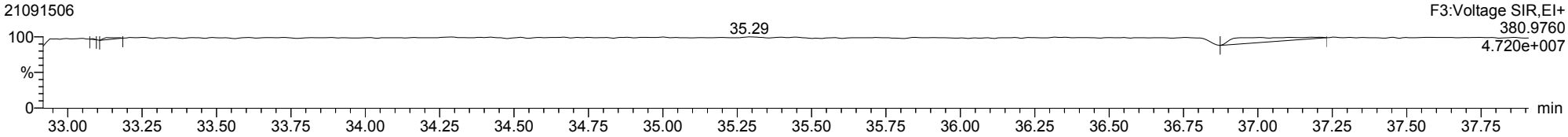

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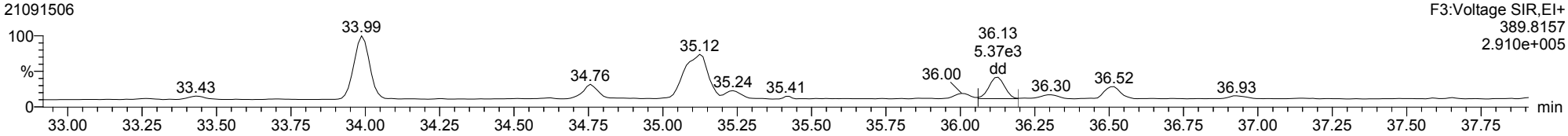

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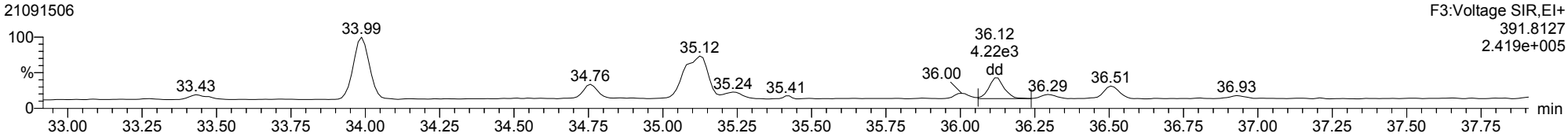

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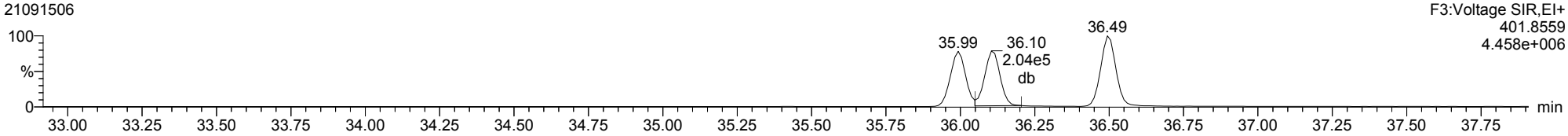

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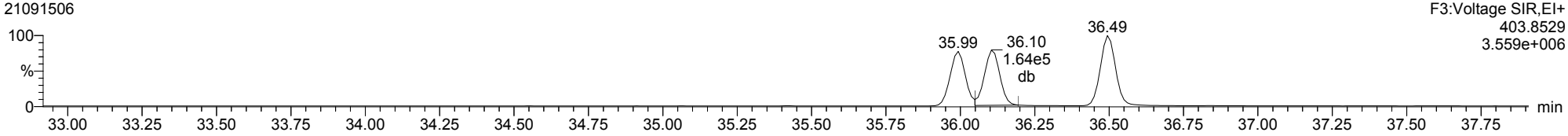

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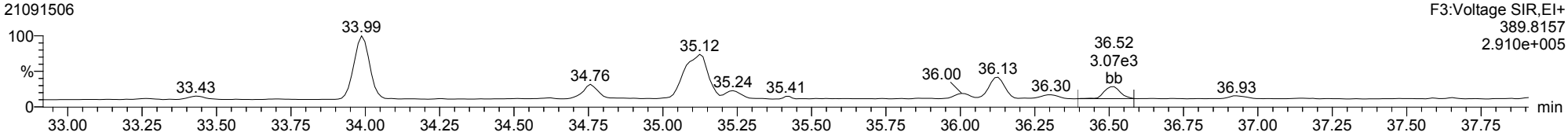

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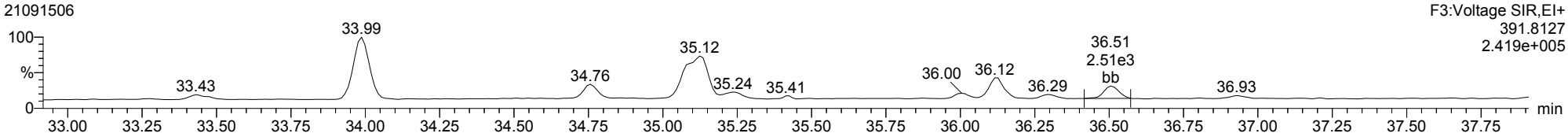

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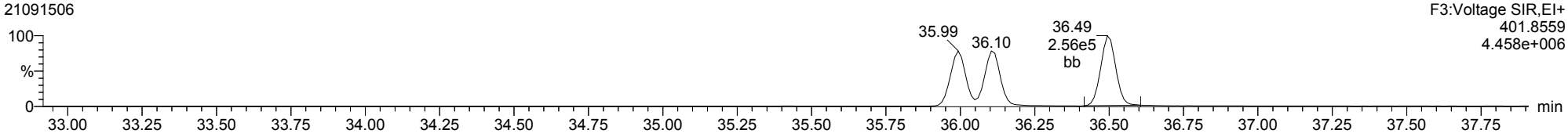

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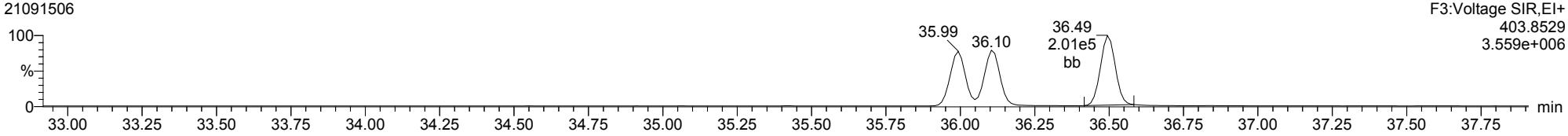

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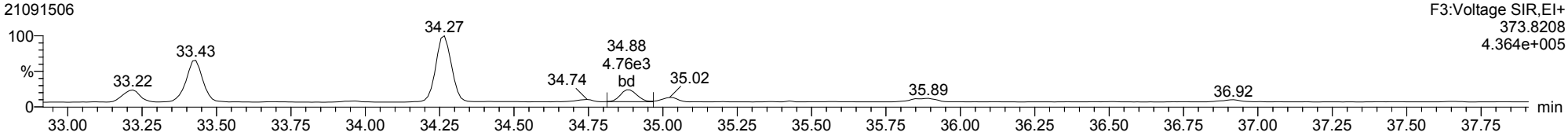

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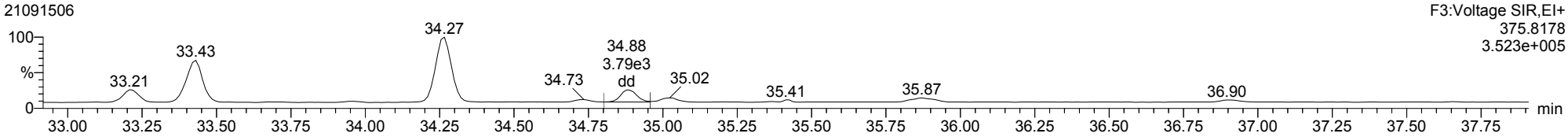

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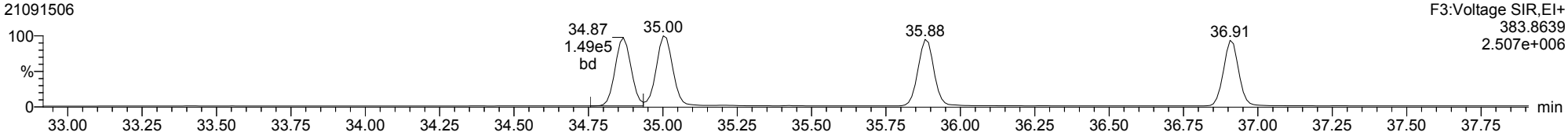

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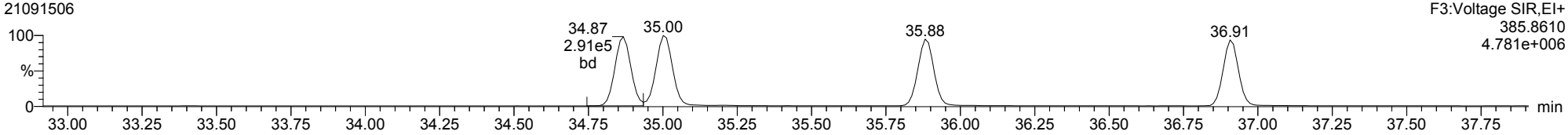

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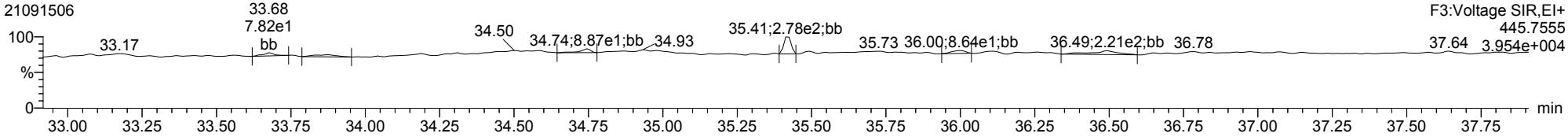

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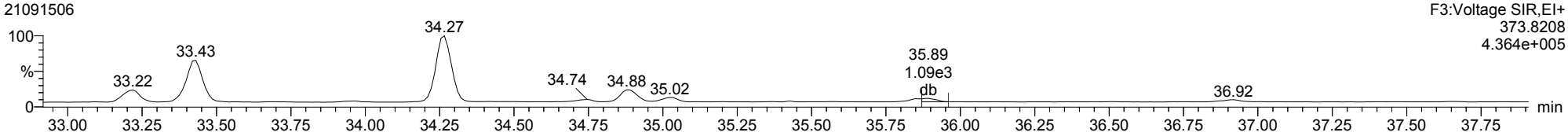

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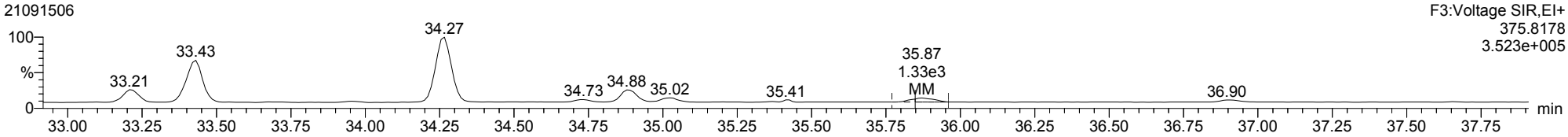

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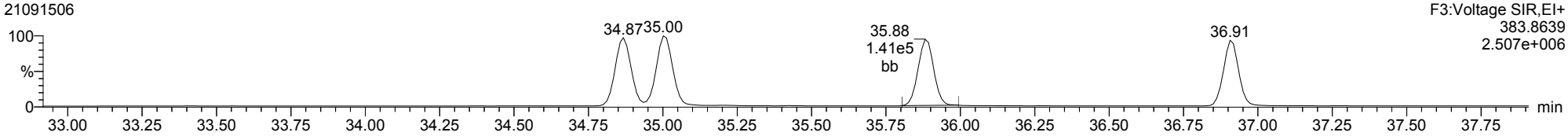

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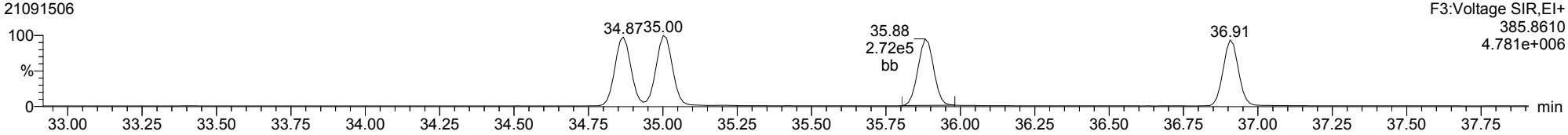

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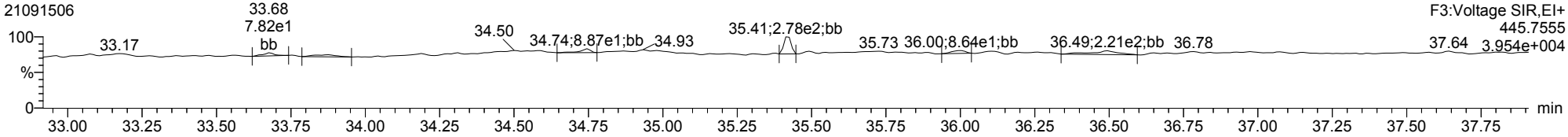

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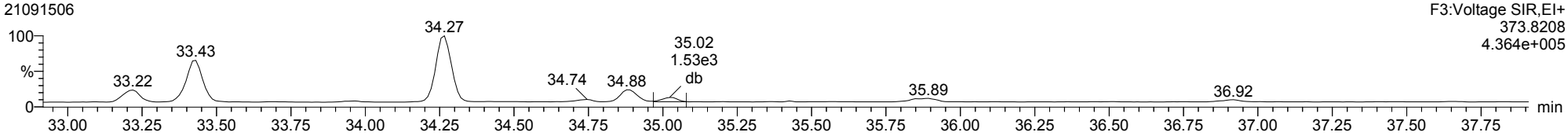

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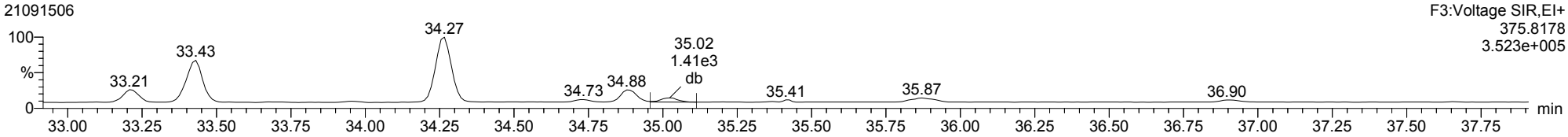

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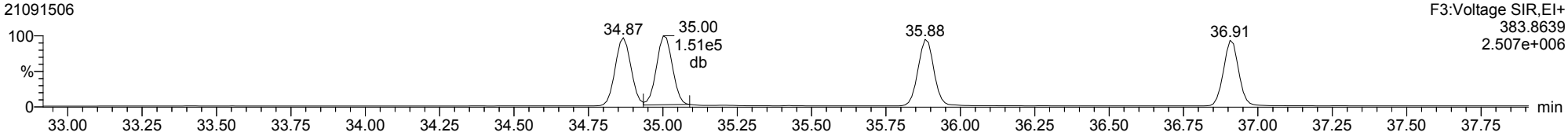

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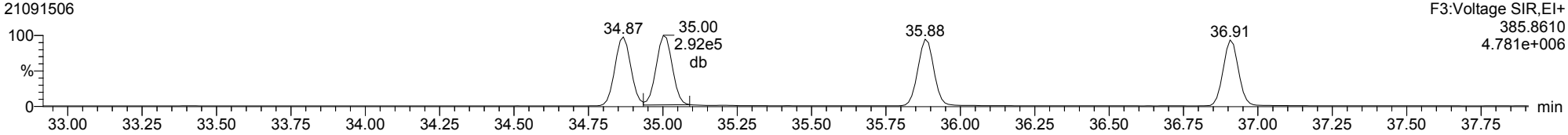

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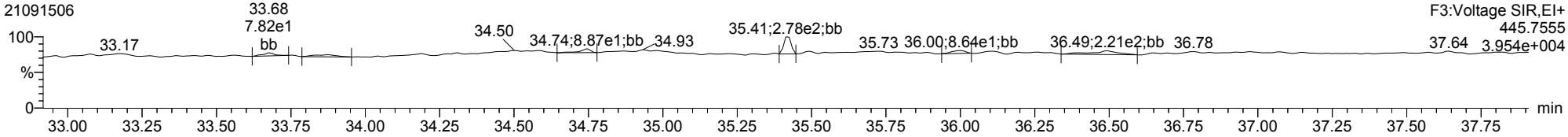

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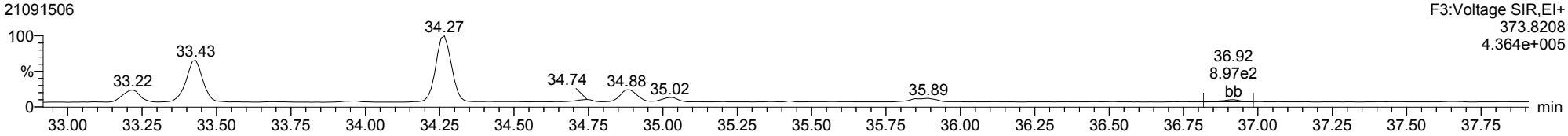

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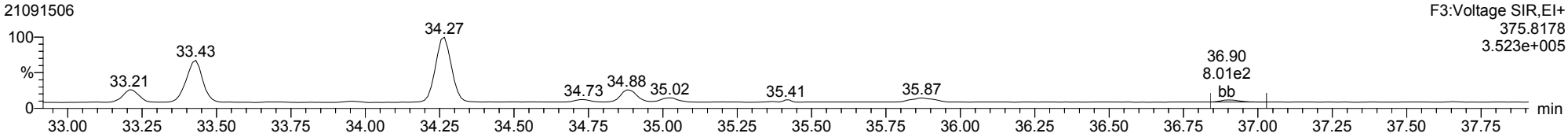

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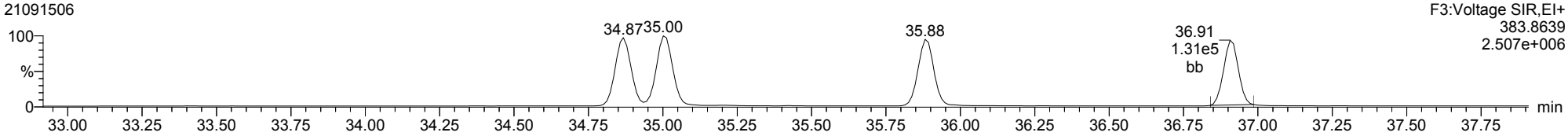

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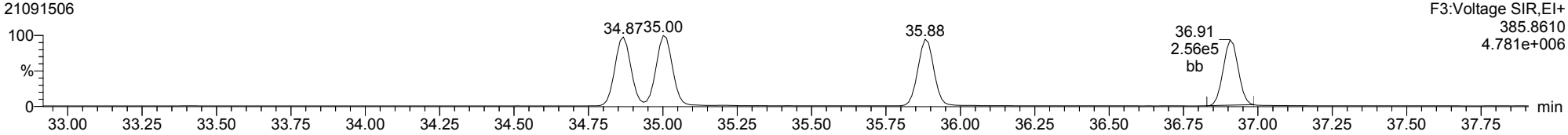

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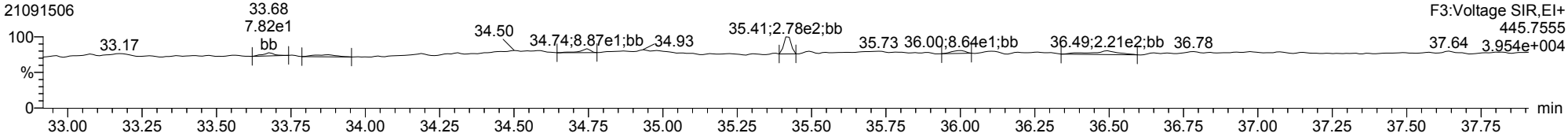

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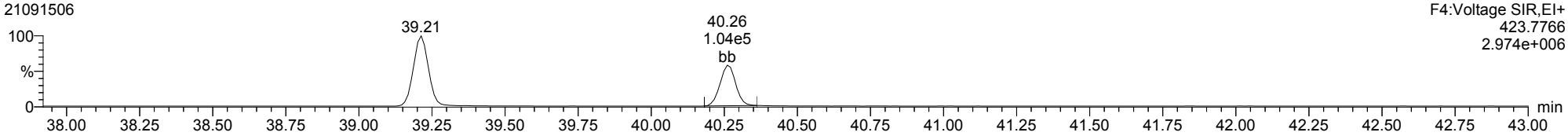

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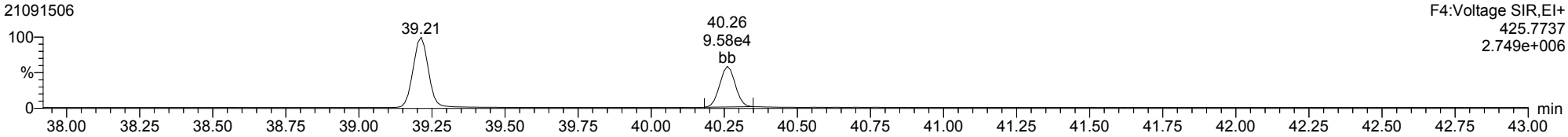

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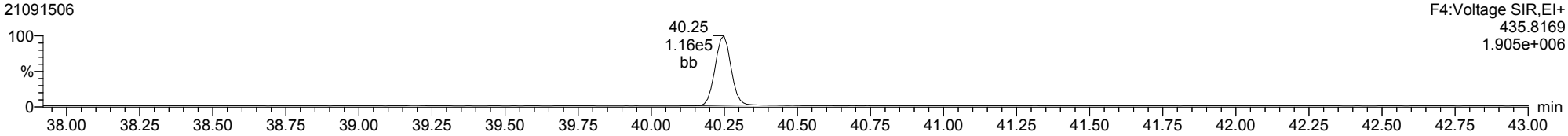

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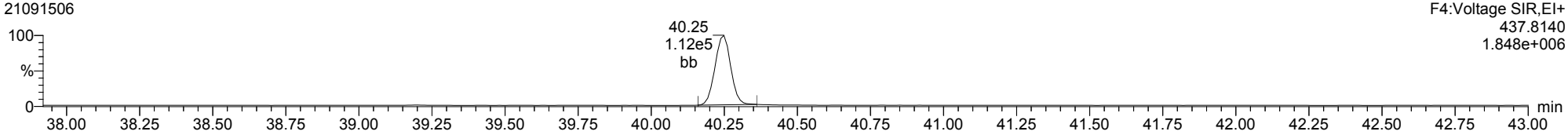

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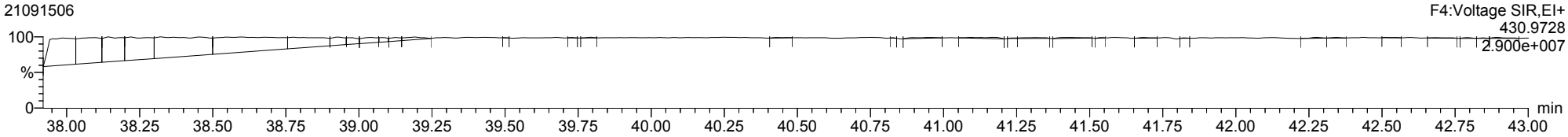

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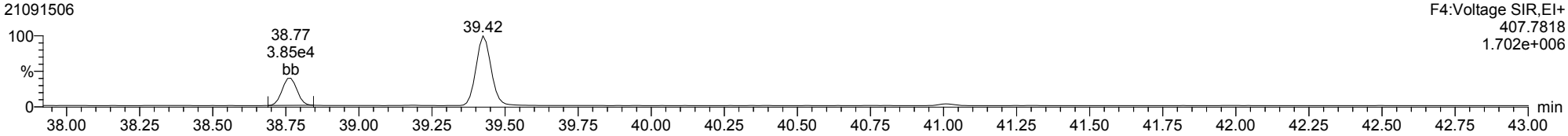

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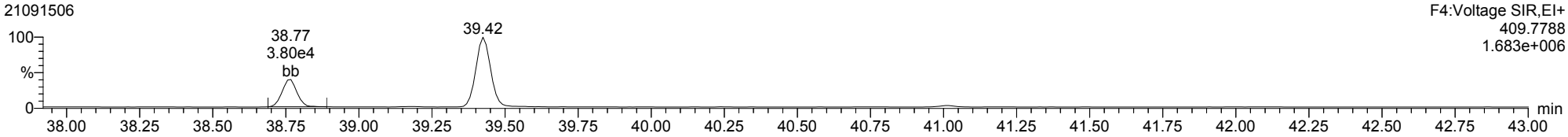

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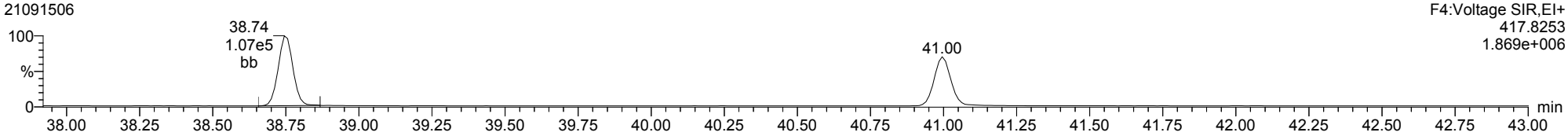

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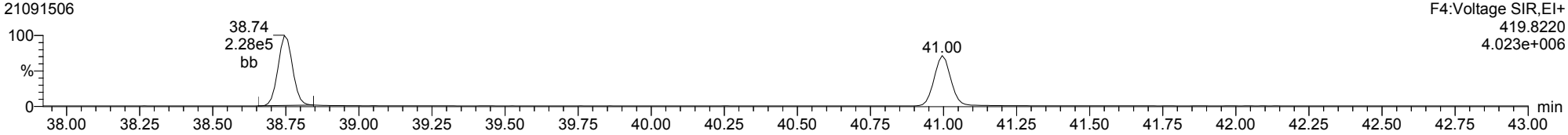

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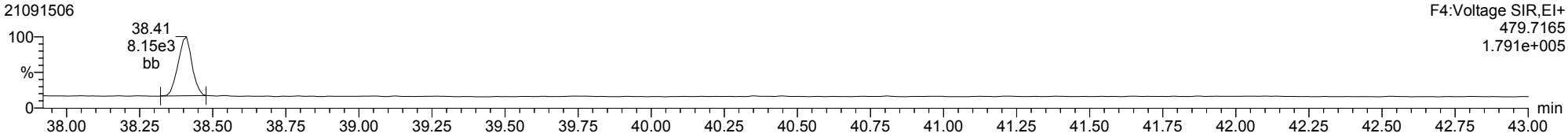

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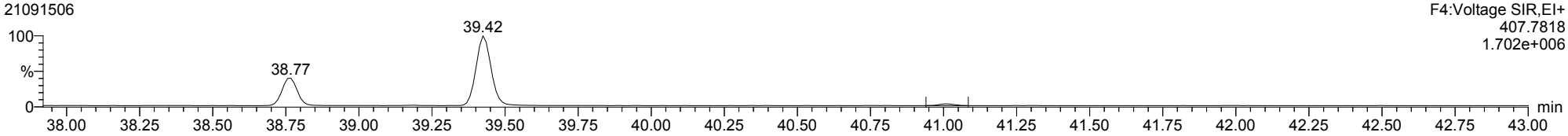

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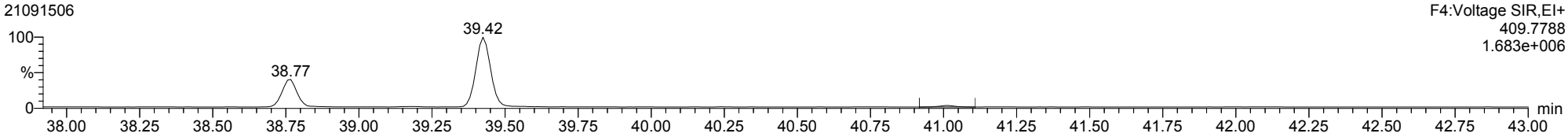

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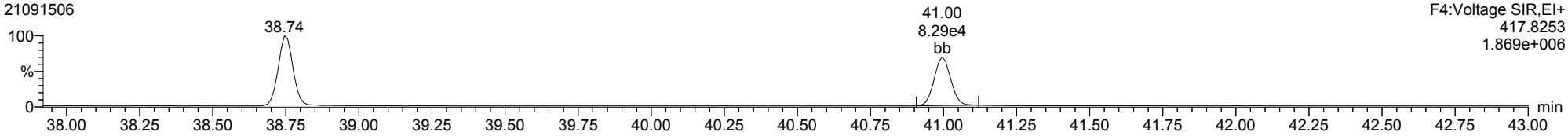

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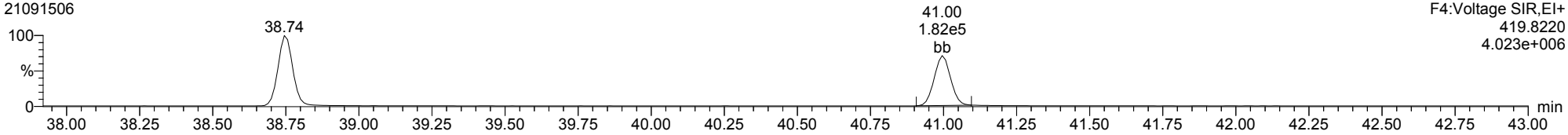

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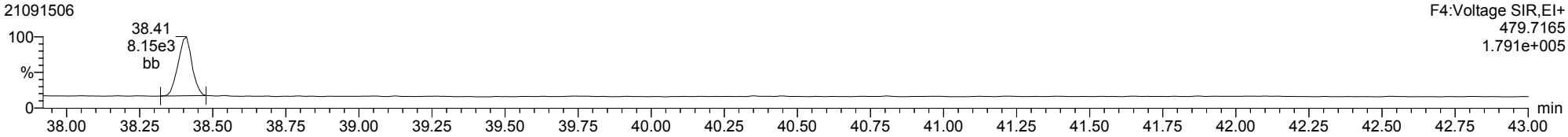

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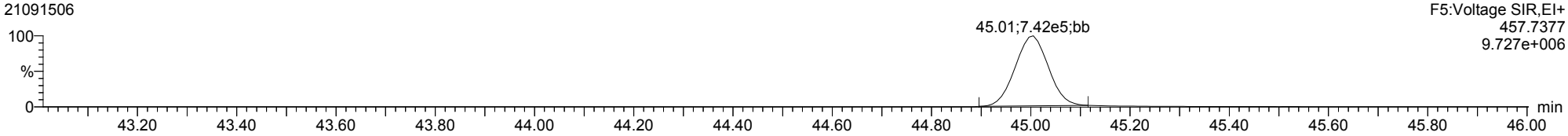

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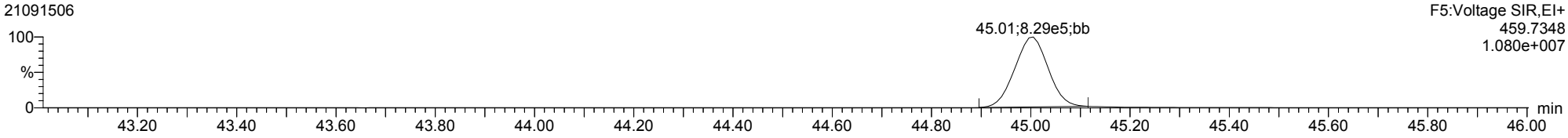

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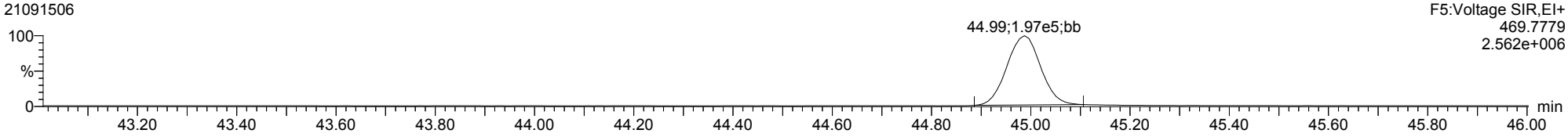

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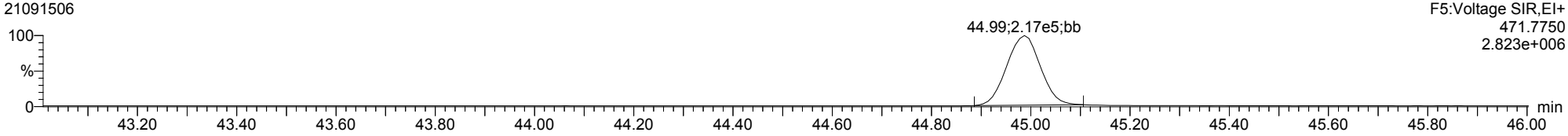

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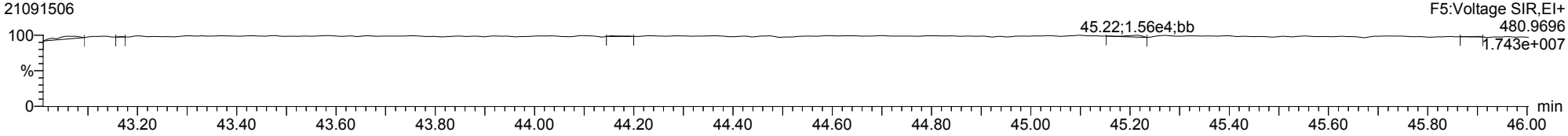

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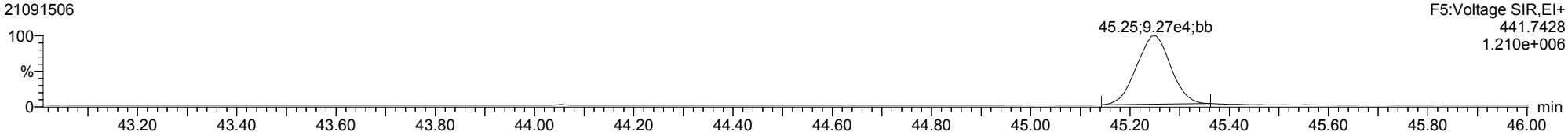

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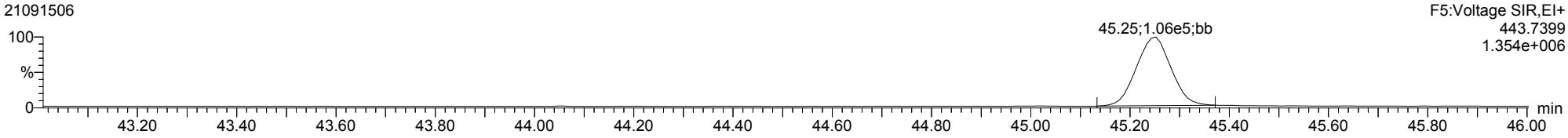

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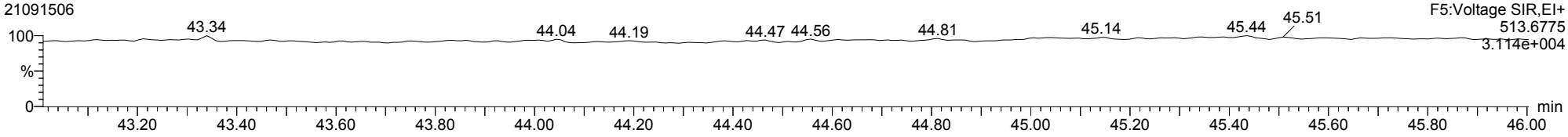

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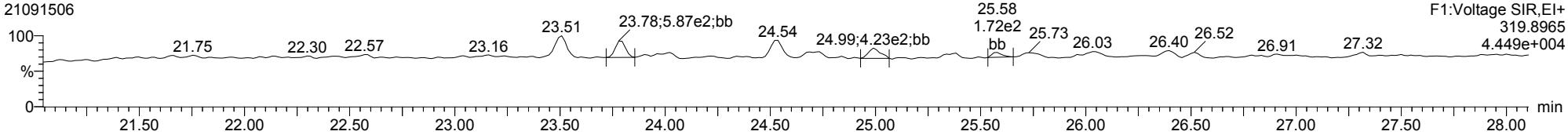
Total-tetradioxins



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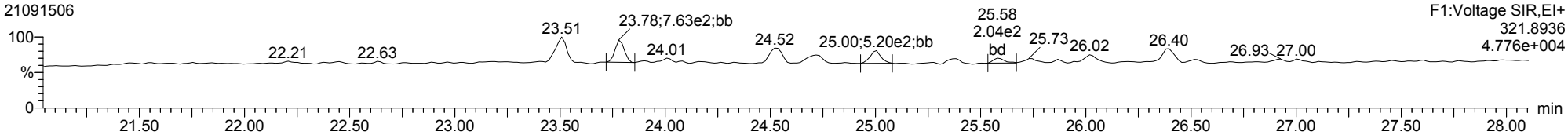

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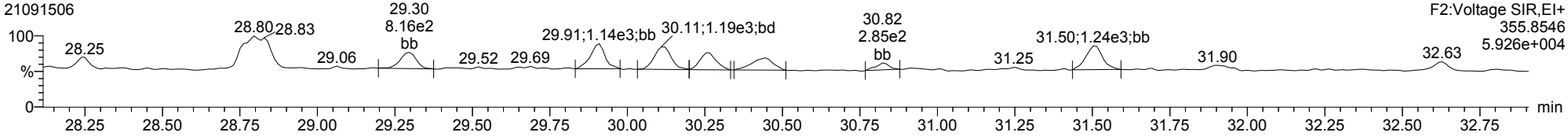
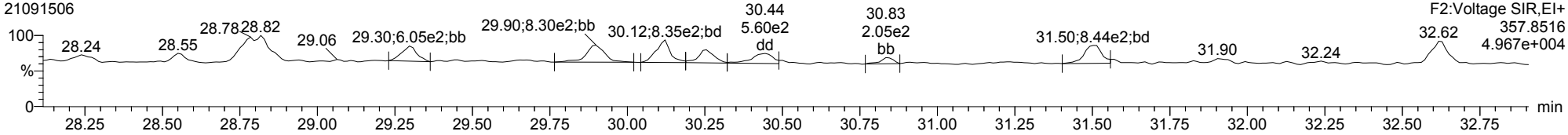


Total-pentadioxins



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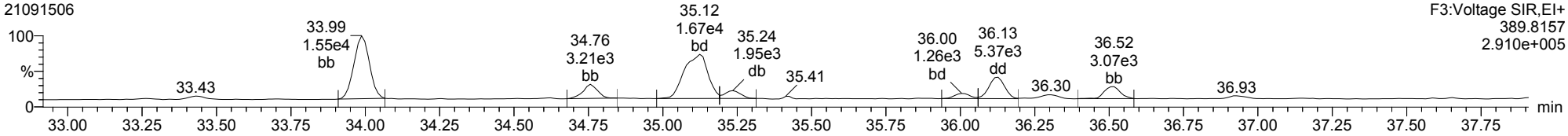

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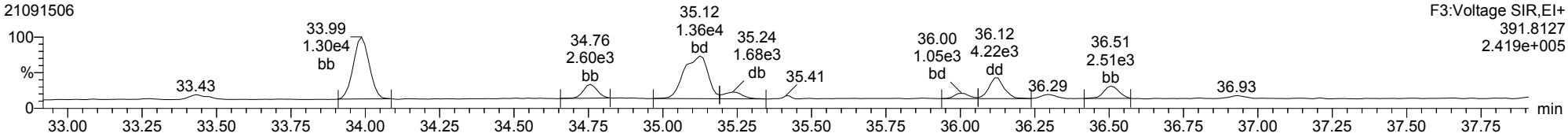

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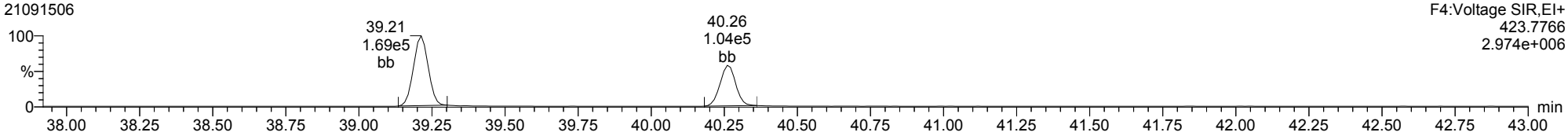

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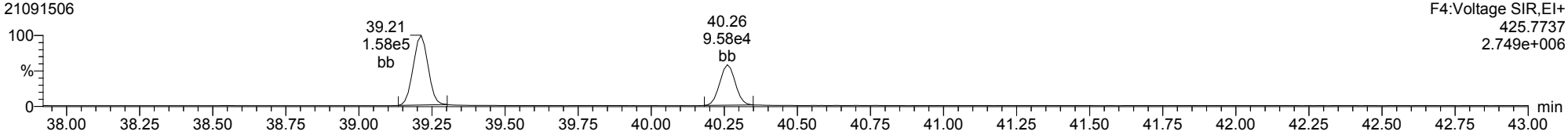

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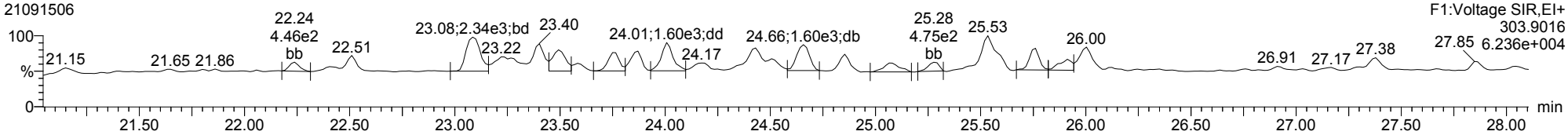
Total-tetrafurans



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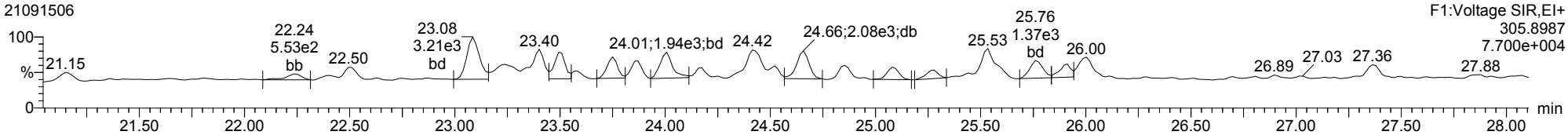

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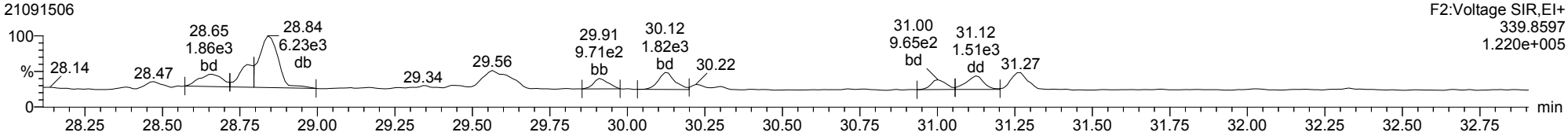

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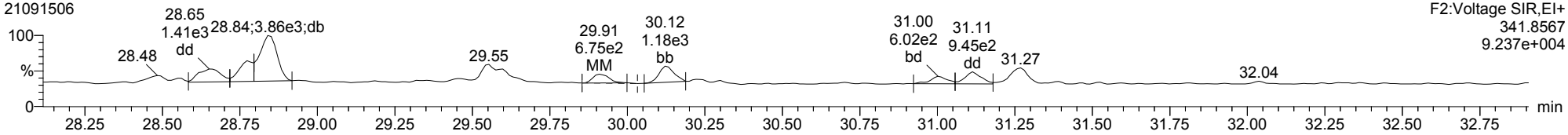

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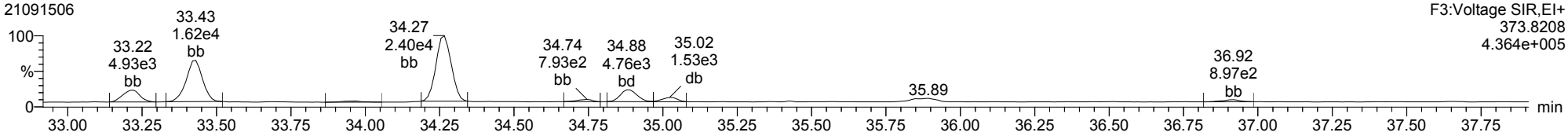

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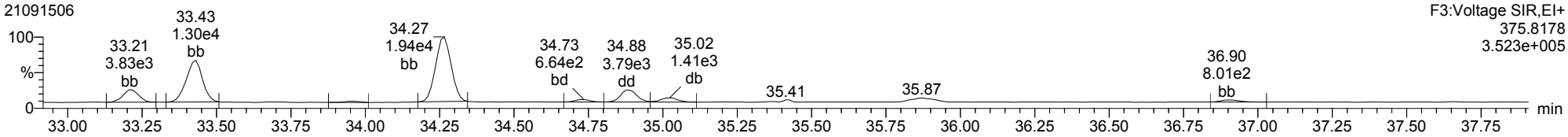

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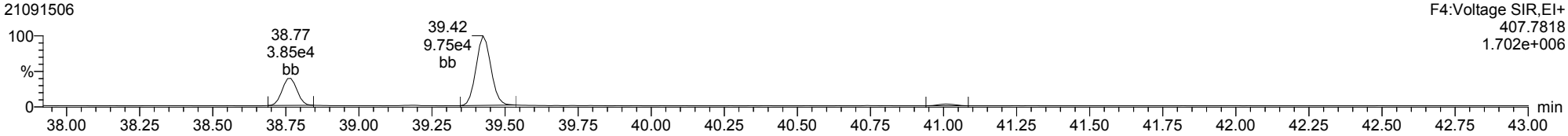

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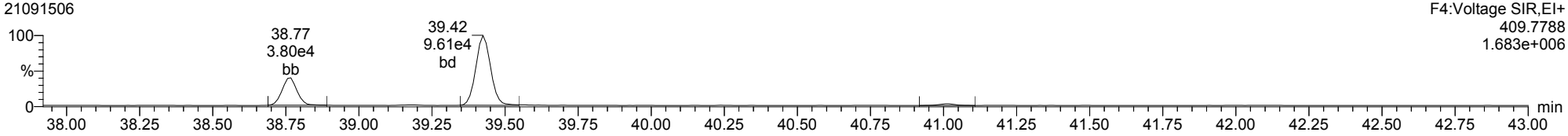

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Batch:	BJH0186 Batch Matrix: Solid	Preparation:	EPA 1613

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS668	21G0127-01	21082417	08/09/21 16:30	
LDW21-SS667	21G0127-02	21082418	08/09/21 16:30	
LDW21-SS651	21G0127-03	21082419	08/09/21 16:30	
LDW21-SS633	21G0127-05	21082420	08/09/21 16:30	
LDW21-SS645	21G0127-08	21082421	08/09/21 16:30	
LDW21-SS656	21G0127-10	21082422	08/09/21 16:30	
Blank	BJH0186-BLK1	21082409	08/09/21 16:30	
LCS	BJH0186-BS1	21082410	08/09/21 16:30	
LDW21-SS668	BJH0186-DUP1	21082412	08/09/21 16:30	
Reference	BJH0186-SRM1	21082411	08/09/21 16:30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

HRGCMS Dioxin/Furan Preparation Bench Sheet EPA Methods 8290A & 1613B

Batch: BJH0186

Solid Samples

From BJG0187 on 8/6/2021 by VTS

ARI Work Orders:	21F0392,21F0442,21G0127		
Matrix (circle one)	[Soil] Sediment Oil Tissue		
Extraction Method	Start Date/Time:	End Date/Time:	
[Soxhlet] SepF Shake out	8/9/21 ~~PM~~ 16:30	8/10/21	8:34

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Balance		24650344	VLB	8/9/21
Toluene		J005999/J005998	DAP	8/9/21
Hexane		J005194/J002562	VLB	8/10/21/8/17/21
CH2Cl2		J007004	VLB	8/17/21
H2SO4		~~J006679~~ F009222	VLB	~~8/17/21~~ VLB 8/13/21
Na2SO4		J008034/J008126	DAP/VLB	8/9/21/8/13/21
Glasswool		J006679	VLB	8/17/21
~~(98:2) Hex/DCM~~				
Basic Silica		J002641	VLB	8/17/21
Acid Silica		J007981	VLB	8/17/21
0% Silica		J005622	VLB	8/9/21/8/17/21
Activated Florisil		J002451	VLB	8/17/21
Nonane		H006038	M	8/18/21
Other (RM)		J006843	VLB	8/9/21

Lab Number & Container	Sample Name	% Solids	Sample Weight Equal to dry (g) (Target Dry)	Actual	RotoVap 45 °C	Water Trap Vol (mL)	Final Vol. (uL)
21F0392-25RE1 A	T91-R1-ITESSComp2	74.60835	(13.40)	13.40	1/2	3.0	20
21F0442-07RE1 B	LDW21-SC564I	53.00846	(15.87)	15.89	1/2	6.0	20
21G0127-01 A	LDW21-SS668	53.74016	(18.61)	18.66	1/2	6.0	20
21G0127-02 A	LDW21-SS667	51.20834	(16.34)	16.38	1/2	5.5	20
21G0127-03 A	LDW21-SS651	54.77323	(18.26)	18.26	1/2	7.0	20
21G0127-05 A	LDW21-SS633	47.72995	(20.95)	21.05	1/2	5.5	20
21G0127-08 A	LDW21-SS645	53.60698	(18.65)	18.65	1/2	6.0	20
21G0127-10 A	LDW21-SS656	52.46374	(19.06)	19.03	1/2	8.0	20
21G0127-11 A	LDW21-SS647	48.94527	(20.43)	20.43	1/2	0.0	20
21G0127-12 A	LDW21-SS634	42.71331	(23.41)	23.41	1/2	2.0	20
BJH0186-BLK1	Blank	100	()		1/2	0.0	20
BJH0186-BS1	LCS	100	()		1/2	0.0	20
BJH0186-DUP1	21G0127-01A Duplicate	53.7401	(18.61)	18.60	1/2	7.5	20
BJH0186-SRM1	Reference	100	(5)	5.05	1/2	0.0	20
Prep Analyst / Date:	VLB 8/9/21				VLB 8/10/21	VLB 8/10/21	M 8/18/21

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	J007665	2/4 ng/mL	7/27/22	VLB	DAP	8/9/21
OPR	1.0 mL	J001260	0.2/1.0/2.0 ng/mL	2/3/22	VLB	DAP	8/9/21
~~QLS Standard~~	~~1.0 mL~~		~~0.01/0.05/0.1 ng/mL ng/L~~				
Cleanu-up Standard	1.0 mL	J007666	0.8 ng/mL	7/27/22	VLB	M	8/17/21

Verify Client ID
Analyst / Date: VLB 8/9/21

Acid Clean
[Y] / N
Analyst / Date: VLB 8/13/21

Silica-Florisil Clean
[Y] / N
Analyst / Date: VLB 8/17/21

Supervisor Review By — Date: 8/18/21

Printed: 8/9/2021 8:51:56AM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glasswa

Batch ID: BJM0186 Work Order: 21F0392, 21F0442, 21G0127 Extraction Parameter: Dioxin ARI Analyst

ARI Sample ID	300 mL Flat Bottom	Small Soxhlet	Large Soxhlet	250 mL Beaker	Funnel	Column	Florisil Column	Turbo Tube	Sep Funnel	Erlenmeyer Flask	Centrifuge Bottle	Turbo-Vap	Vortex Mixer	Heating
BJM0186 - BLK1	39	100		40	23	204	6	6				4	4	A
- BS1	84	104		24	19	207	77	81				4	4	A
- DUP1	43	79		28	27	199	67	14				4	4	A
- SRM1	14	83		20	82	128	157	78				4	4	A
21F0392 - 25REI A	56	103		16	96	213	84	67				4	4	A
21F0442 - 07REI B	60	62		29	30	212	15	57				4	4	B
21G0127 - 01A	83		35	5	11	72	119	38				4	4	A6
- 02A	01		52	30	08	162	127	13				4	4	B2
- 03A	07		66	243	04	96	159	71				4	4	B3
- 05A	59		24	232	76	230	101	83				4	4	B4
- 08A	31		25	205	20	189	143	49				4	4	B5
- 10A	22		65	33	81	208	121	21				4	4	B6
- 11 A	42		63	37	12	225	141	26				4	4	C1
- 12A	16		59	116	01	142	59	47				4	4	C2
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	
												4	4	

21G0127_Dioxin_CLP_LKE(Rev1) - Page 302 of 1162

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BJG0383
Date:	7/16/2021 13:12
Analyst:	JL
Drying Oven:	15
Analytical Balance:	B334705934

Instrumentation

Batch drying time		
Record times as mm/dd/yy hh:mm		Oven Temp, C
Date/time in oven:	7/20/2021 13:21	
Date/time out:	7/21/2021 7:50	
Elapsed hrs:	18.5	

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	104
End Temp:	105

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21G0127-01	0.8100	16.6300	9.3400	8.53	**53.92%**	No
21G0127-02	0.8100	12.2200	7.8900	7.08	**62.05%**	No
21G0127-03	0.8100	12.1400	6.8400	6.03	**53.22%**	No
21G0127-04	0.8100	16.9600	11.2200	10.41	**64.46%**	No
21G0127-05	0.8100	15.1400	7.6500	6.84	**47.73%**	No
21G0127-06	0.9300	11.7800	6.2700	5.34	**49.22%**	No
21G0127-07	0.8200	13.6100	7.0200	6.20	**48.48%**	No
21G0127-08	0.8200	12.0200	7.0500	6.23	**55.63%**	No
21G0127-09	0.8200	14.8800	10.4300	9.61	**68.35%**	No
21G0127-10	0.8300	17.1400	8.2000	7.37	**45.19%**	No
21G0127-11	0.8200	12.8100	6.7200	5.90	**49.21%**	No
21G0127-12	0.8300	16.2100	8.2900	7.46	**48.50%**	No
21G0127-13	0.8100	10.8600	5.7700	4.96	**49.35%**	No
21G0127-14	0.8100	15.7400	8.6800	7.87	**52.71%**	No
21G0127-15	0.8100	12.5200	6.9600	6.15	**52.52%**	No
21G0127-16	0.8100	16.7800	9.2700	8.46	**52.97%**	No
21G0127-17	0.8000	15.3800	12.1500	11.35	**77.85%**	No
21G0127-18	0.8000	14.3900	10.4200	9.62	**70.79%**	No
21G0127-19	0.8000	13.7500	9.9300	9.13	**70.50%**	No
21G0127-20	0.8000	14.3000	10.2800	9.48	**70.22%**	No

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: ~~PCST~~ Dioxin M 8/9/21 Extraction Batch ~~BJG0491~~ BJH0181 NL 8/9/21

Total Solids Batch: BJG0383 Work Order(s): 21G0127

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☑ Standing Water Decanted (Not shared)= 02-08, 10-16, 18, 01	LB 8/9/21
☑ Standing Water Homogenized (Shared samples)=	07/20/21
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☑ Organics (Leaves/sticks/grass)= 05, 06, 11, 18, 19	07/20/21
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☒ Other Notes/Comments= (Note problems, concerns, corrective actions).	
Low solvent level after extraction: BLK1	LB 8/10/21
Sharpie ink inside florisil column: HF0392-25	LB 8/17/21
☑ Share Samples Y / N	07/20/21
☑ Multiple Jars Y / N	07/20/21
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

07/20/2021

3056F

Revision 15
07/01/19

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin

Extraction Batch ~~BJG0187~~ BJH0186 M 8/9/21

Total Solids Batch: BJG0145

Work Order(s): 21F0442

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= 1, 7	DP 7/7/21
☐ Standing Water Decanted (Not shared)=	
☒ Standing Water Homogenized (Shared samples)= 1	DP 7/7/21
☒ Clay/Clumps (Difficult to homogenize)= 3, 4, 5, 6	DP 7/7/21
☐ Rocks (%+size)?	
☒ Organics (Leaves/sticks/grass)= 2, 3, 8	DP 7/7/21
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☑ Other Notes/Comments= (Note problems, concerns, corrective actions).	DP 7/9/21
7/9/21 = Roto-vaped Samples BLK, BS1, DUP1, DUP2, SRM1,	
392-25,26, 442-1,2.	
21F0442-03B-08B: Roto vaped on 7/13/21	M 7/13/21
☒ Share Samples Y / N 442-1-8	DP 7/7/21
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

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Revision 15
07/01/19

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Extraction Batch ~~BJG0189~~ ~~BJG0187~~ BJH0186 M 7/18/21 M 8/9/21

Total Solids Batch: BJG0031 Work Order(s): 21F0352, 21F0392, 21F0399, 21F0410

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= 392-25,26, 410-1,2	DP 7/1/21
☒ Standing Water Decanted (Not shared)= 352-1,2,3, 392-25,26, 399-2,7,3,4	DP 7/1/21
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☒ Rocks (%+size)? 95% ½" = 352-1 90% ¼" = 399-5,6	DP 7/1/21
☒ Organics (Leaves/sticks/grass)= 352-2,3, 399-1,2,3,4,7	DP 7/1/21
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= Also Standing water Decanted = 410-1,3	DP 7/1/21
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

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Revision 15
07/01/19

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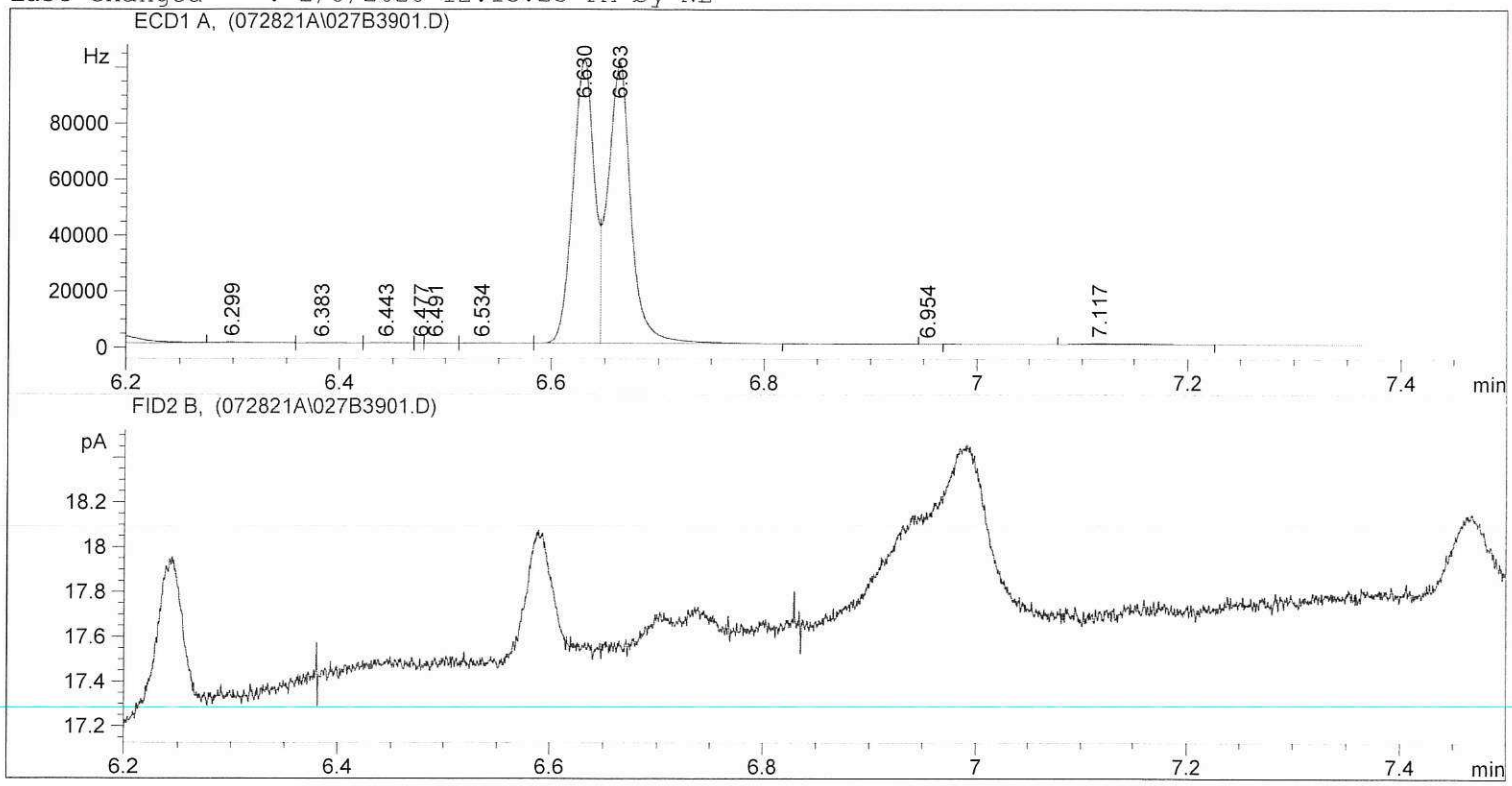
Injection Date : 7/29/2021 12:49:06 AM Seq. Line : 39
Sample Name : CS4 STANDARD Location : Vial 27
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\072821A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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Area Percent Report

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Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.211	BP	2.33e-3	6.52106	233.04259	0.00054
2	5.296	VP	0.0101	13.39620	19.18247	0.00111
3	5.348	BP	0.0165	74.13450	57.28374	0.00615
4	5.489	BV S	0.0248	1.68213e5	9.09618e4	13.95832
5	5.589	VV S	0.0384	2.69147e5	1.16810e5	22.33389
6	5.644	VV S	0.0202	9.78482e4	8.05816e4	8.11946
7	5.690	VV S	0.0239	9.36114e4	6.53610e4	7.76789
8	5.794	VV S	0.0305	858.57306	469.83682	0.07124
9	5.844	VB S	0.0279	373.49060	209.49670	0.03099
10	5.930	BB S	0.0176	9.86317e4	8.36811e4	8.18448
11	6.080	BV S	0.0189	8.85062e4	7.10608e4	7.34426
12	6.160	VV S	0.0236	9.36595e4	6.62017e4	7.77189
13	6.299	BP T	0.0163	214.28192	167.87729	0.01778
14	6.383	PV T	0.0200	202.31474	122.89642	0.01679
15	6.443	PV T	0.0218	163.35081	89.88388	0.01355
16	6.477	VV T	6.42e-3	22.35113	44.78091	0.00185
17	6.491	VV T	0.0178	90.67920	61.58273	0.00752

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.534	VP T	0.0215	208.35390	115.38617	0.01729
19	6.630	VV S	0.0207	1.40023e5	1.01517e5	11.61910
20	6.663	VB S	0.0252	1.51486e5	1.00201e5	12.57031
21	6.954	BP	3.50e-3	1.42287	5.71885	0.00012
22	7.117	PB	0.0463	1095.11194	284.67529	0.09087
23	7.682	BP	0.0287	657.45093	276.68359	0.05456
Totals :				1.20511e6	7.78535e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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==========================================================================
Injection Date  : 7/29/2021 1:22:00 AM          Seq. Line :  42
Sample Name     : 21G0127 01                     Location : Vial 54
Acq. Operator   : DXP                                Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\072821A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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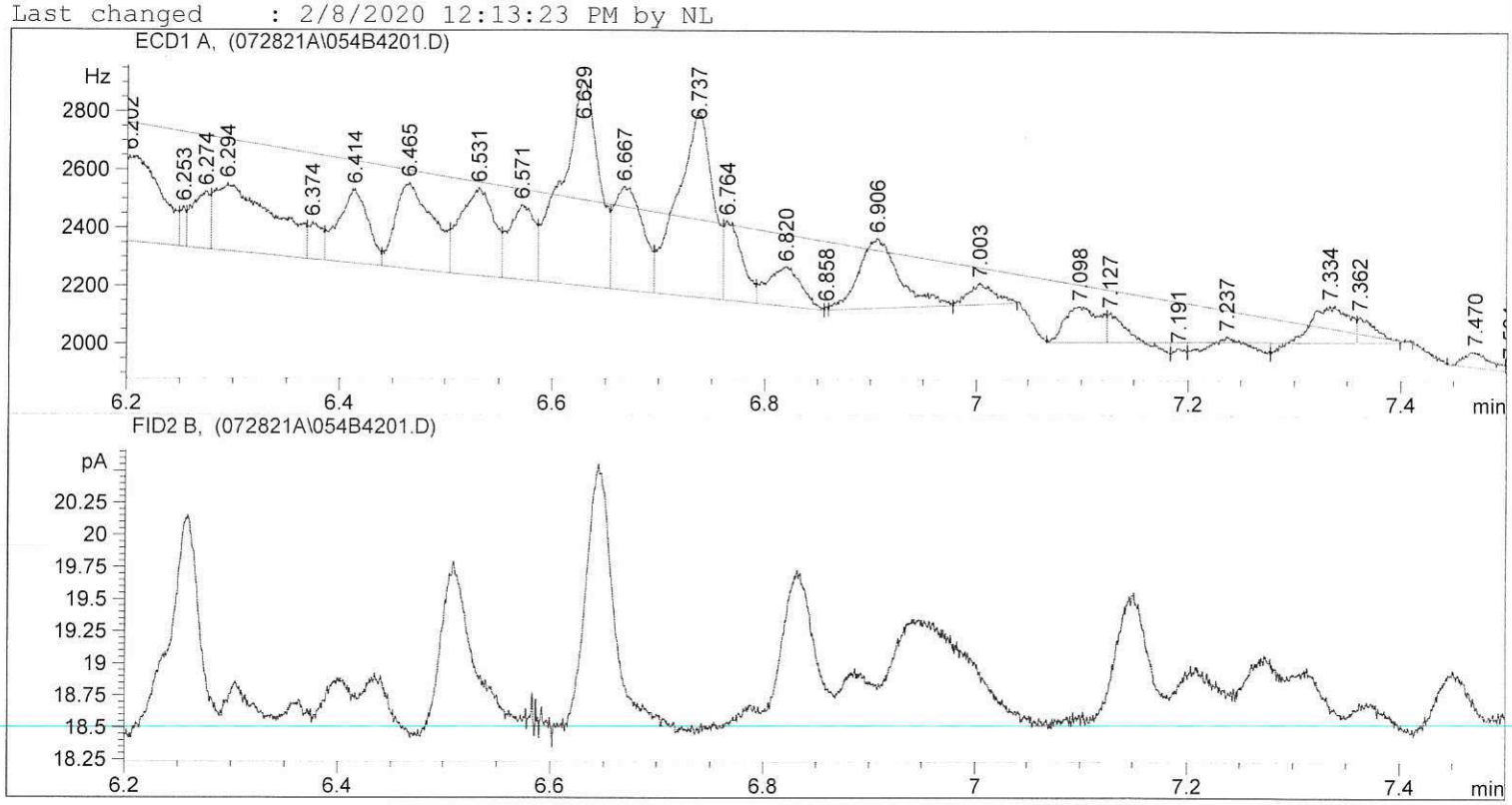


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==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
```

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.216	BB S	0.0000	4.28062e4	3601.85669	54.33081
2	5.276	BV T	0.0119	71.13066	72.25880	0.09028
3	5.300	PB T	0.0122	38.49535	52.45333	0.04886
4	5.376	BV T	0.0315	966.42285	370.03018	1.22661
5	5.419	PV T	0.0128	272.09042	265.06058	0.34534
6	5.440	PV T	0.0168	519.32434	374.27258	0.65914
7	5.479	PV T	0.0222	1313.06982	822.54413	1.66659
8	5.530	PV T	0.0149	1269.16797	1017.72229	1.61086
9	5.550	VV T	0.0223	2148.44702	1153.23730	2.72687
10	5.582	PV T	0.0141	714.42072	619.13849	0.90676
11	5.608	PV T	0.0228	1662.39966	864.52203	2.10997
12	5.666	PV T	0.0227	2144.88428	1186.74219	2.72235
13	5.691	PV T	0.0256	816.32770	532.33215	1.03611
14	5.734	PV T	0.0132	404.88779	387.39990	0.51390
15	5.757	PV T	0.0196	1215.40576	752.97198	1.54263
16	5.810	PV T	0.0277	2043.01733	914.36316	2.59306
17	5.859	PV T	0.0210	1612.79211	921.62970	2.04700

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.878	PV T	0.0209	1594.68408	908.44360	2.02402
19	5.940	PV T	0.0255	1819.47644	874.78778	2.30933
20	5.966	PV T	0.0180	1010.27771	676.90887	1.28227
21	5.988	PV T	4.57e-3	123.01094	448.46936	0.15613
22	6.003	PV T	0.0236	1068.99463	551.82117	1.35680
23	6.056	PV T	0.0193	487.02457	304.17477	0.61815
24	6.079	PV T	0.0306	885.85724	346.44803	1.12436
25	6.126	PV T	5.02e-3	62.39923	207.06546	0.07920
26	6.132	PV T	4.59e-3	56.44998	205.00287	0.07165
27	6.152	PV T	0.0230	529.86346	286.45825	0.67252
28	6.183	PV T	0.0143	325.92865	273.63538	0.41368
29	6.202	PV T	0.0306	759.57538	293.66260	0.96407
30	6.253	PV T	4.85e-3	49.97126	137.15591	0.06342
31	6.274	PV T	0.0146	230.72652	198.12325	0.29284
32	6.294	PV T	0.0451	891.92480	232.85397	1.13206
33	6.374	PV T	0.0149	114.15178	127.78437	0.14488
34	6.414	PV T	0.0237	493.52332	254.14983	0.62639
35	6.465	PV T	0.0299	746.46552	297.23285	0.94744
36	6.531	PV T	0.0268	650.24823	303.39145	0.82531
37	6.571	PV T	0.0204	429.29260	258.09882	0.54487
38	6.629	PV T	0.0291	1684.22192	709.78119	2.13766
39	6.667	PV T	0.0236	693.46552	355.60309	0.88017
40	6.737	PV T	0.0285	1467.29199	641.57941	1.86233
41	6.764	PV T	0.0195	320.59024	274.03989	0.40690
42	6.820	PV T	0.0266	298.50165	136.00027	0.37887
43	6.858	PV T	2.42e-3	1.56387	10.77477	0.00198
44	6.906	PV T	0.0317	634.37665	241.22208	0.80517
45	7.003	PB T	0.0216	126.72816	72.32510	0.16085
46	7.098	BV T	0.0275	279.81012	123.09705	0.35514
47	7.127	PV T	0.0103	81.55148	98.43873	0.10351
48	7.191	PV T	0.0159	26.34374	20.67439	0.03344
49	7.237	PV T	0.0000	54.37795	19.48532	0.06902
50	7.334	PV T	0.0271	289.55872	127.55962	0.36752
51	7.362	PB T	0.0195	105.95787	90.58880	0.13448
52	7.470	PB	0.0220	91.84303	54.08557	0.11657
53	7.504	BP	0.0259	50.89060	23.48088	0.06459
54	7.666	PV	0.0305	151.39285	59.44659	0.19215
55	7.686	VB	0.0197	75.67902	46.82417	0.09605
56	7.765	PB	5.67e-3	5.56402	12.79690	0.00706

Totals : 7.87880e4 2.42120e4

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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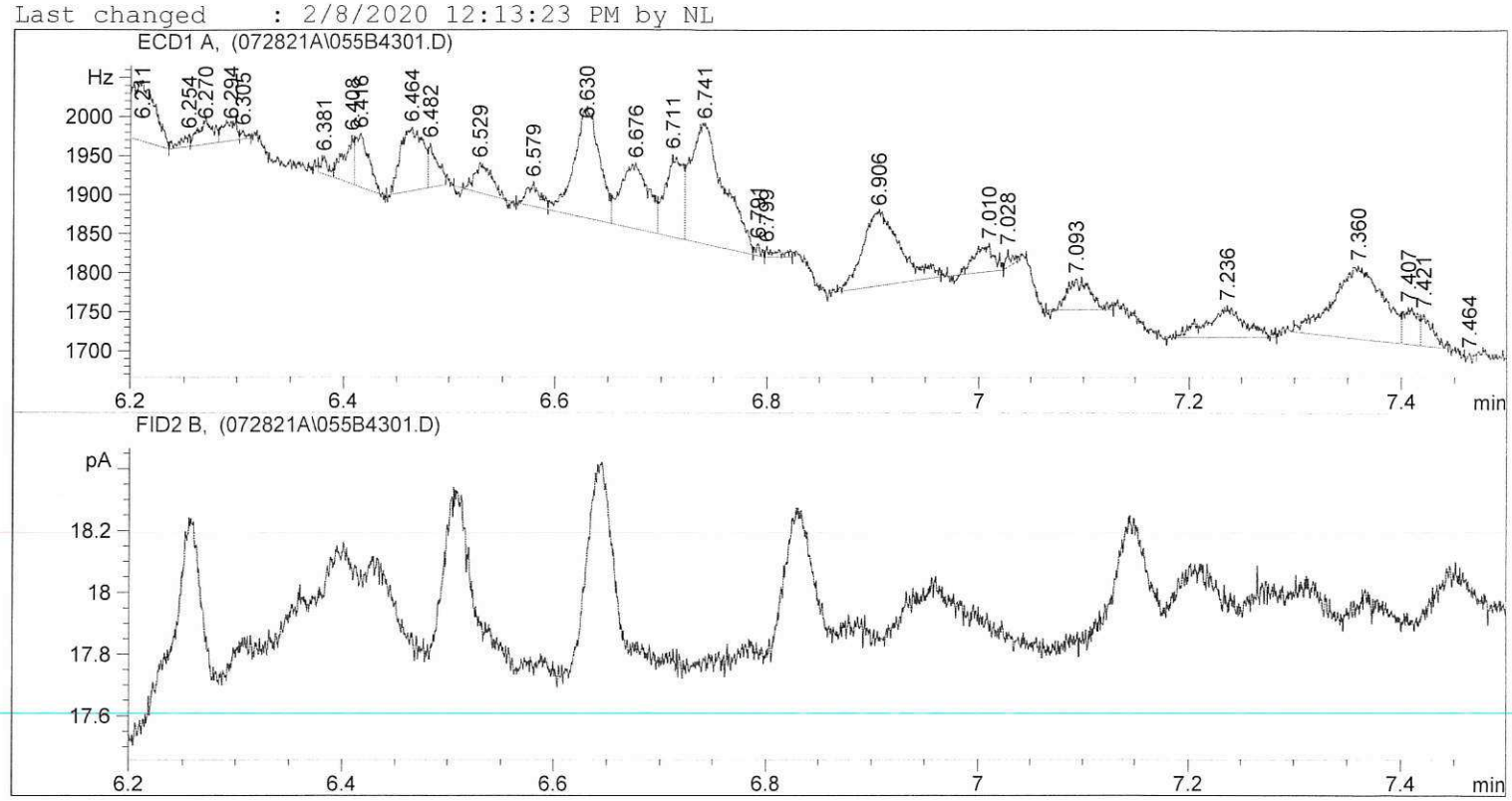
*** End of Report ***

==========

Injection Date : 7/29/2021 1:33:11 AM Seq. Line : 43
Sample Name : 21G0127 02 Location : Vial 55
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\072821A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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Area Percent Report

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Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.220	BP	0.0181	507.39127	366.92151	4.81149
2	5.276	VP	0.0106	40.13202	47.76245	0.38056
3	5.309	VV	7.63e-3	14.71674	24.42883	0.13956
4	5.325	VP	0.0106	18.68335	21.74662	0.17717
5	5.358	VV	0.0141	187.38803	166.69350	1.77696
6	5.378	VB	0.0158	197.37360	149.30136	1.87166
7	5.413	BV	0.0150	83.91405	68.97599	0.79574
8	5.444	VV	0.0166	118.95152	92.52080	1.12799
9	5.480	VV	0.0192	610.74884	382.36710	5.79161
10	5.556	VV	0.0313	661.00348	252.79425	6.26817
11	5.584	VB	0.0139	182.43367	162.33678	1.72998
12	5.612	BV	0.0233	376.88678	198.59673	3.57394
13	5.669	VV	0.0266	530.50769	251.94121	5.03070
14	5.692	VV	0.0164	269.41592	201.84219	2.55482
15	5.757	VV	0.0234	754.47308	385.39957	7.15452
16	5.809	VV	0.0256	624.78339	300.81271	5.92470
17	5.879	VV	0.0401	1193.79944	358.22260	11.32057

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.937	VV	0.0248	520.08984	253.28270	4.93191
19	5.969	VV	0.0143	198.45441	166.48460	1.88190
20	6.022	VV	0.0240	1004.50214	499.84644	9.52550
21	6.057	VB	0.0101	51.54132	64.77500	0.48876
22	6.080	BP	0.0117	46.93446	51.91486	0.44507
23	6.155	PV	0.0190	95.62948	62.69624	0.90684
24	6.185	VV	0.0114	47.88835	52.72702	0.45412
25	6.211	VP	0.0216	136.10641	78.51997	1.29067
26	6.254	VV	8.66e-3	9.44090	15.59964	0.08953
27	6.270	VV	0.0110	30.57682	33.68162	0.28995
28	6.294	VV	0.0111	22.80125	24.84967	0.21622
29	6.305	VB	4.45e-3	3.42599	10.39033	0.03249
30	6.381	BB	6.54e-3	10.58795	22.30678	0.10040
31	6.408	BV	8.16e-3	40.89937	61.45673	0.38784
32	6.416	VP	0.0107	59.64007	68.78895	0.56556
33	6.464	BV	0.0180	121.66421	81.48641	1.15372
34	6.482	VB	7.33e-3	32.89724	57.05972	0.31196
35	6.529	BP	0.0120	38.26770	38.39935	0.36289
36	6.579	BV	0.0106	26.27127	30.65271	0.24913
37	6.630	VV	0.0211	234.50180	142.88524	2.22373
38	6.676	VV	0.0217	151.95242	84.02941	1.44094
39	6.711	VV	0.0143	124.90764	105.99936	1.18447
40	6.741	VV	0.0266	337.83292	155.40138	3.20360
41	6.791	VP	4.41e-3	4.60372	14.87248	0.04366
42	6.799	VP	9.24e-3	8.99452	12.15095	0.08529
43	6.906	PB	0.0293	233.29362	95.65994	2.21228
44	7.010	BP	0.0160	43.97088	34.28135	0.41697
45	7.028	VB	4.55e-3	7.13065	21.08218	0.06762
46	7.093	PP	0.0177	56.82148	39.25572	0.53883
47	7.236	PP	0.0284	94.41081	39.38100	0.89528
48	7.360	BV	0.0397	301.82907	92.99243	2.86219
49	7.407	VV	0.0150	41.93327	46.68696	0.39765
50	7.421	VB	9.04e-3	29.57154	40.86757	0.28042
51	7.464	PP	0.0000	1.59728	1.88045	0.01515
52	7.751	PP	3.26e-3	1.82970	8.02093	0.01735
Totals :				1.05454e4	6043.03030	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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==========================================================================
Injection Date  : 7/29/2021 1:44:25 AM          Seq. Line :  44
Sample Name     : 21G0127 03                     Location : Vial 56
Acq. Operator   : DXP                                Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\072821A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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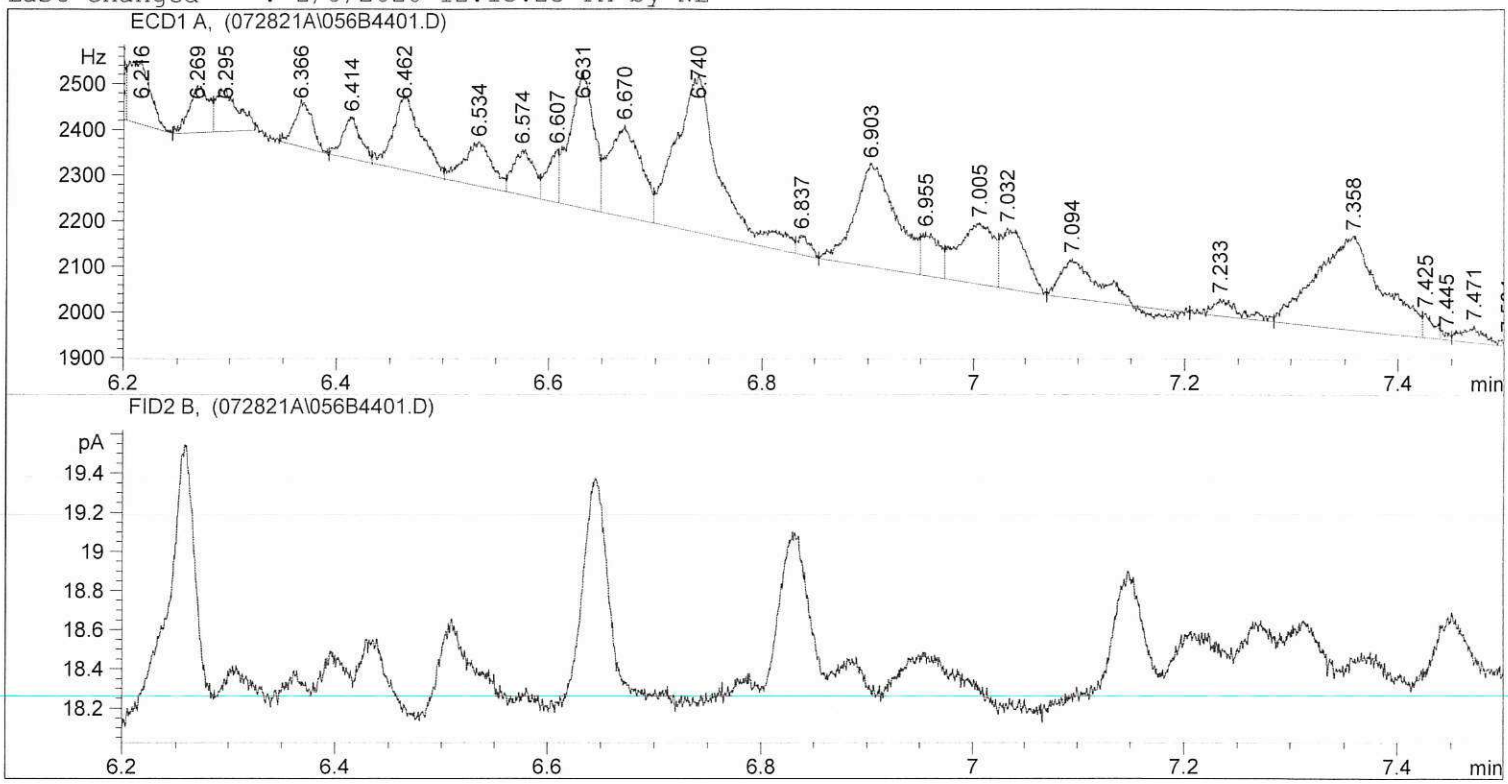


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==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
```

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.219	BP	0.0174	1049.83289	836.89758	4.88949
2	5.277	VV	4.19e-3	6.15495	19.98064	0.02867
3	5.281	VV	5.99e-3	15.70666	32.75909	0.07315
4	5.315	VP	0.0208	105.59883	60.84299	0.49182
5	5.360	VV	0.0243	1062.21411	532.93146	4.94716
6	5.394	VV	3.93e-3	82.12074	287.44965	0.38247
7	5.409	VV	0.0186	498.84634	323.19489	2.32333
8	5.440	VV	0.0177	370.11493	262.09314	1.72377
9	5.480	VV	0.0194	958.03534	600.57343	4.46195
10	5.554	VV	0.0325	1352.81018	504.28931	6.30058
11	5.585	VB	0.0129	371.53790	345.83676	1.73040
12	5.610	BV	0.0226	775.87030	414.38431	3.61354
13	5.668	VV	0.0214	864.95129	489.29321	4.02842
14	5.695	VV	0.0147	387.13196	321.24307	1.80303
15	5.726	VV	0.0177	300.84808	204.96161	1.40117
16	5.758	VV	0.0183	854.65887	581.59473	3.98049
17	5.788	VV	0.0102	181.54068	225.78925	0.84551

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.812	VV	0.0188	714.90228	458.58508	3.32959
19	5.861	VV	0.0222	995.85364	553.68219	4.63809
20	5.880	VV	0.0203	1085.71704	656.54755	5.05662
21	5.936	VV	0.0223	792.65417	427.07245	3.69171
22	5.970	VV	0.0188	458.73111	294.68118	2.13649
23	6.022	VB	0.0191	1856.49280	1221.40515	8.64643
24	6.082	PV	5.88e-3	24.08768	60.10739	0.11219
25	6.087	VV	4.14e-3	15.27417	53.40310	0.07114
26	6.101	VP	0.0132	70.26363	66.01726	0.32725
27	6.152	VV	0.0161	101.85265	78.62401	0.47437
28	6.194	VV	0.0163	158.12401	119.06929	0.73645
29	6.216	VP	0.0160	186.67241	141.09979	0.86941
30	6.269	VV	0.0162	131.27382	101.89396	0.61139
31	6.295	VB	0.0172	134.35486	94.41644	0.62574
32	6.366	PP	0.0141	119.92416	103.37560	0.55853
33	6.414	VV	0.0147	109.45399	91.78704	0.50977
34	6.462	VV	0.0224	304.06445	162.41608	1.41615
35	6.534	VV	0.0228	181.39813	96.23962	0.84484
36	6.574	VV	0.0165	135.80368	99.81183	0.63249
37	6.607	VV	9.31e-3	83.41534	117.14509	0.38850
38	6.631	VV	0.0187	461.26865	297.20148	2.14831
39	6.670	VV	0.0250	419.40729	200.44199	1.95335
40	6.740	VV	0.0344	976.84283	341.06409	4.54955
41	6.837	VP	0.0102	35.52945	44.06515	0.16547
42	6.903	BV	0.0329	621.54706	226.04834	2.89479
43	6.955	VV	0.0153	112.88345	94.86193	0.52574
44	7.005	VV	0.0284	307.16257	133.51561	1.43058
45	7.032	VP	0.0207	226.74728	131.84637	1.05605
46	7.094	VP	0.0255	180.12459	85.94889	0.83891
47	7.233	BV	0.0216	67.33710	37.43080	0.31362
48	7.358	VV	0.0504	874.31543	205.52756	4.07204
49	7.425	VB	8.74e-3	35.67494	52.39357	0.16615
50	7.445	BV	7.15e-3	8.93334	15.91393	0.04161
51	7.471	VP	0.0177	53.48577	36.56632	0.24910
52	7.504	VP	0.0107	15.05415	17.47322	0.07011
53	7.569	BB	0.0122	16.14725	17.79864	0.07520
54	7.631	PV	7.89e-3	32.29365	53.11519	0.15040
55	7.649	VV	0.0213	119.31233	67.14929	0.55569
56	7.746	BP	7.17e-3	8.84829	16.74399	0.04121

Totals : 2.14712e4 1.31166e4

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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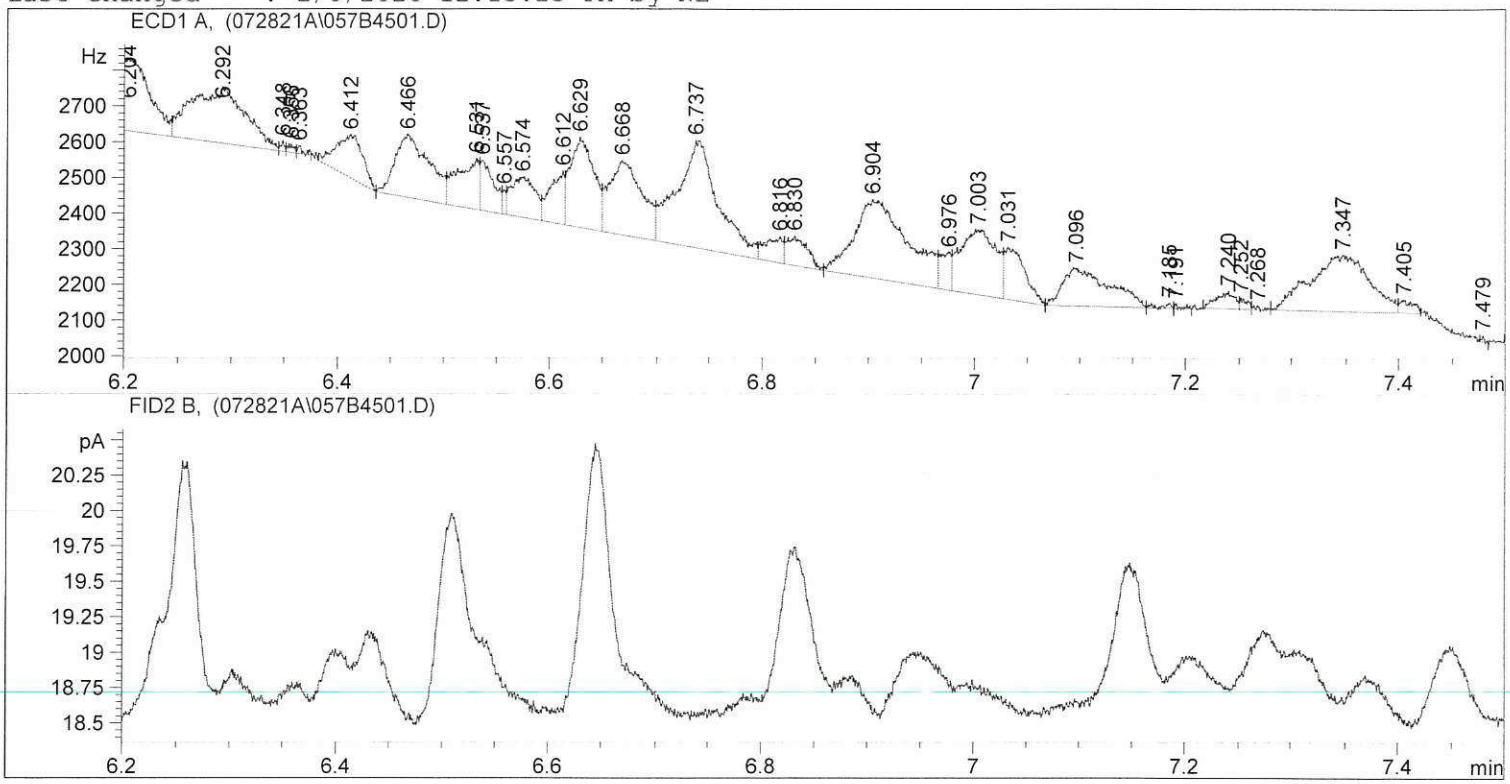
Injection Date : 7/29/2021 1:55:34 AM Seq. Line : 45
Sample Name : 21G0127 05 Location : Vial 57
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\072821A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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Area Percent Report

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Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.218	BP	0.0164	1138.11023	921.20825	4.49308
2	5.275	VP	7.78e-3	34.49306	54.52570	0.13617
3	5.302	VV	0.0221	578.22534	316.44016	2.28274
4	5.376	VV	0.0305	791.38000	308.75723	3.12424
5	5.409	VV	6.10e-3	64.01852	130.97401	0.25273
6	5.439	VV	0.0239	450.46185	240.31683	1.77835
7	5.480	VV	0.0210	1048.49915	630.65900	4.13931
8	5.535	VV	0.0169	658.71558	489.31241	2.60050
9	5.553	VV	0.0240	1115.82153	581.41968	4.40509
10	5.585	VV	0.0153	515.76978	414.18558	2.03618
11	5.614	VV	0.0259	1020.27472	470.02835	4.02788
12	5.668	VV	0.0206	869.53516	512.39276	3.43279
13	5.696	VV	0.0200	750.40820	451.34467	2.96249
14	5.733	VV	0.0187	455.63977	318.27969	1.79879
15	5.758	VV	0.0203	1106.51526	670.29254	4.36835
16	5.783	VV	5.39e-3	125.96497	335.08112	0.49729
17	5.810	VV	0.0257	1187.25183	579.62103	4.68708

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.834	VV	3.59e-3	81.09380	316.22284	0.32015
19	5.879	VV	0.0414	2150.73462	615.66681	8.49076
20	5.940	VV	0.0273	1119.28308	508.88916	4.41875
21	5.966	VV	0.0178	591.84314	395.91748	2.33650
22	6.002	VV	0.0231	688.47784	373.14093	2.71800
23	6.046	VV	0.0292	611.41748	249.70070	2.41378
24	6.075	VV	7.20e-3	82.77128	191.47644	0.32677
25	6.082	VB	0.0162	242.77031	185.92331	0.95842
26	6.154	BV	0.0348	522.63940	177.47858	2.06330
27	6.204	VV	0.0362	613.19092	200.05075	2.42078
28	6.292	VV	0.0414	544.76654	157.37343	2.15065
29	6.348	VV	3.20e-3	6.36586	28.53413	0.02513
30	6.356	VV	5.06e-3	8.34435	23.97352	0.03294
31	6.363	VB	5.00e-3	7.20611	21.01389	0.02845
32	6.412	BP	0.0213	212.99072	120.09959	0.84085
33	6.466	VV	0.0273	397.38498	174.98944	1.56881
34	6.531	VV	0.0164	195.94865	142.88718	0.77357
35	6.537	VV	0.0111	121.75472	140.52411	0.48067
36	6.557	VV	3.33e-3	15.92036	68.11989	0.06285
37	6.574	VV	0.0191	176.88783	112.85483	0.69832
38	6.612	VV	0.0121	137.50864	149.55399	0.54286
39	6.629	VV	0.0188	394.14532	252.11407	1.55602
40	6.668	VV	0.0257	437.54257	208.41313	1.72735
41	6.737	VV	0.0328	824.14447	300.56766	3.25359
42	6.816	VV	0.0133	80.43849	73.78619	0.31756
43	6.830	VP	0.0160	108.95512	82.34574	0.43014
44	6.904	VV	0.0418	777.52802	220.01103	3.06956
45	6.976	VV	9.38e-3	75.37581	104.97358	0.29757
46	7.003	VV	0.0281	418.10651	181.47226	1.65062
47	7.031	VP	0.0172	201.61012	145.45906	0.79592
48	7.096	VV	0.0372	325.06332	105.86873	1.28330
49	7.185	VP	7.01e-3	8.28644	15.08053	0.03271
50	7.191	VP	4.25e-3	3.75907	12.01280	0.01484
51	7.240	BV	0.0145	54.79556	47.41376	0.21632
52	7.252	VB	5.99e-3	14.79037	30.84802	0.05839
53	7.268	BB	4.95e-3	3.53911	9.95103	0.01397
54	7.347	BV	0.0457	603.21216	157.54964	2.38139
55	7.405	VB	0.0117	32.27562	36.40150	0.12742
56	7.479	PP	2.31e-3	2.50727	17.10738	0.00990
57	7.528	BB	0.0274	100.01238	44.16502	0.39483
58	7.650	PV	0.0341	297.68704	103.13354	1.17522
59	7.693	VV	0.0133	75.86741	70.66257	0.29951
60	7.712	VV	0.0106	40.67001	47.37388	0.16056
61	7.751	VV	5.80e-3	5.67190	13.23518	0.02239
62	7.756	VP	4.70e-3	3.93399	13.96081	0.01553
Totals :				2.53303e4	1.40731e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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Injection Date  : 7/29/2021 2:06:46 AM          Seq. Line :  46
Sample Name     : 21G0127 08                     Location : Vial 58
Acq. Operator   : DXP                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\072821A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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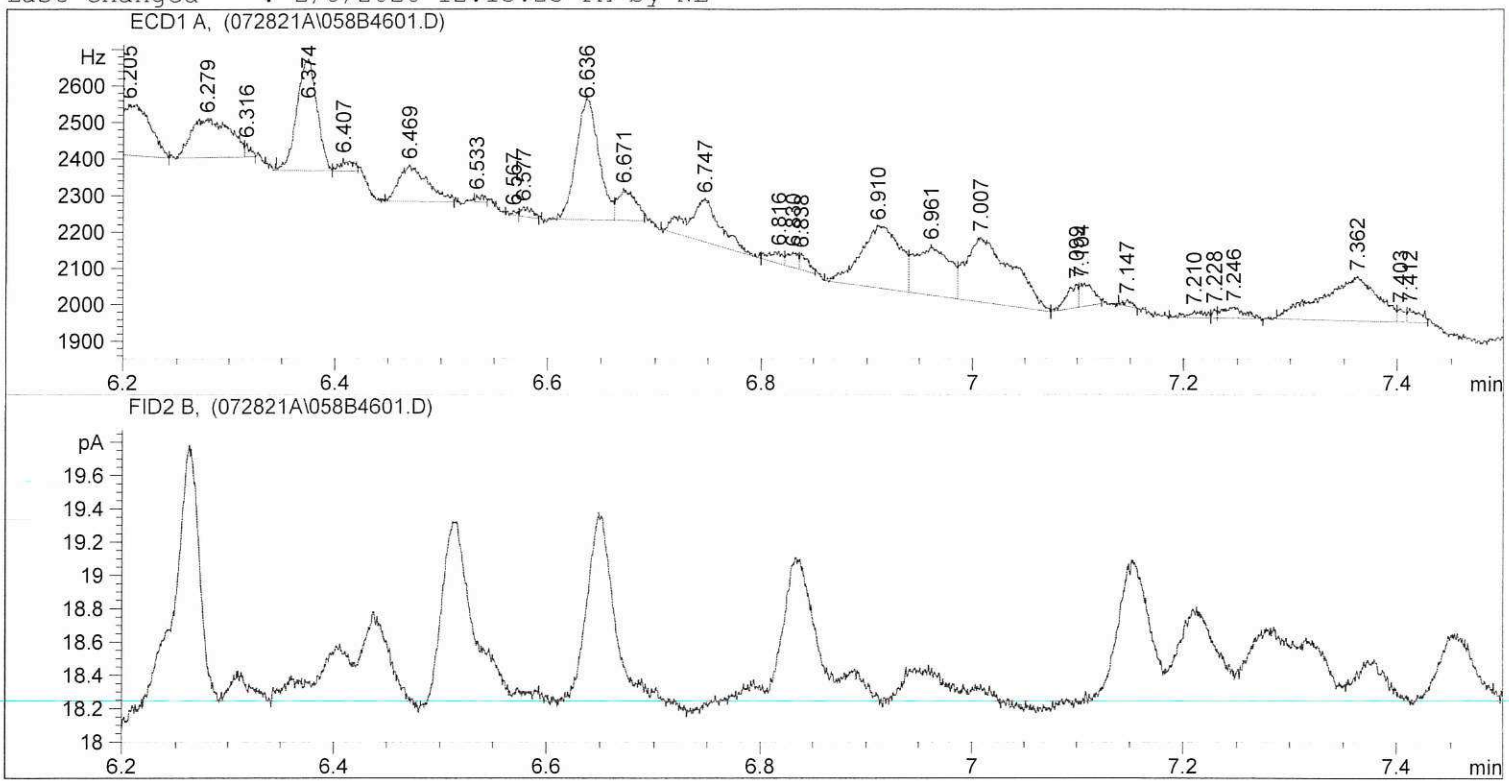


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==========================================================================
                          Area Percent Report
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Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
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Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.218	BP	0.0112	221.14769	253.03638	1.18889
2	5.277	VP	7.09e-3	22.38619	39.03817	0.12035
3	5.307	VV	0.0210	181.17065	102.80422	0.97397
4	5.380	VV	0.0344	761.43811	262.65833	4.09350
5	5.417	VV	3.55e-3	36.03571	142.63013	0.19373
6	5.437	VV	0.0209	544.28149	323.11844	2.92606
7	5.484	VV	0.0237	965.77325	496.09518	5.19200
8	5.527	VV	9.17e-3	136.27495	185.60112	0.73262
9	5.556	VV	0.0242	491.18631	248.78731	2.64062
10	5.587	VV	0.0186	433.27417	281.41675	2.32929
11	5.623	VV	0.0275	596.51001	274.65573	3.20684
12	5.670	VV	0.0214	504.29318	288.38193	2.71108
13	5.698	VV	0.0223	663.64331	353.10458	3.56775
14	5.761	VV	0.0235	1723.05432	959.70575	9.26315
15	5.814	VV	0.0256	872.42194	414.56985	4.69015
16	5.872	VV	0.0352	1870.17432	629.72290	10.05407
17	5.939	VV	0.0238	1126.86292	582.14685	6.05802

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.973	VV	0.0206	928.01086	564.47870	4.98899
19	6.008	VV	0.0306	971.59344	377.94397	5.22329
20	6.061	VV	0.0192	233.06372	202.39661	1.25295
21	6.086	VV	0.0135	209.18939	192.25693	1.12460
22	6.105	VV	0.0213	395.16708	222.74606	2.12442
23	6.139	VV	9.25e-3	52.55861	94.74705	0.28256
24	6.161	VV	0.0206	179.05649	111.05105	0.96261
25	6.205	VP	0.0306	364.06461	140.72028	1.95721
26	6.279	VV	0.0308	279.70764	107.19036	1.50371
27	6.316	VP	5.77e-3	12.65417	36.52513	0.06803
28	6.374	BV	0.0166	405.57370	303.91742	2.18037
29	6.407	VB	9.44e-3	26.10901	33.70380	0.14036
30	6.469	PB	0.0219	183.55533	100.75275	0.98679
31	6.533	BB	6.17e-3	8.79523	17.77312	0.04728
32	6.567	PV	4.98e-3	4.06252	10.81713	0.02184
33	6.577	VB	8.81e-3	18.83348	26.75988	0.10125
34	6.636	PV	0.0175	482.92172	333.18298	2.59619
35	6.671	VB	0.0137	97.30437	86.45722	0.52311
36	6.747	PP	0.0260	247.93567	118.58765	1.33290
37	6.816	VV	0.0103	28.14812	33.70677	0.15132
38	6.830	VV	7.99e-3	27.79927	42.73620	0.14945
39	6.838	VB	7.45e-3	25.94274	45.52396	0.13947
40	6.910	PV	0.0309	444.76126	171.07712	2.39104
41	6.961	VV	0.0265	307.08472	137.50844	1.65089
42	7.007	VP	0.0370	541.10352	177.31145	2.90898
43	7.099	VV	9.75e-3	48.18654	62.82295	0.25905
44	7.104	VB	0.0105	55.45407	65.35081	0.29812
45	7.147	BB	6.71e-3	9.35940	17.86847	0.05032
46	7.210	PV	0.0129	20.00112	18.97019	0.10753
47	7.228	VV	3.80e-3	5.54648	23.13101	0.02982
48	7.246	VP	0.0172	42.22283	30.09620	0.22699
49	7.362	BV	0.0425	437.48611	122.45169	2.35193
50	7.403	VV	6.11e-3	17.11866	36.26723	0.09203
51	7.412	VB	0.0129	28.54770	36.81472	0.15347
52	7.523	BV	3.78e-3	6.53351	23.97131	0.03512
53	7.541	VB	0.0192	49.73678	33.74616	0.26739
54	7.659	PV	0.0284	151.99765	65.11317	0.81714
55	7.705	VV	0.0193	80.17500	49.89646	0.43102
56	7.720	VB	8.17e-3	23.87113	35.86177	0.12833
Totals :				1.86012e4	1.01497e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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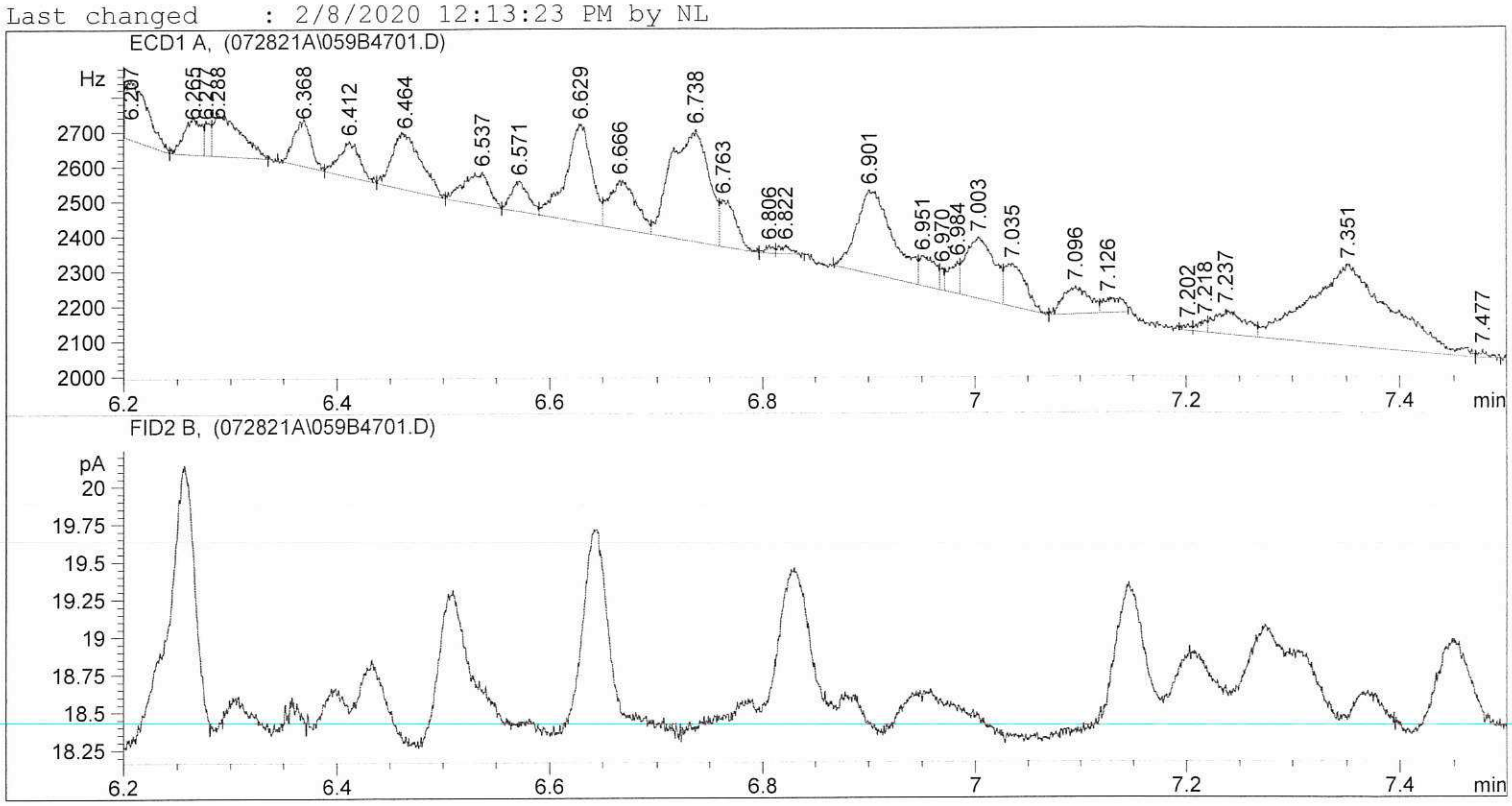
Injection Date : 7/29/2021 2:17:44 AM
Sample Name : 21G0127 10
Acq. Operator : DXP

Seq. Line : 47
Location : Vial 59
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\072821A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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Area Percent Report

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Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.217	BP	0.0158	866.48828	692.02704	4.68539
2	5.276	VP	0.0108	50.21575	59.67216	0.27153
3	5.301	VV	6.36e-3	27.93255	58.59783	0.15104
4	5.306	VB	4.60e-3	17.12451	49.89257	0.09260
5	5.359	PV	0.0124	295.48785	352.82553	1.59780
6	5.371	VV	0.0188	526.16614	348.71313	2.84515
7	5.404	VV	4.01e-3	28.54020	103.67246	0.15433
8	5.411	VV	9.46e-3	87.03890	114.56770	0.47065
9	5.439	VV	0.0149	279.49744	233.92978	1.51133
10	5.480	VV	0.0171	701.57214	495.65646	3.79363
11	5.550	VV	0.0279	972.72516	422.27856	5.25984
12	5.586	VV	0.0171	318.14468	239.66116	1.72031
13	5.609	VV	0.0225	612.72784	325.68219	3.31322
14	5.666	VV	0.0202	757.85315	465.56976	4.09796
15	5.695	VV	0.0161	401.64044	299.00311	2.17180
16	5.735	VV	0.0172	282.95120	196.54790	1.53001
17	5.757	VV	0.0179	732.06915	529.81476	3.95854

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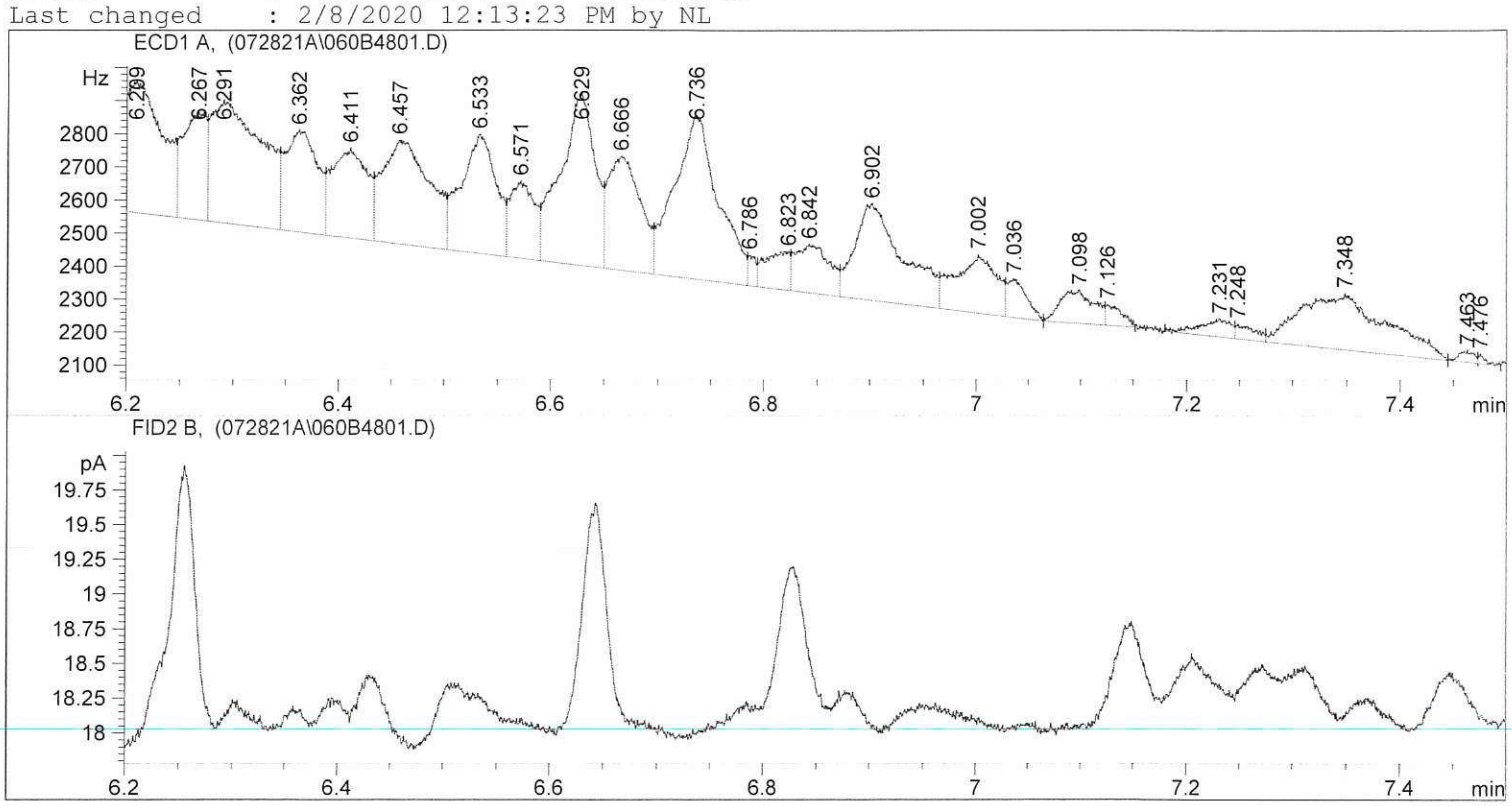
Injection Date : 7/29/2021 2:28:41 AM Seq. Line : 48
Sample Name : 21G0127 11 Location : Vial 60
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\072821A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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Area Percent Report

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Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.217	BP	0.0199	1657.37952	1283.03711	4.42211
2	5.302	PV	0.0108	58.87839	69.85458	0.15710
3	5.371	VV	0.0274	980.09967	426.01785	2.61504
4	5.411	VV	0.0191	558.95709	360.94727	1.49137
5	5.438	VV	0.0196	379.90384	251.83524	1.01363
6	5.479	VV	0.0198	1039.65405	667.60999	2.77394
7	5.531	VV	0.0127	637.13550	605.73407	1.69996
8	5.546	VV	0.0228	1276.05786	676.10004	3.40469
9	5.584	VV	0.0148	469.87354	390.75992	1.25369
10	5.610	VV	0.0265	1159.37146	538.33337	3.09336
11	5.666	VV	0.0229	1371.04028	717.54016	3.65812
12	5.693	VV	0.0157	576.33362	469.02704	1.53774
13	5.720	VV	0.0182	635.55469	422.04077	1.69575
14	5.755	VV	0.0213	1348.53857	815.51813	3.59808
15	5.810	VV	0.0272	1431.58105	662.71643	3.81965
16	5.861	VV	0.0224	1381.39380	753.62689	3.68574
17	5.880	VV	0.0278	1962.28613	868.38910	5.23564

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.939	VV	0.0228	1314.49487	683.38104	3.50725
19	5.965	VV	0.0198	882.21948	564.96393	2.35388
20	6.021	VV	0.0310	1809.30896	712.22101	4.82748
21	6.054	VV	0.0158	455.18091	344.28555	1.21448
22	6.078	VV	0.0122	333.60175	329.65881	0.89009
23	6.094	VV	7.94e-3	190.86377	311.93149	0.50925
24	6.100	VB	0.0182	461.12067	312.15094	1.23033
25	6.138	BV	0.0111	242.24080	273.94662	0.64633
26	6.154	VV	0.0197	508.11093	309.80484	1.35571
27	6.181	VV	9.08e-3	209.87474	295.81647	0.55997
28	6.209	VV	0.0352	1183.39587	398.66245	3.15746
29	6.267	VV	0.0187	495.84082	326.74899	1.32297
30	6.291	VV	0.0401	1226.79810	367.99469	3.27326
31	6.362	VV	0.0253	654.63397	306.42853	1.74665
32	6.411	VV	0.0265	605.97668	271.19339	1.61683
33	6.457	VV	0.0380	980.59491	314.02536	2.61636
34	6.533	VV	0.0275	814.74805	359.20245	2.17386
35	6.571	VV	0.0203	380.41797	232.61444	1.01501
36	6.629	VV	0.0274	1171.45789	518.23743	3.12561
37	6.666	VV	0.0251	723.71490	344.33221	1.93097
38	6.736	VV	0.0348	1427.98010	495.17767	3.81004
39	6.786	VV	6.33e-3	45.88836	93.36441	0.12244
40	6.823	VV	0.0198	184.49344	118.53725	0.49225
41	6.842	VV	0.0268	327.24884	147.84866	0.87314
42	6.902	VV	0.0374	925.59650	293.50327	2.46962
43	7.002	VV	0.0330	475.66010	176.60100	1.26913
44	7.036	VP	0.0151	148.03621	117.38870	0.39498
45	7.098	VV	0.0270	221.14795	98.61355	0.59005
46	7.126	VB	0.0134	67.41344	62.30084	0.17987
47	7.231	PV	0.0237	107.36301	54.29638	0.28646
48	7.248	VB	0.0153	56.20536	45.33806	0.14996
49	7.348	BP	0.0645	929.85938	169.29755	2.48099
50	7.463	VV	0.0126	33.02276	34.46041	0.08811
51	7.476	VB	5.89e-3	11.98629	27.45181	0.03198
52	7.528	BV	0.0118	46.60944	48.63976	0.12436
53	7.534	VP	8.73e-3	30.46054	43.73042	0.08127
54	7.569	PP	0.0197	44.72374	27.32366	0.11933
55	7.673	VV	0.0443	784.08344	211.47079	2.09204
56	7.756	VP	0.0120	26.58414	27.58147	0.07093
57	7.800	BBA	0.0105	16.36734	18.87569	0.04367
Totals :				3.74794e4	1.98685e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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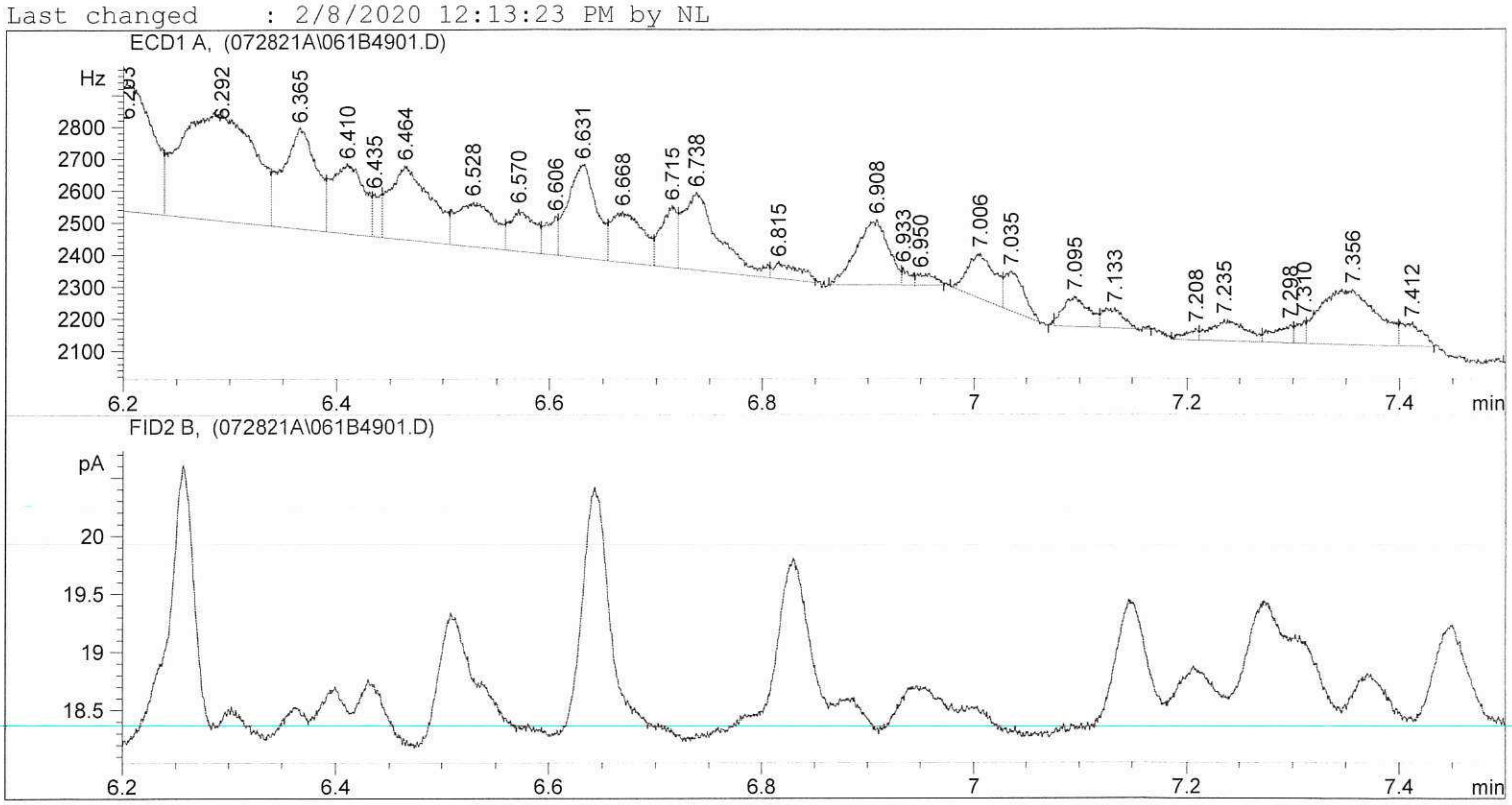
Injection Date : 7/29/2021 2:39:44 AM Seq. Line : 49
Sample Name : 21G0127 12 Location : Vial 61
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\072821A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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Area Percent Report

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Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.217	BP	0.0160	689.89746	536.13043	2.21868
2	5.260	VP	2.70e-3	3.59725	19.99217	0.01157
3	5.275	VV	8.29e-3	31.52715	49.11454	0.10139
4	5.305	VV	0.0233	408.24094	227.85458	1.31289
5	5.370	VV	0.0286	1094.09070	462.66702	3.51855
6	5.408	VV	0.0121	118.29422	163.34015	0.38043
7	5.417	VV	4.02e-3	50.73726	163.69614	0.16317
8	5.438	VV	0.0199	502.99496	314.38882	1.61761
9	5.479	VV	0.0238	952.37463	478.76199	3.06280
10	5.528	VV	0.0165	416.89310	330.48724	1.34071
11	5.550	VV	0.0222	897.00269	489.13986	2.88472
12	5.585	VV	0.0180	581.79211	404.09702	1.87102
13	5.623	VV	0.0263	1224.19629	573.05811	3.93697
14	5.667	VV	0.0210	863.62158	499.98318	2.77737
15	5.696	VV	0.0234	982.54803	512.71173	3.15984
16	5.758	VV	0.0279	1990.86633	918.45905	6.40255
17	5.810	VV	0.0290	1683.16016	710.57092	5.41298

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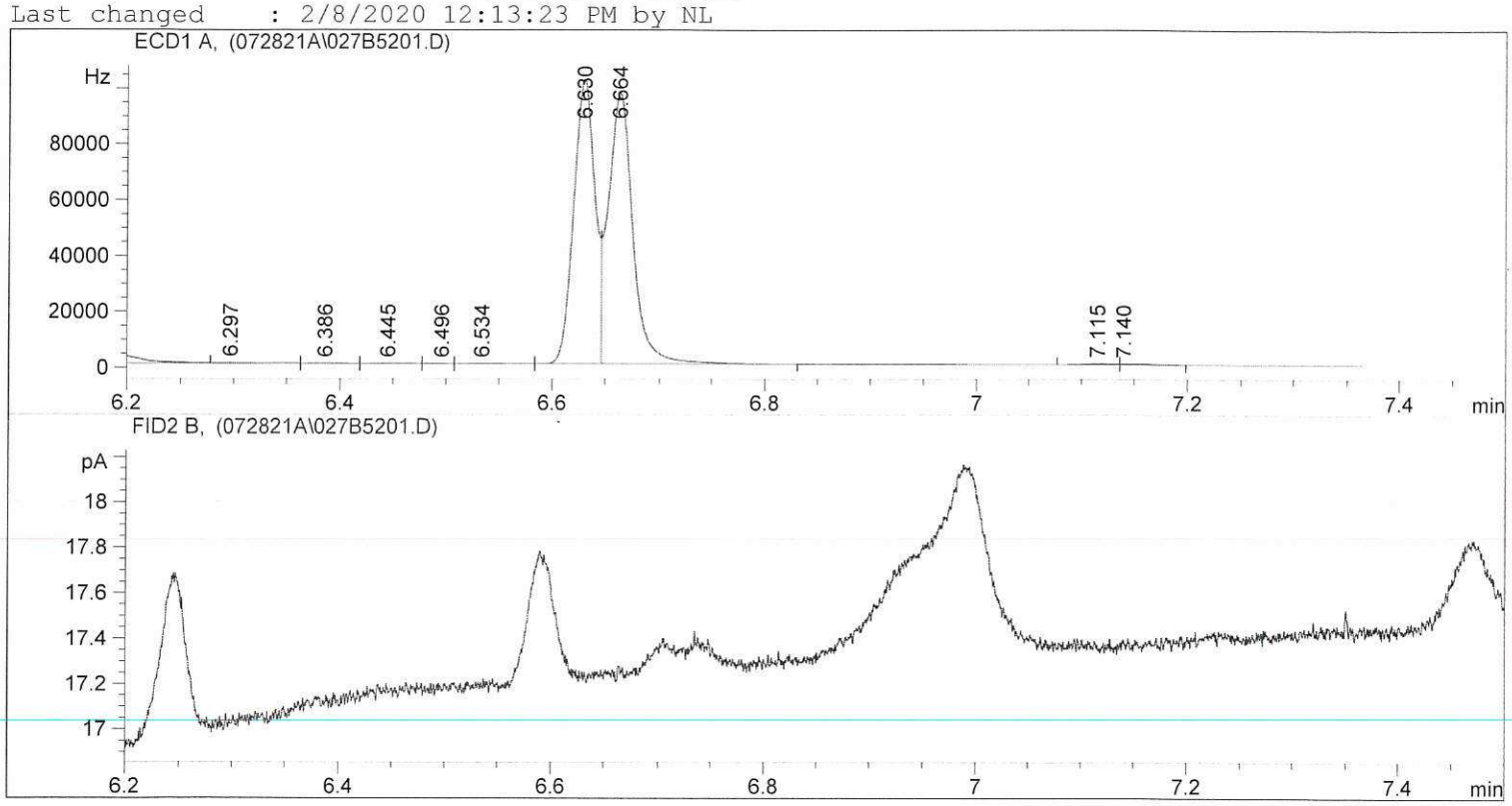
Injection Date : 7/29/2021 3:13:06 AM Seq. Line : 52
Sample Name : CS4 STANDARD Location : Vial 27
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\072821A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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Area Percent Report

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Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.210	BP	2.69e-3	21.49671	229.10591	0.00174
2	5.295	VP	9.95e-3	15.34430	18.74968	0.00124
3	5.346	BP	0.0129	47.50861	48.40617	0.00385
4	5.412	BP	0.0192	64.02478	42.46477	0.00519
5	5.489	VV S	0.0257	1.72550e5	9.18294e4	13.98877
6	5.588	VV S	0.0392	2.76191e5	1.17394e5	22.39104
7	5.644	VV S	0.0210	1.00620e5	8.00100e4	8.15737
8	5.690	VV S	0.0236	9.61401e4	6.80303e4	7.79416
9	5.796	VV S	0.0250	647.11530	431.97357	0.05246
10	5.845	VB S	0.0208	221.97621	177.49835	0.01800
11	5.931	BP S	0.0178	1.00994e5	8.39870e4	8.18764
12	6.081	VV S	0.0190	9.10633e4	7.30064e4	7.38258
13	6.161	VV S	0.0245	9.63910e4	6.55753e4	7.81450
14	6.297	BV T	0.0131	150.43935	140.14824	0.01220
15	6.386	PV T	0.0187	207.51062	136.89142	0.01682
16	6.445	PV T	0.0245	180.20015	89.38720	0.01461
17	6.496	PV T	0.0173	76.27612	54.04667	0.00618

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.534	PV T	0.0239	216.63544	111.52394	0.01756
19	6.630	VV S	0.0214	1.41222e5	1.01721e5	11.44899
20	6.664	VB S	0.0266	1.54778e5	9.69125e4	12.54795
21	7.115	PV	0.0238	563.29437	283.84085	0.04567
22	7.140	VB	0.0228	455.74457	237.07764	0.03695
23	7.681	BB	0.0280	672.43372	292.84381	0.05451
Totals :				1.23349e6	7.80760e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Batch:	BJH0645 Batch Matrix: Solid	Preparation:	EPA 1613

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS647	21G0127-11RE1	21091505	08/26/21 12:23	From BJH0186 by NPL on 25-Aug-2021
LDW21-SS634	21G0127-12RE1	21091506	08/26/21 12:23	From BJH0186 by NPL on 25-Aug-2021
Blank	BJH0645-BLK1	21091501	08/26/21 12:23	
LCS	BJH0645-BS1	21091502	08/26/21 12:23	
LDW21-SS647	BJH0645-DUP1	21091504	08/26/21 12:23	
Reference	BJH0645-SRM1	21091503	08/26/21 12:23	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

HRGCMS Dioxin/Furan Preparation Bench Sheet EPA Methods 8290A & 1613B

Batch: BJH0645

Solid Samples

ARI Work Orders:	21G0127		
Matrix (circle one)	[Soil] Sediment	Oil	Tissue
Extraction Method	Start Date/Time:	End Date/Time:	
[Soxhlet] SepF Shake out	8/26/21 1223	8/27/21 0817	

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Balance		24650344	M	8/26/21
Toluene		J007944	M	8/26/21
Hexane		J006933	M	8/27/21
CH2Cl2		J007404	DP	8/27/21
H2SO4		F009222	M	8/27/21
Na2SO4		J008900	M	8/26/21
Glasswool		J006679	DP	8/27/21
Basic Silica		J002641	DP	8/27/21
Acid Silica		J007981	DP	8/27/21
0% Silica		J005622	M	8/26/21 8/27/21
Activated Florisil		J002451	DP	8/27/21
Nonane		H006038	M	8/31/21
Other (RM)		J006843	M	8/26/21

Lab Number & Container	Sample Name	% Solids	Sample Weight Equal to dry (g) (Target Dry)	Actual	RotoVap 45 °C	Water Trap Vol (mL)	Final Vol. (uL)
21G0127-11RE1 A	LDW21-SS647	48.94527	(20.43)	20.45	1/2	8.9	20
21G0127-12RE1 A	LDW21-SS634	42.71331	(23.41)	23.47	1/2	10.2	20
BJH0645-BLK1	Blank	100	()		1/2	0	20
BJH0645-BS1	LCS	100	()		1/2	0	20
BJH0645-DUP1	21G0127-11A Duplicate	48.9452	(20.43)	20.45	1/2	8.0	20
BJH0645-SRM1	Reference	100	()	10.00	1/2	0.1	20
Prep Analyst / Date:	M 8/26/21				M 8/27/21	M 8/28/21	M 8/31/21

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	J007221	2/4 ng/mL	7/13/22	M	DP	8/26/21
OPR	1.0 mL	J012606	0.2/1.0/2.0 ng/mL	~~7/13/22~~ 2/13/22 DP	M	DP	8/26/21
~~**QLS Standard**~~	~~1.0 mL~~		~~0.01/0.05/0.1 ng/mL ng/l~~				
Cleanu-up Standard	1.0 mL	J007666	0.8 ng/mL	7/27/22	DP	WB	8/27/21

Verify Client ID
Analyst / Date: M 8/26/21

Acid Clean
[Y] N
Analyst / Date: M 8/27/21

Silica-Florisil Clean
[Y] N
Analyst / Date: DP 8/27/21

Supervisor Review By 8/31/21 Date

Printed: 8/26/2021 9:36:10AM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory
Analyst Notes

MS/26/21
~~BJH0186~~ BJH0645

Extraction Parameter: ~~PCBs~~ Dioxin MS/9/21 Extraction Batch ~~BJG0441~~ NL 8/9/21

Total Solids Batch: BJG0583 Work Order(s): 21G0127

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☑ Standing Water Decanted (Not shared)= 02-05, 10-16, 18, 01	MB 8/11/21
☑ Standing Water Homogenized (Shared samples)=	07/20/21
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☑ Organics (Leaves/sticks/grass)= 05, 06, 11, 18, 19	07/20/21
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☒ Other Notes/Comments= (Note problems, concerns, corrective actions).	
Low solvent level after extraction: BLK1	MB 8/10/21
Sharpie ink inside florisil column: HF0392-25	MB 8/17/21
BJH0645-BLK1-Collected less ~~so~~ Extracting solvent in the RB, Extracting solvent started @ 150mL of Toluene	MS 8/28/21
☑ Share Samples Y / N	
☑ Multiple Jars Y / N	07/20/21
☐ Sample Pre-Screens indicate analyte activity=	07/20/21
☐ Sample weights/volumes reduced based on Pre-Screen=	

07/20/2021

3056F

Revision 15
07/01/19

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glasswa

Batch ID: BJH0645 Work Order: 21G0127 (Rex) Extraction Parameter: Dioxin ARI Analyst

ARI Sample ID	300 mL Flat Bottom	Small Soxhlet	Large Soxhlet	250 mL Beaker	Funnel	Column	Florisil Column	Turbo Tube	Sep Funnel	Erlenmeyer Flask	Centrifuge Bottle	Turbo-Vap	Vortex Mixer
BJH0645 - BLK1	87	L10		24	70	213	159	22				4	4
BS1	31	143		261	92	189	156	83				4	4
Dup1	25		31	20	46	90	121	51				4	4
SRM1	68	5		6	44	170	137	37				4	4
21G0127 - 1REIA	16		21	216	49	75	43	52				4	4
2REIA	6		49	15	14	179	143	17				4	4
												4	4
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21G0127 Dioxin CLP_IKE(Rev1) - Page 328 of 1162

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJH0148	Cleanup Type:	Sulfuric Acid
Cleanup Method:	z-EPA 3665A Sulfuric Acid Cleanup (mL) DO NOT USE	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS645	21G0127-08	21082421	08/13/2021	
LDW21-SS651	21G0127-03	21082419	08/13/2021	
Duplicate	BJH0186-DUP1	21082412	08/13/2021	
LDW21-SS656	21G0127-10	21082422	08/13/2021	
Blank	BJH0186-BLK1	21082409	08/13/2021	
LCS	BJH0186-BS1	21082410	08/13/2021	
LDW21-SS667	21G0127-02	21082418	08/13/2021	
LDW21-SS668	21G0127-01	21082417	08/13/2021	
LDW21-SS633	21G0127-05	21082420	08/13/2021	
Reference	BJH0186-SRM1	21082411	08/13/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJH0148

Matrix: Solid **Cleanup using: HRGCMS - EPA 3665A Sulfuric Acid Cleanup** **Printed: 8/18/2021 9:38:26AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21G0127-12	A	LDW21-SS634	A 01	20	20	1613B Dioxin	8/13/2021	VB	
21G0127-11	A	LDW21-SS647	A 01	20	20	1613B Dioxin	8/13/2021	VB	
21G0127-03	A	LDW21-SS651	A 01	20	20	1613B Dioxin	8/13/2021	VB	
21G0127-05	A	LDW21-SS633	A 01	20	20	1613B Dioxin	8/13/2021	VB	
21G0127-08	A	LDW21-SS645	A 01	20	20	1613B Dioxin	8/13/2021	VB	
21G0127-10	A	LDW21-SS656	A 01	20	20	1613B Dioxin	8/13/2021	VB	
21G0127-01	A	LDW21-SS668	A 01	20	20	1613B Dioxin	8/13/2021	VB	
21G0127-02	A	LDW21-SS667	A 01	20	20	1613B Dioxin	8/13/2021	VB	
21F0392-25RE1	A	T91-R1-ITESSComp2	A 02	20	20	1613B Dioxin	8/13/2021	VB	
21F0442-07RE1	B	LDW21-SC564I	B 03	20	20	1613B Dioxin	8/13/2021	VB	
BJH0186-SRM1	-	Reference	-	20	20	-	8/13/2021	VB	
BJH0186-DUP1	-	Duplicate	-	20	20	-	8/13/2021	VB	
BJH0186-BLK1	-	Blank	-	20	20	-	8/13/2021	VB	
BJH0186-BS1	-	LCS	-	20	20	-	8/13/2021	VB	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJH0149	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS656	21G0127-10	21082422	08/17/2021	
LCS	BJH0186-BS1	21082410	08/17/2021	
Reference	BJH0186-SRM1	21082411	08/17/2021	
Duplicate	BJH0186-DUP1	21082412	08/17/2021	
Blank	BJH0186-BLK1	21082409	08/17/2021	
LDW21-SS645	21G0127-08	21082421	08/17/2021	
LDW21-SS633	21G0127-05	21082420	08/17/2021	
LDW21-SS667	21G0127-02	21082418	08/17/2021	
LDW21-SS668	21G0127-01	21082417	08/17/2021	
LDW21-SS651	21G0127-03	21082419	08/17/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJH0149

Matrix: Solid **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup** **Printed: 8/18/2021 9:38:48AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21G0127-12	A	LDW21-SS634	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-11	A	LDW21-SS647	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-03	A	LDW21-SS651	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-05	A	LDW21-SS633	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-08	A	LDW21-SS645	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-10	A	LDW21-SS656	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-01	A	LDW21-SS668	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-02	A	LDW21-SS667	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21F0392-25RE1	A	T91-R1-ITESSComp2	A 02	20	20	1613B Dioxin	8/17/2021	VB	
21F0442-07RE1	B	LDW21-SC564I	B 03	20	20	1613B Dioxin	8/17/2021	VB	
BJH0186-SRM1	-	Reference	-	20	20	-	8/17/2021	VB	
BJH0186-DUP1	-	Duplicate	-	20	20	-	8/17/2021	VB	
BJH0186-BLK1	-	Blank	-	20	20	-	8/17/2021	VB	
BJH0186-BS1	-	LCS	-	20	20	-	8/17/2021	VB	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJH0150	Cleanup Type:	Florisil
Cleanup Method:	z-EPA 3620B Florisil Cleanup (mL) DO NOT USE	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS668	21G0127-01	21082417	08/17/2021	
LDW21-SS667	21G0127-02	21082418	08/17/2021	
LDW21-SS656	21G0127-10	21082422	08/17/2021	
LDW21-SS651	21G0127-03	21082419	08/17/2021	
LDW21-SS633	21G0127-05	21082420	08/17/2021	
LCS	BJH0186-BS1	21082410	08/17/2021	
LDW21-SS645	21G0127-08	21082421	08/17/2021	
Duplicate	BJH0186-DUP1	21082412	08/17/2021	
Blank	BJH0186-BLK1	21082409	08/17/2021	
Reference	BJH0186-SRM1	21082411	08/17/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJH0150

Matrix: Solid **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup (mL)** **Printed: 8/18/2021 9:39:00AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21G0127-12	A	LDW21-SS634	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-11	A	LDW21-SS647	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-03	A	LDW21-SS651	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-05	A	LDW21-SS633	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-08	A	LDW21-SS645	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-10	A	LDW21-SS656	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-01	A	LDW21-SS668	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21G0127-02	A	LDW21-SS667	A 01	20	20	1613B Dioxin	8/17/2021	VB	
21F0392-25RE1	A	T91-R1-ITESSComp2	A 02	20	20	1613B Dioxin	8/17/2021	VB	
21F0442-07RE1	B	LDW21-SC564I	B 03	20	20	1613B Dioxin	8/17/2021	VB	
BJH0186-SRM1	-	Reference	-	20	20	-	8/17/2021	VB	
BJH0186-DUP1	-	Duplicate	-	20	20	-	8/17/2021	VB	
BJH0186-BLK1	-	Blank	-	20	20	-	8/17/2021	VB	
BJH0186-BS1	-	LCS	-	20	20	-	8/17/2021	VB	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJH0291	Cleanup Type:	Sulfuric Acid
Cleanup Method:	z-EPA 3665A Sulfuric Acid Cleanup (mL) DO NOT USE	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Duplicate	BJH0645-DUP1	21091504	08/27/2021	
Reference	BJH0645-SRM1	21091503	08/27/2021	
LCS	BJH0645-BS1	21091502	08/27/2021	
Blank	BJH0645-BLK1	21091501	08/27/2021	
LDW21-SS647	21G0127-11RE1	21091505	08/27/2021	
LDW21-SS634	21G0127-12RE1	21091506	08/27/2021	

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CLEANUP BENCH SHEET

CJH0291

Matrix: Solid **Cleanup using: HRGCMS - EPA 3665A Sulfuric Acid Cleanup** **Printed: 8/31/2021 10:22:41AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21G0127-11RE1	A	LDW21-SS647	A 02	20	20	1613B Dioxin	8/27/2021	NPL	
21G0127-12RE1	A	LDW21-SS634	A 02	20	20	1613B Dioxin	8/27/2021	NPL	
BJH0645-BLK1	-	Blank	-	20	20	-	8/27/2021	NPL	
BJH0645-BS1	-	LCS	-	20	20	-	8/27/2021	NPL	
BJH0645-DUP1	-	Duplicate	-	20	20	-	8/27/2021	NPL	
BJH0645-SRM1	-	Reference	-	20	20	-	8/27/2021	NPL	

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CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJH0292	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS647	21G0127-11RE1	21091505	08/27/2021	
LCS	BJH0645-BS1	21091502	08/27/2021	
Reference	BJH0645-SRM1	21091503	08/27/2021	
Duplicate	BJH0645-DUP1	21091504	08/27/2021	
Blank	BJH0645-BLK1	21091501	08/27/2021	
LDW21-SS634	21G0127-12RE1	21091506	08/27/2021	

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CLEANUP BENCH SHEET

CJH0292

Matrix: Solid **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup** **Printed: 8/31/2021 10:22:54AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21G0127-11RE1	A	LDW21-SS647	A 02	20	20	1613B Dioxin	8/27/2021	DxP	
21G0127-12RE1	A	LDW21-SS634	A 02	20	20	1613B Dioxin	8/27/2021	DxP	
BJH0645-BLK1	-	Blank	-	20	20	-	8/27/2021	DxP	
BJH0645-BS1	-	LCS	-	20	20	-	8/27/2021	DxP	
BJH0645-DUP1	-	Duplicate	-	20	20	-	8/27/2021	DxP	
BJH0645-SRM1	-	Reference	-	20	20	-	8/27/2021	DxP	

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CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJH0293	Cleanup Type:	Florisil
Cleanup Method:	z-EPA 3620B Florisil Cleanup (mL) DO NOT USE	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS634	21G0127-12RE1	21091506	08/27/2021	
LCS	BJH0645-BS1	21091502	08/27/2021	
Duplicate	BJH0645-DUP1	21091504	08/27/2021	
Blank	BJH0645-BLK1	21091501	08/27/2021	
Reference	BJH0645-SRM1	21091503	08/27/2021	
LDW21-SS647	21G0127-11RE1	21091505	08/27/2021	

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CLEANUP BENCH SHEET

CJH0293

Matrix: Solid **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup (mL)** **Printed: 8/31/2021 10:23:05AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21G0127-11RE1	A	LDW21-SS647	A 02	20	20	1613B Dioxin	8/27/2021	DxP	
21G0127-12RE1	A	LDW21-SS634	A 02	20	20	1613B Dioxin	8/27/2021	DxP	
BJH0645-BLK1	-	Blank	-	20	20	-	8/27/2021	DxP	
BJH0645-BS1	-	LCS	-	20	20	-	8/27/2021	DxP	
BJH0645-DUP1	-	Duplicate	-	20	20	-	8/27/2021	DxP	
BJH0645-SRM1	-	Reference	-	20	20	-	8/27/2021	DxP	

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Blank

Form 1
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Solid	Laboratory ID:	BJH0186-BLK1	File ID:	21082409
Sampled:	N/A	Prepared:	08/09/21 16:30	Analyzed:	08/24/21 18:40
Solids Wt%:		Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.000	0.655-0.886	0.082	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1	0.000	0.655-0.886	0.166	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	0.000	1.318-1.783	0.102	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	0.000	1.318-1.783	0.096	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	0.000	1.318-1.783	0.151	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.000	1.054-1.426	0.100	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.000	1.054-1.426	0.097	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.000	1.054-1.426	0.103	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.000	1.054-1.426	0.118	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.000	1.054-1.426	0.105	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1	0.000	1.054-1.426	0.110	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1	0.000	1.054-1.426	0.115	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.000	0.893-1.208	0.060	1.00	ND	ng/kg	U
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.000	0.893-1.208	0.083	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	0.720	0.893-1.208	0.132	2.50	0.228	ng/kg	EMPC, J
39001-02-0	OCDF	1	0.000	0.757-1.024	0.214	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	0.799	0.757-1.024	0.192	10.0	1.55	ng/kg	J

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	ND	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	ND	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	0.0476	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	ND	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	ND	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	0.180	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	ND	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	0.103	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.003
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.219

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Blank

Form 2
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Solid	Laboratory ID:	BJH0186-BLK1	File ID:	21082409
Sampled:	N/A	Prepared:	08/09/21 16:30	Analyzed:	08/24/21 18:40
Solids Wt%:	0.00	Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SJH0304	Calibration:	EH00030
Batch:	BJH0186	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.808	0.655-0.886	0.17	91.6	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.767	0.655-0.886	0.20	96.3	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.606	1.318-1.783	0.20	103	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.594	1.318-1.783	0.21	101	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.571	1.318-1.783	0.25	101	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.517	0.434-0.587	0.18	87.1	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.511	0.434-0.587	0.17	81.8	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.512	0.434-0.587	0.18	83.2	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.514	0.434-0.587	0.22	88.2	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.266	1.054-1.426	0.21	95.1	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.258	1.054-1.426	0.19	91.2	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.468	0.374-0.506	0.22	93.7	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.461	0.374-0.506	0.27	96.9	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.052	0.893-1.208	0.20	97.7	23 - 140 %	
13C12-OCDD	1	0.954	0.757-1.024	0.29	115	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.06	96.1	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:22:30 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					1.108		0.770	922	1000								
12378-PeCDF					1.015		1.550	1106	1124								
23478-PeCDF					1.126		1.550	1106	1124								
123478-HxCDF					1.017		1.240	1094	851								
234678-HxCDF					1.052		1.240	1094	851								
123678-HxCDF					1.037		1.240	1094	851								
123789-HxCDF					1.030		1.240	1094	851								
1234678-HpCDF					1.327		1.050	597	667								
1234789-HpCDF					1.283		1.050	597	667								
OCDF					1.447		0.890	1252	1100								
2378-TCDD					0.920		0.770	1502	1197								
12378-PeCDD					0.995		1.550	898	939								
123478-HxCDD					1.027		1.240	780	1086								
123678-HxCDD					1.009		1.240	780	1086								
123789-HxCDD					0.950		1.240	780	1086								
1234678-HpCDD	39.843	1.001	2.152e2	2.990e2	1.068	0.720	1.050	913	648	2.92e3	4.58e3	3.2	7.1	YES	bb	bb	0.114
OCDD	44.456	1.000	1.608e3	2.012e3	1.181	0.799	0.890	901	819	1.89e4	2.39e4	21.0	29.2	NO	MM	bb	0.777
13C-2378-TCDF	25.247	1.007	3.899e5	4.825e5	1.427	0.808	0.770	2231	1791	5.64e6	7.04e6	2530.4	3928.2	NO	bb	bb	91.604
13C-12378-PeCDF	29.414	1.173	5.487e5	3.416e5	1.297	1.606	1.550	2335	2067	7.98e6	5.01e6	3416.2	2422.2	NO	bb	bb	102.790
13C-23478-PeCDF	30.751	1.227	5.116e5	3.210e5	1.236	1.594	1.550	2335	2067	7.58e6	4.86e6	3246.5	2350.3	NO	bb	bb	100.861
13C-123478-HxCDF	34.417	0.954	2.518e5	4.870e5	1.242	0.517	0.510	1853	2231	3.91e6	7.49e6	2109.6	3358.1	NO	bd	bd	87.142
13C-123678-HxCDF	34.551	0.958	2.537e5	4.964e5	1.343	0.511	0.510	1853	2231	3.94e6	7.76e6	2125.5	3479.7	NO	db	db	81.827
13C-234678-HxCDF	35.431	0.982	2.336e5	4.563e5	1.215	0.512	0.510	1853	2231	3.63e6	7.25e6	1959.7	3248.6	NO	bb	bb	83.218
13C-123789-HxCDF	36.467	1.011	2.059e5	4.007e5	1.008	0.514	0.510	1853	2231	3.26e6	6.38e6	1760.7	2860.9	NO	bb	bb	88.223
13C-1234678-HpCDF	38.350	1.063	1.887e5	4.037e5	0.926	0.468	0.440	1839	1957	3.05e6	6.60e6	1659.2	3371.4	NO	bb	bb	93.719
13C-1234789-HpCDF	40.522	1.124	1.581e5	3.432e5	0.758	0.461	0.440	1839	1957	2.24e6	4.93e6	1219.9	2518.6	NO	bb	bb	96.946
13C-1234-TCDD	25.065	0.000	2.912e5	3.764e5	1.000	0.774	0.770	2394	1351	4.34e6	5.65e6	1813.8	4183.1	NO	bb	bb	100.000
13C-2378-TCDD	25.897	1.033	3.115e5	4.062e5	1.116	0.767	0.770	2394	1351	4.61e6	5.98e6	1927.5	4429.4	NO	bb	bb	96.289
13C-12378-PeCDD	31.008	1.237	3.006e5	1.914e5	0.732	1.571	1.550	1436	1644	4.49e6	2.86e6	3125.0	1741.4	NO	bb	bb	100.686
13C-123478-HxCDD	35.553	0.986	3.481e5	2.750e5	0.960	1.266	1.240	2007	1701	5.79e6	4.54e6	2882.9	2670.4	NO	bd	bd	95.136
13C-123678-HxCDD	35.665	0.989	3.611e5	2.871e5	1.041	1.258	1.240	2007	1701	5.64e6	4.56e6	2809.8	2683.4	NO	db	db	91.227
13C-1234678-HpCDD	39.810	1.104	2.162e5	2.055e5	0.632	1.052	1.050	1340	1026	3.40e6	3.28e6	2534.9	3197.8	NO	bb	bb	97.708
13C-OCDD	44.437	1.232	3.854e5	4.041e5	0.504	0.954	0.890	1351	1312	4.45e6	4.88e6	3293.6	3717.7	NO	bd	bb	229.714
13C-123789-HxCDD	36.066	0.000	3.804e5	3.019e5	1.000	1.260	1.240	2007	1701	6.13e6	4.88e6	3052.0	2866.3	NO	bb	bb	100.000
37CL-2378-TCDD	25.912	1.034	2.781e5		1.084			1122		4.16e6		3708.2			bd		38.438

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:22:30 Pacific Daylight Time

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.425		0.770	922	1000								
1289-TCDF					1.043		0.770	922	1000								
13468-PECDF					1.376		1.550	797	1268								
12389-PECDF					1.000		1.550	1106	1124								
123468-HXCDF					1.087		1.240	1094	851								
1368-TCDD					0.923		0.770	1502	1197								
1289-TCDD					0.794		0.770	1502	1197								
12479-PECDD					1.843		1.550	898	939								
12389-PECDD					1.154		1.550	898	939								
124679-HXCDD					1.125		1.240	780	1086								
1234679-HPCDD	38.796	0.975	1.433e2	1.197e2	1.211	1.197	1.050	913	648	4.51e3	2.47e3	4.9	3.8	NO	bb	bb	0.052
Total-tetrafurans			0.000e0		1.192			922		0.00e0							
Total-penta1			0.000e0					797		0.00e0							
Total-pentafurans			1.267e2		1.047			1106		3.75e3							0.024
Total-hexafurans			0.000e0		1.045			1094		0.00e0							
Total-heptafurans			0.000e0		1.305			597		0.00e0							
Total-Furans			1.267e2		1.158			922		3.75e3							0.024
Total-tetradioxins			0.000e0		0.879			1502		0.00e0							
Total-pentadioxins			0.000e0		1.331			898		0.00e0							
Total-hexadioxins			3.415e2		1.028			780		5.94e3							0.090
Total-heptadioxins			1.433e2		1.140			913		4.51e3							0.052
Total-Dioxins			2.093e3		1.092			1502		2.94e4							0.918
Total-TEQ			2.220e3					1502		3.31e4							0.942
FUNCTION1 PFK			0.000e0					844648		0.00e0							
FUNCTION2 PFK			1.862e7					519570		1.65e8							0.000
FUNCTION3 PFK			2.705e7					678352		2.92e8							0.000
FUNCTION4 PFK			2.482e5					394136		5.00e6							
FUNCTION5 PFK			1.162e5					277126		4.35e6							
FUNCTION1 HXCD...			9.959e2					676		1.65e4							0.000
FUNCTION1 HPCD...			9.272e2					951		1.73e4							0.000
FUNCTION2 HPCD...			4.411e2					894		1.28e4							0.000
FUNCTION3 OCDPE			1.207e3					1068		3.13e4							0.000
FUNCTION4 NCDPE			6.854e2					885		1.28e4							0.000
FUNCTION5 DCDPE			8.941e1					829		3.28e3							0.000

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.07	1.267e2	8.764e1	1.047	1.45	1.55	3.4	YES	NO	bb	bb	0.024

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.07	1.267e2	8.764e1	1.047	1.45	1.55	3.4	YES	NO	bb	bb	0.024

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:22:30 Pacific Daylight Time

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.44	3.415e2	2.468e2	1.028	1.38	1.24	7.6	YES	NO	db	dd	0.090

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	38.80	1.433e2	1.197e2	1.211	1.20	1.05	4.9	YES	NO	bb	bb	0.052

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.44	3.415e2	2.468e2	1.028	1.38	1.24	7.6	YES	NO	db	dd	0.090
2	1234679-HPCDD	38.80	1.433e2	1.197e2	1.211	1.20	1.05	4.9	YES	NO	bb	bb	0.052
3	OCDD	44.46	1.608e3	2.012e3	1.181	0.80	0.89	21.0	YES	NO	MM	bb	0.777

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.07	1.267e2	8.764e1	1.047	1.45	1.55	3.4	YES	NO	bb	bb	0.024
2	Total-hexadioxins	35.44	3.415e2	2.468e2	1.028	1.38	1.24	7.6	YES	NO	db	dd	0.090
3	1234679-HPCDD	38.80	1.433e2	1.197e2	1.211	1.20	1.05	4.9	YES	NO	bb	bb	0.052
4	OCDD	44.46	1.608e3	2.012e3	1.181	0.80	0.89	21.0	YES	NO	MM	bb	0.777

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.05	1.709e4					1.3	NO		bb		0.000
2	FUNCTION2 PFK	28.98	1.562e4					1.0	NO		bb		0.000
3	FUNCTION2 PFK	28.84	7.025e3					0.7	NO		bb		0.000
4	FUNCTION2 PFK	28.79	1.351e4					1.0	NO		db		0.000
5	FUNCTION2 PFK	28.75	2.329e4					0.9	NO		bd		0.000
6	FUNCTION2 PFK	28.67	2.298e3					0.4	NO		bb		0.000
7	FUNCTION2 PFK	28.39	4.408e5					9.8	YES		db		0.000
8	FUNCTION2 PFK	28.24	2.196e6					17.7	YES		dd		0.000
9	FUNCTION2 PFK	27.81	6.682e6					43.0	YES		dd		0.000
10	FUNCTION2 PFK	27.73	3.358e6					46.4	YES		dd		0.000
11	FUNCTION2 PFK	27.56	2.153e6					55.3	YES		dd		0.000
12	FUNCTION2 PFK	27.52	9.760e5					57.2	YES		dd		0.000
13	FUNCTION2 PFK	27.48	2.359e6					60.5	YES		bd		0.000
14	FUNCTION2 PFK	31.31	7.730e3					0.8	NO		bd		0.000
15	FUNCTION2 PFK	31.11	1.846e4					1.1	NO		bb		0.000
16	FUNCTION2 PFK	30.95	1.018e4					1.0	NO		bb		0.000
17	FUNCTION2 PFK	30.64	9.075e3					0.9	NO		bb		0.000
18	FUNCTION2 PFK	30.51	2.602e4					1.1	NO		bb		0.000
19	FUNCTION2 PFK	30.38	3.662e4					1.8	NO		db		0.000
20	FUNCTION2 PFK	30.34	1.171e4					0.9	NO		dd		0.000
21	FUNCTION2 PFK	30.31	1.405e4					1.2	NO		bd		0.000
22	FUNCTION2 PFK	30.23	8.017e3					0.9	NO		bb		0.000
23	FUNCTION2 PFK	29.96	4.505e4					1.4	NO		bb		0.000
24	FUNCTION2 PFK	29.92	2.827e3					0.5	NO		bb		0.000
25	FUNCTION2 PFK	29.87	2.224e3					0.4	NO		bb		0.000
26	FUNCTION2 PFK	29.78	3.044e3					0.5	NO		bb		0.000
27	FUNCTION2 PFK	29.54	1.423e4					0.5	NO		bb		0.000
28	FUNCTION2 PFK	29.46	6.132e4					2.1	NO		bb		0.000
29	FUNCTION2 PFK	29.25	7.456e3					0.6	NO		bb		0.000
30	FUNCTION2 PFK	32.18	6.230e3					0.8	NO		bb		0.000
31	FUNCTION2 PFK	32.10	3.734e4					1.4	NO		db		0.000
32	FUNCTION2 PFK	31.95	3.019e4					1.2	NO		bd		0.000
33	FUNCTION2 PFK	31.90	7.386e3					0.7	NO		bb		0.000
34	FUNCTION2 PFK	31.81	9.014e3					0.8	NO		bb		0.000
35	FUNCTION2 PFK	31.35	1.052e4					0.9	NO		db		0.000

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.07	2.850e6					23.6	YES		dd		0.000
2	FUNCTION3 PFK	32.87	2.038e6					31.5	YES		dd		0.000
3	FUNCTION3 PFK	32.77	2.871e6					34.9	YES		dd		0.000
4	FUNCTION3 PFK	32.58	4.209e6					42.1	YES		dd		0.000
5	FUNCTION3 PFK	32.52	9.824e5					44.3	YES		dd		0.000
6	FUNCTION3 PFK	32.44	3.107e6					47.2	YES		dd		0.000
7	FUNCTION3 PFK	32.39	1.443e6					48.4	YES		dd		0.000
8	FUNCTION3 PFK	32.32	2.294e6					52.0	YES		dd		0.000
9	FUNCTION3 PFK	32.28	2.404e6					53.2	YES		bd		0.000
10	FUNCTION3 PFK	35.06	4.555e3					0.4	NO		bb		0.000
11	FUNCTION3 PFK	34.90	5.158e4					1.4	NO		bb		0.000
12	FUNCTION3 PFK	34.70	1.188e4					0.9	NO		bb		0.000
13	FUNCTION3 PFK	34.63	3.479e4					1.9	NO		db		0.000
14	FUNCTION3 PFK	34.57	4.849e4					2.0	NO		bd		0.000
15	FUNCTION3 PFK	34.52	1.417e4					1.0	NO		bb		0.000
16	FUNCTION3 PFK	34.47	5.434e3					0.7	NO		bb		0.000
17	FUNCTION3 PFK	34.42	2.624e4					1.6	NO		bb		0.000
18	FUNCTION3 PFK	34.33	1.942e4					0.4	NO		bb		0.000
19	FUNCTION3 PFK	34.23	8.660e3					0.5	NO		bb		0.000
20	FUNCTION3 PFK	33.99	2.655e3					0.4	NO		bb		0.000
21	FUNCTION3 PFK	33.92	1.339e4					0.8	NO		bb		0.000
22	FUNCTION3 PFK	33.86	1.109e4					0.8	NO		bb		0.000
23	FUNCTION3 PFK	33.58	3.988e5					3.4	YES		db		0.000
24	FUNCTION3 PFK	33.45	6.882e5					9.0	YES		dd		0.000
25	FUNCTION3 PFK	33.29	3.160e6					14.9	YES		dd		0.000
26	FUNCTION3 PFK	37.27	4.920e4					1.6	NO		bb		0.000
27	FUNCTION3 PFK	37.01	7.982e3					0.6	NO		bb		0.000
28	FUNCTION3 PFK	36.08	2.073e4					1.1	NO		bb		0.000
29	FUNCTION3 PFK	36.01	2.294e4					1.1	NO		bb		0.000
30	FUNCTION3 PFK	35.93	1.476e4					0.8	NO		bb		0.000
31	FUNCTION3 PFK	35.87	2.139e4					1.4	NO		bb		0.000
32	FUNCTION3 PFK	35.76	6.742e3					0.5	NO		bb		0.000
33	FUNCTION3 PFK	35.69	5.566e4					2.0	NO		db		0.000
34	FUNCTION3 PFK	35.58	8.657e4					2.1	NO		dd		0.000
35	FUNCTION3 PFK	35.50	6.605e4					1.7	NO		bd		0.000
36	FUNCTION3 PFK	35.36	5.032e3					0.7	NO		bb		0.000

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.93	3.061e3					0.7	NO		bb		
2	FUNCTION4 PFK	37.69	1.329e5					2.0	NO		bb		
3	FUNCTION4 PFK	37.53	8.464e3					1.2	NO		bb		
4	FUNCTION4 PFK	37.48	2.511e3					0.6	NO		bb		
5	FUNCTION4 PFK	42.34	7.476e3					0.9	NO		bb		
6	FUNCTION4 PFK	42.29	7.358e3					0.9	NO		bb		
7	FUNCTION4 PFK	42.25	2.474e3					0.6	NO		bb		
8	FUNCTION4 PFK	42.20	2.056e3					0.5	NO		bb		
9	FUNCTION4 PFK	41.88	1.102e4					1.2	NO		bb		
10	FUNCTION4 PFK	41.81	8.612e3					1.1	NO		bb		
11	FUNCTION4 PFK	39.59	1.480e4					1.3	NO		bb		
12	FUNCTION4 PFK	39.49	4.751e4					1.7	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.05	1.971e3					0.6	NO		bb		
2	FUNCTION5 PFK	43.98	5.871e3					1.1	NO		bb		
3	FUNCTION5 PFK	43.76	5.918e3					1.1	NO		bb		
4	FUNCTION5 PFK	43.70	5.405e3					0.9	NO		bb		
5	FUNCTION5 PFK	42.76	3.767e3					0.8	NO		bb		
6	FUNCTION5 PFK	42.59	8.720e3					1.5	NO		bb		
7	FUNCTION5 PFK	42.46	9.737e3					1.5	NO		bb		
8	FUNCTION5 PFK	45.87	8.957e3					0.7	NO		bb		
9	FUNCTION5 PFK	45.56	2.027e3					0.6	NO		bb		
10	FUNCTION5 PFK	45.53	1.610e3					0.6	NO		bb		
11	FUNCTION5 PFK	45.49	6.254e3					1.2	NO		bb		
12	FUNCTION5 PFK	45.33	1.339e4					1.5	NO		bb		
13	FUNCTION5 PFK	45.12	3.233e4					2.1	NO		bb		
14	FUNCTION5 PFK	44.55	6.044e3					0.8	NO		bb		
15	FUNCTION5 PFK	44.46	4.232e3					0.6	NO		bb		

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.28	1.308e2					2.4	NO		db		0.000
2	FUNCTION1 HXCD...	25.11	1.319e2					2.5	NO		bd		0.000
3	FUNCTION1 HXCD...	24.28	1.063e2					4.8	YES		bb		0.000
4	FUNCTION1 HXCD...	23.67	1.075e2					3.7	YES		bb		0.000
5	FUNCTION1 HXCD...	23.22	1.782e2					2.8	NO		bb		0.000
6	FUNCTION1 HXCD...	22.31	7.372e1					2.4	NO		bb		0.000
7	FUNCTION1 HXCD...	21.78	8.878e1					1.1	NO		bb		0.000
8	FUNCTION1 HXCD...	27.09	8.500e1					2.8	NO		bb		0.000
9	FUNCTION1 HXCD...	26.20	9.364e1					2.1	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	26.02	8.100e1					1.9	NO		bb		0.000
2	FUNCTION1 HPCD...	25.05	8.124e1					1.6	NO		bb		0.000
3	FUNCTION1 HPCD...	24.91	9.126e1					2.5	NO		bb		0.000
4	FUNCTION1 HPCD...	22.48	9.119e1					1.9	NO		db		0.000
5	FUNCTION1 HPCD...	22.42	9.787e1					2.7	NO		bd		0.000
6	FUNCTION1 HPCD...	21.56	1.881e2					2.8	NO		bb		0.000
7	FUNCTION1 HPCD...	21.19	1.333e2					2.2	NO		db		0.000
8	FUNCTION1 HPCD...	21.12	1.633e2					2.6	NO		bd		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.04	9.156e1					2.2	NO		bb		0.000
2	FUNCTION2 HPCD...	28.82	9.651e1					3.2	YES		bb		0.000
3	FUNCTION2 HPCD...	28.04	7.030e1					2.6	NO		bb		0.000
4	FUNCTION2 HPCD...	27.90	7.008e1					2.5	NO		bb		0.000
5	FUNCTION2 HPCD...	31.42	1.127e2					3.8	YES		bb		0.000

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.55	1.190e2					2.5	NO		bb		0.000
2	FUNCTION3 OCDPE	34.55	7.909e1					1.7	NO		bb		0.000
3	FUNCTION3 OCDPE	33.96	7.298e1					1.8	NO		bb		0.000
4	FUNCTION3 OCDPE	33.74	7.823e1					1.9	NO		bb		0.000
5	FUNCTION3 OCDPE	33.07	1.202e2					3.6	YES		bb		0.000
6	FUNCTION3 OCDPE	32.65	1.521e2					4.3	YES		db		0.000
7	FUNCTION3 OCDPE	32.60	1.423e2					4.7	YES		bd		0.000
8	FUNCTION3 OCDPE	32.55	7.805e1					1.6	NO		db		0.000
9	FUNCTION3 OCDPE	32.46	1.213e2					1.9	NO		dd		0.000
10	FUNCTION3 OCDPE	32.34	1.353e2					2.7	NO		dd		0.000
11	FUNCTION3 OCDPE	32.30	1.082e2					2.6	NO		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.14	9.583e1					2.8	NO		dd		0.000
2	FUNCTION4 NCDPE	38.08	8.451e1					1.7	NO		bd		0.000
3	FUNCTION4 NCDPE	41.87	1.713e2					2.2	NO		db		0.000
4	FUNCTION4 NCDPE	41.75	8.431e1					2.1	NO		bd		0.000
5	FUNCTION4 NCDPE	41.50	1.431e2					4.0	YES		bb		0.000
6	FUNCTION4 NCDPE	38.19	1.064e2					1.7	NO		db		0.000

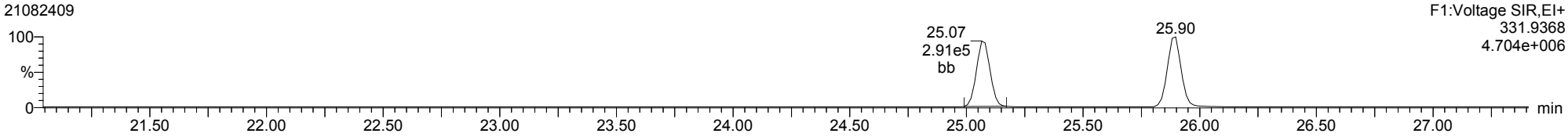
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.50	8.941e1					4.0	YES		bb		0.000

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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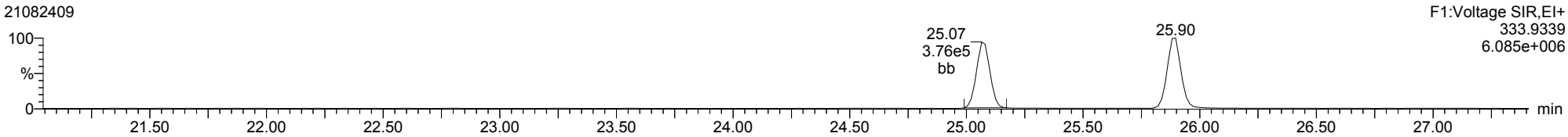

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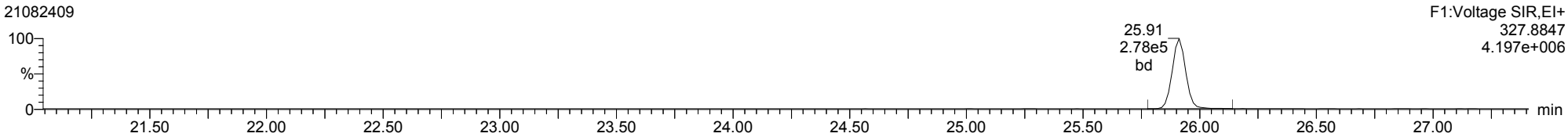
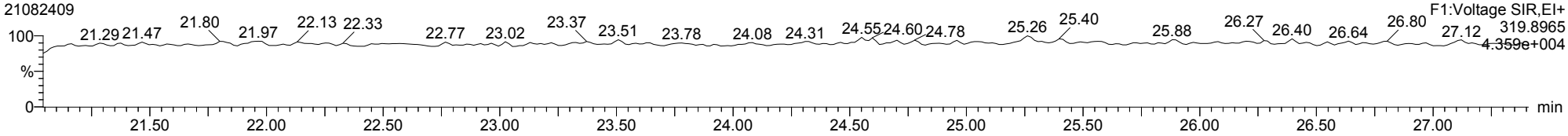
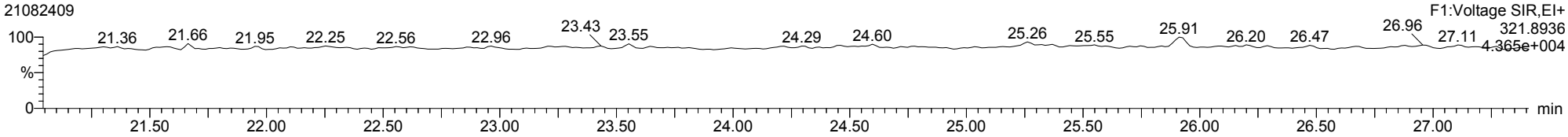


ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

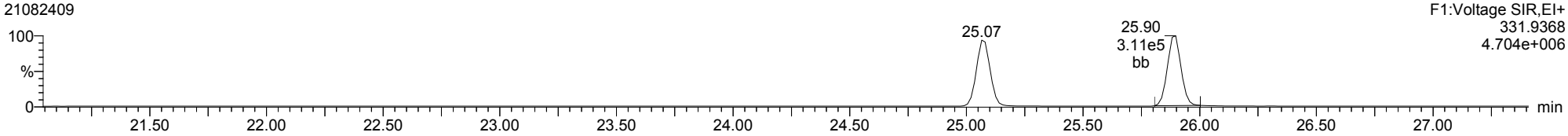
2378-TCDD



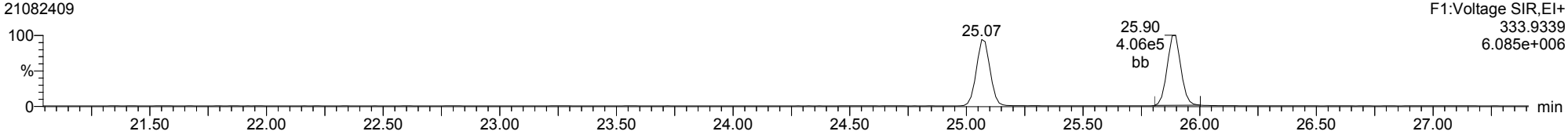
2378-TCDD



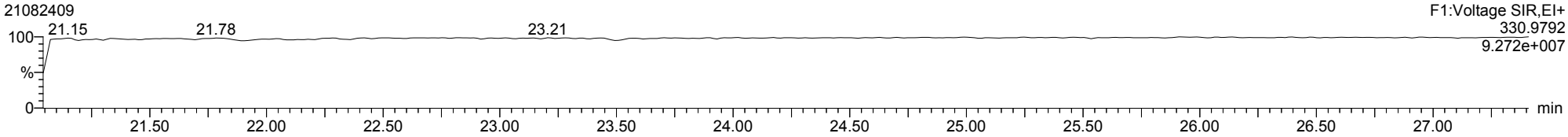
13C-2378-TCDD



13C-2378-TCDD

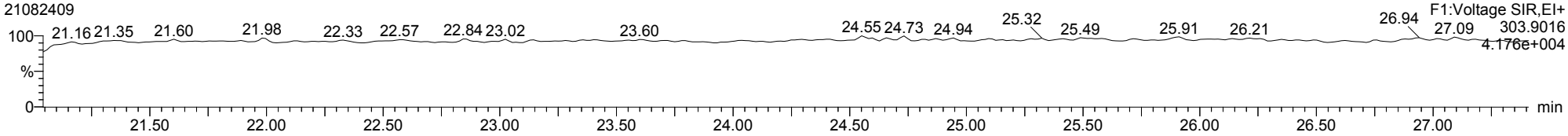


FUNCTION1 PFK

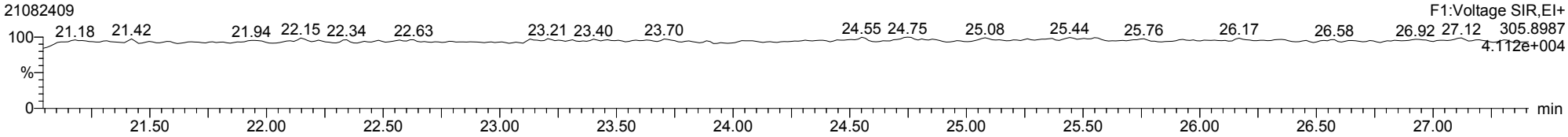


ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

2378-TCDF



2378-TCDF



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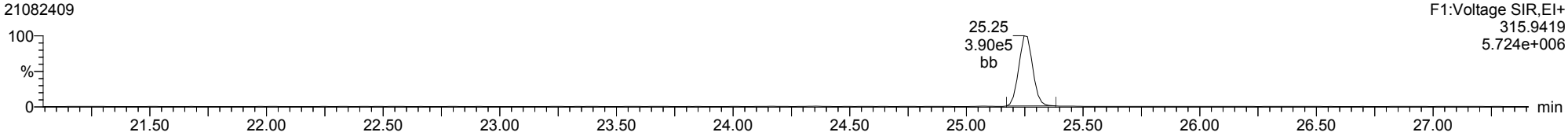

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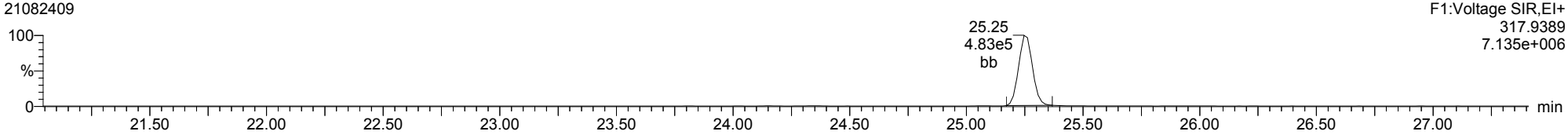
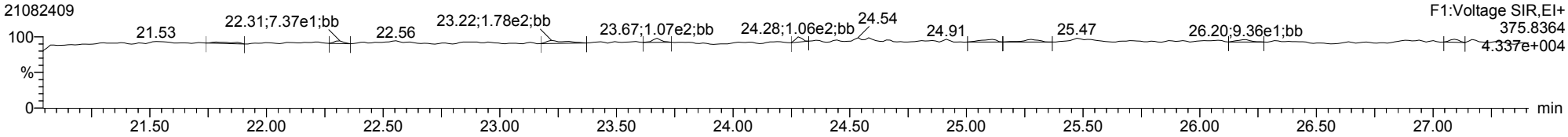


FUNCTION1 HXCDPE



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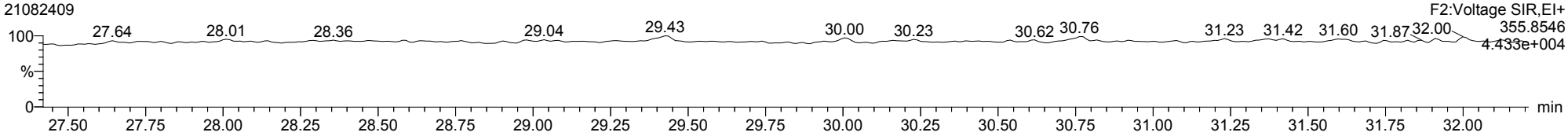
12378-PeCDD



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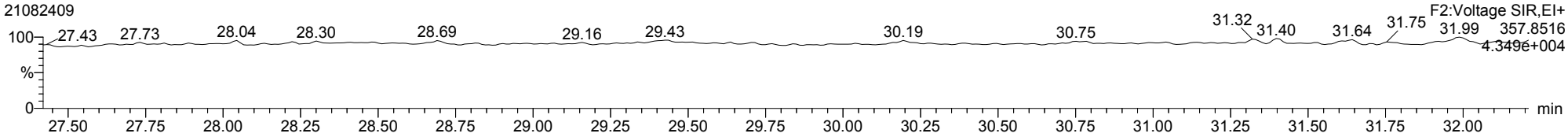

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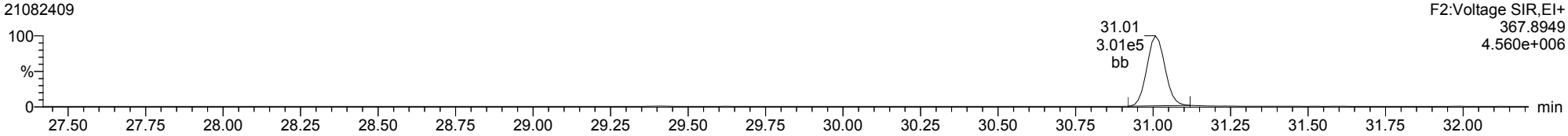

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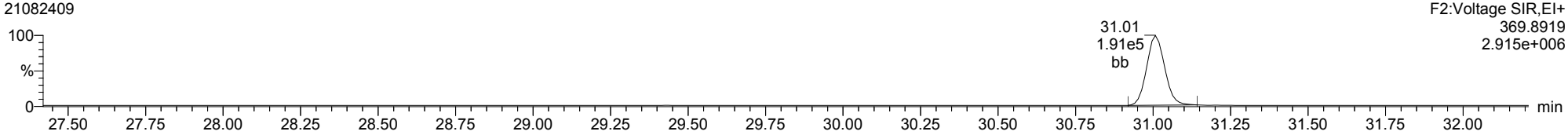
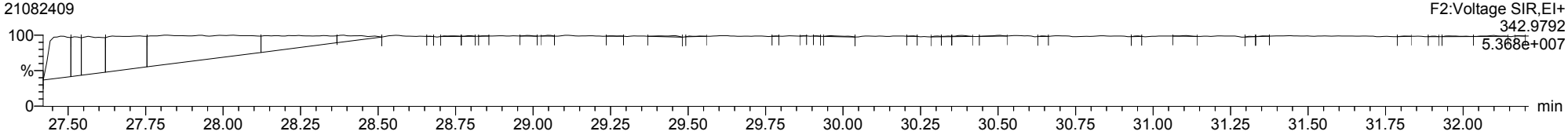


FUNCTION2 PFK



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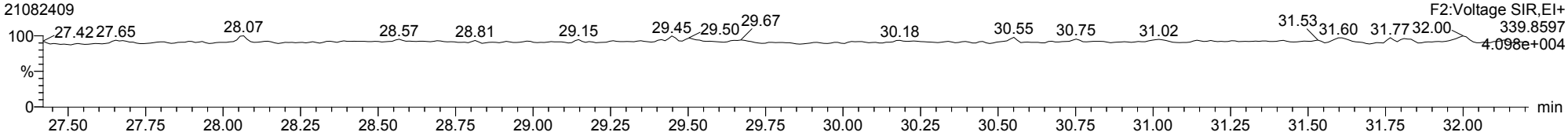
12378-PeCDF



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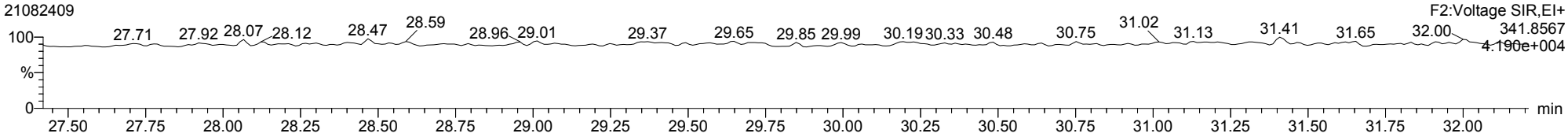

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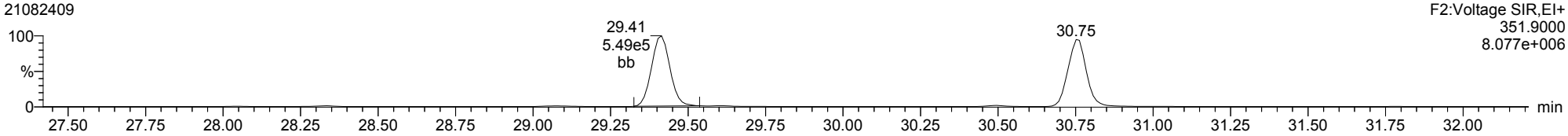

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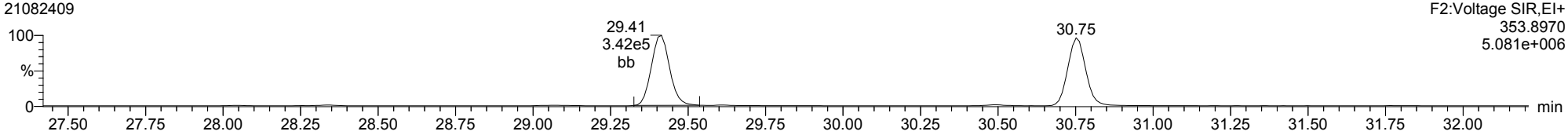
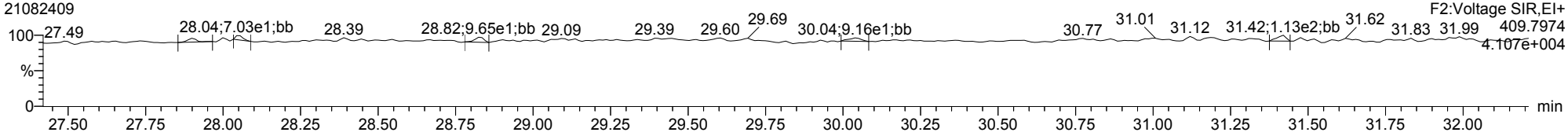


FUNCTION2 HPCDPE



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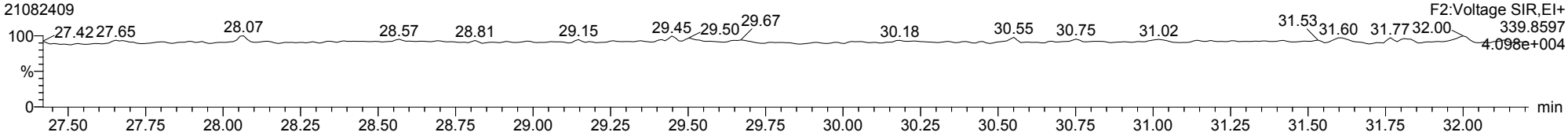
23478-PeCDF



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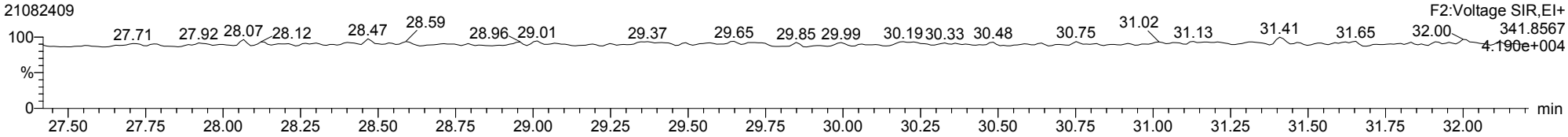

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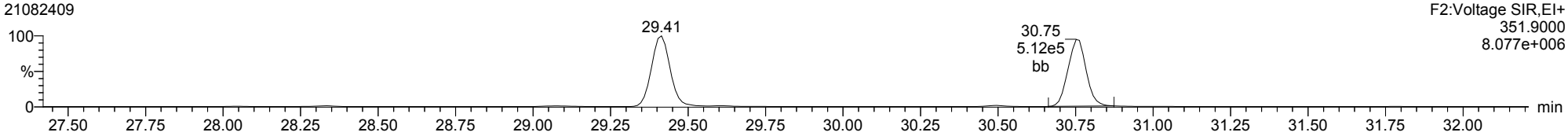

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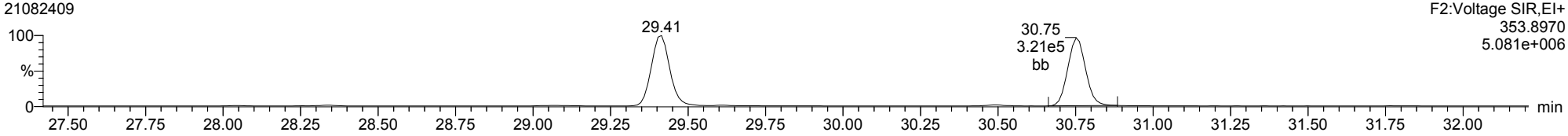
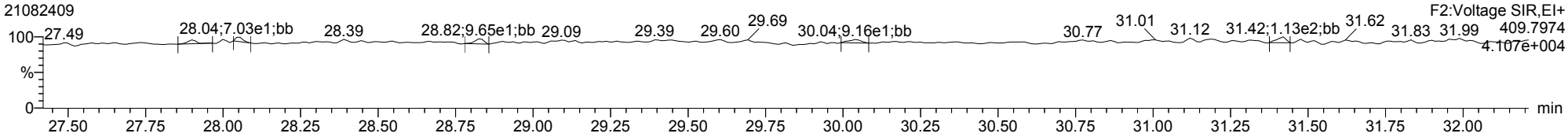


FUNCTION2 HPCDPE



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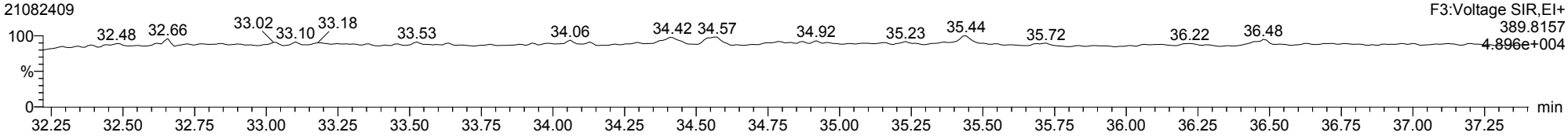
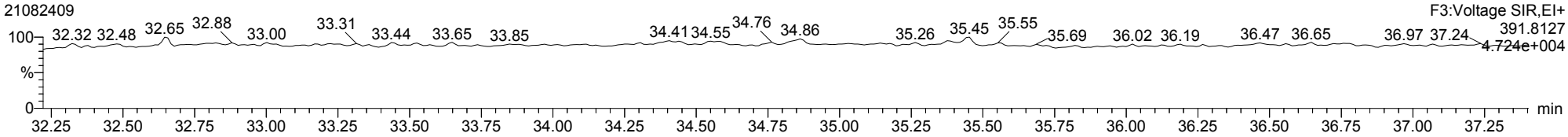
123478-HxCDD



123478-HxCDD



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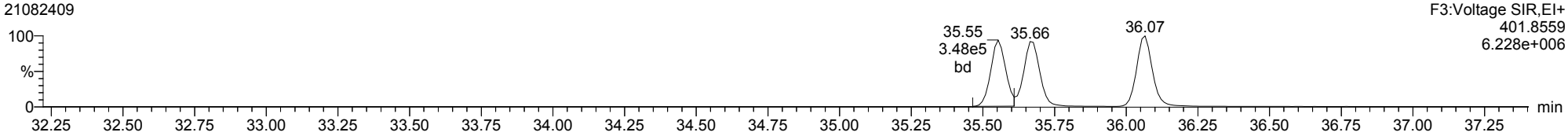

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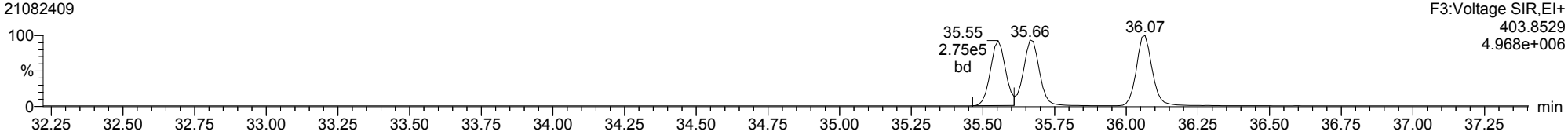
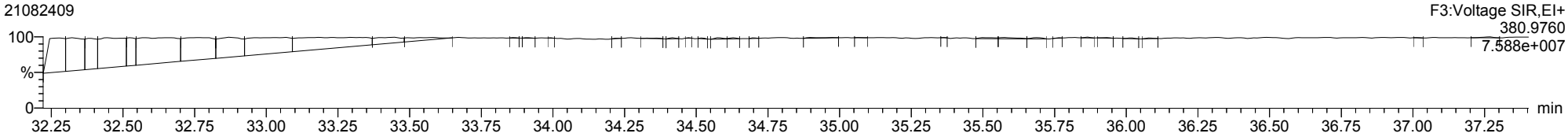


FUNCTION3 PFK



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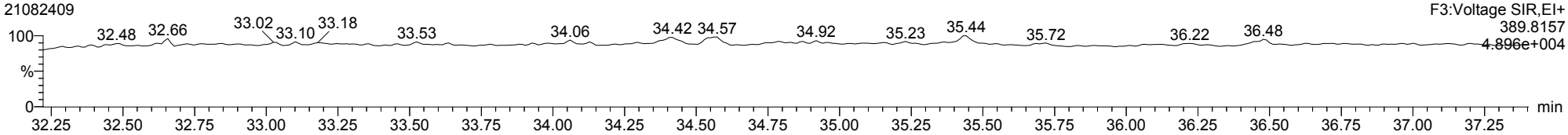
123678-HxCDD



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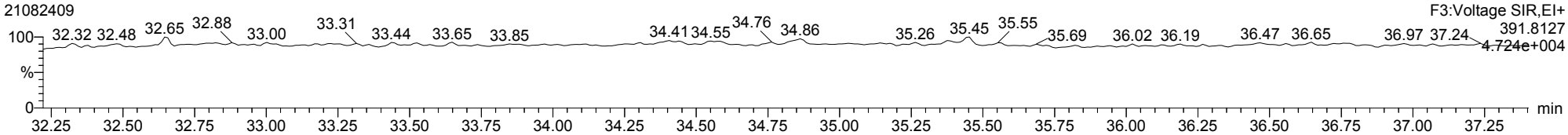

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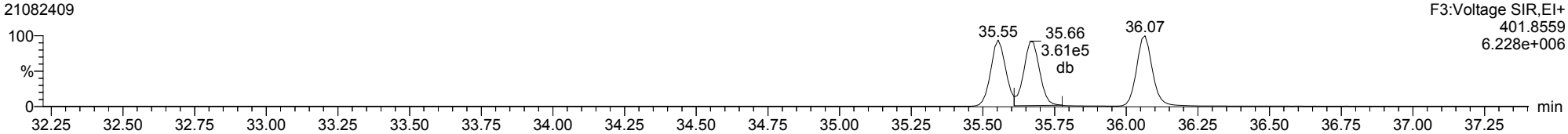

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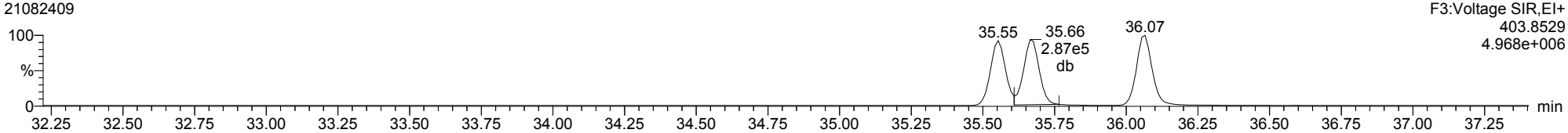

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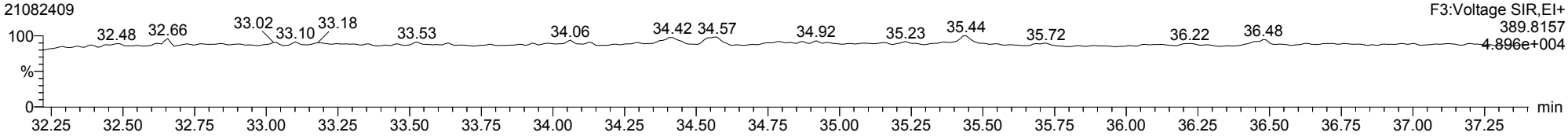
123789-HxCDD



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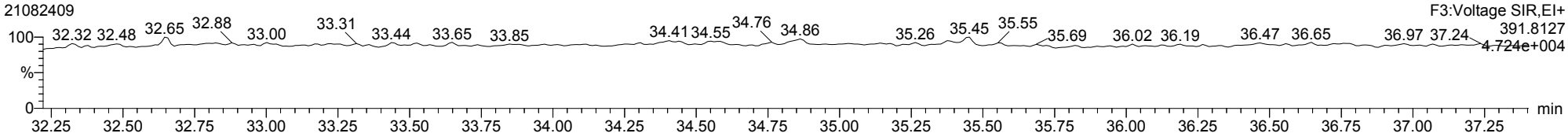

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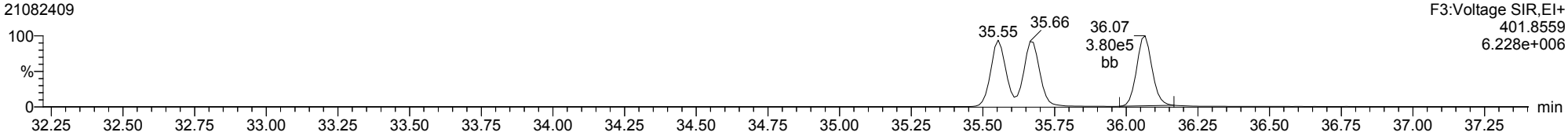

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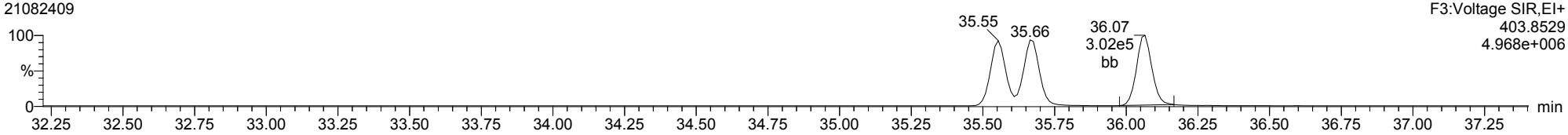

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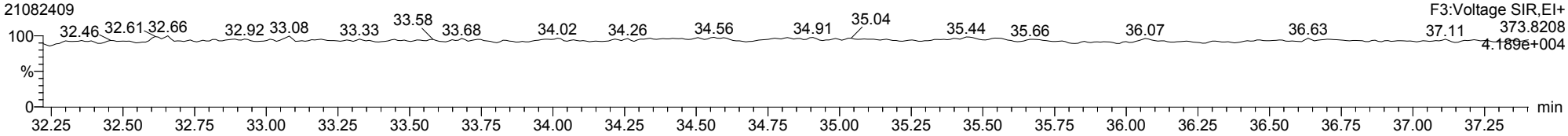
123478-HxCDF



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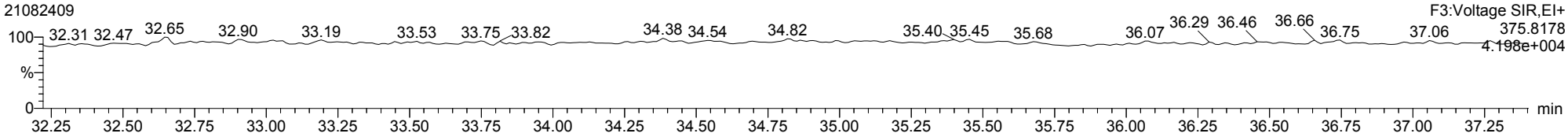

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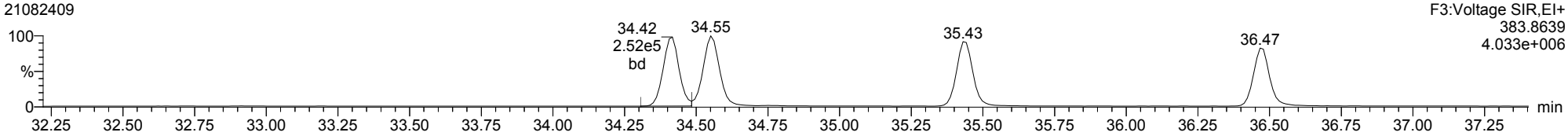

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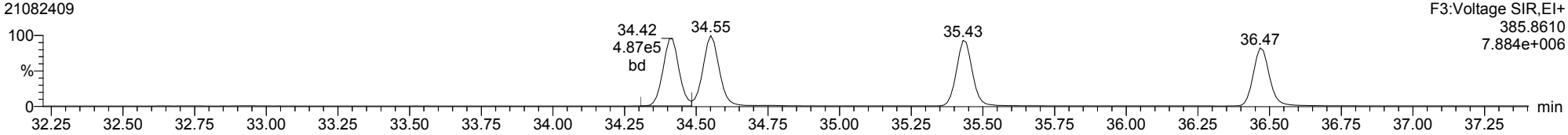
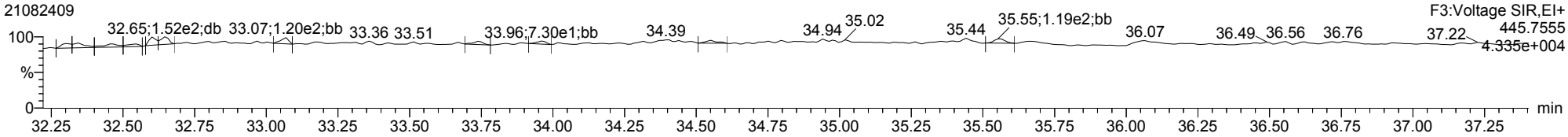


FUNCTION3 OCDPE



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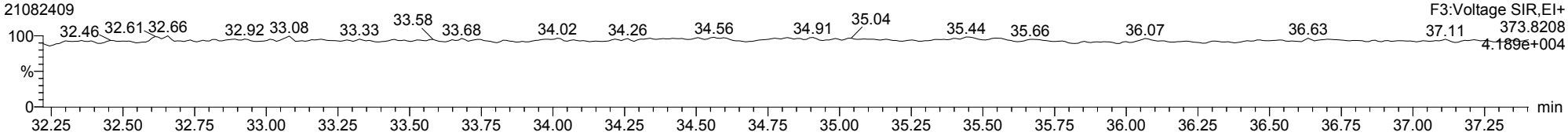
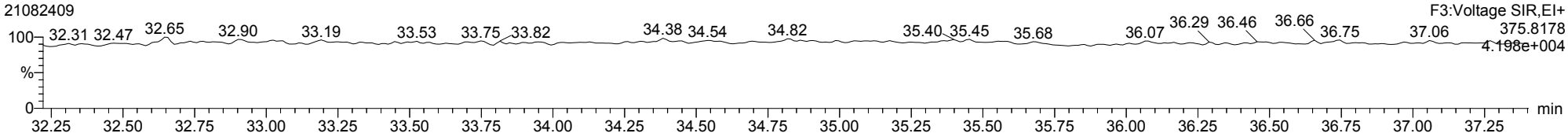
234678-HxCDF



234678-HxCDF



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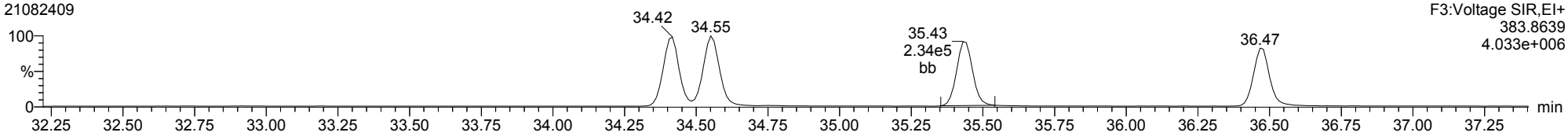

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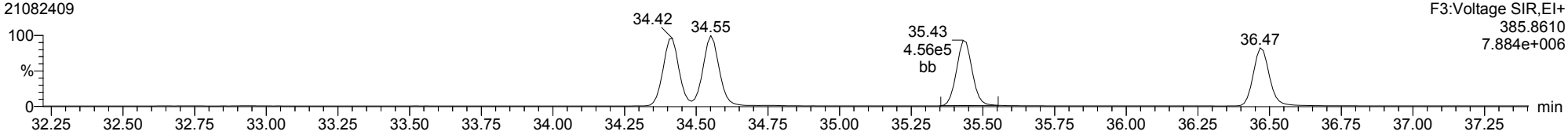
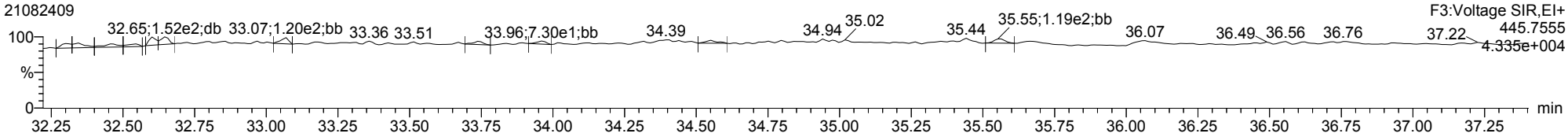


FUNCTION3 OCDPE



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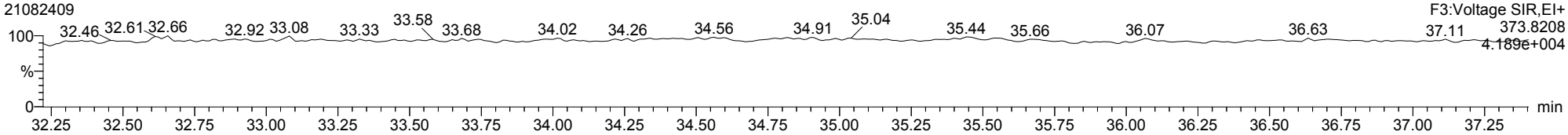
123678-HxCDF



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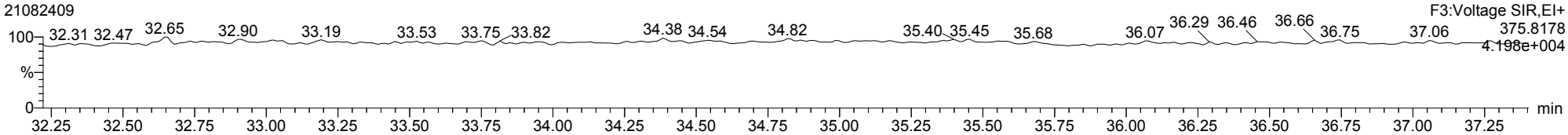

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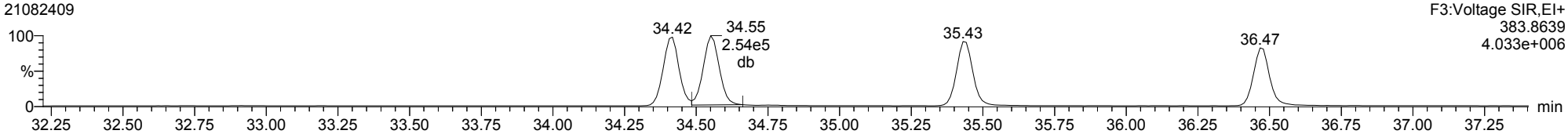

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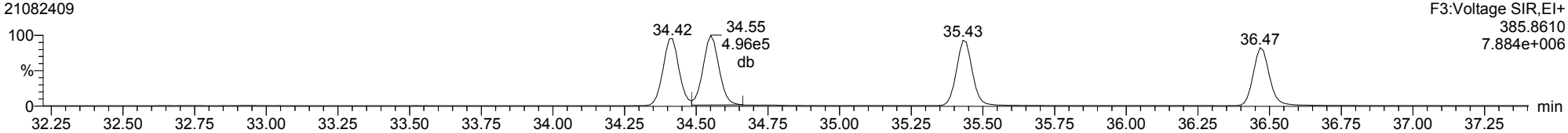
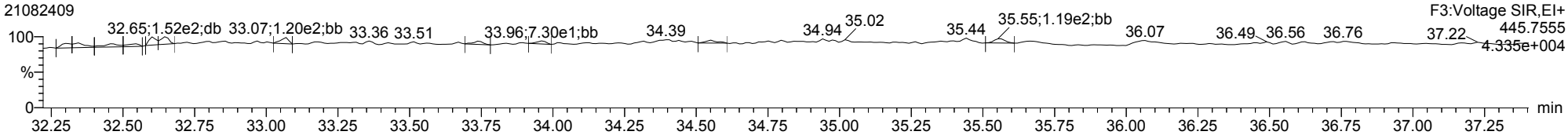


FUNCTION3 OCDPE



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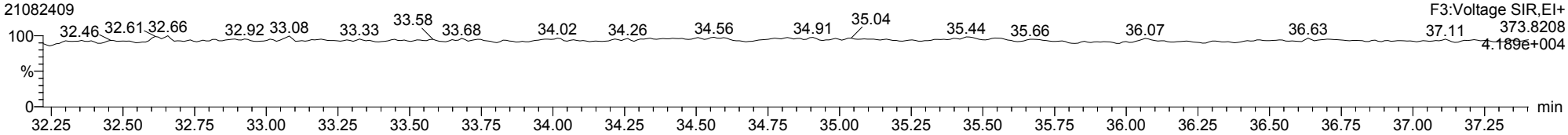

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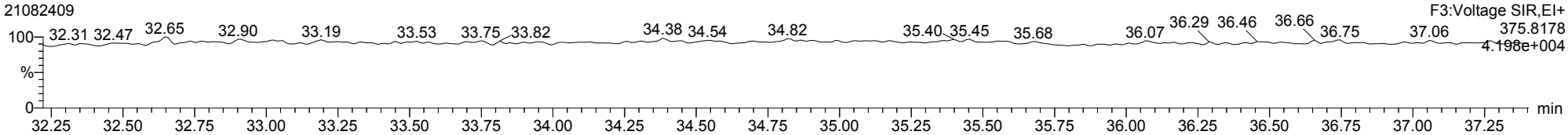

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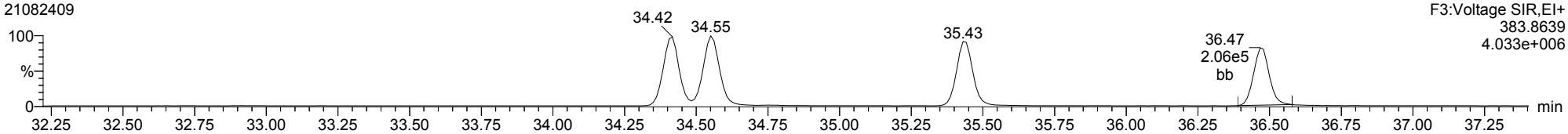

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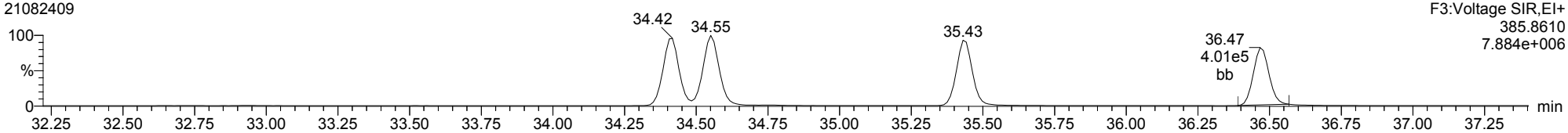
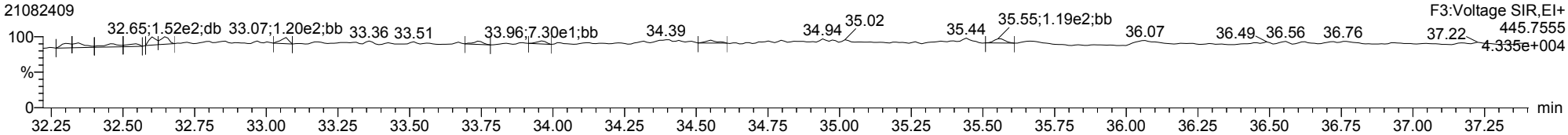


FUNCTION3 OCDPE



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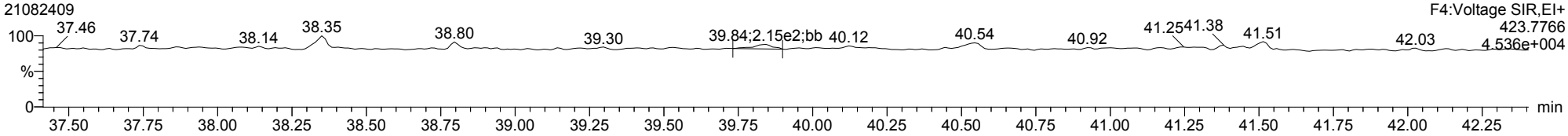

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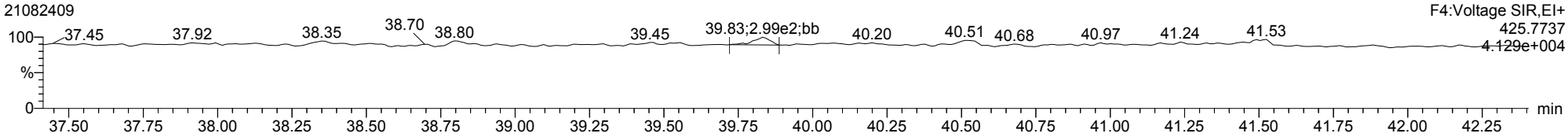

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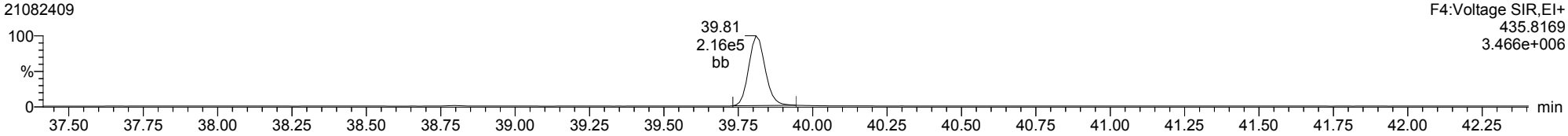

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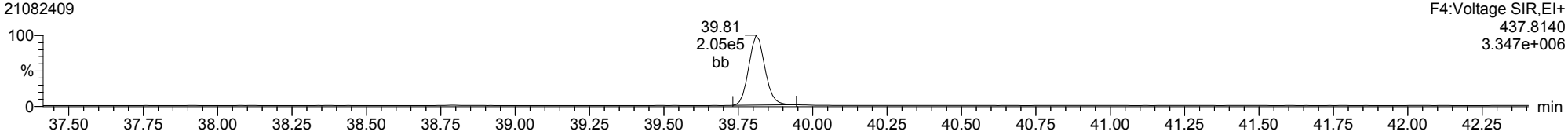
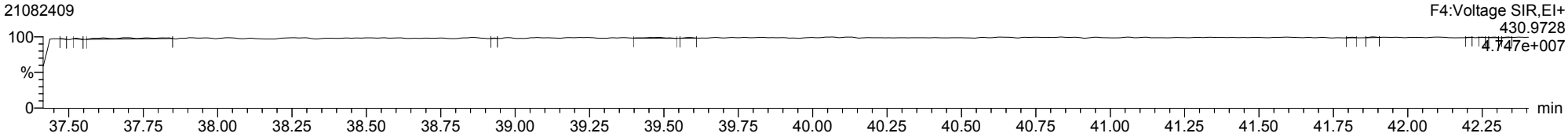


FUNCTION4 PFK



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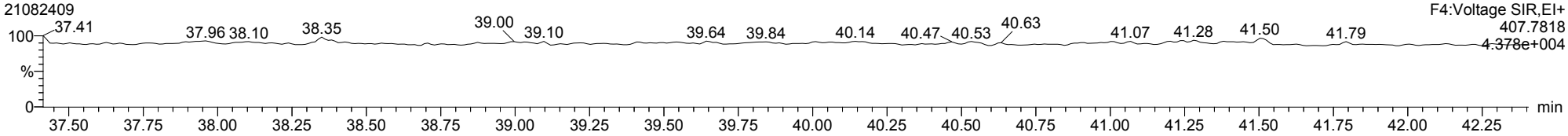

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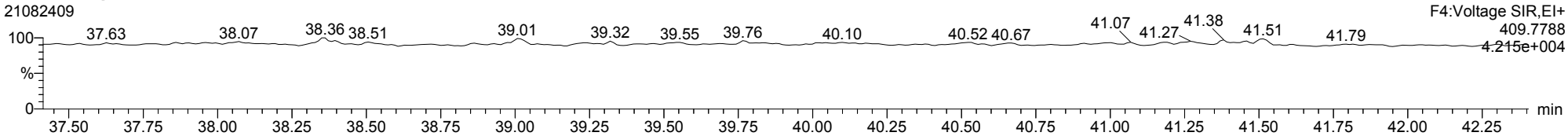

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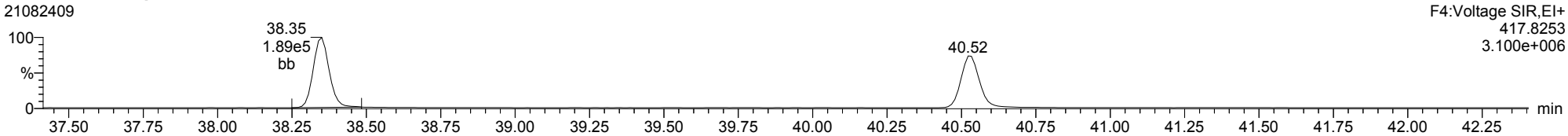

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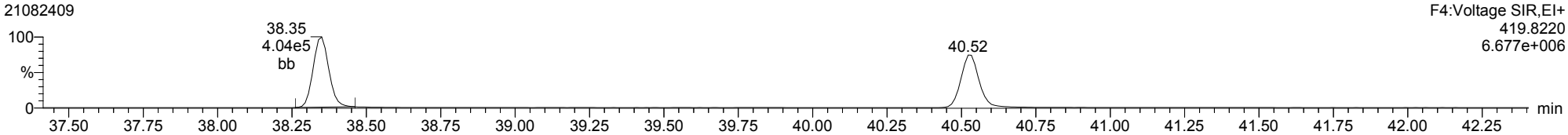
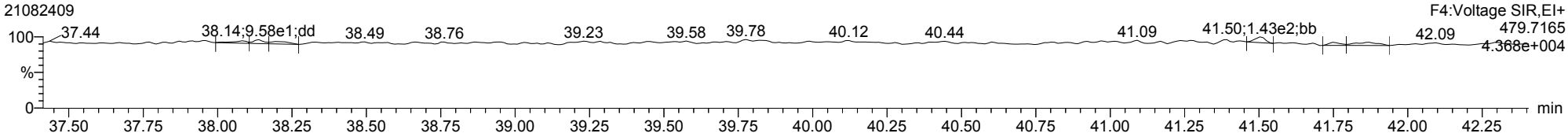


FUNCTION4 NCDPE



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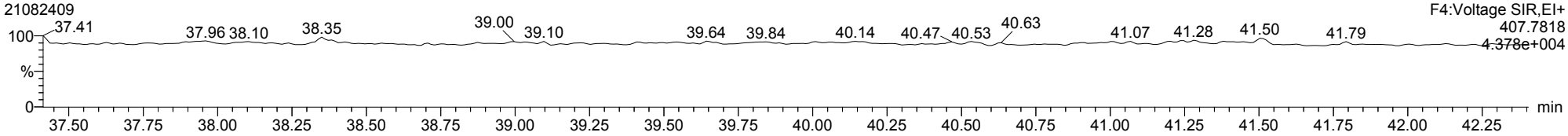

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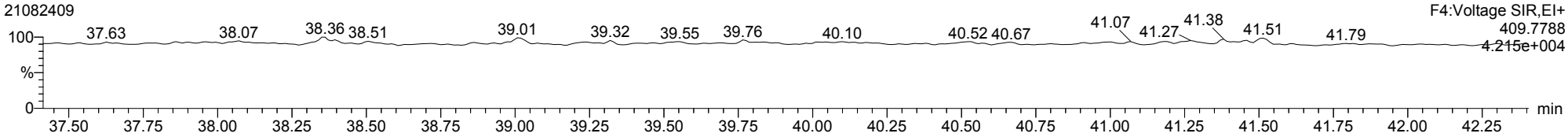

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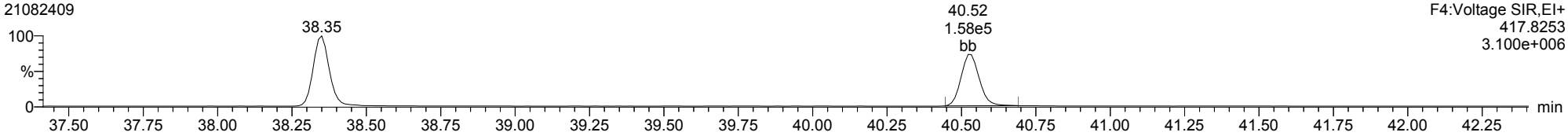

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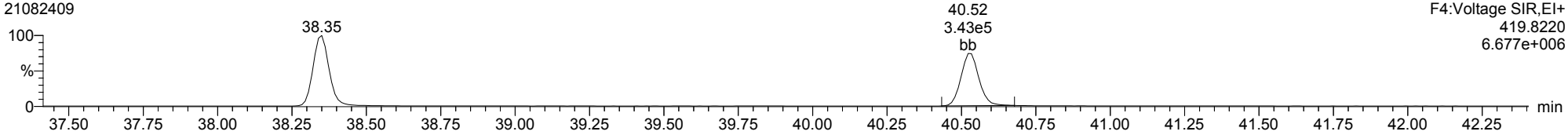
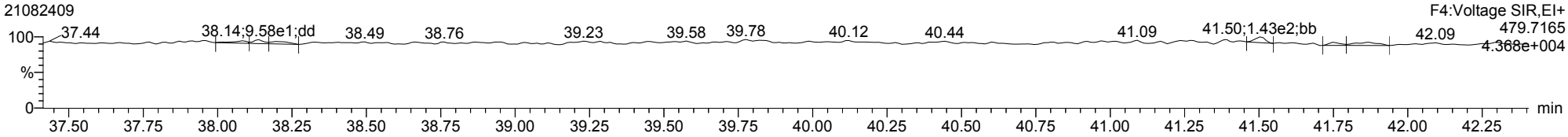


FUNCTION4 NCDPE



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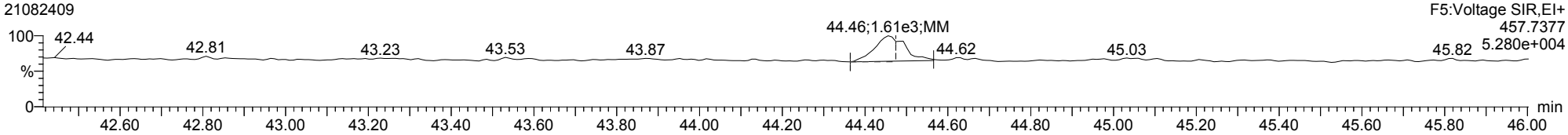
OCDD



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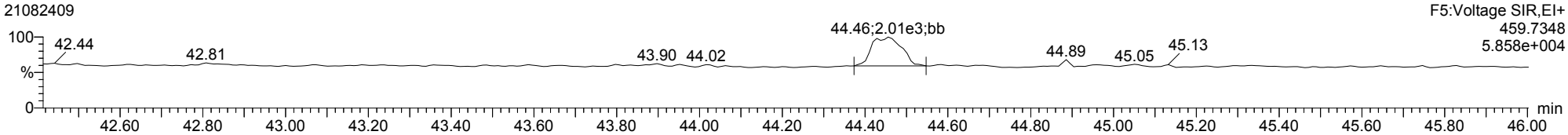

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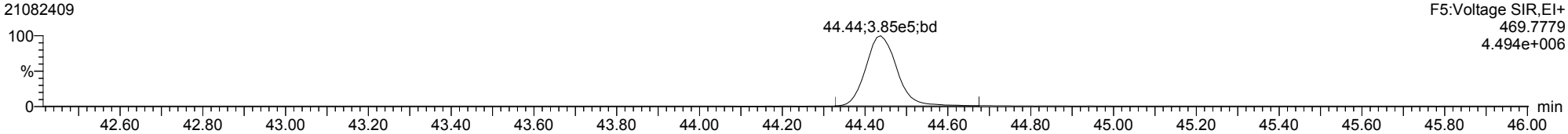

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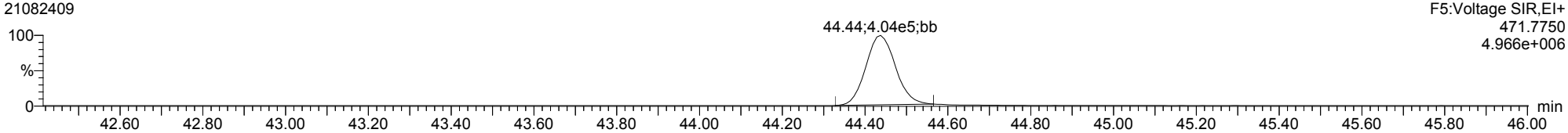

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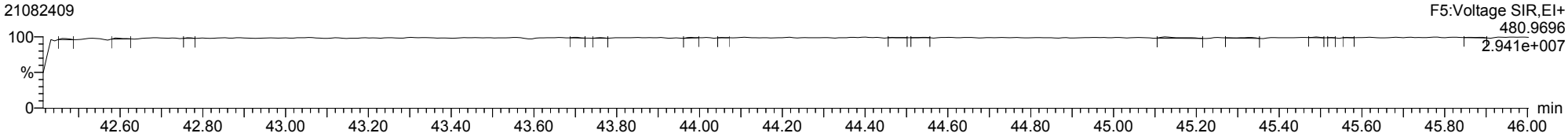

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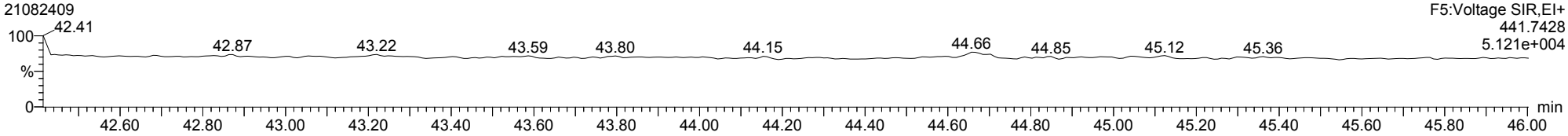

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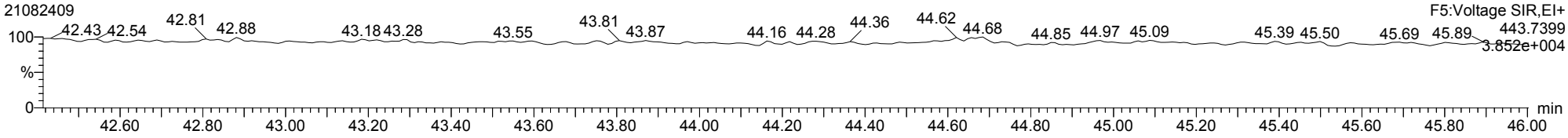

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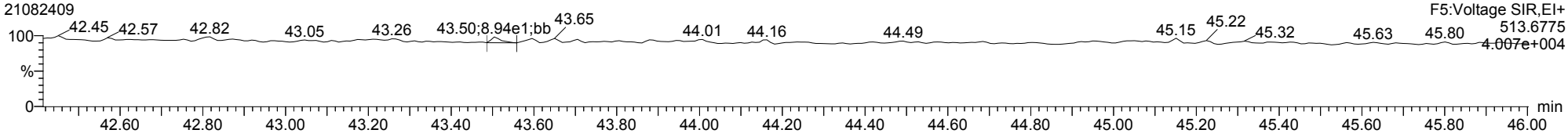

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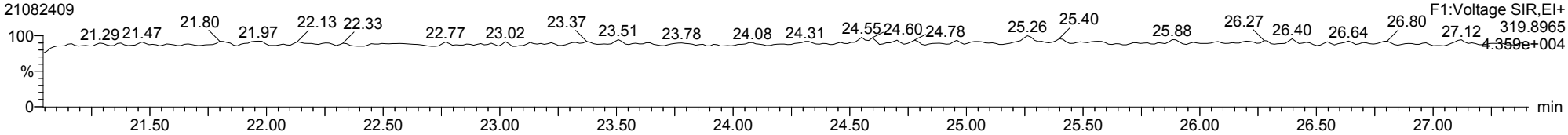
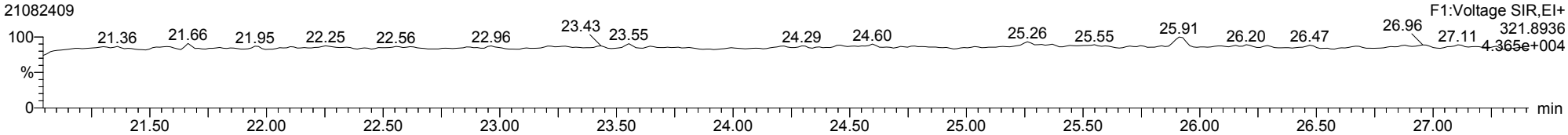
Printed: Wednesday, August 25, 2021 09:22:30 Pacific Daylight Time

ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

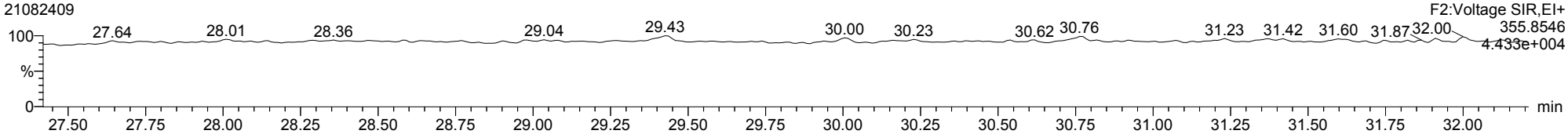
Total-tetradioxins



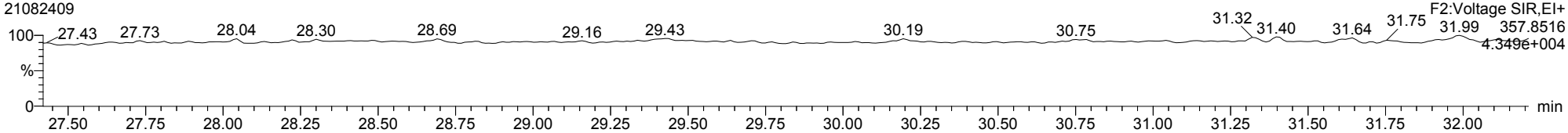
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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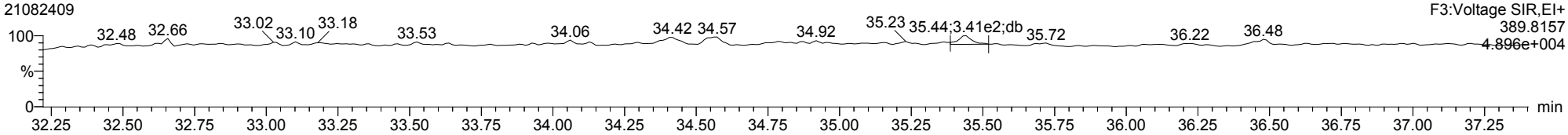
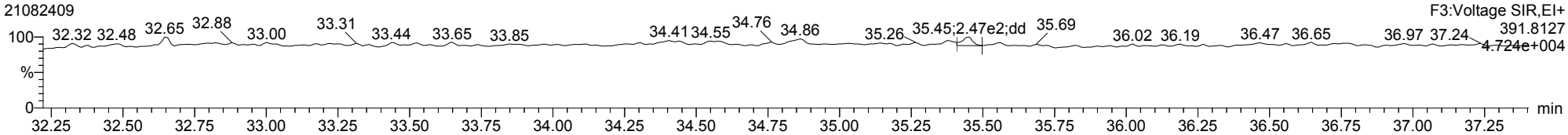


Total-hexadioxins



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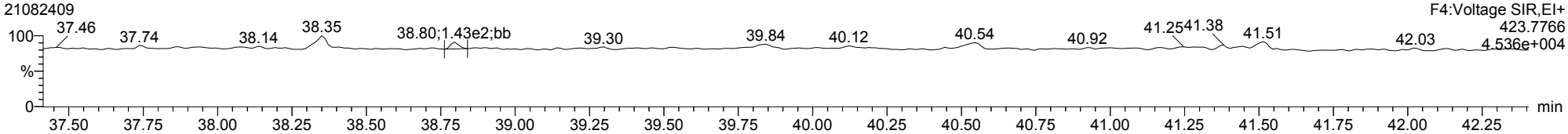

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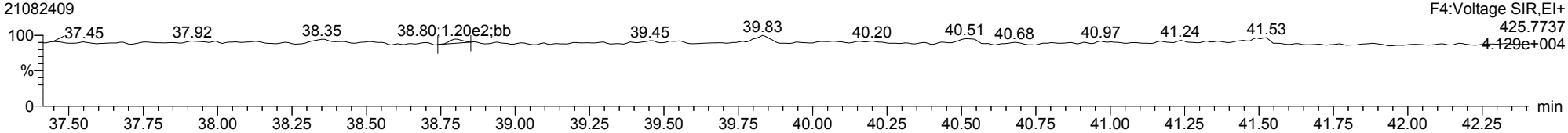

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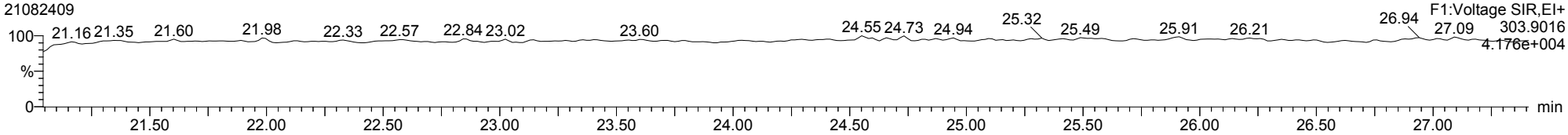
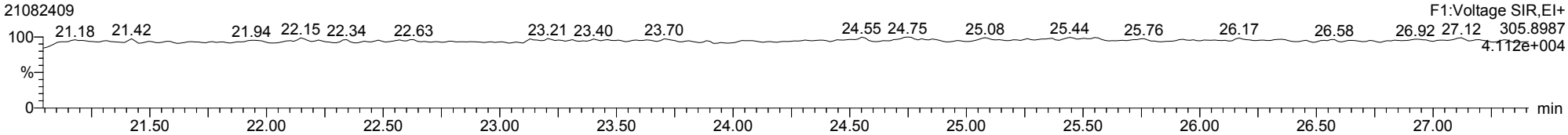
ID: BJH0186-BLK1, Name: 21082409, Date: 24-Aug-2021, Time: 18:40:23, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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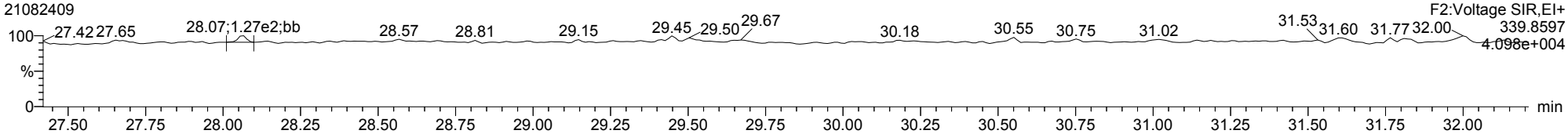
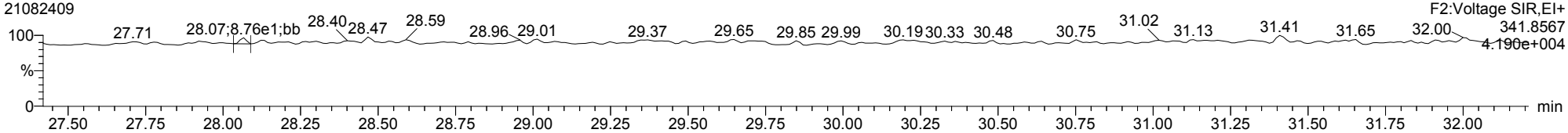


Total-pentafurans



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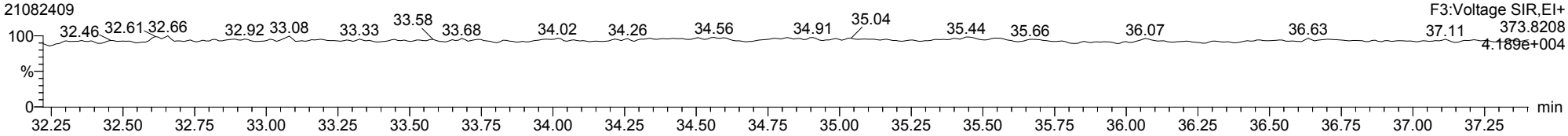
Total-hexafurans



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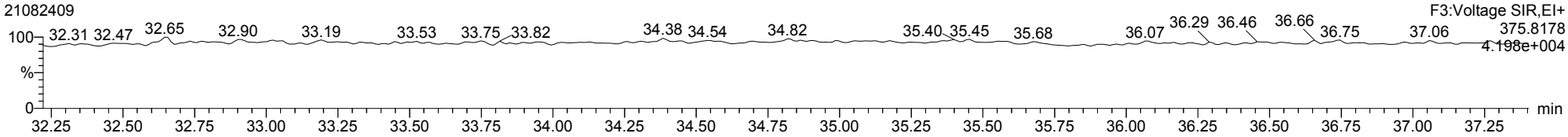

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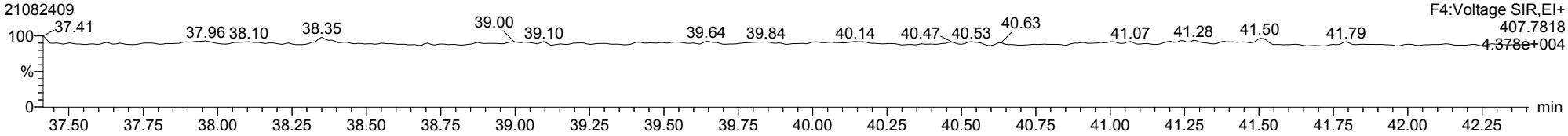

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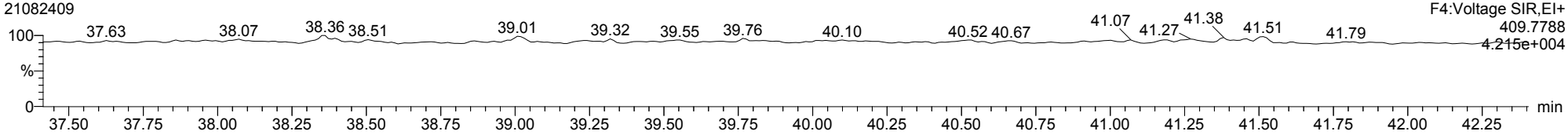

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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Form 1
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Solid	Laboratory ID:	BJH0645-BLK1	File ID:	21091501
Sampled:	N/A	Prepared:	08/26/21 12:23	Analyzed:	09/15/21 16:05
Solids Wt%:		Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0232	Calibration:	EH00030
Batch:	BJH0645	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.000	0.655-0.886	0.134	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1	0.000	0.655-0.886	0.279	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	0.000	1.318-1.783	0.112	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	0.000	1.318-1.783	0.121	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	0.000	1.318-1.783	0.238	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.000	1.054-1.426	0.153	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.000	1.054-1.426	0.139	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.000	1.054-1.426	0.153	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.000	1.054-1.426	0.199	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.000	1.054-1.426	0.149	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1	0.000	1.054-1.426	0.148	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1	0.000	1.054-1.426	0.159	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.000	0.893-1.208	0.153	1.00	ND	ng/kg	U
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.000	0.893-1.208	0.249	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	0.000	0.893-1.208	0.273	2.50	ND	ng/kg	U
39001-02-0	OCDF	1	0.000	0.757-1.024	0.444	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	0.791	0.757-1.024	0.540	10.0	3.88	ng/kg	J

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	ND	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	ND	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	ND	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	ND	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	ND	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	ND	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	ND	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	ND	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.001
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.345

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Blank

Form 2
METHOD BLANK DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, Inc.			SDG:	21G0127
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Solid	Laboratory ID:	BJH0645-BLK1	File ID:	21091501
Sampled:	N/A	Prepared:	08/26/21 12:23	Analyzed:	09/15/21 16:05
Solids Wt%:	0.00	Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0232	Calibration:	EH00030
Batch:	BJH0645	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.820	0.655-0.886	0.19	58.6	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.757	0.655-0.886	0.21	62.0	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.587	1.318-1.783	0.16	78.2	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.592	1.318-1.783	0.16	70.4	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.572	1.318-1.783	0.17	71.6	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.519	0.434-0.587	0.32	78.9	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.522	0.434-0.587	0.29	79.5	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.518	0.434-0.587	0.33	75.7	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.503	0.434-0.587	0.39	69.9	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.230	1.054-1.426	0.32	91.0	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.218	1.054-1.426	0.30	85.7	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.446	0.374-0.506	0.35	75.6	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.472	0.374-0.506	0.43	68.3	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.011	0.893-1.208	0.33	79.0	23 - 140 %	
13C12-OCDD	1	0.936	0.757-1.024	0.46	75.9	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.06	65.2	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:03 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					1.108		0.770	498	875								
12378-PeCDF					1.015		1.550	556	705								
23478-PeCDF					1.126		1.550	556	705								
123478-HxCDF					1.017		1.240	504	657								
234678-HxCDF					1.052		1.240	504	657								
123678-HxCDF					1.037		1.240	504	657								
123789-HxCDF					1.030		1.240	504	657								
1234678-HpCDF					1.327		1.050	605	512								
1234789-HpCDF					1.283		1.050	605	512								
OCDF					1.447		0.890	595	850								
2378-TCDD					0.920		0.770	1240	655								
12378-PeCDD					0.995		1.550	761	589								
123478-HxCDD					1.027		1.240	475	588								
123678-HxCDD					1.009		1.240	475	588								
123789-HxCDD					0.950		1.240	475	588								
1234678-HpCDD					1.068		1.050	567	512								
OCDD	45.004	1.001	1.113e3	1.407e3	1.181	0.791	0.890	673	763	1.71e4	2.15e4	25.4	28.2	NO	bb	bd	1.939
13C-2378-TCDF	25.745	1.007	1.584e5	1.932e5	1.427	0.820	0.770	1870	1148	2.50e6	3.03e6	1338.4	2643.4	NO	bb	bb	58.634
13C-12378-PeCDF	29.898	1.170	2.614e5	1.647e5	1.297	1.587	1.550	1286	943	4.07e6	2.57e6	3169.8	2723.3	NO	bb	bb	78.158
13C-23478-PeCDF	31.246	1.222	2.247e5	1.411e5	1.236	1.592	1.550	1286	943	3.41e6	2.18e6	2653.9	2311.2	NO	bb	bb	70.374
13C-123478-HxCDF	34.855	0.955	9.642e4	1.859e5	1.242	0.519	0.510	1695	1477	1.53e6	2.97e6	902.5	2013.7	NO	bd	bd	78.916
13C-123678-HxCDF	35.000	0.959	1.055e5	2.021e5	1.343	0.522	0.510	1695	1477	1.66e6	3.25e6	980.7	2197.9	NO	db	db	79.514
13C-234678-HxCDF	35.869	0.983	9.044e4	1.745e5	1.215	0.518	0.510	1695	1477	1.48e6	2.91e6	872.5	1973.4	NO	bb	bb	75.741
13C-123789-HxCDF	36.905	1.012	6.786e4	1.350e5	1.008	0.503	0.510	1695	1477	1.13e6	2.25e6	669.1	1524.5	NO	bb	bb	69.932
13C-1234678-HpCDF	38.744	1.062	6.224e4	1.395e5	0.926	0.446	0.440	1569	1035	1.02e6	2.24e6	650.4	2166.3	NO	bb	bd	75.618
13C-1234789-HpCDF	40.994	1.124	4.776e4	1.012e5	0.758	0.472	0.440	1569	1035	6.72e5	1.47e6	428.0	1418.6	NO	bd	bb	68.283
13C-1234-TCDD	25.564	0.000	1.812e5	2.391e5	1.000	0.757	0.770	1582	960	2.85e6	3.77e6	1801.5	3925.5	NO	bb	bb	100.000
13C-2378-TCDD	26.380	1.032	1.253e5	1.656e5	1.116	0.757	0.770	1582	960	1.91e6	2.52e6	1205.6	2626.4	NO	bb	bb	62.006
13C-12378-PeCDD	31.491	1.232	1.346e5	8.560e4	0.732	1.572	1.550	618	784	2.09e6	1.32e6	3380.4	1677.6	NO	bb	bb	71.569
13C-123478-HxCDD	35.981	0.986	1.387e5	1.128e5	0.960	1.230	1.240	1268	1219	2.30e6	1.83e6	1811.2	1499.2	NO	bd	bd	91.004
13C-123678-HxCDD	36.092	0.989	1.411e5	1.159e5	1.041	1.218	1.240	1268	1219	2.34e6	1.90e6	1847.2	1561.2	NO	db	db	85.712
13C-1234678-HpCDD	40.236	1.103	7.235e4	7.157e4	0.632	1.011	1.050	883	776	1.12e6	1.08e6	1264.5	1391.0	NO	bb	bd	79.039
13C-OCDD	44.977	1.233	1.064e5	1.137e5	0.504	0.936	0.890	946	928	1.31e6	1.42e6	1380.2	1525.4	NO	bb	bb	151.815
13C-123789-HxCDD	36.482	0.000	1.604e5	1.275e5	1.000	1.258	1.240	1268	1219	2.68e6	2.13e6	2111.0	1746.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.395	1.033	1.188e5		1.084			733		1.83e6		2499.5			bd		26.075

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:03 Pacific Daylight Time

ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.425		0.770	498	875								
1289-TCDF					1.043		0.770	498	875								
13468-PECDF					1.376		1.550	608	744								
12389-PECDF					1.000		1.550	556	705								
123468-HXCDF					1.087		1.240	504	657								
1368-TCDD					0.923		0.770	1240	655								
1289-TCDD					0.794		0.770	1240	655								
12479-PECDD					1.843		1.550	761	589								
12389-PECDD					1.154		1.550	761	589								
124679-HXCDD					1.125		1.240	475	588								
1234679-HPCDD					1.211		1.050	567	512								
Total-tetrafurans			0.000e0		1.192			498		0.00e0							
Total-penta1			0.000e0					608		0.00e0							
Total-pentafurans			0.000e0		1.047			556		0.00e0							
Total-hexafurans			0.000e0		1.045			504		0.00e0							
Total-heptafurans			0.000e0		1.305			605		0.00e0							
Total-Furans			0.000e0		1.158			498		0.00e0							
Total-tetradioxins			0.000e0		0.879			1240		0.00e0							
Total-pentadioxins			0.000e0		1.331			761		0.00e0							
Total-hexadioxins			0.000e0		1.028			475		0.00e0							
Total-heptadioxins			0.000e0		1.140			567		0.00e0							
Total-Dioxins			1.113e3		1.092			1240		1.71e4							1.939
Total-TEQ			1.113e3					1240		1.71e4							1.939
FUNCTION1 PFK			3.742e7					835448		3.54e8							
FUNCTION2 PFK			4.616e5					579241		1.40e7							0.000
FUNCTION3 PFK			0.000e0					455999		0.00e0							
FUNCTION4 PFK			4.595e5					324758		1.28e7							
FUNCTION5 PFK			1.177e5					139902		4.09e6							
FUNCTION1 HXCD...			4.071e2					579		4.75e3							0.000
FUNCTION1 HPCD...			8.345e2					733		1.36e4							0.000
FUNCTION2 HPCD...			1.085e2					651		1.77e3							0.000
FUNCTION3 OCDPE			3.460e2					431		5.62e3							0.000
FUNCTION4 NCDPE			1.774e2					622		4.39e3							0.000
FUNCTION5 DCDPE			0.000e0					596		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:03 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	OCDD	45.00	1.113e3	1.407e3	1.181	0.79	0.89	25.4	YES	NO	bb	bd	1.939

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
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ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.22	1.558e5					3.6	YES		dd		
2	FUNCTION1 PFK	21.16	1.494e5					3.5	YES		bd		
3	FUNCTION1 PFK	23.04	1.522e6					17.3	YES		db		
4	FUNCTION1 PFK	22.93	1.036e6					17.1	YES		dd		
5	FUNCTION1 PFK	22.90	6.280e5					16.9	YES		dd		
6	FUNCTION1 PFK	22.84	1.987e6					16.5	YES		dd		
7	FUNCTION1 PFK	22.69	1.572e6					15.2	YES		dd		
8	FUNCTION1 PFK	22.49	9.877e5					14.9	YES		dd		
9	FUNCTION1 PFK	22.45	9.357e5					14.1	YES		bd		
10	FUNCTION1 PFK	22.25	9.539e5					15.1	YES		db		
11	FUNCTION1 PFK	22.21	1.562e6					14.8	YES		dd		
12	FUNCTION1 PFK	22.07	7.773e5					12.7	YES		dd		
13	FUNCTION1 PFK	22.00	9.292e5					12.2	YES		dd		
14	FUNCTION1 PFK	21.81	8.433e5					9.3	YES		dd		
15	FUNCTION1 PFK	21.69	1.051e6					9.5	YES		dd		
16	FUNCTION1 PFK	21.54	5.514e5					7.6	YES		dd		
17	FUNCTION1 PFK	21.47	7.724e5					7.5	YES		dd		
18	FUNCTION1 PFK	21.36	3.362e5					6.0	YES		dd		
19	FUNCTION1 PFK	25.37	3.275e5					6.3	YES		db		
20	FUNCTION1 PFK	25.31	8.186e5					7.0	YES		dd		
21	FUNCTION1 PFK	25.13	5.084e5					7.6	YES		dd		
22	FUNCTION1 PFK	25.07	1.829e6					8.0	YES		dd		
23	FUNCTION1 PFK	24.79	2.846e5					7.7	YES		dd		
24	FUNCTION1 PFK	24.72	9.555e5					8.9	YES		dd		
25	FUNCTION1 PFK	24.51	1.886e6					10.2	YES		dd		
26	FUNCTION1 PFK	24.25	1.009e6					11.5	YES		dd		
27	FUNCTION1 PFK	24.19	4.812e5					10.0	YES		dd		
28	FUNCTION1 PFK	24.07	1.661e6					11.9	YES		dd		
29	FUNCTION1 PFK	23.83	1.489e6					13.2	YES		dd		
30	FUNCTION1 PFK	23.73	8.168e5					13.7	YES		dd		
31	FUNCTION1 PFK	23.67	6.885e5					13.9	YES		dd		
32	FUNCTION1 PFK	23.63	8.653e5					13.9	YES		dd		
33	FUNCTION1 PFK	23.51	1.341e6					13.9	YES		dd		
34	FUNCTION1 PFK	23.30	3.298e6					14.6	YES		bd		
35	FUNCTION1 PFK	27.67	4.835e4					1.1	NO		bd		
36	FUNCTION1 PFK	27.50	2.436e4					0.8	NO		bb		
37	FUNCTION1 PFK	27.27	1.960e5					2.0	NO		db		

ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	27.14	1.007e5					2.0	NO		dd		
39	FUNCTION1 PFK	27.09	9.832e4					2.3	NO		dd		
40	FUNCTION1 PFK	27.02	1.371e5					2.9	NO		bd		
41	FUNCTION1 PFK	26.86	7.891e4					1.6	NO		db		
42	FUNCTION1 PFK	26.79	3.020e4					0.9	NO		bd		
43	FUNCTION1 PFK	26.62	7.913e4					0.8	NO		bb		
44	FUNCTION1 PFK	26.15	7.069e4					1.2	NO		db		
45	FUNCTION1 PFK	26.06	9.431e4					2.3	NO		dd		
46	FUNCTION1 PFK	25.97	2.833e5					3.1	YES		dd		
47	FUNCTION1 PFK	25.87	1.801e5					3.3	YES		dd		
48	FUNCTION1 PFK	25.81	2.072e5					3.6	YES		bd		
49	FUNCTION1 PFK	25.70	3.086e4					0.9	NO		db		
50	FUNCTION1 PFK	25.52	5.159e5					4.7	YES		bd		
51	FUNCTION1 PFK	28.04	3.756e4					1.0	NO		db		
52	FUNCTION1 PFK	28.00	6.041e4					1.4	NO		dd		
53	FUNCTION1 PFK	27.82	9.271e4					1.3	NO		dd		
54	FUNCTION1 PFK	27.74	4.363e4					0.9	NO		dd		

ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.72	5.961e3					0.6	NO		bb		0.000
2	FUNCTION2 PFK	29.67	7.926e3					0.7	NO		bb		0.000
3	FUNCTION2 PFK	29.59	9.566e3					0.6	NO		bb		0.000
4	FUNCTION2 PFK	29.42	2.251e4					1.3	NO		bb		0.000
5	FUNCTION2 PFK	29.16	3.655e4					1.6	NO		bb		0.000
6	FUNCTION2 PFK	29.08	2.729e4					1.3	NO		bb		0.000
7	FUNCTION2 PFK	28.77	3.928e3					0.4	NO		bb		0.000
8	FUNCTION2 PFK	28.47	8.896e3					0.7	NO		bb		0.000
9	FUNCTION2 PFK	28.43	2.735e3					0.4	NO		bb		0.000
10	FUNCTION2 PFK	28.29	1.981e4					1.4	NO		bb		0.000
11	FUNCTION2 PFK	28.19	1.517e4					1.1	NO		bb		0.000
12	FUNCTION2 PFK	32.76	2.689e3					0.4	NO		bb		0.000
13	FUNCTION2 PFK	32.55	8.088e3					0.6	NO		db		0.000
14	FUNCTION2 PFK	32.50	7.117e3					0.6	NO		bd		0.000
15	FUNCTION2 PFK	32.25	1.331e4					0.8	NO		bb		0.000
16	FUNCTION2 PFK	31.88	6.914e4					1.5	NO		db		0.000
17	FUNCTION2 PFK	31.81	1.930e4					1.0	NO		bd		0.000
18	FUNCTION2 PFK	31.74	7.954e3					0.6	NO		bb		0.000
19	FUNCTION2 PFK	31.19	4.533e4					1.1	NO		bb		0.000
20	FUNCTION2 PFK	30.84	1.718e4					0.9	NO		db		0.000
21	FUNCTION2 PFK	30.71	2.171e4					0.8	NO		bd		0.000
22	FUNCTION2 PFK	30.41	2.447e3					0.4	NO		bb		0.000
23	FUNCTION2 PFK	30.31	3.332e3					0.4	NO		bb		0.000
24	FUNCTION2 PFK	30.17	1.263e4					0.9	NO		bb		0.000
25	FUNCTION2 PFK	30.10	1.814e4					1.4	NO		db		0.000
26	FUNCTION2 PFK	30.06	2.396e4					1.2	NO		dd		0.000
27	FUNCTION2 PFK	30.00	1.276e4					0.8	NO		bd		0.000
28	FUNCTION2 PFK	32.83	1.613e4					0.8	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.95	3.599e3					0.5	NO		bb		
2	FUNCTION4 PFK	39.75	1.694e3					0.5	NO		bb		
3	FUNCTION4 PFK	39.69	1.350e4					1.3	NO		bb		
4	FUNCTION4 PFK	39.28	1.671e4					1.6	NO		bb		
5	FUNCTION4 PFK	39.18	1.425e4					0.8	NO		bb		
6	FUNCTION4 PFK	39.08	1.714e4					1.1	NO		bb		
7	FUNCTION4 PFK	38.90	1.971e4					1.1	NO		bb		
8	FUNCTION4 PFK	38.78	1.478e3					0.4	NO		bb		
9	FUNCTION4 PFK	38.68	7.669e3					0.9	NO		bb		
10	FUNCTION4 PFK	38.26	6.224e3					0.7	NO		db		
11	FUNCTION4 PFK	38.22	1.737e4					1.7	NO		dd		
12	FUNCTION4 PFK	38.13	3.055e4					1.6	NO		bd		
13	FUNCTION4 PFK	38.00	4.115e4					2.7	NO		bb		
14	FUNCTION4 PFK	42.38	1.515e4					1.2	NO		db		
15	FUNCTION4 PFK	42.32	1.144e4					1.4	NO		bd		
16	FUNCTION4 PFK	42.25	1.210e4					1.0	NO		bb		
17	FUNCTION4 PFK	41.73	2.137e4					1.3	NO		bb		
18	FUNCTION4 PFK	41.30	1.595e4					1.4	NO		db		
19	FUNCTION4 PFK	41.22	8.665e3					0.8	NO		bd		
20	FUNCTION4 PFK	41.09	2.409e4					1.4	NO		bb		
21	FUNCTION4 PFK	40.98	2.210e3					0.6	NO		bb		
22	FUNCTION4 PFK	40.92	5.800e3					0.8	NO		bb		
23	FUNCTION4 PFK	40.83	1.490e4					0.8	NO		bb		
24	FUNCTION4 PFK	40.76	1.006e4					1.3	NO		bb		
25	FUNCTION4 PFK	40.66	8.149e3					1.0	NO		db		
26	FUNCTION4 PFK	40.60	1.159e4					1.2	NO		bd		
27	FUNCTION4 PFK	40.56	4.796e3					0.8	NO		bb		
28	FUNCTION4 PFK	40.46	1.713e4					1.5	NO		bb		
29	FUNCTION4 PFK	40.21	2.302e4					1.6	NO		bb		
30	FUNCTION4 PFK	42.92	1.600e4					1.1	NO		bb		
31	FUNCTION4 PFK	42.88	2.378e3					0.5	NO		bb		
32	FUNCTION4 PFK	42.79	4.553e3					0.6	NO		bb		
33	FUNCTION4 PFK	42.72	7.952e3					1.1	NO		db		
34	FUNCTION4 PFK	42.67	2.625e4					1.8	NO		bd		
35	FUNCTION4 PFK	42.62	1.630e3					0.4	NO		bb		
36	FUNCTION4 PFK	42.49	3.238e3					0.6	NO		bb		

ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.49	2.619e3					1.1	NO		bb		
2	FUNCTION5 PFK	43.42	2.702e3					1.0	NO		db		
3	FUNCTION5 PFK	43.37	1.152e4					2.1	NO		dd		
4	FUNCTION5 PFK	43.34	4.170e3					1.6	NO		bd		
5	FUNCTION5 PFK	43.30	3.118e3					1.3	NO		db		
6	FUNCTION5 PFK	43.26	8.562e3					1.8	NO		bd		
7	FUNCTION5 PFK	43.16	1.071e4					1.3	NO		bb		
8	FUNCTION5 PFK	43.05	7.019e2					0.5	NO		bb		
9	FUNCTION5 PFK	45.90	5.228e2					0.4	NO		bb		
10	FUNCTION5 PFK	45.74	6.319e3					1.8	NO		bb		
11	FUNCTION5 PFK	45.56	9.275e3					1.2	NO		bb		
12	FUNCTION5 PFK	45.32	2.825e3					1.1	NO		bb		
13	FUNCTION5 PFK	45.10	3.193e3					1.3	NO		bb		
14	FUNCTION5 PFK	45.03	7.649e3					1.6	NO		db		
15	FUNCTION5 PFK	45.00	1.508e3					0.8	NO		bd		
16	FUNCTION5 PFK	44.97	8.334e3					2.1	NO		db		
17	FUNCTION5 PFK	44.89	7.450e3					1.4	NO		bd		
18	FUNCTION5 PFK	44.69	3.565e3					1.0	NO		bb		
19	FUNCTION5 PFK	44.30	3.089e3					0.7	NO		bb		
20	FUNCTION5 PFK	44.13	1.430e3					0.7	NO		bb		
21	FUNCTION5 PFK	43.96	7.056e3					1.5	NO		bb		
22	FUNCTION5 PFK	43.61	3.491e3					1.0	NO		bb		
23	FUNCTION5 PFK	43.54	7.867e3					1.6	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.81	1.178e2					1.7	NO		db		0.000
2	FUNCTION1 HXCD...	23.60	1.096e2					2.1	NO		dd		0.000
3	FUNCTION1 HXCD...	23.54	8.024e1					2.7	NO		bd		0.000
4	FUNCTION1 HXCD...	22.21	9.947e1					1.7	NO		bb		0.000

ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	26.82	8.259e1					2.2	NO		bb		0.000
2	FUNCTION1 HPCD...	26.56	9.822e1					1.7	NO		bb		0.000
3	FUNCTION1 HPCD...	25.58	8.223e1					2.5	NO		db		0.000
4	FUNCTION1 HPCD...	25.50	1.340e2					2.5	NO		bd		0.000
5	FUNCTION1 HPCD...	23.58	9.390e1					1.7	NO		bb		0.000
6	FUNCTION1 HPCD...	23.42	7.181e1					1.6	NO		bb		0.000
7	FUNCTION1 HPCD...	22.21	9.023e1					1.9	NO		bb		0.000
8	FUNCTION1 HPCD...	21.21	7.416e1					2.2	NO		db		0.000
9	FUNCTION1 HPCD...	21.15	1.074e2					2.1	NO		bd		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.93	1.085e2					2.7	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.03	7.293e1					4.1	YES		bb		0.000
2	FUNCTION3 OCDPE	36.47	9.374e1					3.5	YES		bb		0.000
3	FUNCTION3 OCDPE	35.97	7.070e1					3.0	NO		bb		0.000
4	FUNCTION3 OCDPE	33.73	1.086e2					2.4	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.80	8.326e1					2.4	NO		bb		0.000
2	FUNCTION4 NCDPE	39.38	9.419e1					4.7	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

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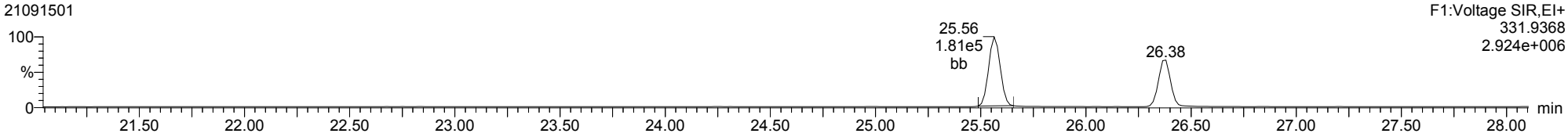

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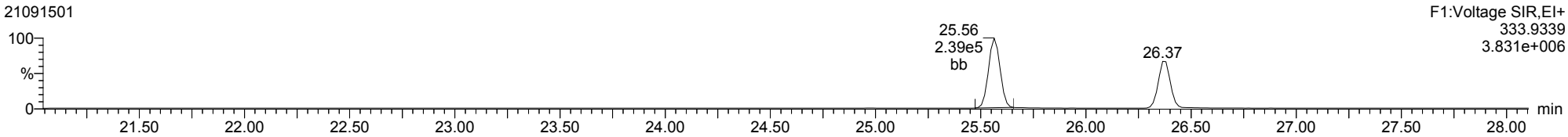

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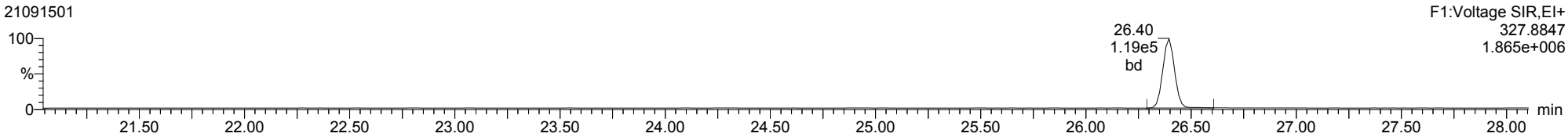

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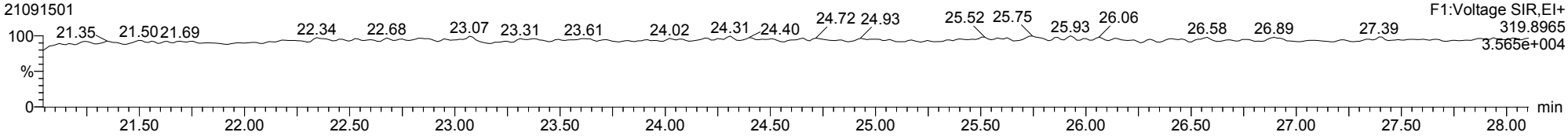

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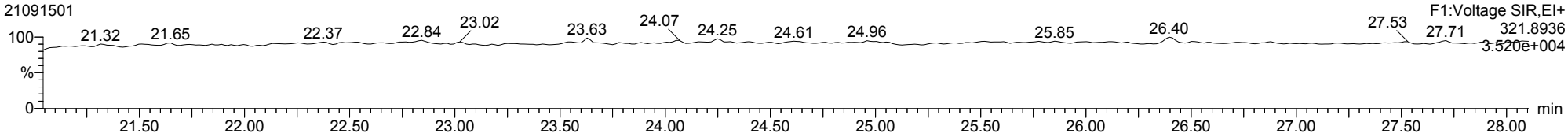

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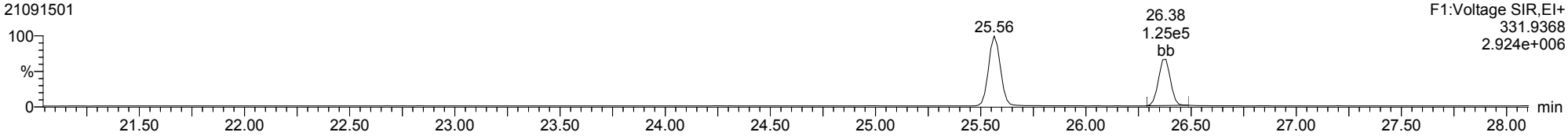

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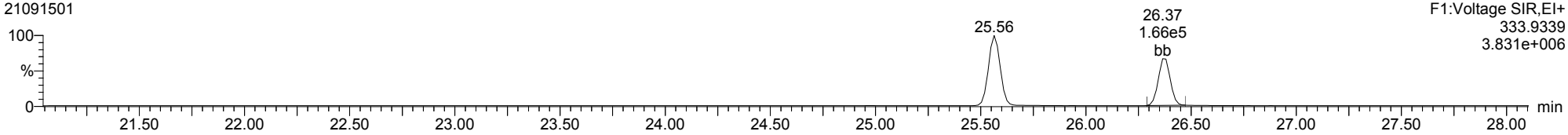

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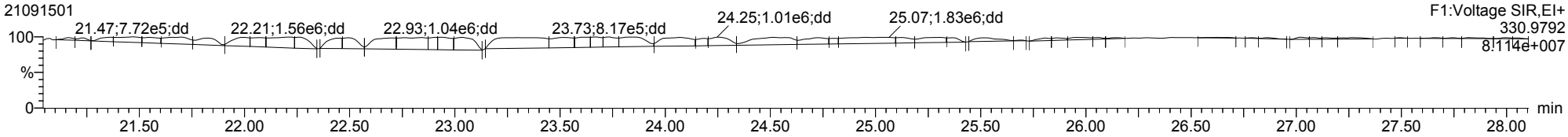

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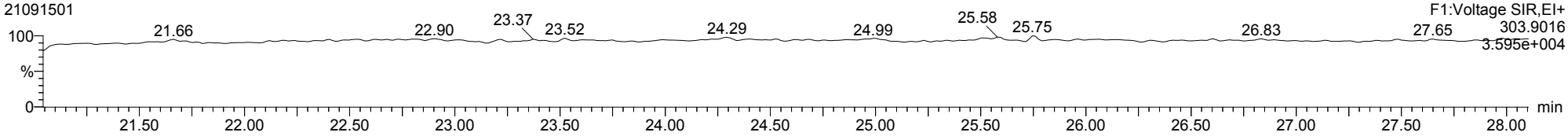
2378-TCDF



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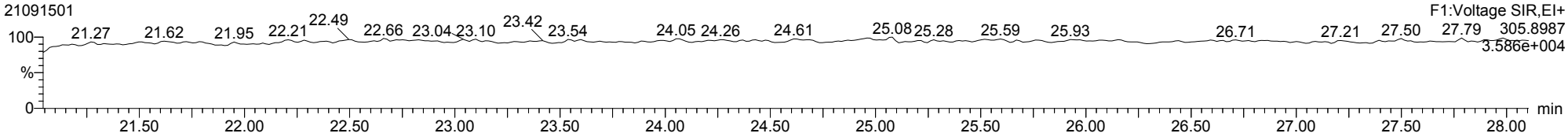

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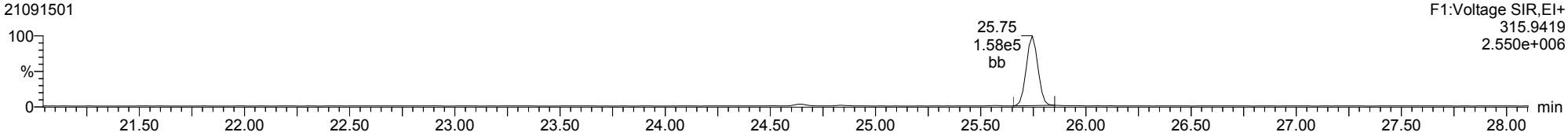

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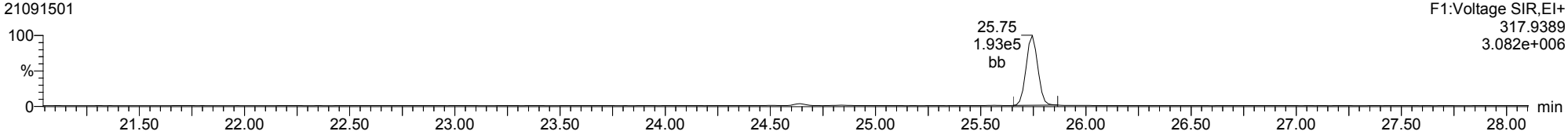

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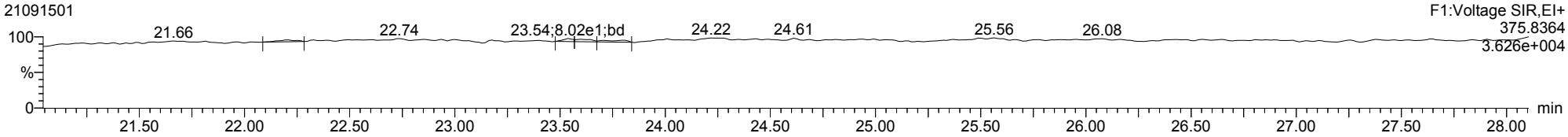

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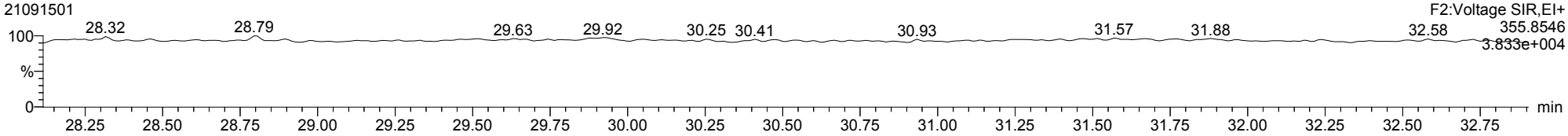

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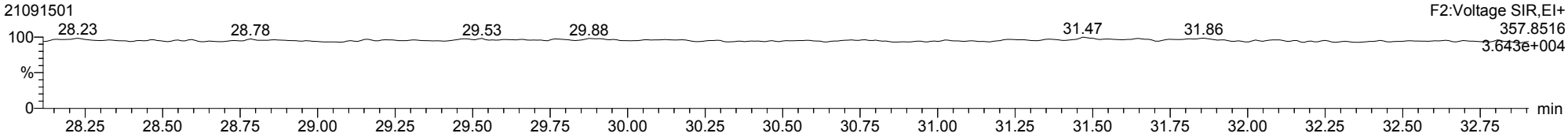

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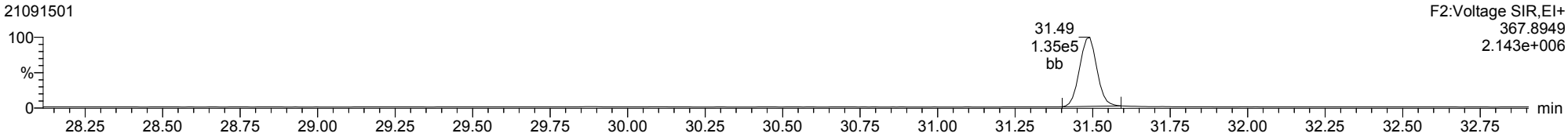

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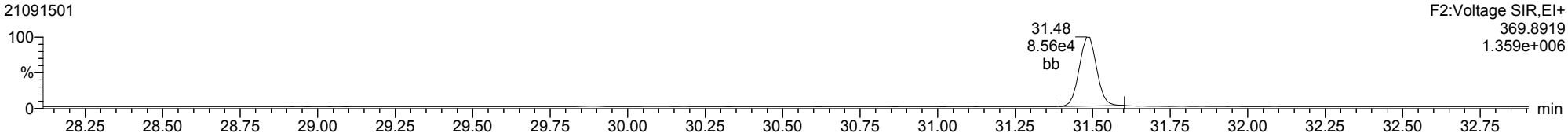

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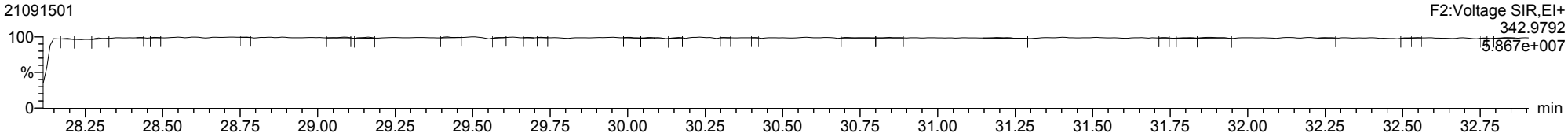

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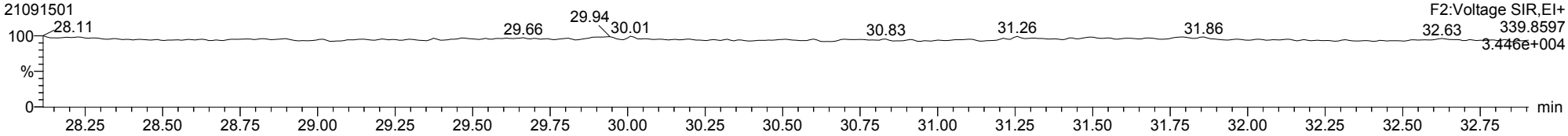
12378-PeCDF



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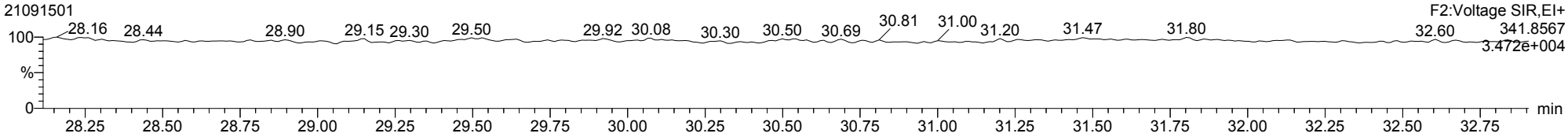

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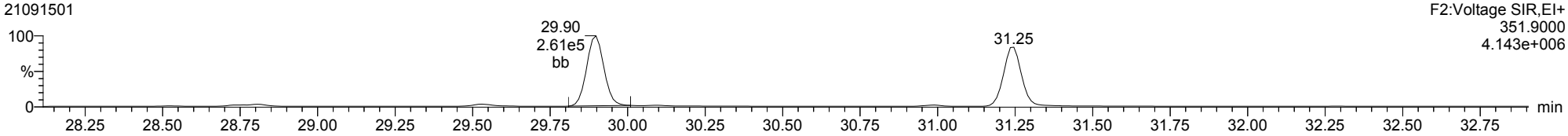

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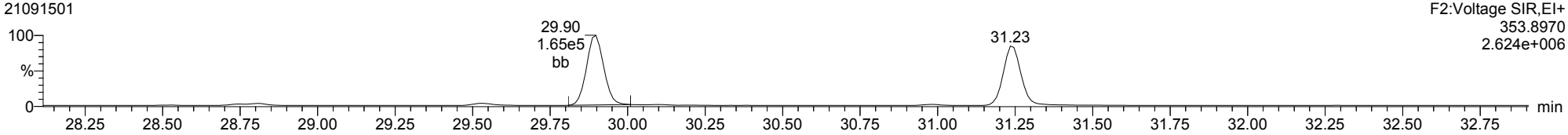
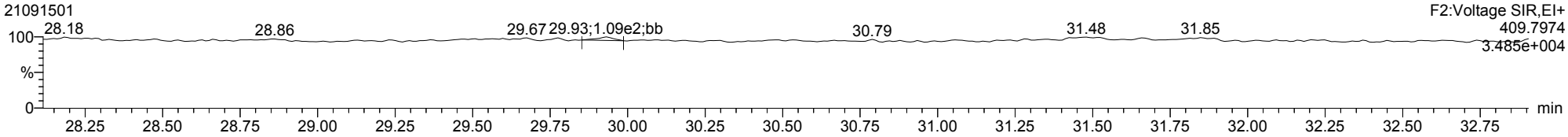


FUNCTION2 HPCDPE



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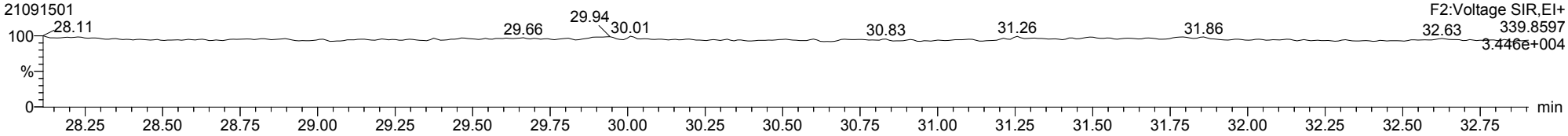
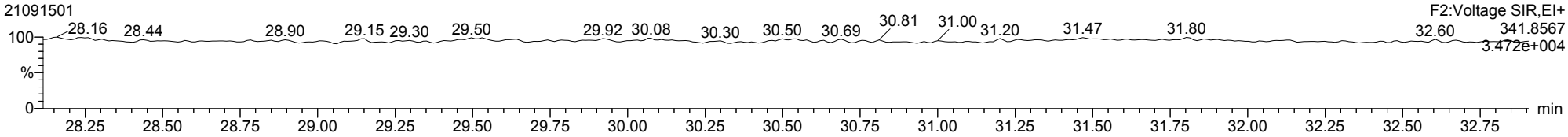
23478-PeCDF



23478-PeCDF



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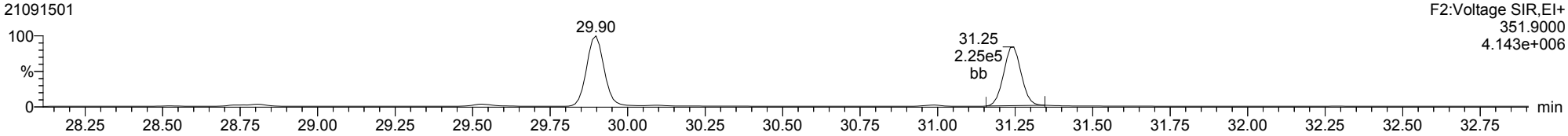

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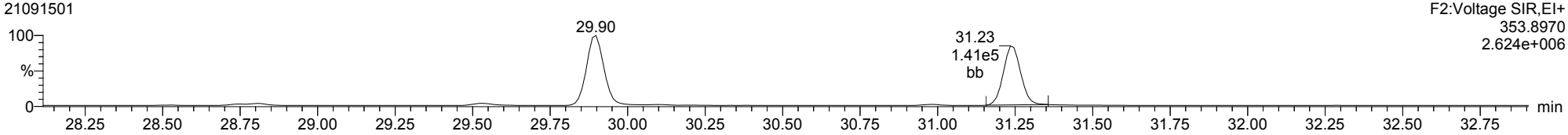

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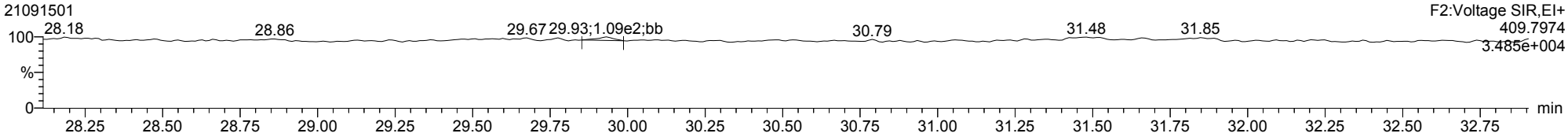

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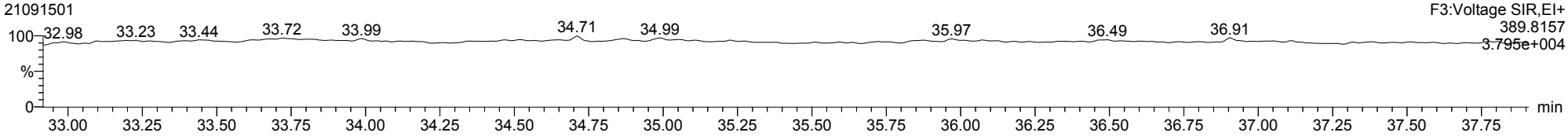

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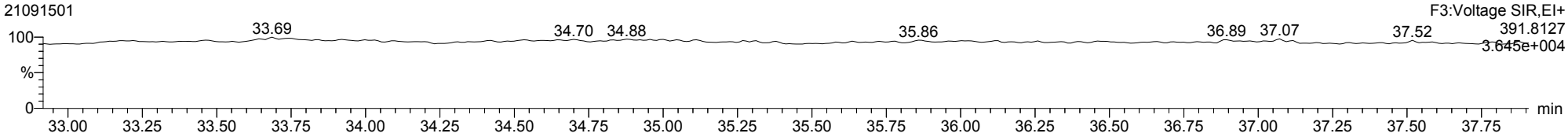

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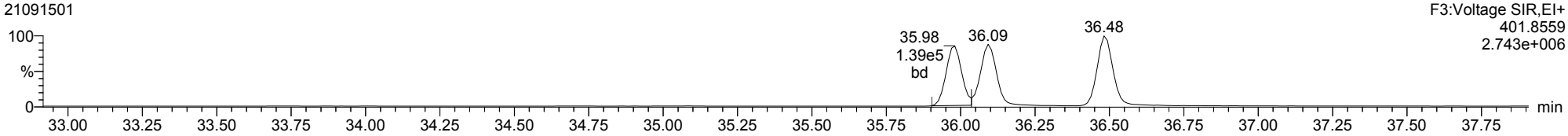

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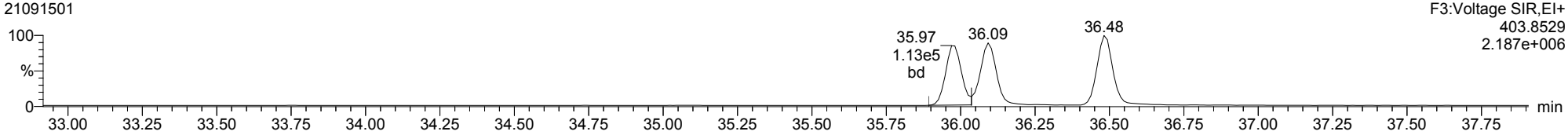

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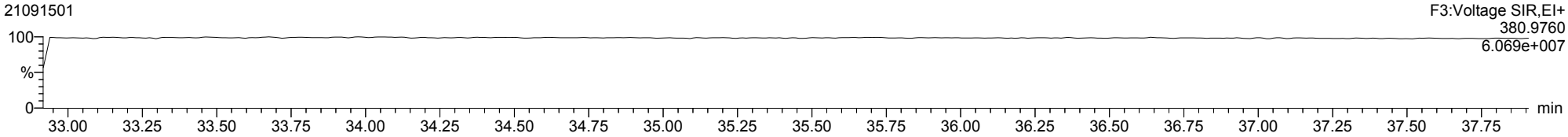

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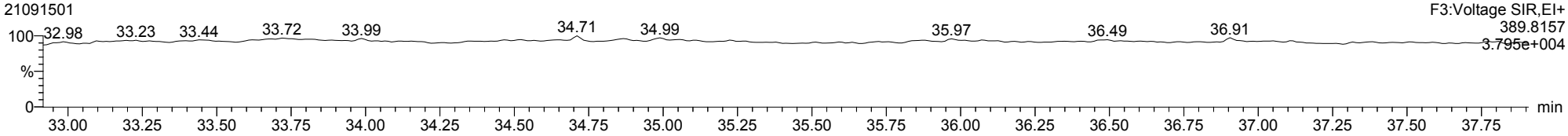

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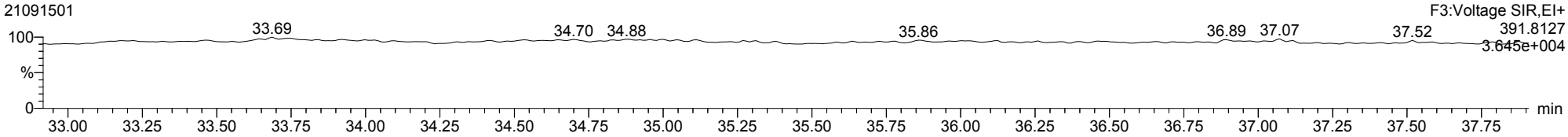

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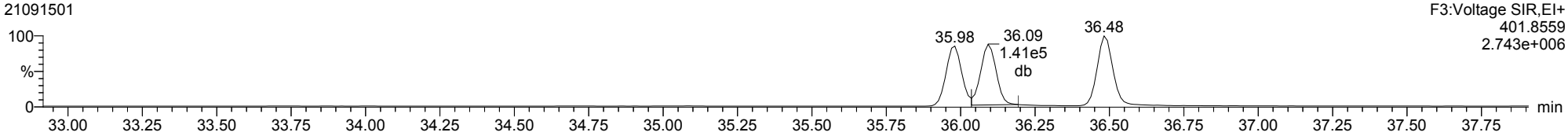

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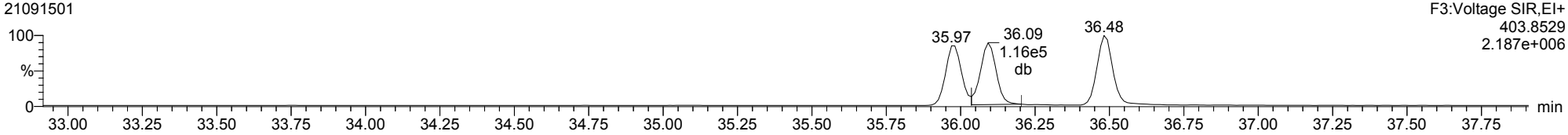

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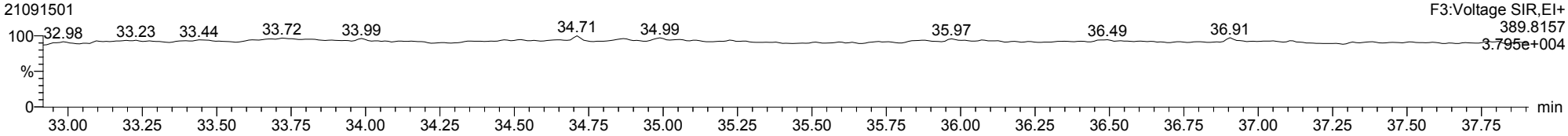

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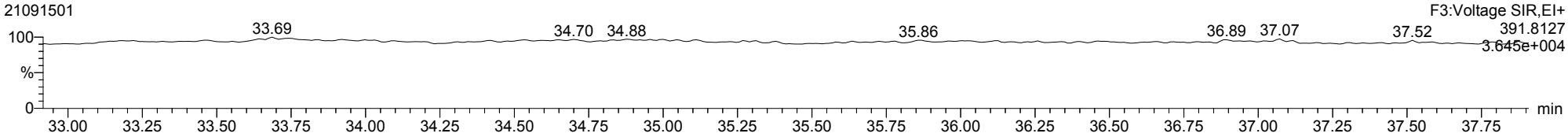

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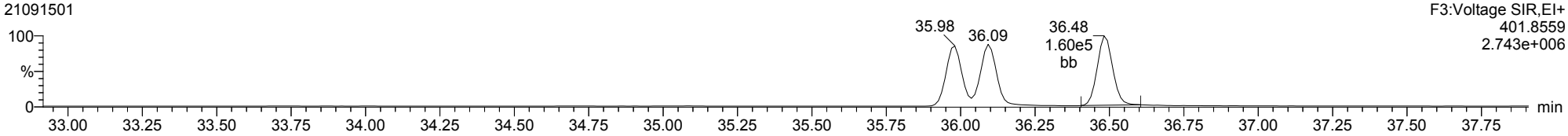

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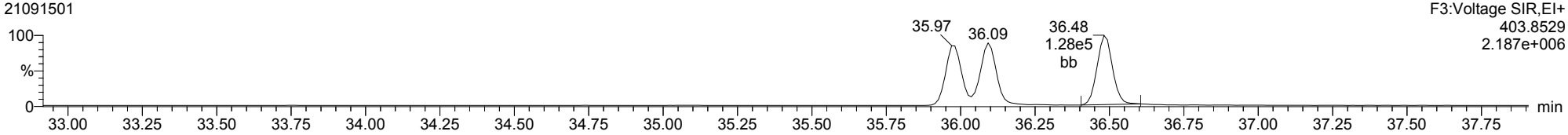

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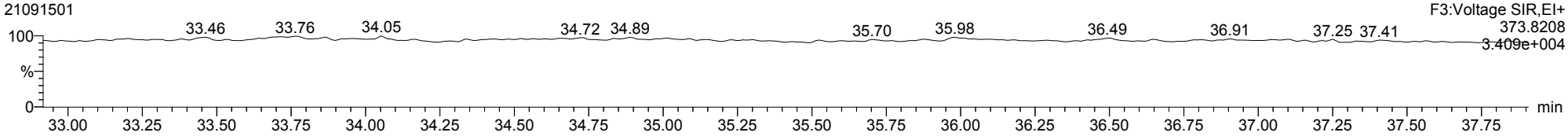

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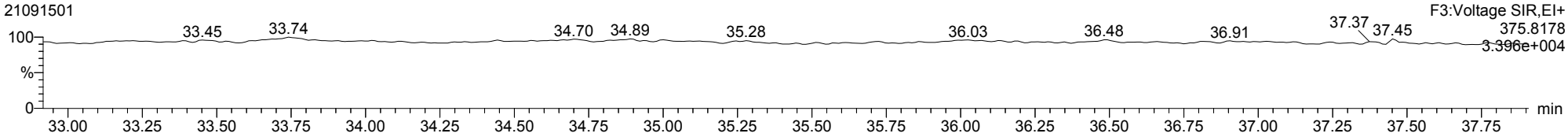

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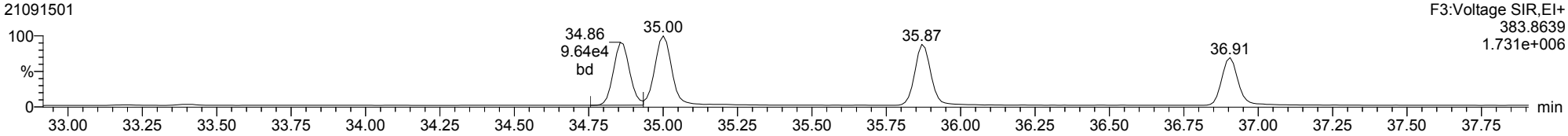

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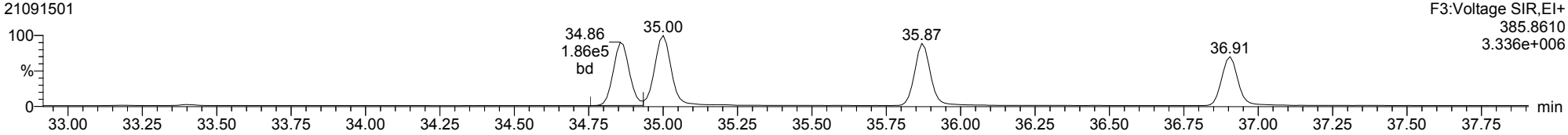

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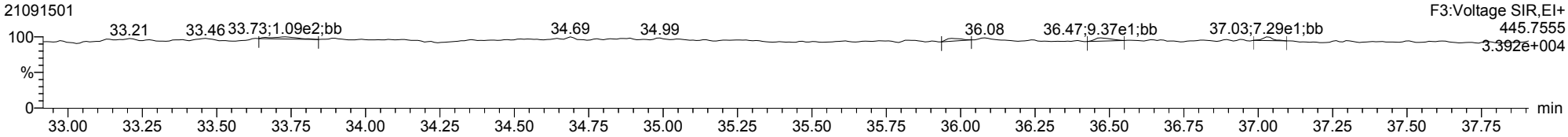

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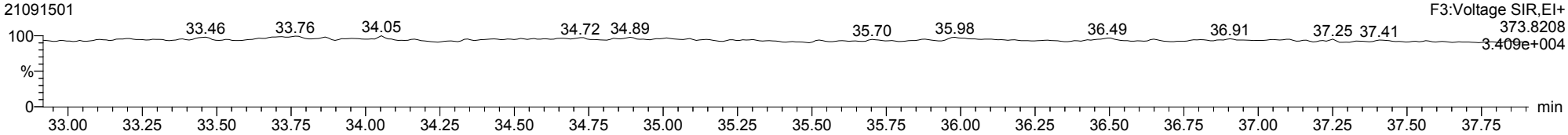

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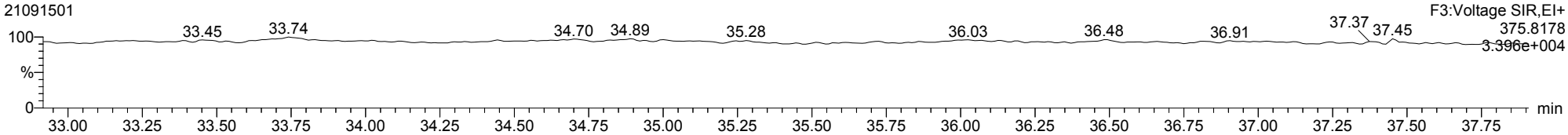

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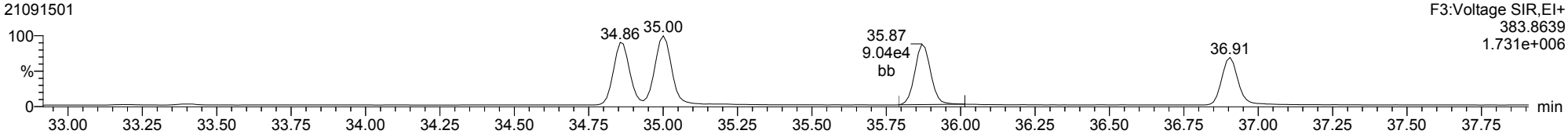

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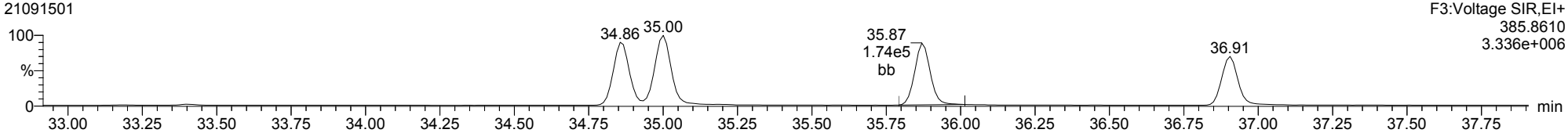

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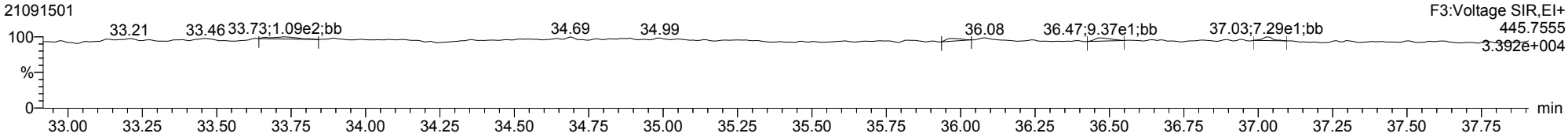

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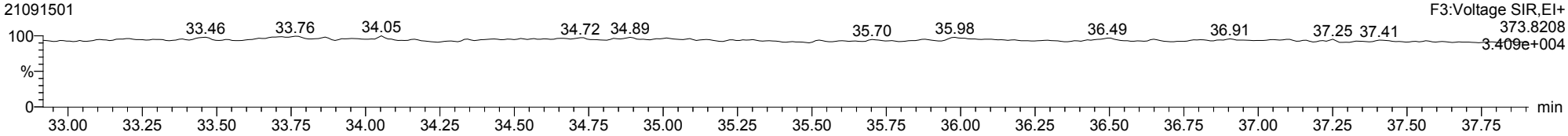

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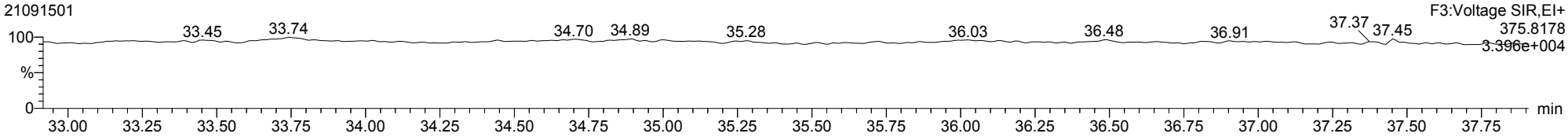

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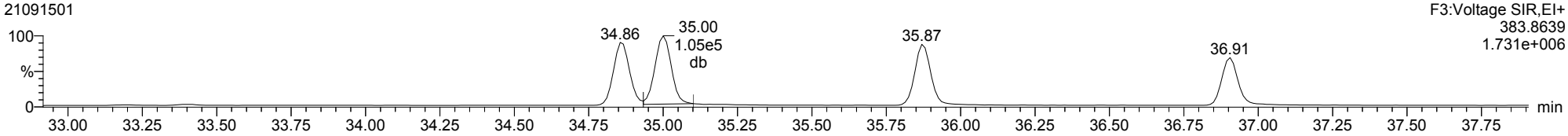

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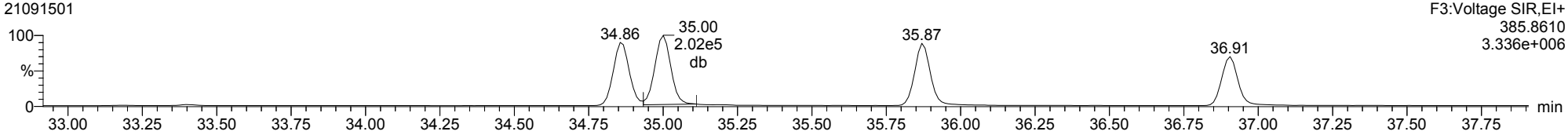

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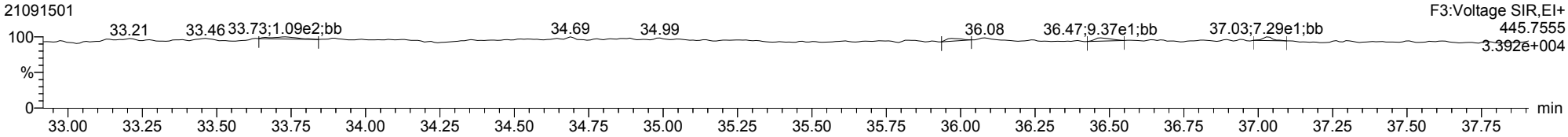

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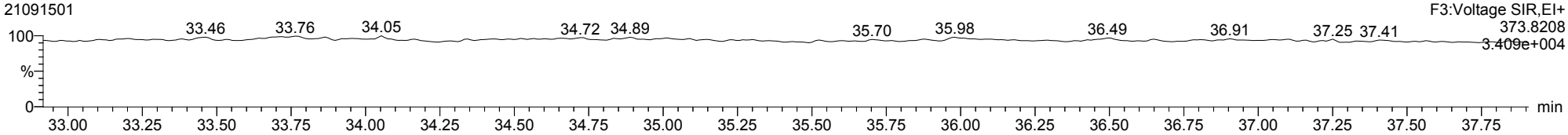

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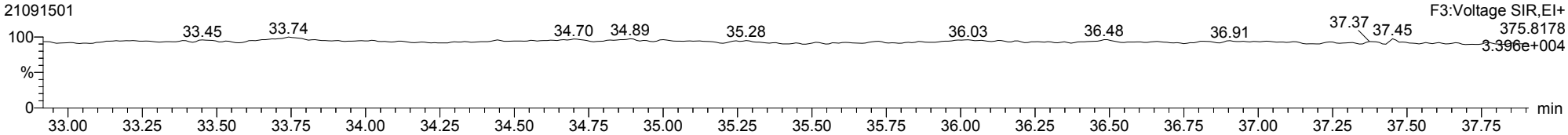

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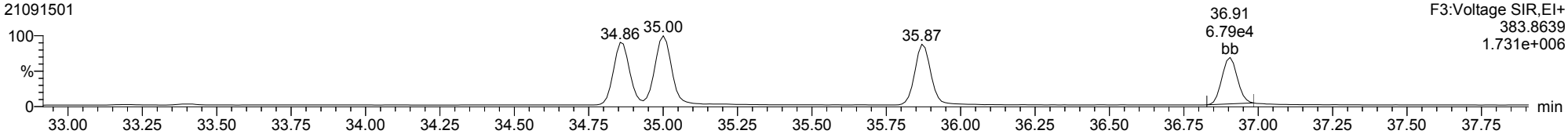

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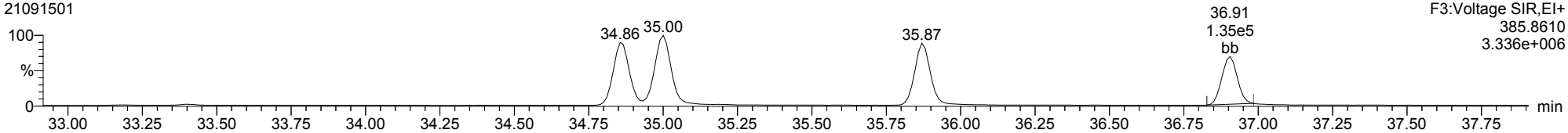
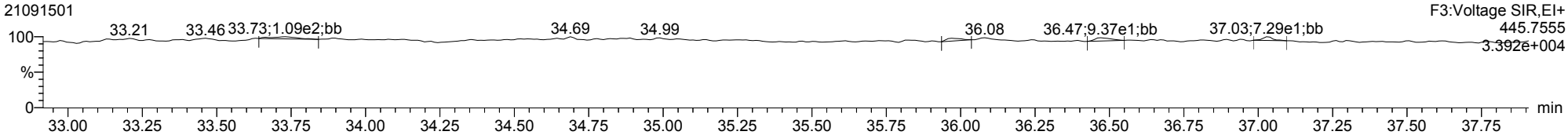


FUNCTION3 OCDPE



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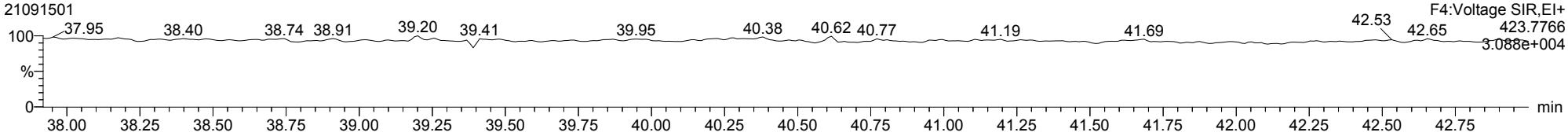
1234678-HpCDD



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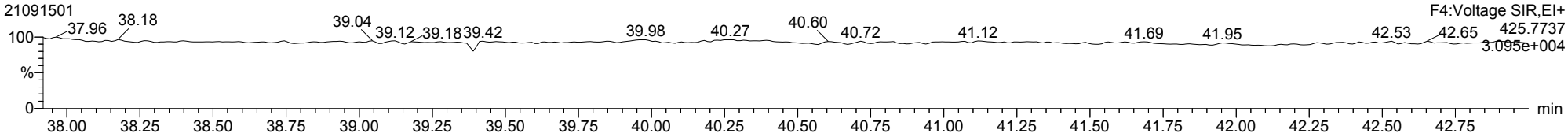

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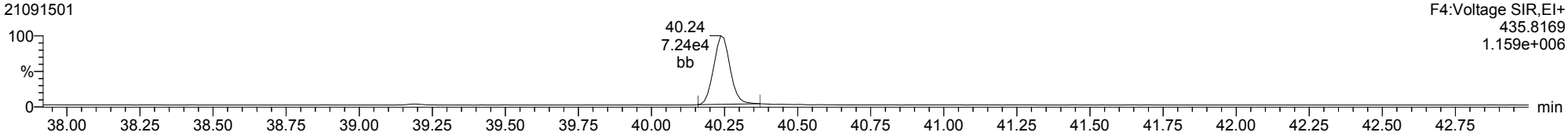

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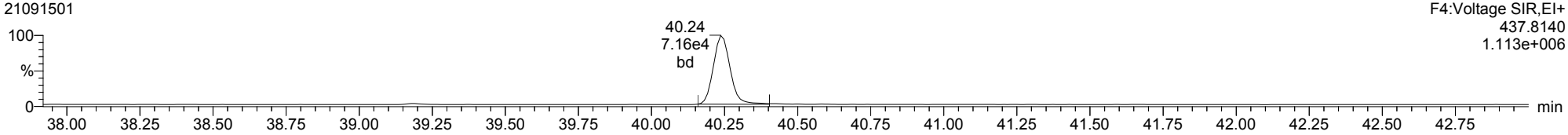
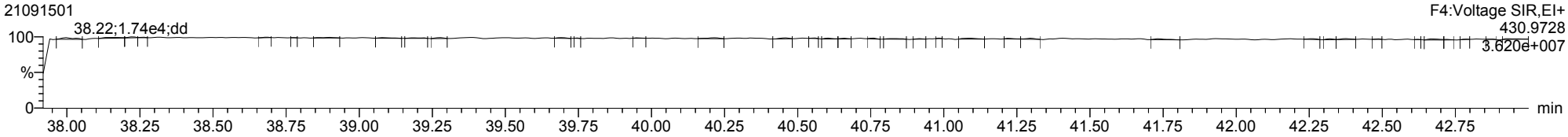


FUNCTION4 PFK



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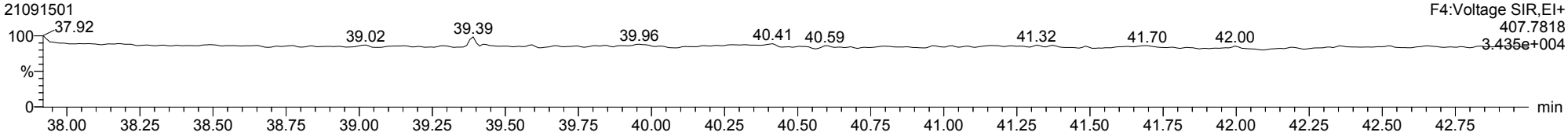

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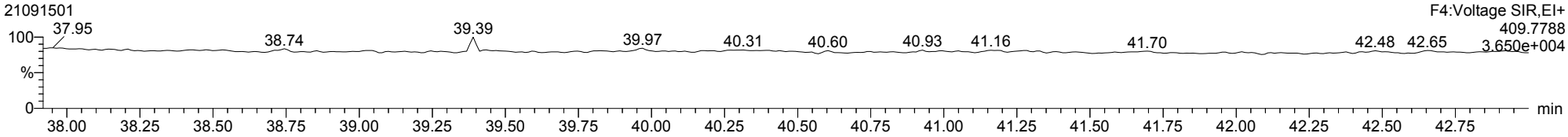

