Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 September 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)
21G0283	N/A

Susan Dunnihoo Digitally signed by Susan Dunnihoo
Date: 2021.09.23 15:34:17 -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

1 of 2 21G0283

CHAIN-OF-CUSTODY/TEST REQUEST FORM

№ 4040

Project/Client Name: Duwamish AOC4
Project Number: 180067-02.02
Contact Name: Amara Vandenort
Sampled By: Windward

Ship to: ARI
Attn: Sue Dunnihoo
Shipper: Courier
Form filled out by: Brandi Quinlisk

Shipping Date: 7/20/2021
Airbill Number: —
Turnaround requested: STD

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	PCB	TOC/Total Solids	Archive	Mercury	Dioxin Furans			Comments / Instructions [Jar tag number(s)]
7/20/21	0636	LDW21-SC505	3	Sediment	X	X	X					
	0654	LDW21-SC506	3		X	X	X					
	0753	LDW21-SC508	3		X	X	X					
	0808	LDW21-SC515	3		X	X	X					
	0824	LDW21-SC522	3		X	X	X					
	0837	LDW21-SC523	3		X	X	X					
	0904	LDW21-SC516	3		X	X	X					
	0923	LDW21-SC536	3		X	X	X					
	1038	LDW21-SC548	4		X	X	X	X				
	1202	LDW21-SC511	3		X	X	X					
	1241	LDW21-IT664B	4		X	X	X		X			
7/20/2021	1241	LDW21-IT664C	4	Sediment	X	X	X		X			
		Total Number of Containers	39	Purchase Order / Statement of Work # CLF-052021-ARI								

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: TMM	Print name:	Print name:	
Signature:	Company: ARI	Signature:	Company:
Company: Windward		Company:	
Date/Time: 072021/1745	Date/Time: 07/20/2021 1745	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:

2 of 2 2160283

CHAIN-OF-CUSTODY/TEST REQUEST FORM

№ 4051

Project/Client Name: Duwamish AOC4
Project Number: 180067-02.02
Contact Name: Amara Vanderwort
Sampled By: Windward

Ship to: ARI
Attn: Sue Dunnihoo
Shipper: Courier
Form filled out by: Nicolas Eckhardt

Shipping Date: 7/20/21
Airbill Number:
Turnaround requested: STD

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	PCB	TOC/TOTAL SOLIDS	Archive	Dioxin/Furans				Comments / Instructions [Jar tag number(s)]
7/20/2021	1241	LDW21-IT664 E	4	Sediment	X	X	X	X				
	1342	LDW21-IT670 B	4		X	X	X	X				
	↓	LDW21-IT670 C	4		X	X	X	X				
	1342	LDW21-IT670 E	4		X	X	X	X				
	1439	LDW21-IT650 B	4		X	X	X	X				
7/20/2021	1439	LDW21-IT650 C	4	Sediment	X	X	X	X				
		Total Number of Containers	24	Purchase Order / Statement of Work # CLF-052021-ARI								

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: [illegible]	Jacob [illegible]	Print name:	
Signature: [illegible]	Company: ARI	Signature:	Company:
Company: Windward		Company:	
Date/Time: 072021/1745	Date/Time: 07/20/2021 1745	Date/Time:	Date/Time:

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

To be completed by Laboratory upon sample receipt:

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

Wind Ward environmental LLC
200 1st Ave W, Suite 500
Seattle, WA 98119
206.378.1364

RE: AOC4 receipt 21G0283

Amara Vandervort <amarav@windwardenv.com>

Tue 7/27/2021 12:05 PM

To: Sue Dunnihoo <limsadm@arilabs.com>; Labdata <labdata@anchorqea.com>
Cc: Cindy Fields <cfields@anchorqea.com>

Hello,
Sample 21G0283-09 should have PAHs, please. I wilk keep plugging through work orders today. Amara

---

From: Sue Dunnihoo <limsadm@arilabs.com>
Sent: Monday, July 26, 2021 4:07 PM
To: Labdata <labdata@anchorqea.com>
Cc: Cindy Fields <cfields@anchorqea.com>; Amara Vandervort <amarav@windwardenv.com>
Subject: AOC4 receipt 21G0283

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

(Amara, you've seen this workorder already)

Sue

I will be working remotely several days a week.

Courier requests will not be guaranteed for same day pick-ups or deliveries.

Susan D. Dunnihoo
Director, Client Services

Analytical Resources, Inc.
sue@arilabs.com

W 206-695-6207 4611 S. 134th Place, Suite 100
Tukwila, WA 98168

https://www.arilabs.com

As many of our staff are working remotely we have changed sample receiving hours to 8 to 5 until further notice. Thank you for your understanding.

Version changes coming this summer to SW-846 8260 and 8270 analyses, see our recent post *explaining the details.*

"Don't wish it were easier. Wish you were better." - Jim Rohn

Before printing, think about ENVIRONMENTAL responsibility

How was your customer experience?
Please take our 5 minute Online Customer Survey

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Effective **February 1, 2021** ARI Labs, Inc. will be migrating metals analysis methods SW6010C to SW6010D (ICP) and SW6020A to SW6020B (ICPMS). Please see this post for more information.

This correspondence contains confidential information from Analytical Resources, Inc. (ARI) The information contained herein is intended solely for the use of the individual(s) named above. If you are not the intended recipient, any copying, distribution, disclosure, or use of the text and/or attached document(s) is strictly prohibited.

If you have received this correspondence in error, please notify sender and delete this message from your computer immediately. Thank you.

ARI Labs, Inc.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Windward/Anchor

Project Name: Lower Duwamish AOCY

COC No(s): 4040, 4051 NA

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

Assigned ARI Job No: 21G0283

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 1825 2.5 1.1 ___ ___ ___ ___

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

Temp Gun ID#: DOO 006

Cooler Accepted by: JS Date: 07/30/2021 Time: 1745

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: JS Date: 07/23/2021 Time: 0916 Labels checked by: JS

*** 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	09/23/2021 15:19

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
21G0283-01	LDW21-SC505	Solid	07/20/21 06:36	07/20/21 17:45
21G0283-02	LDW21-SC506	Solid	07/20/21 06:54	07/20/21 17:45
21G0283-03	LDW21-SC508	Solid	07/20/21 07:53	07/20/21 17:45
21G0283-04	LDW21-SC515	Solid	07/20/21 08:08	07/20/21 17:45
21G0283-05	LDW21-SC522	Solid	07/20/21 08:24	07/20/21 17:45
21G0283-06	LDW21-SC523	Solid	07/20/21 08:37	07/20/21 17:45
21G0283-07	LDW21-SC516	Solid	07/20/21 09:04	07/20/21 17:45
21G0283-08	LDW21-SC536	Solid	07/20/21 09:23	07/20/21 17:45
21G0283-09	LDW21-SC548	Solid	07/20/21 10:38	07/20/21 17:45
21G0283-10	LDW21-SC511	Solid	07/20/21 12:02	07/20/21 17:45
21G0283-11	LDW21-IT664B	Solid	07/20/21 12:41	07/20/21 17:45
21G0283-12	LDW21-IT664C	Solid	07/20/21 12:41	07/20/21 17:45
21G0283-13	LDW21-IT664E	Solid	07/20/21 12:41	07/20/21 17:45
21G0283-14	LDW21-IT670B	Solid	07/20/21 13:42	07/20/21 17:45
21G0283-15	LDW21-IT670C	Solid	07/20/21 13:42	07/20/21 17:45
21G0283-16	LDW21-IT670E	Solid	07/20/21 13:42	07/20/21 17:45
21G0283-17	LDW21-IT650B	Solid	07/20/21 14:39	07/20/21 17:45
21G0283-18	LDW21-IT650C	Solid	07/20/21 14:39	07/20/21 17:45

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	23-Sep-2021 15:19

Case Narrative

Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Work Order: 21G0283

Sample receipt

Samples as listed on the preceding page were received 20-Jul-2021 17:45 under ARI work order 21G0283. 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 for samples stored frozen. Analysis was performed using an application specific column developed by Restek. The RTX-DIoxin2 column has unique isomer separation for the 2378-TCDF, eliminating the need for confirmation analysis.

Several results have been "X"-flagged indicating possible interference from chlorinated diphenyl ethers.

SJI0282-CCV2 and SJI0282-CCV3 showed response for 13C12-1,2,3,4,6,7,8-HpCDF, 13C12-1,2,3,4,7,8,9-HpCDF, 13C12-1,2,3,4-TCDD and 13C12-1,2,3,7,8,9-HxCDD low of control limits. SJI0282-CCV4 showed response for 13C12-1,2,3,4-TCDD and 13C12-1,2,3,4,7,8,9-HpCDF low of limits. SJI0282-ICV1 showed 13C12-1,2,3,4,6,7,8-HpCDF and 13C12-1,2,3,4,7,8,9-HpCDF low of limits.

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 1,2,3,4,6,7,8-HpCDD and OCDD below the reporting limit and "J"-flagged. 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.

The batch BJH0203 duplicate (DUP) relative percent difference (RPD) were outside advisory control limits for 1,2,3,7,8-PeCDD (60.8%), 1,2,3,4,7,8-HxCDD (86.9%), 1,2,3,6,7,8-HxCDD (36.1%) and 1,2,3,7,8,9-HxCDD (55.4%). Results are reported under work order 21G0211.

QUALIFIERS AND NOTES

Qualifier	Definition
X	Indicates possible CDPE interference.
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
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
B	This analyte was detected in the method blank.
*	Flagged value is not within established control limits.
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-IT664B

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0283-11 C	File ID:	21092050
Sampled:	07/20/21 12:41	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 08:54
% Solids:	66.15	Preparation:	EPA 1613	Initial/Final:	15.13 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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	0.695	0.655-0.886	0.074	0.999	1.82	ng/kg	X
1746-01-6	2,3,7,8-TCDD	1	0.715	0.655-0.886	0.061	0.999	0.524	ng/kg	J
57117-41-6	1,2,3,7,8-PeCDF	1	1.438	1.318-1.783	0.121	0.999	2.72	ng/kg	
57117-31-4	2,3,4,7,8-PeCDF	1	1.423	1.318-1.783	0.111	0.999	5.50	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.547	1.318-1.783	0.134	0.999	2.23	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.181	1.054-1.426	0.148	0.999	74.0	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.222	1.054-1.426	0.147	0.999	12.1	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.202	1.054-1.426	0.146	0.999	19.8	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.186	1.054-1.426	0.159	0.999	10.1	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.253	1.054-1.426	0.148	0.999	2.25	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.270	1.054-1.426	0.144	0.999	22.9	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.233	1.054-1.426	0.157	0.999	6.00	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.029	0.893-1.208	0.248	0.999	247	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.032	0.893-1.208	0.364	0.999	36.5	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.061	0.893-1.208	0.480	2.50	532	ng/kg	B
39001-02-0	OCDF	1	0.877	0.757-1.024	0.316	2.50	357	ng/kg	
3268-87-9	OCDD	1	0.892	0.757-1.024	0.505	9.99	4790	ng/kg	E, B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	24.2	ng/kg
41903-57-5	Total TCDD	1	0.000			0.999	11.2	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.999	115	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.999	16.1	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.999	482	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.999	128	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.999	908	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.999	1030	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 29.08
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 29.08

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT664B

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0283-11	File ID:	21092050
Sampled:	07/20/21 12:41	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 08:54
Solids Wt%:	66.15	Preparation:	EPA 1613	Initial/Final:	15.13 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.797	0.655-0.886	0.081	69.3	24 - 169 %	
13C12-2,3,7,8-TCDD		0.760	0.655-0.886	0.089	86.4	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.614	1.318-1.783	0.104	70.9	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.582	1.318-1.783	0.109	70.8	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.571	1.318-1.783	0.081	79.5	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.515	0.434-0.587	0.094	76.3	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.517	0.434-0.587	0.087	71.5	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.514	0.434-0.587	0.096	74.3	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.510	0.434-0.587	0.116	80.2	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.273	1.054-1.426	0.093	85.5	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.254	1.054-1.426	0.086	78.0	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.455	0.374-0.506	0.082	57.0	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.457	0.374-0.506	0.100	56.4	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.043	0.893-1.208	0.106	69.6	23 - 140 %	
13C12-OCDD		0.891	0.757-1.024	0.155	64.2	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.023	86.2	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:00 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	25.776	1.000	3.703e3	5.331e3	1.108	0.695	0.770	787	1144	5.05e4	6.58e4	64.1	57.5	NO	dd	dd	0.911
12378-PeCDF	29.954	1.001	6.792e3	4.722e3	1.015	1.438	1.550	1569	1120	1.09e5	7.32e4	69.5	65.4	NO	bd	bb	1.361
23478-PeCDF	31.302	1.001	1.443e4	1.014e4	1.126	1.423	1.550	1569	1120	2.35e5	1.63e5	150.0	145.4	NO	db	db	2.754
123478-HxCDF	34.923	1.001	1.597e5	1.353e5	1.017	1.181	1.240	1298	1944	2.59e6	2.17e6	1995.8	1117.6	NO	bd	bd	37.028
234678-HxCDF	35.881	0.999	4.254e4	3.539e4	1.052	1.202	1.240	1298	1944	5.60e5	4.62e5	431.1	237.6	NO	bb	bb	9.913
123678-HxCDF	35.056	1.000	2.748e4	2.248e4	1.037	1.222	1.240	1298	1944	4.49e5	3.75e5	345.8	192.7	NO	db	db	6.063
123789-HxCDF	36.928	1.000	1.890e4	1.593e4	1.030	1.186	1.240	1298	1944	3.07e5	2.56e5	236.5	131.6	NO	bb	bb	5.060
1234678-HpCDF	38.800	1.000	3.638e5	3.536e5	1.327	1.029	1.050	2431	1611	6.19e6	6.04e6	2546.6	3749.4	NO	bb	bd	123.687
1234789-HpCDF	41.050	1.000	4.213e4	4.082e4	1.283	1.032	1.050	2431	1611	6.29e5	5.89e5	258.7	365.8	NO	bb	bd	18.287
OCDF	45.297	1.006	3.238e5	3.690e5	1.447	0.877	0.890	1380	1257	3.85e6	4.43e6	2792.8	3523.2	NO	bb	bb	178.882
2378-TCDD	26.411	1.001	8.800e2	1.230e3	0.920	0.715	0.770	637	646	1.25e4	1.55e4	19.6	24.0	NO	bd	bd	0.262
12378-PeCDD	31.536	1.000	3.564e3	2.304e3	0.995	1.547	1.550	825	1023	5.15e4	3.14e4	62.4	30.7	NO	bb	bb	1.118
123478-HxCDD	36.037	1.001	4.368e3	3.487e3	1.027	1.253	1.240	1549	1269	7.57e4	6.25e4	48.9	49.2	NO	bd	bd	1.127
123678-HxCDD	36.148	1.000	4.350e4	3.426e4	1.009	1.270	1.240	1549	1269	7.52e5	6.03e5	485.1	475.3	NO	db	db	11.473
123789-HxCDD	36.538	1.011	1.063e4	8.624e3	0.950	1.233	1.240	1549	1269	1.83e5	1.50e5	118.0	118.2	NO	bb	bb	3.001
1234678-HpCDD	40.293	1.000	5.325e5	5.021e5	1.068	1.061	1.050	2297	2738	8.40e6	8.01e6	3655.2	2924.0	NO	bb	bb	266.071
OCDD	45.059	1.000	3.571e6	4.004e6	1.181	0.892	0.890	1407	2031	4.59e7	5.15e7	32637.8	25336.9	NO	bb	bb	2396.732
13C-2378-TCDF	25.776	1.007	3.972e5	4.984e5	1.427	0.797	0.770	1575	1167	6.25e6	7.80e6	3966.1	6678.9	NO	bb	bb	69.305
13C-12378-PeCDF	29.931	1.169	5.147e5	3.189e5	1.297	1.614	1.550	1762	1423	8.13e6	5.05e6	4617.1	3547.0	NO	bb	bb	70.933
13C-23478-PeCDF	31.280	1.222	4.858e5	3.070e5	1.236	1.582	1.550	1762	1423	7.87e6	4.94e6	4468.6	3471.3	NO	bb	bb	70.775
13C-123478-HxCDF	34.901	0.956	2.664e5	5.172e5	1.242	0.515	0.510	1240	1551	4.40e6	8.57e6	3546.0	5525.1	NO	bd	bd	76.254
13C-123678-HxCDF	35.046	0.959	2.710e5	5.237e5	1.343	0.517	0.510	1240	1551	4.35e6	8.45e6	3509.3	5444.0	NO	db	db	71.516
13C-234678-HxCDF	35.914	0.983	2.537e5	4.932e5	1.215	0.514	0.510	1240	1551	4.30e6	8.42e6	3469.7	5428.6	NO	bb	bb	74.326
13C-123789-HxCDF	36.939	1.011	2.256e5	4.424e5	1.008	0.510	0.510	1240	1551	4.01e6	7.89e6	3232.3	5085.2	NO	bb	bb	80.153
13C-1234678-HpCDF	38.789	1.062	1.366e5	3.004e5	0.926	0.455	0.440	691	1114	2.30e6	5.02e6	3328.9	4506.4	NO	bb	bd	57.025
13C-1234789-HpCDF	41.039	1.123	1.108e5	2.426e5	0.758	0.457	0.440	691	1114	1.63e6	3.58e6	2354.4	3215.9	NO	bb	bd	56.380
13C-1234-TCDD	25.594	0.000	3.917e5	5.142e5	1.000	0.762	0.770	1409	941	6.12e6	7.95e6	4342.7	8439.6	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.031	3.773e5	4.964e5	1.116	0.760	0.770	1409	941	5.88e6	7.79e6	4176.1	8273.2	NO	bb	bb	86.381
13C-12378-PeCDD	31.525	1.232	3.221e5	2.050e5	0.732	1.571	1.550	748	644	5.07e6	3.19e6	6775.2	4961.3	NO	bb	bb	79.497
13C-123478-HxCDD	36.015	0.986	3.800e5	2.986e5	0.960	1.273	1.240	1159	963	6.22e6	4.89e6	5370.7	5076.4	NO	bd	bd	85.466
13C-123678-HxCDD	36.137	0.989	3.737e5	2.980e5	1.041	1.254	1.240	1159	963	6.45e6	5.06e6	5565.5	5254.7	NO	db	db	77.987
13C-1234678-HpCDD	40.282	1.103	1.859e5	1.782e5	0.632	1.043	1.050	1035	557	3.00e6	2.87e6	2904.2	5153.2	NO	bb	bb	69.591
13C-OCDD	45.041	1.233	2.523e5	2.830e5	0.504	0.891	0.890	839	1017	3.26e6	3.56e6	3879.6	3499.3	NO	bb	bb	128.475
13C-123789-HxCDD	36.527	0.000	4.646e5	3.626e5	1.000	1.281	1.240	1159	963	8.02e6	6.28e6	6922.4	6520.6	NO	bb	bb	100.000
37CL-2378-TCDD	26.426	1.033	3.383e5		1.084			591		5.05e6		8544.6			bd		34.465

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:00 Pacific Daylight Time

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	22.268	0.864	1.191e3	2.075e3	1.425	0.574	0.770	787	1144	1.88e4	3.23e4	23.8	28.2	YES	bb	bb	0.256
1289-TCDF	27.212	1.056	2.606e2	1.551e2	1.043	1.680	0.770	787	1144	4.35e3	4.22e3	5.5	3.7	YES	bb	bb	0.044
13468-PECDF					1.376		1.550	515	816								
12389-PECDF	32.338	1.080	9.234e2	4.546e2	1.000	2.031	1.550	1569	1120	1.41e4	8.41e3	9.0	7.5	YES	db	db	0.165
123468-HXCDF	33.252	0.953	6.198e4	5.243e4	1.087	1.182	1.240	1298	1944	9.96e5	8.39e5	767.3	431.6	NO	bb	bb	13.436
1368-TCDD	23.538	0.892	4.224e3	5.979e3	0.923	0.706	0.770	637	646	6.30e4	8.92e4	98.9	138.0	NO	bd	bb	1.265
1289-TCDD	27.016	1.023	3.150e2	2.763e2	0.794	1.140	0.770	637	646	4.33e3	4.05e3	6.8	6.3	YES	bb	bb	0.085
12479-PECDD	28.840	0.915	1.736e4	1.059e4	1.843	1.640	1.550	825	1023	1.78e5	1.04e5	215.4	101.3	NO	bb	bb	2.877
12389-PECDD	31.948	1.013	1.019e3	6.921e2	1.154	1.472	1.550	825	1023	1.62e4	1.09e4	19.7	10.6	NO	bb	bb	0.281
124679-HXCDD	34.021	0.945	8.698e4	7.163e4	1.125	1.214	1.240	1549	1269	1.40e6	1.14e6	903.2	897.5	NO	bb	bb	20.780
1234679-HPCDD	39.246	0.974	5.695e5	5.373e5	1.211	1.060	1.050	2297	2738	9.66e6	9.17e6	4207.4	3349.8	NO	bb	bb	251.072
Total-tetrafurans			5.522e4		1.192			787		8.09e5							12.101
Total-penta1			1.195e5					515		1.79e6							25.980
Total-pentafurans			1.625e5		1.047			1569		2.32e6							31.481
Total-hexafurans			1.030e6		1.045			1298		1.65e7							241.383
Total-heptafurans			1.221e6		1.305			2431		2.01e7							454.619
Total-Furans			2.912e6		1.158			787		4.54e7							944.447
Total-tetradioxins			1.865e4		0.879			637		2.81e5							5.583
Total-pentadioxins			3.848e4		1.331			825		4.94e5							8.078
Total-hexadioxins			2.534e5		1.028			1549		3.87e6							64.061
Total-heptadioxins			1.102e6		1.140			2297		1.81e7							517.142
Total-Dioxins			4.984e6		1.092			637		6.86e7							2991.596
Total-TEQ			7.896e6					637		1.14e8							3936.043
FUNCTION1 PFK			1.986e7					372553		1.43e8							
FUNCTION2 PFK			2.371e6					149404		9.57e6							0.000
FUNCTION3 PFK			2.630e6					231053		3.90e6							0.000
FUNCTION4 PFK			3.647e3					129927		1.51e5							
FUNCTION5 PFK			0.000e0					112722		0.00e0							
FUNCTION1 HXCD...			6.242e3					604		1.05e5							0.000
FUNCTION1 HPCD...			8.712e2					563		1.44e4							0.000
FUNCTION2 HPCD...			2.291e3					595		4.08e4							0.000
FUNCTION3 OCDPE			1.003e3					561		1.81e4							0.000
FUNCTION4 NCDPE			6.517e3					564		1.15e5							0.000
FUNCTION5 DCDPE			4.210e2					545		4.65e3							0.000

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	24.02	2.413e3	2.864e3	1.192	0.84	0.77	49.4	YES	NO	db	db	0.494
2	Total-tetrafurans	23.89	1.856e3	2.471e3	1.192	0.75	0.77	37.7	YES	NO	dd	dd	0.405
3	Total-tetrafurans	23.76	5.675e3	7.650e3	1.192	0.74	0.77	100.6	YES	NO	dd	dd	1.248
4	Total-tetrafurans	23.61	1.181e3	1.532e3	1.192	0.77	0.77	28.6	YES	NO	dd	dd	0.254
5	Total-tetrafurans	23.52	3.492e3	4.576e3	1.192	0.76	0.77	69.4	YES	NO	dd	dd	0.756
6	Total-tetrafurans	23.42	1.701e3	2.370e3	1.192	0.72	0.77	29.3	YES	NO	dd	dd	0.381
7	Total-tetrafurans	23.30	3.798e3	4.852e3	1.192	0.78	0.77	46.0	YES	NO	dd	dd	0.810
8	Total-tetrafurans	23.11	1.112e4	1.421e4	1.192	0.78	0.77	209.7	YES	NO	bd	bd	2.372
9	Total-tetrafurans	22.54	2.529e3	3.098e3	1.192	0.82	0.77	51.2	YES	NO	bd	bb	0.527
10	Total-tetrafurans	26.02	3.214e3	4.650e3	1.192	0.69	0.77	56.7	YES	NO	dd	dd	0.737
11	2378-TCDF	25.78	3.703e3	5.331e3	1.108	0.69	0.77	64.1	YES	NO	dd	dd	0.911
12	Total-tetrafurans	25.61	9.993e2	1.206e3	1.192	0.83	0.77	19.6	YES	NO	dd	dd	0.207
13	Total-tetrafurans	25.31	8.780e2	1.165e3	1.192	0.75	0.77	13.3	YES	NO	dd	dd	0.191
14	Total-tetrafurans	25.11	1.393e3	1.806e3	1.192	0.77	0.77	29.2	YES	NO	bd	dd	0.300
15	Total-tetrafurans	24.87	2.918e3	4.305e3	1.192	0.68	0.77	58.8	YES	NO	db	dd	0.677
16	Total-tetrafurans	24.69	6.845e3	9.069e3	1.192	0.75	0.77	133.0	YES	NO	dd	dd	1.491
17	Total-tetrafurans	24.55	1.513e3	2.120e3	1.192	0.71	0.77	30.3	YES	NO	dd	dd	0.340

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.91	6.510e2	4.740e2		1.37	1.55	16.3	YES	NO	bb	bb	0.147
2	Total-penta1	27.21	1.188e5	7.866e4		1.51	1.55	3457.2	YES	NO	bb	bb	25.833

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, Conditions: AUTOSPEC01, User: pk

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	30.15	8.570e3	5.469e3	1.047	1.57	1.55	82.8	YES	NO	dd	bd	1.650
2	12378-PeCDF	29.95	6.792e3	4.722e3	1.015	1.44	1.55	69.5	YES	NO	bd	bb	1.361
3	Total-pentafurans	29.68	3.374e3	2.261e3	1.047	1.49	1.55	36.4	YES	NO	db	db	0.662
4	Total-pentafurans	29.59	6.424e3	4.151e3	1.047	1.55	1.55	56.0	YES	NO	dd	dd	1.242
5	Total-pentafurans	29.49	2.371e3	1.575e3	1.047	1.51	1.55	22.5	YES	NO	dd	dd	0.464
6	Total-pentafurans	28.87	9.676e4	6.319e4	1.047	1.53	1.55	838.7	YES	NO	dd	db	18.793
7	Total-pentafurans	28.69	8.382e3	4.993e3	1.047	1.68	1.55	73.3	YES	NO	dd	dd	1.571
8	Total-pentafurans	28.57	9.856e2	6.197e2	1.047	1.59	1.55	11.1	YES	NO	bd	bd	0.189
9	Total-pentafurans	32.22	5.724e2	3.453e2	1.047	1.66	1.55	6.8	YES	NO	bd	bd	0.108
10	23478-PeCDF	31.30	1.443e4	1.014e4	1.126	1.42	1.55	150.0	YES	NO	db	db	2.754
11	Total-pentafurans	31.15	1.379e4	9.079e3	1.047	1.52	1.55	132.5	YES	NO	dd	dd	2.687

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	33.99	7.014e3	6.239e3	1.045	1.12	1.24	88.0	YES	NO	bb	bb	1.695
2	Total-hexafurans	33.46	2.158e5	1.856e5	1.045	1.16	1.24	2627.6	YES	NO	bb	bb	51.349
3	123468-HXCDF	33.25	6.198e4	5.243e4	1.087	1.18	1.24	767.3	YES	NO	bb	bb	13.436
4	123789-HxCDF	36.93	1.890e4	1.593e4	1.030	1.19	1.24	236.5	YES	NO	bb	bb	5.060
5	234678-HxCDF	35.88	4.254e4	3.539e4	1.052	1.20	1.24	431.1	YES	NO	bb	bb	9.913
6	123678-HxCDF	35.06	2.748e4	2.248e4	1.037	1.22	1.24	345.8	YES	NO	db	db	6.063
7	123478-HxCDF	34.92	1.597e5	1.353e5	1.017	1.18	1.24	1995.8	YES	NO	bd	bd	37.028
8	Total-hexafurans	34.77	1.068e4	9.047e3	1.045	1.18	1.24	147.1	YES	NO	bb	bb	2.524
9	Total-hexafurans	34.30	4.854e5	4.082e5	1.045	1.19	1.24	6090.4	YES	NO	bb	bb	114.315

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.05	4.213e4	4.082e4	1.283	1.03	1.05	258.7	YES	NO	bb	bd	18.287
2	Total-heptafurans	39.46	8.091e5	7.919e5	1.305	1.02	1.05	5425.6	YES	NO	bd	bd	310.332
3	Total-heptafurans	39.21	6.295e3	5.639e3	1.305	1.12	1.05	42.6	YES	NO	bb	bb	2.313
4	1234678-HpCDF	38.80	3.638e5	3.536e5	1.327	1.03	1.05	2546.6	YES	NO	bb	bd	123.687

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:00 Pacific Daylight Time

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	24.02	2.413e3	2.864e3	1.192	0.84	0.77	49.4	YES	NO	db	db	0.494
2	Total-tetrafurans	23.89	1.856e3	2.471e3	1.192	0.75	0.77	37.7	YES	NO	dd	dd	0.405
3	Total-tetrafurans	23.76	5.675e3	7.650e3	1.192	0.74	0.77	100.6	YES	NO	dd	dd	1.248
4	Total-tetrafurans	23.61	1.181e3	1.532e3	1.192	0.77	0.77	28.6	YES	NO	dd	dd	0.254
5	Total-tetrafurans	23.52	3.492e3	4.576e3	1.192	0.76	0.77	69.4	YES	NO	dd	dd	0.756
6	Total-tetrafurans	23.42	1.701e3	2.370e3	1.192	0.72	0.77	29.3	YES	NO	dd	dd	0.381
7	Total-tetrafurans	23.30	3.798e3	4.852e3	1.192	0.78	0.77	46.0	YES	NO	dd	dd	0.810
8	Total-tetrafurans	23.11	1.112e4	1.421e4	1.192	0.78	0.77	209.7	YES	NO	bd	bd	2.372
9	Total-tetrafurans	22.54	2.529e3	3.098e3	1.192	0.82	0.77	51.2	YES	NO	bd	bb	0.527
10	Total-tetrafurans	26.02	3.214e3	4.650e3	1.192	0.69	0.77	56.7	YES	NO	dd	dd	0.737
11	2378-TCDF	25.78	3.703e3	5.331e3	1.108	0.69	0.77	64.1	YES	NO	dd	dd	0.911
12	Total-tetrafurans	25.61	9.993e2	1.206e3	1.192	0.83	0.77	19.6	YES	NO	dd	dd	0.207
13	Total-tetrafurans	25.31	8.780e2	1.165e3	1.192	0.75	0.77	13.3	YES	NO	dd	dd	0.191
14	Total-tetrafurans	25.11	1.393e3	1.806e3	1.192	0.77	0.77	29.2	YES	NO	bd	dd	0.300
15	Total-tetrafurans	24.87	2.918e3	4.305e3	1.192	0.68	0.77	58.8	YES	NO	db	dd	0.677
16	Total-tetrafurans	24.69	6.845e3	9.069e3	1.192	0.75	0.77	133.0	YES	NO	dd	dd	1.491
17	Total-tetrafurans	24.55	1.513e3	2.120e3	1.192	0.71	0.77	30.3	YES	NO	dd	dd	0.340
18	Total-pentafurans	30.15	8.570e3	5.469e3	1.047	1.57	1.55	82.8	YES	NO	dd	bd	1.650
19	12378-PeCDF	29.95	6.792e3	4.722e3	1.015	1.44	1.55	69.5	YES	NO	bd	bb	1.361
20	Total-pentafurans	29.68	3.374e3	2.261e3	1.047	1.49	1.55	36.4	YES	NO	db	db	0.662
21	Total-pentafurans	29.59	6.424e3	4.151e3	1.047	1.55	1.55	56.0	YES	NO	dd	dd	1.242
22	Total-pentafurans	29.49	2.371e3	1.575e3	1.047	1.51	1.55	22.5	YES	NO	dd	dd	0.464
23	Total-pentafurans	28.87	9.676e4	6.319e4	1.047	1.53	1.55	838.7	YES	NO	dd	db	18.793
24	Total-pentafurans	28.69	8.382e3	4.993e3	1.047	1.68	1.55	73.3	YES	NO	dd	dd	1.571
25	Total-pentafurans	28.57	9.856e2	6.197e2	1.047	1.59	1.55	11.1	YES	NO	bd	bd	0.189
26	Total-pentafurans	32.22	5.724e2	3.453e2	1.047	1.66	1.55	6.8	YES	NO	bd	bd	0.108
27	23478-PeCDF	31.30	1.443e4	1.014e4	1.126	1.42	1.55	150.0	YES	NO	db	db	2.754
28	Total-pentafurans	31.15	1.379e4	9.079e3	1.047	1.52	1.55	132.5	YES	NO	dd	dd	2.687
29	Total-hexafurans	33.99	7.014e3	6.239e3	1.045	1.12	1.24	88.0	YES	NO	bb	bb	1.695
30	Total-hexafurans	33.46	2.158e5	1.856e5	1.045	1.16	1.24	2627.6	YES	NO	bb	bb	51.349
31	123468-HXCDF	33.25	6.198e4	5.243e4	1.087	1.18	1.24	767.3	YES	NO	bb	bb	13.436
32	123789-HxCDF	36.93	1.890e4	1.593e4	1.030	1.19	1.24	236.5	YES	NO	bb	bb	5.060
33	234678-HxCDF	35.88	4.254e4	3.539e4	1.052	1.20	1.24	431.1	YES	NO	bb	bb	9.913
34	123678-HxCDF	35.06	2.748e4	2.248e4	1.037	1.22	1.24	345.8	YES	NO	db	db	6.063
35	123478-HxCDF	34.92	1.597e5	1.353e5	1.017	1.18	1.24	1995.8	YES	NO	bd	bd	37.028
36	Total-hexafurans	34.77	1.068e4	9.047e3	1.045	1.18	1.24	147.1	YES	NO	bb	bb	2.524
37	Total-hexafurans	34.30	4.854e5	4.082e5	1.045	1.19	1.24	6090.4	YES	NO	bb	bb	114.315

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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
38	1234789-HpCDF	41.05	4.213e4	4.082e4	1.283	1.03	1.05	258.7	YES	NO	bb	bd	18.287
39	Total-heptafurans	39.46	8.091e5	7.919e5	1.305	1.02	1.05	5425.6	YES	NO	bd	bd	310.332
40	Total-heptafurans	39.21	6.295e3	5.639e3	1.305	1.12	1.05	42.6	YES	NO	bb	bb	2.313
41	1234678-HpCDF	38.80	3.638e5	3.536e5	1.327	1.03	1.05	2546.6	YES	NO	bb	bd	123.687
42	OCDF	45.30	3.238e5	3.690e5	1.447	0.88	0.89	2792.8	YES	NO	bb	bb	178.882
43	Total-penta1	27.91	6.510e2	4.740e2		1.37	1.55	16.3	YES	NO	bb	bb	0.147
44	Total-penta1	27.21	1.188e5	7.866e4		1.51	1.55	3457.2	YES	NO	bb	bb	25.833

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	26.55	7.742e2	1.001e3	0.879	0.77	0.77	19.0	YES	NO	db	db	0.231
2	2378-TCDD	26.41	8.800e2	1.230e3	0.920	0.72	0.77	19.6	YES	NO	bd	bd	0.262
3	Total-tetradioxins	26.05	1.089e3	1.275e3	0.879	0.85	0.77	18.4	YES	NO	bb	bb	0.308
4	Total-tetradioxins	25.40	8.589e2	1.226e3	0.879	0.70	0.77	20.7	YES	NO	db	db	0.271
5	Total-tetradioxins	25.28	4.526e2	5.754e2	0.879	0.79	0.77	11.2	YES	NO	bd	bd	0.134
6	Total-tetradioxins	25.02	2.087e3	2.856e3	0.879	0.73	0.77	53.0	YES	NO	bb	bb	0.644
7	Total-tetradioxins	24.75	1.786e3	2.046e3	0.879	0.87	0.77	34.2	YES	NO	db	MM	0.499
8	Total-tetradioxins	24.55	1.218e3	1.470e3	0.879	0.83	0.77	31.6	YES	NO	bd	bb	0.350
9	Total-tetradioxins	24.02	1.253e3	1.642e3	0.879	0.76	0.77	32.0	YES	NO	bb	bb	0.377
10	Total-tetradioxins	23.81	4.026e3	5.513e3	0.879	0.73	0.77	101.9	YES	NO	bb	bb	1.242
11	1368-TCDD	23.54	4.224e3	5.979e3	0.923	0.71	0.77	98.9	YES	NO	bd	bb	1.265

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.95	1.019e3	6.921e2	1.154	1.47	1.55	19.7	YES	NO	bb	bb	0.281
2	12378-PeCDD	31.54	3.564e3	2.304e3	0.995	1.55	1.55	62.4	YES	NO	bb	bb	1.118
3	Total-pentadioxins	30.86	1.635e3	1.019e3	1.331	1.60	1.55	27.2	YES	NO	bb	bb	0.378
4	Total-pentadioxins	30.47	3.665e3	2.198e3	1.331	1.67	1.55	53.0	YES	NO	db	bb	0.836
5	Total-pentadioxins	30.14	3.153e3	1.843e3	1.331	1.71	1.55	60.0	YES	NO	bd	bd	0.712
6	Total-pentadioxins	29.93	5.063e3	3.197e3	1.331	1.58	1.55	102.8	YES	NO	bb	bb	1.178
7	12479-PECDD	28.84	1.736e4	1.059e4	1.843	1.64	1.55	215.4	YES	NO	bb	bb	2.877
8	Total-pentadioxins	30.29	3.023e3	1.870e3	1.331	1.62	1.55	57.7	YES	NO	MM	MM	0.698

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	36.33	2.698e3	1.911e3	1.028	1.41	1.24	31.4	YES	NO	bb	bb	0.664
2	123678-HxCDD	36.15	4.350e4	3.426e4	1.009	1.27	1.24	485.1	YES	NO	db	db	11.473
3	123478-HxCDD	36.04	4.368e3	3.487e3	1.027	1.25	1.24	48.9	YES	NO	bd	bd	1.127
4	Total-hexadioxins	35.27	2.222e3	1.991e3	1.028	1.12	1.24	26.3	YES	NO	dd	db	0.607
5	Total-hexadioxins	35.16	8.595e4	6.683e4	1.028	1.29	1.24	699.4	YES	NO	bd	bd	22.014
6	Total-hexadioxins	34.79	1.703e4	1.347e4	1.028	1.26	1.24	182.7	YES	NO	bb	bb	4.395
7	124679-HXCDD	34.02	8.698e4	7.163e4	1.125	1.21	1.24	903.2	YES	NO	bb	bb	20.780
8	123789-HxCDD	36.54	1.063e4	8.624e3	0.950	1.23	1.24	118.0	YES	NO	bb	bb	3.001

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.29	5.325e5	5.021e5	1.068	1.06	1.05	3655.2	YES	NO	bb	bb	266.071
2	1234679-HPCDD	39.25	5.695e5	5.373e5	1.211	1.06	1.05	4207.4	YES	NO	bb	bb	251.072

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:00 Pacific Daylight Time

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	26.55	7.742e2	1.001e3	0.879	0.77	0.77	19.0	YES	NO	db	db	0.231
2	2378-TCDD	26.41	8.800e2	1.230e3	0.920	0.72	0.77	19.6	YES	NO	bd	bd	0.262
3	Total-tetradioxins	26.05	1.089e3	1.275e3	0.879	0.85	0.77	18.4	YES	NO	bb	bb	0.308
4	Total-tetradioxins	25.40	8.589e2	1.226e3	0.879	0.70	0.77	20.7	YES	NO	db	db	0.271
5	Total-tetradioxins	25.28	4.526e2	5.754e2	0.879	0.79	0.77	11.2	YES	NO	bd	bd	0.134
6	Total-tetradioxins	25.02	2.087e3	2.856e3	0.879	0.73	0.77	53.0	YES	NO	bb	bb	0.644
7	Total-tetradioxins	24.75	1.786e3	2.046e3	0.879	0.87	0.77	34.2	YES	NO	db	MM	0.499
8	Total-tetradioxins	24.55	1.218e3	1.470e3	0.879	0.83	0.77	31.6	YES	NO	bd	bb	0.350
9	Total-tetradioxins	24.02	1.253e3	1.642e3	0.879	0.76	0.77	32.0	YES	NO	bb	bb	0.377
10	Total-tetradioxins	23.81	4.026e3	5.513e3	0.879	0.73	0.77	101.9	YES	NO	bb	bb	1.242
11	1368-TCDD	23.54	4.224e3	5.979e3	0.923	0.71	0.77	98.9	YES	NO	bd	bb	1.265
12	12389-PECDD	31.95	1.019e3	6.921e2	1.154	1.47	1.55	19.7	YES	NO	bb	bb	0.281
13	12378-PeCDD	31.54	3.564e3	2.304e3	0.995	1.55	1.55	62.4	YES	NO	bb	bb	1.118
14	Total-pentadioxins	30.86	1.635e3	1.019e3	1.331	1.60	1.55	27.2	YES	NO	bb	bb	0.378
15	Total-pentadioxins	30.47	3.665e3	2.198e3	1.331	1.67	1.55	53.0	YES	NO	db	bb	0.836
16	Total-pentadioxins	30.14	3.153e3	1.843e3	1.331	1.71	1.55	60.0	YES	NO	bd	bd	0.712
17	Total-pentadioxins	29.93	5.063e3	3.197e3	1.331	1.58	1.55	102.8	YES	NO	bb	bb	1.178
18	12479-PECDD	28.84	1.736e4	1.059e4	1.843	1.64	1.55	215.4	YES	NO	bb	bb	2.877
19	Total-hexadioxins	36.33	2.698e3	1.911e3	1.028	1.41	1.24	31.4	YES	NO	bb	bb	0.664
20	123678-HxCDD	36.15	4.350e4	3.426e4	1.009	1.27	1.24	485.1	YES	NO	db	db	11.473
21	123478-HxCDD	36.04	4.368e3	3.487e3	1.027	1.25	1.24	48.9	YES	NO	bd	bd	1.127
22	Total-hexadioxins	35.27	2.222e3	1.991e3	1.028	1.12	1.24	26.3	YES	NO	dd	db	0.607
23	Total-hexadioxins	35.16	8.595e4	6.683e4	1.028	1.29	1.24	699.4	YES	NO	bd	bd	22.014
24	Total-hexadioxins	34.79	1.703e4	1.347e4	1.028	1.26	1.24	182.7	YES	NO	bb	bb	4.395
25	124679-HXCDD	34.02	8.698e4	7.163e4	1.125	1.21	1.24	903.2	YES	NO	bb	bb	20.780
26	123789-HxCDD	36.54	1.063e4	8.624e3	0.950	1.23	1.24	118.0	YES	NO	bb	bb	3.001
27	1234678-HpCDD	40.29	5.325e5	5.021e5	1.068	1.06	1.05	3655.2	YES	NO	bb	bb	266.071
28	1234679-HPCDD	39.25	5.695e5	5.373e5	1.211	1.06	1.05	4207.4	YES	NO	bb	bb	251.072
29	OCDD	45.06	3.571e6	4.004e6	1.181	0.89	0.89	32637.8	YES	NO	bb	bb	2396.7...
30	Total-pentadioxins	30.29	3.023e3	1.870e3	1.331	1.62	1.55	57.7	YES	NO	MM	MM	0.698

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	24.02	2.413e3	2.864e3	1.192	0.84	0.77	49.4	YES	NO	db	db	0.494
2	Total-tetrafurans	23.89	1.856e3	2.471e3	1.192	0.75	0.77	37.7	YES	NO	dd	dd	0.405
3	Total-tetrafurans	23.76	5.675e3	7.650e3	1.192	0.74	0.77	100.6	YES	NO	dd	dd	1.248
4	Total-tetrafurans	23.61	1.181e3	1.532e3	1.192	0.77	0.77	28.6	YES	NO	dd	dd	0.254
5	Total-tetrafurans	23.52	3.492e3	4.576e3	1.192	0.76	0.77	69.4	YES	NO	dd	dd	0.756
6	Total-tetrafurans	23.42	1.701e3	2.370e3	1.192	0.72	0.77	29.3	YES	NO	dd	dd	0.381
7	Total-tetrafurans	23.30	3.798e3	4.852e3	1.192	0.78	0.77	46.0	YES	NO	dd	dd	0.810
8	Total-tetrafurans	23.11	1.112e4	1.421e4	1.192	0.78	0.77	209.7	YES	NO	bd	bd	2.372
9	Total-tetrafurans	22.54	2.529e3	3.098e3	1.192	0.82	0.77	51.2	YES	NO	bd	bb	0.527
10	Total-tetrafurans	26.02	3.214e3	4.650e3	1.192	0.69	0.77	56.7	YES	NO	dd	dd	0.737
11	2378-TCDF	25.78	3.703e3	5.331e3	1.108	0.69	0.77	64.1	YES	NO	dd	dd	0.911
12	Total-tetrafurans	25.61	9.993e2	1.206e3	1.192	0.83	0.77	19.6	YES	NO	dd	dd	0.207
13	Total-tetrafurans	25.31	8.780e2	1.165e3	1.192	0.75	0.77	13.3	YES	NO	dd	dd	0.191
14	Total-tetrafurans	25.11	1.393e3	1.806e3	1.192	0.77	0.77	29.2	YES	NO	bd	dd	0.300
15	Total-tetrafurans	24.87	2.918e3	4.305e3	1.192	0.68	0.77	58.8	YES	NO	db	dd	0.677
16	Total-tetrafurans	24.69	6.845e3	9.069e3	1.192	0.75	0.77	133.0	YES	NO	dd	dd	1.491
17	Total-tetrafurans	24.55	1.513e3	2.120e3	1.192	0.71	0.77	30.3	YES	NO	dd	dd	0.340
18	Total-pentafurans	30.15	8.570e3	5.469e3	1.047	1.57	1.55	82.8	YES	NO	dd	bd	1.650
19	12378-PeCDF	29.95	6.792e3	4.722e3	1.015	1.44	1.55	69.5	YES	NO	bd	bb	1.361
20	Total-pentafurans	29.68	3.374e3	2.261e3	1.047	1.49	1.55	36.4	YES	NO	db	db	0.662
21	Total-pentafurans	29.59	6.424e3	4.151e3	1.047	1.55	1.55	56.0	YES	NO	dd	dd	1.242
22	Total-pentafurans	29.49	2.371e3	1.575e3	1.047	1.51	1.55	22.5	YES	NO	dd	dd	0.464
23	Total-pentafurans	28.87	9.676e4	6.319e4	1.047	1.53	1.55	838.7	YES	NO	dd	db	18.793
24	Total-pentafurans	28.69	8.382e3	4.993e3	1.047	1.68	1.55	73.3	YES	NO	dd	dd	1.571
25	Total-pentafurans	28.57	9.856e2	6.197e2	1.047	1.59	1.55	11.1	YES	NO	bd	bd	0.189
26	Total-pentafurans	32.22	5.724e2	3.453e2	1.047	1.66	1.55	6.8	YES	NO	bd	bd	0.108
27	23478-PeCDF	31.30	1.443e4	1.014e4	1.126	1.42	1.55	150.0	YES	NO	db	db	2.754
28	Total-pentafurans	31.15	1.379e4	9.079e3	1.047	1.52	1.55	132.5	YES	NO	dd	dd	2.687
29	Total-hexafurans	33.99	7.014e3	6.239e3	1.045	1.12	1.24	88.0	YES	NO	bb	bb	1.695
30	Total-hexafurans	33.46	2.158e5	1.856e5	1.045	1.16	1.24	2627.6	YES	NO	bb	bb	51.349
31	123468-HXCDF	33.25	6.198e4	5.243e4	1.087	1.18	1.24	767.3	YES	NO	bb	bb	13.436
32	123789-HxCDF	36.93	1.890e4	1.593e4	1.030	1.19	1.24	236.5	YES	NO	bb	bb	5.060
33	234678-HxCDF	35.88	4.254e4	3.539e4	1.052	1.20	1.24	431.1	YES	NO	bb	bb	9.913
34	123678-HxCDF	35.06	2.748e4	2.248e4	1.037	1.22	1.24	345.8	YES	NO	db	db	6.063
35	123478-HxCDF	34.92	1.597e5	1.353e5	1.017	1.18	1.24	1995.8	YES	NO	bd	bd	37.028
36	Total-hexafurans	34.77	1.068e4	9.047e3	1.045	1.18	1.24	147.1	YES	NO	bb	bb	2.524
37	Total-hexafurans	34.30	4.854e5	4.082e5	1.045	1.19	1.24	6090.4	YES	NO	bb	bb	114.315

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	1234789-HpCDF	41.05	4.213e4	4.082e4	1.283	1.03	1.05	258.7	YES	NO	bb	bd	18.287
39	Total-heptafurans	39.46	8.091e5	7.919e5	1.305	1.02	1.05	5425.6	YES	NO	bd	bd	310.332
40	Total-heptafurans	39.21	6.295e3	5.639e3	1.305	1.12	1.05	42.6	YES	NO	bb	bb	2.313
41	1234678-HpCDF	38.80	3.638e5	3.536e5	1.327	1.03	1.05	2546.6	YES	NO	bb	bd	123.687
42	OCDF	45.30	3.238e5	3.690e5	1.447	0.88	0.89	2792.8	YES	NO	bb	bb	178.882
43	Total-penta1	27.91	6.510e2	4.740e2		1.37	1.55	16.3	YES	NO	bb	bb	0.147
44	Total-penta1	27.21	1.188e5	7.866e4		1.51	1.55	3457.2	YES	NO	bb	bb	25.833
45	Total-tetradioxins	26.55	7.742e2	1.001e3	0.879	0.77	0.77	19.0	YES	NO	db	db	0.231
46	2378-TCDD	26.41	8.800e2	1.230e3	0.920	0.72	0.77	19.6	YES	NO	bd	bd	0.262
47	Total-tetradioxins	26.05	1.089e3	1.275e3	0.879	0.85	0.77	18.4	YES	NO	bb	bb	0.308
48	Total-tetradioxins	25.40	8.589e2	1.226e3	0.879	0.70	0.77	20.7	YES	NO	db	db	0.271
49	Total-tetradioxins	25.28	4.526e2	5.754e2	0.879	0.79	0.77	11.2	YES	NO	bd	bd	0.134
50	Total-tetradioxins	25.02	2.087e3	2.856e3	0.879	0.73	0.77	53.0	YES	NO	bb	bb	0.644
51	Total-tetradioxins	24.75	1.786e3	2.046e3	0.879	0.87	0.77	34.2	YES	NO	db	MM	0.499
52	Total-tetradioxins	24.55	1.218e3	1.470e3	0.879	0.83	0.77	31.6	YES	NO	bd	bb	0.350
53	Total-tetradioxins	24.02	1.253e3	1.642e3	0.879	0.76	0.77	32.0	YES	NO	bb	bb	0.377
54	Total-tetradioxins	23.81	4.026e3	5.513e3	0.879	0.73	0.77	101.9	YES	NO	bb	bb	1.242
55	1368-TCDD	23.54	4.224e3	5.979e3	0.923	0.71	0.77	98.9	YES	NO	bd	bb	1.265
56	12389-PECDD	31.95	1.019e3	6.921e2	1.154	1.47	1.55	19.7	YES	NO	bb	bb	0.281
57	12378-PeCDD	31.54	3.564e3	2.304e3	0.995	1.55	1.55	62.4	YES	NO	bb	bb	1.118
58	Total-pentadioxins	30.86	1.635e3	1.019e3	1.331	1.60	1.55	27.2	YES	NO	bb	bb	0.378
59	Total-pentadioxins	30.47	3.665e3	2.198e3	1.331	1.67	1.55	53.0	YES	NO	db	bb	0.836
60	Total-pentadioxins	30.14	3.153e3	1.843e3	1.331	1.71	1.55	60.0	YES	NO	bd	bd	0.712
61	Total-pentadioxins	29.93	5.063e3	3.197e3	1.331	1.58	1.55	102.8	YES	NO	bb	bb	1.178
62	12479-PECDD	28.84	1.736e4	1.059e4	1.843	1.64	1.55	215.4	YES	NO	bb	bb	2.877
63	Total-hexadioxins	36.33	2.698e3	1.911e3	1.028	1.41	1.24	31.4	YES	NO	bb	bb	0.664
64	123678-HxCDD	36.15	4.350e4	3.426e4	1.009	1.27	1.24	485.1	YES	NO	db	db	11.473
65	123478-HxCDD	36.04	4.368e3	3.487e3	1.027	1.25	1.24	48.9	YES	NO	bd	bd	1.127
66	Total-hexadioxins	35.27	2.222e3	1.991e3	1.028	1.12	1.24	26.3	YES	NO	dd	db	0.607
67	Total-hexadioxins	35.16	8.595e4	6.683e4	1.028	1.29	1.24	699.4	YES	NO	bd	bd	22.014
68	Total-hexadioxins	34.79	1.703e4	1.347e4	1.028	1.26	1.24	182.7	YES	NO	bb	bb	4.395
69	124679-HXCDD	34.02	8.698e4	7.163e4	1.125	1.21	1.24	903.2	YES	NO	bb	bb	20.780
70	123789-HxCDD	36.54	1.063e4	8.624e3	0.950	1.23	1.24	118.0	YES	NO	bb	bb	3.001
71	1234678-HpCDD	40.29	5.325e5	5.021e5	1.068	1.06	1.05	3655.2	YES	NO	bb	bb	266.071
72	1234679-HPCDD	39.25	5.695e5	5.373e5	1.211	1.06	1.05	4207.4	YES	NO	bb	bb	251.072
73	OCDD	45.06	3.571e6	4.004e6	1.181	0.89	0.89	32637.8	YES	NO	bb	bb	2396.7...
74	Total-pentadioxins	30.29	3.023e3	1.870e3	1.331	1.62	1.55	57.7	YES	NO	MM	MM	0.698

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	23.49	4.584e4					2.4	NO		bd		
2	FUNCTION1 PFK	23.22	7.086e4					2.2	NO		db		
3	FUNCTION1 PFK	23.07	1.556e5					4.9	YES		dd		
4	FUNCTION1 PFK	22.99	3.244e5					7.1	YES		dd		
5	FUNCTION1 PFK	22.83	5.093e5					10.0	YES		dd		
6	FUNCTION1 PFK	22.68	1.779e6					13.7	YES		dd		
7	FUNCTION1 PFK	22.40	4.064e5					18.3	YES		dd		
8	FUNCTION1 PFK	22.31	7.747e5					20.2	YES		dd		
9	FUNCTION1 PFK	22.24	4.804e5					22.0	YES		dd		
10	FUNCTION1 PFK	22.18	1.014e6					22.9	YES		dd		
11	FUNCTION1 PFK	21.95	1.357e6					28.1	YES		dd		
12	FUNCTION1 PFK	21.56	5.006e6					37.0	YES		dd		
13	FUNCTION1 PFK	21.47	1.509e6					38.6	YES		dd		
14	FUNCTION1 PFK	21.38	1.545e6					39.1	YES		dd		
15	FUNCTION1 PFK	21.21	1.869e6					43.5	YES		dd		
16	FUNCTION1 PFK	21.15	1.989e6					44.5	YES		bd		
17	FUNCTION1 PFK	26.34	6.956e3					0.6	NO		bb		
18	FUNCTION1 PFK	26.12	1.419e3					0.3	NO		bb		
19	FUNCTION1 PFK	25.40	1.667e4					0.7	NO		bb		
20	FUNCTION1 PFK	25.32	7.123e3					0.6	NO		db		
21	FUNCTION1 PFK	25.20	2.360e4					1.0	NO		dd		
22	FUNCTION1 PFK	25.14	1.121e4					0.8	NO		dd		
23	FUNCTION1 PFK	25.07	1.154e4					0.8	NO		bd		
24	FUNCTION1 PFK	24.90	4.160e4					1.1	NO		bb		
25	FUNCTION1 PFK	24.70	6.780e3					0.6	NO		bb		
26	FUNCTION1 PFK	24.52	4.413e4					1.1	NO		bb		
27	FUNCTION1 PFK	24.23	5.508e4					1.5	NO		bb		
28	FUNCTION1 PFK	23.93	5.903e3					0.5	NO		bb		
29	FUNCTION1 PFK	23.86	1.273e4					1.2	NO		db		
30	FUNCTION1 PFK	23.80	4.605e4					2.2	NO		dd		
31	FUNCTION1 PFK	23.72	1.098e5					3.1	YES		bd		
32	FUNCTION1 PFK	23.54	7.367e4					2.9	NO		db		
33	FUNCTION1 PFK	27.91	2.396e5					1.5	NO		bb		
34	FUNCTION1 PFK	27.50	2.186e5					3.5	YES		db		
35	FUNCTION1 PFK	27.32	2.152e4					1.8	NO		bd		
36	FUNCTION1 PFK	27.06	3.715e4					1.0	NO		db		
37	FUNCTION1 PFK	26.92	2.515e4					1.2	NO		bd		

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ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	26.82	2.552e3					0.3	NO		bb		
39	FUNCTION1 PFK	26.71	2.974e3					0.3	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.76	2.145e5					4.0	YES		bb		0.000
2	FUNCTION2 PFK	32.46	2.520e5					10.4	YES		bb		0.000
3	FUNCTION2 PFK	32.18	7.787e4					5.4	YES		bb		0.000
4	FUNCTION2 PFK	29.64	4.119e4					5.6	YES		db		0.000
5	FUNCTION2 PFK	29.53	1.763e5					8.4	YES		bd		0.000
6	FUNCTION2 PFK	29.39	2.474e4					4.5	YES		bb		0.000
7	FUNCTION2 PFK	29.02	2.894e5					3.1	YES		bb		0.000
8	FUNCTION2 PFK	28.35	1.295e6					22.7	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	36.96	2.572e5					10.3	YES		bb		0.000
2	FUNCTION3 PFK	33.47	2.373e6					6.5	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	42.89	3.647e3					1.2	NO		bb		

PFK5

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

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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...	23.73	1.834e3					51.0	YES		bb		0.000
2	FUNCTION1 HXCD...	23.51	7.108e1					1.9	NO		bb		0.000
3	FUNCTION1 HXCD...	23.19	1.043e2					2.9	NO		bb		0.000
4	FUNCTION1 HXCD...	22.83	1.109e2					2.1	NO		db		0.000
5	FUNCTION1 HXCD...	22.74	2.474e2					7.9	YES		bd		0.000
6	FUNCTION1 HXCD...	22.33	3.024e2					11.5	YES		bb		0.000
7	FUNCTION1 HXCD...	22.19	5.380e2					15.3	YES		bb		0.000
8	FUNCTION1 HXCD...	21.91	7.495e1					2.8	NO		bb		0.000
9	FUNCTION1 HXCD...	21.38	7.786e1					1.6	NO		bb		0.000
10	FUNCTION1 HXCD...	27.65	1.526e2					3.6	YES		bb		0.000
11	FUNCTION1 HXCD...	27.38	7.166e1					2.3	NO		bb		0.000
12	FUNCTION1 HXCD...	26.79	3.943e2					10.3	YES		bb		0.000
13	FUNCTION1 HXCD...	26.12	7.820e2					18.9	YES		bb		0.000
14	FUNCTION1 HXCD...	25.91	1.445e2					3.8	YES		db		0.000
15	FUNCTION1 HXCD...	25.75	9.111e2					23.7	YES		bd		0.000
16	FUNCTION1 HXCD...	25.11	1.802e2					5.8	YES		bb		0.000
17	FUNCTION1 HXCD...	24.63	9.612e1					2.6	NO		bb		0.000
18	FUNCTION1 HXCD...	24.26	7.500e1					1.9	NO		bb		0.000
19	FUNCTION1 HXCD...	23.95	7.353e1					3.7	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...	27.91	2.156e2					6.4	YES		bb		0.000
2	FUNCTION1 HPCD...	23.36	4.808e2					13.6	YES		bb		0.000
3	FUNCTION1 HPCD...	22.33	1.748e2					5.6	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...	28.93	1.124e3					30.4	YES		bd		0.000
2	FUNCTION2 HPCD...	32.68	7.025e1					2.9	NO		bb		0.000
3	FUNCTION2 HPCD...	32.20	3.953e2					10.5	YES		bb		0.000
4	FUNCTION2 HPCD...	31.08	9.809e1					4.5	YES		bb		0.000
5	FUNCTION2 HPCD...	29.41	1.428e2					8.7	YES		bb		0.000
6	FUNCTION2 HPCD...	29.07	4.605e2					11.5	YES		db		0.000

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, 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	36.53	7.514e1					3.2	YES		bb		0.000
2	FUNCTION3 OCDPE	36.13	9.831e1					2.5	NO		bb		0.000
3	FUNCTION3 OCDPE	34.20	5.245e2					18.1	YES		bb		0.000
4	FUNCTION3 OCDPE	33.06	3.049e2					8.6	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	38.54	7.733e1					3.0	YES		db		0.000
2	FUNCTION4 NCDPE	38.42	6.440e3					201.0	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	45.08	4.210e2					8.5	YES		bb		0.000

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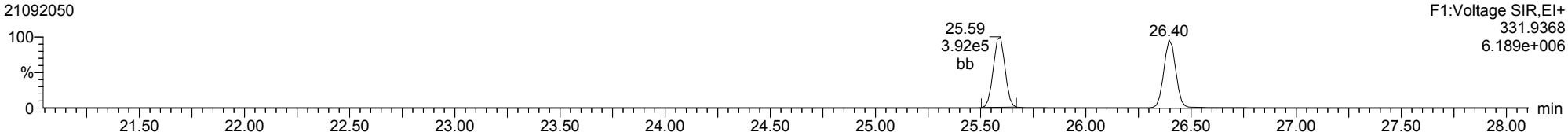

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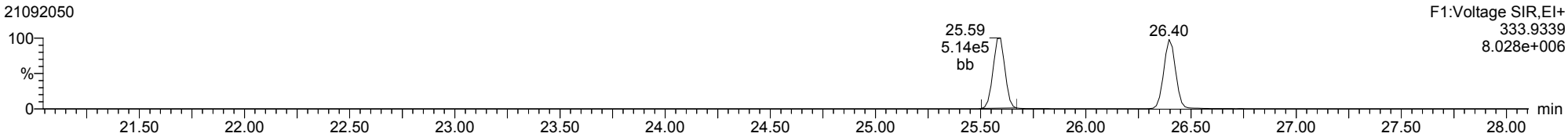

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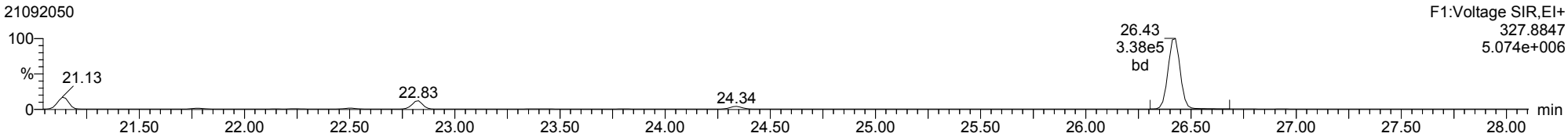

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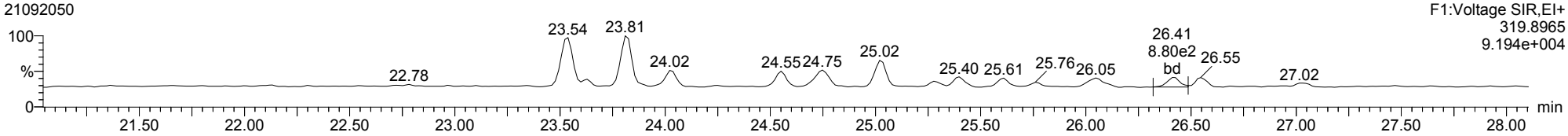
2378-TCDD



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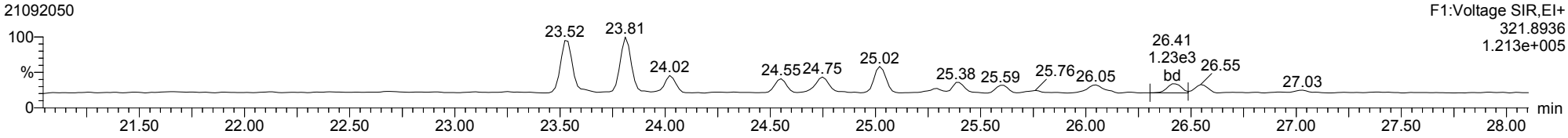

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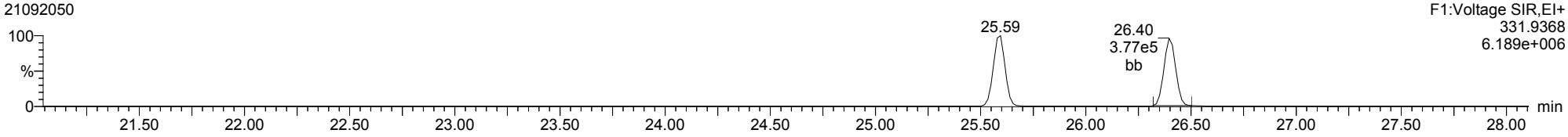

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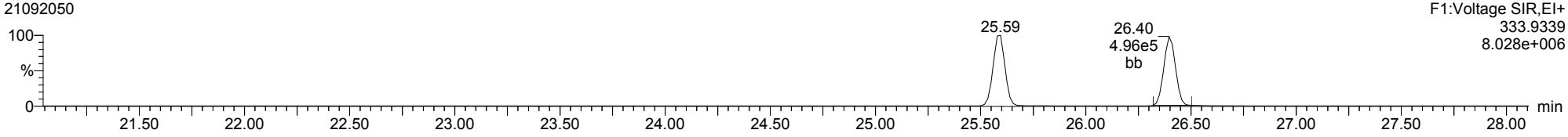

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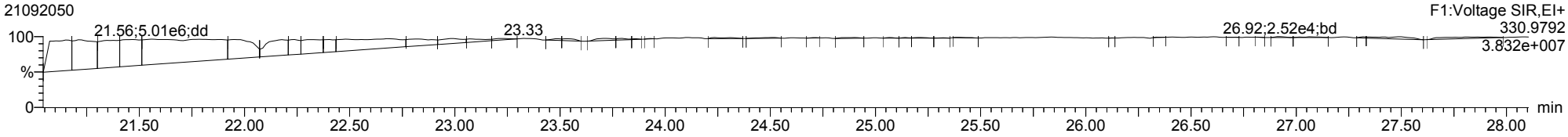

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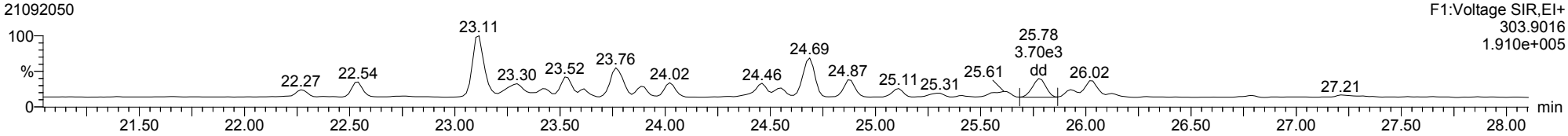
2378-TCDF



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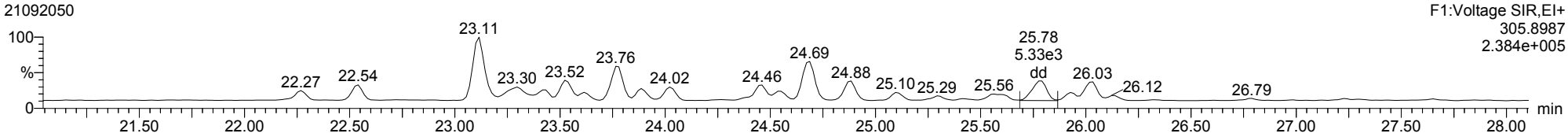

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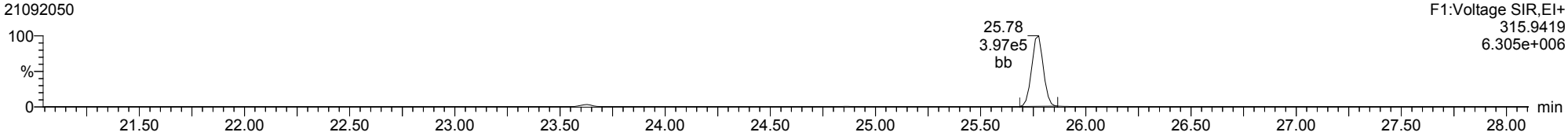

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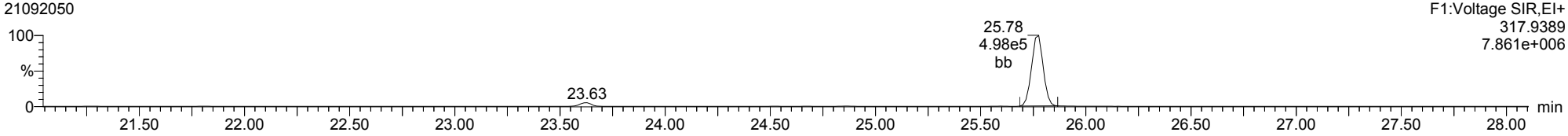

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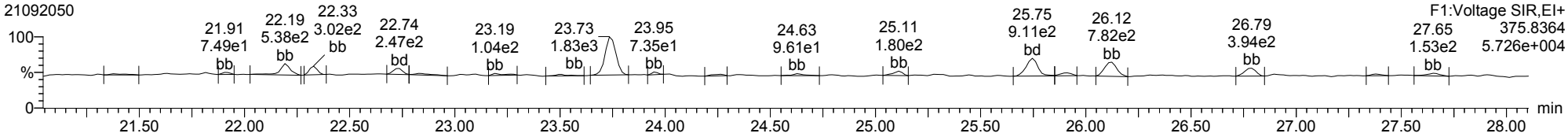

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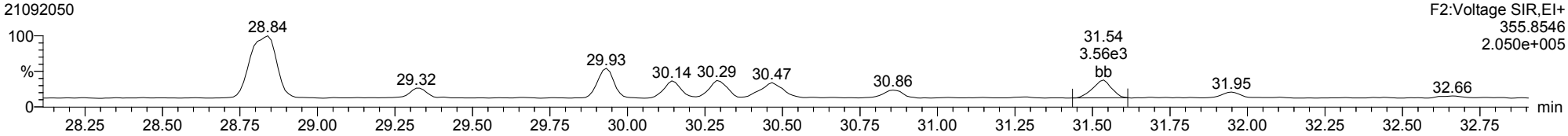
12378-PeCDD



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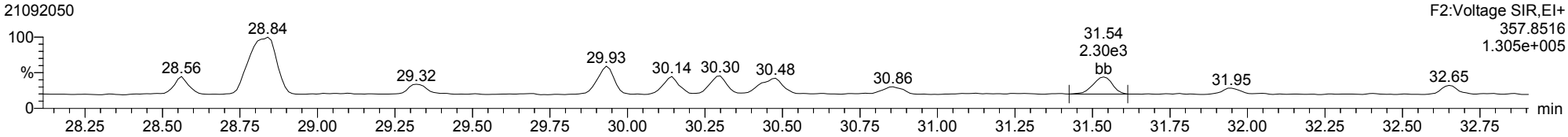

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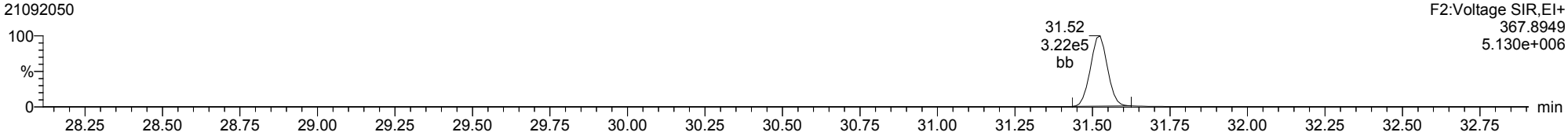

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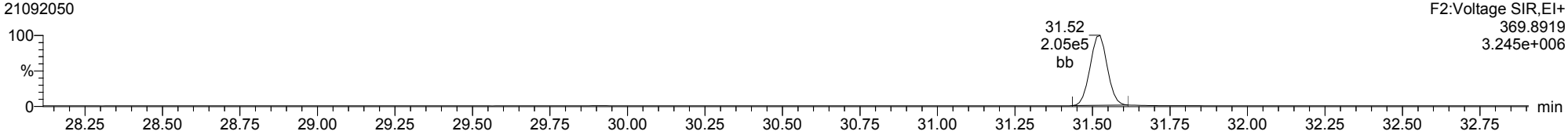
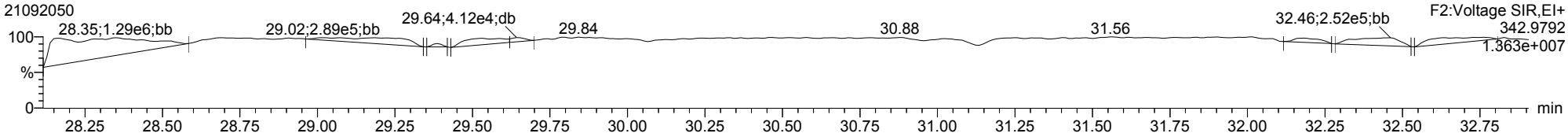


FUNCTION2 PFK



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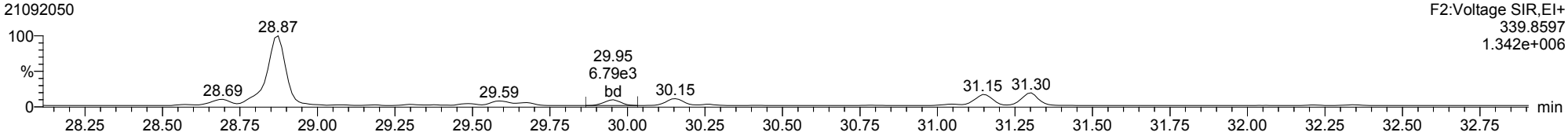

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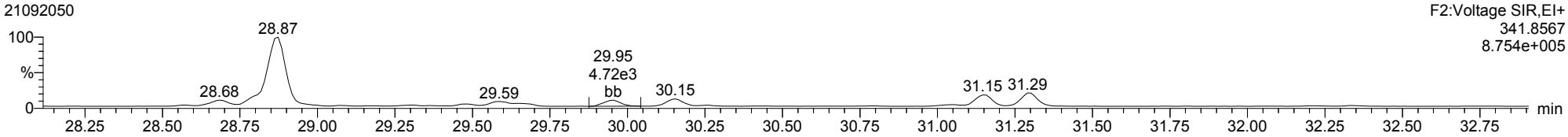

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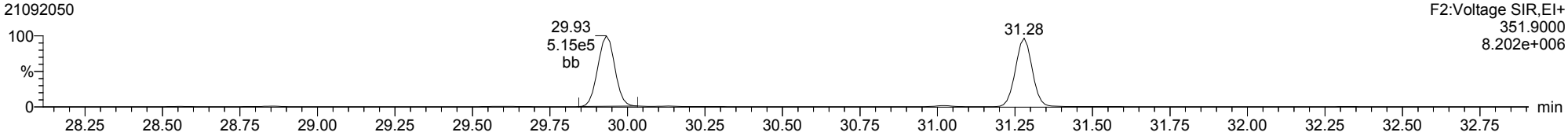

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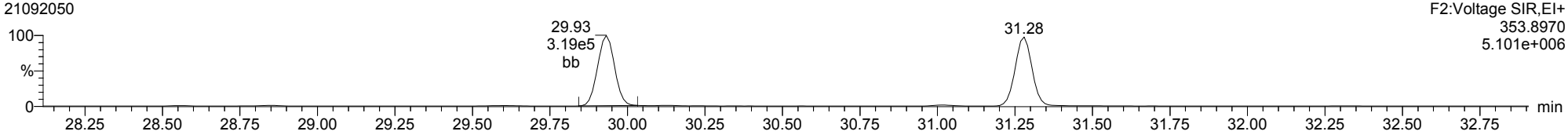

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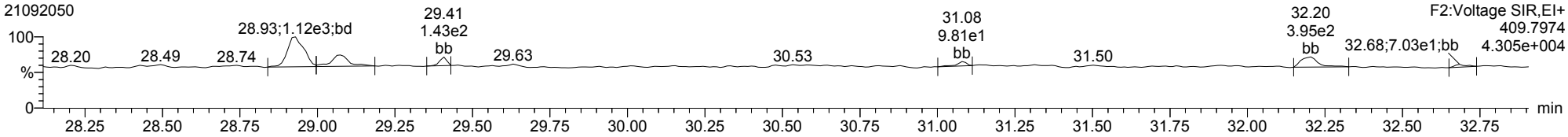

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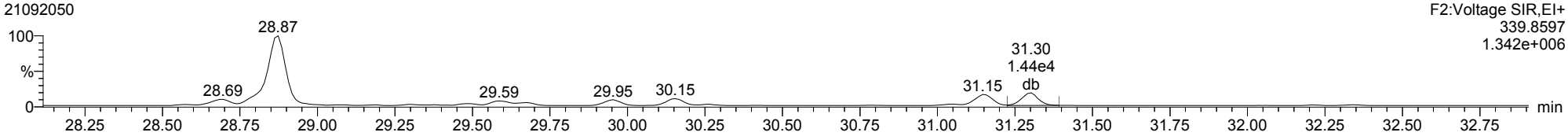
23478-PeCDF



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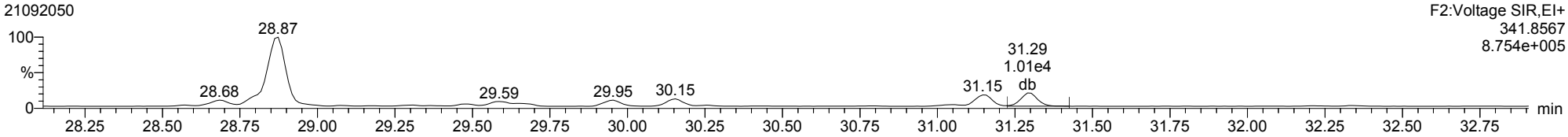

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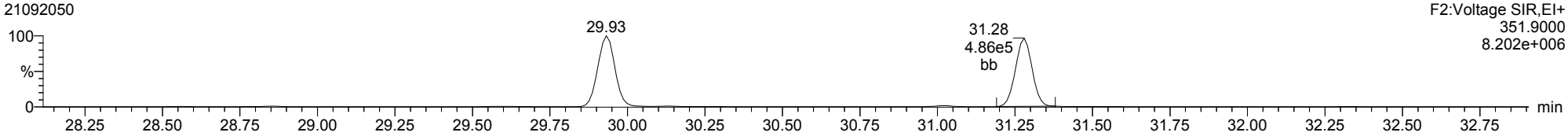

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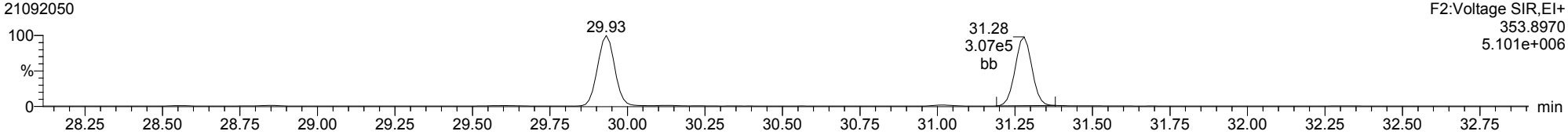

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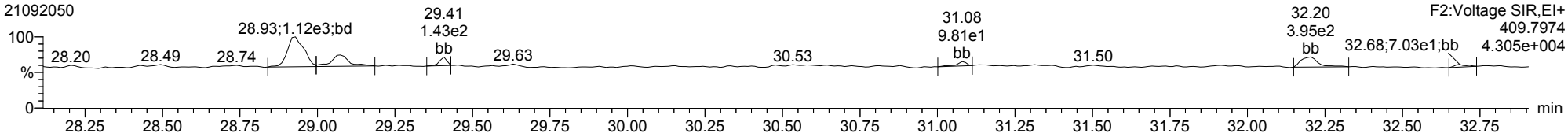

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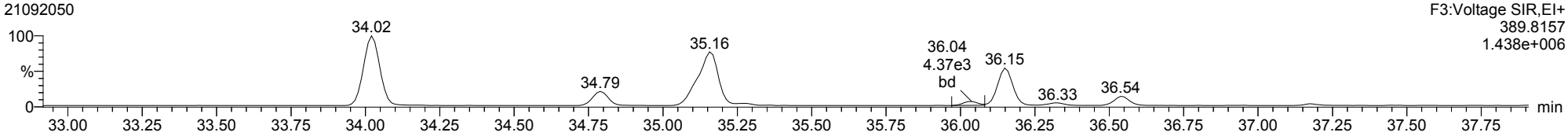

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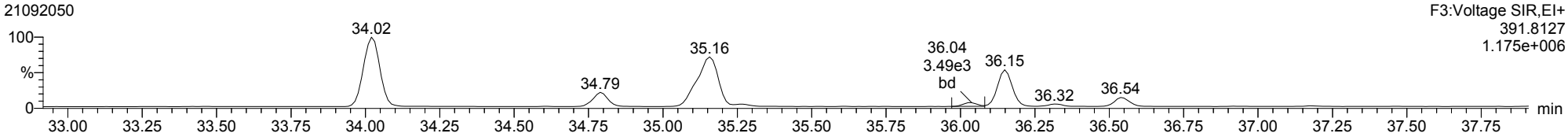

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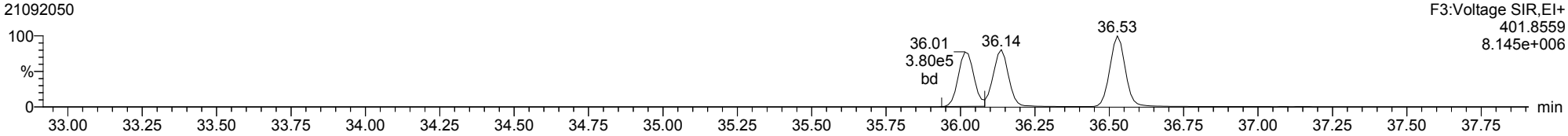

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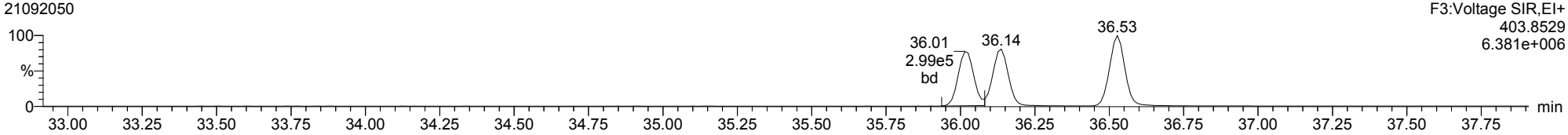

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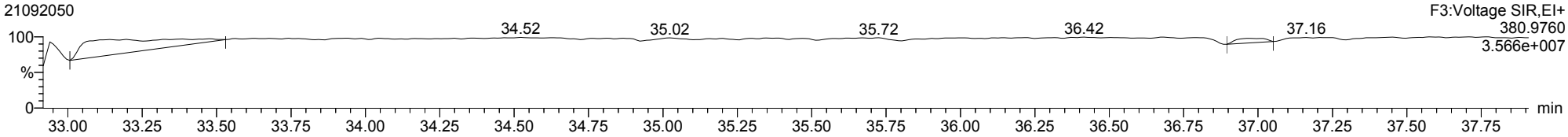

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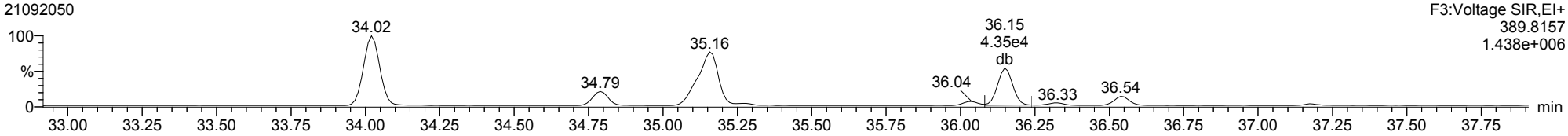

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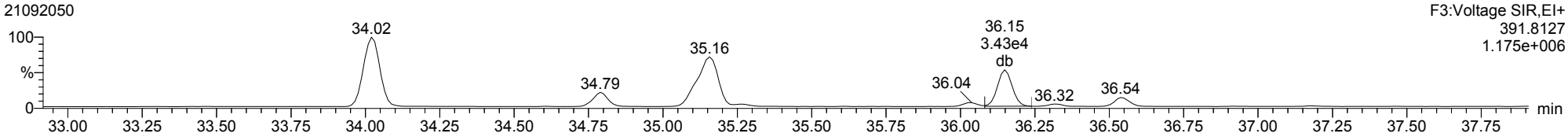

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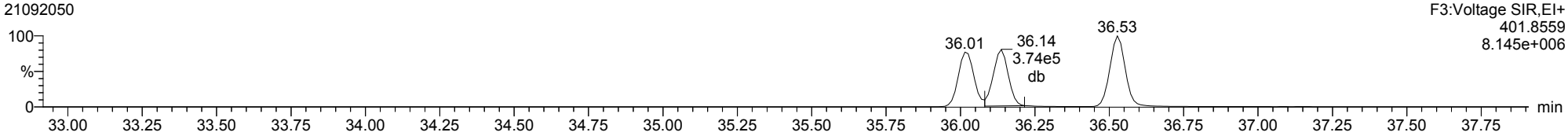

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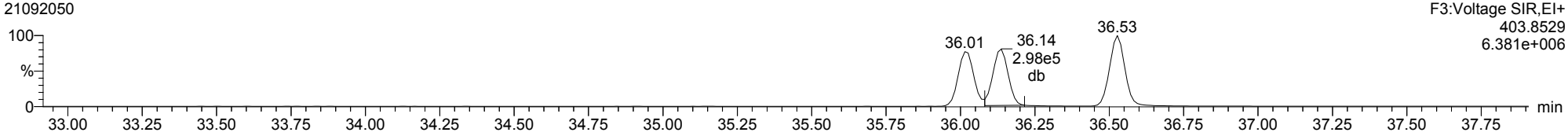

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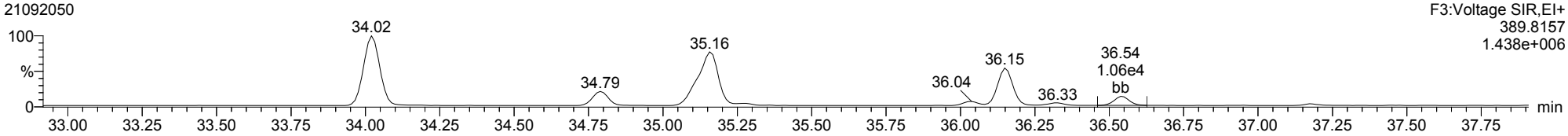

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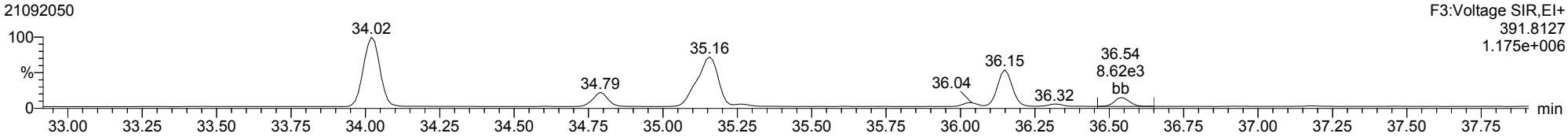

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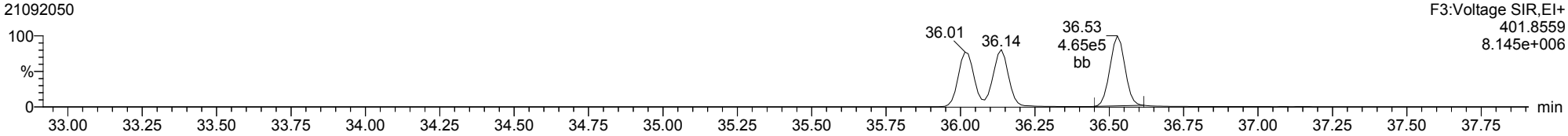

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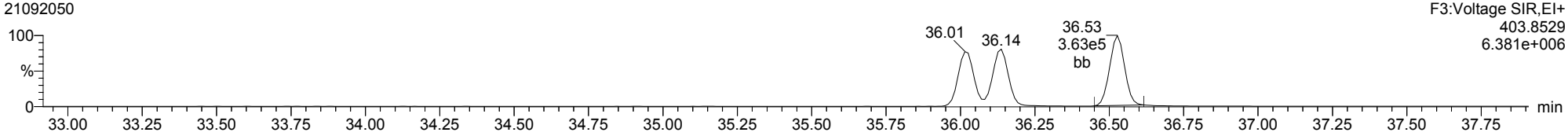

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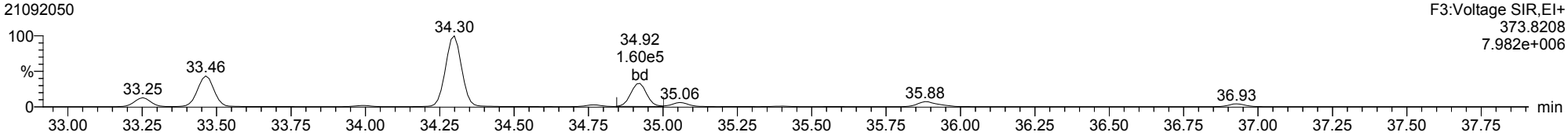

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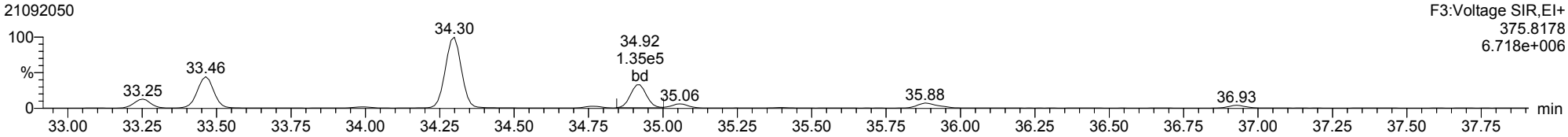

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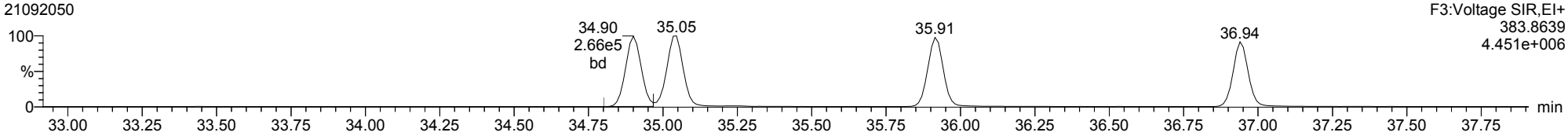

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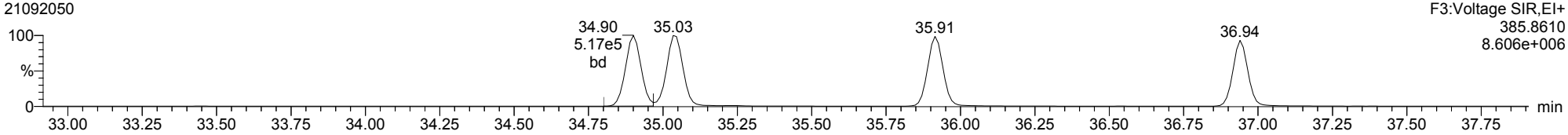

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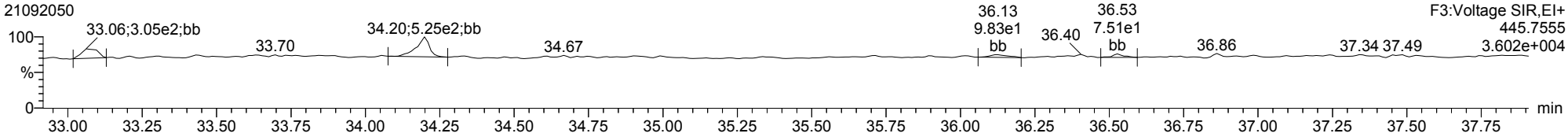

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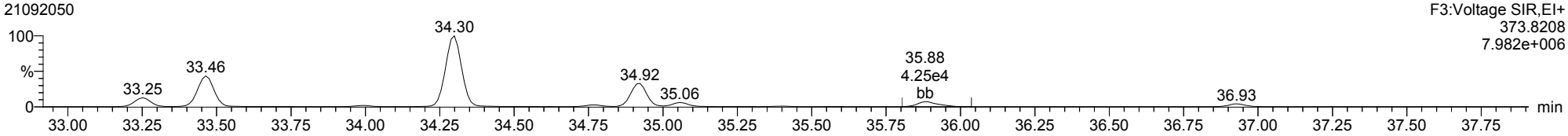
234678-HxCDF



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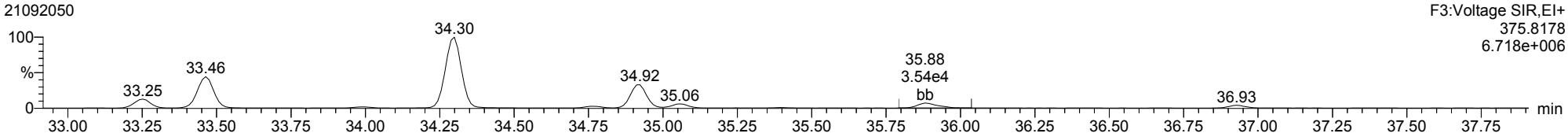

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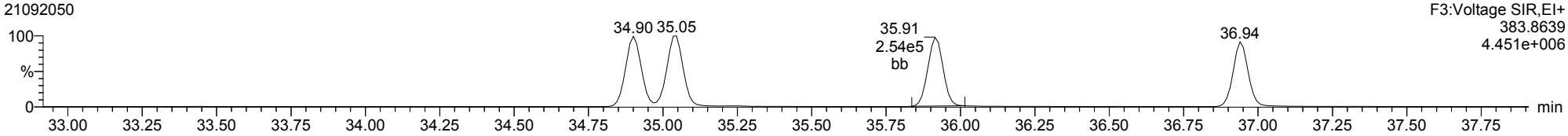

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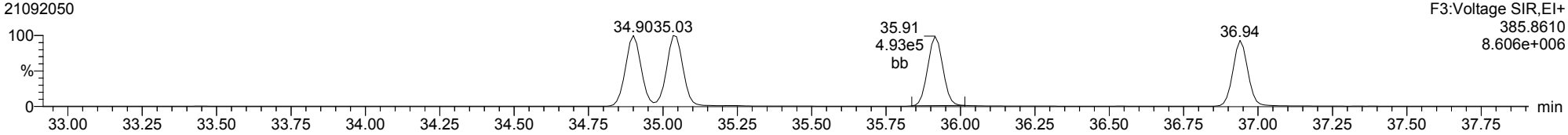

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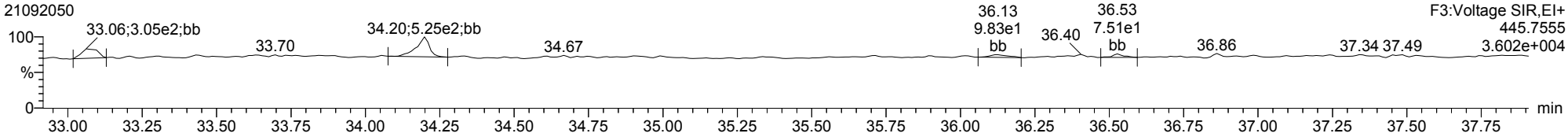

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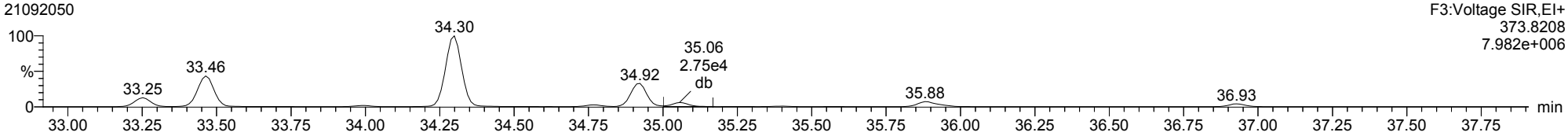

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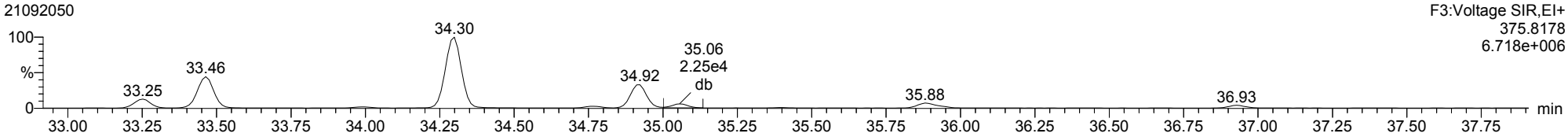

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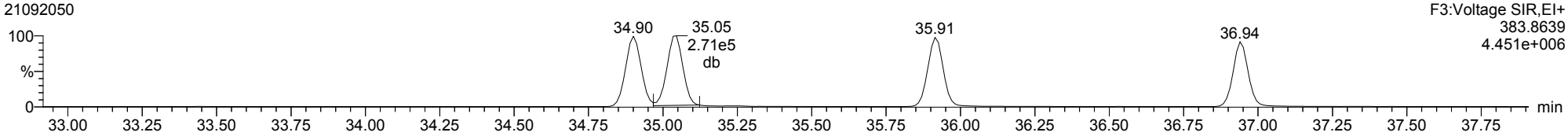

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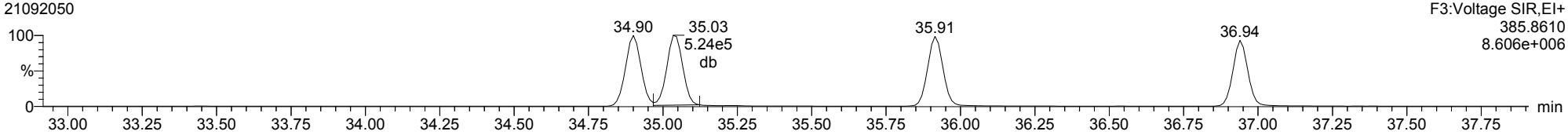

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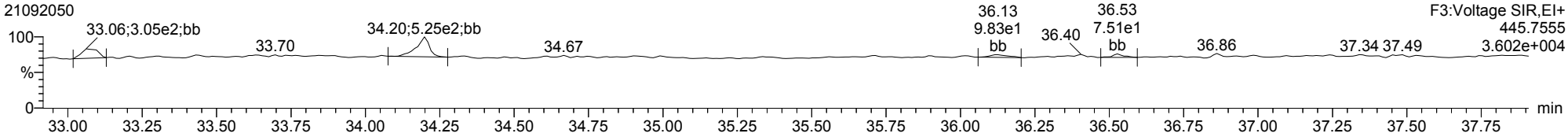

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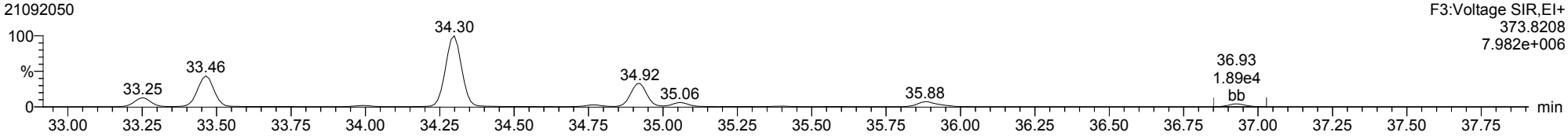

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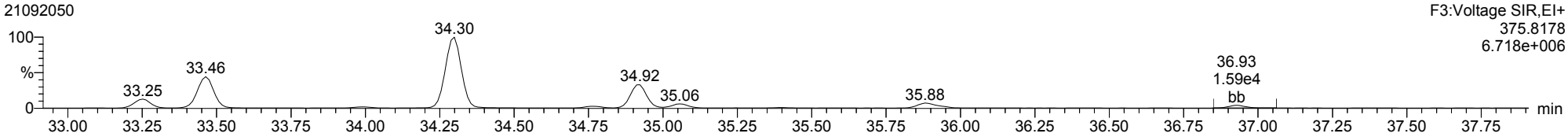

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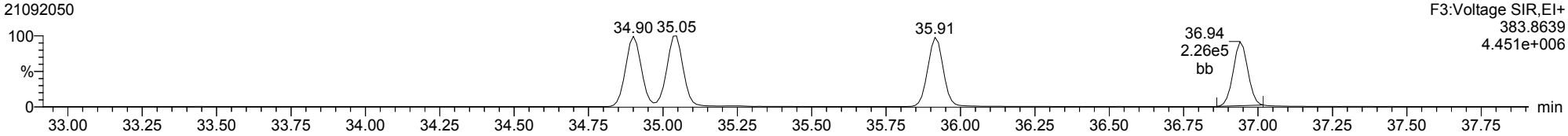

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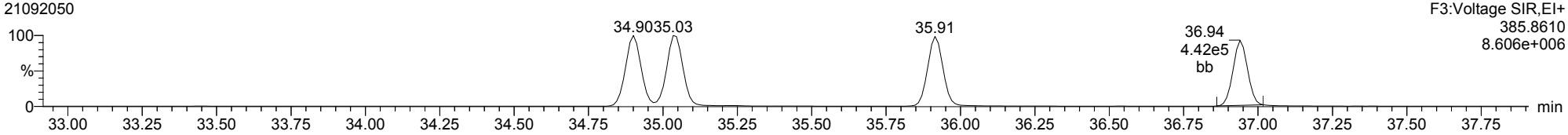

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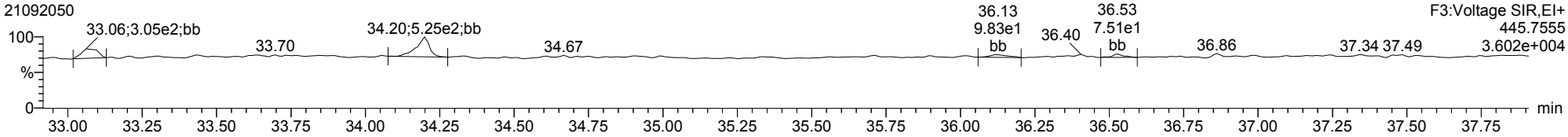

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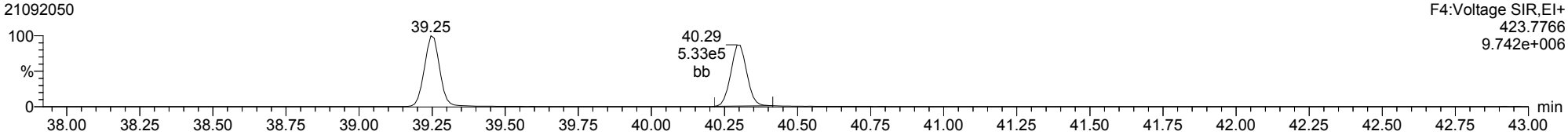
1234678-HpCDD



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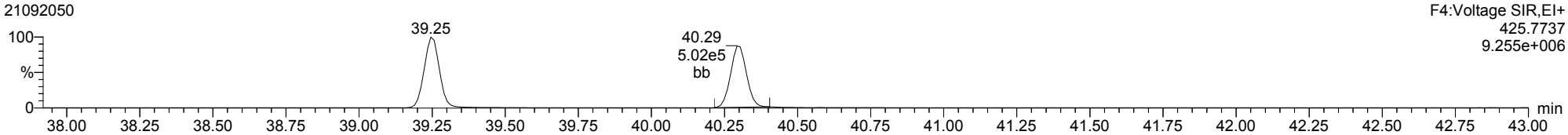

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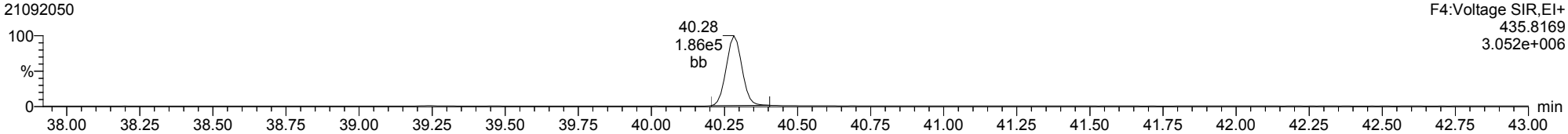

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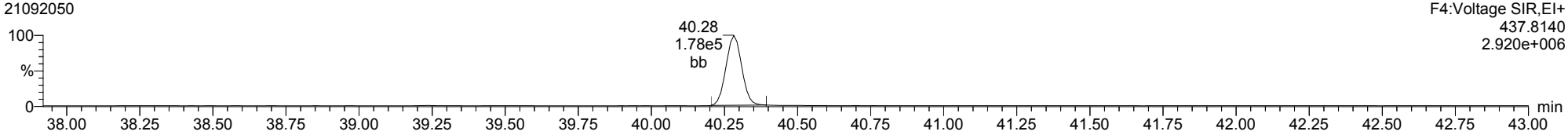

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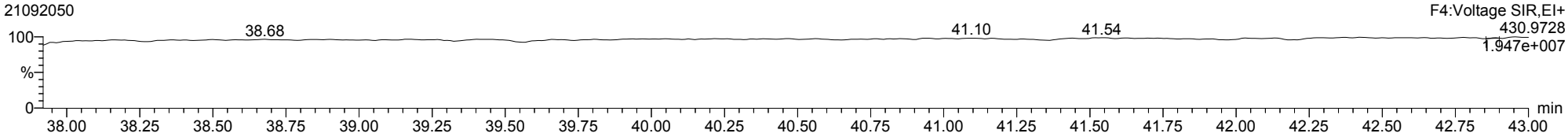

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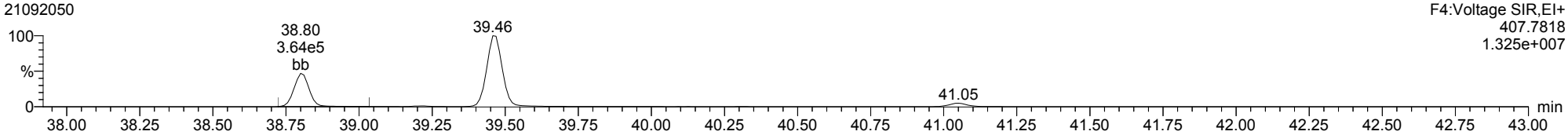

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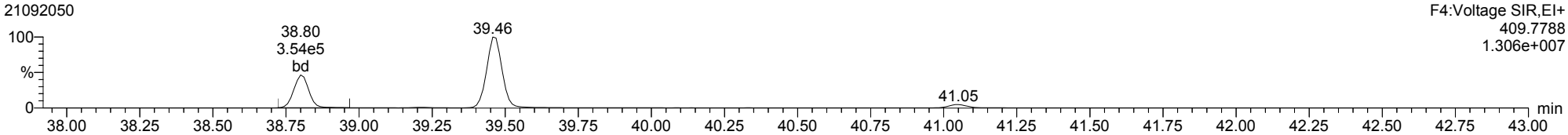

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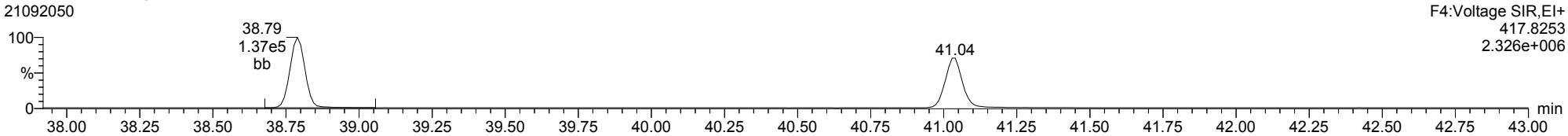

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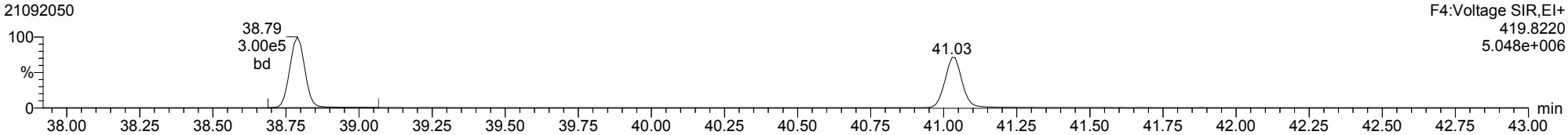

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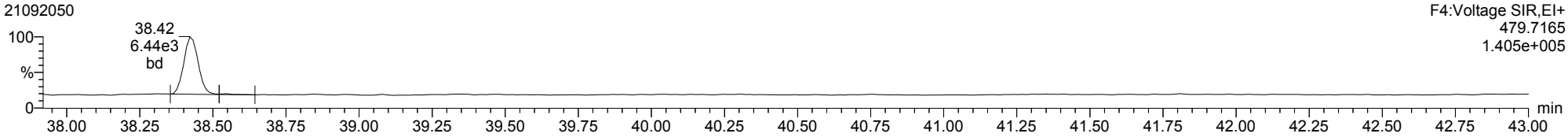

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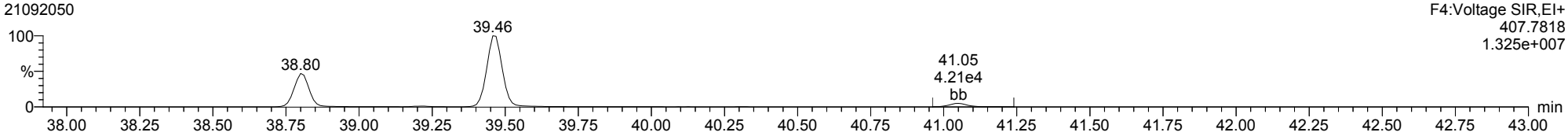
1234789-HpCDF



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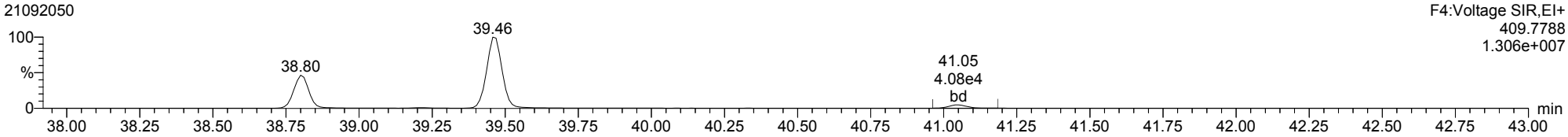

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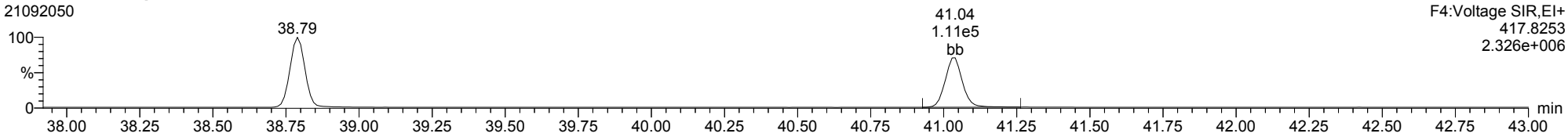

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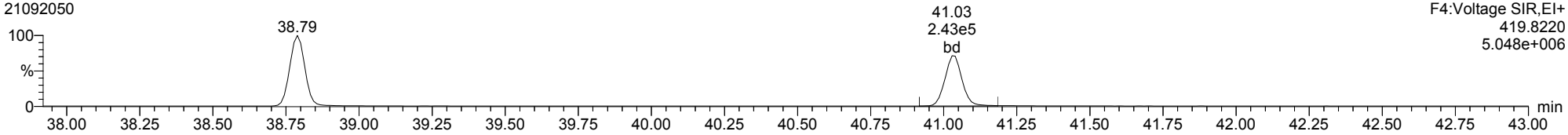
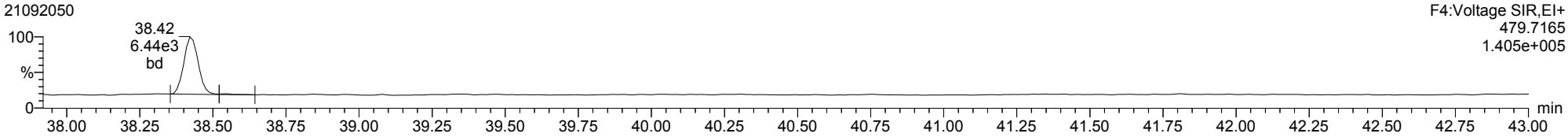


FUNCTION4 NCDPE



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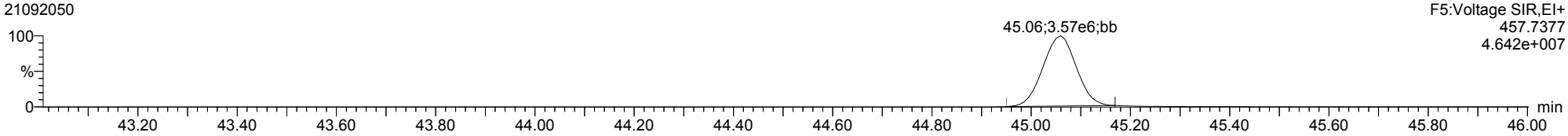
OCDD



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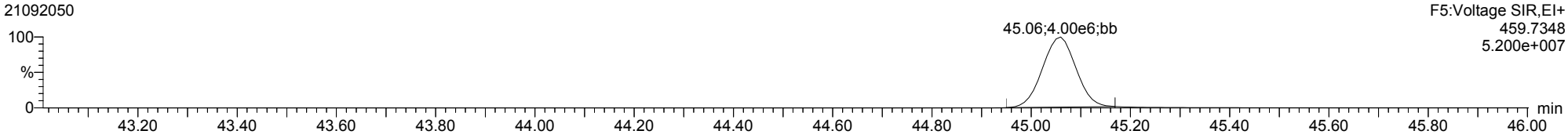

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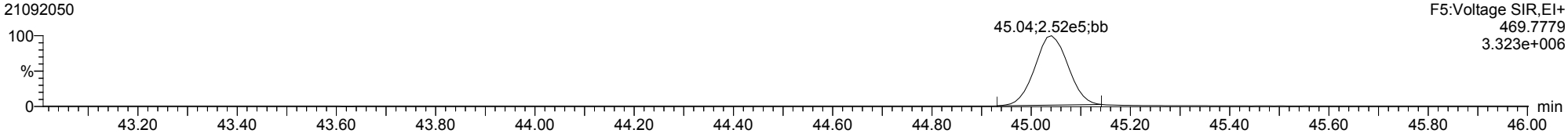

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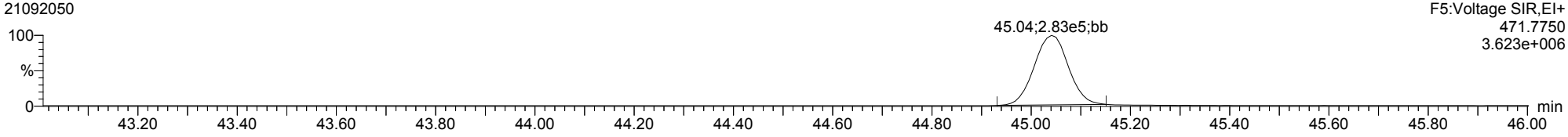
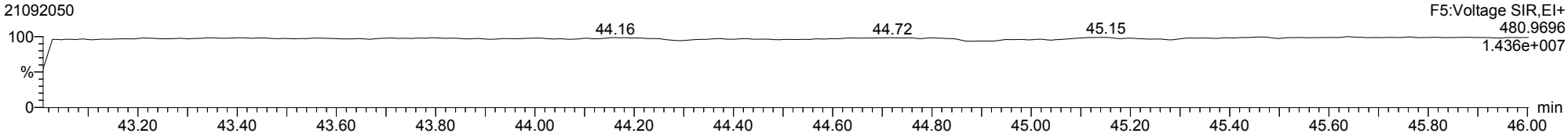
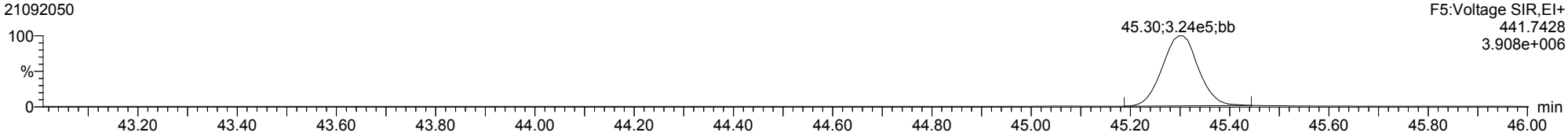


FUNCTION5 PFK



ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, Conditions: AUTOSPEC01, User: pk

OCDF



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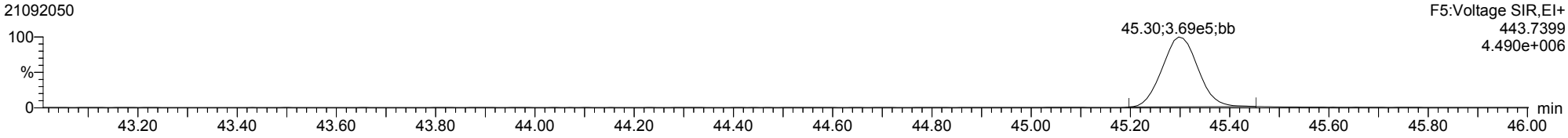
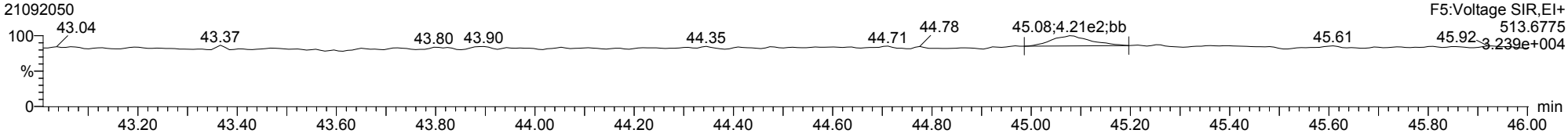
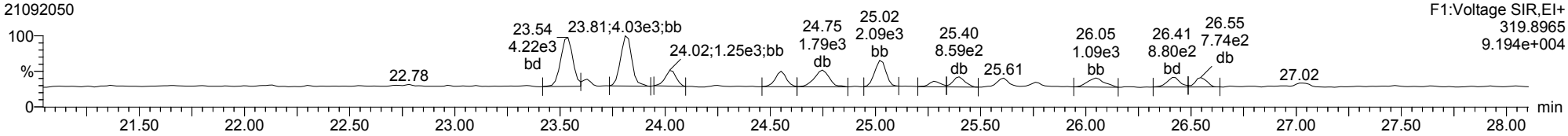


FUNCTION5 DCDPE



ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



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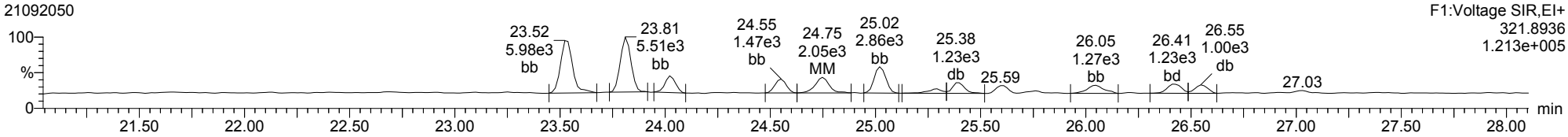

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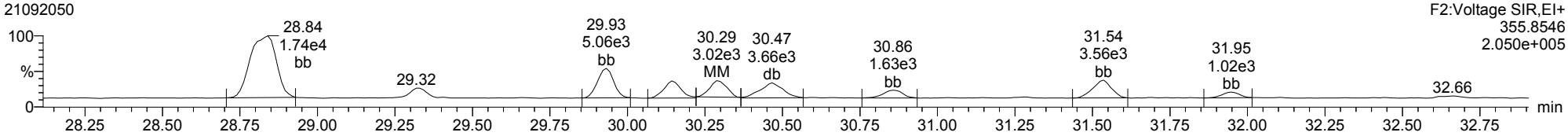
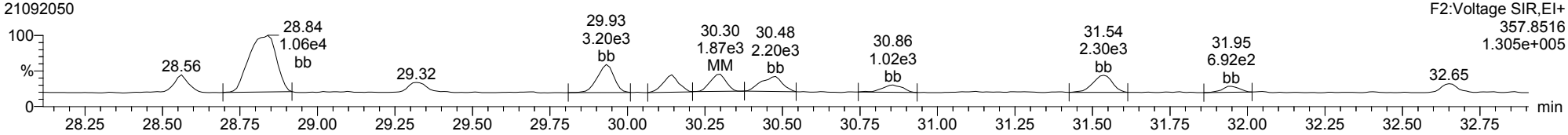
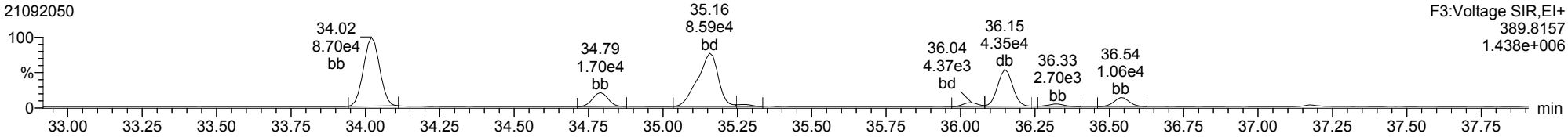


Total-pentadioxins



ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



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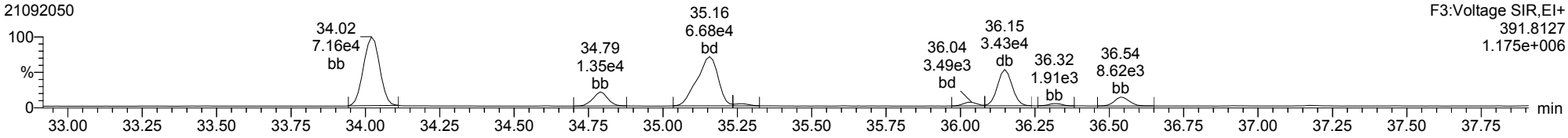

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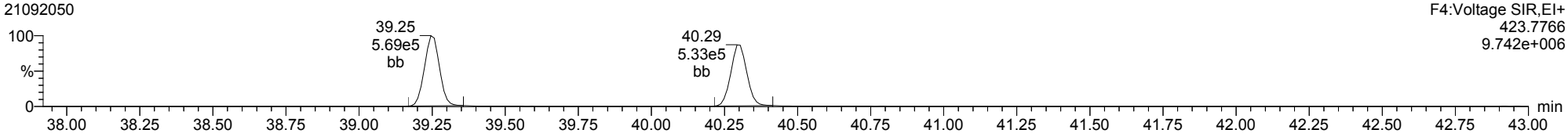

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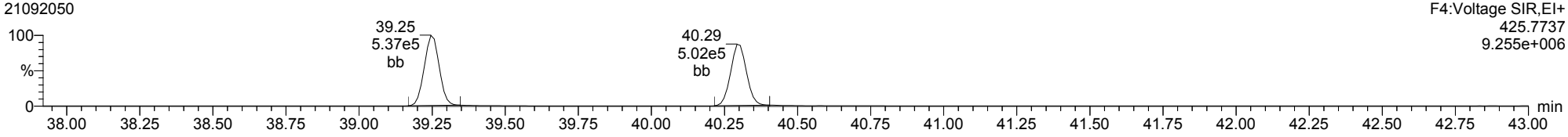

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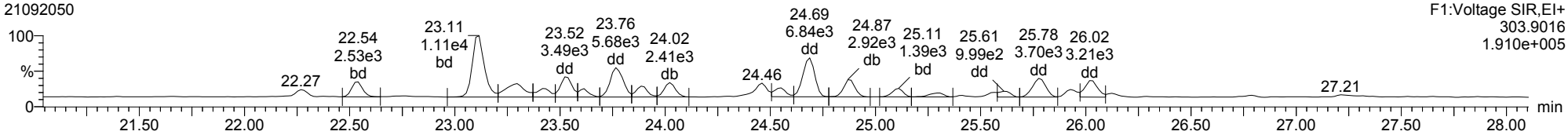
Printed: Wednesday, September 22, 2021 14:10:00 Pacific Daylight Time

ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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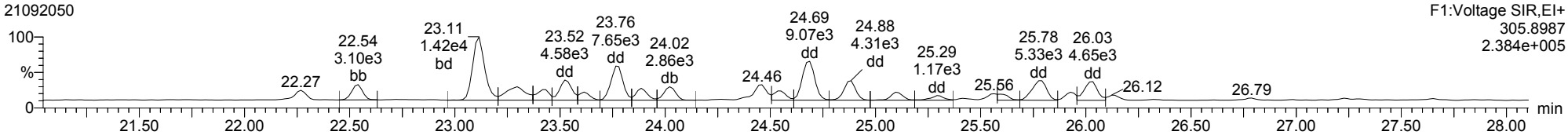

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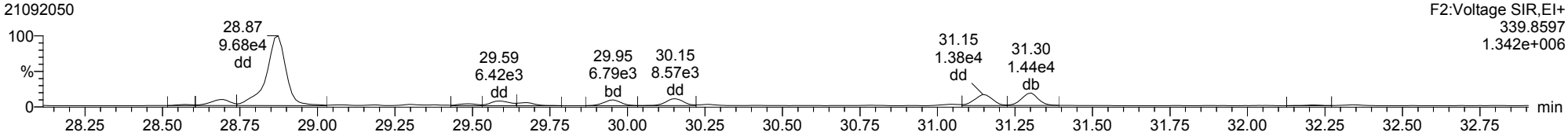

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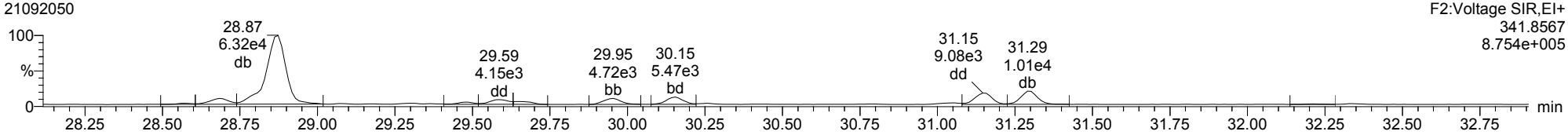
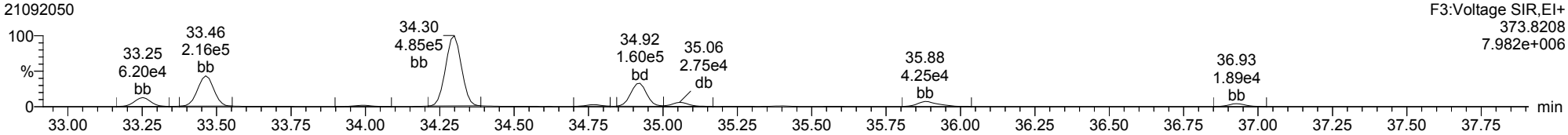
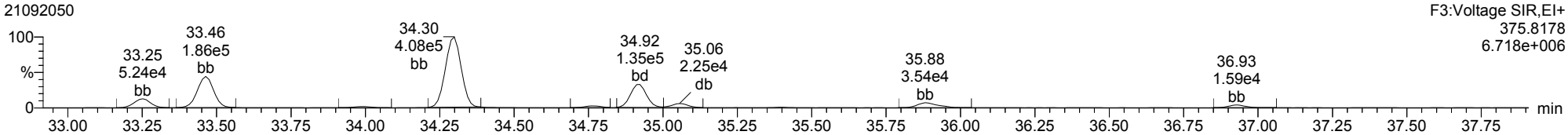


ID: 21G0283-11, Name: 21092050, Date: 22-Sep-2021, Time: 08:54:47, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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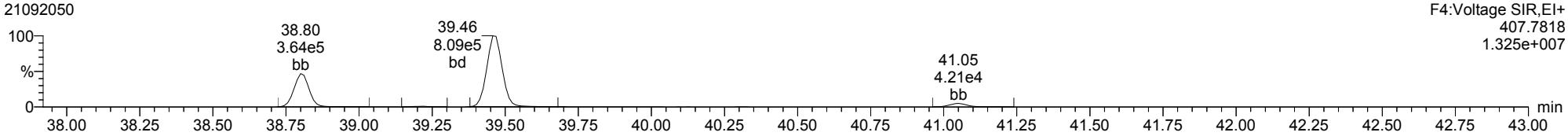

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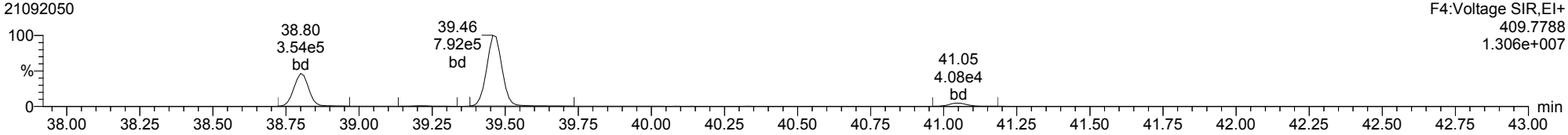

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT664C

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0283-12 C	File ID:	21092051
Sampled:	07/20/21 12:41	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 09:43
% Solids:	68.94	Preparation:	EPA 1613	Initial/Final:	14.51 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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	0.557	0.655-0.886	0.104	1.00	0.966	ng/kg	EMPC, J
1746-01-6	2,3,7,8-TCDD	1	0.655	0.655-0.886	0.118	1.00	0.489	ng/kg	J
57117-41-6	1,2,3,7,8-PeCDF	1	1.261	1.318-1.783	0.168	1.00	0.481	ng/kg	EMPC, J
57117-31-4	2,3,4,7,8-PeCDF	1	1.364	1.318-1.783	0.158	1.00	0.879	ng/kg	J
40321-76-4	1,2,3,7,8-PeCDD	1	1.555	1.318-1.783	0.172	1.00	0.782	ng/kg	J
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.204	1.054-1.426	0.146	1.00	1.27	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.385	1.054-1.426	0.142	1.00	1.31	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.140	1.054-1.426	0.150	1.00	1.32	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.312	1.054-1.426	0.165	1.00	0.314	ng/kg	J
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.355	1.054-1.426	0.121	1.00	0.707	ng/kg	J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.134	1.054-1.426	0.123	1.00	3.89	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.300	1.054-1.426	0.130	1.00	2.08	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.028	0.893-1.208	0.173	1.00	27.3	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.823	0.893-1.208	0.242	1.00	1.33	ng/kg	EMPC
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.047	0.893-1.208	0.318	2.50	92.5	ng/kg	B
39001-02-0	OCDF	1	0.891	0.757-1.024	0.361	2.50	80.7	ng/kg	
3268-87-9	OCDD	1	0.887	0.757-1.024	0.548	10.0	645	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	18.8	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	3.84	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	50.8	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	5.01	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	35.5	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	32.0	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	85.9	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	182	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 4.16
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 4.16

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT664C

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0283-12	File ID:	21092051
Sampled:	07/20/21 12:41	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 09:43
Solids Wt%:	68.94	Preparation:	EPA 1613	Initial/Final:	14.51 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.787	0.655-0.886	0.150	45.4	24 - 169 %	
13C12-2,3,7,8-TCDD		0.750	0.655-0.886	0.128	61.1	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.626	1.318-1.783	0.074	42.9	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.602	1.318-1.783	0.078	41.6	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.542	1.318-1.783	0.108	48.5	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.521	0.434-0.587	0.114	61.0	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.520	0.434-0.587	0.105	55.5	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.526	0.434-0.587	0.116	58.4	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.507	0.434-0.587	0.140	62.8	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.296	1.054-1.426	0.123	67.3	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.289	1.054-1.426	0.113	63.4	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.459	0.374-0.506	0.110	44.0	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.450	0.374-0.506	0.135	43.9	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.041	0.893-1.208	0.134	54.7	23 - 140 %	
13C12-OCDD		0.900	0.757-1.024	0.164	49.1	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.033	75.8	35 - 197 %	

* Values outside of QC limits

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Printed: Wednesday, September 22, 2021 14:10:12 Pacific Daylight Time

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

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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	1.000	1.127e3	2.025e3	1.108	0.557	0.770	871	939	1.57e4	2.71e4	18.1	28.8	YES	dd	dd	0.483
12378-PeCDF	29.943	1.000	6.904e2	5.474e2	1.015	1.261	1.550	1050	1163	1.20e4	7.74e3	11.4	6.7	YES	bb	bb	0.241
23478-PeCDF	31.291	1.001	1.338e3	9.807e2	1.126	1.364	1.550	1050	1163	2.24e4	1.54e4	21.4	13.2	NO	bb	db	0.440
123478-HxCDF	34.911	1.000	1.736e3	1.441e3	1.017	1.204	1.240	854	1139	2.61e4	2.54e4	30.5	22.3	NO	dd	dd	0.635
234678-HxCDF	35.925	1.000	1.709e3	1.498e3	1.052	1.140	1.240	854	1139	3.50e4	2.76e4	41.0	24.3	NO	db	db	0.662
123678-HxCDF	35.056	1.001	1.907e3	1.377e3	1.037	1.385	1.240	854	1139	2.81e4	2.26e4	32.9	19.9	NO	db	MM	0.655
123789-HxCDF	36.928	1.000	3.772e2	2.874e2	1.030	1.312	1.240	854	1139	5.41e3	4.63e3	6.3	4.1	NO	bb	bb	0.157
1234678-HpCDF	38.800	1.000	2.426e4	2.361e4	1.327	1.028	1.050	825	874	4.06e5	3.89e5	492.5	445.5	NO	bb	bb	13.633
1234789-HpCDF	41.039	1.000	8.334e2	1.012e3	1.283	0.823	1.050	825	874	1.55e4	1.72e4	18.8	19.7	YES	bb	MM	0.665
OCDF	45.288	1.006	4.423e4	4.965e4	1.447	0.891	0.890	929	889	5.27e5	6.18e5	567.3	695.4	NO	bb	bb	40.348
2378-TCDD	26.411	1.001	5.538e2	8.449e2	0.920	0.655	0.770	1114	675	6.78e3	1.14e4	6.1	16.8	NO	dd	bd	0.245
12378-PeCDD	31.525	1.000	7.655e2	4.922e2	0.995	1.555	1.550	901	620	1.15e4	8.18e3	12.7	13.2	NO	bb	bb	0.391
123478-HxCDD	36.037	1.001	8.767e2	6.470e2	1.027	1.355	1.240	756	740	1.61e4	1.15e4	21.2	15.6	NO	bd	bd	0.353
123678-HxCDD	36.148	1.001	4.472e3	3.945e3	1.009	1.134	1.240	756	740	7.50e4	6.54e4	99.2	88.4	NO	db	db	1.946
123789-HxCDD	36.538	1.011	2.374e3	1.825e3	0.950	1.300	1.240	756	740	4.03e4	3.38e4	53.3	45.6	NO	bb	bb	1.041
1234678-HpCDD	40.293	1.000	5.685e4	5.431e4	1.068	1.047	1.050	1002	1046	9.03e5	8.80e5	901.0	841.0	NO	bb	bb	46.281
OCDD	45.050	1.000	2.880e5	3.248e5	1.181	0.887	0.890	1205	1046	3.66e6	4.13e6	3034.5	3943.5	NO	bb	bb	322.750
13C-2378-TCDF	25.761	1.007	2.593e5	3.296e5	1.427	0.787	0.770	3485	1789	4.17e6	5.38e6	1196.1	3008.2	NO	bb	bb	45.353
13C-12378-PeCDF	29.931	1.170	3.137e5	1.930e5	1.297	1.626	1.550	1492	882	4.83e6	3.01e6	3237.3	3409.7	NO	bb	bb	42.910
13C-23478-PeCDF	31.268	1.222	2.884e5	1.801e5	1.236	1.602	1.550	1492	882	4.59e6	2.84e6	3079.3	3217.4	NO	bb	bb	41.625
13C-123478-HxCDF	34.900	0.956	1.685e5	3.234e5	1.242	0.521	0.510	1202	1383	2.76e6	5.18e6	2297.6	3741.4	NO	bd	bd	60.961
13C-123678-HxCDF	35.034	0.959	1.655e5	3.184e5	1.343	0.520	0.510	1202	1383	2.77e6	5.34e6	2304.6	3859.2	NO	db	db	55.455
13C-234678-HxCDF	35.914	0.984	1.587e5	3.019e5	1.215	0.526	0.510	1202	1383	2.62e6	4.94e6	2175.4	3572.1	NO	bb	bb	58.367
13C-123789-HxCDF	36.939	1.012	1.383e5	2.727e5	1.008	0.507	0.510	1202	1383	2.36e6	4.66e6	1966.0	3366.9	NO	bb	bb	62.809
13C-1234678-HpCDF	38.789	1.062	8.319e4	1.813e5	0.926	0.459	0.440	873	992	1.40e6	3.03e6	1599.1	3056.0	NO	bd	bb	43.956
13C-1234789-HpCDF	41.028	1.124	6.705e4	1.491e5	0.758	0.450	0.440	873	992	1.02e6	2.20e6	1165.2	2213.9	NO	bb	bb	43.902
13C-1234-TCDD	25.579	0.000	3.917e5	5.184e5	1.000	0.756	0.770	2276	1251	6.36e6	8.33e6	2795.4	6654.0	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.032	2.661e5	3.550e5	1.116	0.750	0.770	2276	1251	4.23e6	5.61e6	1858.4	4485.4	NO	bb	bb	61.119
13C-12378-PeCDD	31.514	1.232	1.960e5	1.271e5	0.732	1.542	1.550	1034	914	3.22e6	2.09e6	3119.6	2284.4	NO	bb	bb	48.504
13C-123478-HxCDD	36.014	0.986	2.368e5	1.828e5	0.960	1.296	1.240	1010	1148	4.09e6	3.12e6	4049.1	2715.0	NO	bd	bd	67.311
13C-123678-HxCDD	36.126	0.989	2.414e5	1.873e5	1.041	1.289	1.240	1010	1148	4.07e6	3.18e6	4030.1	2768.9	NO	db	db	63.380
13C-1234678-HpCDD	40.282	1.103	1.147e5	1.102e5	0.632	1.041	1.050	835	718	1.84e6	1.76e6	2207.5	2453.7	NO	bb	bb	54.743
13C-OCDD	45.032	1.233	1.523e5	1.693e5	0.504	0.900	0.890	656	856	1.98e6	2.22e6	3012.7	2590.2	NO	bb	bb	98.296
13C-123789-HxCDD	36.516	0.000	3.607e5	2.888e5	1.000	1.249	1.240	1010	1148	6.09e6	4.89e6	6027.4	4259.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	2.992e5		1.084			879		4.69e6		5338.2			bd		30.336

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:12 Pacific Daylight Time

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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	22.268	0.864	9.302e2	8.279e2	1.425	1.123	0.770	871	939	1.29e4	1.26e4	14.8	13.4	YES	bb	bb	0.210
1289-TCDF					1.043		0.770	871	939								
13468-PECDF					1.376		1.550	1076	1093								
12389-PECDF					1.000		1.550	1050	1163								
123468-HXCDF	33.251	0.953	3.886e3	3.384e3	1.087	1.148	1.240	854	1139	6.23e4	5.38e4	72.9	47.2	NO	bb	bb	1.360
1368-TCDD	23.523	0.891	1.462e3	1.922e3	0.923	0.761	0.770	1114	675	2.49e4	2.94e4	22.4	43.5	NO	bd	bb	0.590
1289-TCDD					0.794		0.770	1114	675								
12479-PECDD	28.817	0.914	3.475e3	2.128e3	1.843	1.633	1.550	901	620	3.86e4	2.36e4	42.9	38.1	NO	bb	bb	0.941
12389-PECDD	31.937	1.013	3.862e2	2.959e2	1.154	1.305	1.550	901	620	5.65e3	5.04e3	6.3	8.1	YES	bb	bd	0.183
124679-HXCDD	34.020	0.945	1.273e4	1.020e4	1.125	1.249	1.240	756	740	2.07e5	1.62e5	274.2	218.4	NO	bb	bb	4.858
1234679-HPCDD	39.245	0.974	6.251e4	5.993e4	1.211	1.043	1.050	1002	1046	1.07e6	9.89e5	1069.3	945.4	NO	bb	bb	44.964
Total-tetrafurans			2.779e4		1.192			871		4.32e5							9.385
Total-penta1			5.138e4					1076		7.68e5							18.254
Total-pentafurans			2.200e4		1.047			1050		2.62e5							7.169
Total-hexafurans			4.673e4		1.045			854		7.54e5							17.735
Total-heptafurans			7.076e4		1.305			825		1.16e6							42.989
Total-Furans			2.629e5		1.158			871		3.91e6							135.879
Total-tetradioxins			4.568e3		0.879			1114		7.05e4							1.922
Total-pentadioxins			7.296e3		1.331			901		9.98e4							2.506
Total-hexadioxins			3.958e4		1.028			756		5.79e5							16.025
Total-heptadioxins			1.194e5		1.140			1002		1.97e6							91.244
Total-Dioxins			4.588e5		1.092			1114		6.38e6							434.446
Total-TEQ			7.217e5					1114		1.03e7							570.326
FUNCTION1 PFK			2.476e6					718323		4.04e7							
FUNCTION2 PFK			5.538e4					437531		1.55e6							0.000
FUNCTION3 PFK			2.490e6					458220		1.30e7							0.000
FUNCTION4 PFK			4.692e4					231324		1.33e6							
FUNCTION5 PFK			0.000e0					191809		0.00e0							
FUNCTION1 HXCD...			3.633e3					462		5.55e4							0.000
FUNCTION1 HPCD...			7.945e2					778		1.43e4							0.000
FUNCTION2 HPCD...			1.608e2					718		4.26e3							0.000
FUNCTION3 OCDPE			4.583e2					572		8.02e3							0.000
FUNCTION4 NCDPE			3.174e3					754		5.58e4							0.000
FUNCTION5 DCDPE			0.000e0					548		0.00e0							

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.01	8.265e2	1.085e3	1.192	0.76	0.77	14.4	YES	NO	db	db	0.272
2	Total-tetrafurans	23.89	7.528e2	1.098e3	1.192	0.69	0.77	14.0	YES	NO	dd	dd	0.264
3	Total-tetrafurans	23.76	4.202e3	5.673e3	1.192	0.74	0.77	70.9	YES	NO	dd	dd	1.407
4	Total-tetrafurans	23.60	5.889e2	7.445e2	1.192	0.79	0.77	11.4	YES	NO	dd	dd	0.190
5	Total-tetrafurans	23.52	1.922e3	2.441e3	1.192	0.79	0.77	36.5	YES	NO	dd	dd	0.622
6	Total-tetrafurans	23.10	9.993e3	1.316e4	1.192	0.76	0.77	172.8	YES	NO	bd	bd	3.299
7	Total-tetrafurans	22.53	1.491e3	2.145e3	1.192	0.70	0.77	28.4	YES	NO	bb	bb	0.518
8	Total-tetrafurans	26.12	3.602e2	4.407e2	1.192	0.82	0.77	6.5	YES	NO	db	db	0.114
9	Total-tetrafurans	26.02	1.361e3	2.011e3	1.192	0.68	0.77	25.0	YES	NO	dd	dd	0.480
10	Total-tetrafurans	25.29	4.316e2	6.172e2	1.192	0.70	0.77	6.4	YES	NO	bb	bb	0.149
11	Total-tetrafurans	24.87	1.377e3	1.942e3	1.192	0.71	0.77	26.1	YES	NO	db	db	0.473
12	Total-tetrafurans	24.67	4.488e3	6.715e3	1.192	0.67	0.77	83.1	YES	NO	dd	dd	1.596

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.20	5.138e4	3.343e4		1.54	1.55	713.9	YES	NO	bb	bb	18.254

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.29	1.338e3	9.807e2	1.126	1.36	1.55	21.4	YES	NO	bb	db	0.440
2	Total-pentafurans	31.15	2.834e3	1.838e3	1.047	1.54	1.55	42.9	YES	NO	db	dd	0.916
3	Total-pentafurans	29.59	3.990e3	2.795e3	1.047	1.43	1.55	46.4	YES	NO	db	db	1.330
4	Total-pentafurans	28.86	1.384e4	9.039e3	1.047	1.53	1.55	138.6	YES	NO	MM	MM	4.483

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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	33.45	1.687e4	1.406e4	1.045	1.20	1.24	306.5	YES	NO	bb	bb	6.409
2	123468-HXCDF	33.25	3.886e3	3.384e3	1.087	1.15	1.24	72.9	YES	NO	bb	bb	1.360
3	123789-HxCDF	36.93	3.772e2	2.874e2	1.030	1.31	1.24	6.3	YES	NO	bb	bb	0.157
4	234678-HxCDF	35.93	1.709e3	1.498e3	1.052	1.14	1.24	41.0	YES	NO	db	db	0.662
5	Total-hexafurans	35.89	1.665e3	1.543e3	1.045	1.08	1.24	39.5	YES	NO	bd	bd	0.665
6	123678-HxCDF	35.06	1.907e3	1.377e3	1.037	1.39	1.24	32.9	YES	NO	db	MM	0.655
7	123478-HxCDF	34.91	1.736e3	1.441e3	1.017	1.20	1.24	30.5	YES	NO	dd	dd	0.635
8	Total-hexafurans	34.29	1.859e4	1.611e4	1.045	1.15	1.24	353.4	YES	NO	bb	bb	7.192

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.46	4.650e4	4.559e4	1.305	1.02	1.05	917.9	YES	NO	bd	bb	29.356
2	1234678-HpCDF	38.80	2.426e4	2.361e4	1.327	1.03	1.05	492.5	YES	NO	bb	bb	13.633

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:12 Pacific Daylight Time

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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	Total-tetrafurans	24.01	8.265e2	1.085e3	1.192	0.76	0.77	14.4	YES	NO	db	db	0.272
2	Total-tetrafurans	23.89	7.528e2	1.098e3	1.192	0.69	0.77	14.0	YES	NO	dd	dd	0.264
3	Total-tetrafurans	23.76	4.202e3	5.673e3	1.192	0.74	0.77	70.9	YES	NO	dd	dd	1.407
4	Total-tetrafurans	23.60	5.889e2	7.445e2	1.192	0.79	0.77	11.4	YES	NO	dd	dd	0.190
5	Total-tetrafurans	23.52	1.922e3	2.441e3	1.192	0.79	0.77	36.5	YES	NO	dd	dd	0.622
6	Total-tetrafurans	23.10	9.993e3	1.316e4	1.192	0.76	0.77	172.8	YES	NO	bd	bd	3.299
7	Total-tetrafurans	22.53	1.491e3	2.145e3	1.192	0.70	0.77	28.4	YES	NO	bb	bb	0.518
8	Total-tetrafurans	26.12	3.602e2	4.407e2	1.192	0.82	0.77	6.5	YES	NO	db	db	0.114
9	Total-tetrafurans	26.02	1.361e3	2.011e3	1.192	0.68	0.77	25.0	YES	NO	dd	dd	0.480
10	Total-tetrafurans	25.29	4.316e2	6.172e2	1.192	0.70	0.77	6.4	YES	NO	bb	bb	0.149
11	Total-tetrafurans	24.87	1.377e3	1.942e3	1.192	0.71	0.77	26.1	YES	NO	db	db	0.473
12	Total-tetrafurans	24.67	4.488e3	6.715e3	1.192	0.67	0.77	83.1	YES	NO	dd	dd	1.596
13	23478-PeCDF	31.29	1.338e3	9.807e2	1.126	1.36	1.55	21.4	YES	NO	bb	db	0.440
14	Total-pentafurans	31.15	2.834e3	1.838e3	1.047	1.54	1.55	42.9	YES	NO	db	dd	0.916
15	Total-pentafurans	29.59	3.990e3	2.795e3	1.047	1.43	1.55	46.4	YES	NO	db	db	1.330
16	Total-pentafurans	28.86	1.384e4	9.039e3	1.047	1.53	1.55	138.6	YES	NO	MM	MM	4.483
17	Total-hexafurans	33.45	1.687e4	1.406e4	1.045	1.20	1.24	306.5	YES	NO	bb	bb	6.409
18	123468-HXCDF	33.25	3.886e3	3.384e3	1.087	1.15	1.24	72.9	YES	NO	bb	bb	1.360
19	123789-HxCDF	36.93	3.772e2	2.874e2	1.030	1.31	1.24	6.3	YES	NO	bb	bb	0.157
20	234678-HxCDF	35.93	1.709e3	1.498e3	1.052	1.14	1.24	41.0	YES	NO	db	db	0.662
21	Total-hexafurans	35.89	1.665e3	1.543e3	1.045	1.08	1.24	39.5	YES	NO	bd	bd	0.665
22	123678-HxCDF	35.06	1.907e3	1.377e3	1.037	1.39	1.24	32.9	YES	NO	db	MM	0.655
23	123478-HxCDF	34.91	1.736e3	1.441e3	1.017	1.20	1.24	30.5	YES	NO	dd	dd	0.635
24	Total-hexafurans	34.29	1.859e4	1.611e4	1.045	1.15	1.24	353.4	YES	NO	bb	bb	7.192
25	Total-heptafurans	39.46	4.650e4	4.559e4	1.305	1.02	1.05	917.9	YES	NO	bd	bb	29.356
26	1234678-HpCDF	38.80	2.426e4	2.361e4	1.327	1.03	1.05	492.5	YES	NO	bb	bb	13.633
27	OCDF	45.29	4.423e4	4.965e4	1.447	0.89	0.89	567.3	YES	NO	bb	bb	40.348
28	Total-penta1	27.20	5.138e4	3.343e4		1.54	1.55	713.9	YES	NO	bb	bb	18.254

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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	25.00	6.205e2	9.167e2	0.879	0.68	0.77	8.1	YES	NO	bd	bb	0.282
2	Total-tetradioxins	24.75	6.516e2	8.907e2	0.879	0.73	0.77	7.1	YES	NO	db	db	0.282
3	Total-tetradioxins	24.02	2.991e2	3.436e2	0.879	0.87	0.77	4.2	YES	NO	bb	bb	0.118
4	1368-TCDD	23.52	1.462e3	1.922e3	0.923	0.76	0.77	22.4	YES	NO	bd	bb	0.590
5	2378-TCDD	26.41	5.538e2	8.449e2	0.920	0.66	0.77	6.1	YES	NO	dd	bd	0.245
6	Total-tetradioxins	24.55	9.810e2	1.232e3	0.879	0.80	0.77	15.5	YES	NO	MM	bd	0.405

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.52	7.655e2	4.922e2	0.995	1.56	1.55	12.7	YES	NO	bb	bb	0.391
2	Total-pentadioxins	30.14	8.648e2	5.878e2	1.331	1.47	1.55	14.5	YES	NO	bd	bd	0.338
3	Total-pentadioxins	29.92	1.643e3	1.061e3	1.331	1.55	1.55	31.5	YES	NO	bb	bb	0.629
4	Total-pentadioxins	29.31	5.484e2	3.431e2	1.331	1.60	1.55	9.2	YES	NO	bb	bb	0.207
5	12479-PECDD	28.82	3.475e3	2.128e3	1.843	1.63	1.55	42.9	YES	NO	bb	bb	0.941

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	36.04	8.767e2	6.470e2	1.027	1.36	1.24	21.2	YES	NO	bd	bd	0.353
2	Total-hexadioxins	35.16	1.437e4	1.132e4	1.028	1.27	1.24	217.4	YES	NO	bd	bd	5.891
3	Total-hexadioxins	34.78	4.080e3	3.179e3	1.028	1.28	1.24	86.2	YES	NO	bb	bd	1.665
4	124679-HXCDD	34.02	1.273e4	1.020e4	1.125	1.25	1.24	274.2	YES	NO	bb	bb	4.858
5	123789-HxCDD	36.54	2.374e3	1.825e3	0.950	1.30	1.24	53.3	YES	NO	bb	bb	1.041
6	Total-hexadioxins	36.33	6.815e2	4.970e2	1.028	1.37	1.24	14.6	YES	NO	bb	bb	0.270
7	123678-HxCDD	36.15	4.472e3	3.945e3	1.009	1.13	1.24	99.2	YES	NO	db	db	1.946

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.29	5.685e4	5.431e4	1.068	1.05	1.05	901.0	YES	NO	bb	bb	46.281
2	1234679-HPCDD	39.25	6.251e4	5.993e4	1.211	1.04	1.05	1069.3	YES	NO	bb	bb	44.964

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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	25.00	6.205e2	9.167e2	0.879	0.68	0.77	8.1	YES	NO	bd	bb	0.282
2	Total-tetradioxins	24.75	6.516e2	8.907e2	0.879	0.73	0.77	7.1	YES	NO	db	db	0.282
3	Total-tetradioxins	24.02	2.991e2	3.436e2	0.879	0.87	0.77	4.2	YES	NO	bb	bb	0.118
4	1368-TCDD	23.52	1.462e3	1.922e3	0.923	0.76	0.77	22.4	YES	NO	bd	bb	0.590
5	2378-TCDD	26.41	5.538e2	8.449e2	0.920	0.66	0.77	6.1	YES	NO	dd	bd	0.245
6	12378-PeCDD	31.52	7.655e2	4.922e2	0.995	1.56	1.55	12.7	YES	NO	bb	bb	0.391
7	Total-pentadioxins	30.14	8.648e2	5.878e2	1.331	1.47	1.55	14.5	YES	NO	bd	bd	0.338
8	Total-pentadioxins	29.92	1.643e3	1.061e3	1.331	1.55	1.55	31.5	YES	NO	bb	bb	0.629
9	Total-pentadioxins	29.31	5.484e2	3.431e2	1.331	1.60	1.55	9.2	YES	NO	bb	bb	0.207
10	12479-PECDD	28.82	3.475e3	2.128e3	1.843	1.63	1.55	42.9	YES	NO	bb	bb	0.941
11	123478-HxCDD	36.04	8.767e2	6.470e2	1.027	1.36	1.24	21.2	YES	NO	bd	bd	0.353
12	Total-hexadioxins	35.16	1.437e4	1.132e4	1.028	1.27	1.24	217.4	YES	NO	bd	bd	5.891
13	Total-hexadioxins	34.78	4.080e3	3.179e3	1.028	1.28	1.24	86.2	YES	NO	bb	bd	1.665
14	124679-HXCDD	34.02	1.273e4	1.020e4	1.125	1.25	1.24	274.2	YES	NO	bb	bb	4.858
15	123789-HxCDD	36.54	2.374e3	1.825e3	0.950	1.30	1.24	53.3	YES	NO	bb	bb	1.041
16	Total-hexadioxins	36.33	6.815e2	4.970e2	1.028	1.37	1.24	14.6	YES	NO	bb	bb	0.270
17	123678-HxCDD	36.15	4.472e3	3.945e3	1.009	1.13	1.24	99.2	YES	NO	db	db	1.946
18	1234678-HpCDD	40.29	5.685e4	5.431e4	1.068	1.05	1.05	901.0	YES	NO	bb	bb	46.281
19	1234679-HPCDD	39.25	6.251e4	5.993e4	1.211	1.04	1.05	1069.3	YES	NO	bb	bb	44.964
20	OCDD	45.05	2.880e5	3.248e5	1.181	0.89	0.89	3034.5	YES	NO	bb	bb	322.750
21	Total-tetradioxins	24.55	9.810e2	1.232e3	0.879	0.80	0.77	15.5	YES	NO	MM	bd	0.405

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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	Total-tetrafurans	24.01	8.265e2	1.085e3	1.192	0.76	0.77	14.4	YES	NO	db	db	0.272
2	Total-tetrafurans	23.89	7.528e2	1.098e3	1.192	0.69	0.77	14.0	YES	NO	dd	dd	0.264
3	Total-tetrafurans	23.76	4.202e3	5.673e3	1.192	0.74	0.77	70.9	YES	NO	dd	dd	1.407
4	Total-tetrafurans	23.60	5.889e2	7.445e2	1.192	0.79	0.77	11.4	YES	NO	dd	dd	0.190
5	Total-tetrafurans	23.52	1.922e3	2.441e3	1.192	0.79	0.77	36.5	YES	NO	dd	dd	0.622
6	Total-tetrafurans	23.10	9.993e3	1.316e4	1.192	0.76	0.77	172.8	YES	NO	bd	bd	3.299
7	Total-tetrafurans	22.53	1.491e3	2.145e3	1.192	0.70	0.77	28.4	YES	NO	bb	bb	0.518
8	Total-tetrafurans	26.12	3.602e2	4.407e2	1.192	0.82	0.77	6.5	YES	NO	db	db	0.114
9	Total-tetrafurans	26.02	1.361e3	2.011e3	1.192	0.68	0.77	25.0	YES	NO	dd	dd	0.480
10	Total-tetrafurans	25.29	4.316e2	6.172e2	1.192	0.70	0.77	6.4	YES	NO	bb	bb	0.149
11	Total-tetrafurans	24.87	1.377e3	1.942e3	1.192	0.71	0.77	26.1	YES	NO	db	db	0.473
12	Total-tetrafurans	24.67	4.488e3	6.715e3	1.192	0.67	0.77	83.1	YES	NO	dd	dd	1.596
13	23478-PeCDF	31.29	1.338e3	9.807e2	1.126	1.36	1.55	21.4	YES	NO	bb	db	0.440
14	Total-pentafurans	31.15	2.834e3	1.838e3	1.047	1.54	1.55	42.9	YES	NO	db	dd	0.916
15	Total-pentafurans	29.59	3.990e3	2.795e3	1.047	1.43	1.55	46.4	YES	NO	db	db	1.330
16	Total-pentafurans	28.86	1.384e4	9.039e3	1.047	1.53	1.55	138.6	YES	NO	MM	MM	4.483
17	Total-hexafurans	33.45	1.687e4	1.406e4	1.045	1.20	1.24	306.5	YES	NO	bb	bb	6.409
18	123468-HXCDF	33.25	3.886e3	3.384e3	1.087	1.15	1.24	72.9	YES	NO	bb	bb	1.360
19	123789-HxCDF	36.93	3.772e2	2.874e2	1.030	1.31	1.24	6.3	YES	NO	bb	bb	0.157
20	234678-HxCDF	35.93	1.709e3	1.498e3	1.052	1.14	1.24	41.0	YES	NO	db	db	0.662
21	Total-hexafurans	35.89	1.665e3	1.543e3	1.045	1.08	1.24	39.5	YES	NO	bd	bd	0.665
22	123678-HxCDF	35.06	1.907e3	1.377e3	1.037	1.39	1.24	32.9	YES	NO	db	MM	0.655
23	123478-HxCDF	34.91	1.736e3	1.441e3	1.017	1.20	1.24	30.5	YES	NO	dd	dd	0.635
24	Total-hexafurans	34.29	1.859e4	1.611e4	1.045	1.15	1.24	353.4	YES	NO	bb	bb	7.192
25	Total-heptafurans	39.46	4.650e4	4.559e4	1.305	1.02	1.05	917.9	YES	NO	bd	bb	29.356
26	1234678-HpCDF	38.80	2.426e4	2.361e4	1.327	1.03	1.05	492.5	YES	NO	bb	bb	13.633
27	OCDF	45.29	4.423e4	4.965e4	1.447	0.89	0.89	567.3	YES	NO	bb	bb	40.348
28	Total-penta1	27.20	5.138e4	3.343e4		1.54	1.55	713.9	YES	NO	bb	bb	18.254
29	Total-tetradioxins	25.00	6.205e2	9.167e2	0.879	0.68	0.77	8.1	YES	NO	bd	bb	0.282
30	Total-tetradioxins	24.75	6.516e2	8.907e2	0.879	0.73	0.77	7.1	YES	NO	db	db	0.282
31	Total-tetradioxins	24.02	2.991e2	3.436e2	0.879	0.87	0.77	4.2	YES	NO	bb	bb	0.118
32	1368-TCDD	23.52	1.462e3	1.922e3	0.923	0.76	0.77	22.4	YES	NO	bd	bb	0.590
33	2378-TCDD	26.41	5.538e2	8.449e2	0.920	0.66	0.77	6.1	YES	NO	dd	bd	0.245
34	12378-PeCDD	31.52	7.655e2	4.922e2	0.995	1.56	1.55	12.7	YES	NO	bb	bb	0.391
35	Total-pentadioxins	30.14	8.648e2	5.878e2	1.331	1.47	1.55	14.5	YES	NO	bd	bd	0.338
36	Total-pentadioxins	29.92	1.643e3	1.061e3	1.331	1.55	1.55	31.5	YES	NO	bb	bb	0.629
37	Total-pentadioxins	29.31	5.484e2	3.431e2	1.331	1.60	1.55	9.2	YES	NO	bb	bb	0.207

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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
38	12479-PECDD	28.82	3.475e3	2.128e3	1.843	1.63	1.55	42.9	YES	NO	bb	bb	0.941
39	123478-HxCDD	36.04	8.767e2	6.470e2	1.027	1.36	1.24	21.2	YES	NO	bd	bd	0.353
40	Total-hexadioxins	35.16	1.437e4	1.132e4	1.028	1.27	1.24	217.4	YES	NO	bd	bd	5.891
41	Total-hexadioxins	34.78	4.080e3	3.179e3	1.028	1.28	1.24	86.2	YES	NO	bb	bd	1.665
42	124679-HXCDD	34.02	1.273e4	1.020e4	1.125	1.25	1.24	274.2	YES	NO	bb	bb	4.858
43	123789-HxCDD	36.54	2.374e3	1.825e3	0.950	1.30	1.24	53.3	YES	NO	bb	bb	1.041
44	Total-hexadioxins	36.33	6.815e2	4.970e2	1.028	1.37	1.24	14.6	YES	NO	bb	bb	0.270
45	123678-HxCDD	36.15	4.472e3	3.945e3	1.009	1.13	1.24	99.2	YES	NO	db	db	1.946
46	1234678-HpCDD	40.29	5.685e4	5.431e4	1.068	1.05	1.05	901.0	YES	NO	bb	bb	46.281
47	1234679-HPCDD	39.25	6.251e4	5.993e4	1.211	1.04	1.05	1069.3	YES	NO	bb	bb	44.964
48	OCDD	45.05	2.880e5	3.248e5	1.181	0.89	0.89	3034.5	YES	NO	bb	bb	322.750
49	Total-tetradioxins	24.55	9.810e2	1.232e3	0.879	0.80	0.77	15.5	YES	NO	MM	bd	0.405

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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	21.25	1.065e5					3.5	YES		db		
2	FUNCTION1 PFK	21.19	1.068e5					3.4	YES		bd		
3	FUNCTION1 PFK	24.26	4.843e4					0.9	NO		bb		
4	FUNCTION1 PFK	24.13	5.798e4					1.0	NO		db		
5	FUNCTION1 PFK	24.07	1.735e4					0.6	NO		bd		
6	FUNCTION1 PFK	23.96	1.968e4					0.5	NO		bb		
7	FUNCTION1 PFK	23.51	2.218e4					0.8	NO		bb		
8	FUNCTION1 PFK	23.39	4.636e4					1.1	NO		bb		
9	FUNCTION1 PFK	23.24	3.639e4					0.8	NO		db		
10	FUNCTION1 PFK	23.05	6.416e4					1.2	NO		dd		
11	FUNCTION1 PFK	22.99	6.806e4					1.3	NO		bd		
12	FUNCTION1 PFK	22.63	3.205e4					0.8	NO		db		
13	FUNCTION1 PFK	22.56	3.908e4					1.2	NO		bd		
14	FUNCTION1 PFK	22.45	9.196e4					1.9	NO		bb		
15	FUNCTION1 PFK	22.31	6.901e4					1.4	NO		bb		
16	FUNCTION1 PFK	22.18	1.605e4					0.7	NO		bb		
17	FUNCTION1 PFK	21.45	6.561e4					1.8	NO		db		
18	FUNCTION1 PFK	21.42	1.249e5					1.2	NO		bd		
19	FUNCTION1 PFK	26.05	2.051e4					0.7	NO		bb		
20	FUNCTION1 PFK	25.96	1.223e5					1.9	NO		db		
21	FUNCTION1 PFK	25.84	5.382e4					1.5	NO		dd		
22	FUNCTION1 PFK	25.78	4.707e4					1.4	NO		dd		
23	FUNCTION1 PFK	25.69	6.917e4					1.7	NO		dd		
24	FUNCTION1 PFK	25.62	4.703e4					1.4	NO		dd		
25	FUNCTION1 PFK	25.55	5.269e4					1.2	NO		bd		
26	FUNCTION1 PFK	25.44	4.720e4					1.6	NO		db		
27	FUNCTION1 PFK	25.31	7.465e4					1.3	NO		dd		
28	FUNCTION1 PFK	25.25	2.899e4					1.1	NO		dd		
29	FUNCTION1 PFK	25.19	3.451e4					1.0	NO		dd		
30	FUNCTION1 PFK	25.11	9.087e3					0.4	NO		bd		
31	FUNCTION1 PFK	24.97	2.658e4					0.7	NO		bb		
32	FUNCTION1 PFK	24.75	1.515e4					0.7	NO		bb		
33	FUNCTION1 PFK	24.57	7.924e4					1.1	NO		bb		
34	FUNCTION1 PFK	24.37	8.218e3					0.4	NO		bb		
35	FUNCTION1 PFK	28.06	5.500e3					0.4	NO		bb		
36	FUNCTION1 PFK	28.00	3.183e3					0.3	NO		bb		
37	FUNCTION1 PFK	27.86	6.051e4					1.1	NO		db		

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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	27.76	7.457e4					1.3	NO		bd		
39	FUNCTION1 PFK	27.47	1.940e5					2.2	NO		db		
40	FUNCTION1 PFK	27.35	3.281e4					1.1	NO		dd		
41	FUNCTION1 PFK	27.29	6.046e4					1.5	NO		dd		
42	FUNCTION1 PFK	27.23	3.361e4					1.1	NO		bd		
43	FUNCTION1 PFK	26.80	7.046e4					1.2	NO		bb		
44	FUNCTION1 PFK	26.56	2.887e4					1.0	NO		bb		
45	FUNCTION1 PFK	26.46	5.007e4					1.5	NO		db		
46	FUNCTION1 PFK	26.37	9.327e4					1.6	NO		bd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.37	5.538e4					3.5	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	33.17	2.051e6					14.9	YES		bb		0.000
2	FUNCTION3 PFK	35.69	2.269e5					4.7	YES		db		0.000
3	FUNCTION3 PFK	35.57	1.242e5					3.7	YES		bd		0.000
4	FUNCTION3 PFK	34.33	6.190e4					2.8	NO		bb		0.000
5	FUNCTION3 PFK	34.28	2.588e4					2.3	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	40.54	1.731e4					2.0	NO		bb		
2	FUNCTION4 PFK	39.95	2.475e4					2.5	NO		bb		
3	FUNCTION4 PFK	38.10	4.853e3					1.2	NO		bb		

PFK5

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

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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...	22.18	3.014e2					10.0	YES		bb		0.000
2	FUNCTION1 HXCD...	21.41	1.452e2					4.3	YES		db		0.000
3	FUNCTION1 HXCD...	21.33	8.033e1					3.3	YES		dd		0.000
4	FUNCTION1 HXCD...	21.27	7.889e1					3.2	YES		dd		0.000
5	FUNCTION1 HXCD...	21.21	1.059e2					4.3	YES		dd		0.000
6	FUNCTION1 HXCD...	21.18	2.231e2					3.7	YES		bd		0.000
7	FUNCTION1 HXCD...	27.64	7.131e1					2.4	NO		bb		0.000
8	FUNCTION1 HXCD...	26.76	2.224e2					6.7	YES		bb		0.000
9	FUNCTION1 HXCD...	26.37	2.549e2					5.5	YES		bb		0.000
10	FUNCTION1 HXCD...	26.12	4.263e2					14.8	YES		bb		0.000
11	FUNCTION1 HXCD...	25.87	7.057e1					3.2	YES		db		0.000
12	FUNCTION1 HXCD...	25.73	3.125e2					10.3	YES		bd		0.000
13	FUNCTION1 HXCD...	24.66	7.773e1					2.3	NO		db		0.000
14	FUNCTION1 HXCD...	24.55	7.926e1					3.1	YES		dd		0.000
15	FUNCTION1 HXCD...	24.48	2.054e2					8.1	YES		bd		0.000
16	FUNCTION1 HXCD...	24.08	7.183e1					2.1	NO		bb		0.000
17	FUNCTION1 HXCD...	23.89	1.035e2					2.9	NO		db		0.000
18	FUNCTION1 HXCD...	23.73	5.781e2					19.5	YES		bd		0.000
19	FUNCTION1 HXCD...	22.75	1.262e2					4.9	YES		db		0.000
20	FUNCTION1 HXCD...	22.71	9.798e1					5.5	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...	21.35	8.708e1					2.5	NO		bb		0.000
2	FUNCTION1 HPCD...	27.64	9.488e1					2.3	NO		bb		0.000
3	FUNCTION1 HPCD...	24.52	1.552e2					2.2	NO		db		0.000
4	FUNCTION1 HPCD...	24.48	1.837e2					4.2	YES		bd		0.000
5	FUNCTION1 HPCD...	23.34	1.921e2					5.1	YES		bb		0.000
6	FUNCTION1 HPCD...	23.10	8.160e1					1.9	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...	30.47	7.237e1					3.6	YES		bb		0.000
2	FUNCTION2 HPCD...	30.14	8.846e1					2.3	NO		bb		0.000

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, 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	36.53	1.461e2					4.1	YES		bb		0.000
2	FUNCTION3 OCDPE	36.32	8.848e1					3.0	YES		bb		0.000
3	FUNCTION3 OCDPE	36.13	7.292e1					2.5	NO		bb		0.000
4	FUNCTION3 OCDPE	33.72	7.968e1					2.6	NO		bb		0.000
5	FUNCTION3 OCDPE	33.49	7.110e1					1.7	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	38.42	3.083e3					71.8	YES		bb		0.000
2	FUNCTION4 NCDPE	42.91	9.072e1					2.2	NO		bb		0.000

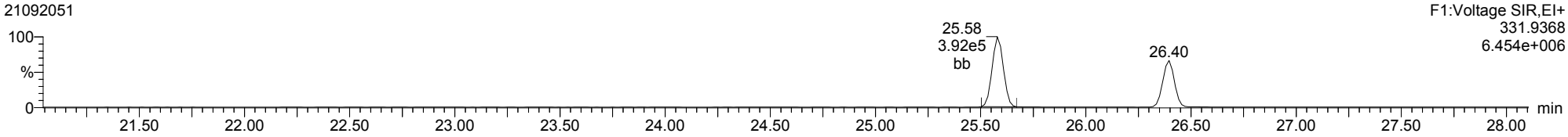
ETHERS6

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

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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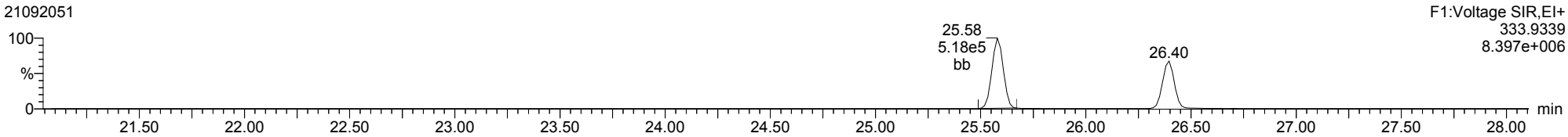
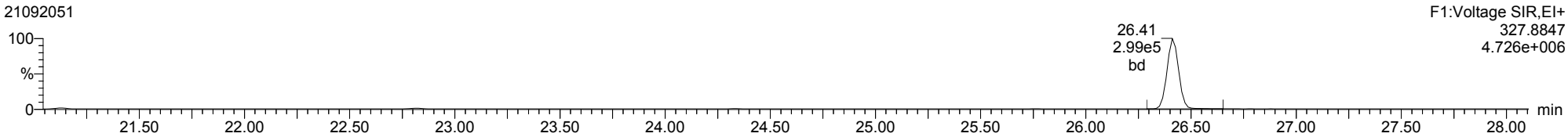


37CL-2378-TCDD



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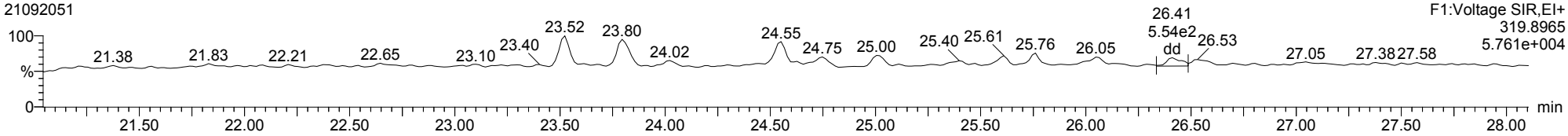
2378-TCDD



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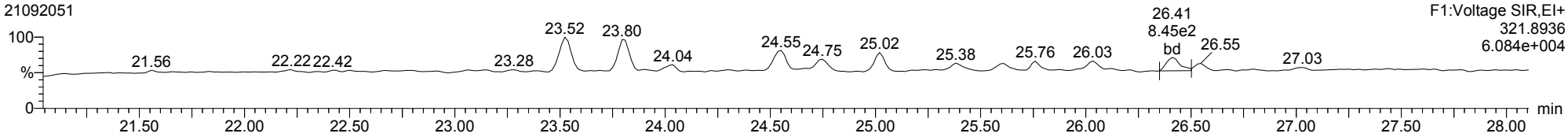

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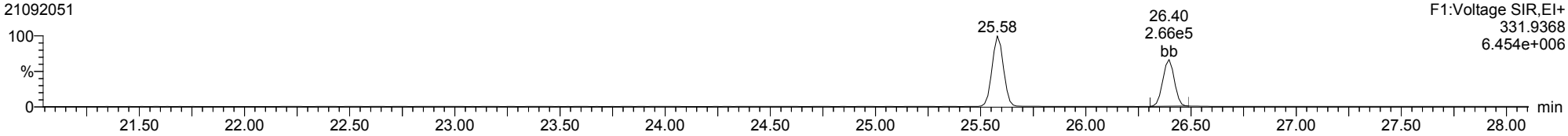

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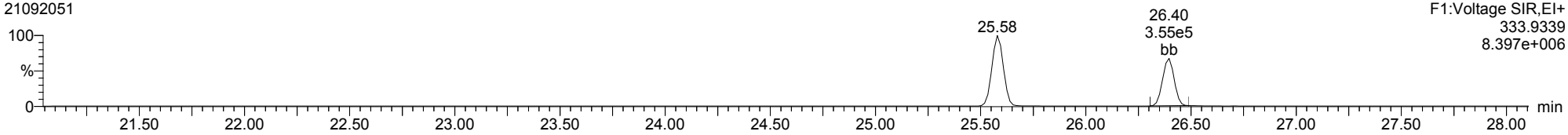

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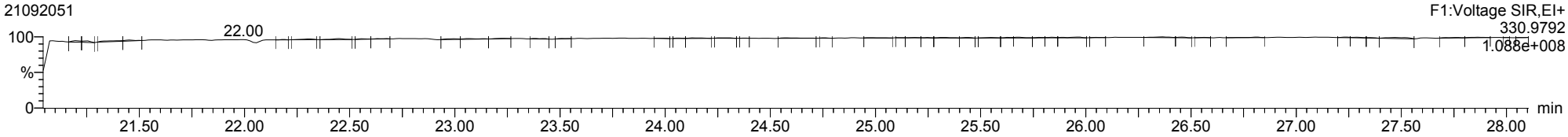

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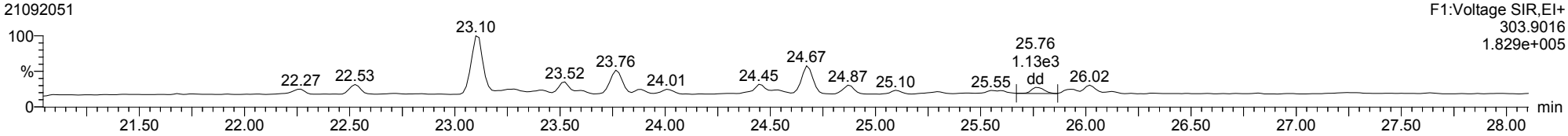

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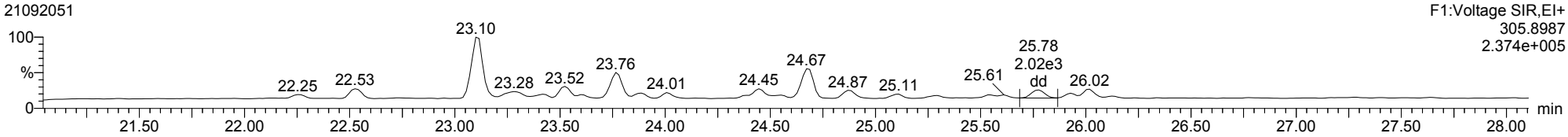

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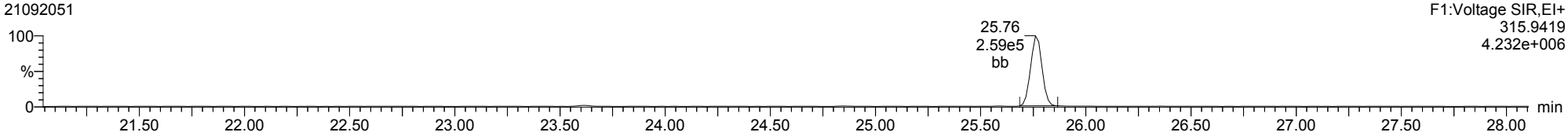

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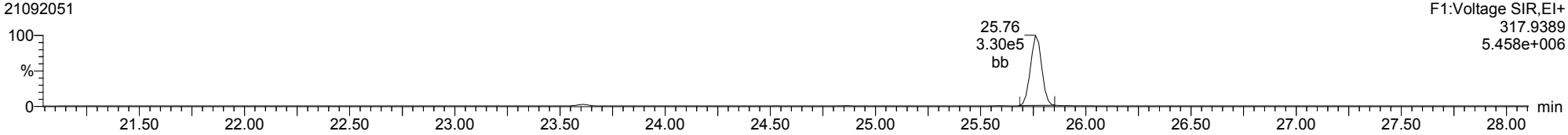
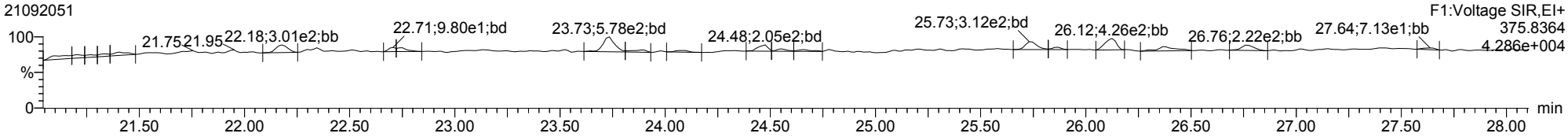


FUNCTION1 HXCDPE



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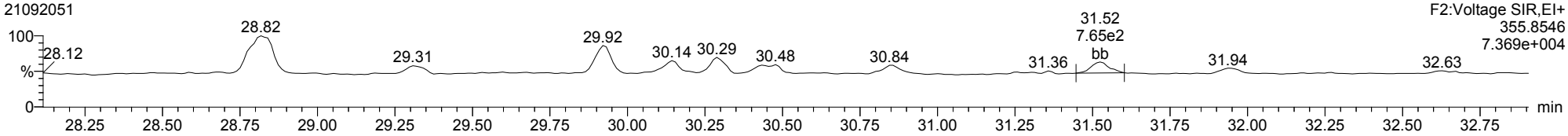
12378-PeCDD



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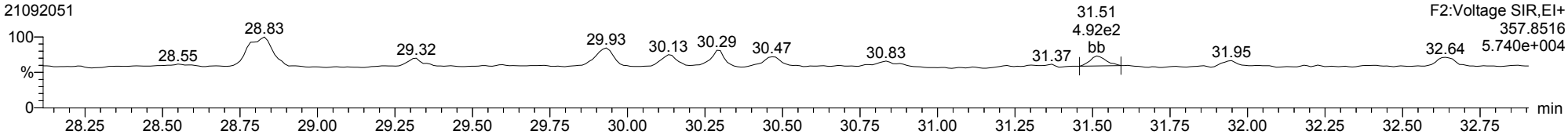

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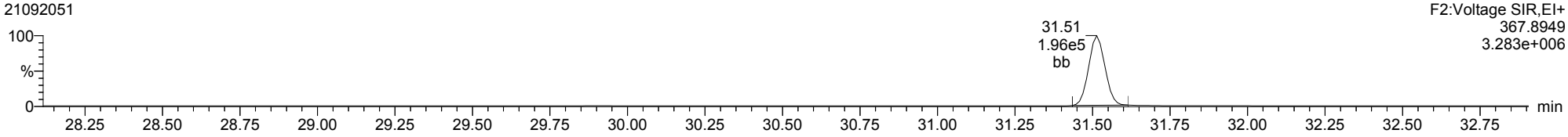

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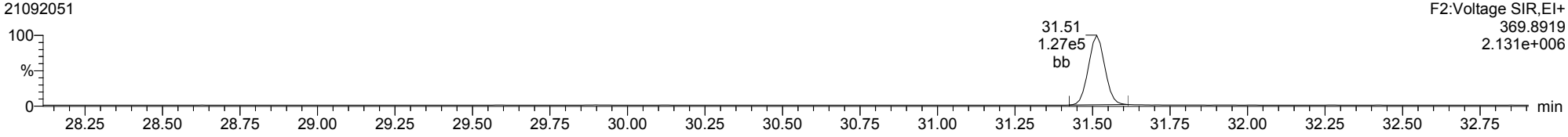

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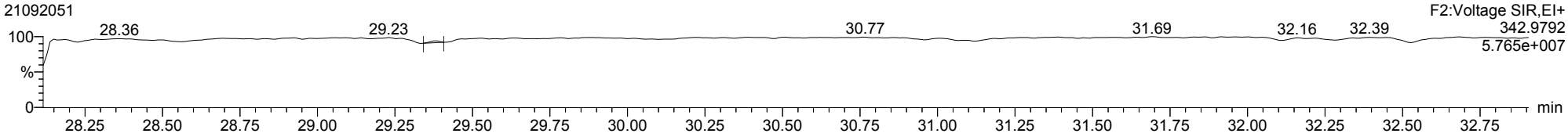

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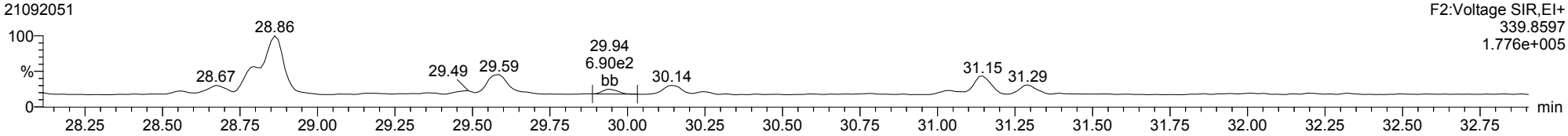

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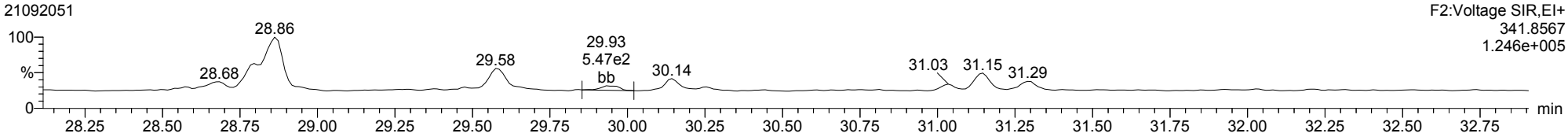

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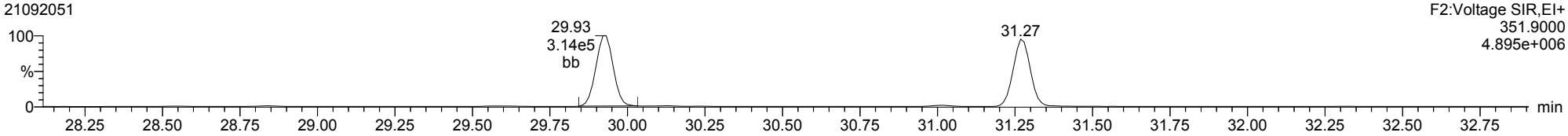

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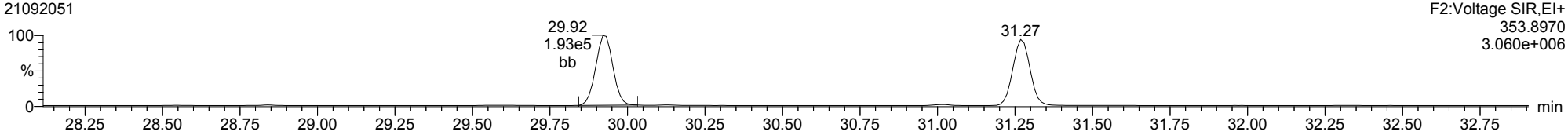
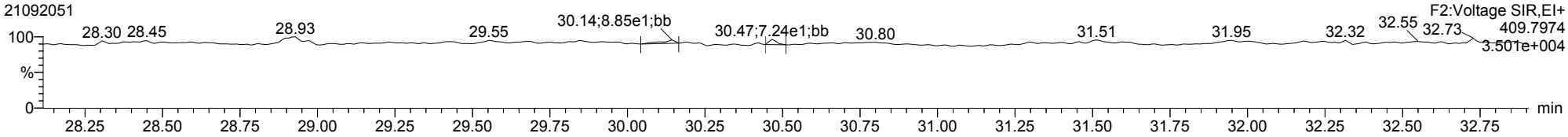


FUNCTION2 HPCDPE



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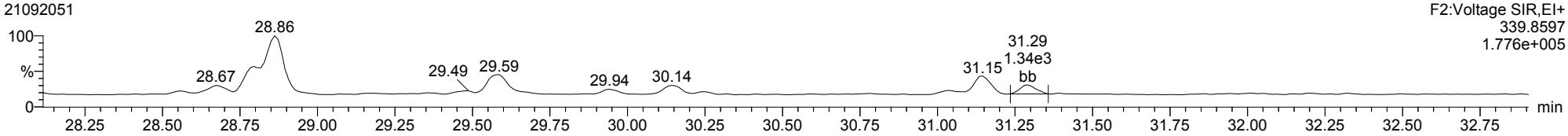
23478-PeCDF



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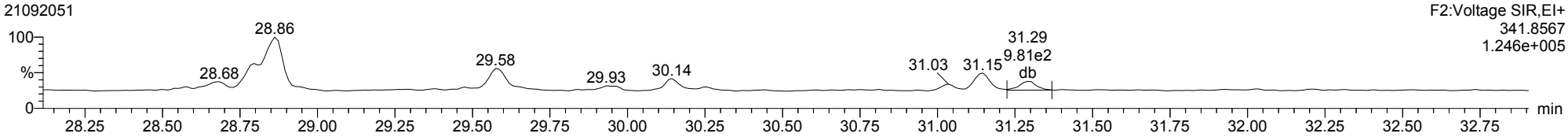

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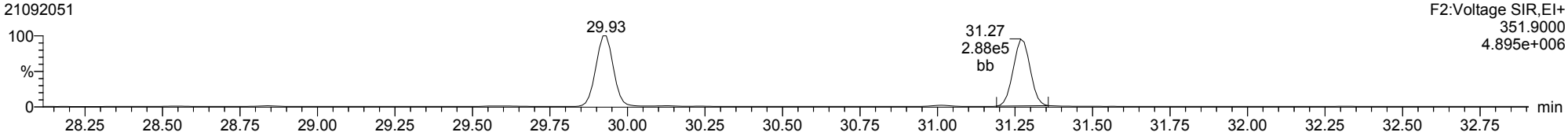

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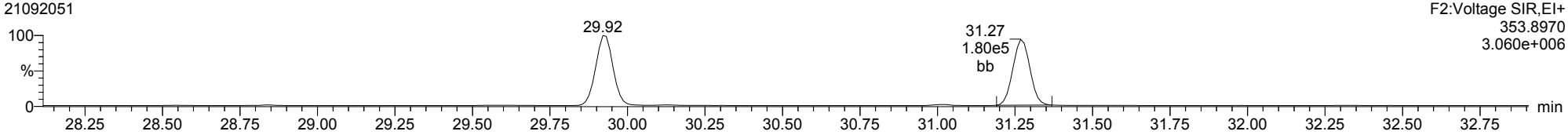

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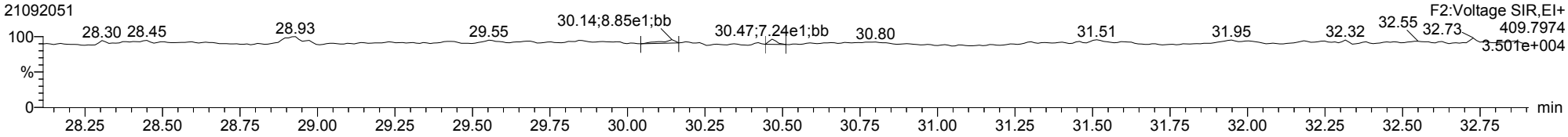

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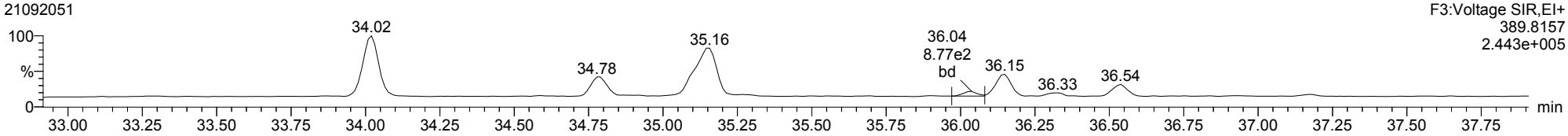

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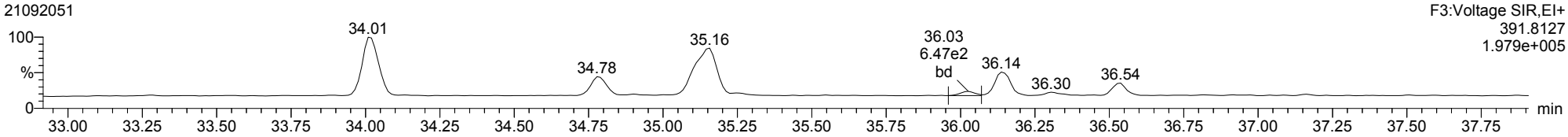

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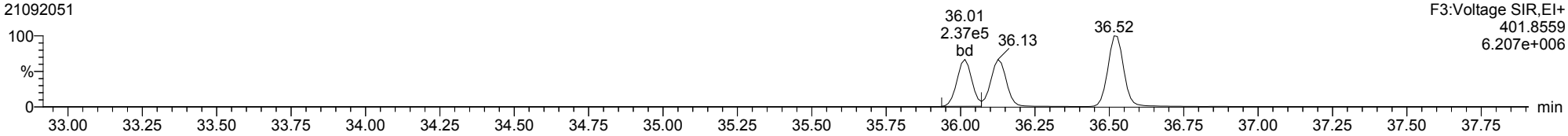

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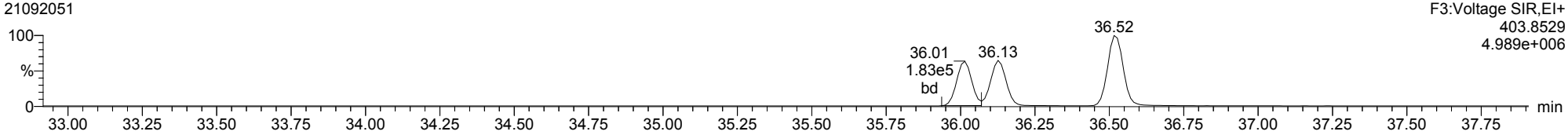

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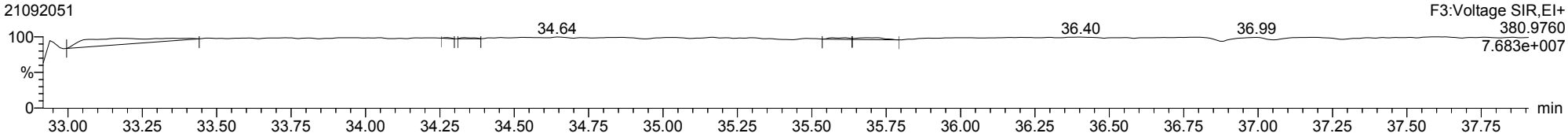

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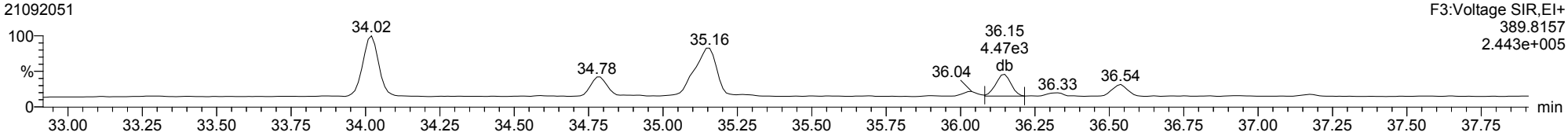

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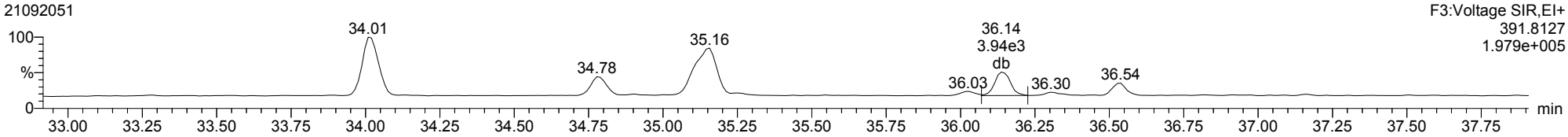

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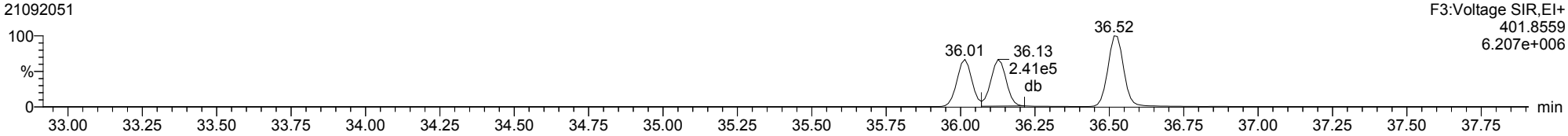

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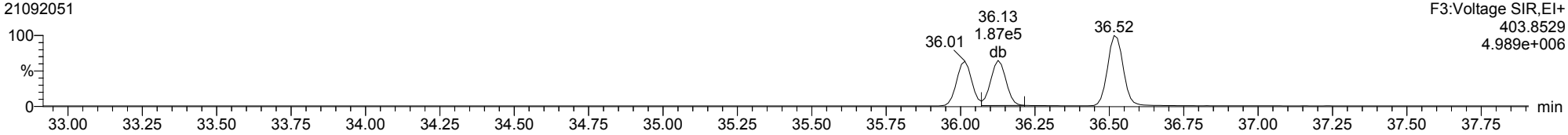

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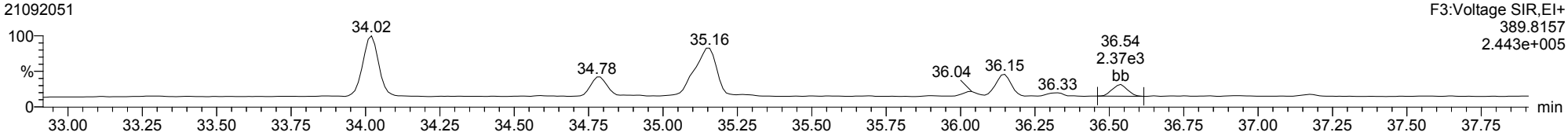

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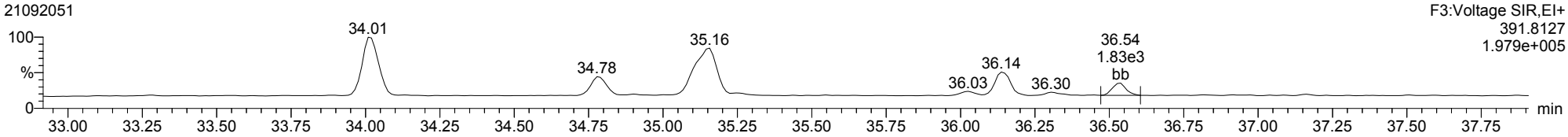

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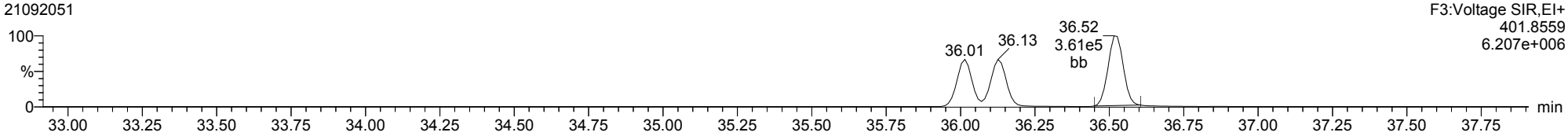

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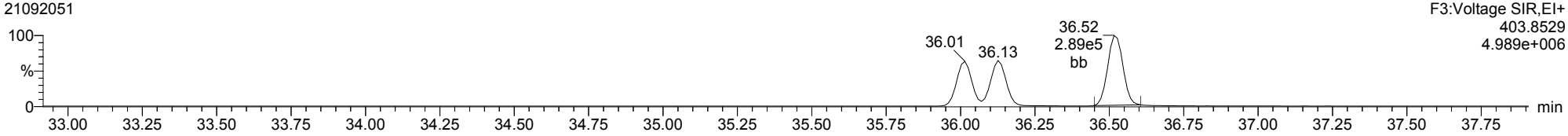

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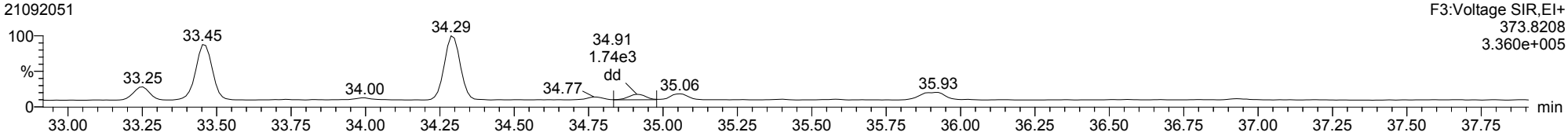

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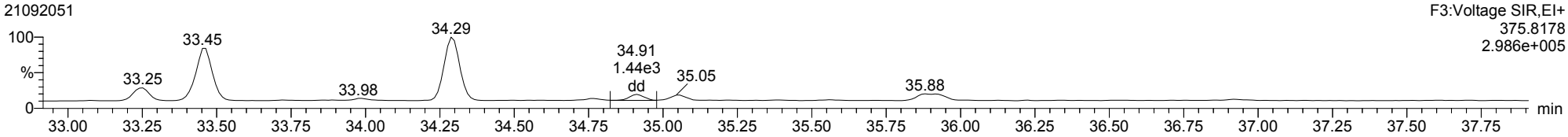

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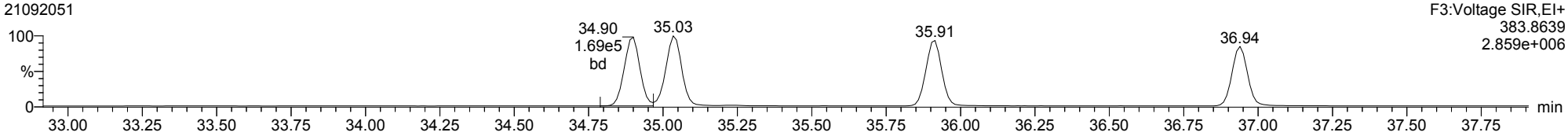

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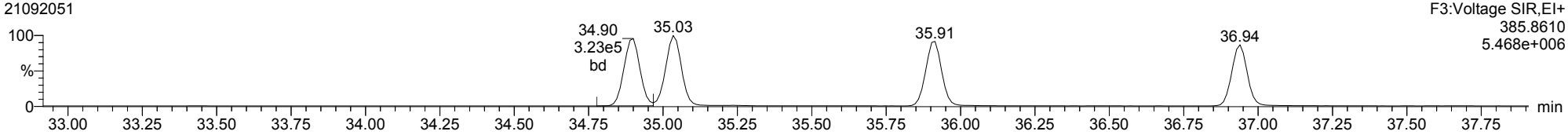
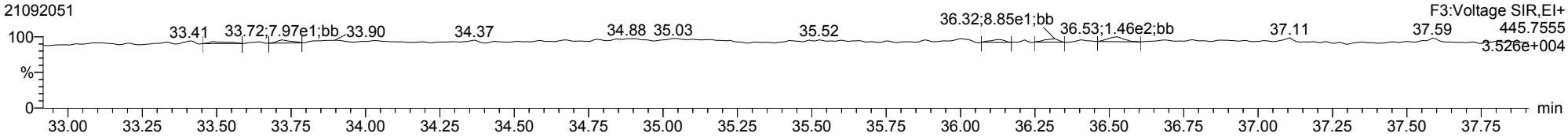
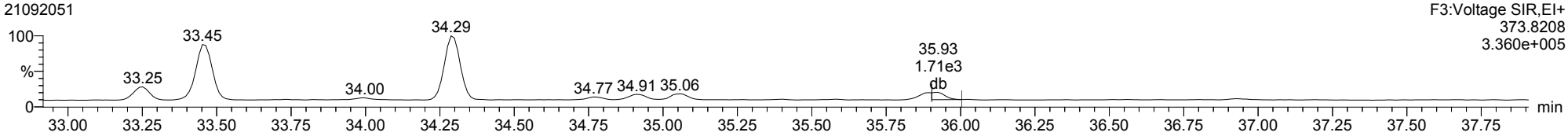


FUNCTION3 OCDPE



ID: 21G0283-12, Name: 21092051, Date: 22-Sep-2021, Time: 09:43:40, Conditions: AUTOSPEC01, User: pk

234678-HxCDF



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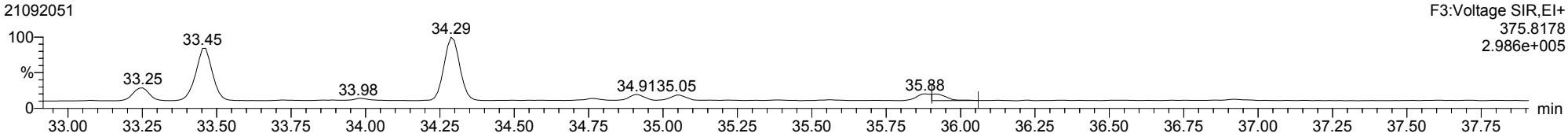

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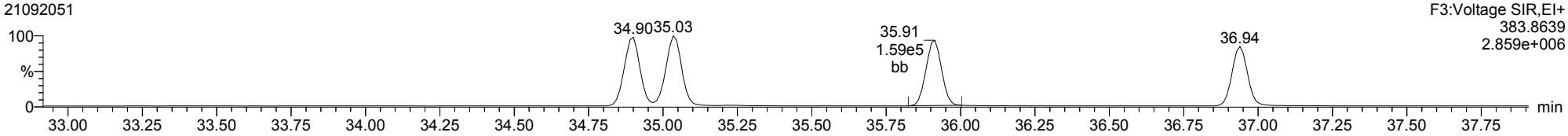

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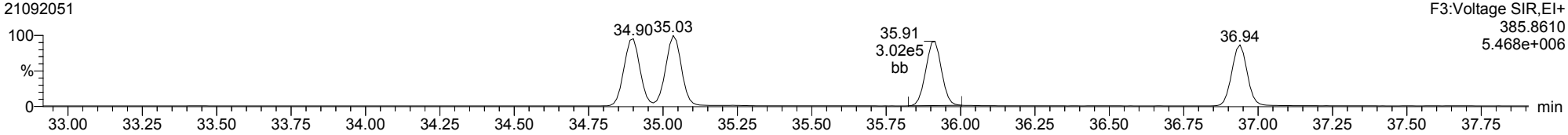

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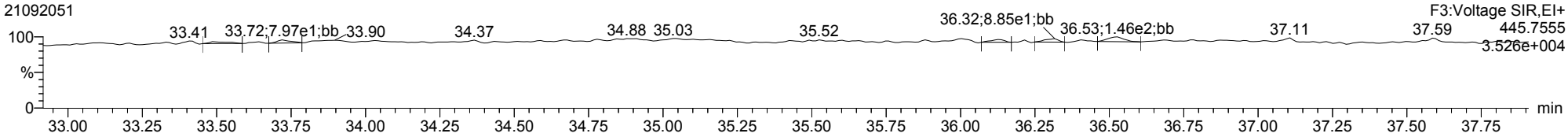

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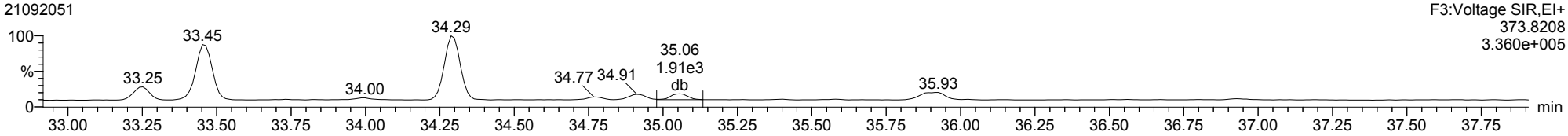

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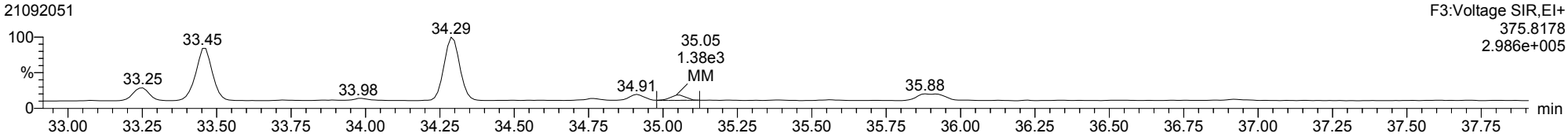

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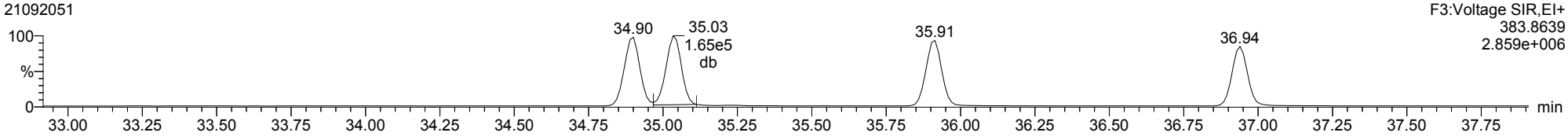

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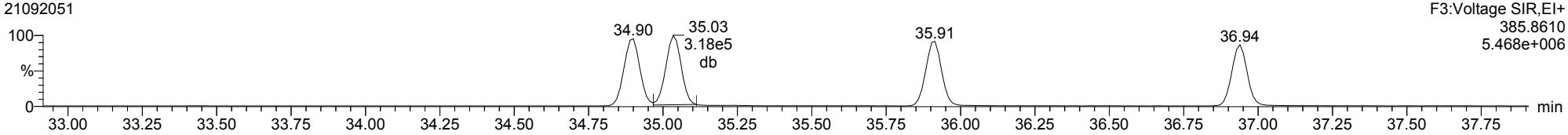

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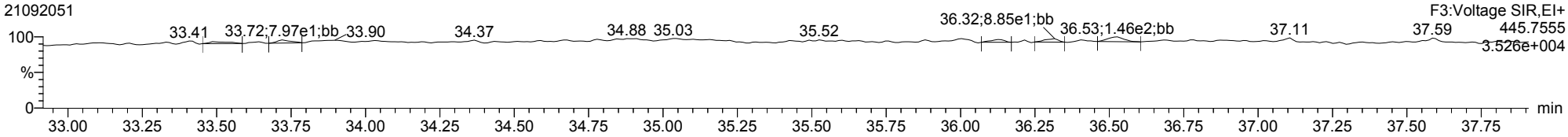

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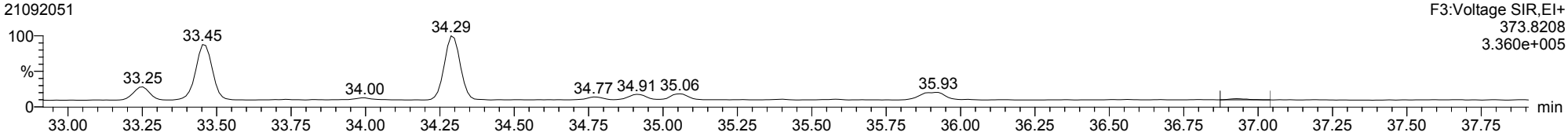

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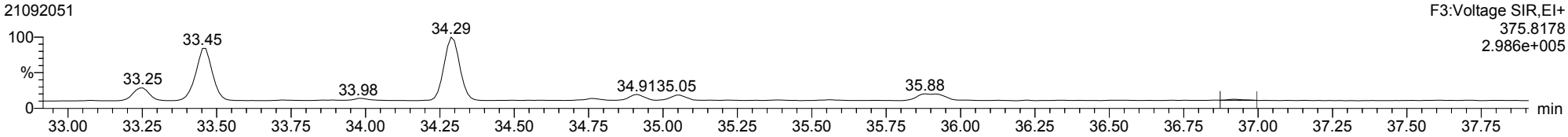

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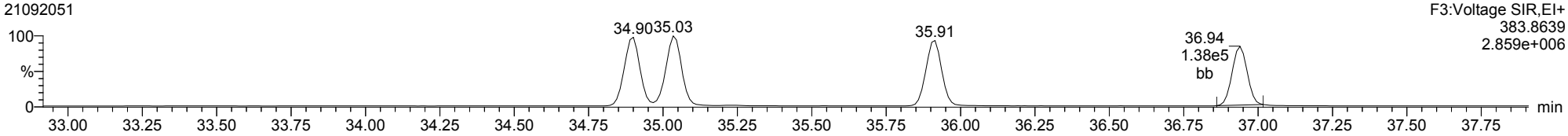

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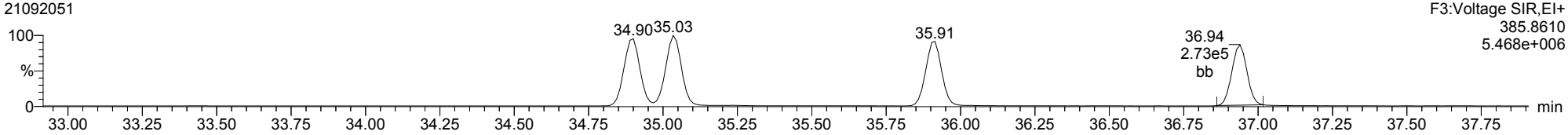

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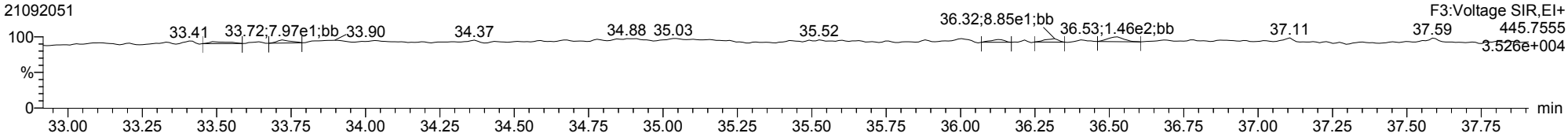

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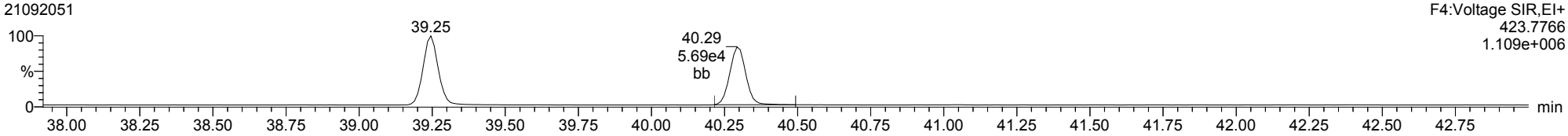

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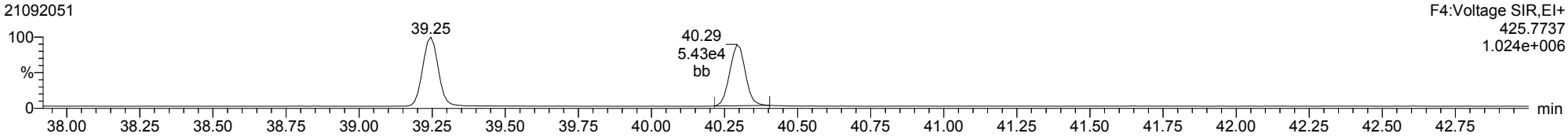

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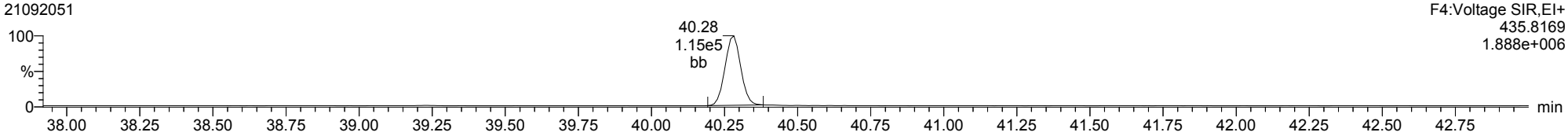

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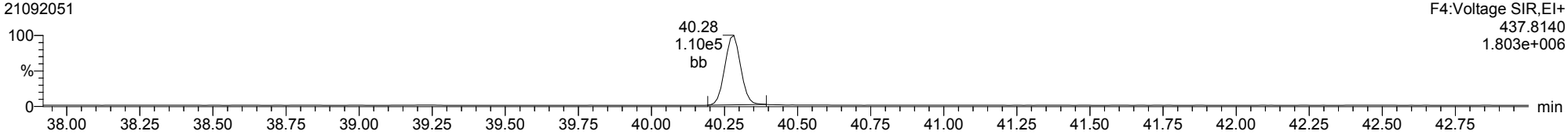

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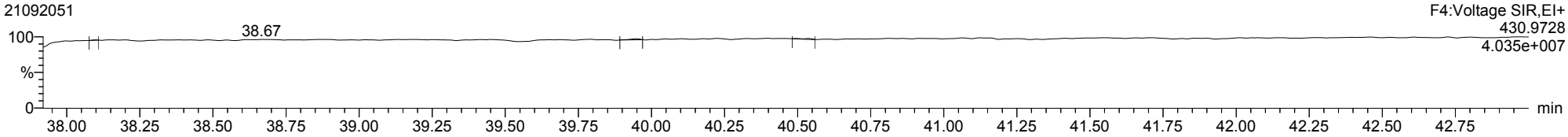

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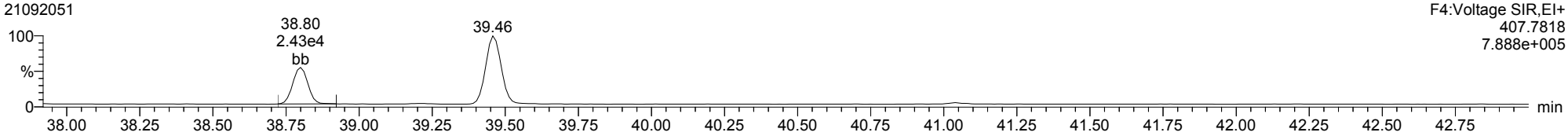

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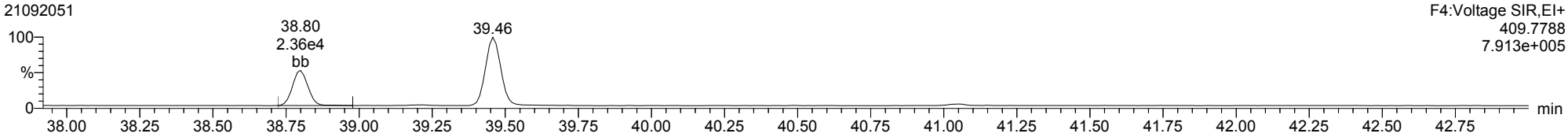

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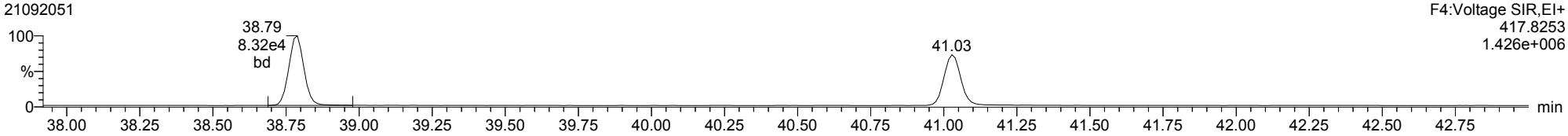

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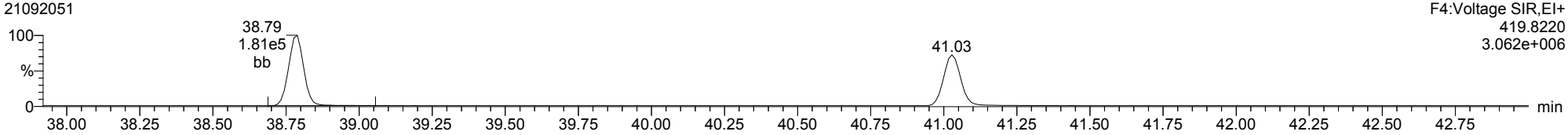

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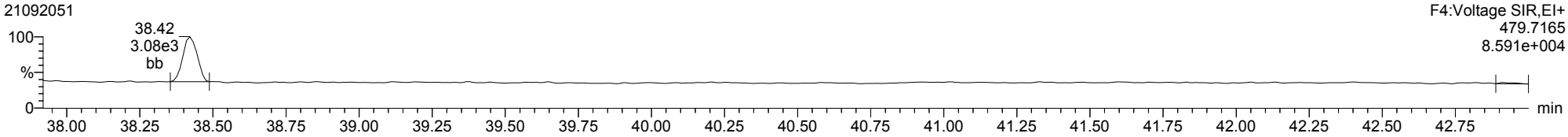

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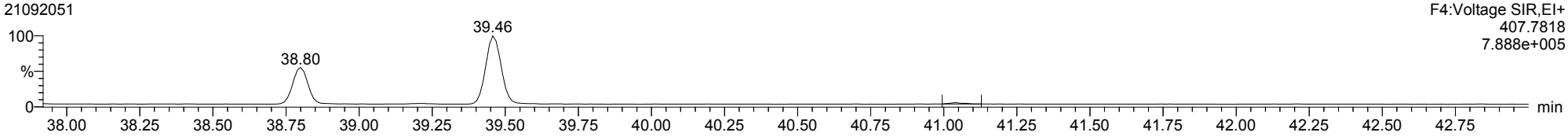

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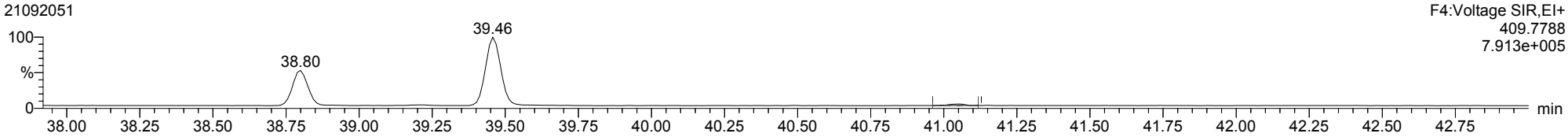

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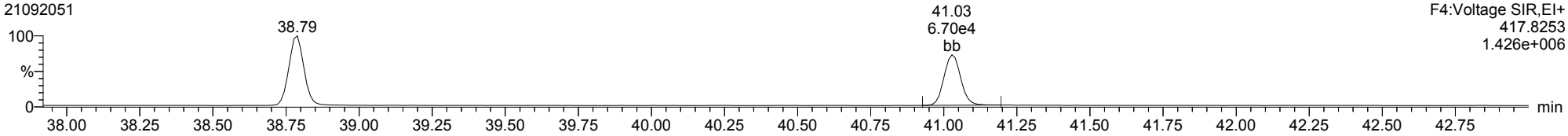

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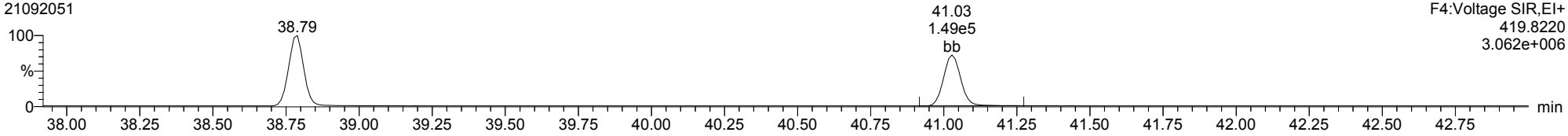

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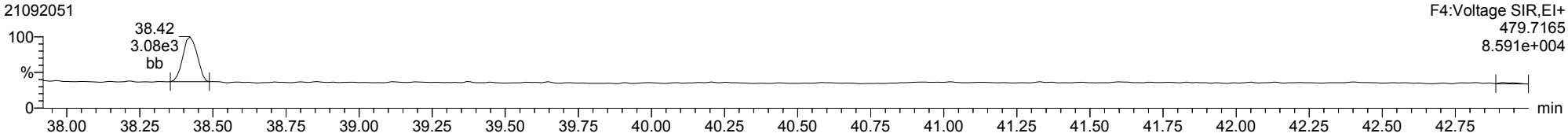

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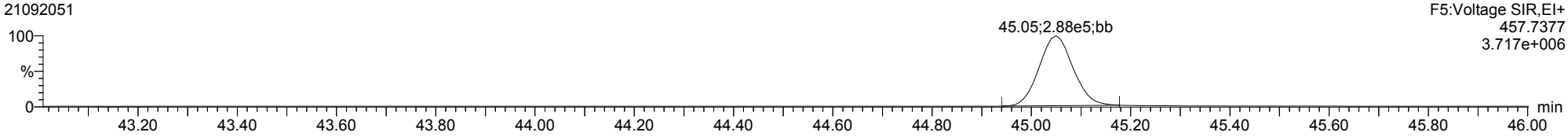

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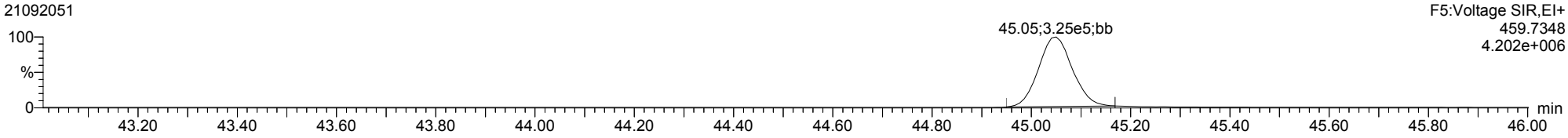

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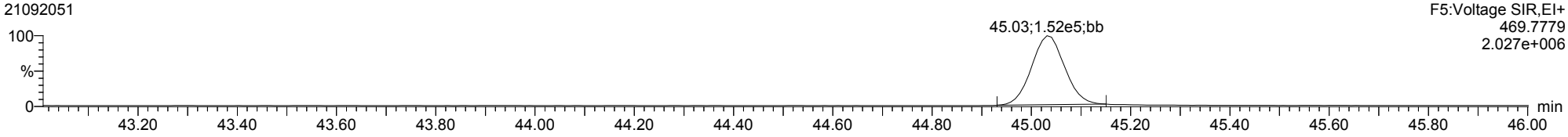

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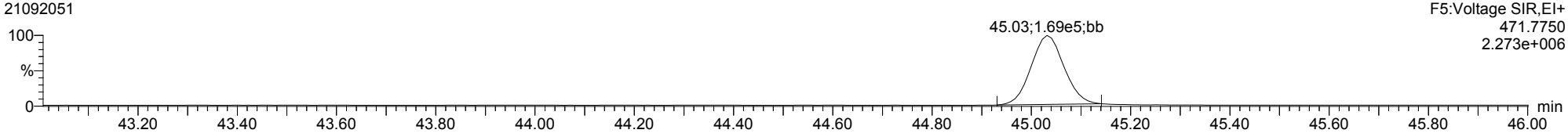

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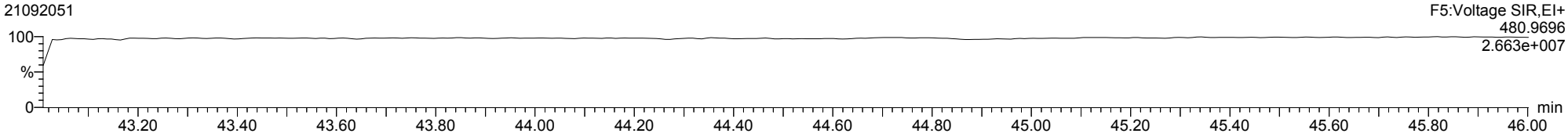

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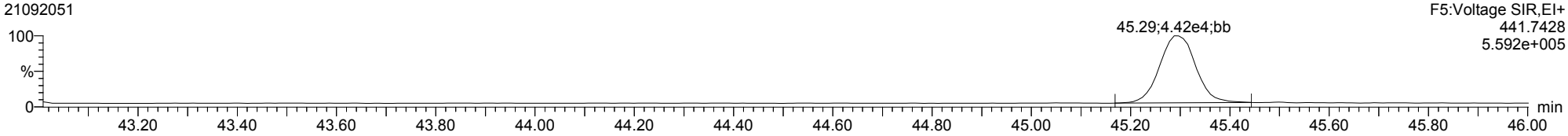

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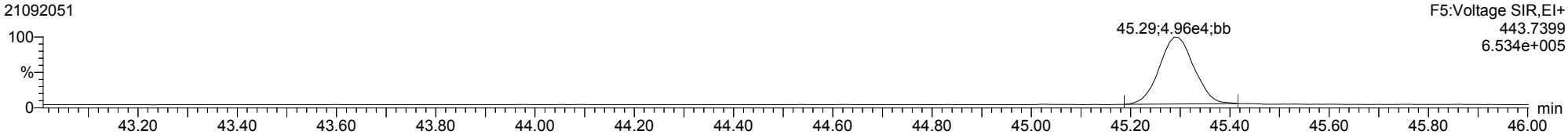

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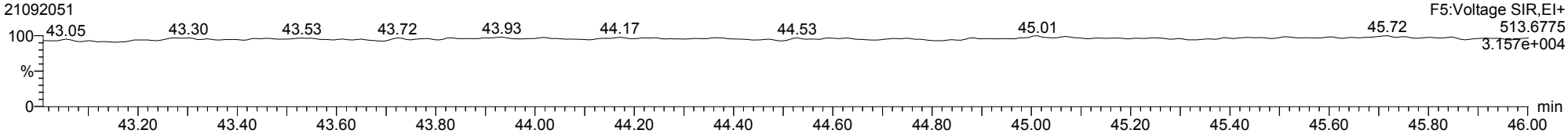

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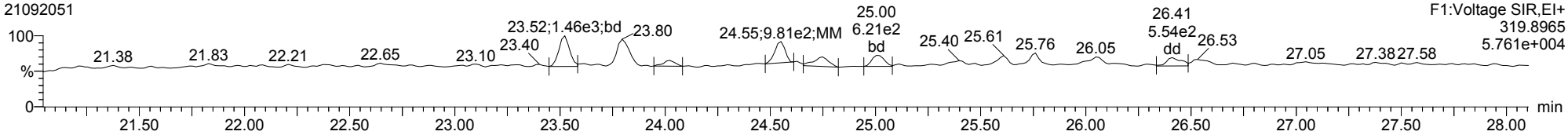

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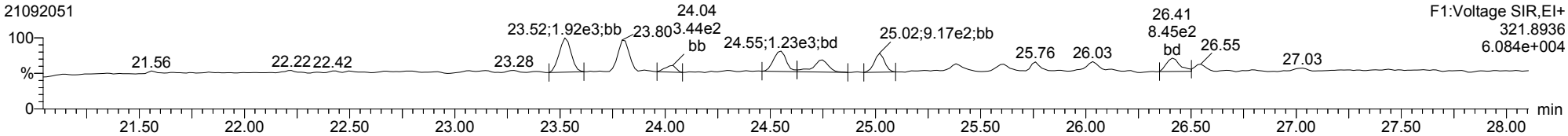

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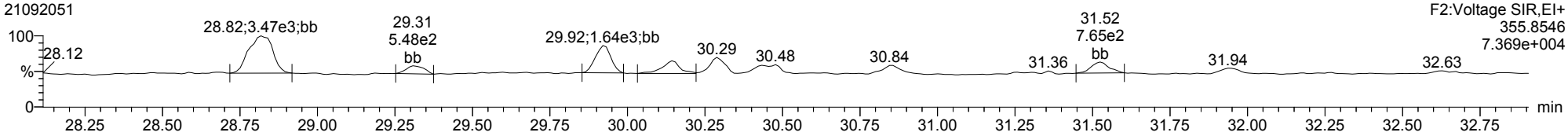

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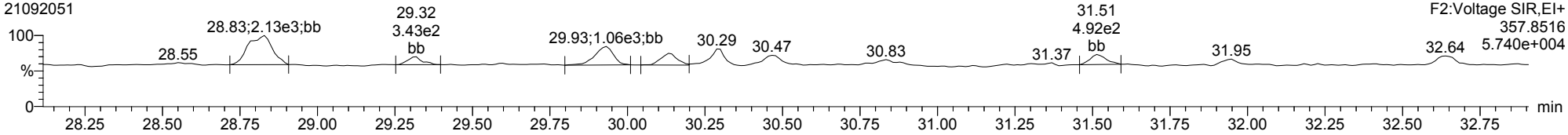

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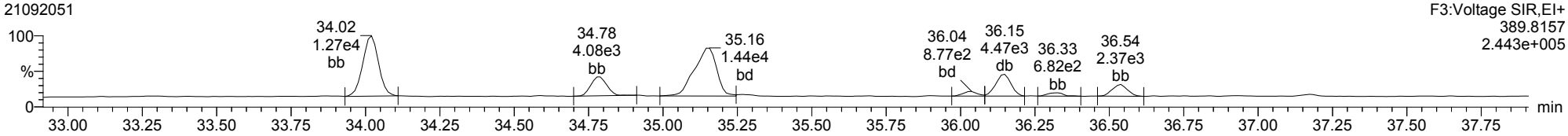

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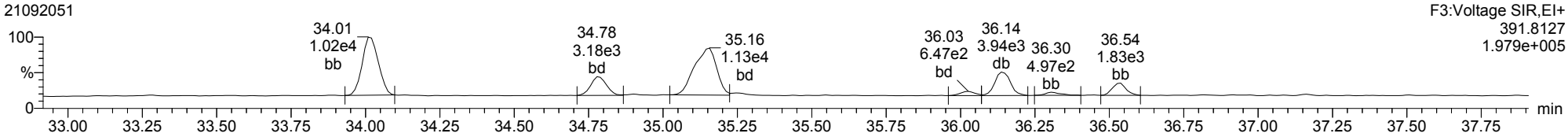

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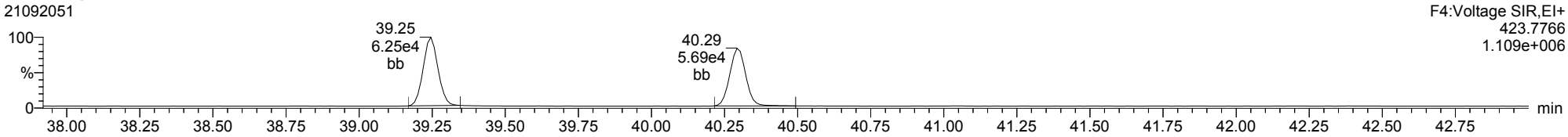

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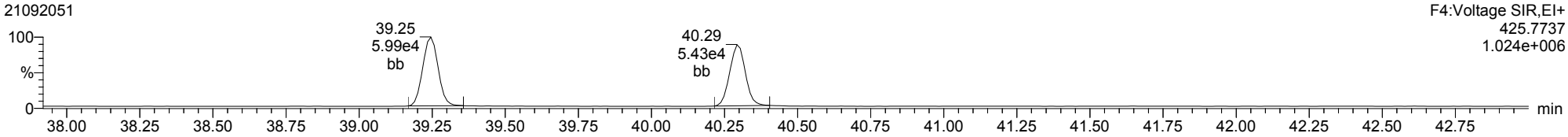

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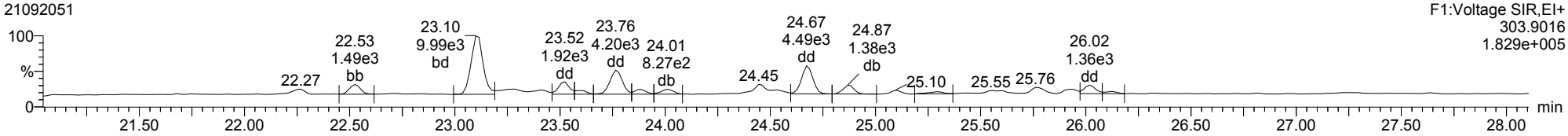
Total-tetrafurans



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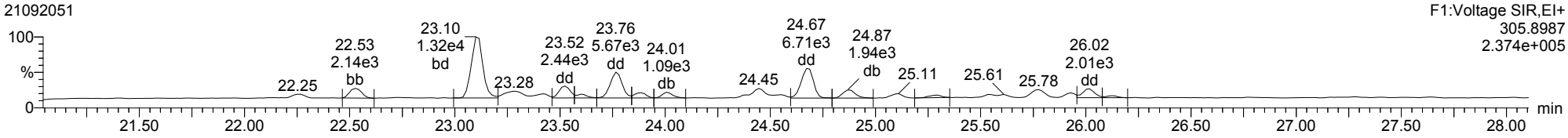

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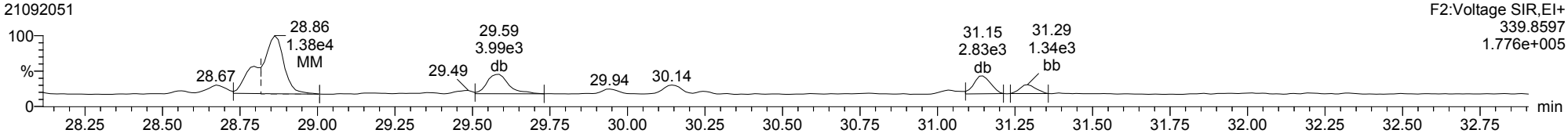

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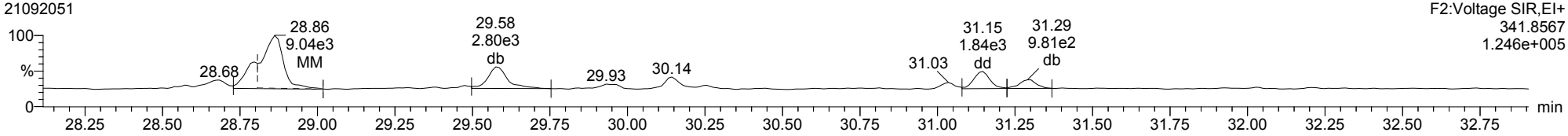

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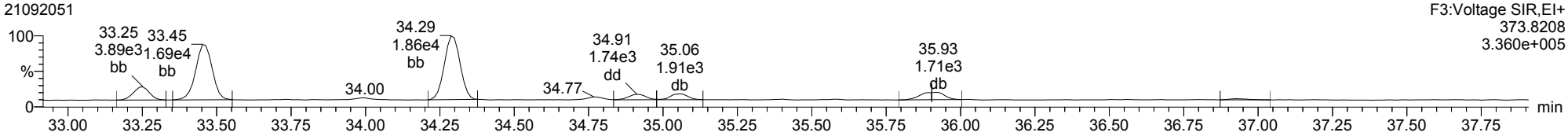

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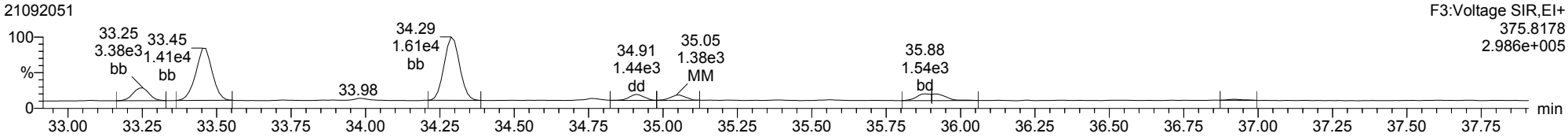

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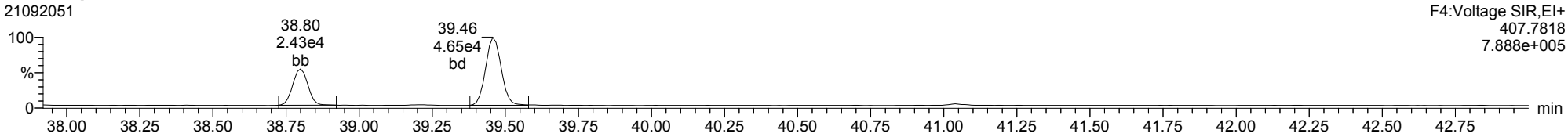
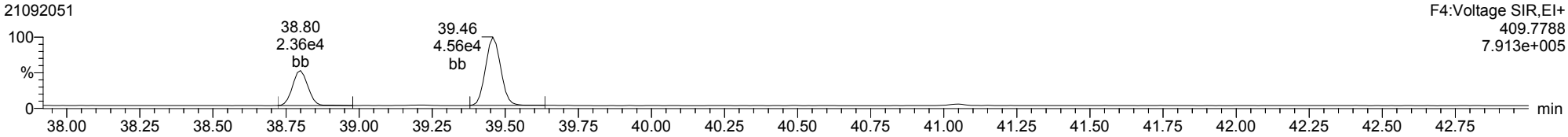


Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT664E

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0283-13 C	File ID:	21092052
Sampled:	07/20/21 12:41	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 10:34
% Solids:	72.47	Preparation:	EPA 1613	Initial/Final:	13.8 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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	0.749	0.655-0.886	0.062	1.00	0.992	ng/kg	X, J
1746-01-6	2,3,7,8-TCDD	1	0.372	0.655-0.886	0.078	1.00	0.215	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1	1.059	1.318-1.783	0.111	1.00	0.323	ng/kg	EMPC, J
57117-31-4	2,3,4,7,8-PeCDF	1	1.409	1.318-1.783	0.104	1.00	0.480	ng/kg	J
40321-76-4	1,2,3,7,8-PeCDD	1	1.043	1.318-1.783	0.113	1.00	0.529	ng/kg	EMPC, J
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.268	1.054-1.426	0.085	1.00	0.464	ng/kg	J
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.073	1.054-1.426	0.085	1.00	0.413	ng/kg	J
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.147	1.054-1.426	0.085	1.00	0.745	ng/kg	J
72918-21-9	1,2,3,7,8,9-HxCDF	1		1.054-1.426	0.097	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.377	1.054-1.426	0.084	1.00	0.201	ng/kg	J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.510	1.054-1.426	0.088	1.00	0.373	ng/kg	EMPC, J
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.107	1.054-1.426	0.092	1.00	0.327	ng/kg	J
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.938	0.893-1.208	0.102	1.00	0.780	ng/kg	J
55673-89-7	1,2,3,4,7,8,9-HpCDF	1		0.893-1.208	0.143	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	0.937	0.893-1.208	0.131	2.50	2.50	ng/kg	B
39001-02-0	OCDF	1	0.839	0.757-1.024	0.170	2.50	0.907	ng/kg	J
3268-87-9	OCDD	1	0.946	0.757-1.024	0.223	10.0	24.2	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	10.5	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	3.26	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	27.2	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	2.39	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	8.70	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	2.41	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	1.70	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	5.41	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 1.29
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 1.30

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT664E

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0283-13	File ID:	21092052
Sampled:	07/20/21 12:41	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 10:34
Solids Wt%:	72.47	Preparation:	EPA 1613	Initial/Final:	13.8 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.789	0.655-0.886	0.108	76.7	24 - 169 %	
13C12-2,3,7,8-TCDD		0.757	0.655-0.886	0.115	91.4	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.587	1.318-1.783	0.077	62.3	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.617	1.318-1.783	0.080	62.0	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.553	1.318-1.783	0.100	70.5	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.515	0.434-0.587	0.113	79.4	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.518	0.434-0.587	0.105	72.0	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.517	0.434-0.587	0.116	75.3	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.524	0.434-0.587	0.140	81.2	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.297	1.054-1.426	0.132	84.8	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.279	1.054-1.426	0.122	79.4	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.458	0.374-0.506	0.099	61.6	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.464	0.374-0.506	0.121	61.5	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.049	0.893-1.208	0.153	74.8	23 - 140 %	
13C12-OCDD		0.883	0.757-1.024	0.148	68.6	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.037	90.8	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:23 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	1.000	2.398e3	3.202e3	1.108	0.749	0.770	928	878	2.91e4	4.09e4	31.4	46.5	NO	dd	dd	0.496
12378-PeCDF	29.931	1.001	6.337e2	5.985e2	1.015	1.059	1.550	983	1240	9.08e3	8.62e3	9.2	7.0	YES	bb	MM	0.161
23478-PeCDF	31.279	1.001	1.130e3	8.017e2	1.126	1.409	1.550	983	1240	2.02e4	1.23e4	20.6	9.9	NO	db	db	0.240
123478-HxCDF	34.901	1.001	1.002e3	7.903e2	1.017	1.268	1.240	1079	717	1.70e4	1.26e4	15.8	17.6	NO	bd	bd	0.232
234678-HxCDF	35.881	1.000	1.476e3	1.287e3	1.052	1.147	1.240	1079	717	1.80e4	1.40e4	16.7	19.6	NO	bb	MM	0.373
123678-HxCDF	35.045	1.001	8.243e2	7.681e2	1.037	1.073	1.240	1079	717	1.47e4	1.25e4	13.6	17.5	NO	db	db	0.206
123789-HxCDF					1.030		1.240	1079	717								
1234678-HpCDF	38.789	1.001	1.101e3	1.175e3	1.327	0.938	1.050	870	779	1.69e4	1.89e4	19.5	24.2	NO	bb	bb	0.390
1234789-HpCDF					1.283		1.050	870	779								
OCDF	45.251	1.005	7.965e2	9.494e2	1.447	0.839	0.890	498	791	9.02e3	1.15e4	18.1	14.5	NO	bb	bb	0.454
2378-TCDD	26.411	1.001	2.552e2	6.864e2	0.920	0.372	0.770	1118	705	4.08e3	1.09e4	3.6	15.4	YES	MM	bd	0.108
12378-PeCDD	31.502	1.000	6.463e2	6.194e2	0.995	1.043	1.550	722	721	9.50e3	8.14e3	13.2	11.3	YES	bb	bb	0.265
123478-HxCDD	36.003	1.000	3.754e2	2.727e2	1.027	1.377	1.240	757	812	6.88e3	4.99e3	9.1	6.1	NO	dd	bd	0.101
123678-HxCDD	36.126	1.000	7.214e2	4.779e2	1.009	1.510	1.240	757	812	1.12e4	8.43e3	14.8	10.4	YES	dd	db	0.187
123789-HxCDD	36.516	1.011	5.162e2	4.661e2	0.950	1.107	1.240	757	812	9.75e3	6.88e3	12.9	8.5	NO	bb	bb	0.164
1234678-HpCDD	40.282	1.001	2.356e3	2.514e3	1.068	0.937	1.050	813	526	3.80e4	3.93e4	46.7	74.8	NO	bb	bb	1.252
OCDD	45.041	1.001	1.843e4	1.950e4	1.181	0.946	0.890	683	701	2.16e5	2.47e5	316.5	352.5	NO	bb	bb	12.076
13C-2378-TCDF	25.761	1.007	4.498e5	5.697e5	1.427	0.789	0.770	2333	1468	7.00e6	8.83e6	2999.5	6015.1	NO	bb	bb	76.691
13C-12378-PeCDF	29.909	1.169	4.616e5	2.910e5	1.297	1.587	1.550	1487	969	7.24e6	4.53e6	4871.3	4680.2	NO	bb	bb	62.255
13C-23478-PeCDF	31.257	1.222	4.416e5	2.731e5	1.236	1.617	1.550	1487	969	7.07e6	4.30e6	4754.7	4442.5	NO	bb	bb	62.032
13C-123478-HxCDF	34.878	0.955	2.582e5	5.009e5	1.242	0.515	0.510	1288	1816	4.24e6	8.21e6	3292.0	4518.6	NO	bd	bd	79.353
13C-123678-HxCDF	35.023	0.959	2.539e5	4.904e5	1.343	0.518	0.510	1288	1816	4.16e6	8.00e6	3229.9	4407.6	NO	db	db	71.955
13C-234678-HxCDF	35.892	0.983	2.400e5	4.646e5	1.215	0.517	0.510	1288	1816	4.09e6	7.95e6	3178.5	4375.5	NO	bb	bb	75.331
13C-123789-HxCDF	36.928	1.012	2.166e5	4.135e5	1.008	0.524	0.510	1288	1816	3.72e6	7.15e6	2885.2	3935.3	NO	bb	bb	81.224
13C-1234678-HpCDF	38.766	1.062	1.380e5	3.014e5	0.926	0.458	0.440	895	1123	2.30e6	5.00e6	2575.0	4452.2	NO	bd	bd	61.610
13C-1234789-HpCDF	41.017	1.124	1.138e5	2.453e5	0.758	0.464	0.440	895	1123	1.71e6	3.56e6	1911.1	3170.6	NO	bd	bd	61.531
13C-1234-TCDD	25.579	0.000	4.024e5	5.295e5	1.000	0.760	0.770	1972	1194	6.41e6	8.35e6	3249.9	6994.9	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.031	4.101e5	5.413e5	1.116	0.757	0.770	1972	1194	6.53e6	8.66e6	3312.3	7251.0	NO	bb	bb	91.449
13C-12378-PeCDD	31.502	1.232	2.924e5	1.883e5	0.732	1.553	1.550	872	938	4.69e6	2.93e6	5378.2	3116.9	NO	bb	bd	70.475
13C-123478-HxCDD	35.992	0.986	3.540e5	2.728e5	0.960	1.297	1.240	1503	1292	6.16e6	4.66e6	4096.1	3604.4	NO	bd	bd	84.816
13C-123678-HxCDD	36.115	0.989	3.574e5	2.795e5	1.041	1.279	1.240	1503	1292	5.92e6	4.60e6	3936.8	3558.1	NO	db	db	79.442
13C-1234678-HpCDD	40.259	1.103	1.864e5	1.777e5	0.632	1.049	1.050	1271	864	2.93e6	2.84e6	2302.5	3288.5	NO	bb	bb	74.773
13C-OCDD	45.013	1.233	2.494e5	2.826e5	0.504	0.883	0.890	774	868	2.96e6	3.31e6	3818.1	3810.4	NO	bb	bb	137.169
13C-123789-HxCDD	36.505	0.000	4.310e5	3.389e5	1.000	1.272	1.240	1503	1292	7.40e6	5.81e6	4923.7	4499.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	3.666e5		1.084			981		5.64e6		5747.6			bb		36.304

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:23 Pacific Daylight Time

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	22.268	0.864	1.323e3	1.294e3	1.425	1.022	0.770	928	878	1.36e4	1.85e4	14.7	21.1	YES	bb	db	0.180
1289-TCDF	27.288	1.059	2.395e2	2.169e2	1.043	1.104	0.770	928	878	2.22e3	4.07e3	2.4	4.6	YES	bb	db	0.043
13468-PECDF					1.376		1.550	672	1004								
12389-PECDF					1.000		1.550	983	1240								
123468-HXCDF	33.229	0.953	1.208e3	1.100e3	1.087	1.098	1.240	1079	717	1.87e4	1.82e4	17.3	25.3	NO	bb	bd	0.280
1368-TCDD	23.523	0.892	1.803e3	2.047e3	0.923	0.881	0.770	1118	705	2.79e4	3.30e4	24.9	46.8	NO	bb	bb	0.438
1289-TCDD					0.794		0.770	1118	705								
12479-PECDD	28.817	0.915	2.298e3	1.627e3	1.843	1.412	1.550	722	721	2.77e4	2.02e4	38.3	28.0	NO	bb	bb	0.443
12389-PECDD	31.926	1.013	4.180e2	1.361e2	1.154	3.070	1.550	722	721	7.48e3	2.56e3	10.4	3.5	YES	bb	db	0.100
124679-HXCDD	33.998	0.945	2.648e3	1.819e3	1.125	1.456	1.240	757	812	4.35e4	2.91e4	57.5	35.8	YES	MM	MM	0.634
1234679-HPCDD	39.234	0.975	3.441e3	2.957e3	1.211	1.164	1.050	813	526	5.50e4	4.89e4	67.7	93.0	NO	bb	bb	1.451
Total-tetrafurans			2.701e4		1.192			928		3.98e5							5.246
Total-penta1			3.779e4					672		5.48e5							8.929
Total-pentafurans			2.145e4		1.047			983		3.31e5							4.657
Total-hexafurans			1.722e4		1.045			1079		2.70e5							4.350
Total-heptafurans			2.240e3		1.305			870		3.76e4							0.852
Total-Furans			1.065e5		1.158			928		1.59e6							24.488
Total-tetradioxins			6.181e3		0.879			1118		9.20e4							1.631
Total-pentadioxins			5.154e3		1.331			722		7.23e4							1.197
Total-hexadioxins			4.429e3		1.028			757		5.64e4							1.205
Total-heptadioxins			5.797e3		1.140			813		9.30e4							2.703
Total-Dioxins			4.000e4		1.092			1118		5.30e5							18.813
Total-TEQ			1.465e5					1118		2.12e6							43.301
FUNCTION1 PFK			2.307e4					644697		1.03e6							
FUNCTION2 PFK			3.982e4					485591		1.66e6							0.000
FUNCTION3 PFK			3.463e4					493790		1.47e6							0.000
FUNCTION4 PFK			1.014e6					247628		3.97e6							
FUNCTION5 PFK			1.706e5					191498		6.28e6							
FUNCTION1 HXCD...			8.239e3					506		1.32e5							0.000
FUNCTION1 HPCD...			1.064e3					607		1.64e4							0.000
FUNCTION2 HPCD...			1.153e3					1266		2.19e4							0.000
FUNCTION3 OCDPE			6.050e2					556		1.01e4							0.000
FUNCTION4 NCDPE			1.779e3					558		2.67e4							0.000
FUNCTION5 DCDPE			8.446e1					552		1.12e3							0.000

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	24.01	8.604e2	1.027e3	1.192	0.84	0.77	16.1	YES	NO	db	db	0.155
2	Total-tetrafurans	23.75	5.907e3	7.852e3	1.192	0.75	0.77	88.6	YES	NO	bd	bd	1.132
3	Total-tetrafurans	23.52	2.510e3	3.303e3	1.192	0.76	0.77	44.3	YES	NO	dd	dd	0.478
4	Total-tetrafurans	23.10	7.371e3	9.947e3	1.192	0.74	0.77	117.2	YES	NO	bd	bd	1.425
5	Total-tetrafurans	27.64	2.898e2	3.878e2	1.192	0.75	0.77	3.8	YES	NO	bb	bb	0.056
6	Total-tetrafurans	26.00	1.315e3	1.800e3	1.192	0.73	0.77	19.9	YES	NO	dd	dd	0.256
7	2378-TCDF	25.76	2.398e3	3.202e3	1.108	0.75	0.77	31.4	YES	NO	dd	dd	0.496
8	Total-tetrafurans	24.87	1.427e3	1.991e3	1.192	0.72	0.77	21.3	YES	NO	db	bb	0.281
9	Total-tetrafurans	24.67	4.137e3	5.833e3	1.192	0.71	0.77	72.6	YES	NO	dd	db	0.820
10	Total-tetrafurans	24.54	7.918e2	9.696e2	1.192	0.82	0.77	13.9	YES	NO	dd	dd	0.145

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.20	3.779e4	2.384e4		1.59	1.55	816.6	YES	NO	bb	bb	8.929

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	30.13	1.160e3	7.288e2	1.047	1.59	1.55	18.6	YES	NO	bd	bb	0.246
2	Total-pentafurans	29.56	3.217e3	2.192e3	1.047	1.47	1.55	49.0	YES	NO	db	db	0.704
3	Total-pentafurans	29.46	8.779e2	4.925e2	1.047	1.78	1.55	14.9	YES	NO	bd	bd	0.178
4	Total-pentafurans	28.85	7.407e3	4.998e3	1.047	1.48	1.55	102.2	YES	NO	dd	dd	1.615
5	Total-pentafurans	28.77	2.471e3	1.700e3	1.047	1.45	1.55	51.8	YES	NO	dd	dd	0.543
6	Total-pentafurans	28.66	1.540e3	8.976e2	1.047	1.72	1.55	21.3	YES	NO	dd	dd	0.317
7	Total-pentafurans	28.57	2.875e2	1.899e2	1.047	1.51	1.55	7.8	YES	NO	dd	bd	0.062
8	23478-PeCDF	31.28	1.130e3	8.017e2	1.126	1.41	1.55	20.6	YES	NO	db	db	0.240
9	Total-pentafurans	31.12	3.364e3	2.394e3	1.047	1.41	1.55	50.4	YES	NO	dd	dd	0.750

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:23 Pacific Daylight Time

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, Conditions: AUTOSPEC01, User: pk

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.88	1.476e3	1.287e3	1.052	1.15	1.24	16.7	YES	NO	bb	MM	0.373
2	123678-HxCDF	35.05	8.243e2	7.681e2	1.037	1.07	1.24	13.6	YES	NO	db	db	0.206
3	123478-HxCDF	34.90	1.002e3	7.903e2	1.017	1.27	1.24	15.8	YES	NO	bd	bd	0.232
4	Total-hexafurans	34.28	5.639e3	5.112e3	1.045	1.10	1.24	85.8	YES	NO	bb	bb	1.451
5	Total-hexafurans	33.44	7.069e3	6.338e3	1.045	1.12	1.24	100.9	YES	NO	bb	db	1.809
6	123468-HXCDF	33.23	1.208e3	1.100e3	1.087	1.10	1.24	17.3	YES	NO	bb	bd	0.280

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.45	1.139e3	1.267e3	1.305	0.90	1.05	23.8	YES	NO	bb	bd	0.462
2	1234678-HpCDF	38.79	1.101e3	1.175e3	1.327	0.94	1.05	19.5	YES	NO	bb	bb	0.390