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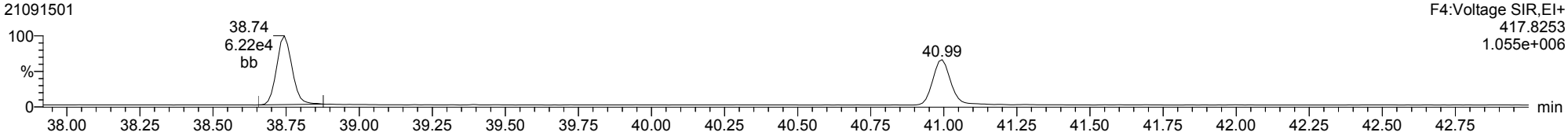

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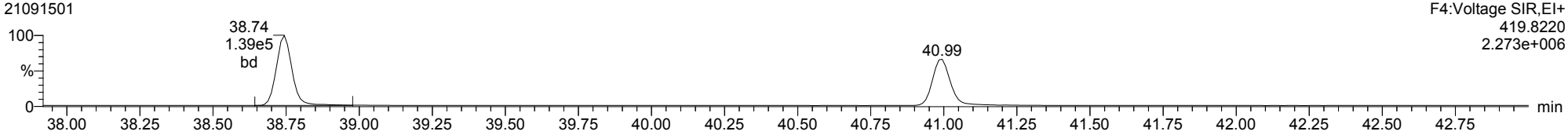

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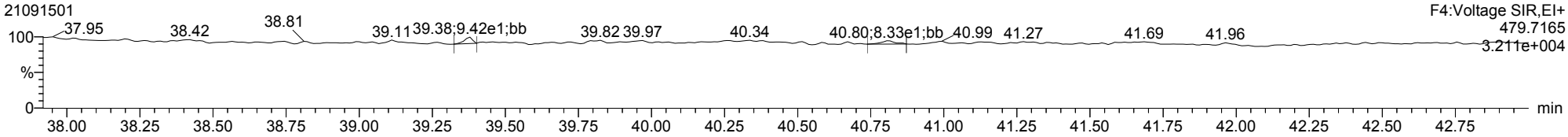

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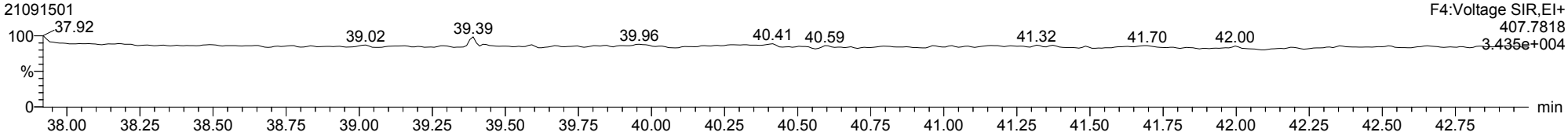
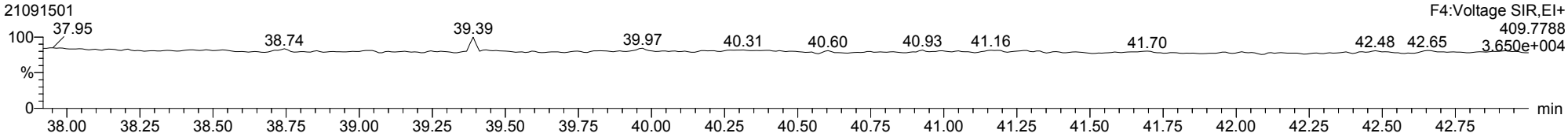


1234789-HpCDF



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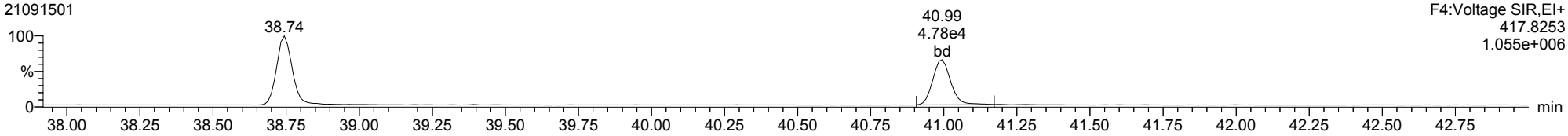

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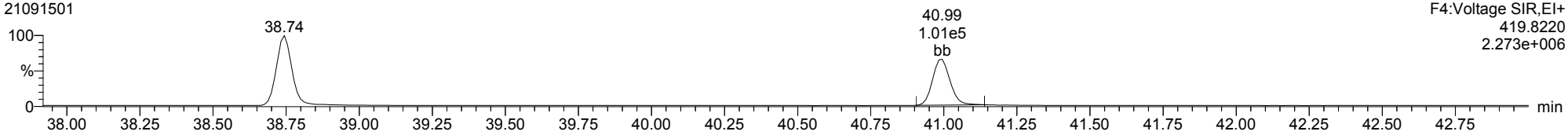
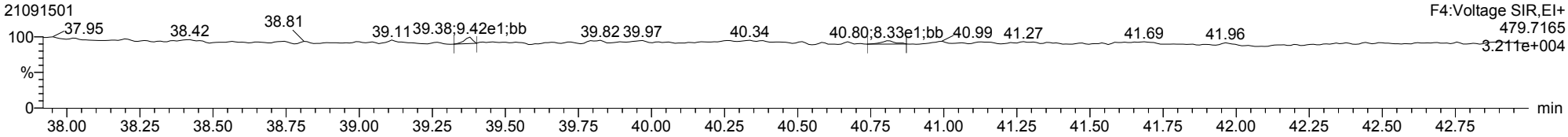


FUNCTION4 NCDPE



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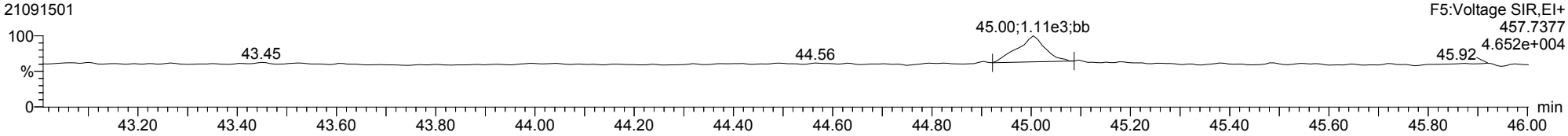
Printed: Thursday, September 16, 2021 14:32:03 Pacific Daylight Time

ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

OCDD



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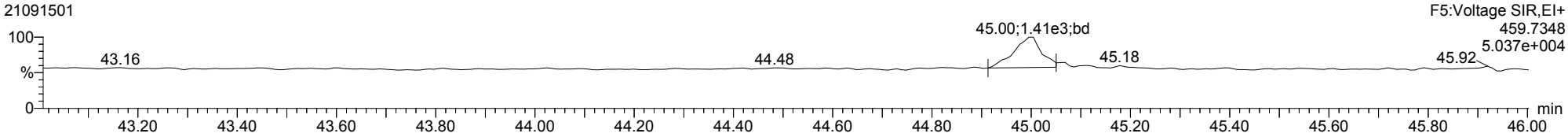

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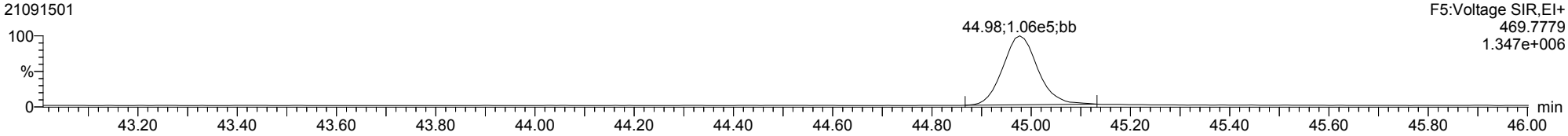

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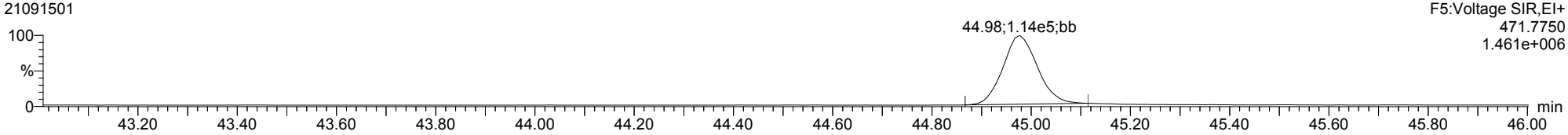
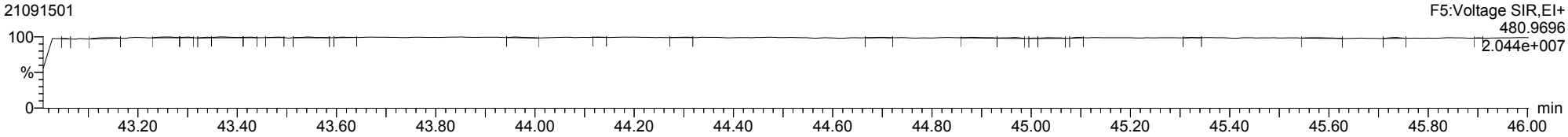


FUNCTION5 PFK



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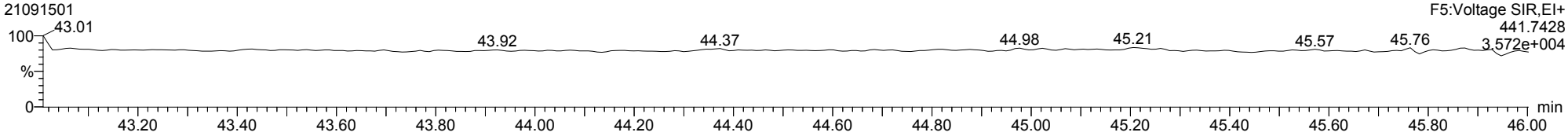
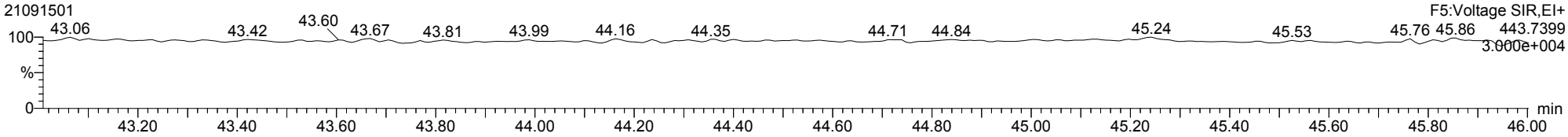
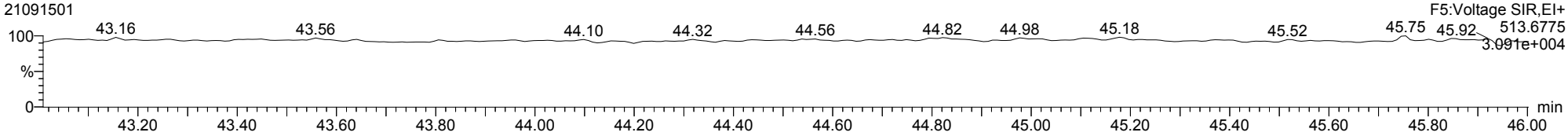
OCDF



OCDF



FUNCTION5 DCDPE



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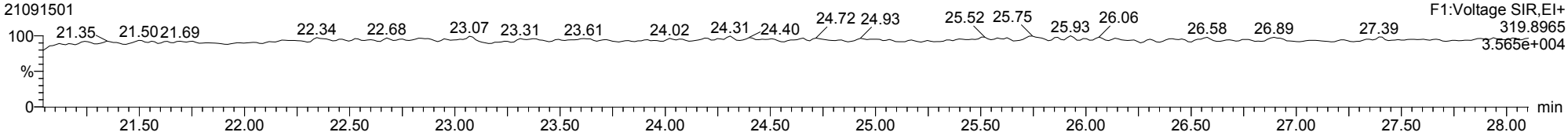
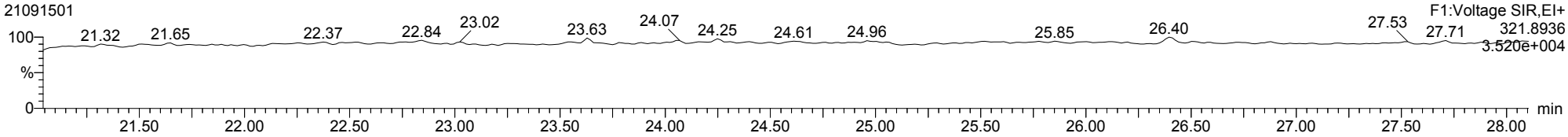
ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

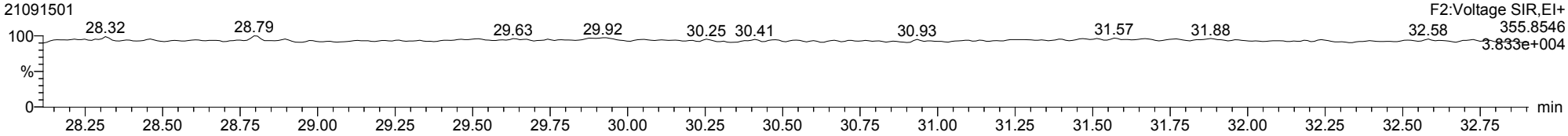
Total-tetradioxins



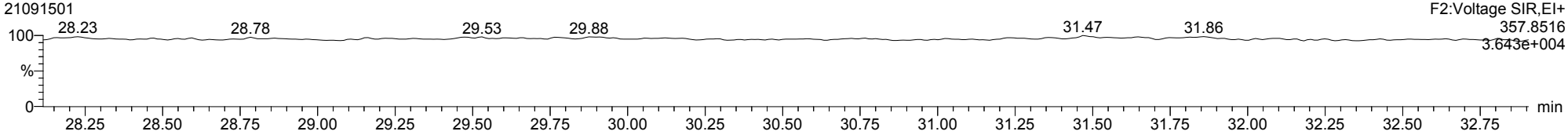
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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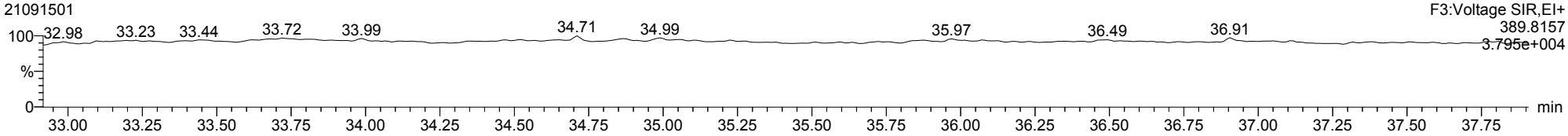
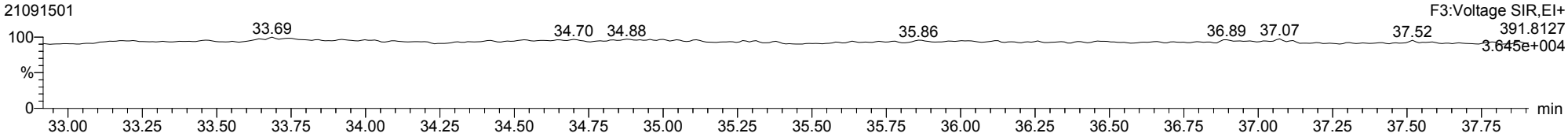
Total-hexadioxins



Total-hexadioxins



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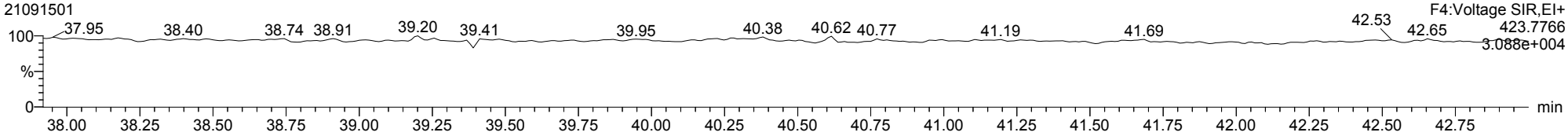

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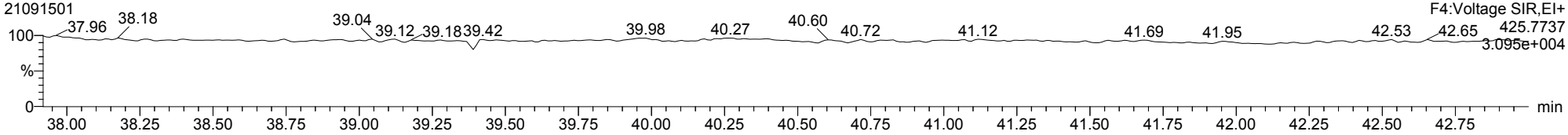

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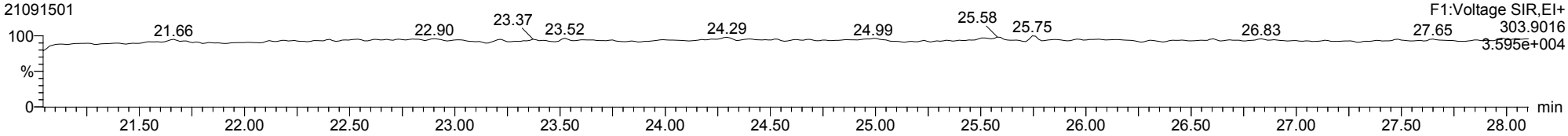
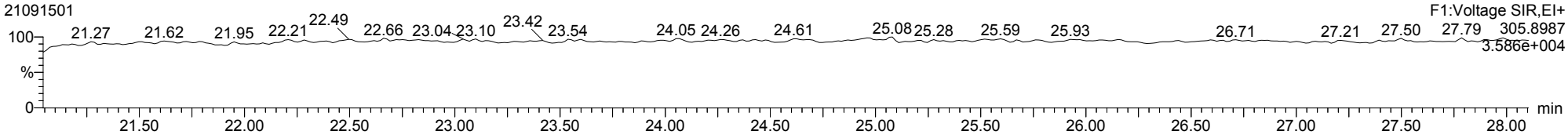
ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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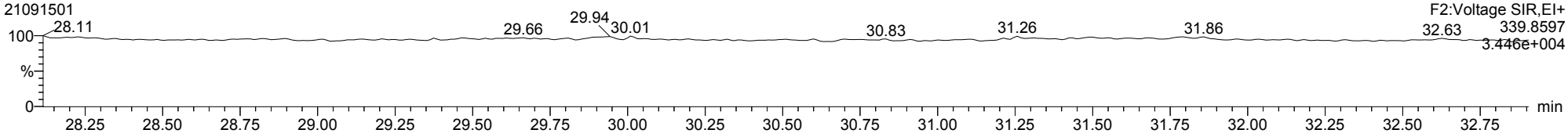
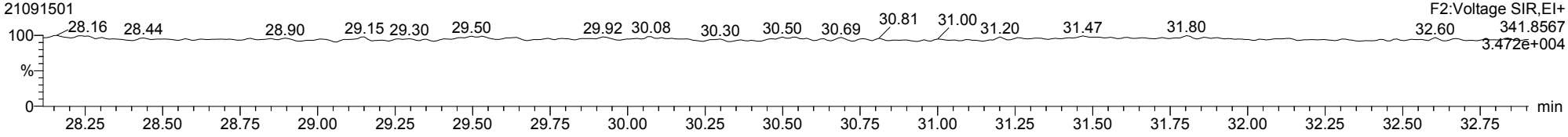


Total-pentafurans



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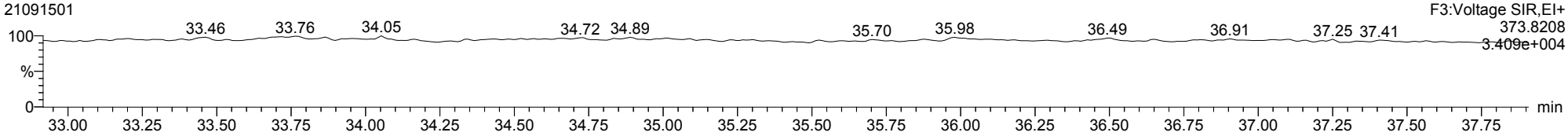
ID: BJH0645-BLK1, Name: 21091501, Date: 15-Sep-2021, Time: 16:05:24, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



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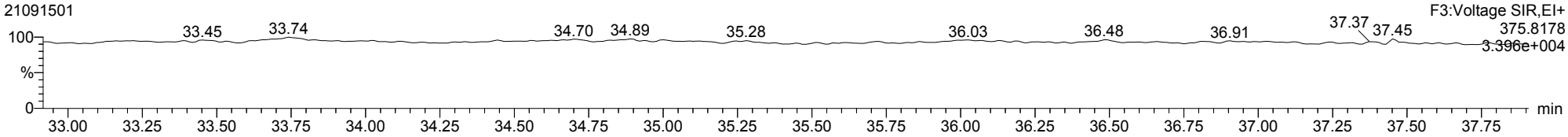

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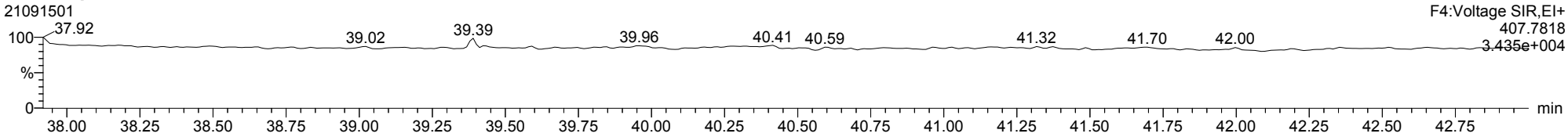
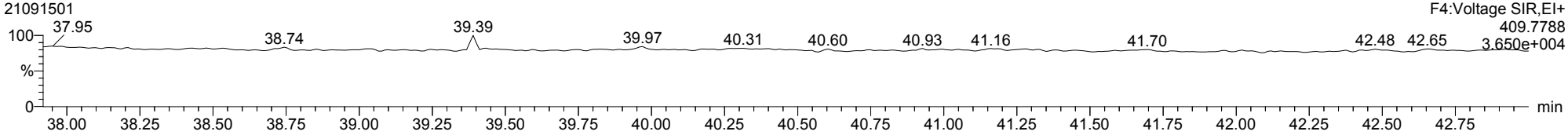


Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

LCS RECOVERY
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Matrix:	Solid	Analyzed:	08/24/21 19:29
Batch:	BJH0186	Laboratory ID:	BJH0186-BS1
Preparation:	EPA 1613	Sequence Name:	LCS
Initial/Final:	10 g / 20 uL		

COMPOUND	SPIKE ADDED (ng/kg wet)	LCS CONCENTRATION (ng/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
2,3,7,8-TCDF	20.0	18.3		91.5	75 - 158
2,3,7,8-TCDD	20.0	20.0		99.9	67 - 158
1,2,3,7,8-PeCDF	100	93.1		93.1	80 - 134
2,3,4,7,8-PeCDF	100	94.5		94.5	68 - 160
1,2,3,7,8-PeCDD	100	110		110	70 - 142
1,2,3,4,7,8-HxCDF	100	98.7		98.7	72 - 134
1,2,3,6,7,8-HxCDF	100	96.9		96.9	84 - 130
2,3,4,6,7,8-HxCDF	100	96.8		96.8	70 - 156
1,2,3,7,8,9-HxCDF	100	93.8		93.8	78 - 130
1,2,3,4,7,8-HxCDD	100	96.9		96.9	70 - 164
1,2,3,6,7,8-HxCDD	100	97.0		97.0	76 - 134
1,2,3,7,8,9-HxCDD	100	101		101	64 - 162
1,2,3,4,6,7,8-HpCDF	100	97.9		97.9	82 - 122
1,2,3,4,7,8,9-HpCDF	100	99.4		99.4	78 - 138
1,2,3,4,6,7,8-HpCDD	100	108	B	108	70 - 140
OCDF	200	181		90.3	63 - 170
OCDD	200	192	B	96.1	78 - 144

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
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Printed: Wednesday, August 25, 2021 09:22:40 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.277	1.001	3.430e4	4.305e4	1.108	0.797	0.770	831	1469	5.27e5	6.58e5	634.7	447.8	NO	bb	bb	9.151
12378-PeCDF	29.437	1.001	2.441e5	1.610e5	1.015	1.517	1.550	2125	2207	3.63e6	2.40e6	1709.4	1085.8	NO	bb	bb	46.569
23478-PeCDF	30.774	1.000	2.633e5	1.676e5	1.126	1.571	1.550	2125	2207	3.90e6	2.51e6	1837.4	1137.3	NO	bd	bb	47.268
123478-HxCDF	34.428	1.000	1.931e5	1.593e5	1.017	1.212	1.240	2068	1640	2.88e6	2.36e6	1393.0	1436.7	NO	bd	bd	49.327
234678-HxCDF	35.453	1.000	1.854e5	1.526e5	1.052	1.215	1.240	2068	1640	2.89e6	2.37e6	1398.0	1445.1	NO	bb	bb	48.387
123678-HxCDF	34.573	1.001	2.015e5	1.612e5	1.037	1.250	1.240	2068	1640	3.02e6	2.45e6	1461.7	1492.7	NO	db	db	48.441
123789-HxCDF	36.489	1.000	1.558e5	1.263e5	1.030	1.233	1.240	2068	1640	2.44e6	1.97e6	1179.4	1199.0	NO	bb	bb	46.916
1234678-HpCDF	38.361	1.000	1.902e5	1.838e5	1.327	1.035	1.050	3301	2107	3.08e6	2.95e6	933.7	1398.7	NO	bb	bb	48.947
1234789-HpCDF	40.544	1.000	1.576e5	1.449e5	1.283	1.088	1.050	3301	2107	2.30e6	2.17e6	696.2	1029.7	NO	bd	bb	49.724
OCDF	44.674	1.005	2.306e5	2.507e5	1.447	0.920	0.890	1459	1977	2.79e6	3.08e6	1909.4	1556.9	NO	bd	bb	90.269
2378-TCDD	25.912	1.001	2.566e4	3.138e4	0.920	0.818	0.770	1265	853	3.77e5	4.84e5	297.9	568.0	NO	bb	bb	9.986
12378-PeCDD	31.030	1.001	1.623e5	9.960e4	0.995	1.629	1.550	1325	832	2.53e6	1.54e6	1911.8	1848.6	NO	bb	bb	55.249
123478-HxCDD	35.575	1.001	1.611e5	1.333e5	1.027	1.209	1.240	1126	1641	2.56e6	2.12e6	2276.3	1292.3	NO	bd	bd	48.467
123678-HxCDD	35.687	1.000	1.707e5	1.346e5	1.009	1.268	1.240	1126	1641	2.72e6	2.17e6	2415.5	1320.6	NO	db	db	48.477
123789-HxCDD	36.077	1.011	1.603e5	1.312e5	0.950	1.221	1.240	1126	1641	2.54e6	2.12e6	2257.9	1294.4	NO	bb	bb	50.456
1234678-HpCDD	39.831	1.000	1.200e5	1.106e5	1.068	1.085	1.050	1327	886	1.95e6	1.79e6	1472.5	2020.5	NO	bb	bb	53.821
OCDD	44.455	1.000	1.992e5	2.188e5	1.181	0.910	0.890	1615	1333	2.40e6	2.68e6	1485.6	2009.9	NO	bb	bb	96.057
13C-2378-TCDF	25.262	1.007	3.430e5	4.202e5	1.427	0.816	0.770	3134	1491	5.15e6	6.31e6	1643.8	4233.7	NO	bb	bb	74.430
13C-12378-PeCDF	29.414	1.173	5.268e5	3.304e5	1.297	1.595	1.550	1949	1701	7.94e6	4.94e6	4073.0	2903.7	NO	bb	bb	91.933
13C-23478-PeCDF	30.762	1.227	4.992e5	3.107e5	1.236	1.607	1.550	1949	1701	7.36e6	4.59e6	3778.9	2697.5	NO	bb	bb	91.137
13C-123478-HxCDF	34.417	0.954	2.381e5	4.644e5	1.242	0.513	0.510	2730	1823	3.58e6	6.96e6	1312.4	3818.1	NO	bd	bd	82.190
13C-123678-HxCDF	34.550	0.958	2.430e5	4.792e5	1.343	0.507	0.510	2730	1823	3.59e6	7.11e6	1316.6	3899.3	NO	db	db	78.141
13C-234678-HxCDF	35.442	0.983	2.266e5	4.370e5	1.215	0.519	0.510	2730	1823	3.51e6	6.73e6	1286.6	3690.1	NO	bb	bb	79.401
13C-123789-HxCDF	36.478	1.011	1.977e5	3.861e5	1.008	0.512	0.510	2730	1823	3.01e6	5.99e6	1104.0	3283.1	NO	bb	bb	84.221
13C-1234678-HpCDF	38.349	1.063	1.835e5	3.921e5	0.926	0.468	0.440	1636	2293	2.86e6	6.20e6	1748.5	2704.9	NO	bb	bb	90.316
13C-1234789-HpCDF	40.533	1.124	1.501e5	3.240e5	0.758	0.463	0.440	1636	2293	2.21e6	4.67e6	1351.6	2037.2	NO	bb	bb	90.925
13C-1234-TCDD	25.080	0.000	3.142e5	4.045e5	1.000	0.777	0.770	2415	1461	4.84e6	6.23e6	2003.6	4265.6	NO	bb	bb	100.000
13C-2378-TCDD	25.897	1.033	2.691e5	3.516e5	1.116	0.765	0.770	2415	1461	4.11e6	5.35e6	1700.2	3661.2	NO	bb	bb	77.341
13C-12378-PeCDD	31.007	1.236	2.903e5	1.859e5	0.732	1.561	1.550	1332	1252	4.37e6	2.76e6	3281.4	2206.7	NO	bb	bb	90.521
13C-123478-HxCDD	35.553	0.986	3.286e5	2.627e5	0.960	1.251	1.240	1747	1973	5.35e6	4.24e6	3064.7	2151.4	NO	bd	bd	89.554
13C-123678-HxCDD	35.675	0.989	3.490e5	2.754e5	1.041	1.267	1.240	1747	1973	5.46e6	4.23e6	3127.3	2145.4	NO	db	db	87.146
13C-1234678-HpCDD	39.820	1.104	2.055e5	1.958e5	0.632	1.049	1.050	1413	1310	3.13e6	3.00e6	2213.4	2288.8	NO	bb	bb	92.231
13C-OCDD	44.437	1.232	3.525e5	3.845e5	0.504	0.917	0.890	1722	1830	4.26e6	4.64e6	2476.7	2534.2	NO	bb	bb	212.676
13C-123789-HxCDD	36.065	0.000	3.812e5	3.067e5	1.000	1.243	1.240	1747	1973	6.07e6	4.86e6	3472.0	2460.8	NO	bb	bb	100.000
37CL-2378-TCDD	25.912	1.033	2.293e5		1.084			1049		3.39e6		3236.6			bd		29.437

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:22:40 Pacific Daylight Time

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.425		0.770	831	1469								
1289-TCDF					1.043		0.770	831	1469								
13468-PECDF					1.376		1.550	821	1129								
12389-PECDF	31.798	1.081	1.706e3	9.355e2	1.000	1.824	1.550	2125	2207	2.22e4	1.57e4	10.4	7.1	YES	bb	bb	0.308
123468-HXCDF					1.087		1.240	2068	1640								
1368-TCDD					0.923		0.770	1265	853								
1289-TCDD					0.794		0.770	1265	853								
12479-PECDD					1.843		1.550	1325	832								
12389-PECDD					1.154		1.550	1325	832								
124679-HXCDD					1.125		1.240	1126	1641								
1234679-HPCDD	38.806	0.975	1.159e3	1.183e3	1.211	0.979	1.050	1327	886	1.91e4	2.04e4	14.4	23.0	NO	bb	bb	0.482
Total-tetrafurans			3.430e4		1.192			831		5.27e5							9.151
Total-penta1			0.000e0					821		0.00e0							
Total-pentafurans			5.074e5		1.047			2125		7.54e6							93.836
Total-hexafurans			7.358e5		1.045			2068		1.12e7							193.072
Total-heptafurans			3.485e5		1.305			3301		5.39e6							98.897
Total-Furans			1.857e6		1.158			831		2.75e7							485.225
Total-tetradioxins			2.566e4		0.879			1265		3.77e5							9.986
Total-pentadioxins			1.623e5		1.331			1325		2.53e6							55.249
Total-hexadioxins			4.921e5		1.028			1126		7.82e6							147.401
Total-heptadioxins			1.212e5		1.140			1327		1.97e6							54.304
Total-Dioxins			1.000e6		1.092			1265		1.51e7							362.997
Total-TEQ			2.857e6					1265		4.26e7							848.221
FUNCTION1 PFK			1.703e7					799301		1.57e8							
FUNCTION2 PFK			2.153e7					538475		1.13e8							0.000
FUNCTION3 PFK			2.995e7					588503		2.06e8							0.000
FUNCTION4 PFK			8.702e5					354751		2.22e7							
FUNCTION5 PFK			0.000e0					285036		0.00e0							
FUNCTION1 HXCD...			2.600e3					1075		3.25e4							0.000
FUNCTION1 HPCD...			1.619e3					910		2.82e4							0.000
FUNCTION2 HPCD...			5.351e2					797		1.33e4							0.000
FUNCTION3 OCDPE			1.941e3					859		3.57e4							0.000
FUNCTION4 NCDPE			7.772e1					860		1.73e3							0.000
FUNCTION5 DCDPE			3.020e2					745		5.88e3							0.000

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.28	3.430e4	4.305e4	1.108	0.80	0.77	634.7	YES	NO	bb	bb	9.151

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.77	2.633e5	1.676e5	1.126	1.57	1.55	1837.4	YES	NO	bd	bb	47.268
2	12378-PeCDF	29.44	2.441e5	1.610e5	1.015	1.52	1.55	1709.4	YES	NO	bb	bb	46.569

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.45	1.854e5	1.526e5	1.052	1.21	1.24	1398.0	YES	NO	bb	bb	48.387
2	123678-HxCDF	34.57	2.015e5	1.612e5	1.037	1.25	1.24	1461.7	YES	NO	db	db	48.441
3	123478-HxCDF	34.43	1.931e5	1.593e5	1.017	1.21	1.24	1393.0	YES	NO	bd	bd	49.327
4	123789-HxCDF	36.49	1.558e5	1.263e5	1.030	1.23	1.24	1179.4	YES	NO	bb	bb	46.916

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.54	1.576e5	1.449e5	1.283	1.09	1.05	696.2	YES	NO	bd	bb	49.724
2	Total-heptafurans	39.00	7.533e2	7.881e2	1.305	0.96	1.05	3.2	YES	NO	bb	bd	0.225
3	1234678-HpCDF	38.36	1.902e5	1.838e5	1.327	1.03	1.05	933.7	YES	NO	bb	bb	48.947

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.28	3.430e4	4.305e4	1.108	0.80	0.77	634.7	YES	NO	bb	bb	9.151
2	23478-PeCDF	30.77	2.633e5	1.676e5	1.126	1.57	1.55	1837.4	YES	NO	bd	bb	47.268
3	12378-PeCDF	29.44	2.441e5	1.610e5	1.015	1.52	1.55	1709.4	YES	NO	bb	bb	46.569
4	234678-HxCDF	35.45	1.854e5	1.526e5	1.052	1.21	1.24	1398.0	YES	NO	bb	bb	48.387
5	123678-HxCDF	34.57	2.015e5	1.612e5	1.037	1.25	1.24	1461.7	YES	NO	db	db	48.441
6	123478-HxCDF	34.43	1.931e5	1.593e5	1.017	1.21	1.24	1393.0	YES	NO	bd	bd	49.327
7	123789-HxCDF	36.49	1.558e5	1.263e5	1.030	1.23	1.24	1179.4	YES	NO	bb	bb	46.916
8	1234789-HpCDF	40.54	1.576e5	1.449e5	1.283	1.09	1.05	696.2	YES	NO	bd	bb	49.724
9	Total-heptafurans	39.00	7.533e2	7.881e2	1.305	0.96	1.05	3.2	YES	NO	bb	bd	0.225
10	1234678-HpCDF	38.36	1.902e5	1.838e5	1.327	1.03	1.05	933.7	YES	NO	bb	bb	48.947
11	OCDF	44.67	2.306e5	2.507e5	1.447	0.92	0.89	1909.4	YES	NO	bd	bb	90.269

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	25.91	2.566e4	3.138e4	0.920	0.82	0.77	297.9	YES	NO	bb	bb	9.986

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.03	1.623e5	9.960e4	0.995	1.63	1.55	1911.8	YES	NO	bb	bb	55.249

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.08	1.603e5	1.312e5	0.950	1.22	1.24	2257.9	YES	NO	bb	bb	50.456
2	123678-HxCDD	35.69	1.707e5	1.346e5	1.009	1.27	1.24	2415.5	YES	NO	db	db	48.477
3	123478-HxCDD	35.58	1.611e5	1.333e5	1.027	1.21	1.24	2276.3	YES	NO	bd	bd	48.467

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.83	1.200e5	1.106e5	1.068	1.09	1.05	1472.5	YES	NO	bb	bb	53.821
2	1234679-HPCDD	38.81	1.159e3	1.183e3	1.211	0.98	1.05	14.4	YES	NO	bb	bb	0.482

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.03	1.623e5	9.960e4	0.995	1.63	1.55	1911.8	YES	NO	bb	bb	55.249
2	2378-TCDD	25.91	2.566e4	3.138e4	0.920	0.82	0.77	297.9	YES	NO	bb	bb	9.986
3	123789-HxCDD	36.08	1.603e5	1.312e5	0.950	1.22	1.24	2257.9	YES	NO	bb	bb	50.456
4	123678-HxCDD	35.69	1.707e5	1.346e5	1.009	1.27	1.24	2415.5	YES	NO	db	db	48.477
5	123478-HxCDD	35.58	1.611e5	1.333e5	1.027	1.21	1.24	2276.3	YES	NO	bd	bd	48.467
6	1234678-HpCDD	39.83	1.200e5	1.106e5	1.068	1.09	1.05	1472.5	YES	NO	bb	bb	53.821
7	1234679-HPCDD	38.81	1.159e3	1.183e3	1.211	0.98	1.05	14.4	YES	NO	bb	bb	0.482
8	OCDD	44.45	1.992e5	2.188e5	1.181	0.91	0.89	1485.6	YES	NO	bb	bb	96.057

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.28	3.430e4	4.305e4	1.108	0.80	0.77	634.7	YES	NO	bb	bb	9.151
2	23478-PeCDF	30.77	2.633e5	1.676e5	1.126	1.57	1.55	1837.4	YES	NO	bd	bb	47.268
3	12378-PeCDF	29.44	2.441e5	1.610e5	1.015	1.52	1.55	1709.4	YES	NO	bb	bb	46.569
4	234678-HxCDF	35.45	1.854e5	1.526e5	1.052	1.21	1.24	1398.0	YES	NO	bb	bb	48.387
5	123678-HxCDF	34.57	2.015e5	1.612e5	1.037	1.25	1.24	1461.7	YES	NO	db	db	48.441
6	123478-HxCDF	34.43	1.931e5	1.593e5	1.017	1.21	1.24	1393.0	YES	NO	bd	bd	49.327
7	123789-HxCDF	36.49	1.558e5	1.263e5	1.030	1.23	1.24	1179.4	YES	NO	bb	bb	46.916
8	1234789-HpCDF	40.54	1.576e5	1.449e5	1.283	1.09	1.05	696.2	YES	NO	bd	bb	49.724
9	Total-heptafurans	39.00	7.533e2	7.881e2	1.305	0.96	1.05	3.2	YES	NO	bb	bd	0.225
10	1234678-HpCDF	38.36	1.902e5	1.838e5	1.327	1.03	1.05	933.7	YES	NO	bb	bb	48.947
11	OCDF	44.67	2.306e5	2.507e5	1.447	0.92	0.89	1909.4	YES	NO	bd	bb	90.269
12	12378-PeCDD	31.03	1.623e5	9.960e4	0.995	1.63	1.55	1911.8	YES	NO	bb	bb	55.249
13	2378-TCDD	25.91	2.566e4	3.138e4	0.920	0.82	0.77	297.9	YES	NO	bb	bb	9.986
14	123789-HxCDD	36.08	1.603e5	1.312e5	0.950	1.22	1.24	2257.9	YES	NO	bb	bb	50.456
15	123678-HxCDD	35.69	1.707e5	1.346e5	1.009	1.27	1.24	2415.5	YES	NO	db	db	48.477
16	123478-HxCDD	35.58	1.611e5	1.333e5	1.027	1.21	1.24	2276.3	YES	NO	bd	bd	48.467
17	1234678-HpCDD	39.83	1.200e5	1.106e5	1.068	1.09	1.05	1472.5	YES	NO	bb	bb	53.821
18	1234679-HPCDD	38.81	1.159e3	1.183e3	1.211	0.98	1.05	14.4	YES	NO	bb	bb	0.482
19	OCDD	44.45	1.992e5	2.188e5	1.181	0.91	0.89	1485.6	YES	NO	bb	bb	96.057

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.15	2.575e5					5.3	YES		bd		
2	FUNCTION1 PFK	23.75	2.842e5					6.8	YES		dd		
3	FUNCTION1 PFK	23.61	9.498e5					8.0	YES		bd		
4	FUNCTION1 PFK	23.45	6.898e5					6.7	YES		bb		
5	FUNCTION1 PFK	22.87	7.397e5					7.0	YES		db		
6	FUNCTION1 PFK	22.83	3.462e5					7.6	YES		dd		
7	FUNCTION1 PFK	22.75	5.755e5					8.6	YES		bd		
8	FUNCTION1 PFK	22.59	8.787e5					12.7	YES		db		
9	FUNCTION1 PFK	22.46	2.919e6					12.9	YES		dd		
10	FUNCTION1 PFK	22.19	7.071e5					10.5	YES		bd		
11	FUNCTION1 PFK	22.03	1.761e6					14.3	YES		bb		
12	FUNCTION1 PFK	21.81	1.442e6					14.4	YES		db		
13	FUNCTION1 PFK	21.69	6.173e5					13.2	YES		dd		
14	FUNCTION1 PFK	21.62	1.818e6					13.2	YES		bd		
15	FUNCTION1 PFK	21.38	6.135e5					9.1	YES		db		
16	FUNCTION1 PFK	21.25	2.020e5					4.4	YES		dd		
17	FUNCTION1 PFK	21.22	3.472e5					6.8	YES		dd		
18	FUNCTION1 PFK	27.30	6.082e4					1.4	NO		bd		
19	FUNCTION1 PFK	27.15	2.440e4					0.5	NO		bb		
20	FUNCTION1 PFK	26.97	5.943e4					1.2	NO		bb		
21	FUNCTION1 PFK	26.83	7.364e3					0.6	NO		bb		
22	FUNCTION1 PFK	25.85	2.696e4					1.2	NO		db		
23	FUNCTION1 PFK	25.79	4.456e4					1.5	NO		bd		
24	FUNCTION1 PFK	25.73	4.504e3					0.4	NO		bb		
25	FUNCTION1 PFK	25.58	1.309e4					0.7	NO		bb		
26	FUNCTION1 PFK	25.17	6.517e4					1.8	NO		db		
27	FUNCTION1 PFK	25.10	2.079e5					4.1	YES		dd		
28	FUNCTION1 PFK	25.03	2.097e5					4.7	YES		bd		
29	FUNCTION1 PFK	24.84	5.004e5					4.2	YES		bb		
30	FUNCTION1 PFK	24.49	6.653e4					0.8	NO		bb		
31	FUNCTION1 PFK	24.26	6.470e4					2.1	NO		db		
32	FUNCTION1 PFK	24.25	5.005e4					1.9	NO		bd		
33	FUNCTION1 PFK	23.81	4.323e5					6.7	YES		db		
34	FUNCTION1 PFK	27.36	4.220e4					1.4	NO		db		

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:22:40 Pacific Daylight Time

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.10	3.070e4					1.5	NO		bb		0.000
2	FUNCTION2 PFK	31.35	5.962e3					0.7	NO		bb		0.000
3	FUNCTION2 PFK	30.24	8.115e3					0.8	NO		bb		0.000
4	FUNCTION2 PFK	29.89	2.851e3					0.5	NO		bb		0.000
5	FUNCTION2 PFK	28.85	2.377e4					1.9	NO		db		0.000
6	FUNCTION2 PFK	28.78	1.429e5					5.0	YES		dd		0.000
7	FUNCTION2 PFK	28.42	7.110e6					18.3	YES		dd		0.000
8	FUNCTION2 PFK	27.98	6.912e6					35.1	YES		dd		0.000
9	FUNCTION2 PFK	27.68	2.506e6					46.9	YES		dd		0.000
10	FUNCTION2 PFK	27.59	1.167e6					49.2	YES		dd		0.000
11	FUNCTION2 PFK	27.55	3.622e6					50.0	YES		bd		0.000

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.34	3.223e6					56.7	YES		dd		0.000
2	FUNCTION3 PFK	32.28	3.063e6					59.4	YES		bd		0.000
3	FUNCTION3 PFK	35.47	1.321e4					0.9	NO		bb		0.000
4	FUNCTION3 PFK	35.29	1.053e4					0.8	NO		bb		0.000
5	FUNCTION3 PFK	35.10	1.521e5					2.2	NO		db		0.000
6	FUNCTION3 PFK	34.96	3.028e4					1.9	NO		bd		0.000
7	FUNCTION3 PFK	34.90	2.055e4					1.1	NO		bb		0.000
8	FUNCTION3 PFK	34.85	4.165e3					0.6	NO		bb		0.000
9	FUNCTION3 PFK	34.35	3.872e4					1.2	NO		bb		0.000
10	FUNCTION3 PFK	33.84	5.044e4					2.8	NO		db		0.000
11	FUNCTION3 PFK	33.78	9.839e4					4.0	YES		dd		0.000
12	FUNCTION3 PFK	33.73	1.659e5					6.0	YES		dd		0.000
13	FUNCTION3 PFK	33.43	2.123e6					17.7	YES		dd		0.000
14	FUNCTION3 PFK	33.32	1.458e6					21.7	YES		dd		0.000
15	FUNCTION3 PFK	33.20	2.332e6					26.0	YES		dd		0.000
16	FUNCTION3 PFK	33.00	2.637e6					33.5	YES		dd		0.000
17	FUNCTION3 PFK	32.57	1.086e7					49.6	YES		dd		0.000
18	FUNCTION3 PFK	32.51	3.425e6					51.5	YES		dd		0.000
19	FUNCTION3 PFK	37.11	4.208e4					1.8	NO		bb		0.000
20	FUNCTION3 PFK	36.95	4.811e4					2.1	NO		bb		0.000
21	FUNCTION3 PFK	36.88	6.742e4					2.2	NO		db		0.000
22	FUNCTION3 PFK	36.81	2.401e4					1.4	NO		bd		0.000
23	FUNCTION3 PFK	36.68	2.818e4					1.7	NO		bb		0.000
24	FUNCTION3 PFK	36.56	3.576e3					0.5	NO		bb		0.000
25	FUNCTION3 PFK	35.85	2.133e4					0.8	NO		bb		0.000
26	FUNCTION3 PFK	35.81	2.761e3					0.4	NO		bb		0.000
27	FUNCTION3 PFK	35.76	4.416e3					0.7	NO		bb		0.000
28	FUNCTION3 PFK	35.56	2.967e3					0.5	NO		bb		0.000
29	FUNCTION3 PFK	35.52	4.023e3					0.6	NO		bb		0.000

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.70	5.448e4					1.2	NO		bb		
2	FUNCTION4 PFK	37.58	8.921e3					1.1	NO		bb		
3	FUNCTION4 PFK	37.54	8.270e3					1.1	NO		db		
4	FUNCTION4 PFK	37.50	3.712e3					0.7	NO		bd		
5	FUNCTION4 PFK	39.60	7.152e4					2.3	NO		db		
6	FUNCTION4 PFK	39.43	3.792e4					1.7	NO		dd		
7	FUNCTION4 PFK	39.35	3.216e3					0.6	NO		bd		
8	FUNCTION4 PFK	39.31	2.093e3					0.5	NO		bb		
9	FUNCTION4 PFK	39.11	9.618e3					1.2	NO		bb		
10	FUNCTION4 PFK	38.97	2.924e3					0.5	NO		bb		
11	FUNCTION4 PFK	38.73	1.804e3					0.5	NO		bb		
12	FUNCTION4 PFK	38.57	4.680e4					2.1	NO		bb		
13	FUNCTION4 PFK	38.44	9.435e3					0.8	NO		bb		
14	FUNCTION4 PFK	38.40	2.823e3					0.7	NO		bb		
15	FUNCTION4 PFK	38.34	5.645e3					0.7	NO		bb		
16	FUNCTION4 PFK	38.29	1.441e4					1.0	NO		bb		
17	FUNCTION4 PFK	38.20	8.658e3					0.8	NO		db		
18	FUNCTION4 PFK	38.17	1.511e4					1.2	NO		bd		
19	FUNCTION4 PFK	38.02	5.049e4					1.1	NO		bb		
20	FUNCTION4 PFK	37.89	1.413e4					1.2	NO		bb		
21	FUNCTION4 PFK	41.03	3.038e4					1.4	NO		bd		
22	FUNCTION4 PFK	40.96	1.389e4					1.7	NO		db		
23	FUNCTION4 PFK	40.92	3.796e4					2.5	NO		bd		
24	FUNCTION4 PFK	40.85	8.429e3					1.1	NO		db		
25	FUNCTION4 PFK	40.81	7.250e3					0.7	NO		bd		
26	FUNCTION4 PFK	40.72	4.505e3					0.8	NO		db		
27	FUNCTION4 PFK	40.69	1.106e4					1.0	NO		bd		
28	FUNCTION4 PFK	40.49	1.659e4					1.4	NO		bb		
29	FUNCTION4 PFK	40.43	2.309e4					1.3	NO		bb		
30	FUNCTION4 PFK	40.33	9.945e3					1.2	NO		bb		
31	FUNCTION4 PFK	40.10	9.418e3					1.1	NO		bb		
32	FUNCTION4 PFK	40.02	1.236e4					0.9	NO		bb		
33	FUNCTION4 PFK	39.95	2.069e4					1.6	NO		db		
34	FUNCTION4 PFK	39.85	2.886e4					1.6	NO		bd		
35	FUNCTION4 PFK	39.80	1.231e4					1.4	NO		bb		
36	FUNCTION4 PFK	39.64	2.096e3					0.5	NO		bb		
37	FUNCTION4 PFK	42.32	1.003e4					1.6	NO		bb		

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	42.27	4.711e3					0.6	NO		bb		
39	FUNCTION4 PFK	42.22	3.243e4					1.9	NO		db		
40	FUNCTION4 PFK	42.15	5.208e3					0.9	NO		dd		
41	FUNCTION4 PFK	42.12	6.302e3					0.7	NO		dd		
42	FUNCTION4 PFK	42.06	6.839e3					0.8	NO		dd		
43	FUNCTION4 PFK	42.03	8.386e3					1.1	NO		bd		
44	FUNCTION4 PFK	41.91	1.399e4					1.2	NO		db		
45	FUNCTION4 PFK	41.88	1.204e4					1.4	NO		bd		
46	FUNCTION4 PFK	41.79	4.930e4					2.2	NO		db		
47	FUNCTION4 PFK	41.71	1.296e4					1.5	NO		dd		
48	FUNCTION4 PFK	41.67	3.308e4					2.2	NO		bd		
49	FUNCTION4 PFK	41.60	1.772e4					2.0	NO		bb		
50	FUNCTION4 PFK	41.46	4.160e3					0.7	NO		bb		
51	FUNCTION4 PFK	41.37	1.101e4					1.3	NO		bb		
52	FUNCTION4 PFK	41.11	8.619e3					0.9	NO		db		
53	FUNCTION4 PFK	42.39	1.258e4					0.5	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.84	3.138e2					4.0	YES		bd		0.000
2	FUNCTION1 HXCD...	24.49	1.752e2					1.3	NO		bb		0.000
3	FUNCTION1 HXCD...	24.29	1.912e2					1.4	NO		db		0.000
4	FUNCTION1 HXCD...	24.07	1.408e2					1.6	NO		bd		0.000
5	FUNCTION1 HXCD...	23.80	8.298e1					1.7	NO		bb		0.000
6	FUNCTION1 HXCD...	23.49	1.529e2					1.1	NO		bb		0.000
7	FUNCTION1 HXCD...	23.24	1.293e2					1.6	NO		db		0.000
8	FUNCTION1 HXCD...	23.18	7.168e1					1.8	NO		bd		0.000
9	FUNCTION1 HXCD...	22.45	1.437e2					1.7	NO		db		0.000
10	FUNCTION1 HXCD...	22.33	3.850e2					2.3	NO		bd		0.000
11	FUNCTION1 HXCD...	21.50	8.447e1					1.6	NO		db		0.000
12	FUNCTION1 HXCD...	21.35	1.089e2					1.5	NO		dd		0.000
13	FUNCTION1 HXCD...	21.29	1.465e2					2.8	NO		bd		0.000
14	FUNCTION1 HXCD...	26.40	1.275e2					1.9	NO		db		0.000
15	FUNCTION1 HXCD...	26.34	7.512e1					1.3	NO		bd		0.000
16	FUNCTION1 HXCD...	25.94	2.706e2					2.4	NO		db		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	25.99	1.151e2					2.4	NO		db		0.000
2	FUNCTION1 HPCD...	25.90	1.584e2					3.2	YES		dd		0.000
3	FUNCTION1 HPCD...	25.84	3.085e2					3.9	YES		bd		0.000
4	FUNCTION1 HPCD...	25.32	7.802e1					2.0	NO		bb		0.000
5	FUNCTION1 HPCD...	24.54	1.692e2					1.7	NO		bb		0.000
6	FUNCTION1 HPCD...	23.78	1.018e2					2.0	NO		bb		0.000
7	FUNCTION1 HPCD...	23.60	7.035e1					1.7	NO		bb		0.000
8	FUNCTION1 HPCD...	22.54	7.611e1					2.0	NO		db		0.000
9	FUNCTION1 HPCD...	22.42	1.435e2					2.9	NO		dd		0.000
10	FUNCTION1 HPCD...	22.33	1.209e2					3.2	YES		bd		0.000
11	FUNCTION1 HPCD...	21.83	8.816e1					2.5	NO		bb		0.000
12	FUNCTION1 HPCD...	21.33	1.182e2					2.4	NO		bb		0.000
13	FUNCTION1 HPCD...	27.20	7.099e1					1.0	NO		bb		0.000

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.05	1.161e2					3.1	YES		bb		0.000
2	FUNCTION2 HPCD...	31.62	1.315e2					5.1	YES		bb		0.000
3	FUNCTION2 HPCD...	31.24	1.699e2					3.6	YES		db		0.000
4	FUNCTION2 HPCD...	31.13	1.177e2					5.0	YES		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.17	8.682e1					3.2	YES		bd		0.000
2	FUNCTION3 OCDPE	34.78	1.306e2					2.1	NO		bb		0.000
3	FUNCTION3 OCDPE	34.42	1.059e2					3.0	YES		bb		0.000
4	FUNCTION3 OCDPE	33.92	1.892e2					2.7	NO		bb		0.000
5	FUNCTION3 OCDPE	33.67	7.297e1					2.4	NO		db		0.000
6	FUNCTION3 OCDPE	33.61	1.279e2					4.1	YES		bd		0.000
7	FUNCTION3 OCDPE	33.24	7.852e1					2.1	NO		bb		0.000
8	FUNCTION3 OCDPE	32.98	7.805e1					1.8	NO		db		0.000
9	FUNCTION3 OCDPE	32.87	7.290e1					1.4	NO		bd		0.000
10	FUNCTION3 OCDPE	37.21	9.773e1					1.7	NO		bb		0.000
11	FUNCTION3 OCDPE	36.57	1.511e2					2.9	NO		bb		0.000
12	FUNCTION3 OCDPE	36.07	1.566e2					3.8	YES		bb		0.000
13	FUNCTION3 OCDPE	35.68	2.628e2					4.2	YES		db		0.000
14	FUNCTION3 OCDPE	35.56	2.170e2					2.7	NO		bd		0.000
15	FUNCTION3 OCDPE	35.21	1.127e2					3.6	YES		db		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.95	7.772e1					2.0	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.87	1.353e2					2.6	NO		bb		0.000
2	FUNCTION5 DCDPE	43.25	7.635e1					3.1	YES		bb		0.000
3	FUNCTION5 DCDPE	42.44	9.039e1					2.2	NO		bb		0.000

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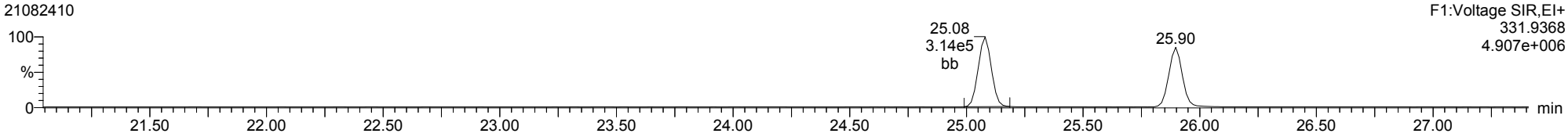

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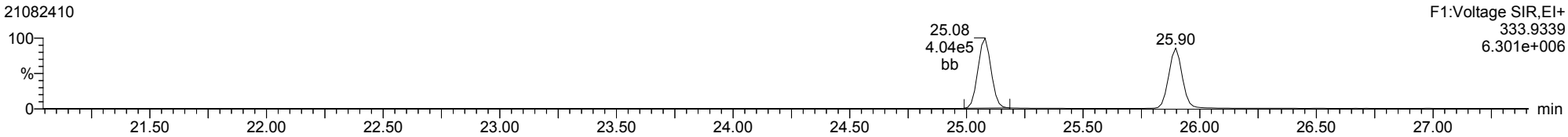

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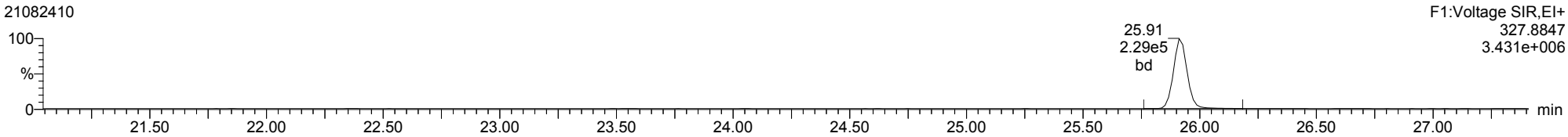

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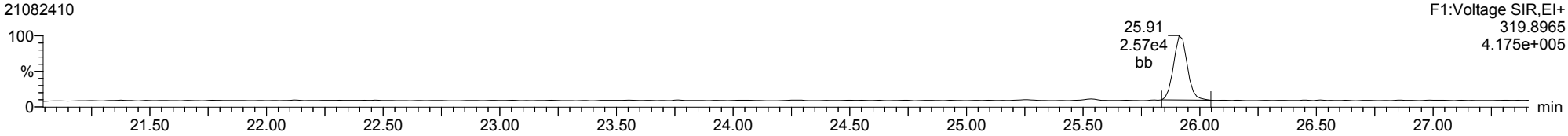

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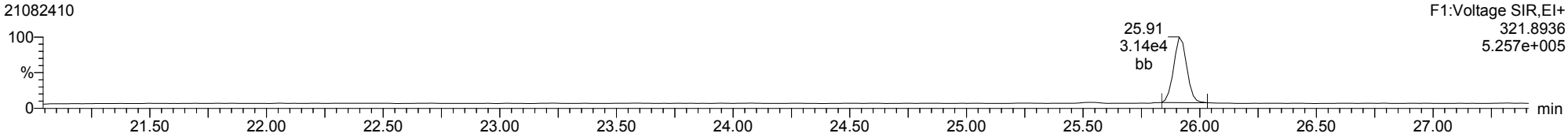

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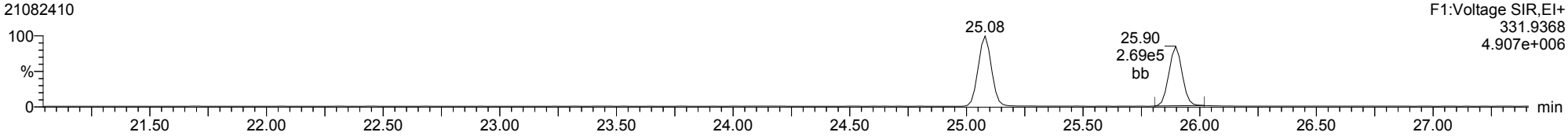

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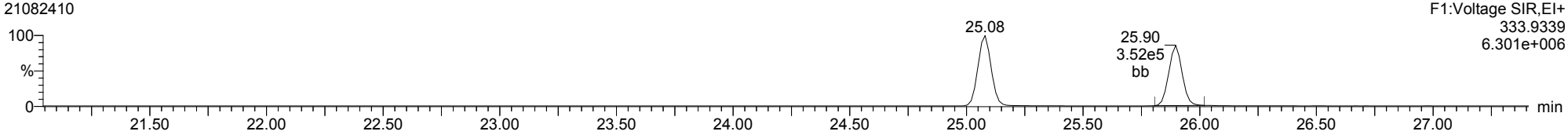

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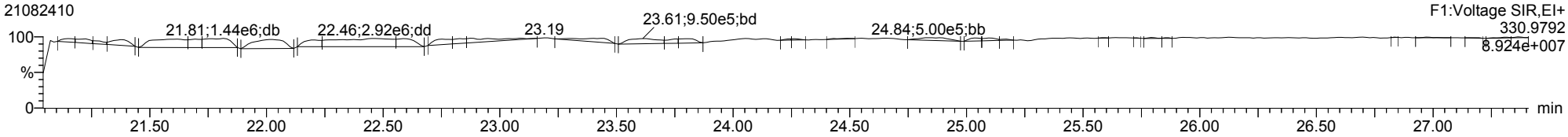

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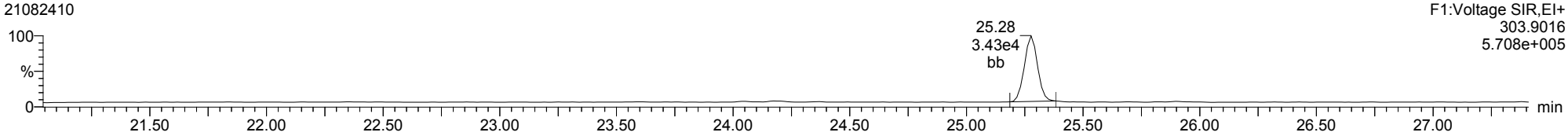

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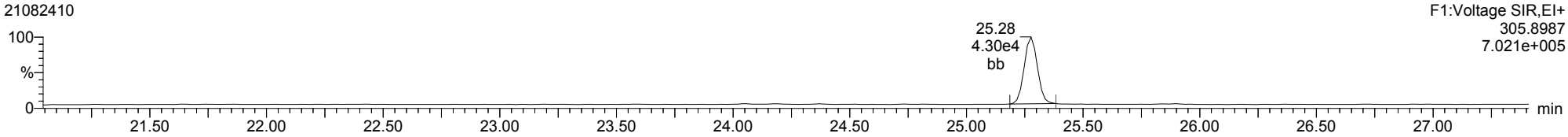

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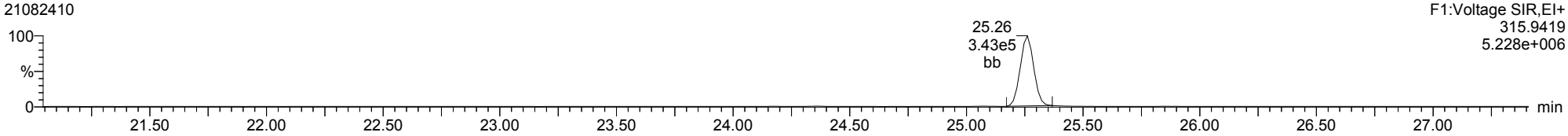

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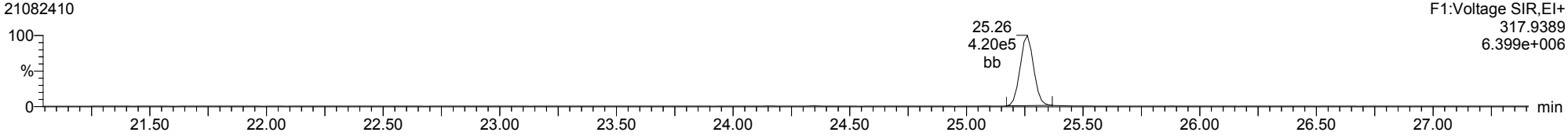

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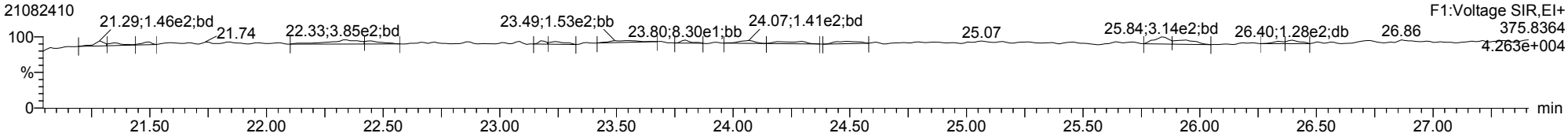

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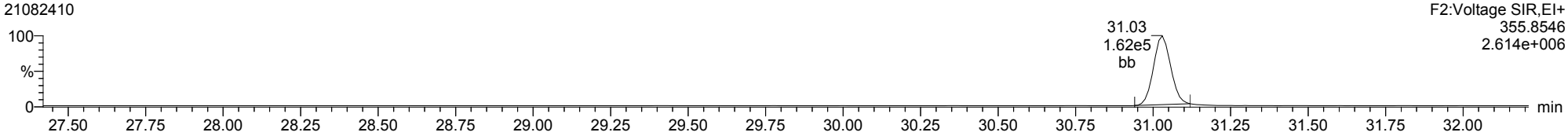
12378-PeCDD



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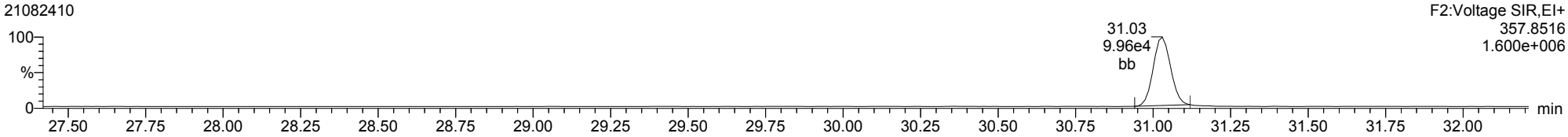

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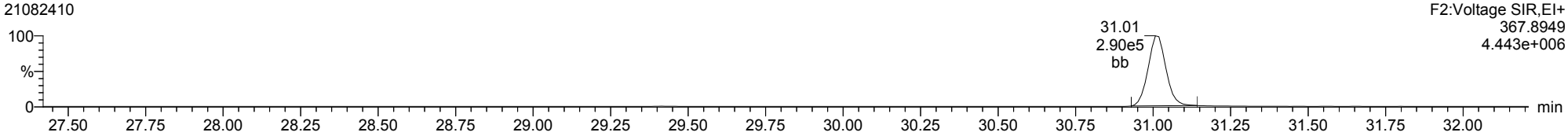

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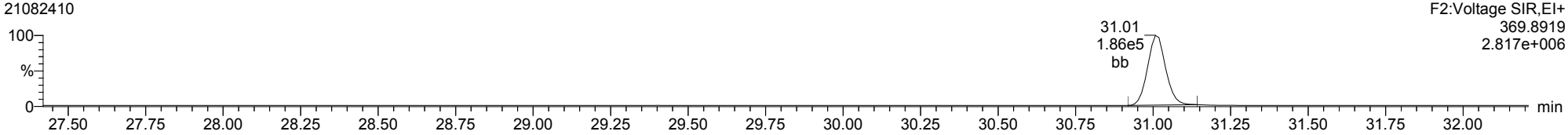
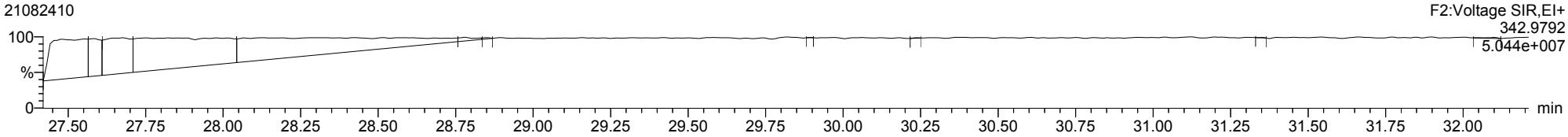


FUNCTION2 PFK



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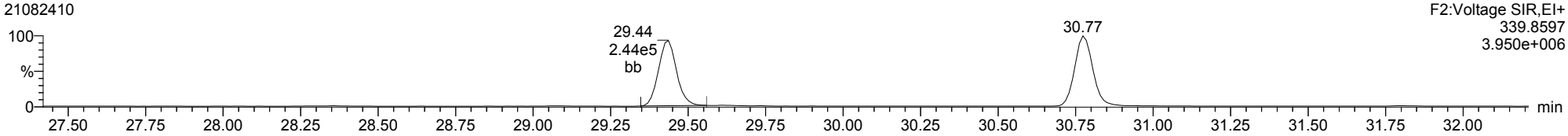
12378-PeCDF



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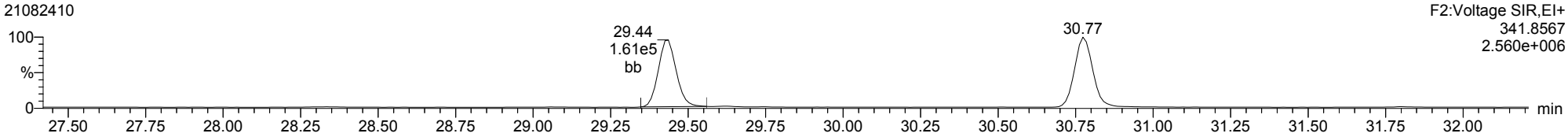

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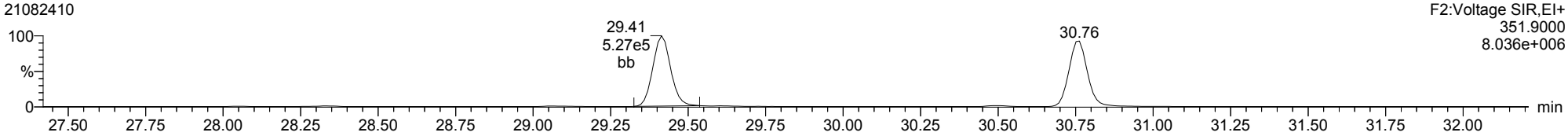

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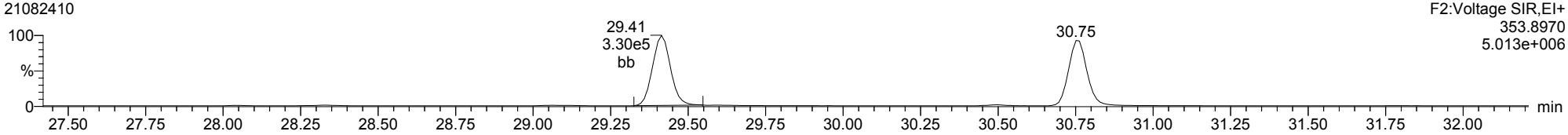
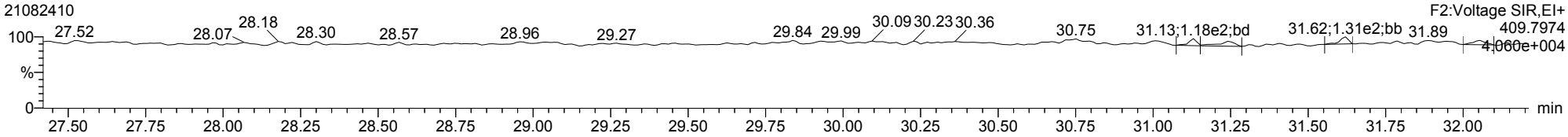


FUNCTION2 HPCDPE



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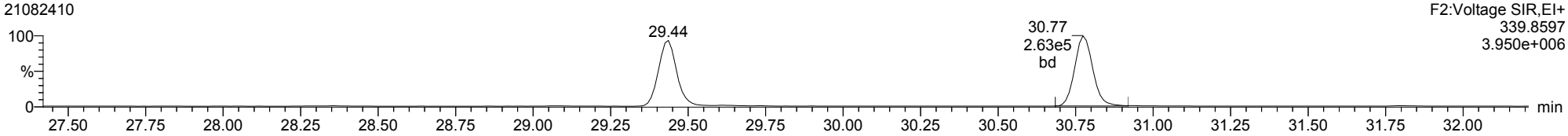
23478-PeCDF



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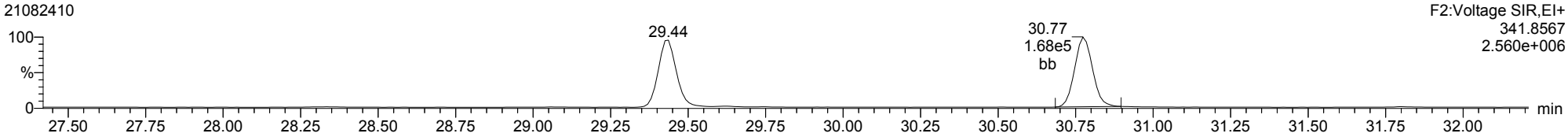

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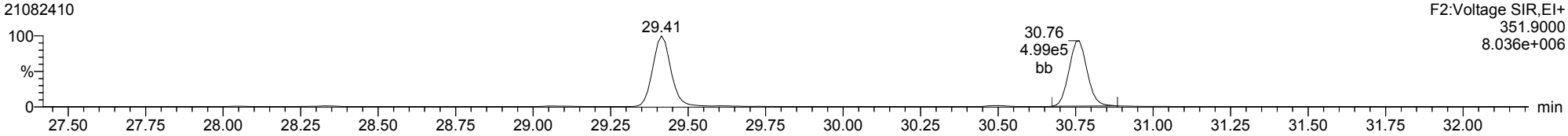

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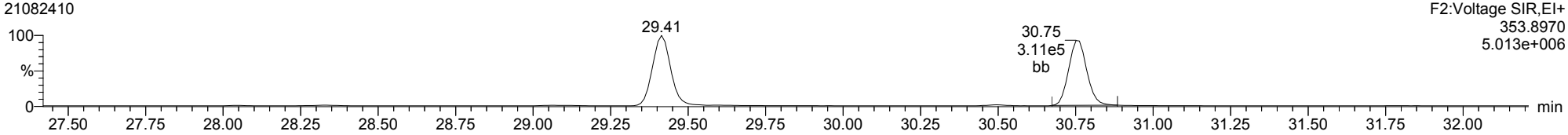

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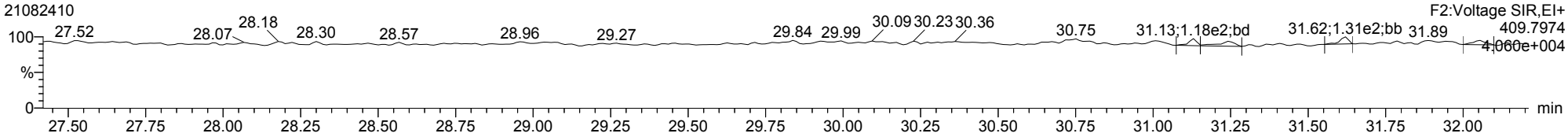

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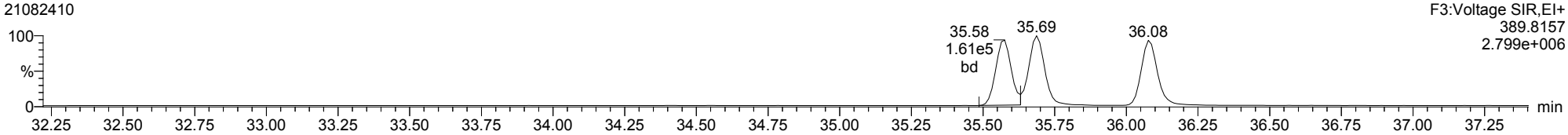

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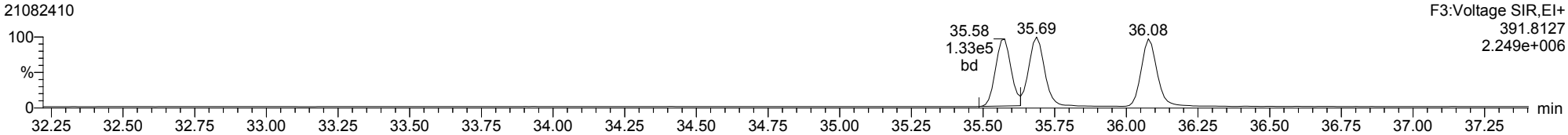

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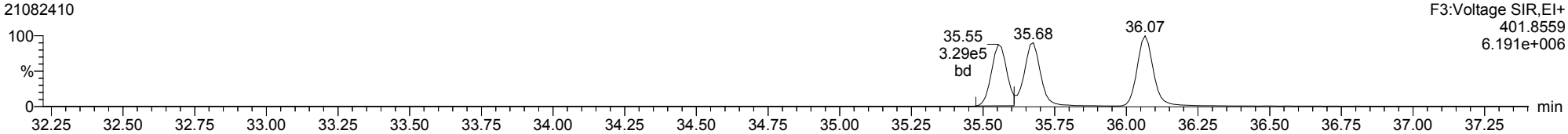

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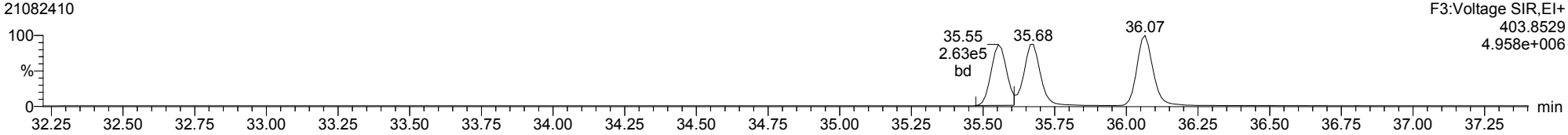

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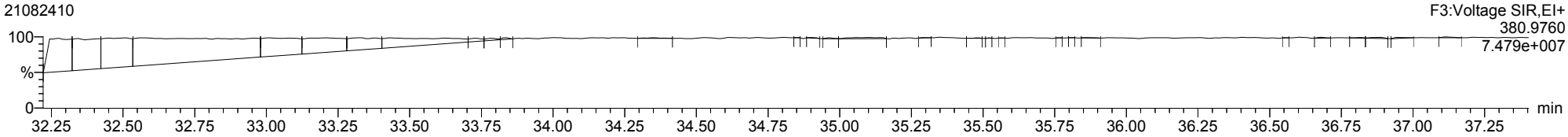

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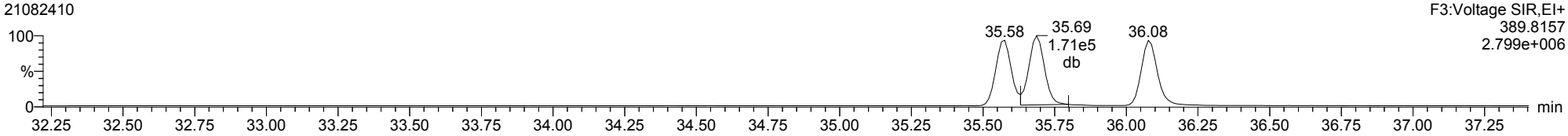

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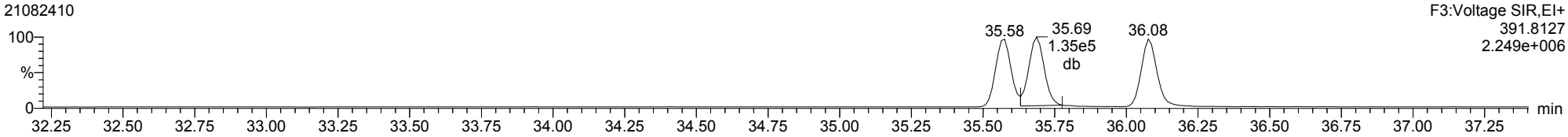

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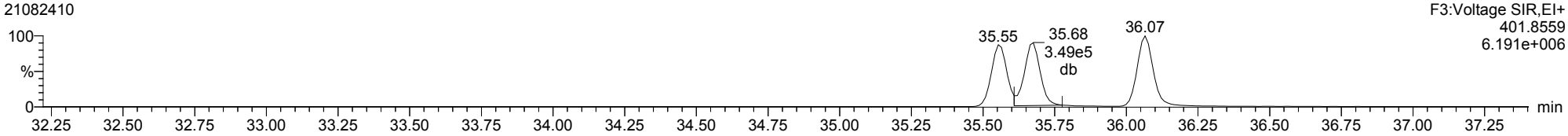

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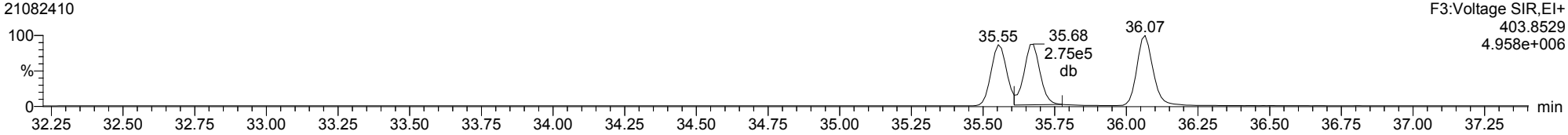

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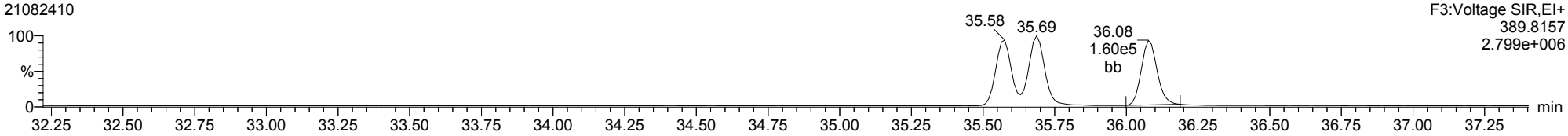

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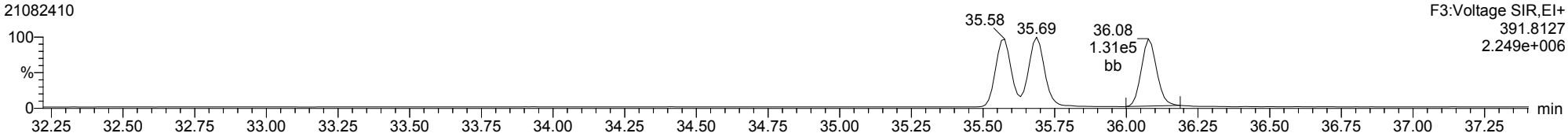

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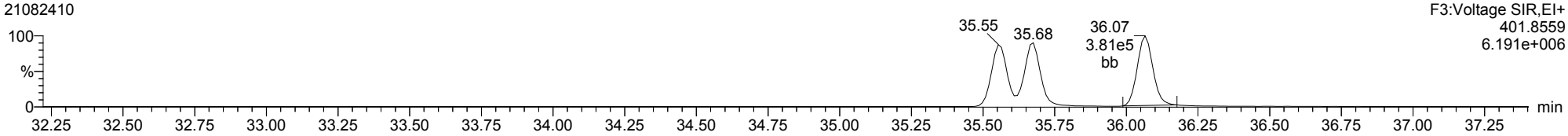

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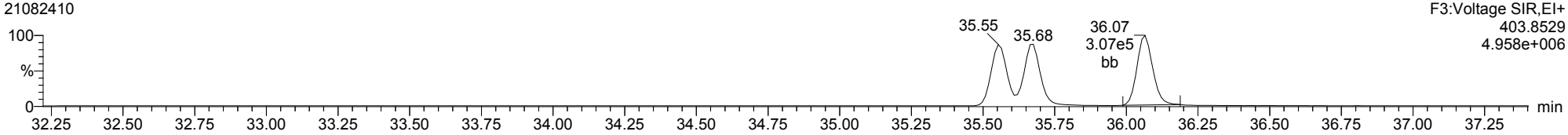

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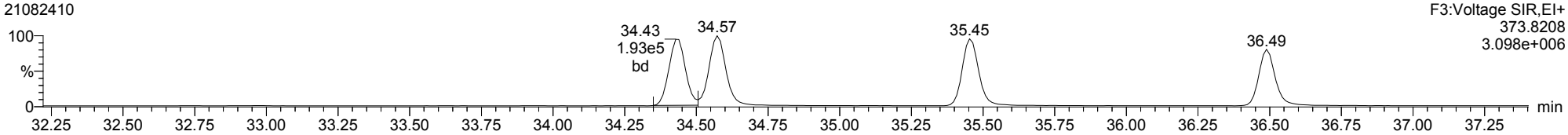

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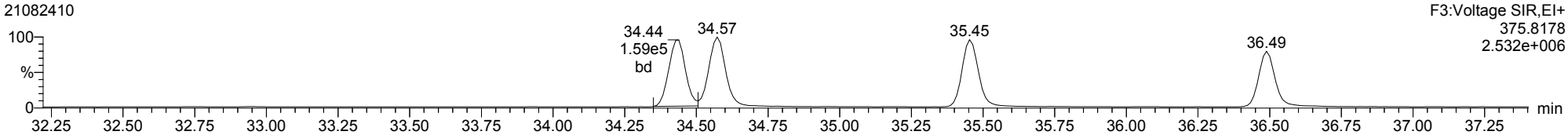

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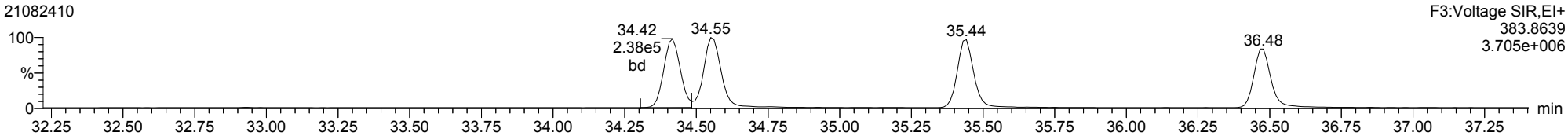

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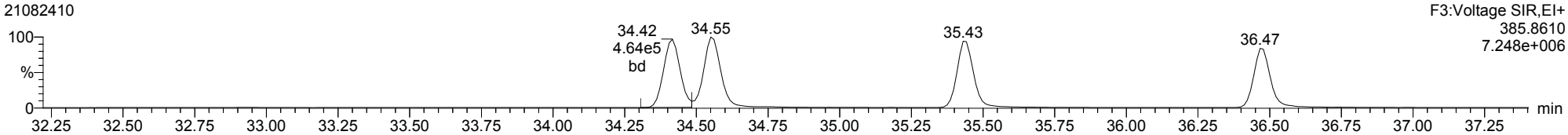

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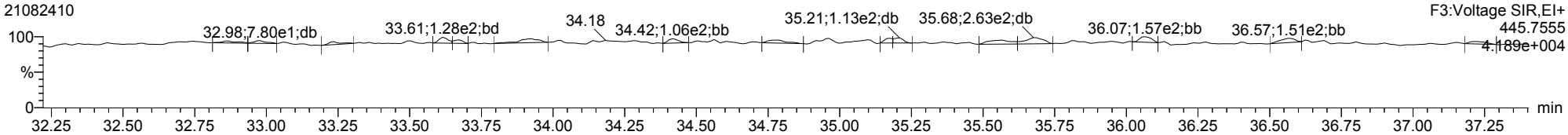

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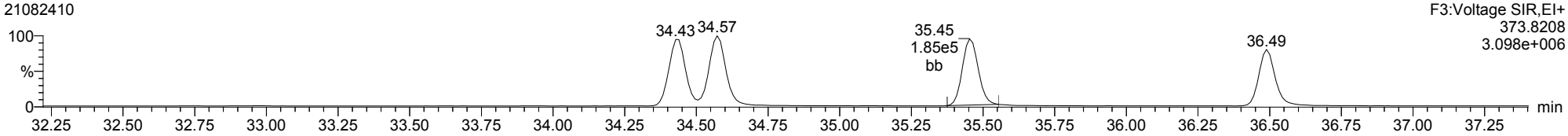

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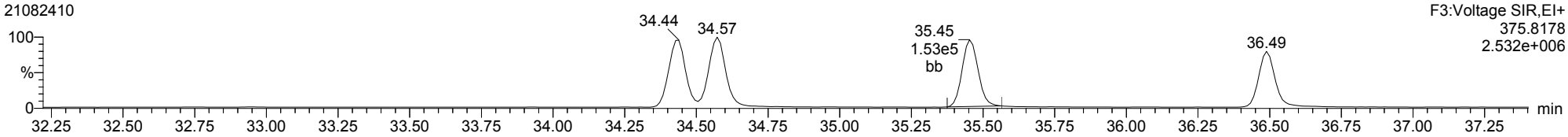

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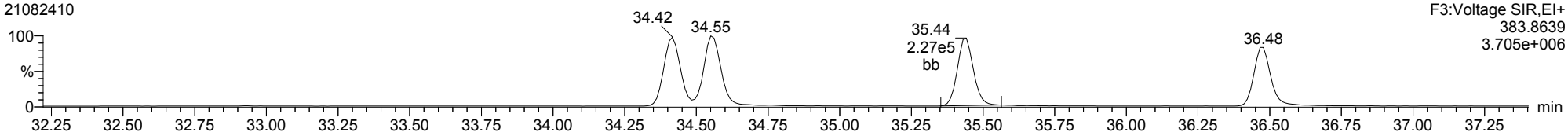

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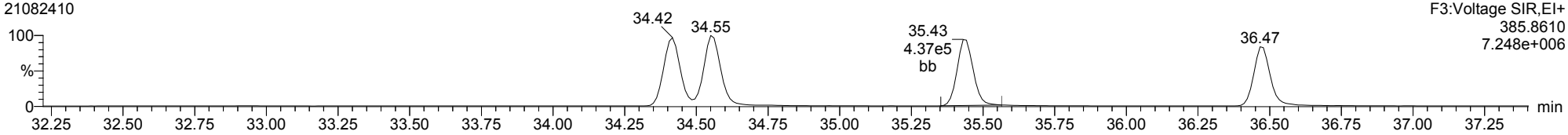

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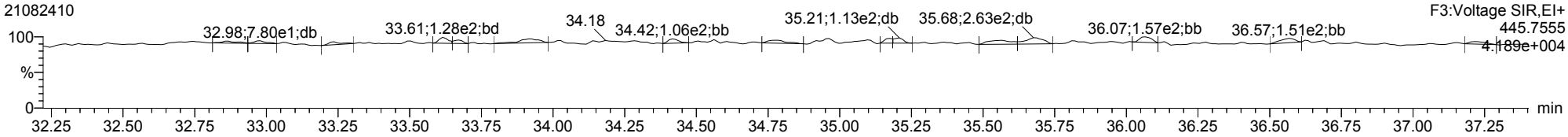

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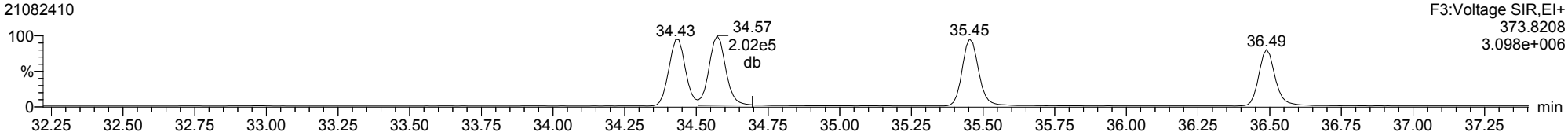

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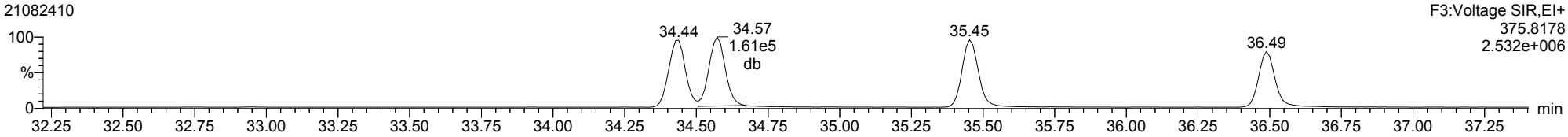

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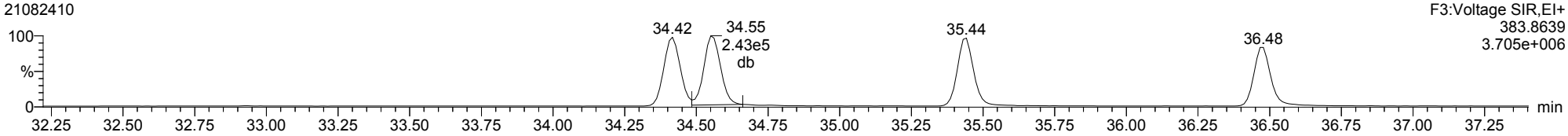

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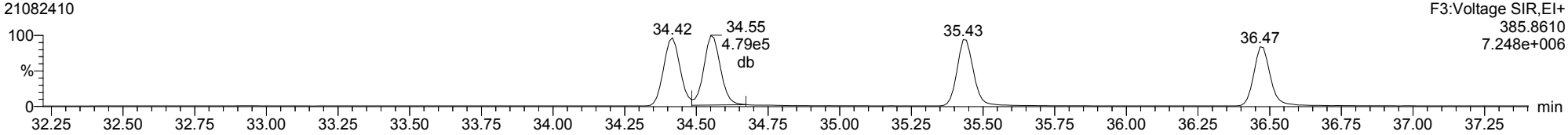

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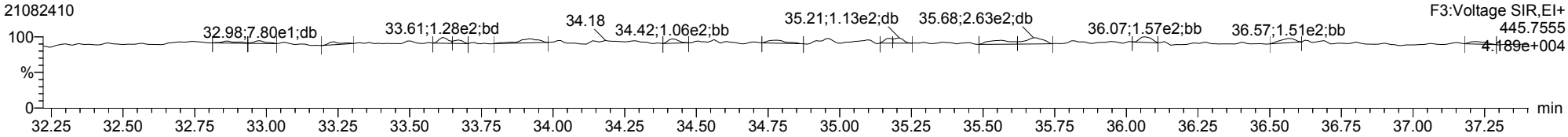

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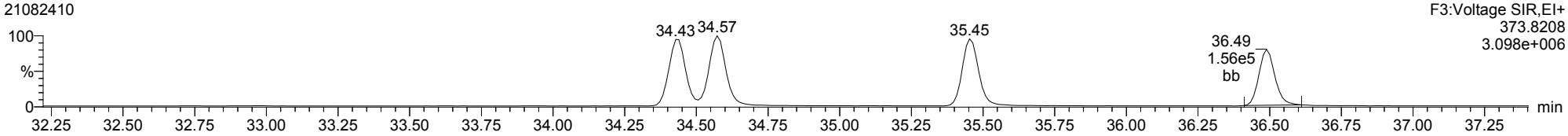

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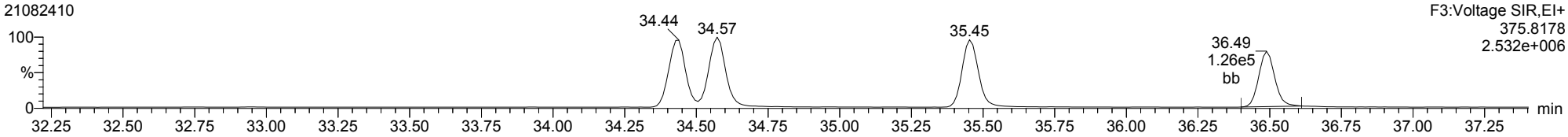

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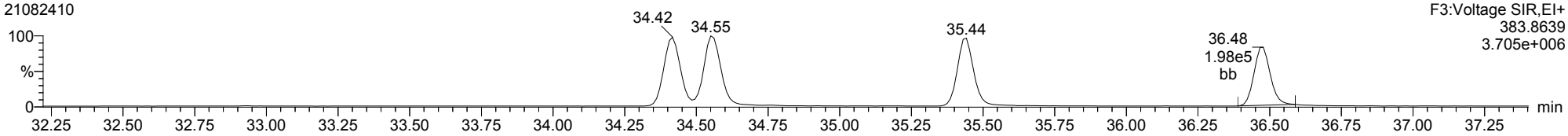

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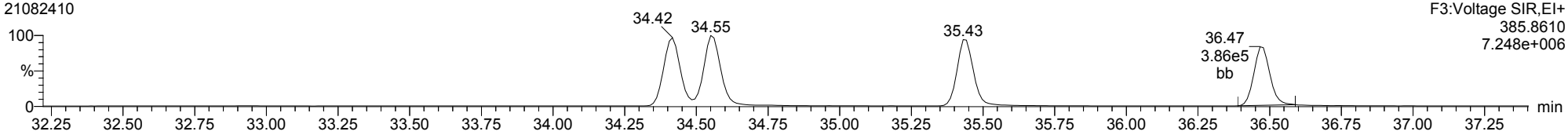

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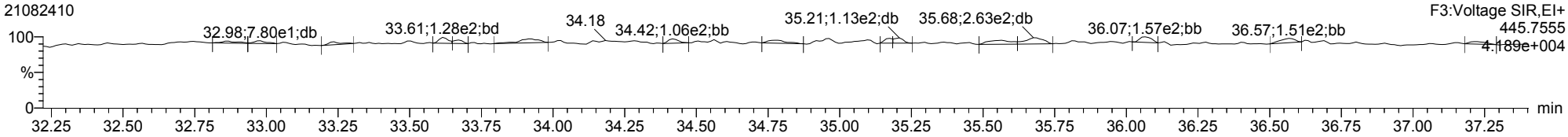

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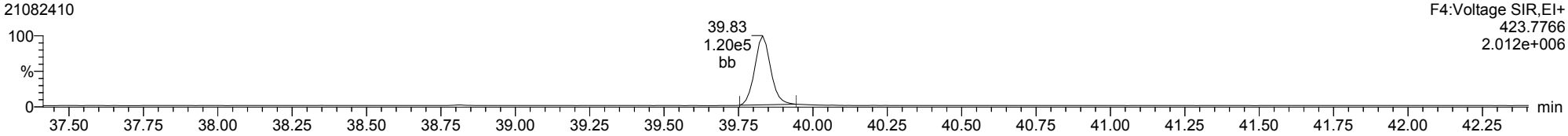

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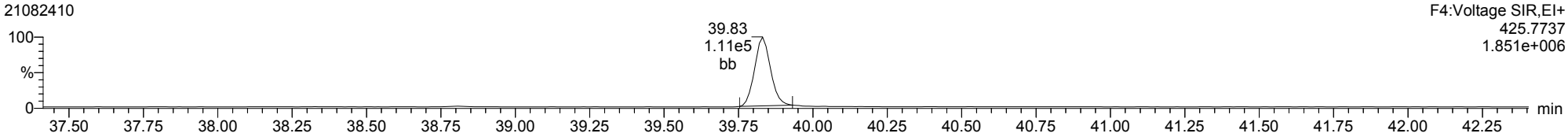

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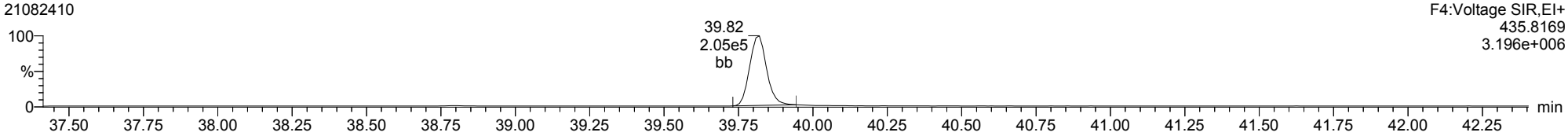

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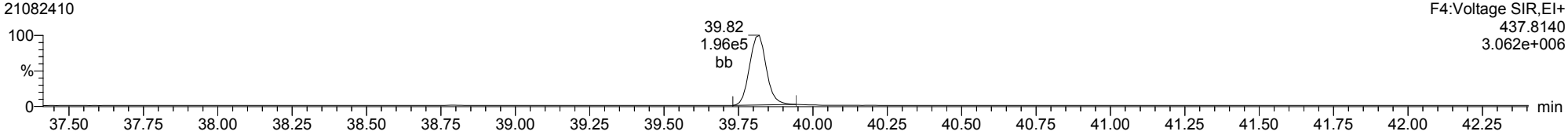
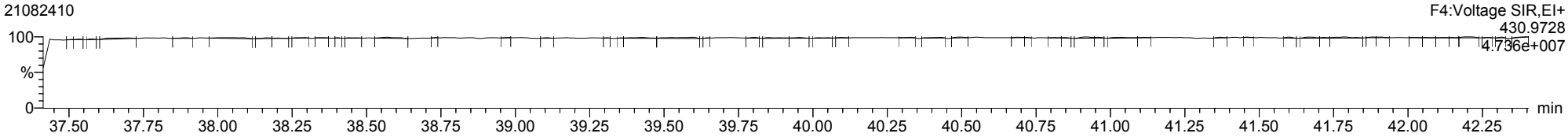


FUNCTION4 PFK



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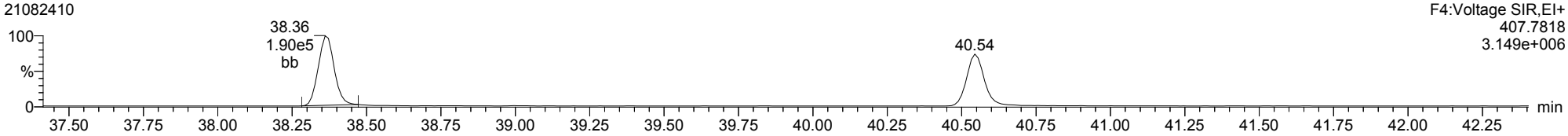

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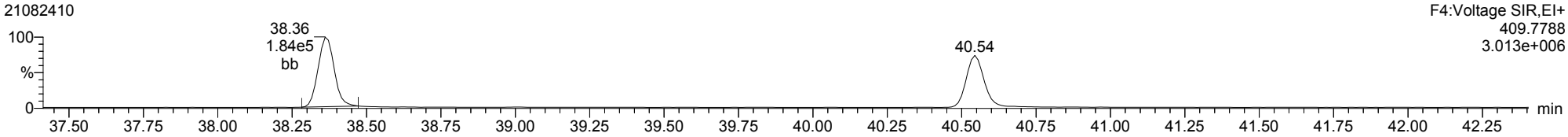

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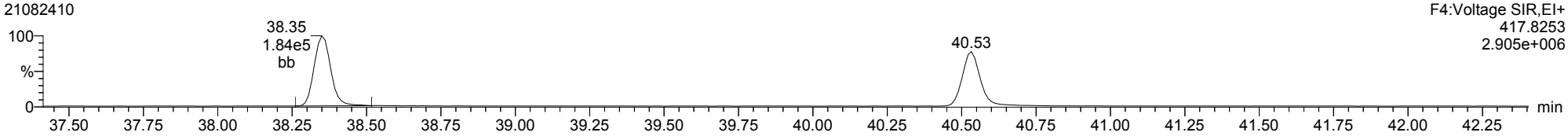

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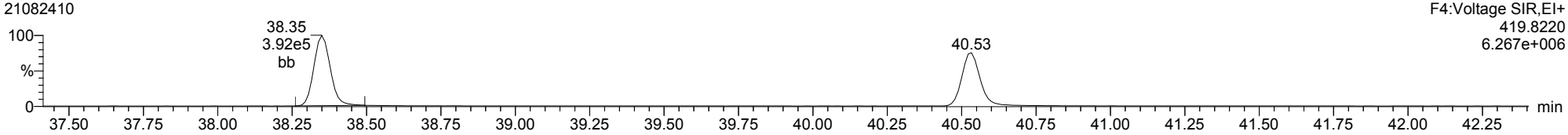

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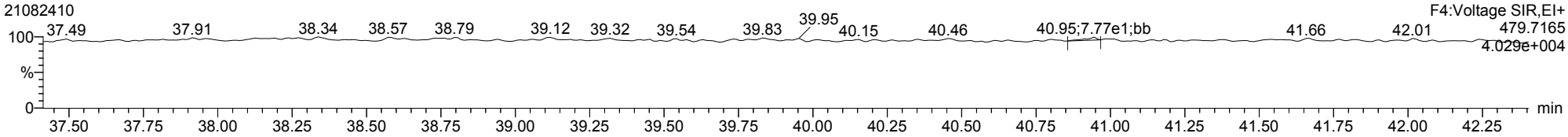

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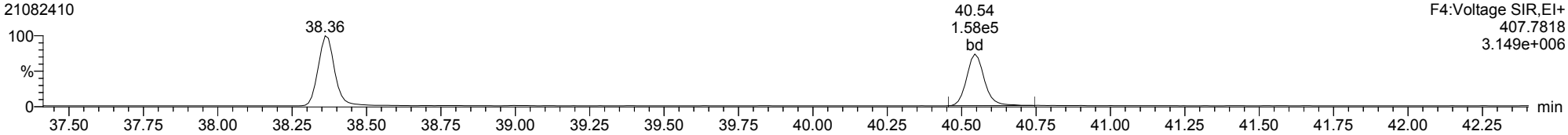

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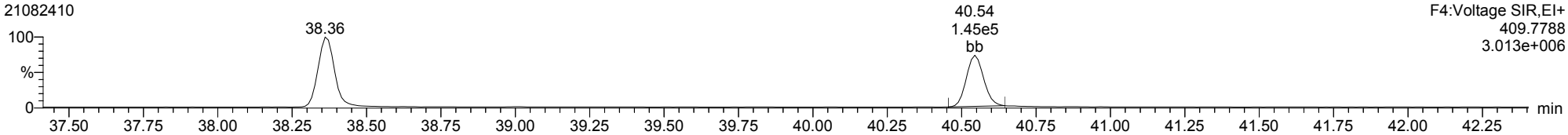

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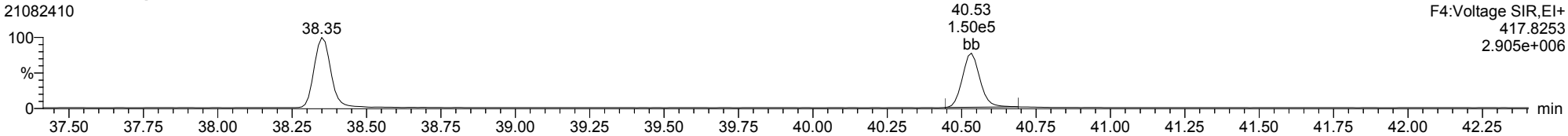

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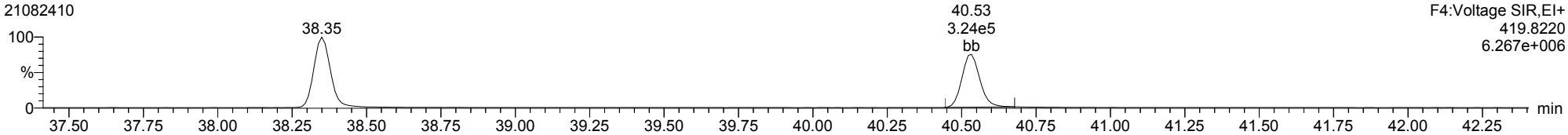
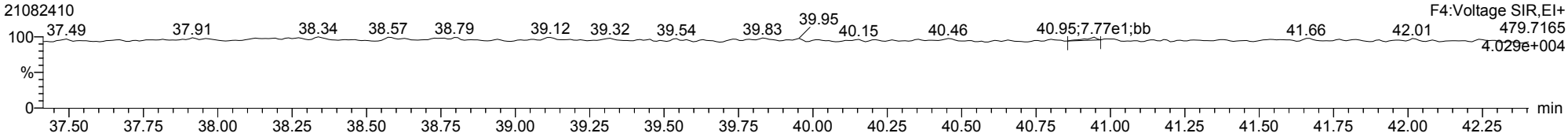
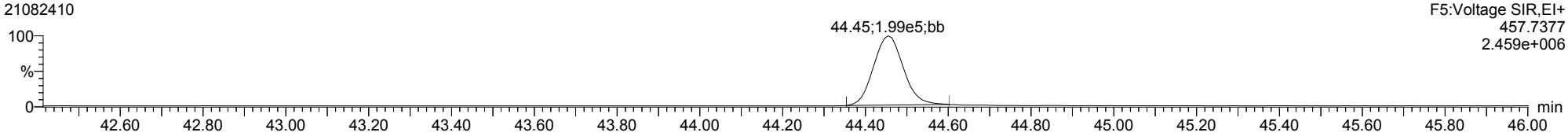


FUNCTION4 NCDPE

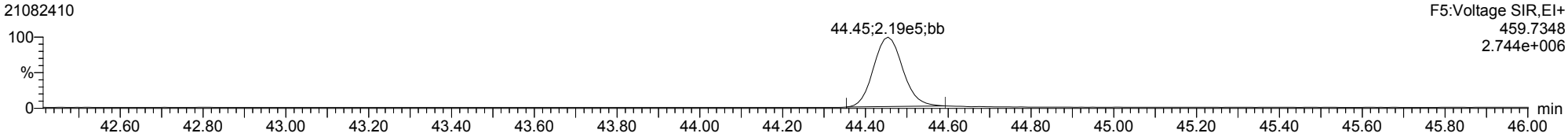


ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

OCDD



OCDD



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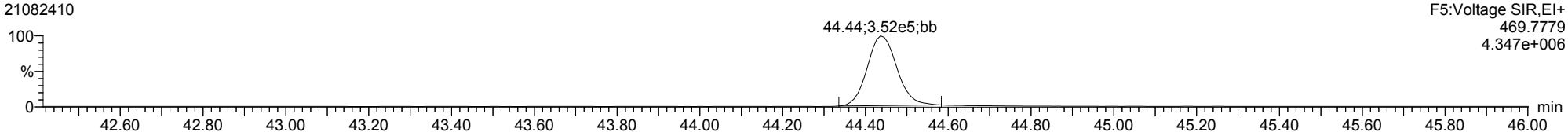

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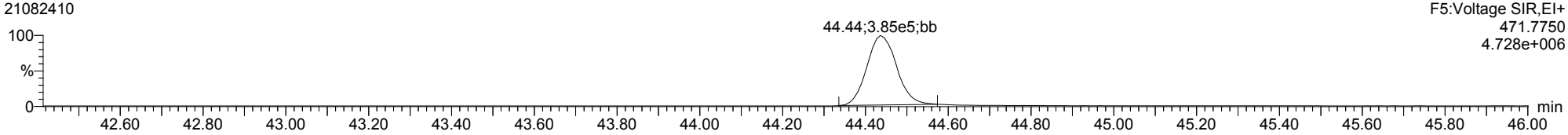
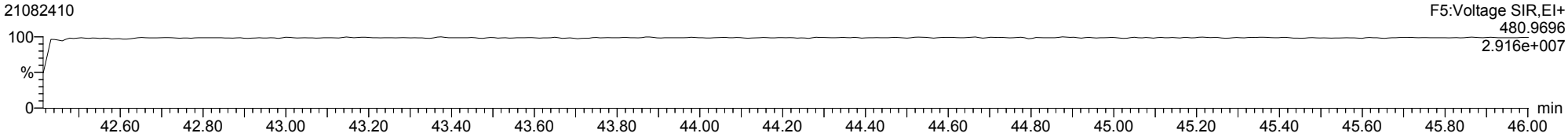
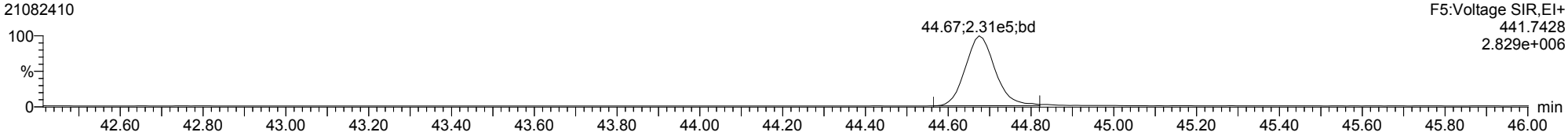


FUNCTION5 PFK

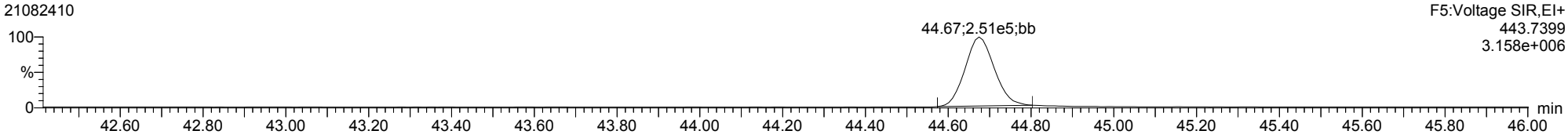


ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

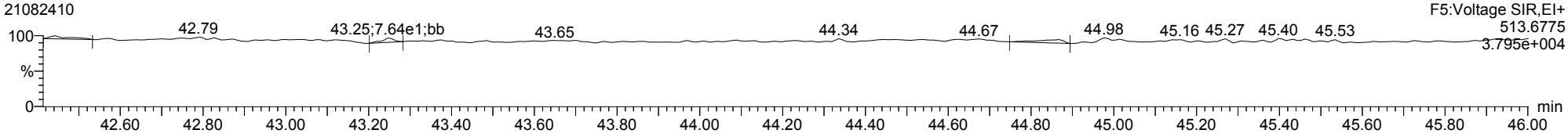
OCDF



OCDF

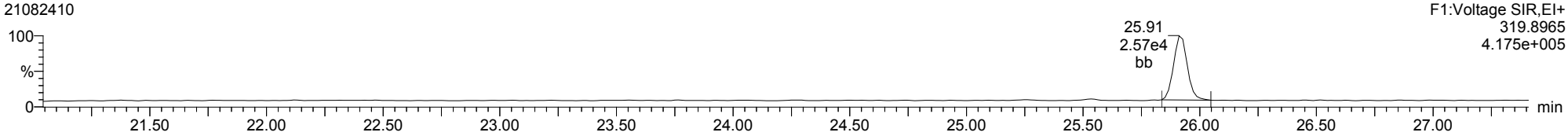


FUNCTION5 DCDPE

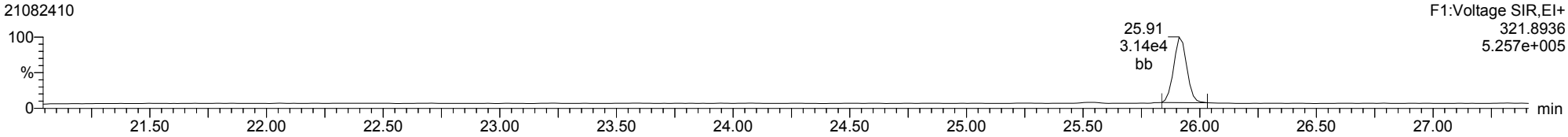


ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

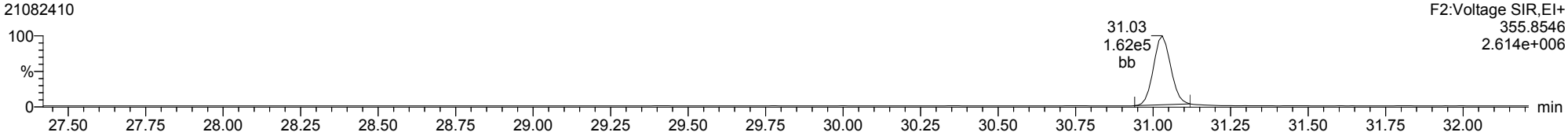
Total-tetradioxins



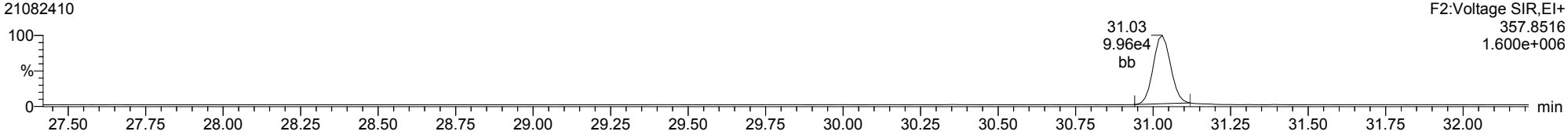
Total-tetradioxins



Total-pentadioxins

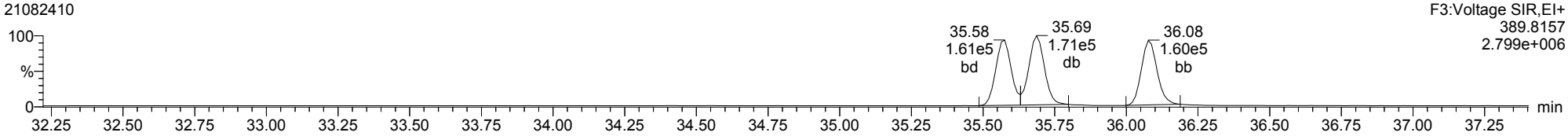


Total-pentadioxins

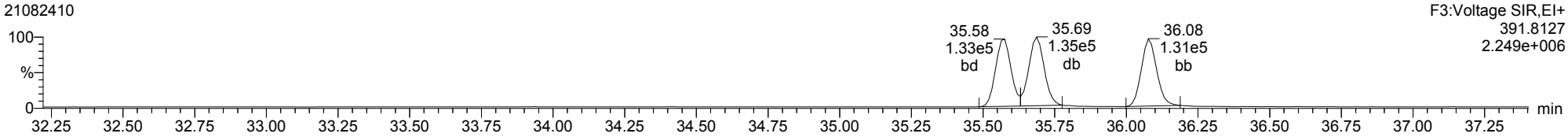


ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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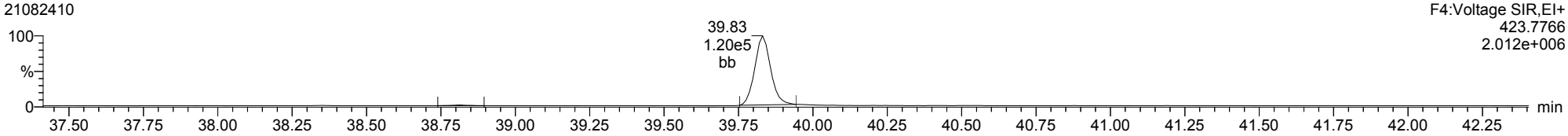
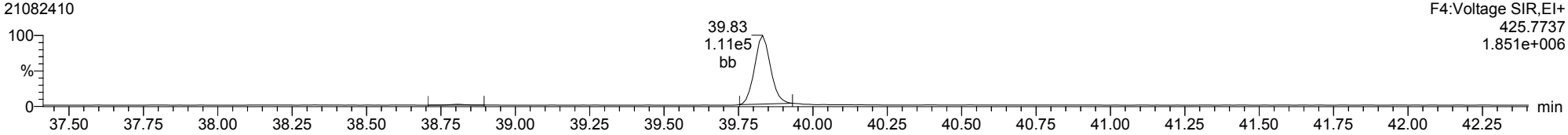
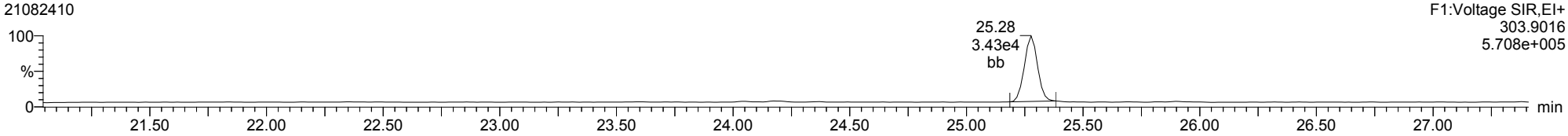


Total-heptadioxins

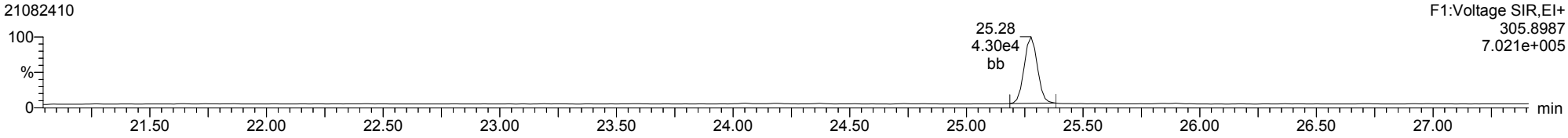


ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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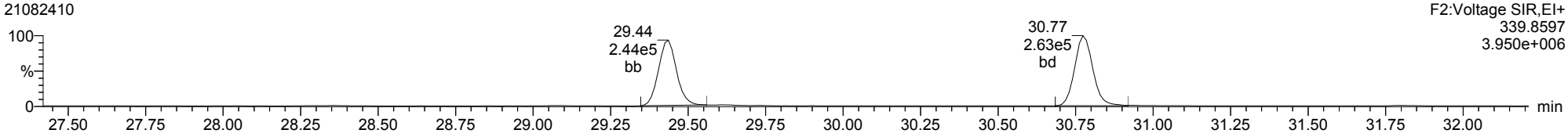

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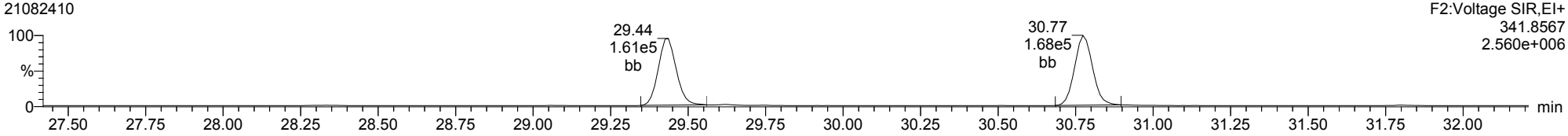

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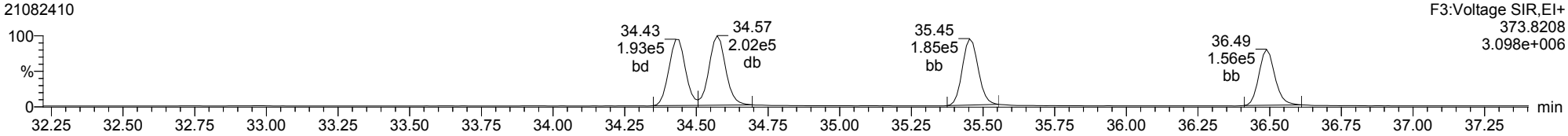
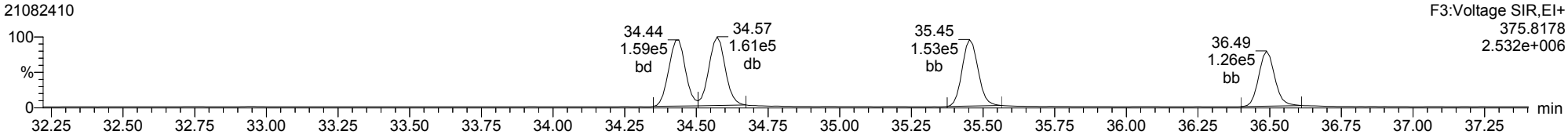
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:22:40 Pacific Daylight Time

ID: BJH0186-BS1, Name: 21082410, Date: 24-Aug-2021, Time: 19:29:20, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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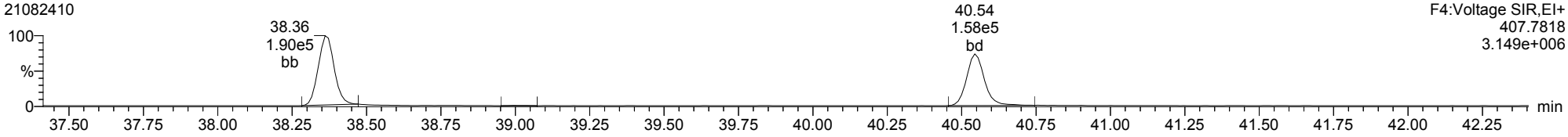

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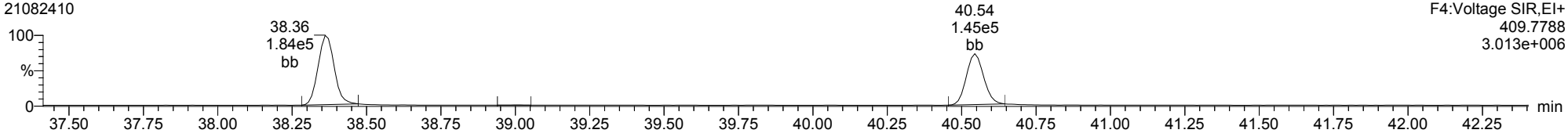

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LCS RECOVERY
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Matrix:	Solid	Analyzed:	09/15/21 16:54
Batch:	BJH0645	Laboratory ID:	BJH0645-BS1
Preparation:	EPA 1613	Sequence Name:	LCS
Initial/Final:	10 g / 20 uL		

COMPOUND	SPIKE ADDED (ng/kg wet)	LCS CONCENTRATION (ng/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
2,3,7,8-TCDF	20.0	20.6		103	75 - 158
2,3,7,8-TCDD	20.0	20.8		104	67 - 158
1,2,3,7,8-PeCDF	100	93.6		93.6	80 - 134
2,3,4,7,8-PeCDF	100	95.0		95.0	68 - 160
1,2,3,7,8-PeCDD	100	112		112	70 - 142
1,2,3,4,7,8-HxCDF	100	96.4		96.4	72 - 134
1,2,3,6,7,8-HxCDF	100	97.8		97.8	84 - 130
2,3,4,6,7,8-HxCDF	100	96.2		96.2	70 - 156
1,2,3,7,8,9-HxCDF	100	99.1		99.1	78 - 130
1,2,3,4,7,8-HxCDD	100	95.8		95.8	70 - 164
1,2,3,6,7,8-HxCDD	100	99.8		99.8	76 - 134
1,2,3,7,8,9-HxCDD	100	103		103	64 - 162
1,2,3,4,6,7,8-HpCDF	100	124		124	82 - 132
1,2,3,4,7,8,9-HpCDF	100	99.8		99.8	78 - 138
1,2,3,4,6,7,8-HpCDD	100	106		106	70 - 140
OCDF	200	161		80.5	63 - 170
OCDD	200	194	B	97.1	78 - 144

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:13 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.776	1.001	2.015e4	2.621e4	1.108	0.769	0.770	1181	1293	3.22e5	4.11e5	272.8	317.5	NO	bb	bb	10.317
12378-PeCDF	29.932	1.001	1.389e5	9.220e4	1.015	1.507	1.550	929	1104	2.21e6	1.46e6	2376.5	1320.7	NO	bb	bb	46.812
23478-PeCDF	31.269	1.000	1.354e5	9.207e4	1.126	1.471	1.550	929	1104	2.07e6	1.40e6	2226.6	1265.6	NO	bb	bb	47.500
123478-HxCDF	34.890	1.001	8.937e4	7.370e4	1.017	1.213	1.240	1632	1048	1.47e6	1.21e6	899.9	1158.9	NO	bd	bd	48.190
234678-HxCDF	35.904	1.001	8.792e4	7.260e4	1.052	1.211	1.240	1632	1048	1.46e6	1.19e6	895.9	1136.3	NO	bb	bb	48.083
123678-HxCDF	35.035	1.001	1.024e5	8.247e4	1.037	1.242	1.240	1632	1048	1.64e6	1.33e6	1003.6	1265.9	NO	db	db	48.914
123789-HxCDF	36.940	1.001	6.960e4	5.414e4	1.030	1.286	1.240	1632	1048	1.06e6	8.65e5	650.2	824.9	NO	bb	bb	49.560
1234678-HpCDF	38.767	1.000	1.022e5	1.011e5	1.327	1.011	1.050	1222	1078	1.68e6	1.66e6	1371.6	1538.3	NO	bd	bb	61.957
1234789-HpCDF	41.017	1.000	6.257e4	6.028e4	1.283	1.038	1.050	1222	1078	9.66e5	8.96e5	790.5	831.5	NO	bb	bb	49.917
OCDF	45.252	1.006	8.336e4	9.282e4	1.447	0.898	0.890	742	1212	1.02e6	1.14e6	1369.1	937.7	NO	bb	bb	80.533
2378-TCDD	26.411	1.001	1.418e4	1.776e4	0.920	0.799	0.770	1024	790	2.12e5	2.75e5	206.6	347.8	NO	bd	bb	10.381
12378-PeCDD	31.514	1.000	8.922e4	5.421e4	0.995	1.646	1.550	897	760	1.42e6	8.39e5	1585.3	1104.0	NO	bb	bb	55.798
123478-HxCDD	36.004	1.000	8.048e4	6.508e4	1.027	1.237	1.240	1143	1139	1.37e6	1.11e6	1202.0	975.8	NO	bd	bd	47.904
123678-HxCDD	36.126	1.001	8.491e4	6.767e4	1.009	1.255	1.240	1143	1139	1.38e6	1.12e6	1202.6	979.6	NO	db	db	49.890
123789-HxCDD	36.516	1.011	8.131e4	6.539e4	0.950	1.243	1.240	1143	1139	1.37e6	1.12e6	1198.3	981.0	NO	bb	bb	51.545
1234678-HpCDD	40.271	1.000	5.429e4	5.067e4	1.068	1.071	1.050	847	701	8.69e5	8.37e5	1025.1	1195.0	NO	bb	bb	52.934
OCDD	45.005	1.000	8.284e4	9.046e4	1.181	0.916	0.890	1056	1047	1.02e6	1.14e6	967.9	1084.8	NO	bb	bb	97.069
13C-2378-TCDF	25.761	1.007	1.814e5	2.242e5	1.427	0.809	0.770	1872	1498	2.82e6	3.47e6	1508.5	2319.8	NO	bb	bb	53.057
13C-12378-PeCDF	29.910	1.169	3.016e5	1.849e5	1.297	1.631	1.550	863	1085	4.81e6	2.91e6	5575.1	2681.6	NO	bb	bb	69.968
13C-23478-PeCDF	31.258	1.222	2.634e5	1.620e5	1.236	1.626	1.550	863	1085	3.97e6	2.44e6	4600.7	2251.0	NO	bb	bb	64.204
13C-123478-HxCDF	34.867	0.955	1.129e5	2.199e5	1.242	0.513	0.510	1084	1492	1.80e6	3.50e6	1660.4	2346.1	NO	bd	bd	66.797
13C-123678-HxCDF	35.012	0.959	1.239e5	2.406e5	1.343	0.515	0.510	1084	1492	1.99e6	3.89e6	1839.0	2609.5	NO	db	db	67.666
13C-234678-HxCDF	35.881	0.983	1.077e5	2.095e5	1.215	0.514	0.510	1084	1492	1.76e6	3.44e6	1620.6	2307.9	NO	bb	bb	65.120
13C-123789-HxCDF	36.917	1.012	8.218e4	1.602e5	1.008	0.513	0.510	1084	1492	1.37e6	2.70e6	1261.4	1810.1	NO	bb	bb	59.985
13C-1234678-HpCDF	38.756	1.062	7.882e4	1.685e5	0.926	0.468	0.440	1112	1044	1.33e6	2.81e6	1197.1	2693.8	NO	bb	bb	66.576
13C-1234789-HpCDF	41.006	1.124	6.247e4	1.293e5	0.758	0.483	0.440	1112	1044	8.90e5	1.94e6	800.5	1859.2	NO	bd	bb	63.105
13C-1234-TCDD	25.579	0.000	2.314e5	3.046e5	1.000	0.760	0.770	1382	1167	3.64e6	4.79e6	2637.1	4102.7	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.031	1.438e5	1.905e5	1.116	0.755	0.770	1382	1167	2.22e6	2.95e6	1607.7	2524.5	NO	bb	bb	55.876
13C-12378-PeCDD	31.503	1.232	1.585e5	9.975e4	0.732	1.589	1.550	826	1186	2.43e6	1.53e6	2946.4	1287.3	NO	bb	bb	65.832
13C-123478-HxCDD	35.993	0.986	1.647e5	1.310e5	0.960	1.257	1.240	1216	1235	2.78e6	2.19e6	2284.6	1775.2	NO	bd	bd	76.855
13C-123678-HxCDD	36.104	0.989	1.679e5	1.352e5	1.041	1.242	1.240	1216	1235	2.72e6	2.22e6	2237.4	1794.3	NO	db	db	72.592
13C-1234678-HpCDD	40.260	1.103	9.577e4	8.987e4	0.632	1.066	1.050	713	658	1.44e6	1.37e6	2015.4	2088.8	NO	bd	bb	73.204
13C-OCDD	44.987	1.233	1.450e5	1.574e5	0.504	0.922	0.890	871	1010	1.84e6	1.97e6	2118.1	1946.8	NO	bb	bb	149.712
13C-123789-HxCDD	36.494	0.000	2.243e5	1.766e5	1.000	1.270	1.240	1216	1235	3.64e6	2.94e6	2994.4	2378.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	1.466e5		1.084			908		2.19e6		2405.5			bd		25.241

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:13 Pacific Daylight Time

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.425		0.770	1181	1293								
1289-TCDF	27.303	1.060	5.908e2	6.317e2	1.043	0.935	0.770	1181	1293	5.22e3	7.06e3	4.4	5.5	YES	db	db	0.289
13468-PECDF	27.046	0.904	2.112e2	9.874e1	1.376	2.139	1.550	678	979	4.00e3	1.76e3	5.9	1.8	YES	bd	bb	0.046
12389-PECDF	32.327	1.081	9.154e2	6.029e2	1.000	1.518	1.550	929	1104	1.36e4	9.74e3	14.7	8.8	NO	bb	bb	0.312
123468-HXCDF	33.218	0.953	1.130e3	8.033e2	1.087	1.406	1.240	1632	1048	1.72e4	1.11e4	10.6	10.6	NO	bd	bb	0.535
1368-TCDD					0.923		0.770	1024	790								
1289-TCDD					0.794		0.770	1024	790								
12479-PECDD					1.843		1.550	897	760								
12389-PECDD					1.154		1.550	897	760								
124679-HXCDD					1.125		1.240	1143	1139								
1234679-HPCDD	39.213	0.974	9.561e2	1.076e3	1.211	0.889	1.050	847	701	1.73e4	1.57e4	20.4	22.3	YES	bb	bb	0.904
Total-tetrafurans			2.460e4		1.192			1181		3.90e5							12.380
Total-penta1			0.000e0					678		0.00e0							
Total-pentafurans			2.866e5		1.047			929		4.46e6							98.656
Total-hexafurans			3.526e5		1.045			1632		5.68e6							196.464
Total-heptafurans			1.648e5		1.305			1222		2.64e6							111.874
Total-Furans			9.120e5		1.158			1181		1.42e7							499.908
Total-tetradioxins			1.418e4		0.879			1024		2.12e5							10.381
Total-pentadioxins			8.922e4		1.331			897		1.42e6							55.798
Total-hexadioxins			2.467e5		1.028			1143		4.12e6							149.338
Total-heptadioxins			5.429e4		1.140			847		8.69e5							52.934
Total-Dioxins			4.872e5		1.092			1024		7.64e6							365.519
Total-TEQ			1.399e6					1024		2.18e7							865.427
FUNCTION1 PFK			1.778e7					749111		1.12e8							
FUNCTION2 PFK			2.189e7					592675		1.61e8							0.000
FUNCTION3 PFK			1.107e6					351812		2.25e7							0.000
FUNCTION4 PFK			1.488e7					284325		1.04e8							
FUNCTION5 PFK			1.259e5					170615		4.32e6							
FUNCTION1 HXCD...			8.672e2					642		1.14e4							0.000
FUNCTION1 HPCD...			7.262e2					912		1.25e4							0.000
FUNCTION2 HPCD...			4.024e2					872		1.10e4							0.000
FUNCTION3 OCDPE			5.266e2					506		8.25e3							0.000
FUNCTION4 NCDPE			0.000e0					588		0.00e0							
FUNCTION5 DCDPE			0.000e0					544		0.00e0							

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.78	2.015e4	2.621e4	1.108	0.77	0.77	272.8	YES	NO	bb	bb	10.317
2	Total-tetrafurans	24.87	8.395e2	1.007e3	1.192	0.83	0.77	11.2	YES	NO	db	db	0.382
3	Total-tetrafurans	24.67	3.154e3	3.995e3	1.192	0.79	0.77	40.3	YES	NO	dd	dd	1.479
4	Total-tetrafurans	24.52	4.555e2	5.282e2	1.192	0.86	0.77	5.7	YES	NO	bd	bd	0.203

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.93	1.389e5	9.220e4	1.015	1.51	1.55	2376.5	YES	NO	bb	bb	46.812
2	Total-pentafurans	29.56	4.865e3	3.336e3	1.047	1.46	1.55	77.4	YES	NO	bb	bb	1.718
3	Total-pentafurans	28.84	4.111e3	2.883e3	1.047	1.43	1.55	61.9	YES	NO	db	db	1.465
4	Total-pentafurans	28.76	2.393e3	1.658e3	1.047	1.44	1.55	46.7	YES	NO	bd	bd	0.849
5	12389-PECDF	32.33	9.154e2	6.029e2	1.000	1.52	1.55	14.7	YES	NO	bb	bb	0.312
6	23478-PeCDF	31.27	1.354e5	9.207e4	1.126	1.47	1.55	2226.6	YES	NO	bb	bb	47.500

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	6.960e4	5.414e4	1.030	1.29	1.24	650.2	YES	NO	bb	bb	49.560
2	234678-HxCDF	35.90	8.792e4	7.260e4	1.052	1.21	1.24	895.9	YES	NO	bb	bb	48.083
3	123678-HxCDF	35.03	1.024e5	8.247e4	1.037	1.24	1.24	1003.6	YES	NO	db	db	48.914
4	123478-HxCDF	34.89	8.937e4	7.370e4	1.017	1.21	1.24	899.9	YES	NO	bd	bd	48.190
5	Total-hexafurans	33.43	2.219e3	1.662e3	1.045	1.33	1.24	19.6	YES	NO	db	bb	1.183
6	123468-HXCDF	33.22	1.130e3	8.033e2	1.087	1.41	1.24	10.6	YES	NO	bd	bb	0.535

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.77	1.022e5	1.011e5	1.327	1.01	1.05	1371.6	YES	NO	bd	bb	61.957
2	1234789-HpCDF	41.02	6.257e4	6.028e4	1.283	1.04	1.05	790.5	YES	NO	bb	bb	49.917

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.78	2.015e4	2.621e4	1.108	0.77	0.77	272.8	YES	NO	bb	bb	10.317
2	Total-tetrafurans	24.87	8.395e2	1.007e3	1.192	0.83	0.77	11.2	YES	NO	db	db	0.382
3	Total-tetrafurans	24.67	3.154e3	3.995e3	1.192	0.79	0.77	40.3	YES	NO	dd	dd	1.479
4	Total-tetrafurans	24.52	4.555e2	5.282e2	1.192	0.86	0.77	5.7	YES	NO	bd	bd	0.203
5	12378-PeCDF	29.93	1.389e5	9.220e4	1.015	1.51	1.55	2376.5	YES	NO	bb	bb	46.812
6	Total-pentafurans	29.56	4.865e3	3.336e3	1.047	1.46	1.55	77.4	YES	NO	bb	bb	1.718
7	Total-pentafurans	28.84	4.111e3	2.883e3	1.047	1.43	1.55	61.9	YES	NO	db	db	1.465
8	Total-pentafurans	28.76	2.393e3	1.658e3	1.047	1.44	1.55	46.7	YES	NO	bd	bd	0.849
9	12389-PECDF	32.33	9.154e2	6.029e2	1.000	1.52	1.55	14.7	YES	NO	bb	bb	0.312
10	23478-PeCDF	31.27	1.354e5	9.207e4	1.126	1.47	1.55	2226.6	YES	NO	bb	bb	47.500
11	123789-HxCDF	36.94	6.960e4	5.414e4	1.030	1.29	1.24	650.2	YES	NO	bb	bb	49.560
12	234678-HxCDF	35.90	8.792e4	7.260e4	1.052	1.21	1.24	895.9	YES	NO	bb	bb	48.083
13	123678-HxCDF	35.03	1.024e5	8.247e4	1.037	1.24	1.24	1003.6	YES	NO	db	db	48.914
14	123478-HxCDF	34.89	8.937e4	7.370e4	1.017	1.21	1.24	899.9	YES	NO	bd	bd	48.190
15	Total-hexafurans	33.43	2.219e3	1.662e3	1.045	1.33	1.24	19.6	YES	NO	db	bb	1.183
16	123468-HXCDF	33.22	1.130e3	8.033e2	1.087	1.41	1.24	10.6	YES	NO	bd	bb	0.535
17	1234678-HpCDF	38.77	1.022e5	1.011e5	1.327	1.01	1.05	1371.6	YES	NO	bd	bb	61.957
18	OCDF	45.25	8.336e4	9.282e4	1.447	0.90	0.89	1369.1	YES	NO	bb	bb	80.533
19	1234789-HpCDF	41.02	6.257e4	6.028e4	1.283	1.04	1.05	790.5	YES	NO	bb	bb	49.917

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.41	1.418e4	1.776e4	0.920	0.80	0.77	206.6	YES	NO	bd	bb	10.381

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.51	8.922e4	5.421e4	0.995	1.65	1.55	1585.3	YES	NO	bb	bb	55.798

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.52	8.131e4	6.539e4	0.950	1.24	1.24	1198.3	YES	NO	bb	bb	51.545
2	123678-HxCDD	36.13	8.491e4	6.767e4	1.009	1.25	1.24	1202.6	YES	NO	db	db	49.890
3	123478-HxCDD	36.00	8.048e4	6.508e4	1.027	1.24	1.24	1202.0	YES	NO	bd	bd	47.904

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:13 Pacific Daylight Time

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	5.429e4	5.067e4	1.068	1.07	1.05	1025.1	YES	NO	bb	bb	52.934

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.41	1.418e4	1.776e4	0.920	0.80	0.77	206.6	YES	NO	bd	bb	10.381
2	123789-HxCDD	36.52	8.131e4	6.539e4	0.950	1.24	1.24	1198.3	YES	NO	bb	bb	51.545
3	123678-HxCDD	36.13	8.491e4	6.767e4	1.009	1.25	1.24	1202.6	YES	NO	db	db	49.890
4	123478-HxCDD	36.00	8.048e4	6.508e4	1.027	1.24	1.24	1202.0	YES	NO	bd	bd	47.904
5	12378-PeCDD	31.51	8.922e4	5.421e4	0.995	1.65	1.55	1585.3	YES	NO	bb	bb	55.798
6	1234678-HpCDD	40.27	5.429e4	5.067e4	1.068	1.07	1.05	1025.1	YES	NO	bb	bb	52.934
7	OCDD	45.01	8.284e4	9.046e4	1.181	0.92	0.89	967.9	YES	NO	bb	bb	97.069

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.78	2.015e4	2.621e4	1.108	0.77	0.77	272.8	YES	NO	bb	bb	10.317
2	Total-tetrafurans	24.87	8.395e2	1.007e3	1.192	0.83	0.77	11.2	YES	NO	db	db	0.382
3	Total-tetrafurans	24.67	3.154e3	3.995e3	1.192	0.79	0.77	40.3	YES	NO	dd	dd	1.479
4	Total-tetrafurans	24.52	4.555e2	5.282e2	1.192	0.86	0.77	5.7	YES	NO	bd	bd	0.203
5	12378-PeCDF	29.93	1.389e5	9.220e4	1.015	1.51	1.55	2376.5	YES	NO	bb	bb	46.812
6	Total-pentafurans	29.56	4.865e3	3.336e3	1.047	1.46	1.55	77.4	YES	NO	bb	bb	1.718
7	Total-pentafurans	28.84	4.111e3	2.883e3	1.047	1.43	1.55	61.9	YES	NO	db	db	1.465
8	Total-pentafurans	28.76	2.393e3	1.658e3	1.047	1.44	1.55	46.7	YES	NO	bd	bd	0.849
9	12389-PECDF	32.33	9.154e2	6.029e2	1.000	1.52	1.55	14.7	YES	NO	bb	bb	0.312
10	23478-PeCDF	31.27	1.354e5	9.207e4	1.126	1.47	1.55	2226.6	YES	NO	bb	bb	47.500
11	123789-HxCDF	36.94	6.960e4	5.414e4	1.030	1.29	1.24	650.2	YES	NO	bb	bb	49.560
12	234678-HxCDF	35.90	8.792e4	7.260e4	1.052	1.21	1.24	895.9	YES	NO	bb	bb	48.083
13	123678-HxCDF	35.03	1.024e5	8.247e4	1.037	1.24	1.24	1003.6	YES	NO	db	db	48.914
14	123478-HxCDF	34.89	8.937e4	7.370e4	1.017	1.21	1.24	899.9	YES	NO	bd	bd	48.190
15	Total-hexafurans	33.43	2.219e3	1.662e3	1.045	1.33	1.24	19.6	YES	NO	db	bb	1.183
16	123468-HXCDF	33.22	1.130e3	8.033e2	1.087	1.41	1.24	10.6	YES	NO	bd	bb	0.535
17	1234678-HpCDF	38.77	1.022e5	1.011e5	1.327	1.01	1.05	1371.6	YES	NO	bd	bb	61.957
18	OCDF	45.25	8.336e4	9.282e4	1.447	0.90	0.89	1369.1	YES	NO	bb	bb	80.533
19	1234789-HpCDF	41.02	6.257e4	6.028e4	1.283	1.04	1.05	790.5	YES	NO	bb	bb	49.917
20	2378-TCDD	26.41	1.418e4	1.776e4	0.920	0.80	0.77	206.6	YES	NO	bd	bb	10.381
21	123789-HxCDD	36.52	8.131e4	6.539e4	0.950	1.24	1.24	1198.3	YES	NO	bb	bb	51.545
22	123678-HxCDD	36.13	8.491e4	6.767e4	1.009	1.25	1.24	1202.6	YES	NO	db	db	49.890
23	123478-HxCDD	36.00	8.048e4	6.508e4	1.027	1.24	1.24	1202.0	YES	NO	bd	bd	47.904
24	12378-PeCDD	31.51	8.922e4	5.421e4	0.995	1.65	1.55	1585.3	YES	NO	bb	bb	55.798
25	1234678-HpCDD	40.27	5.429e4	5.067e4	1.068	1.07	1.05	1025.1	YES	NO	bb	bb	52.934
26	OCDD	45.01	8.284e4	9.046e4	1.181	0.92	0.89	967.9	YES	NO	bb	bb	97.069

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.86	8.765e5					10.7	YES		dd		
2	FUNCTION1 PFK	23.63	5.660e6					12.0	YES		bd		
3	FUNCTION1 PFK	23.07	9.776e5					12.0	YES		db		
4	FUNCTION1 PFK	22.96	5.188e5					12.0	YES		dd		
5	FUNCTION1 PFK	22.83	2.813e6					12.2	YES		dd		
6	FUNCTION1 PFK	22.51	6.468e5					11.9	YES		dd		
7	FUNCTION1 PFK	22.45	6.444e5					11.2	YES		bd		
8	FUNCTION1 PFK	22.19	1.703e6					10.9	YES		db		
9	FUNCTION1 PFK	22.07	1.059e6					9.8	YES		bd		
10	FUNCTION1 PFK	21.84	2.616e5					5.1	YES		bb		
11	FUNCTION1 PFK	21.60	1.807e4					0.8	NO		bb		
12	FUNCTION1 PFK	21.19	1.578e5					2.8	NO		db		
13	FUNCTION1 PFK	21.13	9.265e4					3.4	YES		bd		
14	FUNCTION1 PFK	27.30	7.880e4					1.9	NO		bb		
15	FUNCTION1 PFK	26.80	2.280e4					1.0	NO		bb		
16	FUNCTION1 PFK	25.14	9.844e4					2.4	NO		bb		
17	FUNCTION1 PFK	24.26	9.080e5					9.0	YES		db		
18	FUNCTION1 PFK	24.10	5.292e5					9.6	YES		dd		
19	FUNCTION1 PFK	24.05	7.143e5					10.3	YES		dd		

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.48	3.930e5					6.7	YES		db		0.000
2	FUNCTION2 PFK	29.22	1.584e6					14.2	YES		dd		0.000
3	FUNCTION2 PFK	29.16	3.977e5					15.8	YES		dd		0.000
4	FUNCTION2 PFK	29.03	2.546e6					20.4	YES		dd		0.000
5	FUNCTION2 PFK	28.81	4.266e6					27.3	YES		dd		0.000
6	FUNCTION2 PFK	28.59	6.589e6					33.3	YES		dd		0.000
7	FUNCTION2 PFK	28.34	1.061e6					40.8	YES		dd		0.000
8	FUNCTION2 PFK	28.28	1.336e6					40.8	YES		dd		0.000
9	FUNCTION2 PFK	28.18	3.066e6					44.7	YES		bd		0.000
10	FUNCTION2 PFK	31.46	8.297e3					0.7	NO		bd		0.000
11	FUNCTION2 PFK	31.36	8.784e3					0.8	NO		bb		0.000
12	FUNCTION2 PFK	31.16	2.034e4					1.0	NO		bb		0.000
13	FUNCTION2 PFK	30.81	4.550e4					1.4	NO		db		0.000
14	FUNCTION2 PFK	30.72	1.184e4					0.9	NO		bd		0.000
15	FUNCTION2 PFK	30.67	3.254e4					1.7	NO		bb		0.000
16	FUNCTION2 PFK	30.61	2.436e4					1.1	NO		bb		0.000
17	FUNCTION2 PFK	30.50	2.426e3					0.4	NO		bb		0.000
18	FUNCTION2 PFK	30.41	1.177e4					0.7	NO		bb		0.000
19	FUNCTION2 PFK	30.30	1.267e4					1.0	NO		db		0.000
20	FUNCTION2 PFK	30.27	3.378e4					1.4	NO		bd		0.000
21	FUNCTION2 PFK	30.01	2.720e3					0.4	NO		bb		0.000
22	FUNCTION2 PFK	29.95	1.115e4					0.6	NO		bb		0.000
23	FUNCTION2 PFK	29.89	9.459e4					2.1	NO		db		0.000
24	FUNCTION2 PFK	29.80	4.595e4					2.2	NO		dd		0.000
25	FUNCTION2 PFK	29.75	3.945e4					2.3	NO		bd		0.000
26	FUNCTION2 PFK	32.64	2.993e4					1.2	NO		bb		0.000
27	FUNCTION2 PFK	32.48	1.078e4					0.8	NO		bb		0.000
28	FUNCTION2 PFK	31.83	2.307e4					1.0	NO		bb		0.000
29	FUNCTION2 PFK	31.77	2.993e4					1.5	NO		bb		0.000
30	FUNCTION2 PFK	31.68	6.680e4					1.8	NO		db		0.000
31	FUNCTION2 PFK	31.59	8.172e4					1.9	NO		dd		0.000

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.47	3.346e3					0.5	NO		bb		0.000
2	FUNCTION3 PFK	34.30	2.076e4					1.3	NO		bb		0.000
3	FUNCTION3 PFK	34.21	1.110e4					1.4	NO		bb		0.000
4	FUNCTION3 PFK	33.88	3.817e3					0.5	NO		bb		0.000
5	FUNCTION3 PFK	33.83	1.242e4					1.5	NO		bb		0.000
6	FUNCTION3 PFK	33.65	5.880e4					2.1	NO		db		0.000
7	FUNCTION3 PFK	33.55	1.750e4					1.6	NO		bd		0.000
8	FUNCTION3 PFK	33.26	2.714e5					3.7	YES		bb		0.000
9	FUNCTION3 PFK	33.05	7.010e3					1.8	NO		bb		0.000
10	FUNCTION3 PFK	36.38	1.186e4					1.2	NO		dd		0.000
11	FUNCTION3 PFK	36.33	1.629e4					1.2	NO		bd		0.000
12	FUNCTION3 PFK	36.26	1.664e4					2.1	NO		db		0.000
13	FUNCTION3 PFK	36.23	4.203e4					2.6	NO		dd		0.000
14	FUNCTION3 PFK	36.17	6.749e4					3.1	YES		dd		0.000
15	FUNCTION3 PFK	36.10	3.495e4					2.6	NO		dd		0.000
16	FUNCTION3 PFK	36.06	2.707e4					2.1	NO		bd		0.000
17	FUNCTION3 PFK	35.94	4.581e4					2.5	NO		db		0.000
18	FUNCTION3 PFK	35.85	2.610e4					1.4	NO		bd		0.000
19	FUNCTION3 PFK	35.55	1.411e4					1.2	NO		bb		0.000
20	FUNCTION3 PFK	35.12	2.985e4					2.2	NO		bb		0.000
21	FUNCTION3 PFK	35.05	6.904e3					0.9	NO		bb		0.000
22	FUNCTION3 PFK	34.97	1.376e4					1.5	NO		bb		0.000
23	FUNCTION3 PFK	34.80	4.616e3					0.8	NO		bb		0.000
24	FUNCTION3 PFK	34.59	2.521e3					0.5	NO		bb		0.000
25	FUNCTION3 PFK	34.54	7.291e3					1.1	NO		bb		0.000
26	FUNCTION3 PFK	37.74	6.354e3					1.0	NO		bb		0.000
27	FUNCTION3 PFK	37.70	2.474e3					0.6	NO		bb		0.000
28	FUNCTION3 PFK	37.56	1.375e4					1.3	NO		db		0.000
29	FUNCTION3 PFK	37.52	2.037e4					2.0	NO		bd		0.000
30	FUNCTION3 PFK	37.46	5.697e4					2.5	NO		db		0.000
31	FUNCTION3 PFK	37.39	1.447e4					1.8	NO		bd		0.000
32	FUNCTION3 PFK	37.30	4.688e4					2.3	NO		db		0.000
33	FUNCTION3 PFK	37.23	4.160e4					2.4	NO		bd		0.000
34	FUNCTION3 PFK	37.15	1.165e4					1.3	NO		bb		0.000
35	FUNCTION3 PFK	36.96	3.322e4					1.9	NO		bb		0.000
36	FUNCTION3 PFK	36.88	4.151e4					1.9	NO		bb		0.000
37	FUNCTION3 PFK	36.66	1.683e4					1.4	NO		bb		0.000

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	36.49	1.696e4					1.1	NO		bb		0.000
39	FUNCTION3 PFK	36.43	1.057e4					1.5	NO		db		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.00	1.648e6					59.0	YES		bd		
2	FUNCTION4 PFK	40.49	1.585e3					0.5	NO		bb		
3	FUNCTION4 PFK	40.45	8.475e3					1.0	NO		bb		
4	FUNCTION4 PFK	40.16	1.088e4					0.6	NO		bb		
5	FUNCTION4 PFK	39.90	2.631e3					0.6	NO		bb		
6	FUNCTION4 PFK	39.79	9.319e3					1.0	NO		bb		
7	FUNCTION4 PFK	39.48	1.259e5					5.9	YES		db		
8	FUNCTION4 PFK	39.42	1.076e5					7.7	YES		dd		
9	FUNCTION4 PFK	39.37	1.326e5					9.0	YES		dd		
10	FUNCTION4 PFK	39.30	2.019e5					11.9	YES		dd		
11	FUNCTION4 PFK	39.12	7.890e5					19.1	YES		dd		
12	FUNCTION4 PFK	39.08	1.920e5					20.9	YES		dd		
13	FUNCTION4 PFK	38.98	3.849e6					24.4	YES		dd		
14	FUNCTION4 PFK	38.54	8.586e5					40.1	YES		dd		
15	FUNCTION4 PFK	38.42	1.340e6					44.5	YES		dd		
16	FUNCTION4 PFK	38.14	4.290e6					55.4	YES		dd		
17	FUNCTION4 PFK	38.08	1.216e6					55.1	YES		dd		
18	FUNCTION4 PFK	42.71	1.200e3					0.4	NO		bb		
19	FUNCTION4 PFK	42.66	9.049e3					1.1	NO		bb		
20	FUNCTION4 PFK	42.52	9.813e3					1.3	NO		bb		
21	FUNCTION4 PFK	42.44	5.977e3					0.8	NO		bb		
22	FUNCTION4 PFK	42.04	6.526e3					0.9	NO		bb		
23	FUNCTION4 PFK	41.70	1.507e4					1.0	NO		bb		
24	FUNCTION4 PFK	41.50	2.362e3					0.5	NO		bb		
25	FUNCTION4 PFK	41.22	2.456e4					1.4	NO		bb		
26	FUNCTION4 PFK	40.79	1.369e4					1.3	NO		bb		
27	FUNCTION4 PFK	40.58	1.720e3					0.5	NO		bb		
28	FUNCTION4 PFK	40.54	1.692e3					0.5	NO		bb		

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.47	2.380e3					0.6	NO		bd		
2	FUNCTION5 PFK	43.31	7.904e3					1.6	NO		bb		
3	FUNCTION5 PFK	43.14	3.915e3					1.5	NO		bb		
4	FUNCTION5 PFK	43.09	5.267e3					1.2	NO		bb		
5	FUNCTION5 PFK	45.19	5.515e2					0.4	NO		bb		
6	FUNCTION5 PFK	45.12	9.231e3					1.6	NO		db		
7	FUNCTION5 PFK	45.09	8.275e3					1.5	NO		dd		
8	FUNCTION5 PFK	45.02	7.608e3					1.9	NO		bd		
9	FUNCTION5 PFK	44.95	9.552e3					1.7	NO		bb		
10	FUNCTION5 PFK	44.84	5.000e3					1.2	NO		bb		
11	FUNCTION5 PFK	44.73	1.722e4					1.5	NO		bb		
12	FUNCTION5 PFK	44.68	2.196e3					0.9	NO		bb		
13	FUNCTION5 PFK	44.62	4.962e3					0.7	NO		db		
14	FUNCTION5 PFK	44.56	5.951e3					1.4	NO		bd		
15	FUNCTION5 PFK	44.41	6.194e3					1.0	NO		bb		
16	FUNCTION5 PFK	44.37	2.637e3					0.9	NO		bb		
17	FUNCTION5 PFK	44.02	5.934e3					0.6	NO		bb		
18	FUNCTION5 PFK	43.75	3.581e3					0.9	NO		bb		
19	FUNCTION5 PFK	43.67	1.081e4					1.8	NO		bb		
20	FUNCTION5 PFK	43.50	5.349e3					1.4	NO		db		
21	FUNCTION5 PFK	45.31	5.813e2					0.4	NO		bb		
22	FUNCTION5 PFK	45.27	8.283e2					0.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.41	7.155e1					2.9	NO		db		0.000
2	FUNCTION1 HXCD...	27.35	9.076e1					3.5	YES		bd		0.000
3	FUNCTION1 HXCD...	26.70	1.312e2					2.6	NO		bb		0.000
4	FUNCTION1 HXCD...	26.56	7.686e1					1.3	NO		bb		0.000
5	FUNCTION1 HXCD...	25.53	2.585e2					3.2	YES		bb		0.000
6	FUNCTION1 HXCD...	23.64	7.088e1					1.3	NO		bb		0.000
7	FUNCTION1 HXCD...	21.12	1.675e2					3.0	NO		bb		0.000

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	25.53	9.715e1					1.9	NO		bb		0.000
2	FUNCTION1 HPCD...	24.10	8.542e1					1.5	NO		bb		0.000
3	FUNCTION1 HPCD...	23.95	8.803e1					3.1	YES		bb		0.000
4	FUNCTION1 HPCD...	23.49	7.480e1					1.1	NO		bb		0.000
5	FUNCTION1 HPCD...	23.10	9.618e1					1.7	NO		bb		0.000
6	FUNCTION1 HPCD...	27.03	1.951e2					3.2	YES		bb		0.000
7	FUNCTION1 HPCD...	26.34	8.960e1					1.3	NO		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.24	7.734e1					4.0	YES		bb		0.000
2	FUNCTION2 HPCD...	30.93	1.716e2					4.5	YES		bb		0.000
3	FUNCTION2 HPCD...	29.33	7.116e1					2.8	NO		bb		0.000
4	FUNCTION2 HPCD...	28.98	8.227e1					1.3	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.15	9.402e1					2.4	NO		bb		0.000
2	FUNCTION3 OCDPE	36.96	8.574e1					3.2	YES		bb		0.000
3	FUNCTION3 OCDPE	36.10	1.552e2					4.0	YES		db		0.000
4	FUNCTION3 OCDPE	35.97	1.189e2					4.2	YES		bd		0.000
5	FUNCTION3 OCDPE	32.98	7.271e1					2.6	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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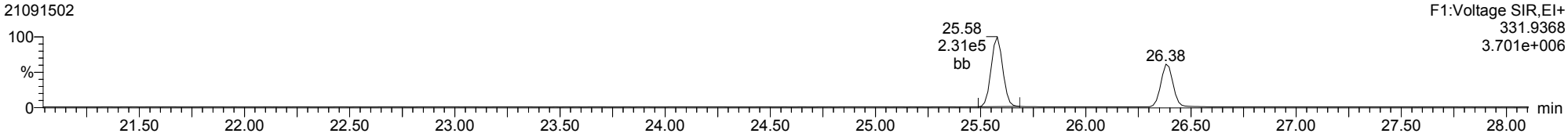

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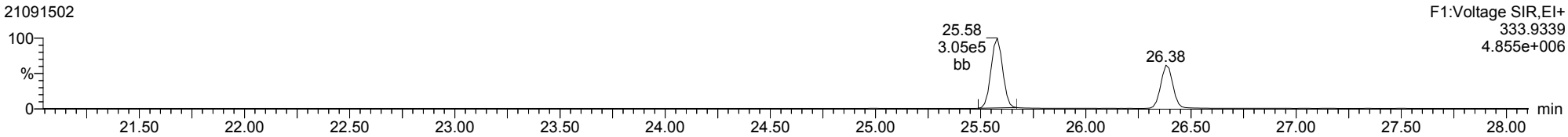

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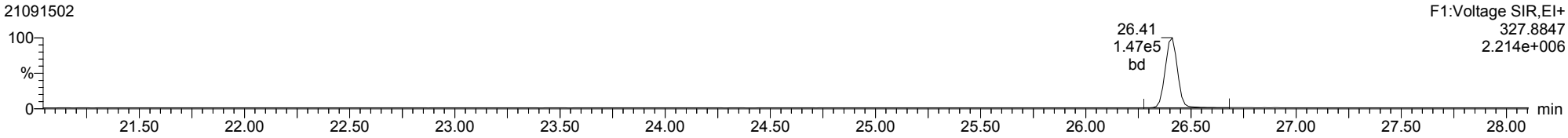

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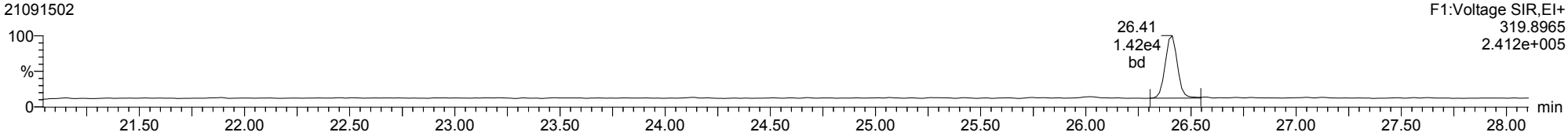

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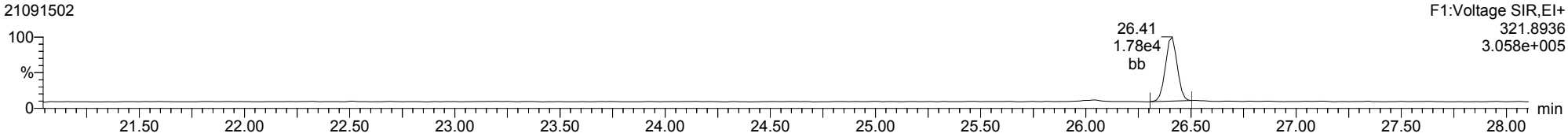

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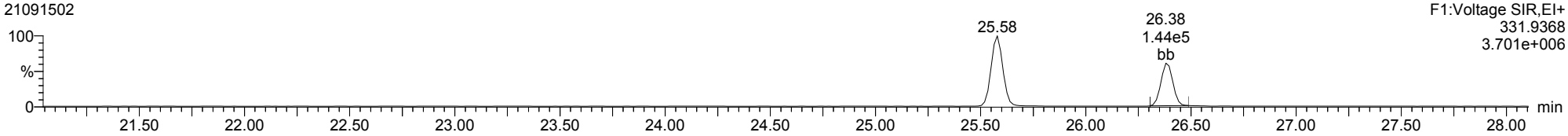

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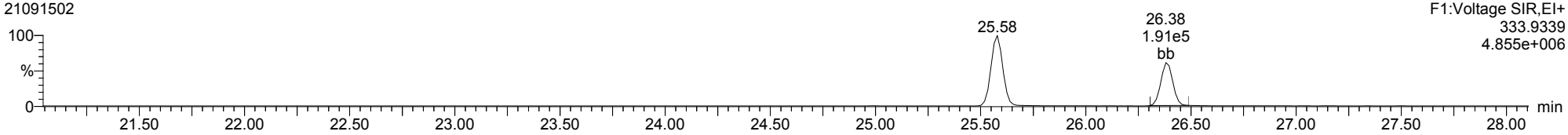

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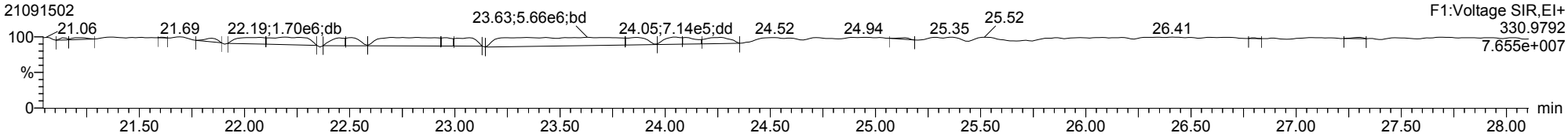

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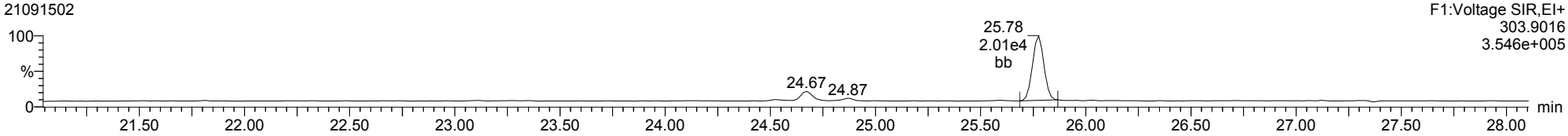

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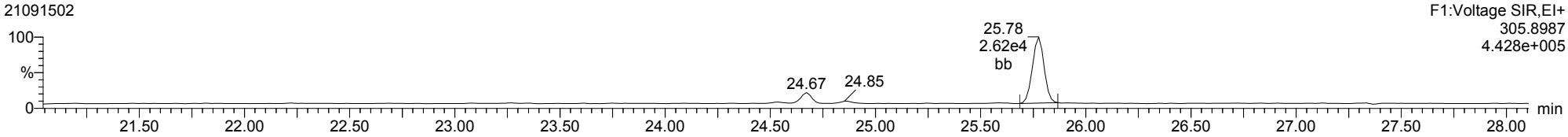

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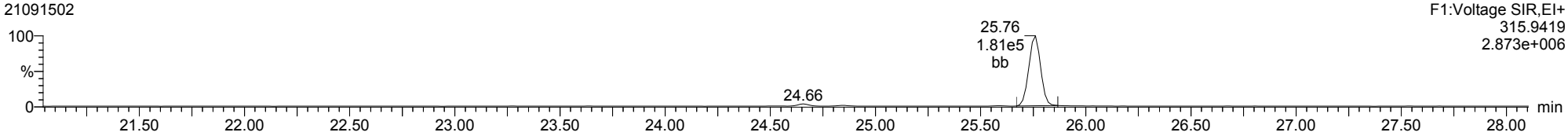

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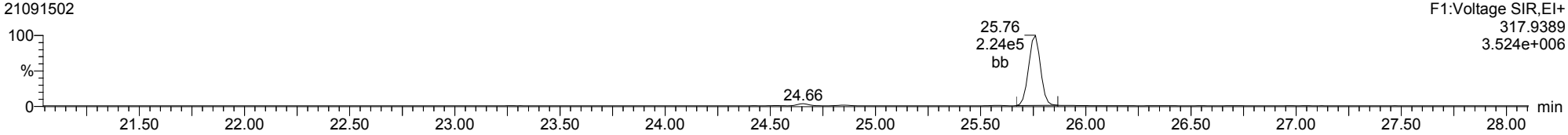

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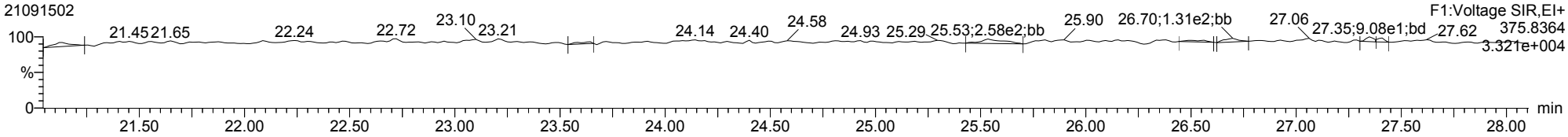

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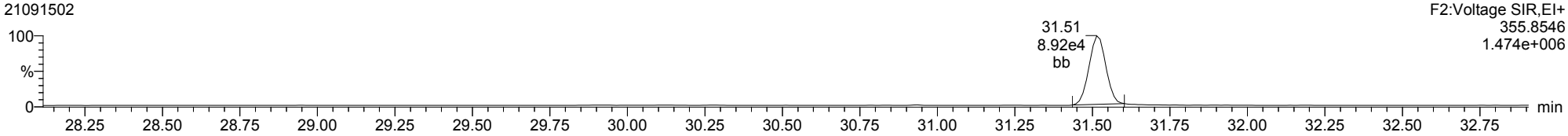

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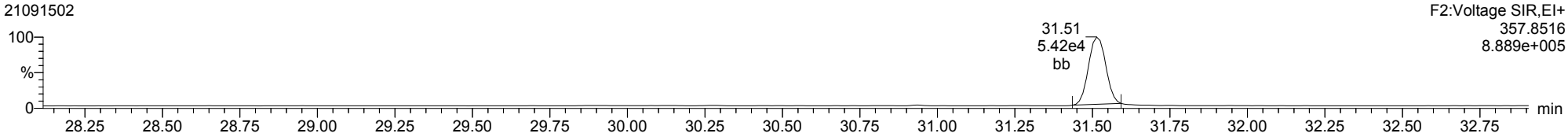

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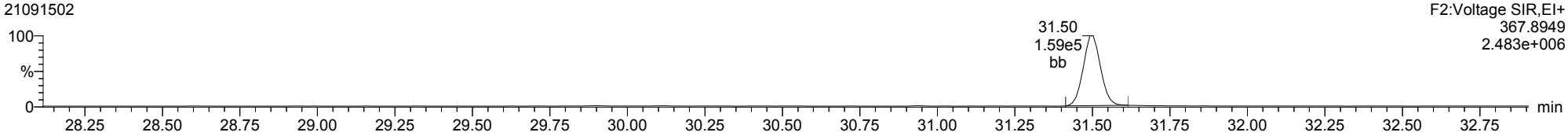

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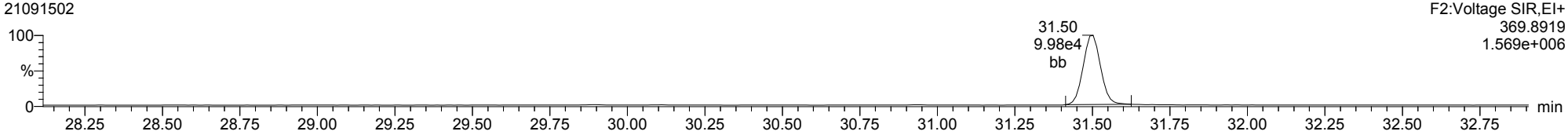

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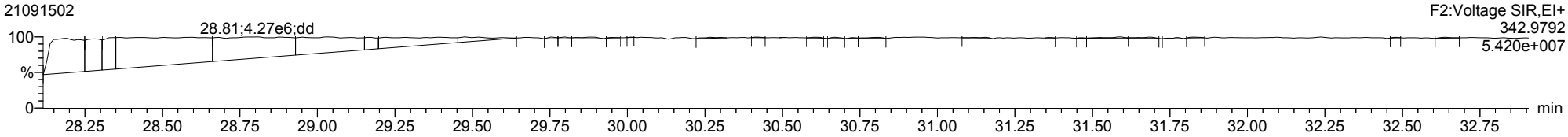

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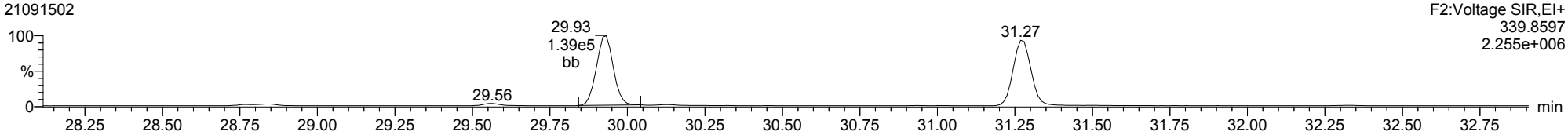

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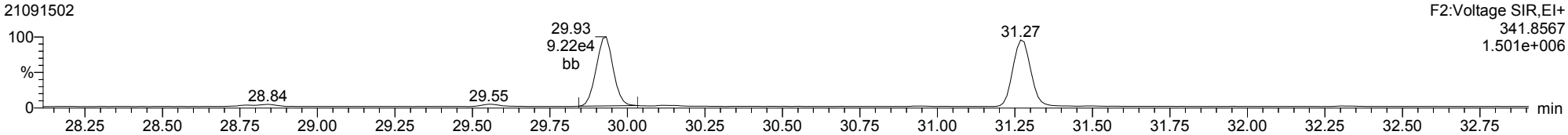

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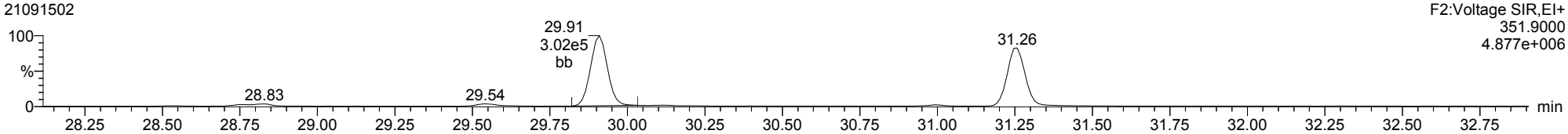

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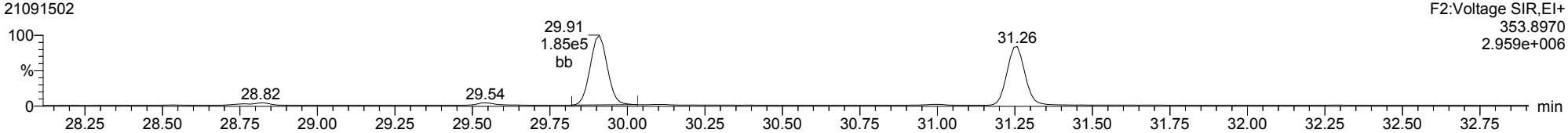

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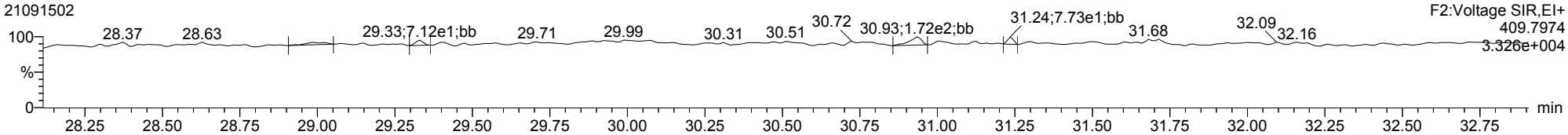

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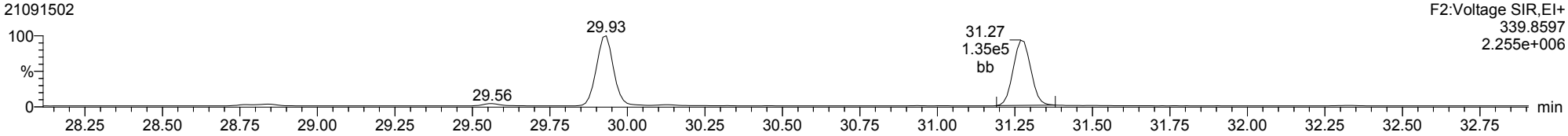
23478-PeCDF



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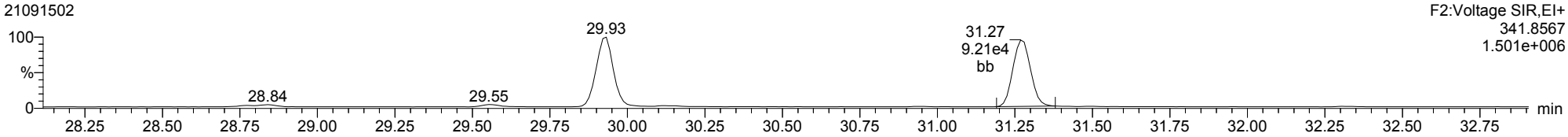

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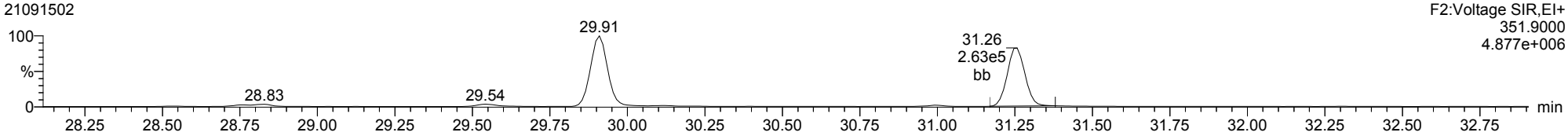

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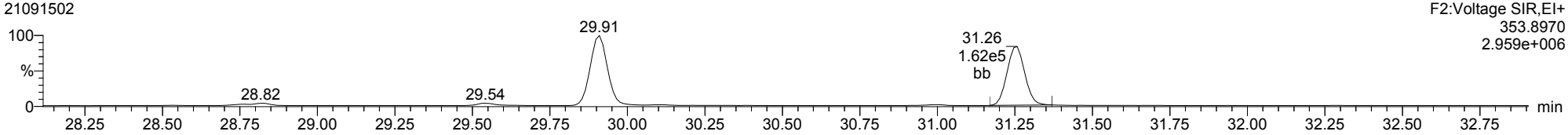

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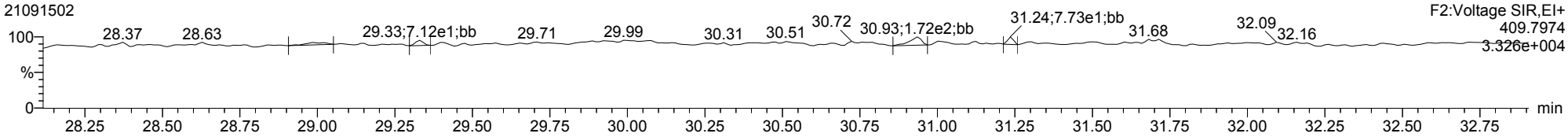

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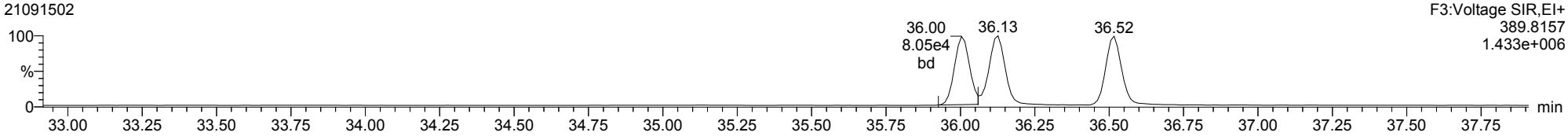

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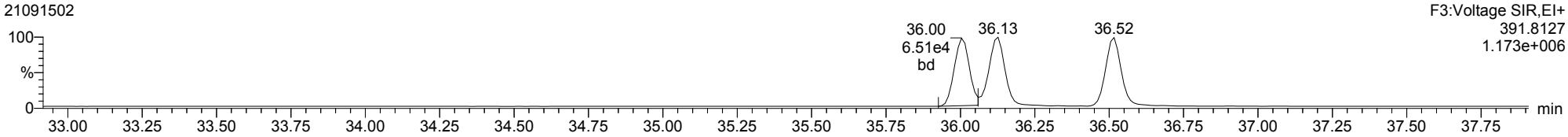

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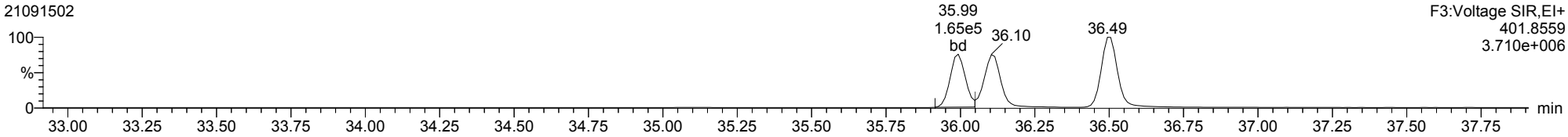

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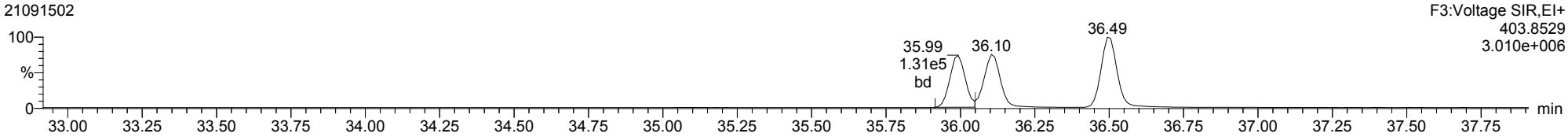

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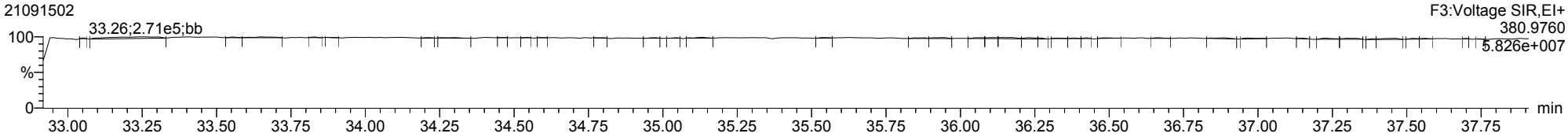

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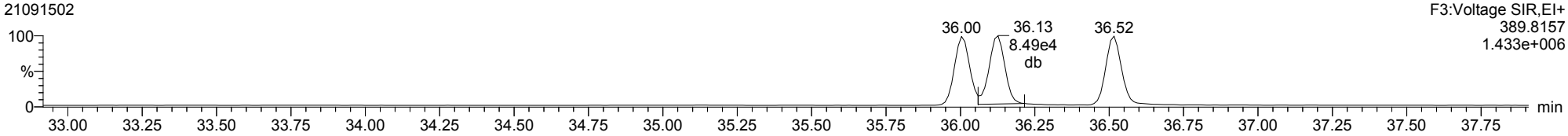

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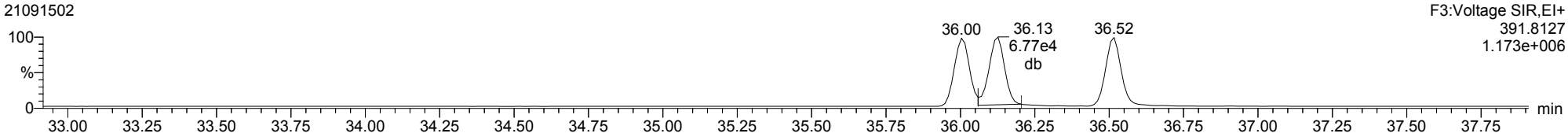

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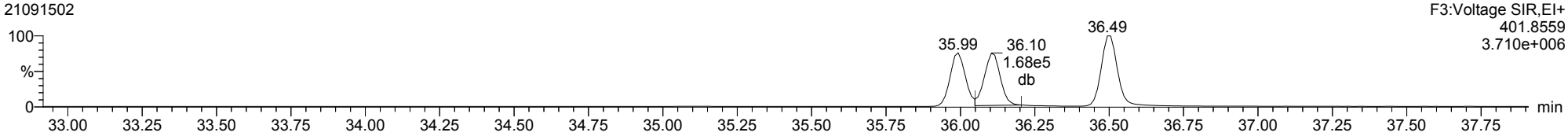

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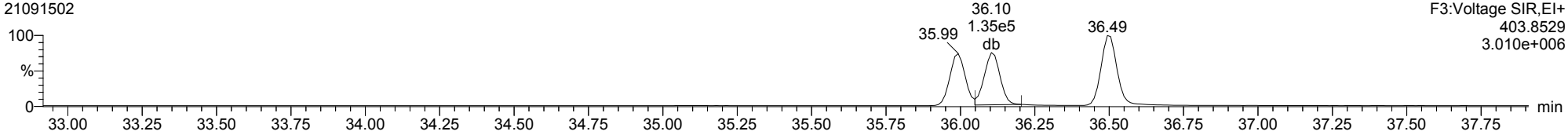

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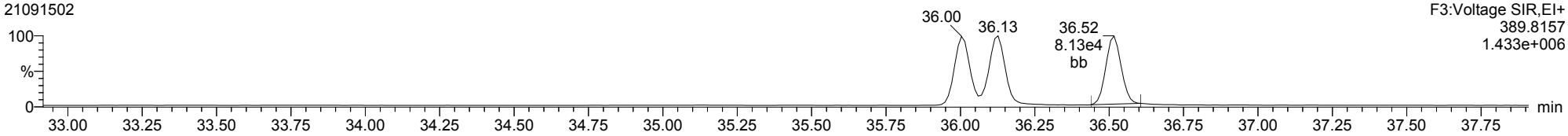

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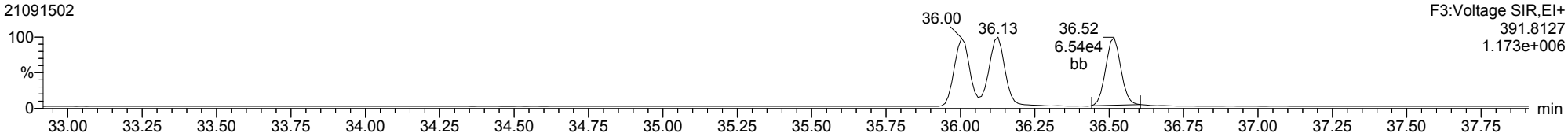

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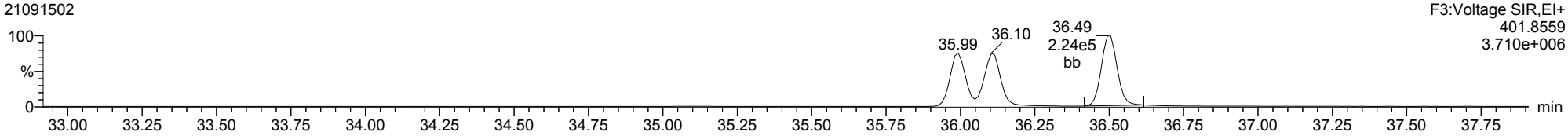

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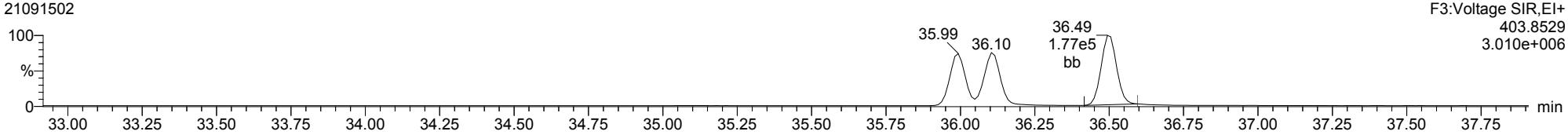

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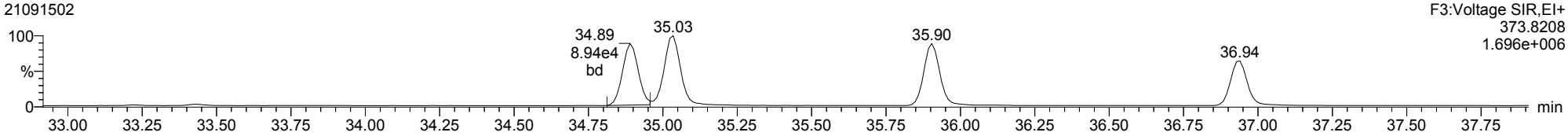

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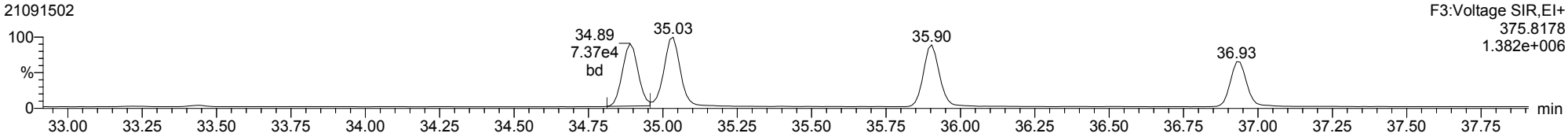

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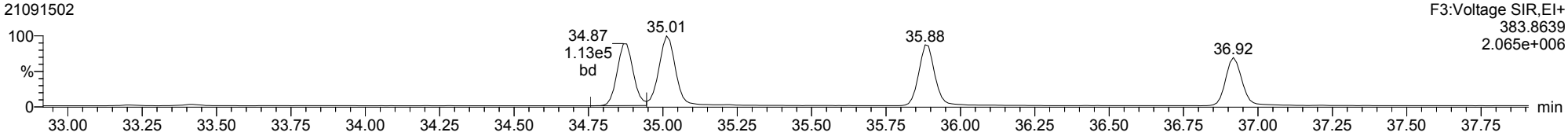

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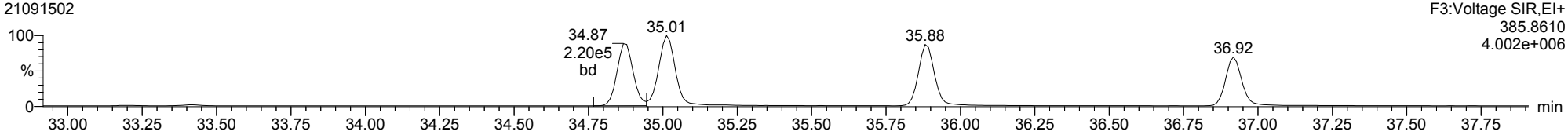

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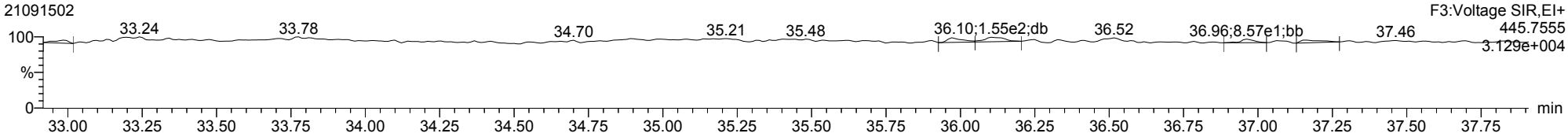

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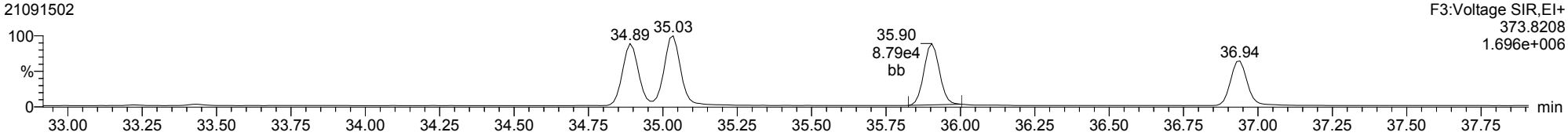

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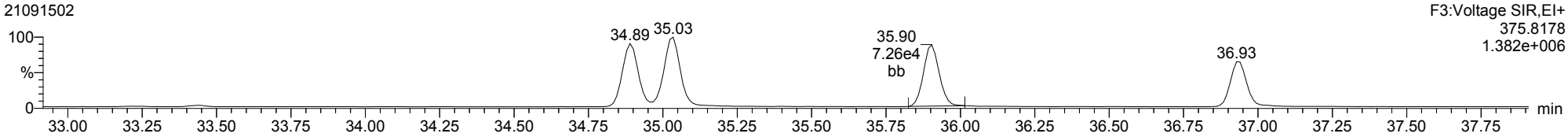

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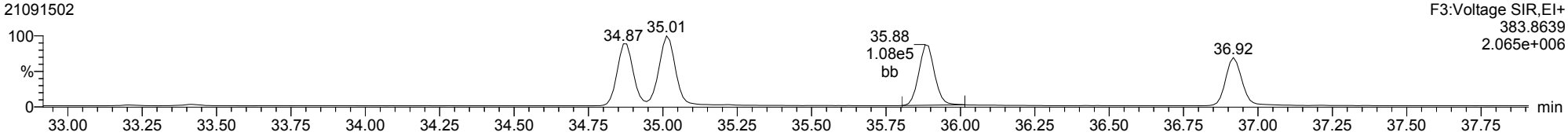

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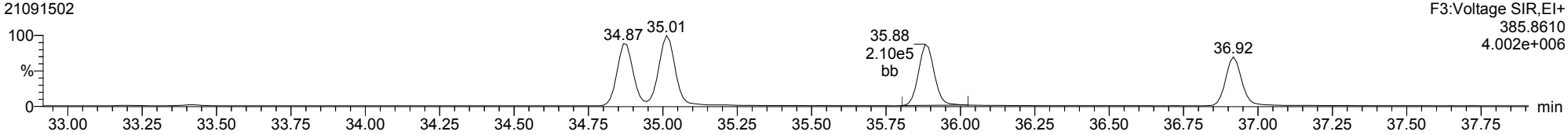

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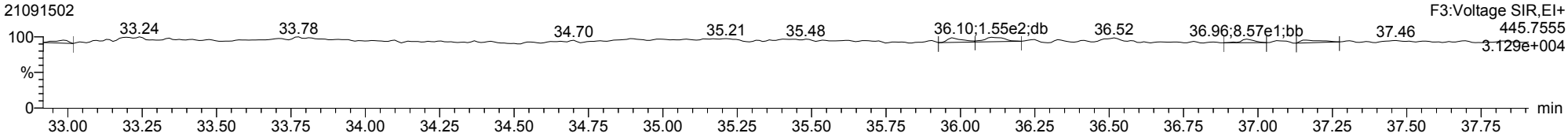

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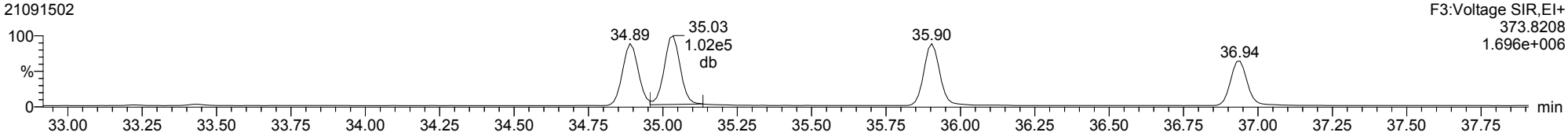

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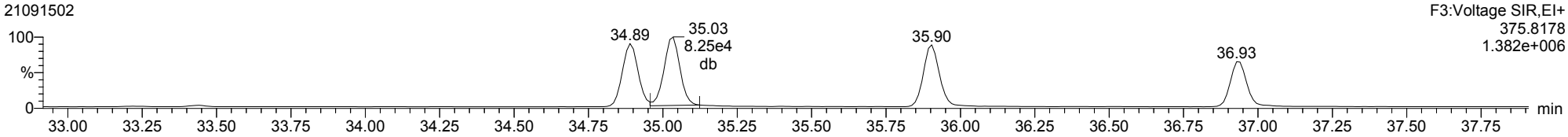

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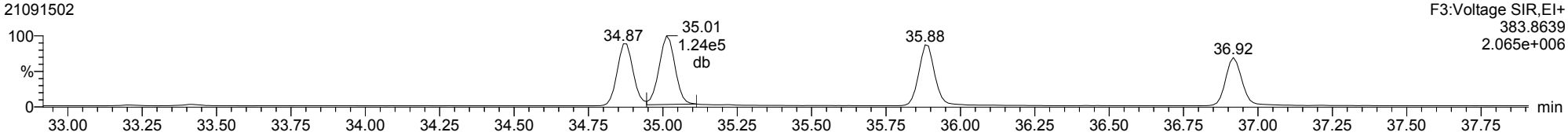

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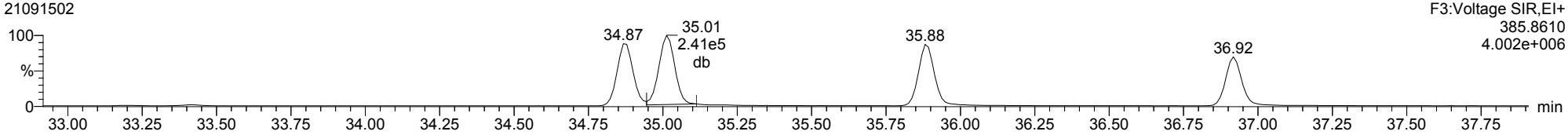

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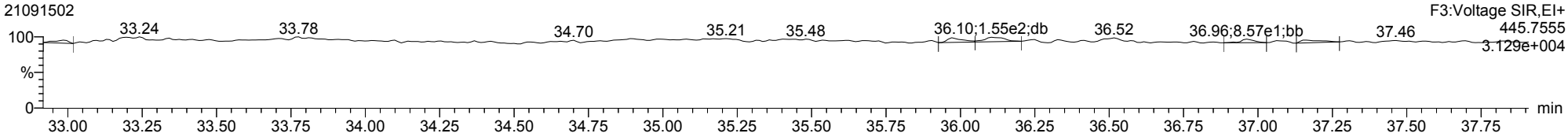

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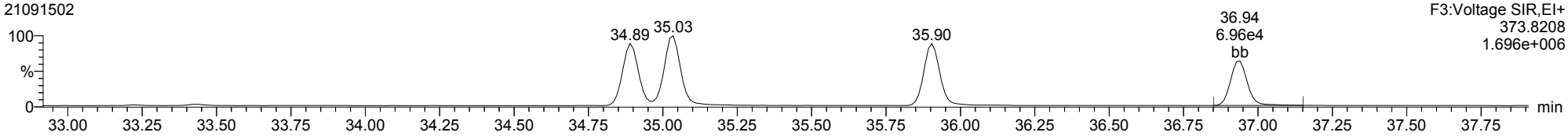

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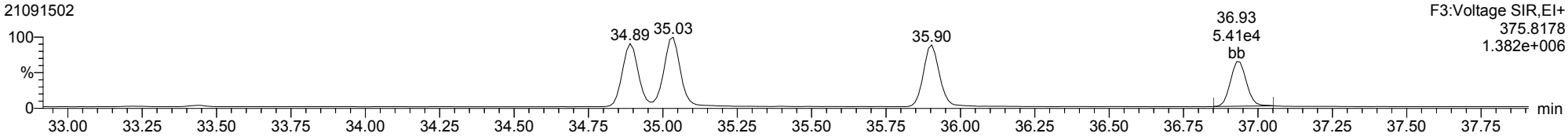

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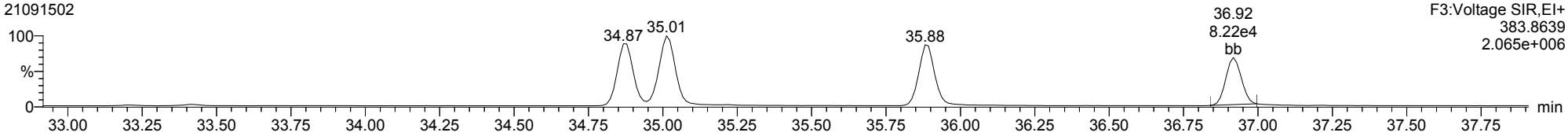

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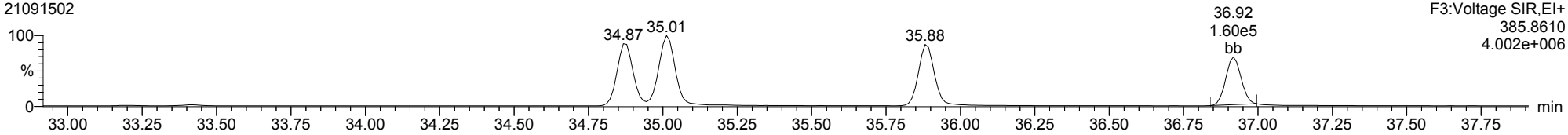

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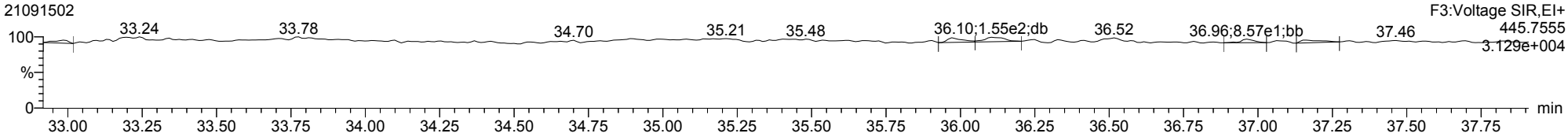

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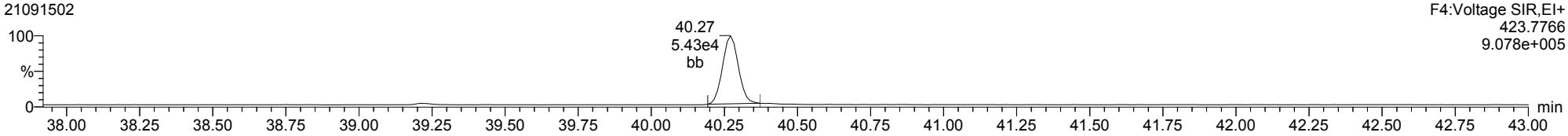

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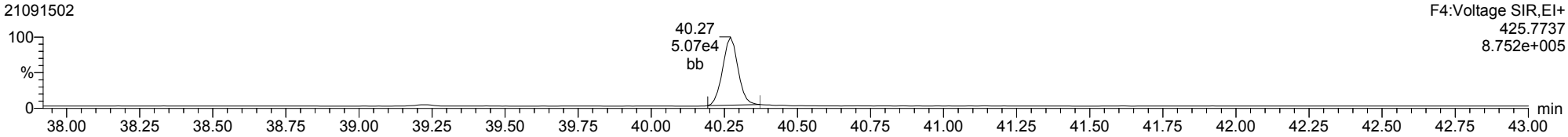

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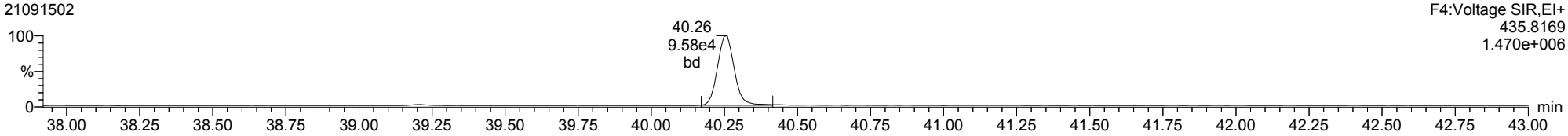

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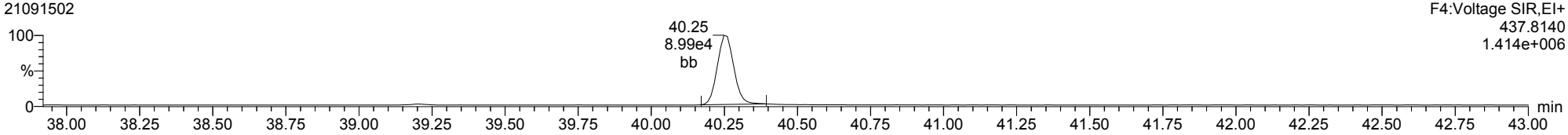

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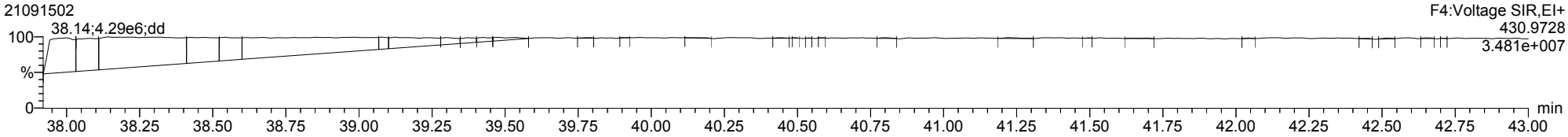

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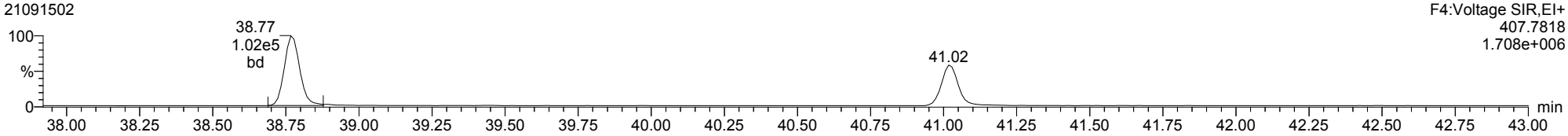

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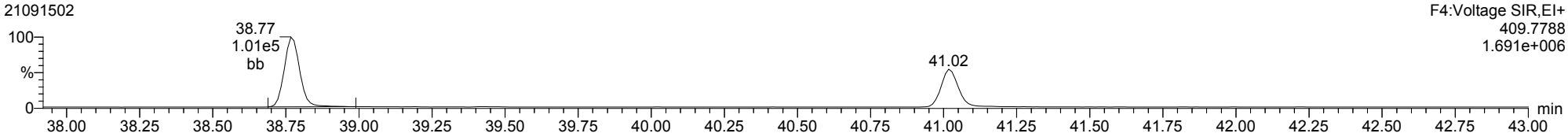

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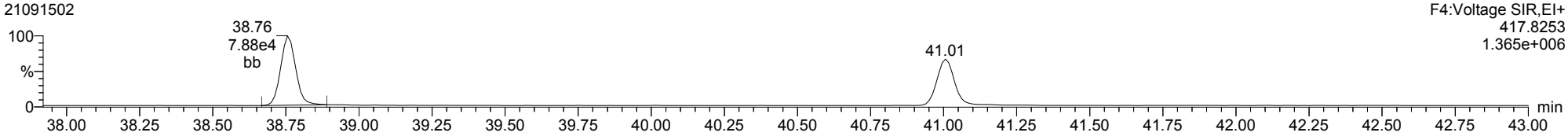

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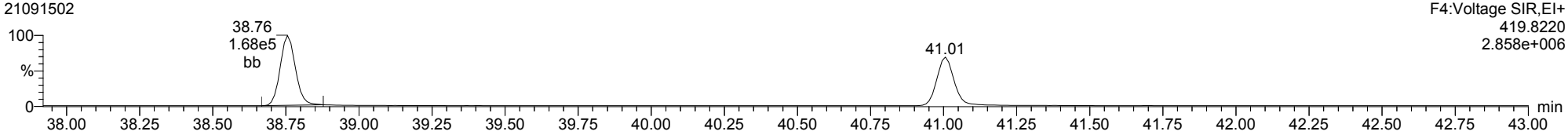
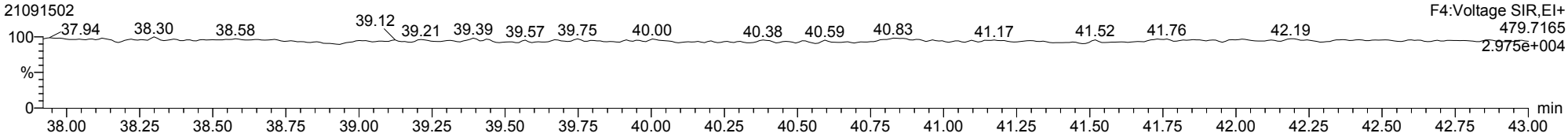


FUNCTION4 NCDPE



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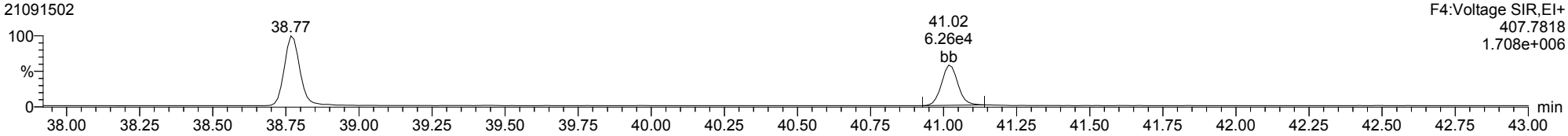
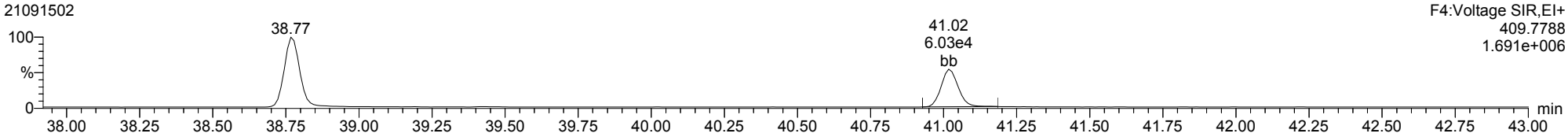
1234789-HpCDF



1234789-HpCDF



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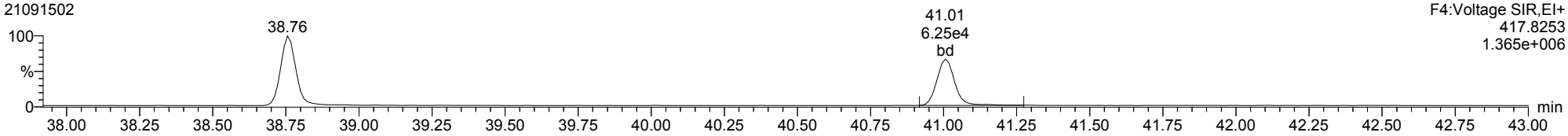

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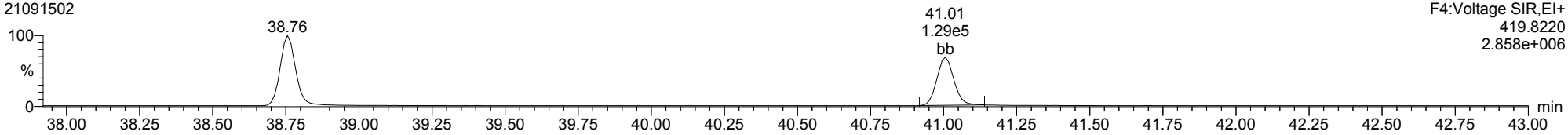
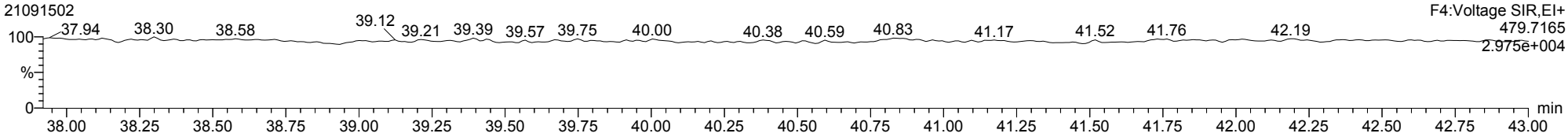


FUNCTION4 NCDPE



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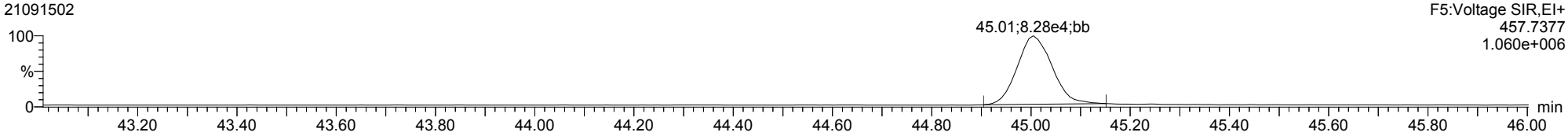

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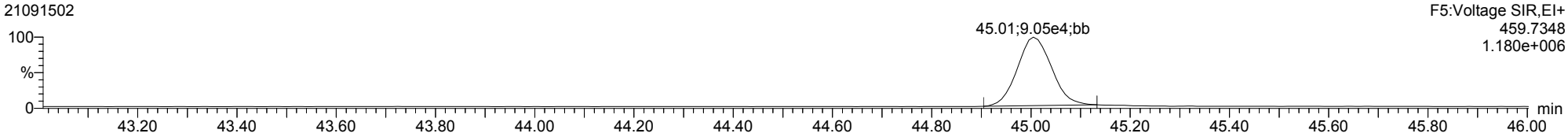

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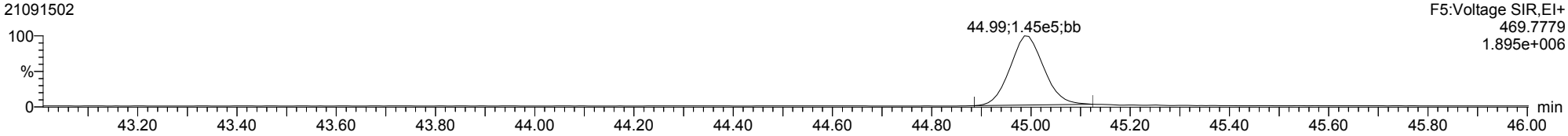

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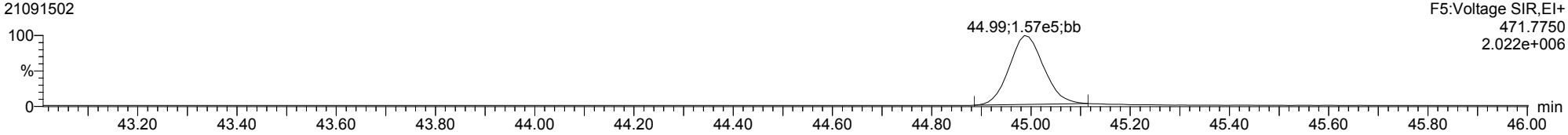
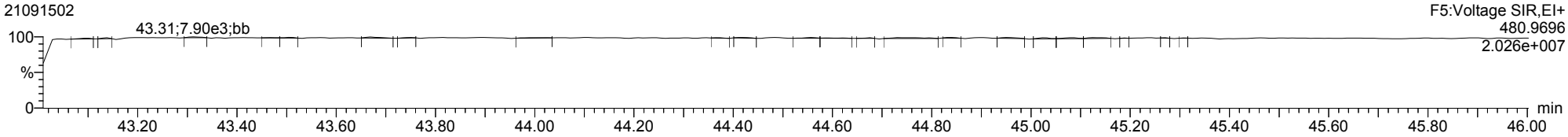


FUNCTION5 PFK



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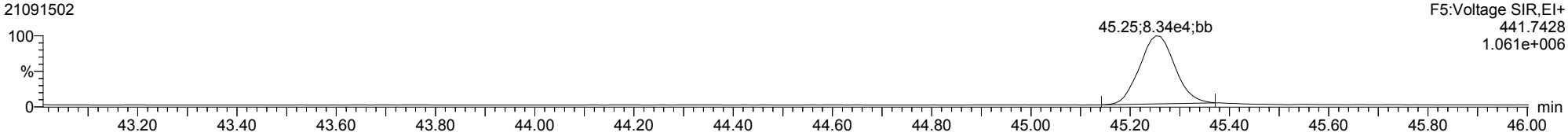
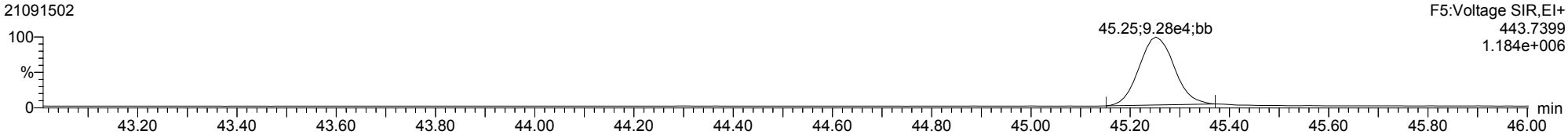
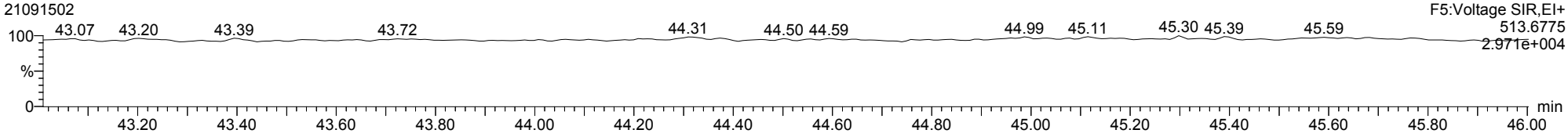
OCDF



OCDF



FUNCTION5 DCDPE



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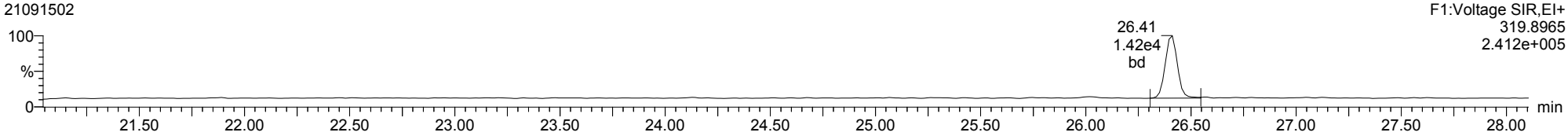
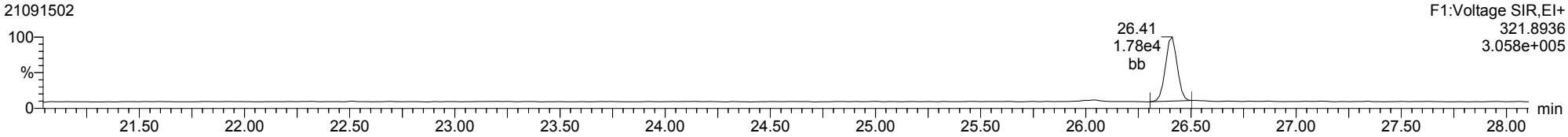
Printed: Thursday, September 16, 2021 14:32:13 Pacific Daylight Time

ID: BJH0645-BS1, Name: 21091502, Date: 15-Sep-2021, Time: 16:54:28, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



Total-tetradioxins



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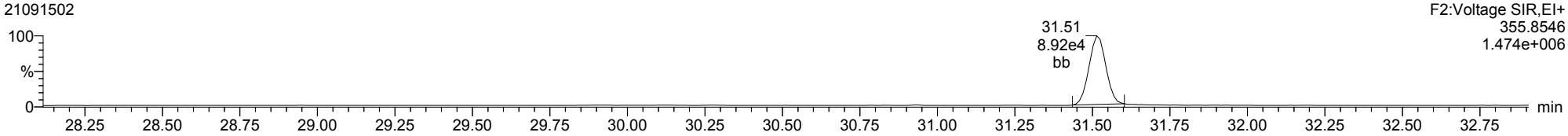
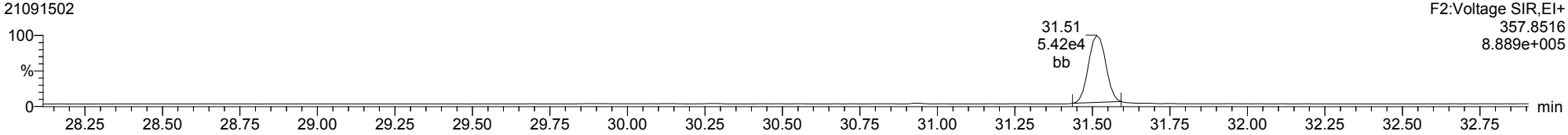


Total-pentadioxins



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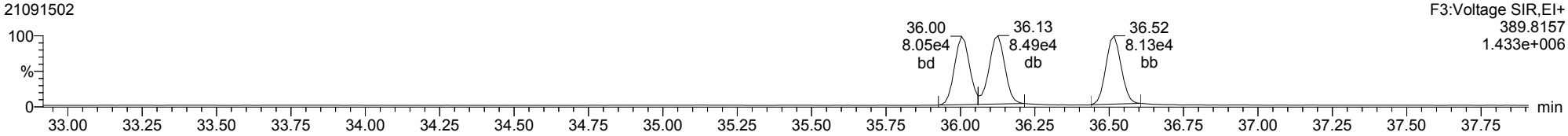

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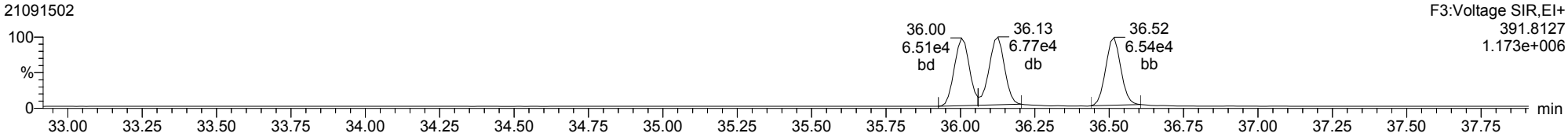

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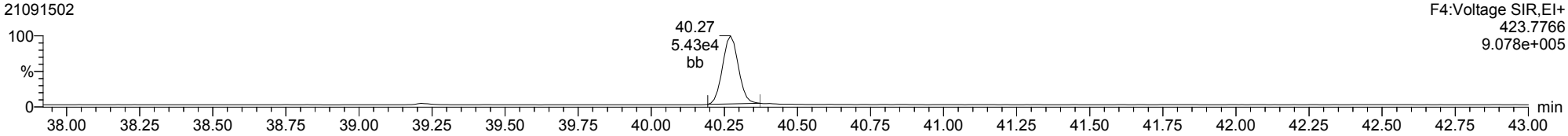

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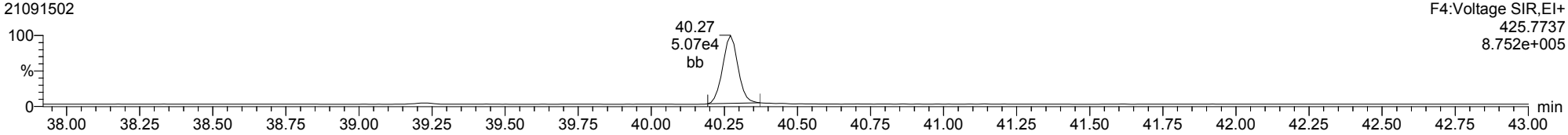

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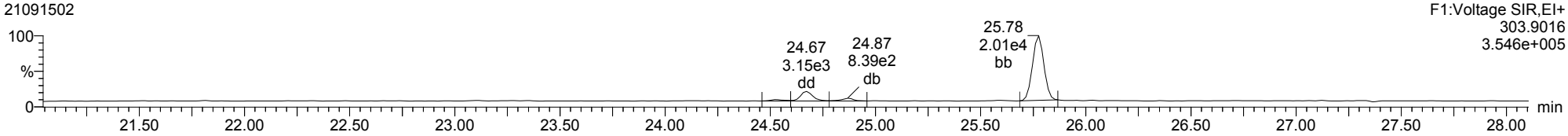

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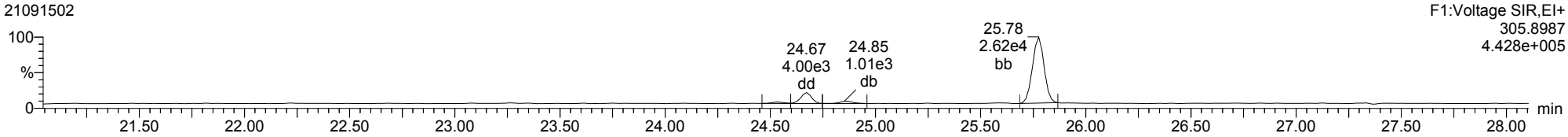

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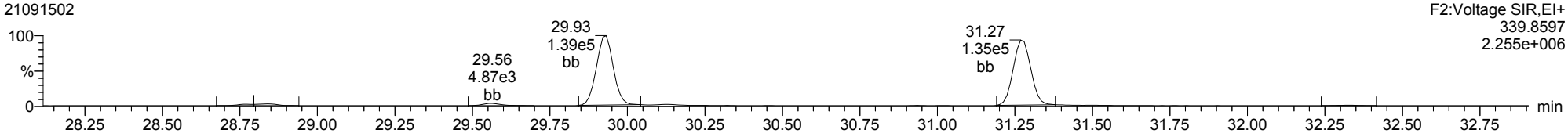

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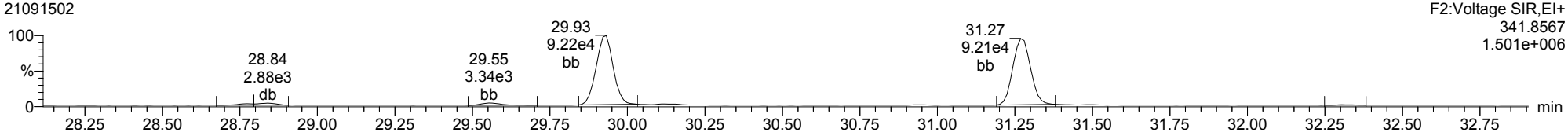

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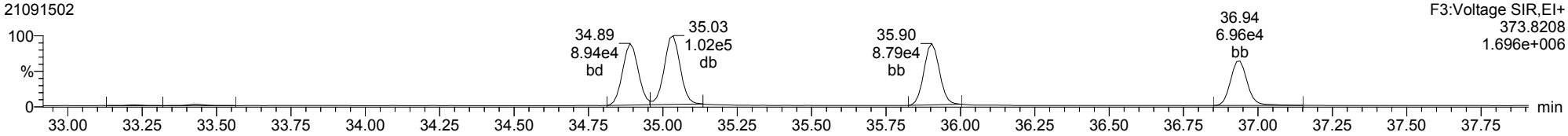

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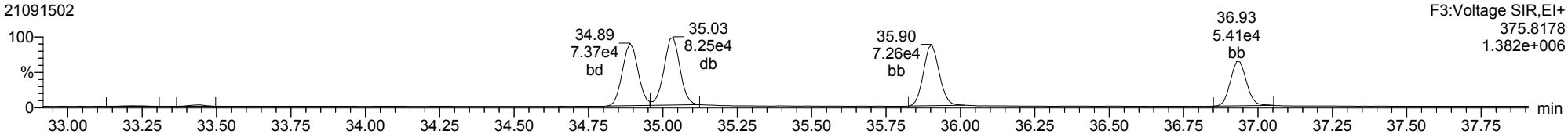

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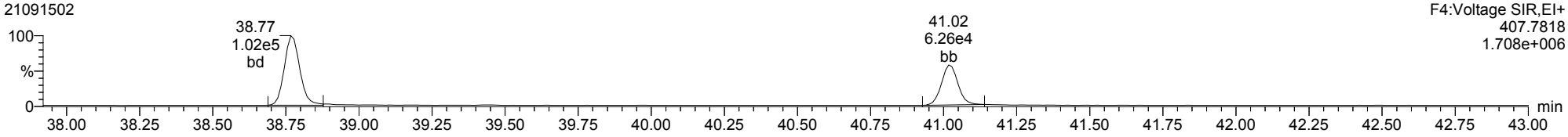

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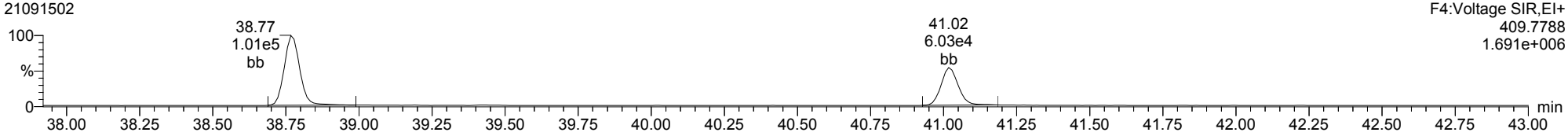

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS668

DUPLICATES
EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0127
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0186-DUP1
Batch: BJH0186
Lab Source ID: 21G0127-01
Preparation: EPA 1613
Initial/Final: 18.6 g / 20 uL
Source Sample Name: LDW21-SS668
% Solids: 53.74

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
2,3,7,8-TCDF	25	0.649	0.630	2.96	
2,3,7,8-TCDD	25	0.443	0.445	0.454	
1,2,3,7,8-PeCDF	25	0.412	0.425	3.24	
2,3,4,7,8-PeCDF	25	0.456	0.694	41.4	
1,2,3,7,8-PeCDD	25	1.14	1.21	6.11	
1,2,3,4,7,8-HxCDF	25	1.98	2.31	15.4	
1,2,3,6,7,8-HxCDF	25	0.722	0.961	28.4	
2,3,4,6,7,8-HxCDF	25	0.414	0.792	62.6	
1,2,3,7,8,9-HxCDF	25	1.01	0.566	56.2	
1,2,3,4,7,8-HxCDD	25	1.96	1.58	21.6	
1,2,3,6,7,8-HxCDD	25	5.94	5.26	12.2	
1,2,3,7,8,9-HxCDD	25	3.01	2.95	1.87	
1,2,3,4,6,7,8-HpCDF	25	25.8	22.5	13.5	
1,2,3,4,7,8,9-HpCDF	25	2.80	1.71	48.4	
1,2,3,4,6,7,8-HpCDD	25	611	355	53.0	
OCDF	25	139	99.9	32.8	
OCDD	25	6270	4000	44.2	
Total TCDF	200	4.50	3.94	13.4	
Total TCDD	200	0.276	1.01	114	
Total PeCDF	200	6.33	4.40	35.8	
Total PeCDD	200	1.83	3.71	67.8	
Total HxCDF	200	32.8	29.9	9.34	
Total HxCDD	200	228	112	67.9	
Total HpCDF	200	133	95.1	33.2	
Total HpCDD	200	4450	1730	87.8	
13C12-2,3,7,8-TCDF		150	164		
13C12-2,3,7,8-TCDD		151	169		

* Values outside of QC limits
L Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS668

DUPLICATES
EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0127
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0186-DUP1
Batch: BJH0186
Lab Source ID: 21G0127-01
Preparation: EPA 1613
Initial/Final: 18.6 g / 20 uL
Source Sample Name: LDW21-SS668
% Solids: 53.74

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
13C12-1,2,3,7,8-PeCDF		154	166		
13C12-2,3,4,7,8-PeCDF		155	166		
13C12-1,2,3,7,8-PeCDD		148	163		
13C12-1,2,3,4,7,8-HxCDF		130	139		
13C12-1,2,3,6,7,8-HxCDF		125	133		
13C12-2,3,4,6,7,8-HxCDF		129	135		
13C12-1,2,3,7,8,9-HxCDF		135	149		
13C12-1,2,3,4,7,8-HxCDD		143	154		
13C12-1,2,3,6,7,8-HxCDD		138	146		
13C12-1,2,3,4,6,7,8-HpCDF		141	140		
13C12-1,2,3,4,7,8,9-HpCDF		141	152		
13C12-1,2,3,4,6,7,8-HpCDD		146	151		
13C12-OCDD		342	326		
37Cl4-2,3,7,8-TCDD		69.8	71.2		

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

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Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.277	1.001	1.424e3	1.786e3	1.108	0.797	0.770	3760	2450	2.17e4	2.39e4	5.8	9.8	NO	bd	bd	0.315
12378-PeCDF	29.436	1.000	1.108e3	7.209e2	1.015	1.538	1.550	2317	1813	1.95e4	1.03e4	8.4	5.7	NO	bb	MM	0.212
23478-PeCDF	30.773	1.000	2.332e3	8.322e2	1.126	2.802	1.550	2317	1813	2.52e4	1.19e4	10.9	6.6	YES	db	MM	0.347
123478-HxCDF	34.438	1.000	4.175e3	3.371e3	1.017	1.238	1.240	2108	2037	6.28e4	5.41e4	29.8	26.6	NO	bd	bd	1.152
234678-HxCDF	35.464	1.000	1.530e3	1.028e3	1.052	1.488	1.240	2108	2037	2.16e4	1.62e4	10.2	7.9	YES	MM	dd	0.396
123678-HxCDF	34.583	1.001	1.817e3	1.506e3	1.037	1.207	1.240	2108	2037	3.13e4	2.54e4	14.8	12.5	NO	db	db	0.480
123789-HxCDF	36.477	1.000	9.544e2	6.849e2	1.030	1.393	1.240	2108	2037	1.10e4	1.10e4	5.2	5.4	NO	bd	bd	0.283
1234678-HpCDF	38.371	1.001	3.750e4	3.485e4	1.327	1.076	1.050	1796	1427	5.98e5	5.65e5	333.2	396.0	NO	bb	bb	11.248
1234789-HpCDF	40.544	1.000	2.247e3	2.487e3	1.283	0.904	1.050	1796	1427	3.49e4	3.78e4	19.5	26.5	NO	bb	bd	0.856
OCDF	44.683	1.005	1.061e5	1.156e5	1.447	0.918	0.890	1735	1463	1.24e6	1.40e6	717.2	954.9	NO	bb	bb	49.904
2378-TCDD	25.912	1.001	4.469e2	1.074e3	0.920	0.416	0.770	1493	1668	5.80e3	1.33e4	3.9	8.0	YES	bb	dd	0.222
12378-PeCDD	31.029	1.000	1.800e3	1.020e3	0.995	1.765	1.550	1830	1606	2.20e4	1.61e4	12.0	10.0	NO	bb	MM	0.604
123478-HxCDD	35.597	1.000	2.564e3	1.932e3	1.027	1.327	1.240	2748	2256	3.92e4	3.47e4	14.2	15.4	NO	bd	bd	0.790
123678-HxCDD	35.720	1.001	8.068e3	7.022e3	1.009	1.149	1.240	2748	2256	1.26e5	1.12e5	46.0	49.7	NO	dd	dd	2.628
123789-HxCDD	36.098	1.011	4.232e3	3.634e3	0.950	1.165	1.240	2748	2256	7.28e4	6.22e4	26.5	27.6	NO	MM	MM	1.474
1234678-HpCDD	39.831	1.000	3.496e5	3.247e5	1.068	1.077	1.050	3065	3159	5.44e6	5.09e6	1774.3	1610.5	NO	bb	bb	177.438
OCDD	44.463	1.000	3.444e6	3.802e6	1.181	0.906	0.890	2351	2561	4.45e7	4.90e7	18934.9	19142.7	NO	bb	bb	1999.158
13C-2378-TCDF	25.262	1.007	4.163e5	5.039e5	1.427	0.826	0.770	3169	1836	6.16e6	7.49e6	1944.5	4079.0	NO	bb	bb	81.771
13C-12378-PeCDF	29.425	1.173	5.249e5	3.235e5	1.297	1.622	1.550	2198	1389	7.75e6	4.71e6	3523.9	3388.8	NO	bb	bb	82.893
13C-23478-PeCDF	30.762	1.227	5.000e5	3.100e5	1.236	1.613	1.550	2198	1389	7.56e6	4.63e6	3437.5	3336.6	NO	bb	bb	83.036
13C-123478-HxCDF	34.427	0.954	2.197e5	4.243e5	1.242	0.518	0.510	2178	2515	3.35e6	6.41e6	1537.4	2550.1	NO	bd	bd	69.322
13C-123678-HxCDF	34.561	0.958	2.248e5	4.426e5	1.343	0.508	0.510	2178	2515	3.30e6	6.39e6	1515.4	2540.1	NO	db	db	66.450
13C-234678-HxCDF	35.464	0.983	2.084e5	4.058e5	1.215	0.514	0.510	2178	2515	3.17e6	6.11e6	1457.4	2431.3	NO	bb	bb	67.620
13C-123789-HxCDF	36.477	1.011	1.926e5	3.696e5	1.008	0.521	0.510	2178	2515	3.01e6	5.92e6	1383.9	2353.1	NO	bb	bb	74.623
13C-1234678-HpCDF	38.349	1.063	1.532e5	3.314e5	0.926	0.462	0.440	1443	2743	2.45e6	5.25e6	1699.5	1914.3	NO	bb	bb	69.954
13C-1234789-HpCDF	40.533	1.123	1.313e5	2.999e5	0.758	0.438	0.440	1443	2743	1.96e6	4.26e6	1355.1	1553.9	NO	bb	bd	76.100
13C-1234-TCDD	25.080	0.000	3.441e5	4.448e5	1.000	0.774	0.770	2058	1554	5.34e6	6.93e6	2592.9	4458.0	NO	bb	bb	100.000
13C-2378-TCDD	25.897	1.033	3.217e5	4.212e5	1.116	0.764	0.770	2058	1554	4.78e6	6.30e6	2323.1	4055.6	NO	bb	bb	84.353
13C-12378-PeCDD	31.018	1.237	2.867e5	1.825e5	0.732	1.571	1.550	1430	1318	4.23e6	2.70e6	2961.1	2047.1	NO	bb	bb	81.242
13C-123478-HxCDD	35.586	0.986	3.119e5	2.419e5	0.960	1.289	1.240	2008	1846	5.00e6	3.85e6	2489.5	2086.0	NO	bd	bd	77.176
13C-123678-HxCDD	35.697	0.989	3.175e5	2.516e5	1.041	1.262	1.240	2008	1846	4.90e6	3.86e6	2441.4	2091.5	NO	db	db	73.102
13C-1234678-HpCDD	39.820	1.103	1.837e5	1.722e5	0.632	1.067	1.050	1668	1538	2.75e6	2.65e6	1647.9	1719.7	NO	bd	bb	75.250
13C-OCDD	44.445	1.232	2.915e5	3.224e5	0.504	0.904	0.890	1861	1470	3.73e6	4.12e6	2006.5	2805.0	NO	bb	bb	163.003
13C-123789-HxCDD	36.088	0.000	4.186e5	3.290e5	1.000	1.273	1.240	2008	1846	7.01e6	5.55e6	3492.0	3009.0	NO	bb	bb	100.000
37CL-2378-TCDD	25.912	1.033	3.043e5		1.084			1351		4.36e6		3229.0			dd		35.601

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:23:01 Pacific Daylight Time

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.425		0.770	3760	2450								
1289-TCDF					1.043		0.770	3760	2450								
13468-PECDF	26.713	0.908	1.195e4	8.233e3	1.376	1.451	1.550	1752	1337	1.55e5	1.15e5	88.4	86.2	NO	bb	db	1.728
12389-PECDF					1.000		1.550	2317	1813								
123468-HXCDF	32.756	0.951	4.941e3	4.018e3	1.087	1.230	1.240	2108	2037	6.93e4	6.27e4	32.9	30.8	NO	bb	bb	1.280
1368-TCDD	23.039	0.890	8.545e2	1.403e3	0.923	0.609	0.770	1493	1668	1.22e4	2.41e4	8.2	14.5	YES	bb	db	0.329
1289-TCDD					0.794		0.770	1493	1668								
12479-PECDD	28.378	0.915	3.143e3	2.098e3	1.843	1.498	1.550	1830	1606	3.16e4	2.29e4	17.3	14.2	NO	bb	bb	0.606
12389-PECDD					1.154		1.550	1830	1606								
124679-HXCDD	33.547	0.943	8.634e4	7.078e4	1.125	1.220	1.240	2748	2256	1.28e6	1.03e6	465.4	455.8	NO	bb	bb	25.221
1234679-HPCDD	38.806	0.975	1.535e6	1.432e6	1.211	1.072	1.050	3065	3159	2.58e7	2.41e7	8404.8	7642.1	NO	bb	bb	688.651
Total-tetrafurans			9.560e3		1.192			3760		1.28e5							1.967
Total-penta1			1.195e4					1752		1.55e5							1.728
Total-pentafurans			2.491e3		1.047			2317		3.92e4							0.472
Total-hexafurans			5.404e4		1.045			2108		7.72e5							14.926
Total-heptafurans			1.474e5		1.305			1796		2.41e6							47.507
Total-Furans			3.315e5		1.158			3760		4.75e6							116.505
Total-tetradioxins			1.428e3		0.879			1493		2.28e4							0.504
Total-pentadioxins			7.346e3		1.331			1830		9.32e4							1.855
Total-hexadioxins			1.844e5		1.028			2748		2.51e6							56.095
Total-heptadioxins			1.885e6		1.140			3065		3.12e7							866.089
Total-Dioxins			5.522e6		1.092			1493		7.83e7							2923.702
Total-TEQ			5.854e6					1493		8.31e7							3040.206
FUNCTION1 PFK			1.962e6					1104505		3.04e7							
FUNCTION2 PFK			9.736e6					574562		2.18e7							0.000
FUNCTION3 PFK			1.276e7					620271		2.85e7							0.000
FUNCTION4 PFK			0.000e0					421212		0.00e0							
FUNCTION5 PFK			9.252e6					228805		9.57e6							
FUNCTION1 HXCD...			2.548e3					876		4.17e4							0.000
FUNCTION1 HPCD...			1.393e4					1053		2.16e5							0.000
FUNCTION2 HPCD...			1.628e3					1406		3.99e4							0.000
FUNCTION3 OCDPE			3.258e3					1390		6.73e4							0.000
FUNCTION4 NCDPE			9.049e3					952		1.40e5							0.000
FUNCTION5 DCDPE			0.000e0					1133		0.00e0							

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	2.531e3	2.948e3	1.192	0.86	0.77	8.2	YES	NO	dd	dd	0.500
2	Total-tetrafurans	22.80	9.267e2	1.085e3	1.192	0.85	0.77	3.2	YES	NO	dd	dd	0.183
3	Total-tetrafurans	22.62	2.155e3	2.795e3	1.192	0.77	0.77	8.0	YES	NO	bd	bd	0.451
4	Total-tetrafurans	25.50	2.524e3	3.153e3	1.192	0.80	0.77	8.7	YES	NO	db	db	0.518
5	2378-TCDF	25.28	1.424e3	1.786e3	1.108	0.80	0.77	5.8	YES	NO	bd	bd	0.315

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.71	1.195e4	8.233e3	1.376	1.45	1.55	88.4	YES	NO	bb	db	1.728

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	30.62	1.383e3	8.725e2	1.047	1.59	1.55	8.5	YES	NO	dd	dd	0.260
2	12378-PeCDF	29.44	1.108e3	7.209e2	1.015	1.54	1.55	8.4	YES	NO	bb	MM	0.212

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.48	9.544e2	6.849e2	1.030	1.39	1.24	5.2	YES	NO	bd	bd	0.283
2	123678-HxCDF	34.58	1.817e3	1.506e3	1.037	1.21	1.24	14.8	YES	NO	db	db	0.480
3	123478-HxCDF	34.44	4.175e3	3.371e3	1.017	1.24	1.24	29.8	YES	NO	bd	bd	1.152
4	Total-hexafurans	34.28	8.094e2	6.204e2	1.045	1.30	1.24	6.1	YES	NO	bb	bb	0.220
5	Total-hexafurans	33.80	2.508e4	2.077e4	1.045	1.21	1.24	174.9	YES	NO	bb	bb	7.057
6	Total-hexafurans	32.97	1.626e4	1.267e4	1.045	1.28	1.24	102.4	YES	NO	bb	bb	4.453
7	123468-HXCDF	32.76	4.941e3	4.018e3	1.087	1.23	1.24	32.9	YES	NO	bb	bb	1.280

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.54	2.247e3	2.487e3	1.283	0.90	1.05	19.5	YES	NO	bb	bd	0.856
2	Total-heptafurans	39.01	1.077e5	1.039e5	1.305	1.04	1.05	989.9	YES	NO	bb	bb	35.403
3	1234678-HpCDF	38.37	3.750e4	3.485e4	1.327	1.08	1.05	333.2	YES	NO	bb	bb	11.248

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:23:01 Pacific Daylight Time

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	2.531e3	2.948e3	1.192	0.86	0.77	8.2	YES	NO	dd	dd	0.500
2	Total-tetrafurans	22.80	9.267e2	1.085e3	1.192	0.85	0.77	3.2	YES	NO	dd	dd	0.183
3	Total-tetrafurans	22.62	2.155e3	2.795e3	1.192	0.77	0.77	8.0	YES	NO	bd	bd	0.451
4	Total-tetrafurans	25.50	2.524e3	3.153e3	1.192	0.80	0.77	8.7	YES	NO	db	db	0.518
5	2378-TCDF	25.28	1.424e3	1.786e3	1.108	0.80	0.77	5.8	YES	NO	bd	bd	0.315
6	Total-pentafurans	30.62	1.383e3	8.725e2	1.047	1.59	1.55	8.5	YES	NO	dd	dd	0.260
7	12378-PeCDF	29.44	1.108e3	7.209e2	1.015	1.54	1.55	8.4	YES	NO	bb	MM	0.212
8	123789-HxCDF	36.48	9.544e2	6.849e2	1.030	1.39	1.24	5.2	YES	NO	bd	bd	0.283
9	123678-HxCDF	34.58	1.817e3	1.506e3	1.037	1.21	1.24	14.8	YES	NO	db	db	0.480
10	123478-HxCDF	34.44	4.175e3	3.371e3	1.017	1.24	1.24	29.8	YES	NO	bd	bd	1.152
11	Total-hexafurans	34.28	8.094e2	6.204e2	1.045	1.30	1.24	6.1	YES	NO	bb	bb	0.220
12	Total-hexafurans	33.80	2.508e4	2.077e4	1.045	1.21	1.24	174.9	YES	NO	bb	bb	7.057
13	Total-hexafurans	32.97	1.626e4	1.267e4	1.045	1.28	1.24	102.4	YES	NO	bb	bb	4.453
14	123468-HXCDF	32.76	4.941e3	4.018e3	1.087	1.23	1.24	32.9	YES	NO	bb	bb	1.280
15	1234789-HpCDF	40.54	2.247e3	2.487e3	1.283	0.90	1.05	19.5	YES	NO	bb	bd	0.856
16	Total-heptafurans	39.01	1.077e5	1.039e5	1.305	1.04	1.05	989.9	YES	NO	bb	bb	35.403
17	1234678-HpCDF	38.37	3.750e4	3.485e4	1.327	1.08	1.05	333.2	YES	NO	bb	bb	11.248
18	OCDF	44.68	1.061e5	1.156e5	1.447	0.92	0.89	717.2	YES	NO	bb	bb	49.904
19	13468-PECDF	26.71	1.195e4	8.233e3	1.376	1.45	1.55	88.4	YES	NO	bb	db	1.728

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.52	4.460e2	5.798e2	0.879	0.77	0.77	4.8	YES	NO	bb	bb	0.157
2	Total-tetradioxins	24.05	9.822e2	1.286e3	0.879	0.76	0.77	10.5	YES	NO	bb	bb	0.347

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.03	1.800e3	1.020e3	0.995	1.76	1.55	12.0	YES	NO	bb	MM	0.604
2	Total-pentadioxins	29.44	1.425e3	9.345e2	1.331	1.53	1.55	11.8	YES	NO	bb	bb	0.378
3	Total-pentadioxins	28.82	9.775e2	6.919e2	1.331	1.41	1.55	9.8	YES	NO	bb	bd	0.267
4	12479-PECDD	28.38	3.143e3	2.098e3	1.843	1.50	1.55	17.3	YES	NO	bb	bb	0.606

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.60	2.564e3	1.932e3	1.027	1.33	1.24	14.2	YES	NO	bd	bd	0.790
2	Total-hexadioxins	34.79	1.428e4	1.207e4	1.028	1.18	1.24	76.1	YES	NO	db	db	4.565
3	Total-hexadioxins	34.68	4.997e4	3.938e4	1.028	1.27	1.24	174.2	YES	NO	bd	bd	15.481
4	Total-hexadioxins	34.33	1.458e4	1.166e4	1.028	1.25	1.24	84.3	YES	NO	bb	bb	4.547
5	124679-HXCDD	33.55	8.634e4	7.078e4	1.125	1.22	1.24	465.4	YES	NO	bb	bb	25.221
6	123789-HxCDD	36.10	4.232e3	3.634e3	0.950	1.16	1.24	26.5	YES	NO	MM	MM	1.474
7	Total-hexadioxins	35.89	4.388e3	3.631e3	1.028	1.21	1.24	25.2	YES	NO	dd	db	1.389
8	123678-HxCDD	35.72	8.068e3	7.022e3	1.009	1.15	1.24	46.0	YES	NO	dd	dd	2.628

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.83	3.496e5	3.247e5	1.068	1.08	1.05	1774.3	YES	NO	bb	bb	177.438
2	1234679-HPCDD	38.81	1.535e6	1.432e6	1.211	1.07	1.05	8404.8	YES	NO	bb	bb	688.651

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.52	4.460e2	5.798e2	0.879	0.77	0.77	4.8	YES	NO	bb	bb	0.157
2	Total-tetradioxins	24.05	9.822e2	1.286e3	0.879	0.76	0.77	10.5	YES	NO	bb	bb	0.347
3	12378-PeCDD	31.03	1.800e3	1.020e3	0.995	1.76	1.55	12.0	YES	NO	bb	MM	0.604
4	Total-pentadioxins	29.44	1.425e3	9.345e2	1.331	1.53	1.55	11.8	YES	NO	bb	bb	0.378
5	Total-pentadioxins	28.82	9.775e2	6.919e2	1.331	1.41	1.55	9.8	YES	NO	bb	bd	0.267
6	12479-PECDD	28.38	3.143e3	2.098e3	1.843	1.50	1.55	17.3	YES	NO	bb	bb	0.606
7	123478-HxCDD	35.60	2.564e3	1.932e3	1.027	1.33	1.24	14.2	YES	NO	bd	bd	0.790
8	Total-hexadioxins	34.79	1.428e4	1.207e4	1.028	1.18	1.24	76.1	YES	NO	db	db	4.565
9	Total-hexadioxins	34.68	4.997e4	3.938e4	1.028	1.27	1.24	174.2	YES	NO	bd	bd	15.481
10	Total-hexadioxins	34.33	1.458e4	1.166e4	1.028	1.25	1.24	84.3	YES	NO	bb	bb	4.547
11	124679-HXCDD	33.55	8.634e4	7.078e4	1.125	1.22	1.24	465.4	YES	NO	bb	bb	25.221
12	123789-HxCDD	36.10	4.232e3	3.634e3	0.950	1.16	1.24	26.5	YES	NO	MM	MM	1.474
13	Total-hexadioxins	35.89	4.388e3	3.631e3	1.028	1.21	1.24	25.2	YES	NO	dd	db	1.389
14	123678-HxCDD	35.72	8.068e3	7.022e3	1.009	1.15	1.24	46.0	YES	NO	dd	dd	2.628
15	1234678-HpCDD	39.83	3.496e5	3.247e5	1.068	1.08	1.05	1774.3	YES	NO	bb	bb	177.438
16	1234679-HPCDD	38.81	1.535e6	1.432e6	1.211	1.07	1.05	8404.8	YES	NO	bb	bb	688.651
17	OCDD	44.46	3.444e6	3.802e6	1.181	0.91	0.89	18934.9	YES	NO	bb	bb	1999.1...

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	2.531e3	2.948e3	1.192	0.86	0.77	8.2	YES	NO	dd	dd	0.500
2	Total-tetrafurans	22.80	9.267e2	1.085e3	1.192	0.85	0.77	3.2	YES	NO	dd	dd	0.183
3	Total-tetrafurans	22.62	2.155e3	2.795e3	1.192	0.77	0.77	8.0	YES	NO	bd	bd	0.451
4	Total-tetrafurans	25.50	2.524e3	3.153e3	1.192	0.80	0.77	8.7	YES	NO	db	db	0.518
5	2378-TCDF	25.28	1.424e3	1.786e3	1.108	0.80	0.77	5.8	YES	NO	bd	bd	0.315
6	Total-pentafurans	30.62	1.383e3	8.725e2	1.047	1.59	1.55	8.5	YES	NO	dd	dd	0.260
7	12378-PeCDF	29.44	1.108e3	7.209e2	1.015	1.54	1.55	8.4	YES	NO	bb	MM	0.212
8	123789-HxCDF	36.48	9.544e2	6.849e2	1.030	1.39	1.24	5.2	YES	NO	bd	bd	0.283
9	123678-HxCDF	34.58	1.817e3	1.506e3	1.037	1.21	1.24	14.8	YES	NO	db	db	0.480
10	123478-HxCDF	34.44	4.175e3	3.371e3	1.017	1.24	1.24	29.8	YES	NO	bd	bd	1.152
11	Total-hexafurans	34.28	8.094e2	6.204e2	1.045	1.30	1.24	6.1	YES	NO	bb	bb	0.220
12	Total-hexafurans	33.80	2.508e4	2.077e4	1.045	1.21	1.24	174.9	YES	NO	bb	bb	7.057
13	Total-hexafurans	32.97	1.626e4	1.267e4	1.045	1.28	1.24	102.4	YES	NO	bb	bb	4.453
14	123468-HXCDF	32.76	4.941e3	4.018e3	1.087	1.23	1.24	32.9	YES	NO	bb	bb	1.280
15	1234789-HpCDF	40.54	2.247e3	2.487e3	1.283	0.90	1.05	19.5	YES	NO	bb	bd	0.856
16	Total-heptafurans	39.01	1.077e5	1.039e5	1.305	1.04	1.05	989.9	YES	NO	bb	bb	35.403
17	1234678-HpCDF	38.37	3.750e4	3.485e4	1.327	1.08	1.05	333.2	YES	NO	bb	bb	11.248
18	OCDF	44.68	1.061e5	1.156e5	1.447	0.92	0.89	717.2	YES	NO	bb	bb	49.904
19	13468-PECDF	26.71	1.195e4	8.233e3	1.376	1.45	1.55	88.4	YES	NO	bb	db	1.728
20	Total-tetradioxins	24.52	4.460e2	5.798e2	0.879	0.77	0.77	4.8	YES	NO	bb	bb	0.157
21	Total-tetradioxins	24.05	9.822e2	1.286e3	0.879	0.76	0.77	10.5	YES	NO	bb	bb	0.347
22	12378-PeCDD	31.03	1.800e3	1.020e3	0.995	1.76	1.55	12.0	YES	NO	bb	MM	0.604
23	Total-pentadioxins	29.44	1.425e3	9.345e2	1.331	1.53	1.55	11.8	YES	NO	bb	bb	0.378
24	Total-pentadioxins	28.82	9.775e2	6.919e2	1.331	1.41	1.55	9.8	YES	NO	bb	bd	0.267
25	12479-PECDD	28.38	3.143e3	2.098e3	1.843	1.50	1.55	17.3	YES	NO	bb	bb	0.606
26	123478-HxCDD	35.60	2.564e3	1.932e3	1.027	1.33	1.24	14.2	YES	NO	bd	bd	0.790
27	Total-hexadioxins	34.79	1.428e4	1.207e4	1.028	1.18	1.24	76.1	YES	NO	db	db	4.565
28	Total-hexadioxins	34.68	4.997e4	3.938e4	1.028	1.27	1.24	174.2	YES	NO	bd	bd	15.481
29	Total-hexadioxins	34.33	1.458e4	1.166e4	1.028	1.25	1.24	84.3	YES	NO	bb	bb	4.547
30	124679-HXCDD	33.55	8.634e4	7.078e4	1.125	1.22	1.24	465.4	YES	NO	bb	bb	25.221
31	123789-HxCDD	36.10	4.232e3	3.634e3	0.950	1.16	1.24	26.5	YES	NO	MM	MM	1.474
32	Total-hexadioxins	35.89	4.388e3	3.631e3	1.028	1.21	1.24	25.2	YES	NO	dd	db	1.389
33	123678-HxCDD	35.72	8.068e3	7.022e3	1.009	1.15	1.24	46.0	YES	NO	dd	dd	2.628
34	1234678-HpCDD	39.83	3.496e5	3.247e5	1.068	1.08	1.05	1774.3	YES	NO	bb	bb	177.438
35	1234679-HPCDD	38.81	1.535e6	1.432e6	1.211	1.07	1.05	8404.8	YES	NO	bb	bb	688.651
36	OCDD	44.46	3.444e6	3.802e6	1.181	0.91	0.89	18934.9	YES	NO	bb	bb	1999.1...

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.48	4.699e3					0.3	NO		bb		
2	FUNCTION1 PFK	23.21	3.805e4					1.0	NO		db		
3	FUNCTION1 PFK	23.18	3.655e4					0.9	NO		bd		
4	FUNCTION1 PFK	23.10	7.131e4					1.7	NO		bb		
5	FUNCTION1 PFK	22.80	5.406e4					1.1	NO		bb		
6	FUNCTION1 PFK	22.72	8.356e3					0.5	NO		bb		
7	FUNCTION1 PFK	22.66	6.085e4					1.2	NO		bb		
8	FUNCTION1 PFK	22.52	9.070e4					1.4	NO		bb		
9	FUNCTION1 PFK	22.31	1.307e4					0.5	NO		bb		
10	FUNCTION1 PFK	22.19	5.485e4					0.6	NO		bb		
11	FUNCTION1 PFK	22.04	7.080e4					1.2	NO		bb		
12	FUNCTION1 PFK	21.83	3.689e4					1.0	NO		db		
13	FUNCTION1 PFK	21.77	7.302e4					1.1	NO		bd		
14	FUNCTION1 PFK	21.33	1.384e4					0.3	NO		bb		
15	FUNCTION1 PFK	21.27	2.259e4					0.7	NO		bb		
16	FUNCTION1 PFK	21.15	9.355e4					1.8	NO		bb		
17	FUNCTION1 PFK	27.39	2.279e4					0.0	NO		db		
18	FUNCTION1 PFK	27.30	6.827e4					1.4	NO		bd		
19	FUNCTION1 PFK	25.96	6.252e3					0.4	NO		bb		
20	FUNCTION1 PFK	25.65	1.798e5					1.6	NO		db		
21	FUNCTION1 PFK	25.53	1.004e5					1.5	NO		dd		
22	FUNCTION1 PFK	25.47	6.179e4					1.3	NO		bd		
23	FUNCTION1 PFK	24.84	2.474e5					3.0	NO		db		
24	FUNCTION1 PFK	24.78	5.193e5					2.8	NO		bd		
25	FUNCTION1 PFK	24.10	1.283e4					0.4	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.20	7.228e6					19.3	YES		bb		0.000
2	FUNCTION2 PFK	28.69	2.508e6					18.6	YES		bb		0.000

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.43	1.543e5					3.4	YES		bd		0.000
2	FUNCTION3 PFK	33.51	2.271e5					1.3	NO		bb		0.000
3	FUNCTION3 PFK	33.28	2.622e5					4.6	YES		bb		0.000
4	FUNCTION3 PFK	36.68	2.795e6					10.4	YES		bb		0.000
5	FUNCTION3 PFK	36.25	9.317e6					26.1	YES		db		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.48	2.623e5					9.7	YES		db		
2	FUNCTION5 PFK	44.35	3.810e5					10.5	YES		bd		
3	FUNCTION5 PFK	43.88	4.229e5					4.8	YES		bb		
4	FUNCTION5 PFK	43.34	8.185e6					16.9	YES		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	22.00	2.492e2					3.2	YES		dd		0.000
2	FUNCTION1 HXCD...	21.87	8.923e1					2.2	NO		dd		0.000
3	FUNCTION1 HXCD...	21.81	2.154e2					5.0	YES		bd		0.000
4	FUNCTION1 HXCD...	21.66	1.338e2					2.9	NO		bb		0.000
5	FUNCTION1 HXCD...	21.42	1.774e2					2.0	NO		bb		0.000
6	FUNCTION1 HXCD...	21.15	1.392e2					2.1	NO		db		0.000
7	FUNCTION1 HXCD...	21.09	1.083e2					2.6	NO		bd		0.000
8	FUNCTION1 HXCD...	26.29	1.765e2					2.7	NO		bb		0.000
9	FUNCTION1 HXCD...	25.43	1.752e2					3.1	YES		db		0.000
10	FUNCTION1 HXCD...	25.31	2.774e2					4.8	YES		bd		0.000
11	FUNCTION1 HXCD...	23.27	1.405e2					2.7	NO		bb		0.000
12	FUNCTION1 HXCD...	22.51	9.202e1					2.3	NO		bb		0.000
13	FUNCTION1 HXCD...	22.36	2.917e2					5.8	YES		bb		0.000
14	FUNCTION1 HXCD...	22.16	1.564e2					2.9	NO		db		0.000
15	FUNCTION1 HXCD...	22.07	1.262e2					3.3	YES		dd		0.000

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	22.84	1.585e3					19.6	YES		bb		0.000
2	FUNCTION1 HPCD...	22.66	8.838e1					2.3	NO		bb		0.000
3	FUNCTION1 HPCD...	22.36	2.781e2					4.4	YES		bb		0.000
4	FUNCTION1 HPCD...	22.18	1.318e2					2.7	NO		bb		0.000
5	FUNCTION1 HPCD...	21.83	1.387e2					2.9	NO		bb		0.000
6	FUNCTION1 HPCD...	21.54	1.117e4					165.0	YES		bb		0.000
7	FUNCTION1 HPCD...	21.15	2.384e2					2.0	NO		bb		0.000
8	FUNCTION1 HPCD...	23.81	7.465e1					2.4	NO		bb		0.000
9	FUNCTION1 HPCD...	23.51	2.222e2					3.8	YES		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.83	7.074e1					1.4	NO		bb		0.000
2	FUNCTION2 HPCD...	31.64	2.577e2					2.2	NO		bb		0.000
3	FUNCTION2 HPCD...	30.72	1.411e2					3.1	YES		bb		0.000
4	FUNCTION2 HPCD...	30.51	2.904e2					5.5	YES		bb		0.000
5	FUNCTION2 HPCD...	29.89	1.085e2					1.8	NO		bb		0.000
6	FUNCTION2 HPCD...	29.76	7.397e1					1.7	NO		bb		0.000
7	FUNCTION2 HPCD...	29.16	1.592e2					2.5	NO		bb		0.000
8	FUNCTION2 HPCD...	28.71	1.368e2					1.4	NO		bb		0.000
9	FUNCTION2 HPCD...	28.60	8.911e1					2.9	NO		bb		0.000
10	FUNCTION2 HPCD...	28.50	1.096e2					2.7	NO		db		0.000
11	FUNCTION2 HPCD...	28.46	1.193e2					2.2	NO		bd		0.000
12	FUNCTION2 HPCD...	27.78	7.104e1					1.1	NO		bb		0.000

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	34.57	2.201e2					2.4	NO		dd		0.000
2	FUNCTION3 OCDPE	34.54	9.288e1					2.0	NO		dd		0.000
3	FUNCTION3 OCDPE	34.46	2.030e2					2.5	NO		bd		0.000
4	FUNCTION3 OCDPE	34.30	7.712e1					1.1	NO		bb		0.000
5	FUNCTION3 OCDPE	33.99	1.760e2					2.2	NO		db		0.000
6	FUNCTION3 OCDPE	33.95	7.993e1					2.0	NO		dd		0.000
7	FUNCTION3 OCDPE	33.93	7.745e1					1.6	NO		dd		0.000
8	FUNCTION3 OCDPE	33.87	9.803e1					1.6	NO		dd		0.000
9	FUNCTION3 OCDPE	33.73	1.461e2					1.6	NO		bd		0.000
10	FUNCTION3 OCDPE	33.35	3.117e2					3.4	YES		db		0.000
11	FUNCTION3 OCDPE	33.24	7.252e1					1.4	NO		bd		0.000
12	FUNCTION3 OCDPE	33.07	1.367e2					3.0	NO		db		0.000
13	FUNCTION3 OCDPE	32.93	6.305e2					6.8	YES		bd		0.000
14	FUNCTION3 OCDPE	32.59	1.824e2					2.8	NO		bb		0.000
15	FUNCTION3 OCDPE	32.37	8.805e1					1.4	NO		db		0.000
16	FUNCTION3 OCDPE	32.29	7.854e1					1.5	NO		bd		0.000
17	FUNCTION3 OCDPE	36.22	8.417e1					2.2	NO		bb		0.000
18	FUNCTION3 OCDPE	36.08	1.270e2					1.9	NO		bb		0.000
19	FUNCTION3 OCDPE	35.69	8.485e1					1.3	NO		bb		0.000
20	FUNCTION3 OCDPE	35.59	9.624e1					2.0	NO		bb		0.000
21	FUNCTION3 OCDPE	35.27	7.117e1					1.3	NO		bb		0.000
22	FUNCTION3 OCDPE	34.68	1.239e2					2.4	NO		db		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.82	8.014e1					2.6	NO		bb		0.000
2	FUNCTION4 NCDPE	37.99	8.969e3					144.3	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

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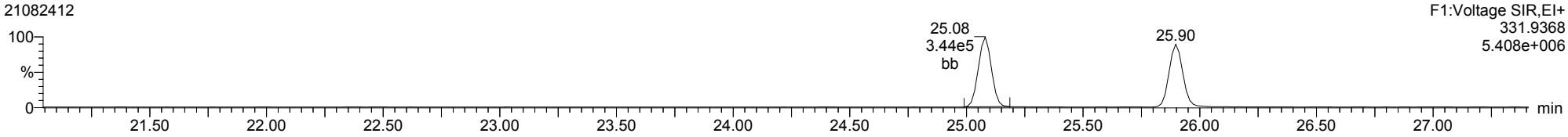

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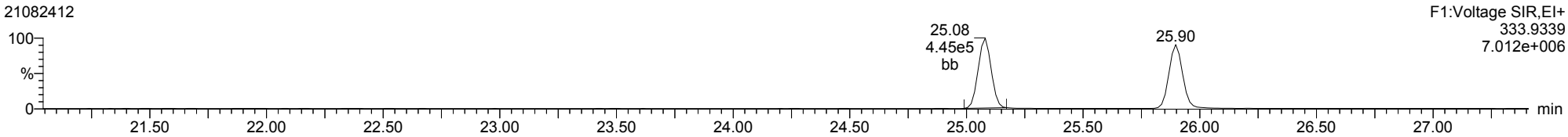
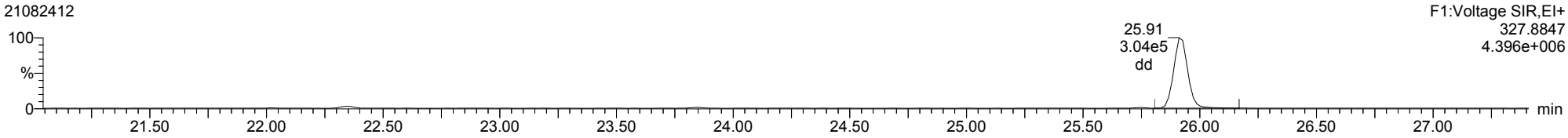


37CL-2378-TCDD



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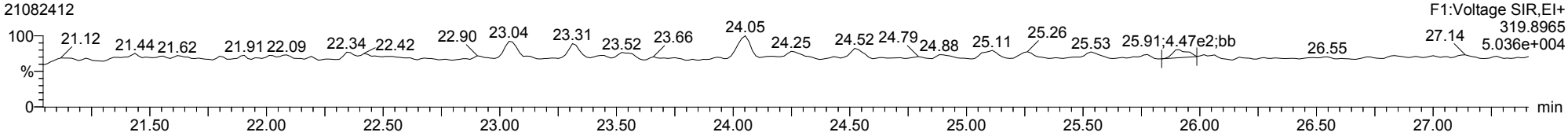

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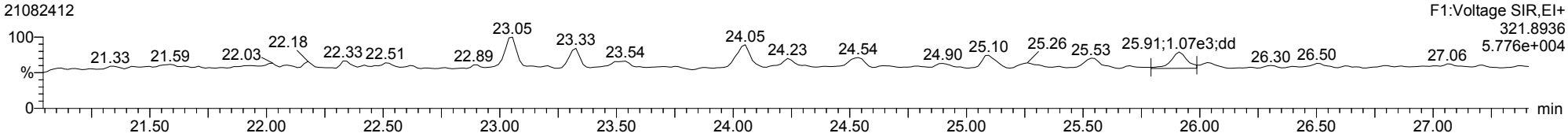

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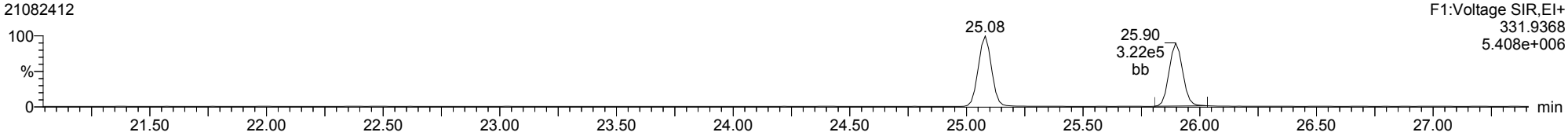

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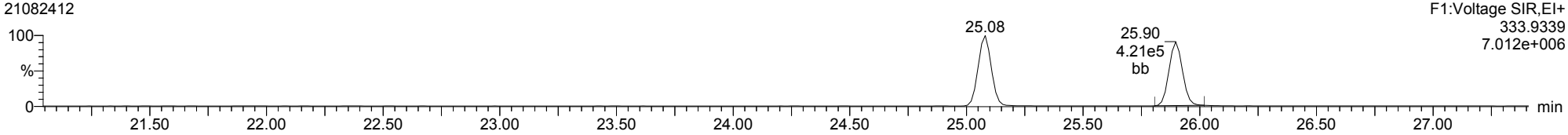

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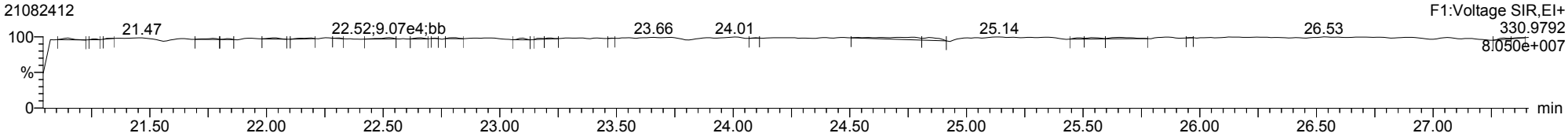

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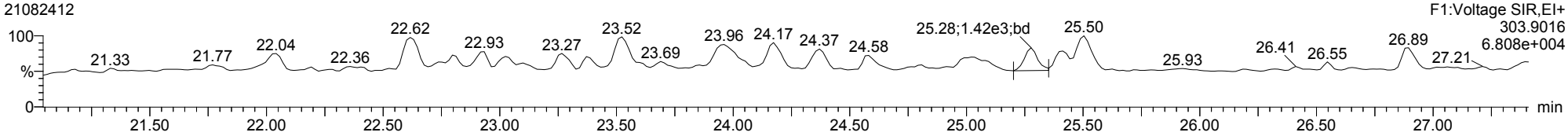
2378-TCDF



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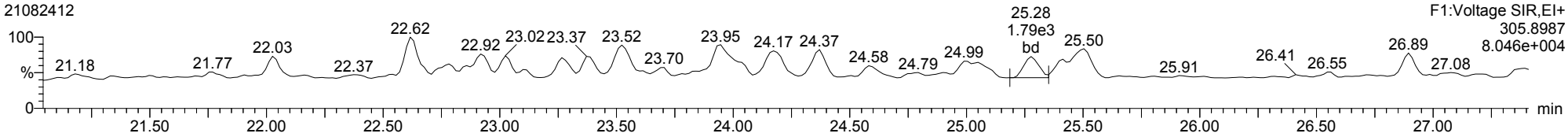

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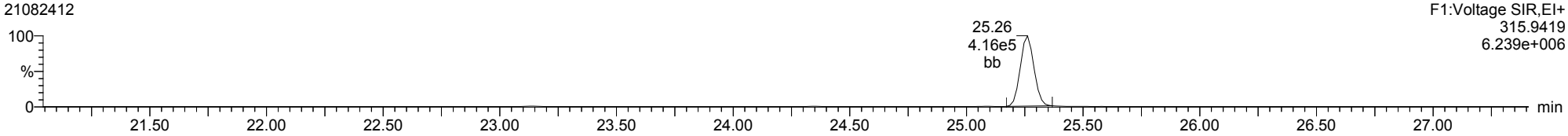

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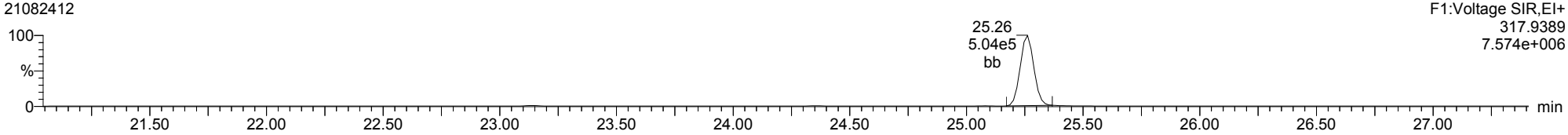

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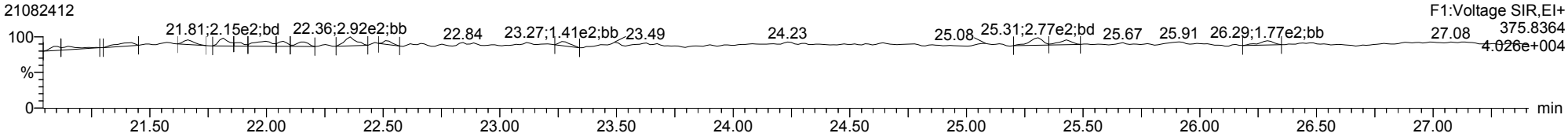
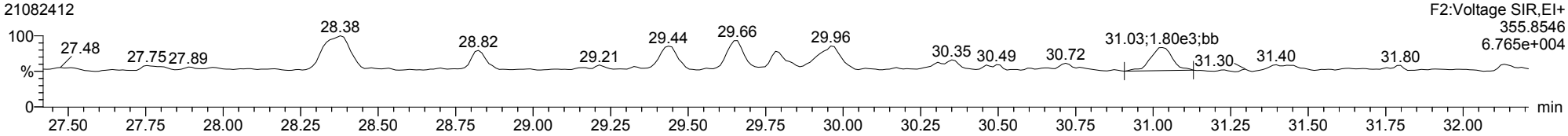
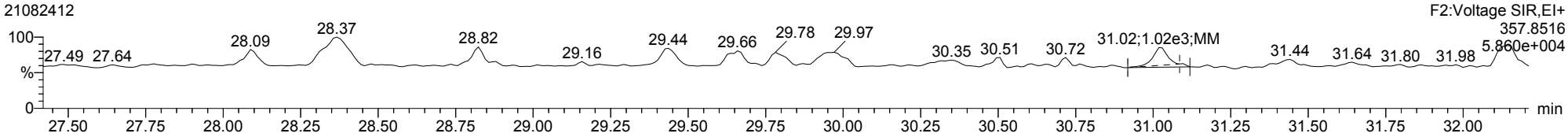


ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

12378-PeCDD



12378-PeCDD



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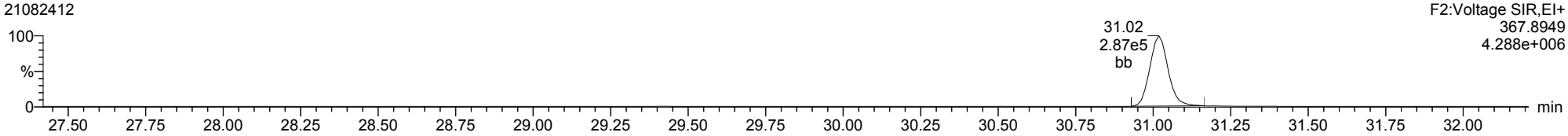

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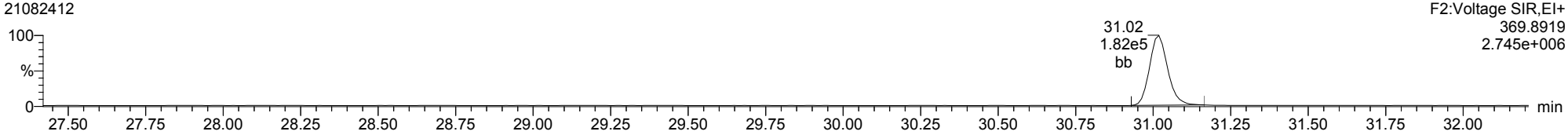

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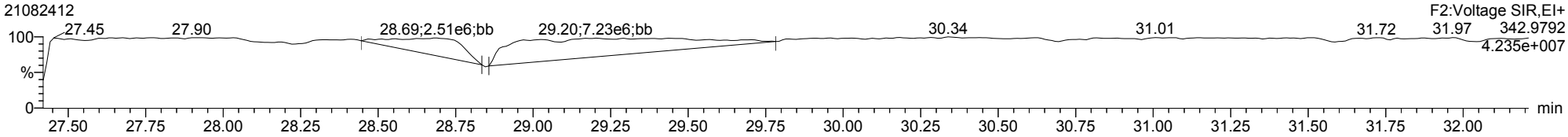

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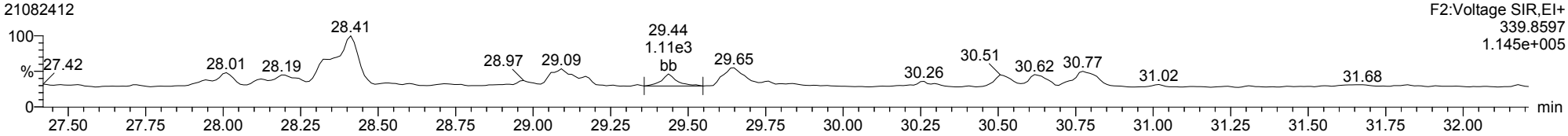

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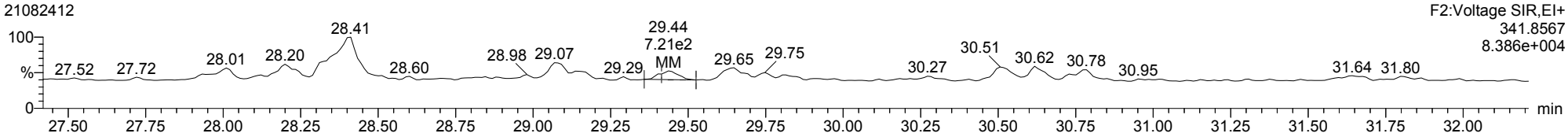

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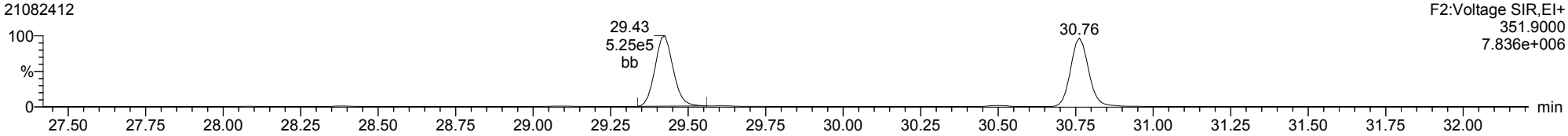

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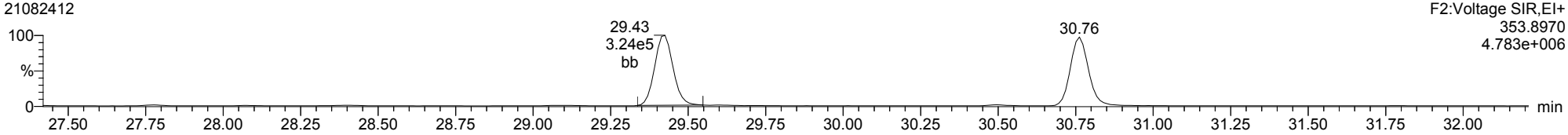

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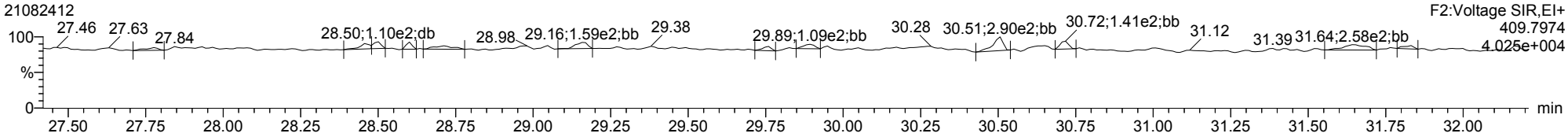

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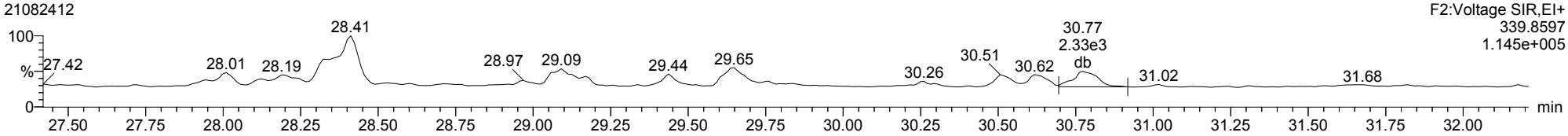
23478-PeCDF



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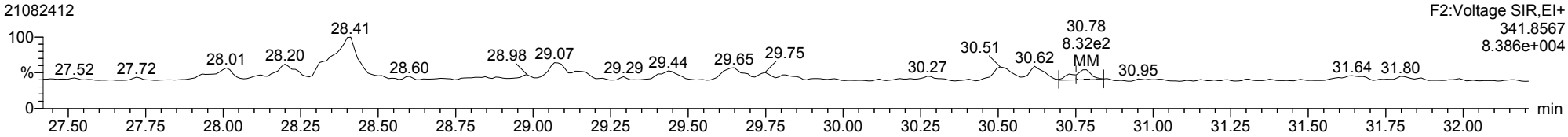

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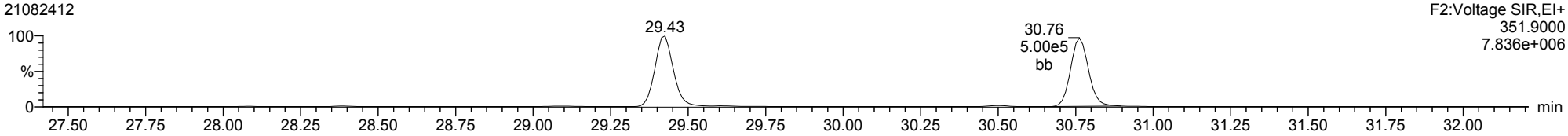

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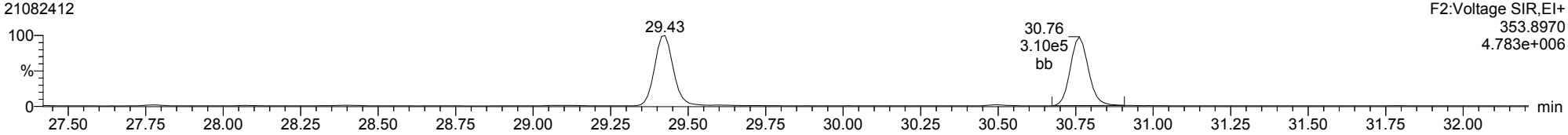

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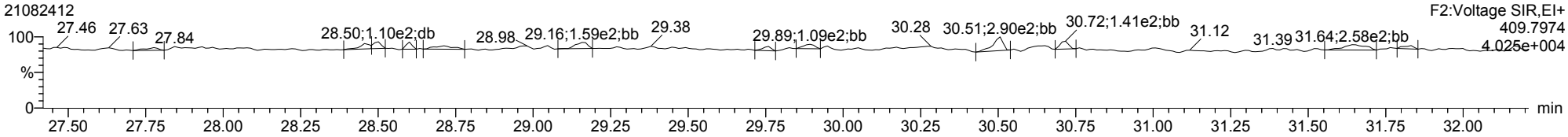

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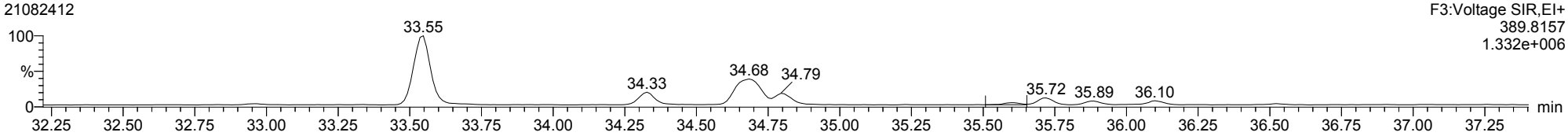

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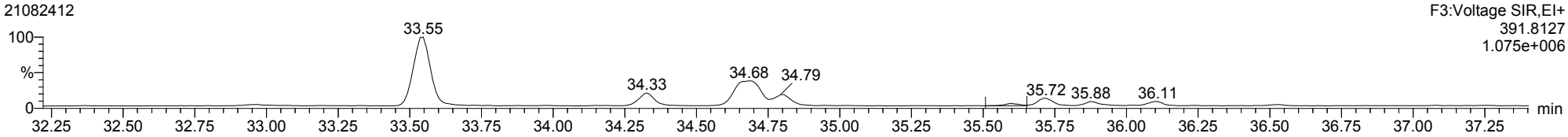

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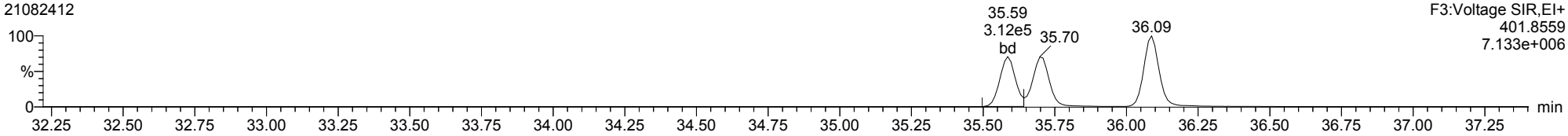

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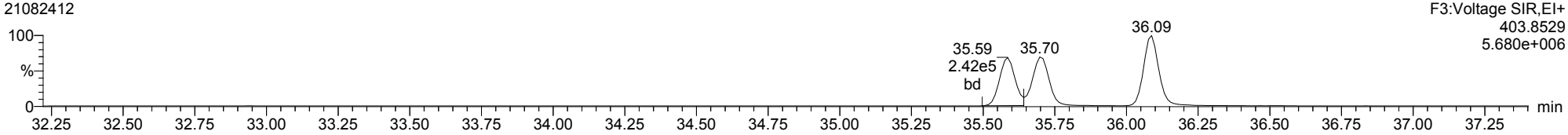
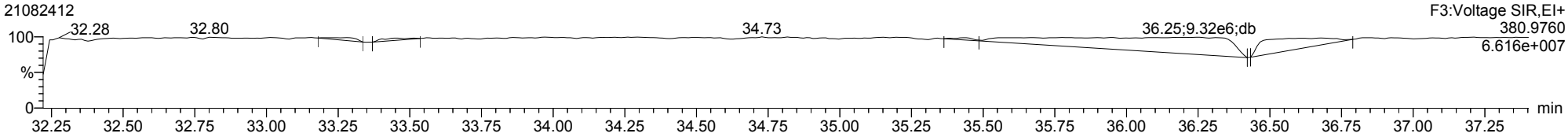


FUNCTION3 PFK



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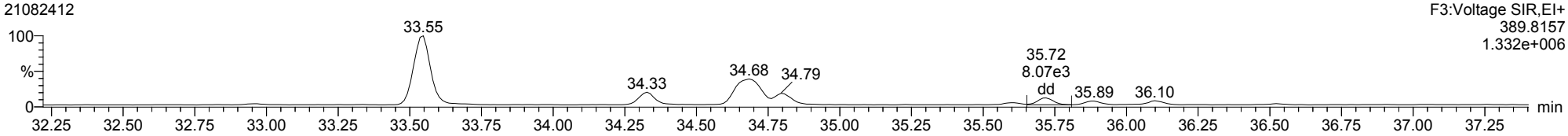

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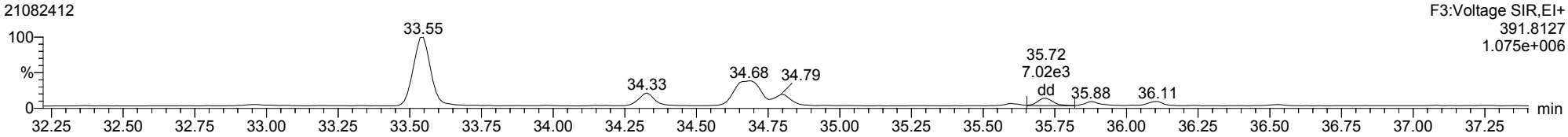

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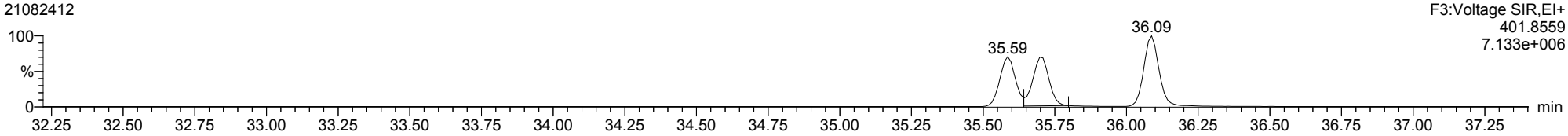

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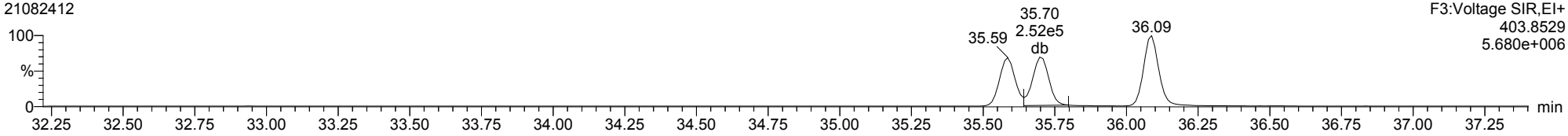

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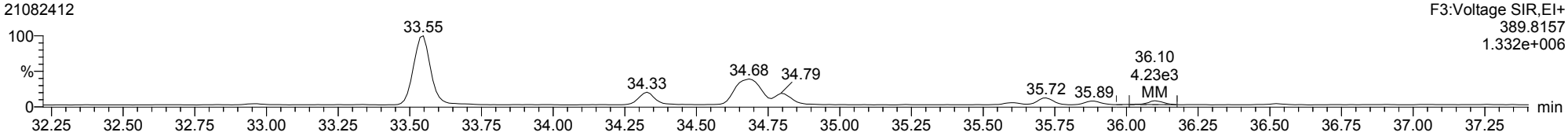

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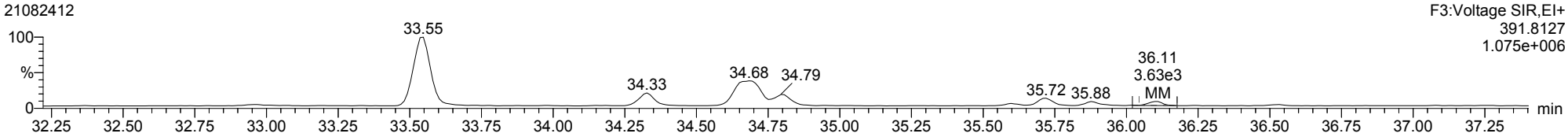

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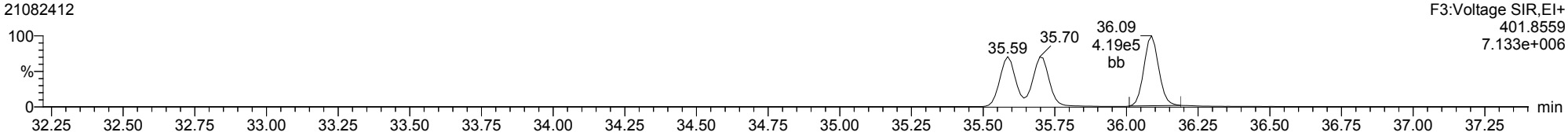

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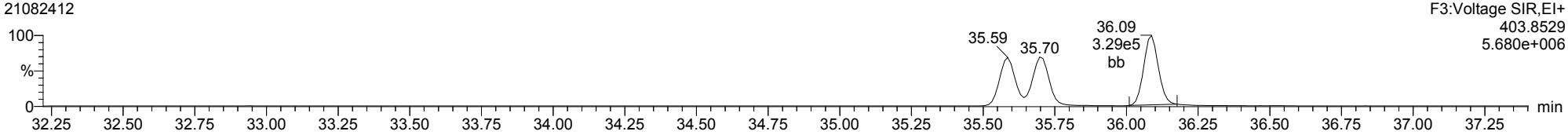

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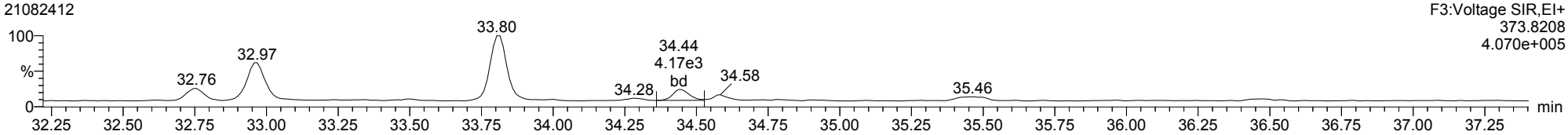

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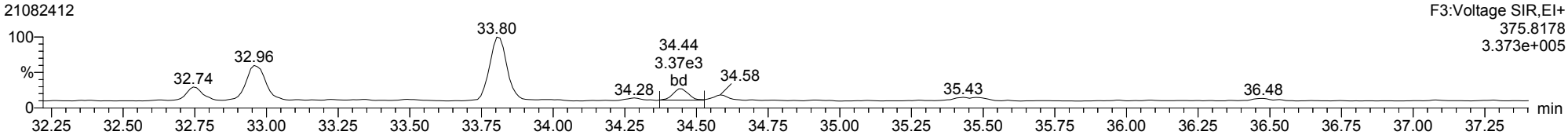

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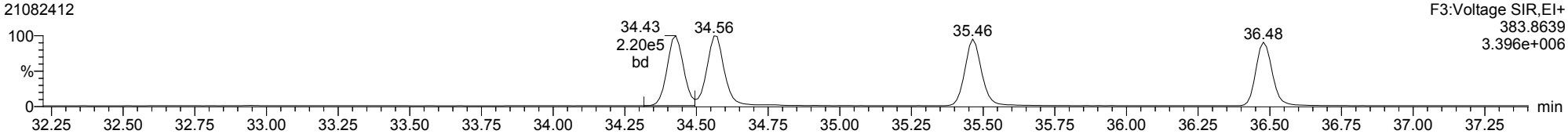

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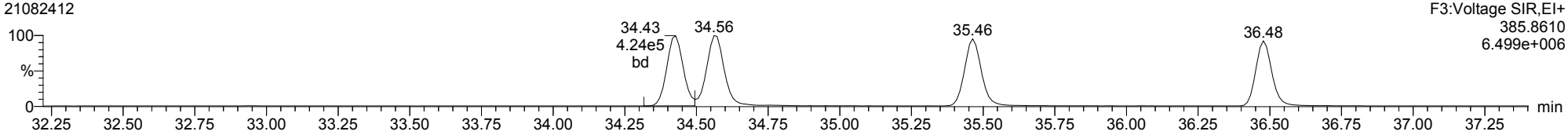
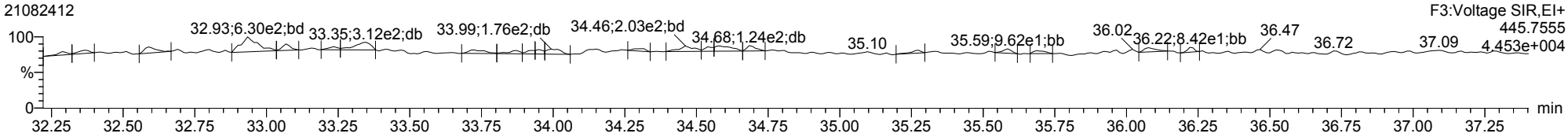


FUNCTION3 OCDPE



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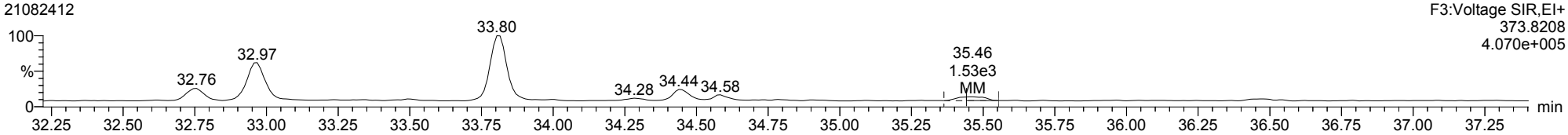
234678-HxCDF



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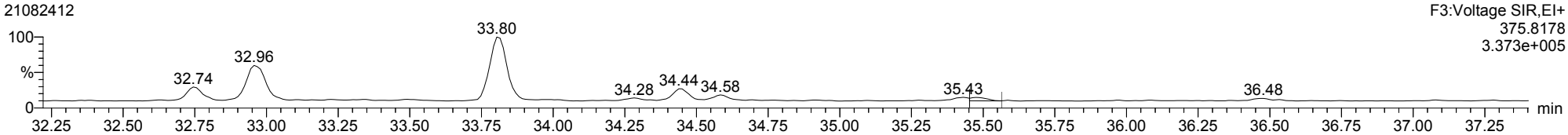

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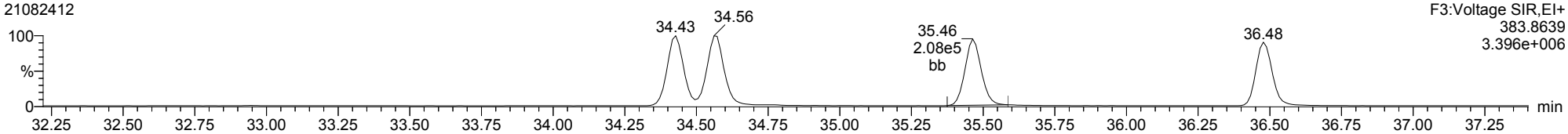

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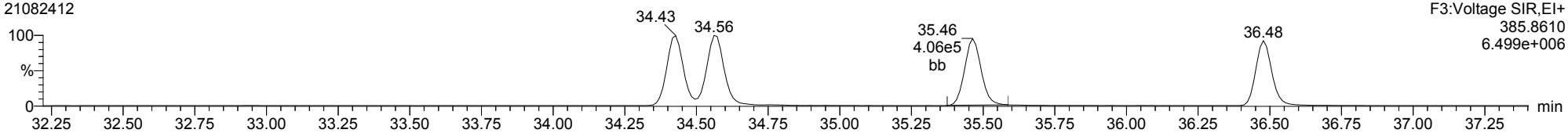
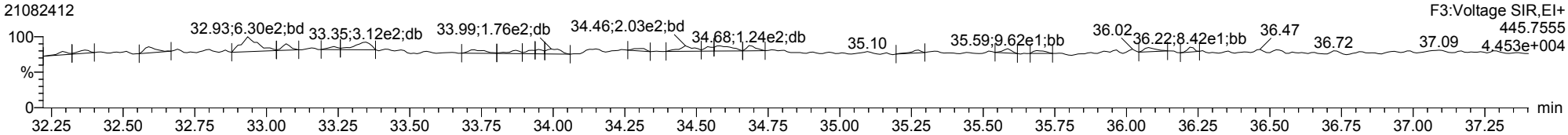


FUNCTION3 OCDPE



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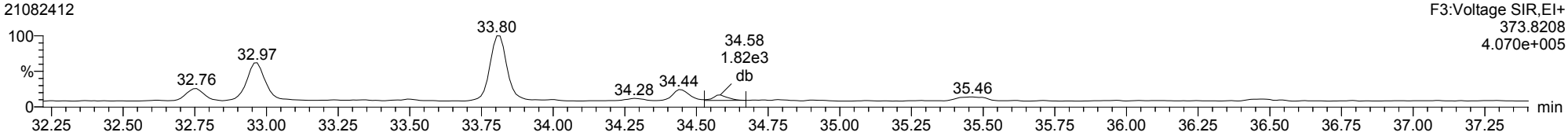
123678-HxCDF



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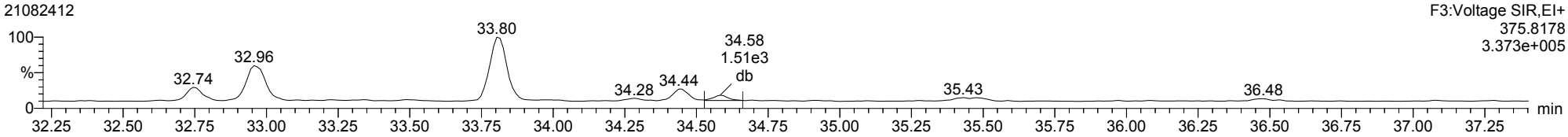

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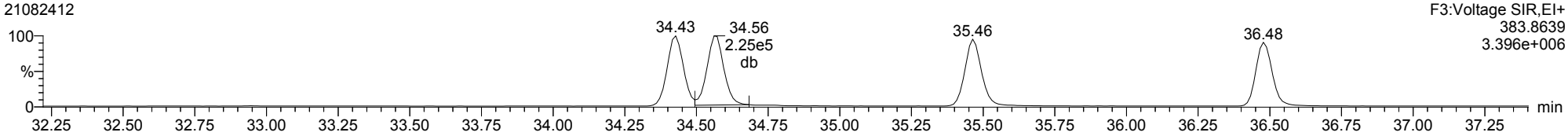

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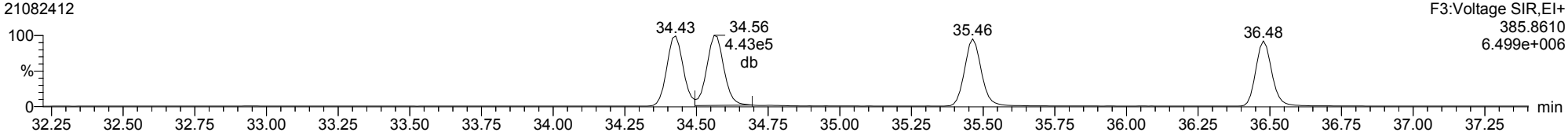
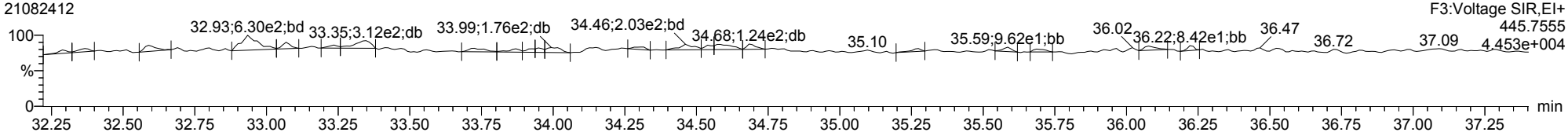