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:23 Pacific Daylight Time

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	24.01	8.604e2	1.027e3	1.192	0.84	0.77	16.1	YES	NO	db	db	0.155
2	Total-tetrafurans	23.75	5.907e3	7.852e3	1.192	0.75	0.77	88.6	YES	NO	bd	bd	1.132
3	Total-tetrafurans	23.52	2.510e3	3.303e3	1.192	0.76	0.77	44.3	YES	NO	dd	dd	0.478
4	Total-tetrafurans	23.10	7.371e3	9.947e3	1.192	0.74	0.77	117.2	YES	NO	bd	bd	1.425
5	Total-tetrafurans	27.64	2.898e2	3.878e2	1.192	0.75	0.77	3.8	YES	NO	bb	bb	0.056
6	Total-tetrafurans	26.00	1.315e3	1.800e3	1.192	0.73	0.77	19.9	YES	NO	dd	dd	0.256
7	2378-TCDF	25.76	2.398e3	3.202e3	1.108	0.75	0.77	31.4	YES	NO	dd	dd	0.496
8	Total-tetrafurans	24.87	1.427e3	1.991e3	1.192	0.72	0.77	21.3	YES	NO	db	bb	0.281
9	Total-tetrafurans	24.67	4.137e3	5.833e3	1.192	0.71	0.77	72.6	YES	NO	dd	db	0.820
10	Total-tetrafurans	24.54	7.918e2	9.696e2	1.192	0.82	0.77	13.9	YES	NO	dd	dd	0.145
11	Total-pentafurans	30.13	1.160e3	7.288e2	1.047	1.59	1.55	18.6	YES	NO	bd	bb	0.246
12	Total-pentafurans	29.56	3.217e3	2.192e3	1.047	1.47	1.55	49.0	YES	NO	db	db	0.704
13	Total-pentafurans	29.46	8.779e2	4.925e2	1.047	1.78	1.55	14.9	YES	NO	bd	bd	0.178
14	Total-pentafurans	28.85	7.407e3	4.998e3	1.047	1.48	1.55	102.2	YES	NO	dd	dd	1.615
15	Total-pentafurans	28.77	2.471e3	1.700e3	1.047	1.45	1.55	51.8	YES	NO	dd	dd	0.543
16	Total-pentafurans	28.66	1.540e3	8.976e2	1.047	1.72	1.55	21.3	YES	NO	dd	dd	0.317
17	Total-pentafurans	28.57	2.875e2	1.899e2	1.047	1.51	1.55	7.8	YES	NO	dd	bd	0.062
18	23478-PeCDF	31.28	1.130e3	8.017e2	1.126	1.41	1.55	20.6	YES	NO	db	db	0.240
19	Total-pentafurans	31.12	3.364e3	2.394e3	1.047	1.41	1.55	50.4	YES	NO	dd	dd	0.750
20	234678-HxCDF	35.88	1.476e3	1.287e3	1.052	1.15	1.24	16.7	YES	NO	bb	MM	0.373
21	123678-HxCDF	35.05	8.243e2	7.681e2	1.037	1.07	1.24	13.6	YES	NO	db	db	0.206
22	123478-HxCDF	34.90	1.002e3	7.903e2	1.017	1.27	1.24	15.8	YES	NO	bd	bd	0.232
23	Total-hexafurans	34.28	5.639e3	5.112e3	1.045	1.10	1.24	85.8	YES	NO	bb	bb	1.451
24	Total-hexafurans	33.44	7.069e3	6.338e3	1.045	1.12	1.24	100.9	YES	NO	bb	db	1.809
25	123468-HXCDF	33.23	1.208e3	1.100e3	1.087	1.10	1.24	17.3	YES	NO	bb	bd	0.280
26	Total-heptafurans	39.45	1.139e3	1.267e3	1.305	0.90	1.05	23.8	YES	NO	bb	bd	0.462
27	1234678-HpCDF	38.79	1.101e3	1.175e3	1.327	0.94	1.05	19.5	YES	NO	bb	bb	0.390
28	OCDF	45.25	7.965e2	9.494e2	1.447	0.84	0.89	18.1	YES	NO	bb	bb	0.454
29	Total-penta1	27.20	3.779e4	2.384e4		1.59	1.55	816.6	YES	NO	bb	bb	8.929

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	25.58	2.885e2	3.400e2	0.879	0.85	0.77	3.5	YES	NO	bb	bb	0.075
2	Total-tetradioxins	25.38	3.170e2	4.355e2	0.879	0.73	0.77	4.5	YES	NO	bb	bb	0.090
3	Total-tetradioxins	25.00	9.877e2	1.276e3	0.879	0.77	0.77	13.2	YES	NO	bb	bb	0.271
4	Total-tetradioxins	24.73	8.617e2	1.168e3	0.879	0.74	0.77	11.6	YES	NO	db	bb	0.243
5	Total-tetradioxins	24.01	4.047e2	4.607e2	0.879	0.88	0.77	4.8	YES	NO	bd	bb	0.103
6	1368-TCDD	23.52	1.803e3	2.047e3	0.923	0.88	0.77	24.9	YES	NO	bb	bb	0.438
7	Total-tetradioxins	26.55	3.061e2	4.442e2	0.879	0.69	0.77	3.8	YES	NO	db	db	0.090
8	Total-tetradioxins	23.80	1.211e3	1.476e3	0.879	0.82	0.77	15.9	YES	NO	MM	MM	0.321

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.28	1.066e3	7.468e2	1.331	1.43	1.55	21.4	YES	NO	dd	dd	0.283
2	Total-pentadioxins	29.91	1.486e3	1.020e3	1.331	1.46	1.55	34.0	YES	NO	bb	bb	0.392
3	Total-pentadioxins	29.30	3.043e2	1.991e2	1.331	1.53	1.55	6.5	YES	NO	bb	bb	0.079
4	12479-PECDD	28.82	2.298e3	1.627e3	1.843	1.41	1.55	38.3	YES	NO	bb	bb	0.443

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.52	5.162e2	4.661e2	0.950	1.11	1.24	12.9	YES	NO	bb	bb	0.164
2	123478-HxCDD	36.00	3.754e2	2.727e2	1.027	1.38	1.24	9.1	YES	NO	dd	bd	0.101
3	Total-hexadioxins	35.13	3.538e3	2.575e3	1.028	1.37	1.24	52.5	YES	NO	db	bd	0.941

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.28	2.356e3	2.514e3	1.068	0.94	1.05	46.7	YES	NO	bb	bb	1.252
2	1234679-HPCDD	39.23	3.441e3	2.957e3	1.211	1.16	1.05	67.7	YES	NO	bb	bb	1.451

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:23 Pacific Daylight Time

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	25.58	2.885e2	3.400e2	0.879	0.85	0.77	3.5	YES	NO	bb	bb	0.075
2	Total-tetradioxins	25.38	3.170e2	4.355e2	0.879	0.73	0.77	4.5	YES	NO	bb	bb	0.090
3	Total-tetradioxins	25.00	9.877e2	1.276e3	0.879	0.77	0.77	13.2	YES	NO	bb	bb	0.271
4	Total-tetradioxins	24.73	8.617e2	1.168e3	0.879	0.74	0.77	11.6	YES	NO	db	bb	0.243
5	Total-tetradioxins	24.01	4.047e2	4.607e2	0.879	0.88	0.77	4.8	YES	NO	bd	bb	0.103
6	1368-TCDD	23.52	1.803e3	2.047e3	0.923	0.88	0.77	24.9	YES	NO	bb	bb	0.438
7	Total-tetradioxins	26.55	3.061e2	4.442e2	0.879	0.69	0.77	3.8	YES	NO	db	db	0.090
8	Total-pentadioxins	30.28	1.066e3	7.468e2	1.331	1.43	1.55	21.4	YES	NO	dd	dd	0.283
9	Total-pentadioxins	29.91	1.486e3	1.020e3	1.331	1.46	1.55	34.0	YES	NO	bb	bb	0.392
10	Total-pentadioxins	29.30	3.043e2	1.991e2	1.331	1.53	1.55	6.5	YES	NO	bb	bb	0.079
11	12479-PECDD	28.82	2.298e3	1.627e3	1.843	1.41	1.55	38.3	YES	NO	bb	bb	0.443
12	123789-HxCDD	36.52	5.162e2	4.661e2	0.950	1.11	1.24	12.9	YES	NO	bb	bb	0.164
13	123478-HxCDD	36.00	3.754e2	2.727e2	1.027	1.38	1.24	9.1	YES	NO	dd	bd	0.101
14	Total-hexadioxins	35.13	3.538e3	2.575e3	1.028	1.37	1.24	52.5	YES	NO	db	bd	0.941
15	1234678-HpCDD	40.28	2.356e3	2.514e3	1.068	0.94	1.05	46.7	YES	NO	bb	bb	1.252
16	1234679-HPCDD	39.23	3.441e3	2.957e3	1.211	1.16	1.05	67.7	YES	NO	bb	bb	1.451
17	OCDD	45.04	1.843e4	1.950e4	1.181	0.95	0.89	316.5	YES	NO	bb	bb	12.076
18	Total-tetradioxins	23.80	1.211e3	1.476e3	0.879	0.82	0.77	15.9	YES	NO	MM	MM	0.321

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	24.01	8.604e2	1.027e3	1.192	0.84	0.77	16.1	YES	NO	db	db	0.155
2	Total-tetrafurans	23.75	5.907e3	7.852e3	1.192	0.75	0.77	88.6	YES	NO	bd	bd	1.132
3	Total-tetrafurans	23.52	2.510e3	3.303e3	1.192	0.76	0.77	44.3	YES	NO	dd	dd	0.478
4	Total-tetrafurans	23.10	7.371e3	9.947e3	1.192	0.74	0.77	117.2	YES	NO	bd	bd	1.425
5	Total-tetrafurans	27.64	2.898e2	3.878e2	1.192	0.75	0.77	3.8	YES	NO	bb	bb	0.056
6	Total-tetrafurans	26.00	1.315e3	1.800e3	1.192	0.73	0.77	19.9	YES	NO	dd	dd	0.256
7	2378-TCDF	25.76	2.398e3	3.202e3	1.108	0.75	0.77	31.4	YES	NO	dd	dd	0.496
8	Total-tetrafurans	24.87	1.427e3	1.991e3	1.192	0.72	0.77	21.3	YES	NO	db	bb	0.281
9	Total-tetrafurans	24.67	4.137e3	5.833e3	1.192	0.71	0.77	72.6	YES	NO	dd	db	0.820
10	Total-tetrafurans	24.54	7.918e2	9.696e2	1.192	0.82	0.77	13.9	YES	NO	dd	dd	0.145
11	Total-pentafurans	30.13	1.160e3	7.288e2	1.047	1.59	1.55	18.6	YES	NO	bd	bb	0.246
12	Total-pentafurans	29.56	3.217e3	2.192e3	1.047	1.47	1.55	49.0	YES	NO	db	db	0.704
13	Total-pentafurans	29.46	8.779e2	4.925e2	1.047	1.78	1.55	14.9	YES	NO	bd	bd	0.178
14	Total-pentafurans	28.85	7.407e3	4.998e3	1.047	1.48	1.55	102.2	YES	NO	dd	dd	1.615
15	Total-pentafurans	28.77	2.471e3	1.700e3	1.047	1.45	1.55	51.8	YES	NO	dd	dd	0.543
16	Total-pentafurans	28.66	1.540e3	8.976e2	1.047	1.72	1.55	21.3	YES	NO	dd	dd	0.317
17	Total-pentafurans	28.57	2.875e2	1.899e2	1.047	1.51	1.55	7.8	YES	NO	dd	bd	0.062
18	23478-PeCDF	31.28	1.130e3	8.017e2	1.126	1.41	1.55	20.6	YES	NO	db	db	0.240
19	Total-pentafurans	31.12	3.364e3	2.394e3	1.047	1.41	1.55	50.4	YES	NO	dd	dd	0.750
20	234678-HxCDF	35.88	1.476e3	1.287e3	1.052	1.15	1.24	16.7	YES	NO	bb	MM	0.373
21	123678-HxCDF	35.05	8.243e2	7.681e2	1.037	1.07	1.24	13.6	YES	NO	db	db	0.206
22	123478-HxCDF	34.90	1.002e3	7.903e2	1.017	1.27	1.24	15.8	YES	NO	bd	bd	0.232
23	Total-hexafurans	34.28	5.639e3	5.112e3	1.045	1.10	1.24	85.8	YES	NO	bb	bb	1.451
24	Total-hexafurans	33.44	7.069e3	6.338e3	1.045	1.12	1.24	100.9	YES	NO	bb	db	1.809
25	123468-HXCDF	33.23	1.208e3	1.100e3	1.087	1.10	1.24	17.3	YES	NO	bb	bd	0.280
26	Total-heptafurans	39.45	1.139e3	1.267e3	1.305	0.90	1.05	23.8	YES	NO	bb	bd	0.462
27	1234678-HpCDF	38.79	1.101e3	1.175e3	1.327	0.94	1.05	19.5	YES	NO	bb	bb	0.390
28	OCDF	45.25	7.965e2	9.494e2	1.447	0.84	0.89	18.1	YES	NO	bb	bb	0.454
29	Total-penta1	27.20	3.779e4	2.384e4		1.59	1.55	816.6	YES	NO	bb	bb	8.929
30	Total-tetradioxins	25.58	2.885e2	3.400e2	0.879	0.85	0.77	3.5	YES	NO	bb	bb	0.075
31	Total-tetradioxins	25.38	3.170e2	4.355e2	0.879	0.73	0.77	4.5	YES	NO	bb	bb	0.090
32	Total-tetradioxins	25.00	9.877e2	1.276e3	0.879	0.77	0.77	13.2	YES	NO	bb	bb	0.271
33	Total-tetradioxins	24.73	8.617e2	1.168e3	0.879	0.74	0.77	11.6	YES	NO	db	bb	0.243
34	Total-tetradioxins	24.01	4.047e2	4.607e2	0.879	0.88	0.77	4.8	YES	NO	bd	bb	0.103
35	1368-TCDD	23.52	1.803e3	2.047e3	0.923	0.88	0.77	24.9	YES	NO	bb	bb	0.438
36	Total-tetradioxins	26.55	3.061e2	4.442e2	0.879	0.69	0.77	3.8	YES	NO	db	db	0.090
37	Total-pentadioxins	30.28	1.066e3	7.468e2	1.331	1.43	1.55	21.4	YES	NO	dd	dd	0.283

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	29.91	1.486e3	1.020e3	1.331	1.46	1.55	34.0	YES	NO	bb	bb	0.392
39	Total-pentadioxins	29.30	3.043e2	1.991e2	1.331	1.53	1.55	6.5	YES	NO	bb	bb	0.079
40	12479-PECDD	28.82	2.298e3	1.627e3	1.843	1.41	1.55	38.3	YES	NO	bb	bb	0.443
41	123789-HxCDD	36.52	5.162e2	4.661e2	0.950	1.11	1.24	12.9	YES	NO	bb	bb	0.164
42	123478-HxCDD	36.00	3.754e2	2.727e2	1.027	1.38	1.24	9.1	YES	NO	dd	bd	0.101
43	Total-hexadioxins	35.13	3.538e3	2.575e3	1.028	1.37	1.24	52.5	YES	NO	db	bd	0.941
44	1234678-HpCDD	40.28	2.356e3	2.514e3	1.068	0.94	1.05	46.7	YES	NO	bb	bb	1.252
45	1234679-HPCDD	39.23	3.441e3	2.957e3	1.211	1.16	1.05	67.7	YES	NO	bb	bb	1.451
46	OCDD	45.04	1.843e4	1.950e4	1.181	0.95	0.89	316.5	YES	NO	bb	bb	12.076
47	Total-tetradioxins	23.80	1.211e3	1.476e3	0.879	0.82	0.77	15.9	YES	NO	MM	MM	0.321

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.22	2.307e4					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	29.86	2.605e4					2.2	NO		bb		0.000
2	FUNCTION2 PFK	28.33	1.378e4					1.2	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	36.82	2.989e4					2.1	NO		bb		0.000
2	FUNCTION3 PFK	37.49	4.740e3					0.9	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	38.08	1.014e6					16.0	YES		bb		

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	43.97	7.645e2					0.4	NO		bb		
2	FUNCTION5 PFK	43.93	2.500e3					0.8	NO		bb		
3	FUNCTION5 PFK	43.90	5.137e3					0.9	NO		db		
4	FUNCTION5 PFK	43.81	3.553e3					0.8	NO		bd		
5	FUNCTION5 PFK	43.74	5.288e2					0.3	NO		bb		
6	FUNCTION5 PFK	43.70	1.926e3					0.6	NO		bb		
7	FUNCTION5 PFK	43.67	6.263e2					0.4	NO		bb		
8	FUNCTION5 PFK	43.64	5.475e2					0.3	NO		bb		
9	FUNCTION5 PFK	43.18	9.872e2					0.6	NO		bb		
10	FUNCTION5 PFK	43.15	8.753e3					1.6	NO		db		
11	FUNCTION5 PFK	43.09	1.096e3					0.5	NO		bd		
12	FUNCTION5 PFK	43.06	9.748e2					0.6	NO		bb		
13	FUNCTION5 PFK	45.38	4.508e3					1.0	NO		bb		
14	FUNCTION5 PFK	45.28	4.631e3					1.0	NO		bb		
15	FUNCTION5 PFK	45.21	1.346e4					1.9	NO		db		
16	FUNCTION5 PFK	45.15	1.047e4					1.6	NO		bd		
17	FUNCTION5 PFK	45.04	7.436e3					1.1	NO		bb		
18	FUNCTION5 PFK	44.97	7.221e3					1.3	NO		bb		
19	FUNCTION5 PFK	44.91	9.739e3					1.8	NO		bb		
20	FUNCTION5 PFK	44.80	1.370e4					1.6	NO		db		
21	FUNCTION5 PFK	44.75	1.163e4					1.5	NO		bd		
22	FUNCTION5 PFK	44.51	6.874e3					1.2	NO		bb		
23	FUNCTION5 PFK	44.35	9.786e2					0.6	NO		bb		
24	FUNCTION5 PFK	44.32	5.882e2					0.3	NO		bb		
25	FUNCTION5 PFK	44.28	5.367e2					0.3	NO		bb		
26	FUNCTION5 PFK	44.11	3.251e3					0.7	NO		bb		
27	FUNCTION5 PFK	44.06	6.562e3					1.1	NO		bb		
28	FUNCTION5 PFK	44.01	5.831e2					0.3	NO		bb		
29	FUNCTION5 PFK	45.97	1.791e3					0.6	NO		bb		
30	FUNCTION5 PFK	45.86	3.337e3					1.0	NO		db		
31	FUNCTION5 PFK	45.84	5.897e3					1.2	NO		bd		
32	FUNCTION5 PFK	45.70	1.035e4					1.7	NO		bb		
33	FUNCTION5 PFK	45.64	2.473e3					0.6	NO		bb		
34	FUNCTION5 PFK	45.54	8.592e3					1.0	NO		bb		
35	FUNCTION5 PFK	45.45	8.633e3					1.6	NO		bb		

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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...	23.86	8.597e1					4.1	YES		db		0.000
2	FUNCTION1 HXCD...	23.73	2.410e3					80.6	YES		bd		0.000
3	FUNCTION1 HXCD...	23.19	8.402e1					1.6	NO		bb		0.000
4	FUNCTION1 HXCD...	22.72	4.134e2					14.1	YES		bb		0.000
5	FUNCTION1 HXCD...	22.18	7.690e1					3.1	YES		bb		0.000
6	FUNCTION1 HXCD...	21.53	9.620e1					3.6	YES		bb		0.000
7	FUNCTION1 HXCD...	21.18	1.425e2					3.9	YES		db		0.000
8	FUNCTION1 HXCD...	21.15	1.429e2					3.7	YES		bd		0.000
9	FUNCTION1 HXCD...	27.62	1.003e2					3.7	YES		bb		0.000
10	FUNCTION1 HXCD...	26.76	7.303e2					26.3	YES		bb		0.000
11	FUNCTION1 HXCD...	26.38	7.203e1					2.2	NO		bb		0.000
12	FUNCTION1 HXCD...	26.11	1.726e3					56.5	YES		bb		0.000
13	FUNCTION1 HXCD...	25.73	1.115e3					34.2	YES		bb		0.000
14	FUNCTION1 HXCD...	25.31	8.160e1					2.7	NO		bb		0.000
15	FUNCTION1 HXCD...	25.08	5.907e2					13.1	YES		bb		0.000
16	FUNCTION1 HXCD...	24.63	1.683e2					3.3	YES		bb		0.000
17	FUNCTION1 HXCD...	24.16	1.337e2					1.8	NO		db		0.000
18	FUNCTION1 HXCD...	23.98	7.004e1					2.1	NO		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...	25.26	9.618e1					3.5	YES		bb		0.000
2	FUNCTION1 HPCD...	24.58	1.384e2					2.7	NO		bb		0.000
3	FUNCTION1 HPCD...	23.28	7.302e1					2.2	NO		bb		0.000
4	FUNCTION1 HPCD...	21.68	8.410e1					2.1	NO		db		0.000
5	FUNCTION1 HPCD...	21.51	1.248e2					2.2	NO		bd		0.000
6	FUNCTION1 HPCD...	27.89	3.640e2					9.7	YES		bb		0.000
7	FUNCTION1 HPCD...	27.45	9.877e1					2.3	NO		bb		0.000
8	FUNCTION1 HPCD...	25.58	8.481e1					2.3	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...	32.18	2.743e2					4.6	YES		bb		0.000
2	FUNCTION2 HPCD...	31.26	7.263e1					1.6	NO		bb		0.000
3	FUNCTION2 HPCD...	28.91	8.058e2					11.1	YES		bb		0.000

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, 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	36.52	1.636e2					4.6	YES		bb		0.000
2	FUNCTION3 OCDPE	36.10	1.704e2					4.3	YES		db		0.000
3	FUNCTION3 OCDPE	36.00	1.586e2					5.0	YES		bd		0.000
4	FUNCTION3 OCDPE	33.06	1.124e2					4.2	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	1.779e3					47.8	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	45.61	8.446e1					2.0	NO		bb		0.000

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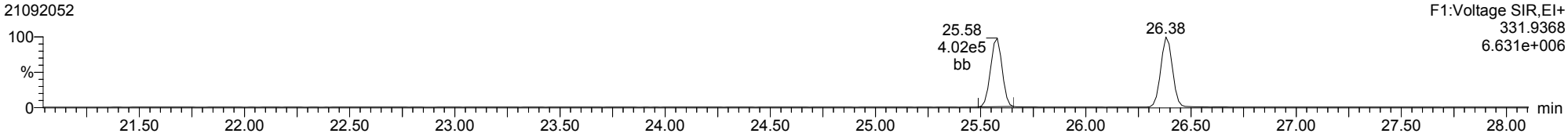

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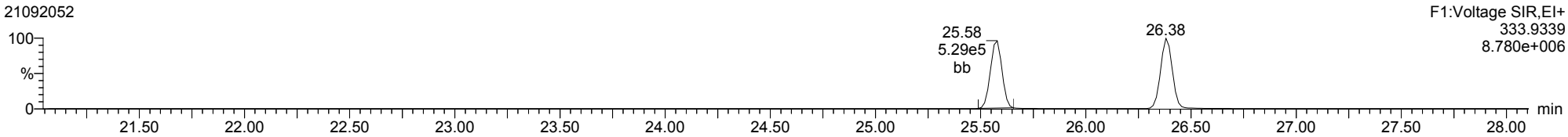

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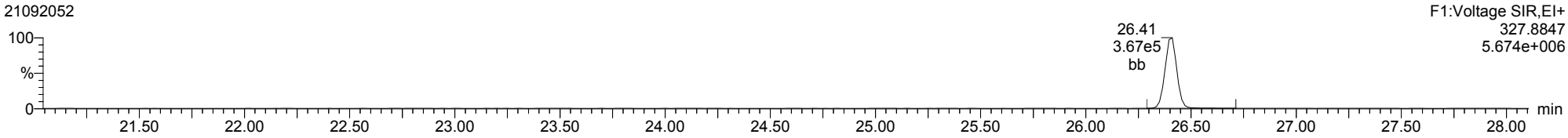

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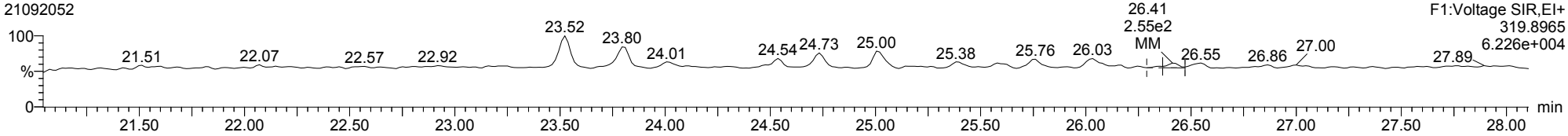

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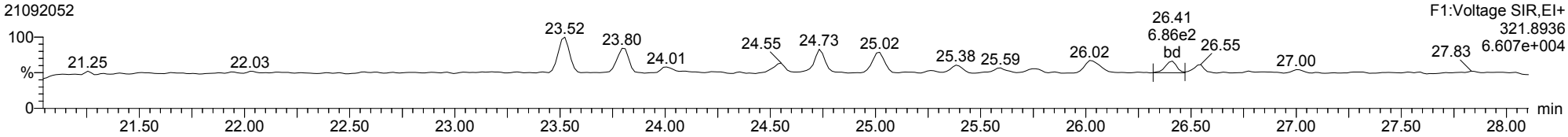

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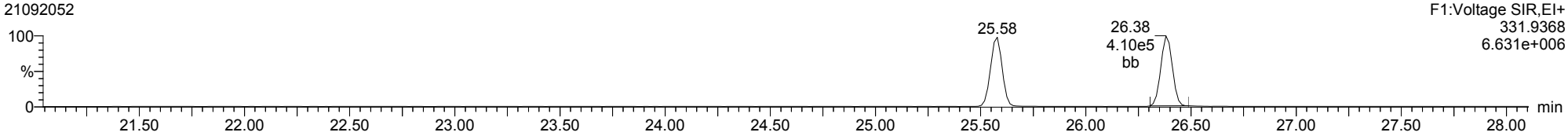

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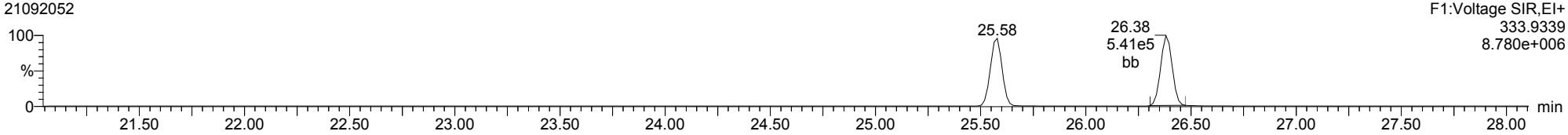

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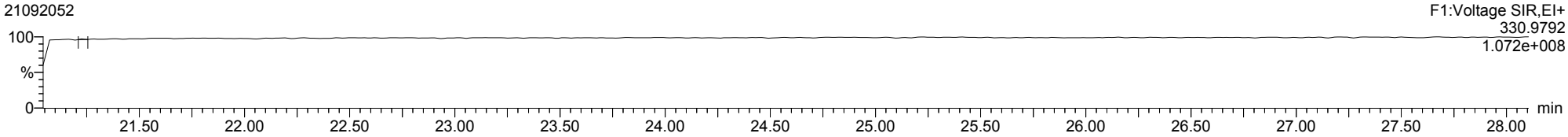

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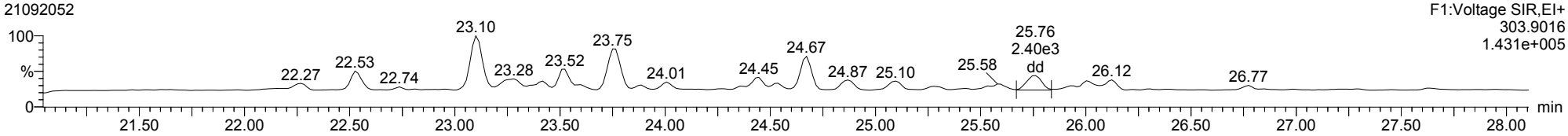

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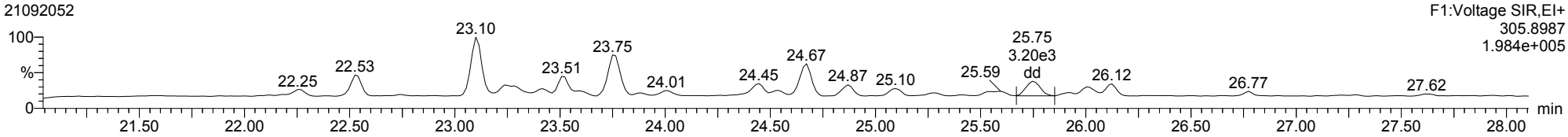

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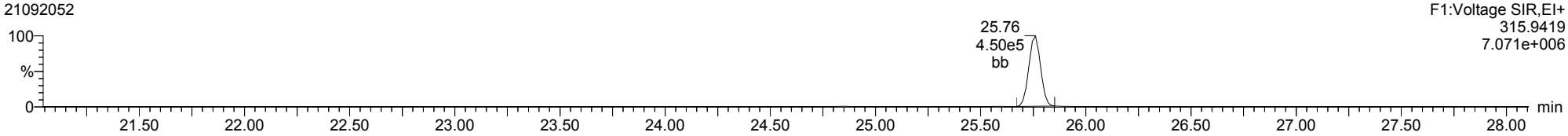

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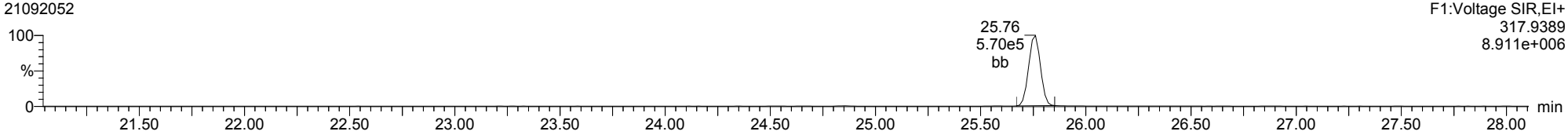

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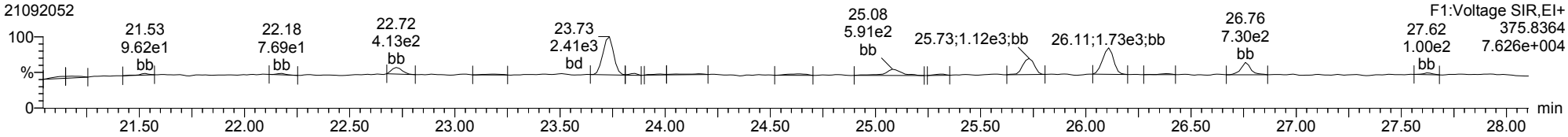

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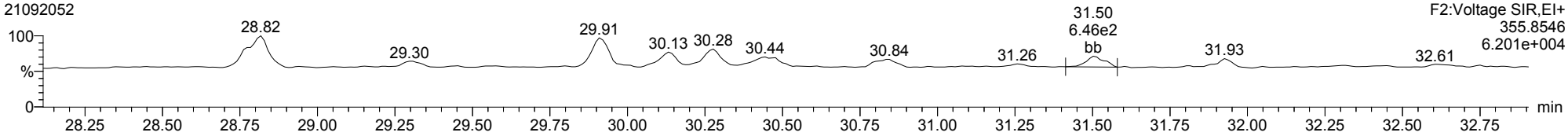

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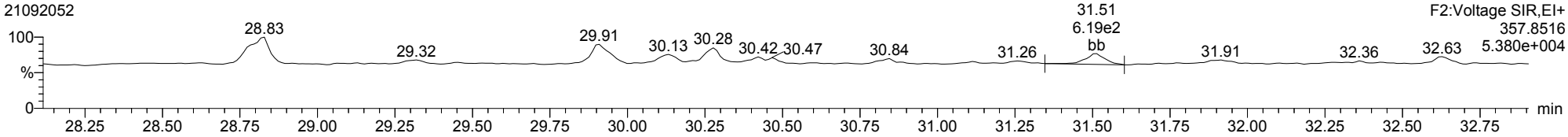

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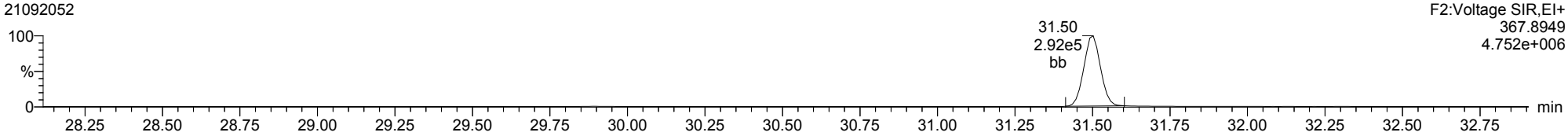

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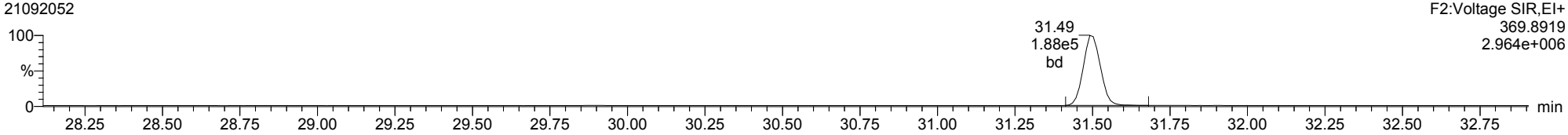

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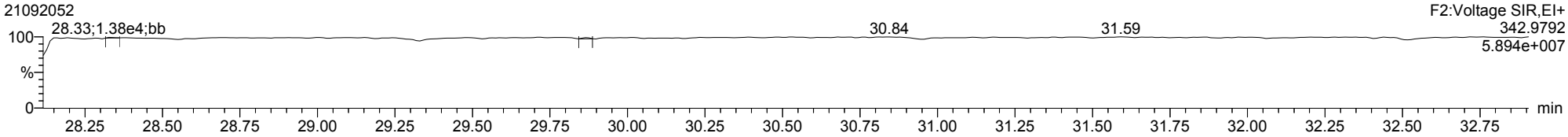

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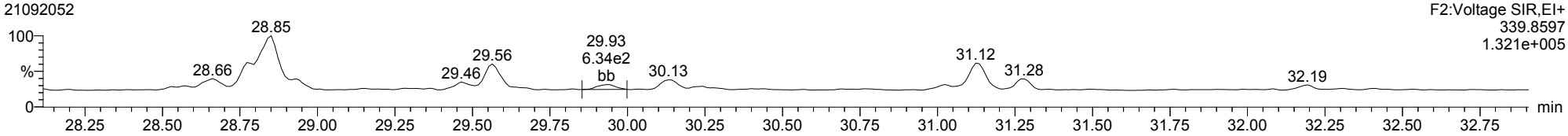

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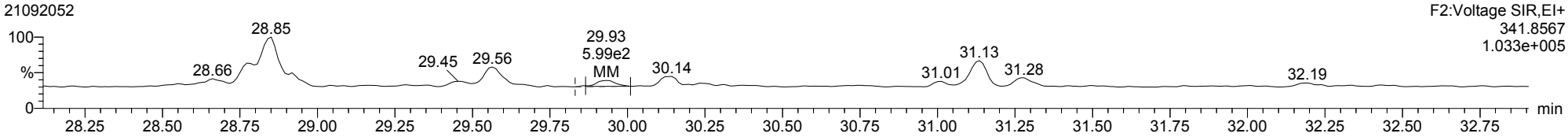

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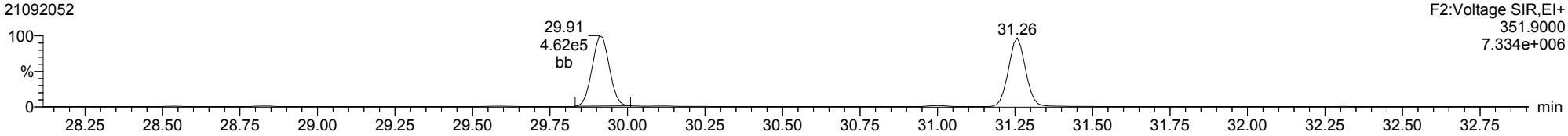

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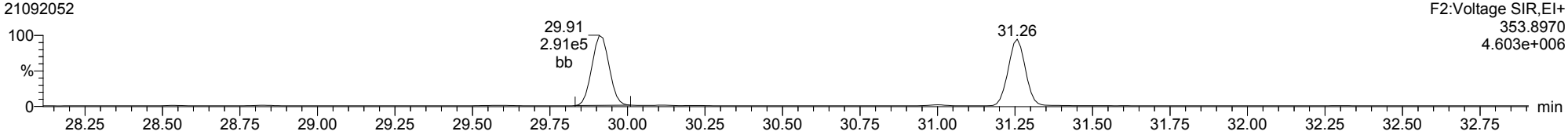

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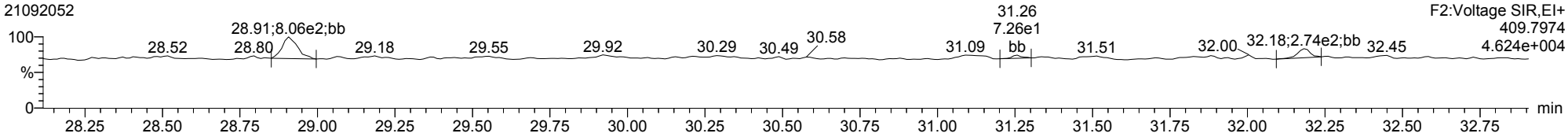

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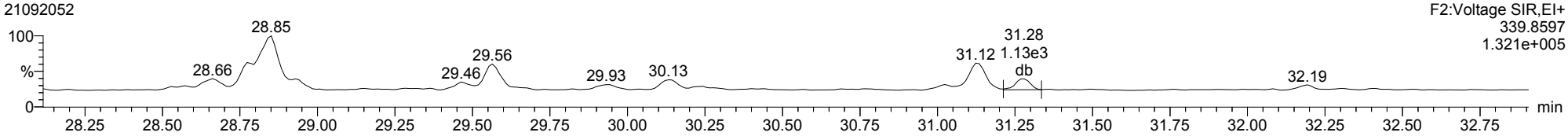
23478-PeCDF



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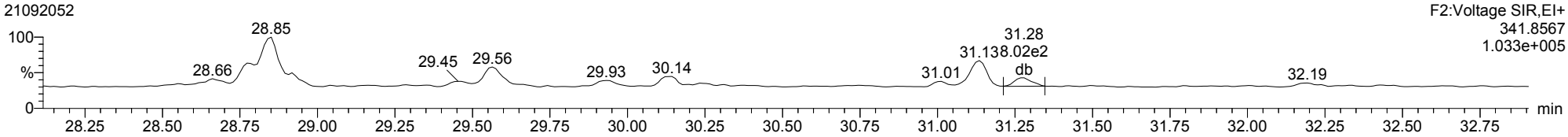

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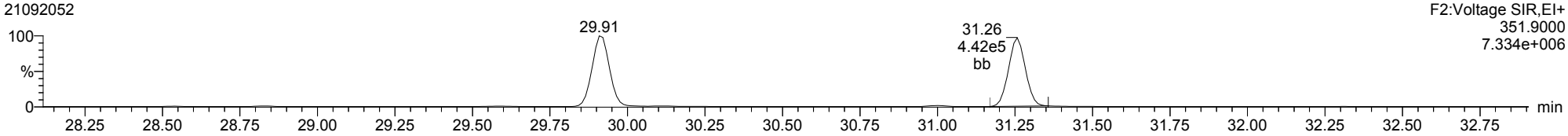

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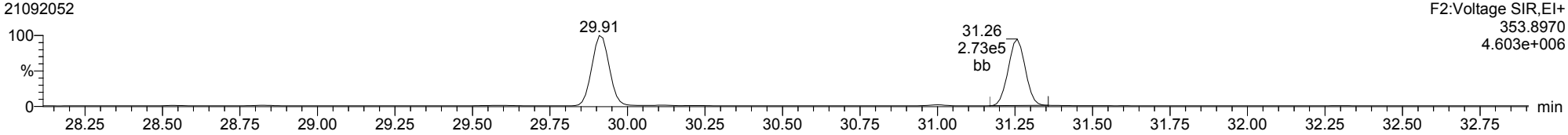
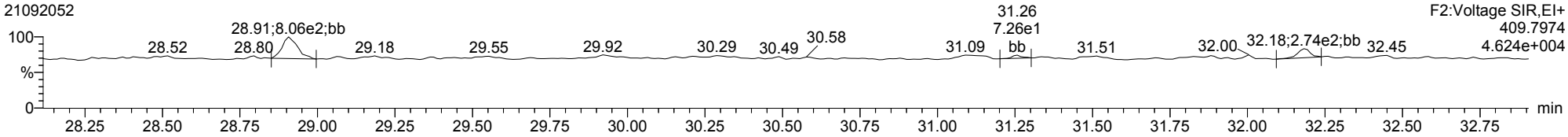


FUNCTION2 HPCDPE



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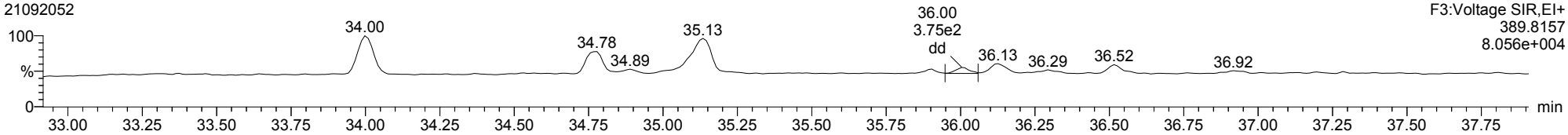

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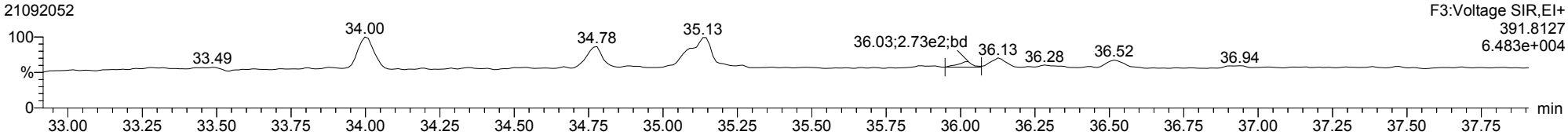

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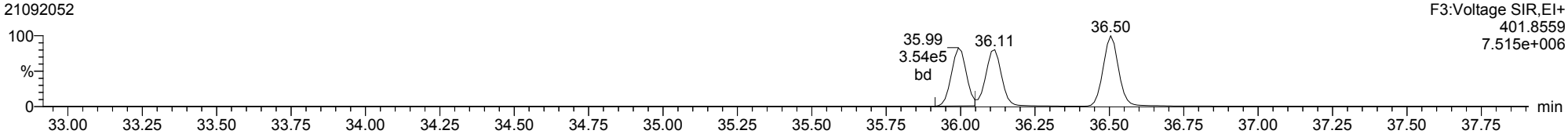

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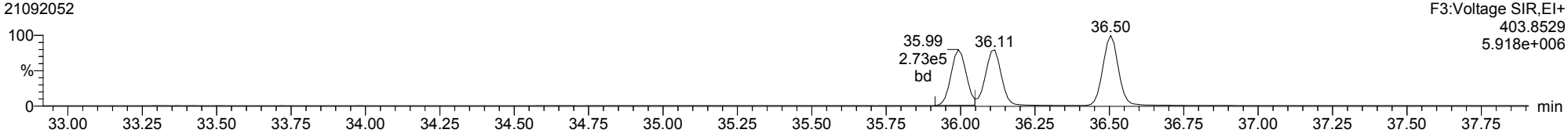

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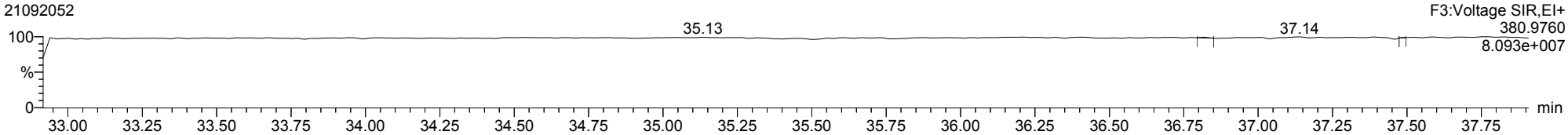

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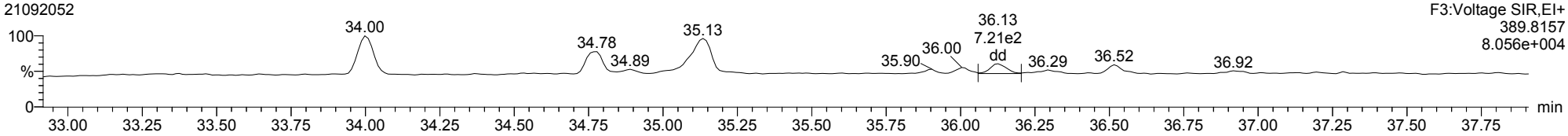

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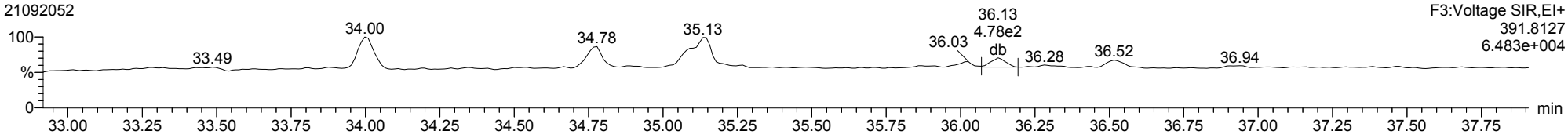

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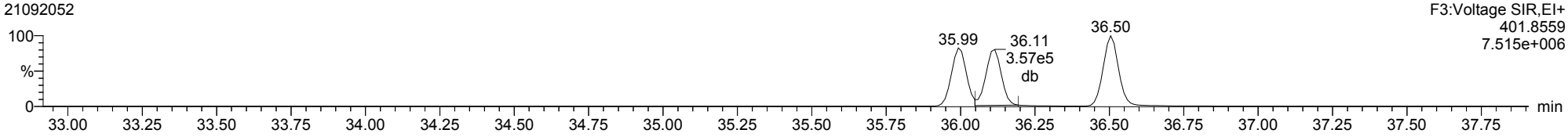

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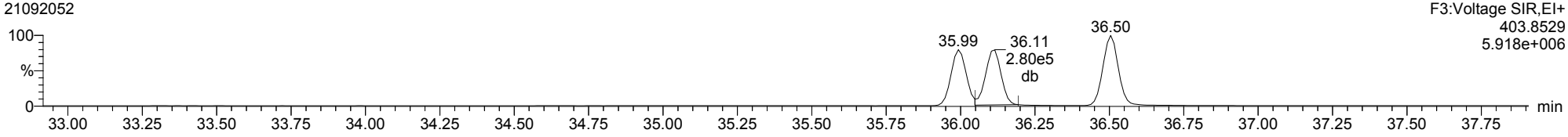

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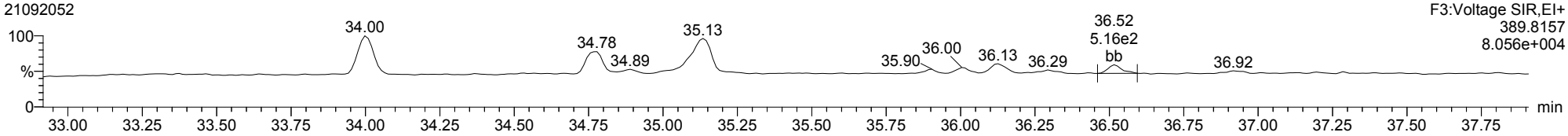

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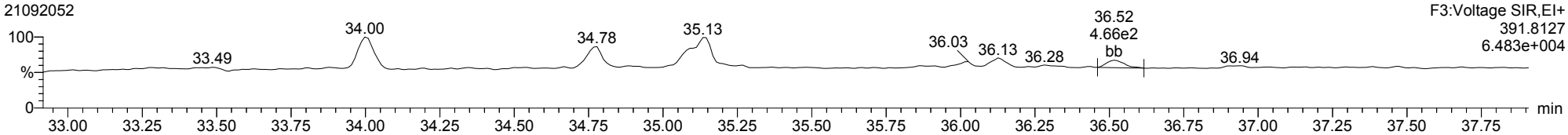

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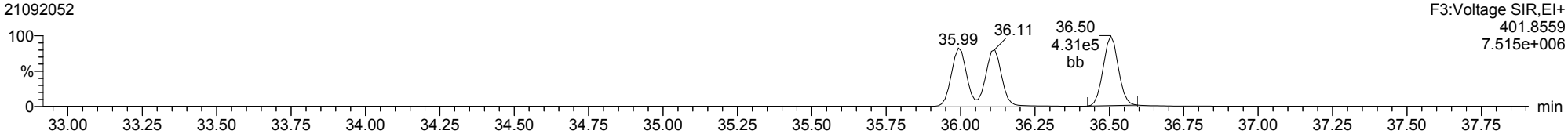

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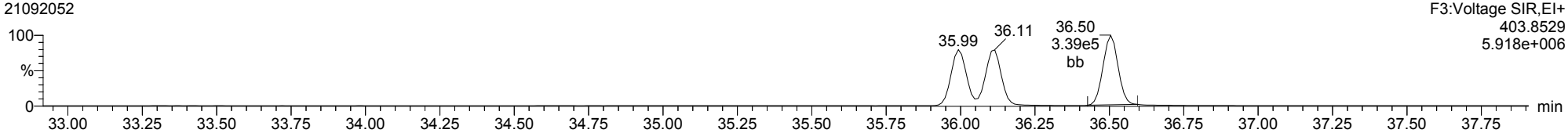

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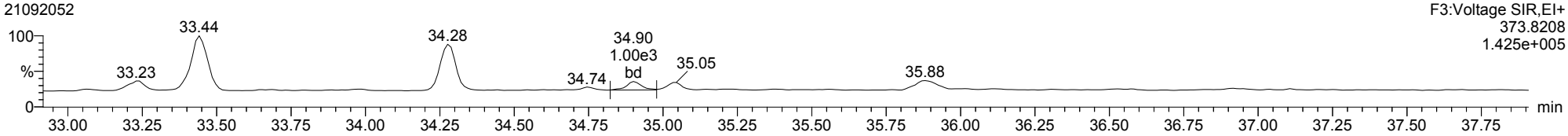

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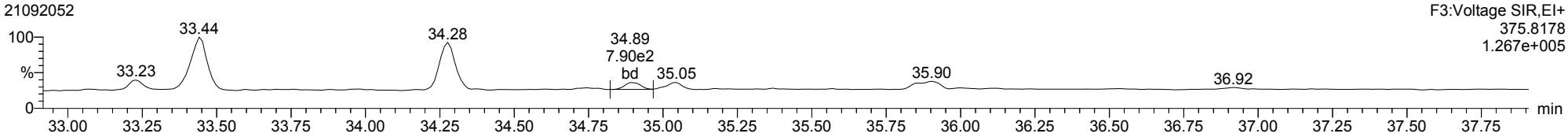

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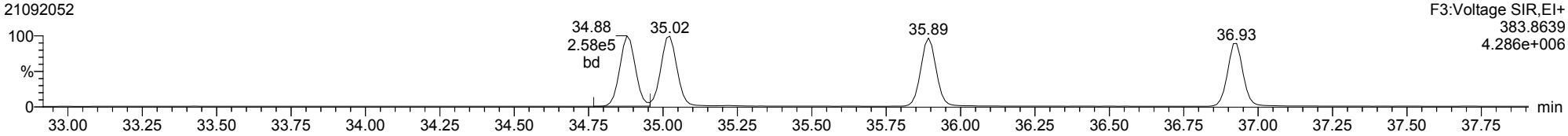

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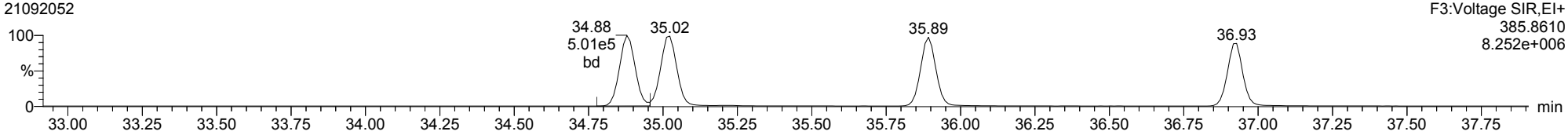

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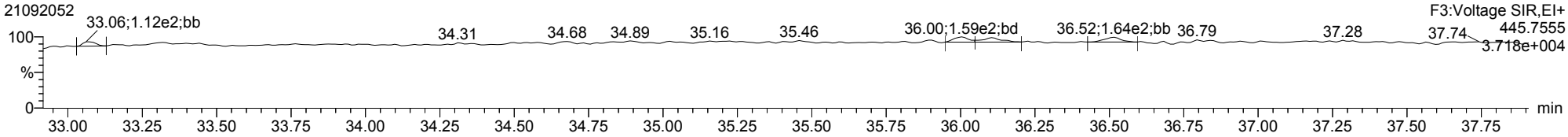

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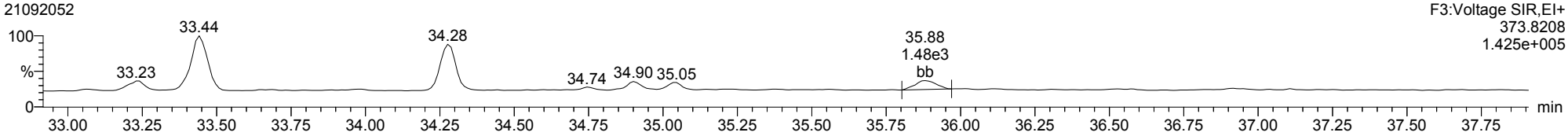

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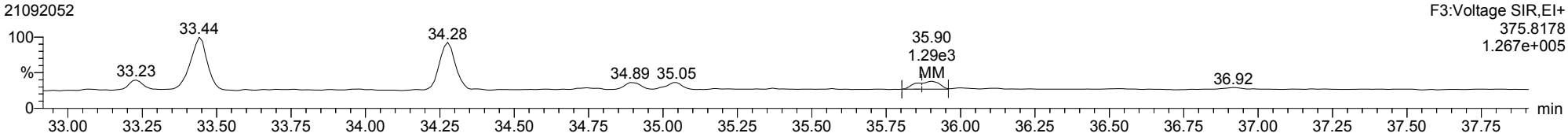

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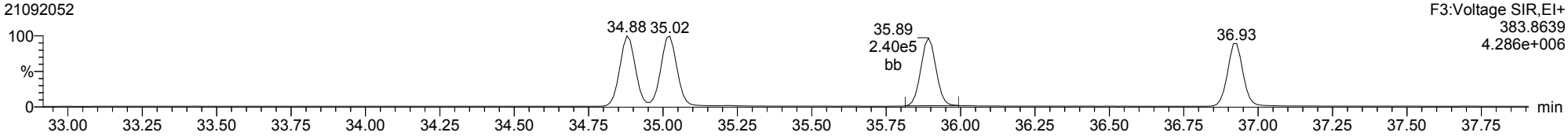

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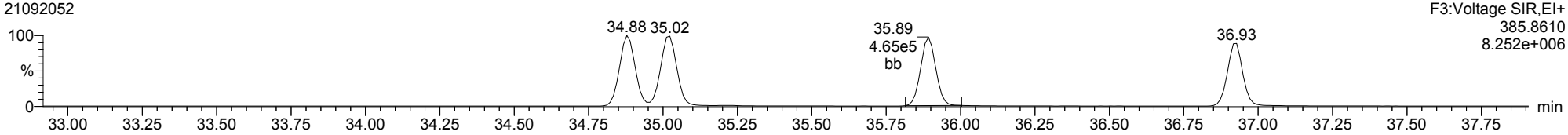

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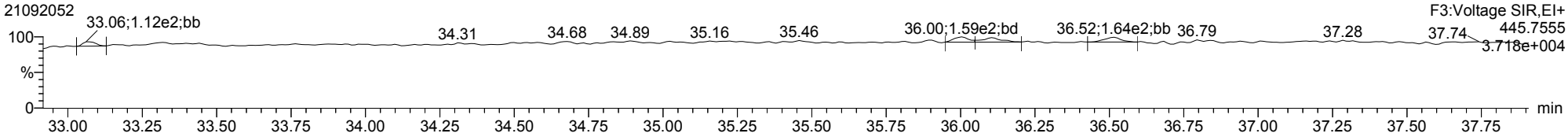

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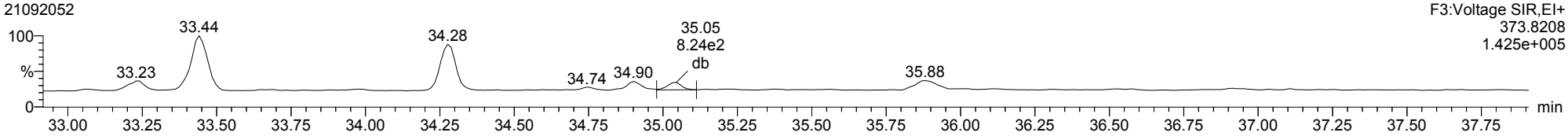

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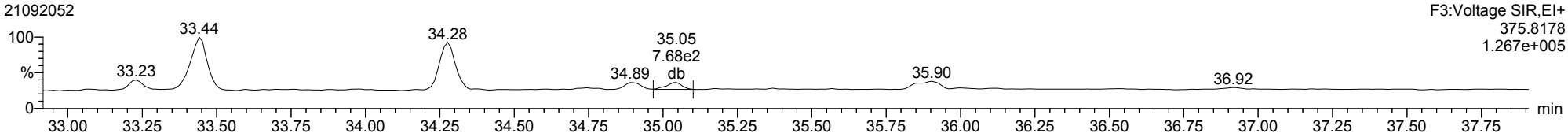

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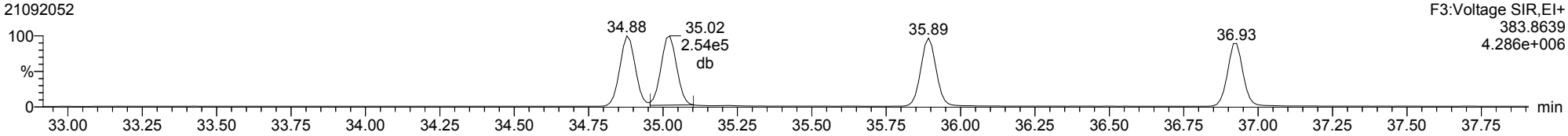

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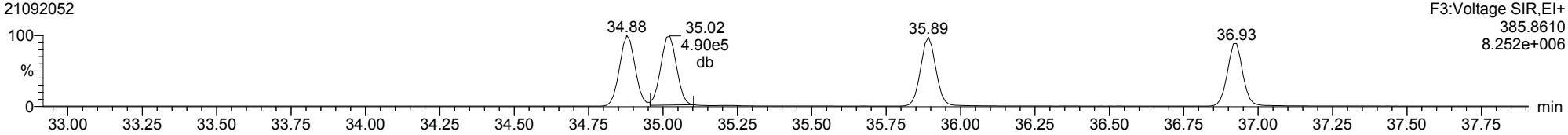

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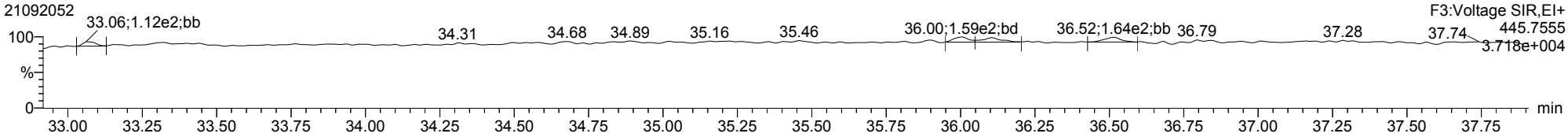

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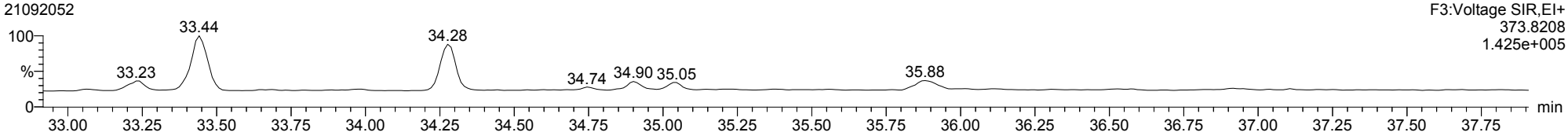

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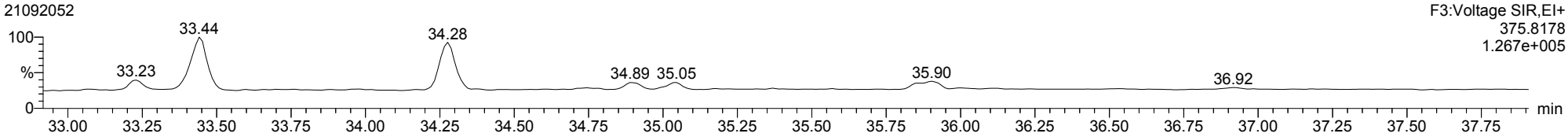

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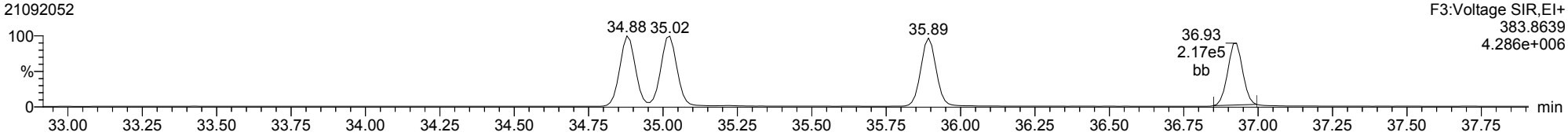

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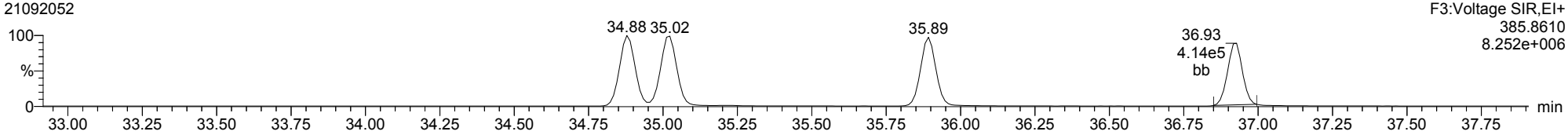

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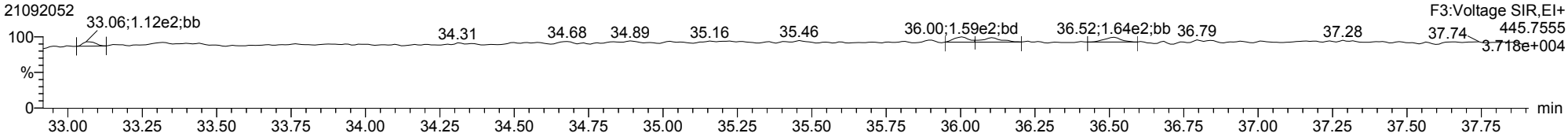

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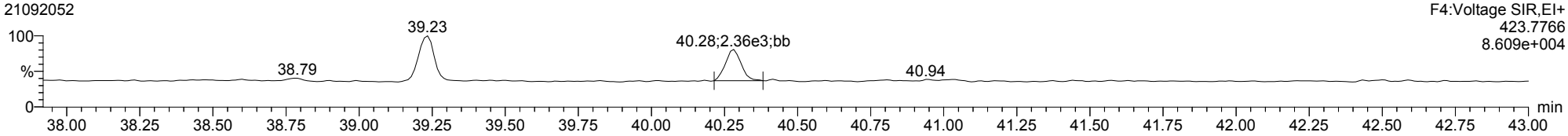

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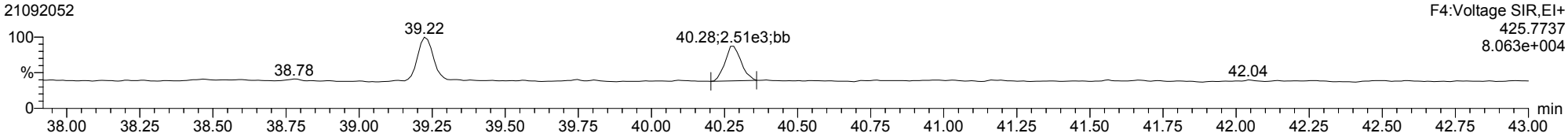

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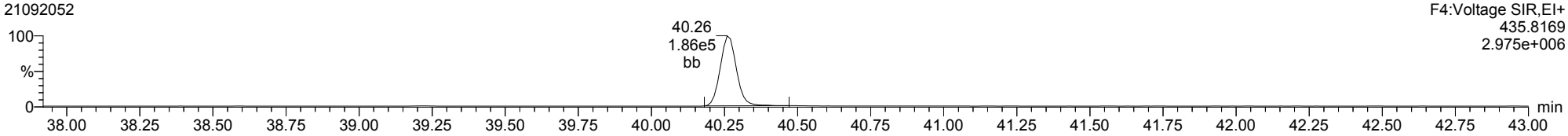

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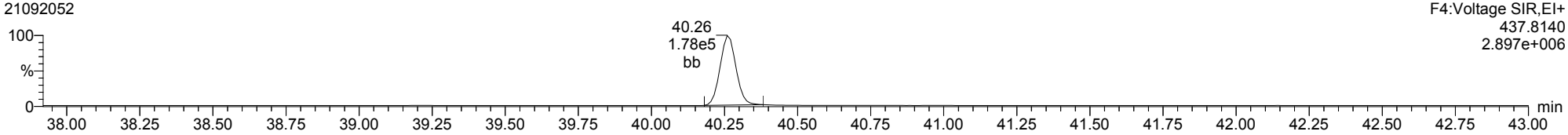

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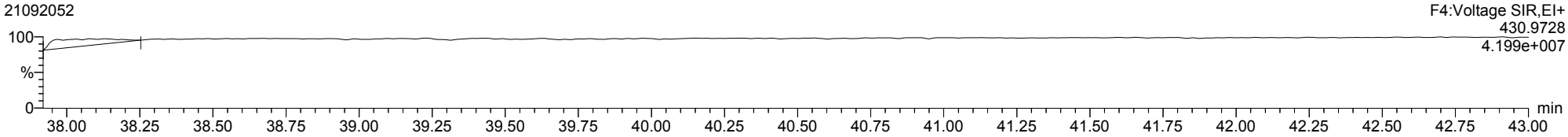

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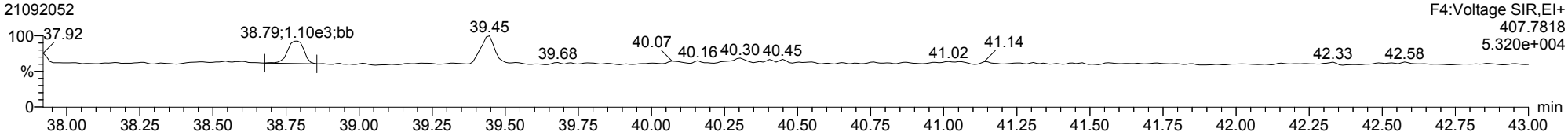

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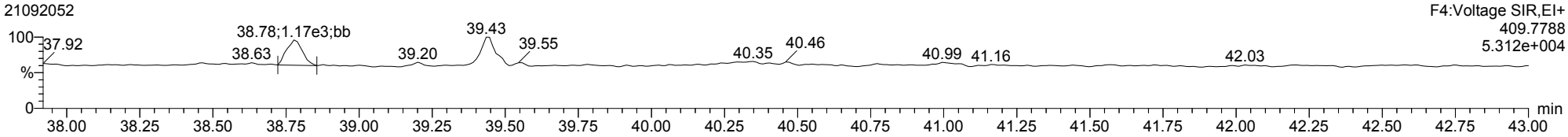

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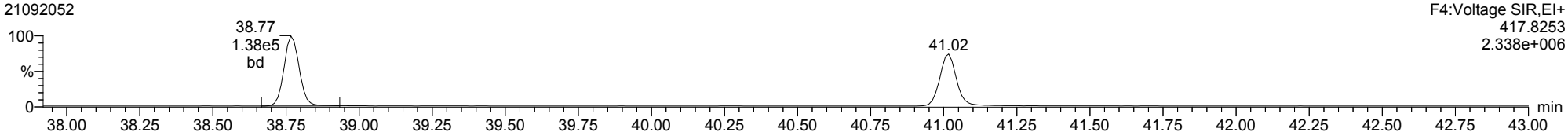

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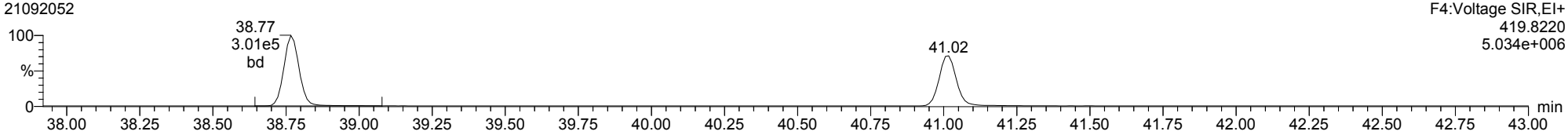

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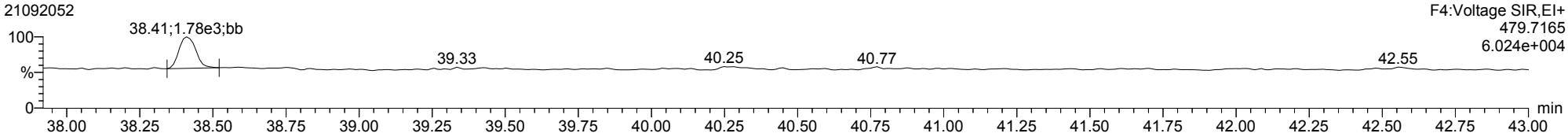

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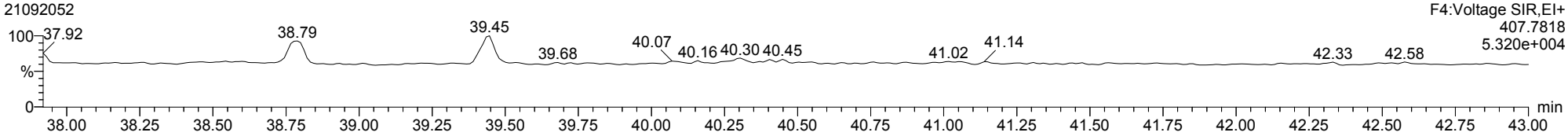
1234789-HpCDF



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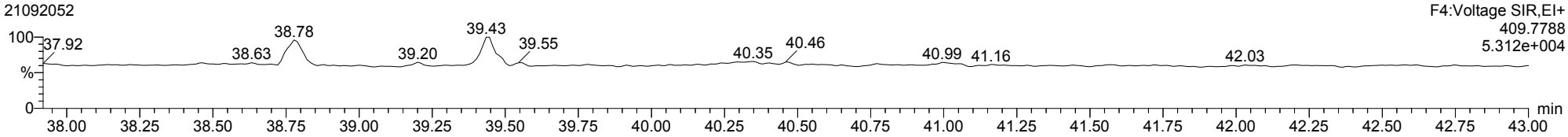

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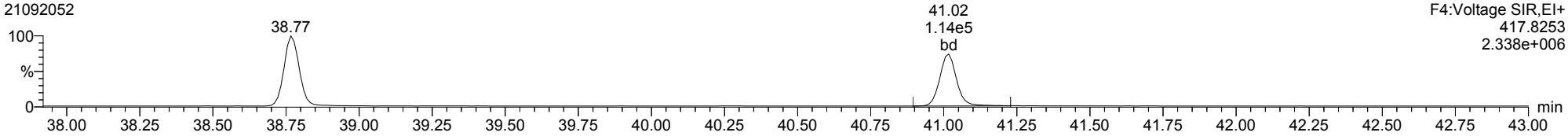

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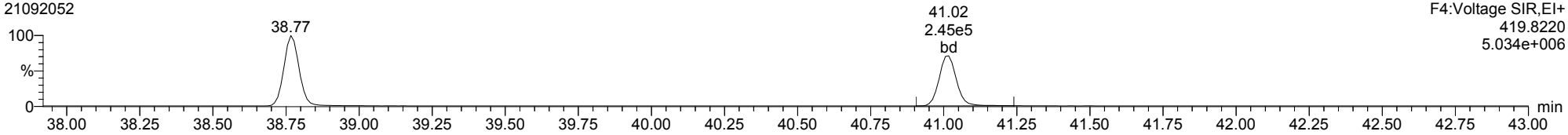

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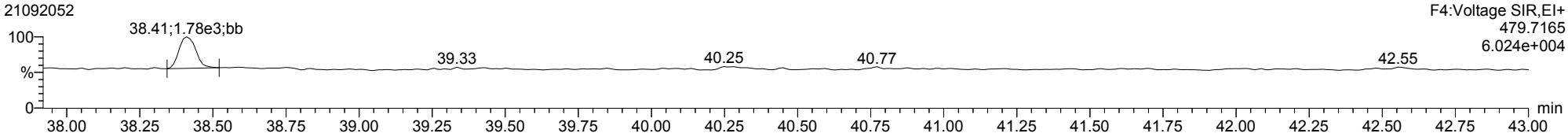

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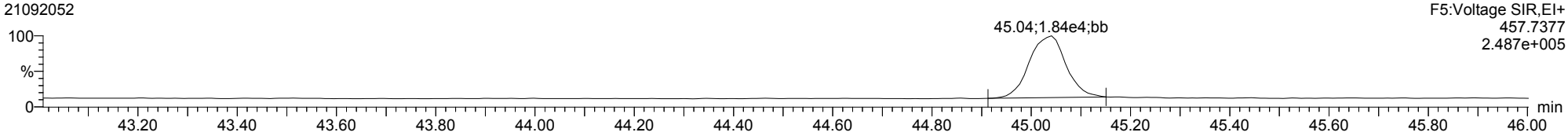
OCDD



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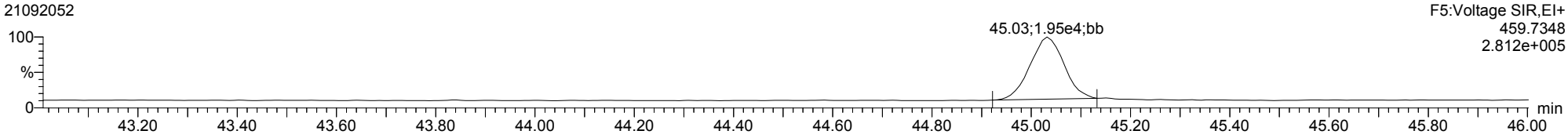

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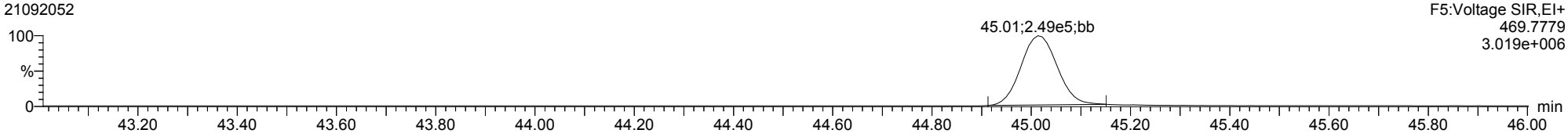

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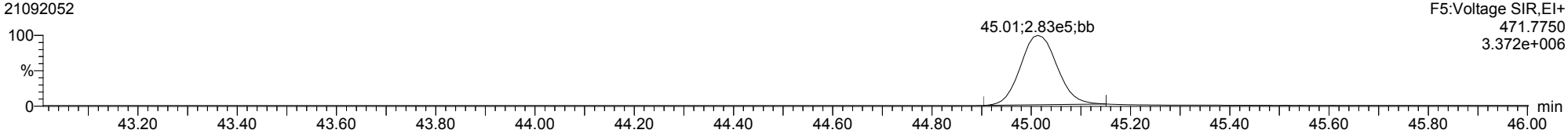
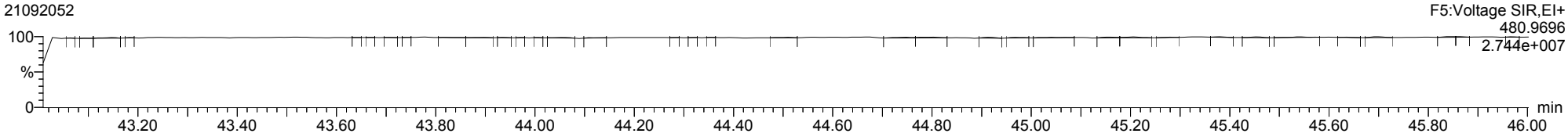


FUNCTION5 PFK



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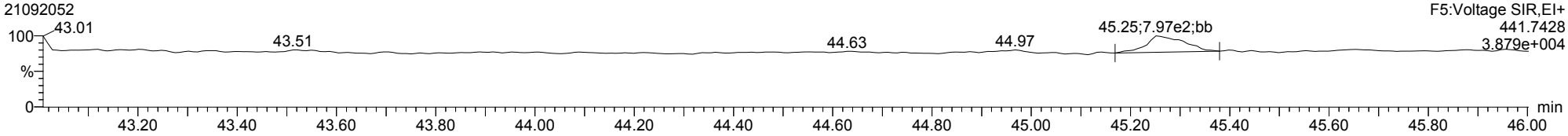
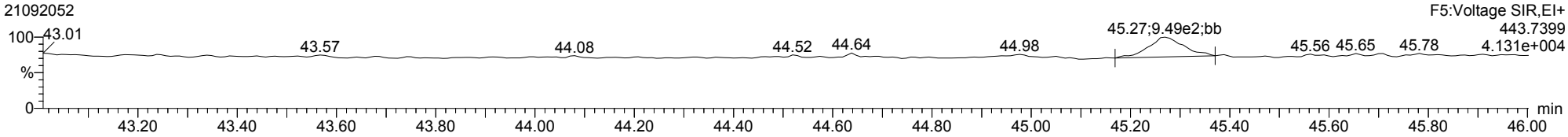
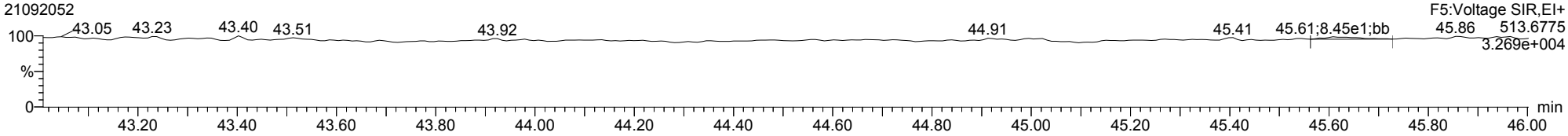
OCDF



OCDF



FUNCTION5 DCDPE



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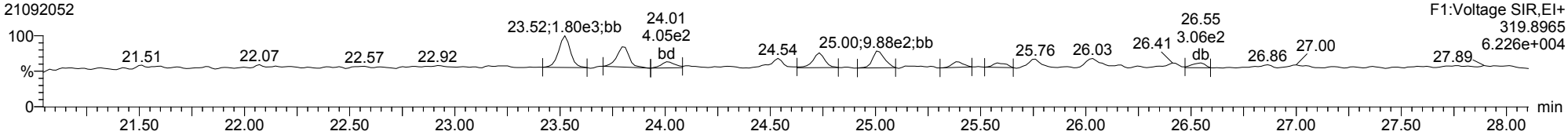
Printed: Wednesday, September 22, 2021 14:10:23 Pacific Daylight Time

ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



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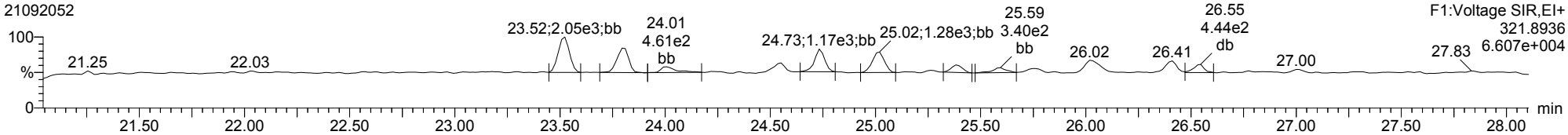
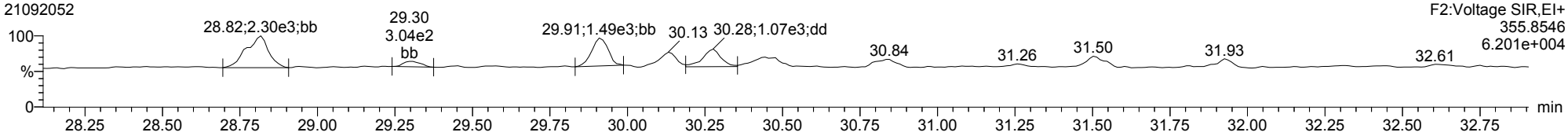
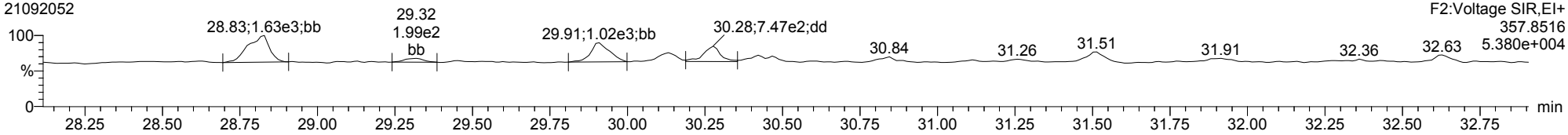


Total-pentadioxins

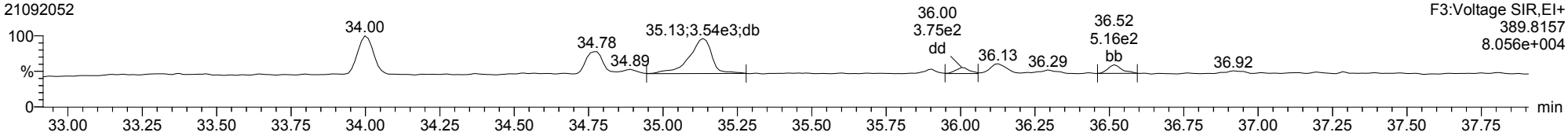


Total-pentadioxins

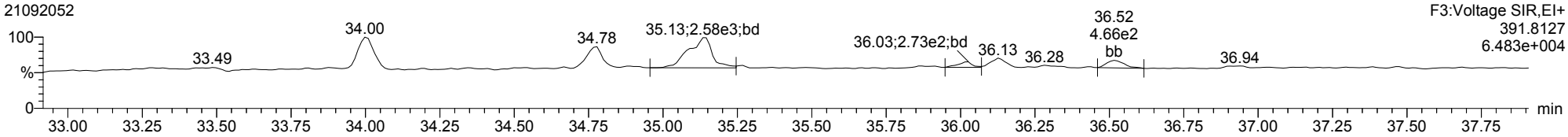


ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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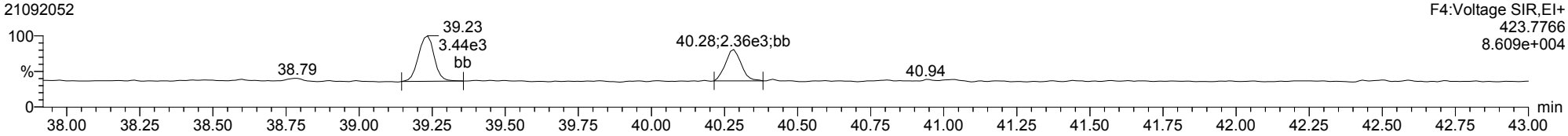
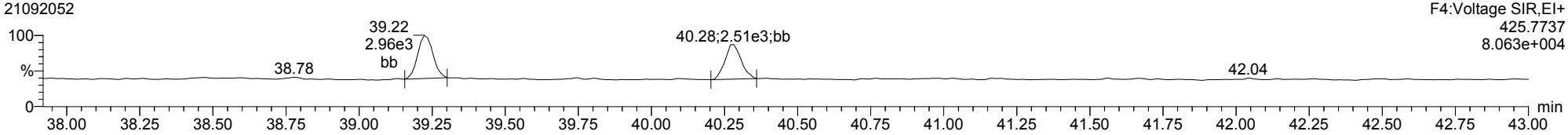


Total-heptadioxins



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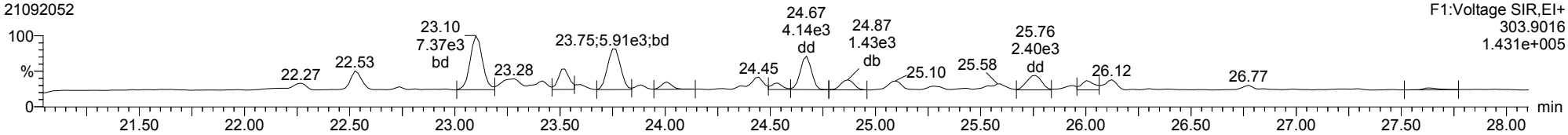
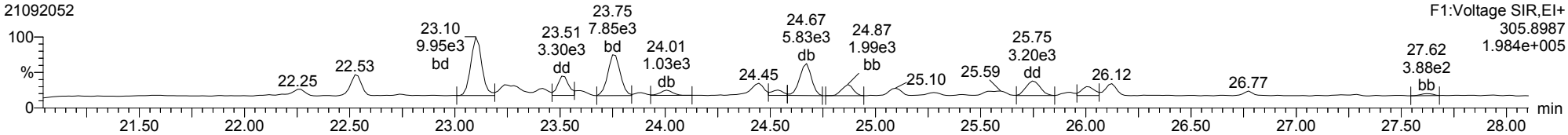
ID: 21G0283-13, Name: 21092052, Date: 22-Sep-2021, Time: 10:34:46, Conditions: AUTOSPEC01, User: pk

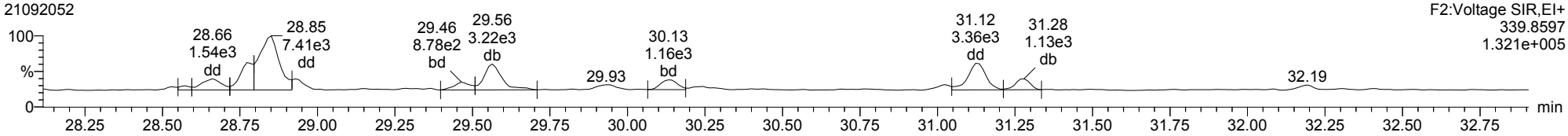
Total-tetrafurans



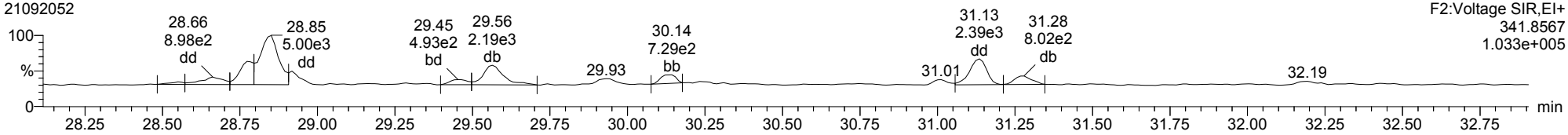
Total-tetrafurans



Total-pentafurans



Total-pentafurans



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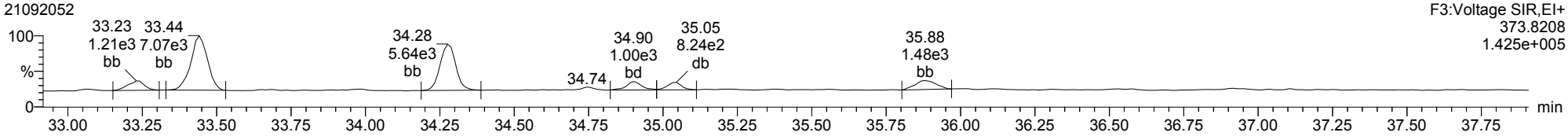
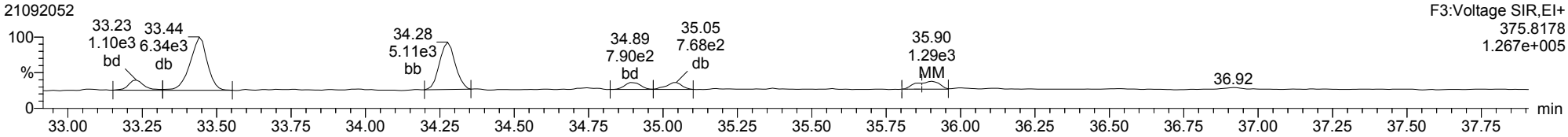
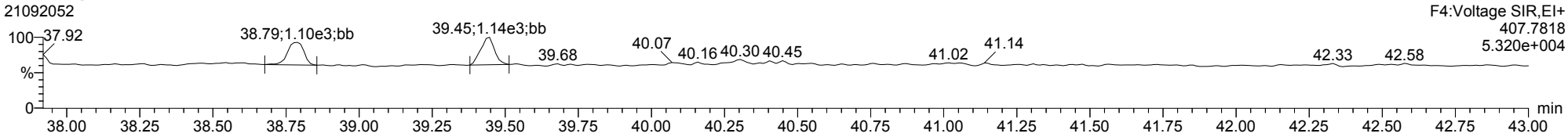
Total-hexafurans



Total-hexafurans



Total-heptafurans



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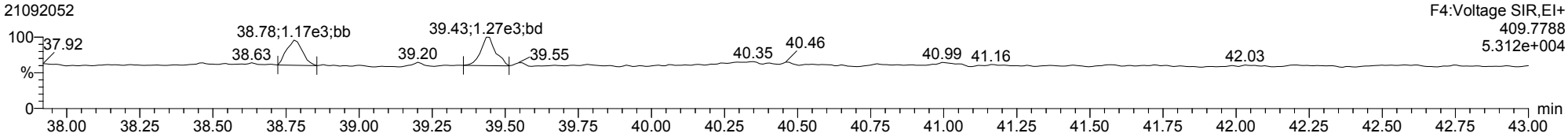

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT670B

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0283-14 C	File ID:	21092053
Sampled:	07/20/21 13:42	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 11:22
% Solids:	75.62	Preparation:	EPA 1613	Initial/Final:	13.22 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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		0.655-0.886	0.096	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1		0.655-0.886	0.112	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	0.171	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1		1.318-1.783	0.181	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1		1.318-1.783	0.129	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1		1.054-1.426	0.103	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1		1.054-1.426	0.096	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1		1.054-1.426	0.105	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.102	1.054-1.426	0.129	1.00	0.157	ng/kg	J
39227-28-6	1,2,3,4,7,8-HxCDD	1		1.054-1.426	0.128	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1		1.054-1.426	0.141	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1		1.054-1.426	0.144	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.020	0.893-1.208	0.135	1.00	0.132	ng/kg	J
55673-89-7	1,2,3,4,7,8,9-HpCDF	1		0.893-1.208	0.213	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.081	0.893-1.208	0.193	2.50	2.15	ng/kg	J, B
39001-02-0	OCDF	1		0.757-1.024	0.282	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	0.889	0.757-1.024	0.400	10.0	20.6	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	12.1	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	2.48	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	0.157	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	0.648	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	0.132	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	4.82	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.045
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.237

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT670B

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0283-14	File ID:	21092053
Sampled:	07/20/21 13:42	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 11:22
Solids Wt%:	75.62	Preparation:	EPA 1613	Initial/Final:	13.22 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.804	0.655-0.886	0.147	69.8	24 - 169 %	
13C12-2,3,7,8-TCDD		0.759	0.655-0.886	0.143	85.8	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.575	1.318-1.783	0.126	65.1	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.612	1.318-1.783	0.133	59.4	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.566	1.318-1.783	0.127	68.2	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.520	0.434-0.587	0.189	76.7	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.529	0.434-0.587	0.175	76.0	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.527	0.434-0.587	0.193	73.6	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.518	0.434-0.587	0.233	71.1	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.285	1.054-1.426	0.195	86.6	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.282	1.054-1.426	0.180	79.7	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.460	0.374-0.506	0.243	58.6	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.460	0.374-0.506	0.297	54.5	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.035	0.893-1.208	0.140	72.0	23 - 140 %	
13C12-OCDD		0.880	0.757-1.024	0.314	61.8	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.051	88.7	35 - 197 %	

* Values outside of QC limits

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Printed: Wednesday, September 22, 2021 14:10:33 Pacific Daylight Time

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

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	900	1121								
12378-PeCDF					1.015		1.550	1448	1356								
23478-PeCDF					1.126		1.550	1448	1356								
123478-HxCDF					1.017		1.240	847	646								
234678-HxCDF					1.052		1.240	847	646								
123678-HxCDF					1.037		1.240	847	646								
123789-HxCDF	36.940	1.001	1.693e2	1.536e2	1.030	1.102	1.240	847	646	3.24e3	2.94e3	3.8	4.6	NO	bb	bb	0.078
1234678-HpCDF	38.789	1.001	1.334e2	1.308e2	1.327	1.020	1.050	793	629	2.69e3	2.76e3	3.4	4.4	NO	bb	bb	0.066
1234789-HpCDF					1.283		1.050	793	629								
OCDF					1.447		0.890	651	698								
2378-TCDD					0.920		0.770	1137	742								
12378-PeCDD					0.995		1.550	652	583								
123478-HxCDD					1.027		1.240	846	908								
123678-HxCDD					1.009		1.240	846	908								
123789-HxCDD					0.950		1.240	846	908								
1234678-HpCDD	40.282	1.001	1.513e3	1.399e3	1.068	1.081	1.050	718	592	2.00e4	2.14e4	27.9	36.1	NO	bb	bb	1.075
OCDD	45.033	1.000	9.906e3	1.114e4	1.181	0.889	0.890	799	762	1.10e5	1.24e5	137.1	162.4	NO	bb	bb	10.282
13C-2378-TCDF	25.746	1.007	3.317e5	4.126e5	1.427	0.804	0.770	2780	1282	5.06e6	6.42e6	1820.2	5007.2	NO	bb	bb	69.763
13C-12378-PeCDF	29.909	1.170	3.863e5	2.453e5	1.297	1.575	1.550	1759	1426	5.92e6	3.70e6	3368.0	2594.2	NO	bb	bd	65.100
13C-23478-PeCDF	31.246	1.222	3.388e5	2.103e5	1.236	1.612	1.550	1759	1426	5.11e6	3.18e6	2906.3	2229.9	NO	bb	bb	59.381
13C-123478-HxCDF	34.879	0.955	1.818e5	3.493e5	1.242	0.520	0.510	1528	2115	2.92e6	5.54e6	1912.0	2618.1	NO	bd	bd	76.708
13C-123678-HxCDF	35.012	0.959	1.970e5	3.721e5	1.343	0.529	0.510	1528	2115	3.13e6	5.91e6	2048.9	2795.4	NO	db	db	76.016
13C-234678-HxCDF	35.892	0.983	1.719e5	3.261e5	1.215	0.527	0.510	1528	2115	2.79e6	5.23e6	1822.6	2470.5	NO	bb	bb	73.565
13C-123789-HxCDF	36.917	1.011	1.363e5	2.631e5	1.008	0.518	0.510	1528	2115	2.29e6	4.48e6	1500.9	2117.5	NO	bb	bb	71.130
13C-1234678-HpCDF	38.767	1.062	9.538e4	2.072e5	0.926	0.460	0.440	2370	1133	1.50e6	3.25e6	635.0	2870.8	NO	bb	bb	58.615
13C-1234789-HpCDF	41.018	1.124	7.258e4	1.578e5	0.758	0.460	0.440	2370	1133	9.83e5	2.08e6	414.8	1836.1	NO	bd	bd	54.547
13C-1234-TCDD	25.564	0.000	3.232e5	4.247e5	1.000	0.761	0.770	1893	1216	5.04e6	6.67e6	2661.4	5486.4	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	3.092e5	4.074e5	1.116	0.759	0.770	1893	1216	4.72e6	6.14e6	2491.2	5047.8	NO	bb	bb	85.832
13C-12378-PeCDD	31.492	1.232	2.277e5	1.454e5	0.732	1.566	1.550	996	814	3.51e6	2.27e6	3522.9	2785.1	NO	bb	bb	68.161
13C-123478-HxCDD	35.993	0.986	2.604e5	2.026e5	0.960	1.285	1.240	1508	1402	4.49e6	3.44e6	2978.9	2456.5	NO	bd	bd	86.561
13C-123678-HxCDD	36.104	0.989	2.596e5	2.026e5	1.041	1.282	1.240	1508	1402	4.16e6	3.22e6	2755.5	2296.8	NO	db	db	79.651
13C-1234678-HpCDD	40.260	1.103	1.290e5	1.247e5	0.632	1.035	1.050	740	639	1.94e6	1.84e6	2616.4	2882.5	NO	bb	bb	71.978
13C-OCDD	45.023	1.233	1.623e5	1.845e5	0.504	0.880	0.890	1415	1041	1.86e6	2.12e6	1312.6	2032.5	NO	bb	bb	123.523
13C-123789-HxCDD	36.505	0.000	3.090e5	2.482e5	1.000	1.245	1.240	1508	1402	5.17e6	4.13e6	3429.5	2948.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	2.876e5		1.084			1079		4.33e6		4013.7			bb		35.486

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Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:33 Pacific Daylight Time

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	22.389	0.870	1.200e3	1.704e3	1.425	0.704	0.770	900	1121	1.92e4	2.81e4	21.3	25.1	NO	bb	bd	0.274
1289-TCDF	27.348	1.062	5.123e3	7.220e3	1.043	0.710	0.770	900	1121	8.23e4	1.16e5	91.4	103.8	NO	bd	bd	1.590
13468-PECDF	27.046	0.904	2.159e3	1.398e3	1.376	1.545	1.550	858	1343	2.31e4	1.55e4	27.0	11.6	NO	db	bb	0.409
12389-PECDF					1.000		1.550	1448	1356								
123468-HXCDF					1.087		1.240	847	646								
1368-TCDD					0.923		0.770	1137	742								
1289-TCDD	27.031	1.025	8.607e1	1.364e2	0.794	0.631	0.770	1137	742	1.24e3	1.98e3	1.1	2.7	YES	bb	bb	0.039
12479-PECDD					1.843		1.550	652	583								
12389-PECDD					1.154		1.550	652	583								
124679-HXCDD	33.987	0.944	9.739e2	7.135e2	1.125	1.365	1.240	846	908	1.68e4	1.30e4	19.9	14.3	NO	bb	bb	0.324
1234679-HPCDD	39.235	0.975	2.038e3	2.063e3	1.211	0.988	1.050	718	592	3.30e4	3.47e4	46.0	58.7	NO	bb	bb	1.335
Total-tetrafurans			2.208e4		1.192			900		2.99e5							6.048
Total-penta1			0.000e0					858		0.00e0							
Total-pentafurans			4.664e3		1.047			1448		7.52e4							1.239
Total-hexafurans			1.693e2		1.045			847		3.24e3							0.078
Total-heptafurans			1.334e2		1.305			793		2.69e3							0.066
Total-Furans			3.578e4		1.158			900		5.06e5							9.624
Total-tetradioxins			0.000e0		0.879			1137		0.00e0							
Total-pentadioxins			0.000e0		1.331			652		0.00e0							
Total-hexadioxins			9.739e2		1.028			846		1.68e4							0.324
Total-heptadioxins			3.551e3		1.140			718		5.31e4							2.410
Total-Dioxins			1.443e4		1.092			1137		1.79e5							13.016
Total-TEQ			5.021e4					1137		6.85e5							22.640
FUNCTION1 PFK			4.563e7					612712		2.27e8							
FUNCTION2 PFK			3.091e6					473658		7.82e6							0.000
FUNCTION3 PFK			8.005e5					475235		2.05e7							0.000
FUNCTION4 PFK			1.488e6					250843		2.93e7							
FUNCTION5 PFK			6.533e4					189234		2.27e6							
FUNCTION1 HXCD...			1.235e3					513		1.92e4							0.000
FUNCTION1 HPCD...			1.114e3					799		1.76e4							0.000
FUNCTION2 HPCD...			3.471e2					841		7.86e3							0.000
FUNCTION3 OCDPE			2.910e2					573		5.21e3							0.000
FUNCTION4 NCDPE			9.569e4					961		1.68e6							0.000
FUNCTION5 DCDPE			0.000e0					483		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:10:33 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	25.05	4.417e2	6.150e2	1.192	0.72	0.77	5.5	YES	NO	MM	MM	0.119
2	Total-tetrafurans	24.60	6.694e2	8.102e2	1.192	0.83	0.77	7.3	YES	NO	db	db	0.167
3	Total-tetrafurans	24.40	5.149e3	7.522e3	1.192	0.68	0.77	64.6	YES	NO	dd	dd	1.428
4	Total-tetrafurans	24.01	3.018e3	4.224e3	1.192	0.71	0.77	44.5	YES	NO	dd	dd	0.816
5	1368-TCDF	22.39	1.200e3	1.704e3	1.425	0.70	0.77	21.3	YES	NO	bb	bd	0.274
6	1289-TCDF	27.35	5.123e3	7.220e3	1.043	0.71	0.77	91.4	YES	NO	bd	bd	1.590
7	Total-tetrafurans	27.02	7.992e2	9.518e2	1.192	0.84	0.77	12.4	YES	NO	bb	db	0.197
8	Total-tetrafurans	25.84	1.451e3	1.802e3	1.192	0.81	0.77	22.8	YES	NO	bd	dd	0.367
9	Total-tetrafurans	25.58	5.784e2	7.574e2	1.192	0.76	0.77	9.8	YES	NO	db	MM	0.151
10	Total-tetrafurans	25.43	1.588e3	2.178e3	1.192	0.73	0.77	23.3	YES	NO	dd	dd	0.424
11	Total-tetrafurans	25.28	5.351e2	7.702e2	1.192	0.69	0.77	6.8	YES	NO	bd	dd	0.147
12	Total-tetrafurans	25.93	1.530e3	1.735e3	1.192	0.88	0.77	22.4	YES	NO	MM	MM	0.368

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	30.14	1.887e3	1.233e3	1.047	1.53	1.55	16.3	YES	NO	bd	bd	0.505
2	Total-pentafurans	28.45	2.777e3	1.761e3	1.047	1.58	1.55	35.7	YES	NO	db	db	0.734

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	1.693e2	1.536e2	1.030	1.10	1.24	3.8	YES	NO	bb	bb	0.078

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.79	1.334e2	1.308e2	1.327	1.02	1.05	3.4	YES	NO	bb	bb	0.066

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	25.05	4.417e2	6.150e2	1.192	0.72	0.77	5.5	YES	NO	MM	MM	0.119
2	Total-tetrafurans	24.60	6.694e2	8.102e2	1.192	0.83	0.77	7.3	YES	NO	db	db	0.167
3	Total-tetrafurans	24.40	5.149e3	7.522e3	1.192	0.68	0.77	64.6	YES	NO	dd	dd	1.428
4	Total-tetrafurans	24.01	3.018e3	4.224e3	1.192	0.71	0.77	44.5	YES	NO	dd	dd	0.816
5	1368-TCDF	22.39	1.200e3	1.704e3	1.425	0.70	0.77	21.3	YES	NO	bb	bd	0.274
6	Total-Furans	21.98	2.425e2	3.043e2	1.158	0.80	0.77	5.1	YES	NO	bb	db	0.063
7	Total-Furans	21.63	7.796e2	1.113e3	1.158	0.70	0.77	14.0	YES	NO	bb	bd	0.220
8	Total-Furans	21.13	2.838e3	3.681e3	1.158	0.77	0.77	47.4	YES	NO	bb	bd	0.756
9	Total-Furans	28.04	4.880e2	6.677e2	1.158	0.73	0.77	9.3	YES	NO	db	bb	0.134
10	Total-Furans	27.83	2.221e3	3.031e3	1.158	0.73	0.77	37.8	YES	NO	bd	db	0.609
11	1289-TCDF	27.35	5.123e3	7.220e3	1.043	0.71	0.77	91.4	YES	NO	bd	bd	1.590
12	Total-tetrafurans	27.02	7.992e2	9.518e2	1.192	0.84	0.77	12.4	YES	NO	bb	db	0.197
13	Total-tetrafurans	25.84	1.451e3	1.802e3	1.192	0.81	0.77	22.8	YES	NO	bd	dd	0.367
14	Total-tetrafurans	25.58	5.784e2	7.574e2	1.192	0.76	0.77	9.8	YES	NO	db	MM	0.151
15	Total-tetrafurans	25.43	1.588e3	2.178e3	1.192	0.73	0.77	23.3	YES	NO	dd	dd	0.424
16	Total-tetrafurans	25.28	5.351e2	7.702e2	1.192	0.69	0.77	6.8	YES	NO	bd	dd	0.147
17	Total-pentafurans	30.14	1.887e3	1.233e3	1.047	1.53	1.55	16.3	YES	NO	bd	bd	0.505
18	Total-pentafurans	28.45	2.777e3	1.761e3	1.047	1.58	1.55	35.7	YES	NO	db	db	0.734
19	1234678-HpCDF	38.79	1.334e2	1.308e2	1.327	1.02	1.05	3.4	YES	NO	bb	bb	0.066
20	123789-HxCDF	36.94	1.693e2	1.536e2	1.030	1.10	1.24	3.8	YES	NO	bb	bb	0.078
21	13468-PECDF	27.05	2.159e3	1.398e3	1.376	1.54	1.55	27.0	YES	NO	db	bb	0.409
22	Total-tetrafurans	25.93	1.530e3	1.735e3	1.192	0.88	0.77	22.4	YES	NO	MM	MM	0.368

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													

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.99	9.739e2	7.135e2	1.125	1.36	1.24	19.9	YES	NO	bb	bb	0.324

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
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ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	40.28	1.513e3	1.399e3	1.068	1.08	1.05	27.9	YES	NO	bb	bb	1.075
2	1234679-HPCDD	39.24	2.038e3	2.063e3	1.211	0.99	1.05	46.0	YES	NO	bb	bb	1.335

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	124679-HXCDD	33.99	9.739e2	7.135e2	1.125	1.36	1.24	19.9	YES	NO	bb	bb	0.324
2	1234678-HpCDD	40.28	1.513e3	1.399e3	1.068	1.08	1.05	27.9	YES	NO	bb	bb	1.075
3	1234679-HPCDD	39.24	2.038e3	2.063e3	1.211	0.99	1.05	46.0	YES	NO	bb	bb	1.335
4	OCDD	45.03	9.906e3	1.114e4	1.181	0.89	0.89	137.1	YES	NO	bb	bb	10.282

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	25.05	4.417e2	6.150e2	1.192	0.72	0.77	5.5	YES	NO	MM	MM	0.119
2	Total-tetrafurans	24.60	6.694e2	8.102e2	1.192	0.83	0.77	7.3	YES	NO	db	db	0.167
3	Total-tetrafurans	24.40	5.149e3	7.522e3	1.192	0.68	0.77	64.6	YES	NO	dd	dd	1.428
4	Total-tetrafurans	24.01	3.018e3	4.224e3	1.192	0.71	0.77	44.5	YES	NO	dd	dd	0.816
5	1368-TCDF	22.39	1.200e3	1.704e3	1.425	0.70	0.77	21.3	YES	NO	bb	bd	0.274
6	Total-Furans	21.98	2.425e2	3.043e2	1.158	0.80	0.77	5.1	YES	NO	bb	db	0.063
7	Total-Furans	21.63	7.796e2	1.113e3	1.158	0.70	0.77	14.0	YES	NO	bb	bd	0.220
8	Total-Furans	21.13	2.838e3	3.681e3	1.158	0.77	0.77	47.4	YES	NO	bb	bd	0.756
9	Total-Furans	28.04	4.880e2	6.677e2	1.158	0.73	0.77	9.3	YES	NO	db	bb	0.134
10	Total-Furans	27.83	2.221e3	3.031e3	1.158	0.73	0.77	37.8	YES	NO	bd	db	0.609
11	1289-TCDF	27.35	5.123e3	7.220e3	1.043	0.71	0.77	91.4	YES	NO	bd	bd	1.590
12	Total-tetrafurans	27.02	7.992e2	9.518e2	1.192	0.84	0.77	12.4	YES	NO	bb	db	0.197
13	Total-tetrafurans	25.84	1.451e3	1.802e3	1.192	0.81	0.77	22.8	YES	NO	bd	dd	0.367
14	Total-tetrafurans	25.58	5.784e2	7.574e2	1.192	0.76	0.77	9.8	YES	NO	db	MM	0.151
15	Total-tetrafurans	25.43	1.588e3	2.178e3	1.192	0.73	0.77	23.3	YES	NO	dd	dd	0.424
16	Total-tetrafurans	25.28	5.351e2	7.702e2	1.192	0.69	0.77	6.8	YES	NO	bd	dd	0.147
17	Total-pentafurans	30.14	1.887e3	1.233e3	1.047	1.53	1.55	16.3	YES	NO	bd	bd	0.505
18	Total-pentafurans	28.45	2.777e3	1.761e3	1.047	1.58	1.55	35.7	YES	NO	db	db	0.734
19	1234678-HpCDF	38.79	1.334e2	1.308e2	1.327	1.02	1.05	3.4	YES	NO	bb	bb	0.066
20	123789-HxCDF	36.94	1.693e2	1.536e2	1.030	1.10	1.24	3.8	YES	NO	bb	bb	0.078
21	13468-PECDF	27.05	2.159e3	1.398e3	1.376	1.54	1.55	27.0	YES	NO	db	bb	0.409
22	Total-tetrafurans	25.93	1.530e3	1.735e3	1.192	0.88	0.77	22.4	YES	NO	MM	MM	0.368
23	124679-HXCDD	33.99	9.739e2	7.135e2	1.125	1.36	1.24	19.9	YES	NO	bb	bb	0.324
24	1234678-HpCDD	40.28	1.513e3	1.399e3	1.068	1.08	1.05	27.9	YES	NO	bb	bb	1.075
25	1234679-HPCDD	39.24	2.038e3	2.063e3	1.211	0.99	1.05	46.0	YES	NO	bb	bb	1.335
26	OCDD	45.03	9.906e3	1.114e4	1.181	0.89	0.89	137.1	YES	NO	bb	bb	10.282

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	24.05	3.109e3					0.3	NO		bb		
2	FUNCTION1 PFK	23.87	1.720e4					1.0	NO		bb		
3	FUNCTION1 PFK	23.81	2.219e4					1.3	NO		bb		
4	FUNCTION1 PFK	23.73	5.992e4					2.3	NO		bb		
5	FUNCTION1 PFK	23.46	5.777e4					1.2	NO		bb		
6	FUNCTION1 PFK	23.39	3.588e4					1.8	NO		db		
7	FUNCTION1 PFK	23.36	3.193e4					1.7	NO		bd		
8	FUNCTION1 PFK	22.95	3.811e6					5.8	YES		db		
9	FUNCTION1 PFK	22.24	4.818e6					30.6	YES		dd		
10	FUNCTION1 PFK	22.04	1.142e7					37.8	YES		dd		
11	FUNCTION1 PFK	21.60	1.566e7					53.4	YES		dd		
12	FUNCTION1 PFK	21.24	2.369e6					64.8	YES		dd		
13	FUNCTION1 PFK	21.16	3.101e6					67.9	YES		dd		
14	FUNCTION1 PFK	21.10	3.182e6					69.5	YES		bd		
15	FUNCTION1 PFK	26.41	8.701e4					1.4	NO		bb		
16	FUNCTION1 PFK	26.09	4.501e4					1.0	NO		bb		
17	FUNCTION1 PFK	25.96	4.960e4					1.4	NO		bb		
18	FUNCTION1 PFK	25.85	6.207e4					2.0	NO		db		
19	FUNCTION1 PFK	25.78	7.620e4					2.3	NO		dd		
20	FUNCTION1 PFK	25.72	6.375e4					2.1	NO		dd		
21	FUNCTION1 PFK	25.66	5.222e4					1.9	NO		dd		
22	FUNCTION1 PFK	25.59	9.668e4					1.7	NO		bd		
23	FUNCTION1 PFK	25.41	3.349e4					0.7	NO		bb		
24	FUNCTION1 PFK	25.22	4.191e4					1.1	NO		bb		
25	FUNCTION1 PFK	24.90	4.025e4					1.5	NO		bb		
26	FUNCTION1 PFK	24.76	4.238e4					1.1	NO		bb		
27	FUNCTION1 PFK	24.57	3.023e3					0.3	NO		bb		
28	FUNCTION1 PFK	24.51	5.133e3					0.6	NO		bb		
29	FUNCTION1 PFK	24.38	2.365e4					1.0	NO		bb		
30	FUNCTION1 PFK	24.11	2.251e4					1.2	NO		bb		
31	FUNCTION1 PFK	28.06	3.196e4					1.2	NO		bb		
32	FUNCTION1 PFK	27.74	2.883e4					1.4	NO		bb		
33	FUNCTION1 PFK	27.51	8.368e4					1.6	NO		db		
34	FUNCTION1 PFK	27.36	8.083e4					2.2	NO		dd		
35	FUNCTION1 PFK	27.30	5.456e4					2.2	NO		bd		
36	FUNCTION1 PFK	26.76	3.224e3					0.3	NO		bb		
37	FUNCTION1 PFK	26.65	1.813e4					0.9	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
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ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	28.34	3.091e6					16.5	YES		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.55	2.305e4					2.0	NO		bb		0.000
2	FUNCTION3 PFK	33.51	1.156e4					1.0	NO		bb		0.000
3	FUNCTION3 PFK	33.32	2.629e3					0.5	NO		bb		0.000
4	FUNCTION3 PFK	33.27	1.540e4					0.9	NO		db		0.000
5	FUNCTION3 PFK	33.19	1.762e4					1.3	NO		bd		0.000
6	FUNCTION3 PFK	32.98	3.498e3					0.7	NO		bb		0.000
7	FUNCTION3 PFK	35.73	4.712e3					0.5	NO		bb		0.000
8	FUNCTION3 PFK	35.54	5.280e4					1.7	NO		bb		0.000
9	FUNCTION3 PFK	35.41	5.162e3					0.6	NO		bb		0.000
10	FUNCTION3 PFK	35.36	1.037e4					0.9	NO		db		0.000
11	FUNCTION3 PFK	35.32	6.058e3					0.6	NO		bd		0.000
12	FUNCTION3 PFK	35.03	3.600e3					0.5	NO		bb		0.000
13	FUNCTION3 PFK	34.99	2.475e3					0.5	NO		bb		0.000
14	FUNCTION3 PFK	34.90	8.302e3					0.6	NO		bb		0.000
15	FUNCTION3 PFK	34.85	1.759e4					1.5	NO		bb		0.000
16	FUNCTION3 PFK	34.60	1.592e4					0.8	NO		bb		0.000
17	FUNCTION3 PFK	34.53	1.861e4					1.1	NO		db		0.000
18	FUNCTION3 PFK	34.41	9.163e4					2.1	NO		bd		0.000
19	FUNCTION3 PFK	34.18	2.076e3					0.4	NO		bb		0.000
20	FUNCTION3 PFK	34.00	1.029e4					0.8	NO		bb		0.000
21	FUNCTION3 PFK	33.88	5.603e3					0.5	NO		bb		0.000
22	FUNCTION3 PFK	33.64	5.056e4					1.7	NO		bb		0.000
23	FUNCTION3 PFK	37.24	1.352e4					0.8	NO		bb		0.000
24	FUNCTION3 PFK	37.13	6.616e4					2.3	NO		bb		0.000
25	FUNCTION3 PFK	37.02	2.748e4					0.9	NO		bb		0.000
26	FUNCTION3 PFK	36.73	1.294e4					0.8	NO		db		0.000
27	FUNCTION3 PFK	36.64	3.994e4					1.6	NO		dd		0.000
28	FUNCTION3 PFK	36.58	1.120e4					1.2	NO		bd		0.000
29	FUNCTION3 PFK	36.53	1.944e4					1.5	NO		db		0.000
30	FUNCTION3 PFK	36.48	2.576e4					1.5	NO		bd		0.000
31	FUNCTION3 PFK	36.29	5.128e4					1.7	NO		db		0.000
32	FUNCTION3 PFK	36.24	3.548e4					1.8	NO		bd		0.000
33	FUNCTION3 PFK	36.19	4.642e3					0.9	NO		bb		0.000
34	FUNCTION3 PFK	36.15	5.040e3					0.5	NO		bb		0.000
35	FUNCTION3 PFK	36.03	1.140e4					0.8	NO		db		0.000
36	FUNCTION3 PFK	35.94	2.640e4					1.2	NO		bd		0.000
37	FUNCTION3 PFK	35.89	5.321e3					0.5	NO		bb		0.000

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	35.78	8.235e3					0.7	NO		bb		0.000
39	FUNCTION3 PFK	37.82	4.051e3					0.6	NO		bb		0.000
40	FUNCTION3 PFK	37.72	4.243e4					1.8	NO		bb		0.000
41	FUNCTION3 PFK	37.63	2.170e3					0.4	NO		bb		0.000
42	FUNCTION3 PFK	37.57	8.086e3					0.8	NO		bb		0.000

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	38.71	3.861e4					2.9	NO		db		
2	FUNCTION4 PFK	38.68	2.980e4					3.3	YES		dd		
3	FUNCTION4 PFK	38.62	3.184e4					2.6	NO		dd		
4	FUNCTION4 PFK	38.54	6.142e4					4.2	YES		dd		
5	FUNCTION4 PFK	38.49	4.068e4					3.9	YES		dd		
6	FUNCTION4 PFK	38.46	2.857e4					3.3	YES		dd		
7	FUNCTION4 PFK	38.30	1.131e5					4.7	YES		dd		
8	FUNCTION4 PFK	38.24	1.190e5					5.8	YES		dd		
9	FUNCTION4 PFK	38.13	1.328e5					5.6	YES		dd		
10	FUNCTION4 PFK	38.06	9.947e4					6.1	YES		dd		
11	FUNCTION4 PFK	37.99	8.287e4					5.9	YES		bd		
12	FUNCTION4 PFK	40.28	7.092e3					1.1	NO		bd		
13	FUNCTION4 PFK	40.24	1.998e3					0.6	NO		db		
14	FUNCTION4 PFK	40.20	2.782e3					0.5	NO		bd		
15	FUNCTION4 PFK	40.10	2.704e3					0.5	NO		db		
16	FUNCTION4 PFK	40.05	1.072e4					1.2	NO		bd		
17	FUNCTION4 PFK	39.98	8.003e3					1.1	NO		bb		
18	FUNCTION4 PFK	39.87	3.138e3					0.5	NO		bb		
19	FUNCTION4 PFK	39.83	1.135e3					0.4	NO		bb		
20	FUNCTION4 PFK	39.75	3.559e3					0.7	NO		db		
21	FUNCTION4 PFK	39.70	7.132e3					1.1	NO		bd		
22	FUNCTION4 PFK	39.49	8.372e3					1.0	NO		bb		
23	FUNCTION4 PFK	39.37	3.109e4					1.7	NO		bb		
24	FUNCTION4 PFK	39.20	4.637e3					0.8	NO		bb		
25	FUNCTION4 PFK	38.99	1.471e4					1.7	NO		db		
26	FUNCTION4 PFK	38.93	7.151e3					1.1	NO		bd		
27	FUNCTION4 PFK	38.89	1.665e3					0.4	NO		bb		
28	FUNCTION4 PFK	41.33	1.458e4					1.3	NO		bb		
29	FUNCTION4 PFK	41.20	1.282e3					0.5	NO		bb		
30	FUNCTION4 PFK	41.14	2.297e4					1.9	NO		db		
31	FUNCTION4 PFK	41.08	2.041e4					2.2	NO		dd		
32	FUNCTION4 PFK	41.04	2.201e4					2.2	NO		dd		
33	FUNCTION4 PFK	40.94	5.102e4					2.6	NO		dd		
34	FUNCTION4 PFK	40.91	1.472e4					2.8	NO		dd		
35	FUNCTION4 PFK	40.87	4.884e4					3.2	YES		bd		
36	FUNCTION4 PFK	40.77	2.998e4					2.7	NO		db		
37	FUNCTION4 PFK	40.73	2.938e4					2.9	NO		dd		

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	40.68	4.919e4					2.8	NO		dd		
39	FUNCTION4 PFK	40.58	2.581e4					2.4	NO		dd		
40	FUNCTION4 PFK	40.54	1.860e4					1.9	NO		dd		
41	FUNCTION4 PFK	40.46	4.200e4					2.2	NO		dd		
42	FUNCTION4 PFK	40.38	9.491e3					1.4	NO		dd		
43	FUNCTION4 PFK	40.34	7.640e3					1.0	NO		dd		
44	FUNCTION4 PFK	42.88	1.919e4					1.5	NO		db		
45	FUNCTION4 PFK	42.86	4.427e3					0.6	NO		bd		
46	FUNCTION4 PFK	42.78	2.429e3					0.4	NO		bb		
47	FUNCTION4 PFK	42.63	9.487e3					1.3	NO		db		
48	FUNCTION4 PFK	42.60	4.897e3					0.9	NO		bd		
49	FUNCTION4 PFK	42.43	9.112e3					1.2	NO		bb		
50	FUNCTION4 PFK	42.33	2.624e4					1.4	NO		bb		
51	FUNCTION4 PFK	42.20	2.166e3					0.5	NO		bb		
52	FUNCTION4 PFK	42.14	2.334e3					0.4	NO		bb		
53	FUNCTION4 PFK	42.01	4.451e3					0.9	NO		bb		
54	FUNCTION4 PFK	41.90	1.874e4					1.5	NO		bb		
55	FUNCTION4 PFK	41.59	6.622e3					1.2	NO		bb		
56	FUNCTION4 PFK	41.54	1.141e4					2.1	NO		db		
57	FUNCTION4 PFK	41.51	1.527e4					2.0	NO		dd		
58	FUNCTION4 PFK	41.47	2.016e4					2.1	NO		dd		
59	FUNCTION4 PFK	41.41	2.948e4					2.0	NO		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.97	7.931e2					0.5	NO		bb		
2	FUNCTION5 PFK	45.23	2.300e4					2.5	NO		bb		
3	FUNCTION5 PFK	45.15	1.216e4					2.5	NO		bb		
4	FUNCTION5 PFK	45.01	2.554e3					0.6	NO		bb		
5	FUNCTION5 PFK	44.90	5.384e3					1.3	NO		bb		
6	FUNCTION5 PFK	44.58	7.876e2					0.5	NO		bb		
7	FUNCTION5 PFK	44.21	2.035e3					0.8	NO		bb		
8	FUNCTION5 PFK	43.79	7.742e3					1.4	NO		bb		
9	FUNCTION5 PFK	43.56	3.775e3					0.9	NO		bb		
10	FUNCTION5 PFK	43.07	7.099e3					1.1	NO		bb		

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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...	24.76	9.738e1					2.0	NO		bb		0.000
2	FUNCTION1 HXCD...	24.13	1.214e2					2.7	NO		bb		0.000
3	FUNCTION1 HXCD...	23.72	9.587e1					2.9	NO		bb		0.000
4	FUNCTION1 HXCD...	22.59	1.154e2					3.2	YES		bb		0.000
5	FUNCTION1 HXCD...	27.48	1.466e2					4.8	YES		bb		0.000
6	FUNCTION1 HXCD...	26.97	1.077e2					3.7	YES		bb		0.000
7	FUNCTION1 HXCD...	26.77	9.347e1					4.4	YES		bb		0.000
8	FUNCTION1 HXCD...	26.38	1.597e2					4.9	YES		bb		0.000
9	FUNCTION1 HXCD...	26.21	9.311e1					2.4	NO		bb		0.000
10	FUNCTION1 HXCD...	25.59	1.106e2					2.7	NO		bb		0.000
11	FUNCTION1 HXCD...	25.28	9.381e1					3.7	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...	26.77	8.934e1					1.0	NO		bb		0.000
2	FUNCTION1 HPCD...	25.72	8.739e1					1.2	NO		db		0.000
3	FUNCTION1 HPCD...	25.56	7.377e1					1.6	NO		bd		0.000
4	FUNCTION1 HPCD...	24.28	1.157e2					1.9	NO		bb		0.000
5	FUNCTION1 HPCD...	23.73	1.234e2					3.0	NO		db		0.000
6	FUNCTION1 HPCD...	23.60	1.692e2					1.5	NO		bd		0.000
7	FUNCTION1 HPCD...	23.39	8.731e1					1.8	NO		db		0.000
8	FUNCTION1 HPCD...	23.31	1.061e2					3.6	YES		bd		0.000
9	FUNCTION1 HPCD...	27.91	8.337e1					1.6	NO		bb		0.000
10	FUNCTION1 HPCD...	27.65	1.072e2					2.5	NO		db		0.000
11	FUNCTION1 HPCD...	27.61	7.088e1					2.3	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...	32.23	8.778e1					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	31.49	9.681e1					2.7	NO		bb		0.000
3	FUNCTION2 HPCD...	31.22	9.145e1					2.2	NO		bb		0.000
4	FUNCTION2 HPCD...	28.65	7.105e1					1.8	NO		bb		0.000

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Printed: Wednesday, September 22, 2021 14:10:33 Pacific Daylight Time

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, 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	37.66	7.063e1					2.2	NO		bb		0.000
2	FUNCTION3 OCDPE	36.51	1.201e2					3.8	YES		bb		0.000
3	FUNCTION3 OCDPE	35.99	1.002e2					3.1	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	39.61	1.082e2					2.3	NO		bb		0.000
2	FUNCTION4 NCDPE	38.77	9.090e1					3.1	YES		bb		0.000
3	FUNCTION4 NCDPE	38.41	9.549e4					1742.8	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: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, Conditions: AUTOSPEC01, User: pk

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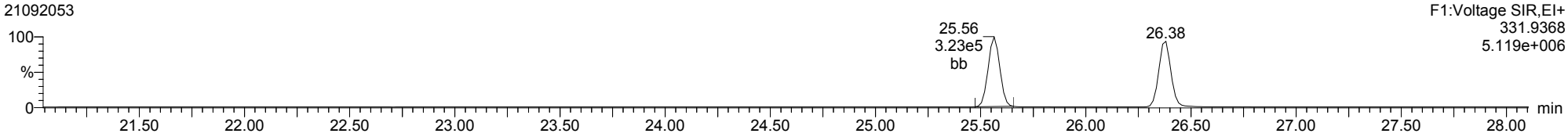

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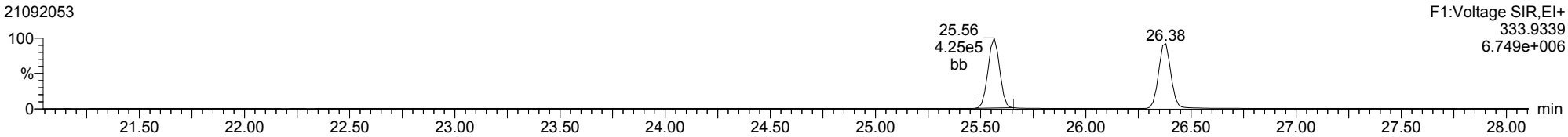
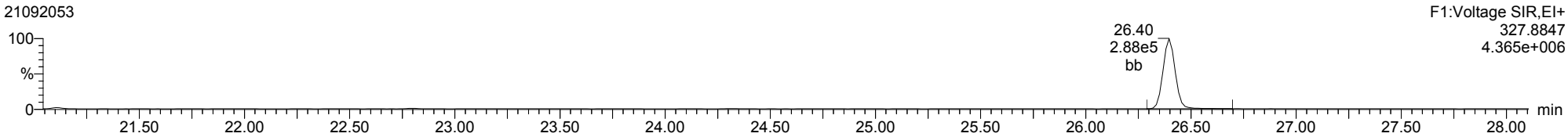


37CL-2378-TCDD



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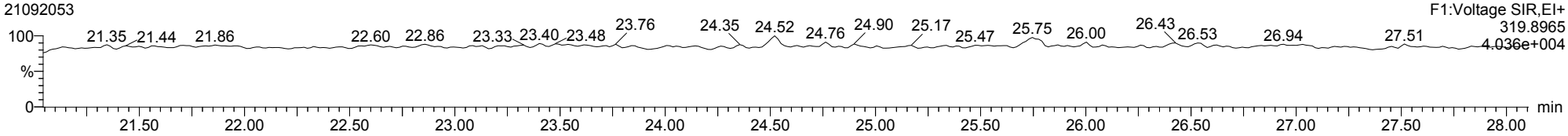

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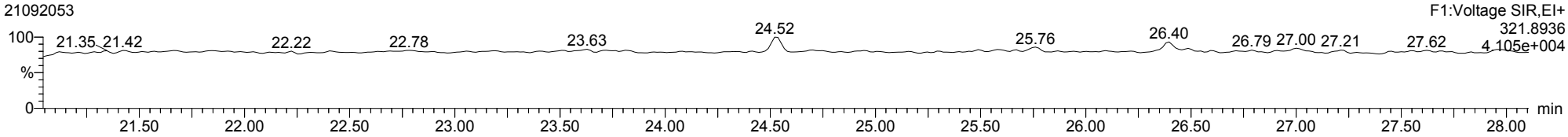

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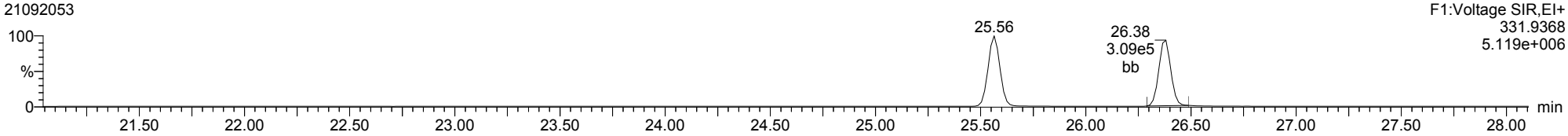

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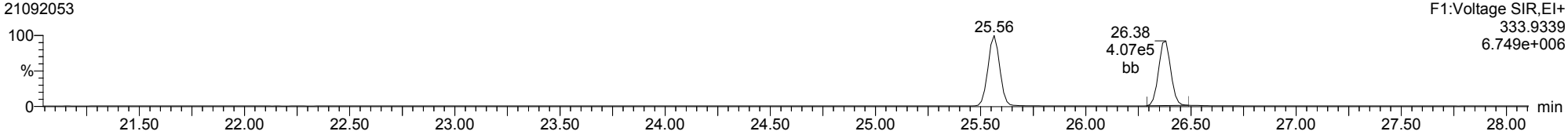

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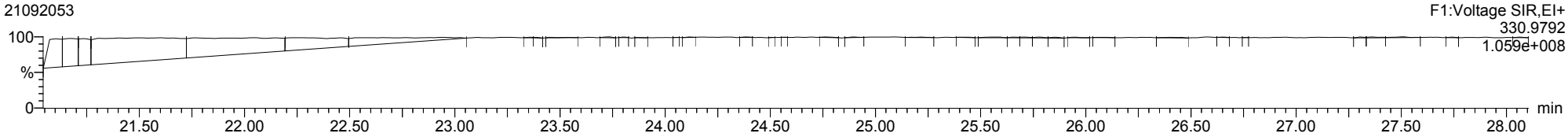

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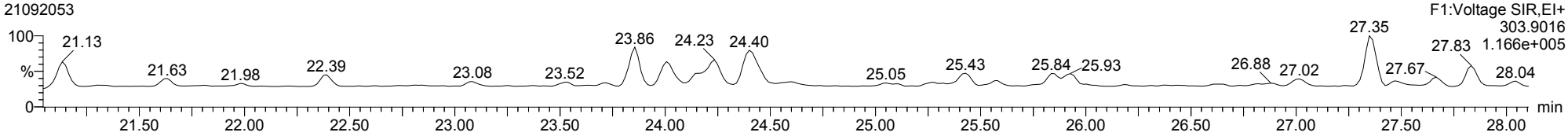
2378-TCDF



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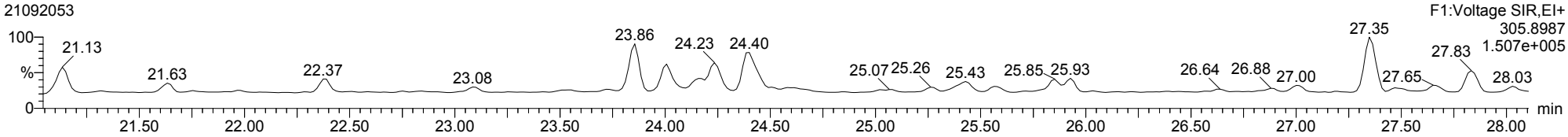

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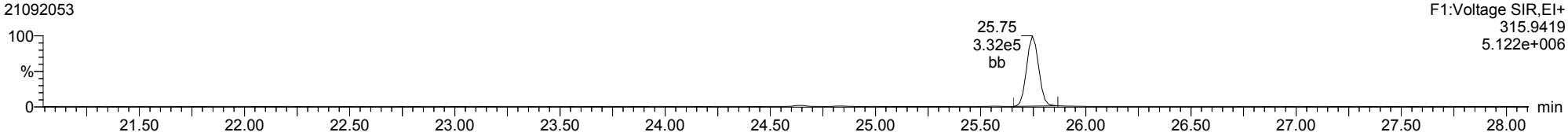

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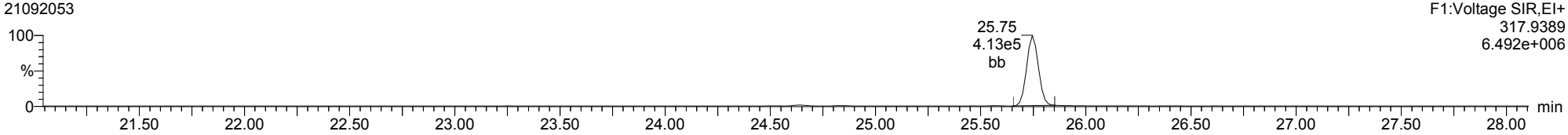

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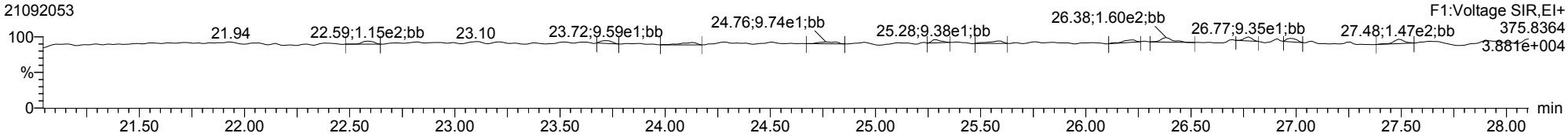

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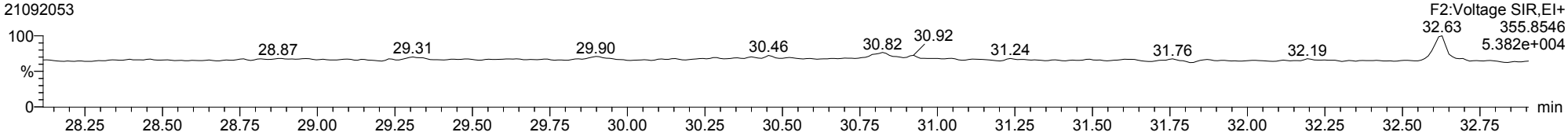
12378-PeCDD



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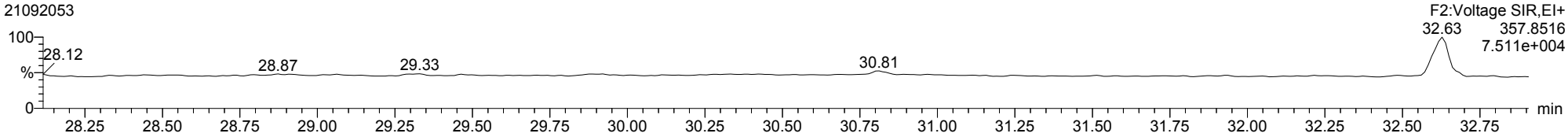

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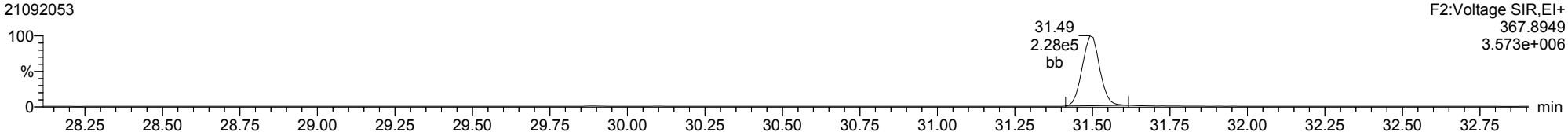

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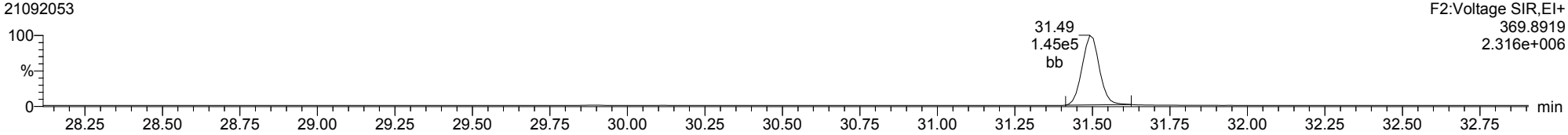
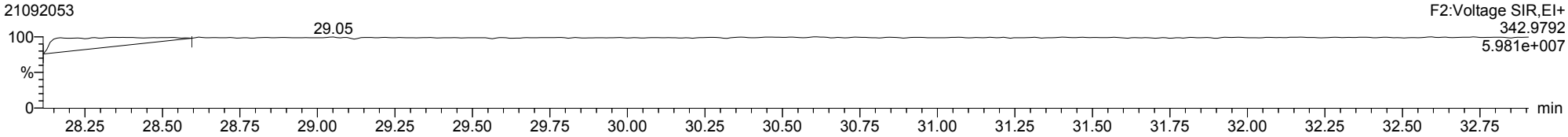


FUNCTION2 PFK



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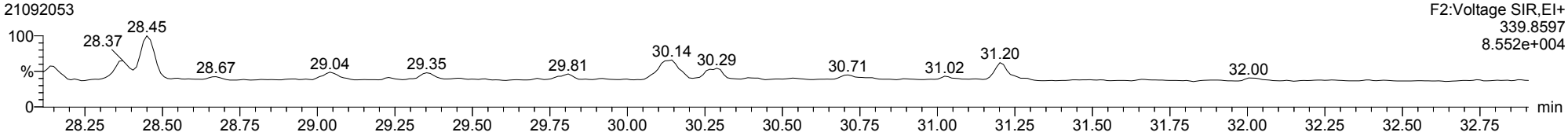

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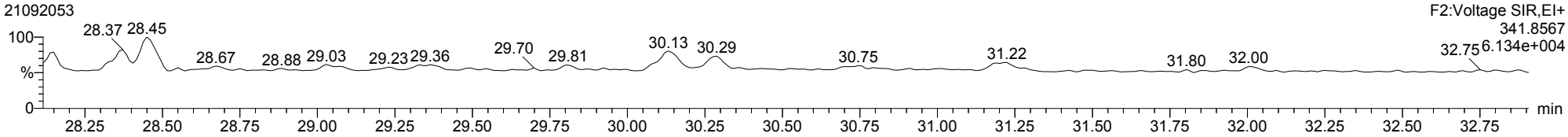

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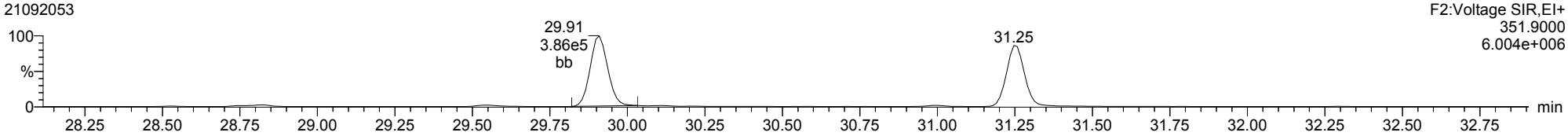

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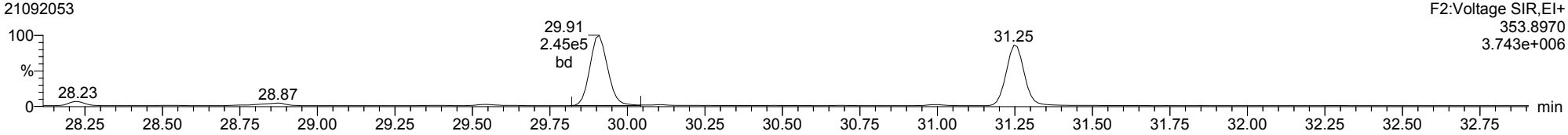

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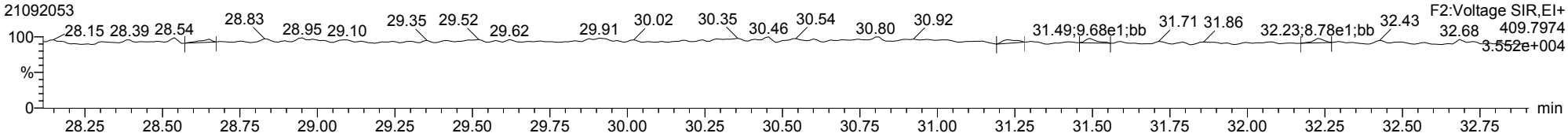

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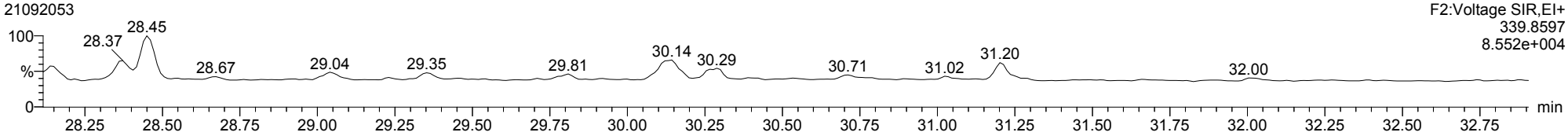

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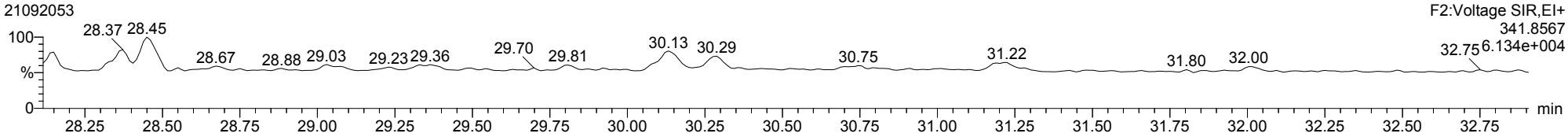

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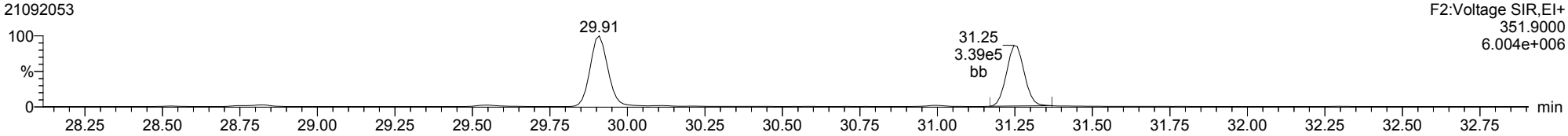

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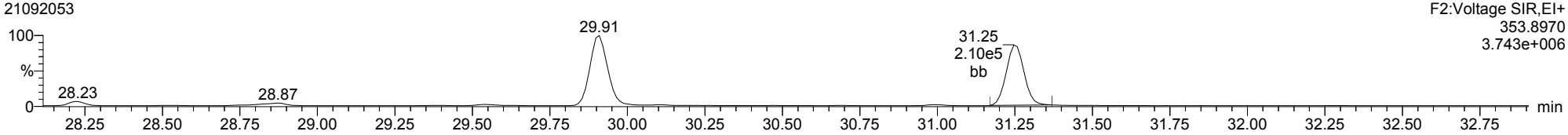

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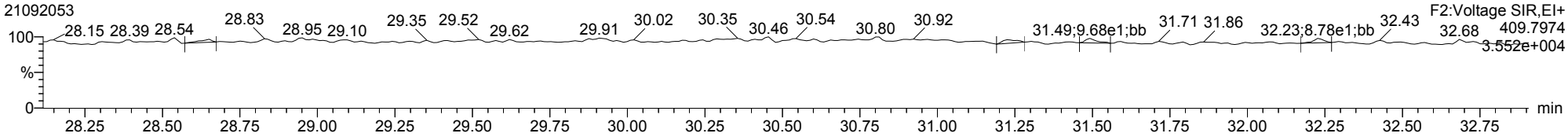

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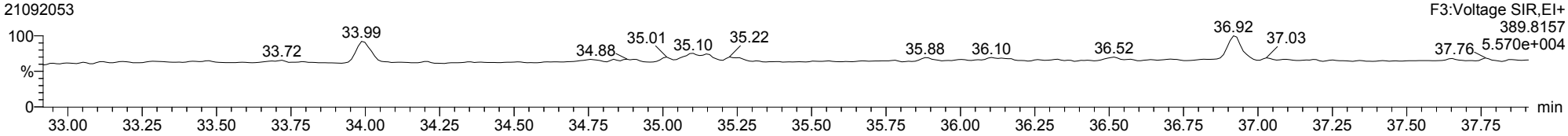

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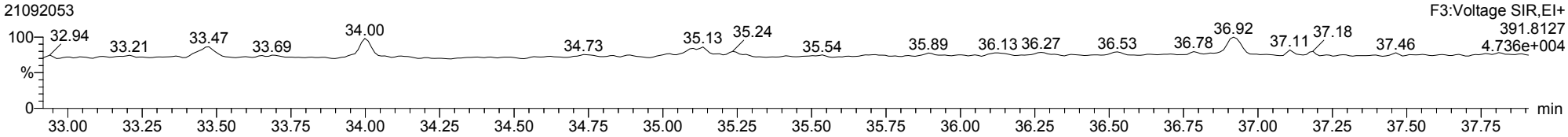

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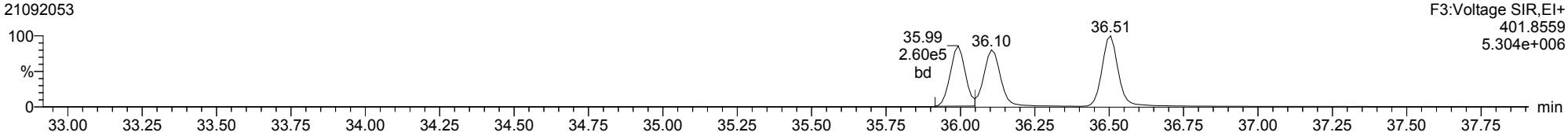

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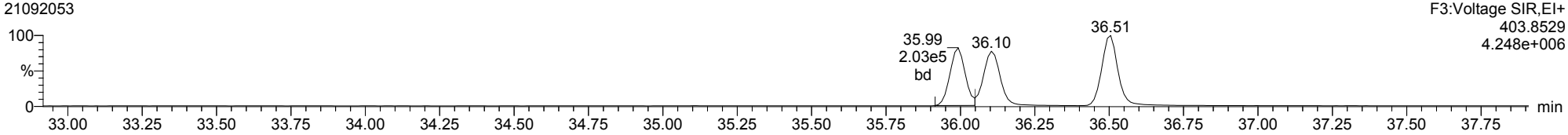

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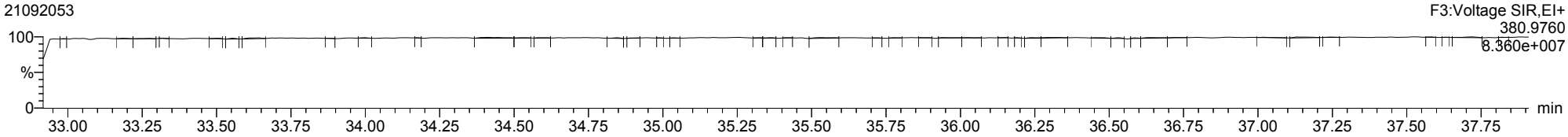

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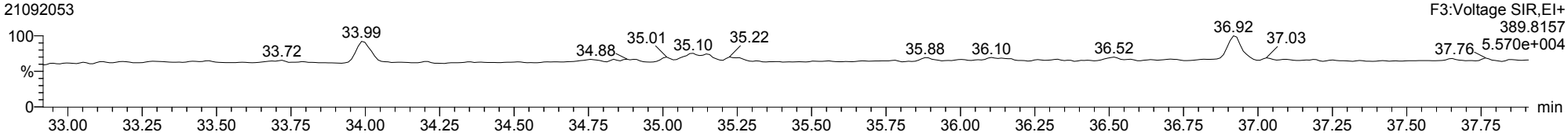

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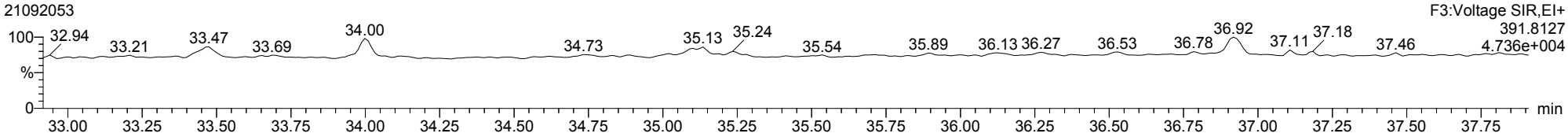

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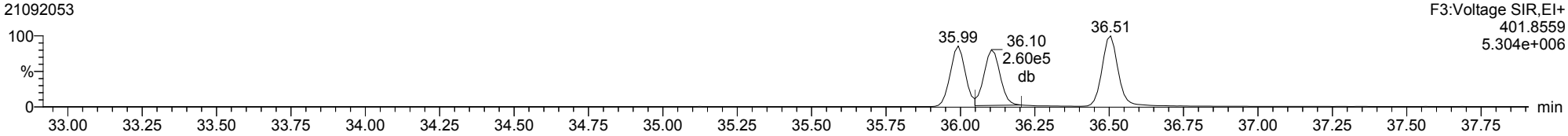

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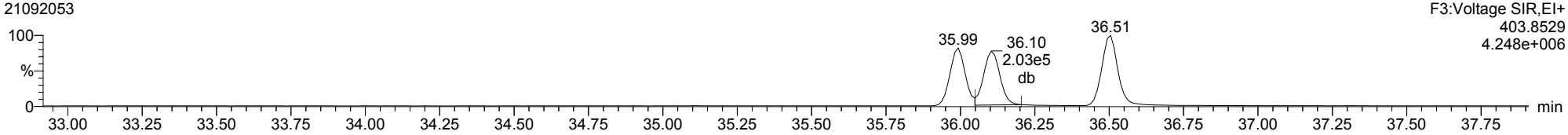

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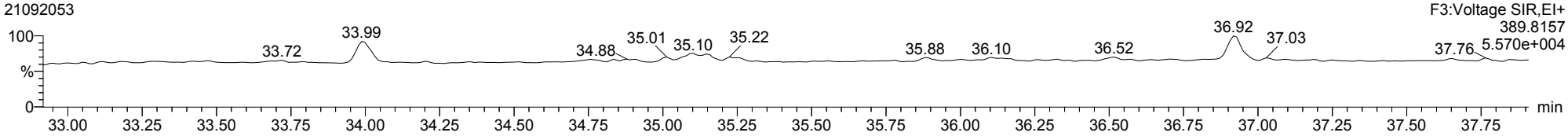

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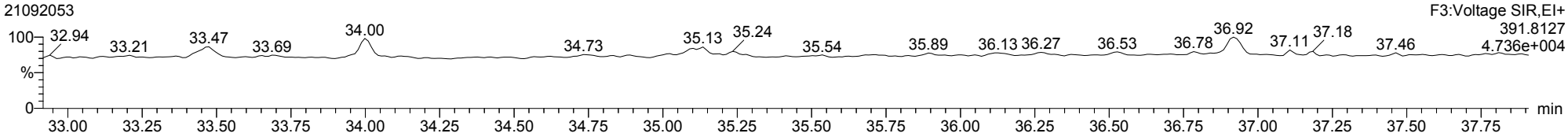

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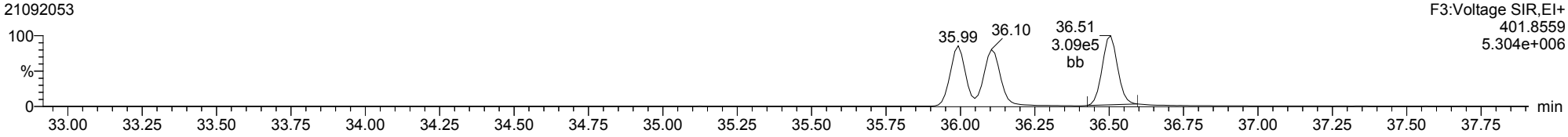

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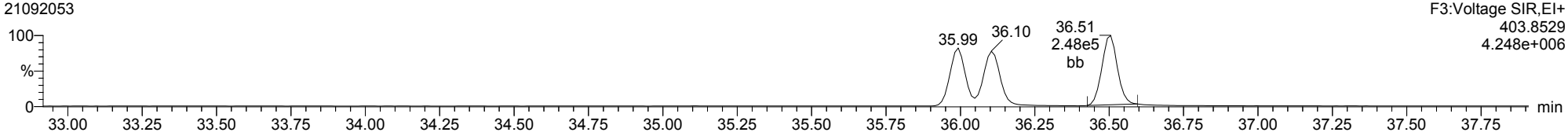

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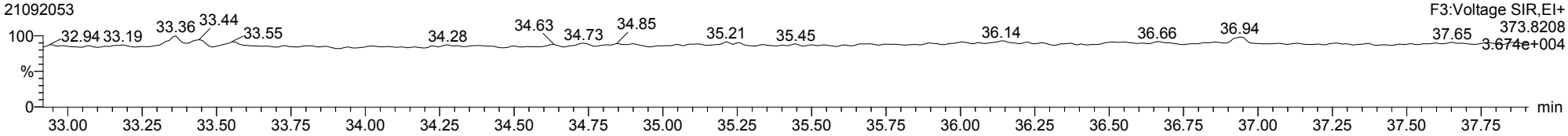

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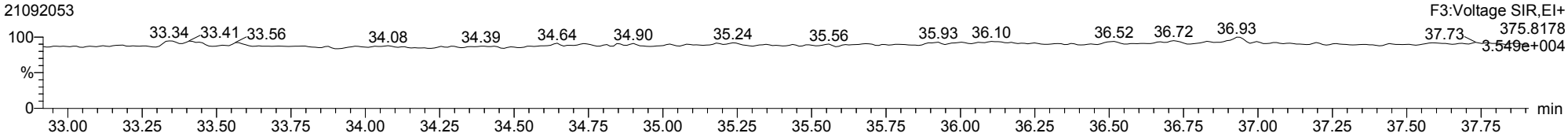

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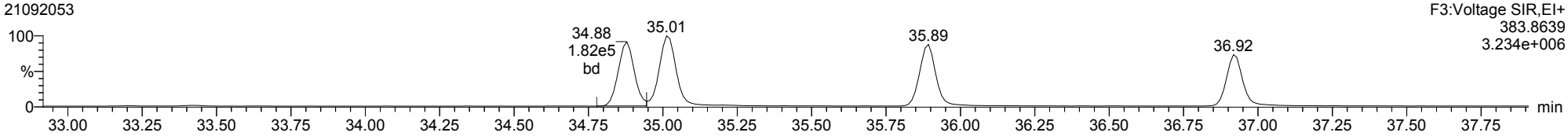

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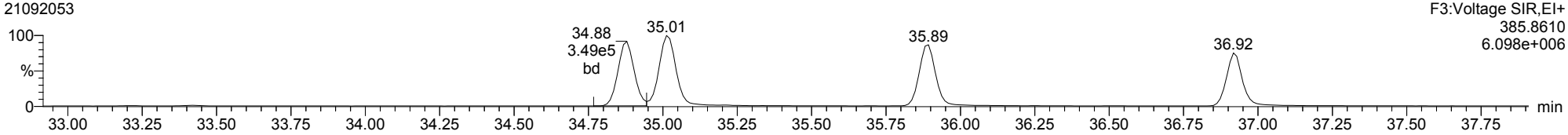

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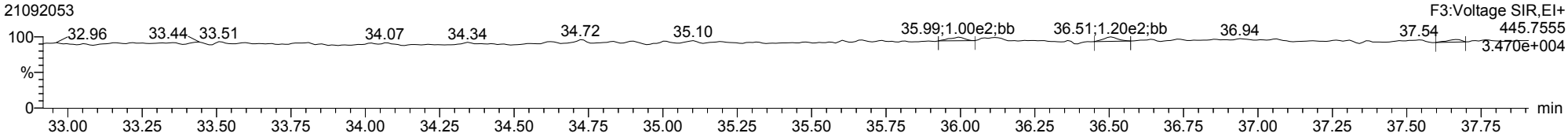

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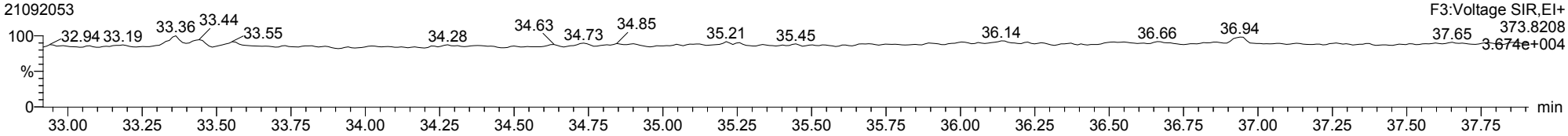

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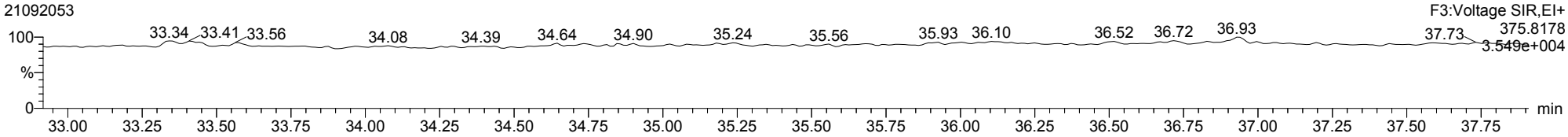

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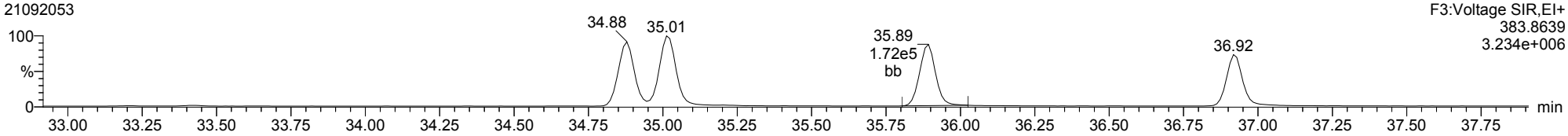

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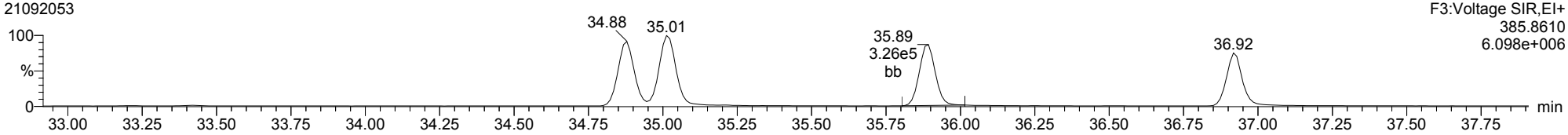

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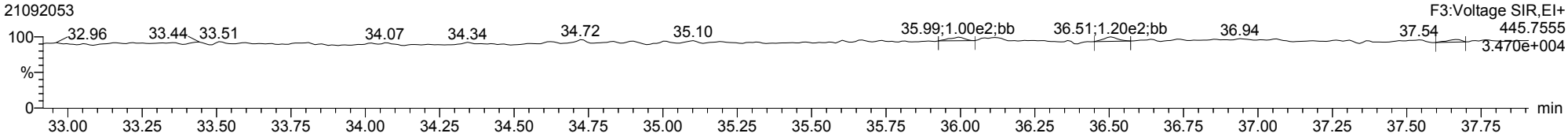

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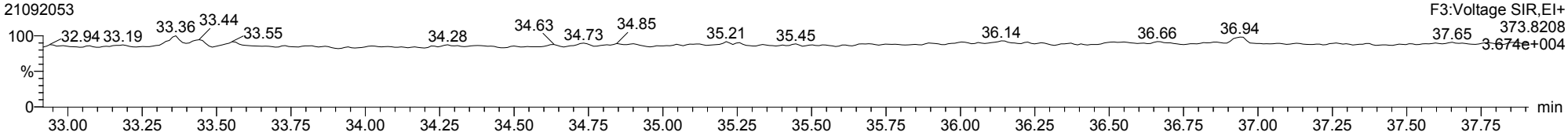

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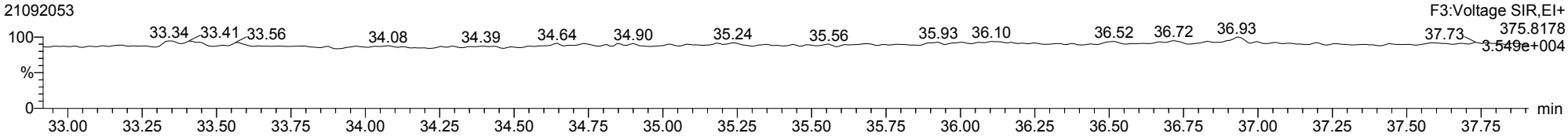

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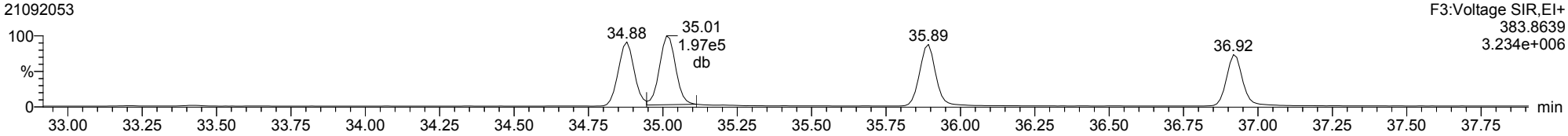

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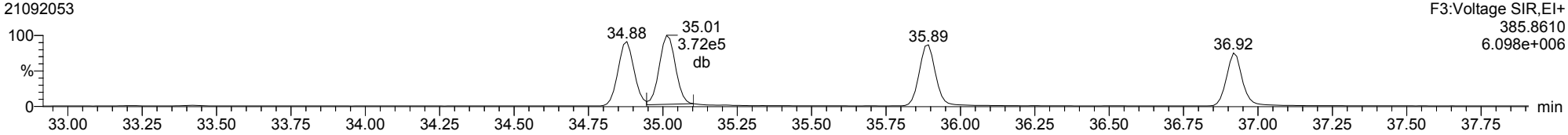

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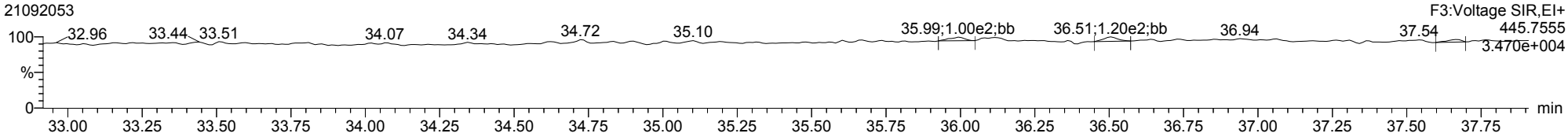

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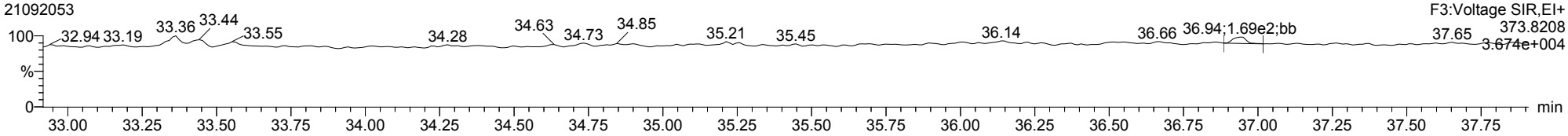

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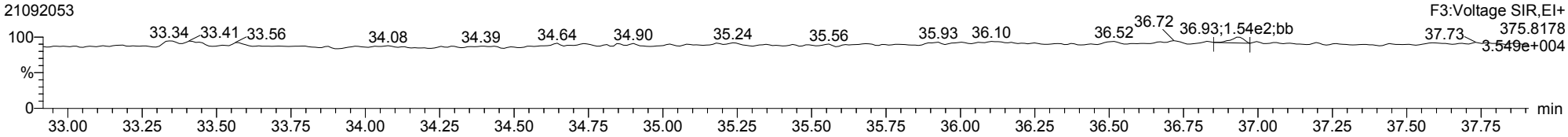

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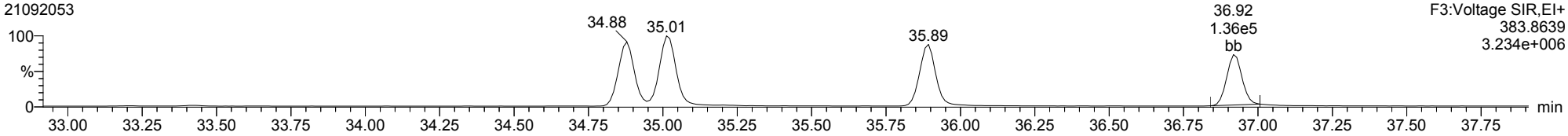

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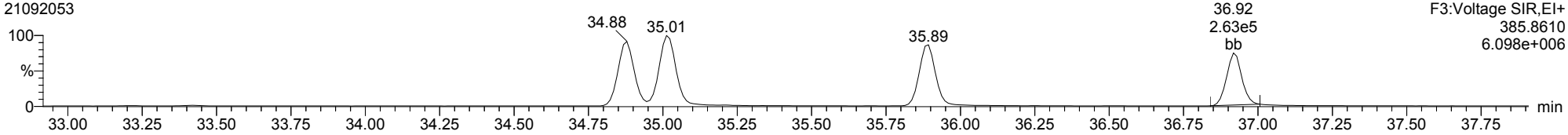

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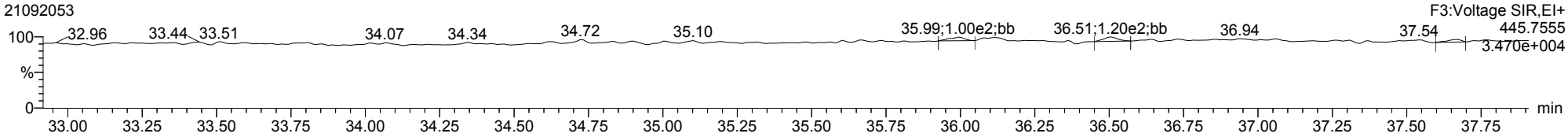

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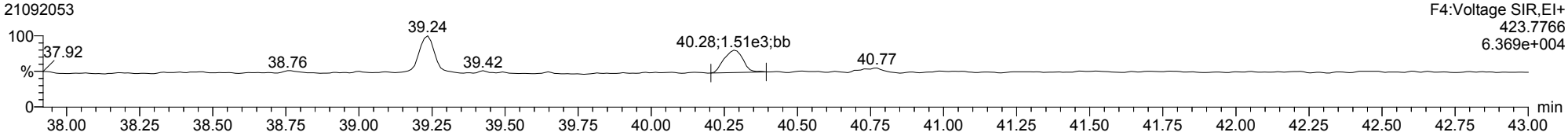

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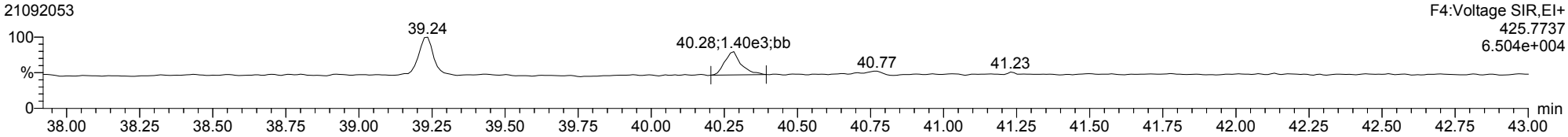

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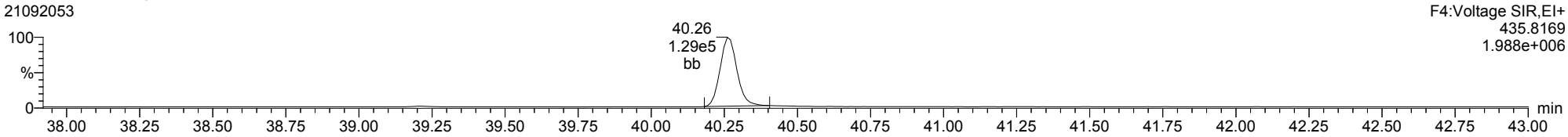

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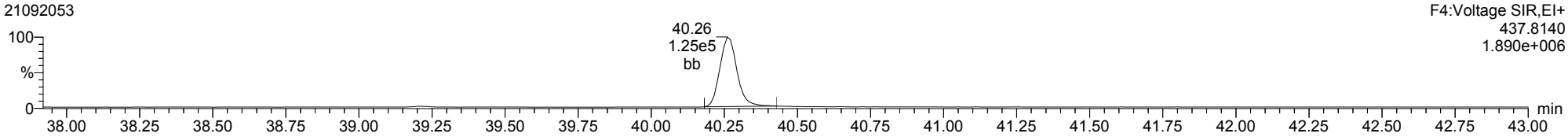

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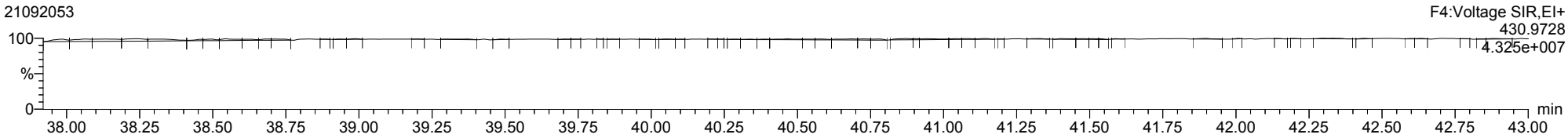

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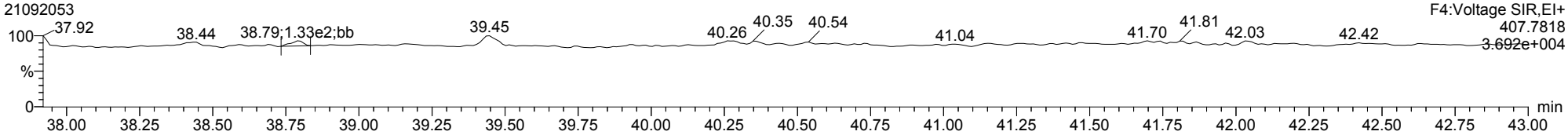

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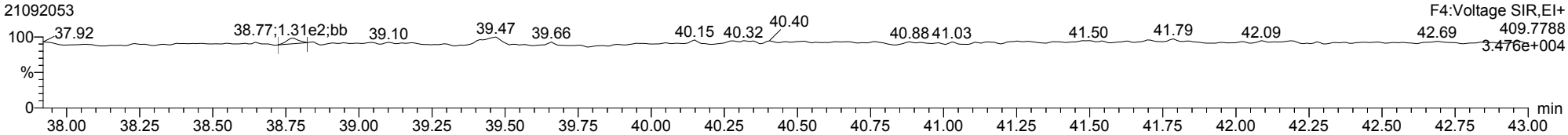

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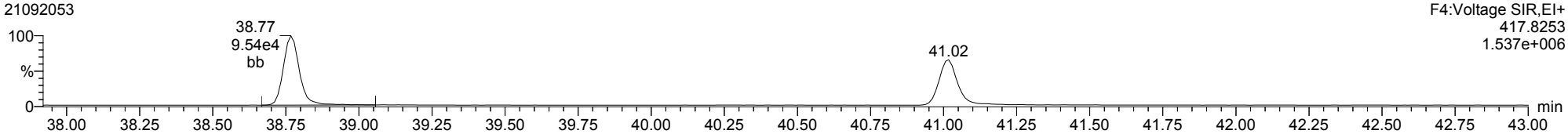

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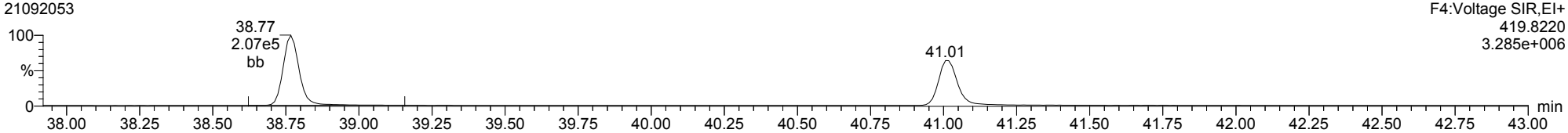

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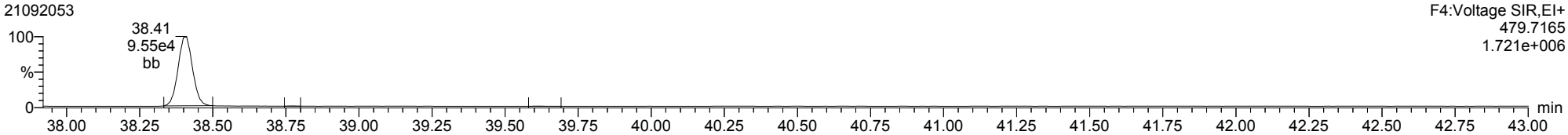
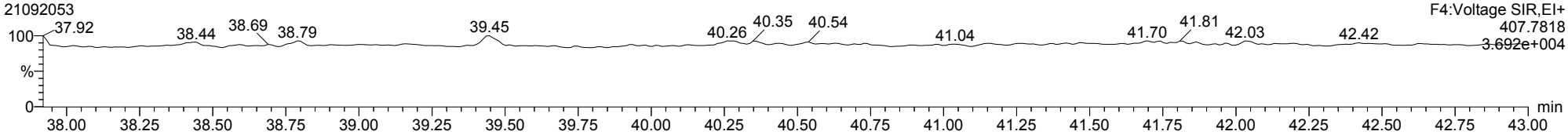


ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, Conditions: AUTOSPEC01, User: pk

1234789-HpCDF



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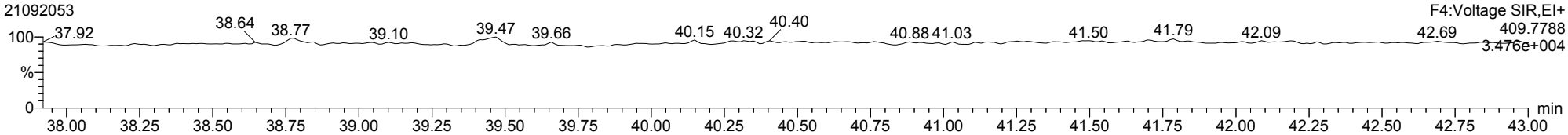

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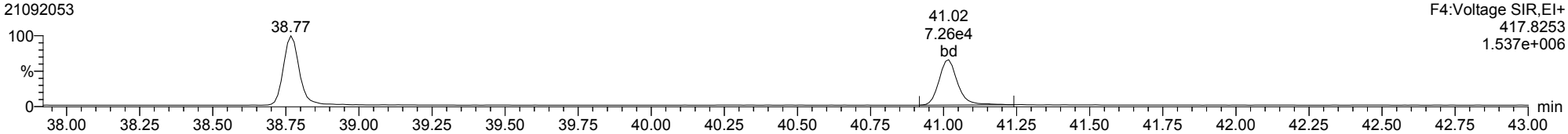

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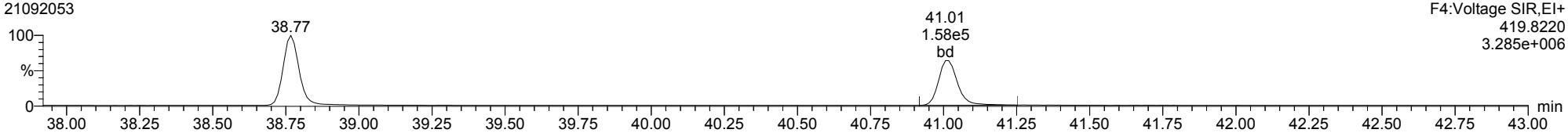
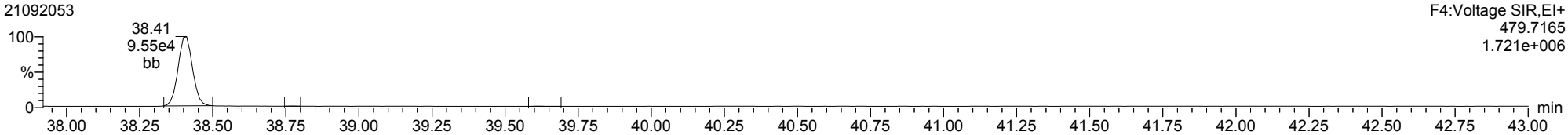
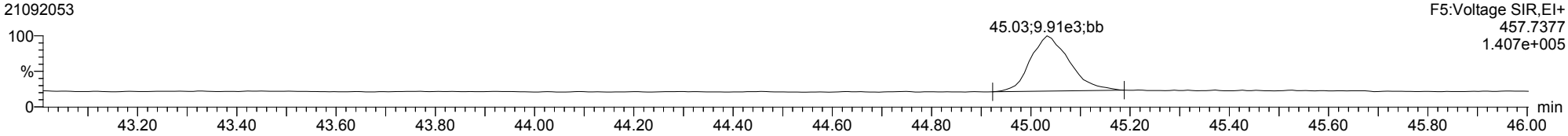


FUNCTION4 NCDPE

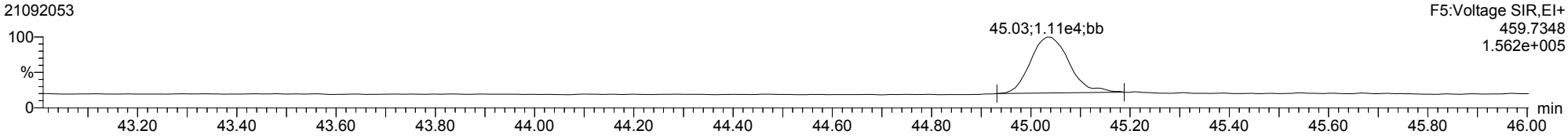


ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, Conditions: AUTOSPEC01, User: pk

OCDD



OCDD



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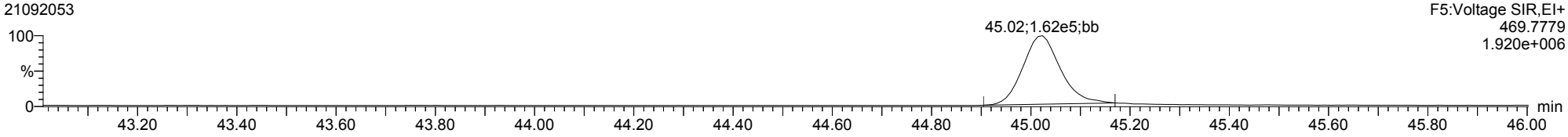

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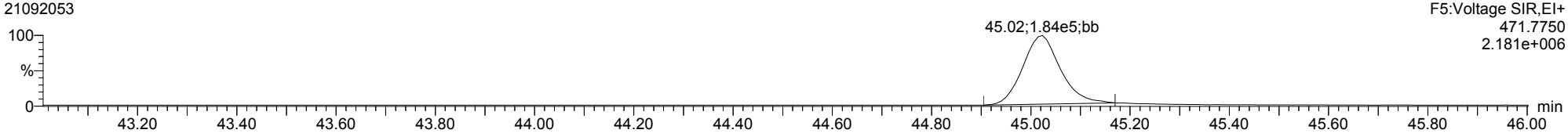
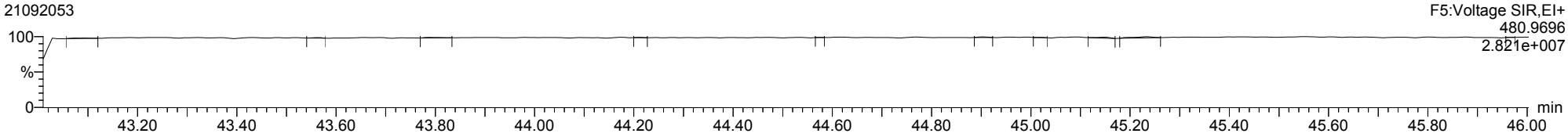
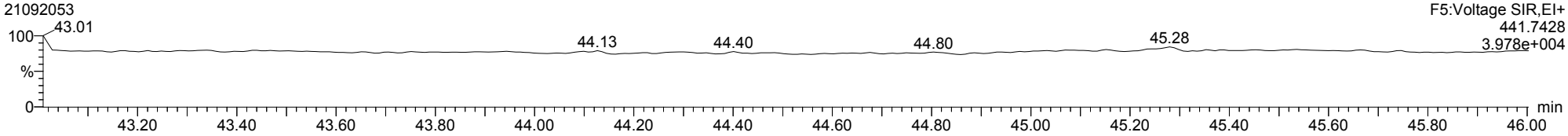


FUNCTION5 PFK

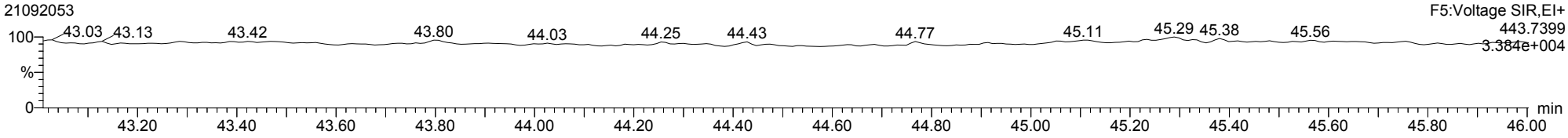


ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, Conditions: AUTOSPEC01, User: pk

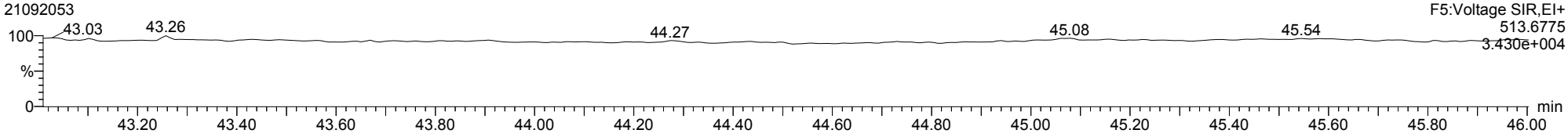
OCDF



OCDF

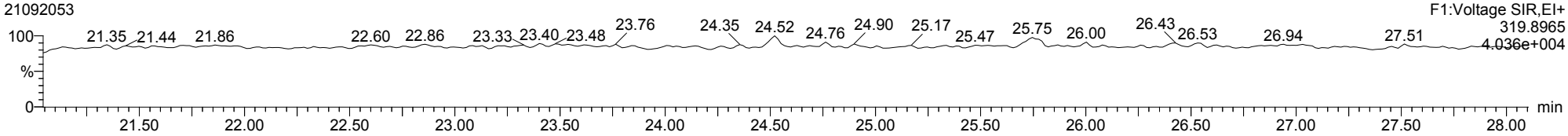


FUNCTION5 DCDPE

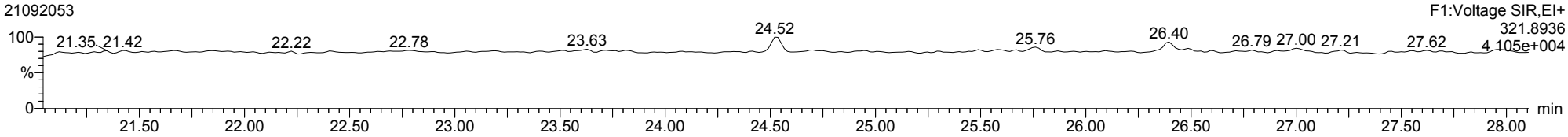


ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, Conditions: AUTOSPEC01, User: pk

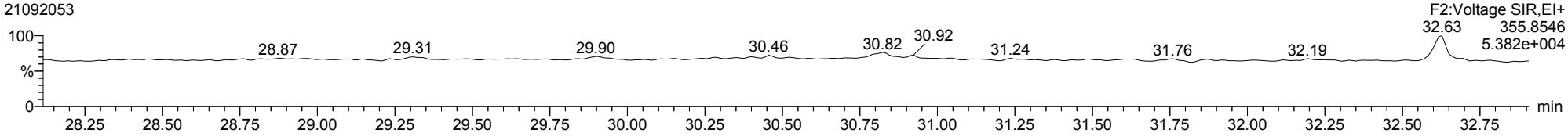
Total-tetradioxins



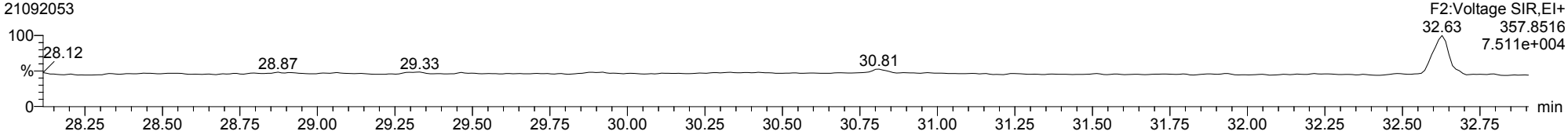
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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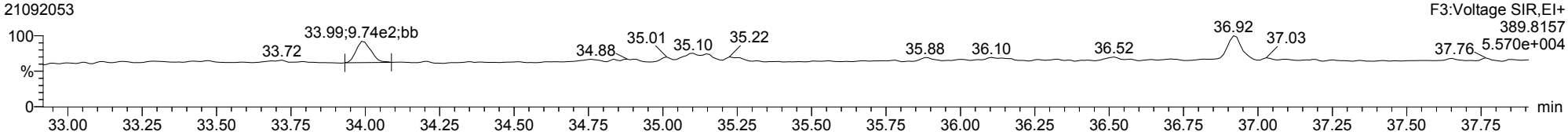
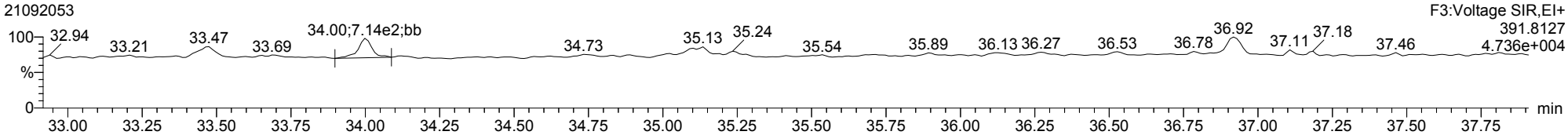
Printed: Wednesday, September 22, 2021 14:10:33 Pacific Daylight Time

ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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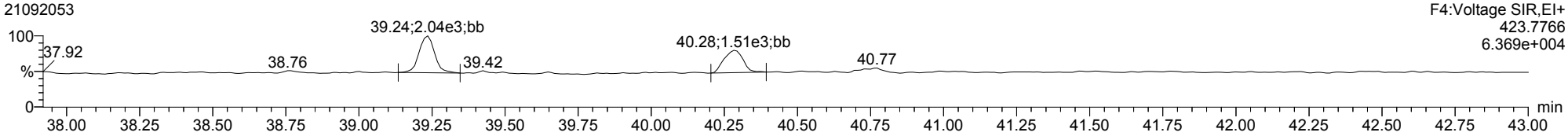

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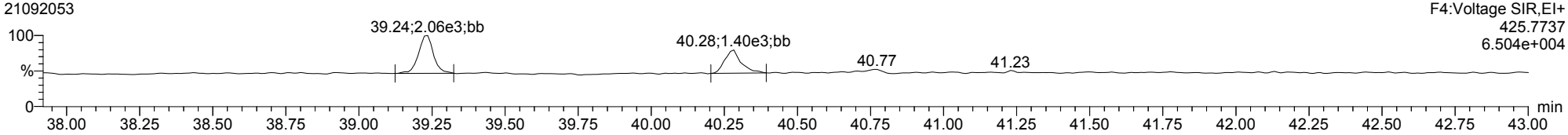

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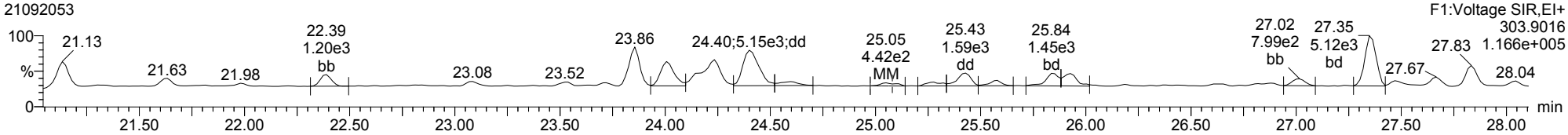
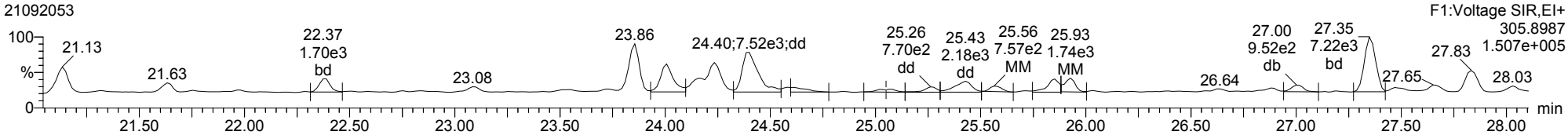
ID: 21G0283-14, Name: 21092053, Date: 22-Sep-2021, Time: 11:22:50, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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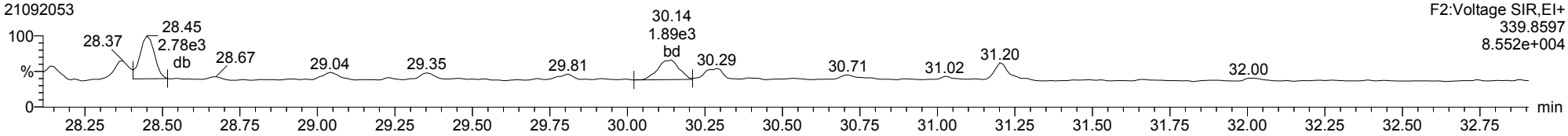

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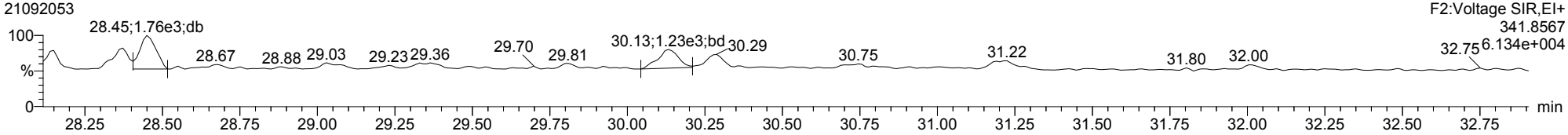

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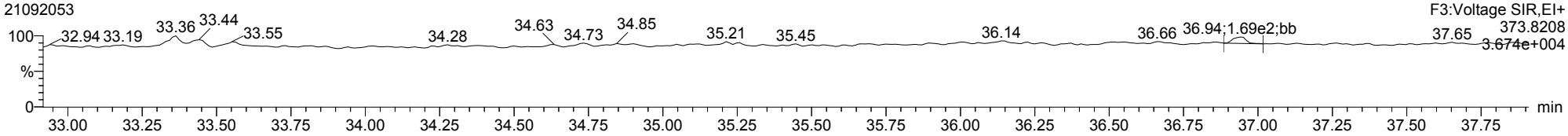
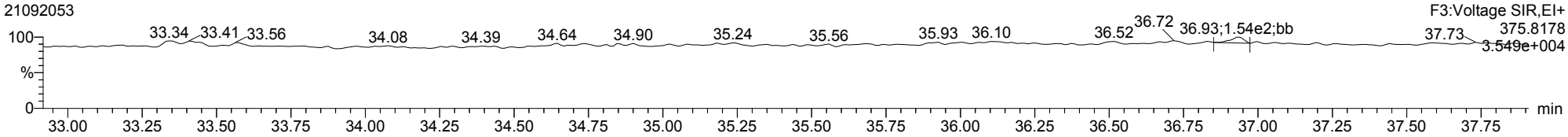
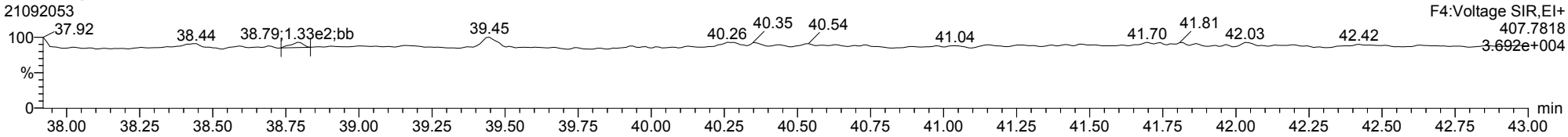
Total-hexafurans



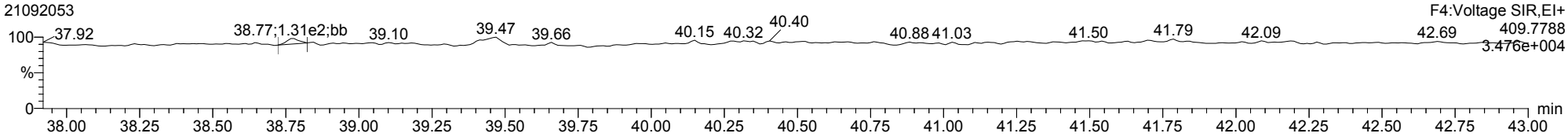
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT670C

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0283-15 C	File ID:	21092056
Sampled:	07/20/21 13:42	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 13:56
% Solids:	70.72	Preparation:	EPA 1613	Initial/Final:	14.15 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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		0.655-0.886	0.089	0.999	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1		0.655-0.886	0.110	0.999	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	0.114	0.999	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1		1.318-1.783	0.111	0.999	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1		1.318-1.783	0.149	0.999	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1		1.054-1.426	0.083	0.999	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1		1.054-1.426	0.077	0.999	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1		1.054-1.426	0.086	0.999	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1		1.054-1.426	0.103	0.999	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1		1.054-1.426	0.104	0.999	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1		1.054-1.426	0.098	0.999	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1		1.054-1.426	0.108	0.999	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1		0.893-1.208	0.115	0.999	ND	ng/kg	U
55673-89-7	1,2,3,4,7,8,9-HpCDF	1		0.893-1.208	0.177	0.999	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.068	0.893-1.208	0.166	2.50	1.84	ng/kg	J, B
39001-02-0	OCDF	1		0.757-1.024	0.400	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	0.843	0.757-1.024	0.353	9.99	15.9	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	0.094	ng/kg
41903-57-5	Total TCDD	1	0.000			0.999	0.269	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.999	ND	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.999	ND	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.999	ND	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.999	ND	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.999	ND	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.999	3.90	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.023
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.210

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT670C

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0283-15	File ID:	21092056
Sampled:	07/20/21 13:42	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 13:56
Solids Wt%:	70.72	Preparation:	EPA 1613	Initial/Final:	14.15 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.792	0.655-0.886	0.157	70.1	24 - 169 %	
13C12-2,3,7,8-TCDD		0.766	0.655-0.886	0.128	84.9	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.620	1.318-1.783	0.181	68.8	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.603	1.318-1.783	0.190	65.5	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.573	1.318-1.783	0.137	71.5	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.517	0.434-0.587	0.211	81.4	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.513	0.434-0.587	0.195	79.1	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.518	0.434-0.587	0.215	77.5	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.512	0.434-0.587	0.260	75.7	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.277	1.054-1.426	0.237	86.2	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.260	1.054-1.426	0.219	81.4	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.474	0.374-0.506	0.146	63.1	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.458	0.374-0.506	0.178	60.7	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.016	0.893-1.208	0.186	75.8	23 - 140 %	
13C12-OCDD		0.832	0.757-1.024	0.325	67.6	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.046	91.3	35 - 197 %	

* Values outside of QC limits

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

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	868	967								
12378-PeCDF					1.015		1.550	1051	887								
23478-PeCDF					1.126		1.550	1051	887								
123478-HxCDF					1.017		1.240	694	608								
234678-HxCDF					1.052		1.240	694	608								
123678-HxCDF					1.037		1.240	694	608								
123789-HxCDF					1.030		1.240	694	608								
1234678-HpCDF					1.327		1.050	589	741								
1234789-HpCDF					1.283		1.050	589	741								
OCDF					1.447		0.890	687	1376								
2378-TCDD					0.920		0.770	1038	791								
12378-PeCDD					0.995		1.550	838	647								
123478-HxCDD					1.027		1.240	540	815								
123678-HxCDD					1.009		1.240	540	815								
123789-HxCDD					0.950		1.240	540	815								
1234678-HpCDD	40.293	1.000	1.417e3	1.327e3	1.068	1.068	1.050	559	665	2.11e4	1.91e4	37.7	28.8	NO	bb	bb	0.919
OCDD	45.041	1.000	8.526e3	1.011e4	1.181	0.843	0.890	716	768	9.65e4	1.09e5	134.8	142.3	NO	bb	bb	7.950
13C-2378-TCDF	25.746	1.007	3.315e5	4.185e5	1.427	0.792	0.770	2892	1473	4.96e6	6.39e6	1713.4	4338.2	NO	bb	bb	70.051
13C-12378-PeCDF	29.920	1.170	4.141e5	2.556e5	1.297	1.620	1.550	3336	1236	6.20e6	3.87e6	1858.7	3132.7	NO	bb	bb	68.793
13C-23478-PeCDF	31.257	1.223	3.745e5	2.337e5	1.236	1.603	1.550	3336	1236	5.72e6	3.57e6	1714.9	2892.1	NO	bb	bb	65.545
13C-123478-HxCDF	34.889	0.956	2.010e5	3.887e5	1.242	0.517	0.510	1662	2453	3.14e6	6.09e6	1889.7	2482.5	NO	bd	bd	81.433
13C-123678-HxCDF	35.023	0.959	2.100e5	4.093e5	1.343	0.513	0.510	1662	2453	3.30e6	6.49e6	1987.5	2645.9	NO	db	db	79.081
13C-234678-HxCDF	35.892	0.983	1.873e5	3.617e5	1.215	0.518	0.510	1662	2453	2.93e6	5.71e6	1764.0	2330.0	NO	bb	bb	77.532
13C-123789-HxCDF	36.928	1.012	1.504e5	2.939e5	1.008	0.512	0.510	1662	2453	2.50e6	4.85e6	1502.0	1976.4	NO	bb	bb	75.651
13C-1234678-HpCDF	38.778	1.062	1.096e5	2.313e5	0.926	0.474	0.440	1005	1121	1.68e6	3.58e6	1672.3	3188.1	NO	bd	bd	63.127
13C-1234789-HpCDF	41.028	1.124	8.418e4	1.840e5	0.758	0.458	0.440	1005	1121	1.10e6	2.40e6	1098.5	2138.2	NO	bd	bb	60.697
13C-1234-TCDD	25.564	0.000	3.291e5	4.214e5	1.000	0.781	0.770	1738	1047	5.11e6	6.63e6	2940.0	6329.9	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	3.087e5	4.031e5	1.116	0.766	0.770	1738	1047	4.70e6	6.20e6	2707.3	5916.9	NO	bb	bb	84.950
13C-12378-PeCDD	31.503	1.232	2.400e5	1.526e5	0.732	1.573	1.550	1290	661	3.66e6	2.40e6	2838.9	3621.6	NO	bb	bb	71.458
13C-123478-HxCDD	35.992	0.986	2.704e5	2.117e5	0.960	1.277	1.240	1460	2123	4.27e6	3.38e6	2926.2	1592.0	NO	bd	bd	86.159
13C-123678-HxCDD	36.115	0.989	2.754e5	2.186e5	1.041	1.260	1.240	1460	2123	4.56e6	3.53e6	3122.0	1660.1	NO	db	db	81.385
13C-1234678-HpCDD	40.271	1.103	1.408e5	1.386e5	0.632	1.016	1.050	842	1010	2.08e6	1.99e6	2472.4	1974.0	NO	bb	bd	75.808
13C-OCDD	45.023	1.233	1.803e5	2.168e5	0.504	0.832	0.890	1098	1477	1.94e6	2.26e6	1767.2	1529.5	NO	bb	bd	135.251
13C-123789-HxCDD	36.505	0.000	3.263e5	2.566e5	1.000	1.271	1.240	1460	2123	5.28e6	4.11e6	3616.7	1936.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	2.969e5		1.084			960		4.34e6		4524.2			bb		36.511

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:14:19 Pacific Daylight Time

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	868	967								
1289-TCDF	27.363	1.063	8.097e1	1.437e2	1.043	0.563	0.770	868	967	1.96e3	3.43e3	2.3	3.5	YES	bb	bb	0.029
13468-PECDF	27.000	0.902	1.373e2	7.353e1	1.376	1.867	1.550	790	964	1.52e3	1.23e3	1.9	1.3	YES	bd	bb	0.023
12389-PECDF					1.000		1.550	1051	887								
123468-HXCDF					1.087		1.240	694	608								
1368-TCDD					0.923		0.770	1038	791								
1289-TCDD					0.794		0.770	1038	791								
12479-PECDD					1.843		1.550	838	647								
12389-PECDD					1.154		1.550	838	647								
124679-HXCDD	33.998	0.945	8.228e2	8.632e2	1.125	0.953	1.240	540	815	1.36e4	1.22e4	25.2	15.0	YES	bb	bb	0.311
1234679-HPCDD	39.223	0.974	1.897e3	1.601e3	1.211	1.185	1.050	559	665	2.66e4	2.39e4	47.6	35.9	NO	bb	bb	1.034
Total-tetrafurans			1.898e2		1.192			868		3.17e3							0.047
Total-penta1			0.000e0					790		0.00e0							
Total-pentafurans			0.000e0		1.047			1051		0.00e0							
Total-hexafurans			0.000e0		1.045			694		0.00e0							
Total-heptafurans			0.000e0		1.305			589		0.00e0							
Total-Furans			1.898e2		1.158			868		3.17e3							0.047
Total-tetradioxins			3.476e2		0.879			1038		6.10e3							0.135
Total-pentadioxins			0.000e0		1.331			838		0.00e0							
Total-hexadioxins			0.000e0		1.028			540		0.00e0							
Total-heptadioxins			3.315e3		1.140			559		4.77e4							1.953
Total-Dioxins			1.219e4		1.092			1038		1.50e5							10.038
Total-TEQ			1.238e4					1038		1.53e5							10.085
FUNCTION1 PFK			2.720e7					522744		1.70e8							
FUNCTION2 PFK			2.892e6					411385		5.33e7							0.000
FUNCTION3 PFK			9.692e5					473581		2.47e7							0.000
FUNCTION4 PFK			1.744e6					227192		3.37e7							
FUNCTION5 PFK			3.800e5					210485		1.05e7							
FUNCTION1 HXCD...			1.930e2					692		2.83e3							0.000
FUNCTION1 HPCD...			9.803e2					617		1.10e4							0.000
FUNCTION2 HPCD...			5.422e2					1018		1.10e4							0.000
FUNCTION3 OCDPE			2.802e2					537		5.34e3							0.000
FUNCTION4 NCDPE			5.435e4					787		9.67e5							0.000
FUNCTION5 DCDPE			7.111e1					527		1.54e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:14:19 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	23.86	1.898e2	2.285e2	1.192	0.83	0.77	3.7	YES	NO	bd	bb	0.047

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	Total-tetrafurans	23.86	1.898e2	2.285e2	1.192	0.83	0.77	3.7	YES	NO	bd	bb	0.047

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.54	3.476e2	4.953e2	0.879	0.70	0.77	5.9	YES	NO	bb	db	0.135

PD

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

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	1234678-HpCDD	40.29	1.417e3	1.327e3	1.068	1.07	1.05	37.7	YES	NO	bb	bb	0.919
2	1234679-HPCDD	39.22	1.897e3	1.601e3	1.211	1.18	1.05	47.6	YES	NO	bb	bb	1.034

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	3.476e2	4.953e2	0.879	0.70	0.77	5.9	YES	NO	bb	db	0.135
2	1234678-HpCDD	40.29	1.417e3	1.327e3	1.068	1.07	1.05	37.7	YES	NO	bb	bb	0.919
3	1234679-HPCDD	39.22	1.897e3	1.601e3	1.211	1.18	1.05	47.6	YES	NO	bb	bb	1.034
4	OCDD	45.04	8.526e3	1.011e4	1.181	0.84	0.89	134.8	YES	NO	bb	bb	7.950

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.86	1.898e2	2.285e2	1.192	0.83	0.77	3.7	YES	NO	bd	bb	0.047
2	Total-tetradioxins	24.54	3.476e2	4.953e2	0.879	0.70	0.77	5.9	YES	NO	bb	db	0.135
3	1234678-HpCDD	40.29	1.417e3	1.327e3	1.068	1.07	1.05	37.7	YES	NO	bb	bb	0.919
4	1234679-HPCDD	39.22	1.897e3	1.601e3	1.211	1.18	1.05	47.6	YES	NO	bb	bb	1.034
5	OCDD	45.04	8.526e3	1.011e4	1.181	0.84	0.89	134.8	YES	NO	bb	bb	7.950

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	21.97	3.889e6					29.0	YES		dd		
2	FUNCTION1 PFK	21.84	1.724e6					32.9	YES		dd		
3	FUNCTION1 PFK	21.68	9.160e6					38.1	YES		dd		
4	FUNCTION1 PFK	21.38	2.976e6					45.9	YES		dd		
5	FUNCTION1 PFK	21.18	2.740e6					51.9	YES		dd		
6	FUNCTION1 PFK	21.10	2.478e6					53.5	YES		bd		
7	FUNCTION1 PFK	24.55	3.083e3					0.4	NO		bb		
8	FUNCTION1 PFK	24.08	1.245e4					0.6	NO		bb		
9	FUNCTION1 PFK	24.02	1.186e4					0.9	NO		bb		
10	FUNCTION1 PFK	23.87	3.464e4					1.4	NO		db		
11	FUNCTION1 PFK	23.83	2.941e4					1.2	NO		dd		
12	FUNCTION1 PFK	23.75	2.382e4					1.1	NO		dd		
13	FUNCTION1 PFK	23.64	7.554e4					1.9	NO		dd		
14	FUNCTION1 PFK	23.57	1.717e4					1.0	NO		bd		
15	FUNCTION1 PFK	23.43	1.931e4					1.0	NO		bb		
16	FUNCTION1 PFK	23.34	2.561e4					1.1	NO		db		
17	FUNCTION1 PFK	23.28	1.450e4					0.7	NO		bd		
18	FUNCTION1 PFK	23.15	3.551e4					1.1	NO		bb		
19	FUNCTION1 PFK	23.02	2.033e4					1.0	NO		bb		
20	FUNCTION1 PFK	22.80	8.628e5					2.5	NO		db		
21	FUNCTION1 PFK	22.43	7.727e5					13.9	YES		dd		
22	FUNCTION1 PFK	22.30	1.568e6					17.4	YES		dd		
23	FUNCTION1 PFK	27.18	1.291e4					0.8	NO		bb		
24	FUNCTION1 PFK	26.94	7.254e3					0.6	NO		bb		
25	FUNCTION1 PFK	26.86	3.250e3					0.4	NO		bb		
26	FUNCTION1 PFK	26.80	6.831e3					0.6	NO		bb		
27	FUNCTION1 PFK	26.50	1.122e4					0.7	NO		bb		
28	FUNCTION1 PFK	26.43	1.461e4					0.9	NO		bb		
29	FUNCTION1 PFK	26.11	5.052e4					1.2	NO		bb		
30	FUNCTION1 PFK	26.02	6.993e4					2.0	NO		db		
31	FUNCTION1 PFK	25.91	2.830e4					1.2	NO		dd		
32	FUNCTION1 PFK	25.82	5.301e4					1.4	NO		bd		
33	FUNCTION1 PFK	25.73	5.708e4					2.0	NO		db		
34	FUNCTION1 PFK	25.67	4.297e4					1.6	NO		dd		
35	FUNCTION1 PFK	25.56	6.569e4					1.6	NO		bd		
36	FUNCTION1 PFK	25.49	5.809e4					1.8	NO		db		
37	FUNCTION1 PFK	25.35	4.026e4					1.4	NO		bd		

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:14:19 Pacific Daylight Time

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	24.87	8.752e3					0.5	NO		bb		
39	FUNCTION1 PFK	27.95	1.360e4					0.9	NO		db		
40	FUNCTION1 PFK	27.89	4.347e4					1.5	NO		dd		
41	FUNCTION1 PFK	27.77	5.610e4					1.7	NO		dd		
42	FUNCTION1 PFK	27.71	2.733e4					1.2	NO		bd		
43	FUNCTION1 PFK	27.58	1.593e4					0.9	NO		bb		
44	FUNCTION1 PFK	27.30	1.786e4					1.0	NO		bb		

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	28.84	6.348e4					2.5	NO		db		0.000
2	FUNCTION2 PFK	28.75	6.207e3					0.6	NO		bd		0.000
3	FUNCTION2 PFK	28.51	1.588e5					5.5	YES		db		0.000
4	FUNCTION2 PFK	28.45	1.626e5					7.8	YES		dd		0.000
5	FUNCTION2 PFK	28.41	1.632e5					9.4	YES		dd		0.000
6	FUNCTION2 PFK	28.26	6.882e5					15.8	YES		dd		0.000
7	FUNCTION2 PFK	28.23	2.227e5					16.7	YES		dd		0.000
8	FUNCTION2 PFK	28.19	3.250e5					18.1	YES		dd		0.000
9	FUNCTION2 PFK	28.17	2.917e5					18.1	YES		bd		0.000
10	FUNCTION2 PFK	31.27	1.274e4					1.0	NO		bb		0.000
11	FUNCTION2 PFK	31.16	1.761e4					1.5	NO		db		0.000
12	FUNCTION2 PFK	31.11	8.896e3					0.8	NO		bd		0.000
13	FUNCTION2 PFK	31.01	2.494e3					0.5	NO		bb		0.000
14	FUNCTION2 PFK	30.87	5.954e3					0.7	NO		bb		0.000
15	FUNCTION2 PFK	30.66	6.553e3					0.4	NO		bb		0.000
16	FUNCTION2 PFK	30.59	1.443e4					1.2	NO		bb		0.000
17	FUNCTION2 PFK	30.29	8.969e3					0.8	NO		bb		0.000
18	FUNCTION2 PFK	30.23	1.060e4					1.3	NO		db		0.000
19	FUNCTION2 PFK	30.19	8.606e3					0.8	NO		bd		0.000
20	FUNCTION2 PFK	29.80	5.894e4					2.1	NO		bb		0.000
21	FUNCTION2 PFK	29.73	1.092e4					0.9	NO		bb		0.000
22	FUNCTION2 PFK	29.36	1.485e4					1.0	NO		bb		0.000
23	FUNCTION2 PFK	29.26	4.045e4					1.3	NO		db		0.000
24	FUNCTION2 PFK	29.16	2.122e4					1.1	NO		bd		0.000
25	FUNCTION2 PFK	28.91	7.053e4					1.8	NO		bb		0.000
26	FUNCTION2 PFK	32.84	1.883e4					0.7	NO		bb		0.000
27	FUNCTION2 PFK	32.64	9.143e3					1.0	NO		bb		0.000
28	FUNCTION2 PFK	32.51	1.348e4					1.2	NO		bb		0.000
29	FUNCTION2 PFK	32.40	1.400e5					2.5	NO		db		0.000
30	FUNCTION2 PFK	32.22	7.492e4					2.2	NO		dd		0.000
31	FUNCTION2 PFK	32.16	4.065e4					2.3	NO		bd		0.000
32	FUNCTION2 PFK	32.08	1.110e5					2.9	NO		db		0.000
33	FUNCTION2 PFK	31.94	3.427e4					1.9	NO		bd		0.000
34	FUNCTION2 PFK	31.74	6.542e3					0.9	NO		bb		0.000
35	FUNCTION2 PFK	31.60	3.876e4					1.5	NO		db		0.000
36	FUNCTION2 PFK	31.56	8.234e3					0.8	NO		bd		0.000

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	33.14	3.600e4					1.9	NO		db		0.000
2	FUNCTION3 PFK	33.08	2.619e4					1.6	NO		dd		0.000
3	FUNCTION3 PFK	33.02	3.566e4					1.8	NO		dd		0.000
4	FUNCTION3 PFK	32.98	6.559e3					1.0	NO		bd		0.000
5	FUNCTION3 PFK	34.78	7.910e3					0.7	NO		bb		0.000
6	FUNCTION3 PFK	34.64	1.217e4					0.8	NO		db		0.000
7	FUNCTION3 PFK	34.60	2.424e4					1.1	NO		bd		0.000
8	FUNCTION3 PFK	34.50	3.549e4					2.5	NO		db		0.000
9	FUNCTION3 PFK	34.44	2.624e4					1.3	NO		bd		0.000
10	FUNCTION3 PFK	34.34	1.255e4					1.1	NO		bb		0.000
11	FUNCTION3 PFK	34.30	4.083e3					0.5	NO		bb		0.000
12	FUNCTION3 PFK	34.12	4.383e4					2.2	NO		db		0.000
13	FUNCTION3 PFK	34.04	6.896e4					2.0	NO		dd		0.000
14	FUNCTION3 PFK	33.99	7.828e3					0.9	NO		bd		0.000
15	FUNCTION3 PFK	33.94	8.211e3					1.0	NO		bb		0.000
16	FUNCTION3 PFK	33.89	1.408e4					0.8	NO		bb		0.000
17	FUNCTION3 PFK	33.57	8.803e4					3.1	YES		db		0.000
18	FUNCTION3 PFK	33.46	1.924e4					1.2	NO		dd		0.000
19	FUNCTION3 PFK	33.41	7.045e4					3.6	YES		dd		0.000
20	FUNCTION3 PFK	33.36	2.031e4					1.9	NO		bd		0.000
21	FUNCTION3 PFK	37.16	1.002e4					1.0	NO		db		0.000
22	FUNCTION3 PFK	37.10	4.443e4					1.9	NO		dd		0.000
23	FUNCTION3 PFK	37.03	9.644e4					1.7	NO		dd		0.000
24	FUNCTION3 PFK	36.88	7.038e4					2.8	NO		bd		0.000
25	FUNCTION3 PFK	36.66	8.073e3					0.8	NO		bb		0.000
26	FUNCTION3 PFK	36.61	8.296e3					0.8	NO		bb		0.000
27	FUNCTION3 PFK	36.56	7.199e3					0.8	NO		bb		0.000
28	FUNCTION3 PFK	36.43	2.138e3					0.4	NO		bb		0.000
29	FUNCTION3 PFK	36.16	1.464e4					1.0	NO		db		0.000
30	FUNCTION3 PFK	36.10	1.354e4					0.9	NO		bd		0.000
31	FUNCTION3 PFK	36.06	1.770e3					0.3	NO		bb		0.000
32	FUNCTION3 PFK	35.97	1.754e4					1.3	NO		bb		0.000
33	FUNCTION3 PFK	35.93	8.361e3					1.0	NO		bb		0.000
34	FUNCTION3 PFK	35.46	4.840e4					2.2	NO		bb		0.000
35	FUNCTION3 PFK	35.29	6.205e3					0.7	NO		bb		0.000
36	FUNCTION3 PFK	35.08	1.724e4					1.0	NO		bb		0.000
37	FUNCTION3 PFK	37.83	7.216e3					0.7	NO		bb		0.000

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	37.78	1.790e3					0.3	NO		bb		0.000
39	FUNCTION3 PFK	37.62	7.221e3					0.4	NO		bb		0.000
40	FUNCTION3 PFK	37.46	1.030e4					1.0	NO		bb		0.000

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	38.60	8.400e4					5.0	YES		dd		
2	FUNCTION4 PFK	38.54	6.923e4					5.2	YES		dd		
3	FUNCTION4 PFK	38.49	9.229e4					4.9	YES		dd		
4	FUNCTION4 PFK	38.39	6.345e4					5.7	YES		dd		
5	FUNCTION4 PFK	38.34	6.216e4					6.5	YES		dd		
6	FUNCTION4 PFK	38.27	1.001e5					7.1	YES		dd		
7	FUNCTION4 PFK	38.23	1.406e5					7.4	YES		dd		
8	FUNCTION4 PFK	38.11	1.498e5					8.3	YES		dd		
9	FUNCTION4 PFK	38.05	5.877e4					8.1	YES		dd		
10	FUNCTION4 PFK	38.02	8.804e4					9.4	YES		dd		
11	FUNCTION4 PFK	37.98	1.190e5					8.6	YES		bd		
12	FUNCTION4 PFK	39.88	1.653e4					1.3	NO		db		
13	FUNCTION4 PFK	39.81	1.174e4					1.3	NO		dd		
14	FUNCTION4 PFK	39.76	2.055e4					1.5	NO		dd		
15	FUNCTION4 PFK	39.67	1.612e4					1.3	NO		bd		
16	FUNCTION4 PFK	39.55	3.326e3					0.5	NO		db		
17	FUNCTION4 PFK	39.51	1.404e3					0.5	NO		bd		
18	FUNCTION4 PFK	39.38	6.891e3					0.7	NO		bb		
19	FUNCTION4 PFK	39.22	2.551e3					0.7	NO		bb		
20	FUNCTION4 PFK	39.17	7.940e3					1.3	NO		db		
21	FUNCTION4 PFK	39.12	5.542e3					0.9	NO		bd		
22	FUNCTION4 PFK	39.07	7.293e3					1.4	NO		db		
23	FUNCTION4 PFK	39.00	4.703e4					2.0	NO		dd		
24	FUNCTION4 PFK	38.86	6.116e4					3.1	YES		dd		
25	FUNCTION4 PFK	38.80	3.227e4					3.7	YES		dd		
26	FUNCTION4 PFK	38.73	2.477e4					2.9	NO		dd		
27	FUNCTION4 PFK	38.70	2.771e4					2.9	NO		dd		
28	FUNCTION4 PFK	40.84	1.222e4					1.4	NO		dd		
29	FUNCTION4 PFK	40.78	9.546e3					1.2	NO		bd		
30	FUNCTION4 PFK	40.69	1.772e4					1.8	NO		db		
31	FUNCTION4 PFK	40.63	1.248e4					1.5	NO		dd		
32	FUNCTION4 PFK	40.57	1.645e4					1.4	NO		dd		
33	FUNCTION4 PFK	40.53	2.323e3					0.6	NO		bd		
34	FUNCTION4 PFK	40.45	5.211e3					1.0	NO		db		
35	FUNCTION4 PFK	40.42	7.413e3					1.1	NO		dd		
36	FUNCTION4 PFK	40.39	7.952e3					1.0	NO		dd		
37	FUNCTION4 PFK	40.34	6.402e3					0.8	NO		dd		

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	40.29	9.057e3					1.3	NO		dd		
39	FUNCTION4 PFK	40.20	2.724e4					1.4	NO		dd		
40	FUNCTION4 PFK	40.13	5.471e3					0.7	NO		dd		
41	FUNCTION4 PFK	40.07	5.625e3					1.1	NO		dd		
42	FUNCTION4 PFK	40.03	1.305e4					1.3	NO		dd		
43	FUNCTION4 PFK	39.98	1.351e4					1.5	NO		bd		
44	FUNCTION4 PFK	41.81	1.534e4					1.7	NO		dd		
45	FUNCTION4 PFK	41.76	6.492e3					1.2	NO		bd		
46	FUNCTION4 PFK	41.70	5.063e3					0.8	NO		db		
47	FUNCTION4 PFK	41.66	8.317e3					1.3	NO		bd		
48	FUNCTION4 PFK	41.61	5.418e3					1.1	NO		db		
49	FUNCTION4 PFK	41.56	2.002e4					2.0	NO		dd		
50	FUNCTION4 PFK	41.53	1.540e4					1.6	NO		dd		
51	FUNCTION4 PFK	41.45	2.716e3					0.5	NO		bd		
52	FUNCTION4 PFK	41.41	1.147e3					0.5	NO		bb		
53	FUNCTION4 PFK	41.36	1.248e3					0.5	NO		bb		
54	FUNCTION4 PFK	41.32	5.786e3					0.9	NO		db		
55	FUNCTION4 PFK	41.25	1.423e4					1.7	NO		dd		
56	FUNCTION4 PFK	41.21	1.445e4					2.1	NO		dd		
57	FUNCTION4 PFK	41.16	7.025e3					1.1	NO		dd		
58	FUNCTION4 PFK	41.12	4.534e3					0.8	NO		bd		
59	FUNCTION4 PFK	40.97	4.905e4					1.7	NO		db		
60	FUNCTION4 PFK	42.57	2.548e4					1.6	NO		db		
61	FUNCTION4 PFK	42.51	5.581e3					1.0	NO		bd		
62	FUNCTION4 PFK	42.20	1.013e4					0.9	NO		bb		
63	FUNCTION4 PFK	42.06	5.221e3					0.5	NO		bb		
64	FUNCTION4 PFK	41.95	4.418e3					0.7	NO		db		
65	FUNCTION4 PFK	41.92	1.043e4					1.3	NO		dd		
66	FUNCTION4 PFK	41.88	1.488e4					1.2	NO		dd		

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	43.51	6.540e3					1.2	NO		dd		
2	FUNCTION5 PFK	43.44	1.985e4					1.5	NO		dd		
3	FUNCTION5 PFK	43.39	6.871e3					1.2	NO		dd		
4	FUNCTION5 PFK	43.34	1.738e4					1.8	NO		dd		
5	FUNCTION5 PFK	43.29	3.793e4					2.0	NO		dd		
6	FUNCTION5 PFK	43.18	6.092e3					1.4	NO		bd		
7	FUNCTION5 PFK	43.15	4.562e3					1.3	NO		db		
8	FUNCTION5 PFK	43.09	9.723e3					1.3	NO		bd		
9	FUNCTION5 PFK	44.46	1.511e4					2.1	NO		db		
10	FUNCTION5 PFK	44.40	1.003e4					1.5	NO		dd		
11	FUNCTION5 PFK	44.35	4.746e3					0.8	NO		bd		
12	FUNCTION5 PFK	44.22	4.092e3					1.0	NO		bb		
13	FUNCTION5 PFK	44.12	4.052e3					1.1	NO		db		
14	FUNCTION5 PFK	44.09	1.106e4					1.6	NO		bd		
15	FUNCTION5 PFK	44.03	1.290e4					2.5	NO		db		
16	FUNCTION5 PFK	44.00	3.101e4					2.4	NO		dd		
17	FUNCTION5 PFK	43.92	1.560e4					2.4	NO		dd		
18	FUNCTION5 PFK	43.86	2.520e4					2.1	NO		dd		
19	FUNCTION5 PFK	43.81	1.291e4					1.8	NO		dd		
20	FUNCTION5 PFK	43.77	1.033e4					1.8	NO		dd		
21	FUNCTION5 PFK	43.73	7.661e3					1.3	NO		bd		
22	FUNCTION5 PFK	43.63	4.786e3					0.9	NO		db		
23	FUNCTION5 PFK	43.60	3.417e3					0.9	NO		dd		
24	FUNCTION5 PFK	43.57	5.993e3					1.0	NO		dd		
25	FUNCTION5 PFK	45.91	2.483e3					0.5	NO		bb		
26	FUNCTION5 PFK	45.62	2.732e3					0.7	NO		bb		
27	FUNCTION5 PFK	45.34	5.224e3					1.1	NO		db		
28	FUNCTION5 PFK	45.31	2.139e3					0.6	NO		bd		
29	FUNCTION5 PFK	45.18	2.108e3					0.5	NO		bb		
30	FUNCTION5 PFK	45.08	1.724e4					1.4	NO		bb		
31	FUNCTION5 PFK	44.99	8.657e3					1.3	NO		bb		
32	FUNCTION5 PFK	44.82	3.489e3					0.7	NO		bb		
33	FUNCTION5 PFK	44.76	4.734e3					0.8	NO		bb		
34	FUNCTION5 PFK	44.63	8.839e3					1.6	NO		db		
35	FUNCTION5 PFK	44.60	1.484e4					1.9	NO		dd		
36	FUNCTION5 PFK	44.56	1.968e4					1.5	NO		bd		

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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...	25.88	9.366e1					2.0	NO		bb		0.000
2	FUNCTION1 HXCD...	24.26	9.937e1					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...	27.56	9.072e1					2.3	NO		bb		0.000
2	FUNCTION1 HPCD...	27.36	7.894e1					1.8	NO		bb		0.000
3	FUNCTION1 HPCD...	26.15	1.470e2					3.1	YES		bb		0.000
4	FUNCTION1 HPCD...	25.58	1.017e2					3.1	YES		bb		0.000
5	FUNCTION1 HPCD...	24.91	1.271e2					2.0	NO		bb		0.000
6	FUNCTION1 HPCD...	24.34	3.316e2					2.8	NO		bb		0.000
7	FUNCTION1 HPCD...	22.43	1.034e2					2.9	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...	31.97	9.016e1					1.7	NO		bb		0.000
2	FUNCTION2 HPCD...	31.49	8.941e1					1.6	NO		bb		0.000
3	FUNCTION2 HPCD...	30.32	8.584e1					2.7	NO		bb		0.000
4	FUNCTION2 HPCD...	29.30	1.216e2					1.8	NO		bb		0.000
5	FUNCTION2 HPCD...	28.85	7.436e1					1.1	NO		bb		0.000
6	FUNCTION2 HPCD...	28.72	8.086e1					1.8	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	33.72	7.559e1					2.7	NO		bb		0.000
2	FUNCTION3 OCDPE	36.10	9.774e1					4.1	YES		bb		0.000
3	FUNCTION3 OCDPE	35.51	1.068e2					3.1	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	41.17	1.103e2					3.8	YES		bb		0.000
2	FUNCTION4 NCDPE	38.70	8.382e1					3.0	YES		bb		0.000
3	FUNCTION4 NCDPE	38.41	5.416e4					1222.9	YES		bb		0.000

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, 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	43.89	7.111e1					2.9	NO		bb		0.000

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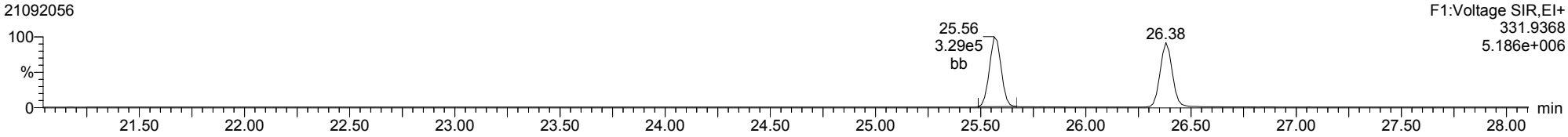
13C-1234-TCDD



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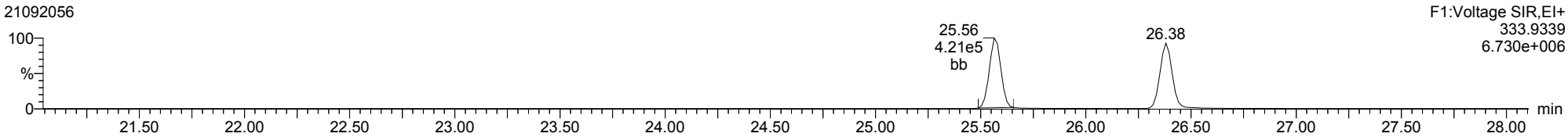

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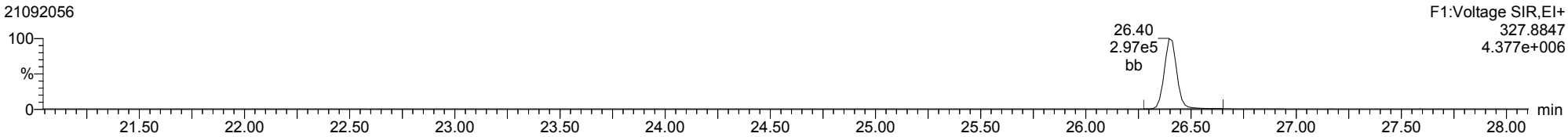

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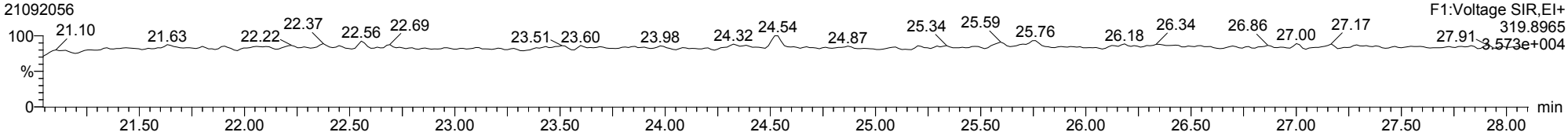
2378-TCDD



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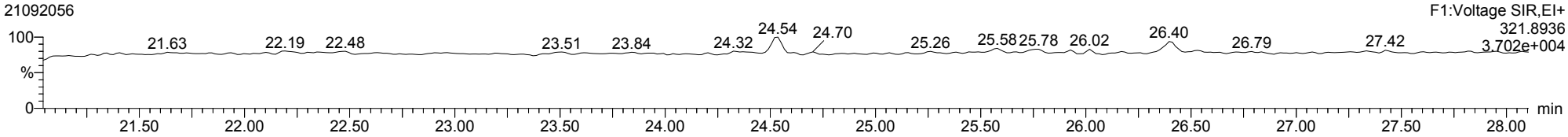

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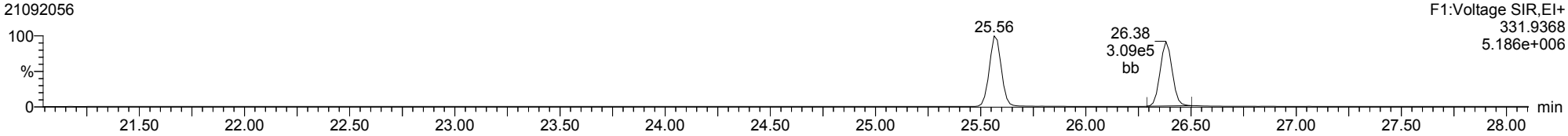

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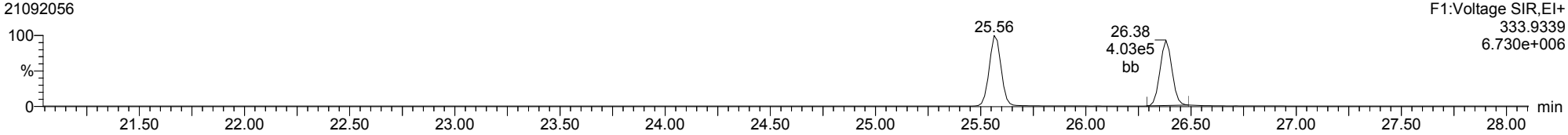

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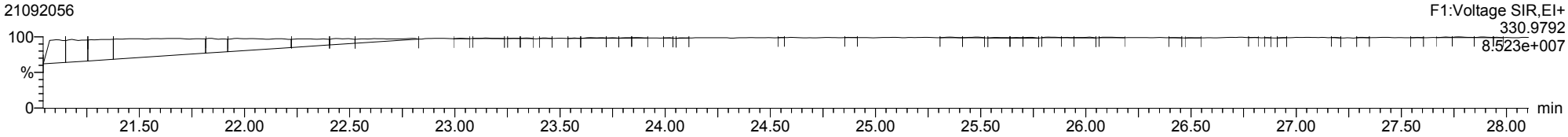

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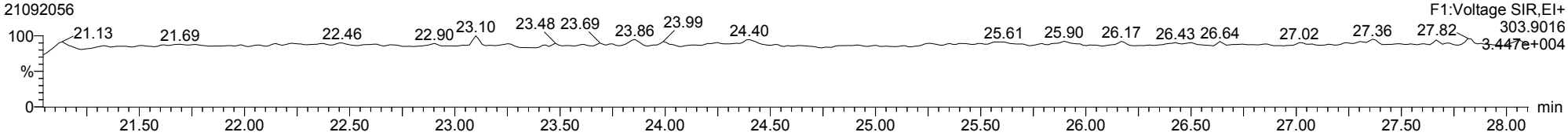
2378-TCDF



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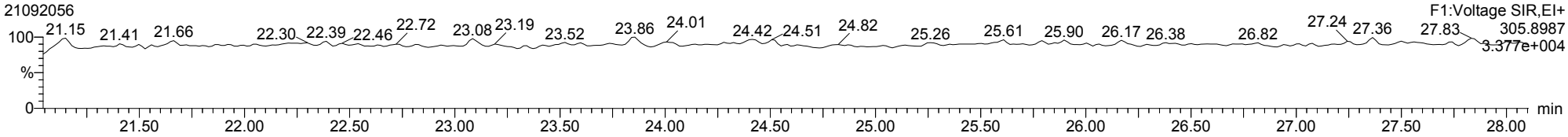

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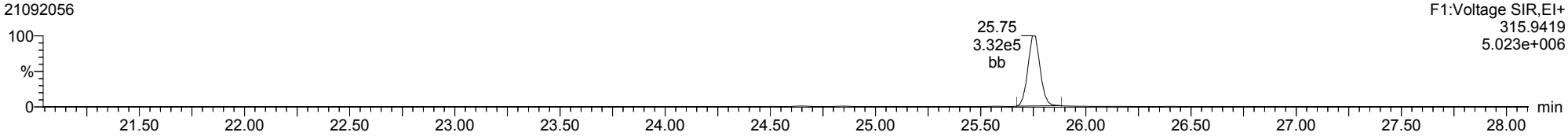

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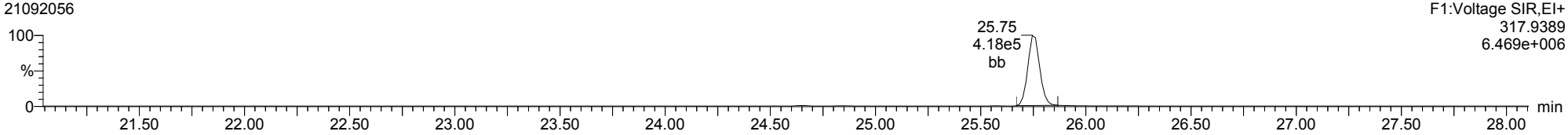

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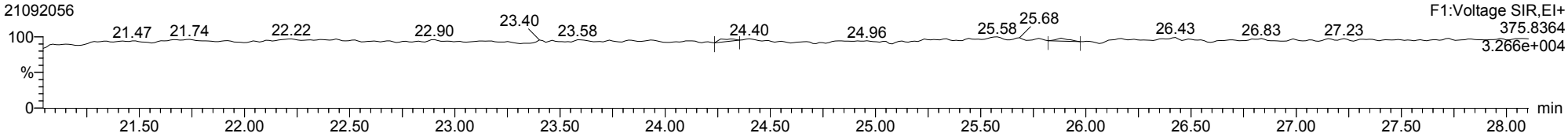

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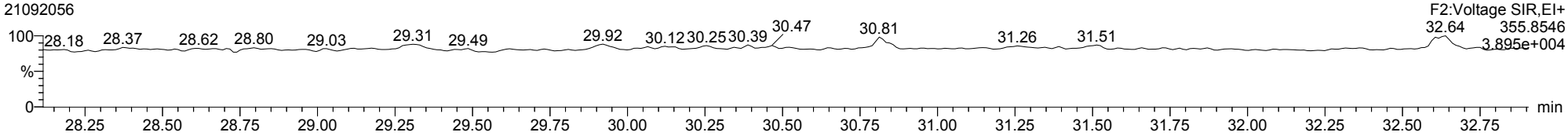

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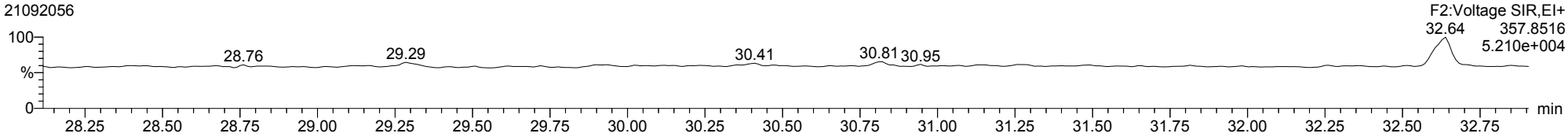

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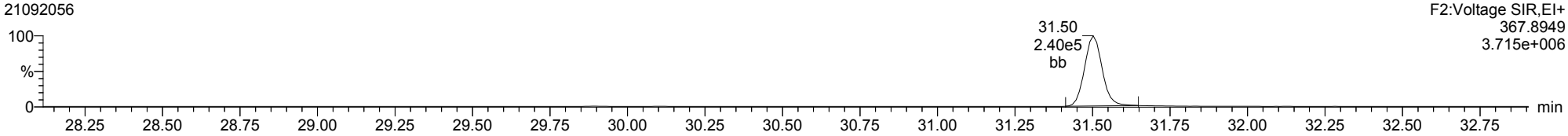

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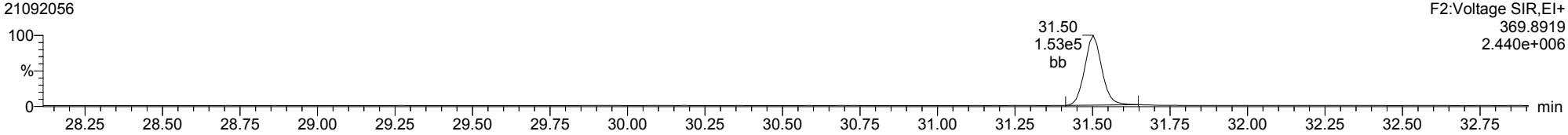

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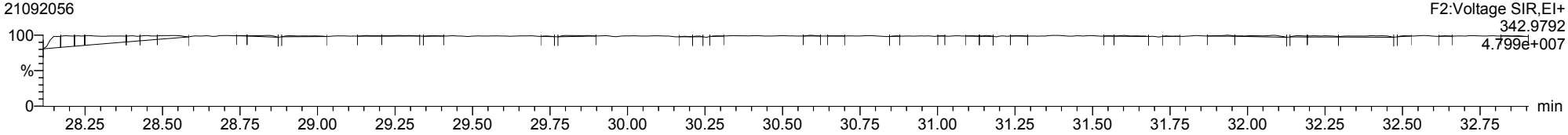

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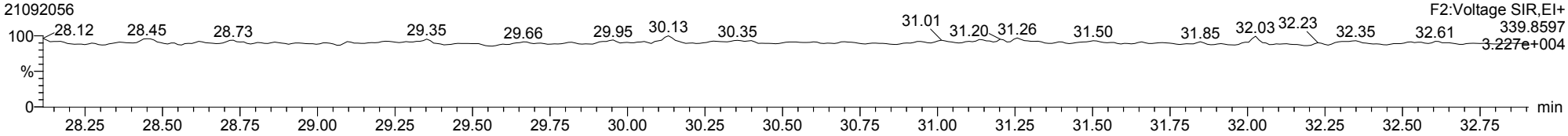
12378-PeCDF



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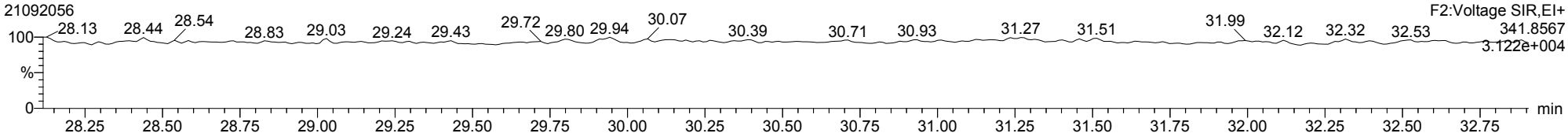

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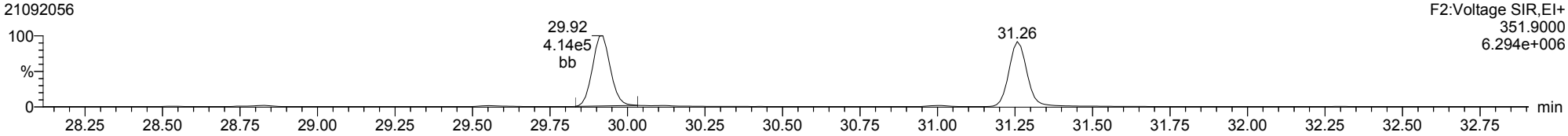

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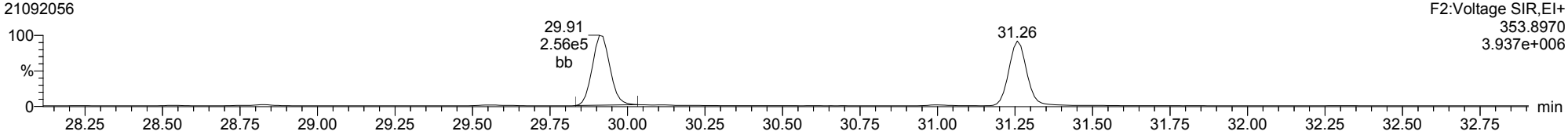

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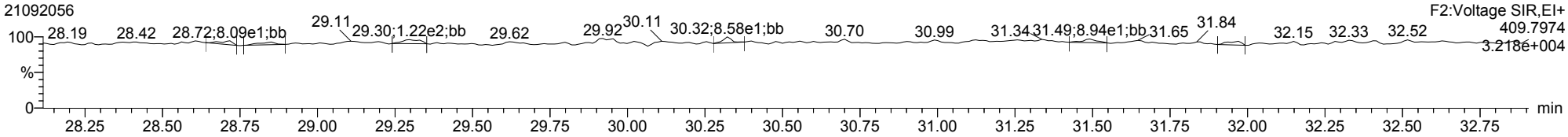

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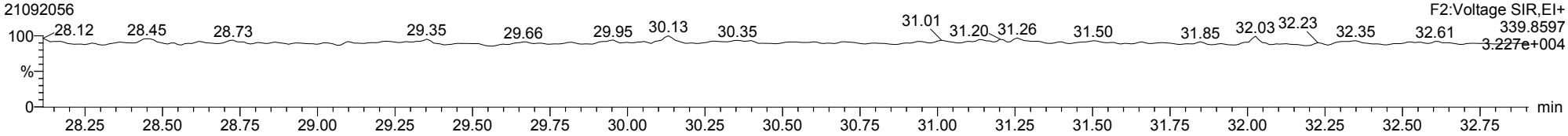
23478-PeCDF



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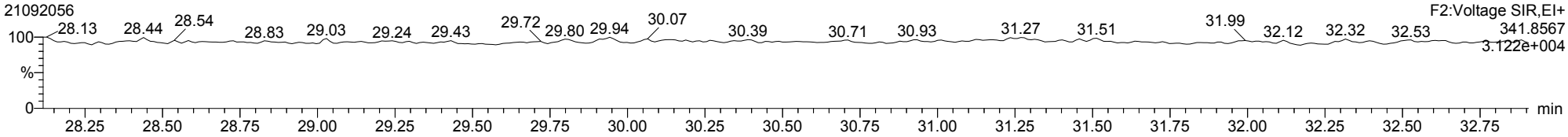

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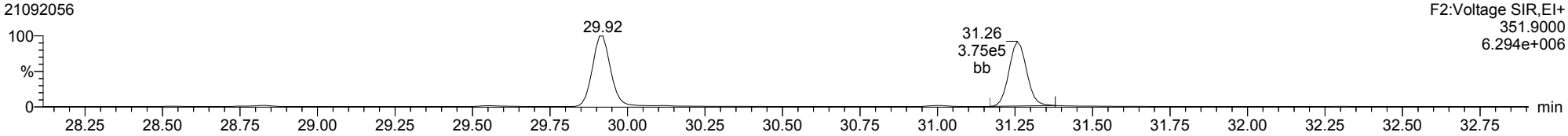

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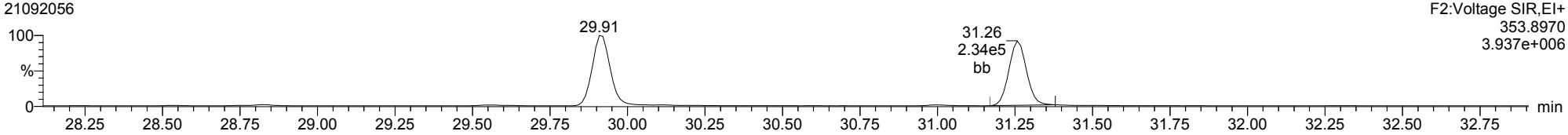

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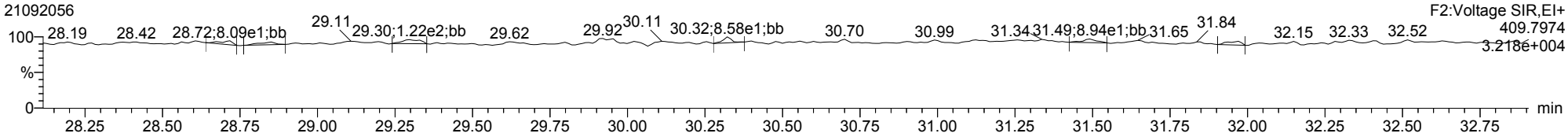

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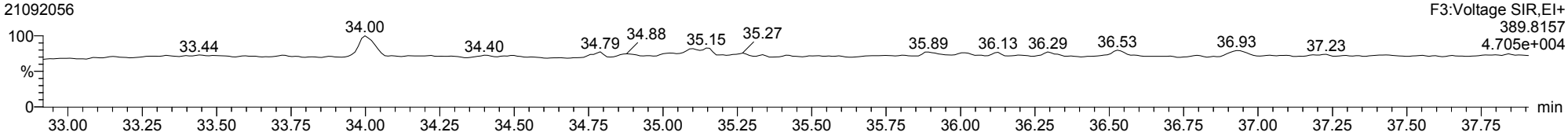

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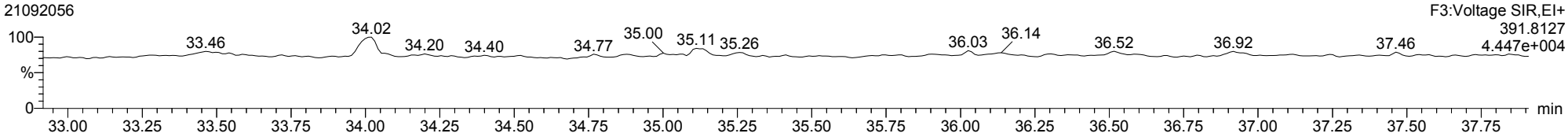

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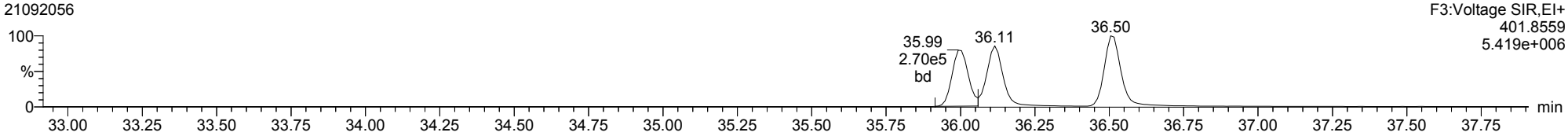

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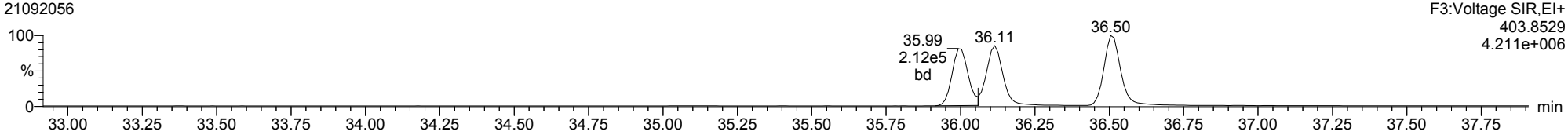

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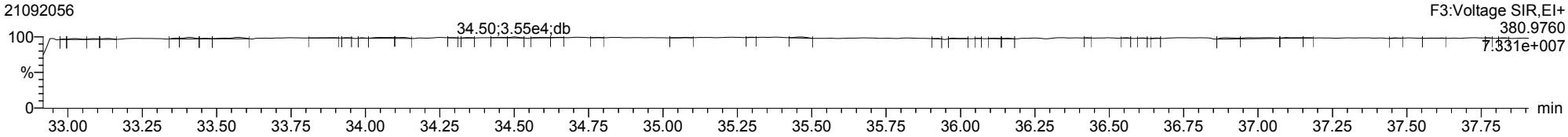

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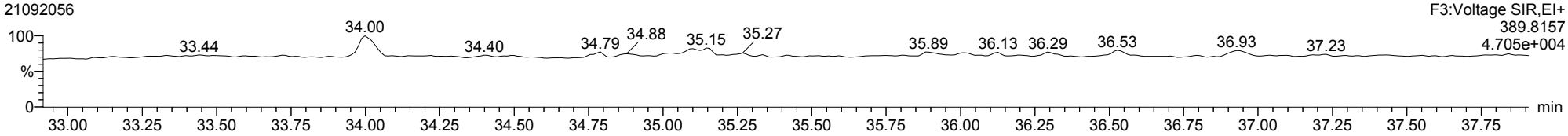

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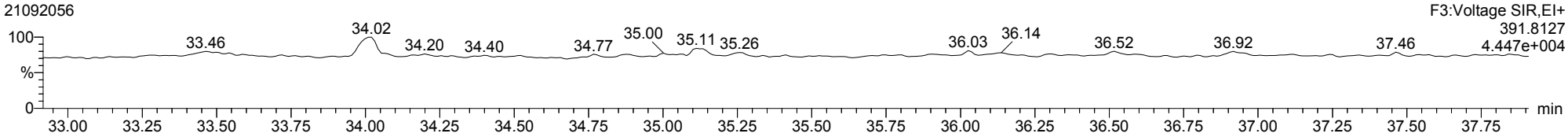

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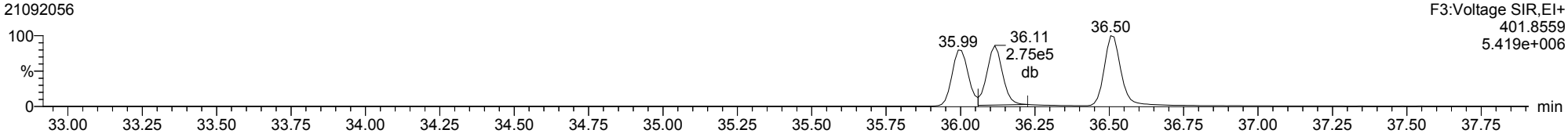

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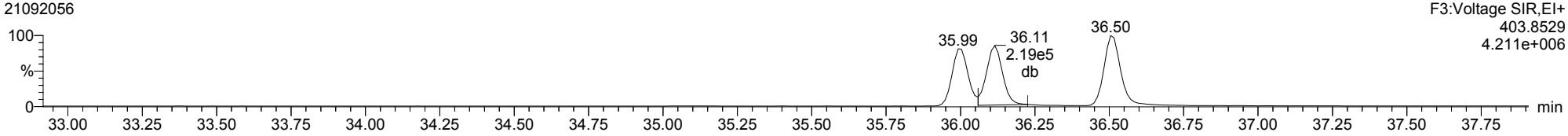

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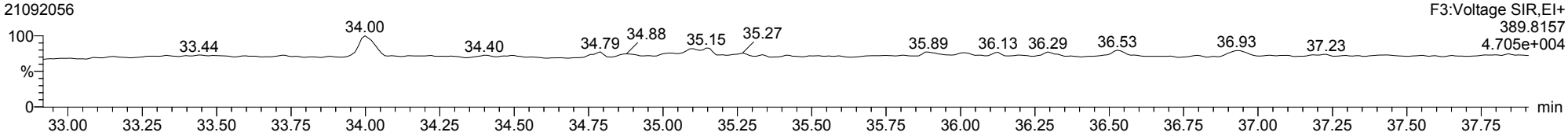

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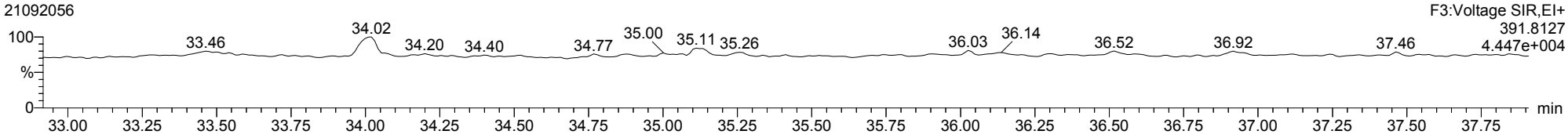

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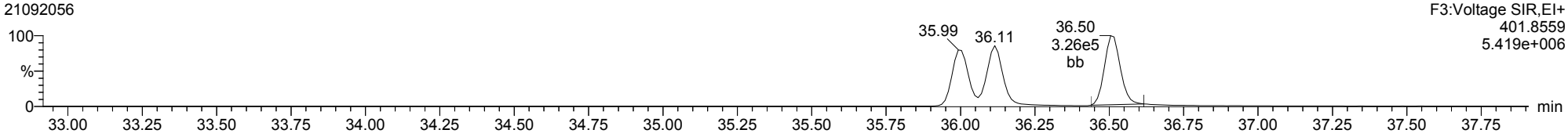

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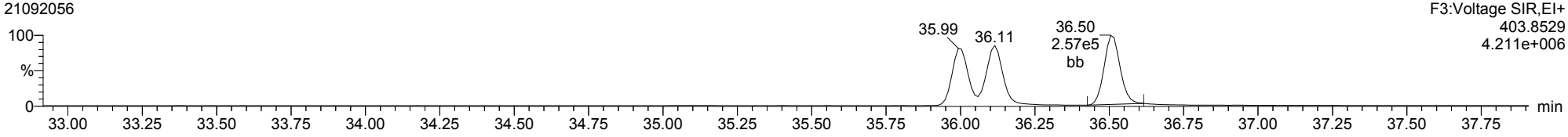

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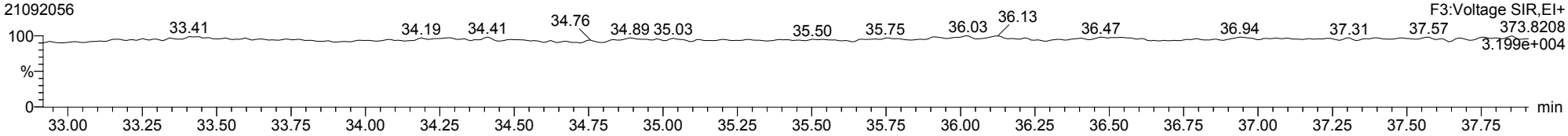

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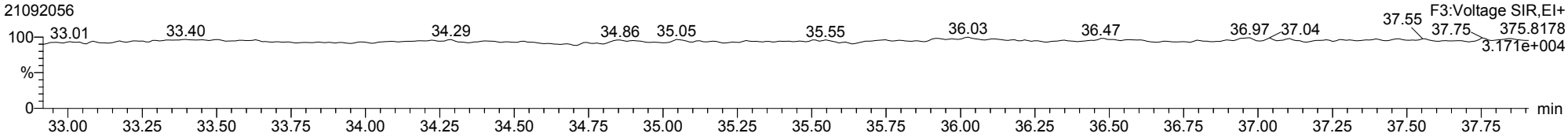

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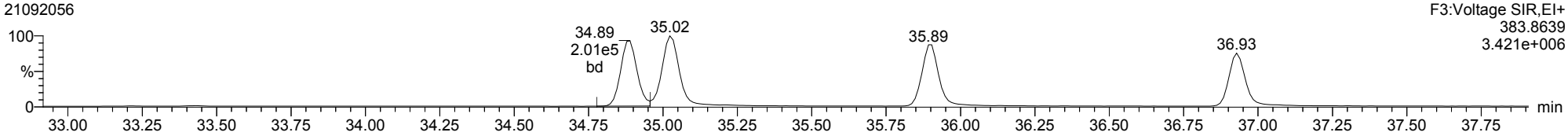

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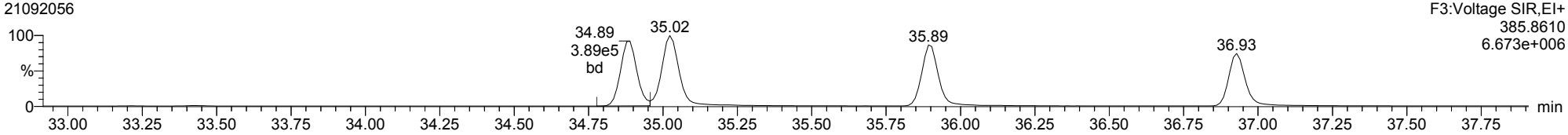