FUNCTION3 OCDPE



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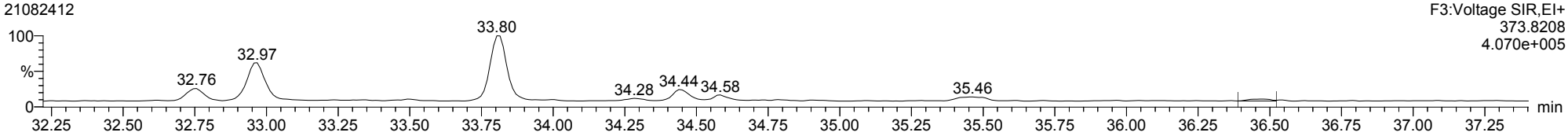

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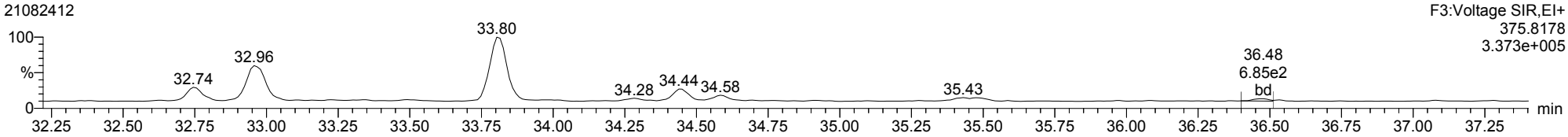

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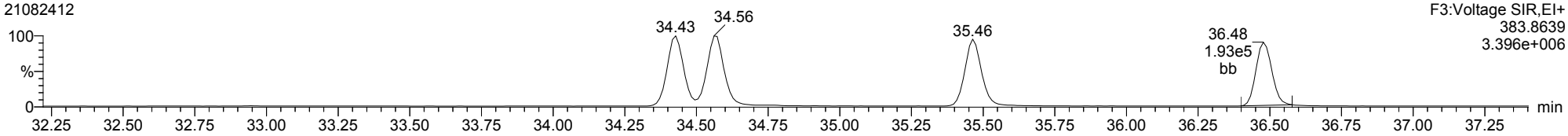

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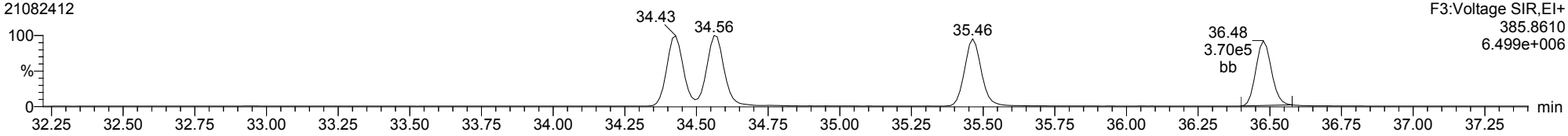
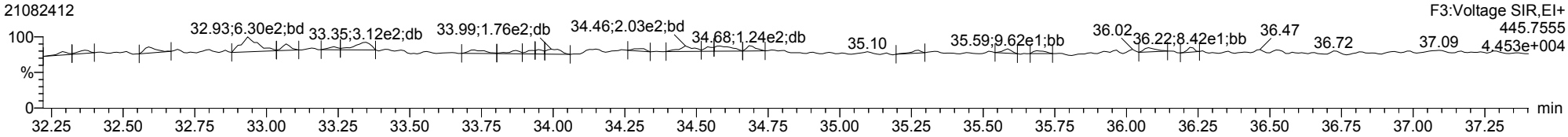


FUNCTION3 OCDPE



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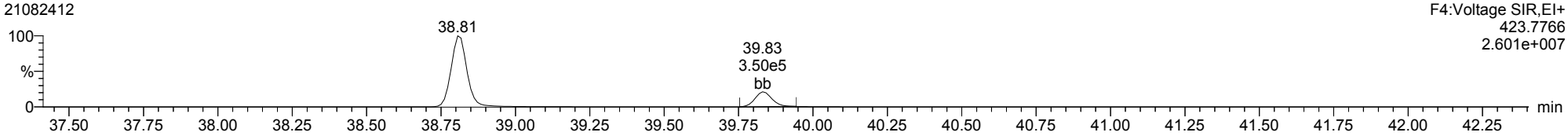
1234678-HpCDD



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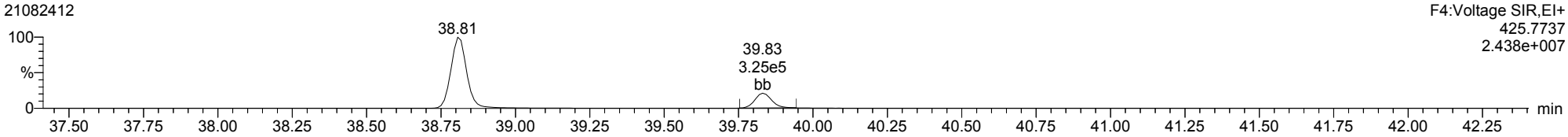

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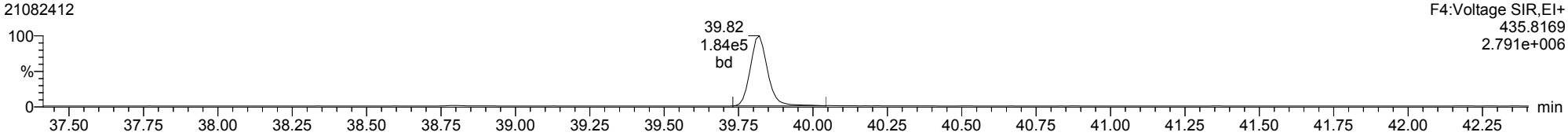

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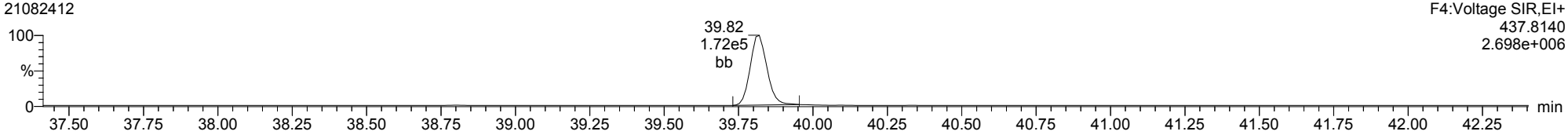
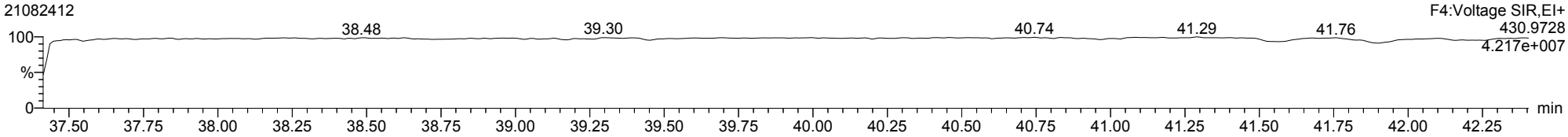


FUNCTION4 PFK



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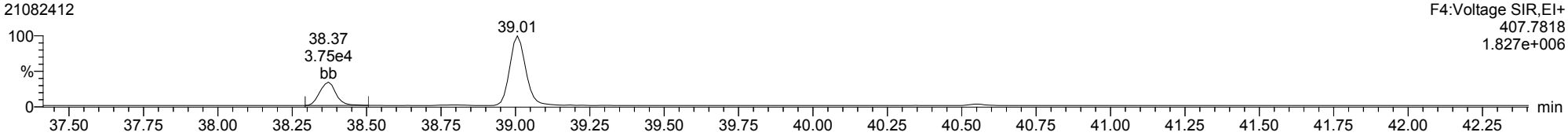
1234678-HpCDF



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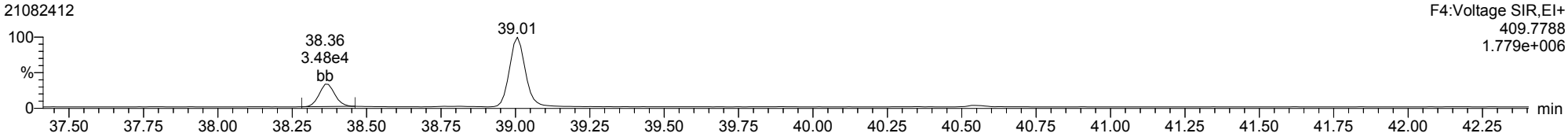

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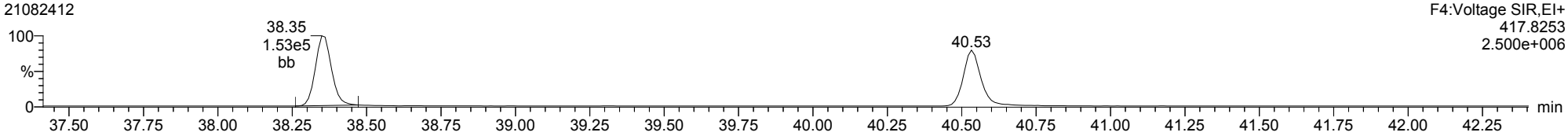

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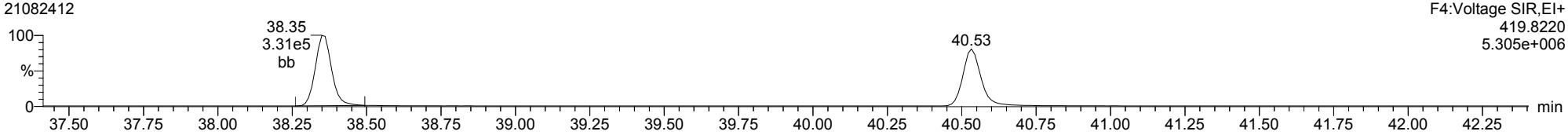
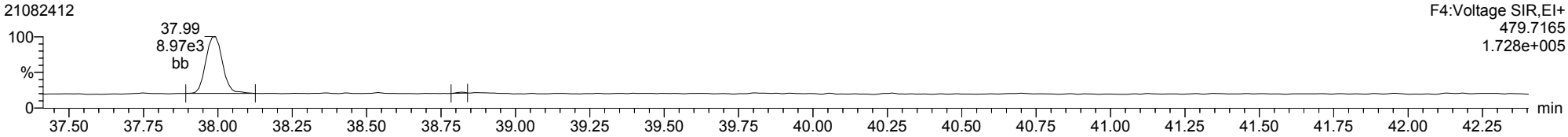


FUNCTION4 NCDPE



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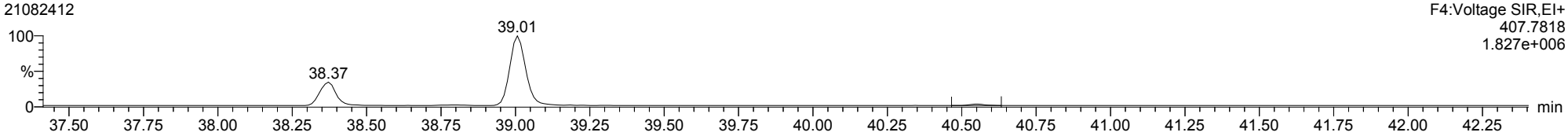
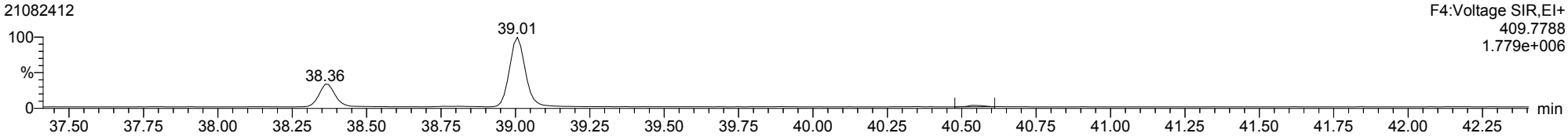
1234789-HpCDF



1234789-HpCDF



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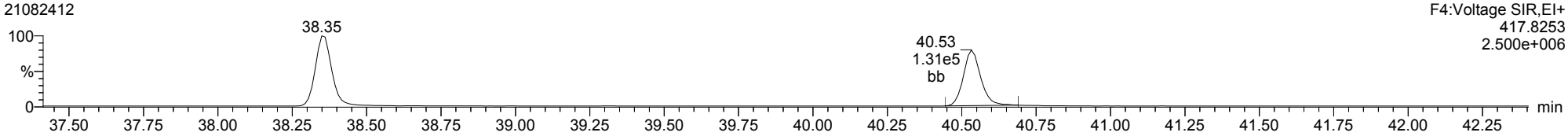

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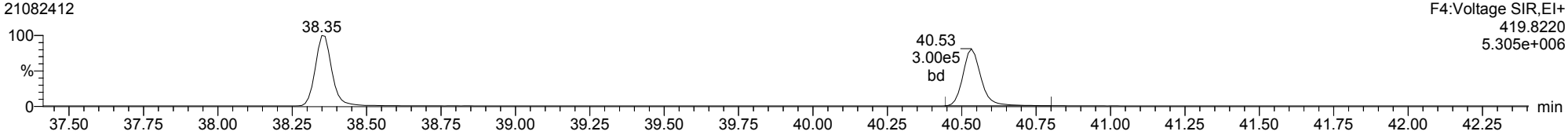
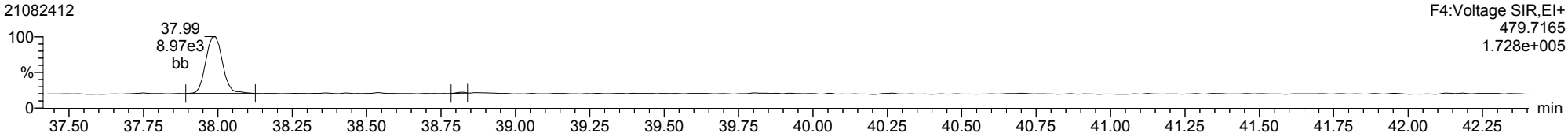


FUNCTION4 NCDPE



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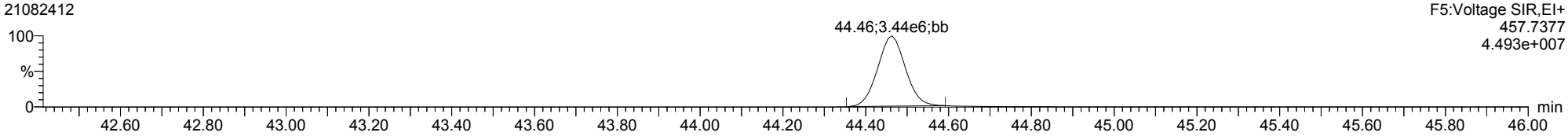

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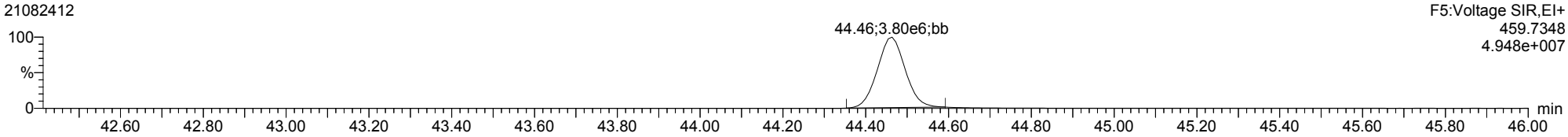

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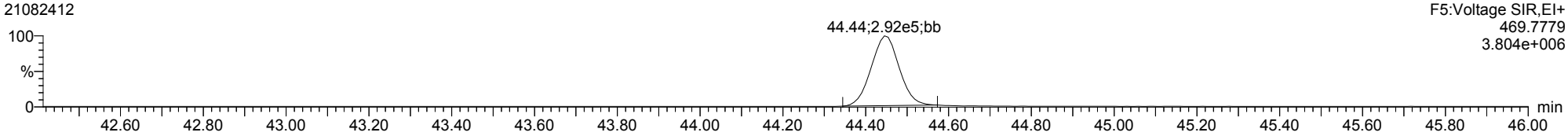

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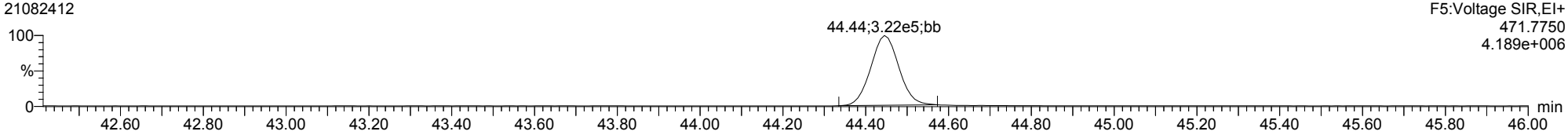
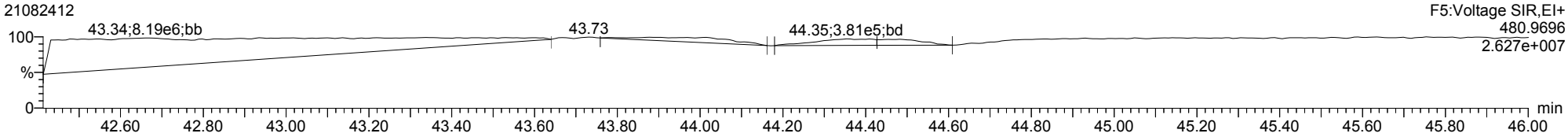


FUNCTION5 PFK



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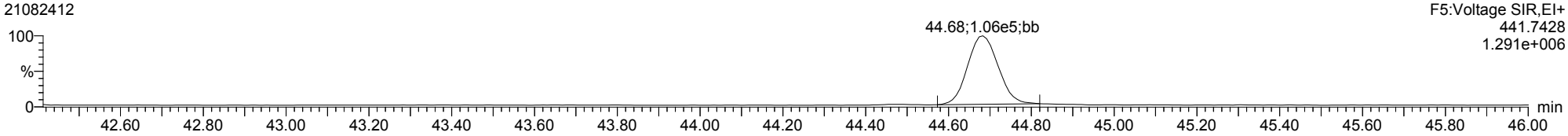
OCDF



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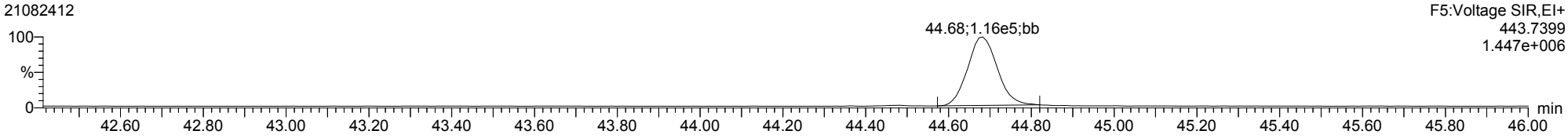
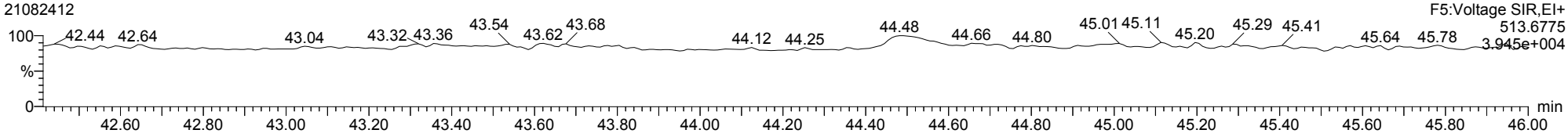
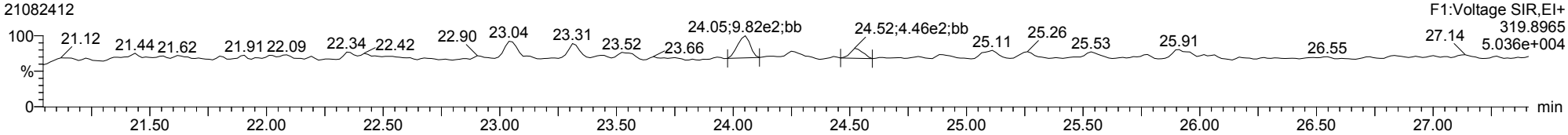


FUNCTION5 DCDPE

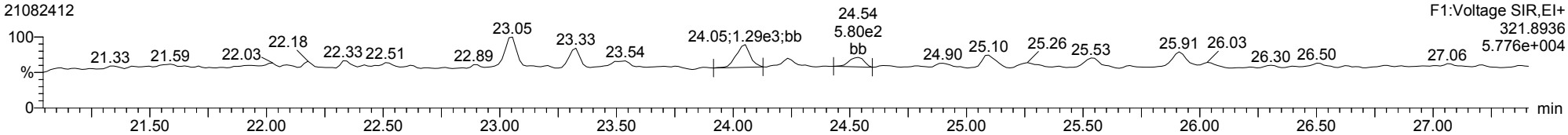


ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

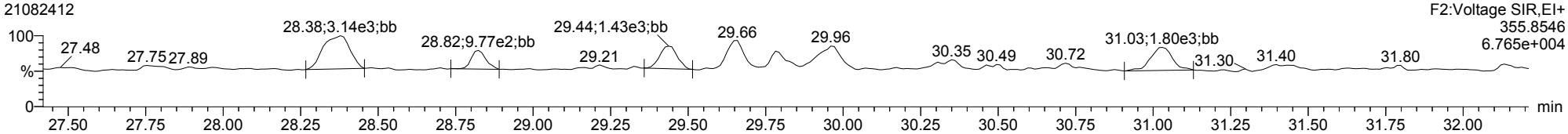
Total-tetradioxins



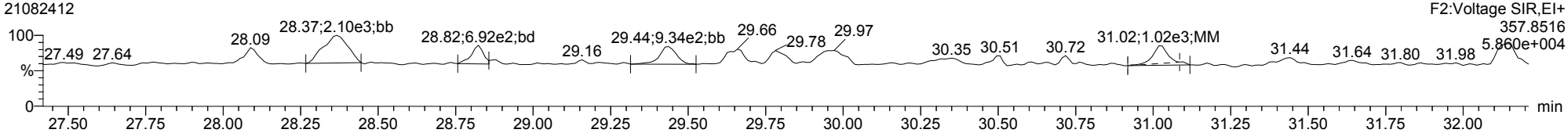
Total-tetradioxins



Total-pentadioxins

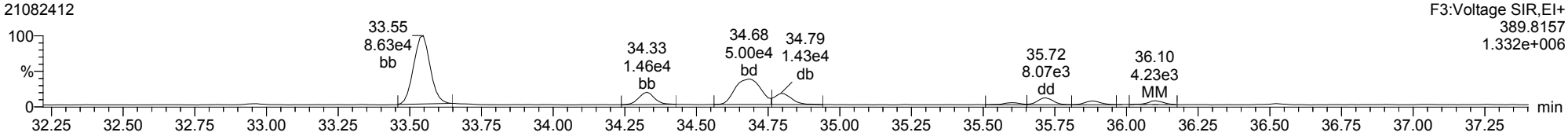


Total-pentadioxins



ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



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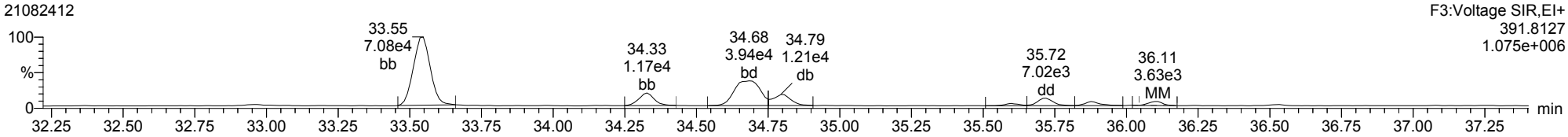

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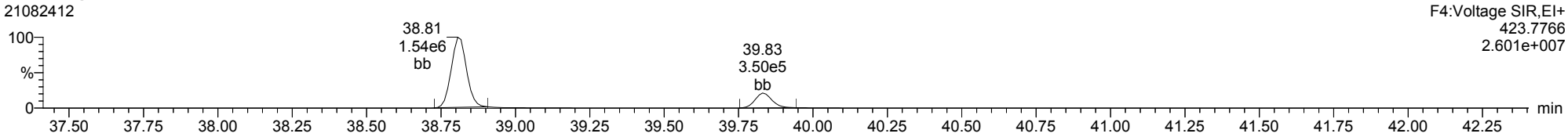
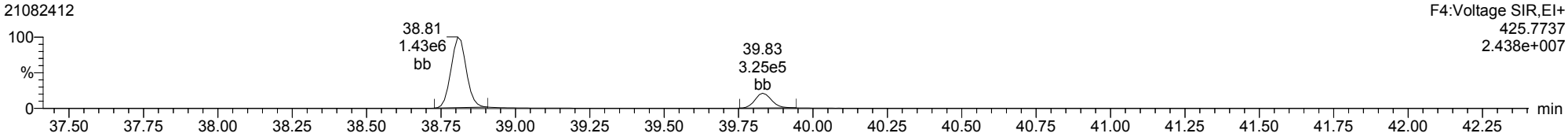


Total-heptadioxins



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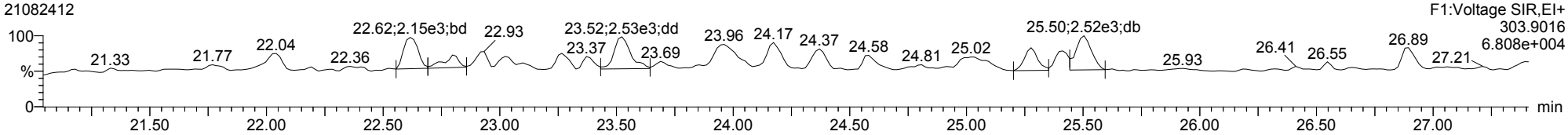
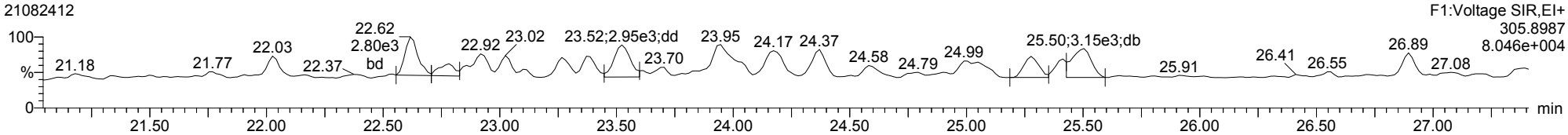
ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

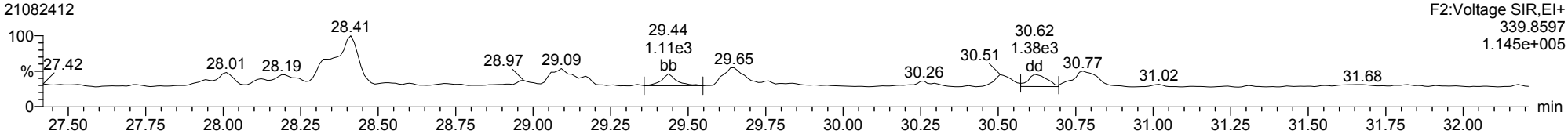
Total-tetrafurans



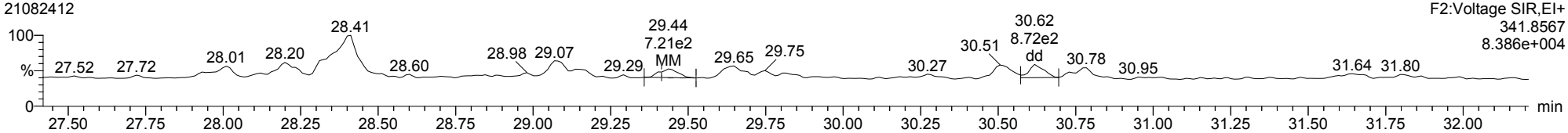
Total-tetrafurans



Total-pentafurans

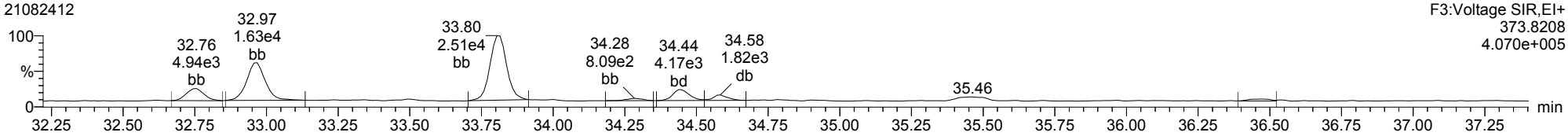


Total-pentafurans



ID: BJH0186-DUP1, Name: 21082412, Date: 24-Aug-2021, Time: 21:07:18, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



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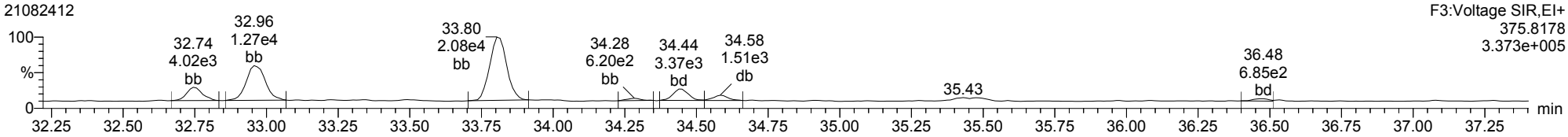
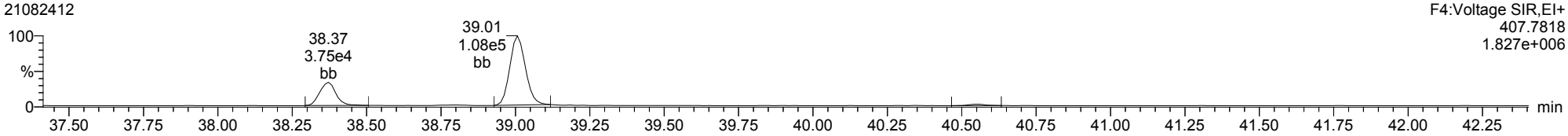


Total-heptafurans



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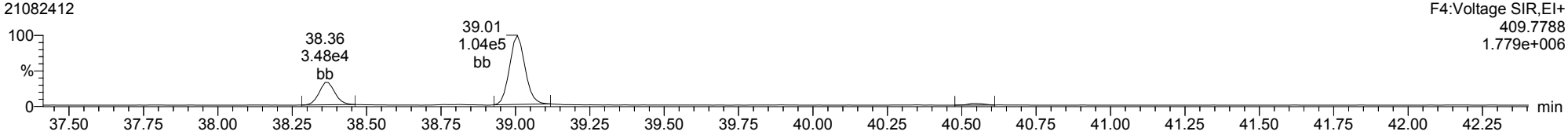

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS647

DUPLICATES
EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0127
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0645-DUP1
Batch: BJH0645
Lab Source ID: 21G0127-11RE1
Preparation: EPA 1613
Initial/Final: 20.48 g / 20 uL
Source Sample Name: LDW21-SS647
% Solids: 48.95

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
2,3,7,8-TCDF	25	0.837	0.755	10.4	
2,3,7,8-TCDD	25	0.378	0.446	16.6	
1,2,3,7,8-PeCDF	25	0.527	0.463	12.8	
2,3,4,7,8-PeCDF	25	0.992	0.785	23.3	
1,2,3,7,8-PeCDD	25	1.42	1.11	24.1	
1,2,3,4,7,8-HxCDF	25	2.80	2.80	0.0821	
1,2,3,6,7,8-HxCDF	25	1.23	1.06	15.1	
2,3,4,6,7,8-HxCDF	25	1.23	1.63	27.6	
1,2,3,7,8,9-HxCDF	25	0.694	0.629	9.86	
1,2,3,4,7,8-HxCDD	25	1.46	1.20	19.1	
1,2,3,6,7,8-HxCDD	25	4.48	4.49	0.314	
1,2,3,7,8,9-HxCDD	25	3.38	2.77	19.6	
1,2,3,4,6,7,8-HpCDF	25	22.9	22.7	0.931	
1,2,3,4,7,8,9-HpCDF	25	1.94	2.05	5.57	
1,2,3,4,6,7,8-HpCDD	25	146	147	0.521	
OCDF	25	66.4	67.5	1.71	
OCDD	25	1180	1410	17.4	
Total TCDF	200	9.77	10.3	4.87	
Total TCDD	200	4.46	0.929	131	
Total PeCDF	200	15.3	9.45	47.4	
Total PeCDD	200	3.07	2.54	18.7	
Total HxCDF	200	33.5	33.1	1.19	
Total HxCDD	200	47.3	46.3	2.05	
Total HpCDF	200	80.4	77.9	3.20	
Total HpCDD	200	439	466	5.86	
13C12-2,3,7,8-TCDF		132	125		
13C12-2,3,7,8-TCDD		136	131		

* Values outside of QC limits
L Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS647

DUPLICATES
EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0127
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0645-DUP1
Batch: BJH0645
Lab Source ID: 21G0127-11RE1
Preparation: EPA 1613
Initial/Final: 20.48 g / 20 uL
Source Sample Name: LDW21-SS647
% Solids: 48.95

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
13C12-1,2,3,7,8-PeCDF		142	167		
13C12-2,3,4,7,8-PeCDF		137	165		
13C12-1,2,3,7,8-PeCDD		132	156		
13C12-1,2,3,4,7,8-HxCDF		145	149		
13C12-1,2,3,6,7,8-HxCDF		135	139		
13C12-2,3,4,6,7,8-HxCDF		136	145		
13C12-1,2,3,7,8,9-HxCDF		151	150		
13C12-1,2,3,4,7,8-HxCDD		150	162		
13C12-1,2,3,6,7,8-HxCDD		141	148		
13C12-1,2,3,4,6,7,8-HpCDF		132	149		
13C12-1,2,3,4,7,8,9-HpCDF		124	146		
13C12-1,2,3,4,6,7,8-HpCDD		129	155		
13C12-OCDD		264	334		
37Cl4-2,3,7,8-TCDD		61.8	53.3		

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

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ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.776	1.001	8.907e2	1.030e3	1.108	0.864	0.770	1324	1303	1.21e4	1.49e4	9.1	11.4	NO	bd	bd	0.378
12378-PeCDF	29.921	1.000	7.689e2	5.441e2	1.015	1.413	1.550	1547	1147	1.37e4	1.06e4	8.8	9.3	NO	bb	bb	0.232
23478-PeCDF	31.280	1.001	1.361e3	9.643e2	1.126	1.412	1.550	1547	1147	2.03e4	1.59e4	13.1	13.8	NO	db	db	0.393
123478-HxCDF	34.912	1.001	3.427e3	2.729e3	1.017	1.256	1.240	777	621	5.16e4	4.56e4	66.5	73.4	NO	dd	dd	1.403
234678-HxCDF	35.904	1.000	1.823e3	1.698e3	1.052	1.074	1.240	777	621	1.84e4	1.74e4	23.7	27.9	NO	bb	bb	0.816
123678-HxCDF	35.046	1.001	1.303e3	1.100e3	1.037	1.185	1.240	777	621	2.23e4	1.63e4	28.8	26.2	NO	db	db	0.530
123789-HxCDF	36.917	1.000	6.114e2	5.317e2	1.030	1.150	1.240	777	621	9.26e3	9.03e3	11.9	14.5	NO	bb	MM	0.315
1234678-HpCDF	38.778	1.000	2.515e4	2.365e4	1.327	1.064	1.050	877	698	4.33e5	4.17e5	493.2	597.9	NO	bb	bb	11.379
1234789-HpCDF	41.029	1.001	1.770e3	1.642e3	1.283	1.078	1.050	877	698	2.43e4	2.41e4	27.7	34.5	NO	bb	bb	1.026
OCDF	45.271	1.006	4.570e4	5.047e4	1.447	0.905	0.890	585	922	5.76e5	6.36e5	984.3	689.5	NO	bd	bb	33.842
2378-TCDD	26.396	1.000	2.713e2	5.046e2	0.920	0.538	0.770	1005	651	3.36e3	7.73e3	3.3	11.9	YES	bd	bd	0.224
12378-PeCDD	31.525	1.001	9.960e2	6.410e2	0.995	1.554	1.550	949	1588	1.59e4	7.15e3	16.8	4.5	NO	bb	MM	0.558
123478-HxCDD	36.037	1.000	1.210e3	1.031e3	1.027	1.173	1.240	906	924	2.09e4	1.78e4	23.1	19.2	NO	bd	bd	0.603
123678-HxCDD	36.149	1.000	4.286e3	3.858e3	1.009	1.111	1.240	906	924	7.04e4	7.22e4	77.7	78.1	NO	db	db	2.250
123789-HxCDD	36.539	1.011	2.734e3	2.028e3	0.950	1.349	1.240	906	924	4.93e4	3.34e4	54.4	36.1	NO	bb	bb	1.390
1234678-HpCDD	40.282	1.001	9.354e4	8.569e4	1.068	1.092	1.050	1370	1114	1.52e6	1.39e6	1111.2	1246.5	NO	bb	bb	73.476
OCDD	45.023	1.000	7.723e5	8.610e5	1.181	0.897	0.890	1214	1534	9.73e6	1.08e7	8014.3	7054.3	NO	bb	bb	704.278
13C-2378-TCDF	25.761	1.007	2.040e5	2.545e5	1.427	0.802	0.770	1759	1146	3.22e6	4.06e6	1831.1	3544.9	NO	bb	bb	62.595
13C-12378-PeCDF	29.910	1.169	3.405e5	2.169e5	1.297	1.570	1.550	1275	1115	5.32e6	3.39e6	4172.6	3036.3	NO	bb	bb	83.682
13C-23478-PeCDF	31.258	1.222	3.248e5	2.003e5	1.236	1.621	1.550	1275	1115	5.18e6	3.20e6	4057.7	2866.2	NO	bb	bb	82.708
13C-123478-HxCDF	34.890	0.955	1.465e5	2.850e5	1.242	0.514	0.510	926	1587	2.28e6	4.49e6	2461.1	2826.6	NO	bd	bd	74.549
13C-123678-HxCDF	35.023	0.959	1.493e5	2.880e5	1.343	0.518	0.510	926	1587	2.46e6	4.68e6	2658.9	2947.9	NO	db	db	69.873
13C-234678-HxCDF	35.915	0.983	1.394e5	2.707e5	1.215	0.515	0.510	926	1587	2.26e6	4.33e6	2437.7	2728.8	NO	bb	bb	72.486
13C-123789-HxCDF	36.929	1.011	1.202e5	2.319e5	1.008	0.518	0.510	926	1587	2.28e6	4.37e6	2466.6	2751.4	NO	bb	bb	75.028
13C-1234678-HpCDF	38.767	1.061	1.015e5	2.217e5	0.926	0.458	0.440	928	968	1.76e6	3.84e6	1895.9	3972.3	NO	bb	bb	74.872
13C-1234789-HpCDF	41.007	1.123	8.090e4	1.782e5	0.758	0.454	0.440	928	968	1.22e6	2.68e6	1314.8	2770.1	NO	bb	bb	73.380
13C-1234-TCDD	25.579	0.000	2.240e5	2.895e5	1.000	0.774	0.770	1323	848	3.62e6	4.68e6	2737.9	5520.2	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.032	1.612e5	2.158e5	1.116	0.747	0.770	1323	848	2.48e6	3.30e6	1876.6	3896.0	NO	bb	bb	65.752
13C-12378-PeCDD	31.503	1.232	1.812e5	1.134e5	0.732	1.597	1.550	854	867	2.88e6	1.78e6	3377.5	2052.9	NO	bb	bb	78.366
13C-123478-HxCDD	36.026	0.986	2.015e5	1.605e5	0.960	1.256	1.240	1456	966	3.25e6	2.58e6	2232.9	2670.7	NO	bd	bd	80.968
13C-123678-HxCDD	36.138	0.989	1.993e5	1.594e5	1.041	1.251	1.240	1456	966	3.30e6	2.64e6	2267.6	2738.0	NO	db	db	73.947
13C-1234678-HpCDD	40.260	1.102	1.180e5	1.104e5	0.632	1.069	1.050	943	708	1.93e6	1.82e6	2045.9	2568.2	NO	bd	bb	77.524
13C-OCDD	45.005	1.232	1.869e5	2.059e5	0.504	0.908	0.890	870	959	2.34e6	2.57e6	2691.3	2679.0	NO	bb	bb	167.402
13C-123789-HxCDD	36.528	0.000	2.591e5	2.067e5	1.000	1.253	1.240	1456	966	4.47e6	3.51e6	3073.1	3632.6	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	1.485e5		1.084			629		2.30e6		3659.0			db		26.696

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:35 Pacific Daylight Time

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.404	0.870	3.890e2	6.032e2	1.425	0.645	0.770	1324	1303	5.98e3	8.36e3	4.5	6.4	YES	dd	dd	0.152
1289-TCDF	27.379	1.063	8.861e2	1.059e3	1.043	0.836	0.770	1324	1303	1.61e4	1.86e4	12.2	14.3	NO	bb	bb	0.407
13468-PECDF					1.376		1.550	583	710								
12389-PECDF					1.000		1.550	1547	1147								
123468-HXCDF	33.230	0.952	3.714e3	3.017e3	1.087	1.231	1.240	777	621	6.10e4	4.91e4	78.5	78.9	NO	bb	bb	1.436
1368-TCDD	23.523	0.891	3.261e2	5.125e2	0.923	0.636	0.770	1005	651	6.57e3	7.97e3	6.5	12.2	YES	bb	bb	0.241
1289-TCDD					0.794		0.770	1005	651								
12479-PECDD	28.851	0.916	1.291e3	1.464e3	1.843	0.882	1.550	949	1588	2.42e4	1.71e4	25.5	10.8	YES	db	db	0.507
12389-PECDD	31.926	1.013	2.328e2	2.188e2	1.154	1.064	1.550	949	1588	4.59e3	3.54e3	4.8	2.2	YES	bd	bb	0.133
124679-HXCDD	34.010	0.944	1.760e4	1.441e4	1.125	1.222	1.240	906	924	2.78e5	2.35e5	306.6	254.1	NO	bb	bb	7.860
1234679-HPCDD	39.224	0.974	2.281e5	2.143e5	1.211	1.064	1.050	1370	1114	3.97e6	3.75e6	2900.7	3360.9	NO	bb	bb	159.987
Total-tetrafurans			1.215e4		1.192			1324		1.83e5							5.144
Total-penta1			1.072e4					583		1.56e5							3.562
Total-pentafurans			4.031e3		1.047			1547		6.49e4							1.175
Total-hexafurans			3.874e4		1.045			777		6.05e5							16.614
Total-heptafurans			7.872e4		1.305			877		1.32e6							39.036
Total-Furans			1.905e5		1.158			1324		2.91e6							99.555
Total-tetradioxins			6.993e2		0.879			1005		1.14e4							0.466
Total-pentadioxins			2.772e3		1.331			949		4.37e4							1.274
Total-hexadioxins			4.879e4		1.028			906		6.99e5							23.228
Total-heptadioxins			3.217e5		1.140			1370		5.49e6							233.463
Total-Dioxins			1.146e6		1.092			1005		1.60e7							962.710
Total-TEQ			1.337e6					1005		1.89e7							1062.264
FUNCTION1 PFK			1.063e7					525542		4.12e7							
FUNCTION2 PFK			1.606e6					428016		3.98e6							0.000
FUNCTION3 PFK			1.226e7					404319		1.14e7							0.000
FUNCTION4 PFK			3.605e5					230219		8.61e6							
FUNCTION5 PFK			9.386e4					191159		2.79e6							
FUNCTION1 HXCD...			1.310e3					617		1.68e4							0.000
FUNCTION1 HPCD...			4.183e3					769		7.07e4							0.000
FUNCTION2 HPCD...			2.902e2					652		6.27e3							0.000
FUNCTION3 OCDPE			6.112e2					456		9.85e3							0.000
FUNCTION4 NCDPE			4.866e3					591		8.31e4							0.000
FUNCTION5 DCDPE			1.076e2					662		1.75e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:35 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.02	1.960e3	2.483e3	1.192	0.79	0.77	19.4	YES	NO	dd	dd	0.813
2	Total-tetrafurans	23.89	8.803e2	1.252e3	1.192	0.70	0.77	11.6	YES	NO	dd	dd	0.390
3	Total-tetrafurans	23.76	7.184e2	8.485e2	1.192	0.85	0.77	8.8	YES	NO	bd	bd	0.287
4	Total-tetrafurans	23.52	5.613e2	7.027e2	1.192	0.80	0.77	6.5	YES	NO	dd	dd	0.231
5	Total-tetrafurans	23.10	1.764e3	2.336e3	1.192	0.76	0.77	19.2	YES	NO	bd	bd	0.750
6	Total-tetrafurans	22.53	7.307e2	1.060e3	1.192	0.69	0.77	10.8	YES	NO	db	db	0.328
7	1289-TCDF	27.38	8.861e2	1.059e3	1.043	0.84	0.77	12.2	YES	NO	bb	bb	0.407
8	Total-tetrafurans	25.91	6.540e2	8.754e2	1.192	0.75	0.77	6.6	YES	NO	dd	dd	0.280
9	2378-TCDF	25.78	8.907e2	1.030e3	1.108	0.86	0.77	9.1	YES	NO	bd	bd	0.378
10	Total-tetrafurans	25.55	1.057e3	1.311e3	1.192	0.81	0.77	10.8	YES	NO	bb	bb	0.433
11	Total-tetrafurans	24.87	5.592e2	7.016e2	1.192	0.80	0.77	6.6	YES	NO	bb	bb	0.231
12	Total-tetrafurans	24.67	1.186e3	1.421e3	1.192	0.83	0.77	11.6	YES	NO	db	db	0.477
13	Total-tetrafurans	24.52	3.012e2	4.599e2	1.192	0.65	0.77	4.8	YES	NO	dd	dd	0.139

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.20	1.072e4	7.486e3		1.43	1.55	267.0	YES	NO	dd	bb	3.562

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.28	1.361e3	9.643e2	1.126	1.41	1.55	13.1	YES	NO	db	db	0.393
2	Total-pentafurans	31.12	9.014e2	6.070e2	1.047	1.49	1.55	8.8	YES	NO	dd	dd	0.266
3	Total-pentafurans	31.03	9.995e2	6.039e2	1.047	1.66	1.55	11.2	YES	NO	bd	bd	0.283
4	12378-PeCDF	29.92	7.689e2	5.441e2	1.015	1.41	1.55	8.8	YES	NO	bb	bb	0.232

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:35 Pacific Daylight Time

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.92	6.114e2	5.317e2	1.030	1.15	1.24	11.9	YES	NO	bb	MM	0.315
2	234678-HxCDF	35.90	1.823e3	1.698e3	1.052	1.07	1.24	23.7	YES	NO	bb	bb	0.816
3	Total-hexafurans	35.38	1.859e2	1.409e2	1.045	1.32	1.24	4.3	YES	NO	bb	bb	0.077
4	123678-HxCDF	35.05	1.303e3	1.100e3	1.037	1.18	1.24	28.8	YES	NO	db	db	0.530
5	123478-HxCDF	34.91	3.427e3	2.729e3	1.017	1.26	1.24	66.5	YES	NO	dd	dd	1.403
6	Total-hexafurans	34.29	1.484e4	1.273e4	1.045	1.17	1.24	300.9	YES	NO	bb	bb	6.472
7	Total-hexafurans	33.97	4.301e2	3.939e2	1.045	1.09	1.24	7.5	YES	NO	bb	bb	0.193
8	Total-hexafurans	33.44	1.241e4	1.047e4	1.045	1.18	1.24	256.9	YES	NO	bb	bb	5.372
9	123468-HXCDF	33.23	3.714e3	3.017e3	1.087	1.23	1.24	78.5	YES	NO	bb	bb	1.436

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.03	1.770e3	1.642e3	1.283	1.08	1.05	27.7	YES	NO	bb	bb	1.026
2	Total-heptafurans	39.45	5.180e4	4.939e4	1.305	1.05	1.05	986.7	YES	NO	bb	bb	26.631
3	1234678-HpCDF	38.78	2.515e4	2.365e4	1.327	1.06	1.05	493.2	YES	NO	bb	bb	11.379

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.02	1.960e3	2.483e3	1.192	0.79	0.77	19.4	YES	NO	dd	dd	0.813
2	Total-tetrafurans	23.89	8.803e2	1.252e3	1.192	0.70	0.77	11.6	YES	NO	dd	dd	0.390
3	Total-tetrafurans	23.76	7.184e2	8.485e2	1.192	0.85	0.77	8.8	YES	NO	bd	bd	0.287
4	Total-tetrafurans	23.52	5.613e2	7.027e2	1.192	0.80	0.77	6.5	YES	NO	dd	dd	0.231
5	Total-tetrafurans	23.10	1.764e3	2.336e3	1.192	0.76	0.77	19.2	YES	NO	bd	bd	0.750
6	Total-tetrafurans	22.53	7.307e2	1.060e3	1.192	0.69	0.77	10.8	YES	NO	db	db	0.328
7	Total-Furans	27.88	4.274e2	5.430e2	1.158	0.79	0.77	5.4	YES	NO	bb	bb	0.183
8	1289-TCDF	27.38	8.861e2	1.059e3	1.043	0.84	0.77	12.2	YES	NO	bb	bb	0.407
9	Total-tetrafurans	25.91	6.540e2	8.754e2	1.192	0.75	0.77	6.6	YES	NO	dd	dd	0.280
10	2378-TCDF	25.78	8.907e2	1.030e3	1.108	0.86	0.77	9.1	YES	NO	bd	bd	0.378
11	Total-tetrafurans	25.55	1.057e3	1.311e3	1.192	0.81	0.77	10.8	YES	NO	bb	bb	0.433
12	Total-tetrafurans	24.87	5.592e2	7.016e2	1.192	0.80	0.77	6.6	YES	NO	bb	bb	0.231
13	Total-tetrafurans	24.67	1.186e3	1.421e3	1.192	0.83	0.77	11.6	YES	NO	db	db	0.477
14	Total-tetrafurans	24.52	3.012e2	4.599e2	1.192	0.65	0.77	4.8	YES	NO	dd	dd	0.139
15	23478-PeCDF	31.28	1.361e3	9.643e2	1.126	1.41	1.55	13.1	YES	NO	db	db	0.393
16	Total-pentafurans	31.12	9.014e2	6.070e2	1.047	1.49	1.55	8.8	YES	NO	dd	dd	0.266
17	Total-pentafurans	31.03	9.995e2	6.039e2	1.047	1.66	1.55	11.2	YES	NO	bd	bd	0.283
18	12378-PeCDF	29.92	7.689e2	5.441e2	1.015	1.41	1.55	8.8	YES	NO	bb	bb	0.232
19	123789-HxCDF	36.92	6.114e2	5.317e2	1.030	1.15	1.24	11.9	YES	NO	bb	MM	0.315
20	234678-HxCDF	35.90	1.823e3	1.698e3	1.052	1.07	1.24	23.7	YES	NO	bb	bb	0.816
21	Total-hexafurans	35.38	1.859e2	1.409e2	1.045	1.32	1.24	4.3	YES	NO	bb	bb	0.077
22	123678-HxCDF	35.05	1.303e3	1.100e3	1.037	1.18	1.24	28.8	YES	NO	db	db	0.530
23	123478-HxCDF	34.91	3.427e3	2.729e3	1.017	1.26	1.24	66.5	YES	NO	dd	dd	1.403
24	Total-hexafurans	34.29	1.484e4	1.273e4	1.045	1.17	1.24	300.9	YES	NO	bb	bb	6.472
25	Total-hexafurans	33.97	4.301e2	3.939e2	1.045	1.09	1.24	7.5	YES	NO	bb	bb	0.193
26	Total-hexafurans	33.44	1.241e4	1.047e4	1.045	1.18	1.24	256.9	YES	NO	bb	bb	5.372
27	123468-HXCDF	33.23	3.714e3	3.017e3	1.087	1.23	1.24	78.5	YES	NO	bb	bb	1.436
28	OCDF	45.27	4.570e4	5.047e4	1.447	0.91	0.89	984.3	YES	NO	bd	bb	33.842
29	1234789-HpCDF	41.03	1.770e3	1.642e3	1.283	1.08	1.05	27.7	YES	NO	bb	bb	1.026
30	Total-heptafurans	39.45	5.180e4	4.939e4	1.305	1.05	1.05	986.7	YES	NO	bb	bb	26.631
31	1234678-HpCDF	38.78	2.515e4	2.365e4	1.327	1.06	1.05	493.2	YES	NO	bb	bb	11.379
32	Total-penta1	27.20	1.072e4	7.486e3		1.43	1.55	267.0	YES	NO	dd	bb	3.562

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.75	1.981e2	2.432e2	0.879	0.81	0.77	3.2	YES	NO	db	db	0.133
2	Total-tetradioxins	23.80	5.011e2	6.013e2	0.879	0.83	0.77	8.1	YES	NO	bb	bd	0.333

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.46	6.137e2	3.508e2	1.331	1.75	1.55	9.4	YES	NO	db	bd	0.246
2	Total-pentadioxins	30.13	1.163e3	6.779e2	1.331	1.72	1.55	19.9	YES	NO	dd	bd	0.470
3	12378-PeCDD	31.52	9.960e2	6.410e2	0.995	1.55	1.55	16.8	YES	NO	bb	MM	0.558

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.15	1.656e4	1.283e4	1.028	1.29	1.24	193.8	YES	NO	bd	bd	7.934
2	Total-hexadioxins	34.78	3.327e3	2.840e3	1.028	1.17	1.24	63.3	YES	NO	bb	bb	1.665
3	124679-HXCDD	34.01	1.760e4	1.441e4	1.125	1.22	1.24	306.6	YES	NO	bb	bb	7.860
4	123789-HxCDD	36.54	2.734e3	2.028e3	0.950	1.35	1.24	54.4	YES	NO	bb	bb	1.390
5	123678-HxCDD	36.15	4.286e3	3.858e3	1.009	1.11	1.24	77.7	YES	NO	db	db	2.250
6	123478-HxCDD	36.04	1.210e3	1.031e3	1.027	1.17	1.24	23.1	YES	NO	bd	bd	0.603
7	Total-hexadioxins	35.26	3.065e3	2.587e3	1.028	1.18	1.24	52.8	YES	NO	db	db	1.526

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.28	9.354e4	8.569e4	1.068	1.09	1.05	1111.2	YES	NO	bb	bb	73.476
2	1234679-HPCDD	39.22	2.281e5	2.143e5	1.211	1.06	1.05	2900.7	YES	NO	bb	bb	159.987

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:35 Pacific Daylight Time

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.75	1.981e2	2.432e2	0.879	0.81	0.77	3.2	YES	NO	db	db	0.133
2	Total-tetradioxins	23.80	5.011e2	6.013e2	0.879	0.83	0.77	8.1	YES	NO	bb	bd	0.333
3	Total-pentadioxins	30.46	6.137e2	3.508e2	1.331	1.75	1.55	9.4	YES	NO	db	bd	0.246
4	Total-pentadioxins	30.13	1.163e3	6.779e2	1.331	1.72	1.55	19.9	YES	NO	dd	bd	0.470
5	12378-PeCDD	31.52	9.960e2	6.410e2	0.995	1.55	1.55	16.8	YES	NO	bb	MM	0.558
6	Total-hexadioxins	35.15	1.656e4	1.283e4	1.028	1.29	1.24	193.8	YES	NO	bd	bd	7.934
7	Total-hexadioxins	34.78	3.327e3	2.840e3	1.028	1.17	1.24	63.3	YES	NO	bb	bb	1.665
8	124679-HXCDD	34.01	1.760e4	1.441e4	1.125	1.22	1.24	306.6	YES	NO	bb	bb	7.860
9	123789-HxCDD	36.54	2.734e3	2.028e3	0.950	1.35	1.24	54.4	YES	NO	bb	bb	1.390
10	123678-HxCDD	36.15	4.286e3	3.858e3	1.009	1.11	1.24	77.7	YES	NO	db	db	2.250
11	123478-HxCDD	36.04	1.210e3	1.031e3	1.027	1.17	1.24	23.1	YES	NO	bd	bd	0.603
12	Total-hexadioxins	35.26	3.065e3	2.587e3	1.028	1.18	1.24	52.8	YES	NO	db	db	1.526
13	1234678-HpCDD	40.28	9.354e4	8.569e4	1.068	1.09	1.05	1111.2	YES	NO	bb	bb	73.476
14	1234679-HPCDD	39.22	2.281e5	2.143e5	1.211	1.06	1.05	2900.7	YES	NO	bb	bb	159.987
15	OCDD	45.02	7.723e5	8.610e5	1.181	0.90	0.89	8014.3	YES	NO	bb	bb	704.278

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:35 Pacific Daylight Time

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.02	1.960e3	2.483e3	1.192	0.79	0.77	19.4	YES	NO	dd	dd	0.813
2	Total-tetrafurans	23.89	8.803e2	1.252e3	1.192	0.70	0.77	11.6	YES	NO	dd	dd	0.390
3	Total-tetrafurans	23.76	7.184e2	8.485e2	1.192	0.85	0.77	8.8	YES	NO	bd	bd	0.287
4	Total-tetrafurans	23.52	5.613e2	7.027e2	1.192	0.80	0.77	6.5	YES	NO	dd	dd	0.231
5	Total-tetrafurans	23.10	1.764e3	2.336e3	1.192	0.76	0.77	19.2	YES	NO	bd	bd	0.750
6	Total-tetrafurans	22.53	7.307e2	1.060e3	1.192	0.69	0.77	10.8	YES	NO	db	db	0.328
7	Total-Furans	27.88	4.274e2	5.430e2	1.158	0.79	0.77	5.4	YES	NO	bb	bb	0.183
8	1289-TCDF	27.38	8.861e2	1.059e3	1.043	0.84	0.77	12.2	YES	NO	bb	bb	0.407
9	Total-tetrafurans	25.91	6.540e2	8.754e2	1.192	0.75	0.77	6.6	YES	NO	dd	dd	0.280
10	2378-TCDF	25.78	8.907e2	1.030e3	1.108	0.86	0.77	9.1	YES	NO	bd	bd	0.378
11	Total-tetrafurans	25.55	1.057e3	1.311e3	1.192	0.81	0.77	10.8	YES	NO	bb	bb	0.433
12	Total-tetrafurans	24.87	5.592e2	7.016e2	1.192	0.80	0.77	6.6	YES	NO	bb	bb	0.231
13	Total-tetrafurans	24.67	1.186e3	1.421e3	1.192	0.83	0.77	11.6	YES	NO	db	db	0.477
14	Total-tetrafurans	24.52	3.012e2	4.599e2	1.192	0.65	0.77	4.8	YES	NO	dd	dd	0.139
15	23478-PeCDF	31.28	1.361e3	9.643e2	1.126	1.41	1.55	13.1	YES	NO	db	db	0.393
16	Total-pentafurans	31.12	9.014e2	6.070e2	1.047	1.49	1.55	8.8	YES	NO	dd	dd	0.266
17	Total-pentafurans	31.03	9.995e2	6.039e2	1.047	1.66	1.55	11.2	YES	NO	bd	bd	0.283
18	12378-PeCDF	29.92	7.689e2	5.441e2	1.015	1.41	1.55	8.8	YES	NO	bb	bb	0.232
19	123789-HxCDF	36.92	6.114e2	5.317e2	1.030	1.15	1.24	11.9	YES	NO	bb	MM	0.315
20	234678-HxCDF	35.90	1.823e3	1.698e3	1.052	1.07	1.24	23.7	YES	NO	bb	bb	0.816
21	Total-hexafurans	35.38	1.859e2	1.409e2	1.045	1.32	1.24	4.3	YES	NO	bb	bb	0.077
22	123678-HxCDF	35.05	1.303e3	1.100e3	1.037	1.18	1.24	28.8	YES	NO	db	db	0.530
23	123478-HxCDF	34.91	3.427e3	2.729e3	1.017	1.26	1.24	66.5	YES	NO	dd	dd	1.403
24	Total-hexafurans	34.29	1.484e4	1.273e4	1.045	1.17	1.24	300.9	YES	NO	bb	bb	6.472
25	Total-hexafurans	33.97	4.301e2	3.939e2	1.045	1.09	1.24	7.5	YES	NO	bb	bb	0.193
26	Total-hexafurans	33.44	1.241e4	1.047e4	1.045	1.18	1.24	256.9	YES	NO	bb	bb	5.372
27	123468-HXCDF	33.23	3.714e3	3.017e3	1.087	1.23	1.24	78.5	YES	NO	bb	bb	1.436
28	OCDF	45.27	4.570e4	5.047e4	1.447	0.91	0.89	984.3	YES	NO	bd	bb	33.842
29	1234789-HpCDF	41.03	1.770e3	1.642e3	1.283	1.08	1.05	27.7	YES	NO	bb	bb	1.026
30	Total-heptafurans	39.45	5.180e4	4.939e4	1.305	1.05	1.05	986.7	YES	NO	bb	bb	26.631
31	1234678-HpCDF	38.78	2.515e4	2.365e4	1.327	1.06	1.05	493.2	YES	NO	bb	bb	11.379
32	Total-penta1	27.20	1.072e4	7.486e3		1.43	1.55	267.0	YES	NO	dd	bb	3.562
33	Total-tetradioxins	24.75	1.981e2	2.432e2	0.879	0.81	0.77	3.2	YES	NO	db	db	0.133
34	Total-tetradioxins	23.80	5.011e2	6.013e2	0.879	0.83	0.77	8.1	YES	NO	bb	bd	0.333
35	Total-pentadioxins	30.46	6.137e2	3.508e2	1.331	1.75	1.55	9.4	YES	NO	db	bd	0.246
36	Total-pentadioxins	30.13	1.163e3	6.779e2	1.331	1.72	1.55	19.9	YES	NO	dd	bd	0.470
37	12378-PeCDD	31.52	9.960e2	6.410e2	0.995	1.55	1.55	16.8	YES	NO	bb	MM	0.558

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-hexadioxins	35.15	1.656e4	1.283e4	1.028	1.29	1.24	193.8	YES	NO	bd	bd	7.934
39	Total-hexadioxins	34.78	3.327e3	2.840e3	1.028	1.17	1.24	63.3	YES	NO	bb	bb	1.665
40	124679-HXCDD	34.01	1.760e4	1.441e4	1.125	1.22	1.24	306.6	YES	NO	bb	bb	7.860
41	123789-HxCDD	36.54	2.734e3	2.028e3	0.950	1.35	1.24	54.4	YES	NO	bb	bb	1.390
42	123678-HxCDD	36.15	4.286e3	3.858e3	1.009	1.11	1.24	77.7	YES	NO	db	db	2.250
43	123478-HxCDD	36.04	1.210e3	1.031e3	1.027	1.17	1.24	23.1	YES	NO	bd	bd	0.603
44	Total-hexadioxins	35.26	3.065e3	2.587e3	1.028	1.18	1.24	52.8	YES	NO	db	db	1.526
45	1234678-HpCDD	40.28	9.354e4	8.569e4	1.068	1.09	1.05	1111.2	YES	NO	bb	bb	73.476
46	1234679-HPCDD	39.22	2.281e5	2.143e5	1.211	1.06	1.05	2900.7	YES	NO	bb	bb	159.987
47	OCDD	45.02	7.723e5	8.610e5	1.181	0.90	0.89	8014.3	YES	NO	bb	bb	704.278

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.12	3.407e4					2.0	NO		bb		
2	FUNCTION1 PFK	23.25	9.785e4					1.9	NO		bb		
3	FUNCTION1 PFK	22.43	7.865e5					9.2	YES		db		
4	FUNCTION1 PFK	22.28	4.417e5					11.9	YES		dd		
5	FUNCTION1 PFK	22.21	1.406e6					13.6	YES		dd		
6	FUNCTION1 PFK	21.98	1.081e6					17.1	YES		dd		
7	FUNCTION1 PFK	21.69	6.786e6					22.6	YES		bd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.82	1.483e6					2.2	NO		bb		0.000
2	FUNCTION2 PFK	29.40	1.225e5					7.1	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.42	5.745e6					15.9	YES		bb		0.000
2	FUNCTION3 PFK	36.20	6.514e6					12.1	YES		bb		0.000

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.14	1.407e4					1.7	NO		bb		
2	FUNCTION4 PFK	38.09	3.070e4					2.9	NO		bb		
3	FUNCTION4 PFK	41.49	4.191e3					0.8	NO		bb		
4	FUNCTION4 PFK	41.43	2.896e4					2.1	NO		bb		
5	FUNCTION4 PFK	41.27	1.730e4					0.8	NO		bb		
6	FUNCTION4 PFK	41.23	2.955e3					0.7	NO		bb		
7	FUNCTION4 PFK	41.07	4.816e3					1.1	NO		bb		
8	FUNCTION4 PFK	40.49	1.389e4					1.3	NO		bb		
9	FUNCTION4 PFK	40.45	1.109e4					1.2	NO		bb		
10	FUNCTION4 PFK	40.38	1.603e4					1.0	NO		bb		
11	FUNCTION4 PFK	39.42	4.918e3					1.0	NO		db		
12	FUNCTION4 PFK	39.38	9.763e3					1.7	NO		bd		
13	FUNCTION4 PFK	39.30	6.608e3					0.8	NO		bb		
14	FUNCTION4 PFK	39.24	5.874e3					0.8	NO		bb		
15	FUNCTION4 PFK	39.19	5.163e3					1.1	NO		bb		
16	FUNCTION4 PFK	38.54	2.257e4					1.7	NO		bb		
17	FUNCTION4 PFK	38.41	7.682e3					1.4	NO		bb		
18	FUNCTION4 PFK	38.33	1.878e4					1.5	NO		bb		
19	FUNCTION4 PFK	42.80	8.471e3					1.4	NO		bb		
20	FUNCTION4 PFK	42.73	8.460e3					1.4	NO		db		
21	FUNCTION4 PFK	42.69	5.759e3					1.0	NO		dd		
22	FUNCTION4 PFK	42.57	6.005e4					2.6	NO		bd		
23	FUNCTION4 PFK	42.47	9.642e3					0.8	NO		bb		
24	FUNCTION4 PFK	42.34	1.125e3					0.4	NO		bb		
25	FUNCTION4 PFK	42.12	6.702e3					1.2	NO		bb		
26	FUNCTION4 PFK	41.95	5.913e3					0.9	NO		bb		
27	FUNCTION4 PFK	41.90	5.810e3					1.0	NO		db		
28	FUNCTION4 PFK	41.84	2.067e4					2.3	NO		bd		
29	FUNCTION4 PFK	41.79	2.542e3					1.0	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:35 Pacific Daylight Time

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.38	4.698e3					1.3	NO		bb		
2	FUNCTION5 PFK	43.23	1.247e4					1.8	NO		db		
3	FUNCTION5 PFK	43.19	1.841e4					2.6	NO		dd		
4	FUNCTION5 PFK	43.10	1.886e4					1.8	NO		bd		
5	FUNCTION5 PFK	45.56	1.290e4					1.6	NO		bb		
6	FUNCTION5 PFK	45.26	3.680e3					1.0	NO		bb		
7	FUNCTION5 PFK	44.91	1.808e3					0.6	NO		bb		
8	FUNCTION5 PFK	44.66	7.410e3					1.5	NO		db		
9	FUNCTION5 PFK	44.63	1.203e4					1.7	NO		bd		
10	FUNCTION5 PFK	44.19	1.600e3					0.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.67	8.884e1					3.7	YES		bb		0.000
2	FUNCTION1 HXCD...	26.40	9.981e1					2.1	NO		bb		0.000
3	FUNCTION1 HXCD...	24.82	7.188e1					1.9	NO		db		0.000
4	FUNCTION1 HXCD...	24.75	9.272e1					1.9	NO		bd		0.000
5	FUNCTION1 HXCD...	22.98	2.827e2					2.8	NO		db		0.000
6	FUNCTION1 HXCD...	22.72	1.480e2					2.4	NO		bd		0.000
7	FUNCTION1 HXCD...	22.33	1.346e2					2.6	NO		db		0.000
8	FUNCTION1 HXCD...	22.18	2.060e2					4.1	YES		dd		0.000
9	FUNCTION1 HXCD...	22.10	7.359e1					2.7	NO		bd		0.000
10	FUNCTION1 HXCD...	27.83	1.115e2					3.0	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	26.55	7.568e1					2.8	NO		bb		0.000
2	FUNCTION1 HPCD...	24.22	9.165e1					3.3	YES		bb		0.000
3	FUNCTION1 HPCD...	23.36	3.910e2					7.7	YES		bb		0.000
4	FUNCTION1 HPCD...	22.33	1.472e2					4.5	YES		bb		0.000
5	FUNCTION1 HPCD...	22.04	3.478e3					73.6	YES		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:35 Pacific Daylight Time

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.32	1.015e2					2.9	NO		bb		0.000
2	FUNCTION2 HPCD...	29.23	1.888e2					6.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.98	2.312e2					6.0	YES		bb		0.000
2	FUNCTION3 OCDPE	36.68	7.806e1					3.1	YES		bb		0.000
3	FUNCTION3 OCDPE	35.02	9.782e1					4.5	YES		bb		0.000
4	FUNCTION3 OCDPE	34.32	1.309e2					4.0	YES		db		0.000
5	FUNCTION3 OCDPE	34.20	7.332e1					4.0	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.72	8.242e1					3.0	YES		bb		0.000
2	FUNCTION4 NCDPE	38.42	4.783e3					137.5	YES		bb		0.000

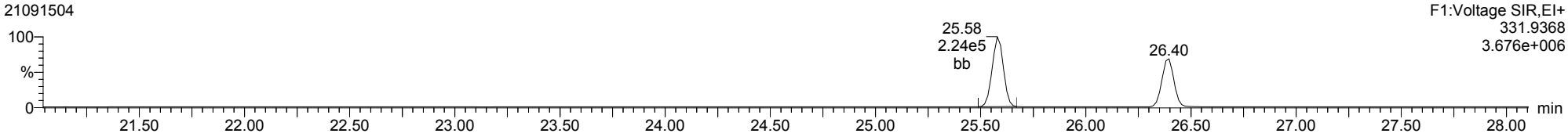
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.80	1.076e2					2.6	NO		bb		0.000

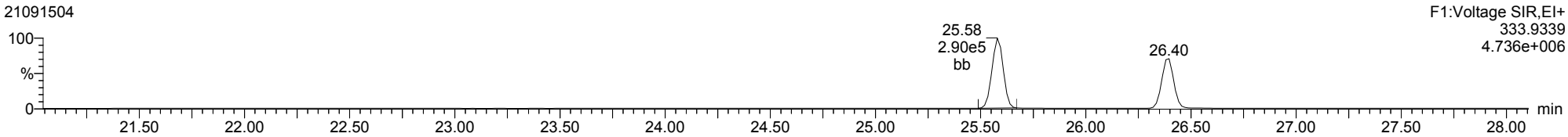
Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0645-DUP1, Name: 21091504, Date: 15-Sep-2021, Time: 18:32:25, Conditions: AUTOSPEC01, User: pk

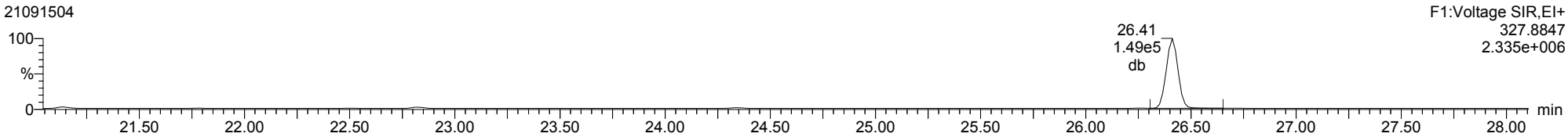
13C-1234-TCDD



13C-1234-TCDD



37CL-2378-TCDD



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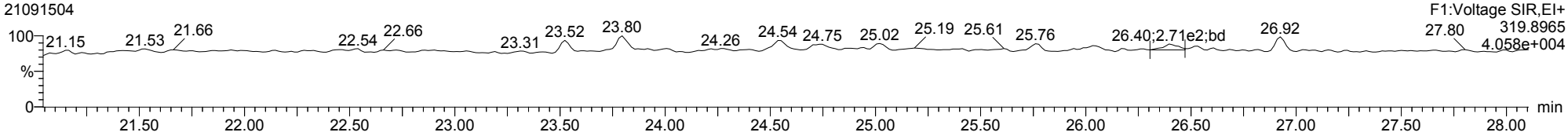
2378-TCDD



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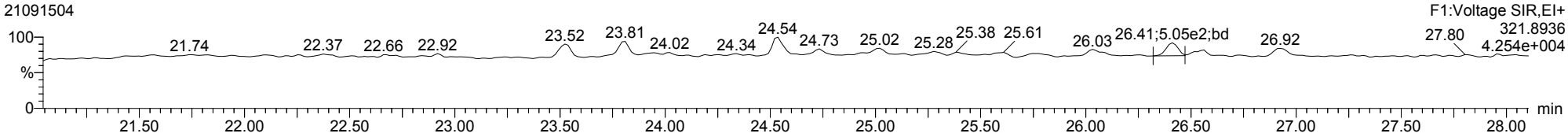

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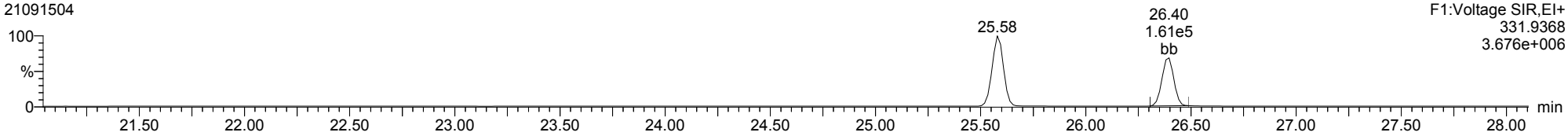

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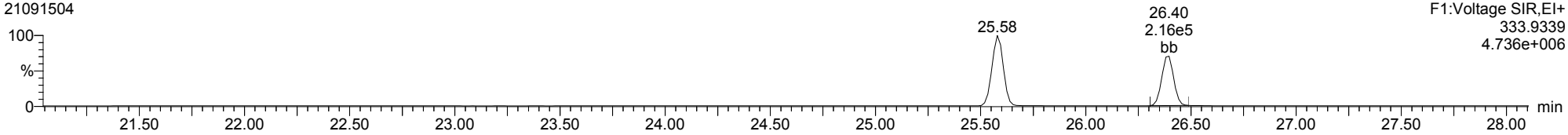

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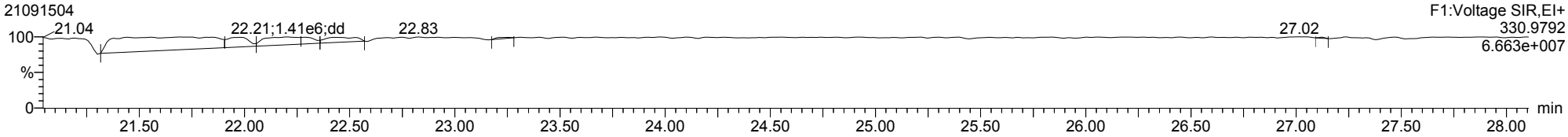

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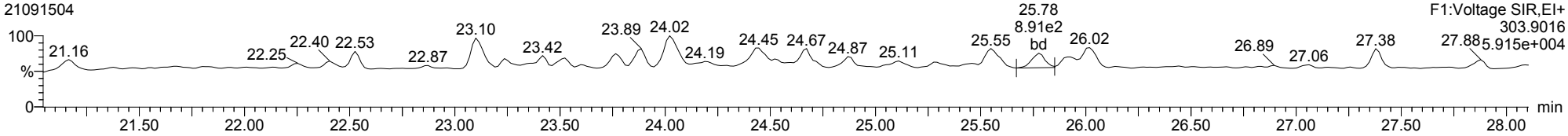
2378-TCDF



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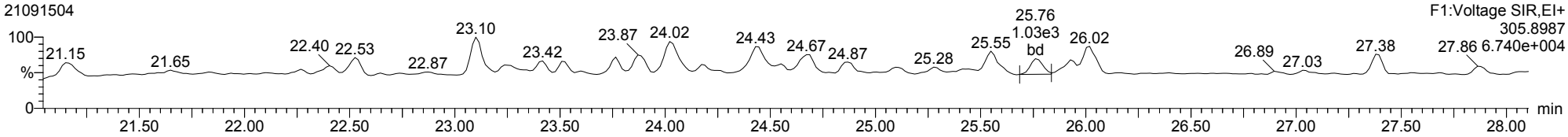

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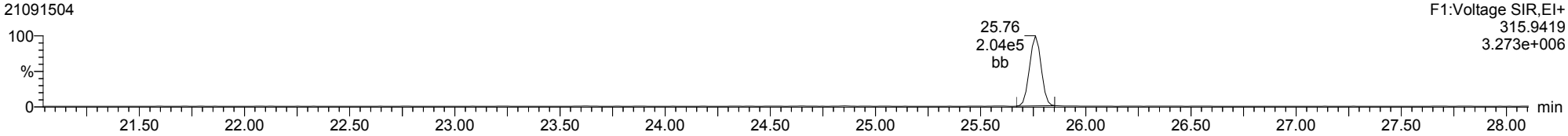

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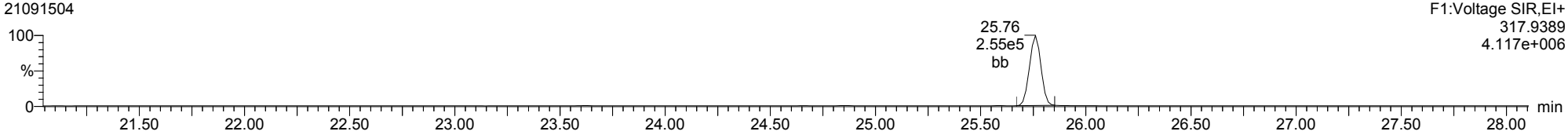

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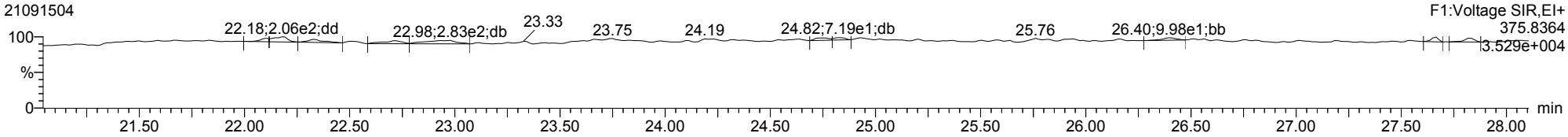

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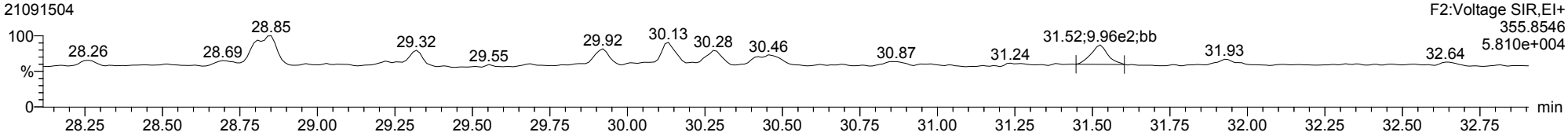
12378-PeCDD



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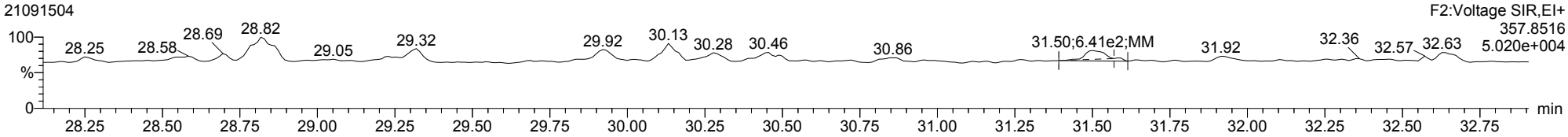

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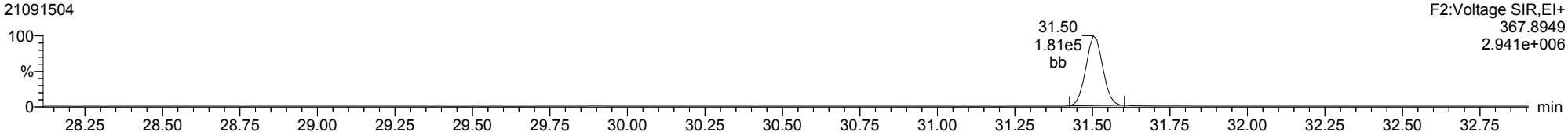

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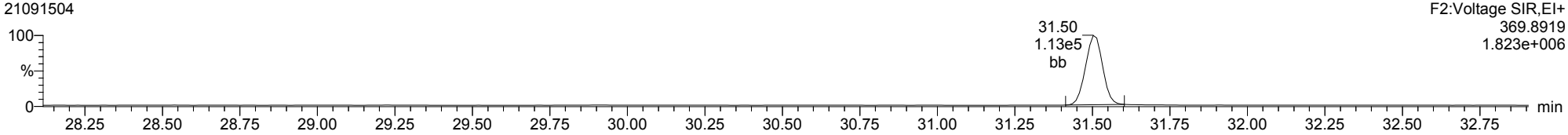

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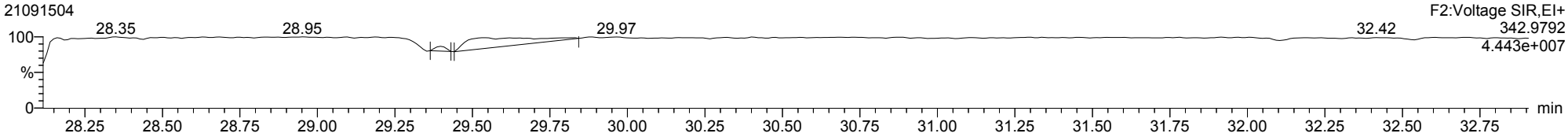

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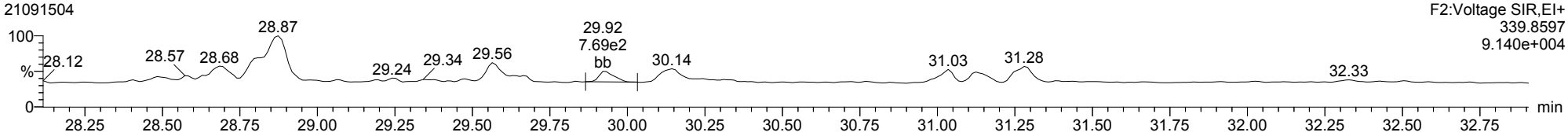
12378-PeCDF



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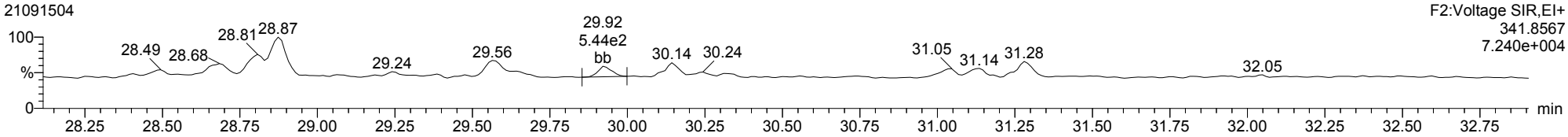

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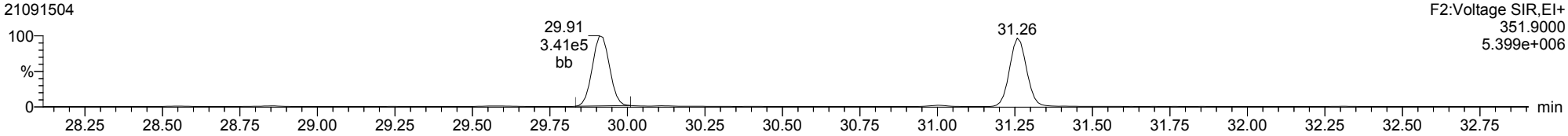

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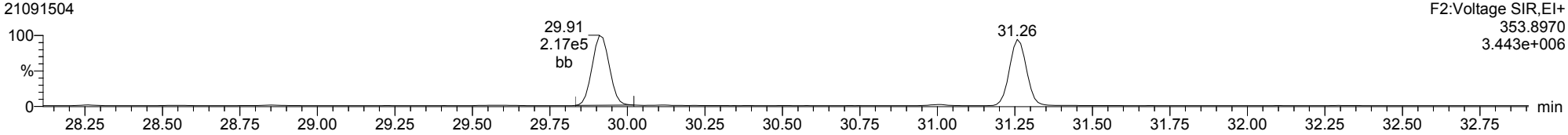
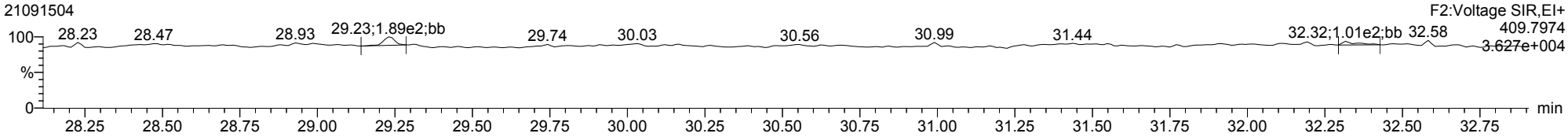


FUNCTION2 HPCDPE



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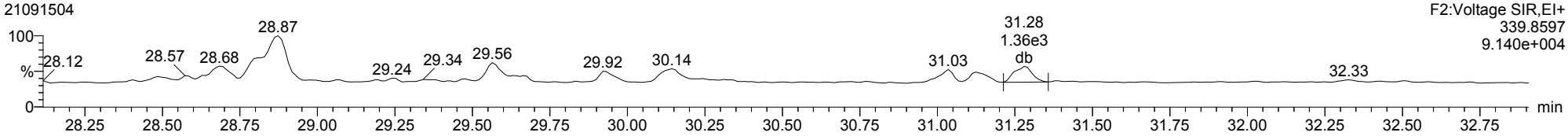
23478-PeCDF



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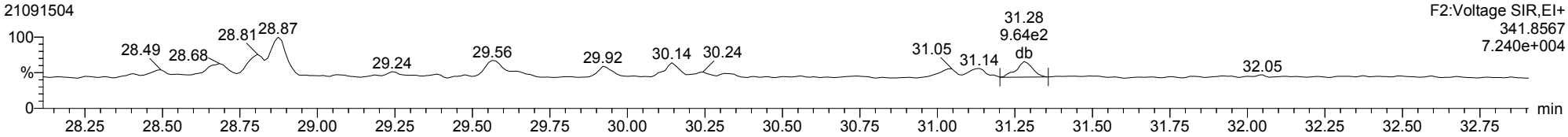

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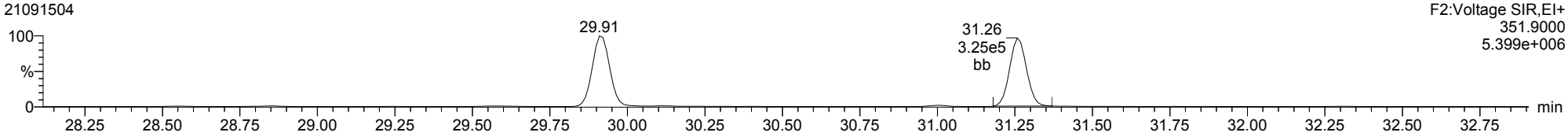

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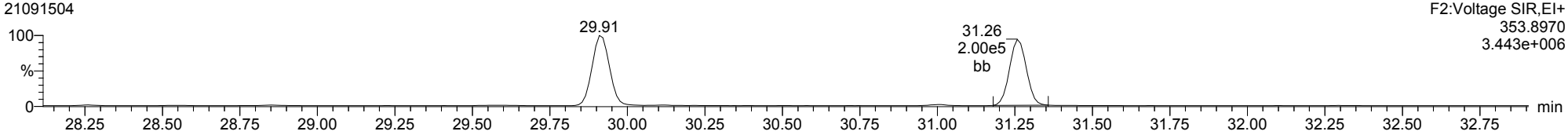

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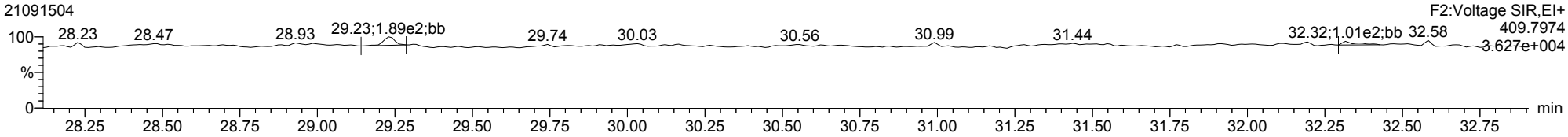

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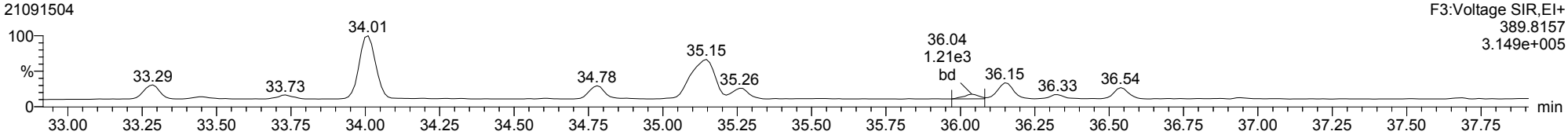
123478-HxCDD



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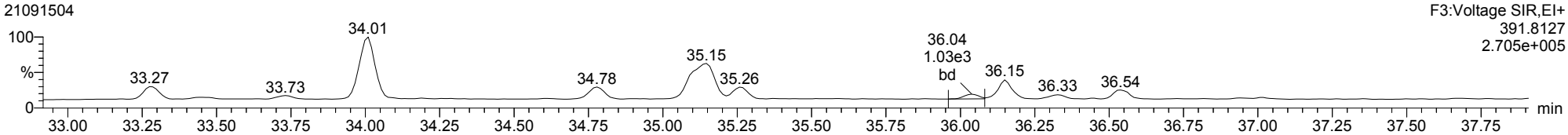

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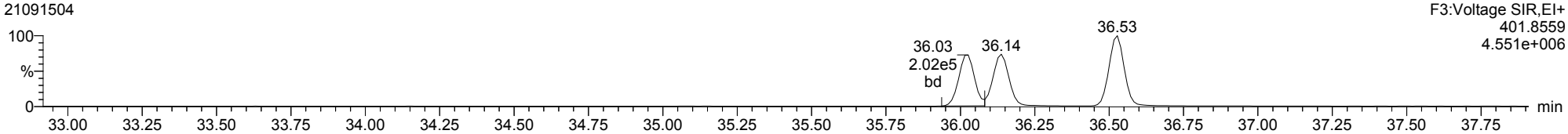

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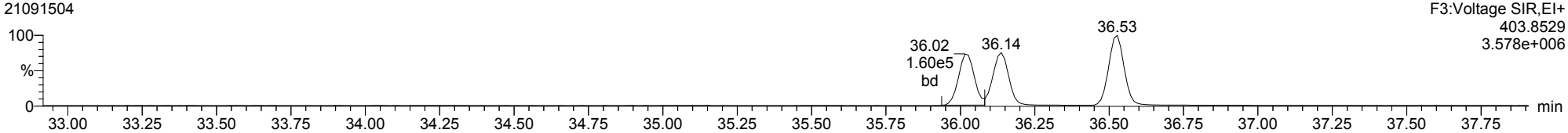

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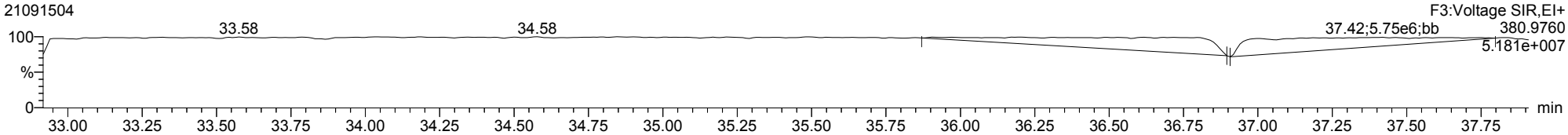

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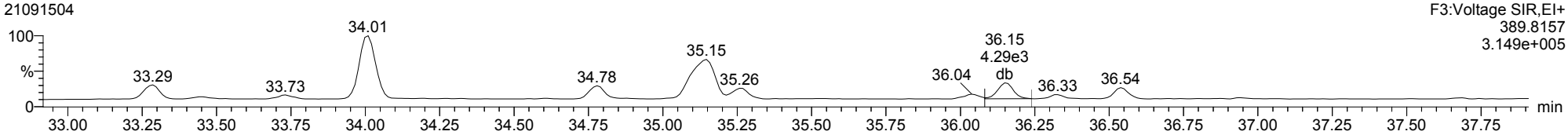

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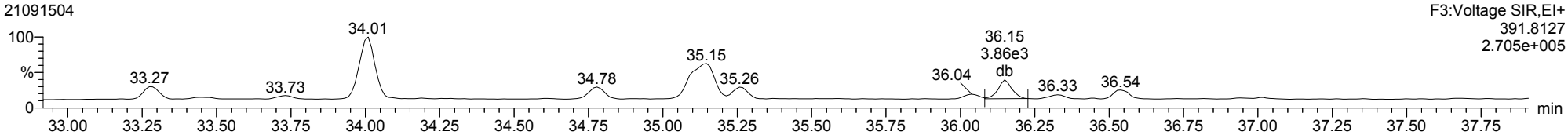

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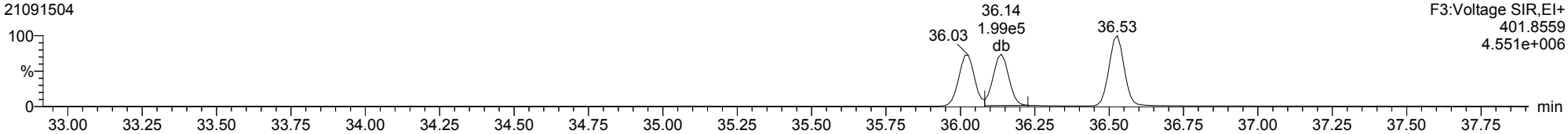

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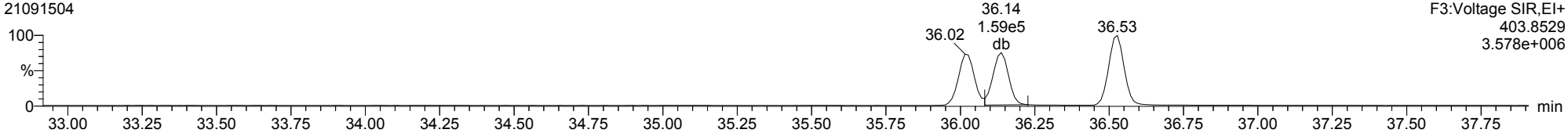

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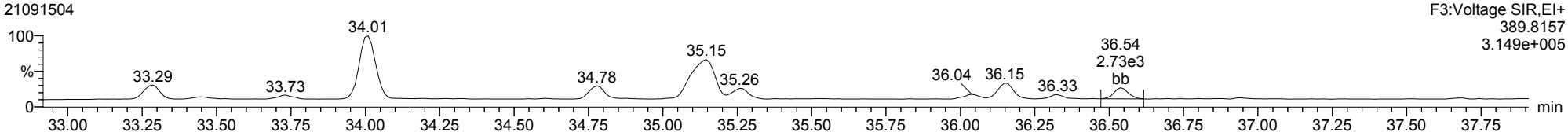
123789-HxCDD



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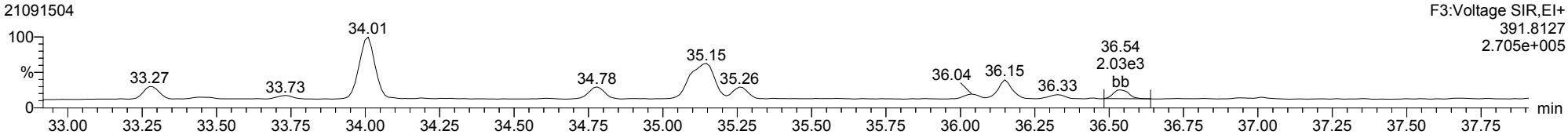

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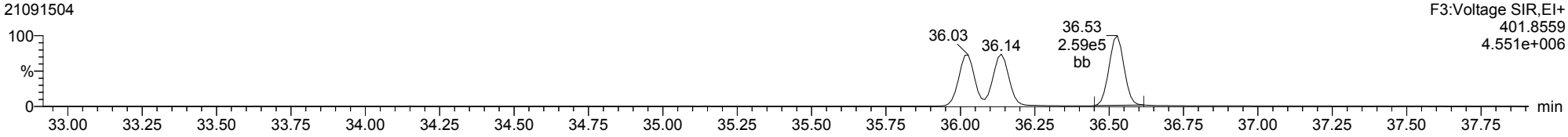

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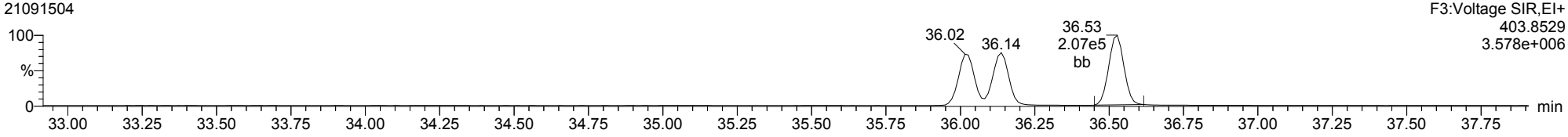

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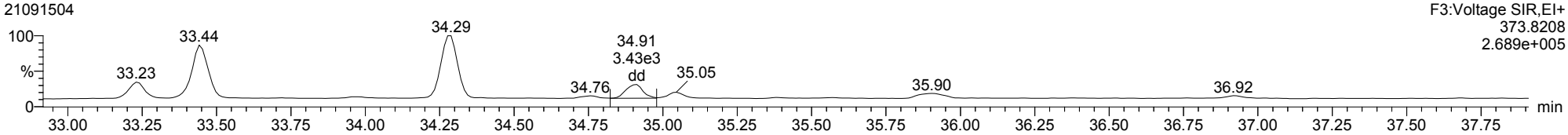

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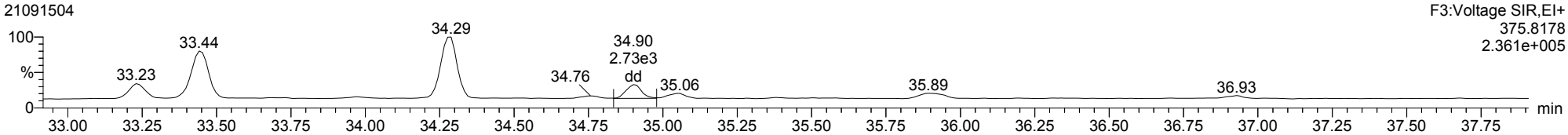

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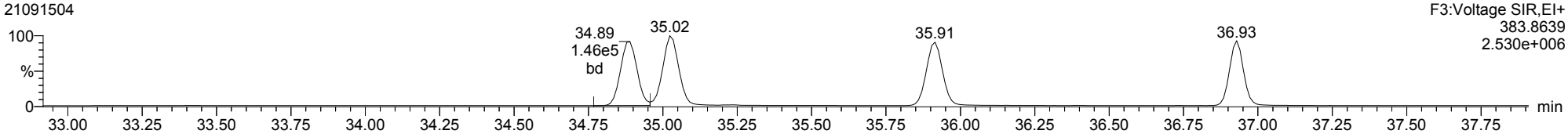

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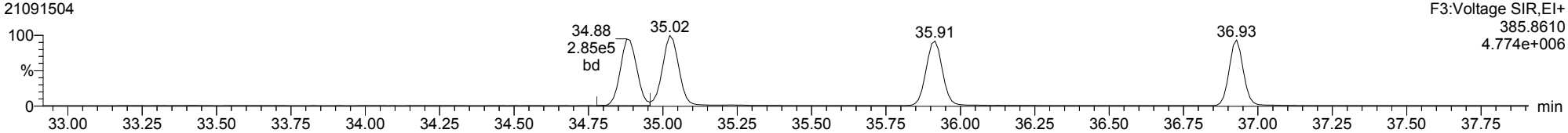
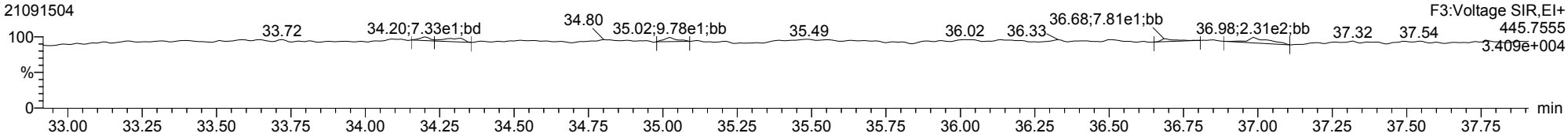


FUNCTION3 OCDPE



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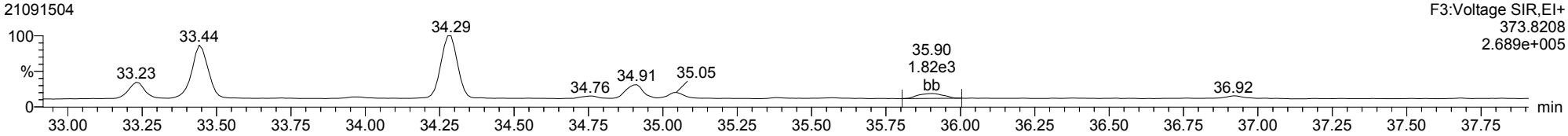
234678-HxCDF



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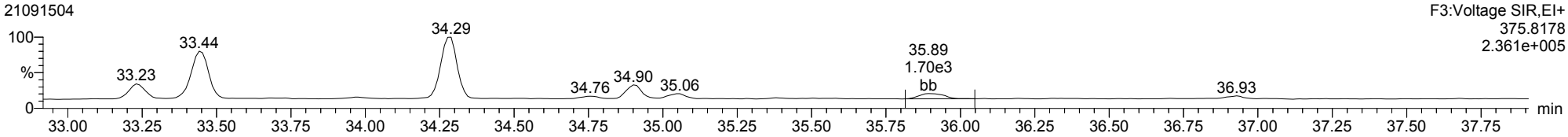

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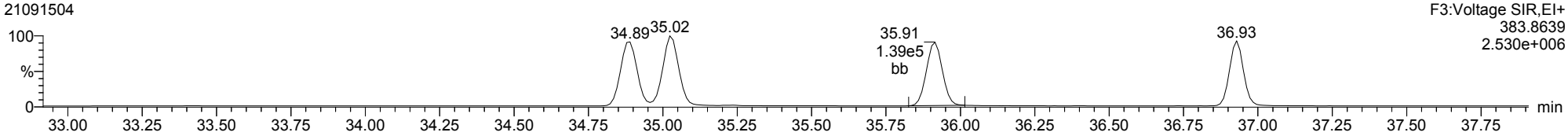

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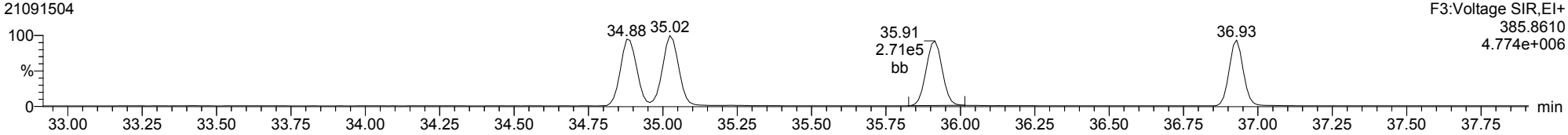

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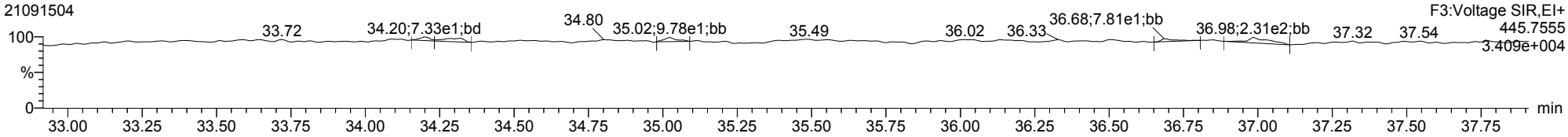

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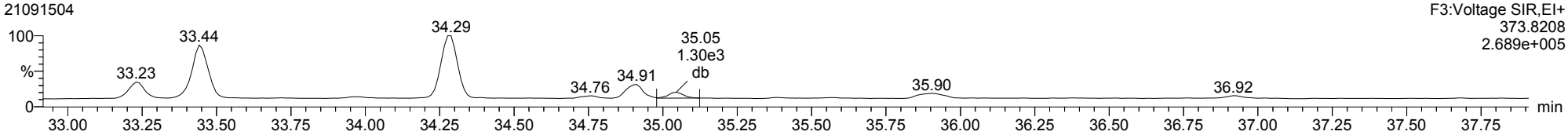

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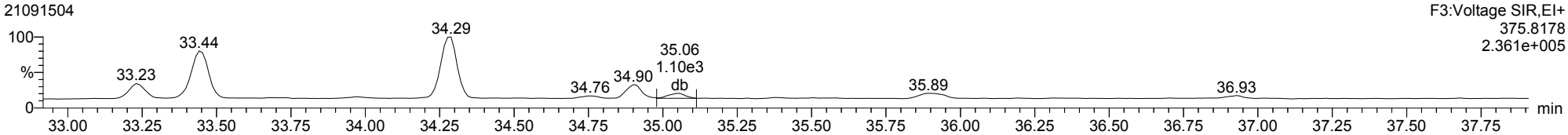

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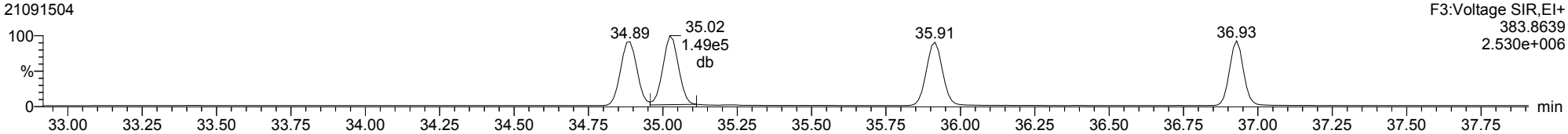

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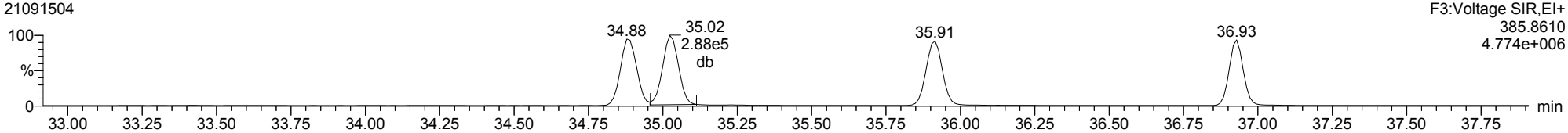

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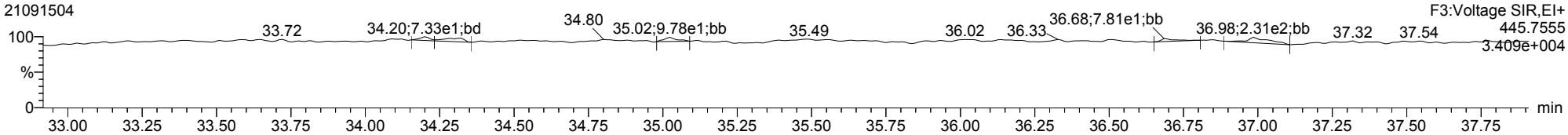

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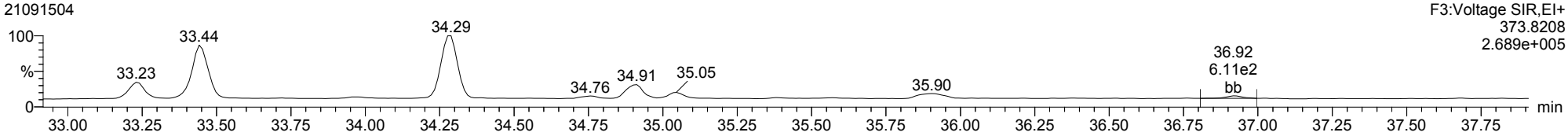

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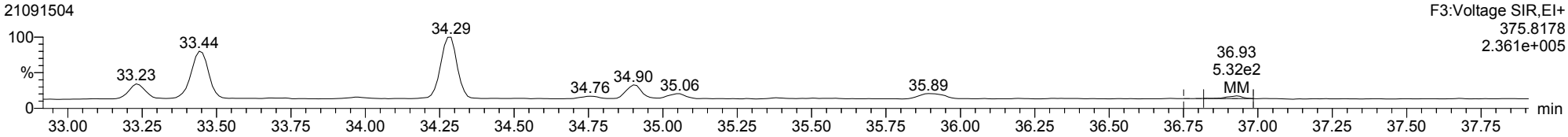

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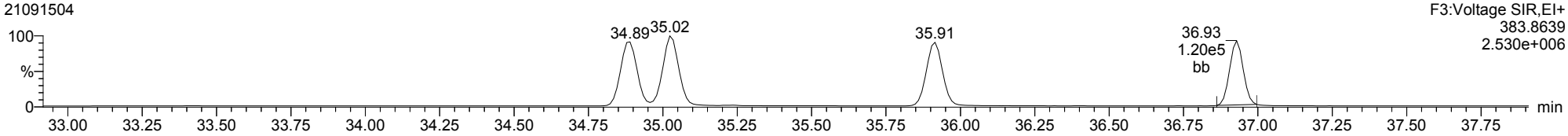

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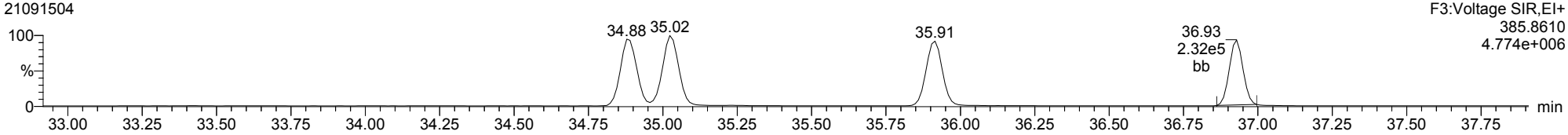

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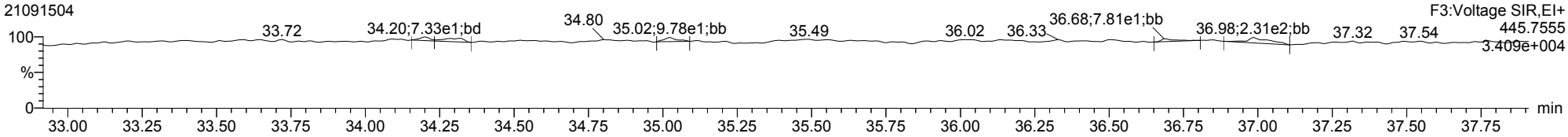

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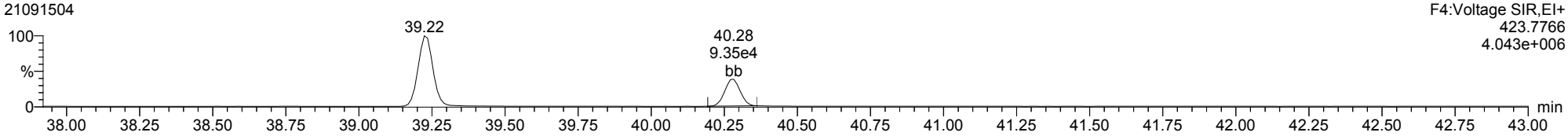

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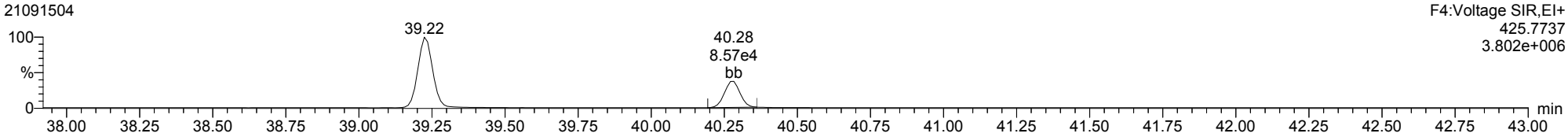

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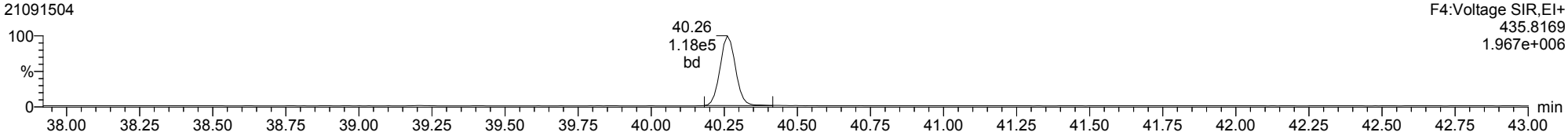

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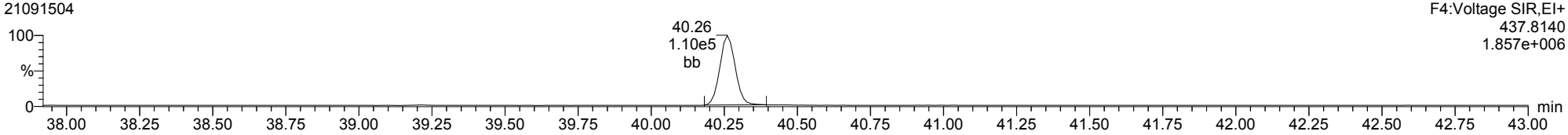

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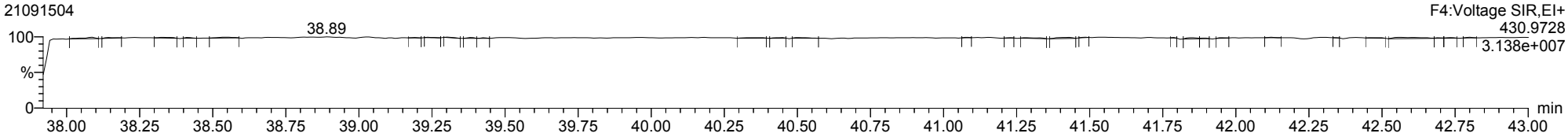

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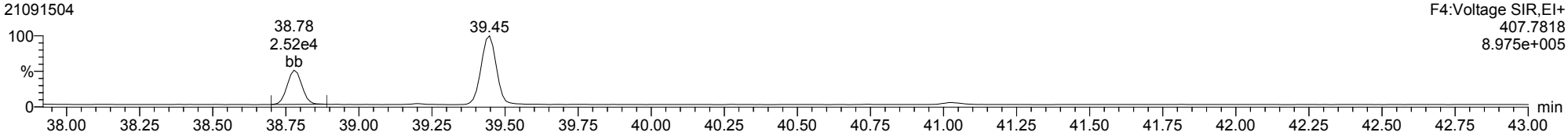

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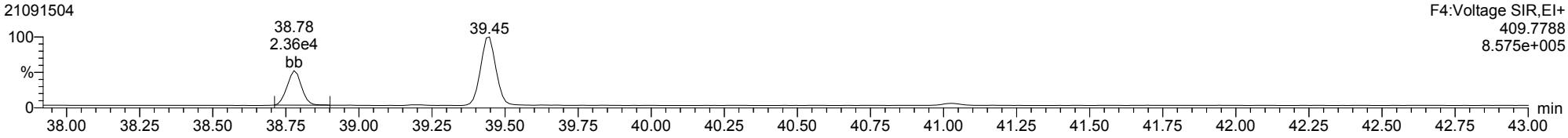

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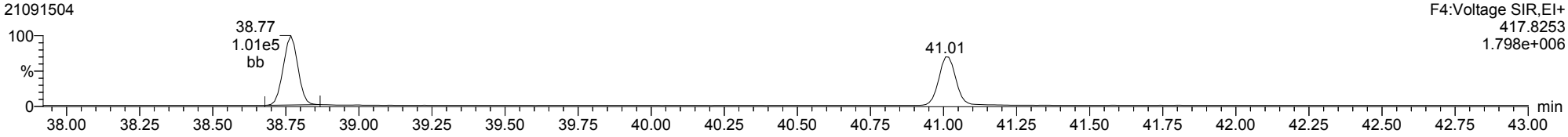

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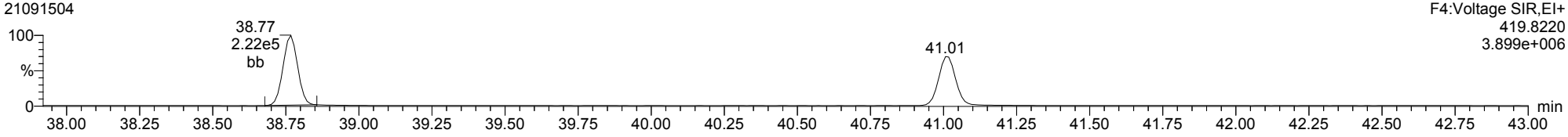

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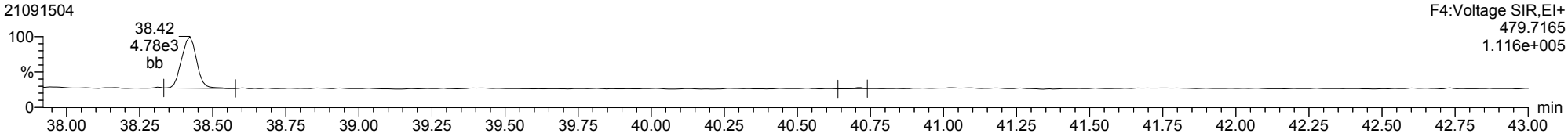

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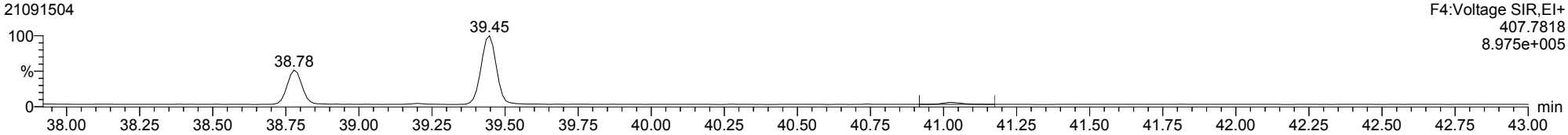

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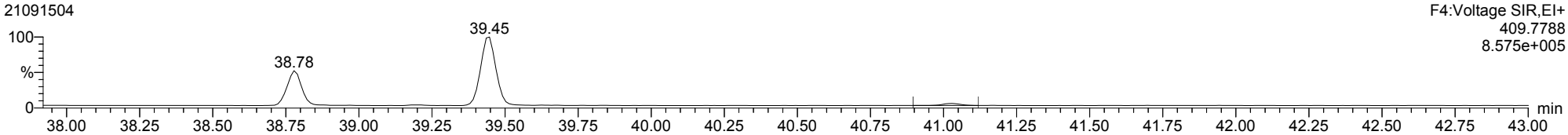

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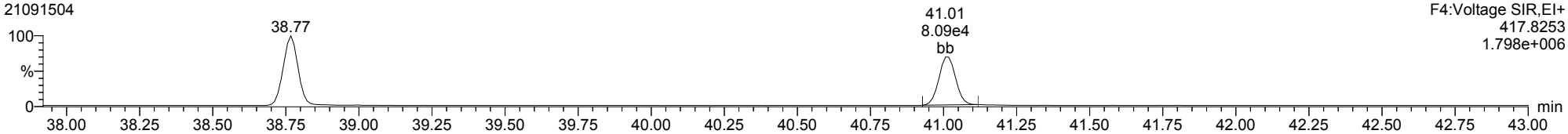

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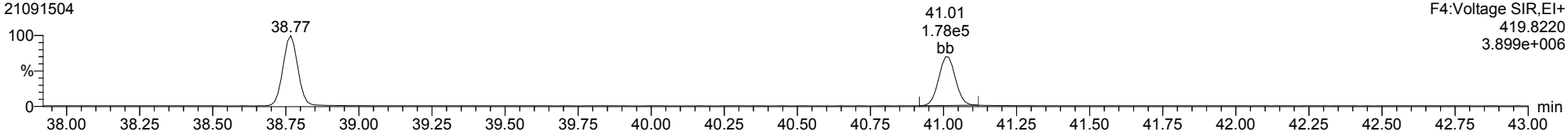

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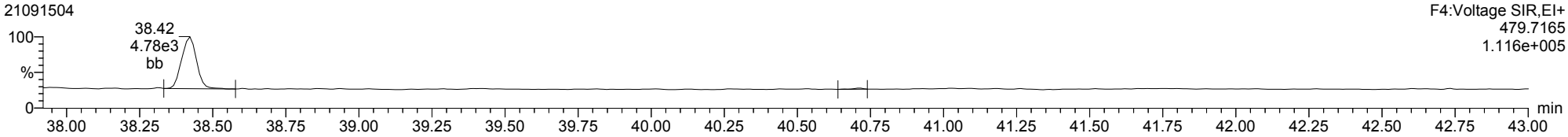

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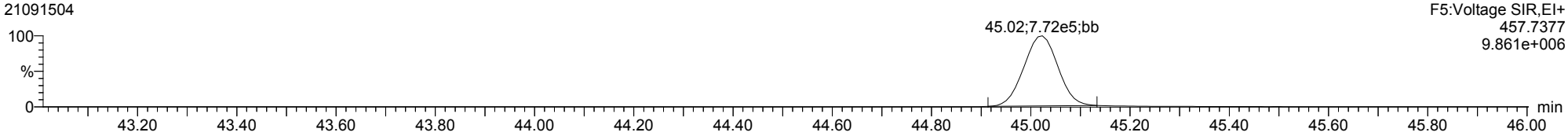

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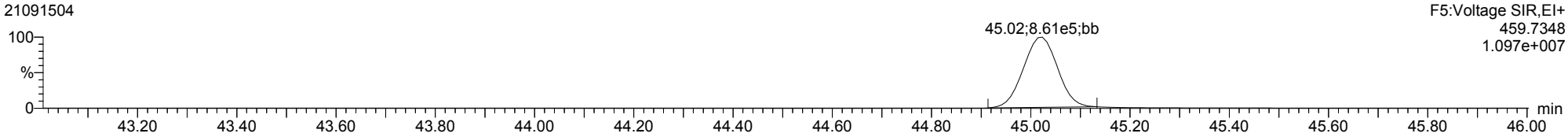

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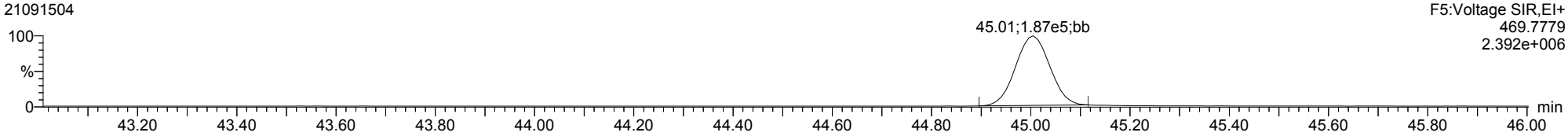

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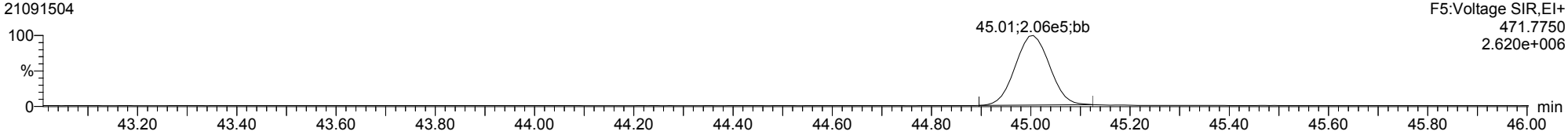

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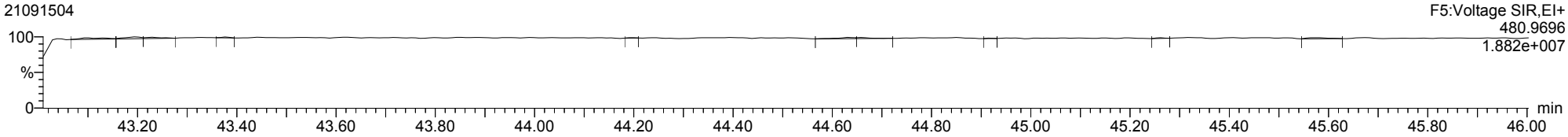

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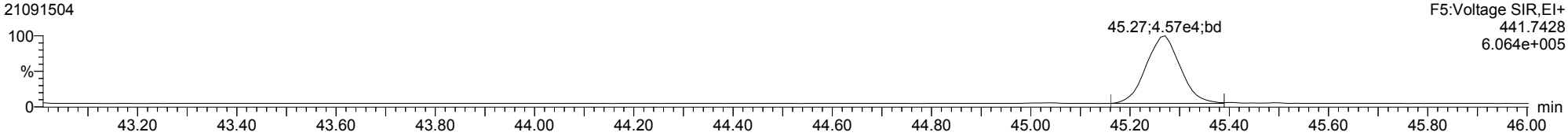

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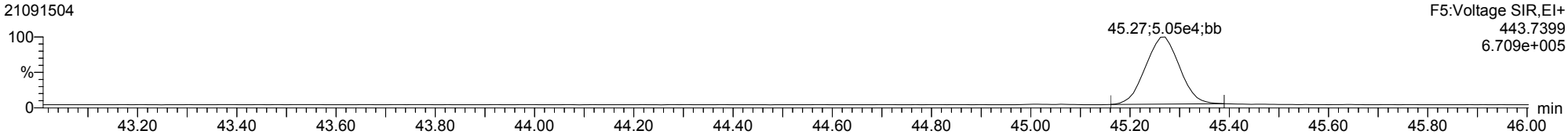

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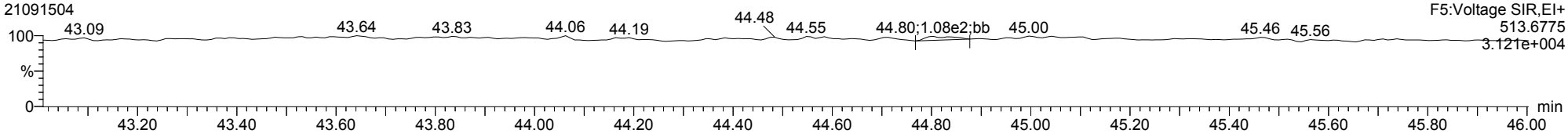

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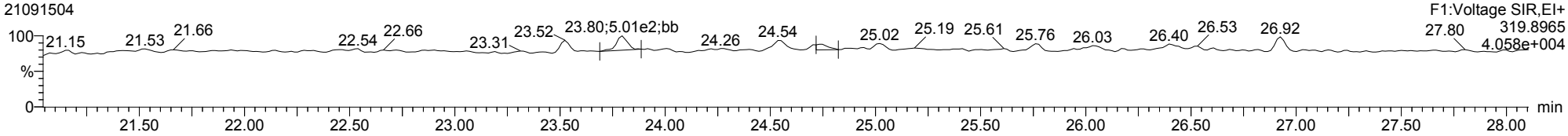

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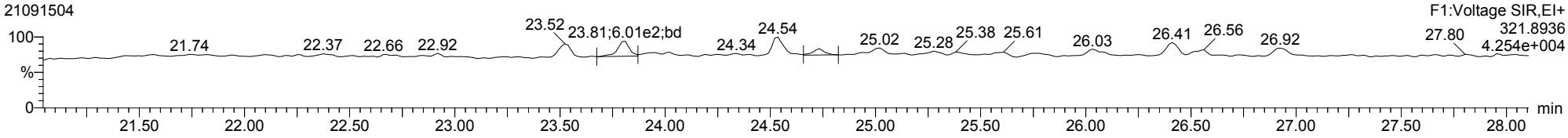

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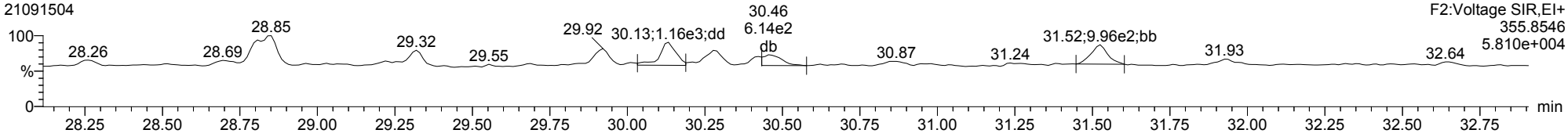

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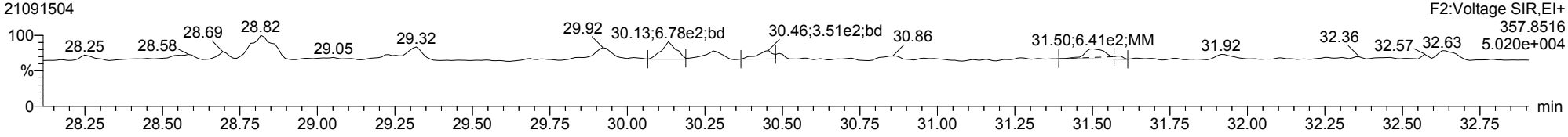

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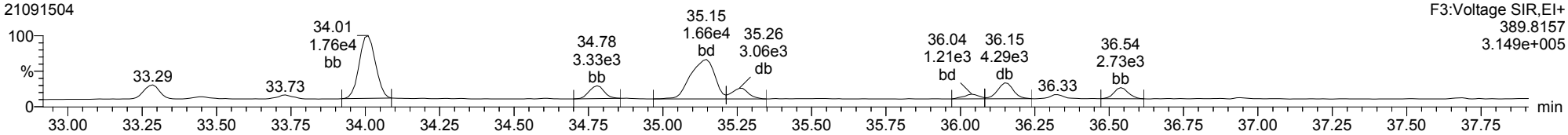

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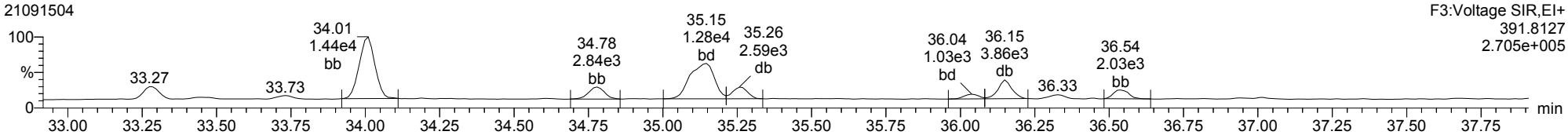

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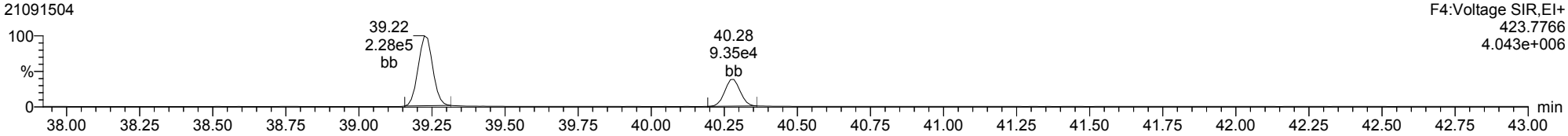

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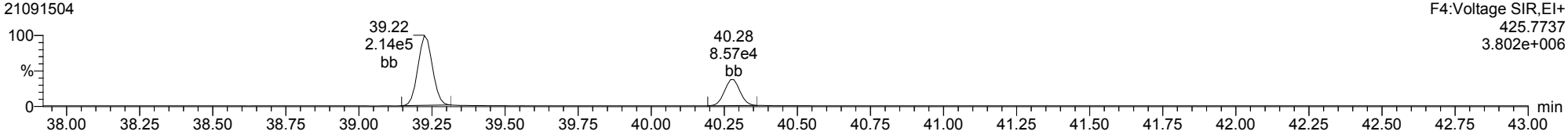

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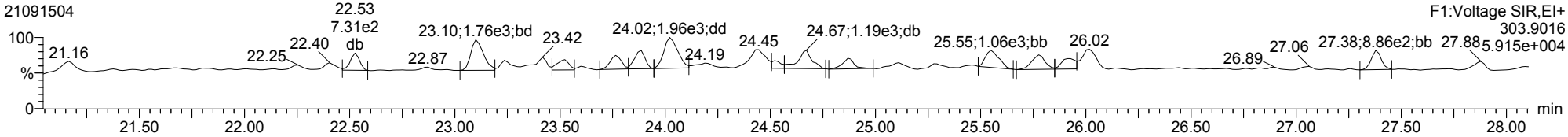
Total-tetrafurans



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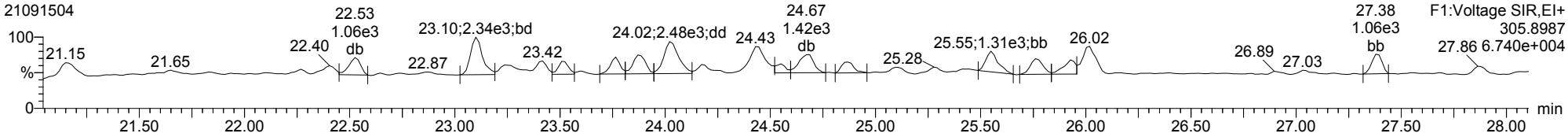

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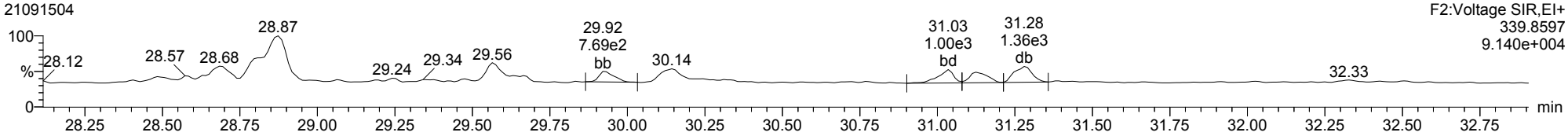

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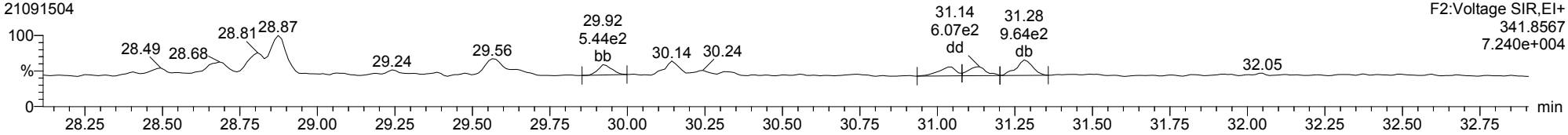

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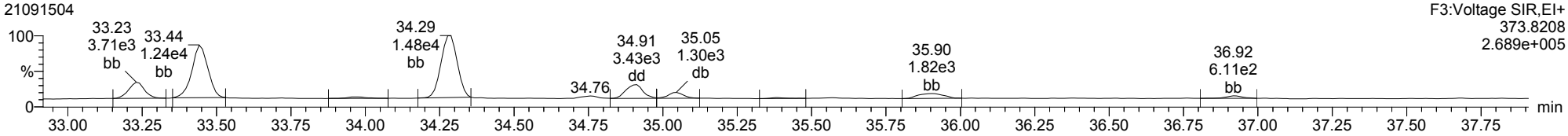
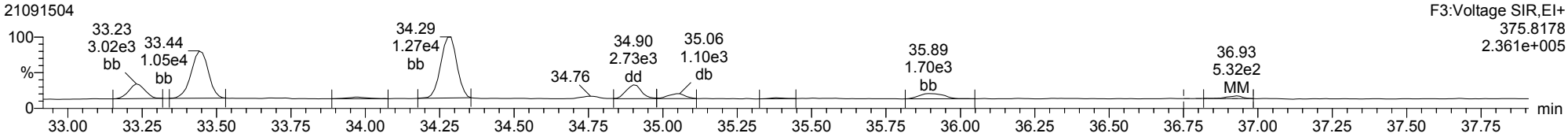
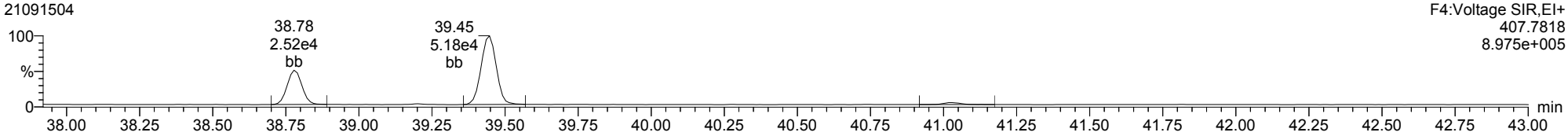
Total-hexafurans



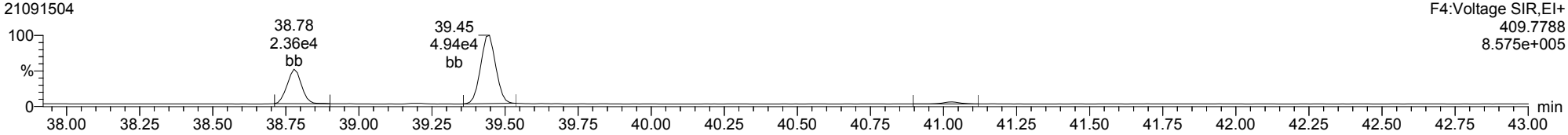
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0127
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0186-SRM1
Batch: BJH0186
Initial/Final: 5.05 g / 20 uL
Preparation: EPA 1613
Analyzed: 08/24/2021 20:18
Standard ID: J006842
Expires: 12/28/2021
Standard Lot#: PSRM0136
Description: Puget Sound reference-SRM

ANALYTE	TRUE (ng/kg wet)	FOUND (ng/kg wet)	MDL	MRL	Q	SRM % REC.	QC LIMITS REC.
2,3,7,8-TCDF	1.1001	0.996	0.423	1.98	EMPC, J	90.6	50 - 150
2,3,7,8-TCDD	1.0406	1.12	0.383	1.98	EMPC, J	108	50 - 150
1,2,3,7,8-PeCDF	1.2190	0.993	0.475	1.98	J	81.5	50 - 150
2,3,4,7,8-PeCDF	1.0605	0.992	0.436	1.98	J	93.5	50 - 150
1,2,3,7,8-PeCDD	1.0704	1.12	0.628	1.98	J	105	50 - 150
1,2,3,4,7,8-HxCDF	2.9931	3.08	0.554	1.98		103	50 - 150
1,2,3,6,7,8-HxCDF	1.0803	1.24	0.396	1.98	J	115	50 - 150
2,3,4,6,7,8-HxCDF	1.8137	1.83	0.337	1.98	J	101	50 - 150
1,2,3,7,8,9-HxCDF	0.50645	0.664	0.376	1.98	J	131	50 - 150
1,2,3,4,7,8-HxCDD	1.5758	1.35	0.377	1.98	J	85.9	50 - 150
1,2,3,6,7,8-HxCDD	3.8454	3.74	0.390	1.98		97.3	50 - 150
1,2,3,7,8,9-HxCDD	3.0129	2.80	0.436	1.98		93.0	50 - 150
1,2,3,4,6,7,8-HpCDF	18.533	20.6	0.416	1.98		111	50 - 150
1,2,3,4,7,8,9-HpCDF	1.6155	1.76	0.475	1.98	J	109	50 - 150
1,2,3,4,6,7,8-HpCDD	89.793	112	1.11	4.95	B	124	50 - 150
OCDF	57.880	57.7	2.18	4.95		99.6	50 - 150
OCDD	803.77	901	9.11	19.8	B	112	50 - 150

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:22:50 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.262	1.000	1.154e3	1.072e3	1.108	1.076	0.770	2530	2164	1.64e4	1.54e4	6.5	7.1	YES	bd	bb	0.252
12378-PeCDF	29.437	1.000	1.320e3	9.929e2	1.015	1.329	1.550	2522	2110	2.14e4	1.91e4	8.5	9.1	NO	bb	bb	0.251
23478-PeCDF	30.774	1.000	1.474e3	1.023e3	1.126	1.440	1.550	2522	2110	1.99e4	1.20e4	7.9	5.7	NO	MM	db	0.250
123478-HxCDF	34.439	1.000	3.175e3	2.667e3	1.017	1.190	1.240	1502	1222	4.78e4	4.03e4	31.8	33.0	NO	bd	bd	0.778
234678-HxCDF	35.453	1.000	1.869e3	1.645e3	1.052	1.137	1.240	1502	1222	2.60e4	2.35e4	17.3	19.2	NO	db	MM	0.463
123678-HxCDF	34.584	1.001	1.382e3	1.082e3	1.037	1.278	1.240	1502	1222	1.52e4	1.78e4	10.1	14.6	NO	db	db	0.314
123789-HxCDF	36.478	1.000	6.063e2	5.116e2	1.030	1.185	1.240	1502	1222	8.42e3	5.13e3	5.6	4.2	NO	MM	MM	0.168
1234678-HpCDF	38.372	1.000	2.103e4	1.954e4	1.327	1.076	1.050	948	1006	3.35e5	3.20e5	353.2	318.2	NO	bb	bb	5.209
1234789-HpCDF	40.556	1.000	1.424e3	1.432e3	1.283	0.994	1.050	948	1006	2.06e4	2.12e4	21.7	21.1	NO	bb	bb	0.445
OCDF	44.684	1.005	3.716e4	4.056e4	1.447	0.916	0.890	802	1077	4.48e5	4.85e5	557.9	449.9	NO	bb	bb	14.557
2378-TCDD	25.927	1.001	9.399e2	8.230e2	0.920	1.142	0.770	1659	1287	1.32e4	1.53e4	7.9	11.9	YES	bb	bb	0.283
12378-PeCDD	31.041	1.001	9.196e2	5.279e2	0.995	1.742	1.550	2415	1480	1.06e4	9.91e3	4.4	6.7	NO	bb	bb	0.283
123478-HxCDD	35.576	1.000	1.241e3	9.833e2	1.027	1.262	1.240	1696	1580	2.23e4	1.66e4	13.2	10.5	NO	bd	bd	0.342
123678-HxCDD	35.709	1.001	3.358e3	2.781e3	1.009	1.208	1.240	1696	1580	5.83e4	4.77e4	34.4	30.2	NO	db	db	0.945
123789-HxCDD	36.088	1.011	2.274e3	2.019e3	0.950	1.126	1.240	1696	1580	3.86e4	2.84e4	22.8	17.9	NO	bb	MM	0.708
1234678-HpCDD	39.832	1.000	6.519e4	5.926e4	1.068	1.100	1.050	1793	1587	9.74e5	8.95e5	542.9	563.7	NO	bb	bb	28.161
OCDD	44.465	1.000	4.709e5	5.209e5	1.181	0.904	0.890	3307	1594	5.80e6	6.37e6	1754.2	3997.7	NO	bb	bb	227.620
13C-2378-TCDF	25.262	1.007	3.602e5	4.387e5	1.427	0.821	0.770	2969	2175	5.37e6	6.53e6	1808.9	3003.1	NO	bb	bb	69.929
13C-12378-PeCDF	29.426	1.173	5.641e5	3.445e5	1.297	1.638	1.550	2409	2644	8.17e6	5.07e6	3389.0	1918.2	NO	bd	bb	87.447
13C-23478-PeCDF	30.762	1.227	5.474e5	3.386e5	1.236	1.617	1.550	2409	2644	8.15e6	5.08e6	3381.8	1922.4	NO	bb	bb	89.485
13C-123478-HxCDF	34.428	0.954	2.500e5	4.888e5	1.242	0.512	0.510	1743	3303	3.83e6	7.44e6	2197.6	2251.4	NO	bd	bd	77.241
13C-123678-HxCDF	34.562	0.958	2.599e5	4.974e5	1.343	0.523	0.510	1743	3303	3.79e6	7.30e6	2175.2	2211.0	NO	db	db	73.222
13C-234678-HxCDF	35.453	0.983	2.476e5	4.738e5	1.215	0.523	0.510	1743	3303	3.72e6	7.29e6	2135.3	2207.1	NO	bd	bb	77.142
13C-123789-HxCDF	36.478	1.011	2.216e5	4.256e5	1.008	0.521	0.510	1743	3303	3.48e6	6.78e6	1996.0	2052.4	NO	bb	bb	83.435
13C-1234678-HpCDF	38.361	1.063	1.834e5	4.034e5	0.926	0.455	0.440	1424	2689	2.97e6	6.51e6	2087.9	2420.4	NO	bb	bb	82.267
13C-1234789-HpCDF	40.545	1.124	1.572e5	3.436e5	0.758	0.458	0.440	1424	2689	2.22e6	4.86e6	1561.5	1806.1	NO	bb	bb	85.828
13C-1234-TCDD	25.080	0.000	3.482e5	4.527e5	1.000	0.769	0.770	2217	1352	5.33e6	6.89e6	2405.9	5101.2	NO	bb	bb	100.000
13C-2378-TCDD	25.897	1.033	2.919e5	3.855e5	1.116	0.757	0.770	2217	1352	4.28e6	5.57e6	1932.3	4119.5	NO	bb	bd	75.761
13C-12378-PeCDD	31.019	1.237	3.150e5	1.988e5	0.732	1.584	1.550	1417	1508	4.54e6	2.93e6	3203.4	1942.0	NO	bb	bb	87.653
13C-123478-HxCDD	35.576	0.986	3.531e5	2.798e5	0.960	1.262	1.240	2868	1916	5.60e6	4.44e6	1953.8	2315.7	NO	bd	bd	85.666
13C-123678-HxCDD	35.687	0.989	3.576e5	2.862e5	1.041	1.249	1.240	2868	1916	5.50e6	4.47e6	1918.1	2334.2	NO	db	db	80.314
13C-1234678-HpCDD	39.820	1.104	2.132e5	2.005e5	0.632	1.063	1.050	1434	2048	3.24e6	3.08e6	2261.0	1501.9	NO	bb	bb	84.979
13C-OCDD	44.446	1.232	3.556e5	3.824e5	0.504	0.930	0.890	1643	1099	4.36e6	4.72e6	2654.5	4297.5	NO	bb	bb	190.313
13C-123789-HxCDD	36.077	0.000	4.305e5	3.393e5	1.000	1.269	1.240	2868	1916	6.94e6	5.49e6	2420.5	2864.1	NO	bb	bb	100.000
37CL-2378-TCDD	25.927	1.034	2.520e5		1.084			1535		3.58e6		2330.5			bd		29.042

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:22:50 Pacific Daylight Time

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.425		0.770	2530	2164								
1289-TCDF					1.043		0.770	2530	2164								
13468-PECDF	26.713	0.908	8.450e3	5.891e3	1.376	1.434	1.550	1476	1307	1.10e5	7.28e4	74.5	55.8	NO	db	db	1.147
12389-PECDF					1.000		1.550	2522	2110								
123468-HXCDF	32.757	0.951	2.979e3	2.727e3	1.087	1.093	1.240	1502	1222	4.19e4	4.13e4	27.9	33.8	NO	bb	bd	0.711
1368-TCDD					0.923		0.770	1659	1287								
1289-TCDD	26.456	1.022	3.254e2	3.287e2	0.794	0.990	0.770	1659	1287	5.83e3	4.06e3	3.5	3.2	YES	bb	dd	0.122
12479-PECDD	28.345	0.914	1.076e3	9.757e2	1.843	1.103	1.550	2415	1480	1.72e4	1.13e4	7.1	7.6	YES	db	bb	0.217
12389-PECDD					1.154		1.550	2415	1480								
124679-HXCDD	33.537	0.943	9.166e3	7.343e3	1.125	1.248	1.240	1696	1580	1.38e5	1.05e5	81.6	66.7	NO	bb	bb	2.319
1234679-HPCDD	38.818	0.975	9.693e4	9.249e4	1.211	1.048	1.050	1793	1587	1.54e6	1.42e6	858.2	895.9	NO	bb	bd	37.810
Total-tetrafurans			1.262e3		1.192			2530		1.83e4							0.319
Total-penta1			8.450e3					1476		1.10e5							1.147
Total-pentafurans			8.767e3		1.047			2522		1.14e5							1.569
Total-hexafurans			3.122e4		1.045			1502		4.55e5							7.613
Total-heptafurans			6.428e4		1.305			948		1.02e6							17.033
Total-Furans			1.511e5		1.158			2530		2.17e6							42.238
Total-tetradioxins			1.178e3		0.879			1659		1.45e4							0.444
Total-pentadioxins			1.897e3		1.331			2415		2.47e4							0.521
Total-hexadioxins			3.089e4		1.028			1696		4.27e5							8.240
Total-heptadioxins			1.621e5		1.140			1793		2.51e6							65.971
Total-Dioxins			6.670e5		1.092			1659		8.78e6							302.797
Total-TEQ			8.181e5					1659		1.09e7							345.035
FUNCTION1 PFK			5.695e6					910328		5.67e7							
FUNCTION2 PFK			7.931e5					640383		5.66e6							0.000
FUNCTION3 PFK			4.041e6					536750		1.34e7							0.000
FUNCTION4 PFK			2.685e5					421987		8.14e6							
FUNCTION5 PFK			9.523e6					271068		1.10e8							
FUNCTION1 HXCD...			2.284e3					1284		4.19e4							0.000
FUNCTION1 HPCD...			6.873e3					1201		1.13e5							0.000
FUNCTION2 HPCD...			1.133e3					1088		2.43e4							0.000
FUNCTION3 OCDPE			1.571e3					1011		3.75e4							0.000
FUNCTION4 NCDPE			4.894e3					682		8.22e4							0.000
FUNCTION5 DCDPE			1.190e2					637		5.08e3							0.000

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.37	1.262e3	1.777e3	1.192	0.71	0.77	7.2	YES	NO	bb	dd	0.319

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.71	8.450e3	5.891e3	1.376	1.43	1.55	74.5	YES	NO	db	db	1.147

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	30.77	1.474e3	1.023e3	1.126	1.44	1.55	7.9	YES	NO	MM	db	0.250
2	Total-pentafurans	29.66	2.132e3	1.287e3	1.047	1.66	1.55	9.2	YES	NO	bd	bb	0.364
3	12378-PeCDF	29.44	1.320e3	9.929e2	1.015	1.33	1.55	8.5	YES	NO	bb	bb	0.251
4	Total-pentafurans	29.09	1.583e3	1.190e3	1.047	1.33	1.55	6.9	YES	NO	bb	bb	0.295
5	Total-pentafurans	28.00	2.259e3	1.577e3	1.047	1.43	1.55	12.6	YES	NO	dd	dd	0.408

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.45	1.869e3	1.645e3	1.052	1.14	1.24	17.3	YES	NO	db	MM	0.463
2	123678-HxCDF	34.58	1.382e3	1.082e3	1.037	1.28	1.24	10.1	YES	NO	db	db	0.314
3	123478-HxCDF	34.44	3.175e3	2.667e3	1.017	1.19	1.24	31.8	YES	NO	bd	bd	0.778
4	Total-hexafurans	33.82	1.199e4	9.721e3	1.045	1.23	1.24	121.9	YES	NO	bb	bb	2.902
5	Total-hexafurans	32.96	9.220e3	7.820e3	1.045	1.18	1.24	88.4	YES	NO	bb	db	2.278
6	123468-HXCDF	32.76	2.979e3	2.727e3	1.087	1.09	1.24	27.9	YES	NO	bb	bd	0.711
7	123789-HxCDF	36.48	6.063e2	5.116e2	1.030	1.19	1.24	5.6	YES	NO	MM	MM	0.168

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.56	1.424e3	1.432e3	1.283	0.99	1.05	21.7	YES	NO	bb	bb	0.445
2	Total-heptafurans	39.01	4.130e4	3.848e4	1.305	1.07	1.05	697.0	YES	NO	bb	bb	11.240
3	Total-heptafurans	38.78	5.311e2	4.563e2	1.305	1.16	1.05	7.9	YES	NO	bb	bb	0.139
4	1234678-HpCDF	38.37	2.103e4	1.954e4	1.327	1.08	1.05	353.2	YES	NO	bb	bb	5.209

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.37	1.262e3	1.777e3	1.192	0.71	0.77	7.2	YES	NO	bb	dd	0.319
2	23478-PeCDF	30.77	1.474e3	1.023e3	1.126	1.44	1.55	7.9	YES	NO	MM	db	0.250
3	Total-pentafurans	29.66	2.132e3	1.287e3	1.047	1.66	1.55	9.2	YES	NO	bd	bb	0.364
4	12378-PeCDF	29.44	1.320e3	9.929e2	1.015	1.33	1.55	8.5	YES	NO	bb	bb	0.251
5	Total-pentafurans	29.09	1.583e3	1.190e3	1.047	1.33	1.55	6.9	YES	NO	bb	bb	0.295
6	Total-pentafurans	28.00	2.259e3	1.577e3	1.047	1.43	1.55	12.6	YES	NO	dd	dd	0.408
7	234678-HxCDF	35.45	1.869e3	1.645e3	1.052	1.14	1.24	17.3	YES	NO	db	MM	0.463
8	123678-HxCDF	34.58	1.382e3	1.082e3	1.037	1.28	1.24	10.1	YES	NO	db	db	0.314
9	123478-HxCDF	34.44	3.175e3	2.667e3	1.017	1.19	1.24	31.8	YES	NO	bd	bd	0.778
10	Total-hexafurans	33.82	1.199e4	9.721e3	1.045	1.23	1.24	121.9	YES	NO	bb	bb	2.902
11	Total-hexafurans	32.96	9.220e3	7.820e3	1.045	1.18	1.24	88.4	YES	NO	bb	db	2.278
12	123468-HXCDF	32.76	2.979e3	2.727e3	1.087	1.09	1.24	27.9	YES	NO	bb	bd	0.711
13	123789-HxCDF	36.48	6.063e2	5.116e2	1.030	1.19	1.24	5.6	YES	NO	MM	MM	0.168
14	1234789-HpCDF	40.56	1.424e3	1.432e3	1.283	0.99	1.05	21.7	YES	NO	bb	bb	0.445
15	Total-heptafurans	39.01	4.130e4	3.848e4	1.305	1.07	1.05	697.0	YES	NO	bb	bb	11.240
16	Total-heptafurans	38.78	5.311e2	4.563e2	1.305	1.16	1.05	7.9	YES	NO	bb	bb	0.139
17	1234678-HpCDF	38.37	2.103e4	1.954e4	1.327	1.08	1.05	353.2	YES	NO	bb	bb	5.209
18	OCDF	44.68	3.716e4	4.056e4	1.447	0.92	0.89	557.9	YES	NO	bb	bb	14.557
19	13468-PECDF	26.71	8.450e3	5.891e3	1.376	1.43	1.55	74.5	YES	NO	db	db	1.147

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.10	5.583e2	6.600e2	0.879	0.85	0.77	4.8	YES	NO	bd	dd	0.205
2	Total-tetradioxins	24.07	6.202e2	8.072e2	0.879	0.77	0.77	4.0	YES	NO	bd	bd	0.240

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.44	9.777e2	6.524e2	1.331	1.50	1.55	5.8	YES	NO	bb	bb	0.238
2	12378-PeCDD	31.04	9.196e2	5.279e2	0.995	1.74	1.55	4.4	YES	NO	bb	bb	0.283

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	34.80	1.607e3	1.237e3	1.028	1.30	1.24	12.3	YES	NO	db	db	0.433
2	Total-hexadioxins	34.68	1.105e4	8.100e3	1.028	1.36	1.24	64.9	YES	NO	dd	bd	2.918
3	Total-hexadioxins	34.33	2.197e3	1.578e3	1.028	1.39	1.24	22.6	YES	NO	bd	bb	0.575
4	124679-HXCDD	33.54	9.166e3	7.343e3	1.125	1.25	1.24	81.6	YES	NO	bb	bb	2.319
5	123789-HxCDD	36.09	2.274e3	2.019e3	0.950	1.13	1.24	22.8	YES	NO	bb	MM	0.708
6	123678-HxCDD	35.71	3.358e3	2.781e3	1.009	1.21	1.24	34.4	YES	NO	db	db	0.945
7	123478-HxCDD	35.58	1.241e3	9.833e2	1.027	1.26	1.24	13.2	YES	NO	bd	bd	0.342

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.83	6.519e4	5.926e4	1.068	1.10	1.05	542.9	YES	NO	bb	bb	28.161
2	1234679-HPCDD	38.82	9.693e4	9.249e4	1.211	1.05	1.05	858.2	YES	NO	bb	bd	37.810

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.10	5.583e2	6.600e2	0.879	0.85	0.77	4.8	YES	NO	bd	dd	0.205
2	Total-tetradioxins	24.07	6.202e2	8.072e2	0.879	0.77	0.77	4.0	YES	NO	bd	bd	0.240
3	Total-pentadioxins	29.44	9.777e2	6.524e2	1.331	1.50	1.55	5.8	YES	NO	bb	bb	0.238
4	12378-PeCDD	31.04	9.196e2	5.279e2	0.995	1.74	1.55	4.4	YES	NO	bb	bb	0.283
5	Total-hexadioxins	34.80	1.607e3	1.237e3	1.028	1.30	1.24	12.3	YES	NO	db	db	0.433
6	Total-hexadioxins	34.68	1.105e4	8.100e3	1.028	1.36	1.24	64.9	YES	NO	dd	bd	2.918
7	Total-hexadioxins	34.33	2.197e3	1.578e3	1.028	1.39	1.24	22.6	YES	NO	bd	bb	0.575
8	124679-HXCDD	33.54	9.166e3	7.343e3	1.125	1.25	1.24	81.6	YES	NO	bb	bb	2.319
9	123789-HxCDD	36.09	2.274e3	2.019e3	0.950	1.13	1.24	22.8	YES	NO	bb	MM	0.708
10	123678-HxCDD	35.71	3.358e3	2.781e3	1.009	1.21	1.24	34.4	YES	NO	db	db	0.945
11	123478-HxCDD	35.58	1.241e3	9.833e2	1.027	1.26	1.24	13.2	YES	NO	bd	bd	0.342
12	1234678-HpCDD	39.83	6.519e4	5.926e4	1.068	1.10	1.05	542.9	YES	NO	bb	bb	28.161
13	1234679-HPCDD	38.82	9.693e4	9.249e4	1.211	1.05	1.05	858.2	YES	NO	bb	bd	37.810
14	OCDD	44.46	4.709e5	5.209e5	1.181	0.90	0.89	1754.2	YES	NO	bb	bb	227.620

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.37	1.262e3	1.777e3	1.192	0.71	0.77	7.2	YES	NO	bb	dd	0.319
2	23478-PeCDF	30.77	1.474e3	1.023e3	1.126	1.44	1.55	7.9	YES	NO	MM	db	0.250
3	Total-pentafurans	29.66	2.132e3	1.287e3	1.047	1.66	1.55	9.2	YES	NO	bd	bb	0.364
4	12378-PeCDF	29.44	1.320e3	9.929e2	1.015	1.33	1.55	8.5	YES	NO	bb	bb	0.251
5	Total-pentafurans	29.09	1.583e3	1.190e3	1.047	1.33	1.55	6.9	YES	NO	bb	bb	0.295
6	Total-pentafurans	28.00	2.259e3	1.577e3	1.047	1.43	1.55	12.6	YES	NO	dd	dd	0.408
7	234678-HxCDF	35.45	1.869e3	1.645e3	1.052	1.14	1.24	17.3	YES	NO	db	MM	0.463
8	123678-HxCDF	34.58	1.382e3	1.082e3	1.037	1.28	1.24	10.1	YES	NO	db	db	0.314
9	123478-HxCDF	34.44	3.175e3	2.667e3	1.017	1.19	1.24	31.8	YES	NO	bd	bd	0.778
10	Total-hexafurans	33.82	1.199e4	9.721e3	1.045	1.23	1.24	121.9	YES	NO	bb	bb	2.902
11	Total-hexafurans	32.96	9.220e3	7.820e3	1.045	1.18	1.24	88.4	YES	NO	bb	db	2.278
12	123468-HXCDF	32.76	2.979e3	2.727e3	1.087	1.09	1.24	27.9	YES	NO	bb	bd	0.711
13	123789-HxCDF	36.48	6.063e2	5.116e2	1.030	1.19	1.24	5.6	YES	NO	MM	MM	0.168
14	1234789-HpCDF	40.56	1.424e3	1.432e3	1.283	0.99	1.05	21.7	YES	NO	bb	bb	0.445
15	Total-heptafurans	39.01	4.130e4	3.848e4	1.305	1.07	1.05	697.0	YES	NO	bb	bb	11.240
16	Total-heptafurans	38.78	5.311e2	4.563e2	1.305	1.16	1.05	7.9	YES	NO	bb	bb	0.139
17	1234678-HpCDF	38.37	2.103e4	1.954e4	1.327	1.08	1.05	353.2	YES	NO	bb	bb	5.209
18	OCDF	44.68	3.716e4	4.056e4	1.447	0.92	0.89	557.9	YES	NO	bb	bb	14.557
19	13468-PECDF	26.71	8.450e3	5.891e3	1.376	1.43	1.55	74.5	YES	NO	db	db	1.147
20	Total-tetradioxins	25.10	5.583e2	6.600e2	0.879	0.85	0.77	4.8	YES	NO	bd	dd	0.205
21	Total-tetradioxins	24.07	6.202e2	8.072e2	0.879	0.77	0.77	4.0	YES	NO	bd	bd	0.240
22	Total-pentadioxins	29.44	9.777e2	6.524e2	1.331	1.50	1.55	5.8	YES	NO	bb	bb	0.238
23	12378-PeCDD	31.04	9.196e2	5.279e2	0.995	1.74	1.55	4.4	YES	NO	bb	bb	0.283
24	Total-hexadioxins	34.80	1.607e3	1.237e3	1.028	1.30	1.24	12.3	YES	NO	db	db	0.433
25	Total-hexadioxins	34.68	1.105e4	8.100e3	1.028	1.36	1.24	64.9	YES	NO	dd	bd	2.918
26	Total-hexadioxins	34.33	2.197e3	1.578e3	1.028	1.39	1.24	22.6	YES	NO	bd	bb	0.575
27	124679-HXCDD	33.54	9.166e3	7.343e3	1.125	1.25	1.24	81.6	YES	NO	bb	bb	2.319
28	123789-HxCDD	36.09	2.274e3	2.019e3	0.950	1.13	1.24	22.8	YES	NO	bb	MM	0.708
29	123678-HxCDD	35.71	3.358e3	2.781e3	1.009	1.21	1.24	34.4	YES	NO	db	db	0.945
30	123478-HxCDD	35.58	1.241e3	9.833e2	1.027	1.26	1.24	13.2	YES	NO	bd	bd	0.342
31	1234678-HpCDD	39.83	6.519e4	5.926e4	1.068	1.10	1.05	542.9	YES	NO	bb	bb	28.161
32	1234679-HPCDD	38.82	9.693e4	9.249e4	1.211	1.05	1.05	858.2	YES	NO	bb	bd	37.810
33	OCDD	44.46	4.709e5	5.209e5	1.181	0.90	0.89	1754.2	YES	NO	bb	bb	227.620

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.33	1.678e5					3.2	YES		dd		
2	FUNCTION1 PFK	21.25	5.019e4					1.7	NO		bd		
3	FUNCTION1 PFK	21.19	7.100e4					2.2	NO		db		
4	FUNCTION1 PFK	21.13	3.988e4					1.5	NO		bd		
5	FUNCTION1 PFK	25.58	5.283e3					0.4	NO		bb		
6	FUNCTION1 PFK	25.52	3.479e4					1.2	NO		bb		
7	FUNCTION1 PFK	25.10	1.847e5					1.3	NO		bb		
8	FUNCTION1 PFK	24.66	6.854e3					0.5	NO		bb		
9	FUNCTION1 PFK	24.60	3.584e4					1.2	NO		bb		
10	FUNCTION1 PFK	24.45	3.888e4					0.9	NO		bb		
11	FUNCTION1 PFK	23.40	1.051e5					1.4	NO		bb		
12	FUNCTION1 PFK	23.15	1.927e5					2.0	NO		bb		
13	FUNCTION1 PFK	22.81	2.362e5					1.4	NO		bb		
14	FUNCTION1 PFK	22.59	3.817e5					4.5	YES		db		
15	FUNCTION1 PFK	22.48	4.262e5					4.5	YES		dd		
16	FUNCTION1 PFK	22.39	2.498e5					4.4	YES		dd		
17	FUNCTION1 PFK	22.25	7.293e5					4.7	YES		bd		
18	FUNCTION1 PFK	22.03	4.679e5					3.7	YES		bb		
19	FUNCTION1 PFK	21.63	2.213e5					3.7	YES		bb		
20	FUNCTION1 PFK	21.50	6.133e5					5.3	YES		db		
21	FUNCTION1 PFK	27.38	3.846e5					0.9	NO		bb		
22	FUNCTION1 PFK	27.09	5.553e5					5.4	YES		bb		
23	FUNCTION1 PFK	26.80	3.951e5					2.5	NO		bb		
24	FUNCTION1 PFK	26.68	2.726e4					1.0	NO		bb		
25	FUNCTION1 PFK	26.58	1.253e4					0.6	NO		bb		
26	FUNCTION1 PFK	26.43	3.539e4					1.2	NO		bb		
27	FUNCTION1 PFK	25.91	4.715e3					0.3	NO		bb		
28	FUNCTION1 PFK	25.78	2.114e4					0.8	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.99	3.125e4					1.7	NO		bb		0.000
2	FUNCTION2 PFK	28.85	6.889e4					2.6	NO		bb		0.000
3	FUNCTION2 PFK	28.65	6.929e5					4.5	YES		bb		0.000

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.21	2.716e6					12.8	YES		bb		0.000
2	FUNCTION3 PFK	35.10	4.174e4					2.6	NO		bb		0.000
3	FUNCTION3 PFK	32.32	3.424e4					2.4	NO		bb		0.000
4	FUNCTION3 PFK	36.63	1.250e6					7.1	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.48	6.969e3					1.0	NO		bb		
2	FUNCTION4 PFK	41.05	2.198e3					0.5	NO		bb		
3	FUNCTION4 PFK	40.60	1.043e4					0.7	NO		bb		
4	FUNCTION4 PFK	40.50	2.376e3					0.4	NO		bb		
5	FUNCTION4 PFK	40.18	2.415e4					1.8	NO		bb		
6	FUNCTION4 PFK	40.12	1.485e4					1.0	NO		bb		
7	FUNCTION4 PFK	39.81	1.025e4					1.0	NO		bb		
8	FUNCTION4 PFK	39.40	4.620e4					2.1	NO		bb		
9	FUNCTION4 PFK	39.34	5.744e3					0.8	NO		bb		
10	FUNCTION4 PFK	38.82	5.751e3					0.7	NO		bb		
11	FUNCTION4 PFK	38.77	1.466e4					1.5	NO		bb		
12	FUNCTION4 PFK	38.73	1.925e3					0.4	NO		bb		
13	FUNCTION4 PFK	37.70	4.883e4					0.4	NO		bb		
14	FUNCTION4 PFK	37.51	2.156e4					1.8	NO		bb		
15	FUNCTION4 PFK	42.35	1.919e3					0.4	NO		bb		
16	FUNCTION4 PFK	42.15	1.455e4					1.2	NO		db		
17	FUNCTION4 PFK	42.12	1.238e4					1.2	NO		bd		
18	FUNCTION4 PFK	41.89	2.652e3					0.6	NO		bb		
19	FUNCTION4 PFK	41.83	1.104e4					0.7	NO		bb		
20	FUNCTION4 PFK	41.53	1.004e4					1.1	NO		bb		

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.27	3.428e5					20.3	YES		dd		
2	FUNCTION5 PFK	43.16	5.477e5					23.9	YES		dd		
3	FUNCTION5 PFK	43.13	2.450e5					25.2	YES		dd		
4	FUNCTION5 PFK	42.92	3.151e6					33.0	YES		dd		
5	FUNCTION5 PFK	42.70	6.747e5					40.2	YES		dd		
6	FUNCTION5 PFK	42.63	1.569e6					42.6	YES		dd		
7	FUNCTION5 PFK	42.52	4.390e5					44.8	YES		dd		
8	FUNCTION5 PFK	42.49	4.526e5					46.0	YES		dd		
9	FUNCTION5 PFK	42.45	5.882e5					48.0	YES		bd		
10	FUNCTION5 PFK	44.82	2.570e4					1.7	NO		db		
11	FUNCTION5 PFK	44.75	7.424e3					1.4	NO		bd		
12	FUNCTION5 PFK	44.70	3.339e3					0.8	NO		db		
13	FUNCTION5 PFK	44.69	6.663e3					1.2	NO		bd		
14	FUNCTION5 PFK	44.63	1.065e3					0.4	NO		bb		
15	FUNCTION5 PFK	44.43	8.847e3					1.2	NO		bb		
16	FUNCTION5 PFK	44.34	1.016e3					0.4	NO		bb		
17	FUNCTION5 PFK	44.15	1.821e3					0.7	NO		bb		
18	FUNCTION5 PFK	44.10	3.035e4					2.4	NO		db		
19	FUNCTION5 PFK	44.03	2.220e4					2.0	NO		bd		
20	FUNCTION5 PFK	43.91	4.362e3					0.9	NO		bb		
21	FUNCTION5 PFK	43.74	5.711e4					3.6	YES		db		
22	FUNCTION5 PFK	43.66	2.891e5					6.8	YES		dd		
23	FUNCTION5 PFK	43.49	2.435e5					13.0	YES		dd		
24	FUNCTION5 PFK	43.38	5.132e5					16.4	YES		dd		
25	FUNCTION5 PFK	43.32	2.199e5					18.5	YES		dd		
26	FUNCTION5 PFK	45.85	9.150e2					0.4	NO		bb		
27	FUNCTION5 PFK	45.73	1.544e4					1.6	NO		bb		
28	FUNCTION5 PFK	45.66	6.976e3					1.2	NO		bb		
29	FUNCTION5 PFK	45.57	2.910e3					0.7	NO		db		
30	FUNCTION5 PFK	45.54	3.394e3					0.7	NO		bd		
31	FUNCTION5 PFK	45.39	2.588e3					0.6	NO		bb		
32	FUNCTION5 PFK	45.29	1.612e4					1.3	NO		bb		
33	FUNCTION5 PFK	45.21	6.760e3					1.3	NO		bb		
34	FUNCTION5 PFK	45.04	1.496e4					1.5	NO		db		
35	FUNCTION5 PFK	45.01	7.121e3					1.1	NO		bd		

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	24.51	1.447e2					1.8	NO		dd		0.000
2	FUNCTION1 HXCD...	24.46	7.879e1					1.6	NO		bd		0.000
3	FUNCTION1 HXCD...	24.14	7.889e1					1.0	NO		bb		0.000
4	FUNCTION1 HXCD...	23.30	1.172e2					1.3	NO		bb		0.000
5	FUNCTION1 HXCD...	21.83	1.081e2					2.2	NO		bb		0.000
6	FUNCTION1 HXCD...	27.30	1.373e2					1.8	NO		bb		0.000
7	FUNCTION1 HXCD...	27.03	8.455e1					1.1	NO		bb		0.000
8	FUNCTION1 HXCD...	26.62	1.361e2					1.6	NO		bb		0.000
9	FUNCTION1 HXCD...	26.41	1.105e2					1.4	NO		db		0.000
10	FUNCTION1 HXCD...	26.31	1.979e2					2.2	NO		dd		0.000
11	FUNCTION1 HXCD...	26.18	1.382e2					1.8	NO		dd		0.000
12	FUNCTION1 HXCD...	26.12	1.005e2					1.4	NO		bd		0.000
13	FUNCTION1 HXCD...	25.85	1.515e2					2.7	NO		bb		0.000
14	FUNCTION1 HXCD...	25.66	9.797e1					1.5	NO		db		0.000
15	FUNCTION1 HXCD...	25.56	1.488e2					2.3	NO		dd		0.000
16	FUNCTION1 HXCD...	25.44	8.995e1					1.7	NO		bd		0.000
17	FUNCTION1 HXCD...	25.25	1.738e2					2.6	NO		bb		0.000
18	FUNCTION1 HXCD...	24.85	7.455e1					1.2	NO		bb		0.000
19	FUNCTION1 HXCD...	24.64	1.145e2					1.4	NO		db		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	21.12	1.190e2					1.8	NO		bb		0.000
2	FUNCTION1 HPCD...	27.29	1.189e2					1.7	NO		bb		0.000
3	FUNCTION1 HPCD...	26.61	2.611e2					1.8	NO		bb		0.000
4	FUNCTION1 HPCD...	26.38	1.203e2					2.1	NO		bb		0.000
5	FUNCTION1 HPCD...	25.85	7.313e1					1.6	NO		bb		0.000
6	FUNCTION1 HPCD...	25.73	8.320e1					1.8	NO		bb		0.000
7	FUNCTION1 HPCD...	25.23	1.453e2					3.0	NO		bb		0.000
8	FUNCTION1 HPCD...	24.19	1.077e2					1.5	NO		bb		0.000
9	FUNCTION1 HPCD...	23.45	9.150e1					1.6	NO		bb		0.000
10	FUNCTION1 HPCD...	22.86	7.317e2					9.0	YES		bb		0.000
11	FUNCTION1 HPCD...	21.56	5.021e3					68.1	YES		bb		0.000

ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.26	7.996e1					1.9	NO		bb		0.000
2	FUNCTION2 HPCD...	28.85	9.309e1					1.5	NO		bb		0.000
3	FUNCTION2 HPCD...	28.71	7.057e1					1.4	NO		bb		0.000
4	FUNCTION2 HPCD...	28.38	1.121e2					2.4	NO		bb		0.000
5	FUNCTION2 HPCD...	27.65	7.715e1					2.6	NO		bb		0.000
6	FUNCTION2 HPCD...	31.80	9.739e1					2.0	NO		bb		0.000
7	FUNCTION2 HPCD...	31.69	9.350e1					2.8	NO		bb		0.000
8	FUNCTION2 HPCD...	31.54	1.786e2					2.5	NO		bb		0.000
9	FUNCTION2 HPCD...	31.01	1.739e2					2.5	NO		bb		0.000
10	FUNCTION2 HPCD...	29.86	1.565e2					2.7	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.97	1.392e2					3.2	YES		bd		0.000
2	FUNCTION3 OCDPE	35.78	9.783e1					2.9	NO		db		0.000
3	FUNCTION3 OCDPE	35.73	9.925e1					3.4	YES		dd		0.000
4	FUNCTION3 OCDPE	35.70	1.802e2					3.6	YES		bd		0.000
5	FUNCTION3 OCDPE	35.58	1.378e2					3.2	YES		bb		0.000
6	FUNCTION3 OCDPE	35.45	7.019e1					1.8	NO		bb		0.000
7	FUNCTION3 OCDPE	34.02	9.760e1					1.6	NO		bb		0.000
8	FUNCTION3 OCDPE	32.95	1.109e2					2.4	NO		bb		0.000
9	FUNCTION3 OCDPE	32.36	8.445e1					1.9	NO		db		0.000
10	FUNCTION3 OCDPE	32.30	7.638e1					2.5	NO		bd		0.000
11	FUNCTION3 OCDPE	36.90	8.562e1					2.7	NO		bb		0.000
12	FUNCTION3 OCDPE	36.53	1.110e2					1.7	NO		bb		0.000
13	FUNCTION3 OCDPE	36.10	1.379e2					3.0	NO		db		0.000
14	FUNCTION3 OCDPE	36.07	1.423e2					3.2	YES		dd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.09	1.071e2					4.4	YES		db		0.000
2	FUNCTION4 NCDPE	37.99	4.787e3					116.1	YES		bd		0.000

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ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.57	1.190e2					8.0	YES		bb		0.000

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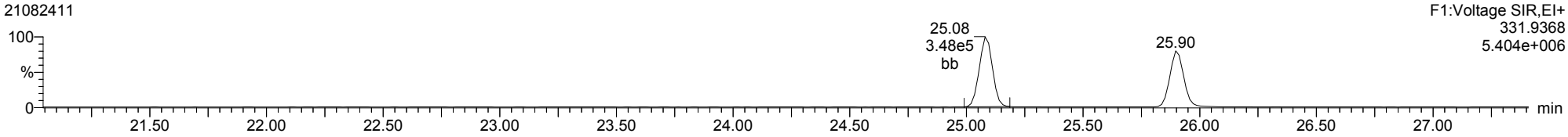
13C-1234-TCDD



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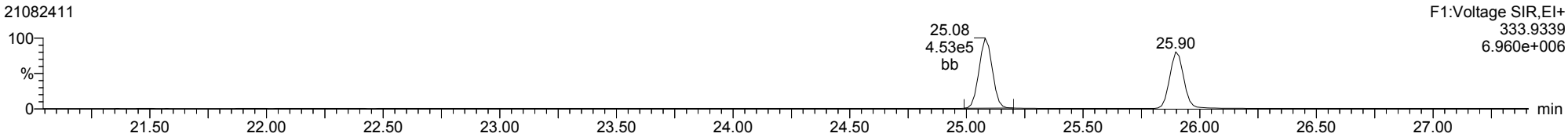
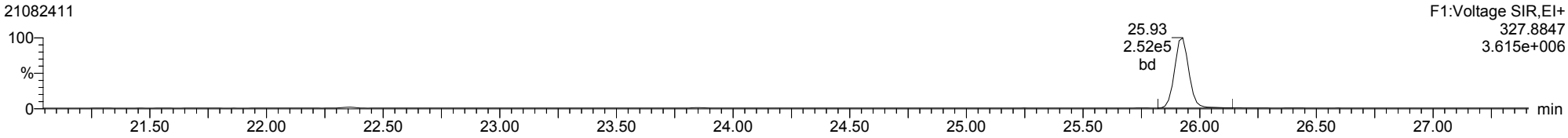


37CL-2378-TCDD



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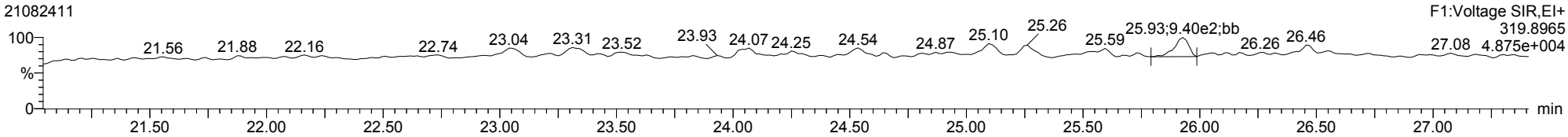

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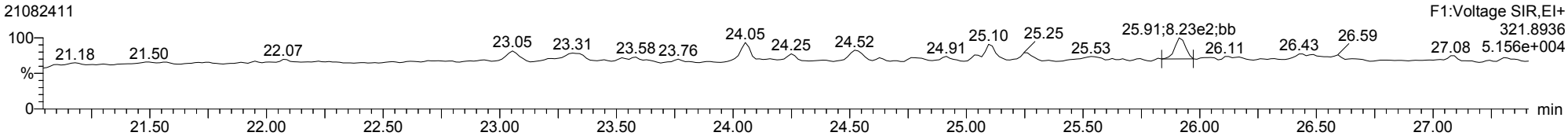

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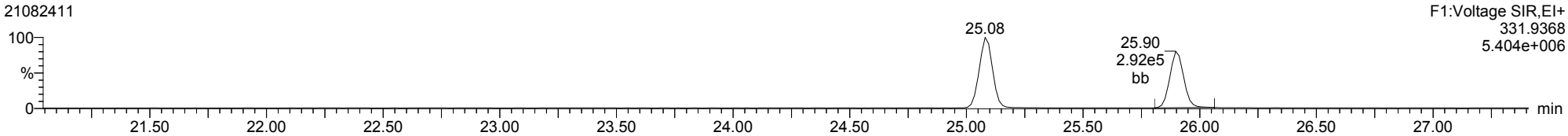

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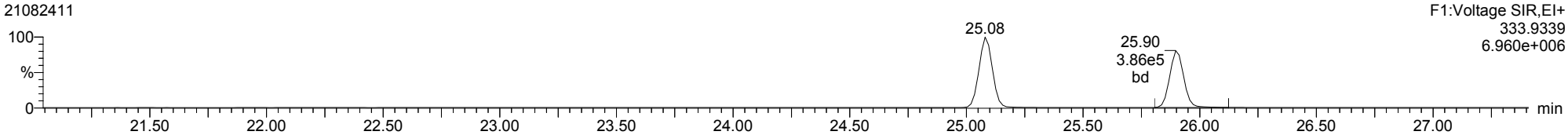

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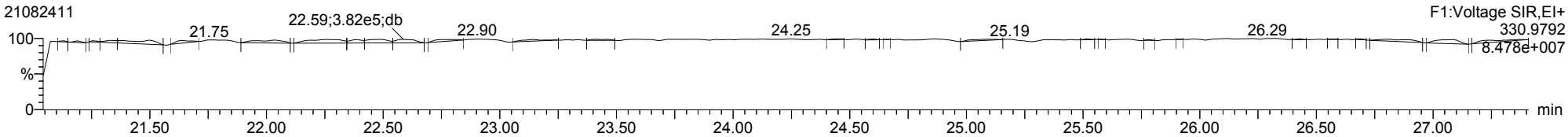

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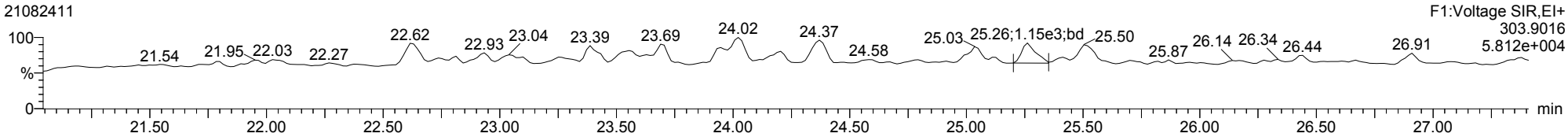
2378-TCDF



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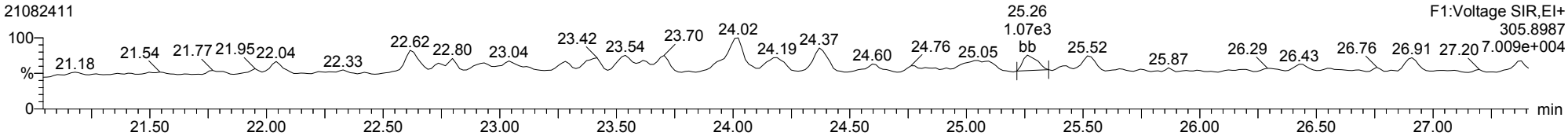

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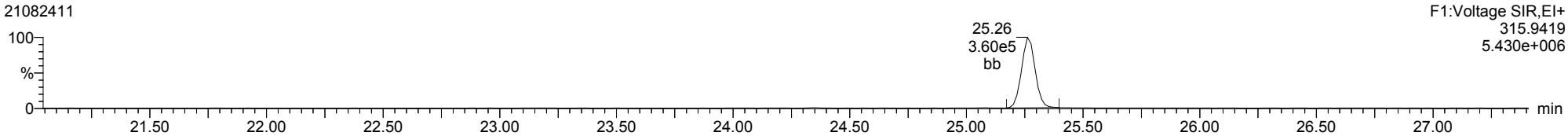

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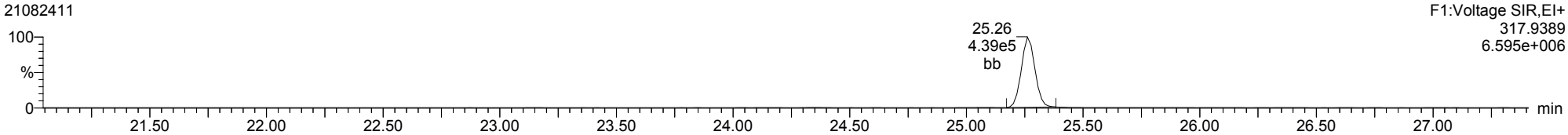

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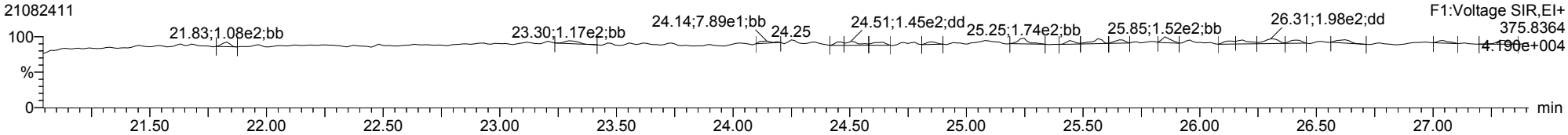

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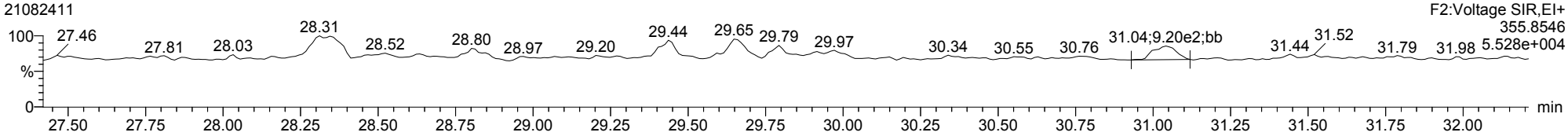
12378-PeCDD



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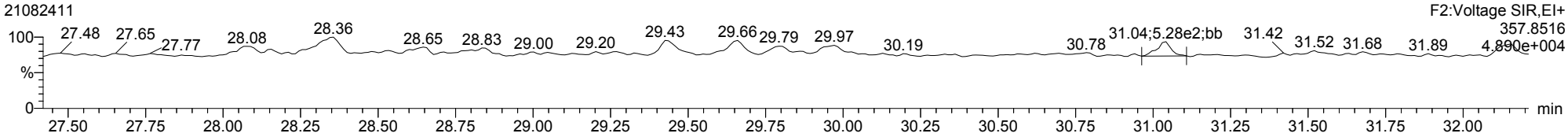

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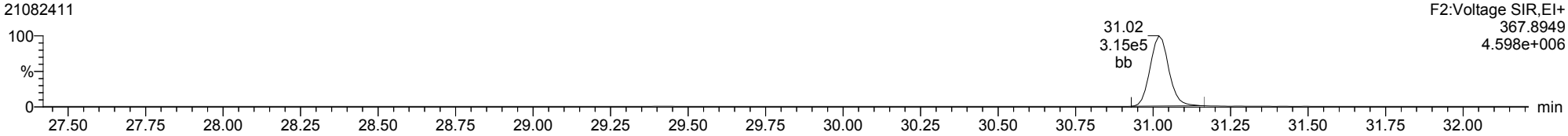

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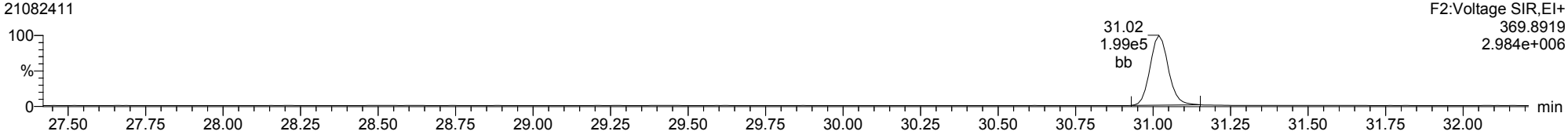

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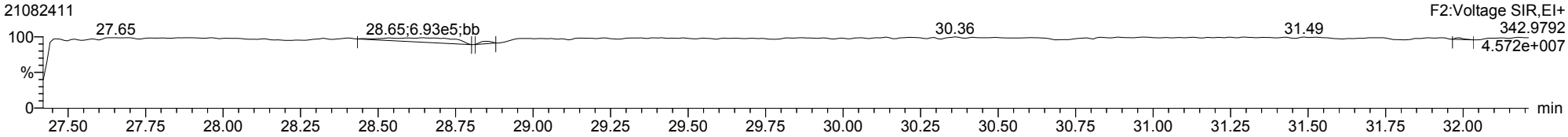

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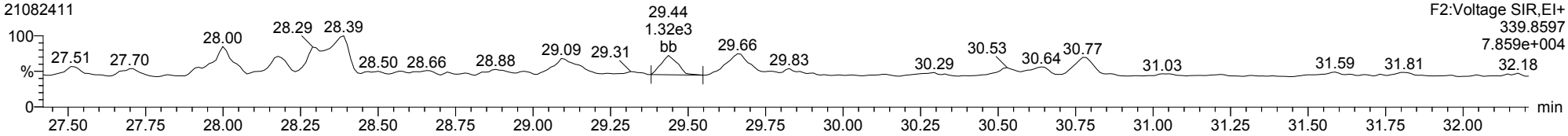

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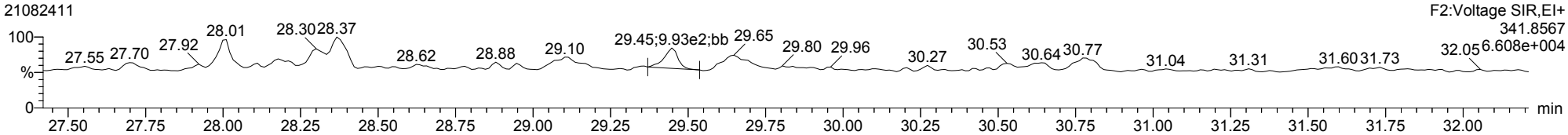

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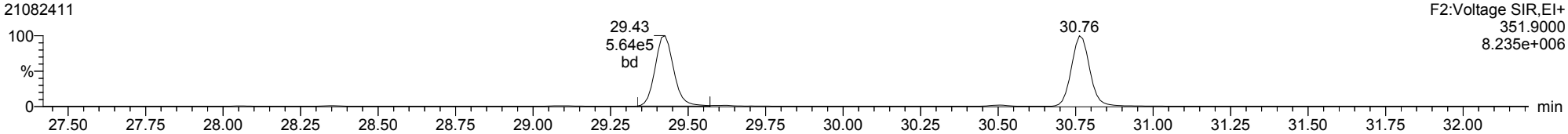

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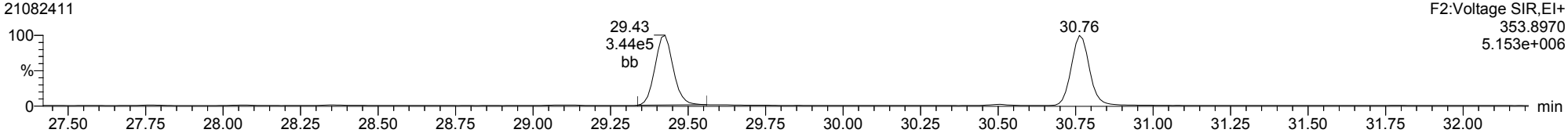
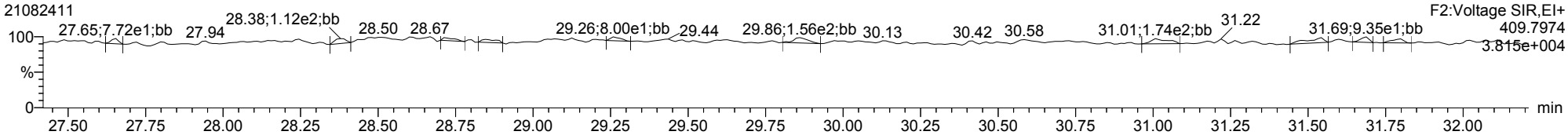


FUNCTION2 HPCDPE



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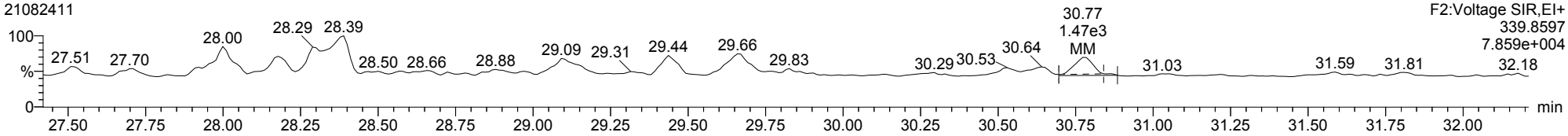
23478-PeCDF



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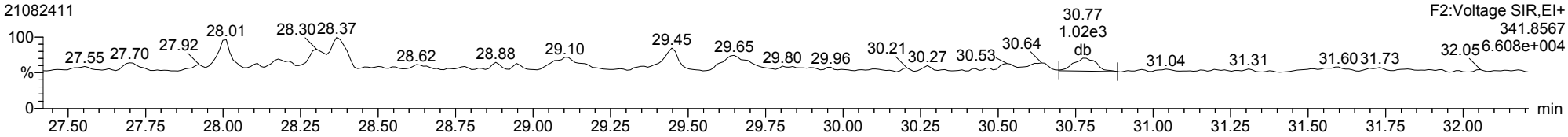

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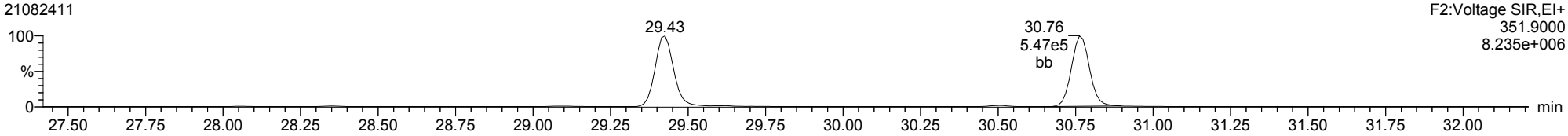

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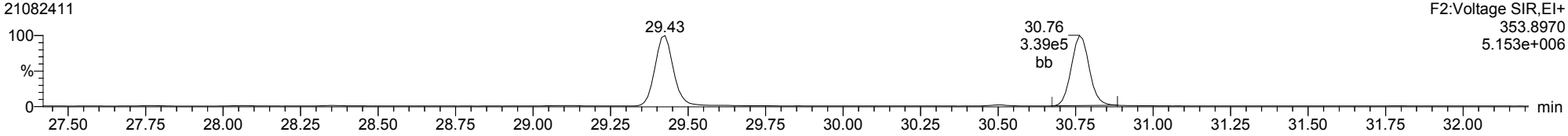
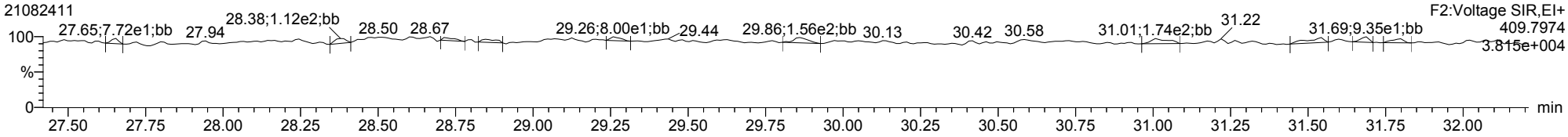


FUNCTION2 HPCDPE



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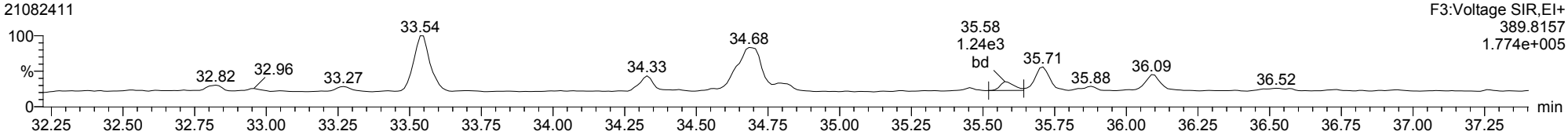
123478-HxCDD



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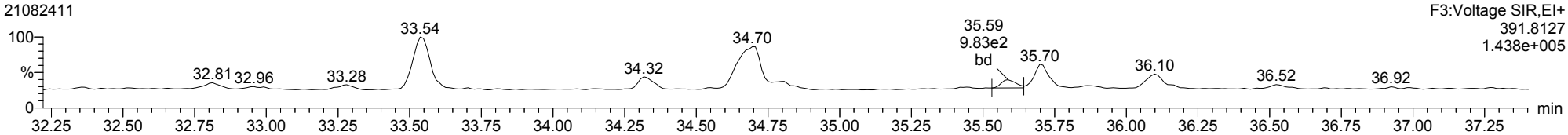

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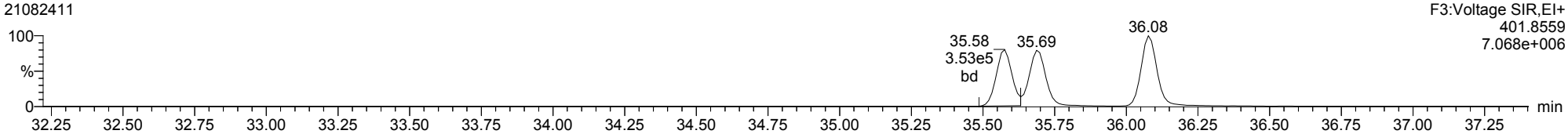

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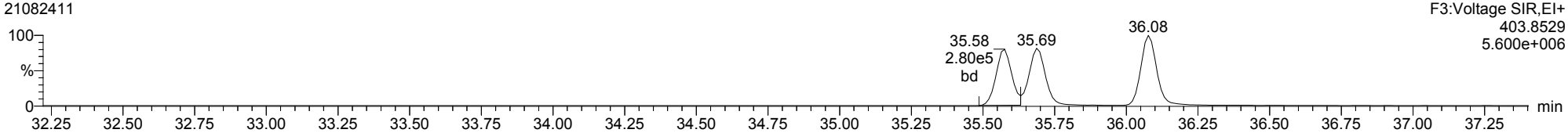

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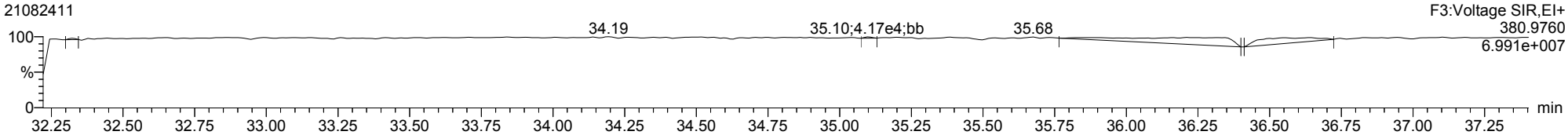

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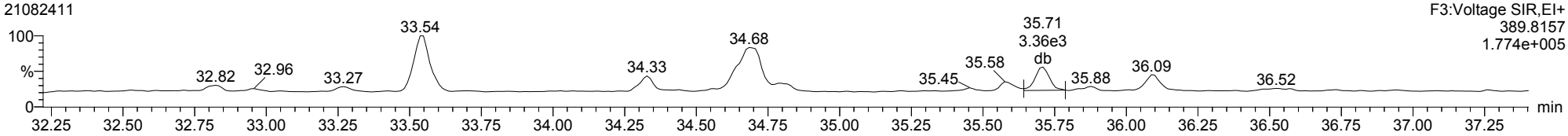

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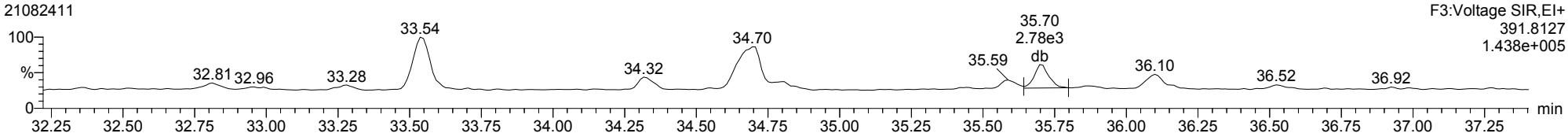

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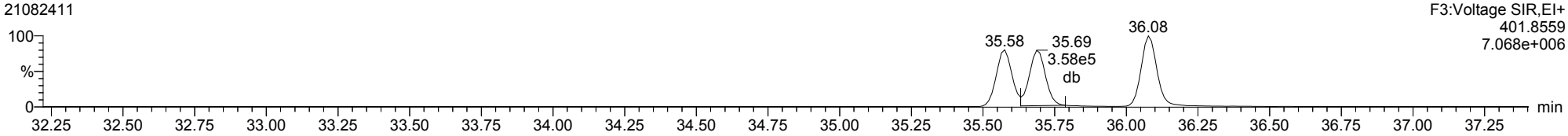

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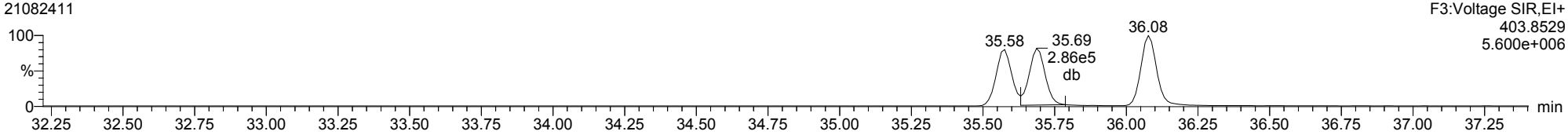

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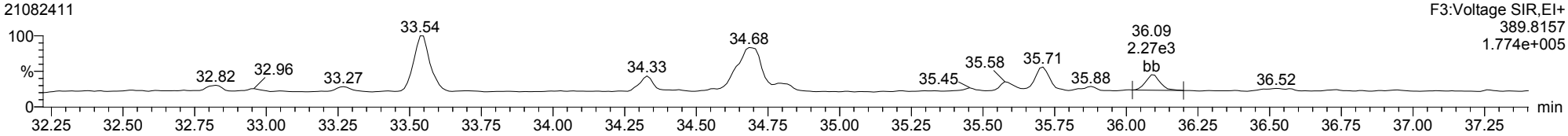

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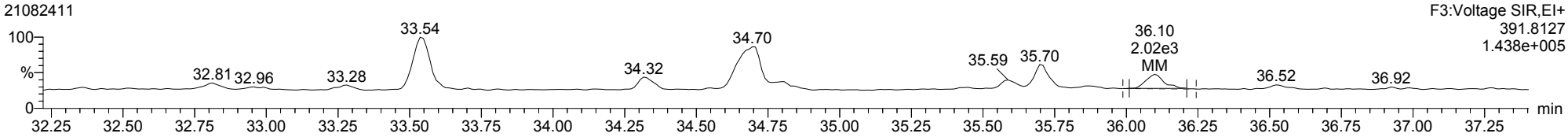

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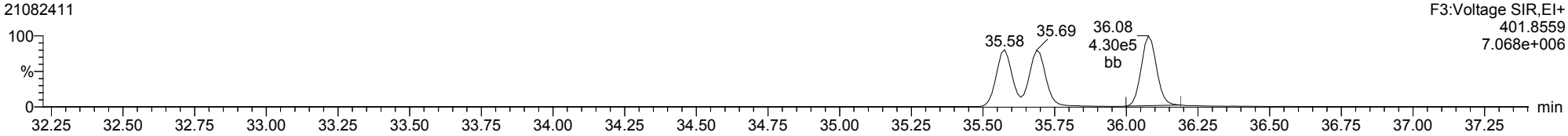

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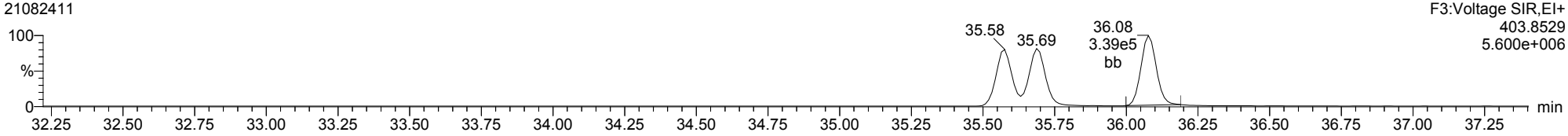

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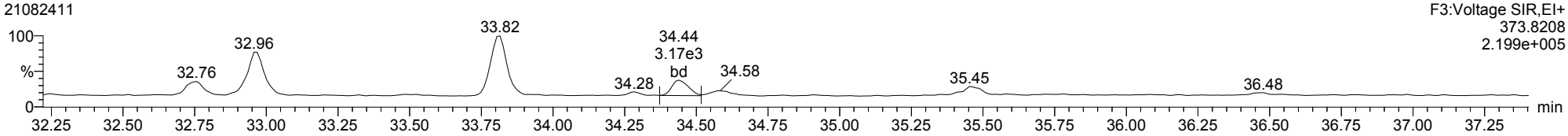

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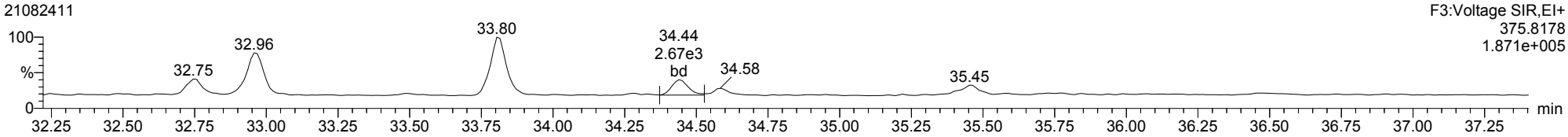

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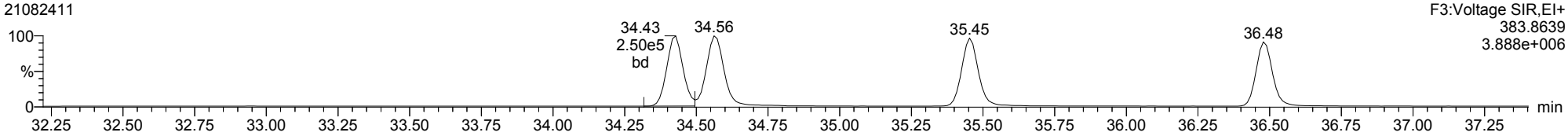

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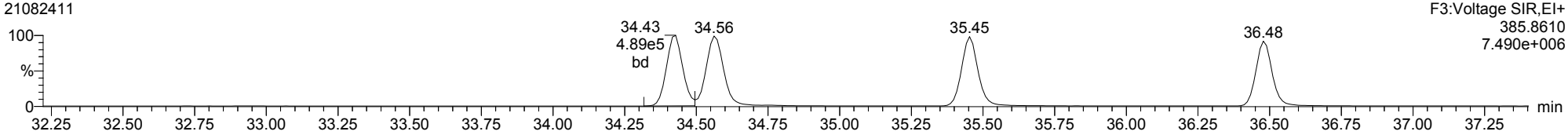

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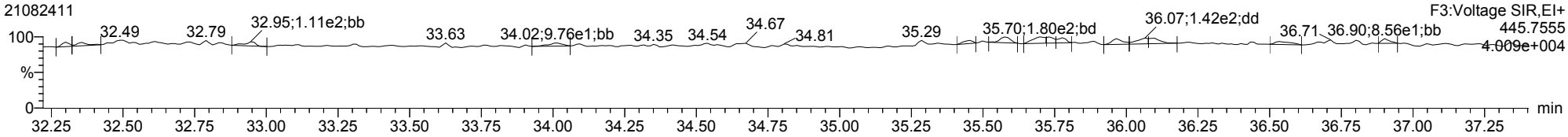

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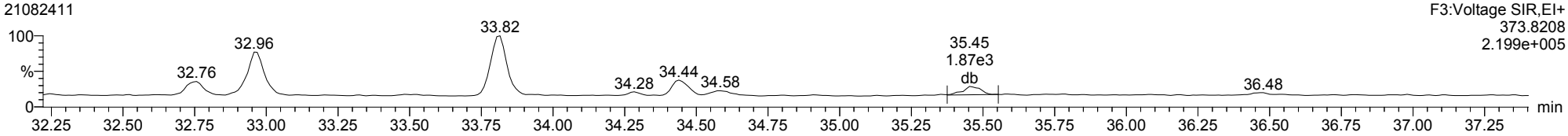

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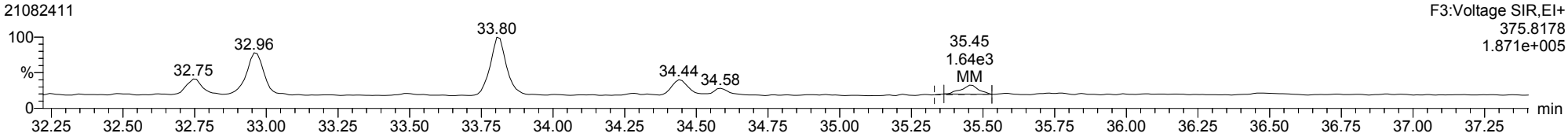

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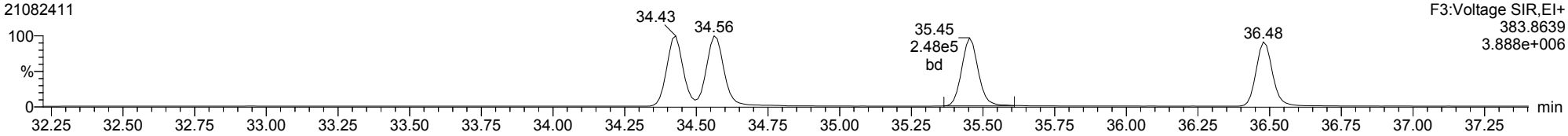

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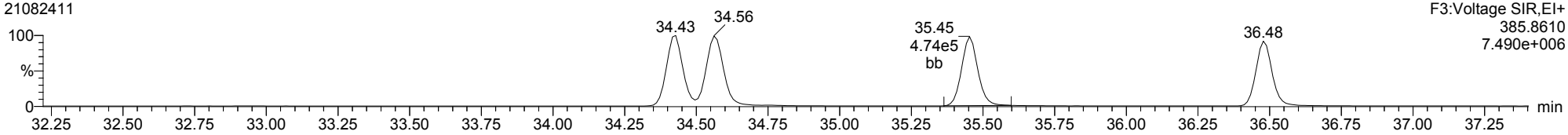

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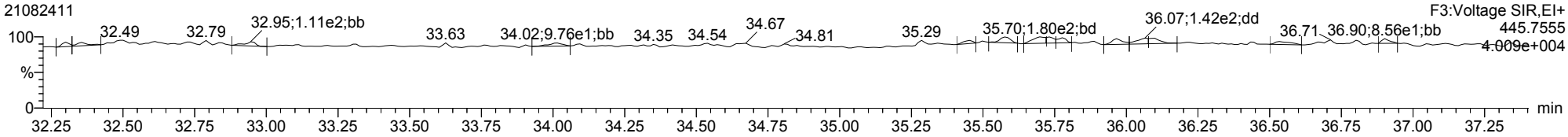

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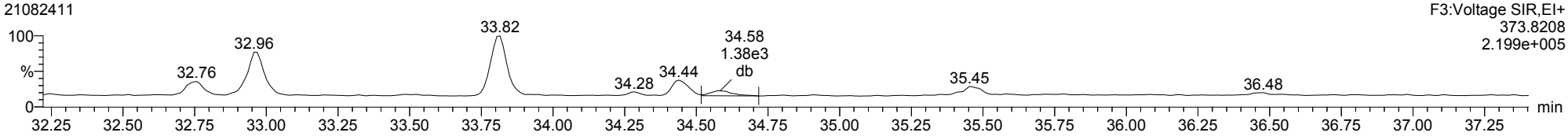

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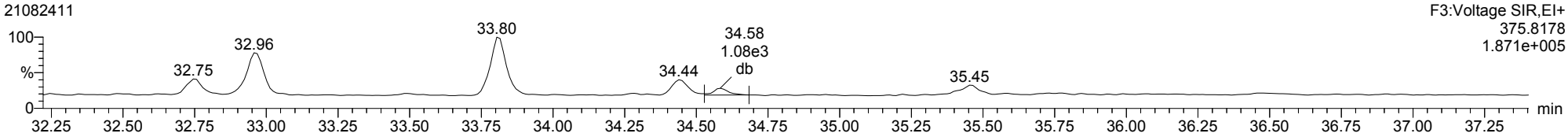

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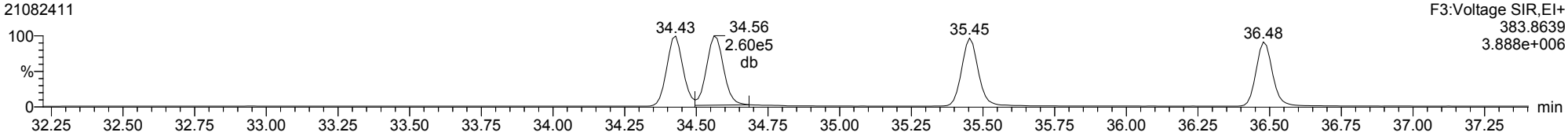

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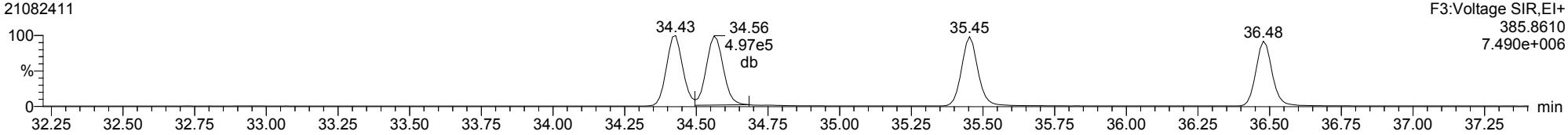

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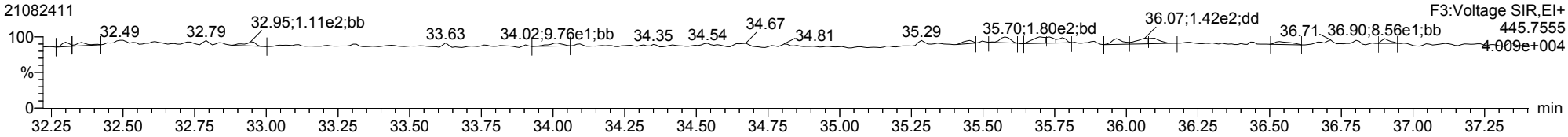

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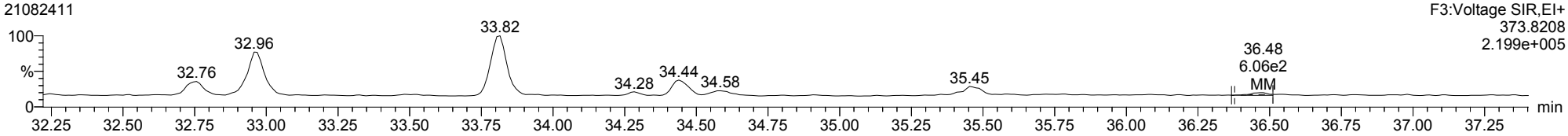

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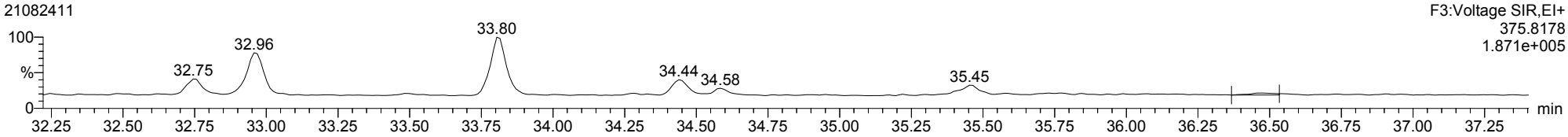

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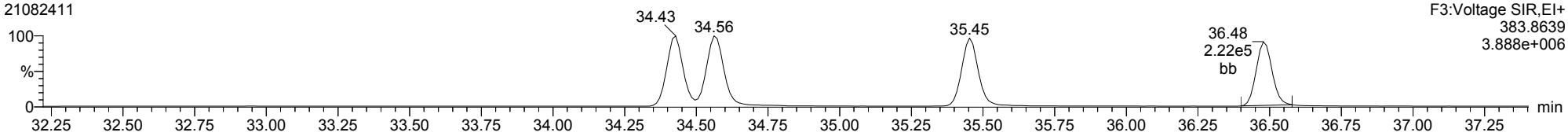

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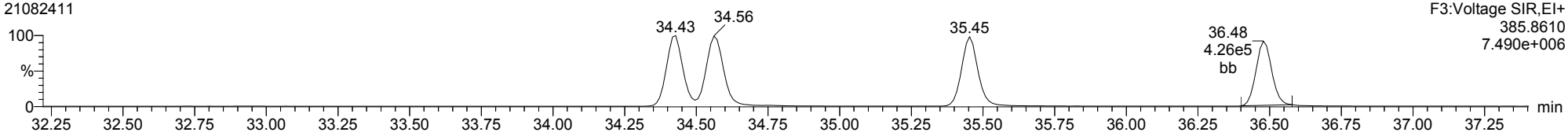

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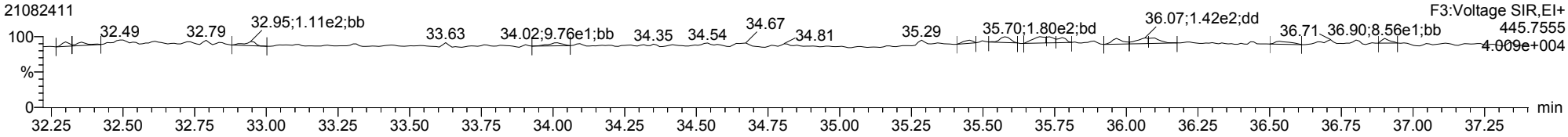

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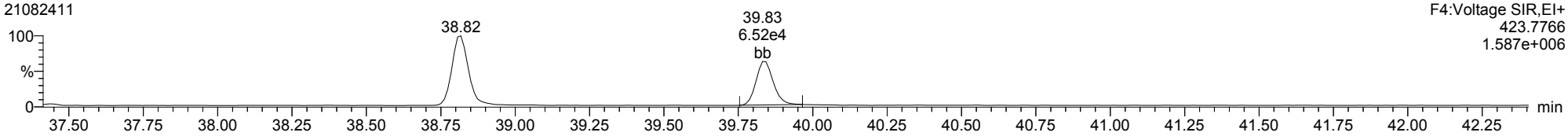

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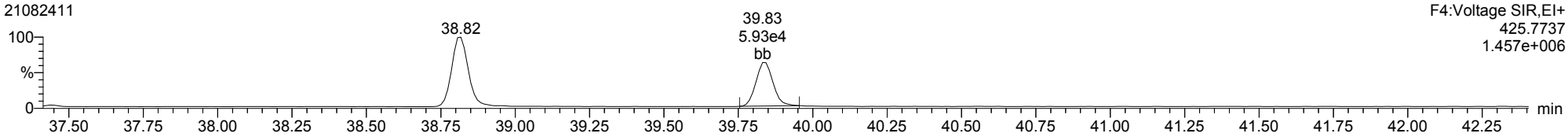

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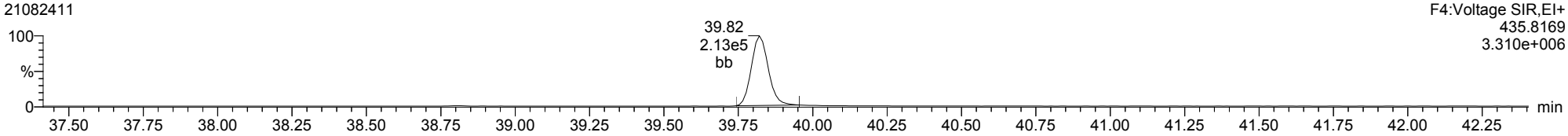

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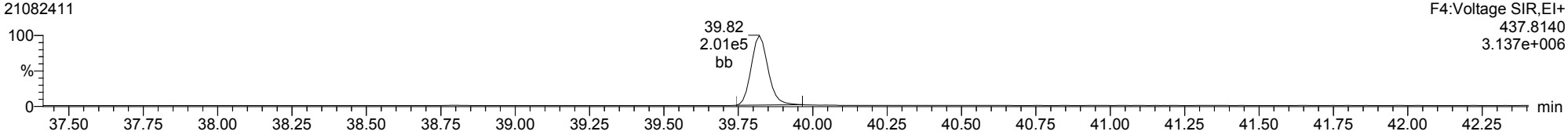

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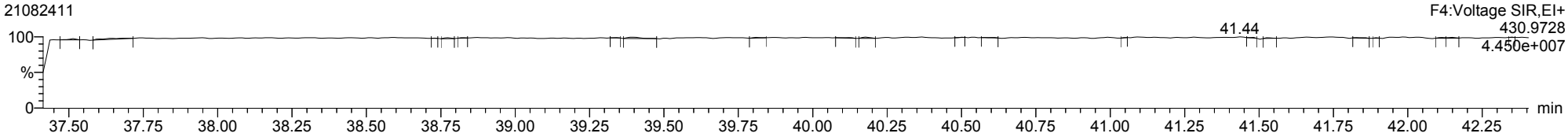

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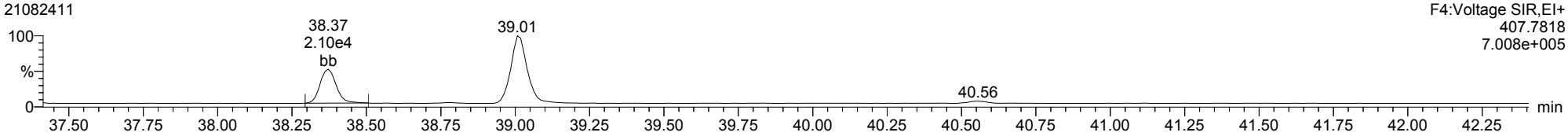

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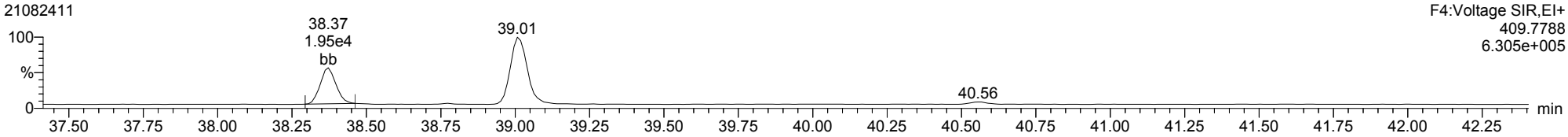

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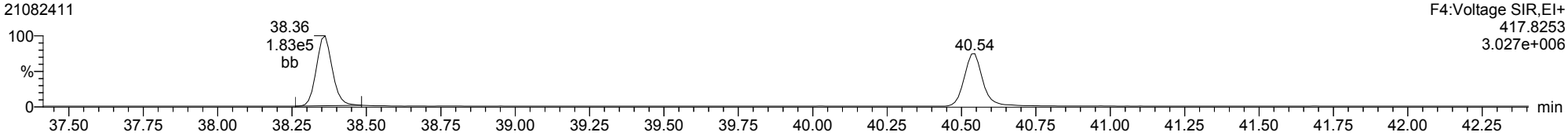

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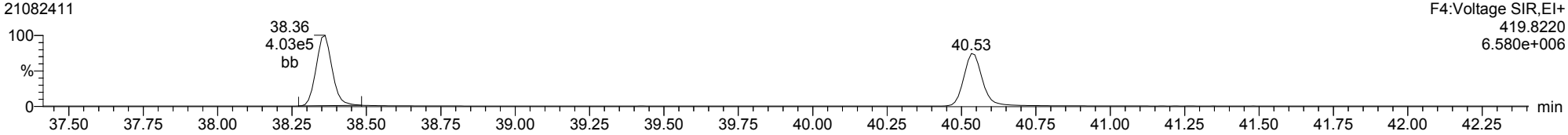

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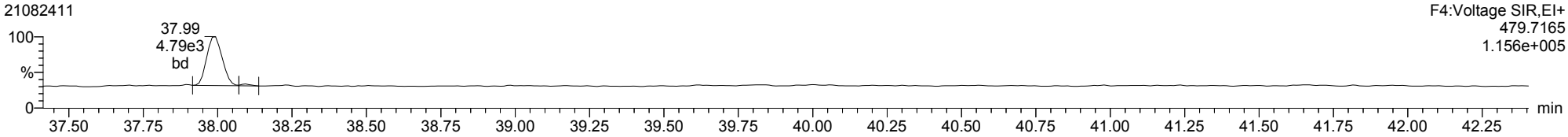

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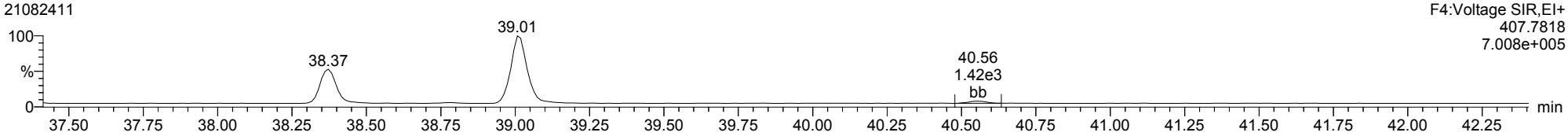

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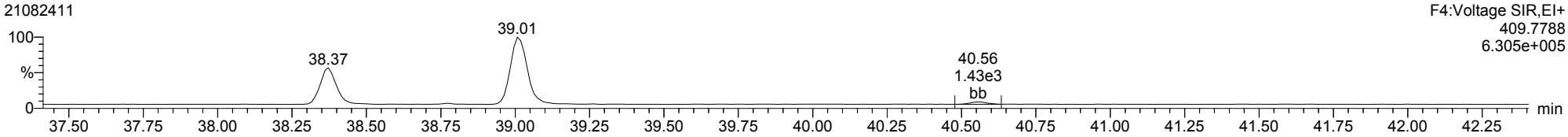

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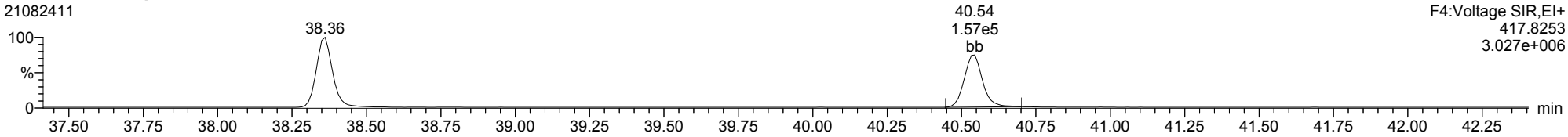

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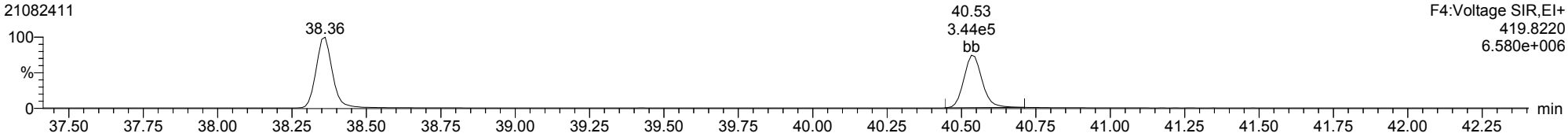

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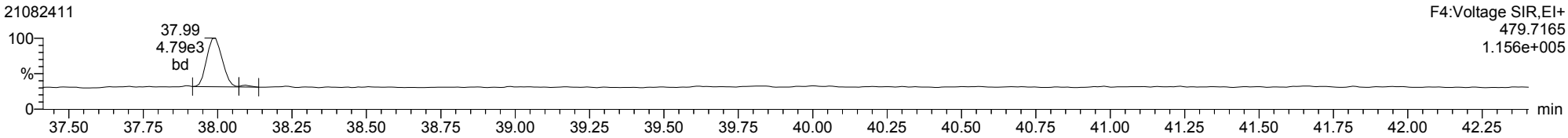

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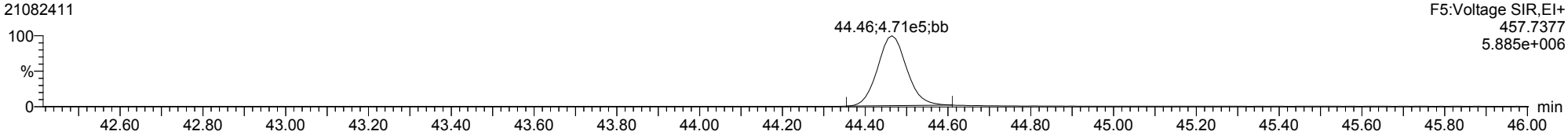

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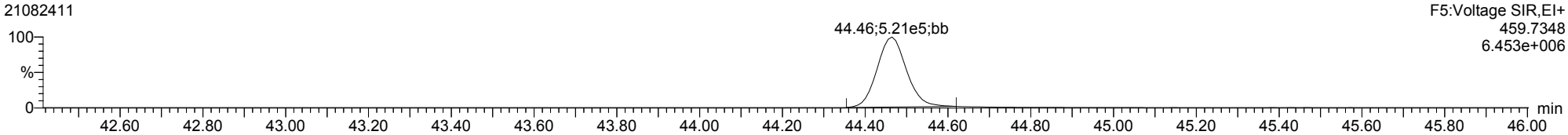

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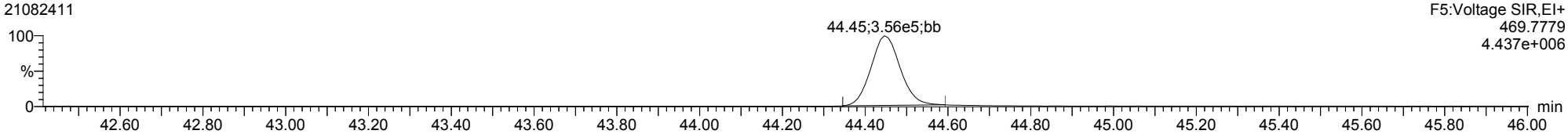

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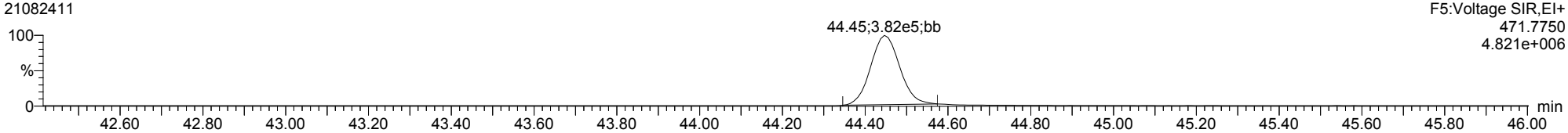

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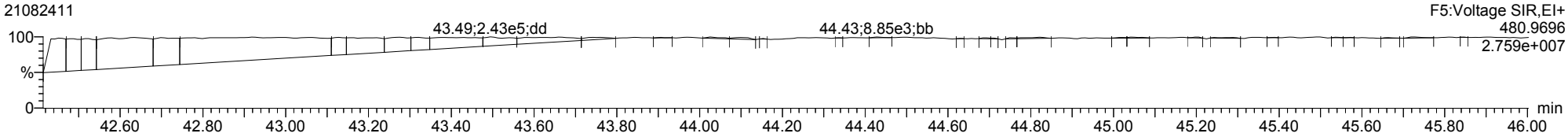

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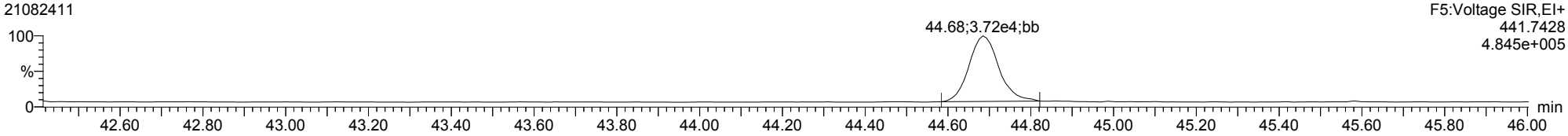

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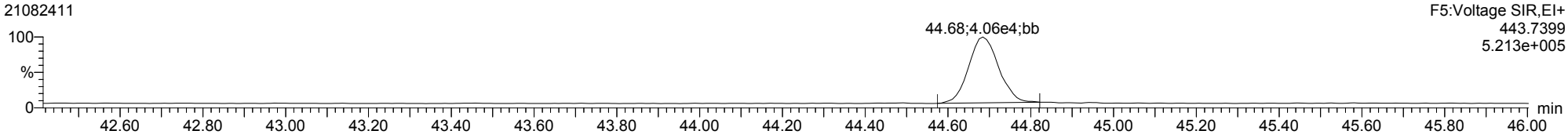

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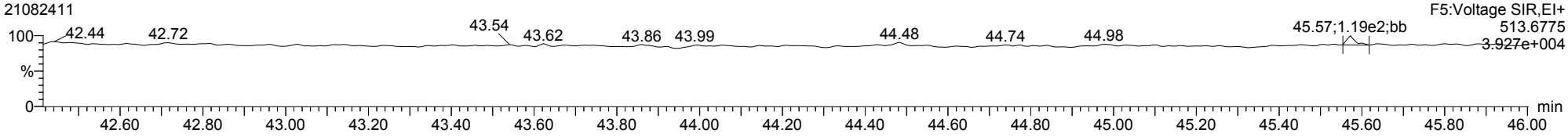

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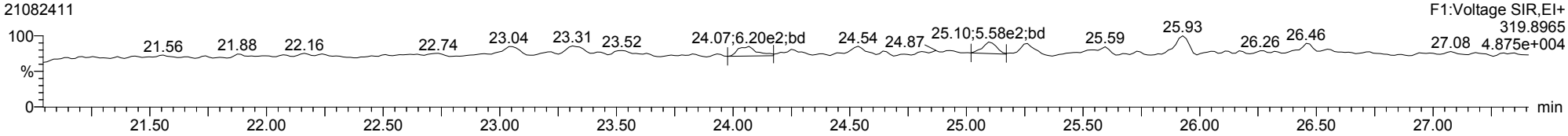

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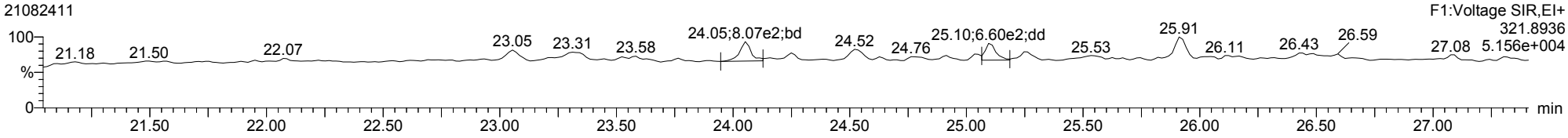

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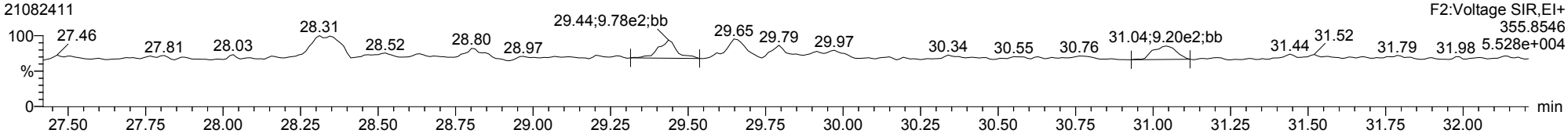

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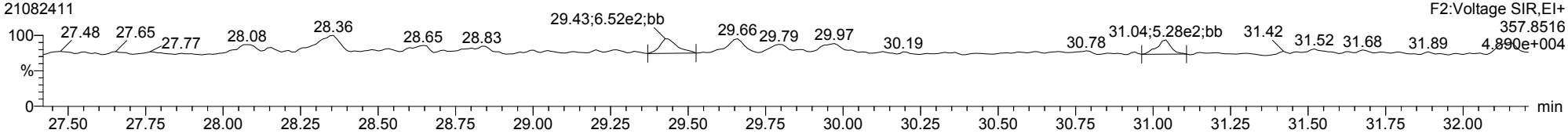

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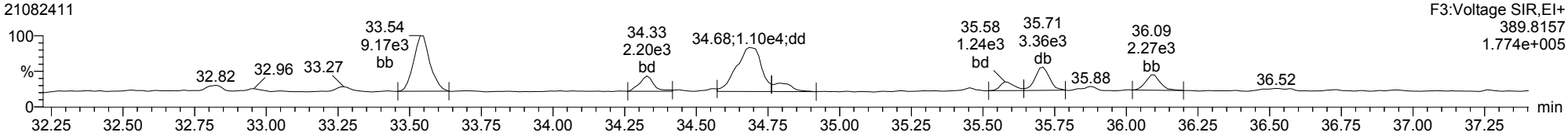
Total-hexadioxins



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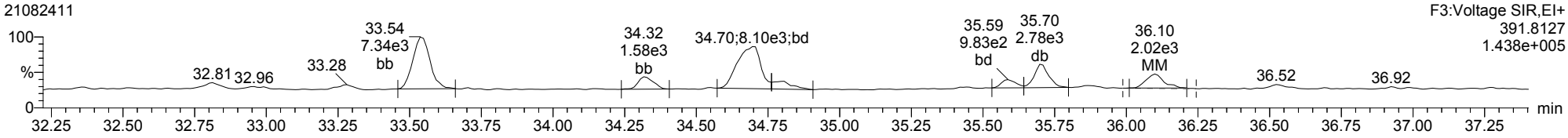
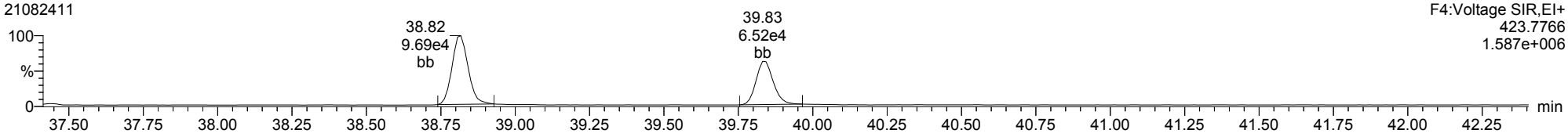
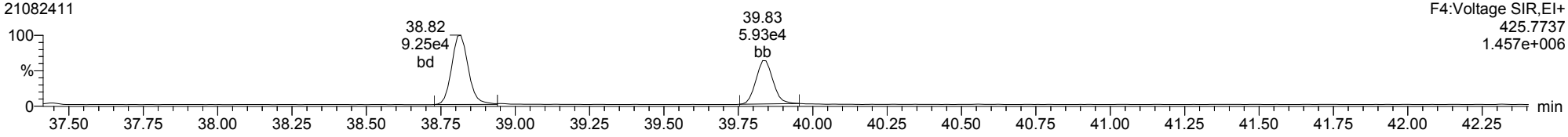


Total-heptadioxins

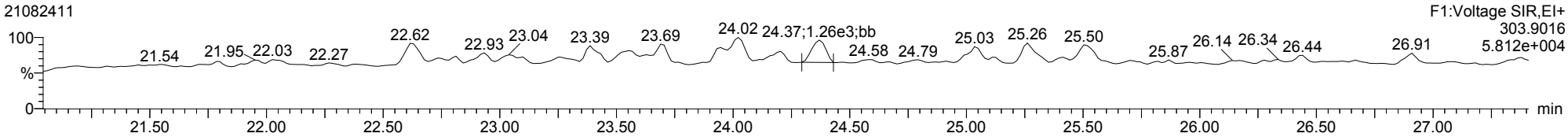


Total-heptadioxins

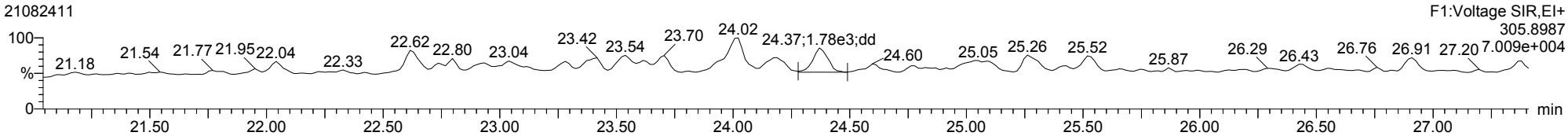


ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

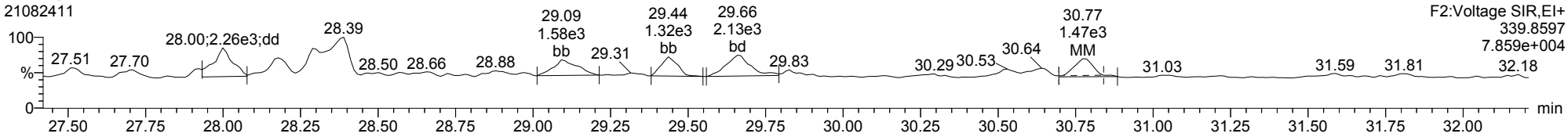
Total-tetrafurans



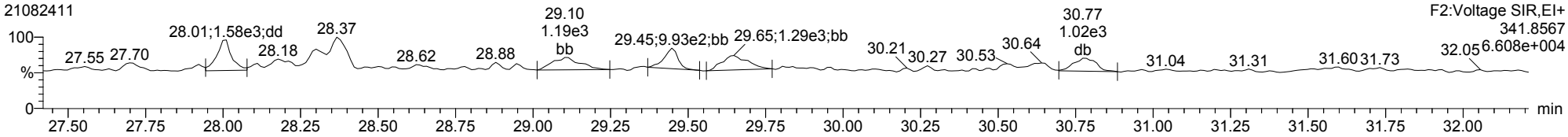
Total-tetrafurans



Total-pentafurans

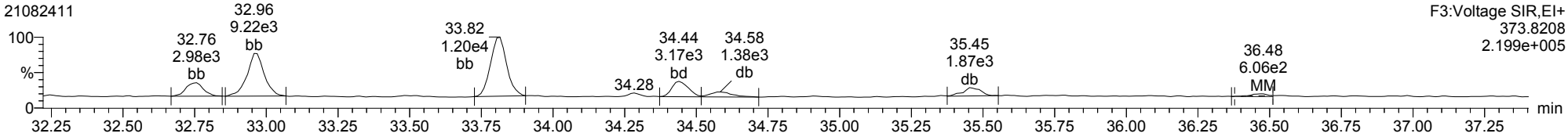


Total-pentafurans

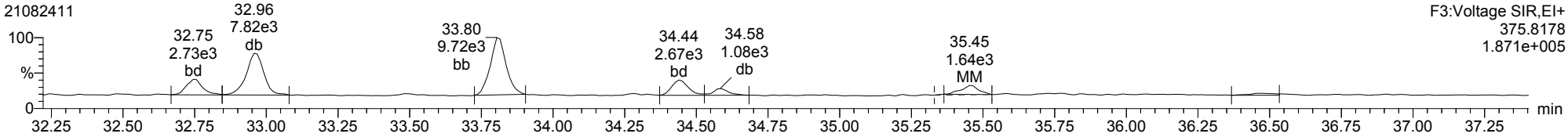


ID: BJH0186-SRM1, Name: 21082411, Date: 24-Aug-2021, Time: 20:18:13, Conditions: AUTOSPEC01, User: pk

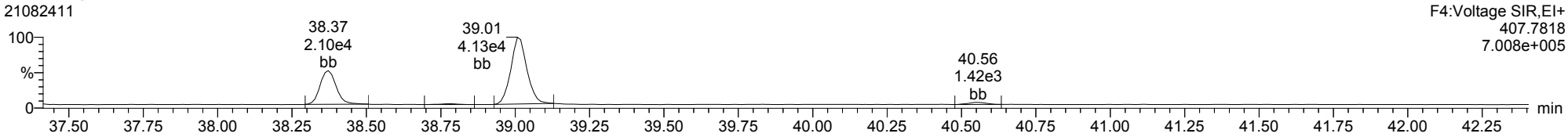
Total-hexafurans



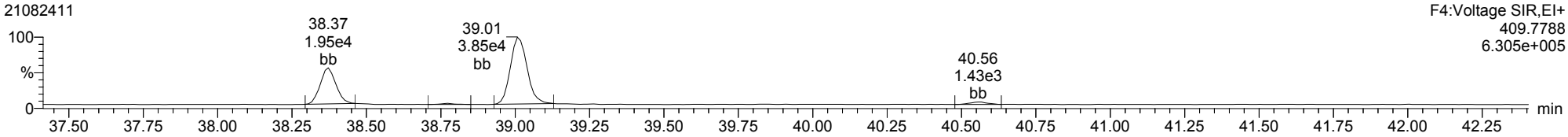
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0127
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0645-SRM1
Batch: BJH0645
Initial/Final: 10 g / 20 uL
Preparation: EPA 1613
Analyzed: 09/15/2021 17:43
Standard ID: J006843
Expires: 12/28/2021
Standard Lot#: PSRM0137
Description: Puget Sound reference-SRM

ANALYTE	TRUE (ng/kg wet)	FOUND (ng/kg wet)	MDL	MRL	Q	SRM % REC.	QC LIMITS REC.
2,3,7,8-TCDF	1.1100	1.01	0.381	1.00		90.6	50 - 150
2,3,7,8-TCDD	1.0500	1.09	0.222	1.00	EMPC	104	50 - 150
1,2,3,7,8-PeCDF	1.2300	1.04	0.240	1.00		84.3	50 - 150
2,3,4,7,8-PeCDF	1.0700	0.851	0.220	1.00	J	79.5	50 - 150
1,2,3,7,8-PeCDD	1.0800	1.05	0.238	1.00		97.3	50 - 150
1,2,3,4,7,8-HxCDF	3.0200	3.02	0.280	1.00		100	50 - 150
1,2,3,6,7,8-HxCDF	1.0900	1.02	0.200	1.00		93.7	50 - 150
2,3,4,6,7,8-HxCDF	1.8300	1.90	0.170	1.00		104	50 - 150
1,2,3,7,8,9-HxCDF	0.51100	0.583	0.190	1.00	J	114	50 - 150
1,2,3,4,7,8-HxCDD	1.5900	1.40	0.202	1.00		88.2	50 - 150
1,2,3,6,7,8-HxCDD	3.8800	3.57	0.206	1.00		91.9	50 - 150
1,2,3,7,8,9-HxCDD	3.0400	2.62	0.220	1.00		86.2	50 - 150
1,2,3,4,6,7,8-HpCDF	18.700	19.3	0.210	1.00		103	50 - 150
1,2,3,4,7,8,9-HpCDF	1.6300	1.47	0.240	1.00		89.9	50 - 150
1,2,3,4,6,7,8-HpCDD	90.600	101	0.560	2.50		112	50 - 150
OCDF	58.400	49.5	1.10	2.50		84.7	50 - 150
OCDD	811.00	800	4.60	10.0	B	98.7	50 - 150

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.760	1.000	8.463e2	1.202e3	1.108	0.704	0.770	1218	2931	1.11e4	1.73e4	9.1	5.9	NO	dd	dd	0.503
12378-PeCDF	29.931	1.001	1.886e3	1.145e3	1.015	1.646	1.550	977	980	3.04e4	2.03e4	31.1	20.8	NO	db	bb	0.518
23478-PeCDF	31.279	1.001	1.598e3	1.009e3	1.126	1.583	1.550	977	980	2.18e4	1.28e4	22.3	13.1	NO	db	db	0.425
123478-HxCDF	34.900	1.000	3.944e3	3.334e3	1.017	1.183	1.240	765	815	6.43e4	4.98e4	84.1	61.1	NO	dd	bd	1.510
234678-HxCDF	35.925	1.001	2.585e3	2.032e3	1.052	1.273	1.240	765	815	2.65e4	2.83e4	34.7	34.7	NO	bb	bb	0.948
123678-HxCDF	35.034	1.000	1.340e3	1.198e3	1.037	1.119	1.240	765	815	2.12e4	1.80e4	27.6	22.0	NO	db	db	0.511
123789-HxCDF	36.916	1.000	6.746e2	5.765e2	1.030	1.170	1.240	765	815	1.07e4	9.11e3	14.0	11.2	NO	bb	bb	0.291
1234678-HpCDF	38.777	1.000	2.401e4	2.316e4	1.327	1.037	1.050	1018	774	4.10e5	4.07e5	403.1	525.4	NO	bb	bb	9.626
1234789-HpCDF	41.027	1.001	1.443e3	1.304e3	1.283	1.106	1.050	1018	774	2.16e4	2.21e4	21.2	28.5	NO	bb	bb	0.733
OCDF	45.262	1.006	3.796e4	4.175e4	1.447	0.909	0.890	667	693	4.83e5	5.07e5	723.8	731.9	NO	bb	bb	24.741
2378-TCDD	26.426	1.002	6.181e2	1.032e3	0.920	0.599	0.770	1153	534	8.98e3	1.51e4	7.8	28.3	YES	bd	bd	0.544
12378-PeCDD	31.513	1.000	1.024e3	6.536e2	0.995	1.567	1.550	891	1104	1.55e4	1.15e4	17.4	10.5	NO	bb	bb	0.525
123478-HxCDD	36.025	1.000	1.552e3	1.261e3	1.027	1.230	1.240	996	1315	2.64e4	2.18e4	26.5	16.6	NO	bd	bd	0.701
123678-HxCDD	36.148	1.000	4.029e3	3.248e3	1.009	1.240	1.240	996	1315	6.26e4	6.05e4	62.8	46.1	NO	dd	db	1.783
123789-HxCDD	36.537	1.011	2.850e3	2.100e3	0.950	1.357	1.240	996	1315	5.09e4	3.79e4	51.2	28.8	NO	bb	bb	1.310
1234678-HpCDD	40.270	1.000	7.113e4	6.528e4	1.068	1.089	1.050	1209	1239	1.14e6	1.06e6	939.6	858.3	NO	bb	bb	50.583
OCDD	45.014	1.000	4.977e5	5.544e5	1.181	0.898	0.890	1463	1707	6.51e6	7.13e6	4449.9	4177.7	NO	bb	bb	400.140
13C-2378-TCDF	25.760	1.007	1.632e5	2.044e5	1.427	0.798	0.770	1859	1161	2.62e6	3.26e6	1407.7	2808.6	NO	bb	bb	49.384
13C-12378-PeCDF	29.909	1.169	3.560e5	2.203e5	1.297	1.616	1.550	1204	1557	5.70e6	3.53e6	4735.1	2268.9	NO	bb	bb	85.131
13C-23478-PeCDF	31.257	1.222	3.356e5	2.088e5	1.236	1.607	1.550	1204	1557	5.34e6	3.32e6	4436.2	2131.2	NO	bb	bb	84.364
13C-123478-HxCDF	34.889	0.955	1.599e5	3.140e5	1.242	0.509	0.510	951	1517	2.47e6	4.84e6	2595.7	3192.7	NO	bd	bd	81.396
13C-123678-HxCDF	35.022	0.959	1.631e5	3.161e5	1.343	0.516	0.510	951	1517	2.63e6	5.12e6	2764.1	3373.3	NO	db	db	76.123
13C-234678-HxCDF	35.903	0.983	1.564e5	3.066e5	1.215	0.510	0.510	951	1517	2.44e6	4.76e6	2569.9	3135.0	NO	bb	bb	81.334
13C-123789-HxCDF	36.928	1.011	1.411e5	2.757e5	1.008	0.512	0.510	951	1517	2.57e6	5.03e6	2704.7	3313.1	NO	bb	bb	88.291
13C-1234678-HpCDF	38.766	1.062	1.154e5	2.538e5	0.926	0.455	0.440	990	1430	2.01e6	4.33e6	2029.2	3027.7	NO	bb	bb	85.054
13C-1234789-HpCDF	41.005	1.123	9.244e4	1.998e5	0.758	0.463	0.440	990	1430	1.46e6	3.10e6	1470.8	2169.8	NO	bb	bb	82.291
13C-1234-TCDD	25.579	0.000	2.271e5	2.947e5	1.000	0.771	0.770	1568	798	3.64e6	4.69e6	2318.6	5874.2	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.031	1.436e5	1.859e5	1.116	0.772	0.770	1568	798	2.16e6	2.85e6	1377.5	3563.3	NO	bb	bb	56.557
13C-12378-PeCDD	31.502	1.232	1.958e5	1.250e5	0.732	1.566	1.550	909	829	3.08e6	2.00e6	3388.3	2415.0	NO	bb	bb	83.989
13C-123478-HxCDD	36.014	0.986	2.196e5	1.710e5	0.960	1.284	1.240	1226	1162	3.75e6	2.90e6	3061.8	2496.6	NO	bd	bd	86.854
13C-123678-HxCDD	36.137	0.990	2.258e5	1.788e5	1.041	1.262	1.240	1226	1162	3.72e6	2.94e6	3034.8	2528.2	NO	db	db	82.924
13C-1234678-HpCDD	40.259	1.103	1.296e5	1.228e5	0.632	1.056	1.050	904	925	2.05e6	2.00e6	2272.6	2159.9	NO	bb	bb	85.203
13C-OCDD	45.005	1.233	2.116e5	2.338e5	0.504	0.905	0.890	1127	1697	2.75e6	3.02e6	2442.7	1780.8	NO	bb	bb	188.684
13C-123789-HxCDD	36.515	0.000	2.600e5	2.085e5	1.000	1.247	1.240	1226	1162	4.44e6	3.56e6	3624.2	3064.3	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	1.278e5		1.084			643		1.98e6		3082.4			bd		22.594

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					1.425		0.770	1218	2931								
1289-TCDF					1.043		0.770	1218	2931								
13468-PECDF	27.076	0.905	1.333e3	8.875e2	1.376	1.502	1.550	806	943	1.87e4	1.34e4	23.2	14.2	NO	bd	bd	0.280
12389-PECDF					1.000		1.550	977	980								
123468-HXCDF	33.229	0.952	3.717e3	3.041e3	1.087	1.222	1.240	765	815	6.25e4	4.85e4	81.7	59.5	NO	bb	bb	1.313
1368-TCDD	23.523	0.892	3.437e2	4.603e2	0.923	0.747	0.770	1153	534	3.86e3	6.47e3	3.3	12.1	NO	bb	bb	0.264
1289-TCDD	26.925	1.021	3.559e2	2.941e2	0.794	1.210	0.770	1153	534	5.36e3	5.85e3	4.6	11.0	YES	bb	bb	0.248
12479-PECDD	28.806	0.914	1.184e3	1.097e3	1.843	1.079	1.550	891	1104	1.87e4	1.11e4	21.0	10.0	YES	dd	db	0.386
12389-PECDD					1.154		1.550	891	1104								
124679-HXCDD	33.998	0.944	1.079e4	8.750e3	1.125	1.233	1.240	996	1315	1.73e5	1.43e5	174.0	108.9	NO	bd	bb	4.446
1234679-HPCDD	39.222	0.974	1.085e5	1.004e5	1.211	1.081	1.050	1209	1239	1.86e6	1.72e6	1540.3	1385.1	NO	bb	bb	68.317
Total-tetrafurans			9.307e3		1.192			1218		1.30e5							4.900
Total-penta1			9.890e3					806		1.36e5							3.105
Total-pentafurans			1.408e4		1.047			977		2.03e5							3.945
Total-hexafurans			3.746e4		1.045			765		5.81e5							14.160
Total-heptafurans			6.929e4		1.305			1018		1.15e6							30.434
Total-Furans			1.815e5		1.158			1218		2.73e6							82.701
Total-tetradioxins			1.360e3		0.879			1153		2.02e4							1.060
Total-pentadioxins			1.786e3		1.331			891		3.09e4							0.812
Total-hexadioxins			3.574e4		1.028			996		5.15e5							15.577
Total-heptadioxins			1.796e5		1.140			1209		3.00e6							118.900
Total-Dioxins			7.162e5		1.092			1153		1.01e7							536.489
Total-TEQ			8.977e5					1153		1.28e7							619.190
FUNCTION1 PFK			1.283e7					642305		9.53e7							
FUNCTION2 PFK			2.000e6					442802		4.24e6							0.000
FUNCTION3 PFK			5.673e6					451665		1.28e7							0.000
FUNCTION4 PFK			7.493e6					260283		2.77e7							
FUNCTION5 PFK			1.600e5					164581		4.83e6							
FUNCTION1 HXCD...			1.784e3					516		2.74e4							0.000
FUNCTION1 HPCD...			2.647e3					760		4.26e4							0.000
FUNCTION2 HPCD...			3.438e2					628		5.03e3							0.000
FUNCTION3 OCDPE			1.202e2					634		1.71e3							0.000
FUNCTION4 NCDPE			3.043e3					743		5.27e4							0.000
FUNCTION5 DCDPE			7.173e1					523		1.51e3							0.000

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.87	9.527e2	1.306e3	1.192	0.73	0.77	10.9	YES	NO	dd	dd	0.516
2	Total-tetrafurans	23.78	4.402e2	6.453e2	1.192	0.68	0.77	4.8	YES	NO	bd	bd	0.248
3	Total-tetrafurans	23.10	1.516e3	1.796e3	1.192	0.84	0.77	18.5	YES	NO	bd	bd	0.756
4	2378-TCDF	25.76	8.463e2	1.202e3	1.108	0.70	0.77	9.1	YES	NO	dd	dd	0.503
5	Total-tetrafurans	25.46	6.964e2	8.761e2	1.192	0.79	0.77	6.6	YES	NO	dd	dd	0.359
6	Total-tetrafurans	24.87	1.092e3	1.659e3	1.192	0.66	0.77	12.9	YES	NO	db	MM	0.628
7	Total-tetrafurans	24.67	8.350e2	9.561e2	1.192	0.87	0.77	9.9	YES	NO	dd	dd	0.409
8	Total-tetrafurans	24.43	1.472e3	1.756e3	1.192	0.84	0.77	17.3	YES	NO	dd	dd	0.737
9	Total-tetrafurans	24.17	1.456e3	1.811e3	1.192	0.80	0.77	16.3	YES	NO	dd	dd	0.746

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.18	9.890e3	6.521e3		1.52	1.55	168.7	YES	NO	db	db	3.105

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.86	3.652e3	2.275e3	1.047	1.61	1.55	48.0	YES	NO	db	db	1.011
2	Total-pentafurans	28.80	1.245e3	8.276e2	1.047	1.50	1.55	28.8	YES	NO	dd	dd	0.353
3	Total-pentafurans	28.48	2.210e3	1.529e3	1.047	1.45	1.55	33.3	YES	NO	bd	bd	0.638
4	23478-PeCDF	31.28	1.598e3	1.009e3	1.126	1.58	1.55	22.3	YES	NO	db	db	0.425
5	Total-pentafurans	31.13	9.295e2	6.734e2	1.047	1.38	1.55	12.7	YES	NO	dd	dd	0.273
6	Total-pentafurans	30.17	2.565e3	1.695e3	1.047	1.51	1.55	31.1	YES	NO	bb	MM	0.726
7	12378-PeCDF	29.93	1.886e3	1.145e3	1.015	1.65	1.55	31.1	YES	NO	db	bb	0.518

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	35.03	1.340e3	1.198e3	1.037	1.12	1.24	27.6	YES	NO	db	db	0.511
2	123478-HxCDF	34.90	3.944e3	3.334e3	1.017	1.18	1.24	84.1	YES	NO	dd	bd	1.510
3	Total-hexafurans	34.28	1.317e4	1.053e4	1.045	1.25	1.24	280.5	YES	NO	bb	bb	4.952
4	Total-hexafurans	33.44	1.203e4	1.015e4	1.045	1.19	1.24	236.4	YES	NO	bb	bb	4.635
5	123468-HXCDF	33.23	3.717e3	3.041e3	1.087	1.22	1.24	81.7	YES	NO	bb	bb	1.313
6	123789-HxCDF	36.92	6.746e2	5.765e2	1.030	1.17	1.24	14.0	YES	NO	bb	bb	0.291
7	234678-HxCDF	35.92	2.585e3	2.032e3	1.052	1.27	1.24	34.7	YES	NO	bb	bb	0.948

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.03	1.443e3	1.304e3	1.283	1.11	1.05	21.2	YES	NO	bb	bb	0.733
2	Total-heptafurans	39.43	4.339e4	4.237e4	1.305	1.02	1.05	705.0	YES	NO	bb	bb	19.866
3	Total-heptafurans	39.19	4.497e2	4.557e2	1.305	0.99	1.05	5.2	YES	NO	bb	bb	0.210
4	1234678-HpCDF	38.78	2.401e4	2.316e4	1.327	1.04	1.05	403.1	YES	NO	bb	bb	9.626

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.87	9.527e2	1.306e3	1.192	0.73	0.77	10.9	YES	NO	dd	dd	0.516
2	Total-tetrafurans	23.78	4.402e2	6.453e2	1.192	0.68	0.77	4.8	YES	NO	bd	bd	0.248
3	Total-tetrafurans	23.10	1.516e3	1.796e3	1.192	0.84	0.77	18.5	YES	NO	bd	bd	0.756
4	Total-Furans	21.16	1.325e3	1.662e3	1.158	0.80	0.77	13.9	YES	NO	bd	bd	0.702
5	2378-TCDF	25.76	8.463e2	1.202e3	1.108	0.70	0.77	9.1	YES	NO	dd	dd	0.503
6	Total-tetrafurans	25.46	6.964e2	8.761e2	1.192	0.79	0.77	6.6	YES	NO	dd	dd	0.359
7	Total-tetrafurans	24.87	1.092e3	1.659e3	1.192	0.66	0.77	12.9	YES	NO	db	MM	0.628
8	Total-tetrafurans	24.67	8.350e2	9.561e2	1.192	0.87	0.77	9.9	YES	NO	dd	dd	0.409
9	Total-tetrafurans	24.43	1.472e3	1.756e3	1.192	0.84	0.77	17.3	YES	NO	dd	dd	0.737
10	Total-tetrafurans	24.17	1.456e3	1.811e3	1.192	0.80	0.77	16.3	YES	NO	dd	dd	0.746
11	Total-Furans	27.86	8.489e2	1.003e3	1.158	0.85	0.77	10.4	YES	NO	bb	bb	0.435
12	Total-pentafurans	28.86	3.652e3	2.275e3	1.047	1.61	1.55	48.0	YES	NO	db	db	1.011
13	Total-pentafurans	28.80	1.245e3	8.276e2	1.047	1.50	1.55	28.8	YES	NO	dd	dd	0.353
14	Total-pentafurans	28.48	2.210e3	1.529e3	1.047	1.45	1.55	33.3	YES	NO	bd	bd	0.638
15	23478-PeCDF	31.28	1.598e3	1.009e3	1.126	1.58	1.55	22.3	YES	NO	db	db	0.425
16	Total-pentafurans	31.13	9.295e2	6.734e2	1.047	1.38	1.55	12.7	YES	NO	dd	dd	0.273
17	Total-pentafurans	30.17	2.565e3	1.695e3	1.047	1.51	1.55	31.1	YES	NO	bb	MM	0.726
18	12378-PeCDF	29.93	1.886e3	1.145e3	1.015	1.65	1.55	31.1	YES	NO	db	bb	0.518
19	123678-HxCDF	35.03	1.340e3	1.198e3	1.037	1.12	1.24	27.6	YES	NO	db	db	0.511
20	123478-HxCDF	34.90	3.944e3	3.334e3	1.017	1.18	1.24	84.1	YES	NO	dd	bd	1.510
21	Total-hexafurans	34.28	1.317e4	1.053e4	1.045	1.25	1.24	280.5	YES	NO	bb	bb	4.952
22	Total-hexafurans	33.44	1.203e4	1.015e4	1.045	1.19	1.24	236.4	YES	NO	bb	bb	4.635
23	123468-HXCDF	33.23	3.717e3	3.041e3	1.087	1.22	1.24	81.7	YES	NO	bb	bb	1.313
24	123789-HxCDF	36.92	6.746e2	5.765e2	1.030	1.17	1.24	14.0	YES	NO	bb	bb	0.291
25	234678-HxCDF	35.92	2.585e3	2.032e3	1.052	1.27	1.24	34.7	YES	NO	bb	bb	0.948
26	1234789-HpCDF	41.03	1.443e3	1.304e3	1.283	1.11	1.05	21.2	YES	NO	bb	bb	0.733
27	Total-heptafurans	39.43	4.339e4	4.237e4	1.305	1.02	1.05	705.0	YES	NO	bb	bb	19.866
28	Total-heptafurans	39.19	4.497e2	4.557e2	1.305	0.99	1.05	5.2	YES	NO	bb	bb	0.210
29	1234678-HpCDF	38.78	2.401e4	2.316e4	1.327	1.04	1.05	403.1	YES	NO	bb	bb	9.626
30	OCDF	45.26	3.796e4	4.175e4	1.447	0.91	0.89	723.8	YES	NO	bb	bb	24.741
31	Total-penta1	27.18	9.890e3	6.521e3		1.52	1.55	168.7	YES	NO	db	db	3.105
32	13468-PECDF	27.08	1.333e3	8.875e2	1.376	1.50	1.55	23.2	YES	NO	bd	bd	0.280

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.52	3.437e2	4.603e2	0.923	0.75	0.77	3.3	YES	NO	bb	bb	0.264
2	Total-tetradioxins	26.06	2.433e2	2.932e2	0.879	0.83	0.77	3.5	YES	NO	db	bb	0.185
3	Total-tetradioxins	25.02	3.640e2	4.249e2	0.879	0.86	0.77	5.7	YES	NO	bb	bb	0.272
4	Total-tetradioxins	24.54	4.095e2	5.711e2	0.879	0.72	0.77	5.0	YES	NO	bb	bb	0.338

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.51	1.024e3	6.536e2	0.995	1.57	1.55	17.4	YES	NO	bb	bb	0.525
2	Total-pentadioxins	29.92	7.622e2	4.619e2	1.331	1.65	1.55	17.3	YES	NO	bb	bb	0.287

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	34.78	2.022e3	1.625e3	1.028	1.24	1.24	38.2	YES	NO	bb	bb	0.893
2	124679-HXCDD	34.00	1.079e4	8.750e3	1.125	1.23	1.24	174.0	YES	NO	bd	bb	4.446
3	Total-hexadioxins	33.73	1.201e3	1.023e3	1.028	1.17	1.24	21.3	YES	NO	bb	bb	0.544
4	123789-HxCDD	36.54	2.850e3	2.100e3	0.950	1.36	1.24	51.2	YES	NO	bb	bb	1.310
5	123678-HxCDD	36.15	4.029e3	3.248e3	1.009	1.24	1.24	62.8	YES	NO	dd	db	1.783
6	123478-HxCDD	36.03	1.552e3	1.261e3	1.027	1.23	1.24	26.5	YES	NO	bd	bd	0.701
7	Total-hexadioxins	35.25	1.348e3	1.022e3	1.028	1.32	1.24	20.9	YES	NO	db	db	0.580
8	Total-hexadioxins	35.15	1.195e4	9.795e3	1.028	1.22	1.24	122.7	YES	NO	bd	bd	5.321

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	7.113e4	6.528e4	1.068	1.09	1.05	939.6	YES	NO	bb	bb	50.583
2	1234679-HPCDD	39.22	1.085e5	1.004e5	1.211	1.08	1.05	1540.3	YES	NO	bb	bb	68.317

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
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Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.52	3.437e2	4.603e2	0.923	0.75	0.77	3.3	YES	NO	bb	bb	0.264
2	Total-tetradioxins	26.06	2.433e2	2.932e2	0.879	0.83	0.77	3.5	YES	NO	db	bb	0.185
3	Total-tetradioxins	25.02	3.640e2	4.249e2	0.879	0.86	0.77	5.7	YES	NO	bb	bb	0.272
4	Total-tetradioxins	24.54	4.095e2	5.711e2	0.879	0.72	0.77	5.0	YES	NO	bb	bb	0.338
5	12378-PeCDD	31.51	1.024e3	6.536e2	0.995	1.57	1.55	17.4	YES	NO	bb	bb	0.525
6	Total-pentadioxins	29.92	7.622e2	4.619e2	1.331	1.65	1.55	17.3	YES	NO	bb	bb	0.287
7	Total-hexadioxins	34.78	2.022e3	1.625e3	1.028	1.24	1.24	38.2	YES	NO	bb	bb	0.893
8	124679-HXCDD	34.00	1.079e4	8.750e3	1.125	1.23	1.24	174.0	YES	NO	bd	bb	4.446
9	Total-hexadioxins	33.73	1.201e3	1.023e3	1.028	1.17	1.24	21.3	YES	NO	bb	bb	0.544
10	123789-HxCDD	36.54	2.850e3	2.100e3	0.950	1.36	1.24	51.2	YES	NO	bb	bb	1.310
11	123678-HxCDD	36.15	4.029e3	3.248e3	1.009	1.24	1.24	62.8	YES	NO	dd	db	1.783
12	123478-HxCDD	36.03	1.552e3	1.261e3	1.027	1.23	1.24	26.5	YES	NO	bd	bd	0.701
13	Total-hexadioxins	35.25	1.348e3	1.022e3	1.028	1.32	1.24	20.9	YES	NO	db	db	0.580
14	Total-hexadioxins	35.15	1.195e4	9.795e3	1.028	1.22	1.24	122.7	YES	NO	bd	bd	5.321
15	1234678-HpCDD	40.27	7.113e4	6.528e4	1.068	1.09	1.05	939.6	YES	NO	bb	bb	50.583
16	1234679-HPCDD	39.22	1.085e5	1.004e5	1.211	1.08	1.05	1540.3	YES	NO	bb	bb	68.317
17	OCDD	45.01	4.977e5	5.544e5	1.181	0.90	0.89	4449.9	YES	NO	bb	bb	400.140

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.87	9.527e2	1.306e3	1.192	0.73	0.77	10.9	YES	NO	dd	dd	0.516
2	Total-tetrafurans	23.78	4.402e2	6.453e2	1.192	0.68	0.77	4.8	YES	NO	bd	bd	0.248
3	Total-tetrafurans	23.10	1.516e3	1.796e3	1.192	0.84	0.77	18.5	YES	NO	bd	bd	0.756
4	Total-Furans	21.16	1.325e3	1.662e3	1.158	0.80	0.77	13.9	YES	NO	bd	bd	0.702
5	2378-TCDF	25.76	8.463e2	1.202e3	1.108	0.70	0.77	9.1	YES	NO	dd	dd	0.503
6	Total-tetrafurans	25.46	6.964e2	8.761e2	1.192	0.79	0.77	6.6	YES	NO	dd	dd	0.359
7	Total-tetrafurans	24.87	1.092e3	1.659e3	1.192	0.66	0.77	12.9	YES	NO	db	MM	0.628
8	Total-tetrafurans	24.67	8.350e2	9.561e2	1.192	0.87	0.77	9.9	YES	NO	dd	dd	0.409
9	Total-tetrafurans	24.43	1.472e3	1.756e3	1.192	0.84	0.77	17.3	YES	NO	dd	dd	0.737
10	Total-tetrafurans	24.17	1.456e3	1.811e3	1.192	0.80	0.77	16.3	YES	NO	dd	dd	0.746
11	Total-Furans	27.86	8.489e2	1.003e3	1.158	0.85	0.77	10.4	YES	NO	bb	bb	0.435
12	Total-pentafurans	28.86	3.652e3	2.275e3	1.047	1.61	1.55	48.0	YES	NO	db	db	1.011
13	Total-pentafurans	28.80	1.245e3	8.276e2	1.047	1.50	1.55	28.8	YES	NO	dd	dd	0.353
14	Total-pentafurans	28.48	2.210e3	1.529e3	1.047	1.45	1.55	33.3	YES	NO	bd	bd	0.638
15	23478-PeCDF	31.28	1.598e3	1.009e3	1.126	1.58	1.55	22.3	YES	NO	db	db	0.425
16	Total-pentafurans	31.13	9.295e2	6.734e2	1.047	1.38	1.55	12.7	YES	NO	dd	dd	0.273
17	Total-pentafurans	30.17	2.565e3	1.695e3	1.047	1.51	1.55	31.1	YES	NO	bb	MM	0.726
18	12378-PeCDF	29.93	1.886e3	1.145e3	1.015	1.65	1.55	31.1	YES	NO	db	bb	0.518
19	123678-HxCDF	35.03	1.340e3	1.198e3	1.037	1.12	1.24	27.6	YES	NO	db	db	0.511
20	123478-HxCDF	34.90	3.944e3	3.334e3	1.017	1.18	1.24	84.1	YES	NO	dd	bd	1.510
21	Total-hexafurans	34.28	1.317e4	1.053e4	1.045	1.25	1.24	280.5	YES	NO	bb	bb	4.952
22	Total-hexafurans	33.44	1.203e4	1.015e4	1.045	1.19	1.24	236.4	YES	NO	bb	bb	4.635
23	123468-HXCDF	33.23	3.717e3	3.041e3	1.087	1.22	1.24	81.7	YES	NO	bb	bb	1.313
24	123789-HxCDF	36.92	6.746e2	5.765e2	1.030	1.17	1.24	14.0	YES	NO	bb	bb	0.291
25	234678-HxCDF	35.92	2.585e3	2.032e3	1.052	1.27	1.24	34.7	YES	NO	bb	bb	0.948
26	1234789-HpCDF	41.03	1.443e3	1.304e3	1.283	1.11	1.05	21.2	YES	NO	bb	bb	0.733
27	Total-heptafurans	39.43	4.339e4	4.237e4	1.305	1.02	1.05	705.0	YES	NO	bb	bb	19.866
28	Total-heptafurans	39.19	4.497e2	4.557e2	1.305	0.99	1.05	5.2	YES	NO	bb	bb	0.210
29	1234678-HpCDF	38.78	2.401e4	2.316e4	1.327	1.04	1.05	403.1	YES	NO	bb	bb	9.626
30	OCDF	45.26	3.796e4	4.175e4	1.447	0.91	0.89	723.8	YES	NO	bb	bb	24.741
31	Total-penta1	27.18	9.890e3	6.521e3		1.52	1.55	168.7	YES	NO	db	db	3.105
32	13468-PECDF	27.08	1.333e3	8.875e2	1.376	1.50	1.55	23.2	YES	NO	bd	bd	0.280
33	1368-TCDD	23.52	3.437e2	4.603e2	0.923	0.75	0.77	3.3	YES	NO	bb	bb	0.264
34	Total-tetradioxins	26.06	2.433e2	2.932e2	0.879	0.83	0.77	3.5	YES	NO	db	bb	0.185
35	Total-tetradioxins	25.02	3.640e2	4.249e2	0.879	0.86	0.77	5.7	YES	NO	bb	bb	0.272
36	Total-tetradioxins	24.54	4.095e2	5.711e2	0.879	0.72	0.77	5.0	YES	NO	bb	bb	0.338
37	12378-PeCDD	31.51	1.024e3	6.536e2	0.995	1.57	1.55	17.4	YES	NO	bb	bb	0.525

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-pentadioxins	29.92	7.622e2	4.619e2	1.331	1.65	1.55	17.3	YES	NO	bb	bb	0.287
39	Total-hexadioxins	34.78	2.022e3	1.625e3	1.028	1.24	1.24	38.2	YES	NO	bb	bb	0.893
40	124679-HXCDD	34.00	1.079e4	8.750e3	1.125	1.23	1.24	174.0	YES	NO	bd	bb	4.446
41	Total-hexadioxins	33.73	1.201e3	1.023e3	1.028	1.17	1.24	21.3	YES	NO	bb	bb	0.544
42	123789-HxCDD	36.54	2.850e3	2.100e3	0.950	1.36	1.24	51.2	YES	NO	bb	bb	1.310
43	123678-HxCDD	36.15	4.029e3	3.248e3	1.009	1.24	1.24	62.8	YES	NO	dd	db	1.783
44	123478-HxCDD	36.03	1.552e3	1.261e3	1.027	1.23	1.24	26.5	YES	NO	bd	bd	0.701
45	Total-hexadioxins	35.25	1.348e3	1.022e3	1.028	1.32	1.24	20.9	YES	NO	db	db	0.580
46	Total-hexadioxins	35.15	1.195e4	9.795e3	1.028	1.22	1.24	122.7	YES	NO	bd	bd	5.321
47	1234678-HpCDD	40.27	7.113e4	6.528e4	1.068	1.09	1.05	939.6	YES	NO	bb	bb	50.583
48	1234679-HPCDD	39.22	1.085e5	1.004e5	1.211	1.08	1.05	1540.3	YES	NO	bb	bb	68.317
49	OCDD	45.01	4.977e5	5.544e5	1.181	0.90	0.89	4449.9	YES	NO	bb	bb	400.140

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.84	5.651e5					10.5	YES		dd		
2	FUNCTION1 PFK	21.60	2.464e6					13.2	YES		dd		
3	FUNCTION1 PFK	21.42	1.402e6					14.2	YES		bd		
4	FUNCTION1 PFK	21.19	7.534e5					8.9	YES		bb		
5	FUNCTION1 PFK	25.00	4.056e4					0.9	NO		bb		
6	FUNCTION1 PFK	24.55	3.133e4					1.0	NO		db		
7	FUNCTION1 PFK	24.49	5.967e4					1.7	NO		dd		
8	FUNCTION1 PFK	24.41	9.967e4					2.0	NO		bd		
9	FUNCTION1 PFK	24.22	2.047e5					2.2	NO		db		
10	FUNCTION1 PFK	24.10	7.688e4					2.2	NO		dd		
11	FUNCTION1 PFK	24.01	4.365e4					1.4	NO		bd		
12	FUNCTION1 PFK	23.58	2.150e5					2.1	NO		db		
13	FUNCTION1 PFK	23.37	4.584e5					4.2	YES		dd		
14	FUNCTION1 PFK	23.22	1.305e5					3.7	YES		bd		
15	FUNCTION1 PFK	23.04	1.391e5					2.1	NO		bb		
16	FUNCTION1 PFK	22.71	8.259e4					0.6	NO		bb		
17	FUNCTION1 PFK	22.42	2.336e4					0.0	NO		bb		
18	FUNCTION1 PFK	22.21	5.319e5					6.9	YES		db		
19	FUNCTION1 PFK	22.12	4.818e5					7.6	YES		bd		
20	FUNCTION1 PFK	21.97	6.917e5					10.3	YES		db		
21	FUNCTION1 PFK	27.88	1.410e5					3.5	YES		dd		
22	FUNCTION1 PFK	27.68	7.402e5					7.0	YES		dd		
23	FUNCTION1 PFK	27.47	7.676e5					8.1	YES		bd		
24	FUNCTION1 PFK	27.30	7.547e5					8.5	YES		db		
25	FUNCTION1 PFK	27.00	5.138e5					3.3	YES		bd		
26	FUNCTION1 PFK	26.62	2.757e4					0.9	NO		bb		
27	FUNCTION1 PFK	26.55	6.308e3					0.7	NO		bb		
28	FUNCTION1 PFK	26.49	1.089e5					1.9	NO		db		
29	FUNCTION1 PFK	26.35	7.764e4					2.2	NO		bd		
30	FUNCTION1 PFK	26.21	9.073e3					0.5	NO		bb		
31	FUNCTION1 PFK	26.15	1.095e4					0.5	NO		bb		
32	FUNCTION1 PFK	25.81	2.386e5					3.8	YES		bb		
33	FUNCTION1 PFK	25.64	3.998e5					3.9	YES		db		
34	FUNCTION1 PFK	25.50	1.384e5					3.6	YES		bd		
35	FUNCTION1 PFK	25.31	2.075e5					2.1	NO		db		
36	FUNCTION1 PFK	25.16	2.866e4					0.8	NO		bd		
37	FUNCTION1 PFK	28.01	1.647e5					1.7	NO		db		

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ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.84	1.898e6					5.0	YES		bb		0.000
2	FUNCTION2 PFK	29.37	1.024e5					4.5	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.30	2.723e6					6.9	YES		bb		0.000
2	FUNCTION3 PFK	36.76	2.950e6					21.6	YES		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.78	9.589e3					1.6	NO		bb		
2	FUNCTION4 PFK	40.35	5.675e3					1.1	NO		bb		
3	FUNCTION4 PFK	39.84	3.844e3					0.9	NO		bb		
4	FUNCTION4 PFK	38.23	6.459e6					43.6	YES		db		
5	FUNCTION4 PFK	37.97	1.015e6					59.2	YES		bd		

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.15	9.046e3					2.7	NO		db		
2	FUNCTION5 PFK	43.08	1.654e4					2.8	NO		bd		
3	FUNCTION5 PFK	45.32	8.604e3					1.4	NO		bd		
4	FUNCTION5 PFK	45.00	3.220e3					0.9	NO		bb		
5	FUNCTION5 PFK	44.84	9.697e3					1.2	NO		bb		
6	FUNCTION5 PFK	44.76	7.441e2					0.5	NO		bb		
7	FUNCTION5 PFK	44.69	3.130e3					0.9	NO		db		
8	FUNCTION5 PFK	44.63	6.117e3					1.3	NO		bd		
9	FUNCTION5 PFK	44.53	4.406e3					1.2	NO		bb		
10	FUNCTION5 PFK	44.22	5.525e2					0.4	NO		bb		
11	FUNCTION5 PFK	44.09	5.363e3					1.1	NO		bb		
12	FUNCTION5 PFK	43.57	1.284e4					2.2	NO		bb		
13	FUNCTION5 PFK	43.53	1.024e3					0.7	NO		bb		
14	FUNCTION5 PFK	43.47	8.607e2					0.6	NO		bb		
15	FUNCTION5 PFK	43.38	4.521e3					1.0	NO		bb		
16	FUNCTION5 PFK	43.31	9.518e3					1.8	NO		db		
17	FUNCTION5 PFK	43.28	8.640e3					1.9	NO		dd		
18	FUNCTION5 PFK	43.23	2.019e4					1.9	NO		bd		
19	FUNCTION5 PFK	45.82	7.571e3					1.1	NO		bb		
20	FUNCTION5 PFK	45.66	5.676e2					0.4	NO		bb		
21	FUNCTION5 PFK	45.48	6.628e3					1.4	NO		bb		
22	FUNCTION5 PFK	45.37	2.020e4					2.1	NO		db		

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.00	1.520e2					9.3	YES		db		0.000
2	FUNCTION1 HXCD...	26.91	8.560e1					2.7	NO		dd		0.000
3	FUNCTION1 HXCD...	26.79	2.258e2					6.2	YES		bd		0.000
4	FUNCTION1 HXCD...	26.38	1.297e2					2.6	NO		bb		0.000
5	FUNCTION1 HXCD...	25.93	2.381e2					4.9	YES		bb		0.000
6	FUNCTION1 HXCD...	25.55	2.006e2					3.3	YES		bb		0.000
7	FUNCTION1 HXCD...	24.69	7.073e1					2.3	NO		bb		0.000
8	FUNCTION1 HXCD...	24.13	9.666e1					1.8	NO		bb		0.000
9	FUNCTION1 HXCD...	23.61	1.585e2					5.2	YES		bb		0.000
10	FUNCTION1 HXCD...	22.31	1.206e2					2.7	NO		db		0.000
11	FUNCTION1 HXCD...	22.18	1.572e2					5.6	YES		bd		0.000
12	FUNCTION1 HXCD...	27.53	7.267e1					2.4	NO		bb		0.000
13	FUNCTION1 HXCD...	27.11	7.540e1					4.0	YES		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	27.11	1.468e2					2.4	NO		bb		0.000
2	FUNCTION1 HPCD...	25.96	1.488e2					2.4	NO		bb		0.000
3	FUNCTION1 HPCD...	23.58	7.008e1					2.0	NO		db		0.000
4	FUNCTION1 HPCD...	23.45	1.350e2					2.9	NO		dd		0.000
5	FUNCTION1 HPCD...	23.36	5.316e2					10.1	YES		bd		0.000
6	FUNCTION1 HPCD...	22.68	1.187e2					1.9	NO		bb		0.000
7	FUNCTION1 HPCD...	22.04	1.496e3					34.4	YES		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.51	1.253e2					2.3	NO		bb		0.000
2	FUNCTION2 HPCD...	28.65	1.224e2					3.4	YES		bb		0.000
3	FUNCTION2 HPCD...	28.18	9.611e1					2.3	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.52	1.202e2					2.7	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.41	2.884e3					64.6	YES		bb		0.000
2	FUNCTION4 NCDPE	38.12	7.880e1					2.7	NO		db		0.000
3	FUNCTION4 NCDPE	38.06	8.023e1					3.6	YES		bd		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.87	7.173e1					2.9	NO		bb		0.000

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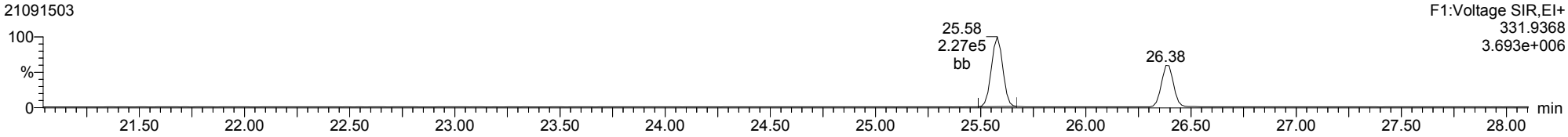
13C-1234-TCDD



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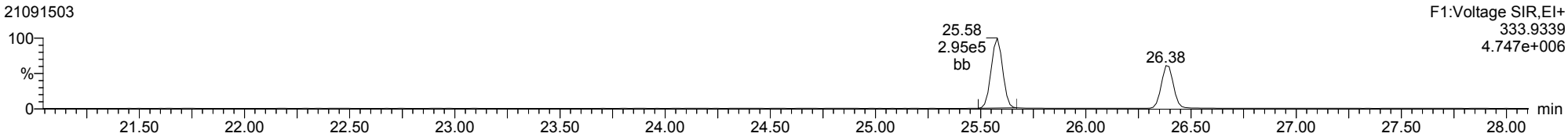

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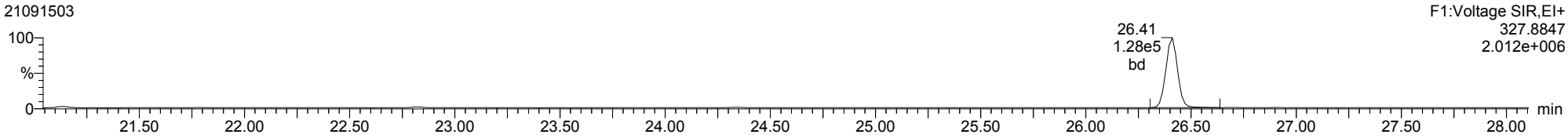

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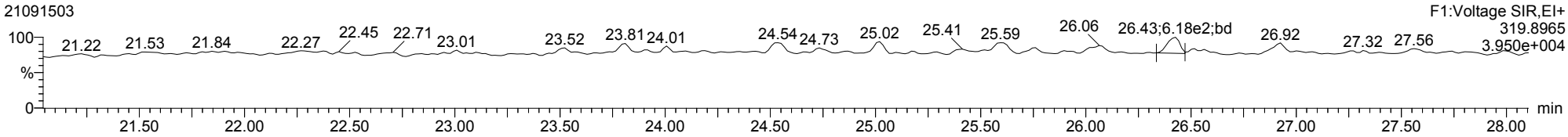
2378-TCDD



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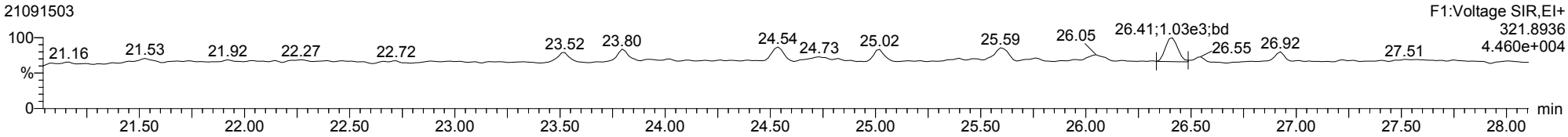

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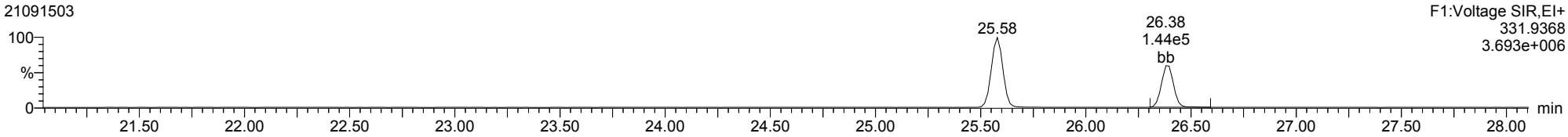

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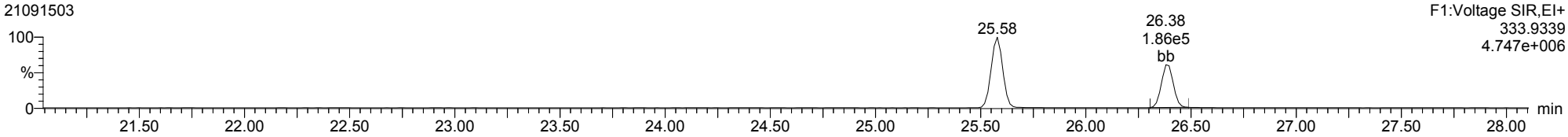

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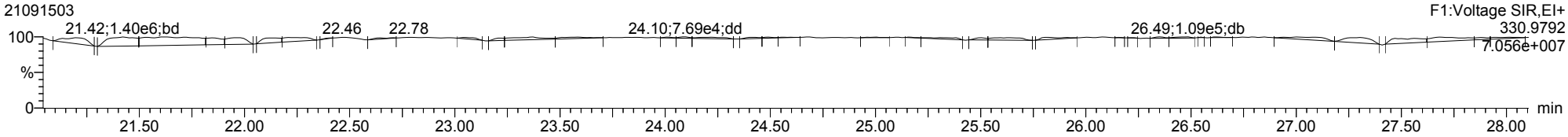

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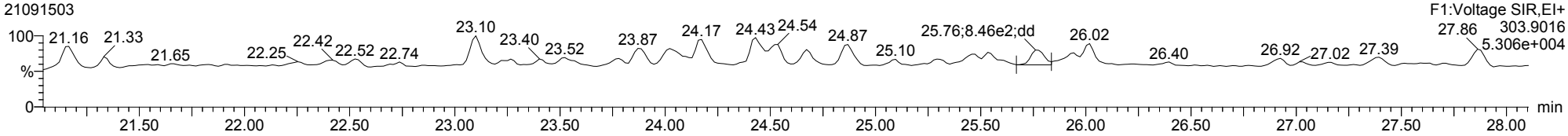

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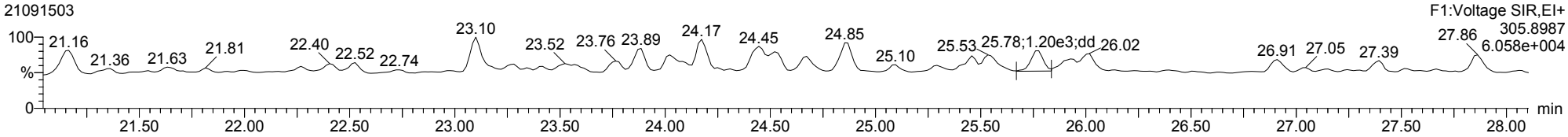

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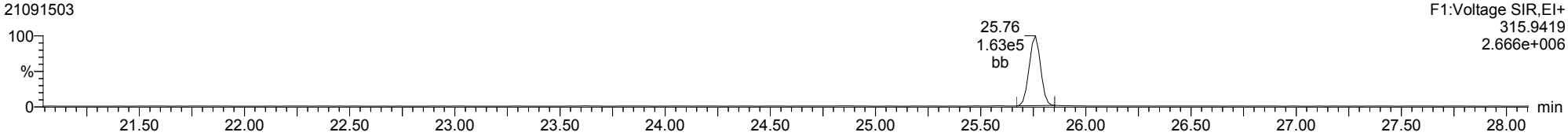

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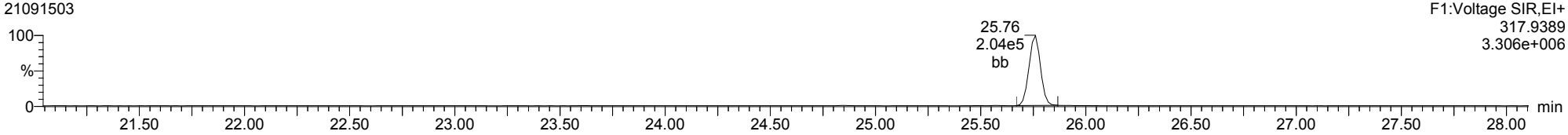

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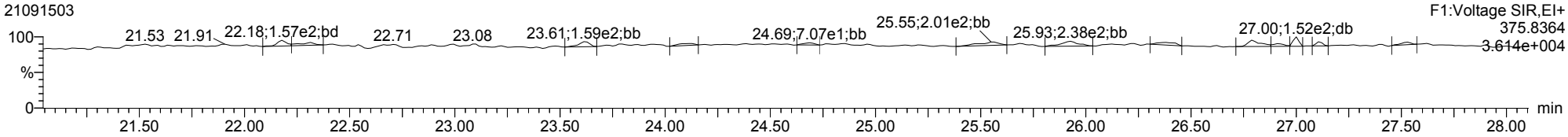

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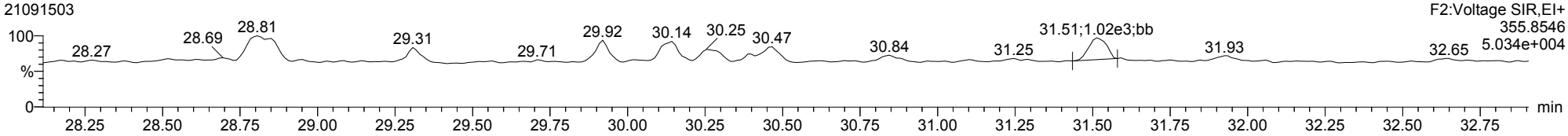
12378-PeCDD



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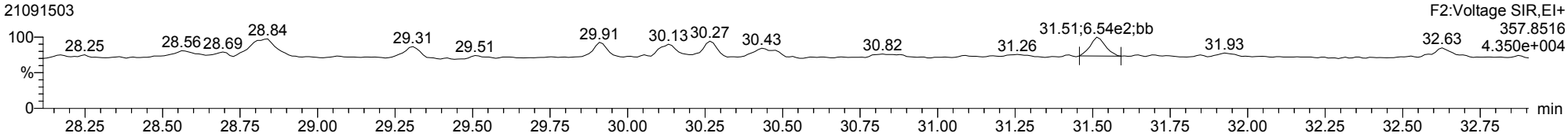

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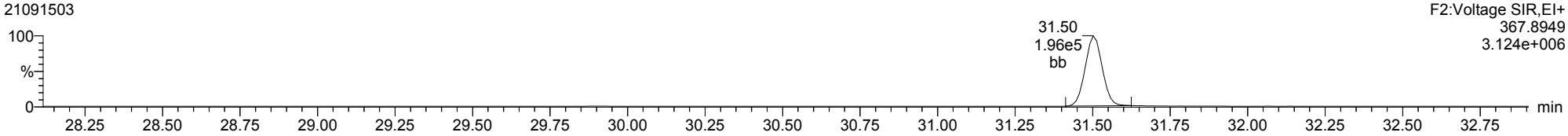

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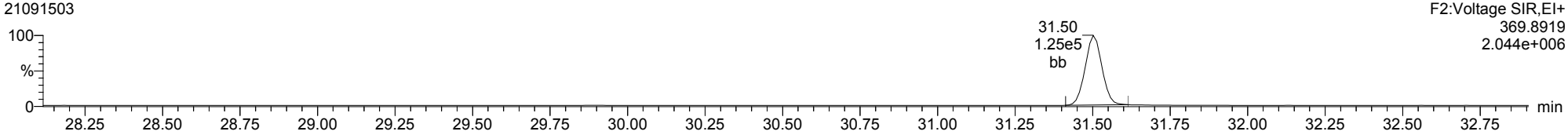

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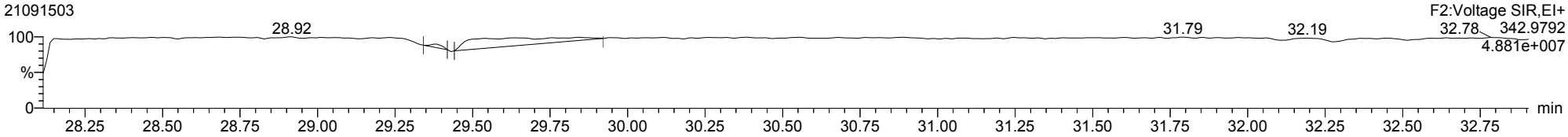

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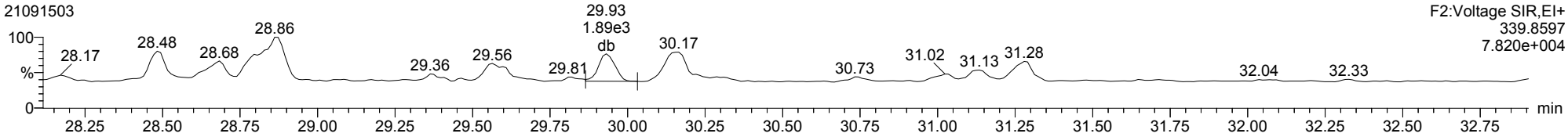
12378-PeCDF



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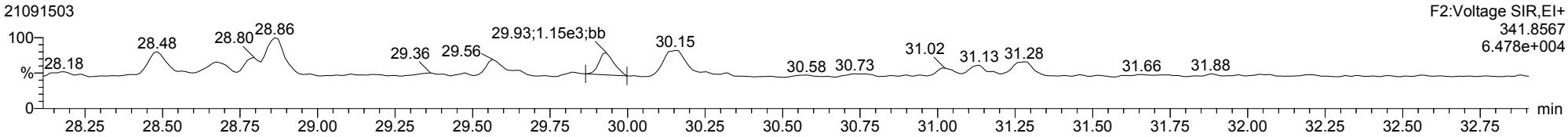

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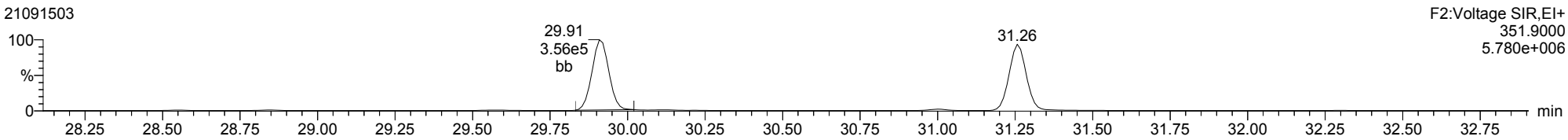

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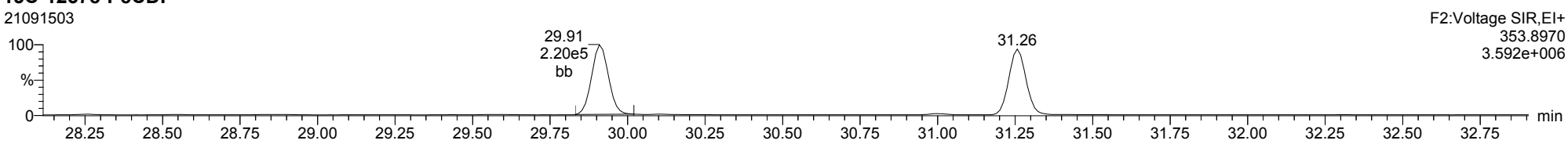
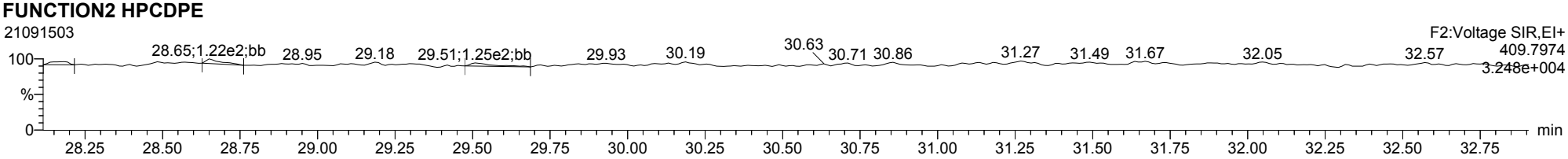


FUNCTION2 HPCDPE



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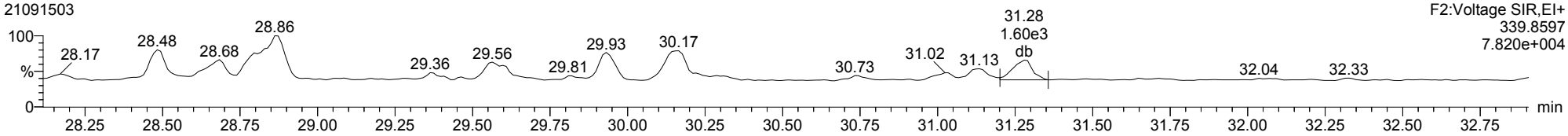
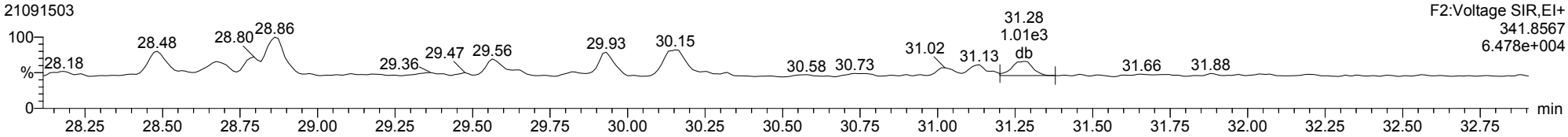
23478-PeCDF



23478-PeCDF



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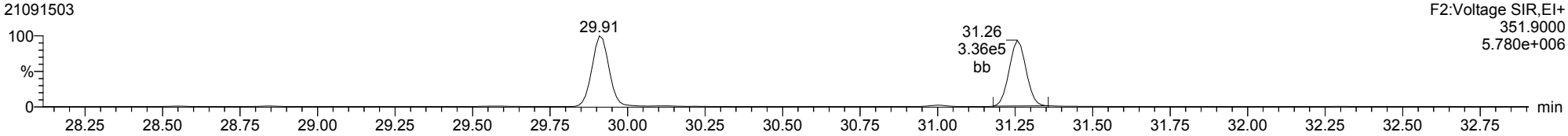