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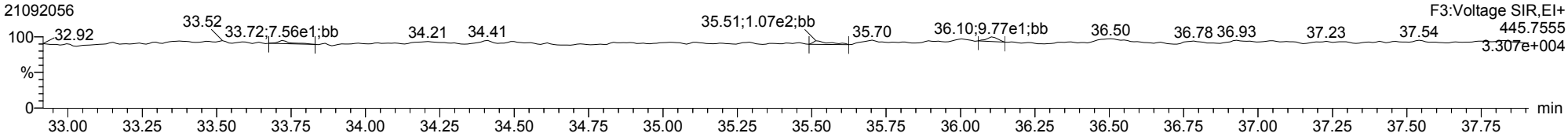

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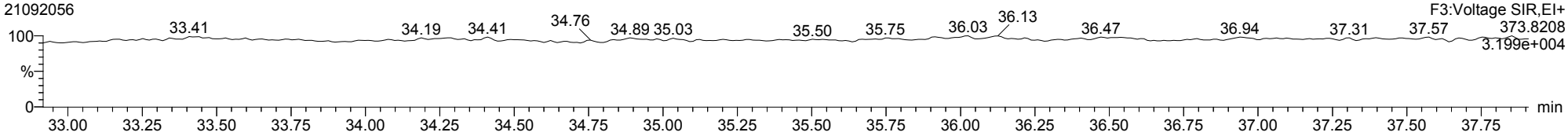
234678-HxCDF



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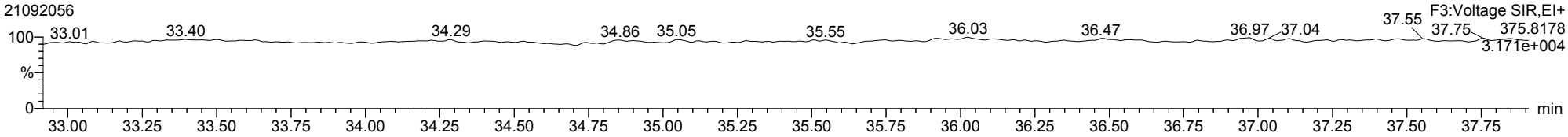

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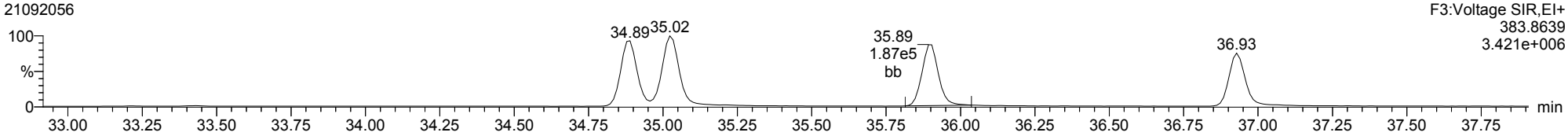

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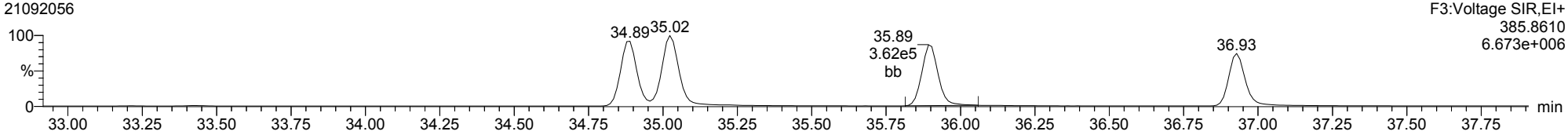

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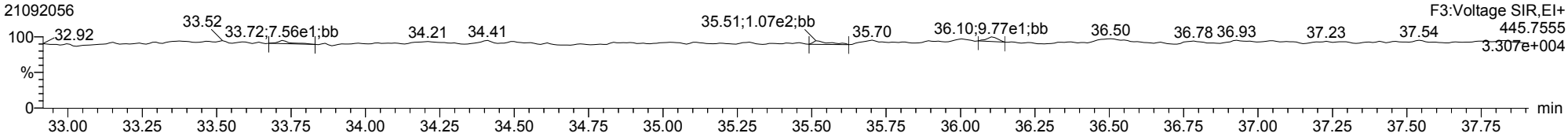

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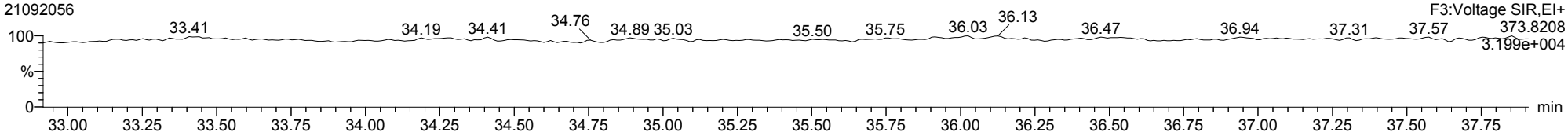
123678-HxCDF



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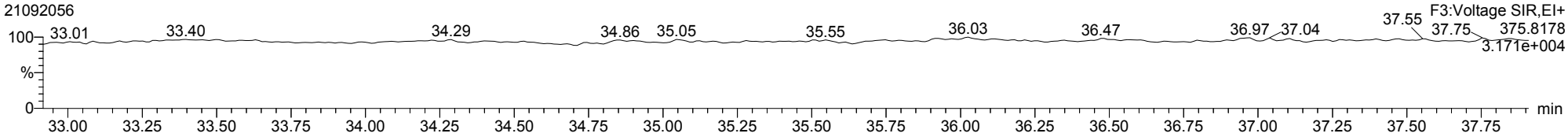

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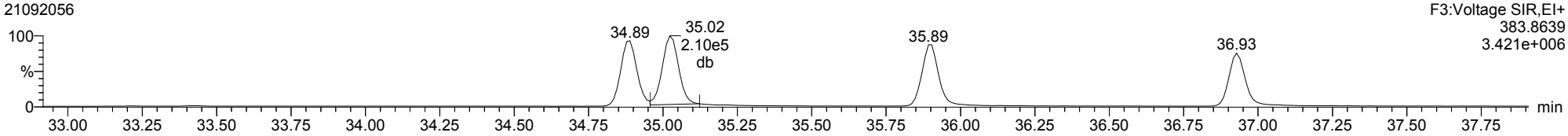

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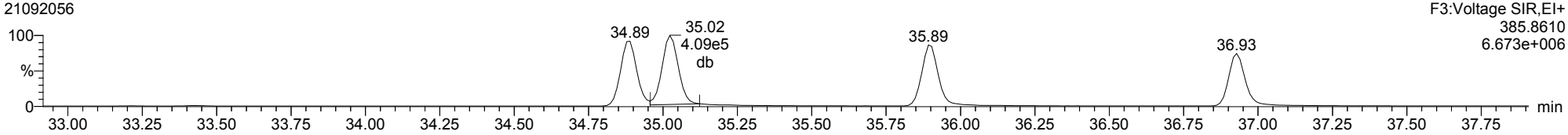

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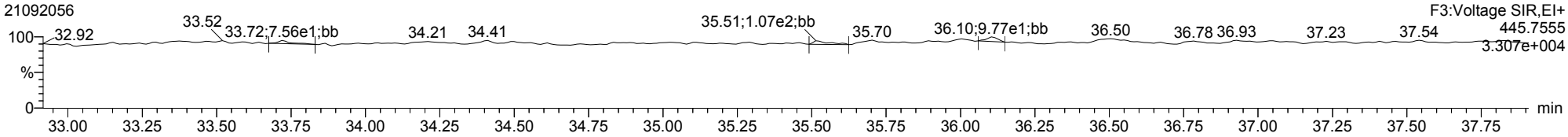

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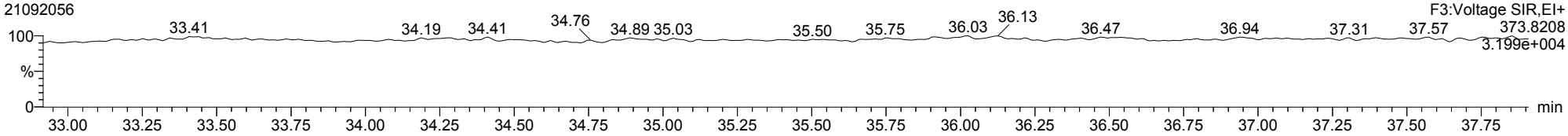
123789-HxCDF



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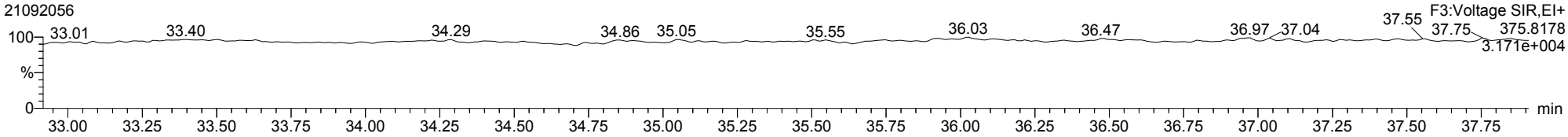

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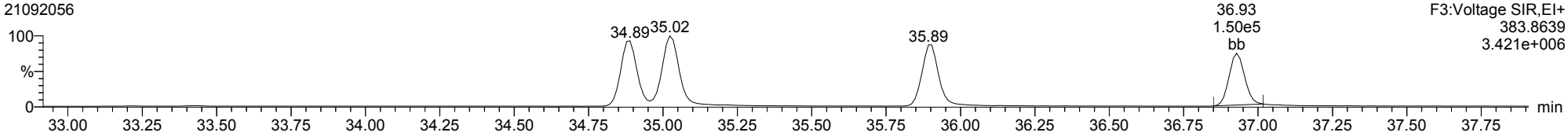

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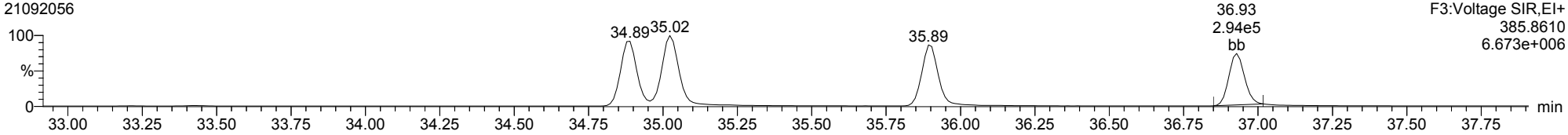

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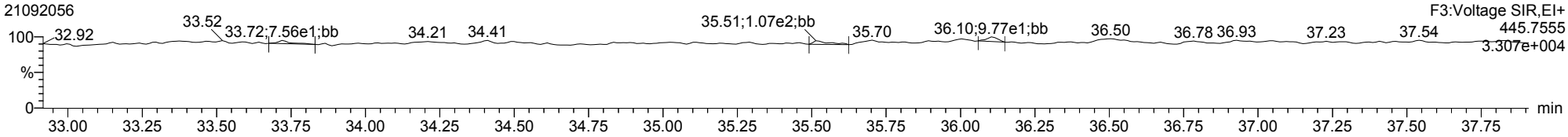

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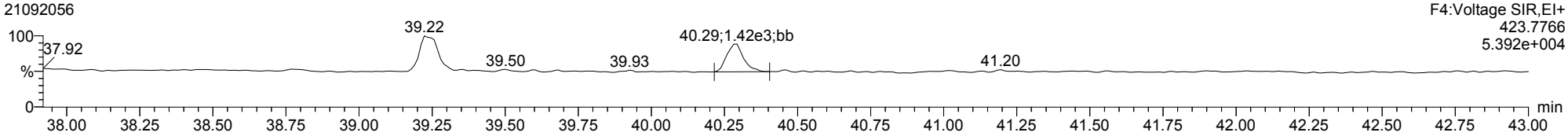
1234678-HpCDD



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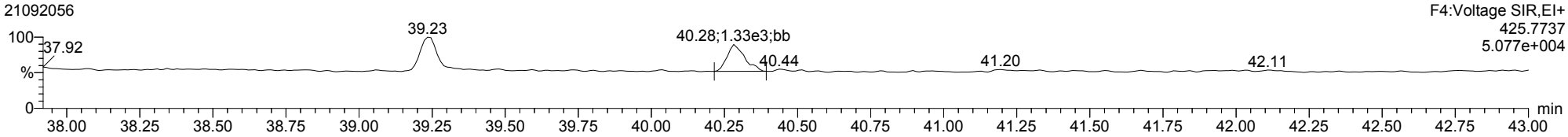

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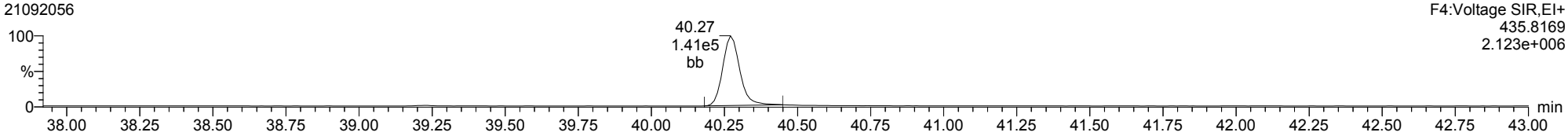

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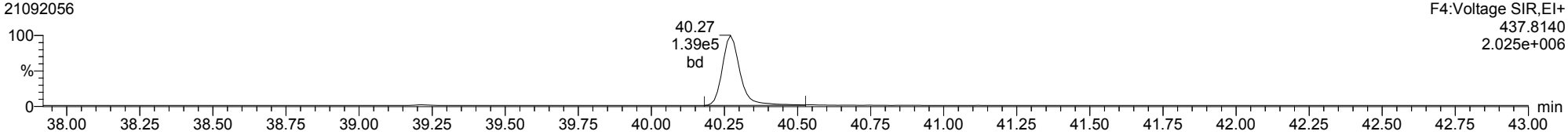

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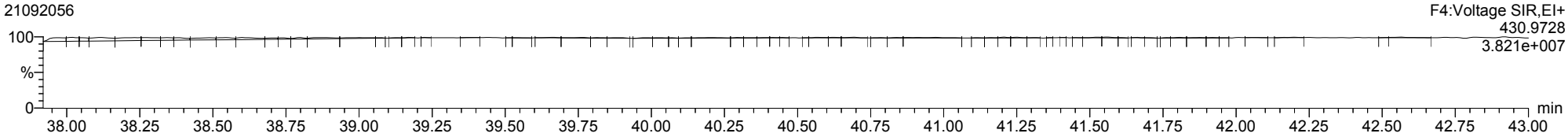

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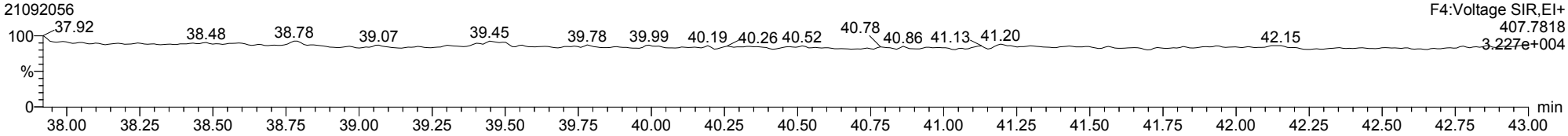
1234678-HpCDF



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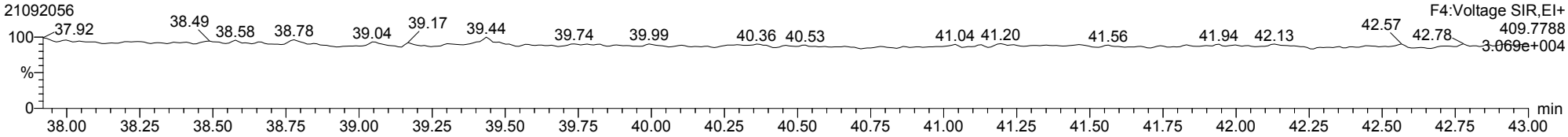

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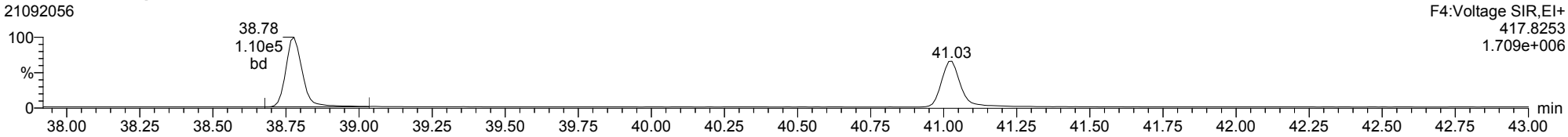

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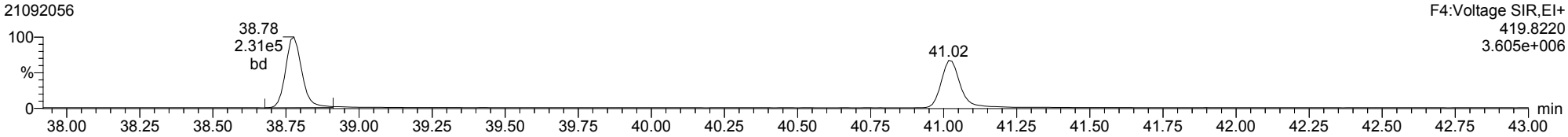
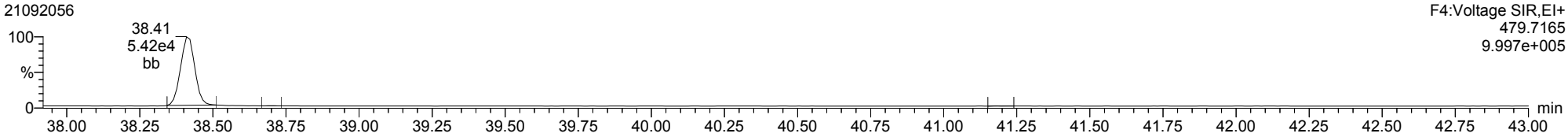


FUNCTION4 NCDPE



ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, Conditions: AUTOSPEC01, User: pk

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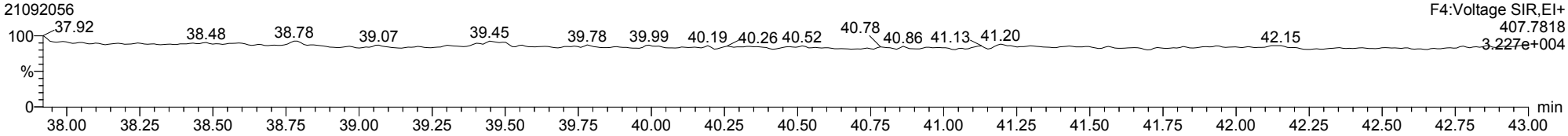

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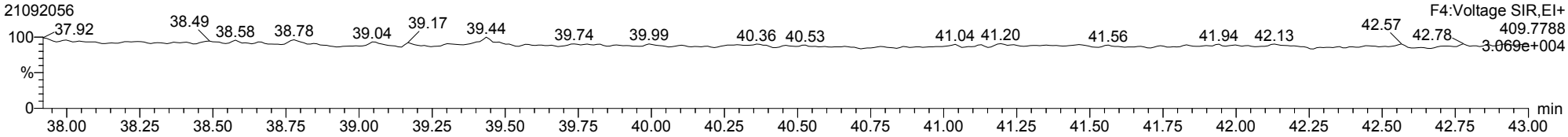

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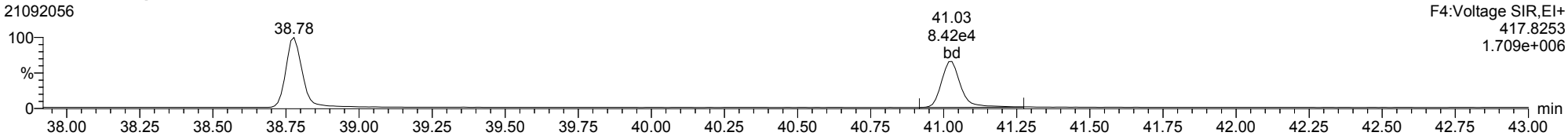

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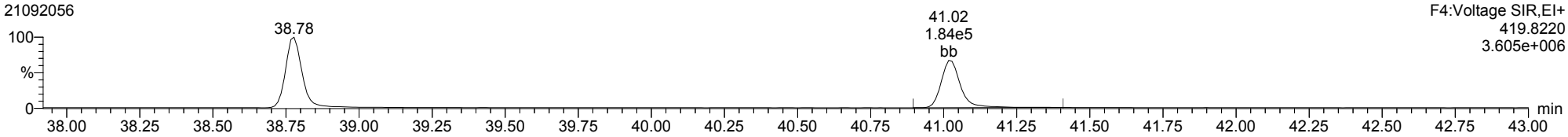
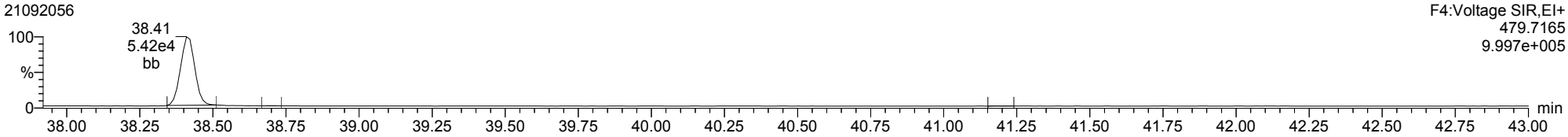
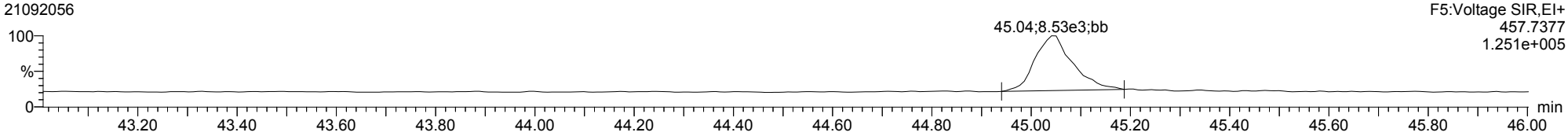


FUNCTION4 NCDPE

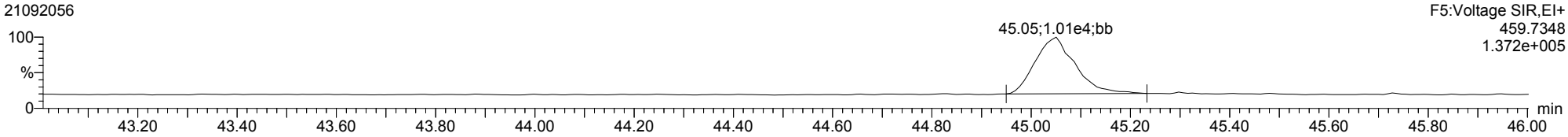


ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, Conditions: AUTOSPEC01, User: pk

OCDD



OCDD



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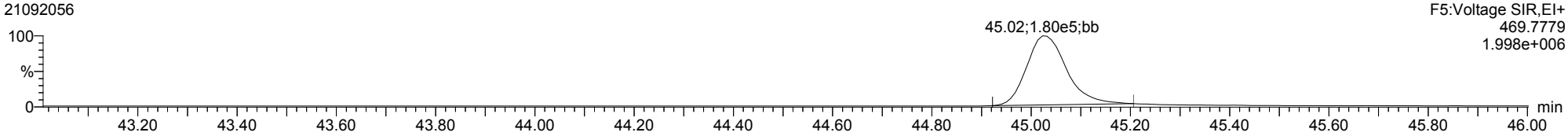

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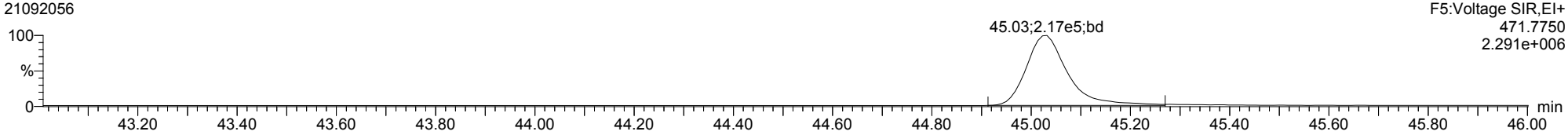
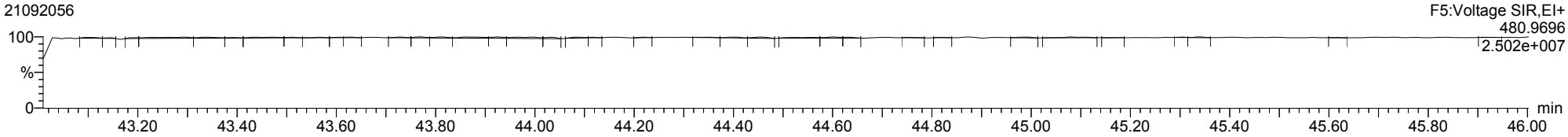
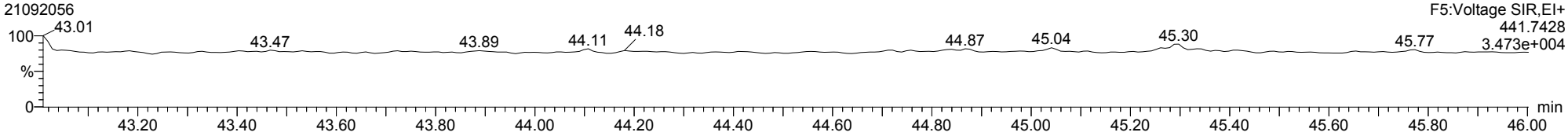


FUNCTION5 PFK

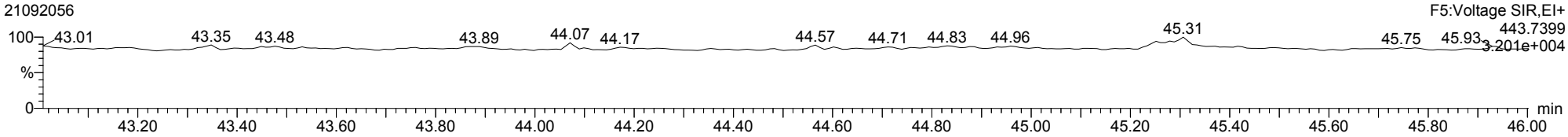


ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, Conditions: AUTOSPEC01, User: pk

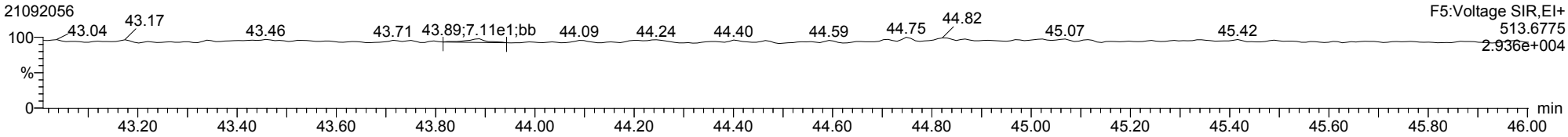
OCDF



OCDF



FUNCTION5 DCDPE



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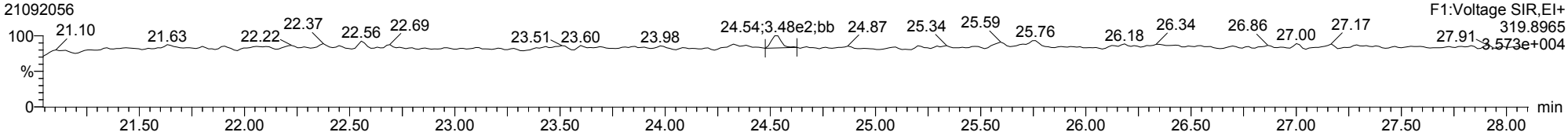
Total-tetradioxins



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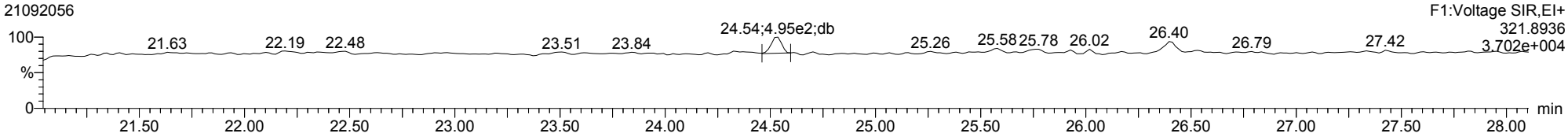

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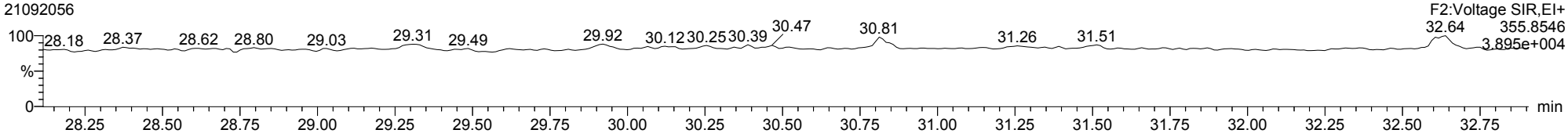
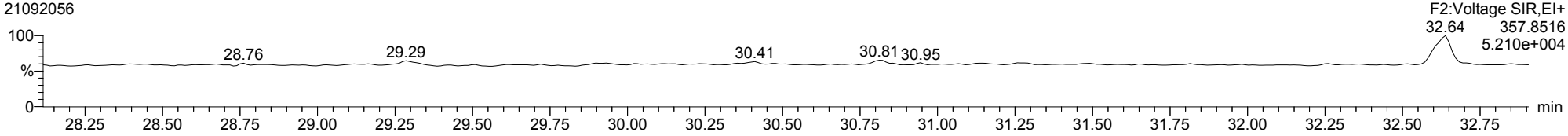
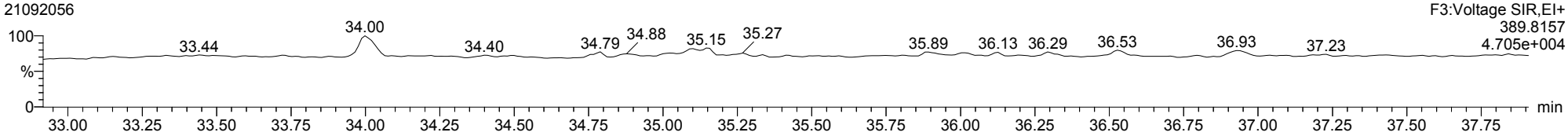


Total-pentadioxins

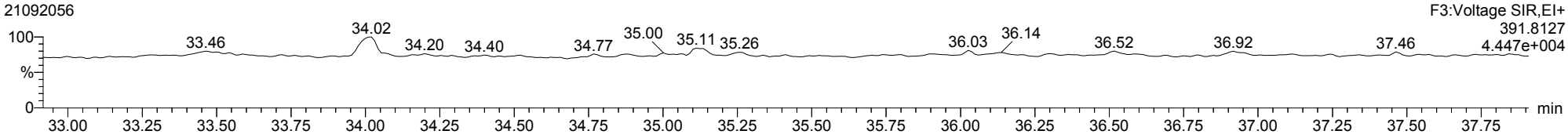


ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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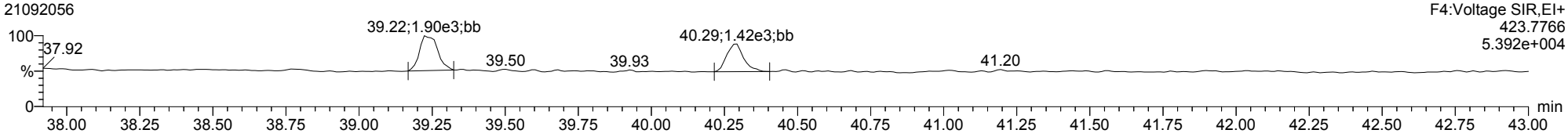

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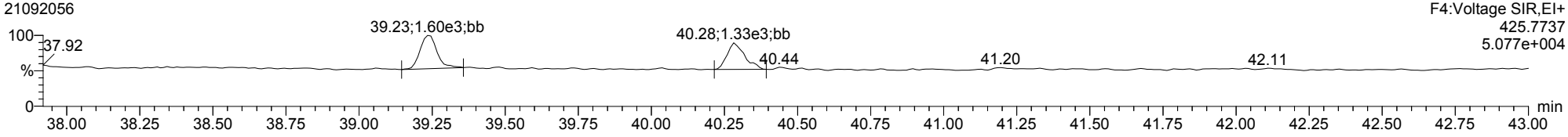

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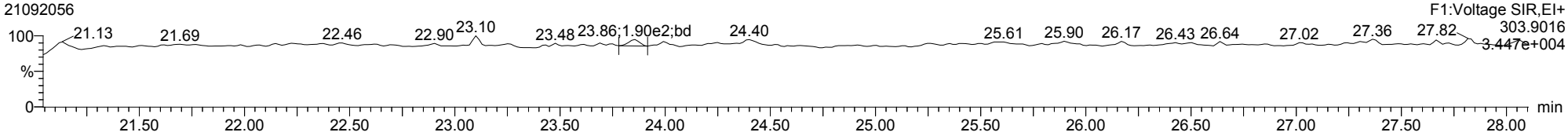
Total-tetrafurans



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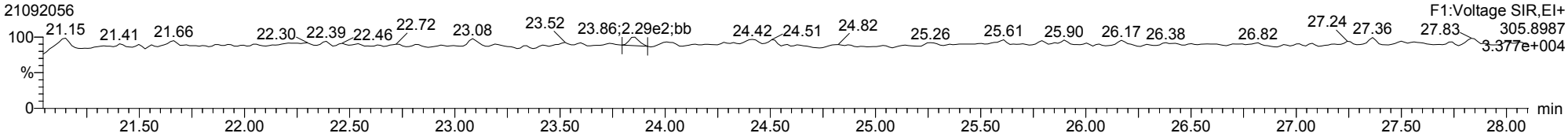

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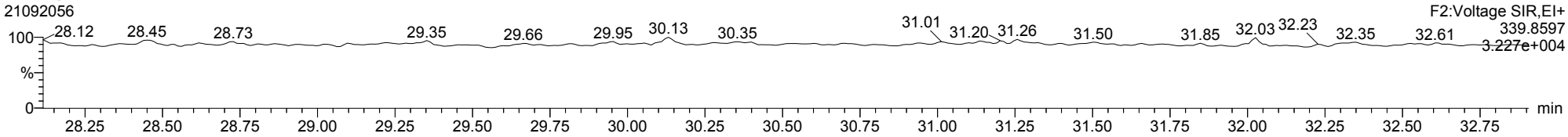

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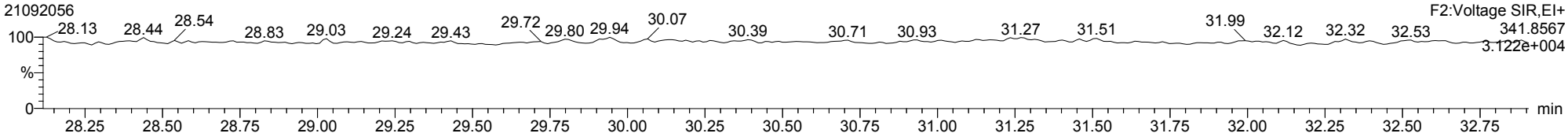

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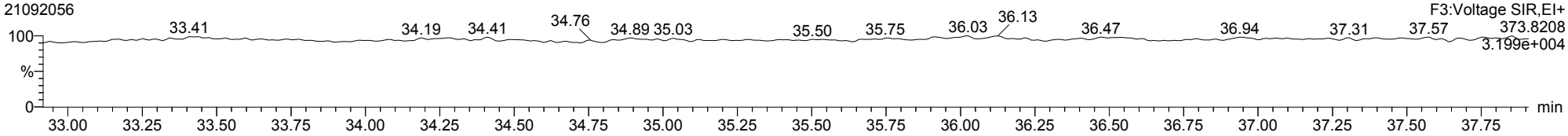
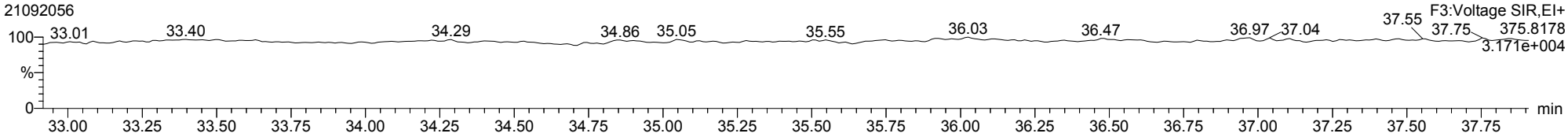
Printed: Thursday, September 23, 2021 09:14:19 Pacific Daylight Time

ID: 21G0283-15, Name: 21092056, Date: 22-Sep-2021, Time: 13:56:46, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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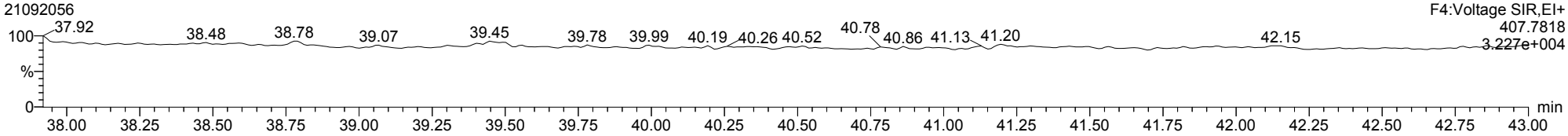

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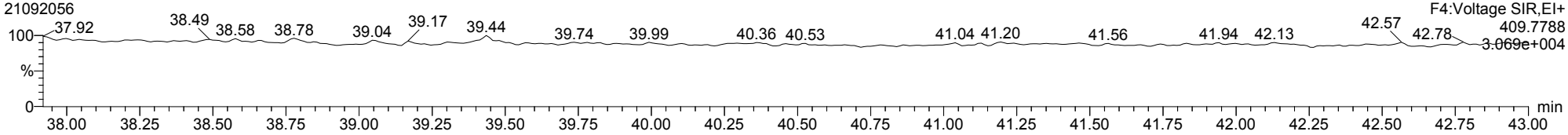

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT670E

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0283-16 C	File ID:	21092057
Sampled:	07/20/21 13:42	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 14:46
% Solids:	75.93	Preparation:	EPA 1613	Initial/Final:	13.17 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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		0.655-0.886	0.070	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1		0.655-0.886	0.132	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	0.072	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1		1.318-1.783	0.070	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1		1.318-1.783	0.123	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1		1.054-1.426	0.087	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1		1.054-1.426	0.081	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1		1.054-1.426	0.087	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1		1.054-1.426	0.111	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1		1.054-1.426	0.109	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1		1.054-1.426	0.111	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1		1.054-1.426	0.118	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1		0.893-1.208	0.102	1.00	ND	ng/kg	U
55673-89-7	1,2,3,4,7,8,9-HpCDF	1		0.893-1.208	0.152	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	0.823	0.893-1.208	0.153	2.50	0.848	ng/kg	EMPC, J, B
39001-02-0	OCDF	1		0.757-1.024	0.256	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	0.878	0.757-1.024	0.330	10.0	8.71	ng/kg	J, B

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	1.17	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.011
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.190

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT670E

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0283-16	File ID:	21092057
Sampled:	07/20/21 13:42	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 14:46
Solids Wt%:	75.93	Preparation:	EPA 1613	Initial/Final:	13.17 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.813	0.655-0.886	0.119	76.5	24 - 169 %	
13C12-2,3,7,8-TCDD		0.770	0.655-0.886	0.129	92.0	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.595	1.318-1.783	0.186	73.9	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.611	1.318-1.783	0.196	71.3	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.570	1.318-1.783	0.175	78.0	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.519	0.434-0.587	0.230	85.1	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.510	0.434-0.587	0.212	81.0	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.522	0.434-0.587	0.235	80.1	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.521	0.434-0.587	0.283	77.5	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.315	1.054-1.426	0.251	88.1	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.230	1.054-1.426	0.231	82.7	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.464	0.374-0.506	0.290	65.3	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.459	0.374-0.506	0.355	60.0	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.021	0.893-1.208	0.189	77.2	23 - 140 %	
13C12-OCDD		0.949	0.757-1.024	0.285	68.3	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.039	95.2	35 - 197 %	

* Values outside of QC limits

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Printed: Thursday, September 23, 2021 09:14:30 Pacific Daylight Time

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

ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, 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					1.108		0.770	703	812								
12378-PeCDF					1.015		1.550	529	766								
23478-PeCDF					1.126		1.550	529	766								
123478-HxCDF					1.017		1.240	770	675								
234678-HxCDF					1.052		1.240	770	675								
123678-HxCDF					1.037		1.240	770	675								
123789-HxCDF					1.030		1.240	770	675								
1234678-HpCDF					1.327		1.050	518	699								
1234789-HpCDF					1.283		1.050	518	699								
OCDF					1.447		0.890	660	674								
2378-TCDD					0.920		0.770	1051	1303								
12378-PeCDD					0.995		1.550	724	549								
123478-HxCDD					1.027		1.240	757	784								
123678-HxCDD					1.009		1.240	757	784								
123789-HxCDD					0.950		1.240	757	784								
1234678-HpCDD	40.271	1.000	5.898e2	7.167e2	1.068	0.823	1.050	602	533	1.14e4	9.64e3	18.9	18.1	YES	bb	bb	0.424
OCDD	45.023	1.000	4.887e3	5.567e3	1.181	0.878	0.890	744	659	5.01e4	6.54e4	67.3	99.2	NO	bb	bb	4.357
13C-2378-TCDF	25.746	1.008	3.597e5	4.424e5	1.427	0.813	0.770	2014	1203	5.28e6	6.44e6	2620.4	5348.7	NO	bb	bb	76.547
13C-12378-PeCDF	29.898	1.170	4.327e5	2.713e5	1.297	1.595	1.550	2461	2120	6.58e6	4.09e6	2674.0	1928.2	NO	bb	bb	73.874
13C-23478-PeCDF	31.246	1.223	3.997e5	2.481e5	1.236	1.611	1.550	2461	2120	6.08e6	3.80e6	2468.9	1792.3	NO	bb	bb	71.330
13C-123478-HxCDF	34.867	0.955	2.134e5	4.115e5	1.242	0.519	0.510	1929	2770	3.36e6	6.41e6	1742.0	2314.8	NO	bd	bd	85.111
13C-123678-HxCDF	35.012	0.959	2.174e5	4.259e5	1.343	0.510	0.510	1929	2770	3.49e6	6.69e6	1809.3	2416.1	NO	db	db	81.014
13C-234678-HxCDF	35.881	0.983	1.975e5	3.780e5	1.215	0.522	0.510	1929	2770	3.23e6	6.10e6	1676.2	2203.0	NO	bb	bb	80.149
13C-123789-HxCDF	36.917	1.012	1.582e5	3.035e5	1.008	0.521	0.510	1929	2770	2.59e6	4.93e6	1341.9	1779.6	NO	bb	bb	77.532
13C-1234678-HpCDF	38.755	1.062	1.134e5	2.442e5	0.926	0.464	0.440	2724	1707	1.71e6	3.71e6	629.1	2174.0	NO	bd	bd	65.324
13C-1234789-HpCDF	41.006	1.124	8.459e4	1.842e5	0.758	0.459	0.440	2724	1707	1.18e6	2.60e6	432.5	1521.7	NO	bb	bd	60.006
13C-1234-TCDD	25.549	0.000	3.187e5	4.159e5	1.000	0.766	0.770	1676	1056	4.93e6	6.48e6	2943.6	6141.5	NO	bb	bb	100.000
13C-2378-TCDD	26.365	1.032	3.282e5	4.263e5	1.116	0.770	0.770	1676	1056	5.06e6	6.57e6	3019.1	6221.8	NO	bb	bb	92.007
13C-12378-PeCDD	31.491	1.233	2.563e5	1.632e5	0.732	1.570	1.550	1363	1060	3.81e6	2.46e6	2794.1	2316.7	NO	bb	bb	78.011
13C-123478-HxCDD	35.981	0.986	2.839e5	2.160e5	0.960	1.315	1.240	2100	1871	4.70e6	3.64e6	2239.6	1945.2	NO	bd	bd	88.121
13C-123678-HxCDD	36.104	0.989	2.806e5	2.282e5	1.041	1.230	1.240	2100	1871	4.54e6	3.62e6	2164.0	1934.0	NO	db	db	82.669
13C-1234678-HpCDD	40.259	1.103	1.457e5	1.427e5	0.632	1.021	1.050	836	1135	2.10e6	2.02e6	2512.2	1777.1	NO	bb	bd	77.151
13C-OCDD	45.014	1.234	1.979e5	2.085e5	0.504	0.949	0.890	1152	1216	2.11e6	2.30e6	1828.5	1890.6	NO	bb	bb	136.511
13C-123789-HxCDD	36.493	0.000	3.341e5	2.569e5	1.000	1.301	1.240	2100	1871	5.59e6	4.29e6	2661.0	2290.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.381	1.033	3.031e5		1.084			807		4.33e6		5366.6			bb		38.079

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:14:30 Pacific Daylight Time

ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, 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					1.425		0.770	703	812								
1289-TCDF					1.043		0.770	703	812								
13468-PECDF					1.376		1.550	583	701								
12389-PECDF					1.000		1.550	529	766								
123468-HXCDF					1.087		1.240	770	675								
1368-TCDD					0.923		0.770	1051	1303								
1289-TCDD					0.794		0.770	1051	1303								
12479-PECDD					1.843		1.550	724	549								
12389-PECDD					1.154		1.550	724	549								
124679-HXCDD	33.998	0.945	4.767e2	5.373e2	1.125	0.887	1.240	757	784	8.05e3	9.70e3	10.6	12.4	YES	bb	bb	0.180
1234679-HPCDD	39.223	0.974	1.067e3	9.838e2	1.211	1.085	1.050	602	533	1.85e4	1.69e4	30.7	31.7	NO	bb	bb	0.587
Total-tetrafurans			0.000e0		1.192			703		0.00e0							
Total-penta1			0.000e0					583		0.00e0							
Total-pentafurans			0.000e0		1.047			529		0.00e0							
Total-hexafurans			0.000e0		1.045			770		0.00e0							
Total-heptafurans			0.000e0		1.305			518		0.00e0							
Total-Furans			0.000e0		1.158			703		0.00e0							
Total-tetradioxins			0.000e0		0.879			1051		0.00e0							
Total-pentadioxins			0.000e0		1.331			724		0.00e0							
Total-hexadioxins			0.000e0		1.028			757		0.00e0							
Total-heptadioxins			1.067e3		1.140			602		1.85e4							0.587
Total-Dioxins			5.955e3		1.092			1051		6.86e4							4.944
Total-TEQ			5.955e3					1051		6.86e4							4.944
FUNCTION1 PFK			1.350e6					494900		2.46e7							
FUNCTION2 PFK			1.184e6					369819		2.21e7							0.000
FUNCTION3 PFK			2.293e6					388772		3.14e7							0.000
FUNCTION4 PFK			1.142e6					198219		1.62e7							
FUNCTION5 PFK			4.745e4					169820		2.10e6							
FUNCTION1 HXCD...			6.102e2					477		9.40e3							0.000
FUNCTION1 HPCD...			1.809e2					527		3.57e3							0.000
FUNCTION2 HPCD...			1.997e2					766		4.26e3							0.000
FUNCTION3 OCDPE			6.135e2					569		8.70e3							0.000
FUNCTION4 NCDPE			1.527e4					647		2.58e5							0.000
FUNCTION5 DCDPE			0.000e0					432		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:14:30 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, Conditions: AUTOSPEC01, User: pk

TF

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

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													

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:14:30 Pacific Daylight Time

ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, 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	1234679-HPCDD	39.22	1.067e3	9.838e2	1.211	1.08	1.05	30.7	YES	NO	bb	bb	0.587

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	1234679-HPCDD	39.22	1.067e3	9.838e2	1.211	1.08	1.05	30.7	YES	NO	bb	bb	0.587
2	OCDD	45.02	4.887e3	5.567e3	1.181	0.88	0.89	67.3	YES	NO	bb	bb	4.357

TotalTEQ,Furans,Dioxins

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

ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, 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	21.30	9.586e4					2.2	NO		bd		
2	FUNCTION1 PFK	21.19	3.061e4					1.8	NO		db		
3	FUNCTION1 PFK	21.15	3.211e4					1.6	NO		bd		
4	FUNCTION1 PFK	24.07	1.040e5					1.0	NO		bb		
5	FUNCTION1 PFK	23.86	5.040e4					2.1	NO		bb		
6	FUNCTION1 PFK	23.28	1.149e4					1.0	NO		bb		
7	FUNCTION1 PFK	23.07	2.668e3					0.4	NO		bb		
8	FUNCTION1 PFK	23.01	2.900e4					1.6	NO		db		
9	FUNCTION1 PFK	22.93	2.337e4					1.3	NO		bd		
10	FUNCTION1 PFK	22.49	1.549e4					0.9	NO		bb		
11	FUNCTION1 PFK	22.43	3.870e4					1.1	NO		bb		
12	FUNCTION1 PFK	22.30	6.179e4					2.4	NO		db		
13	FUNCTION1 PFK	22.24	1.209e5					2.8	NO		bd		
14	FUNCTION1 PFK	22.06	3.881e4					1.4	NO		bb		
15	FUNCTION1 PFK	21.83	2.632e4					1.3	NO		db		
16	FUNCTION1 PFK	21.78	1.796e4					1.2	NO		bd		
17	FUNCTION1 PFK	21.72	7.683e3					0.7	NO		bb		
18	FUNCTION1 PFK	21.59	1.229e4					0.9	NO		bb		
19	FUNCTION1 PFK	21.38	1.853e4					1.1	NO		db		
20	FUNCTION1 PFK	26.73	5.696e3					0.6	NO		bd		
21	FUNCTION1 PFK	26.35	7.518e3					0.6	NO		bb		
22	FUNCTION1 PFK	26.05	5.139e4					1.1	NO		bb		
23	FUNCTION1 PFK	25.90	8.425e4					2.2	NO		db		
24	FUNCTION1 PFK	25.79	7.476e3					0.7	NO		bd		
25	FUNCTION1 PFK	25.69	7.408e3					0.5	NO		bb		
26	FUNCTION1 PFK	25.61	2.267e4					1.2	NO		db		
27	FUNCTION1 PFK	25.50	6.734e4					1.7	NO		dd		
28	FUNCTION1 PFK	25.41	5.263e4					2.1	NO		bd		
29	FUNCTION1 PFK	25.20	9.299e3					0.6	NO		bb		
30	FUNCTION1 PFK	25.14	1.053e4					0.8	NO		bb		
31	FUNCTION1 PFK	25.08	1.634e4					1.1	NO		bb		
32	FUNCTION1 PFK	24.63	3.206e4					1.1	NO		bb		
33	FUNCTION1 PFK	24.43	2.715e4					1.5	NO		db		
34	FUNCTION1 PFK	24.31	7.486e4					1.2	NO		dd		
35	FUNCTION1 PFK	24.19	1.134e4					0.7	NO		bd		
36	FUNCTION1 PFK	27.71	3.042e4					1.4	NO		db		
37	FUNCTION1 PFK	27.64	3.587e4					1.5	NO		bd		

ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, 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	26.88	3.412e4					1.5	NO		bb		
39	FUNCTION1 PFK	26.79	2.345e4					1.0	NO		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.85	5.068e4					1.8	NO		bb		0.000
2	FUNCTION2 PFK	29.59	4.565e3					0.6	NO		bb		0.000
3	FUNCTION2 PFK	29.29	1.236e4					0.9	NO		bb		0.000
4	FUNCTION2 PFK	29.17	1.120e4					0.9	NO		bb		0.000
5	FUNCTION2 PFK	28.88	1.147e4					0.5	NO		bb		0.000
6	FUNCTION2 PFK	28.72	6.365e3					0.9	NO		bb		0.000
7	FUNCTION2 PFK	28.42	1.811e5					5.5	YES		db		0.000
8	FUNCTION2 PFK	28.37	2.279e5					6.3	YES		dd		0.000
9	FUNCTION2 PFK	28.27	1.258e5					8.6	YES		dd		0.000
10	FUNCTION2 PFK	28.20	3.224e5					10.8	YES		dd		0.000
11	FUNCTION2 PFK	28.15	1.075e5					11.4	YES		bd		0.000
12	FUNCTION2 PFK	32.75	6.093e3					0.9	NO		bb		0.000
13	FUNCTION2 PFK	32.66	1.869e4					1.6	NO		bb		0.000
14	FUNCTION2 PFK	31.80	1.120e4					1.0	NO		bb		0.000
15	FUNCTION2 PFK	31.73	6.416e3					0.7	NO		bb		0.000
16	FUNCTION2 PFK	31.56	7.985e3					0.8	NO		bb		0.000
17	FUNCTION2 PFK	30.98	1.340e4					1.1	NO		bb		0.000
18	FUNCTION2 PFK	30.77	1.700e3					0.4	NO		bb		0.000
19	FUNCTION2 PFK	30.58	1.840e4					1.8	NO		db		0.000
20	FUNCTION2 PFK	30.53	1.132e4					1.1	NO		bd		0.000
21	FUNCTION2 PFK	30.49	7.458e3					1.0	NO		bb		0.000
22	FUNCTION2 PFK	30.28	1.944e4					0.9	NO		bb		0.000

ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, 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	33.50	5.329e3					0.7	NO		bb		0.000
2	FUNCTION3 PFK	33.25	4.786e5					7.4	YES		db		0.000
3	FUNCTION3 PFK	33.07	4.641e5					13.6	YES		dd		0.000
4	FUNCTION3 PFK	32.96	7.263e5					17.5	YES		bd		0.000
5	FUNCTION3 PFK	35.27	3.509e4					2.3	NO		bb		0.000
6	FUNCTION3 PFK	35.20	6.218e3					0.7	NO		bb		0.000
7	FUNCTION3 PFK	34.93	1.238e4					0.8	NO		bb		0.000
8	FUNCTION3 PFK	34.83	1.005e4					1.3	NO		bb		0.000
9	FUNCTION3 PFK	34.79	3.059e3					0.7	NO		bb		0.000
10	FUNCTION3 PFK	34.74	9.694e3					1.2	NO		db		0.000
11	FUNCTION3 PFK	34.69	2.194e4					1.5	NO		bd		0.000
12	FUNCTION3 PFK	34.63	2.187e4					1.6	NO		bb		0.000
13	FUNCTION3 PFK	34.33	2.974e4					1.6	NO		bb		0.000
14	FUNCTION3 PFK	33.92	1.209e4					1.2	NO		db		0.000
15	FUNCTION3 PFK	33.89	3.941e3					0.7	NO		bd		0.000
16	FUNCTION3 PFK	33.84	9.896e3					1.2	NO		bb		0.000
17	FUNCTION3 PFK	33.78	1.002e4					1.1	NO		bb		0.000
18	FUNCTION3 PFK	33.63	5.082e3					0.8	NO		bb		0.000
19	FUNCTION3 PFK	33.59	4.557e3					0.7	NO		bb		0.000
20	FUNCTION3 PFK	33.54	4.269e3					0.6	NO		bb		0.000
21	FUNCTION3 PFK	37.54	9.925e3					0.9	NO		bb		0.000
22	FUNCTION3 PFK	37.50	4.378e3					1.0	NO		bb		0.000
23	FUNCTION3 PFK	37.45	7.841e3					1.1	NO		bb		0.000
24	FUNCTION3 PFK	37.22	2.241e4					2.3	NO		bb		0.000
25	FUNCTION3 PFK	37.16	3.840e3					0.9	NO		bb		0.000
26	FUNCTION3 PFK	37.10	2.982e4					1.1	NO		db		0.000
27	FUNCTION3 PFK	37.01	3.150e4					1.5	NO		bd		0.000
28	FUNCTION3 PFK	36.91	1.244e4					1.2	NO		bb		0.000
29	FUNCTION3 PFK	36.57	3.953e3					0.6	NO		bb		0.000
30	FUNCTION3 PFK	36.47	2.059e4					0.7	NO		bb		0.000
31	FUNCTION3 PFK	36.33	1.752e4					1.5	NO		bb		0.000
32	FUNCTION3 PFK	36.05	6.846e4					1.6	NO		bb		0.000
33	FUNCTION3 PFK	35.95	1.788e4					1.6	NO		db		0.000
34	FUNCTION3 PFK	35.89	3.775e4					1.9	NO		dd		0.000
35	FUNCTION3 PFK	35.83	3.508e4					2.2	NO		bd		0.000
36	FUNCTION3 PFK	35.40	9.552e4					3.6	YES		bb		0.000

ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, 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	40.18	6.843e3					1.5	NO		bb		
2	FUNCTION4 PFK	40.07	1.254e4					1.7	NO		db		
3	FUNCTION4 PFK	40.04	8.561e3					1.6	NO		dd		
4	FUNCTION4 PFK	40.00	6.172e3					1.4	NO		bd		
5	FUNCTION4 PFK	39.93	1.198e4					1.7	NO		bb		
6	FUNCTION4 PFK	39.52	1.966e4					2.1	NO		db		
7	FUNCTION4 PFK	39.42	1.702e4					1.9	NO		bd		
8	FUNCTION4 PFK	39.38	4.216e3					0.9	NO		bb		
9	FUNCTION4 PFK	39.19	1.384e4					2.0	NO		bb		
10	FUNCTION4 PFK	39.13	2.534e3					0.6	NO		bb		
11	FUNCTION4 PFK	38.52	5.263e3					1.0	NO		bb		
12	FUNCTION4 PFK	38.33	7.183e4					4.8	YES		db		
13	FUNCTION4 PFK	38.22	4.002e5					9.3	YES		dd		
14	FUNCTION4 PFK	38.09	1.368e5					12.0	YES		dd		
15	FUNCTION4 PFK	38.00	2.739e5					15.5	YES		bd		
16	FUNCTION4 PFK	42.29	9.701e3					1.2	NO		db		
17	FUNCTION4 PFK	42.20	9.030e3					1.6	NO		bd		
18	FUNCTION4 PFK	42.05	8.629e3					1.5	NO		bb		
19	FUNCTION4 PFK	41.72	2.137e4					2.3	NO		db		
20	FUNCTION4 PFK	41.69	1.281e4					2.0	NO		bd		
21	FUNCTION4 PFK	41.26	4.568e3					0.8	NO		bb		
22	FUNCTION4 PFK	41.16	9.834e3					1.3	NO		bb		
23	FUNCTION4 PFK	41.06	9.559e3					1.2	NO		bb		
24	FUNCTION4 PFK	40.92	1.337e3					0.5	NO		bb		
25	FUNCTION4 PFK	40.64	9.164e3					1.1	NO		bb		
26	FUNCTION4 PFK	40.46	1.405e3					0.5	NO		db		
27	FUNCTION4 PFK	40.42	1.035e4					1.6	NO		dd		
28	FUNCTION4 PFK	40.38	5.495e3					1.0	NO		bd		
29	FUNCTION4 PFK	40.31	1.679e4					2.3	NO		db		
30	FUNCTION4 PFK	40.28	3.328e3					1.0	NO		bd		
31	FUNCTION4 PFK	40.24	1.460e3					0.7	NO		bb		
32	FUNCTION4 PFK	42.64	8.919e3					1.6	NO		bb		
33	FUNCTION4 PFK	42.53	3.471e3					0.8	NO		bb		
34	FUNCTION4 PFK	42.34	3.095e3					0.8	NO		bb		

ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, 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	45.73	7.804e3					1.3	NO		bb		
2	FUNCTION5 PFK	45.65	5.335e3					1.2	NO		bb		
3	FUNCTION5 PFK	45.42	3.411e3					0.8	NO		bb		
4	FUNCTION5 PFK	45.37	5.050e3					1.2	NO		bb		
5	FUNCTION5 PFK	45.19	6.531e3					1.4	NO		bb		
6	FUNCTION5 PFK	45.10	7.129e2					0.5	NO		bb		
7	FUNCTION5 PFK	44.50	5.320e3					1.4	NO		bb		
8	FUNCTION5 PFK	43.57	7.577e2					0.5	NO		bb		
9	FUNCTION5 PFK	43.50	6.300e2					0.4	NO		bb		
10	FUNCTION5 PFK	43.19	7.573e3					1.8	NO		bb		
11	FUNCTION5 PFK	43.15	3.246e3					1.4	NO		bb		
12	FUNCTION5 PFK	43.08	1.076e3					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...	25.31	1.579e2					3.8	YES		bb		0.000
2	FUNCTION1 HXCD...	24.17	9.099e1					5.3	YES		bb		0.000
3	FUNCTION1 HXCD...	23.95	1.067e2					1.5	NO		bb		0.000
4	FUNCTION1 HXCD...	23.18	7.225e1					3.0	YES		db		0.000
5	FUNCTION1 HXCD...	23.08	9.406e1					3.8	YES		bd		0.000
6	FUNCTION1 HXCD...	22.90	8.833e1					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...	26.74	7.359e1					3.0	NO		bb		0.000
2	FUNCTION1 HPCD...	25.37	1.073e2					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...	32.28	8.757e1					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	28.39	1.122e2					2.8	NO		bb		0.000

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ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, 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	35.99	1.042e2					3.6	YES		bb		0.000
2	FUNCTION3 OCDPE	34.59	1.102e2					2.1	NO		bb		0.000
3	FUNCTION3 OCDPE	36.78	8.149e1					2.1	NO		bb		0.000
4	FUNCTION3 OCDPE	36.49	1.904e2					3.3	YES		bb		0.000
5	FUNCTION3 OCDPE	36.11	1.271e2					4.3	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	38.40	1.527e4					398.1	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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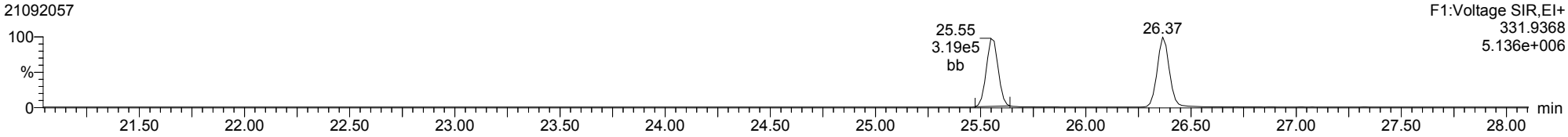

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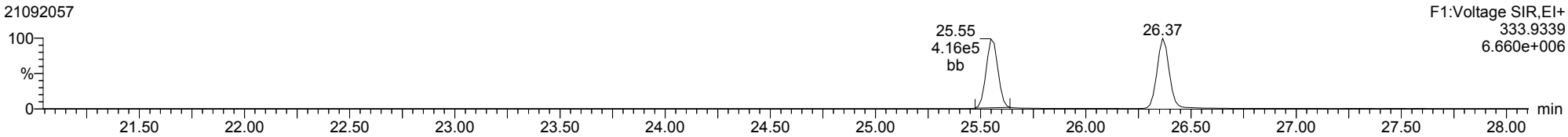

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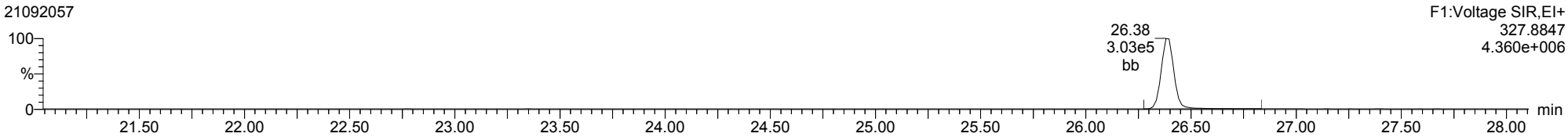

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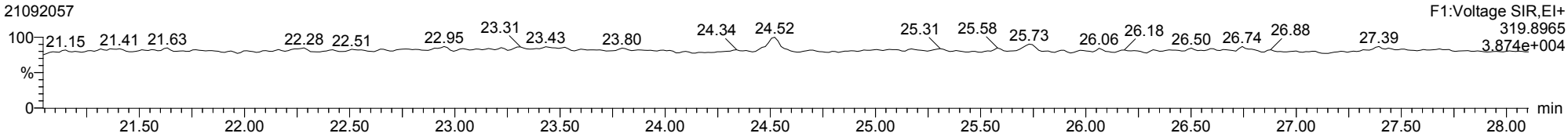

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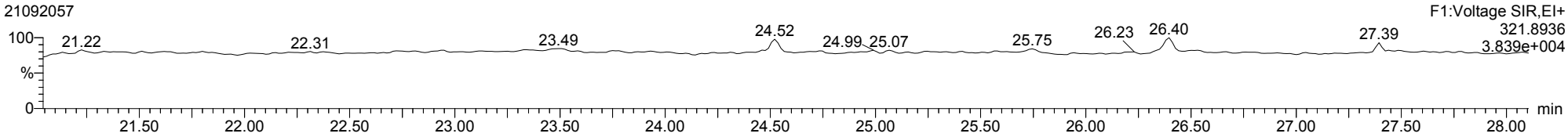

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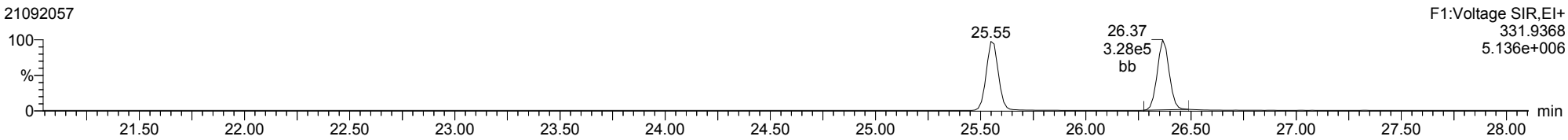

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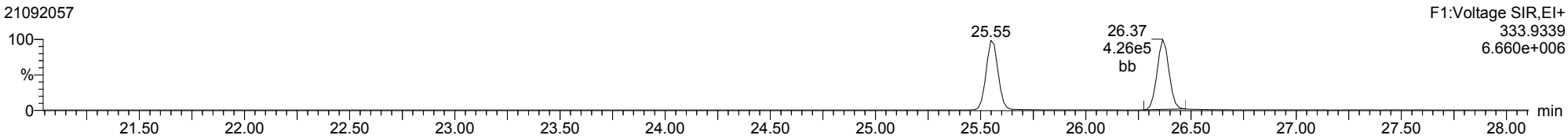

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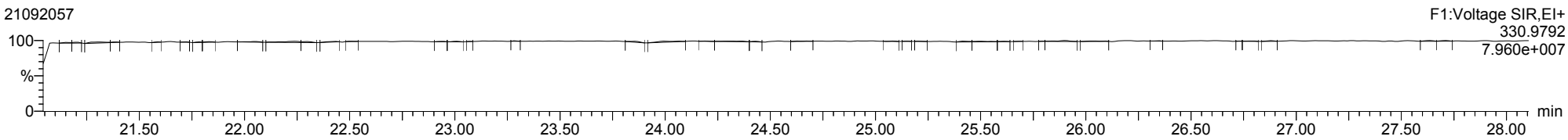

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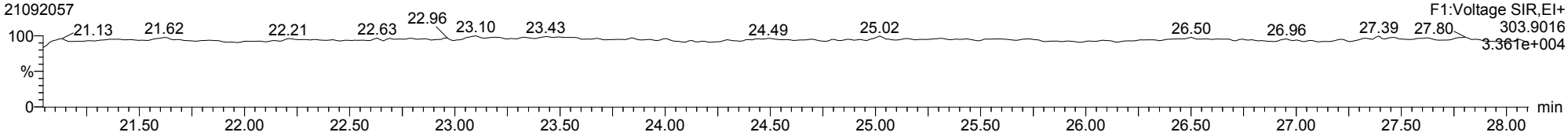

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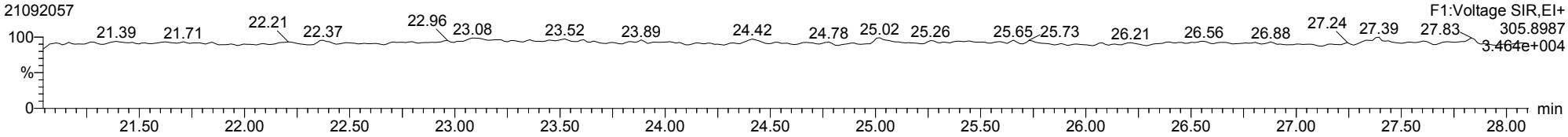

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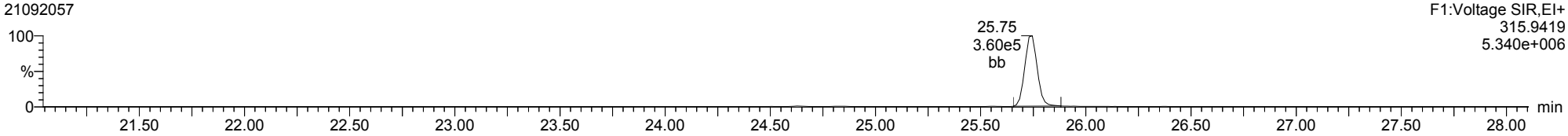

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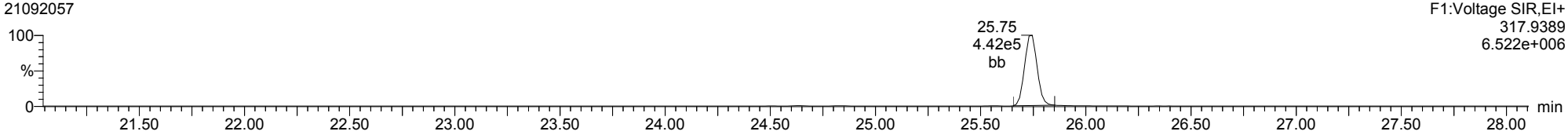
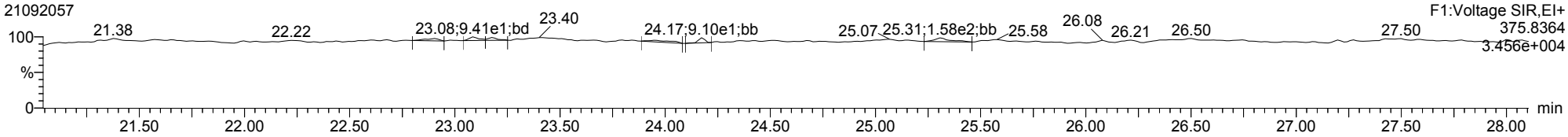


FUNCTION1 HXCDPE



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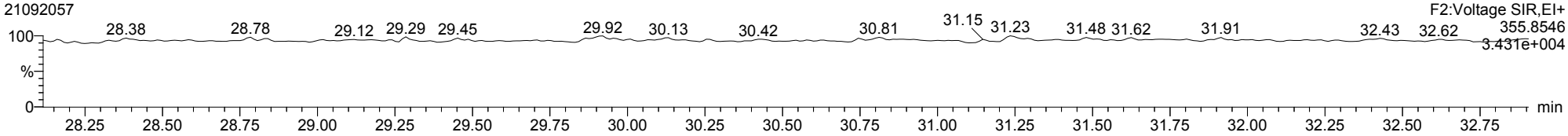

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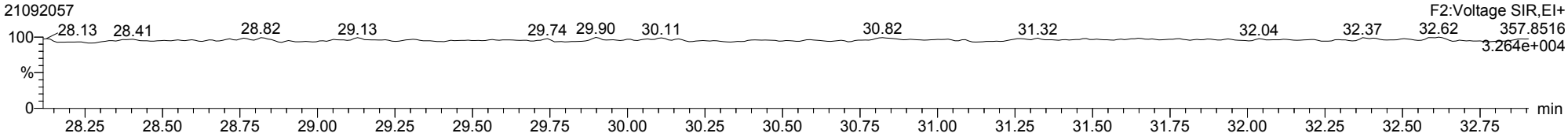

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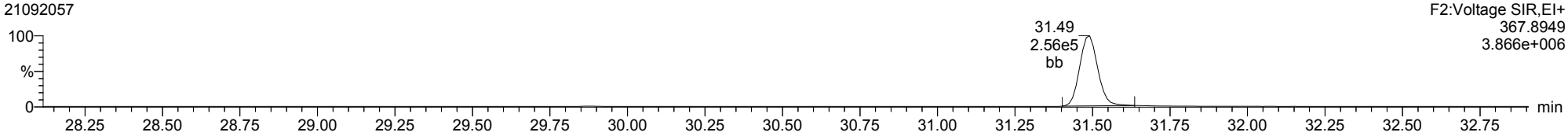

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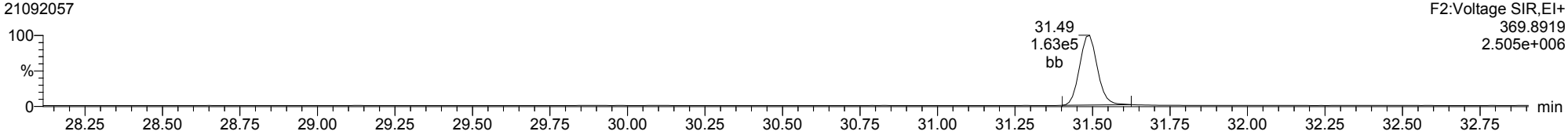

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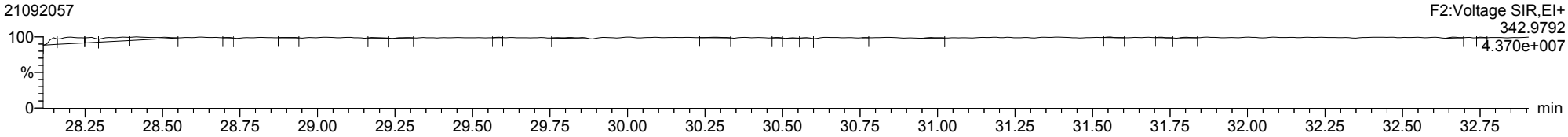

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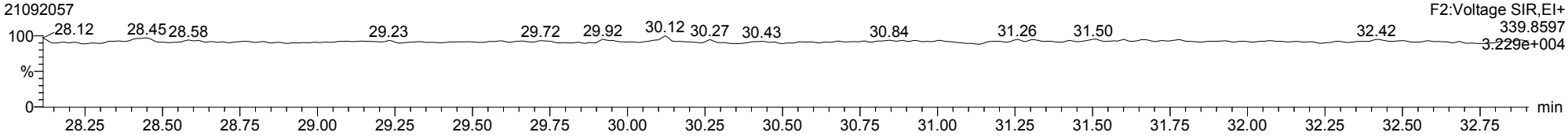

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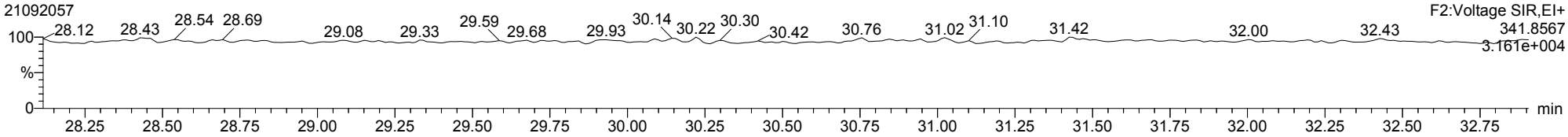

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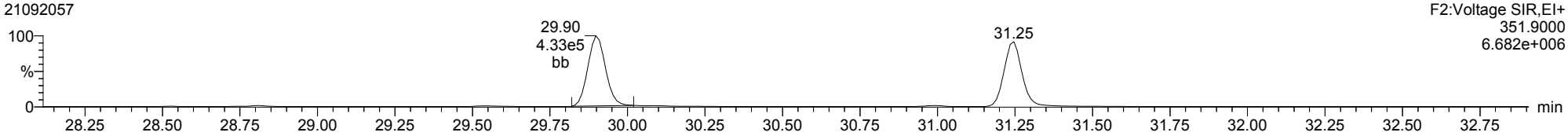

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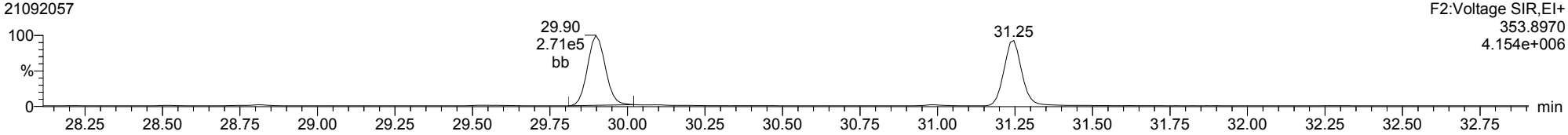

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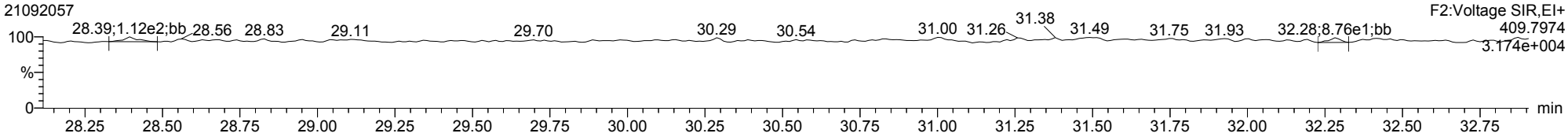

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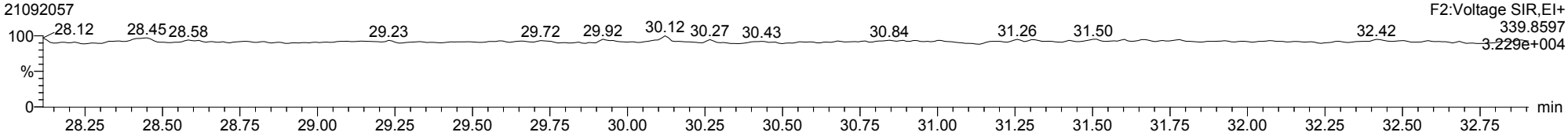

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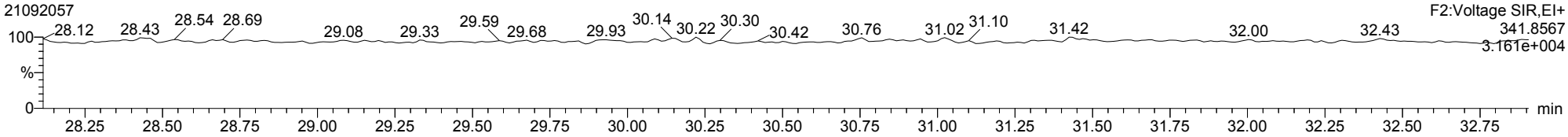

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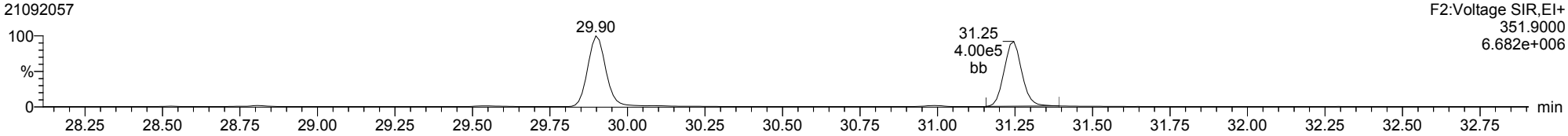

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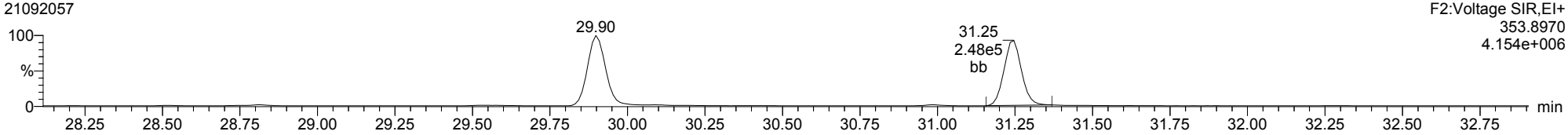

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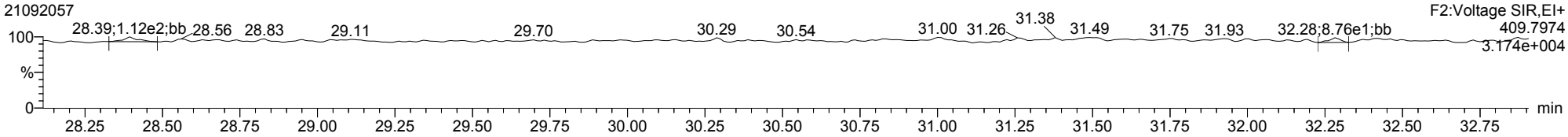

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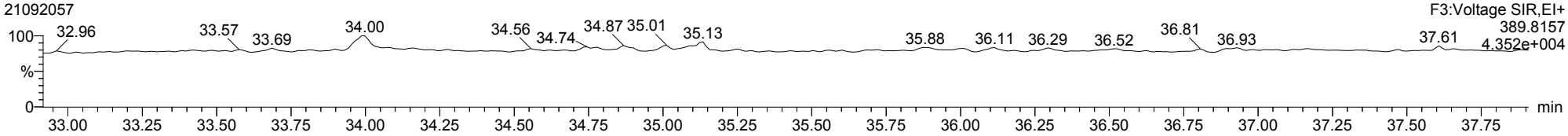
123478-HxCDD



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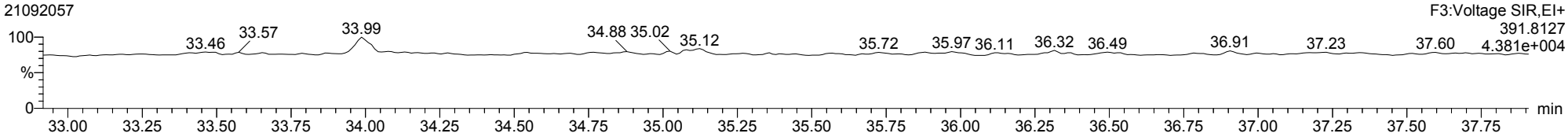

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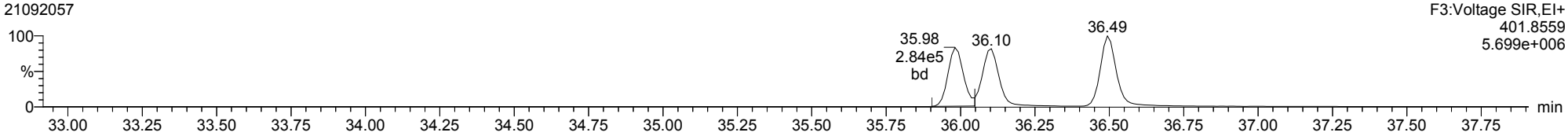

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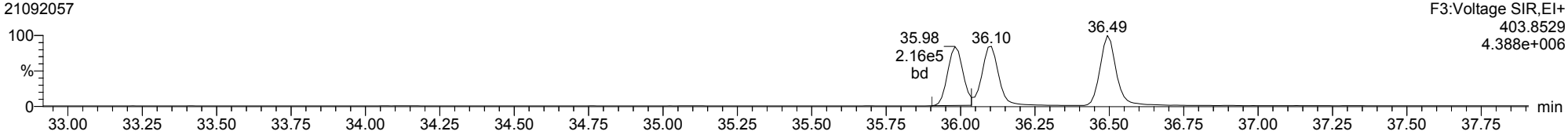

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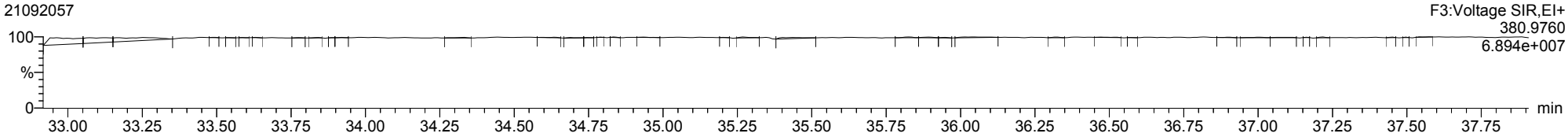

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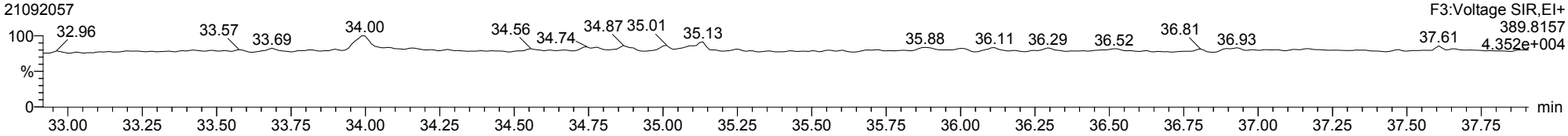

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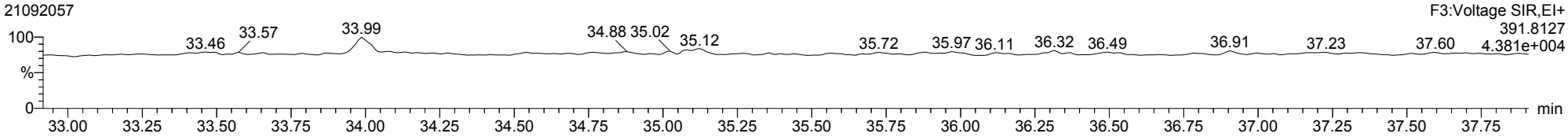

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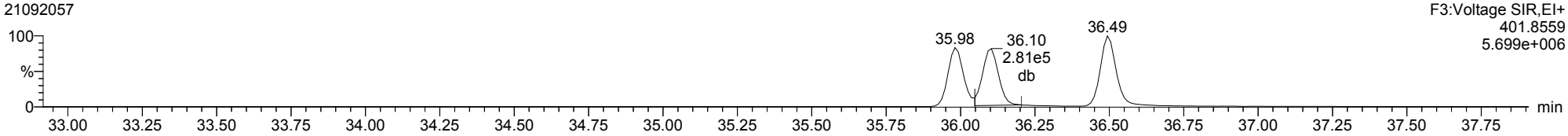

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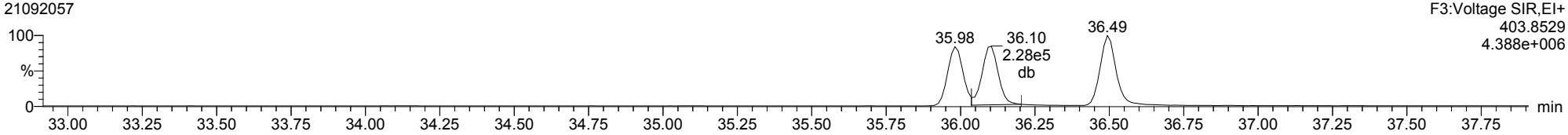

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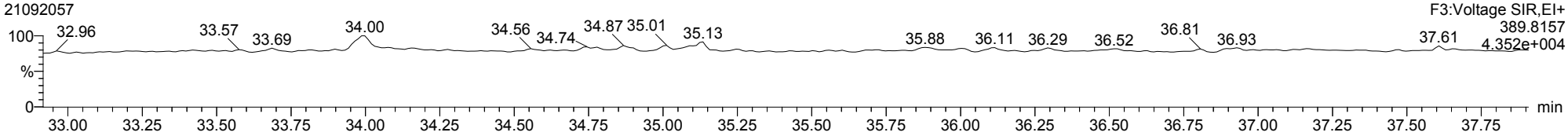

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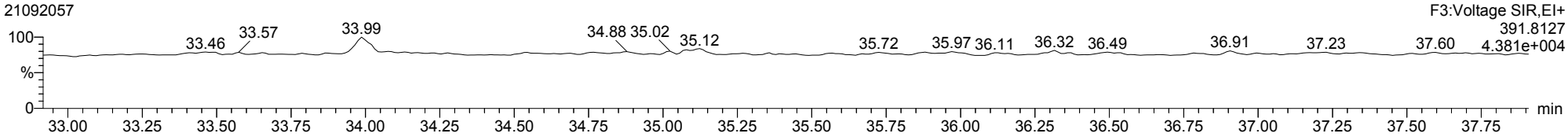

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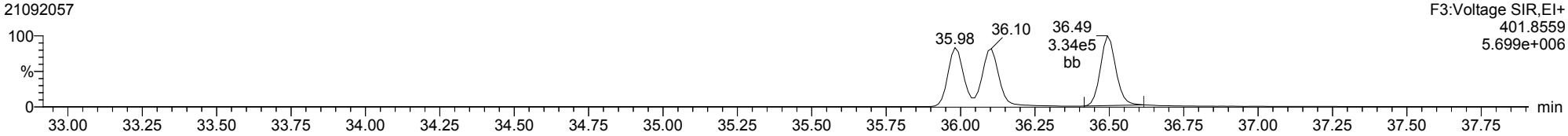

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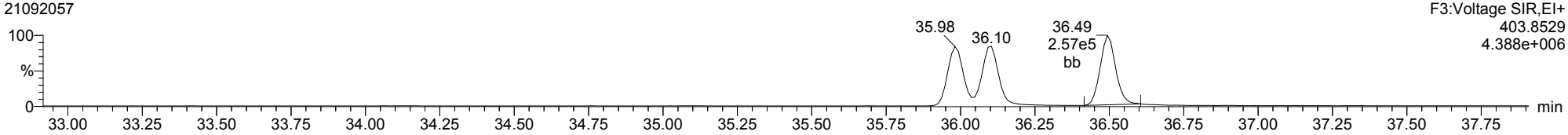

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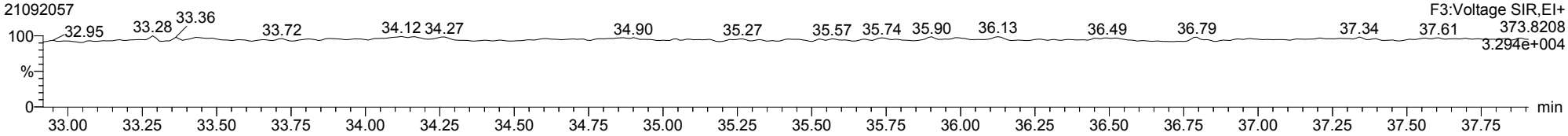

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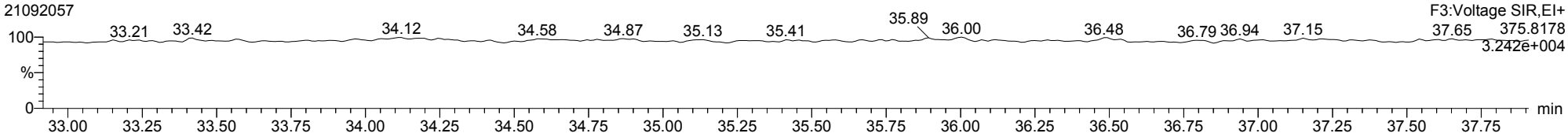

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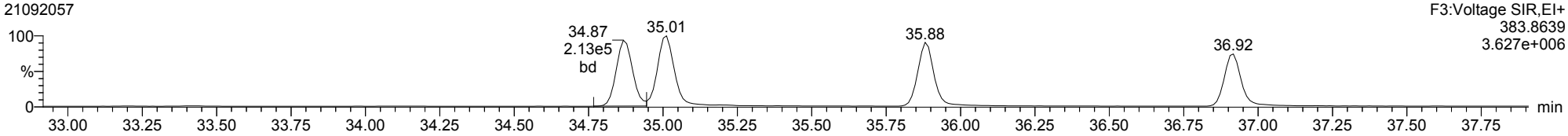

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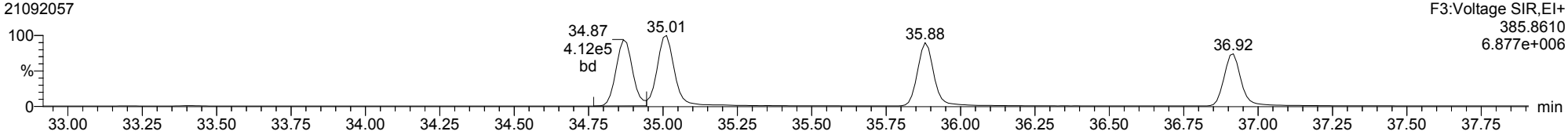

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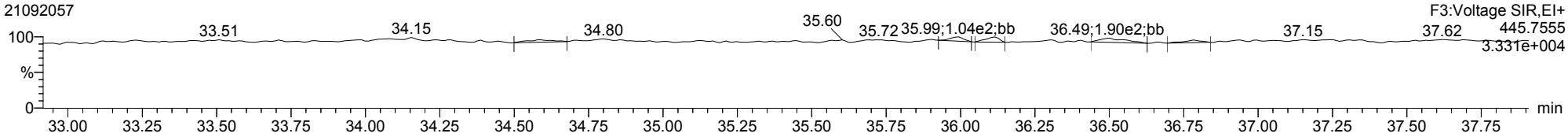

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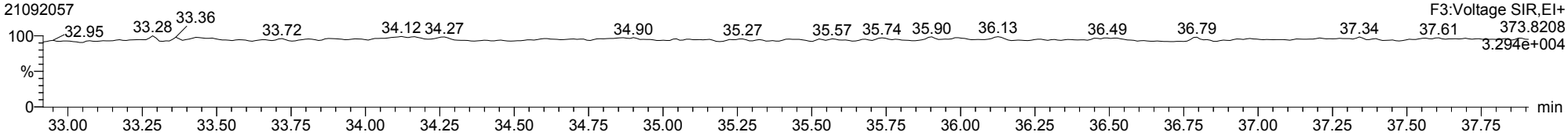

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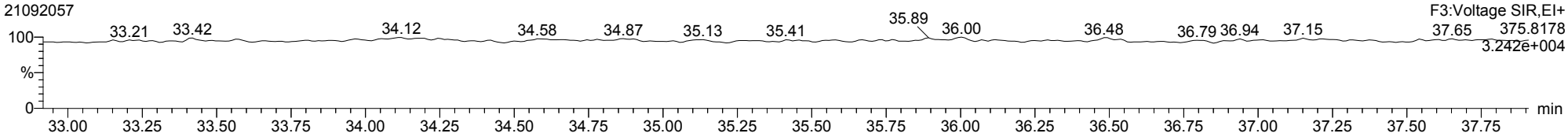

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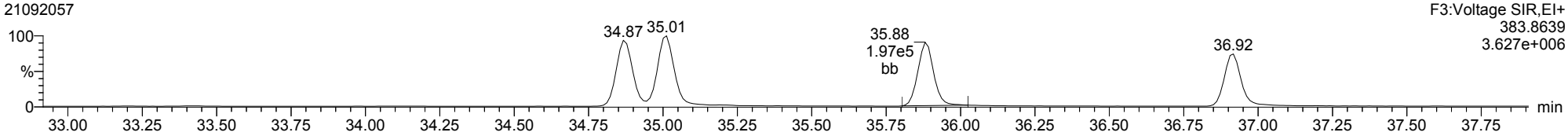

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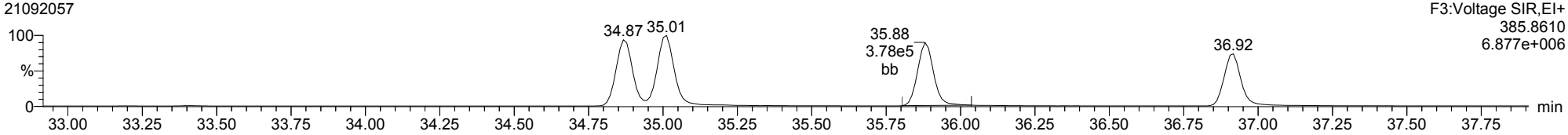

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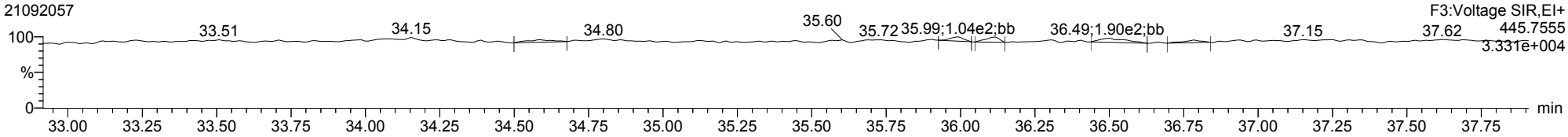

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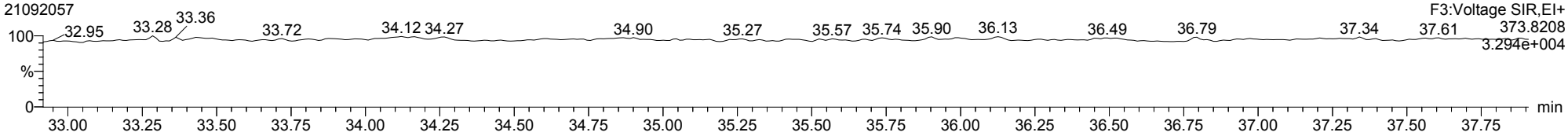

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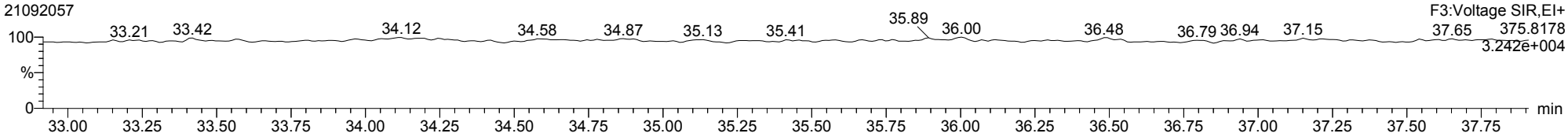

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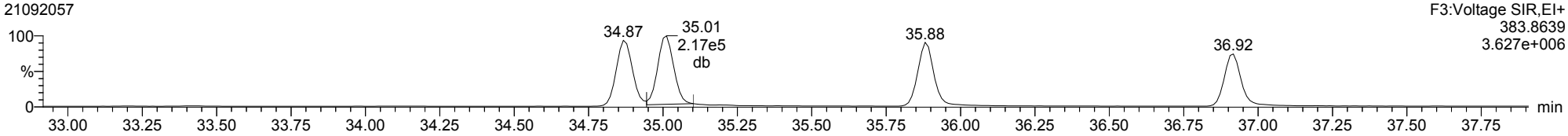

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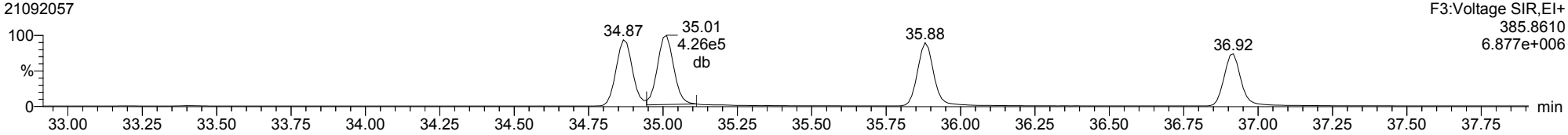

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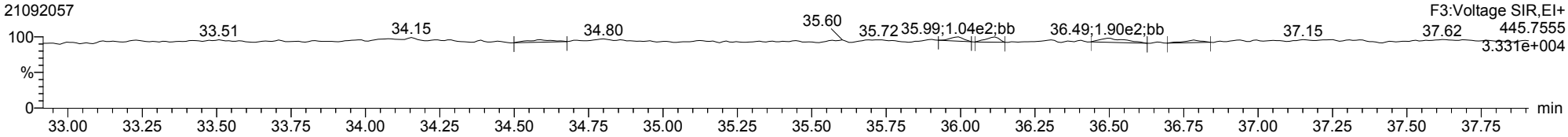

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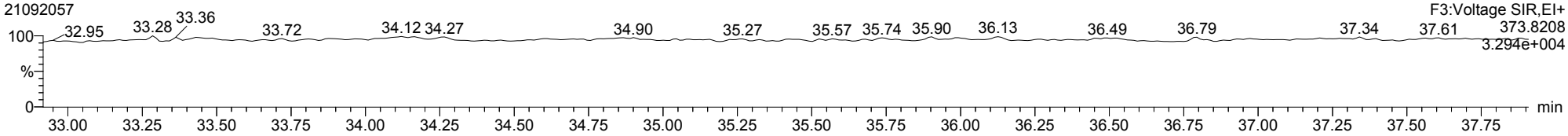

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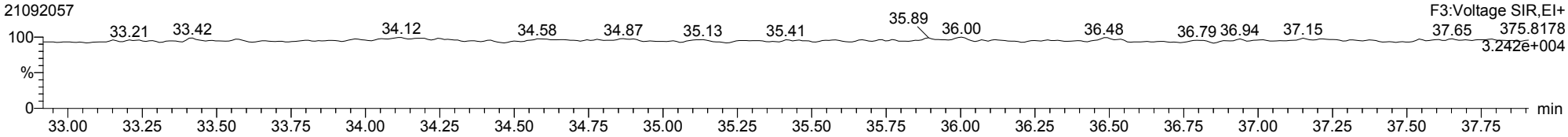

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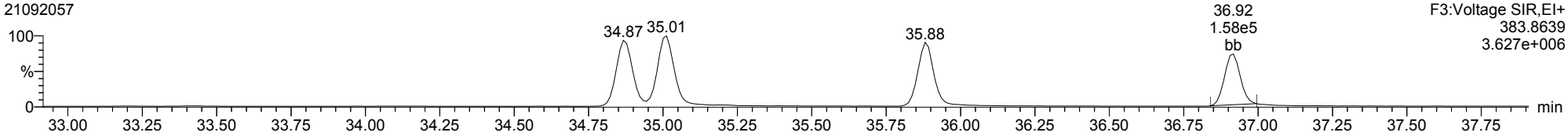

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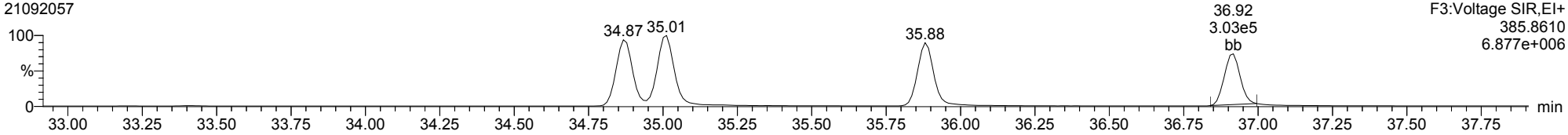

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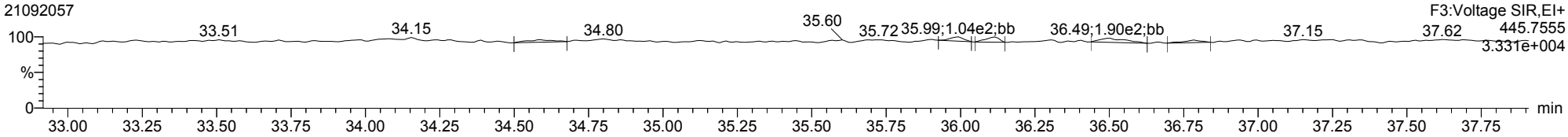

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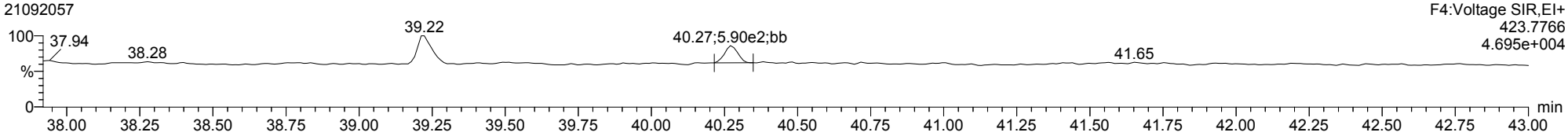

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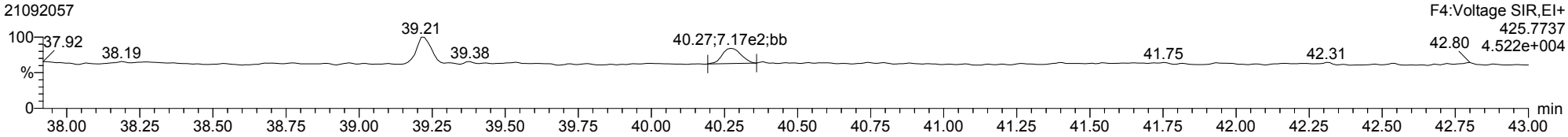

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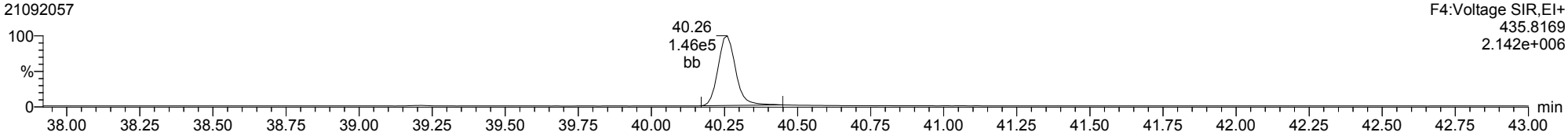

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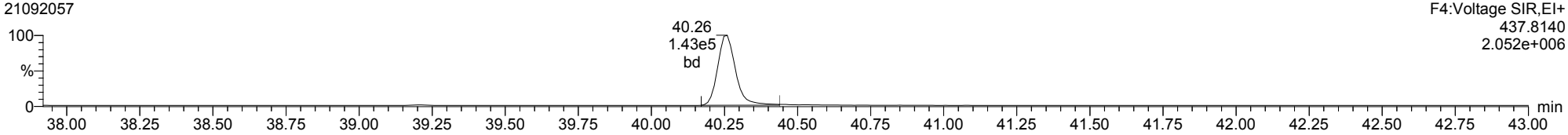

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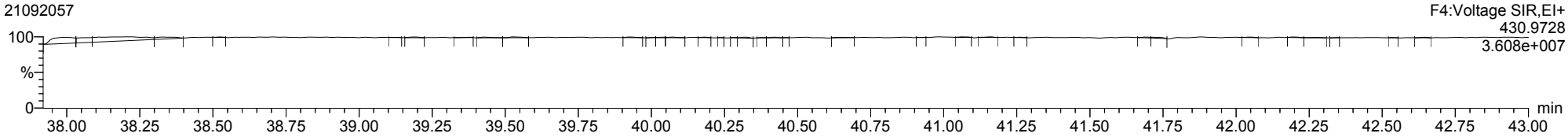

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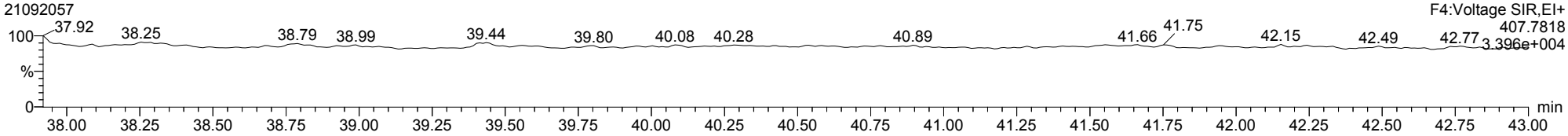

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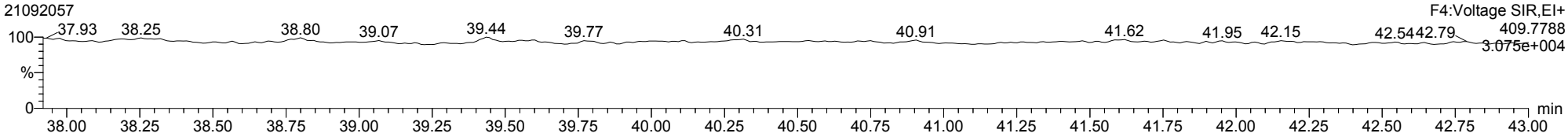

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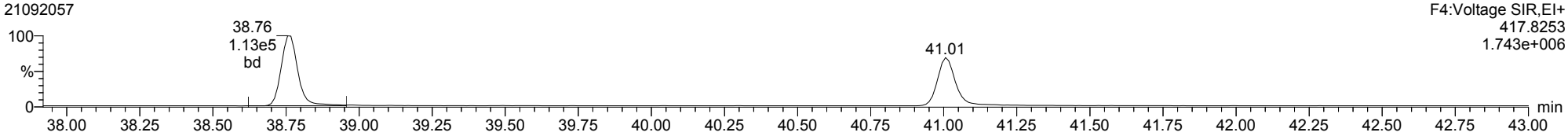

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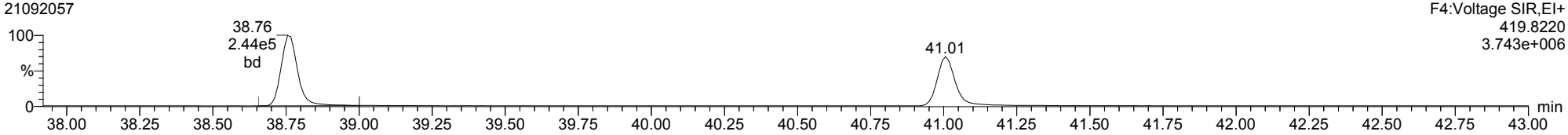

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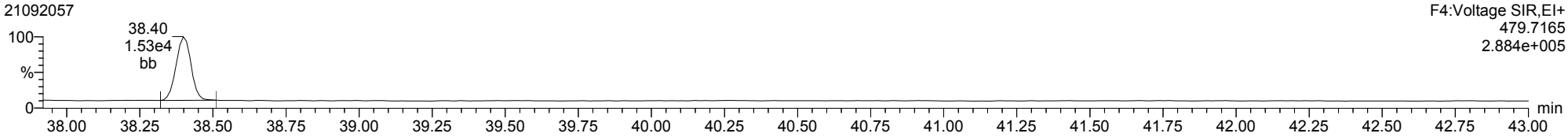

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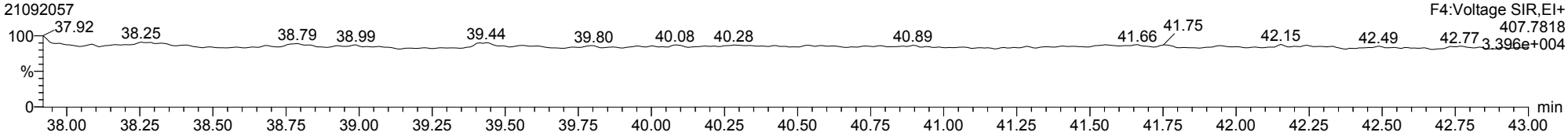

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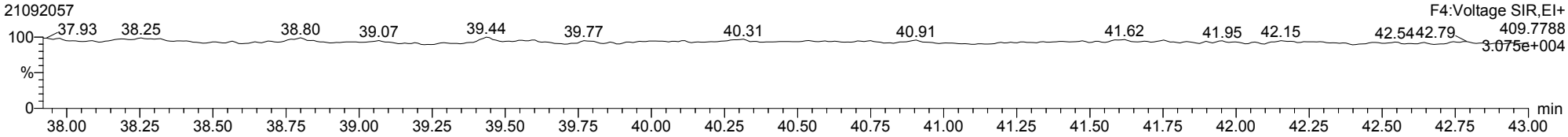

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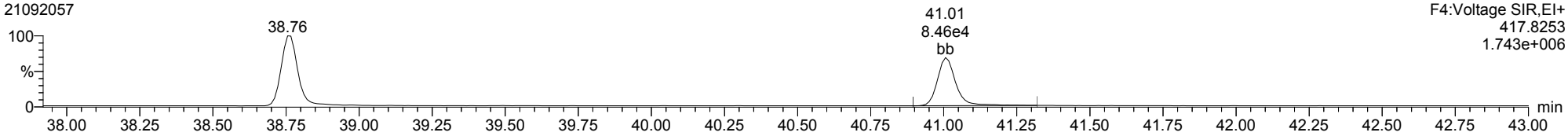

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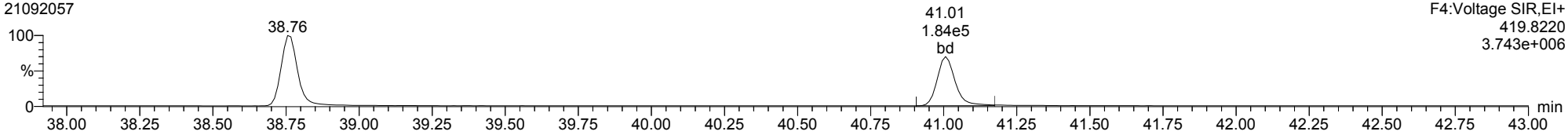

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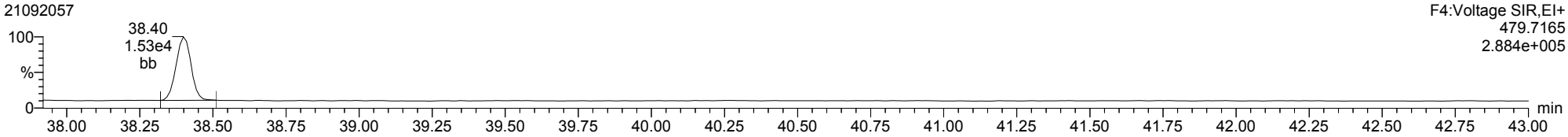

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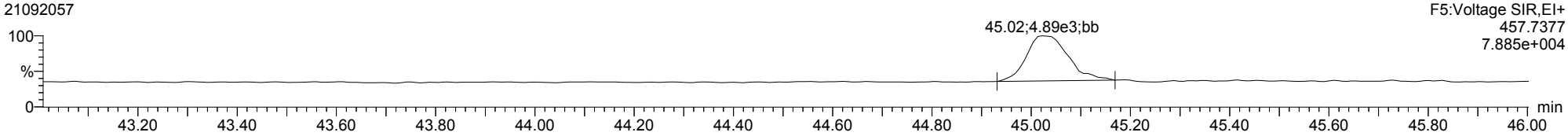

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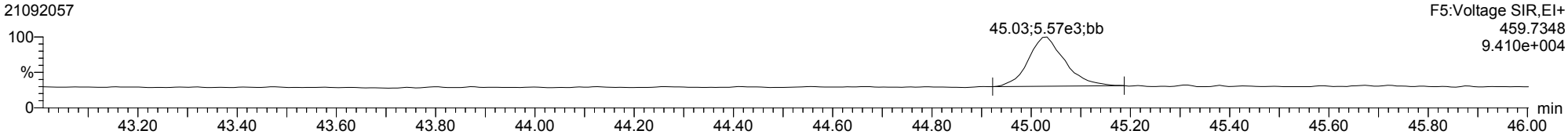

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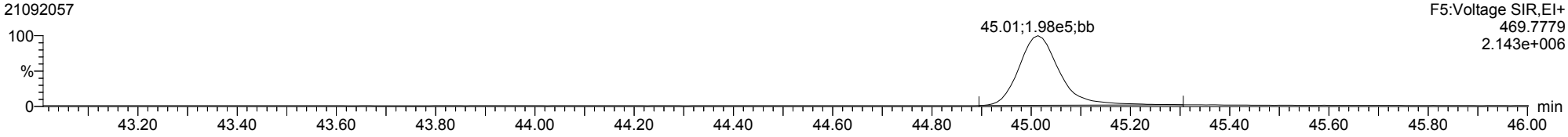

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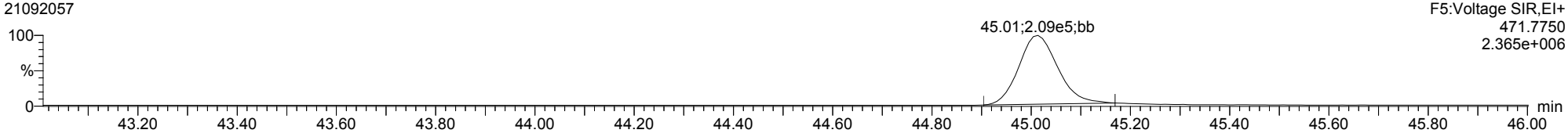

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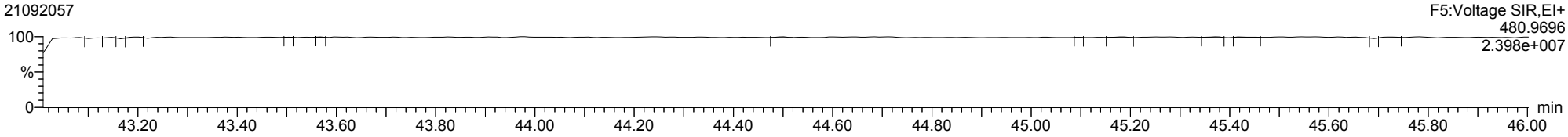

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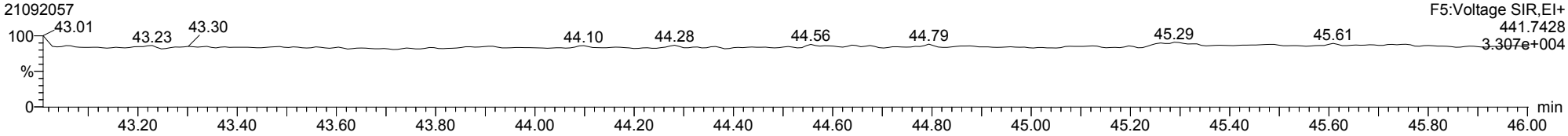

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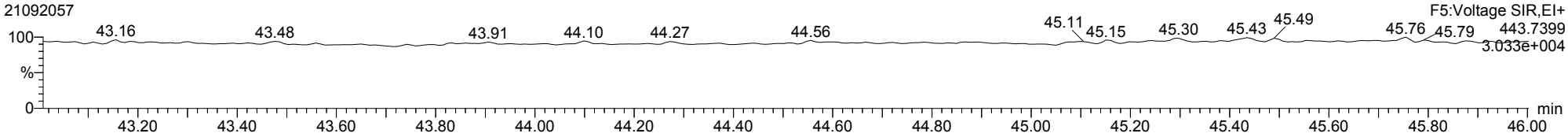

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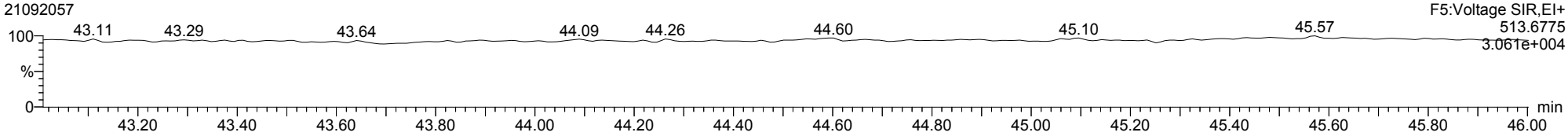

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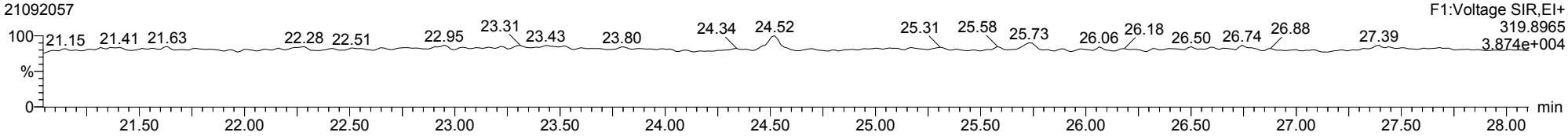
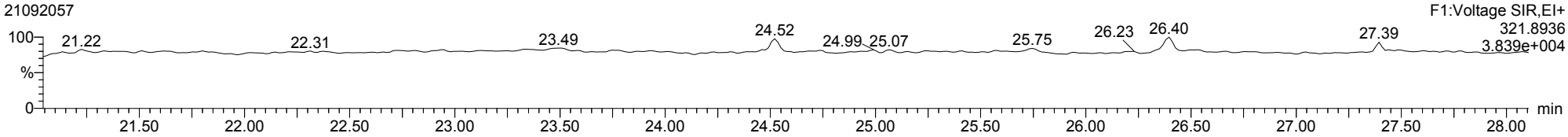
Total-tetradioxins



Total-tetradioxins



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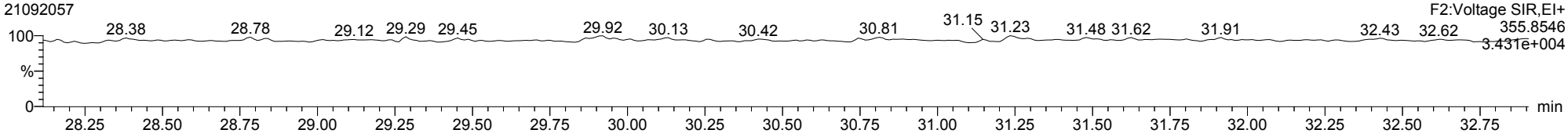

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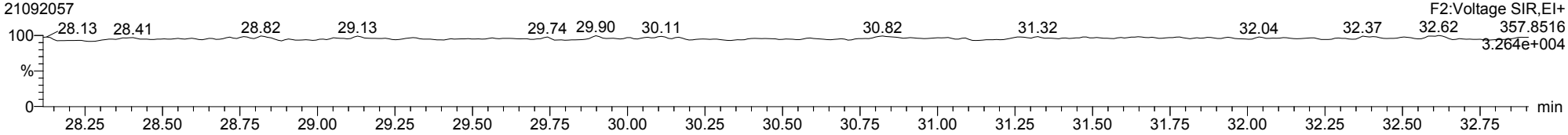
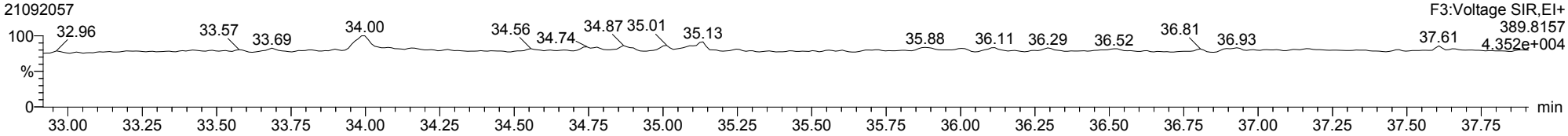


ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



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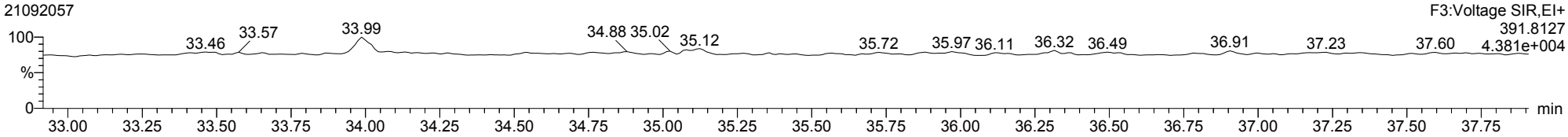

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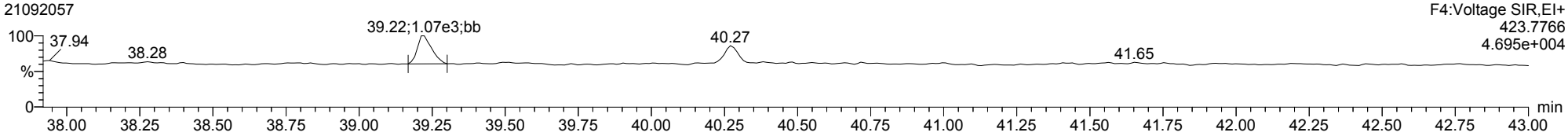

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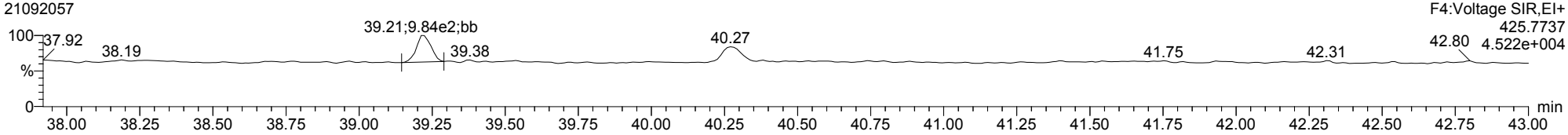

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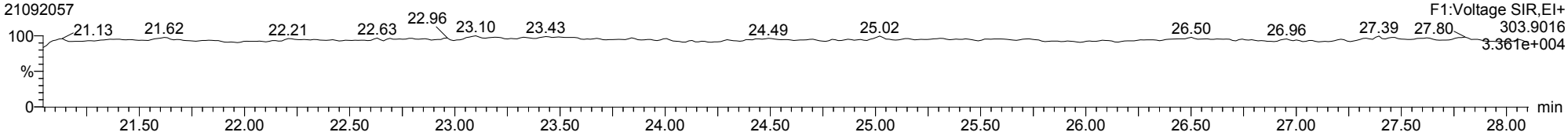
ID: 21G0283-16, Name: 21092057, Date: 22-Sep-2021, Time: 14:46:03, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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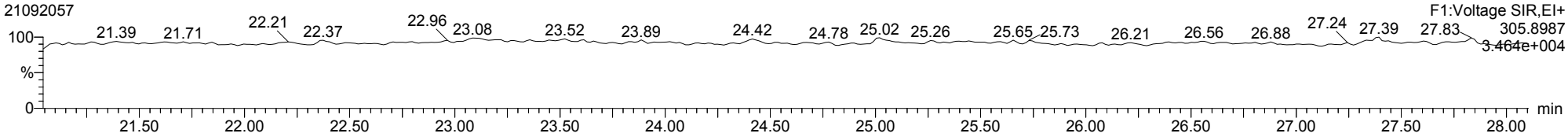

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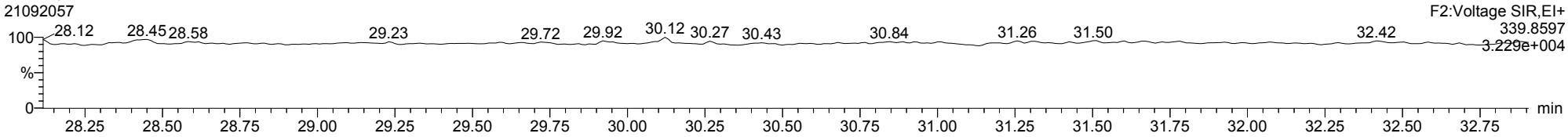

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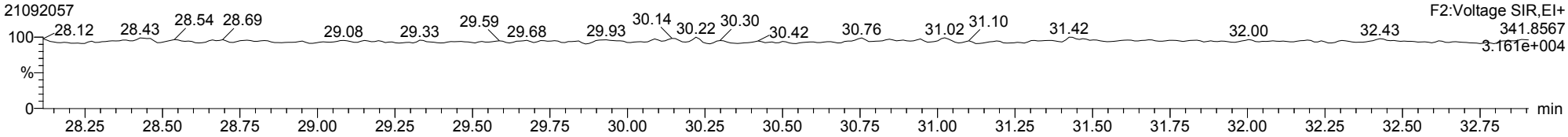

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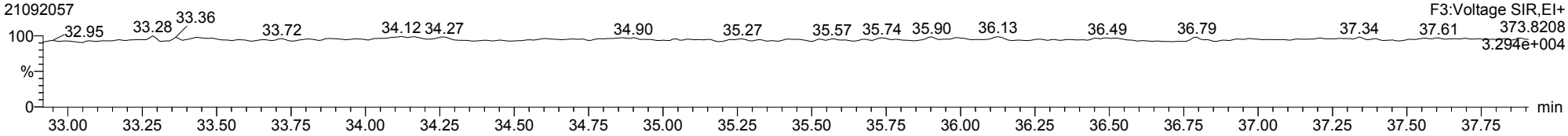
Total-hexafurans



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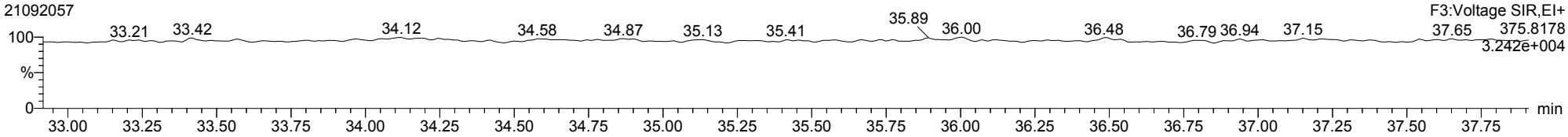

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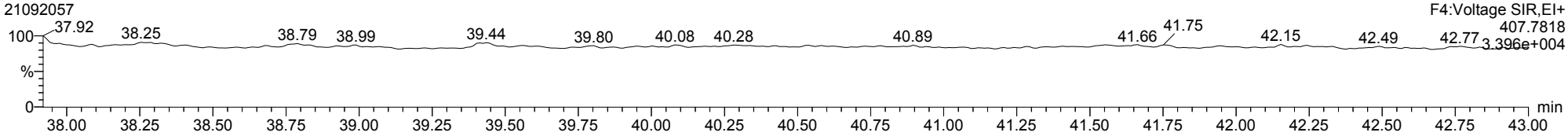

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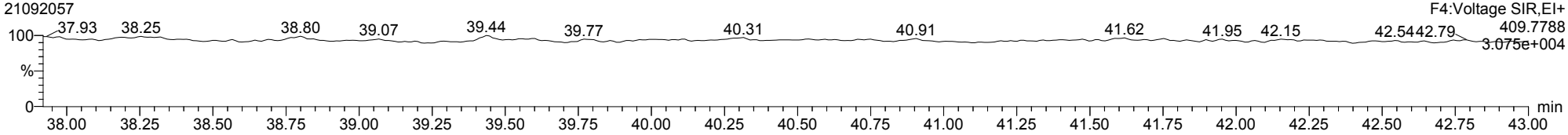

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT650B

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0283-17 C	File ID:	21092058
Sampled:	07/20/21 14:39	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 15:35
% Solids:	78.03	Preparation:	EPA 1613	Initial/Final:	12.83 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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	0.619	0.655-0.886	0.116	0.999	0.287	ng/kg	EMPC, J
1746-01-6	2,3,7,8-TCDD	1	0.500	0.655-0.886	0.108	0.999	0.313	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	0.078	0.999	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1		1.318-1.783	0.075	0.999	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	1.734	1.318-1.783	0.162	0.999	1.92	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.190	1.054-1.426	0.110	0.999	0.819	ng/kg	J
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.057	1.054-1.426	0.102	0.999	0.623	ng/kg	J
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.199	1.054-1.426	0.108	0.999	1.04	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.142	1.054-1.426	0.132	0.999	3.92	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.262	1.054-1.426	0.154	0.999	2.29	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.096	1.054-1.426	0.149	0.999	7.33	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.248	1.054-1.426	0.162	0.999	3.97	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.006	0.893-1.208	0.168	0.999	51.8	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.029	0.893-1.208	0.253	0.999	2.37	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.040	0.893-1.208	0.359	2.50	193	ng/kg	B
39001-02-0	OCDF	1	0.861	0.757-1.024	0.412	2.50	173	ng/kg	
3268-87-9	OCDD	1	0.897	0.757-1.024	0.590	9.99	1320	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	21.7	ng/kg
41903-57-5	Total TCDD	1	0.000			0.999	2.71	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.999	12.0	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.999	8.33	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.999	44.0	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.999	56.5	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.999	194	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.999	350	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 7.18
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 7.19

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT650B

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0283-17	File ID:	21092058
Sampled:	07/20/21 14:39	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 15:35
Solids Wt%:	78.03	Preparation:	EPA 1613	Initial/Final:	12.83 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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	0.098	64.7	24 - 169 %	
13C12-2,3,7,8-TCDD		0.752	0.655-0.886	0.110	80.3	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.627	1.318-1.783	0.154	73.9	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.604	1.318-1.783	0.162	71.1	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.552	1.318-1.783	0.116	79.1	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.512	0.434-0.587	0.226	87.8	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.511	0.434-0.587	0.209	83.8	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.506	0.434-0.587	0.231	85.9	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.519	0.434-0.587	0.279	83.2	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.284	1.054-1.426	0.187	91.9	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.316	1.054-1.426	0.172	87.3	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.463	0.374-0.506	0.161	72.0	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.463	0.374-0.506	0.196	68.1	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.063	0.893-1.208	0.161	86.6	23 - 140 %	
13C12-OCDD		0.895	0.757-1.024	0.217	84.9	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.040	81.7	35 - 197 %	

* Values outside of QC limits

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Printed: Thursday, September 23, 2021 09:14:40 Pacific Daylight Time

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

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	25.730	0.999	4.758e2	7.682e2	1.108	0.619	0.770	1236	1341	6.99e3	1.04e4	5.7	7.8	YES	dd	dd	0.144
12378-PeCDF					1.015		1.550	701	915								
23478-PeCDF					1.126		1.550	701	915								
123478-HxCDF	34.889	1.000	1.684e3	1.415e3	1.017	1.190	1.240	1043	1120	2.86e4	2.38e4	27.4	21.3	NO	bd	bd	0.410
234678-HxCDF	35.870	1.000	2.117e3	1.766e3	1.052	1.199	1.240	1043	1120	2.07e4	1.58e4	19.8	14.1	NO	bb	MM	0.519
123678-HxCDF	35.034	1.001	1.275e3	1.206e3	1.037	1.057	1.240	1043	1120	2.30e4	1.92e4	22.0	17.2	NO	db	db	0.312
123789-HxCDF	36.917	1.000	6.152e3	5.388e3	1.030	1.142	1.240	1043	1120	1.11e5	9.39e4	106.4	83.9	NO	db	db	1.960
1234678-HpCDF	38.778	1.000	7.844e4	7.799e4	1.327	1.006	1.050	1590	1067	1.29e6	1.28e6	808.5	1198.5	NO	bd	bd	25.907
1234789-HpCDF	41.028	1.000	2.720e3	2.643e3	1.283	1.029	1.050	1590	1067	4.24e4	3.69e4	26.7	34.6	NO	bd	bb	1.187
OCDF	45.270	1.006	1.691e5	1.964e5	1.447	0.861	0.890	1396	2075	1.99e6	2.32e6	1426.6	1116.0	NO	bd	bd	86.662
2378-TCDD	26.396	1.001	3.635e2	7.272e2	0.920	0.500	0.770	1117	820	4.32e3	1.21e4	3.9	14.8	YES	bd	bd	0.156
12378-PeCDD	31.503	1.000	2.967e3	1.711e3	0.995	1.734	1.550	920	1099	3.94e4	2.35e4	42.8	21.3	NO	bb	bb	0.960
123478-HxCDD	36.004	1.000	3.956e3	3.133e3	1.027	1.262	1.240	1042	1532	7.12e4	5.67e4	68.3	37.0	NO	bd	bd	1.147
123678-HxCDD	36.115	1.000	1.200e4	1.094e4	1.009	1.096	1.240	1042	1532	1.98e5	1.80e5	190.0	117.7	NO	db	dd	3.671
123789-HxCDD	36.505	1.011	6.405e3	5.131e3	0.950	1.248	1.240	1042	1532	1.10e5	8.52e4	105.4	55.6	NO	bb	bb	1.988
1234678-HpCDD	40.271	1.000	1.968e5	1.892e5	1.068	1.040	1.050	2045	1556	3.05e6	2.88e6	1490.3	1853.6	NO	bb	bb	96.765
OCDD	45.032	1.000	1.074e6	1.197e6	1.181	0.897	0.890	1698	2359	1.29e7	1.43e7	7588.5	6048.0	NO	bb	bb	659.882
13C-2378-TCDF	25.746	1.007	3.445e5	4.361e5	1.427	0.790	0.770	1845	1237	5.30e6	6.67e6	2871.0	5396.4	NO	bb	bb	64.739
13C-12378-PeCDF	29.898	1.169	5.015e5	3.083e5	1.297	1.627	1.550	2417	1999	7.60e6	4.70e6	3145.0	2353.2	NO	bb	bb	73.858
13C-23478-PeCDF	31.246	1.222	4.576e5	2.853e5	1.236	1.604	1.550	2417	1999	7.10e6	4.47e6	2935.4	2237.1	NO	bb	bb	71.082
13C-123478-HxCDF	34.878	0.956	2.517e5	4.914e5	1.242	0.512	0.510	2532	2823	3.92e6	7.74e6	1548.6	2741.5	NO	bd	bd	87.758
13C-123678-HxCDF	35.012	0.959	2.593e5	5.079e5	1.343	0.511	0.510	2532	2823	4.15e6	8.07e6	1637.4	2857.6	NO	db	db	83.780
13C-234678-HxCDF	35.881	0.983	2.388e5	4.723e5	1.215	0.506	0.510	2532	2823	3.82e6	7.50e6	1509.9	2657.1	NO	bb	bd	85.872
13C-123789-HxCDF	36.917	1.012	1.952e5	3.763e5	1.008	0.519	0.510	2532	2823	3.26e6	6.24e6	1286.4	2211.9	NO	bb	bb	83.206
13C-1234678-HpCDF	38.766	1.062	1.439e5	3.110e5	0.926	0.463	0.440	1235	1601	2.25e6	4.86e6	1824.2	3034.4	NO	bd	bd	72.039
13C-1234789-HpCDF	41.006	1.124	1.113e5	2.407e5	0.758	0.463	0.440	1235	1601	1.55e6	3.36e6	1255.0	2100.0	NO	bd	bd	68.137
13C-1234-TCDD	25.564	0.000	3.689e5	4.763e5	1.000	0.775	0.770	1672	1042	5.77e6	7.43e6	3453.8	7126.5	NO	bb	bb	100.000
13C-2378-TCDD	26.365	1.031	3.250e5	4.323e5	1.116	0.752	0.770	1672	1042	5.00e6	6.65e6	2994.0	6380.5	NO	bb	bb	80.258
13C-12378-PeCDD	31.491	1.232	2.978e5	1.919e5	0.732	1.552	1.550	840	1029	4.56e6	2.93e6	5423.6	2850.8	NO	bb	bd	79.146
13C-123478-HxCDD	35.993	0.986	3.381e5	2.633e5	0.960	1.284	1.240	2021	1390	5.49e6	4.29e6	2717.0	3088.8	NO	bd	bd	91.930
13C-123678-HxCDD	36.104	0.989	3.519e5	2.674e5	1.041	1.316	1.240	2021	1390	5.84e6	4.56e6	2891.7	3277.7	NO	db	db	87.262
13C-1234678-HpCDD	40.259	1.103	1.925e5	1.810e5	0.632	1.063	1.050	916	1028	2.90e6	2.80e6	3163.5	2726.4	NO	bd	bb	86.631
13C-OCDD	45.014	1.234	2.753e5	3.076e5	0.504	0.895	0.890	995	1089	3.30e6	3.64e6	3314.8	3340.7	NO	bb	bb	169.760
13C-123789-HxCDD	36.494	0.000	3.792e5	3.024e5	1.000	1.254	1.240	2021	1390	6.35e6	5.05e6	3142.1	3631.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	2.992e5		1.084			958		4.42e6		4611.0			bd		32.673

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Printed: Thursday, September 23, 2021 09:14:40 Pacific Daylight Time

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	22.374	0.869	1.853e3	2.287e3	1.425	0.811	0.770	1236	1341	2.87e4	3.79e4	23.2	28.2	NO	dd	bb	0.372
1289-TCDF	27.348	1.062	6.692e3	9.022e3	1.043	0.742	0.770	1236	1341	1.09e5	1.36e5	88.2	101.2	NO	dd	bd	1.930
13468-PECDF	27.046	0.905	4.128e3	2.939e3	1.376	1.404	1.550	1705	984	4.07e4	3.15e4	23.9	32.0	NO	dd	dd	0.634
12389-PECDF					1.000		1.550	701	915								
123468-HXCDF	33.218	0.952	7.636e3	6.544e3	1.087	1.167	1.240	1043	1120	1.18e5	1.04e5	113.6	92.5	NO	bb	bb	1.756
1368-TCDD	23.508	0.892	2.997e2	5.262e2	0.923	0.570	0.770	1117	820	5.24e3	6.57e3	4.7	8.0	YES	bb	bb	0.118
1289-TCDD	27.016	1.025	8.082e1	1.986e2	0.794	0.407	0.770	1117	820	2.11e3	3.37e3	1.9	4.1	YES	bb	db	0.046
12479-PECDD	28.806	0.915	2.227e3	2.603e3	1.843	0.856	1.550	920	1099	4.16e4	2.42e4	45.2	22.1	YES	db	bb	0.535
12389-PECDD	31.915	1.013	1.266e3	7.510e2	1.154	1.686	1.550	920	1099	1.78e4	1.04e4	19.4	9.5	NO	bb	bb	0.357
124679-HXCDD	33.987	0.944	2.455e4	1.913e4	1.125	1.283	1.240	1042	1532	3.79e5	2.98e5	363.9	194.8	NO	bb	bb	6.456
1234679-HPCDD	39.223	0.974	1.821e5	1.723e5	1.211	1.057	1.050	2045	1556	3.00e6	2.89e6	1466.9	1856.4	NO	bb	bb	78.367
Total-tetrafurans			4.289e4		1.192			1236		6.26e5							10.885
Total-penta1			1.171e4					1705		1.53e5							2.682
Total-pentafurans			1.650e4		1.047			701		2.54e5							3.318
Total-hexafurans			8.632e4		1.045			1043		1.34e6							22.005
Total-heptafurans			2.666e5		1.305			1590		4.27e6							96.932
Total-Furans			6.077e5		1.158			1236		8.85e6							225.834
Total-tetradioxins			3.852e3		0.879			1117		5.67e4							1.357
Total-pentadioxins			1.548e4		1.331			920		2.24e5							4.171
Total-hexadioxins			9.965e4		1.028			1042		1.42e6							28.260
Total-heptadioxins			3.789e5		1.140			2045		6.05e6							175.132
Total-Dioxins			1.572e6		1.092			1117		2.06e7							868.802
Total-TEQ			2.180e6					1117		2.95e7							1094.636
FUNCTION1 PFK			1.804e5					430747		3.02e6							
FUNCTION2 PFK			5.177e6					320810		8.36e7							0.000
FUNCTION3 PFK			5.094e5					355908		1.28e7							0.000
FUNCTION4 PFK			2.792e5					248646		8.62e6							
FUNCTION5 PFK			3.557e6					169771		7.17e7							
FUNCTION1 HXCD...			1.262e3					629		2.19e4							0.000
FUNCTION1 HPCD...			8.519e2					650		9.35e3							0.000
FUNCTION2 HPCD...			5.107e2					729		1.08e4							0.000
FUNCTION3 OCDPE			1.699e3					601		2.73e4							0.000
FUNCTION4 NCDPE			6.338e4					958		1.16e6							0.000
FUNCTION5 DCDPE			1.005e2					576		1.64e3							0.000

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	23.84	3.505e3	4.418e3	1.192	0.79	0.77	46.7	YES	NO	dd	dd	0.852
2	Total-tetrafurans	23.08	6.170e2	7.371e2	1.192	0.84	0.77	8.7	YES	NO	bb	bb	0.146
3	1368-TCDF	22.37	1.853e3	2.287e3	1.425	0.81	0.77	23.2	YES	NO	dd	bb	0.372
4	Total-tetrafurans	25.91	2.066e3	2.528e3	1.192	0.82	0.77	24.3	YES	NO	dd	dd	0.494
5	Total-tetrafurans	25.56	1.185e3	1.755e3	1.192	0.68	0.77	12.9	YES	NO	dd	dd	0.316
6	Total-tetrafurans	24.60	1.290e3	1.746e3	1.192	0.74	0.77	11.4	YES	NO	db	db	0.326
7	Total-tetrafurans	24.38	8.216e3	1.100e4	1.192	0.75	0.77	82.3	YES	NO	dd	dd	2.065
8	Total-tetrafurans	24.23	4.632e3	6.024e3	1.192	0.77	0.77	55.1	YES	NO	dd	dd	1.145
9	Total-tetrafurans	24.16	1.200e3	1.572e3	1.192	0.76	0.77	18.5	YES	NO	dd	dd	0.298
10	Total-tetrafurans	24.01	3.392e3	4.557e3	1.192	0.74	0.77	32.2	YES	NO	dd	dd	0.854
11	1289-TCDF	27.35	6.692e3	9.022e3	1.043	0.74	0.77	88.2	YES	NO	dd	bd	1.930
12	Total-tetrafurans	27.00	1.633e3	2.280e3	1.192	0.72	0.77	20.2	YES	NO	dd	db	0.421
13	Total-tetrafurans	26.88	6.604e3	8.893e3	1.192	0.74	0.77	82.7	YES	NO	dd	bd	1.666

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.50	1.712e3	1.134e3		1.51	1.55	8.8	YES	NO	dd	bb	0.383
2	Total-penta1	27.18	9.995e3	7.078e3		1.41	1.55	80.9	YES	NO	dd	db	2.299

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.45	4.327e3	2.757e3	1.047	1.57	1.55	108.9	YES	NO	dd	db	0.872
2	Total-pentafurans	30.89	3.731e2	2.700e2	1.047	1.38	1.55	11.0	YES	NO	bb	bb	0.079
3	Total-pentafurans	30.28	1.756e3	1.188e3	1.047	1.48	1.55	35.0	YES	NO	db	db	0.362
4	Total-pentafurans	30.13	6.237e3	3.969e3	1.047	1.57	1.55	115.4	YES	NO	dd	bd	1.256
5	Total-pentafurans	29.04	1.622e3	1.015e3	1.047	1.60	1.55	40.5	YES	NO	db	bb	0.325
6	Total-pentafurans	28.83	1.256e3	7.073e2	1.047	1.78	1.55	27.9	YES	NO	dd	db	0.242
7	Total-pentafurans	28.77	9.287e2	5.566e2	1.047	1.67	1.55	23.1	YES	NO	dd	dd	0.183

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Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:14:40 Pacific Daylight Time

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	33.95	5.737e2	4.132e2	1.045	1.39	1.24	7.5	YES	NO	bb	bb	0.135
2	Total-hexafurans	33.43	2.513e4	2.084e4	1.045	1.21	1.24	358.2	YES	NO	bd	bb	6.304
3	123468-HXCDF	33.22	7.636e3	6.544e3	1.087	1.17	1.24	113.6	YES	NO	bb	bb	1.756
4	123789-HxCDF	36.92	6.152e3	5.388e3	1.030	1.14	1.24	106.4	YES	NO	db	db	1.960
5	Total-hexafurans	36.69	3.360e2	3.181e2	1.045	1.06	1.24	5.4	YES	NO	bd	bd	0.090
6	234678-HxCDF	35.87	2.117e3	1.766e3	1.052	1.20	1.24	19.8	YES	NO	bb	MM	0.519
7	123678-HxCDF	35.03	1.275e3	1.206e3	1.037	1.06	1.24	22.0	YES	NO	db	db	0.312
8	123478-HxCDF	34.89	1.684e3	1.415e3	1.017	1.19	1.24	27.4	YES	NO	bd	bd	0.410
9	Total-hexafurans	34.27	4.141e4	3.530e4	1.045	1.17	1.24	625.8	YES	NO	bb	bb	10.519

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.03	2.720e3	2.643e3	1.283	1.03	1.05	26.7	YES	NO	bd	bb	1.187
2	Total-heptafurans	39.44	1.849e5	1.818e5	1.305	1.02	1.05	1847.7	YES	NO	bd	bd	69.633
3	Total-heptafurans	39.19	5.232e2	5.547e2	1.305	0.94	1.05	6.1	YES	NO	db	bb	0.205
4	1234678-HpCDF	38.78	7.844e4	7.799e4	1.327	1.01	1.05	808.5	YES	NO	bd	bd	25.907

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	23.84	3.505e3	4.418e3	1.192	0.79	0.77	46.7	YES	NO	dd	dd	0.852
2	Total-tetrafurans	23.08	6.170e2	7.371e2	1.192	0.84	0.77	8.7	YES	NO	bb	bb	0.146
3	1368-TCDF	22.37	1.853e3	2.287e3	1.425	0.81	0.77	23.2	YES	NO	dd	bb	0.372
4	Total-Furans	21.98	3.850e2	5.168e2	1.158	0.74	0.77	4.2	YES	NO	bd	bb	0.100
5	Total-Furans	21.62	1.211e3	1.465e3	1.158	0.83	0.77	16.2	YES	NO	bd	bb	0.296
6	Total-Furans	21.13	3.653e3	5.339e3	1.158	0.68	0.77	46.6	YES	NO	bb	bb	0.995
7	Total-tetrafurans	25.91	2.066e3	2.528e3	1.192	0.82	0.77	24.3	YES	NO	dd	dd	0.494
8	Total-tetrafurans	25.56	1.185e3	1.755e3	1.192	0.68	0.77	12.9	YES	NO	dd	dd	0.316
9	Total-tetrafurans	24.60	1.290e3	1.746e3	1.192	0.74	0.77	11.4	YES	NO	db	db	0.326
10	Total-tetrafurans	24.38	8.216e3	1.100e4	1.192	0.75	0.77	82.3	YES	NO	dd	dd	2.065
11	Total-tetrafurans	24.23	4.632e3	6.024e3	1.192	0.77	0.77	55.1	YES	NO	dd	dd	1.145
12	Total-tetrafurans	24.16	1.200e3	1.572e3	1.192	0.76	0.77	18.5	YES	NO	dd	dd	0.298
13	Total-tetrafurans	24.01	3.392e3	4.557e3	1.192	0.74	0.77	32.2	YES	NO	dd	dd	0.854
14	Total-Furans	27.83	5.258e3	6.724e3	1.158	0.78	0.77	66.2	YES	NO	bd	bd	1.325
15	1289-TCDF	27.35	6.692e3	9.022e3	1.043	0.74	0.77	88.2	YES	NO	dd	bd	1.930
16	Total-tetrafurans	27.00	1.633e3	2.280e3	1.192	0.72	0.77	20.2	YES	NO	dd	db	0.421
17	Total-tetrafurans	26.88	6.604e3	8.893e3	1.192	0.74	0.77	82.7	YES	NO	dd	bd	1.666
18	Total-pentafurans	28.45	4.327e3	2.757e3	1.047	1.57	1.55	108.9	YES	NO	dd	db	0.872
19	Total-pentafurans	30.89	3.731e2	2.700e2	1.047	1.38	1.55	11.0	YES	NO	bb	bb	0.079
20	Total-pentafurans	30.28	1.756e3	1.188e3	1.047	1.48	1.55	35.0	YES	NO	db	db	0.362
21	Total-pentafurans	30.13	6.237e3	3.969e3	1.047	1.57	1.55	115.4	YES	NO	dd	bd	1.256
22	Total-pentafurans	29.04	1.622e3	1.015e3	1.047	1.60	1.55	40.5	YES	NO	db	bb	0.325
23	Total-pentafurans	28.83	1.256e3	7.073e2	1.047	1.78	1.55	27.9	YES	NO	dd	db	0.242
24	Total-pentafurans	28.77	9.287e2	5.566e2	1.047	1.67	1.55	23.1	YES	NO	dd	dd	0.183
25	Total-hexafurans	33.95	5.737e2	4.132e2	1.045	1.39	1.24	7.5	YES	NO	bb	bb	0.135
26	Total-hexafurans	33.43	2.513e4	2.084e4	1.045	1.21	1.24	358.2	YES	NO	bd	bb	6.304
27	123468-HXCDF	33.22	7.636e3	6.544e3	1.087	1.17	1.24	113.6	YES	NO	bb	bb	1.756
28	123789-HxCDF	36.92	6.152e3	5.388e3	1.030	1.14	1.24	106.4	YES	NO	db	db	1.960
29	Total-hexafurans	36.69	3.360e2	3.181e2	1.045	1.06	1.24	5.4	YES	NO	bd	bd	0.090
30	234678-HxCDF	35.87	2.117e3	1.766e3	1.052	1.20	1.24	19.8	YES	NO	bb	MM	0.519
31	123678-HxCDF	35.03	1.275e3	1.206e3	1.037	1.06	1.24	22.0	YES	NO	db	db	0.312
32	123478-HxCDF	34.89	1.684e3	1.415e3	1.017	1.19	1.24	27.4	YES	NO	bd	bd	0.410
33	Total-hexafurans	34.27	4.141e4	3.530e4	1.045	1.17	1.24	625.8	YES	NO	bb	bb	10.519
34	1234789-HpCDF	41.03	2.720e3	2.643e3	1.283	1.03	1.05	26.7	YES	NO	bd	bb	1.187
35	Total-heptafurans	39.44	1.849e5	1.818e5	1.305	1.02	1.05	1847.7	YES	NO	bd	bd	69.633
36	Total-heptafurans	39.19	5.232e2	5.547e2	1.305	0.94	1.05	6.1	YES	NO	db	bb	0.205
37	1234678-HpCDF	38.78	7.844e4	7.799e4	1.327	1.01	1.05	808.5	YES	NO	bd	bd	25.907

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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
38	OCDF	45.27	1.691e5	1.964e5	1.447	0.86	0.89	1426.6	YES	NO	bd	bd	86.662
39	Total-penta1	27.50	1.712e3	1.134e3		1.51	1.55	8.8	YES	NO	dd	bb	0.383
40	Total-penta1	27.18	9.995e3	7.078e3		1.41	1.55	80.9	YES	NO	dd	db	2.299
41	13468-PECDF	27.05	4.128e3	2.939e3	1.376	1.40	1.55	23.9	YES	NO	dd	dd	0.634

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.01	4.819e2	6.962e2	0.879	0.69	0.77	8.1	YES	NO	bb	bb	0.177
2	Total-tetradioxins	26.52	6.693e2	9.616e2	0.879	0.70	0.77	8.7	YES	NO	db	db	0.245
3	Total-tetradioxins	26.02	4.757e2	6.207e2	0.879	0.77	0.77	5.9	YES	NO	bd	bd	0.165
4	Total-tetradioxins	24.99	7.434e2	1.003e3	0.879	0.74	0.77	9.3	YES	NO	bb	bb	0.262
5	Total-tetradioxins	24.73	8.399e2	1.139e3	0.879	0.74	0.77	9.3	YES	NO	bb	bb	0.297
6	Total-tetradioxins	24.52	6.424e2	7.600e2	0.879	0.85	0.77	9.5	YES	NO	bb	bb	0.211

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.91	1.266e3	7.510e2	1.154	1.69	1.55	19.4	YES	NO	bb	bb	0.357
2	12378-PeCDD	31.50	2.967e3	1.711e3	0.995	1.73	1.55	42.8	YES	NO	bb	bb	0.960
3	Total-pentadioxins	30.44	4.135e3	2.524e3	1.331	1.64	1.55	46.2	YES	NO	bb	db	1.022
4	Total-pentadioxins	30.27	1.283e3	8.069e2	1.331	1.59	1.55	25.0	YES	NO	bb	dd	0.321
5	Total-pentadioxins	30.12	1.893e3	1.436e3	1.331	1.32	1.55	40.3	YES	NO	bb	MM	0.511
6	Total-pentadioxins	29.90	1.388e3	9.938e2	1.331	1.40	1.55	25.3	YES	NO	bb	bb	0.365
7	Total-pentadioxins	29.30	2.549e3	1.586e3	1.331	1.61	1.55	44.5	YES	NO	bb	bb	0.635

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.51	6.405e3	5.131e3	0.950	1.25	1.24	105.4	YES	NO	bb	bb	1.988
2	Total-hexadioxins	36.29	5.255e3	3.744e3	1.028	1.40	1.24	89.6	YES	NO	bb	db	1.434
3	123678-HxCDD	36.12	1.200e4	1.094e4	1.009	1.10	1.24	190.0	YES	NO	db	dd	3.671
4	123478-HxCDD	36.00	3.956e3	3.133e3	1.027	1.26	1.24	68.3	YES	NO	bd	bd	1.147
5	Total-hexadioxins	35.12	4.011e4	3.168e4	1.028	1.27	1.24	432.6	YES	NO	bd	bd	11.440
6	Total-hexadioxins	34.77	7.376e3	5.943e3	1.028	1.24	1.24	115.2	YES	NO	bb	bb	2.123
7	124679-HXCDD	33.99	2.455e4	1.913e4	1.125	1.28	1.24	363.9	YES	NO	bb	bb	6.456

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	1.968e5	1.892e5	1.068	1.04	1.05	1490.3	YES	NO	bb	bb	96.765
2	1234679-HPCDD	39.22	1.821e5	1.723e5	1.211	1.06	1.05	1466.9	YES	NO	bb	bb	78.367

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	24.01	4.819e2	6.962e2	0.879	0.69	0.77	8.1	YES	NO	bb	bb	0.177
2	Total-tetradioxins	26.52	6.693e2	9.616e2	0.879	0.70	0.77	8.7	YES	NO	db	db	0.245
3	Total-tetradioxins	26.02	4.757e2	6.207e2	0.879	0.77	0.77	5.9	YES	NO	bd	bd	0.165
4	Total-tetradioxins	24.99	7.434e2	1.003e3	0.879	0.74	0.77	9.3	YES	NO	bb	bb	0.262
5	Total-tetradioxins	24.73	8.399e2	1.139e3	0.879	0.74	0.77	9.3	YES	NO	bb	bb	0.297
6	Total-tetradioxins	24.52	6.424e2	7.600e2	0.879	0.85	0.77	9.5	YES	NO	bb	bb	0.211
7	12389-PECDD	31.91	1.266e3	7.510e2	1.154	1.69	1.55	19.4	YES	NO	bb	bb	0.357
8	12378-PeCDD	31.50	2.967e3	1.711e3	0.995	1.73	1.55	42.8	YES	NO	bb	bb	0.960
9	Total-pentadioxins	30.44	4.135e3	2.524e3	1.331	1.64	1.55	46.2	YES	NO	bb	db	1.022
10	Total-pentadioxins	30.27	1.283e3	8.069e2	1.331	1.59	1.55	25.0	YES	NO	bb	dd	0.321
11	Total-pentadioxins	30.12	1.893e3	1.436e3	1.331	1.32	1.55	40.3	YES	NO	bb	MM	0.511
12	Total-pentadioxins	29.90	1.388e3	9.938e2	1.331	1.40	1.55	25.3	YES	NO	bb	bb	0.365
13	Total-pentadioxins	29.30	2.549e3	1.586e3	1.331	1.61	1.55	44.5	YES	NO	bb	bb	0.635
14	123789-HxCDD	36.51	6.405e3	5.131e3	0.950	1.25	1.24	105.4	YES	NO	bb	bb	1.988
15	Total-hexadioxins	36.29	5.255e3	3.744e3	1.028	1.40	1.24	89.6	YES	NO	bb	db	1.434
16	123678-HxCDD	36.12	1.200e4	1.094e4	1.009	1.10	1.24	190.0	YES	NO	db	dd	3.671
17	123478-HxCDD	36.00	3.956e3	3.133e3	1.027	1.26	1.24	68.3	YES	NO	bd	bd	1.147
18	Total-hexadioxins	35.12	4.011e4	3.168e4	1.028	1.27	1.24	432.6	YES	NO	bd	bd	11.440
19	Total-hexadioxins	34.77	7.376e3	5.943e3	1.028	1.24	1.24	115.2	YES	NO	bb	bb	2.123
20	124679-HXCDD	33.99	2.455e4	1.913e4	1.125	1.28	1.24	363.9	YES	NO	bb	bb	6.456
21	1234678-HpCDD	40.27	1.968e5	1.892e5	1.068	1.04	1.05	1490.3	YES	NO	bb	bb	96.765
22	1234679-HPCDD	39.22	1.821e5	1.723e5	1.211	1.06	1.05	1466.9	YES	NO	bb	bb	78.367
23	OCDD	45.03	1.074e6	1.197e6	1.181	0.90	0.89	7588.5	YES	NO	bb	bb	659.882

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	23.84	3.505e3	4.418e3	1.192	0.79	0.77	46.7	YES	NO	dd	dd	0.852
2	Total-tetrafurans	23.08	6.170e2	7.371e2	1.192	0.84	0.77	8.7	YES	NO	bb	bb	0.146
3	1368-TCDF	22.37	1.853e3	2.287e3	1.425	0.81	0.77	23.2	YES	NO	dd	bb	0.372
4	Total-Furans	21.98	3.850e2	5.168e2	1.158	0.74	0.77	4.2	YES	NO	bd	bb	0.100
5	Total-Furans	21.62	1.211e3	1.465e3	1.158	0.83	0.77	16.2	YES	NO	bd	bb	0.296
6	Total-Furans	21.13	3.653e3	5.339e3	1.158	0.68	0.77	46.6	YES	NO	bb	bb	0.995
7	Total-tetrafurans	25.91	2.066e3	2.528e3	1.192	0.82	0.77	24.3	YES	NO	dd	dd	0.494
8	Total-tetrafurans	25.56	1.185e3	1.755e3	1.192	0.68	0.77	12.9	YES	NO	dd	dd	0.316
9	Total-tetrafurans	24.60	1.290e3	1.746e3	1.192	0.74	0.77	11.4	YES	NO	db	db	0.326
10	Total-tetrafurans	24.38	8.216e3	1.100e4	1.192	0.75	0.77	82.3	YES	NO	dd	dd	2.065
11	Total-tetrafurans	24.23	4.632e3	6.024e3	1.192	0.77	0.77	55.1	YES	NO	dd	dd	1.145
12	Total-tetrafurans	24.16	1.200e3	1.572e3	1.192	0.76	0.77	18.5	YES	NO	dd	dd	0.298
13	Total-tetrafurans	24.01	3.392e3	4.557e3	1.192	0.74	0.77	32.2	YES	NO	dd	dd	0.854
14	Total-Furans	27.83	5.258e3	6.724e3	1.158	0.78	0.77	66.2	YES	NO	bd	bd	1.325
15	1289-TCDF	27.35	6.692e3	9.022e3	1.043	0.74	0.77	88.2	YES	NO	dd	bd	1.930
16	Total-tetrafurans	27.00	1.633e3	2.280e3	1.192	0.72	0.77	20.2	YES	NO	dd	db	0.421
17	Total-tetrafurans	26.88	6.604e3	8.893e3	1.192	0.74	0.77	82.7	YES	NO	dd	bd	1.666
18	Total-pentafurans	28.45	4.327e3	2.757e3	1.047	1.57	1.55	108.9	YES	NO	dd	db	0.872
19	Total-pentafurans	30.89	3.731e2	2.700e2	1.047	1.38	1.55	11.0	YES	NO	bb	bb	0.079
20	Total-pentafurans	30.28	1.756e3	1.188e3	1.047	1.48	1.55	35.0	YES	NO	db	db	0.362
21	Total-pentafurans	30.13	6.237e3	3.969e3	1.047	1.57	1.55	115.4	YES	NO	dd	bd	1.256
22	Total-pentafurans	29.04	1.622e3	1.015e3	1.047	1.60	1.55	40.5	YES	NO	db	bb	0.325
23	Total-pentafurans	28.83	1.256e3	7.073e2	1.047	1.78	1.55	27.9	YES	NO	dd	db	0.242
24	Total-pentafurans	28.77	9.287e2	5.566e2	1.047	1.67	1.55	23.1	YES	NO	dd	dd	0.183
25	Total-hexafurans	33.95	5.737e2	4.132e2	1.045	1.39	1.24	7.5	YES	NO	bb	bb	0.135
26	Total-hexafurans	33.43	2.513e4	2.084e4	1.045	1.21	1.24	358.2	YES	NO	bd	bb	6.304
27	123468-HXCDF	33.22	7.636e3	6.544e3	1.087	1.17	1.24	113.6	YES	NO	bb	bb	1.756
28	123789-HxCDF	36.92	6.152e3	5.388e3	1.030	1.14	1.24	106.4	YES	NO	db	db	1.960
29	Total-hexafurans	36.69	3.360e2	3.181e2	1.045	1.06	1.24	5.4	YES	NO	bd	bd	0.090
30	234678-HxCDF	35.87	2.117e3	1.766e3	1.052	1.20	1.24	19.8	YES	NO	bb	MM	0.519
31	123678-HxCDF	35.03	1.275e3	1.206e3	1.037	1.06	1.24	22.0	YES	NO	db	db	0.312
32	123478-HxCDF	34.89	1.684e3	1.415e3	1.017	1.19	1.24	27.4	YES	NO	bd	bd	0.410
33	Total-hexafurans	34.27	4.141e4	3.530e4	1.045	1.17	1.24	625.8	YES	NO	bb	bb	10.519
34	1234789-HpCDF	41.03	2.720e3	2.643e3	1.283	1.03	1.05	26.7	YES	NO	bd	bb	1.187
35	Total-heptafurans	39.44	1.849e5	1.818e5	1.305	1.02	1.05	1847.7	YES	NO	bd	bd	69.633
36	Total-heptafurans	39.19	5.232e2	5.547e2	1.305	0.94	1.05	6.1	YES	NO	db	bb	0.205
37	1234678-HpCDF	38.78	7.844e4	7.799e4	1.327	1.01	1.05	808.5	YES	NO	bd	bd	25.907

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	OCDF	45.27	1.691e5	1.964e5	1.447	0.86	0.89	1426.6	YES	NO	bd	bd	86.662
39	Total-penta1	27.50	1.712e3	1.134e3		1.51	1.55	8.8	YES	NO	dd	bb	0.383
40	Total-penta1	27.18	9.995e3	7.078e3		1.41	1.55	80.9	YES	NO	dd	db	2.299
41	13468-PECDF	27.05	4.128e3	2.939e3	1.376	1.40	1.55	23.9	YES	NO	dd	dd	0.634
42	Total-tetradioxins	24.01	4.819e2	6.962e2	0.879	0.69	0.77	8.1	YES	NO	bb	bb	0.177
43	Total-tetradioxins	26.52	6.693e2	9.616e2	0.879	0.70	0.77	8.7	YES	NO	db	db	0.245
44	Total-tetradioxins	26.02	4.757e2	6.207e2	0.879	0.77	0.77	5.9	YES	NO	bd	bd	0.165
45	Total-tetradioxins	24.99	7.434e2	1.003e3	0.879	0.74	0.77	9.3	YES	NO	bb	bb	0.262
46	Total-tetradioxins	24.73	8.399e2	1.139e3	0.879	0.74	0.77	9.3	YES	NO	bb	bb	0.297
47	Total-tetradioxins	24.52	6.424e2	7.600e2	0.879	0.85	0.77	9.5	YES	NO	bb	bb	0.211
48	12389-PECDD	31.91	1.266e3	7.510e2	1.154	1.69	1.55	19.4	YES	NO	bb	bb	0.357
49	12378-PeCDD	31.50	2.967e3	1.711e3	0.995	1.73	1.55	42.8	YES	NO	bb	bb	0.960
50	Total-pentadioxins	30.44	4.135e3	2.524e3	1.331	1.64	1.55	46.2	YES	NO	bb	db	1.022
51	Total-pentadioxins	30.27	1.283e3	8.069e2	1.331	1.59	1.55	25.0	YES	NO	bb	dd	0.321
52	Total-pentadioxins	30.12	1.893e3	1.436e3	1.331	1.32	1.55	40.3	YES	NO	bb	MM	0.511
53	Total-pentadioxins	29.90	1.388e3	9.938e2	1.331	1.40	1.55	25.3	YES	NO	bb	bb	0.365
54	Total-pentadioxins	29.30	2.549e3	1.586e3	1.331	1.61	1.55	44.5	YES	NO	bb	bb	0.635
55	123789-HxCDD	36.51	6.405e3	5.131e3	0.950	1.25	1.24	105.4	YES	NO	bb	bb	1.988
56	Total-hexadioxins	36.29	5.255e3	3.744e3	1.028	1.40	1.24	89.6	YES	NO	bb	db	1.434
57	123678-HxCDD	36.12	1.200e4	1.094e4	1.009	1.10	1.24	190.0	YES	NO	db	dd	3.671
58	123478-HxCDD	36.00	3.956e3	3.133e3	1.027	1.26	1.24	68.3	YES	NO	bd	bd	1.147
59	Total-hexadioxins	35.12	4.011e4	3.168e4	1.028	1.27	1.24	432.6	YES	NO	bd	bd	11.440
60	Total-hexadioxins	34.77	7.376e3	5.943e3	1.028	1.24	1.24	115.2	YES	NO	bb	bb	2.123
61	124679-HXCDD	33.99	2.455e4	1.913e4	1.125	1.28	1.24	363.9	YES	NO	bb	bb	6.456
62	1234678-HpCDD	40.27	1.968e5	1.892e5	1.068	1.04	1.05	1490.3	YES	NO	bb	bb	96.765
63	1234679-HPCDD	39.22	1.821e5	1.723e5	1.211	1.06	1.05	1466.9	YES	NO	bb	bb	78.367
64	OCDD	45.03	1.074e6	1.197e6	1.181	0.90	0.89	7588.5	YES	NO	bb	bb	659.882

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.39	8.250e4					3.1	YES		db		
2	FUNCTION1 PFK	21.33	9.788e4					3.9	YES		bd		

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	28.90	1.356e5					9.8	YES		dd		0.000
2	FUNCTION2 PFK	28.77	4.480e5					12.8	YES		dd		0.000
3	FUNCTION2 PFK	28.68	3.675e5					13.7	YES		dd		0.000
4	FUNCTION2 PFK	28.61	3.464e5					14.7	YES		dd		0.000
5	FUNCTION2 PFK	28.54	3.117e5					15.2	YES		dd		0.000
6	FUNCTION2 PFK	28.45	4.526e5					17.1	YES		dd		0.000
7	FUNCTION2 PFK	28.39	5.061e5					18.1	YES		dd		0.000
8	FUNCTION2 PFK	28.29	5.082e5					18.6	YES		dd		0.000
9	FUNCTION2 PFK	28.22	2.633e5					19.9	YES		dd		0.000
10	FUNCTION2 PFK	28.17	4.746e5					20.8	YES		bd		0.000
11	FUNCTION2 PFK	30.08	2.563e4					1.6	NO		bb		0.000
12	FUNCTION2 PFK	29.90	2.937e3					0.4	NO		bb		0.000
13	FUNCTION2 PFK	29.80	2.658e4					1.8	NO		db		0.000
14	FUNCTION2 PFK	29.73	1.498e4					1.6	NO		dd		0.000
15	FUNCTION2 PFK	29.68	1.586e4					1.5	NO		bd		0.000
16	FUNCTION2 PFK	29.50	1.597e4					1.1	NO		bb		0.000
17	FUNCTION2 PFK	29.42	1.243e4					1.7	NO		db		0.000
18	FUNCTION2 PFK	29.35	3.993e4					3.6	YES		dd		0.000
19	FUNCTION2 PFK	29.32	5.167e4					4.0	YES		dd		0.000
20	FUNCTION2 PFK	29.27	5.337e4					4.2	YES		dd		0.000
21	FUNCTION2 PFK	29.21	7.815e4					5.4	YES		dd		0.000
22	FUNCTION2 PFK	29.10	2.493e5					8.0	YES		dd		0.000
23	FUNCTION2 PFK	29.05	1.111e5					8.0	YES		dd		0.000
24	FUNCTION2 PFK	29.01	1.228e5					8.9	YES		dd		0.000
25	FUNCTION2 PFK	28.97	9.330e4					9.1	YES		dd		0.000
26	FUNCTION2 PFK	28.93	9.613e4					9.5	YES		dd		0.000
27	FUNCTION2 PFK	31.88	1.908e4					1.7	NO		bb		0.000
28	FUNCTION2 PFK	31.57	9.306e3					0.7	NO		bb		0.000
29	FUNCTION2 PFK	31.45	1.601e4					1.3	NO		db		0.000
30	FUNCTION2 PFK	31.38	1.685e4					1.4	NO		dd		0.000
31	FUNCTION2 PFK	31.34	1.451e4					1.3	NO		bd		0.000
32	FUNCTION2 PFK	31.25	6.589e3					0.6	NO		bb		0.000
33	FUNCTION2 PFK	31.13	9.754e2					0.3	NO		bb		0.000
34	FUNCTION2 PFK	31.05	3.345e3					0.5	NO		bb		0.000
35	FUNCTION2 PFK	30.96	2.392e4					1.5	NO		db		0.000
36	FUNCTION2 PFK	30.89	7.131e3					1.0	NO		bd		0.000
37	FUNCTION2 PFK	30.76	6.312e3					0.9	NO		bb		0.000

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	30.68	1.198e4					1.0	NO		bb		0.000
39	FUNCTION2 PFK	30.48	7.606e3					1.1	NO		bb		0.000
40	FUNCTION2 PFK	30.41	2.411e4					1.1	NO		db		0.000
41	FUNCTION2 PFK	30.32	3.942e4					1.7	NO		bd		0.000
42	FUNCTION2 PFK	30.21	2.645e4					1.7	NO		bb		0.000
43	FUNCTION2 PFK	32.74	7.466e3					1.0	NO		bb		0.000
44	FUNCTION2 PFK	32.69	6.120e3					0.7	NO		db		0.000
45	FUNCTION2 PFK	32.65	9.223e3					0.9	NO		dd		0.000
46	FUNCTION2 PFK	32.58	1.984e4					1.3	NO		dd		0.000
47	FUNCTION2 PFK	32.53	1.247e4					1.1	NO		bd		0.000
48	FUNCTION2 PFK	32.42	8.554e3					0.9	NO		bb		0.000
49	FUNCTION2 PFK	32.33	1.379e4					1.4	NO		db		0.000
50	FUNCTION2 PFK	32.29	2.099e4					1.5	NO		bd		0.000
51	FUNCTION2 PFK	32.22	9.909e3					1.1	NO		bb		0.000
52	FUNCTION2 PFK	32.06	6.208e3					0.7	NO		bb		0.000
53	FUNCTION2 PFK	31.96	4.374e3					0.6	NO		bb		0.000

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	33.53	1.457e4					1.7	NO		bb		0.000
2	FUNCTION3 PFK	33.23	5.615e3					0.9	NO		bb		0.000
3	FUNCTION3 PFK	33.18	1.133e4					1.0	NO		bb		0.000
4	FUNCTION3 PFK	33.13	2.434e3					0.6	NO		bb		0.000
5	FUNCTION3 PFK	36.95	4.935e4					2.6	NO		bd		0.000
6	FUNCTION3 PFK	36.88	8.683e3					1.2	NO		bb		0.000
7	FUNCTION3 PFK	36.81	7.689e4					2.9	NO		bb		0.000
8	FUNCTION3 PFK	36.73	1.420e4					1.6	NO		bb		0.000
9	FUNCTION3 PFK	36.39	8.646e4					3.2	YES		bb		0.000
10	FUNCTION3 PFK	35.97	2.438e4					1.5	NO		bb		0.000
11	FUNCTION3 PFK	35.91	1.269e4					1.4	NO		bb		0.000
12	FUNCTION3 PFK	35.84	2.207e3					0.6	NO		bb		0.000
13	FUNCTION3 PFK	35.79	4.201e3					1.1	NO		bb		0.000
14	FUNCTION3 PFK	35.46	1.468e4					0.7	NO		bb		0.000
15	FUNCTION3 PFK	35.35	1.302e4					1.3	NO		bb		0.000
16	FUNCTION3 PFK	34.50	6.342e3					1.1	NO		bb		0.000
17	FUNCTION3 PFK	34.38	3.265e4					1.9	NO		db		0.000
18	FUNCTION3 PFK	34.31	7.463e3					0.9	NO		bd		0.000
19	FUNCTION3 PFK	34.13	5.735e3					0.8	NO		bb		0.000
20	FUNCTION3 PFK	33.59	2.411e4					1.6	NO		bb		0.000
21	FUNCTION3 PFK	37.85	1.992e4					2.3	NO		db		0.000
22	FUNCTION3 PFK	37.80	3.210e4					2.9	NO		bd		0.000
23	FUNCTION3 PFK	37.03	4.041e4					2.1	NO		db		0.000

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	39.62	2.373e4					2.2	NO		bb		
2	FUNCTION4 PFK	39.49	2.813e3					0.6	NO		bb		
3	FUNCTION4 PFK	39.44	3.393e3					0.7	NO		bb		
4	FUNCTION4 PFK	39.39	2.093e3					0.5	NO		bb		
5	FUNCTION4 PFK	39.27	2.712e3					0.6	NO		bb		
6	FUNCTION4 PFK	39.10	5.200e3					0.9	NO		bb		
7	FUNCTION4 PFK	38.82	3.544e3					0.7	NO		bb		
8	FUNCTION4 PFK	38.54	2.783e4					1.8	NO		bb		
9	FUNCTION4 PFK	38.47	2.120e4					1.8	NO		bb		
10	FUNCTION4 PFK	38.02	2.431e4					3.1	YES		db		
11	FUNCTION4 PFK	38.00	1.813e4					2.6	NO		dd		
12	FUNCTION4 PFK	37.95	1.909e4					3.2	YES		bd		
13	FUNCTION4 PFK	42.90	6.586e3					1.2	NO		bb		
14	FUNCTION4 PFK	42.78	4.740e3					0.8	NO		db		
15	FUNCTION4 PFK	42.64	2.338e4					1.4	NO		bd		
16	FUNCTION4 PFK	42.09	1.306e3					0.5	NO		bb		
17	FUNCTION4 PFK	41.69	5.019e3					0.9	NO		bb		
18	FUNCTION4 PFK	41.28	3.277e3					0.9	NO		bb		
19	FUNCTION4 PFK	40.95	1.024e4					1.8	NO		db		
20	FUNCTION4 PFK	40.94	2.672e4					1.8	NO		bd		
21	FUNCTION4 PFK	40.84	1.455e4					1.9	NO		db		
22	FUNCTION4 PFK	40.81	7.594e3					1.2	NO		bd		
23	FUNCTION4 PFK	40.75	5.721e3					0.9	NO		db		
24	FUNCTION4 PFK	40.69	3.405e3					0.6	NO		bd		
25	FUNCTION4 PFK	40.39	8.084e3					1.3	NO		bb		
26	FUNCTION4 PFK	40.27	2.834e3					0.6	NO		bb		
27	FUNCTION4 PFK	39.97	1.716e3					0.4	NO		bb		

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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	43.86	5.125e4					8.8	YES		dd		
2	FUNCTION5 PFK	43.79	1.070e5					11.0	YES		dd		
3	FUNCTION5 PFK	43.73	1.129e5					13.1	YES		dd		
4	FUNCTION5 PFK	43.69	1.277e5					14.5	YES		dd		
5	FUNCTION5 PFK	43.64	1.518e5					17.0	YES		dd		
6	FUNCTION5 PFK	43.57	1.958e5					19.1	YES		dd		
7	FUNCTION5 PFK	43.51	1.528e5					20.3	YES		dd		
8	FUNCTION5 PFK	43.45	2.687e5					23.2	YES		dd		
9	FUNCTION5 PFK	43.39	3.375e5					24.2	YES		dd		
10	FUNCTION5 PFK	43.33	1.202e5					26.2	YES		dd		
11	FUNCTION5 PFK	43.29	1.690e5					27.9	YES		dd		
12	FUNCTION5 PFK	43.27	2.676e5					28.8	YES		dd		
13	FUNCTION5 PFK	43.18	3.305e5					31.7	YES		dd		
14	FUNCTION5 PFK	43.13	2.933e5					32.5	YES		dd		
15	FUNCTION5 PFK	43.09	1.489e5					32.8	YES		dd		
16	FUNCTION5 PFK	43.06	3.650e5					34.4	YES		bd		
17	FUNCTION5 PFK	44.89	1.157e4					2.1	NO		bd		
18	FUNCTION5 PFK	44.79	1.810e4					1.6	NO		bb		
19	FUNCTION5 PFK	44.72	3.939e3					1.1	NO		bb		
20	FUNCTION5 PFK	44.64	5.399e3					1.5	NO		db		
21	FUNCTION5 PFK	44.59	8.427e3					1.4	NO		bd		
22	FUNCTION5 PFK	44.53	4.581e3					1.0	NO		bb		
23	FUNCTION5 PFK	44.47	6.369e3					1.3	NO		db		
24	FUNCTION5 PFK	44.41	5.895e3					1.3	NO		bd		
25	FUNCTION5 PFK	44.34	6.188e3					1.0	NO		bb		
26	FUNCTION5 PFK	44.27	2.984e3					0.6	NO		bb		
27	FUNCTION5 PFK	44.17	1.019e4					1.6	NO		bb		
28	FUNCTION5 PFK	44.06	9.651e3					2.2	NO		db		
29	FUNCTION5 PFK	44.03	1.251e4					3.1	YES		dd		
30	FUNCTION5 PFK	44.00	1.757e4					4.2	YES		dd		
31	FUNCTION5 PFK	43.96	3.884e4					5.5	YES		dd		
32	FUNCTION5 PFK	43.92	7.176e4					6.6	YES		dd		
33	FUNCTION5 PFK	45.68	7.011e3					1.6	NO		db		
34	FUNCTION5 PFK	45.65	1.251e4					1.6	NO		dd		
35	FUNCTION5 PFK	45.56	7.928e3					1.3	NO		dd		
36	FUNCTION5 PFK	45.52	7.971e3					1.2	NO		dd		
37	FUNCTION5 PFK	45.45	1.231e4					1.6	NO		dd		

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION5 PFK	45.42	6.494e3					1.6	NO		dd		
39	FUNCTION5 PFK	45.39	9.166e3					1.5	NO		dd		
40	FUNCTION5 PFK	45.32	8.514e3					2.0	NO		dd		
41	FUNCTION5 PFK	45.31	9.495e3					2.1	NO		bd		
42	FUNCTION5 PFK	45.24	1.078e4					1.7	NO		db		
43	FUNCTION5 PFK	45.20	8.422e3					1.3	NO		dd		
44	FUNCTION5 PFK	45.12	1.481e4					1.9	NO		dd		
45	FUNCTION5 PFK	45.04	4.740e3					0.9	NO		bd		
46	FUNCTION5 PFK	44.95	3.495e3					0.9	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.72	8.787e1					2.8	NO		bb		0.000
2	FUNCTION1 HXCD...	27.48	3.123e2					5.6	YES		bb		0.000
3	FUNCTION1 HXCD...	26.96	2.269e2					5.5	YES		bb		0.000
4	FUNCTION1 HXCD...	26.76	1.344e2					5.7	YES		bb		0.000
5	FUNCTION1 HXCD...	26.40	1.145e2					4.4	YES		db		0.000
6	FUNCTION1 HXCD...	26.29	1.078e2					3.6	YES		bd		0.000
7	FUNCTION1 HXCD...	25.56	9.162e1					2.6	NO		bb		0.000
8	FUNCTION1 HXCD...	25.29	1.865e2					4.4	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...	24.07	7.738e1					2.0	NO		bb		0.000
2	FUNCTION1 HPCD...	23.02	1.581e2					2.4	NO		bb		0.000
3	FUNCTION1 HPCD...	22.43	1.098e2					2.2	NO		db		0.000
4	FUNCTION1 HPCD...	22.34	1.485e2					2.0	NO		dd		0.000
5	FUNCTION1 HPCD...	22.15	1.611e2					2.8	NO		dd		0.000
6	FUNCTION1 HPCD...	22.03	1.969e2					2.9	NO		bd		0.000

ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, 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...	28.88	2.125e2					6.2	YES		bb		0.000
2	FUNCTION2 HPCD...	32.56	8.988e1					2.3	NO		bb		0.000
3	FUNCTION2 HPCD...	32.29	1.249e2					3.4	YES		bb		0.000
4	FUNCTION2 HPCD...	31.56	8.343e1					2.9	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	37.79	2.733e2					5.5	YES		db		0.000
2	FUNCTION3 OCDPE	37.66	1.063e2					3.3	YES		bd		0.000
3	FUNCTION3 OCDPE	36.93	2.131e2					5.7	YES		db		0.000
4	FUNCTION3 OCDPE	36.83	1.076e2					4.6	YES		bd		0.000
5	FUNCTION3 OCDPE	36.48	2.332e2					4.7	YES		db		0.000
6	FUNCTION3 OCDPE	36.37	8.868e1					2.5	NO		bd		0.000
7	FUNCTION3 OCDPE	36.28	8.802e1					3.3	YES		db		0.000
8	FUNCTION3 OCDPE	36.17	1.979e2					5.1	YES		dd		0.000
9	FUNCTION3 OCDPE	36.10	1.810e2					4.8	YES		dd		0.000
10	FUNCTION3 OCDPE	35.99	1.223e2					3.7	YES		bd		0.000
11	FUNCTION3 OCDPE	34.15	8.769e1					2.3	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	41.57	8.157e1					2.1	NO		bb		0.000
2	FUNCTION4 NCDPE	38.40	6.330e4					1206.3	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	43.31	1.005e2					2.8	NO		bb		0.000

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ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, Conditions: AUTOSPEC01, User: pk

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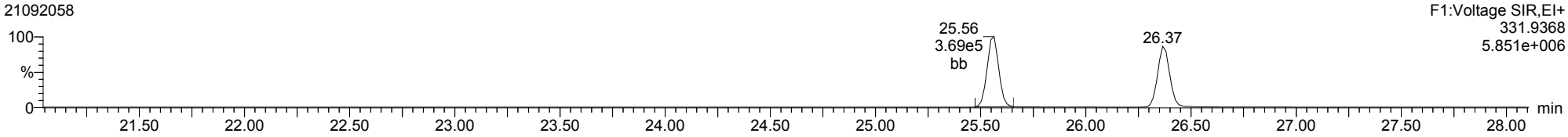

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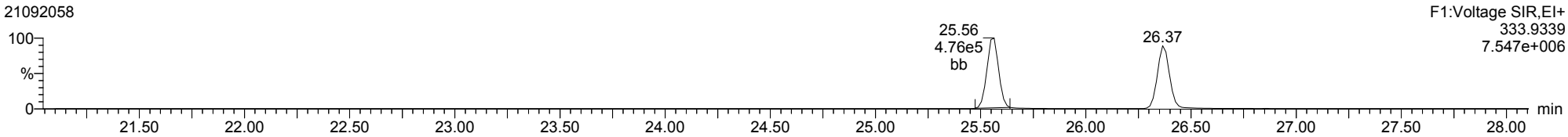

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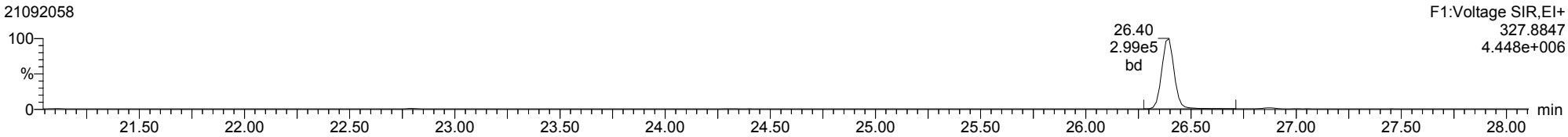

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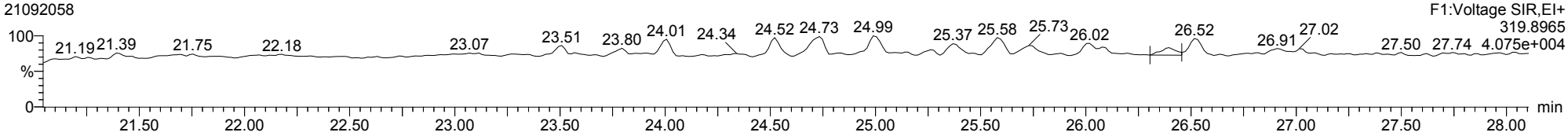

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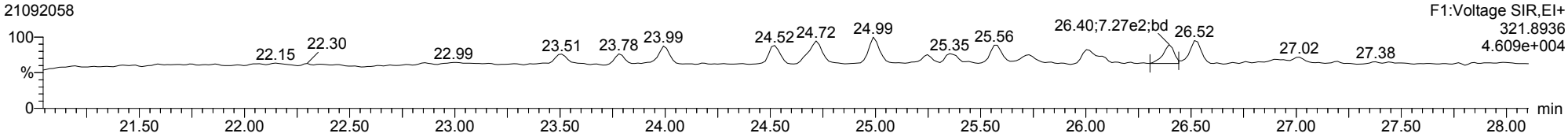

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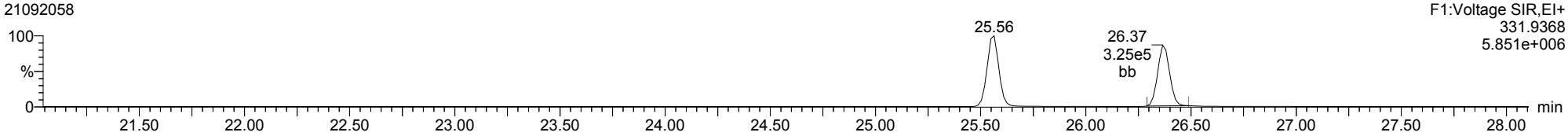

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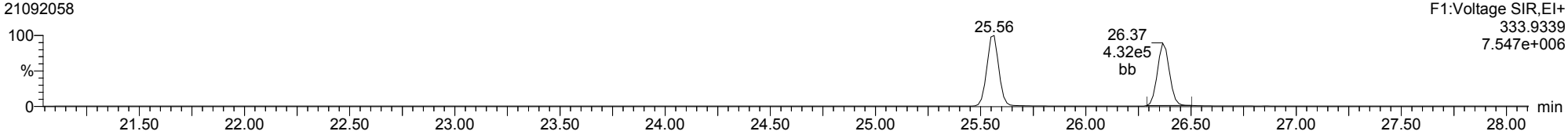

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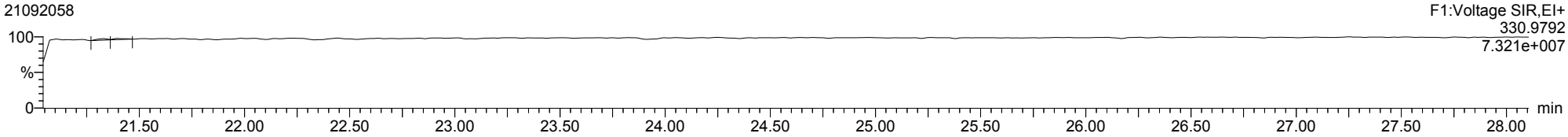

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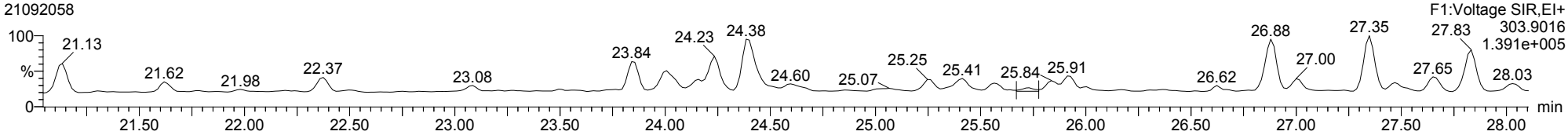

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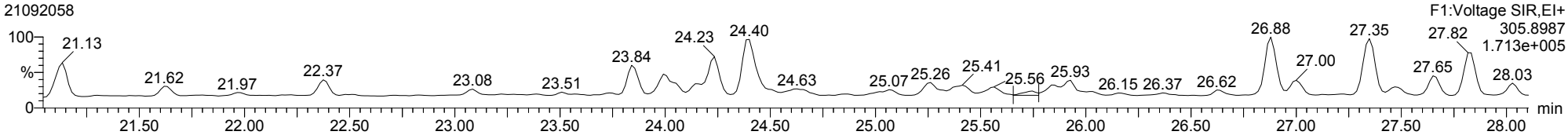

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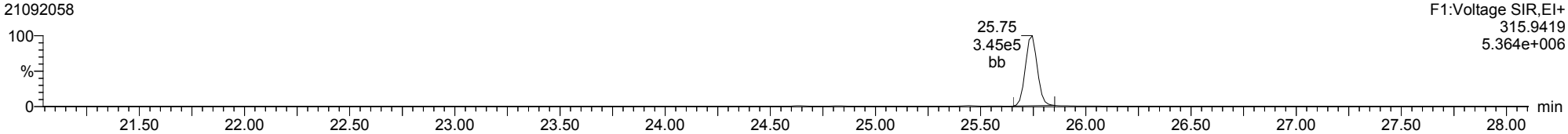

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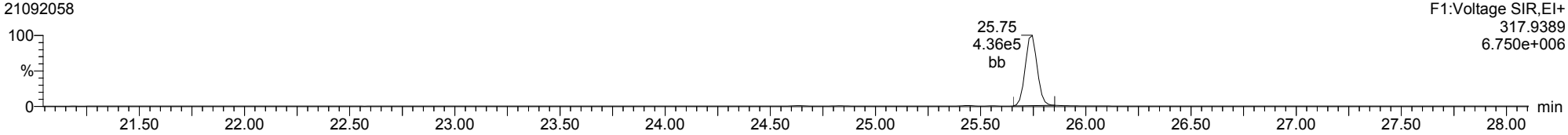
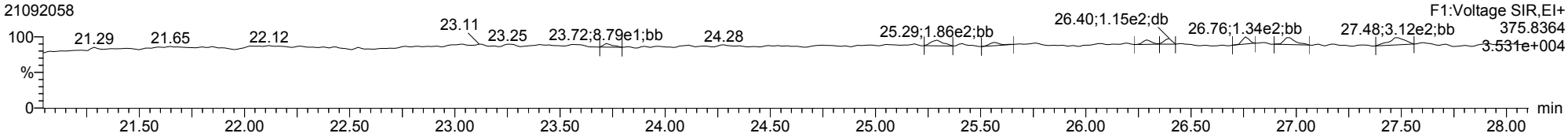


FUNCTION1 HXCDPE



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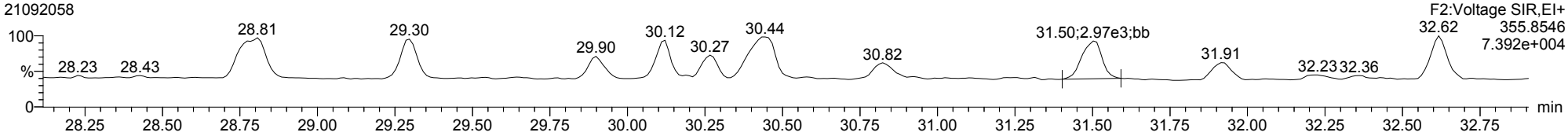
12378-PeCDD



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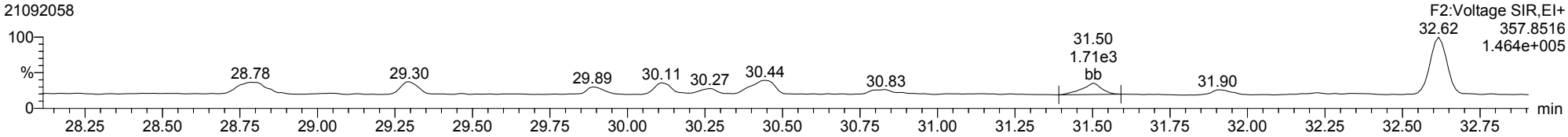

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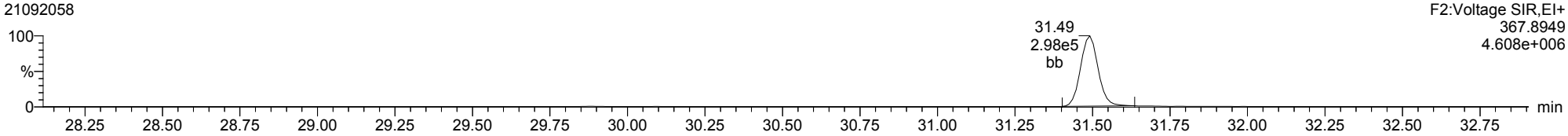

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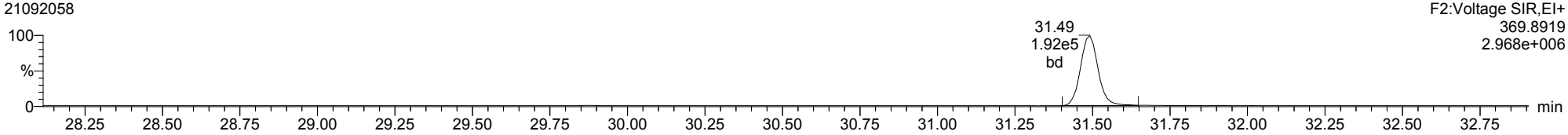
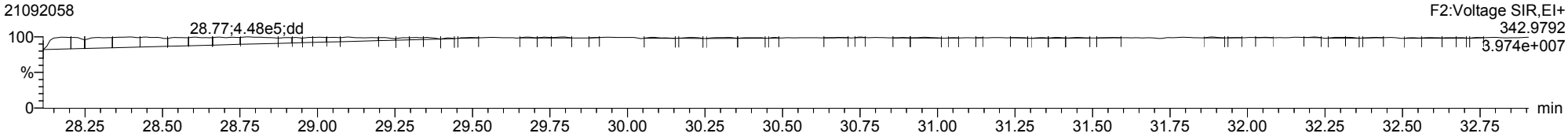


FUNCTION2 PFK



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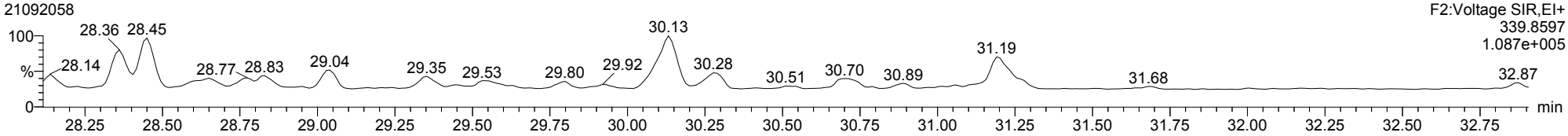

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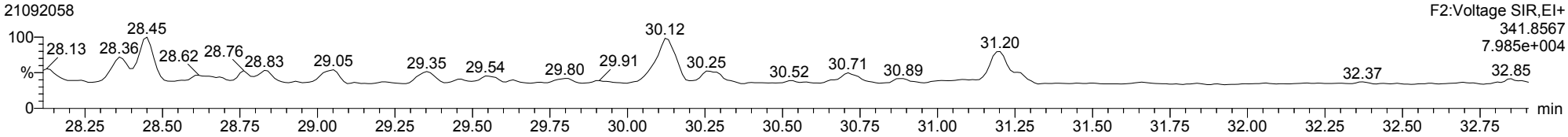

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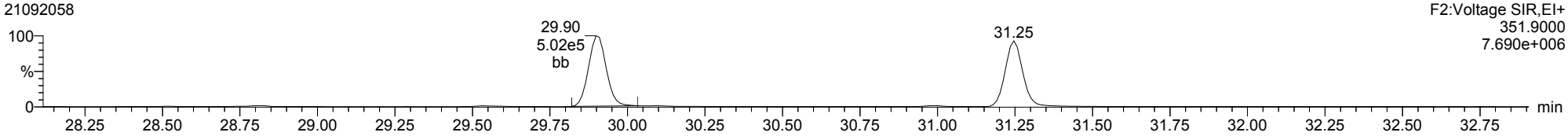

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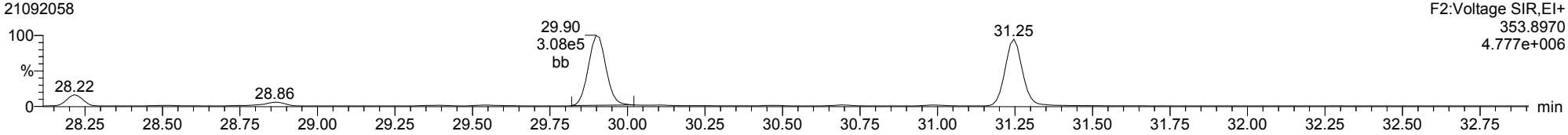
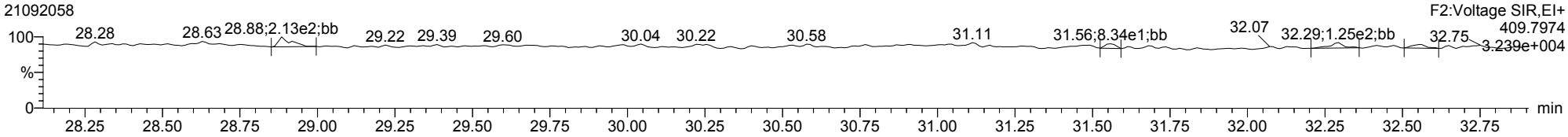


FUNCTION2 HPCDPE



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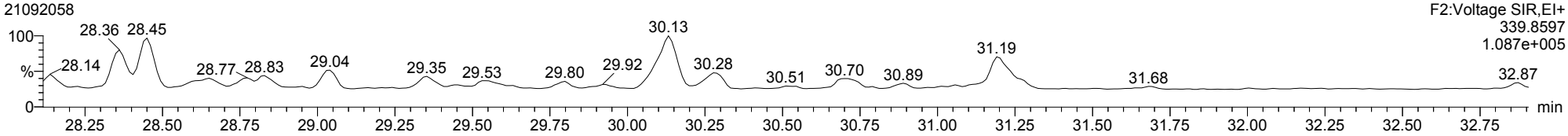

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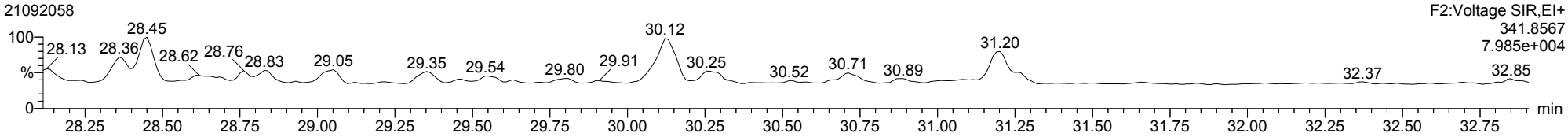

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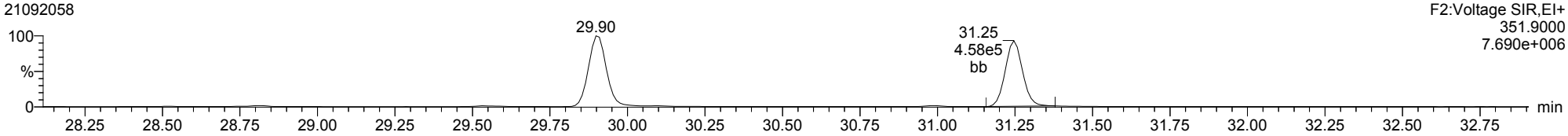

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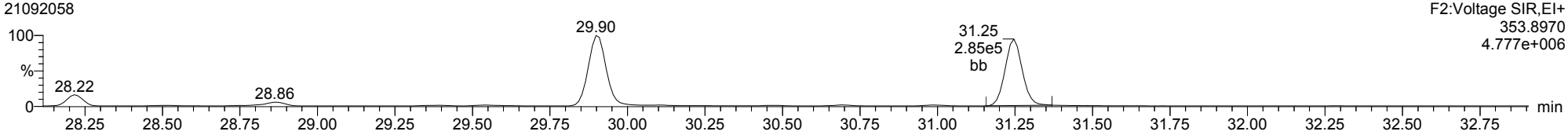
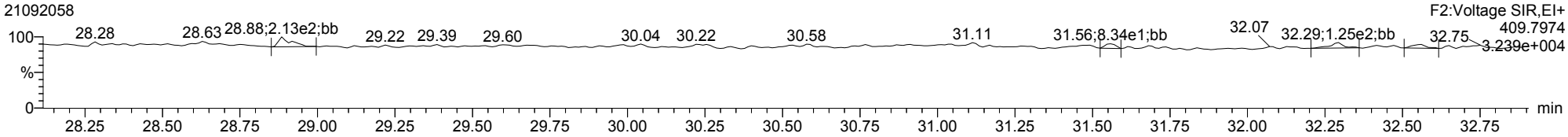


FUNCTION2 HPCDPE



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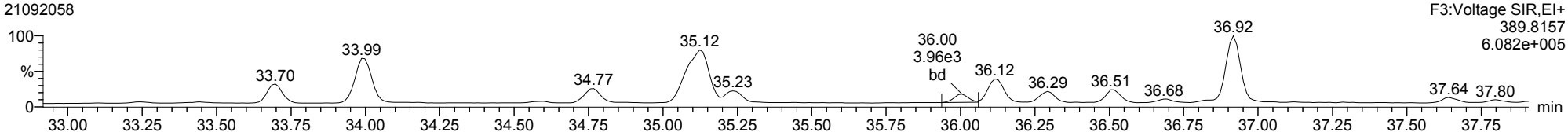
123478-HxCDD



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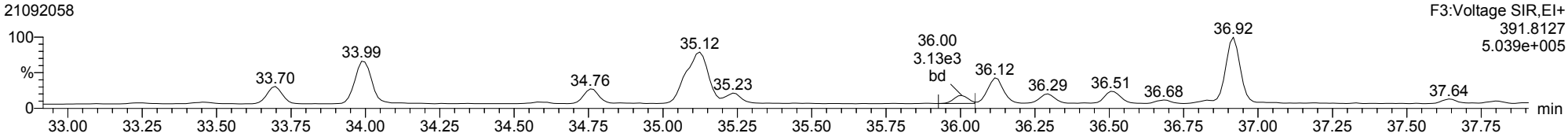

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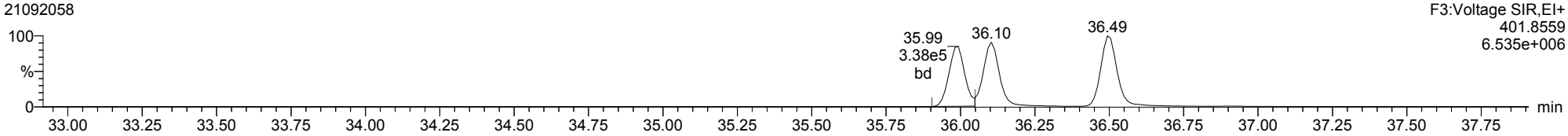

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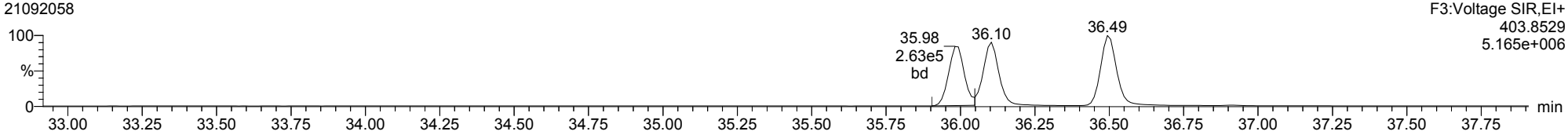

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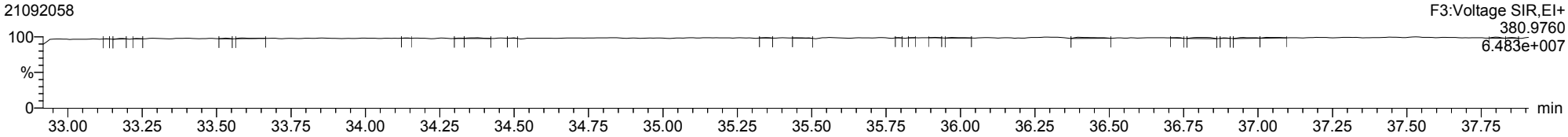

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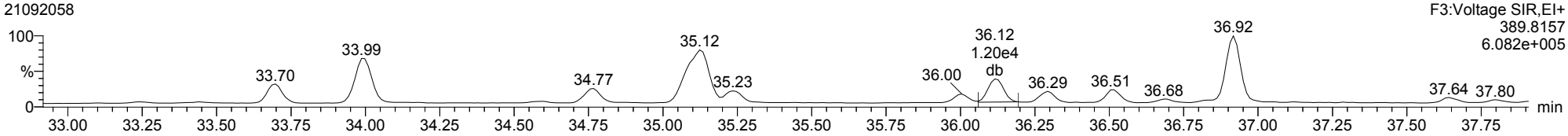

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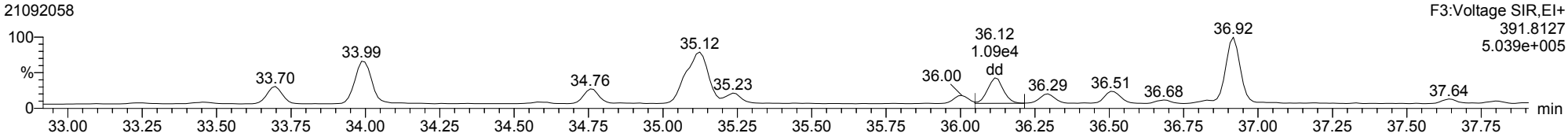

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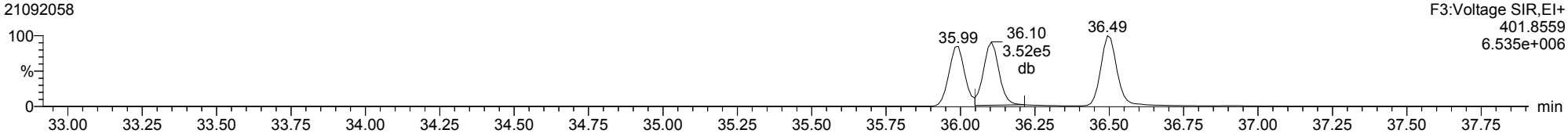

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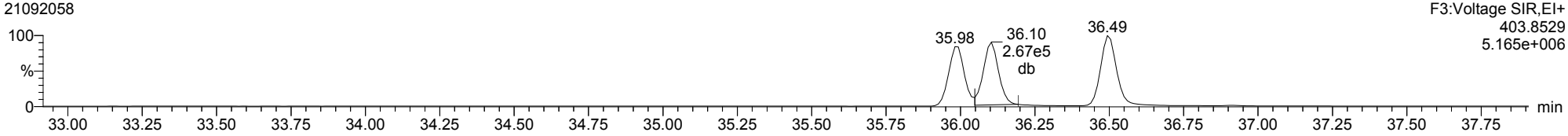

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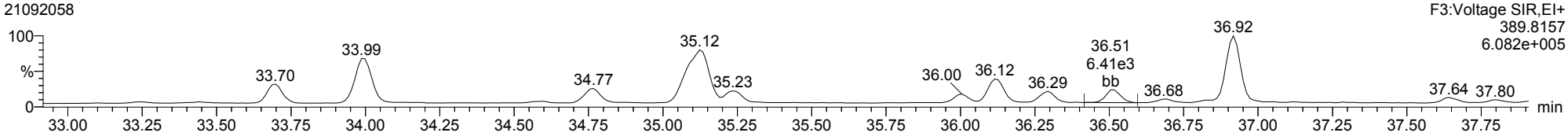

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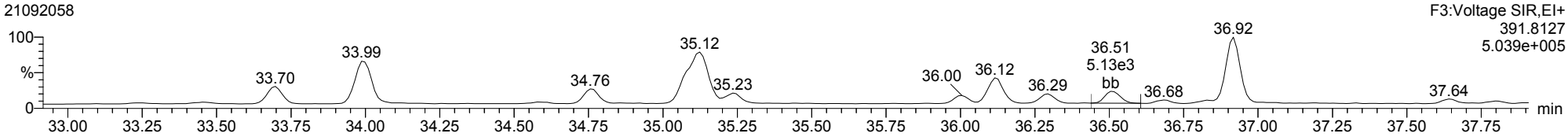

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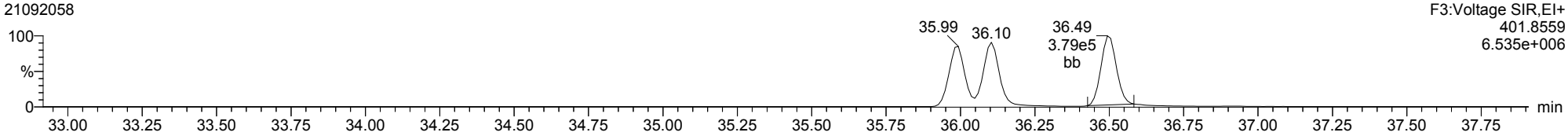

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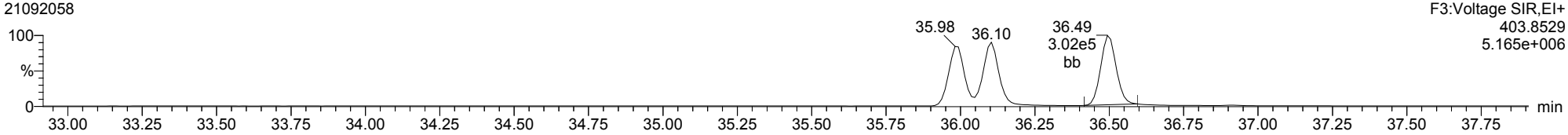

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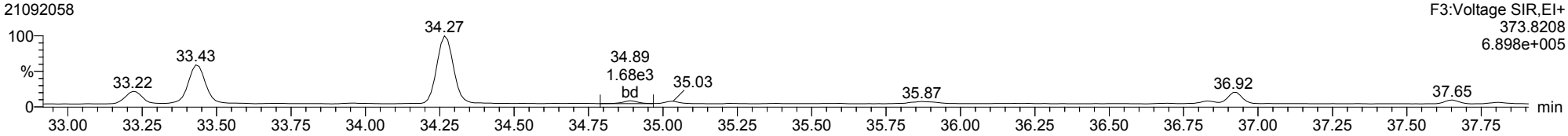

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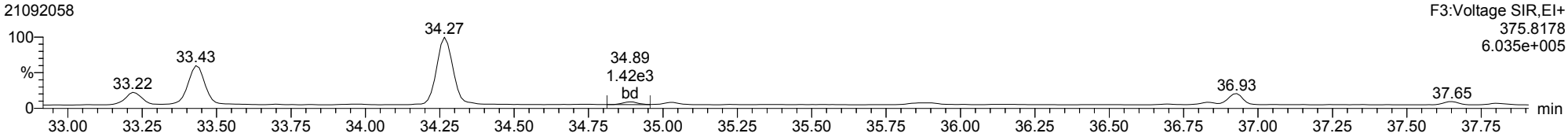

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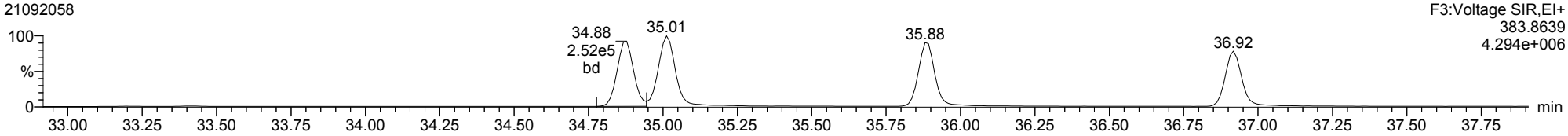

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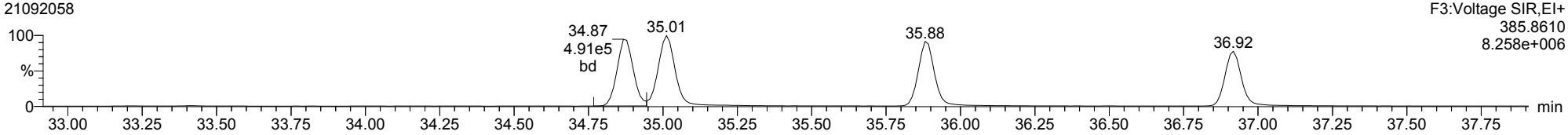

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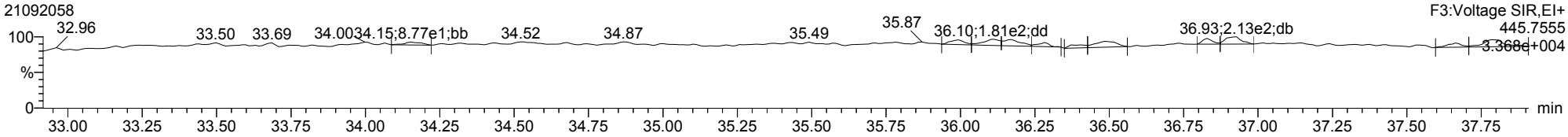

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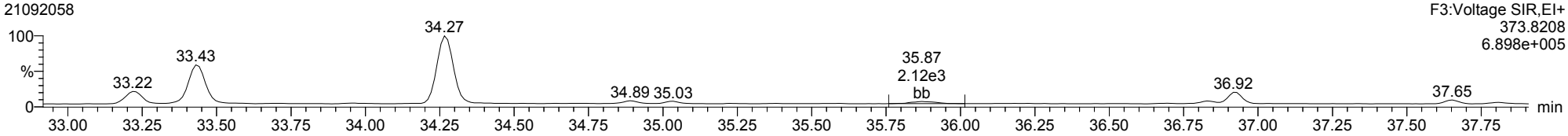

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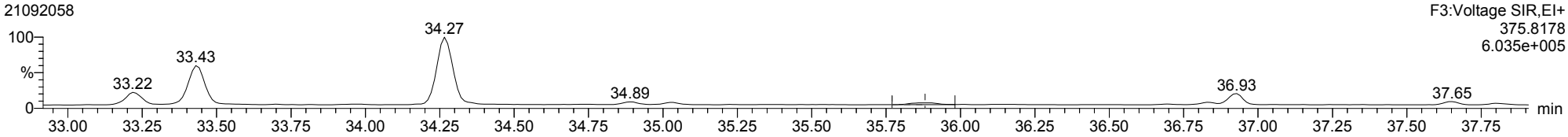

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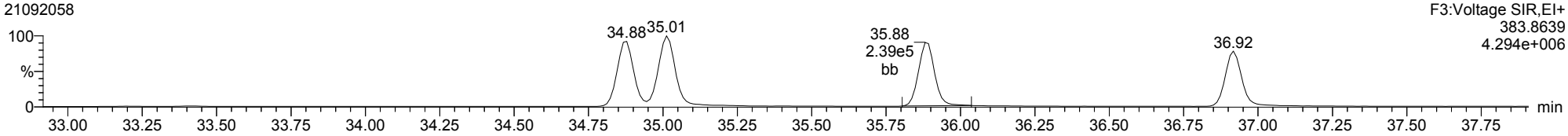

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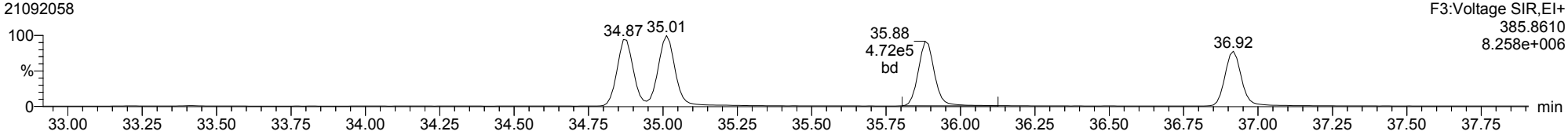

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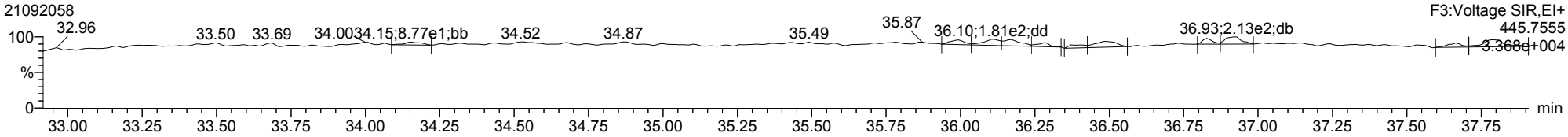

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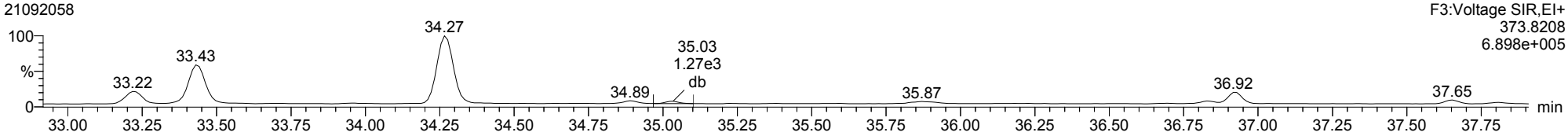

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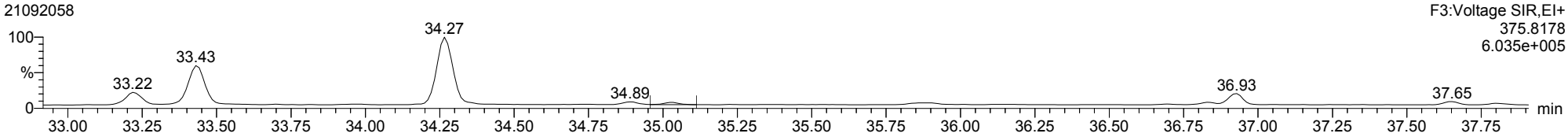

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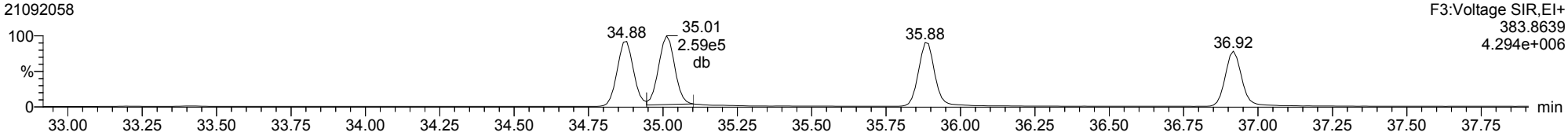

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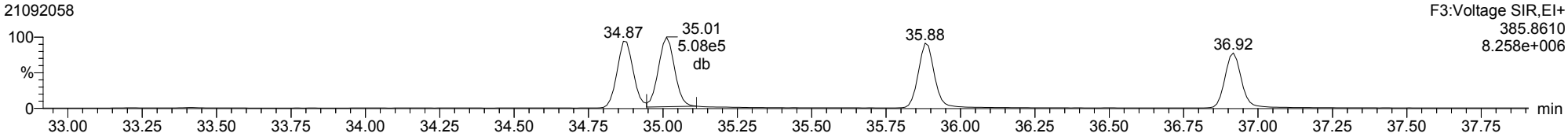

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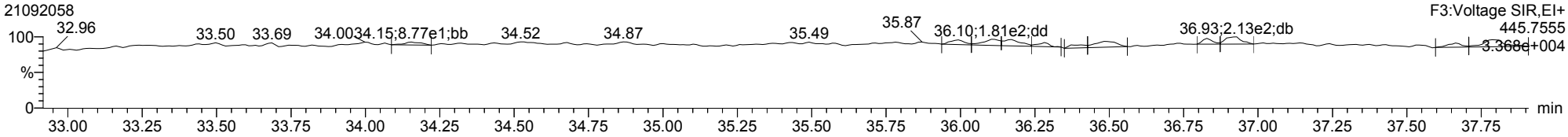

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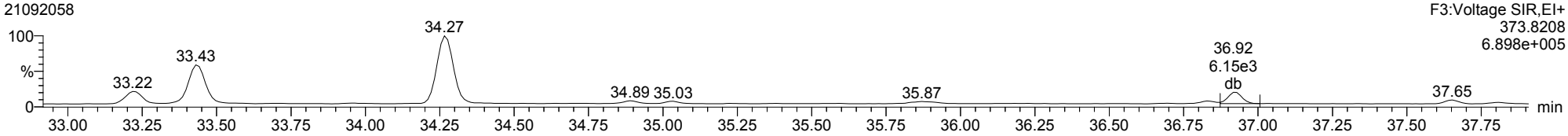

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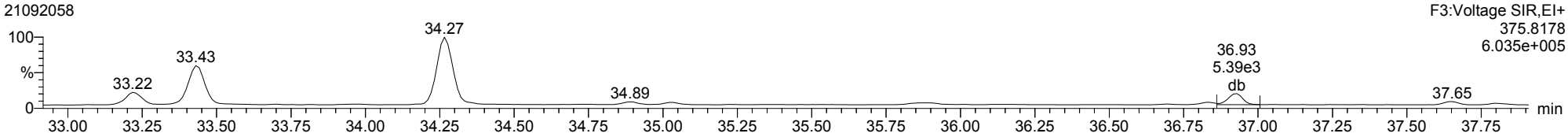

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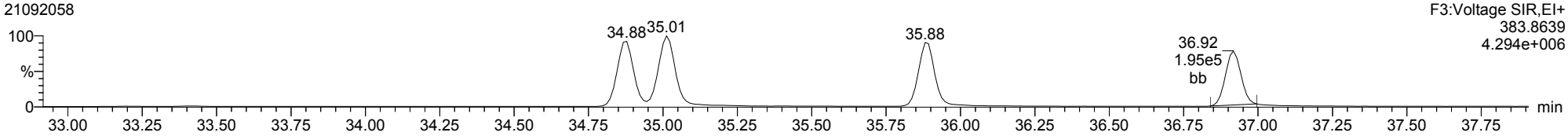

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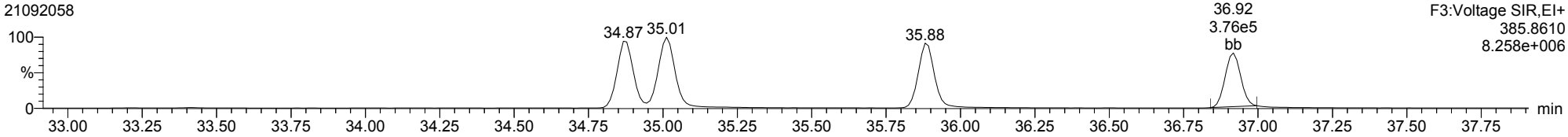

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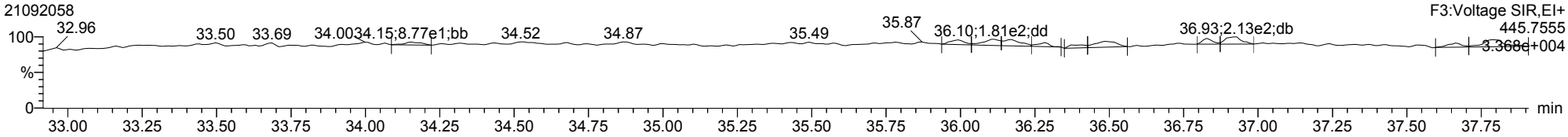

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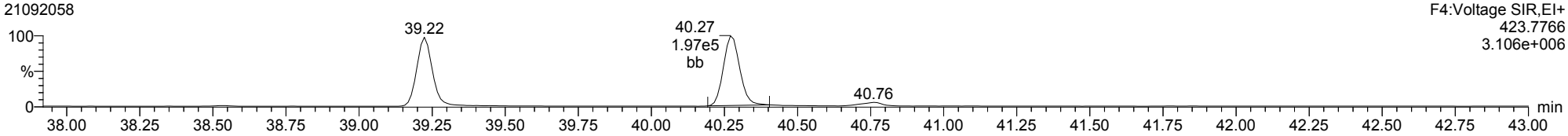

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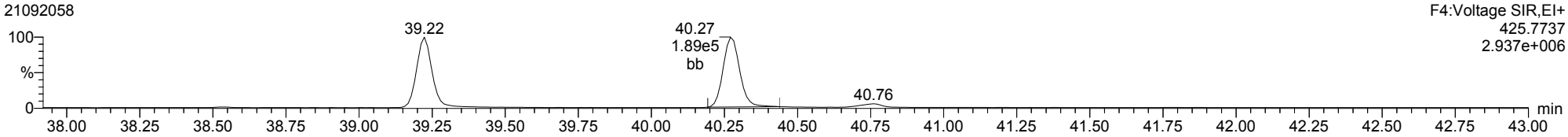

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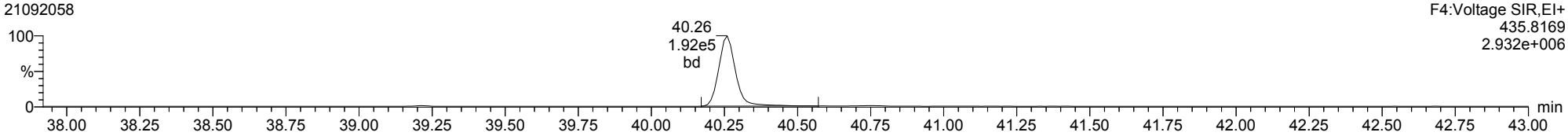

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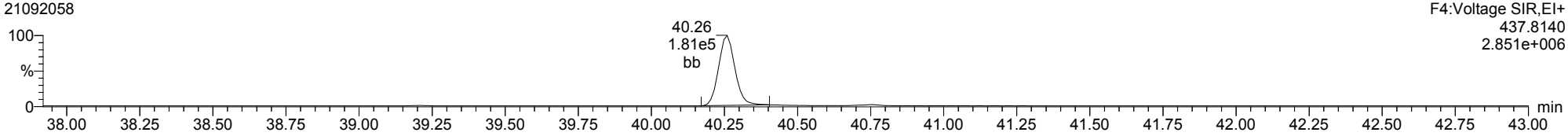

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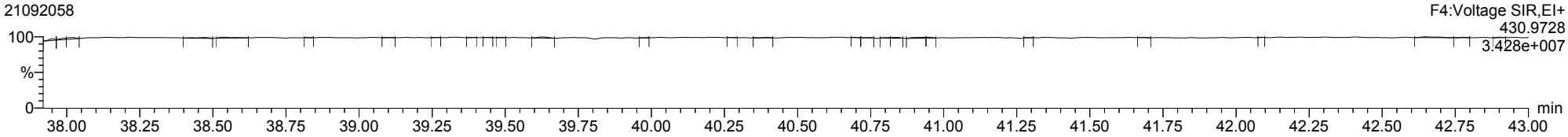

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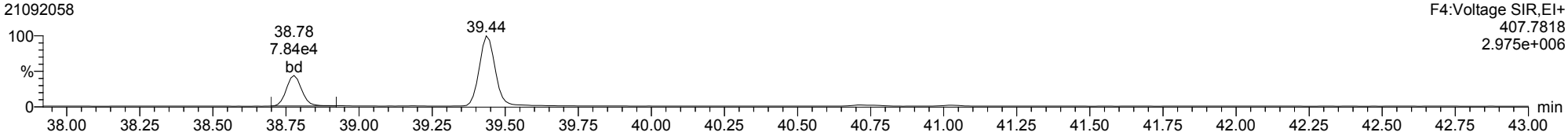

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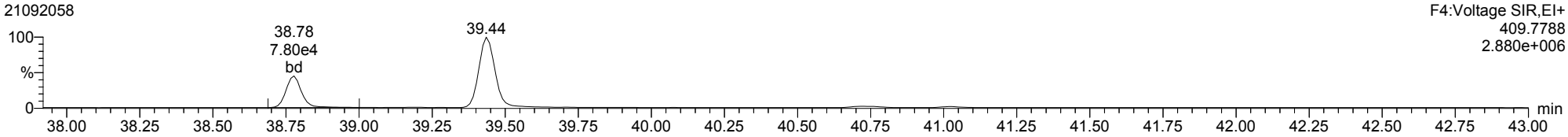

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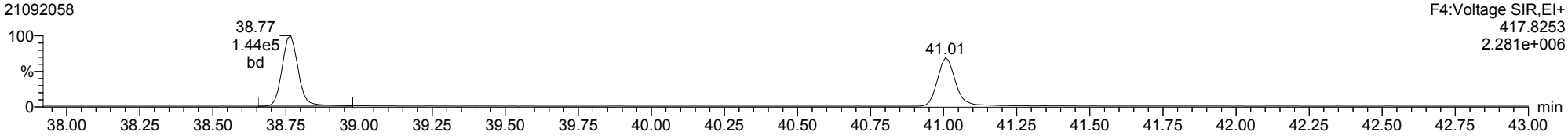

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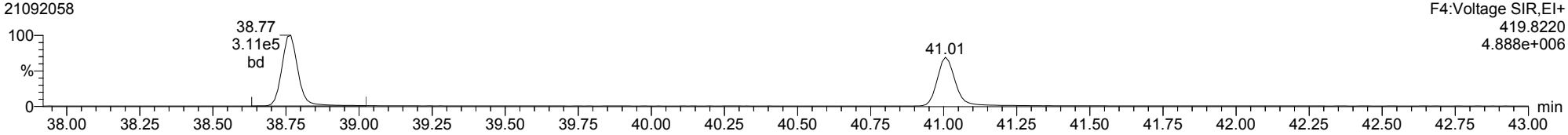

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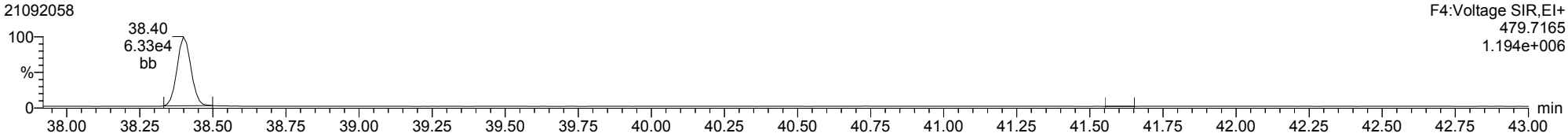

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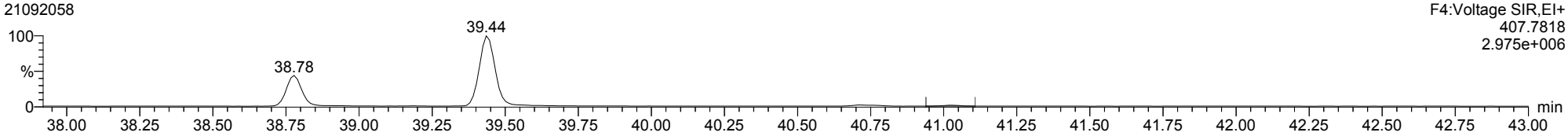

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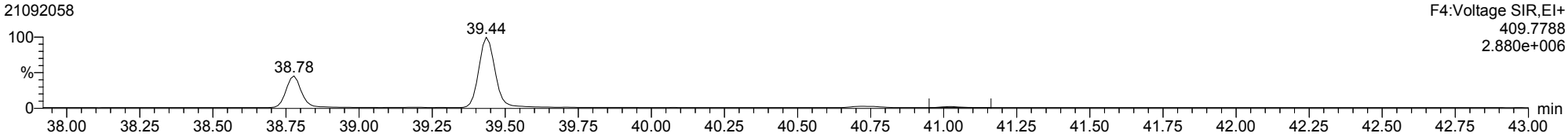

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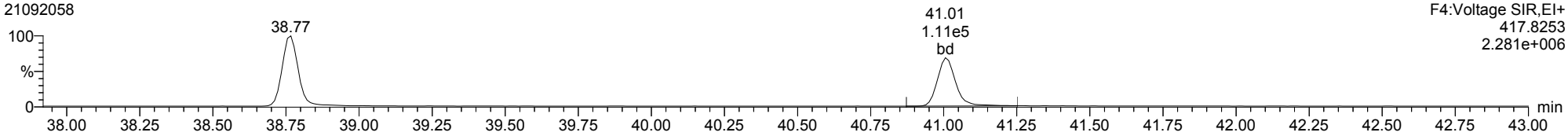

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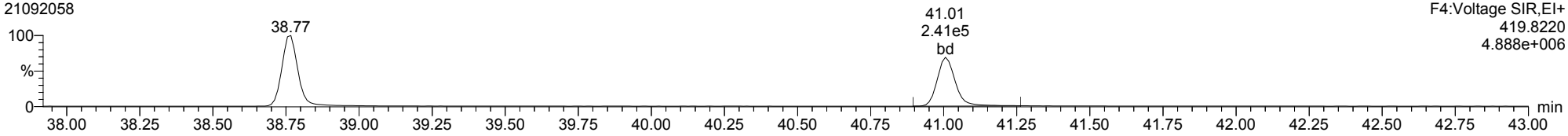

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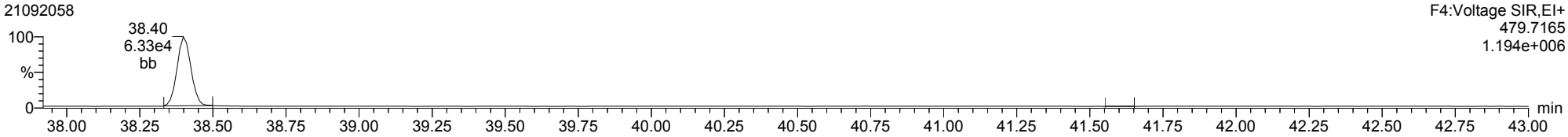

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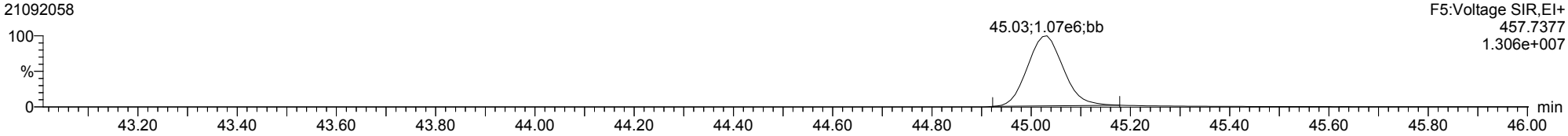

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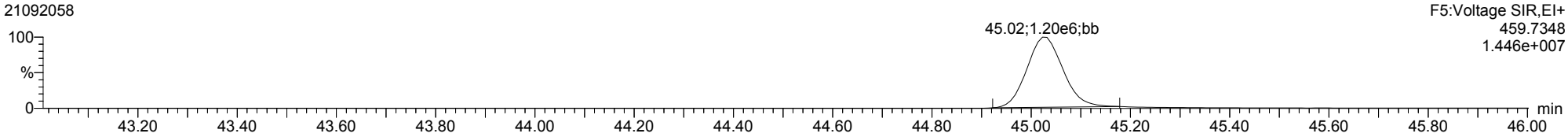

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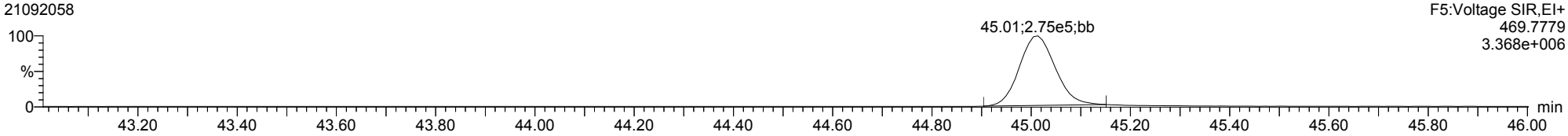
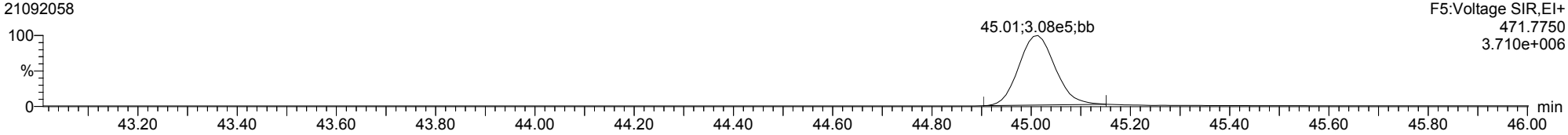
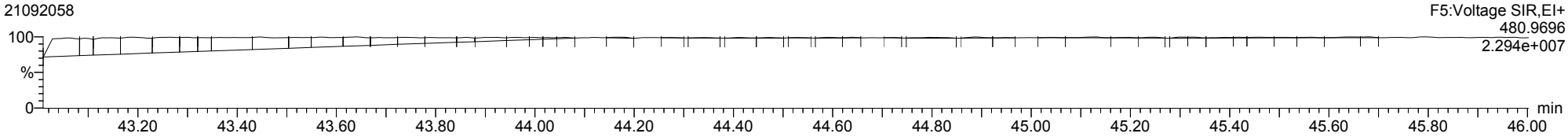


13C-OCDD

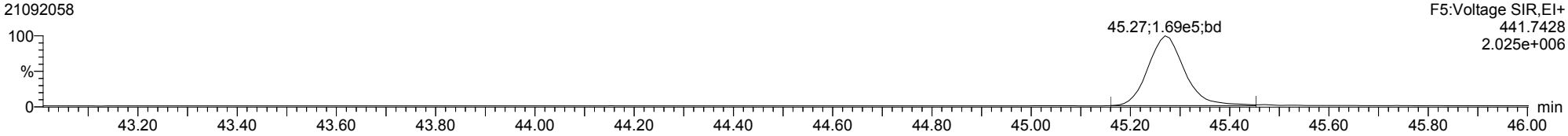


FUNCTION5 PFK

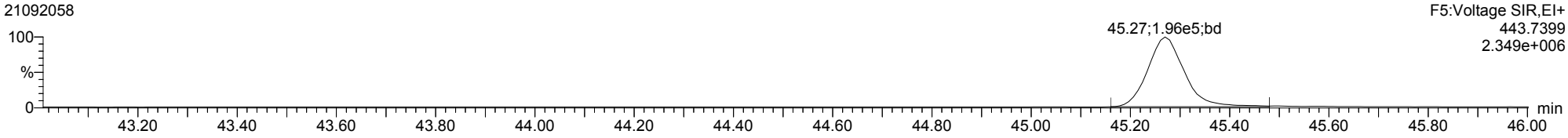


ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, Conditions: AUTOSPEC01, User: pk

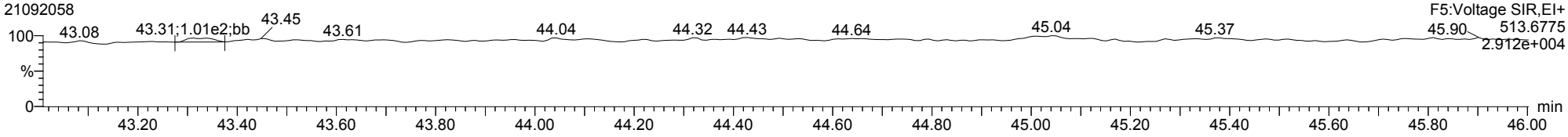
OCDF



OCDF

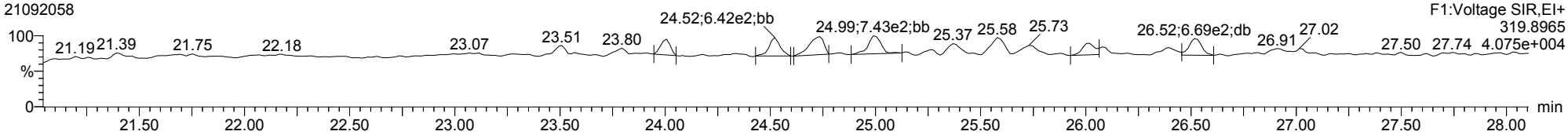


FUNCTION5 DCDPE

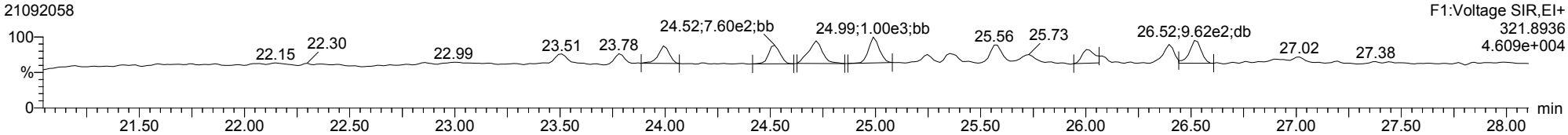


ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



Total-tetradioxins



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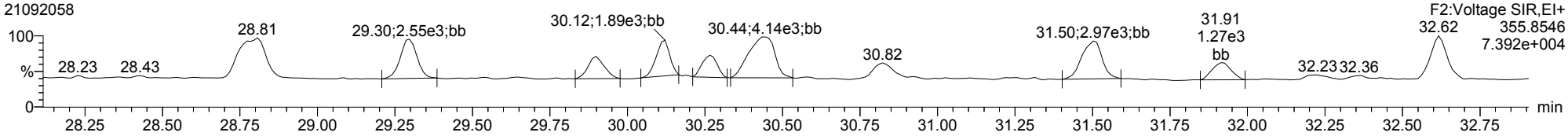
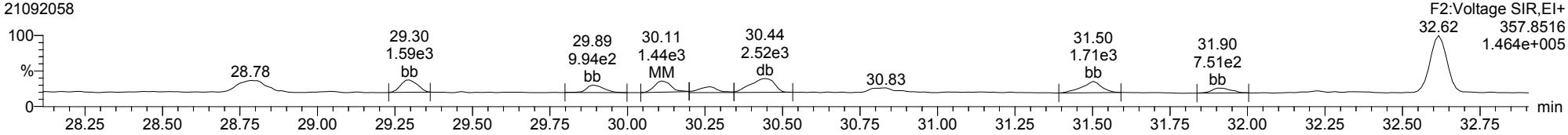
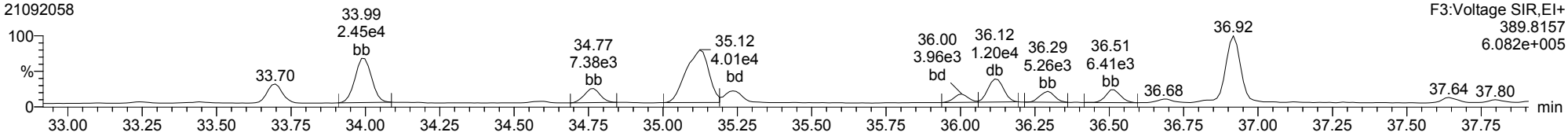


Total-pentadioxins



ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



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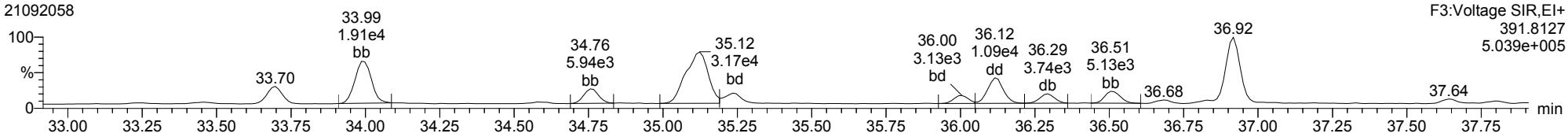
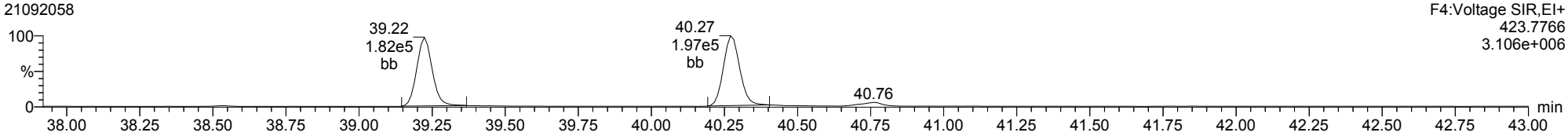
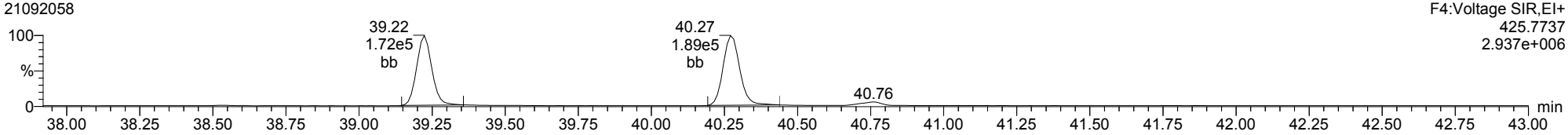


Total-heptadioxins

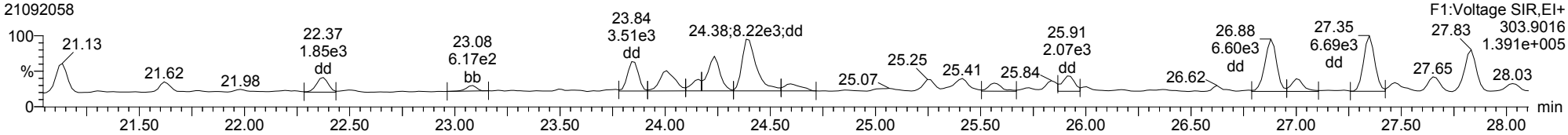


Total-heptadioxins

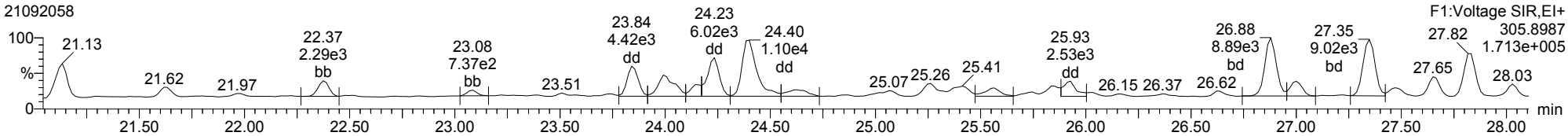


ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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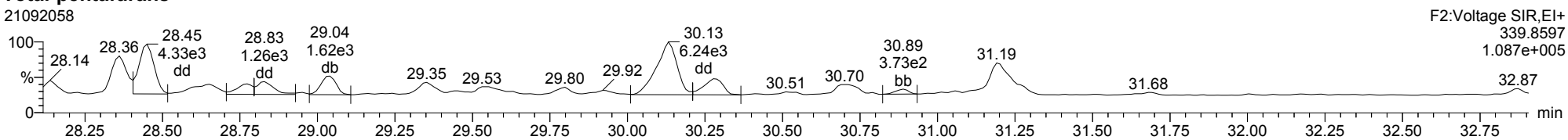
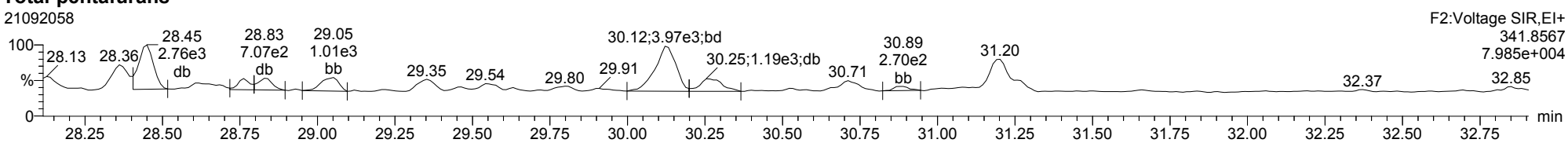
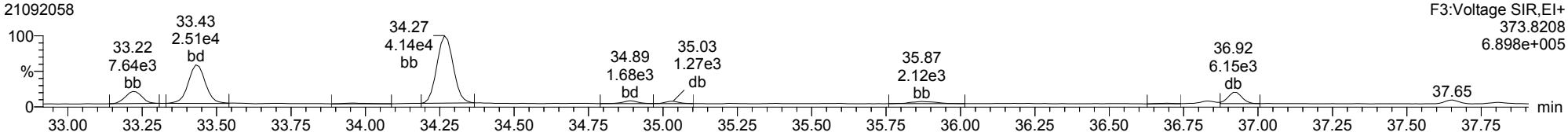


Total-pentafurans

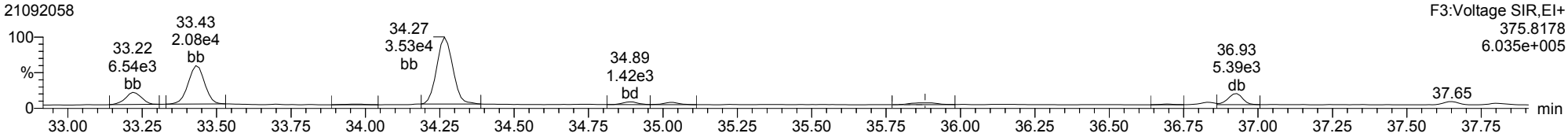


ID: 21G0283-17, Name: 21092058, Date: 22-Sep-2021, Time: 15:35:09, Conditions: AUTOSPEC01, User: pk

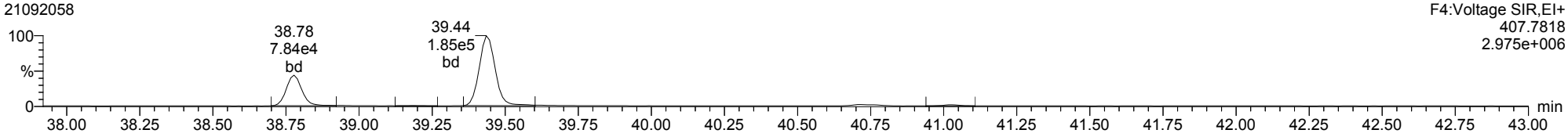
Total-hexafurans



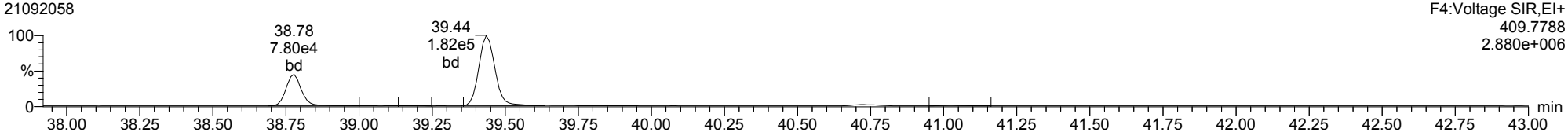
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT650C

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0283-18 C	File ID:	21092059
Sampled:	07/20/21 14:39	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 16:24
% Solids:	78.65	Preparation:	EPA 1613	Initial/Final:	12.73 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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	0.898	0.655-0.886	0.141	0.999	0.243	ng/kg	EMPC, J
1746-01-6	2,3,7,8-TCDD	1		0.655-0.886	0.119	0.999	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	0.112	0.999	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1		1.318-1.783	0.115	0.999	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1		1.318-1.783	0.151	0.999	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1		1.054-1.426	0.092	0.999	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1		1.054-1.426	0.087	0.999	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1		1.054-1.426	0.096	0.999	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.622	1.054-1.426	0.120	0.999	1.06	ng/kg	EMPC
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.560	1.054-1.426	0.139	0.999	0.220	ng/kg	EMPC, J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.466	1.054-1.426	0.143	0.999	0.592	ng/kg	EMPC, J
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.444	1.054-1.426	0.151	0.999	0.381	ng/kg	EMPC, J
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.040	0.893-1.208	0.112	0.999	4.20	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.651	0.893-1.208	0.174	0.999	0.215	ng/kg	EMPC, J
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.064	0.893-1.208	0.278	2.50	14.5	ng/kg	B
39001-02-0	OCDF	1	0.899	0.757-1.024	0.212	2.50	14.7	ng/kg	
3268-87-9	OCDD	1	0.932	0.757-1.024	0.344	9.99	102	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	19.1	ng/kg
41903-57-5	Total TCDD	1	0.000			0.999	0.218	ng/kg
30402-15-4	Total PeCDF	1	0.000			0.999	9.55	ng/kg
36088-22-9	Total PeCDD	1	0.000			0.999	0.164	ng/kg
55684-94-1	Total HxCDF	1	0.000			0.999	1.32	ng/kg
34465-46-8	Total HxCDD	1	0.000			0.999	3.71	ng/kg
38998-75-3	Total HpCDF	1	0.000			0.999	16.1	ng/kg
37871-00-4	Total HpCDD	1	0.000			0.999	27.4	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.474
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.641