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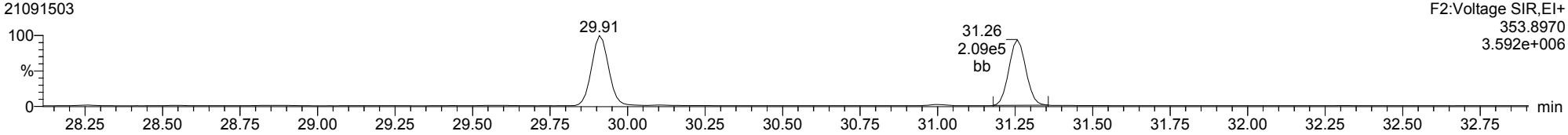

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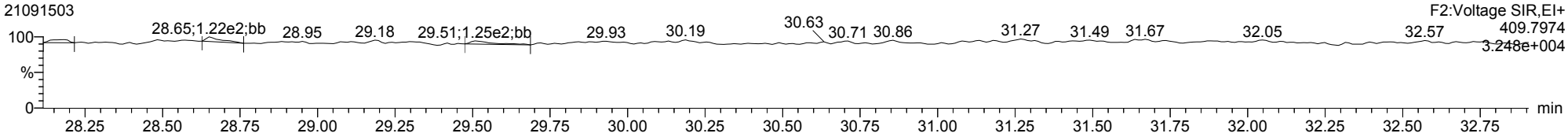

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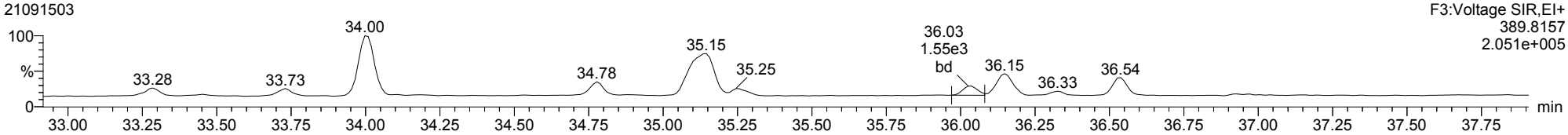

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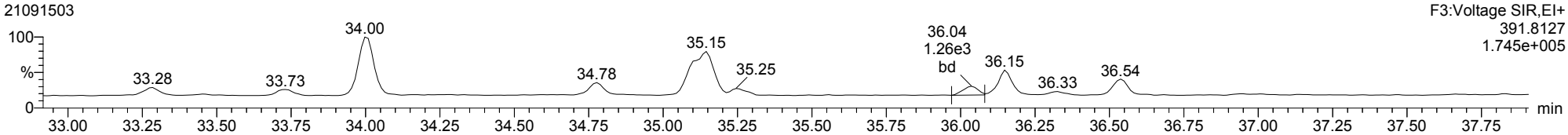

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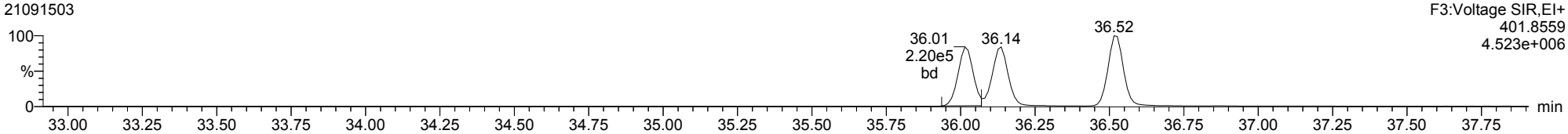

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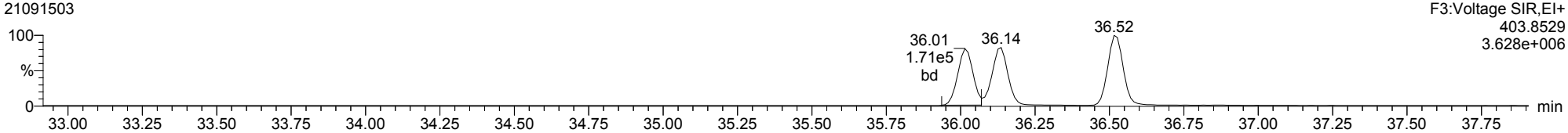

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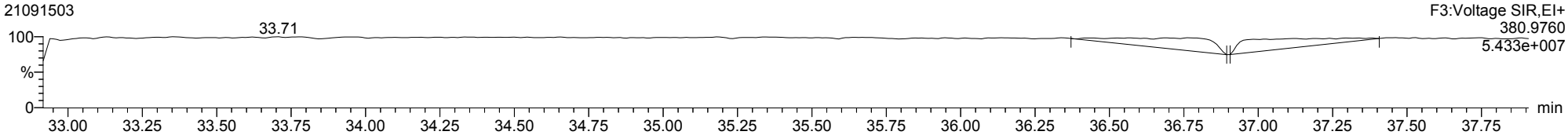

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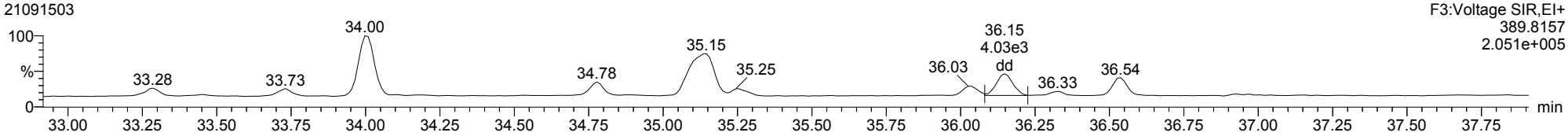

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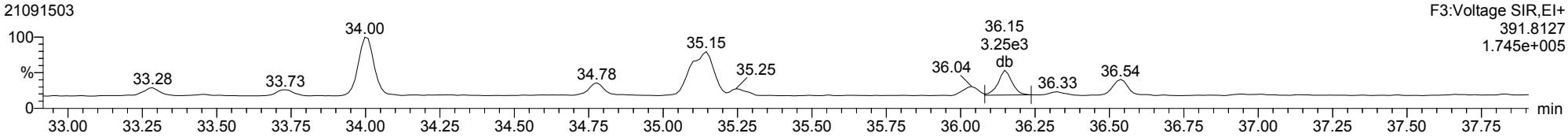

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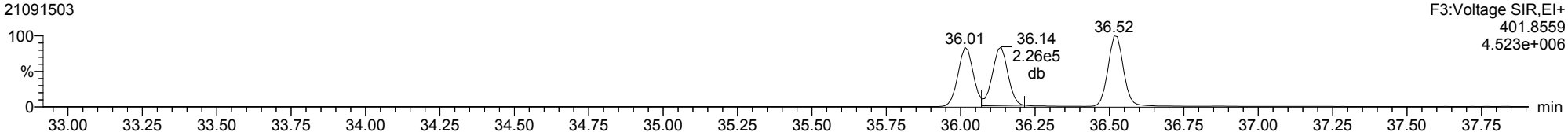

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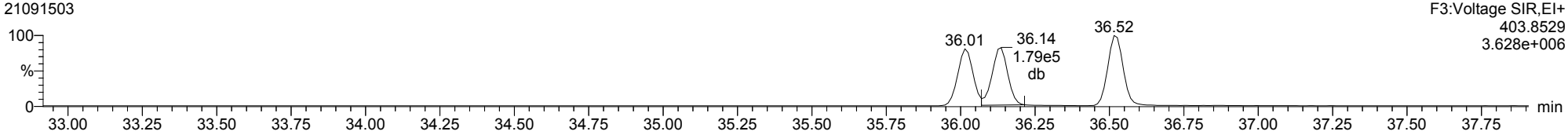

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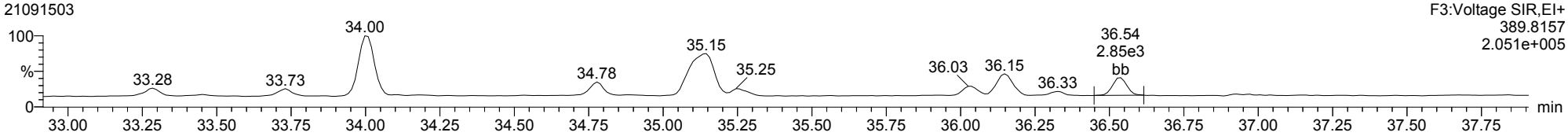

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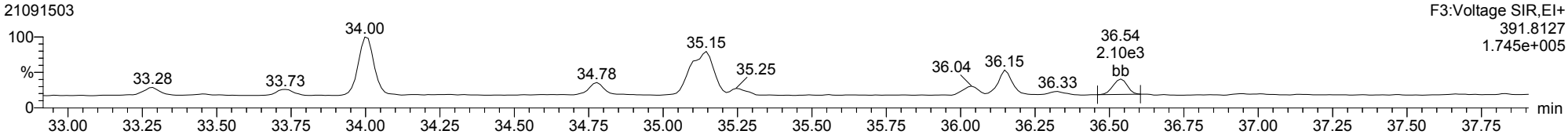

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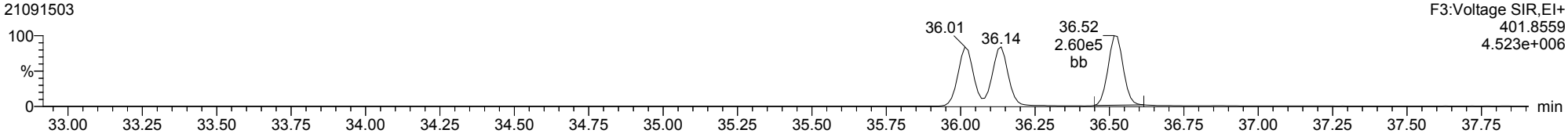

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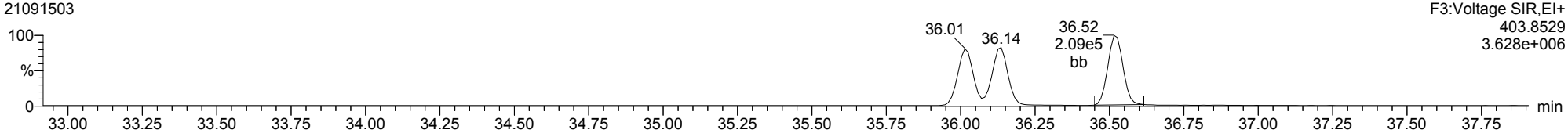

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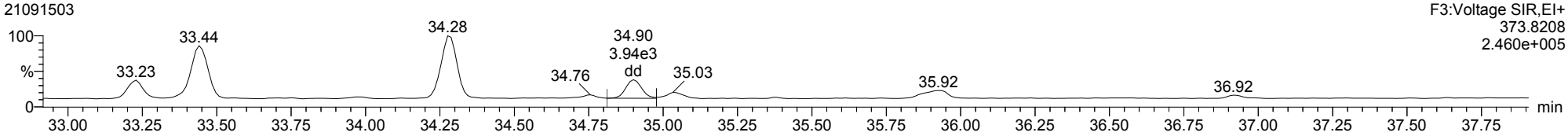

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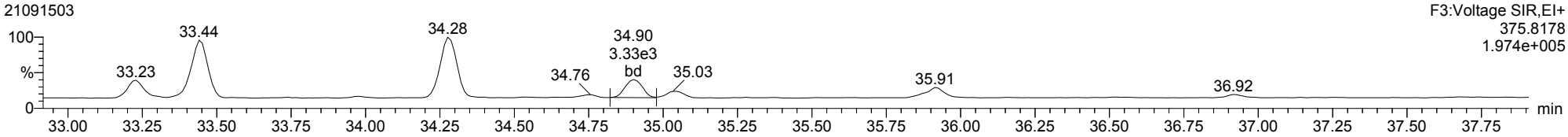

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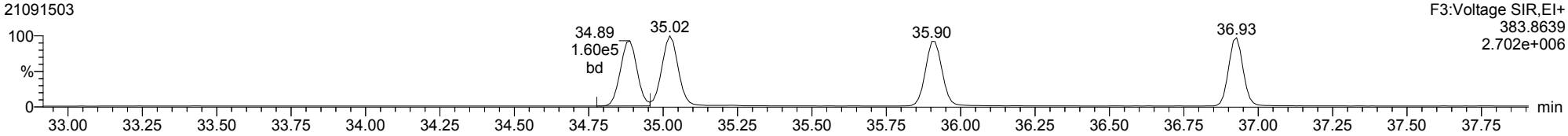

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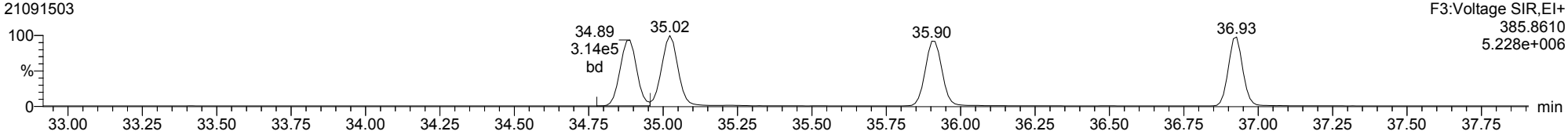

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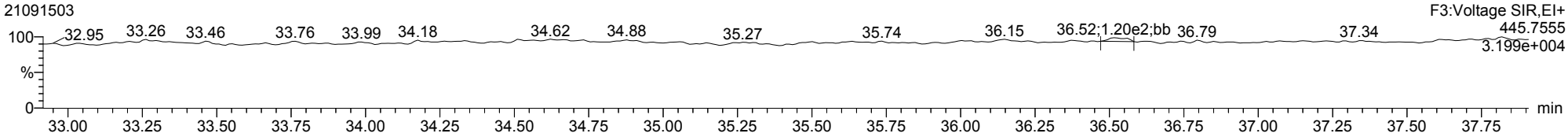

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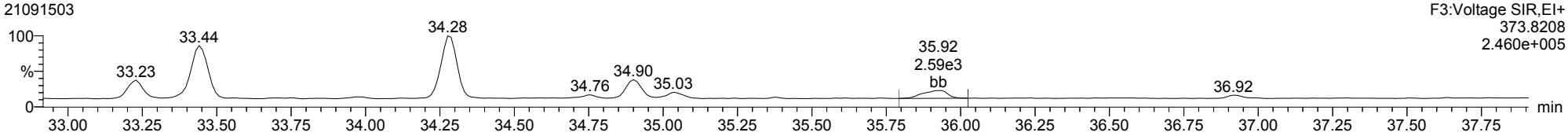

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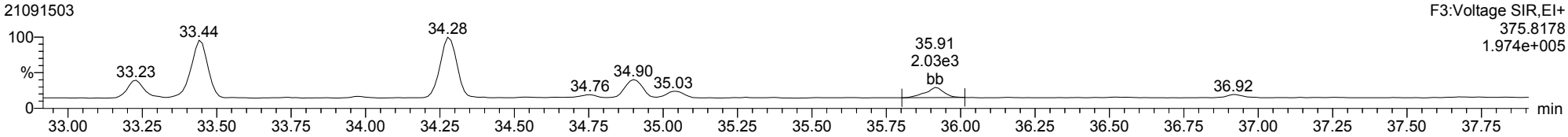

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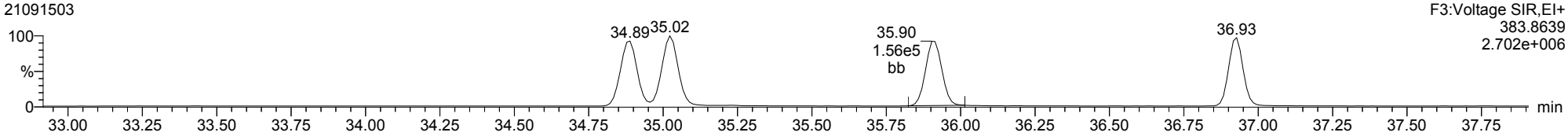

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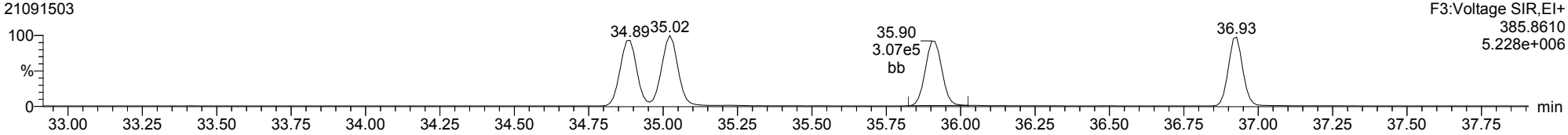

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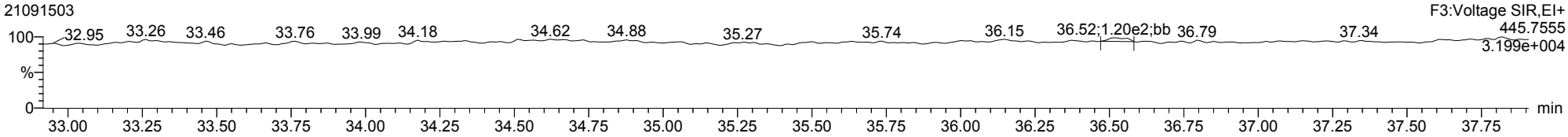

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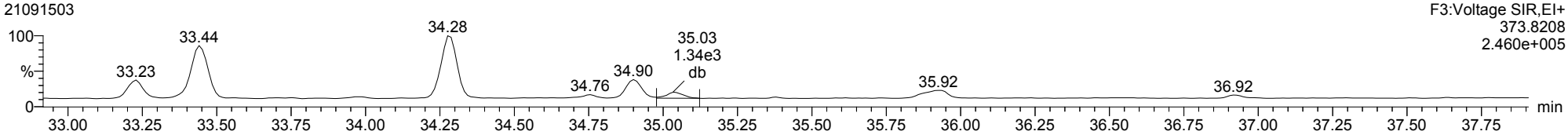

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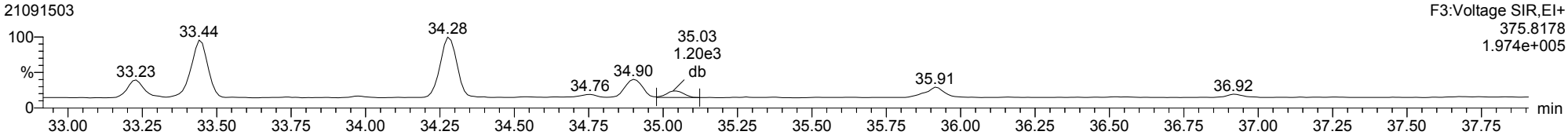

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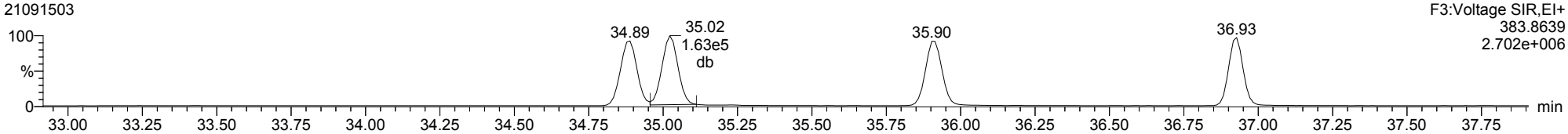

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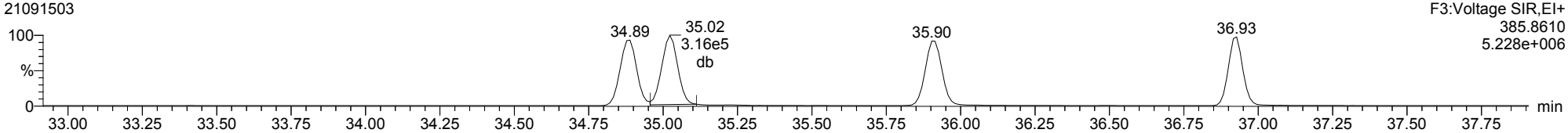

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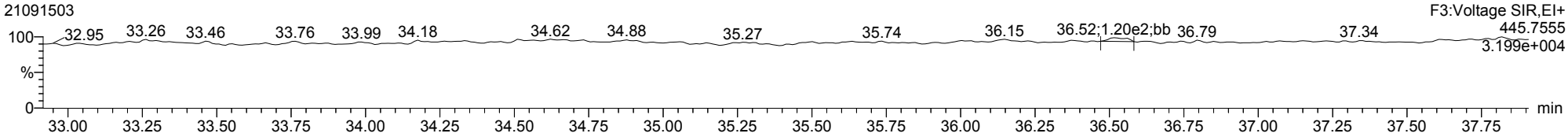

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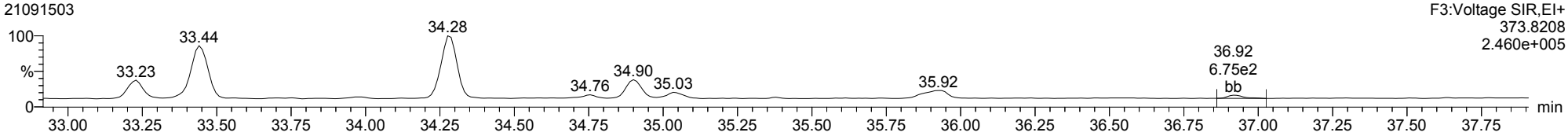

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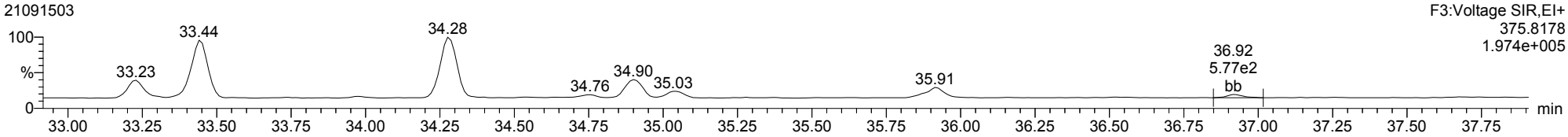

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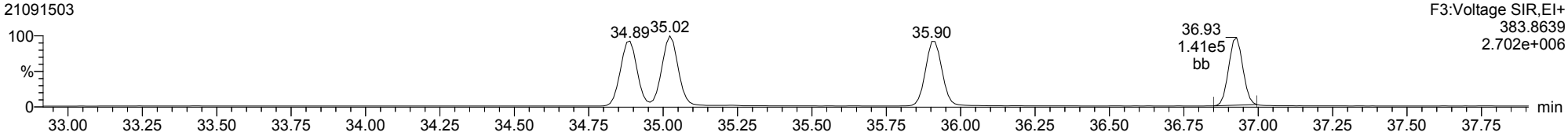

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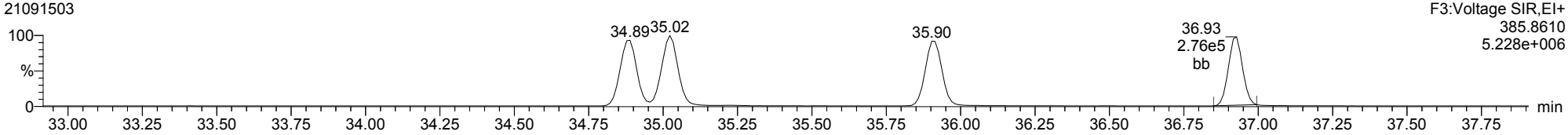
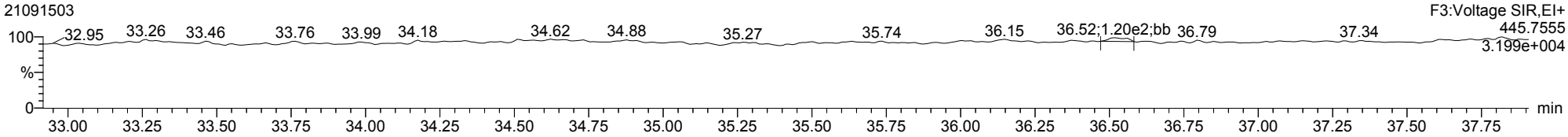


FUNCTION3 OCDPE



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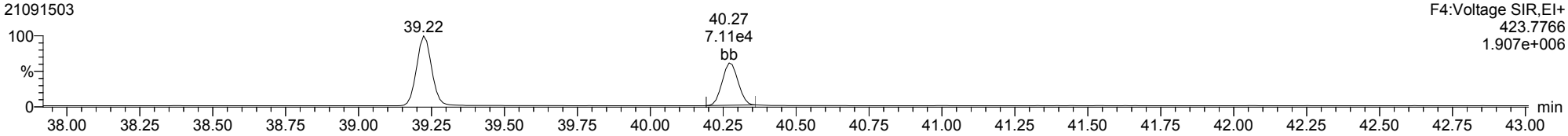

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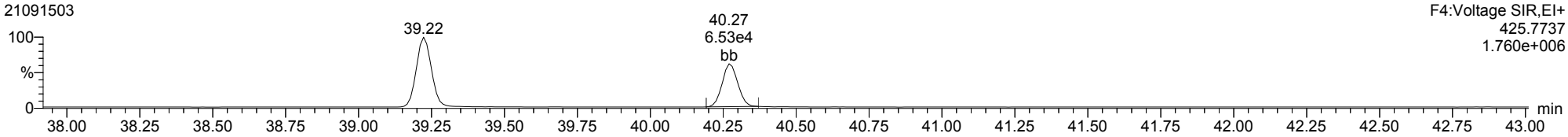

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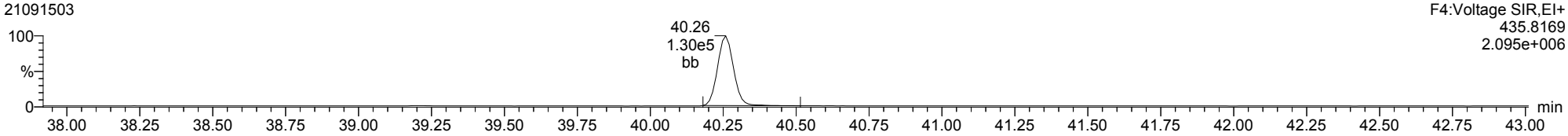

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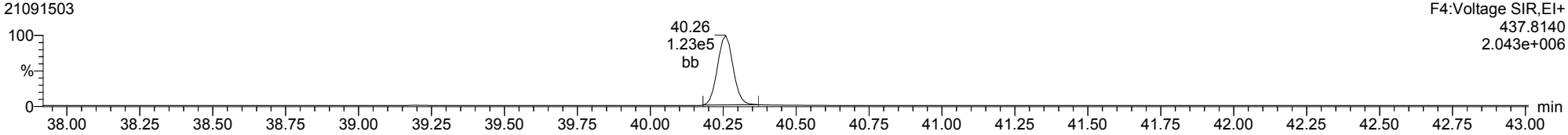

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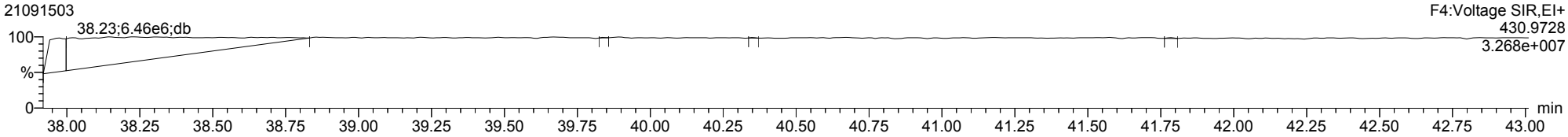

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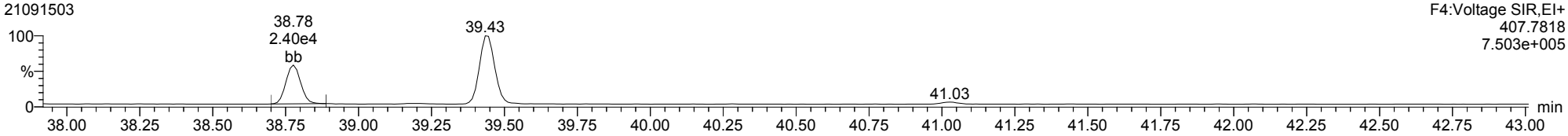

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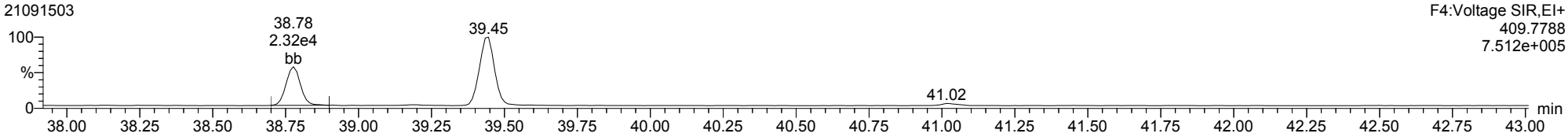

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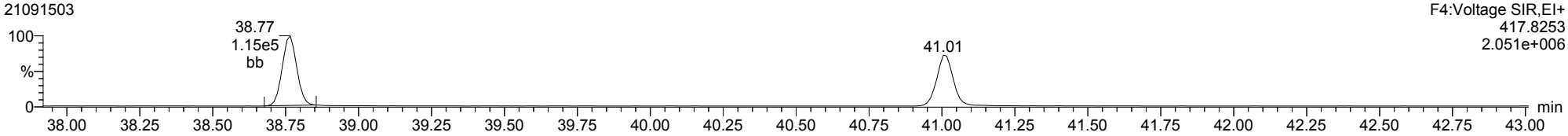

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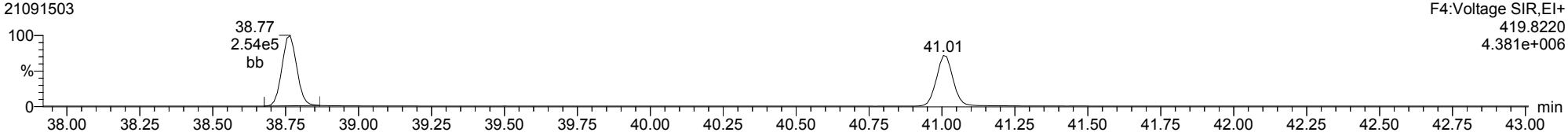

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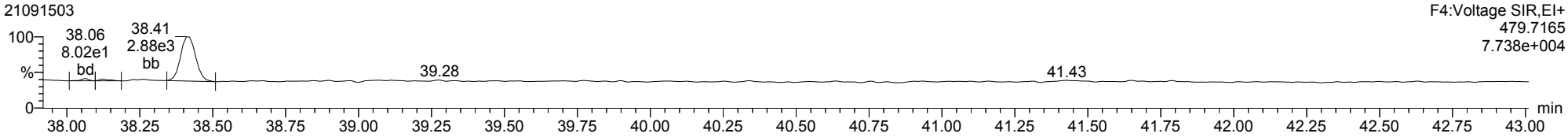

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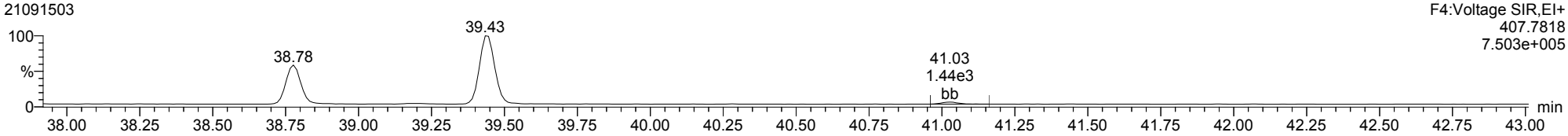

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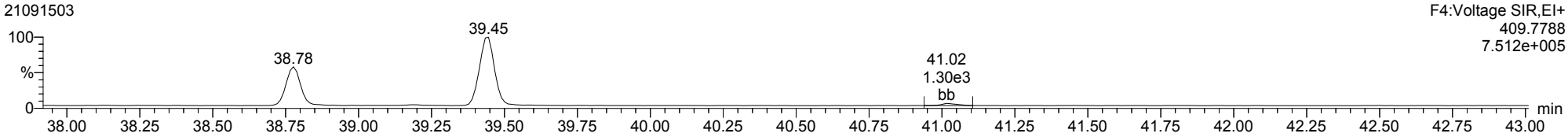

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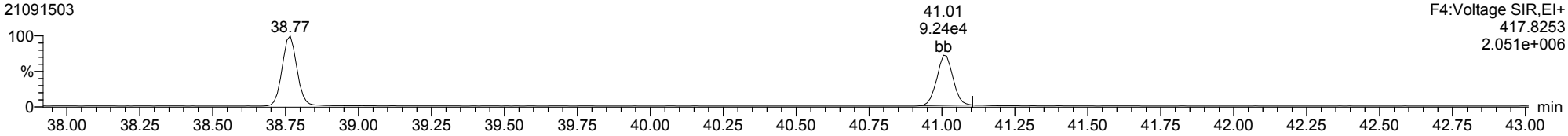

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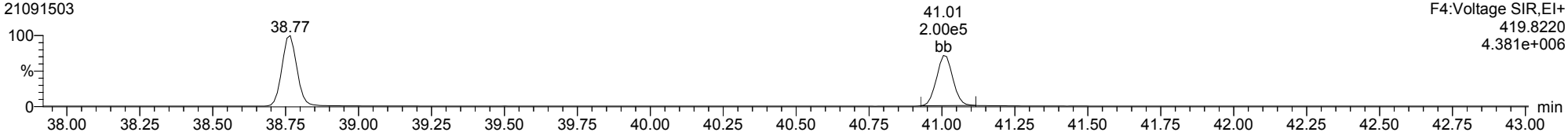
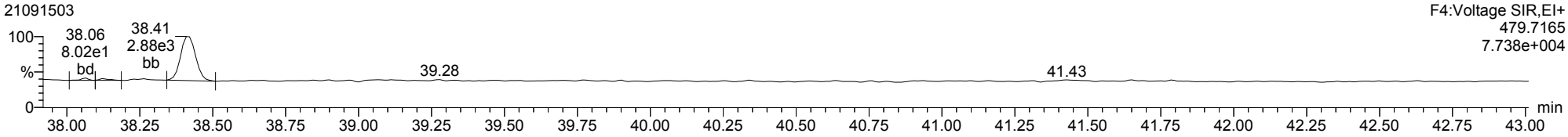


FUNCTION4 NCDPE



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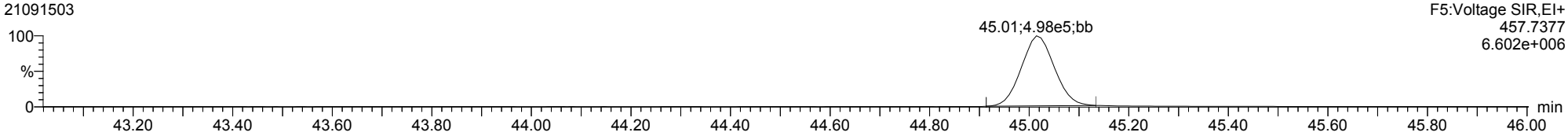
OCDD



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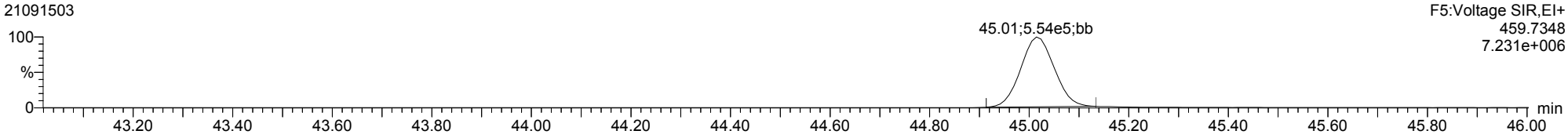

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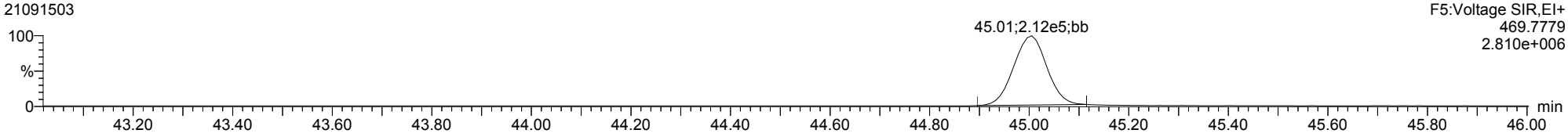

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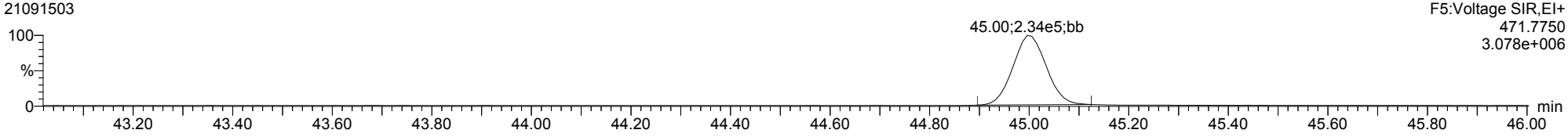
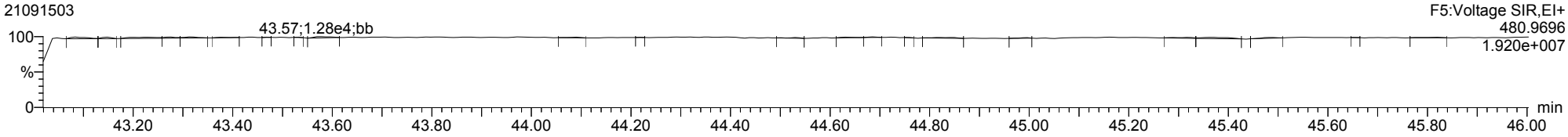


FUNCTION5 PFK



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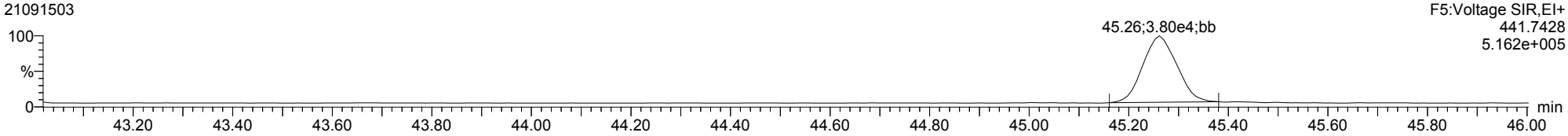
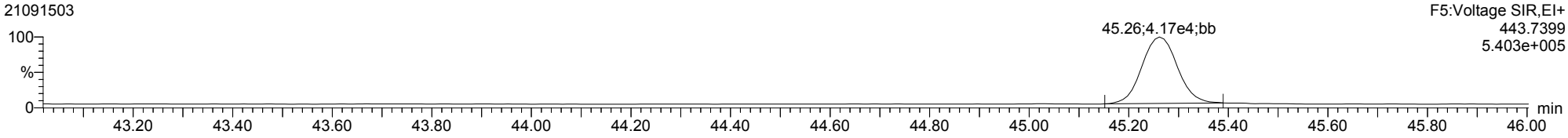
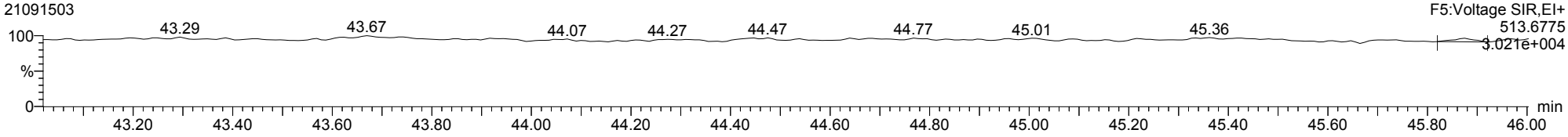
OCDF



OCDF



FUNCTION5 DCDPE



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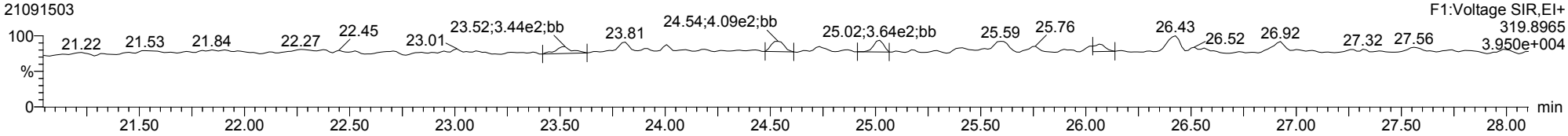
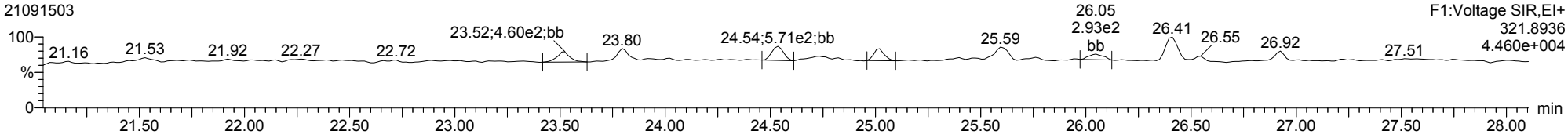
Printed: Thursday, September 16, 2021 14:32:24 Pacific Daylight Time

ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

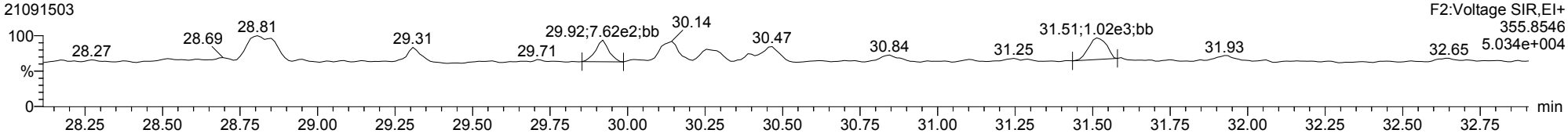
Total-tetradioxins



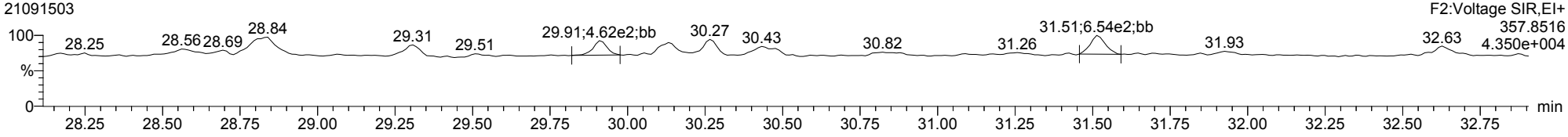
Total-tetradioxins



Total-pentadioxins

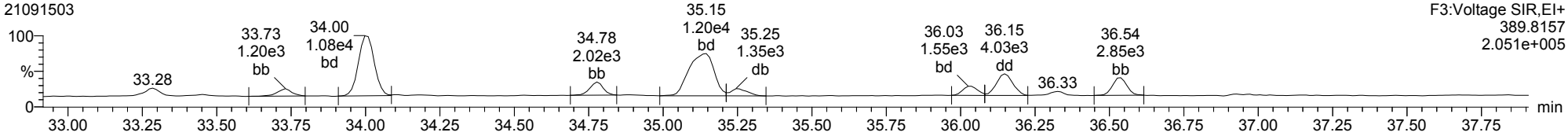


Total-pentadioxins

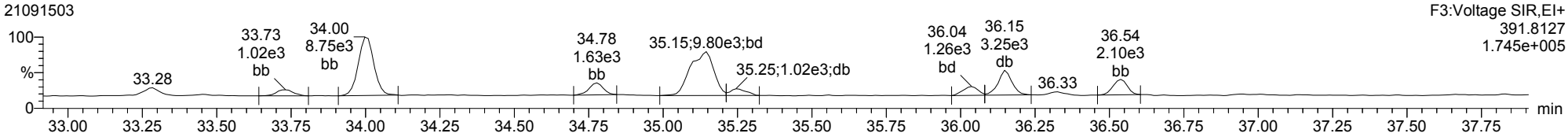


ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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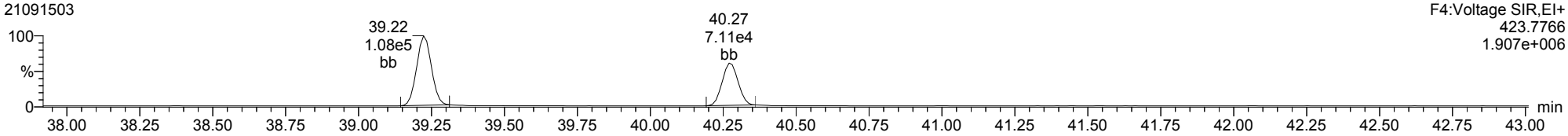
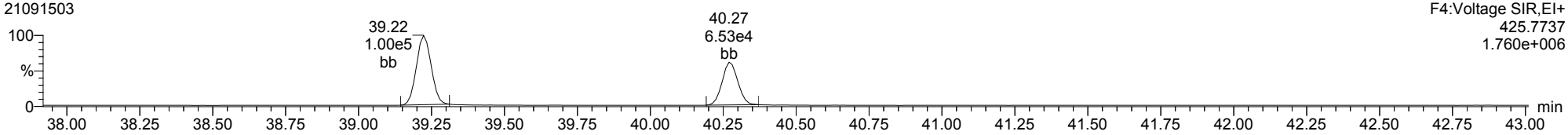


Total-heptadioxins



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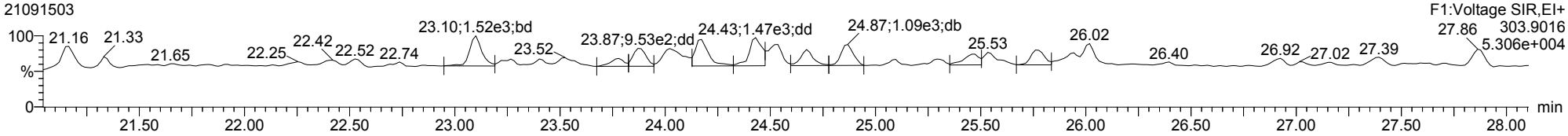
Total-tetrafurans



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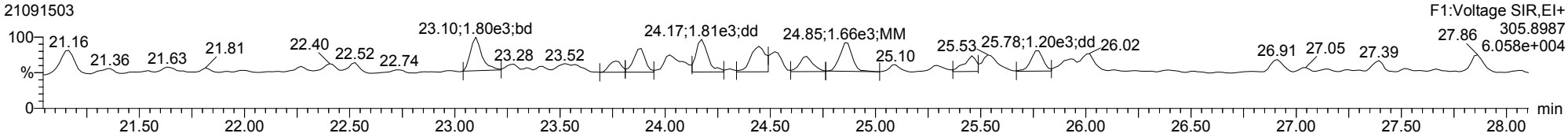

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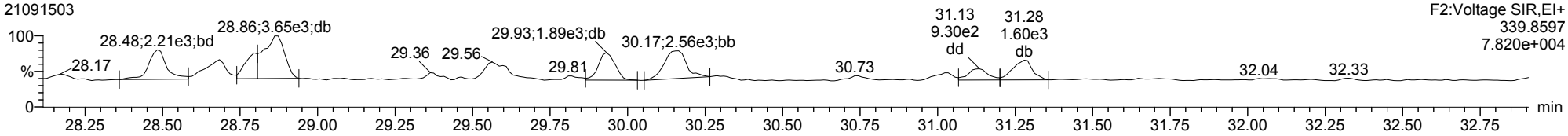
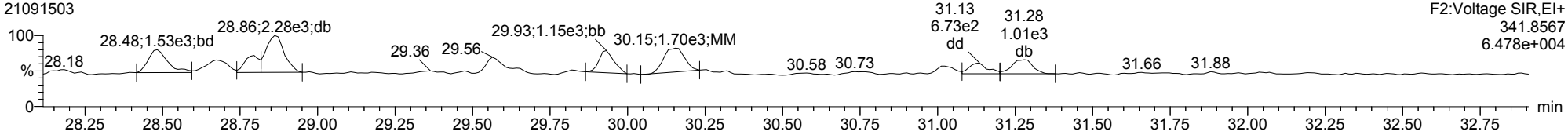


Total-pentafurans



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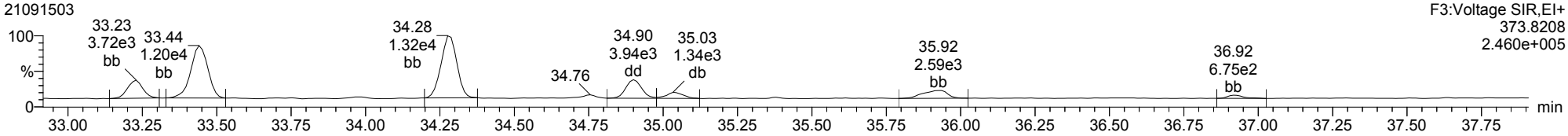
ID: BJH0645-SRM1, Name: 21091503, Date: 15-Sep-2021, Time: 17:43:19, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



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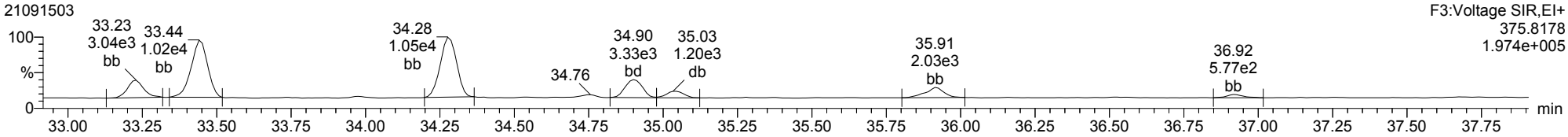

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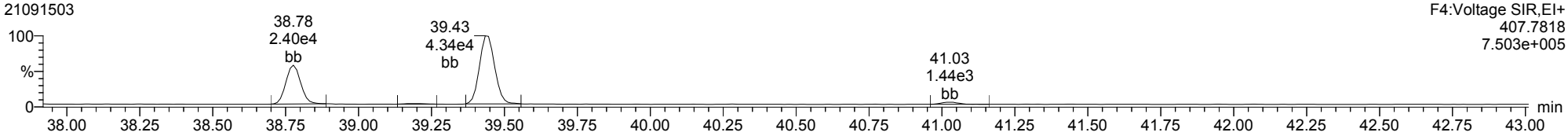

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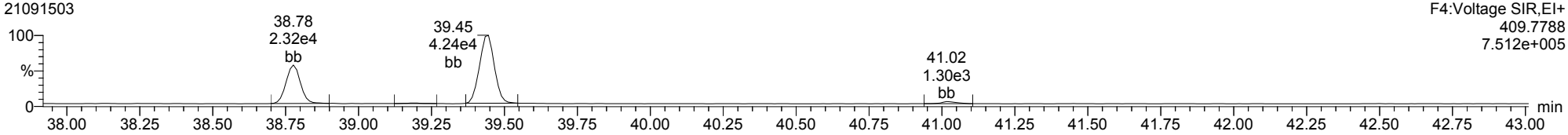

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EH00030	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2021	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RRF		RRF		RRF		RRF		RRF		RRF
2,3,7,8-TCDF			0.5	1.177779	2	1.089564	10	1.083206	40	1.09573	200	1.091684
2,3,7,8-TCDD			0.5	0.9055873	2	0.9678062	10	0.9085186	40	0.8960008	200	0.9235243
1,2,3,7,8-PeCDF	0.5	1.055376	2.5	0.9749948	10	0.9890582	50	1.04064	200	1.01544	1000	1.013695
2,3,4,7,8-PeCDF	0.5	1.154709	2.5	1.162487	10	1.08879	50	1.108527	200	1.12263	1000	1.116149
1,2,3,7,8-PeCDD	0.5	1.042847	2.5	0.9347965	10	1.000426	50	1.023433	200	0.967595	1000	1.00284
1,2,3,4,7,8-HxCDF	0.5	0.9510236	2.5	1.043616	10	1.027461	50	1.004481	200	1.030496	1000	1.044283
1,2,3,6,7,8-HxCDF	0.5	1.146121	2.5	1.02211	10	1.074838	50	0.9512592	200	1.003115	1000	1.02354
2,3,4,6,7,8-HxCDF	0.5	1.127526	2.5	1.070857	10	1.079018	50	1.043215	200	1.009624	1000	0.9845533
1,2,3,7,8,9-HxCDF	0.5	1.098409	2.5	1.018068	10	1.023691	50	1.015326	200	1.012664	1000	1.012763
1,2,3,4,7,8-HxCDD	0.5	1.061437	2.5	1.066813	10	1.04129	50	0.9862893	200	0.988471	1000	1.019875
1,2,3,6,7,8-HxCDD	0.5	0.9987812	2.5	1.00345	10	1.014563	50	1.005616	200	1.025933	1000	1.005535
1,2,3,7,8,9-HxCDD	0.5	0.9340398	2.5	0.9232118	10	0.9937847	50	0.9399502	200	0.9446474	1000	0.9672851
1,2,3,4,6,7,8-HpCDF	0.5	1.389904	2.5	1.344079	10	1.329355	50	1.296772	200	1.274981	1000	1.329007
1,2,3,4,7,8,9-HpCDF	0.5	1.296099	2.5	1.298231	10	1.306049	50	1.250104	200	1.264967	1000	1.284581
1,2,3,4,6,7,8-HpCDD	0.5	1.188982	2.5	0.9715609	10	1.075415	50	1.051009	200	1.0446	1000	1.076963
OCDF	1	1.386229	5	1.321192	20	1.473428	100	1.440564	400	1.519487	2000	1.540503
OCDD			5	1.230403	20	1.209327	100	1.133227	400	1.156307	2000	1.174851
13C12-2,3,7,8-TCDF	100	1.368644	100	1.423872	100	1.423929	100	1.432983	100	1.427899	100	1.482172
13C12-2,3,7,8-TCDD	100	1.085201	100	1.102248	100	1.115748	100	1.11594	100	1.126097	100	1.153713
13C12-1,2,3,7,8-PeCDF	100	1.199089	100	1.277562	100	1.315098	100	1.301019	100	1.280476	100	1.410636
13C12-2,3,4,7,8-PeCDF	100	1.157138	100	1.217571	100	1.208288	100	1.25174	100	1.225075	100	1.35907
13C12-1,2,3,7,8-PeCDD	100	0.6771591	100	0.7210236	100	0.7142954	100	0.7228749	100	0.7511038	100	0.805443
13C12-1,2,3,4,7,8-HxCDF	100	1.286327	100	1.201751	100	1.230613	100	1.269148	100	1.245045	100	1.221854
13C12-1,2,3,6,7,8-HxCDF	100	1.339141	100	1.30779	100	1.316908	100	1.430696	100	1.354788	100	1.311536
13C12-2,3,4,6,7,8-HxCDF	100	1.24279	100	1.168157	100	1.194712	100	1.212905	100	1.242651	100	1.227916
13C12-1,2,3,7,8,9-HxCDF	100	1.031792	100	0.9827749	100	0.9825353	100	1.01982	100	0.9970797	100	1.03182
13C12-1,2,3,4,7,8-HxCDD	100	0.9931736	100	0.9197633	100	0.9354684	100	0.9847809	100	0.9652949	100	0.9604585
13C12-1,2,3,6,7,8-HxCDD	100	1.065671	100	1.027995	100	1.028764	100	1.057951	100	1.039041	100	1.028891

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EH00030	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2021	Column (1):	RTX-Dioxin2

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RRF		RRF		RRF		RRF		RRF		RRF
13C12-1,2,3,4,6,7,8-HpCDF	100	0.9372866	100	0.9086205	100	0.9102718	100	0.922368	100	0.9442818	100	0.9359936
13C12-1,2,3,4,7,8,9-HpCDF	100	0.7416153	100	0.7182342	100	0.7567011	100	0.7658258	100	0.7723607	100	0.7927589
13C12-1,2,3,4,6,7,8-HpCDD	100	0.6435664	100	0.6169459	100	0.6151049	100	0.6260609	100	0.6432814	100	0.6497259
13C12-OCDD	200	0.4894078	200	0.4833068	200	0.4662427	200	0.5014182	200	0.5191023	200	0.5629814
37Cl4-2,3,7,8-TCDD	0.1	1.029849	0.5	1.178508	2	1.088624	10	1.009798	40	1.061277	200	1.133499
13C12-1,2,3,4-TCDD	100	1	100	1	100	1	100	1	100	1	100	1
13C12-1,2,3,7,8,9-HxCDD	100	1	100	1	100	1	100	1	100	1	100	1

Analytical Resources, Incorporated
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INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EH00030	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2021	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
2,3,7,8-TCDF	1.107593	3.6			RSD ()	
2,3,7,8-TCDD	0.9202875	3.1			RSD ()	
1,2,3,7,8-PeCDF	1.014867	3.0			RSD ()	
2,3,4,7,8-PeCDF	1.125549	2.5			RSD ()	
1,2,3,7,8-PeCDD	0.9953229	3.9			RSD ()	
1,2,3,4,7,8-HxCDF	1.016893	3.5			RSD ()	
1,2,3,6,7,8-HxCDF	1.036831	6.4			RSD ()	
2,3,4,6,7,8-HxCDF	1.052466	4.9			RSD ()	
1,2,3,7,8,9-HxCDF	1.030154	3.3			RSD ()	
1,2,3,4,7,8-HxCDD	1.027363	3.4			RSD ()	
1,2,3,6,7,8-HxCDD	1.00898	1.0			RSD ()	
1,2,3,7,8,9-HxCDD	0.9504865	2.7			RSD ()	
1,2,3,4,6,7,8-HpCDF	1.32735	3.0			RSD ()	
1,2,3,4,7,8,9-HpCDF	1.283338	1.7			RSD ()	
1,2,3,4,6,7,8-HpCDD	1.068088	6.6			RSD ()	
OCDF	1.446901	5.7			RSD ()	
OCDD	1.180823	3.3			RSD ()	
13C12-2,3,7,8-TCDF	1.426583	2.5			RSD ()	
13C12-2,3,7,8-TCDD	1.116491	2.1			RSD ()	
13C12-1,2,3,7,8-PeCDF	1.297313	5.3			RSD ()	
13C12-2,3,4,7,8-PeCDF	1.23648	5.5			RSD ()	
13C12-1,2,3,7,8-PeCDD	0.7319833	5.9			RSD ()	
13C12-1,2,3,4,7,8-HxCDF	1.242456	2.5			RSD ()	
13C12-1,2,3,6,7,8-HxCDF	1.343476	3.5			RSD ()	
13C12-2,3,4,6,7,8-HxCDF	1.214855	2.4			RSD ()	
13C12-1,2,3,7,8,9-HxCDF	1.007637	2.3			RSD ()	
13C12-1,2,3,4,7,8-HxCDD	0.9598233	2.9			RSD ()	
13C12-1,2,3,6,7,8-HxCDD	1.041385	1.6			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDF	0.9264704	1.6			RSD ()	
13C12-1,2,3,4,7,8,9-HpCDF	0.757916	3.4			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDD	0.6324476	2.4			RSD ()	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Calibration:	EH00030	Instrument:	AUTOSPEC01
Calibration Date:	08/11/2021	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
13C12-OCDD	0.5037432	6.7			RSD ()	
37Cl4-2,3,7,8-TCDD	1.083593	5.9			RSD ()	
13C12-1,2,3,4-TCDD	1	0.0			RSD ()	
13C12-1,2,3,7,8,9-HxCDD	1	0.0			RSD ()	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Calibration: EH00030
Sequence: SJH0117

SDG: 21G0127
Project: Lower Duwamish AOC4
Laboratory ID: SJH0117-SCV1
Sequence Name: ICVCV
Standard ID: G001361

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
2,3,7,8-TCDF	10.000	10.1	1.1	20.00
2,3,7,8-TCDD	10.000	11.1	10.6	20.00
1,2,3,7,8-PeCDF	50.000	52.8	5.7	20.00
2,3,4,7,8-PeCDF	50.000	50.7	1.4	20.00
1,2,3,7,8-PeCDD	50.000	52.2	4.4	20.00
1,2,3,4,7,8-HxCDF	50.000	54.0	8.0	20.00
1,2,3,6,7,8-HxCDF	50.000	51.5	3.0	20.00
2,3,4,6,7,8-HxCDF	50.000	55.5	11.0	20.00
1,2,3,7,8,9-HxCDF	50.000	53.6	7.2	20.00
1,2,3,4,7,8-HxCDD	50.000	54.6	9.3	20.00
1,2,3,6,7,8-HxCDD	50.000	50.6	1.1	20.00
1,2,3,7,8,9-HxCDD	50.000	52.3	4.7	20.00
1,2,3,4,6,7,8-HpCDF	50.000	54.8	9.6	20.00
1,2,3,4,7,8,9-HpCDF	50.000	59.1	18.3	20.00
1,2,3,4,6,7,8-HpCDD	50.000	51.9	3.7	20.00
OCDF	100.00	105	5.4	20.00
OCDD	100.00	105	5.0	20.00
13C12-2,3,7,8-TCDF	100.00	102	1.7	20.00
13C12-2,3,7,8-TCDD	100.00	81.6	-18.4	20.00
13C12-1,2,3,7,8-PeCDF	100.00	105	4.8	20.00
13C12-2,3,4,7,8-PeCDF	100.00	104	4.3	20.00
13C12-1,2,3,7,8-PeCDD	100.00	98.4	-1.6	20.00
13C12-1,2,3,4,7,8-HxCDF	100.00	116	15.9	20.00
13C12-1,2,3,6,7,8-HxCDF	100.00	119	19.4	20.00
13C12-2,3,4,6,7,8-HxCDF	100.00	109	8.8	20.00
13C12-1,2,3,7,8,9-HxCDF	100.00	113	13.2	20.00
13C12-1,2,3,4,7,8-HxCDD	100.00	114	14.1	20.00
13C12-1,2,3,6,7,8-HxCDD	100.00	119	19.5	20.00
13C12-1,2,3,4,6,7,8-HpCDF	100.00	114	13.7	20.00
13C12-1,2,3,4,7,8,9-HpCDF	100.00	110	9.8	20.00
13C12-1,2,3,4,6,7,8-HpCDD	100.00	110	10.5	20.00
13C12-OCDD	200.00	212	5.9	20.00
37Cl4-2,3,7,8-TCDD	10.000	10.4	4.0	20.00

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.655	1.001	8.598e4	1.128e5	1.108	0.762	0.770	1727	2357	1.26e6	1.68e6	728.4	713.0	NO	bb	bb	10.110
12378-PeCDF	29.816	1.000	5.436e5	3.483e5	1.015	1.561	1.550	6428	5298	7.67e6	4.88e6	1193.2	921.9	NO	bd	bd	52.831
23478-PeCDF	31.165	1.001	5.567e5	3.442e5	1.126	1.617	1.550	6428	5298	7.71e6	5.06e6	1200.0	955.7	NO	dd	bb	50.709
123478-HxCDF	34.797	1.000	3.790e5	3.119e5	1.017	1.215	1.240	6025	4489	5.81e6	4.80e6	963.5	1070.0	NO	bd	bd	54.003
234678-HxCDF	35.810	1.001	3.741e5	3.010e5	1.052	1.243	1.240	6025	4489	5.56e6	4.51e6	922.2	1004.3	NO	bb	bb	55.515
123678-HxCDF	34.941	1.001	4.107e5	3.376e5	1.037	1.217	1.240	6025	4489	5.99e6	4.89e6	994.0	1090.0	NO	db	db	51.475
123789-HxCDF	36.835	1.000	3.029e5	2.474e5	1.030	1.224	1.240	6025	4489	4.62e6	3.69e6	767.5	821.7	NO	bb	bb	53.582
1234678-HpCDF	38.685	1.000	3.428e5	3.268e5	1.327	1.049	1.050	5528	5142	5.22e6	4.97e6	945.1	966.6	NO	bb	bb	54.784
1234789-HpCDF	40.924	1.000	2.799e5	2.719e5	1.283	1.029	1.050	5528	5142	3.60e6	3.43e6	650.7	667.0	NO	bd	bd	59.145
OCDF	45.140	1.006	3.368e5	3.743e5	1.447	0.900	0.890	5198	2808	3.79e6	4.27e6	729.8	1522.4	NO	bb	bb	105.415
2378-TCDD	26.305	1.001	4.924e4	6.425e4	0.920	0.766	0.770	2440	1603	7.12e5	9.28e5	291.6	579.2	NO	bb	db	11.057
12378-PeCDD	31.421	1.001	2.834e5	1.748e5	0.995	1.621	1.550	4032	3115	4.22e6	2.62e6	1046.5	841.2	NO	bb	bb	52.211
123478-HxCDD	35.922	1.000	2.965e5	2.407e5	1.027	1.232	1.240	4241	3010	4.65e6	3.73e6	1096.7	1237.9	NO	bd	bd	54.629
123678-HxCDD	36.044	1.001	3.082e5	2.464e5	1.009	1.251	1.240	4241	3010	4.61e6	3.72e6	1085.9	1237.1	NO	db	db	50.555
123789-HxCDD	36.423	1.011	2.887e5	2.199e5	0.950	1.313	1.240	4241	3010	4.19e6	3.34e6	989.1	1108.9	NO	bd	bb	52.339
1234678-HpCDD	40.178	1.000	1.757e5	1.625e5	1.068	1.081	1.050	3111	3083	2.53e6	2.35e6	814.6	763.1	NO	bb	bb	51.865
OCDD	44.903	1.000	2.642e5	3.138e5	1.181	0.842	0.890	2972	3108	3.12e6	3.44e6	1050.3	1105.9	NO	bb	bd	104.997
13C-2378-TCDF	25.640	1.007	7.798e5	9.953e5	1.427	0.784	0.770	3469	3089	1.16e7	1.43e7	3339.4	4613.3	NO	bb	bb	101.689
13C-12378-PeCDF	29.806	1.171	1.051e6	6.125e5	1.297	1.716	1.550	4922	3645	1.42e7	8.62e6	2881.8	2364.6	NO	bd	bb	104.785
13C-23478-PeCDF	31.142	1.223	9.754e5	6.030e5	1.236	1.617	1.550	4922	3645	1.41e7	8.69e6	2860.8	2384.9	NO	bb	bb	104.321
13C-123478-HxCDF	34.785	0.955	4.274e5	8.307e5	1.242	0.514	0.510	5265	6298	6.41e6	1.24e7	1218.4	1973.2	NO	bd	bd	115.885
13C-123678-HxCDF	34.919	0.959	4.860e5	9.161e5	1.343	0.530	0.510	5265	6298	7.00e6	1.35e7	1330.1	2144.5	NO	db	db	119.442
13C-234678-HxCDF	35.788	0.983	3.967e5	7.587e5	1.215	0.523	0.510	5265	6298	5.75e6	1.13e7	1091.4	1799.0	NO	bb	bb	108.848
13C-123789-HxCDF	36.824	1.011	3.447e5	6.522e5	1.008	0.529	0.510	5265	6298	5.11e6	9.81e6	969.9	1558.1	NO	bb	bb	113.229
13C-1234678-HpCDF	38.674	1.062	3.005e5	6.203e5	0.926	0.484	0.440	3480	6125	4.35e6	9.34e6	1249.4	1525.5	NO	bd	bb	113.744
13C-1234789-HpCDF	40.902	1.123	2.223e5	5.047e5	0.758	0.440	0.440	3480	6125	2.90e6	6.30e6	833.4	1029.2	NO	bb	bb	109.773
13C-1234-TCDD	25.458	0.000	5.298e5	6.938e5	1.000	0.764	0.770	5513	2305	7.87e6	1.03e7	1428.2	4481.1	NO	bb	bb	100.000
13C-2378-TCDD	26.275	1.032	4.826e5	6.328e5	1.116	0.763	0.770	5513	2305	7.09e6	9.32e6	1285.5	4044.7	NO	bb	bb	81.637
13C-12378-PeCDD	31.399	1.233	5.423e5	3.395e5	0.732	1.598	1.550	2388	2135	7.53e6	4.95e6	3154.4	2319.5	NO	bb	bb	98.449
13C-123478-HxCDD	35.911	0.986	5.361e5	4.211e5	0.960	1.273	1.240	3574	5521	8.65e6	6.70e6	2421.3	1213.6	NO	bd	bd	114.124
13C-123678-HxCDD	36.022	0.989	6.017e5	4.857e5	1.041	1.239	1.240	3574	5521	9.06e6	7.24e6	2535.4	1311.0	NO	db	db	119.499
13C-1234678-HpCDD	40.167	1.103	3.074e5	3.031e5	0.632	1.014	1.050	3260	2760	4.30e6	4.19e6	1318.4	1519.0	NO	bb	bb	110.470
13C-OCDD	44.884	1.233	4.208e5	5.116e5	0.504	0.822	0.890	2744	3477	4.92e6	5.55e6	1792.3	1596.9	NO	bb	bd	211.835
13C-123789-HxCDD	36.412	0.000	4.843e5	3.895e5	1.000	1.243	1.240	3574	5521	7.18e6	5.79e6	2010.2	1047.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.305	1.033	1.379e5		1.084			1849		1.90e6		1029.2			bd		10.397

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
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ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.147	0.864	1.063e5	1.324e5	1.425	0.802	0.770	1727	2357	1.66e6	2.09e6	959.0	886.5	NO	bb	bb	9.436
1289-TCDF	27.152	1.059	5.661e4	7.137e4	1.043	0.793	0.770	1727	2357	8.15e5	1.06e6	472.0	447.8	NO	bb	bb	6.913
13468-PECDF	27.015	0.906	5.743e5	3.714e5	1.376	1.546	1.550	1557	1759	8.45e6	5.45e6	5425.9	3099.7	NO	bb	bb	41.310
12389-PECDF	32.201	1.080	4.075e5	2.638e5	1.000	1.544	1.550	6428	5298	5.63e6	3.72e6	875.5	702.7	NO	bb	bb	40.376
123468-HXCDF	33.125	0.952	4.315e5	3.546e5	1.087	1.217	1.240	6025	4489	6.40e6	5.20e6	1061.8	1158.1	NO	bb	bb	57.507
1368-TCDD	23.417	0.891	5.716e4	7.362e4	0.923	0.776	0.770	2440	1603	8.73e5	1.13e6	357.6	706.6	NO	bb	bb	12.700
1289-TCDD	26.895	1.024	4.776e4	6.026e4	0.794	0.793	0.770	2440	1603	6.91e5	8.63e5	283.1	538.1	NO	bb	bb	12.197
12479-PECDD	28.691	0.914	4.186e5	2.632e5	1.843	1.590	1.550	4032	3115	3.99e6	2.51e6	988.7	804.5	NO	bb	bb	41.945
12389-PECDD	31.822	1.013	2.780e5	1.664e5	1.154	1.671	1.550	4032	3115	4.00e6	2.46e6	992.1	791.3	NO	bb	bb	43.683
124679-HXCDD	33.905	0.944	3.632e5	2.896e5	1.125	1.254	1.240	4241	3010	5.57e6	4.44e6	1314.1	1475.1	NO	bb	bb	60.629
1234679-HPCDD	39.141	0.975	2.129e5	1.840e5	1.211	1.157	1.050	3111	3083	2.93e6	2.75e6	941.5	893.1	NO	bd	bb	53.689
Total-tetrafurans			2.574e5		1.192			1727		3.86e6							27.363
Total-penta1			5.743e5					1557		8.45e6							41.310
Total-pentafurans			1.602e6		1.047			6428		2.23e7							153.079
Total-hexafurans			1.898e6		1.045			6025		2.84e7							272.082
Total-heptafurans			6.227e5		1.305			5528		8.82e6							113.929
Total-Furans			5.291e6		1.158			1727		7.56e7							713.177
Total-tetradioxins			2.709e5		0.879			2440		3.41e6							62.800
Total-pentadioxins			9.817e5		1.331			4032		1.22e7							138.087
Total-hexadioxins			1.266e6		1.028			4241		1.92e7							219.741
Total-heptadioxins			3.886e5		1.140			3111		5.46e6							105.554
Total-Dioxins			3.171e6		1.092			2440		4.34e7							631.178
Total-TEQ			8.462e6					2440		1.19e8							1344.355
FUNCTION1 PFK			6.450e7					839971		2.37e8							
FUNCTION2 PFK			0.000e0					483349		0.00e0							
FUNCTION3 PFK			5.184e7					675979		4.54e8							0.000
FUNCTION4 PFK			3.964e5					425264		1.39e7							
FUNCTION5 PFK			3.414e4					345829		1.67e6							
FUNCTION1 HXCD...			2.903e3					1258		5.64e4							0.000
FUNCTION1 HPCD...			2.863e3					1421		5.44e4							0.000
FUNCTION2 HPCD...			2.720e3					1471		5.70e4							0.000
FUNCTION3 OCDPE			1.392e3					890		2.72e4							0.000
FUNCTION4 NCDPE			1.187e3					1520		2.23e4							0.000
FUNCTION5 DCDPE			1.665e2					1065		6.42e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
2	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
3	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
4	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
5	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
2	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
3	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
4	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
5	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
2	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020
7	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
8	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
9	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
10	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
11	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831
12	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
13	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
14	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
15	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
16	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003
17	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
18	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145
19	OCDF	45.14	3.368e5	3.743e5	1.447	0.90	0.89	729.8	YES	NO	bb	bb	105.415
20	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
2	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
3	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
4	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
5	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
6	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
2	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
3	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
4	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
2	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
3	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
4	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
5	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
6	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865
2	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
2	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
3	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
4	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
5	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
6	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057
7	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
8	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
9	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
10	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945
11	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
12	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
13	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
14	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
15	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
16	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325
17	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865
18	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689
19	OCDD	44.90	2.642e5	3.138e5	1.181	0.84	0.89	1050.3	YES	NO	bb	bd	104.997

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020
7	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
8	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
9	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
10	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
11	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831
12	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
13	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
14	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
15	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
16	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003
17	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
18	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145
19	OCDF	45.14	3.368e5	3.743e5	1.447	0.90	0.89	729.8	YES	NO	bb	bb	105.415
20	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310
21	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
22	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
23	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
24	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
25	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
26	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057
27	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
28	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
29	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
30	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945
31	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
32	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
33	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
34	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
35	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
36	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325
37	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689
39	OCDD	44.90	2.642e5	3.138e5	1.181	0.84	0.89	1050.3	YES	NO	bb	bd	104.997

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.34	1.094e7					29.2	YES		db		
2	FUNCTION1 PFK	22.07	1.938e7					38.3	YES		dd		
3	FUNCTION1 PFK	21.38	2.077e7					61.6	YES		dd		
4	FUNCTION1 PFK	21.25	7.452e6					64.7	YES		dd		
5	FUNCTION1 PFK	21.10	5.199e6					69.3	YES		bd		
6	FUNCTION1 PFK	27.62	5.202e4					1.5	NO		bb		
7	FUNCTION1 PFK	26.61	3.088e4					1.4	NO		bb		
8	FUNCTION1 PFK	26.53	3.772e4					1.3	NO		bb		
9	FUNCTION1 PFK	26.21	4.215e4					1.3	NO		bb		
10	FUNCTION1 PFK	26.14	2.091e4					0.7	NO		bb		
11	FUNCTION1 PFK	25.90	2.782e4					1.0	NO		bb		
12	FUNCTION1 PFK	25.64	2.244e4					0.9	NO		bb		
13	FUNCTION1 PFK	25.38	4.475e4					1.3	NO		bb		
14	FUNCTION1 PFK	25.32	8.085e4					1.5	NO		bb		
15	FUNCTION1 PFK	25.10	6.333e4					1.7	NO		db		
16	FUNCTION1 PFK	24.94	2.192e5					2.0	NO		dd		
17	FUNCTION1 PFK	24.82	2.857e4					1.1	NO		bd		
18	FUNCTION1 PFK	24.63	2.787e4					1.0	NO		bb		
19	FUNCTION1 PFK	24.35	1.463e4					0.7	NO		bb		
20	FUNCTION1 PFK	23.43	4.951e4					1.7	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
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ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.47	2.892e5					8.3	YES		dd		0.000
2	FUNCTION3 PFK	34.42	3.441e5					9.9	YES		dd		0.000
3	FUNCTION3 PFK	34.30	9.123e5					14.6	YES		dd		0.000
4	FUNCTION3 PFK	33.96	4.870e6					27.1	YES		dd		0.000
5	FUNCTION3 PFK	33.92	6.208e5					27.9	YES		dd		0.000
6	FUNCTION3 PFK	33.75	6.775e6					34.2	YES		dd		0.000
7	FUNCTION3 PFK	33.58	8.843e5					39.8	YES		dd		0.000
8	FUNCTION3 PFK	33.52	4.828e6					42.2	YES		dd		0.000
9	FUNCTION3 PFK	33.37	2.844e6					47.3	YES		dd		0.000
10	FUNCTION3 PFK	33.18	5.432e6					54.3	YES		dd		0.000
11	FUNCTION3 PFK	33.04	5.575e6					59.2	YES		dd		0.000
12	FUNCTION3 PFK	32.95	3.680e6					62.9	YES		dd		0.000
13	FUNCTION3 PFK	32.86	7.904e6					65.6	YES		dd		0.000
14	FUNCTION3 PFK	32.74	1.549e6					69.1	YES		dd		0.000
15	FUNCTION3 PFK	32.67	4.268e6					72.4	YES		bd		0.000
16	FUNCTION3 PFK	36.86	8.449e3					0.3	NO		bb		0.000
17	FUNCTION3 PFK	36.72	6.925e4					2.0	NO		bb		0.000
18	FUNCTION3 PFK	36.59	5.799e4					1.2	NO		bb		0.000
19	FUNCTION3 PFK	36.30	7.563e3					0.7	NO		bb		0.000
20	FUNCTION3 PFK	36.04	6.922e3					0.5	NO		bb		0.000
21	FUNCTION3 PFK	35.83	2.532e4					1.1	NO		bb		0.000
22	FUNCTION3 PFK	35.75	1.516e4					0.9	NO		bb		0.000
23	FUNCTION3 PFK	35.63	1.004e4					0.7	NO		bb		0.000
24	FUNCTION3 PFK	35.33	1.433e4					0.8	NO		bb		0.000
25	FUNCTION3 PFK	35.04	1.089e4					0.6	NO		bb		0.000
26	FUNCTION3 PFK	34.97	5.517e3					0.7	NO		bb		0.000
27	FUNCTION3 PFK	34.89	3.001e4					1.0	NO		bb		0.000
28	FUNCTION3 PFK	34.81	1.594e4					1.0	NO		db		0.000
29	FUNCTION3 PFK	34.76	3.092e4					1.3	NO		bd		0.000
30	FUNCTION3 PFK	34.60	1.659e5					4.5	YES		db		0.000
31	FUNCTION3 PFK	34.53	2.985e5					6.7	YES		dd		0.000
32	FUNCTION3 PFK	37.64	2.742e4					1.1	NO		bb		0.000
33	FUNCTION3 PFK	37.58	2.711e4					1.4	NO		db		0.000
34	FUNCTION3 PFK	37.54	1.758e4					0.9	NO		dd		0.000
35	FUNCTION3 PFK	37.49	3.447e4					1.6	NO		dd		0.000
36	FUNCTION3 PFK	37.45	2.646e4					1.5	NO		dd		0.000
37	FUNCTION3 PFK	37.38	4.745e4					1.5	NO		dd		0.000

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Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	37.34	2.452e4					1.6	NO		bd		0.000
39	FUNCTION3 PFK	37.29	9.653e3					0.8	NO		bb		0.000
40	FUNCTION3 PFK	37.08	5.064e3					0.5	NO		bb		0.000
41	FUNCTION3 PFK	36.98	6.612e4					1.7	NO		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.42	2.469e3					0.5	NO		bb		
2	FUNCTION4 PFK	38.08	2.954e4					1.7	NO		bb		
3	FUNCTION4 PFK	37.98	4.856e4					2.3	NO		db		
4	FUNCTION4 PFK	37.94	3.614e4					2.6	NO		bd		
5	FUNCTION4 PFK	37.85	8.390e3					1.0	NO		bb		
6	FUNCTION4 PFK	40.91	1.035e4					1.0	NO		bb		
7	FUNCTION4 PFK	40.71	1.742e3					0.4	NO		bb		
8	FUNCTION4 PFK	40.68	3.176e3					0.5	NO		bb		
9	FUNCTION4 PFK	40.61	6.362e3					0.7	NO		bb		
10	FUNCTION4 PFK	40.38	7.075e3					0.8	NO		bb		
11	FUNCTION4 PFK	40.32	3.115e4					1.2	NO		bb		
12	FUNCTION4 PFK	39.94	4.461e3					0.6	NO		bb		
13	FUNCTION4 PFK	39.80	5.746e3					0.6	NO		bb		
14	FUNCTION4 PFK	39.51	2.799e3					0.4	NO		bb		
15	FUNCTION4 PFK	39.43	1.949e3					0.4	NO		bb		
16	FUNCTION4 PFK	39.36	2.879e3					0.6	NO		bb		
17	FUNCTION4 PFK	39.32	5.365e3					1.1	NO		bb		
18	FUNCTION4 PFK	39.28	3.621e3					0.8	NO		bb		
19	FUNCTION4 PFK	39.21	1.666e4					1.0	NO		bb		
20	FUNCTION4 PFK	39.07	6.512e3					0.8	NO		bb		
21	FUNCTION4 PFK	38.46	1.263e4					1.2	NO		bb		
22	FUNCTION4 PFK	42.68	1.445e4					0.9	NO		bb		
23	FUNCTION4 PFK	42.62	2.052e4					1.7	NO		bb		
24	FUNCTION4 PFK	42.51	2.321e3					0.5	NO		bb		
25	FUNCTION4 PFK	42.43	3.121e4					1.9	NO		bb		
26	FUNCTION4 PFK	42.18	7.742e3					0.8	NO		bb		
27	FUNCTION4 PFK	42.05	1.748e4					1.2	NO		db		
28	FUNCTION4 PFK	41.97	1.470e4					1.2	NO		bd		
29	FUNCTION4 PFK	41.63	2.487e3					0.5	NO		bb		
30	FUNCTION4 PFK	41.48	1.442e4					1.2	NO		bb		
31	FUNCTION4 PFK	41.24	1.211e4					1.0	NO		bb		
32	FUNCTION4 PFK	41.17	1.136e4					1.2	NO		bb		

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.97	5.710e3					1.0	NO		bb		
2	FUNCTION5 PFK	45.74	1.859e3					0.6	NO		bb		
3	FUNCTION5 PFK	43.26	1.526e4					1.8	NO		bb		
4	FUNCTION5 PFK	42.93	1.131e4					1.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.35	1.892e2					4.2	YES		db		0.000
2	FUNCTION1 HXCD...	25.23	1.187e2					1.3	NO		bd		0.000
3	FUNCTION1 HXCD...	24.87	7.961e1					1.9	NO		db		0.000
4	FUNCTION1 HXCD...	24.81	1.259e2					2.7	NO		bd		0.000
5	FUNCTION1 HXCD...	24.72	1.584e2					1.4	NO		bb		0.000
6	FUNCTION1 HXCD...	24.40	9.113e1					1.6	NO		bb		0.000
7	FUNCTION1 HXCD...	23.72	7.480e1					1.5	NO		bb		0.000
8	FUNCTION1 HXCD...	23.61	1.381e2					2.9	NO		bb		0.000
9	FUNCTION1 HXCD...	23.11	9.740e1					2.5	NO		bb		0.000
10	FUNCTION1 HXCD...	22.43	1.791e2					2.1	NO		db		0.000
11	FUNCTION1 HXCD...	22.30	7.125e1					1.5	NO		bd		0.000
12	FUNCTION1 HXCD...	22.19	7.195e1					1.3	NO		bb		0.000
13	FUNCTION1 HXCD...	21.98	1.102e2					1.5	NO		db		0.000
14	FUNCTION1 HXCD...	21.89	2.251e2					4.2	YES		bd		0.000
15	FUNCTION1 HXCD...	21.80	1.414e2					2.0	NO		bb		0.000
16	FUNCTION1 HXCD...	27.03	2.453e2					2.4	NO		bb		0.000
17	FUNCTION1 HXCD...	26.29	2.686e2					2.1	NO		db		0.000
18	FUNCTION1 HXCD...	26.12	1.763e2					2.9	NO		dd		0.000
19	FUNCTION1 HXCD...	26.03	9.387e1					1.2	NO		bd		0.000
20	FUNCTION1 HXCD...	25.82	1.399e2					2.0	NO		bb		0.000
21	FUNCTION1 HXCD...	25.46	1.064e2					1.7	NO		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	22.51	7.992e1					1.4	NO		bb		0.000
2	FUNCTION1 HPCD...	22.07	1.029e2					2.1	NO		bb		0.000
3	FUNCTION1 HPCD...	21.98	1.510e2					1.6	NO		db		0.000
4	FUNCTION1 HPCD...	21.88	1.949e2					3.5	YES		bd		0.000
5	FUNCTION1 HPCD...	21.75	2.528e2					1.8	NO		bb		0.000
6	FUNCTION1 HPCD...	21.47	1.508e2					2.1	NO		bb		0.000
7	FUNCTION1 HPCD...	21.25	1.018e2					1.3	NO		db		0.000
8	FUNCTION1 HPCD...	21.16	1.149e2					1.6	NO		dd		0.000
9	FUNCTION1 HPCD...	21.09	2.200e2					3.0	NO		bd		0.000
10	FUNCTION1 HPCD...	27.00	1.586e2					1.8	NO		bb		0.000
11	FUNCTION1 HPCD...	26.83	9.159e1					0.8	NO		bb		0.000
12	FUNCTION1 HPCD...	26.59	1.663e2					2.5	NO		bb		0.000
13	FUNCTION1 HPCD...	26.32	1.753e2					1.6	NO		db		0.000
14	FUNCTION1 HPCD...	26.14	2.616e2					2.2	NO		bd		0.000
15	FUNCTION1 HPCD...	25.59	8.230e1					1.9	NO		bb		0.000
16	FUNCTION1 HPCD...	25.44	8.713e1					1.0	NO		bb		0.000
17	FUNCTION1 HPCD...	25.16	7.125e1					1.1	NO		db		0.000
18	FUNCTION1 HPCD...	25.05	1.030e2					1.1	NO		bd		0.000
19	FUNCTION1 HPCD...	24.07	1.494e2					2.5	NO		bb		0.000
20	FUNCTION1 HPCD...	23.83	1.478e2					3.3	YES		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.48	1.146e2					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	28.07	8.040e1					1.2	NO		db		0.000
3	FUNCTION2 HPCD...	27.98	1.117e2					1.5	NO		bd		0.000
4	FUNCTION2 HPCD...	27.82	9.308e1					2.0	NO		bb		0.000
5	FUNCTION2 HPCD...	31.82	1.073e2					1.6	NO		bb		0.000
6	FUNCTION2 HPCD...	31.41	3.440e2					4.0	YES		bb		0.000
7	FUNCTION2 HPCD...	31.18	9.044e1					1.2	NO		db		0.000
8	FUNCTION2 HPCD...	31.11	9.781e1					2.1	NO		dd		0.000
9	FUNCTION2 HPCD...	31.03	7.279e2					8.6	YES		bd		0.000
10	FUNCTION2 HPCD...	30.26	7.257e1					1.3	NO		bb		0.000
11	FUNCTION2 HPCD...	30.21	7.122e1					1.7	NO		db		0.000
12	FUNCTION2 HPCD...	30.14	1.157e2					1.5	NO		dd		0.000
13	FUNCTION2 HPCD...	30.06	7.412e1					1.1	NO		dd		0.000
14	FUNCTION2 HPCD...	29.98	7.219e1					1.2	NO		dd		0.000
15	FUNCTION2 HPCD...	29.91	9.212e1					2.0	NO		bd		0.000
16	FUNCTION2 HPCD...	29.69	7.977e1					1.3	NO		bb		0.000
17	FUNCTION2 HPCD...	29.08	1.408e2					1.5	NO		db		0.000
18	FUNCTION2 HPCD...	28.96	1.497e2					1.4	NO		bd		0.000
19	FUNCTION2 HPCD...	28.71	8.490e1					1.0	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.65	1.580e2					2.6	NO		db		0.000
2	FUNCTION3 OCDPE	37.55	1.150e2					2.8	NO		bd		0.000
3	FUNCTION3 OCDPE	36.42	1.835e2					2.9	NO		bb		0.000
4	FUNCTION3 OCDPE	36.04	2.520e2					4.7	YES		db		0.000
5	FUNCTION3 OCDPE	35.93	1.106e2					3.8	YES		dd		0.000
6	FUNCTION3 OCDPE	35.90	1.018e2					3.4	YES		bd		0.000
7	FUNCTION3 OCDPE	34.40	1.321e2					5.0	YES		bb		0.000
8	FUNCTION3 OCDPE	33.58	1.010e2					2.3	NO		bb		0.000
9	FUNCTION3 OCDPE	32.70	2.382e2					3.1	YES		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.42	7.136e1					0.9	NO		bb		0.000
2	FUNCTION4 NCDPE	40.16	1.641e2					1.6	NO		bb		0.000
3	FUNCTION4 NCDPE	39.69	1.182e2					1.5	NO		bb		0.000
4	FUNCTION4 NCDPE	38.52	1.487e2					1.6	NO		db		0.000
5	FUNCTION4 NCDPE	38.34	2.790e2					2.3	NO		dd		0.000
6	FUNCTION4 NCDPE	38.26	1.556e2					2.2	NO		bd		0.000
7	FUNCTION4 NCDPE	41.34	1.448e2					1.6	NO		bb		0.000
8	FUNCTION4 NCDPE	40.81	1.056e2					2.8	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.58	7.112e1					3.0	NO		bb		0.000
2	FUNCTION5 DCDPE	43.59	9.542e1					3.1	YES		bb		0.000

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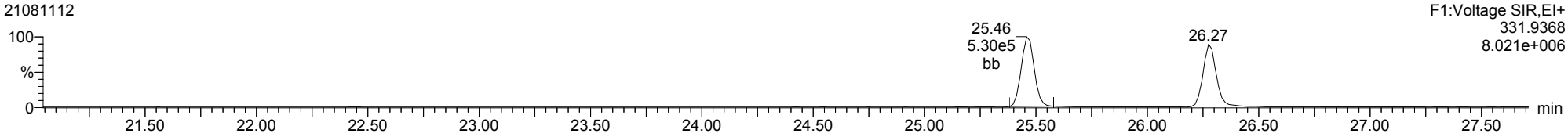

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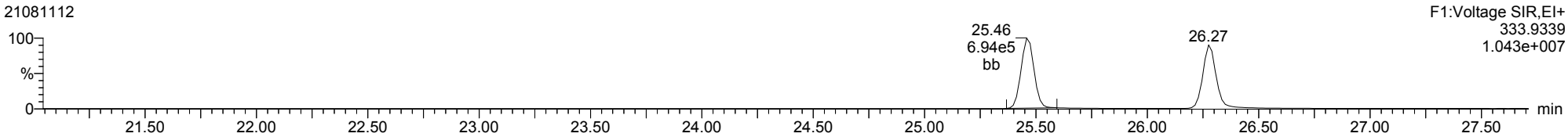

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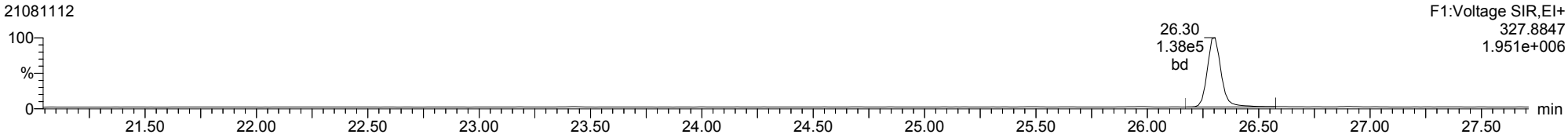

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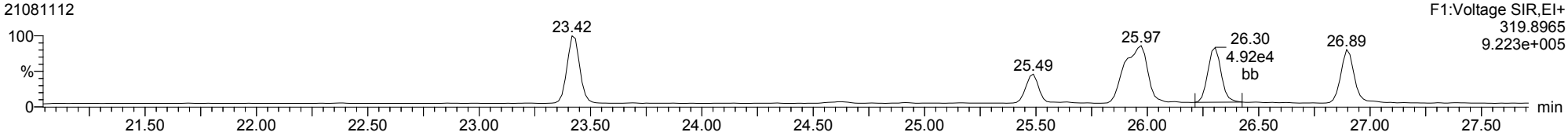

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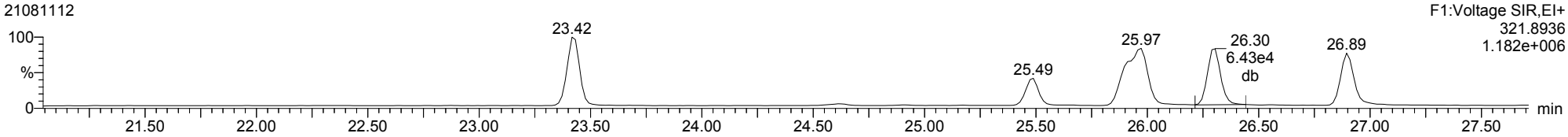

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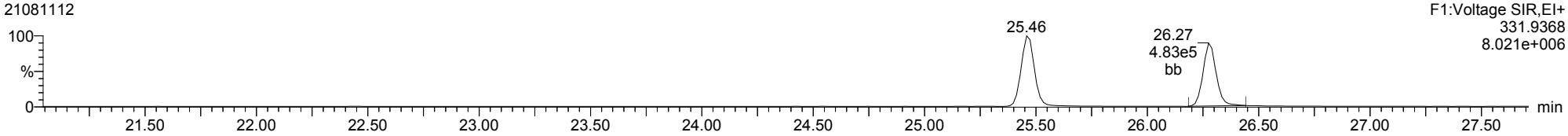

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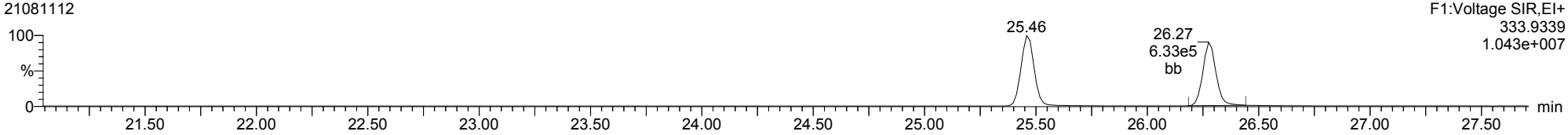

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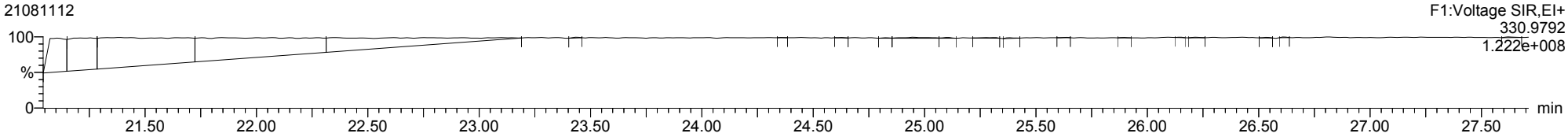

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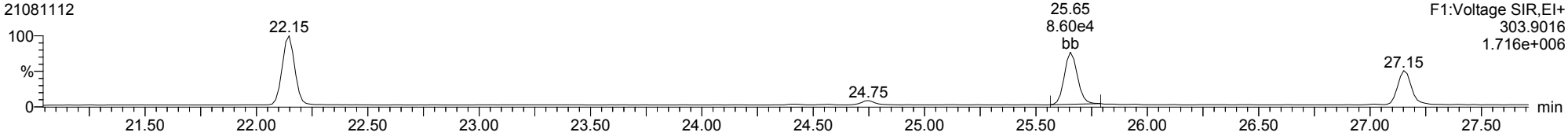

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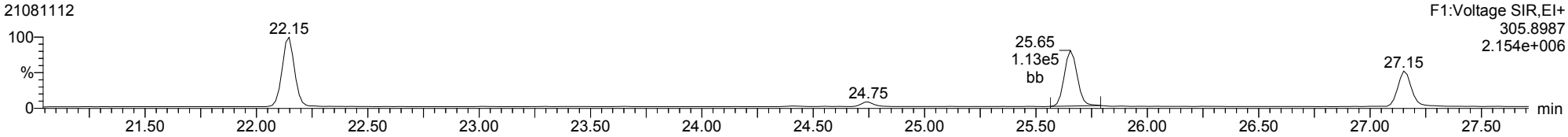

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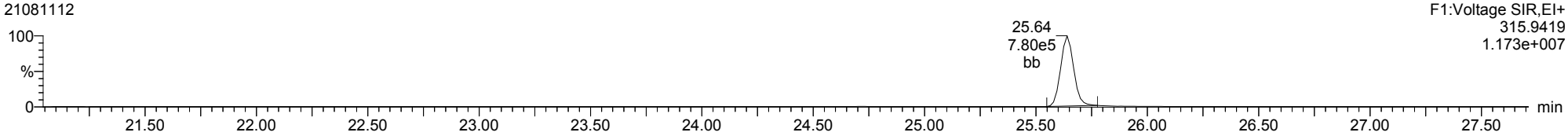

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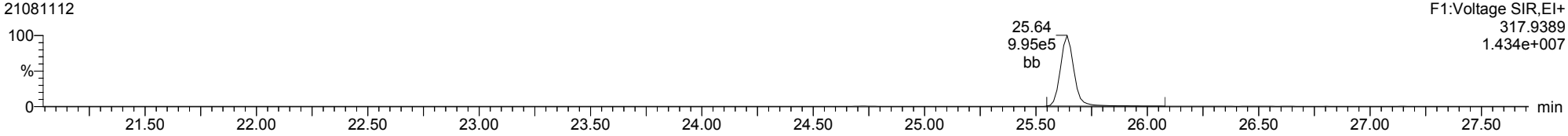

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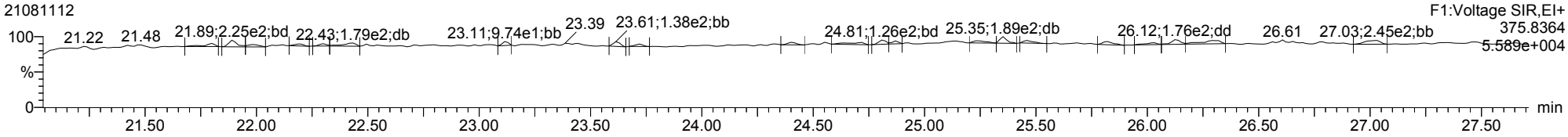

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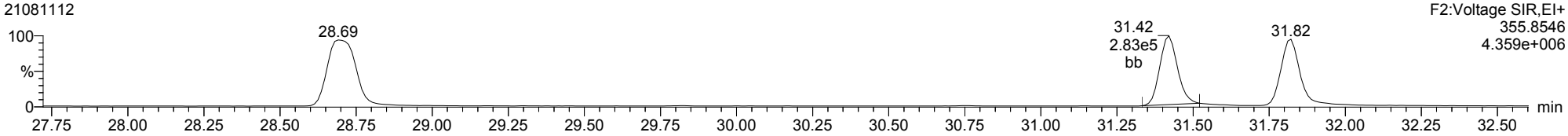

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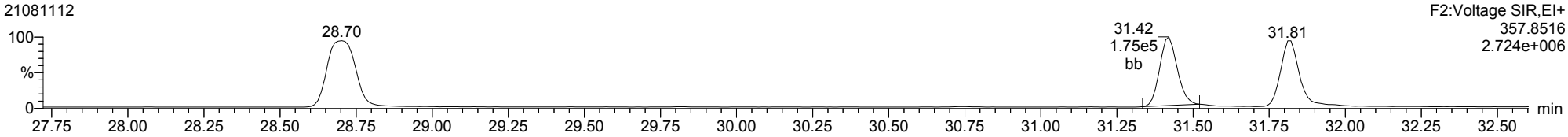

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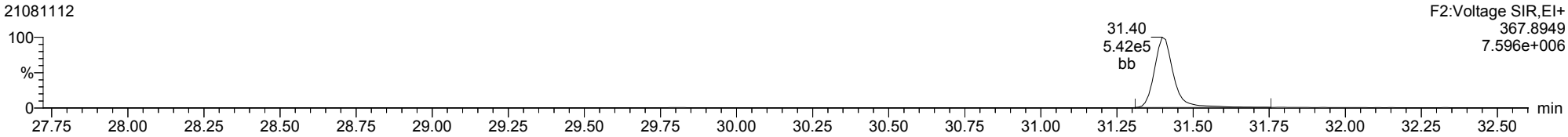

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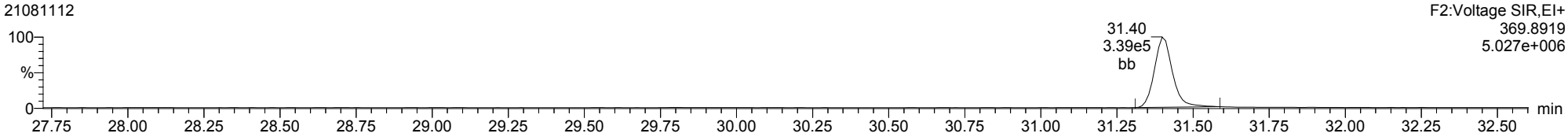
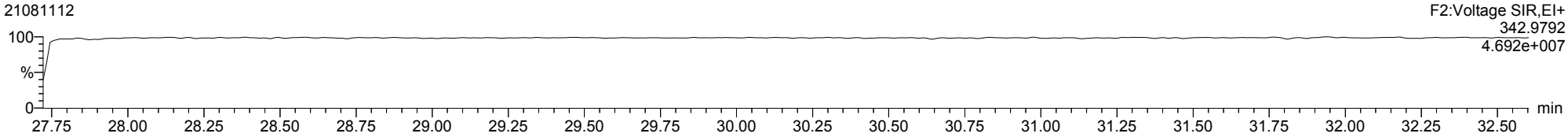


FUNCTION2 PFK



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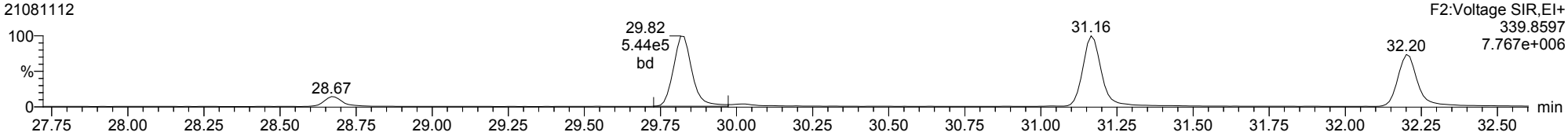

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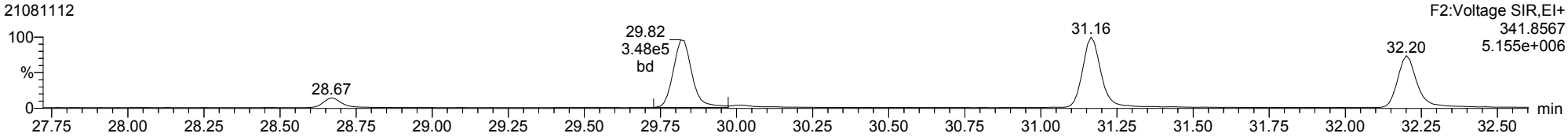

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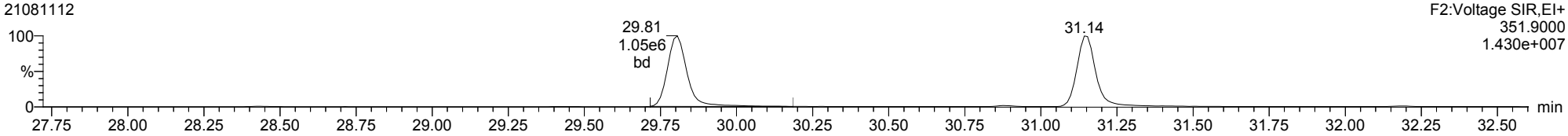

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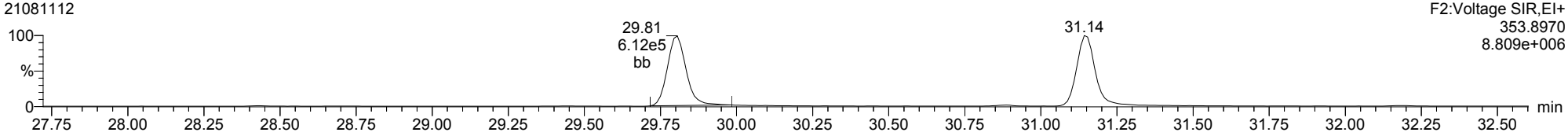

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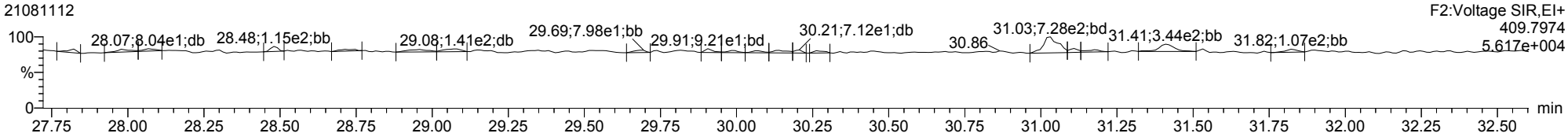

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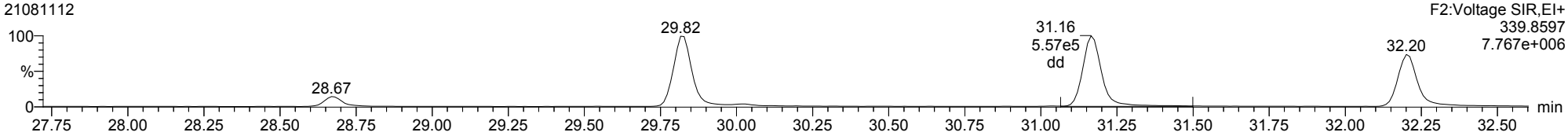

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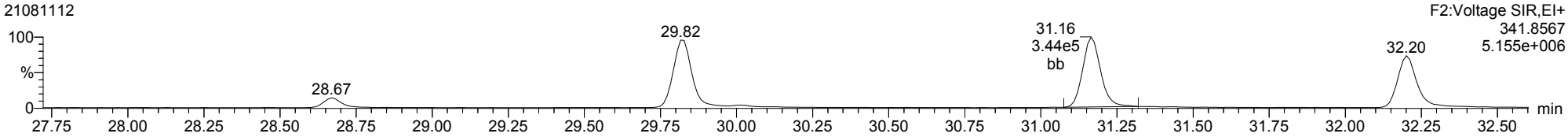

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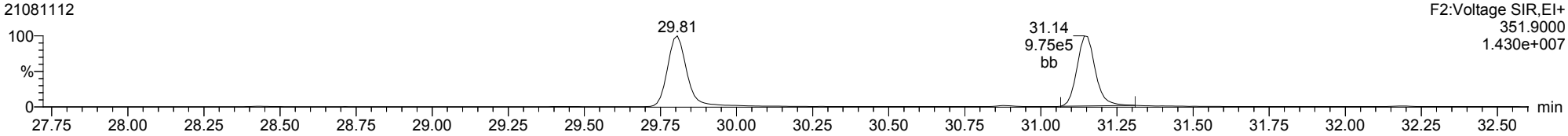

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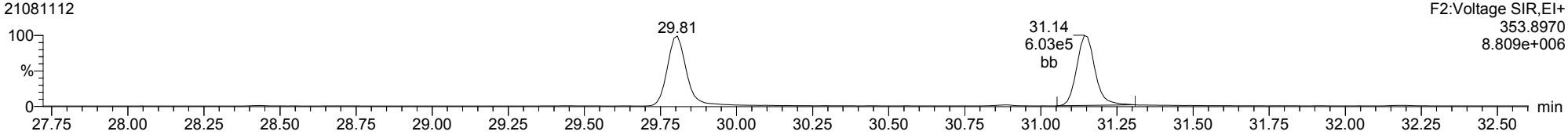

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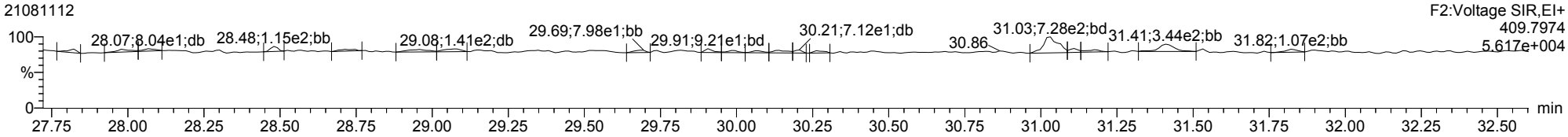

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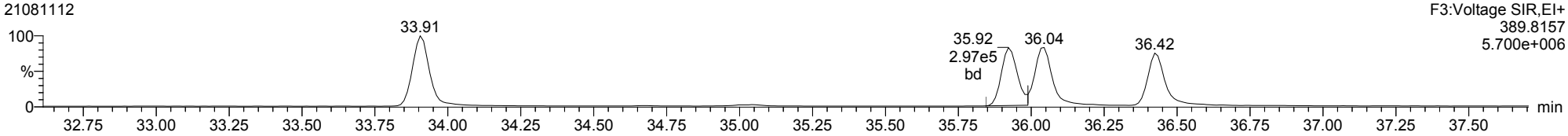

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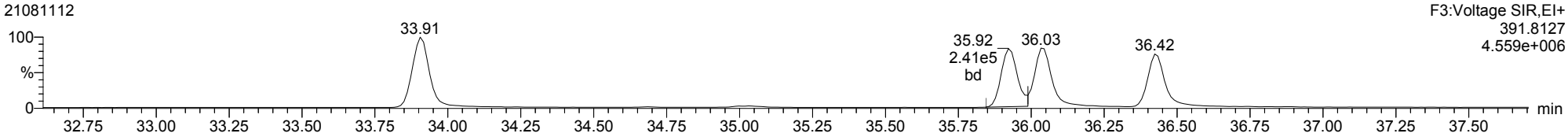

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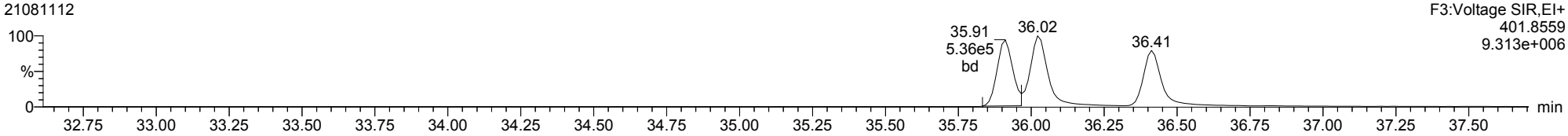

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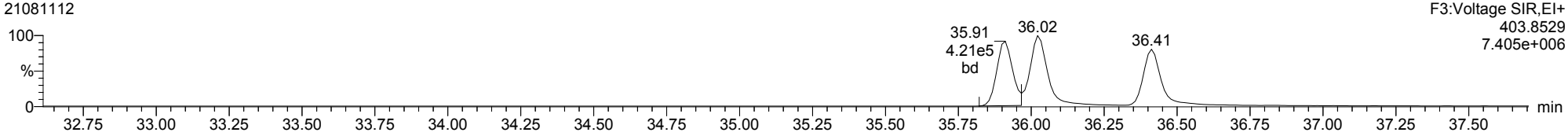

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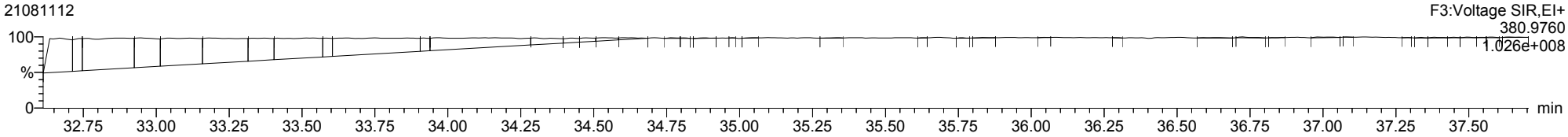

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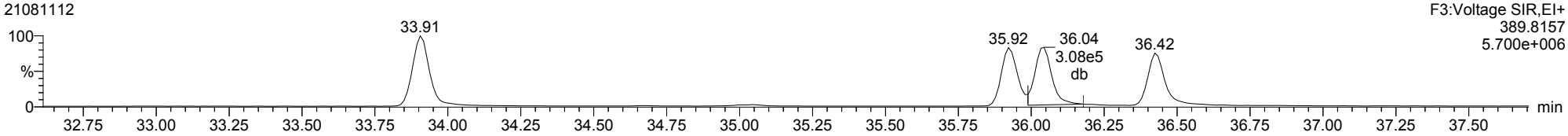

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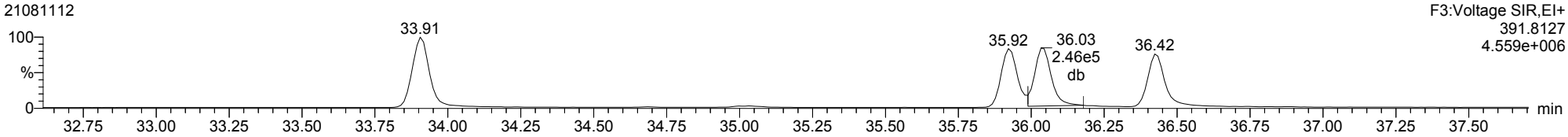

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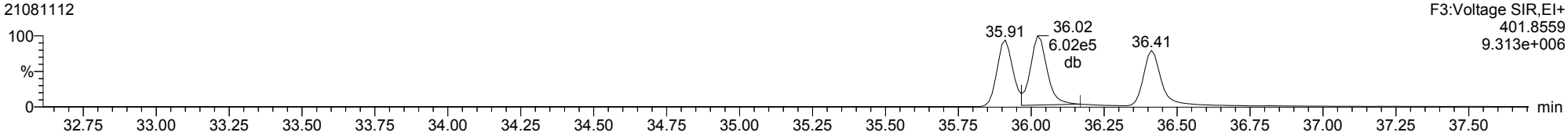

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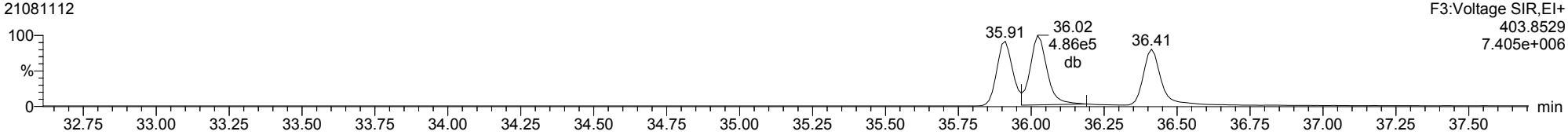

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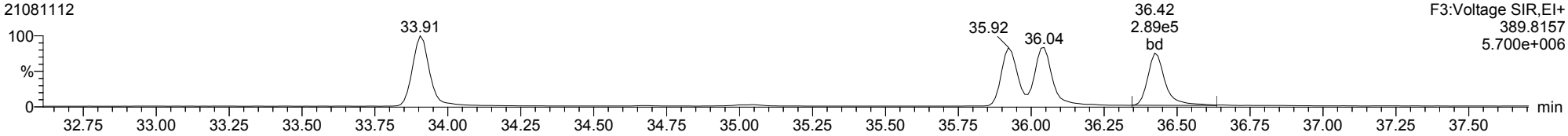

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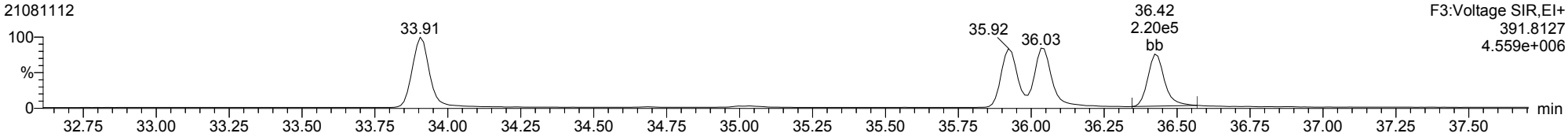

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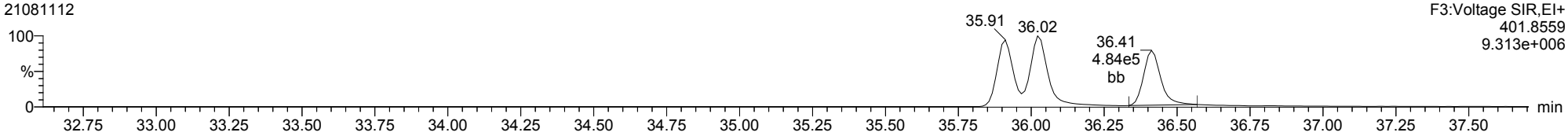

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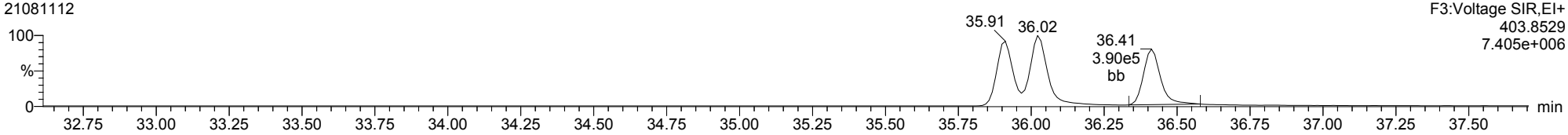

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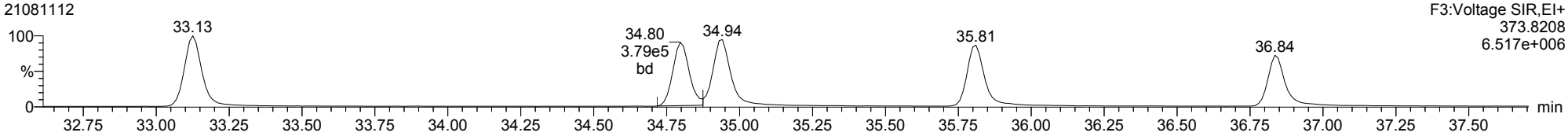

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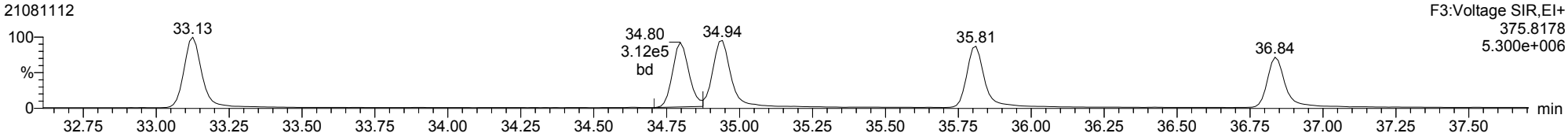

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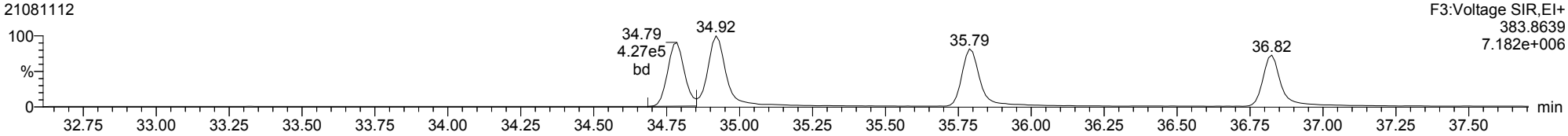

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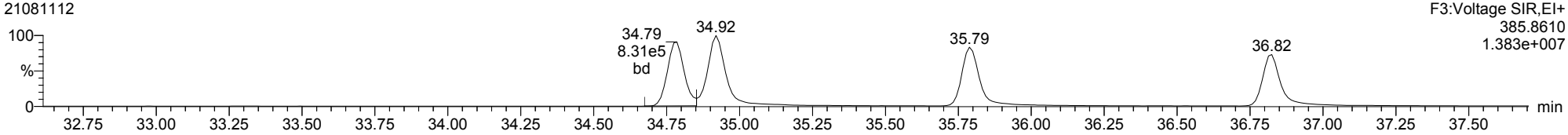

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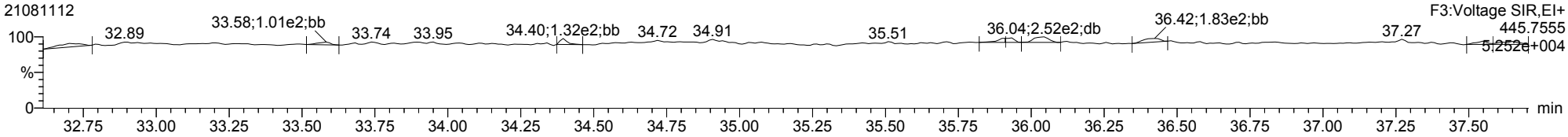

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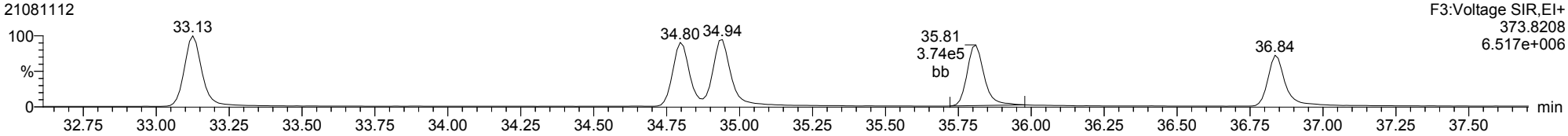

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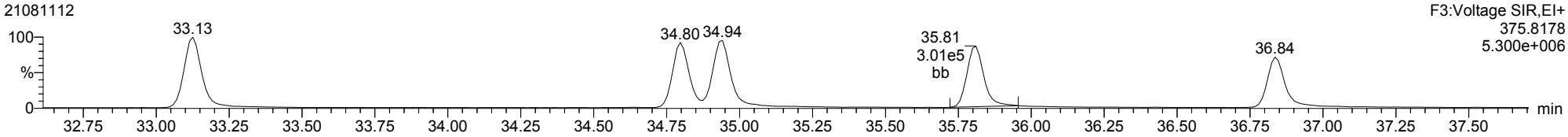

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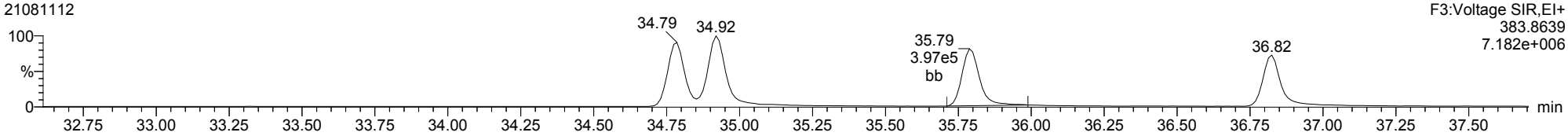

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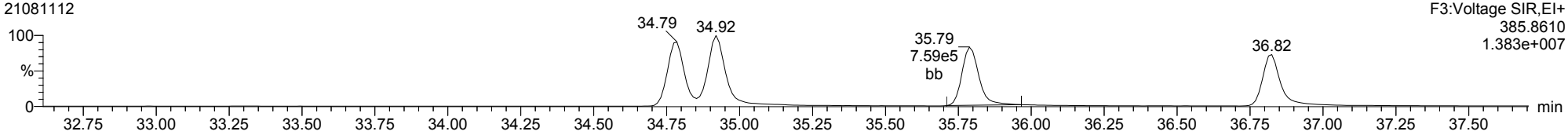

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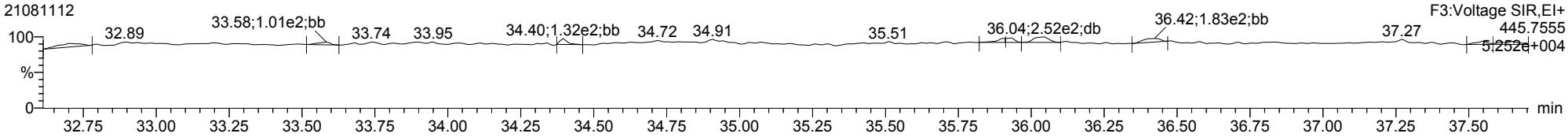

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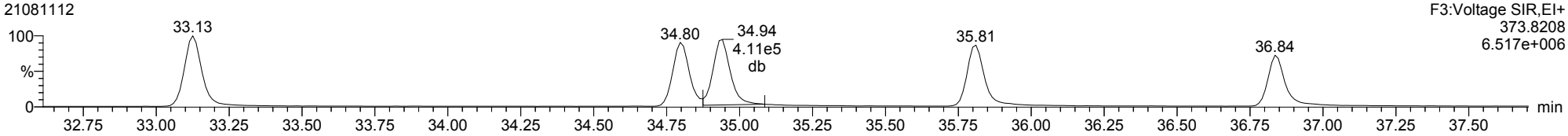

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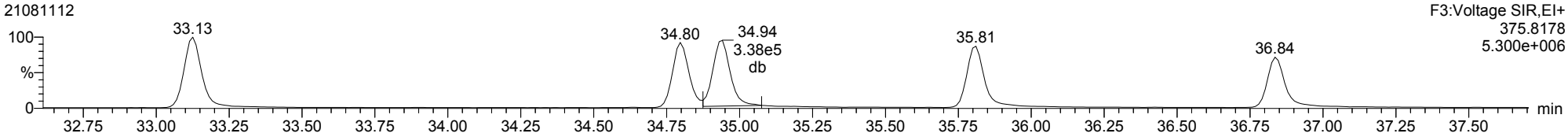

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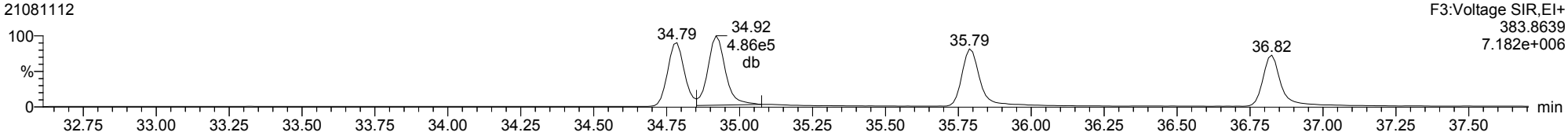

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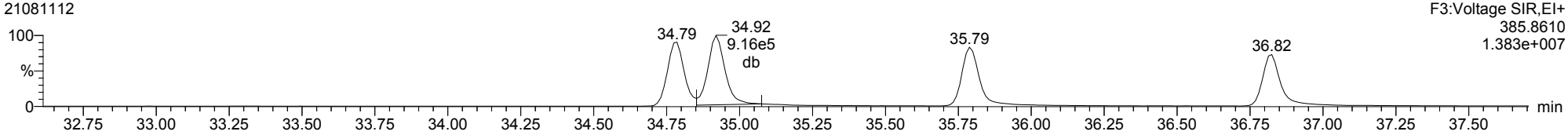

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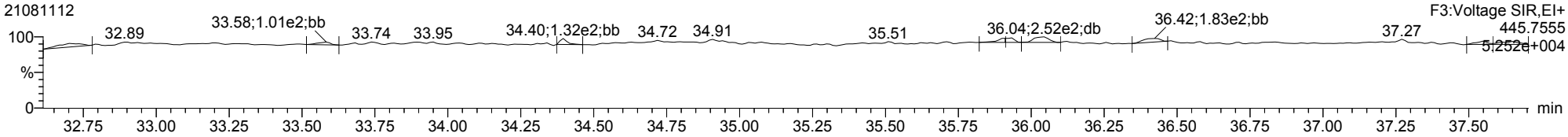

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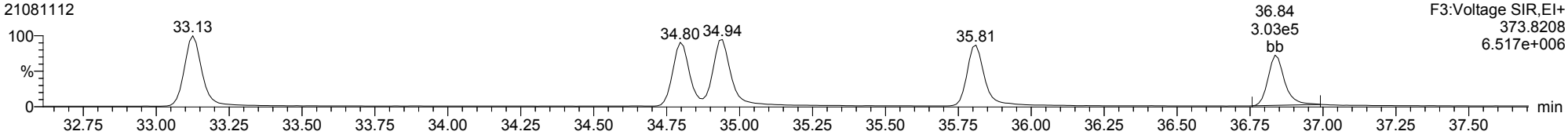

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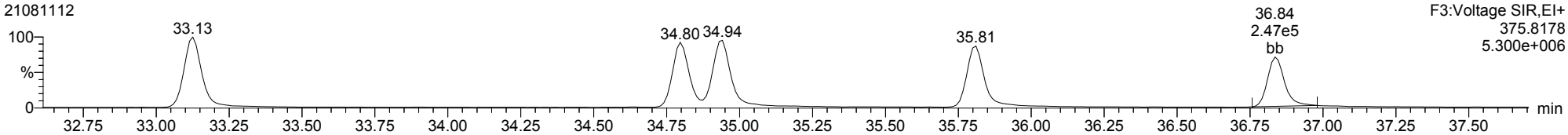

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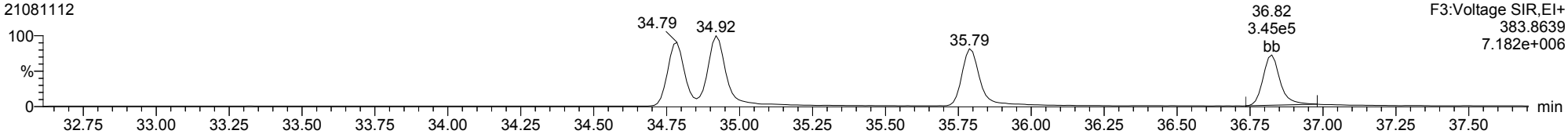

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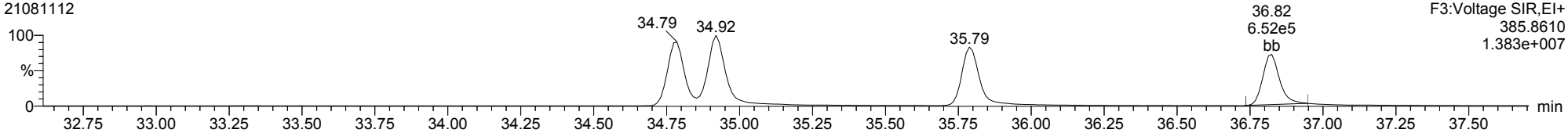

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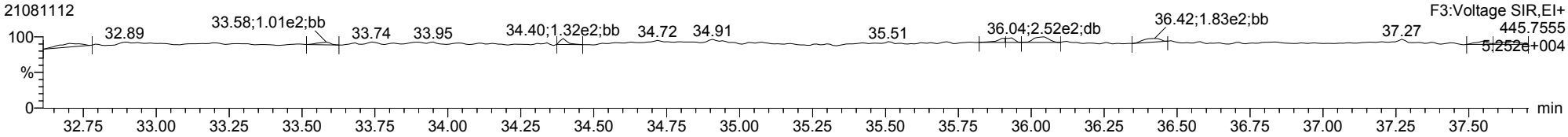

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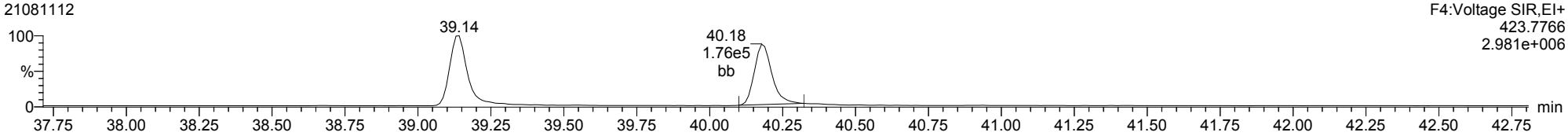

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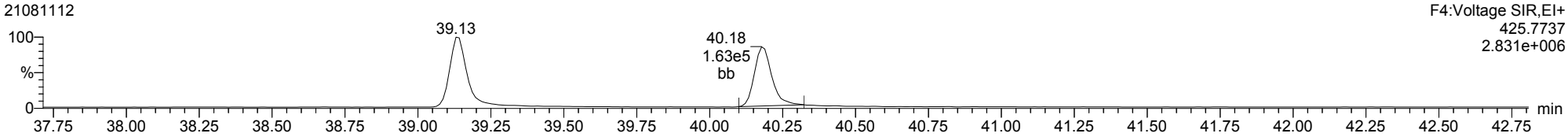

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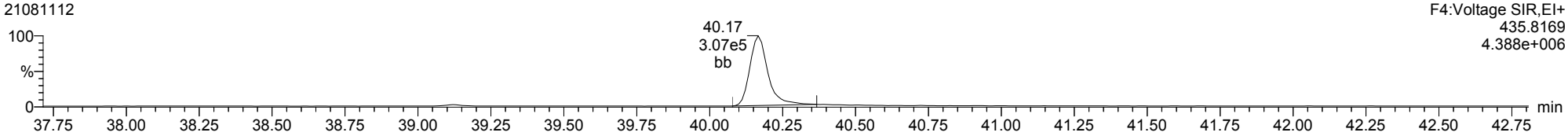

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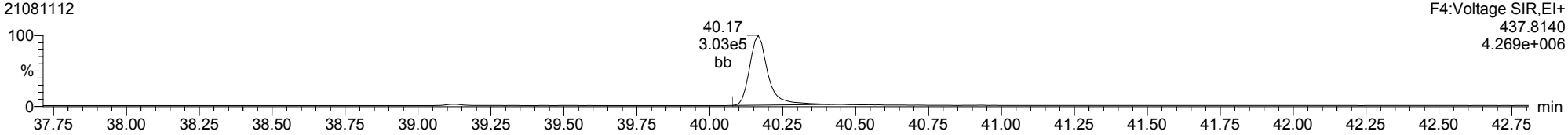

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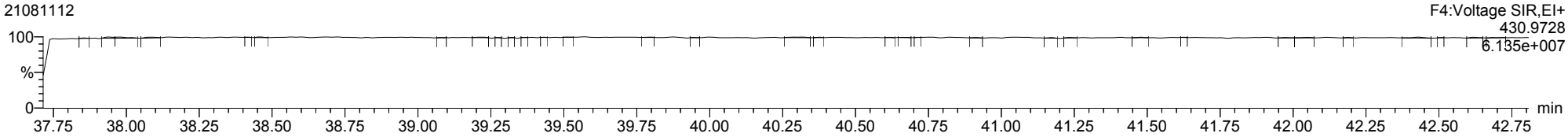

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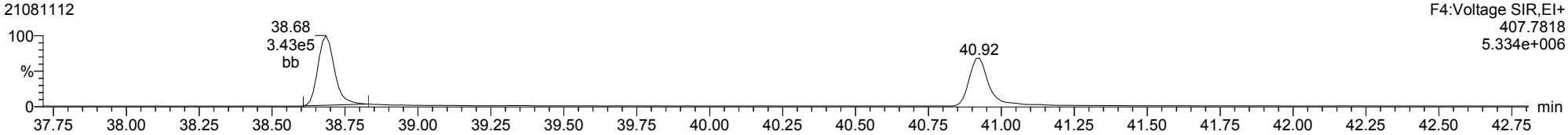

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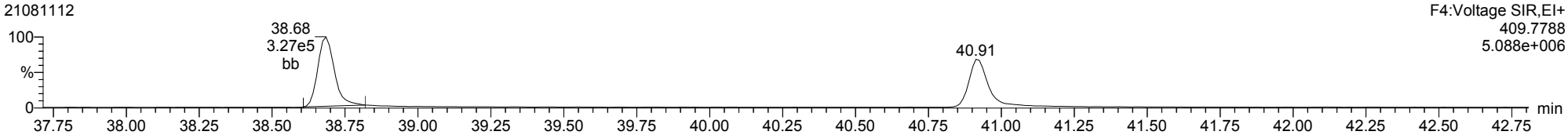

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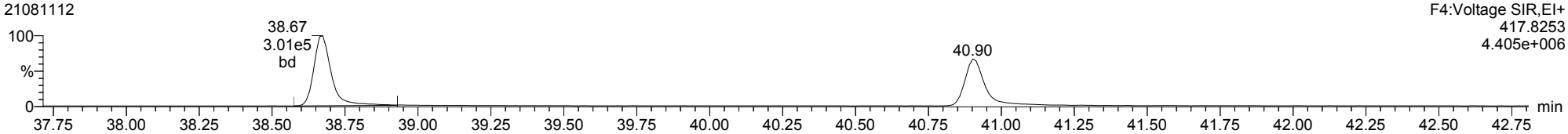

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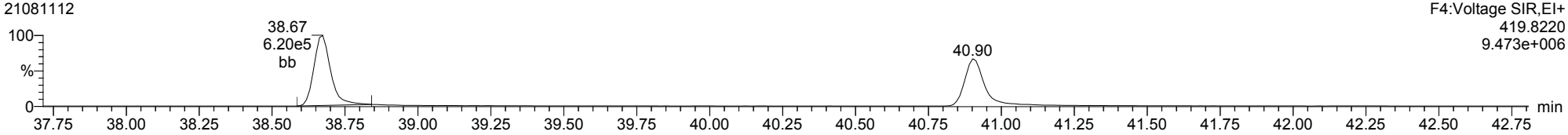
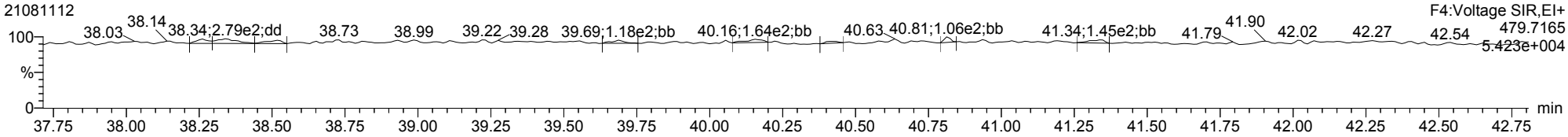


FUNCTION4 NCDPE



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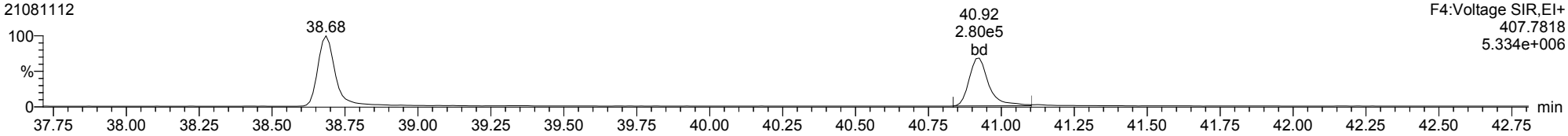
1234789-HpCDF



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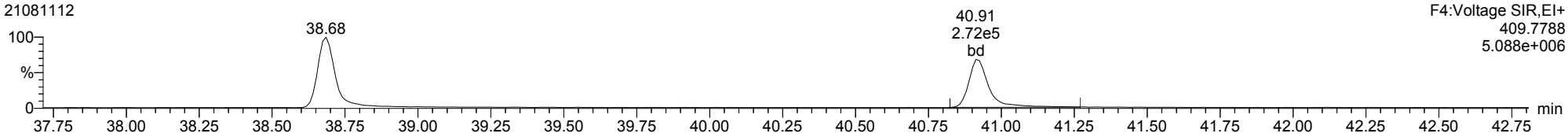

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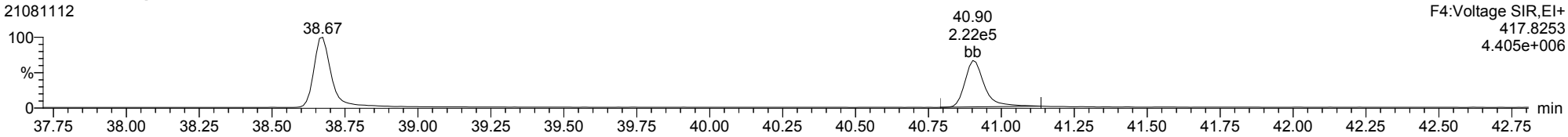

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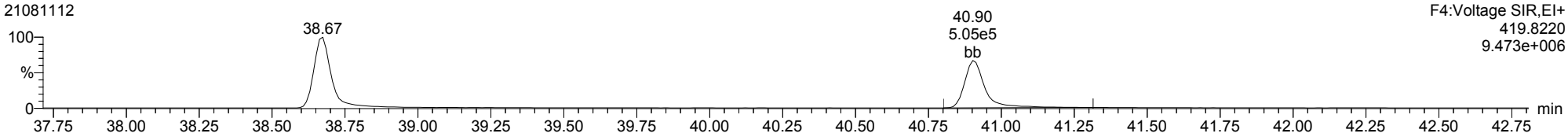
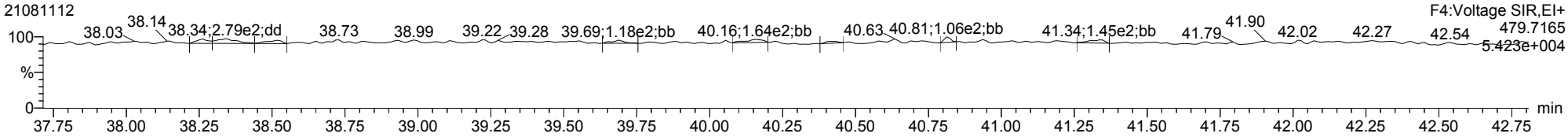


FUNCTION4 NCDPE



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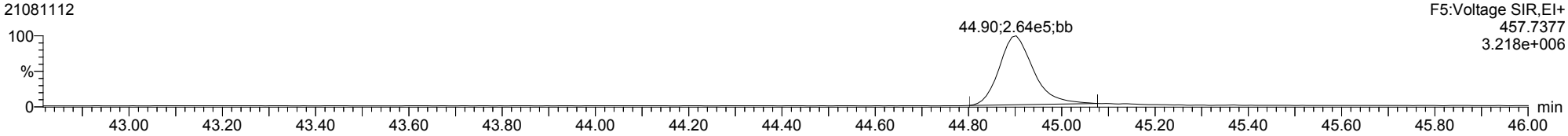
OCDD



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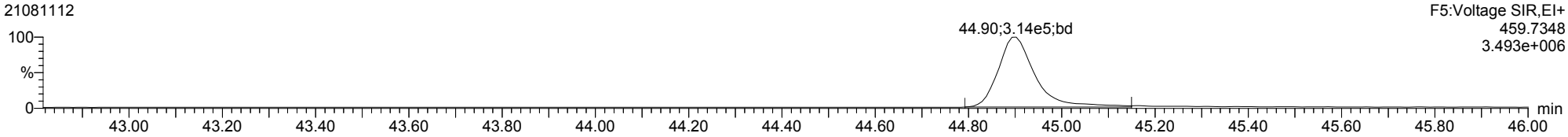

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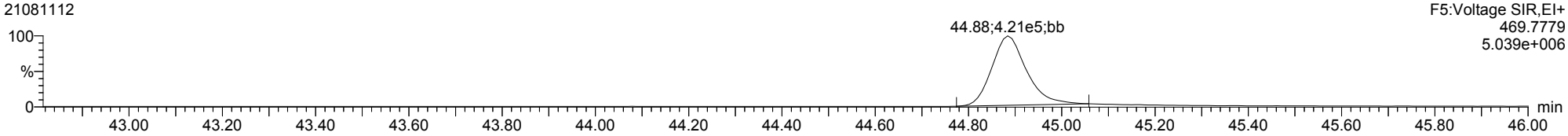

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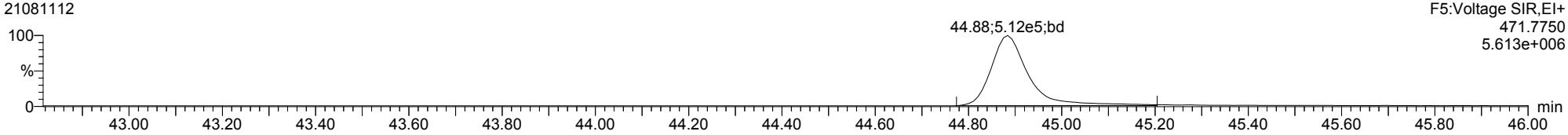
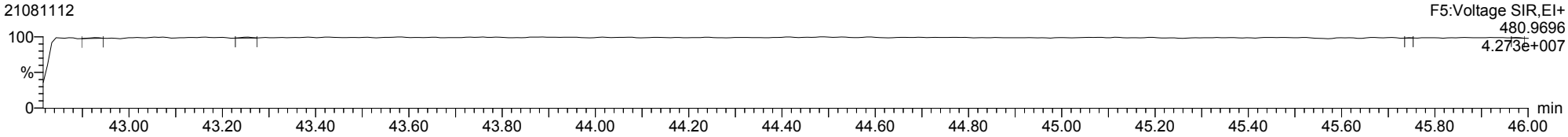


FUNCTION5 PFK



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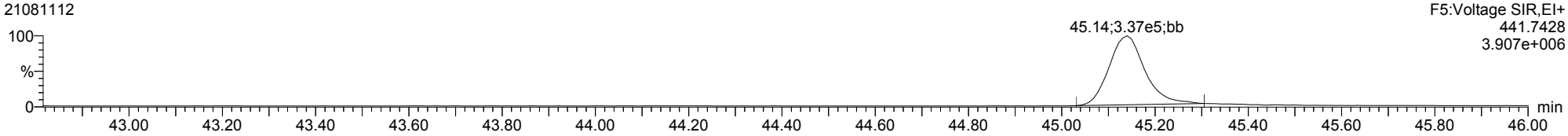

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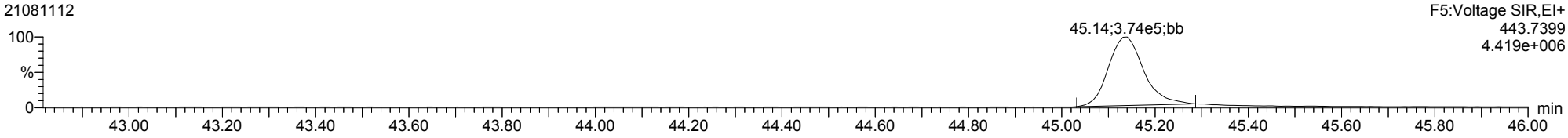
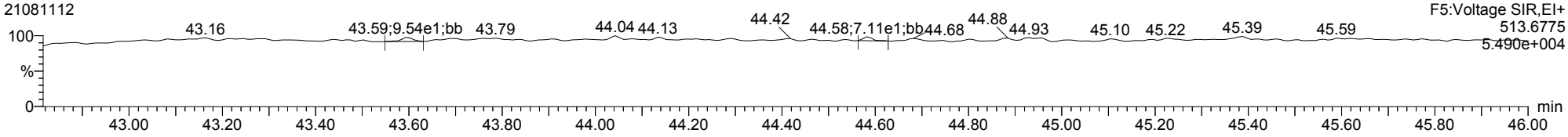
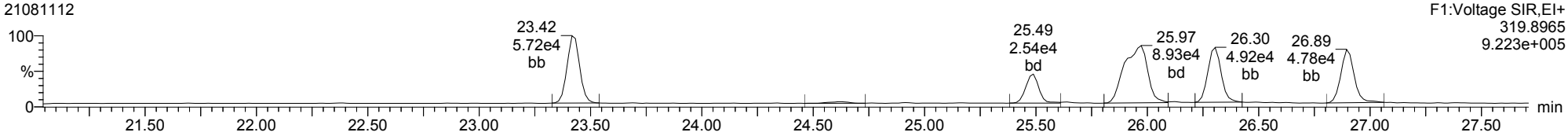


FUNCTION5 DCDPE

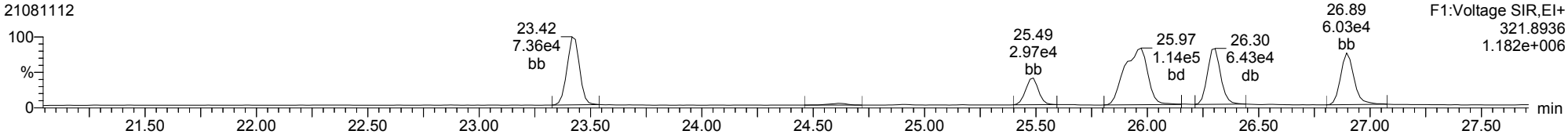


ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



Total-tetradioxins



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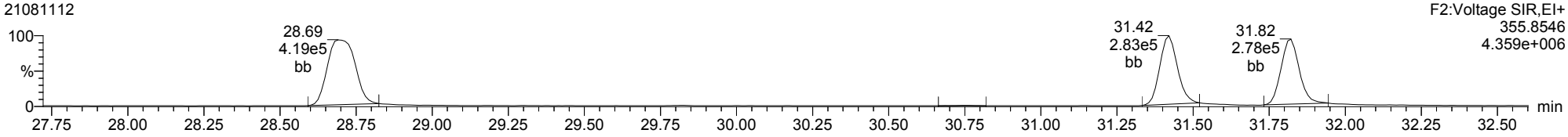
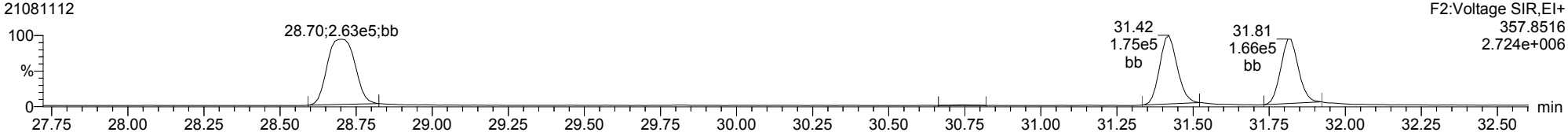


Total-pentadioxins



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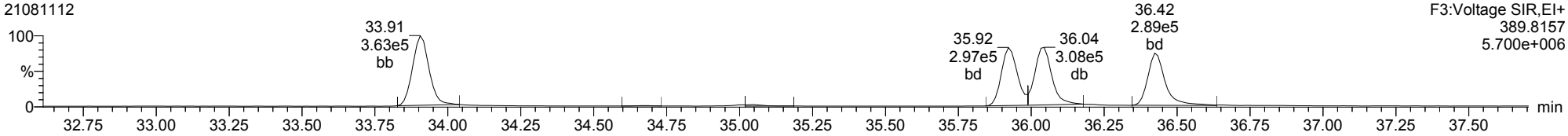
Total-hexadioxins



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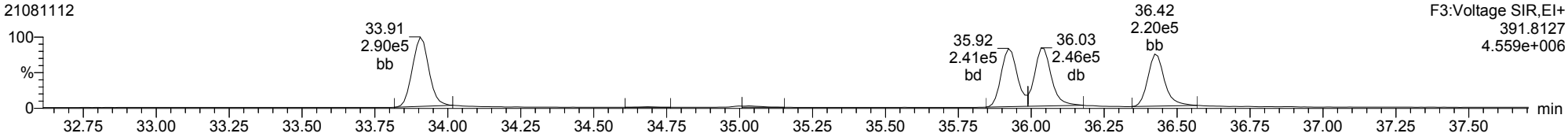

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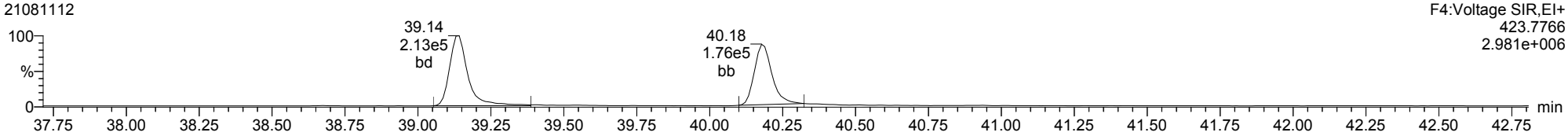
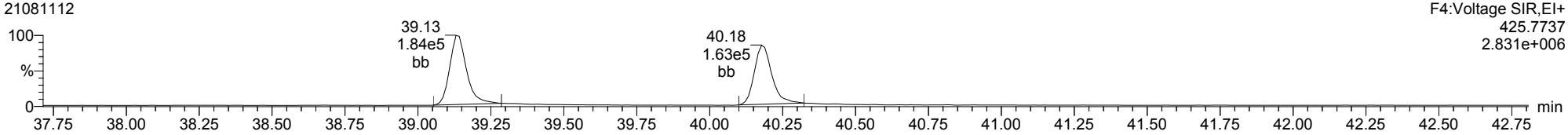


Total-heptadioxins



ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

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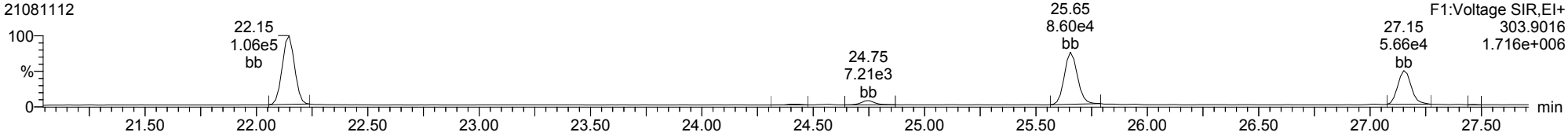

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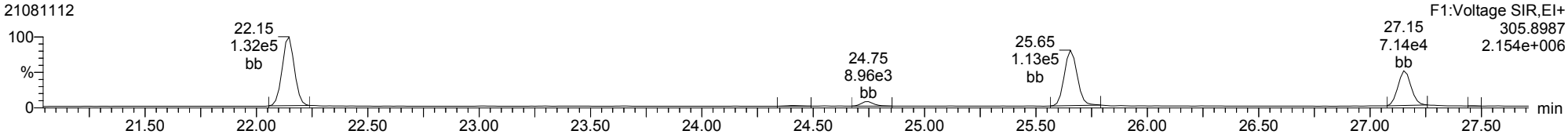

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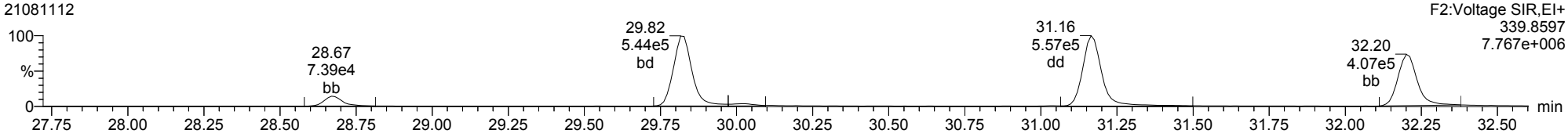

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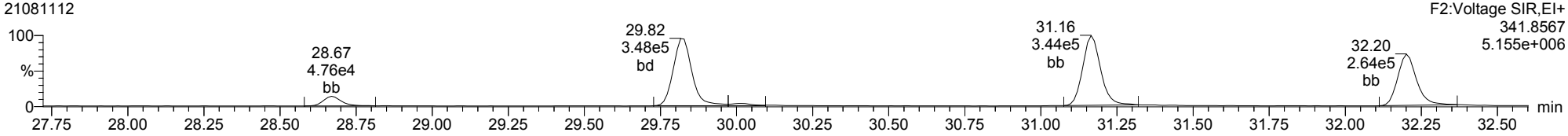

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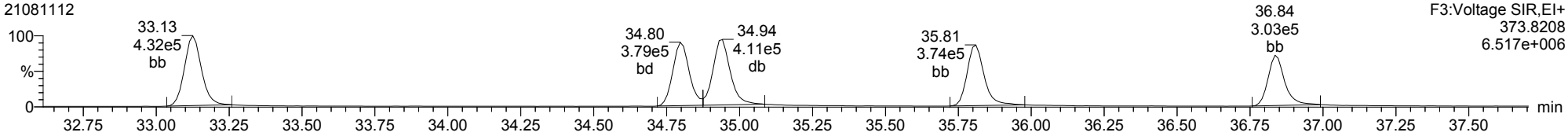

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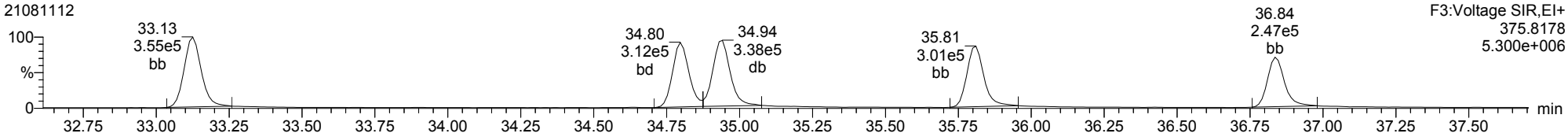

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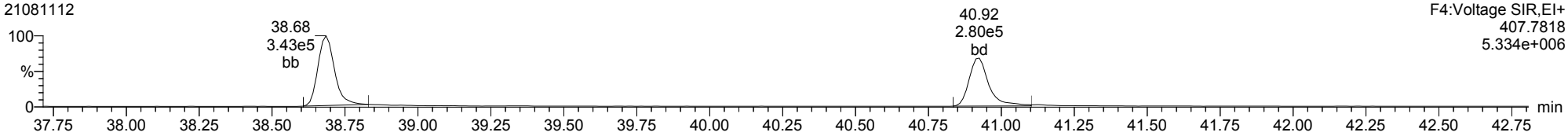
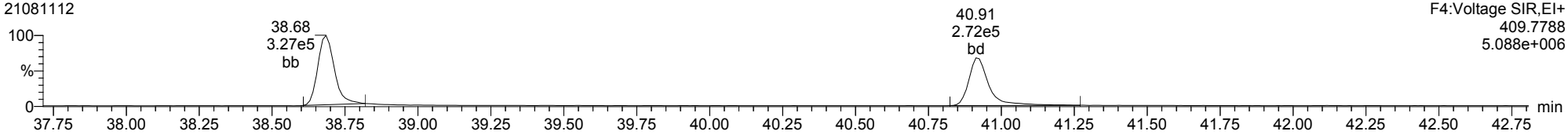


Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0127
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Calibration: EH00030
Laboratory ID: SJH0117-SCV1
Sequence: SJH0117
Standard ID: G001361

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
OCDF	100.00	105	5.4	20.00
OCDD	100.00	105	5.0	20.00
13C12-2,3,7,8-TCDF	100.00	102	1.7	20.00
13C12-2,3,7,8-TCDD	100.00	81.6	-18.4	20.00
13C12-1,2,3,7,8-PeCDF	100.00	105	4.8	20.00
13C12-2,3,4,7,8-PeCDF	100.00	104	4.3	20.00
13C12-1,2,3,7,8-PeCDD	100.00	98.4	-1.6	20.00
13C12-1,2,3,4,7,8-HxCDF	100.00	116	15.9	20.00
13C12-1,2,3,6,7,8-HxCDF	100.00	119	19.4	20.00
13C12-2,3,4,6,7,8-HxCDF	100.00	109	8.8	20.00
13C12-1,2,3,7,8,9-HxCDF	100.00	113	13.2	20.00
13C12-1,2,3,4,7,8-HxCDD	100.00	114	14.1	20.00
13C12-1,2,3,6,7,8-HxCDD	100.00	119	19.5	20.00
13C12-1,2,3,4,6,7,8-HpCDF	100.00	114	13.7	20.00
13C12-1,2,3,4,7,8,9-HpCDF	100.00	110	9.8	20.00
13C12-1,2,3,4,6,7,8-HpCDD	100.00	110	10.5	20.00
13C12-OCDD	200.00	212	5.9	20.00
37Cl4-2,3,7,8-TCDD	10.000	10.4	4.0	20.00

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.655	1.001	8.598e4	1.128e5	1.108	0.762	0.770	1727	2357	1.26e6	1.68e6	728.4	713.0	NO	bb	bb	10.110
12378-PeCDF	29.816	1.000	5.436e5	3.483e5	1.015	1.561	1.550	6428	5298	7.67e6	4.88e6	1193.2	921.9	NO	bd	bd	52.831
23478-PeCDF	31.165	1.001	5.567e5	3.442e5	1.126	1.617	1.550	6428	5298	7.71e6	5.06e6	1200.0	955.7	NO	dd	bb	50.709
123478-HxCDF	34.797	1.000	3.790e5	3.119e5	1.017	1.215	1.240	6025	4489	5.81e6	4.80e6	963.5	1070.0	NO	bd	bd	54.003
234678-HxCDF	35.810	1.001	3.741e5	3.010e5	1.052	1.243	1.240	6025	4489	5.56e6	4.51e6	922.2	1004.3	NO	bb	bb	55.515
123678-HxCDF	34.941	1.001	4.107e5	3.376e5	1.037	1.217	1.240	6025	4489	5.99e6	4.89e6	994.0	1090.0	NO	db	db	51.475
123789-HxCDF	36.835	1.000	3.029e5	2.474e5	1.030	1.224	1.240	6025	4489	4.62e6	3.69e6	767.5	821.7	NO	bb	bb	53.582
1234678-HpCDF	38.685	1.000	3.428e5	3.268e5	1.327	1.049	1.050	5528	5142	5.22e6	4.97e6	945.1	966.6	NO	bb	bb	54.784
1234789-HpCDF	40.924	1.000	2.799e5	2.719e5	1.283	1.029	1.050	5528	5142	3.60e6	3.43e6	650.7	667.0	NO	bd	bd	59.145
OCDF	45.140	1.006	3.368e5	3.743e5	1.447	0.900	0.890	5198	2808	3.79e6	4.27e6	729.8	1522.4	NO	bb	bb	105.415
2378-TCDD	26.305	1.001	4.924e4	6.425e4	0.920	0.766	0.770	2440	1603	7.12e5	9.28e5	291.6	579.2	NO	bb	db	11.057
12378-PeCDD	31.421	1.001	2.834e5	1.748e5	0.995	1.621	1.550	4032	3115	4.22e6	2.62e6	1046.5	841.2	NO	bb	bb	52.211
123478-HxCDD	35.922	1.000	2.965e5	2.407e5	1.027	1.232	1.240	4241	3010	4.65e6	3.73e6	1096.7	1237.9	NO	bd	bd	54.629
123678-HxCDD	36.044	1.001	3.082e5	2.464e5	1.009	1.251	1.240	4241	3010	4.61e6	3.72e6	1085.9	1237.1	NO	db	db	50.555
123789-HxCDD	36.423	1.011	2.887e5	2.199e5	0.950	1.313	1.240	4241	3010	4.19e6	3.34e6	989.1	1108.9	NO	bd	bb	52.339
1234678-HpCDD	40.178	1.000	1.757e5	1.625e5	1.068	1.081	1.050	3111	3083	2.53e6	2.35e6	814.6	763.1	NO	bb	bb	51.865
OCDD	44.903	1.000	2.642e5	3.138e5	1.181	0.842	0.890	2972	3108	3.12e6	3.44e6	1050.3	1105.9	NO	bb	bd	104.997
13C-2378-TCDF	25.640	1.007	7.798e5	9.953e5	1.427	0.784	0.770	3469	3089	1.16e7	1.43e7	3339.4	4613.3	NO	bb	bb	101.689
13C-12378-PeCDF	29.806	1.171	1.051e6	6.125e5	1.297	1.716	1.550	4922	3645	1.42e7	8.62e6	2881.8	2364.6	NO	bd	bb	104.785
13C-23478-PeCDF	31.142	1.223	9.754e5	6.030e5	1.236	1.617	1.550	4922	3645	1.41e7	8.69e6	2860.8	2384.9	NO	bb	bb	104.321
13C-123478-HxCDF	34.785	0.955	4.274e5	8.307e5	1.242	0.514	0.510	5265	6298	6.41e6	1.24e7	1218.4	1973.2	NO	bd	bd	115.885
13C-123678-HxCDF	34.919	0.959	4.860e5	9.161e5	1.343	0.530	0.510	5265	6298	7.00e6	1.35e7	1330.1	2144.5	NO	db	db	119.442
13C-234678-HxCDF	35.788	0.983	3.967e5	7.587e5	1.215	0.523	0.510	5265	6298	5.75e6	1.13e7	1091.4	1799.0	NO	bb	bb	108.848
13C-123789-HxCDF	36.824	1.011	3.447e5	6.522e5	1.008	0.529	0.510	5265	6298	5.11e6	9.81e6	969.9	1558.1	NO	bb	bb	113.229
13C-1234678-HpCDF	38.674	1.062	3.005e5	6.203e5	0.926	0.484	0.440	3480	6125	4.35e6	9.34e6	1249.4	1525.5	NO	bd	bb	113.744
13C-1234789-HpCDF	40.902	1.123	2.223e5	5.047e5	0.758	0.440	0.440	3480	6125	2.90e6	6.30e6	833.4	1029.2	NO	bb	bb	109.773
13C-1234-TCDD	25.458	0.000	5.298e5	6.938e5	1.000	0.764	0.770	5513	2305	7.87e6	1.03e7	1428.2	4481.1	NO	bb	bb	100.000
13C-2378-TCDD	26.275	1.032	4.826e5	6.328e5	1.116	0.763	0.770	5513	2305	7.09e6	9.32e6	1285.5	4044.7	NO	bb	bb	81.637
13C-12378-PeCDD	31.399	1.233	5.423e5	3.395e5	0.732	1.598	1.550	2388	2135	7.53e6	4.95e6	3154.4	2319.5	NO	bb	bb	98.449
13C-123478-HxCDD	35.911	0.986	5.361e5	4.211e5	0.960	1.273	1.240	3574	5521	8.65e6	6.70e6	2421.3	1213.6	NO	bd	bd	114.124
13C-123678-HxCDD	36.022	0.989	6.017e5	4.857e5	1.041	1.239	1.240	3574	5521	9.06e6	7.24e6	2535.4	1311.0	NO	db	db	119.499
13C-1234678-HpCDD	40.167	1.103	3.074e5	3.031e5	0.632	1.014	1.050	3260	2760	4.30e6	4.19e6	1318.4	1519.0	NO	bb	bb	110.470
13C-OCDD	44.884	1.233	4.208e5	5.116e5	0.504	0.822	0.890	2744	3477	4.92e6	5.55e6	1792.3	1596.9	NO	bb	bd	211.835
13C-123789-HxCDD	36.412	0.000	4.843e5	3.895e5	1.000	1.243	1.240	3574	5521	7.18e6	5.79e6	2010.2	1047.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.305	1.033	1.379e5		1.084			1849		1.90e6		1029.2			bd		10.397

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.147	0.864	1.063e5	1.324e5	1.425	0.802	0.770	1727	2357	1.66e6	2.09e6	959.0	886.5	NO	bb	bb	9.436
1289-TCDF	27.152	1.059	5.661e4	7.137e4	1.043	0.793	0.770	1727	2357	8.15e5	1.06e6	472.0	447.8	NO	bb	bb	6.913
13468-PECDF	27.015	0.906	5.743e5	3.714e5	1.376	1.546	1.550	1557	1759	8.45e6	5.45e6	5425.9	3099.7	NO	bb	bb	41.310
12389-PECDF	32.201	1.080	4.075e5	2.638e5	1.000	1.544	1.550	6428	5298	5.63e6	3.72e6	875.5	702.7	NO	bb	bb	40.376
123468-HXCDF	33.125	0.952	4.315e5	3.546e5	1.087	1.217	1.240	6025	4489	6.40e6	5.20e6	1061.8	1158.1	NO	bb	bb	57.507
1368-TCDD	23.417	0.891	5.716e4	7.362e4	0.923	0.776	0.770	2440	1603	8.73e5	1.13e6	357.6	706.6	NO	bb	bb	12.700
1289-TCDD	26.895	1.024	4.776e4	6.026e4	0.794	0.793	0.770	2440	1603	6.91e5	8.63e5	283.1	538.1	NO	bb	bb	12.197
12479-PECDD	28.691	0.914	4.186e5	2.632e5	1.843	1.590	1.550	4032	3115	3.99e6	2.51e6	988.7	804.5	NO	bb	bb	41.945
12389-PECDD	31.822	1.013	2.780e5	1.664e5	1.154	1.671	1.550	4032	3115	4.00e6	2.46e6	992.1	791.3	NO	bb	bb	43.683
124679-HXCDD	33.905	0.944	3.632e5	2.896e5	1.125	1.254	1.240	4241	3010	5.57e6	4.44e6	1314.1	1475.1	NO	bb	bb	60.629
1234679-HPCDD	39.141	0.975	2.129e5	1.840e5	1.211	1.157	1.050	3111	3083	2.93e6	2.75e6	941.5	893.1	NO	bd	bb	53.689
Total-tetrafurans			2.574e5		1.192			1727		3.86e6							27.363
Total-penta1			5.743e5					1557		8.45e6							41.310
Total-pentafurans			1.602e6		1.047			6428		2.23e7							153.079
Total-hexafurans			1.898e6		1.045			6025		2.84e7							272.082
Total-heptafurans			6.227e5		1.305			5528		8.82e6							113.929
Total-Furans			5.291e6		1.158			1727		7.56e7							713.177
Total-tetradioxins			2.709e5		0.879			2440		3.41e6							62.800
Total-pentadioxins			9.817e5		1.331			4032		1.22e7							138.087
Total-hexadioxins			1.266e6		1.028			4241		1.92e7							219.741
Total-heptadioxins			3.886e5		1.140			3111		5.46e6							105.554
Total-Dioxins			3.171e6		1.092			2440		4.34e7							631.178
Total-TEQ			8.462e6					2440		1.19e8							1344.355
FUNCTION1 PFK			6.450e7					839971		2.37e8							
FUNCTION2 PFK			0.000e0					483349		0.00e0							
FUNCTION3 PFK			5.184e7					675979		4.54e8							0.000
FUNCTION4 PFK			3.964e5					425264		1.39e7							
FUNCTION5 PFK			3.414e4					345829		1.67e6							
FUNCTION1 HXCD...			2.903e3					1258		5.64e4							0.000
FUNCTION1 HPCD...			2.863e3					1421		5.44e4							0.000
FUNCTION2 HPCD...			2.720e3					1471		5.70e4							0.000
FUNCTION3 OCDPE			1.392e3					890		2.72e4							0.000
FUNCTION4 NCDPE			1.187e3					1520		2.23e4							0.000
FUNCTION5 DCDPE			1.665e2					1065		6.42e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
2	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
3	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
4	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
5	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
2	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
3	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
4	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
5	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
2	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020
7	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
8	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
9	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
10	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
11	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831
12	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
13	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
14	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
15	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
16	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003
17	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
18	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145
19	OCDF	45.14	3.368e5	3.743e5	1.447	0.90	0.89	729.8	YES	NO	bb	bb	105.415
20	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
2	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
3	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
4	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
5	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
6	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
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ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
2	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
3	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
4	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
2	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
3	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
4	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
5	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
6	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865
2	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689

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ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
2	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
3	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
4	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
5	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
6	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057
7	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
8	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
9	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
10	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945
11	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
12	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
13	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
14	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
15	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
16	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325
17	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865
18	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689
19	OCDD	44.90	2.642e5	3.138e5	1.181	0.84	0.89	1050.3	YES	NO	bb	bd	104.997

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020
7	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
8	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
9	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
10	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
11	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831
12	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
13	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
14	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
15	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
16	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003
17	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
18	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145
19	OCDF	45.14	3.368e5	3.743e5	1.447	0.90	0.89	729.8	YES	NO	bb	bb	105.415
20	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310
21	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
22	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
23	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
24	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
25	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
26	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057
27	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
28	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
29	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
30	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945
31	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
32	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
33	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
34	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
35	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
36	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325
37	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
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ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689
39	OCDD	44.90	2.642e5	3.138e5	1.181	0.84	0.89	1050.3	YES	NO	bb	bd	104.997

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.34	1.094e7					29.2	YES		db		
2	FUNCTION1 PFK	22.07	1.938e7					38.3	YES		dd		
3	FUNCTION1 PFK	21.38	2.077e7					61.6	YES		dd		
4	FUNCTION1 PFK	21.25	7.452e6					64.7	YES		dd		
5	FUNCTION1 PFK	21.10	5.199e6					69.3	YES		bd		
6	FUNCTION1 PFK	27.62	5.202e4					1.5	NO		bb		
7	FUNCTION1 PFK	26.61	3.088e4					1.4	NO		bb		
8	FUNCTION1 PFK	26.53	3.772e4					1.3	NO		bb		
9	FUNCTION1 PFK	26.21	4.215e4					1.3	NO		bb		
10	FUNCTION1 PFK	26.14	2.091e4					0.7	NO		bb		
11	FUNCTION1 PFK	25.90	2.782e4					1.0	NO		bb		
12	FUNCTION1 PFK	25.64	2.244e4					0.9	NO		bb		
13	FUNCTION1 PFK	25.38	4.475e4					1.3	NO		bb		
14	FUNCTION1 PFK	25.32	8.085e4					1.5	NO		bb		
15	FUNCTION1 PFK	25.10	6.333e4					1.7	NO		db		
16	FUNCTION1 PFK	24.94	2.192e5					2.0	NO		dd		
17	FUNCTION1 PFK	24.82	2.857e4					1.1	NO		bd		
18	FUNCTION1 PFK	24.63	2.787e4					1.0	NO		bb		
19	FUNCTION1 PFK	24.35	1.463e4					0.7	NO		bb		
20	FUNCTION1 PFK	23.43	4.951e4					1.7	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.47	2.892e5					8.3	YES		dd		0.000
2	FUNCTION3 PFK	34.42	3.441e5					9.9	YES		dd		0.000
3	FUNCTION3 PFK	34.30	9.123e5					14.6	YES		dd		0.000
4	FUNCTION3 PFK	33.96	4.870e6					27.1	YES		dd		0.000
5	FUNCTION3 PFK	33.92	6.208e5					27.9	YES		dd		0.000
6	FUNCTION3 PFK	33.75	6.775e6					34.2	YES		dd		0.000
7	FUNCTION3 PFK	33.58	8.843e5					39.8	YES		dd		0.000
8	FUNCTION3 PFK	33.52	4.828e6					42.2	YES		dd		0.000
9	FUNCTION3 PFK	33.37	2.844e6					47.3	YES		dd		0.000
10	FUNCTION3 PFK	33.18	5.432e6					54.3	YES		dd		0.000
11	FUNCTION3 PFK	33.04	5.575e6					59.2	YES		dd		0.000
12	FUNCTION3 PFK	32.95	3.680e6					62.9	YES		dd		0.000
13	FUNCTION3 PFK	32.86	7.904e6					65.6	YES		dd		0.000
14	FUNCTION3 PFK	32.74	1.549e6					69.1	YES		dd		0.000
15	FUNCTION3 PFK	32.67	4.268e6					72.4	YES		bd		0.000
16	FUNCTION3 PFK	36.86	8.449e3					0.3	NO		bb		0.000
17	FUNCTION3 PFK	36.72	6.925e4					2.0	NO		bb		0.000
18	FUNCTION3 PFK	36.59	5.799e4					1.2	NO		bb		0.000
19	FUNCTION3 PFK	36.30	7.563e3					0.7	NO		bb		0.000
20	FUNCTION3 PFK	36.04	6.922e3					0.5	NO		bb		0.000
21	FUNCTION3 PFK	35.83	2.532e4					1.1	NO		bb		0.000
22	FUNCTION3 PFK	35.75	1.516e4					0.9	NO		bb		0.000
23	FUNCTION3 PFK	35.63	1.004e4					0.7	NO		bb		0.000
24	FUNCTION3 PFK	35.33	1.433e4					0.8	NO		bb		0.000
25	FUNCTION3 PFK	35.04	1.089e4					0.6	NO		bb		0.000
26	FUNCTION3 PFK	34.97	5.517e3					0.7	NO		bb		0.000
27	FUNCTION3 PFK	34.89	3.001e4					1.0	NO		bb		0.000
28	FUNCTION3 PFK	34.81	1.594e4					1.0	NO		db		0.000
29	FUNCTION3 PFK	34.76	3.092e4					1.3	NO		bd		0.000
30	FUNCTION3 PFK	34.60	1.659e5					4.5	YES		db		0.000
31	FUNCTION3 PFK	34.53	2.985e5					6.7	YES		dd		0.000
32	FUNCTION3 PFK	37.64	2.742e4					1.1	NO		bb		0.000
33	FUNCTION3 PFK	37.58	2.711e4					1.4	NO		db		0.000
34	FUNCTION3 PFK	37.54	1.758e4					0.9	NO		dd		0.000
35	FUNCTION3 PFK	37.49	3.447e4					1.6	NO		dd		0.000
36	FUNCTION3 PFK	37.45	2.646e4					1.5	NO		dd		0.000
37	FUNCTION3 PFK	37.38	4.745e4					1.5	NO		dd		0.000

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ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	37.34	2.452e4					1.6	NO		bd		0.000
39	FUNCTION3 PFK	37.29	9.653e3					0.8	NO		bb		0.000
40	FUNCTION3 PFK	37.08	5.064e3					0.5	NO		bb		0.000
41	FUNCTION3 PFK	36.98	6.612e4					1.7	NO		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.42	2.469e3					0.5	NO		bb		
2	FUNCTION4 PFK	38.08	2.954e4					1.7	NO		bb		
3	FUNCTION4 PFK	37.98	4.856e4					2.3	NO		db		
4	FUNCTION4 PFK	37.94	3.614e4					2.6	NO		bd		
5	FUNCTION4 PFK	37.85	8.390e3					1.0	NO		bb		
6	FUNCTION4 PFK	40.91	1.035e4					1.0	NO		bb		
7	FUNCTION4 PFK	40.71	1.742e3					0.4	NO		bb		
8	FUNCTION4 PFK	40.68	3.176e3					0.5	NO		bb		
9	FUNCTION4 PFK	40.61	6.362e3					0.7	NO		bb		
10	FUNCTION4 PFK	40.38	7.075e3					0.8	NO		bb		
11	FUNCTION4 PFK	40.32	3.115e4					1.2	NO		bb		
12	FUNCTION4 PFK	39.94	4.461e3					0.6	NO		bb		
13	FUNCTION4 PFK	39.80	5.746e3					0.6	NO		bb		
14	FUNCTION4 PFK	39.51	2.799e3					0.4	NO		bb		
15	FUNCTION4 PFK	39.43	1.949e3					0.4	NO		bb		
16	FUNCTION4 PFK	39.36	2.879e3					0.6	NO		bb		
17	FUNCTION4 PFK	39.32	5.365e3					1.1	NO		bb		
18	FUNCTION4 PFK	39.28	3.621e3					0.8	NO		bb		
19	FUNCTION4 PFK	39.21	1.666e4					1.0	NO		bb		
20	FUNCTION4 PFK	39.07	6.512e3					0.8	NO		bb		
21	FUNCTION4 PFK	38.46	1.263e4					1.2	NO		bb		
22	FUNCTION4 PFK	42.68	1.445e4					0.9	NO		bb		
23	FUNCTION4 PFK	42.62	2.052e4					1.7	NO		bb		
24	FUNCTION4 PFK	42.51	2.321e3					0.5	NO		bb		
25	FUNCTION4 PFK	42.43	3.121e4					1.9	NO		bb		
26	FUNCTION4 PFK	42.18	7.742e3					0.8	NO		bb		
27	FUNCTION4 PFK	42.05	1.748e4					1.2	NO		db		
28	FUNCTION4 PFK	41.97	1.470e4					1.2	NO		bd		
29	FUNCTION4 PFK	41.63	2.487e3					0.5	NO		bb		
30	FUNCTION4 PFK	41.48	1.442e4					1.2	NO		bb		
31	FUNCTION4 PFK	41.24	1.211e4					1.0	NO		bb		
32	FUNCTION4 PFK	41.17	1.136e4					1.2	NO		bb		

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.97	5.710e3					1.0	NO		bb		
2	FUNCTION5 PFK	45.74	1.859e3					0.6	NO		bb		
3	FUNCTION5 PFK	43.26	1.526e4					1.8	NO		bb		
4	FUNCTION5 PFK	42.93	1.131e4					1.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.35	1.892e2					4.2	YES		db		0.000
2	FUNCTION1 HXCD...	25.23	1.187e2					1.3	NO		bd		0.000
3	FUNCTION1 HXCD...	24.87	7.961e1					1.9	NO		db		0.000
4	FUNCTION1 HXCD...	24.81	1.259e2					2.7	NO		bd		0.000
5	FUNCTION1 HXCD...	24.72	1.584e2					1.4	NO		bb		0.000
6	FUNCTION1 HXCD...	24.40	9.113e1					1.6	NO		bb		0.000
7	FUNCTION1 HXCD...	23.72	7.480e1					1.5	NO		bb		0.000
8	FUNCTION1 HXCD...	23.61	1.381e2					2.9	NO		bb		0.000
9	FUNCTION1 HXCD...	23.11	9.740e1					2.5	NO		bb		0.000
10	FUNCTION1 HXCD...	22.43	1.791e2					2.1	NO		db		0.000
11	FUNCTION1 HXCD...	22.30	7.125e1					1.5	NO		bd		0.000
12	FUNCTION1 HXCD...	22.19	7.195e1					1.3	NO		bb		0.000
13	FUNCTION1 HXCD...	21.98	1.102e2					1.5	NO		db		0.000
14	FUNCTION1 HXCD...	21.89	2.251e2					4.2	YES		bd		0.000
15	FUNCTION1 HXCD...	21.80	1.414e2					2.0	NO		bb		0.000
16	FUNCTION1 HXCD...	27.03	2.453e2					2.4	NO		bb		0.000
17	FUNCTION1 HXCD...	26.29	2.686e2					2.1	NO		db		0.000
18	FUNCTION1 HXCD...	26.12	1.763e2					2.9	NO		dd		0.000
19	FUNCTION1 HXCD...	26.03	9.387e1					1.2	NO		bd		0.000
20	FUNCTION1 HXCD...	25.82	1.399e2					2.0	NO		bb		0.000
21	FUNCTION1 HXCD...	25.46	1.064e2					1.7	NO		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	22.51	7.992e1					1.4	NO		bb		0.000
2	FUNCTION1 HPCD...	22.07	1.029e2					2.1	NO		bb		0.000
3	FUNCTION1 HPCD...	21.98	1.510e2					1.6	NO		db		0.000
4	FUNCTION1 HPCD...	21.88	1.949e2					3.5	YES		bd		0.000
5	FUNCTION1 HPCD...	21.75	2.528e2					1.8	NO		bb		0.000
6	FUNCTION1 HPCD...	21.47	1.508e2					2.1	NO		bb		0.000
7	FUNCTION1 HPCD...	21.25	1.018e2					1.3	NO		db		0.000
8	FUNCTION1 HPCD...	21.16	1.149e2					1.6	NO		dd		0.000
9	FUNCTION1 HPCD...	21.09	2.200e2					3.0	NO		bd		0.000
10	FUNCTION1 HPCD...	27.00	1.586e2					1.8	NO		bb		0.000
11	FUNCTION1 HPCD...	26.83	9.159e1					0.8	NO		bb		0.000
12	FUNCTION1 HPCD...	26.59	1.663e2					2.5	NO		bb		0.000
13	FUNCTION1 HPCD...	26.32	1.753e2					1.6	NO		db		0.000
14	FUNCTION1 HPCD...	26.14	2.616e2					2.2	NO		bd		0.000
15	FUNCTION1 HPCD...	25.59	8.230e1					1.9	NO		bb		0.000
16	FUNCTION1 HPCD...	25.44	8.713e1					1.0	NO		bb		0.000
17	FUNCTION1 HPCD...	25.16	7.125e1					1.1	NO		db		0.000
18	FUNCTION1 HPCD...	25.05	1.030e2					1.1	NO		bd		0.000
19	FUNCTION1 HPCD...	24.07	1.494e2					2.5	NO		bb		0.000
20	FUNCTION1 HPCD...	23.83	1.478e2					3.3	YES		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.48	1.146e2					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	28.07	8.040e1					1.2	NO		db		0.000
3	FUNCTION2 HPCD...	27.98	1.117e2					1.5	NO		bd		0.000
4	FUNCTION2 HPCD...	27.82	9.308e1					2.0	NO		bb		0.000
5	FUNCTION2 HPCD...	31.82	1.073e2					1.6	NO		bb		0.000
6	FUNCTION2 HPCD...	31.41	3.440e2					4.0	YES		bb		0.000
7	FUNCTION2 HPCD...	31.18	9.044e1					1.2	NO		db		0.000
8	FUNCTION2 HPCD...	31.11	9.781e1					2.1	NO		dd		0.000
9	FUNCTION2 HPCD...	31.03	7.279e2					8.6	YES		bd		0.000
10	FUNCTION2 HPCD...	30.26	7.257e1					1.3	NO		bb		0.000
11	FUNCTION2 HPCD...	30.21	7.122e1					1.7	NO		db		0.000
12	FUNCTION2 HPCD...	30.14	1.157e2					1.5	NO		dd		0.000
13	FUNCTION2 HPCD...	30.06	7.412e1					1.1	NO		dd		0.000
14	FUNCTION2 HPCD...	29.98	7.219e1					1.2	NO		dd		0.000
15	FUNCTION2 HPCD...	29.91	9.212e1					2.0	NO		bd		0.000
16	FUNCTION2 HPCD...	29.69	7.977e1					1.3	NO		bb		0.000
17	FUNCTION2 HPCD...	29.08	1.408e2					1.5	NO		db		0.000
18	FUNCTION2 HPCD...	28.96	1.497e2					1.4	NO		bd		0.000
19	FUNCTION2 HPCD...	28.71	8.490e1					1.0	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.65	1.580e2					2.6	NO		db		0.000
2	FUNCTION3 OCDPE	37.55	1.150e2					2.8	NO		bd		0.000
3	FUNCTION3 OCDPE	36.42	1.835e2					2.9	NO		bb		0.000
4	FUNCTION3 OCDPE	36.04	2.520e2					4.7	YES		db		0.000
5	FUNCTION3 OCDPE	35.93	1.106e2					3.8	YES		dd		0.000
6	FUNCTION3 OCDPE	35.90	1.018e2					3.4	YES		bd		0.000
7	FUNCTION3 OCDPE	34.40	1.321e2					5.0	YES		bb		0.000
8	FUNCTION3 OCDPE	33.58	1.010e2					2.3	NO		bb		0.000
9	FUNCTION3 OCDPE	32.70	2.382e2					3.1	YES		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.42	7.136e1					0.9	NO		bb		0.000
2	FUNCTION4 NCDPE	40.16	1.641e2					1.6	NO		bb		0.000
3	FUNCTION4 NCDPE	39.69	1.182e2					1.5	NO		bb		0.000
4	FUNCTION4 NCDPE	38.52	1.487e2					1.6	NO		db		0.000
5	FUNCTION4 NCDPE	38.34	2.790e2					2.3	NO		dd		0.000
6	FUNCTION4 NCDPE	38.26	1.556e2					2.2	NO		bd		0.000
7	FUNCTION4 NCDPE	41.34	1.448e2					1.6	NO		bb		0.000
8	FUNCTION4 NCDPE	40.81	1.056e2					2.8	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.58	7.112e1					3.0	NO		bb		0.000
2	FUNCTION5 DCDPE	43.59	9.542e1					3.1	YES		bb		0.000

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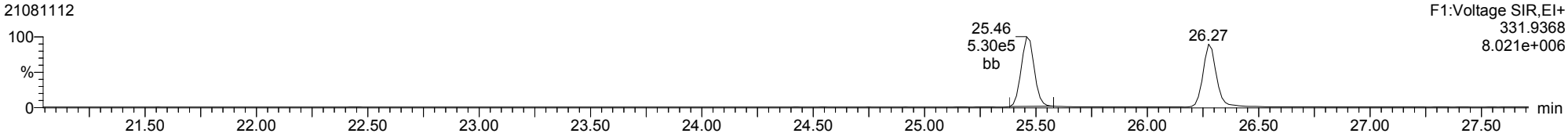
13C-1234-TCDD



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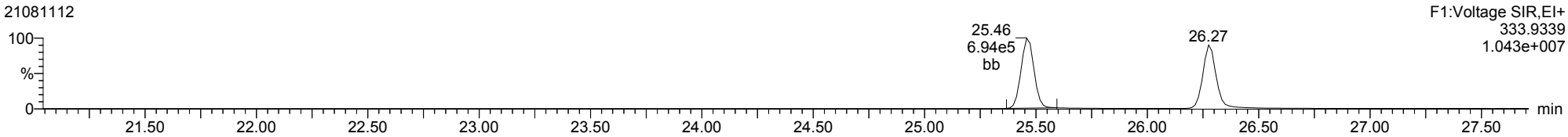
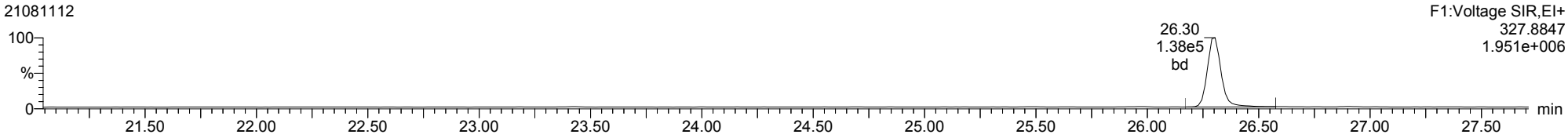


37CL-2378-TCDD



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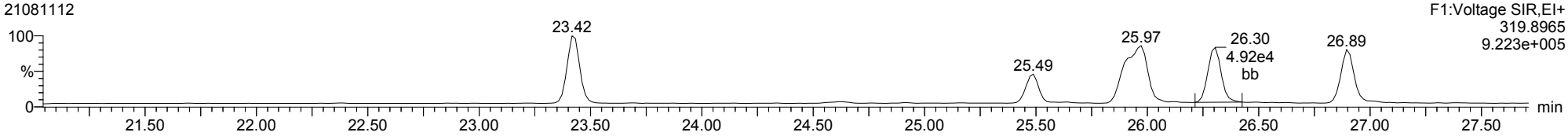

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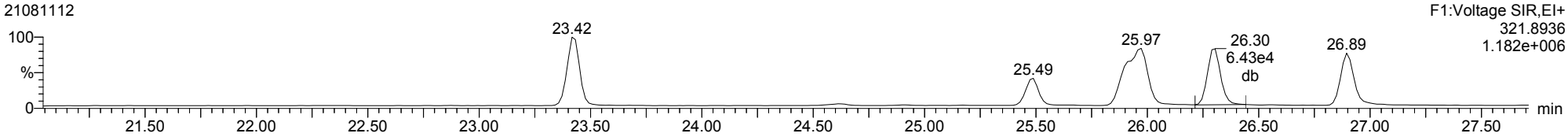

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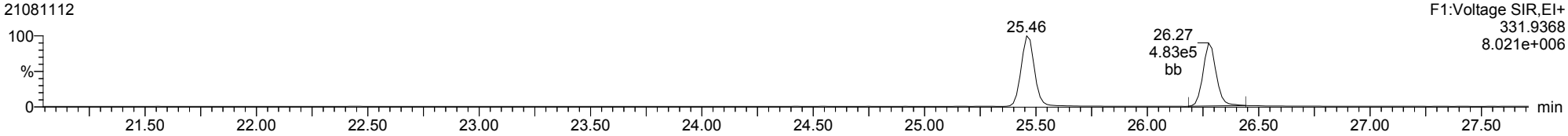

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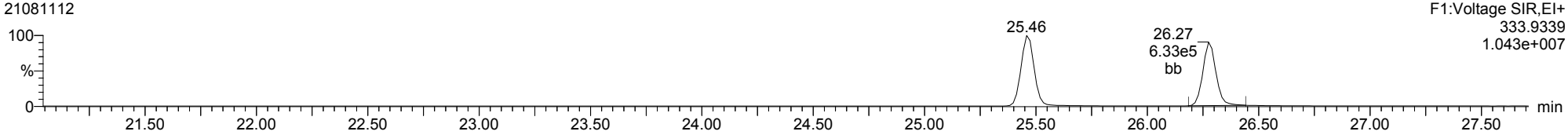

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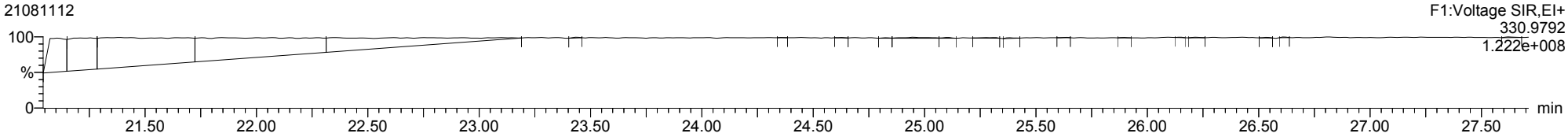

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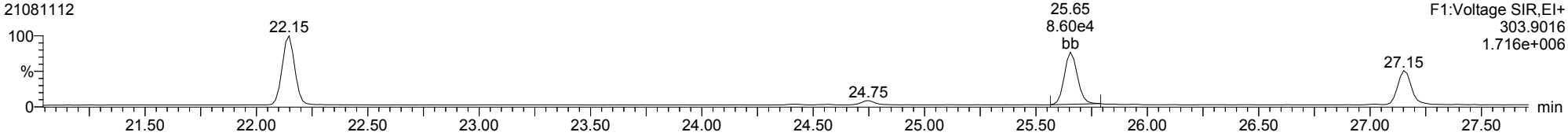
2378-TCDF



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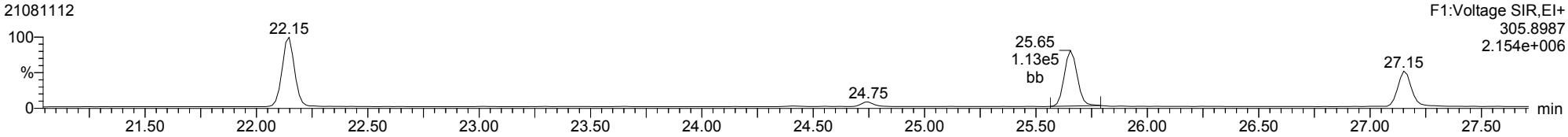

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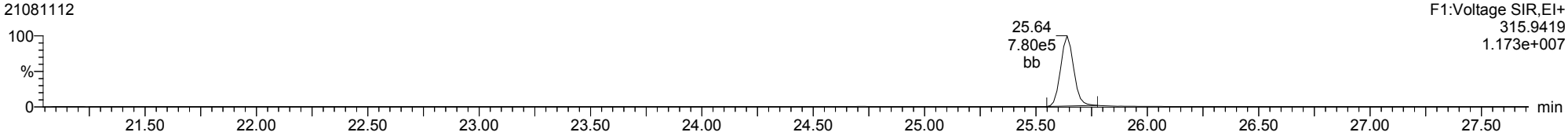

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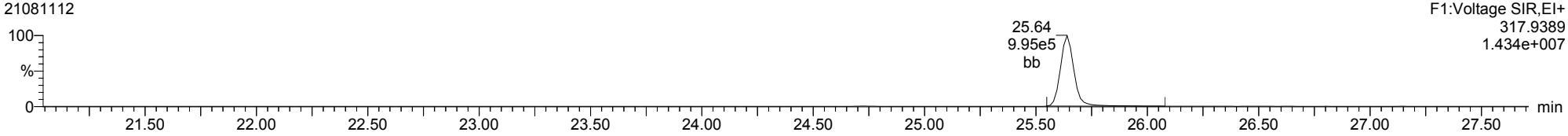
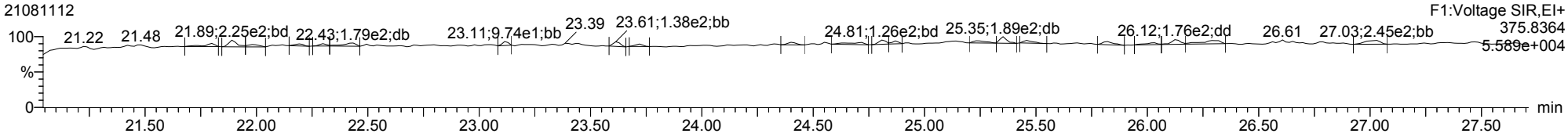


FUNCTION1 HXCDPE



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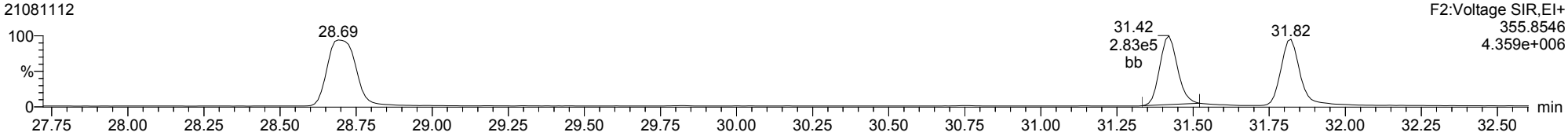
12378-PeCDD



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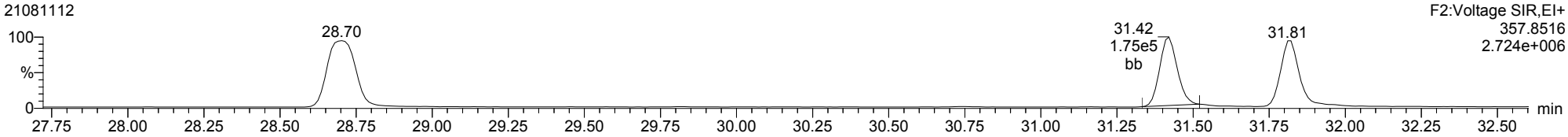

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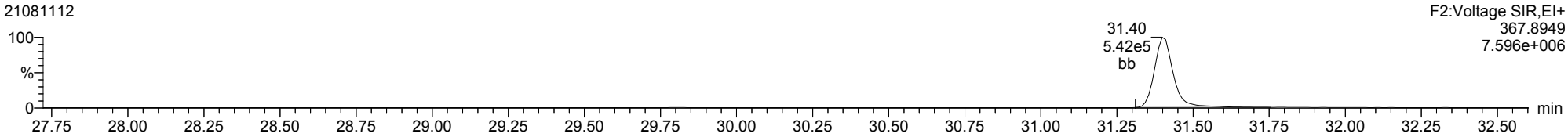

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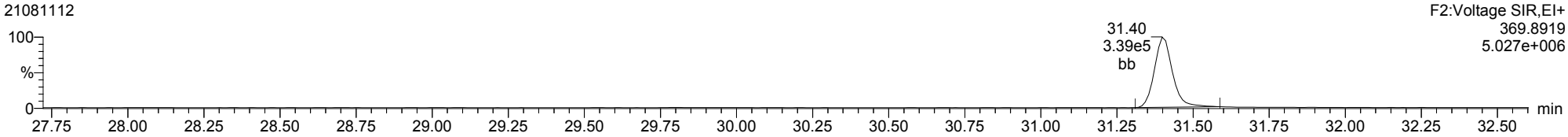

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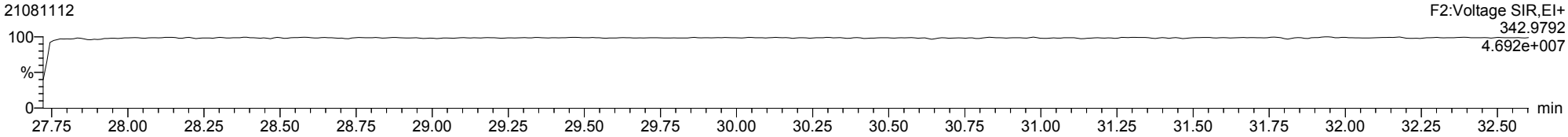

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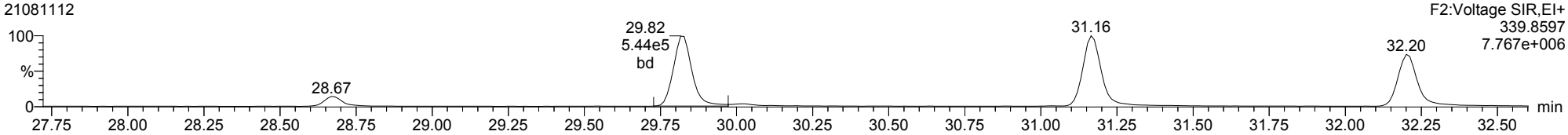

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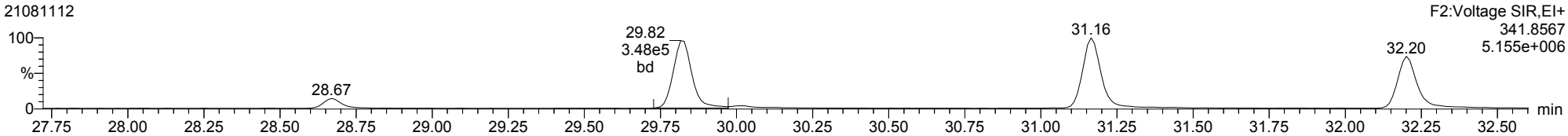

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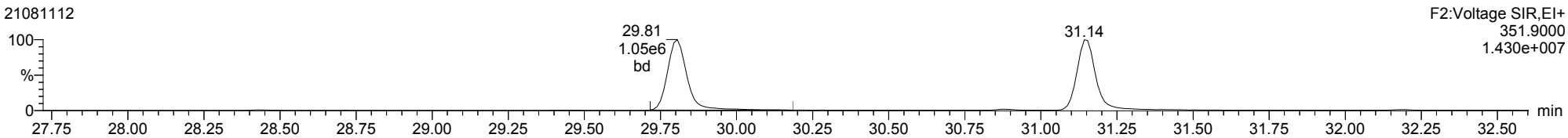

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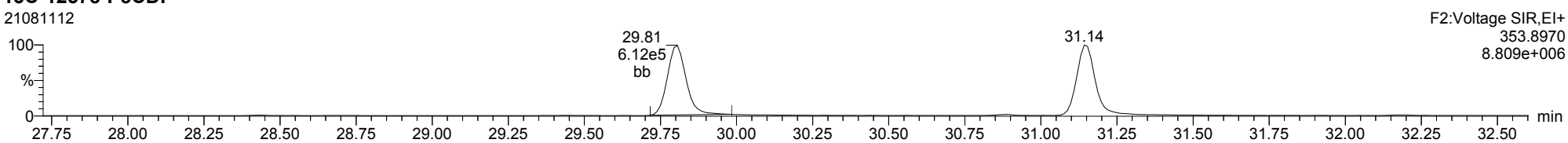
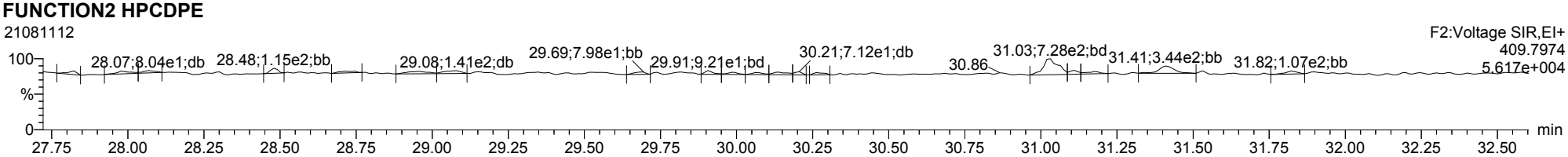


FUNCTION2 HPCDPE



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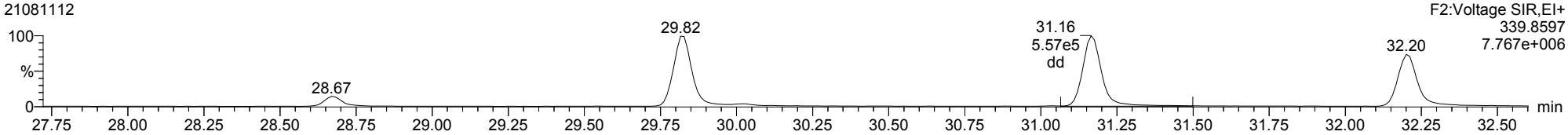

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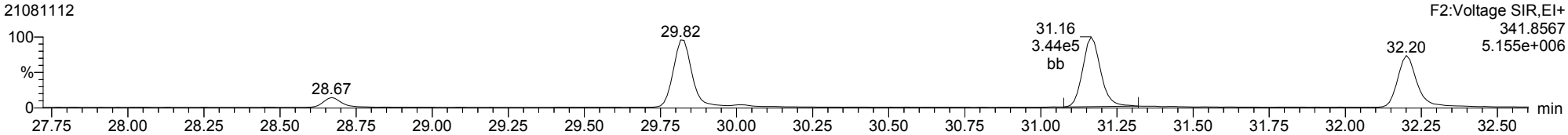

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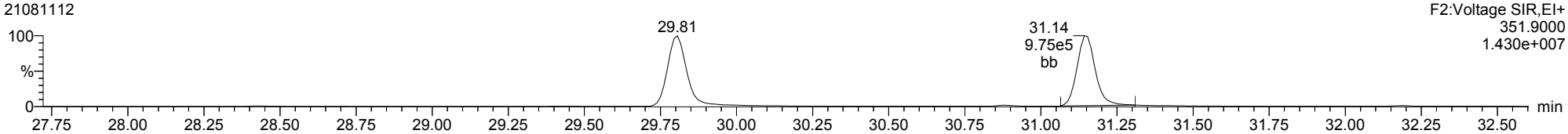

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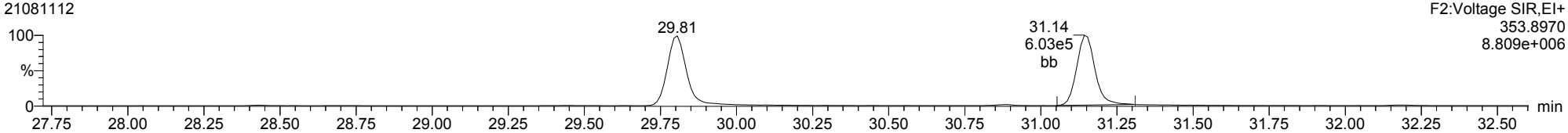
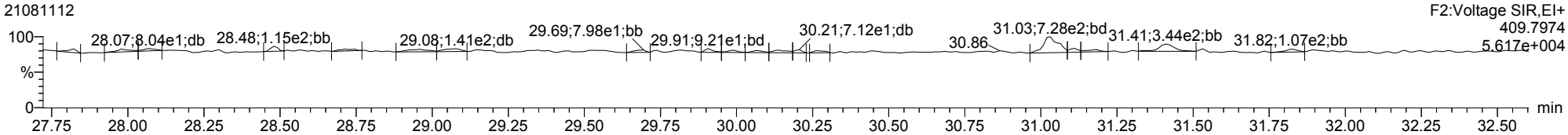


FUNCTION2 HPCDPE



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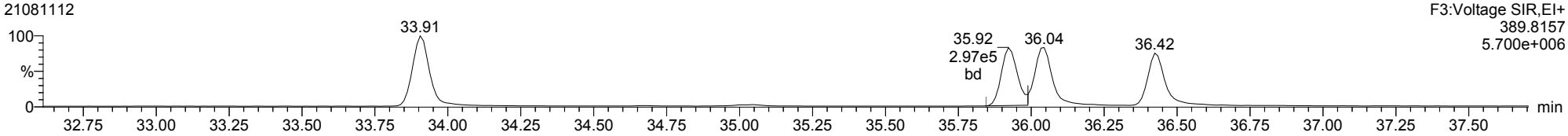
123478-HxCDD



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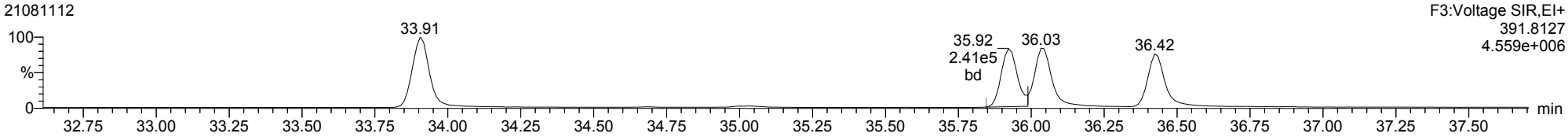

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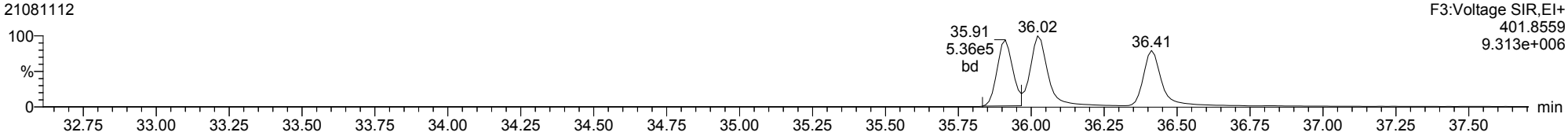

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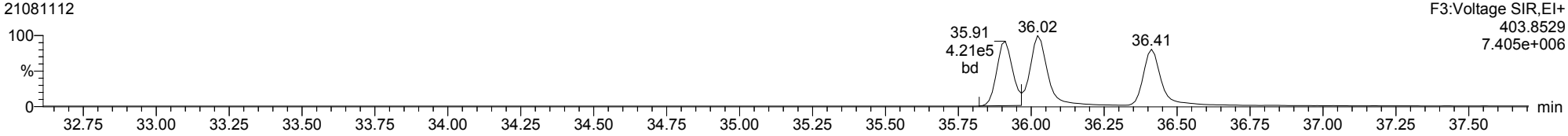

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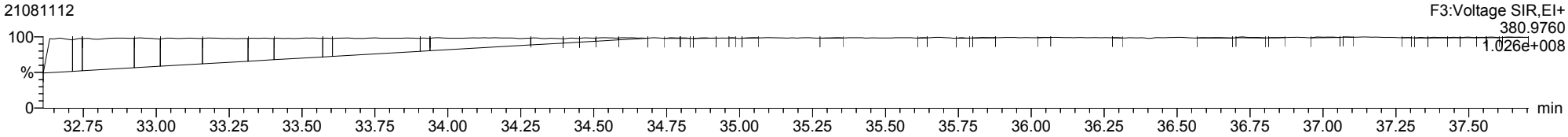

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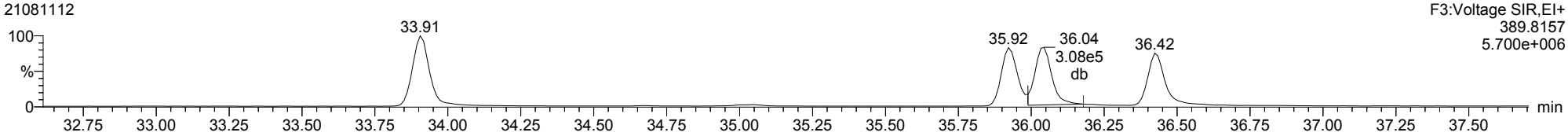

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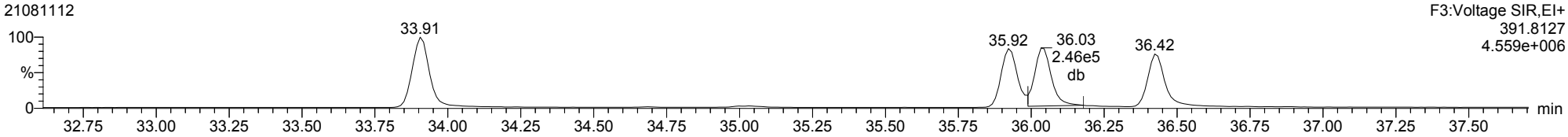

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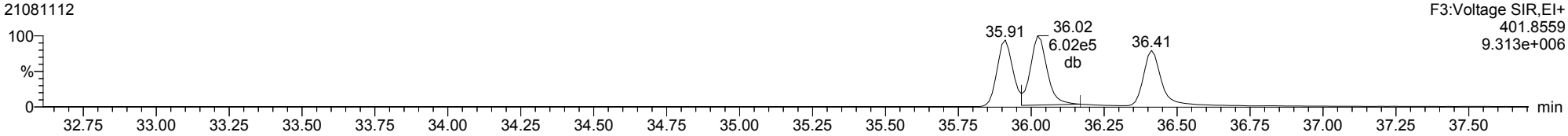

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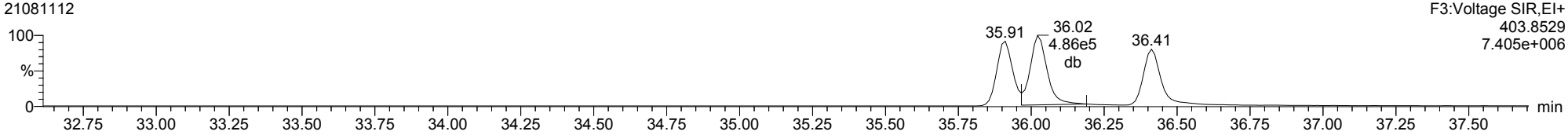

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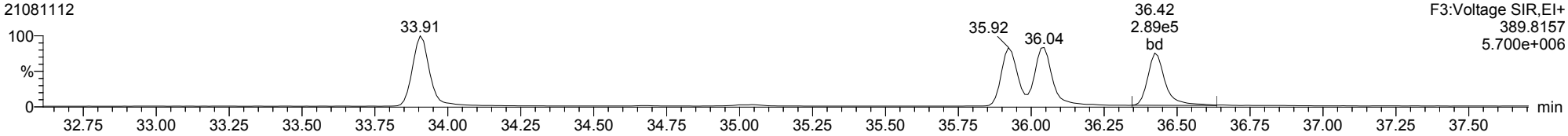

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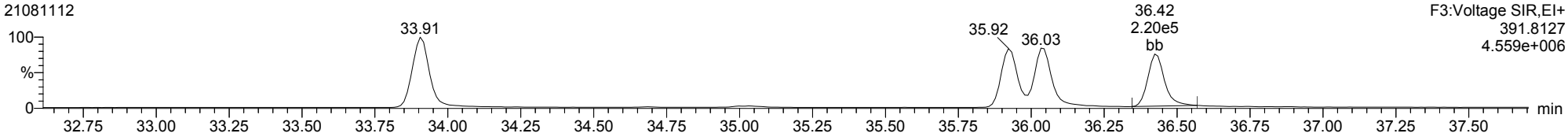

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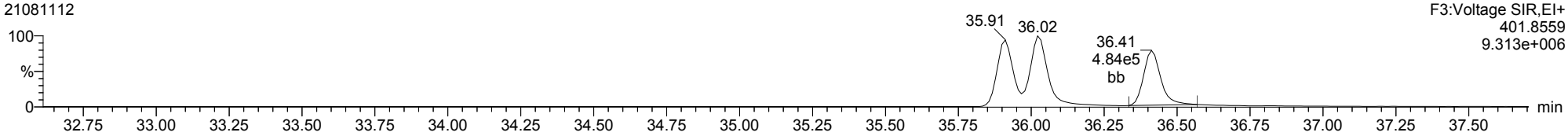

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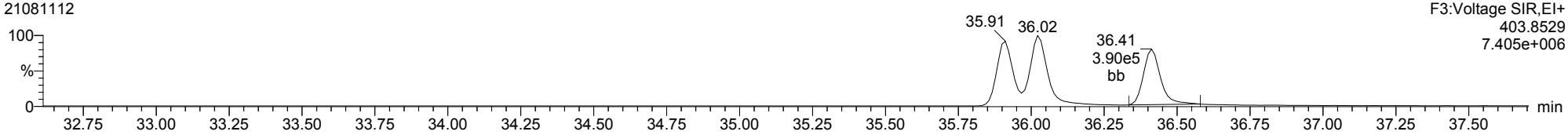

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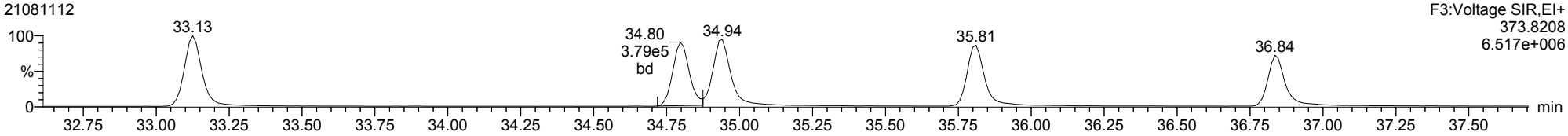

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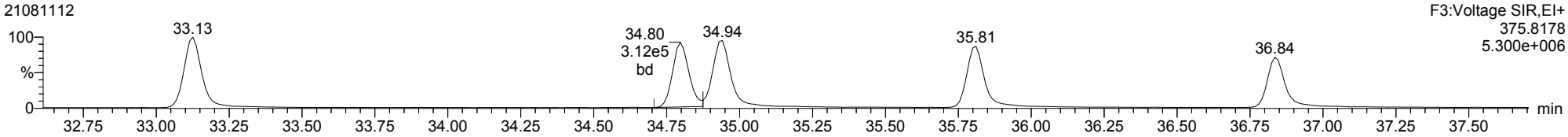

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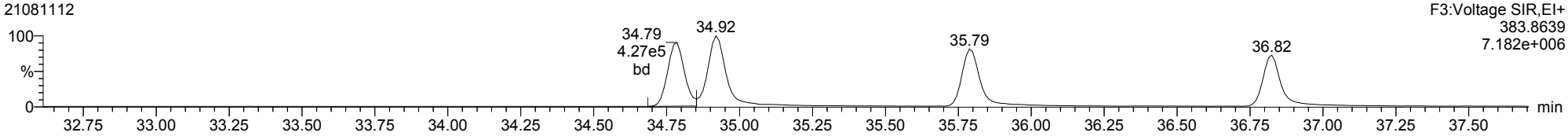

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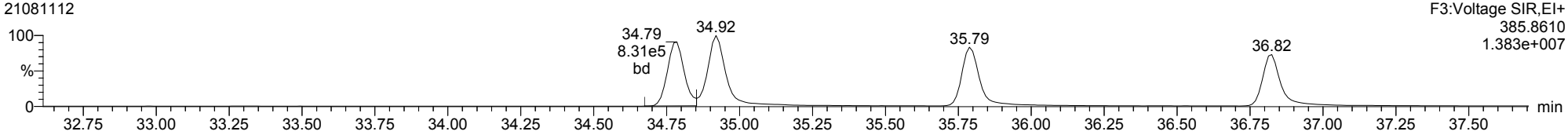
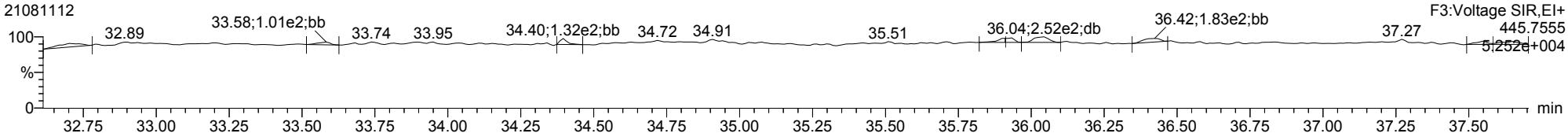


FUNCTION3 OCDPE



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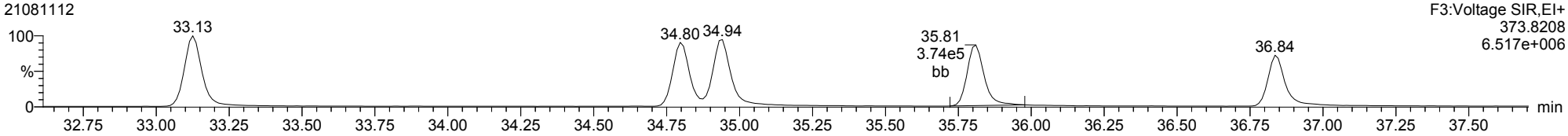
234678-HxCDF



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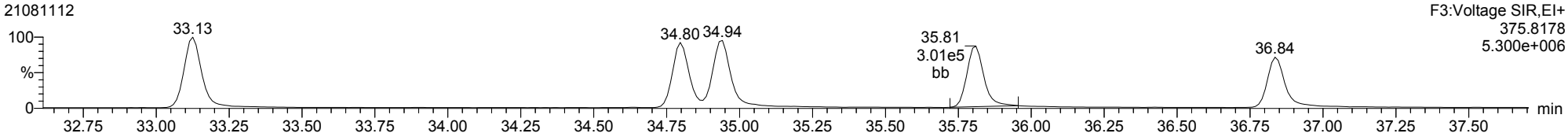

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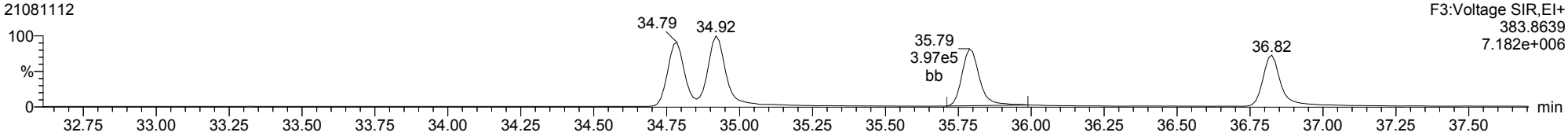

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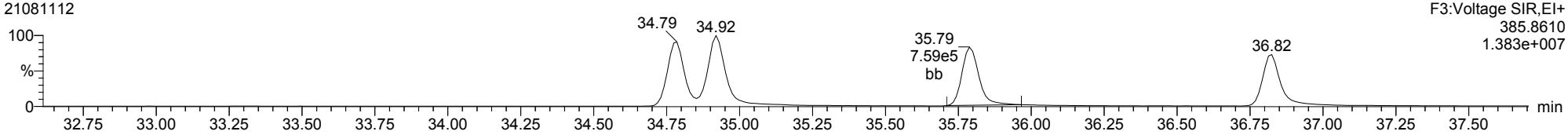

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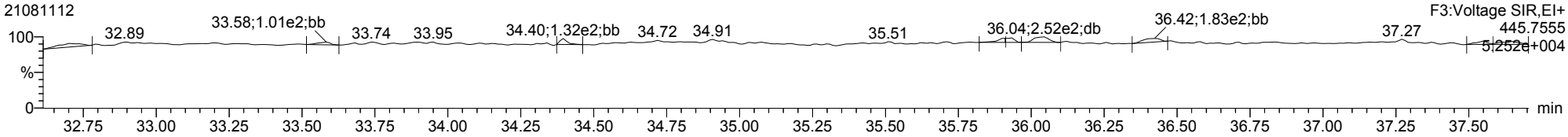

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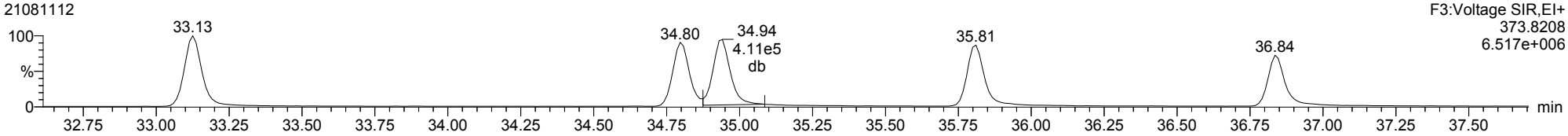

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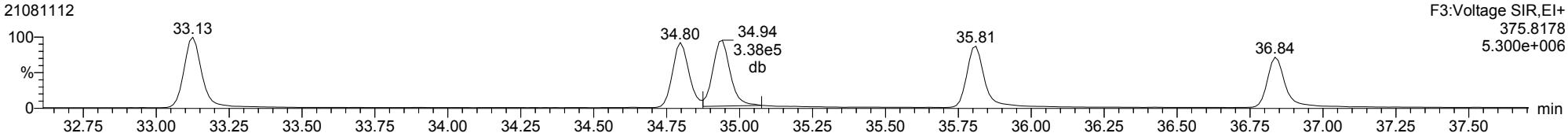

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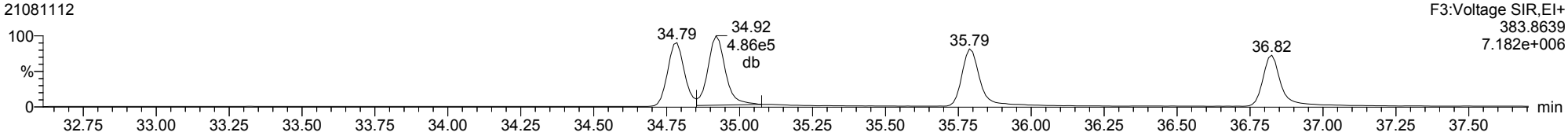

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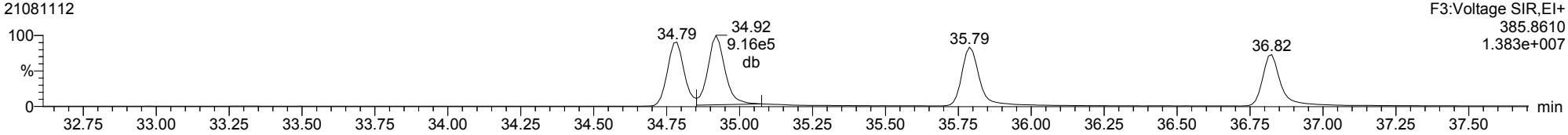

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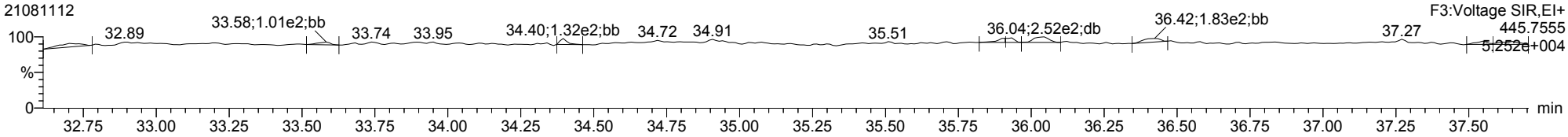

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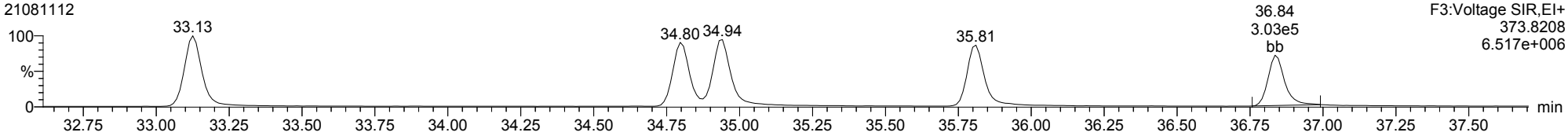

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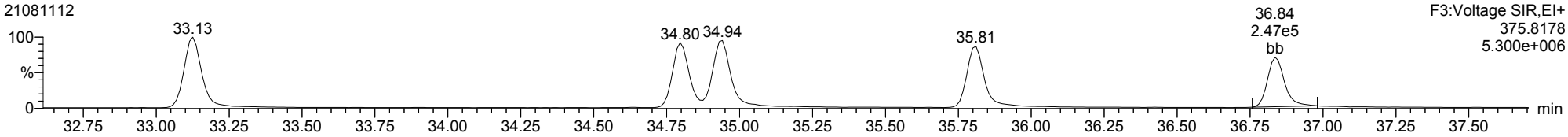

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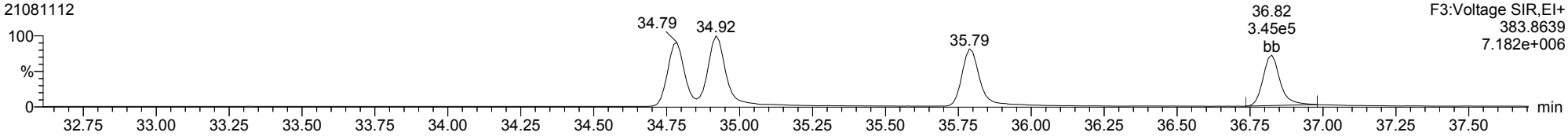

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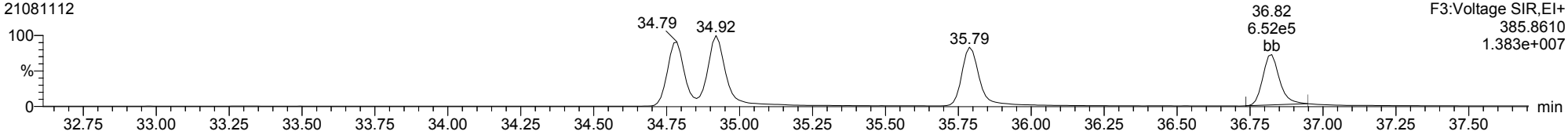

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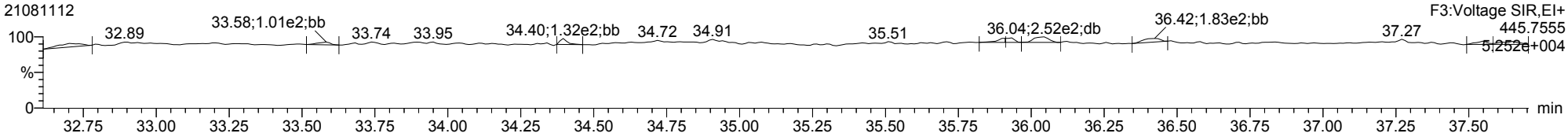

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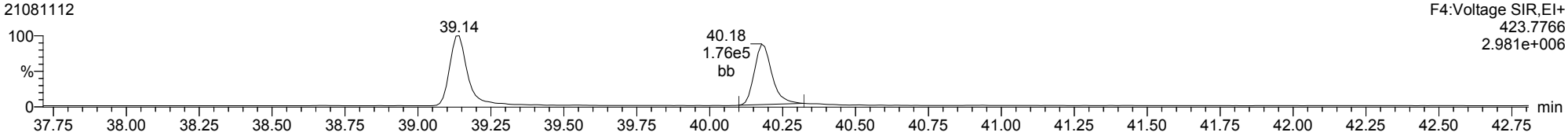

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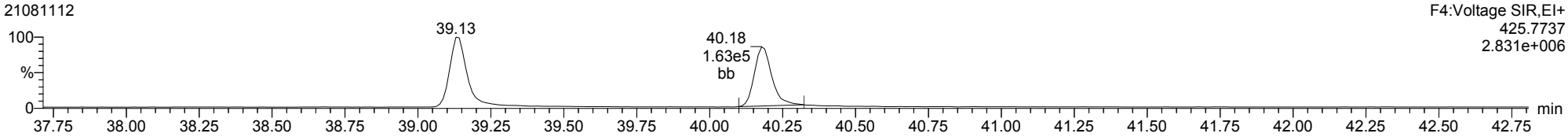

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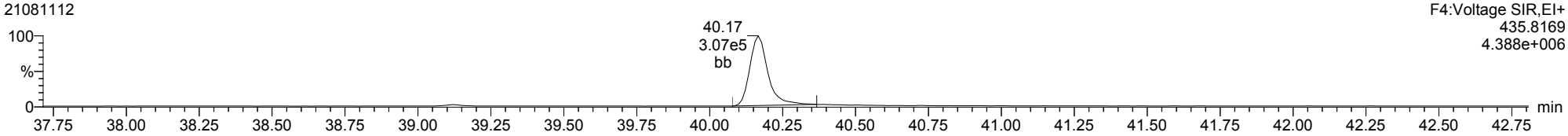

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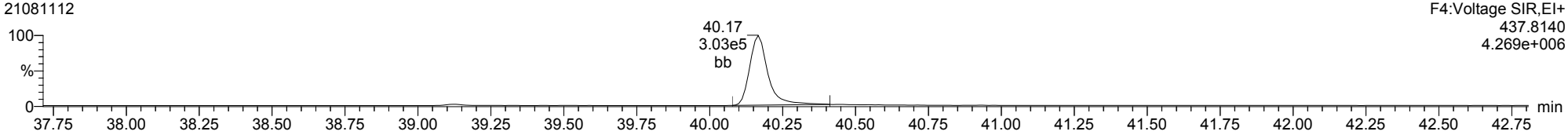

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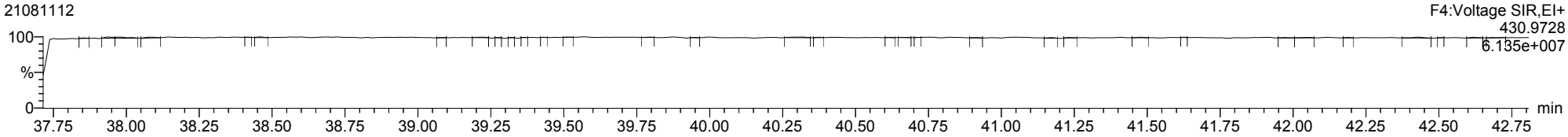

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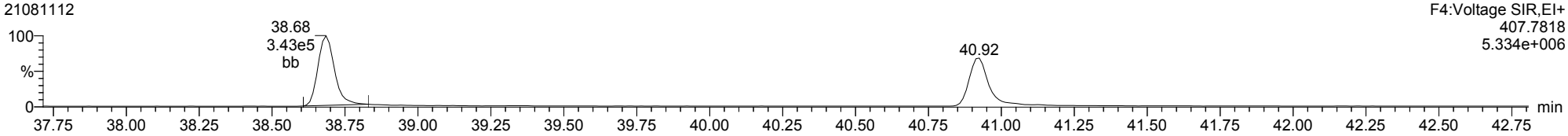

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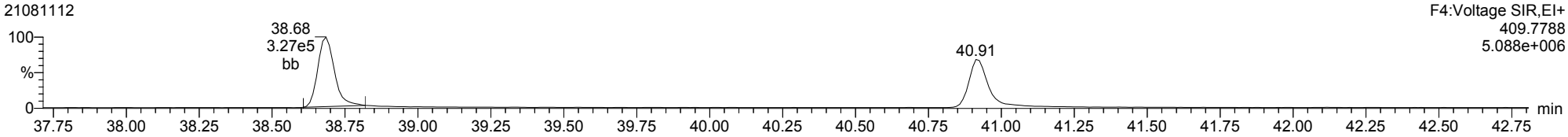

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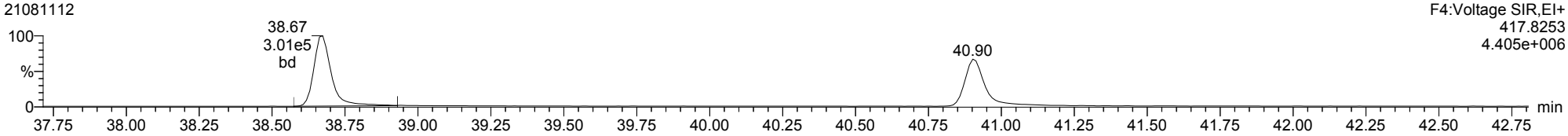

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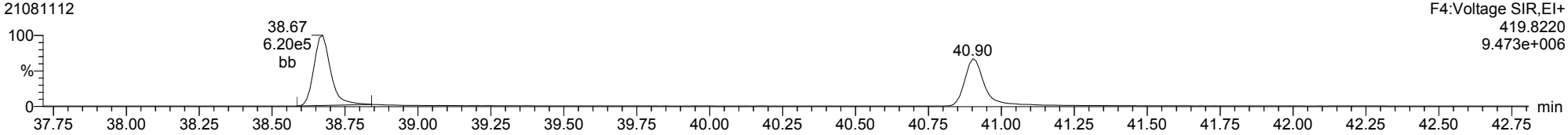

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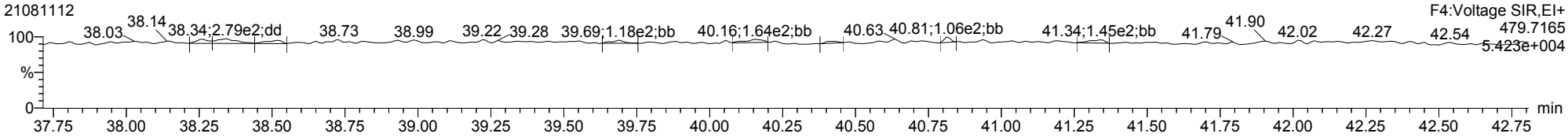

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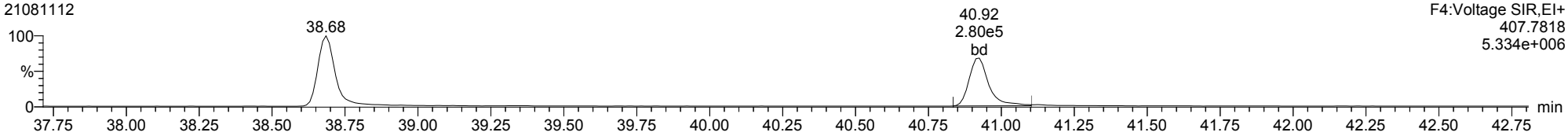

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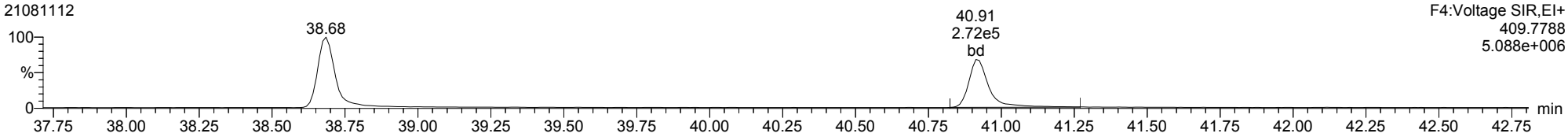

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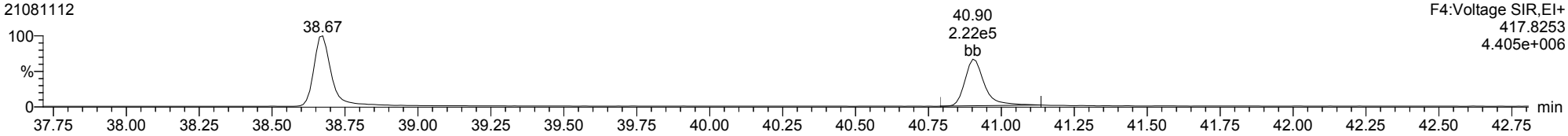

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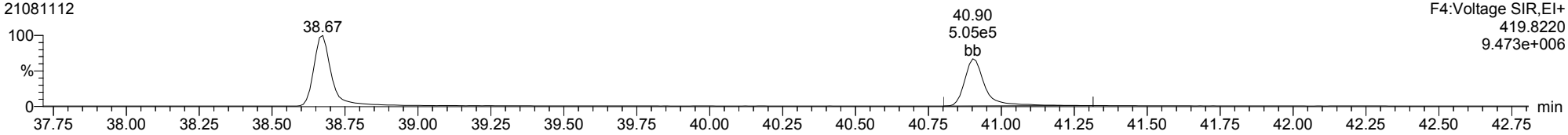

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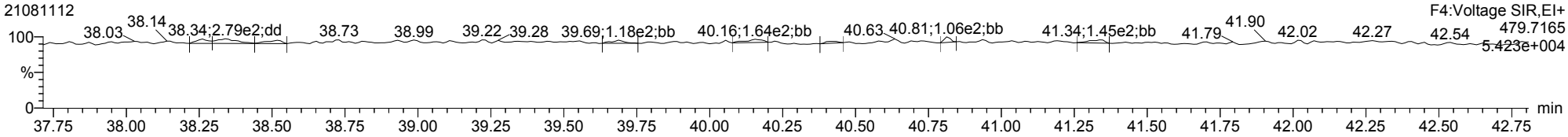

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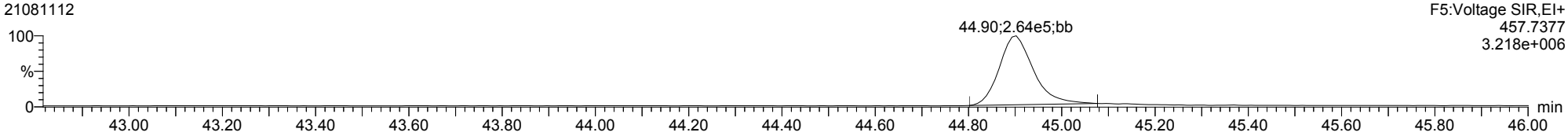

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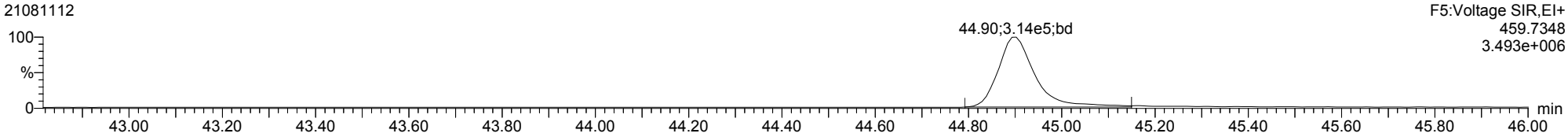

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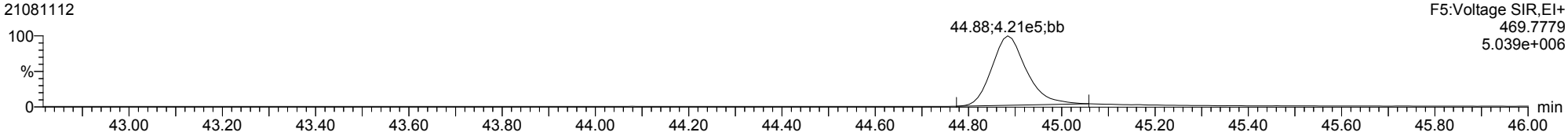

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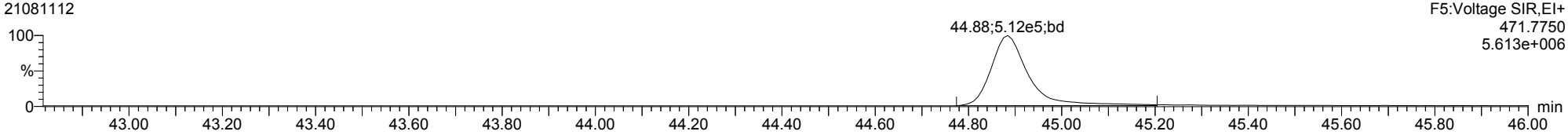
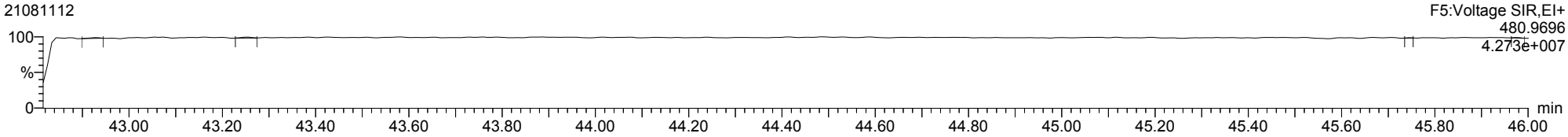


FUNCTION5 PFK



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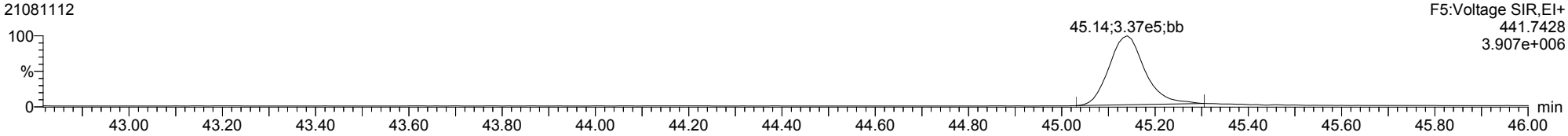

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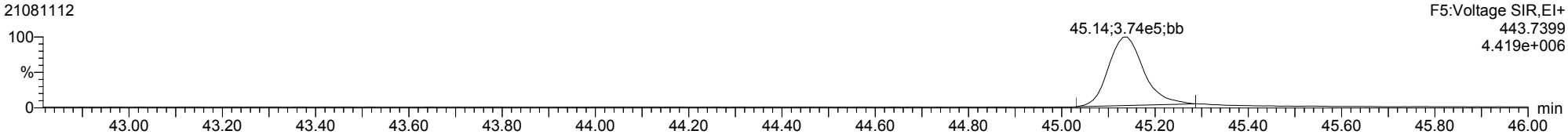
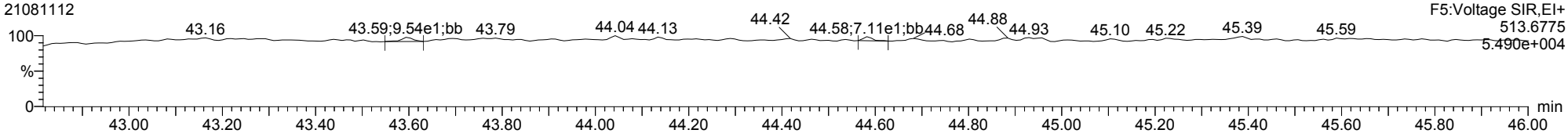


FUNCTION5 DCDPE



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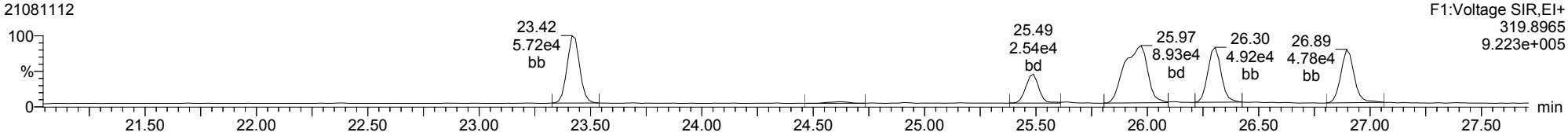

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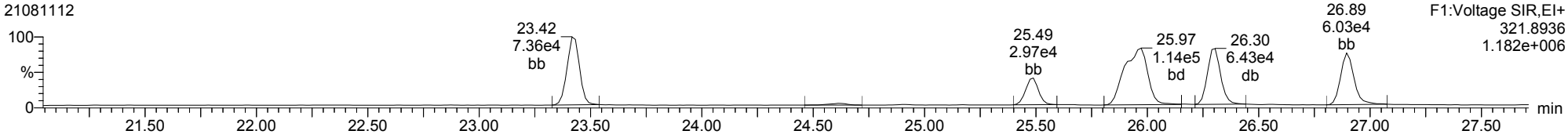

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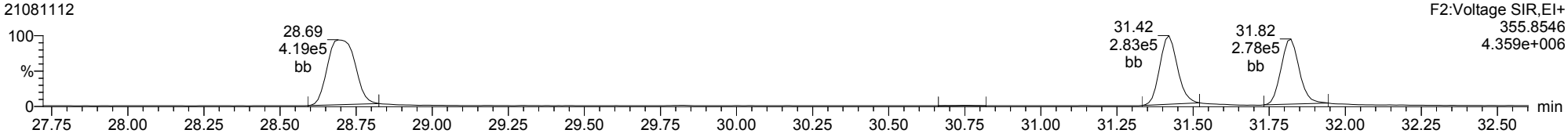

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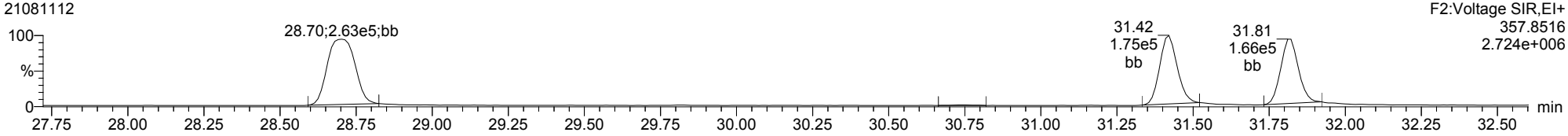

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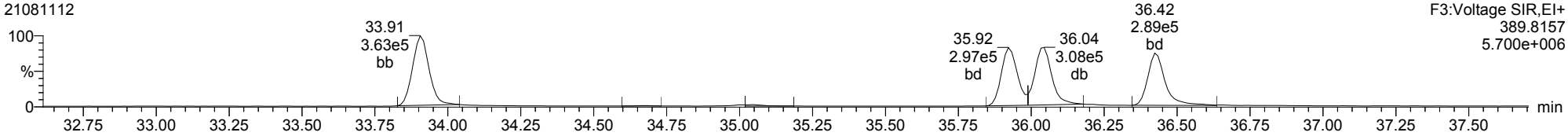

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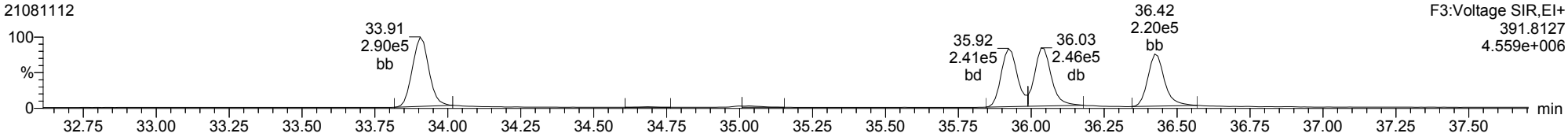

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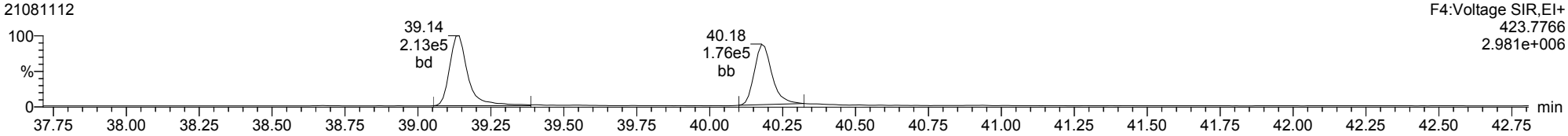

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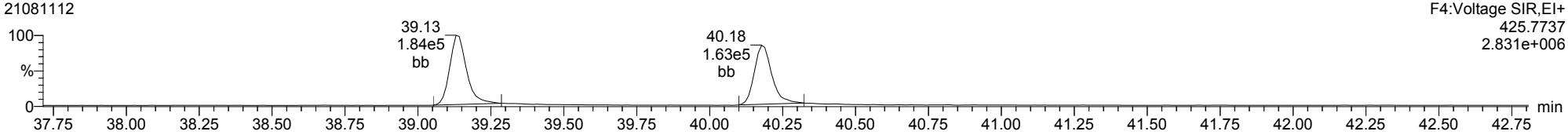

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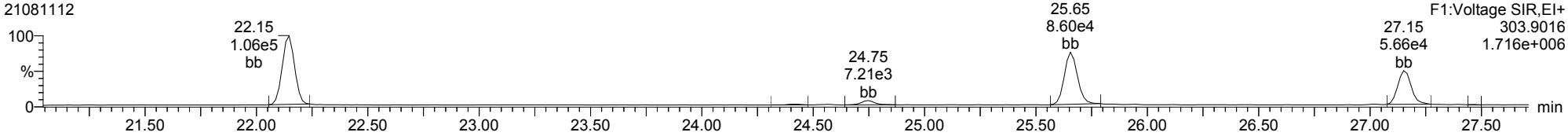
Total-tetrafurans



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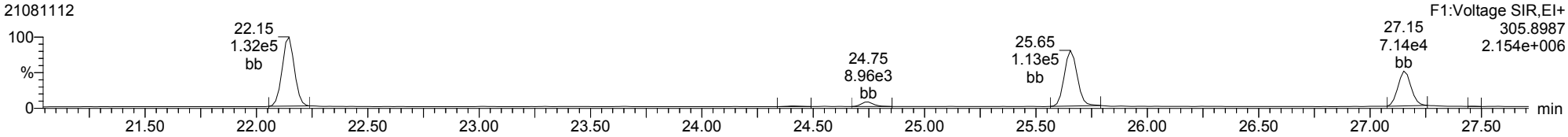

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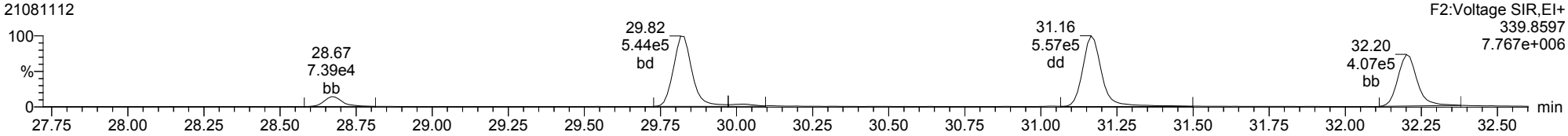

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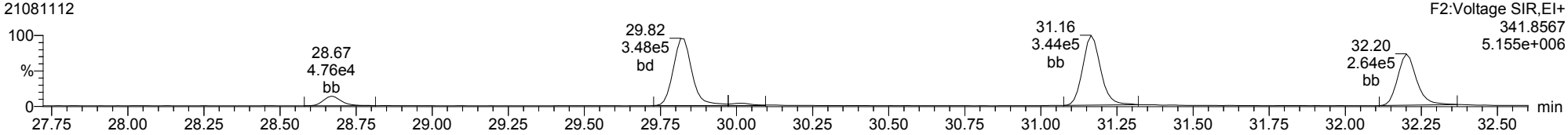

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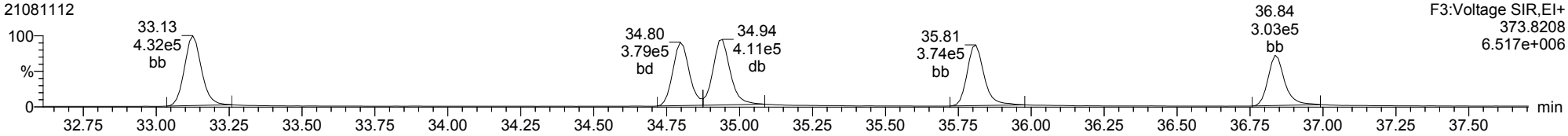
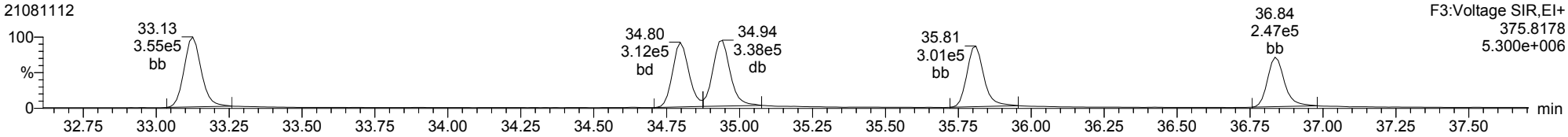
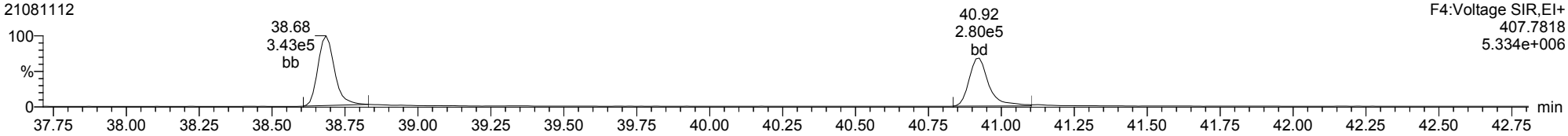


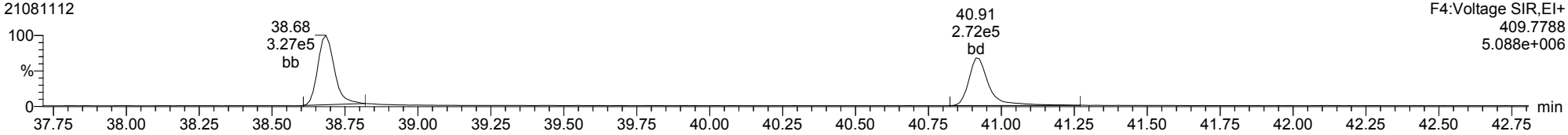
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21081102A	Calibration Date:	08/11/2021
Sequence:	SJH0117	Injection Date:	08/11/21
Lab Sample ID:	SJH0117-ICV1	Injection Time:	15:52
Sequence Name:	CS3Z1		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	10.0	1.1075930	1.1077110		0.01	+/-16
2,3,7,8-TCDD	A	10.000	10.1	0.9202875	0.9284105		0.9	+/-22
1,2,3,7,8-PeCDF	A	50.000	49.2	1.0148670	0.9995080		-1.5	+/-18
2,3,4,7,8-PeCDF	A	50.000	48.7	1.1255490	1.0954980		-2.7	+/-18
1,2,3,7,8-PeCDD	A	50.000	50.2	0.9953229	0.9990428		0.4	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	50.2	1.0168930	1.0212530		0.4	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	47.8	1.0368310	0.9915618		-4.4	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	50.4	1.0524660	1.0603150		0.7	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.8	1.0301540	1.0057070		-2.4	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.3	1.0273630	0.9722491		-5.4	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	50.0	1.0089800	1.0086830		-0.03	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.4	0.9504865	0.9588368		0.9	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.0	1.3273500	1.2489740		-5.9	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	49.8	1.2833380	1.2794880		-0.3	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	49.1	1.0680880	1.0488330		-1.8	+/-14
OCDF	A	100.00	102	1.4469010	1.4716110		1.7	+/-37
OCDD	A	100.00	101	1.1808230	1.1910740		0.9	+/-21
13C12-2,3,7,8-TCDF	A	100.00	97.0	1.4265830	1.3833974		-3.0	+/-29
13C12-2,3,7,8-TCDD	A	100.00	98.2	1.1164910	1.0967480		-1.8	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	101	1.2973130	1.3060196		0.7	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	98.5	1.2364800	1.2175454		-1.5	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	97.6	0.7319833	0.7145332		-2.4	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	100	1.2424560	1.2464182		0.3	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	97.8	1.3434760	1.3144117		-2.2	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	97.5	1.2148550	1.1850193		-2.5	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	101	1.0076370	1.0160317		0.8	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	102	0.9598233	0.9797140		2.1	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	98.4	1.0413850	1.0245183		-1.6	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	104	0.9264704	0.9662886		4.3	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	98.3	0.7579160	0.7446856		-1.7	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	100	0.6324476	0.6342498		0.3	+/-18

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21081102A	Calibration Date:	08/11/2021
Sequence:	SJH0117	Injection Date:	08/11/21
Lab Sample ID:	SJH0117-ICV1	Injection Time:	15:52
Sequence Name:	CS3Z1		

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-OCDD	A	200.00	192	0.5037432	0.4842057		-3.9	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.10	1.0835930	0.9862871		-9.0	+/-21

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210811OPIH.qld
Last Altered: Friday, August 13, 2021 13:46:19 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:18 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.670	1.001	8.902e4	1.133e5	1.108	0.786	0.770	1958	2663	1.32e6	1.68e6	673.9	629.8	NO	bb	bb	10.001
12378-PeCDF	29.839	1.001	5.239e5	3.377e5	1.015	1.551	1.550	4825	3545	7.60e6	4.90e6	1575.8	1380.8	NO	bd	bd	49.243
23478-PeCDF	31.176	1.000	5.339e5	3.465e5	1.126	1.541	1.550	4825	3545	7.99e6	5.23e6	1655.4	1475.6	NO	bb	bb	48.665
123478-HxCDF	34.808	1.001	3.922e5	3.304e5	1.017	1.187	1.240	5108	3767	6.13e6	5.10e6	1199.4	1354.2	NO	bd	bd	50.214
234678-HxCDF	35.811	1.000	3.798e5	3.334e5	1.052	1.139	1.240	5108	3767	5.91e6	5.06e6	1156.4	1342.6	NO	bb	bd	50.373
123678-HxCDF	34.953	1.001	3.986e5	3.412e5	1.037	1.168	1.240	5108	3767	6.15e6	5.27e6	1203.5	1400.2	NO	db	db	47.817
123789-HxCDF	36.847	1.001	3.213e5	2.587e5	1.030	1.242	1.240	5108	3767	5.03e6	4.09e6	985.1	1084.6	NO	bb	bb	48.813
1234678-HpCDF	38.686	1.000	3.490e5	3.361e5	1.327	1.039	1.050	3058	3315	5.66e6	5.48e6	1851.1	1652.8	NO	bb	bb	47.048
1234789-HpCDF	40.925	1.000	2.753e5	2.656e5	1.283	1.037	1.050	3058	3315	3.99e6	3.76e6	1303.3	1135.6	NO	bb	bb	49.850
OCDF	45.151	1.006	3.754e5	4.336e5	1.447	0.866	0.890	3320	3912	4.43e6	4.94e6	1334.9	1262.9	NO	bb	bd	101.708
2378-TCDD	26.320	1.001	5.926e4	7.515e4	0.920	0.789	0.770	1939	1555	8.85e5	1.10e6	456.4	706.1	NO	bd	bd	10.088
12378-PeCDD	31.433	1.000	2.927e5	1.785e5	0.995	1.640	1.550	3470	2936	4.58e6	2.76e6	1321.1	939.4	NO	bb	bb	50.187
123478-HxCDD	35.934	1.000	2.991e5	2.416e5	1.027	1.238	1.240	3219	3115	4.94e6	3.87e6	1534.6	1241.1	NO	bd	bd	47.318
123678-HxCDD	36.045	1.000	3.233e5	2.634e5	1.009	1.227	1.240	3219	3115	5.00e6	4.08e6	1551.8	1310.0	NO	db	db	49.985
123789-HxCDD	36.435	1.011	3.026e5	2.429e5	0.950	1.246	1.240	3219	3115	4.82e6	3.92e6	1498.5	1258.1	NO	bb	bb	50.439
1234678-HpCDD	40.190	1.001	1.957e5	1.819e5	1.068	1.076	1.050	2559	2522	3.01e6	2.73e6	1176.5	1082.4	NO	bb	bb	49.099
OCDD	44.913	1.000	3.198e5	3.350e5	1.181	0.955	0.890	4357	2991	3.74e6	3.99e6	858.0	1332.5	NO	bd	bb	100.868
13C-2378-TCDF	25.655	1.007	8.206e5	1.006e6	1.427	0.816	0.770	4075	2692	1.20e7	1.49e7	2955.7	5529.6	NO	bb	bb	96.973
13C-12378-PeCDF	29.817	1.170	1.070e6	6.544e5	1.297	1.635	1.550	4411	4646	1.56e7	9.58e6	3543.1	2061.5	NO	bd	bd	100.671
13C-23478-PeCDF	31.165	1.223	9.932e5	6.141e5	1.236	1.617	1.550	4411	4646	1.50e7	9.23e6	3411.4	1986.3	NO	bb	bb	98.469
13C-123478-HxCDF	34.786	0.955	4.832e5	9.318e5	1.242	0.519	0.510	4989	3890	7.30e6	1.43e7	1462.4	3668.4	NO	bd	bd	100.319
13C-123678-HxCDF	34.931	0.959	5.150e5	9.773e5	1.343	0.527	0.510	4989	3890	7.77e6	1.50e7	1557.9	3855.7	NO	db	db	97.837
13C-234678-HxCDF	35.800	0.983	4.651e5	8.803e5	1.215	0.528	0.510	4989	3890	7.33e6	1.38e7	1468.6	3541.1	NO	bb	bb	97.544
13C-123789-HxCDF	36.825	1.011	3.927e5	7.608e5	1.008	0.516	0.510	4989	3890	6.26e6	1.20e7	1253.7	3088.4	NO	bb	bb	100.833
13C-1234678-HpCDF	38.674	1.062	3.449e5	7.522e5	0.926	0.458	0.440	3145	4311	5.29e6	1.14e7	1682.9	2655.1	NO	bb	bb	104.298
13C-1234789-HpCDF	40.914	1.123	2.744e5	5.710e5	0.758	0.481	0.440	3145	4311	3.76e6	8.07e6	1195.1	1872.2	NO	bd	bb	98.254
13C-1234-TCDD	25.489	0.000	5.718e5	7.482e5	1.000	0.764	0.770	4151	2043	8.73e6	1.13e7	2103.4	5543.5	NO	bb	bb	100.000
13C-2378-TCDD	26.305	1.032	6.240e5	8.238e5	1.116	0.757	0.770	4151	2043	9.25e6	1.20e7	2227.1	5882.2	NO	bb	bb	98.232
13C-12378-PeCDD	31.421	1.233	5.778e5	3.654e5	0.732	1.581	1.550	1938	1666	8.67e6	5.50e6	4471.7	3304.0	NO	bb	bb	97.616
13C-123478-HxCDD	35.923	0.986	6.206e5	4.917e5	0.960	1.262	1.240	3942	2807	1.00e7	7.88e6	2545.3	2806.9	NO	bd	bd	102.072
13C-123678-HxCDD	36.034	0.989	6.519e5	5.112e5	1.041	1.275	1.240	3942	2807	1.04e7	8.03e6	2629.6	2860.2	NO	db	db	98.380
13C-1234678-HpCDD	40.167	1.103	3.581e5	3.620e5	0.632	0.989	1.050	2149	2958	5.25e6	5.15e6	2444.3	1742.2	NO	bb	bd	100.285
13C-OCDD	44.895	1.233	5.278e5	5.716e5	0.504	0.923	0.890	3201	2192	6.40e6	6.96e6	2000.9	3177.8	NO	bb	bb	192.243
13C-123789-HxCDD	36.424	0.000	6.319e5	5.034e5	1.000	1.255	1.240	3942	2807	1.01e7	7.97e6	2559.4	2838.3	NO	bb	bb	100.000
37CL-2378-TCDD	26.320	1.033	1.302e5		1.084			2110		1.92e6		908.2			bb		9.102

Dataset: T:\Autospec\Processed Data Batch\210811OPIH.qld
Last Altered: Friday, August 13, 2021 13:46:19 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:18 Pacific Daylight Time

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.162	0.864	1.165e5	1.476e5	1.425	0.789	0.770	1958	2663	1.81e6	2.35e6	924.6	882.7	NO	bb	bb	10.147
1289-TCDF	27.167	1.059	8.551e4	1.118e5	1.043	0.765	0.770	1958	2663	1.20e6	1.60e6	613.2	599.1	NO	bd	bb	10.361
13468-PECDF	27.031	0.907	7.097e5	4.633e5	1.376	1.532	1.550	1203	1679	1.10e7	7.18e6	9107.9	4274.2	NO	bb	bb	49.438
12389-PECDF	32.223	1.081	5.049e5	3.400e5	1.000	1.485	1.550	4825	3545	7.23e6	4.67e6	1498.0	1315.9	NO	bb	bb	49.030
123468-HXCDF	33.137	0.953	4.194e5	3.428e5	1.087	1.224	1.240	5108	3767	6.33e6	5.17e6	1238.3	1372.7	NO	bb	bb	49.568
1368-TCDD	23.447	0.891	6.078e4	7.571e4	0.923	0.803	0.770	1939	1555	9.27e5	1.19e6	478.0	768.3	NO	bb	bb	10.211
1289-TCDD	26.910	1.023	4.979e4	6.423e4	0.794	0.775	0.770	1939	1555	6.99e5	9.07e5	360.5	583.0	NO	bb	bb	9.919
12479-PECDD	28.703	0.914	5.225e5	3.218e5	1.843	1.624	1.550	3470	2936	5.14e6	3.13e6	1480.8	1067.3	NO	bb	bb	48.556
12389-PECDD	31.834	1.013	3.395e5	2.081e5	1.154	1.631	1.550	3470	2936	5.21e6	3.19e6	1502.4	1086.5	NO	bb	bb	50.328
124679-HXCDD	33.917	0.944	3.417e5	2.767e5	1.125	1.235	1.240	3219	3115	5.35e6	4.35e6	1662.2	1396.7	NO	bb	bb	49.416
1234679-HPCDD	39.143	0.975	2.374e5	2.053e5	1.211	1.156	1.050	2559	2522	3.59e6	3.25e6	1401.9	1288.3	NO	bd	bb	50.762
Total-tetrafurans			2.912e5		1.192			1958		4.34e6							30.532
Total-penta1			7.097e5					1203		1.10e7							49.438
Total-pentafurans			1.650e6		1.047			4825		2.41e7							155.272
Total-hexafurans			1.912e6		1.045			5108		2.95e7							246.824
Total-heptafurans			6.258e5		1.305			3058		9.68e6							97.121
Total-Furans			5.564e6		1.158			1958		8.31e7							680.896
Total-tetradioxins			2.884e5		0.879			1939		3.90e6							51.498
Total-pentadioxins			1.155e6		1.331			3470		1.49e7							149.072
Total-hexadioxins			1.267e6		1.028			3219		2.01e7							197.158
Total-heptadioxins			4.333e5		1.140			2559		6.61e6							99.909
Total-Dioxins			3.463e6		1.092			1939		4.93e7							598.505
Total-TEQ			9.027e6					1939		1.32e8							1279.400
FUNCTION1 PFK			7.497e7					931555		7.57e8							
FUNCTION2 PFK			1.403e4					495160		7.03e5							0.000
FUNCTION3 PFK			1.559e7					777216		1.63e8							0.000
FUNCTION4 PFK			9.472e5					399457		2.55e7							
FUNCTION5 PFK			1.427e5					401172		4.69e6							
FUNCTION1 HXCD...			2.128e3					1303		3.87e4							0.000
FUNCTION1 HPCD...			2.207e3					986		4.23e4							0.000
FUNCTION2 HPCD...			1.749e3					1290		3.83e4							0.000
FUNCTION3 OCDPE			2.044e3					954		3.94e4							0.000
FUNCTION4 NCDPE			1.068e3					1777		2.89e4							0.000
FUNCTION5 DCDPE			3.560e2					996		9.06e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210811OPIH.qld
Last Altered: Friday, August 13, 2021 13:46:19 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:18 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.67	8.902e4	1.133e5	1.108	0.79	0.77	673.9	YES	NO	bb	bb	10.001
2	1368-TCDF	22.16	1.165e5	1.476e5	1.425	0.79	0.77	924.6	YES	NO	bb	bb	10.147
3	1289-TCDF	27.17	8.551e4	1.118e5	1.043	0.76	0.77	613.2	YES	NO	bd	bb	10.361
4	Total-tetrafurans	27.03	1.982e2	3.027e2	1.192	0.65	0.77	2.7	NO	NO	bb	bb	0.023

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.03	7.097e5	4.633e5	1.376	1.53	1.55	9107.9	YES	NO	bb	bb	49.438

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.18	5.339e5	3.465e5	1.126	1.54	1.55	1655.4	YES	NO	bb	bb	48.665
2	Total-pentafurans	30.31	2.312e2	1.330e2	1.047	1.74	1.55	1.5	NO	NO	db	bb	0.021
3	12378-PeCDF	29.84	5.239e5	3.377e5	1.015	1.55	1.55	1575.8	YES	NO	bd	bd	49.243
4	Total-pentafurans	28.69	8.724e4	5.768e4	1.047	1.51	1.55	273.5	YES	NO	bb	bb	8.313
5	12389-PECDF	32.22	5.049e5	3.400e5	1.000	1.48	1.55	1498.0	YES	NO	bb	bb	49.030

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDF	34.81	3.922e5	3.304e5	1.017	1.19	1.24	1199.4	YES	NO	bd	bd	50.214
2	Total-hexafurans	33.61	2.863e2	2.564e2	1.045	1.12	1.24	2.0	NO	NO	db	bb	0.038
3	123468-HXCDF	33.14	4.194e5	3.428e5	1.087	1.22	1.24	1238.3	YES	NO	bb	bb	49.568
4	123789-HxCDF	36.85	3.213e5	2.587e5	1.030	1.24	1.24	985.1	YES	NO	bb	bb	48.813
5	234678-HxCDF	35.81	3.798e5	3.334e5	1.052	1.14	1.24	1156.4	YES	NO	bb	bd	50.373
6	123678-HxCDF	34.95	3.986e5	3.412e5	1.037	1.17	1.24	1203.5	YES	NO	db	db	47.817

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.69	3.490e5	3.361e5	1.327	1.04	1.05	1851.1	YES	NO	bb	bb	47.048
2	Total-heptafurans	41.42	4.189e2	4.634e2	1.305	0.90	1.05	5.0	NO	NO	bd	bd	0.070
3	1234789-HpCDF	40.93	2.753e5	2.656e5	1.283	1.04	1.05	1303.3	YES	NO	bb	bb	49.850
4	Total-heptafurans	39.35	1.023e3	9.285e2	1.305	1.10	1.05	6.8	YES	NO	db	bb	0.154

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.67	8.902e4	1.133e5	1.108	0.79	0.77	673.9	YES	NO	bb	bb	10.001
2	1368-TCDF	22.16	1.165e5	1.476e5	1.425	0.79	0.77	924.6	YES	NO	bb	bb	10.147
3	1289-TCDF	27.17	8.551e4	1.118e5	1.043	0.76	0.77	613.2	YES	NO	bd	bb	10.361
4	Total-tetrafurans	27.03	1.982e2	3.027e2	1.192	0.65	0.77	2.7	NO	NO	bb	bb	0.023
5	23478-PeCDF	31.18	5.339e5	3.465e5	1.126	1.54	1.55	1655.4	YES	NO	bb	bb	48.665
6	Total-pentafurans	30.31	2.312e2	1.330e2	1.047	1.74	1.55	1.5	NO	NO	db	bb	0.021
7	12378-PeCDF	29.84	5.239e5	3.377e5	1.015	1.55	1.55	1575.8	YES	NO	bd	bd	49.243
8	Total-pentafurans	28.69	8.724e4	5.768e4	1.047	1.51	1.55	273.5	YES	NO	bb	bb	8.313
9	12389-PECDF	32.22	5.049e5	3.400e5	1.000	1.48	1.55	1498.0	YES	NO	bb	bb	49.030
10	123478-HxCDF	34.81	3.922e5	3.304e5	1.017	1.19	1.24	1199.4	YES	NO	bd	bd	50.214
11	Total-hexafurans	33.61	2.863e2	2.564e2	1.045	1.12	1.24	2.0	NO	NO	db	bb	0.038
12	123468-HXCDF	33.14	4.194e5	3.428e5	1.087	1.22	1.24	1238.3	YES	NO	bb	bb	49.568
13	123789-HxCDF	36.85	3.213e5	2.587e5	1.030	1.24	1.24	985.1	YES	NO	bb	bb	48.813
14	234678-HxCDF	35.81	3.798e5	3.334e5	1.052	1.14	1.24	1156.4	YES	NO	bb	bd	50.373
15	123678-HxCDF	34.95	3.986e5	3.412e5	1.037	1.17	1.24	1203.5	YES	NO	db	db	47.817
16	1234678-HpCDF	38.69	3.490e5	3.361e5	1.327	1.04	1.05	1851.1	YES	NO	bb	bb	47.048
17	Total-heptafurans	41.42	4.189e2	4.634e2	1.305	0.90	1.05	5.0	NO	NO	bd	bd	0.070
18	1234789-HpCDF	40.93	2.753e5	2.656e5	1.283	1.04	1.05	1303.3	YES	NO	bb	bb	49.850
19	Total-heptafurans	39.35	1.023e3	9.285e2	1.305	1.10	1.05	6.8	YES	NO	db	bb	0.154
20	OCDF	45.15	3.754e5	4.336e5	1.447	0.87	0.89	1334.9	YES	NO	bb	bd	101.708
21	13468-PECDF	27.03	7.097e5	4.633e5	1.376	1.53	1.55	9107.9	YES	NO	bb	bb	49.438

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.50	2.869e4	3.525e4	0.879	0.81	0.77	221.4	YES	NO	bd	bb	5.023
2	Total-tetradioxins	24.64	1.460e3	1.658e3	0.879	0.88	0.77	11.7	YES	NO	db	db	0.245
3	1368-TCDD	23.45	6.078e4	7.571e4	0.923	0.80	0.77	478.0	YES	NO	bb	bb	10.211
4	1289-TCDD	26.91	4.979e4	6.423e4	0.794	0.78	0.77	360.5	YES	NO	bb	bb	9.919
5	2378-TCDD	26.32	5.926e4	7.515e4	0.920	0.79	0.77	456.4	YES	NO	bd	bd	10.088
6	Total-tetradioxins	25.99	8.845e4	1.153e5	0.879	0.77	0.77	484.2	YES	NO	bb	bb	16.011

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.70	5.225e5	3.218e5	1.843	1.62	1.55	1480.8	YES	NO	bb	bb	48.556
2	12389-PECDD	31.83	3.395e5	2.081e5	1.154	1.63	1.55	1502.4	YES	NO	bb	bb	50.328
3	12378-PeCDD	31.43	2.927e5	1.785e5	0.995	1.64	1.55	1321.1	YES	NO	bb	bb	50.187

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.92	3.417e5	2.767e5	1.125	1.23	1.24	1662.2	YES	NO	bb	bb	49.416
2	123789-HxCDD	36.44	3.026e5	2.429e5	0.950	1.25	1.24	1498.5	YES	NO	bb	bb	50.439
3	123678-HxCDD	36.04	3.233e5	2.634e5	1.009	1.23	1.24	1551.8	YES	NO	db	db	49.985
4	123478-HxCDD	35.93	2.991e5	2.416e5	1.027	1.24	1.24	1534.6	YES	NO	bd	bd	47.318

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.19	1.957e5	1.819e5	1.068	1.08	1.05	1176.5	YES	NO	bb	bb	49.099
2	Total-heptadioxins	39.60	2.092e2	1.843e2	1.140	1.14	1.05	3.3	NO	NO	bb	bb	0.048
3	1234679-HPCDD	39.14	2.374e5	2.053e5	1.211	1.16	1.05	1401.9	YES	NO	bd	bb	50.762

Dataset: T:\Autospec\Processed Data Batch\210811OPIH.qld
Last Altered: Friday, August 13, 2021 13:46:19 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:18 Pacific Daylight Time

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.50	2.869e4	3.525e4	0.879	0.81	0.77	221.4	YES	NO	bd	bb	5.023
2	Total-tetradioxins	24.64	1.460e3	1.658e3	0.879	0.88	0.77	11.7	YES	NO	db	db	0.245
3	1368-TCDD	23.45	6.078e4	7.571e4	0.923	0.80	0.77	478.0	YES	NO	bb	bb	10.211
4	1289-TCDD	26.91	4.979e4	6.423e4	0.794	0.78	0.77	360.5	YES	NO	bb	bb	9.919
5	2378-TCDD	26.32	5.926e4	7.515e4	0.920	0.79	0.77	456.4	YES	NO	bd	bd	10.088
6	Total-tetradioxins	25.99	8.845e4	1.153e5	0.879	0.77	0.77	484.2	YES	NO	bb	bb	16.011
7	12479-PECDD	28.70	5.225e5	3.218e5	1.843	1.62	1.55	1480.8	YES	NO	bb	bb	48.556
8	12389-PECDD	31.83	3.395e5	2.081e5	1.154	1.63	1.55	1502.4	YES	NO	bb	bb	50.328
9	12378-PeCDD	31.43	2.927e5	1.785e5	0.995	1.64	1.55	1321.1	YES	NO	bb	bb	50.187
10	124679-HXCDD	33.92	3.417e5	2.767e5	1.125	1.23	1.24	1662.2	YES	NO	bb	bb	49.416
11	123789-HxCDD	36.44	3.026e5	2.429e5	0.950	1.25	1.24	1498.5	YES	NO	bb	bb	50.439
12	123678-HxCDD	36.04	3.233e5	2.634e5	1.009	1.23	1.24	1551.8	YES	NO	db	db	49.985
13	123478-HxCDD	35.93	2.991e5	2.416e5	1.027	1.24	1.24	1534.6	YES	NO	bd	bd	47.318
14	1234678-HpCDD	40.19	1.957e5	1.819e5	1.068	1.08	1.05	1176.5	YES	NO	bb	bb	49.099
15	Total-heptadioxins	39.60	2.092e2	1.843e2	1.140	1.14	1.05	3.3	NO	NO	bb	bb	0.048
16	1234679-HPCDD	39.14	2.374e5	2.053e5	1.211	1.16	1.05	1401.9	YES	NO	bd	bb	50.762
17	OCDD	44.91	3.198e5	3.350e5	1.181	0.95	0.89	858.0	YES	NO	bd	bb	100.868

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.67	8.902e4	1.133e5	1.108	0.79	0.77	673.9	YES	NO	bb	bb	10.001
2	1368-TCDF	22.16	1.165e5	1.476e5	1.425	0.79	0.77	924.6	YES	NO	bb	bb	10.147
3	1289-TCDF	27.17	8.551e4	1.118e5	1.043	0.76	0.77	613.2	YES	NO	bd	bb	10.361
4	Total-tetrafurans	27.03	1.982e2	3.027e2	1.192	0.65	0.77	2.7	NO	NO	bb	bb	0.023
5	23478-PeCDF	31.18	5.339e5	3.465e5	1.126	1.54	1.55	1655.4	YES	NO	bb	bb	48.665
6	Total-pentafurans	30.31	2.312e2	1.330e2	1.047	1.74	1.55	1.5	NO	NO	db	bb	0.021
7	12378-PeCDF	29.84	5.239e5	3.377e5	1.015	1.55	1.55	1575.8	YES	NO	bd	bd	49.243
8	Total-pentafurans	28.69	8.724e4	5.768e4	1.047	1.51	1.55	273.5	YES	NO	bb	bb	8.313
9	12389-PECDF	32.22	5.049e5	3.400e5	1.000	1.48	1.55	1498.0	YES	NO	bb	bb	49.030
10	123478-HxCDF	34.81	3.922e5	3.304e5	1.017	1.19	1.24	1199.4	YES	NO	bd	bd	50.214
11	Total-hexafurans	33.61	2.863e2	2.564e2	1.045	1.12	1.24	2.0	NO	NO	db	bb	0.038
12	123468-HXCDF	33.14	4.194e5	3.428e5	1.087	1.22	1.24	1238.3	YES	NO	bb	bb	49.568
13	123789-HxCDF	36.85	3.213e5	2.587e5	1.030	1.24	1.24	985.1	YES	NO	bb	bb	48.813
14	234678-HxCDF	35.81	3.798e5	3.334e5	1.052	1.14	1.24	1156.4	YES	NO	bb	bd	50.373
15	123678-HxCDF	34.95	3.986e5	3.412e5	1.037	1.17	1.24	1203.5	YES	NO	db	db	47.817
16	1234678-HpCDF	38.69	3.490e5	3.361e5	1.327	1.04	1.05	1851.1	YES	NO	bb	bb	47.048
17	Total-heptafurans	41.42	4.189e2	4.634e2	1.305	0.90	1.05	5.0	NO	NO	bd	bd	0.070
18	1234789-HpCDF	40.93	2.753e5	2.656e5	1.283	1.04	1.05	1303.3	YES	NO	bb	bb	49.850
19	Total-heptafurans	39.35	1.023e3	9.285e2	1.305	1.10	1.05	6.8	YES	NO	db	bb	0.154
20	OCDF	45.15	3.754e5	4.336e5	1.447	0.87	0.89	1334.9	YES	NO	bb	bd	101.708
21	13468-PECDF	27.03	7.097e5	4.633e5	1.376	1.53	1.55	9107.9	YES	NO	bb	bb	49.438
22	Total-tetradioxins	25.50	2.869e4	3.525e4	0.879	0.81	0.77	221.4	YES	NO	bd	bb	5.023
23	Total-tetradioxins	24.64	1.460e3	1.658e3	0.879	0.88	0.77	11.7	YES	NO	db	db	0.245
24	1368-TCDD	23.45	6.078e4	7.571e4	0.923	0.80	0.77	478.0	YES	NO	bb	bb	10.211
25	1289-TCDD	26.91	4.979e4	6.423e4	0.794	0.78	0.77	360.5	YES	NO	bb	bb	9.919
26	2378-TCDD	26.32	5.926e4	7.515e4	0.920	0.79	0.77	456.4	YES	NO	bd	bd	10.088
27	Total-tetradioxins	25.99	8.845e4	1.153e5	0.879	0.77	0.77	484.2	YES	NO	bb	bb	16.011
28	12479-PECDD	28.70	5.225e5	3.218e5	1.843	1.62	1.55	1480.8	YES	NO	bb	bb	48.556
29	12389-PECDD	31.83	3.395e5	2.081e5	1.154	1.63	1.55	1502.4	YES	NO	bb	bb	50.328
30	12378-PeCDD	31.43	2.927e5	1.785e5	0.995	1.64	1.55	1321.1	YES	NO	bb	bb	50.187
31	124679-HXCDD	33.92	3.417e5	2.767e5	1.125	1.23	1.24	1662.2	YES	NO	bb	bb	49.416
32	123789-HxCDD	36.44	3.026e5	2.429e5	0.950	1.25	1.24	1498.5	YES	NO	bb	bb	50.439
33	123678-HxCDD	36.04	3.233e5	2.634e5	1.009	1.23	1.24	1551.8	YES	NO	db	db	49.985
34	123478-HxCDD	35.93	2.991e5	2.416e5	1.027	1.24	1.24	1534.6	YES	NO	bd	bd	47.318
35	1234678-HpCDD	40.19	1.957e5	1.819e5	1.068	1.08	1.05	1176.5	YES	NO	bb	bb	49.099
36	Total-heptadioxins	39.60	2.092e2	1.843e2	1.140	1.14	1.05	3.3	NO	NO	bb	bb	0.048
37	1234679-HPCDD	39.14	2.374e5	2.053e5	1.211	1.16	1.05	1401.9	YES	NO	bd	bb	50.762

Dataset: T:\Autospec\Processed Data Batch\210811OPIH.qld
Last Altered: Friday, August 13, 2021 13:46:19 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:18 Pacific Daylight Time

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	OCDD	44.91	3.198e5	3.350e5	1.181	0.95	0.89	858.0	YES	NO	bd	bb	100.868

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.09	3.173e6					32.9	YES		dd		
2	FUNCTION1 PFK	21.95	4.338e6					35.4	YES		dd		
3	FUNCTION1 PFK	21.89	1.994e6					35.6	YES		dd		
4	FUNCTION1 PFK	21.78	3.620e6					37.5	YES		dd		
5	FUNCTION1 PFK	21.72	1.602e6					38.4	YES		dd		
6	FUNCTION1 PFK	21.47	9.633e6					42.3	YES		dd		
7	FUNCTION1 PFK	21.42	1.809e6					43.0	YES		dd		
8	FUNCTION1 PFK	21.36	3.029e6					43.7	YES		dd		
9	FUNCTION1 PFK	21.30	2.466e6					44.4	YES		dd		
10	FUNCTION1 PFK	21.24	2.474e6					44.4	YES		dd		
11	FUNCTION1 PFK	21.19	2.531e6					45.0	YES		dd		
12	FUNCTION1 PFK	21.10	3.864e6					46.5	YES		bd		
13	FUNCTION1 PFK	24.14	6.769e5					4.7	YES		dd		
14	FUNCTION1 PFK	24.02	3.800e5					6.1	YES		dd		
15	FUNCTION1 PFK	23.92	2.778e6					7.7	YES		dd		
16	FUNCTION1 PFK	23.58	1.868e6					12.1	YES		dd		
17	FUNCTION1 PFK	23.37	1.553e6					14.8	YES		dd		
18	FUNCTION1 PFK	23.33	1.032e6					15.4	YES		dd		
19	FUNCTION1 PFK	23.25	1.094e6					16.3	YES		dd		
20	FUNCTION1 PFK	23.18	9.303e5					17.1	YES		dd		
21	FUNCTION1 PFK	23.10	9.838e5					18.2	YES		dd		
22	FUNCTION1 PFK	23.04	1.325e6					19.7	YES		dd		
23	FUNCTION1 PFK	22.98	8.500e5					20.6	YES		dd		
24	FUNCTION1 PFK	22.72	1.033e7					24.4	YES		dd		
25	FUNCTION1 PFK	22.46	1.941e6					28.2	YES		dd		
26	FUNCTION1 PFK	22.39	2.401e6					28.6	YES		dd		
27	FUNCTION1 PFK	22.25	2.940e6					30.7	YES		dd		
28	FUNCTION1 PFK	22.19	1.738e6					31.2	YES		dd		
29	FUNCTION1 PFK	26.47	3.766e4					1.0	NO		bd		
30	FUNCTION1 PFK	26.32	5.897e4					1.5	NO		bb		
31	FUNCTION1 PFK	26.20	1.093e5					1.6	NO		db		
32	FUNCTION1 PFK	26.06	5.774e4					1.0	NO		bd		
33	FUNCTION1 PFK	25.94	4.523e4					1.0	NO		db		
34	FUNCTION1 PFK	25.87	9.264e3					0.4	NO		bd		
35	FUNCTION1 PFK	25.56	1.026e5					1.4	NO		db		
36	FUNCTION1 PFK	25.37	1.980e5					1.7	NO		bd		
37	FUNCTION1 PFK	25.25	9.606e4					2.0	NO		db		

Dataset: T:\Autospec\Processed Data Batch\210811OPIH.qld
Last Altered: Friday, August 13, 2021 13:46:19 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:18 Pacific Daylight Time

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	25.19	4.790e4					1.1	NO		bd		
39	FUNCTION1 PFK	25.11	3.360e4					1.3	NO		bb		
40	FUNCTION1 PFK	24.96	1.063e5					1.2	NO		db		
41	FUNCTION1 PFK	24.84	4.838e4					1.2	NO		bd		
42	FUNCTION1 PFK	24.64	1.224e5					1.3	NO		bb		
43	FUNCTION1 PFK	24.57	1.472e4					0.4	NO		bb		
44	FUNCTION1 PFK	24.34	1.687e5					1.6	NO		db		
45	FUNCTION1 PFK	27.42	6.094e4					1.0	NO		bb		
46	FUNCTION1 PFK	27.29	2.824e4					0.9	NO		bb		
47	FUNCTION1 PFK	27.09	6.781e4					1.1	NO		bb		
48	FUNCTION1 PFK	26.89	6.876e4					1.6	NO		bb		
49	FUNCTION1 PFK	26.80	5.058e4					1.6	NO		bb		
50	FUNCTION1 PFK	26.62	7.413e3					0.5	NO		db		
51	FUNCTION1 PFK	26.53	7.589e4					1.4	NO		dd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.85	1.403e4					1.4	NO		bb		0.000

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.01	7.783e6					23.7	YES		dd		0.000
2	FUNCTION3 PFK	32.88	9.169e5					27.5	YES		dd		0.000
3	FUNCTION3 PFK	32.85	9.863e5					28.8	YES		dd		0.000
4	FUNCTION3 PFK	32.81	1.264e6					29.5	YES		dd		0.000
5	FUNCTION3 PFK	32.75	7.788e5					30.7	YES		dd		0.000
6	FUNCTION3 PFK	32.67	2.840e6					34.0	YES		bd		0.000
7	FUNCTION3 PFK	35.59	6.449e4					2.1	NO		dd		0.000
8	FUNCTION3 PFK	35.53	1.779e4					1.0	NO		bd		0.000
9	FUNCTION3 PFK	35.48	2.087e4					1.2	NO		bb		0.000
10	FUNCTION3 PFK	35.41	1.092e4					0.7	NO		bb		0.000
11	FUNCTION3 PFK	35.37	1.064e4					0.7	NO		bb		0.000
12	FUNCTION3 PFK	35.29	8.205e4					2.0	NO		bb		0.000
13	FUNCTION3 PFK	35.21	3.975e3					0.5	NO		bb		0.000
14	FUNCTION3 PFK	35.00	2.888e4					1.4	NO		db		0.000
15	FUNCTION3 PFK	34.96	1.601e4					0.8	NO		bd		0.000
16	FUNCTION3 PFK	34.89	7.327e4					1.5	NO		bb		0.000
17	FUNCTION3 PFK	34.45	1.429e4					0.9	NO		bb		0.000
18	FUNCTION3 PFK	34.37	8.429e4					1.7	NO		bb		0.000
19	FUNCTION3 PFK	34.21	2.012e4					1.0	NO		db		0.000
20	FUNCTION3 PFK	34.16	1.256e4					0.7	NO		bd		0.000
21	FUNCTION3 PFK	33.79	2.693e4					0.9	NO		bb		0.000
22	FUNCTION3 PFK	33.65	1.251e5					2.0	NO		db		0.000
23	FUNCTION3 PFK	37.46	4.002e4					1.5	NO		dd		0.000
24	FUNCTION3 PFK	37.43	1.823e4					1.2	NO		bd		0.000
25	FUNCTION3 PFK	37.20	1.493e4					0.7	NO		bb		0.000
26	FUNCTION3 PFK	37.08	5.227e3					0.6	NO		bb		0.000
27	FUNCTION3 PFK	37.04	4.983e3					0.5	NO		db		0.000
28	FUNCTION3 PFK	36.95	9.875e4					2.1	NO		bd		0.000
29	FUNCTION3 PFK	36.89	7.600e3					0.9	NO		bb		0.000
30	FUNCTION3 PFK	36.85	1.525e4					0.8	NO		db		0.000
31	FUNCTION3 PFK	36.77	1.939e4					0.9	NO		bd		0.000
32	FUNCTION3 PFK	36.70	1.915e4					1.1	NO		bb		0.000
33	FUNCTION3 PFK	36.57	4.814e3					0.4	NO		bb		0.000
34	FUNCTION3 PFK	36.37	3.520e3					0.4	NO		bb		0.000
35	FUNCTION3 PFK	35.89	9.707e3					0.6	NO		bb		0.000
36	FUNCTION3 PFK	35.77	2.145e4					1.1	NO		db		0.000
37	FUNCTION3 PFK	35.71	4.477e4					1.4	NO		bd		0.000

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ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	35.63	2.324e4					1.4	NO		db		0.000
39	FUNCTION3 PFK	37.49	5.980e4					1.5	NO		db		0.000

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.76	8.996e3					0.9	NO		bb		
2	FUNCTION4 PFK	39.19	4.206e3					0.6	NO		db		
3	FUNCTION4 PFK	39.12	2.936e4					1.3	NO		bd		
4	FUNCTION4 PFK	38.99	1.486e4					1.1	NO		bb		
5	FUNCTION4 PFK	38.79	2.766e3					0.5	NO		bb		
6	FUNCTION4 PFK	38.65	3.231e4					1.7	NO		db		
7	FUNCTION4 PFK	38.61	1.927e4					1.5	NO		bd		
8	FUNCTION4 PFK	38.53	3.522e4					1.5	NO		bb		
9	FUNCTION4 PFK	38.23	1.012e4					0.7	NO		db		
10	FUNCTION4 PFK	38.12	5.430e4					2.0	NO		bd		
11	FUNCTION4 PFK	38.04	5.219e4					2.1	NO		db		
12	FUNCTION4 PFK	37.95	4.466e4					2.6	NO		dd		
13	FUNCTION4 PFK	37.91	2.126e4					1.9	NO		bd		
14	FUNCTION4 PFK	37.85	1.298e4					1.0	NO		bb		
15	FUNCTION4 PFK	40.78	4.265e4					2.7	NO		db		
16	FUNCTION4 PFK	40.72	2.035e4					1.3	NO		dd		
17	FUNCTION4 PFK	40.67	8.429e3					1.0	NO		bd		
18	FUNCTION4 PFK	40.57	1.661e4					1.8	NO		db		
19	FUNCTION4 PFK	40.54	4.509e4					2.4	NO		bd		
20	FUNCTION4 PFK	40.47	3.385e3					0.8	NO		bb		
21	FUNCTION4 PFK	40.39	6.137e3					0.6	NO		bb		
22	FUNCTION4 PFK	40.28	2.283e4					1.9	NO		bb		
23	FUNCTION4 PFK	40.20	8.726e3					0.8	NO		bb		
24	FUNCTION4 PFK	40.13	6.294e3					0.8	NO		bb		
25	FUNCTION4 PFK	40.09	8.720e3					0.8	NO		db		
26	FUNCTION4 PFK	40.03	2.220e4					1.4	NO		bd		
27	FUNCTION4 PFK	39.99	5.215e3					0.8	NO		db		
28	FUNCTION4 PFK	39.96	2.681e4					1.7	NO		dd		
29	FUNCTION4 PFK	39.89	2.427e4					1.4	NO		dd		
30	FUNCTION4 PFK	39.81	2.079e4					1.6	NO		bd		
31	FUNCTION4 PFK	42.31	1.016e4					1.0	NO		bb		
32	FUNCTION4 PFK	42.17	7.068e3					0.7	NO		bb		
33	FUNCTION4 PFK	42.02	2.868e4					1.4	NO		bb		
34	FUNCTION4 PFK	41.92	3.621e4					1.9	NO		bb		
35	FUNCTION4 PFK	41.77	1.967e3					0.4	NO		bb		
36	FUNCTION4 PFK	41.52	2.070e3					0.5	NO		bb		
37	FUNCTION4 PFK	41.47	2.761e4					1.4	NO		db		

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	41.40	1.729e4					1.4	NO		bd		
39	FUNCTION4 PFK	41.34	2.985e4					1.8	NO		db		
40	FUNCTION4 PFK	41.26	2.077e4					1.6	NO		dd		
41	FUNCTION4 PFK	41.21	3.432e4					1.9	NO		dd		
42	FUNCTION4 PFK	41.17	9.450e3					1.0	NO		dd		
43	FUNCTION4 PFK	41.11	1.268e4					1.4	NO		bd		
44	FUNCTION4 PFK	40.97	2.039e3					0.5	NO		bb		
45	FUNCTION4 PFK	40.93	1.121e4					1.6	NO		bb		
46	FUNCTION4 PFK	40.84	2.327e3					0.5	NO		bb		
47	FUNCTION4 PFK	42.70	1.335e3					0.3	NO		bb		
48	FUNCTION4 PFK	42.52	3.683e4					1.5	NO		bb		
49	FUNCTION4 PFK	42.43	2.432e4					1.7	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.68	2.713e4					2.3	NO		bb		
2	FUNCTION5 PFK	44.63	3.894e4					2.3	NO		bb		
3	FUNCTION5 PFK	44.13	7.444e3					0.7	NO		db		
4	FUNCTION5 PFK	44.04	3.156e4					2.0	NO		bd		
5	FUNCTION5 PFK	43.68	2.182e3					0.6	NO		bb		
6	FUNCTION5 PFK	42.95	7.553e3					1.2	NO		db		
7	FUNCTION5 PFK	42.92	6.122e3					0.9	NO		bd		
8	FUNCTION5 PFK	42.88	2.178e4					1.7	NO		bb		

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.59	7.138e1					1.4	NO		bb		0.000
2	FUNCTION1 HXCD...	21.33	1.000e2					1.3	NO		db		0.000
3	FUNCTION1 HXCD...	21.10	4.139e2					3.5	YES		bd		0.000
4	FUNCTION1 HXCD...	27.58	1.695e2					3.0	YES		bb		0.000
5	FUNCTION1 HXCD...	27.03	3.219e2					3.2	YES		bb		0.000
6	FUNCTION1 HXCD...	25.65	2.069e2					3.0	NO		bb		0.000
7	FUNCTION1 HXCD...	24.79	1.674e2					3.2	YES		db		0.000
8	FUNCTION1 HXCD...	24.73	2.092e2					3.6	YES		bd		0.000
9	FUNCTION1 HXCD...	23.93	9.598e1					1.7	NO		bb		0.000
10	FUNCTION1 HXCD...	22.87	7.158e1					1.5	NO		bb		0.000
11	FUNCTION1 HXCD...	22.43	1.167e2					1.9	NO		db		0.000
12	FUNCTION1 HXCD...	22.36	8.047e1					1.5	NO		bd		0.000
13	FUNCTION1 HXCD...	21.97	1.028e2					0.8	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	22.98	1.022e2					2.1	NO		bb		0.000
2	FUNCTION1 HPCD...	22.59	8.983e1					1.5	NO		bb		0.000
3	FUNCTION1 HPCD...	22.36	8.747e1					2.0	NO		bb		0.000
4	FUNCTION1 HPCD...	21.53	7.248e1					1.3	NO		bb		0.000
5	FUNCTION1 HPCD...	21.13	8.355e1					1.4	NO		bb		0.000
6	FUNCTION1 HPCD...	27.51	1.422e2					3.6	YES		bb		0.000
7	FUNCTION1 HPCD...	27.02	8.162e1					1.5	NO		bb		0.000
8	FUNCTION1 HPCD...	26.44	1.173e2					2.5	NO		db		0.000
9	FUNCTION1 HPCD...	26.40	7.265e1					2.1	NO		dd		0.000
10	FUNCTION1 HPCD...	26.34	1.188e2					2.4	NO		dd		0.000
11	FUNCTION1 HPCD...	26.29	1.274e2					2.4	NO		bd		0.000
12	FUNCTION1 HPCD...	25.73	7.017e1					1.4	NO		db		0.000
13	FUNCTION1 HPCD...	25.64	8.937e1					1.9	NO		bd		0.000
14	FUNCTION1 HPCD...	25.47	1.517e2					2.6	NO		db		0.000
15	FUNCTION1 HPCD...	25.35	1.256e2					1.7	NO		bd		0.000
16	FUNCTION1 HPCD...	24.43	1.810e2					3.6	YES		db		0.000
17	FUNCTION1 HPCD...	24.29	2.180e2					4.2	YES		bd		0.000
18	FUNCTION1 HPCD...	23.75	1.061e2					1.8	NO		db		0.000
19	FUNCTION1 HPCD...	23.64	9.229e1					1.2	NO		bd		0.000
20	FUNCTION1 HPCD...	23.24	7.719e1					1.6	NO		bb		0.000

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.94	8.628e1					2.0	NO		db		0.000
2	FUNCTION2 HPCD...	31.83	1.344e2					1.6	NO		bd		0.000
3	FUNCTION2 HPCD...	31.41	2.117e2					3.2	YES		bb		0.000
4	FUNCTION2 HPCD...	31.17	1.613e2					2.6	NO		db		0.000
5	FUNCTION2 HPCD...	31.08	2.279e2					6.5	YES		dd		0.000
6	FUNCTION2 HPCD...	31.04	3.363e2					6.2	YES		bd		0.000
7	FUNCTION2 HPCD...	29.94	9.143e1					1.8	NO		bb		0.000
8	FUNCTION2 HPCD...	29.84	2.839e2					3.8	YES		bb		0.000
9	FUNCTION2 HPCD...	28.51	2.158e2					2.0	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.23	1.310e2					2.6	NO		db		0.000
2	FUNCTION3 OCDPE	35.12	7.107e1					1.5	NO		bd		0.000
3	FUNCTION3 OCDPE	34.95	1.507e2					4.9	YES		bb		0.000
4	FUNCTION3 OCDPE	33.33	1.299e2					2.4	NO		bb		0.000
5	FUNCTION3 OCDPE	32.80	1.182e2					2.0	NO		db		0.000
6	FUNCTION3 OCDPE	32.68	1.291e2					2.2	NO		bd		0.000
7	FUNCTION3 OCDPE	37.09	1.175e2					2.2	NO		bb		0.000
8	FUNCTION3 OCDPE	37.00	1.454e2					5.6	YES		bb		0.000
9	FUNCTION3 OCDPE	36.87	1.897e2					2.2	NO		bb		0.000
10	FUNCTION3 OCDPE	36.42	2.617e2					4.4	YES		bb		0.000
11	FUNCTION3 OCDPE	36.03	2.699e2					4.4	YES		db		0.000
12	FUNCTION3 OCDPE	35.98	8.747e1					2.8	NO		dd		0.000
13	FUNCTION3 OCDPE	35.92	2.421e2					4.1	YES		bd		0.000

ID: CS3Z1, Name: 21081102, Date: 11-Aug-2021, Time: 15:52:29, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.10	1.342e2					2.3	NO		db		0.000
2	FUNCTION4 NCDPE	41.98	1.389e2					1.8	NO		bd		0.000
3	FUNCTION4 NCDPE	41.62	7.171e1					1.6	NO		bb		0.000
4	FUNCTION4 NCDPE	41.16	1.127e2					1.2	NO		bb		0.000
5	FUNCTION4 NCDPE	40.50	1.801e2					3.0	NO		bb		0.000
6	FUNCTION4 NCDPE	40.30	7.660e1					1.3	NO		bb		0.000
7	FUNCTION4 NCDPE	39.49	7.809e1					1.2	NO		bb		0.000
8	FUNCTION4 NCDPE	38.49	1.017e2					1.0	NO		bb		0.000
9	FUNCTION4 NCDPE	42.59	1.744e2					2.8	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.94	7.613e1					1.8	NO		bb		0.000
2	FUNCTION5 DCDPE	44.94	7.585e1					2.3	NO		db		0.000
3	FUNCTION5 DCDPE	44.89	9.293e1					2.2	NO		bd		0.000
4	FUNCTION5 DCDPE	43.04	1.111e2					2.7	NO		bb		0.000

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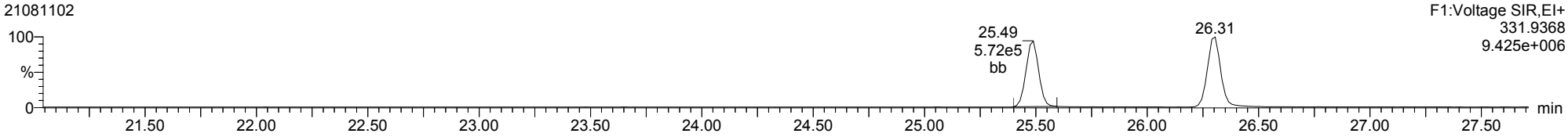

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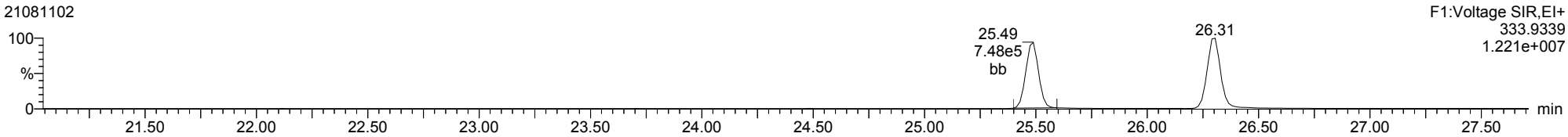

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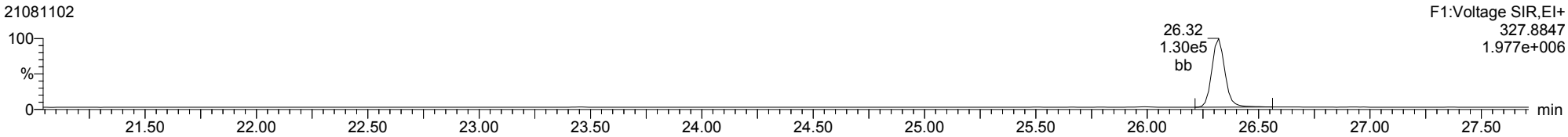

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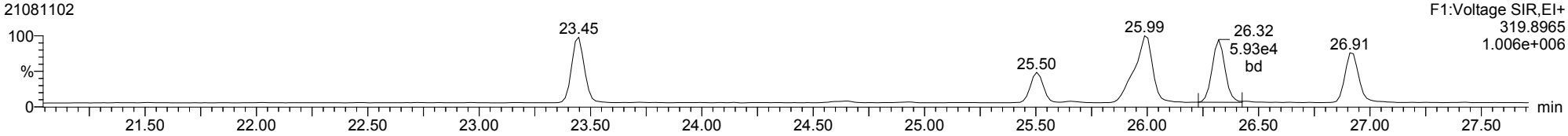

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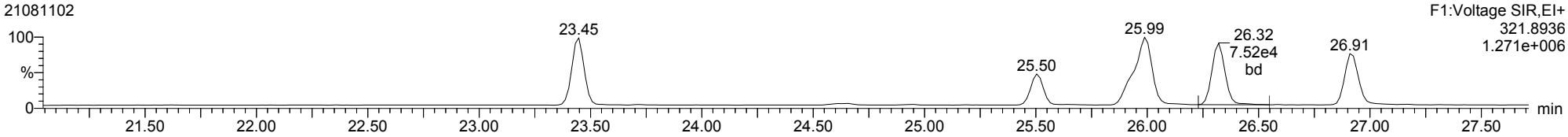

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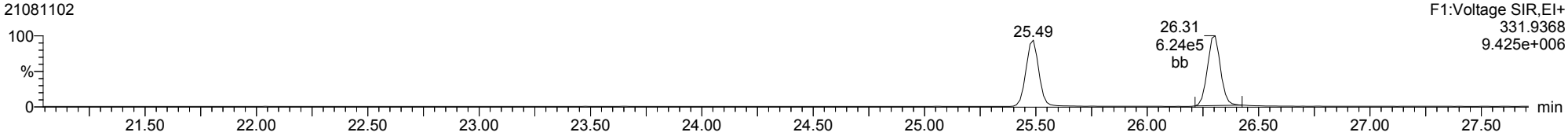

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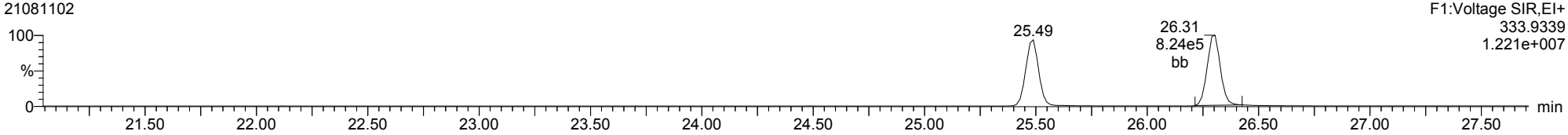

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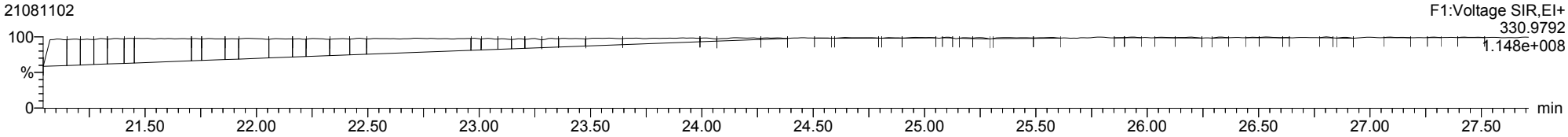

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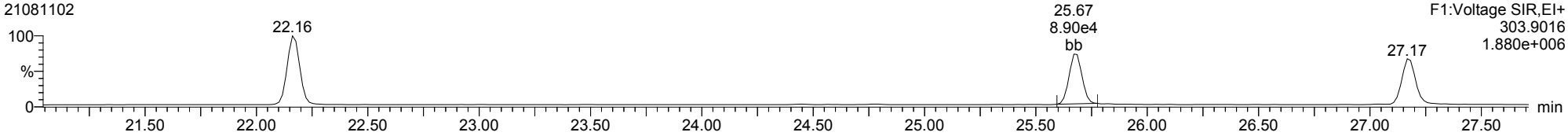
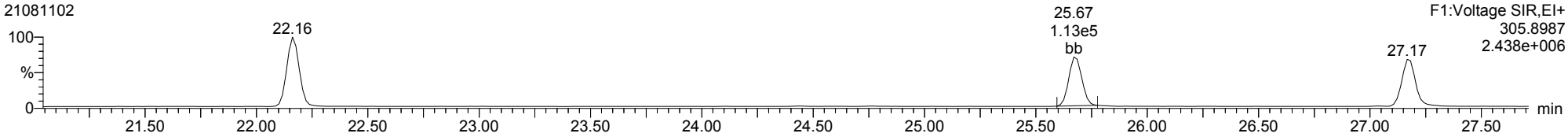
2378-TCDF



2378-TCDF



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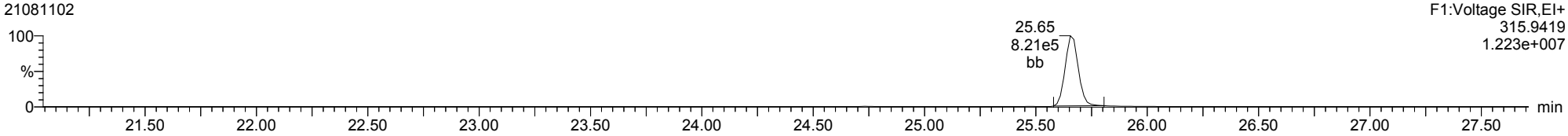

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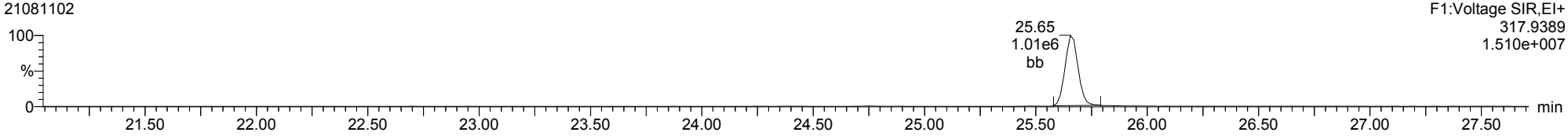

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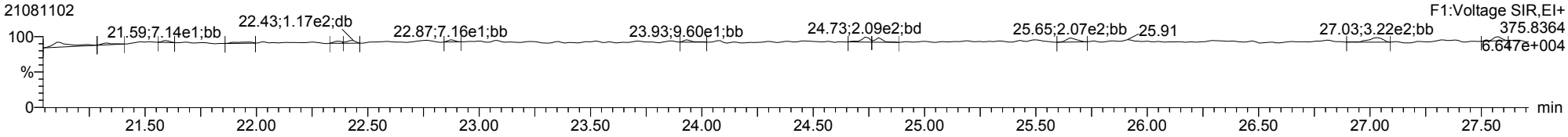

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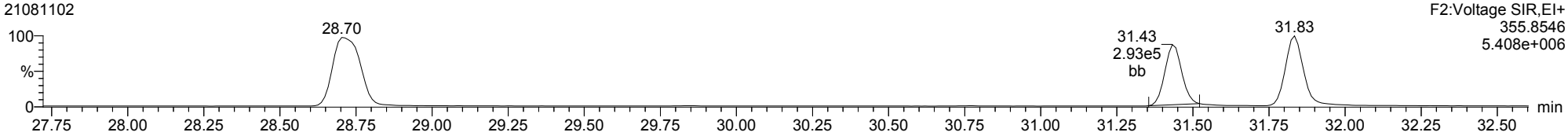
12378-PeCDD



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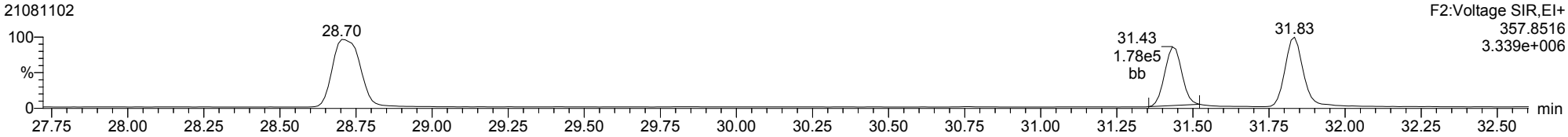

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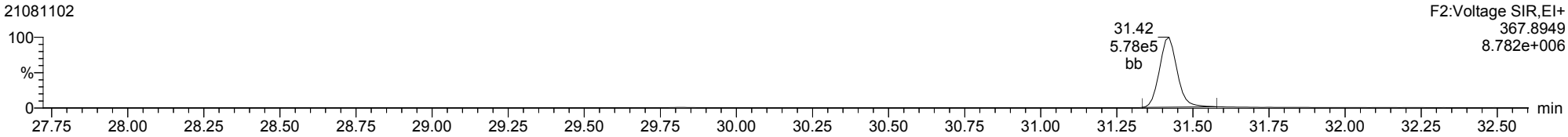

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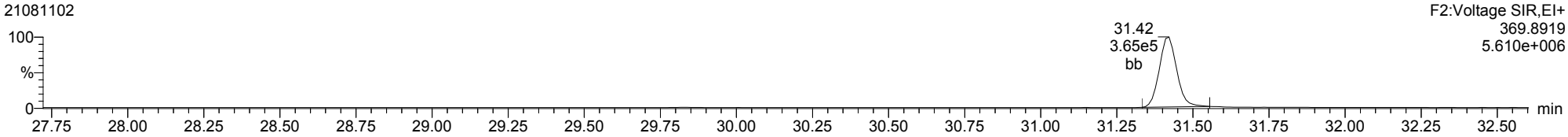

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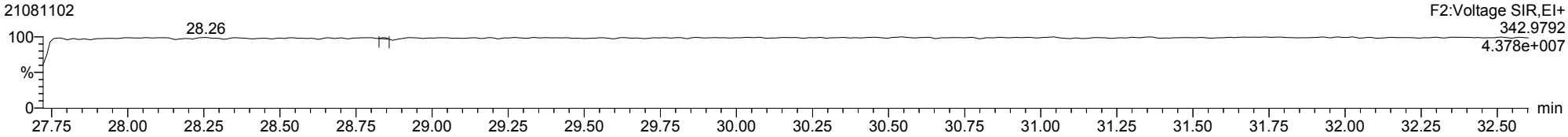

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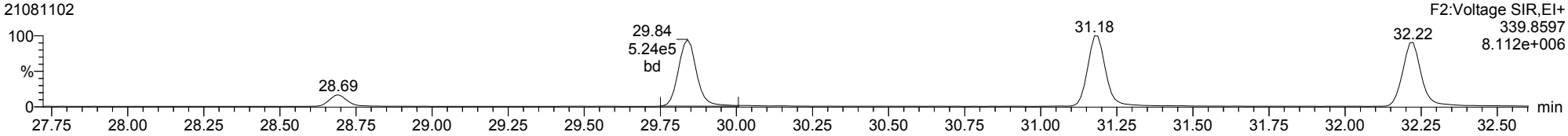

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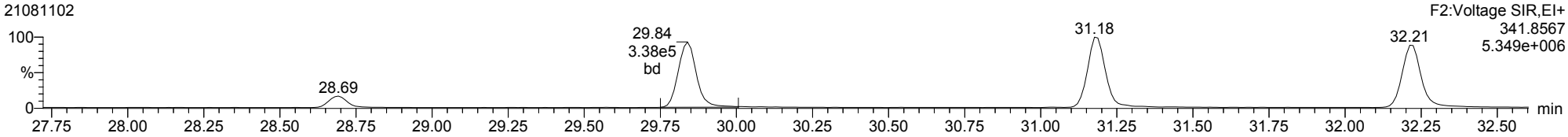

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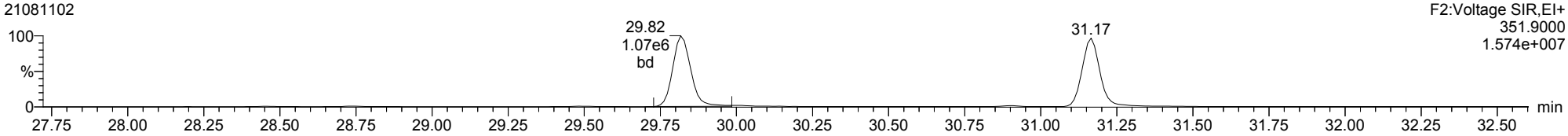

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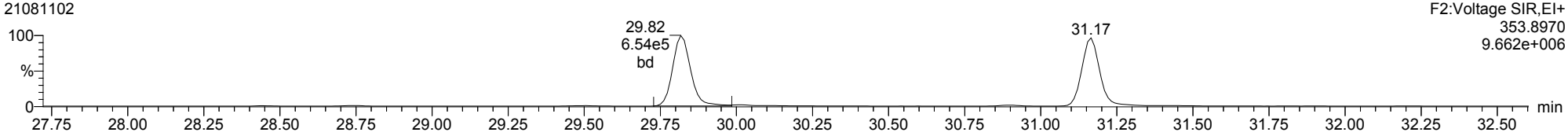
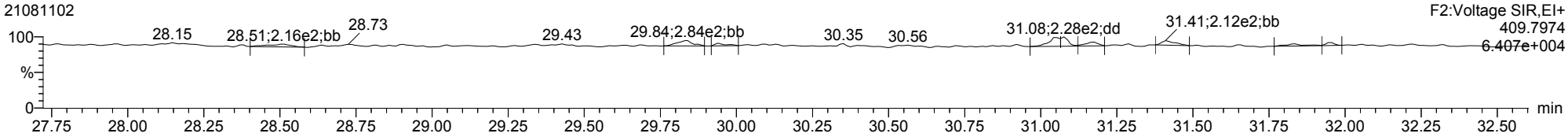


FUNCTION2 HPCDPE



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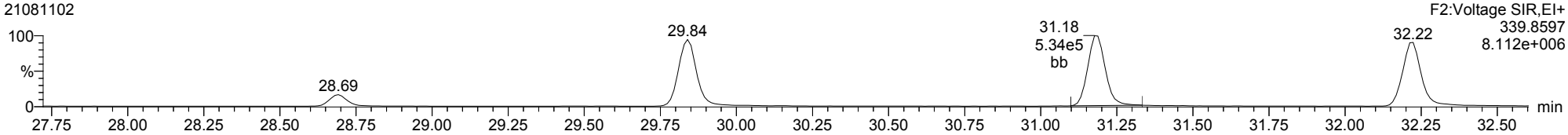
23478-PeCDF



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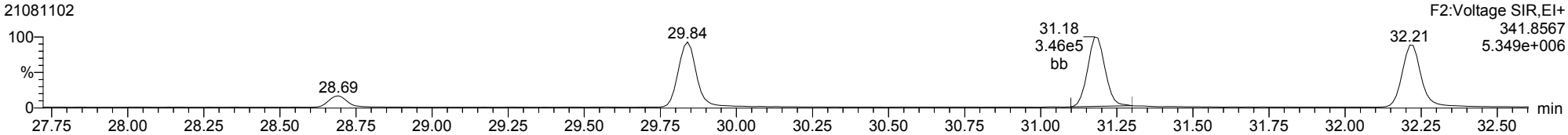

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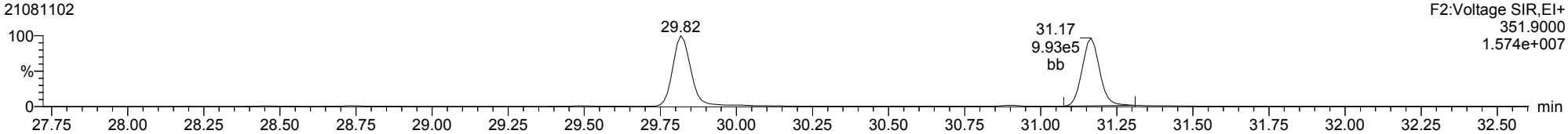

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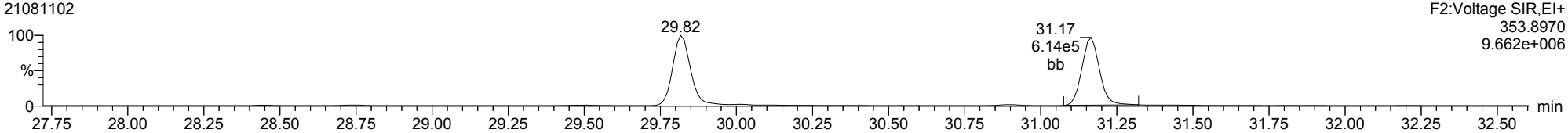

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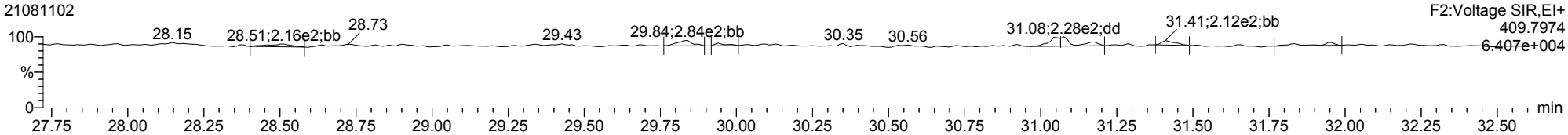

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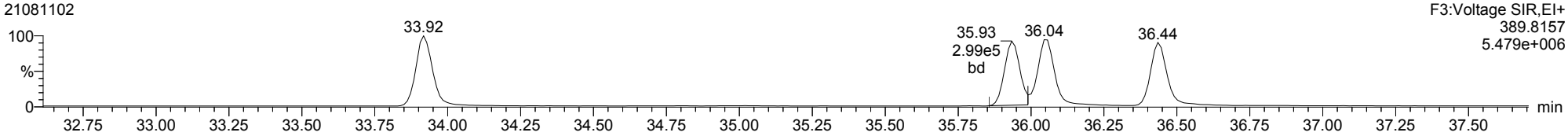
123478-HxCDD



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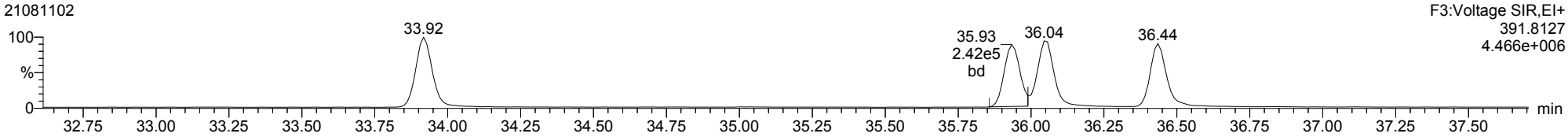

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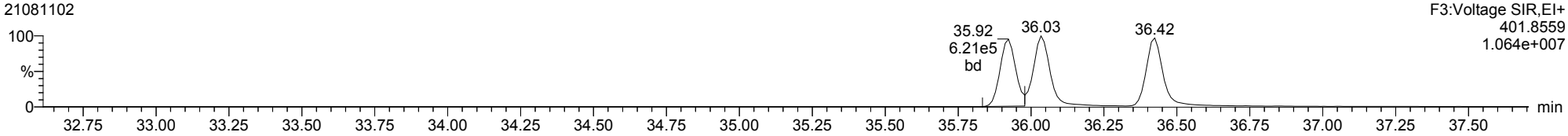

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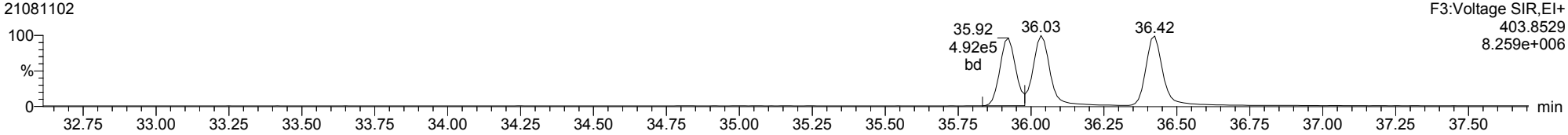
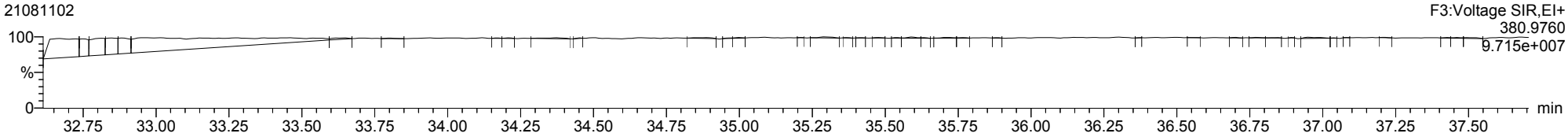


FUNCTION3 PFK



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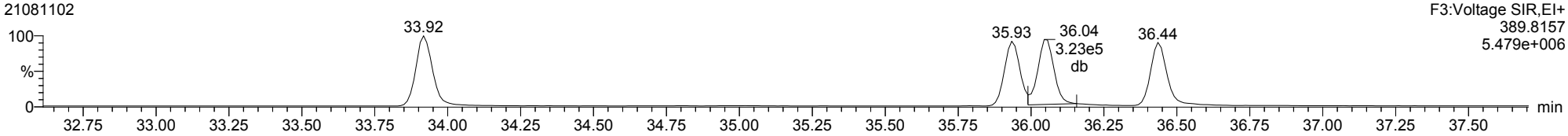

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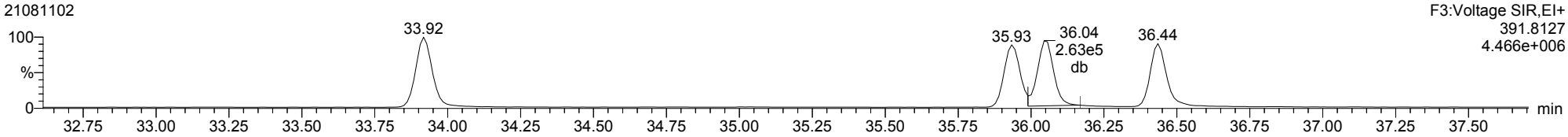

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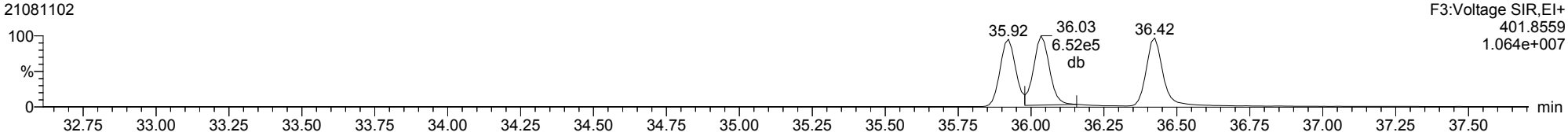

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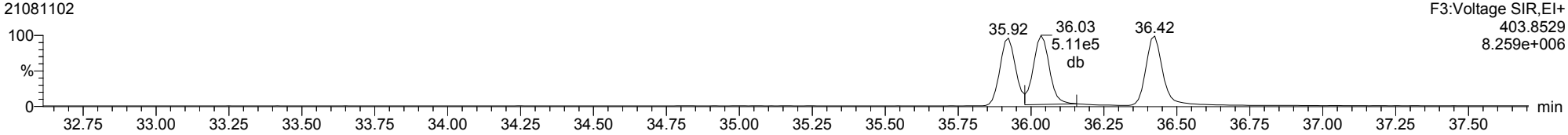

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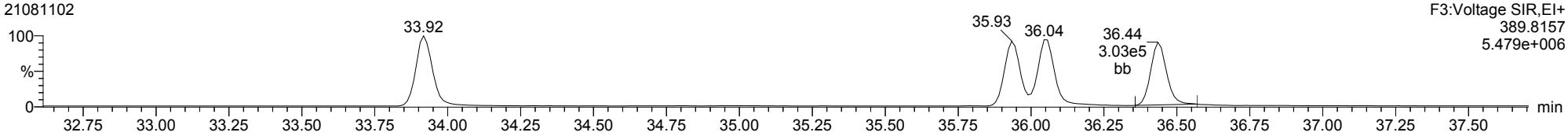

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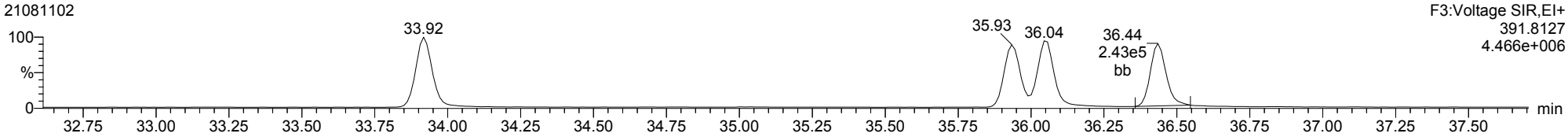

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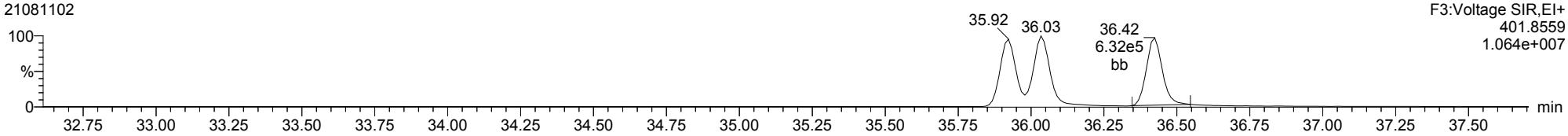

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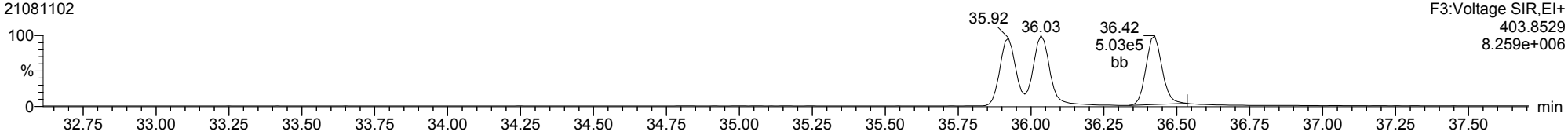

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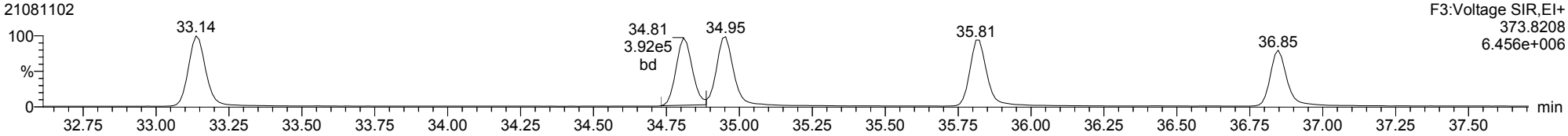

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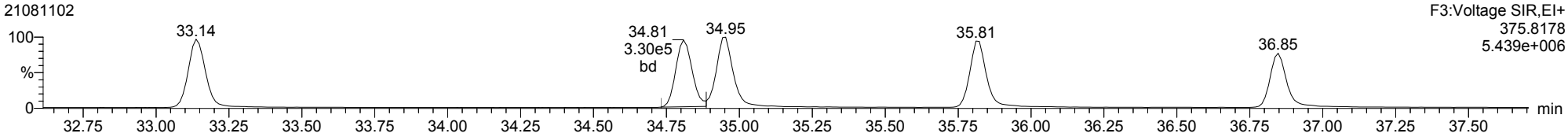

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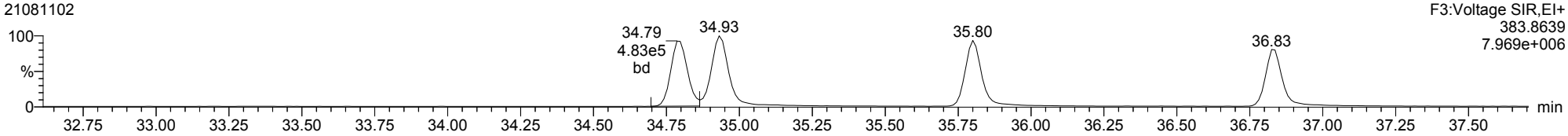

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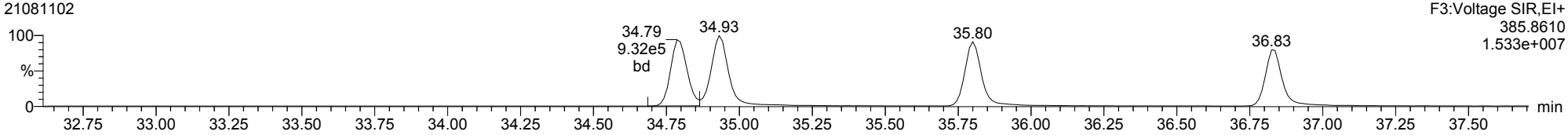
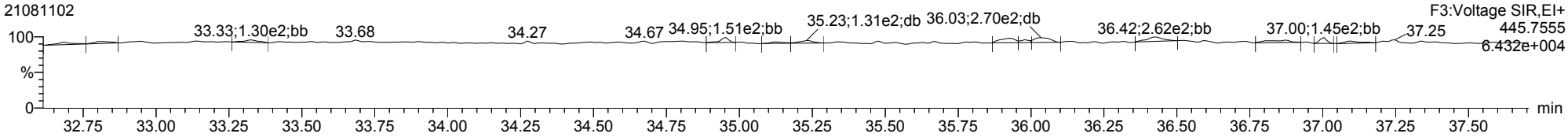


FUNCTION3 OCDPE



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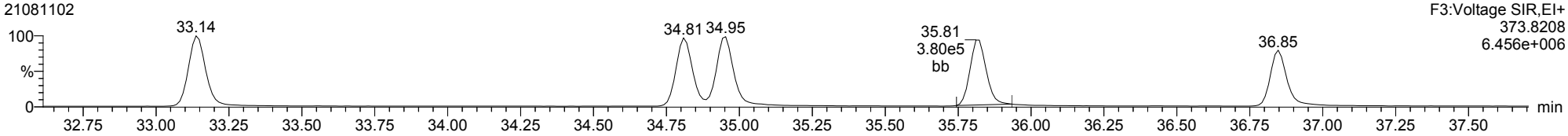
234678-HxCDF



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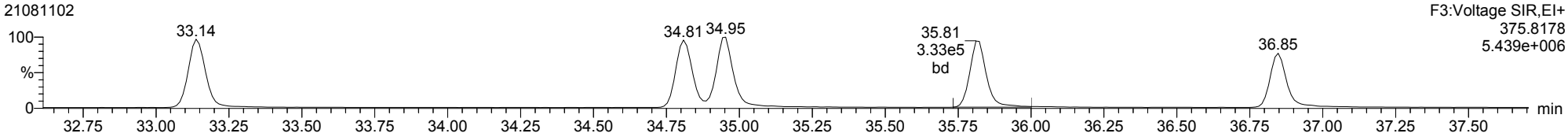

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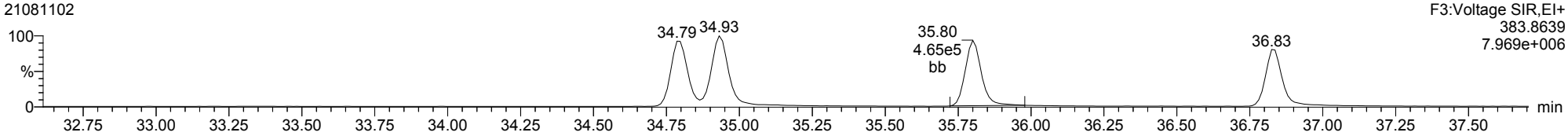

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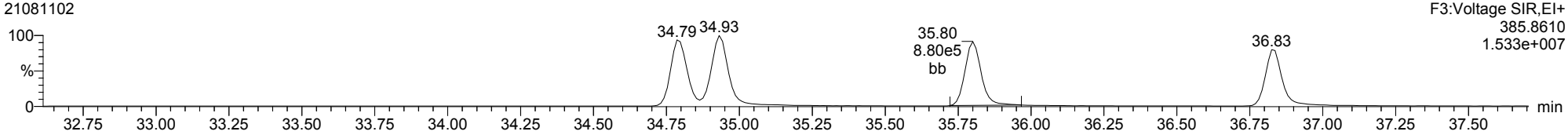
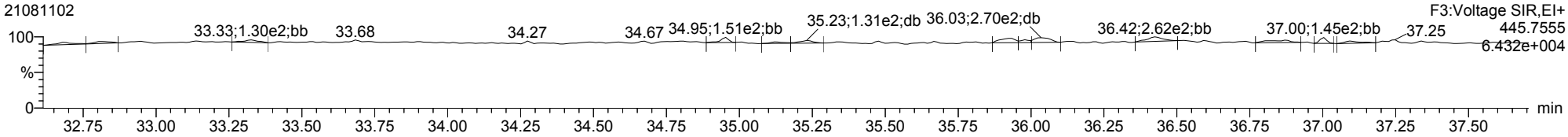


FUNCTION3 OCDPE



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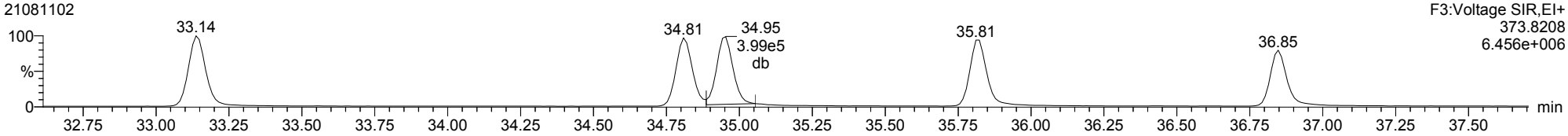

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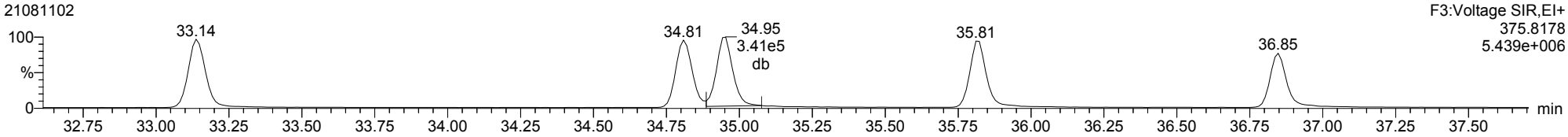

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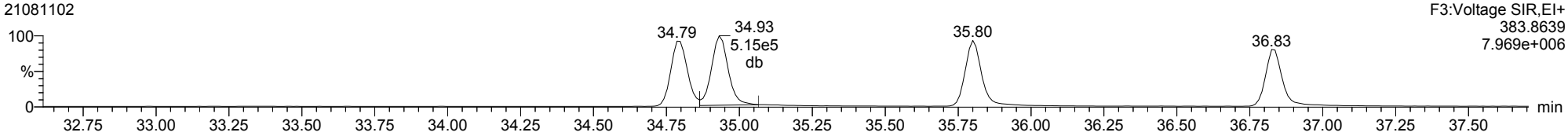

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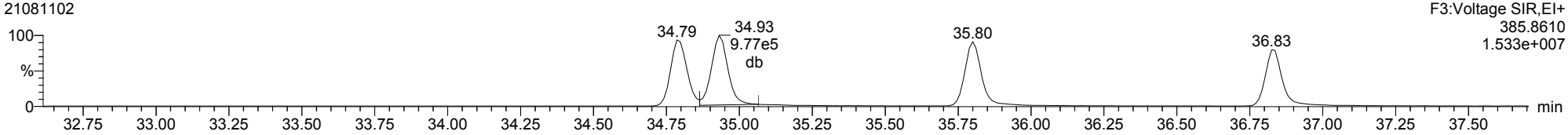
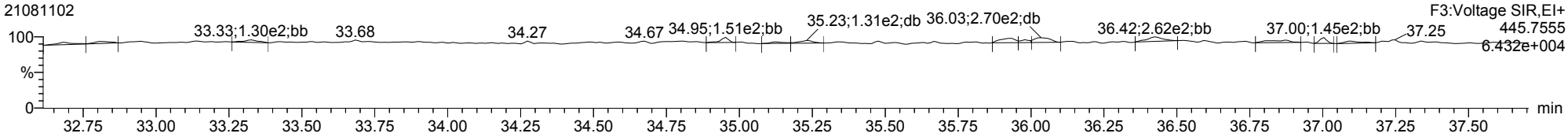


FUNCTION3 OCDPE



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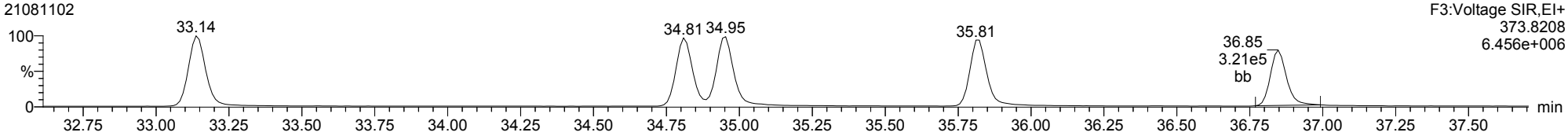
123789-HxCDF



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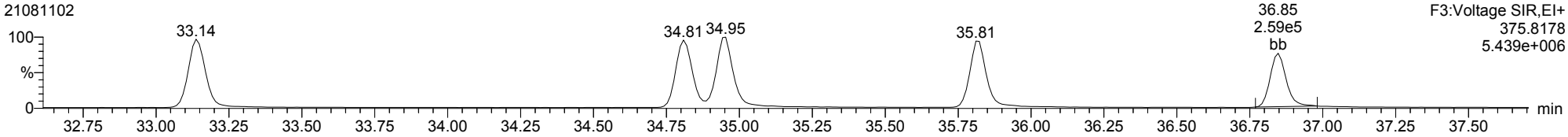

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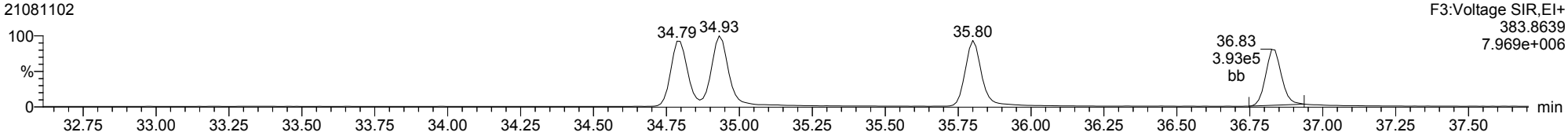

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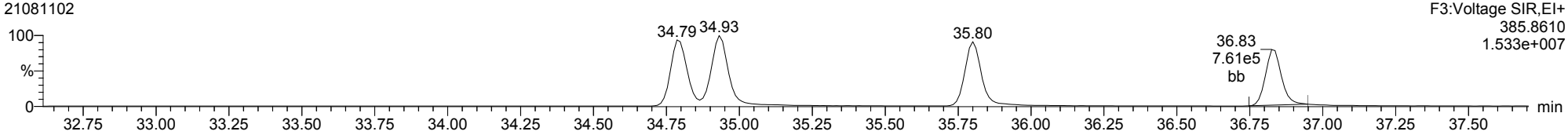

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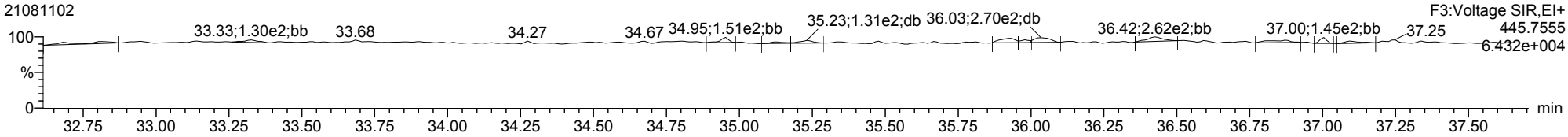

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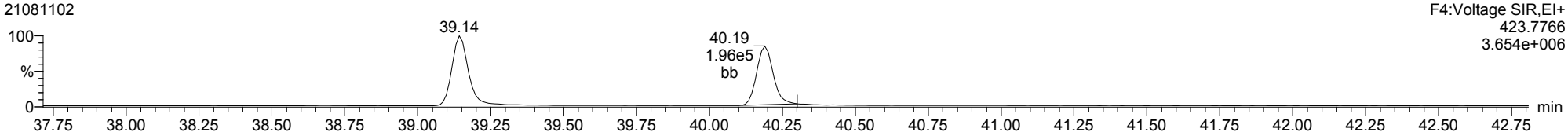

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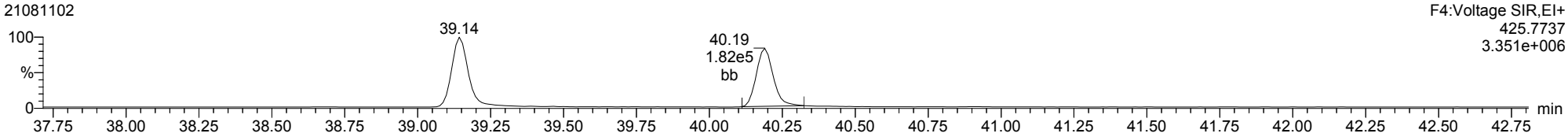

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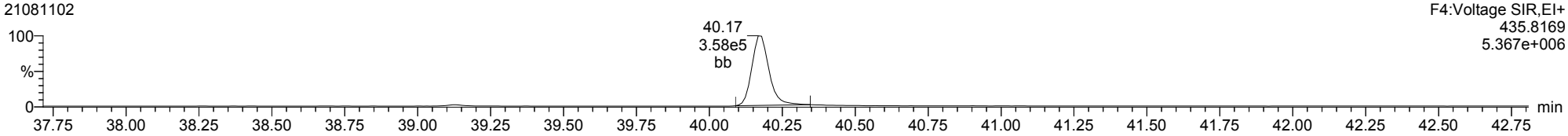

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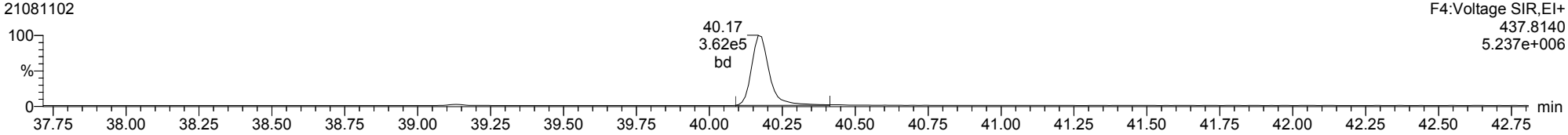

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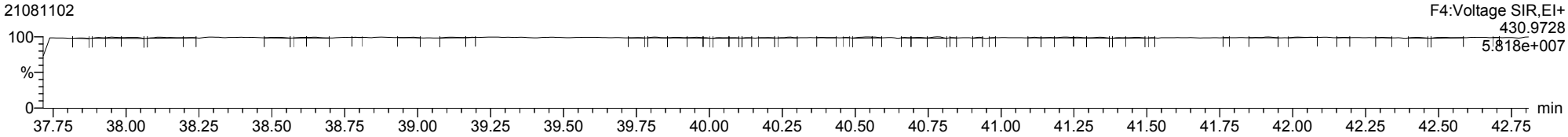

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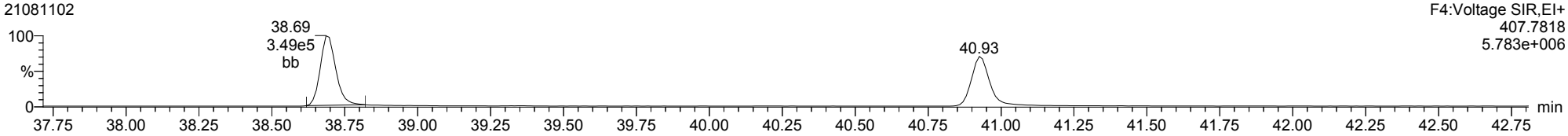

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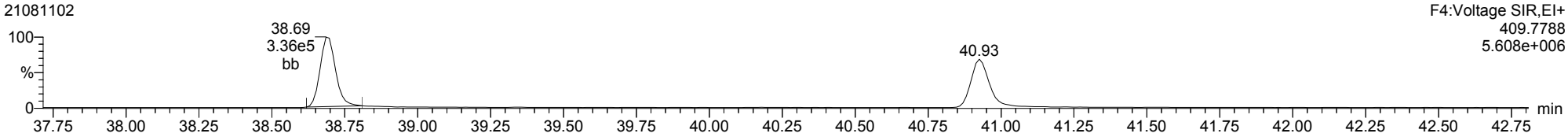

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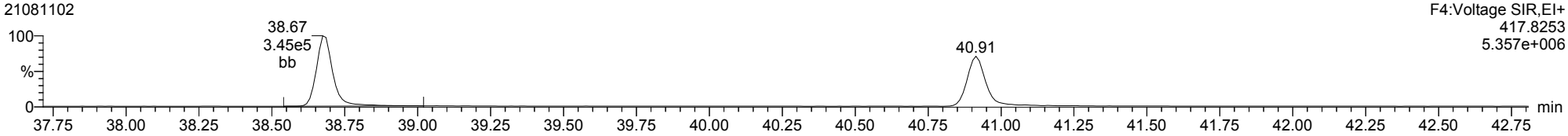

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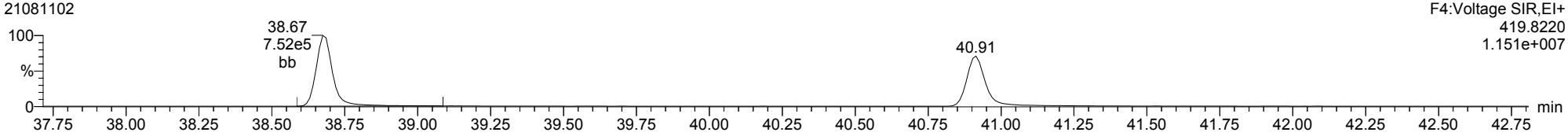

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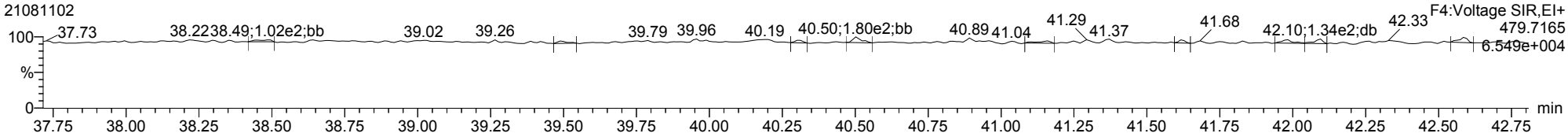

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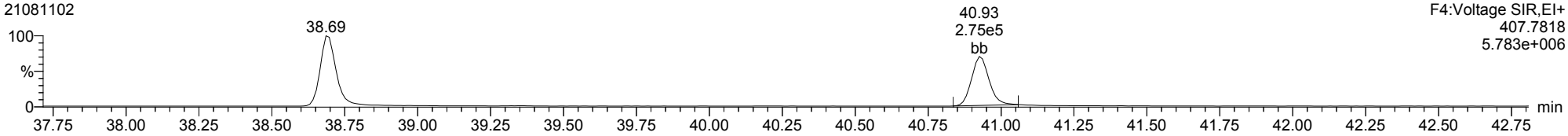

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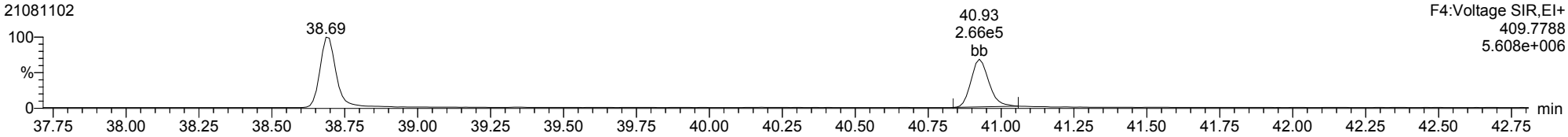

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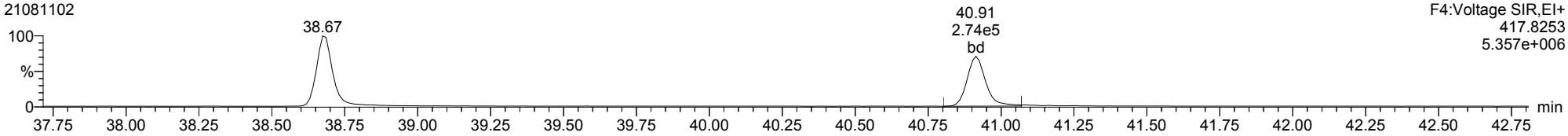

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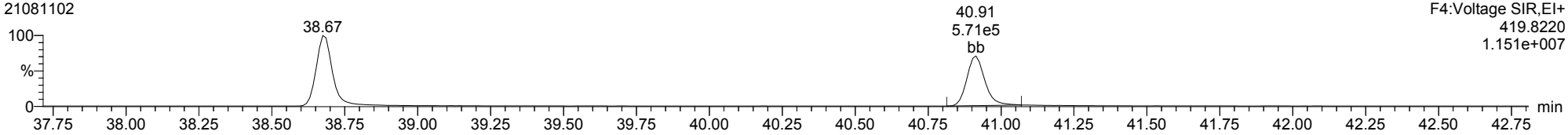

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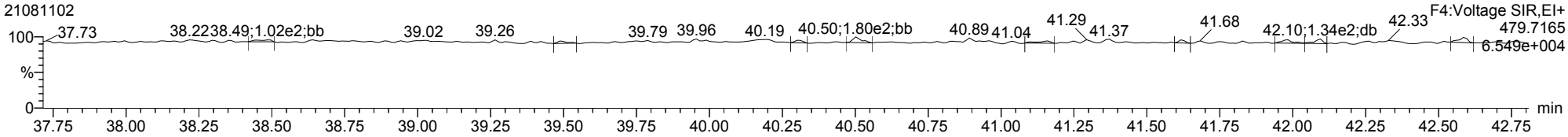

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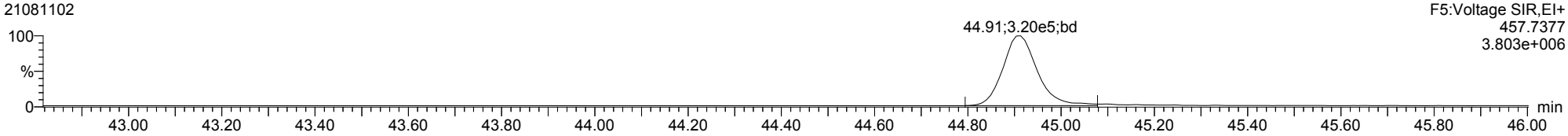

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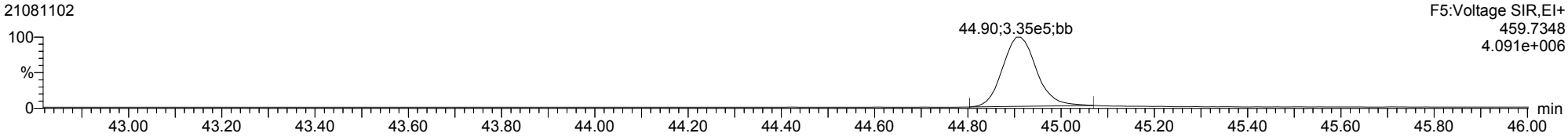

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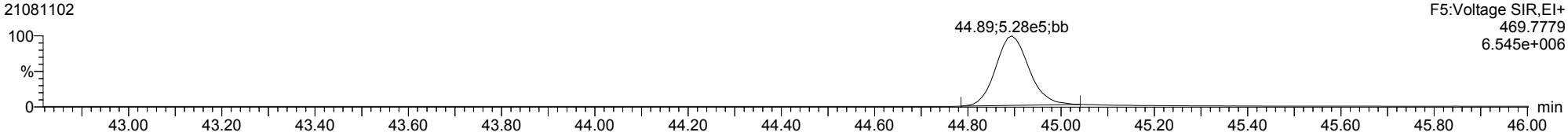

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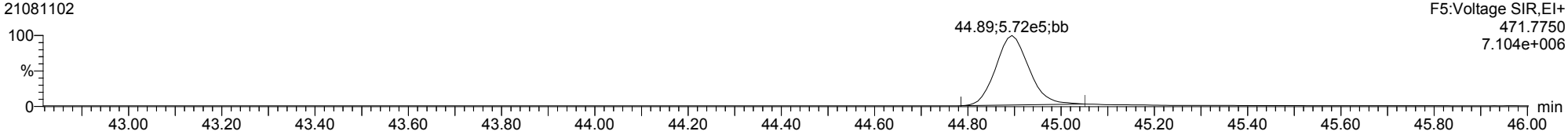

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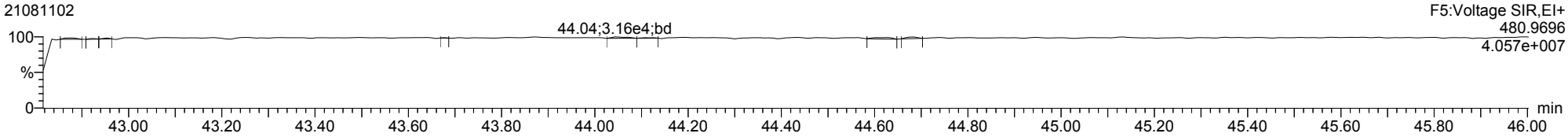

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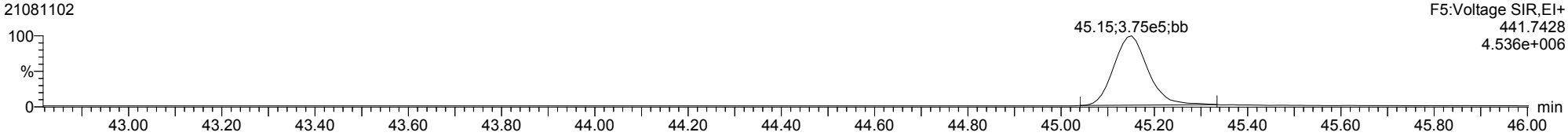

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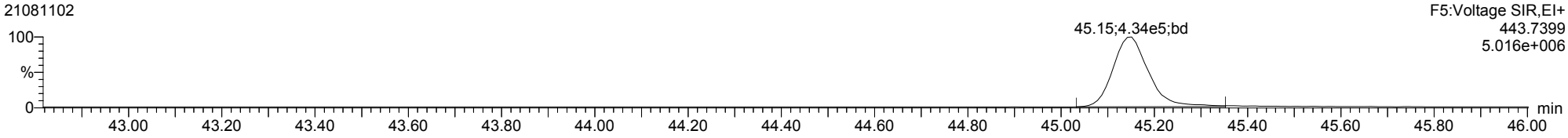

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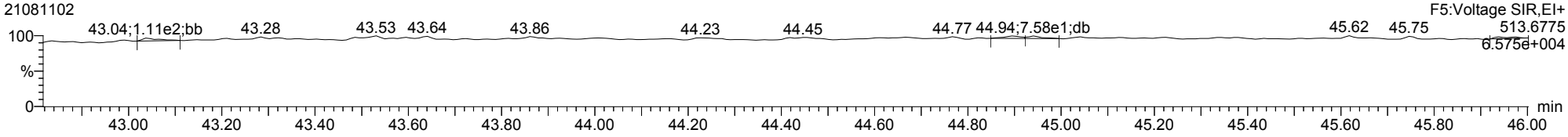

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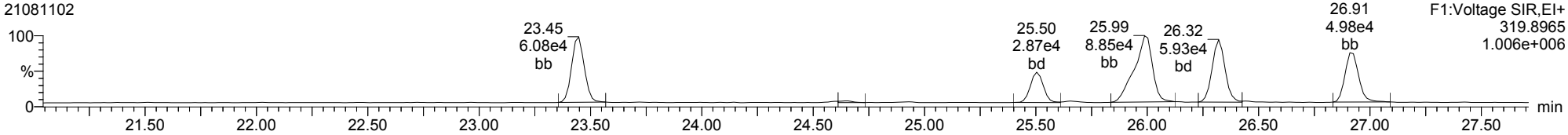

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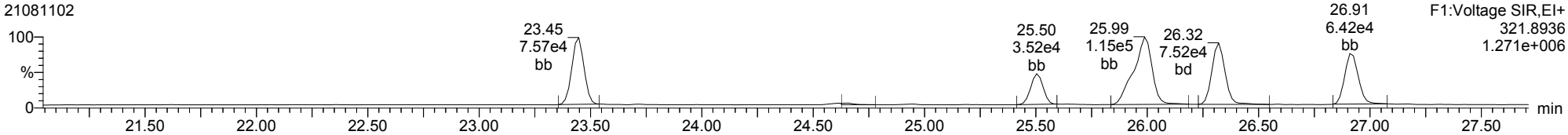

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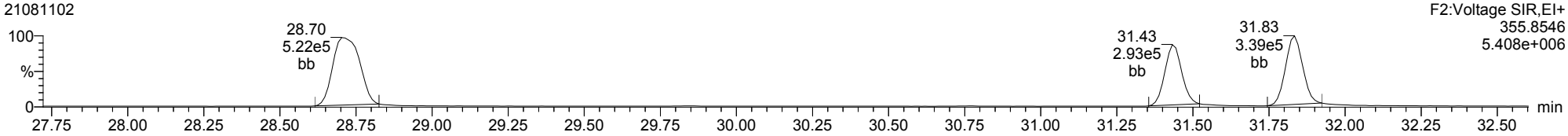

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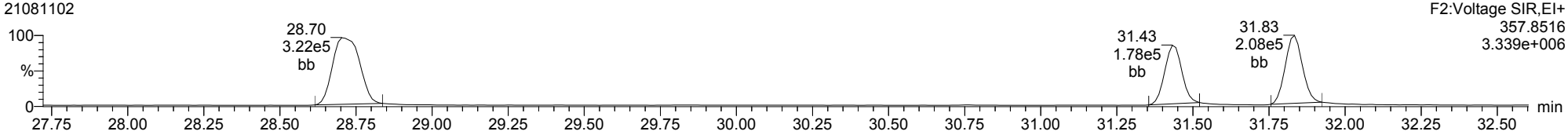

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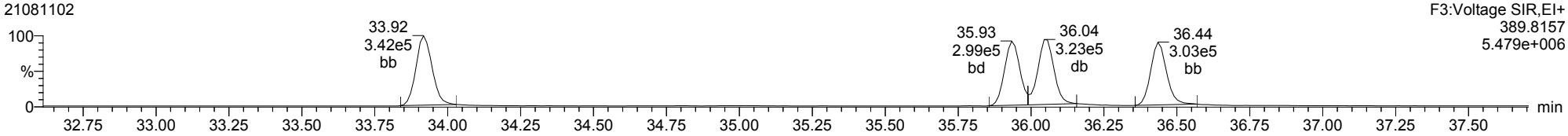

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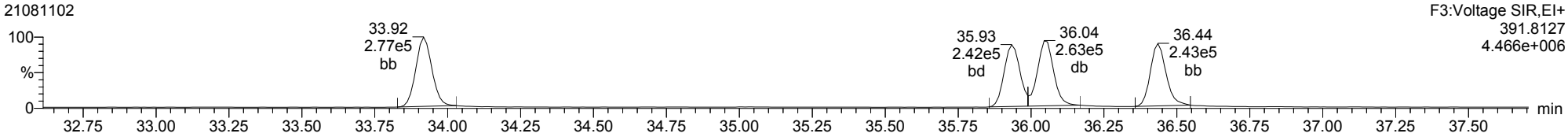

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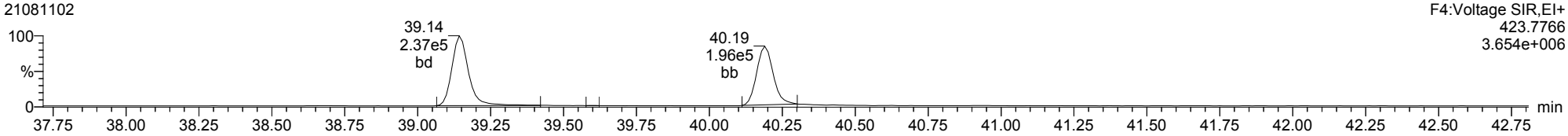

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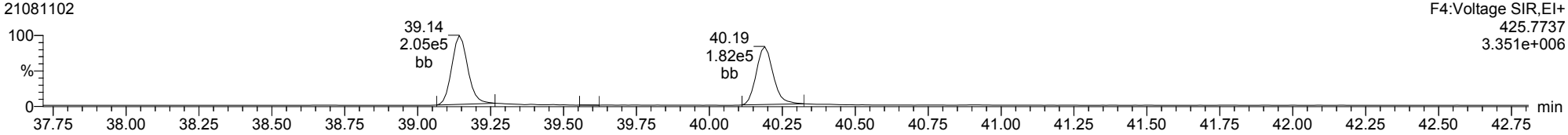

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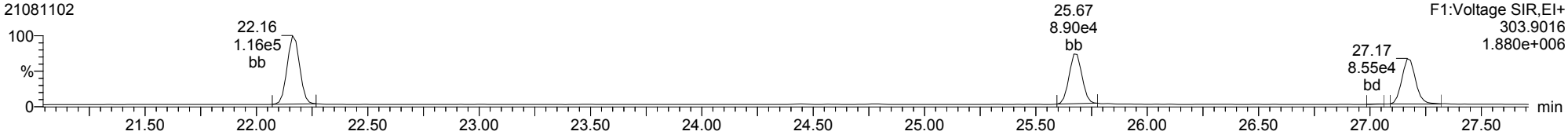

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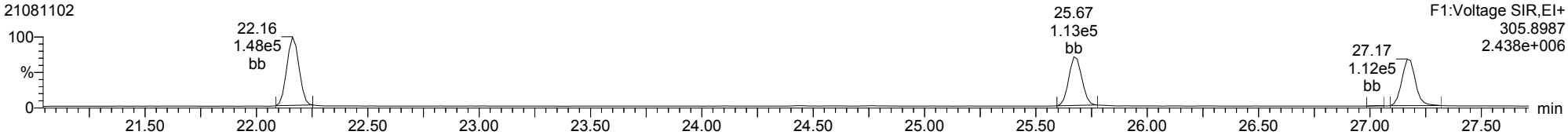

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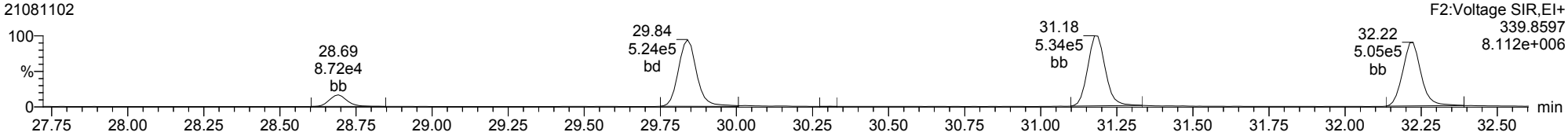

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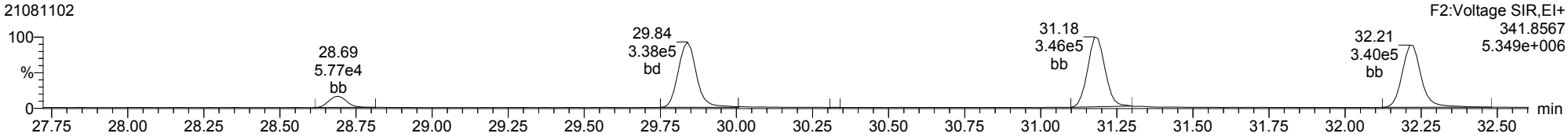

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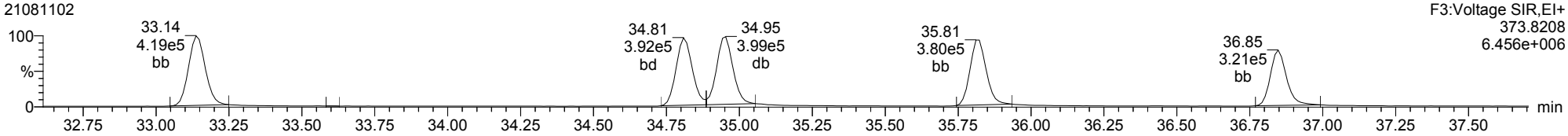

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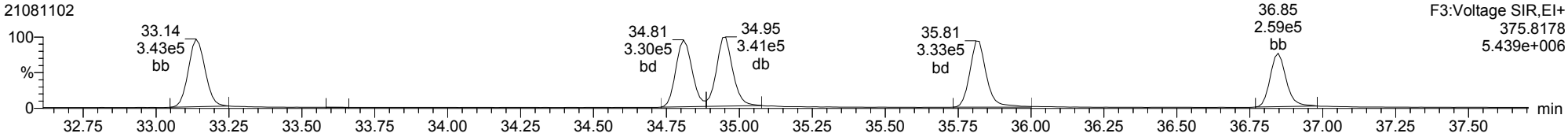

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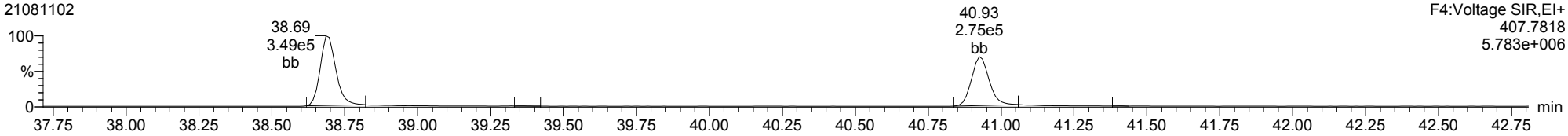

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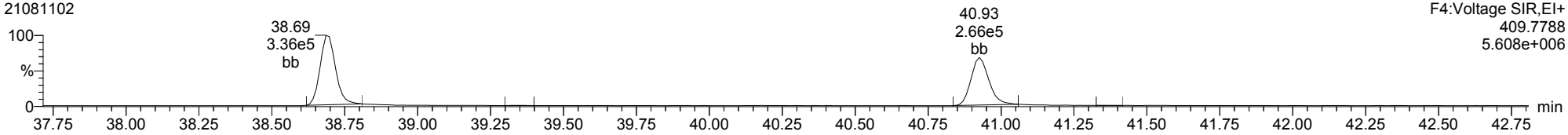

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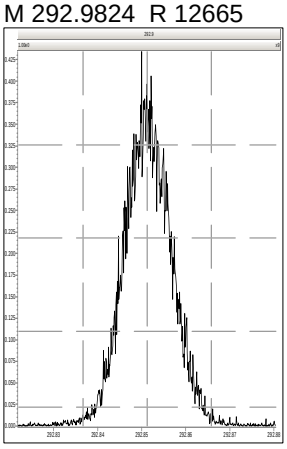

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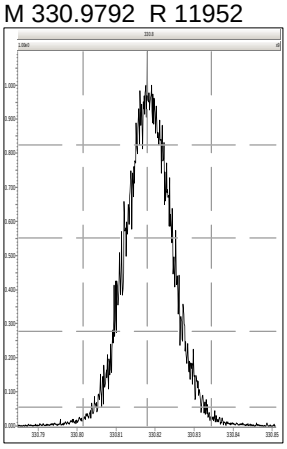

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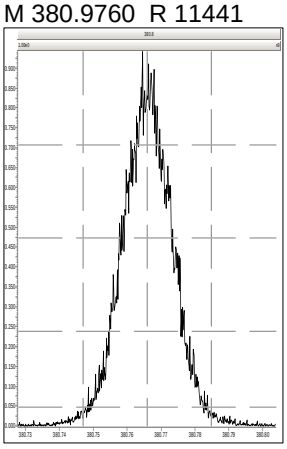

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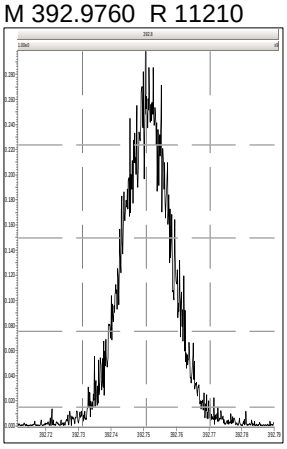

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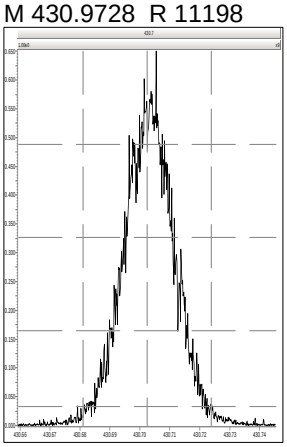

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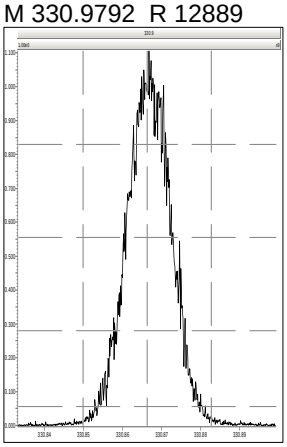

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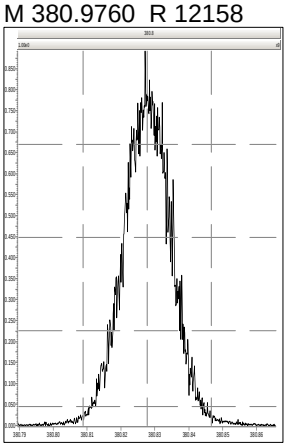

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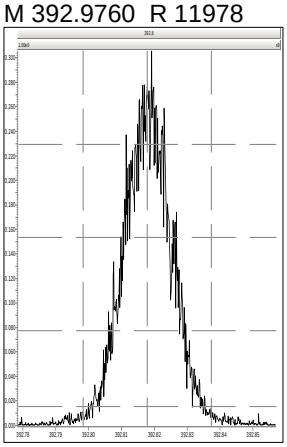

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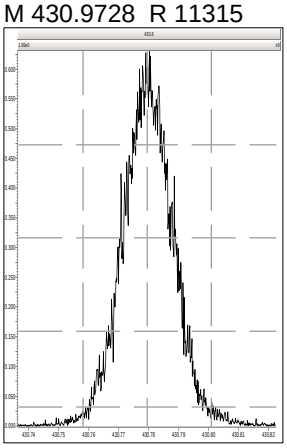

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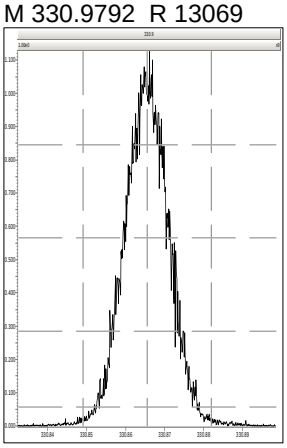
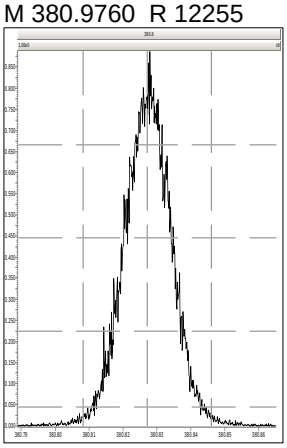
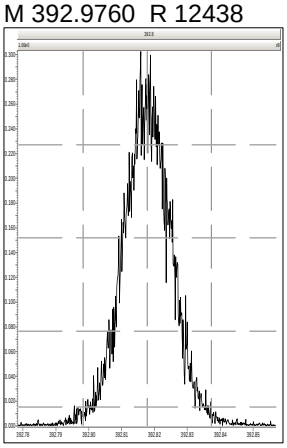


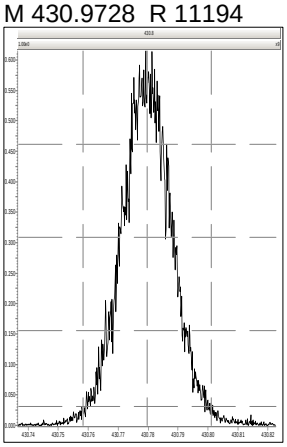
M 380.9760 R 12255



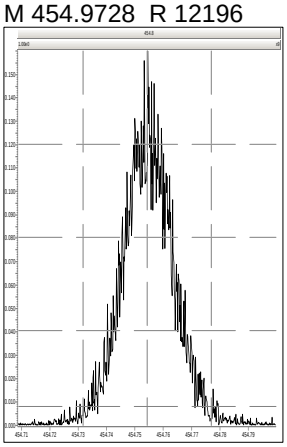
M 392.9760 R 12438



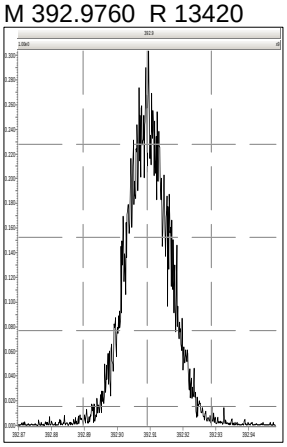
M 430.9728 R 11194



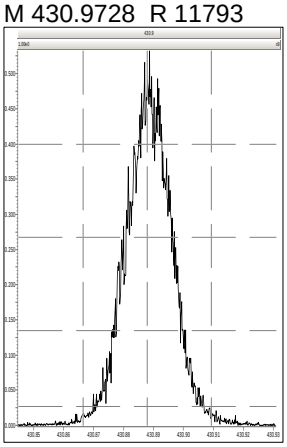
M 454.9728 R 12196



M 392.9760 R 13420

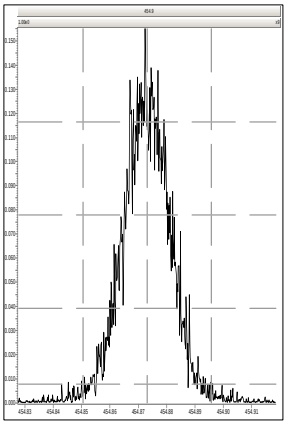


M 430.9728 R 11793

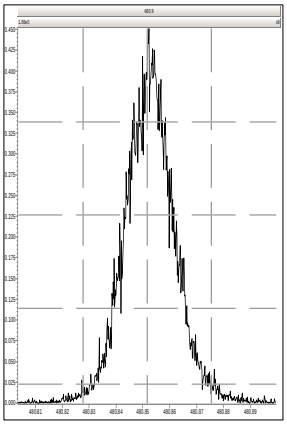


Printed: Wednesday, August 11, 2021 15:47:11 Pacific Daylight Time

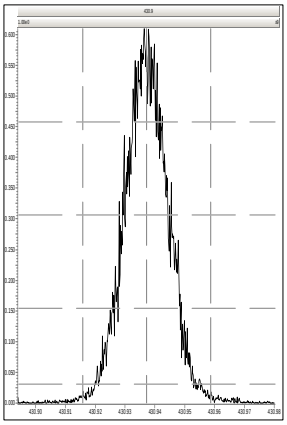
M 454.9728 R 12079



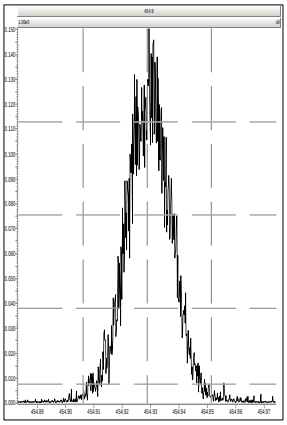
M 480.9696 R 11585



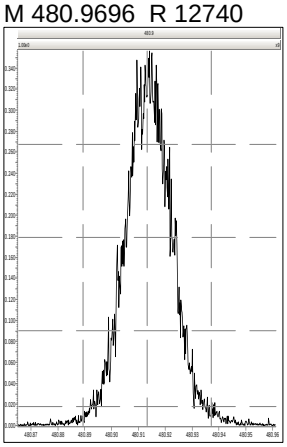
M 430.9728 R 13662



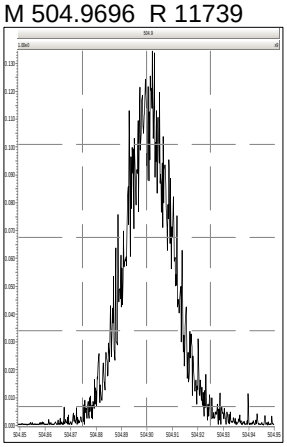
M 454.9728 R 13234



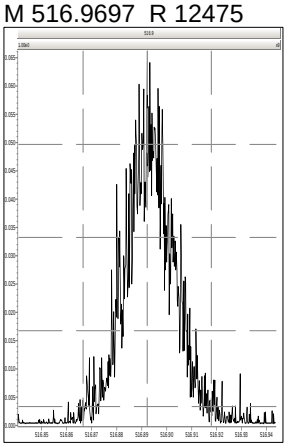
M 480.9696 R 12740

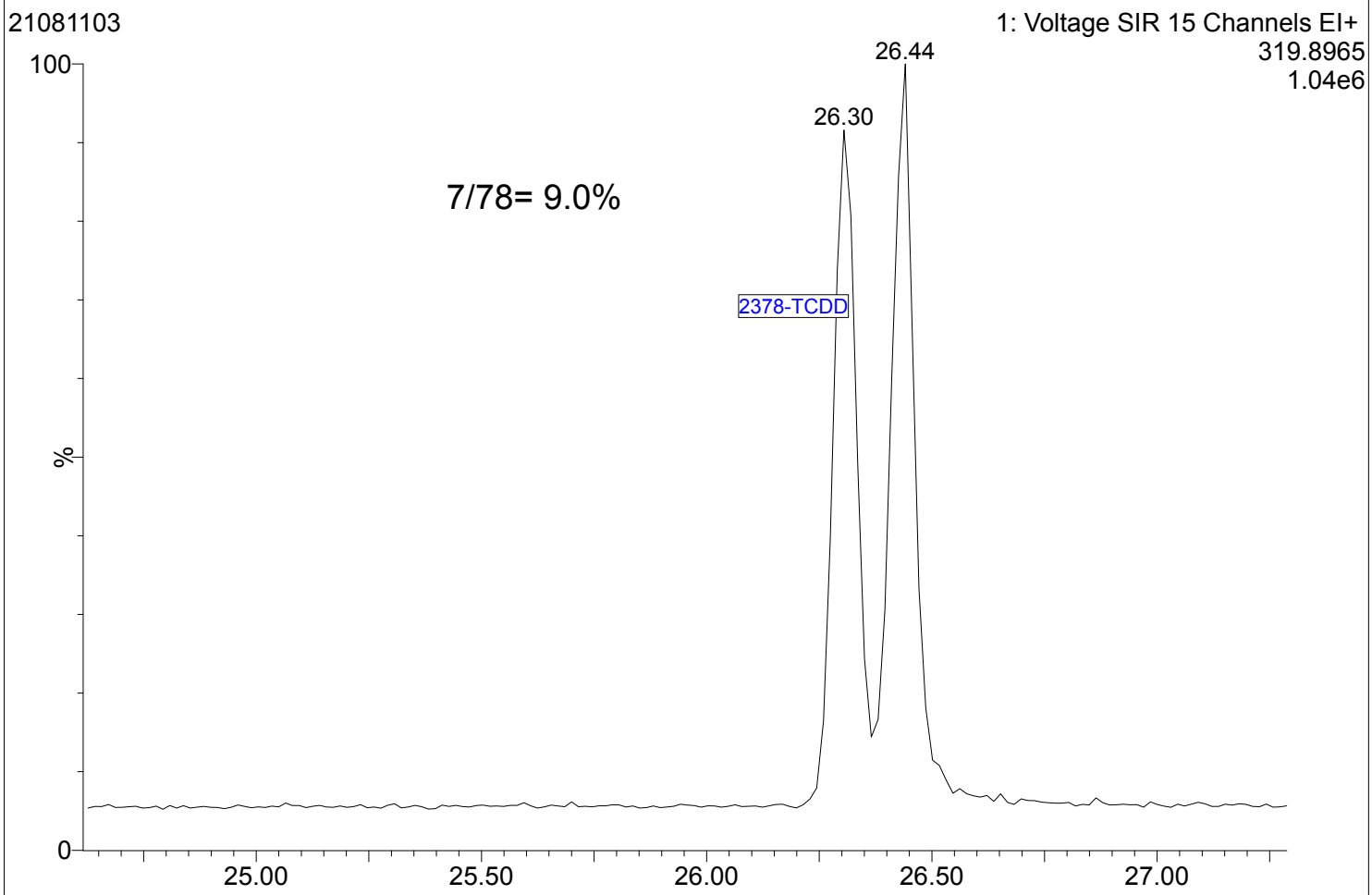


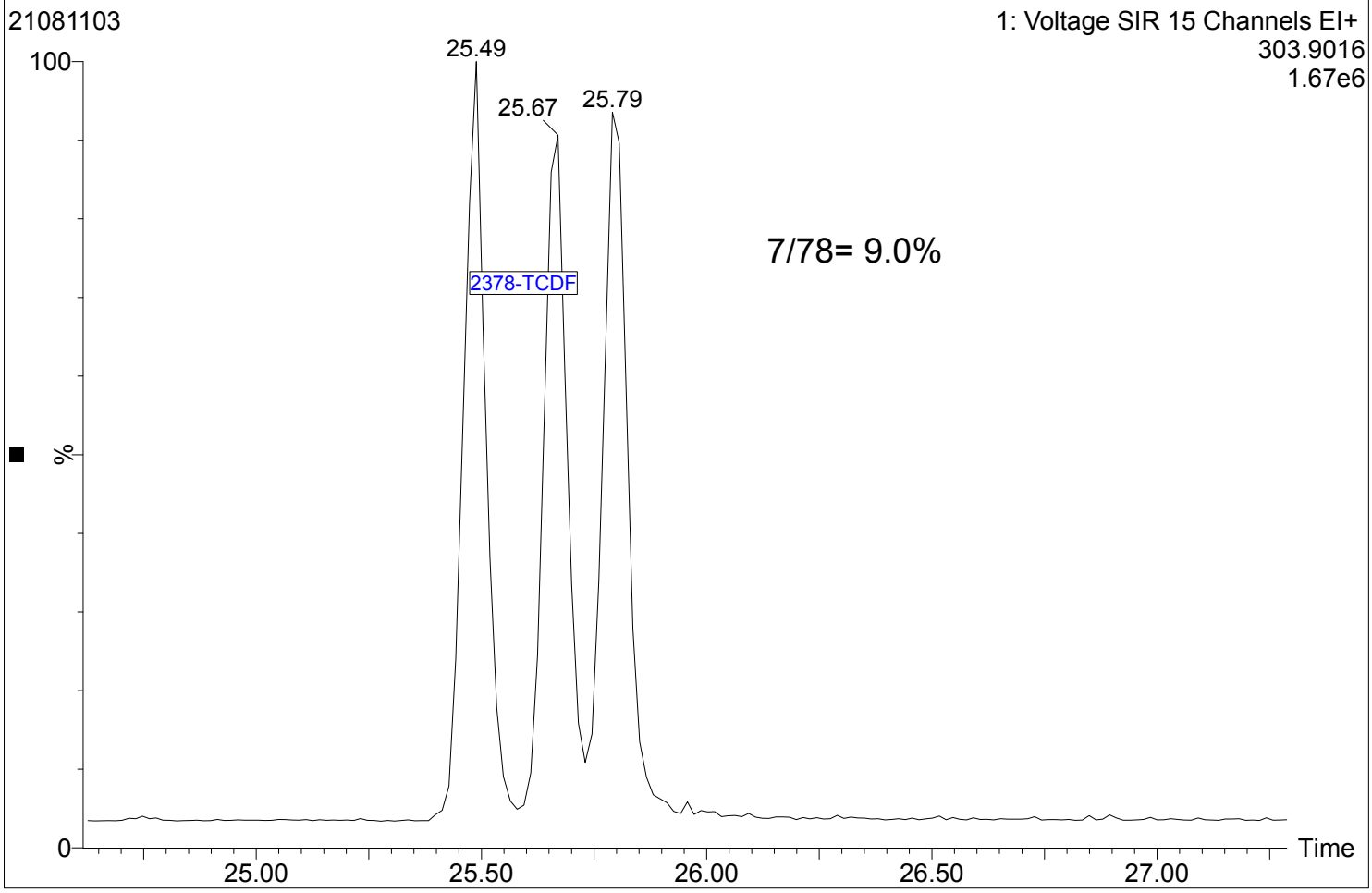
M 504.9696 R 11739



M 516.9697 R 12475




21081103
1: Voltage SIR 15 Channels EI+
319.8965
1.04e6
26.44
26.30
7/78= 9.0%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21081103
1: Voltage SIR 15 Channels EI+
303.9016
1.67e6
25.49
25.67
25.79
7/78= 9.0%
2378-TCDF
100
%
0
Time
25.00
25.50
26.00
26.50
27.00

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21082402	Calibration Date:	08/11/2021
Sequence:	SJH0304	Injection Date:	08/24/21
Lab Sample ID:	SJH0304-ICV1	Injection Time:	12:52
Sequence Name:	CS3L3		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	9.42	1.1075930	1.0429760		-5.8	+/-16
2,3,7,8-TCDD	A	10.000	10.9	0.9202875	1.0008890		8.8	+/-22
1,2,3,7,8-PeCDF	A	50.000	48.2	1.0148670	0.9775208		-3.7	+/-18
2,3,4,7,8-PeCDF	A	50.000	47.8	1.1255490	1.0770180		-4.3	+/-18
1,2,3,7,8-PeCDD	A	50.000	53.8	0.9953229	1.0706660		7.6	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	51.1	1.0168930	1.0390950		2.2	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	48.9	1.0368310	1.0146940		-2.1	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	48.7	1.0524660	1.0260000		-2.5	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	49.6	1.0301540	1.0216260		-0.8	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	48.6	1.0273630	0.9982061		-2.8	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	47.7	1.0089800	0.9632547		-4.5	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	49.0	0.9504865	0.9313906		-2.0	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	48.2	1.3273500	1.2806600		-3.5	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	48.8	1.2833380	1.2517180		-2.5	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	51.9	1.0680880	1.1089530		3.8	+/-14
OCDF	A	100.00	99.4	1.4469010	1.4385450		-0.6	+/-37
OCDD	A	100.00	100	1.1808230	1.1816450		0.07	+/-21
13C12-2,3,7,8-TCDF	A	100.00	105	1.4265830	1.5037875		5.4	+/-29
13C12-2,3,7,8-TCDD	A	100.00	99.3	1.1164910	1.1086856		-0.7	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	107	1.2973130	1.3914411		7.3	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	105	1.2364800	1.2971467		4.9	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	105	0.7319833	0.7651367		4.5	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	91.2	1.2424560	1.1326788		-8.8	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	90.9	1.3434760	1.2206823		-9.1	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	90.3	1.2148550	1.0970564		-9.7	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	90.7	1.0076370	0.9138581		-9.3	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	99.8	0.9598233	0.9577089		-0.2	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	98.9	1.0413850	1.0303953		-1.1	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	102	0.9264704	0.9407908		1.5	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	102	0.7579160	0.7737350		2.1	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	103	0.6324476	0.6540871		3.4	+/-28

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21082402	Calibration Date:	08/11/2021
Sequence:	SJH0304	Injection Date:	08/24/21
Lab Sample ID:	SJH0304-ICV1	Injection Time:	12:52
Sequence Name:	CS3L3		

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-OCDD	A	200.00	230	0.5037432	0.5790277		14.9	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.29	1.0835930	1.0068583		-7.1	

* Values outside of QC limits

Dataset: Untitled
Last Altered: Tuesday, August 24, 2021 14:58:07 Pacific Daylight Time
Printed: Tuesday, August 24, 2021 14:58:35 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.262	1.001	7.221e4	9.608e4	1.108	0.752	0.770	1743	1772	1.06e6	1.34e6	606.7	755.4	NO	bb	bb	9.417
12378-PeCDF	29.425	1.001	4.446e5	2.851e5	1.015	1.559	1.550	3082	2321	6.22e6	4.03e6	2018.2	1736.5	NO	bb	bd	48.160
23478-PeCDF	30.762	1.000	4.508e5	2.987e5	1.126	1.509	1.550	3082	2321	6.44e6	4.21e6	2088.5	1813.4	NO	bb	bd	47.844
123478-HxCDF	34.417	1.000	3.374e5	2.782e5	1.017	1.213	1.240	3059	3389	4.98e6	4.19e6	1627.1	1236.2	NO	bd	bd	51.092
234678-HxCDF	35.442	1.000	3.242e5	2.645e5	1.052	1.226	1.240	3059	3389	4.99e6	4.09e6	1631.5	1205.4	NO	bb	bb	48.743
123678-HxCDF	34.561	1.001	3.594e5	2.885e5	1.037	1.246	1.240	3059	3389	5.15e6	4.14e6	1684.8	1223.0	NO	db	db	48.932
123789-HxCDF	36.478	1.001	2.719e5	2.164e5	1.030	1.257	1.240	3059	3389	4.16e6	3.34e6	1361.0	985.6	NO	bb	bb	49.586
1234678-HpCDF	38.349	1.000	3.194e5	3.108e5	1.327	1.028	1.050	3053	3360	5.22e6	5.01e6	1709.3	1492.3	NO	bb	bb	48.241
1234789-HpCDF	40.533	1.000	2.571e5	2.495e5	1.283	1.031	1.050	3053	3360	3.74e6	3.64e6	1225.1	1084.6	NO	bb	bb	48.768
OCDF	44.656	1.005	4.239e5	4.474e5	1.447	0.947	0.890	2236	2524	4.76e6	5.33e6	2130.6	2112.3	NO	bd	bb	99.422
2378-TCDD	25.912	1.001	5.273e4	6.634e4	0.920	0.795	0.770	1855	1133	7.48e5	9.30e5	403.4	820.9	NO	bb	bb	10.876
12378-PeCDD	31.018	1.001	2.706e5	1.689e5	0.995	1.602	1.550	2492	2488	4.07e6	2.53e6	1634.5	1015.8	NO	bb	bb	53.785
123478-HxCDD	35.553	1.000	2.764e5	2.236e5	1.027	1.236	1.240	2803	2922	4.26e6	3.50e6	1519.8	1196.7	NO	bd	bd	48.581
123678-HxCDD	35.675	1.001	2.848e5	2.343e5	1.009	1.215	1.240	2803	2922	4.45e6	3.63e6	1586.9	1242.0	NO	db	db	47.734
123789-HxCDD	36.065	1.012	2.691e5	2.151e5	0.950	1.251	1.240	2803	2922	4.13e6	3.36e6	1474.0	1151.0	NO	bb	bb	48.995
1234678-HpCDD	39.820	1.001	2.005e5	1.788e5	1.068	1.121	1.050	2042	2295	2.98e6	2.66e6	1460.7	1158.4	NO	bb	bb	51.913
OCDD	44.437	1.000	3.390e5	3.767e5	1.181	0.900	0.890	1908	1791	4.13e6	4.55e6	2166.0	2540.1	NO	bb	bb	100.070
13C-2378-TCDF	25.247	1.007	7.193e5	8.943e5	1.427	0.804	0.770	2661	1855	1.04e7	1.29e7	3919.6	6931.5	NO	bb	bb	105.412
13C-12378-PeCDF	29.403	1.173	9.163e5	5.767e5	1.297	1.589	1.550	2691	3017	1.29e7	8.13e6	4811.0	2694.5	NO	bd	bd	107.256
13C-23478-PeCDF	30.751	1.227	8.603e5	5.315e5	1.236	1.618	1.550	2691	3017	1.23e7	7.69e6	4552.1	2549.1	NO	bb	bb	104.906
13C-123478-HxCDF	34.405	0.954	4.001e5	7.847e5	1.242	0.510	0.510	3136	4396	5.90e6	1.16e7	1880.2	2644.4	NO	bd	bd	91.164
13C-123678-HxCDF	34.539	0.958	4.364e5	8.405e5	1.343	0.519	0.510	3136	4396	6.24e6	1.21e7	1990.7	2763.6	NO	db	db	90.860
13C-234678-HxCDF	35.430	0.983	3.925e5	7.551e5	1.215	0.520	0.510	3136	4396	5.85e6	1.12e7	1866.6	2558.1	NO	bb	bb	90.303
13C-123789-HxCDF	36.455	1.011	3.265e5	6.295e5	1.008	0.519	0.510	3136	4396	5.07e6	9.71e6	1617.7	2209.5	NO	bb	bb	90.693
13C-1234678-HpCDF	38.338	1.063	3.144e5	6.697e5	0.926	0.470	0.440	2568	3312	5.02e6	1.07e7	1954.6	3225.2	NO	bb	bb	101.546
13C-1234789-HpCDF	40.522	1.124	2.628e5	5.466e5	0.758	0.481	0.440	2568	3312	3.65e6	7.68e6	1421.9	2319.8	NO	bb	bb	102.087
13C-1234-TCDD	25.065	0.000	4.661e5	6.069e5	1.000	0.768	0.770	2535	2191	6.90e6	8.98e6	2722.6	4097.8	NO	bb	bb	100.000
13C-2378-TCDD	25.882	1.033	5.133e5	6.763e5	1.116	0.759	0.770	2535	2191	7.39e6	9.72e6	2914.5	4437.6	NO	bb	bb	99.301
13C-12378-PeCDD	30.996	1.237	5.011e5	3.199e5	0.732	1.567	1.550	2037	2026	7.11e6	4.59e6	3492.7	2265.8	NO	bb	bb	104.529
13C-123478-HxCDD	35.542	0.986	5.612e5	4.406e5	0.960	1.274	1.240	3868	2222	8.87e6	7.00e6	2294.1	3150.6	NO	bd	bd	99.780
13C-123678-HxCDD	35.653	0.989	5.992e5	4.786e5	1.041	1.252	1.240	3868	2222	8.90e6	7.23e6	2301.5	3251.1	NO	db	db	98.945
13C-1234678-HpCDD	39.798	1.104	3.381e5	3.462e5	0.632	0.977	1.050	1685	1817	5.08e6	4.98e6	3014.1	2743.5	NO	bb	bb	103.422
13C-OCDD	44.418	1.232	5.807e5	6.307e5	0.504	0.921	0.890	2934	1994	7.10e6	7.73e6	2421.4	3875.7	NO	bb	bb	229.890
13C-123789-HxCDD	36.054	0.000	5.837e5	4.624e5	1.000	1.262	1.240	3868	2222	9.00e6	7.05e6	2326.3	3171.6	NO	bb	bb	100.000
37CL-2378-TCDD	25.912	1.034	1.080e5		1.084			1814		1.48e6		814.1			bb		9.292

Dataset: Untitled
Last Altered: Tuesday, August 24, 2021 14:58:07 Pacific Daylight Time
Printed: Tuesday, August 24, 2021 14:58:35 Pacific Daylight Time

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.769	0.862	9.345e4	1.190e5	1.425	0.785	0.770	1743	1772	1.41e6	1.76e6	808.2	992.3	NO	bb	bb	9.240
1289-TCDF	26.758	1.060	6.448e4	9.112e4	1.043	0.708	0.770	1743	1772	9.14e5	1.22e6	524.7	689.6	NO	bb	db	9.246
13468-PECDF	26.622	0.905	5.729e5	3.719e5	1.376	1.541	1.550	737	1470	8.32e6	5.32e6	11296.3	3619.8	NO	bb	bb	45.981
12389-PECDF	31.798	1.081	4.256e5	2.682e5	1.000	1.587	1.550	3082	2321	5.73e6	3.69e6	1858.2	1590.2	NO	bb	bb	46.491
123468-HXCDF	32.734	0.951	3.520e5	2.900e5	1.087	1.214	1.240	3059	3389	4.88e6	4.01e6	1596.7	1184.4	NO	bb	bb	49.867
1368-TCDD	23.039	0.890	5.426e4	6.744e4	0.923	0.804	0.770	1855	1133	8.11e5	1.01e6	437.0	889.4	NO	bb	bb	11.080
1289-TCDD	26.501	1.024	4.719e4	5.836e4	0.794	0.809	0.770	1855	1133	6.46e5	8.05e5	348.4	710.7	NO	bd	bd	11.174
12479-PECDD	28.311	0.913	4.823e5	3.003e5	1.843	1.606	1.550	2492	2488	4.62e6	2.88e6	1854.2	1158.1	NO	bb	bb	51.717
12389-PECDD	31.420	1.014	3.189e5	1.938e5	1.154	1.645	1.550	2492	2488	4.63e6	2.80e6	1858.4	1125.7	NO	bb	bb	54.128
124679-HXCDD	33.525	0.943	2.994e5	2.453e5	1.125	1.220	1.240	2803	2922	4.31e6	3.51e6	1536.4	1200.7	NO	bb	bb	48.336
1234679-HPCDD	38.795	0.975	2.231e5	2.058e5	1.211	1.084	1.050	2042	2295	3.57e6	3.36e6	1748.5	1463.0	NO	bb	bb	51.765
Total-tetrafurans			2.308e5		1.192			1743		3.39e6							27.985
Total-penta1			5.729e5					737		8.32e6							45.981
Total-pentafurans			1.397e6		1.047			3082		1.95e7							150.588
Total-hexafurans			1.645e6		1.045			3059		2.42e7							248.220
Total-heptafurans			5.767e5		1.305			3053		8.97e6							97.045
Total-Furans			4.846e6		1.158			1743		6.91e7							669.241
Total-tetradioxins			2.636e5		0.879			1855		3.42e6							56.347
Total-pentadioxins			1.074e6		1.331			2492		1.34e7							159.886
Total-hexadioxins			1.130e6		1.028			2803		1.71e7							193.647
Total-heptadioxins			4.241e5		1.140			2042		6.56e6							103.780
Total-Dioxins			3.230e6		1.092			1855		4.46e7							613.730
Total-TEQ			8.076e6					1855		1.14e8							1282.971
FUNCTION1 PFK			4.889e5					671494		1.43e7							
FUNCTION2 PFK			9.105e6					387911		8.25e7							0.000
FUNCTION3 PFK			1.956e5					519089		8.40e6							0.000
FUNCTION4 PFK			3.469e5					398762		8.62e6							
FUNCTION5 PFK			4.991e4					302347		2.46e6							
FUNCTION1 HXCD...			2.058e3					976		3.88e4							0.000
FUNCTION1 HPCD...			1.398e3					1130		2.49e4							0.000
FUNCTION2 HPCD...			2.410e3					1066		5.81e4							0.000
FUNCTION3 OCDPE			1.638e3					877		4.06e4							0.000
FUNCTION4 NCDPE			2.560e3					915		5.36e4							0.000
FUNCTION5 DCDPE			7.270e1					633		1.63e3							0.000

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.26	7.221e4	9.608e4	1.108	0.75	0.77	606.7	YES	NO	bb	bb	9.417
2	Total-tetrafurans	24.04	6.830e2	8.986e2	1.192	0.76	0.77	5.5	YES	NO	bd	bd	0.082
3	1368-TCDF	21.77	9.345e4	1.190e5	1.425	0.79	0.77	808.2	YES	NO	bb	bb	9.240
4	1289-TCDF	26.76	6.448e4	9.112e4	1.043	0.71	0.77	524.7	YES	NO	bb	db	9.246

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.62	5.729e5	3.719e5	1.376	1.54	1.55	11296.3	YES	NO	bb	bb	45.981

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.80	4.256e5	2.682e5	1.000	1.59	1.55	1858.2	YES	NO	bb	bb	46.491
2	23478-PeCDF	30.76	4.508e5	2.987e5	1.126	1.51	1.55	2088.5	YES	NO	bb	bd	47.844
3	12378-PeCDF	29.43	4.446e5	2.851e5	1.015	1.56	1.55	2018.2	YES	NO	bb	bd	48.160
4	Total-pentafurans	28.28	7.557e4	4.661e4	1.047	1.62	1.55	348.4	YES	NO	bd	bb	8.093

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.48	2.719e5	2.164e5	1.030	1.26	1.24	1361.0	YES	NO	bb	bb	49.586
2	234678-HxCDF	35.44	3.242e5	2.645e5	1.052	1.23	1.24	1631.5	YES	NO	bb	bb	48.743
3	123678-HxCDF	34.56	3.594e5	2.885e5	1.037	1.25	1.24	1684.8	YES	NO	db	db	48.932
4	123478-HxCDF	34.42	3.374e5	2.782e5	1.017	1.21	1.24	1627.1	YES	NO	bd	bd	51.092
5	123468-HXCDF	32.73	3.520e5	2.900e5	1.087	1.21	1.24	1596.7	YES	NO	bb	bb	49.867

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	40.95	2.104e2	2.039e2	1.305	1.03	1.05	2.7	NO	NO	bb	bb	0.035
2	1234789-HpCDF	40.53	2.571e5	2.495e5	1.283	1.03	1.05	1225.1	YES	NO	bb	bb	48.768
3	1234678-HpCDF	38.35	3.194e5	3.108e5	1.327	1.03	1.05	1709.3	YES	NO	bb	bb	48.241

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.26	7.221e4	9.608e4	1.108	0.75	0.77	606.7	YES	NO	bb	bb	9.417
2	Total-tetrafurans	24.04	6.830e2	8.986e2	1.192	0.76	0.77	5.5	YES	NO	bd	bd	0.082
3	1368-TCDF	21.77	9.345e4	1.190e5	1.425	0.79	0.77	808.2	YES	NO	bb	bb	9.240
4	1289-TCDF	26.76	6.448e4	9.112e4	1.043	0.71	0.77	524.7	YES	NO	bb	db	9.246
5	12389-PECDF	31.80	4.256e5	2.682e5	1.000	1.59	1.55	1858.2	YES	NO	bb	bb	46.491
6	23478-PeCDF	30.76	4.508e5	2.987e5	1.126	1.51	1.55	2088.5	YES	NO	bb	bd	47.844
7	12378-PeCDF	29.43	4.446e5	2.851e5	1.015	1.56	1.55	2018.2	YES	NO	bb	bd	48.160
8	Total-pentafurans	28.28	7.557e4	4.661e4	1.047	1.62	1.55	348.4	YES	NO	bd	bb	8.093
9	123789-HxCDF	36.48	2.719e5	2.164e5	1.030	1.26	1.24	1361.0	YES	NO	bb	bb	49.586
10	234678-HxCDF	35.44	3.242e5	2.645e5	1.052	1.23	1.24	1631.5	YES	NO	bb	bb	48.743
11	123678-HxCDF	34.56	3.594e5	2.885e5	1.037	1.25	1.24	1684.8	YES	NO	db	db	48.932
12	123478-HxCDF	34.42	3.374e5	2.782e5	1.017	1.21	1.24	1627.1	YES	NO	bd	bd	51.092
13	123468-HXCDF	32.73	3.520e5	2.900e5	1.087	1.21	1.24	1596.7	YES	NO	bb	bb	49.867
14	Total-heptafurans	40.95	2.104e2	2.039e2	1.305	1.03	1.05	2.7	NO	NO	bb	bb	0.035
15	1234789-HpCDF	40.53	2.571e5	2.495e5	1.283	1.03	1.05	1225.1	YES	NO	bb	bb	48.768
16	1234678-HpCDF	38.35	3.194e5	3.108e5	1.327	1.03	1.05	1709.3	YES	NO	bb	bb	48.241
17	OCDF	44.66	4.239e5	4.474e5	1.447	0.95	0.89	2130.6	YES	NO	bd	bb	99.422
18	13468-PECDF	26.62	5.729e5	3.719e5	1.376	1.54	1.55	11296.3	YES	NO	bb	bb	45.981

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.50	4.719e4	5.836e4	0.794	0.81	0.77	348.4	YES	NO	bd	bd	11.174
2	2378-TCDD	25.91	5.273e4	6.634e4	0.920	0.79	0.77	403.4	YES	NO	bb	bb	10.876
3	Total-tetradioxins	25.58	7.964e4	9.801e4	0.879	0.81	0.77	431.6	YES	NO	bb	bb	16.985
4	Total-tetradioxins	25.10	2.699e4	3.205e4	0.879	0.84	0.77	210.2	YES	NO	bd	bd	5.645
5	Total-tetradioxins	24.23	2.483e3	2.879e3	0.879	0.86	0.77	12.8	YES	NO	bb	bb	0.513
6	Total-tetradioxins	23.30	3.185e2	4.538e2	0.879	0.70	0.77	2.6	NO	NO	bb	bb	0.074
7	1368-TCDD	23.04	5.426e4	6.744e4	0.923	0.80	0.77	437.0	YES	NO	bb	bb	11.080

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.31	4.823e5	3.003e5	1.843	1.61	1.55	1854.2	YES	NO	bb	bb	51.717
2	12389-PECDD	31.42	3.189e5	1.938e5	1.154	1.65	1.55	1858.4	YES	NO	bb	bb	54.128
3	12378-PeCDD	31.02	2.706e5	1.689e5	0.995	1.60	1.55	1634.5	YES	NO	bb	bb	53.785
4	Total-pentadioxins	30.35	1.149e3	7.012e2	1.331	1.64	1.55	7.0	YES	NO	bb	bb	0.169
5	Total-pentadioxins	29.41	5.778e2	3.663e2	1.331	1.58	1.55	5.6	NO	NO	bb	bb	0.086

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.07	2.691e5	2.151e5	0.950	1.25	1.24	1474.0	YES	NO	bb	bb	48.995
2	123678-HxCDD	35.68	2.848e5	2.343e5	1.009	1.22	1.24	1586.9	YES	NO	db	db	47.734
3	123478-HxCDD	35.55	2.764e5	2.236e5	1.027	1.24	1.24	1519.8	YES	NO	bd	bd	48.581
4	124679-HXCDD	33.53	2.994e5	2.453e5	1.125	1.22	1.24	1536.4	YES	NO	bb	bb	48.336

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.82	2.005e5	1.788e5	1.068	1.12	1.05	1460.7	YES	NO	bb	bb	51.913
2	Total-heptadioxins	39.32	4.010e2	3.991e2	1.140	1.00	1.05	4.1	NO	NO	bb	bd	0.103
3	1234679-HPCDD	38.80	2.231e5	2.058e5	1.211	1.08	1.05	1748.5	YES	NO	bb	bb	51.765

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.50	4.719e4	5.836e4	0.794	0.81	0.77	348.4	YES	NO	bd	bd	11.174
2	2378-TCDD	25.91	5.273e4	6.634e4	0.920	0.79	0.77	403.4	YES	NO	bb	bb	10.876
3	Total-tetradioxins	25.58	7.964e4	9.801e4	0.879	0.81	0.77	431.6	YES	NO	bb	bb	16.985
4	Total-tetradioxins	25.10	2.699e4	3.205e4	0.879	0.84	0.77	210.2	YES	NO	bd	bd	5.645
5	Total-tetradioxins	24.23	2.483e3	2.879e3	0.879	0.86	0.77	12.8	YES	NO	bb	bb	0.513
6	Total-tetradioxins	23.30	3.185e2	4.538e2	0.879	0.70	0.77	2.6	NO	NO	bb	bb	0.074
7	1368-TCDD	23.04	5.426e4	6.744e4	0.923	0.80	0.77	437.0	YES	NO	bb	bb	11.080
8	12479-PECDD	28.31	4.823e5	3.003e5	1.843	1.61	1.55	1854.2	YES	NO	bb	bb	51.717
9	12389-PECDD	31.42	3.189e5	1.938e5	1.154	1.65	1.55	1858.4	YES	NO	bb	bb	54.128
10	12378-PeCDD	31.02	2.706e5	1.689e5	0.995	1.60	1.55	1634.5	YES	NO	bb	bb	53.785
11	Total-pentadioxins	30.35	1.149e3	7.012e2	1.331	1.64	1.55	7.0	YES	NO	bb	bb	0.169
12	Total-pentadioxins	29.41	5.778e2	3.663e2	1.331	1.58	1.55	5.6	NO	NO	bb	bb	0.086
13	123789-HxCDD	36.07	2.691e5	2.151e5	0.950	1.25	1.24	1474.0	YES	NO	bb	bb	48.995
14	123678-HxCDD	35.68	2.848e5	2.343e5	1.009	1.22	1.24	1586.9	YES	NO	db	db	47.734
15	123478-HxCDD	35.55	2.764e5	2.236e5	1.027	1.24	1.24	1519.8	YES	NO	bd	bd	48.581
16	124679-HXCDD	33.53	2.994e5	2.453e5	1.125	1.22	1.24	1536.4	YES	NO	bb	bb	48.336
17	1234678-HpCDD	39.82	2.005e5	1.788e5	1.068	1.12	1.05	1460.7	YES	NO	bb	bb	51.913
18	Total-heptadioxins	39.32	4.010e2	3.991e2	1.140	1.00	1.05	4.1	NO	NO	bb	bd	0.103
19	1234679-HPCDD	38.80	2.231e5	2.058e5	1.211	1.08	1.05	1748.5	YES	NO	bb	bb	51.765
20	OCDD	44.44	3.390e5	3.767e5	1.181	0.90	0.89	2166.0	YES	NO	bb	bb	100.070

Dataset: Untitled
Last Altered: Tuesday, August 24, 2021 14:58:07 Pacific Daylight Time
Printed: Tuesday, August 24, 2021 14:58:35 Pacific Daylight Time

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.26	7.221e4	9.608e4	1.108	0.75	0.77	606.7	YES	NO	bb	bb	9.417
2	Total-tetrafurans	24.04	6.830e2	8.986e2	1.192	0.76	0.77	5.5	YES	NO	bd	bd	0.082
3	1368-TCDF	21.77	9.345e4	1.190e5	1.425	0.79	0.77	808.2	YES	NO	bb	bb	9.240
4	1289-TCDF	26.76	6.448e4	9.112e4	1.043	0.71	0.77	524.7	YES	NO	bb	db	9.246
5	12389-PECDF	31.80	4.256e5	2.682e5	1.000	1.59	1.55	1858.2	YES	NO	bb	bb	46.491
6	23478-PeCDF	30.76	4.508e5	2.987e5	1.126	1.51	1.55	2088.5	YES	NO	bb	bd	47.844
7	12378-PeCDF	29.43	4.446e5	2.851e5	1.015	1.56	1.55	2018.2	YES	NO	bb	bd	48.160
8	Total-pentafurans	28.28	7.557e4	4.661e4	1.047	1.62	1.55	348.4	YES	NO	bd	bb	8.093
9	123789-HxCDF	36.48	2.719e5	2.164e5	1.030	1.26	1.24	1361.0	YES	NO	bb	bb	49.586
10	234678-HxCDF	35.44	3.242e5	2.645e5	1.052	1.23	1.24	1631.5	YES	NO	bb	bb	48.743
11	123678-HxCDF	34.56	3.594e5	2.885e5	1.037	1.25	1.24	1684.8	YES	NO	db	db	48.932
12	123478-HxCDF	34.42	3.374e5	2.782e5	1.017	1.21	1.24	1627.1	YES	NO	bd	bd	51.092
13	123468-HXCDF	32.73	3.520e5	2.900e5	1.087	1.21	1.24	1596.7	YES	NO	bb	bb	49.867
14	Total-heptafurans	40.95	2.104e2	2.039e2	1.305	1.03	1.05	2.7	NO	NO	bb	bb	0.035
15	1234789-HpCDF	40.53	2.571e5	2.495e5	1.283	1.03	1.05	1225.1	YES	NO	bb	bb	48.768
16	1234678-HpCDF	38.35	3.194e5	3.108e5	1.327	1.03	1.05	1709.3	YES	NO	bb	bb	48.241
17	OCDF	44.66	4.239e5	4.474e5	1.447	0.95	0.89	2130.6	YES	NO	bd	bb	99.422
18	13468-PECDF	26.62	5.729e5	3.719e5	1.376	1.54	1.55	11296.3	YES	NO	bb	bb	45.981
19	1289-TCDD	26.50	4.719e4	5.836e4	0.794	0.81	0.77	348.4	YES	NO	bd	bd	11.174
20	2378-TCDD	25.91	5.273e4	6.634e4	0.920	0.79	0.77	403.4	YES	NO	bb	bb	10.876
21	Total-tetradioxins	25.58	7.964e4	9.801e4	0.879	0.81	0.77	431.6	YES	NO	bb	bb	16.985
22	Total-tetradioxins	25.10	2.699e4	3.205e4	0.879	0.84	0.77	210.2	YES	NO	bd	bd	5.645
23	Total-tetradioxins	24.23	2.483e3	2.879e3	0.879	0.86	0.77	12.8	YES	NO	bb	bb	0.513
24	Total-tetradioxins	23.30	3.185e2	4.538e2	0.879	0.70	0.77	2.6	NO	NO	bb	bb	0.074
25	1368-TCDD	23.04	5.426e4	6.744e4	0.923	0.80	0.77	437.0	YES	NO	bb	bb	11.080
26	12479-PECDD	28.31	4.823e5	3.003e5	1.843	1.61	1.55	1854.2	YES	NO	bb	bb	51.717
27	12389-PECDD	31.42	3.189e5	1.938e5	1.154	1.65	1.55	1858.4	YES	NO	bb	bb	54.128
28	12378-PeCDD	31.02	2.706e5	1.689e5	0.995	1.60	1.55	1634.5	YES	NO	bb	bb	53.785
29	Total-pentadioxins	30.35	1.149e3	7.012e2	1.331	1.64	1.55	7.0	YES	NO	bb	bb	0.169
30	Total-pentadioxins	29.41	5.778e2	3.663e2	1.331	1.58	1.55	5.6	NO	NO	bb	bb	0.086
31	123789-HxCDD	36.07	2.691e5	2.151e5	0.950	1.25	1.24	1474.0	YES	NO	bb	bb	48.995
32	123678-HxCDD	35.68	2.848e5	2.343e5	1.009	1.22	1.24	1586.9	YES	NO	db	db	47.734
33	123478-HxCDD	35.55	2.764e5	2.236e5	1.027	1.24	1.24	1519.8	YES	NO	bd	bd	48.581
34	124679-HXCDD	33.53	2.994e5	2.453e5	1.125	1.22	1.24	1536.4	YES	NO	bb	bb	48.336
35	1234678-HpCDD	39.82	2.005e5	1.788e5	1.068	1.12	1.05	1460.7	YES	NO	bb	bb	51.913
36	Total-heptadioxins	39.32	4.010e2	3.991e2	1.140	1.00	1.05	4.1	NO	NO	bb	bd	0.103
37	1234679-HPCDD	38.80	2.231e5	2.058e5	1.211	1.08	1.05	1748.5	YES	NO	bb	bb	51.765

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	OCDD	44.44	3.390e5	3.767e5	1.181	0.90	0.89	2166.0	YES	NO	bb	bb	100.070

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.03	5.912e3					0.6	NO		bb		
2	FUNCTION1 PFK	21.83	1.212e4					0.7	NO		bb		
3	FUNCTION1 PFK	21.69	3.211e4					1.4	NO		bb		
4	FUNCTION1 PFK	21.63	5.675e3					0.6	NO		bb		
5	FUNCTION1 PFK	21.24	2.098e4					1.0	NO		bb		
6	FUNCTION1 PFK	21.16	5.427e4					1.5	NO		bb		
7	FUNCTION1 PFK	26.82	2.461e4					1.2	NO		bb		
8	FUNCTION1 PFK	26.11	4.735e3					0.5	NO		bb		
9	FUNCTION1 PFK	26.03	8.915e3					0.6	NO		bb		
10	FUNCTION1 PFK	25.84	1.679e4					0.8	NO		bb		
11	FUNCTION1 PFK	25.78	2.663e4					1.2	NO		bb		
12	FUNCTION1 PFK	25.53	3.297e4					1.4	NO		bb		
13	FUNCTION1 PFK	25.46	4.731e3					0.5	NO		bb		
14	FUNCTION1 PFK	24.52	3.425e4					0.9	NO		bb		
15	FUNCTION1 PFK	24.34	5.098e3					0.5	NO		bb		
16	FUNCTION1 PFK	24.20	1.502e4					0.8	NO		bb		
17	FUNCTION1 PFK	23.18	1.594e4					0.8	NO		bb		
18	FUNCTION1 PFK	23.10	4.572e4					1.8	NO		bb		
19	FUNCTION1 PFK	22.92	1.341e4					0.7	NO		bb		
20	FUNCTION1 PFK	22.78	1.696e4					1.0	NO		bb		
21	FUNCTION1 PFK	22.57	5.574e4					1.5	NO		bb		
22	FUNCTION1 PFK	22.15	3.630e4					1.3	NO		bb		

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.74	4.724e3					0.6	NO		bb		0.000
2	FUNCTION2 PFK	29.59	1.606e4					1.1	NO		bb		0.000
3	FUNCTION2 PFK	29.25	1.723e3					0.4	NO		bb		0.000
4	FUNCTION2 PFK	29.17	1.669e4					0.7	NO		bb		0.000
5	FUNCTION2 PFK	29.00	2.075e3					0.5	NO		bb		0.000
6	FUNCTION2 PFK	28.60	1.585e5					3.1	YES		db		0.000
7	FUNCTION2 PFK	28.48	1.623e5					7.3	YES		dd		0.000
8	FUNCTION2 PFK	28.43	5.425e5					8.1	YES		dd		0.000
9	FUNCTION2 PFK	28.23	4.418e5					14.2	YES		dd		0.000
10	FUNCTION2 PFK	28.19	2.479e5					15.0	YES		dd		0.000
11	FUNCTION2 PFK	28.10	5.773e5					17.9	YES		dd		0.000
12	FUNCTION2 PFK	27.67	4.340e6					30.6	YES		dd		0.000
13	FUNCTION2 PFK	27.60	3.858e5					30.8	YES		dd		0.000
14	FUNCTION2 PFK	27.56	8.284e5					32.4	YES		dd		0.000
15	FUNCTION2 PFK	27.49	1.176e6					35.3	YES		bd		0.000
16	FUNCTION2 PFK	32.14	4.424e3					0.6	NO		bb		0.000
17	FUNCTION2 PFK	32.08	1.517e4					1.2	NO		bb		0.000
18	FUNCTION2 PFK	31.84	6.820e4					2.5	NO		db		0.000
19	FUNCTION2 PFK	31.75	1.040e4					1.2	NO		bd		0.000
20	FUNCTION2 PFK	31.48	2.661e4					1.6	NO		db		0.000
21	FUNCTION2 PFK	31.43	1.505e4					1.2	NO		bd		0.000
22	FUNCTION2 PFK	31.29	1.505e3					0.3	NO		bb		0.000
23	FUNCTION2 PFK	31.11	4.049e3					0.6	NO		db		0.000
24	FUNCTION2 PFK	31.07	1.985e4					1.2	NO		dd		0.000
25	FUNCTION2 PFK	31.00	6.860e3					0.7	NO		bd		0.000
26	FUNCTION2 PFK	30.81	4.918e3					0.7	NO		bb		0.000
27	FUNCTION2 PFK	30.14	1.657e3					0.4	NO		bb		0.000
28	FUNCTION2 PFK	30.00	1.214e4					1.2	NO		bb		0.000
29	FUNCTION2 PFK	29.88	1.279e4					1.3	NO		bb		0.000

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.31	3.527e3					0.6	NO		bb		0.000
2	FUNCTION3 PFK	37.32	4.525e3					0.8	NO		bb		0.000
3	FUNCTION3 PFK	37.02	1.157e4					1.0	NO		bb		0.000
4	FUNCTION3 PFK	36.95	4.569e3					0.8	NO		bb		0.000
5	FUNCTION3 PFK	36.90	2.420e4					1.9	NO		bb		0.000
6	FUNCTION3 PFK	36.85	1.257e4					1.1	NO		bb		0.000
7	FUNCTION3 PFK	36.66	3.418e3					0.6	NO		bb		0.000
8	FUNCTION3 PFK	35.89	3.417e4					2.2	NO		bb		0.000
9	FUNCTION3 PFK	34.62	3.419e4					2.3	NO		bb		0.000
10	FUNCTION3 PFK	34.14	1.229e4					1.2	NO		bb		0.000
11	FUNCTION3 PFK	33.21	1.355e4					1.2	NO		bb		0.000
12	FUNCTION3 PFK	32.42	3.706e4					2.5	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.83	1.078e4					1.1	NO		bb		
2	FUNCTION4 PFK	37.66	5.121e4					1.6	NO		bb		
3	FUNCTION4 PFK	37.54	2.821e4					1.8	NO		db		
4	FUNCTION4 PFK	37.49	1.547e4					1.4	NO		bd		
5	FUNCTION4 PFK	42.32	2.240e4					0.7	NO		bb		
6	FUNCTION4 PFK	42.19	2.350e4					1.6	NO		db		
7	FUNCTION4 PFK	42.13	5.621e4					1.8	NO		bd		
8	FUNCTION4 PFK	41.17	1.169e4					0.9	NO		bb		
9	FUNCTION4 PFK	40.92	2.534e3					0.5	NO		bb		
10	FUNCTION4 PFK	40.88	1.161e4					1.1	NO		db		
11	FUNCTION4 PFK	40.80	2.093e4					1.6	NO		bd		
12	FUNCTION4 PFK	40.73	1.937e4					1.3	NO		bb		
13	FUNCTION4 PFK	40.17	1.731e3					0.4	NO		bb		
14	FUNCTION4 PFK	40.04	7.062e3					1.1	NO		bb		
15	FUNCTION4 PFK	39.69	1.148e4					1.1	NO		bb		
16	FUNCTION4 PFK	39.62	8.386e3					0.5	NO		bb		
17	FUNCTION4 PFK	39.39	2.049e3					0.5	NO		bb		
18	FUNCTION4 PFK	38.73	3.151e4					1.6	NO		bb		
19	FUNCTION4 PFK	38.37	1.080e4					1.0	NO		bb		

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.94	2.602e3					0.6	NO		bb		
2	FUNCTION5 PFK	45.85	1.392e3					0.5	NO		bb		
3	FUNCTION5 PFK	45.82	1.723e3					0.6	NO		bb		
4	FUNCTION5 PFK	44.65	7.208e3					1.2	NO		bb		
5	FUNCTION5 PFK	43.93	4.383e3					0.9	NO		bb		
6	FUNCTION5 PFK	43.87	7.712e3					1.2	NO		bb		
7	FUNCTION5 PFK	43.63	1.319e4					1.4	NO		bb		
8	FUNCTION5 PFK	43.40	1.031e4					1.3	NO		bb		
9	FUNCTION5 PFK	42.67	1.389e3					0.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.48	7.796e1					1.7	NO		bb		0.000
2	FUNCTION1 HXCD...	23.11	9.500e1					2.3	NO		bb		0.000
3	FUNCTION1 HXCD...	23.02	1.142e2					2.5	NO		bb		0.000
4	FUNCTION1 HXCD...	22.57	7.423e1					1.7	NO		bb		0.000
5	FUNCTION1 HXCD...	22.13	9.525e1					1.4	NO		bb		0.000
6	FUNCTION1 HXCD...	21.97	7.937e1					1.5	NO		bb		0.000
7	FUNCTION1 HXCD...	27.15	2.094e2					5.3	YES		bb		0.000
8	FUNCTION1 HXCD...	26.92	1.939e2					3.6	YES		db		0.000
9	FUNCTION1 HXCD...	26.83	1.551e2					2.1	NO		bd		0.000
10	FUNCTION1 HXCD...	26.62	1.517e2					2.2	NO		bb		0.000
11	FUNCTION1 HXCD...	26.37	1.493e2					3.4	YES		bb		0.000
12	FUNCTION1 HXCD...	26.15	2.002e2					4.0	YES		db		0.000
13	FUNCTION1 HXCD...	26.06	1.127e2					1.9	NO		bd		0.000
14	FUNCTION1 HXCD...	25.91	7.092e1					1.6	NO		db		0.000
15	FUNCTION1 HXCD...	25.87	8.232e1					1.6	NO		dd		0.000
16	FUNCTION1 HXCD...	25.82	9.276e1					1.7	NO		bd		0.000
17	FUNCTION1 HXCD...	25.07	1.032e2					1.3	NO		bb		0.000

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	23.02	1.107e2					2.2	NO		bb		0.000
2	FUNCTION1 HPCD...	22.28	1.806e2					3.6	YES		bb		0.000
3	FUNCTION1 HPCD...	22.13	1.508e2					2.1	NO		bb		0.000
4	FUNCTION1 HPCD...	21.51	7.354e1					1.1	NO		bb		0.000
5	FUNCTION1 HPCD...	27.29	1.236e2					1.6	NO		bb		0.000
6	FUNCTION1 HPCD...	26.61	1.207e2					1.4	NO		bb		0.000
7	FUNCTION1 HPCD...	26.44	1.459e2					2.4	NO		db		0.000
8	FUNCTION1 HPCD...	26.38	1.616e2					2.2	NO		bd		0.000
9	FUNCTION1 HPCD...	26.23	9.226e1					2.1	NO		bb		0.000
10	FUNCTION1 HPCD...	24.13	7.562e1					0.9	NO		bb		0.000
11	FUNCTION1 HPCD...	23.70	8.201e1					1.4	NO		bb		0.000
12	FUNCTION1 HPCD...	23.46	8.017e1					1.0	NO		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.56	8.985e1					3.6	YES		db		0.000
2	FUNCTION2 HPCD...	28.46	2.620e2					5.0	YES		bd		0.000
3	FUNCTION2 HPCD...	28.32	8.726e1					2.7	NO		bb		0.000
4	FUNCTION2 HPCD...	28.19	1.550e2					2.9	NO		db		0.000
5	FUNCTION2 HPCD...	28.13	1.199e2					2.3	NO		dd		0.000
6	FUNCTION2 HPCD...	28.08	2.552e2					5.0	YES		bd		0.000
7	FUNCTION2 HPCD...	27.61	7.161e1					2.1	NO		bb		0.000
8	FUNCTION2 HPCD...	31.22	8.421e1					2.0	NO		bb		0.000
9	FUNCTION2 HPCD...	31.02	1.875e2					3.3	YES		db		0.000
10	FUNCTION2 HPCD...	30.96	9.011e1					1.8	NO		bd		0.000
11	FUNCTION2 HPCD...	30.65	3.458e2					7.2	YES		db		0.000
12	FUNCTION2 HPCD...	30.62	2.944e2					6.7	YES		bd		0.000
13	FUNCTION2 HPCD...	29.63	1.099e2					4.0	YES		bb		0.000
14	FUNCTION2 HPCD...	29.41	1.087e2					1.9	NO		bb		0.000
15	FUNCTION2 HPCD...	29.28	7.538e1					1.1	NO		bb		0.000
16	FUNCTION2 HPCD...	28.65	7.296e1					2.9	NO		bb		0.000

ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	33.98	1.006e2					3.9	YES		bb		0.000
2	FUNCTION3 OCDPE	33.58	7.438e1					3.4	YES		db		0.000
3	FUNCTION3 OCDPE	33.49	2.083e2					4.3	YES		bd		0.000
4	FUNCTION3 OCDPE	32.92	1.515e2					7.9	YES		bb		0.000
5	FUNCTION3 OCDPE	32.81	1.352e2					3.4	YES		bb		0.000
6	FUNCTION3 OCDPE	32.54	8.103e1					1.4	NO		bb		0.000
7	FUNCTION3 OCDPE	35.88	7.146e1					2.0	NO		bb		0.000
8	FUNCTION3 OCDPE	35.66	1.597e2					3.1	YES		db		0.000
9	FUNCTION3 OCDPE	35.54	1.914e2					3.6	YES		bd		0.000
10	FUNCTION3 OCDPE	34.96	1.235e2					3.8	YES		db		0.000
11	FUNCTION3 OCDPE	34.90	8.553e1					2.8	NO		bd		0.000
12	FUNCTION3 OCDPE	34.33	1.415e2					3.1	YES		bb		0.000
13	FUNCTION3 OCDPE	34.10	1.136e2					3.5	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.75	1.343e2					4.5	YES		bd		0.000
2	FUNCTION4 NCDPE	39.40	2.498e2					6.4	YES		db		0.000
3	FUNCTION4 NCDPE	39.34	1.881e2					3.6	YES		bd		0.000
4	FUNCTION4 NCDPE	39.16	8.583e1					3.9	YES		bb		0.000
5	FUNCTION4 NCDPE	38.82	1.055e2					2.6	NO		db		0.000
6	FUNCTION4 NCDPE	38.76	2.262e2					4.6	YES		dd		0.000
7	FUNCTION4 NCDPE	38.66	2.605e2					6.2	YES		bd		0.000
8	FUNCTION4 NCDPE	38.34	1.907e2					2.5	NO		bb		0.000
9	FUNCTION4 NCDPE	40.70	1.415e2					1.6	NO		bb		0.000
10	FUNCTION4 NCDPE	40.15	2.474e2					6.5	YES		db		0.000
11	FUNCTION4 NCDPE	40.11	9.813e1					2.9	NO		dd		0.000
12	FUNCTION4 NCDPE	40.02	1.547e2					2.6	NO		bd		0.000
13	FUNCTION4 NCDPE	39.88	2.214e2					5.2	YES		db		0.000
14	FUNCTION4 NCDPE	39.81	2.563e2					5.6	YES		dd		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.16	7.270e1					2.6	NO		bb		0.000

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ID: CS3L3, Name: 21082402, Date: 24-Aug-2021, Time: 12:52:16, Conditions: AUTOSPEC01, User: pk

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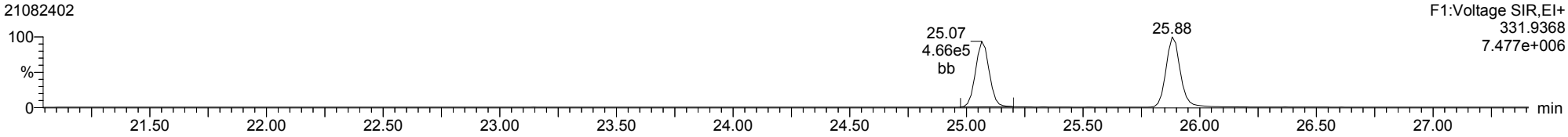

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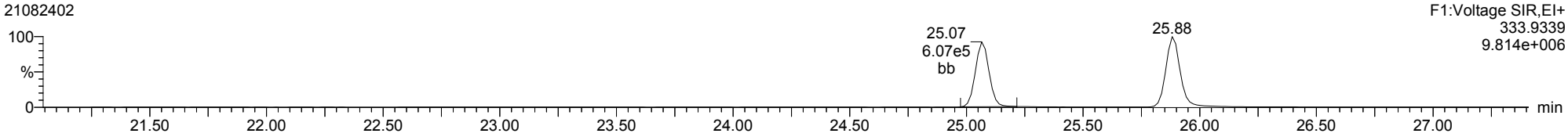

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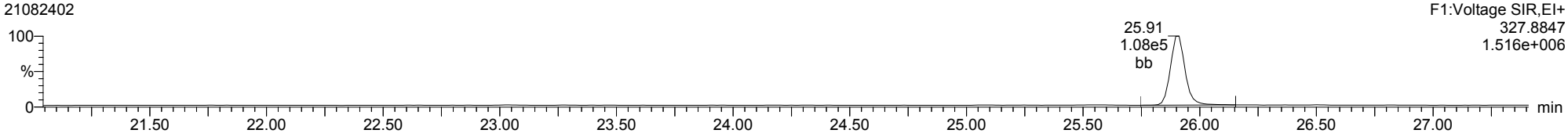

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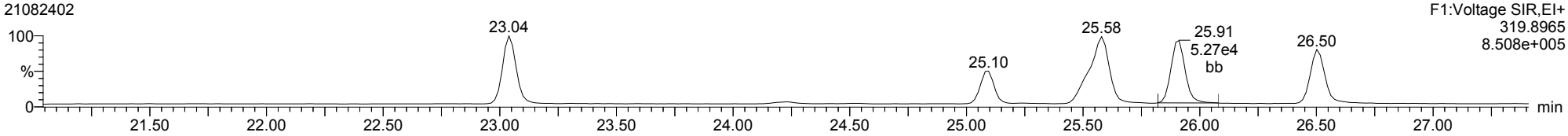
2378-TCDD



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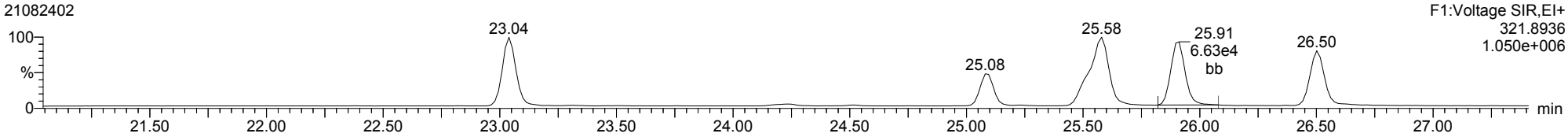

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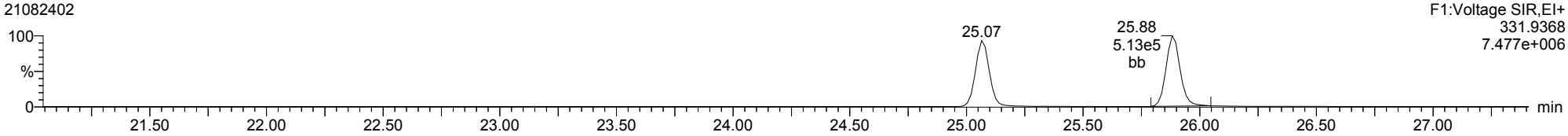

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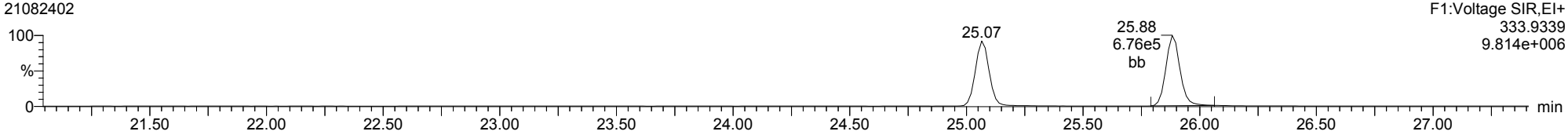

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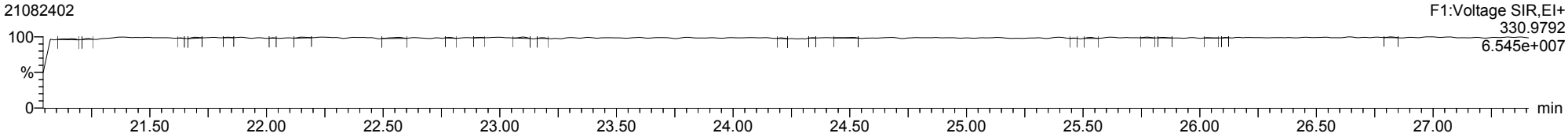

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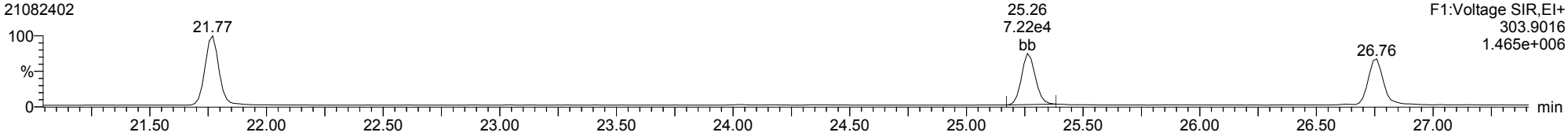
2378-TCDF



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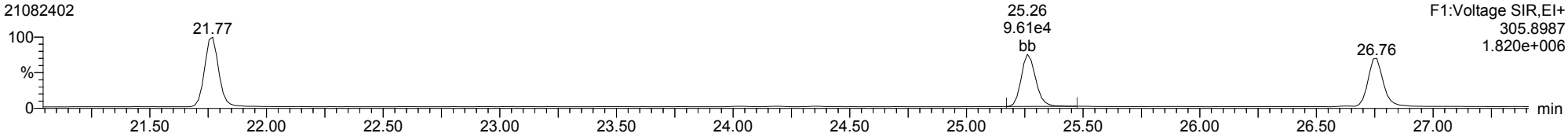

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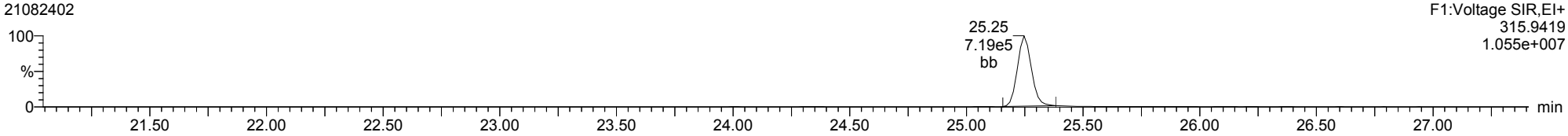

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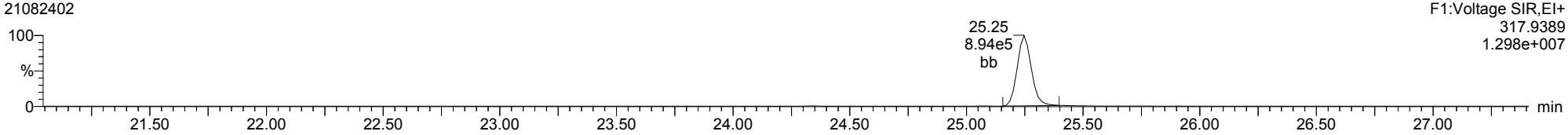

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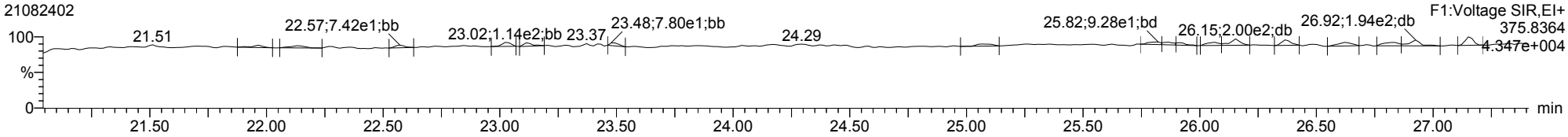

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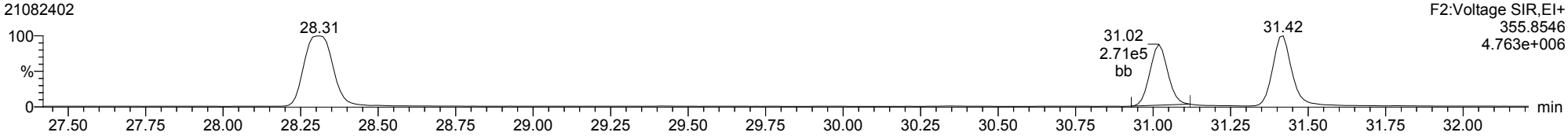

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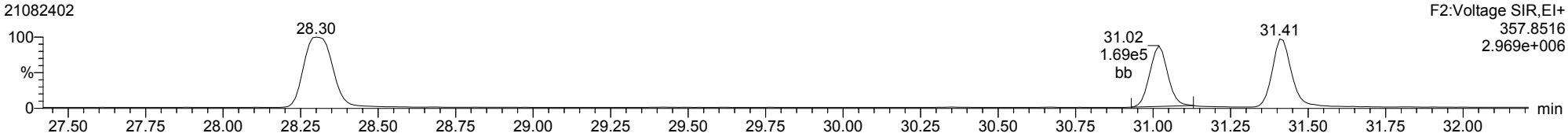

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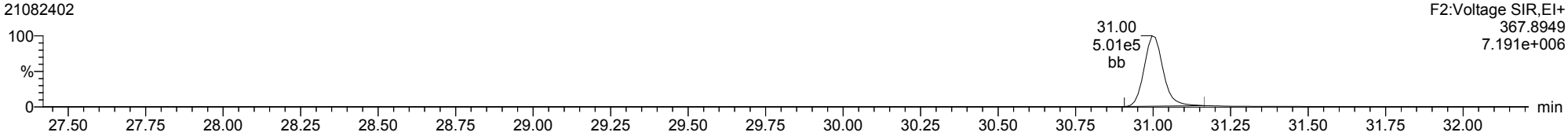

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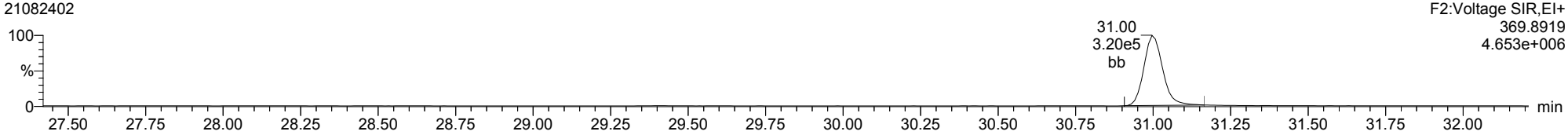

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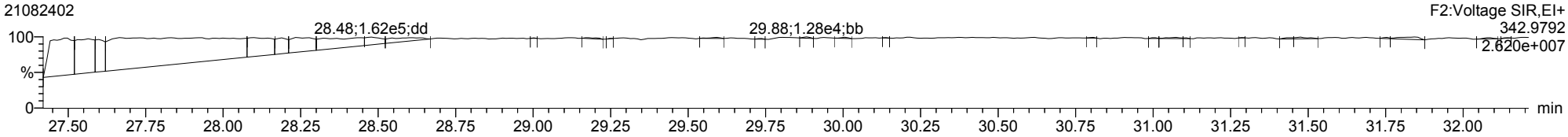

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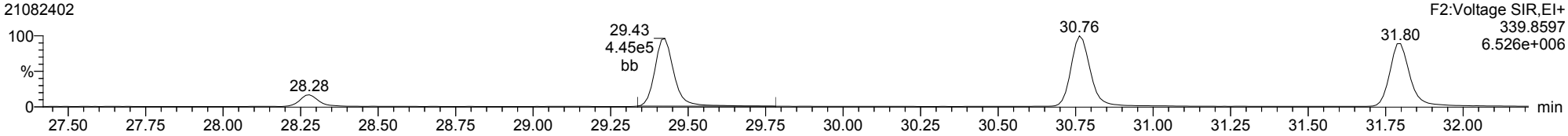

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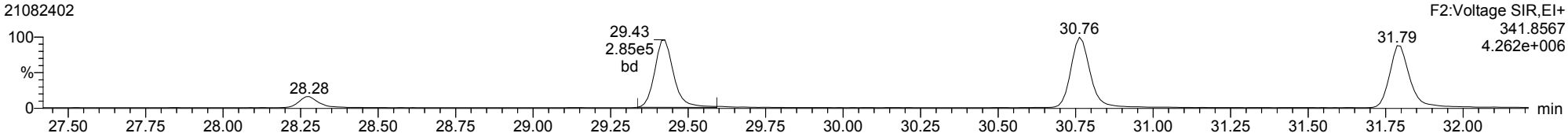

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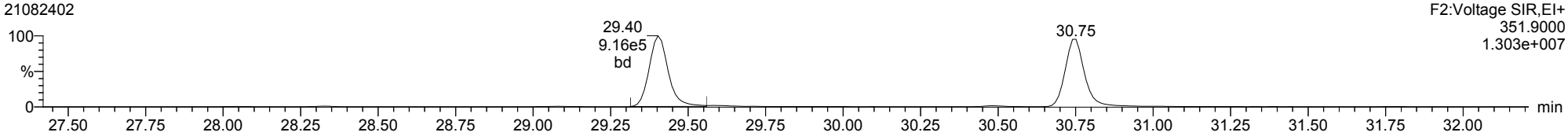

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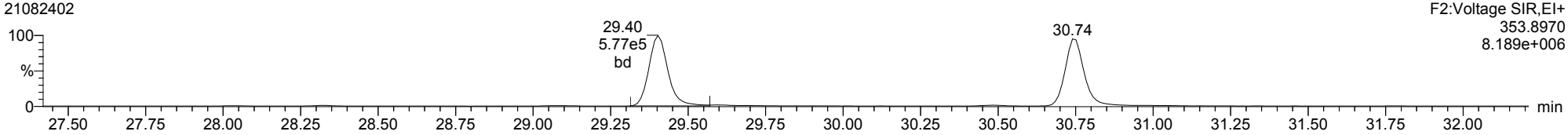

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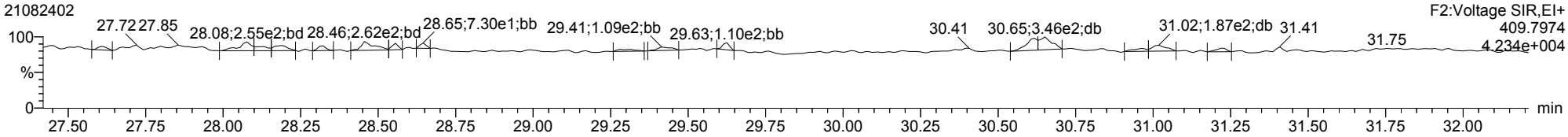

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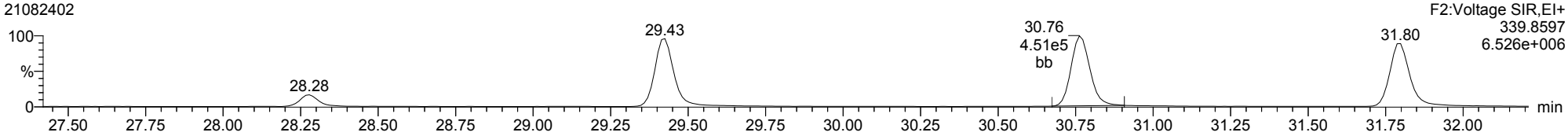

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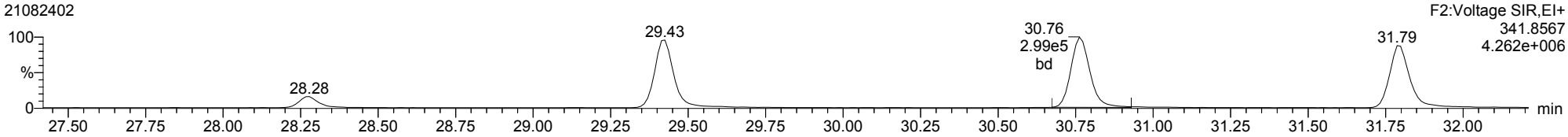

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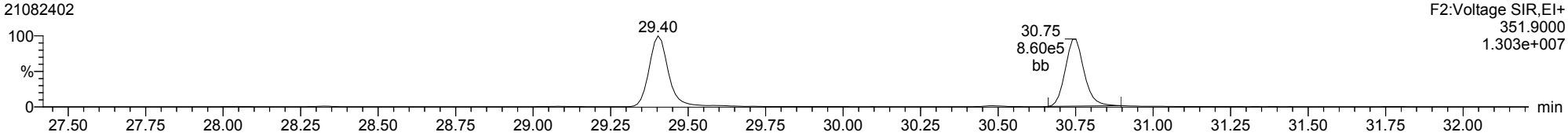

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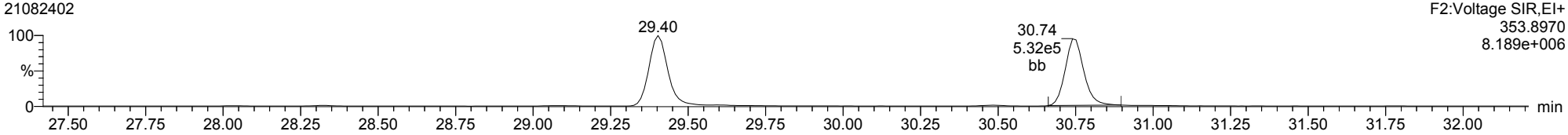

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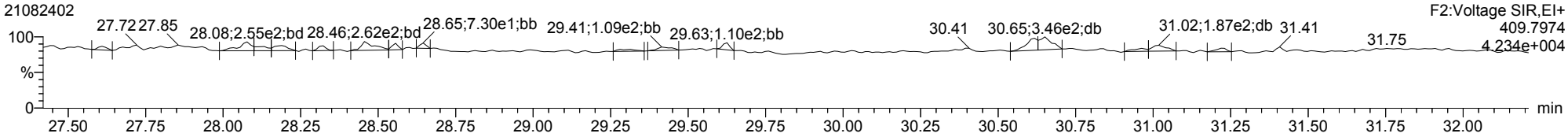

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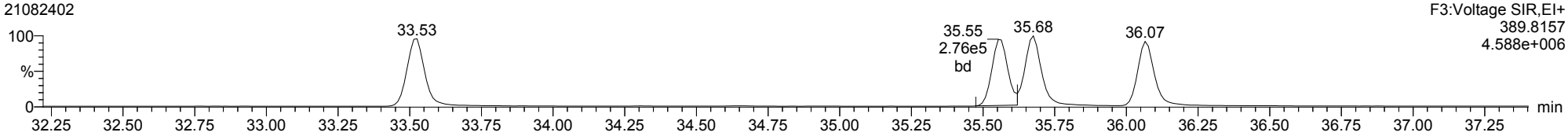

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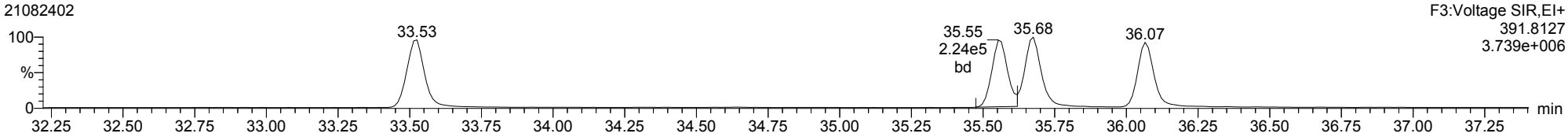

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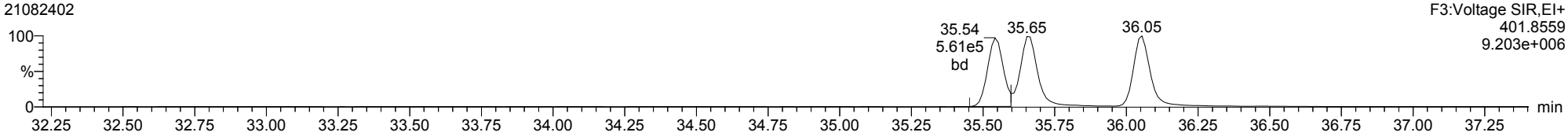

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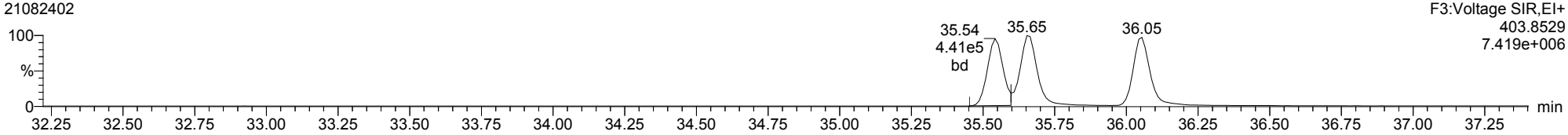

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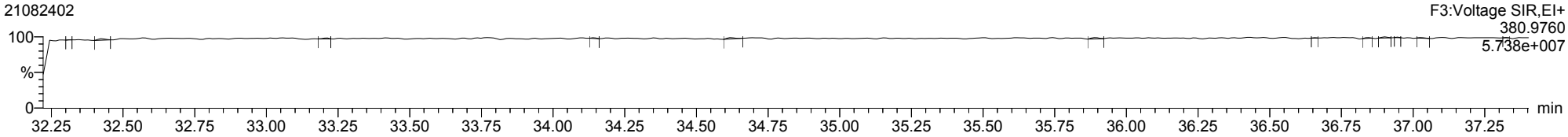

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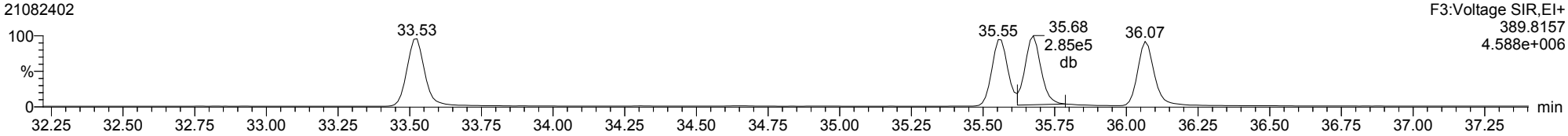

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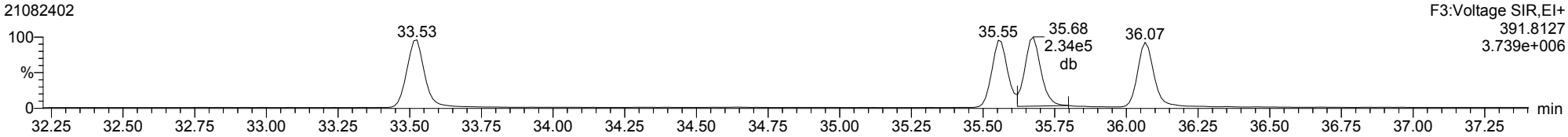

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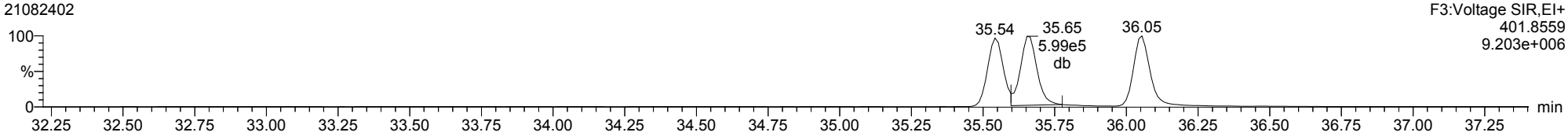

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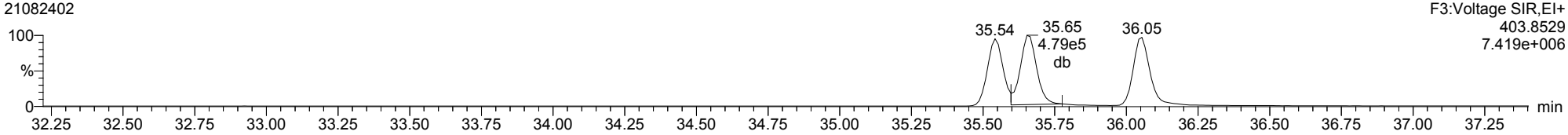

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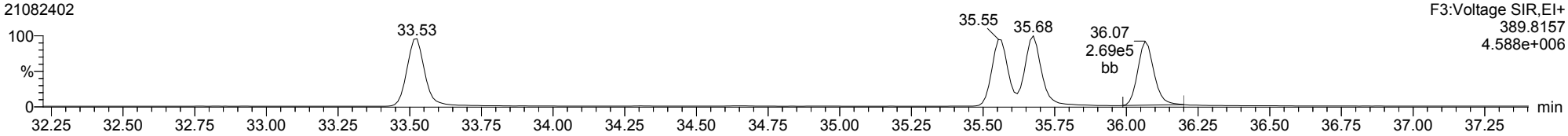

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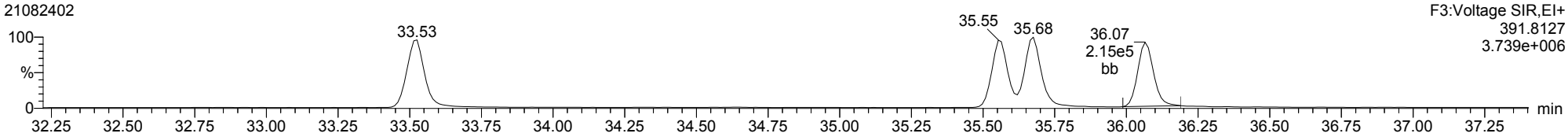

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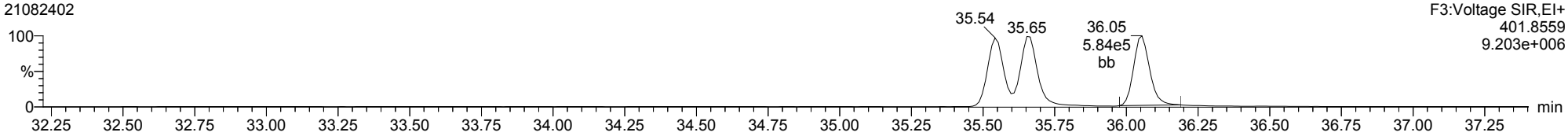

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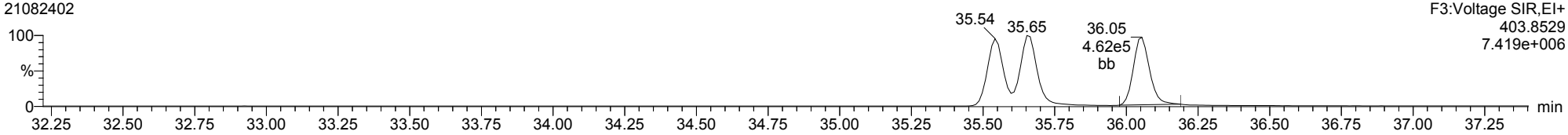

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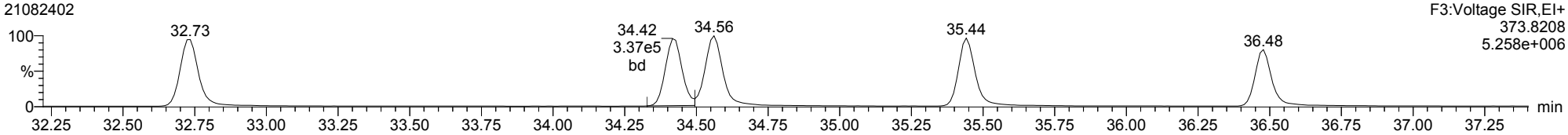

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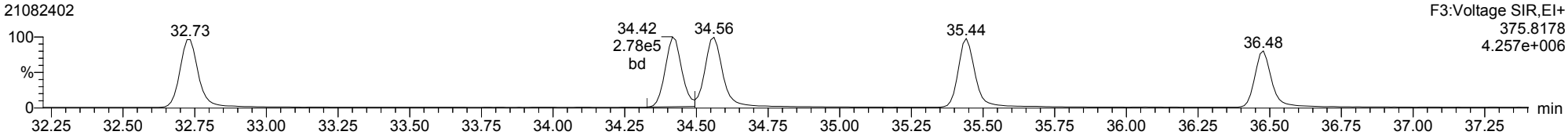

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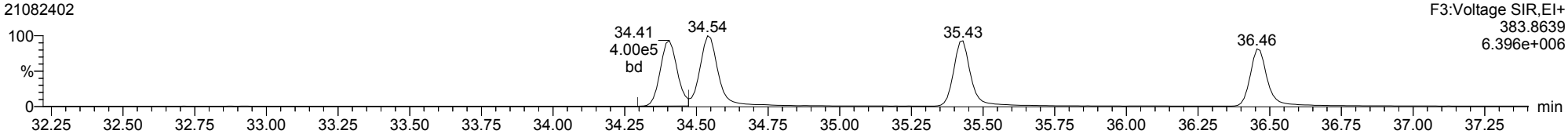

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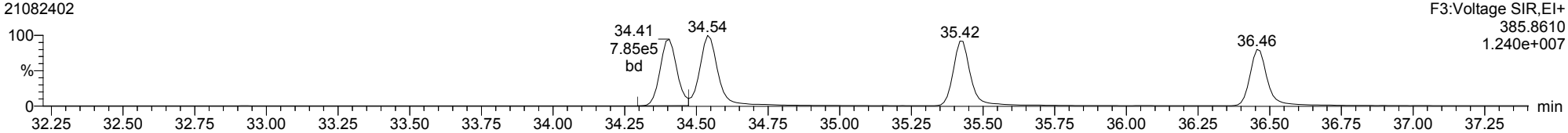

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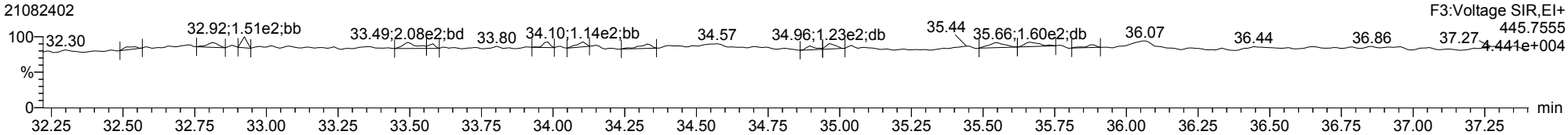

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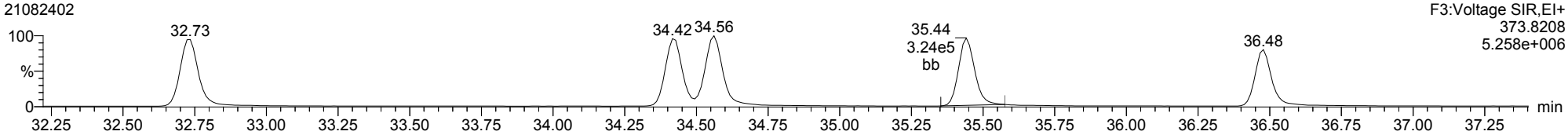

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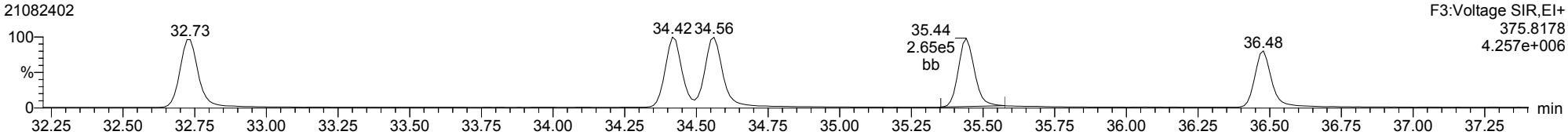

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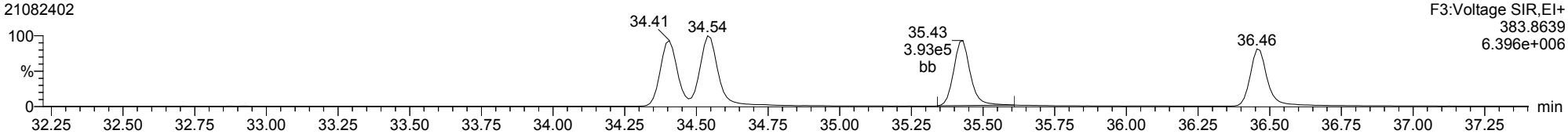

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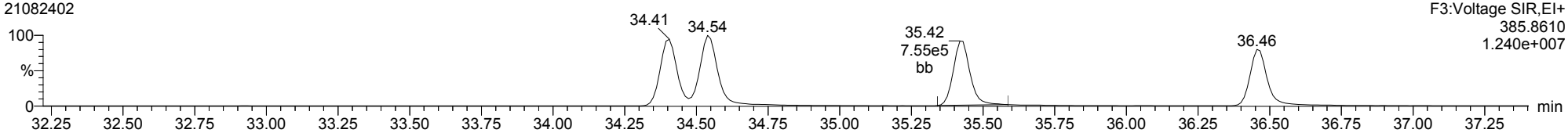

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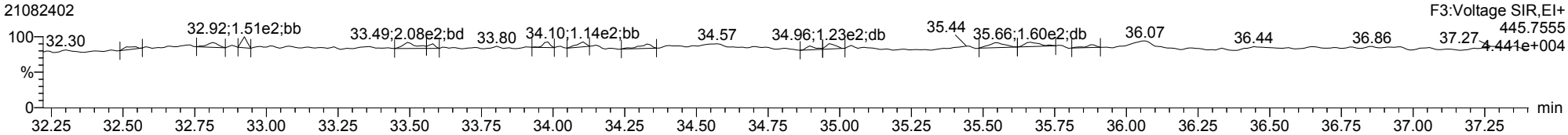

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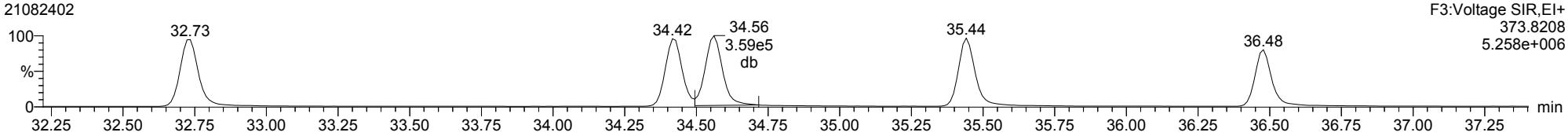

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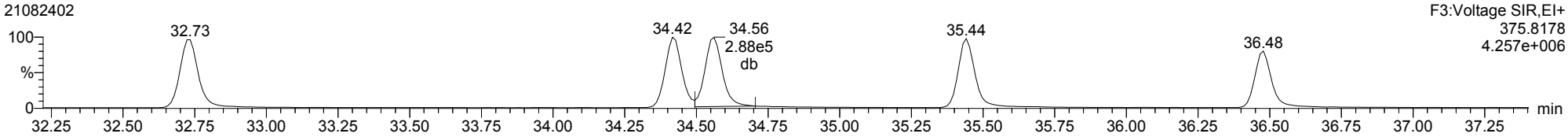

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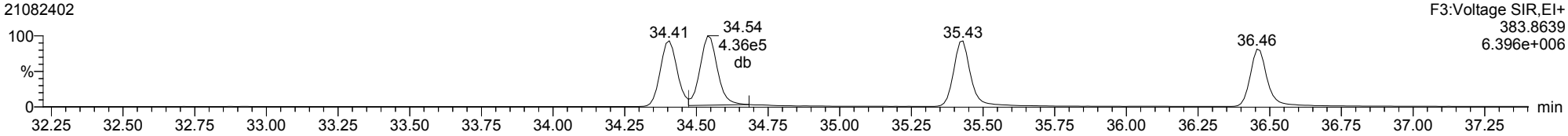

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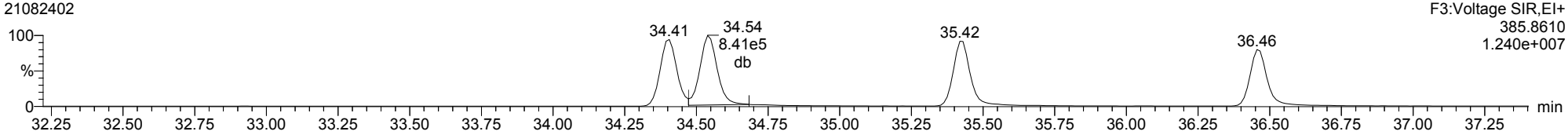

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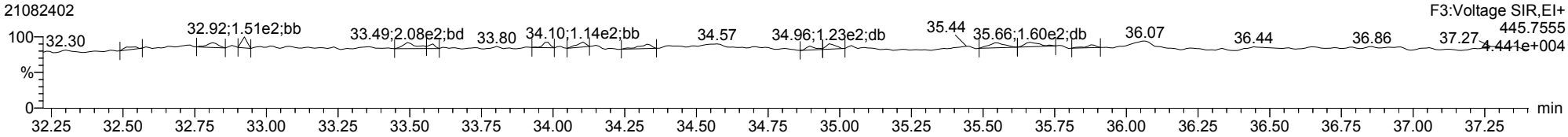

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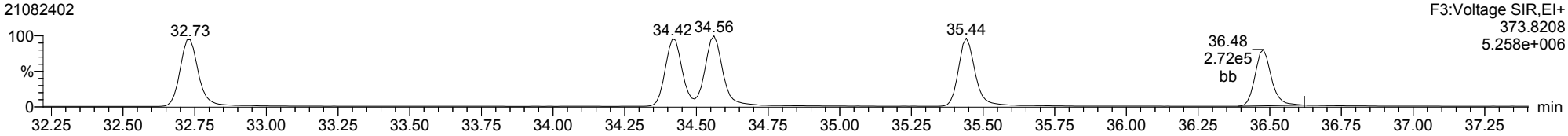

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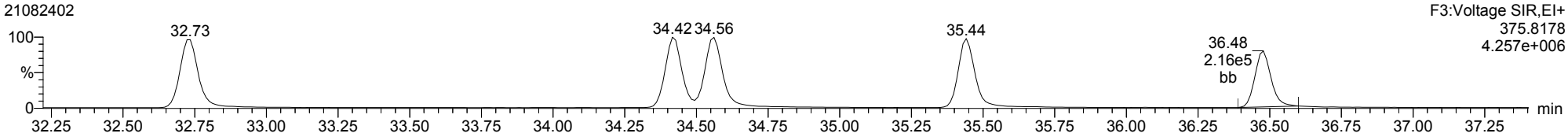

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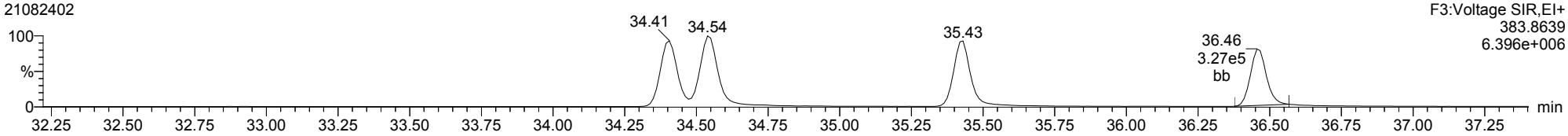

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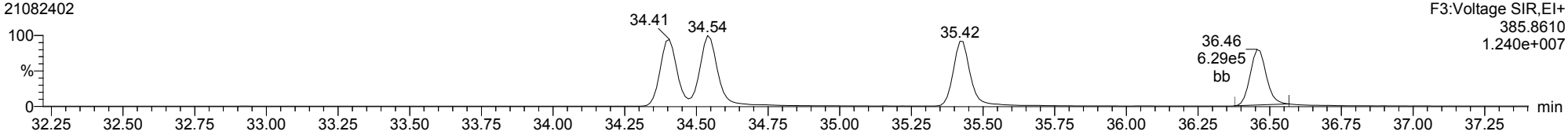

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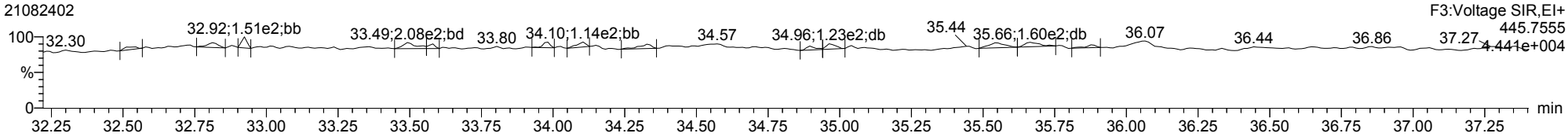

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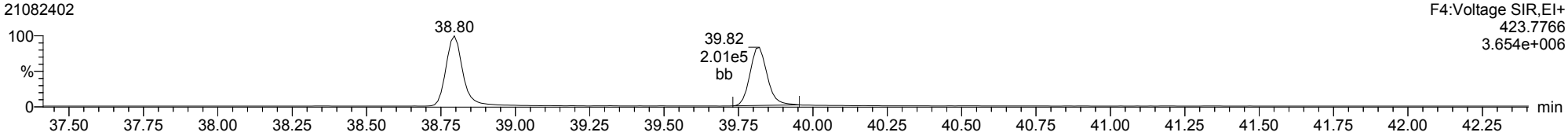

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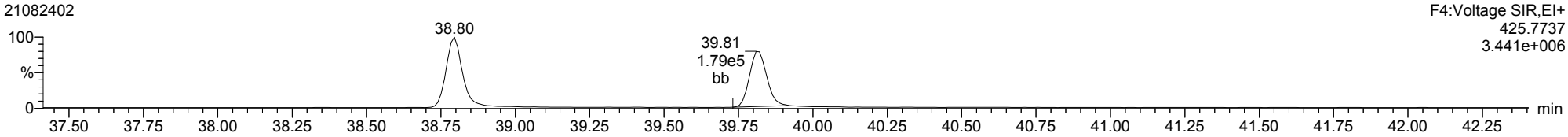

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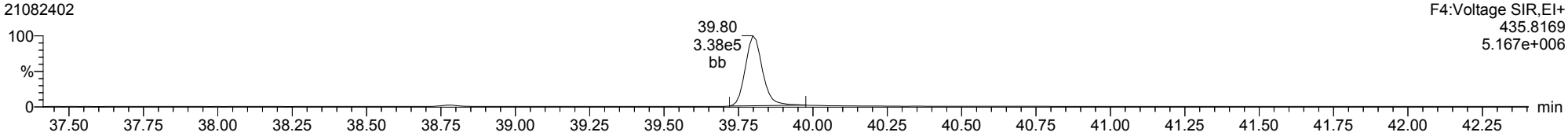

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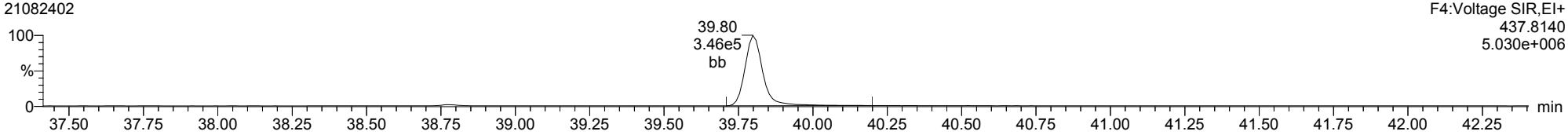

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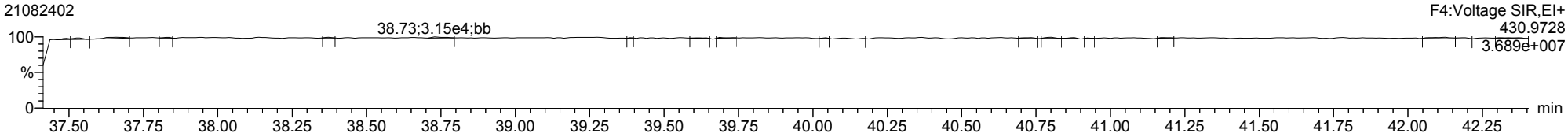

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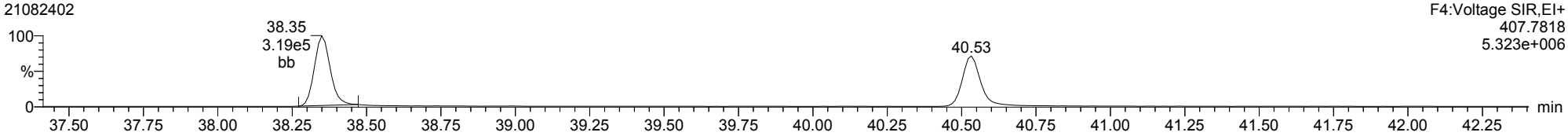

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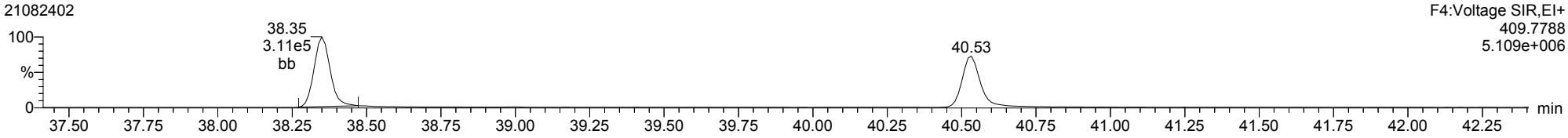

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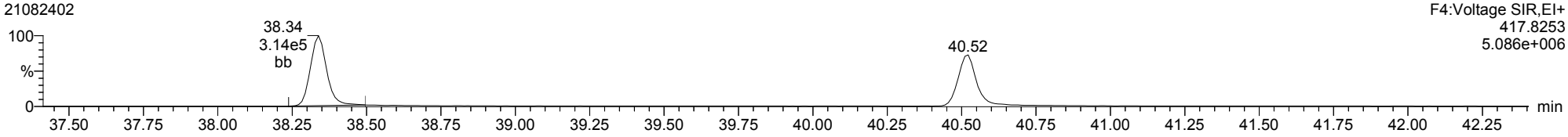

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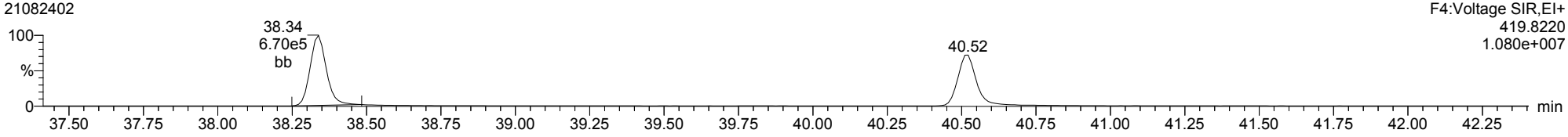

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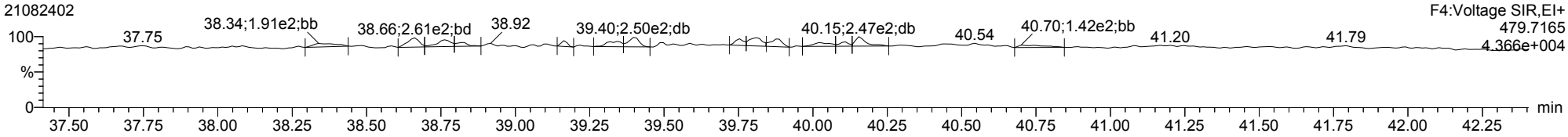

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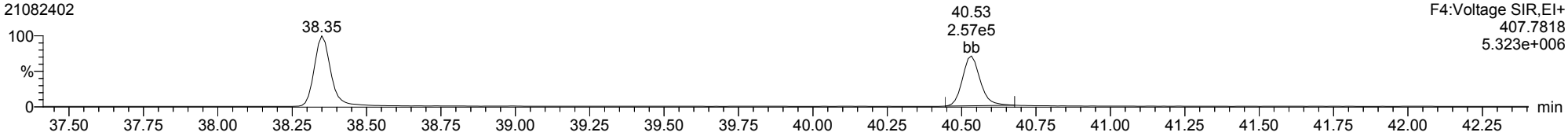

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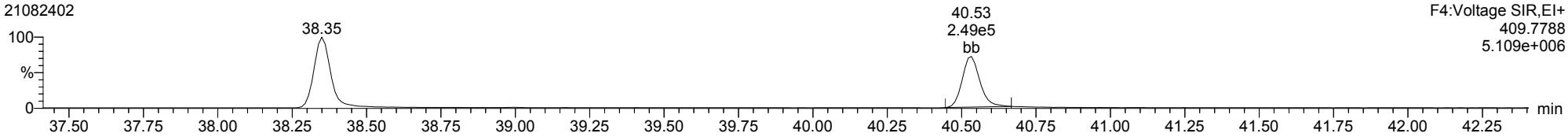

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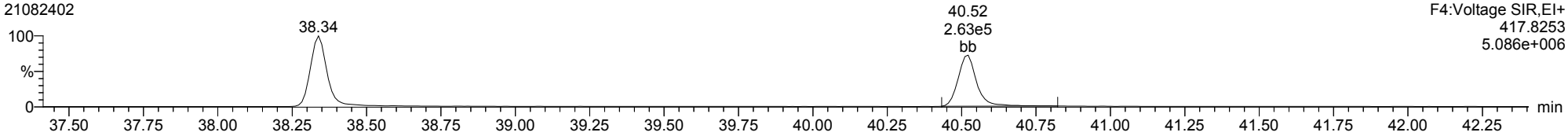

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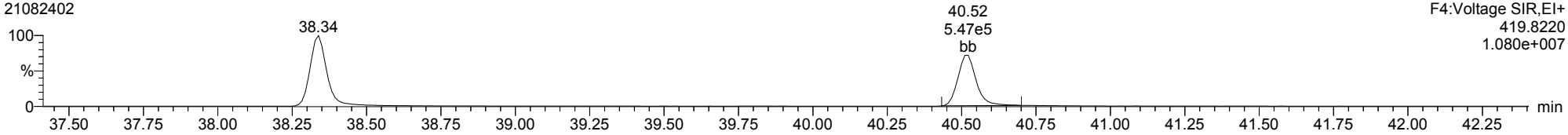

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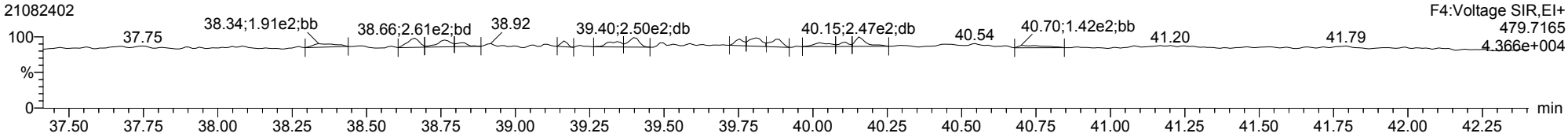

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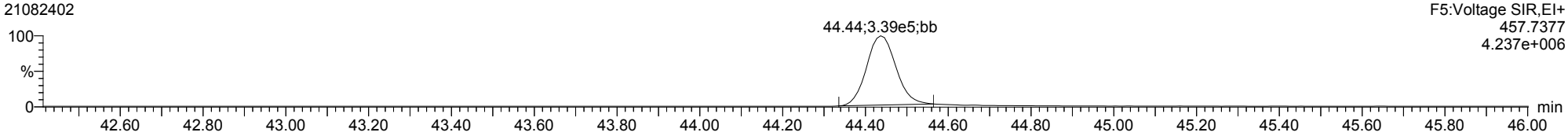

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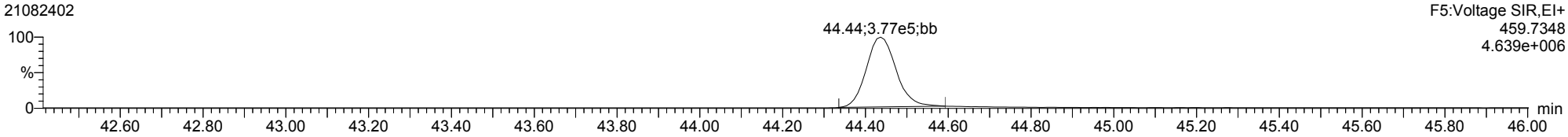

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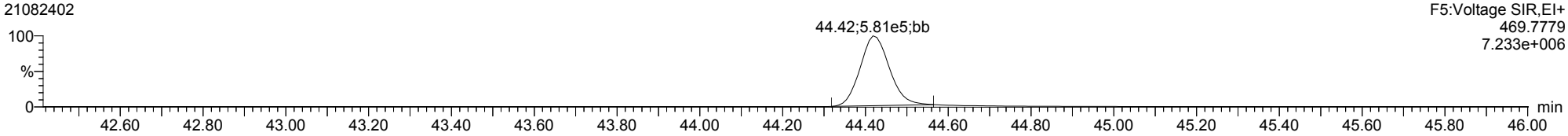

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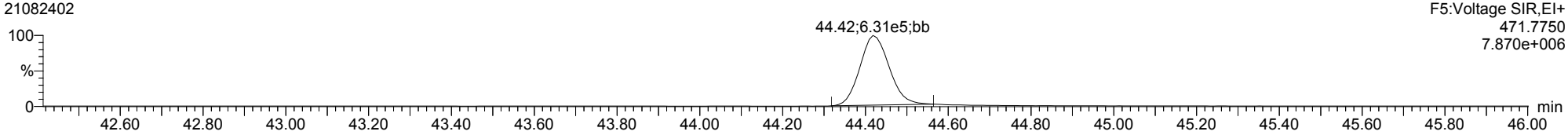

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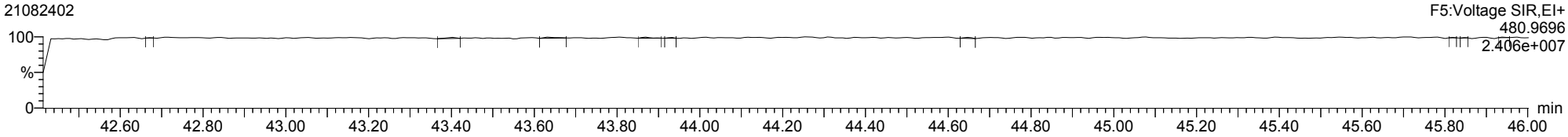

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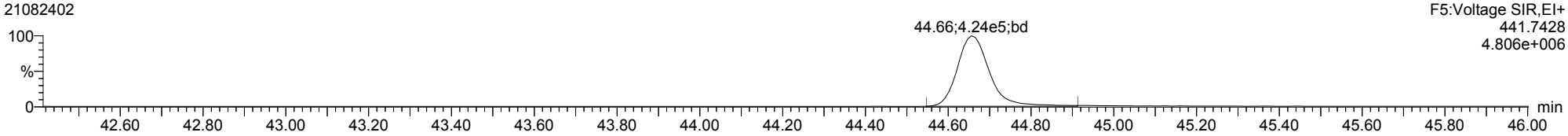

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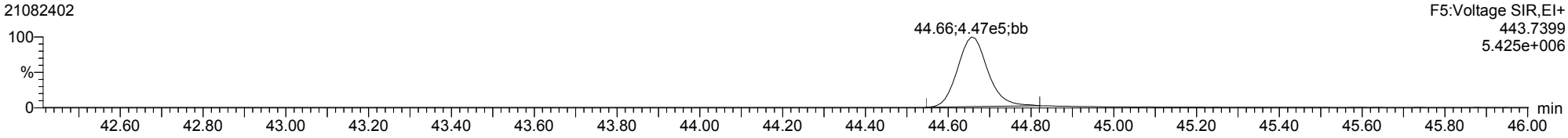

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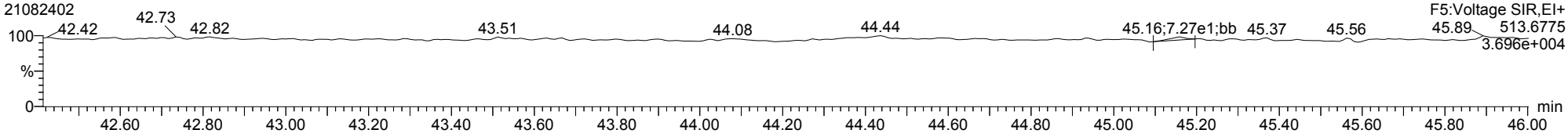

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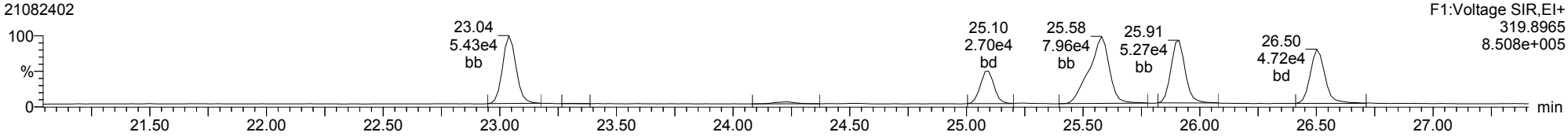
Total-tetradioxins



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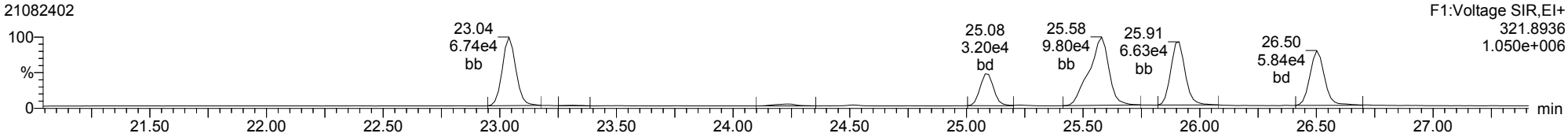

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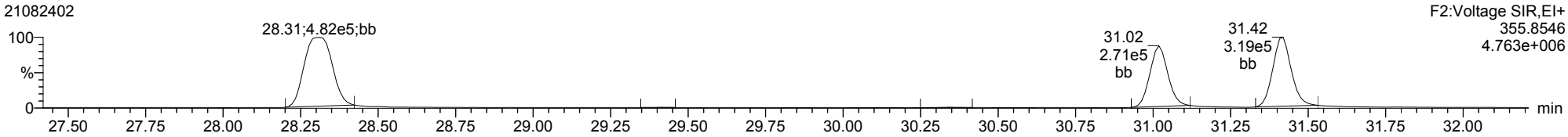

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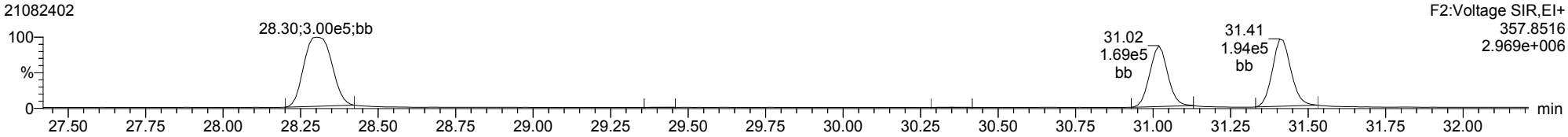

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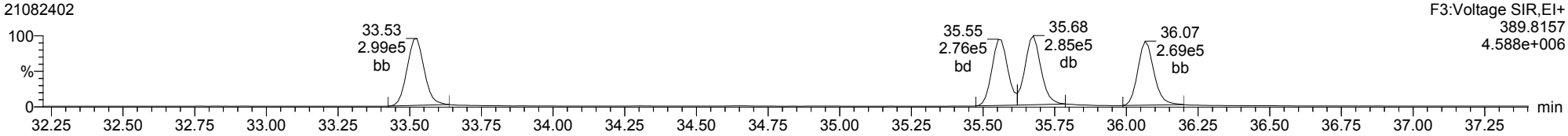

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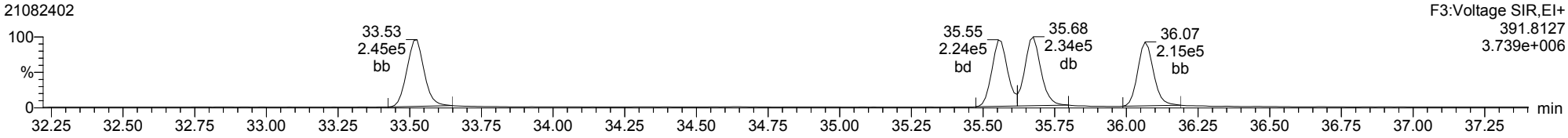

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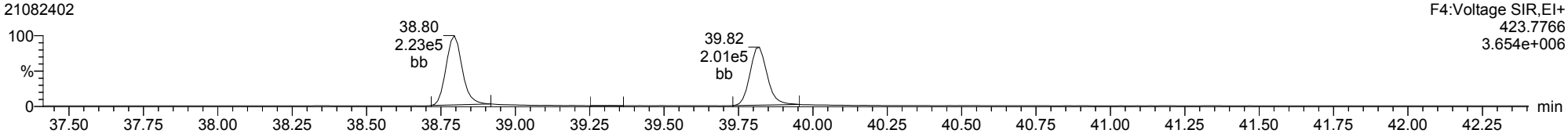

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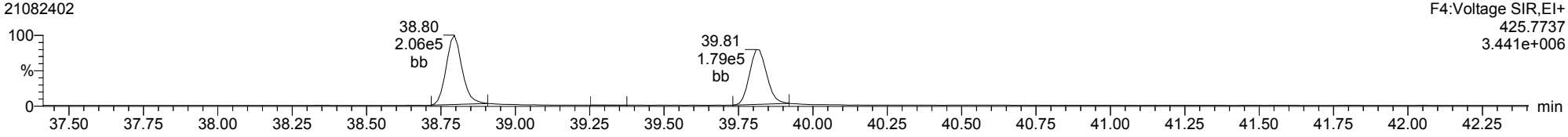

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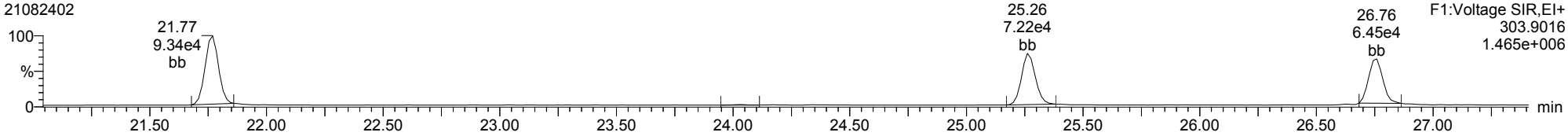
Total-tetrafurans



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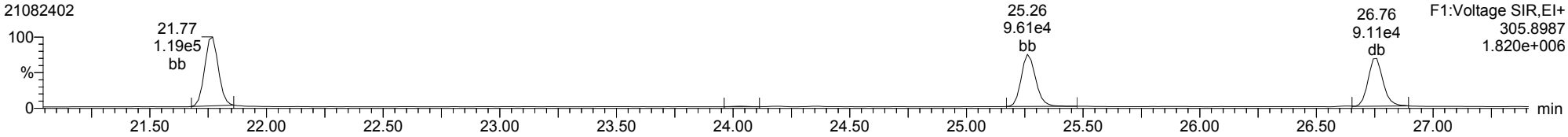

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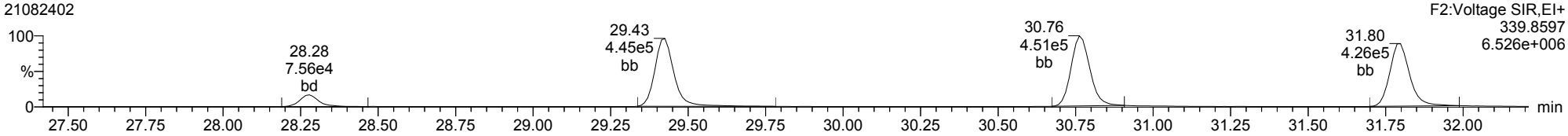

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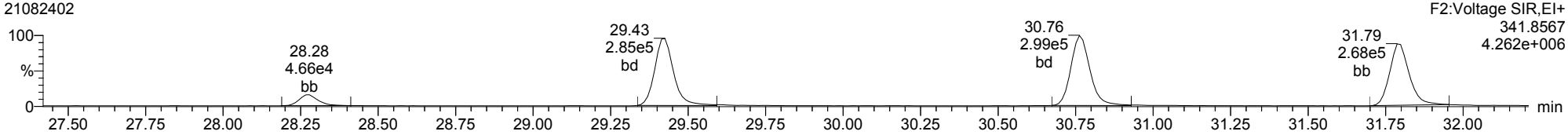

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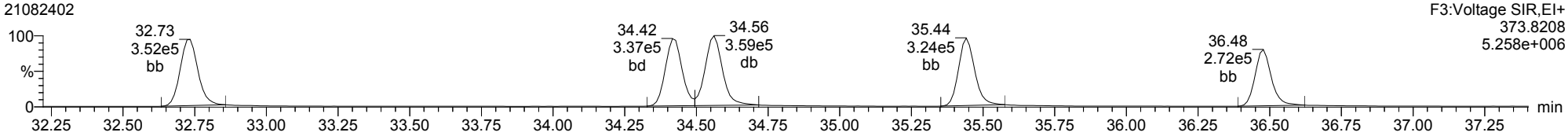
Total-hexafurans



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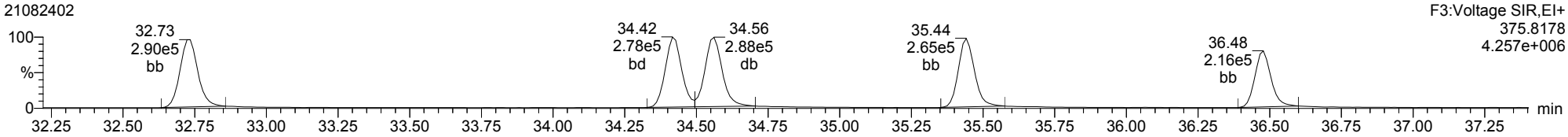

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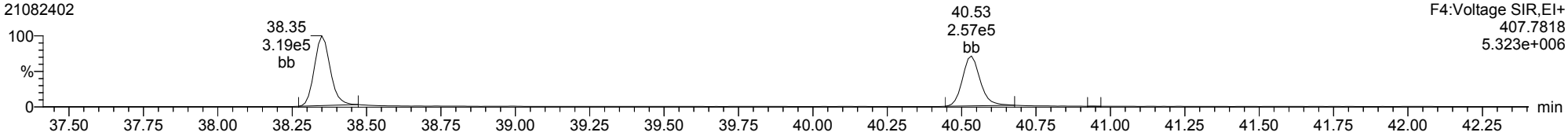

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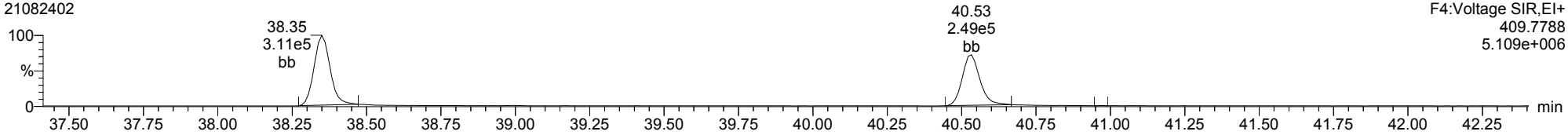

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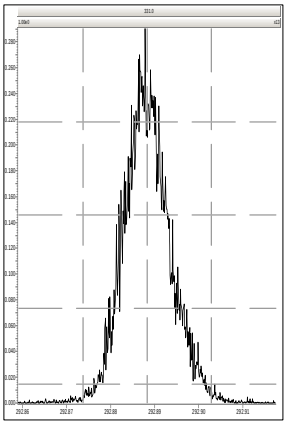

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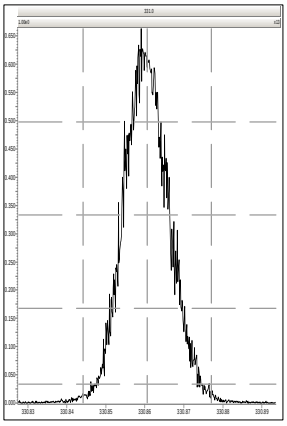

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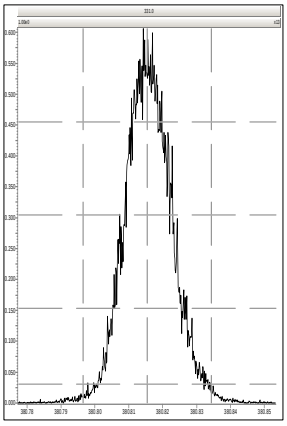

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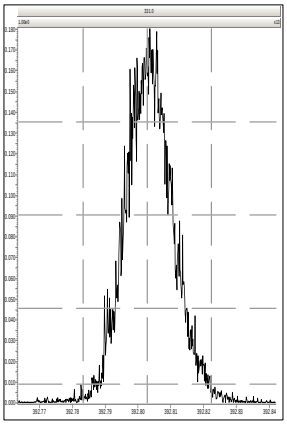

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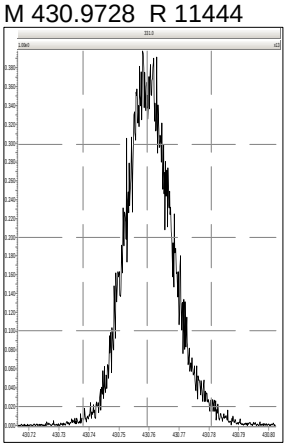

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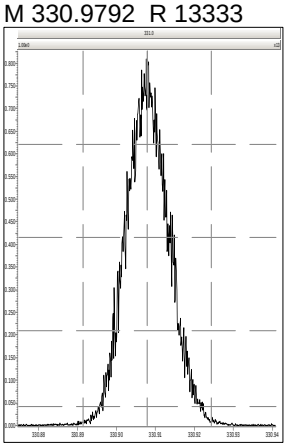
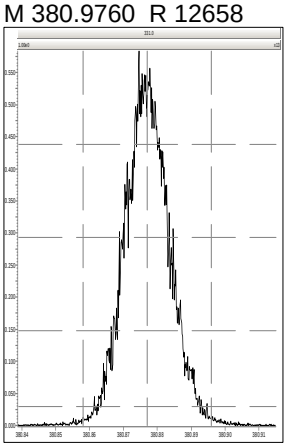
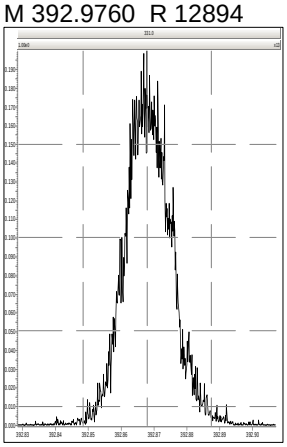


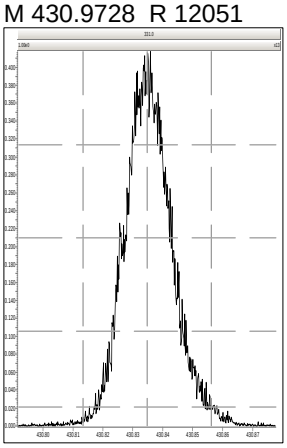
M 380.9760 R 12658



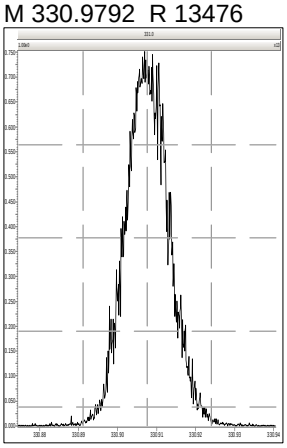
M 392.9760 R 12894



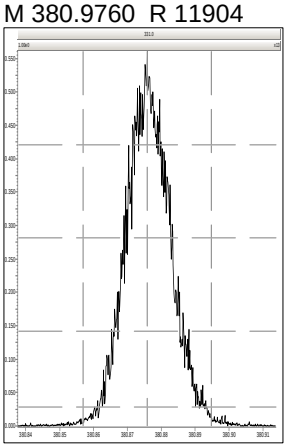
M 430.9728 R 12051



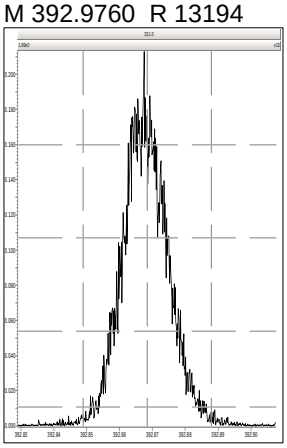
M 330.9792 R 13476



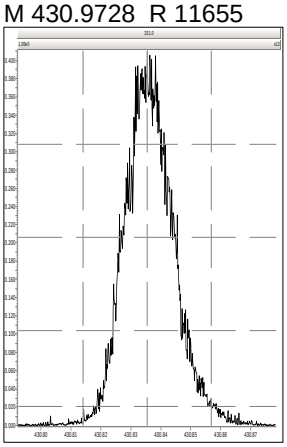
M 380.9760 R 11904



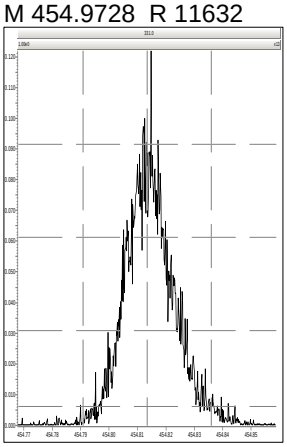
M 392.9760 R 13194



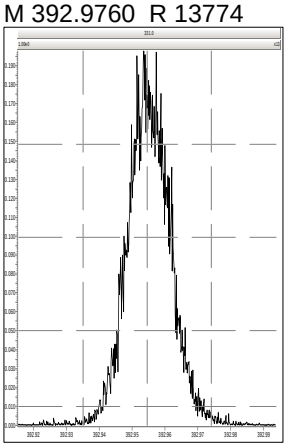
M 430.9728 R 11655



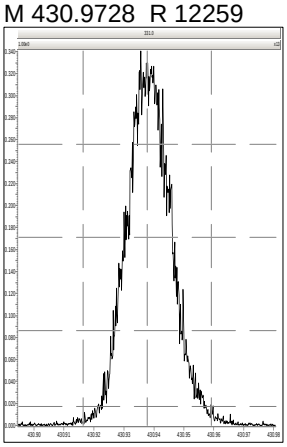
M 454.9728 R 11632



M 392.9760 R 13774



M 430.9728 R 12259



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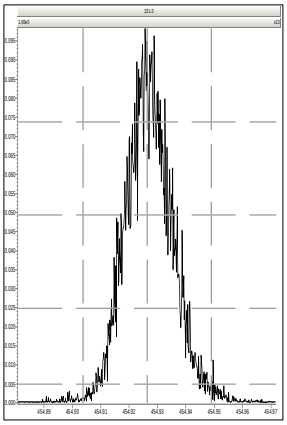
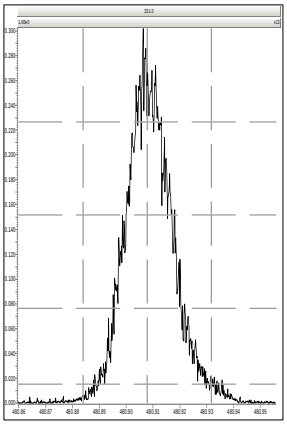
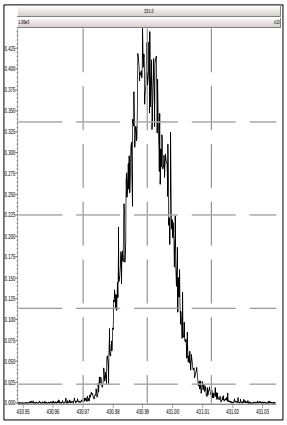
M 454.9728 R 12325



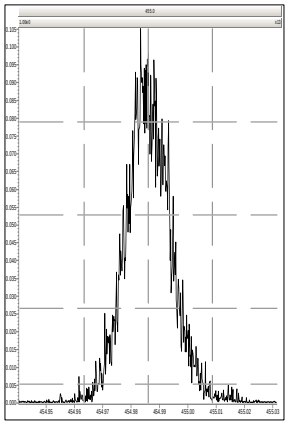
M 480.9696 R 11876



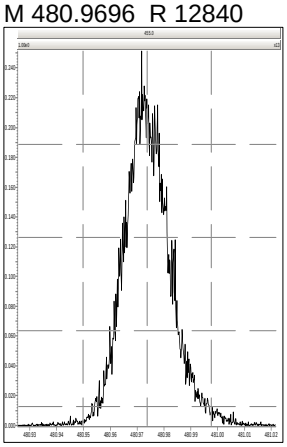
M 430.9728 R 13094



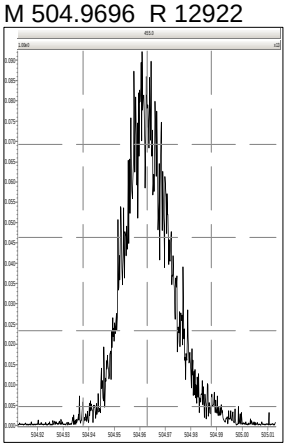
M 454.9728 R 13161



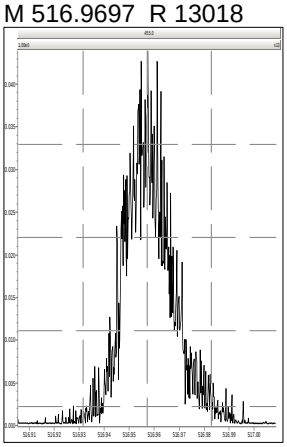
M 480.9696 R 12840

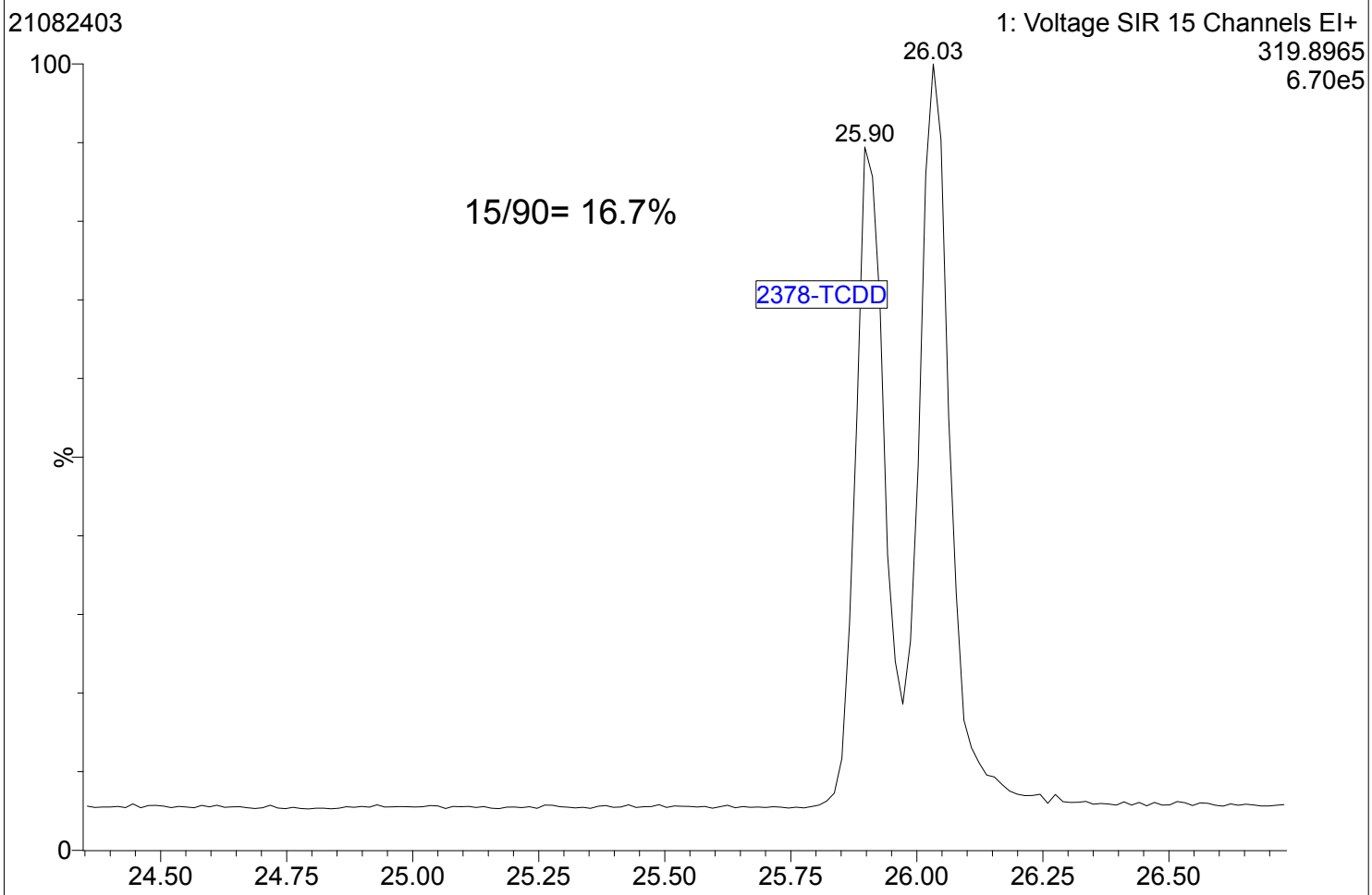


M 504.9696 R 12922



M 516.9697 R 13018

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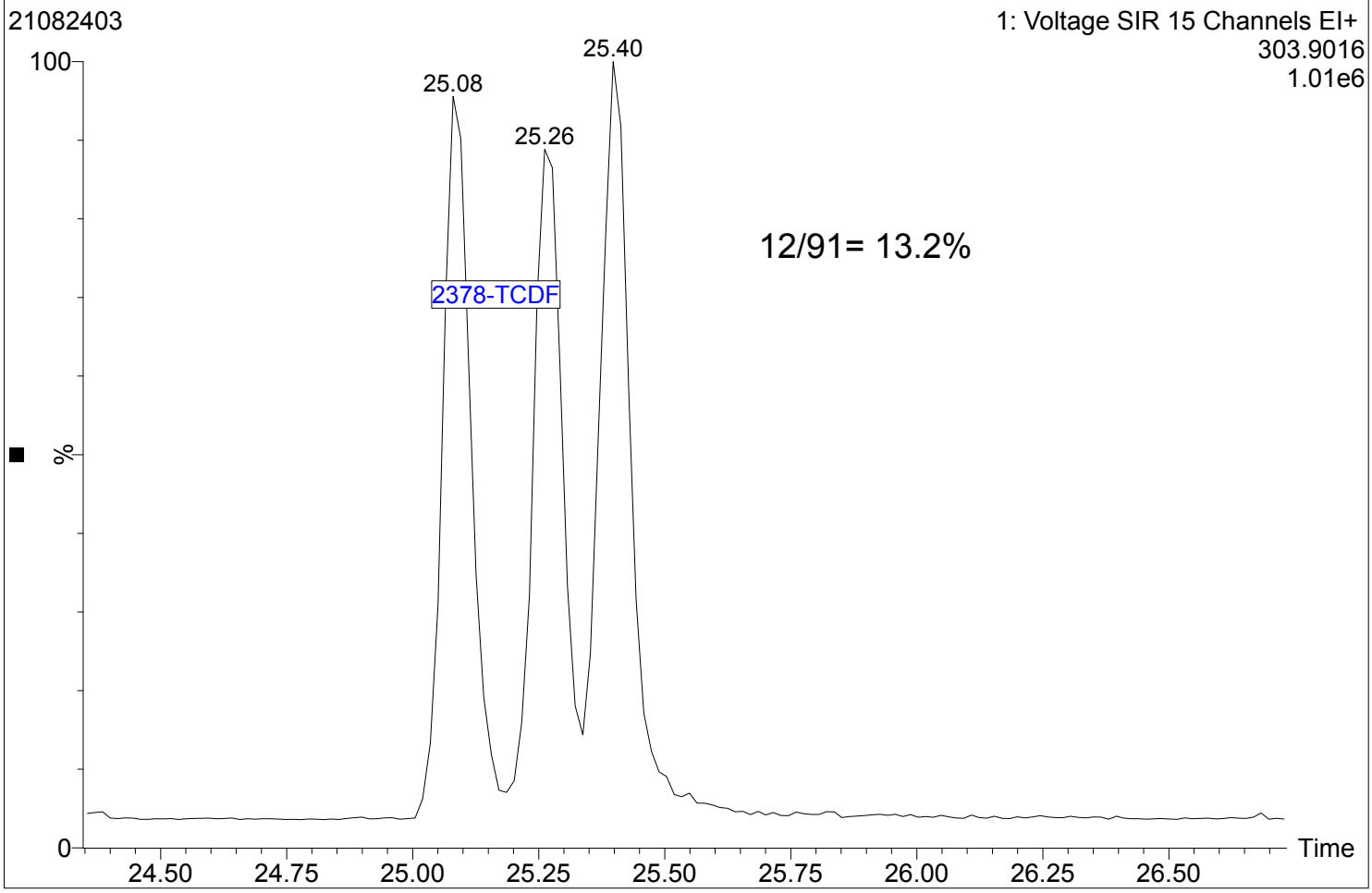
6.70e5
100
%
0
26.03
25.90
15/90= 16.7%
2378-TCDD
24.50
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50


21082403
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100
%
0
25.40
25.08
25.26
12/91= 13.2%
2378-TCDF
Time
24.50
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21091430A	Calibration Date:	08/11/2021
Sequence:	SJI0232	Injection Date:	09/15/21
Lab Sample ID:	SJI0232-ICV1	Injection Time:	14:20
Sequence Name:	CS3Q7		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	9.39	1.1075930	1.0397990		-6.1	+/-16
2,3,7,8-TCDD	A	10.000	10.8	0.9202875	0.9956089		8.2	+/-22
1,2,3,7,8-PeCDF	A	50.000	46.7	1.0148670	0.9485840		-6.5	+/-18
2,3,4,7,8-PeCDF	A	50.000	46.8	1.1255490	1.0542770		-6.3	+/-18
1,2,3,7,8-PeCDD	A	50.000	55.2	0.9953229	1.0979290		10.3	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	48.5	1.0168930	0.9862069		-3.0	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	46.2	1.0368310	0.9584797		-7.6	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	47.9	1.0524660	1.0090980		-4.1	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	47.4	1.0301540	0.9760601		-5.3	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	48.7	1.0273630	1.0013420		-2.5	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	47.6	1.0089800	0.9604133		-4.8	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.5	0.9504865	0.9604436		1.0	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	48.7	1.3273500	1.2938560		-2.5	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	50.0	1.2833380	1.2838820		0.04	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	54.0	1.0680880	1.1541050		8.1	+/-14
OCDF	A	100.00	93.5	1.4469010	1.3522770		-6.5	+/-37
OCDD	A	100.00	96.5	1.1808230	1.1391250		-3.5	+/-21
13C12-2,3,7,8-TCDF	A	100.00	113	1.4265830	1.6089302		12.8	+/-29
13C12-2,3,7,8-TCDD	A	100.00	103	1.1164910	1.1537566		3.3	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	102	1.2973130	1.3284645		2.4	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	101	1.2364800	1.2514483		1.2	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	92.5	0.7319833	0.6770821		-7.5	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	95.0	1.2424560	1.1800905		-5.0	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	90.4	1.3434760	1.2139270		-9.6	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	89.8	1.2148550	1.0907662		-10.2	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	91.2	1.0076370	0.9188567		-8.8	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	98.2	0.9598233	0.9422094		-1.8	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	93.9	1.0413850	0.9781952		-6.1	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	95.4	0.9264704	0.8837310		-4.6	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	91.8	0.7579160	0.6958142		-8.2	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	92.2	0.6324476	0.5828077		-7.8	+/-28

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21091430A	Calibration Date:	08/11/2021
Sequence:	SJI0232	Injection Date:	09/15/21
Lab Sample ID:	SJI0232-ICV1	Injection Time:	14:20
Sequence Name:	CS3Q7		

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-OCDD	A	200.00	178	0.5037432	0.4483294		-11.0	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.4	1.0835930	1.1217528		3.5	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210914IH.qld
Last Altered: Thursday, September 16, 2021 11:26:56 Pacific Daylight Time
Printed: Thursday, September 16, 2021 12:38:42 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.761	1.001	4.162e4	5.334e4	1.108	0.780	0.770	780	1215	6.67e5	8.47e5	855.6	696.6	NO	bb	bb	9.388
12378-PeCDF	29.920	1.001	2.158e5	1.419e5	1.015	1.521	1.550	1850	1512	3.35e6	2.21e6	1812.4	1459.3	NO	bb	bb	46.734
23478-PeCDF	31.268	1.001	2.256e5	1.488e5	1.126	1.516	1.550	1850	1512	3.55e6	2.31e6	1917.9	1528.2	NO	bb	bb	46.834
123478-HxCDF	34.878	1.000	1.534e5	1.253e5	1.017	1.224	1.240	1318	1003	2.46e6	2.02e6	1869.2	2017.3	NO	bd	bd	48.491
234678-HxCDF	35.892	1.000	1.443e5	1.193e5	1.052	1.210	1.240	1318	1003	2.41e6	1.98e6	1828.1	1972.2	NO	bb	bb	47.940
123678-HxCDF	35.023	1.001	1.536e5	1.250e5	1.037	1.229	1.240	1318	1003	2.51e6	2.04e6	1903.1	2035.6	NO	db	db	46.222
123789-HxCDF	36.928	1.001	1.182e5	9.651e4	1.030	1.225	1.240	1318	1003	1.99e6	1.63e6	1511.0	1627.2	NO	bb	bb	47.375
1234678-HpCDF	38.766	1.001	1.394e5	1.344e5	1.327	1.037	1.050	1374	994	2.36e6	2.25e6	1720.3	2261.7	NO	bb	bb	48.738
1234789-HpCDF	41.017	1.000	1.082e5	1.057e5	1.283	1.024	1.050	1374	994	1.56e6	1.54e6	1138.4	1544.5	NO	bb	bb	50.021
OCDF	45.243	1.006	1.379e5	1.524e5	1.447	0.905	0.890	921	809	1.69e6	1.83e6	1834.9	2258.9	NO	bb	bb	93.460
2378-TCDD	26.396	1.001	2.933e4	3.587e4	0.920	0.818	0.770	1258	771	4.63e5	5.62e5	368.2	728.4	NO	bb	bb	10.818
12378-PeCDD	31.502	1.000	1.312e5	7.976e4	0.995	1.645	1.550	1133	1229	2.10e6	1.29e6	1851.9	1049.8	NO	bb	bb	55.154
123478-HxCDD	35.992	1.000	1.246e5	1.013e5	1.027	1.230	1.240	1154	1153	2.08e6	1.68e6	1800.3	1460.8	NO	bd	bd	48.734
123678-HxCDD	36.115	1.001	1.243e5	1.006e5	1.009	1.235	1.240	1154	1153	2.11e6	1.69e6	1824.8	1461.7	NO	db	db	47.593
123789-HxCDD	36.505	1.011	1.224e5	9.847e4	0.950	1.242	1.240	1154	1153	2.09e6	1.68e6	1810.5	1455.2	NO	bb	bb	50.524
1234678-HpCDD	40.259	1.000	8.350e4	7.756e4	1.068	1.077	1.050	1639	889	1.35e6	1.23e6	826.7	1387.0	NO	bb	bb	54.027
OCDD	44.995	1.000	1.146e5	1.300e5	1.181	0.882	0.890	1081	1122	1.40e6	1.59e6	1291.2	1418.1	NO	bb	bb	96.469
13C-2378-TCDF	25.746	1.007	4.084e5	5.048e5	1.427	0.809	0.770	2574	1534	6.33e6	7.78e6	2459.4	5073.4	NO	bb	bb	112.782
13C-12378-PeCDF	29.898	1.169	4.622e5	2.918e5	1.297	1.584	1.550	1770	2782	7.15e6	4.53e6	4041.2	1627.7	NO	bb	bb	102.401
13C-23478-PeCDF	31.246	1.222	4.356e5	2.747e5	1.236	1.585	1.550	1770	2782	6.77e6	4.24e6	3823.2	1524.2	NO	bb	bb	101.211
13C-123478-HxCDF	34.867	0.955	1.916e5	3.735e5	1.242	0.513	0.510	1451	1908	3.05e6	5.99e6	2099.5	3137.1	NO	bd	bd	94.980
13C-123678-HxCDF	35.001	0.959	1.989e5	3.824e5	1.343	0.520	0.510	1451	1908	3.16e6	6.10e6	2181.0	3198.3	NO	MM	MM	90.357
13C-234678-HxCDF	35.881	0.983	1.780e5	3.444e5	1.215	0.517	0.510	1451	1908	2.93e6	5.56e6	2020.0	2916.8	NO	bb	bb	89.786
13C-123789-HxCDF	36.906	1.011	1.476e5	2.924e5	1.008	0.505	0.510	1451	1908	2.54e6	5.02e6	1750.0	2631.4	NO	bb	bb	91.189
13C-1234678-HpCDF	38.744	1.062	1.317e5	2.916e5	0.926	0.452	0.440	1132	1532	2.19e6	4.86e6	1935.0	3173.0	NO	bb	bb	95.387
13C-1234789-HpCDF	40.995	1.123	1.052e5	2.280e5	0.758	0.461	0.440	1132	1532	1.57e6	3.39e6	1383.7	2212.8	NO	bb	bb	91.806
13C-1234-TCDD	25.564	0.000	2.467e5	3.209e5	1.000	0.769	0.770	1753	907	3.87e6	5.05e6	2208.9	5566.6	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	2.789e5	3.760e5	1.116	0.742	0.770	1753	907	4.16e6	5.59e6	2371.6	6161.8	NO	bb	bb	103.338
13C-12378-PeCDD	31.491	1.232	2.343e5	1.500e5	0.732	1.563	1.550	870	1016	3.66e6	2.34e6	4203.9	2303.5	NO	bb	bb	92.500
13C-123478-HxCDD	35.981	0.986	2.521e5	1.991e5	0.960	1.266	1.240	1213	1171	4.28e6	3.40e6	3528.7	2901.9	NO	bd	bd	98.165
13C-123678-HxCDD	36.092	0.989	2.601e5	2.084e5	1.041	1.248	1.240	1213	1171	4.20e6	3.37e6	3462.9	2873.9	NO	db	db	93.932
13C-1234678-HpCDD	40.248	1.103	1.435e5	1.356e5	0.632	1.059	1.050	941	943	2.25e6	2.11e6	2388.1	2233.0	NO	bb	bb	92.151
13C-OCDD	44.977	1.232	2.041e5	2.253e5	0.504	0.906	0.890	1036	1134	2.50e6	2.73e6	2410.7	2408.5	NO	bb	bb	177.999
13C-123789-HxCDD	36.494	0.000	2.656e5	2.133e5	1.000	1.245	1.240	1213	1171	4.43e6	3.50e6	3651.1	2990.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	6.367e4		1.084			1100		9.78e5		889.2			bb		10.352

Dataset: T:\Autospec\Processed Data Batch\210914IH.qld
Last Altered: Thursday, September 16, 2021 11:26:56 Pacific Daylight Time
Printed: Thursday, September 16, 2021 12:38:42 Pacific Daylight Time

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.238	0.864	5.387e4	6.898e4	1.425	0.781	0.770	780	1215	8.59e5	1.09e6	1101.7	895.7	NO	bb	bb	9.440
1289-TCDF	27.273	1.059	3.853e4	5.133e4	1.043	0.751	0.770	780	1215	5.85e5	7.97e5	750.4	655.4	NO	bb	bb	9.435
13468-PECDF	27.106	0.907	3.060e5	2.007e5	1.376	1.525	1.550	668	1089	4.57e6	3.01e6	6845.4	2759.7	NO	bb	bb	48.831
12389-PECDF	32.305	1.081	2.080e5	1.373e5	1.000	1.515	1.550	1850	1512	3.12e6	2.07e6	1688.2	1369.0	NO	bb	bb	45.806
123468-HXCDF	33.207	0.952	1.572e5	1.311e5	1.087	1.199	1.240	1318	1003	2.44e6	2.03e6	1848.7	2020.2	NO	bb	bb	46.939
1368-TCDD	23.508	0.891	2.891e4	3.662e4	0.923	0.789	0.770	1258	771	4.53e5	5.82e5	359.8	754.7	NO	bb	bb	10.839
1289-TCDD	27.016	1.024	2.612e4	3.136e4	0.794	0.833	0.770	1258	771	3.85e5	4.68e5	305.9	606.5	NO	bb	bb	11.055
12479-PECDD	28.773	0.914	2.384e5	1.485e5	1.843	1.605	1.550	1133	1229	2.38e6	1.47e6	2097.0	1193.4	NO	bb	bb	54.626
12389-PECDD	31.914	1.013	1.588e5	9.738e4	1.154	1.630	1.550	1133	1229	2.53e6	1.54e6	2237.1	1256.2	NO	bb	bb	57.776
124679-HXCDD	33.987	0.945	1.399e5	1.110e5	1.125	1.260	1.240	1154	1153	2.24e6	1.76e6	1943.7	1526.7	NO	bb	bb	49.436
1234679-HPCDD	39.212	0.974	9.721e4	8.890e4	1.211	1.094	1.050	1639	889	1.63e6	1.49e6	994.0	1672.6	NO	bd	bb	55.065
Total-tetrafurans			1.349e5		1.192			780		2.13e6							28.464
Total-penta1			3.060e5					668		4.57e6							48.831
Total-pentafurans			6.868e5		1.047			1850		1.06e7							147.605
Total-hexafurans			7.267e5		1.045			1318		1.18e7							236.966
Total-heptafurans			2.476e5		1.305			1374		3.93e6							98.759
Total-Furans			2.240e6		1.158			780		3.47e7							654.086
Total-tetradioxins			1.434e5		0.879			1258		1.99e6							56.226
Total-pentadioxins			5.284e5		1.331			1133		7.01e6							167.557
Total-hexadioxins			5.111e5		1.028			1154		8.52e6							196.286
Total-heptadioxins			1.807e5		1.140			1639		2.98e6							109.092
Total-Dioxins			1.478e6		1.092			1258		2.19e7							625.630
Total-TEQ			3.718e6					1258		5.66e7							1279.716
FUNCTION1 PFK			1.312e5					694839		5.54e6							
FUNCTION2 PFK			0.000e0					699059		0.00e0							
FUNCTION3 PFK			3.001e7					575288		1.88e8							0.000
FUNCTION4 PFK			2.106e7					351670		6.46e7							
FUNCTION5 PFK			1.254e5					212811		4.31e6							
FUNCTION1 HXCD...			6.786e2					771		1.08e4							0.000
FUNCTION1 HPCD...			1.022e3					883		1.98e4							0.000
FUNCTION2 HPCD...			7.408e2					886		1.42e4							0.000
FUNCTION3 OCDPE			1.183e3					699		1.83e4							0.000
FUNCTION4 NCDPE			0.000e0					603		0.00e0							
FUNCTION5 DCDPE			0.000e0					514		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210914IH.qld
Last Altered: Thursday, September 16, 2021 11:26:56 Pacific Daylight Time
Printed: Thursday, September 16, 2021 12:38:42 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.853e4	5.133e4	1.043	0.75	0.77	750.4	YES	NO	bb	bb	9.435
2	Total-tetrafurans	27.11	5.731e2	8.704e2	1.192	0.66	0.77	11.1	YES	NO	bb	bb	0.133
3	2378-TCDF	25.76	4.162e4	5.334e4	1.108	0.78	0.77	855.6	YES	NO	bb	bb	9.388
4	Total-tetrafurans	24.87	3.395e2	4.121e2	1.192	0.82	0.77	5.9	YES	NO	db	bb	0.069
5	1368-TCDF	22.24	5.387e4	6.898e4	1.425	0.78	0.77	1101.7	YES	NO	bb	bb	9.440

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.11	3.060e5	2.007e5	1.376	1.52	1.55	6845.4	YES	NO	bb	bb	48.831

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.30	2.080e5	1.373e5	1.000	1.51	1.55	1688.2	YES	NO	bb	bb	45.806
2	23478-PeCDF	31.27	2.256e5	1.488e5	1.126	1.52	1.55	1917.9	YES	NO	bb	bb	46.834
3	12378-PeCDF	29.92	2.158e5	1.419e5	1.015	1.52	1.55	1812.4	YES	NO	bb	bb	46.734
4	Total-pentafurans	29.64	5.165e2	3.819e2	1.047	1.35	1.55	4.4	YES	NO	db	bb	0.117
5	Total-pentafurans	28.76	3.695e4	2.522e4	1.047	1.46	1.55	310.2	YES	NO	bb	bb	8.113

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	33.21	1.572e5	1.311e5	1.087	1.20	1.24	1848.7	YES	NO	bb	bb	46.939
2	123789-HxCDF	36.93	1.182e5	9.651e4	1.030	1.23	1.24	1511.0	YES	NO	bb	bb	47.375
3	234678-HxCDF	35.89	1.443e5	1.193e5	1.052	1.21	1.24	1828.1	YES	NO	bb	bb	47.940
4	123678-HxCDF	35.02	1.536e5	1.250e5	1.037	1.23	1.24	1903.1	YES	NO	db	db	46.222
5	123478-HxCDF	34.88	1.534e5	1.253e5	1.017	1.22	1.24	1869.2	YES	NO	bd	bd	48.491

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.02	1.082e5	1.057e5	1.283	1.02	1.05	1138.4	YES	NO	bb	bb	50.021
2	1234678-HpCDF	38.77	1.394e5	1.344e5	1.327	1.04	1.05	1720.3	YES	NO	bb	bb	48.738

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.853e4	5.133e4	1.043	0.75	0.77	750.4	YES	NO	bb	bb	9.435
2	Total-tetrafurans	27.11	5.731e2	8.704e2	1.192	0.66	0.77	11.1	YES	NO	bb	bb	0.133
3	2378-TCDF	25.76	4.162e4	5.334e4	1.108	0.78	0.77	855.6	YES	NO	bb	bb	9.388
4	Total-tetrafurans	24.87	3.395e2	4.121e2	1.192	0.82	0.77	5.9	YES	NO	db	bb	0.069
5	1368-TCDF	22.24	5.387e4	6.898e4	1.425	0.78	0.77	1101.7	YES	NO	bb	bb	9.440
6	12389-PECDF	32.30	2.080e5	1.373e5	1.000	1.51	1.55	1688.2	YES	NO	bb	bb	45.806
7	23478-PeCDF	31.27	2.256e5	1.488e5	1.126	1.52	1.55	1917.9	YES	NO	bb	bb	46.834
8	12378-PeCDF	29.92	2.158e5	1.419e5	1.015	1.52	1.55	1812.4	YES	NO	bb	bb	46.734
9	Total-pentafurans	29.64	5.165e2	3.819e2	1.047	1.35	1.55	4.4	YES	NO	db	bb	0.117
10	Total-pentafurans	28.76	3.695e4	2.522e4	1.047	1.46	1.55	310.2	YES	NO	bb	bb	8.113
11	123468-HXCDF	33.21	1.572e5	1.311e5	1.087	1.20	1.24	1848.7	YES	NO	bb	bb	46.939
12	123789-HxCDF	36.93	1.182e5	9.651e4	1.030	1.23	1.24	1511.0	YES	NO	bb	bb	47.375
13	234678-HxCDF	35.89	1.443e5	1.193e5	1.052	1.21	1.24	1828.1	YES	NO	bb	bb	47.940
14	123678-HxCDF	35.02	1.536e5	1.250e5	1.037	1.23	1.24	1903.1	YES	NO	db	db	46.222
15	123478-HxCDF	34.88	1.534e5	1.253e5	1.017	1.22	1.24	1869.2	YES	NO	bd	bd	48.491
16	1234789-HpCDF	41.02	1.082e5	1.057e5	1.283	1.02	1.05	1138.4	YES	NO	bb	bb	50.021
17	1234678-HpCDF	38.77	1.394e5	1.344e5	1.327	1.04	1.05	1720.3	YES	NO	bb	bb	48.738
18	OCDF	45.24	1.379e5	1.524e5	1.447	0.90	0.89	1834.9	YES	NO	bb	bb	93.460
19	13468-PECDF	27.11	3.060e5	2.007e5	1.376	1.52	1.55	6845.4	YES	NO	bb	bb	48.831

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.51	2.891e4	3.662e4	0.923	0.79	0.77	359.8	YES	NO	bb	bb	10.839
2	1289-TCDD	27.02	2.612e4	3.136e4	0.794	0.83	0.77	305.9	YES	NO	bb	bb	11.055
3	2378-TCDD	26.40	2.933e4	3.587e4	0.920	0.82	0.77	368.2	YES	NO	bb	bb	10.818
4	Total-tetradioxins	26.08	4.372e4	5.706e4	0.879	0.77	0.77	362.8	YES	NO	bb	bb	17.505
5	Total-tetradioxins	25.58	1.382e4	1.744e4	0.879	0.79	0.77	173.1	YES	NO	bb	bb	5.430
6	Total-tetradioxins	24.99	2.860e2	4.319e2	0.879	0.66	0.77	3.6	YES	NO	bb	bb	0.125
7	Total-tetradioxins	24.70	1.226e3	1.394e3	0.879	0.88	0.77	9.2	YES	NO	bb	bb	0.455

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.91	1.588e5	9.738e4	1.154	1.63	1.55	2237.1	YES	NO	bb	bb	57.776
2	12378-PeCDD	31.50	1.312e5	7.976e4	0.995	1.64	1.55	1851.9	YES	NO	bb	bb	55.154
3	12479-PECDD	28.77	2.384e5	1.485e5	1.843	1.61	1.55	2097.0	YES	NO	bb	bb	54.626

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.99	1.399e5	1.110e5	1.125	1.26	1.24	1943.7	YES	NO	bb	bb	49.436
2	123789-HxCDD	36.50	1.224e5	9.847e4	0.950	1.24	1.24	1810.5	YES	NO	bb	bb	50.524
3	123678-HxCDD	36.11	1.243e5	1.006e5	1.009	1.24	1.24	1824.8	YES	NO	db	db	47.593
4	123478-HxCDD	35.99	1.246e5	1.013e5	1.027	1.23	1.24	1800.3	YES	NO	bd	bd	48.734

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.26	8.350e4	7.756e4	1.068	1.08	1.05	826.7	YES	NO	bb	bb	54.027
2	1234679-HPCDD	39.21	9.721e4	8.890e4	1.211	1.09	1.05	994.0	YES	NO	bd	bb	55.065

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.51	2.891e4	3.662e4	0.923	0.79	0.77	359.8	YES	NO	bb	bb	10.839
2	1289-TCDD	27.02	2.612e4	3.136e4	0.794	0.83	0.77	305.9	YES	NO	bb	bb	11.055
3	2378-TCDD	26.40	2.933e4	3.587e4	0.920	0.82	0.77	368.2	YES	NO	bb	bb	10.818
4	Total-tetradioxins	26.08	4.372e4	5.706e4	0.879	0.77	0.77	362.8	YES	NO	bb	bb	17.505
5	Total-tetradioxins	25.58	1.382e4	1.744e4	0.879	0.79	0.77	173.1	YES	NO	bb	bb	5.430
6	Total-tetradioxins	24.99	2.860e2	4.319e2	0.879	0.66	0.77	3.6	YES	NO	bb	bb	0.125
7	Total-tetradioxins	24.70	1.226e3	1.394e3	0.879	0.88	0.77	9.2	YES	NO	bb	bb	0.455
8	124679-HXCDD	33.99	1.399e5	1.110e5	1.125	1.26	1.24	1943.7	YES	NO	bb	bb	49.436
9	12389-PECDD	31.91	1.588e5	9.738e4	1.154	1.63	1.55	2237.1	YES	NO	bb	bb	57.776
10	12378-PeCDD	31.50	1.312e5	7.976e4	0.995	1.64	1.55	1851.9	YES	NO	bb	bb	55.154
11	12479-PECDD	28.77	2.384e5	1.485e5	1.843	1.61	1.55	2097.0	YES	NO	bb	bb	54.626
12	123789-HxCDD	36.50	1.224e5	9.847e4	0.950	1.24	1.24	1810.5	YES	NO	bb	bb	50.524
13	123678-HxCDD	36.11	1.243e5	1.006e5	1.009	1.24	1.24	1824.8	YES	NO	db	db	47.593
14	123478-HxCDD	35.99	1.246e5	1.013e5	1.027	1.23	1.24	1800.3	YES	NO	bd	bd	48.734
15	1234678-HpCDD	40.26	8.350e4	7.756e4	1.068	1.08	1.05	826.7	YES	NO	bb	bb	54.027
16	1234679-HPCDD	39.21	9.721e4	8.890e4	1.211	1.09	1.05	994.0	YES	NO	bd	bb	55.065
17	OCDD	45.00	1.146e5	1.300e5	1.181	0.88	0.89	1291.2	YES	NO	bb	bb	96.469

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.853e4	5.133e4	1.043	0.75	0.77	750.4	YES	NO	bb	bb	9.435
2	Total-tetrafurans	27.11	5.731e2	8.704e2	1.192	0.66	0.77	11.1	YES	NO	bb	bb	0.133
3	2378-TCDF	25.76	4.162e4	5.334e4	1.108	0.78	0.77	855.6	YES	NO	bb	bb	9.388
4	Total-tetrafurans	24.87	3.395e2	4.121e2	1.192	0.82	0.77	5.9	YES	NO	db	bb	0.069
5	1368-TCDF	22.24	5.387e4	6.898e4	1.425	0.78	0.77	1101.7	YES	NO	bb	bb	9.440
6	12389-PECDF	32.30	2.080e5	1.373e5	1.000	1.51	1.55	1688.2	YES	NO	bb	bb	45.806
7	23478-PeCDF	31.27	2.256e5	1.488e5	1.126	1.52	1.55	1917.9	YES	NO	bb	bb	46.834
8	12378-PeCDF	29.92	2.158e5	1.419e5	1.015	1.52	1.55	1812.4	YES	NO	bb	bb	46.734
9	Total-pentafurans	29.64	5.165e2	3.819e2	1.047	1.35	1.55	4.4	YES	NO	db	bb	0.117
10	Total-pentafurans	28.76	3.695e4	2.522e4	1.047	1.46	1.55	310.2	YES	NO	bb	bb	8.113
11	123468-HXCDF	33.21	1.572e5	1.311e5	1.087	1.20	1.24	1848.7	YES	NO	bb	bb	46.939
12	123789-HxCDF	36.93	1.182e5	9.651e4	1.030	1.23	1.24	1511.0	YES	NO	bb	bb	47.375
13	234678-HxCDF	35.89	1.443e5	1.193e5	1.052	1.21	1.24	1828.1	YES	NO	bb	bb	47.940
14	123678-HxCDF	35.02	1.536e5	1.250e5	1.037	1.23	1.24	1903.1	YES	NO	db	db	46.222
15	123478-HxCDF	34.88	1.534e5	1.253e5	1.017	1.22	1.24	1869.2	YES	NO	bd	bd	48.491
16	1234789-HpCDF	41.02	1.082e5	1.057e5	1.283	1.02	1.05	1138.4	YES	NO	bb	bb	50.021
17	1234678-HpCDF	38.77	1.394e5	1.344e5	1.327	1.04	1.05	1720.3	YES	NO	bb	bb	48.738
18	OCDF	45.24	1.379e5	1.524e5	1.447	0.90	0.89	1834.9	YES	NO	bb	bb	93.460
19	13468-PECDF	27.11	3.060e5	2.007e5	1.376	1.52	1.55	6845.4	YES	NO	bb	bb	48.831
20	1368-TCDD	23.51	2.891e4	3.662e4	0.923	0.79	0.77	359.8	YES	NO	bb	bb	10.839
21	1289-TCDD	27.02	2.612e4	3.136e4	0.794	0.83	0.77	305.9	YES	NO	bb	bb	11.055
22	2378-TCDD	26.40	2.933e4	3.587e4	0.920	0.82	0.77	368.2	YES	NO	bb	bb	10.818
23	Total-tetradioxins	26.08	4.372e4	5.706e4	0.879	0.77	0.77	362.8	YES	NO	bb	bb	17.505
24	Total-tetradioxins	25.58	1.382e4	1.744e4	0.879	0.79	0.77	173.1	YES	NO	bb	bb	5.430
25	Total-tetradioxins	24.99	2.860e2	4.319e2	0.879	0.66	0.77	3.6	YES	NO	bb	bb	0.125
26	Total-tetradioxins	24.70	1.226e3	1.394e3	0.879	0.88	0.77	9.2	YES	NO	bb	bb	0.455
27	124679-HXCDD	33.99	1.399e5	1.110e5	1.125	1.26	1.24	1943.7	YES	NO	bb	bb	49.436
28	12389-PECDD	31.91	1.588e5	9.738e4	1.154	1.63	1.55	2237.1	YES	NO	bb	bb	57.776
29	12378-PeCDD	31.50	1.312e5	7.976e4	0.995	1.64	1.55	1851.9	YES	NO	bb	bb	55.154
30	12479-PECDD	28.77	2.384e5	1.485e5	1.843	1.61	1.55	2097.0	YES	NO	bb	bb	54.626
31	123789-HxCDD	36.50	1.224e5	9.847e4	0.950	1.24	1.24	1810.5	YES	NO	bb	bb	50.524
32	123678-HxCDD	36.11	1.243e5	1.006e5	1.009	1.24	1.24	1824.8	YES	NO	db	db	47.593
33	123478-HxCDD	35.99	1.246e5	1.013e5	1.027	1.23	1.24	1800.3	YES	NO	bd	bd	48.734
34	1234678-HpCDD	40.26	8.350e4	7.756e4	1.068	1.08	1.05	826.7	YES	NO	bb	bb	54.027
35	1234679-HPCDD	39.21	9.721e4	8.890e4	1.211	1.09	1.05	994.0	YES	NO	bd	bb	55.065
36	OCDD	45.00	1.146e5	1.300e5	1.181	0.88	0.89	1291.2	YES	NO	bb	bb	96.469

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.39	8.808e3					0.8	NO		bb		
2	FUNCTION1 PFK	27.05	3.455e4					1.5	NO		bb		
3	FUNCTION1 PFK	25.13	6.155e3					0.6	NO		bb		
4	FUNCTION1 PFK	24.81	6.302e3					0.6	NO		bb		
5	FUNCTION1 PFK	23.08	3.439e4					1.5	NO		bb		
6	FUNCTION1 PFK	22.69	6.162e3					0.6	NO		bb		
7	FUNCTION1 PFK	22.12	1.014e4					0.7	NO		bb		
8	FUNCTION1 PFK	21.32	1.584e4					0.8	NO		bb		
9	FUNCTION1 PFK	21.25	8.840e3					0.8	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.97	3.627e6					64.8	YES		bd		0.000
2	FUNCTION3 PFK	36.15	8.675e3					0.8	NO		bb		0.000
3	FUNCTION3 PFK	36.08	2.139e4					1.0	NO		bb		0.000
4	FUNCTION3 PFK	35.97	6.102e3					0.2	NO		bb		0.000
5	FUNCTION3 PFK	35.87	7.292e3					0.6	NO		bb		0.000
6	FUNCTION3 PFK	35.80	1.959e4					1.1	NO		bb		0.000
7	FUNCTION3 PFK	35.29	3.986e4					1.6	NO		bb		0.000
8	FUNCTION3 PFK	35.25	2.970e3					0.5	NO		bb		0.000
9	FUNCTION3 PFK	34.96	1.846e4					1.4	NO		db		0.000
10	FUNCTION3 PFK	34.93	2.785e4					1.5	NO		bd		0.000
11	FUNCTION3 PFK	34.20	1.662e6					13.0	YES		db		0.000
12	FUNCTION3 PFK	34.05	9.119e5					19.4	YES		dd		0.000
13	FUNCTION3 PFK	33.99	1.104e6					22.1	YES		dd		0.000
14	FUNCTION3 PFK	33.71	6.357e6					34.0	YES		dd		0.000
15	FUNCTION3 PFK	33.55	1.016e7					40.6	YES		dd		0.000
16	FUNCTION3 PFK	33.13	3.625e6					58.5	YES		dd		0.000
17	FUNCTION3 PFK	33.05	2.268e6					60.3	YES		dd		0.000
18	FUNCTION3 PFK	37.76	1.264e4					1.0	NO		db		0.000
19	FUNCTION3 PFK	37.70	3.721e4					1.5	NO		bd		0.000
20	FUNCTION3 PFK	37.65	2.412e3					0.4	NO		bb		0.000
21	FUNCTION3 PFK	37.51	7.402e3					0.6	NO		bb		0.000
22	FUNCTION3 PFK	37.10	7.977e4					2.1	NO		bb		0.000
23	FUNCTION3 PFK	36.87	5.635e3					0.5	NO		bb		0.000

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ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.99	2.237e4					1.6	NO		bb		
2	FUNCTION4 PFK	40.18	6.530e3					0.9	NO		bb		
3	FUNCTION4 PFK	40.10	2.360e3					0.6	NO		bb		
4	FUNCTION4 PFK	39.98	2.160e3					0.5	NO		bb		
5	FUNCTION4 PFK	39.50	2.792e4					2.8	NO		db		
6	FUNCTION4 PFK	39.36	3.499e5					10.2	YES		dd		
7	FUNCTION4 PFK	38.88	4.661e6					31.1	YES		dd		
8	FUNCTION4 PFK	38.41	5.643e6					51.8	YES		dd		
9	FUNCTION4 PFK	38.21	9.792e6					60.3	YES		bd		
10	FUNCTION4 PFK	42.49	1.924e4					1.5	NO		bb		
11	FUNCTION4 PFK	42.34	1.780e5					6.5	YES		db		
12	FUNCTION4 PFK	42.30	1.045e5					6.8	YES		dd		
13	FUNCTION4 PFK	42.23	5.107e4					4.0	YES		dd		
14	FUNCTION4 PFK	42.16	1.956e5					4.4	YES		bd		
15	FUNCTION4 PFK	41.50	3.719e3					0.6	NO		bb		

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.99	7.081e3					1.0	NO		bb		
2	FUNCTION5 PFK	43.91	5.810e3					0.8	NO		bb		
3	FUNCTION5 PFK	43.82	3.063e3					0.7	NO		db		
4	FUNCTION5 PFK	43.79	5.114e3					1.0	NO		bd		
5	FUNCTION5 PFK	43.60	1.870e3					0.5	NO		bb		
6	FUNCTION5 PFK	43.36	4.762e3					0.6	NO		bb		
7	FUNCTION5 PFK	43.32	4.845e3					1.0	NO		bb		
8	FUNCTION5 PFK	43.27	4.176e3					0.9	NO		bb		
9	FUNCTION5 PFK	43.11	1.418e4					1.5	NO		bb		
10	FUNCTION5 PFK	45.75	6.558e3					1.1	NO		db		
11	FUNCTION5 PFK	45.66	1.173e4					1.2	NO		bd		
12	FUNCTION5 PFK	45.54	2.340e3					0.6	NO		db		
13	FUNCTION5 PFK	45.49	6.184e3					1.1	NO		bd		
14	FUNCTION5 PFK	45.23	1.091e4					1.3	NO		bb		
15	FUNCTION5 PFK	45.08	7.522e2					0.4	NO		bb		
16	FUNCTION5 PFK	45.00	7.992e3					0.9	NO		bb		
17	FUNCTION5 PFK	44.73	4.568e3					0.8	NO		bb		
18	FUNCTION5 PFK	44.55	7.850e3					1.3	NO		bb		
19	FUNCTION5 PFK	44.51	1.118e3					0.6	NO		bb		
20	FUNCTION5 PFK	44.42	5.183e3					0.9	NO		bb		
21	FUNCTION5 PFK	44.36	2.889e3					0.6	NO		bb		
22	FUNCTION5 PFK	44.15	1.597e3					0.5	NO		bb		
23	FUNCTION5 PFK	44.07	4.792e3					1.0	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.98	1.131e2					1.5	NO		bb		0.000
2	FUNCTION1 HXCD...	27.09	1.565e2					3.0	YES		bb		0.000
3	FUNCTION1 HXCD...	26.38	1.003e2					1.9	NO		bb		0.000
4	FUNCTION1 HXCD...	26.27	7.731e1					2.2	NO		db		0.000
5	FUNCTION1 HXCD...	26.15	7.302e1					2.1	NO		bd		0.000
6	FUNCTION1 HXCD...	25.91	8.265e1					1.9	NO		bb		0.000
7	FUNCTION1 HXCD...	23.57	7.574e1					1.5	NO		bb		0.000

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	27.42	1.159e2					2.4	NO		bb		0.000
2	FUNCTION1 HPCD...	27.26	7.667e1					2.4	NO		bb		0.000
3	FUNCTION1 HPCD...	27.09	1.979e2					2.4	NO		bb		0.000
4	FUNCTION1 HPCD...	26.38	8.391e1					1.4	NO		bb		0.000
5	FUNCTION1 HPCD...	25.44	1.094e2					3.5	YES		bb		0.000
6	FUNCTION1 HPCD...	23.04	8.399e1					2.7	NO		bb		0.000
7	FUNCTION1 HPCD...	22.15	1.234e2					2.8	NO		db		0.000
8	FUNCTION1 HPCD...	22.03	1.289e2					2.2	NO		dd		0.000
9	FUNCTION1 HPCD...	21.98	1.024e2					2.6	NO		bd		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.49	1.649e2					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	31.15	7.287e1					1.9	NO		db		0.000
3	FUNCTION2 HPCD...	31.09	2.242e2					5.0	YES		bd		0.000
4	FUNCTION2 HPCD...	30.82	9.152e1					2.3	NO		bb		0.000
5	FUNCTION2 HPCD...	30.51	1.159e2					1.9	NO		bb		0.000
6	FUNCTION2 HPCD...	29.91	7.134e1					2.3	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.01	1.166e2					2.5	NO		db		0.000
2	FUNCTION3 OCDPE	34.90	2.419e2					3.5	YES		bd		0.000
3	FUNCTION3 OCDPE	34.39	1.067e2					1.5	NO		db		0.000
4	FUNCTION3 OCDPE	34.22	7.305e1					1.6	NO		dd		0.000
5	FUNCTION3 OCDPE	34.08	9.397e1					3.4	YES		bd		0.000
6	FUNCTION3 OCDPE	34.01	8.144e1					2.3	NO		bb		0.000
7	FUNCTION3 OCDPE	33.71	7.785e1					2.3	NO		bb		0.000
8	FUNCTION3 OCDPE	33.01	7.865e1					1.9	NO		bb		0.000
9	FUNCTION3 OCDPE	36.49	9.095e1					2.6	NO		bb		0.000
10	FUNCTION3 OCDPE	36.10	1.025e2					2.4	NO		db		0.000
11	FUNCTION3 OCDPE	35.96	1.197e2					2.2	NO		bd		0.000

ID: CS3Q7, Name: 21091430, Date: 15-Sep-2021, Time: 14:20:40, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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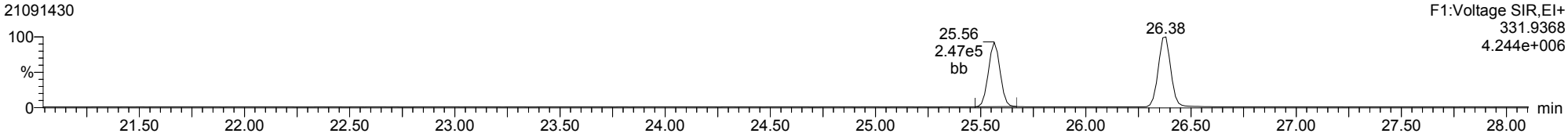

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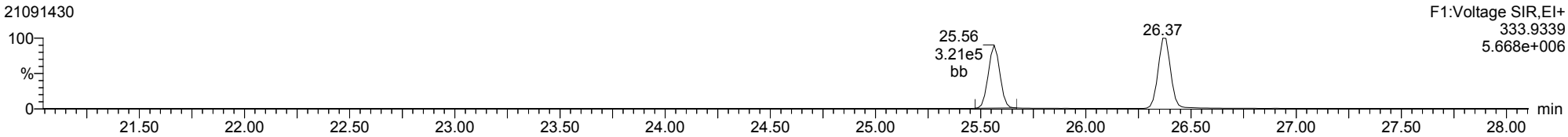

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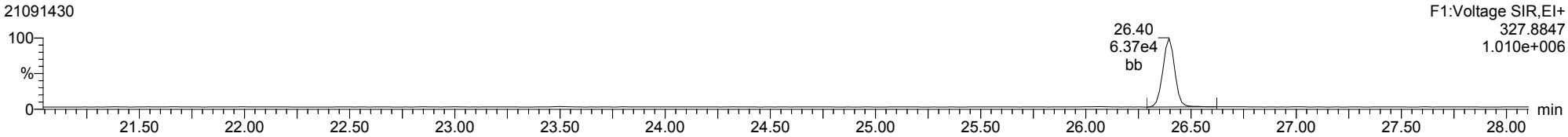

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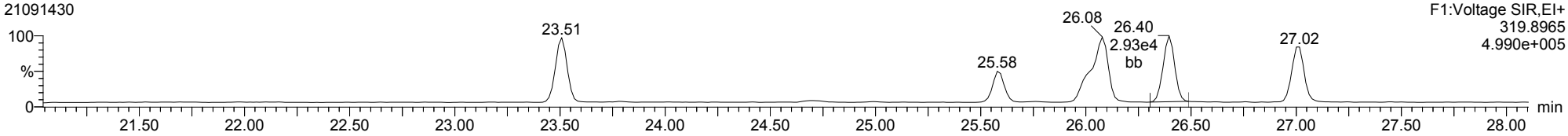

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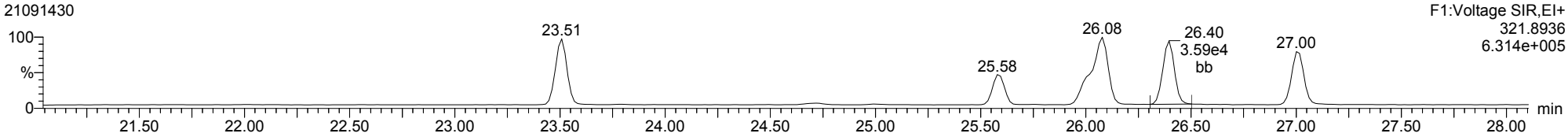

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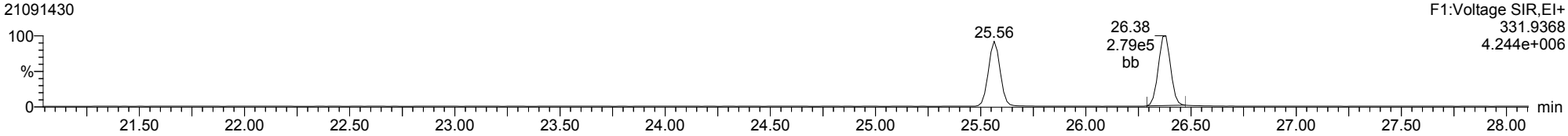

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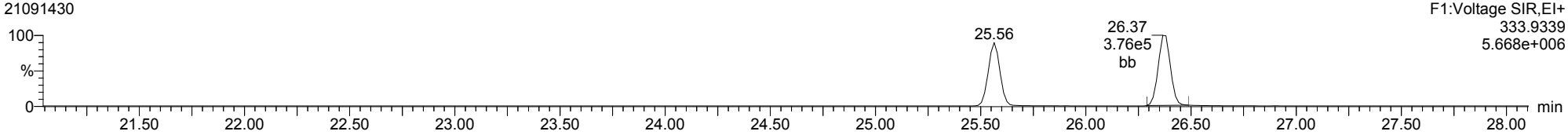

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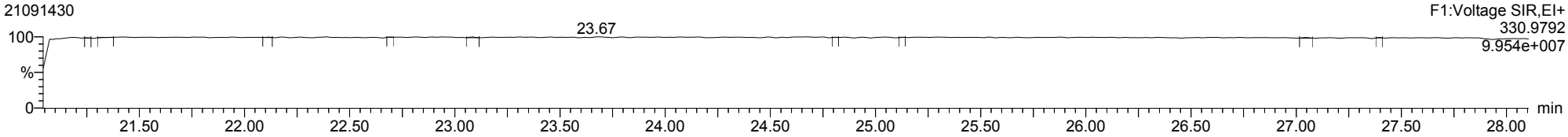

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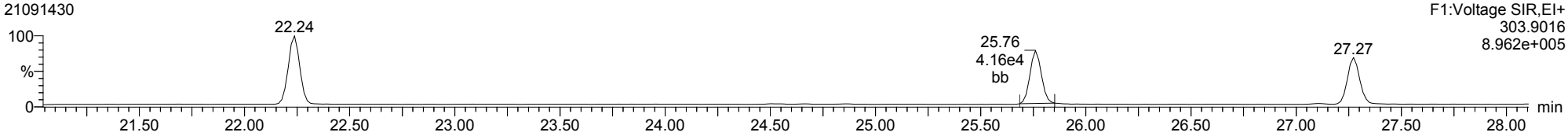

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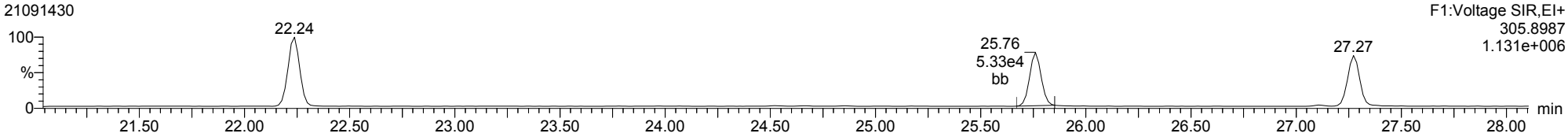

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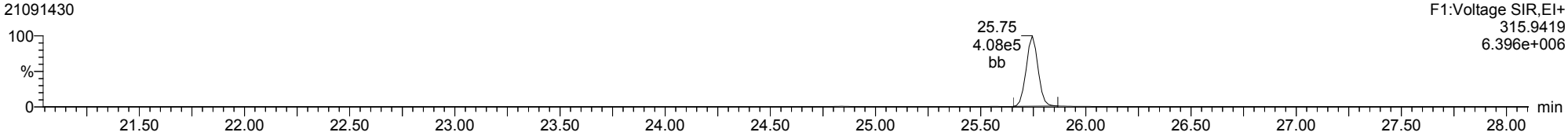

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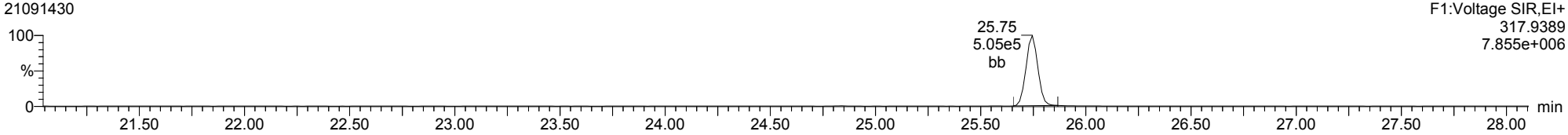

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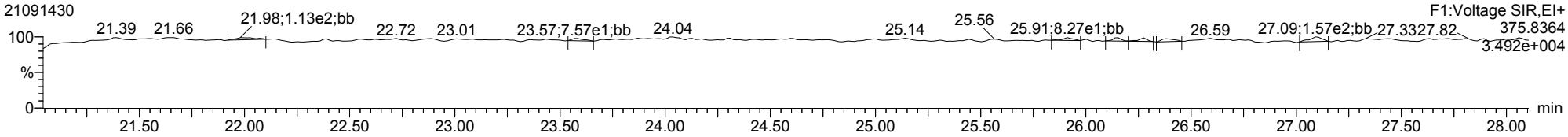

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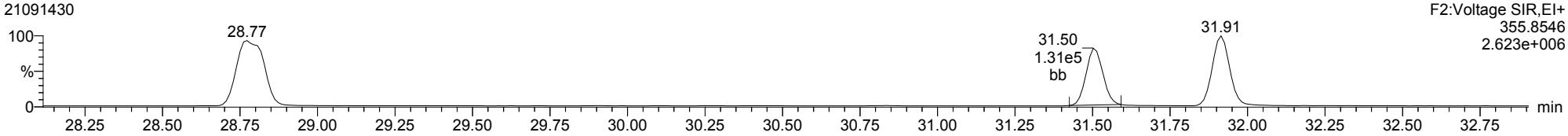
12378-PeCDD



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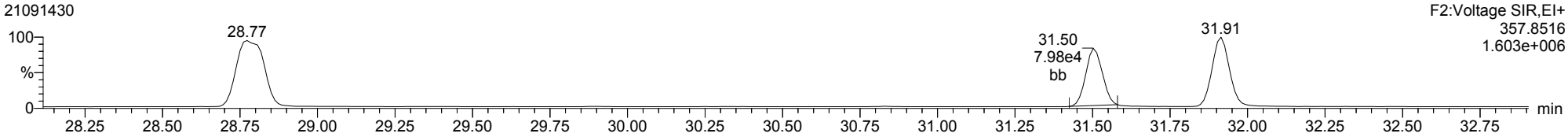

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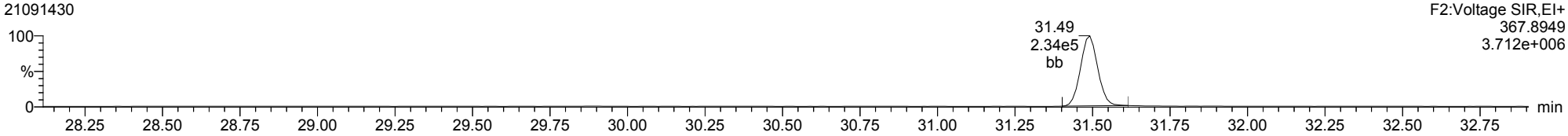

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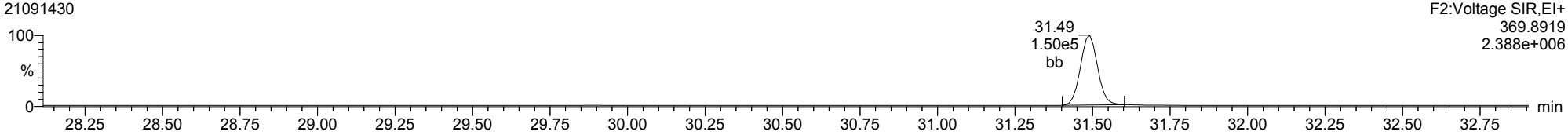
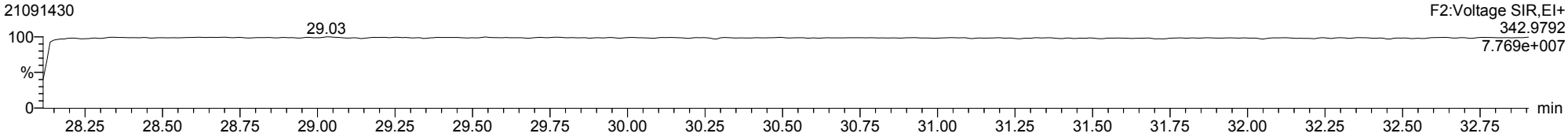


FUNCTION2 PFK



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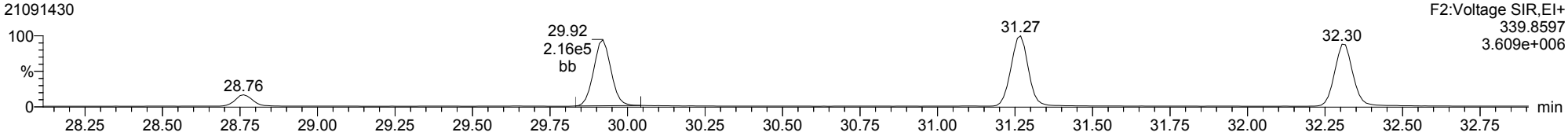
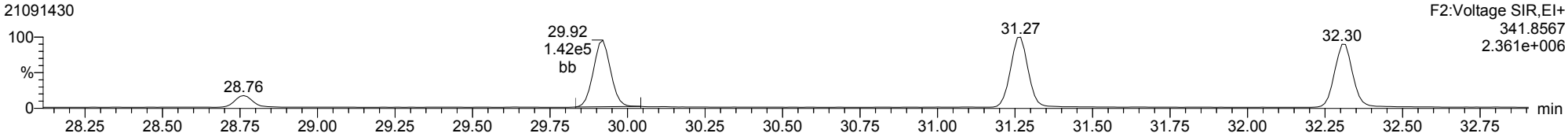
12378-PeCDF



12378-PeCDF



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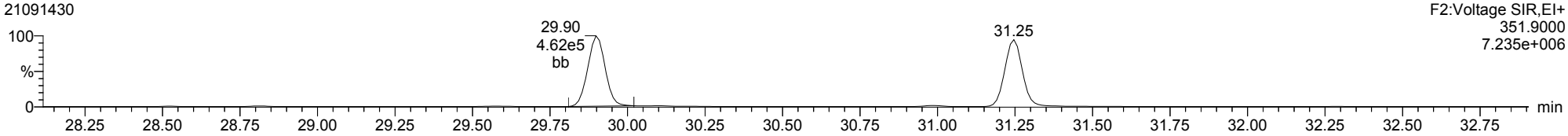

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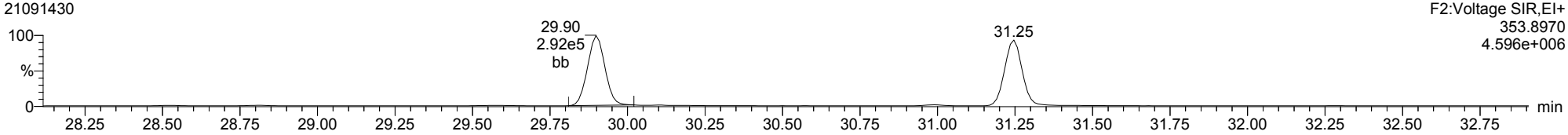

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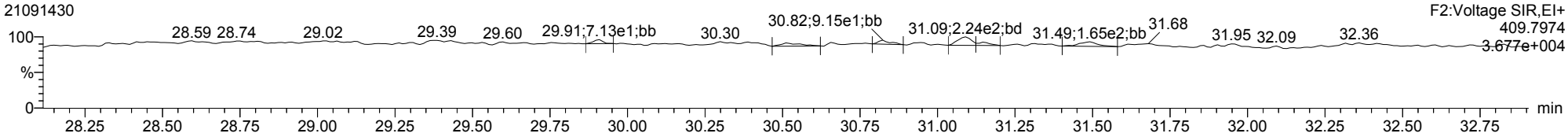

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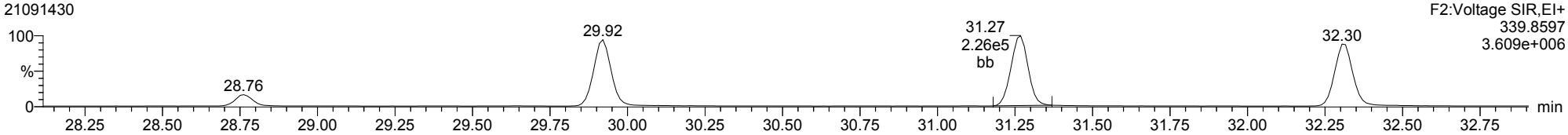

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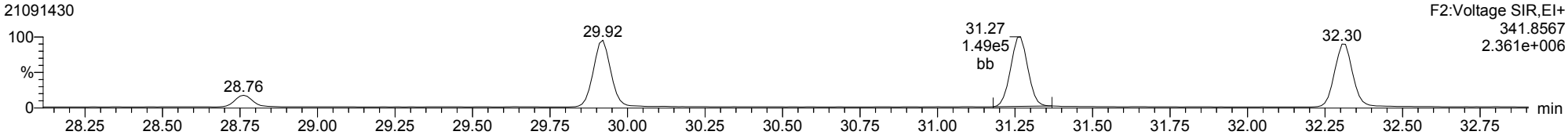

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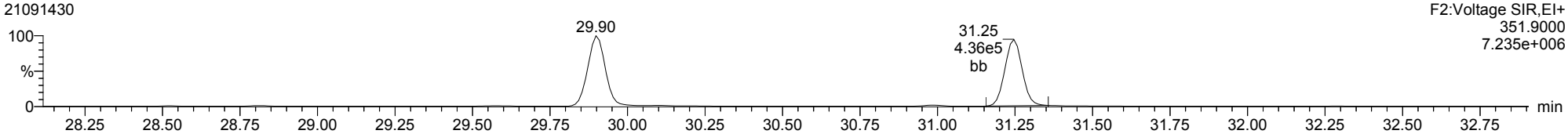

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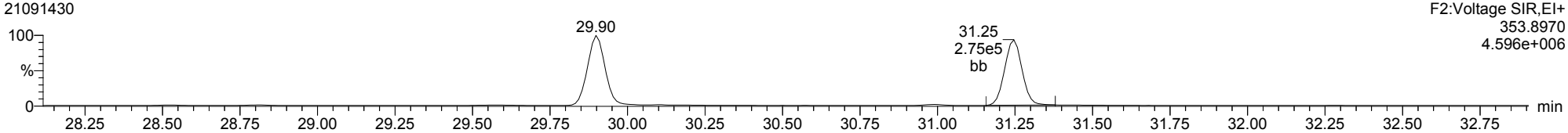

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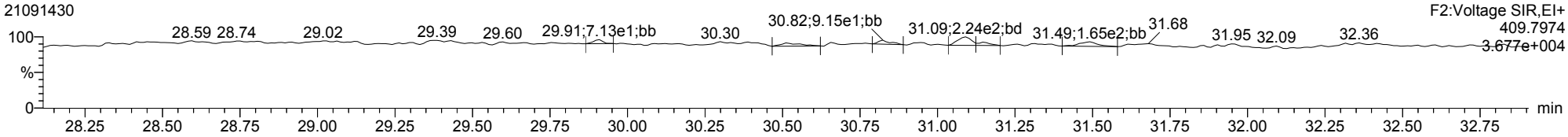

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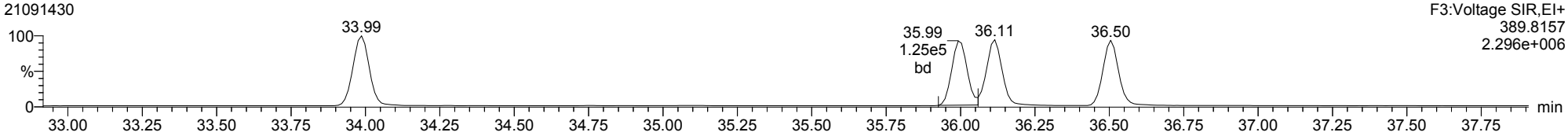

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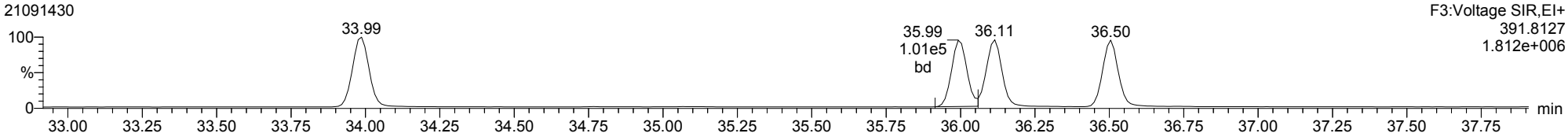

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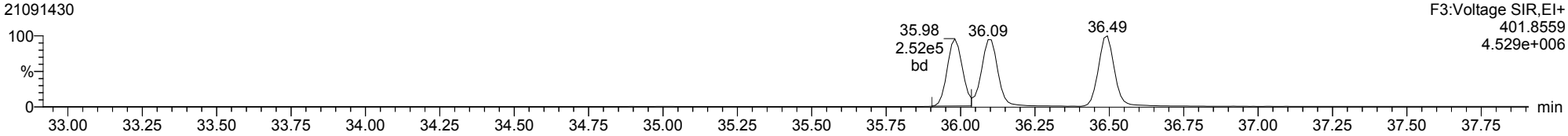

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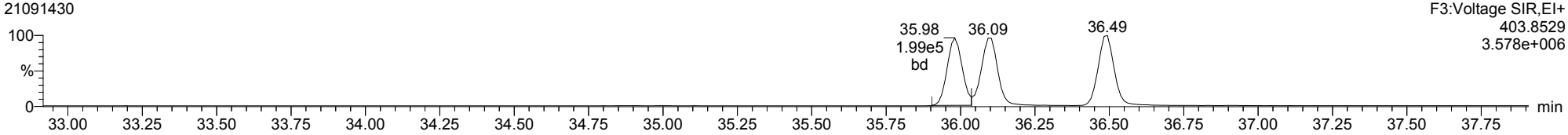

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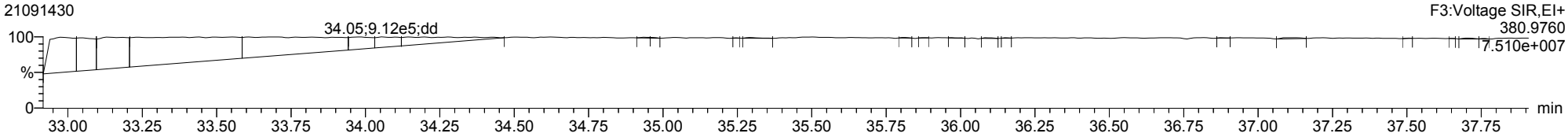

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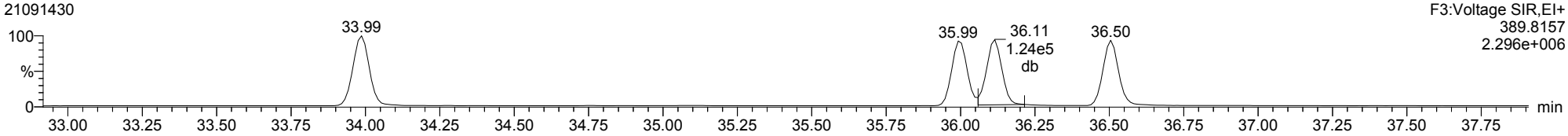

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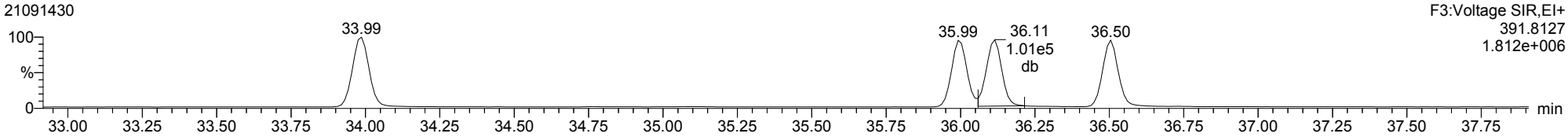

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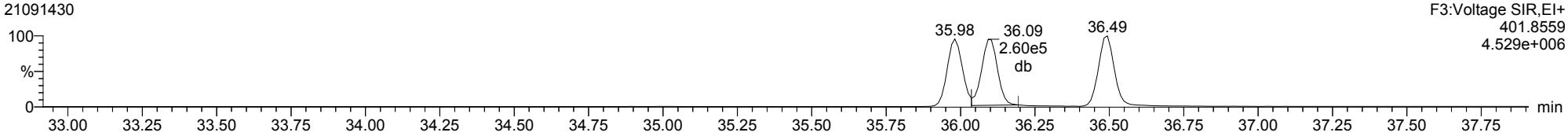

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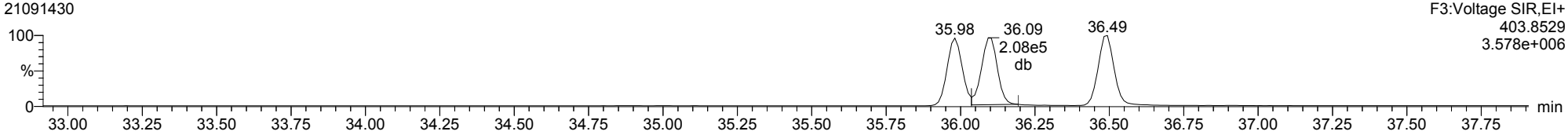

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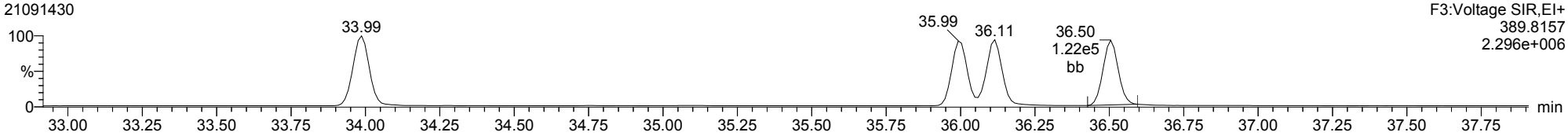

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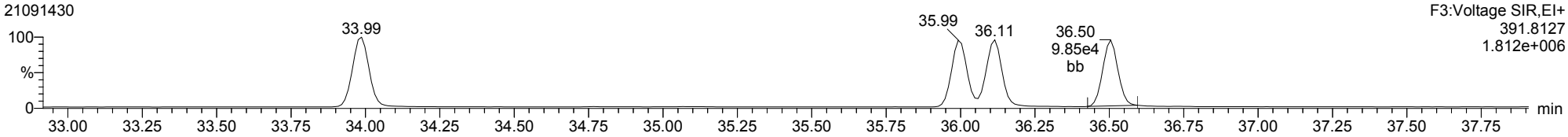

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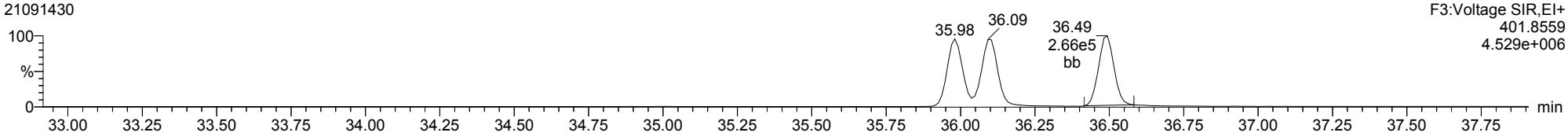

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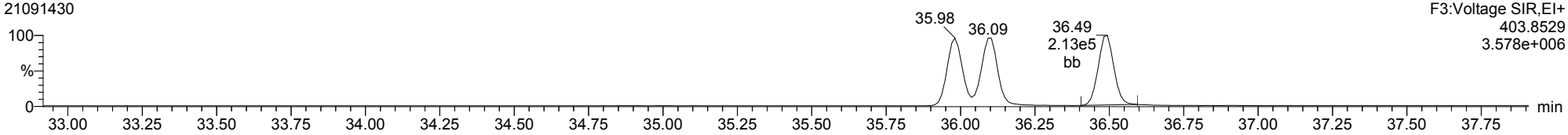

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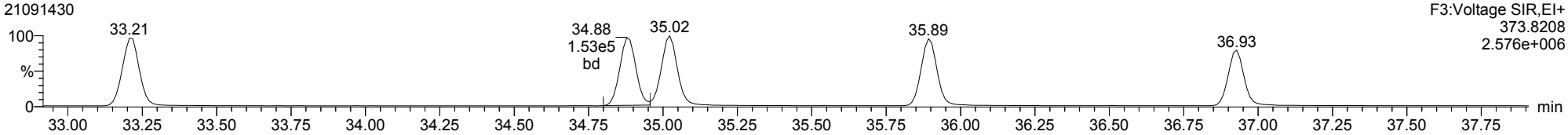

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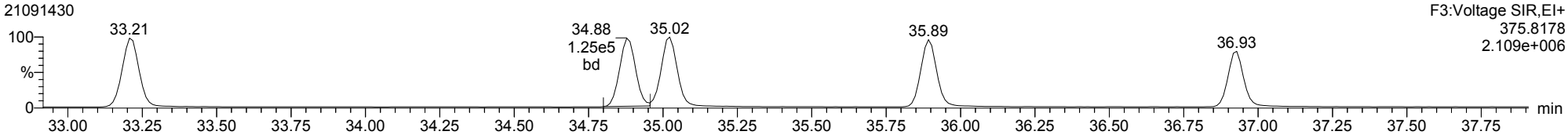

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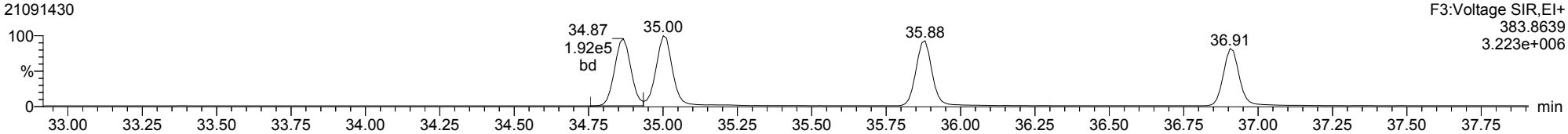

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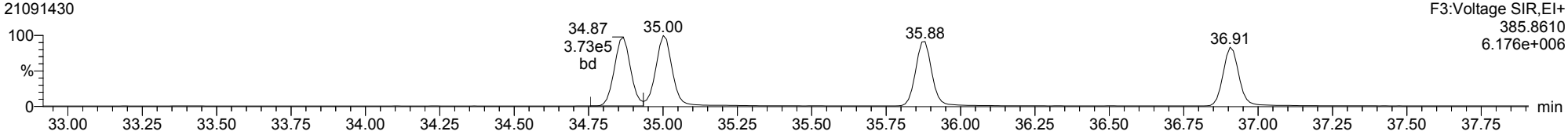

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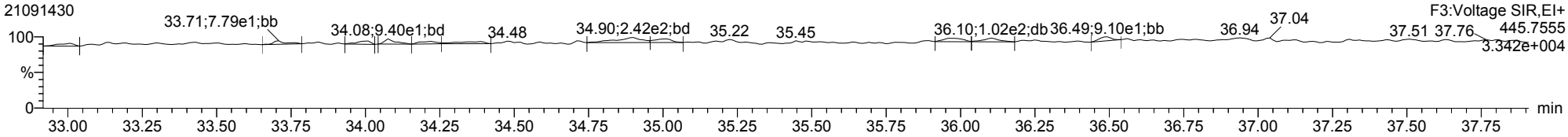

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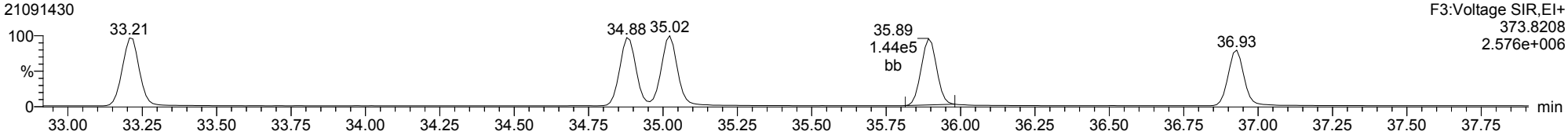

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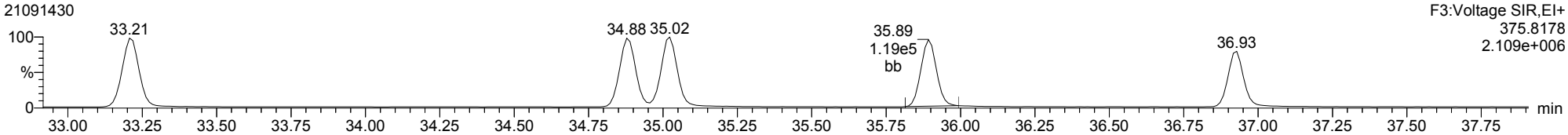

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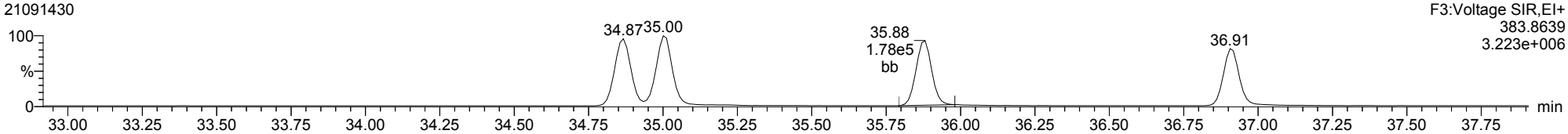

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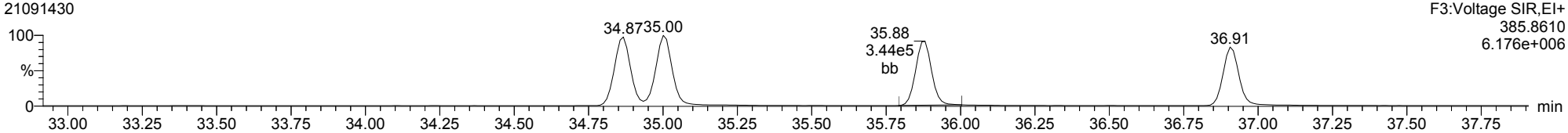

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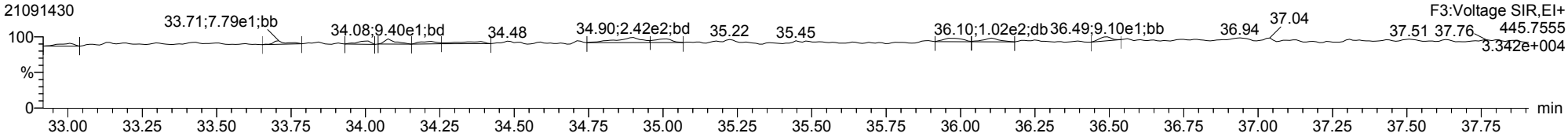

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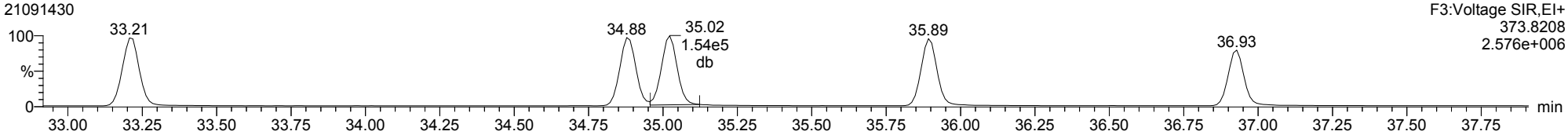

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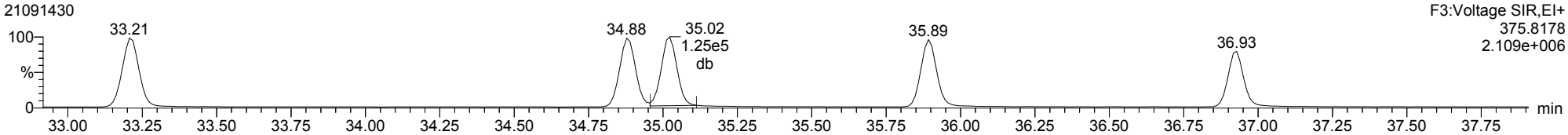

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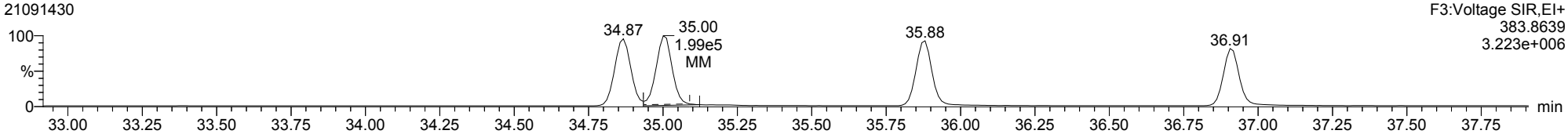

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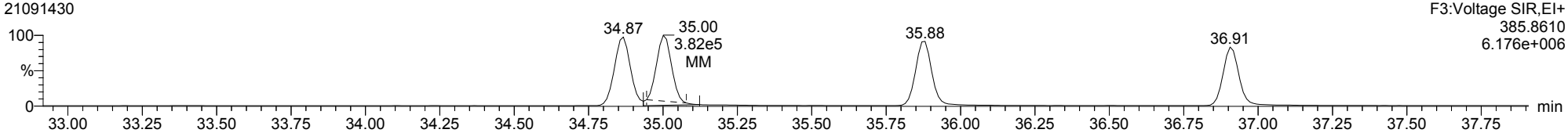

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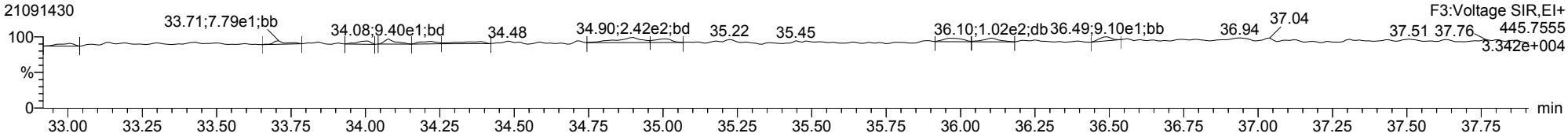

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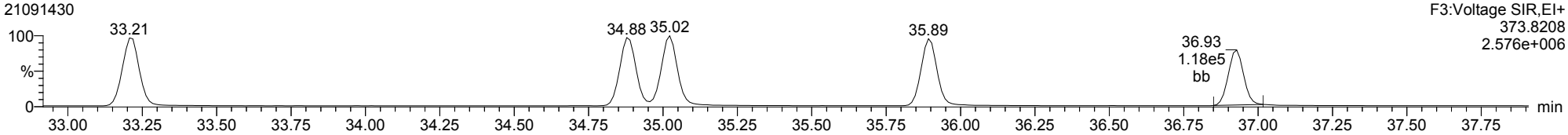

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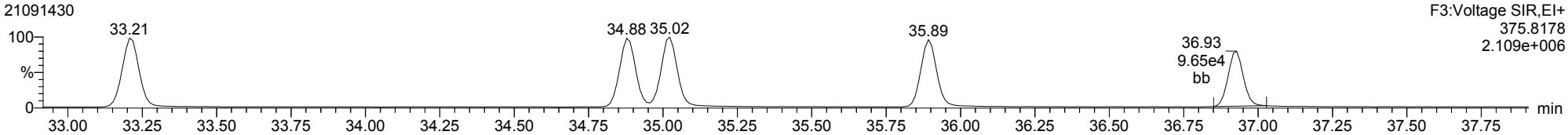

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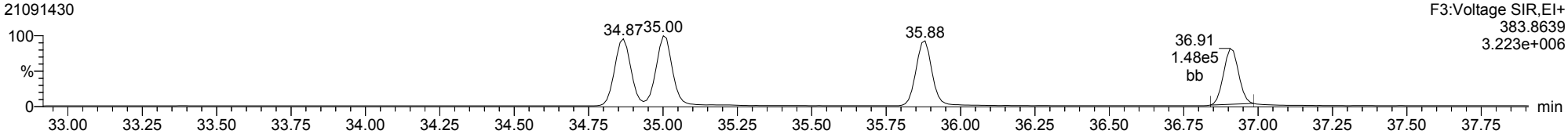

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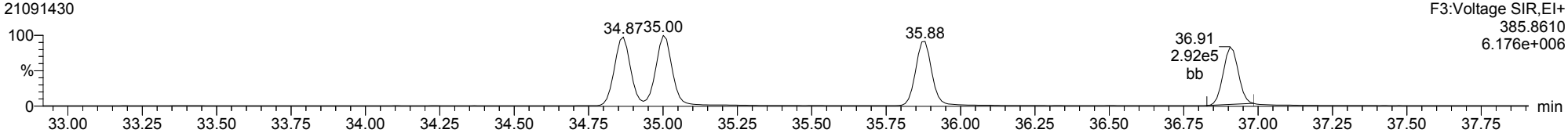

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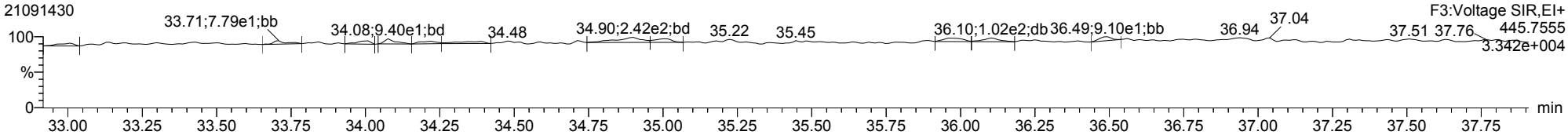

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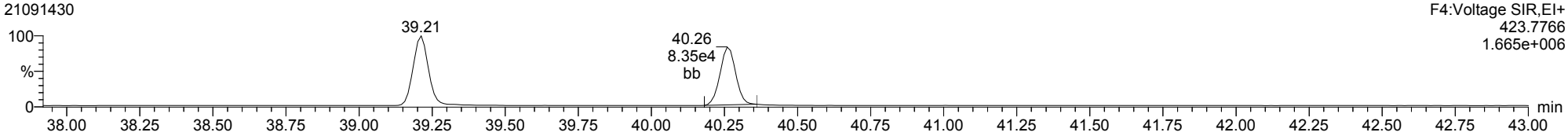

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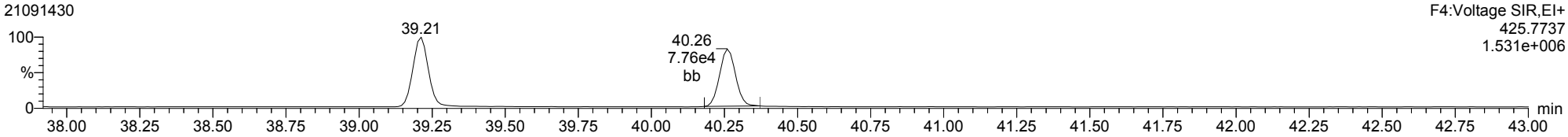

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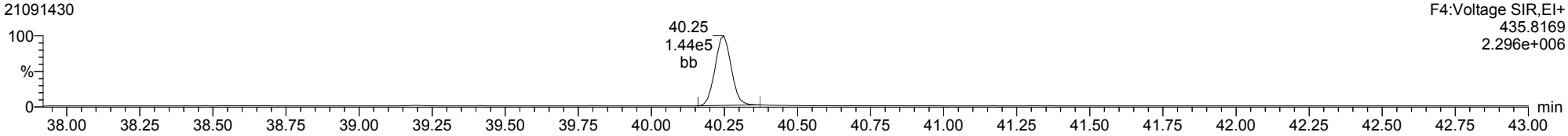

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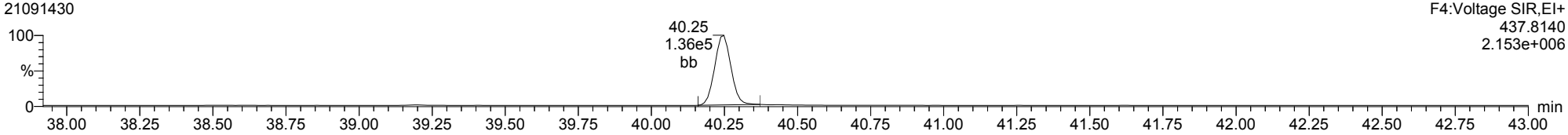

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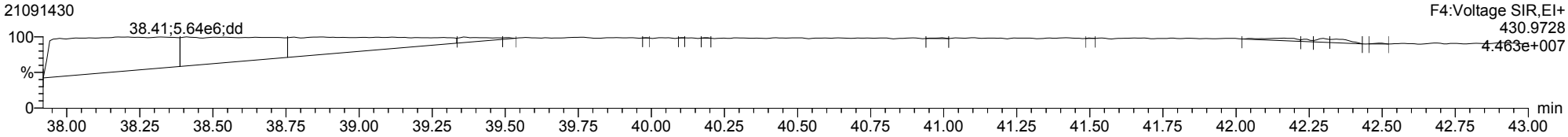

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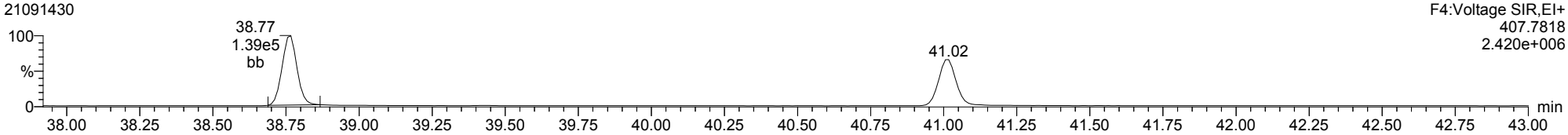

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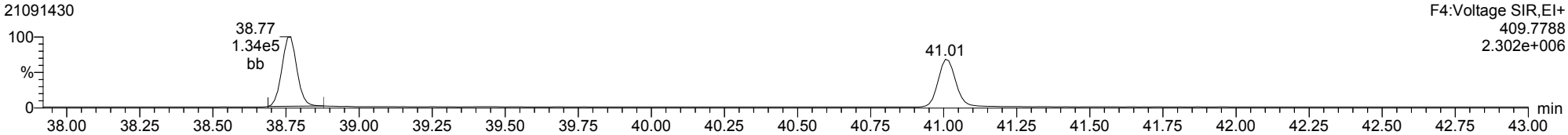

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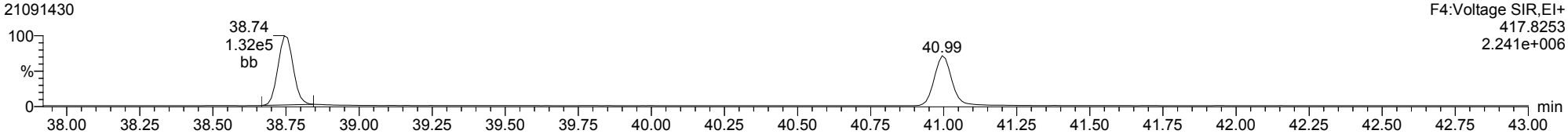

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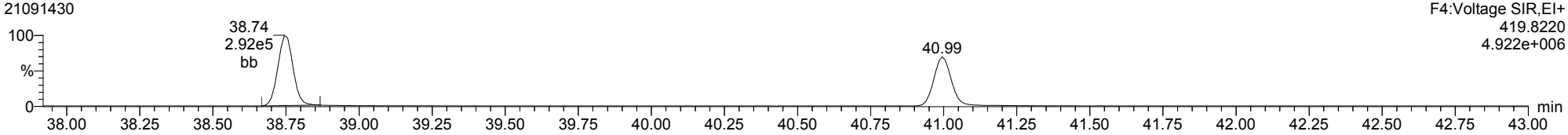

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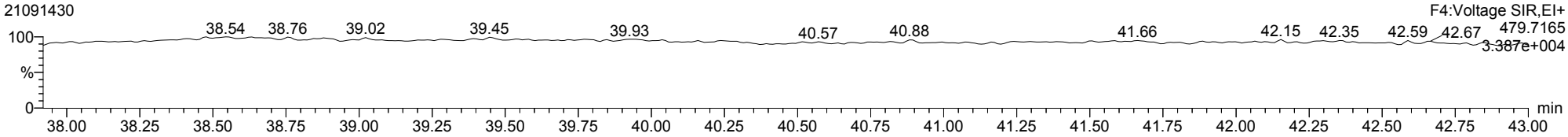