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-IT650C

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0283-18	File ID:	21092059
Sampled:	07/20/21 14:39	Prepared:	09/09/21 15:30	Analyzed:	09/22/21 16:24
Solids Wt%:	78.65	Preparation:	EPA 1613	Initial/Final:	12.73 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.788	0.655-0.886	0.106	61.0	24 - 169 %	
13C12-2,3,7,8-TCDD		0.742	0.655-0.886	0.117	76.1	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.566	1.318-1.783	0.149	72.6	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.614	1.318-1.783	0.156	68.4	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.593	1.318-1.783	0.141	74.9	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.516	0.434-0.587	0.204	85.3	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.532	0.434-0.587	0.189	81.2	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.517	0.434-0.587	0.209	80.6	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.521	0.434-0.587	0.251	78.0	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.308	1.054-1.426	0.195	89.2	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.316	1.054-1.426	0.180	85.2	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.464	0.374-0.506	0.152	66.3	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.455	0.374-0.506	0.186	62.6	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.031	0.893-1.208	0.172	77.6	23 - 140 %	
13C12-OCDD		0.883	0.757-1.024	0.257	69.1	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.045	76.4	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:24:11 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:24:55 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	25.715	0.999	4.107e2	4.575e2	1.108	0.898	0.770	1172	1316	6.09e3	6.56e3	5.2	5.0	YES	dd	MM	0.122
12378-PeCDF					1.015		1.550	1026	992								
23478-PeCDF					1.126		1.550	1026	992								
123478-HxCDF					1.017		1.240	715	792								
234678-HxCDF					1.052		1.240	715	792								
123678-HxCDF					1.037		1.240	715	792								
123789-HxCDF	36.917	1.000	1.533e3	9.446e2	1.030	1.622	1.240	715	792	2.60e4	1.50e4	36.3	19.0	YES	db	MM	0.528
1234678-HpCDF	38.777	1.000	5.064e3	4.869e3	1.327	1.040	1.050	686	675	7.61e4	8.49e4	111.0	125.8	NO	bb	bb	2.104
1234789-HpCDF	41.028	1.000	1.498e2	2.300e2	1.283	0.651	1.050	686	675	2.83e3	3.70e3	4.1	5.5	YES	bb	bb	0.108
OCDF	45.271	1.006	1.014e4	1.129e4	1.447	0.899	0.890	539	602	1.18e5	1.17e5	218.7	193.8	NO	bd	bb	7.351
2378-TCDD					0.920		0.770	926	857								
12378-PeCDD					0.995		1.550	883	618								
123478-HxCDD	36.003	1.001	3.416e2	2.189e2	1.027	1.560	1.240	889	1073	6.81e3	4.11e3	7.7	3.8	YES	bd	bd	0.110
123678-HxCDD	36.114	1.000	9.119e2	6.219e2	1.009	1.466	1.240	889	1073	1.50e4	1.08e4	16.9	10.0	YES	dd	db	0.296
123789-HxCDD	36.493	1.011	5.405e2	3.744e2	0.950	1.444	1.240	889	1073	9.49e3	6.16e3	10.7	5.7	YES	MM	bb	0.191
1234678-HpCDD	40.270	1.000	1.131e4	1.063e4	1.068	1.064	1.050	776	1280	1.76e5	1.65e5	226.5	129.0	NO	bd	bb	7.235
OCDD	45.024	1.000	5.876e4	6.303e4	1.181	0.932	0.890	800	713	6.34e5	7.02e5	792.7	983.8	NO	bb	bb	51.183
13C-2378-TCDF	25.730	1.007	2.840e5	3.604e5	1.427	0.788	0.770	1849	1013	4.19e6	5.39e6	2268.0	5318.8	NO	bb	bb	60.993
13C-12378-PeCDF	29.898	1.170	4.259e5	2.720e5	1.297	1.566	1.550	1629	2029	6.47e6	4.05e6	3971.0	1996.0	NO	bb	bd	72.641
13C-23478-PeCDF	31.246	1.223	3.867e5	2.395e5	1.236	1.614	1.550	1629	2029	5.79e6	3.60e6	3552.2	1774.0	NO	bb	bb	68.390
13C-123478-HxCDF	34.867	0.955	2.087e5	4.047e5	1.242	0.516	0.510	1837	2286	3.27e6	6.37e6	1779.2	2785.4	NO	bd	bd	85.291
13C-123678-HxCDF	35.012	0.959	2.192e5	4.121e5	1.343	0.532	0.510	1837	2286	3.46e6	6.48e6	1886.4	2834.4	NO	db	db	81.190
13C-234678-HxCDF	35.881	0.983	1.934e5	3.737e5	1.215	0.517	0.510	1837	2286	3.06e6	6.02e6	1667.2	2634.7	NO	bb	bb	80.647
13C-123789-HxCDF	36.917	1.012	1.558e5	2.993e5	1.008	0.521	0.510	1837	2286	2.51e6	4.81e6	1366.9	2104.6	NO	bb	bb	78.040
13C-1234678-HpCDF	38.766	1.062	1.127e5	2.429e5	0.926	0.464	0.440	990	1304	1.75e6	3.74e6	1762.8	2866.0	NO	bd	bd	66.311
13C-1234789-HpCDF	41.005	1.124	8.591e4	1.889e5	0.758	0.455	0.440	990	1304	1.14e6	2.54e6	1152.3	1947.9	NO	bb	bd	62.641
13C-1234-TCDD	25.549	0.000	3.213e5	4.193e5	1.000	0.766	0.770	1553	929	4.94e6	6.48e6	3178.2	6983.1	NO	bb	bb	100.000
13C-2378-TCDD	26.365	1.032	2.680e5	3.614e5	1.116	0.742	0.770	1553	929	4.17e6	5.54e6	2683.5	5964.3	NO	bb	bb	76.120
13C-12378-PeCDD	31.491	1.233	2.495e5	1.566e5	0.732	1.593	1.550	1018	943	3.69e6	2.40e6	3618.9	2544.2	NO	bb	bb	74.914
13C-123478-HxCDD	35.981	0.986	2.807e5	2.147e5	0.960	1.308	1.240	1738	1311	4.66e6	3.64e6	2683.0	2780.4	NO	bd	bd	89.156
13C-123678-HxCDD	36.103	0.989	2.917e5	2.217e5	1.041	1.316	1.240	1738	1311	4.64e6	3.57e6	2669.8	2722.9	NO	db	db	85.170
13C-1234678-HpCDD	40.259	1.103	1.441e5	1.398e5	0.632	1.031	1.050	768	1002	2.11e6	2.04e6	2742.1	2037.2	NO	bb	bb	77.570
13C-OCDD	45.006	1.233	1.889e5	2.141e5	0.504	0.883	0.890	778	1327	2.09e6	2.32e6	2689.4	1746.9	NO	bb	bb	138.223
13C-123789-HxCDD	36.493	0.000	3.252e5	2.537e5	1.000	1.282	1.240	1738	1311	5.48e6	4.21e6	3152.5	3213.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.381	1.033	2.453e5		1.084			918		3.59e6		3915.0			bb		30.565

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:24:11 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:24:55 Pacific Daylight Time

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	22.374	0.870	1.926e3	2.618e3	1.425	0.736	0.770	1172	1316	3.32e4	4.35e4	28.4	33.1	NO	bd	dd	0.495
1289-TCDF	27.348	1.063	4.893e3	6.305e3	1.043	0.776	0.770	1172	1316	7.52e4	1.02e5	64.2	77.7	NO	bd	bd	1.666
13468-PECDF	27.031	0.904	3.507e3	2.155e3	1.376	1.627	1.550	1051	892	3.28e4	2.13e4	31.2	23.8	NO	dd	dd	0.590
12389-PECDF					1.000		1.550	1026	992								
123468-HXCDF	33.218	0.953	5.669e2	5.733e2	1.087	0.989	1.240	715	792	8.98e3	9.39e3	12.5	11.9	YES	bd	bd	0.171
1368-TCDD					0.923		0.770	926	857								
1289-TCDD					0.794		0.770	926	857								
12479-PECDD	28.817	0.915	3.510e2	2.639e2	1.843	1.330	1.550	883	618	4.96e3	3.76e3	5.6	6.1	NO	bb	bb	0.082
12389-PECDD					1.154		1.550	883	618								
124679-HXCDD	33.987	0.945	2.005e3	1.514e3	1.125	1.325	1.240	889	1073	2.94e4	2.48e4	33.1	23.2	NO	bb	bb	0.632
1234679-HPCDD	39.223	0.974	1.159e4	1.070e4	1.211	1.082	1.050	776	1280	1.87e5	1.63e5	240.5	127.4	NO	bb	bb	6.483
Total-tetrafurans			3.080e4		1.192			1172		4.59e5							9.545
Total-penta1			1.624e3					1051		2.37e4							0.428
Total-pentafurans			1.815e4		1.047			1026		2.70e5							4.352
Total-hexafurans			2.068e3		1.045			715		2.55e4							0.659
Total-heptafurans			1.721e4		1.305			686		2.60e5							8.038
Total-Furans			9.537e4		1.158			1172		1.37e6							34.742
Total-tetradioxins			2.710e2		0.879			926		4.79e3							0.109
Total-pentadioxins			3.510e2		1.331			883		4.96e3							0.082
Total-hexadioxins			5.557e3		1.028			889		7.12e4							1.860
Total-heptadioxins			2.290e4		1.140			776		3.63e5							13.718
Total-Dioxins			8.794e4		1.092			926		1.08e6							66.988
Total-TEQ			1.833e5					926		2.45e6							101.730
FUNCTION1 PFK			1.379e7					476210		7.89e7							
FUNCTION2 PFK			2.043e6					271019		7.41e6							0.000
FUNCTION3 PFK			1.429e6					341076		2.98e7							0.000
FUNCTION4 PFK			0.000e0					196410		0.00e0							
FUNCTION5 PFK			6.110e4					169333		2.02e6							
FUNCTION1 HXCD...			1.168e3					535		1.80e4							0.000
FUNCTION1 HPCD...			5.822e2					646		9.52e3							0.000
FUNCTION2 HPCD...			4.265e2					1046		9.37e3							0.000
FUNCTION3 OCDPE			3.275e2					672		7.20e3							0.000
FUNCTION4 NCDPE			1.491e4					755		2.64e5							0.000
FUNCTION5 DCDPE			0.000e0					455		0.00e0							

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	24.01	2.371e3	3.409e3	1.192	0.70	0.77	23.8	YES	NO	dd	dd	0.753
2	Total-tetrafurans	23.84	3.440e3	5.048e3	1.192	0.68	0.77	48.8	YES	NO	bd	dd	1.105
3	Total-tetrafurans	22.49	2.761e2	3.839e2	1.192	0.72	0.77	3.8	YES	NO	db	db	0.086
4	1368-TCDF	22.37	1.926e3	2.618e3	1.425	0.74	0.77	28.4	YES	NO	bd	dd	0.495
5	1289-TCDF	27.35	4.893e3	6.305e3	1.043	0.78	0.77	64.2	YES	NO	bd	bd	1.666
6	Total-tetrafurans	26.99	1.861e3	2.754e3	1.192	0.68	0.77	24.8	YES	NO	db	db	0.601
7	Total-tetrafurans	26.88	6.933e3	8.742e3	1.192	0.79	0.77	85.8	YES	NO	dd	dd	2.041
8	Total-tetrafurans	26.64	5.680e2	7.781e2	1.192	0.73	0.77	8.6	YES	NO	bd	bd	0.175
9	Total-tetrafurans	25.91	2.239e3	2.843e3	1.192	0.79	0.77	28.1	YES	NO	dd	dd	0.662
10	Total-tetrafurans	25.84	9.457e2	1.262e3	1.192	0.75	0.77	12.0	YES	NO	dd	dd	0.287
11	Total-tetrafurans	25.56	1.181e3	1.629e3	1.192	0.73	0.77	14.8	YES	NO	dd	dd	0.366
12	Total-tetrafurans	25.41	1.894e3	2.815e3	1.192	0.67	0.77	17.4	YES	NO	dd	dd	0.613
13	Total-tetrafurans	25.25	2.270e3	3.071e3	1.192	0.74	0.77	31.5	YES	NO	dd	dd	0.695

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.97	5.694e2	3.851e2		1.48	1.55	8.8	YES	NO	bb	bb	0.149
2	Total-penta1	27.18	1.055e3	7.314e2		1.44	1.55	13.7	YES	NO	db	db	0.279

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.36	1.973e3	1.310e3	1.047	1.51	1.55	31.0	YES	NO	bd	bd	0.474
2	Total-pentafurans	31.19	3.487e3	2.592e3	1.047	1.35	1.55	52.0	YES	NO	bd	bb	0.877
3	Total-pentafurans	30.28	1.228e3	7.521e2	1.047	1.63	1.55	15.9	YES	NO	db	db	0.286
4	Total-pentafurans	30.13	5.402e3	3.461e3	1.047	1.56	1.55	63.4	YES	NO	bd	bd	1.279
5	Total-pentafurans	29.35	1.021e3	6.259e2	1.047	1.63	1.55	18.4	YES	NO	bd	bd	0.238
6	Total-pentafurans	28.59	7.292e2	4.912e2	1.047	1.48	1.55	9.0	YES	NO	bb	bb	0.176
7	Total-pentafurans	28.44	4.306e3	2.780e3	1.047	1.55	1.55	73.0	YES	NO	db	db	1.023

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	33.43	2.068e3	1.836e3	1.045	1.13	1.24	35.6	YES	NO	db	db	0.659

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.43	1.130e4	1.132e4	1.305	1.00	1.05	247.0	YES	NO	bd	bb	5.498
2	1234678-HpCDF	38.78	5.064e3	4.869e3	1.327	1.04	1.05	111.0	YES	NO	bb	bb	2.104
3	Total-heptafurans	40.72	8.539e2	9.386e2	1.305	0.91	1.05	21.1	YES	NO	bd	bd	0.436

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:24:11 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:24:55 Pacific Daylight Time

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	24.01	2.371e3	3.409e3	1.192	0.70	0.77	23.8	YES	NO	dd	dd	0.753
2	Total-tetrafurans	23.84	3.440e3	5.048e3	1.192	0.68	0.77	48.8	YES	NO	bd	dd	1.105
3	Total-tetrafurans	22.49	2.761e2	3.839e2	1.192	0.72	0.77	3.8	YES	NO	db	db	0.086
4	1368-TCDF	22.37	1.926e3	2.618e3	1.425	0.74	0.77	28.4	YES	NO	bd	dd	0.495
5	Total-Furans	21.97	3.269e2	4.293e2	1.158	0.76	0.77	4.6	YES	NO	bb	bb	0.101
6	Total-Furans	21.62	9.826e2	1.411e3	1.158	0.70	0.77	12.5	YES	NO	bb	dd	0.321
7	Total-Furans	21.13	3.139e3	4.686e3	1.158	0.67	0.77	39.2	YES	NO	bb	bb	1.049
8	1289-TCDF	27.35	4.893e3	6.305e3	1.043	0.78	0.77	64.2	YES	NO	bd	bd	1.666
9	Total-tetrafurans	26.99	1.861e3	2.754e3	1.192	0.68	0.77	24.8	YES	NO	db	db	0.601
10	Total-tetrafurans	26.88	6.933e3	8.742e3	1.192	0.79	0.77	85.8	YES	NO	dd	dd	2.041
11	Total-tetrafurans	26.64	5.680e2	7.781e2	1.192	0.73	0.77	8.6	YES	NO	bd	bd	0.175
12	Total-tetrafurans	25.91	2.239e3	2.843e3	1.192	0.79	0.77	28.1	YES	NO	dd	dd	0.662
13	Total-tetrafurans	25.84	9.457e2	1.262e3	1.192	0.75	0.77	12.0	YES	NO	dd	dd	0.287
14	Total-tetrafurans	25.56	1.181e3	1.629e3	1.192	0.73	0.77	14.8	YES	NO	dd	dd	0.366
15	Total-tetrafurans	25.41	1.894e3	2.815e3	1.192	0.67	0.77	17.4	YES	NO	dd	dd	0.613
16	Total-tetrafurans	25.25	2.270e3	3.071e3	1.192	0.74	0.77	31.5	YES	NO	dd	dd	0.695
17	Total-Furans	28.03	1.120e3	1.678e3	1.158	0.67	0.77	16.5	YES	NO	db	bb	0.375
18	Total-Furans	27.83	6.302e3	8.119e3	1.158	0.78	0.77	83.9	YES	NO	bd	db	1.932
19	Total-pentafurans	28.36	1.973e3	1.310e3	1.047	1.51	1.55	31.0	YES	NO	bd	bd	0.474
20	Total-pentafurans	31.19	3.487e3	2.592e3	1.047	1.35	1.55	52.0	YES	NO	bd	bb	0.877
21	Total-pentafurans	30.28	1.228e3	7.521e2	1.047	1.63	1.55	15.9	YES	NO	db	db	0.286
22	Total-pentafurans	30.13	5.402e3	3.461e3	1.047	1.56	1.55	63.4	YES	NO	bd	bd	1.279
23	Total-pentafurans	29.35	1.021e3	6.259e2	1.047	1.63	1.55	18.4	YES	NO	bd	bd	0.238
24	Total-pentafurans	28.59	7.292e2	4.912e2	1.047	1.48	1.55	9.0	YES	NO	bb	bb	0.176
25	Total-pentafurans	28.44	4.306e3	2.780e3	1.047	1.55	1.55	73.0	YES	NO	db	db	1.023
26	Total-hexafurans	33.43	2.068e3	1.836e3	1.045	1.13	1.24	35.6	YES	NO	db	db	0.659
27	Total-heptafurans	39.43	1.130e4	1.132e4	1.305	1.00	1.05	247.0	YES	NO	bd	bb	5.498
28	1234678-HpCDF	38.78	5.064e3	4.869e3	1.327	1.04	1.05	111.0	YES	NO	bb	bb	2.104
29	OCDF	45.27	1.014e4	1.129e4	1.447	0.90	0.89	218.7	YES	NO	bd	bb	7.351
30	Total-heptafurans	40.72	8.539e2	9.386e2	1.305	0.91	1.05	21.1	YES	NO	bd	bd	0.436
31	Total-penta1	27.97	5.694e2	3.851e2		1.48	1.55	8.8	YES	NO	bb	bb	0.149
32	Total-penta1	27.18	1.055e3	7.314e2		1.44	1.55	13.7	YES	NO	db	db	0.279
33	13468-PECDF	27.03	3.507e3	2.155e3	1.376	1.63	1.55	31.2	YES	NO	dd	dd	0.590

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:24:11 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:24:55 Pacific Daylight Time

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	24.52	2.710e2	3.315e2	0.879	0.82	0.77	5.2	YES	NO	bb	bb	0.109

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12479-PECDD	28.82	3.510e2	2.639e2	1.843	1.33	1.55	5.6	YES	NO	bb	bb	0.082

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.25	6.110e2	4.412e2	1.028	1.38	1.24	11.6	YES	NO	db	db	0.203
2	Total-hexadioxins	35.11	2.941e3	2.374e3	1.028	1.24	1.24	35.3	YES	NO	bd	bd	1.025
3	124679-HXCDD	33.99	2.005e3	1.514e3	1.125	1.32	1.24	33.1	YES	NO	bb	bb	0.632

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	1.131e4	1.063e4	1.068	1.06	1.05	226.5	YES	NO	bd	bb	7.235
2	1234679-HPCDD	39.22	1.159e4	1.070e4	1.211	1.08	1.05	240.5	YES	NO	bb	bb	6.483

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	2.710e2	3.315e2	0.879	0.82	0.77	5.2	YES	NO	bb	bb	0.109
2	Total-Dioxins	22.51	1.027e2	1.512e2	1.092	0.68	0.77	1.8	NO	NO	bb	bb	0.037
3	12479-PECDD	28.82	3.510e2	2.639e2	1.843	1.33	1.55	5.6	YES	NO	bb	bb	0.082
4	Total-hexadioxins	35.25	6.110e2	4.412e2	1.028	1.38	1.24	11.6	YES	NO	db	db	0.203
5	Total-hexadioxins	35.11	2.941e3	2.374e3	1.028	1.24	1.24	35.3	YES	NO	bd	bd	1.025
6	124679-HXCDD	33.99	2.005e3	1.514e3	1.125	1.32	1.24	33.1	YES	NO	bb	bb	0.632
7	1234678-HpCDD	40.27	1.131e4	1.063e4	1.068	1.06	1.05	226.5	YES	NO	bd	bb	7.235
8	1234679-HPCDD	39.22	1.159e4	1.070e4	1.211	1.08	1.05	240.5	YES	NO	bb	bb	6.483
9	OCDD	45.02	5.876e4	6.303e4	1.181	0.93	0.89	792.7	YES	NO	bb	bb	51.183

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:24:11 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:24:55 Pacific Daylight Time

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	24.01	2.371e3	3.409e3	1.192	0.70	0.77	23.8	YES	NO	dd	dd	0.753
2	Total-tetrafurans	23.84	3.440e3	5.048e3	1.192	0.68	0.77	48.8	YES	NO	bd	dd	1.105
3	Total-tetrafurans	22.49	2.761e2	3.839e2	1.192	0.72	0.77	3.8	YES	NO	db	db	0.086
4	1368-TCDF	22.37	1.926e3	2.618e3	1.425	0.74	0.77	28.4	YES	NO	bd	dd	0.495
5	Total-Furans	21.97	3.269e2	4.293e2	1.158	0.76	0.77	4.6	YES	NO	bb	bb	0.101
6	Total-Furans	21.62	9.826e2	1.411e3	1.158	0.70	0.77	12.5	YES	NO	bb	dd	0.321
7	Total-Furans	21.13	3.139e3	4.686e3	1.158	0.67	0.77	39.2	YES	NO	bb	bb	1.049
8	1289-TCDF	27.35	4.893e3	6.305e3	1.043	0.78	0.77	64.2	YES	NO	bd	bd	1.666
9	Total-tetrafurans	26.99	1.861e3	2.754e3	1.192	0.68	0.77	24.8	YES	NO	db	db	0.601
10	Total-tetrafurans	26.88	6.933e3	8.742e3	1.192	0.79	0.77	85.8	YES	NO	dd	dd	2.041
11	Total-tetrafurans	26.64	5.680e2	7.781e2	1.192	0.73	0.77	8.6	YES	NO	bd	bd	0.175
12	Total-tetrafurans	25.91	2.239e3	2.843e3	1.192	0.79	0.77	28.1	YES	NO	dd	dd	0.662
13	Total-tetrafurans	25.84	9.457e2	1.262e3	1.192	0.75	0.77	12.0	YES	NO	dd	dd	0.287
14	Total-tetrafurans	25.56	1.181e3	1.629e3	1.192	0.73	0.77	14.8	YES	NO	dd	dd	0.366
15	Total-tetrafurans	25.41	1.894e3	2.815e3	1.192	0.67	0.77	17.4	YES	NO	dd	dd	0.613
16	Total-tetrafurans	25.25	2.270e3	3.071e3	1.192	0.74	0.77	31.5	YES	NO	dd	dd	0.695
17	Total-Furans	28.03	1.120e3	1.678e3	1.158	0.67	0.77	16.5	YES	NO	db	bb	0.375
18	Total-Furans	27.83	6.302e3	8.119e3	1.158	0.78	0.77	83.9	YES	NO	bd	db	1.932
19	Total-pentafurans	28.36	1.973e3	1.310e3	1.047	1.51	1.55	31.0	YES	NO	bd	bd	0.474
20	Total-pentafurans	31.19	3.487e3	2.592e3	1.047	1.35	1.55	52.0	YES	NO	bd	bb	0.877
21	Total-pentafurans	30.28	1.228e3	7.521e2	1.047	1.63	1.55	15.9	YES	NO	db	db	0.286
22	Total-pentafurans	30.13	5.402e3	3.461e3	1.047	1.56	1.55	63.4	YES	NO	bd	bd	1.279
23	Total-pentafurans	29.35	1.021e3	6.259e2	1.047	1.63	1.55	18.4	YES	NO	bd	bd	0.238
24	Total-pentafurans	28.59	7.292e2	4.912e2	1.047	1.48	1.55	9.0	YES	NO	bb	bb	0.176
25	Total-pentafurans	28.44	4.306e3	2.780e3	1.047	1.55	1.55	73.0	YES	NO	db	db	1.023
26	Total-hexafurans	33.43	2.068e3	1.836e3	1.045	1.13	1.24	35.6	YES	NO	db	db	0.659
27	Total-heptafurans	39.43	1.130e4	1.132e4	1.305	1.00	1.05	247.0	YES	NO	bd	bb	5.498
28	1234678-HpCDF	38.78	5.064e3	4.869e3	1.327	1.04	1.05	111.0	YES	NO	bb	bb	2.104
29	OCDF	45.27	1.014e4	1.129e4	1.447	0.90	0.89	218.7	YES	NO	bd	bb	7.351
30	Total-heptafurans	40.72	8.539e2	9.386e2	1.305	0.91	1.05	21.1	YES	NO	bd	bd	0.436
31	Total-penta1	27.97	5.694e2	3.851e2		1.48	1.55	8.8	YES	NO	bb	bb	0.149
32	Total-penta1	27.18	1.055e3	7.314e2		1.44	1.55	13.7	YES	NO	db	db	0.279
33	13468-PECDF	27.03	3.507e3	2.155e3	1.376	1.63	1.55	31.2	YES	NO	dd	dd	0.590
34	Total-tetradioxins	24.52	2.710e2	3.315e2	0.879	0.82	0.77	5.2	YES	NO	bb	bb	0.109
35	Total-Dioxins	22.51	1.027e2	1.512e2	1.092	0.68	0.77	1.8	NO	NO	bb	bb	0.037
36	12479-PECDD	28.82	3.510e2	2.639e2	1.843	1.33	1.55	5.6	YES	NO	bb	bb	0.082
37	Total-hexadioxins	35.25	6.110e2	4.412e2	1.028	1.38	1.24	11.6	YES	NO	db	db	0.203

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	35.11	2.941e3	2.374e3	1.028	1.24	1.24	35.3	YES	NO	bd	bd	1.025
39	124679-HXCDD	33.99	2.005e3	1.514e3	1.125	1.32	1.24	33.1	YES	NO	bb	bb	0.632
40	1234678-HpCDD	40.27	1.131e4	1.063e4	1.068	1.06	1.05	226.5	YES	NO	bd	bb	7.235
41	1234679-HPCDD	39.22	1.159e4	1.070e4	1.211	1.08	1.05	240.5	YES	NO	bb	bb	6.483
42	OCDD	45.02	5.876e4	6.303e4	1.181	0.93	0.89	792.7	YES	NO	bb	bb	51.183

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.84	1.040e4					0.8	NO		bb		
2	FUNCTION1 PFK	24.58	3.301e3					0.5	NO		bb		
3	FUNCTION1 PFK	24.45	1.743e4					0.9	NO		bb		
4	FUNCTION1 PFK	24.26	1.718e4					1.1	NO		bb		
5	FUNCTION1 PFK	24.05	9.294e4					3.4	YES		db		
6	FUNCTION1 PFK	23.99	1.432e5					4.4	YES		bd		
7	FUNCTION1 PFK	23.75	2.646e5					3.3	YES		db		
8	FUNCTION1 PFK	23.67	1.024e5					3.3	YES		dd		
9	FUNCTION1 PFK	23.60	5.970e4					2.2	NO		bd		
10	FUNCTION1 PFK	22.46	1.283e5					2.4	NO		bb		
11	FUNCTION1 PFK	22.06	3.970e6					3.5	YES		db		
12	FUNCTION1 PFK	21.39	3.343e6					35.2	YES		dd		
13	FUNCTION1 PFK	21.21	2.597e6					44.1	YES		dd		
14	FUNCTION1 PFK	21.13	2.670e6					48.0	YES		bd		
15	FUNCTION1 PFK	27.64	6.827e4					1.9	NO		db		
16	FUNCTION1 PFK	27.48	1.702e4					0.9	NO		bd		
17	FUNCTION1 PFK	27.27	1.154e5					2.2	NO		bb		
18	FUNCTION1 PFK	27.00	1.845e4					1.0	NO		bb		
19	FUNCTION1 PFK	26.74	2.637e4					1.1	NO		bb		
20	FUNCTION1 PFK	26.64	3.530e4					1.6	NO		bb		
21	FUNCTION1 PFK	26.44	2.593e4					1.4	NO		bb		
22	FUNCTION1 PFK	25.43	5.058e4					1.2	NO		db		
23	FUNCTION1 PFK	25.34	1.733e4					1.2	NO		bd		

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	32.47	2.174e4					1.4	NO		bb		0.000
2	FUNCTION2 PFK	31.81	2.493e4					2.7	NO		bb		0.000
3	FUNCTION2 PFK	31.68	7.992e3					1.5	NO		bb		0.000
4	FUNCTION2 PFK	29.75	2.336e4					2.4	NO		bb		0.000
5	FUNCTION2 PFK	29.57	7.935e3					1.5	NO		bb		0.000
6	FUNCTION2 PFK	28.34	1.957e6					17.9	YES		bb		0.000

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ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	34.19	8.026e3					1.0	NO		bd		0.000
2	FUNCTION3 PFK	34.14	1.526e4					2.0	NO		db		0.000
3	FUNCTION3 PFK	34.11	2.827e4					1.9	NO		dd		0.000
4	FUNCTION3 PFK	34.03	2.597e4					1.5	NO		dd		0.000
5	FUNCTION3 PFK	33.99	1.283e4					1.2	NO		bd		0.000
6	FUNCTION3 PFK	33.81	8.576e3					1.3	NO		bb		0.000
7	FUNCTION3 PFK	33.67	3.879e3					0.6	NO		bb		0.000
8	FUNCTION3 PFK	33.60	6.507e4					2.0	NO		db		0.000
9	FUNCTION3 PFK	33.51	2.008e4					1.6	NO		dd		0.000
10	FUNCTION3 PFK	33.43	4.344e4					2.2	NO		dd		0.000
11	FUNCTION3 PFK	33.40	2.540e4					2.3	NO		bd		0.000
12	FUNCTION3 PFK	33.28	4.409e4					2.7	NO		db		0.000
13	FUNCTION3 PFK	33.24	3.120e4					2.6	NO		dd		0.000
14	FUNCTION3 PFK	33.18	9.737e4					2.7	NO		dd		0.000
15	FUNCTION3 PFK	33.04	4.100e4					2.4	NO		bd		0.000
16	FUNCTION3 PFK	35.74	7.899e3					1.2	NO		db		0.000
17	FUNCTION3 PFK	35.62	4.452e4					1.3	NO		bd		0.000
18	FUNCTION3 PFK	35.51	1.686e4					1.3	NO		bb		0.000
19	FUNCTION3 PFK	35.41	4.682e3					0.6	NO		bb		0.000
20	FUNCTION3 PFK	35.27	3.675e3					0.6	NO		bb		0.000
21	FUNCTION3 PFK	35.11	1.725e4					1.9	NO		db		0.000
22	FUNCTION3 PFK	35.06	4.775e4					2.1	NO		dd		0.000
23	FUNCTION3 PFK	34.97	2.090e4					1.8	NO		dd		0.000
24	FUNCTION3 PFK	34.92	3.003e4					1.3	NO		dd		0.000
25	FUNCTION3 PFK	34.83	4.417e4					1.8	NO		dd		0.000
26	FUNCTION3 PFK	34.74	3.248e4					2.1	NO		bd		0.000
27	FUNCTION3 PFK	34.63	3.237e4					2.0	NO		bb		0.000
28	FUNCTION3 PFK	34.55	2.028e3					0.4	NO		bb		0.000
29	FUNCTION3 PFK	34.35	4.165e4					1.8	NO		db		0.000
30	FUNCTION3 PFK	34.31	1.840e4					1.6	NO		dd		0.000
31	FUNCTION3 PFK	34.24	2.320e4					1.6	NO		dd		0.000
32	FUNCTION3 PFK	37.42	1.255e5					4.5	YES		bd		0.000
33	FUNCTION3 PFK	37.25	1.328e4					1.2	NO		bb		0.000
34	FUNCTION3 PFK	37.21	3.579e3					0.5	NO		bb		0.000
35	FUNCTION3 PFK	37.03	7.487e3					1.1	NO		bb		0.000
36	FUNCTION3 PFK	36.82	5.698e4					2.8	NO		db		0.000
37	FUNCTION3 PFK	36.77	3.406e4					2.2	NO		bd		0.000

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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	36.70	1.196e4					1.3	NO		db		0.000
39	FUNCTION3 PFK	36.65	3.289e4					1.6	NO		bd		0.000
40	FUNCTION3 PFK	36.45	1.144e3					0.3	NO		bb		0.000
41	FUNCTION3 PFK	36.40	6.297e3					0.8	NO		db		0.000
42	FUNCTION3 PFK	36.37	7.742e3					0.9	NO		bd		0.000
43	FUNCTION3 PFK	36.28	7.486e3					0.8	NO		bb		0.000
44	FUNCTION3 PFK	36.17	2.913e4					1.9	NO		db		0.000
45	FUNCTION3 PFK	36.08	2.879e4					1.6	NO		bd		0.000
46	FUNCTION3 PFK	36.03	1.563e3					0.4	NO		bb		0.000
47	FUNCTION3 PFK	35.78	1.292e4					1.2	NO		bb		0.000
48	FUNCTION3 PFK	37.83	8.058e3					0.8	NO		db		0.000
49	FUNCTION3 PFK	37.76	2.525e4					1.7	NO		dd		0.000
50	FUNCTION3 PFK	37.67	5.330e4					2.5	NO		dd		0.000
51	FUNCTION3 PFK	37.62	3.380e4					2.4	NO		bd		0.000
52	FUNCTION3 PFK	37.55	2.173e4					2.0	NO		db		0.000
53	FUNCTION3 PFK	37.50	4.740e4					3.3	YES		dd		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	44.98	3.306e3					0.8	NO		bb		
2	FUNCTION5 PFK	44.08	6.726e3					1.2	NO		bb		
3	FUNCTION5 PFK	43.86	1.491e3					0.6	NO		bb		
4	FUNCTION5 PFK	43.68	1.392e4					1.5	NO		bb		
5	FUNCTION5 PFK	43.47	5.563e3					1.3	NO		bb		
6	FUNCTION5 PFK	43.25	8.500e3					1.7	NO		db		
7	FUNCTION5 PFK	43.18	5.220e3					1.1	NO		bd		
8	FUNCTION5 PFK	43.13	5.722e3					1.3	NO		bb		
9	FUNCTION5 PFK	45.66	3.953e3					1.0	NO		bb		
10	FUNCTION5 PFK	45.51	6.698e3					1.3	NO		bb		

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, 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...	27.48	9.020e1					2.8	NO		bb		0.000
2	FUNCTION1 HXCD...	26.97	3.301e2					8.9	YES		db		0.000
3	FUNCTION1 HXCD...	26.77	1.987e2					5.1	YES		bd		0.000
4	FUNCTION1 HXCD...	26.40	1.586e2					4.5	YES		bb		0.000
5	FUNCTION1 HXCD...	25.28	2.560e2					8.0	YES		bb		0.000
6	FUNCTION1 HXCD...	23.70	1.339e2					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...	26.62	1.649e2					3.7	YES		bb		0.000
2	FUNCTION1 HPCD...	24.43	9.298e1					2.0	NO		db		0.000
3	FUNCTION1 HPCD...	24.32	1.128e2					3.6	YES		bd		0.000
4	FUNCTION1 HPCD...	22.49	1.339e2					2.8	NO		bb		0.000
5	FUNCTION1 HPCD...	22.00	7.764e1					2.7	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...	32.30	1.027e2					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	32.06	7.154e1					1.5	NO		bb		0.000
3	FUNCTION2 HPCD...	30.93	8.135e1					1.7	NO		bb		0.000
4	FUNCTION2 HPCD...	29.49	8.143e1					1.5	NO		bb		0.000
5	FUNCTION2 HPCD...	29.24	8.949e1					1.6	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	36.18	1.522e2					6.1	YES		db		0.000
2	FUNCTION3 OCDPE	36.10	1.754e2					4.6	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	38.40	1.491e4					349.8	YES		bb		0.000

ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, Conditions: AUTOSPEC01, User: pk

ETHERS6

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

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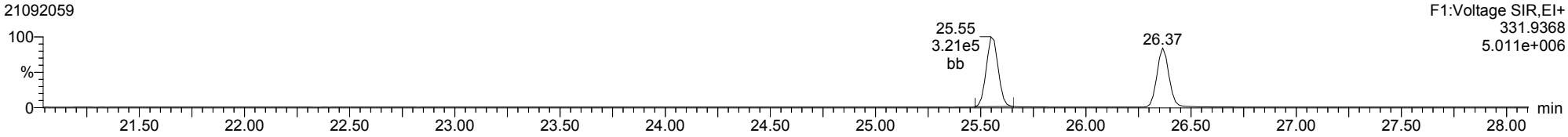

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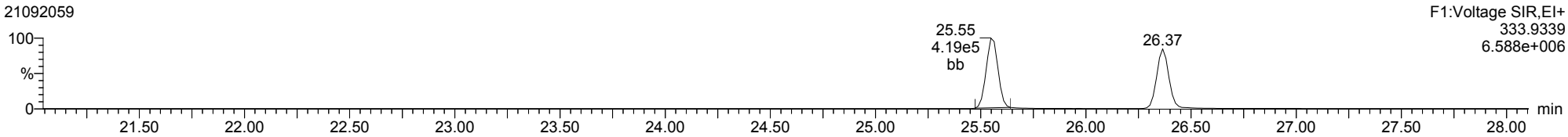

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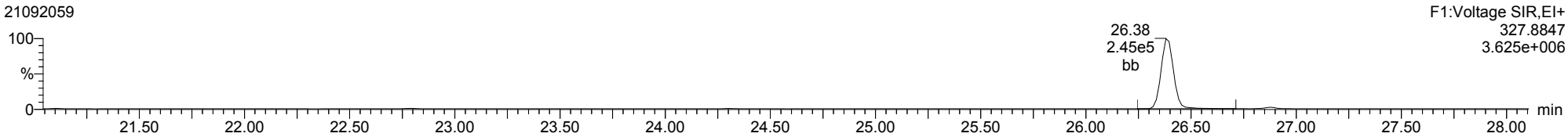

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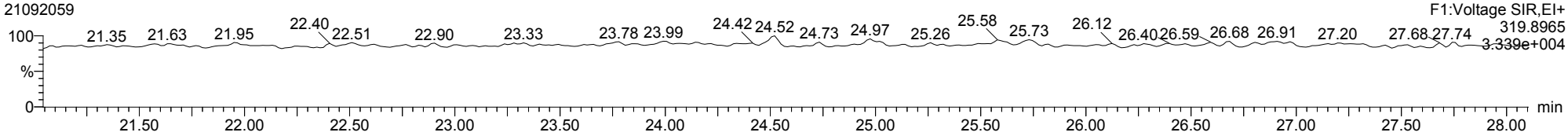
2378-TCDD



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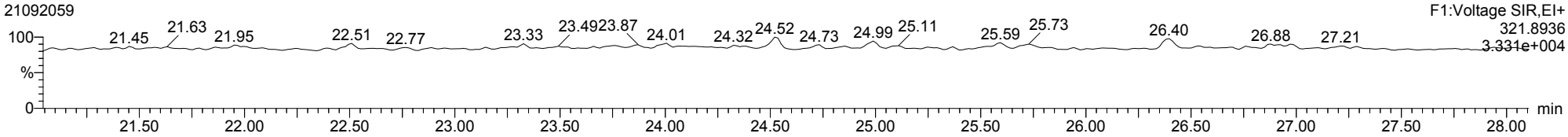

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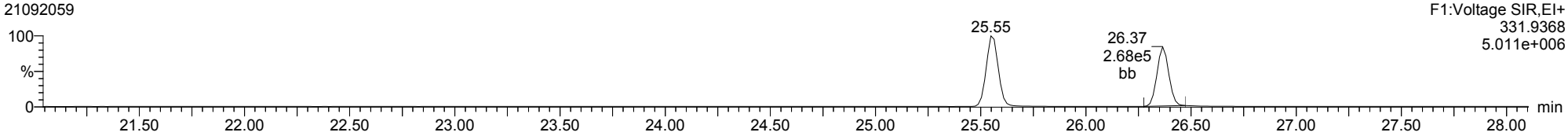

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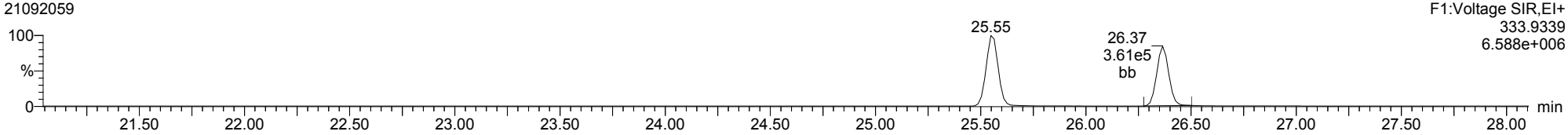

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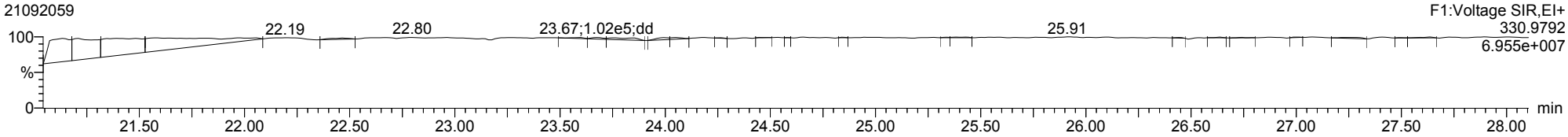

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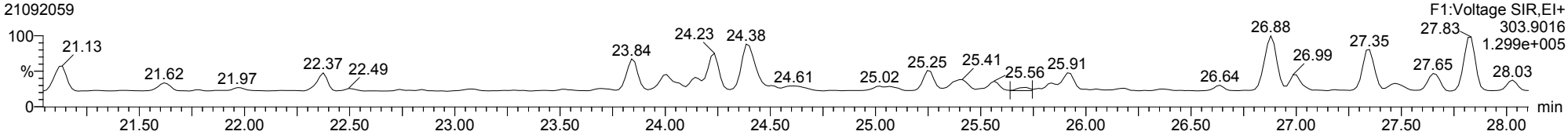

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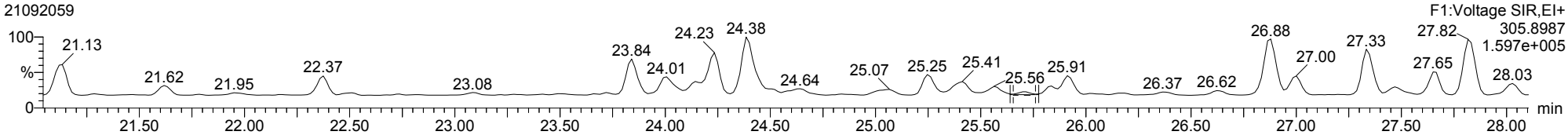

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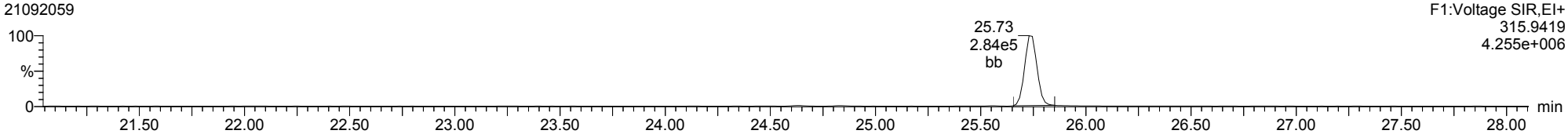

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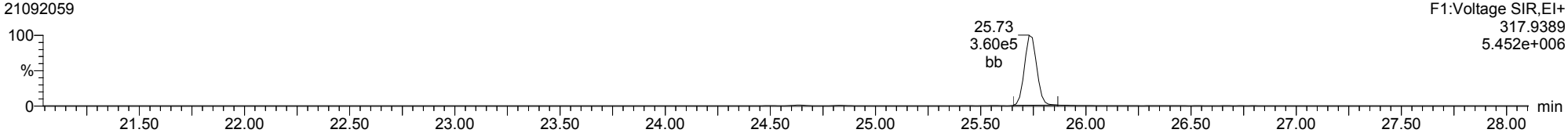

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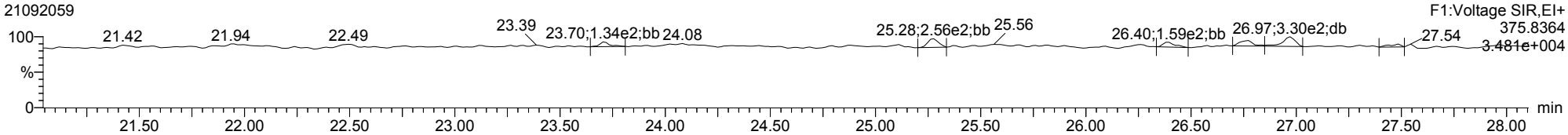

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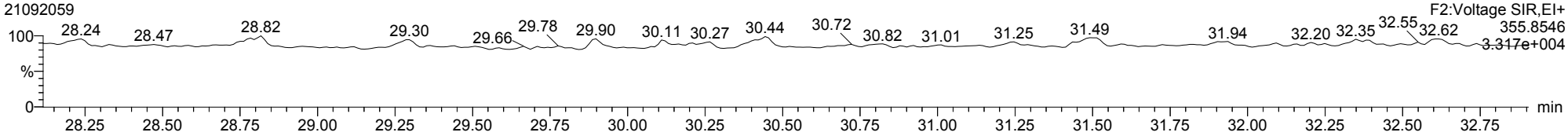
12378-PeCDD



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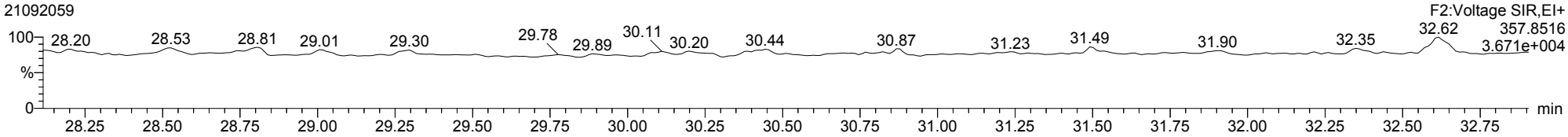

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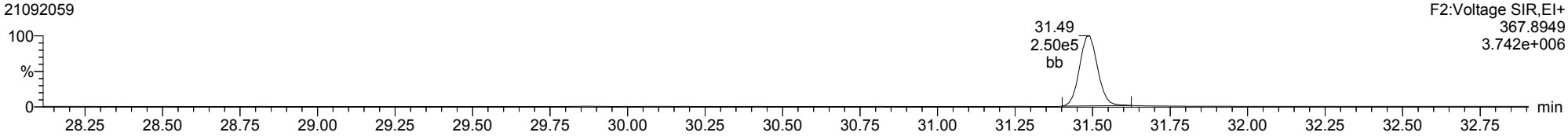

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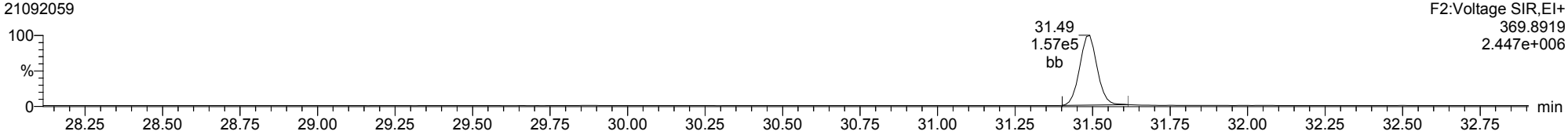

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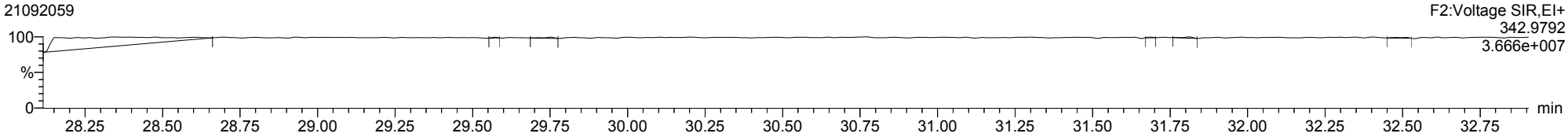

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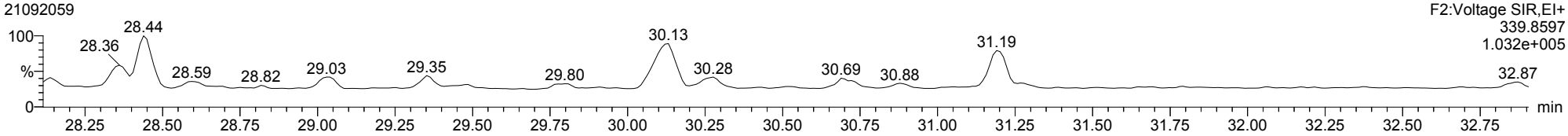

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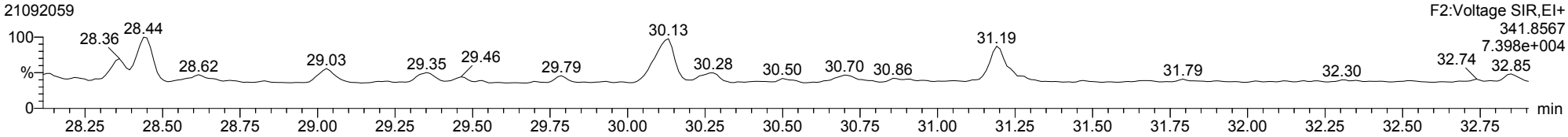

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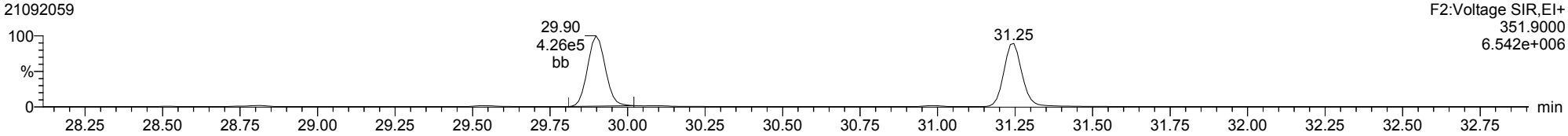

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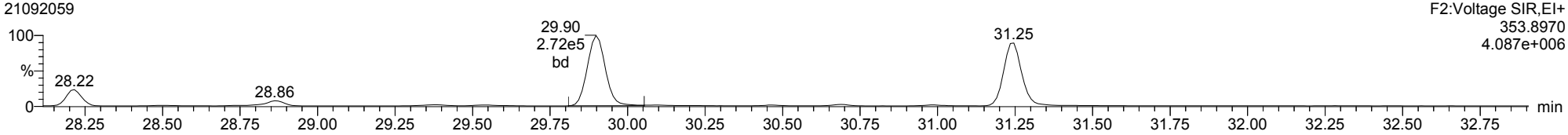

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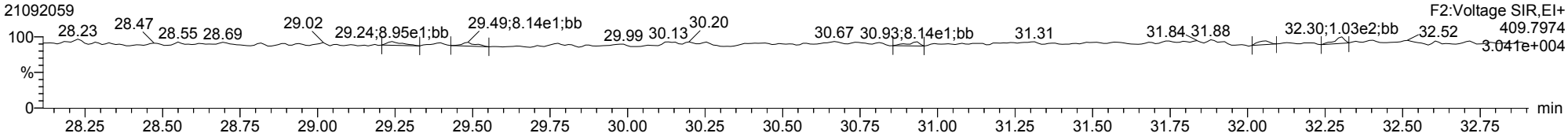

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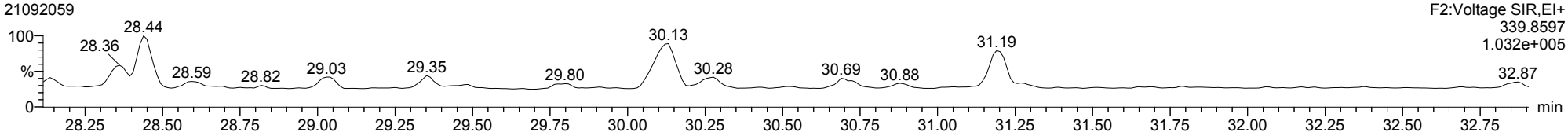
23478-PeCDF



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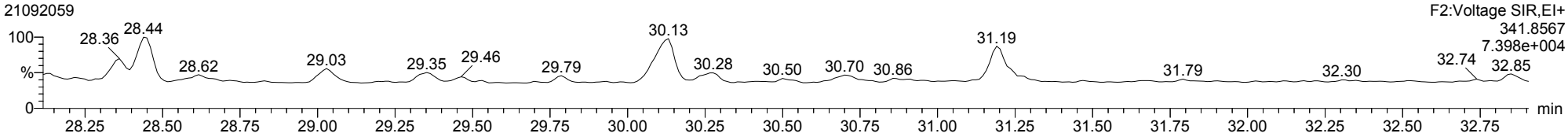

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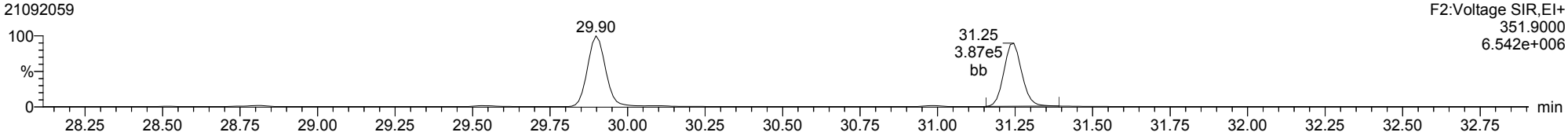

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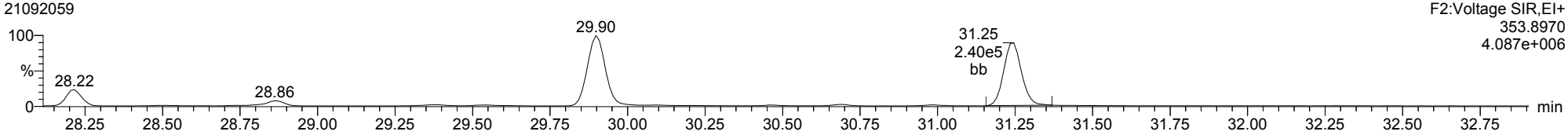

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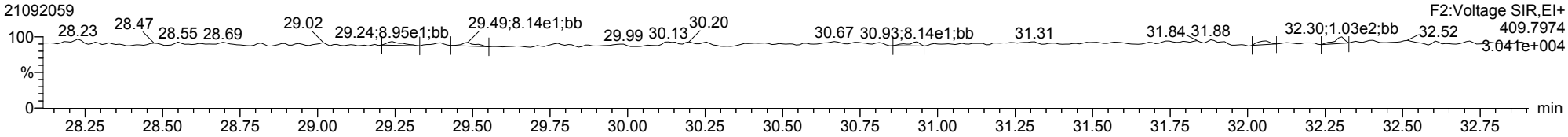

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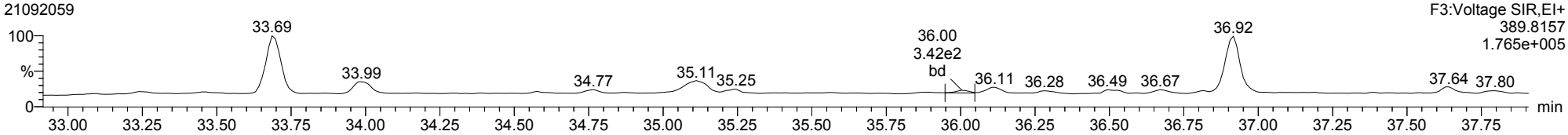
123478-HxCDD



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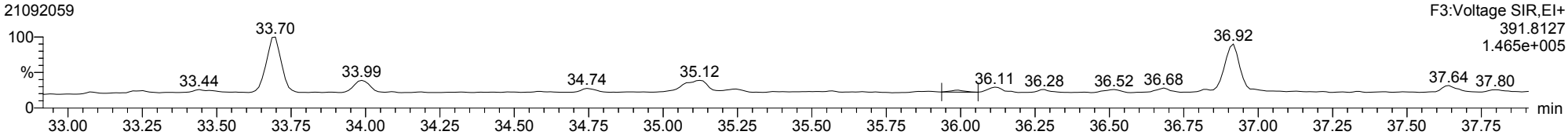

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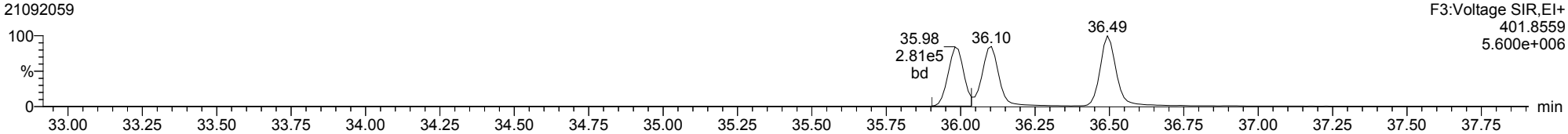

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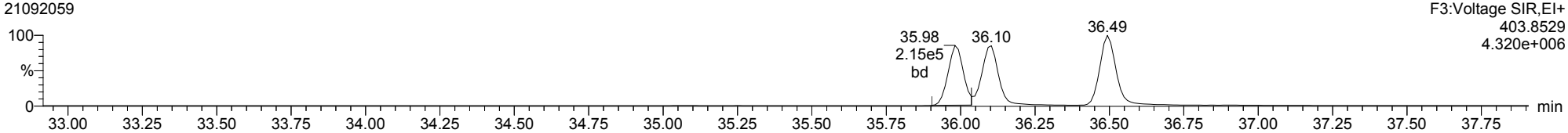
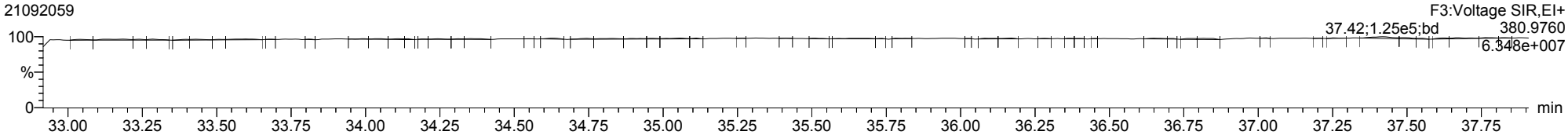


FUNCTION3 PFK



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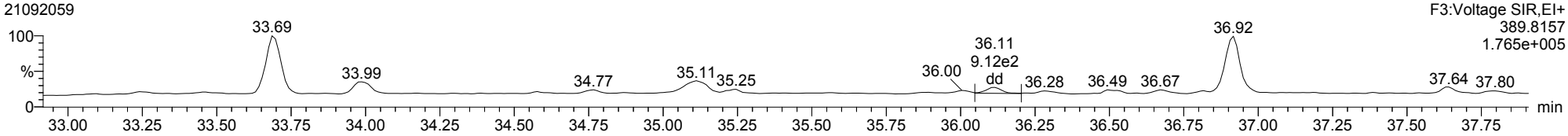

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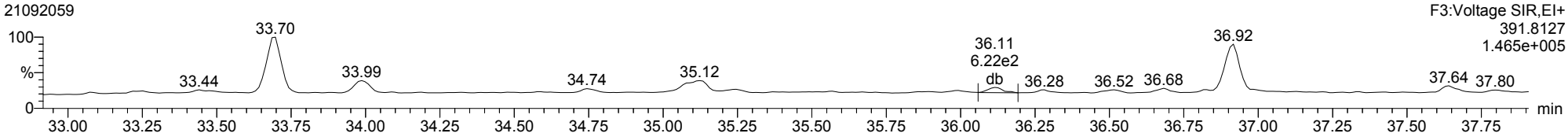

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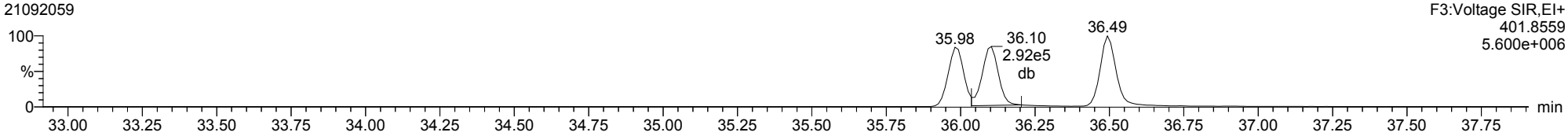

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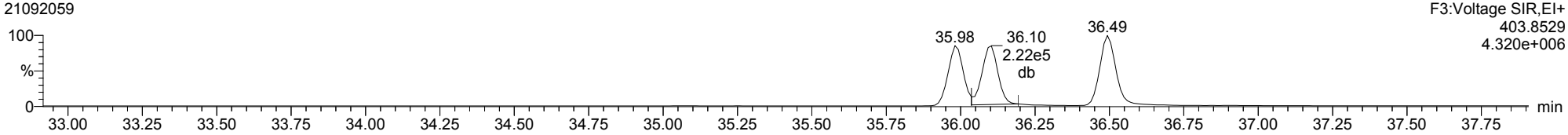

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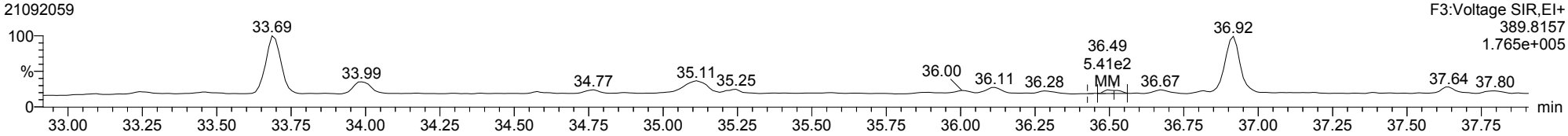
123789-HxCDD



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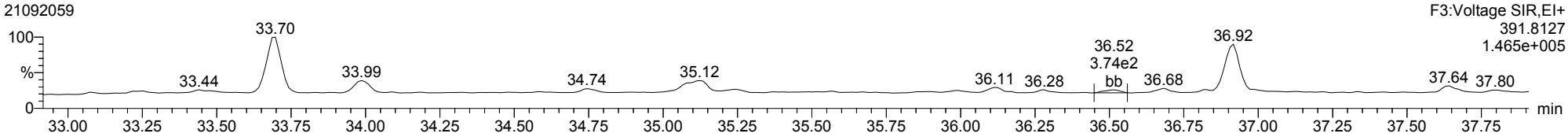

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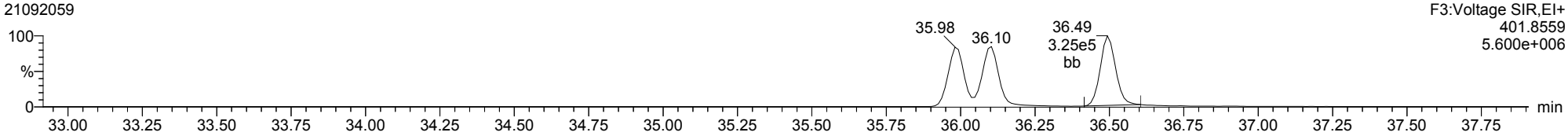

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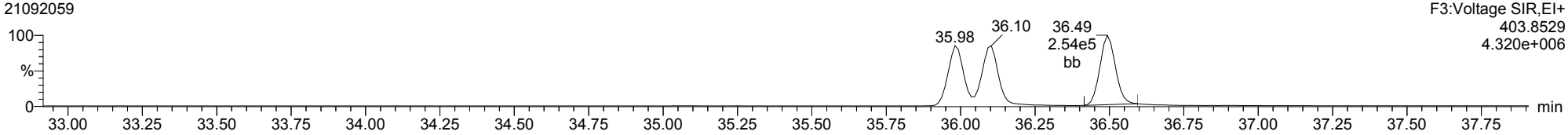

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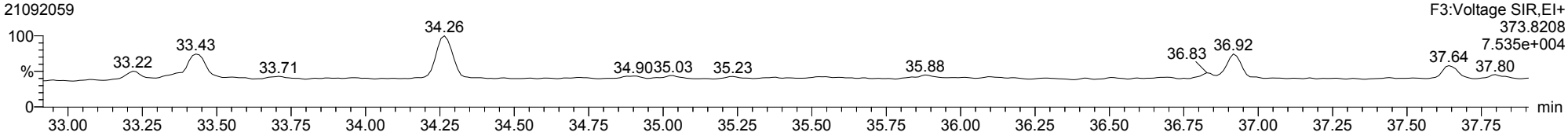

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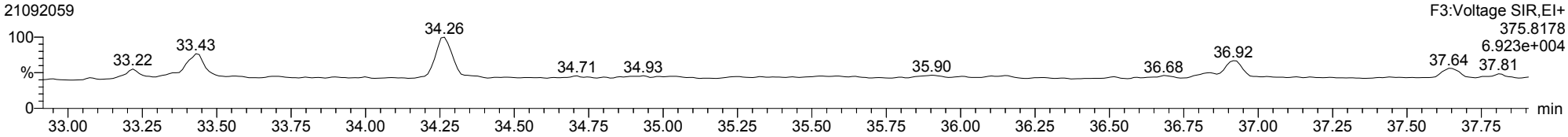

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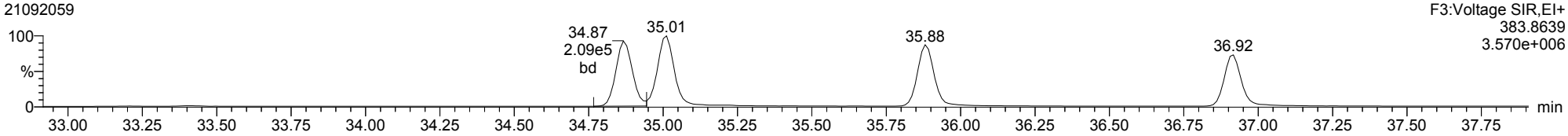

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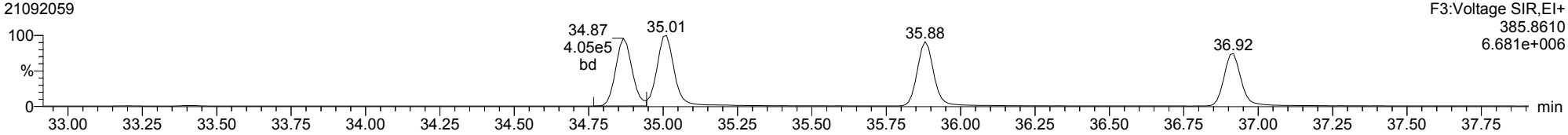
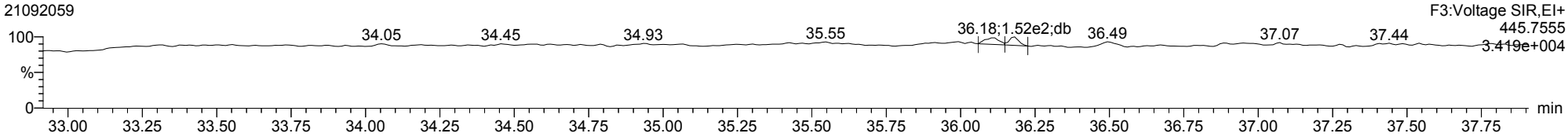


FUNCTION3 OCDPE



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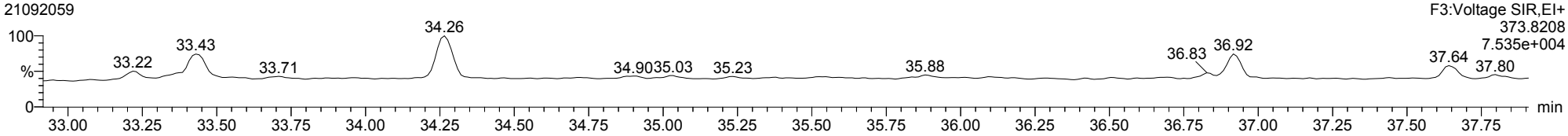
234678-HxCDF



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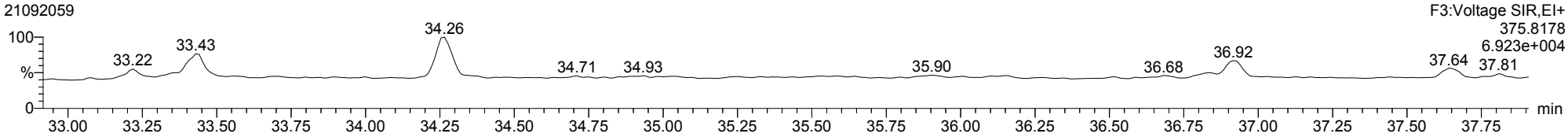

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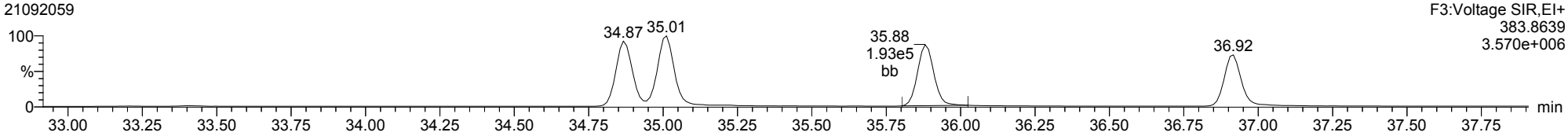

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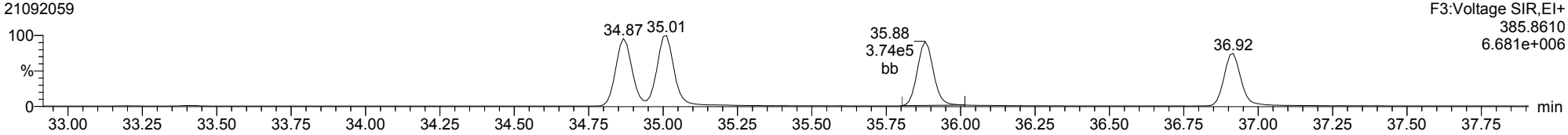
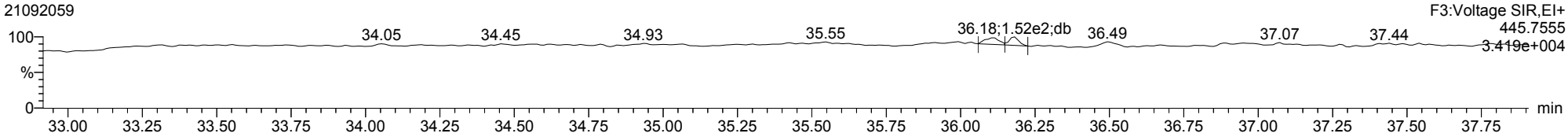


FUNCTION3 OCDPE



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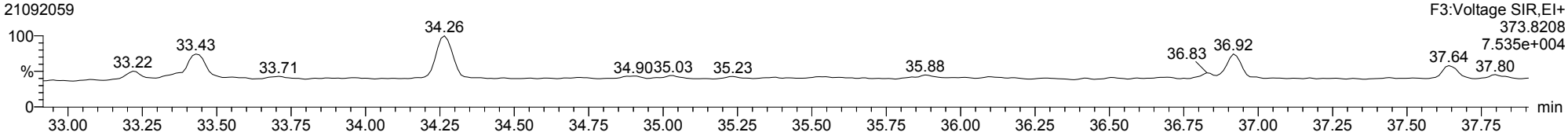
123678-HxCDF



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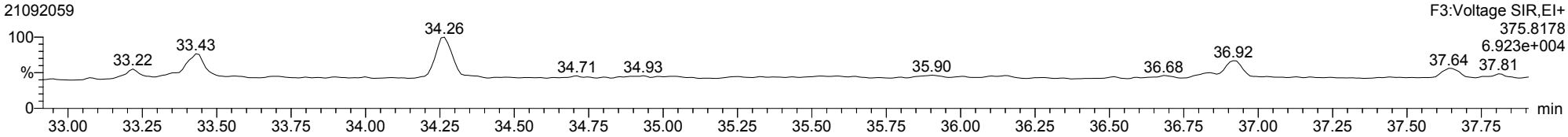

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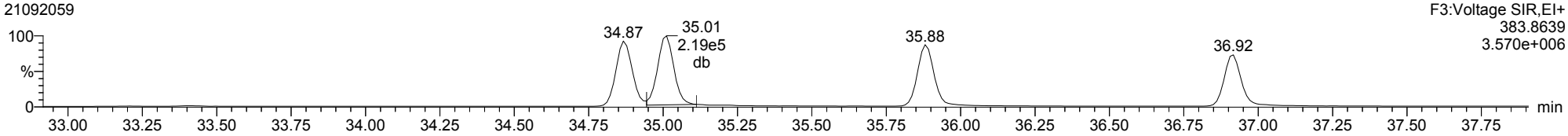

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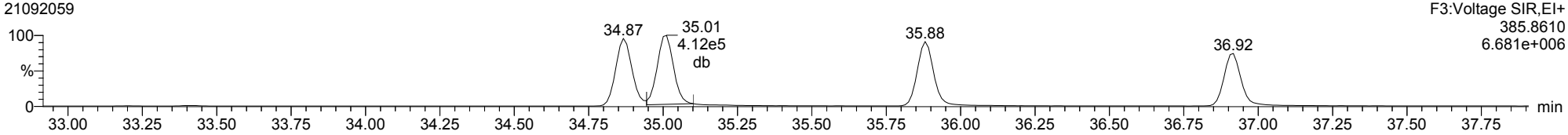
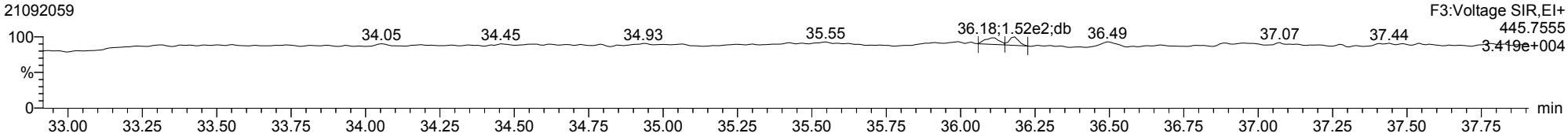


FUNCTION3 OCDPE



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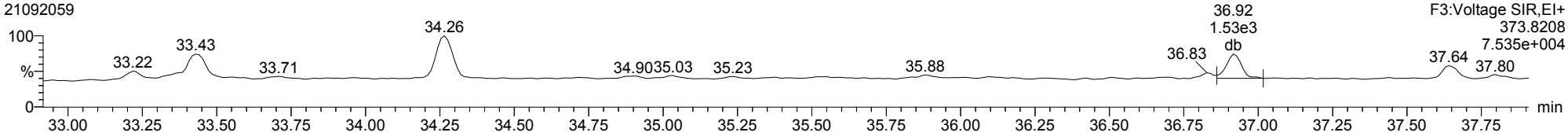
123789-HxCDF



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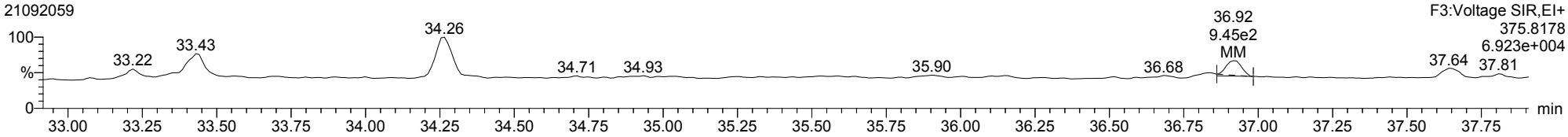

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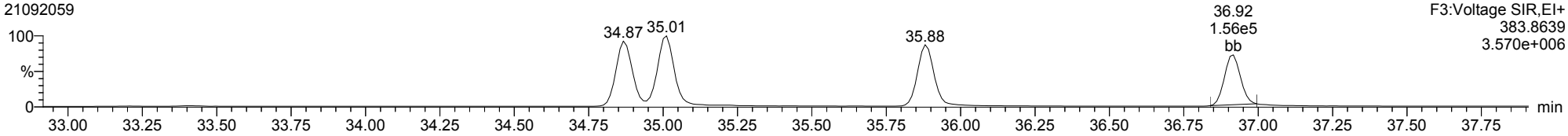

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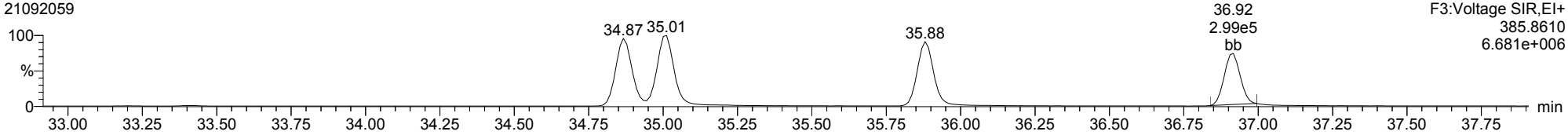
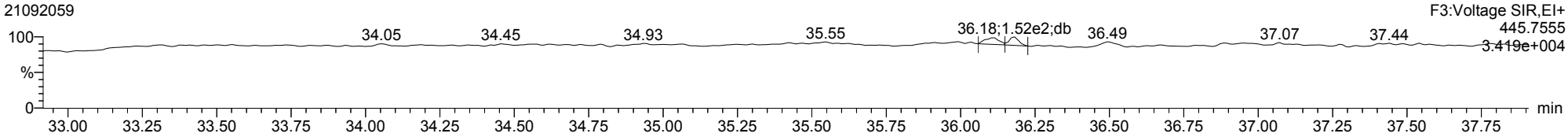


FUNCTION3 OCDPE



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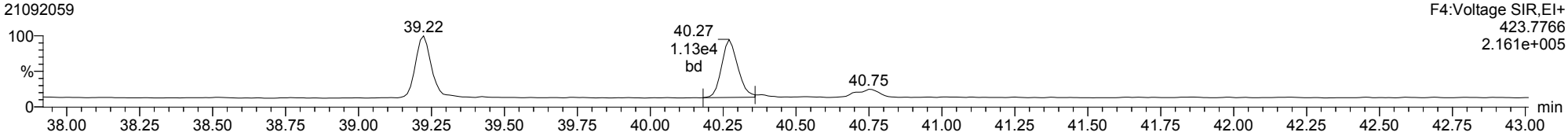
1234678-HpCDD



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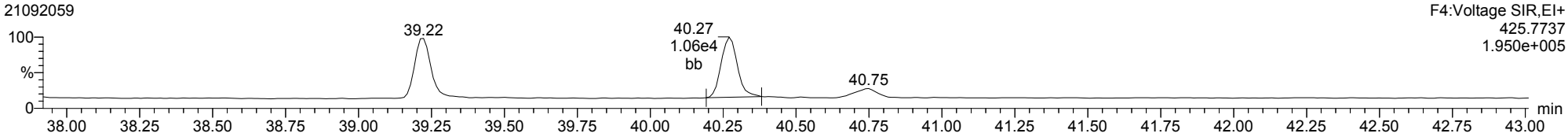

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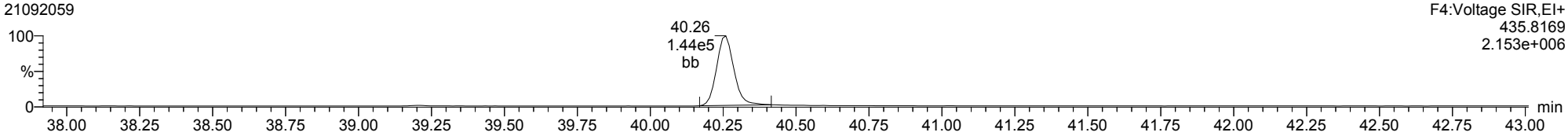

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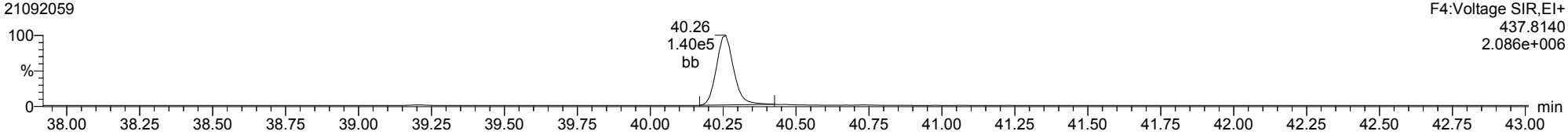

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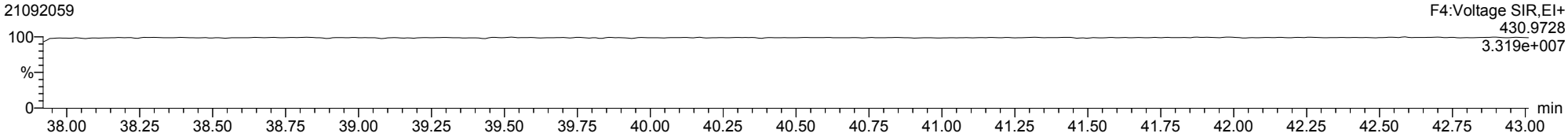

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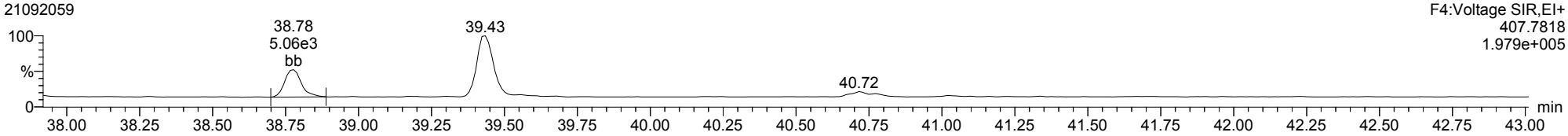

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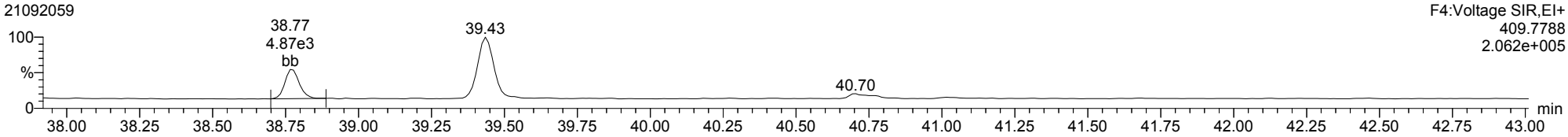

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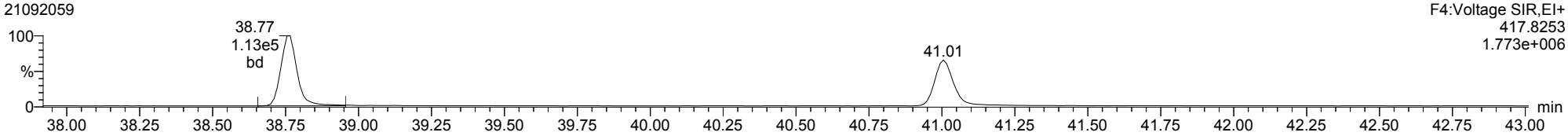

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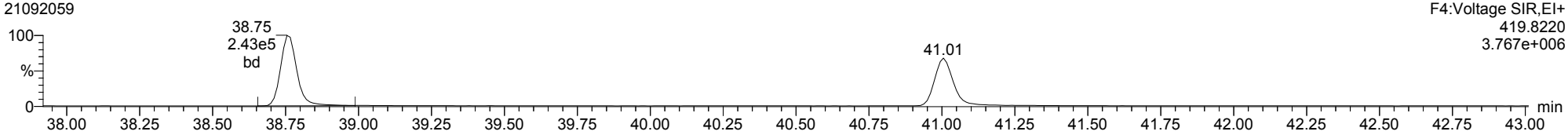

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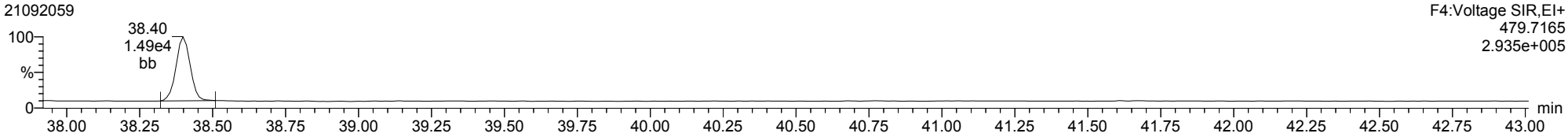

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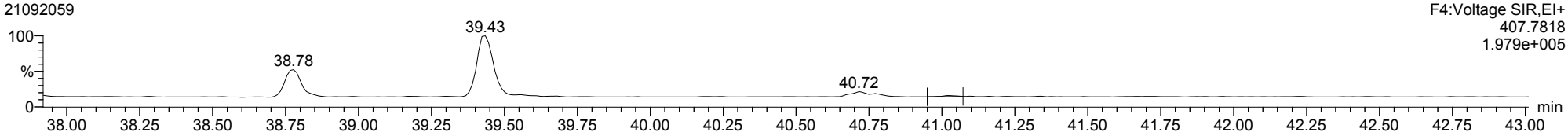

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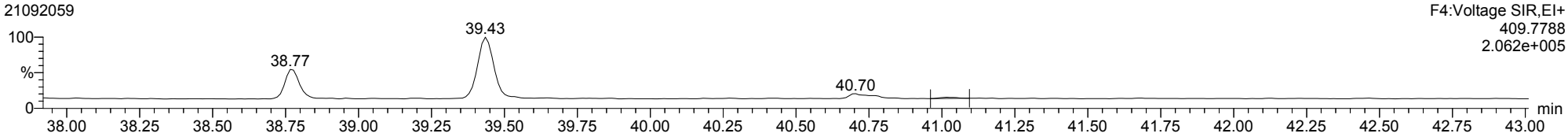

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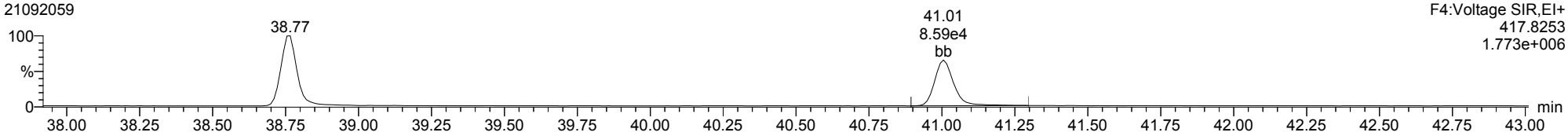

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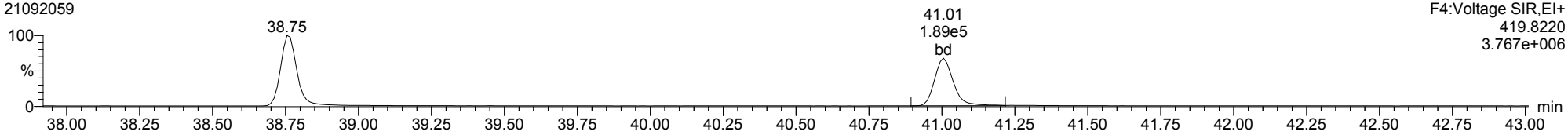
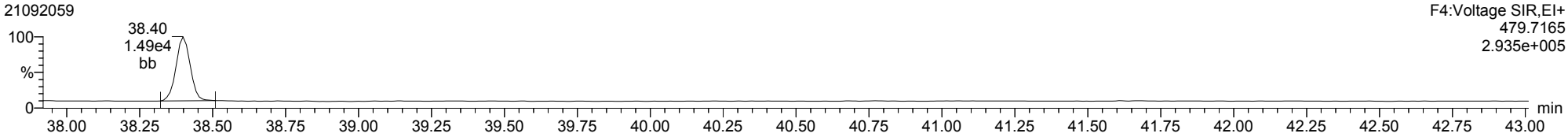


FUNCTION4 NCDPE



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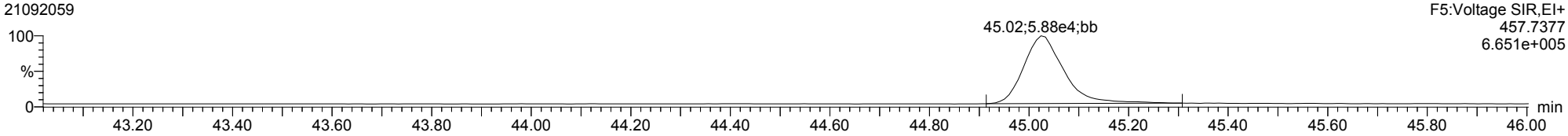
OCDD



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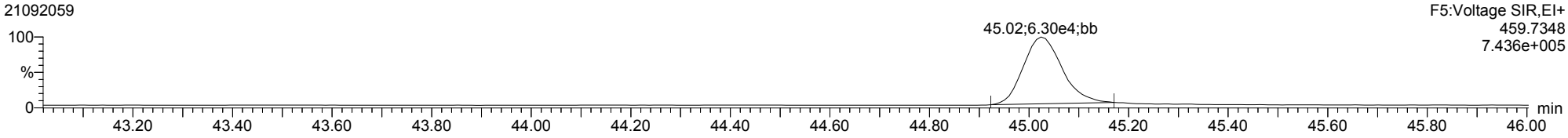

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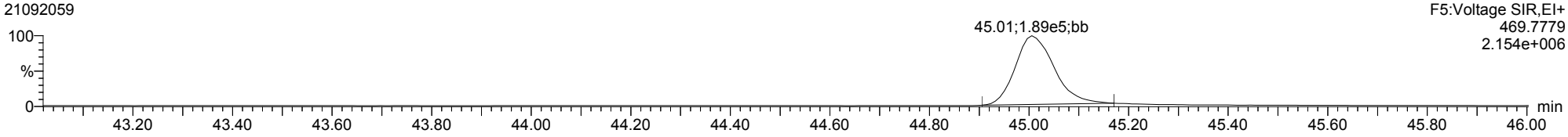

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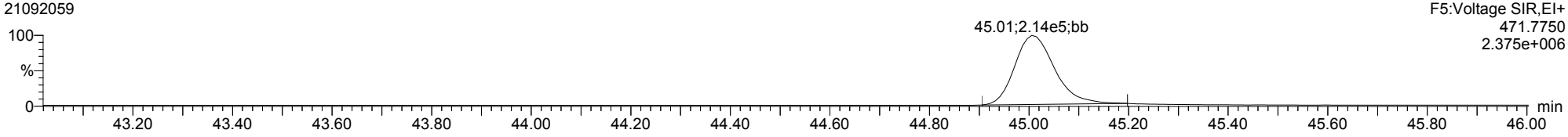

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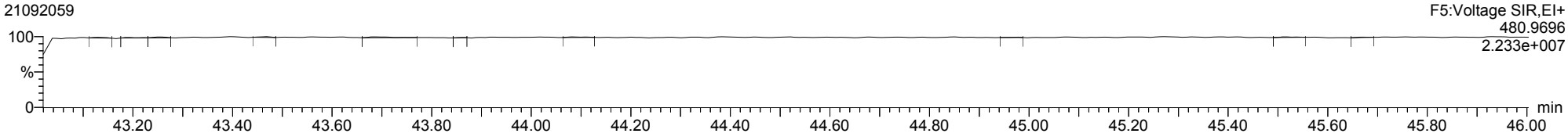

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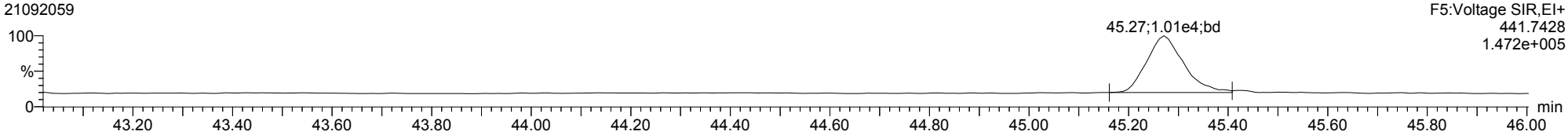

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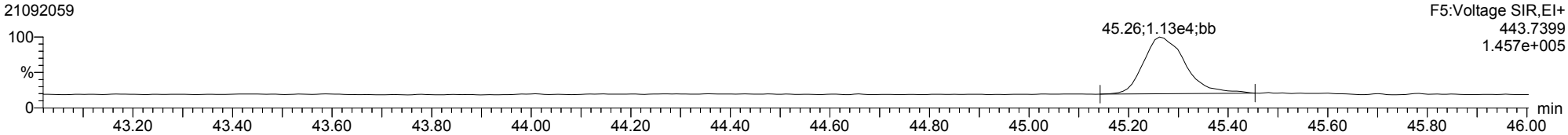

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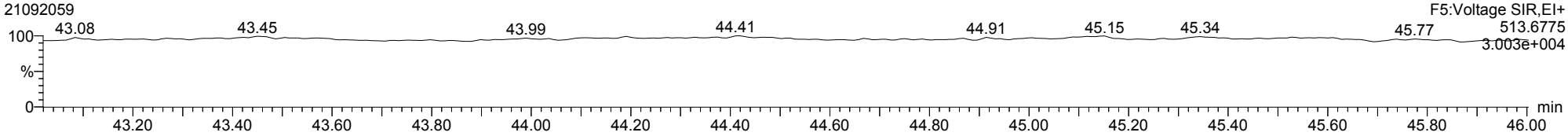
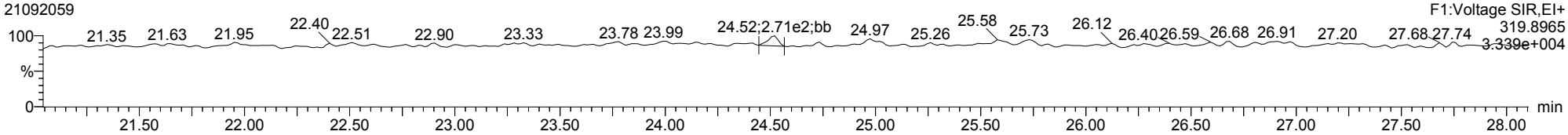
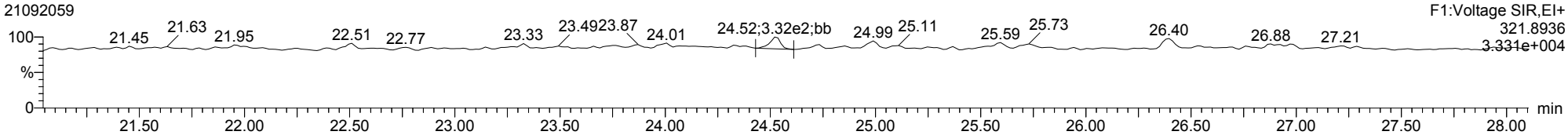


ID: 21G0283-18, Name: 21092059, Date: 22-Sep-2021, Time: 16:24:01, Conditions: AUTOSPEC01, User: pk

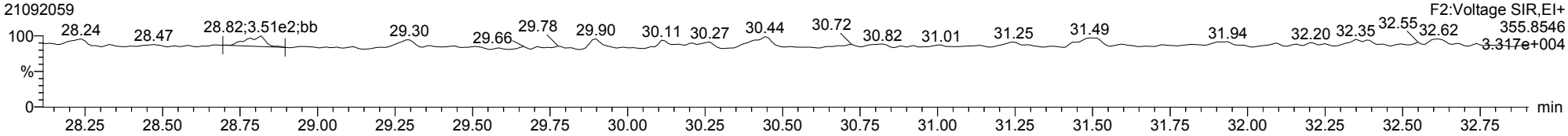
Total-tetradioxins



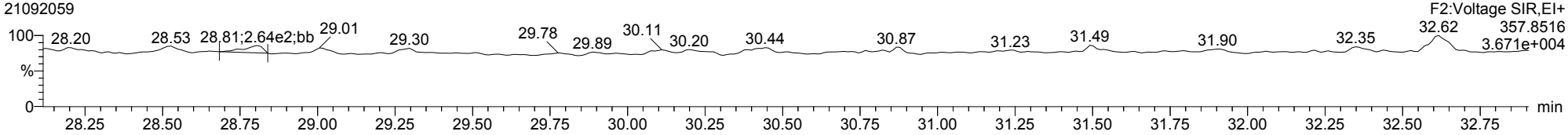
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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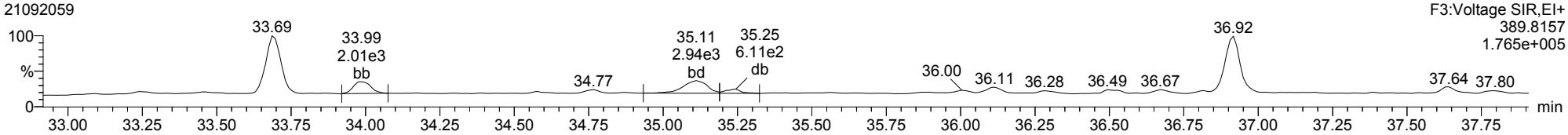

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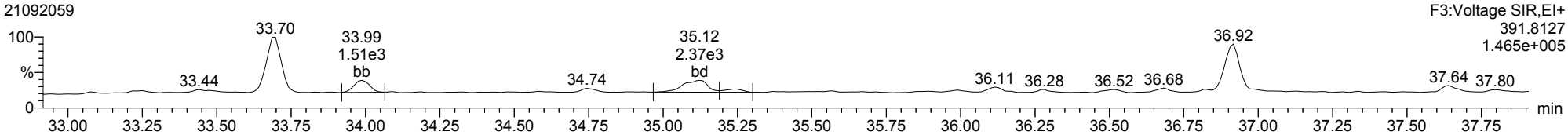

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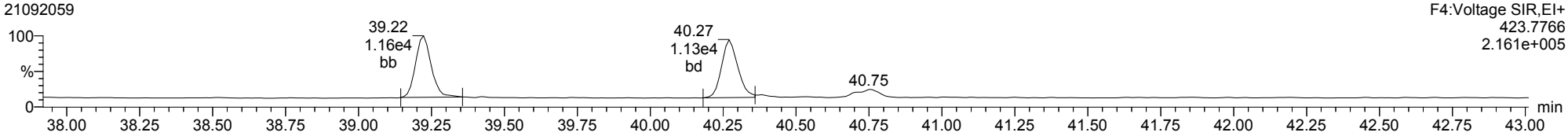
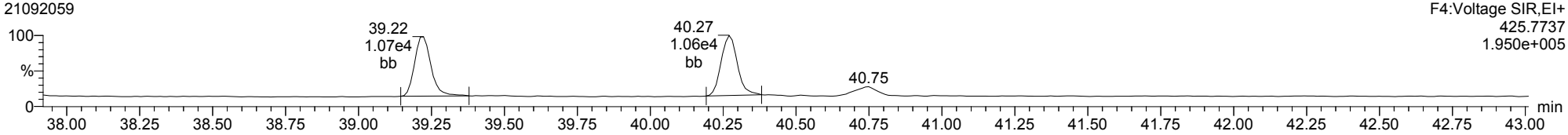


Total-heptadioxins



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Printed: Thursday, September 23, 2021 09:24:55 Pacific Daylight Time

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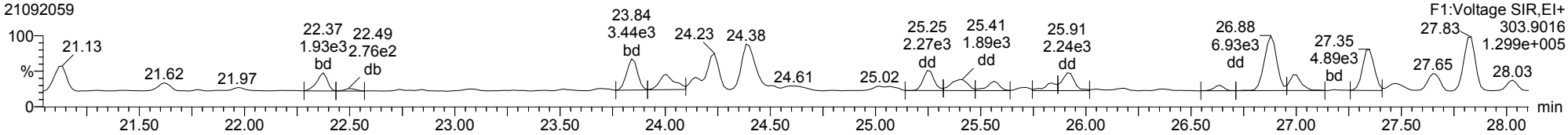
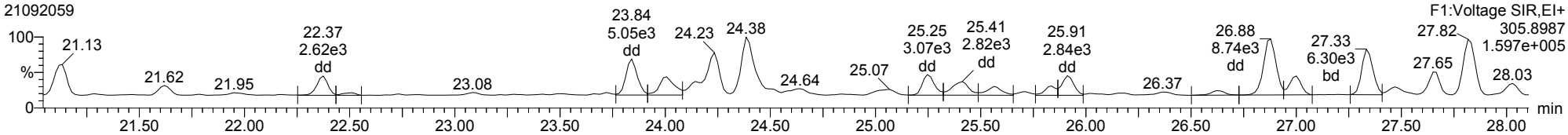
Total-tetrafurans



Total-tetrafurans



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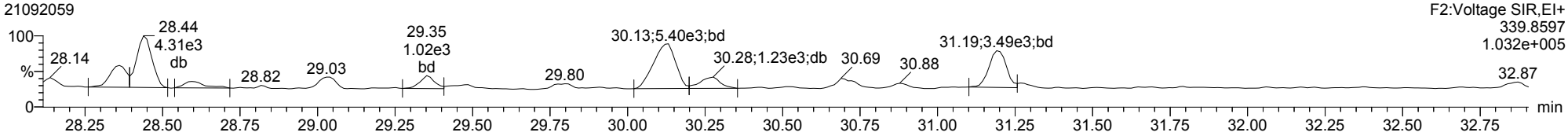

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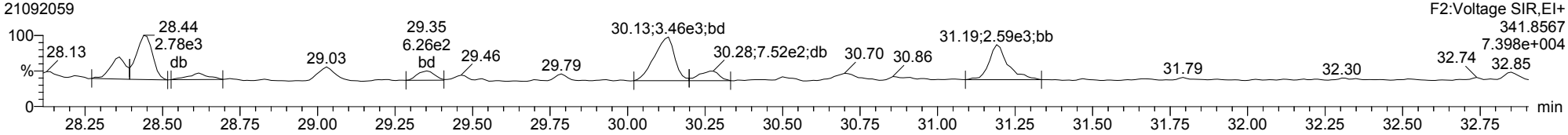

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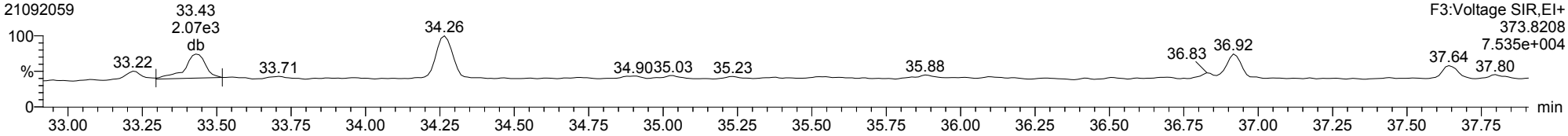

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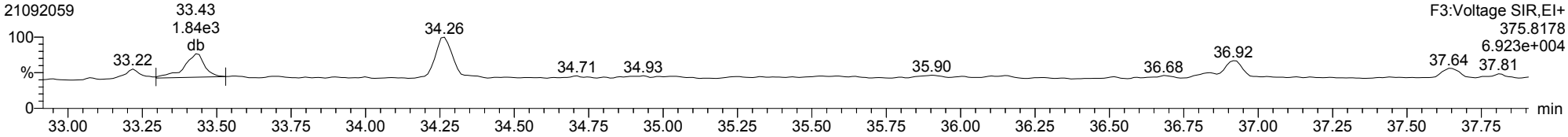

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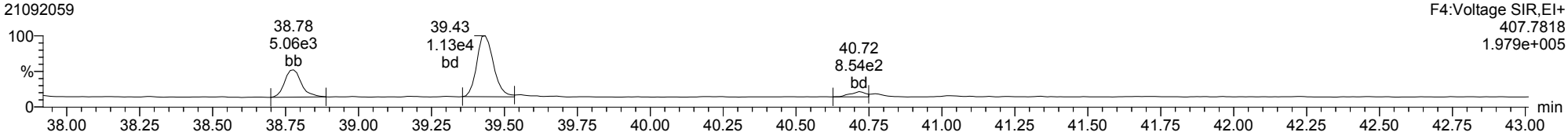

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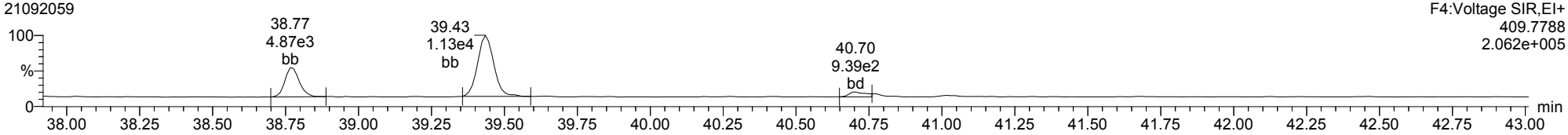

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Batch:	BJH0203	Batch Matrix:	Solid	Preparation:	EPA 1613

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT664B	21G0283-11	21092050	09/09/21 15:30	
LDW21-IT664C	21G0283-12	21092051	09/09/21 15:30	
LDW21-IT664E	21G0283-13	21092052	09/09/21 15:30	
LDW21-IT670B	21G0283-14	21092053	09/09/21 15:30	
LDW21-IT670C	21G0283-15	21092056	09/09/21 15:30	
LDW21-IT670E	21G0283-16	21092057	09/09/21 15:30	
LDW21-IT650B	21G0283-17	21092058	09/09/21 15:30	
LDW21-IT650C	21G0283-18	21092059	09/09/21 15:30	
Blank	BJH0203-BLK1	21092030	09/09/21 15:30	
LCS	BJH0203-BS1	21092031	09/09/21 15:30	
Reference	BJH0203-SRM1	21092032	09/09/21 15:30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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

Batch: BJH0203

Solid Samples

ARI Work Orders:	21G0211,21G0213,21G0283		
Matrix (circle one)	Soil	Sediment	Oil Tissue
Extraction Method	Start Date/Time:	End Date/Time:	
Soxhlet SepF Shake out	9/9/21 15:30	9/10/21 7:30	

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Balance		24650344	DP	9/9/21
Toluene		J007944	NB/DP	9/9/21
Hexane		J005194	NB	9/10/21 9/13/21 9/14/21
CH2Cl2		J008966	NB	9/14/21
H2SO4		F009222	NB	9/13/21
Na2SO4		J009500	DP/NB	9/9/21/9/13/21 9/14/21
Glasswool		I006679	NB	9/14/21
Basic Silica		J007981	NB	9/14/21
Acid Silica		J007981	NB	9/14/21
0% Silica		J005622	NB	9/9/21/9/14/21
Activated Florisil		J002451	NB	9/14/21
Nonane		H006038	M	9/15/21
Other (RM)		J007936	DP	9/9/21

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)
21G0211-11 C	LDW21-IT665B	53.84989	(15.66)	15.66	1 2	5.5	20
21G0211-12 C	LDW21-IT665C	67.85635	(14.74)	14.74	1 2	4.8	20
21G0211-13 C	LDW21-IT665E	67.92576	(14.72)	14.72	1 2	4.8	20
21G0211-14 C	LDW21-IT666B	76.7334	(13.03)	13.05	1 2	3.0	20
21G0211-15 C	LDW21-IT666C	75.43275	(13.26)	13.26	1 2	3.0	20
21G0211-16 C	LDW21-IT666E	77.51174	(12.90)	12.90	1 2	2.5	20
21G0213-01 C	LDW21-IT655B	76.5295	(13.07)	13.07	1 2	2.8	20
21G0213-02 C	LDW21-IT655C	74.45417	(13.43)	13.45	1 2	3.0	20
21G0213-03 C	LDW21-IT655E	76.42277	(13.09)	13.09	1 2	2.5	20
21G0213-06 C	LDW21-IT663B	64.68605	(15.46)	15.47	1 2	5.5	20
21G0213-07 C	LDW21-IT663C	75.29589	(13.28)	13.29	1 2	3.5	20
21G0213-08 C	LDW21-IT663E	83.09042	(12.04)	12.05	1 2	2.0	20
21G0283-11 C	LDW21-IT664B	66.15381	(15.12)	15.13	1 2	5.0	20
21G0283-12 C	LDW21-IT664C	68.94476	(14.50)	14.51	1 2	4.5	20
21G0283-13 C	LDW21-IT664E	72.4679	(13.80)	13.80	1 2	3.5	20
21G0283-14 C	LDW21-IT670B	75.61987	(13.22)	13.22	1 2	3.5	20
21G0283-15 C	LDW21-IT670C	70.71972	(14.14)	14.15	1 2	3.5	20
21G0283-16 C	LDW21-IT670E	75.92902	(13.17)	13.17	1 2	3.0	20
21G0283-17 C	LDW21-IT650B	78.03004	(12.82)	12.83	1 2	2.0	20
21G0283-18 C	LDW21-IT650C	78.65031	(12.72)	12.73	1 2	2.0	20
BJH0203-BLK1	Blank	100	()		1 2	0.0	20
BJH0203-BS1	LCS	100	()		1 2	0.0	20
BJH0203-DUP1	21G0211-11C Duplicate	53.8498	(15.66)	15.66	1 2	5.7	20
BJH0203-SRM1	Reference	100	()	100	1 2	0.1	20
Prep Analyst / Date:	DP 9/9/21			NB 9/10/21 9/13/21	NB 9/10/21	MG 9/15/21	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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

Batch: BJH0203

Solid Samples

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	J009512	2/4 ng/mL	9/21/2022	ULB	M	9/9/21
OPR	1.0 mL	J006781	0.2/1.0/2.0 ng/mL	6/29/2022	ULB	M	9/9/21
~~QLS Standard~~	~~1.0 mL~~		~~0.1/0.05/0.1 ng/mL ng/m~~				
Cleanu-up Standard	1.0 mL	J007666 ~~3~~	0.8 ng/mL	7/27/2022 ~~3~~	ULB	M	9/14/21
		J009513		9/21/2022	ULB	M	9/14/21

Verify Client ID	
Analyst / Date:	DP 9/9/21
Acid Clean	[Y] N
Analyst / Date:	ULB 9/13/21
Silica-Florisil Clean	[Y] N
Analyst / Date:	ULB 9/14/21 9/15/21

Supervisor Review By 9/15/21 Date

Printed: 8/27/2021 11:40:27AM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Extraction Batch BJH0203

Total Solids Batch: BJH0049 Work Order(s): 21G0211, 21G0213, 21G0282, ~~21G0289~~ 21G0289

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
[X] No Anomalies (standard soil/wet sediment/sand/gravel)= 213-3,8	DP 8/16/21
[X] Standing Water Decanted (Not shared)= 211-16 213-2,6. 282-4B,6 289-2,5	DP ~~8/24~~ 8/16/21
[ ] Standing Water Homogenized (Shared samples)=	
[X] Clay/Clumps (Difficult to homogenize)= 211-11,12,13,14,15,16, 213-1,2,7, 289-1	DP 8/16/21
[X] Rocks (%+size)? 50% 1/3" = 289-2,5	DP 8/16/21
[X] Organics (Leaves/sticks/grass)= 282-5,6 289-2,5	DP 8/16/21
[X] Oily, obvious fuel/sulfur odors= 282-4,5	DP 8/16/21
[ ] 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=	
[X] Other Notes/Comments= (Note problems, concerns, corrective actions).	
Rotaveped: BJH0203-BLK1 ~ 21G0283:12	UB 9/10/21
Rotaveped: 21G0283:13 ~ 16	UB 9/13/21
[ ] Share Samples Y / N	
[ ] Multiple Jars Y / N	
[ ] Sample Pre-Screens indicate analyte activity=	
[ ] Sample weights/volumes reduced based on Pre-Screen=	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Extraction Batch BJH0203

Total Solids Batch: BJH0056 Work Order(s): 21G0283, 21G0301

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= 283-18	DLP 8/23/21
☒ Standing Water Decanted (Not shared)= 283-14,15,16, 301-1,2,3,4	DLP 8/23/21
☐ Standing Water Homogenized (Shared samples)=	
☒ Clay/Clumps (Difficult to homogenize)= 283-11,12,13,14,15,16	DLP 8/23/21
☐ Rocks (%+size)?	
☒ Organics (Leaves/sticks/grass)= 301-1,2,3,4	DLP 8/23/21
☐ 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).	
Boil out into waste collector lost ≈15mL during Rotovap: 21G0283:12	ULB 9/10/21
Silica column cleaned: 21G0283:11-18	ULB 9/15/21
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BJH0049
Date:	
Analyst:	DP
Drying Oven:	018
Analytical Balance:	24650344

Instrumentation

Batch drying time			Oven Temp, C	TS (%) calculated as:	Oven Temps, °C	
Record times as mm/dd/yy hh:mm						
Date/time in oven:	08/16/21	12:30	108	Final dry wt (g) = (Dry Wt - Tare Wt)	Start Temp:	108
Date/time out:	08/17/21	0520	107	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)	End Temp:	107
Elapsed hrs:	0.0					

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21G0211-11 C	0.79	11.55	7.66			No
21G0211-12	0.80	11.48	8.30			No
21G0211-13	0.78	11.08	7.58			No
21G0211-14	0.80	11.47	8.98			No
21G0211-15	0.50	11.23	8.77			No
21G0211-16	0.79	11.31	8.95			~~No~~ yes
21G0213-01	0.79	11.76	9.16			No
21G0213-02	0.79	11.33	8.69			~~No~~ yes
21G0213-03	0.79	11.17	9.09			No
21G0213-06	0.79	11.11	7.42			~~No~~ yes
21G0213-07	0.79	11.66	8.64			No
21G0213-08	0.80	11.68	9.76			No
21G0282-04	0.80	11.08	2.85			~~No~~ yes
21G0282-05	0.79	11.99	5.34			~~No~~ yes
21G0282-06	0.79	11.70	4.62			~~No~~ yes
21G0289-01	0.79	11.44	9.33			No
21G0289-02	0.80	11.80	7.33			~~No~~ yes
21G0289-05	0.80	11.25	9.02			~~No~~ yes

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BJH0049
Date:	8/17/2021 10:12
Analyst:	DXP
Drying Oven:	18
Analytical Balance:	24650344

Instrumentation

Batch drying time			
Record times as mm/dd/yy hh:mm		Oven Temp, C	TS (%) calculated as:
Date/time in oven:	8/16/2021 12:30	108	Final dry wt (g) = (Dry Wt - Tare Wt)
Date/time out:	8/17/2021 5:20	107	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)
Elapsed hrs:	16.8		

Oven Temps, °C	
Start Temp:	108
End Temp:	107

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21G0211-11	0.7900	11.5500	7.6600	6.87	**63.85%**	No
21G0211-12	0.8000	11.4800	8.3000	7.50	**70.22%**	No
21G0211-13	0.7800	11.0800	7.5800	6.80	**66.02%**	No
21G0211-14	0.8000	11.4700	8.9800	8.18	**76.66%**	No
21G0211-15	0.8000	11.2300	8.7700	7.97	**76.41%**	No
21G0211-16	0.7900	11.3100	8.9500	8.16	**77.57%**	Yes
21G0213-01	0.7900	11.7600	9.1600	8.37	**76.30%**	No
21G0213-02	0.7900	11.3300	8.6900	7.90	**74.95%**	Yes
21G0213-03	0.7900	11.1700	9.0900	8.30	**79.96%**	No
21G0213-06	0.7900	11.1100	7.4200	6.63	**64.24%**	Yes
21G0213-07	0.7900	11.6600	8.6400	7.85	**72.22%**	No
21G0213-08	0.8000	11.6800	9.8000	9.00	**82.72%**	No
21G0282-04	0.8000	11.0800	2.8500	2.05	**19.94%**	Yes
21G0282-05	0.7900	11.9900	5.3400	4.55	**40.63%**	Yes
21G0282-06	0.7900	11.7000	4.6200	3.83	**35.11%**	Yes
21G0289-01	0.7900	11.4400	9.3300	8.54	**80.19%**	No
21G0289-02	0.8000	11.8000	7.3300	6.53	**59.36%**	Yes
21G0289-05	0.8000	11.2500	9.0200	8.22	**78.66%**	Yes

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BJH0056
Date:	8/24/2021 6:47
Analyst:	DXP
Drying Oven:	18
Analytical Balance:	24650344

Instrumentation

Batch drying time		
Record times as mm/dd/yy hh:mm		Oven Temp, C
Date/time in oven:	8/23/2021 14:23	108
Date/time out:	8/24/2021 5:30	107
Elapsed hrs:	15.1	

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:	108
End Temp:	107

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21G0283-11	0.8000	11.2800	7.6600	6.86	**65.46%**	No
21G0283-12	0.8000	11.4700	8.3100	7.51	**70.38%**	No
21G0283-13	0.8000	11.4300	8.6000	7.80	**73.38%**	No
21G0283-14	0.8000	11.8600	9.2300	8.43	**76.22%**	Yes
21G0283-15	0.8100	11.1100	8.5100	7.70	**74.76%**	Yes
21G0283-16	0.8200	11.0600	8.6700	7.85	**76.66%**	Yes
21G0283-17	0.8200	11.4200	9.2700	8.45	**79.72%**	No
21G0283-18	0.8200	11.6900	9.4300	8.61	**79.21%**	No
21G0301-01	0.8100	11.2000	6.1000	5.29	**50.91%**	Yes
21G0301-02	0.8200	11.2300	4.8100	3.99	**38.33%**	Yes
21G0301-03	0.8000	11.5100	3.5200	2.72	**25.40%**	Yes
21G0301-04	0.8100	11.2500	4.3100	3.50	**33.52%**	Yes

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BJH0056
Date:	8/23
Analyst:	DP
Drying Oven:	018
Analytical Balance:	24650344

Instrumentation

Batch drying time			Oven Temp, C
Record times as mm/dd/yy hh:mm			
Date/time in oven:	08/23/21	14:23	108
Date/time out:	08/24/21	0530	107
Elapsed hrs:	0.0		

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:	108
End Temp:	107

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21G0283-11	0.90	11.285	7.66			No
21G0283-12	0.80	11.47	8.31			No
21G0283-13	0.90	11.43	8.66			No
21G0283-14	0.80	11.86	9.23			~~No~~ yes
21G0283-15	0.81	11.11	8.51			~~No~~ yes
21G0283-16	0.82	11.06	8.67			~~No~~ yes
21G0283-17	0.82	11.42	9.77			No
21G0283-18	0.82	11.69	9.43			No
21G0301-01	0.81	11.20	6.16 M 8/27/21			~~No~~ yes
21G0301-02	0.82	11.23	4.8781			~~No~~ yes
21G0301-03	0.80	11.51	3.52			~~No~~ yes
21G0301-04	0.81	11.25	4.31			~~No~~ yes

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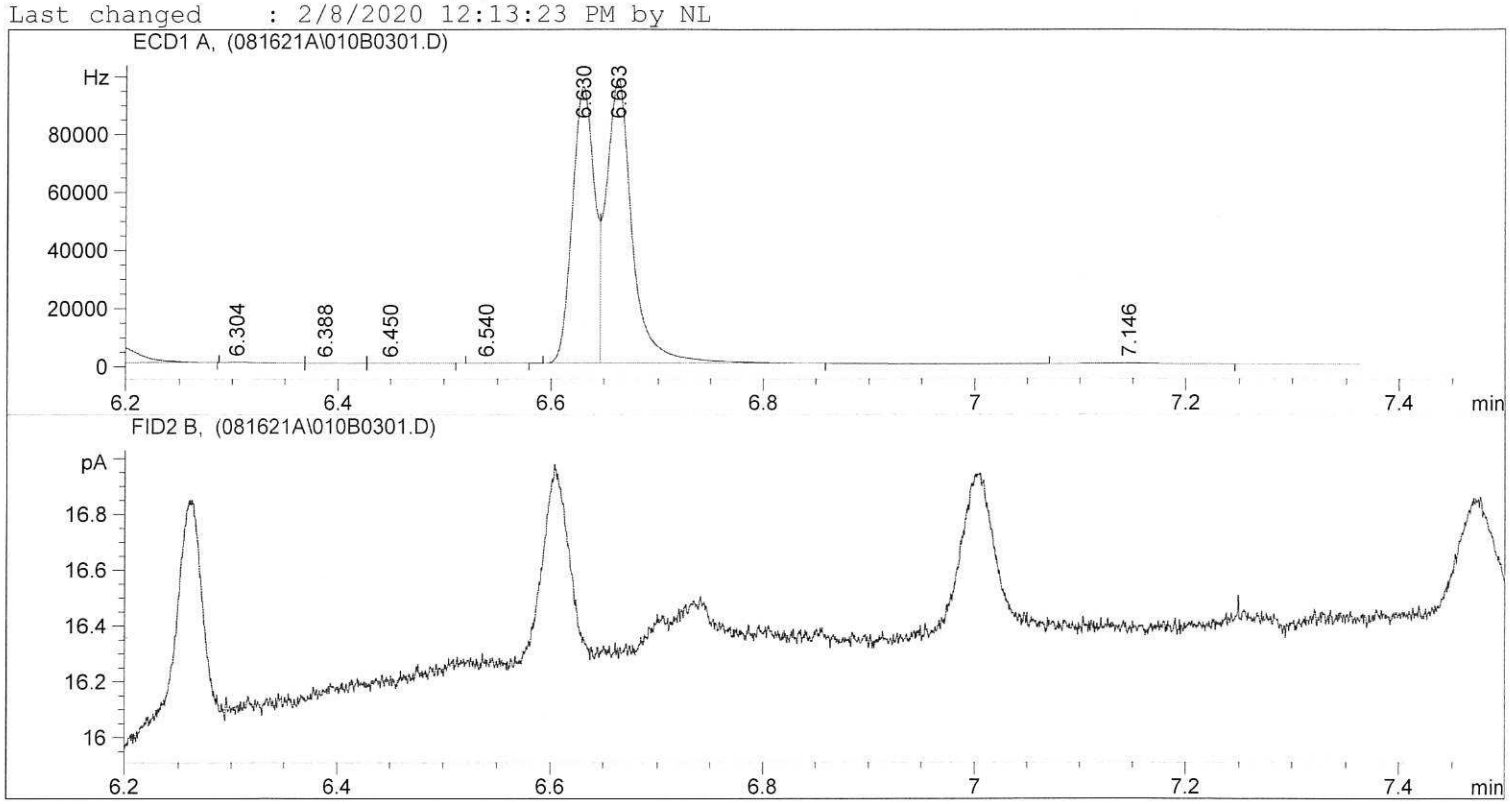
Injection Date : 8/16/2021 2:44:42 PM Seq. Line : 3
Sample Name : CS4 STANDARD Location : Vial 10
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	5.333	BP	0.0113	42.28254	51.68651	0.00353
2	5.402	PV	0.0111	32.00731	36.19876	0.00267
3	5.426	VP	7.00e-3	8.91731	16.25421	0.00074
4	5.478	VV S	0.0262	1.65152e5	8.52720e4	13.77963
5	5.580	VV S	0.0398	2.58763e5	1.08267e5	21.59013
6	5.639	VV S	0.0226	9.67790e4	7.14070e4	8.07486
7	5.686	VB S	0.0285	9.74123e4	5.69378e4	8.12770
8	5.937	PP S	0.0190	9.65539e4	7.48863e4	8.05608
9	6.087	VV S	0.0190	8.74202e4	6.69179e4	7.29399
10	6.166	VB S	0.0251	9.15690e4	6.08649e4	7.64016
11	6.304	BP	0.0149	290.28574	237.10280	0.02422
12	6.388	BP	0.0153	40.86504	32.46574	0.00341
13	6.450	VP	0.0160	75.80196	57.25101	0.00632
14	6.540	BB	0.0198	135.52065	82.53667	0.01131
15	6.630	BV S	0.0216	1.36907e5	9.53467e4	11.42301
16	6.663	VB S	0.0282	1.65510e5	9.79487e4	13.80953
17	7.146	BB	0.0509	1179.96814	280.36200	0.09845

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	7.680	PB	0.0283	650.21191	277.96936	0.05425

Totals : 1.19852e6 7.18919e5

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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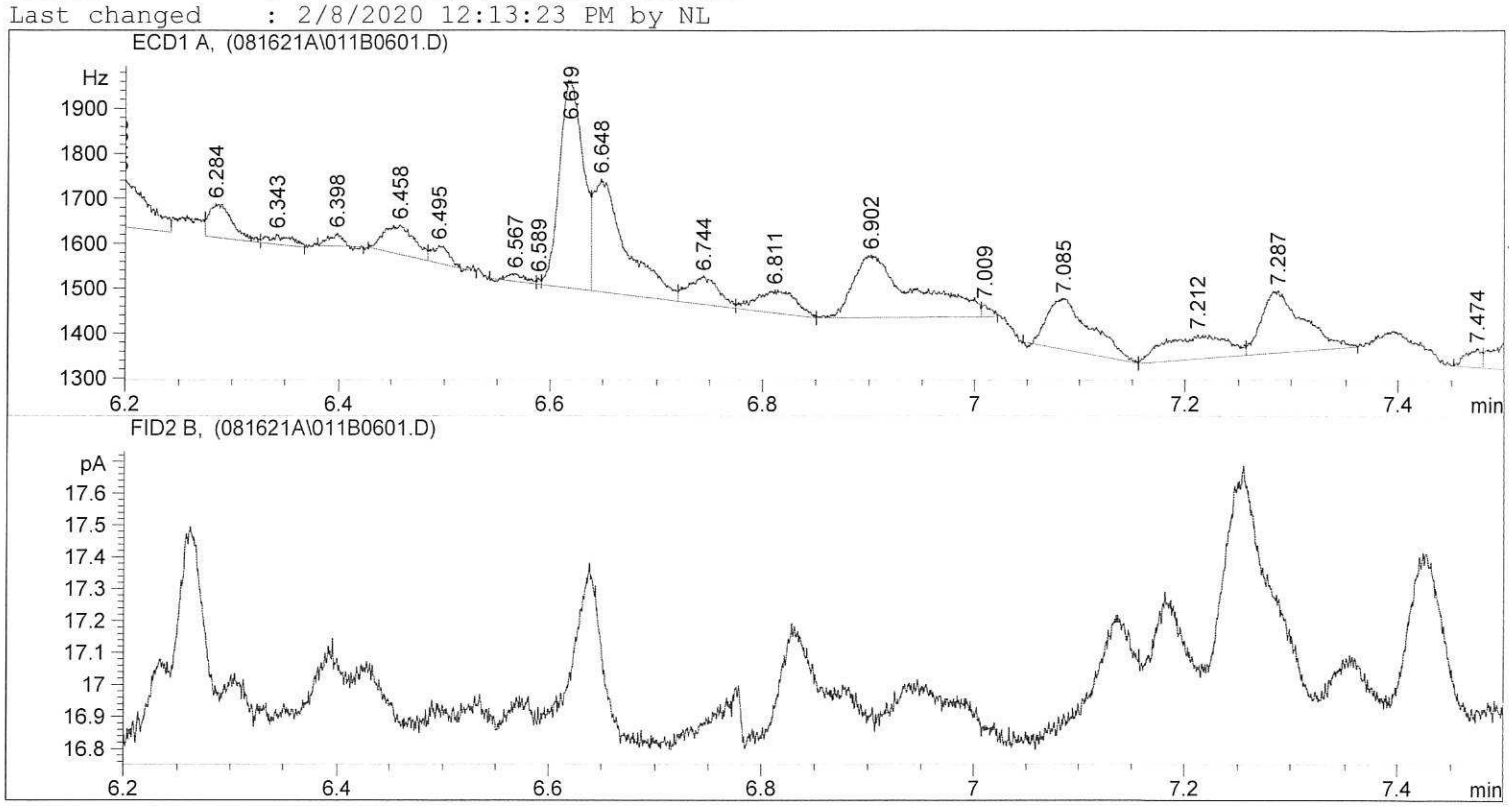
Injection Date : 8/16/2021 3:18:14 PM Seq. Line : 6
Sample Name : 21G0211 11 Location : Vial 11
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	5.212	BP	8.25e-3	10.96626	17.17222	0.10789
2	5.232	VV	7.88e-3	10.87220	17.42668	0.10697
3	5.261	VP	0.0160	190.08360	141.95624	1.87012
4	5.361	BV	0.0289	699.93500	288.07443	6.88626
5	5.422	VV	0.0212	358.51840	208.65468	3.52726
6	5.463	VP	0.0206	1072.51392	711.20215	10.55185
7	5.582	BP	0.0214	144.38051	84.29297	1.42048
8	5.633	VV	0.0126	50.28152	49.83515	0.49469
9	5.684	VP	0.0175	511.76511	429.53354	5.03497
10	5.749	PB	0.0152	437.57135	349.30188	4.30502
11	5.796	BP	0.0159	34.66954	26.37218	0.34109
12	5.865	BP	0.0217	613.19385	345.53580	6.03286
13	5.929	VV	0.0189	321.94241	203.03969	3.16741
14	5.984	VV	0.0326	541.84558	197.50143	5.33091
15	6.074	VV	0.0402	677.20801	198.47299	6.66266
16	6.152	VV	0.0169	136.83975	100.69720	1.34629
17	6.195	VV	0.0376	339.19507	108.14573	3.33715