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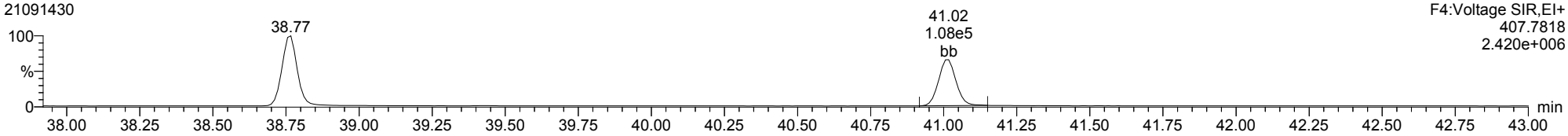

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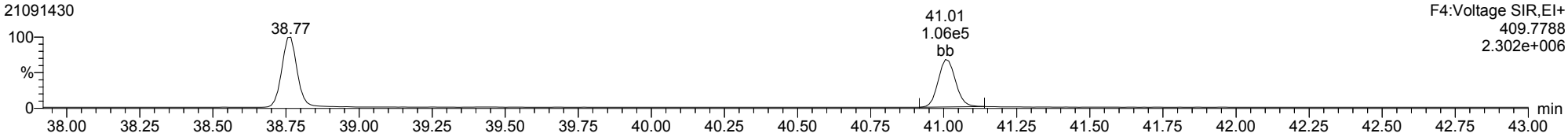

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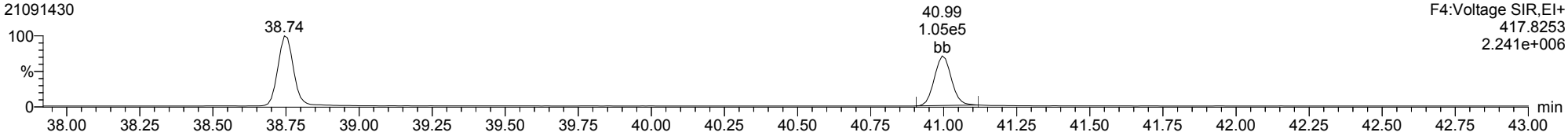

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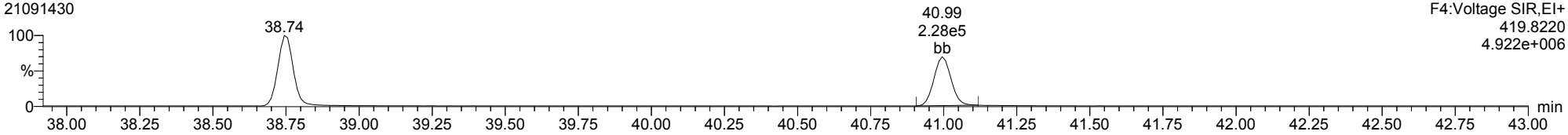

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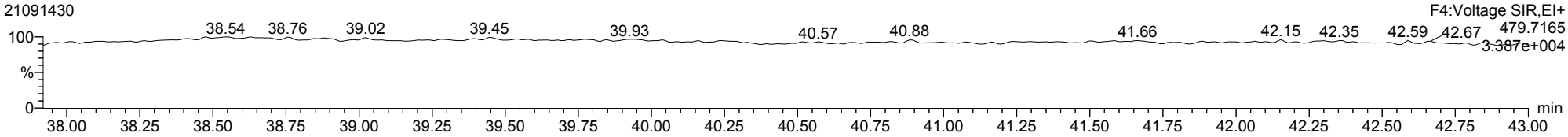

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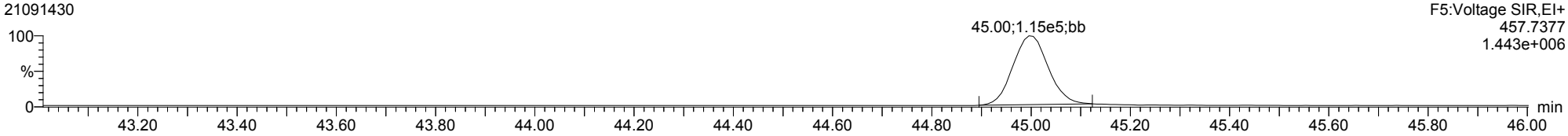

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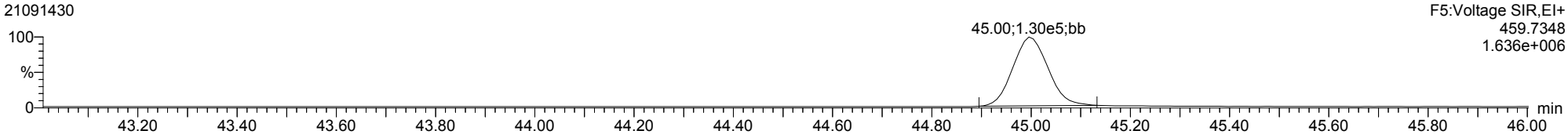

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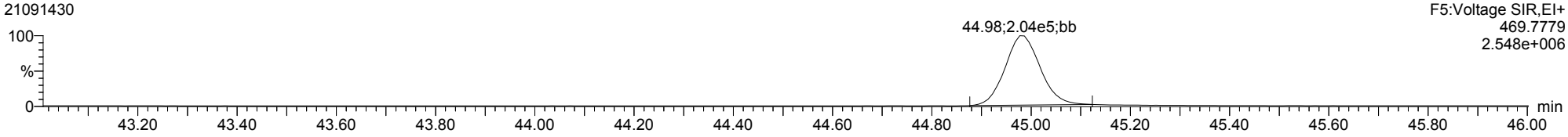

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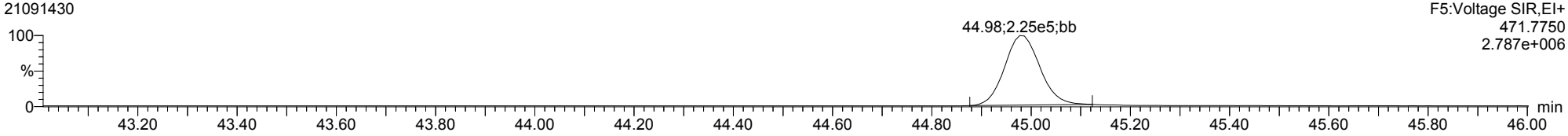

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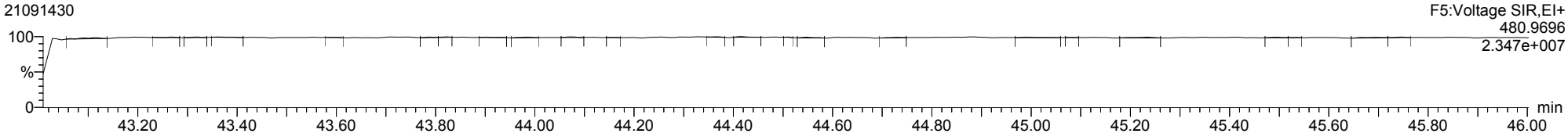

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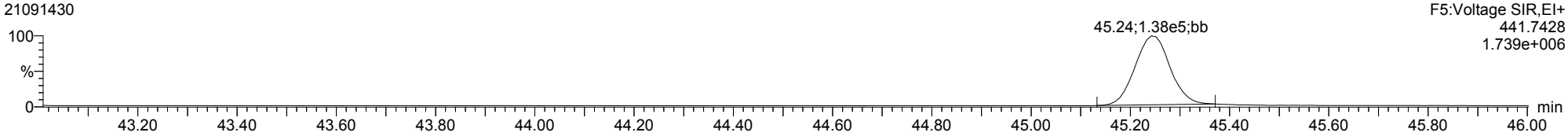

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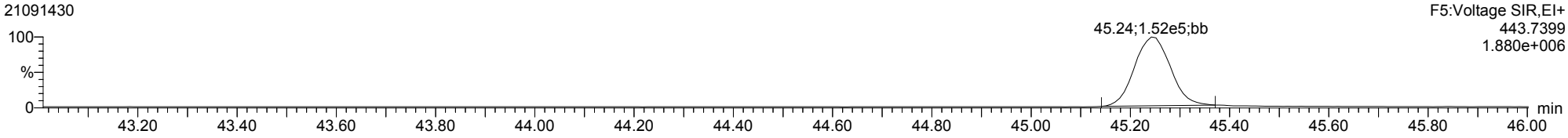

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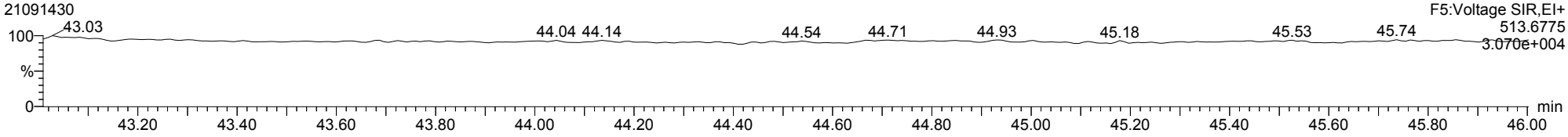

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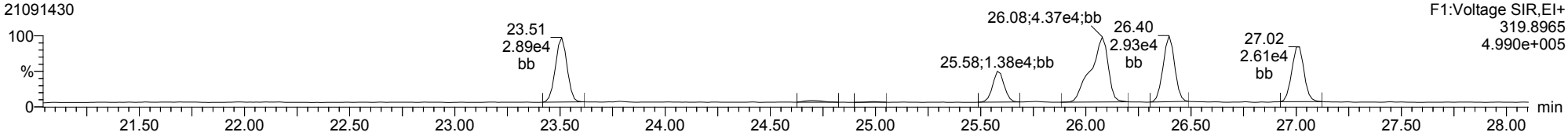
Total-tetradioxins



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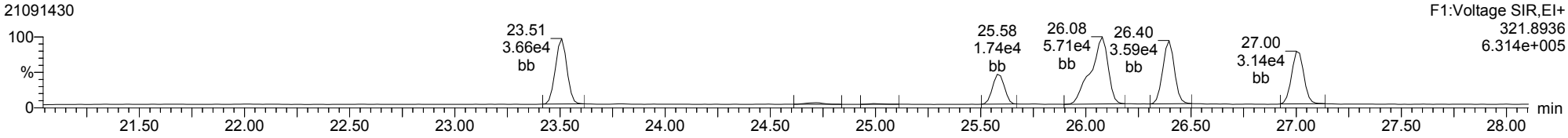

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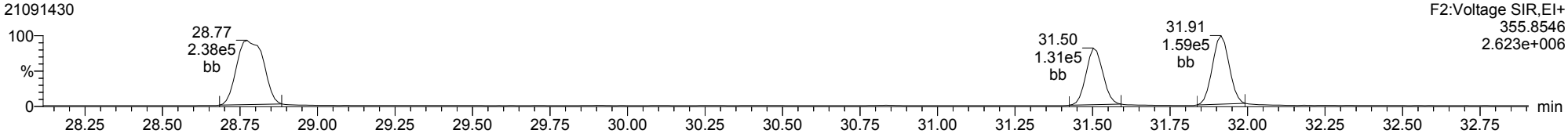

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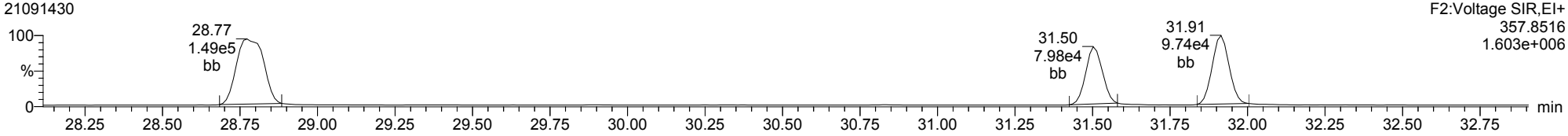

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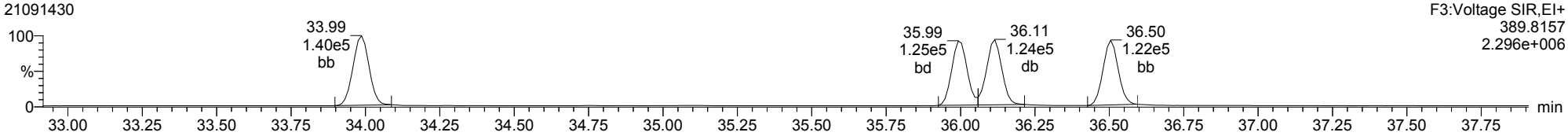

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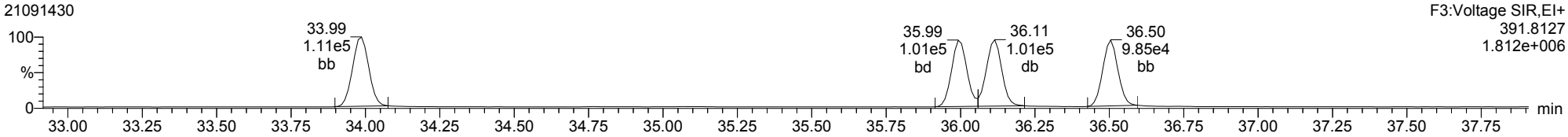

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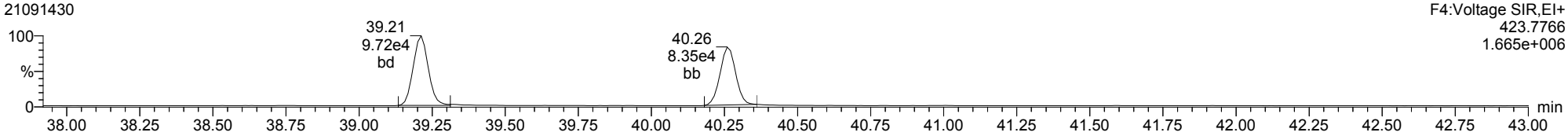

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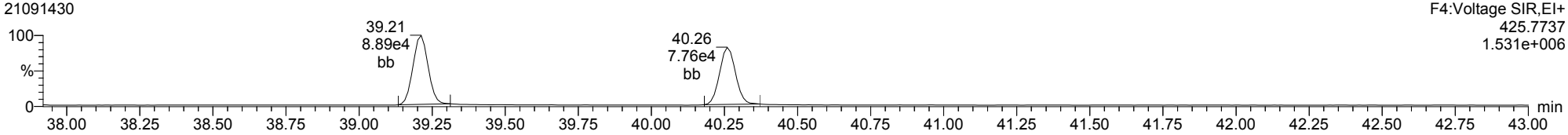

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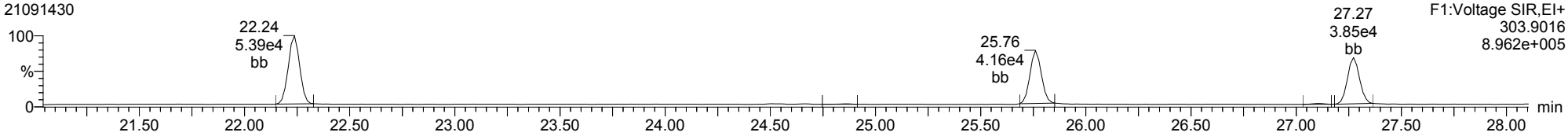
Total-tetrafurans



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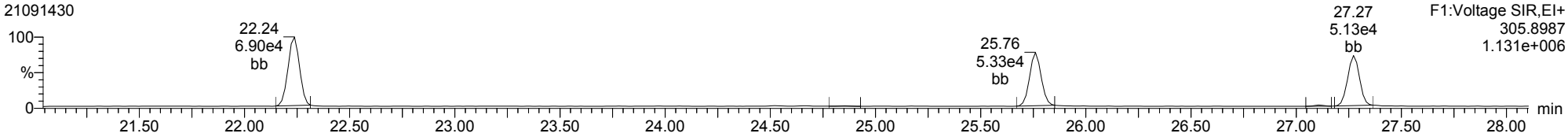

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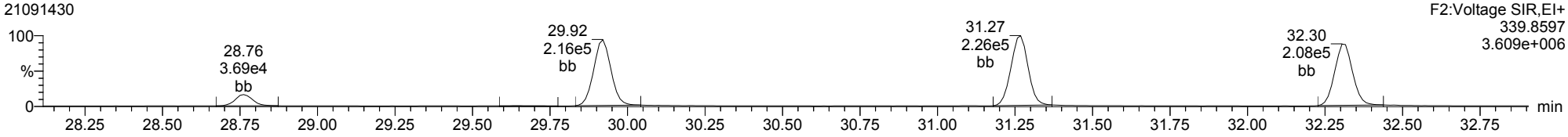

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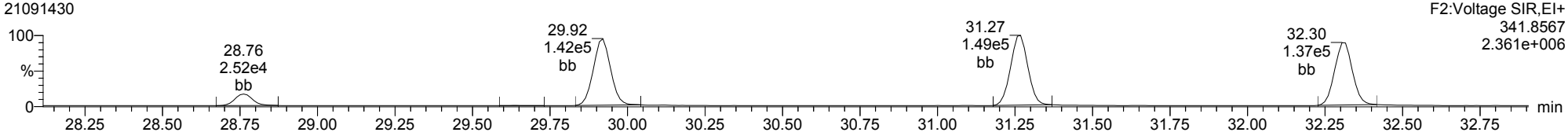

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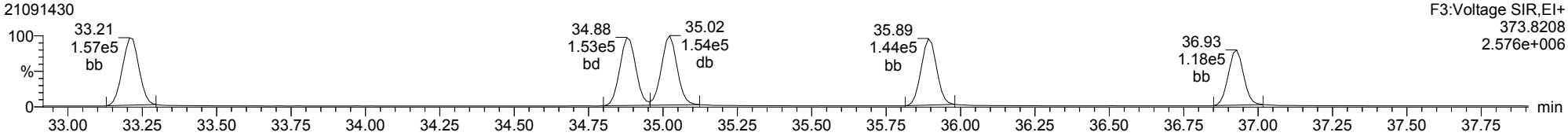
Total-hexafurans



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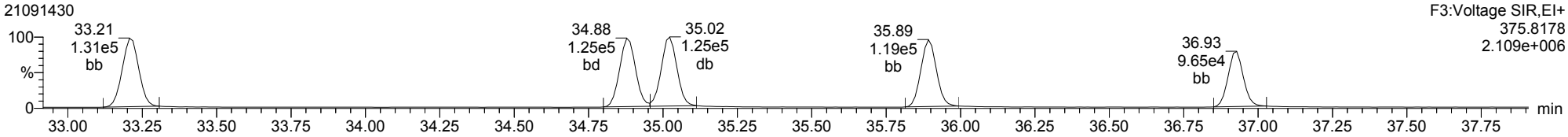

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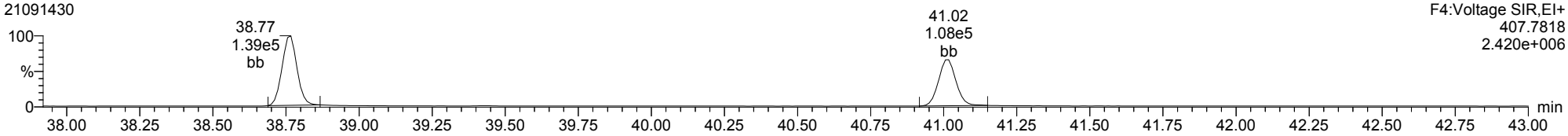

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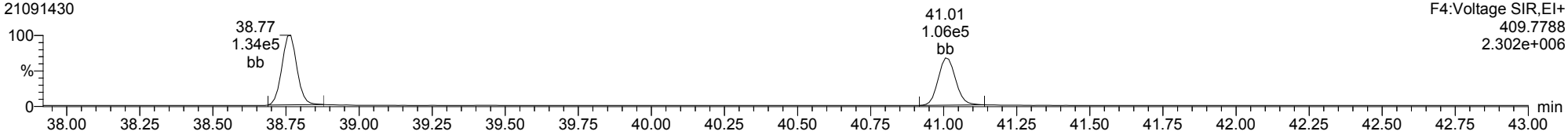

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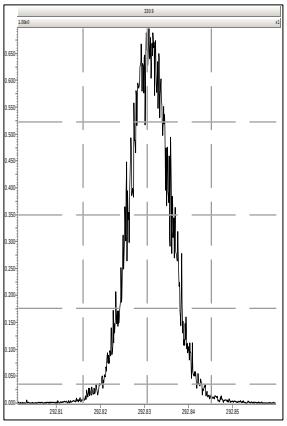

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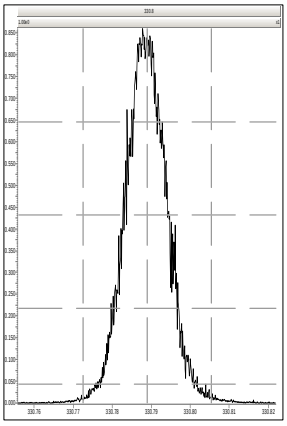

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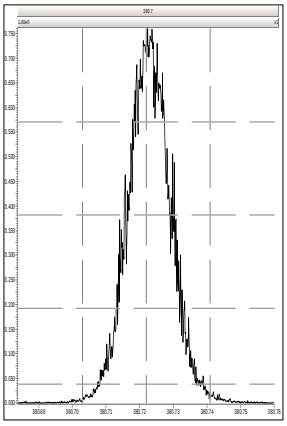

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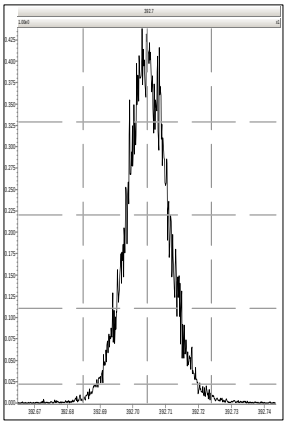

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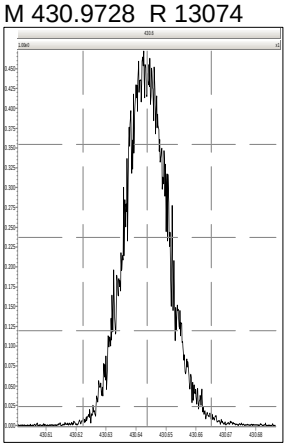

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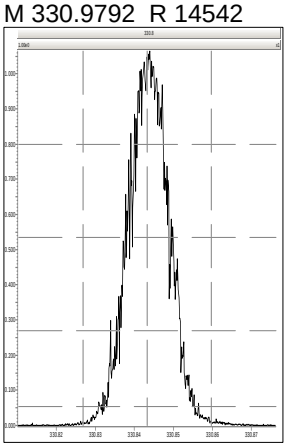

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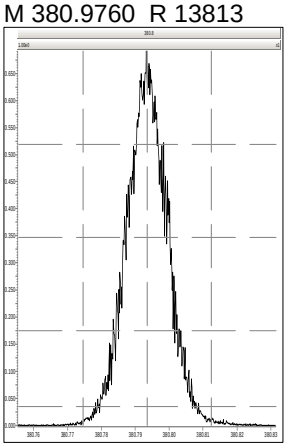

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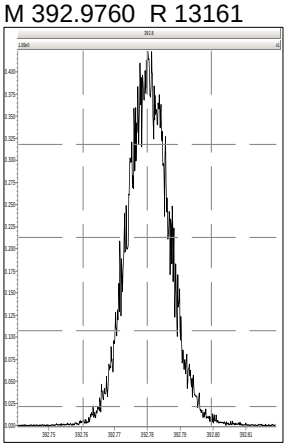

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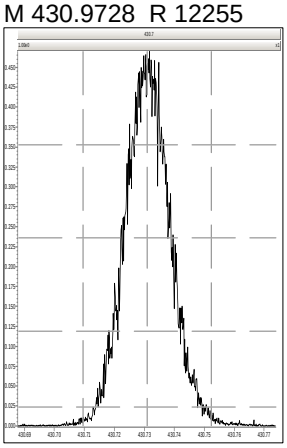

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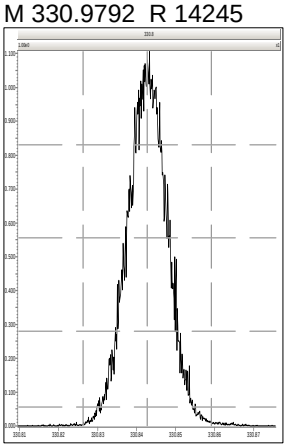

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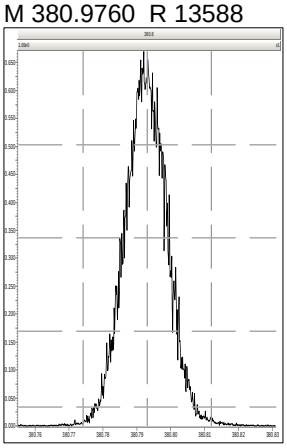

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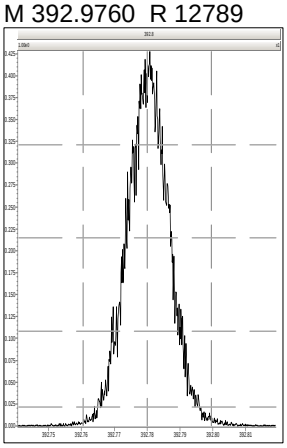

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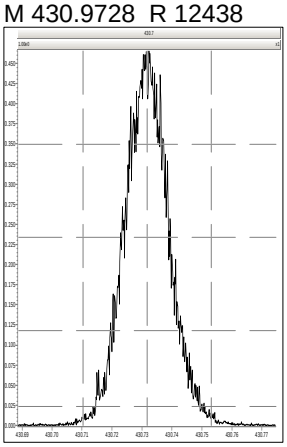

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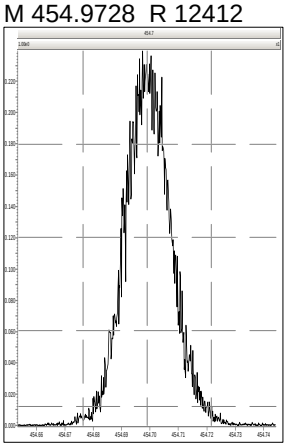

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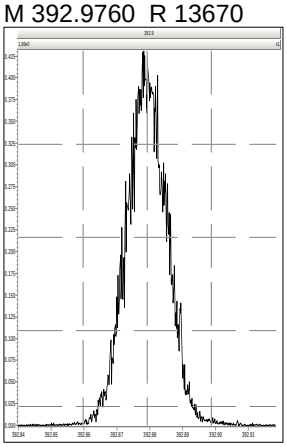

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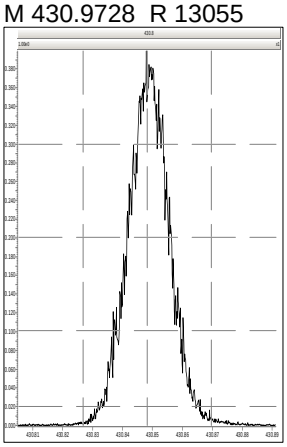

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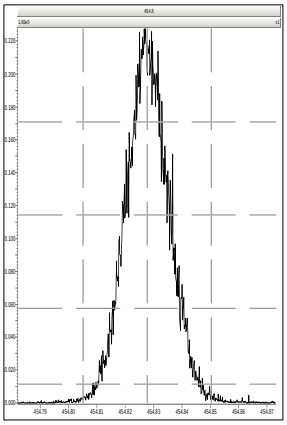

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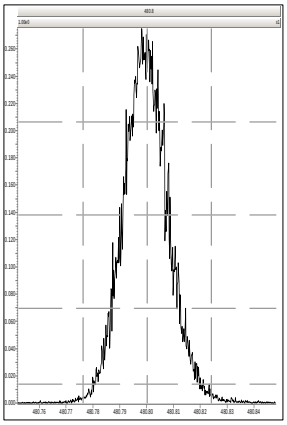
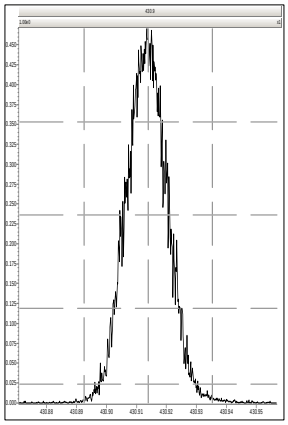
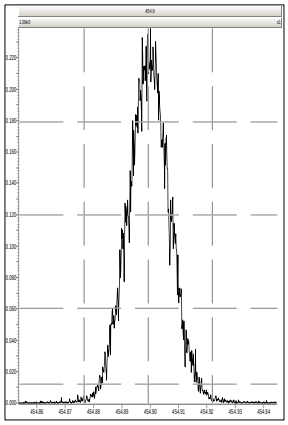


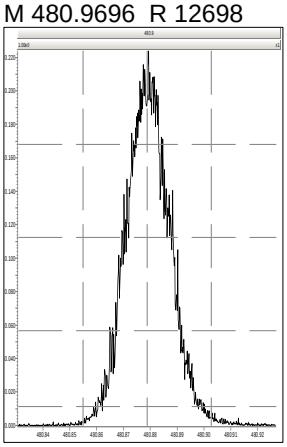
M 430.9728 R 13552



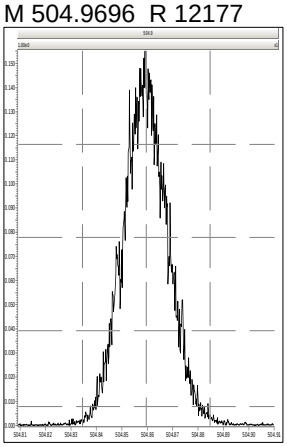
M 454.9728 R 12929



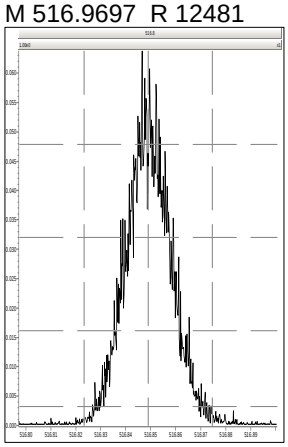
M 480.9696 R 12698

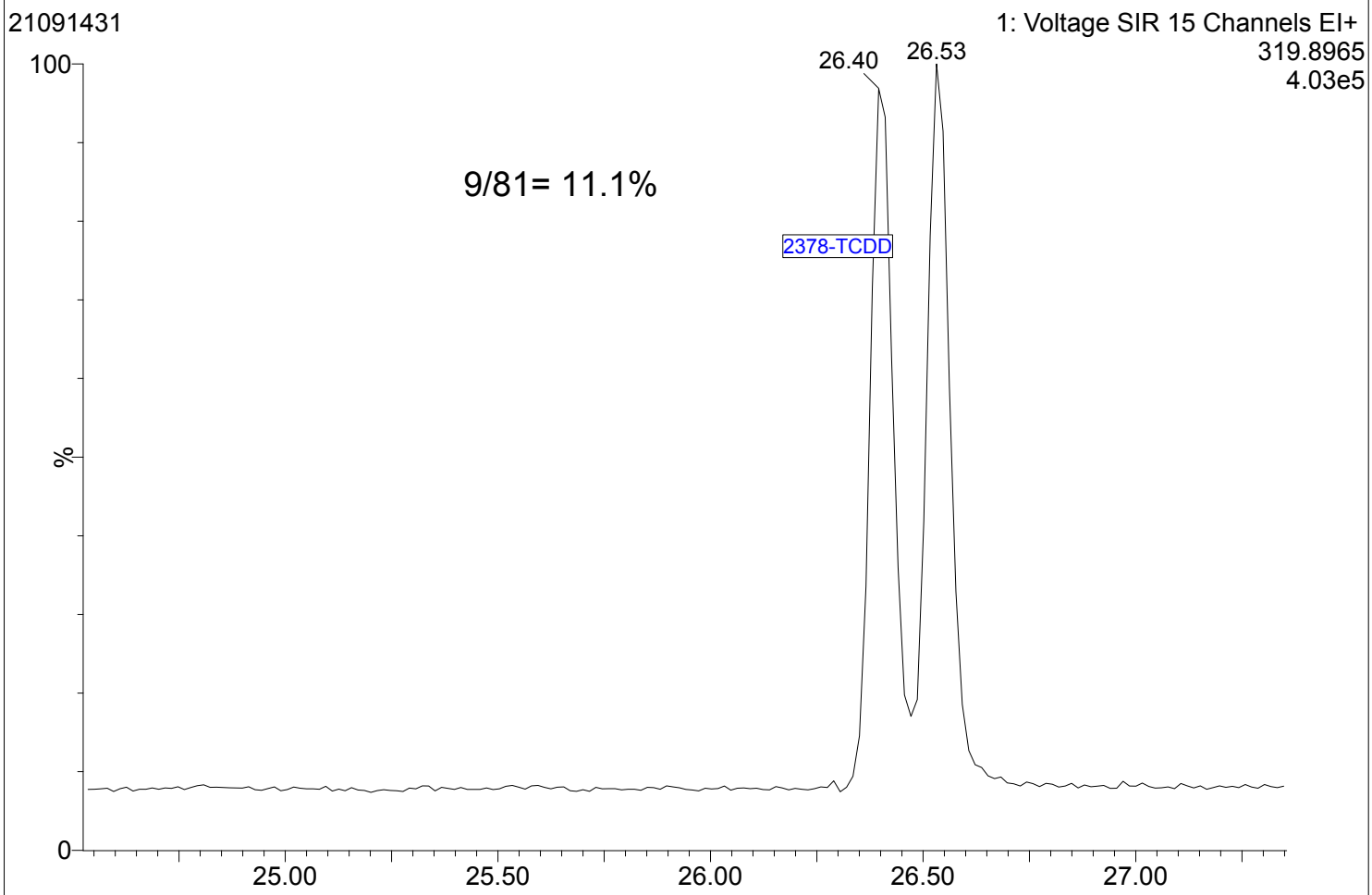


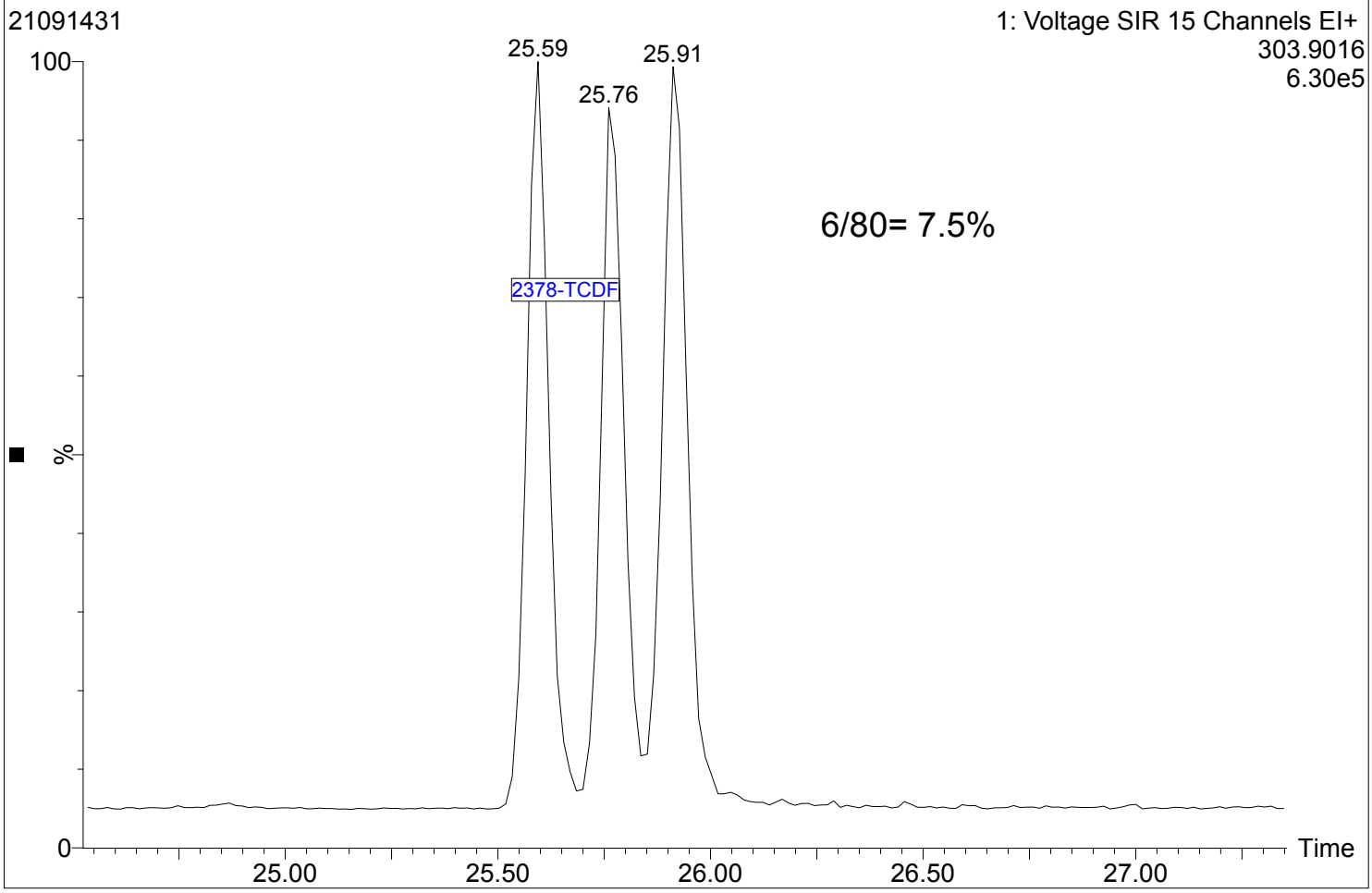
M 504.9696 R 12177



M 516.9697 R 12481




21091431
1: Voltage SIR 15 Channels EI+
319.8965
4.03e5
100
%
0
26.40
26.53
9/81= 11.1%
2378-TCDD
25.00
25.50
26.00
26.50
27.00


21091431
1: Voltage SIR 15 Channels EI+
303.9016
6.30e5
100
%
0
25.59
25.76
25.91
6/80= 7.5%
2378-TCDF
Time
25.00
25.50
26.00
26.50
27.00

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21081113B	Calibration Date:	08/11/2021
Sequence:	SJH0117	Injection Date:	08/12/21
Lab Sample ID:	SJH0117-CCV1	Injection Time:	00:48
Sequence Name:	CS3Z2		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	10.1	1.1075930	1.1191730		1.0	+/-16
2,3,7,8-TCDD	A	10.000	9.75	0.9202875	0.8973066		-2.5	+/-22
1,2,3,7,8-PeCDF	A	50.000	50.7	1.0148670	1.0281610		1.3	+/-18
2,3,4,7,8-PeCDF	A	50.000	50.4	1.1255490	1.1349300		0.8	+/-18
1,2,3,7,8-PeCDD	A	50.000	49.1	0.9953229	0.9769075		-1.9	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	51.8	1.0168930	1.0538730		3.6	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	51.8	1.0368310	1.0732520		3.5	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	49.7	1.0524660	1.0469350		-0.5	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	49.7	1.0301540	1.0235190		-0.6	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	48.5	1.0273630	0.9967018		-3.0	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	51.5	1.0089800	1.0398750		3.1	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.7	0.9504865	0.9630587		1.3	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	48.9	1.3273500	1.2991490		-2.1	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	51.5	1.2833380	1.3216770		3.0	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	48.0	1.0680880	1.0247400		-4.1	+/-14
OCDF	A	100.00	107	1.4469010	1.5539920		7.4	+/-37
OCDD	A	100.00	107	1.1808230	1.2619610		6.9	+/-21
13C12-2,3,7,8-TCDF	A	100.00	98.0	1.4265830	1.3974584		-2.0	+/-29
13C12-2,3,7,8-TCDD	A	100.00	97.1	1.1164910	1.0836404		-2.9	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	97.5	1.2973130	1.2648460		-2.5	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	97.1	1.2364800	1.2008975		-2.9	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	98.0	0.7319833	0.7176249		-2.0	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	101	1.2424560	1.2494697		0.6	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	102	1.3434760	1.3642310		1.5	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	101	1.2148550	1.2212500		0.5	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	102	1.0076370	1.0247334		1.7	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	100	0.9598233	0.9598120		-0.001	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	99.6	1.0413850	1.0375413		-0.4	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	105	0.9264704	0.9757178		5.3	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	102	0.7579160	0.7727519		2.0	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	106	0.6324476	0.6702170		6.0	+/-18
13C12-OCDD	A	200.00	201	0.5037432	0.5068327		0.6	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.13	1.0835930	0.9890047		-8.7	+/-21

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:52:07 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.655	1.001	1.143e5	1.396e5	1.108	0.819	0.770	2209	2380	1.71e6	2.07e6	776.0	867.8	NO	bb	bb	10.105
12378-PeCDF	29.817	1.000	6.180e5	4.376e5	1.015	1.413	1.550	6418	4382	8.92e6	5.95e6	1389.5	1358.9	NO	bb	bb	50.655
23478-PeCDF	31.165	1.001	6.708e5	4.355e5	1.126	1.540	1.550	6418	4382	9.69e6	6.27e6	1509.6	1430.5	NO	bd	bd	50.417
123478-HxCDF	34.797	1.000	4.932e5	3.999e5	1.017	1.233	1.240	5850	4867	7.49e6	6.12e6	1280.5	1258.5	NO	bd	bd	51.818
234678-HxCDF	35.811	1.001	4.741e5	3.931e5	1.052	1.206	1.240	5850	4867	7.32e6	5.96e6	1251.7	1223.7	NO	bb	bb	49.737
123678-HxCDF	34.942	1.001	5.746e5	4.185e5	1.037	1.373	1.240	5850	4867	7.73e6	6.23e6	1320.9	1280.9	NO	dd	db	51.756
123789-HxCDF	36.835	1.000	3.899e5	3.214e5	1.030	1.213	1.240	5850	4867	5.82e6	4.79e6	994.6	984.8	NO	bb	bb	49.678
1234678-HpCDF	38.685	1.000	4.539e5	4.058e5	1.327	1.118	1.050	5381	5066	6.60e6	6.39e6	1226.2	1261.9	NO	bd	bb	48.938
1234789-HpCDF	40.924	1.000	3.429e5	3.497e5	1.283	0.981	1.050	5381	5066	4.67e6	4.55e6	867.9	898.7	NO	bb	bd	51.494
OCDF	45.140	1.006	5.034e5	5.649e5	1.447	0.891	0.890	4470	4598	5.39e6	5.90e6	1206.0	1283.8	NO	bd	bd	107.401
2378-TCDD	26.305	1.001	6.930e4	8.856e4	0.920	0.783	0.770	2202	2331	1.00e6	1.30e6	455.2	559.0	NO	bb	bb	9.750
12378-PeCDD	31.421	1.001	3.542e5	2.148e5	0.995	1.649	1.550	4399	2303	5.26e6	3.29e6	1196.1	1426.7	NO	bb	bb	49.075
123478-HxCDD	35.922	1.000	3.564e5	2.924e5	1.027	1.219	1.240	6435	4536	5.90e6	4.75e6	916.5	1047.8	NO	bd	bd	48.508
123678-HxCDD	36.044	1.001	4.055e5	3.262e5	1.009	1.243	1.240	6435	4536	5.93e6	4.74e6	922.2	1045.0	NO	db	db	51.531
123789-HxCDD	36.423	1.011	3.629e5	2.894e5	0.950	1.254	1.240	6435	4536	5.40e6	4.41e6	838.4	972.5	NO	bb	bb	50.661
1234678-HpCDD	40.178	1.000	2.336e5	2.322e5	1.068	1.006	1.050	3232	2806	3.31e6	3.23e6	1025.7	1152.0	NO	bb	bb	47.971
OCDD	44.902	1.000	4.051e5	4.625e5	1.181	0.876	0.890	3821	3323	4.65e6	5.25e6	1217.2	1581.4	NO	bd	bd	106.871
13C-2378-TCDF	25.640	1.007	1.023e6	1.246e6	1.427	0.821	0.770	4222	3419	1.50e7	1.84e7	3559.1	5386.6	NO	bb	bb	97.958
13C-12378-PeCDF	29.806	1.171	1.249e6	8.041e5	1.297	1.554	1.550	5206	4735	1.83e7	1.13e7	3520.2	2396.2	NO	bb	bd	97.497
13C-23478-PeCDF	31.142	1.223	1.204e6	7.457e5	1.236	1.614	1.550	5206	4735	1.76e7	1.10e7	3379.0	2313.4	NO	bb	bb	97.122
13C-123478-HxCDF	34.786	0.955	5.756e5	1.119e6	1.242	0.514	0.510	4837	7694	8.67e6	1.70e7	1792.8	2206.6	NO	bd	bd	100.564
13C-123678-HxCDF	34.919	0.959	6.397e5	1.211e6	1.343	0.528	0.510	4837	7694	9.26e6	1.76e7	1914.7	2293.8	NO	db	db	101.545
13C-234678-HxCDF	35.788	0.983	5.662e5	1.090e6	1.215	0.519	0.510	4837	7694	8.44e6	1.64e7	1744.6	2133.4	NO	bb	bb	100.526
13C-123789-HxCDF	36.824	1.011	4.764e5	9.136e5	1.008	0.521	0.510	4837	7694	7.17e6	1.38e7	1481.6	1789.5	NO	bb	bb	101.697
13C-1234678-HpCDF	38.674	1.062	4.025e5	9.210e5	0.926	0.437	0.440	4919	5787	6.00e6	1.33e7	1219.4	2291.3	NO	bb	bb	105.316
13C-1234789-HpCDF	40.902	1.123	3.390e5	7.092e5	0.758	0.478	0.440	4919	5787	4.33e6	9.36e6	880.8	1618.0	NO	bd	bb	101.957
13C-1234-TCDD	25.458	0.000	7.107e5	9.127e5	1.000	0.779	0.770	4322	2655	1.07e7	1.38e7	2477.2	5211.8	NO	bb	bb	100.000
13C-2378-TCDD	26.275	1.032	7.572e5	1.002e6	1.116	0.756	0.770	4322	2655	1.10e7	1.47e7	2555.0	5537.6	NO	bb	bb	97.058
13C-12378-PeCDD	31.399	1.233	7.083e5	4.567e5	0.732	1.551	1.550	2197	2256	1.02e7	6.60e6	4656.5	2924.7	NO	bb	bb	98.038
13C-123478-HxCDD	35.911	0.986	7.278e5	5.741e5	0.960	1.268	1.240	5339	3457	1.18e7	9.21e6	2205.2	2664.1	NO	bd	bd	99.999
13C-123678-HxCDD	36.022	0.989	7.868e5	6.206e5	1.041	1.268	1.240	5339	3457	1.16e7	9.23e6	2175.2	2669.6	NO	db	db	99.631
13C-1234678-HpCDD	40.167	1.103	4.698e5	4.393e5	0.632	1.069	1.050	3318	4839	6.24e6	5.99e6	1881.1	1238.3	NO	bb	bd	105.972
13C-OCDD	44.884	1.233	6.557e5	7.193e5	0.504	0.912	0.890	3766	2994	7.78e6	8.50e6	2067.0	2839.7	NO	bb	bb	201.227
13C-123789-HxCDD	36.412	0.000	7.565e5	5.999e5	1.000	1.261	1.240	5339	3457	1.16e7	9.02e6	2168.1	2609.1	NO	bb	bb	100.000
37CL-2378-TCDD	26.305	1.033	1.606e5		1.084			2435		2.31e6		947.5			bb		9.127

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:52:07 Pacific Daylight Time

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.147	0.864	1.386e5	1.842e5	1.425	0.753	0.770	2209	2380	2.22e6	2.90e6	1005.2	1218.6	NO	bb	bb	9.983
1289-TCDF	27.152	1.059	1.091e5	1.321e5	1.043	0.826	0.770	2209	2380	1.55e6	1.91e6	700.5	802.7	NO	bb	bb	10.192
13468-PECDF	27.015	0.906	8.873e5	5.695e5	1.376	1.558	1.550	1007	1724	1.34e7	8.46e6	13289.5	4908.8	NO	bb	bb	51.550
12389-PECDF	32.201	1.080	6.289e5	4.043e5	1.000	1.555	1.550	6418	4382	8.60e6	5.59e6	1339.2	1276.7	NO	bb	bb	50.341
123468-HXCDF	33.125	0.952	5.139e5	4.526e5	1.087	1.135	1.240	5850	4867	7.68e6	6.45e6	1313.5	1325.0	NO	bb	bb	52.485
1368-TCDD	23.417	0.891	7.327e4	9.470e4	0.923	0.774	0.770	2202	2331	1.11e6	1.48e6	505.2	634.7	NO	bb	bb	10.342
1289-TCDD	26.895	1.024	6.177e4	8.189e4	0.794	0.754	0.770	2202	2331	9.09e5	1.13e6	412.8	484.6	NO	bb	bd	10.285
12479-PECDD	28.703	0.914	6.697e5	3.948e5	1.843	1.696	1.550	4399	2303	6.19e6	3.79e6	1407.8	1645.8	NO	bb	bb	49.573
12389-PECDD	31.822	1.013	4.131e5	2.464e5	1.154	1.676	1.550	4399	2303	5.91e6	3.60e6	1344.5	1564.4	NO	bb	bb	49.074
124679-HXCDD	33.905	0.944	4.106e5	3.389e5	1.125	1.212	1.240	6435	4536	6.29e6	5.14e6	976.7	1133.8	NO	bb	bb	51.172
1234679-HPCDD	39.131	0.974	2.687e5	2.465e5	1.211	1.090	1.050	3232	2806	4.00e6	3.69e6	1238.7	1316.6	NO	bb	bb	46.792
Total-tetrafurans			3.644e5		1.192			2209		5.52e6							30.479
Total-penta1			8.873e5					1007		1.34e7							51.550
Total-pentafurans			2.025e6		1.047			6418		2.88e7							159.979
Total-hexafurans			2.446e6		1.045			5850		3.60e7							255.475
Total-heptafurans			7.968e5		1.305			5381		1.13e7							100.431
Total-Furans			7.022e6		1.158			2209		1.00e8							705.315
Total-tetradioxins			3.479e5		0.879			2202		4.65e6							51.451
Total-pentadioxins			1.437e6		1.331			4399		1.74e7							147.722
Total-hexadioxins			1.535e6		1.028			6435		2.35e7							201.873
Total-heptadioxins			5.022e5		1.140			3232		7.32e6							94.763
Total-Dioxins			4.228e6		1.092			2202		5.75e7							602.679
Total-TEQ			1.125e7					2202		1.58e8							1307.995
FUNCTION1 PFK			0.000e0					865360		0.00e0							
FUNCTION2 PFK			1.459e7					431624		6.40e7							0.000
FUNCTION3 PFK			6.237e3					742709		5.59e5							0.000
FUNCTION4 PFK			2.072e7					486680		6.95e7							
FUNCTION5 PFK			1.478e5					389285		5.03e6							
FUNCTION1 HXCD...			2.806e3					1089		4.50e4							0.000
FUNCTION1 HPCD...			2.562e3					1259		3.84e4							0.000
FUNCTION2 HPCD...			7.358e2					1046		1.36e4							0.000
FUNCTION3 OCDPE			1.483e3					1595		2.46e4							0.000
FUNCTION4 NCDPE			2.553e3					2345		6.96e4							0.000
FUNCTION5 DCDPE			2.445e2					1300		9.17e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:52:07 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	1.091e5	1.321e5	1.043	0.83	0.77	700.5	YES	NO	bb	bb	10.192
2	2378-TCDF	25.65	1.143e5	1.396e5	1.108	0.82	0.77	776.0	YES	NO	bb	bb	10.105
3	Total-tetrafurans	24.75	9.308e2	1.284e3	1.192	0.72	0.77	6.1	YES	NO	bb	bb	0.082
4	Total-tetrafurans	24.42	1.425e3	1.742e3	1.192	0.82	0.77	10.8	YES	NO	bd	bd	0.117
5	1368-TCDF	22.15	1.386e5	1.842e5	1.425	0.75	0.77	1005.2	YES	NO	bb	bb	9.983

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.02	8.873e5	5.695e5	1.376	1.56	1.55	13289.5	YES	NO	bb	bb	51.550

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.16	6.708e5	4.355e5	1.126	1.54	1.55	1509.6	YES	NO	bd	bd	50.417
2	12378-PeCDF	29.82	6.180e5	4.376e5	1.015	1.41	1.55	1389.5	YES	NO	bb	bb	50.655
3	Total-pentafurans	28.67	1.069e5	7.257e4	1.047	1.47	1.55	243.1	YES	NO	bb	bb	8.567
4	12389-PECDF	32.20	6.289e5	4.043e5	1.000	1.56	1.55	1339.2	YES	NO	bb	bb	50.341

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.94	5.746e5	4.185e5	1.037	1.37	1.24	1320.9	YES	NO	dd	db	51.756
2	123478-HxCDF	34.80	4.932e5	3.999e5	1.017	1.23	1.24	1280.5	YES	NO	bd	bd	51.818
3	123468-HXCDF	33.13	5.139e5	4.526e5	1.087	1.14	1.24	1313.5	YES	NO	bb	bb	52.485
4	123789-HxCDF	36.84	3.899e5	3.214e5	1.030	1.21	1.24	994.6	YES	NO	bb	bb	49.678
5	234678-HxCDF	35.81	4.741e5	3.931e5	1.052	1.21	1.24	1251.7	YES	NO	bb	bb	49.737

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.68	4.539e5	4.058e5	1.327	1.12	1.05	1226.2	YES	NO	bd	bb	48.938
2	1234789-HpCDF	40.92	3.429e5	3.497e5	1.283	0.98	1.05	867.9	YES	NO	bb	bd	51.494

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	1.091e5	1.321e5	1.043	0.83	0.77	700.5	YES	NO	bb	bb	10.192
2	2378-TCDF	25.65	1.143e5	1.396e5	1.108	0.82	0.77	776.0	YES	NO	bb	bb	10.105
3	Total-tetrafurans	24.75	9.308e2	1.284e3	1.192	0.72	0.77	6.1	YES	NO	bb	bb	0.082
4	Total-tetrafurans	24.42	1.425e3	1.742e3	1.192	0.82	0.77	10.8	YES	NO	bd	bd	0.117
5	1368-TCDF	22.15	1.386e5	1.842e5	1.425	0.75	0.77	1005.2	YES	NO	bb	bb	9.983
6	23478-PeCDF	31.16	6.708e5	4.355e5	1.126	1.54	1.55	1509.6	YES	NO	bd	bd	50.417
7	12378-PeCDF	29.82	6.180e5	4.376e5	1.015	1.41	1.55	1389.5	YES	NO	bb	bb	50.655
8	Total-pentafurans	28.67	1.069e5	7.257e4	1.047	1.47	1.55	243.1	YES	NO	bb	bb	8.567
9	123678-HxCDF	34.94	5.746e5	4.185e5	1.037	1.37	1.24	1320.9	YES	NO	dd	db	51.756
10	123478-HxCDF	34.80	4.932e5	3.999e5	1.017	1.23	1.24	1280.5	YES	NO	bd	bd	51.818
11	123468-HXCDF	33.13	5.139e5	4.526e5	1.087	1.14	1.24	1313.5	YES	NO	bb	bb	52.485
12	12389-PECDF	32.20	6.289e5	4.043e5	1.000	1.56	1.55	1339.2	YES	NO	bb	bb	50.341
13	123789-HxCDF	36.84	3.899e5	3.214e5	1.030	1.21	1.24	994.6	YES	NO	bb	bb	49.678
14	234678-HxCDF	35.81	4.741e5	3.931e5	1.052	1.21	1.24	1251.7	YES	NO	bb	bb	49.737
15	1234678-HpCDF	38.68	4.539e5	4.058e5	1.327	1.12	1.05	1226.2	YES	NO	bd	bb	48.938
16	1234789-HpCDF	40.92	3.429e5	3.497e5	1.283	0.98	1.05	867.9	YES	NO	bb	bd	51.494
17	OCDF	45.14	5.034e5	5.649e5	1.447	0.89	0.89	1206.0	YES	NO	bd	bd	107.401
18	13468-PECDF	27.02	8.873e5	5.695e5	1.376	1.56	1.55	13289.5	YES	NO	bb	bb	51.550

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.31	6.930e4	8.856e4	0.920	0.78	0.77	455.2	YES	NO	bb	bb	9.750
2	Total-tetradioxins	25.97	1.082e5	1.379e5	0.879	0.78	0.77	507.6	YES	NO	bb	bb	15.916
3	Total-tetradioxins	25.49	3.533e4	4.445e4	0.879	0.79	0.77	232.0	YES	NO	bd	bb	5.158
4	1368-TCDD	23.42	7.327e4	9.470e4	0.923	0.77	0.77	505.2	YES	NO	bb	bb	10.342
5	1289-TCDD	26.89	6.177e4	8.189e4	0.794	0.75	0.77	412.8	YES	NO	bb	bd	10.285

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.82	4.131e5	2.464e5	1.154	1.68	1.55	1344.5	YES	NO	bb	bb	49.074
2	12378-PeCDD	31.42	3.542e5	2.148e5	0.995	1.65	1.55	1196.1	YES	NO	bb	bb	49.075
3	12479-PECDD	28.70	6.697e5	3.948e5	1.843	1.70	1.55	1407.8	YES	NO	bb	bb	49.573

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.91	4.106e5	3.389e5	1.125	1.21	1.24	976.7	YES	NO	bb	bb	51.172
2	123789-HxCDD	36.42	3.629e5	2.894e5	0.950	1.25	1.24	838.4	YES	NO	bb	bb	50.661
3	123678-HxCDD	36.04	4.055e5	3.262e5	1.009	1.24	1.24	922.2	YES	NO	db	db	51.531
4	123478-HxCDD	35.92	3.564e5	2.924e5	1.027	1.22	1.24	916.5	YES	NO	bd	bd	48.508

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.13	2.687e5	2.465e5	1.211	1.09	1.05	1238.7	YES	NO	bb	bb	46.792
2	1234678-HpCDD	40.18	2.336e5	2.322e5	1.068	1.01	1.05	1025.7	YES	NO	bb	bb	47.971

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.31	6.930e4	8.856e4	0.920	0.78	0.77	455.2	YES	NO	bb	bb	9.750
2	Total-tetradioxins	25.97	1.082e5	1.379e5	0.879	0.78	0.77	507.6	YES	NO	bb	bb	15.916
3	Total-tetradioxins	25.49	3.533e4	4.445e4	0.879	0.79	0.77	232.0	YES	NO	bd	bb	5.158
4	1368-TCDD	23.42	7.327e4	9.470e4	0.923	0.77	0.77	505.2	YES	NO	bb	bb	10.342
5	1289-TCDD	26.89	6.177e4	8.189e4	0.794	0.75	0.77	412.8	YES	NO	bb	bd	10.285
6	12389-PECDD	31.82	4.131e5	2.464e5	1.154	1.68	1.55	1344.5	YES	NO	bb	bb	49.074
7	12378-PeCDD	31.42	3.542e5	2.148e5	0.995	1.65	1.55	1196.1	YES	NO	bb	bb	49.075
8	12479-PECDD	28.70	6.697e5	3.948e5	1.843	1.70	1.55	1407.8	YES	NO	bb	bb	49.573
9	124679-HXCDD	33.91	4.106e5	3.389e5	1.125	1.21	1.24	976.7	YES	NO	bb	bb	51.172
10	123789-HxCDD	36.42	3.629e5	2.894e5	0.950	1.25	1.24	838.4	YES	NO	bb	bb	50.661
11	123678-HxCDD	36.04	4.055e5	3.262e5	1.009	1.24	1.24	922.2	YES	NO	db	db	51.531
12	123478-HxCDD	35.92	3.564e5	2.924e5	1.027	1.22	1.24	916.5	YES	NO	bd	bd	48.508
13	1234679-HPCDD	39.13	2.687e5	2.465e5	1.211	1.09	1.05	1238.7	YES	NO	bb	bb	46.792
14	1234678-HpCDD	40.18	2.336e5	2.322e5	1.068	1.01	1.05	1025.7	YES	NO	bb	bb	47.971
15	OCDD	44.90	4.051e5	4.625e5	1.181	0.88	0.89	1217.2	YES	NO	bd	bd	106.871

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	1.091e5	1.321e5	1.043	0.83	0.77	700.5	YES	NO	bb	bb	10.192
2	2378-TCDF	25.65	1.143e5	1.396e5	1.108	0.82	0.77	776.0	YES	NO	bb	bb	10.105
3	Total-tetrafurans	24.75	9.308e2	1.284e3	1.192	0.72	0.77	6.1	YES	NO	bb	bb	0.082
4	Total-tetrafurans	24.42	1.425e3	1.742e3	1.192	0.82	0.77	10.8	YES	NO	bd	bd	0.117
5	1368-TCDF	22.15	1.386e5	1.842e5	1.425	0.75	0.77	1005.2	YES	NO	bb	bb	9.983
6	23478-PeCDF	31.16	6.708e5	4.355e5	1.126	1.54	1.55	1509.6	YES	NO	bd	bd	50.417
7	12378-PeCDF	29.82	6.180e5	4.376e5	1.015	1.41	1.55	1389.5	YES	NO	bb	bb	50.655
8	Total-pentafurans	28.67	1.069e5	7.257e4	1.047	1.47	1.55	243.1	YES	NO	bb	bb	8.567
9	123678-HxCDF	34.94	5.746e5	4.185e5	1.037	1.37	1.24	1320.9	YES	NO	dd	db	51.756
10	123478-HxCDF	34.80	4.932e5	3.999e5	1.017	1.23	1.24	1280.5	YES	NO	bd	bd	51.818
11	123468-HXCDF	33.13	5.139e5	4.526e5	1.087	1.14	1.24	1313.5	YES	NO	bb	bb	52.485
12	12389-PECDF	32.20	6.289e5	4.043e5	1.000	1.56	1.55	1339.2	YES	NO	bb	bb	50.341
13	123789-HxCDF	36.84	3.899e5	3.214e5	1.030	1.21	1.24	994.6	YES	NO	bb	bb	49.678
14	234678-HxCDF	35.81	4.741e5	3.931e5	1.052	1.21	1.24	1251.7	YES	NO	bb	bb	49.737
15	1234678-HpCDF	38.68	4.539e5	4.058e5	1.327	1.12	1.05	1226.2	YES	NO	bd	bb	48.938
16	1234789-HpCDF	40.92	3.429e5	3.497e5	1.283	0.98	1.05	867.9	YES	NO	bb	bd	51.494
17	OCDF	45.14	5.034e5	5.649e5	1.447	0.89	0.89	1206.0	YES	NO	bd	bd	107.401
18	13468-PECDF	27.02	8.873e5	5.695e5	1.376	1.56	1.55	13289.5	YES	NO	bb	bb	51.550
19	2378-TCDD	26.31	6.930e4	8.856e4	0.920	0.78	0.77	455.2	YES	NO	bb	bb	9.750
20	Total-tetradioxins	25.97	1.082e5	1.379e5	0.879	0.78	0.77	507.6	YES	NO	bb	bb	15.916
21	Total-tetradioxins	25.49	3.533e4	4.445e4	0.879	0.79	0.77	232.0	YES	NO	bd	bb	5.158
22	1368-TCDD	23.42	7.327e4	9.470e4	0.923	0.77	0.77	505.2	YES	NO	bb	bb	10.342
23	1289-TCDD	26.89	6.177e4	8.189e4	0.794	0.75	0.77	412.8	YES	NO	bb	bd	10.285
24	12389-PECDD	31.82	4.131e5	2.464e5	1.154	1.68	1.55	1344.5	YES	NO	bb	bb	49.074
25	12378-PeCDD	31.42	3.542e5	2.148e5	0.995	1.65	1.55	1196.1	YES	NO	bb	bb	49.075
26	12479-PECDD	28.70	6.697e5	3.948e5	1.843	1.70	1.55	1407.8	YES	NO	bb	bb	49.573
27	124679-HXCDD	33.91	4.106e5	3.389e5	1.125	1.21	1.24	976.7	YES	NO	bb	bb	51.172
28	123789-HxCDD	36.42	3.629e5	2.894e5	0.950	1.25	1.24	838.4	YES	NO	bb	bb	50.661
29	123678-HxCDD	36.04	4.055e5	3.262e5	1.009	1.24	1.24	922.2	YES	NO	db	db	51.531
30	123478-HxCDD	35.92	3.564e5	2.924e5	1.027	1.22	1.24	916.5	YES	NO	bd	bd	48.508
31	1234679-HPCDD	39.13	2.687e5	2.465e5	1.211	1.09	1.05	1238.7	YES	NO	bb	bb	46.792
32	1234678-HpCDD	40.18	2.336e5	2.322e5	1.068	1.01	1.05	1025.7	YES	NO	bb	bb	47.971
33	OCDD	44.90	4.051e5	4.625e5	1.181	0.88	0.89	1217.2	YES	NO	bd	bd	106.871

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
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ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.39	2.895e3					0.6	NO		bb		0.000
2	FUNCTION2 PFK	28.85	2.487e4					2.5	NO		db		0.000
3	FUNCTION2 PFK	28.58	1.343e6					16.6	YES		dd		0.000
4	FUNCTION2 PFK	28.33	2.274e6					29.0	YES		dd		0.000
5	FUNCTION2 PFK	28.13	6.635e6					39.5	YES		dd		0.000
6	FUNCTION2 PFK	27.79	4.279e6					55.8	YES		bd		0.000
7	FUNCTION2 PFK	31.74	1.004e4					1.2	NO		bb		0.000
8	FUNCTION2 PFK	30.63	2.885e3					0.6	NO		bb		0.000
9	FUNCTION2 PFK	30.23	2.949e3					0.6	NO		bb		0.000
10	FUNCTION2 PFK	30.08	2.943e3					0.6	NO		bb		0.000
11	FUNCTION2 PFK	29.83	1.536e4					1.4	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.28	6.237e3					0.8	NO		bb		0.000

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.82	2.033e4					1.1	NO		bb		
2	FUNCTION4 PFK	39.62	4.056e4					1.5	NO		bb		
3	FUNCTION4 PFK	39.35	1.980e4					1.5	NO		bb		
4	FUNCTION4 PFK	39.21	2.037e4					1.4	NO		bb		
5	FUNCTION4 PFK	39.03	4.794e4					2.6	NO		db		
6	FUNCTION4 PFK	38.75	8.537e6					16.0	YES		dd		
7	FUNCTION4 PFK	37.97	5.778e6					52.0	YES		dd		
8	FUNCTION4 PFK	37.92	6.084e6					53.6	YES		bd		
9	FUNCTION4 PFK	42.65	2.056e4					1.3	NO		bb		
10	FUNCTION4 PFK	42.58	1.133e4					1.1	NO		bb		
11	FUNCTION4 PFK	42.14	7.557e3					0.8	NO		bb		
12	FUNCTION4 PFK	42.07	1.006e4					0.8	NO		bb		
13	FUNCTION4 PFK	41.76	7.549e3					0.7	NO		db		
14	FUNCTION4 PFK	41.72	1.871e4					1.6	NO		bd		
15	FUNCTION4 PFK	40.49	2.445e4					1.7	NO		bb		
16	FUNCTION4 PFK	40.42	1.433e4					1.3	NO		bb		
17	FUNCTION4 PFK	40.23	2.637e4					1.6	NO		db		
18	FUNCTION4 PFK	40.19	2.658e4					1.7	NO		bd		
19	FUNCTION4 PFK	39.89	2.148e3					0.4	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.17	1.193e4					1.2	NO		db		
2	FUNCTION5 PFK	43.10	3.092e4					1.8	NO		dd		
3	FUNCTION5 PFK	43.05	2.764e4					2.4	NO		dd		
4	FUNCTION5 PFK	43.00	3.445e4					2.2	NO		bd		
5	FUNCTION5 PFK	45.83	1.434e3					0.4	NO		bb		
6	FUNCTION5 PFK	45.09	1.567e4					1.3	NO		bb		
7	FUNCTION5 PFK	44.85	5.916e3					0.9	NO		bb		
8	FUNCTION5 PFK	44.62	9.368e3					1.0	NO		bb		
9	FUNCTION5 PFK	44.26	3.829e3					0.6	NO		bb		
10	FUNCTION5 PFK	43.60	6.655e3					1.1	NO		bb		

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.11	8.152e1					1.6	NO		bb		0.000
2	FUNCTION1 HXCD...	22.49	8.369e1					1.6	NO		db		0.000
3	FUNCTION1 HXCD...	22.42	1.074e2					1.6	NO		dd		0.000
4	FUNCTION1 HXCD...	22.36	7.314e1					1.6	NO		bd		0.000
5	FUNCTION1 HXCD...	21.86	1.206e2					2.7	NO		db		0.000
6	FUNCTION1 HXCD...	21.78	2.833e2					2.3	NO		dd		0.000
7	FUNCTION1 HXCD...	21.63	1.903e2					2.2	NO		dd		0.000
8	FUNCTION1 HXCD...	21.53	3.613e2					3.4	YES		dd		0.000
9	FUNCTION1 HXCD...	21.42	1.668e2					2.0	NO		bd		0.000
10	FUNCTION1 HXCD...	27.54	1.572e2					3.6	YES		bb		0.000
11	FUNCTION1 HXCD...	27.00	2.520e2					4.0	YES		bb		0.000
12	FUNCTION1 HXCD...	26.56	7.654e1					1.7	NO		bb		0.000
13	FUNCTION1 HXCD...	26.18	9.145e1					1.9	NO		bb		0.000
14	FUNCTION1 HXCD...	26.00	7.975e1					1.5	NO		bb		0.000
15	FUNCTION1 HXCD...	25.85	2.987e2					3.3	YES		db		0.000
16	FUNCTION1 HXCD...	25.65	1.079e2					1.8	NO		bd		0.000
17	FUNCTION1 HXCD...	23.99	1.000e2					1.3	NO		db		0.000
18	FUNCTION1 HXCD...	23.93	8.334e1					1.5	NO		dd		0.000
19	FUNCTION1 HXCD...	23.89	9.074e1					1.5	NO		bd		0.000

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	22.92	2.932e2					2.3	NO		bb		0.000
2	FUNCTION1 HPCD...	22.48	2.115e2					1.5	NO		bb		0.000
3	FUNCTION1 HPCD...	21.71	9.450e1					1.5	NO		bb		0.000
4	FUNCTION1 HPCD...	21.51	1.451e2					2.0	NO		bb		0.000
5	FUNCTION1 HPCD...	21.35	1.250e2					2.2	NO		bb		0.000
6	FUNCTION1 HPCD...	27.11	1.107e2					1.7	NO		db		0.000
7	FUNCTION1 HPCD...	27.02	4.708e2					4.5	YES		bd		0.000
8	FUNCTION1 HPCD...	26.77	8.229e1					1.8	NO		bb		0.000
9	FUNCTION1 HPCD...	26.49	9.232e1					2.4	NO		db		0.000
10	FUNCTION1 HPCD...	26.40	1.770e2					1.9	NO		dd		0.000
11	FUNCTION1 HPCD...	26.23	2.956e2					2.1	NO		bd		0.000
12	FUNCTION1 HPCD...	26.09	1.643e2					1.3	NO		bb		0.000
13	FUNCTION1 HPCD...	25.38	9.651e1					1.8	NO		bb		0.000
14	FUNCTION1 HPCD...	24.73	8.972e1					2.1	NO		bb		0.000
15	FUNCTION1 HPCD...	23.18	1.136e2					1.5	NO		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.84	1.576e2					3.2	YES		bb		0.000
2	FUNCTION2 HPCD...	31.04	5.782e2					9.8	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	34.77	1.414e2					1.2	NO		bb		0.000
2	FUNCTION3 OCDPE	33.14	7.121e1					1.0	NO		bb		0.000
3	FUNCTION3 OCDPE	37.24	1.535e2					4.2	YES		bb		0.000
4	FUNCTION3 OCDPE	36.41	3.713e2					3.0	NO		bb		0.000
5	FUNCTION3 OCDPE	36.02	3.616e2					3.0	YES		db		0.000
6	FUNCTION3 OCDPE	35.92	3.839e2					3.0	YES		bd		0.000

ID: CS3Z2, Name: 21081113, Date: 12-Aug-2021, Time: 00:48:45, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.37	8.051e1					1.2	NO		bb		0.000
2	FUNCTION4 NCDPE	41.21	1.795e2					2.8	NO		bb		0.000
3	FUNCTION4 NCDPE	41.09	9.960e1					0.9	NO		bb		0.000
4	FUNCTION4 NCDPE	40.60	9.690e1					1.7	NO		bb		0.000
5	FUNCTION4 NCDPE	39.97	7.551e1					1.0	NO		bb		0.000
6	FUNCTION4 NCDPE	39.90	8.451e1					1.4	NO		bb		0.000
7	FUNCTION4 NCDPE	39.20	3.095e2					1.9	NO		bb		0.000
8	FUNCTION4 NCDPE	38.53	7.115e1					1.2	NO		bb		0.000
9	FUNCTION4 NCDPE	38.12	3.682e2					5.5	YES		db		0.000
10	FUNCTION4 NCDPE	38.07	4.730e2					4.2	YES		dd		0.000
11	FUNCTION4 NCDPE	37.93	1.789e2					1.3	NO		bd		0.000
12	FUNCTION4 NCDPE	42.55	9.015e1					1.0	NO		db		0.000
13	FUNCTION4 NCDPE	42.49	1.336e2					1.7	NO		bd		0.000
14	FUNCTION4 NCDPE	42.35	1.573e2					1.7	NO		bb		0.000
15	FUNCTION4 NCDPE	42.19	8.291e1					1.5	NO		bb		0.000
16	FUNCTION4 NCDPE	41.48	7.166e1					0.7	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.88	7.929e1					1.8	NO		db		0.000
2	FUNCTION5 DCDPE	45.81	8.579e1					2.8	NO		bd		0.000
3	FUNCTION5 DCDPE	44.54	7.945e1					2.4	NO		bb		0.000

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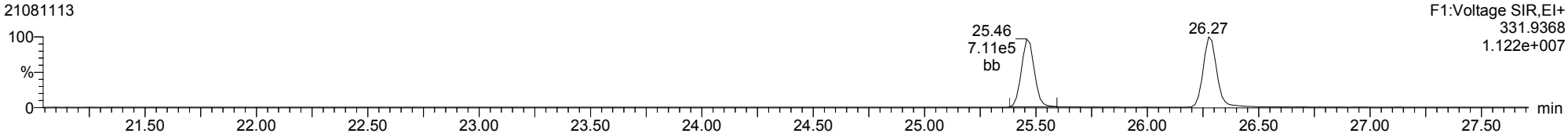
13C-1234-TCDD



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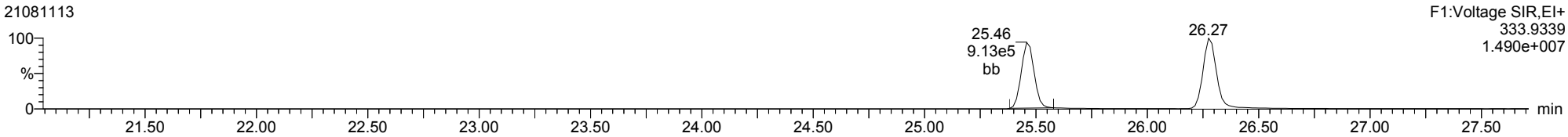

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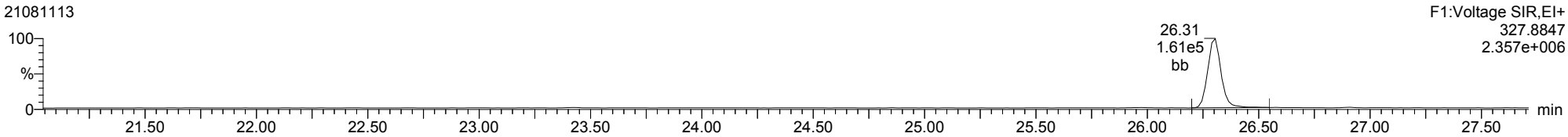

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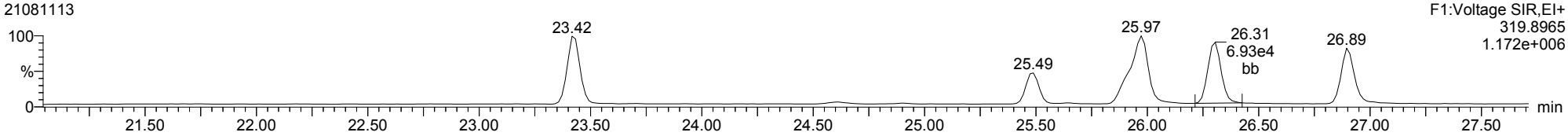

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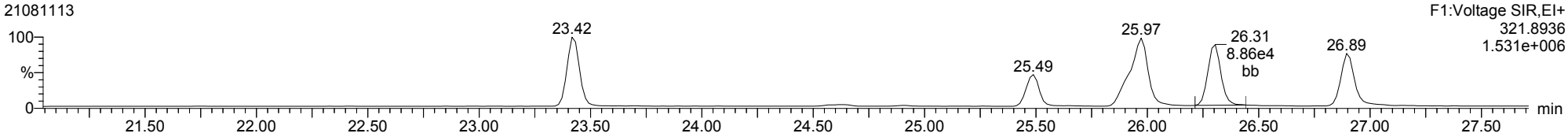

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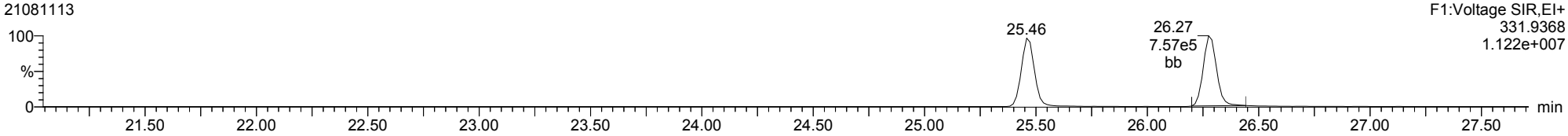

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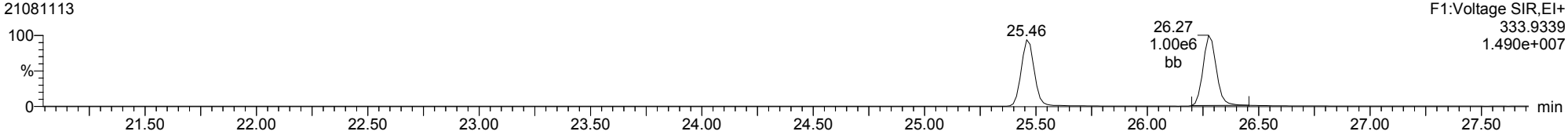

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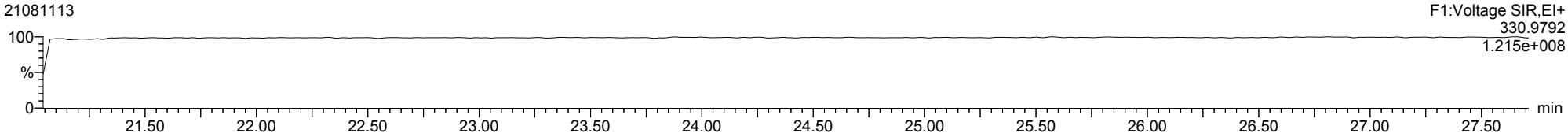

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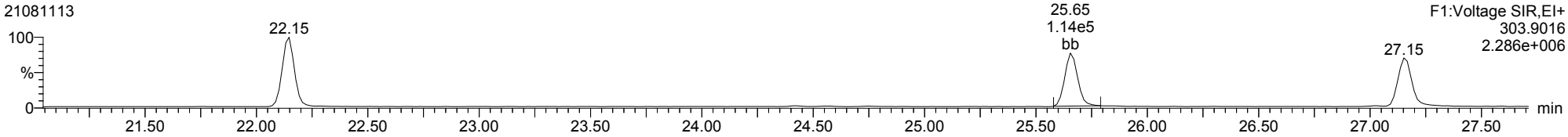

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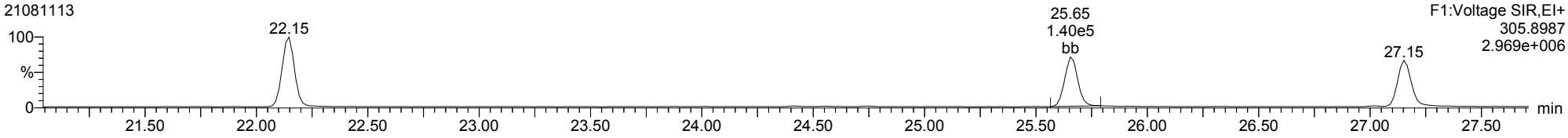

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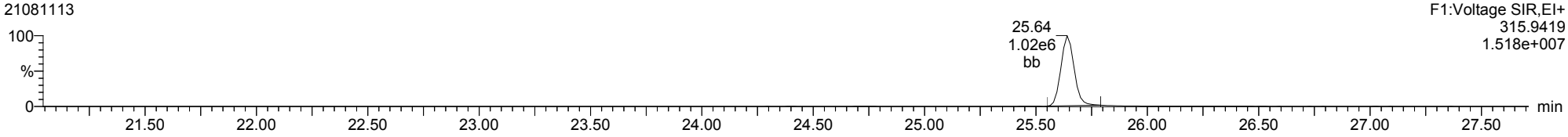

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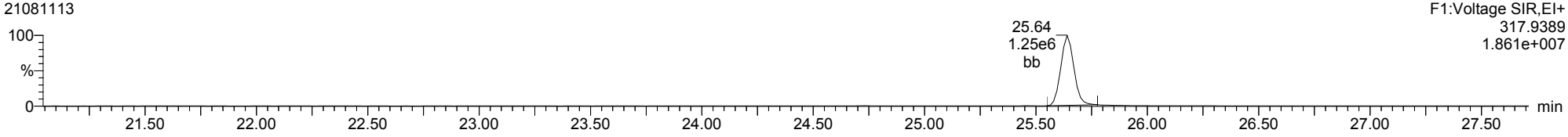

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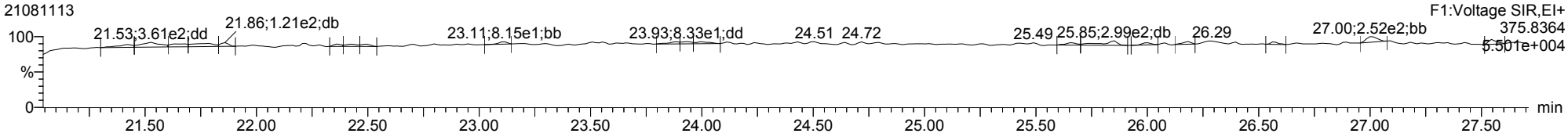

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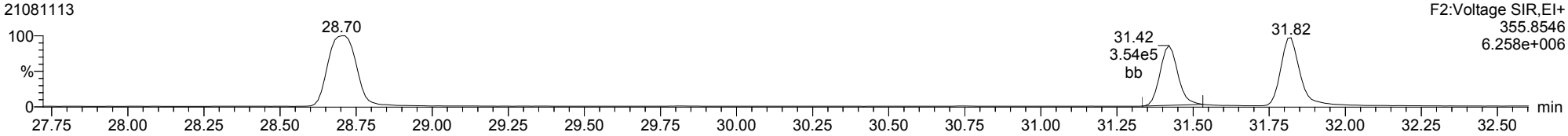

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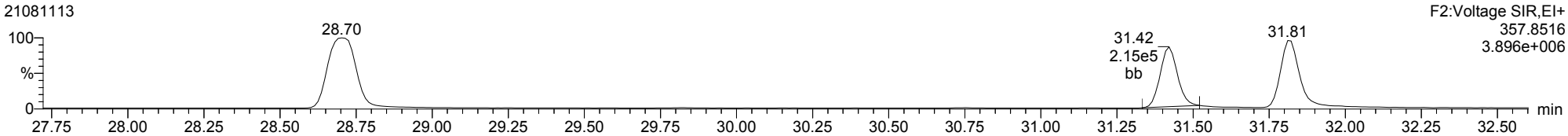

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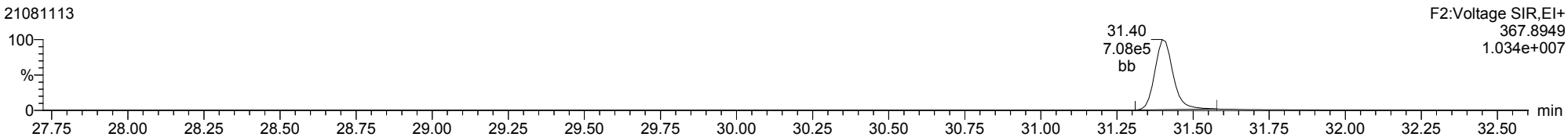

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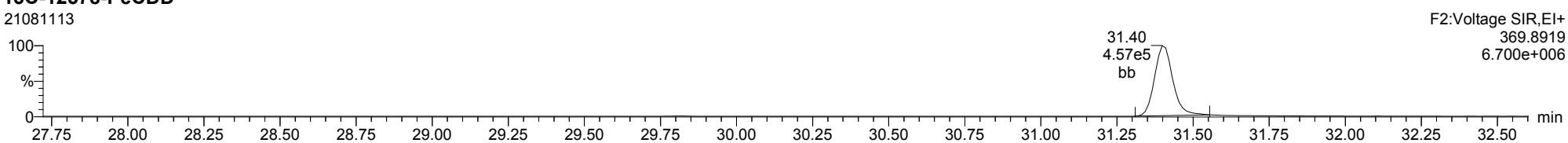

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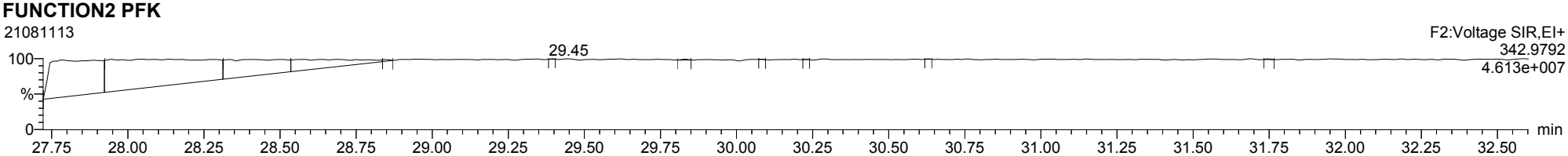

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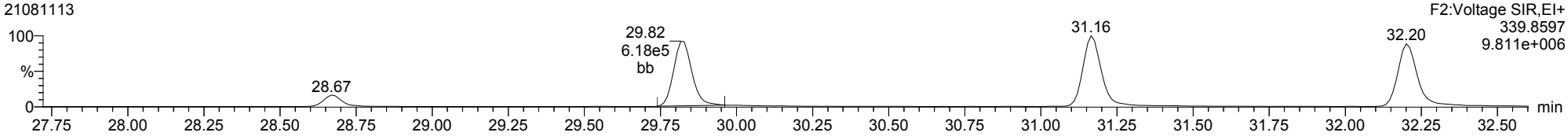

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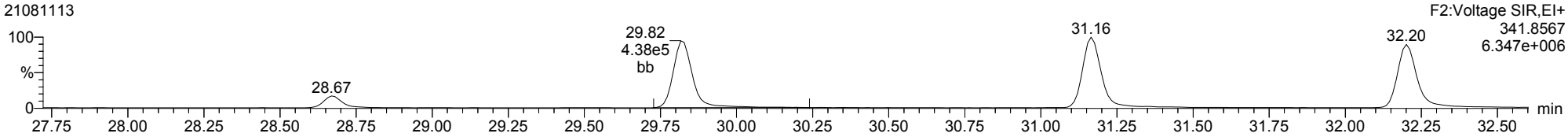

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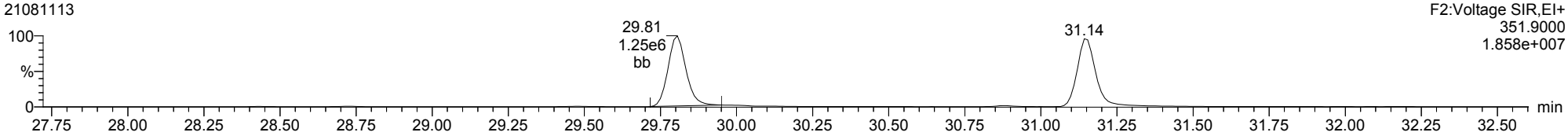

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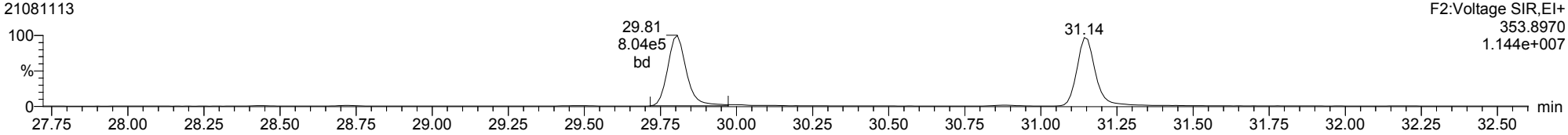
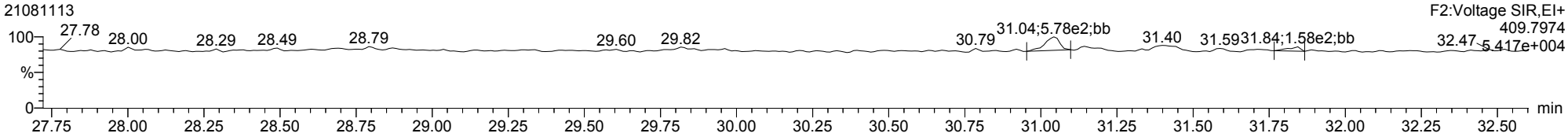


FUNCTION2 HPCDPE



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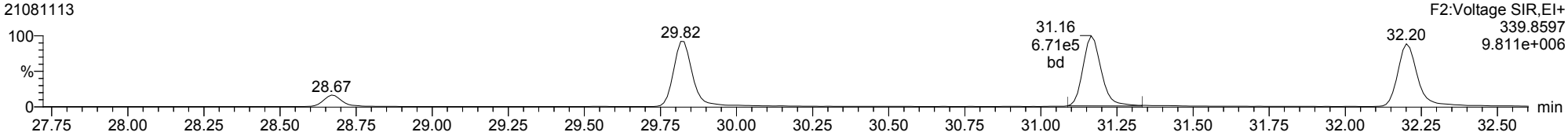
23478-PeCDF



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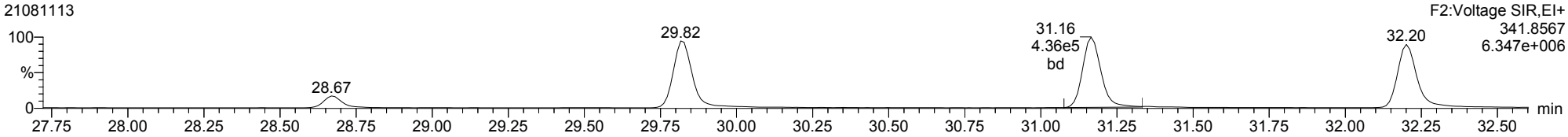

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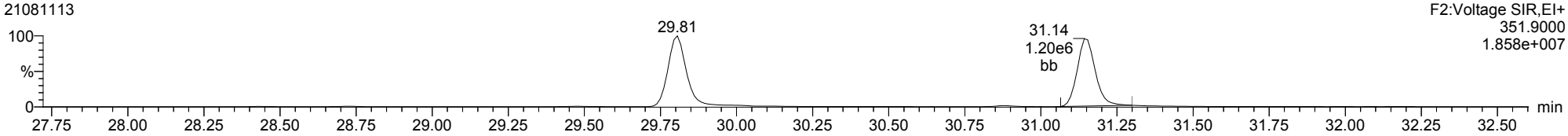

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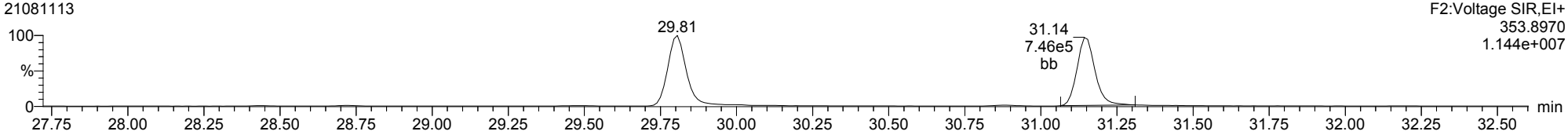
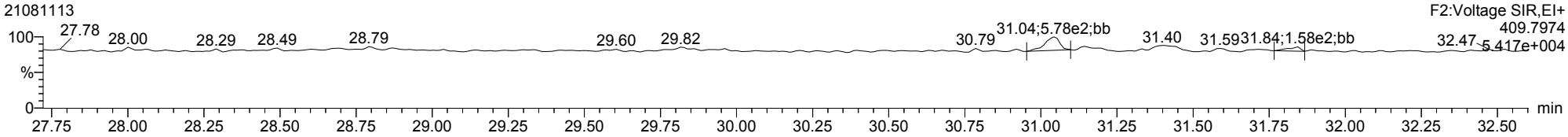


FUNCTION2 HPCDPE



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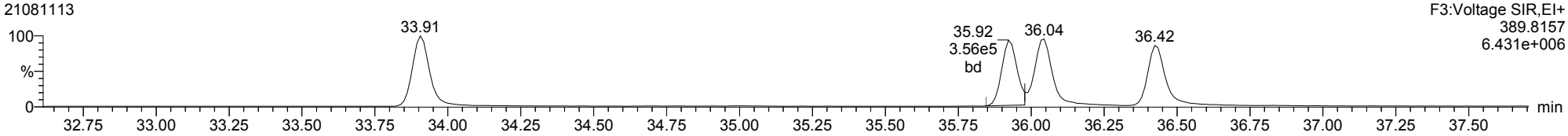
123478-HxCDD



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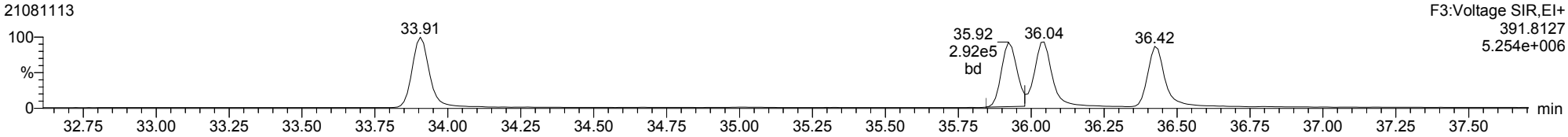

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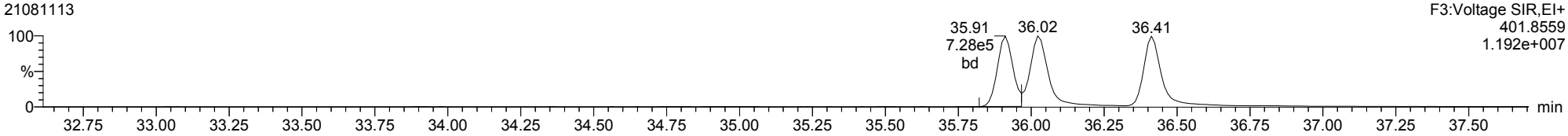

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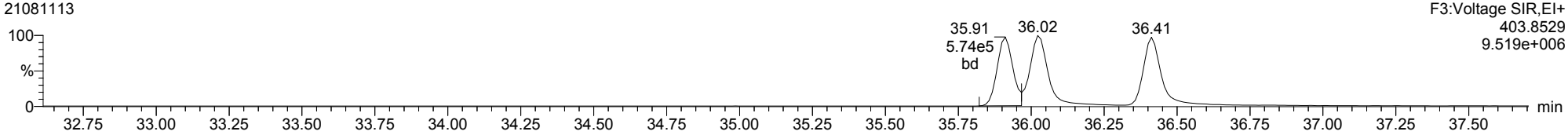

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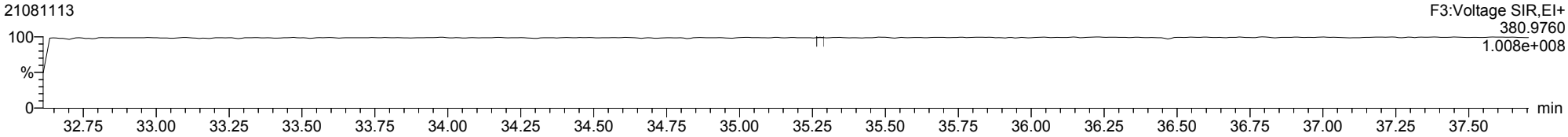

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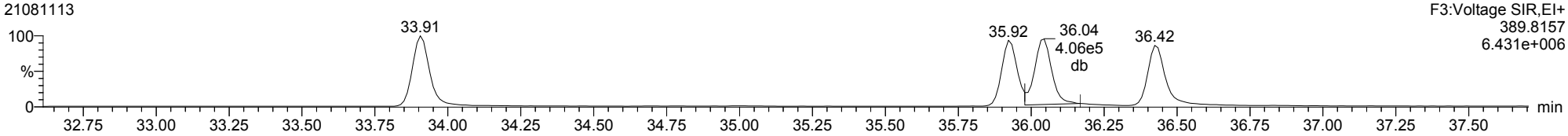
123678-HxCDD



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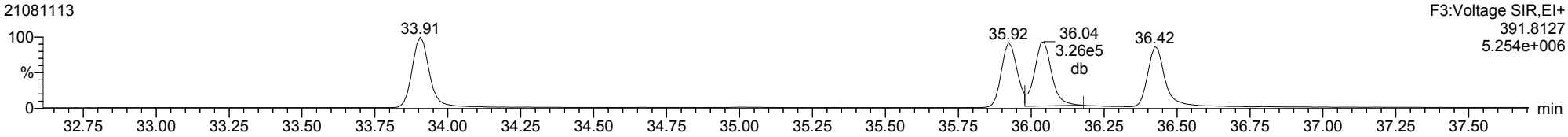

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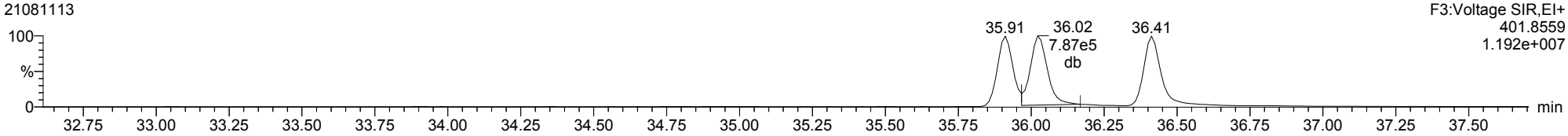

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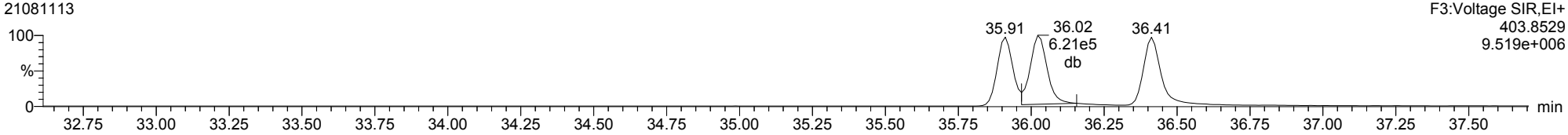

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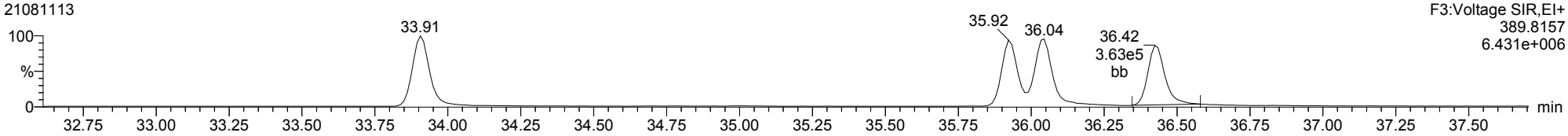

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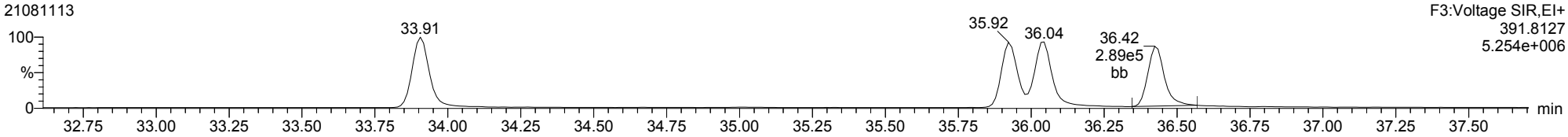

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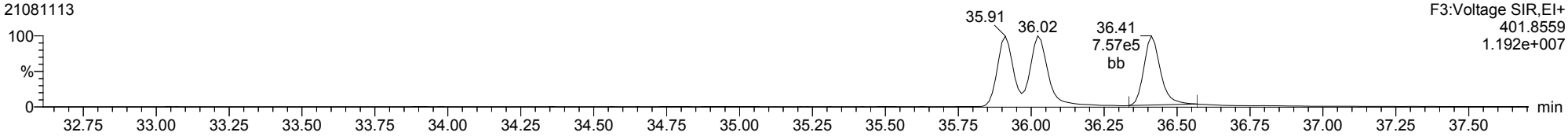

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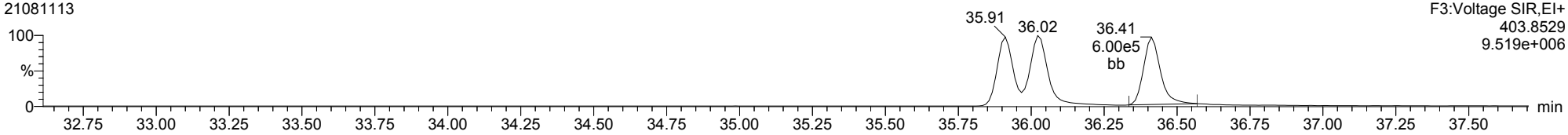

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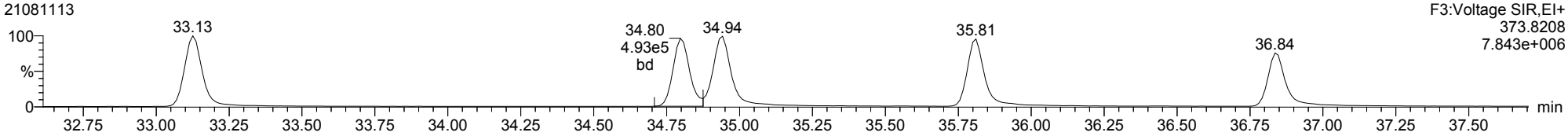

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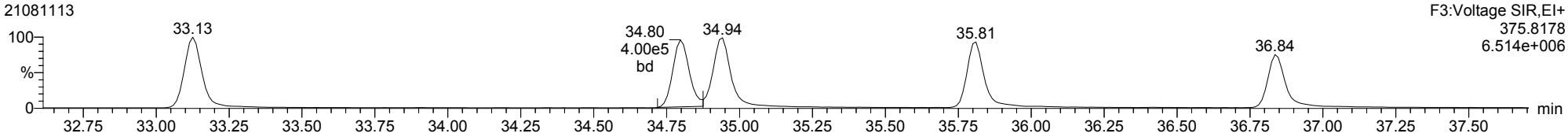

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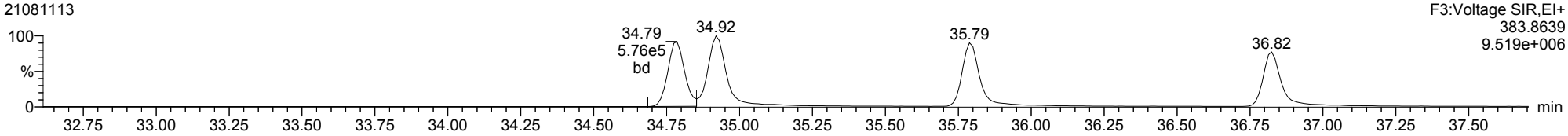

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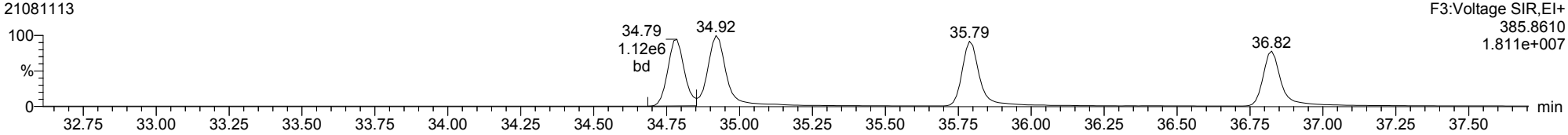

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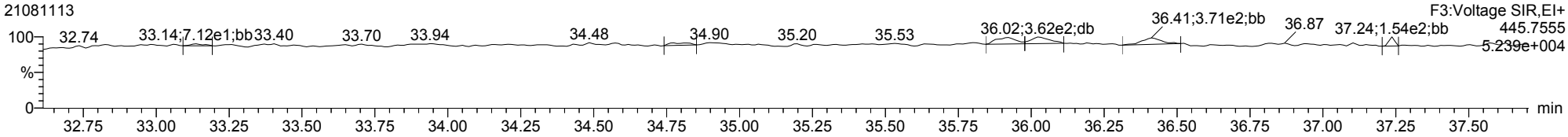

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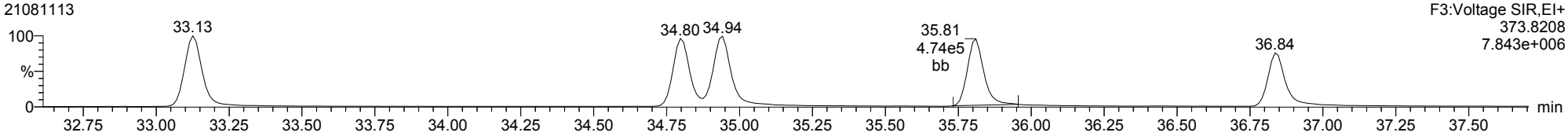

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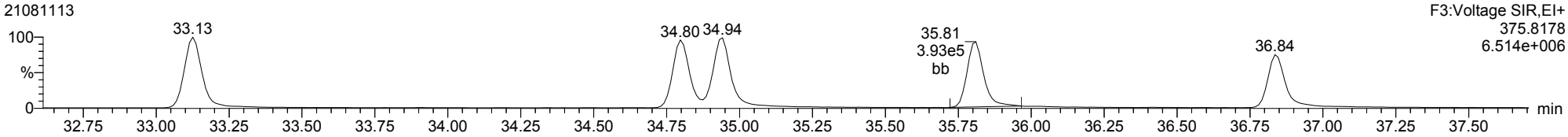

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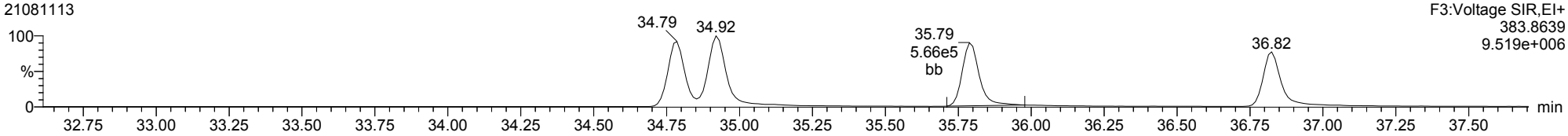

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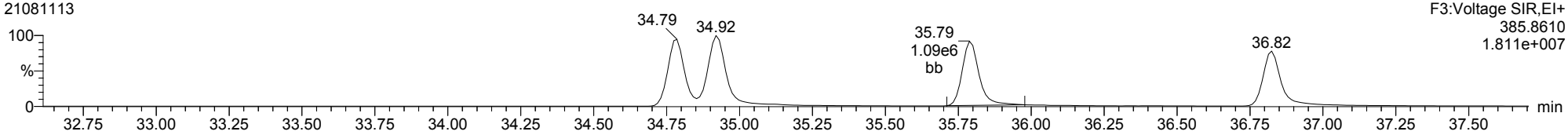

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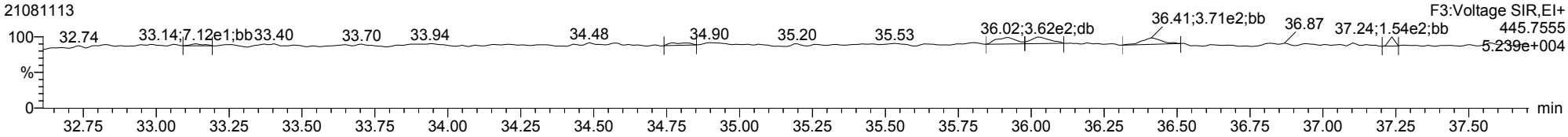

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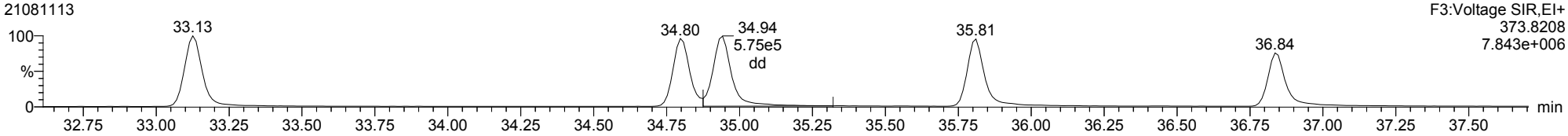

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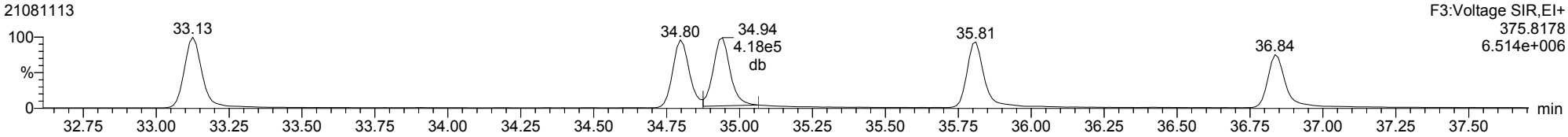

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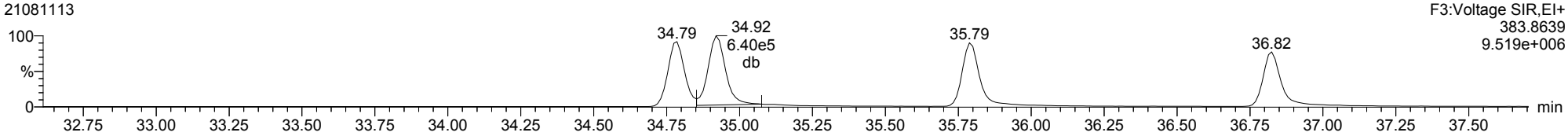

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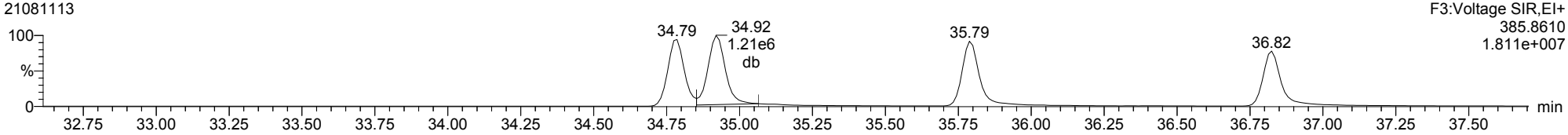

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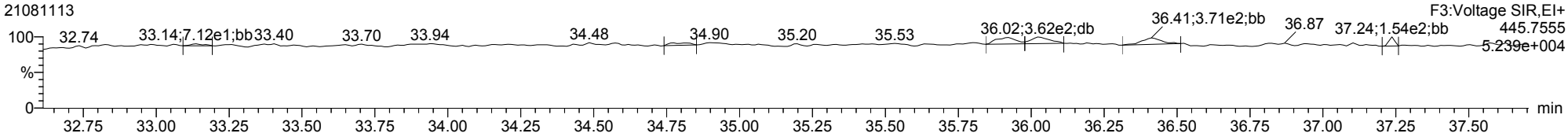

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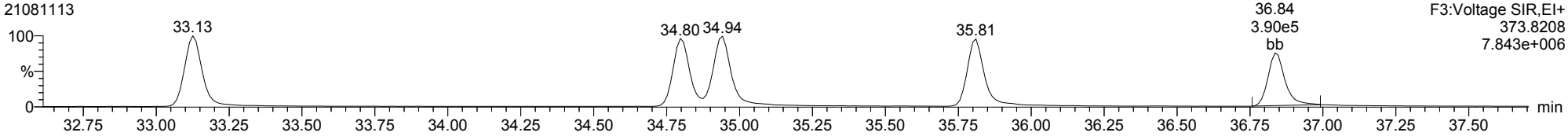

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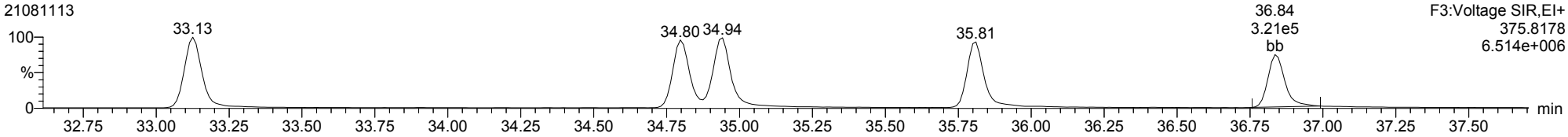

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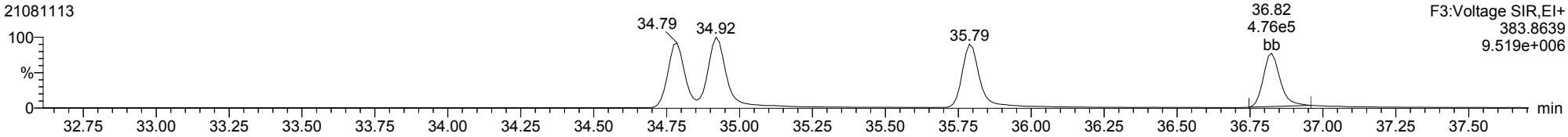

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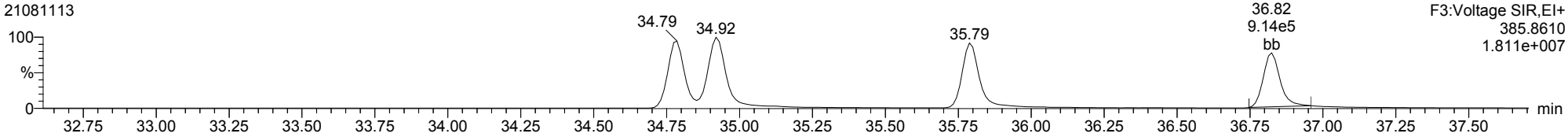

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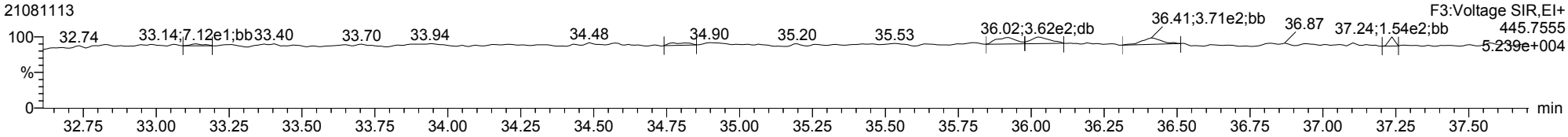

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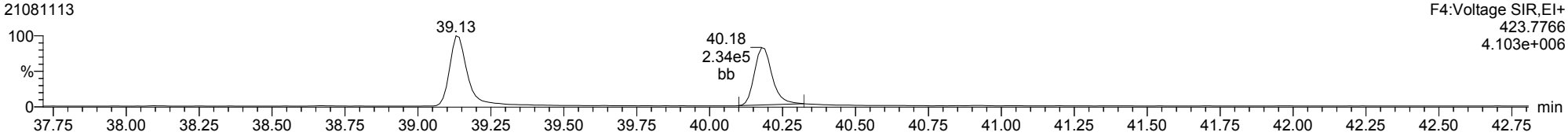

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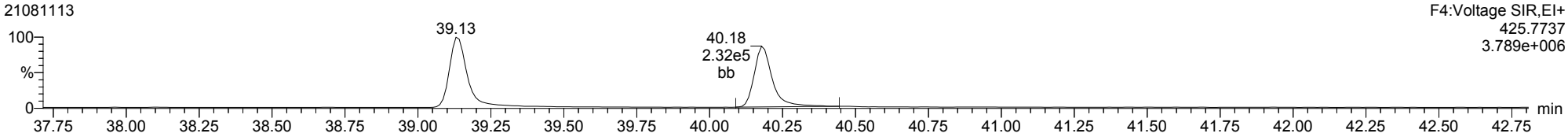

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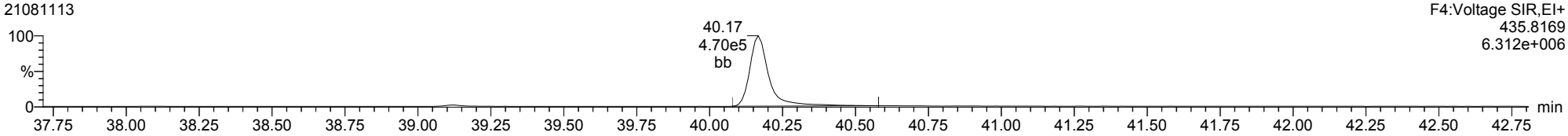

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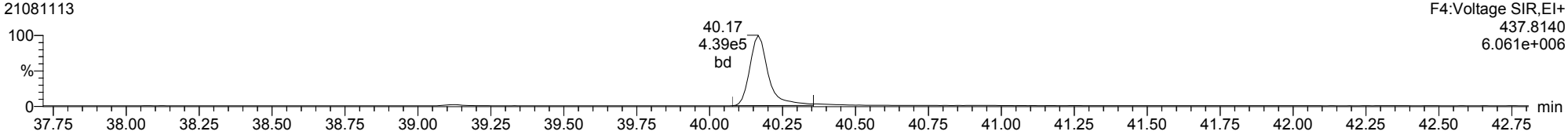

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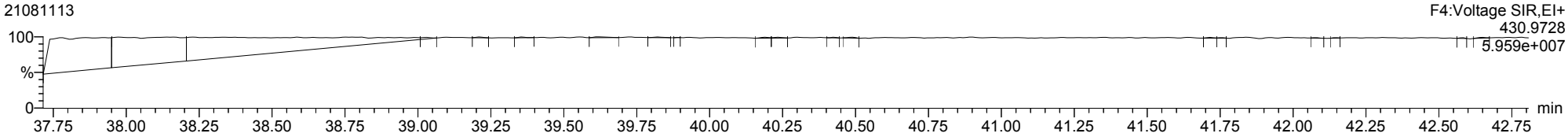

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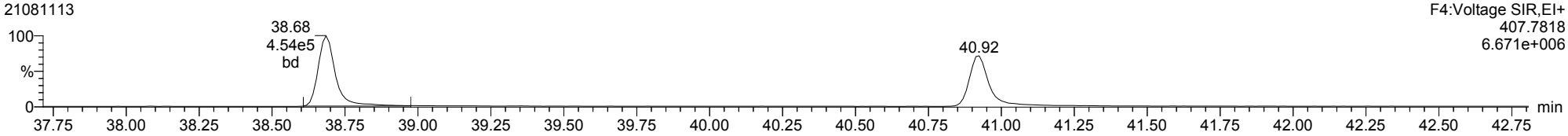

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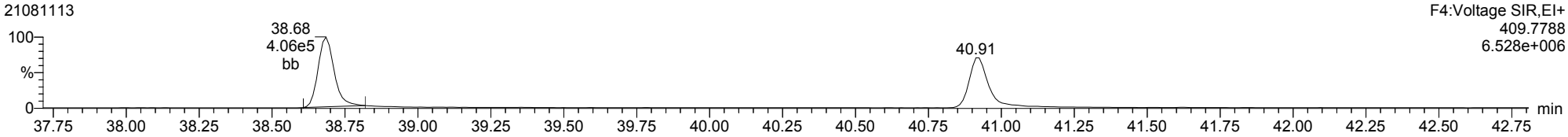

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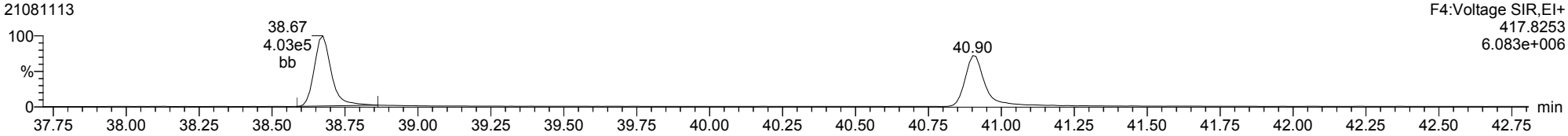

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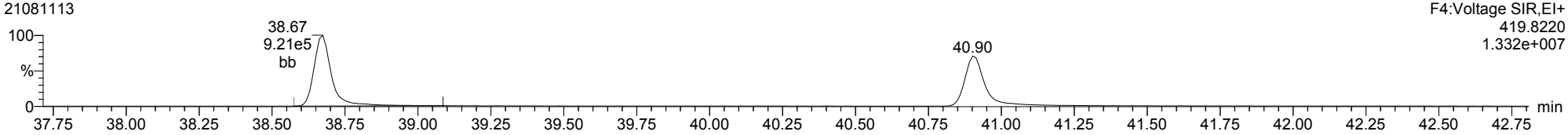

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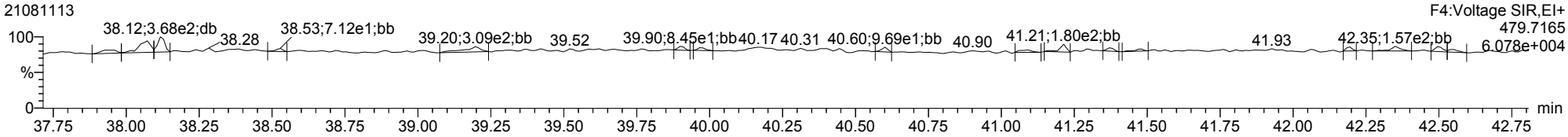

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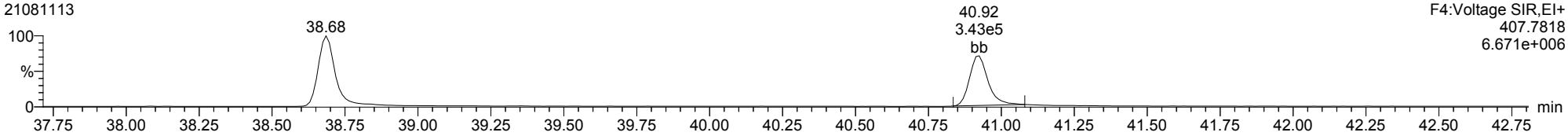

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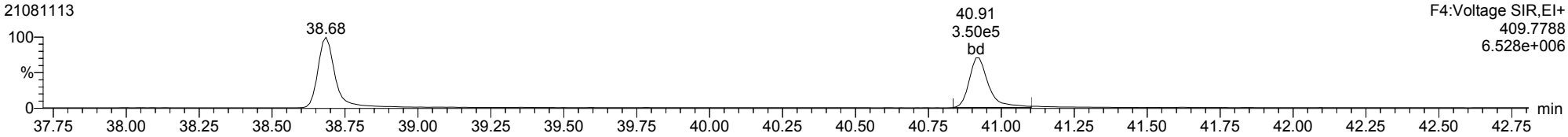

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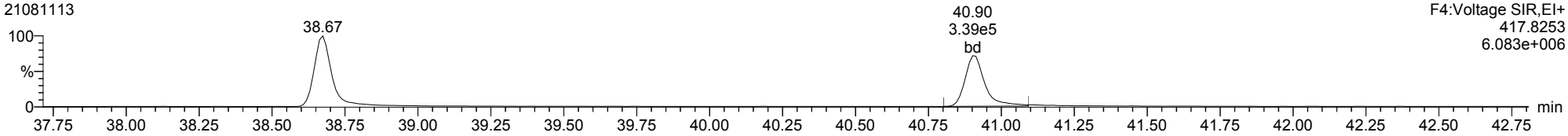

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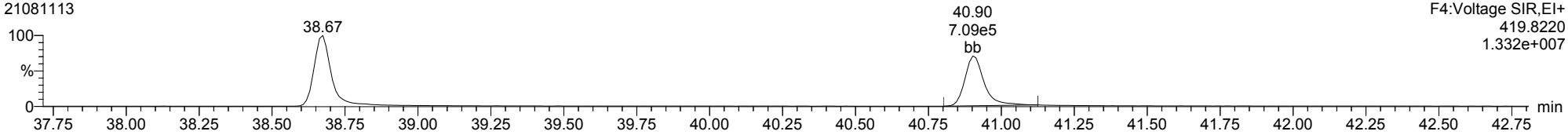

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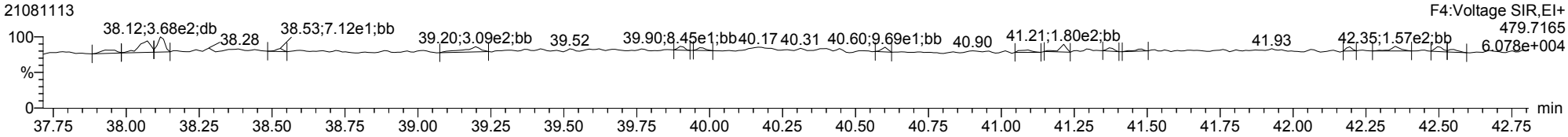

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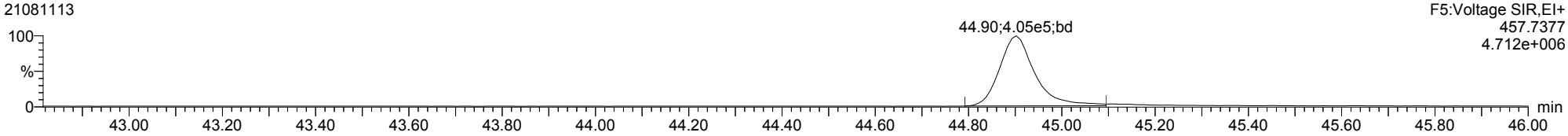

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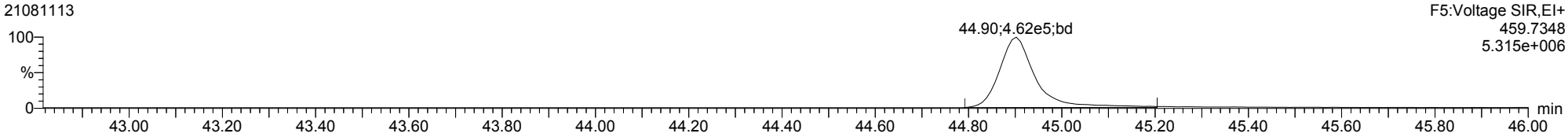

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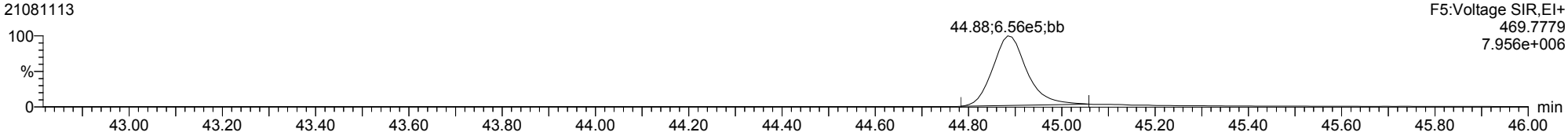

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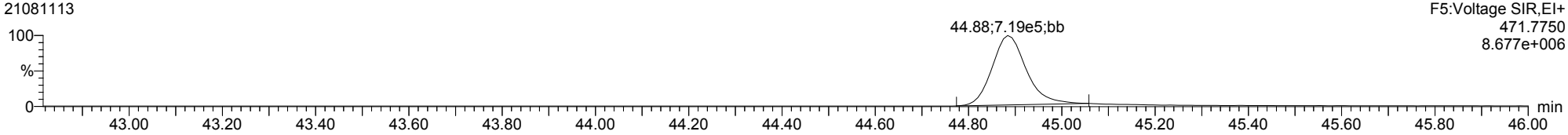

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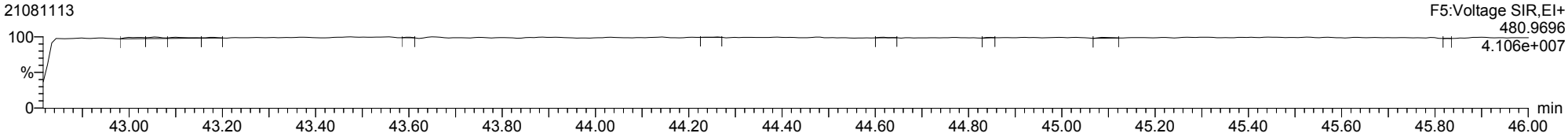

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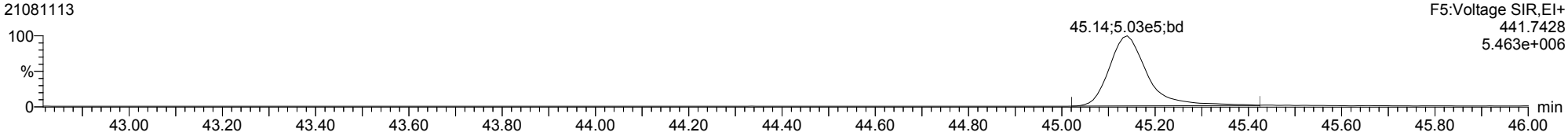

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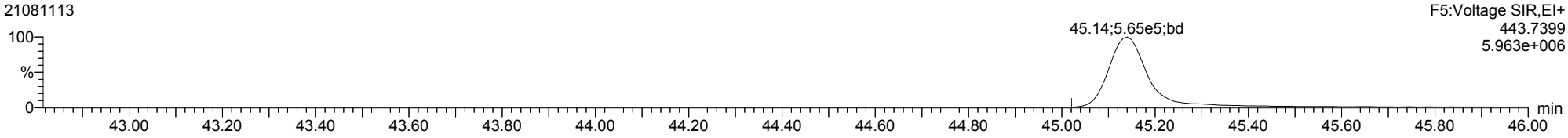

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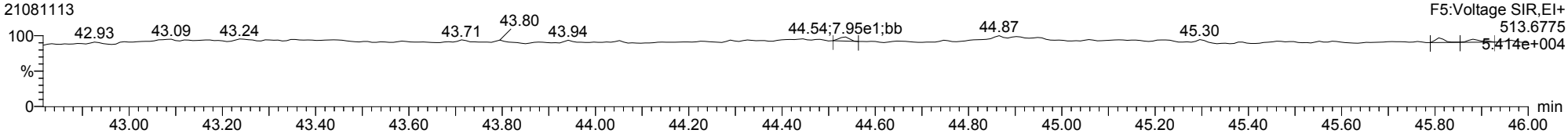

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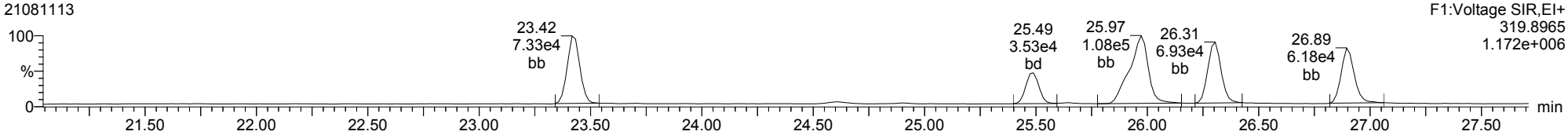
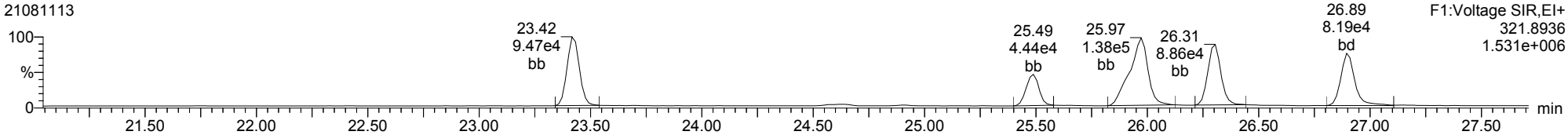
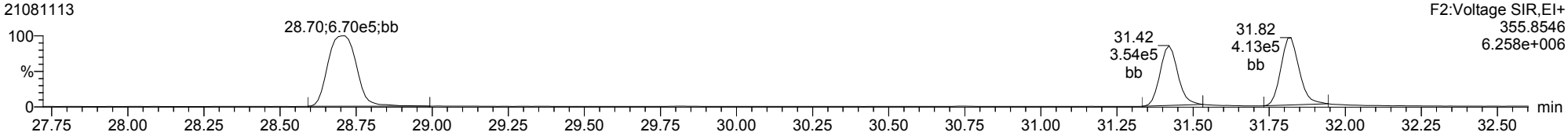
Total-tetradioxins



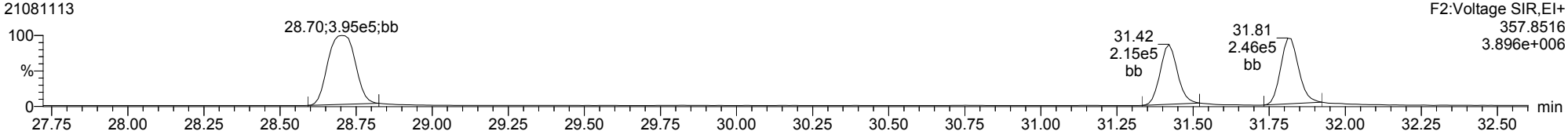
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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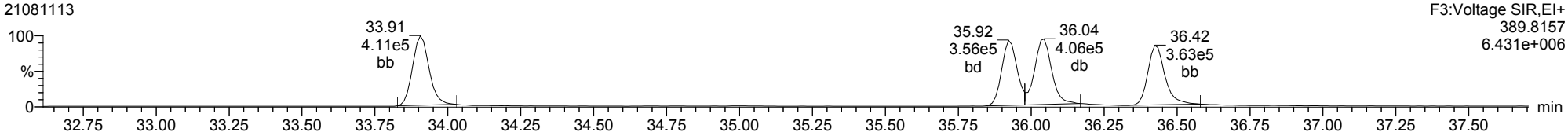
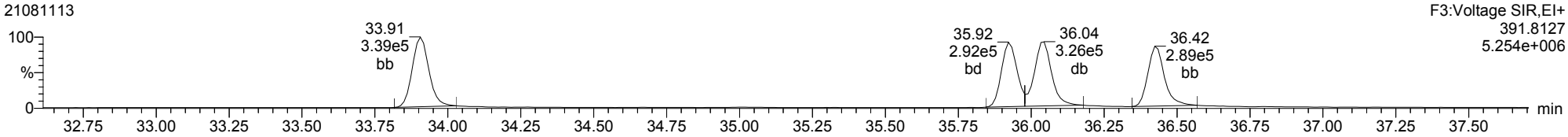
Total-hexadioxins



Total-hexadioxins



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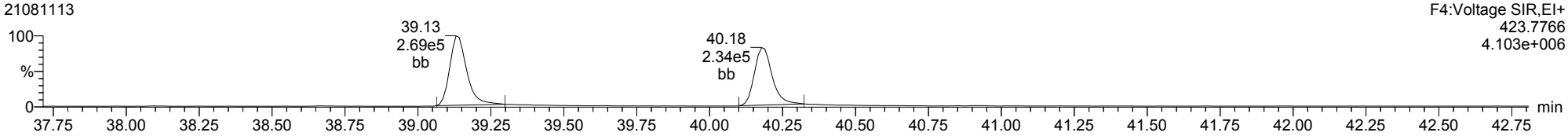
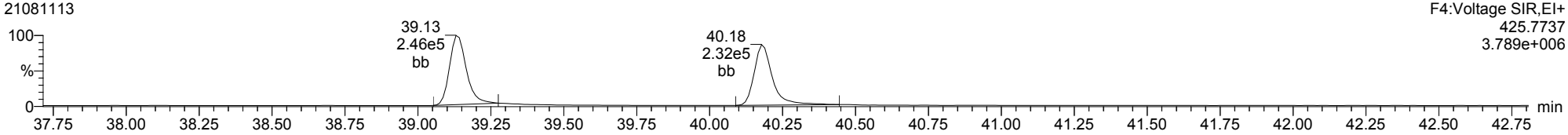


Total-heptadioxins



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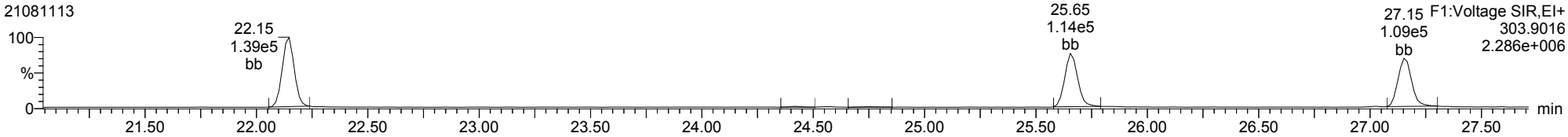
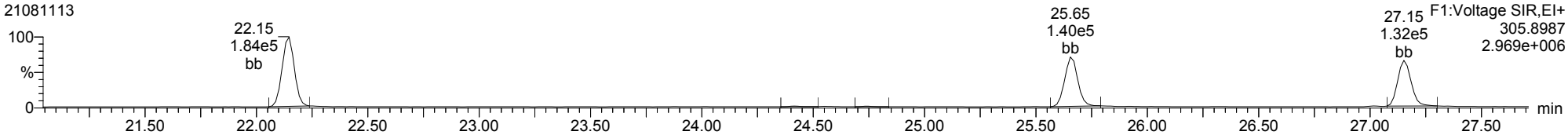
Total-tetrafurans



Total-tetrafurans



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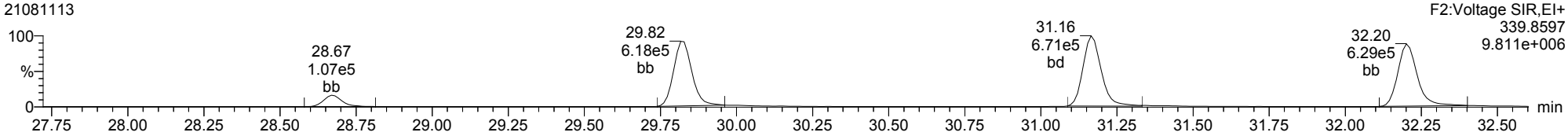

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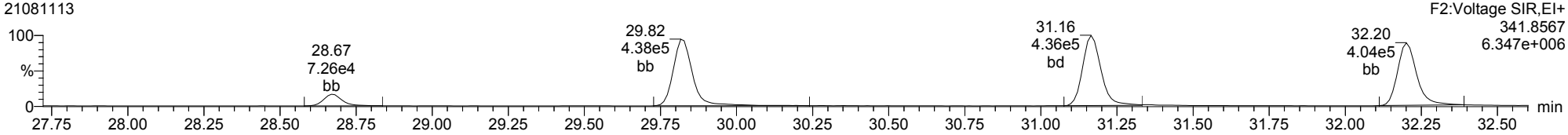

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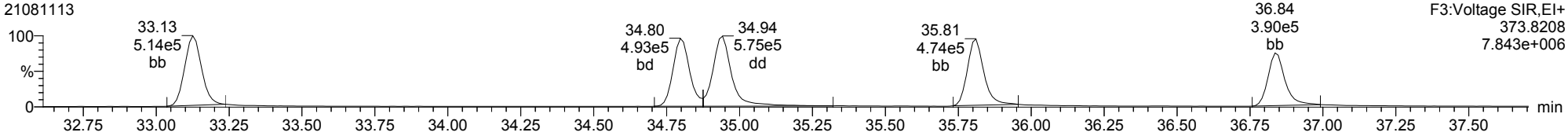
Total-hexafurans



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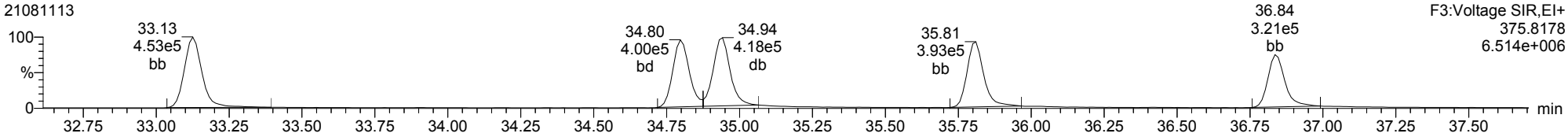

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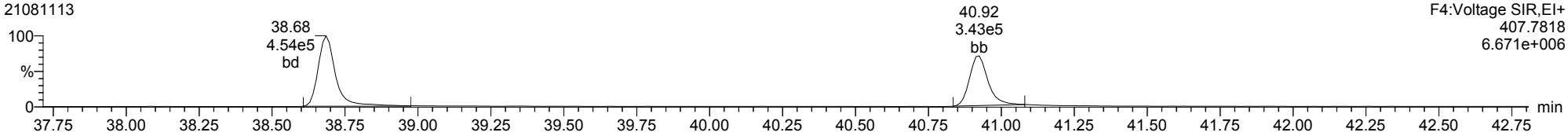

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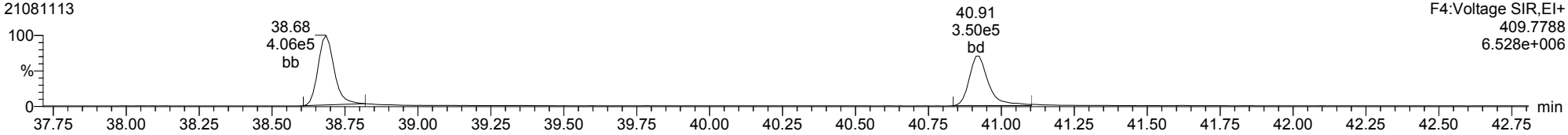

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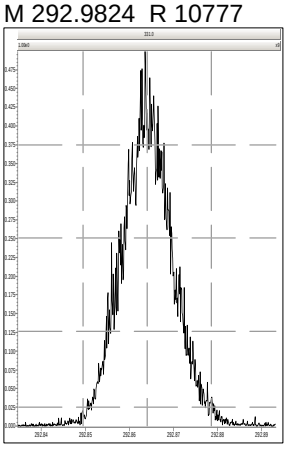
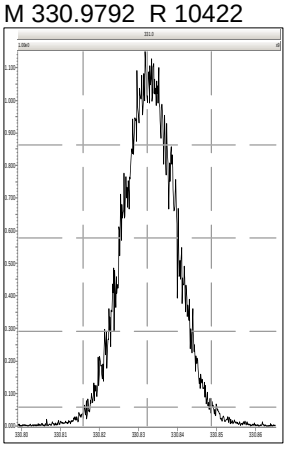
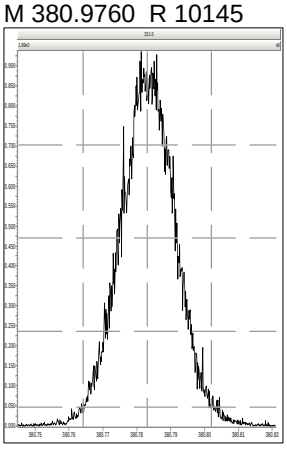
M 292.9824 R 10777



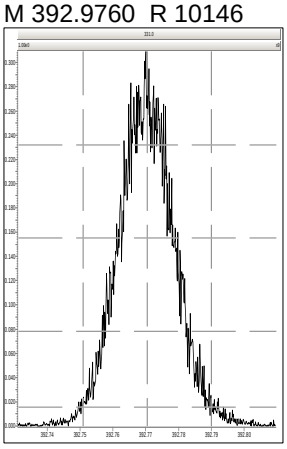
M 330.9792 R 10422



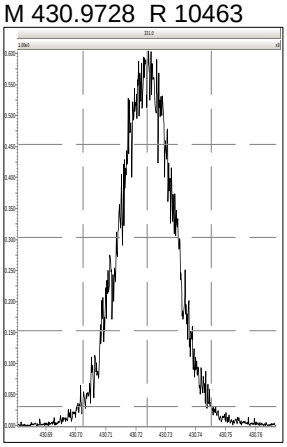
M 380.9760 R 10145



M 392.9760 R 10146



M 430.9728 R 10463



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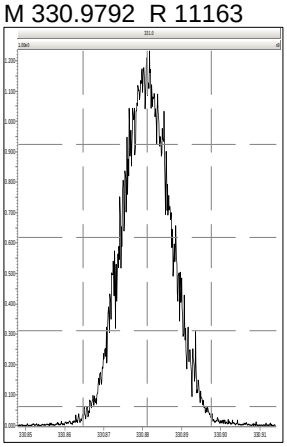
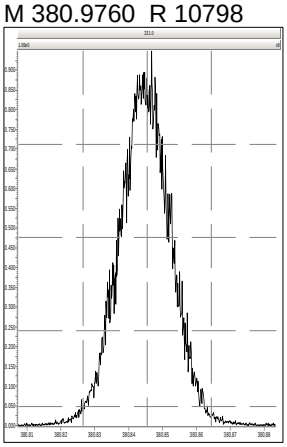
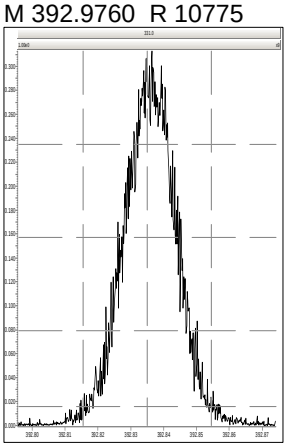


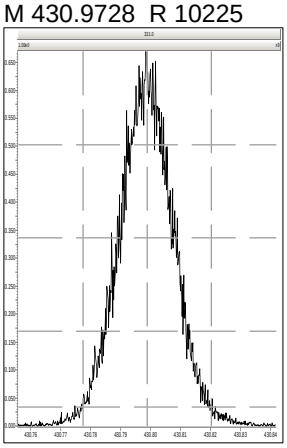
M 380.9760 R 10798



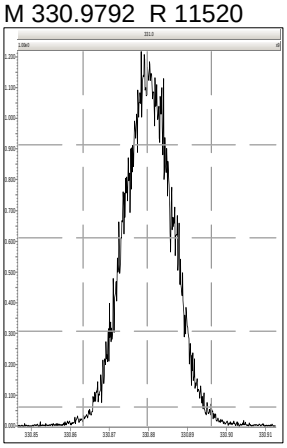
M 392.9760 R 10775



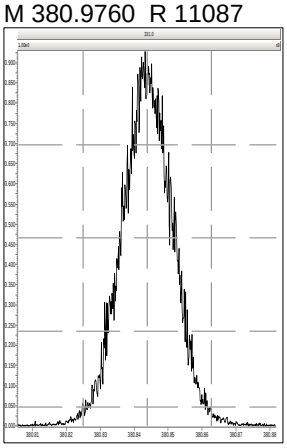
M 430.9728 R 10225



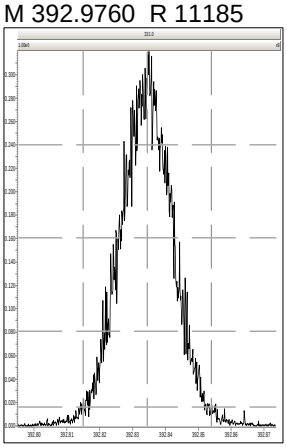
M 330.9792 R 11520



M 380.9760 R 11087



M 392.9760 R 11185



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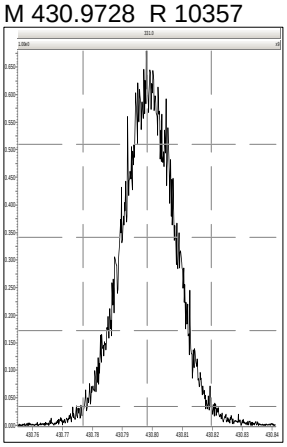
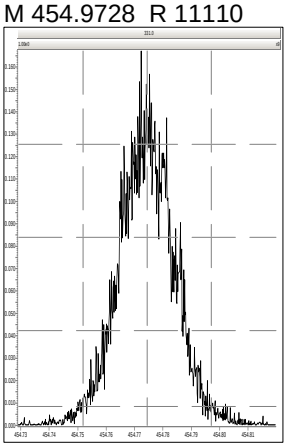
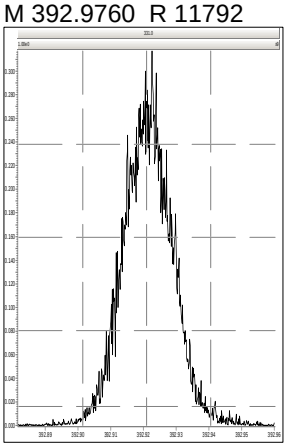


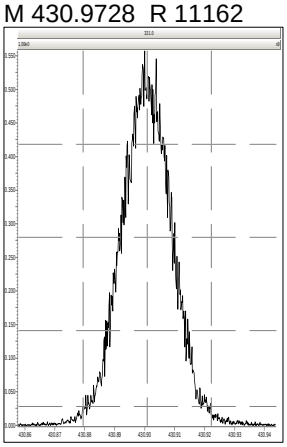
M 454.9728 R 11110



M 392.9760 R 11792



M 430.9728 R 11162



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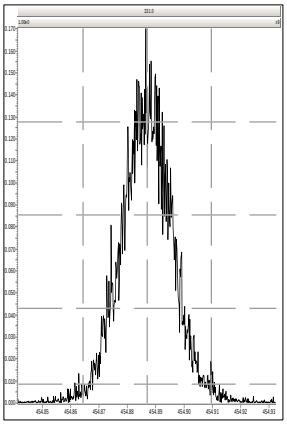
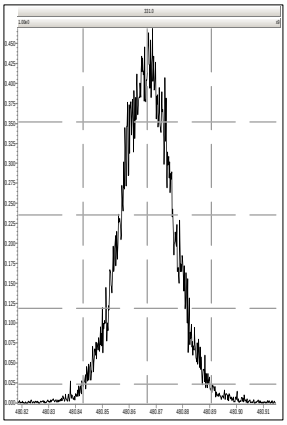
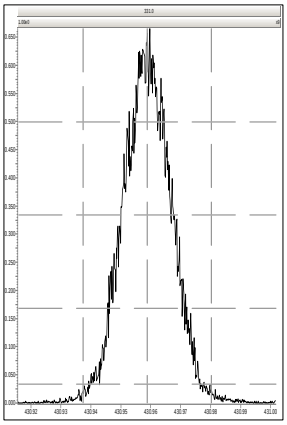
M 454.9728 R 11214



M 480.9696 R 10729



M 430.9728 R 12149



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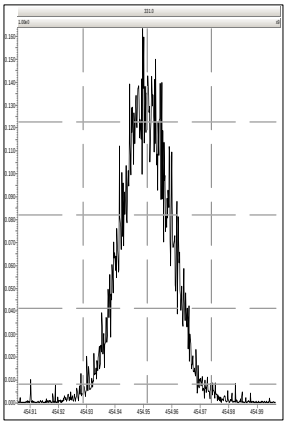
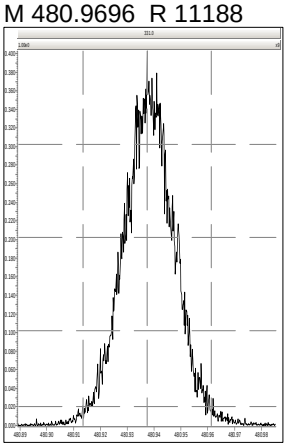
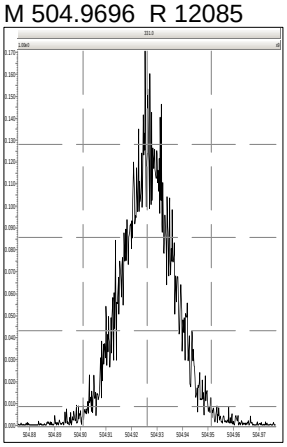


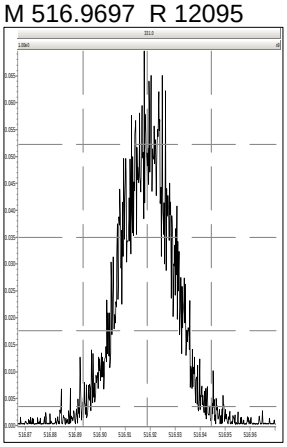
M 480.9696 R 11188

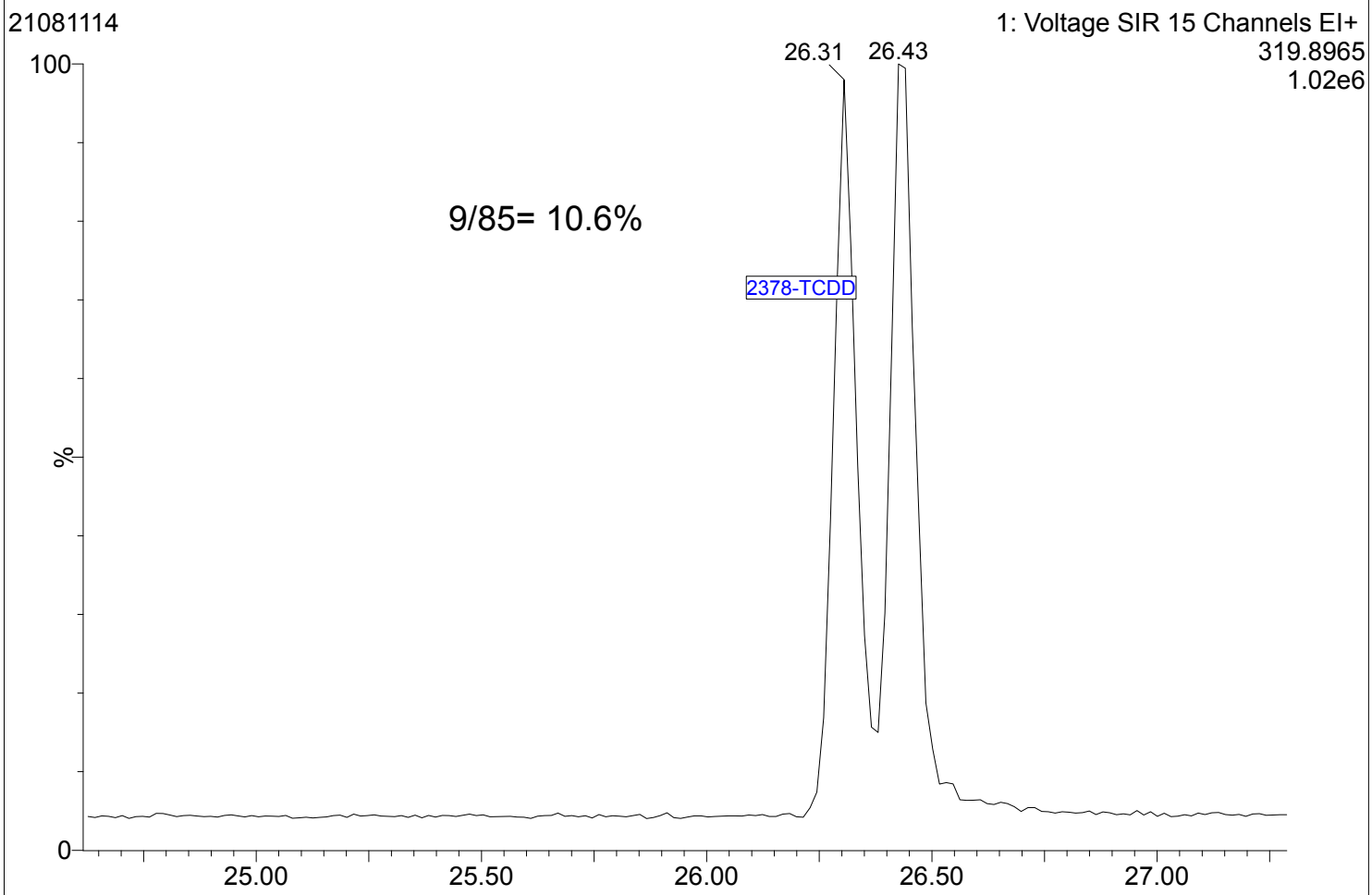


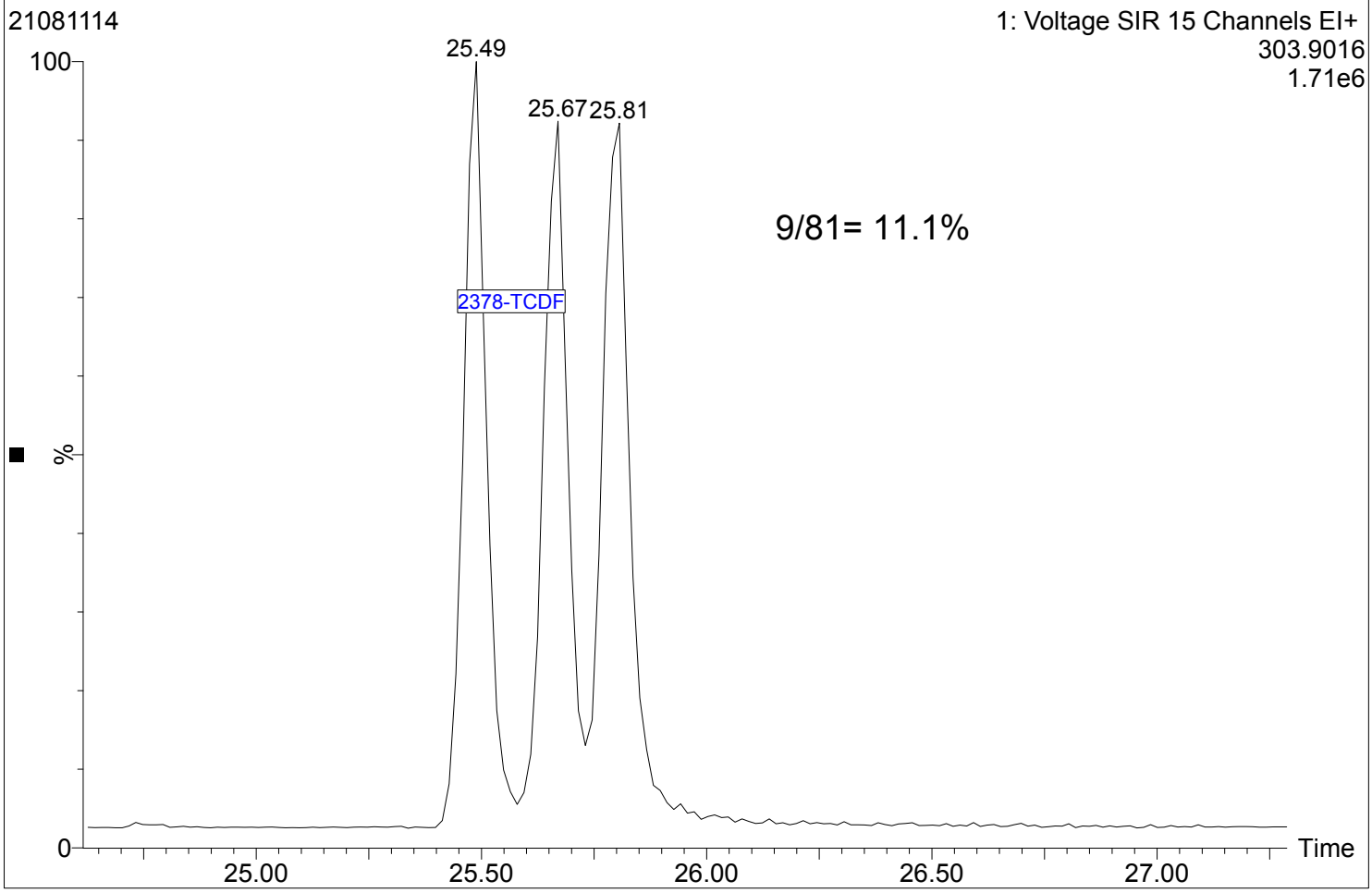
M 504.9696 R 12085



M 516.9697 R 12095




21081114
1: Voltage SIR 15 Channels EI+
319.8965
1.02e6
26.31
26.43
9/85= 10.6%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21081114
1: Voltage SIR 15 Channels EI+
303.9016
1.71e6
25.49
25.67
25.81
9/81= 11.1%
2378-TCDF
100
%
0
Time
25.00
25.50
26.00
26.50
27.00

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21081112A	Calibration Date:	08/11/2021
Sequence:	SJH0117	Injection Date:	08/12/21
Lab Sample ID:	SJH0117-SCV1	Injection Time:	00:00
Sequence Name:	ICVCV		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	10.1	1.1075930	1.1198230		1.1	+/-20
2,3,7,8-TCDD	A	10.000	11.1	0.9202875	1.0175630		10.6	+/-20
1,2,3,7,8-PeCDF	A	50.000	52.8	1.0148670	1.0723200		5.7	+/-20
2,3,4,7,8-PeCDF	A	50.000	50.7	1.1255490	1.1415120		1.4	+/-20
1,2,3,7,8-PeCDD	A	50.000	52.2	0.9953229	1.0393270		4.4	+/-20
1,2,3,4,7,8-HxCDF	A	50.000	54.0	1.0168930	1.0983010		8.0	+/-20
1,2,3,6,7,8-HxCDF	A	50.000	51.5	1.0368310	1.0674180		3.0	+/-20
2,3,4,6,7,8-HxCDF	A	50.000	55.5	1.0524660	1.1685470		11.0	+/-20
1,2,3,7,8,9-HxCDF	A	50.000	53.6	1.0301540	1.1039620		7.2	+/-20
1,2,3,4,7,8-HxCDD	A	50.000	54.6	1.0273630	1.1224820		9.3	+/-20
1,2,3,6,7,8-HxCDD	A	50.000	50.6	1.0089800	1.0201760		1.1	+/-20
1,2,3,7,8,9-HxCDD	A	50.000	52.3	0.9504865	10170.72		4.7	+/-20
1,2,3,4,6,7,8-HpCDF	A	50.000	54.8	1.3273500	1.4543500		9.6	+/-20
1,2,3,4,7,8,9-HpCDF	A	50.000	59.1	1.2833380	1.5180640		18.3	+/-20
1,2,3,4,6,7,8-HpCDD	A	50.000	51.9	1.0680880	1.1079280		3.7	+/-20
OCDF	A	100.00	105	1.4469010	1.5252490		5.4	+/-20
OCDD	A	100.00	105	1.1808230	1.2398230		5.0	+/-20
13C12-2,3,7,8-TCDF	A	100.00	102	1.4265830	1.4506733		1.7	+/-20
13C12-2,3,7,8-TCDD	A	100.00	81.6	1.1164910	0.9114735		-18.4	+/-20
13C12-1,2,3,7,8-PeCDF	A	100.00	105	1.2973130	1.3593960		4.8	+/-20
13C12-2,3,4,7,8-PeCDF	A	100.00	104	1.2364800	1.2899065		4.3	+/-20
13C12-1,2,3,7,8-PeCDD	A	100.00	98.4	0.7319833	0.7206311		-1.6	+/-20
13C12-1,2,3,4,7,8-HxCDF	A	100.00	116	1.2424560	1.4398252		15.9	+/-20
13C12-1,2,3,6,7,8-HxCDF	A	100.00	119	1.3434760	1.6046805		19.4	+/-20
13C12-2,3,4,6,7,8-HxCDF	A	100.00	109	1.2148550	1.3223469		8.8	+/-20
13C12-1,2,3,7,8,9-HxCDF	A	100.00	113	1.0076370	1.1409347		13.2	+/-20
13C12-1,2,3,4,7,8-HxCDD	A	100.00	114	0.9598233	1.0953859		14.1	+/-20
13C12-1,2,3,6,7,8-HxCDD	A	100.00	119	1.0413850	1.2444404		19.5	+/-20
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	114	0.9264704	1.0538048		13.7	+/-20
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	110	0.7579160	0.8319903		9.8	+/-20
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	110	0.6324476	0.6986661		10.5	+/-20
13C12-OCDD	A	200.00	212	0.5037432	0.5335530		5.9	+/-20
37Cl4-2,3,7,8-TCDD	A	10.000	10.4	1.0835930	1.1266521		4.0	+/-20

* Values outside of QC limits

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Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.655	1.001	8.598e4	1.128e5	1.108	0.762	0.770	1727	2357	1.26e6	1.68e6	728.4	713.0	NO	bb	bb	10.110
12378-PeCDF	29.816	1.000	5.436e5	3.483e5	1.015	1.561	1.550	6428	5298	7.67e6	4.88e6	1193.2	921.9	NO	bd	bd	52.831
23478-PeCDF	31.165	1.001	5.567e5	3.442e5	1.126	1.617	1.550	6428	5298	7.71e6	5.06e6	1200.0	955.7	NO	dd	bb	50.709
123478-HxCDF	34.797	1.000	3.790e5	3.119e5	1.017	1.215	1.240	6025	4489	5.81e6	4.80e6	963.5	1070.0	NO	bd	bd	54.003
234678-HxCDF	35.810	1.001	3.741e5	3.010e5	1.052	1.243	1.240	6025	4489	5.56e6	4.51e6	922.2	1004.3	NO	bb	bb	55.515
123678-HxCDF	34.941	1.001	4.107e5	3.376e5	1.037	1.217	1.240	6025	4489	5.99e6	4.89e6	994.0	1090.0	NO	db	db	51.475
123789-HxCDF	36.835	1.000	3.029e5	2.474e5	1.030	1.224	1.240	6025	4489	4.62e6	3.69e6	767.5	821.7	NO	bb	bb	53.582
1234678-HpCDF	38.685	1.000	3.428e5	3.268e5	1.327	1.049	1.050	5528	5142	5.22e6	4.97e6	945.1	966.6	NO	bb	bb	54.784
1234789-HpCDF	40.924	1.000	2.799e5	2.719e5	1.283	1.029	1.050	5528	5142	3.60e6	3.43e6	650.7	667.0	NO	bd	bd	59.145
OCDF	45.140	1.006	3.368e5	3.743e5	1.447	0.900	0.890	5198	2808	3.79e6	4.27e6	729.8	1522.4	NO	bb	bb	105.415
2378-TCDD	26.305	1.001	4.924e4	6.425e4	0.920	0.766	0.770	2440	1603	7.12e5	9.28e5	291.6	579.2	NO	bb	db	11.057
12378-PeCDD	31.421	1.001	2.834e5	1.748e5	0.995	1.621	1.550	4032	3115	4.22e6	2.62e6	1046.5	841.2	NO	bb	bb	52.211
123478-HxCDD	35.922	1.000	2.965e5	2.407e5	1.027	1.232	1.240	4241	3010	4.65e6	3.73e6	1096.7	1237.9	NO	bd	bd	54.629
123678-HxCDD	36.044	1.001	3.082e5	2.464e5	1.009	1.251	1.240	4241	3010	4.61e6	3.72e6	1085.9	1237.1	NO	db	db	50.555
123789-HxCDD	36.423	1.011	2.887e5	2.199e5	0.950	1.313	1.240	4241	3010	4.19e6	3.34e6	989.1	1108.9	NO	bd	bb	52.339
1234678-HpCDD	40.178	1.000	1.757e5	1.625e5	1.068	1.081	1.050	3111	3083	2.53e6	2.35e6	814.6	763.1	NO	bb	bb	51.865
OCDD	44.903	1.000	2.642e5	3.138e5	1.181	0.842	0.890	2972	3108	3.12e6	3.44e6	1050.3	1105.9	NO	bb	bd	104.997
13C-2378-TCDF	25.640	1.007	7.798e5	9.953e5	1.427	0.784	0.770	3469	3089	1.16e7	1.43e7	3339.4	4613.3	NO	bb	bb	101.689
13C-12378-PeCDF	29.806	1.171	1.051e6	6.125e5	1.297	1.716	1.550	4922	3645	1.42e7	8.62e6	2881.8	2364.6	NO	bd	bb	104.785
13C-23478-PeCDF	31.142	1.223	9.754e5	6.030e5	1.236	1.617	1.550	4922	3645	1.41e7	8.69e6	2860.8	2384.9	NO	bb	bb	104.321
13C-123478-HxCDF	34.785	0.955	4.274e5	8.307e5	1.242	0.514	0.510	5265	6298	6.41e6	1.24e7	1218.4	1973.2	NO	bd	bd	115.885
13C-123678-HxCDF	34.919	0.959	4.860e5	9.161e5	1.343	0.530	0.510	5265	6298	7.00e6	1.35e7	1330.1	2144.5	NO	db	db	119.442
13C-234678-HxCDF	35.788	0.983	3.967e5	7.587e5	1.215	0.523	0.510	5265	6298	5.75e6	1.13e7	1091.4	1799.0	NO	bb	bb	108.848
13C-123789-HxCDF	36.824	1.011	3.447e5	6.522e5	1.008	0.529	0.510	5265	6298	5.11e6	9.81e6	969.9	1558.1	NO	bb	bb	113.229
13C-1234678-HpCDF	38.674	1.062	3.005e5	6.203e5	0.926	0.484	0.440	3480	6125	4.35e6	9.34e6	1249.4	1525.5	NO	bd	bb	113.744
13C-1234789-HpCDF	40.902	1.123	2.223e5	5.047e5	0.758	0.440	0.440	3480	6125	2.90e6	6.30e6	833.4	1029.2	NO	bb	bb	109.773
13C-1234-TCDD	25.458	0.000	5.298e5	6.938e5	1.000	0.764	0.770	5513	2305	7.87e6	1.03e7	1428.2	4481.1	NO	bb	bb	100.000
13C-2378-TCDD	26.275	1.032	4.826e5	6.328e5	1.116	0.763	0.770	5513	2305	7.09e6	9.32e6	1285.5	4044.7	NO	bb	bb	81.637
13C-12378-PeCDD	31.399	1.233	5.423e5	3.395e5	0.732	1.598	1.550	2388	2135	7.53e6	4.95e6	3154.4	2319.5	NO	bb	bb	98.449
13C-123478-HxCDD	35.911	0.986	5.361e5	4.211e5	0.960	1.273	1.240	3574	5521	8.65e6	6.70e6	2421.3	1213.6	NO	bd	bd	114.124
13C-123678-HxCDD	36.022	0.989	6.017e5	4.857e5	1.041	1.239	1.240	3574	5521	9.06e6	7.24e6	2535.4	1311.0	NO	db	db	119.499
13C-1234678-HpCDD	40.167	1.103	3.074e5	3.031e5	0.632	1.014	1.050	3260	2760	4.30e6	4.19e6	1318.4	1519.0	NO	bb	bb	110.470
13C-OCDD	44.884	1.233	4.208e5	5.116e5	0.504	0.822	0.890	2744	3477	4.92e6	5.55e6	1792.3	1596.9	NO	bb	bd	211.835
13C-123789-HxCDD	36.412	0.000	4.843e5	3.895e5	1.000	1.243	1.240	3574	5521	7.18e6	5.79e6	2010.2	1047.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.305	1.033	1.379e5		1.084			1849		1.90e6		1029.2			bd		10.397

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.147	0.864	1.063e5	1.324e5	1.425	0.802	0.770	1727	2357	1.66e6	2.09e6	959.0	886.5	NO	bb	bb	9.436
1289-TCDF	27.152	1.059	5.661e4	7.137e4	1.043	0.793	0.770	1727	2357	8.15e5	1.06e6	472.0	447.8	NO	bb	bb	6.913
13468-PECDF	27.015	0.906	5.743e5	3.714e5	1.376	1.546	1.550	1557	1759	8.45e6	5.45e6	5425.9	3099.7	NO	bb	bb	41.310
12389-PECDF	32.201	1.080	4.075e5	2.638e5	1.000	1.544	1.550	6428	5298	5.63e6	3.72e6	875.5	702.7	NO	bb	bb	40.376
123468-HXCDF	33.125	0.952	4.315e5	3.546e5	1.087	1.217	1.240	6025	4489	6.40e6	5.20e6	1061.8	1158.1	NO	bb	bb	57.507
1368-TCDD	23.417	0.891	5.716e4	7.362e4	0.923	0.776	0.770	2440	1603	8.73e5	1.13e6	357.6	706.6	NO	bb	bb	12.700
1289-TCDD	26.895	1.024	4.776e4	6.026e4	0.794	0.793	0.770	2440	1603	6.91e5	8.63e5	283.1	538.1	NO	bb	bb	12.197
12479-PECDD	28.691	0.914	4.186e5	2.632e5	1.843	1.590	1.550	4032	3115	3.99e6	2.51e6	988.7	804.5	NO	bb	bb	41.945
12389-PECDD	31.822	1.013	2.780e5	1.664e5	1.154	1.671	1.550	4032	3115	4.00e6	2.46e6	992.1	791.3	NO	bb	bb	43.683
124679-HXCDD	33.905	0.944	3.632e5	2.896e5	1.125	1.254	1.240	4241	3010	5.57e6	4.44e6	1314.1	1475.1	NO	bb	bb	60.629
1234679-HPCDD	39.141	0.975	2.129e5	1.840e5	1.211	1.157	1.050	3111	3083	2.93e6	2.75e6	941.5	893.1	NO	bd	bb	53.689
Total-tetrafurans			2.574e5		1.192			1727		3.86e6							27.363
Total-penta1			5.743e5					1557		8.45e6							41.310
Total-pentafurans			1.602e6		1.047			6428		2.23e7							153.079
Total-hexafurans			1.898e6		1.045			6025		2.84e7							272.082
Total-heptafurans			6.227e5		1.305			5528		8.82e6							113.929
Total-Furans			5.291e6		1.158			1727		7.56e7							713.177
Total-tetradioxins			2.709e5		0.879			2440		3.41e6							62.800
Total-pentadioxins			9.817e5		1.331			4032		1.22e7							138.087
Total-hexadioxins			1.266e6		1.028			4241		1.92e7							219.741
Total-heptadioxins			3.886e5		1.140			3111		5.46e6							105.554
Total-Dioxins			3.171e6		1.092			2440		4.34e7							631.178
Total-TEQ			8.462e6					2440		1.19e8							1344.355
FUNCTION1 PFK			6.450e7					839971		2.37e8							
FUNCTION2 PFK			0.000e0					483349		0.00e0							
FUNCTION3 PFK			5.184e7					675979		4.54e8							0.000
FUNCTION4 PFK			3.964e5					425264		1.39e7							
FUNCTION5 PFK			3.414e4					345829		1.67e6							
FUNCTION1 HXCD...			2.903e3					1258		5.64e4							0.000
FUNCTION1 HPCD...			2.863e3					1421		5.44e4							0.000
FUNCTION2 HPCD...			2.720e3					1471		5.70e4							0.000
FUNCTION3 OCDPE			1.392e3					890		2.72e4							0.000
FUNCTION4 NCDPE			1.187e3					1520		2.23e4							0.000
FUNCTION5 DCDPE			1.665e2					1065		6.42e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
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ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
2	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
3	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
4	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
5	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
2	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
3	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
4	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
5	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
2	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145

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Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020
7	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
8	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
9	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
10	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
11	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831
12	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
13	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
14	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
15	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
16	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003
17	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
18	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145
19	OCDF	45.14	3.368e5	3.743e5	1.447	0.90	0.89	729.8	YES	NO	bb	bb	105.415
20	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
2	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
3	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
4	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
5	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
6	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
2	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
3	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
4	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
2	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
3	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
4	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
5	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
6	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865
2	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
2	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
3	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
4	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
5	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
6	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057
7	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
8	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
9	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
10	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945
11	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
12	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
13	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
14	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
15	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
16	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325
17	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865
18	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689
19	OCDD	44.90	2.642e5	3.138e5	1.181	0.84	0.89	1050.3	YES	NO	bb	bd	104.997

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020
7	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
8	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
9	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
10	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
11	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831
12	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
13	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
14	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
15	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
16	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003
17	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
18	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145
19	OCDF	45.14	3.368e5	3.743e5	1.447	0.90	0.89	729.8	YES	NO	bb	bb	105.415
20	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310
21	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
22	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
23	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
24	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
25	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
26	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057
27	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
28	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
29	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
30	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945
31	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
32	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
33	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
34	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
35	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
36	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325
37	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689
39	OCDD	44.90	2.642e5	3.138e5	1.181	0.84	0.89	1050.3	YES	NO	bb	bd	104.997

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.34	1.094e7					29.2	YES		db		
2	FUNCTION1 PFK	22.07	1.938e7					38.3	YES		dd		
3	FUNCTION1 PFK	21.38	2.077e7					61.6	YES		dd		
4	FUNCTION1 PFK	21.25	7.452e6					64.7	YES		dd		
5	FUNCTION1 PFK	21.10	5.199e6					69.3	YES		bd		
6	FUNCTION1 PFK	27.62	5.202e4					1.5	NO		bb		
7	FUNCTION1 PFK	26.61	3.088e4					1.4	NO		bb		
8	FUNCTION1 PFK	26.53	3.772e4					1.3	NO		bb		
9	FUNCTION1 PFK	26.21	4.215e4					1.3	NO		bb		
10	FUNCTION1 PFK	26.14	2.091e4					0.7	NO		bb		
11	FUNCTION1 PFK	25.90	2.782e4					1.0	NO		bb		
12	FUNCTION1 PFK	25.64	2.244e4					0.9	NO		bb		
13	FUNCTION1 PFK	25.38	4.475e4					1.3	NO		bb		
14	FUNCTION1 PFK	25.32	8.085e4					1.5	NO		bb		
15	FUNCTION1 PFK	25.10	6.333e4					1.7	NO		db		
16	FUNCTION1 PFK	24.94	2.192e5					2.0	NO		dd		
17	FUNCTION1 PFK	24.82	2.857e4					1.1	NO		bd		
18	FUNCTION1 PFK	24.63	2.787e4					1.0	NO		bb		
19	FUNCTION1 PFK	24.35	1.463e4					0.7	NO		bb		
20	FUNCTION1 PFK	23.43	4.951e4					1.7	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.47	2.892e5					8.3	YES		dd		0.000
2	FUNCTION3 PFK	34.42	3.441e5					9.9	YES		dd		0.000
3	FUNCTION3 PFK	34.30	9.123e5					14.6	YES		dd		0.000
4	FUNCTION3 PFK	33.96	4.870e6					27.1	YES		dd		0.000
5	FUNCTION3 PFK	33.92	6.208e5					27.9	YES		dd		0.000
6	FUNCTION3 PFK	33.75	6.775e6					34.2	YES		dd		0.000
7	FUNCTION3 PFK	33.58	8.843e5					39.8	YES		dd		0.000
8	FUNCTION3 PFK	33.52	4.828e6					42.2	YES		dd		0.000
9	FUNCTION3 PFK	33.37	2.844e6					47.3	YES		dd		0.000
10	FUNCTION3 PFK	33.18	5.432e6					54.3	YES		dd		0.000
11	FUNCTION3 PFK	33.04	5.575e6					59.2	YES		dd		0.000
12	FUNCTION3 PFK	32.95	3.680e6					62.9	YES		dd		0.000
13	FUNCTION3 PFK	32.86	7.904e6					65.6	YES		dd		0.000
14	FUNCTION3 PFK	32.74	1.549e6					69.1	YES		dd		0.000
15	FUNCTION3 PFK	32.67	4.268e6					72.4	YES		bd		0.000
16	FUNCTION3 PFK	36.86	8.449e3					0.3	NO		bb		0.000
17	FUNCTION3 PFK	36.72	6.925e4					2.0	NO		bb		0.000
18	FUNCTION3 PFK	36.59	5.799e4					1.2	NO		bb		0.000
19	FUNCTION3 PFK	36.30	7.563e3					0.7	NO		bb		0.000
20	FUNCTION3 PFK	36.04	6.922e3					0.5	NO		bb		0.000
21	FUNCTION3 PFK	35.83	2.532e4					1.1	NO		bb		0.000
22	FUNCTION3 PFK	35.75	1.516e4					0.9	NO		bb		0.000
23	FUNCTION3 PFK	35.63	1.004e4					0.7	NO		bb		0.000
24	FUNCTION3 PFK	35.33	1.433e4					0.8	NO		bb		0.000
25	FUNCTION3 PFK	35.04	1.089e4					0.6	NO		bb		0.000
26	FUNCTION3 PFK	34.97	5.517e3					0.7	NO		bb		0.000
27	FUNCTION3 PFK	34.89	3.001e4					1.0	NO		bb		0.000
28	FUNCTION3 PFK	34.81	1.594e4					1.0	NO		db		0.000
29	FUNCTION3 PFK	34.76	3.092e4					1.3	NO		bd		0.000
30	FUNCTION3 PFK	34.60	1.659e5					4.5	YES		db		0.000
31	FUNCTION3 PFK	34.53	2.985e5					6.7	YES		dd		0.000
32	FUNCTION3 PFK	37.64	2.742e4					1.1	NO		bb		0.000
33	FUNCTION3 PFK	37.58	2.711e4					1.4	NO		db		0.000
34	FUNCTION3 PFK	37.54	1.758e4					0.9	NO		dd		0.000
35	FUNCTION3 PFK	37.49	3.447e4					1.6	NO		dd		0.000
36	FUNCTION3 PFK	37.45	2.646e4					1.5	NO		dd		0.000
37	FUNCTION3 PFK	37.38	4.745e4					1.5	NO		dd		0.000

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ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	37.34	2.452e4					1.6	NO		bd		0.000
39	FUNCTION3 PFK	37.29	9.653e3					0.8	NO		bb		0.000
40	FUNCTION3 PFK	37.08	5.064e3					0.5	NO		bb		0.000
41	FUNCTION3 PFK	36.98	6.612e4					1.7	NO		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.42	2.469e3					0.5	NO		bb		
2	FUNCTION4 PFK	38.08	2.954e4					1.7	NO		bb		
3	FUNCTION4 PFK	37.98	4.856e4					2.3	NO		db		
4	FUNCTION4 PFK	37.94	3.614e4					2.6	NO		bd		
5	FUNCTION4 PFK	37.85	8.390e3					1.0	NO		bb		
6	FUNCTION4 PFK	40.91	1.035e4					1.0	NO		bb		
7	FUNCTION4 PFK	40.71	1.742e3					0.4	NO		bb		
8	FUNCTION4 PFK	40.68	3.176e3					0.5	NO		bb		
9	FUNCTION4 PFK	40.61	6.362e3					0.7	NO		bb		
10	FUNCTION4 PFK	40.38	7.075e3					0.8	NO		bb		
11	FUNCTION4 PFK	40.32	3.115e4					1.2	NO		bb		
12	FUNCTION4 PFK	39.94	4.461e3					0.6	NO		bb		
13	FUNCTION4 PFK	39.80	5.746e3					0.6	NO		bb		
14	FUNCTION4 PFK	39.51	2.799e3					0.4	NO		bb		
15	FUNCTION4 PFK	39.43	1.949e3					0.4	NO		bb		
16	FUNCTION4 PFK	39.36	2.879e3					0.6	NO		bb		
17	FUNCTION4 PFK	39.32	5.365e3					1.1	NO		bb		
18	FUNCTION4 PFK	39.28	3.621e3					0.8	NO		bb		
19	FUNCTION4 PFK	39.21	1.666e4					1.0	NO		bb		
20	FUNCTION4 PFK	39.07	6.512e3					0.8	NO		bb		
21	FUNCTION4 PFK	38.46	1.263e4					1.2	NO		bb		
22	FUNCTION4 PFK	42.68	1.445e4					0.9	NO		bb		
23	FUNCTION4 PFK	42.62	2.052e4					1.7	NO		bb		
24	FUNCTION4 PFK	42.51	2.321e3					0.5	NO		bb		
25	FUNCTION4 PFK	42.43	3.121e4					1.9	NO		bb		
26	FUNCTION4 PFK	42.18	7.742e3					0.8	NO		bb		
27	FUNCTION4 PFK	42.05	1.748e4					1.2	NO		db		
28	FUNCTION4 PFK	41.97	1.470e4					1.2	NO		bd		
29	FUNCTION4 PFK	41.63	2.487e3					0.5	NO		bb		
30	FUNCTION4 PFK	41.48	1.442e4					1.2	NO		bb		
31	FUNCTION4 PFK	41.24	1.211e4					1.0	NO		bb		
32	FUNCTION4 PFK	41.17	1.136e4					1.2	NO		bb		

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.97	5.710e3					1.0	NO		bb		
2	FUNCTION5 PFK	45.74	1.859e3					0.6	NO		bb		
3	FUNCTION5 PFK	43.26	1.526e4					1.8	NO		bb		
4	FUNCTION5 PFK	42.93	1.131e4					1.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.35	1.892e2					4.2	YES		db		0.000
2	FUNCTION1 HXCD...	25.23	1.187e2					1.3	NO		bd		0.000
3	FUNCTION1 HXCD...	24.87	7.961e1					1.9	NO		db		0.000
4	FUNCTION1 HXCD...	24.81	1.259e2					2.7	NO		bd		0.000
5	FUNCTION1 HXCD...	24.72	1.584e2					1.4	NO		bb		0.000
6	FUNCTION1 HXCD...	24.40	9.113e1					1.6	NO		bb		0.000
7	FUNCTION1 HXCD...	23.72	7.480e1					1.5	NO		bb		0.000
8	FUNCTION1 HXCD...	23.61	1.381e2					2.9	NO		bb		0.000
9	FUNCTION1 HXCD...	23.11	9.740e1					2.5	NO		bb		0.000
10	FUNCTION1 HXCD...	22.43	1.791e2					2.1	NO		db		0.000
11	FUNCTION1 HXCD...	22.30	7.125e1					1.5	NO		bd		0.000
12	FUNCTION1 HXCD...	22.19	7.195e1					1.3	NO		bb		0.000
13	FUNCTION1 HXCD...	21.98	1.102e2					1.5	NO		db		0.000
14	FUNCTION1 HXCD...	21.89	2.251e2					4.2	YES		bd		0.000
15	FUNCTION1 HXCD...	21.80	1.414e2					2.0	NO		bb		0.000
16	FUNCTION1 HXCD...	27.03	2.453e2					2.4	NO		bb		0.000
17	FUNCTION1 HXCD...	26.29	2.686e2					2.1	NO		db		0.000
18	FUNCTION1 HXCD...	26.12	1.763e2					2.9	NO		dd		0.000
19	FUNCTION1 HXCD...	26.03	9.387e1					1.2	NO		bd		0.000
20	FUNCTION1 HXCD...	25.82	1.399e2					2.0	NO		bb		0.000
21	FUNCTION1 HXCD...	25.46	1.064e2					1.7	NO		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	22.51	7.992e1					1.4	NO		bb		0.000
2	FUNCTION1 HPCD...	22.07	1.029e2					2.1	NO		bb		0.000
3	FUNCTION1 HPCD...	21.98	1.510e2					1.6	NO		db		0.000
4	FUNCTION1 HPCD...	21.88	1.949e2					3.5	YES		bd		0.000
5	FUNCTION1 HPCD...	21.75	2.528e2					1.8	NO		bb		0.000
6	FUNCTION1 HPCD...	21.47	1.508e2					2.1	NO		bb		0.000
7	FUNCTION1 HPCD...	21.25	1.018e2					1.3	NO		db		0.000
8	FUNCTION1 HPCD...	21.16	1.149e2					1.6	NO		dd		0.000
9	FUNCTION1 HPCD...	21.09	2.200e2					3.0	NO		bd		0.000
10	FUNCTION1 HPCD...	27.00	1.586e2					1.8	NO		bb		0.000
11	FUNCTION1 HPCD...	26.83	9.159e1					0.8	NO		bb		0.000
12	FUNCTION1 HPCD...	26.59	1.663e2					2.5	NO		bb		0.000
13	FUNCTION1 HPCD...	26.32	1.753e2					1.6	NO		db		0.000
14	FUNCTION1 HPCD...	26.14	2.616e2					2.2	NO		bd		0.000
15	FUNCTION1 HPCD...	25.59	8.230e1					1.9	NO		bb		0.000
16	FUNCTION1 HPCD...	25.44	8.713e1					1.0	NO		bb		0.000
17	FUNCTION1 HPCD...	25.16	7.125e1					1.1	NO		db		0.000
18	FUNCTION1 HPCD...	25.05	1.030e2					1.1	NO		bd		0.000
19	FUNCTION1 HPCD...	24.07	1.494e2					2.5	NO		bb		0.000
20	FUNCTION1 HPCD...	23.83	1.478e2					3.3	YES		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.48	1.146e2					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	28.07	8.040e1					1.2	NO		db		0.000
3	FUNCTION2 HPCD...	27.98	1.117e2					1.5	NO		bd		0.000
4	FUNCTION2 HPCD...	27.82	9.308e1					2.0	NO		bb		0.000
5	FUNCTION2 HPCD...	31.82	1.073e2					1.6	NO		bb		0.000
6	FUNCTION2 HPCD...	31.41	3.440e2					4.0	YES		bb		0.000
7	FUNCTION2 HPCD...	31.18	9.044e1					1.2	NO		db		0.000
8	FUNCTION2 HPCD...	31.11	9.781e1					2.1	NO		dd		0.000
9	FUNCTION2 HPCD...	31.03	7.279e2					8.6	YES		bd		0.000
10	FUNCTION2 HPCD...	30.26	7.257e1					1.3	NO		bb		0.000
11	FUNCTION2 HPCD...	30.21	7.122e1					1.7	NO		db		0.000
12	FUNCTION2 HPCD...	30.14	1.157e2					1.5	NO		dd		0.000
13	FUNCTION2 HPCD...	30.06	7.412e1					1.1	NO		dd		0.000
14	FUNCTION2 HPCD...	29.98	7.219e1					1.2	NO		dd		0.000
15	FUNCTION2 HPCD...	29.91	9.212e1					2.0	NO		bd		0.000
16	FUNCTION2 HPCD...	29.69	7.977e1					1.3	NO		bb		0.000
17	FUNCTION2 HPCD...	29.08	1.408e2					1.5	NO		db		0.000
18	FUNCTION2 HPCD...	28.96	1.497e2					1.4	NO		bd		0.000
19	FUNCTION2 HPCD...	28.71	8.490e1					1.0	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.65	1.580e2					2.6	NO		db		0.000
2	FUNCTION3 OCDPE	37.55	1.150e2					2.8	NO		bd		0.000
3	FUNCTION3 OCDPE	36.42	1.835e2					2.9	NO		bb		0.000
4	FUNCTION3 OCDPE	36.04	2.520e2					4.7	YES		db		0.000
5	FUNCTION3 OCDPE	35.93	1.106e2					3.8	YES		dd		0.000
6	FUNCTION3 OCDPE	35.90	1.018e2					3.4	YES		bd		0.000
7	FUNCTION3 OCDPE	34.40	1.321e2					5.0	YES		bb		0.000
8	FUNCTION3 OCDPE	33.58	1.010e2					2.3	NO		bb		0.000
9	FUNCTION3 OCDPE	32.70	2.382e2					3.1	YES		bb		0.000

ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.42	7.136e1					0.9	NO		bb		0.000
2	FUNCTION4 NCDPE	40.16	1.641e2					1.6	NO		bb		0.000
3	FUNCTION4 NCDPE	39.69	1.182e2					1.5	NO		bb		0.000
4	FUNCTION4 NCDPE	38.52	1.487e2					1.6	NO		db		0.000
5	FUNCTION4 NCDPE	38.34	2.790e2					2.3	NO		dd		0.000
6	FUNCTION4 NCDPE	38.26	1.556e2					2.2	NO		bd		0.000
7	FUNCTION4 NCDPE	41.34	1.448e2					1.6	NO		bb		0.000
8	FUNCTION4 NCDPE	40.81	1.056e2					2.8	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.58	7.112e1					3.0	NO		bb		0.000
2	FUNCTION5 DCDPE	43.59	9.542e1					3.1	YES		bb		0.000

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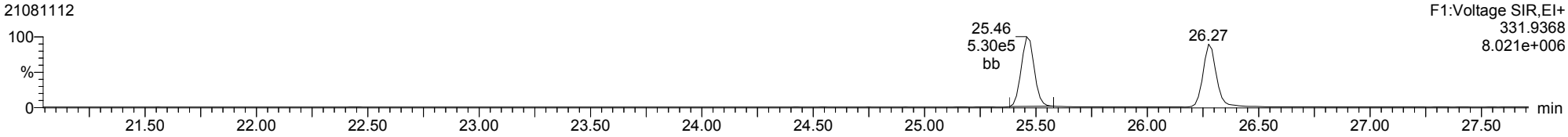

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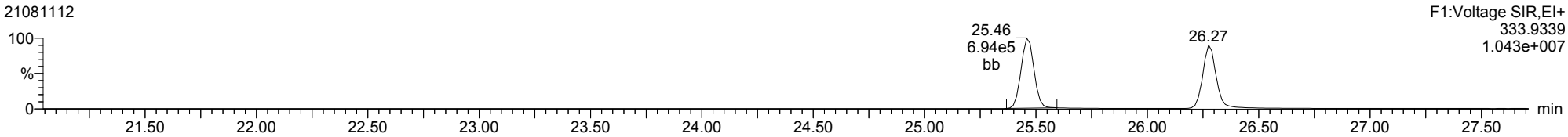

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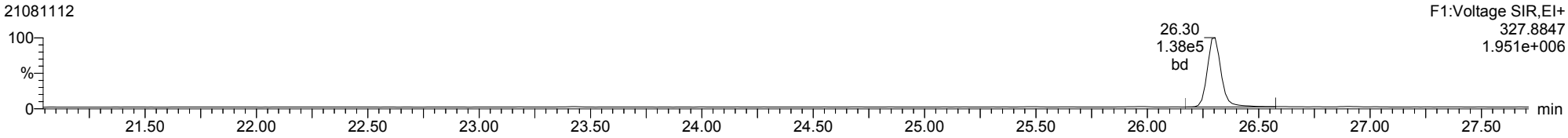

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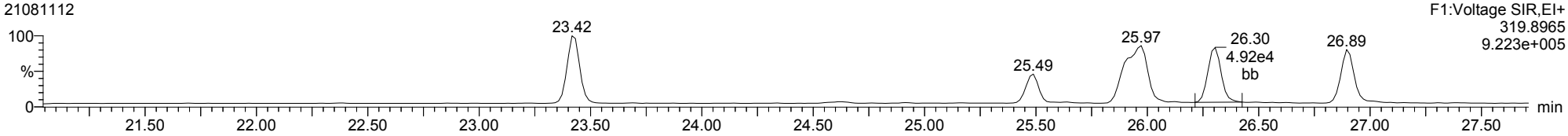

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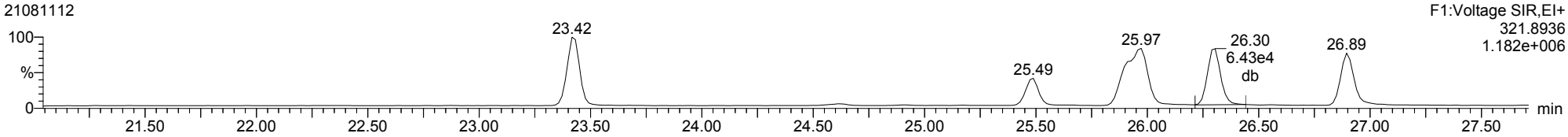

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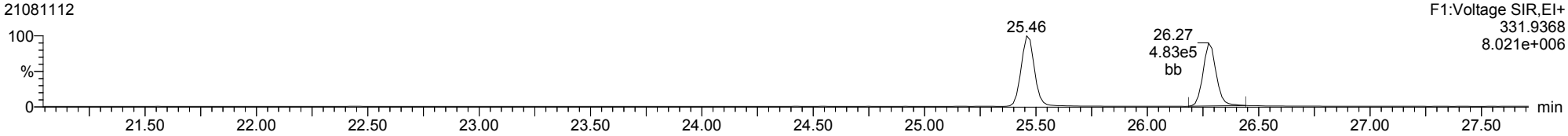

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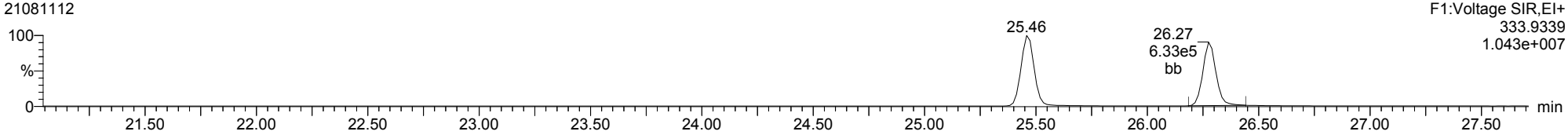

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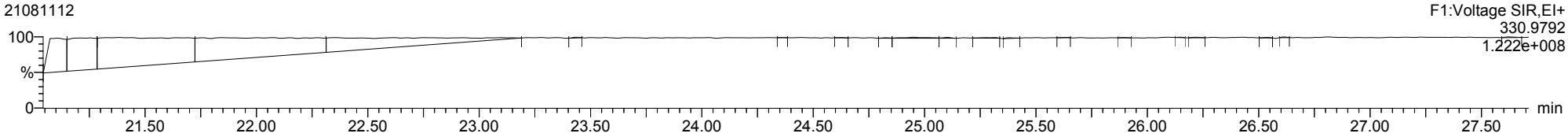

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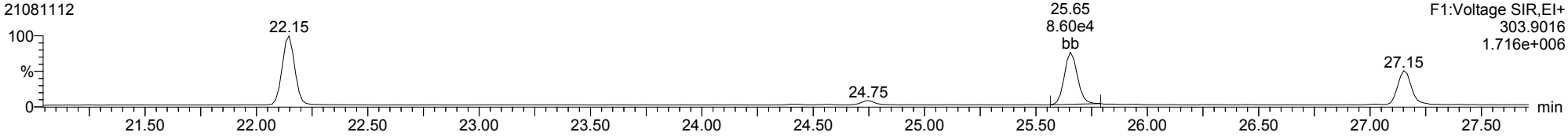

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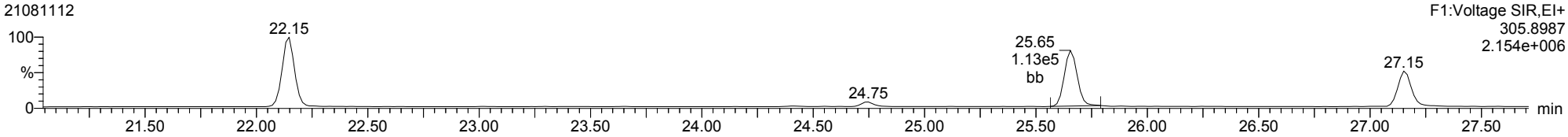

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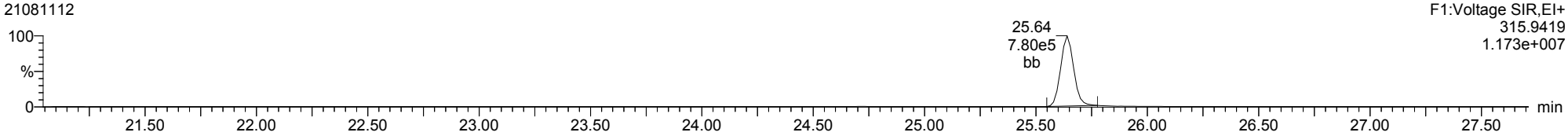

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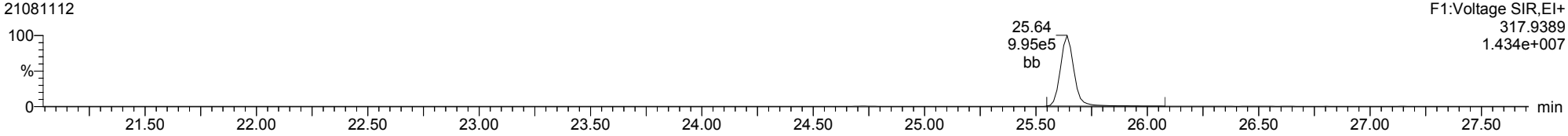

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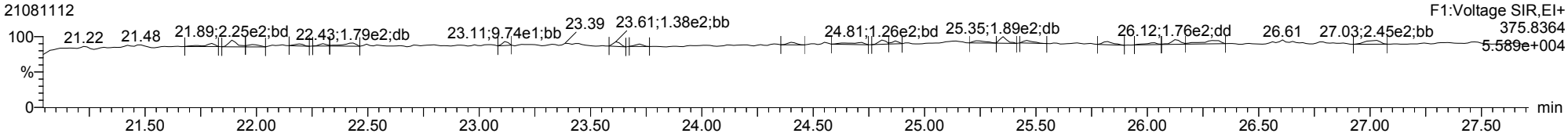

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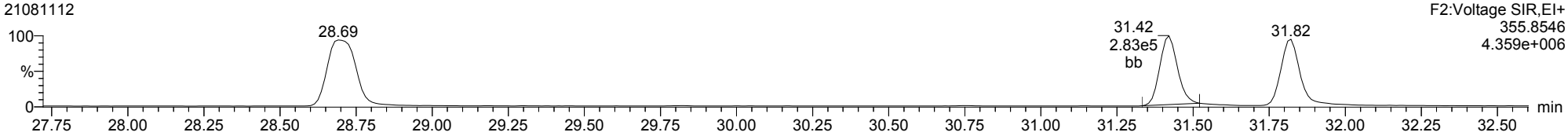

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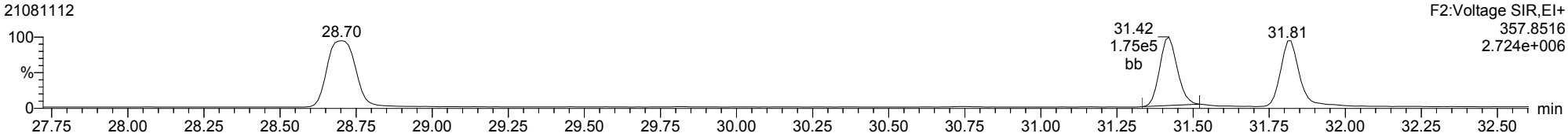

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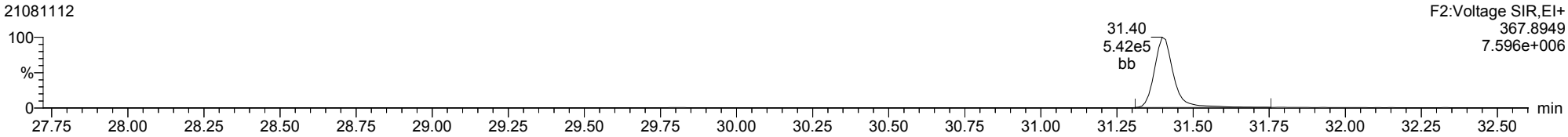

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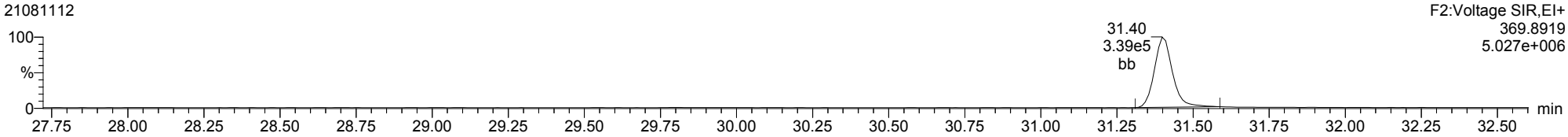

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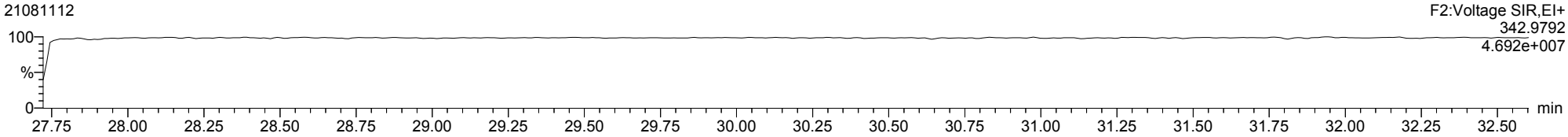

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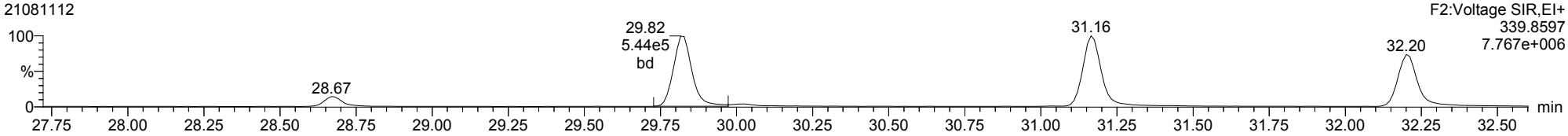

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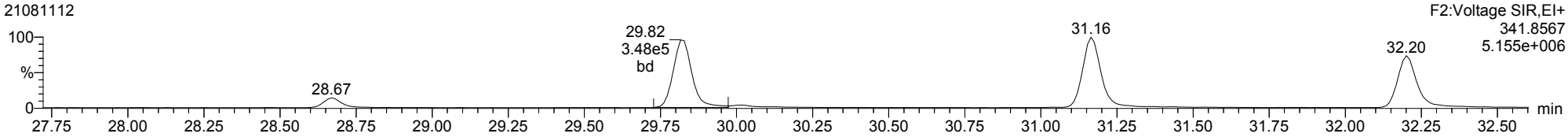

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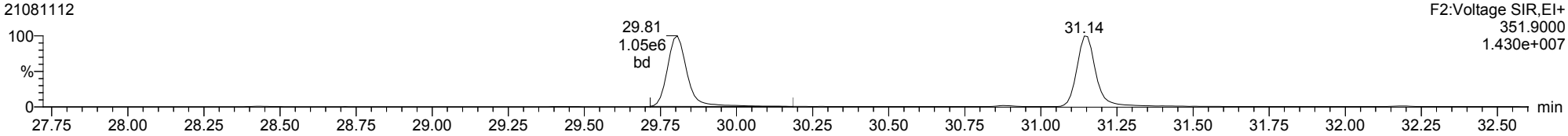

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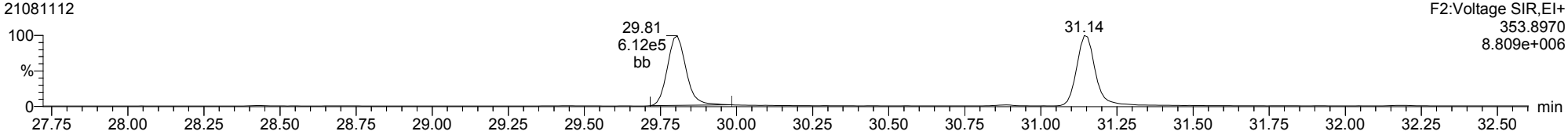
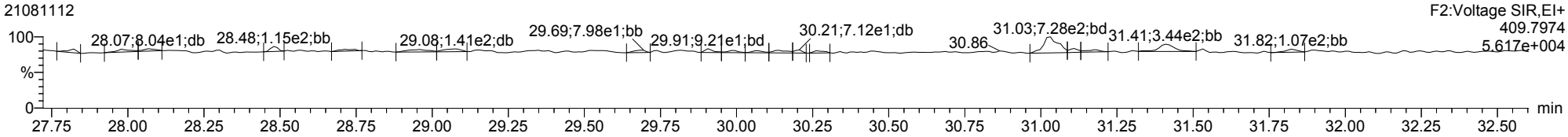


FUNCTION2 HPCDPE



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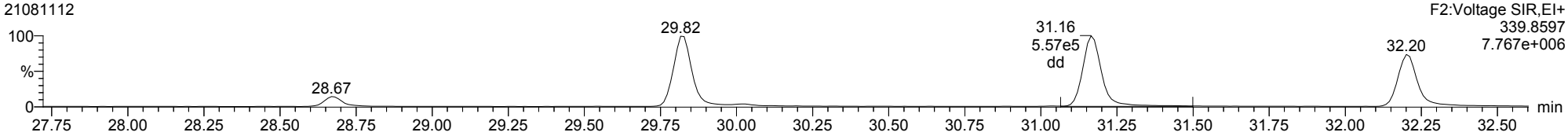
23478-PeCDF



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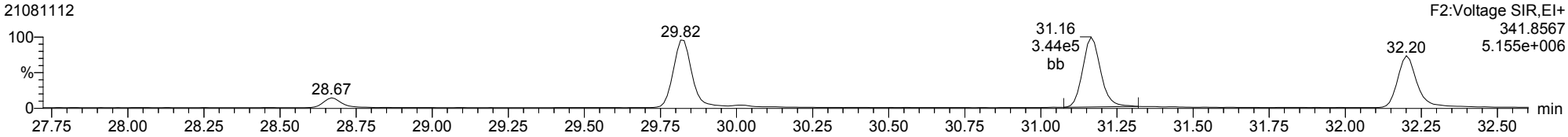

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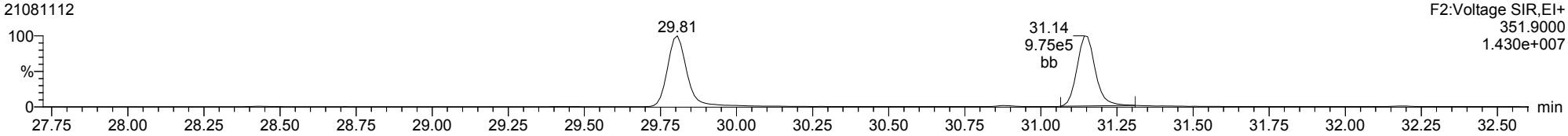

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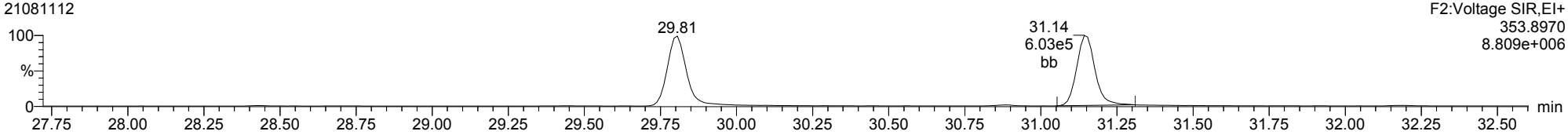

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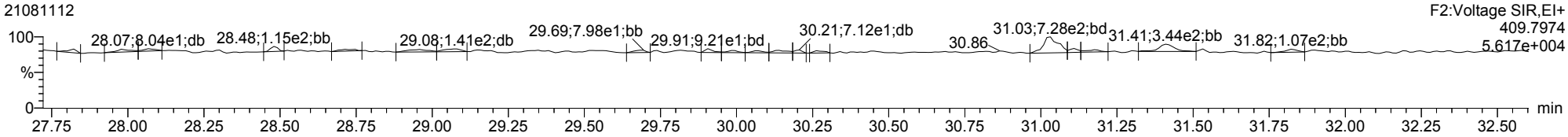

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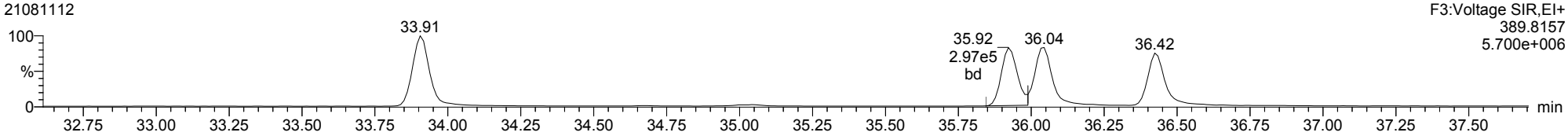
123478-HxCDD



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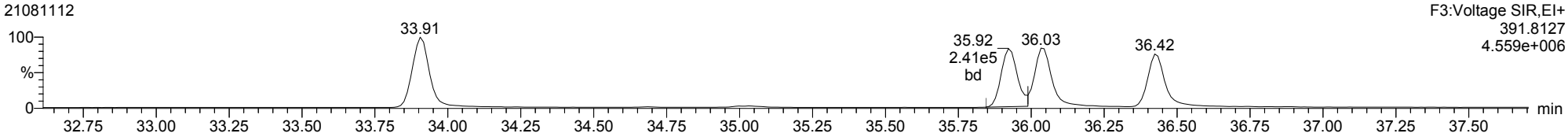

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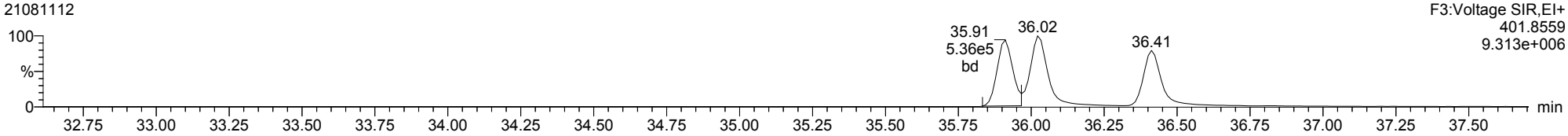

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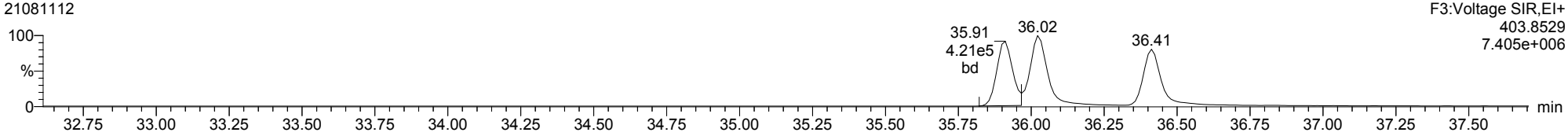
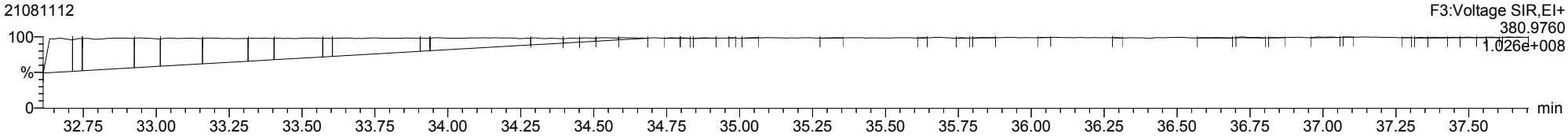


FUNCTION3 PFK



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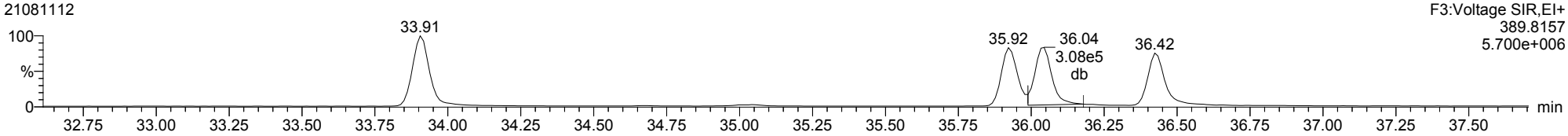

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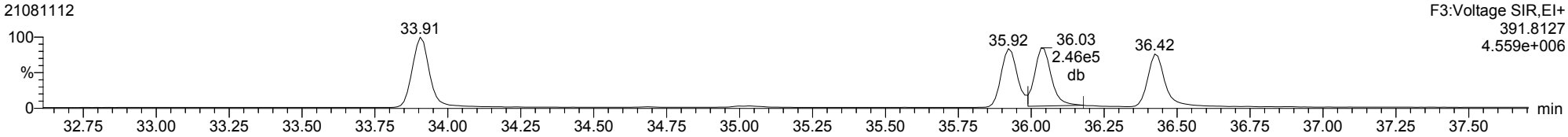

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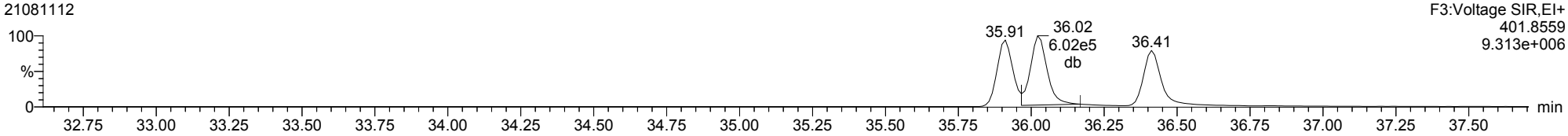

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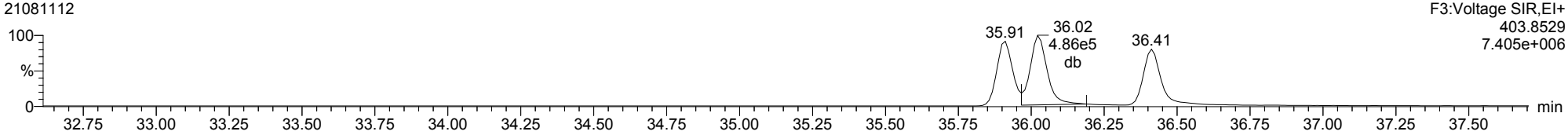

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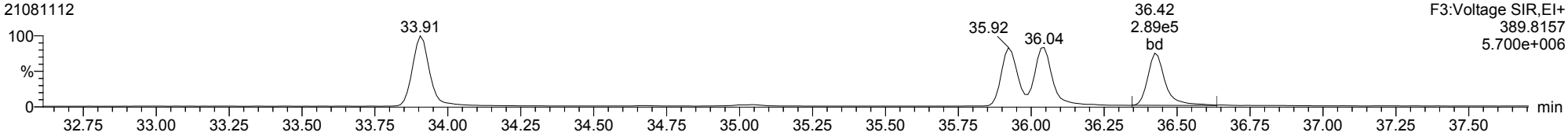

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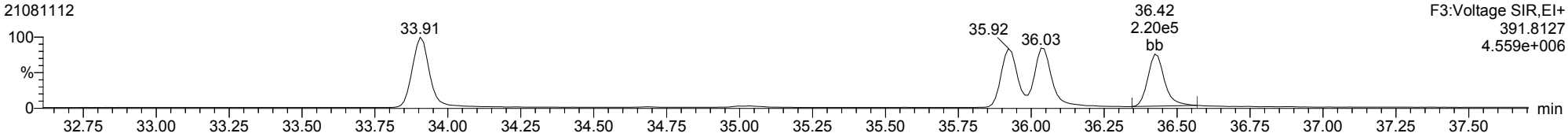

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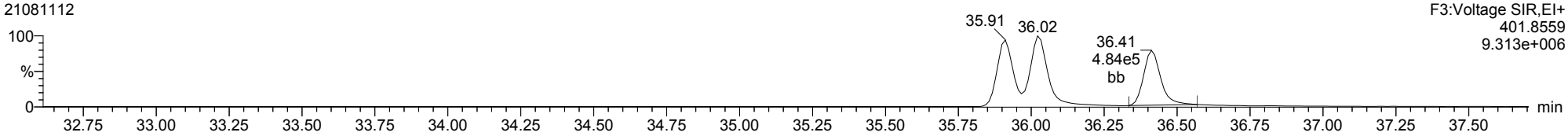

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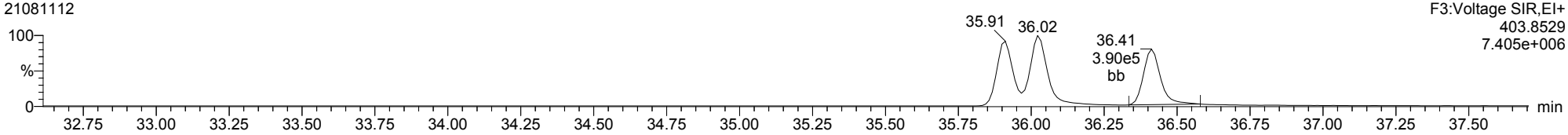

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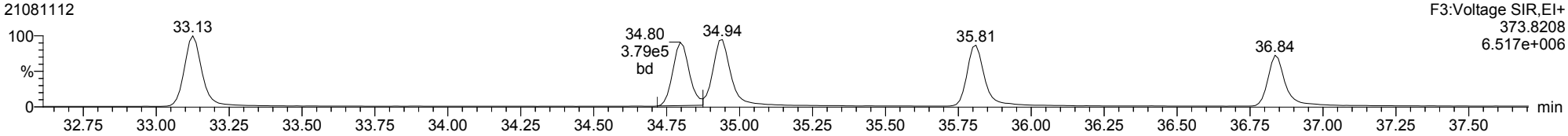

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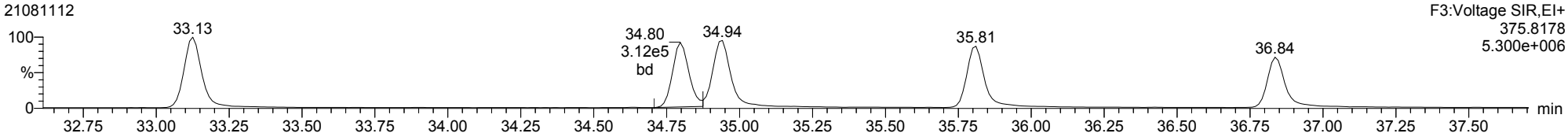

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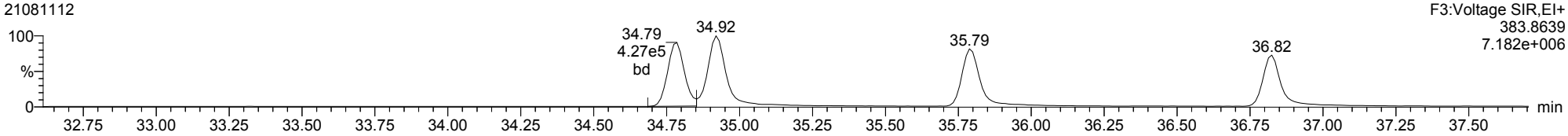

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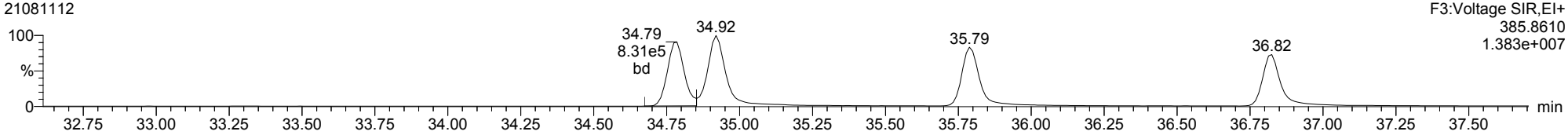

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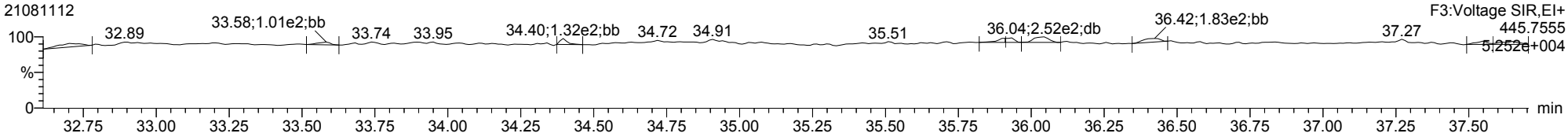

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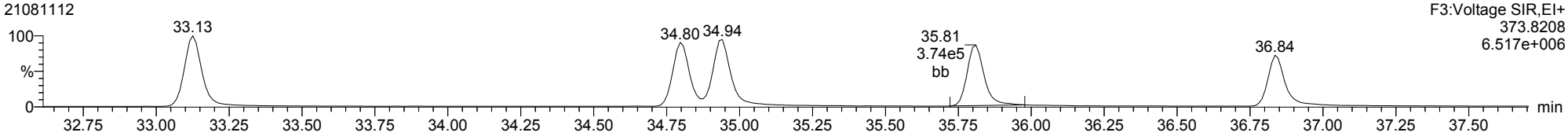

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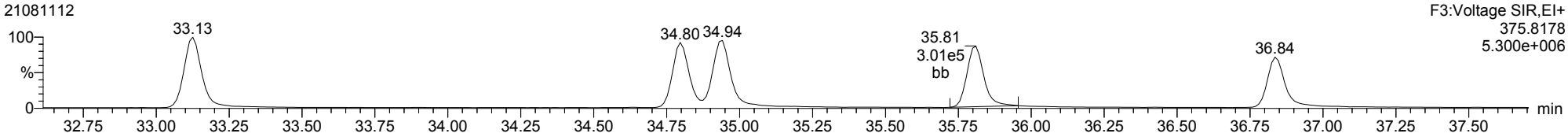

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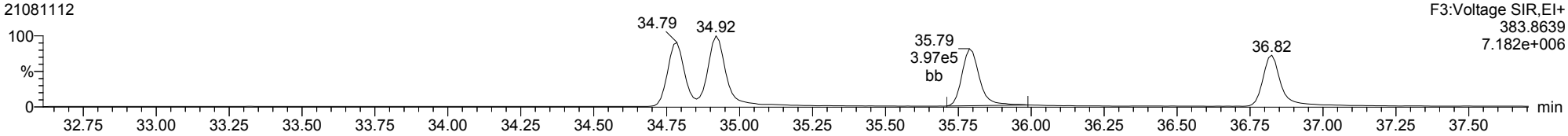

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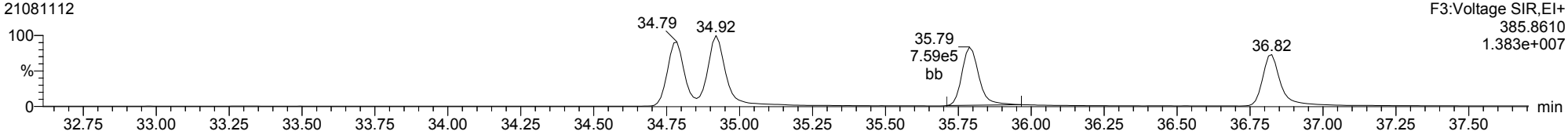

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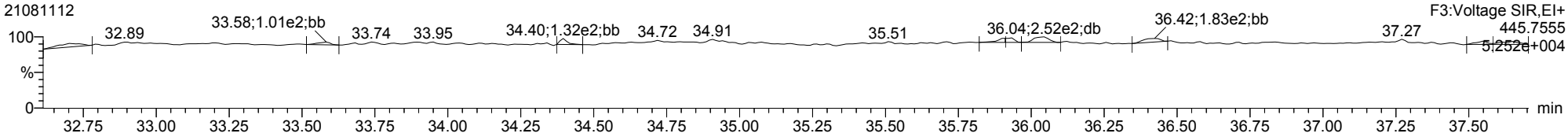

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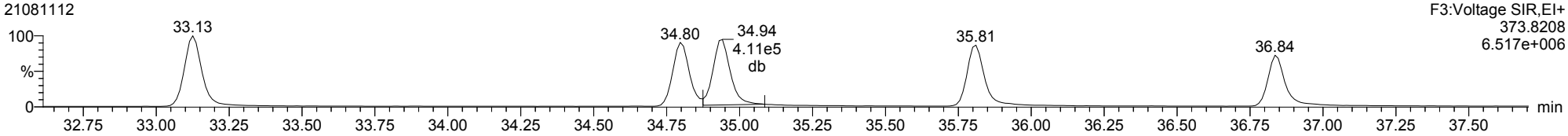

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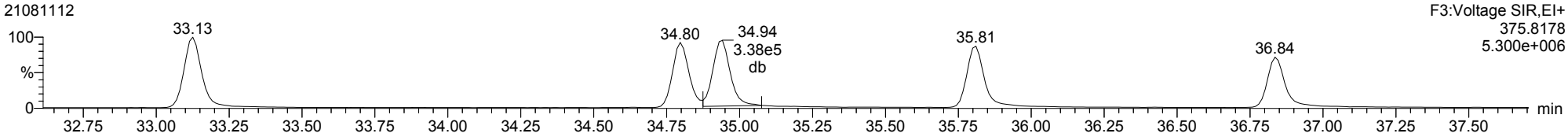

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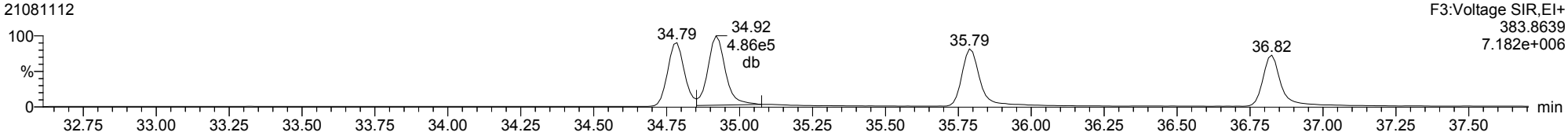

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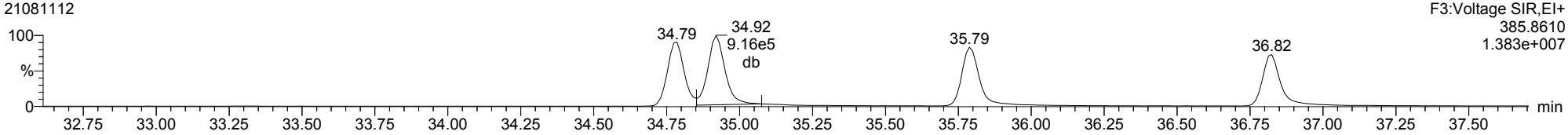

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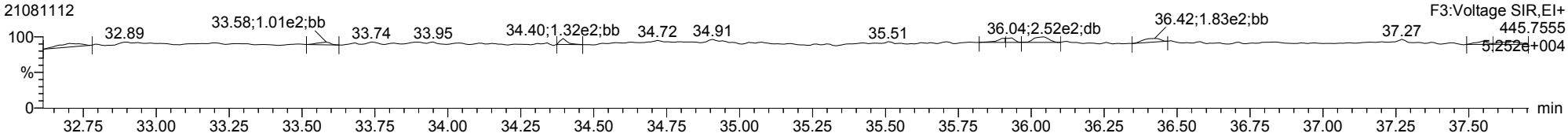

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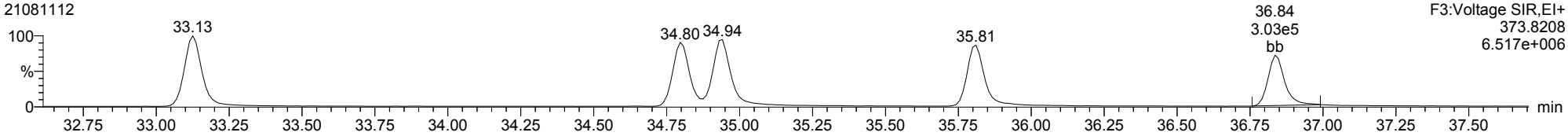

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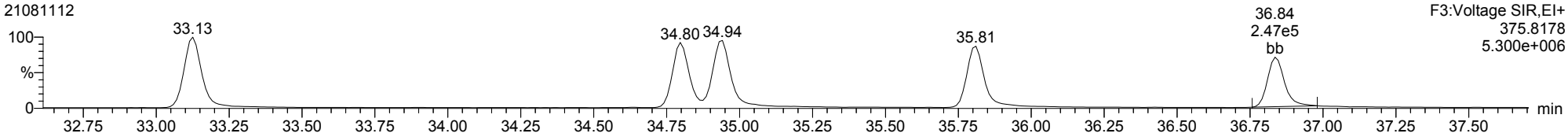

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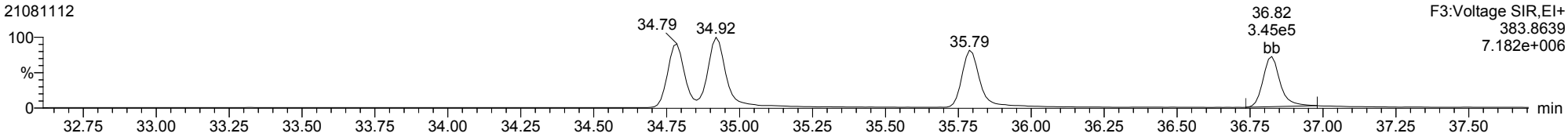

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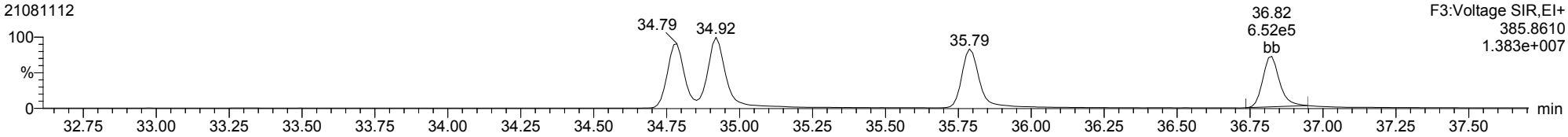

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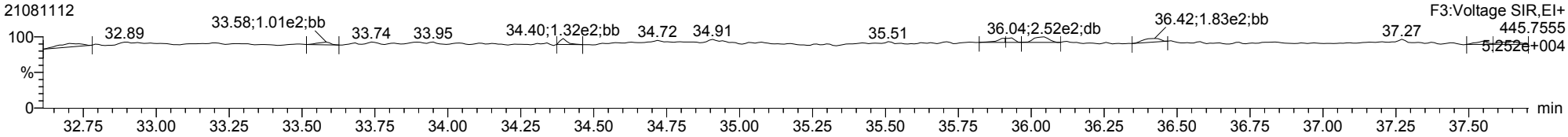

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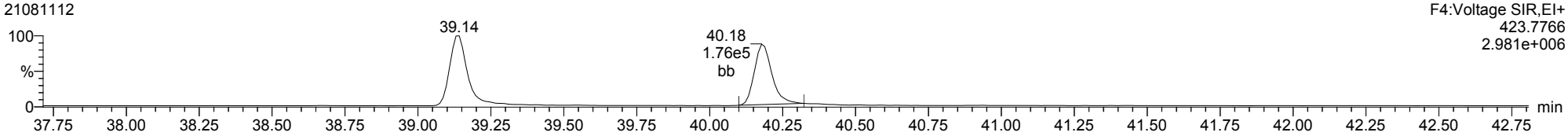

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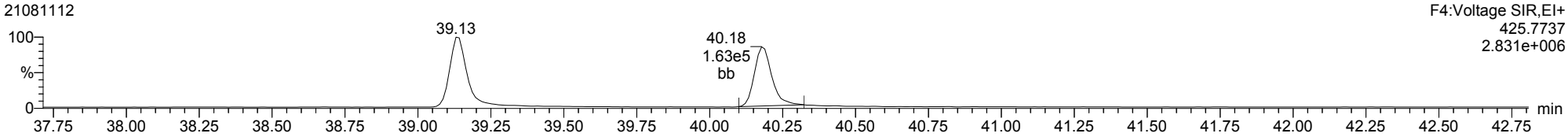

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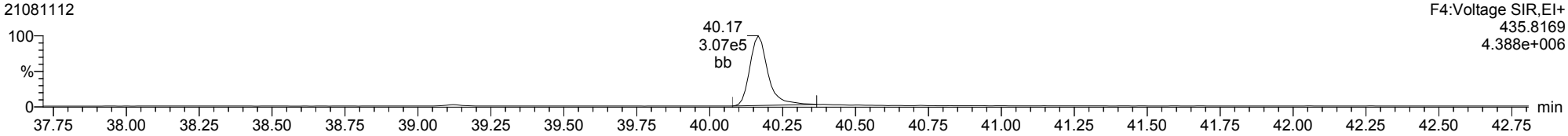

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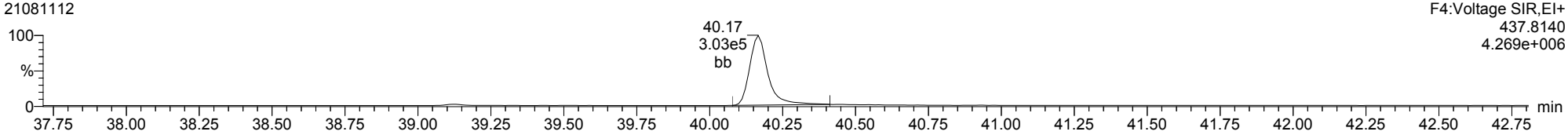

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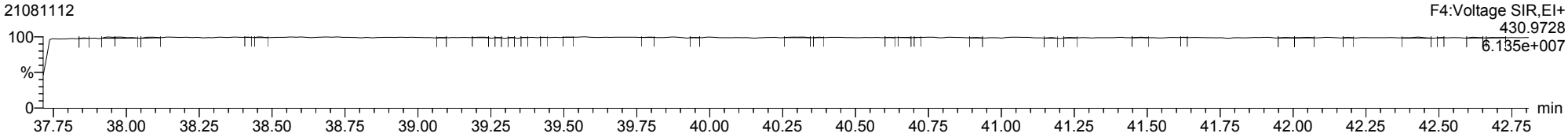

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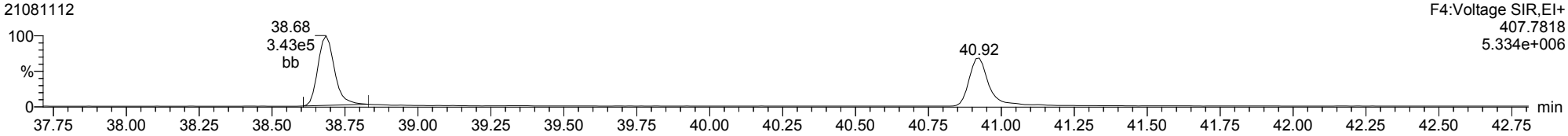

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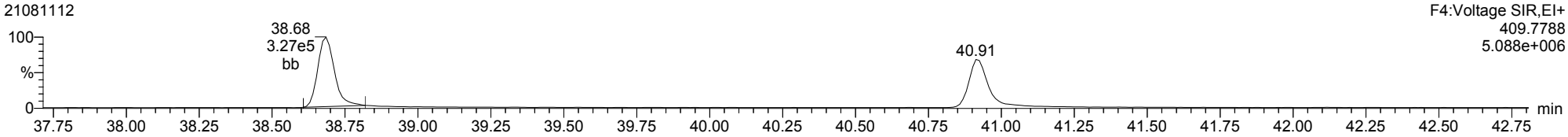

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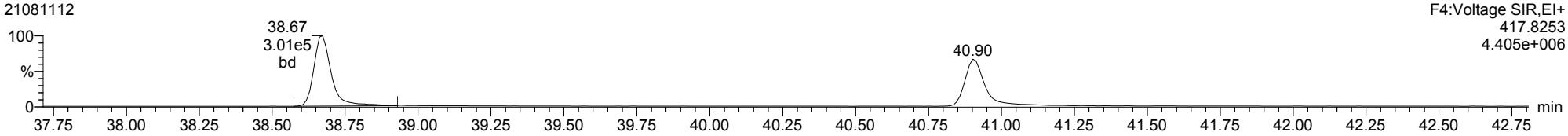

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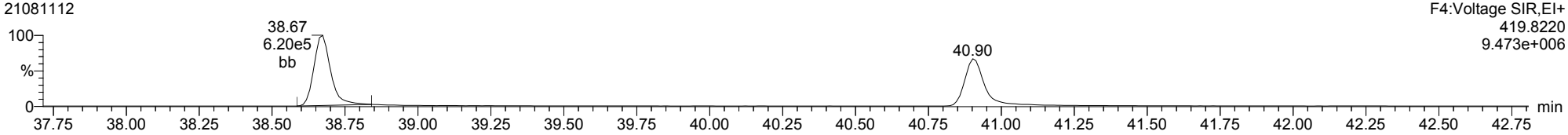

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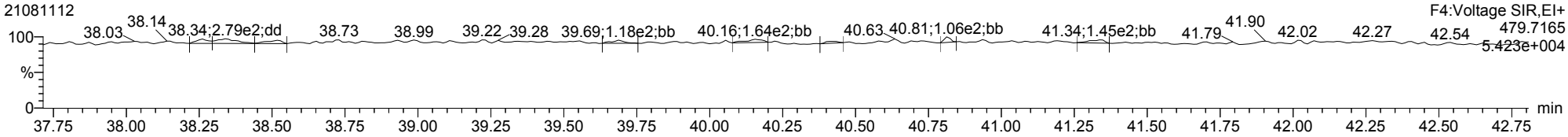

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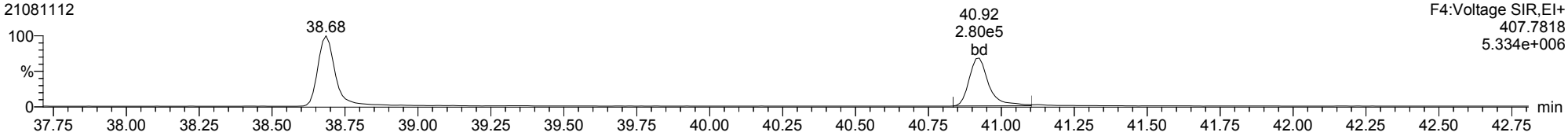

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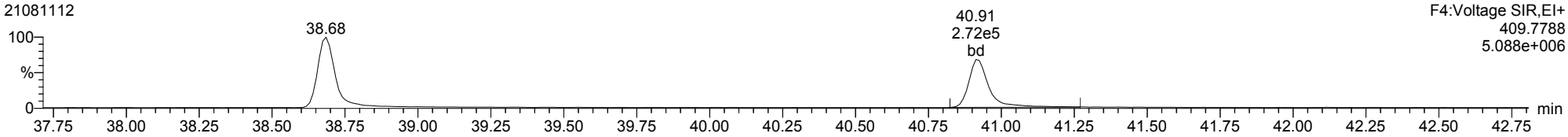

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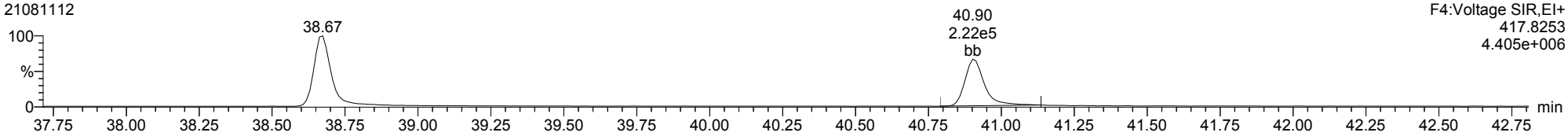

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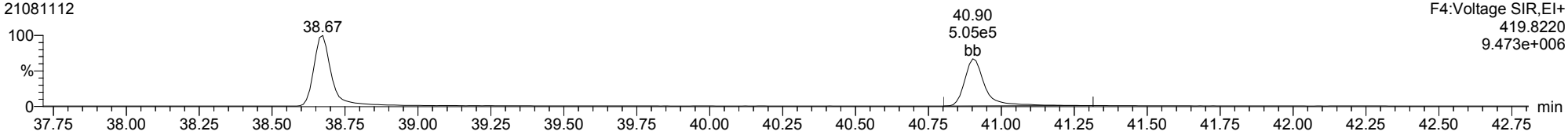

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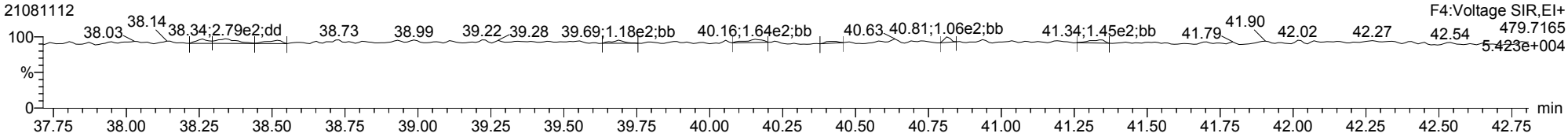

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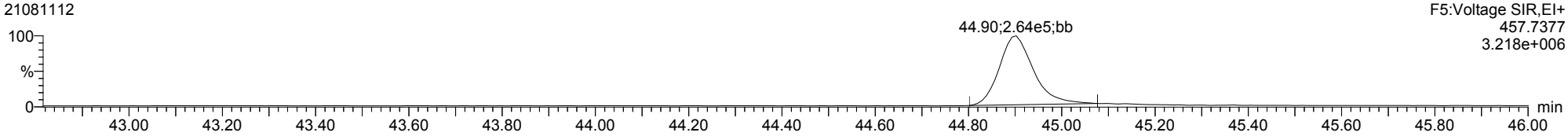

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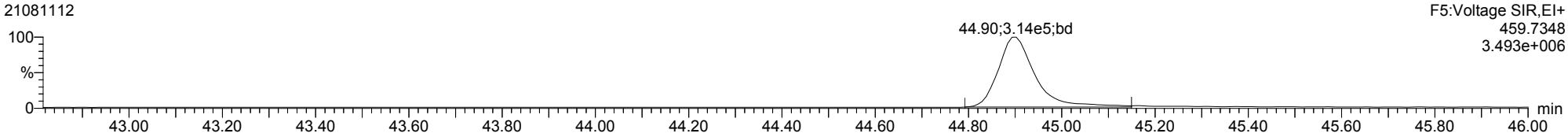

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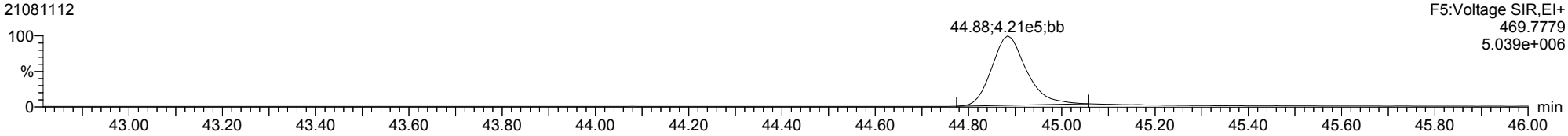

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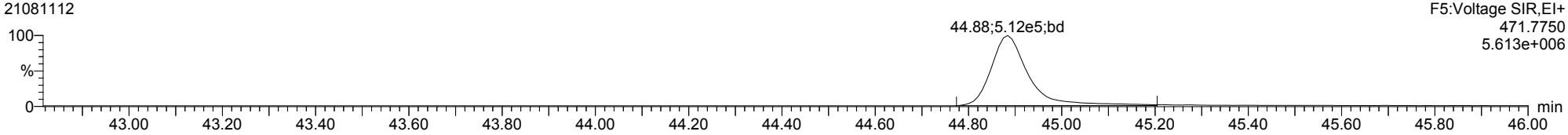

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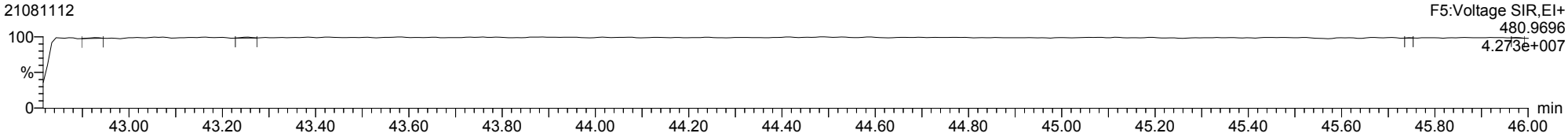

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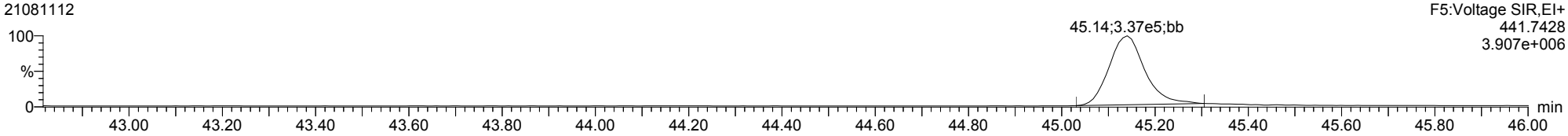
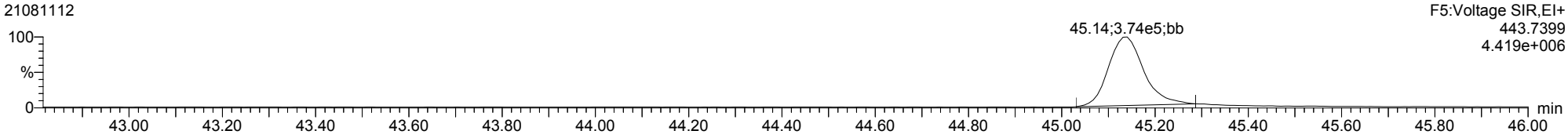
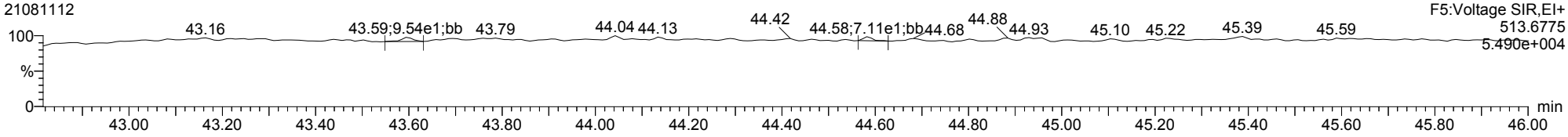


OCDF

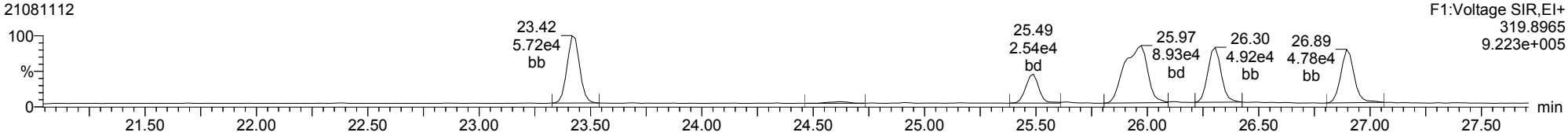


FUNCTION5 DCDPE



ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



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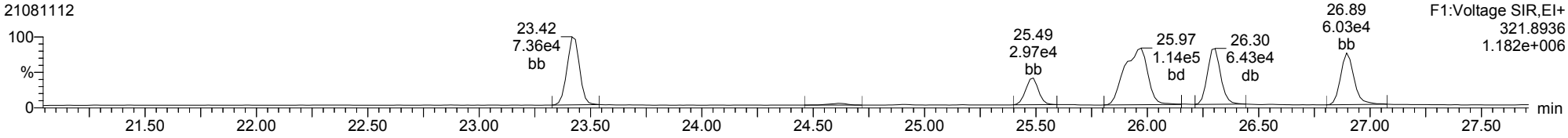

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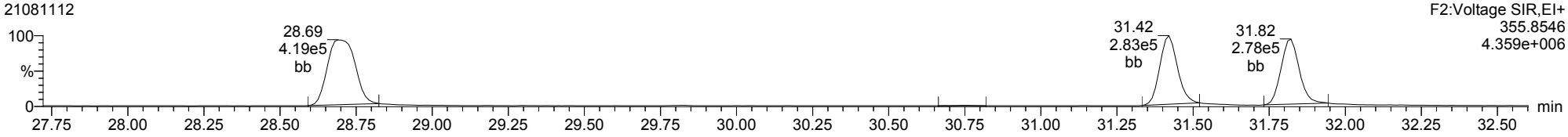
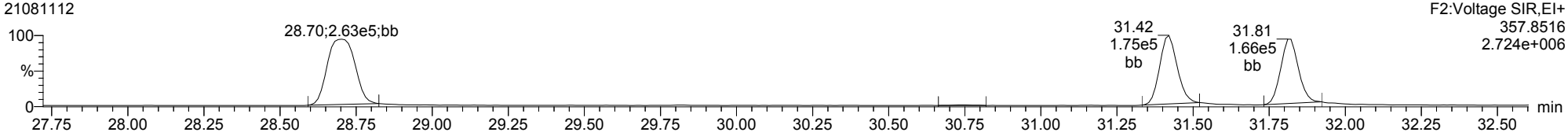


Total-pentadioxins



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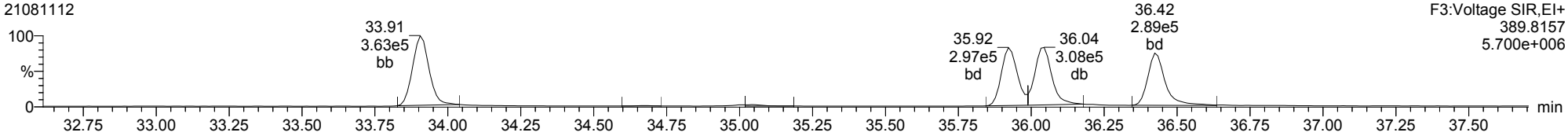
Total-hexadioxins



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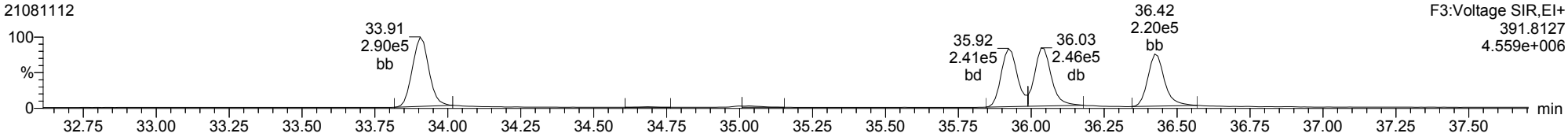

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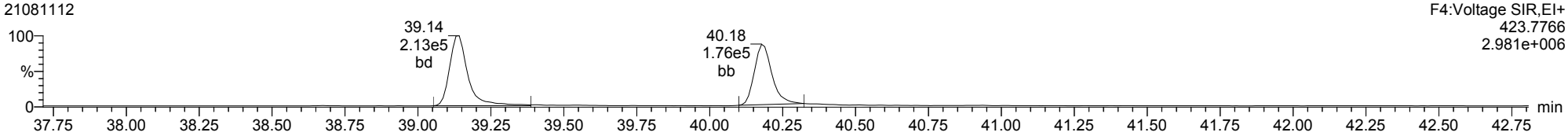

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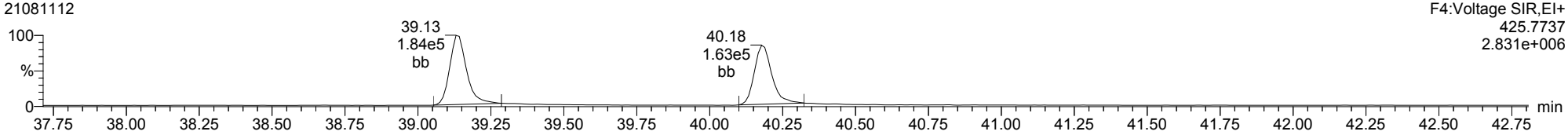
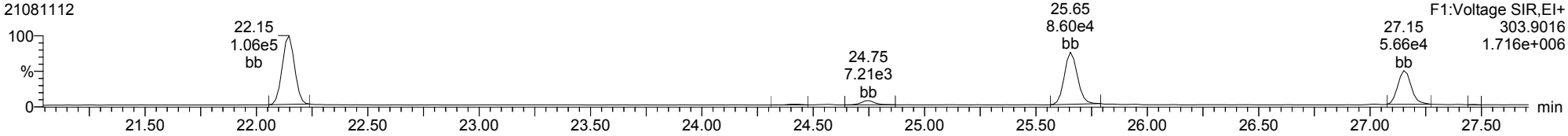
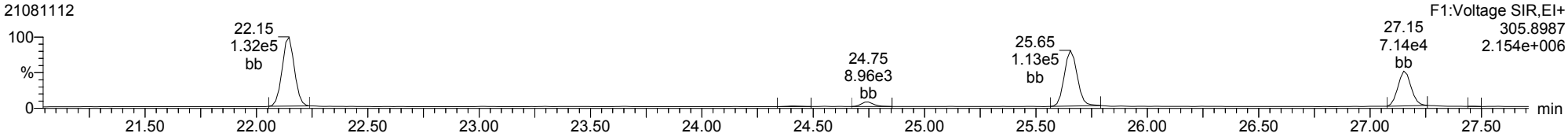


ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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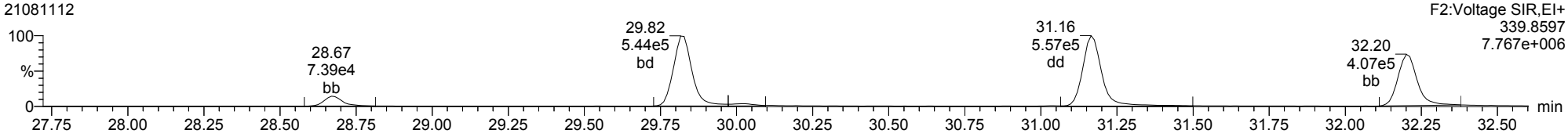

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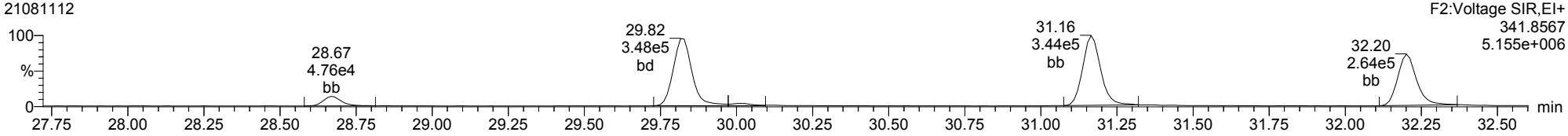

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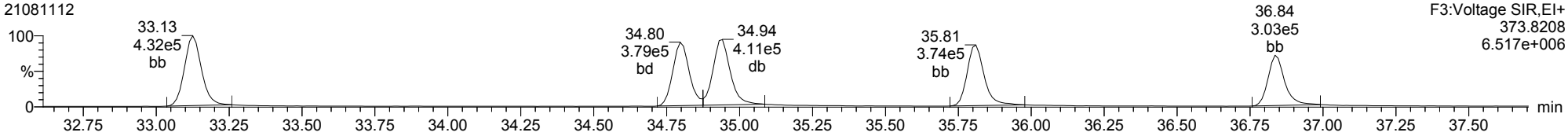

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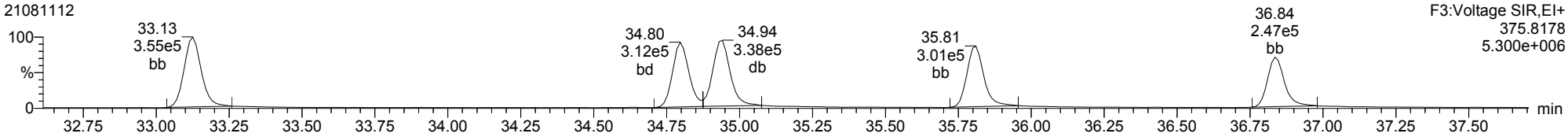

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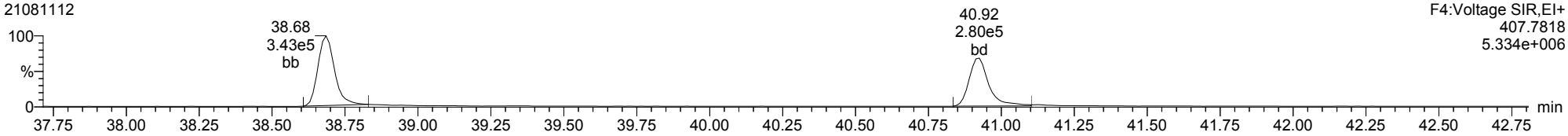

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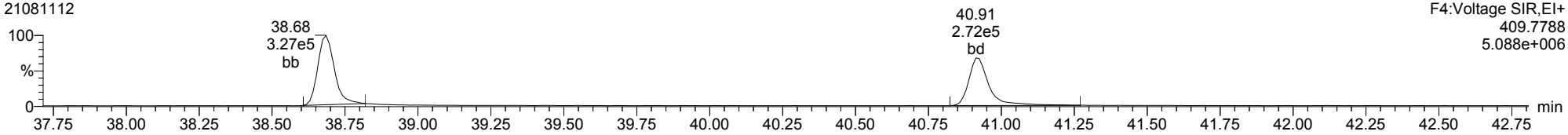

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21082415	Calibration Date:	08/11/2021
Sequence:	SJH0304	Injection Date:	08/24/21
Lab Sample ID:	SJH0304-CCV1	Injection Time:	23:34
Sequence Name:	CS3L4		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.29	1.1075930	1.0292090		-7.1	+/-16
2,3,7,8-TCDD	A	10.000	10.8	0.9202875	0.9905269		7.6	+/-22
1,2,3,7,8-PeCDF	A	50.000	47.1	1.0148670	0.9558327		-5.8	+/-18
2,3,4,7,8-PeCDF	A	50.000	46.8	1.1255490	1.0535010		-6.4	+/-18
1,2,3,7,8-PeCDD	A	50.000	56.1	0.9953229	1.1172040		12.2	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	50.5	1.0168930	1.0273500		1.0	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	48.2	1.0368310	0.9994585		-3.6	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	49.0	1.0524660	1.0317090		-2.0	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.2	1.0301540	0.9931758		-3.6	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	49.2	1.0273630	1.0105340		-1.6	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	48.2	1.0089800	0.9724476		-3.6	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.8	0.9504865	0.9650408		1.5	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.9	1.3273500	1.2724880		-4.1	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	49.6	1.2833380	1.2728120		-0.8	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	53.0	1.0680880	1.1328400		6.1	+/-14
OCDF	A	100.00	92.8	1.4469010	1.3433260		-7.2	+/-37
OCDD	A	100.00	99.7	1.1808230	1.1774230		-0.3	+/-21
13C12-2,3,7,8-TCDF	A	100.00	108	1.4265830	1.5399195		7.9	+/-29
13C12-2,3,7,8-TCDD	A	100.00	105	1.1164910	1.1720051		5.0	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	110	1.2973130	1.4208203		9.5	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	110	1.2364800	1.3597266		10.0	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	106	0.7319833	0.7772564		6.2	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	89.7	1.2424560	1.1147704		-10.3	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	86.1	1.3434760	1.1561654		-13.9	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	88.4	1.2148550	1.0733542		-11.6	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	93.4	1.0076370	0.9413553		-6.6	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	98.2	0.9598233	0.9425493		-1.8	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	95.0	1.0413850	0.9893436		-5.0	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	103	0.9264704	0.9532540		2.9	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	104	0.7579160	0.7853786		3.6	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	106	0.6324476	0.6709054		6.1	+/-28
13C12-OCDD	A	200.00	245	0.5037432	0.6173536		22.6	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.0	1.0835930	1.0833673		-0.02	

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:23:34 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.262	1.001	5.541e4	7.628e4	1.108	0.726	0.770	1102	1363	8.10e5	1.11e6	735.6	812.9	NO	bb	bb	9.292
12378-PeCDF	29.414	1.000	3.434e5	2.209e5	1.015	1.555	1.550	2378	3287	4.84e6	3.14e6	2037.4	955.6	NO	bb	bb	47.092
23478-PeCDF	30.762	1.001	3.605e5	2.347e5	1.126	1.536	1.550	2378	3287	5.28e6	3.47e6	2219.9	1055.3	NO	bb	bb	46.799
123478-HxCDF	34.416	1.000	2.733e5	2.242e5	1.017	1.219	1.240	2538	2318	4.14e6	3.41e6	1630.7	1469.5	NO	bd	bd	50.514
234678-HxCDF	35.441	1.001	2.648e5	2.162e5	1.052	1.225	1.240	2538	2318	4.17e6	3.36e6	1642.2	1449.6	NO	bb	bb	49.014
123678-HxCDF	34.561	1.001	2.795e5	2.226e5	1.037	1.256	1.240	2538	2318	4.07e6	3.27e6	1602.7	1412.7	NO	db	db	48.198
123789-HxCDF	36.478	1.001	2.241e5	1.821e5	1.030	1.231	1.240	2538	2318	3.46e6	2.78e6	1362.4	1200.6	NO	bb	bb	48.205
1234678-HpCDF	38.349	1.000	2.671e5	2.599e5	1.327	1.028	1.050	2165	2208	4.34e6	4.31e6	2003.4	1953.4	NO	bb	bb	47.933
1234789-HpCDF	40.533	1.000	2.207e5	2.136e5	1.283	1.033	1.050	2165	2208	3.26e6	3.19e6	1506.1	1444.9	NO	bb	bb	49.590
OCDF	44.665	1.005	3.339e5	3.867e5	1.447	0.863	0.890	1481	1592	3.93e6	4.47e6	2656.6	2807.7	NO	bb	bd	92.842
2378-TCDD	25.897	1.001	4.384e4	5.262e4	0.920	0.833	0.770	1248	1351	6.37e5	7.87e5	510.5	582.8	NO	bb	bb	10.763
12378-PeCDD	31.018	1.001	2.211e5	1.396e5	0.995	1.584	1.550	2337	1177	3.28e6	2.06e6	1402.8	1750.3	NO	bb	bb	56.123
123478-HxCDD	35.553	1.000	2.305e5	1.833e5	1.027	1.257	1.240	2638	1998	3.63e6	2.87e6	1376.0	1438.6	NO	bd	bd	49.181
123678-HxCDD	35.675	1.000	2.308e5	1.871e5	1.009	1.234	1.240	2638	1998	3.65e6	2.94e6	1381.7	1470.5	NO	db	db	48.190
123789-HxCDD	36.065	1.011	2.236e5	1.814e5	0.950	1.232	1.240	2638	1998	3.48e6	2.85e6	1319.1	1425.7	NO	bb	bb	50.766
1234678-HpCDD	39.820	1.000	1.758e5	1.544e5	1.068	1.139	1.050	1950	1452	2.74e6	2.49e6	1405.9	1714.4	NO	bb	bb	53.031
OCDD	44.445	1.000	2.935e5	3.380e5	1.181	0.868	0.890	1820	1504	3.68e6	4.07e6	2021.3	2708.7	NO	bb	bd	99.712
13C-2378-TCDF	25.247	1.007	5.703e5	7.093e5	1.427	0.804	0.770	2411	1425	8.26e6	1.03e7	3425.7	7233.0	NO	bb	bb	107.945
13C-12378-PeCDF	29.403	1.173	7.352e5	4.454e5	1.297	1.651	1.550	2767	2006	1.05e7	6.41e6	3782.0	3193.7	NO	bd	bb	109.520
13C-23478-PeCDF	30.740	1.226	6.988e5	4.310e5	1.236	1.621	1.550	2767	2006	1.02e7	6.28e6	3680.8	3132.1	NO	bb	bb	109.968
13C-123478-HxCDF	34.405	0.954	3.281e5	6.405e5	1.242	0.512	0.510	2598	2742	4.82e6	9.49e6	1854.8	3463.2	NO	bd	bd	89.723
13C-123678-HxCDF	34.539	0.958	3.404e5	6.642e5	1.343	0.513	0.510	2598	2742	4.90e6	9.59e6	1885.1	3498.4	NO	db	db	86.058
13C-234678-HxCDF	35.419	0.982	3.175e5	6.151e5	1.215	0.516	0.510	2598	2742	4.84e6	9.37e6	1861.8	3416.5	NO	bb	bb	88.352
13C-123789-HxCDF	36.455	1.011	2.769e5	5.411e5	1.008	0.512	0.510	2598	2742	4.24e6	8.36e6	1632.1	3048.0	NO	bb	bb	93.422
13C-1234678-HpCDF	38.338	1.063	2.672e5	5.610e5	0.926	0.476	0.440	1992	1884	4.20e6	9.06e6	2110.8	4810.1	NO	bd	bb	102.891
13C-1234789-HpCDF	40.522	1.124	2.172e5	4.652e5	0.758	0.467	0.440	1992	1884	3.11e6	6.62e6	1559.8	3516.2	NO	bb	bb	103.623
13C-1234-TCDD	25.065	0.000	3.614e5	4.695e5	1.000	0.770	0.770	2269	1153	5.29e6	6.90e6	2332.8	5982.9	NO	bb	bb	100.000
13C-2378-TCDD	25.882	1.033	4.219e5	5.519e5	1.116	0.764	0.770	2269	1153	6.16e6	8.17e6	2713.1	7086.1	NO	bb	bb	104.972
13C-12378-PeCDD	30.996	1.237	3.923e5	2.535e5	0.732	1.548	1.550	1141	1103	5.70e6	3.70e6	4991.1	3353.2	NO	bb	bb	106.185
13C-123478-HxCDD	35.542	0.986	4.610e5	3.580e5	0.960	1.288	1.240	2165	1599	7.58e6	5.89e6	3498.4	3680.4	NO	bd	bd	98.200
13C-123678-HxCDD	35.664	0.989	4.763e5	3.834e5	1.041	1.242	1.240	2165	1599	7.30e6	5.94e6	3371.9	3711.2	NO	db	db	95.003
13C-1234678-HpCDD	39.809	1.104	3.008e5	2.821e5	0.632	1.066	1.050	1636	1493	4.40e6	4.23e6	2692.7	2830.9	NO	bb	bb	106.081
13C-OCDD	44.427	1.232	5.170e5	5.558e5	0.504	0.930	0.890	1620	1871	6.39e6	6.81e6	3941.5	3641.4	NO	bb	bb	245.106
13C-123789-HxCDD	36.054	0.000	4.884e5	3.805e5	1.000	1.283	1.240	2165	1599	7.61e6	5.93e6	3512.7	3706.9	NO	bb	bb	100.000
37CL-2378-TCDD	25.897	1.033	9.002e4		1.084			1088		1.28e6		1180.3			bb		9.998

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:23:34 Pacific Daylight Time

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.754	0.862	6.923e4	8.950e4	1.425	0.774	0.770	1102	1363	1.05e6	1.34e6	956.9	982.0	NO	bb	bb	8.705
1289-TCDF	26.743	1.059	5.575e4	7.192e4	1.043	0.775	0.770	1102	1363	7.65e5	1.01e6	694.4	739.5	NO	db	db	9.567
13468-PECDF	26.607	0.905	4.355e5	2.893e5	1.376	1.505	1.550	883	970	6.15e6	4.10e6	6962.7	4227.9	NO	bb	bb	44.609
12389-PECDF	31.787	1.081	3.528e5	2.296e5	1.000	1.537	1.550	2378	3287	4.78e6	3.13e6	2011.6	950.6	NO	bb	bb	49.348
123468-HXCDF	32.734	0.951	2.780e5	2.288e5	1.087	1.215	1.240	2538	2318	3.93e6	3.24e6	1547.2	1397.8	NO	bb	bb	48.161
1368-TCDD	23.039	0.890	4.114e4	5.070e4	0.923	0.811	0.770	1248	1351	5.68e5	7.21e5	455.0	533.9	NO	bb	bb	10.214
1289-TCDD	26.501	1.024	3.723e4	4.690e4	0.794	0.794	0.770	1248	1351	5.13e5	6.48e5	410.8	480.0	NO	bb	bb	10.880
12479-PECDD	28.289	0.913	3.834e5	2.356e5	1.843	1.627	1.550	2337	1177	3.67e6	2.28e6	1572.2	1939.7	NO	bb	bb	51.995
12389-PECDD	31.408	1.013	2.634e5	1.585e5	1.154	1.662	1.550	2337	1177	3.86e6	2.35e6	1652.9	2000.9	NO	bb	bb	56.631
124679-HXCDD	33.514	0.943	2.423e5	1.980e5	1.125	1.224	1.240	2638	1998	3.56e6	2.91e6	1350.8	1454.8	NO	bb	bb	47.797
1234679-HPCDD	38.795	0.975	1.893e5	1.751e5	1.211	1.081	1.050	1950	1452	3.02e6	2.78e6	1549.3	1913.4	NO	bb	bb	51.619
Total-tetrafurans			1.804e5		1.192			1102		2.63e6							27.563
Total-penta1			4.355e5					883		6.15e6							44.609
Total-pentafurans			1.114e6		1.047			2378		1.57e7							151.050
Total-hexafurans			1.320e6		1.045			2538		1.98e7							244.093
Total-heptafurans			4.884e5		1.305			2165		7.61e6							97.634
Total-Furans			3.872e6		1.158			1102		5.58e7							657.790
Total-tetradioxins			2.082e5		0.879			1248		2.69e6							54.680
Total-pentadioxins			8.680e5		1.331			2337		1.08e7							164.749
Total-hexadioxins			9.272e5		1.028			2638		1.43e7							195.933
Total-heptadioxins			3.651e5		1.140			1950		5.76e6							104.650
Total-Dioxins			2.662e6		1.092			1248		3.73e7							619.724
Total-TEQ			6.534e6					1248		9.30e7							1277.514
FUNCTION1 PFK			1.421e6					666423		3.14e7							
FUNCTION2 PFK			5.739e5					372434		1.70e7							0.000
FUNCTION3 PFK			2.425e7					484034		1.65e8							0.000
FUNCTION4 PFK			1.664e5					332417		5.03e6							
FUNCTION5 PFK			1.559e5					258878		4.32e6							
FUNCTION1 HXCD...			5.896e2					518		8.70e3							0.000
FUNCTION1 HPCD...			1.021e3					786		1.32e4							0.000
FUNCTION2 HPCD...			8.289e2					807		2.17e4							0.000
FUNCTION3 OCDPE			7.123e2					574		9.57e3							0.000
FUNCTION4 NCDPE			4.382e2					741		7.62e3							0.000
FUNCTION5 DCDPE			8.321e1					548		1.44e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:23:34 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.74	5.575e4	7.192e4	1.043	0.78	0.77	694.4	YES	NO	db	db	9.567
2	2378-TCDF	25.26	5.541e4	7.628e4	1.108	0.73	0.77	735.6	YES	NO	bb	bb	9.292
3	1368-TCDF	21.75	6.923e4	8.950e4	1.425	0.77	0.77	956.9	YES	NO	bb	bb	8.705

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.61	4.355e5	2.893e5	1.376	1.51	1.55	6962.7	YES	NO	bb	bb	44.609

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.28	5.753e4	3.691e4	1.047	1.56	1.55	329.8	YES	NO	bb	bb	7.811
2	12389-PECDF	31.79	3.528e5	2.296e5	1.000	1.54	1.55	2011.6	YES	NO	bb	bb	49.348
3	23478-PeCDF	30.76	3.605e5	2.347e5	1.126	1.54	1.55	2219.9	YES	NO	bb	bb	46.799
4	12378-PeCDF	29.41	3.434e5	2.209e5	1.015	1.55	1.55	2037.4	YES	NO	bb	bb	47.092

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.48	2.241e5	1.821e5	1.030	1.23	1.24	1362.4	YES	NO	bb	bb	48.205
2	234678-HxCDF	35.44	2.648e5	2.162e5	1.052	1.22	1.24	1642.2	YES	NO	bb	bb	49.014
3	123678-HxCDF	34.56	2.795e5	2.226e5	1.037	1.26	1.24	1602.7	YES	NO	db	db	48.198
4	123478-HxCDF	34.42	2.733e5	2.242e5	1.017	1.22	1.24	1630.7	YES	NO	bd	bd	50.514
5	123468-HXCDF	32.73	2.780e5	2.288e5	1.087	1.21	1.24	1547.2	YES	NO	bb	bb	48.161

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.53	2.207e5	2.136e5	1.283	1.03	1.05	1506.1	YES	NO	bb	bb	49.590
2	Total-heptafurans	39.01	5.632e2	5.289e2	1.305	1.06	1.05	4.8	YES	NO	bb	bb	0.111
3	1234678-HpCDF	38.35	2.671e5	2.599e5	1.327	1.03	1.05	2003.4	YES	NO	bb	bb	47.933

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.74	5.575e4	7.192e4	1.043	0.78	0.77	694.4	YES	NO	db	db	9.567
2	2378-TCDF	25.26	5.541e4	7.628e4	1.108	0.73	0.77	735.6	YES	NO	bb	bb	9.292
3	1368-TCDF	21.75	6.923e4	8.950e4	1.425	0.77	0.77	956.9	YES	NO	bb	bb	8.705
4	Total-pentafurans	28.28	5.753e4	3.691e4	1.047	1.56	1.55	329.8	YES	NO	bb	bb	7.811
5	12389-PECDF	31.79	3.528e5	2.296e5	1.000	1.54	1.55	2011.6	YES	NO	bb	bb	49.348
6	23478-PeCDF	30.76	3.605e5	2.347e5	1.126	1.54	1.55	2219.9	YES	NO	bb	bb	46.799
7	12378-PeCDF	29.41	3.434e5	2.209e5	1.015	1.55	1.55	2037.4	YES	NO	bb	bb	47.092
8	123789-HxCDF	36.48	2.241e5	1.821e5	1.030	1.23	1.24	1362.4	YES	NO	bb	bb	48.205
9	234678-HxCDF	35.44	2.648e5	2.162e5	1.052	1.22	1.24	1642.2	YES	NO	bb	bb	49.014
10	123678-HxCDF	34.56	2.795e5	2.226e5	1.037	1.26	1.24	1602.7	YES	NO	db	db	48.198
11	123478-HxCDF	34.42	2.733e5	2.242e5	1.017	1.22	1.24	1630.7	YES	NO	bd	bd	50.514
12	123468-HXCDF	32.73	2.780e5	2.288e5	1.087	1.21	1.24	1547.2	YES	NO	bb	bb	48.161
13	1234789-HpCDF	40.53	2.207e5	2.136e5	1.283	1.03	1.05	1506.1	YES	NO	bb	bb	49.590
14	Total-heptafurans	39.01	5.632e2	5.289e2	1.305	1.06	1.05	4.8	YES	NO	bb	bb	0.111
15	1234678-HpCDF	38.35	2.671e5	2.599e5	1.327	1.03	1.05	2003.4	YES	NO	bb	bb	47.933
16	OCDF	44.67	3.339e5	3.867e5	1.447	0.86	0.89	2656.6	YES	NO	bb	bd	92.842
17	13468-PECDF	26.61	4.355e5	2.893e5	1.376	1.51	1.55	6962.7	YES	NO	bb	bb	44.609

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.50	3.723e4	4.690e4	0.794	0.79	0.77	410.8	YES	NO	bb	bb	10.880
2	2378-TCDD	25.90	4.384e4	5.262e4	0.920	0.83	0.77	510.5	YES	NO	bb	bb	10.763
3	Total-tetradioxins	25.56	6.353e4	7.975e4	0.879	0.80	0.77	512.8	YES	NO	bb	bb	16.734
4	Total-tetradioxins	25.08	2.039e4	2.693e4	0.879	0.76	0.77	247.9	YES	NO	bb	bd	5.526
5	Total-tetradioxins	24.54	3.250e2	4.290e2	0.879	0.76	0.77	3.8	YES	NO	bb	bb	0.088
6	Total-tetradioxins	24.23	1.775e3	2.287e3	0.879	0.78	0.77	13.8	YES	NO	bb	bb	0.474
7	1368-TCDD	23.04	4.114e4	5.070e4	0.923	0.81	0.77	455.0	YES	NO	bb	bb	10.214

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.41	2.634e5	1.585e5	1.154	1.66	1.55	1652.9	YES	NO	bb	bb	56.631
2	12378-PeCDD	31.02	2.211e5	1.396e5	0.995	1.58	1.55	1402.8	YES	NO	bb	bb	56.123
3	12479-PECDD	28.29	3.834e5	2.356e5	1.843	1.63	1.55	1572.2	YES	NO	bb	bb	51.995

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	35.68	2.308e5	1.871e5	1.009	1.23	1.24	1381.7	YES	NO	db	db	48.190
2	123478-HxCDD	35.55	2.305e5	1.833e5	1.027	1.26	1.24	1376.0	YES	NO	bd	bd	49.181
3	124679-HXCDD	33.51	2.423e5	1.980e5	1.125	1.22	1.24	1350.8	YES	NO	bb	bb	47.797
4	123789-HxCDD	36.07	2.236e5	1.814e5	0.950	1.23	1.24	1319.1	YES	NO	bb	bb	50.766

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.82	1.758e5	1.544e5	1.068	1.14	1.05	1405.9	YES	NO	bb	bb	53.031
2	1234679-HPCDD	38.79	1.893e5	1.751e5	1.211	1.08	1.05	1549.3	YES	NO	bb	bb	51.619

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.50	3.723e4	4.690e4	0.794	0.79	0.77	410.8	YES	NO	bb	bb	10.880
2	2378-TCDD	25.90	4.384e4	5.262e4	0.920	0.83	0.77	510.5	YES	NO	bb	bb	10.763
3	Total-tetradioxins	25.56	6.353e4	7.975e4	0.879	0.80	0.77	512.8	YES	NO	bb	bb	16.734
4	Total-tetradioxins	25.08	2.039e4	2.693e4	0.879	0.76	0.77	247.9	YES	NO	bb	bd	5.526
5	Total-tetradioxins	24.54	3.250e2	4.290e2	0.879	0.76	0.77	3.8	YES	NO	bb	bb	0.088
6	Total-tetradioxins	24.23	1.775e3	2.287e3	0.879	0.78	0.77	13.8	YES	NO	bb	bb	0.474
7	1368-TCDD	23.04	4.114e4	5.070e4	0.923	0.81	0.77	455.0	YES	NO	bb	bb	10.214
8	12389-PECDD	31.41	2.634e5	1.585e5	1.154	1.66	1.55	1652.9	YES	NO	bb	bb	56.631
9	12378-PeCDD	31.02	2.211e5	1.396e5	0.995	1.58	1.55	1402.8	YES	NO	bb	bb	56.123
10	12479-PECDD	28.29	3.834e5	2.356e5	1.843	1.63	1.55	1572.2	YES	NO	bb	bb	51.995
11	123678-HxCDD	35.68	2.308e5	1.871e5	1.009	1.23	1.24	1381.7	YES	NO	db	db	48.190
12	123478-HxCDD	35.55	2.305e5	1.833e5	1.027	1.26	1.24	1376.0	YES	NO	bd	bd	49.181
13	124679-HXCDD	33.51	2.423e5	1.980e5	1.125	1.22	1.24	1350.8	YES	NO	bb	bb	47.797
14	123789-HxCDD	36.07	2.236e5	1.814e5	0.950	1.23	1.24	1319.1	YES	NO	bb	bb	50.766
15	1234678-HpCDD	39.82	1.758e5	1.544e5	1.068	1.14	1.05	1405.9	YES	NO	bb	bb	53.031
16	1234679-HPCDD	38.79	1.893e5	1.751e5	1.211	1.08	1.05	1549.3	YES	NO	bb	bb	51.619
17	OCDD	44.45	2.935e5	3.380e5	1.181	0.87	0.89	2021.3	YES	NO	bb	bd	99.712

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	26.74	5.575e4	7.192e4	1.043	0.78	0.77	694.4	YES	NO	db	db	9.567
2	2378-TCDF	25.26	5.541e4	7.628e4	1.108	0.73	0.77	735.6	YES	NO	bb	bb	9.292
3	1368-TCDF	21.75	6.923e4	8.950e4	1.425	0.77	0.77	956.9	YES	NO	bb	bb	8.705
4	Total-pentafurans	28.28	5.753e4	3.691e4	1.047	1.56	1.55	329.8	YES	NO	bb	bb	7.811
5	12389-PECDF	31.79	3.528e5	2.296e5	1.000	1.54	1.55	2011.6	YES	NO	bb	bb	49.348
6	23478-PeCDF	30.76	3.605e5	2.347e5	1.126	1.54	1.55	2219.9	YES	NO	bb	bb	46.799
7	12378-PeCDF	29.41	3.434e5	2.209e5	1.015	1.55	1.55	2037.4	YES	NO	bb	bb	47.092
8	123789-HxCDF	36.48	2.241e5	1.821e5	1.030	1.23	1.24	1362.4	YES	NO	bb	bb	48.205
9	234678-HxCDF	35.44	2.648e5	2.162e5	1.052	1.22	1.24	1642.2	YES	NO	bb	bb	49.014
10	123678-HxCDF	34.56	2.795e5	2.226e5	1.037	1.26	1.24	1602.7	YES	NO	db	db	48.198
11	123478-HxCDF	34.42	2.733e5	2.242e5	1.017	1.22	1.24	1630.7	YES	NO	bd	bd	50.514
12	123468-HXCDF	32.73	2.780e5	2.288e5	1.087	1.21	1.24	1547.2	YES	NO	bb	bb	48.161
13	1234789-HpCDF	40.53	2.207e5	2.136e5	1.283	1.03	1.05	1506.1	YES	NO	bb	bb	49.590
14	Total-heptafurans	39.01	5.632e2	5.289e2	1.305	1.06	1.05	4.8	YES	NO	bb	bb	0.111
15	1234678-HpCDF	38.35	2.671e5	2.599e5	1.327	1.03	1.05	2003.4	YES	NO	bb	bb	47.933
16	OCDF	44.67	3.339e5	3.867e5	1.447	0.86	0.89	2656.6	YES	NO	bb	bd	92.842
17	13468-PECDF	26.61	4.355e5	2.893e5	1.376	1.51	1.55	6962.7	YES	NO	bb	bb	44.609
18	1289-TCDD	26.50	3.723e4	4.690e4	0.794	0.79	0.77	410.8	YES	NO	bb	bb	10.880
19	2378-TCDD	25.90	4.384e4	5.262e4	0.920	0.83	0.77	510.5	YES	NO	bb	bb	10.763
20	Total-tetradioxins	25.56	6.353e4	7.975e4	0.879	0.80	0.77	512.8	YES	NO	bb	bb	16.734
21	Total-tetradioxins	25.08	2.039e4	2.693e4	0.879	0.76	0.77	247.9	YES	NO	bb	bd	5.526
22	Total-tetradioxins	24.54	3.250e2	4.290e2	0.879	0.76	0.77	3.8	YES	NO	bb	bb	0.088
23	Total-tetradioxins	24.23	1.775e3	2.287e3	0.879	0.78	0.77	13.8	YES	NO	bb	bb	0.474
24	1368-TCDD	23.04	4.114e4	5.070e4	0.923	0.81	0.77	455.0	YES	NO	bb	bb	10.214
25	12389-PECDD	31.41	2.634e5	1.585e5	1.154	1.66	1.55	1652.9	YES	NO	bb	bb	56.631
26	12378-PeCDD	31.02	2.211e5	1.396e5	0.995	1.58	1.55	1402.8	YES	NO	bb	bb	56.123
27	12479-PECDD	28.29	3.834e5	2.356e5	1.843	1.63	1.55	1572.2	YES	NO	bb	bb	51.995
28	123678-HxCDD	35.68	2.308e5	1.871e5	1.009	1.23	1.24	1381.7	YES	NO	db	db	48.190
29	123478-HxCDD	35.55	2.305e5	1.833e5	1.027	1.26	1.24	1376.0	YES	NO	bd	bd	49.181
30	124679-HXCDD	33.51	2.423e5	1.980e5	1.125	1.22	1.24	1350.8	YES	NO	bb	bb	47.797
31	123789-HxCDD	36.07	2.236e5	1.814e5	0.950	1.23	1.24	1319.1	YES	NO	bb	bb	50.766
32	1234678-HpCDD	39.82	1.758e5	1.544e5	1.068	1.14	1.05	1405.9	YES	NO	bb	bb	53.031
33	1234679-HPCDD	38.79	1.893e5	1.751e5	1.211	1.08	1.05	1549.3	YES	NO	bb	bb	51.619
34	OCDD	44.45	2.935e5	3.380e5	1.181	0.87	0.89	2021.3	YES	NO	bb	bd	99.712

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.18	1.046e5					2.4	NO		db		
2	FUNCTION1 PFK	21.13	3.913e4					2.1	NO		bd		
3	FUNCTION1 PFK	23.24	3.060e4					1.0	NO		bb		
4	FUNCTION1 PFK	23.02	2.646e4					0.9	NO		bb		
5	FUNCTION1 PFK	22.92	3.533e4					1.2	NO		bb		
6	FUNCTION1 PFK	22.84	4.668e4					1.6	NO		db		
7	FUNCTION1 PFK	22.77	1.617e4					0.7	NO		dd		
8	FUNCTION1 PFK	22.72	3.390e4					1.0	NO		bd		
9	FUNCTION1 PFK	22.63	1.784e4					1.0	NO		bb		
10	FUNCTION1 PFK	22.57	6.046e3					0.4	NO		bb		
11	FUNCTION1 PFK	22.36	4.556e4					1.5	NO		db		
12	FUNCTION1 PFK	22.28	1.250e4					0.6	NO		bd		
13	FUNCTION1 PFK	22.18	1.441e4					0.7	NO		bb		
14	FUNCTION1 PFK	22.03	1.021e5					1.9	NO		db		
15	FUNCTION1 PFK	21.92	3.602e4					1.4	NO		bd		
16	FUNCTION1 PFK	21.71	2.176e4					0.7	NO		db		
17	FUNCTION1 PFK	21.68	3.364e4					1.3	NO		bd		
18	FUNCTION1 PFK	21.35	1.224e5					2.6	NO		bb		
19	FUNCTION1 PFK	24.94	3.266e3					0.3	NO		bb		
20	FUNCTION1 PFK	24.88	7.158e3					0.7	NO		bb		
21	FUNCTION1 PFK	24.75	1.558e4					0.8	NO		bb		
22	FUNCTION1 PFK	24.69	1.355e4					0.7	NO		bb		
23	FUNCTION1 PFK	24.60	3.076e4					1.0	NO		bb		
24	FUNCTION1 PFK	24.54	3.746e3					0.4	NO		bb		
25	FUNCTION1 PFK	24.40	1.094e4					0.5	NO		db		
26	FUNCTION1 PFK	24.34	2.665e4					1.0	NO		bd		
27	FUNCTION1 PFK	24.26	1.598e4					0.5	NO		bb		
28	FUNCTION1 PFK	24.13	1.265e4					0.7	NO		bb		
29	FUNCTION1 PFK	24.08	1.305e4					0.8	NO		bb		
30	FUNCTION1 PFK	23.90	3.489e4					0.9	NO		bb		
31	FUNCTION1 PFK	23.81	5.881e4					1.7	NO		db		
32	FUNCTION1 PFK	23.70	7.696e4					1.5	NO		bd		
33	FUNCTION1 PFK	23.58	1.500e4					0.7	NO		db		
34	FUNCTION1 PFK	23.52	9.980e3					0.6	NO		bd		
35	FUNCTION1 PFK	27.29	4.265e4					1.1	NO		bb		
36	FUNCTION1 PFK	27.02	1.257e4					0.8	NO		bb		
37	FUNCTION1 PFK	26.70	3.775e4					1.1	NO		db		

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Last Altered: Wednesday, August 25, 2021 09:18:01 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:23:34 Pacific Daylight Time

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	26.58	7.972e4					1.9	NO		bd		
39	FUNCTION1 PFK	26.50	2.006e4					0.7	NO		bb		
40	FUNCTION1 PFK	26.26	1.463e4					0.8	NO		db		
41	FUNCTION1 PFK	26.20	5.108e3					0.3	NO		bd		
42	FUNCTION1 PFK	25.88	1.595e4					1.0	NO		bb		
43	FUNCTION1 PFK	25.78	3.891e4					0.8	NO		bb		
44	FUNCTION1 PFK	25.61	9.378e3					0.5	NO		bb		
45	FUNCTION1 PFK	25.55	7.988e3					0.5	NO		db		
46	FUNCTION1 PFK	25.49	1.251e4					0.6	NO		bd		
47	FUNCTION1 PFK	25.02	2.930e4					1.0	NO		bb		

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.60	1.020e4					1.3	NO		bb		0.000
2	FUNCTION2 PFK	27.49	4.499e3					1.1	NO		bb		0.000
3	FUNCTION2 PFK	29.30	2.017e4					1.1	NO		db		0.000
4	FUNCTION2 PFK	29.21	2.063e4					1.9	NO		dd		0.000
5	FUNCTION2 PFK	29.14	3.112e4					1.8	NO		bd		0.000
6	FUNCTION2 PFK	29.07	3.000e4					1.7	NO		db		0.000
7	FUNCTION2 PFK	29.00	1.339e4					1.3	NO		bd		0.000
8	FUNCTION2 PFK	28.85	2.058e3					0.5	NO		bb		0.000
9	FUNCTION2 PFK	28.70	2.898e4					1.8	NO		bb		0.000
10	FUNCTION2 PFK	28.66	8.774e3					1.2	NO		db		0.000
11	FUNCTION2 PFK	28.57	1.522e4					0.9	NO		bd		0.000
12	FUNCTION2 PFK	28.52	1.981e3					0.5	NO		bb		0.000
13	FUNCTION2 PFK	28.39	4.112e4					2.3	NO		bb		0.000
14	FUNCTION2 PFK	28.30	1.603e4					1.8	NO		bb		0.000
15	FUNCTION2 PFK	28.22	6.472e3					0.8	NO		bb		0.000
16	FUNCTION2 PFK	28.17	2.197e4					1.2	NO		bb		0.000
17	FUNCTION2 PFK	27.93	1.105e4					1.2	NO		db		0.000
18	FUNCTION2 PFK	27.88	1.949e4					1.5	NO		bd		0.000
19	FUNCTION2 PFK	31.64	6.074e3					0.8	NO		bd		0.000
20	FUNCTION2 PFK	31.59	2.039e4					1.7	NO		bb		0.000
21	FUNCTION2 PFK	31.10	3.981e4					2.0	NO		bb		0.000
22	FUNCTION2 PFK	30.92	4.244e3					0.6	NO		bb		0.000
23	FUNCTION2 PFK	30.85	1.480e4					1.3	NO		db		0.000
24	FUNCTION2 PFK	30.80	1.664e4					1.4	NO		bd		0.000
25	FUNCTION2 PFK	30.66	1.966e3					0.5	NO		bb		0.000
26	FUNCTION2 PFK	30.62	7.532e3					0.7	NO		db		0.000
27	FUNCTION2 PFK	30.56	7.179e3					0.9	NO		bd		0.000
28	FUNCTION2 PFK	30.42	3.246e4					1.8	NO		bb		0.000
29	FUNCTION2 PFK	30.25	1.132e4					0.8	NO		bb		0.000
30	FUNCTION2 PFK	30.05	2.468e3					0.6	NO		bb		0.000
31	FUNCTION2 PFK	29.93	3.681e4					2.0	NO		bb		0.000
32	FUNCTION2 PFK	29.57	1.438e4					1.6	NO		bb		0.000
33	FUNCTION2 PFK	29.41	7.574e3					1.0	NO		bb		0.000
34	FUNCTION2 PFK	29.35	2.269e4					1.9	NO		bb		0.000
35	FUNCTION2 PFK	32.08	9.119e3					1.0	NO		db		0.000
36	FUNCTION2 PFK	32.03	3.240e3					0.6	NO		bd		0.000
37	FUNCTION2 PFK	31.73	1.210e4					0.8	NO		db		0.000

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.07	1.636e4					1.5	NO		bb		0.000
2	FUNCTION3 PFK	33.94	4.661e4					0.8	NO		bb		0.000
3	FUNCTION3 PFK	33.78	3.807e4					2.3	NO		db		0.000
4	FUNCTION3 PFK	33.65	3.676e5					8.4	YES		dd		0.000
5	FUNCTION3 PFK	33.56	4.063e5					10.8	YES		dd		0.000
6	FUNCTION3 PFK	33.49	3.990e5					13.5	YES		dd		0.000
7	FUNCTION3 PFK	33.28	4.904e6					22.8	YES		dd		0.000
8	FUNCTION3 PFK	32.72	8.656e6					44.0	YES		dd		0.000
9	FUNCTION3 PFK	32.54	2.743e6					50.3	YES		dd		0.000
10	FUNCTION3 PFK	32.42	1.752e6					55.2	YES		dd		0.000
11	FUNCTION3 PFK	32.38	1.819e6					56.7	YES		dd		0.000
12	FUNCTION3 PFK	32.28	2.860e6					60.5	YES		bd		0.000
13	FUNCTION3 PFK	37.08	6.999e3					0.8	NO		bb		0.000
14	FUNCTION3 PFK	36.95	7.653e4					1.6	NO		bb		0.000
15	FUNCTION3 PFK	36.49	1.107e4					1.0	NO		bb		0.000
16	FUNCTION3 PFK	36.40	2.454e3					0.5	NO		bb		0.000
17	FUNCTION3 PFK	36.25	2.347e3					0.4	NO		bb		0.000
18	FUNCTION3 PFK	35.85	1.994e4					1.1	NO		db		0.000
19	FUNCTION3 PFK	35.79	3.232e3					0.6	NO		bd		0.000
20	FUNCTION3 PFK	35.65	3.990e4					2.1	NO		db		0.000
21	FUNCTION3 PFK	35.60	2.151e4					1.5	NO		bd		0.000
22	FUNCTION3 PFK	35.55	9.670e3					1.0	NO		bb		0.000
23	FUNCTION3 PFK	35.51	2.700e3					0.5	NO		bb		0.000
24	FUNCTION3 PFK	35.39	1.269e4					1.0	NO		bb		0.000
25	FUNCTION3 PFK	35.34	3.359e4					1.9	NO		bb		0.000

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.76	1.252e4					1.5	NO		bb		
2	FUNCTION4 PFK	37.51	1.162e4					1.1	NO		bb		
3	FUNCTION4 PFK	42.30	1.592e4					1.6	NO		bb		
4	FUNCTION4 PFK	42.15	1.546e3					0.4	NO		bb		
5	FUNCTION4 PFK	42.10	1.639e3					0.4	NO		bb		
6	FUNCTION4 PFK	41.09	7.610e3					1.3	NO		bb		
7	FUNCTION4 PFK	40.83	2.646e4					1.6	NO		bb		
8	FUNCTION4 PFK	40.59	2.226e4					1.5	NO		bb		
9	FUNCTION4 PFK	40.05	1.649e4					1.2	NO		bb		
10	FUNCTION4 PFK	38.78	6.407e3					1.1	NO		bb		
11	FUNCTION4 PFK	37.94	3.168e4					1.8	NO		bb		
12	FUNCTION4 PFK	37.84	9.891e3					1.0	NO		db		
13	FUNCTION4 PFK	37.80	2.342e3					0.6	NO		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.23	9.224e3					1.9	NO		bb		
2	FUNCTION5 PFK	42.65	9.963e3					1.4	NO		db		
3	FUNCTION5 PFK	42.59	5.900e4					2.5	NO		bd		
4	FUNCTION5 PFK	42.47	1.837e4					2.3	NO		bb		
5	FUNCTION5 PFK	45.97	6.683e3					1.2	NO		bb		
6	FUNCTION5 PFK	45.85	1.549e4					1.8	NO		bb		
7	FUNCTION5 PFK	45.80	1.101e4					1.0	NO		bb		
8	FUNCTION5 PFK	45.54	8.554e3					1.4	NO		bb		
9	FUNCTION5 PFK	45.01	8.263e3					1.6	NO		bb		
10	FUNCTION5 PFK	44.48	3.803e3					0.9	NO		bb		
11	FUNCTION5 PFK	44.27	5.569e3					0.8	NO		bb		

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.36	7.045e1					2.5	NO		bb		0.000
2	FUNCTION1 HXCD...	26.59	1.926e2					5.5	YES		bb		0.000
3	FUNCTION1 HXCD...	25.20	7.563e1					1.9	NO		bb		0.000
4	FUNCTION1 HXCD...	23.90	8.549e1					2.4	NO		bb		0.000
5	FUNCTION1 HXCD...	23.61	8.275e1					2.2	NO		bb		0.000
6	FUNCTION1 HXCD...	22.37	8.271e1					2.4	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	24.66	7.140e1					1.7	NO		bb		0.000
2	FUNCTION1 HPCD...	27.36	7.930e1					1.6	NO		bb		0.000
3	FUNCTION1 HPCD...	27.15	1.174e2					2.4	NO		bb		0.000
4	FUNCTION1 HPCD...	26.92	1.474e2					2.9	NO		bb		0.000
5	FUNCTION1 HPCD...	26.65	3.661e2					2.7	NO		bb		0.000
6	FUNCTION1 HPCD...	25.73	8.791e1					2.1	NO		bb		0.000
7	FUNCTION1 HPCD...	25.58	7.530e1					2.0	NO		bb		0.000
8	FUNCTION1 HPCD...	25.31	7.602e1					1.4	NO		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.00	7.656e1					2.1	NO		bb		0.000
2	FUNCTION2 HPCD...	31.88	8.678e1					4.3	YES		bb		0.000
3	FUNCTION2 HPCD...	30.62	3.062e2					9.8	YES		db		0.000
4	FUNCTION2 HPCD...	30.56	1.028e2					4.7	YES		bd		0.000
5	FUNCTION2 HPCD...	29.45	9.257e1					2.0	NO		bb		0.000
6	FUNCTION2 HPCD...	28.69	8.261e1					2.1	NO		bb		0.000
7	FUNCTION2 HPCD...	28.19	8.146e1					1.9	NO		bb		0.000

ID: CS3L4, Name: 21082415, Date: 24-Aug-2021, Time: 23:34:23, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.48	1.497e2					2.7	NO		bb		0.000
2	FUNCTION3 OCDPE	36.20	7.197e1					1.9	NO		db		0.000
3	FUNCTION3 OCDPE	36.07	2.982e2					6.1	YES		bd		0.000
4	FUNCTION3 OCDPE	35.66	1.115e2					3.4	YES		bb		0.000
5	FUNCTION3 OCDPE	32.78	8.099e1					2.5	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.27	7.956e1					1.7	NO		bb		0.000
2	FUNCTION4 NCDPE	38.94	1.045e2					1.9	NO		bb		0.000
3	FUNCTION4 NCDPE	38.42	7.621e1					3.2	YES		bb		0.000
4	FUNCTION4 NCDPE	37.50	1.779e2					3.4	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.08	8.321e1					2.6	NO		bb		0.000

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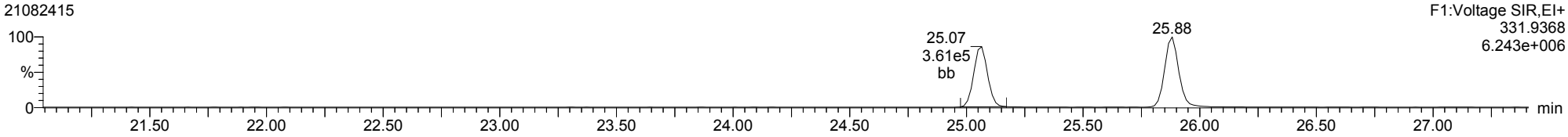
13C-1234-TCDD



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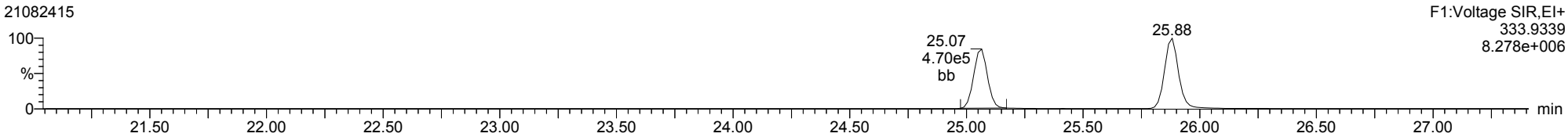

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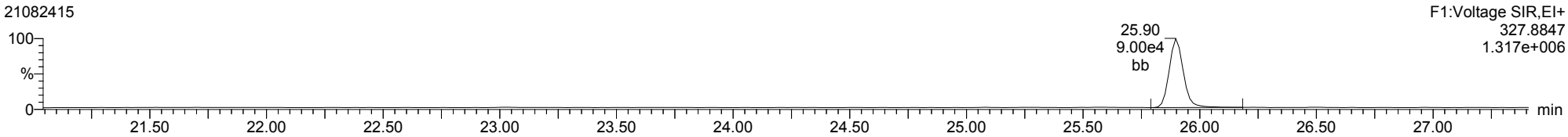

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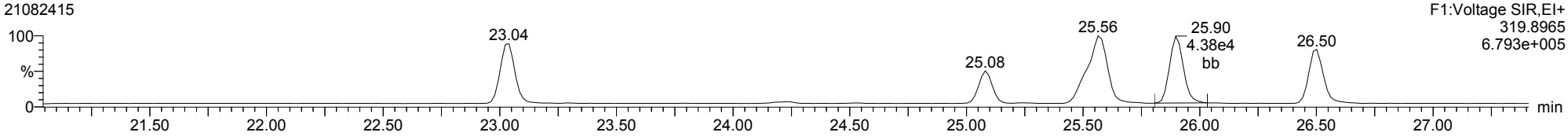

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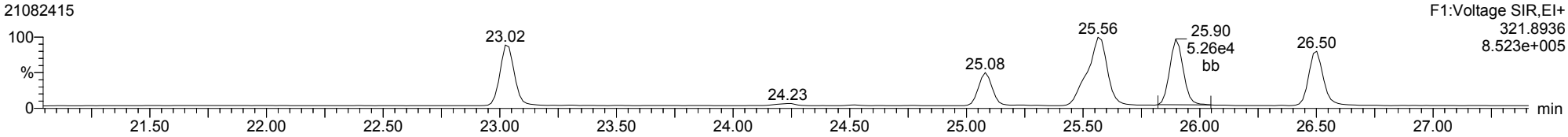

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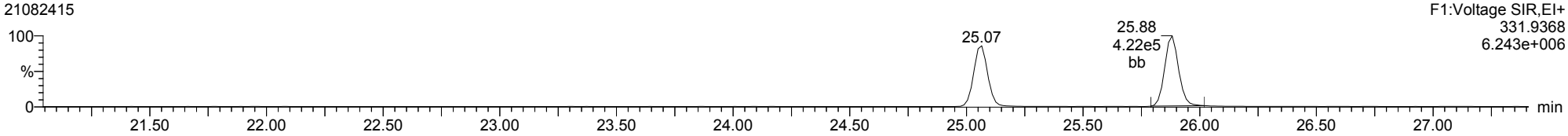

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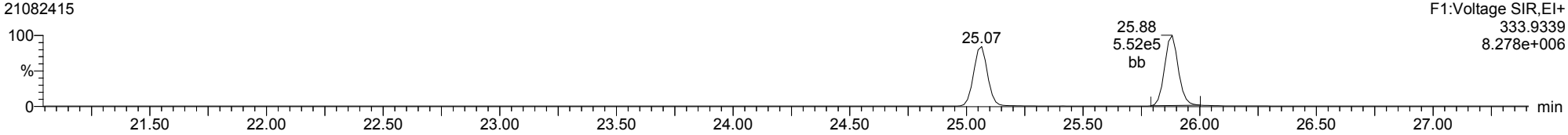

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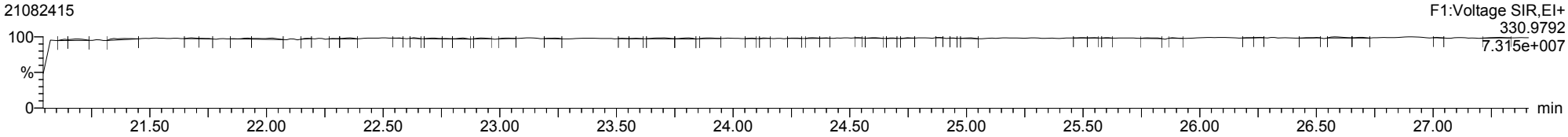

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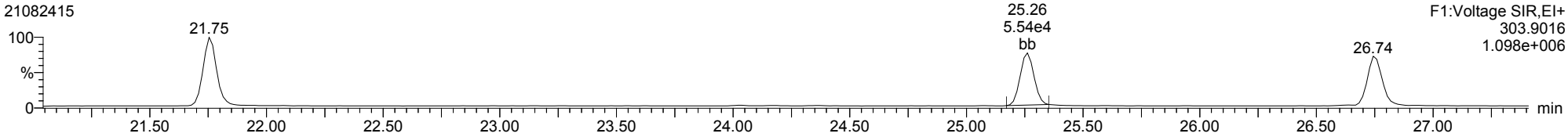

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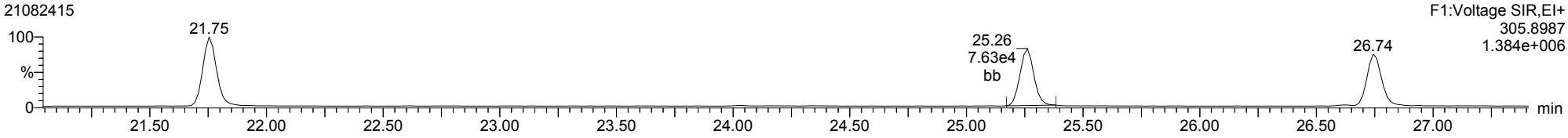

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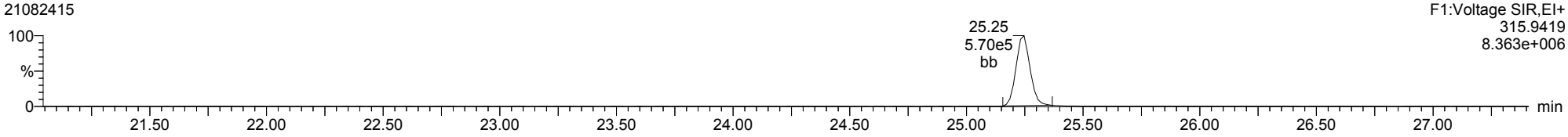

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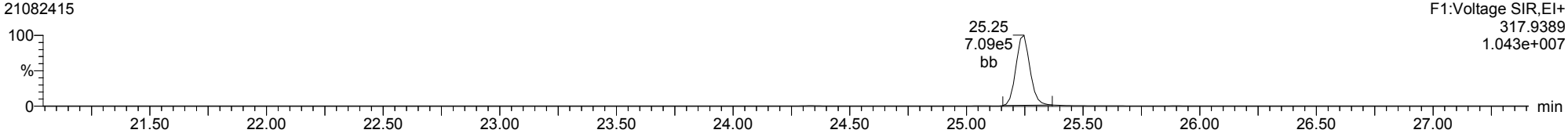
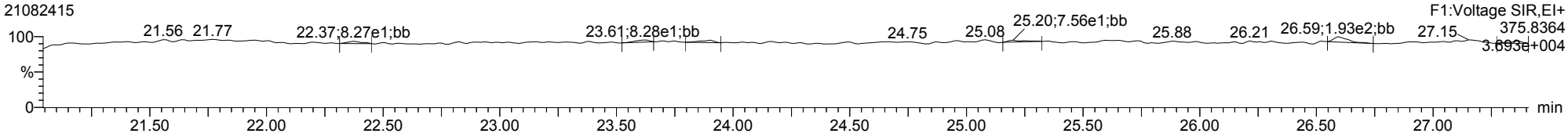


FUNCTION1 HXCDPE



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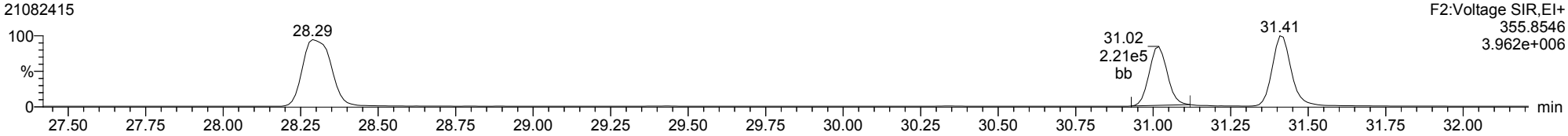
12378-PeCDD



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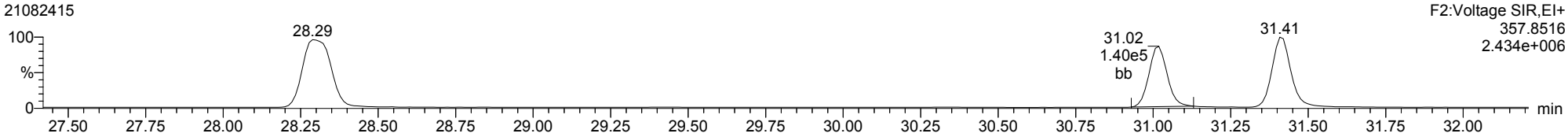

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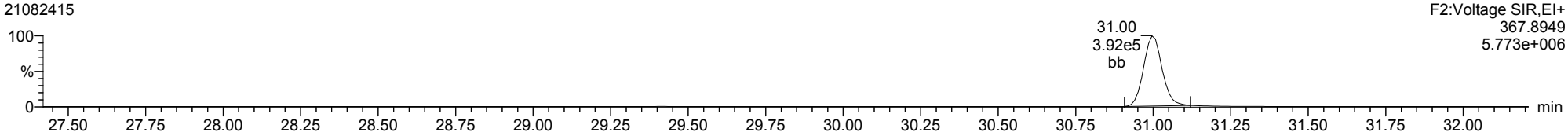

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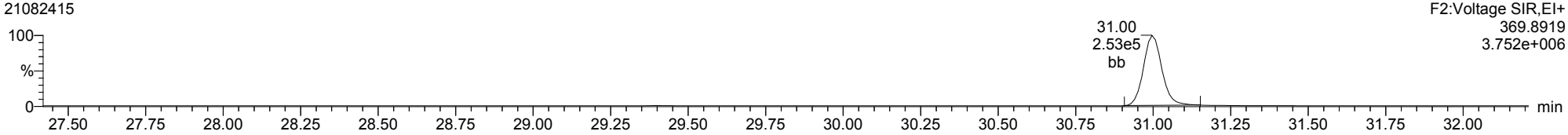
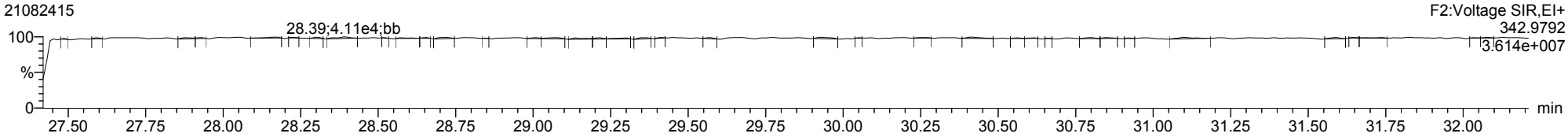


FUNCTION2 PFK



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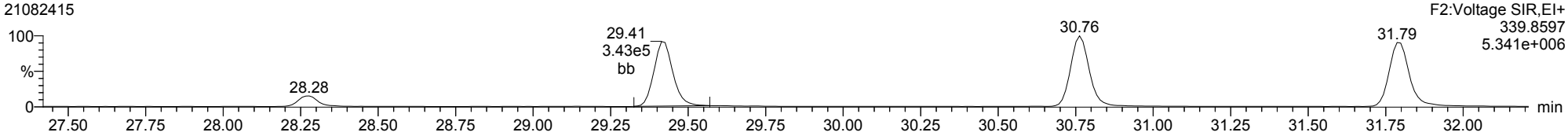

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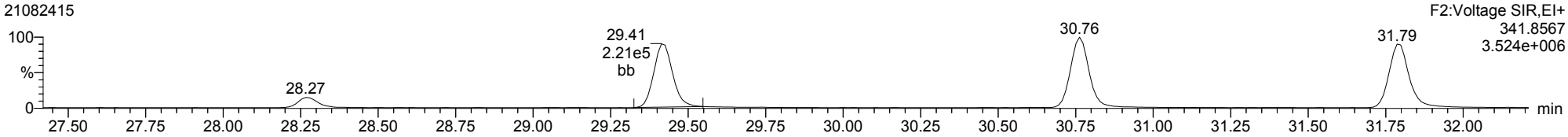

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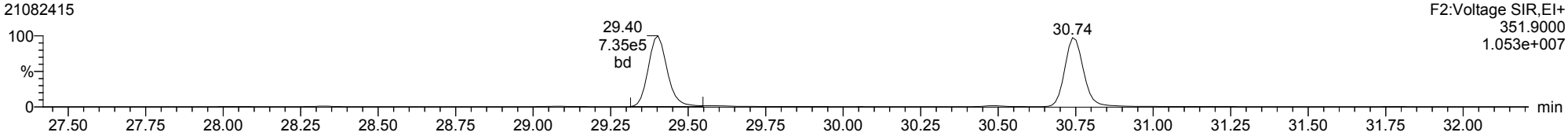

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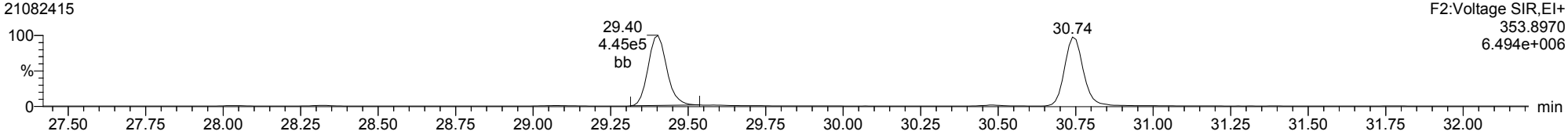
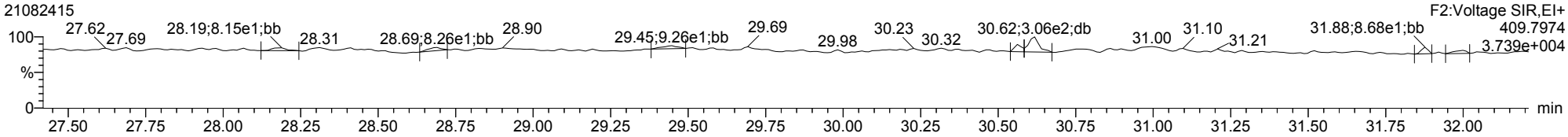


FUNCTION2 HPCDPE



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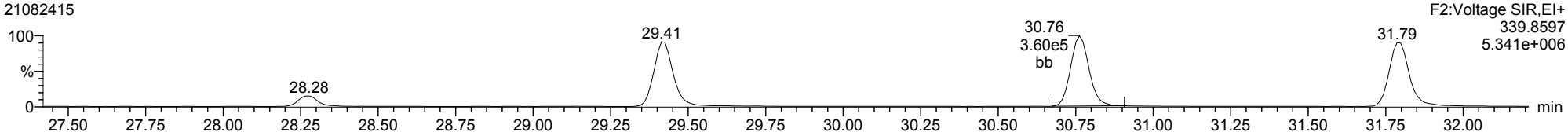
23478-PeCDF



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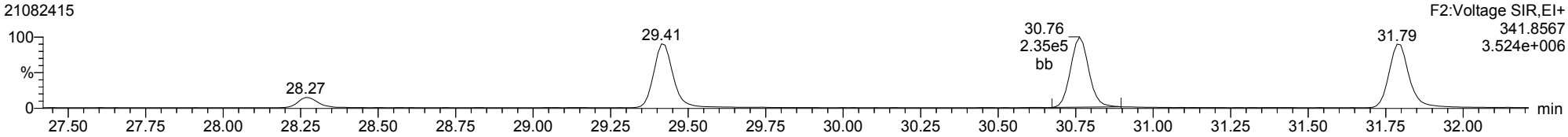

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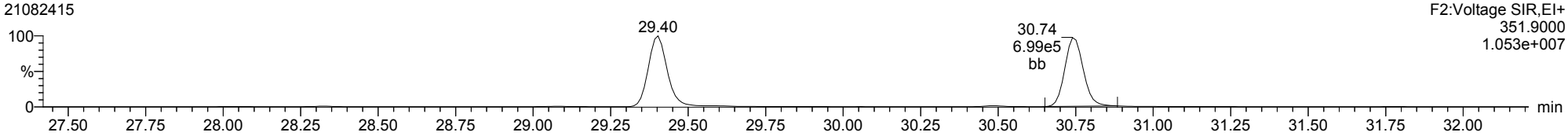

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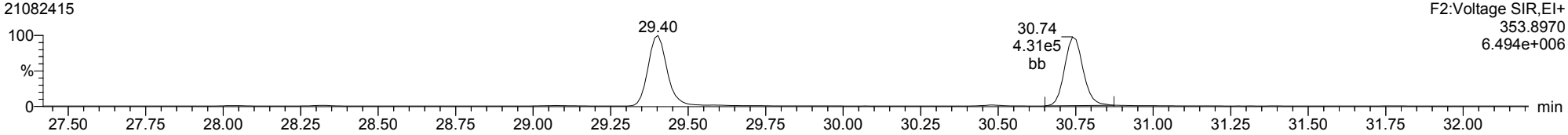

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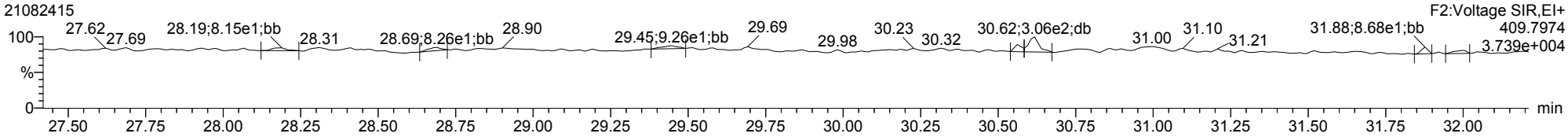

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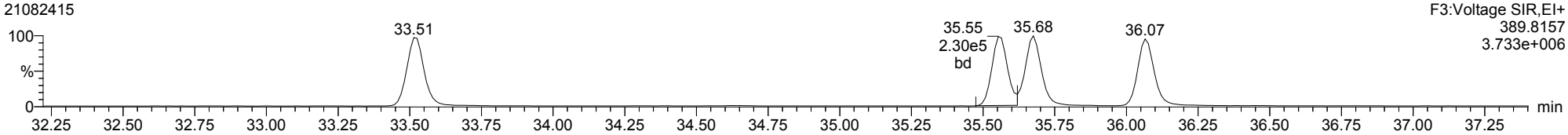
123478-HxCDD



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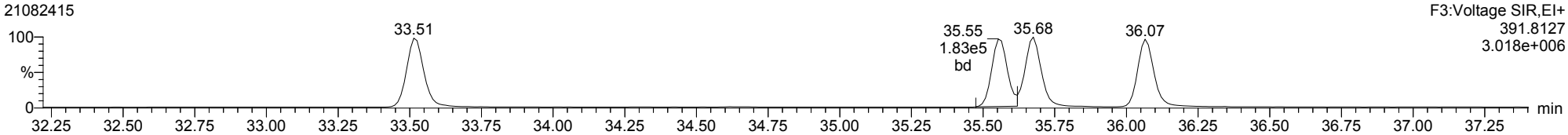

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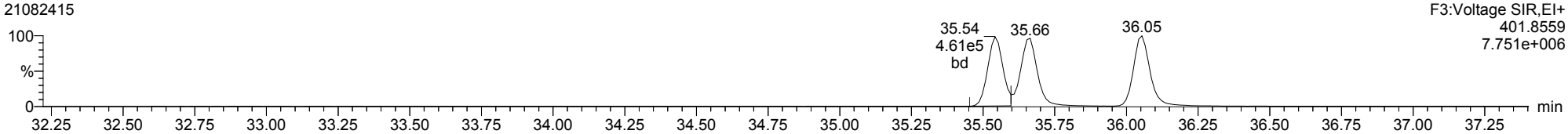

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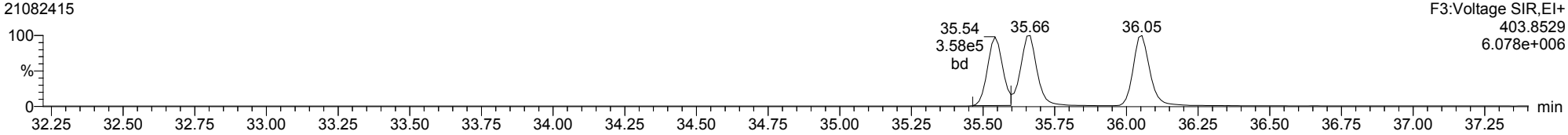
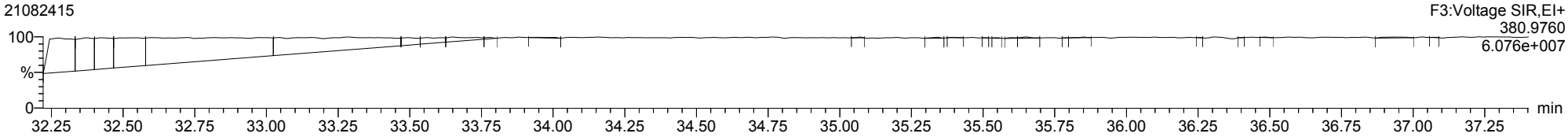


FUNCTION3 PFK



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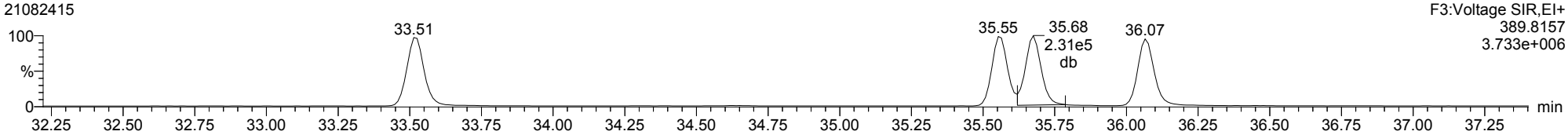

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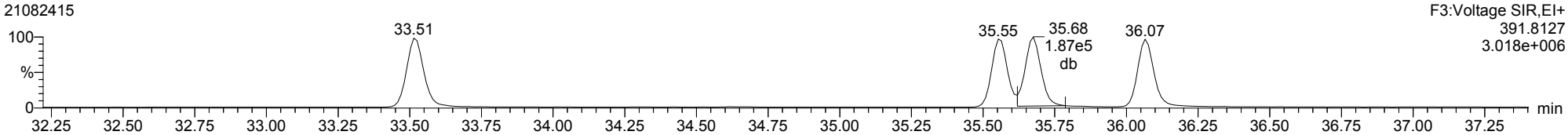

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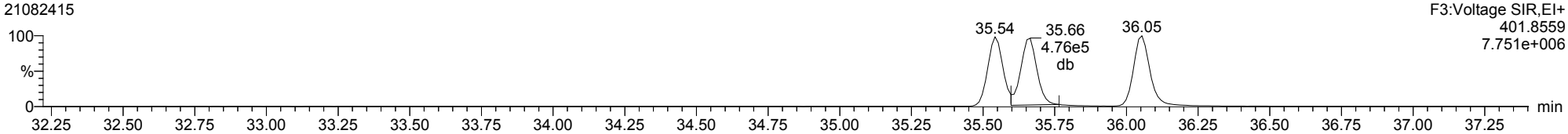

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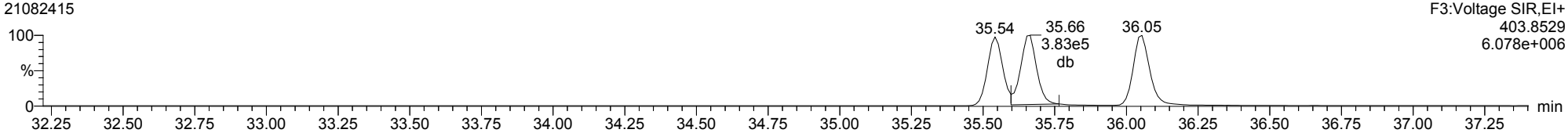

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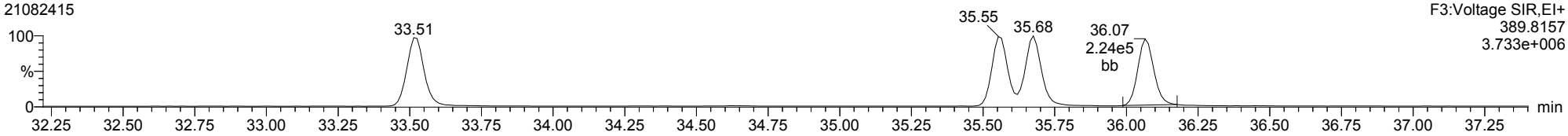

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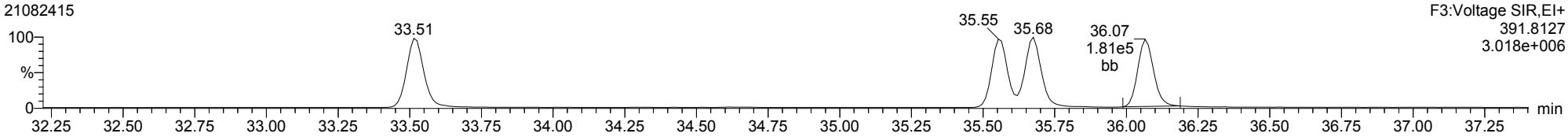

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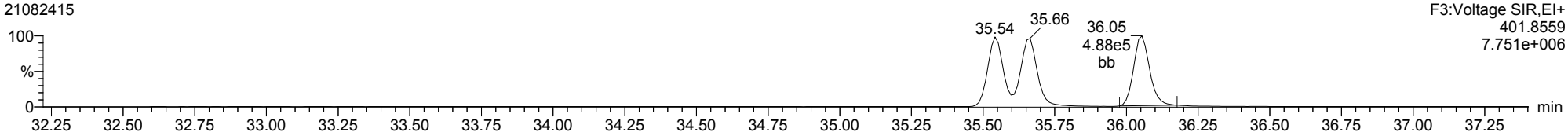

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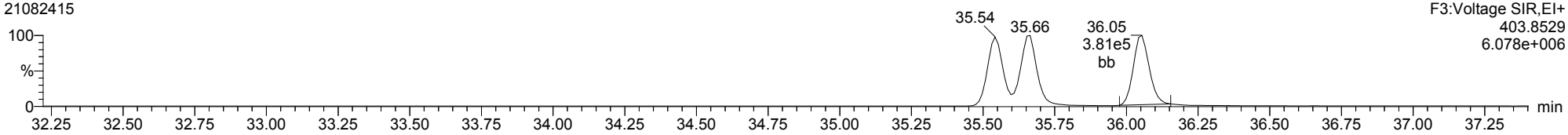

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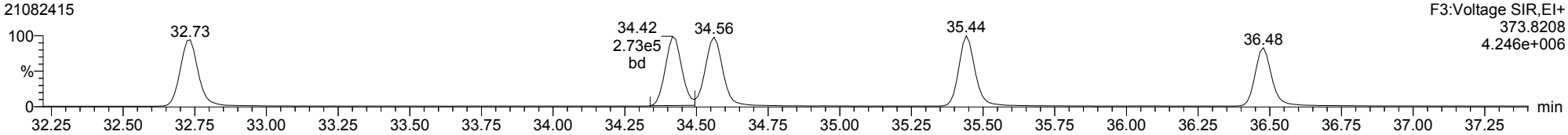

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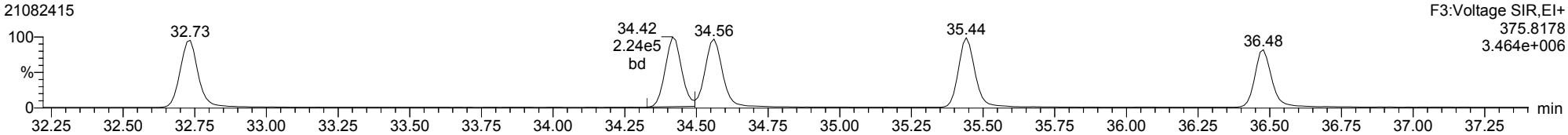

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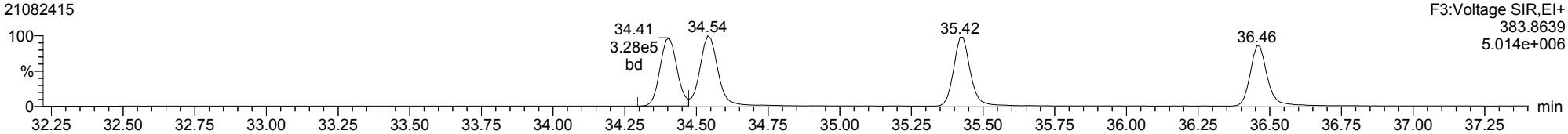

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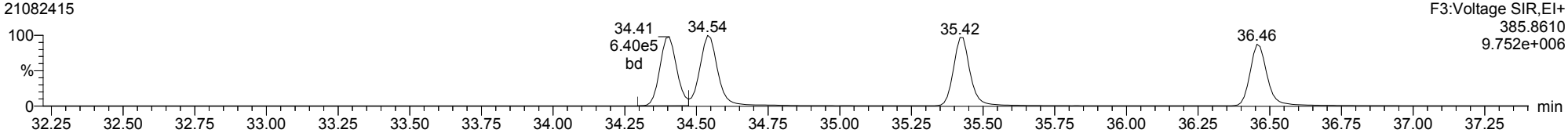
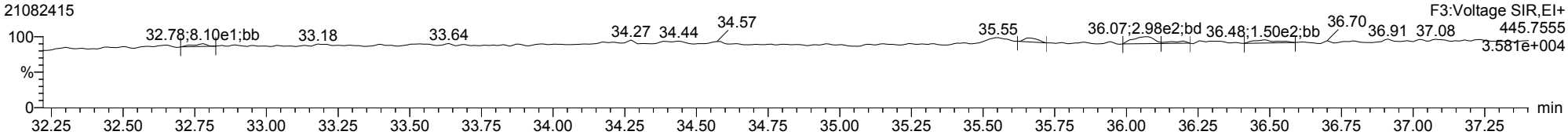


FUNCTION3 OCDPE



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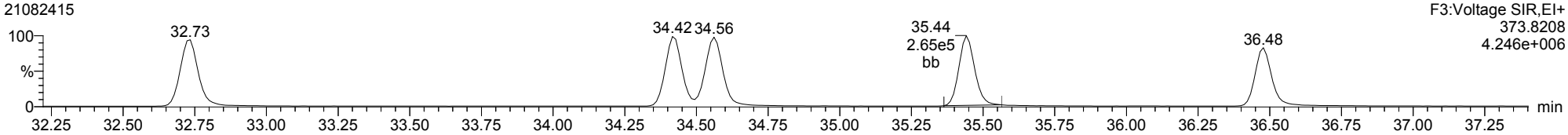
234678-HxCDF



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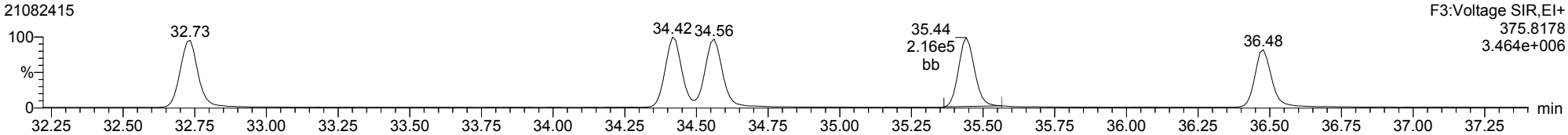

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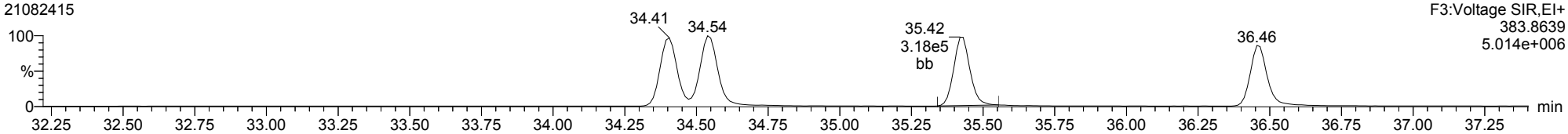

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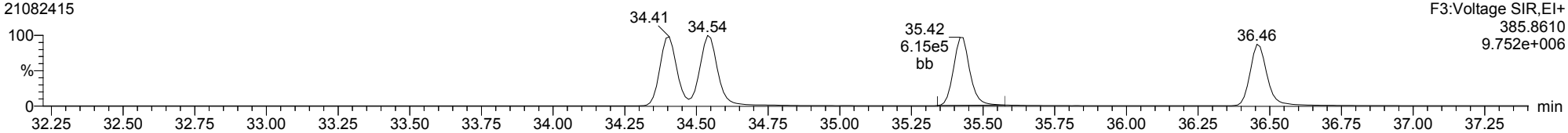
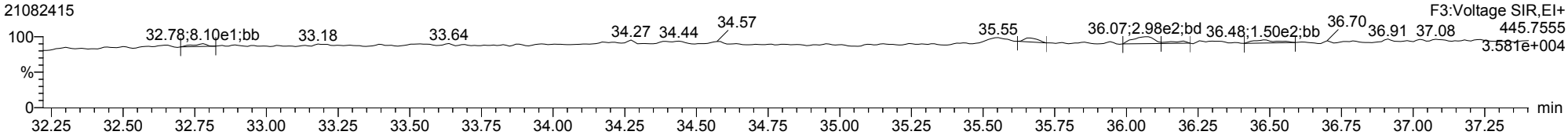


FUNCTION3 OCDPE



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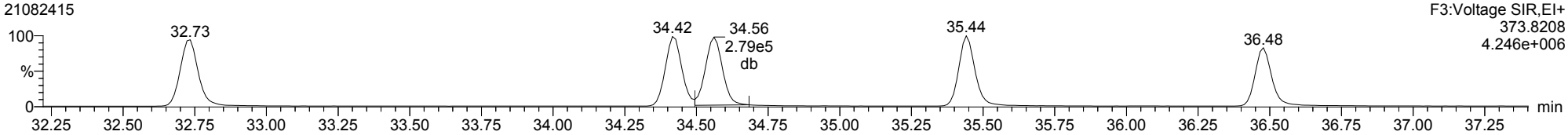
123678-HxCDF



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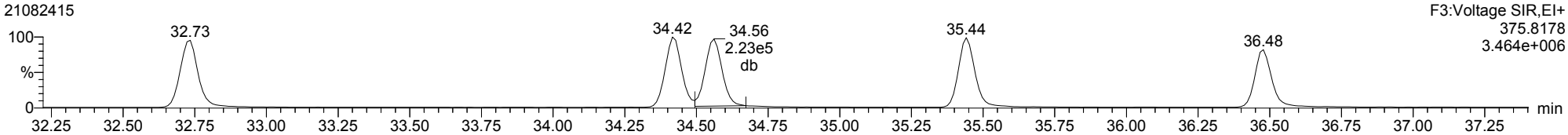

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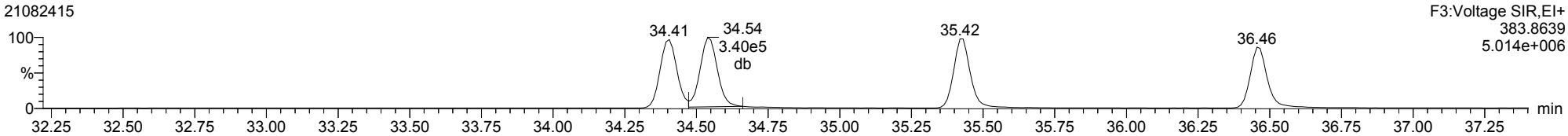

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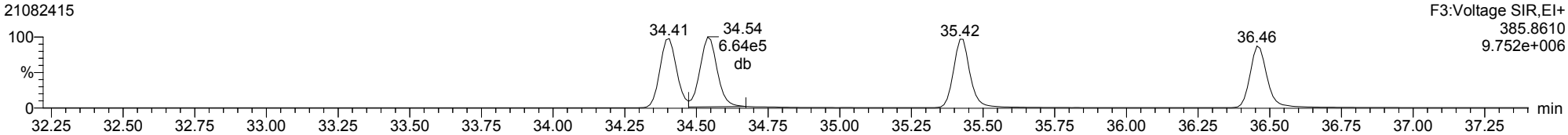
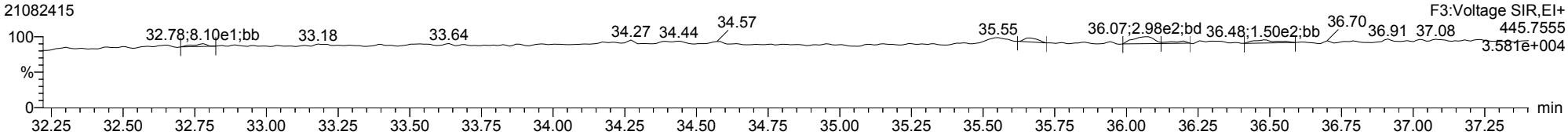


FUNCTION3 OCDPE



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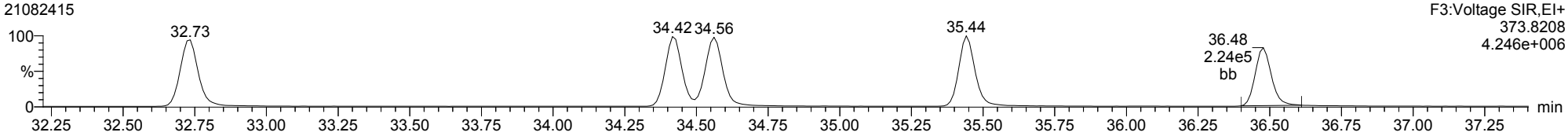
123789-HxCDF



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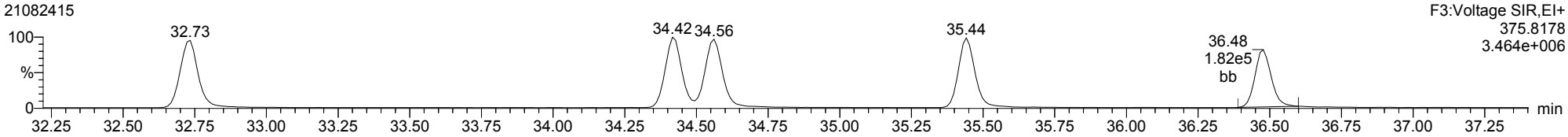

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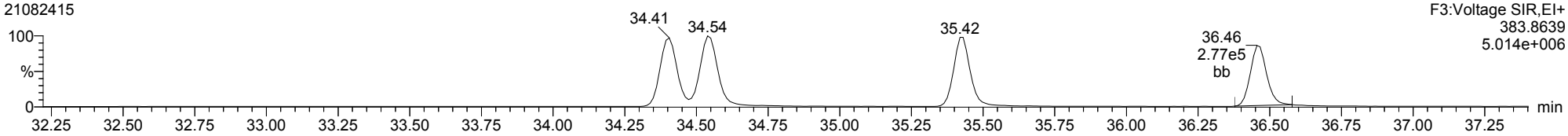

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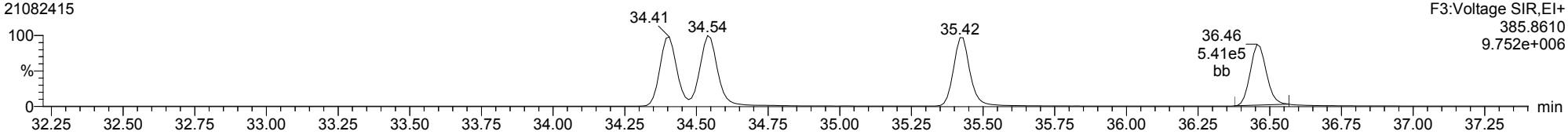
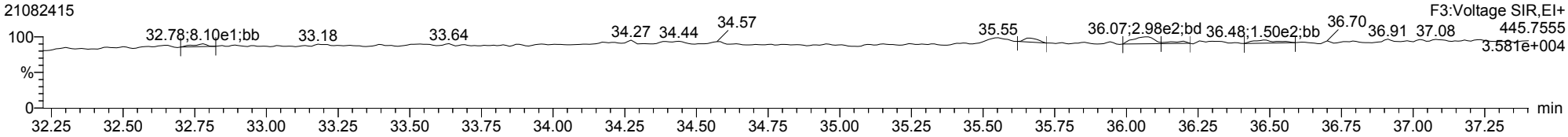


FUNCTION3 OCDPE



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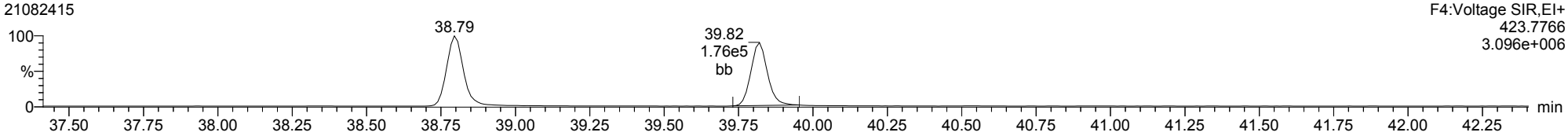
1234678-HpCDD



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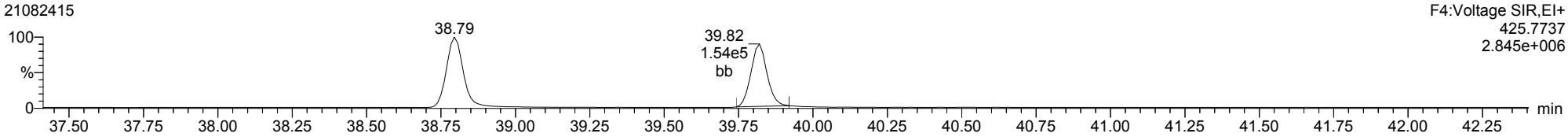

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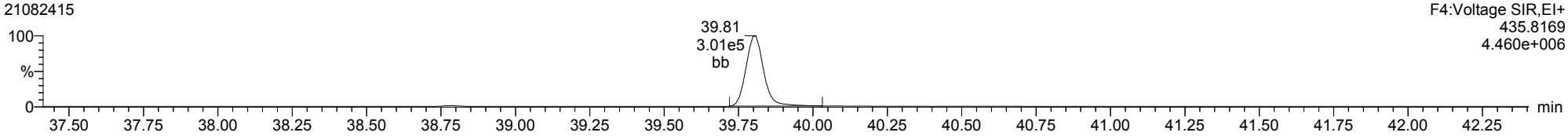

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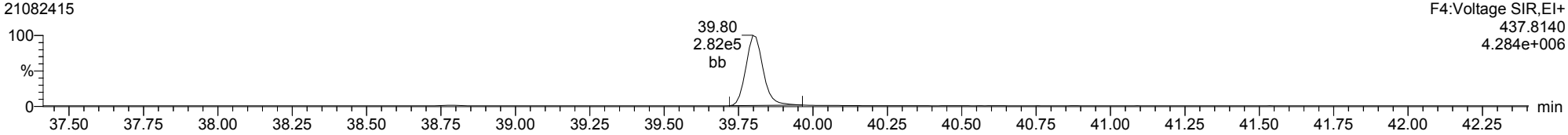

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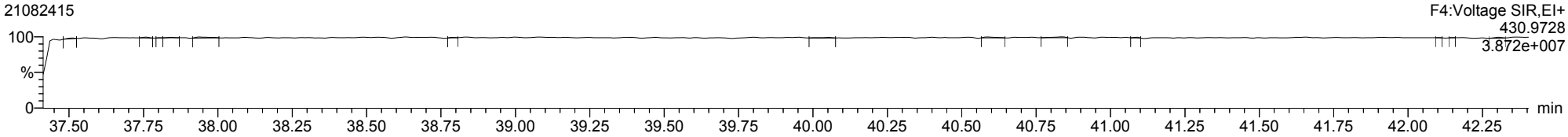

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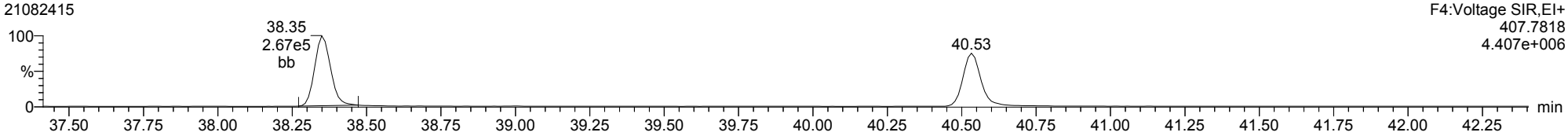

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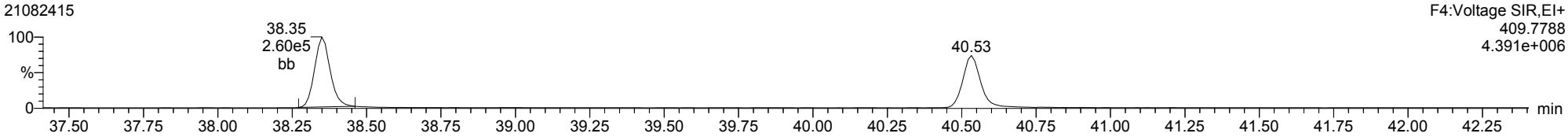

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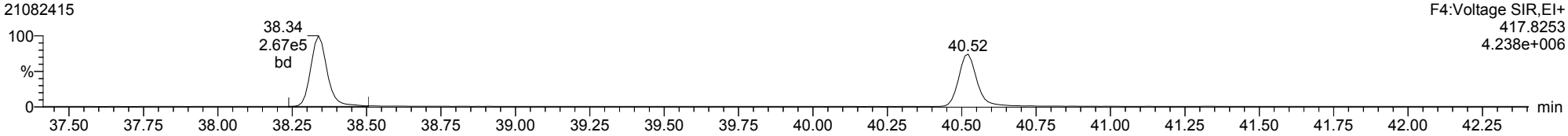

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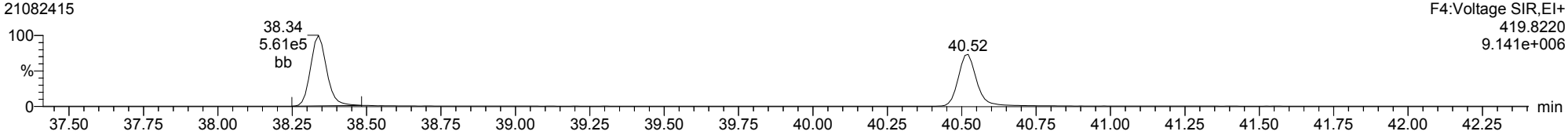

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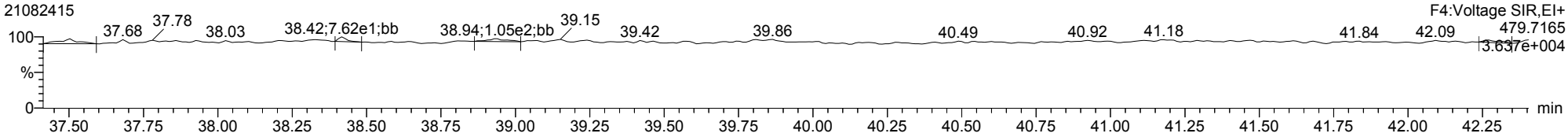

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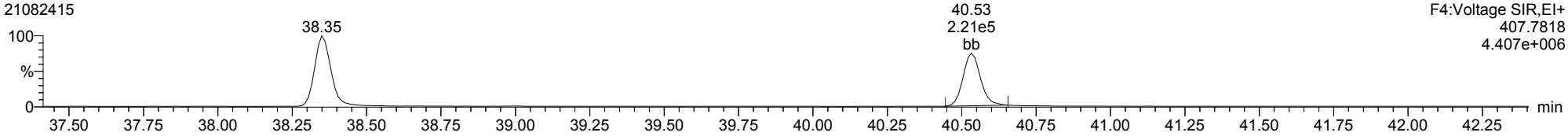

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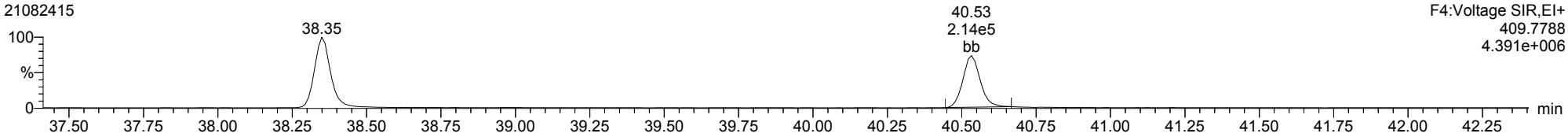

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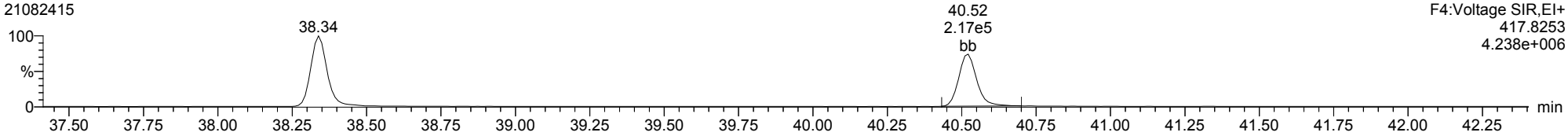

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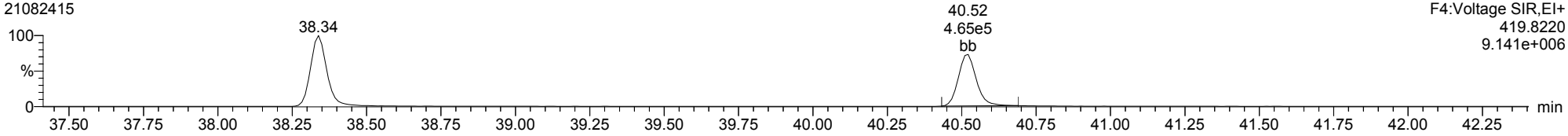
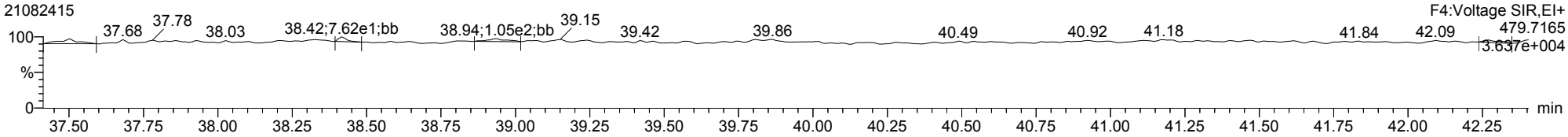


FUNCTION4 NCDPE



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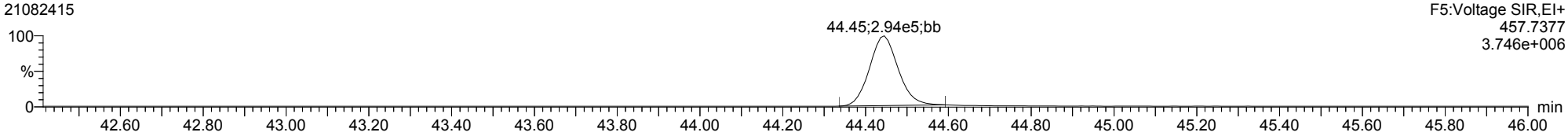

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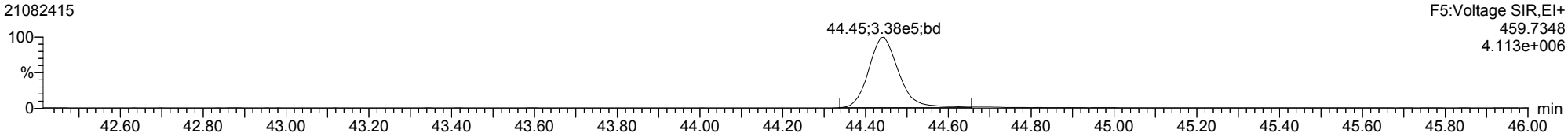

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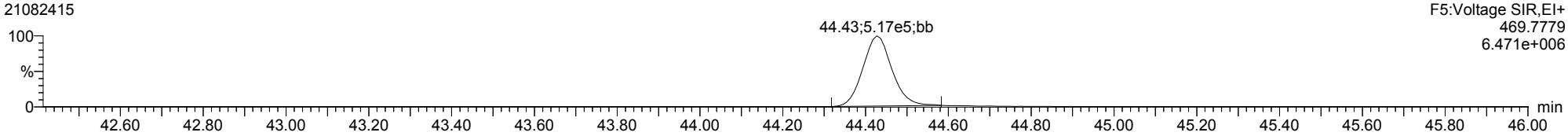

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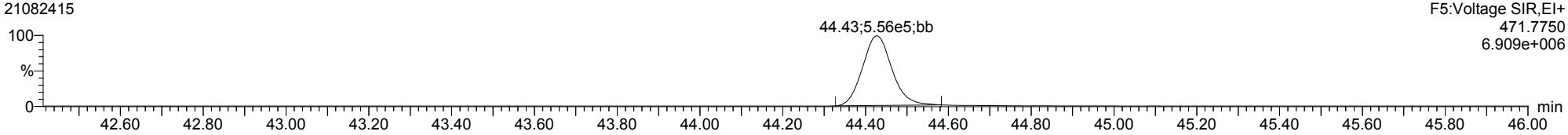

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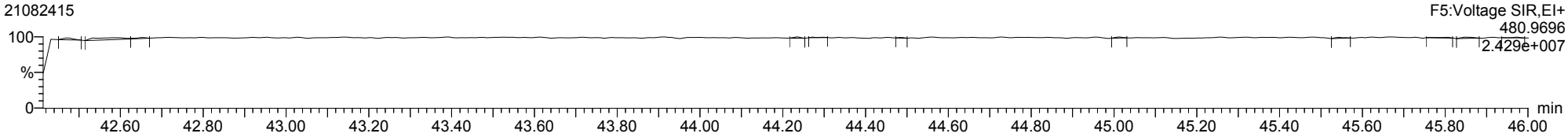

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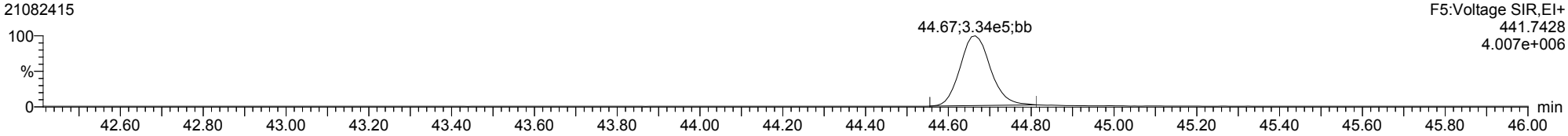

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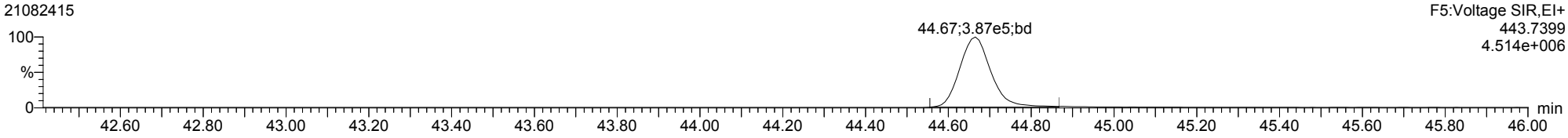

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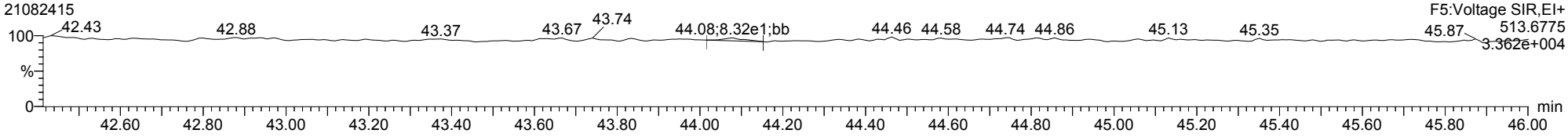

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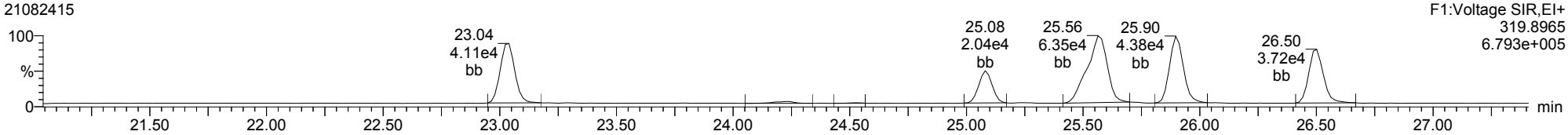

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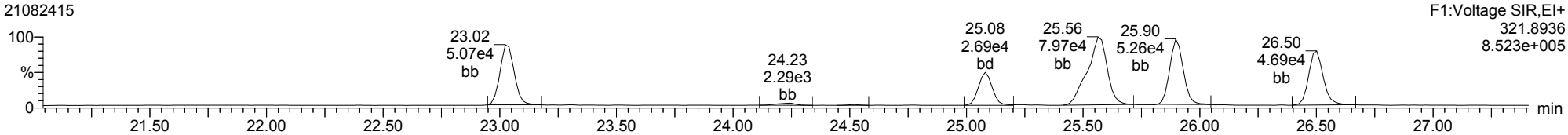

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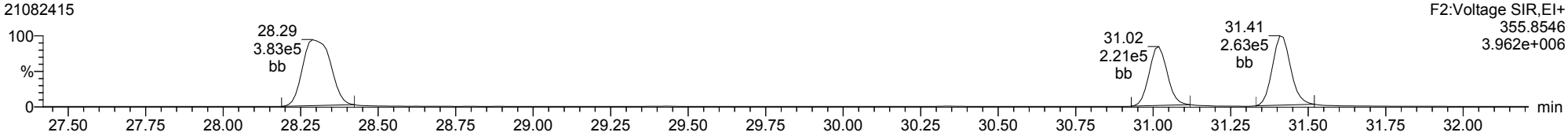

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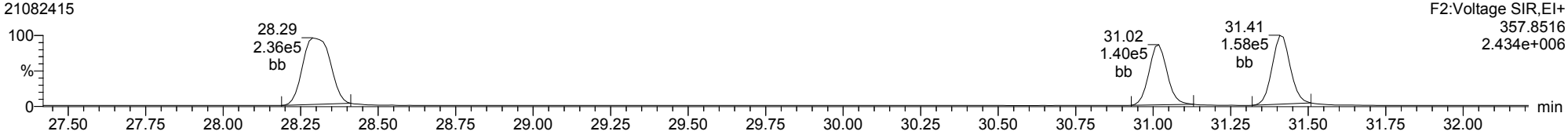

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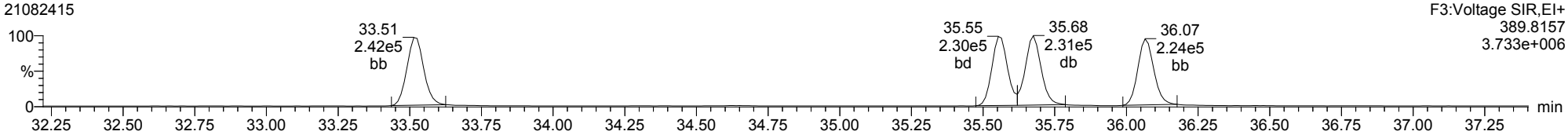

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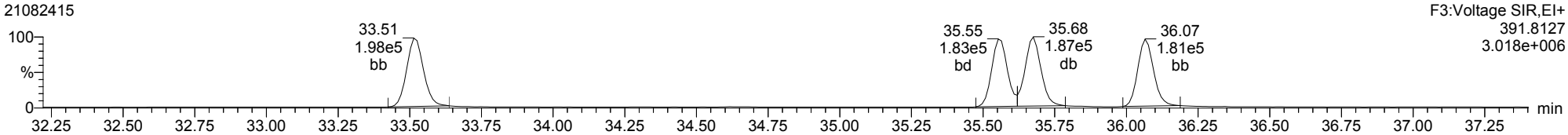

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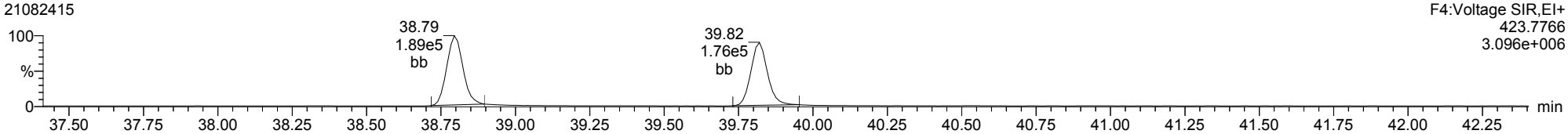

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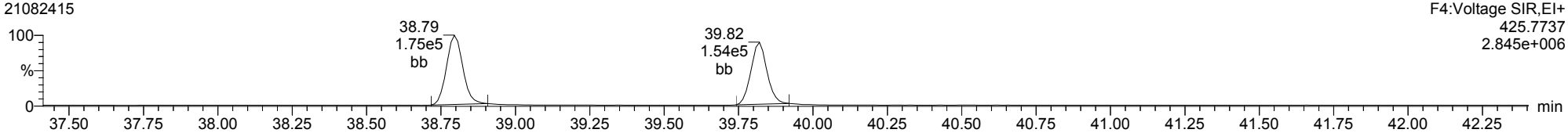

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Printed: Wednesday, August 25, 2021 09:23:34 Pacific Daylight Time

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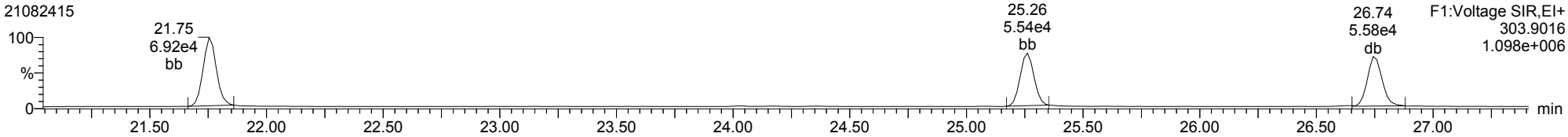
Total-tetrafurans



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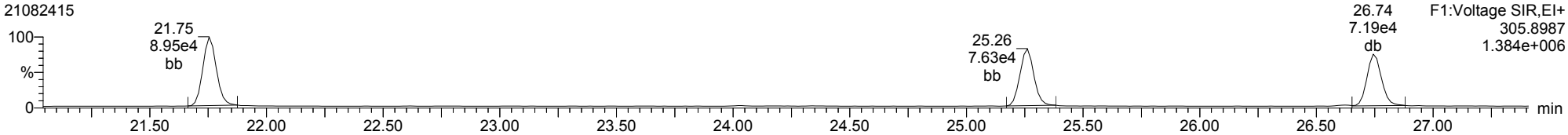

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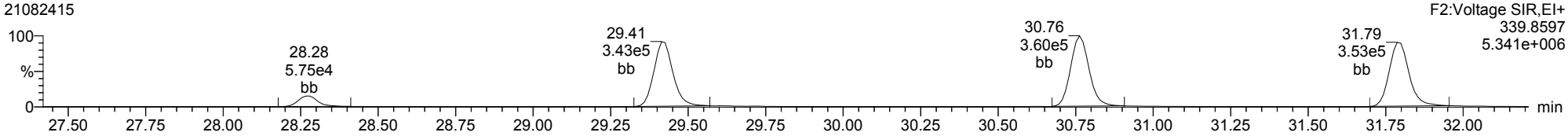

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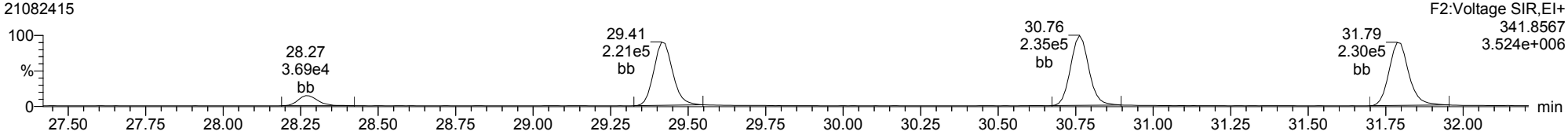

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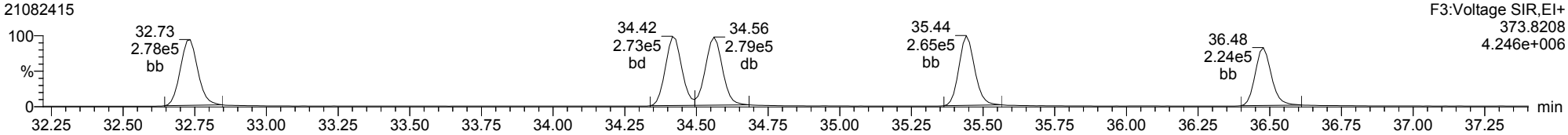

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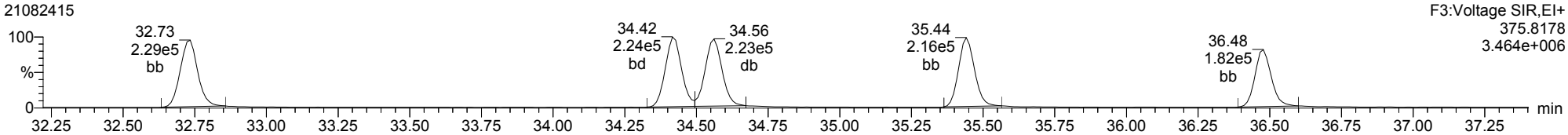

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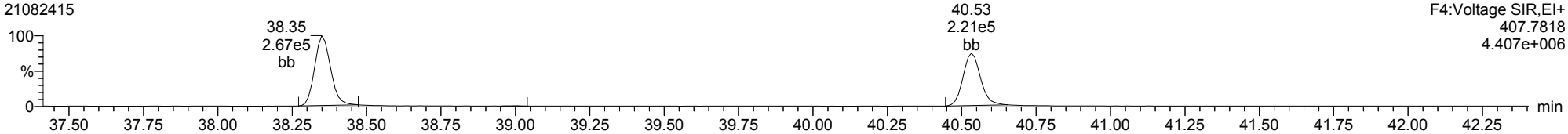

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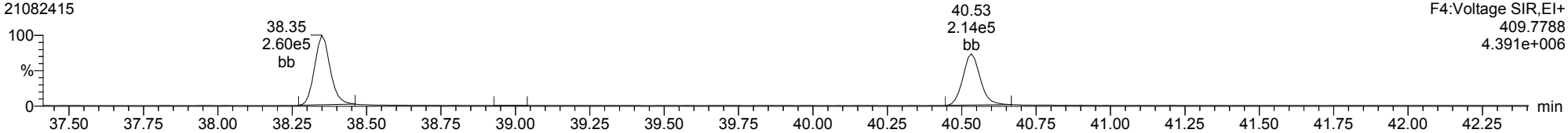

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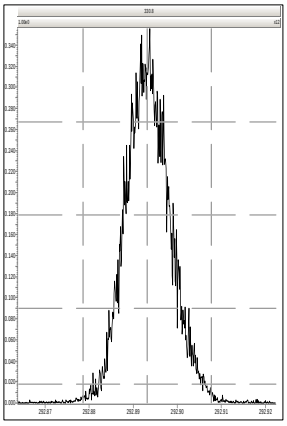

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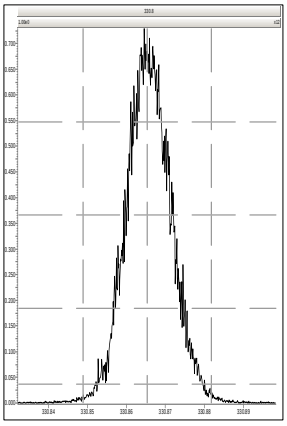

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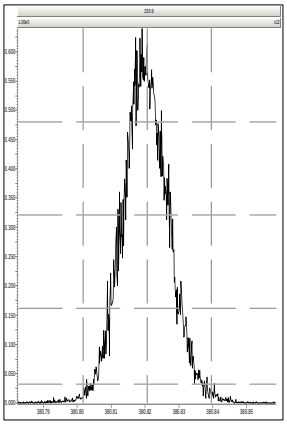

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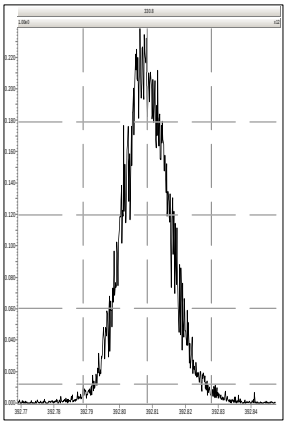

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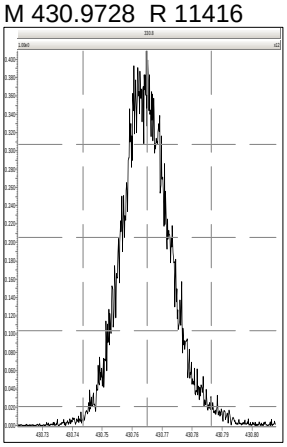

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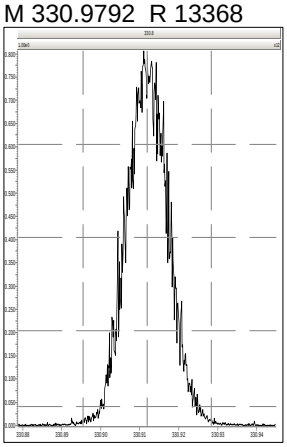

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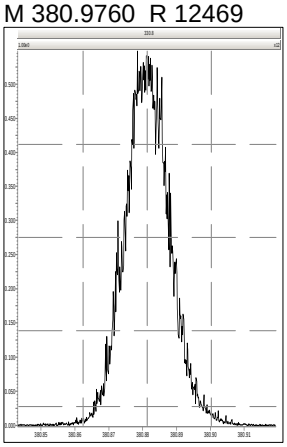

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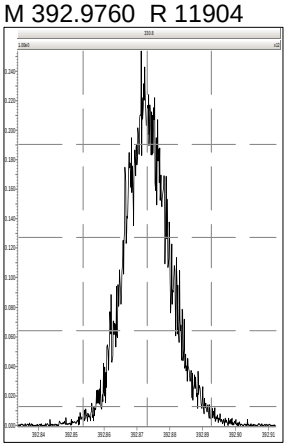

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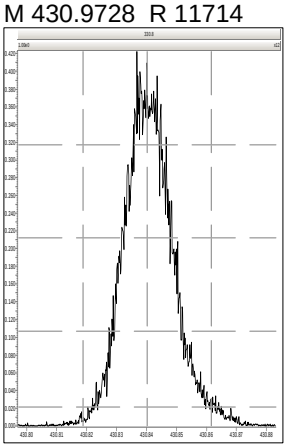

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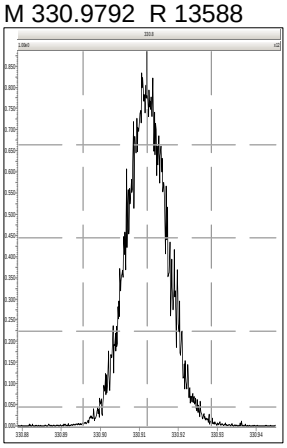

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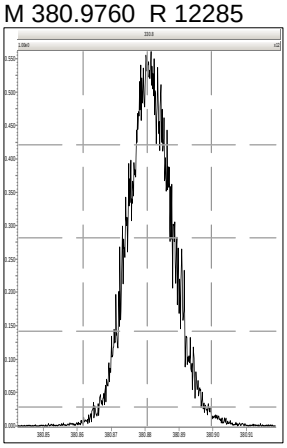

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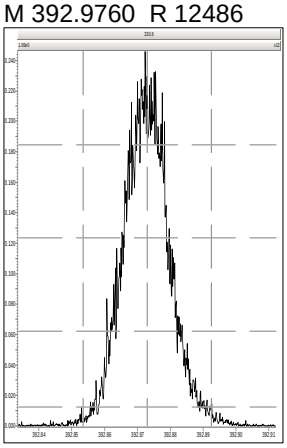
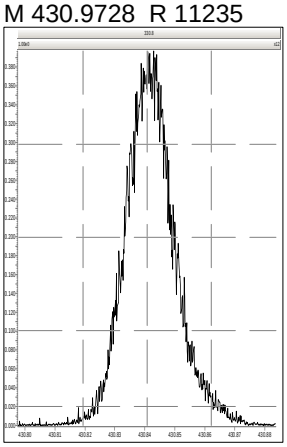
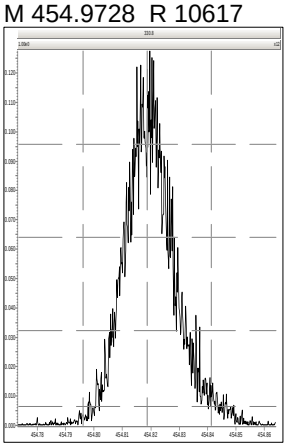


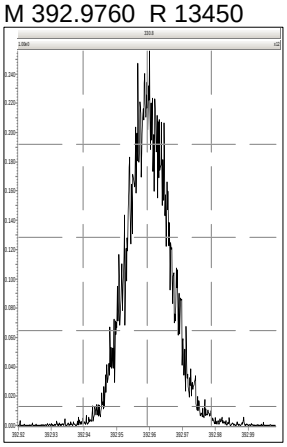
M 430.9728 R 11235



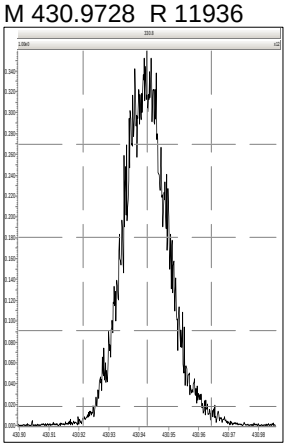
M 454.9728 R 10617



M 392.9760 R 13450

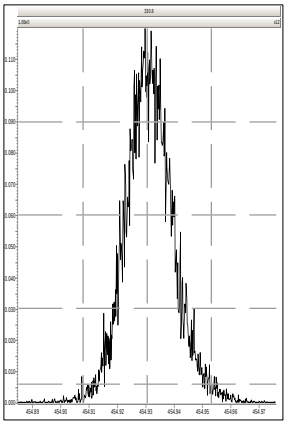


M 430.9728 R 11936

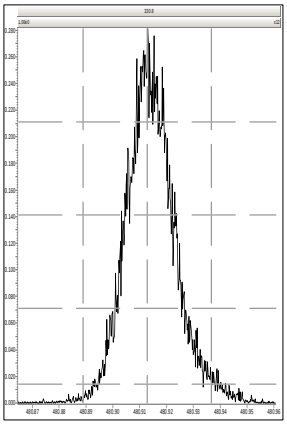


Printed: Wednesday, August 25, 2021 00:27:43 Pacific Daylight Time

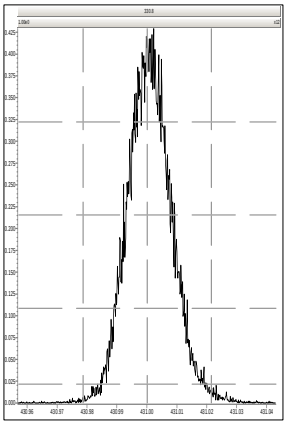
M 454.9728 R 12378



M 480.9696 R 11320



M 430.9728 R 12929



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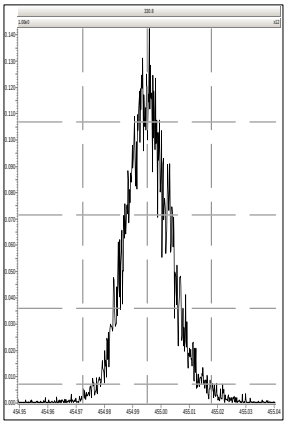
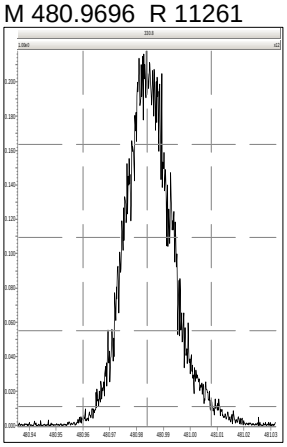
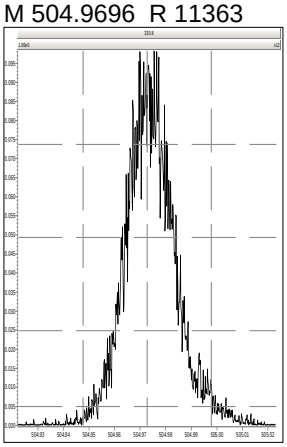


M 480.9696 R 11261



M 504.9696 R 11363



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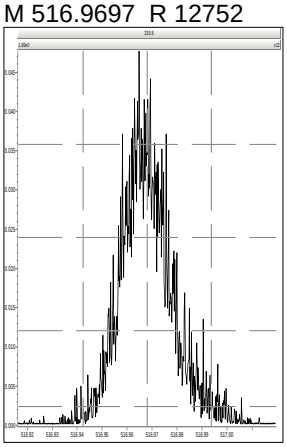
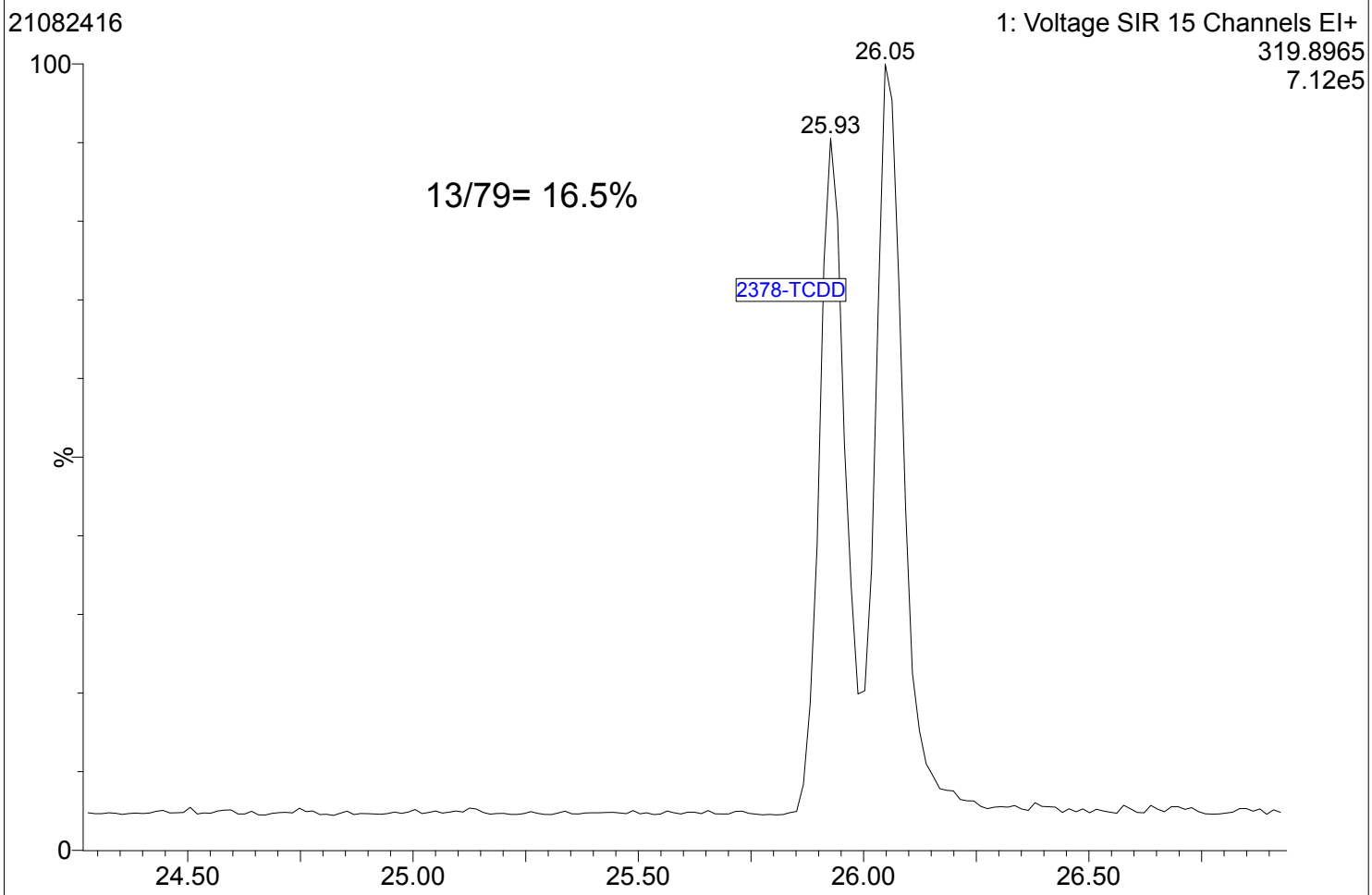
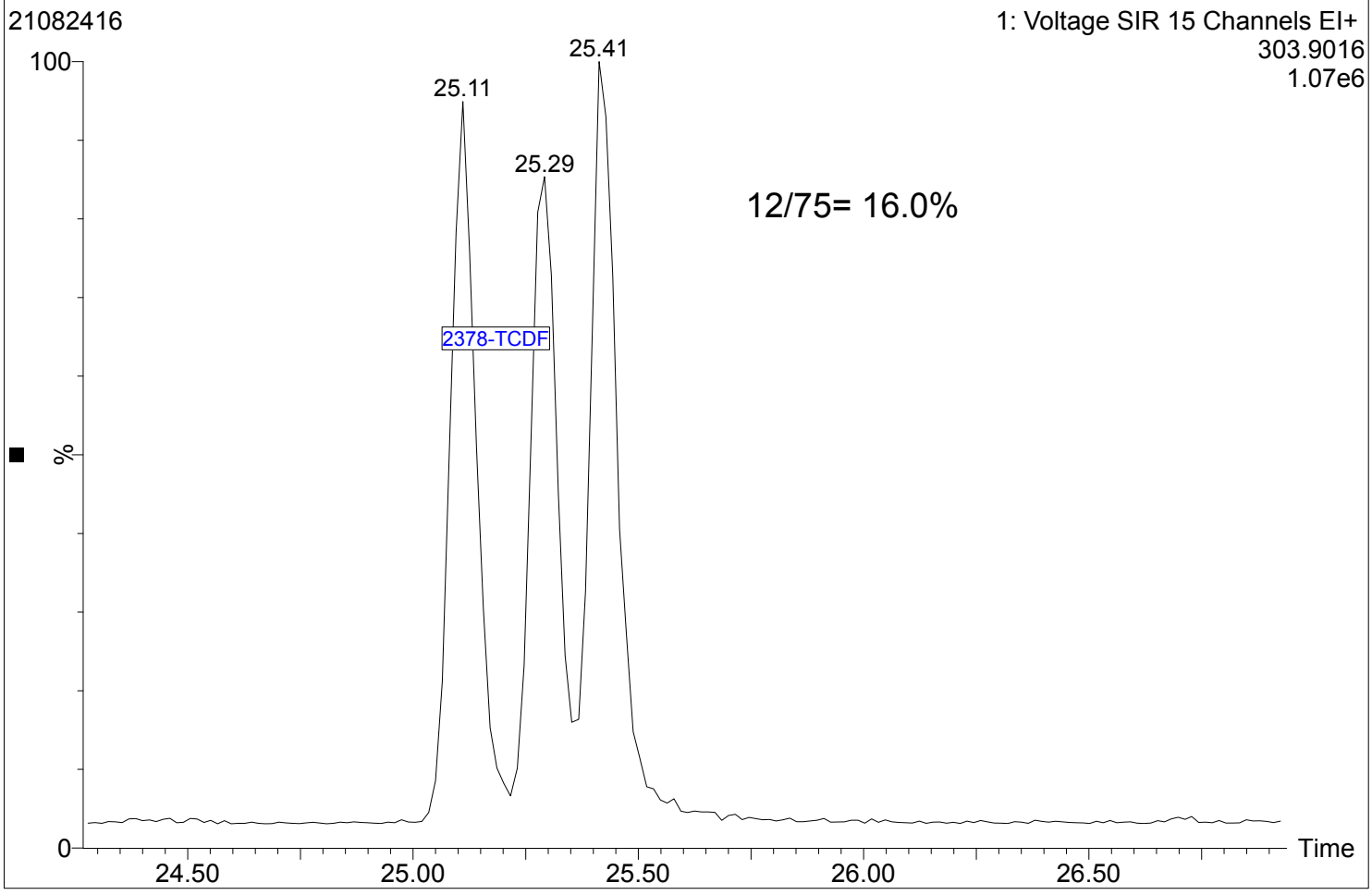



21082416
1: Voltage SIR 15 Channels EI+
319.8965
7.12e5
100
%
0
26.05
25.93
13/79= 16.5%
2378-TCDD
24.50
25.00
25.50
26.00
26.50


21082416
1: Voltage SIR 15 Channels EI+
303.9016
1.07e6
100
%
0
25.41
25.11
25.29
12/75= 16.0%
2378-TCDF
Time
24.50
25.00
25.50
26.00
26.50

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21082425	Calibration Date:	08/11/2021
Sequence:	SJH0304	Injection Date:	08/25/21
Lab Sample ID:	SJH0304-CCV2	Injection Time:	07:50
Sequence Name:	CS3L5		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.43	1.1075930	1.0439180		-5.7	+/-16
2,3,7,8-TCDD	A	10.000	10.7	0.9202875	0.9831469		6.8	+/-22
1,2,3,7,8-PeCDF	A	50.000	47.3	1.0148670	0.9605480		-5.4	+/-18
2,3,4,7,8-PeCDF	A	50.000	47.6	1.1255490	1.0712700		-4.8	+/-18
1,2,3,7,8-PeCDD	A	50.000	55.7	0.9953229	1.1093410		11.5	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	51.2	1.0168930	1.0416350		2.4	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	49.4	1.0368310	1.0248100		-1.2	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	50.2	1.0524660	1.0575620		0.5	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	50.7	1.0301540	1.0437070		1.3	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	48.3	1.0273630	0.9918665		-3.5	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	50.5	1.0089800	1.0199370		1.1	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.5	0.9504865	0.9601033		1.0	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	46.8	1.3273500	1.2413020		-6.5	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	48.7	1.2833380	1.2508680		-2.5	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	55.0	1.0680880	1.1739320		9.9	+/-14
OCDF	A	100.00	93.2	1.4469010	1.3478960		-6.8	+/-37
OCDD	A	100.00	98.6	1.1808230	1.1638080		-1.4	+/-21
13C12-2,3,7,8-TCDF	A	100.00	105	1.4265830	1.5035978		5.4	+/-29
13C12-2,3,7,8-TCDD	A	100.00	102	1.1164910	1.1411203		2.2	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	108	1.2973130	1.4013356		8.0	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	106	1.2364800	1.3133176		6.2	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	102	0.7319833	0.7469227		2.0	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	89.3	1.2424560	1.1097560		-10.7	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	87.5	1.3434760	1.1759045		-12.5	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	89.3	1.2148550	1.0849296		-10.7	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	91.9	1.0076370	0.9255462		-8.1	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	98.5	0.9598233	0.9453237		-1.5	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	96.0	1.0413850	1.0001275		-4.0	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	104	0.9264704	0.9667513		4.3	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	105	0.7579160	0.7922983		4.5	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	103	0.6324476	0.6534433		3.3	+/-28
13C12-OCDD	A	200.00	244	0.5037432	0.6139485		21.9	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.70	1.0835930	1.0515944		-3.0	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:45:59 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.262	1.001	4.381e4	5.632e4	1.108	0.778	0.770	1074	1751	6.28e5	7.77e5	584.9	443.9	NO	bb	bd	9.425
12378-PeCDF	29.414	1.000	2.656e5	1.637e5	1.015	1.623	1.550	2523	2502	3.70e6	2.31e6	1464.8	923.1	NO	bd	bb	47.324
23478-PeCDF	30.762	1.001	2.714e5	1.773e5	1.126	1.530	1.550	2523	2502	3.85e6	2.54e6	1525.2	1013.2	NO	bd	bb	47.589
123478-HxCDF	34.416	1.000	2.007e5	1.616e5	1.017	1.242	1.240	2644	1997	3.04e6	2.43e6	1150.2	1217.7	NO	bd	bd	51.217
234678-HxCDF	35.441	1.000	2.020e5	1.575e5	1.052	1.283	1.240	2644	1997	2.95e6	2.45e6	1114.7	1229.3	NO	bd	bb	50.242
123678-HxCDF	34.561	1.001	2.091e5	1.685e5	1.037	1.241	1.240	2644	1997	2.94e6	2.40e6	1113.9	1204.4	NO	db	db	49.420
123789-HxCDF	36.477	1.001	1.672e5	1.355e5	1.030	1.234	1.240	2644	1997	2.41e6	1.94e6	911.7	969.7	NO	bb	bd	50.658
1234678-HpCDF	38.349	1.000	1.937e5	1.824e5	1.327	1.062	1.050	2416	1710	3.03e6	2.93e6	1255.9	1713.6	NO	bb	bb	46.759
1234789-HpCDF	40.533	1.000	1.598e5	1.508e5	1.283	1.060	1.050	2416	1710	2.30e6	2.19e6	950.4	1282.8	NO	bb	bb	48.735
OCDF	44.665	1.005	2.449e5	2.738e5	1.447	0.894	0.890	1801	2219	2.87e6	3.26e6	1594.2	1468.0	NO	bb	bb	93.157
2378-TCDD	25.897	1.001	3.281e4	3.876e4	0.920	0.847	0.770	2139	1135	4.57e5	5.77e5	213.7	508.2	NO	bb	bb	10.683
12378-PeCDD	31.018	1.001	1.629e5	1.014e5	0.995	1.605	1.550	1616	1934	2.35e6	1.47e6	1454.3	759.8	NO	bb	bb	55.728
123478-HxCDD	35.553	1.000	1.655e5	1.284e5	1.027	1.289	1.240	2024	2969	2.53e6	2.02e6	1250.8	681.3	NO	bd	bd	48.272
123678-HxCDD	35.675	1.001	1.784e5	1.412e5	1.009	1.264	1.240	2024	2969	2.58e6	2.07e6	1273.2	696.1	NO	db	db	50.543
123789-HxCDD	36.065	1.012	1.612e5	1.315e5	0.950	1.226	1.240	2024	2969	2.47e6	2.02e6	1221.9	681.3	NO	bb	bb	50.506
1234678-HpCDD	39.820	1.001	1.254e5	1.150e5	1.068	1.090	1.050	1813	1303	1.89e6	1.69e6	1040.6	1298.9	NO	bb	bb	54.955
OCDD	44.445	1.000	2.125e5	2.354e5	1.181	0.903	0.890	1459	2004	2.62e6	2.87e6	1793.0	1430.0	NO	bb	bb	98.559
13C-2378-TCDF	25.232	1.007	4.319e5	5.273e5	1.427	0.819	0.770	3299	2227	5.98e6	7.32e6	1812.1	3288.3	NO	bb	bb	105.399
13C-12378-PeCDF	29.403	1.173	5.479e5	3.460e5	1.297	1.583	1.550	3069	2758	7.54e6	4.70e6	2456.7	1702.6	NO	bd	bd	108.018
13C-23478-PeCDF	30.740	1.226	5.164e5	3.214e5	1.236	1.607	1.550	3069	2758	7.19e6	4.45e6	2343.9	1615.0	NO	bb	bb	106.214
13C-123478-HxCDF	34.405	0.954	2.343e5	4.612e5	1.242	0.508	0.510	2258	2202	3.45e6	6.80e6	1529.7	3086.5	NO	bd	bd	89.320
13C-123678-HxCDF	34.539	0.958	2.485e5	4.885e5	1.343	0.509	0.510	2258	2202	3.52e6	6.86e6	1560.1	3113.5	NO	db	db	87.527
13C-234678-HxCDF	35.430	0.983	2.311e5	4.489e5	1.215	0.515	0.510	2258	2202	3.35e6	6.55e6	1481.9	2972.8	NO	bb	bb	89.305
13C-123789-HxCDF	36.455	1.011	1.960e5	3.841e5	1.008	0.510	0.510	2258	2202	2.96e6	5.85e6	1310.0	2657.1	NO	bb	bb	91.853
13C-1234678-HpCDF	38.338	1.063	1.849e5	4.210e5	0.926	0.439	0.440	2013	2590	2.91e6	6.34e6	1446.8	2449.4	NO	bb	bd	104.348
13C-1234789-HpCDF	40.522	1.124	1.597e5	3.369e5	0.758	0.474	0.440	2013	2590	2.15e6	4.58e6	1066.6	1766.7	NO	bd	bb	104.536
13C-1234-TCDD	25.065	0.000	2.784e5	3.595e5	1.000	0.775	0.770	2376	1486	4.04e6	5.12e6	1698.3	3443.1	NO	bb	bb	100.000
13C-2378-TCDD	25.882	1.033	3.171e5	4.108e5	1.116	0.772	0.770	2376	1486	4.35e6	5.65e6	1831.2	3799.1	NO	bb	bb	102.206
13C-12378-PeCDD	30.996	1.237	2.897e5	1.868e5	0.732	1.551	1.550	1062	1158	4.05e6	2.57e6	3812.4	2218.2	NO	bb	bb	102.041
13C-123478-HxCDD	35.542	0.986	3.298e5	2.626e5	0.960	1.256	1.240	2209	1978	5.16e6	4.09e6	2334.5	2068.7	NO	bd	bd	98.489
13C-123678-HxCDD	35.653	0.989	3.447e5	2.821e5	1.041	1.222	1.240	2209	1978	5.08e6	4.17e6	2297.9	2105.6	NO	db	db	96.038
13C-1234678-HpCDD	39.798	1.104	2.115e5	1.981e5	0.632	1.068	1.050	1989	1115	3.09e6	2.95e6	1552.5	2650.1	NO	bb	bb	103.320
13C-OCDD	44.427	1.232	3.669e5	4.027e5	0.504	0.911	0.890	1395	1934	4.50e6	4.94e6	3225.5	2553.6	NO	bb	bb	243.755
13C-123789-HxCDD	36.054	0.000	3.490e5	2.778e5	1.000	1.256	1.240	2209	1978	5.33e6	4.22e6	2411.2	2135.2	NO	bb	bb	100.000
37CL-2378-TCDD	25.897	1.033	6.708e4		1.084			1365		9.26e5		678.3			bd		9.705

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:45:59 Pacific Daylight Time

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	21.754	0.862	5.466e4	7.377e4	1.425	0.741	0.770	1074	1751	8.13e5	1.05e6	756.9	599.0	NO	bb	bb	9.396
1289-TCDF	26.743	1.060	4.054e4	5.528e4	1.043	0.733	0.770	1074	1751	5.52e5	7.39e5	514.4	421.9	NO	bb	db	9.578
13468-PECDF	26.607	0.905	3.386e5	2.233e5	1.376	1.516	1.550	749	1113	4.70e6	3.14e6	6285.6	2820.5	NO	bb	bb	45.674
12389-PECDF	31.787	1.081	2.482e5	1.663e5	1.000	1.492	1.550	2523	2502	3.37e6	2.26e6	1336.4	903.2	NO	bb	bb	46.390
123468-HXCDF	32.723	0.951	2.063e5	1.659e5	1.087	1.244	1.240	2644	1997	2.79e6	2.39e6	1057.1	1196.2	NO	bb	bb	49.250
1368-TCDD	23.039	0.890	3.259e4	3.906e4	0.923	0.834	0.770	2139	1135	4.40e5	5.57e5	205.9	490.4	NO	bb	bb	10.660
1289-TCDD	26.501	1.024	2.841e4	3.648e4	0.794	0.779	0.770	2139	1135	3.70e5	4.80e5	173.2	422.9	NO	bb	bb	11.226
12479-PECDD	28.289	0.913	2.868e5	1.790e5	1.843	1.602	1.550	1616	1934	2.72e6	1.65e6	1682.5	851.6	NO	bb	bb	53.041
12389-PECDD	31.408	1.013	1.926e5	1.171e5	1.154	1.644	1.550	1616	1934	2.76e6	1.67e6	1709.8	861.0	NO	bb	bb	56.351
124679-HXCDD	33.514	0.943	1.762e5	1.430e5	1.125	1.232	1.240	2024	2969	2.55e6	2.03e6	1260.5	683.8	NO	bb	bb	47.888
1234679-HPCDD	38.795	0.975	1.379e5	1.286e5	1.211	1.072	1.050	1813	1303	2.10e6	2.03e6	1158.6	1556.1	NO	bb	bb	53.735
Total-tetrafurans			1.390e5		1.192			1074		1.99e6							28.399
Total-penta1			3.386e5					749		4.70e6							45.674
Total-pentafurans			8.270e5		1.047			2523		1.15e7							148.914
Total-hexafurans			9.854e5		1.045			2644		1.41e7							250.787
Total-heptafurans			3.538e5		1.305			2416		5.34e6							95.593
Total-Furans			2.889e6		1.158			1074		4.05e7							662.524
Total-tetradioxins			1.580e5		0.879			2139		1.99e6							55.213
Total-pentadioxins			6.423e5		1.331			1616		7.83e6							165.120
Total-hexadioxins			6.813e5		1.028			2024		1.01e7							197.209
Total-heptadioxins			2.632e5		1.140			1813		3.99e6							108.690
Total-Dioxins			1.957e6		1.092			2139		2.66e7							624.791
Total-TEQ			4.846e6					2139		6.71e7							1287.315
FUNCTION1 PFK			4.016e4					911839		2.11e6							
FUNCTION2 PFK			2.955e5					747406		1.05e7							0.000
FUNCTION3 PFK			4.372e5					679841		1.39e7							0.000
FUNCTION4 PFK			3.511e7					485887		4.07e8							
FUNCTION5 PFK			5.125e6					249243		3.34e7							
FUNCTION1 HXCD...			6.481e2					725		9.22e3							0.000
FUNCTION1 HPCD...			1.102e3					891		2.18e4							0.000
FUNCTION2 HPCD...			6.442e2					995		1.83e4							0.000
FUNCTION3 OCDPE			4.020e2					594		7.55e3							0.000
FUNCTION4 NCDPE			2.418e2					805		8.16e3							0.000
FUNCTION5 DCDPE			7.679e1					547		1.38e3							0.000

Method: T:\Autospec\Methods\Dioxin210724.mdb 24 Aug 2021 14:57:46
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.26	4.381e4	5.632e4	1.108	0.78	0.77	584.9	YES	NO	bb	bd	9.425
2	1368-TCDF	21.75	5.466e4	7.377e4	1.425	0.74	0.77	756.9	YES	NO	bb	bb	9.396
3	1289-TCDF	26.74	4.054e4	5.528e4	1.043	0.73	0.77	514.4	YES	NO	bb	db	9.578

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.61	3.386e5	2.233e5	1.376	1.52	1.55	6285.6	YES	NO	bb	bb	45.674

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	31.79	2.482e5	1.663e5	1.000	1.49	1.55	1336.4	YES	NO	bb	bb	46.390
2	23478-PeCDF	30.76	2.714e5	1.773e5	1.126	1.53	1.55	1525.2	YES	NO	bd	bb	47.589
3	12378-PeCDF	29.41	2.656e5	1.637e5	1.015	1.62	1.55	1464.8	YES	NO	bd	bb	47.324
4	Total-pentafurans	28.27	4.175e4	2.723e4	1.047	1.53	1.55	229.9	YES	NO	bb	bb	7.611

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.44	2.020e5	1.575e5	1.052	1.28	1.24	1114.7	YES	NO	bd	bb	50.242
2	123678-HxCDF	34.56	2.091e5	1.685e5	1.037	1.24	1.24	1113.9	YES	NO	db	db	49.420
3	123478-HxCDF	34.42	2.007e5	1.616e5	1.017	1.24	1.24	1150.2	YES	NO	bd	bd	51.217
4	123468-HXCDF	32.72	2.063e5	1.659e5	1.087	1.24	1.24	1057.1	YES	NO	bb	bb	49.250
5	123789-HxCDF	36.48	1.672e5	1.355e5	1.030	1.23	1.24	911.7	YES	NO	bb	bd	50.658

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.53	1.598e5	1.508e5	1.283	1.06	1.05	950.4	YES	NO	bb	bb	48.735
2	Total-heptafurans	38.77	1.588e2	1.464e2	1.305	1.08	1.05	2.4	NO	NO	bd	bb	0.042
3	Total-heptafurans	38.61	2.088e2	2.032e2	1.305	1.03	1.05	2.6	NO	NO	bb	bb	0.057
4	1234678-HpCDF	38.35	1.937e5	1.824e5	1.327	1.06	1.05	1255.9	YES	NO	bb	bb	46.759

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.26	4.381e4	5.632e4	1.108	0.78	0.77	584.9	YES	NO	bb	bd	9.425
2	1368-TCDF	21.75	5.466e4	7.377e4	1.425	0.74	0.77	756.9	YES	NO	bb	bb	9.396
3	1289-TCDF	26.74	4.054e4	5.528e4	1.043	0.73	0.77	514.4	YES	NO	bb	db	9.578
4	12389-PECDF	31.79	2.482e5	1.663e5	1.000	1.49	1.55	1336.4	YES	NO	bb	bb	46.390
5	23478-PeCDF	30.76	2.714e5	1.773e5	1.126	1.53	1.55	1525.2	YES	NO	bd	bb	47.589
6	12378-PeCDF	29.41	2.656e5	1.637e5	1.015	1.62	1.55	1464.8	YES	NO	bd	bb	47.324
7	Total-pentafurans	28.27	4.175e4	2.723e4	1.047	1.53	1.55	229.9	YES	NO	bb	bb	7.611
8	234678-HxCDF	35.44	2.020e5	1.575e5	1.052	1.28	1.24	1114.7	YES	NO	bd	bb	50.242
9	123678-HxCDF	34.56	2.091e5	1.685e5	1.037	1.24	1.24	1113.9	YES	NO	db	db	49.420
10	123478-HxCDF	34.42	2.007e5	1.616e5	1.017	1.24	1.24	1150.2	YES	NO	bd	bd	51.217
11	123468-HXCDF	32.72	2.063e5	1.659e5	1.087	1.24	1.24	1057.1	YES	NO	bb	bb	49.250
12	123789-HxCDF	36.48	1.672e5	1.355e5	1.030	1.23	1.24	911.7	YES	NO	bb	bd	50.658
13	1234789-HpCDF	40.53	1.598e5	1.508e5	1.283	1.06	1.05	950.4	YES	NO	bb	bb	48.735
14	Total-heptafurans	38.77	1.588e2	1.464e2	1.305	1.08	1.05	2.4	NO	NO	bd	bb	0.042
15	Total-heptafurans	38.61	2.088e2	2.032e2	1.305	1.03	1.05	2.6	NO	NO	bb	bb	0.057
16	1234678-HpCDF	38.35	1.937e5	1.824e5	1.327	1.06	1.05	1255.9	YES	NO	bb	bb	46.759
17	OCDF	44.66	2.449e5	2.738e5	1.447	0.89	0.89	1594.2	YES	NO	bb	bb	93.157
18	13468-PECDF	26.61	3.386e5	2.233e5	1.376	1.52	1.55	6285.6	YES	NO	bb	bb	45.674

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.50	2.841e4	3.648e4	0.794	0.78	0.77	173.2	YES	NO	bb	bb	11.226
2	2378-TCDD	25.90	3.281e4	3.876e4	0.920	0.85	0.77	213.7	YES	NO	bb	bb	10.683
3	Total-tetradioxins	25.56	4.820e4	6.132e4	0.879	0.79	0.77	228.2	YES	NO	bb	bb	17.112
4	Total-tetradioxins	25.08	1.596e4	1.944e4	0.879	0.82	0.77	108.0	YES	NO	bd	bd	5.532
5	1368-TCDD	23.04	3.259e4	3.906e4	0.923	0.83	0.77	205.9	YES	NO	bb	bb	10.660

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.29	2.868e5	1.790e5	1.843	1.60	1.55	1682.5	YES	NO	bb	bb	53.041
2	12389-PECDD	31.41	1.926e5	1.171e5	1.154	1.64	1.55	1709.8	YES	NO	bb	bb	56.351
3	12378-PeCDD	31.02	1.629e5	1.014e5	0.995	1.61	1.55	1454.3	YES	NO	bb	bb	55.728

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:45:59 Pacific Daylight Time

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	35.68	1.784e5	1.412e5	1.009	1.26	1.24	1273.2	YES	NO	db	db	50.543
2	123478-HxCDD	35.55	1.655e5	1.284e5	1.027	1.29	1.24	1250.8	YES	NO	bd	bd	48.272
3	124679-HXCDD	33.51	1.762e5	1.430e5	1.125	1.23	1.24	1260.5	YES	NO	bb	bb	47.888
4	123789-HxCDD	36.07	1.612e5	1.315e5	0.950	1.23	1.24	1221.9	YES	NO	bb	bb	50.506

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	39.82	1.254e5	1.150e5	1.068	1.09	1.05	1040.6	YES	NO	bb	bb	54.955
2	1234679-HPCDD	38.79	1.379e5	1.286e5	1.211	1.07	1.05	1158.6	YES	NO	bb	bb	53.735

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.50	2.841e4	3.648e4	0.794	0.78	0.77	173.2	YES	NO	bb	bb	11.226
2	2378-TCDD	25.90	3.281e4	3.876e4	0.920	0.85	0.77	213.7	YES	NO	bb	bb	10.683
3	Total-tetradioxins	25.56	4.820e4	6.132e4	0.879	0.79	0.77	228.2	YES	NO	bb	bb	17.112
4	Total-tetradioxins	25.08	1.596e4	1.944e4	0.879	0.82	0.77	108.0	YES	NO	bd	bd	5.532
5	1368-TCDD	23.04	3.259e4	3.906e4	0.923	0.83	0.77	205.9	YES	NO	bb	bb	10.660
6	12479-PECDD	28.29	2.868e5	1.790e5	1.843	1.60	1.55	1682.5	YES	NO	bb	bb	53.041
7	12389-PECDD	31.41	1.926e5	1.171e5	1.154	1.64	1.55	1709.8	YES	NO	bb	bb	56.351
8	12378-PeCDD	31.02	1.629e5	1.014e5	0.995	1.61	1.55	1454.3	YES	NO	bb	bb	55.728
9	123678-HxCDD	35.68	1.784e5	1.412e5	1.009	1.26	1.24	1273.2	YES	NO	db	db	50.543
10	123478-HxCDD	35.55	1.655e5	1.284e5	1.027	1.29	1.24	1250.8	YES	NO	bd	bd	48.272
11	124679-HXCDD	33.51	1.762e5	1.430e5	1.125	1.23	1.24	1260.5	YES	NO	bb	bb	47.888
12	123789-HxCDD	36.07	1.612e5	1.315e5	0.950	1.23	1.24	1221.9	YES	NO	bb	bb	50.506
13	1234678-HpCDD	39.82	1.254e5	1.150e5	1.068	1.09	1.05	1040.6	YES	NO	bb	bb	54.955
14	1234679-HPCDD	38.79	1.379e5	1.286e5	1.211	1.07	1.05	1158.6	YES	NO	bb	bb	53.735
15	OCDD	44.45	2.125e5	2.354e5	1.181	0.90	0.89	1793.0	YES	NO	bb	bb	98.559

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.26	4.381e4	5.632e4	1.108	0.78	0.77	584.9	YES	NO	bb	bd	9.425
2	1368-TCDF	21.75	5.466e4	7.377e4	1.425	0.74	0.77	756.9	YES	NO	bb	bb	9.396
3	1289-TCDF	26.74	4.054e4	5.528e4	1.043	0.73	0.77	514.4	YES	NO	bb	db	9.578
4	12389-PECDF	31.79	2.482e5	1.663e5	1.000	1.49	1.55	1336.4	YES	NO	bb	bb	46.390
5	23478-PeCDF	30.76	2.714e5	1.773e5	1.126	1.53	1.55	1525.2	YES	NO	bd	bb	47.589
6	12378-PeCDF	29.41	2.656e5	1.637e5	1.015	1.62	1.55	1464.8	YES	NO	bd	bb	47.324
7	Total-pentafurans	28.27	4.175e4	2.723e4	1.047	1.53	1.55	229.9	YES	NO	bb	bb	7.611
8	234678-HxCDF	35.44	2.020e5	1.575e5	1.052	1.28	1.24	1114.7	YES	NO	bd	bb	50.242
9	123678-HxCDF	34.56	2.091e5	1.685e5	1.037	1.24	1.24	1113.9	YES	NO	db	db	49.420
10	123478-HxCDF	34.42	2.007e5	1.616e5	1.017	1.24	1.24	1150.2	YES	NO	bd	bd	51.217
11	123468-HXCDF	32.72	2.063e5	1.659e5	1.087	1.24	1.24	1057.1	YES	NO	bb	bb	49.250
12	123789-HxCDF	36.48	1.672e5	1.355e5	1.030	1.23	1.24	911.7	YES	NO	bb	bd	50.658
13	1234789-HpCDF	40.53	1.598e5	1.508e5	1.283	1.06	1.05	950.4	YES	NO	bb	bb	48.735
14	Total-heptafurans	38.77	1.588e2	1.464e2	1.305	1.08	1.05	2.4	NO	NO	bd	bb	0.042
15	Total-heptafurans	38.61	2.088e2	2.032e2	1.305	1.03	1.05	2.6	NO	NO	bb	bb	0.057
16	1234678-HpCDF	38.35	1.937e5	1.824e5	1.327	1.06	1.05	1255.9	YES	NO	bb	bb	46.759
17	OCDF	44.66	2.449e5	2.738e5	1.447	0.89	0.89	1594.2	YES	NO	bb	bb	93.157
18	13468-PECDF	26.61	3.386e5	2.233e5	1.376	1.52	1.55	6285.6	YES	NO	bb	bb	45.674
19	1289-TCDD	26.50	2.841e4	3.648e4	0.794	0.78	0.77	173.2	YES	NO	bb	bb	11.226
20	2378-TCDD	25.90	3.281e4	3.876e4	0.920	0.85	0.77	213.7	YES	NO	bb	bb	10.683
21	Total-tetradioxins	25.56	4.820e4	6.132e4	0.879	0.79	0.77	228.2	YES	NO	bb	bb	17.112
22	Total-tetradioxins	25.08	1.596e4	1.944e4	0.879	0.82	0.77	108.0	YES	NO	bd	bd	5.532
23	1368-TCDD	23.04	3.259e4	3.906e4	0.923	0.83	0.77	205.9	YES	NO	bb	bb	10.660
24	12479-PECDD	28.29	2.868e5	1.790e5	1.843	1.60	1.55	1682.5	YES	NO	bb	bb	53.041
25	12389-PECDD	31.41	1.926e5	1.171e5	1.154	1.64	1.55	1709.8	YES	NO	bb	bb	56.351
26	12378-PeCDD	31.02	1.629e5	1.014e5	0.995	1.61	1.55	1454.3	YES	NO	bb	bb	55.728
27	123678-HxCDD	35.68	1.784e5	1.412e5	1.009	1.26	1.24	1273.2	YES	NO	db	db	50.543
28	123478-HxCDD	35.55	1.655e5	1.284e5	1.027	1.29	1.24	1250.8	YES	NO	bd	bd	48.272
29	124679-HXCDD	33.51	1.762e5	1.430e5	1.125	1.23	1.24	1260.5	YES	NO	bb	bb	47.888
30	123789-HxCDD	36.07	1.612e5	1.315e5	0.950	1.23	1.24	1221.9	YES	NO	bb	bb	50.506
31	1234678-HpCDD	39.82	1.254e5	1.150e5	1.068	1.09	1.05	1040.6	YES	NO	bb	bb	54.955
32	1234679-HPCDD	38.79	1.379e5	1.286e5	1.211	1.07	1.05	1158.6	YES	NO	bb	bb	53.735
33	OCDD	44.45	2.125e5	2.354e5	1.181	0.90	0.89	1793.0	YES	NO	bb	bb	98.559

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
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ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.84	2.585e4					1.3	NO		bb		
2	FUNCTION1 PFK	21.22	1.431e4					1.0	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	27.65	4.236e3					0.5	NO		bb		0.000
2	FUNCTION2 PFK	27.55	1.876e4					1.3	NO		bb		0.000
3	FUNCTION2 PFK	31.98	1.607e4					1.1	NO		bb		0.000
4	FUNCTION2 PFK	31.82	1.642e4					0.8	NO		bb		0.000
5	FUNCTION2 PFK	31.16	3.920e4					1.4	NO		bb		0.000
6	FUNCTION2 PFK	31.04	1.194e4					0.8	NO		bb		0.000
7	FUNCTION2 PFK	30.81	4.844e3					0.6	NO		bb		0.000
8	FUNCTION2 PFK	30.75	1.379e4					0.8	NO		bb		0.000
9	FUNCTION2 PFK	30.59	2.342e4					1.2	NO		bb		0.000
10	FUNCTION2 PFK	30.42	4.094e3					0.5	NO		bb		0.000
11	FUNCTION2 PFK	29.98	4.770e3					0.6	NO		bb		0.000
12	FUNCTION2 PFK	29.94	1.279e4					0.8	NO		bb		0.000
13	FUNCTION2 PFK	29.53	4.081e3					0.5	NO		bb		0.000
14	FUNCTION2 PFK	29.44	7.886e4					1.3	NO		bb		0.000
15	FUNCTION2 PFK	28.67	3.830e4					1.2	NO		bb		0.000
16	FUNCTION2 PFK	28.26	3.963e3					0.5	NO		bb		0.000

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.31	8.613e4					2.9	NO		bb		0.000
2	FUNCTION3 PFK	37.01	3.715e3					0.5	NO		bb		0.000
3	FUNCTION3 PFK	36.82	4.446e3					0.6	NO		bb		0.000
4	FUNCTION3 PFK	36.10	3.984e3					0.5	NO		bb		0.000
5	FUNCTION3 PFK	36.05	2.473e4					1.5	NO		bb		0.000
6	FUNCTION3 PFK	35.74	3.599e3					0.5	NO		bb		0.000
7	FUNCTION3 PFK	35.59	1.211e4					0.9	NO		bb		0.000
8	FUNCTION3 PFK	35.08	3.368e4					1.5	NO		bb		0.000
9	FUNCTION3 PFK	34.94	2.400e4					1.4	NO		bb		0.000
10	FUNCTION3 PFK	34.74	4.196e3					0.6	NO		bb		0.000
11	FUNCTION3 PFK	34.36	4.608e4					1.3	NO		bb		0.000
12	FUNCTION3 PFK	33.11	1.629e4					0.8	NO		bb		0.000
13	FUNCTION3 PFK	32.95	4.591e3					0.6	NO		bb		0.000
14	FUNCTION3 PFK	32.89	2.222e4					1.0	NO		bb		0.000
15	FUNCTION3 PFK	32.51	1.954e4					0.8	NO		db		0.000
16	FUNCTION3 PFK	32.44	6.943e4					2.4	NO		dd		0.000
17	FUNCTION3 PFK	32.38	1.144e4					1.0	NO		bd		0.000
18	FUNCTION3 PFK	37.21	4.701e4					1.6	NO		bb		0.000

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.59	9.957e5					30.6	YES		dd		
2	FUNCTION4 PFK	38.49	1.230e6					33.8	YES		dd		
3	FUNCTION4 PFK	38.37	1.905e6					36.6	YES		dd		
4	FUNCTION4 PFK	38.28	1.613e6					38.3	YES		dd		
5	FUNCTION4 PFK	38.23	2.131e6					39.4	YES		dd		
6	FUNCTION4 PFK	38.01	3.429e6					44.1	YES		dd		
7	FUNCTION4 PFK	37.96	9.813e5					45.8	YES		dd		
8	FUNCTION4 PFK	37.89	3.057e6					47.1	YES		dd		
9	FUNCTION4 PFK	37.78	1.049e6					49.0	YES		dd		
10	FUNCTION4 PFK	37.71	1.624e6					50.9	YES		dd		
11	FUNCTION4 PFK	37.65	2.510e6					52.1	YES		dd		
12	FUNCTION4 PFK	37.56	1.439e6					53.8	YES		dd		
13	FUNCTION4 PFK	37.51	1.178e6					54.8	YES		dd		
14	FUNCTION4 PFK	37.48	1.729e6					54.7	YES		bd		
15	FUNCTION4 PFK	40.10	1.206e4					0.8	NO		db		
16	FUNCTION4 PFK	40.05	9.483e3					0.8	NO		bd		
17	FUNCTION4 PFK	40.01	2.213e3					0.4	NO		db		
18	FUNCTION4 PFK	39.96	6.146e3					0.6	NO		bd		
19	FUNCTION4 PFK	39.86	2.180e4					1.6	NO		db		
20	FUNCTION4 PFK	39.78	1.341e5					3.9	YES		dd		
21	FUNCTION4 PFK	39.75	6.522e4					4.2	YES		dd		
22	FUNCTION4 PFK	39.61	6.601e5					8.3	YES		dd		
23	FUNCTION4 PFK	39.44	5.069e5					11.7	YES		dd		
24	FUNCTION4 PFK	39.35	6.122e5					14.0	YES		dd		
25	FUNCTION4 PFK	39.27	1.026e6					16.0	YES		dd		
26	FUNCTION4 PFK	39.08	1.901e6					20.2	YES		dd		
27	FUNCTION4 PFK	38.93	9.829e5					23.6	YES		dd		
28	FUNCTION4 PFK	38.88	5.085e5					24.2	YES		dd		
29	FUNCTION4 PFK	38.82	8.158e5					26.1	YES		dd		
30	FUNCTION4 PFK	38.63	2.584e6					30.2	YES		dd		
31	FUNCTION4 PFK	42.11	3.607e4					1.8	NO		bd		
32	FUNCTION4 PFK	41.99	2.290e4					0.5	NO		bb		
33	FUNCTION4 PFK	41.83	8.379e3					0.7	NO		bb		
34	FUNCTION4 PFK	41.72	1.224e4					1.0	NO		bb		
35	FUNCTION4 PFK	41.60	3.169e4					1.6	NO		db		
36	FUNCTION4 PFK	41.57	1.309e4					1.2	NO		bd		
37	FUNCTION4 PFK	41.50	2.126e4					1.6	NO		db		

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	41.46	2.549e3					0.4	NO		bd		
39	FUNCTION4 PFK	41.41	2.255e4					1.2	NO		bb		
40	FUNCTION4 PFK	40.87	5.799e4					1.5	NO		bb		
41	FUNCTION4 PFK	40.78	5.043e4					1.6	NO		bb		
42	FUNCTION4 PFK	40.67	2.944e3					0.5	NO		bb		
43	FUNCTION4 PFK	40.60	8.534e3					0.8	NO		bb		
44	FUNCTION4 PFK	40.44	4.369e4					1.1	NO		bb		
45	FUNCTION4 PFK	40.32	2.961e4					1.6	NO		bb		
46	FUNCTION4 PFK	40.22	2.006e3					0.4	NO		bb		
47	FUNCTION4 PFK	42.16	2.545e4					1.6	NO		db		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.66	1.690e3					0.7	NO		bb		
2	FUNCTION5 PFK	45.42	1.219e3					0.5	NO		bb		
3	FUNCTION5 PFK	45.31	1.952e4					1.5	NO		bb		
4	FUNCTION5 PFK	45.18	7.332e3					1.5	NO		db		
5	FUNCTION5 PFK	45.12	7.661e3					1.1	NO		bd		
6	FUNCTION5 PFK	44.77	4.012e3					1.0	NO		bb		
7	FUNCTION5 PFK	44.69	1.141e3					0.5	NO		bb		
8	FUNCTION5 PFK	43.88	3.548e3					0.8	NO		bb		
9	FUNCTION5 PFK	43.30	7.113e3					1.5	NO		bb		
10	FUNCTION5 PFK	43.22	7.645e3					1.6	NO		bb		
11	FUNCTION5 PFK	42.97	1.335e5					10.6	YES		db		
12	FUNCTION5 PFK	42.92	1.764e5					15.5	YES		dd		
13	FUNCTION5 PFK	42.72	3.567e6					36.3	YES		dd		
14	FUNCTION5 PFK	42.46	1.182e6					59.4	YES		bd		
15	FUNCTION5 PFK	45.93	1.635e3					0.7	NO		bb		
16	FUNCTION5 PFK	45.80	3.337e3					0.9	NO		bb		

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.02	7.923e1					1.7	NO		bb		0.000
2	FUNCTION1 HXCD...	26.61	2.305e2					2.8	NO		db		0.000
3	FUNCTION1 HXCD...	26.50	9.854e1					2.4	NO		bd		0.000
4	FUNCTION1 HXCD...	23.10	7.194e1					1.7	NO		db		0.000
5	FUNCTION1 HXCD...	23.02	1.678e2					4.1	YES		bd		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	24.48	7.258e1					1.5	NO		bb		0.000
2	FUNCTION1 HPCD...	23.43	1.131e2					1.8	NO		bb		0.000
3	FUNCTION1 HPCD...	21.86	1.047e2					2.8	NO		db		0.000
4	FUNCTION1 HPCD...	21.78	7.225e1					1.6	NO		bd		0.000
5	FUNCTION1 HPCD...	21.57	8.594e1					1.9	NO		db		0.000
6	FUNCTION1 HPCD...	21.53	1.044e2					2.5	NO		dd		0.000
7	FUNCTION1 HPCD...	21.47	8.574e1					2.6	NO		bd		0.000
8	FUNCTION1 HPCD...	27.12	8.097e1					1.7	NO		bb		0.000
9	FUNCTION1 HPCD...	26.73	9.831e1					3.2	YES		bb		0.000
10	FUNCTION1 HPCD...	24.82	1.396e2					1.9	NO		db		0.000
11	FUNCTION1 HPCD...	24.75	1.446e2					2.8	NO		bd		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.01	8.519e1					2.0	NO		bb		0.000
2	FUNCTION2 HPCD...	30.61	1.118e2					2.8	NO		bb		0.000
3	FUNCTION2 HPCD...	29.94	1.335e2					6.2	YES		bb		0.000
4	FUNCTION2 HPCD...	27.82	9.538e1					2.3	NO		bb		0.000
5	FUNCTION2 HPCD...	27.59	9.906e1					3.4	YES		db		0.000
6	FUNCTION2 HPCD...	27.46	1.193e2					1.8	NO		bd		0.000

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.55	1.337e2					3.9	YES		bb		0.000
2	FUNCTION3 OCDPE	34.04	8.245e1					3.0	YES		db		0.000
3	FUNCTION3 OCDPE	33.95	8.886e1					2.5	NO		bd		0.000
4	FUNCTION3 OCDPE	32.80	9.703e1					3.3	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.15	8.567e1					3.5	YES		bb		0.000
2	FUNCTION4 NCDPE	40.91	8.019e1					3.9	YES		bb		0.000
3	FUNCTION4 NCDPE	38.56	7.595e1					2.7	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	42.72	7.679e1					2.5	NO		bb		0.000

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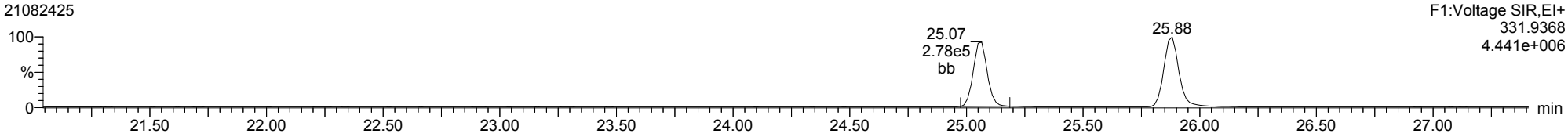

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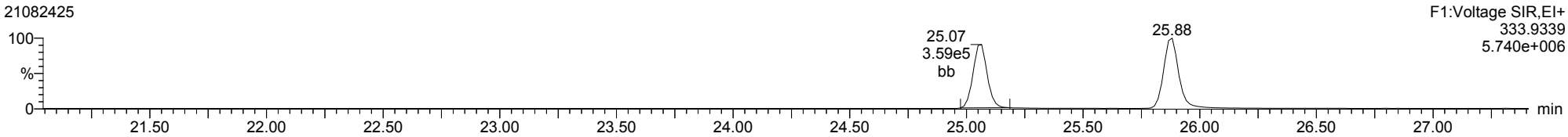

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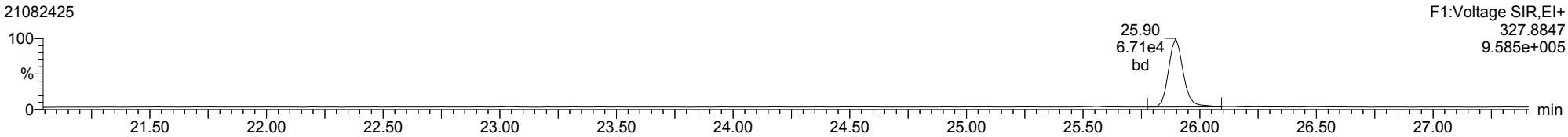

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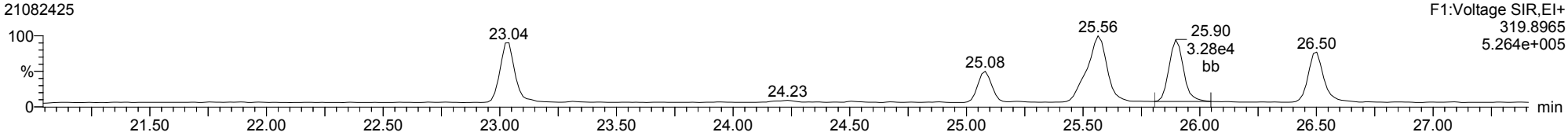

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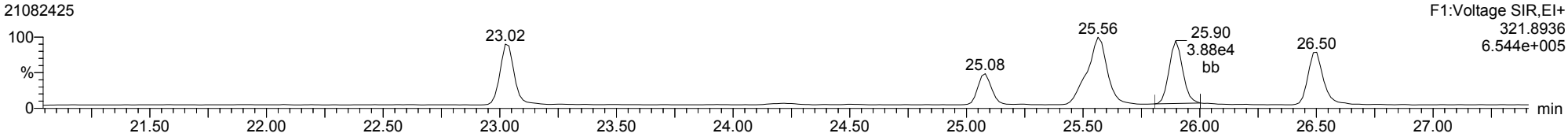

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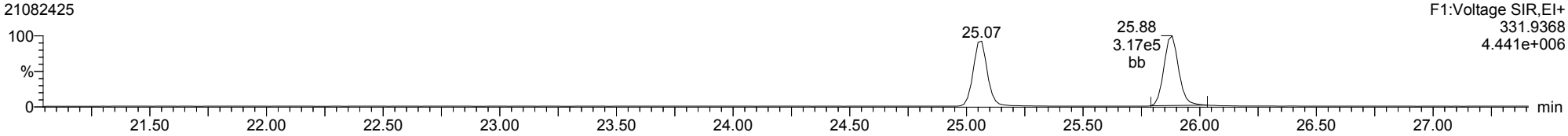

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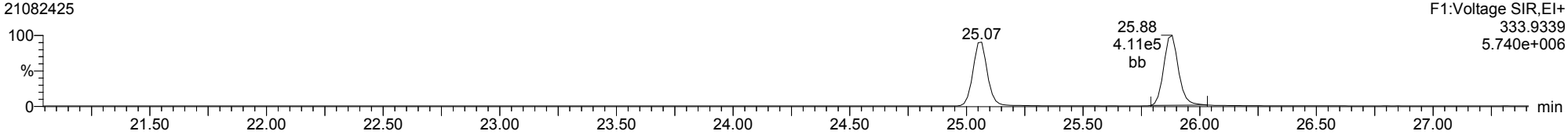

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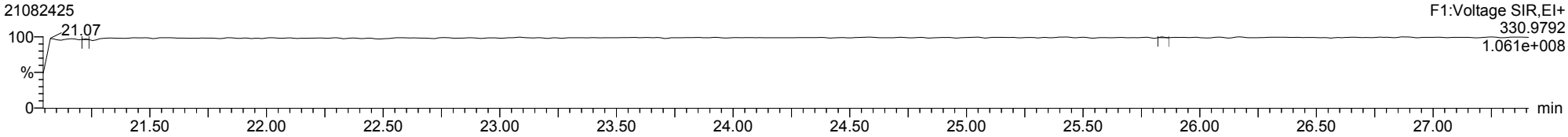

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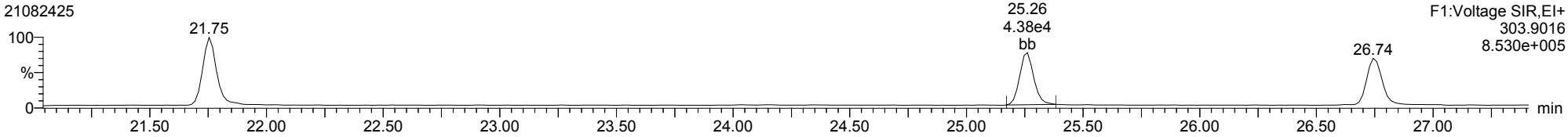

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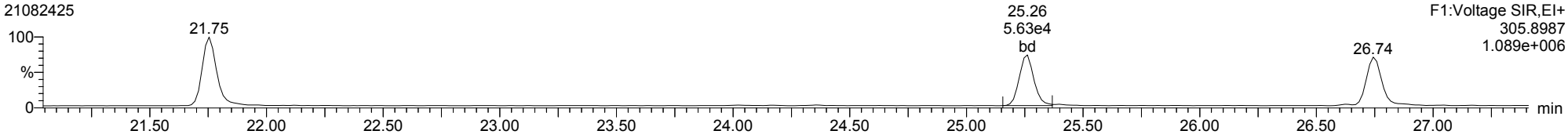

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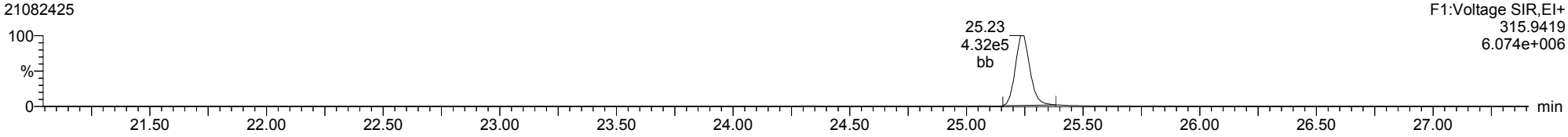

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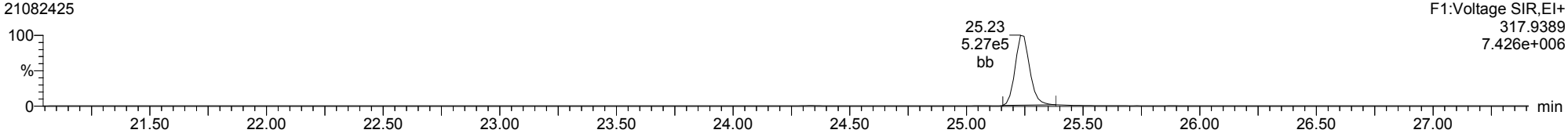

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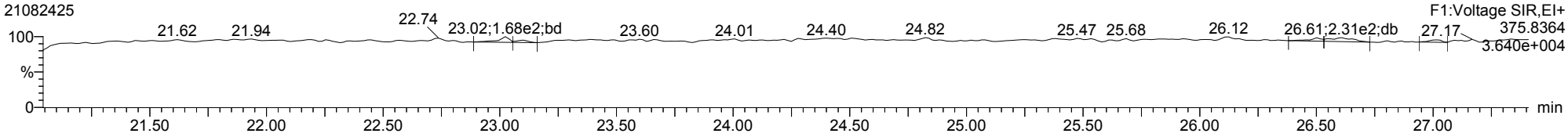

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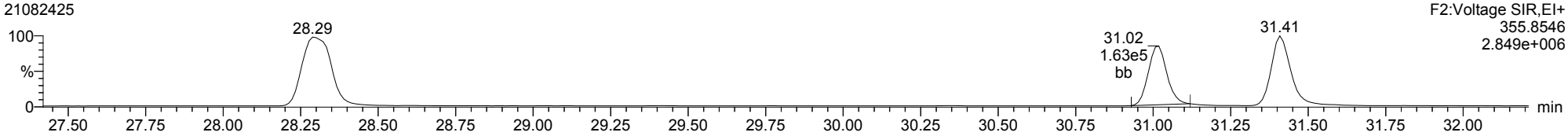

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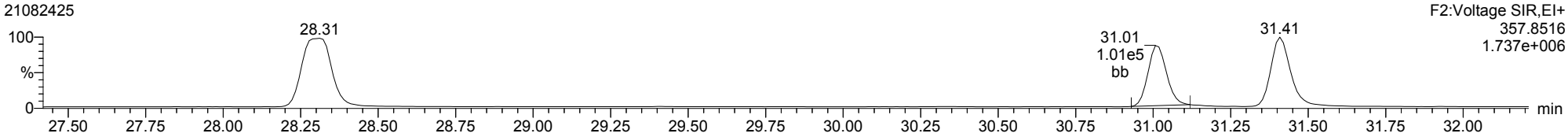

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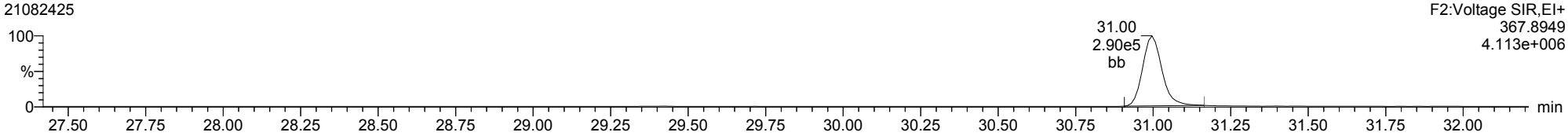

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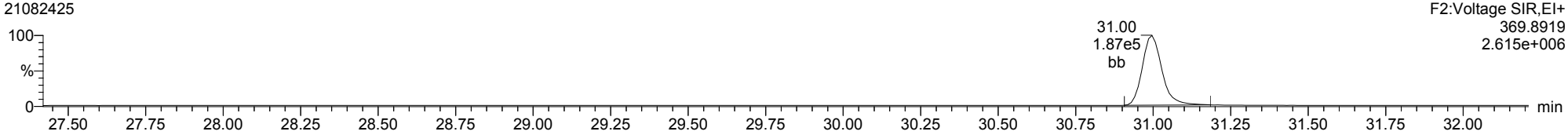
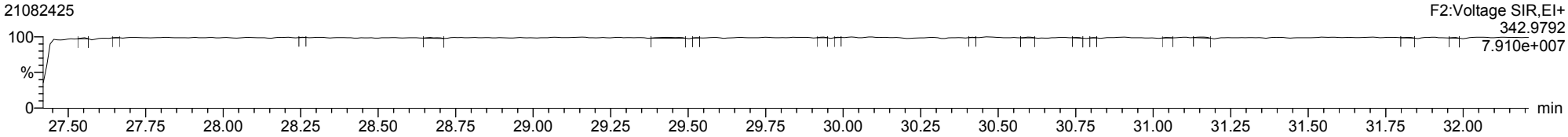


FUNCTION2 PFK



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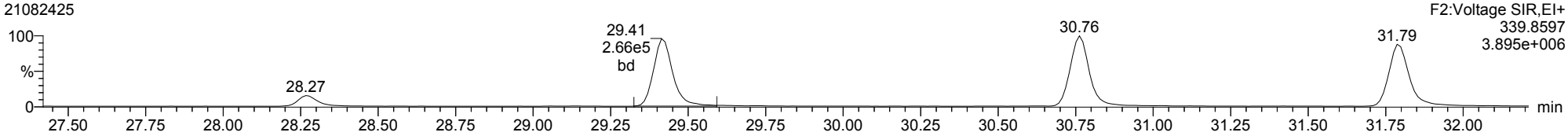

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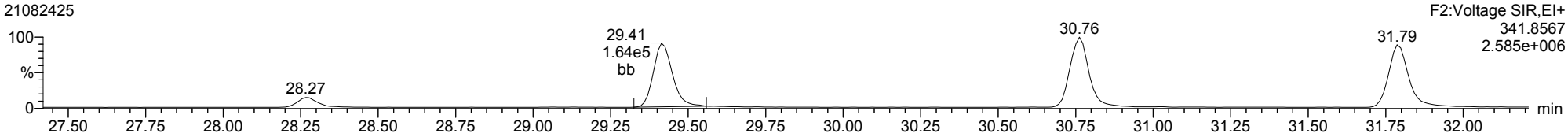

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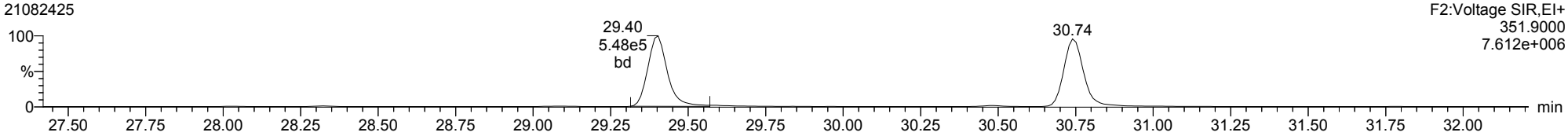

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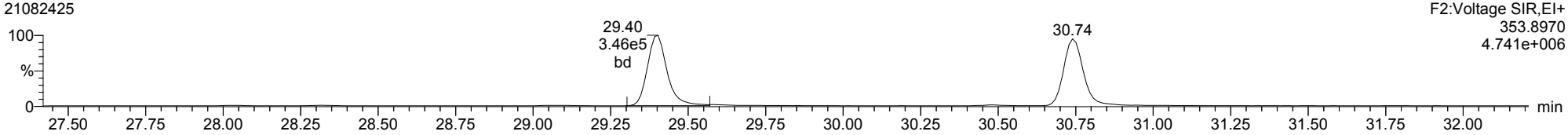

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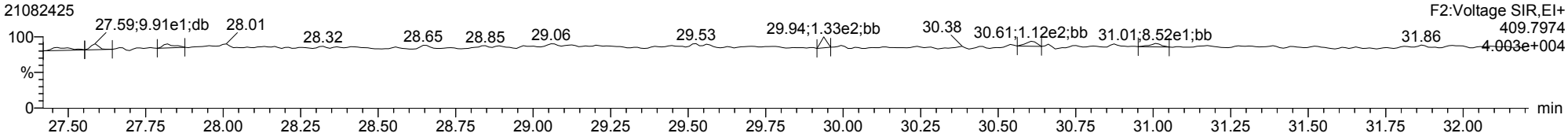

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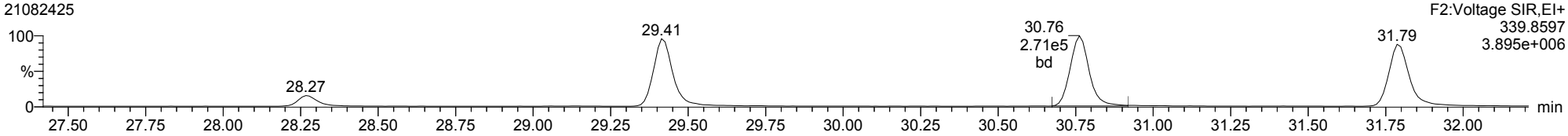
23478-PeCDF



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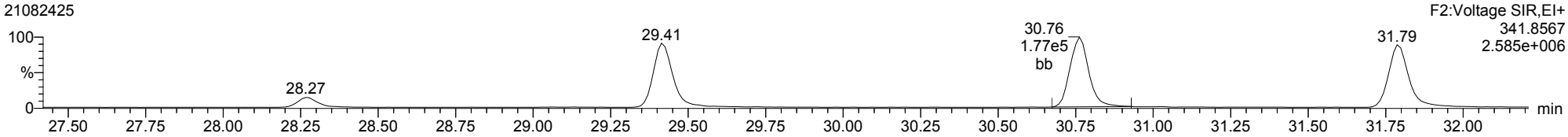

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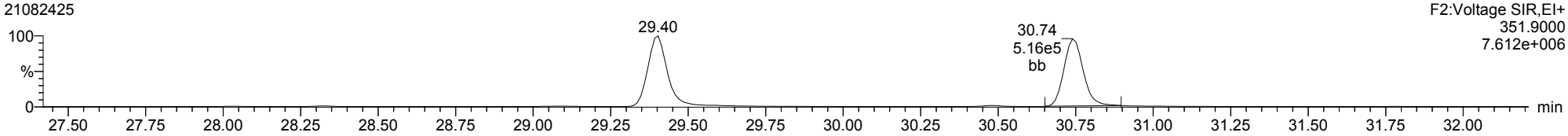

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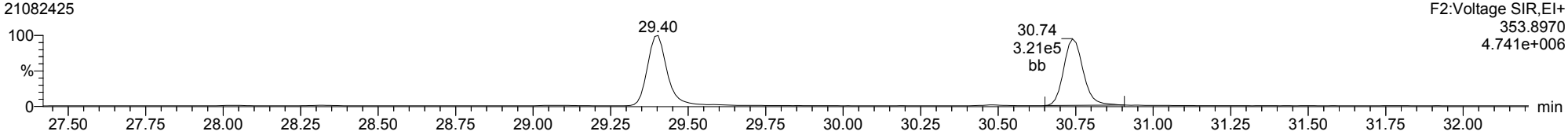

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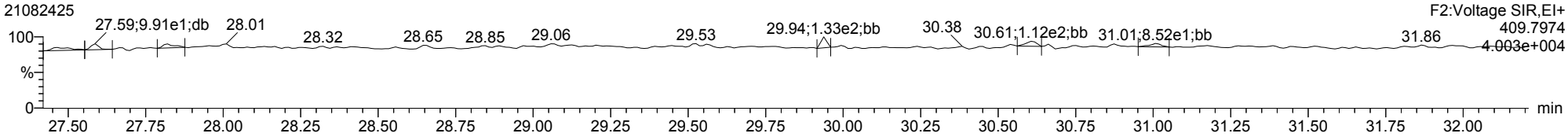

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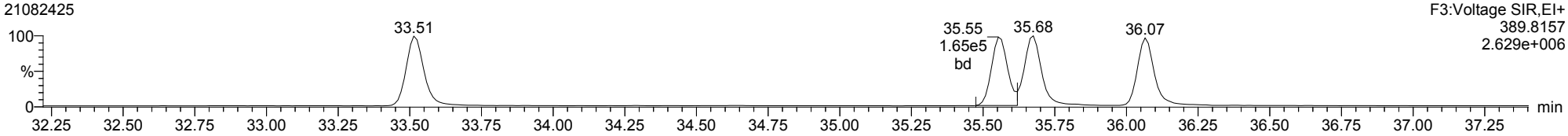

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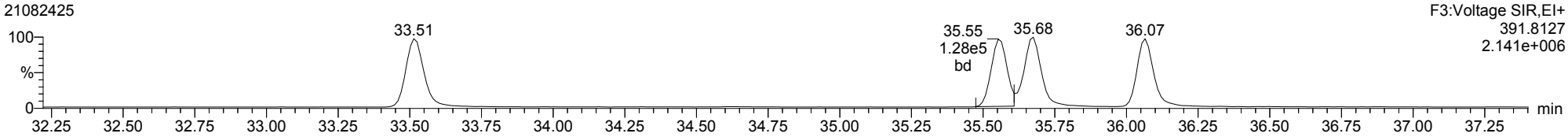

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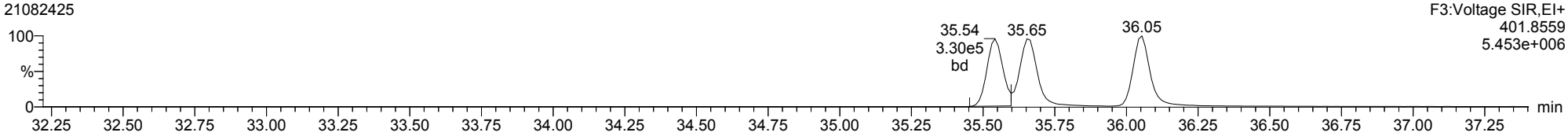

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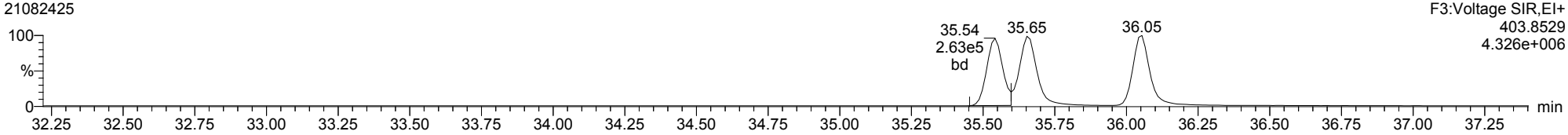

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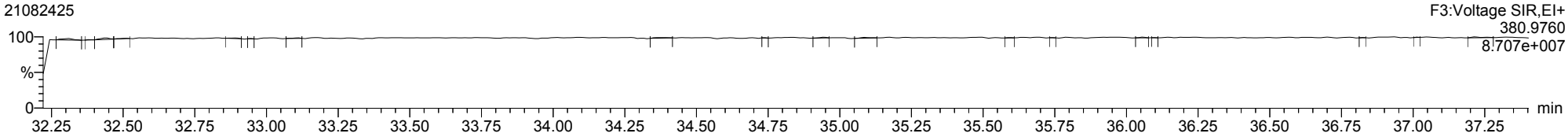

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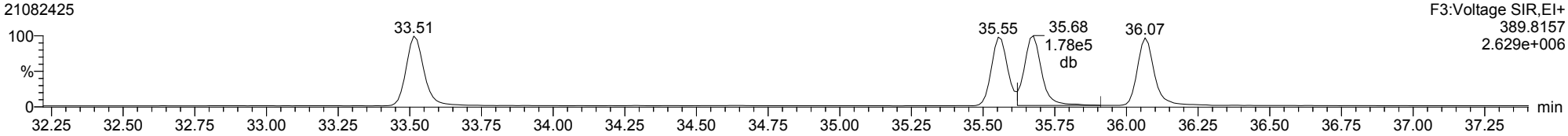

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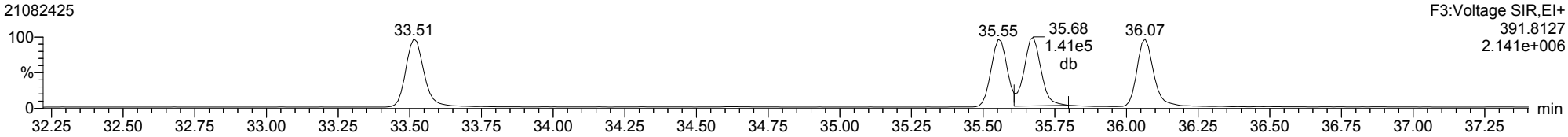

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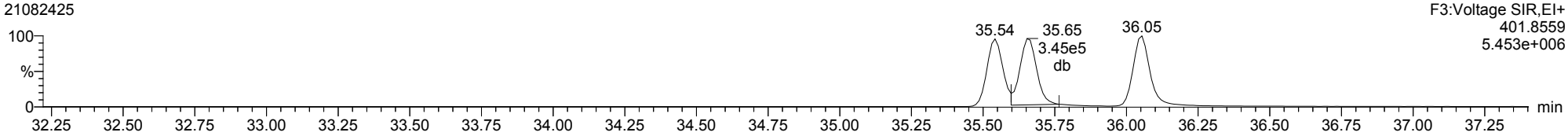

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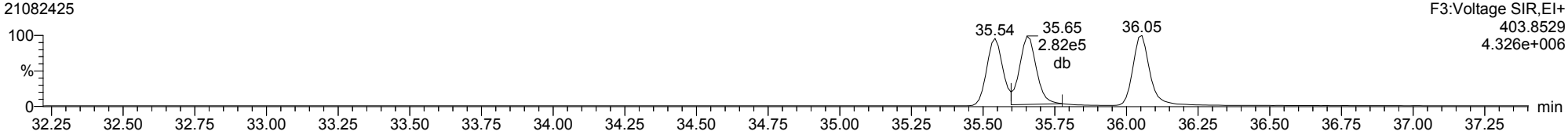

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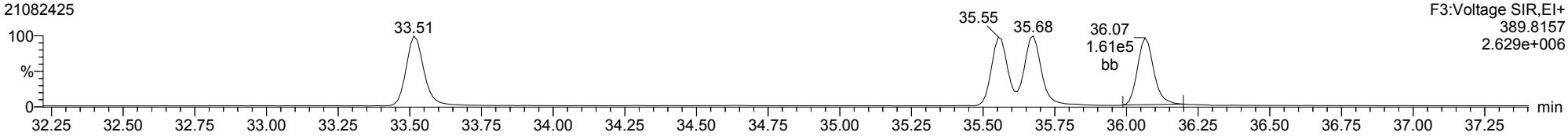

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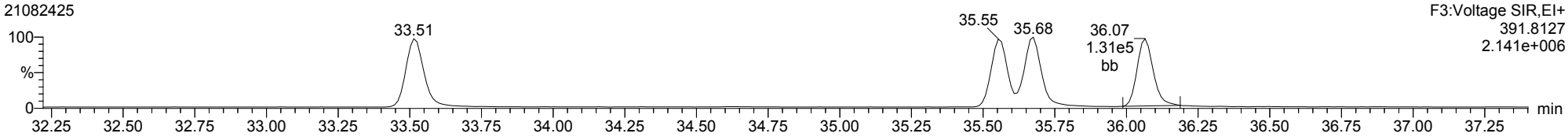

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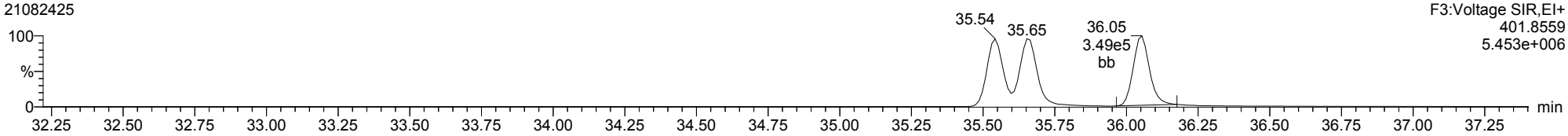

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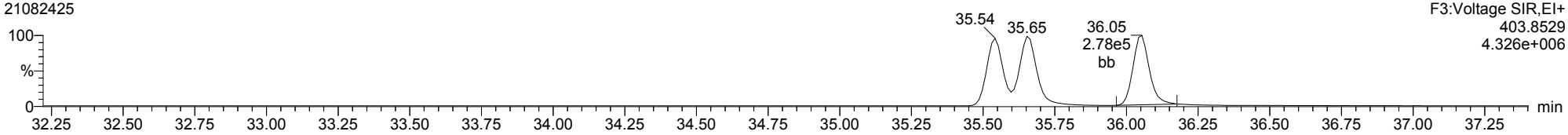

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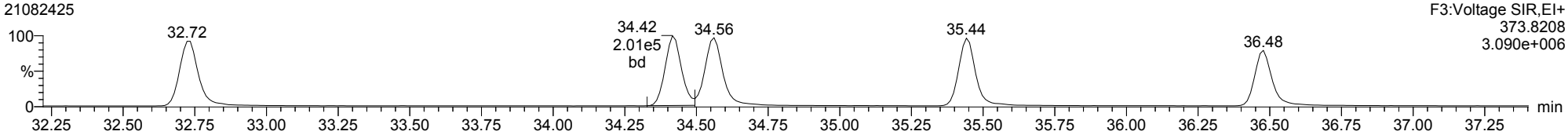

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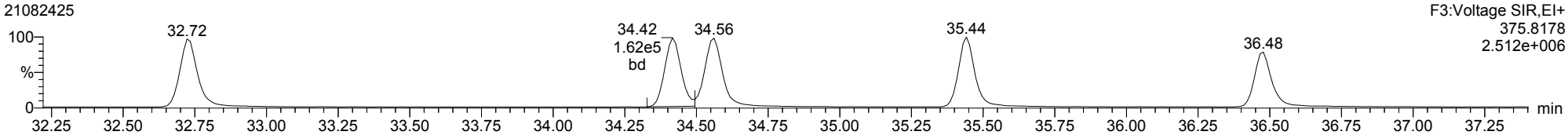

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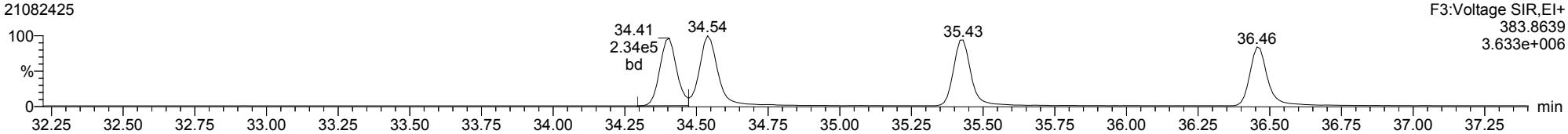

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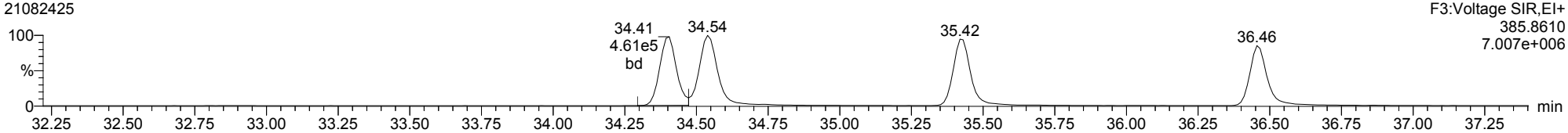

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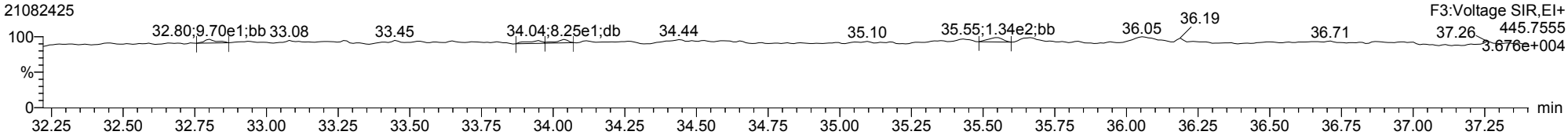

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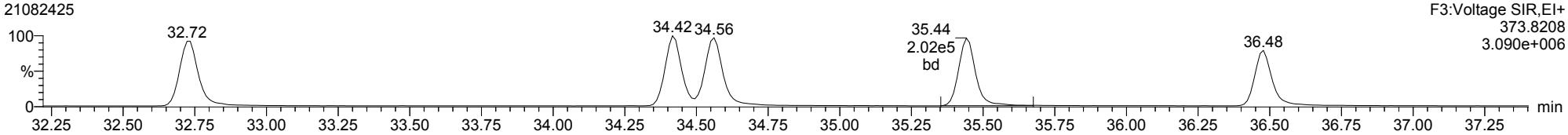

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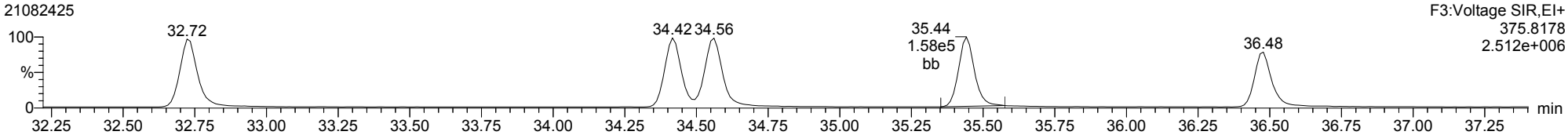

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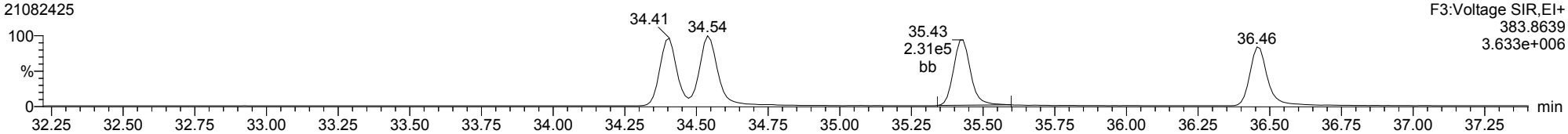

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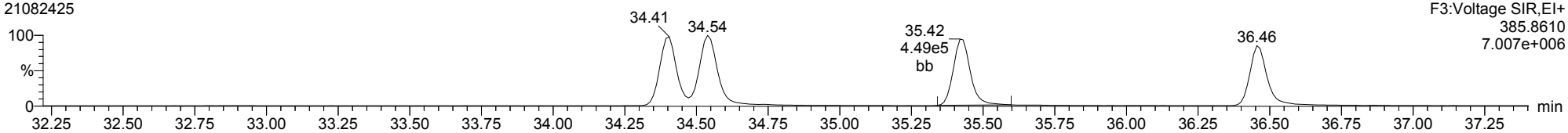

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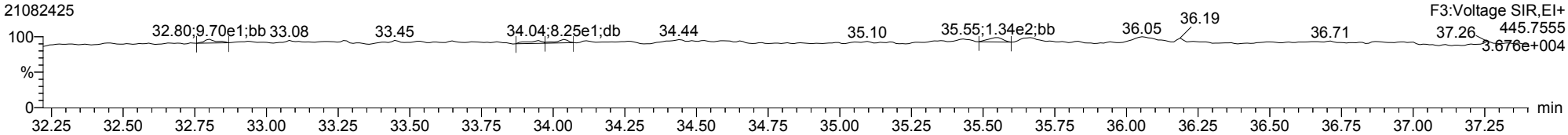

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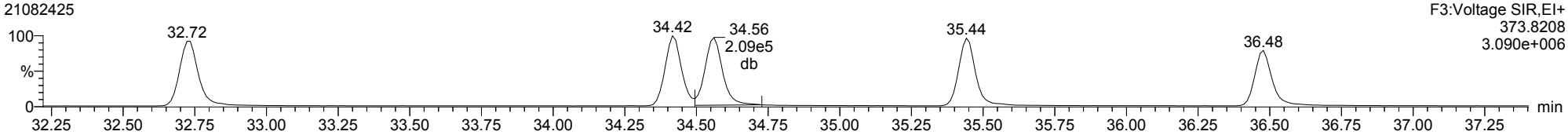

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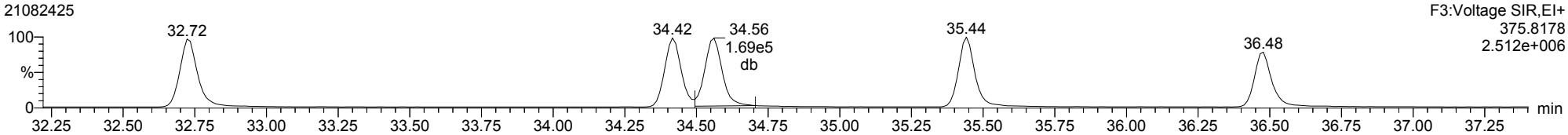

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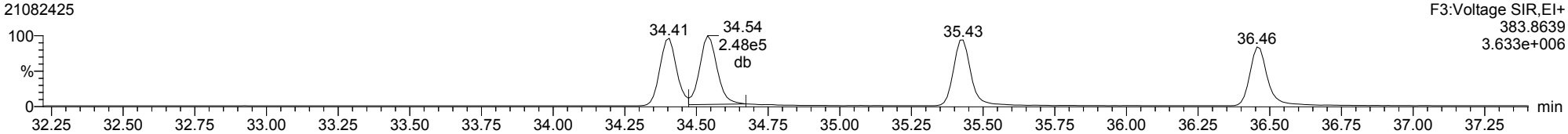

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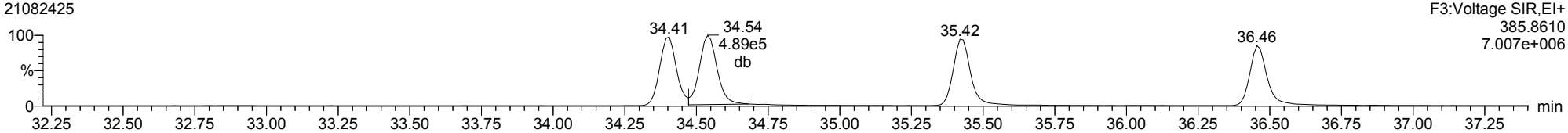

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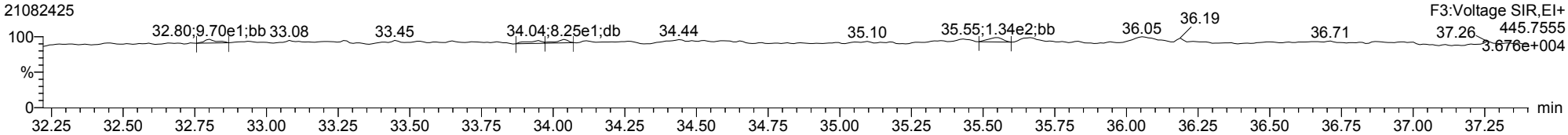

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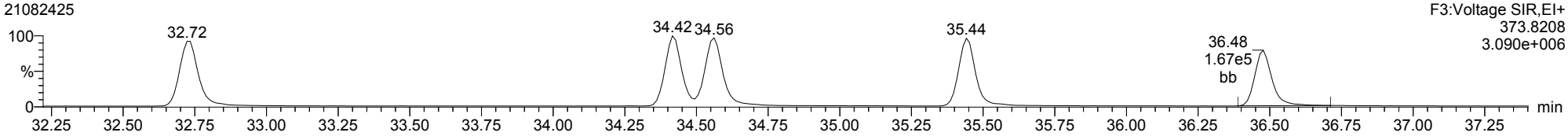

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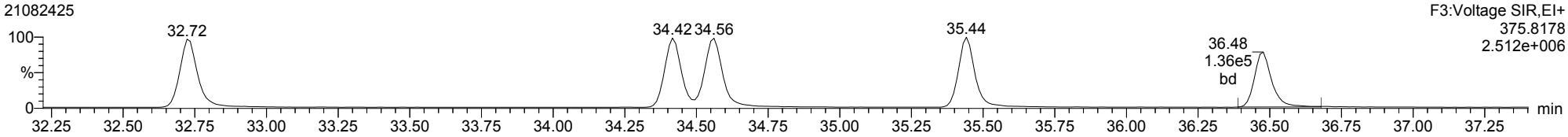

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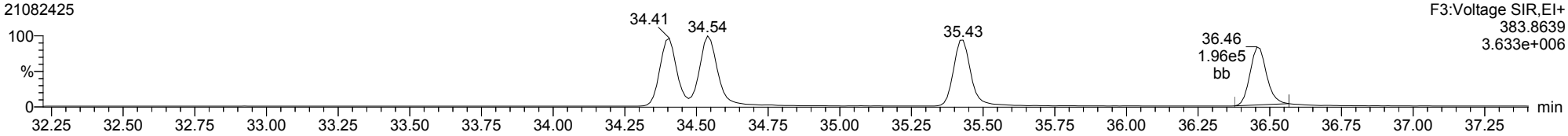

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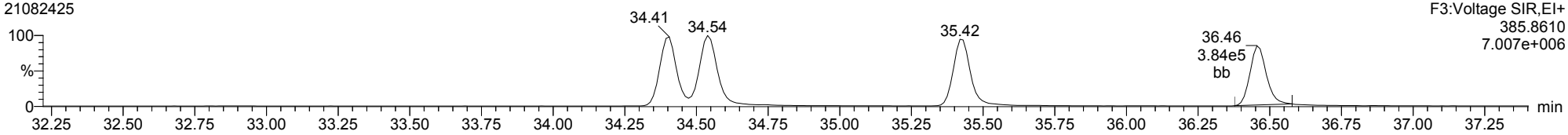

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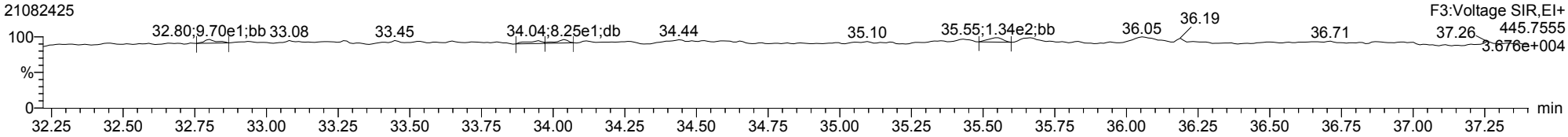

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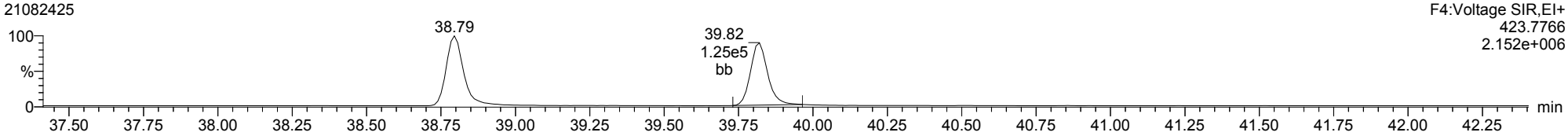

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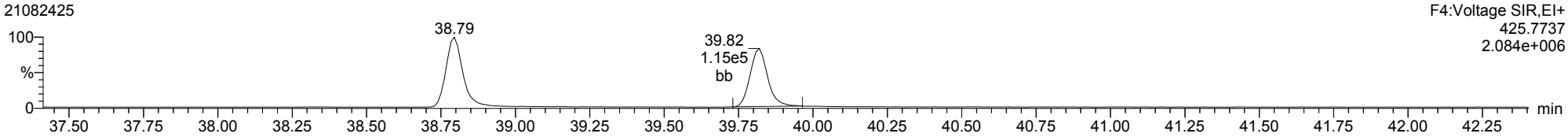

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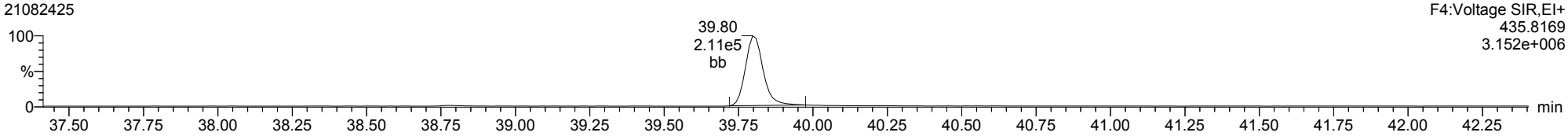

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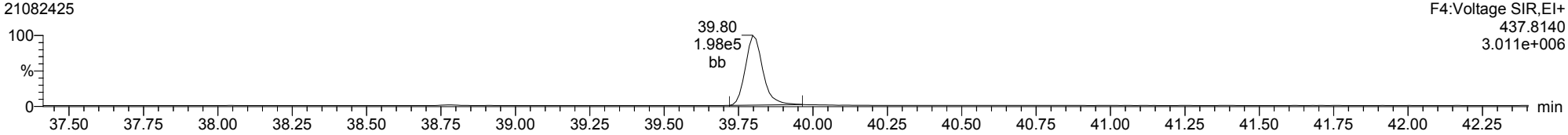

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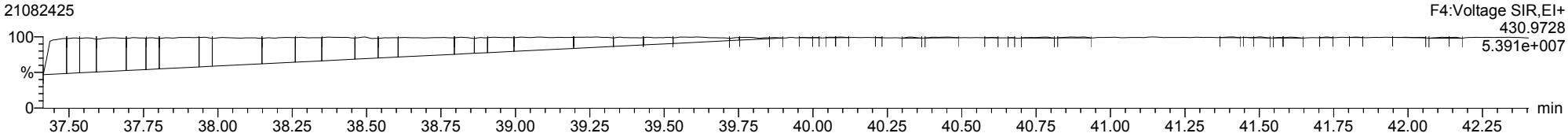

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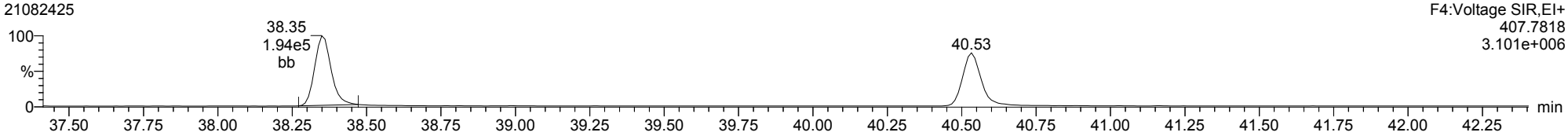

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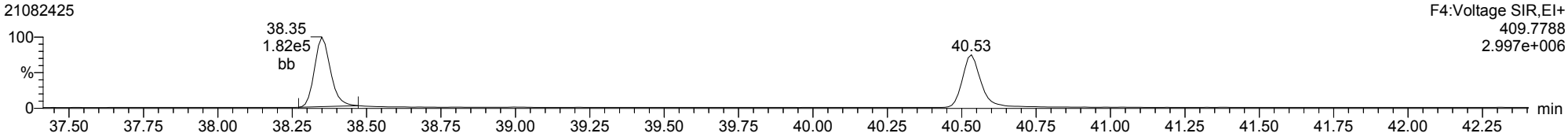

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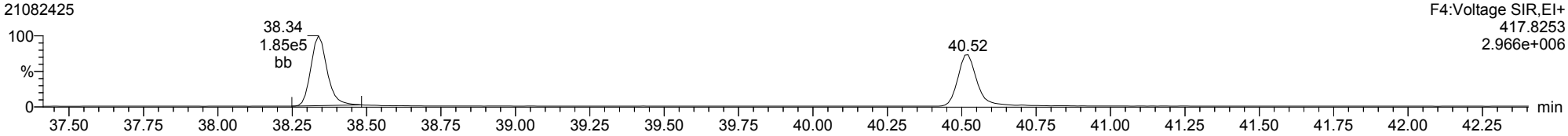

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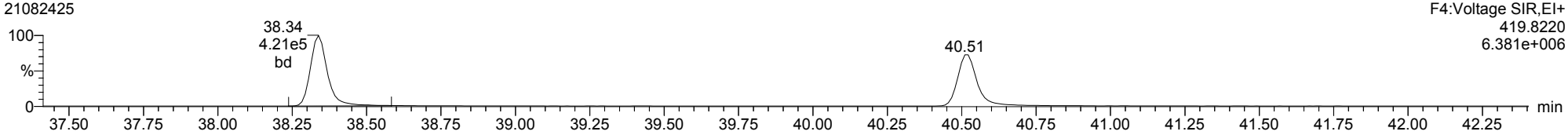

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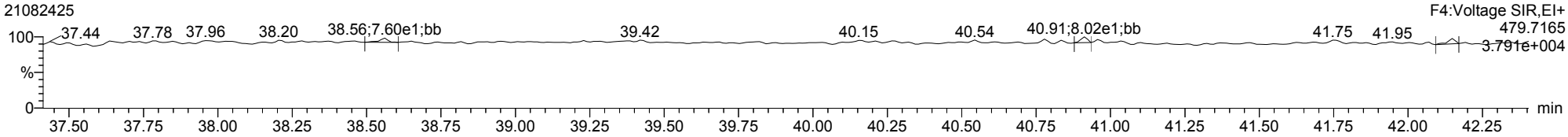

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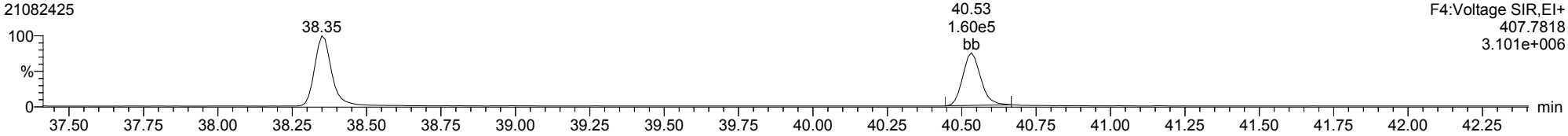

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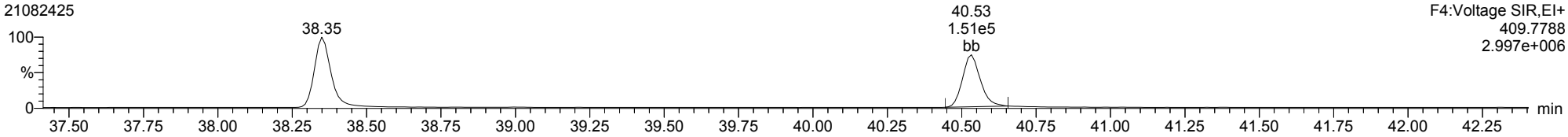

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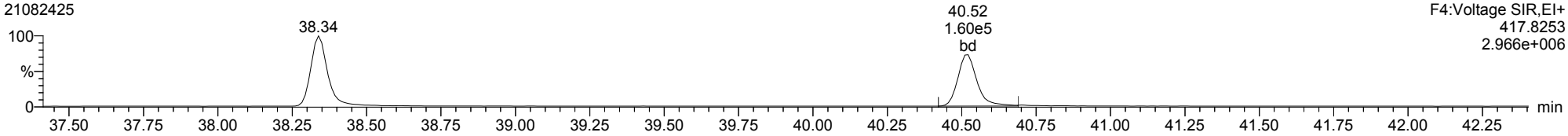

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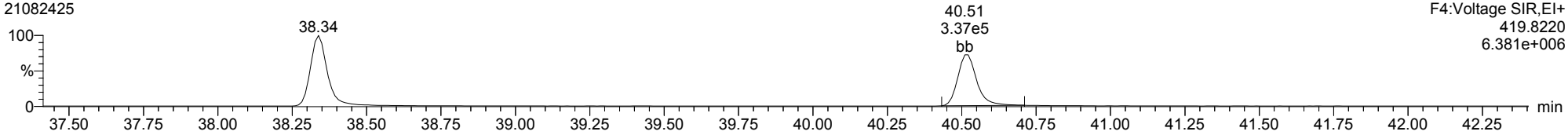

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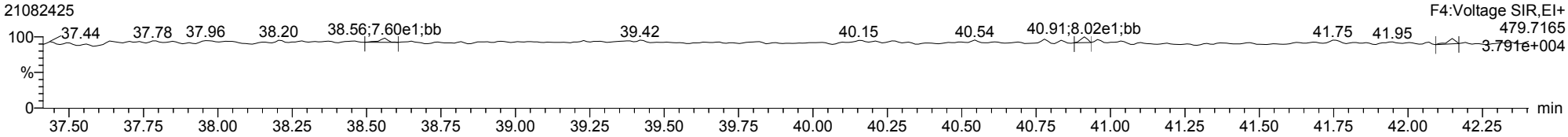

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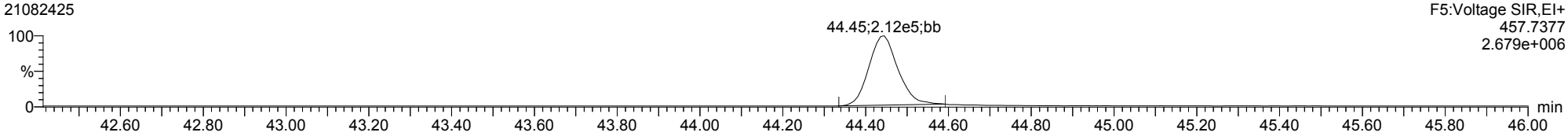

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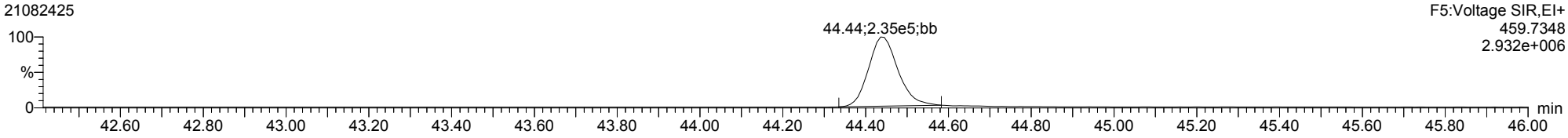

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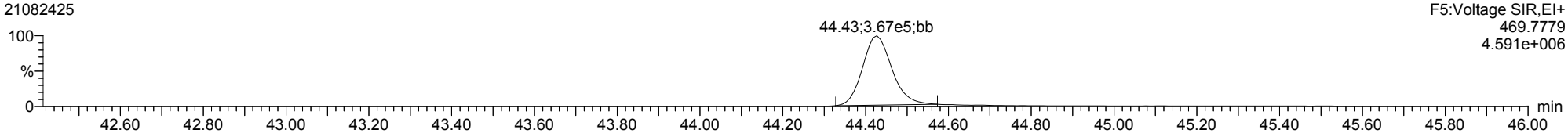

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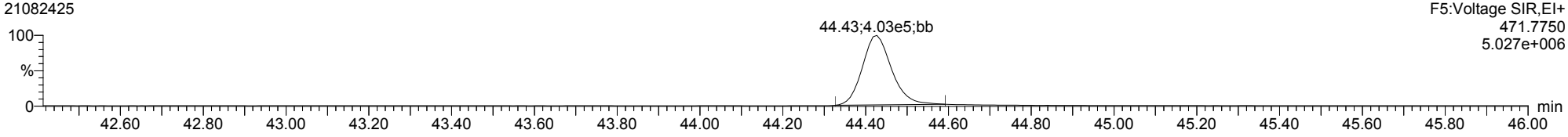

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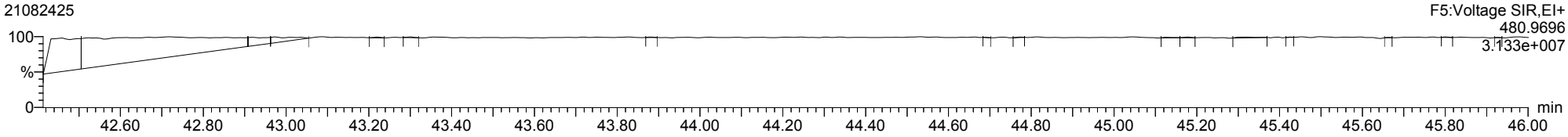

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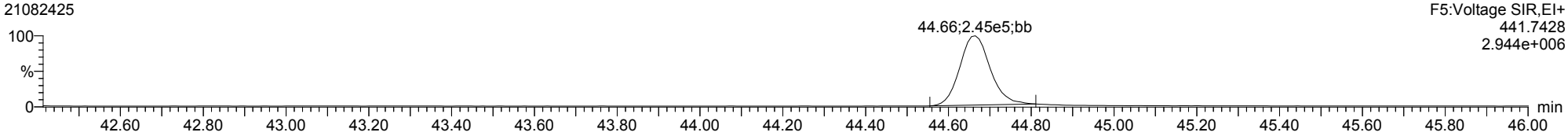

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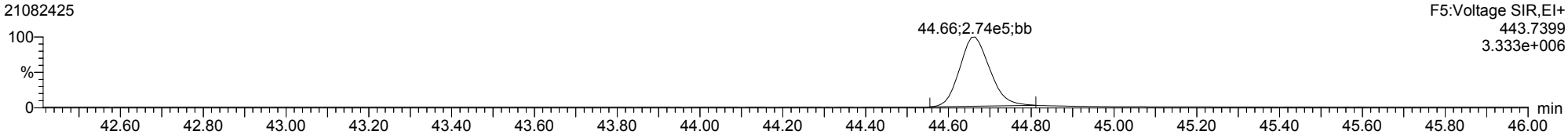
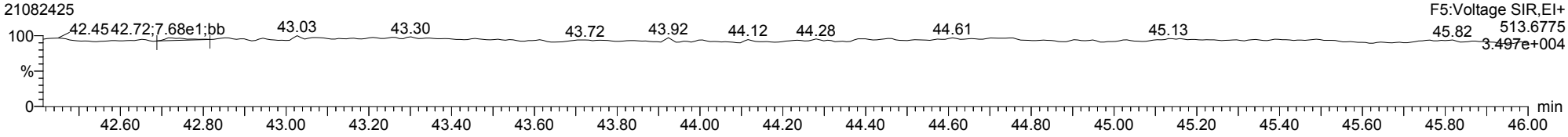


FUNCTION5 DCDPE



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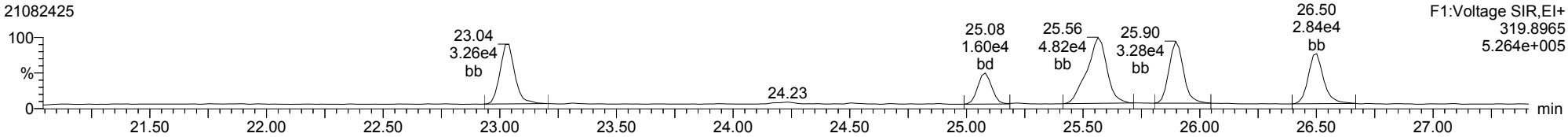

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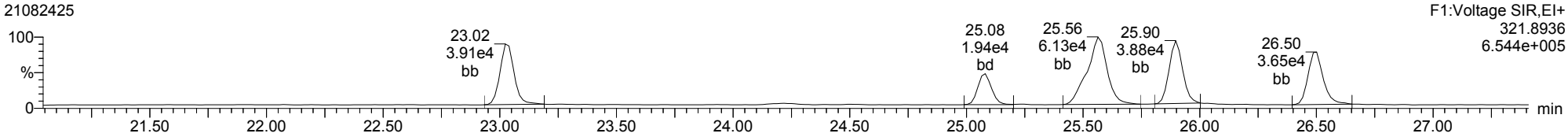

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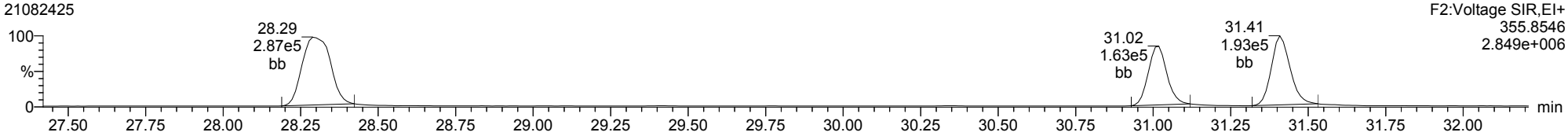

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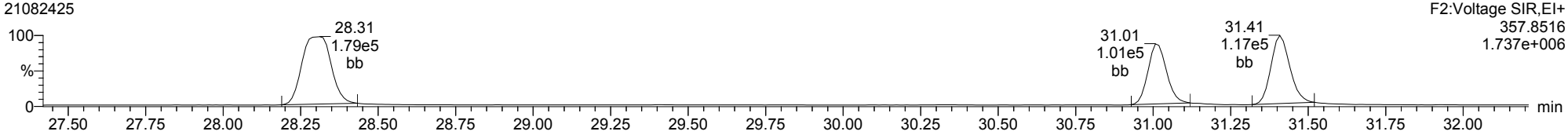

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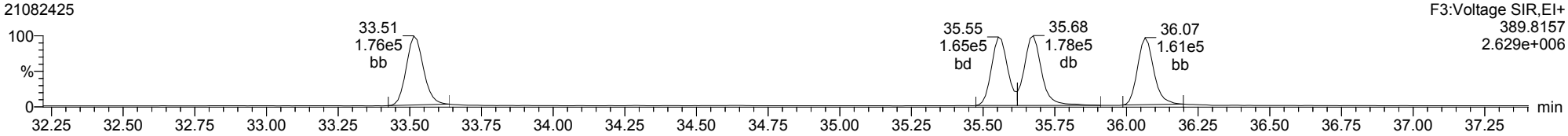

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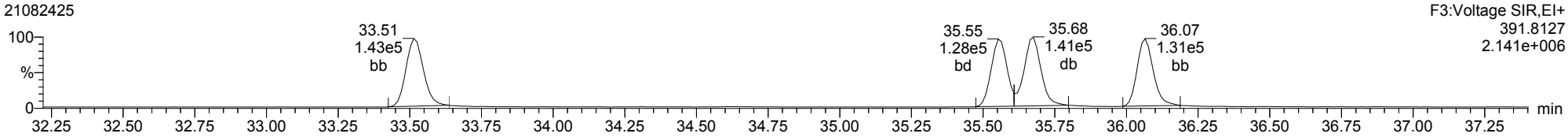

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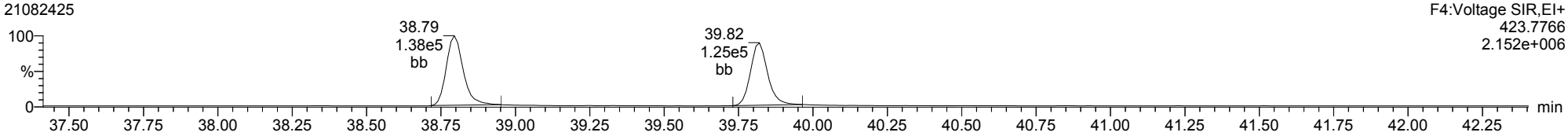

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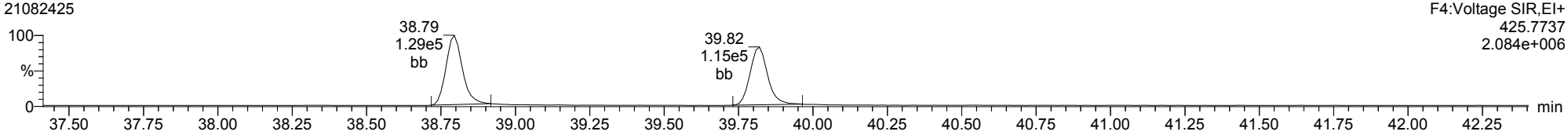

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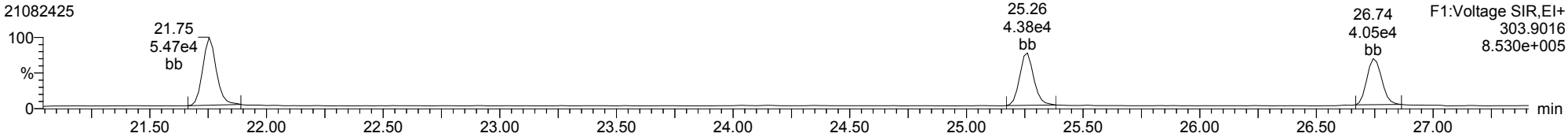
Printed: Wednesday, August 25, 2021 12:45:59 Pacific Daylight Time

ID: CS3L5, Name: 21082425, Date: 25-Aug-2021, Time: 07:50:25, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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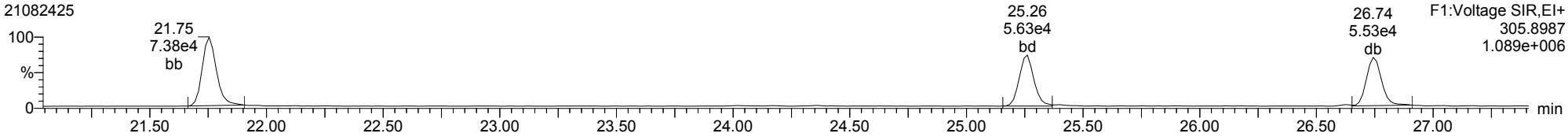

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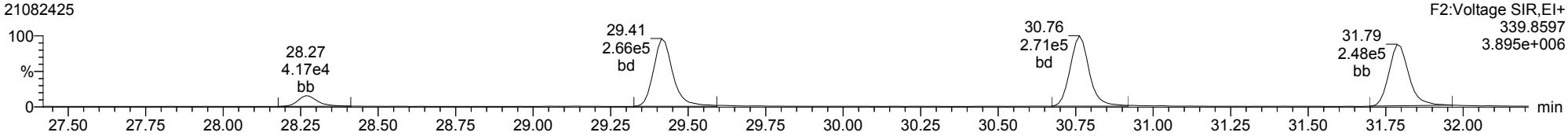

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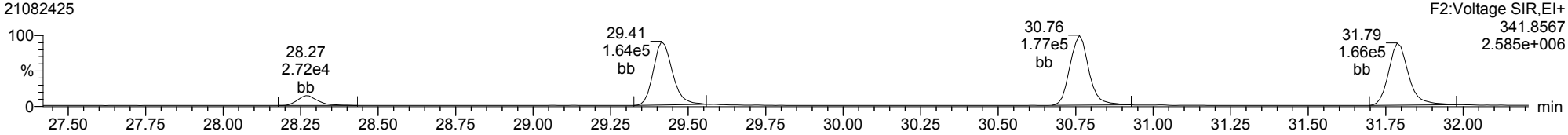

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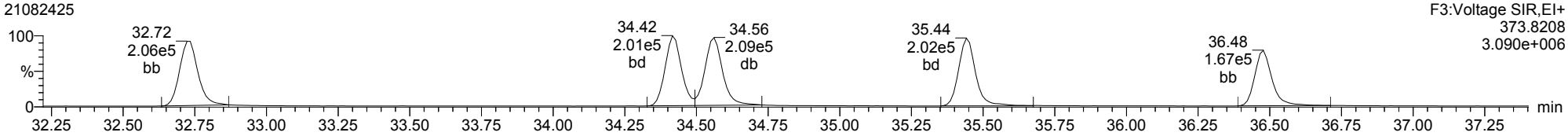
Total-hexafurans



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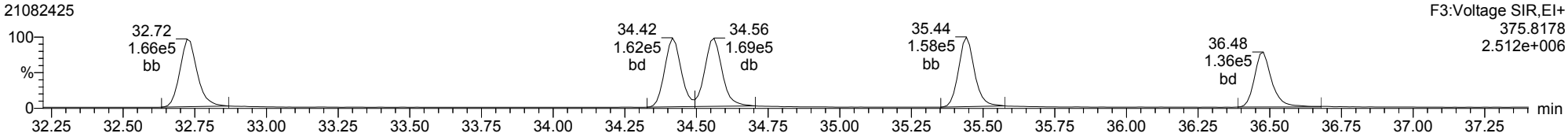

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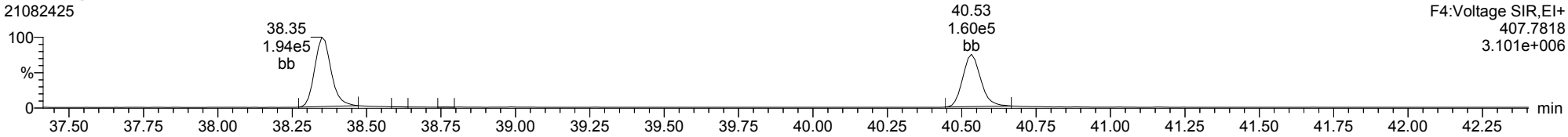

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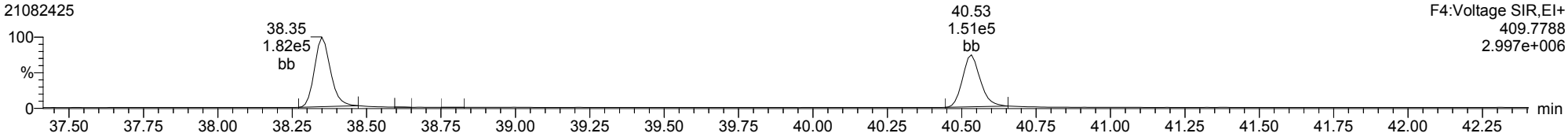

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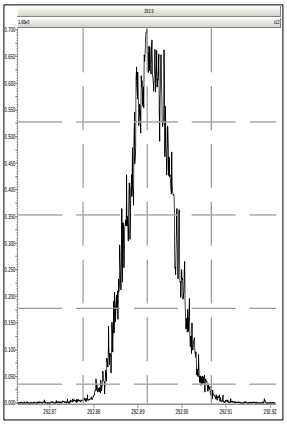

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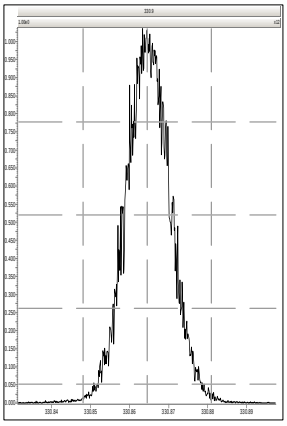

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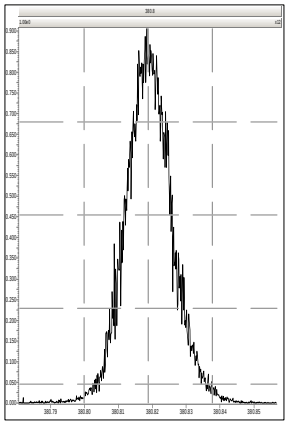

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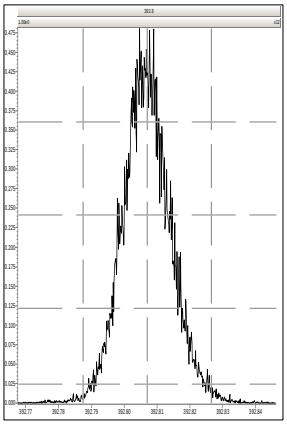

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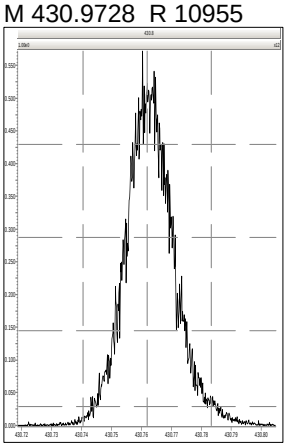

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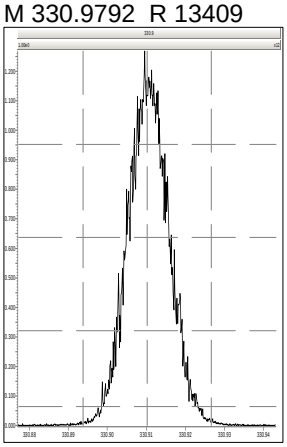

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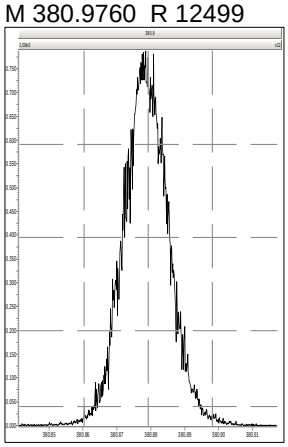

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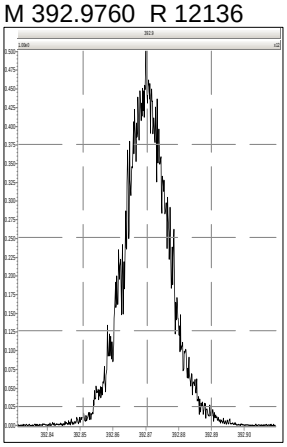

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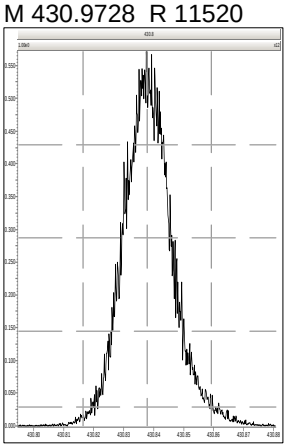

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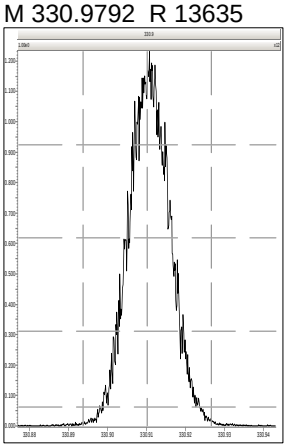

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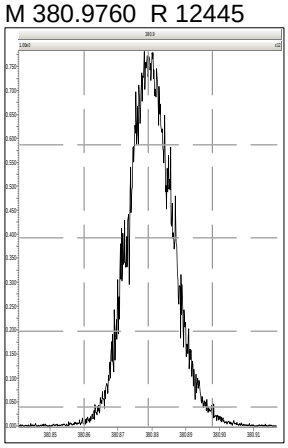

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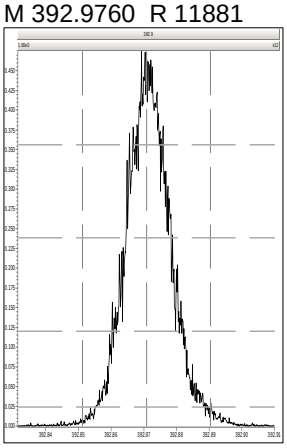

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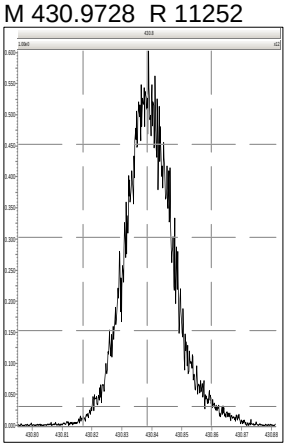

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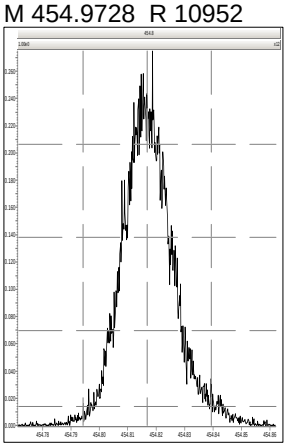

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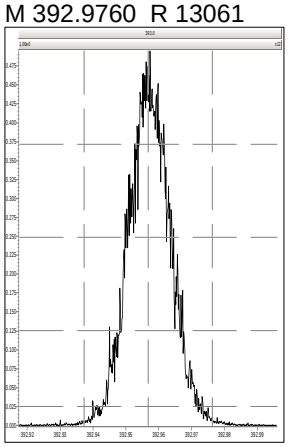

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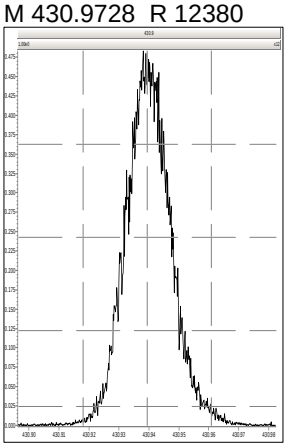

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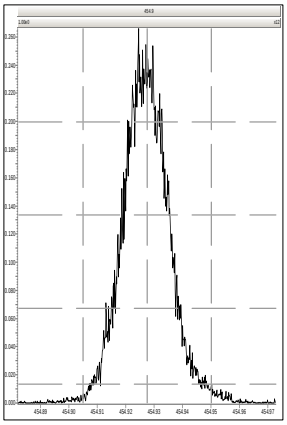

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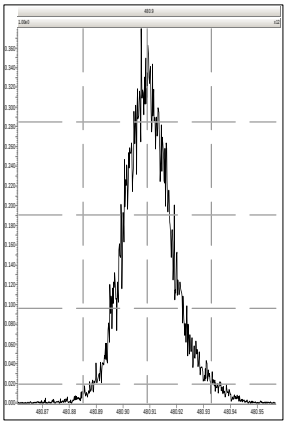

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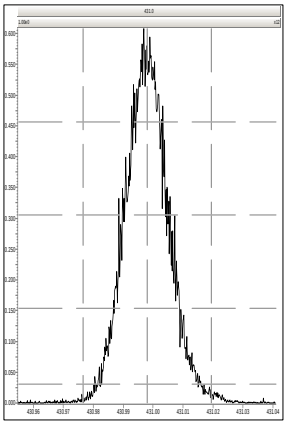

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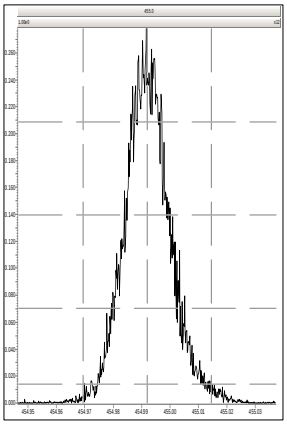

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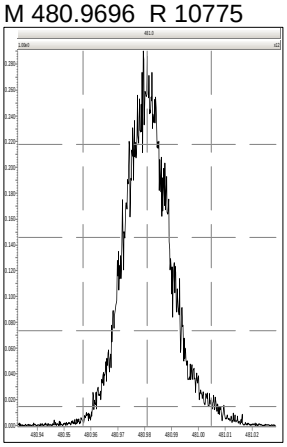

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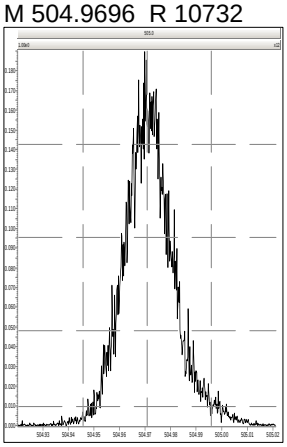

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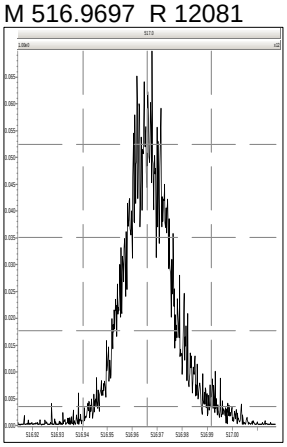

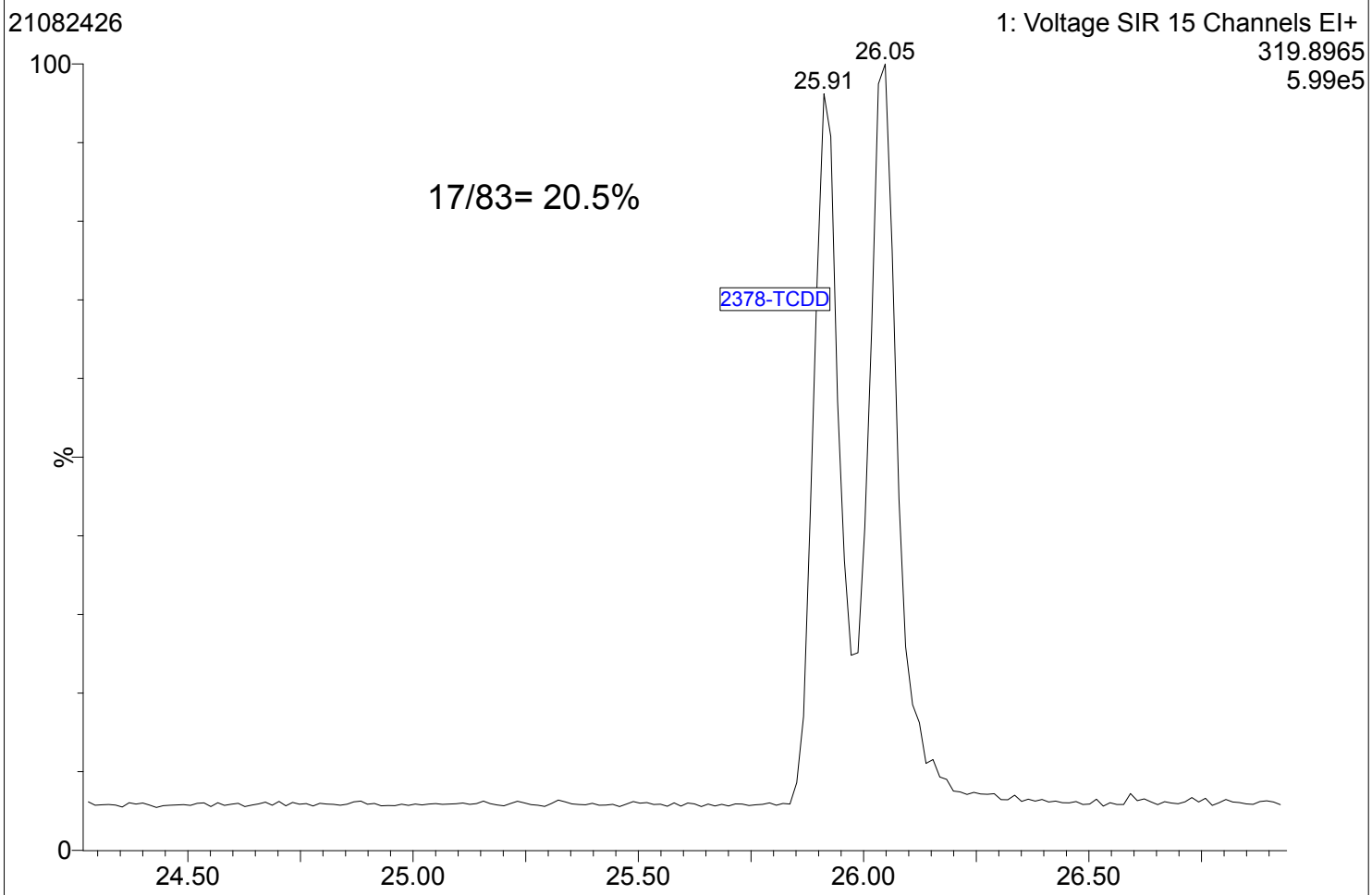
21082426
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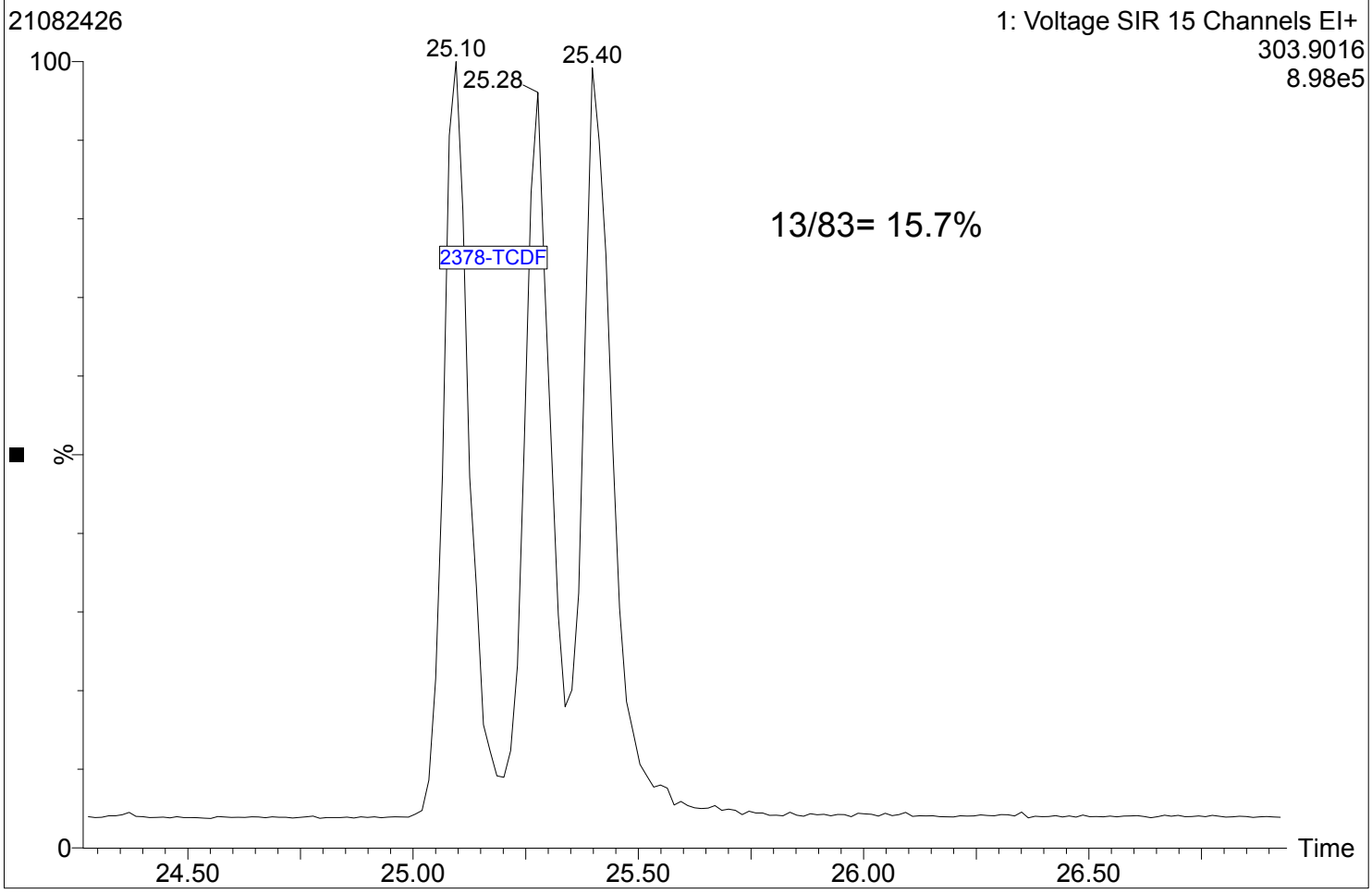
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Time

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21091507	Calibration Date:	08/11/2021
Sequence:	SJI0232	Injection Date:	09/15/21
Lab Sample ID:	SJI0232-CCV1	Injection Time:	20:59
Sequence Name:	CS3Q8		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.75	1.1075930	1.0798370		-2.5	+/-16
2,3,7,8-TCDD	A	10.000	10.5	0.9202875	0.9655598		4.9	+/-22
1,2,3,7,8-PeCDF	A	50.000	47.3	1.0148670	0.9597056		-5.4	+/-18
2,3,4,7,8-PeCDF	A	50.000	46.5	1.1255490	1.0456930		-7.1	+/-18
1,2,3,7,8-PeCDD	A	50.000	55.6	0.9953229	1.1074260		11.3	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	49.3	1.0168930	1.0017720		-1.5	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	49.7	1.0368310	1.0307140		-0.6	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	46.4	1.0524660	0.9766176		-7.2	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	47.0	1.0301540	0.9677057		-6.1	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.1	1.0273630	0.9673169		-5.8	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	47.6	1.0089800	0.9608640		-4.8	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.2	0.9504865	0.9547231		0.4	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	48.9	1.3273500	1.2984690		-2.2	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	52.1	1.2833380	1.3365110		4.1	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	53.0	1.0680880	1.1323300		6.0	+/-14
OCDF	A	100.00	90.7	1.4469010	1.3117000		-9.3	+/-37
OCDD	A	100.00	95.1	1.1808230	1.1228160		-4.9	+/-21
13C12-2,3,7,8-TCDF	A	100.00	113	1.4265830	1.6091504		12.8	+/-29
13C12-2,3,7,8-TCDD	A	100.00	106	1.1164910	1.1794080		5.6	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	105	1.2973130	1.3616526		5.0	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	104	1.2364800	1.2911102		4.4	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	96.0	0.7319833	0.7030415		-4.0	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	94.8	1.2424560	1.1773122		-5.2	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	86.1	1.3434760	1.1572862		-13.9	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	93.8	1.2148550	1.1394713		-6.2	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	92.3	1.0076370	0.9297115		-7.7	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	99.7	0.9598233	0.9566715		-0.3	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	93.9	1.0413850	0.9783057		-6.1	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	96.9	0.9264704	0.8977142		-3.1	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	91.9	0.7579160	0.6963462		-8.1	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	94.9	0.6324476	0.5999855		-5.1	+/-28
13C12-OCDD	A	200.00	195	0.5037432	0.4915136		-2.4	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.95	1.0835930	1.0785547		-0.5	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:33:07 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.776	1.001	3.795e4	4.799e4	1.108	0.791	0.770	1187	1062	5.83e5	7.41e5	491.4	697.7	NO	bb	bb	9.749
12378-PeCDF	29.931	1.001	1.940e5	1.291e5	1.015	1.502	1.550	3137	1578	3.05e6	2.01e6	973.5	1275.4	NO	bb	bb	47.282
23478-PeCDF	31.268	1.000	2.022e5	1.317e5	1.126	1.535	1.550	3137	1578	3.10e6	2.06e6	988.0	1303.4	NO	bb	bb	46.453
123478-HxCDF	34.889	1.000	1.371e5	1.132e5	1.017	1.211	1.240	901	1048	2.24e6	1.84e6	2483.9	1759.9	NO	bd	bd	49.256
234678-HxCDF	35.903	1.001	1.295e5	1.066e5	1.052	1.214	1.240	901	1048	2.16e6	1.79e6	2399.5	1709.9	NO	bb	bb	46.397
123678-HxCDF	35.034	1.001	1.391e5	1.139e5	1.037	1.221	1.240	901	1048	2.27e6	1.84e6	2521.9	1755.7	NO	db	db	49.705
123789-HxCDF	36.939	1.001	1.051e5	8.580e4	1.030	1.225	1.240	901	1048	1.73e6	1.44e6	1916.6	1374.1	NO	bb	bb	46.969
1234678-HpCDF	38.767	1.000	1.242e5	1.231e5	1.327	1.009	1.050	1080	966	2.08e6	2.06e6	1928.7	2132.6	NO	bb	bb	48.912
1234789-HpCDF	41.017	1.000	1.020e5	9.546e4	1.283	1.069	1.050	1080	966	1.50e6	1.48e6	1393.1	1528.4	NO	bd	bb	52.072
OCDF	45.252	1.006	1.314e5	1.422e5	1.447	0.924	0.890	876	1094	1.52e6	1.73e6	1736.9	1584.6	NO	bd	bb	90.656
2378-TCDD	26.411	1.001	2.491e4	3.142e4	0.920	0.793	0.770	855	815	3.66e5	4.66e5	427.6	571.3	NO	bb	bb	10.492
12378-PeCDD	31.514	1.000	1.191e5	7.350e4	0.995	1.620	1.550	1059	799	1.87e6	1.14e6	1763.2	1430.6	NO	bb	bb	55.632
123478-HxCDD	36.004	1.000	1.097e5	8.668e4	1.027	1.265	1.240	824	1321	1.82e6	1.49e6	2211.1	1131.4	NO	bd	bd	47.078
123678-HxCDD	36.126	1.001	1.096e5	8.981e4	1.009	1.221	1.240	824	1321	1.88e6	1.49e6	2285.4	1129.2	NO	db	db	47.616
123789-HxCDD	36.516	1.011	1.088e5	8.720e4	0.950	1.247	1.240	824	1321	1.83e6	1.47e6	2225.8	1114.7	NO	bb	bb	50.223
1234678-HpCDD	40.271	1.000	7.434e4	6.981e4	1.068	1.065	1.050	945	766	1.24e6	1.14e6	1308.2	1488.3	NO	bb	bb	53.007
OCDD	45.005	1.000	1.110e5	1.232e5	1.181	0.901	0.890	1055	978	1.39e6	1.54e6	1318.6	1575.6	NO	bb	bb	95.088
13C-2378-TCDF	25.761	1.007	3.564e5	4.395e5	1.427	0.811	0.770	1703	1222	5.42e6	6.66e6	3184.9	5449.1	NO	bb	bb	112.798
13C-12378-PeCDF	29.909	1.169	4.152e5	2.584e5	1.297	1.607	1.550	1494	1233	6.41e6	4.02e6	4289.0	3260.1	NO	bb	bb	104.959
13C-23478-PeCDF	31.257	1.222	3.940e5	2.446e5	1.236	1.611	1.550	1494	1233	6.09e6	3.81e6	4078.8	3093.5	NO	bb	bb	104.418
13C-123478-HxCDF	34.878	0.955	1.677e5	3.319e5	1.242	0.505	0.510	1216	1507	2.69e6	5.35e6	2216.1	3548.9	NO	bd	bd	94.757
13C-123678-HxCDF	35.012	0.959	1.554e5	3.357e5	1.343	0.463	0.510	1216	1507	2.67e6	5.49e6	2194.5	3642.1	NO	bb	db	86.141
13C-234678-HxCDF	35.881	0.983	1.630e5	3.205e5	1.215	0.509	0.510	1216	1507	2.64e6	5.13e6	2171.0	3402.2	NO	bd	bb	93.795
13C-123789-HxCDF	36.917	1.011	1.333e5	2.613e5	1.008	0.510	0.510	1216	1507	2.28e6	4.55e6	1879.1	3021.1	NO	bb	bb	92.267
13C-1234678-HpCDF	38.756	1.062	1.190e5	2.619e5	0.926	0.454	0.440	908	1336	2.00e6	4.44e6	2205.6	3326.1	NO	bb	bb	96.896
13C-1234789-HpCDF	41.006	1.123	9.320e4	2.023e5	0.758	0.461	0.440	908	1336	1.44e6	3.10e6	1589.5	2318.3	NO	bb	bb	91.876
13C-1234-TCDD	25.579	0.000	2.142e5	2.805e5	1.000	0.764	0.770	1407	720	3.34e6	4.37e6	2375.5	6071.8	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.031	2.493e5	3.340e5	1.116	0.747	0.770	1407	720	3.83e6	5.09e6	2724.6	7063.5	NO	bb	bb	105.635
13C-12378-PeCDD	31.503	1.232	2.125e5	1.352e5	0.732	1.572	1.550	841	609	3.23e6	2.07e6	3845.6	3397.1	NO	bb	bb	96.046
13C-123478-HxCDD	35.992	0.986	2.274e5	1.786e5	0.960	1.274	1.240	1251	1394	3.81e6	2.98e6	3047.4	2136.8	NO	bd	bd	99.672
13C-123678-HxCDD	36.104	0.989	2.317e5	1.834e5	1.041	1.263	1.240	1251	1394	3.80e6	3.04e6	3038.9	2178.8	NO	db	db	93.943
13C-1234678-HpCDD	40.259	1.103	1.306e5	1.240e5	0.632	1.053	1.050	735	911	2.03e6	1.91e6	2757.1	2096.7	NO	bb	bd	94.867
13C-OCDD	44.996	1.233	1.995e5	2.177e5	0.504	0.916	0.890	779	872	2.48e6	2.65e6	3182.3	3036.8	NO	bb	bb	195.145
13C-123789-HxCDD	36.505	0.000	2.350e5	1.893e5	1.000	1.242	1.240	1251	1394	3.89e6	3.12e6	3111.3	2235.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	5.335e4		1.084			733		7.82e5		1066.9			bb		9.954

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:33:07 Pacific Daylight Time

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.253	0.864	4.571e4	6.056e4	1.425	0.755	0.770	1187	1062	7.10e5	9.35e5	598.4	880.4	NO	bb	bb	9.369
1289-TCDF	27.288	1.059	3.393e4	4.431e4	1.043	0.766	0.770	1187	1062	5.19e5	6.69e5	437.5	630.1	NO	bb	bb	9.426
13468-PECDF	27.106	0.906	2.686e5	1.759e5	1.376	1.527	1.550	499	719	4.16e6	2.72e6	8327.1	3782.1	NO	bb	bb	47.963
12389-PECDF	32.316	1.080	1.878e5	1.235e5	1.000	1.520	1.550	3137	1578	2.84e6	1.90e6	904.5	1203.2	NO	bb	bb	46.241
123468-HXCDF	33.218	0.952	1.422e5	1.150e5	1.087	1.237	1.240	901	1048	2.18e6	1.75e6	2413.2	1674.6	NO	bb	bb	47.377
1368-TCDD	23.523	0.892	2.581e4	3.240e4	0.923	0.797	0.770	855	815	3.94e5	4.97e5	460.3	609.6	NO	bb	bb	10.809
1289-TCDD	27.016	1.024	2.261e4	2.878e4	0.794	0.786	0.770	855	815	3.47e5	4.33e5	405.9	530.9	NO	bb	bb	11.095
12479-PECDD	28.784	0.914	2.132e5	1.309e5	1.843	1.629	1.550	1059	799	2.11e6	1.31e6	1994.2	1643.2	NO	bb	bb	53.684
12389-PECDD	31.926	1.013	1.381e5	8.862e4	1.154	1.559	1.550	1059	799	2.21e6	1.38e6	2091.7	1729.7	NO	bb	bb	56.530
124679-HXCDD	33.998	0.945	1.226e5	1.004e5	1.125	1.221	1.240	824	1321	2.03e6	1.58e6	2465.0	1194.9	NO	bb	bb	48.837
1234679-HPCDD	39.223	0.974	8.488e4	7.945e4	1.211	1.068	1.050	945	766	1.37e6	1.28e6	1451.6	1675.6	NO	bb	bb	53.301
Total-tetrafurans			1.177e5		1.192			1187		1.81e6							28.569
Total-penta1			2.686e5					499		4.16e6							47.963
Total-pentafurans			6.177e5		1.047			3137		9.51e6							148.093
Total-hexafurans			6.529e5		1.045			901		1.06e7							239.705
Total-heptafurans			2.266e5		1.305			1080		3.59e6							101.140
Total-Furans			2.015e6		1.158			1187		3.12e7							656.126
Total-tetradioxins			1.246e5		0.879			855		1.71e6							55.384
Total-pentadioxins			4.704e5		1.331			1059		6.19e6							165.845
Total-hexadioxins			4.514e5		1.028			824		7.58e6							194.070
Total-heptadioxins			1.592e5		1.140			945		2.61e6							106.308
Total-Dioxins			1.317e6		1.092			855		1.95e7							616.695
Total-TEQ			3.332e6					855		5.07e7							1272.821
FUNCTION1 PFK			4.302e6					502335		2.94e7							
FUNCTION2 PFK			1.912e6					395580		2.13e7							0.000
FUNCTION3 PFK			4.949e5					360763		1.46e7							0.000
FUNCTION4 PFK			1.400e5					190125		4.51e6							
FUNCTION5 PFK			7.369e4					134489		3.39e6							
FUNCTION1 HXCD...			1.044e3					609		1.51e4							0.000
FUNCTION1 HPCD...			8.347e2					722		1.62e4							0.000
FUNCTION2 HPCD...			2.998e2					618		5.38e3							0.000
FUNCTION3 OCDPE			0.000e0					508		0.00e0							
FUNCTION4 NCDPE			3.943e2					521		6.17e3							0.000
FUNCTION5 DCDPE			0.000e0					560		0.00e0							

Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	3.393e4	4.431e4	1.043	0.77	0.77	437.5	YES	NO	bb	bb	9.426
2	2378-TCDF	25.78	3.795e4	4.799e4	1.108	0.79	0.77	491.4	YES	NO	bb	bb	9.749
3	Total-tetrafurans	24.43	1.001e2	1.382e2	1.192	0.72	0.77	2.2	NO	NO	bb	bd	0.025
4	1368-TCDF	22.25	4.571e4	6.056e4	1.425	0.75	0.77	598.4	YES	NO	bb	bb	9.369

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.11	2.686e5	1.759e5	1.376	1.53	1.55	8327.1	YES	NO	bb	bb	47.963

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.93	1.940e5	1.291e5	1.015	1.50	1.55	973.5	YES	NO	bb	bb	47.282
2	Total-pentafurans	28.77	3.326e4	2.174e4	1.047	1.53	1.55	162.2	YES	NO	bb	bb	8.010
3	12389-PECDF	32.32	1.878e5	1.235e5	1.000	1.52	1.55	904.5	YES	NO	bb	bb	46.241
4	23478-PeCDF	31.27	2.022e5	1.317e5	1.126	1.54	1.55	988.0	YES	NO	bb	bb	46.453
5	Total-pentafurans	31.11	4.638e2	2.746e2	1.047	1.69	1.55	3.0	NO	NO	db	bb	0.108

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	1.051e5	8.580e4	1.030	1.22	1.24	1916.6	YES	NO	bb	bb	46.969
2	234678-HxCDF	35.90	1.295e5	1.066e5	1.052	1.21	1.24	2399.5	YES	NO	bb	bb	46.397
3	123678-HxCDF	35.03	1.391e5	1.139e5	1.037	1.22	1.24	2521.9	YES	NO	db	db	49.705
4	123478-HxCDF	34.89	1.371e5	1.132e5	1.017	1.21	1.24	2483.9	YES	NO	bd	bd	49.256
5	123468-HXCDF	33.22	1.422e5	1.150e5	1.087	1.24	1.24	2413.2	YES	NO	bb	bb	47.377

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.02	1.020e5	9.546e4	1.283	1.07	1.05	1393.1	YES	NO	bd	bb	52.072
2	Total-heptafurans	39.44	3.514e2	3.401e2	1.305	1.03	1.05	7.3	YES	NO	bb	bd	0.157
3	1234678-HpCDF	38.77	1.242e5	1.231e5	1.327	1.01	1.05	1928.7	YES	NO	bb	bb	48.912

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

Furans,TF,PP,PF,HF,HPF,OF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	3.393e4	4.431e4	1.043	0.77	0.77	437.5	YES	NO	bb	bb	9.426
2	2378-TCDF	25.78	3.795e4	4.799e4	1.108	0.79	0.77	491.4	YES	NO	bb	bb	9.749
3	Total-tetrafurans	24.43	1.001e2	1.382e2	1.192	0.72	0.77	2.2	NO	NO	bb	bd	0.025
4	1368-TCDF	22.25	4.571e4	6.056e4	1.425	0.75	0.77	598.4	YES	NO	bb	bb	9.369
5	12378-PeCDF	29.93	1.940e5	1.291e5	1.015	1.50	1.55	973.5	YES	NO	bb	bb	47.282
6	Total-pentafurans	28.77	3.326e4	2.174e4	1.047	1.53	1.55	162.2	YES	NO	bb	bb	8.010
7	12389-PECDF	32.32	1.878e5	1.235e5	1.000	1.52	1.55	904.5	YES	NO	bb	bb	46.241
8	23478-PeCDF	31.27	2.022e5	1.317e5	1.126	1.54	1.55	988.0	YES	NO	bb	bb	46.453
9	Total-pentafurans	31.11	4.638e2	2.746e2	1.047	1.69	1.55	3.0	NO	NO	db	bb	0.108
10	123789-HxCDF	36.94	1.051e5	8.580e4	1.030	1.22	1.24	1916.6	YES	NO	bb	bb	46.969
11	234678-HxCDF	35.90	1.295e5	1.066e5	1.052	1.21	1.24	2399.5	YES	NO	bb	bb	46.397
12	123678-HxCDF	35.03	1.391e5	1.139e5	1.037	1.22	1.24	2521.9	YES	NO	db	db	49.705
13	123478-HxCDF	34.89	1.371e5	1.132e5	1.017	1.21	1.24	2483.9	YES	NO	bd	bd	49.256
14	123468-HXCDF	33.22	1.422e5	1.150e5	1.087	1.24	1.24	2413.2	YES	NO	bb	bb	47.377
15	1234789-HpCDF	41.02	1.020e5	9.546e4	1.283	1.07	1.05	1393.1	YES	NO	bd	bb	52.072
16	Total-heptafurans	39.44	3.514e2	3.401e2	1.305	1.03	1.05	7.3	YES	NO	bb	bd	0.157
17	1234678-HpCDF	38.77	1.242e5	1.231e5	1.327	1.01	1.05	1928.7	YES	NO	bb	bb	48.912
18	OCDF	45.25	1.314e5	1.422e5	1.447	0.92	0.89	1736.9	YES	NO	bd	bb	90.656
19	13468-PECDF	27.11	2.686e5	1.759e5	1.376	1.53	1.55	8327.1	YES	NO	bb	bb	47.963

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	27.02	2.261e4	2.878e4	0.794	0.79	0.77	405.9	YES	NO	bb	bb	11.095
2	2378-TCDD	26.41	2.491e4	3.142e4	0.920	0.79	0.77	427.6	YES	NO	bb	bb	10.492
3	Total-tetradioxins	26.09	3.868e4	4.947e4	0.879	0.78	0.77	473.4	YES	NO	bb	bb	17.187
4	Total-tetradioxins	25.59	1.148e4	1.571e4	0.879	0.73	0.77	216.1	YES	NO	bb	bb	5.301
5	Total-tetradioxins	24.70	1.077e3	1.492e3	0.879	0.72	0.77	12.1	YES	NO	bb	bb	0.501
6	1368-TCDD	23.52	2.581e4	3.240e4	0.923	0.80	0.77	460.3	YES	NO	bb	bb	10.809

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.93	1.381e5	8.862e4	1.154	1.56	1.55	2091.7	YES	NO	bb	bb	56.530
2	12378-PeCDD	31.51	1.191e5	7.350e4	0.995	1.62	1.55	1763.2	YES	NO	bb	bb	55.632
3	12479-PECDD	28.78	2.132e5	1.309e5	1.843	1.63	1.55	1994.2	YES	NO	bb	bb	53.684

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:33:07 Pacific Daylight Time

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.52	1.088e5	8.720e4	0.950	1.25	1.24	2225.8	YES	NO	bb	bb	50.223
2	123678-HxCDD	36.13	1.096e5	8.981e4	1.009	1.22	1.24	2285.4	YES	NO	db	db	47.616
3	123478-HxCDD	36.00	1.097e5	8.668e4	1.027	1.27	1.24	2211.1	YES	NO	bd	bd	47.078
4	Total-hexadioxins	35.11	7.576e2	5.804e2	1.028	1.31	1.24	9.8	YES	NO	bb	bb	0.317
5	124679-HXCDD	34.00	1.226e5	1.004e5	1.125	1.22	1.24	2465.0	YES	NO	bb	bb	48.837

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	7.434e4	6.981e4	1.068	1.06	1.05	1308.2	YES	NO	bb	bb	53.007
2	1234679-HPCDD	39.22	8.488e4	7.945e4	1.211	1.07	1.05	1451.6	YES	NO	bb	bb	53.301

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	27.02	2.261e4	2.878e4	0.794	0.79	0.77	405.9	YES	NO	bb	bb	11.095
2	2378-TCDD	26.41	2.491e4	3.142e4	0.920	0.79	0.77	427.6	YES	NO	bb	bb	10.492
3	Total-tetradioxins	26.09	3.868e4	4.947e4	0.879	0.78	0.77	473.4	YES	NO	bb	bb	17.187
4	Total-tetradioxins	25.59	1.148e4	1.571e4	0.879	0.73	0.77	216.1	YES	NO	bb	bb	5.301
5	Total-tetradioxins	24.70	1.077e3	1.492e3	0.879	0.72	0.77	12.1	YES	NO	bb	bb	0.501
6	1368-TCDD	23.52	2.581e4	3.240e4	0.923	0.80	0.77	460.3	YES	NO	bb	bb	10.809
7	12389-PECDD	31.93	1.381e5	8.862e4	1.154	1.56	1.55	2091.7	YES	NO	bb	bb	56.530
8	12378-PeCDD	31.51	1.191e5	7.350e4	0.995	1.62	1.55	1763.2	YES	NO	bb	bb	55.632
9	12479-PECDD	28.78	2.132e5	1.309e5	1.843	1.63	1.55	1994.2	YES	NO	bb	bb	53.684
10	123789-HxCDD	36.52	1.088e5	8.720e4	0.950	1.25	1.24	2225.8	YES	NO	bb	bb	50.223
11	123678-HxCDD	36.13	1.096e5	8.981e4	1.009	1.22	1.24	2285.4	YES	NO	db	db	47.616
12	123478-HxCDD	36.00	1.097e5	8.668e4	1.027	1.27	1.24	2211.1	YES	NO	bd	bd	47.078
13	Total-hexadioxins	35.11	7.576e2	5.804e2	1.028	1.31	1.24	9.8	YES	NO	bb	bb	0.317
14	124679-HXCDD	34.00	1.226e5	1.004e5	1.125	1.22	1.24	2465.0	YES	NO	bb	bb	48.837
15	1234678-HpCDD	40.27	7.434e4	6.981e4	1.068	1.06	1.05	1308.2	YES	NO	bb	bb	53.007
16	1234679-HPCDD	39.22	8.488e4	7.945e4	1.211	1.07	1.05	1451.6	YES	NO	bb	bb	53.301
17	OCDD	45.00	1.110e5	1.232e5	1.181	0.90	0.89	1318.6	YES	NO	bb	bb	95.088

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 14:33:07 Pacific Daylight Time

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	3.393e4	4.431e4	1.043	0.77	0.77	437.5	YES	NO	bb	bb	9.426
2	2378-TCDF	25.78	3.795e4	4.799e4	1.108	0.79	0.77	491.4	YES	NO	bb	bb	9.749
3	Total-tetrafurans	24.43	1.001e2	1.382e2	1.192	0.72	0.77	2.2	NO	NO	bb	bd	0.025
4	1368-TCDF	22.25	4.571e4	6.056e4	1.425	0.75	0.77	598.4	YES	NO	bb	bb	9.369
5	12378-PeCDF	29.93	1.940e5	1.291e5	1.015	1.50	1.55	973.5	YES	NO	bb	bb	47.282
6	Total-pentafurans	28.77	3.326e4	2.174e4	1.047	1.53	1.55	162.2	YES	NO	bb	bb	8.010
7	12389-PECDF	32.32	1.878e5	1.235e5	1.000	1.52	1.55	904.5	YES	NO	bb	bb	46.241
8	23478-PeCDF	31.27	2.022e5	1.317e5	1.126	1.54	1.55	988.0	YES	NO	bb	bb	46.453
9	Total-pentafurans	31.11	4.638e2	2.746e2	1.047	1.69	1.55	3.0	NO	NO	db	bb	0.108
10	123789-HxCDF	36.94	1.051e5	8.580e4	1.030	1.22	1.24	1916.6	YES	NO	bb	bb	46.969
11	234678-HxCDF	35.90	1.295e5	1.066e5	1.052	1.21	1.24	2399.5	YES	NO	bb	bb	46.397
12	123678-HxCDF	35.03	1.391e5	1.139e5	1.037	1.22	1.24	2521.9	YES	NO	db	db	49.705
13	123478-HxCDF	34.89	1.371e5	1.132e5	1.017	1.21	1.24	2483.9	YES	NO	bd	bd	49.256
14	123468-HXCDF	33.22	1.422e5	1.150e5	1.087	1.24	1.24	2413.2	YES	NO	bb	bb	47.377
15	1234789-HpCDF	41.02	1.020e5	9.546e4	1.283	1.07	1.05	1393.1	YES	NO	bd	bb	52.072
16	Total-heptafurans	39.44	3.514e2	3.401e2	1.305	1.03	1.05	7.3	YES	NO	bb	bd	0.157
17	1234678-HpCDF	38.77	1.242e5	1.231e5	1.327	1.01	1.05	1928.7	YES	NO	bb	bb	48.912
18	OCDF	45.25	1.314e5	1.422e5	1.447	0.92	0.89	1736.9	YES	NO	bd	bb	90.656
19	13468-PECDF	27.11	2.686e5	1.759e5	1.376	1.53	1.55	8327.1	YES	NO	bb	bb	47.963
20	1289-TCDD	27.02	2.261e4	2.878e4	0.794	0.79	0.77	405.9	YES	NO	bb	bb	11.095
21	2378-TCDD	26.41	2.491e4	3.142e4	0.920	0.79	0.77	427.6	YES	NO	bb	bb	10.492
22	Total-tetradioxins	26.09	3.868e4	4.947e4	0.879	0.78	0.77	473.4	YES	NO	bb	bb	17.187
23	Total-tetradioxins	25.59	1.148e4	1.571e4	0.879	0.73	0.77	216.1	YES	NO	bb	bb	5.301
24	Total-tetradioxins	24.70	1.077e3	1.492e3	0.879	0.72	0.77	12.1	YES	NO	bb	bb	0.501
25	1368-TCDD	23.52	2.581e4	3.240e4	0.923	0.80	0.77	460.3	YES	NO	bb	bb	10.809
26	12389-PECDD	31.93	1.381e5	8.862e4	1.154	1.56	1.55	2091.7	YES	NO	bb	bb	56.530
27	12378-PeCDD	31.51	1.191e5	7.350e4	0.995	1.62	1.55	1763.2	YES	NO	bb	bb	55.632
28	12479-PECDD	28.78	2.132e5	1.309e5	1.843	1.63	1.55	1994.2	YES	NO	bb	bb	53.684
29	123789-HxCDD	36.52	1.088e5	8.720e4	0.950	1.25	1.24	2225.8	YES	NO	bb	bb	50.223
30	123678-HxCDD	36.13	1.096e5	8.981e4	1.009	1.22	1.24	2285.4	YES	NO	db	db	47.616
31	123478-HxCDD	36.00	1.097e5	8.668e4	1.027	1.27	1.24	2211.1	YES	NO	bd	bd	47.078
32	Total-hexadioxins	35.11	7.576e2	5.804e2	1.028	1.31	1.24	9.8	YES	NO	bb	bb	0.317
33	124679-HXCDD	34.00	1.226e5	1.004e5	1.125	1.22	1.24	2465.0	YES	NO	bb	bb	48.837
34	1234678-HpCDD	40.27	7.434e4	6.981e4	1.068	1.06	1.05	1308.2	YES	NO	bb	bb	53.007
35	1234679-HPCDD	39.22	8.488e4	7.945e4	1.211	1.07	1.05	1451.6	YES	NO	bb	bb	53.301
36	OCDD	45.00	1.110e5	1.232e5	1.181	0.90	0.89	1318.6	YES	NO	bb	bb	95.088

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.01	2.291e4					1.0	NO		bb		
2	FUNCTION1 PFK	22.75	6.633e3					0.5	NO		bb		
3	FUNCTION1 PFK	22.62	8.974e3					0.7	NO		db		
4	FUNCTION1 PFK	22.56	3.115e4					1.2	NO		bd		
5	FUNCTION1 PFK	22.19	1.111e4					0.9	NO		bb		
6	FUNCTION1 PFK	22.12	3.387e4					1.4	NO		db		
7	FUNCTION1 PFK	21.98	2.704e4					1.2	NO		bd		
8	FUNCTION1 PFK	21.78	5.574e4					2.4	NO		db		
9	FUNCTION1 PFK	21.45	1.908e6					10.3	YES		dd		
10	FUNCTION1 PFK	21.16	1.691e6					16.7	YES		bd		
11	FUNCTION1 PFK	25.72	2.952e4					1.1	NO		bb		
12	FUNCTION1 PFK	25.52	2.095e4					1.3	NO		bb		
13	FUNCTION1 PFK	25.46	3.261e3					0.4	NO		bb		
14	FUNCTION1 PFK	25.40	8.656e3					0.7	NO		bb		
15	FUNCTION1 PFK	24.69	4.102e4					1.2	NO		bb		
16	FUNCTION1 PFK	24.49	8.400e3					0.6	NO		bb		
17	FUNCTION1 PFK	24.37	1.581e4					0.9	NO		db		
18	FUNCTION1 PFK	24.31	2.223e4					1.2	NO		bd		
19	FUNCTION1 PFK	24.20	1.796e4					0.6	NO		bb		
20	FUNCTION1 PFK	24.08	9.303e3					0.7	NO		db		
21	FUNCTION1 PFK	24.04	1.746e4					0.9	NO		bd		
22	FUNCTION1 PFK	23.96	1.080e4					0.7	NO		bb		
23	FUNCTION1 PFK	23.80	8.586e3					0.6	NO		bb		
24	FUNCTION1 PFK	23.30	3.080e4					1.4	NO		db		
25	FUNCTION1 PFK	23.25	2.277e4					1.4	NO		bd		
26	FUNCTION1 PFK	23.15	1.269e4					0.8	NO		bb		
27	FUNCTION1 PFK	28.04	3.022e4					1.3	NO		bb		
28	FUNCTION1 PFK	27.89	4.656e4					0.7	NO		bb		
29	FUNCTION1 PFK	27.11	2.157e4					1.3	NO		db		
30	FUNCTION1 PFK	27.05	3.306e4					1.3	NO		bd		
31	FUNCTION1 PFK	26.61	4.260e4					1.2	NO		bb		
32	FUNCTION1 PFK	26.26	1.945e4					1.0	NO		db		
33	FUNCTION1 PFK	26.15	3.213e4					1.0	NO		bd		

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.84	1.657e4					1.5	NO		bb		0.000
2	FUNCTION2 PFK	29.79	1.224e4					1.3	NO		db		0.000
3	FUNCTION2 PFK	29.73	5.167e4					1.8	NO		bd		0.000
4	FUNCTION2 PFK	29.64	7.217e3					0.8	NO		db		0.000
5	FUNCTION2 PFK	29.61	1.283e4					1.4	NO		bd		0.000
6	FUNCTION2 PFK	29.23	4.308e3					0.6	NO		bb		0.000
7	FUNCTION2 PFK	28.38	1.121e6					8.5	YES		db		0.000
8	FUNCTION2 PFK	28.15	3.917e5					18.0	YES		bd		0.000
9	FUNCTION2 PFK	31.86	1.548e3					0.4	NO		bb		0.000
10	FUNCTION2 PFK	31.81	3.557e3					0.5	NO		bb		0.000
11	FUNCTION2 PFK	31.49	1.759e4					1.3	NO		db		0.000
12	FUNCTION2 PFK	31.46	3.610e3					0.6	NO		bd		0.000
13	FUNCTION2 PFK	31.41	2.251e4					2.1	NO		db		0.000
14	FUNCTION2 PFK	31.29	7.124e4					2.3	NO		bd		0.000
15	FUNCTION2 PFK	31.25	2.728e3					0.5	NO		bb		0.000
16	FUNCTION2 PFK	30.97	8.115e3					0.9	NO		bb		0.000
17	FUNCTION2 PFK	30.89	1.487e4					1.0	NO		bb		0.000
18	FUNCTION2 PFK	30.80	2.467e4					1.5	NO		bb		0.000
19	FUNCTION2 PFK	30.63	2.724e4					0.8	NO		bb		0.000
20	FUNCTION2 PFK	30.30	1.474e4					1.0	NO		db		0.000
21	FUNCTION2 PFK	30.23	1.775e4					1.1	NO		bd		0.000
22	FUNCTION2 PFK	30.05	4.665e3					0.6	NO		bb		0.000
23	FUNCTION2 PFK	29.98	2.522e4					1.1	NO		bb		0.000
24	FUNCTION2 PFK	29.90	1.210e4					1.7	NO		bb		0.000
25	FUNCTION2 PFK	32.72	5.416e3					0.7	NO		bb		0.000
26	FUNCTION2 PFK	32.67	4.459e3					0.6	NO		bb		0.000
27	FUNCTION2 PFK	32.55	1.819e3					0.4	NO		bb		0.000
28	FUNCTION2 PFK	32.09	1.032e4					1.2	NO		bb		0.000

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ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.18	3.362e4					1.9	NO		bb		0.000
2	FUNCTION3 PFK	33.94	1.705e4					2.0	NO		bb		0.000
3	FUNCTION3 PFK	33.74	2.717e4					1.8	NO		db		0.000
4	FUNCTION3 PFK	33.69	2.349e4					1.4	NO		bd		0.000
5	FUNCTION3 PFK	33.51	8.816e3					1.1	NO		bb		0.000
6	FUNCTION3 PFK	33.42	2.396e3					0.6	NO		bb		0.000
7	FUNCTION3 PFK	33.36	1.794e4					1.6	NO		db		0.000
8	FUNCTION3 PFK	33.26	5.180e4					1.7	NO		bd		0.000
9	FUNCTION3 PFK	33.19	1.444e4					1.5	NO		db		0.000
10	FUNCTION3 PFK	33.12	3.668e4					2.1	NO		bd		0.000
11	FUNCTION3 PFK	33.05	9.479e3					1.2	NO		bb		0.000
12	FUNCTION3 PFK	36.10	9.364e3					1.0	NO		bb		0.000
13	FUNCTION3 PFK	36.05	1.462e3					0.4	NO		bb		0.000
14	FUNCTION3 PFK	36.01	1.693e3					0.4	NO		bb		0.000
15	FUNCTION3 PFK	35.97	4.558e3					0.6	NO		bb		0.000
16	FUNCTION3 PFK	35.75	2.914e4					1.6	NO		db		0.000
17	FUNCTION3 PFK	35.67	1.811e4					1.2	NO		bd		0.000
18	FUNCTION3 PFK	35.48	1.603e4					1.3	NO		bb		0.000
19	FUNCTION3 PFK	35.41	7.398e3					0.8	NO		db		0.000
20	FUNCTION3 PFK	35.35	1.458e4					1.3	NO		bd		0.000
21	FUNCTION3 PFK	35.21	1.759e3					0.4	NO		bb		0.000
22	FUNCTION3 PFK	34.93	8.491e3					0.8	NO		bb		0.000
23	FUNCTION3 PFK	34.89	1.691e3					0.4	NO		bb		0.000
24	FUNCTION3 PFK	34.78	2.756e4					1.8	NO		bb		0.000
25	FUNCTION3 PFK	34.59	5.514e3					0.9	NO		bb		0.000
26	FUNCTION3 PFK	34.33	5.867e3					0.9	NO		bb		0.000
27	FUNCTION3 PFK	34.29	3.052e4					2.1	NO		bb		0.000
28	FUNCTION3 PFK	37.66	8.597e3					1.1	NO		bb		0.000
29	FUNCTION3 PFK	37.46	1.620e3					0.4	NO		bb		0.000
30	FUNCTION3 PFK	37.14	9.550e3					1.0	NO		bb		0.000
31	FUNCTION3 PFK	37.05	1.322e3					0.3	NO		bb		0.000
32	FUNCTION3 PFK	36.74	2.477e3					0.5	NO		bb		0.000
33	FUNCTION3 PFK	36.62	1.005e4					1.1	NO		bb		0.000
34	FUNCTION3 PFK	36.53	1.522e4					1.3	NO		bb		0.000
35	FUNCTION3 PFK	36.33	1.490e4					1.3	NO		bb		0.000
36	FUNCTION3 PFK	36.26	4.548e3					0.5	NO		bb		0.000

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.62	1.453e4					2.4	NO		bb		
2	FUNCTION4 PFK	38.51	1.690e4					2.6	NO		db		
3	FUNCTION4 PFK	38.48	8.815e3					1.6	NO		dd		
4	FUNCTION4 PFK	38.41	1.238e4					2.0	NO		bd		
5	FUNCTION4 PFK	38.23	4.573e3					1.1	NO		bb		
6	FUNCTION4 PFK	38.00	1.163e4					1.9	NO		bb		
7	FUNCTION4 PFK	42.89	1.166e4					2.0	NO		bb		
8	FUNCTION4 PFK	42.29	2.465e3					0.4	NO		bb		
9	FUNCTION4 PFK	42.21	7.391e3					1.6	NO		bb		
10	FUNCTION4 PFK	42.16	5.421e3					1.6	NO		bb		
11	FUNCTION4 PFK	41.66	1.306e4					1.9	NO		bb		
12	FUNCTION4 PFK	41.49	1.397e4					1.9	NO		bb		
13	FUNCTION4 PFK	41.32	1.215e3					0.6	NO		bb		
14	FUNCTION4 PFK	41.08	1.606e3					0.6	NO		bb		
15	FUNCTION4 PFK	39.98	1.438e4					1.7	NO		bb		

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.33	3.666e3					1.3	NO		db		
2	FUNCTION5 PFK	43.29	1.044e3					0.5	NO		bd		
3	FUNCTION5 PFK	43.14	3.249e3					1.3	NO		db		
4	FUNCTION5 PFK	43.11	4.009e3					1.6	NO		dd		
5	FUNCTION5 PFK	43.08	7.711e3					2.6	NO		dd		
6	FUNCTION5 PFK	43.07	7.415e3					2.4	NO		bd		
7	FUNCTION5 PFK	45.76	5.742e3					1.0	NO		bb		
8	FUNCTION5 PFK	45.66	1.598e3					0.7	NO		bb		
9	FUNCTION5 PFK	45.43	2.414e3					0.8	NO		bb		
10	FUNCTION5 PFK	45.34	3.806e3					1.3	NO		bb		
11	FUNCTION5 PFK	45.18	2.429e3					1.1	NO		bb		
12	FUNCTION5 PFK	44.90	2.002e3					0.8	NO		bb		
13	FUNCTION5 PFK	44.76	3.873e3					1.3	NO		db		
14	FUNCTION5 PFK	44.73	7.705e3					1.7	NO		bd		
15	FUNCTION5 PFK	44.50	1.731e3					0.8	NO		bb		
16	FUNCTION5 PFK	44.46	4.336e3					1.1	NO		bb		
17	FUNCTION5 PFK	44.39	1.455e3					0.7	NO		bb		
18	FUNCTION5 PFK	44.14	3.619e3					1.1	NO		bb		
19	FUNCTION5 PFK	43.60	1.332e3					0.7	NO		bb		
20	FUNCTION5 PFK	43.54	1.922e3					1.0	NO		bb		
21	FUNCTION5 PFK	43.42	2.627e3					1.3	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.70	7.083e1					1.7	NO		bb		0.000
2	FUNCTION1 HXCD...	27.17	8.605e1					3.8	YES		db		0.000
3	FUNCTION1 HXCD...	27.11	1.320e2					2.1	NO		bd		0.000
4	FUNCTION1 HXCD...	26.37	1.139e2					2.2	NO		bb		0.000
5	FUNCTION1 HXCD...	25.58	1.039e2					1.6	NO		bb		0.000
6	FUNCTION1 HXCD...	25.19	7.870e1					1.2	NO		bb		0.000
7	FUNCTION1 HXCD...	24.43	1.656e2					5.0	YES		bb		0.000
8	FUNCTION1 HXCD...	24.05	1.127e2					3.6	YES		bb		0.000
9	FUNCTION1 HXCD...	23.84	9.568e1					1.5	NO		bb		0.000
10	FUNCTION1 HXCD...	21.81	8.427e1					1.9	NO		bb		0.000

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	27.67	1.021e2					2.1	NO		bb		0.000
2	FUNCTION1 HPCD...	26.20	7.148e1					3.0	NO		db		0.000
3	FUNCTION1 HPCD...	26.09	1.686e2					3.2	YES		bd		0.000
4	FUNCTION1 HPCD...	24.43	1.128e2					3.2	YES		bb		0.000
5	FUNCTION1 HPCD...	22.03	7.848e1					2.3	NO		bb		0.000
6	FUNCTION1 HPCD...	27.91	1.354e2					2.6	NO		db		0.000
7	FUNCTION1 HPCD...	27.83	1.658e2					6.1	YES		bd		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.08	2.110e2					6.2	YES		bb		0.000
2	FUNCTION2 HPCD...	28.58	8.879e1					2.5	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.04	1.144e2					3.3	YES		bb		0.000
2	FUNCTION4 NCDPE	41.31	7.335e1					2.2	NO		bb		0.000
3	FUNCTION4 NCDPE	41.04	1.152e2					4.0	YES		bb		0.000
4	FUNCTION4 NCDPE	40.53	9.131e1					2.3	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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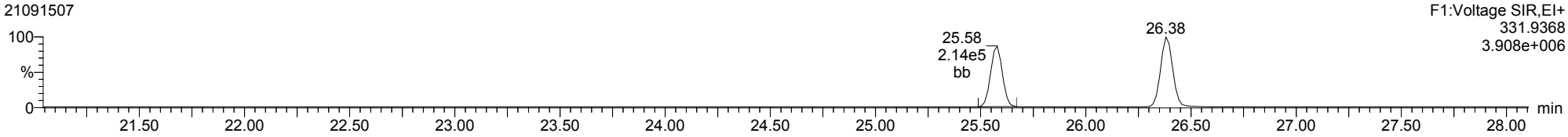

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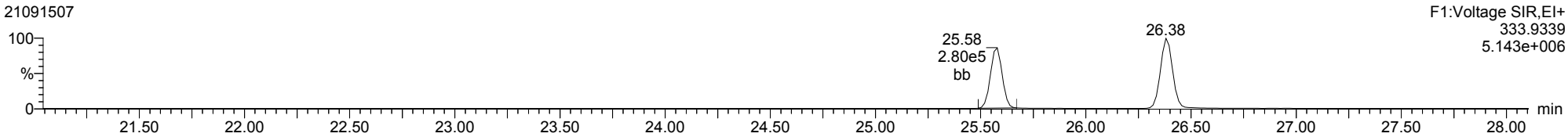

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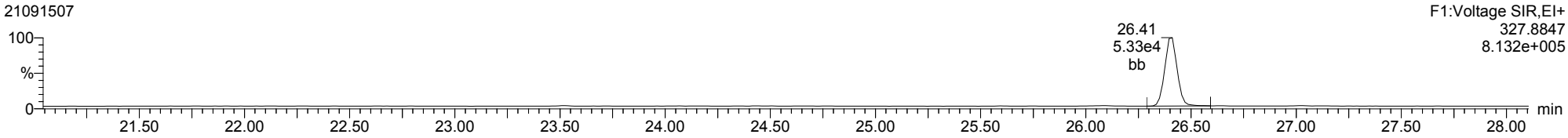

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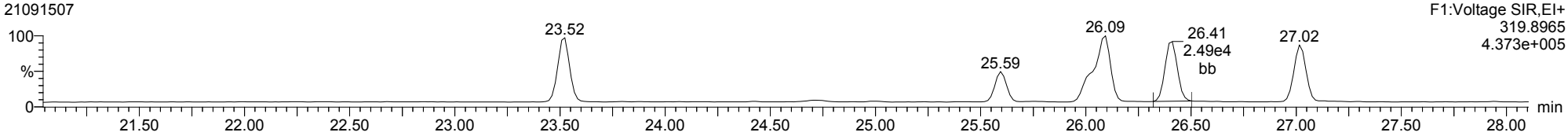

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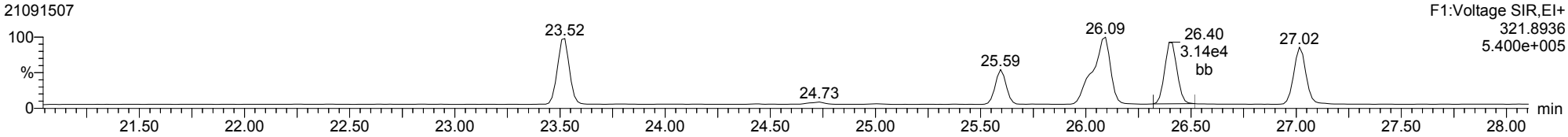

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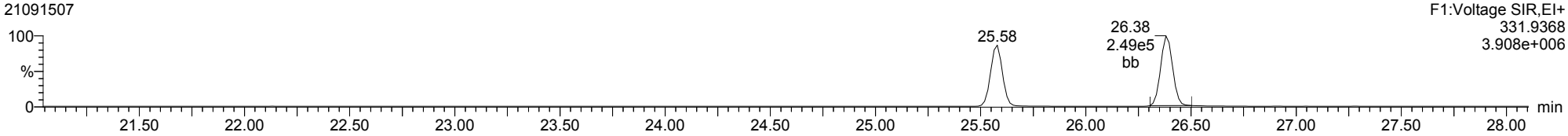

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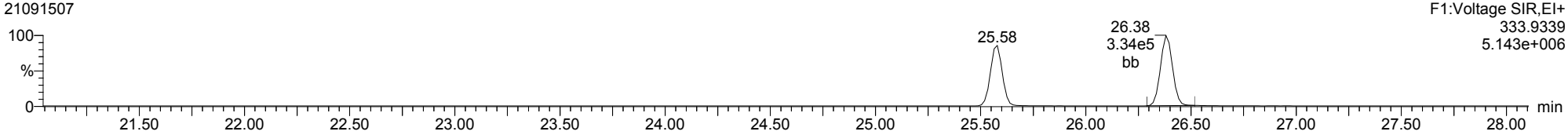

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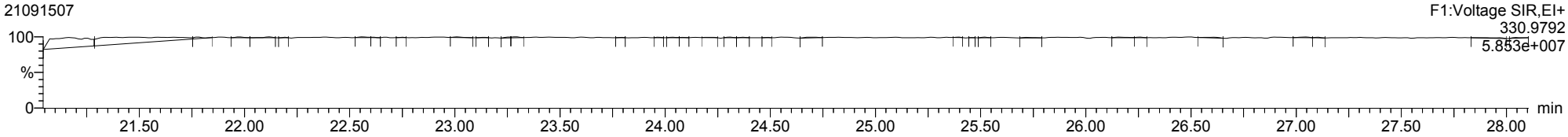

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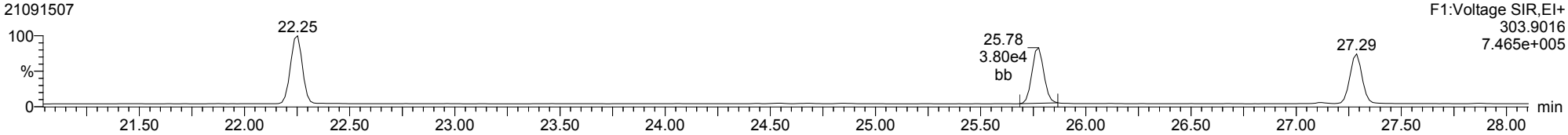

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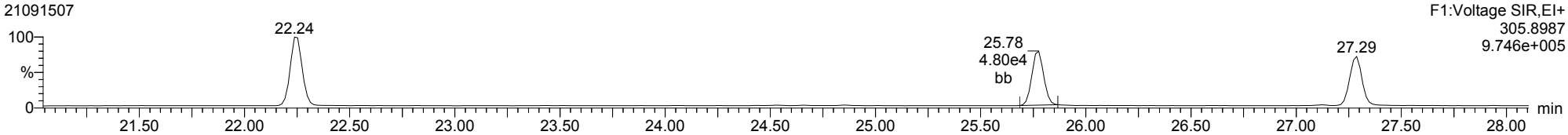

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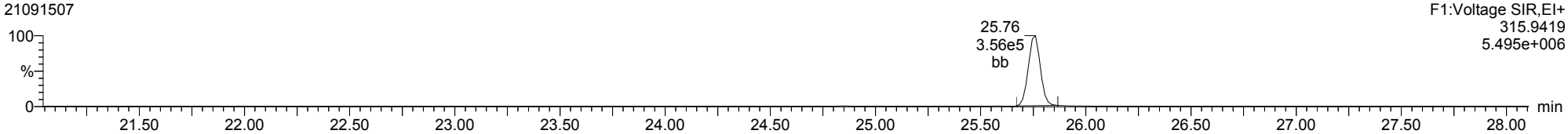

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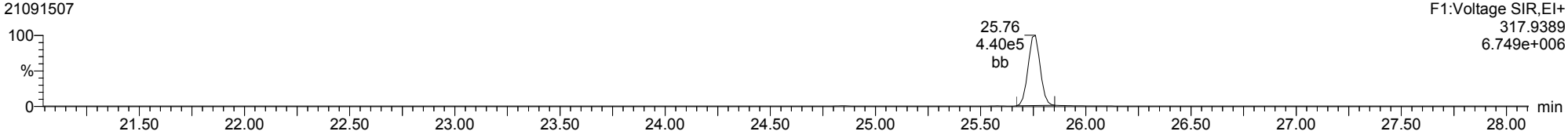

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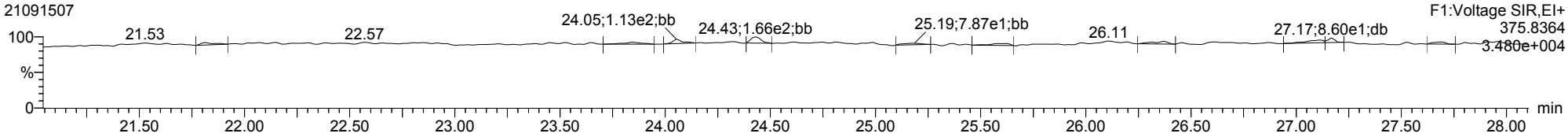

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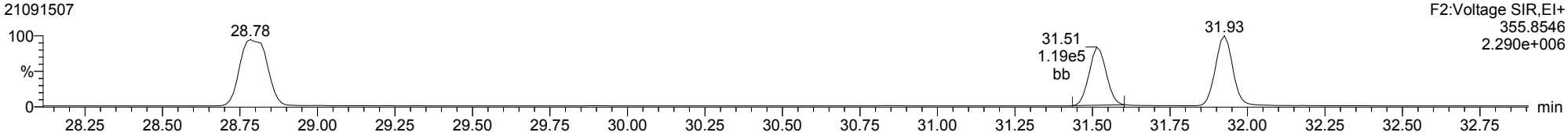

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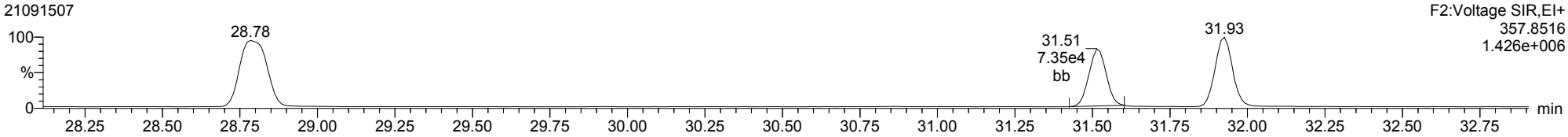

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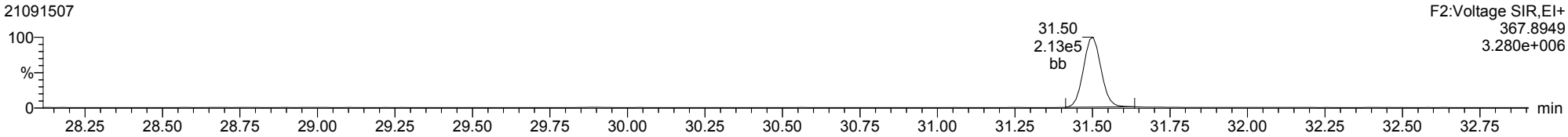

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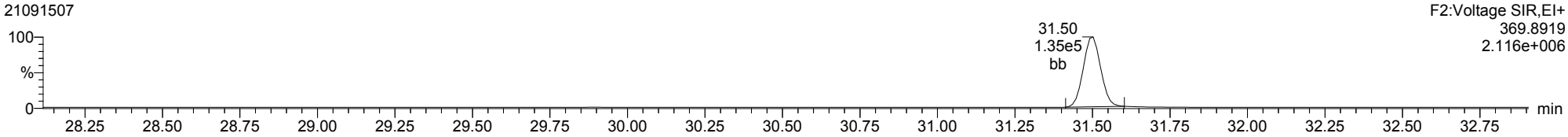

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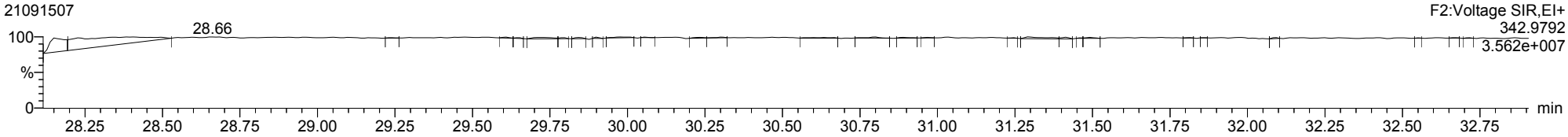

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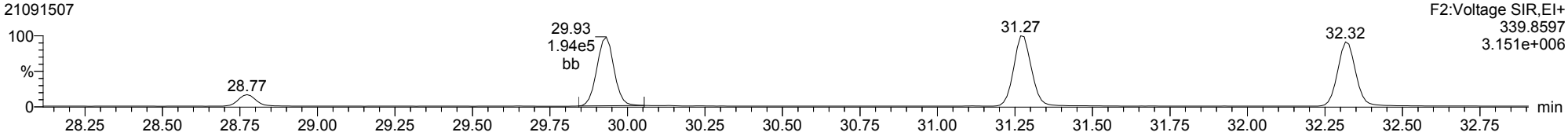

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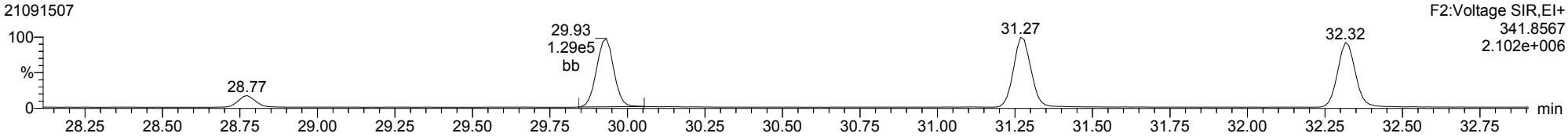

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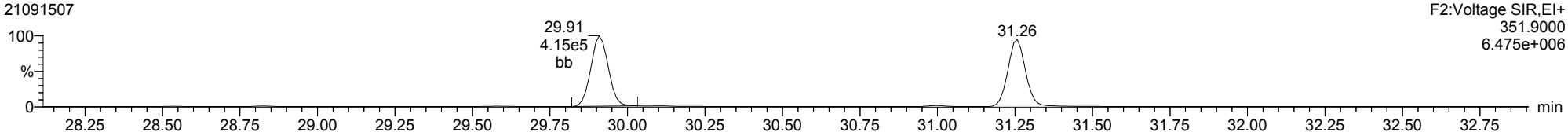

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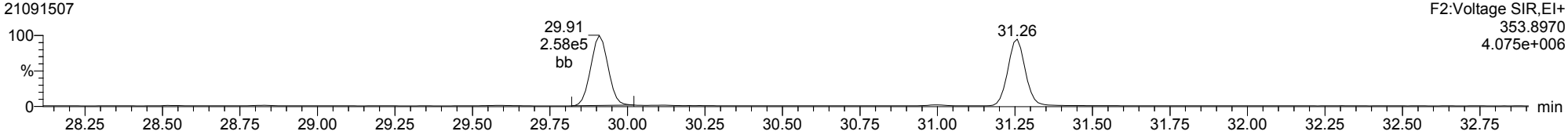

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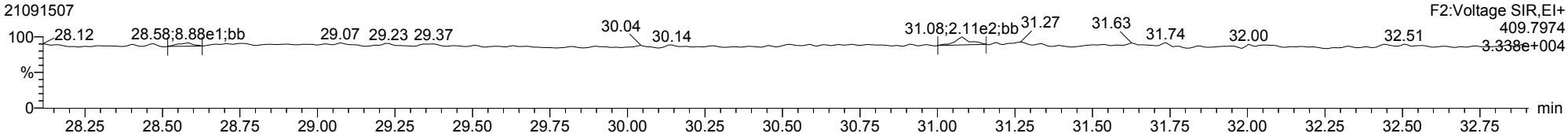

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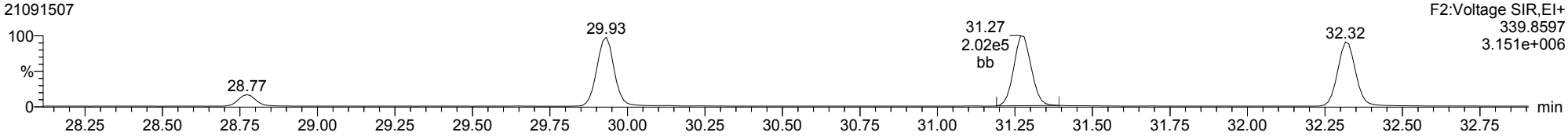

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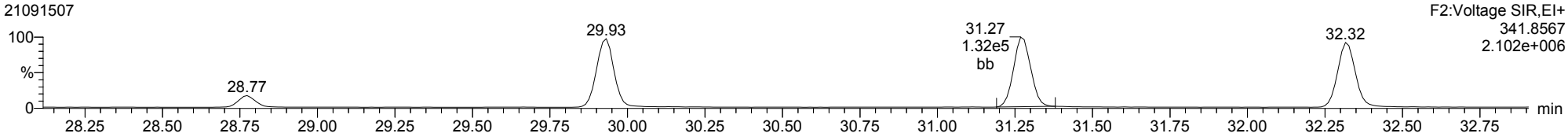

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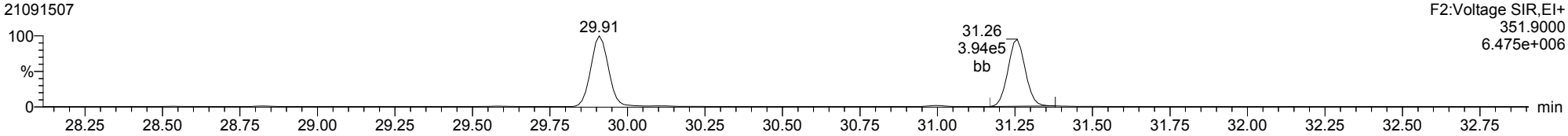

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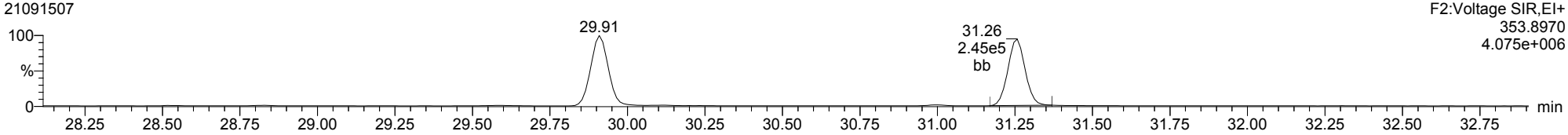
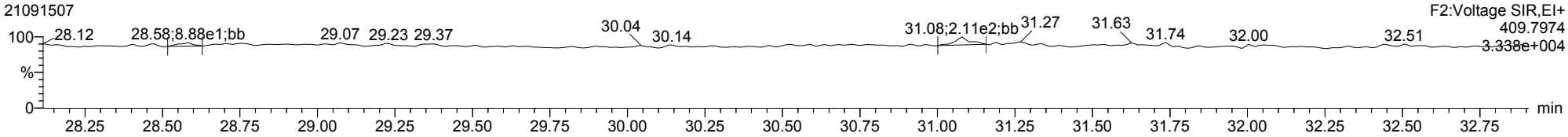


FUNCTION2 HPCDPE



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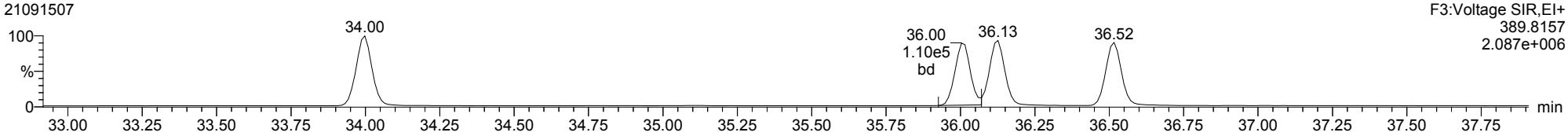

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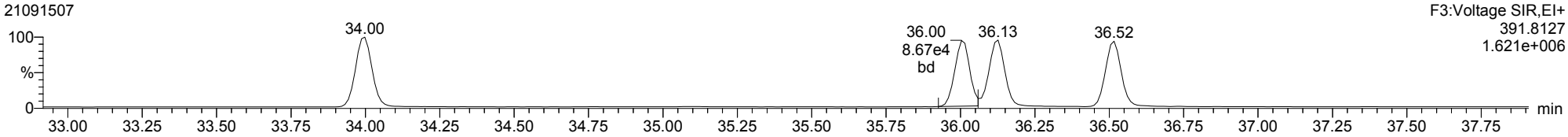

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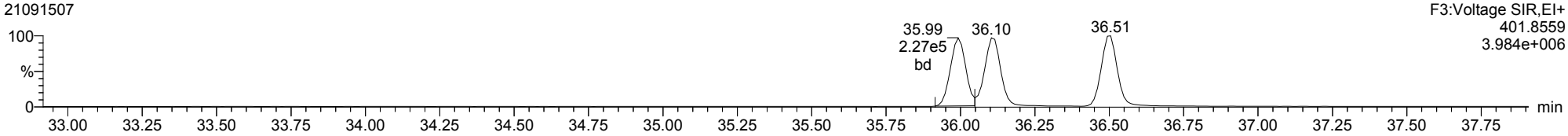

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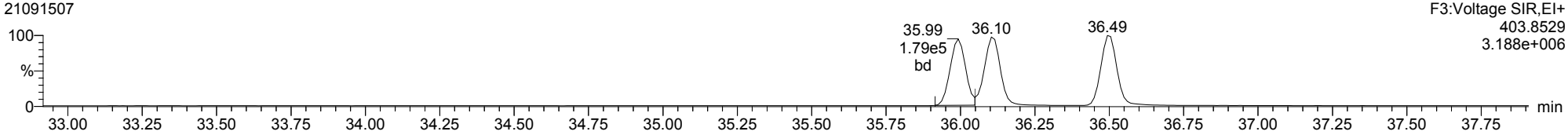

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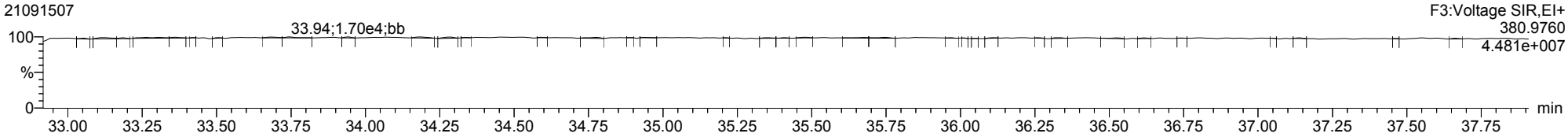

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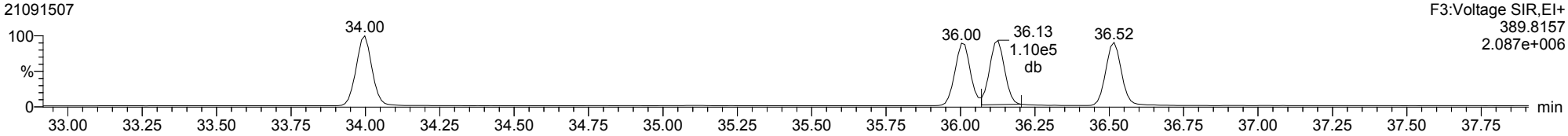

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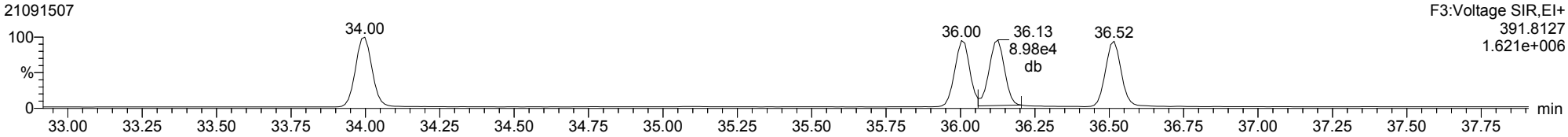

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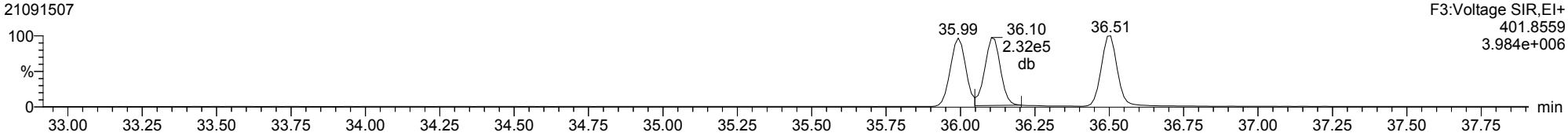

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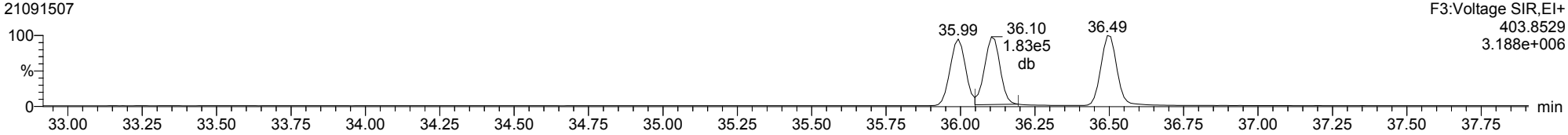

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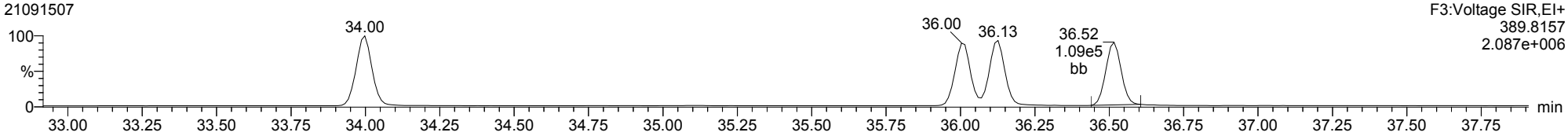

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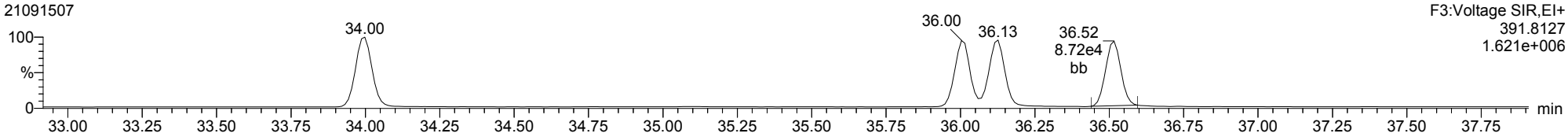

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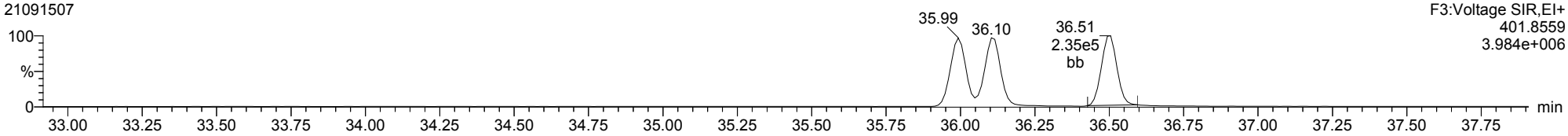

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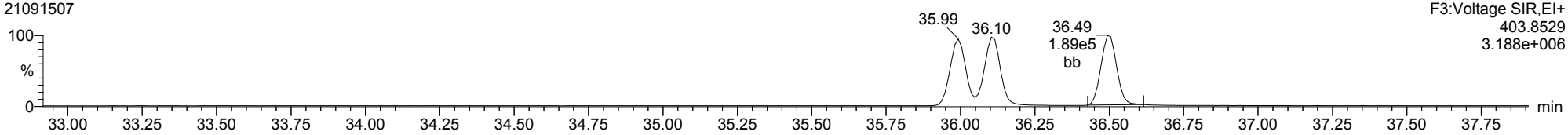

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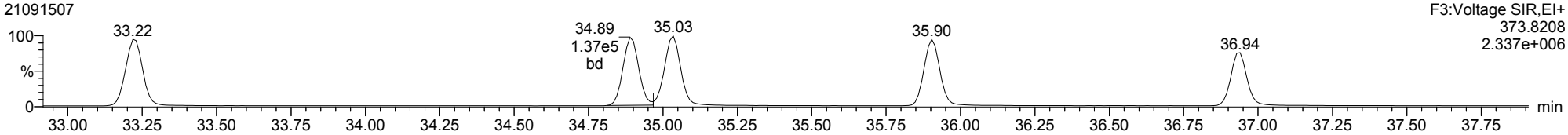

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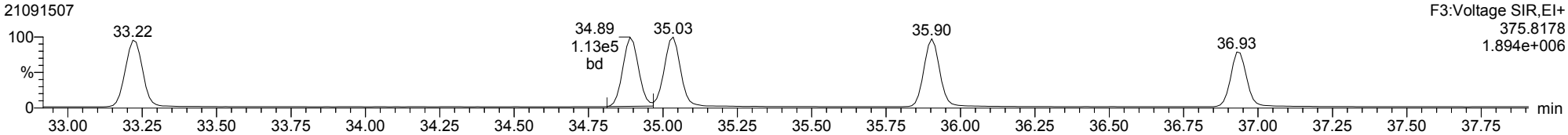

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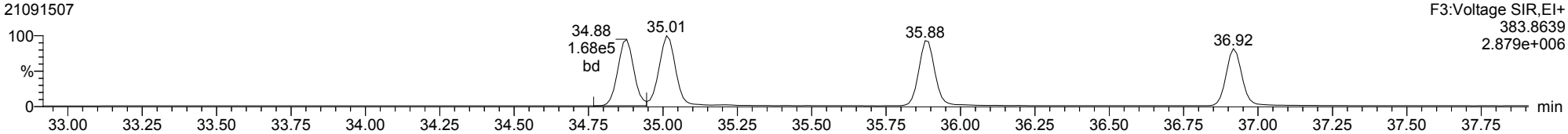

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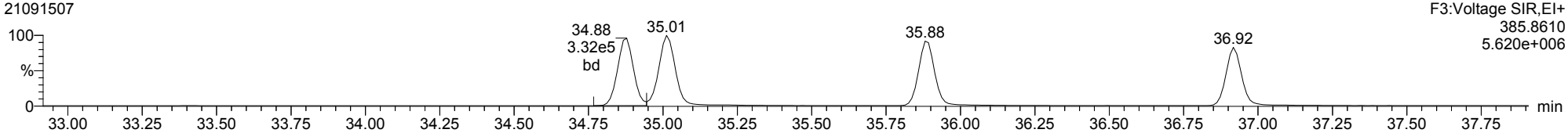

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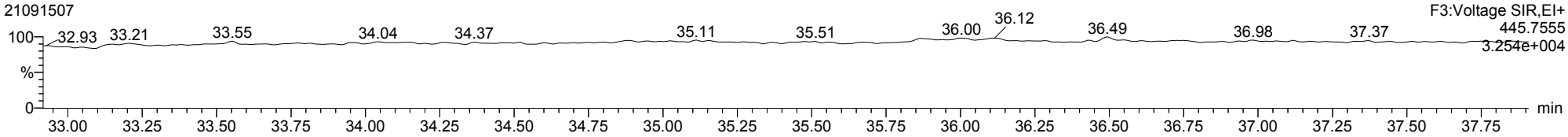

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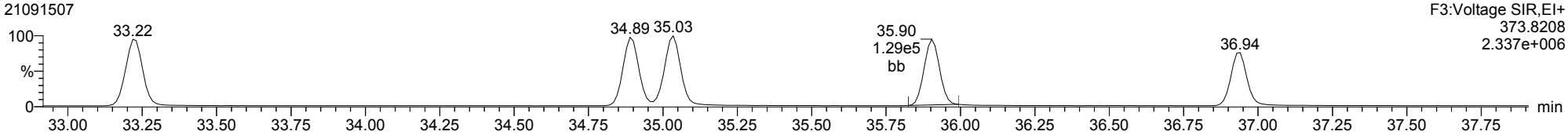

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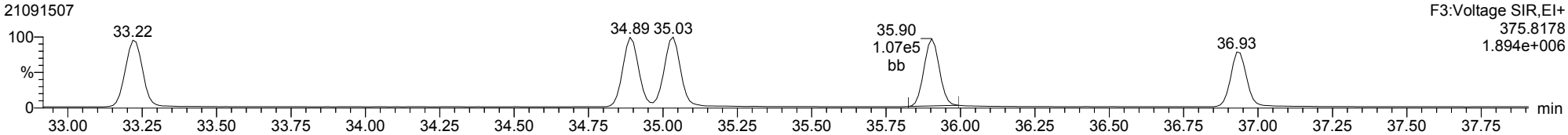

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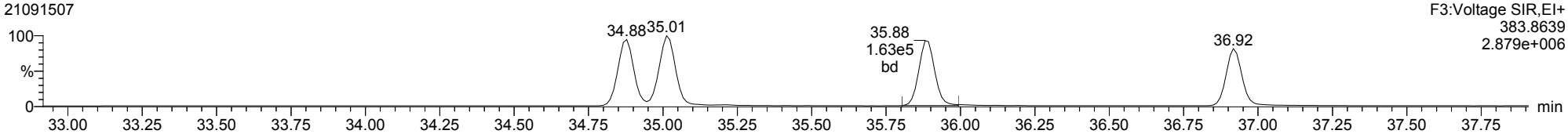

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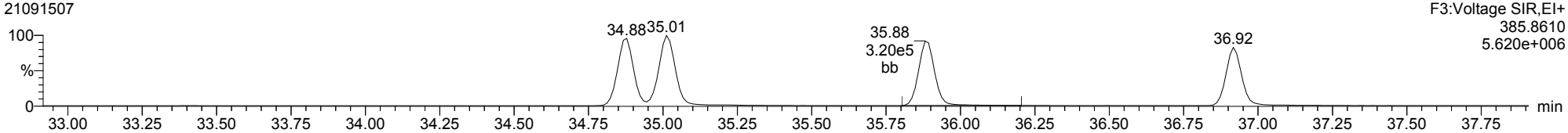

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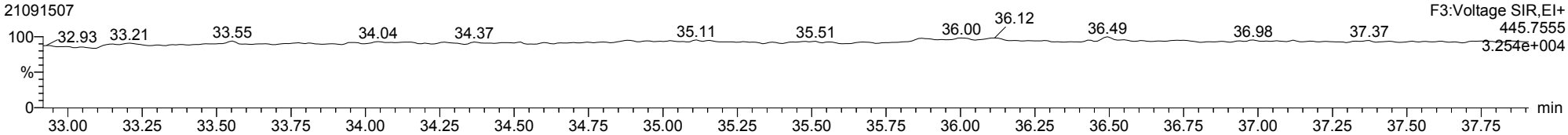

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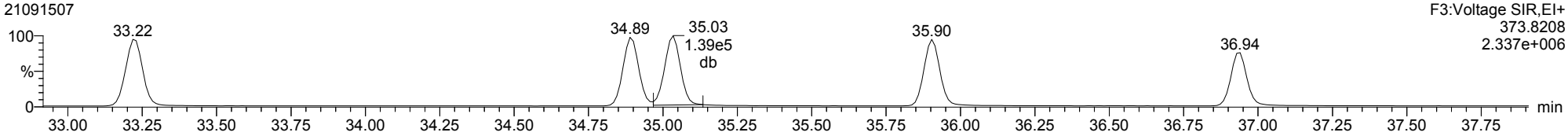

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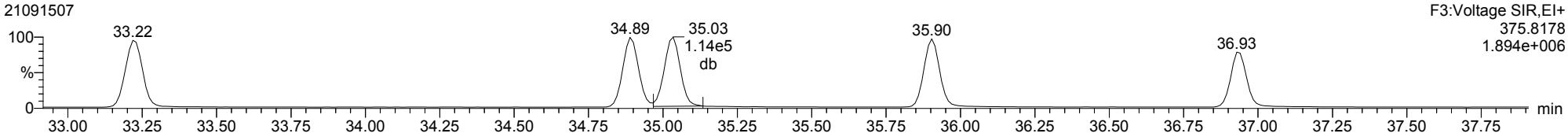

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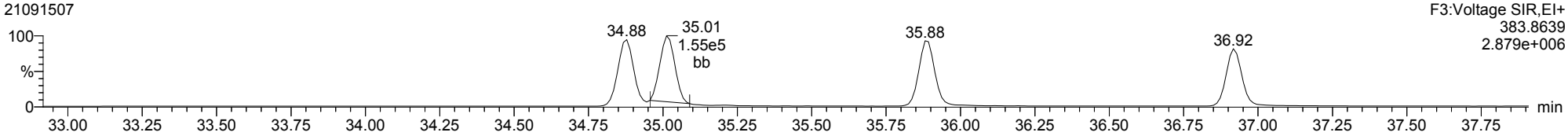

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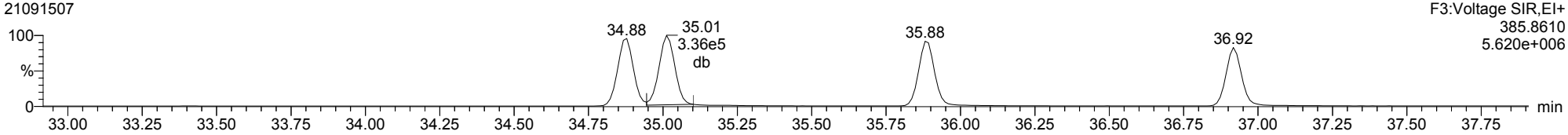

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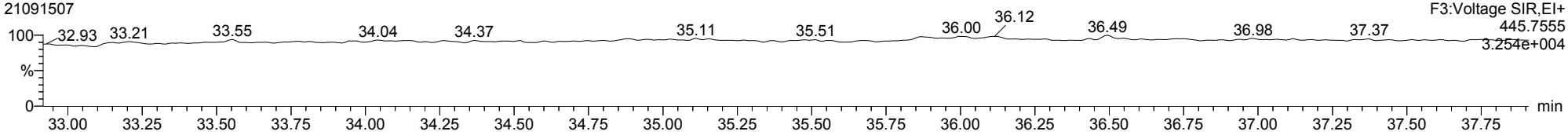

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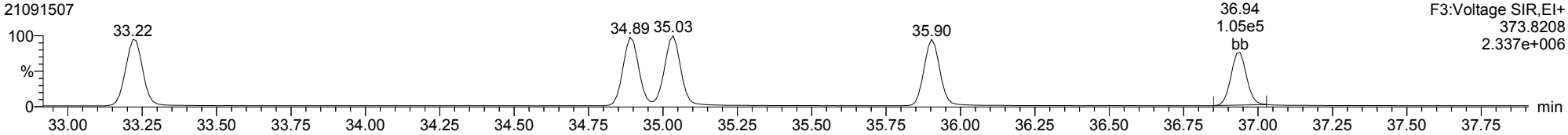

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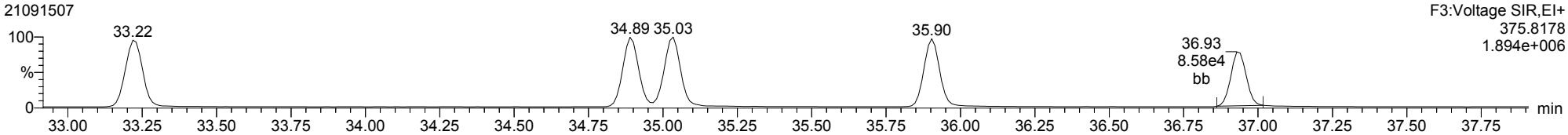

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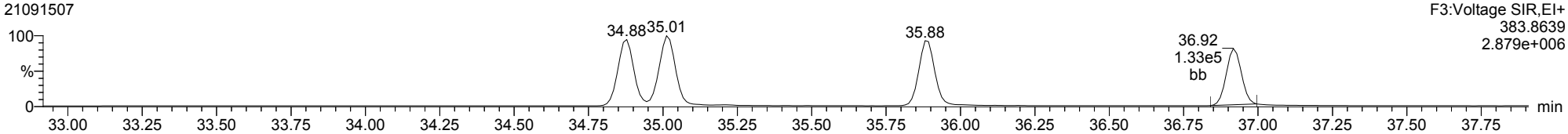

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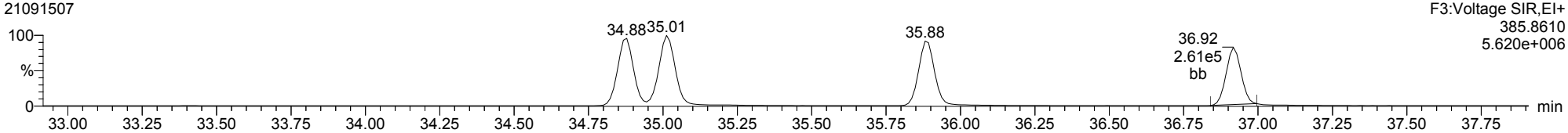

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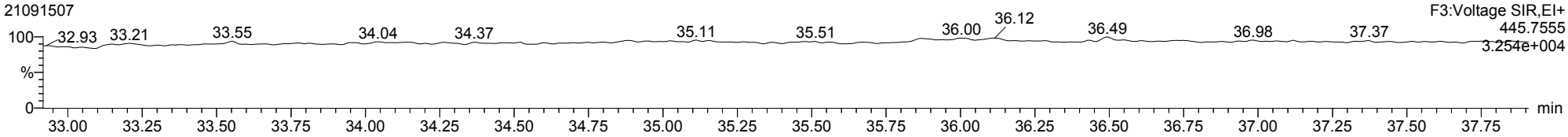

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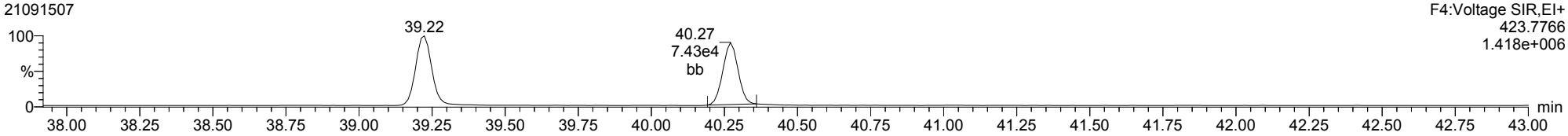

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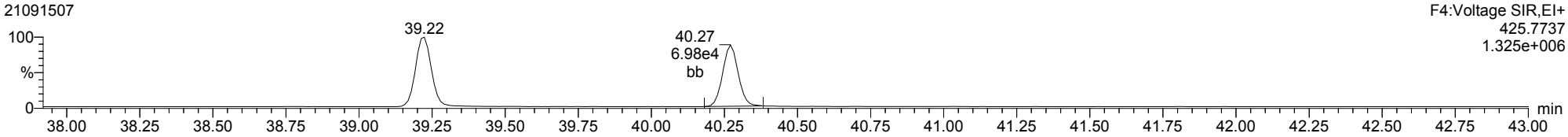

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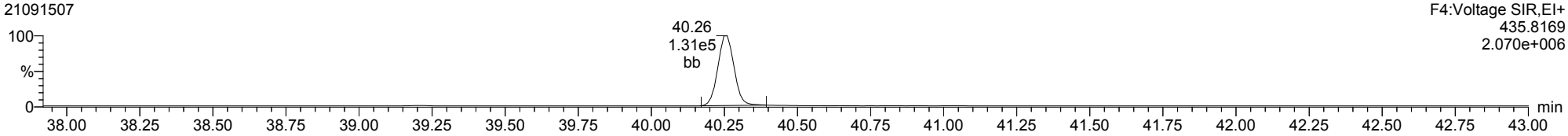

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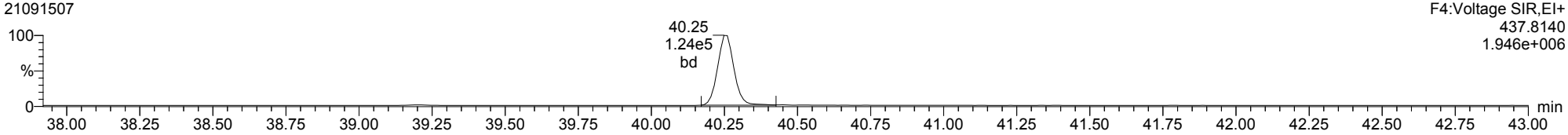

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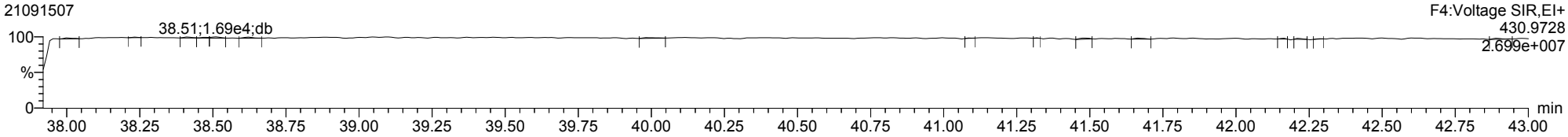

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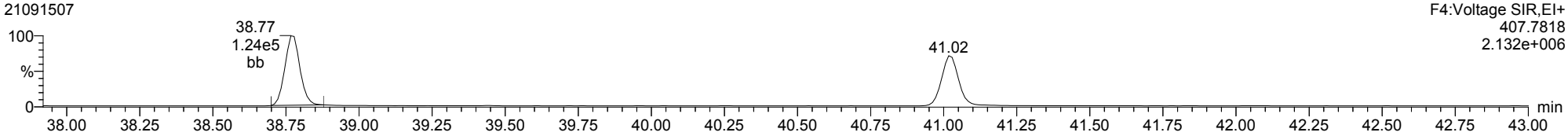

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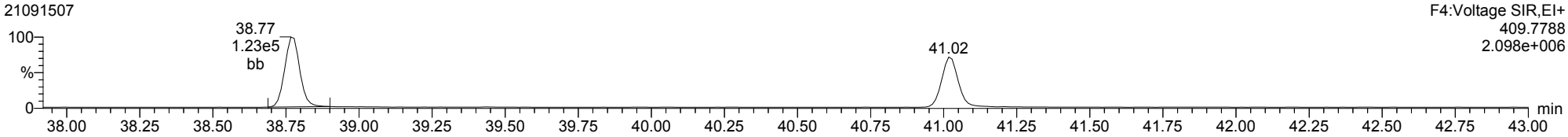

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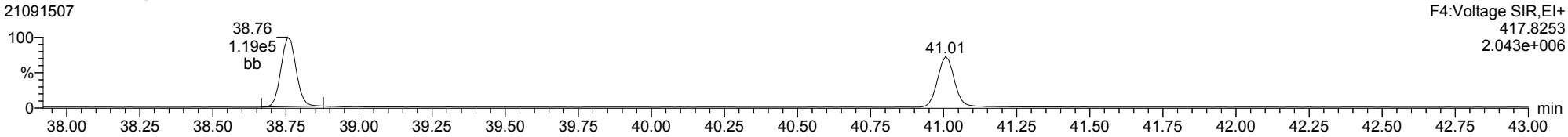

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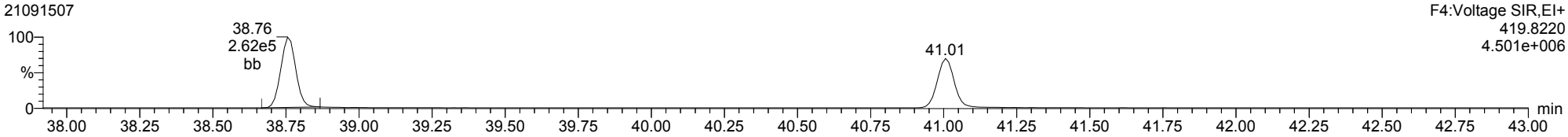

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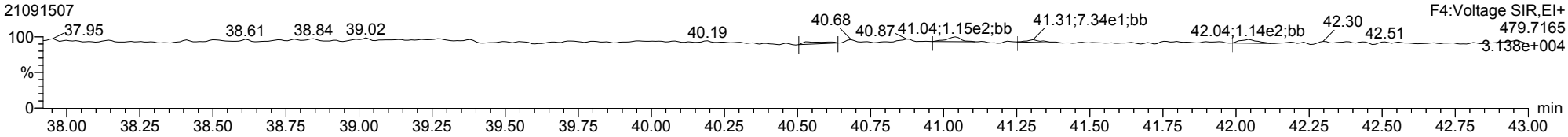

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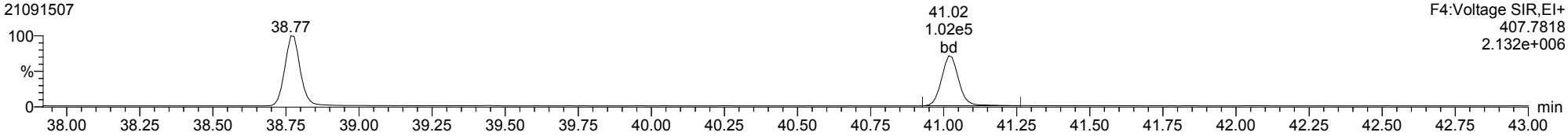

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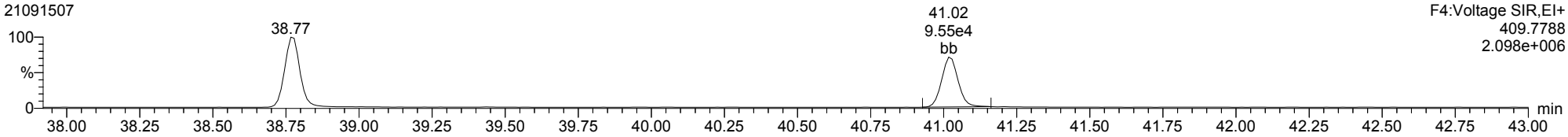

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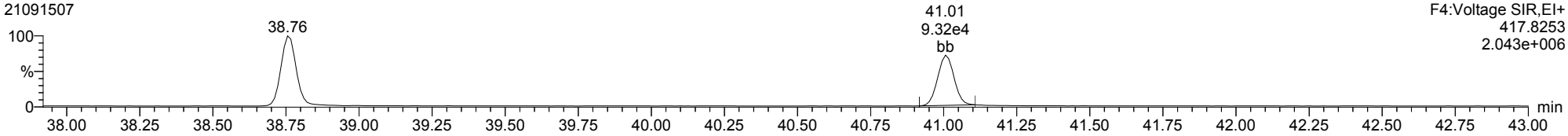

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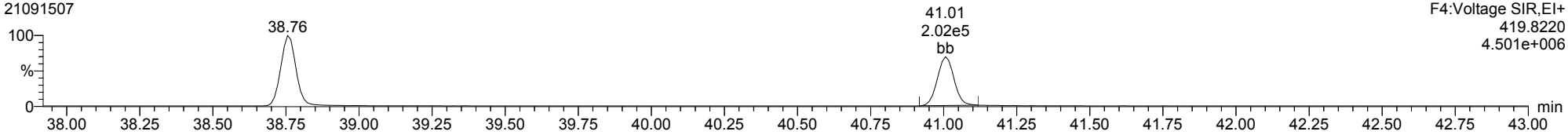

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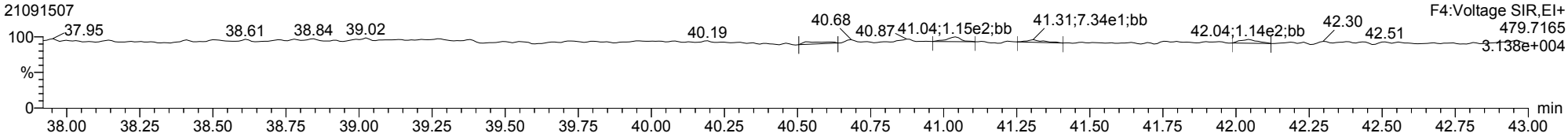

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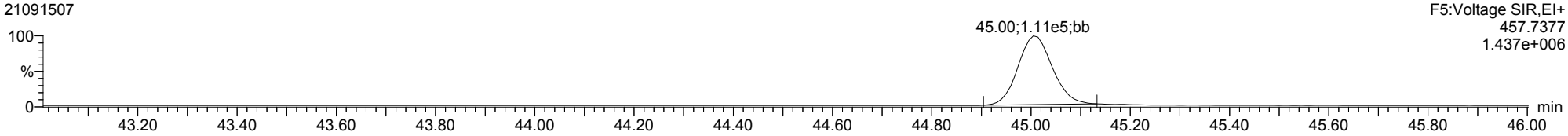

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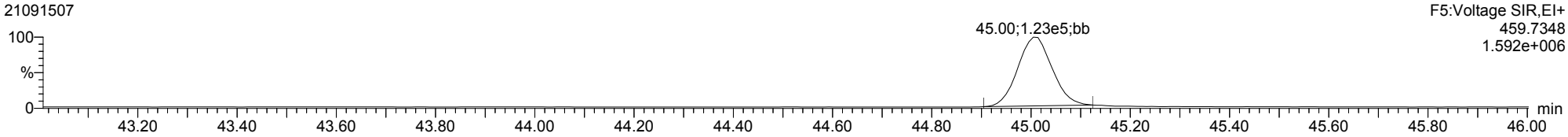

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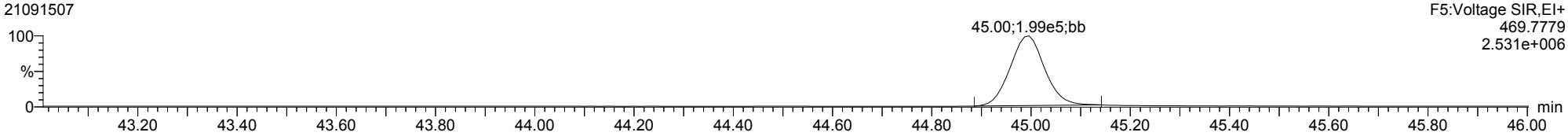
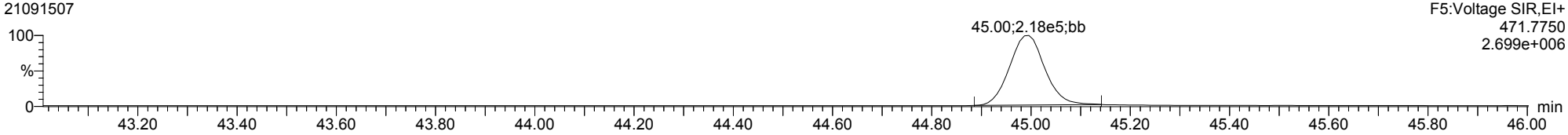
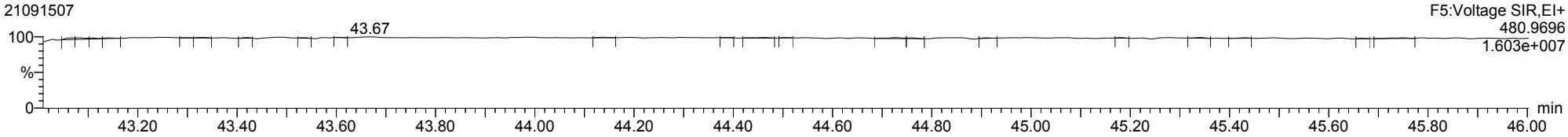


13C-OCDD



FUNCTION5 PFK



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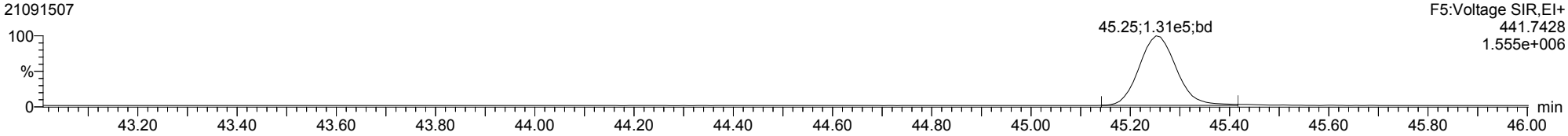
Printed: Thursday, September 16, 2021 14:33:07 Pacific Daylight Time

ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

OCDF



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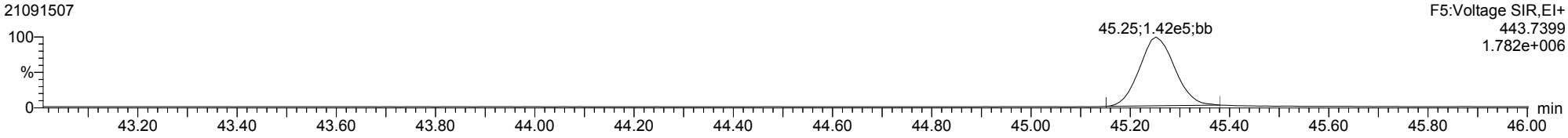

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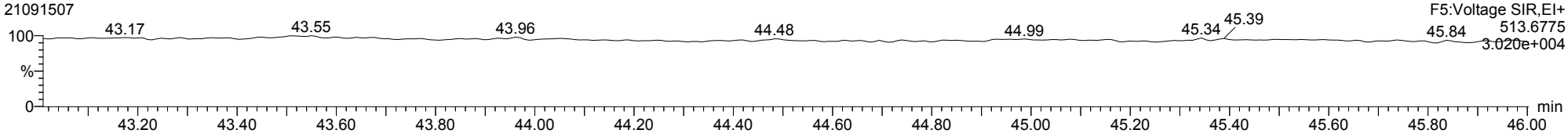

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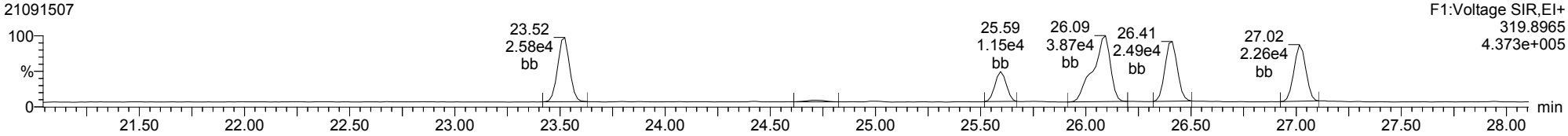

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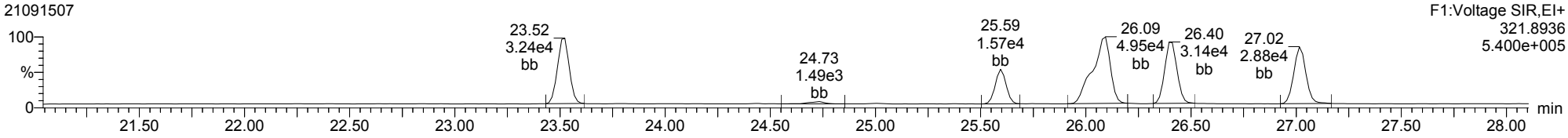

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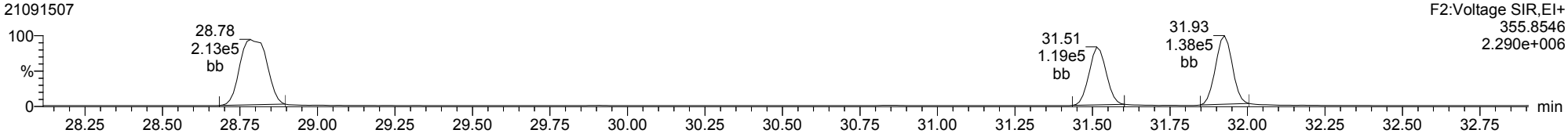

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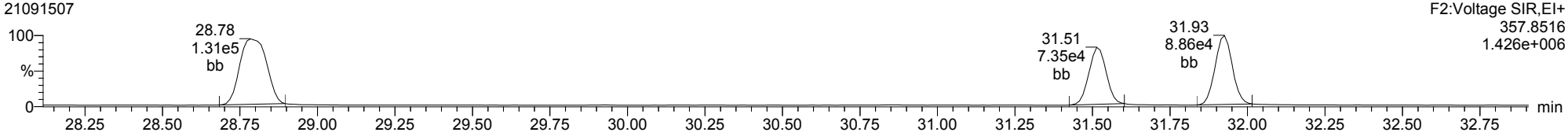

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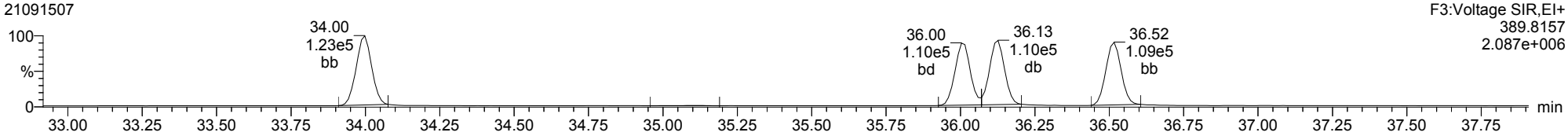

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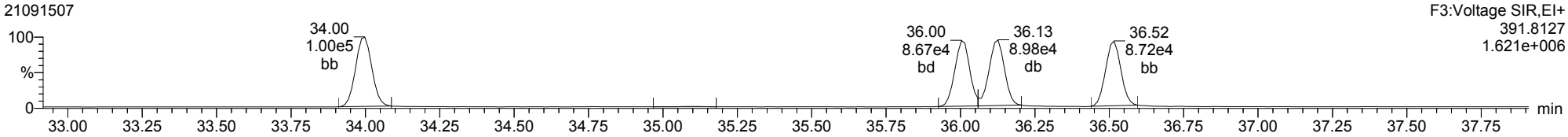

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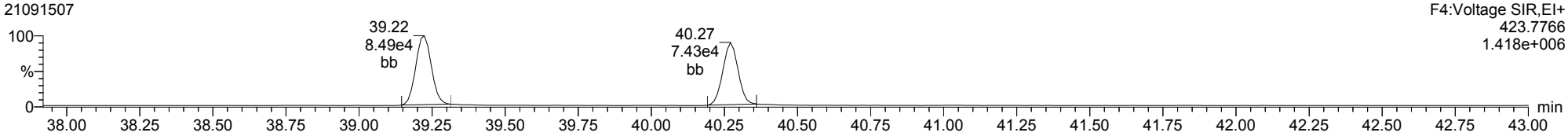

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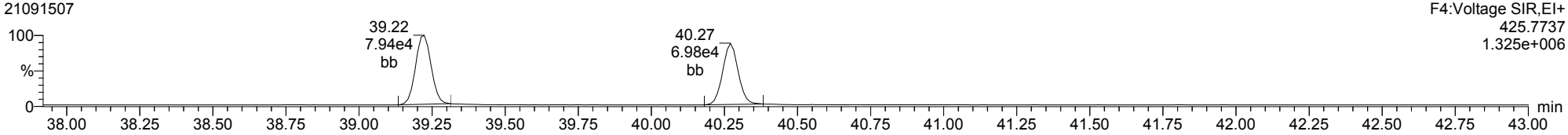

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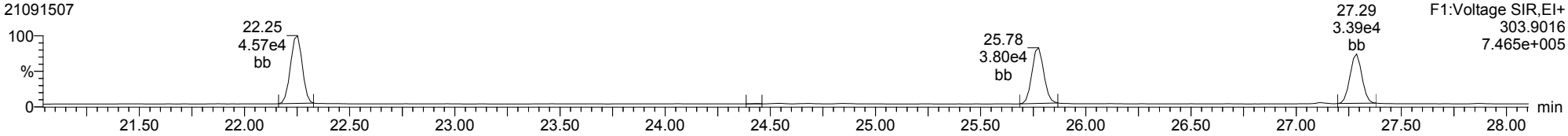
ID: CS3Q8, Name: 21091507, Date: 15-Sep-2021, Time: 20:59:17, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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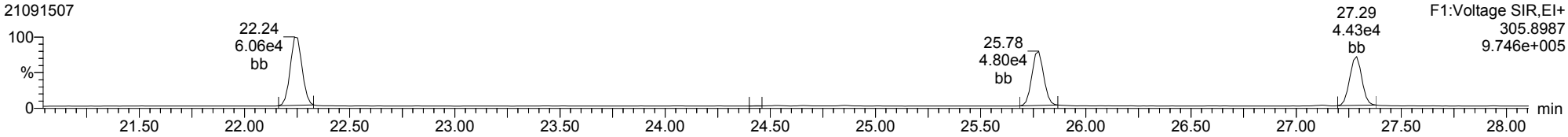

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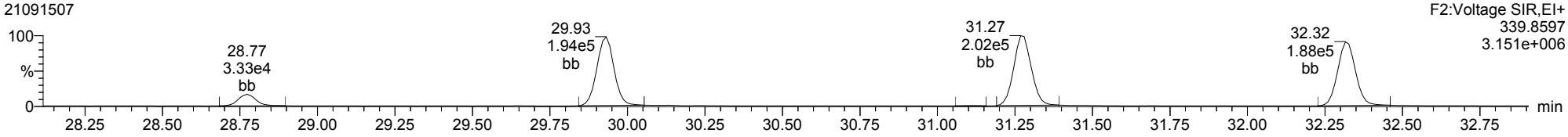

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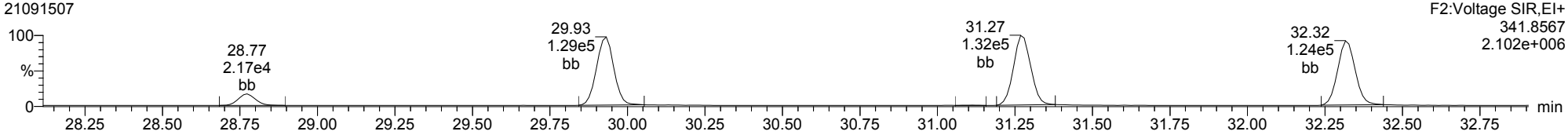

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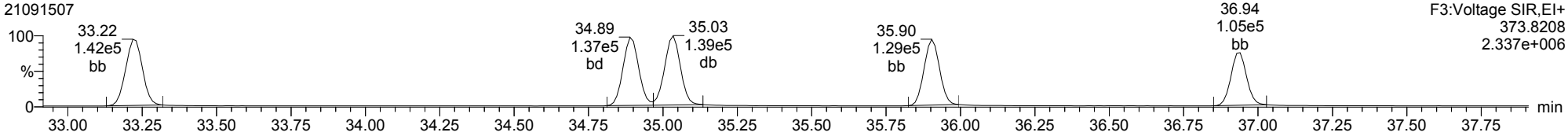
Total-hexafurans



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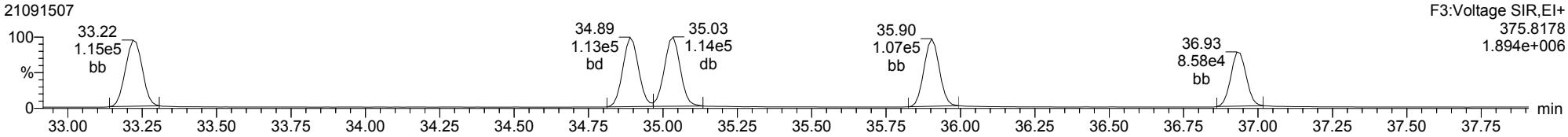

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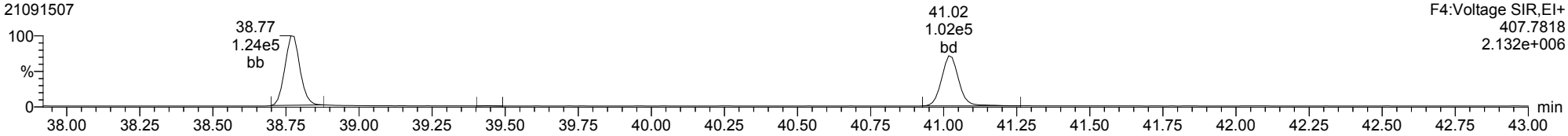

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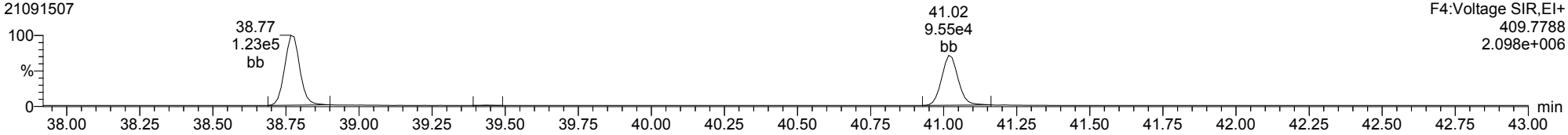

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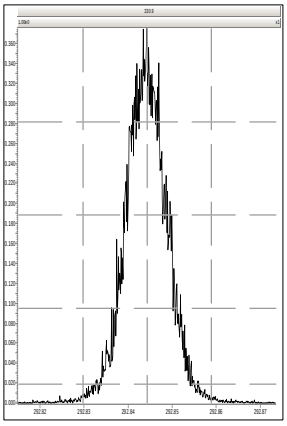

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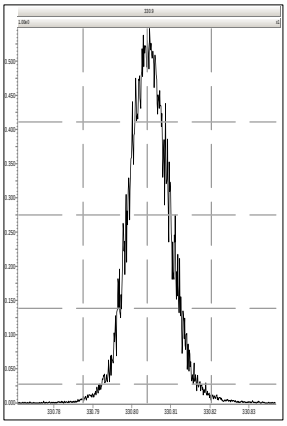

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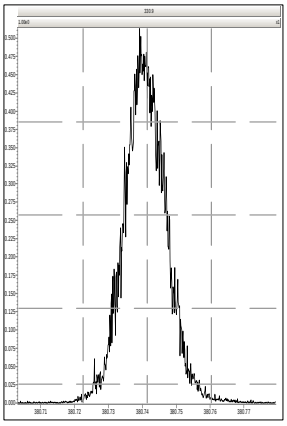

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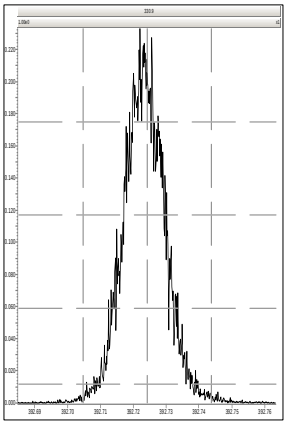

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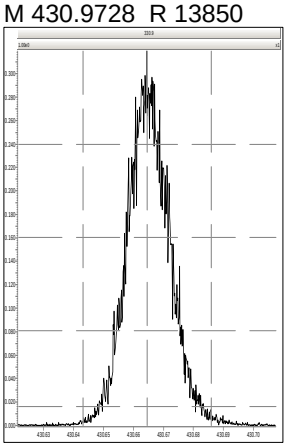

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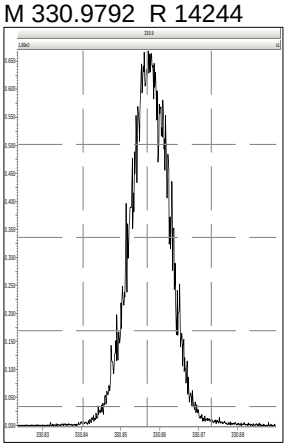

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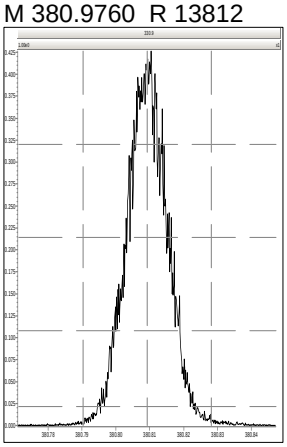

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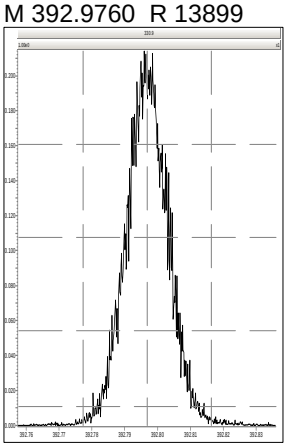

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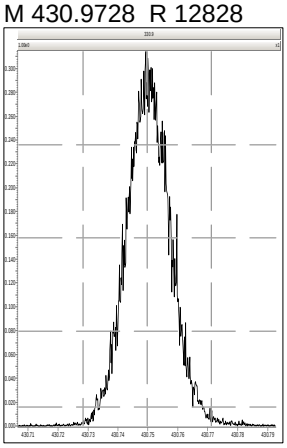

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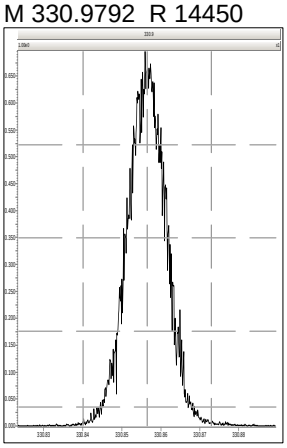

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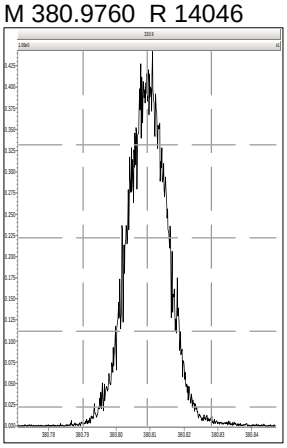

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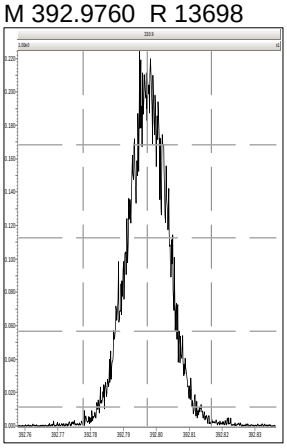

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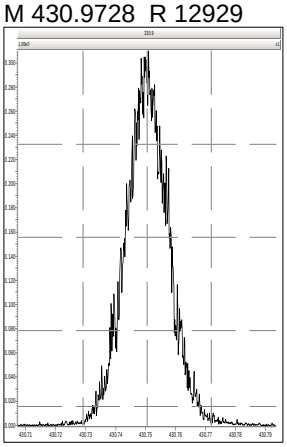

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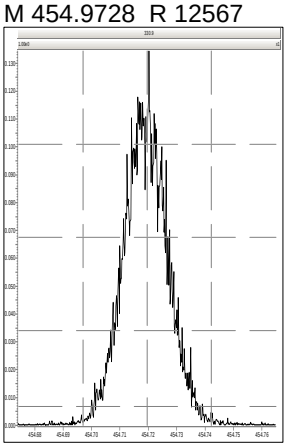

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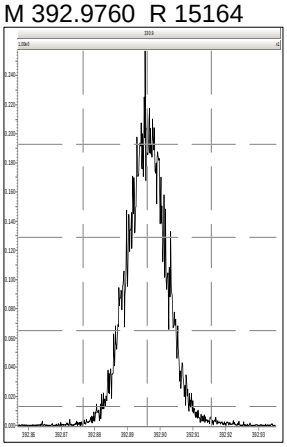

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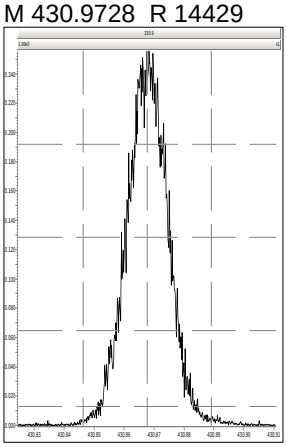

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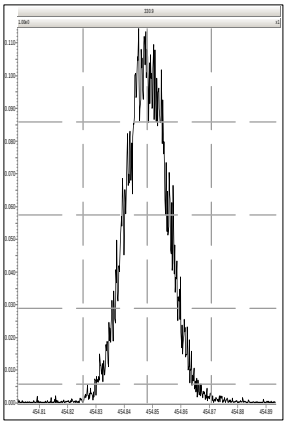

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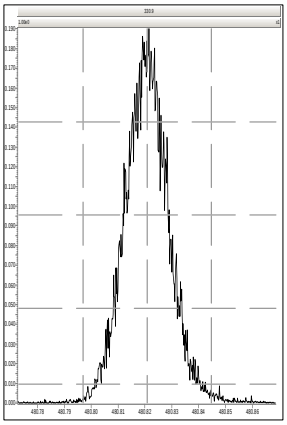

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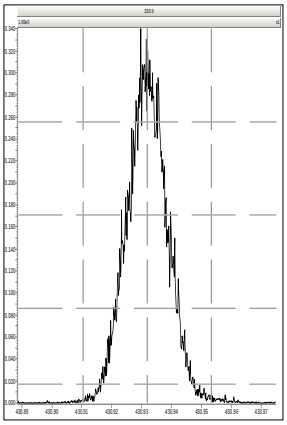

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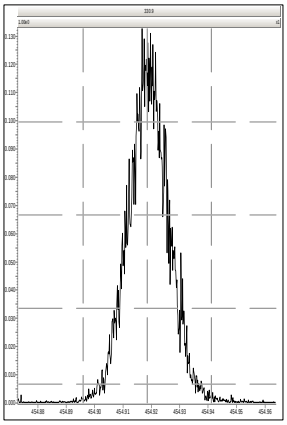

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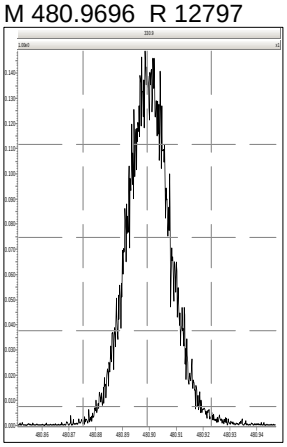

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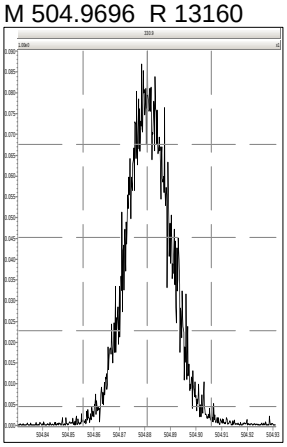

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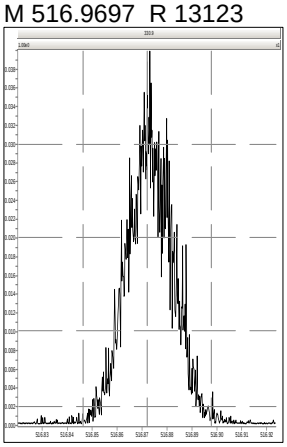
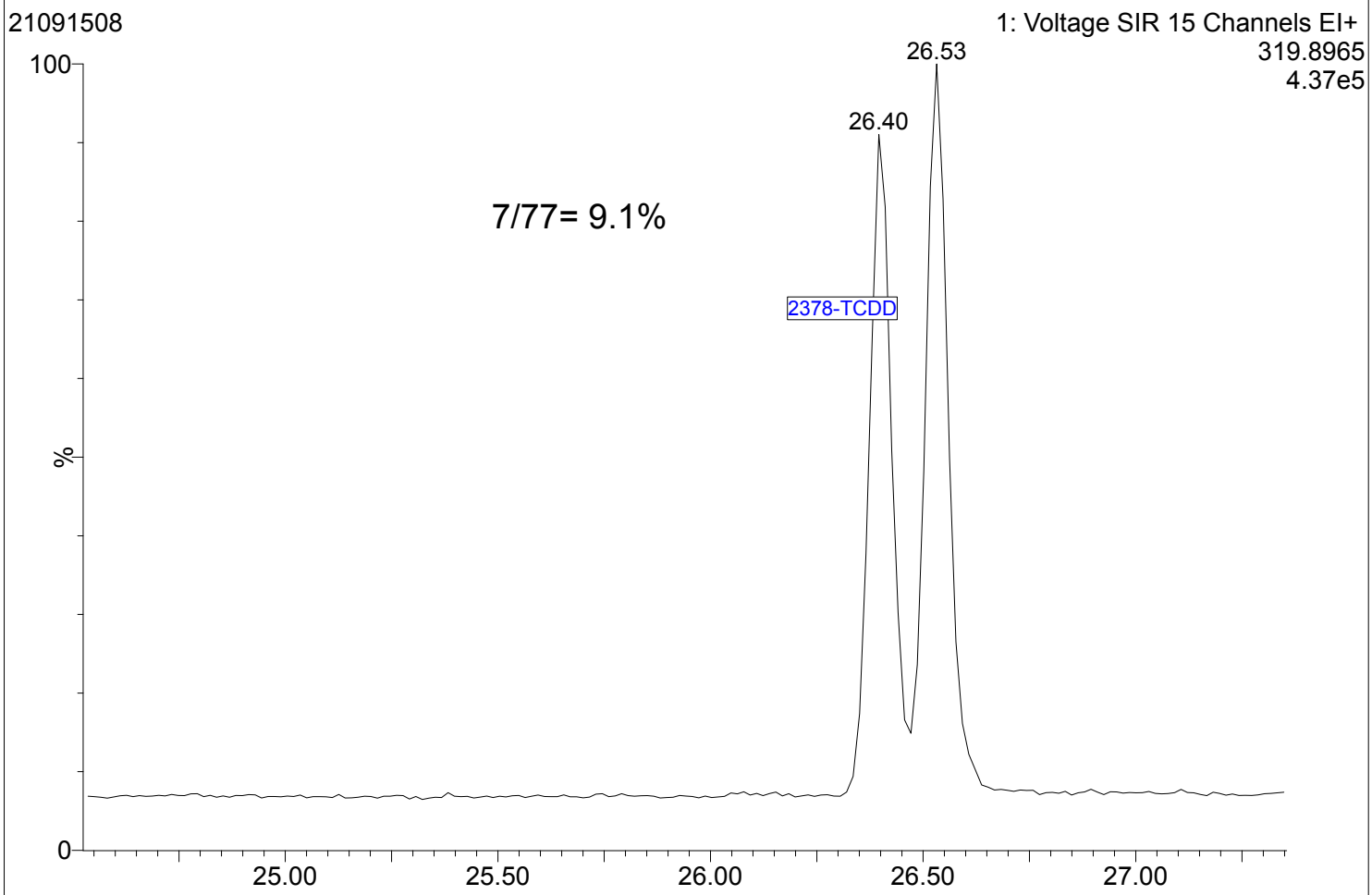
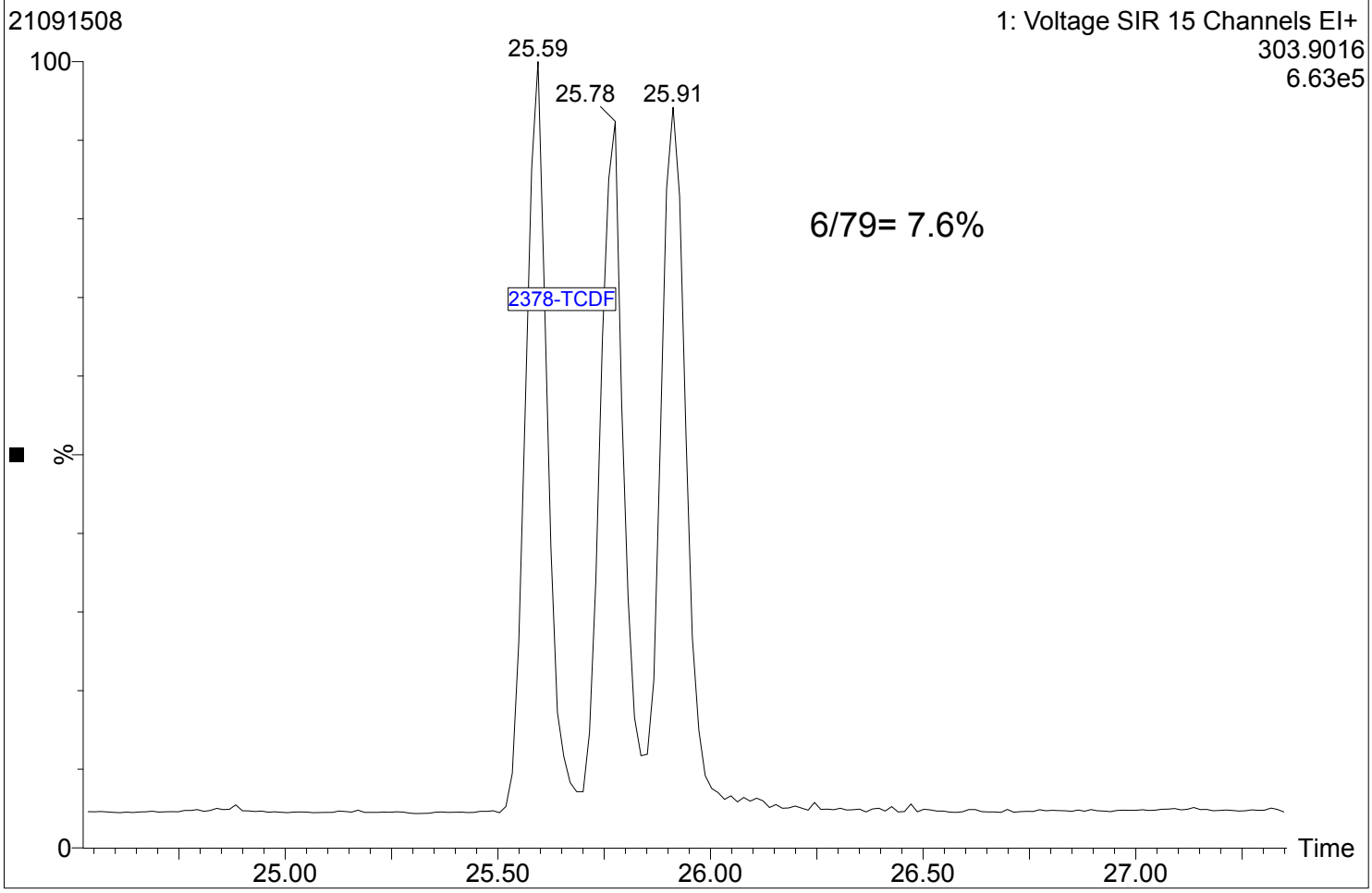



21091508
1: Voltage SIR 15 Channels EI+
319.8965
4.37e5
26.53
26.40
7/77= 9.1%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21091508
1: Voltage SIR 15 Channels EI+
303.9016
6.63e5
25.59
25.78
25.91
6/79= 7.6%
2378-TCDF
100
%
0
Time
25.00
25.50
26.00
26.50
27.00

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0127
Instrument .ID: AUTOSPEC01
Lab File ID: 21081103
Date Analyzed: 08/11/21
Time Analyzed: 16:41
Lab Sample ID: SJH0117-RES1
Sequence: SJH0117

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 9

3467-TCDF/2378-TCDF: 9

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
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SJH0117-RES1	ISCZ1	21081103	08/11/2021	16:41
SJH0117-CAL1	CSLCV	21081104A	08/11/2021	17:30
SJH0117-CAL2	CS1CV	21081107A	08/11/2021	19:56
SJH0117-CAL3	CS2CV	21081108A	08/11/2021	20:45
SJH0117-CAL4	CS3CV	21081109A	08/11/2021	21:34
SJH0117-CAL5	CS4CV	21081110A	08/11/2021	22:22
SJH0117-CAL6	CS5CV	21081111A	08/11/2021	23:11
SJH0117-SCV1	ICVCV	21081112A	08/12/2021	00:00
SJH0117-CCV1	CS3Z2	21081113B	08/12/2021	00:48
SJH0117-RES2	ISCZ2	21081114	08/12/2021	01:42

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0127
Instrument .ID: AUTOSPEC01
Lab File ID: 21081114
Date Analyzed: 08/12/21
Time Analyzed: 01:42
Lab Sample ID: SJH0117-RES2
Sequence: SJH0117

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 10.6

3467-TCDF/2378-TCDF: 11.1

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJH0117-ICV1	CS3Z1	21081102A	08/11/2021	15:52
SJH0117-RES1	ISCZ1	21081103	08/11/2021	16:41
SJH0117-CAL1	CSLCV	21081104A	08/11/2021	17:30
SJH0117-CAL2	CS1CV	21081107A	08/11/2021	19:56
SJH0117-CAL3	CS2CV	21081108A	08/11/2021	20:45
SJH0117-CAL4	CS3CV	21081109A	08/11/2021	21:34
SJH0117-CAL5	CS4CV	21081110A	08/11/2021	22:22
SJH0117-CAL6	CS5CV	21081111A	08/11/2021	23:11
SJH0117-SCV1	ICVCV	21081112A	08/12/2021	00:00
SJH0117-CCV1	CS3Z2	21081113B	08/12/2021	00:48
SJH0117-RES2	ISCZ2	21081114	08/12/2021	01:42

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0127
Instrument .ID: AUTOSPEC01
Lab File ID: 21082403
Date Analyzed: 08/24/21
Time Analyzed: 13:45
Lab Sample ID: SJH0304-RES1
Sequence: SJH0304

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 16.7

3467-TCDF/2378-TCDF: 13.2

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJH0304-ICV1	CS3L3	21082402	08/24/2021	12:52
SJH0304-RES1	ISCL3	21082403	08/24/2021	13:45
BJH0186-BLK1	Blank	21082409	08/24/2021	18:40
BJH0186-BS1	LCS	21082410	08/24/2021	19:29
BJH0186-SRM1	Reference	21082411	08/24/2021	20:18
BJH0186-DUP1	Duplicate	21082412	08/24/2021	21:07
SJH0304-CCV1	CS3L4	21082415	08/24/2021	23:34
SJH0304-RES2	ISCL4	21082416	08/25/2021	00:27
21G0127-01	LDW21-SS668	21082417	08/25/2021	01:18
21G0127-02	LDW21-SS667	21082418	08/25/2021	02:08
21G0127-03	LDW21-SS651	21082419	08/25/2021	02:56
21G0127-05	LDW21-SS633	21082420	08/25/2021	03:45
21G0127-08	LDW21-SS645	21082421	08/25/2021	04:34
21G0127-10	LDW21-SS656	21082422	08/25/2021	05:23
SJH0304-CCV2	CS3L5	21082425	08/25/2021	07:50
SJH0304-RES3	ISCL5	21082426	08/25/2021	08:43

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0127
Instrument .ID: AUTOSPEC01
Lab File ID: 21082416
Date Analyzed: 08/25/21
Time Analyzed: 00:27
Lab Sample ID: SJH0304-RES2
Sequence: SJH0304

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 16.5

3467-TCDF/2378-TCDF: 16

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJH0304-ICV1	CS3L3	21082402	08/24/2021	12:52
SJH0304-RES1	ISCL3	21082403	08/24/2021	13:45
BJH0186-BLK1	Blank	21082409	08/24/2021	18:40
BJH0186-BS1	LCS	21082410	08/24/2021	19:29
BJH0186-SRM1	Reference	21082411	08/24/2021	20:18
BJH0186-DUP1	Duplicate	21082412	08/24/2021	21:07
SJH0304-CCV1	CS3L4	21082415	08/24/2021	23:34
SJH0304-RES2	ISCL4	21082416	08/25/2021	00:27
21G0127-01	LDW21-SS668	21082417	08/25/2021	01:18
21G0127-02	LDW21-SS667	21082418	08/25/2021	02:08
21G0127-03	LDW21-SS651	21082419	08/25/2021	02:56
21G0127-05	LDW21-SS633	21082420	08/25/2021	03:45
21G0127-08	LDW21-SS645	21082421	08/25/2021	04:34
21G0127-10	LDW21-SS656	21082422	08/25/2021	05:23
SJH0304-CCV2	CS3L5	21082425	08/25/2021	07:50
SJH0304-RES3	ISCL5	21082426	08/25/2021	08:43

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0127
Instrument .ID: AUTOSPEC01
Lab File ID: 21082426
Date Analyzed: 08/25/21
Time Analyzed: 08:43
Lab Sample ID: SJH0304-RES3
Sequence: SJH0304

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 20.5

3467-TCDF/2378-TCDF: 15.7

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJH0304-ICV1	CS3L3	21082402	08/24/2021	12:52
SJH0304-RES1	ISCL3	21082403	08/24/2021	13:45
BJH0186-BLK1	Blank	21082409	08/24/2021	18:40
BJH0186-BS1	LCS	21082410	08/24/2021	19:29
BJH0186-SRM1	Reference	21082411	08/24/2021	20:18
BJH0186-DUP1	Duplicate	21082412	08/24/2021	21:07
SJH0304-CCV1	CS3L4	21082415	08/24/2021	23:34
SJH0304-RES2	ISCL4	21082416	08/25/2021	00:27
21G0127-01	LDW21-SS668	21082417	08/25/2021	01:18
21G0127-02	LDW21-SS667	21082418	08/25/2021	02:08
21G0127-03	LDW21-SS651	21082419	08/25/2021	02:56
21G0127-05	LDW21-SS633	21082420	08/25/2021	03:45
21G0127-08	LDW21-SS645	21082421	08/25/2021	04:34
21G0127-10	LDW21-SS656	21082422	08/25/2021	05:23
SJH0304-CCV2	CS3L5	21082425	08/25/2021	07:50
SJH0304-RES3	ISCL5	21082426	08/25/2021	08:43

Analytical Resources, Incorporated
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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0127
Instrument .ID: AUTOSPEC01
Lab File ID: 21091431
Date Analyzed: 09/15/21
Time Analyzed: 15:15
Lab Sample ID: SJI0232-RES1
Sequence: SJI0232

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 11.1

3467-TCDF/2378-TCDF: 7.5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0232-ICV1	CS3Q7	21091430A	09/15/2021	14:20
SJI0232-RES1	ISCQ7	21091431	09/15/2021	15:15
BJH0645-BLK1	Blank	21091501	09/15/2021	16:05
BJH0645-BS1	LCS	21091502	09/15/2021	16:54
BJH0645-SRM1	Reference	21091503	09/15/2021	17:43
BJH0645-DUP1	Duplicate	21091504	09/15/2021	18:32
21G0127-11RE1	LDW21-SS647	21091505	09/15/2021	19:21
21G0127-12RE1	LDW21-SS634	21091506	09/15/2021	20:10
SJI0232-CCV1	CS3Q8	21091507	09/15/2021	20:59
SJI0232-RES2	ISCQ8	21091508	09/15/2021	21:52

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0127
Instrument .ID: AUTOSPEC01
Lab File ID: 21091508
Date Analyzed: 09/15/21
Time Analyzed: 21:52
Lab Sample ID: SJI0232-RES2
Sequence: SJI0232

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 9.1

3467-TCDF/2378-TCDF: 7.6

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0232-ICV1	CS3Q7	21091430A	09/15/2021	14:20
SJI0232-RES1	ISCQ7	21091431	09/15/2021	15:15
BJH0645-BLK1	Blank	21091501	09/15/2021	16:05
BJH0645-BS1	LCS	21091502	09/15/2021	16:54
BJH0645-SRM1	Reference	21091503	09/15/2021	17:43
BJH0645-DUP1	Duplicate	21091504	09/15/2021	18:32
21G0127-11RE1	LDW21-SS647	21091505	09/15/2021	19:21
21G0127-12RE1	LDW21-SS634	21091506	09/15/2021	20:10
SJI0232-CCV1	CS3Q8	21091507	09/15/2021	20:59
SJI0232-RES2	ISCQ8	21091508	09/15/2021	21:52

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0117	Instrument:	AUTOSPEC01
		Calibration:	EH00030

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3Z1	SJH0117-ICV1	21081102A	NA	08/11/21 15:52
ISCZ1	SJH0117-RES1	21081103	NA	08/11/21 16:41
CSLCV	SJH0117-CAL1	21081104A	NA	08/11/21 17:30
CS1CV	SJH0117-CAL2	21081107A	NA	08/11/21 19:56
CS2CV	SJH0117-CAL3	21081108A	NA	08/11/21 20:45
CS3CV	SJH0117-CAL4	21081109A	NA	08/11/21 21:34
CS4CV	SJH0117-CAL5	21081110A	NA	08/11/21 22:22
CS5CV	SJH0117-CAL6	21081111A	NA	08/11/21 23:11
ICVCV	SJH0117-SCV1	21081112A	NA	08/12/21 00:00
CS3Z2	SJH0117-CCV1	21081113B	NA	08/12/21 00:48
ISCZ2	SJH0117-RES2	21081114	NA	08/12/21 01:42

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
		Calibration:	EH00030

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3L3	SJH0304-ICV1	21082402	NA	08/24/21 12:52
ISCL3	SJH0304-RES1	21082403	NA	08/24/21 13:45
Blank	BJH0186-BLK1	21082409	Solid	08/24/21 18:40
LCS	BJH0186-BS1	21082410	Solid	08/24/21 19:29
Reference	BJH0186-SRM1	21082411	Solid	08/24/21 20:18
LDW21-SS668	BJH0186-DUP1	21082412	Solid	08/24/21 21:07
CS3L4	SJH0304-CCV1	21082415	NA	08/24/21 23:34
ISCL4	SJH0304-RES2	21082416	NA	08/25/21 00:27
LDW21-SS668	21G0127-01	21082417	Solid	08/25/21 01:18
LDW21-SS667	21G0127-02	21082418	Solid	08/25/21 02:08
LDW21-SS651	21G0127-03	21082419	Solid	08/25/21 02:56
LDW21-SS633	21G0127-05	21082420	Solid	08/25/21 03:45
LDW21-SS645	21G0127-08	21082421	Solid	08/25/21 04:34
LDW21-SS656	21G0127-10	21082422	Solid	08/25/21 05:23
CS3L5	SJH0304-CCV2	21082425	NA	08/25/21 07:50
ISCL5	SJH0304-RES3	21082426	NA	08/25/21 08:43

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Printed: 8/25/2021 12:56:00PM

ANALYSIS SEQUENCE

SJH0304

Instrument: AUTOSPEC01 Element Column ID: J6459
Calibration ID: EH00030 Tune File: AUG2021_1
EM Voltage: 370 Resolution check times : 12:51, 00:27, 08:43

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SJH0304-ICV1	CS3L3	QC		1	J001522		08/24/2021 12:52	21082402	PK	
SJH0304-RES1	ISCL3	QC		2	J005595		08/24/2021 13:45	21082403	PK	
21G0082-13	LDW21-IT647-FD	1613B Dioxin	C 01	3		J005741	08/24/2021 14:36	21082404	PK	
21G0094-07	LDW21-IT651	1613B Dioxin	C 01	4		J005741	08/24/2021 15:24	21082405	PK	
21G0094-08	LDW21-IT651-FD	1613B Dioxin	C 01	5		J005741	08/24/2021 16:13	21082406	PK	
21G0094-10	LDW21-IT656	1613B Dioxin	C 01	6		J005741	08/24/2021 17:02	21082407	PK	
21G0094-15	LDW21-IT668	1613B Dioxin	C 01	7		J005741	08/24/2021 17:51	21082408	PK	
BJH0186-BLK1	Blank	QC		8		J005741	08/24/2021 18:40	21082409	PK	
BJH0186-BS1	LCS	QC		9		J005741	08/24/2021 19:29	21082410	PK	
BJH0186-SRM1	Reference	QC		10		J005741	08/24/2021 20:18	21082411	PK	
BJH0186-DUP1	Duplicate	QC		11		J005741	08/24/2021 21:07	21082412	PK	
21F0392-25RE1	T91-R1-ITESSComp2	1613B Dioxin	A 02	12		J005741	08/24/2021 21:56	21082413	PK	From BJG0187 by VTS on 06-Aug-2021
21F0442-07RE1	LDW21-SC564I	1613B Dioxin	B 03	13		J005741	08/24/2021 22:45	21082414	PK	From BJG0187 by VTS on 06-Aug-2021
SJH0304-CCV1	CS3L4	QC		14	J001522		08/24/2021 23:34	21082415	PK	
SJH0304-RES2	ISCL4	QC		15	J005595		08/25/2021 00:27	21082416	PK	
21G0127-01	LDW21-SS668	1613B Dioxin	A 01	16		J005741	08/25/2021 01:18	21082417	PK	
21G0127-02	LDW21-SS667	1613B Dioxin	A 01	17		J005741	08/25/2021 02:08	21082418	PK	
21G0127-03	LDW21-SS651	1613B Dioxin	A 01	18		J005741	08/25/2021 02:56	21082419	PK	
21G0127-05	LDW21-SS633	1613B Dioxin	A 01	19		J005741	08/25/2021 03:45	21082420	PK	
21G0127-08	LDW21-SS645	1613B Dioxin	A 01	20		J005741	08/25/2021 04:34	21082421	PK	
21G0127-10	LDW21-SS656	1613B Dioxin	A 01	21		J005741	08/25/2021 05:23	21082422	PK	
SJH0304-CCV2	CS3L5	QC		22	J001522		08/25/2021 07:50	21082425	PK	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/25/2021 12:56:00PM

ANALYSIS SEQUENCE

SJH0304

Instrument:	AUTOSPEC01	Element Column ID:	J6459
Calibration ID:	EH00030	Tune File:	AUG2021_1
EM Voltage:	370	Resolution check times :	12:51, 00:27, 08:43

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SJH0304-RES3	ISCL5	QC		23	J005595		08/25/2021 08:43	21082426	PK	

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:02:25 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:04:45 Pacific Daylight Time 8/25/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:21082404, Compound:HPF, RT:39.273	1
Pre modification peak	Sample:21082404, Compound:PD, RT:31.007	1
Peak modified	Sample:21082404, Compound:PD, RT:31.007	1
Peak deleted	Sample:21082404, Compound:PF, RT:28.010	1
Pre modification peak	Sample:21082404, Compound:PF, RT:30.762	1
Peak modified	Sample:21082404, Compound:PF, RT:30.762	1
Peak deleted	Sample:21082404, Compound:TD, RT:24.899	1
Peak deleted	Sample:21082404, Compound:TD, RT:25.912	1
Peak deleted	Sample:21082404, Compound:TF, RT:22.752	1
Pre modification peak	Sample:21082404, Compound:TF, RT:25.277	1
Peak modified	Sample:21082404, Compound:TF, RT:25.277	1
Peak modified	Sample:21082404, Compound:TF, RT:25.277	1
Peak deleted	Sample:21082405, Compound:HD, RT:33.269	2
Pre modification peak	Sample:21082405, Compound:PF, RT:29.448	2
Peak modified	Sample:21082405, Compound:PF, RT:29.448	2
Peak deleted	Sample:21082405, Compound:TD, RT:25.096	2
Peak deleted	Sample:21082405, Compound:TD, RT:25.715	2
Peak deleted	Sample:21082405, Compound:TD, RT:25.927	2
Peak deleted	Sample:21082405, Compound:TF, RT:21.799	2
Peak deleted	Sample:21082405, Compound:TF, RT:22.722	2
Peak deleted	Sample:21082405, Compound:TF, RT:23.024	2
Peak deleted	Sample:21082405, Compound:TF, RT:23.281	2
Peak deleted	Sample:21082405, Compound:TF, RT:23.689	2
Peak deleted	Sample:21082405, Compound:TF, RT:24.370	2
Peak deleted	Sample:21082405, Compound:TF, RT:24.899	2
Peak deleted	Sample:21082405, Compound:TF, RT:25.398	2
Peak deleted	Sample:21082406, Compound:HD, RT:33.269	3
Pre modification peak	Sample:21082406, Compound:HF, RT:35.475	3
Peak modified	Sample:21082406, Compound:HF, RT:35.475	3
Pre modification peak	Sample:21082406, Compound:HF, RT:35.486	3
Peak modified	Sample:21082406, Compound:HF, RT:35.486	3
Pre modification peak	Sample:21082406, Compound:HF, RT:36.489	3
Peak modified	Sample:21082406, Compound:HF, RT:36.489	3
Pre modification peak	Sample:21082406, Compound:PF, RT:29.436	3
Peak modified	Sample:21082406, Compound:PF, RT:29.436	3
Peak deleted	Sample:21082406, Compound:PF, RT:29.748	3
Peak deleted	Sample:21082406, Compound:TD, RT:24.551	3
Peak deleted	Sample:21082406, Compound:TF, RT:21.951	3
Pre modification peak	Sample:21082407, Compound:HF, RT:34.594	4
Peak modified	Sample:21082407, Compound:HF, RT:34.594	4
Peak deleted	Sample:21082407, Compound:HF, RT:35.140	4
Peak deleted	Sample:21082407, Compound:PD, RT:31.441	4
Pre modification peak	Sample:21082407, Compound:PF, RT:30.773	4
Peak modified	Sample:21082407, Compound:PF, RT:30.773	4
Peak deleted	Sample:21082407, Compound:TD, RT:24.566	4
Peak deleted	Sample:21082407, Compound:TD, RT:24.868	4
Peak deleted	Sample:21082407, Compound:TD, RT:25.609	4
Peak deleted	Sample:21082407, Compound:TD, RT:26.380	4
Peak deleted	Sample:21082407, Compound:TF, RT:24.052	4
Peak deleted	Sample:21082407, Compound:TF, RT:24.793	4
Pre modification peak	Sample:21082407, Compound:TF, RT:25.292	4

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:02:25 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:04:45 Pacific Daylight Time

Event	Details	Sample ID
Peak modified	Sample:21082407, Compound:TF, RT:25.292	4
Pre modification peak	Sample:21082408, Compound:HF, RT:34.595	5
Peak modified	Sample:21082408, Compound:HF, RT:34.595	5
Pre modification peak	Sample:21082408, Compound:PD, RT:31.030	5
Peak modified	Sample:21082408, Compound:PD, RT:31.030	5
Pre modification peak	Sample:21082408, Compound:PD, RT:31.052	5
Peak modified	Sample:21082408, Compound:PD, RT:31.052	5
Pre modification peak	Sample:21082408, Compound:PF, RT:28.378	5
Peak modified	Sample:21082408, Compound:PF, RT:28.378	5
Pre modification peak	Sample:21082408, Compound:PF, RT:28.389	5
Peak modified	Sample:21082408, Compound:PF, RT:28.389	5
Pre modification peak	Sample:21082408, Compound:TF, RT:25.050	5
Peak modified	Sample:21082408, Compound:TF, RT:25.050	5
Peak added	Sample:21082408, Compound:TF, RT:25.050	5
Peak added	Sample:21082408, Compound:TF, RT:25.050	5
Peak added	Sample:21082408, Compound:TF, RT:25.096	5
Peak added	Sample:21082408, Compound:TF, RT:25.111	5
Peak added	Sample:21082408, Compound:TF, RT:25.519	5
Peak added	Sample:21082408, Compound:TF, RT:25.519	5
Peak deleted	Sample:21082409, Compound:HPF, RT:38.361	6
Peak deleted	Sample:21082409, Compound:HPF, RT:40.522	6
Pre modification peak	Sample:21082409, Compound:OD, RT:44.456	6
Peak modified	Sample:21082409, Compound:OD, RT:44.456	6
Peak deleted	Sample:21082409, Compound:PD, RT:30.751	6
Peak deleted	Sample:21082409, Compound:TD, RT:25.912	6
Peak deleted	Sample:21082410, Compound:PF, RT:30.517	7
Peak deleted	Sample:21082411, Compound:HD, RT:33.280	8
Pre modification peak	Sample:21082411, Compound:HD, RT:36.099	8
Peak modified	Sample:21082411, Compound:HD, RT:36.099	8
Pre modification peak	Sample:21082411, Compound:HF, RT:35.453	8
Peak modified	Sample:21082411, Compound:HF, RT:35.453	8
Pre modification peak	Sample:21082411, Compound:PF, RT:30.774	8
Peak modified	Sample:21082411, Compound:PF, RT:30.774	8
Peak deleted	Sample:21082411, Compound:TF, RT:21.951	8
Peak deleted	Sample:21082411, Compound:TF, RT:22.797	8
Pre modification peak	Sample:21082412, Compound:HD, RT:36.098	9
Peak modified	Sample:21082412, Compound:HD, RT:36.098	9
Pre modification peak	Sample:21082412, Compound:HD, RT:36.110	9
Peak modified	Sample:21082412, Compound:HD, RT:36.110	9
Pre modification peak	Sample:21082412, Compound:HF, RT:35.464	9
Peak modified	Sample:21082412, Compound:HF, RT:35.464	9
Peak deleted	Sample:21082412, Compound:HPF, RT:40.354	9
Pre modification peak	Sample:21082412, Compound:PD, RT:31.018	9
Peak modified	Sample:21082412, Compound:PD, RT:31.018	9
Peak deleted	Sample:21082412, Compound:PF, RT:28.979	9
Pre modification peak	Sample:21082412, Compound:PF, RT:29.436	9
Peak modified	Sample:21082412, Compound:PF, RT:29.436	9
Pre modification peak	Sample:21082412, Compound:PF, RT:30.784	9
Peak modified	Sample:21082412, Compound:PF, RT:30.784	9
Peak deleted	Sample:21082412, Compound:TD, RT:24.233	9
Peak deleted	Sample:21082412, Compound:TF, RT:26.547	9
Peak added	Sample:21082413, Compound:HD, RT:35.675	10
Peak added	Sample:21082413, Compound:HD, RT:35.697	10
Pre modification peak	Sample:21082413, Compound:HD, RT:35.709	10
Peak modified	Sample:21082413, Compound:HD, RT:35.709	10

Dataset: T:\Autospec\Processed Data Batch\210824D1.qld
Last Altered: Wednesday, August 25, 2021 09:02:25 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 09:04:45 Pacific Daylight Time

Event	Details	Sample ID
Pre modification peak	Sample:21082413, Compound:HF, RT:35.430	10
Peak modified	Sample:21082413, Compound:HF, RT:35.430	10
Peak deleted	Sample:21082413, Compound:PD, RT:29.793	10
Peak deleted	Sample:21082413, Compound:PD, RT:31.018	10
Pre modification peak	Sample:21082413, Compound:PF, RT:29.414	10
Peak modified	Sample:21082413, Compound:PF, RT:29.414	10
Pre modification peak	Sample:21082413, Compound:PF, RT:30.773	10
Peak modified	Sample:21082413, Compound:PF, RT:30.773	10
Peak deleted	Sample:21082413, Compound:TD, RT:25.912	10
Peak deleted	Sample:21082413, Compound:TF, RT:23.372	10
Pre modification peak	Sample:21082413, Compound:TF, RT:25.065	10
Peak modified	Sample:21082413, Compound:TF, RT:25.065	10
Pre modification peak	Sample:21082413, Compound:TF, RT:25.080	10
Peak modified	Sample:21082413, Compound:TF, RT:25.080	10
Peak deleted	Sample:21082413, Compound:TF, RT:26.850	10
Pre modification peak	Sample:21082414, Compound:HF, RT:35.442	11
Peak modified	Sample:21082414, Compound:HF, RT:35.442	11
Peak added	Sample:21082414, Compound:PF, RT:28.378	11
Peak added	Sample:21082414, Compound:PF, RT:28.378	11
Pre modification peak	Sample:21082414, Compound:PF, RT:29.436	11
Peak modified	Sample:21082414, Compound:PF, RT:29.436	11
Pre modification peak	Sample:21082414, Compound:PF, RT:30.795	11
Peak modified	Sample:21082414, Compound:PF, RT:30.795	11
Peak added	Sample:21082414, Compound:TF, RT:23.946	11
Peak added	Sample:21082414, Compound:TF, RT:23.946	11
Peak deleted	Sample:21082416, Compound:13C-1234-TCDD, RT:25.080	13
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210824D1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210824D1.qld'	

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:37:15 Pacific Daylight Time 8/25/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Pre modification peak	Sample:21082417, Compound:PD, RT:31.007	1
Peak modified	Sample:21082417, Compound:PD, RT:31.007	1
Peak modified	Sample:21082417, Compound:PF, RT:30.774	1
Pre modification peak	Sample:21082417, Compound:PF, RT:30.796	1
Peak modified	Sample:21082417, Compound:PF, RT:30.796	1
Peak deleted	Sample:21082417, Compound:TD, RT:25.080	1
Peak deleted	Sample:21082417, Compound:TF, RT:24.763	1
Peak deleted	Sample:21082417, Compound:TF, RT:24.975	1
Pre modification peak	Sample:21082418, Compound:HF, RT:35.475	2
Peak modified	Sample:21082418, Compound:HF, RT:35.475	2
Pre modification peak	Sample:21082418, Compound:PD, RT:29.949	2
Peak modified	Sample:21082418, Compound:PD, RT:29.949	2
Pre modification peak	Sample:21082418, Compound:PD, RT:29.971	2
Peak modified	Sample:21082418, Compound:PD, RT:29.971	2
Pre modification peak	Sample:21082418, Compound:PD, RT:31.018	2
Peak modified	Sample:21082418, Compound:PD, RT:31.018	2
Pre modification peak	Sample:21082418, Compound:PD, RT:31.041	2
Peak modified	Sample:21082418, Compound:PD, RT:31.041	2
Pre modification peak	Sample:21082418, Compound:PD, RT:31.041	2
Peak modified	Sample:21082418, Compound:PD, RT:31.041	2
Peak deleted	Sample:21082418, Compound:TD, RT:25.927	2
Peak deleted	Sample:21082418, Compound:TD, RT:26.502	2
Peak deleted	Sample:21082418, Compound:TF, RT:22.918	2
Peak deleted	Sample:21082418, Compound:TF, RT:24.763	2
Pre modification peak	Sample:21082419, Compound:HF, RT:36.433	3
Peak modified	Sample:21082419, Compound:HF, RT:36.433	3
Pre modification peak	Sample:21082419, Compound:PF, RT:30.751	3
Peak modified	Sample:21082419, Compound:PF, RT:30.751	3
Peak deleted	Sample:21082419, Compound:TD, RT:23.508	3
Peak deleted	Sample:21082419, Compound:TD, RT:25.504	3
Peak deleted	Sample:21082419, Compound:TF, RT:26.532	3
Peak added	Sample:21082420, Compound:HF, RT:35.419	4
Pre modification peak	Sample:21082420, Compound:HF, RT:35.442	4
Peak modified	Sample:21082420, Compound:HF, RT:35.442	4
Peak added	Sample:21082420, Compound:HF, RT:35.442	4
Pre modification peak	Sample:21082420, Compound:HF, RT:36.455	4
Peak modified	Sample:21082420, Compound:HF, RT:36.455	4
Pre modification peak	Sample:21082420, Compound:PF, RT:29.403	4
Peak modified	Sample:21082420, Compound:PF, RT:29.403	4
Peak deleted	Sample:21082420, Compound:TF, RT:26.411	4
Pre modification peak	Sample:21082421, Compound:PD, RT:28.333	5
Peak modified	Sample:21082421, Compound:PD, RT:28.333	5
Pre modification peak	Sample:21082421, Compound:PD, RT:28.345	5
Peak modified	Sample:21082421, Compound:PD, RT:28.345	5
Peak deleted	Sample:21082421, Compound:TD, RT:23.946	5
Peak deleted	Sample:21082421, Compound:TD, RT:24.415	5
Peak deleted	Sample:21082421, Compound:TF, RT:22.344	5
Peak deleted	Sample:21082421, Compound:TF, RT:23.084	5
Peak deleted	Sample:21082421, Compound:TF, RT:24.778	5
Pre modification peak	Sample:21082422, Compound:HF, RT:36.467	6
Peak modified	Sample:21082422, Compound:HF, RT:36.467	6

Dataset: T:\Autospec\Processed Data Batch\210824D2.qld
Last Altered: Wednesday, August 25, 2021 12:19:48 Pacific Daylight Time
Printed: Wednesday, August 25, 2021 12:37:15 Pacific Daylight Time

Event	Details	Sample ID
Pre modification peak	Sample:21082422, Compound:HPF, RT:40.544	6
Peak modified	Sample:21082422, Compound:HPF, RT:40.544	6
Peak deleted	Sample:21082422, Compound:PD, RT:30.361	6
Peak deleted	Sample:21082422, Compound:PD, RT:31.386	6
Peak deleted	Sample:21082422, Compound:PD, RT:31.431	6
Pre modification peak	Sample:21082422, Compound:PF, RT:29.437	6
Peak modified	Sample:21082422, Compound:PF, RT:29.437	6
Peak deleted	Sample:21082422, Compound:PF, RT:29.826	6
Peak deleted	Sample:21082422, Compound:TD, RT:24.763	6
Peak deleted	Sample:21082422, Compound:TD, RT:25.912	6
Peak deleted	Sample:21082423, Compound:HF, RT:32.601	7
Pre modification peak	Sample:21082423, Compound:HF, RT:35.419	7
Peak modified	Sample:21082423, Compound:HF, RT:35.419	7
Pre modification peak	Sample:21082423, Compound:HF, RT:35.442	7
Peak modified	Sample:21082423, Compound:HF, RT:35.442	7
Pre modification peak	Sample:21082423, Compound:PD, RT:31.019	7
Peak modified	Sample:21082423, Compound:PD, RT:31.019	7
Pre modification peak	Sample:21082423, Compound:PD, RT:31.030	7
Peak modified	Sample:21082423, Compound:PD, RT:31.030	7
Peak deleted	Sample:21082423, Compound:PF, RT:29.403	7
Peak deleted	Sample:21082423, Compound:PF, RT:30.618	7
Pre modification peak	Sample:21082423, Compound:PF, RT:30.740	7
Peak modified	Sample:21082423, Compound:PF, RT:30.740	7
Pre modification peak	Sample:21082423, Compound:PF, RT:30.774	7
Peak modified	Sample:21082423, Compound:PF, RT:30.774	7
Peak deleted	Sample:21082423, Compound:TD, RT:23.296	7
Peak deleted	Sample:21082423, Compound:TD, RT:24.022	7
Peak deleted	Sample:21082423, Compound:TD, RT:25.912	7
Peak deleted	Sample:21082423, Compound:TF, RT:23.372	7
Peak deleted	Sample:21082423, Compound:TF, RT:25.504	7
Pre modification peak	Sample:21082424, Compound:HD, RT:36.077	8
Peak modified	Sample:21082424, Compound:HD, RT:36.077	8
Pre modification peak	Sample:21082424, Compound:HF, RT:34.561	8
Peak modified	Sample:21082424, Compound:HF, RT:34.561	8
Pre modification peak	Sample:21082424, Compound:HPF, RT:40.533	8
Peak modified	Sample:21082424, Compound:HPF, RT:40.533	8
Peak deleted	Sample:21082424, Compound:PD, RT:31.018	8
Peak deleted	Sample:21082424, Compound:PF, RT:28.333	8
Peak deleted	Sample:21082424, Compound:TF, RT:22.737	8
Peak deleted	Sample:21082424, Compound:TF, RT:22.979	8
Peak deleted	Sample:21082424, Compound:TF, RT:23.266	8
Peak deleted	Sample:21082424, Compound:TF, RT:25.277	8
Peak deleted	Sample:21082426, Compound:13C-1234-TCDD, RT:25.065	10
Peak deleted	Sample:21082426, Compound:13C-123789-HxCDD, RT:36.055	10
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210824D2.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210824D2.qld'	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0232	Instrument:	AUTOSPEC01
		Calibration:	EH00030

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3Q7	SJI0232-ICV1	21091430A	NA	09/15/21 14:20
ISCQ7	SJI0232-RES1	21091431	NA	09/15/21 15:15
Blank	BJH0645-BLK1	21091501	Solid	09/15/21 16:05
LCS	BJH0645-BS1	21091502	Solid	09/15/21 16:54
Reference	BJH0645-SRM1	21091503	Solid	09/15/21 17:43
LDW21-SS647	BJH0645-DUP1	21091504	Solid	09/15/21 18:32
LDW21-SS647	21G0127-11RE1	21091505	Solid	09/15/21 19:21
LDW21-SS634	21G0127-12RE1	21091506	Solid	09/15/21 20:10
CS3Q8	SJI0232-CCV1	21091507	NA	09/15/21 20:59
ISCQ8	SJI0232-RES2	21091508	NA	09/15/21 21:52

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Printed: 9/17/2021 11:04:52AM

ANALYSIS SEQUENCE

SJI0232

Instrument: AUTOSPEC01 Element Column ID: J6460
Calibration ID: EH00030 Tune File: SEP0321_1-5
EM Voltage: 350 Resolution check times : 15:14, 21:52, 05:20

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SJI0232-ICV1	CS3Q7	QC		1	J001522		09/15/2021 14:20	21091430A	PK	
SJI0232-RES1	ISCQ7	QC		2	J005595		09/15/2021 15:15	21091431	PK	
BJH0645-BLK1	Blank	QC		3		J005741	09/15/2021 16:05	21091501	PK	
BJH0645-BS1	LCS	QC		4		J005741	09/15/2021 16:54	21091502	PK	
BJH0645-SRM1	Reference	QC		5		J005741	09/15/2021 17:43	21091503	PK	
BJH0645-DUP1	Duplicate	QC		6		J005741	09/15/2021 18:32	21091504	PK	
21G0127-11RE1	LDW21-SS647	1613B Dioxin	A 02	7		J005741	09/15/2021 19:21	21091505	PK	From BJH0186 by NPL on 25-Aug-2021
21G0127-12RE1	LDW21-SS634	1613B Dioxin	A 02	8		J005741	09/15/2021 20:10	21091506	PK	From BJH0186 by NPL on 25-Aug-2021
SJI0232-CCV1	CS3Q8	QC		9	J001522		09/15/2021 20:59	21091507	PK	
SJI0232-RES2	ISCQ8	QC		10	J005595		09/15/2021 21:52	21091508	PK	
BJG0425-BLK1	Blank	QC		11		J005741	09/15/2021 22:43	21091509	PK	
BJG0425-BS1	LCS	QC		12		J005741	09/15/2021 23:33	21091510	PK	
BJG0425-BSD1	LCS Dup	QC		13		J005741	09/16/2021 00:22	21091511	PK	
21G0100-15	RM10W-EB01	8290 Dioxin	A 01	14		J005741	09/16/2021 01:11	21091512	PK	
21G0100-16	RM10W-EB02	8290 Dioxin	A 01	15		J005741	09/16/2021 02:00	21091513	PK	
21G0132-24	RM10W-EB03	8290 Dioxin	A 01	16		J005741	09/16/2021 02:49	21091514	PK	
21G0132-25	RM10W-EB04	8290 Dioxin	A 01	17		J005741	09/16/2021 03:38	21091515	PK	
SJI0232-CCV2	CS3Q9	QC		18	J001522		09/16/2021 04:27	21091516	PK	
SJI0232-RES3	ISCQ9	QC		19	J005595		09/16/2021 05:20	21091517	PK	

Dataset: T:\Autospec\Processed Data Batch\210915D1.qld
Last Altered: Thursday, September 16, 2021 13:55:57 Pacific Daylight Time
Printed: Thursday, September 16, 2021 13:56:55 Pacific Daylight Time 9/16/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:21091501, Compound:PF, RT:29.920	1
Peak deleted	Sample:21091501, Compound:TD, RT:26.395	1
Pre modification peak	Sample:21091504, Compound:HF, RT:36.929	4
Peak modified	Sample:21091504, Compound:HF, RT:36.929	4
Pre modification peak	Sample:21091505, Compound:HF, RT:35.870	5
Peak modified	Sample:21091505, Compound:HF, RT:35.870	5
Pre modification peak	Sample:21091505, Compound:HF, RT:35.903	5
Peak modified	Sample:21091505, Compound:HF, RT:35.903	5
Pre modification peak	Sample:21091505, Compound:HF, RT:35.903	5
Peak modified	Sample:21091505, Compound:HF, RT:35.903	5
Peak added	Sample:21091505, Compound:HF, RT:35.892	5
Peak added	Sample:21091505, Compound:HF, RT:35.903	5
Peak modified	Sample:21091505, Compound:HF, RT:35.903	5
Pre modification peak	Sample:21091506, Compound:PF, RT:29.910	6
Peak modified	Sample:21091506, Compound:PF, RT:29.910	6
Pre modification peak	Sample:21091506, Compound:HF, RT:35.870	6
Peak modified	Sample:21091506, Compound:HF, RT:35.870	6
Pre modification peak	Sample:21091506, Compound:TD, RT:26.396	6
Peak modified	Sample:21091506, Compound:TD, RT:26.396	6
Peak deleted	Sample:21091501, Compound:TD, RT:23.629	1
Peak deleted	Sample:21091501, Compound:HPD, RT:40.604	1
Peak deleted	Sample:21091502, Compound:PP, RT:28.029	2
Peak deleted	Sample:21091503, Compound:TF, RT:22.525	3
Peak deleted	Sample:21091503, Compound:TF, RT:22.404	3
Peak deleted	Sample:21091503, Compound:TF, RT:22.268	3
Peak deleted	Sample:21091503, Compound:TF, RT:23.281	3
Peak deleted	Sample:21091503, Compound:TF, RT:25.292	3
Peak added	Sample:21091503, Compound:TF, RT:24.853	3
Peak added	Sample:21091503, Compound:TF, RT:24.868	3
Peak added	Sample:21091503, Compound:PF, RT:30.154	3
Peak added	Sample:21091503, Compound:PF, RT:30.165	3
Peak deleted	Sample:21091503, Compound:TD, RT:26.547	3
Peak deleted	Sample:21091504, Compound:TF, RT:27.031	4
Peak deleted	Sample:21091504, Compound:PF, RT:29.475	4
Peak deleted	Sample:21091504, Compound:TD, RT:25.383	4
Peak deleted	Sample:21091505, Compound:TF, RT:24.324	5
Pre modification peak	Sample:21091505, Compound:PF, RT:28.840	5
Peak modified	Sample:21091505, Compound:PF, RT:28.840	5
Pre modification peak	Sample:21091505, Compound:PF, RT:28.851	5
Peak modified	Sample:21091505, Compound:PF, RT:28.851	5
Peak deleted	Sample:21091506, Compound:HD, RT:36.929	6
Peak modified	Sample:21091505, Compound:HF, RT:35.903	5
Pre modification peak	Sample:21091504, Compound:PD, RT:31.503	4
Peak modified	Sample:21091504, Compound:PD, RT:31.503	4
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210915D1.qld'	

Quantify Audit Report MassLynx MassLynx V4.1 SCN909

Dataset: T:\Autospec\Processed Data Batch\210915D2.qld
Last Altered: Friday, September 17, 2021 09:13:21 Pacific Daylight Time
Printed: Friday, September 17, 2021 09:14:48 Pacific Daylight Time

9/17/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:21091509, Compound:PF, RT:29.931	1
Pre modification peak	Sample:21091512, Compound:PF, RT:31.247	4
Peak modified	Sample:21091512, Compound:PF, RT:31.247	4
Peak deleted	Sample:21091512, Compound:HPF, RT:38.745	4
Peak deleted	Sample:21091512, Compound:TD, RT:26.396	4
Peak deleted	Sample:21091513, Compound:HF, RT:35.903	5
Peak deleted	Sample:21091515, Compound:OF, RT:45.234	7
Pre modification peak	Sample:21091513, Compound:OD, RT:45.005	5
Peak modified	Sample:21091513, Compound:OD, RT:45.005	5
Pre modification peak	Sample:21091514, Compound:OD, RT:44.996	6
Peak modified	Sample:21091514, Compound:OD, RT:44.996	6
Peak deleted	Sample:21091509, Compound:PP, RT:27.817	1
Pre modification peak	Sample:21091510, Compound:HD, RT:36.505	2
Peak modified	Sample:21091510, Compound:HD, RT:36.505	2
Peak deleted	Sample:21091514, Compound:TD, RT:25.761	6
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210915D2.qld'	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0117	Instrument:	AUTOSPEC01
Sample ID:	SJH0117-ICV1	Calibration:	EH00030
File ID:	21081102A	Analyzed:	08/11/21 15:52

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	97.0	71 - 129	25.6548	25.63973	0.0151	N/A	
13C12-2,3,7,8-TCDD	100.00	98.2	82 - 118	26.305	26.27478	0.0302	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	101	76 - 124	29.817	29.80383	0.0132	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	98.5	77 - 123	31.1652	31.14815	0.0170	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	97.6	62 - 138	31.4215	31.40067	0.0208	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	100	76 - 124	34.7862	34.782	0.0042	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	97.8	70 - 130	34.931	34.91943	0.0116	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	97.5	73 - 127	35.8	35.7884	0.0116	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	101	74 - 126	36.825	36.8227	0.0023	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	102	85 - 115	35.9225	35.90912	0.0134	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	98.4	85 - 115	36.0338	36.0242	0.0096	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	104	78 - 122	38.6745	38.67025	0.0042	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	98.3	77 - 123	40.914	40.90587	0.0081	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	100	72 - 128	40.1675	40.16678	0.0007	N/A	
13C12-OCDD	200.00	96.1	48 - 152	44.8948	44.88763	0.0072	N/A	
37Cl4-2,3,7,8-TCDD	10.000	91.0	0 - 200	26.3202	26.30253	0.0177	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0117	Instrument:	AUTOSPEC01
Sample ID:	SJH0117-SCV1	Calibration:	EH00030
File ID:	21081112A	Analyzed:	08/12/21 00:00

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	102	0 - 200	25.6397	25.63973	0.0000	N/A	
13C12-2,3,7,8-TCDD	100.00	81.6	0 - 200	26.2747	26.27478	-0.0001	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	105	0 - 200	29.8055	29.80383	0.0017	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	104	0 - 200	31.1423	31.14815	-0.0059	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	98.4	0 - 200	31.3985	31.40067	-0.0022	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	116	0 - 200	34.7853	34.782	0.0033	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	119	0 - 200	34.9192	34.91943	-0.0002	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	109	0 - 200	35.7882	35.7884	-0.0002	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	113	0 - 200	36.8243	36.8227	0.0016	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	114	0 - 200	35.9107	35.90912	0.0016	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	119	0 - 200	36.022	36.0242	-0.0022	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	114	0 - 200	38.6735	38.67025	0.0032	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	110	0 - 200	40.9018	40.90587	-0.0041	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	110	0 - 200	40.1665	40.16678	-0.0003	N/A	
13C12-OCDD	200.00	106	0 - 200	44.8842	44.88763	-0.0034	N/A	
37Cl4-2,3,7,8-TCDD	10.000	104	0 - 200	26.3048	26.30253	0.0023	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0117	Instrument:	AUTOSPEC01
Sample ID:	SJH0117-CCV1	Calibration:	EH00030
File ID:	21081113B	Analyzed:	08/12/21 00:48

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	98.0	71 - 129	25.6397	25.63973	0.0000	N/A	
13C12-2,3,7,8-TCDD	100.00	97.1	82 - 118	26.2747	26.27478	-0.0001	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	97.5	76 - 124	29.8055	29.80383	0.0017	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	97.1	77 - 123	31.1425	31.14815	-0.0057	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	98.0	62 - 138	31.3987	31.40067	-0.0020	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	101	76 - 124	34.7857	34.782	0.0037	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	102	70 - 130	34.9193	34.91943	-0.0001	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	101	73 - 127	35.7883	35.7884	-0.0001	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	102	74 - 126	36.8243	36.8227	0.0016	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	100	85 - 115	35.9108	35.90912	0.0017	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	99.6	85 - 115	36.0223	36.0242	-0.0019	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	105	78 - 122	38.6738	38.67025	0.0035	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	102	77 - 123	40.9018	40.90587	-0.0041	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	106	72 - 128	40.1667	40.16678	-0.0001	N/A	
13C12-OCDD	200.00	101	48 - 152	44.884	44.88763	-0.0036	N/A	
37Cl4-2,3,7,8-TCDD	10.000	91.3	0 - 200	26.305	26.30253	0.0025	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	SJH0304-ICV1	Calibration:	EH00030
File ID:	21082402	Analyzed:	08/24/21 12:52

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	105	71 - 129	25.2467	25.63973	-0.3930	N/A	
13C12-2,3,7,8-TCDD	100.00	99.3	82 - 118	25.8817	26.27478	-0.3931	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	107	76 - 124	29.403	29.80383	-0.4008	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	105	77 - 123	30.751	31.14815	-0.3972	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	105	62 - 138	30.9962	31.40067	-0.4045	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	91.2	76 - 124	34.4053	34.782	-0.3767	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	90.9	70 - 130	34.5392	34.91943	-0.3802	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	90.3	73 - 127	35.4303	35.7884	-0.3581	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	90.7	74 - 126	36.4553	36.8227	-0.3674	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	99.8	85 - 115	35.5417	35.90912	-0.3674	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	98.9	85 - 115	35.6532	36.0242	-0.3710	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	78 - 122	38.3383	38.67025	-0.3320	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	102	77 - 123	40.522	40.90587	-0.3839	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	103	72 - 128	39.7978	40.16678	-0.3690	N/A	
13C12-OCDD	200.00	115	48 - 152	44.4183	44.88763	-0.4693	N/A	
37Cl4-2,3,7,8-TCDD	10.000	92.9	0 - 200	25.9118	26.30253	-0.3907	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	BJH0186-BLK1	Calibration:	EH00030
File ID:	21082409	Analyzed:	08/24/21 18:40

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	91.6	24 - 169	25.2467	25.63973	-0.3930	N/A	
13C12-2,3,7,8-TCDD	200.00	96.3	25 - 164	25.8968	26.27478	-0.3780	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	103	24 - 185	29.4143	29.80383	-0.3895	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	101	21 - 178	30.7515	31.14815	-0.3967	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	101	25 - 181	31.0077	31.40067	-0.3930	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	87.1	26 - 152	34.417	34.782	-0.3650	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	81.8	26 - 123	34.5507	34.91943	-0.3687	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	83.2	28 - 136	35.4308	35.7884	-0.3576	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	88.2	29 - 147	36.467	36.8227	-0.3557	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	95.1	32 - 141	35.5533	35.90912	-0.3558	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	91.2	28 - 130	35.6647	36.0242	-0.3595	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	93.7	28 - 143	38.35	38.67025	-0.3203	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	96.9	26 - 138	40.5225	40.90587	-0.3834	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	97.7	23 - 140	39.8095	40.16678	-0.3573	N/A	
13C12-OCDD	400.00	115	17 - 157	44.4373	44.88763	-0.4503	N/A	
37Cl4-2,3,7,8-TCDD	80.000	96.1	35 - 197	25.912	26.30253	-0.3905	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	BJH0186-BS1	Calibration:	EH00030
File ID:	21082410	Analyzed:	08/24/21 19:29

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	74.4	24 - 169	25.2617	25.63973	-0.3780	N/A	
13C12-2,3,7,8-TCDD	200.00	77.3	25 - 164	25.8967	26.27478	-0.3781	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	91.9	24 - 185	29.4142	29.80383	-0.3896	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	91.1	21 - 178	30.7623	31.14815	-0.3859	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	90.5	25 - 181	31.0075	31.40067	-0.3932	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	82.2	26 - 152	34.4167	34.782	-0.3653	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	78.1	26 - 123	34.5503	34.91943	-0.3691	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	79.4	28 - 136	35.4417	35.7884	-0.3467	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	84.2	29 - 147	36.4777	36.8227	-0.3450	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	89.6	32 - 141	35.553	35.90912	-0.3561	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	87.1	28 - 130	35.6755	36.0242	-0.3487	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	90.3	28 - 143	38.3493	38.67025	-0.3210	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	90.9	26 - 138	40.533	40.90587	-0.3729	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	92.2	23 - 140	39.82	40.16678	-0.3468	N/A	
13C12-OCDD	400.00	106	17 - 157	44.4365	44.88763	-0.4511	N/A	
37Cl4-2,3,7,8-TCDD	80.000	73.6	35 - 197	25.9118	26.30253	-0.3907	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	BJH0186-SRM1	Calibration:	EH00030
File ID:	21082411	Analyzed:	08/24/21 20:18

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	396.04	69.9	24 - 169	25.2618	25.63973	-0.3779	N/A	
13C12-2,3,7,8-TCDD	396.04	75.8	25 - 164	25.8968	26.27478	-0.3780	N/A	
13C12-1,2,3,7,8-PeCDF	396.04	87.4	24 - 185	29.4255	29.80383	-0.3783	N/A	
13C12-2,3,4,7,8-PeCDF	396.04	89.5	21 - 178	30.7623	31.14815	-0.3859	N/A	
13C12-1,2,3,7,8-PeCDD	396.04	87.7	25 - 181	31.0187	31.40067	-0.3820	N/A	
13C12-1,2,3,4,7,8-HxCDF	396.04	77.2	26 - 152	34.428	34.782	-0.3540	N/A	
13C12-1,2,3,6,7,8-HxCDF	396.04	73.2	26 - 123	34.5617	34.91943	-0.3577	N/A	
13C12-2,3,4,6,7,8-HxCDF	396.04	77.1	28 - 136	35.453	35.7884	-0.3354	N/A	
13C12-1,2,3,7,8,9-HxCDF	396.04	83.4	29 - 147	36.478	36.8227	-0.3447	N/A	
13C12-1,2,3,4,7,8-HxCDD	396.04	85.7	32 - 141	35.5755	35.90912	-0.3336	N/A	
13C12-1,2,3,6,7,8-HxCDD	396.04	80.3	28 - 130	35.687	36.0242	-0.3372	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	396.04	82.3	28 - 143	38.361	38.67025	-0.3093	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	396.04	85.8	26 - 138	40.5447	40.90587	-0.3612	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	396.04	85.0	23 - 140	39.8205	40.16678	-0.3463	N/A	
13C12-OCDD	792.08	95.2	17 - 157	44.4463	44.88763	-0.4413	N/A	
37Cl4-2,3,7,8-TCDD	158.42	72.6	35 - 197	25.927	26.30253	-0.3755	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	BJH0186-DUP1	Calibration:	EH00030
File ID:	21082412	Analyzed:	08/24/21 21:07

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.09	81.8	24 - 169	25.2617	25.63973	-0.3780	N/A	
13C12-2,3,7,8-TCDD	200.09	84.4	25 - 164	25.8967	26.27478	-0.3781	N/A	
13C12-1,2,3,7,8-PeCDF	200.09	82.9	24 - 185	29.4252	29.80383	-0.3786	N/A	
13C12-2,3,4,7,8-PeCDF	200.09	83.0	21 - 178	30.762	31.14815	-0.3862	N/A	
13C12-1,2,3,7,8-PeCDD	200.09	81.2	25 - 181	31.0183	31.40067	-0.3824	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.09	69.3	26 - 152	34.4273	34.782	-0.3547	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.09	66.4	26 - 123	34.561	34.91943	-0.3584	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.09	67.6	28 - 136	35.4635	35.7884	-0.3249	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.09	74.6	29 - 147	36.4773	36.8227	-0.3454	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.09	77.2	32 - 141	35.586	35.90912	-0.3231	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.09	73.1	28 - 130	35.6975	36.0242	-0.3267	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.09	70.0	28 - 143	38.349	38.67025	-0.3213	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.09	76.1	26 - 138	40.5327	40.90587	-0.3732	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.09	75.2	23 - 140	39.8197	40.16678	-0.3471	N/A	
13C12-OCDD	400.17	81.5	17 - 157	44.445	44.88763	-0.4426	N/A	
37Cl4-2,3,7,8-TCDD	80.035	89.0	35 - 197	25.9117	26.30253	-0.3908	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	SJH0304-CCV1	Calibration:	EH00030
File ID:	21082415	Analyzed:	08/24/21 23:34

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	108	71 - 129	25.2465	25.63973	-0.3932	N/A	
13C12-2,3,7,8-TCDD	100.00	105	82 - 118	25.8817	26.27478	-0.3931	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	110	76 - 124	29.4028	29.80383	-0.4010	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	110	77 - 123	30.7398	31.14815	-0.4084	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	106	62 - 138	30.9962	31.40067	-0.4045	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	89.7	76 - 124	34.4052	34.782	-0.3768	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	86.1	70 - 130	34.539	34.91943	-0.3804	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	88.4	73 - 127	35.4192	35.7884	-0.3692	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	93.4	74 - 126	36.4552	36.8227	-0.3675	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.2	85 - 115	35.5417	35.90912	-0.3674	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	95.0	85 - 115	35.6642	36.0242	-0.3600	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	103	78 - 122	38.338	38.67025	-0.3323	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	104	77 - 123	40.5217	40.90587	-0.3842	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	106	72 - 128	39.8087	40.16678	-0.3581	N/A	
13C12-OCDD	200.00	123	48 - 152	44.4272	44.88763	-0.4604	N/A	
37Cl4-2,3,7,8-TCDD	10.000	100	0 - 200	25.8967	26.30253	-0.4058	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	21G0127-01	Calibration:	EH00030
File ID:	21082417	Analyzed:	08/25/21 01:18

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.44	75.3	24 - 169	25.2467	25.63973	-0.3930	N/A	
13C12-2,3,7,8-TCDD	199.44	75.5	25 - 164	25.8817	26.27478	-0.3931	N/A	
13C12-1,2,3,7,8-PeCDF	199.44	77.2	24 - 185	29.4142	29.80383	-0.3896	N/A	
13C12-2,3,4,7,8-PeCDF	199.44	77.6	21 - 178	30.7512	31.14815	-0.3970	N/A	
13C12-1,2,3,7,8-PeCDD	199.44	74.1	25 - 181	31.0075	31.40067	-0.3932	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.44	65.2	26 - 152	34.4167	34.782	-0.3653	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.44	62.5	26 - 123	34.5615	34.91943	-0.3579	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.44	64.8	28 - 136	35.464	35.7884	-0.3244	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.44	67.7	29 - 147	36.4667	36.8227	-0.3560	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.44	71.7	32 - 141	35.5865	35.90912	-0.3226	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.44	69.4	28 - 130	35.6978	36.0242	-0.3264	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.44	70.4	28 - 143	38.3495	38.67025	-0.3208	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.44	70.6	26 - 138	40.522	40.90587	-0.3839	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.44	73.1	23 - 140	39.809	40.16678	-0.3578	N/A	
13C12-OCDD	398.89	85.8	17 - 157	44.4365	44.88763	-0.4511	N/A	
37Cl4-2,3,7,8-TCDD	79.777	87.5	35 - 197	25.9118	26.30253	-0.3907	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	21G0127-02	Calibration:	EH00030
File ID:	21082418	Analyzed:	08/25/21 02:08

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.48	90.9	24 - 169	25.2467	25.63973	-0.3930	N/A	
13C12-2,3,7,8-TCDD	199.48	91.2	25 - 164	25.8968	26.27478	-0.3780	N/A	
13C12-1,2,3,7,8-PeCDF	199.48	96.6	24 - 185	29.4142	29.80383	-0.3896	N/A	
13C12-2,3,4,7,8-PeCDF	199.48	97.0	21 - 178	30.7512	31.14815	-0.3970	N/A	
13C12-1,2,3,7,8-PeCDD	199.48	94.4	25 - 181	31.0073	31.40067	-0.3934	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.48	77.5	26 - 152	34.4167	34.782	-0.3653	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.48	74.5	26 - 123	34.5615	34.91943	-0.3579	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.48	76.5	28 - 136	35.4527	35.7884	-0.3357	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.48	84.7	29 - 147	36.4665	36.8227	-0.3562	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.48	86.1	32 - 141	35.5753	35.90912	-0.3338	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.48	83.8	28 - 130	35.6867	36.0242	-0.3375	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.48	88.5	28 - 143	38.3495	38.67025	-0.3208	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.48	89.8	26 - 138	40.522	40.90587	-0.3839	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.48	88.3	23 - 140	39.809	40.16678	-0.3578	N/A	
13C12-OCDD	398.97	107	17 - 157	44.4368	44.88763	-0.4508	N/A	
37Cl4-2,3,7,8-TCDD	79.793	91.8	35 - 197	25.912	26.30253	-0.3905	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	21G0127-03	Calibration:	EH00030
File ID:	21082419	Analyzed:	08/25/21 02:56

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.97	84.4	24 - 169	25.2467	25.63973	-0.3930	N/A	
13C12-2,3,7,8-TCDD	199.97	84.7	25 - 164	25.8817	26.27478	-0.3931	N/A	
13C12-1,2,3,7,8-PeCDF	199.97	85.9	24 - 185	29.403	29.80383	-0.4008	N/A	
13C12-2,3,4,7,8-PeCDF	199.97	85.0	21 - 178	30.751	31.14815	-0.3972	N/A	
13C12-1,2,3,7,8-PeCDD	199.97	82.6	25 - 181	31.0073	31.40067	-0.3934	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.97	72.5	26 - 152	34.4053	34.782	-0.3767	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.97	69.1	26 - 123	34.5502	34.91943	-0.3692	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.97	69.7	28 - 136	35.4303	35.7884	-0.3581	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.97	76.8	29 - 147	36.4663	36.8227	-0.3564	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.97	78.8	32 - 141	35.5528	35.90912	-0.3563	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.97	76.1	28 - 130	35.6643	36.0242	-0.3599	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.97	76.6	28 - 143	38.338	38.67025	-0.3323	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.97	78.0	26 - 138	40.5217	40.90587	-0.3842	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.97	79.0	23 - 140	39.8087	40.16678	-0.3581	N/A	
13C12-OCDD	399.94	85.9	17 - 157	44.4363	44.88763	-0.4513	N/A	
37Cl4-2,3,7,8-TCDD	79.987	92.7	35 - 197	25.8967	26.30253	-0.4058	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	21G0127-05	Calibration:	EH00030
File ID:	21082420	Analyzed:	08/25/21 03:45

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.06	68.8	24 - 169	25.2467	25.63973	-0.3930	N/A	
13C12-2,3,7,8-TCDD	199.06	70.6	25 - 164	25.8817	26.27478	-0.3931	N/A	
13C12-1,2,3,7,8-PeCDF	199.06	76.5	24 - 185	29.403	29.80383	-0.4008	N/A	
13C12-2,3,4,7,8-PeCDF	199.06	77.6	21 - 178	30.7512	31.14815	-0.3970	N/A	
13C12-1,2,3,7,8-PeCDD	199.06	75.6	25 - 181	31.0073	31.40067	-0.3934	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.06	63.7	26 - 152	34.4053	34.782	-0.3767	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.06	61.1	26 - 123	34.5502	34.91943	-0.3692	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.06	62.4	28 - 136	35.4415	35.7884	-0.3469	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.06	69.4	29 - 147	36.4663	36.8227	-0.3564	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.06	71.5	32 - 141	35.5528	35.90912	-0.3563	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.06	66.1	28 - 130	35.6753	36.0242	-0.3489	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.06	69.0	28 - 143	38.338	38.67025	-0.3323	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.06	73.1	26 - 138	40.5218	40.90587	-0.3841	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.06	72.0	23 - 140	39.8087	40.16678	-0.3581	N/A	
13C12-OCDD	398.12	84.6	17 - 157	44.4363	44.88763	-0.4513	N/A	
37Cl4-2,3,7,8-TCDD	79.625	88.7	35 - 197	25.8967	26.30253	-0.4058	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	21G0127-08	Calibration:	EH00030
File ID:	21082421	Analyzed:	08/25/21 04:34

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.05	58.4	24 - 169	25.2467	25.63973	-0.3930	N/A	
13C12-2,3,7,8-TCDD	200.05	60.9	25 - 164	25.8817	26.27478	-0.3931	N/A	
13C12-1,2,3,7,8-PeCDF	200.05	64.7	24 - 185	29.4032	29.80383	-0.4006	N/A	
13C12-2,3,4,7,8-PeCDF	200.05	64.7	21 - 178	30.7512	31.14815	-0.3970	N/A	
13C12-1,2,3,7,8-PeCDD	200.05	63.0	25 - 181	31.0075	31.40067	-0.3932	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.05	54.9	26 - 152	34.4055	34.782	-0.3765	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.05	52.9	26 - 123	34.5503	34.91943	-0.3691	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.05	53.6	28 - 136	35.4417	35.7884	-0.3467	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.05	58.7	29 - 147	36.4667	36.8227	-0.3560	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.05	61.5	32 - 141	35.5532	35.90912	-0.3559	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.05	56.8	28 - 130	35.6757	36.0242	-0.3485	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.05	60.4	28 - 143	38.3495	38.67025	-0.3208	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.05	63.3	26 - 138	40.5218	40.90587	-0.3841	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.05	60.6	23 - 140	39.809	40.16678	-0.3578	N/A	
13C12-OCDD	400.09	69.8	17 - 157	44.4363	44.88763	-0.4513	N/A	
37Cl4-2,3,7,8-TCDD	80.018	77.9	35 - 197	25.9118	26.30253	-0.3907	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	21G0127-10	Calibration:	EH00030
File ID:	21082422	Analyzed:	08/25/21 05:23

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.32	58.2	24 - 169	25.2467	25.63973	-0.3930	N/A	
13C12-2,3,7,8-TCDD	200.32	62.8	25 - 164	25.8817	26.27478	-0.3931	N/A	
13C12-1,2,3,7,8-PeCDF	200.32	69.2	24 - 185	29.4142	29.80383	-0.3896	N/A	
13C12-2,3,4,7,8-PeCDF	200.32	68.8	21 - 178	30.7513	31.14815	-0.3969	N/A	
13C12-1,2,3,7,8-PeCDD	200.32	67.3	25 - 181	31.0075	31.40067	-0.3932	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.32	59.3	26 - 152	34.4168	34.782	-0.3652	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.32	56.7	26 - 123	34.5617	34.91943	-0.3577	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.32	58.5	28 - 136	35.4528	35.7884	-0.3356	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.32	63.0	29 - 147	36.4667	36.8227	-0.3560	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.32	65.1	32 - 141	35.5753	35.90912	-0.3338	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.32	63.8	28 - 130	35.6978	36.0242	-0.3264	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.32	62.2	28 - 143	38.3495	38.67025	-0.3208	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.32	63.1	26 - 138	40.5332	40.90587	-0.3727	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.32	63.2	23 - 140	39.809	40.16678	-0.3578	N/A	
13C12-OCDD	400.65	69.6	17 - 157	44.4367	44.88763	-0.4509	N/A	
37Cl4-2,3,7,8-TCDD	80.129	63.5	35 - 197	25.9118	26.30253	-0.3907	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0304	Instrument:	AUTOSPEC01
Sample ID:	SJH0304-CCV2	Calibration:	EH00030
File ID:	21082425	Analyzed:	08/25/21 07:50

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	105	71 - 129	25.2315	25.63973	-0.4082	N/A	
13C12-2,3,7,8-TCDD	100.00	102	82 - 118	25.8817	26.27478	-0.3931	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	108	76 - 124	29.403	29.80383	-0.4008	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	106	77 - 123	30.7397	31.14815	-0.4085	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	102	62 - 138	30.996	31.40067	-0.4047	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	89.3	76 - 124	34.4052	34.782	-0.3768	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	87.5	70 - 130	34.5388	34.91943	-0.3806	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	89.3	73 - 127	35.4302	35.7884	-0.3582	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	91.9	74 - 126	36.455	36.8227	-0.3677	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.5	85 - 115	35.5415	35.90912	-0.3676	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	96.0	85 - 115	35.653	36.0242	-0.3712	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	104	78 - 122	38.338	38.67025	-0.3323	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	105	77 - 123	40.5217	40.90587	-0.3842	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	103	72 - 128	39.7975	40.16678	-0.3693	N/A	
13C12-OCDD	200.00	122	48 - 152	44.427	44.88763	-0.4606	N/A	
37Cl4-2,3,7,8-TCDD	10.000	97.0	0 - 200	25.8968	26.30253	-0.4057	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0232	Instrument:	AUTOSPEC01
Sample ID:	SJI0232-ICV1	Calibration:	EH00030
File ID:	21091430A	Analyzed:	09/15/21 14:20

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	113	71 - 129	25.7455	25.63973	0.1058	N/A	
13C12-2,3,7,8-TCDD	100.00	103	82 - 118	26.3807	26.27478	0.1059	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	102	76 - 124	29.898	29.80383	0.0942	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	101	77 - 123	31.2462	31.14815	0.0981	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	92.5	62 - 138	31.4912	31.40067	0.0905	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.0	76 - 124	34.8668	34.782	0.0848	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	90.4	70 - 130	35.0007	34.91943	0.0813	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	89.8	73 - 127	35.8808	35.7884	0.0924	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	91.2	74 - 126	36.9058	36.8227	0.0831	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.2	85 - 115	35.981	35.90912	0.0719	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	93.9	85 - 115	36.0925	36.0242	0.0683	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	95.4	78 - 122	38.7442	38.67025	0.0739	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	91.8	77 - 123	40.9947	40.90587	0.0888	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	92.2	72 - 128	40.2483	40.16678	0.0815	N/A	
13C12-OCDD	200.00	89.0	48 - 152	44.9772	44.88763	0.0896	N/A	
37Cl4-2,3,7,8-TCDD	10.000	104	0 - 200	26.3957	26.30253	0.0932	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0232	Instrument:	AUTOSPEC01
Sample ID:	BJH0645-BLK1	Calibration:	EH00030
File ID:	21091501	Analyzed:	09/15/21 16:05

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	58.6	24 - 169	25.7453	25.63973	0.1056	N/A	
13C12-2,3,7,8-TCDD	200.00	62.0	25 - 164	26.3803	26.27478	0.1055	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	78.2	24 - 185	29.8977	29.80383	0.0939	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	70.4	21 - 178	31.2457	31.14815	0.0975	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	71.6	25 - 181	31.4908	31.40067	0.0901	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	78.9	26 - 152	34.8555	34.782	0.0735	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	79.5	26 - 123	35.0003	34.91943	0.0809	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	75.7	28 - 136	35.8692	35.7884	0.0808	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	69.9	29 - 147	36.9053	36.8227	0.0826	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	91.0	32 - 141	35.9807	35.90912	0.0716	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	85.7	28 - 130	36.092	36.0242	0.0678	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	75.6	28 - 143	38.7437	38.67025	0.0734	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	68.3	26 - 138	40.9942	40.90587	0.0883	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	79.0	23 - 140	40.2365	40.16678	0.0697	N/A	
13C12-OCDD	400.00	75.9	17 - 157	44.9768	44.88763	0.0892	N/A	
37Cl4-2,3,7,8-TCDD	80.000	65.2	35 - 197	26.3953	26.30253	0.0928	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0232	Instrument:	AUTOSPEC01
Sample ID:	BJH0645-BS1	Calibration:	EH00030
File ID:	21091502	Analyzed:	09/15/21 16:54

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	53.1	24 - 169	25.7608	25.63973	0.1211	N/A	
13C12-2,3,7,8-TCDD	200.00	55.9	25 - 164	26.3808	26.27478	0.1060	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	70.0	24 - 185	29.9095	29.80383	0.1057	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	64.2	21 - 178	31.2577	31.14815	0.1095	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	65.8	25 - 181	31.5027	31.40067	0.1020	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	66.8	26 - 152	34.8673	34.782	0.0853	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	67.7	26 - 123	35.0122	34.91943	0.0928	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	65.1	28 - 136	35.8813	35.7884	0.0929	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	60.0	29 - 147	36.9173	36.8227	0.0946	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	76.9	32 - 141	35.9927	35.90912	0.0836	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	72.6	28 - 130	36.104	36.0242	0.0798	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	66.6	28 - 143	38.7557	38.67025	0.0854	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	63.1	26 - 138	41.0062	40.90587	0.1003	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	73.2	23 - 140	40.2598	40.16678	0.0930	N/A	
13C12-OCDD	400.00	74.9	17 - 157	44.9867	44.88763	0.0991	N/A	
37Cl4-2,3,7,8-TCDD	80.000	63.1	35 - 197	26.411	26.30253	0.1085	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0232	Instrument:	AUTOSPEC01
Sample ID:	BJH0645-SRM1	Calibration:	EH00030
File ID:	21091503	Analyzed:	09/15/21 17:43

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	49.4	24 - 169	25.7605	25.63973	0.1208	N/A	
13C12-2,3,7,8-TCDD	200.00	56.6	25 - 164	26.3805	26.27478	0.1057	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	85.1	24 - 185	29.909	29.80383	0.1052	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	84.4	21 - 178	31.2568	31.14815	0.1086	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	84.0	25 - 181	31.502	31.40067	0.1013	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	81.4	26 - 152	34.8888	34.782	0.1068	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	76.1	26 - 123	35.0225	34.91943	0.1031	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	81.3	28 - 136	35.9027	35.7884	0.1143	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	88.3	29 - 147	36.9275	36.8227	0.1048	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	86.9	32 - 141	36.014	35.90912	0.1049	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	82.9	28 - 130	36.1365	36.0242	0.1123	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	85.1	28 - 143	38.7657	38.67025	0.0954	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	82.3	26 - 138	41.005	40.90587	0.0991	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	85.2	23 - 140	40.2587	40.16678	0.0919	N/A	
13C12-OCDD	400.00	94.3	17 - 157	45.0053	44.88763	0.1177	N/A	
37Cl4-2,3,7,8-TCDD	80.000	56.5	35 - 197	26.4107	26.30253	0.1082	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0232	Instrument:	AUTOSPEC01
Sample ID:	BJH0645-DUP1	Calibration:	EH00030
File ID:	21091504	Analyzed:	09/15/21 18:32

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.52	62.6	24 - 169	25.7608	25.63973	0.1211	N/A	
13C12-2,3,7,8-TCDD	199.52	65.8	25 - 164	26.3958	26.27478	0.1210	N/A	
13C12-1,2,3,7,8-PeCDF	199.52	83.7	24 - 185	29.9095	29.80383	0.1057	N/A	
13C12-2,3,4,7,8-PeCDF	199.52	82.7	21 - 178	31.2577	31.14815	0.1095	N/A	
13C12-1,2,3,7,8-PeCDD	199.52	78.4	25 - 181	31.5027	31.40067	0.1020	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.52	74.5	26 - 152	34.8898	34.782	0.1078	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.52	69.9	26 - 123	35.0235	34.91943	0.1041	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.52	72.5	28 - 136	35.9148	35.7884	0.1264	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.52	75.0	29 - 147	36.9287	36.8227	0.1060	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.52	81.0	32 - 141	36.0263	35.90912	0.1172	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.52	73.9	28 - 130	36.1377	36.0242	0.1135	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.52	74.9	28 - 143	38.767	38.67025	0.0968	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.52	73.4	26 - 138	41.0065	40.90587	0.1006	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.52	77.5	23 - 140	40.26	40.16678	0.0932	N/A	
13C12-OCDD	399.04	83.7	17 - 157	45.0053	44.88763	0.1177	N/A	
37Cl4-2,3,7,8-TCDD	79.809	66.7	35 - 197	26.411	26.30253	0.1085	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0232	Instrument:	AUTOSPEC01
Sample ID:	21G0127-11RE1	Calibration:	EH00030
File ID:	21091505	Analyzed:	09/15/21 19:21

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.01	65.8	24 - 169	25.7455	25.63973	0.1058	N/A	
13C12-2,3,7,8-TCDD	200.01	68.0	25 - 164	26.3805	26.27478	0.1057	N/A	
13C12-1,2,3,7,8-PeCDF	200.01	71.2	24 - 185	29.898	29.80383	0.0942	N/A	
13C12-2,3,4,7,8-PeCDF	200.01	68.7	21 - 178	31.2463	31.14815	0.0982	N/A	
13C12-1,2,3,7,8-PeCDD	200.01	65.8	25 - 181	31.4913	31.40067	0.0906	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.01	72.7	26 - 152	34.8672	34.782	0.0852	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.01	67.4	26 - 123	35.012	34.91943	0.0926	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.01	67.9	28 - 136	35.881	35.7884	0.0926	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.01	75.3	29 - 147	36.906	36.8227	0.0833	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.01	75.1	32 - 141	35.9925	35.90912	0.0834	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.01	70.7	28 - 130	36.1038	36.0242	0.0796	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.01	66.2	28 - 143	38.7443	38.67025	0.0740	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.01	62.2	26 - 138	40.9948	40.90587	0.0889	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.01	64.6	23 - 140	40.2483	40.16678	0.0815	N/A	
13C12-OCDD	400.02	66.0	17 - 157	44.977	44.88763	0.0894	N/A	
37Cl4-2,3,7,8-TCDD	80.004	77.3	35 - 197	26.3957	26.30253	0.0932	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0232	Instrument:	AUTOSPEC01
Sample ID:	21G0127-12RE1	Calibration:	EH00030
File ID:	21091506	Analyzed:	09/15/21 20:10

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.02	76.5	24 - 169	25.7458	25.63973	0.1061	N/A	
13C12-2,3,7,8-TCDD	200.02	80.3	25 - 164	26.3808	26.27478	0.1060	N/A	
13C12-1,2,3,7,8-PeCDF	200.02	88.0	24 - 185	29.8983	29.80383	0.0945	N/A	
13C12-2,3,4,7,8-PeCDF	200.02	87.5	21 - 178	31.2465	31.14815	0.0983	N/A	
13C12-1,2,3,7,8-PeCDD	200.02	82.4	25 - 181	31.4917	31.40067	0.0910	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.02	77.4	26 - 152	34.8675	34.782	0.0855	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.02	72.1	26 - 123	35.0012	34.91943	0.0818	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.02	74.5	28 - 136	35.8815	35.7884	0.0931	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.02	84.1	29 - 147	36.9065	36.8227	0.0838	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.02	82.1	32 - 141	35.9928	35.90912	0.0837	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.02	77.5	28 - 130	36.1042	36.0242	0.0800	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.02	79.1	28 - 143	38.7448	38.67025	0.0745	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.02	76.4	26 - 138	40.9953	40.90587	0.0894	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.02	79.2	23 - 140	40.2488	40.16678	0.0820	N/A	
13C12-OCDD	400.03	89.9	17 - 157	44.987	44.88763	0.0994	N/A	
37Cl4-2,3,7,8-TCDD	80.007	83.7	35 - 197	26.3958	26.30253	0.0933	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0127
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0232	Instrument:	AUTOSPEC01
Sample ID:	SJI0232-CCV1	Calibration:	EH00030
File ID:	21091507	Analyzed:	09/15/21 20:59

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	113	71 - 129	25.7607	25.63973	0.1210	N/A	
13C12-2,3,7,8-TCDD	100.00	106	82 - 118	26.3807	26.27478	0.1059	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	105	76 - 124	29.9092	29.80383	0.1054	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	104	77 - 123	31.2573	31.14815	0.1092	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	96.0	62 - 138	31.5025	31.40067	0.1018	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	94.8	76 - 124	34.8783	34.782	0.0963	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	86.1	70 - 130	35.0122	34.91943	0.0928	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.8	73 - 127	35.881	35.7884	0.0926	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	92.3	74 - 126	36.9172	36.8227	0.0945	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	99.7	85 - 115	35.9923	35.90912	0.0832	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	93.9	85 - 115	36.1038	36.0242	0.0796	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	96.9	78 - 122	38.7555	38.67025	0.0852	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	91.9	77 - 123	41.006	40.90587	0.1001	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	94.9	72 - 128	40.2595	40.16678	0.0927	N/A	
13C12-OCDD	200.00	97.6	48 - 152	44.9957	44.88763	0.1081	N/A	
37Cl4-2,3,7,8-TCDD	10.000	99.5	0 - 200	26.4108	26.30253	0.1083	N/A	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

HOLDING TIME SUMMARY

Analysis: EPA 1613B

Laboratory: Analytical Resources, Inc. SDG: 21G0127

Client: Anchor QEA, LLC Project: Lower Duwamish AOC4

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LDW21-SS668 21G0127-01	07/12/21 07:10	07/13/21 17:00	08/09/21 16:30	28	365	08/25/21 01:18	15	365	
LDW21-SS667 21G0127-02	07/12/21 07:22	07/13/21 17:00	08/09/21 16:30	28	365	08/25/21 02:08	15	365	
LDW21-SS651 21G0127-03	07/12/21 07:35	07/13/21 17:00	08/09/21 16:30	28	365	08/25/21 02:56	15	365	
LDW21-SS633 21G0127-05	07/12/21 08:08	07/13/21 17:00	08/09/21 16:30	28	365	08/25/21 03:45	15	365	
LDW21-SS645 21G0127-08	07/12/21 08:55	07/13/21 17:00	08/09/21 16:30	28	365	08/25/21 04:34	16	365	
LDW21-SS656 21G0127-10	07/12/21 10:25	07/13/21 17:00	08/09/21 16:30	28	365	08/25/21 05:23	16	365	
LDW21-SS647 21G0127-11RE1	07/12/21 10:35	07/13/21 17:00	08/26/21 12:23	45	14	09/15/21 19:21	20	365	*
LDW21-SS634 21G0127-12RE1	07/12/21 11:22	07/13/21 17:00	08/26/21 12:23	45	14	09/15/21 20:10	20	365	*
Duplicate BJH0186-DUP1	07/12/21 07:10	07/13/21 17:00	08/09/21 16:30	28	365	08/24/21 21:07	15	365	
Duplicate BJH0645-DUP1	07/12/21 10:35	07/13/21 17:00	08/26/21 12:23	45	14	09/15/21 18:32	20	365	*

* Indicates hold time exceedance.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0127
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Instrument: AUTOSPEC01

Analyte	MDL	RL	Units
2,3,7,8-TCDF	0.058	1.00	ng/kg
2,3,7,8-TCDD	0.150	1.00	ng/kg
1,2,3,7,8-PeCDF	0.240	1.00	ng/kg
2,3,4,7,8-PeCDF	0.220	1.00	ng/kg
1,2,3,7,8-PeCDD	0.170	1.00	ng/kg
1,2,3,4,7,8-HxCDF	0.280	1.00	ng/kg
1,2,3,6,7,8-HxCDF	0.200	1.00	ng/kg
2,3,4,6,7,8-HxCDF	0.170	1.00	ng/kg
1,2,3,7,8,9-HxCDF	0.190	1.00	ng/kg
1,2,3,4,7,8-HxCDD	0.170	1.00	ng/kg
1,2,3,6,7,8-HxCDD	0.180	1.00	ng/kg
1,2,3,7,8,9-HxCDD	0.220	1.00	ng/kg
1,2,3,4,6,7,8-HpCDF	0.210	1.00	ng/kg
1,2,3,4,7,8,9-HpCDF	0.240	1.00	ng/kg
1,2,3,4,6,7,8-HpCDD	0.560	2.50	ng/kg
OCDF	1.10	2.50	ng/kg
OCDD	4.60	10.0	ng/kg
Total TCDF		1.00	ng/kg
Total TCDD		1.00	ng/kg
Total PeCDF		1.00	ng/kg
Total PeCDD		1.00	ng/kg
Total HxCDF		1.00	ng/kg
Total HxCDD		1.00	ng/kg
Total HpCDF		1.00	ng/kg
Total HpCDD		1.00	ng/kg

Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0127
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Water
Instrument: AUTOSPEC01

Analyte	MDL	RL	Units
2,3,7,8-TCDF	1.20	10.0	pg/L
2,3,7,8-TCDD	1.30	10.0	pg/L
1,2,3,7,8-PeCDF	4.20	10.0	pg/L
2,3,4,7,8-PeCDF	4.00	10.0	pg/L
1,2,3,7,8-PeCDD	4.00	10.0	pg/L
1,2,3,4,7,8-HxCDF	3.80	10.0	pg/L
1,2,3,6,7,8-HxCDF	3.90	10.0	pg/L
2,3,4,6,7,8-HxCDF	3.50	10.0	pg/L
1,2,3,7,8,9-HxCDF	3.60	10.0	pg/L
1,2,3,4,7,8-HxCDD	4.10	10.0	pg/L
1,2,3,6,7,8-HxCDD	3.80	10.0	pg/L
1,2,3,7,8,9-HxCDD	3.40	10.0	pg/L
1,2,3,4,6,7,8-HpCDF	11.0	20.0	pg/L
1,2,3,4,7,8,9-HpCDF	3.60	10.0	pg/L
1,2,3,4,6,7,8-HpCDD	6.00	10.0	pg/L
OCDF	16.0	20.0	pg/L
OCDD	39.0	50.0	pg/L

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT0617
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	06/27/2017
LAST TESTED: (mm/dd/yyyy)	06/27/2017
EXPIRY DATE: (mm/dd/yyyy)	06/27/2024
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

G001361
1613 CS3WT CCAL STD
Expires 6/27/2024
Prepared By Joshua Rains 2/13/2018

DESCRIPTION:

CS3WT is a solution/mixture of native and $^{13}C_{12}$-labelled chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

CS3WT was designed and prepared to be used as a HRMS calibration standard according to U.S. EPA Method 1613B.

It is to be used for calibration verification in place of EPA-1613CS3 (Lot: 13CS30617). It also contains the PCDD and PCDF window defining congeners for a DB-5 (or equivalent) capillary column as well as the TCDD isomers required to test and confirm the resolution of 2,3,7,8-TCDD.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT (CS3WT0617) is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS10617
EPA-1613CS2	13CS20617
EPA-1613CS3	13CS30617
EPA-1613CS4	13CS40617
EPA-1613CS5	13CS50617
EPA-1613CSL	13CSL0617
EPA-1613CS0.5	13CS0.50617

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2378-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative analytes in this mixture. Conversely, semi-quantitative analytes have been assigned an uncertainty of ±20%.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Components and Concentrations (ng/ml, in nonane/4.5% toluene)**

QUANTITATIVE ANALYTES (ng/ml, ±5%)

Native PCDDs & PCDFs:	
2,3,7,8-TCDD	10
2,3,7,8-TCDF	10
1,2,3,7,8-PeCDD	50
1,2,3,7,8-PeCDF	50
2,3,4,7,8-PeCDF	50
1,2,3,4,7,8-HxCDD	50
1,2,3,6,7,8-HxCDD	50
1,2,3,7,8,9-HxCDD	50
1,2,3,4,7,8-HxCDF	50
1,2,3,6,7,8-HxCDF	50
1,2,3,7,8,9-HxCDF	50
2,3,4,6,7,8-HxCDF	50
1,2,3,4,6,7,8-HpCDD *(WD)*	50
1,2,3,4,6,7,8-HpCDF *(WD)*	50
1,2,3,4,7,8,9-HpCDF *(WD)*	50
OCDD	100
OCDF	100
Labelled PCDDs & PCDFs:	
$^{13}C_{12}$-2,3,7,8-TCDD	100
$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100
$^{13}C_{12}$-OCDD	200
Cleanup Standard:	
$^{37}Cl_4$-2,3,7,8-TCDD	10
Internal Standards:	
$^{13}C_{12}$-1,2,3,4-TCDD	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100

WD – Window Definer

SEMI-QUANTITATIVE ANALYTES (ng/ml, ±20%)

Window Definers:*	
1,3,6,8-TCDD	10
1,2,8,9-TCDD	10
1,3,6,8-TCDF	10
1,2,8,9-TCDF	10
1,2,4,6,8/1,2,4,7,9-PeCDD	50
1,2,3,8,9-PeCDD	50
1,3,4,6,8-PeCDF	50
1,2,3,8,9-PeCDF	50
1,2,4,6,7,9-HxCDD	50
1,2,3,4,6,8-HxCDF	50
1,2,3,4,6,7,9-HpCDD	50
2378-TCDD Resolution Testing Isomers:	
1,2,3,4-TCDD	5
1,2,3,7/1,2,3,8-TCDD	5
1,2,3,9-TCDD	10

** 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD. Use 1,2,3,4,6,7,9-HpCDD to set window.*

** 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF. Use 1,2,3,4,6,7,8-HpCDF to set window.*

Certified By: _____ **Date:** 07/19/2017 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

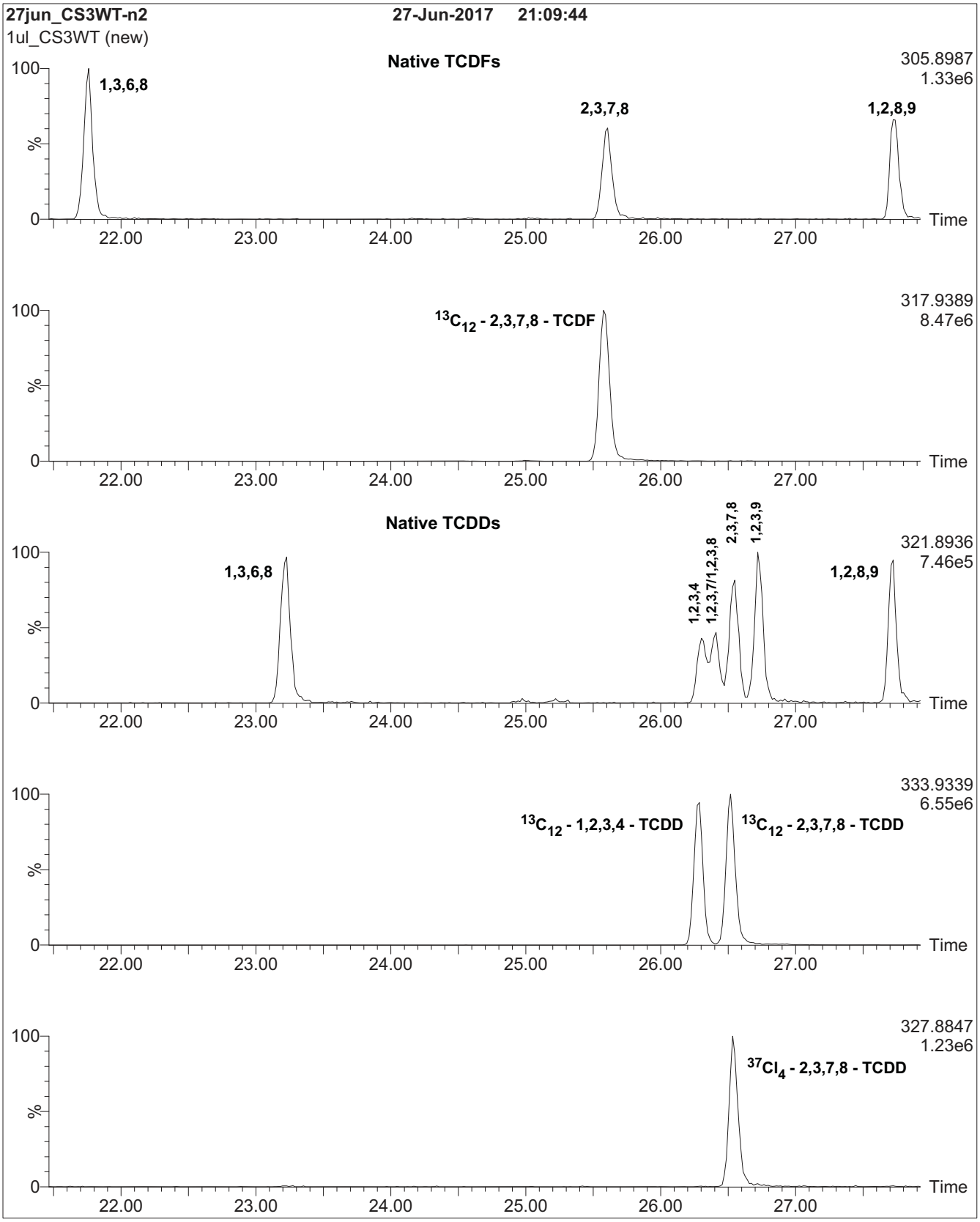


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

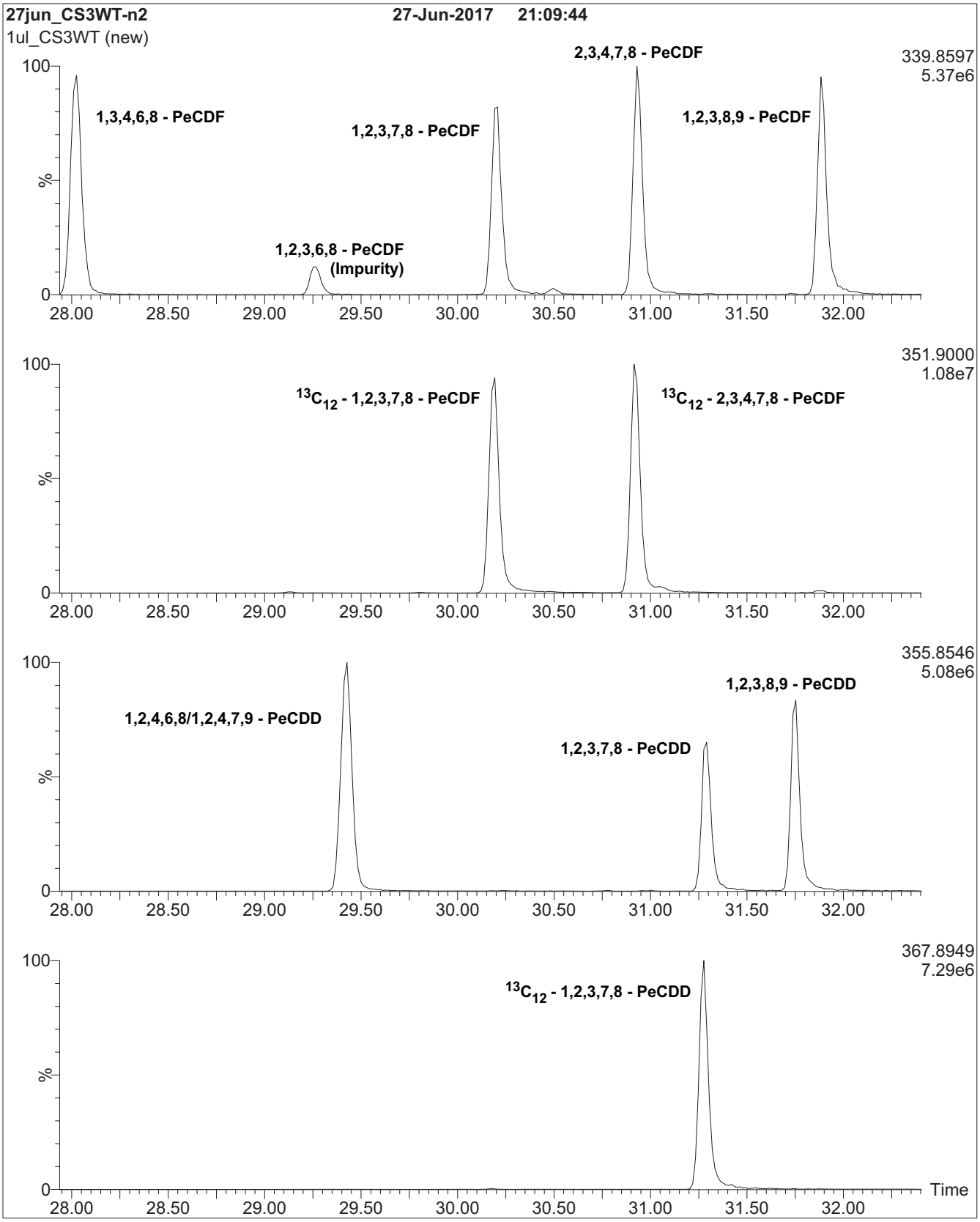


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

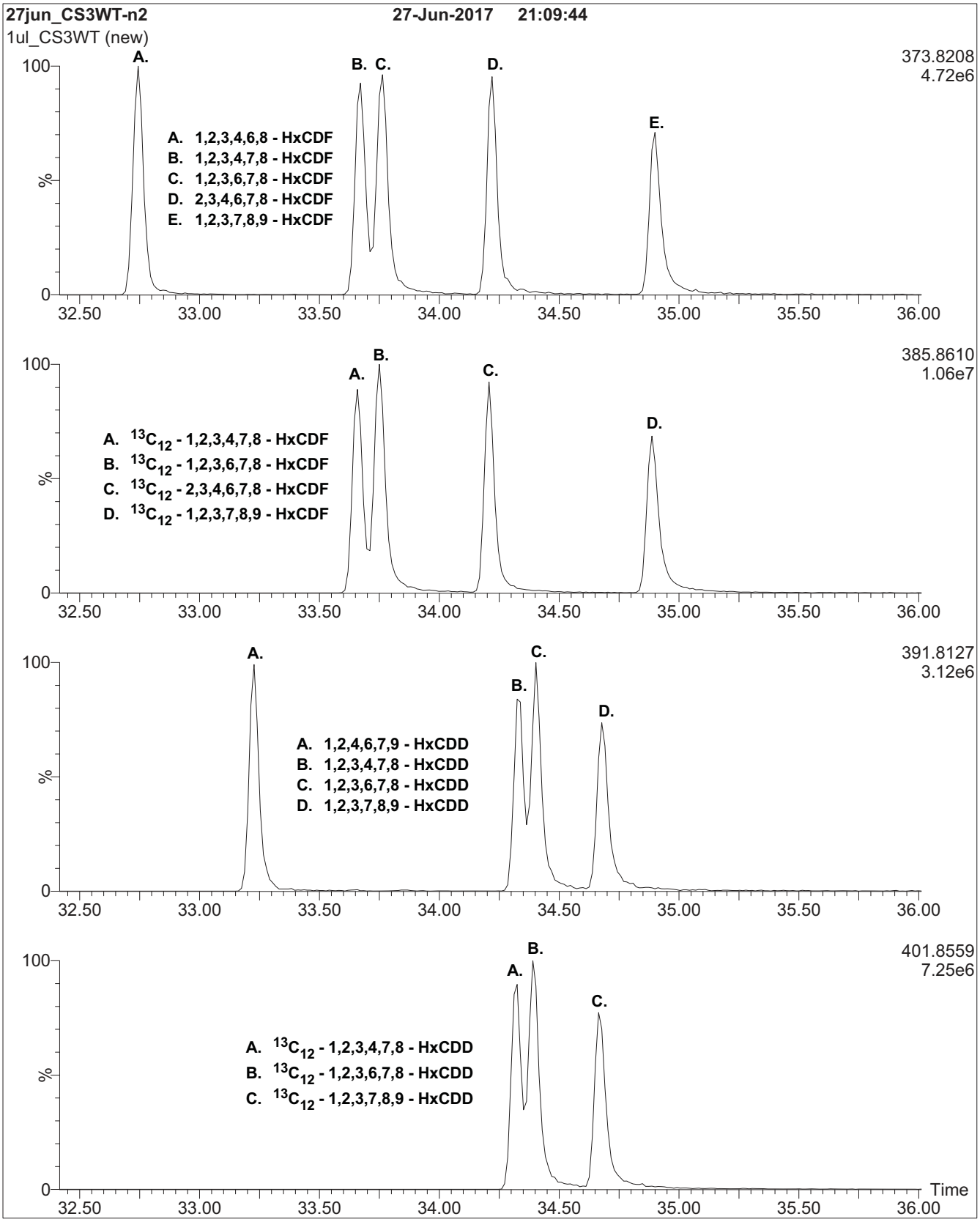


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

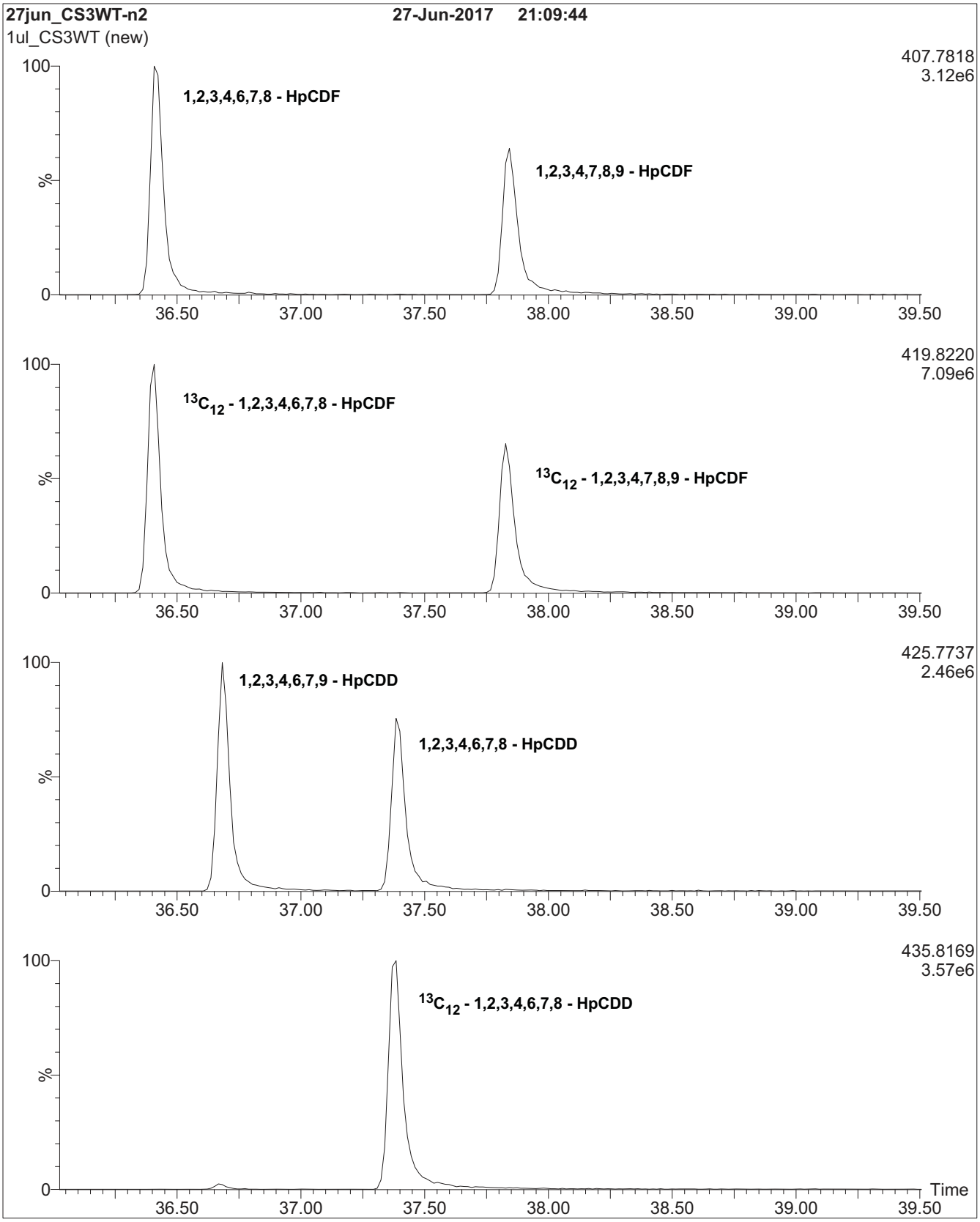
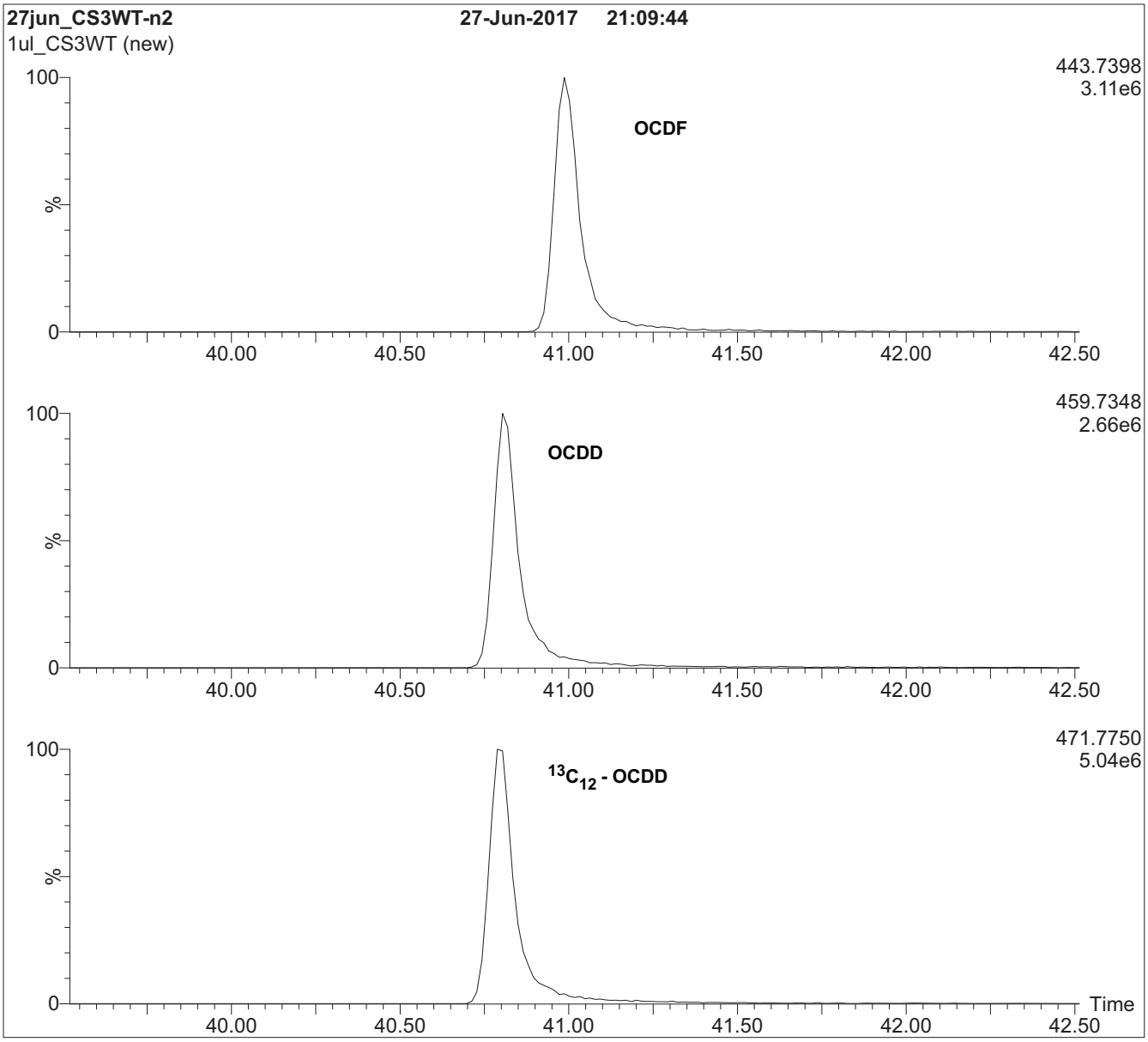


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF
Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1019
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/16/2019
LAST TESTED: (mm/dd/yyyy)	10/17/2019
EXPIRY DATE: (mm/dd/yyyy)	10/17/2026
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

I000197
1613B Stock OPR Std-40/200/400ng/mL
Expires 10/17/2026
Prepared By Joshua Rains 1/8/2020

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted chlorinated dibenzo-p-dioxins (PCDDs) and 2,3,7,8-substituted dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B).

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

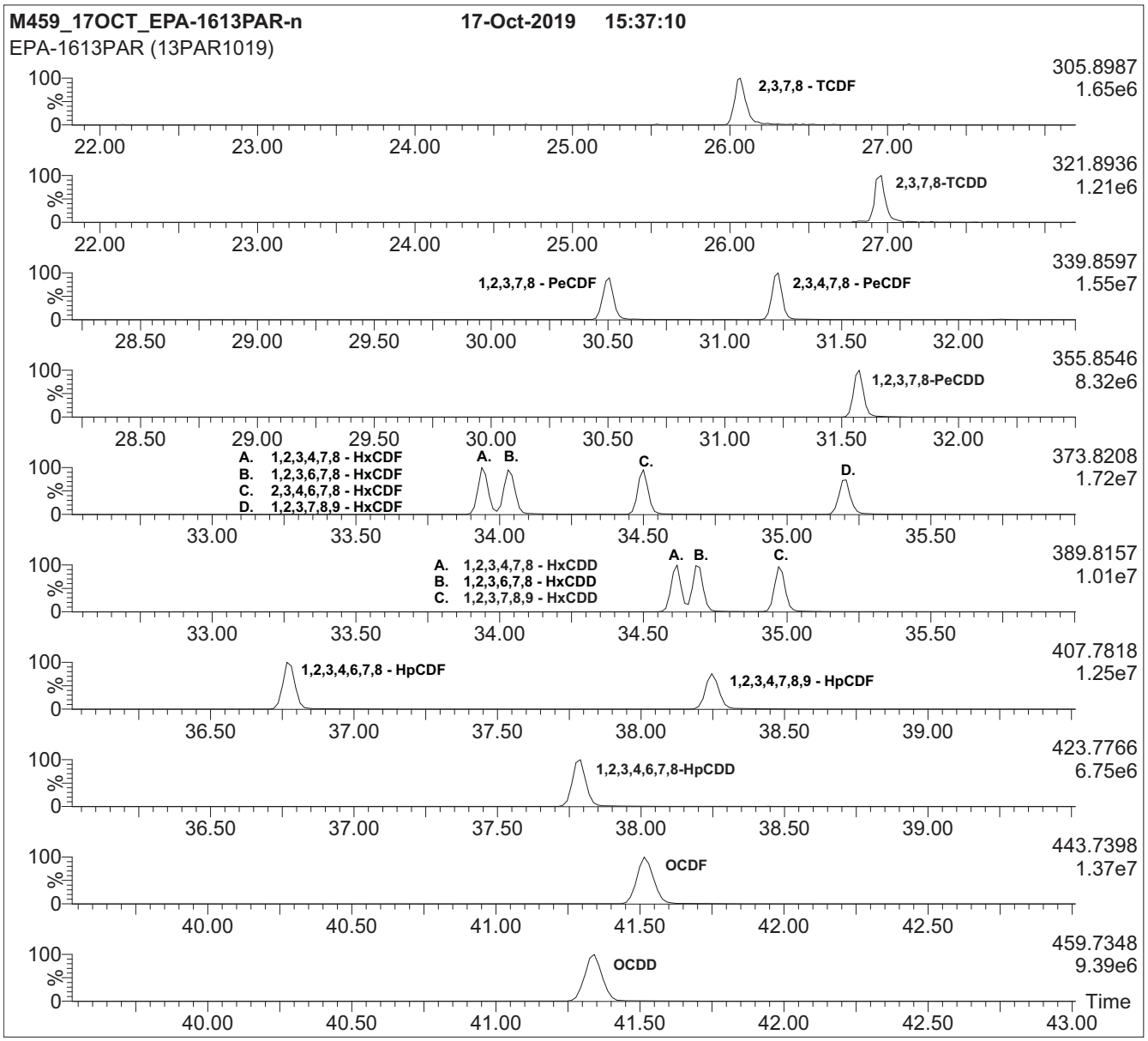
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/ml, ± 5% in nonane/ 2.4% toluene)**

Component	Concentration (ng/ml)
PCDDs:	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	40
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	200
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	200
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	200
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	200
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	200
Octachlorodibenzo-p-dioxin	400
PCDFs:	
2,3,7,8-Tetrachlorodibenzofuran	40
1,2,3,7,8-Pentachlorodibenzofuran	200
2,3,4,7,8-Pentachlorodibenzofuran	200
1,2,3,4,7,8-Hexachlorodibenzofuran	200
1,2,3,6,7,8-Hexachlorodibenzofuran	200
1,2,3,7,8,9-Hexachlorodibenzofuran	200
2,3,4,6,7,8-Hexachlorodibenzofuran	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	200
Octachlorodibenzofuran	400

Certified By: _____ **Date:** 11/07/2019
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS
U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005456
1613 CS1 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

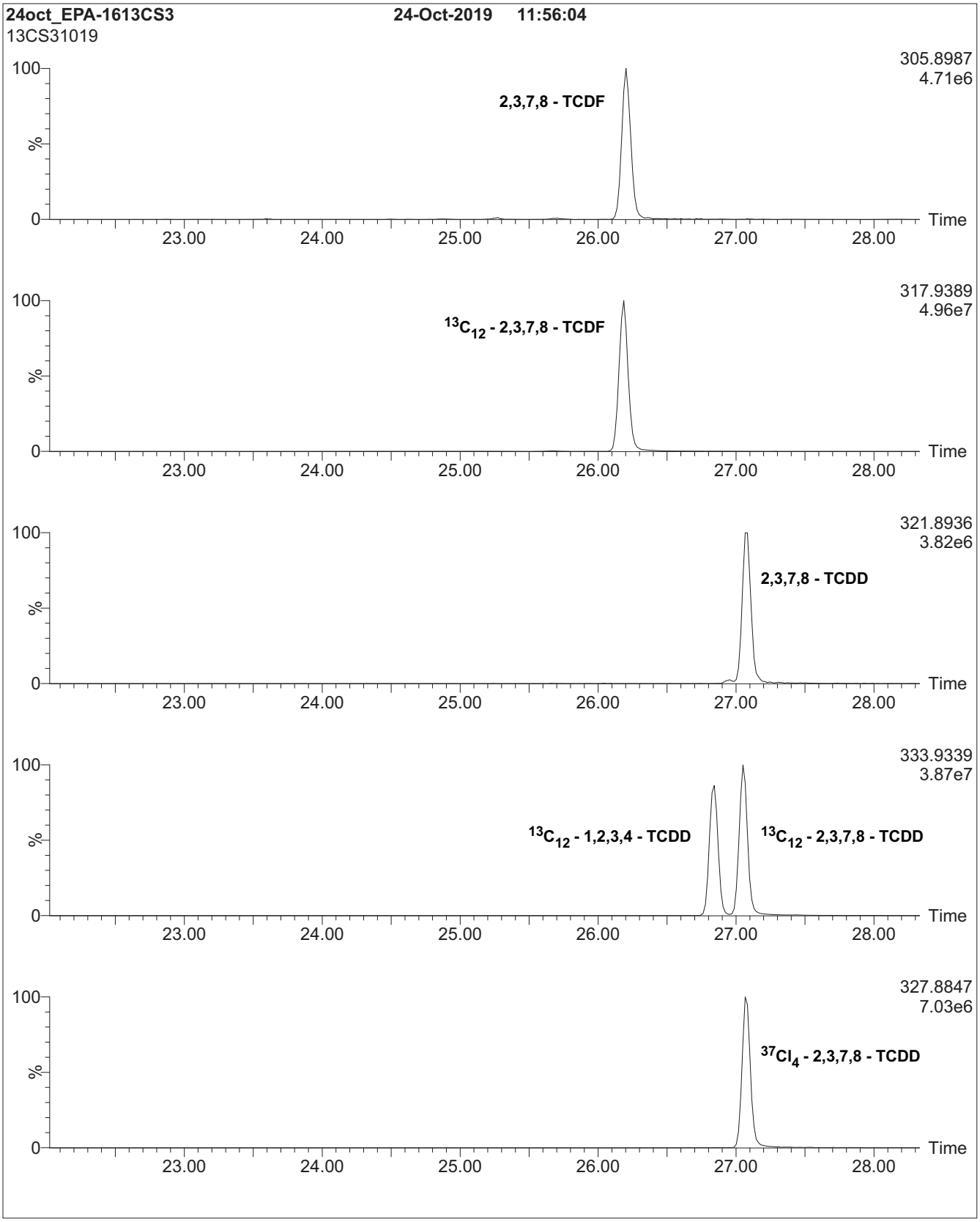


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

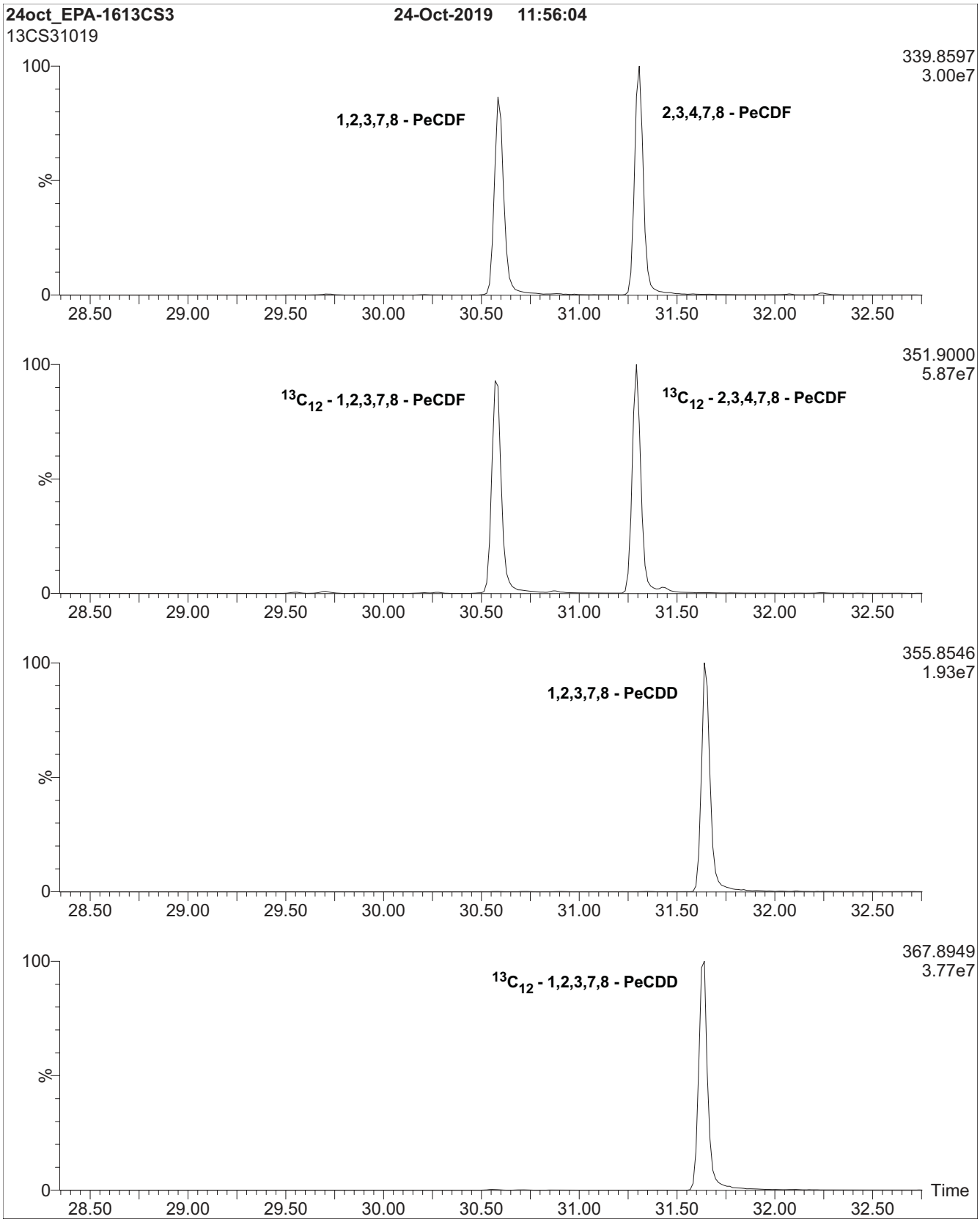


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

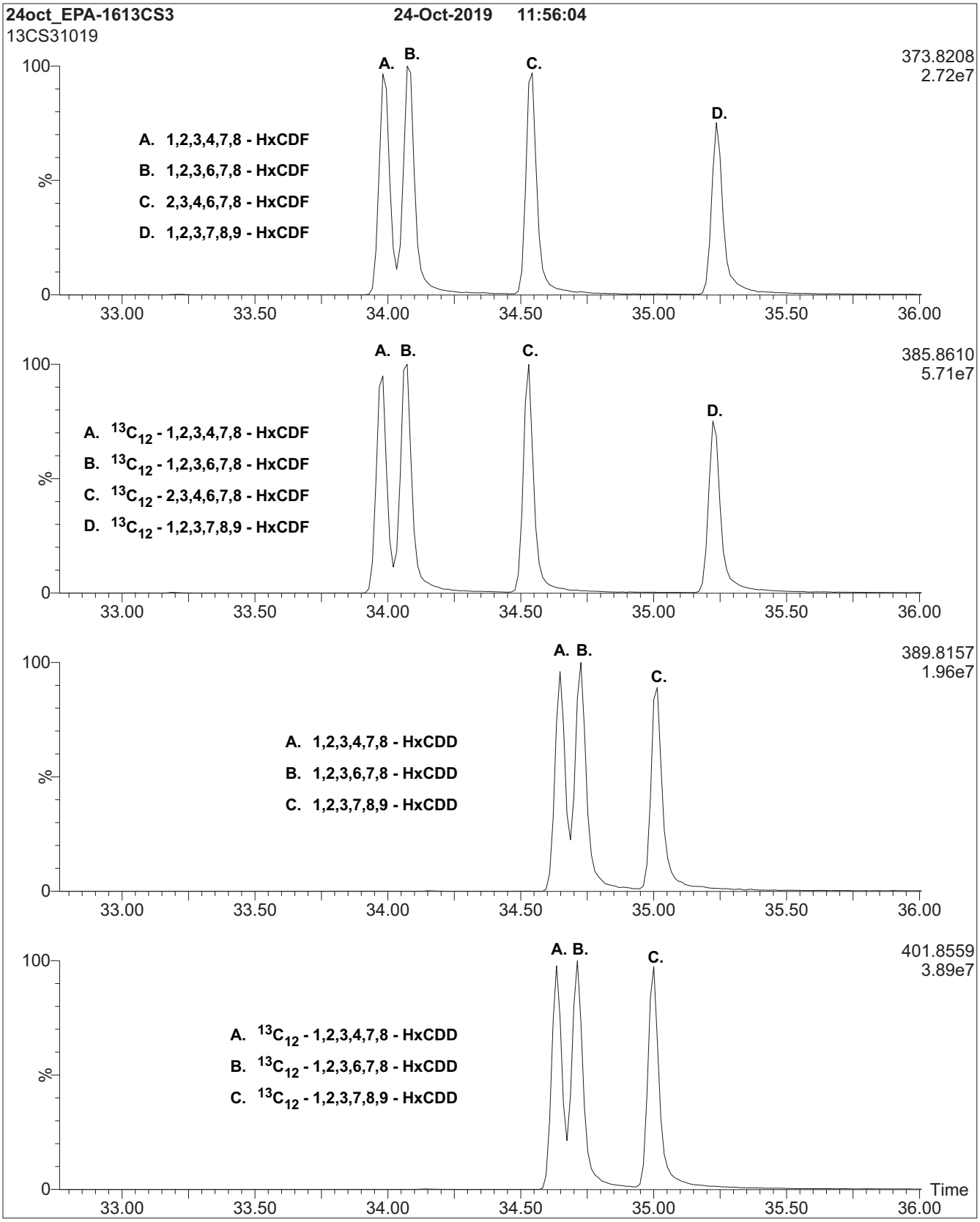


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

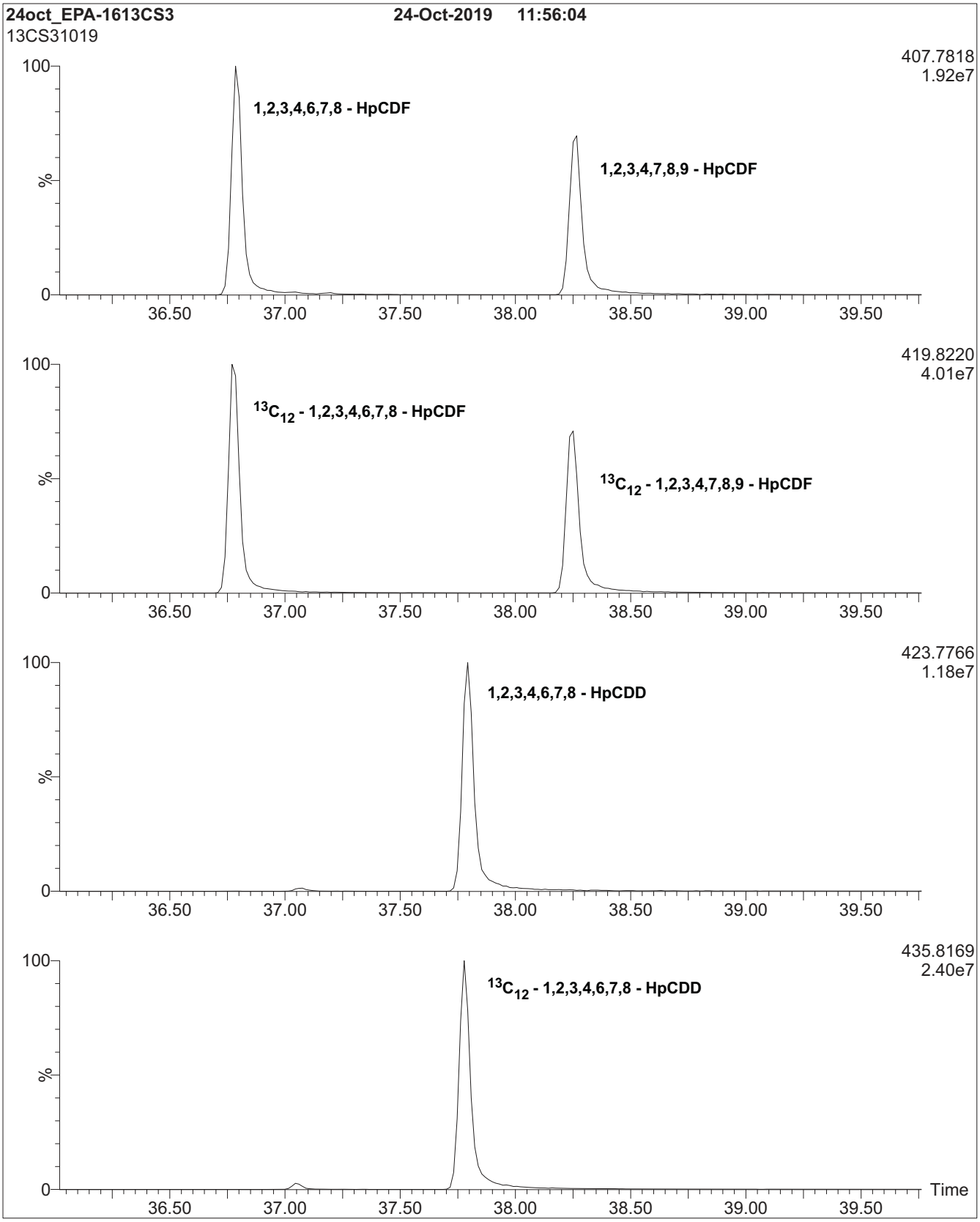
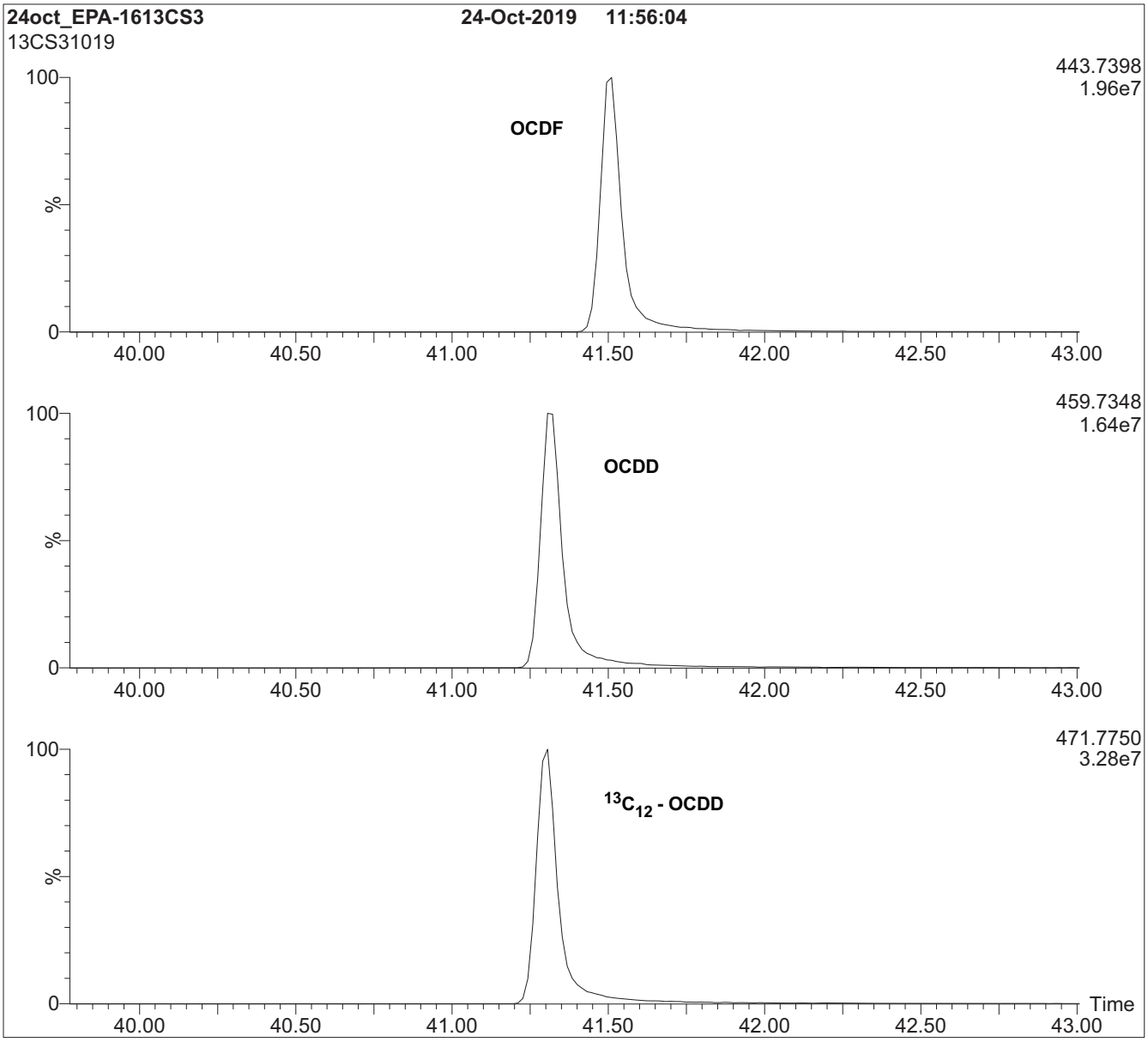


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS
U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005457
1613 CS2 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

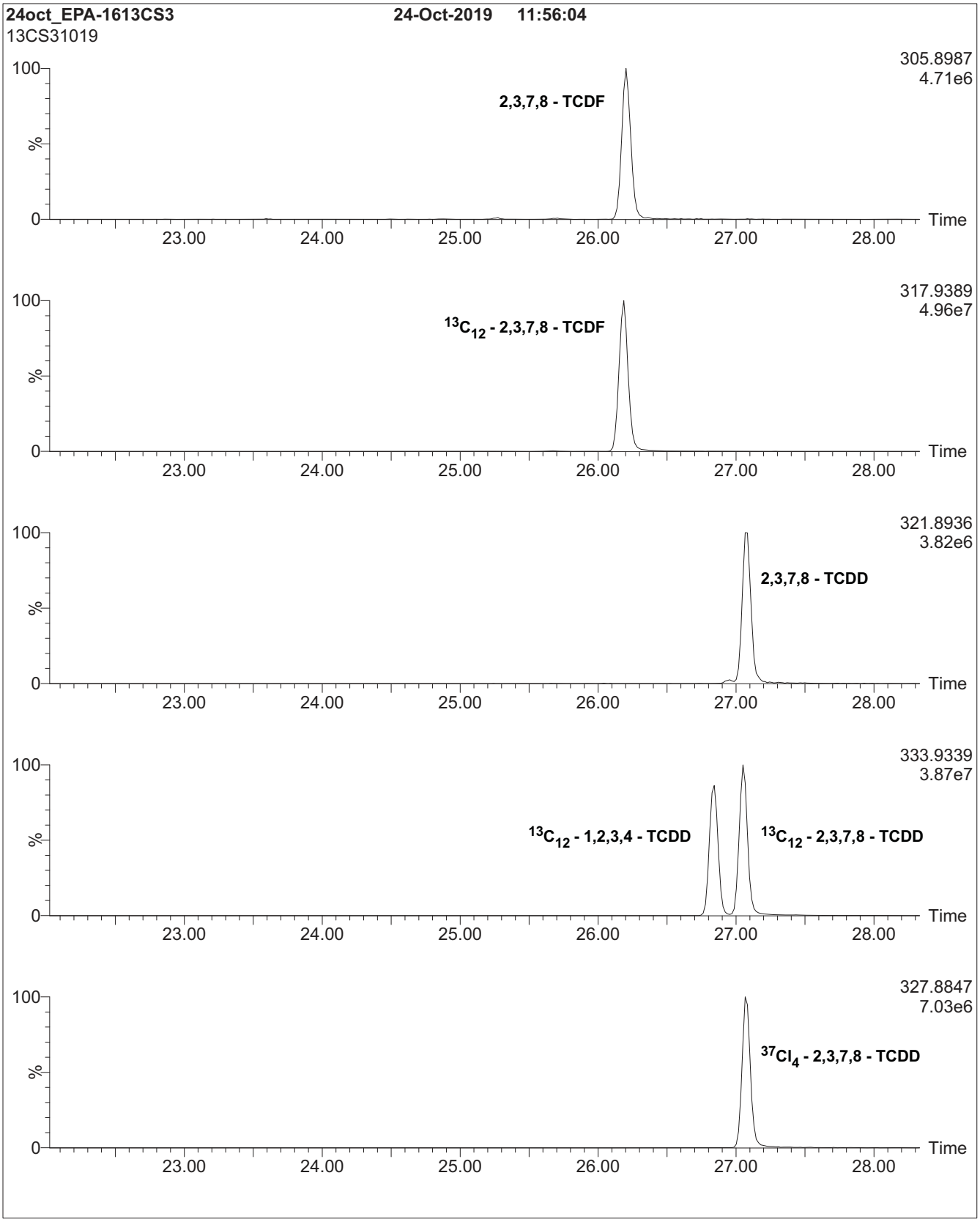


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

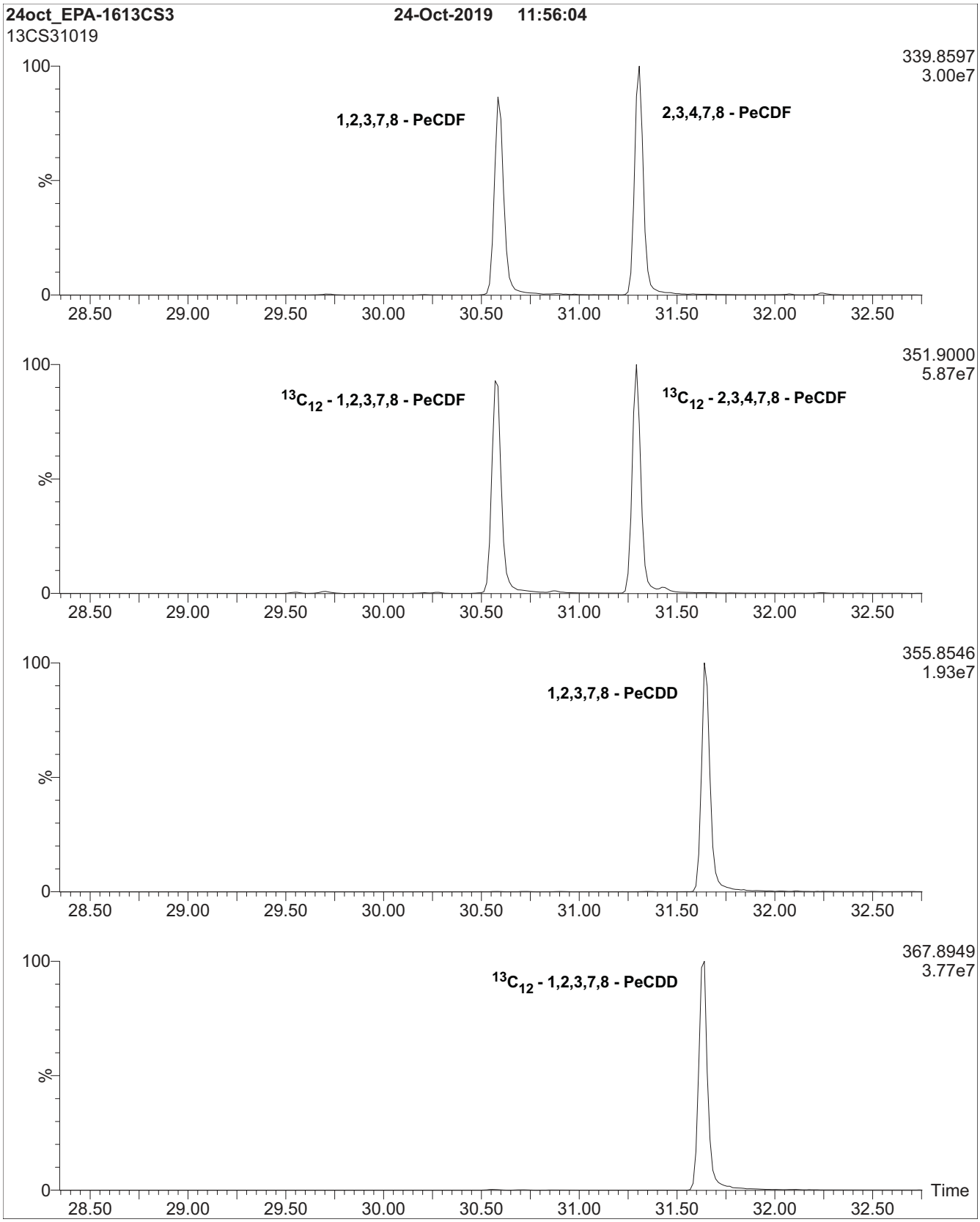


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

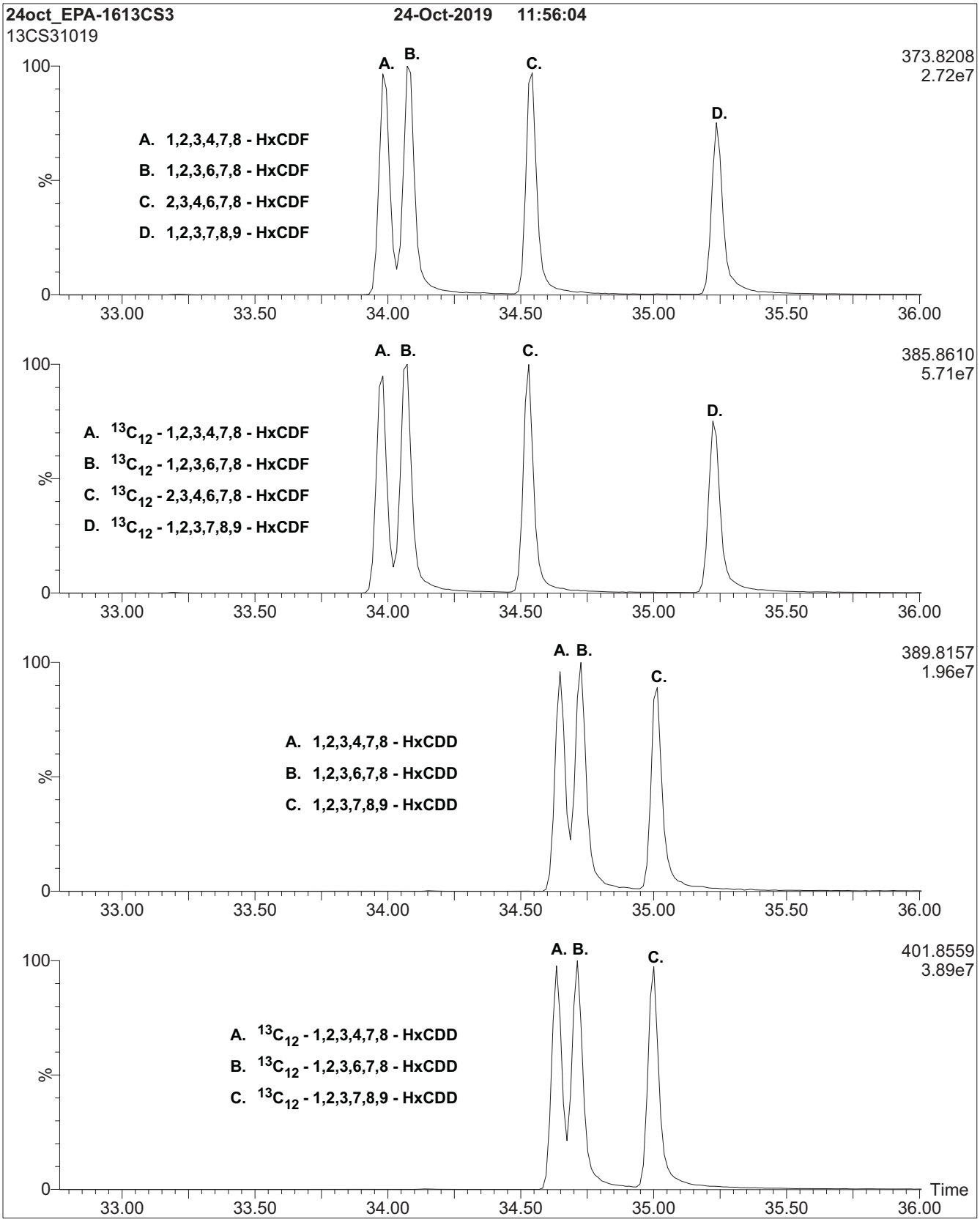


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

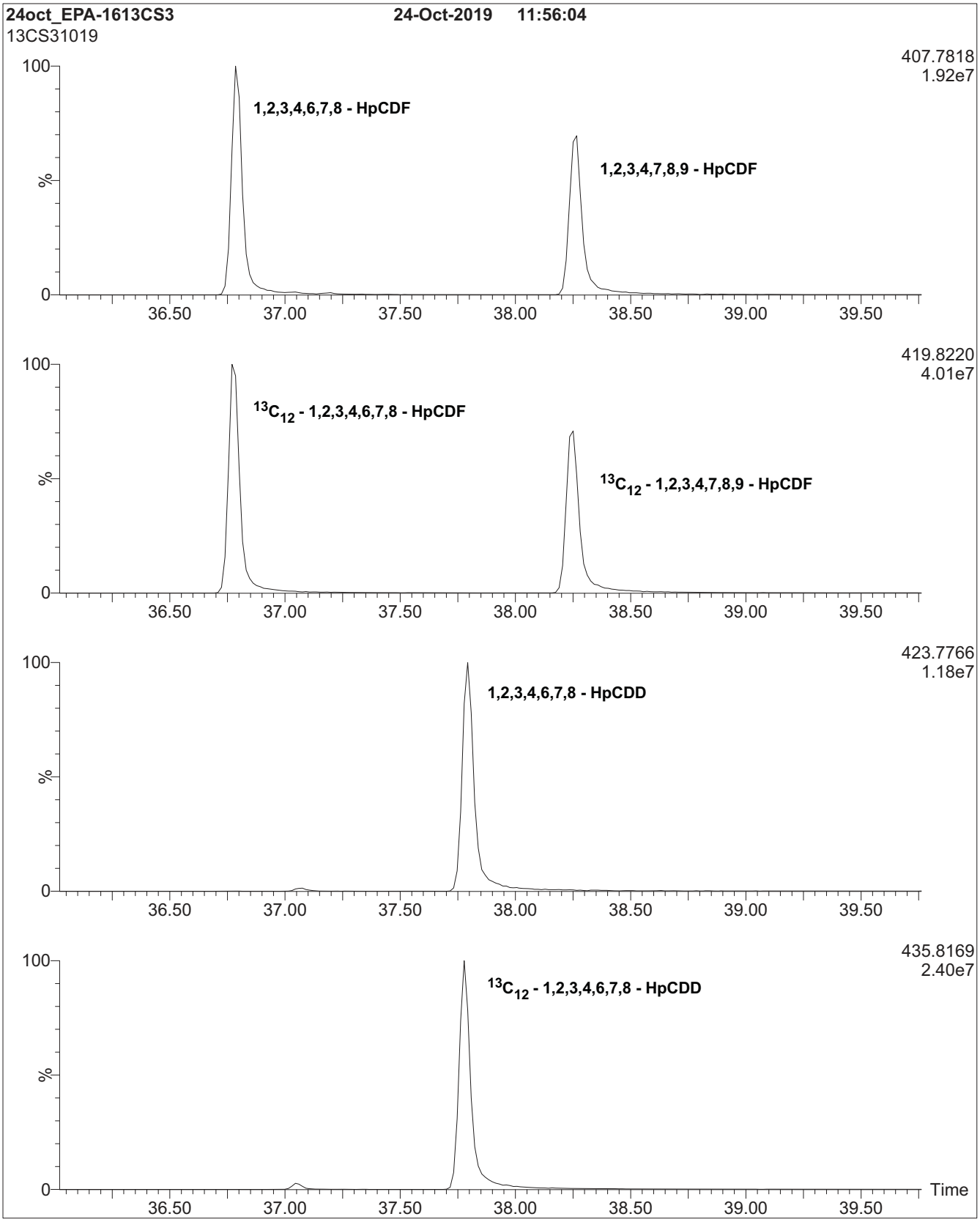
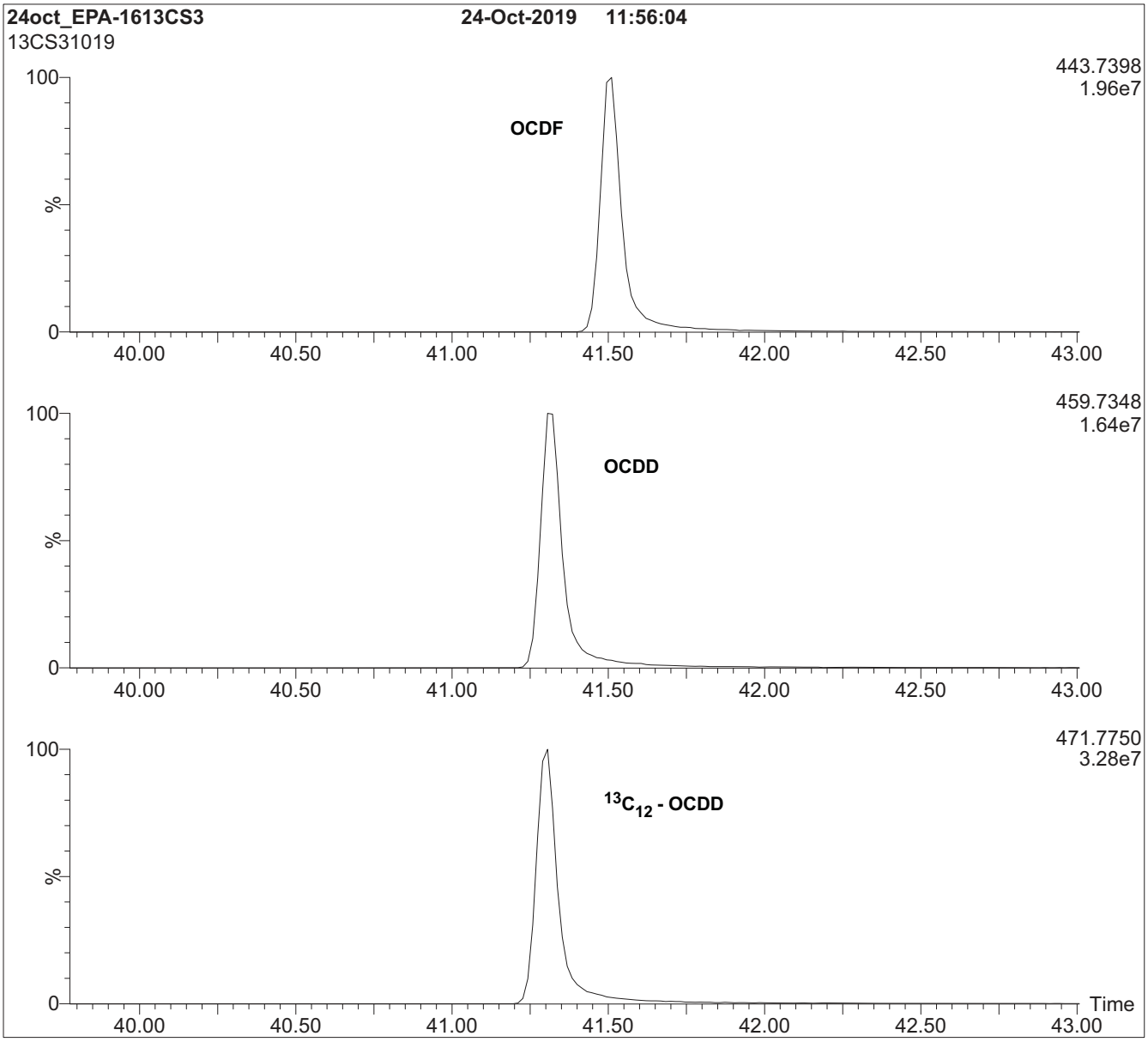


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS
U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005458
1613 CS4 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

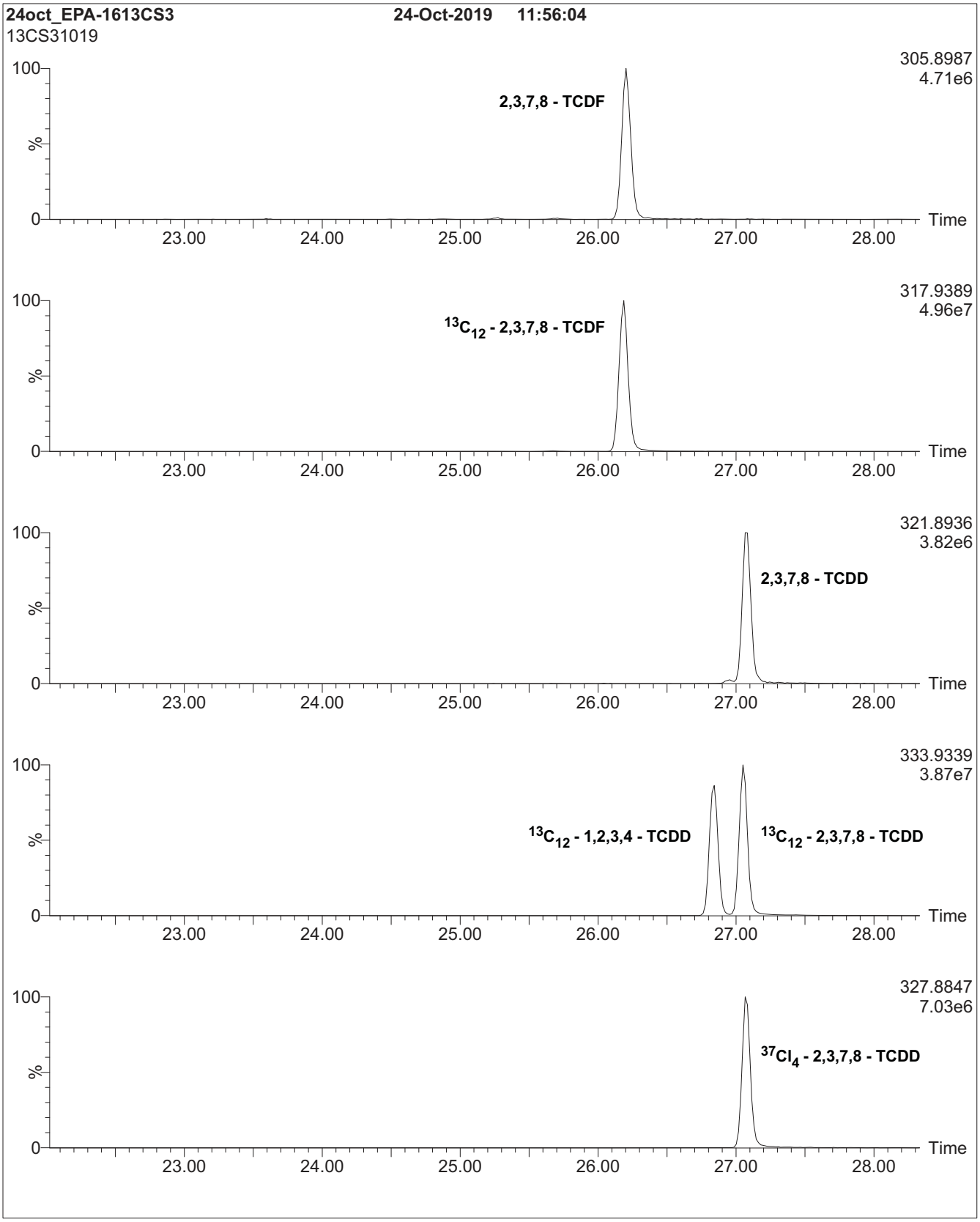


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

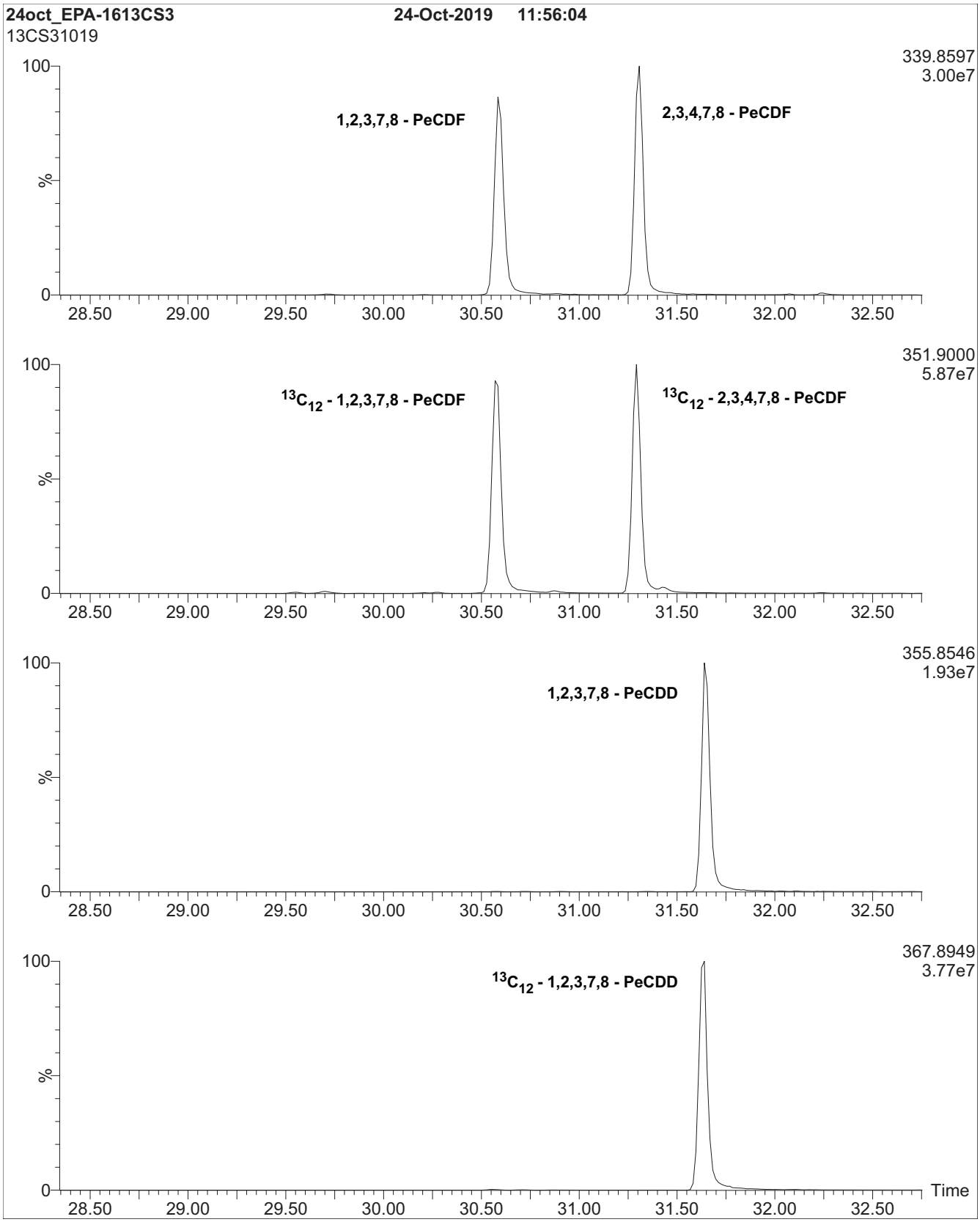


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

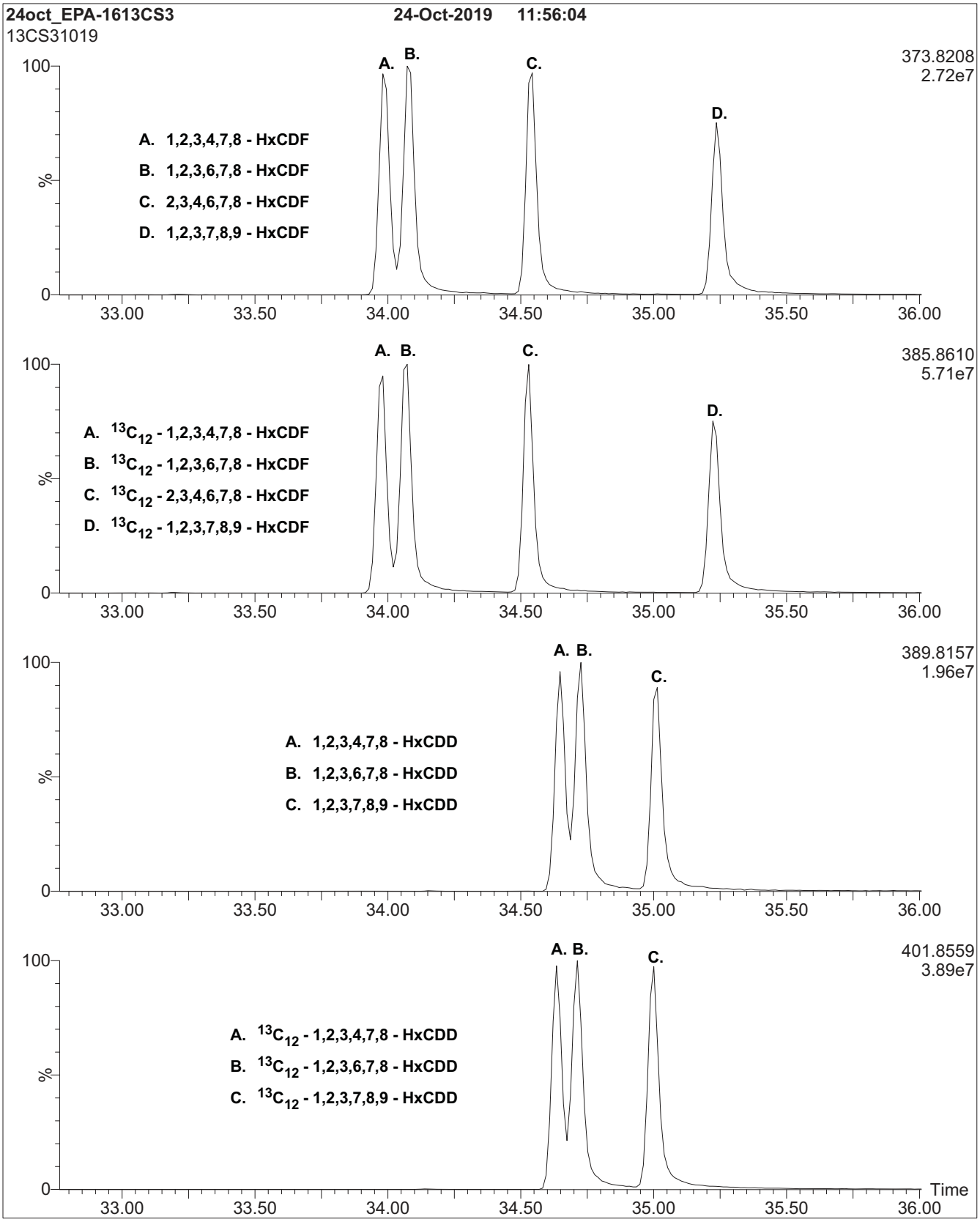


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

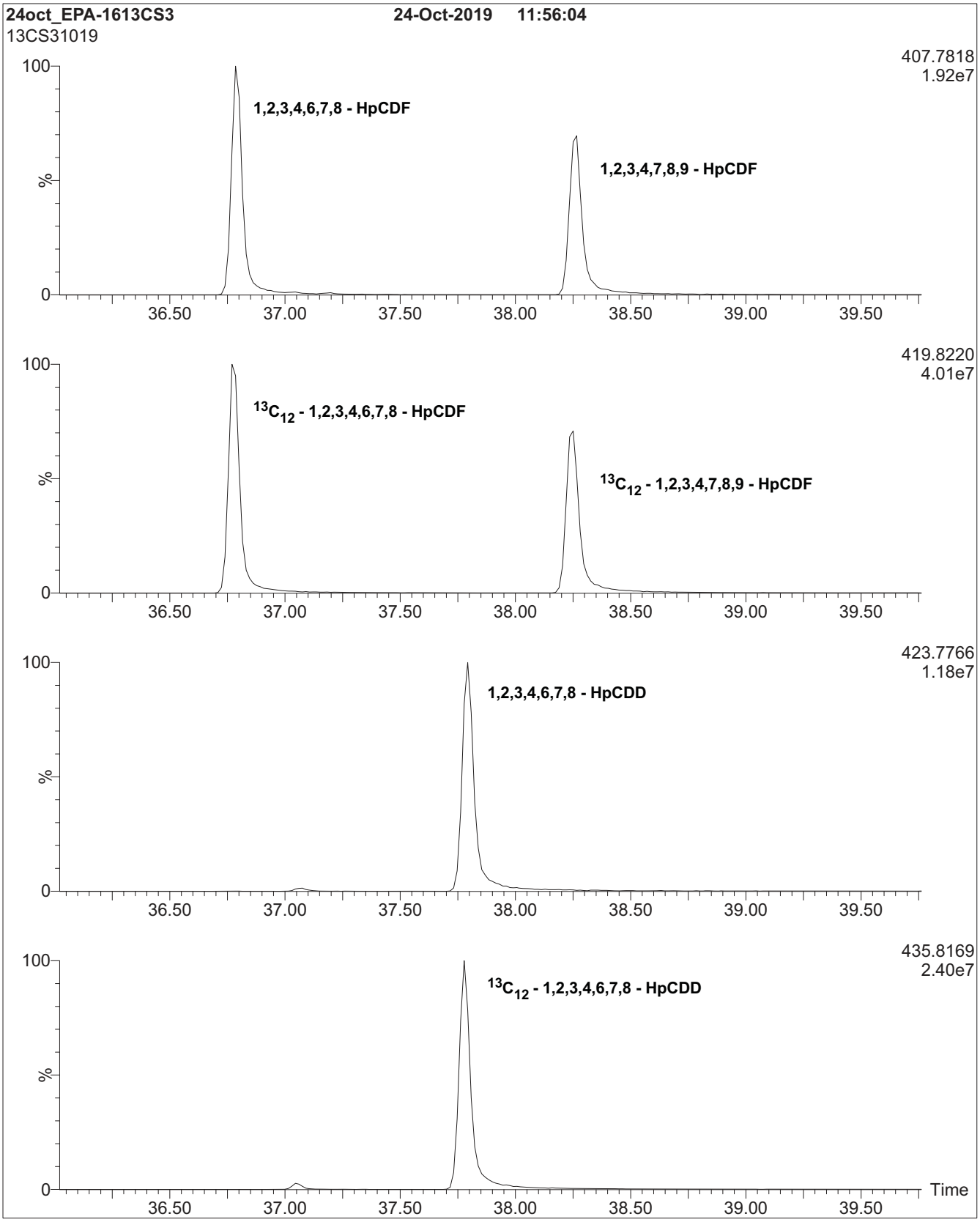
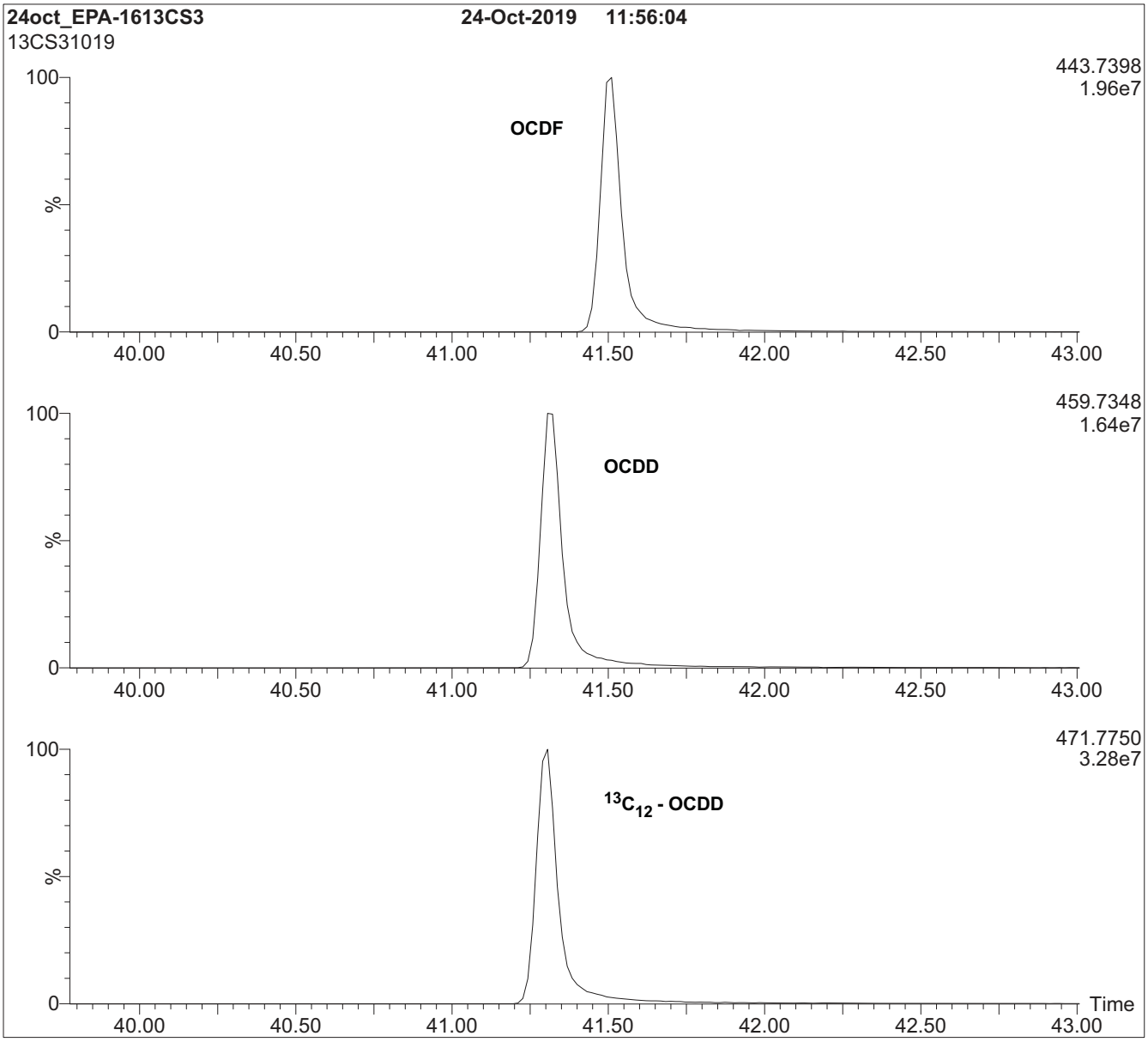


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS
U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005459
1613 CS5 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

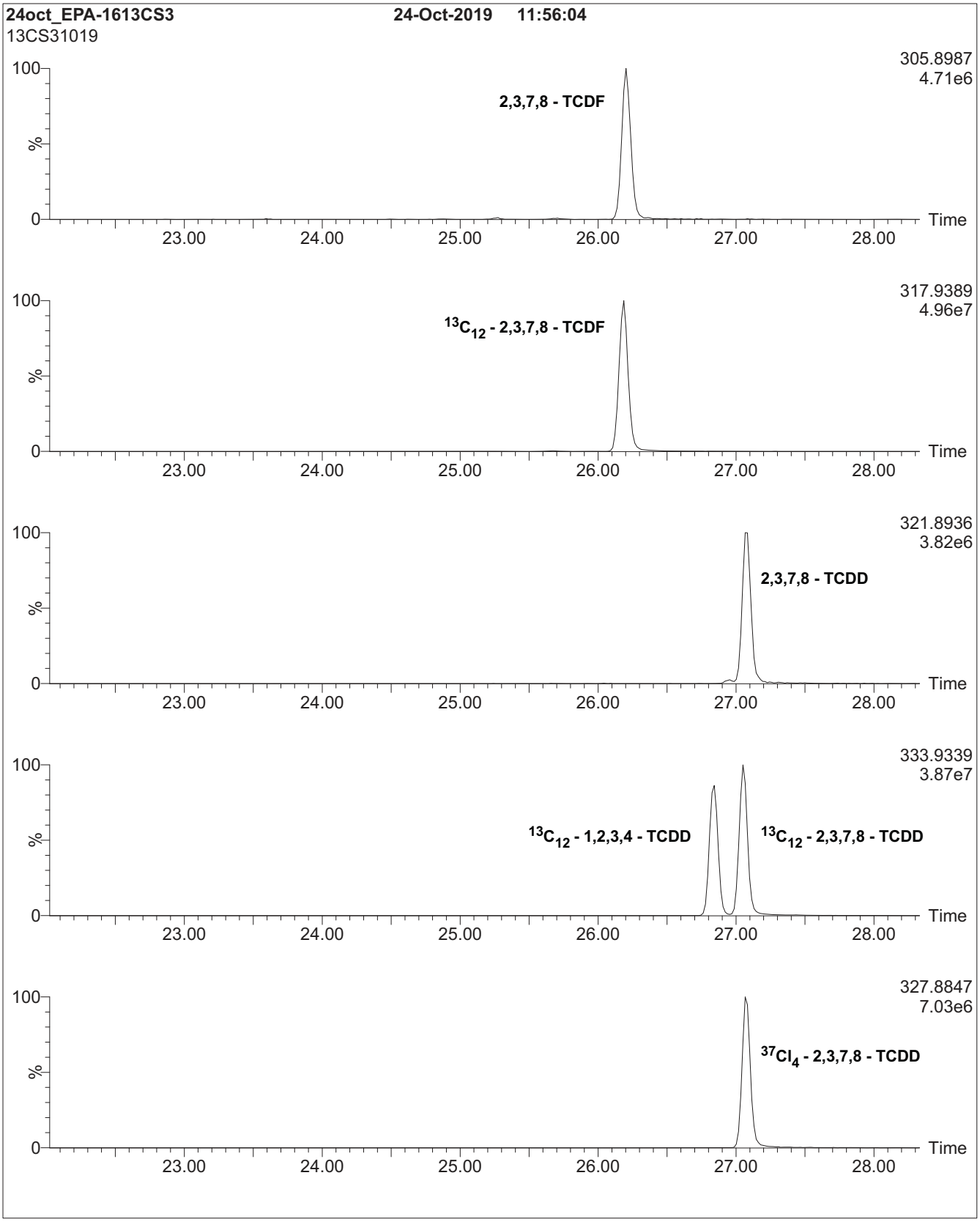


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

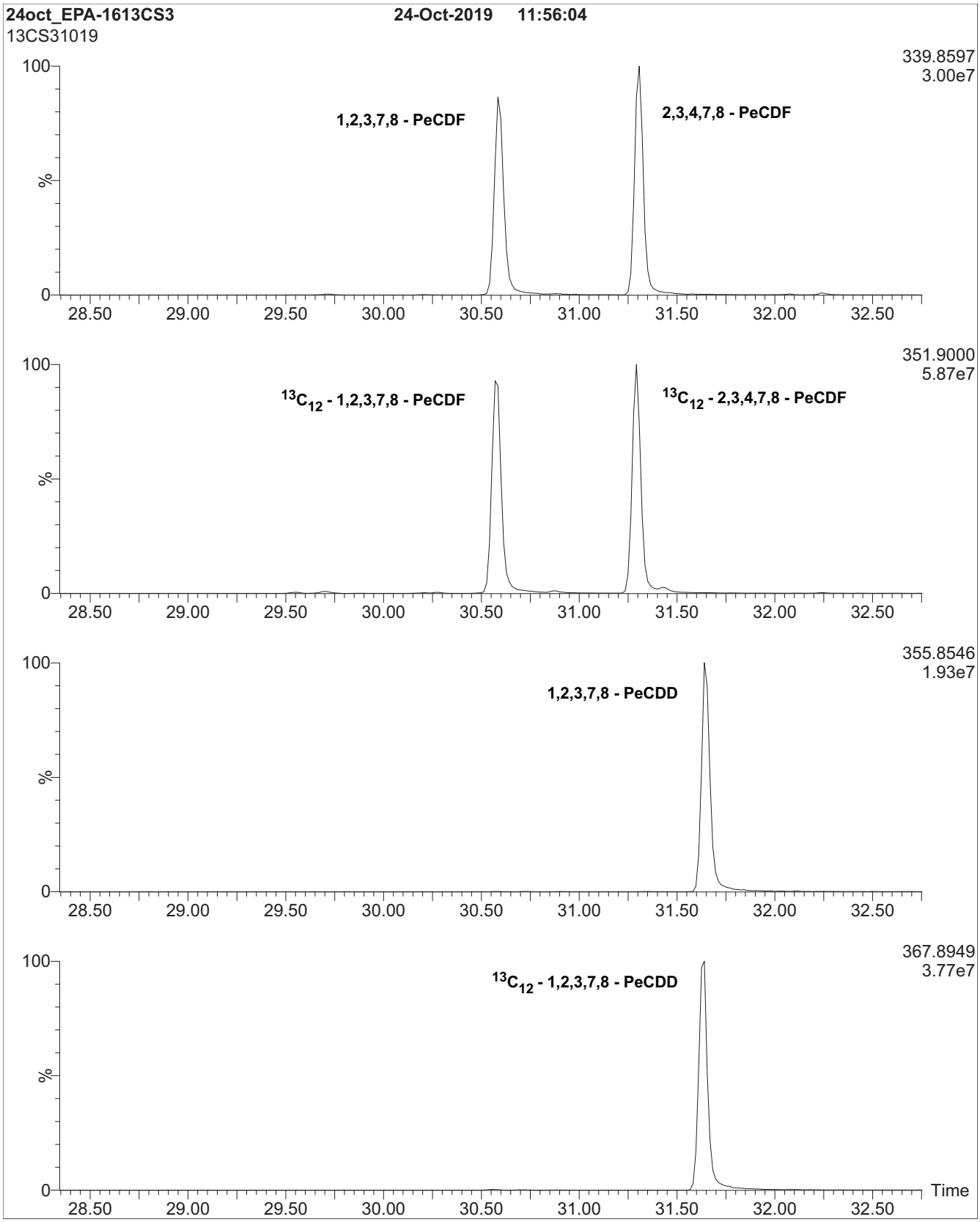


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

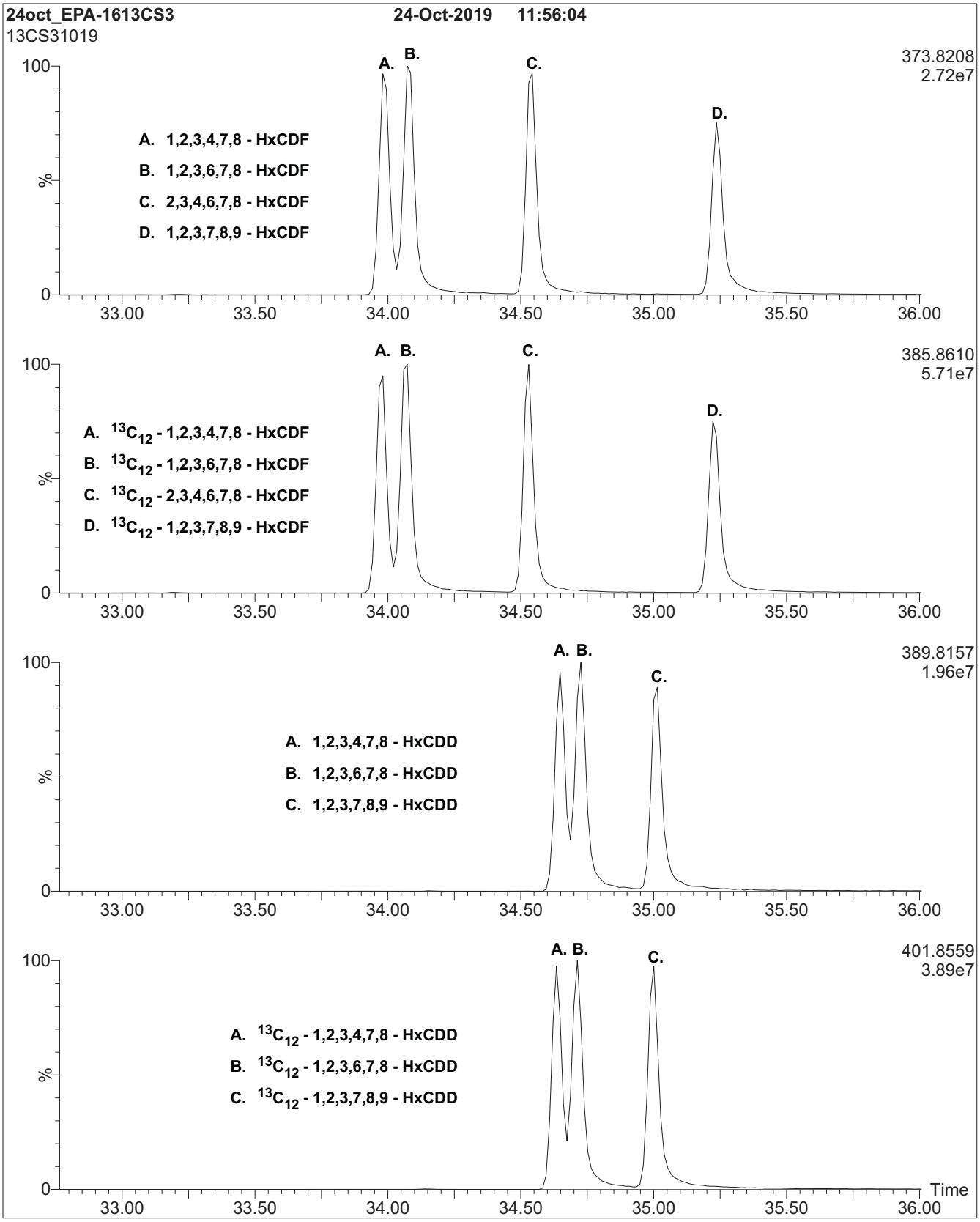


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

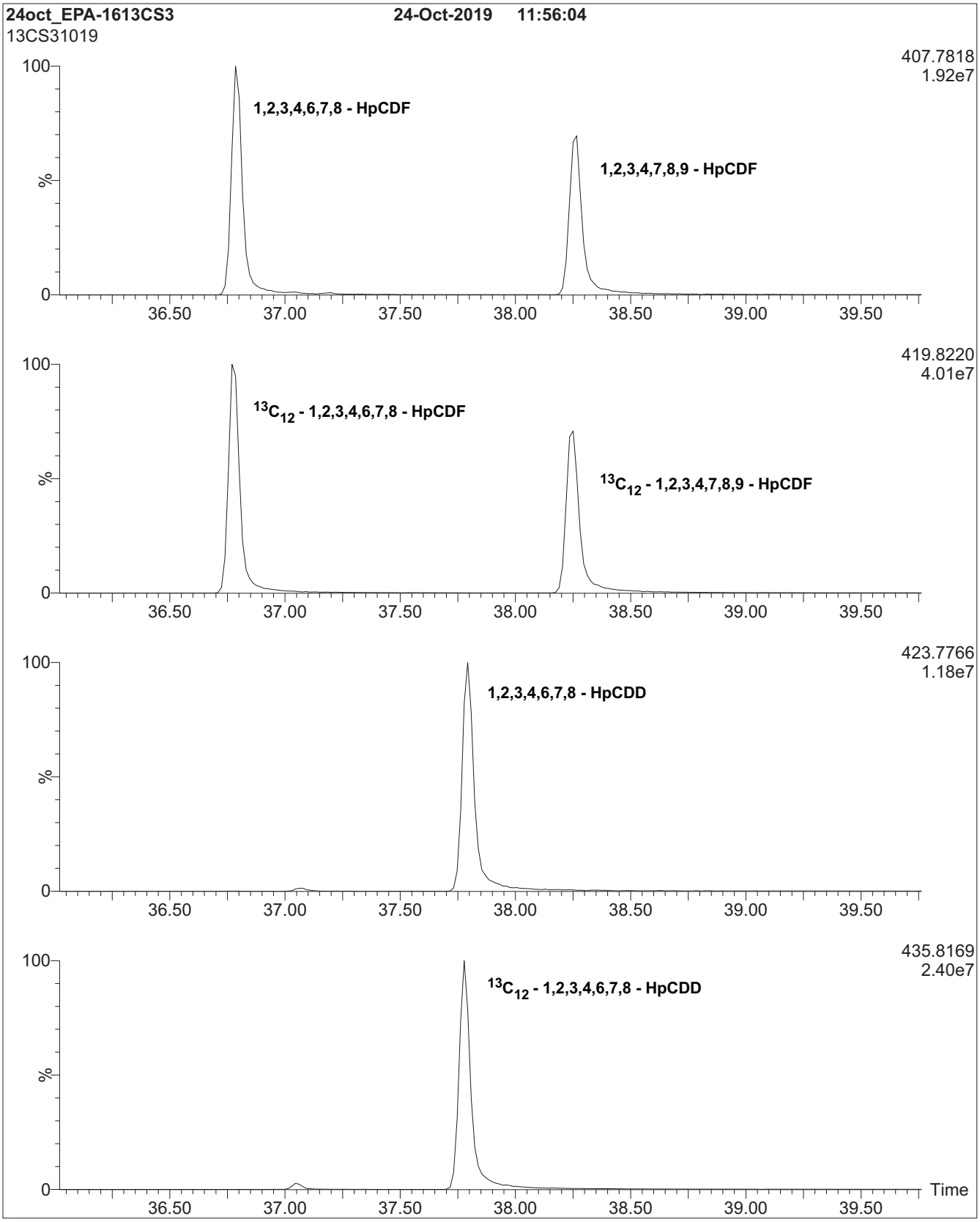
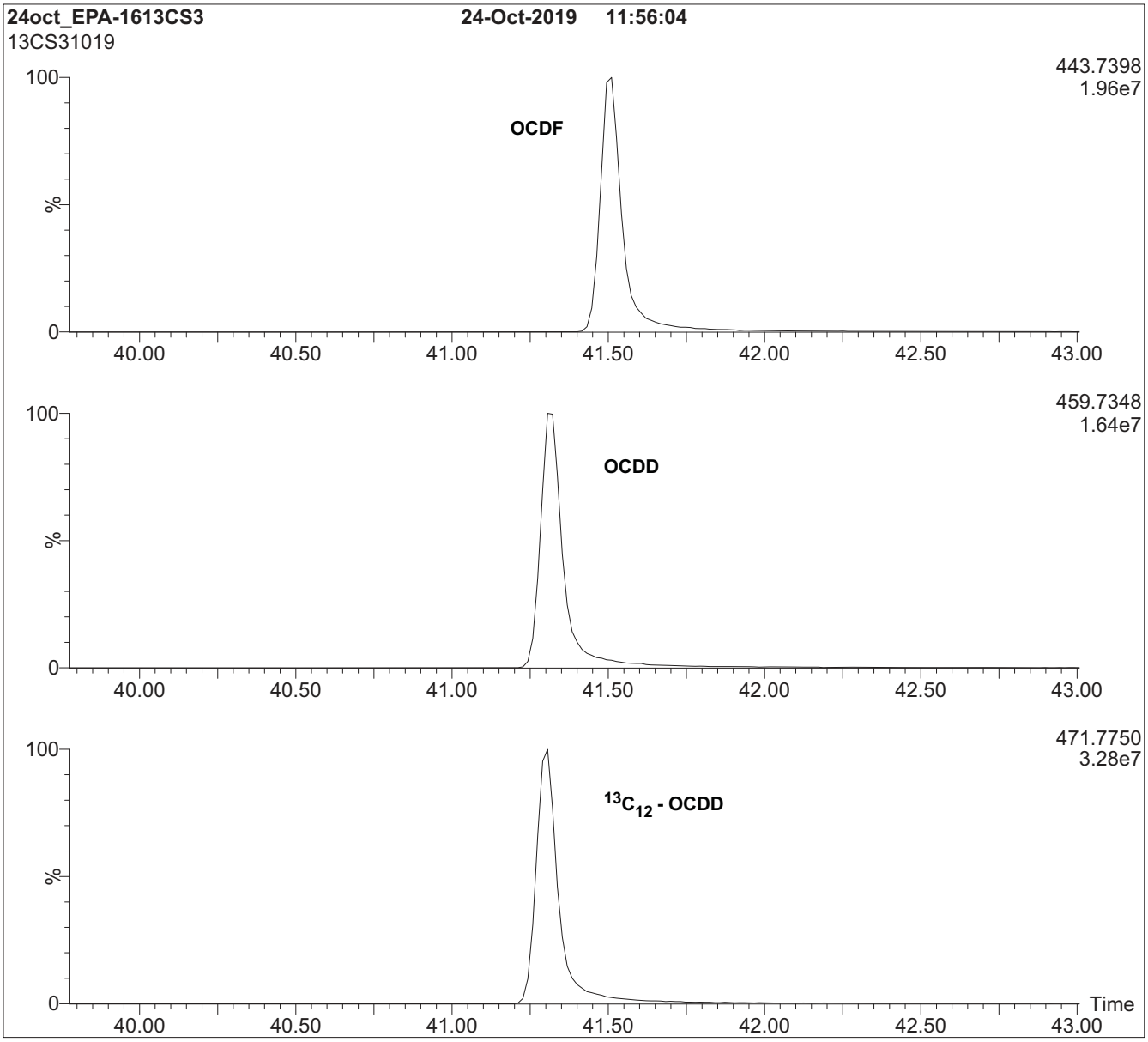


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS
U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005460
1613 CSL CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019 (mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

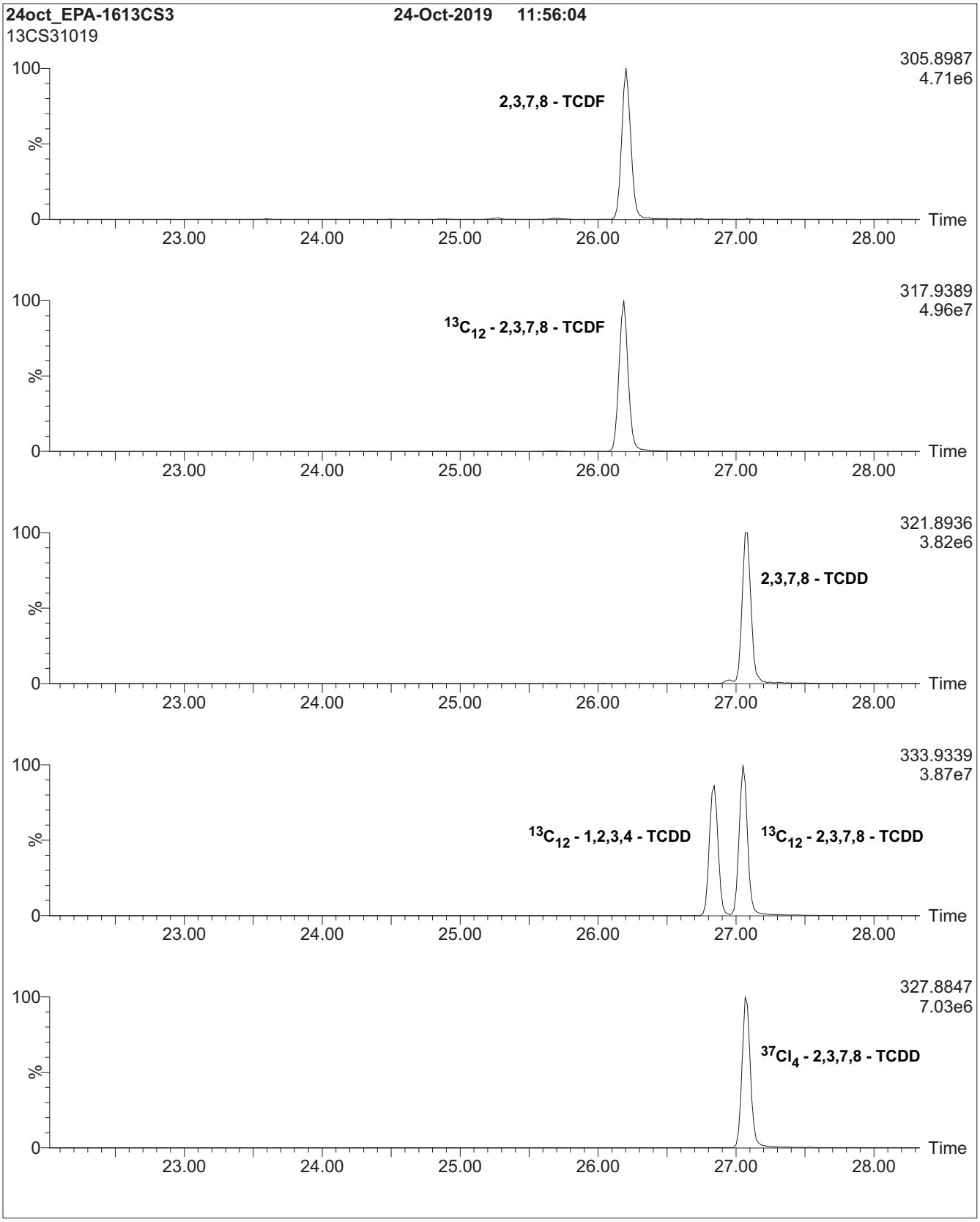


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

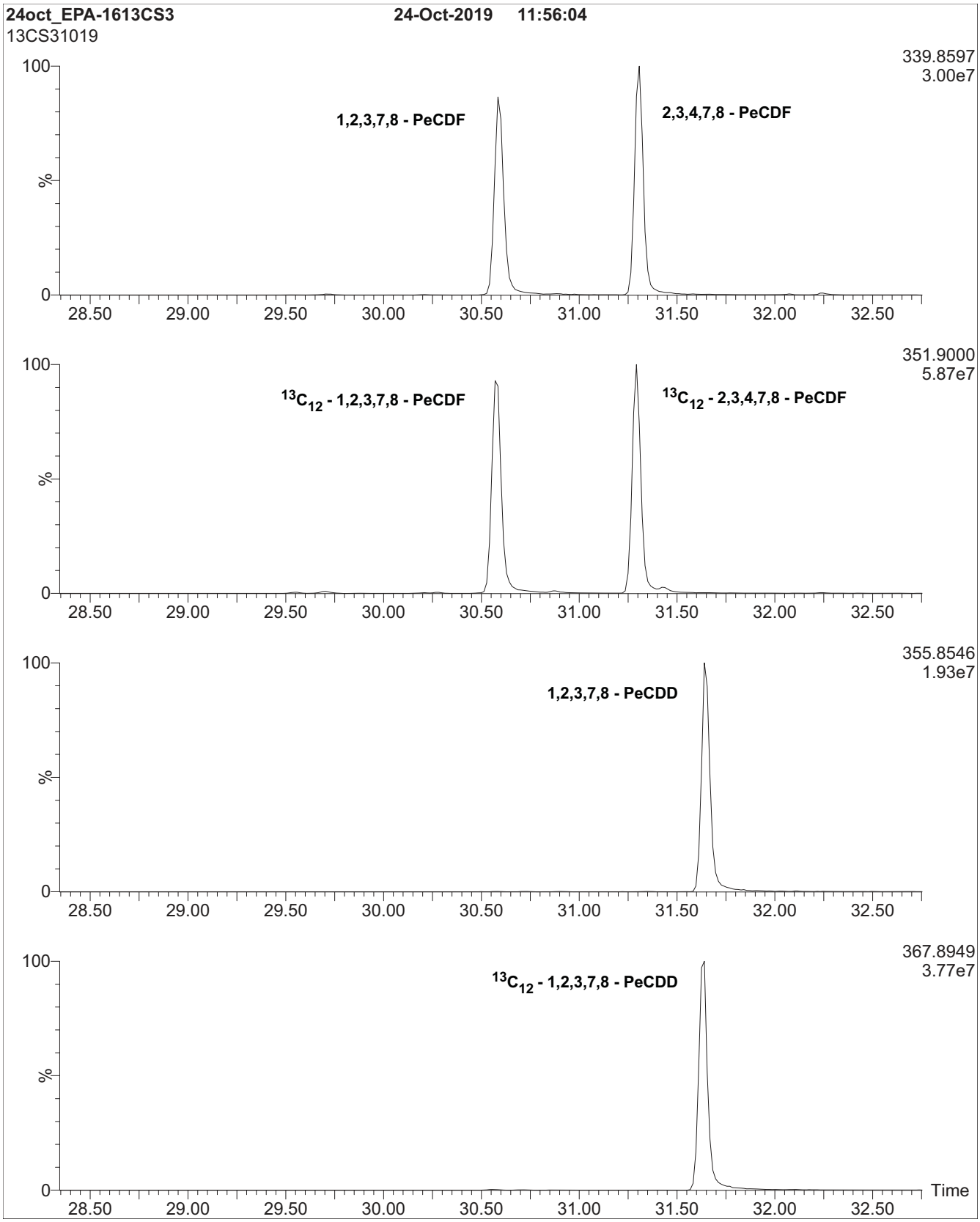


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

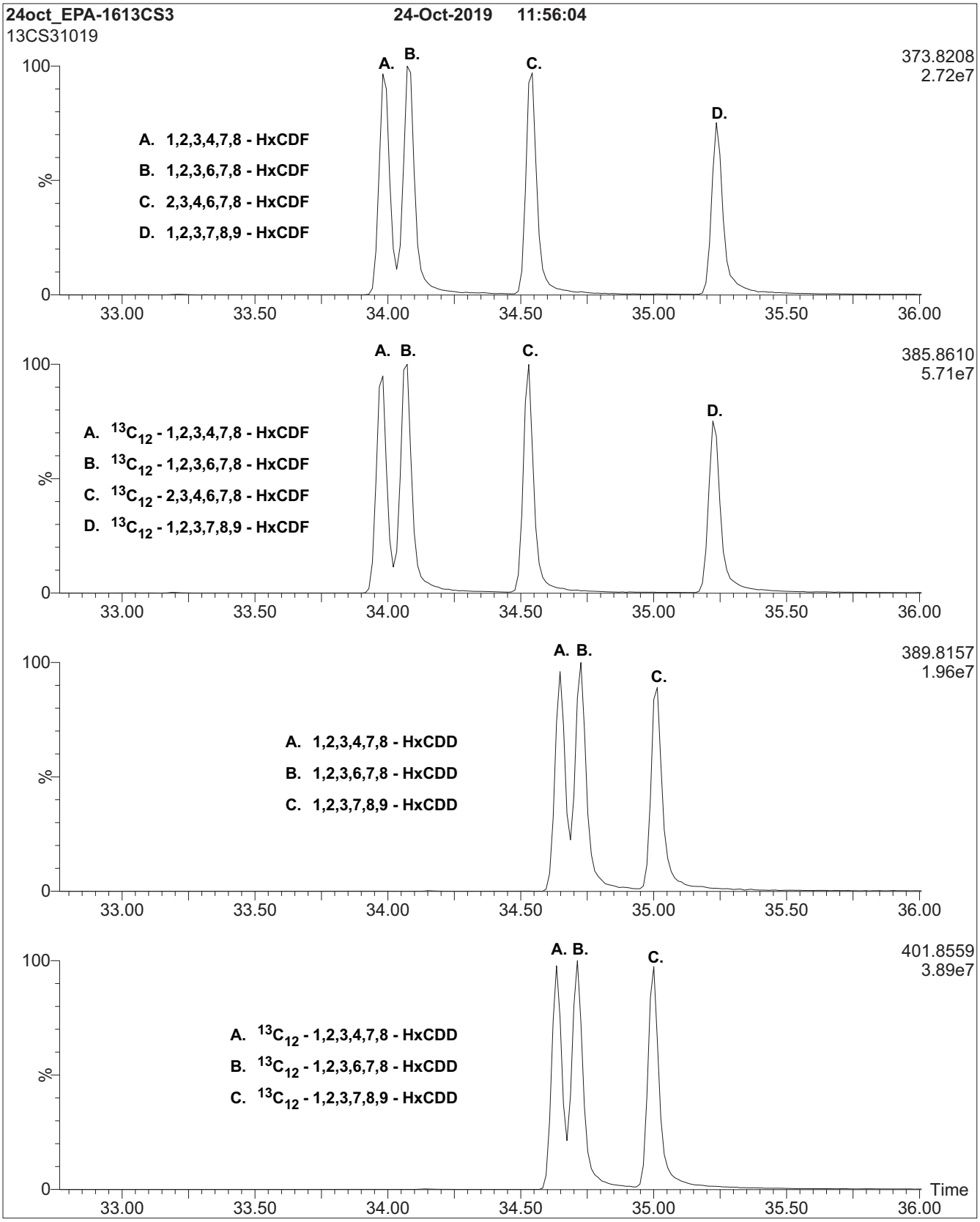


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

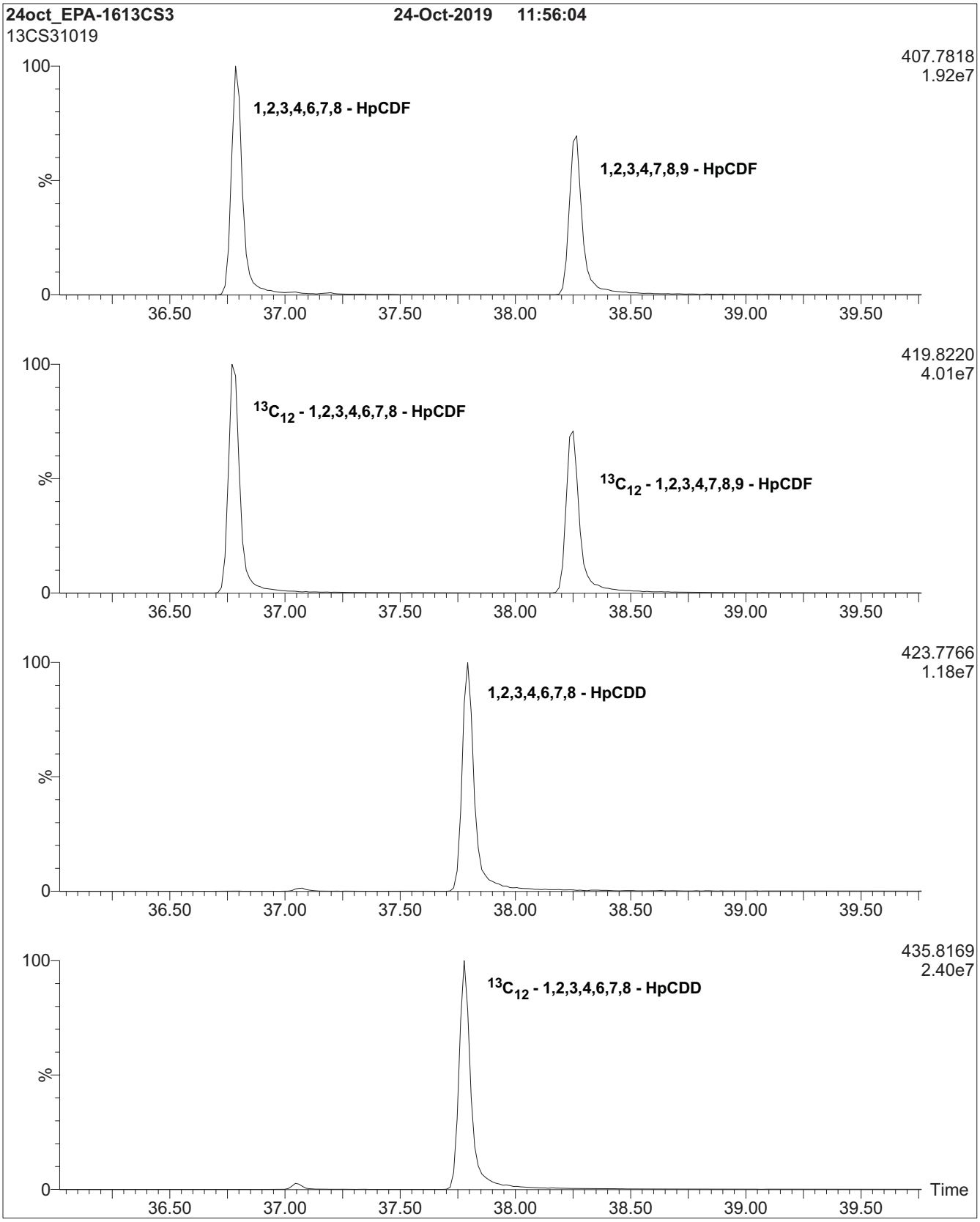
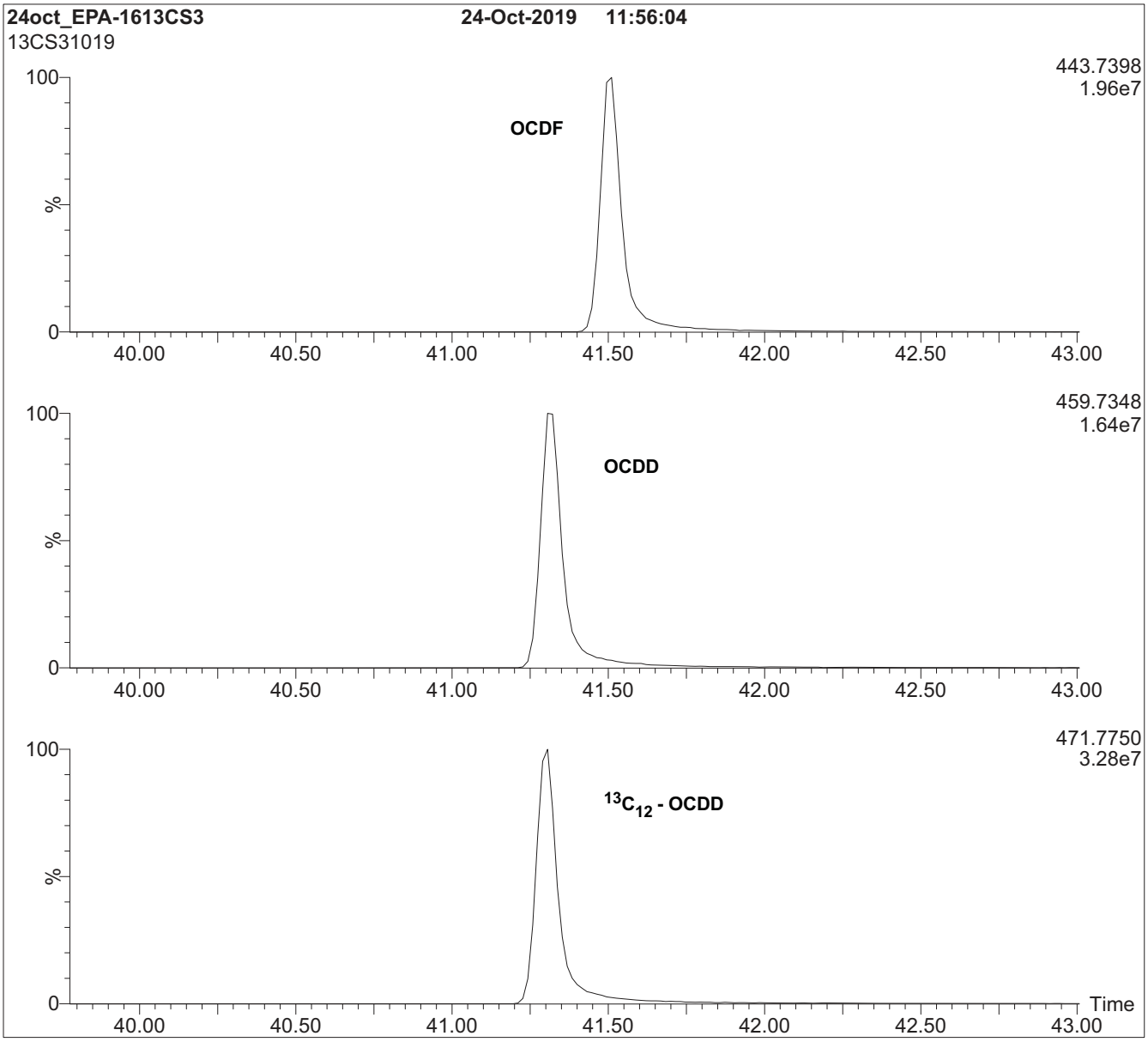


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CSS

U.S. EPA Method 1613 Cleanup Standard Spiking Solution

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1020
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	11/12/2020
LAST TESTED: (mm/dd/yyyy)	01/30/2021
EXPIRY DATE: (mm/dd/yyyy)	11/19/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

I011575
1613B Stock Cleanup Std
Expires 11/19/2027
Prepared By Joshua Rains 12/15/2020

DESCRIPTION:

EPA-1613CSS contains 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin at the concentration given in Table A.

EPA-1613CSS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

Table A: **EPA-1613CSS; Components and Concentrations (ng/mL, ± 5% in nonane)**

Compound	Acronym	CAS #	Concentration (ng/mL)
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin	$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	40.0

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/20/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

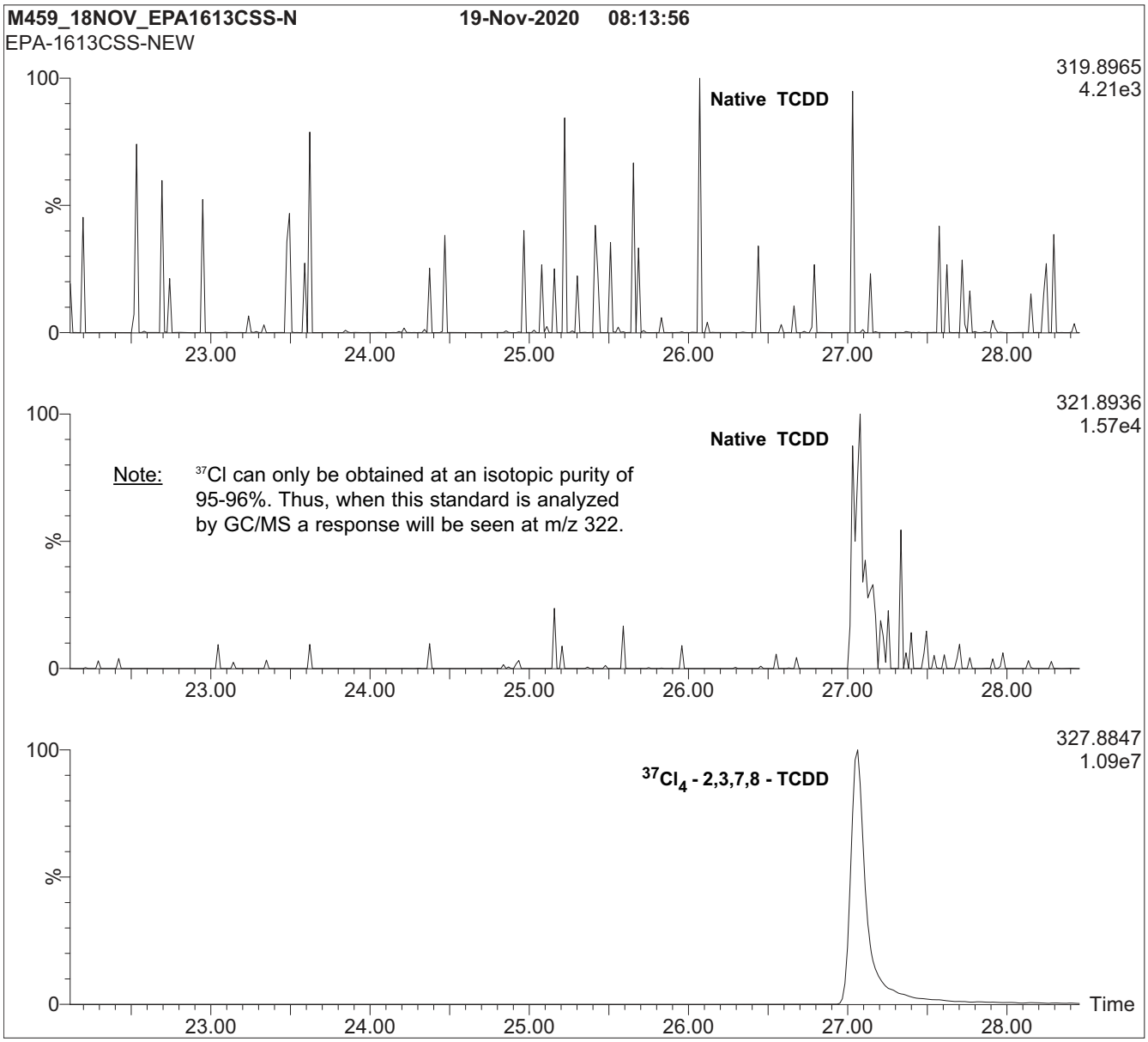
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1020
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/16/2020
LAST TESTED: (mm/dd/yyyy)	10/21/2020
EXPIRY DATE: (mm/dd/yyyy)	10/21/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

I011576
1613B Stock Surr Std
Expires 10/21/2027
Prepared By Joshua Rains 12/15/2020

DESCRIPTION:

EPA-1613LCS is a solution/mixture of mass-labelled ($^{13}C_{12}$) chlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613LCS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613LCS; Components and Concentrations (ng/mL, ± 5% in nonane/3.2% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
Mass-Labelled PCDDs:			
2,3,7,8-Tetrachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:			
2,3,7,8-Tetrachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100

Certified By: _____ **Date:** 11/09/2020
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

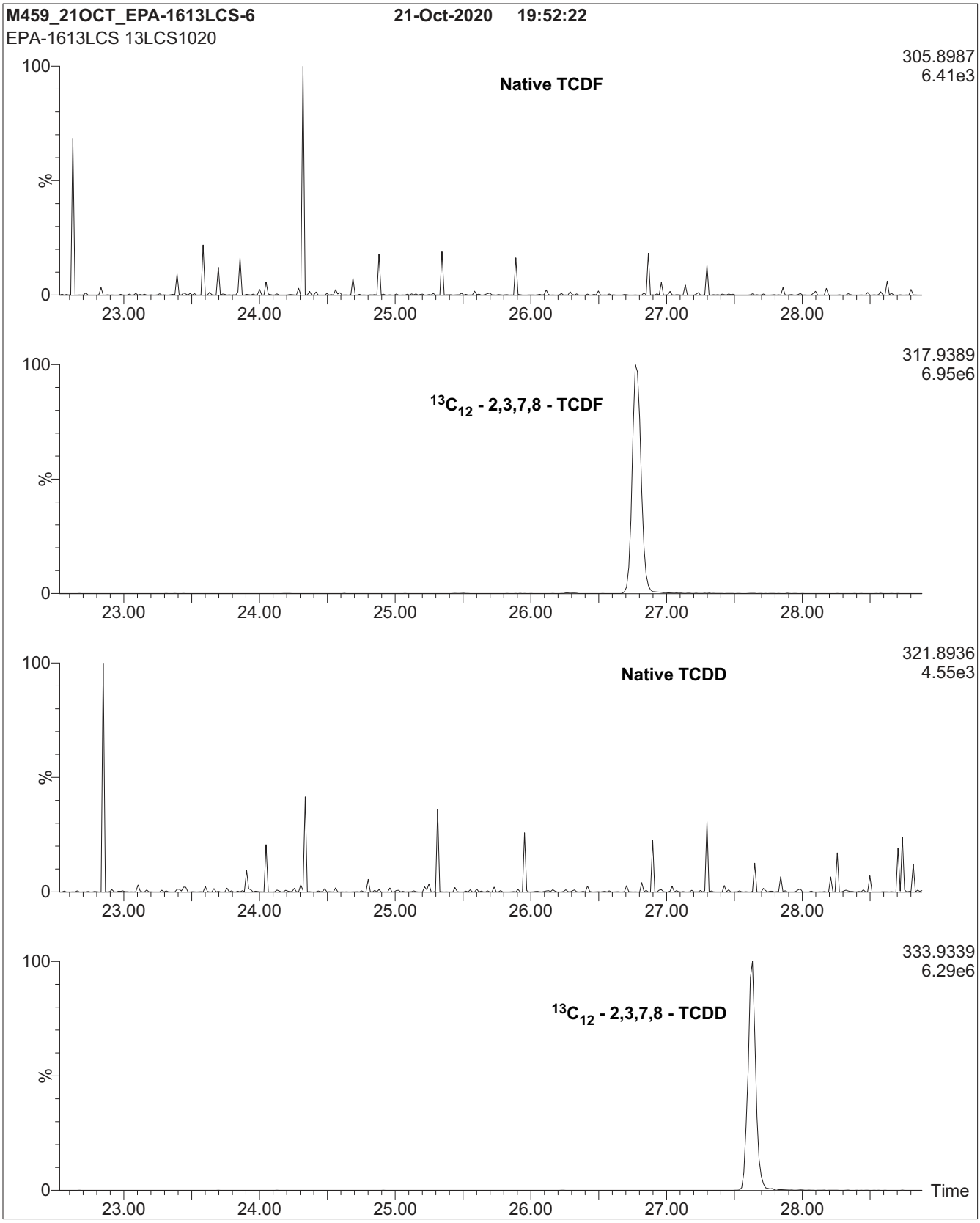


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

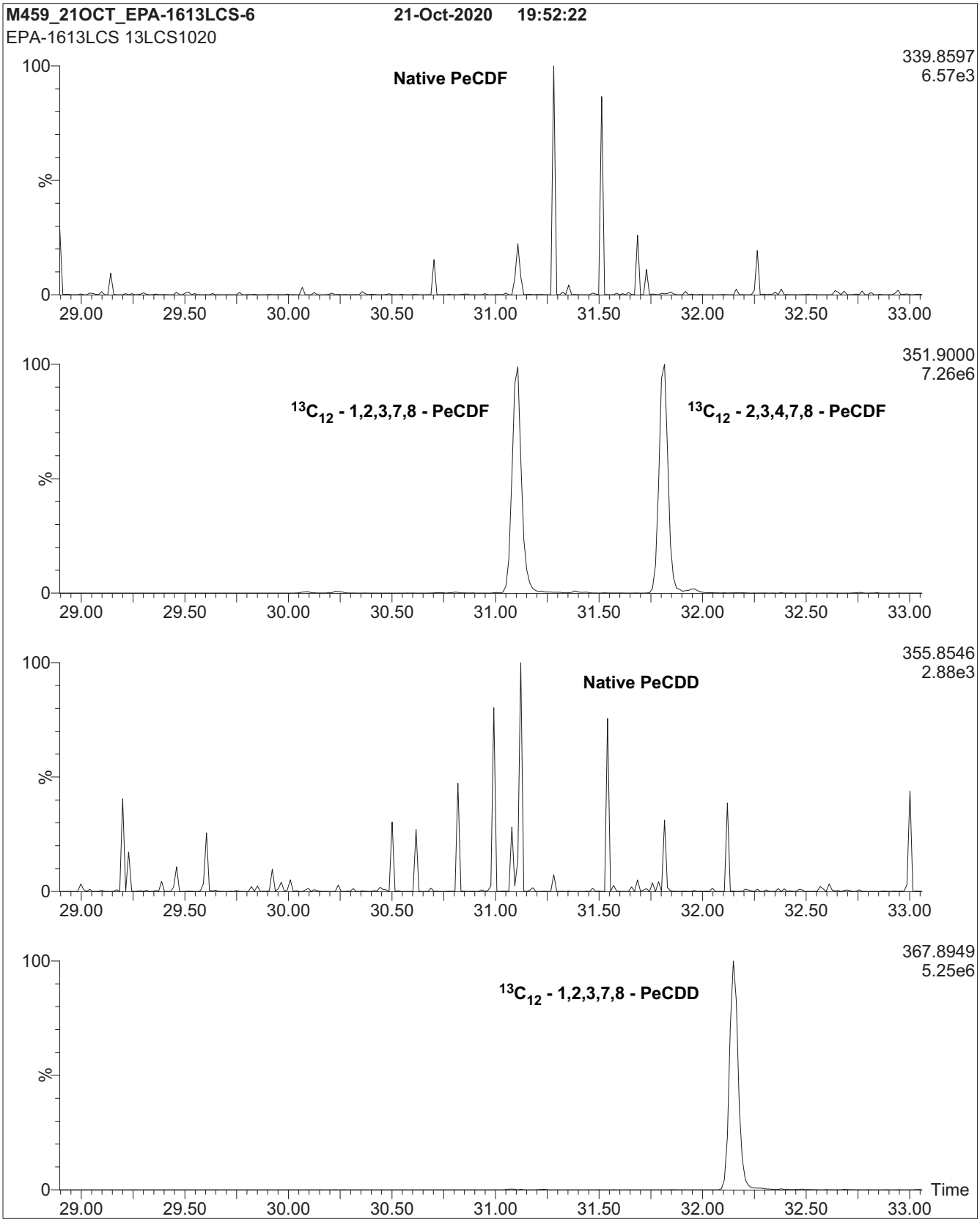


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

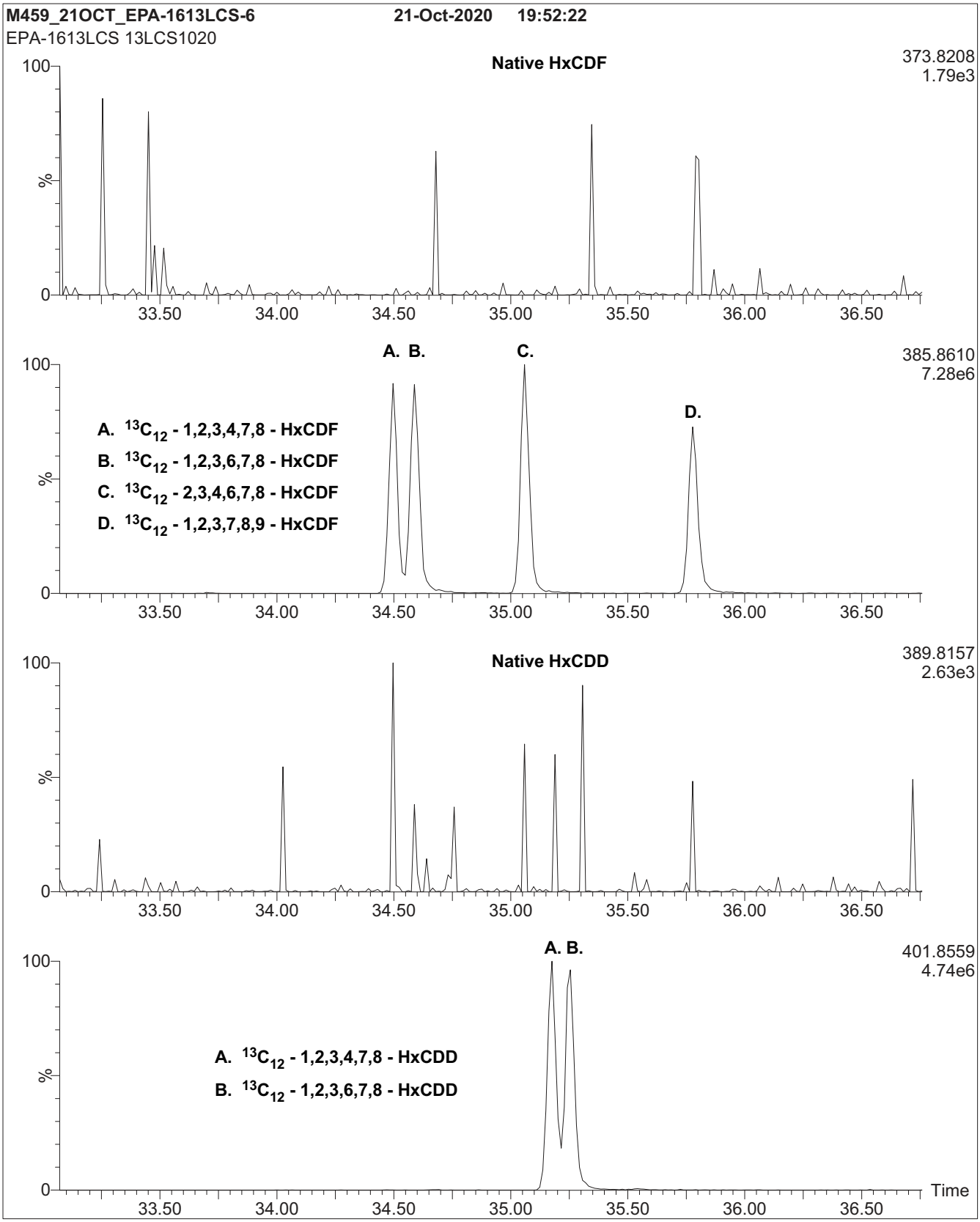


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

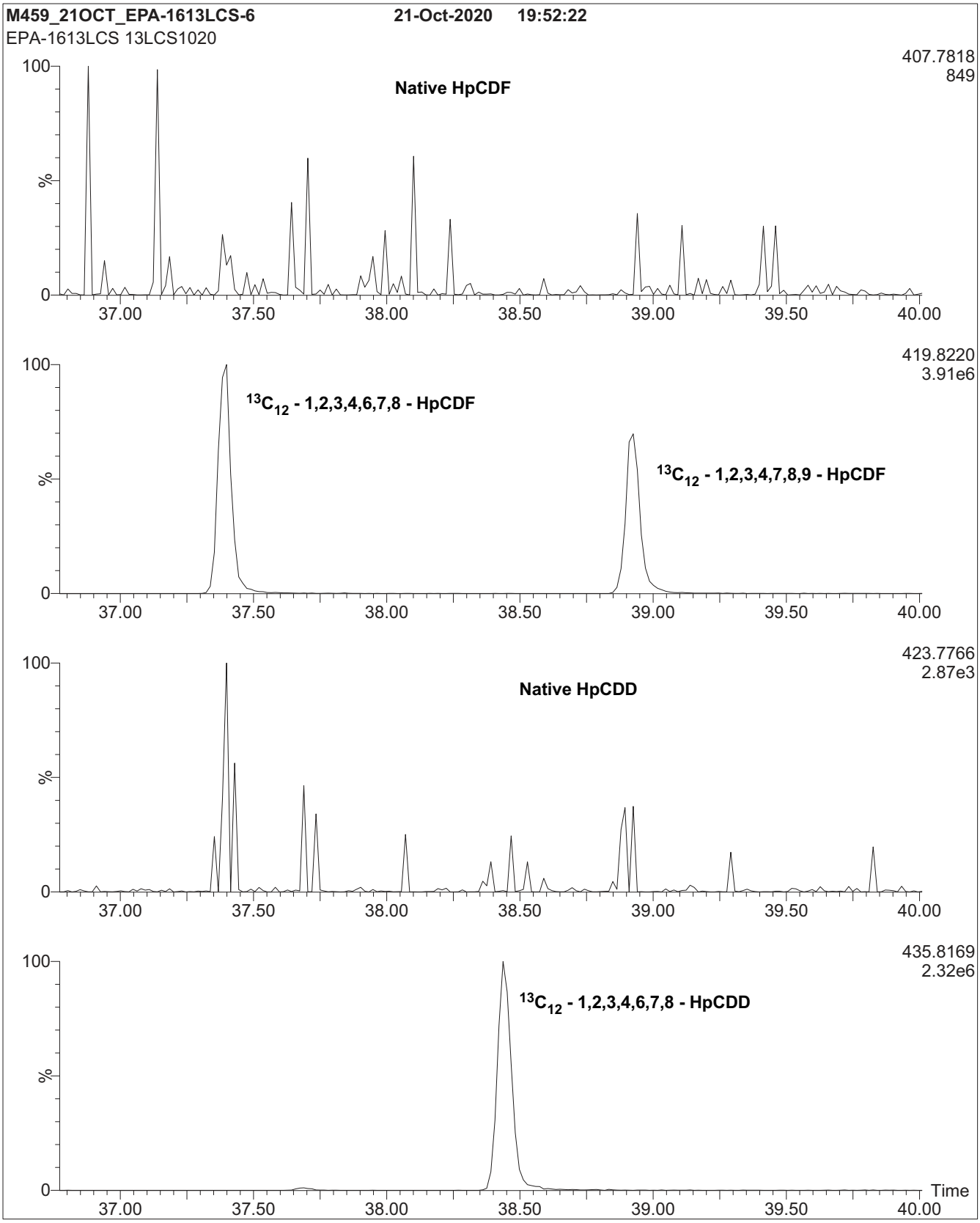
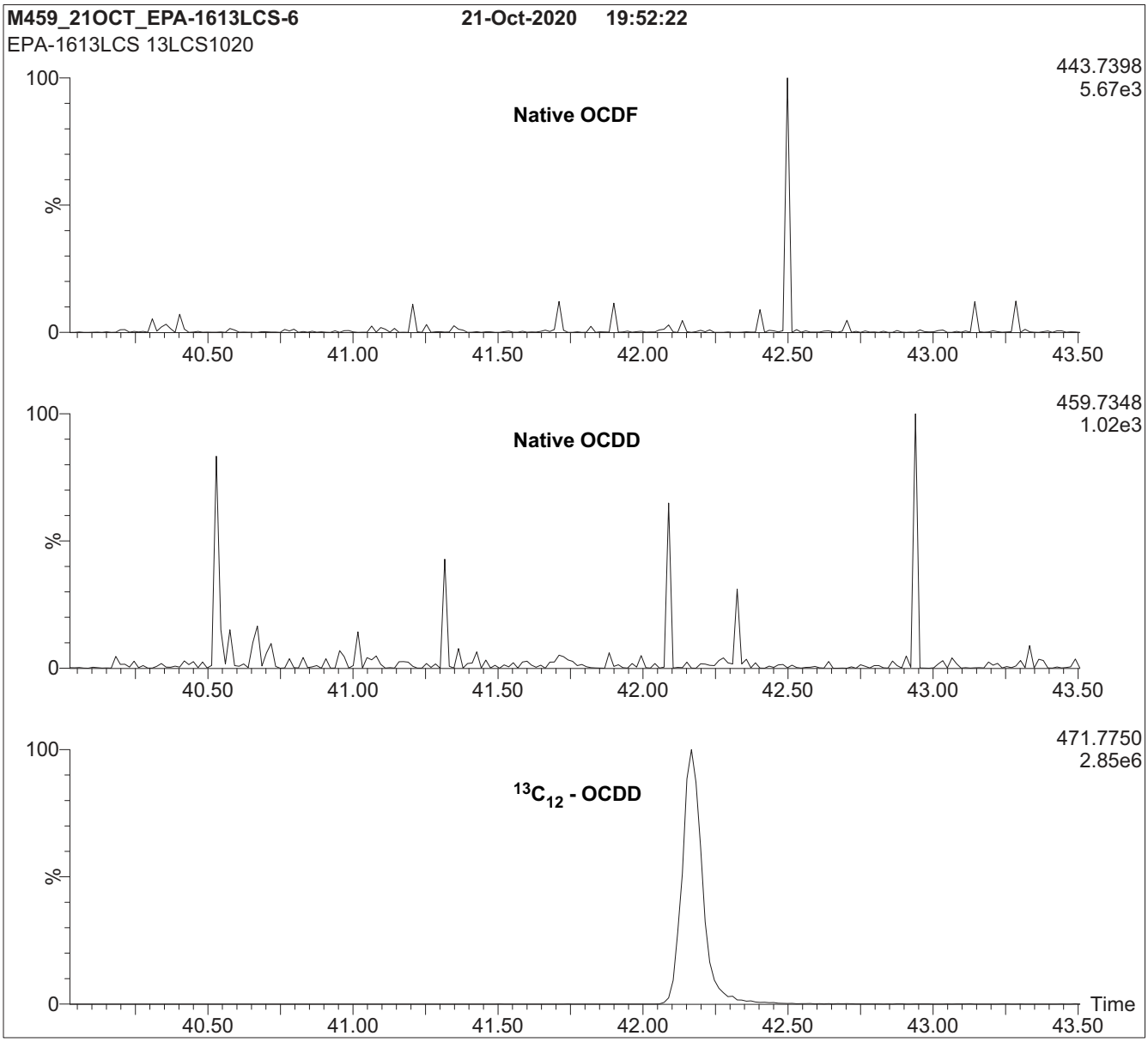


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	300°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1020
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	12/02/2020
LAST TESTED: (mm/dd/yyyy)	12/10/2020
EXPIRY DATE: (mm/dd/yyyy)	12/10/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J001522
1613 CS3WT CCAL STD
Expires 12/10/2027
Prepared By Joshua Rains 2/10/2021

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31020). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11020
EPA-1613CS2	13CS21020
EPA-1613CS3	13CS31020
EPA-1613CS4	13CS41020
EPA-1613CS5	13CS51020
EPA-1613CSL	13CSL1020
EPA-1613CS0.5	13CS0.51020

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Quantitative Components and Concentrations of the Solution/Mixture
Table B: Semi-Quantitative Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2,3,7,8-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 09/17/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

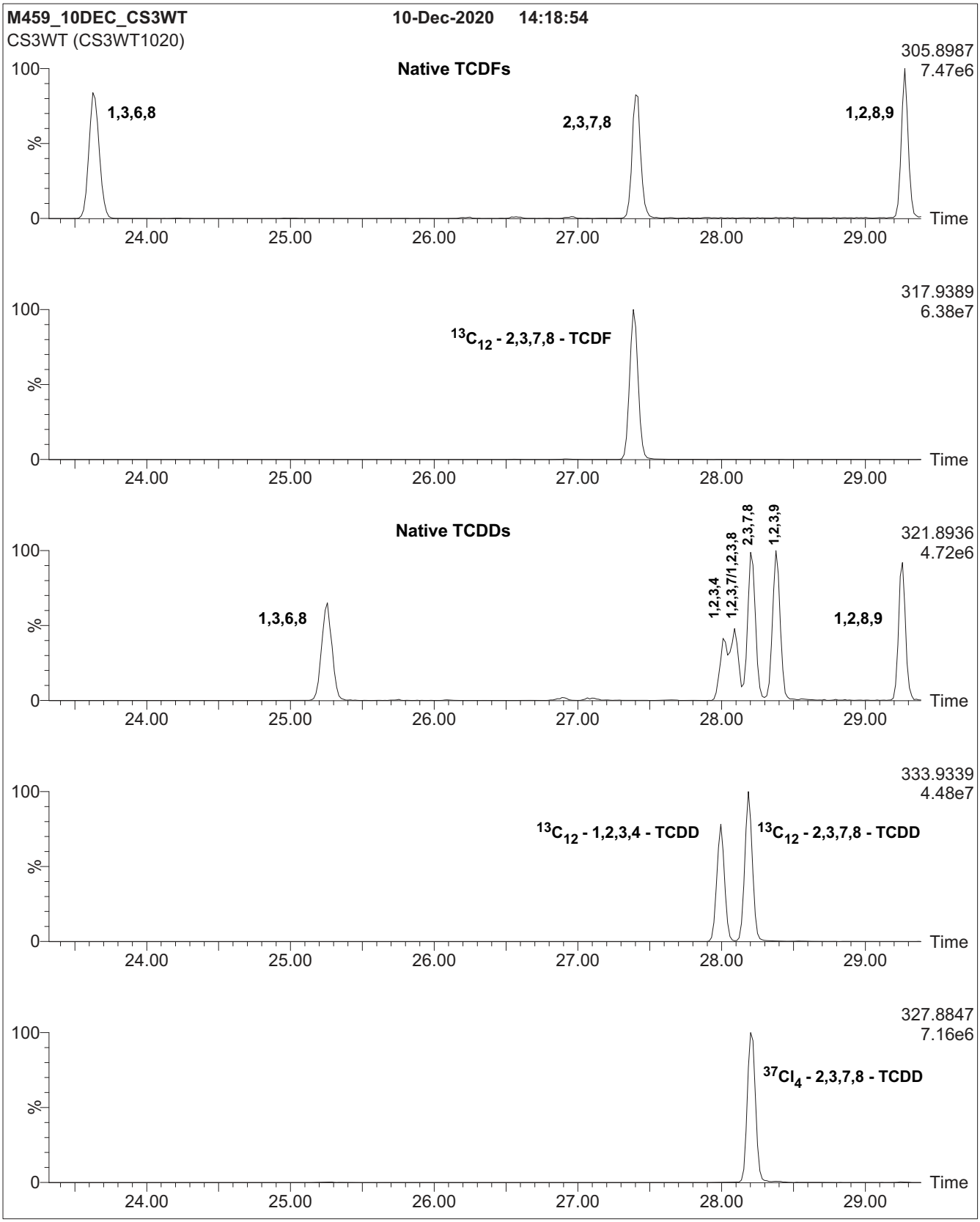


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

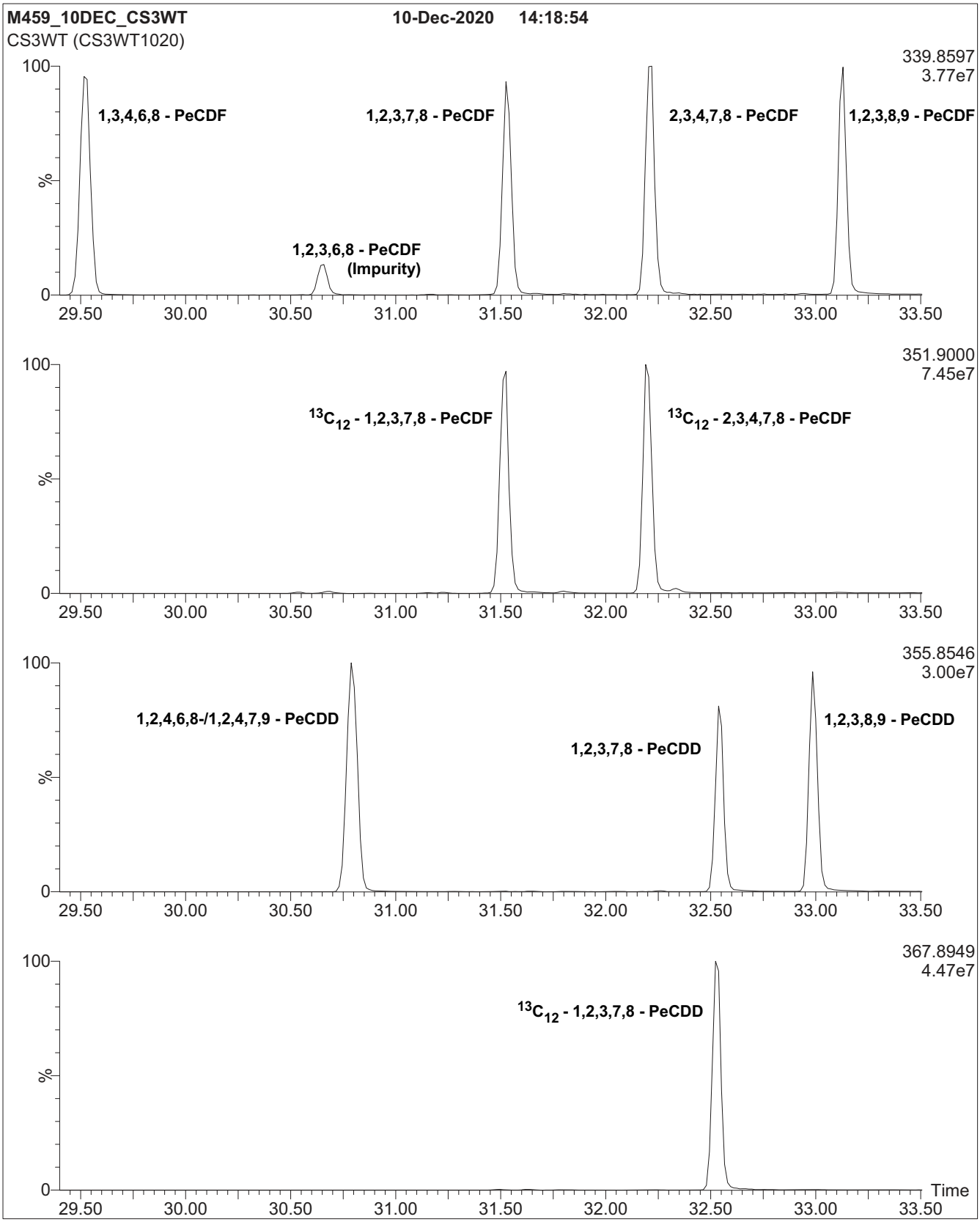


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

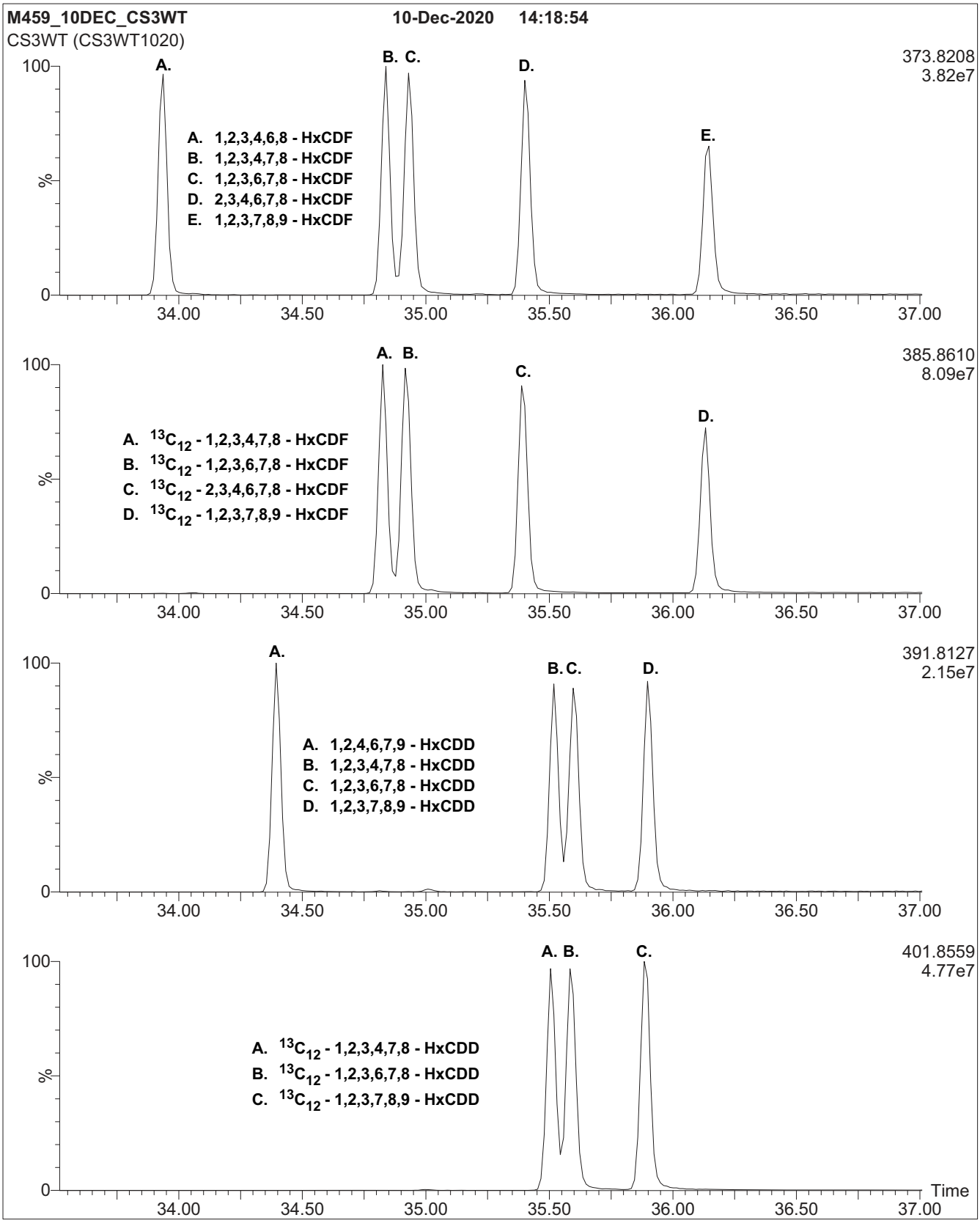


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

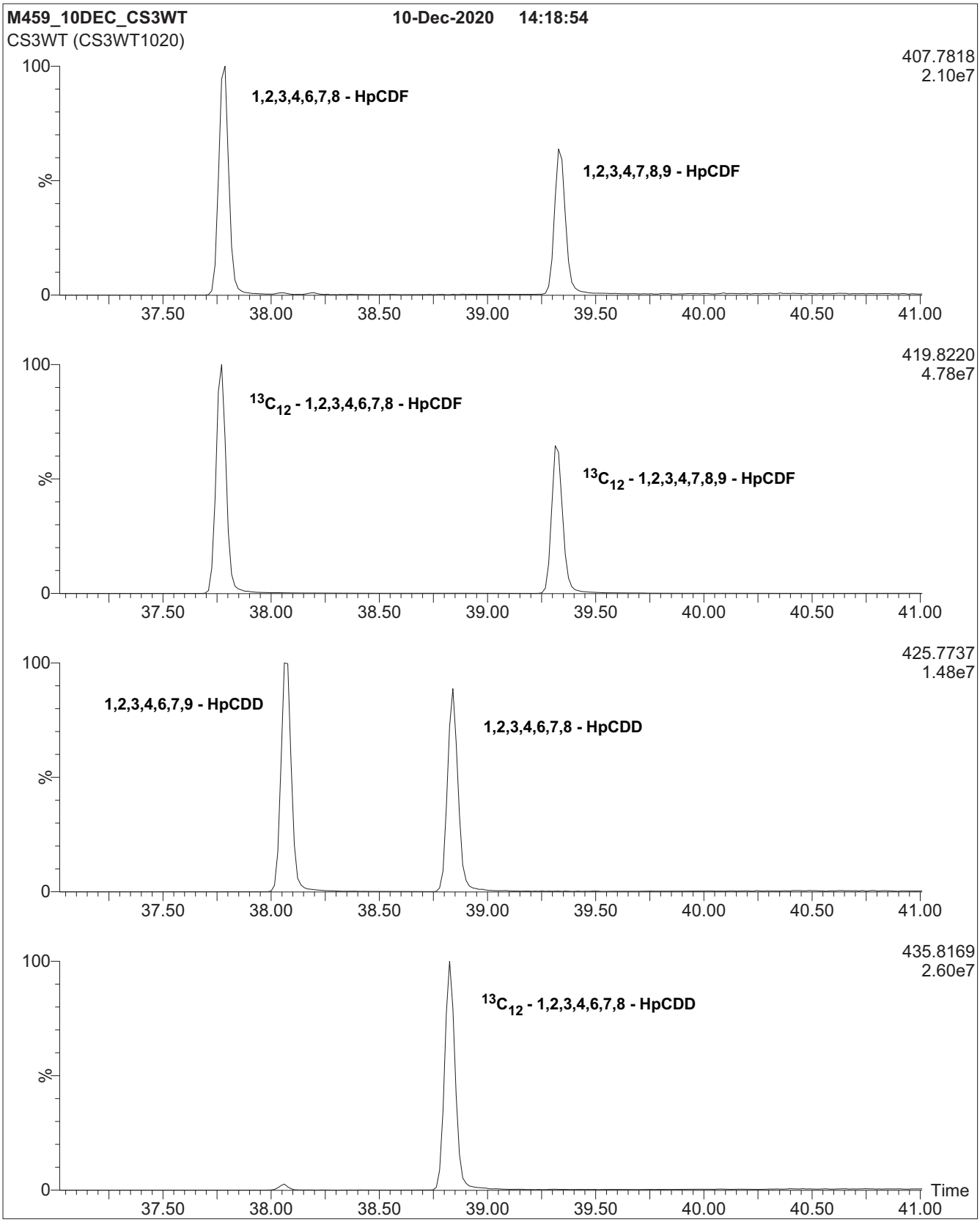
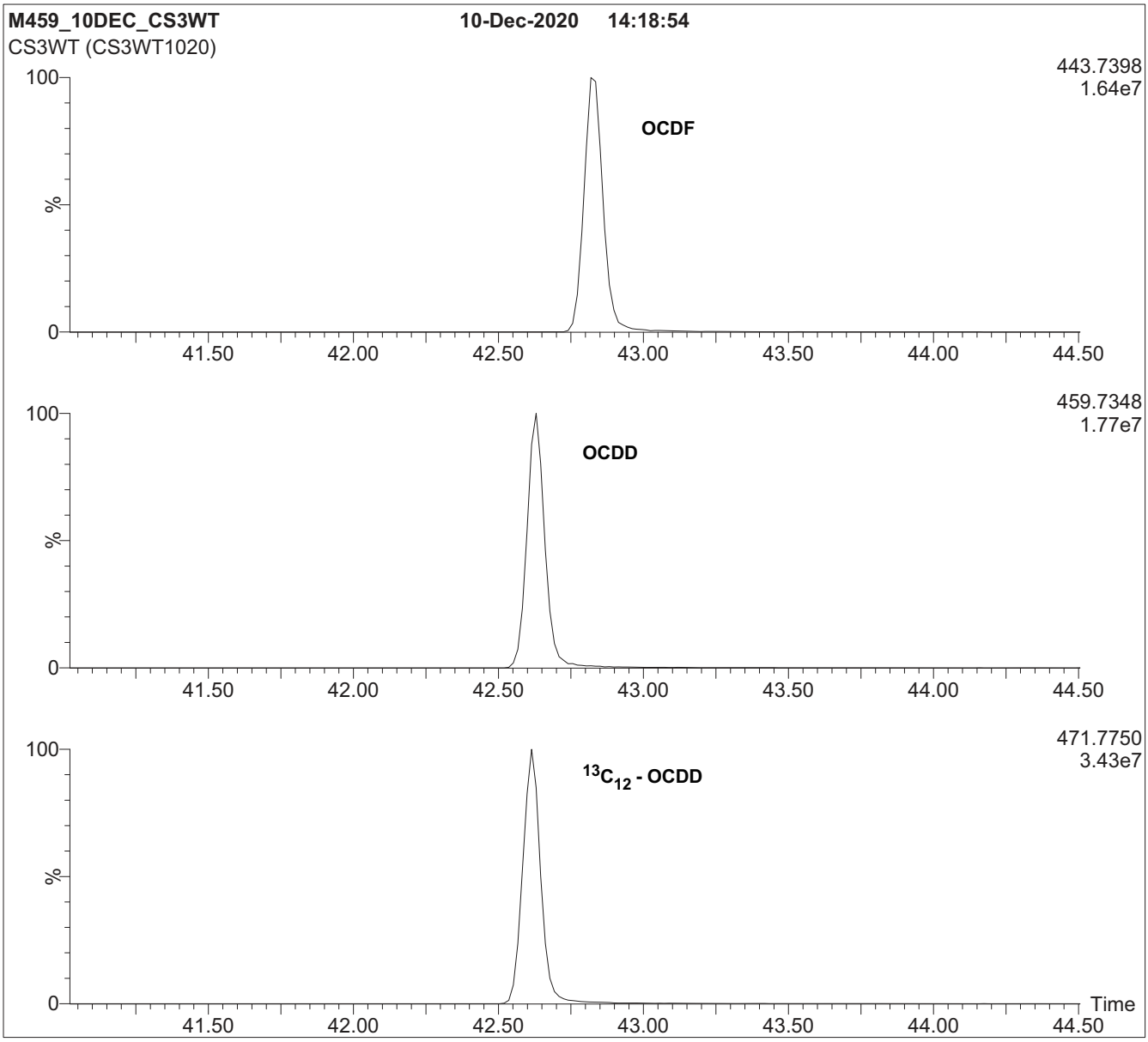


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613CSS

U.S. EPA Method 1613 Cleanup Standard Spiking Solution

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1020
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	11/12/2020
LAST TESTED: (mm/dd/yyyy)	01/30/2021
EXPIRY DATE: (mm/dd/yyyy)	11/19/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J004693
1613B Stock Cleanup Std
Expires 11/19/2027
Prepared By Joshua Rains 4/30/2021

DESCRIPTION:

EPA-1613CSS contains 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin at the concentration given in Table A.

EPA-1613CSS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

Table A: **EPA-1613CSS; Components and Concentrations (ng/mL, ± 5% in nonane)**

Compound	Acronym	CAS #	Concentration (ng/mL)
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin	$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	40.0

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/20/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

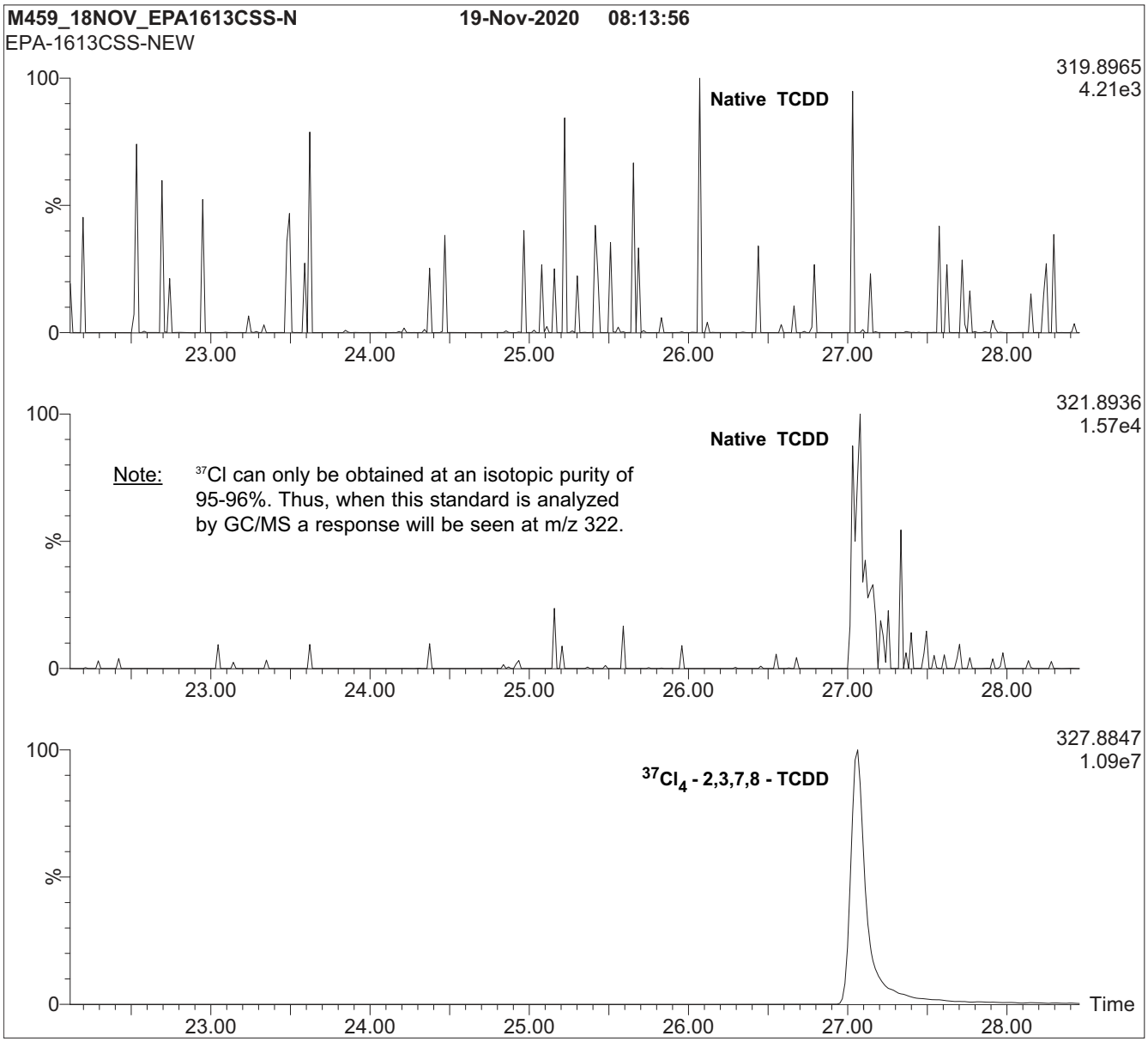
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1020
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/16/2020
LAST TESTED: (mm/dd/yyyy)	01/30/2021
EXPIRY DATE: (mm/dd/yyyy)	10/21/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J004694
1613B Stock Surr Std
Expires 10/21/2027
Prepared By Joshua Rains 4/30/2021

DESCRIPTION:

EPA-1613LCS is a solution/mixture of mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613LCS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

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CALA Testing Accreditation No. A1226

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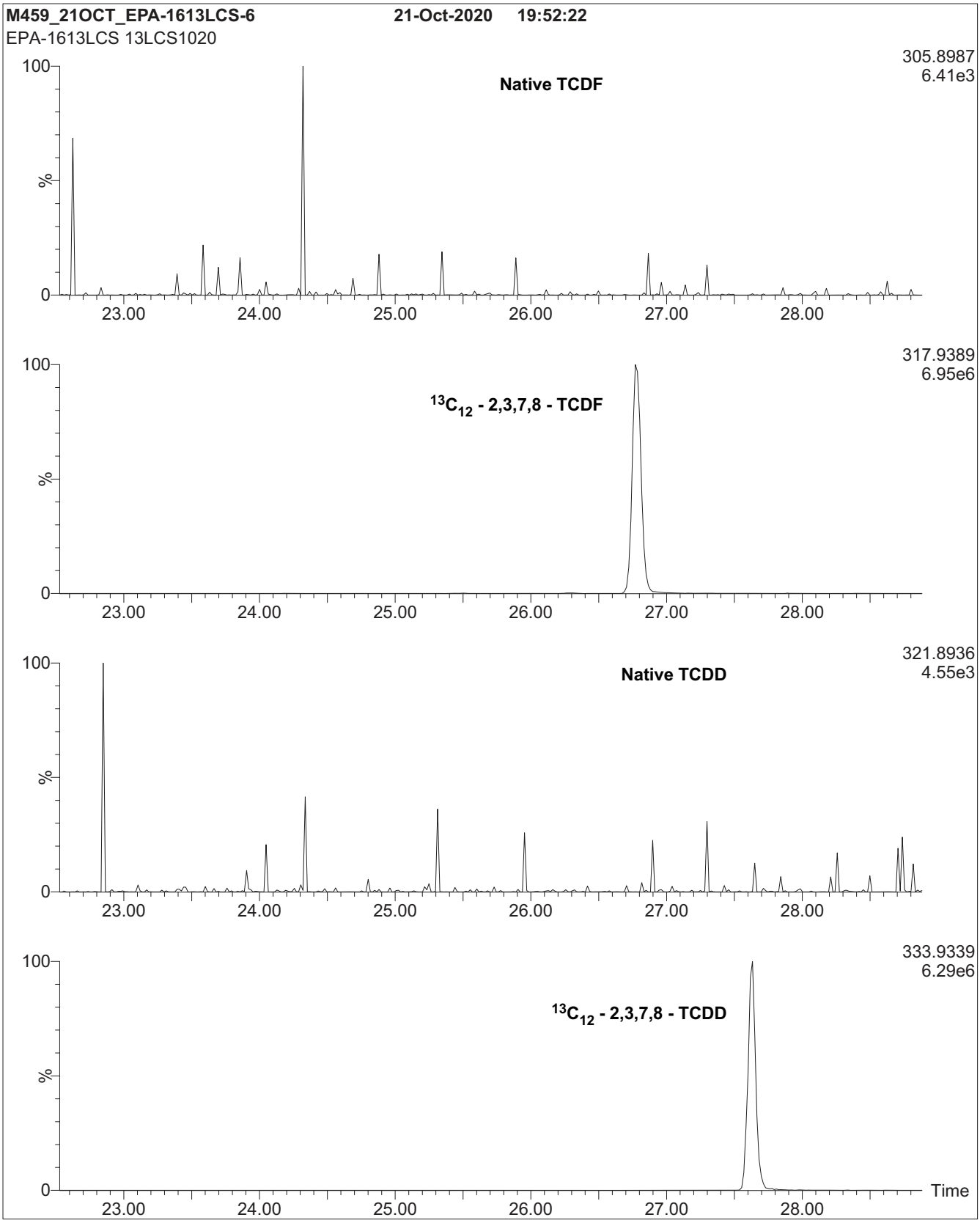
Table A: **EPA-1613LCS; Components and Concentrations (ng/mL, ± 5% in nonane/3.2% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
Mass-Labelled PCDDs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100

Certified By: _____ **Date:** 04/19/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



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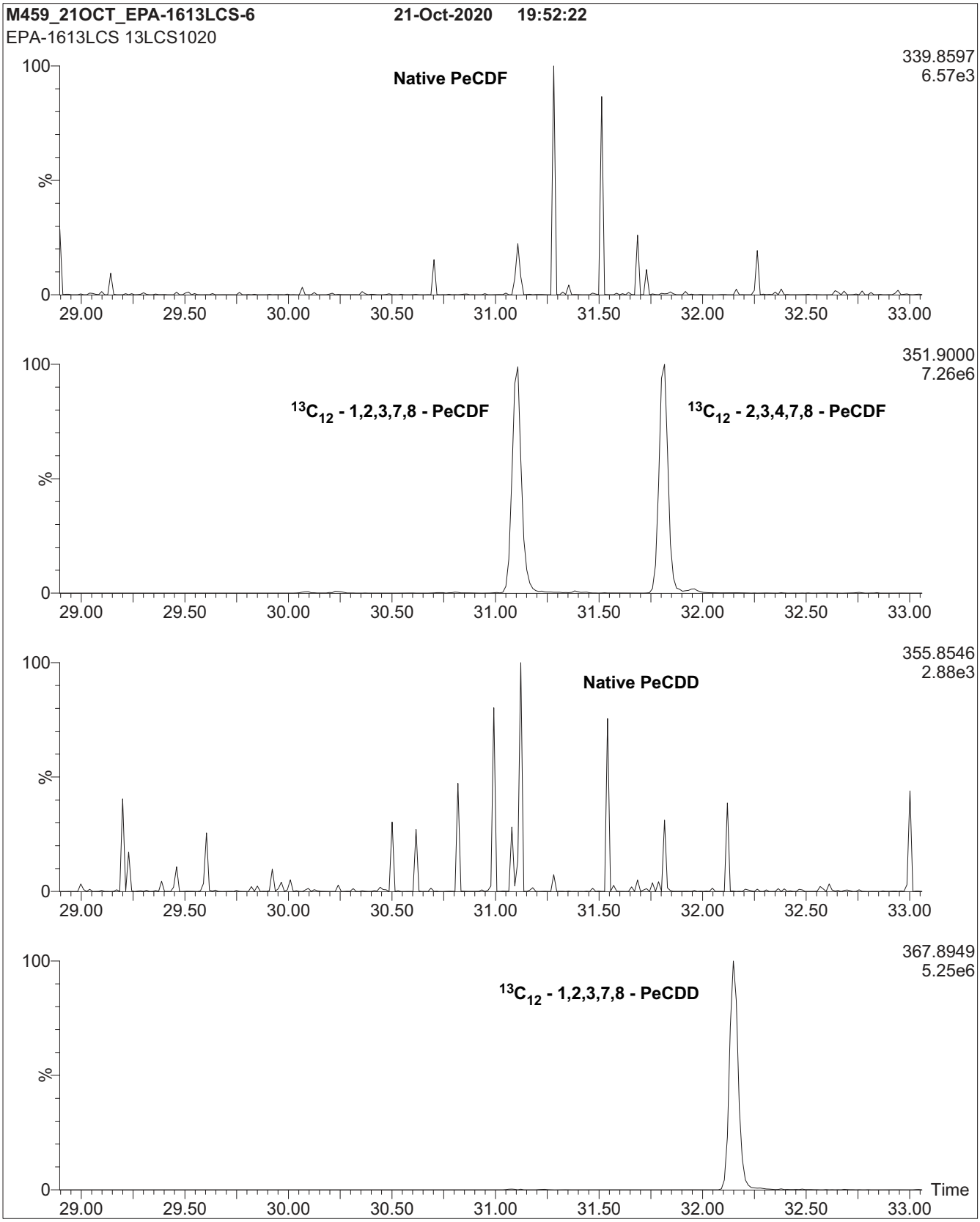

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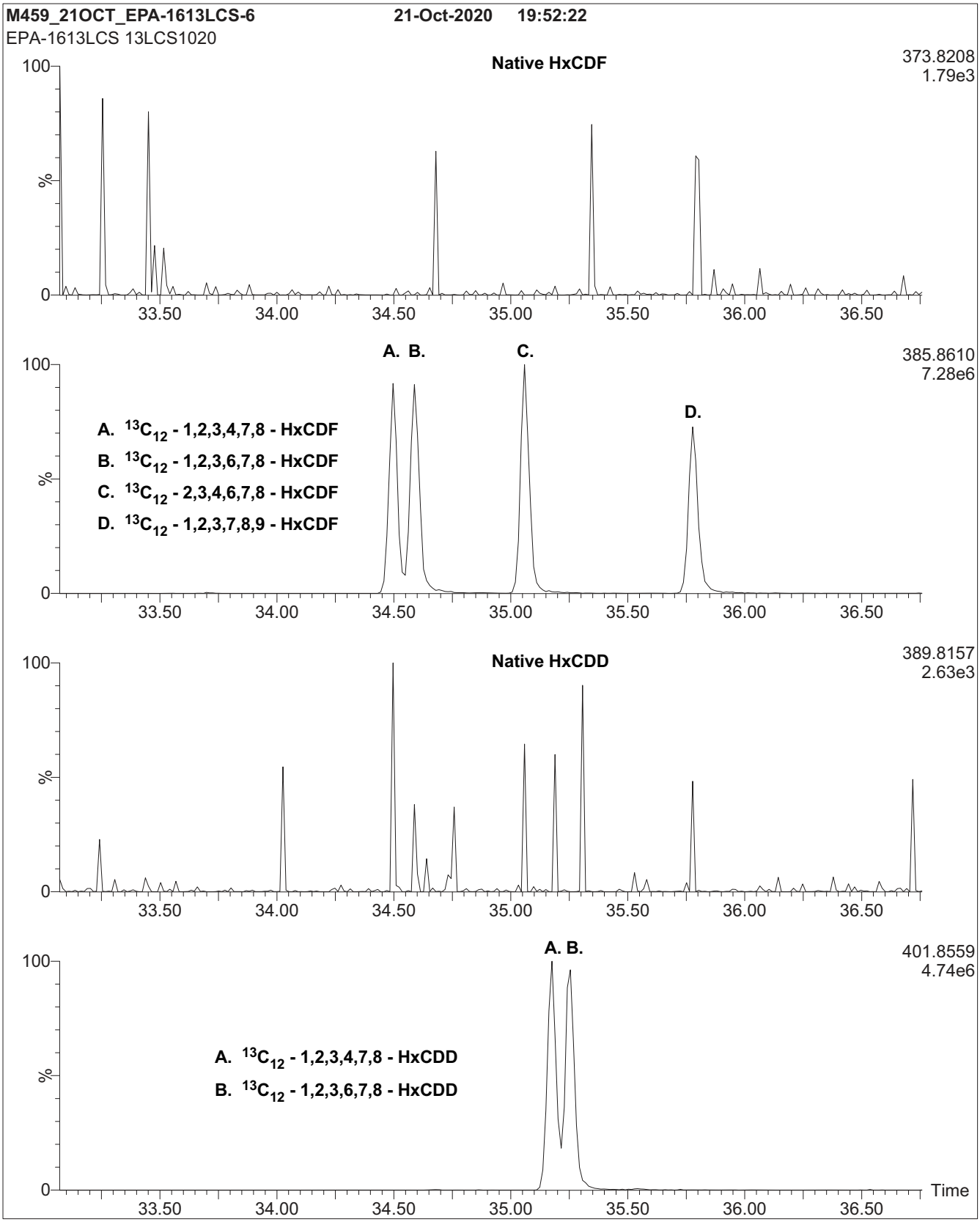

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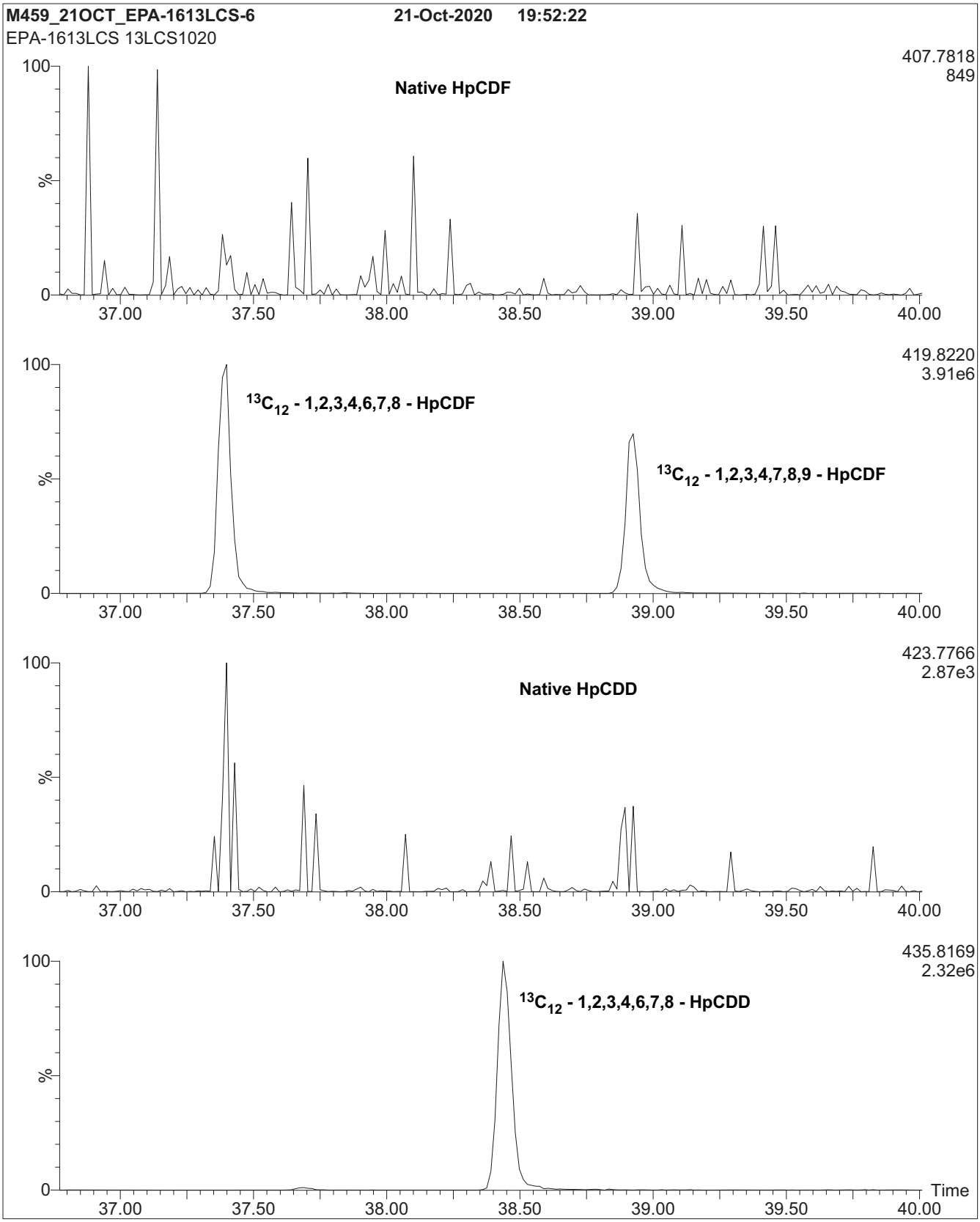

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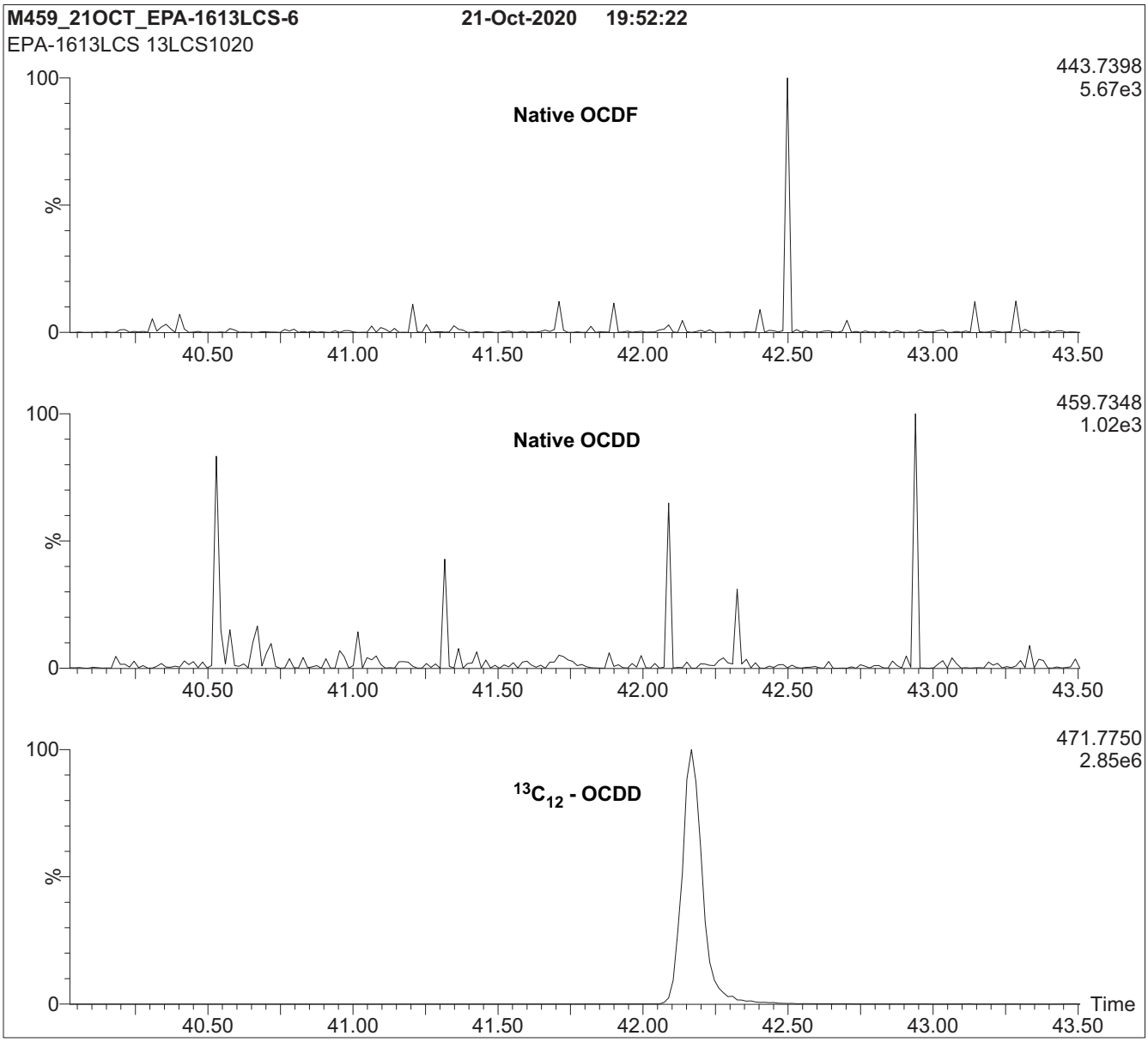

Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	300°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: J005595 **Printed: 5/26/2021 2:15:33PM**

Description:	Dioxin ISC Mix	Expires:	26-May-2022
Standard Type:	Other	Prepared:	26-May-2021
Solvent:	Nonane	Prepared By:	Peter Kepler
Final Volume (mls):	1	Department:	HRGCMS
Vials:	1	Last Edit:	26-May-2021 14:05 by PK
Vendor:		Lot #:	1234
Vendor Catalog #:			

Comments

Stock: H9902: 2378-TCDF, 3467-TCDF, 2348-TCDF, 1278-TCDD, 2378-TCDD. each @ 1000 ng/mL

10 ul to 1 mL FV in Nonane. Final Conc = 10 ng/mL. Analytes and units not available in Element.

Reviewed By Date

Recipient Copy

CHAIN-OF-CUSTODY RECORD

COC No. 15130

Order Number: CB014550

Date Shipped: 6/30/2021

AirBill No(s): 460843969796

From: QATS LABORATORY
2700 CHANDLER AVENUE, BLDG. C
LAS VEGAS, NV 89120
PHONE: 1-702-895-8712
FAX: 1-702-795-8210

To: SUE DUNNIHOO
ANALYTICAL RESOURCES INC.
4611 S. 134TH PLACE SUITE 100
TUKWILA WA 98168
250-695-6207

Sample ID	Qty	Description/Remarks	→ Catalogue Number
PSRM0134 - J006840	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0135 - J006841	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0136 - J006842	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0137 - J006843	1	PUGET SOUND SEDIMENT RM	PS-SRM
		6/30/2021	
		DUWAMISH AOC4	

Please use the enclosed Sample Preparation Instructions. If catalogue number(s) are listed at the top of the Sample Preparation Instructions use the Sample Preparation Instructions with catalogue number(s) matching the catalogue number(s) of each of the samples listed above.

Relinquished by: (Signature)	Date/Time 1400 6/30/2021	Received by: (Signature)	Date/Time 07/01/2021 1042
Custody Seal(s): Present/Absent	Remarks:		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

Report No. 00, 9/11/2014

SMP Version 3.3

Recipient Copy

CHAIN-OF-CUSTODY RECORD

COC No. 15130

Order Number: CB014550

Date Shipped: 6/30/2021

AirBill No(s): 460843969796

From: QATS LABORATORY
2700 CHANDLER AVENUE, BLDG. C
LAS VEGAS, NV 89120
PHONE: 1-702-895-8712
FAX: 1-702-795-8210

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PSRM0137 - J006843	1	PUGET SOUND SEDIMENT RM	PS-SRM
		6/30/2021	
		DUWAMISH AOC4	

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Relinquished by: (Signature)	Date/Time 1400 6/30/2021	Received by: Jacob Shaltz (Signature) AM	Date/Time 07/01/2021 1042
Custody Seal(s): Present/Absent	Remarks:		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

Report No. 00, 9/11/2014

SMP Version 3.3