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.284	BV	0.0190	117.29034	73.70972	1.15395
19	6.343	VP	0.0173	31.23156	22.38280	0.30727
20	6.398	BB	9.71e-3	22.86304	28.66142	0.22494
21	6.458	BV	0.0236	128.43600	65.62981	1.26361
22	6.495	VB	0.0142	46.81543	40.05126	0.46059
23	6.567	PV	0.0139	18.68308	17.12785	0.18381
24	6.589	VV	2.79e-3	2.72835	14.51992	0.02684
25	6.619	VV	0.0194	721.73334	461.92270	7.10072
26	6.648	VV	0.0258	545.90631	250.59569	5.37086
27	6.744	VV	0.0236	121.53487	62.23483	1.19571
28	6.811	VP	0.0319	132.16821	51.25411	1.30033
29	6.902	VV	0.0489	554.01880	139.07626	5.45068
30	7.009	VB	7.79e-3	15.25171	27.00801	0.15005
31	7.085	PP	0.0346	324.40469	111.41737	3.19163
32	7.212	VV	0.0505	219.96375	52.69460	2.16410
33	7.287	VV	0.0327	373.84320	137.73981	3.67803
34	7.474	PV	0.0128	42.09189	40.93198	0.41412
35	7.508	VP	0.0317	185.90649	70.19151	1.82903
36	7.628	BB	0.0379	407.57001	127.52931	4.00985
Totals :				1.01642e4	5271.89392	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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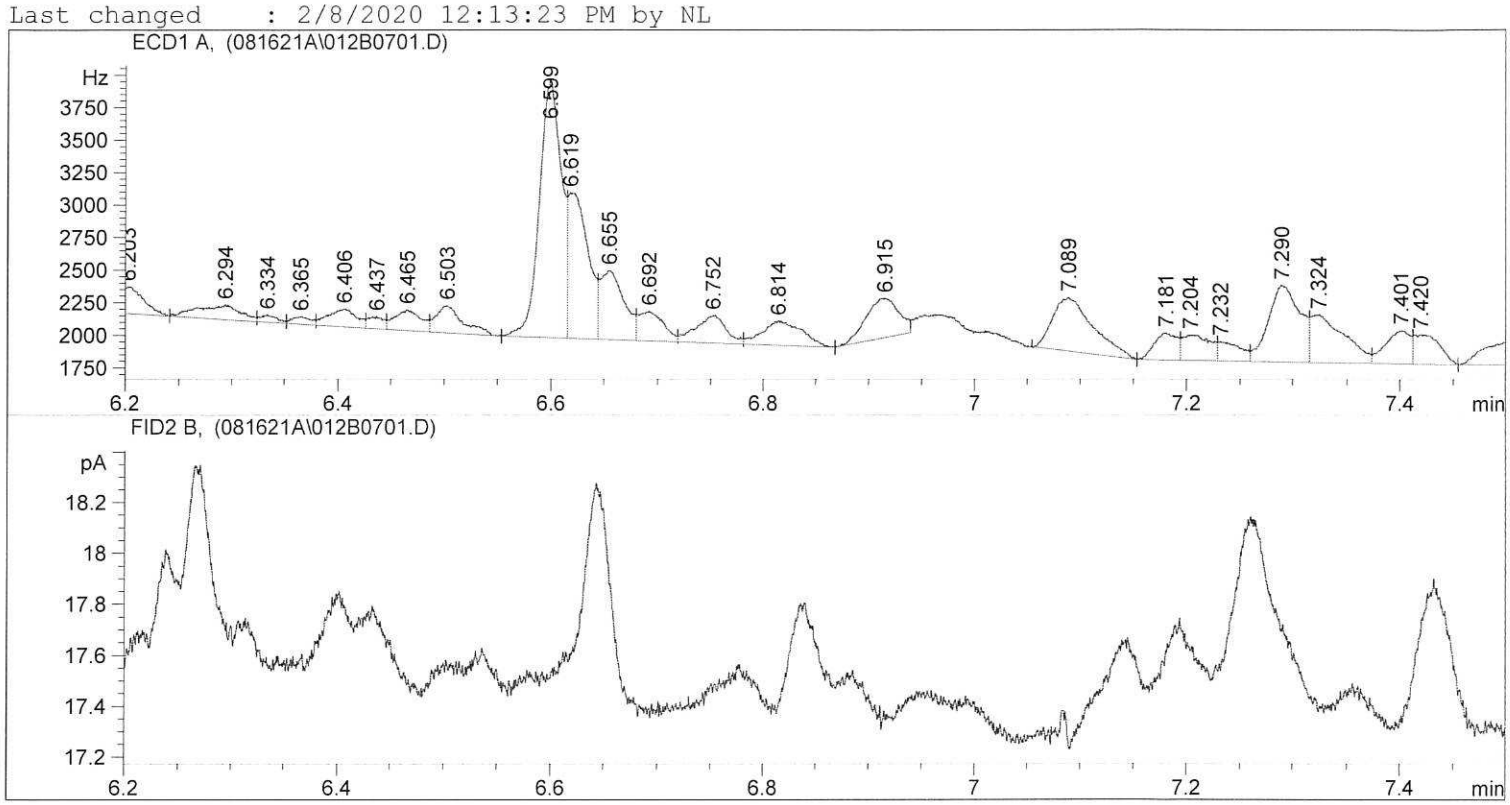
Injection Date : 8/16/2021 3:29:31 PM Seq. Line : 7
Sample Name : 21G0211 12 Location : Vial 12
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	5.226	BV	0.0170	78.02245	55.55360	0.31730
2	5.261	VP	0.0193	152.97911	95.37201	0.62214
3	5.364	BV	0.0317	398.75211	153.42499	1.62166
4	5.422	VV	0.0204	487.67325	296.37292	1.98329
5	5.466	VV	0.0174	753.29102	557.73615	3.06351
6	5.486	VV	0.0224	536.11676	286.59308	2.18030
7	5.544	VV	0.0111	48.14554	53.25255	0.19580
8	5.589	VV	0.0218	295.86087	161.18803	1.20322
9	5.638	VV	0.0137	31.00548	29.52435	0.12609
10	5.652	VP	7.98e-3	11.64600	18.40384	0.04736
11	5.689	BP	0.0160	263.61057	232.12897	1.07206
12	5.723	VP	3.45e-3	2.63145	11.57162	0.01070
13	5.754	VB	0.0221	1557.95740	940.53839	6.33595
14	5.872	PP	0.0237	515.75751	272.41174	2.09750
15	5.932	VV	0.0186	331.33478	214.32764	1.34748
16	5.973	VB	0.0351	1021.14685	342.96533	4.15283
17	6.078	BV	0.0330	690.55249	253.08759	2.80836

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.123	VV	0.0161	137.42126	102.29381	0.55887
19	6.154	VV	0.0138	135.01547	119.65058	0.54909
20	6.203	VV	0.0322	566.90137	207.97575	2.30549
21	6.294	VV	0.0322	311.45273	114.28229	1.26663
22	6.334	VB	0.0138	61.30061	55.21748	0.24930
23	6.365	BV	0.0141	69.11378	59.79422	0.28107
24	6.406	VV	0.0228	254.13617	135.90611	1.03353
25	6.437	VV	0.0119	92.71971	93.67887	0.37708
26	6.465	VV	0.0203	266.58167	159.20950	1.08414
27	6.503	VP	0.0224	372.03778	211.01730	1.51302
28	6.599	VV	0.0178	2894.68823	1983.43738	11.77221
29	6.619	VV	0.0158	1458.87024	1119.03455	5.93298
30	6.655	VV	0.0195	814.39459	530.42157	3.31201
31	6.692	VV	0.0205	368.45233	227.35486	1.49843
32	6.752	VV	0.0242	430.86655	212.73085	1.75226
33	6.814	VP	0.0313	494.63153	188.27330	2.01158
34	6.915	VV	0.0259	652.74249	301.08743	2.65459
35	7.089	PP	0.0314	1080.48486	411.86874	4.39415
36	7.181	VV	0.0176	309.23056	209.21332	1.25759
37	7.204	VV	0.0224	352.54724	196.30632	1.43375
38	7.232	VV	0.0243	218.48087	149.96095	0.88852
39	7.290	VV	0.0248	1220.10168	587.93274	4.96195
40	7.324	VV	0.0266	793.47974	367.24115	3.22695
41	7.401	VV	0.0196	424.79813	258.66019	1.72758
42	7.420	VP	0.0206	388.64175	228.92369	1.58054
43	7.512	VV	0.0338	672.91827	245.05428	2.73665
44	7.563	VV	0.0220	118.93603	64.81478	0.48369
45	7.628	VV	0.0394	1738.47644	523.03485	7.07009
46	7.729	VP	0.0296	705.11139	283.88614	2.86757
47	7.798	VBA	0.0151	8.14787	9.00620	0.03314
Totals :				2.45892e4	1.33317e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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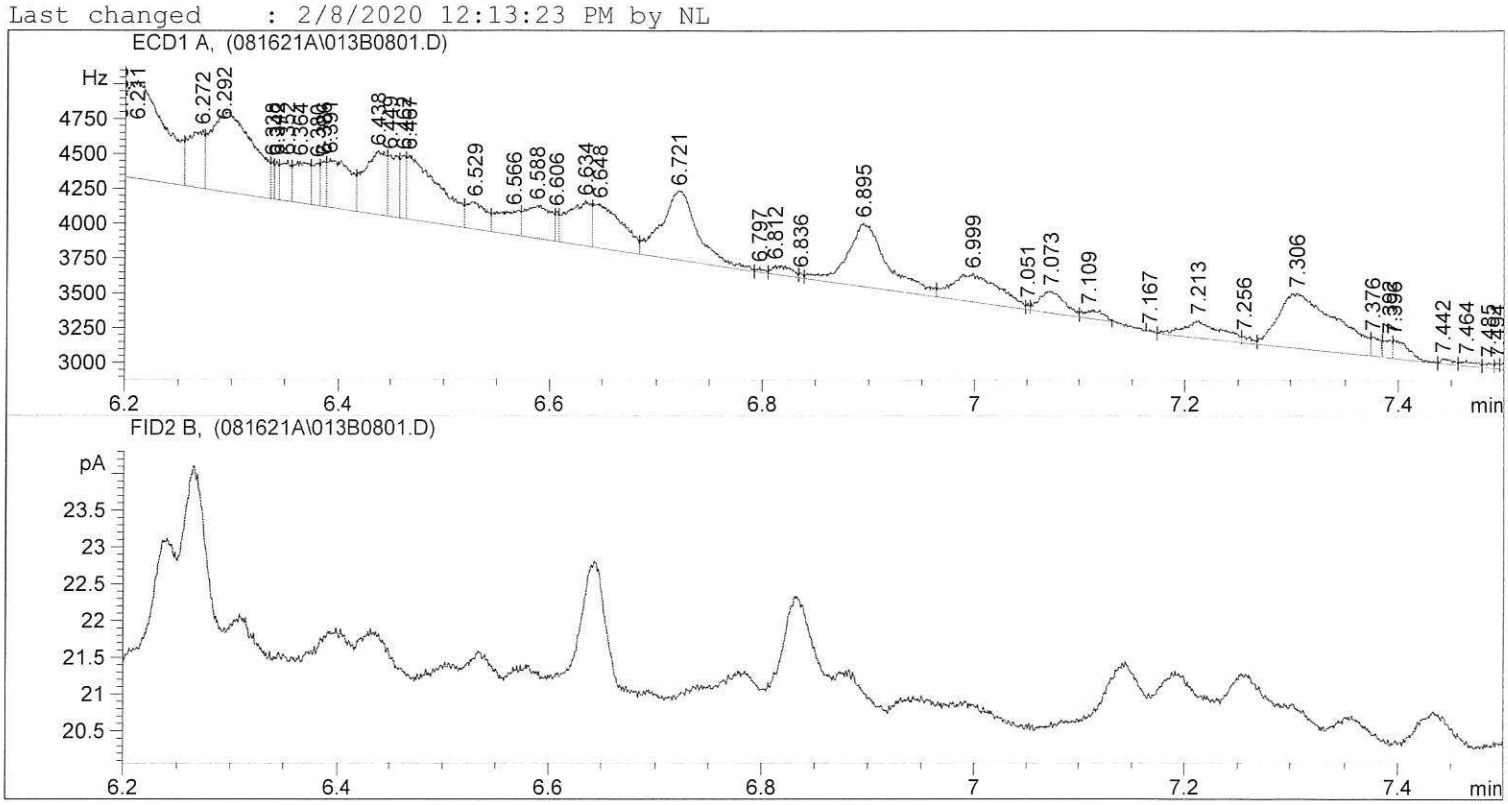
Injection Date : 8/16/2021 3:40:44 PM Seq. Line : 8
Sample Name : 21G0211 13 Location : Vial 13
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	5.239	PV	7.21e-3	34.93367	72.62759	0.06431
2	5.258	VV	0.0128	381.72946	360.06940	0.70270
3	5.280	VP	0.0151	383.00775	307.74118	0.70505
4	5.314	VP	3.06e-3	7.91120	37.53637	0.01456
5	5.349	VV	0.0218	1966.17029	1101.63989	3.61938
6	5.421	VV	0.0198	921.44373	576.94238	1.69622
7	5.438	VV	3.49e-3	123.12987	497.68790	0.22666
8	5.459	VV	0.0228	1281.78027	673.68787	2.35954
9	5.514	VV	0.0259	1802.24890	857.00482	3.31763
10	5.543	VV	9.92e-3	302.65866	387.23532	0.55714
11	5.587	VV	0.0322	3024.03784	1108.33801	5.56673
12	5.631	VV	3.31e-3	92.34595	397.51794	0.16999
13	5.653	VV	0.0202	1120.91870	679.82684	2.06342
14	5.689	VV	0.0240	1953.34265	973.39093	3.59577
15	5.747	VV	0.0315	2815.45605	1076.51672	5.18277
16	5.773	VV	3.32e-3	118.87049	509.21719	0.21882
17	5.796	VV	0.0191	1160.25879	747.65131	2.13584

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.819	VV	0.0182	1091.75378	725.05060	2.00973
19	5.834	VV	4.32e-3	179.52690	692.04279	0.33048
20	5.870	VV	0.0290	4568.09375	1931.48901	8.40908
21	5.953	VV	0.0305	5810.71680	2269.08887	10.69653
22	5.998	VV	7.14e-3	349.17850	622.53400	0.64278
23	6.027	VV	0.0183	2263.62305	1494.61243	4.16694
24	6.054	VV	0.0190	1580.54736	1038.18176	2.90952
25	6.073	VV	0.0174	1126.76379	794.07733	2.07418
26	6.101	VV	0.0156	701.89557	537.96655	1.29207
27	6.126	VV	0.0114	339.39859	495.98752	0.62477
28	6.144	VV	0.0167	697.54279	499.30783	1.28406
29	6.178	VV	0.0191	985.53522	649.03992	1.81420
30	6.191	VV	3.60e-3	149.60793	581.93933	0.27540
31	6.195	VV	3.31e-3	133.07779	573.04102	0.24497
32	6.211	VV	0.0301	1762.46082	696.61810	3.24439
33	6.272	VV	0.0132	421.86154	417.23126	0.77657
34	6.292	VV	0.0333	1634.09241	586.43060	3.00808
35	6.338	VV	3.04e-3	49.16954	269.21393	0.09051
36	6.342	VV	3.61e-3	71.09702	275.79840	0.13088
37	6.352	VV	8.11e-3	186.75487	290.23721	0.34378
38	6.364	VV	0.0167	299.38638	298.55173	0.55112
39	6.380	VV	6.70e-3	144.29427	306.28922	0.26562
40	6.386	VV	4.81e-3	106.91557	327.15176	0.19681
41	6.391	VV	0.0187	544.50824	346.99661	1.00235
42	6.438	VV	0.0175	657.89514	454.26367	1.21107
43	6.449	VB	8.22e-3	289.10577	442.45322	0.53219
44	6.462	BV	5.64e-3	172.42883	453.36191	0.31741
45	6.467	VV	0.0358	981.65454	457.60336	1.80706
46	6.529	VV	0.0166	248.67635	195.36934	0.45777
47	6.566	VV	0.0176	257.12280	174.54054	0.47332
48	6.588	VV	0.0202	399.07132	238.10391	0.73462
49	6.606	VV	3.22e-3	48.44828	215.77914	0.08918
50	6.634	VV	0.0190	490.16919	320.40433	0.90232
51	6.648	VV	0.0237	607.11786	317.52908	1.11760
52	6.721	VP	0.0290	1178.64600	495.08804	2.16968
53	6.797	VV	6.94e-3	14.11303	33.90224	0.02598
54	6.812	VV	0.0154	80.43694	66.18459	0.14807
55	6.836	VV	3.87e-3	8.69719	35.31104	0.01601
56	6.895	VV	0.0320	1192.83850	455.44171	2.19581
57	6.999	VV	0.0370	620.20490	201.87285	1.14169
58	7.051	VV	2.82e-3	9.20544	44.29552	0.01695
59	7.073	VV	0.0199	256.79437	155.46838	0.47271
60	7.109	VB	0.0162	76.25980	56.88168	0.14038
61	7.167	BP	3.42e-3	2.86939	12.76066	0.00528
62	7.213	VV	0.0288	300.49286	124.50662	0.55316
63	7.256	VV	8.16e-3	29.50064	46.76944	0.05431
64	7.306	VV	0.0448	1489.13770	392.86118	2.74125
65	7.376	VB	6.85e-3	77.52623	140.21498	0.14271
66	7.392	BV	7.26e-3	72.12997	134.42140	0.13278
67	7.396	VP	0.0128	141.61646	134.93335	0.26069
68	7.442	VV	9.24e-3	27.09124	37.45078	0.04987
69	7.464	VV	9.98e-3	35.44694	43.15975	0.06525
70	7.485	VV	6.57e-3	19.57711	37.04186	0.03604
71	7.494	VV	4.34e-3	11.06547	42.49794	0.02037
72	7.516	VB	0.0235	131.02704	67.25320	0.24120
73	7.634	PV	0.0397	1524.50916	467.14877	2.80636
74	7.741	VV	0.0230	168.19028	88.25833	0.30961
75	7.782	VB	5.98e-3	10.11601	21.94193	0.01862
76	7.793	BPA	5.05e-3	6.14488	16.11033	0.01131
Totals :				5.43234e4	3.37047e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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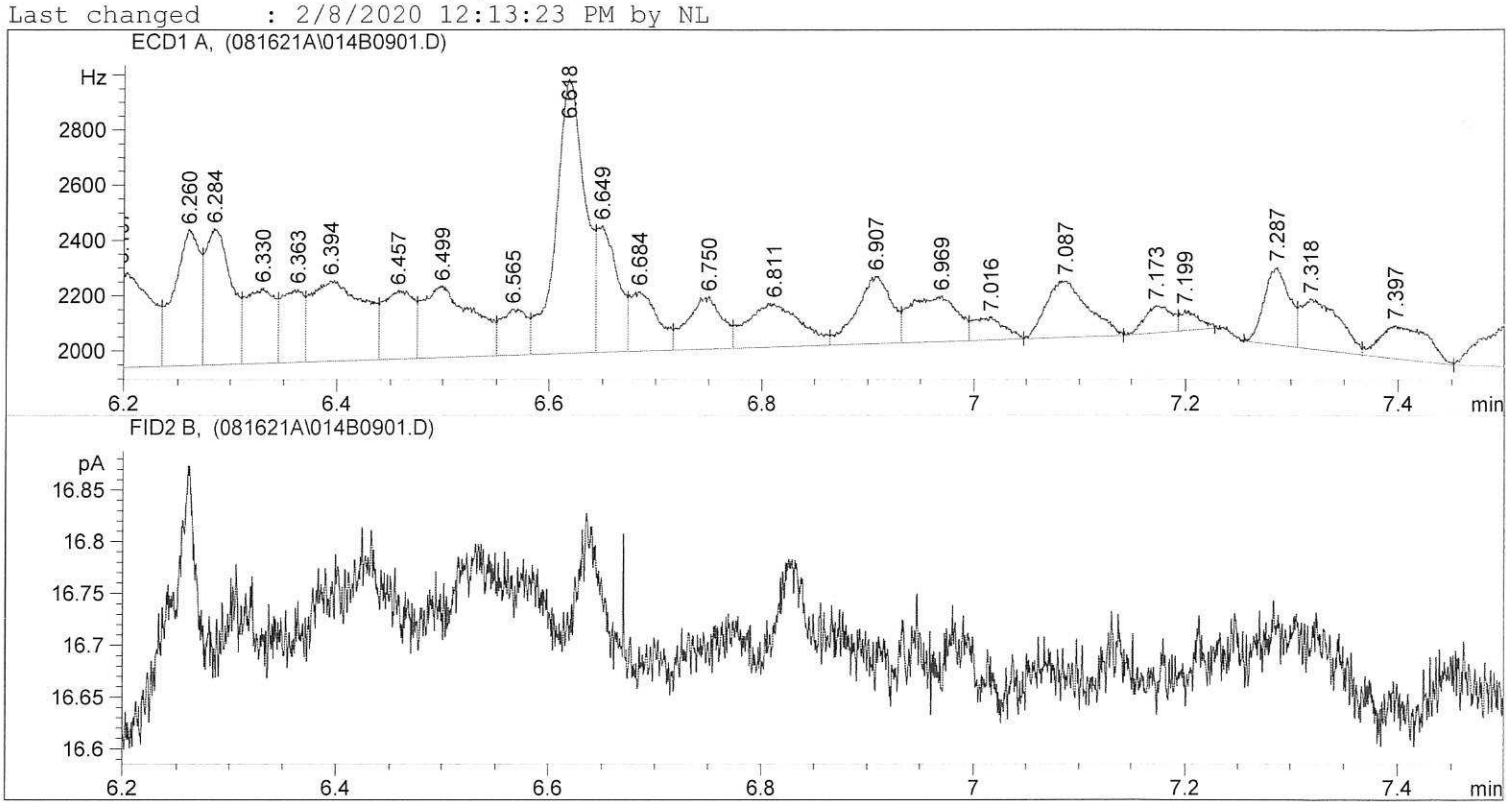
*** End of Report ***

Injection Date : 8/16/2021 3:51:42 PM Seq. Line : 9
Sample Name : 21G0211 14 Location : Vial 14
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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	5.209	BP	0.0143	111.62212	99.25995	0.33724
2	5.262	VV	0.0141	200.40782	172.69510	0.60548
3	5.307	VV	0.0159	156.50058	119.44688	0.47283
4	5.363	VV	0.0207	821.76129	482.79984	2.48276
5	5.399	VV	0.0112	122.81950	134.61639	0.37107
6	5.464	VV	0.0223	1682.89136	1037.80823	5.08446
7	5.500	VV	0.0117	165.63057	184.53796	0.50041
8	5.511	VV	7.20e-3	101.80000	180.04243	0.30756
9	5.541	VV	0.0265	632.22607	284.86411	1.91012
10	5.576	VV	0.0129	239.78793	223.71535	0.72446
11	5.610	VV	0.0324	748.43756	274.32132	2.26123
12	5.686	VV	0.0280	1126.10498	482.16162	3.40226
13	5.721	VV	0.0156	423.81436	329.60916	1.28046
14	5.752	VV	0.0265	1460.17517	712.50140	4.41158
15	5.813	VV	0.0269	947.50867	440.74976	2.86267
16	5.845	VV	0.0331	2752.78540	1045.95813	8.31689
17	5.935	VV	0.0288	1119.23254	459.63513	3.38150

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.968	VV	0.0184	750.10010	497.61664	2.26625
19	5.982	VV	0.0338	976.53528	481.21661	2.95037
20	6.024	VV	0.0136	427.80972	383.33716	1.29253
21	6.077	VV	0.0420	1604.92175	452.07501	4.84889
22	6.123	VV	0.0160	446.61606	339.25729	1.34935
23	6.152	VV	0.0169	388.40909	327.03455	1.17349
24	6.197	VV	0.0479	1443.44189	354.43832	4.36102
25	6.260	VV	0.0204	834.68707	491.34549	2.52181
26	6.284	VV	0.0209	863.73016	492.20264	2.60956
27	6.330	VV	0.0228	509.46506	272.75922	1.53923
28	6.363	VV	0.0179	391.41873	264.42130	1.18258
29	6.394	VV	0.0408	1001.90399	290.71896	3.02702
30	6.457	VV	0.0248	496.92197	247.79927	1.50133
31	6.499	VV	0.0395	851.07568	257.78857	2.57132
32	6.565	VV	0.0212	285.36755	166.48688	0.86217
33	6.618	VV	0.0237	1876.60596	991.01312	5.66972
34	6.649	VV	0.0163	618.10675	458.28052	1.86746
35	6.684	VV	0.0219	393.19571	216.97002	1.18795
36	6.750	VV	0.0265	421.06320	189.99043	1.27214
37	6.811	VV	0.0416	552.43646	158.07669	1.66906
38	6.907	VV	0.0274	561.89294	244.50520	1.69763
39	6.969	VV	0.0363	506.74677	165.61131	1.53102
40	7.016	VV	0.0250	170.18158	82.08682	0.51416
41	7.087	VP	0.0329	562.06122	204.35814	1.69814
42	7.173	VV	0.0209	168.05717	98.59528	0.50775
43	7.199	VB	0.0139	85.50190	73.68138	0.25832
44	7.287	PV	0.0203	467.25272	282.19080	1.41169
45	7.318	VV	0.0308	461.73874	180.47997	1.39503
46	7.397	VP	0.0368	374.94589	120.97527	1.13281
47	7.509	VV	0.0353	490.79315	164.91220	1.48282
48	7.624	BV	0.0372	960.44727	309.94104	2.90176
49	7.727	VP	0.0289	325.47403	133.21556	0.98334
50	7.795	VP	0.0154	16.31529	14.45991	0.04929
Totals :				3.30987e4	1.60726e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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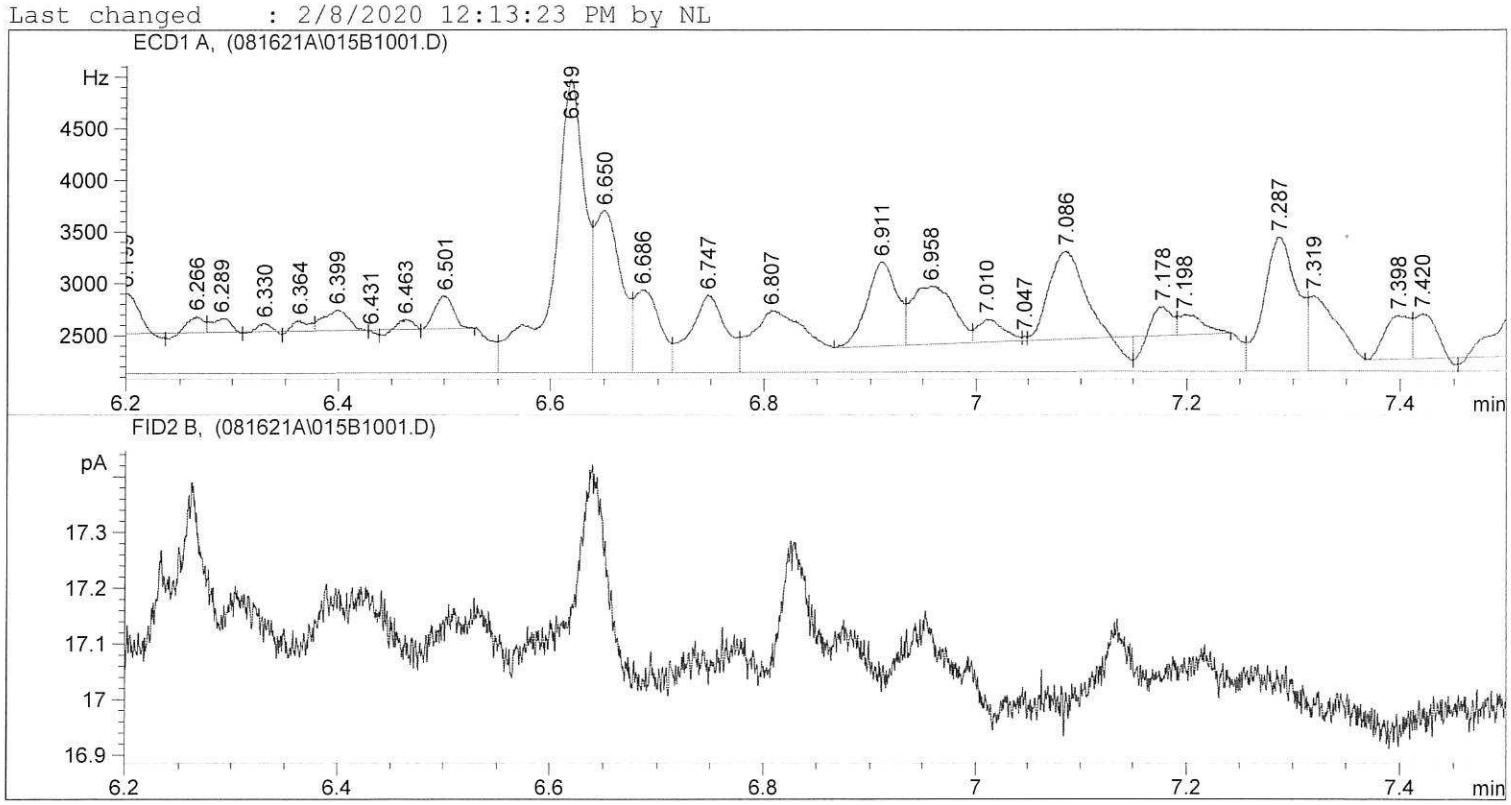
Injection Date : 8/16/2021 4:03:00 PM Seq. Line : 10
Sample Name : 21G0211 15 Location : Vial 15
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	5.234	PP	9.00e-3	15.40249	21.91763	0.02004
2	5.273	VV	0.0235	138.37114	71.14323	0.18003
3	5.322	VV	0.0203	152.44331	91.34633	0.19834
4	5.372	VV S	0.1492	2.68037e4	2139.17285	34.87356
5	5.419	BV T	0.0000	65.22929	28.00109	0.08487
6	5.480	VV T	0.0137	508.93808	454.36008	0.66217
7	5.521	VV T	0.0231	177.63869	92.13066	0.23112
8	5.554	VV T	0.0219	178.48540	98.69140	0.23222
9	5.576	VV T	0.0977	371.41672	44.55194	0.48324
10	5.640	VV T	0.0133	103.18419	106.28375	0.13425
11	5.687	VV T	0.0000	36.74729	152.92175	0.04781
12	5.751	VV T	0.0121	204.52086	218.98259	0.26610
13	5.797	VV T	0.0132	55.26270	51.11326	0.07190
14	5.855	VV T	0.0200	738.16144	479.04214	0.96040
15	5.889	VV T	0.0134	233.99303	213.56087	0.30444
16	5.964	VV T	0.0226	933.65137	519.26166	1.21475
17	5.984	VV T	0.0196	825.10229	518.46600	1.07352

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.028	VV T	9.22e-3	50.19678	90.76527	0.06531
19	6.076	VV T	0.0201	990.05878	630.01605	1.28814
20	6.123	VV T	0.0149	272.15955	219.68211	0.35410
21	6.158	VV T	0.0191	342.74399	218.47218	0.44594
22	6.199	VV T	0.0251	815.39917	390.94095	1.06090
23	6.266	VV T	0.0113	136.52698	157.62415	0.17763
24	6.289	VV T	0.0153	169.19966	134.12453	0.22014
25	6.330	VV T	8.85e-3	54.51534	81.06229	0.07093
26	6.364	VV T	0.0126	107.13680	104.30759	0.13939
27	6.399	VV T	0.0196	318.72739	197.71257	0.41469
28	6.431	VV T	0.1743	15.42904	1.47554	0.02007
29	6.463	VV T	8.85e-3	70.51886	97.38900	0.09175
30	6.501	VB T	0.0160	391.06168	316.73462	0.50880
31	6.619	VV S	0.0348	5890.73340	2824.94751	7.66428
32	6.650	VV S	0.0288	2703.09692	1563.13147	3.51693
33	6.686	VV S	0.0279	1330.84204	796.03333	1.73152
34	6.747	VV S	0.0393	1759.73364	747.19562	2.28954
35	6.807	VV S	0.2601	9321.81055	597.24377	12.12837
36	6.911	BV T	0.0253	1617.33203	808.21484	2.10427
37	6.958	VV T	0.0327	1550.70911	560.20062	2.01759
38	7.010	VV T	0.0208	387.90189	221.49501	0.50469
39	7.047	VV T	4.11e-3	11.02532	44.66824	0.01434
40	7.086	VV T	0.0269	1797.05566	847.92065	2.33810
41	7.178	VV T	0.0104	234.69107	279.85013	0.30535
42	7.198	VB T	0.0272	316.59320	194.26596	0.41191
43	7.287	VV S	0.0362	2811.94287	1293.22778	3.65855
44	7.319	VBAS	0.1287	5645.00684	730.77515	7.34458
45	7.398	BV T	0.0204	687.53558	422.51633	0.89454
46	7.420	VV T	0.0162	582.96094	434.73016	0.75848
47	7.512	VV T	0.0289	1079.79114	452.19510	1.40489
48	7.568	VV T	0.0152	134.81200	107.45117	0.17540
49	7.625	VV T	0.0339	2955.57764	1073.21228	3.84543
50	7.724	VV T	0.0224	674.14368	382.00391	0.87711
51	7.796	VBAT	0.0000	90.36000	24.83488	0.11757
Totals :				7.68595e4	2.23474e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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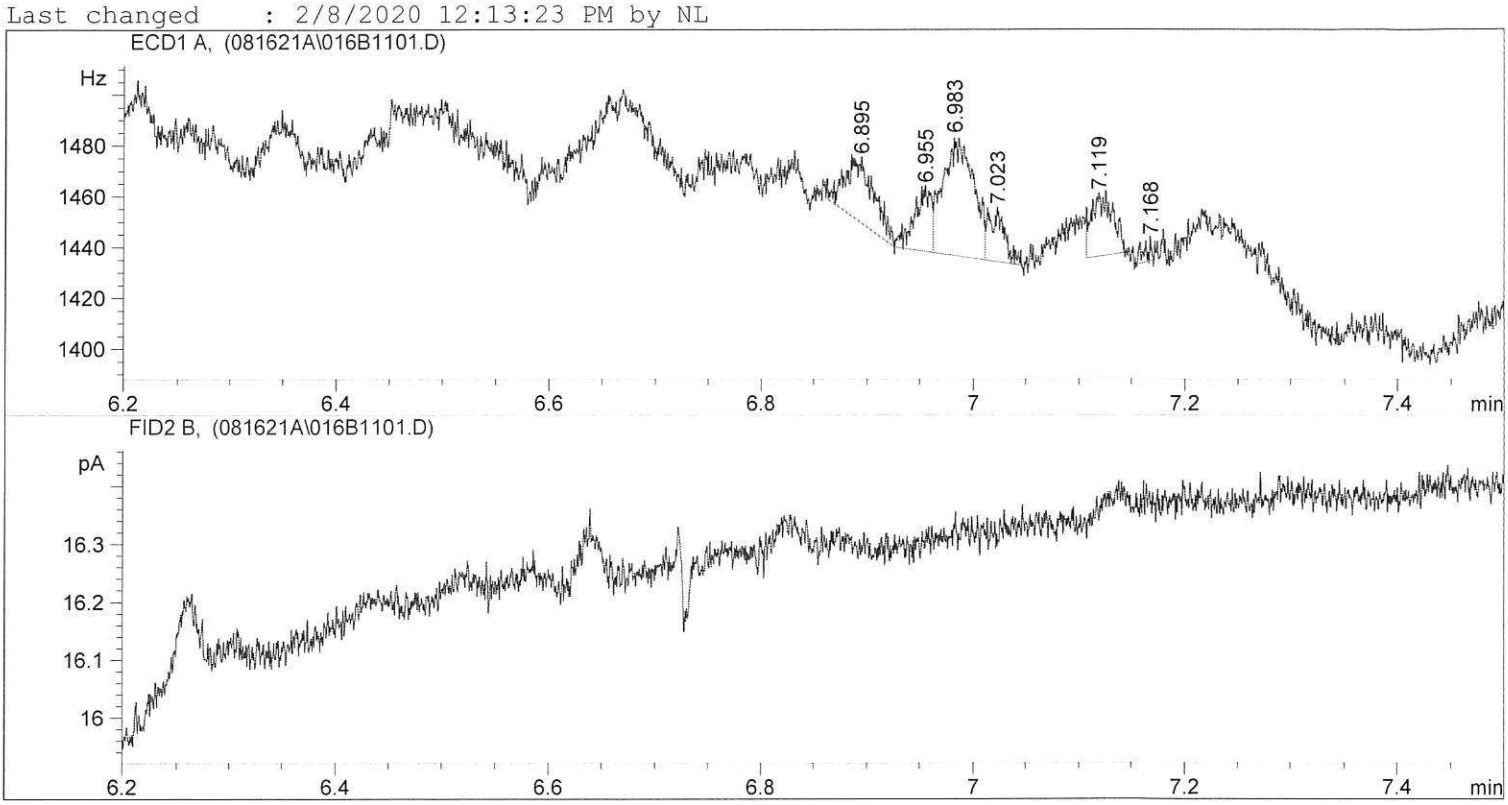
Injection Date : 8/16/2021 4:13:58 PM Seq. Line : 11
Sample Name : 21G0211 16 Location : Vial 16
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	5.381	PV	0.0188	150.85889	98.02295	5.21125
2	5.454	VV	0.0551	340.00046	72.82288	11.74492
3	5.582	VV	0.0366	218.96590	71.37130	7.56392
4	5.710	VV	0.0554	883.88306	187.62891	30.53272
5	5.750	VV	0.0261	426.07877	194.96951	14.71840
6	5.786	VB	0.0211	251.92842	141.93756	8.70258
7	5.940	PV	0.0278	146.60732	62.39424	5.06438
8	5.997	VB	0.0419	245.57205	69.05824	8.48300
9	6.895	BP	0.0221	46.48114	24.98483	1.60564
10	6.955	VV	0.0132	27.24001	24.75523	0.94097
11	6.983	VB	0.0242	91.40914	45.90022	3.15762
12	7.023	BP	0.0134	21.73863	20.17088	0.75094
13	7.119	BB	0.0173	33.96967	23.67589	1.17344
14	7.168	PP	5.91e-3	3.56070	7.82031	0.12300
15	7.515	BB	5.10e-3	3.64664	9.89517	0.12597
16	7.672	BP	4.65e-3	2.93118	8.44219	0.10125

Totals : 2894.87196 1063.85031

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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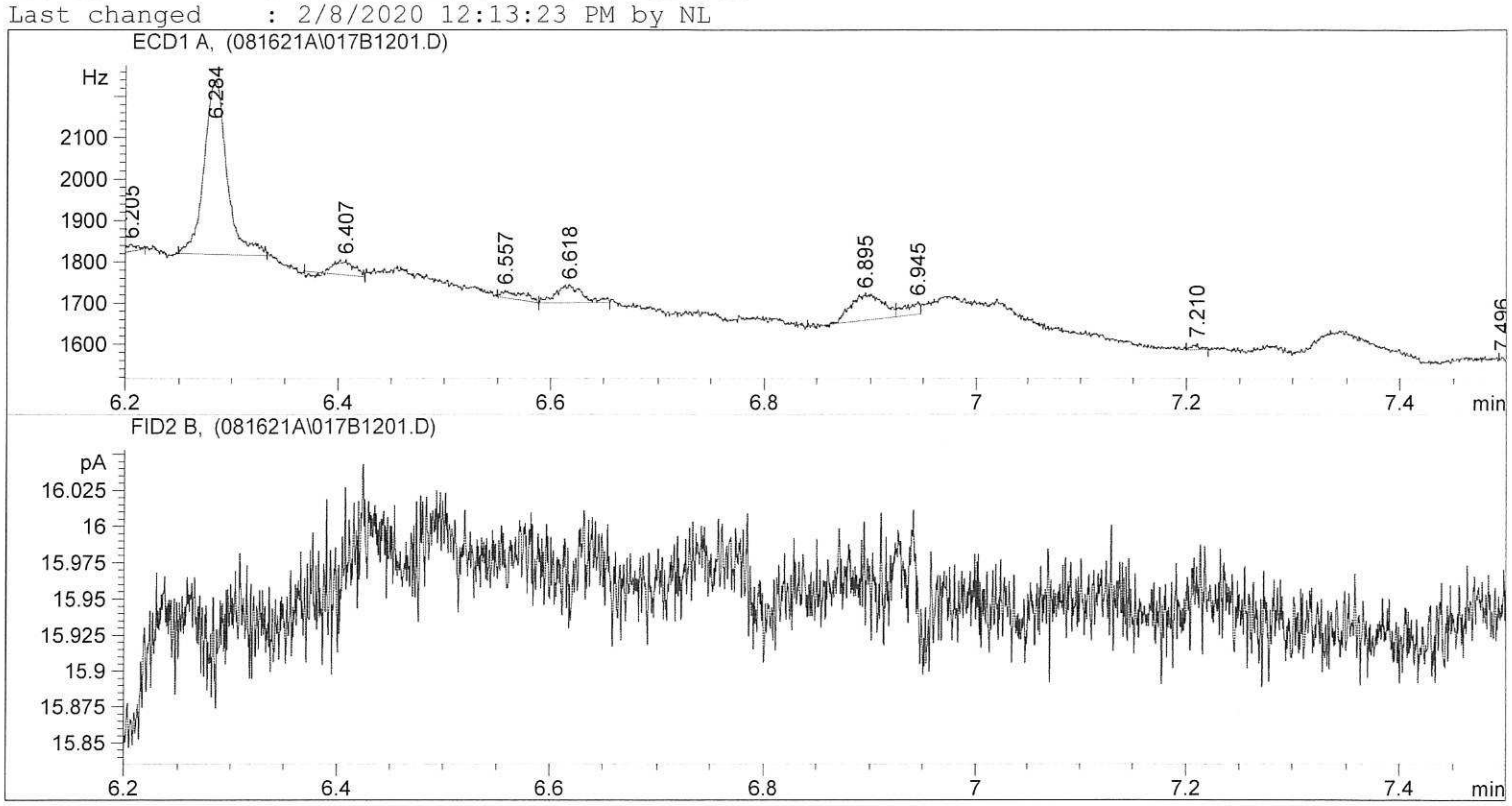
Injection Date : 8/16/2021 4:24:56 PM Seq. Line : 12
Sample Name : 21G0213 01 Location : Vial 17
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	BV	0.0160	205.73210	155.51630	2.52845
2	5.258	VB	0.0160	56.97937	43.13553	0.70028
3	5.313	BV	0.0178	64.50964	44.71950	0.79282
4	5.413	PV	0.0138	66.56680	63.53626	0.81811
5	5.437	VB	0.0122	41.93642	42.90457	0.51540
6	5.507	PV	0.0140	189.08459	162.59695	2.32385
7	5.535	VV	0.0292	873.24268	361.87119	10.73214
8	5.636	VV	0.0267	295.27625	133.20918	3.62894
9	5.684	VV	0.0363	564.04791	187.03505	6.93214
10	5.717	VV	0.0205	269.43997	159.88129	3.31141
11	5.760	VV	0.0286	372.59875	157.55580	4.57923
12	5.812	VV	0.0170	958.37659	724.05280	11.77844
13	5.845	VV	0.0248	1860.05676	985.54663	22.86008
14	5.926	VV	0.0166	254.78424	192.91806	3.13130
15	5.937	VV	0.0132	204.19328	192.69177	2.50953
16	5.976	VB	0.0405	773.61743	226.06139	9.50775
17	6.091	PP	5.05e-3	2.56126	7.38001	0.03148

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.205	BB	8.80e-3	11.45495	17.14299	0.14078
19	6.284	PB	0.0198	646.58960	422.76358	7.94658
20	6.407	PV	0.0133	38.28214	36.31280	0.47049
21	6.557	PP	0.0184	27.01112	17.67030	0.33197
22	6.618	VB	0.0208	74.74264	43.19617	0.91859
23	6.895	PV	0.0249	132.29596	64.04652	1.62592
24	6.945	VV	0.0118	30.33409	30.97333	0.37281
25	7.210	PP	6.21e-3	6.97615	14.50930	0.08574
26	7.496	BB	3.01e-3	1.68849	8.17283	0.02075
27	7.623	PB	0.0287	99.72289	41.45854	1.22559
28	7.748	BB	0.0138	14.60181	13.32593	0.17946
Totals :				8136.70390	4550.18458	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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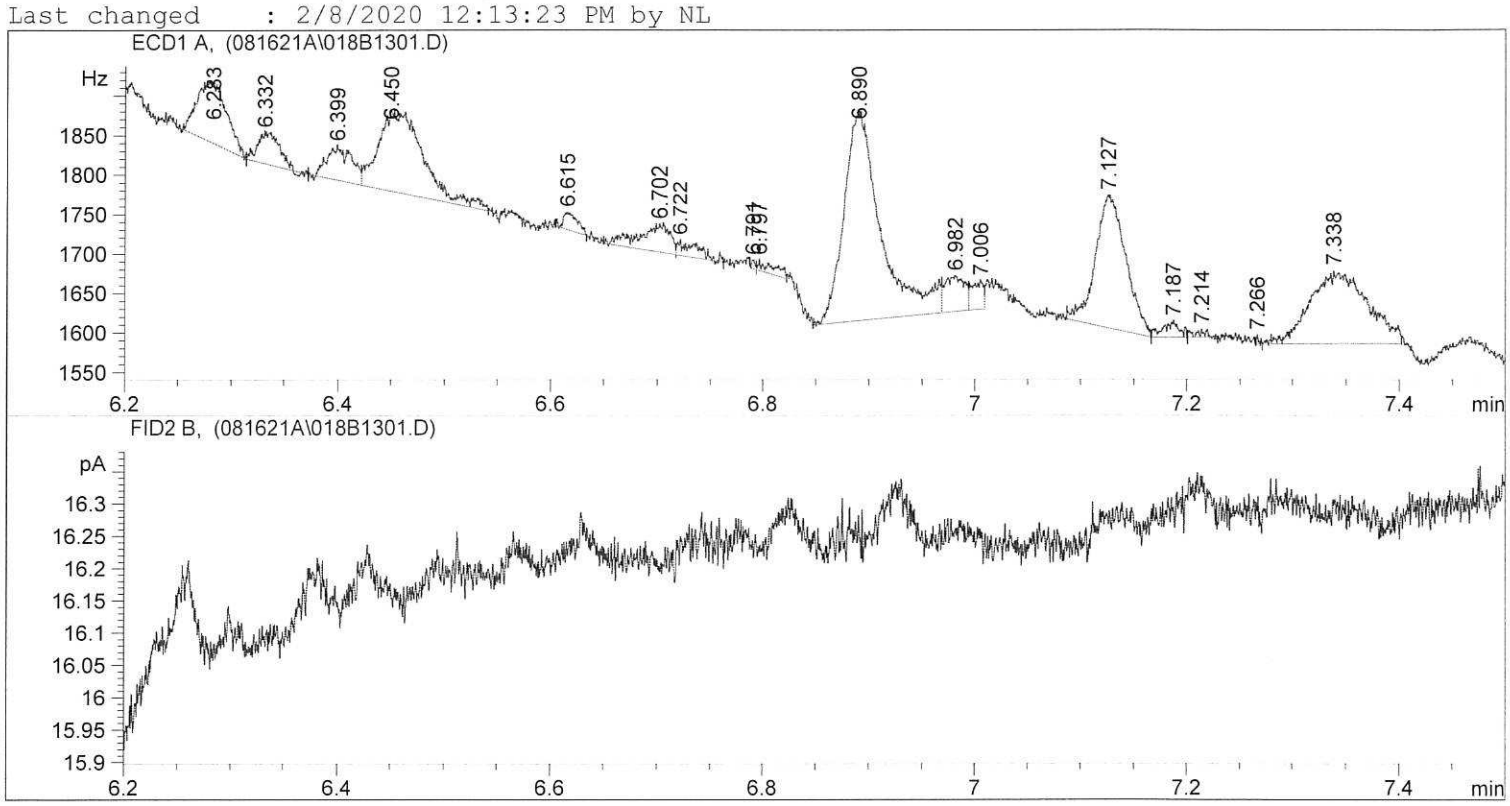
*** End of Report ***

Injection Date : 8/16/2021 4:36:07 PM Seq. Line : 13
Sample Name : 21G0213 02 Location : Vial 18
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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	0.0161	1157.16602	983.82733	4.83962
2	5.309	BV	9.84e-3	20.36056	25.17001	0.08515
3	5.331	VP	0.0108	12.26345	14.29851	0.05129
4	5.381	VV	0.0215	59.68969	32.97403	0.24964
5	5.438	VP	0.0340	163.67206	56.76722	0.68453
6	5.533	VV S	0.0261	4899.73242	2540.15259	20.49218
7	5.626	BV T	7.66e-3	33.66751	64.79018	0.14081
8	5.682	PV T	5.01e-3	36.62305	112.08379	0.15317
9	5.721	PV T	0.0376	47.78514	14.97742	0.19985
10	5.754	PV T	0.0000	15.57788	31.98955	0.06515
11	5.779	VP T	0.0712	57.87332	9.64758	0.24204
12	5.810	VV T	0.0000	1.94133	38.67386	0.00812
13	5.843	VB S	0.0199	1.49345e4	1.12110e4	62.46085
14	5.936	BB	0.0144	165.10124	143.71475	0.69050
15	6.017	PP	0.0000	4.36038e-1	7.05328	0.00182
16	6.050	PP	5.36e-3	3.19463	9.93237	0.01336
17	6.078	BV	0.0116	28.66918	33.46106	0.11990

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.104	VV	0.0223	93.85516	57.41257	0.39253
19	6.119	VB	8.16e-3	28.24647	44.75589	0.11814
20	6.283	PP	0.0231	149.47612	78.87479	0.62515
21	6.332	VP	0.0175	56.83772	38.70563	0.23771
22	6.399	BV	0.0196	69.97819	42.58013	0.29267
23	6.450	VB	0.0353	299.20697	101.31288	1.25138
24	6.615	BB	0.0123	21.29532	21.95043	0.08906
25	6.702	PV	0.0235	68.02126	34.62301	0.28449
26	6.722	VP	0.0154	24.48587	19.29089	0.10241
27	6.791	BV	3.67e-3	2.41380	10.54614	0.01010
28	6.797	VB	0.0187	14.48339	12.90909	0.06057
29	6.890	PB	0.0298	634.97009	264.57080	2.65564
30	6.982	BV	0.0161	58.44503	44.55871	0.24444
31	7.006	VV	9.67e-3	27.65025	34.81388	0.11564
32	7.127	BP	0.0234	329.80496	167.06122	1.37935
33	7.187	VP	0.0134	21.52773	19.86023	0.09004
34	7.214	VB	7.41e-3	5.79349	9.91996	0.02423
35	7.266	PB	2.07e-3	1.49954	10.45732	0.00627
36	7.338	BB	0.0452	336.13773	92.03970	1.40583
37	7.507	PB	3.09e-3	3.06561	14.33665	0.01282
38	7.558	PP	0.0166	23.24812	17.40932	0.09723
39	7.782	BB	2.50e-3	1.50836	9.24851	0.00631
Totals :				2.39103e4	1.64778e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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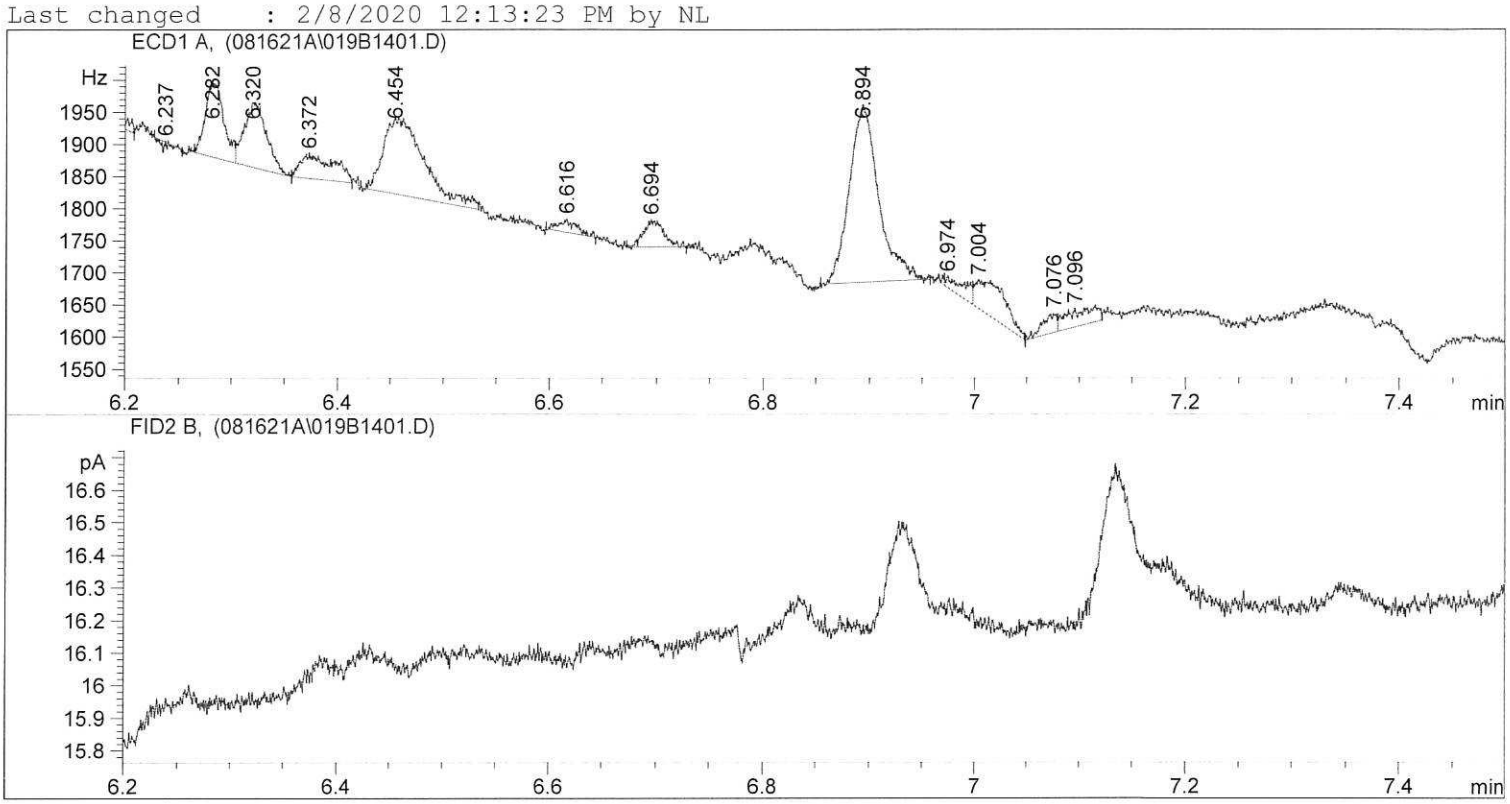
Injection Date : 8/16/2021 4:47:24 PM Seq. Line : 14
Sample Name : 21G0213 03 Location : Vial 19
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	BV	0.0130	182.16821	179.35579	1.42627
2	5.275	VV	0.0214	251.57515	141.31119	1.96969
3	5.304	VP	0.0141	187.92383	162.34755	1.47134
4	5.417	BP	0.0463	1033.00061	265.91220	8.08781
5	5.534	VV	0.0225	1174.45129	643.50024	9.19528
6	5.574	VV	0.0176	178.54124	124.10522	1.39788
7	5.612	VV	0.0171	150.66998	111.97705	1.17966
8	5.633	VV	7.75e-3	35.96130	57.05506	0.28156
9	5.641	VV	6.25e-3	23.90525	49.34677	0.18716
10	5.681	VV	0.0214	267.52390	153.07016	2.09456
11	5.711	VV	0.0215	1144.84766	721.56976	8.96350
12	5.754	VV	0.0149	214.14313	174.34471	1.67662
13	5.772	VB	0.0115	130.55995	139.62830	1.02221
14	5.814	BV	0.0149	315.47034	265.22626	2.46995
15	5.843	VB S	0.0218	4594.80420	2937.57788	35.97470
16	5.934	BV X	0.0229	193.94156	110.19531	1.51845
17	5.982	VV X	0.0223	604.94135	334.54022	4.73635

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.012	VB X	0.0187	257.12540	163.49596	2.01315
19	6.086	BV	0.0146	45.22735	38.75977	0.35410
20	6.097	VP	6.80e-3	22.30165	40.65989	0.17461
21	6.169	BP	0.0217	102.90672	56.41933	0.80570
22	6.237	PP	0.0000	4.03454	7.15473e-1	0.03159
23	6.282	BV	0.0148	147.96227	119.76866	1.15846
24	6.320	VP	0.0177	149.10078	100.48200	1.16737
25	6.372	VB	0.0274	84.09083	37.79628	0.65838
26	6.454	PB	0.0312	313.91577	119.80762	2.45778
27	6.616	PP	0.0144	23.87422	20.12122	0.18692
28	6.694	PP	0.0164	54.06678	41.56721	0.42331
29	6.894	PB	0.0230	522.22522	276.59579	4.08873
30	6.974	BB	0.0220	28.99618	15.80140	0.22702
31	7.004	BP	0.0300	106.76701	43.27074	0.83592
32	7.076	VV	0.0131	28.69153	29.62565	0.22464
33	7.096	VB	0.0223	50.63661	27.68415	0.39646
34	7.523	BB	6.35e-3	4.38216	8.88560	0.03431
35	7.745	PP	0.0261	141.58768	64.76530	1.10855
Totals :				1.27723e4	7777.28573	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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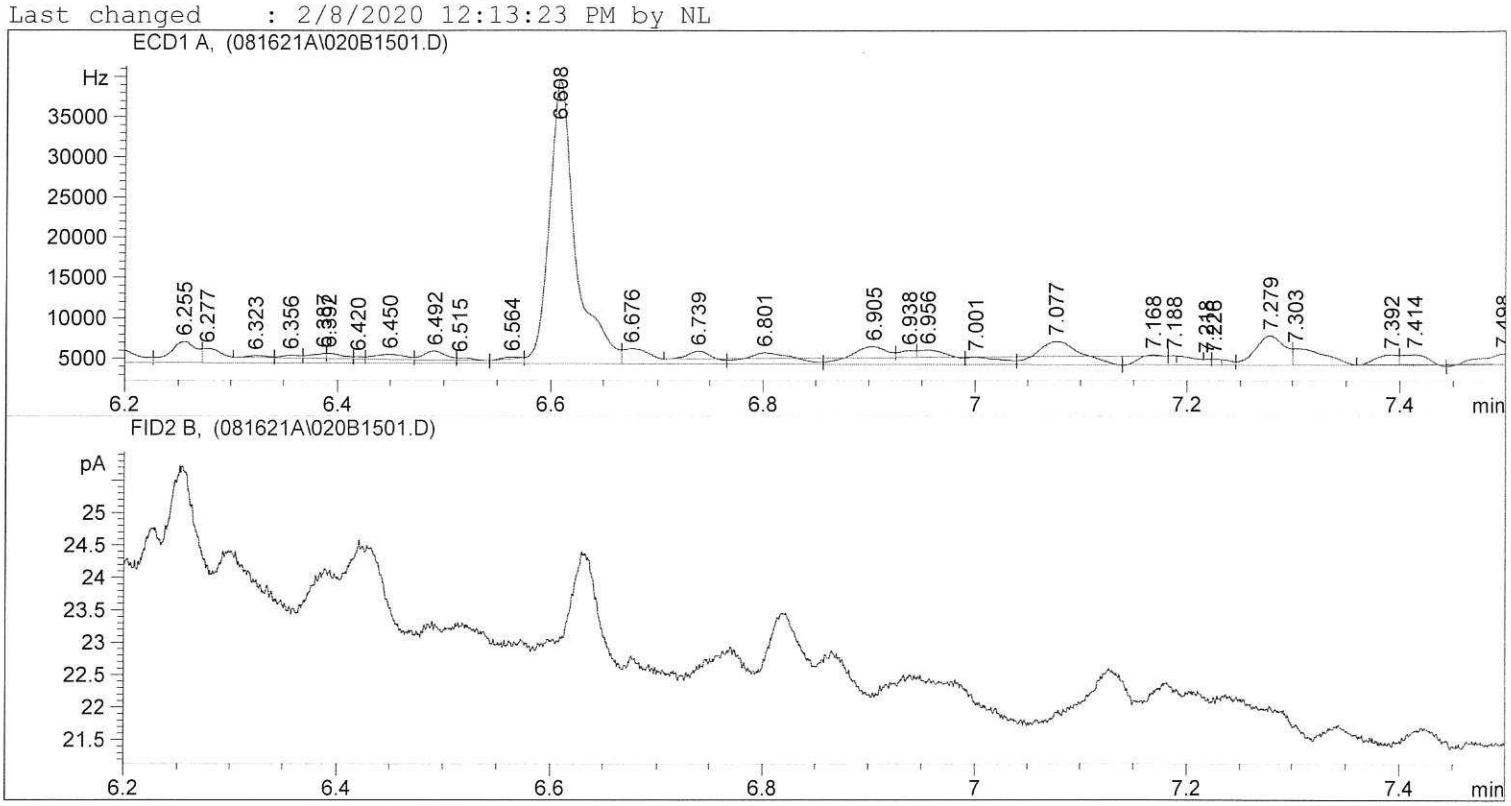
Injection Date : 8/16/2021 4:58:36 PM Seq. Line : 15
Sample Name : 21G0213 06 Location : Vial 20
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	5.234	BV	0.0126	461.84882	449.50949	0.15231
2	5.262	VP	0.0180	1432.99597	1097.36914	0.47257
3	5.325	VV	0.0118	373.12045	402.28287	0.12305
4	5.364	VV S	0.0238	7509.92529	3978.22925	2.47663
5	5.411	VV S	0.0282	1.40728e4	8318.47461	4.64093
6	5.452	VV S	0.0228	2.21244e4	1.22094e4	7.29619
7	5.480	VV S	0.0248	1.57752e4	1.06063e4	5.20236
8	5.538	VV S	0.0275	2556.74634	1551.25891	0.84317
9	5.581	VV S	0.0316	4075.78662	2151.21094	1.34412
10	5.682	VV S	0.0292	6111.12305	2656.34595	2.01533
11	5.745	VV S	0.0232	9527.80859	5741.54785	3.14209
12	5.851	VV S	0.0654	1.09187e4	2784.07275	3.60076
13	5.957	VV S	0.0524	2.22331e4	7070.38184	7.33204
14	6.008	VV S	0.0271	5800.88672	3573.98267	1.91302
15	6.066	VV S	0.0415	1.53057e4	6140.33057	5.04755
16	6.193	VV S	0.0734	7697.56494	1748.46240	2.53851
17	6.255	VV S	0.0219	4418.95703	2620.74561	1.45729

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.277	VV S	0.1008	1.07170e4	1771.11316	3.53426
19	6.323	BV T	0.0179	344.65277	240.80804	0.11366
20	6.356	VV T	0.0141	437.03928	376.68420	0.14413
21	6.387	VV T	0.0124	615.79724	641.61169	0.20308
22	6.392	VV T	0.0184	706.49445	640.61963	0.23299
23	6.420	VV T	8.00e-3	185.67603	292.91910	0.06123
24	6.450	VV T	0.0241	1266.83655	629.78082	0.41778
25	6.492	VV T	0.0186	1627.79724	1116.92310	0.53682
26	6.515	VV T	0.0131	332.04370	310.86707	0.10950
27	6.564	PV T	0.0143	259.61023	227.15942	0.08561
28	6.608	VV S	0.0252	6.15545e4	3.52366e4	20.29951
29	6.676	VV S	0.2676	3.05708e4	1903.70044	10.08165
30	6.739	BV T	0.0147	1151.00037	938.25024	0.37958
31	6.801	PV T	9.57e-3	557.39752	709.51764	0.18382
32	6.905	PV T	0.0187	2126.89722	1384.21069	0.70141
33	6.938	VV T	0.0137	942.47113	866.79163	0.31081
34	6.956	VV T	0.0182	1389.98352	922.37347	0.45839
35	7.001	VV T	0.0000	616.72717	11.08770	0.20338
36	7.077	PP T	0.0140	2102.99658	1882.77515	0.69353
37	7.168	PV T	0.0000	806.67371	145.34364	0.26603
38	7.188	VB T	3.74e-3	12.42274	49.24980	0.00410
39	7.218	BV T	5.34e-3	14.01820	43.73182	0.00462
40	7.226	PB T	5.00e-3	22.05748	73.49318	0.00727
41	7.279	VV S	0.0241	7204.00781	3630.81665	2.37575
42	7.303	VBAS	0.0811	9953.76367	2045.69836	3.28256
43	7.392	BV T	0.0177	1738.68958	1214.82190	0.57339
44	7.414	VV T	0.0192	1921.78857	1219.64343	0.63377
45	7.498	PV T	0.0258	2604.49121	1205.82458	0.85891
46	7.555	PV T	8.09e-3	66.10802	126.55567	0.02180
47	7.615	PV T	0.0328	8360.78320	3007.56836	2.75723
48	7.716	PV T	0.0217	2164.01172	1194.63501	0.71365
49	7.783	PBAT	0.0000	460.49347	63.77028	0.15186
Totals :				3.03231e5	1.37225e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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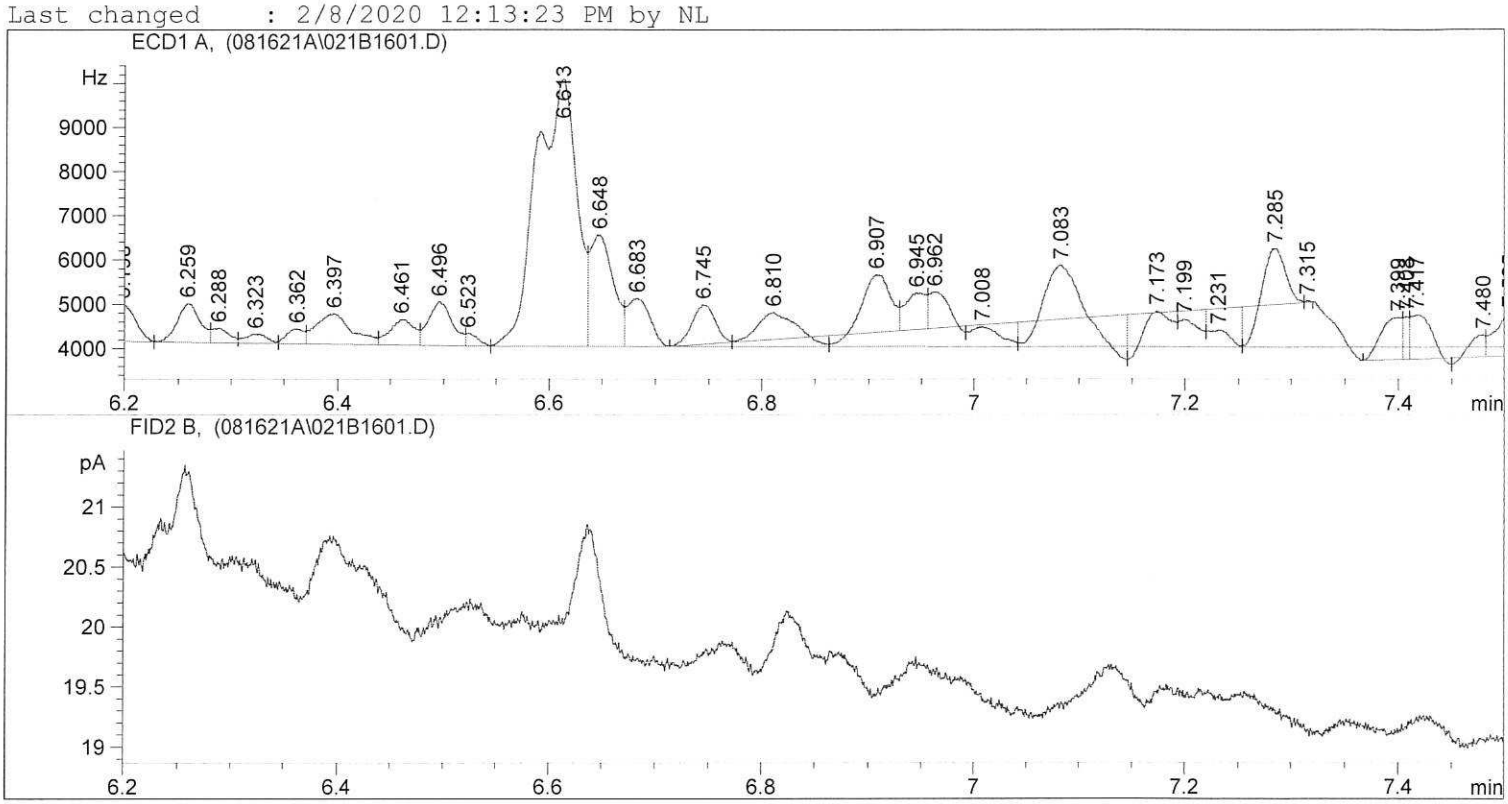
Injection Date : 8/16/2021 5:09:54 PM Seq. Line : 16
Sample Name : 21G0213 07 Location : Vial 21
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	5.234	BP	0.0120	97.87136	104.06638	0.09621
2	5.278	VV	0.0164	273.42404	202.46820	0.26878
3	5.292	VB	7.22e-3	29.55398	68.17547	0.02905
4	5.318	BP	0.0118	65.94949	67.40044	0.06483
5	5.379	VV	0.0184	743.90485	486.46957	0.73126
6	5.414	VV S	0.0215	4646.95654	2747.81934	4.56799
7	5.455	VV S	0.0255	4258.77246	2787.47729	4.18640
8	5.485	VB S	0.0262	5054.08643	3213.49756	4.96820
9	5.587	BP	0.0154	431.23972	353.39474	0.42391
10	5.634	VV	0.0126	186.84743	187.82108	0.18367
11	5.642	VV	3.57e-3	37.75982	162.30011	0.03712
12	5.660	VV	0.0124	258.83167	256.54999	0.25443
13	5.683	VV	0.0167	744.39496	560.88715	0.73175
14	5.748	VV S	0.0182	3887.90723	2939.17261	3.82184
15	5.793	VB S	0.0246	721.88727	489.80453	0.70962
16	5.853	BV	0.0251	968.40350	461.34692	0.95195
17	5.888	VP	0.0108	313.35510	358.18753	0.30803

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.965	VV	0.0354	6581.55225	2204.72925	6.46971
19	6.071	VV	0.0244	2480.63062	1267.43372	2.43848
20	6.121	VV	0.0160	660.78821	505.99939	0.64956
21	6.152	VV	0.0177	686.64258	480.90524	0.67497
22	6.198	VP	0.0297	2065.72510	827.58533	2.03062
23	6.259	VV	0.0183	1305.92712	880.38098	1.28374
24	6.288	VV	0.0141	386.08728	333.04047	0.37953
25	6.323	VV	0.0186	303.55844	206.00031	0.29840
26	6.362	VV	0.0136	374.14066	342.27921	0.36778
27	6.397	VV	0.0286	1642.82751	690.10291	1.61491
28	6.461	VV	0.0193	932.06104	582.37604	0.91622
29	6.496	VV	0.0201	1556.79175	983.91089	1.53034
30	6.523	VP	0.0106	222.00070	286.26257	0.21823
31	6.613	VV S	0.0441	1.59718e4	6034.61523	15.70043
32	6.648	VV S	0.0260	3925.79590	2516.21387	3.85908
33	6.683	VBAS	0.2153	1.40697e4	1088.99097	13.83063
34	6.745	BV T	0.0184	1374.37427	889.93066	1.35102
35	6.810	PV T	0.0233	1196.04163	614.45074	1.17572
36	6.907	PV T	0.0197	2131.01025	1300.73035	2.09480
37	6.945	VV T	0.0167	1154.86609	824.69916	1.13524
38	6.962	VV T	0.0144	979.49017	817.87634	0.96285
39	7.008	PV T	0.1812	618.17865	40.07161	0.60767
40	7.083	PV T	5.84e-3	503.92703	1215.59851	0.49536
41	7.173	PV T	0.0000	978.15424	38.23040	0.96153
42	7.199	VV T	0.0321	511.04565	187.86472	0.50236
43	7.231	PV T	0.0307	1245.84558	479.89594	1.22467
44	7.285	PV T	0.0114	1062.26880	1264.63354	1.04422
45	7.315	VB T	3.60e-3	9.91335	45.89565	0.00974
46	7.399	BV T	0.0171	1343.73315	952.43811	1.32090
47	7.408	VV T	4.62e-3	348.91446	963.81720	0.34299
48	7.417	VV T	0.0153	1275.69666	996.47589	1.25402
49	7.480	PV T	0.0106	429.71790	500.22794	0.42242
50	7.505	PV T	0.0236	1854.10278	957.96368	1.82260
51	7.560	PV T	0.0176	327.65167	224.23656	0.32208
52	7.621	PV T	0.0345	6740.54492	2334.66699	6.62600
53	7.724	PV T	0.0213	1561.47351	871.79236	1.53494
54	7.790	PBAT	0.0000	194.52200	71.11098	0.19122
Totals :				1.01729e5	5.02703e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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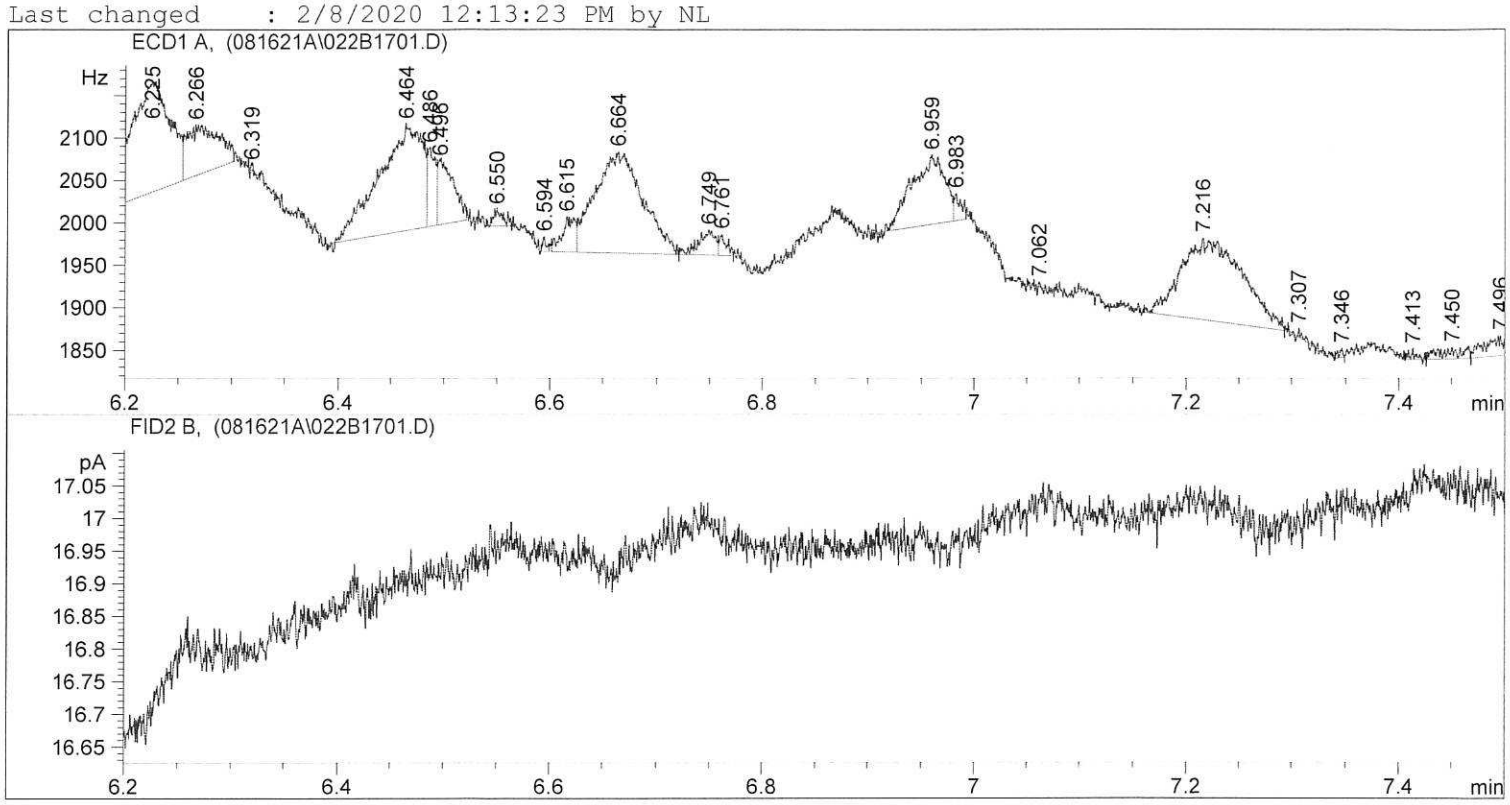
*** End of Report ***

Injection Date : 8/16/2021 5:21:06 PM Seq. Line : 17
Sample Name : 21G0213 08 Location : Vial 22
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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	5.223	BB	0.0259	161.82204	74.55460	1.16680
2	5.266	BB	0.0144	49.34406	41.56734	0.35579
3	5.432	PV	0.0369	378.60556	123.68015	2.72990
4	5.577	VV	0.0573	1156.33203	237.27702	8.33761
5	5.699	VV	0.0469	2467.74072	629.43671	17.79339
6	5.744	VV	0.0574	3184.77734	651.59100	22.96351
7	5.839	VV	0.0135	211.28270	194.11513	1.52343
8	5.922	VV	0.0480	1535.74597	393.15054	11.07334
9	5.963	VP	0.0631	2423.15063	452.61325	17.47188
10	6.112	VV	0.0127	21.91492	21.84862	0.15802
11	6.147	VV	9.29e-3	22.45969	30.14297	0.16194
12	6.225	VV	0.0398	445.20178	131.82433	3.21008
13	6.266	VB	0.0258	116.44604	58.98611	0.83962
14	6.319	BB	6.87e-4	4.31300e-2	5.75825	0.00031
15	6.464	PV	0.0331	348.38660	125.13058	2.51201
16	6.486	VV	6.93e-3	48.34128	91.97137	0.34856
17	6.496	VB	0.0127	75.99327	74.52679	0.54794

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.550	PB	8.98e-3	13.06217	19.09508	0.09418
19	6.594	PB	3.15e-3	3.80645	17.39890	0.02745
20	6.615	BV	0.0104	35.13069	40.92509	0.25331
21	6.664	VV	0.0368	369.19916	118.97224	2.66207
22	6.749	VV	0.0132	31.64460	29.24916	0.22817
23	6.761	VB	6.20e-3	11.33091	24.46326	0.08170
24	6.959	BV	0.0264	173.13196	80.90623	1.24835
25	6.983	VB	5.82e-3	14.09018	31.48794	0.10160
26	7.062	PP	0.0000	1.47233	6.04574	0.01062
27	7.216	PP	0.0469	382.75595	96.49747	2.75982
28	7.307	BB	2.00e-3	1.34251	9.81505	0.00968
29	7.346	PV	3.75e-3	2.62502	10.37494	0.01893
30	7.413	PP	5.02e-3	4.68340	12.35895	0.03377
31	7.450	BP	0.0172	18.56418	13.02588	0.13386
32	7.496	VB	0.0255	48.30833	23.20398	0.34832
33	7.686	PP	2.71e-3	1.45906	8.93463	0.01052
34	7.723	VV	0.0179	50.50033	35.36204	0.36413
35	7.742	VV	0.0191	58.16586	37.08944	0.41940
Totals :				1.38689e4	3953.38080	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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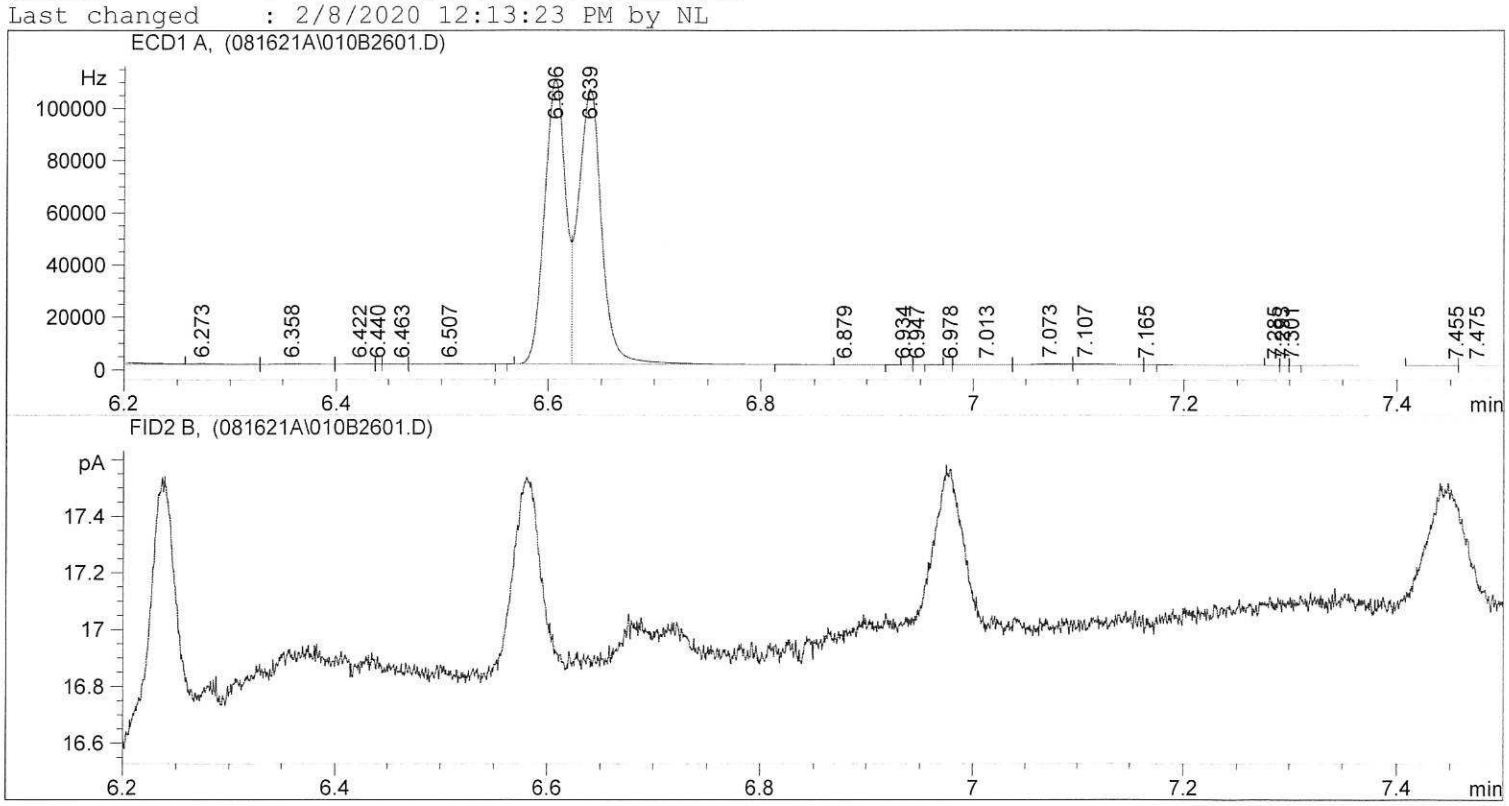
Injection Date : 8/16/2021 7:00:37 PM Seq. Line : 26
Sample Name : CS4 STANDARD Location : Vial 10
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\081621A.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	5.277	PP	9.80e-3	17.91054	23.22436	0.00146
2	5.326	VP	0.0191	80.03021	56.70521	0.00651
3	5.395	VP	0.0140	40.04385	34.98141	0.00326
4	5.468	VV S	0.0250	1.69373e5	9.24669e4	13.77087
5	5.568	VV S	0.0374	2.72214e5	1.21177e5	22.13233
6	5.625	VV S	0.0198	9.94073e4	8.36368e4	8.08229
7	5.671	VB S	0.0225	9.36300e4	6.93362e4	7.61257
8	5.826	BP	8.67e-3	49.36917	71.40943	0.00401
9	5.861	BP	8.60e-3	9.66574	18.72615	0.00079
10	5.915	VV S	0.0179	9.91163e4	8.41048e4	8.05863
11	6.063	VV S	0.0184	8.94690e4	7.45059e4	7.27426
12	6.141	VB S	0.0222	9.57863e4	7.19328e4	7.78789
13	6.273	BV T	0.0135	159.38565	151.56824	0.01296
14	6.358	PV T	0.0165	266.32184	202.79710	0.02165
15	6.422	PV T	0.0142	68.23222	57.64209	0.00555
16	6.440	PV T	4.79e-3	13.00576	45.26764	0.00106
17	6.463	PV T	0.0141	72.79458	64.04308	0.00592

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.507	VB T	0.0294	392.07391	158.89908	0.03188
19	6.606	BV S	0.0201	1.46756e5	1.08762e5	11.93193
20	6.639	VB S	0.0254	1.60565e5	1.05159e5	13.05468
21	6.879	PP	0.0168	15.38908	11.07690	0.00125
22	6.934	PP	4.27e-3	3.27302	11.01643	0.00027
23	6.947	BB	3.41e-3	2.91144	12.07775	0.00024
24	6.978	BV	4.21e-3	3.87567	12.52254	0.00032
25	7.013	VV	0.0281	96.26796	41.48849	0.00783
26	7.073	VV	0.0233	809.91125	412.97101	0.06585
27	7.107	VV	0.0268	645.07959	285.36807	0.05245
28	7.165	VB	5.58e-3	6.20918	15.14744	0.00050
29	7.285	BV	7.36e-3	7.37427	17.33267	0.00060
30	7.293	VP	4.57e-3	4.46866	13.82705	0.00036
31	7.301	VP	4.13e-3	3.44471	12.08086	0.00028
32	7.455	PV	4.25e-3	4.01730	12.83560	0.00033
33	7.475	VB	0.0252	41.76852	21.60018	0.00340
34	7.648	PV	0.0298	717.54108	290.58368	0.05834
35	7.712	VV	7.72e-3	13.02540	23.30408	0.00106
36	7.751	VV	0.0233	61.25465	31.53782	0.00498
37	7.760	VB	7.34e-3	17.97095	31.10170	0.00146
Totals :				1.22994e6	8.13223e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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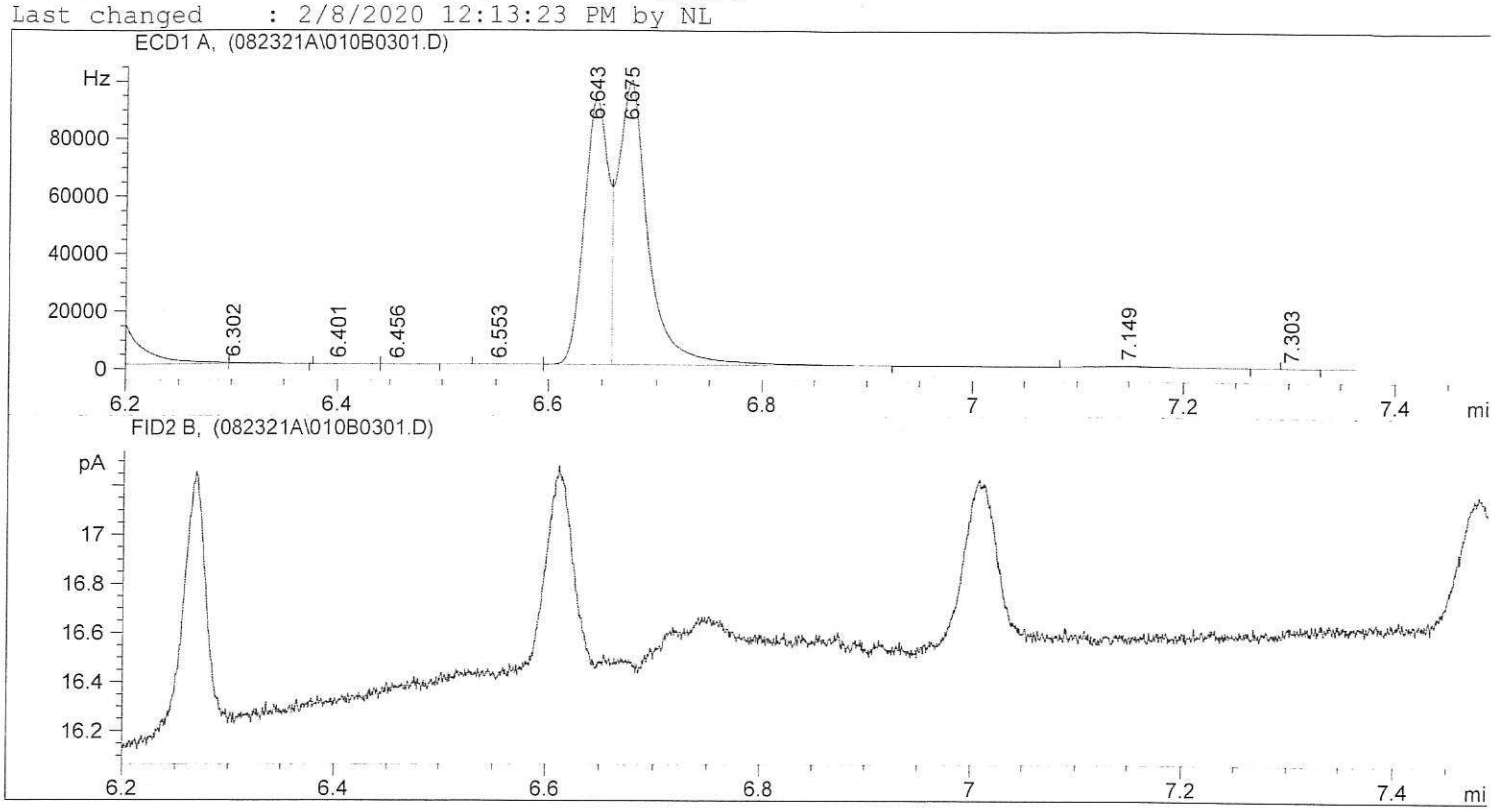
Injection Date : 8/23/2021 3:43:07 PM Seq. Line : 3
Sample Name : CS4 STANDARD Location : Vial 10
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.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	5.288	PV	0.0140	26.61545	24.30220	0.00195
2	5.335	VP	9.06e-3	49.58413	70.01193	0.00363
3	5.406	BP	0.0116	28.05824	29.65888	0.00206
4	5.482	VV S	0.0270	1.87125e5	9.09812e4	13.70629
5	5.585	VV S	0.0420	2.90215e5	1.15289e5	21.25728
6	5.644	VV S	0.0255	1.10536e5	7.23106e4	8.09640
7	5.692	VV S	0.0343	1.18065e5	5.74421e4	8.64786
8	5.849	VV S	0.0498	2520.79590	844.00739	0.18464
9	5.944	VV S	0.0254	1.12474e5	7.39233e4	8.23834
10	6.097	VV S	0.0256	9.85591e4	6.42540e4	7.21912
11	6.175	VV S	0.0303	1.06098e5	5.84458e4	7.77128
12	6.302	VB S	0.0351	937.37531	444.52301	0.06866
13	6.401	BP	0.0157	106.45741	82.06987	0.00780
14	6.456	BP	0.0146	46.75767	40.69748	0.00342
15	6.553	BV	0.0278	184.91887	79.26585	0.01354
16	6.643	VV S	0.0226	1.41915e5	9.20549e4	10.39479
17	6.675	VB S	0.0329	1.94608e5	9.85686e4	14.25434

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.931	VV	0.0225	780.82123	423.39398	3.31006
19	5.967	VV	0.0164	582.98376	458.11801	2.47139
20	5.988	VV	0.0256	988.61469	473.32150	4.19094
21	6.024	VB	0.0147	228.19341	258.32086	0.96736
22	6.076	BV	0.0385	1247.92163	387.94272	5.29020
23	6.116	VV	0.0185	383.06857	249.78935	1.62391
24	6.144	VV	0.0185	371.35483	238.91275	1.57425
25	6.196	VV	0.0419	1118.21692	320.70102	4.74035
26	6.288	VV	0.0442	897.10876	240.02618	3.80303
27	6.338	VB	0.0274	336.52908	149.58603	1.42662
28	6.373	BV	9.27e-3	97.97550	138.24380	0.41534
29	6.400	VV	0.0168	246.00902	184.30898	1.04288
30	6.404	VV	0.0122	184.01491	185.78392	0.78008
31	6.458	VV	0.0333	738.45258	264.83499	3.13045
32	6.497	VV	0.0308	530.67883	203.39244	2.24966
33	6.570	VV	0.0189	153.18011	101.89587	0.64936
34	6.621	VV	0.0333	2572.90576	965.56122	10.90708
35	6.745	VV	0.0314	397.79202	159.02448	1.68632
36	6.810	VP	0.0285	283.18100	117.44786	1.20046
37	6.903	VV	0.0256	494.15076	229.08864	2.09481
38	6.938	VB	0.0119	52.70715	54.19703	0.22344
39	6.976	BP	3.96e-3	2.04901	7.81471	0.00869
40	7.082	PP	0.0313	682.38788	259.60019	2.89278
41	7.172	VV	0.0146	107.19333	92.00883	0.45441
42	7.186	VV	7.62e-3	41.66835	69.22598	0.17664
43	7.197	VB	0.0141	80.32488	68.59093	0.34051
44	7.284	PV	0.0241	584.38782	302.64917	2.47734
45	7.311	VV	0.0203	305.81668	179.66861	1.29642
46	7.393	VV	0.0230	259.79184	135.42050	1.10131
47	7.417	VV	0.0168	157.14171	113.42056	0.66616
48	7.470	VV	9.11e-3	70.88853	97.20128	0.30051
49	7.476	VB	0.0124	108.08090	111.02148	0.45818
50	7.507	BV	0.0273	347.86920	155.29779	1.47469
51	7.554	VP	0.0116	54.16365	57.51707	0.22961
52	7.622	VV	0.0405	1101.20093	320.13046	4.66822
53	7.725	VP	0.0296	365.57553	154.46516	1.54975
54	7.792	VBA	0.0168	25.98859	18.99182	0.11017
Totals :				2.35893e4	1.17054e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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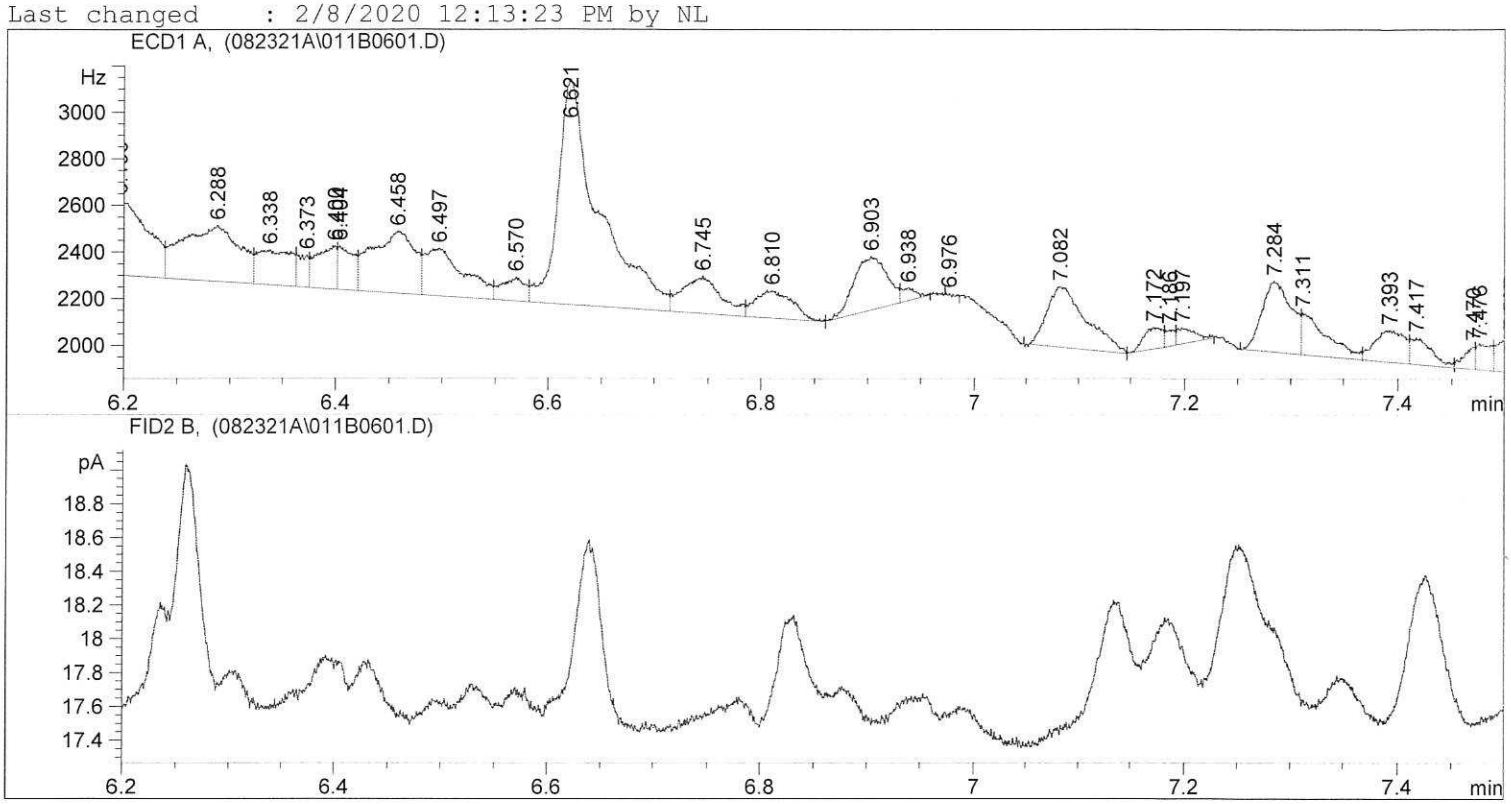
Injection Date : 8/23/2021 4:16:33 PM Seq. Line : 6
Sample Name : 21G0283 11 Location : Vial 11
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.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	5.235	PV	9.96e-3	27.63074	33.71837	0.11713
2	5.261	VP	0.0229	173.25713	93.12051	0.73447
3	5.359	VV	0.0298	615.06641	244.12538	2.60739
4	5.421	VV	0.0228	803.03839	421.18854	3.40425
5	5.463	VV	0.0215	1056.45959	632.66400	4.47855
6	5.504	VV	0.0171	282.24158	204.46741	1.19648
7	5.539	VP	0.0135	52.89071	50.23809	0.22421
8	5.584	VV	0.0126	102.59161	97.93362	0.43491
9	5.591	VB	0.0107	82.89660	95.91588	0.35142
10	5.638	PB	4.73e-3	6.79830	18.29612	0.02882
11	5.656	BV	6.03e-3	17.46878	36.22737	0.07405
12	5.663	VV	3.81e-3	10.00357	38.79359	0.04241
13	5.685	VV	0.0151	392.65109	311.33282	1.66453
14	5.748	VV	0.0219	1053.10754	629.00555	4.46434
15	5.786	VV	0.0138	209.46935	190.69824	0.88798
16	5.806	VB	0.0199	373.19797	225.05568	1.58206
17	5.863	BV	0.0375	1350.15906	435.74222	5.72360

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	7.149	PB	0.0496	1189.75085	285.76645	0.08715
19	7.303	PB	0.0000	4.92999e-1	5.05542	3.611e-5
20	7.602	PP	2.38e-3	7.90708e-1	5.16912	5.792e-5
21	7.686	PB	0.0290	564.48633	230.39220	0.04135

Totals : 1.36525e6 7.25411e5

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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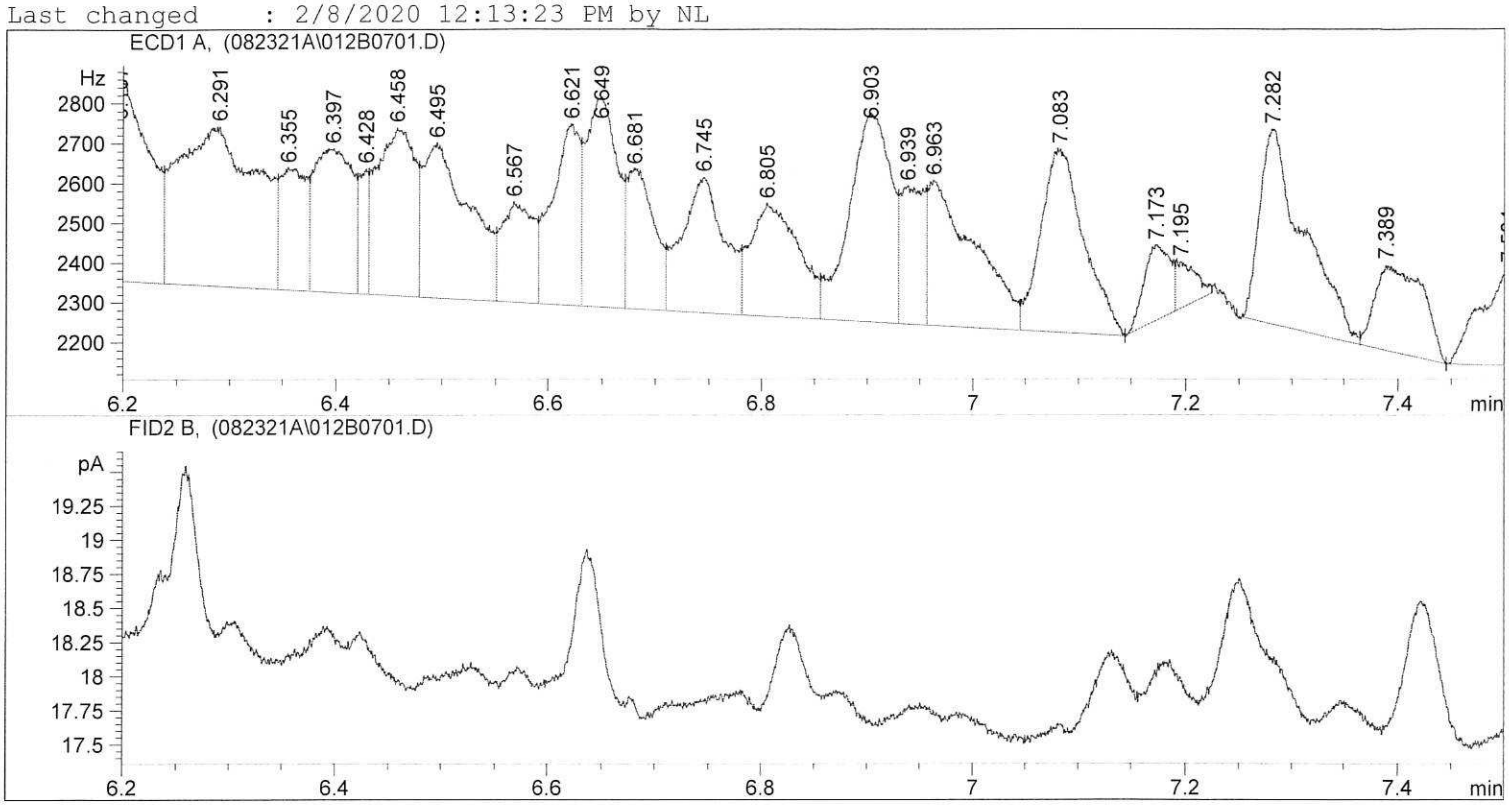
Injection Date : 8/23/2021 4:27:31 PM Seq. Line : 7
Sample Name : 21G0283 12 Location : Vial 12
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.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	5.237	PV	7.42e-3	10.38424	17.75593	0.02596
2	5.259	VV	7.59e-3	48.44222	78.58952	0.12112
3	5.272	VP	0.0158	130.45110	98.90689	0.32616
4	5.318	VV	9.24e-3	39.05540	59.61161	0.09765
5	5.358	VV	0.0203	317.72495	189.62029	0.79440
6	5.373	VV	9.83e-3	137.54166	173.81369	0.34389
7	5.420	VV	0.0248	739.42187	354.13007	1.84876
8	5.462	VV	0.0201	646.17224	386.28668	1.61561
9	5.507	VV	0.0262	520.72028	237.58350	1.30194
10	5.541	VV	0.0130	185.06796	171.66995	0.46272
11	5.585	VV	0.0458	971.57568	249.55153	2.42921
12	5.684	VV	0.0384	1402.41821	444.34454	3.50643
13	5.745	VV	0.0318	1738.26489	650.66382	4.34614
14	5.797	VV	0.0260	955.96637	438.73257	2.39018
15	5.815	VV	0.0159	388.74371	407.84537	0.97197
16	5.867	VV	0.0462	2303.91333	589.81897	5.76042
17	5.931	VV	0.0261	1213.64233	565.11224	3.03444

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.967	VV	0.0200	736.70050	455.41428	1.84196
19	5.997	VV	0.0257	1096.36035	506.33585	2.74120
20	6.056	VV	0.0456	1914.51440	493.99731	4.78682
21	6.095	VB	8.18e-3	273.24783	420.76154	0.68320
22	6.120	BV	0.0197	698.17761	426.03207	1.74564
23	6.151	VV	0.0204	702.97028	418.57193	1.75762
24	6.197	VV	0.0433	1877.50195	510.20551	4.69427
25	6.291	VV	0.0636	2077.92773	401.06091	5.19539
26	6.355	VV	0.0202	520.76801	306.50317	1.30206
27	6.397	VV	0.0303	900.96893	360.92920	2.25267
28	6.428	VV	7.90e-3	186.55486	315.56021	0.46644
29	6.458	VV	0.0297	1043.49170	421.53870	2.60902
30	6.495	VV	0.0363	1193.96509	388.34409	2.98524
31	6.567	VV	0.0249	527.48505	251.60600	1.31886
32	6.621	VV	0.0216	810.44946	454.04953	2.02635
33	6.649	VV	0.0258	1076.13696	526.75238	2.69064
34	6.681	VV	0.0212	622.71887	350.02338	1.55697
35	6.745	VV	0.0333	952.90021	340.47519	2.38251
36	6.805	VV	0.0374	894.41919	282.36609	2.23630
37	6.903	VV	0.0328	1447.07275	524.54926	3.61808
38	6.939	VB	0.0184	528.87360	347.05734	1.32233
39	6.963	BV	0.0363	1118.47351	363.92981	2.79649
40	7.083	VP	0.0336	1306.84644	459.34845	3.26748
41	7.173	VV	0.0199	307.24667	187.24448	0.76820
42	7.195	VB	0.0153	147.57065	117.00968	0.36897
43	7.282	PV	0.0357	1427.66858	488.71878	3.56957
44	7.389	VP	0.0373	674.39130	214.30093	1.68616
45	7.504	VV	0.0329	677.96509	243.33154	1.69510
46	7.546	VV	0.0100	49.15562	59.68143	0.12290
47	7.554	VV	8.48e-3	39.61614	60.14784	0.09905
48	7.622	VV	0.0322	1457.62573	545.61346	3.64447
49	7.655	VB	0.0131	205.64058	192.27284	0.51416
50	7.718	BV	0.0202	435.99963	261.55591	1.09012
51	7.725	VP	0.0113	232.62535	254.06270	0.58163
52	7.788	VBA	0.0169	82.03789	63.32633	0.20512
Totals :				3.99956e4	1.71267e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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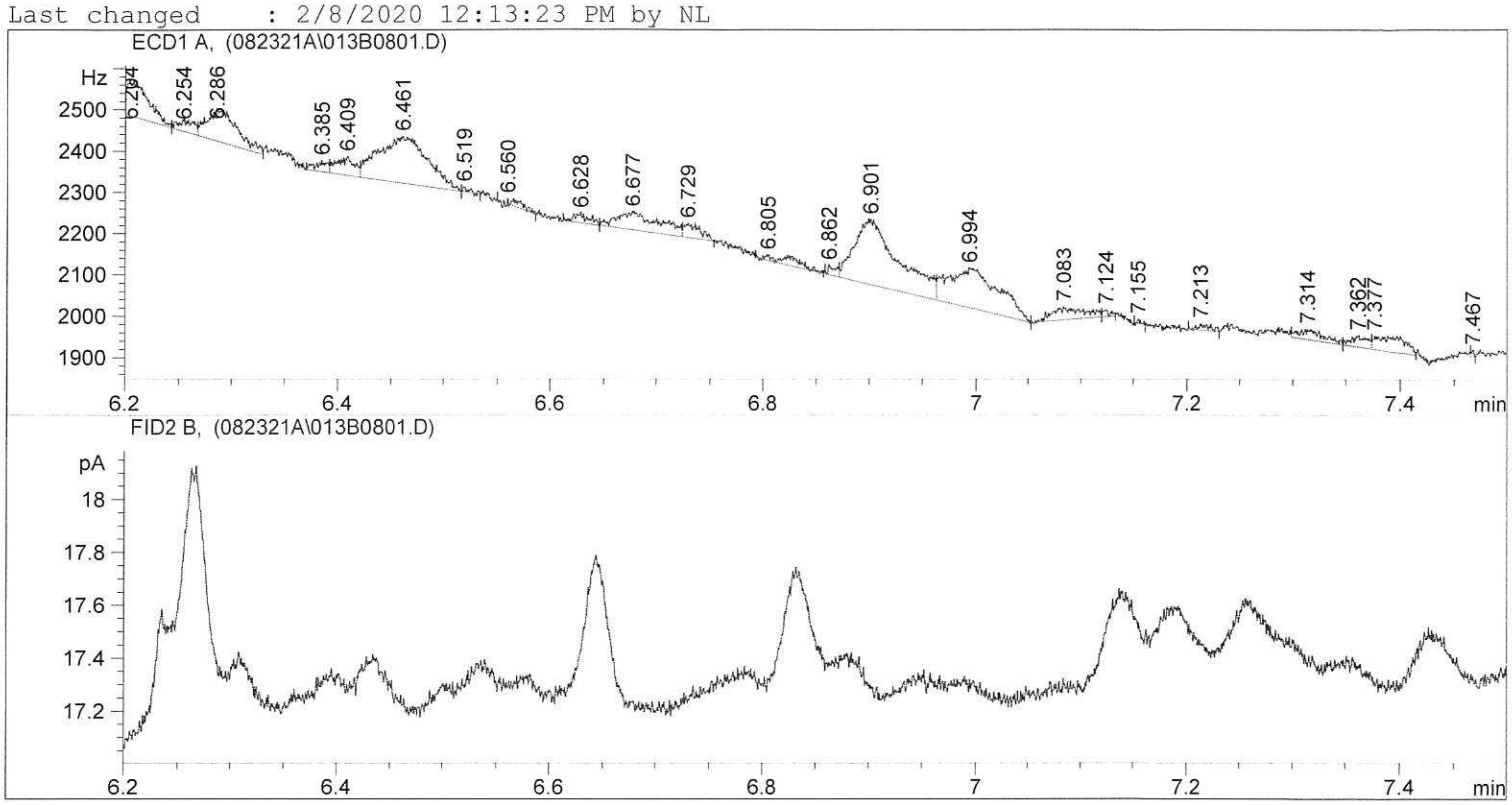
Injection Date : 8/23/2021 4:38:44 PM Seq. Line : 8
Sample Name : 21G0283 13 Location : Vial 13
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.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	5.239	PV	7.84e-3	22.55046	35.37521	0.44322
2	5.252	VB	0.0132	37.75441	36.75354	0.74205
3	5.273	BP	7.82e-3	32.93406	53.24104	0.64730
4	5.296	VP	3.46e-3	3.01113	15.51268	0.05918
5	5.378	BV	0.0165	72.70802	54.85902	1.42904
6	5.424	VV	0.0189	259.08392	164.97487	5.09218
7	5.446	VV	5.93e-3	30.08320	65.83382	0.59127
8	5.468	VV	0.0171	94.57937	67.76844	1.85892
9	5.509	VV	0.0164	127.85599	98.13779	2.51295
10	5.538	VV	0.0104	26.10848	30.47264	0.51315
11	5.579	VV	0.0121	53.43344	56.12579	1.05021
12	5.595	VV	0.0127	36.10266	34.74045	0.70958
13	5.612	VV	6.90e-3	8.30598	21.55121	0.16325
14	5.618	VP	3.38e-3	3.55312	14.93437	0.06984
15	5.689	BV	0.0230	333.62939	173.67336	6.55734
16	5.749	VV	0.0372	431.87048	137.49635	8.48822
17	5.778	VV	3.22e-3	5.08743	22.62137	0.09999

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.797	VV	8.05e-3	39.64978	62.12072	0.77930
19	5.803	VB	0.0128	64.20515	63.57893	1.26192
20	5.871	PV	0.0264	386.33060	180.60924	7.59316
21	5.936	VV	0.0197	340.44980	208.30534	6.69139
22	6.003	VV	0.0220	250.01395	136.14583	4.91391
23	6.066	VV	0.0315	261.38351	100.75327	5.13738
24	6.099	VP	8.88e-3	29.76244	44.05766	0.58497
25	6.145	PB	7.86e-3	13.16448	21.76969	0.25874
26	6.204	BV	0.0245	179.20950	86.75951	3.52228
27	6.254	VV	0.0130	29.53961	28.34204	0.58059
28	6.286	VV	0.0235	155.37254	79.27271	3.05378
29	6.385	PV	9.67e-3	20.01082	26.93743	0.39330
30	6.409	VV	0.0144	51.90141	45.11097	1.02010
31	6.461	VP	0.0382	360.01147	113.03275	7.07587
32	6.519	VB	5.08e-3	3.97637	10.84113	0.07815
33	6.560	BP	0.0135	9.83908	12.16091	0.19338
34	6.628	PV	0.0124	22.19298	23.55802	0.43619
35	6.677	VB	0.0338	122.39221	43.24936	2.40557
36	6.729	BB	0.0130	35.75097	34.06407	0.70267
37	6.805	PB	0.0288	31.08067	13.15942	0.61088
38	6.862	BB	6.85e-3	12.09751	22.57998	0.23777
39	6.901	BV	0.0340	453.22363	157.40903	8.90791
40	6.994	VP	0.0395	317.61880	95.25508	6.24266
41	7.083	BV	0.0239	60.87848	30.99241	1.19654
42	7.124	VB	5.80e-3	7.06849	16.49874	0.13893
43	7.155	PP	2.38e-3	1.66221	9.77582	0.03267
44	7.213	BP	9.34e-3	11.22659	15.34583	0.22065
45	7.314	BV	0.0209	40.27366	25.11695	0.79156
46	7.362	VV	0.0134	27.49692	26.35790	0.54044
47	7.377	VB	0.0249	67.05263	32.25100	1.31789
48	7.467	BP	2.96e-3	2.77769	14.98739	0.05459
49	7.627	PP	0.0191	46.51048	29.30412	0.91414
50	7.722	PV	6.69e-3	8.71502	20.77239	0.17129
51	7.744	VP	0.0283	46.38656	19.41420	0.91171

Totals : 5087.87759 2933.96178

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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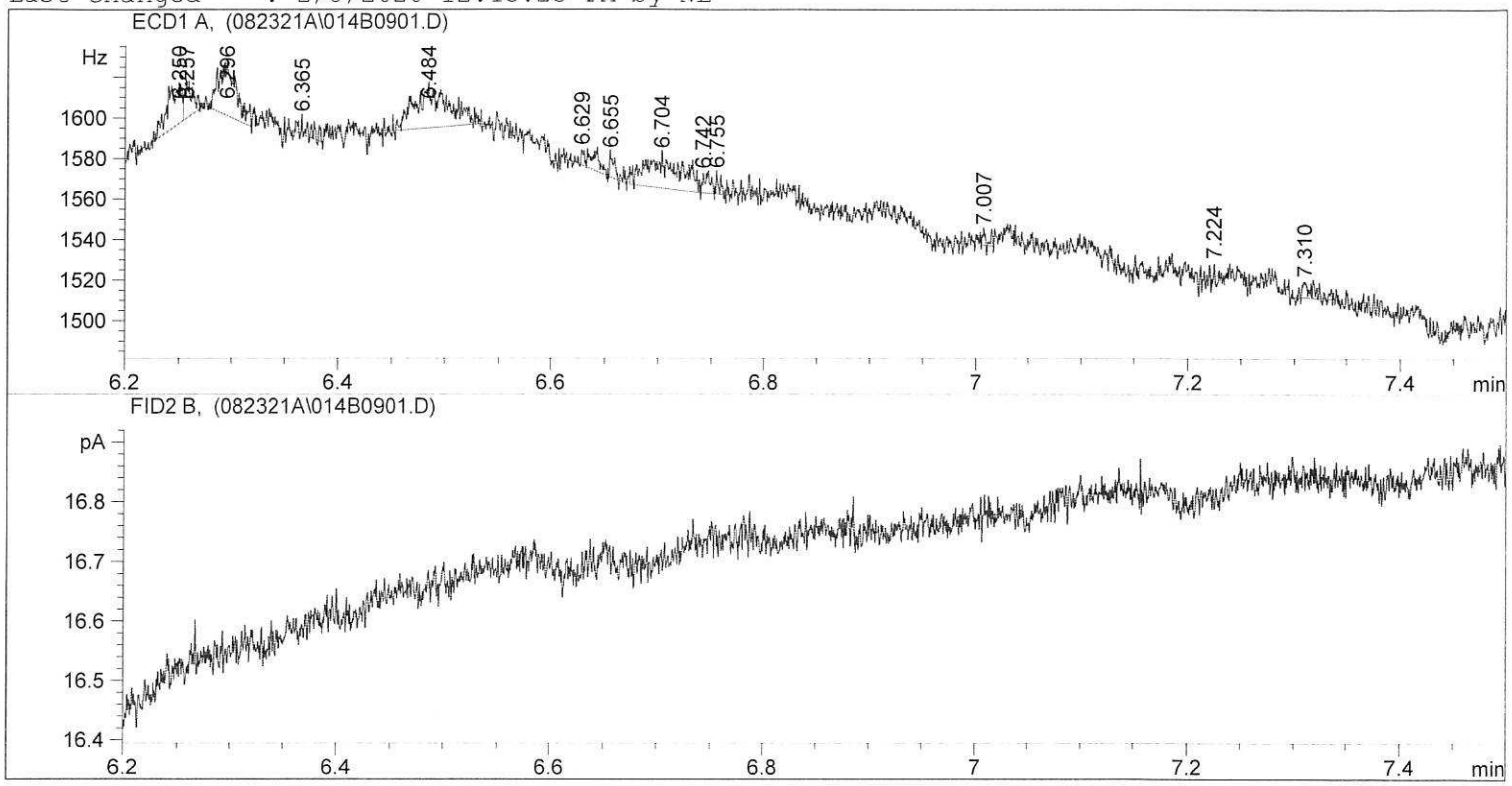
*** End of Report ***

Injection Date : 8/23/2021 4:49:57 PM Seq. Line : 9
Sample Name : 21G0283 14 Location : Vial 14
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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	5.543	PV	0.0231	270.66605	144.04753	10.09825
2	5.761	BV	0.0537	220.77789	48.71915	8.23698
3	5.821	VP	0.0146	26.69659	22.88043	0.99602
4	5.859	VB	0.0246	1840.28113	926.49994	68.65882
5	5.933	BB	0.0190	97.81716	61.87587	3.64945
6	5.985	BV	0.0150	19.28855	15.86875	0.71963
7	6.057	BB	7.03e-3	6.16945	11.19565	0.23018
8	6.250	PV	0.0118	19.54446	19.98751	0.72918
9	6.257	VB	6.59e-3	8.98920	17.50769	0.33538
10	6.296	PP	0.0144	30.74583	25.54285	1.14709
11	6.365	BP	6.41e-3	4.39137	8.52853	0.16384
12	6.484	BB	0.0261	44.65756	21.46673	1.66612
13	6.629	BV	0.0125	7.40253	7.13127	0.27618
14	6.655	VP	5.23e-3	4.44534	11.70988	0.16585
15	6.704	BP	0.0254	36.41249	16.99907	1.35851
16	6.742	VV	6.12e-3	4.43979	9.37755	0.16564
17	6.755	VP	3.47e-3	2.48958	10.11240	0.09288

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	7.007	BP	4.45e-3	2.04950	7.11010	0.07646
19	7.224	PB	0.0000	1.37675	5.61530	0.05136
20	7.310	PB	0.0105	5.59696	7.35453	0.20882
21	7.553	BB	0.0193	25.31833	16.27558	0.94460
22	7.677	PB	0.0000	7.70795e-1	3.11313	0.02876

Totals : 2680.32731 1418.91945

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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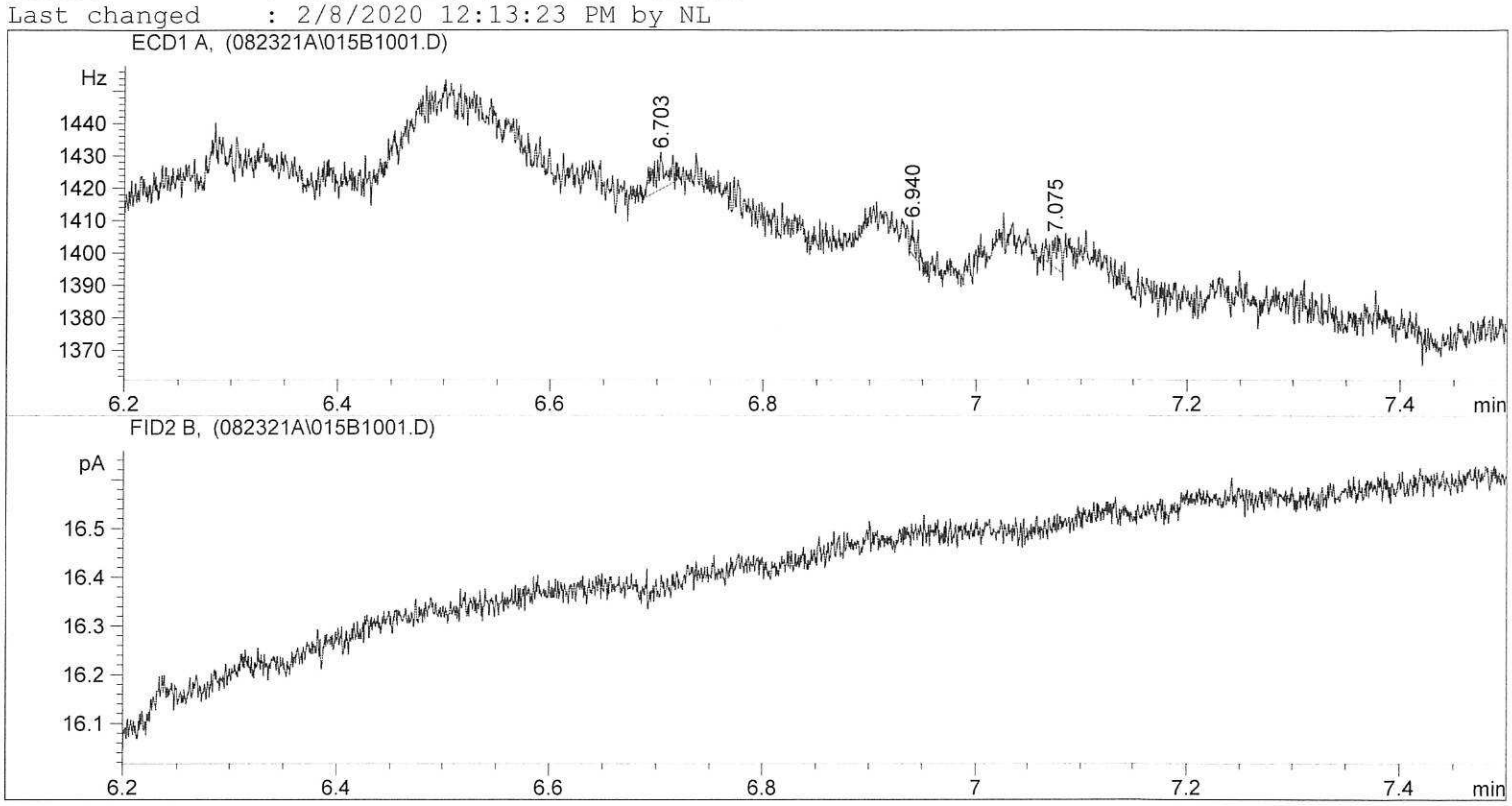
Injection Date : 8/23/2021 5:01:11 PM Seq. Line : 10
Sample Name : 21G0283 15 Location : Vial 15
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.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	5.543	PB	0.0189	93.77341	59.28402	9.40463
2	5.654	PP	2.05e-3	4.80833e-1	4.50460	0.04822
3	5.856	PB	0.0229	870.03400	490.43179	87.25655
4	6.029	BV	8.30e-3	7.24434	15.36800	0.72654
5	6.178	PB	2.57e-3	1.12120	6.64267	0.11245
6	6.703	PB	9.94e-3	8.63898	10.78701	0.86641
7	6.940	BP	3.26e-3	2.32191	9.47468	0.23287
8	7.075	BP	8.05e-3	5.30584	9.04075	0.53213
9	7.675	BP	1.81e-3	6.25481e-1	7.22736	0.06273
10	7.778	BP	8.07e-3	7.55279	11.79094	0.75748
Totals :				997.09878	624.55181	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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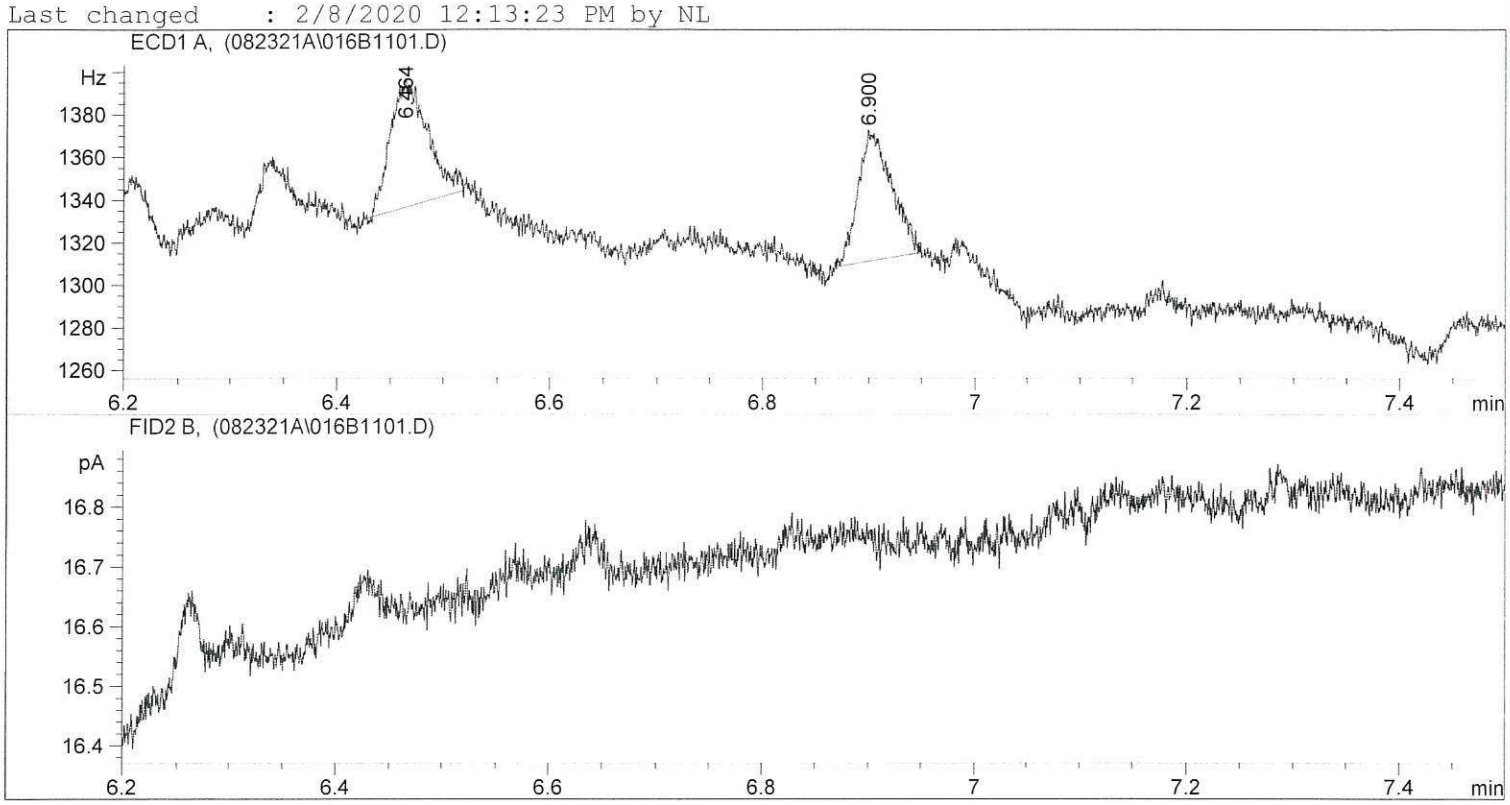
Injection Date : 8/23/2021 5:12:27 PM Seq. Line : 11
Sample Name : 21G0283 16 Location : Vial 16
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.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	5.257	BB	0.0147	36.14306	29.52902	6.06241
2	5.852	PB	0.0208	207.51895	120.96696	34.80793
3	5.936	BB	0.0141	69.68137	61.04794	11.68792
4	6.464	PP	0.0290	145.70206	59.91512	24.43915
5	6.900	BB	0.0263	135.46210	61.01574	22.72156
6	7.620	BB	4.17e-3	1.67543	5.47896	0.28103

Totals : 596.18296 337.95373

Results obtained with enhanced integrator!

Signal 2: FID2 B,

Results obtained with enhanced integrator!

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*** End of Report ***

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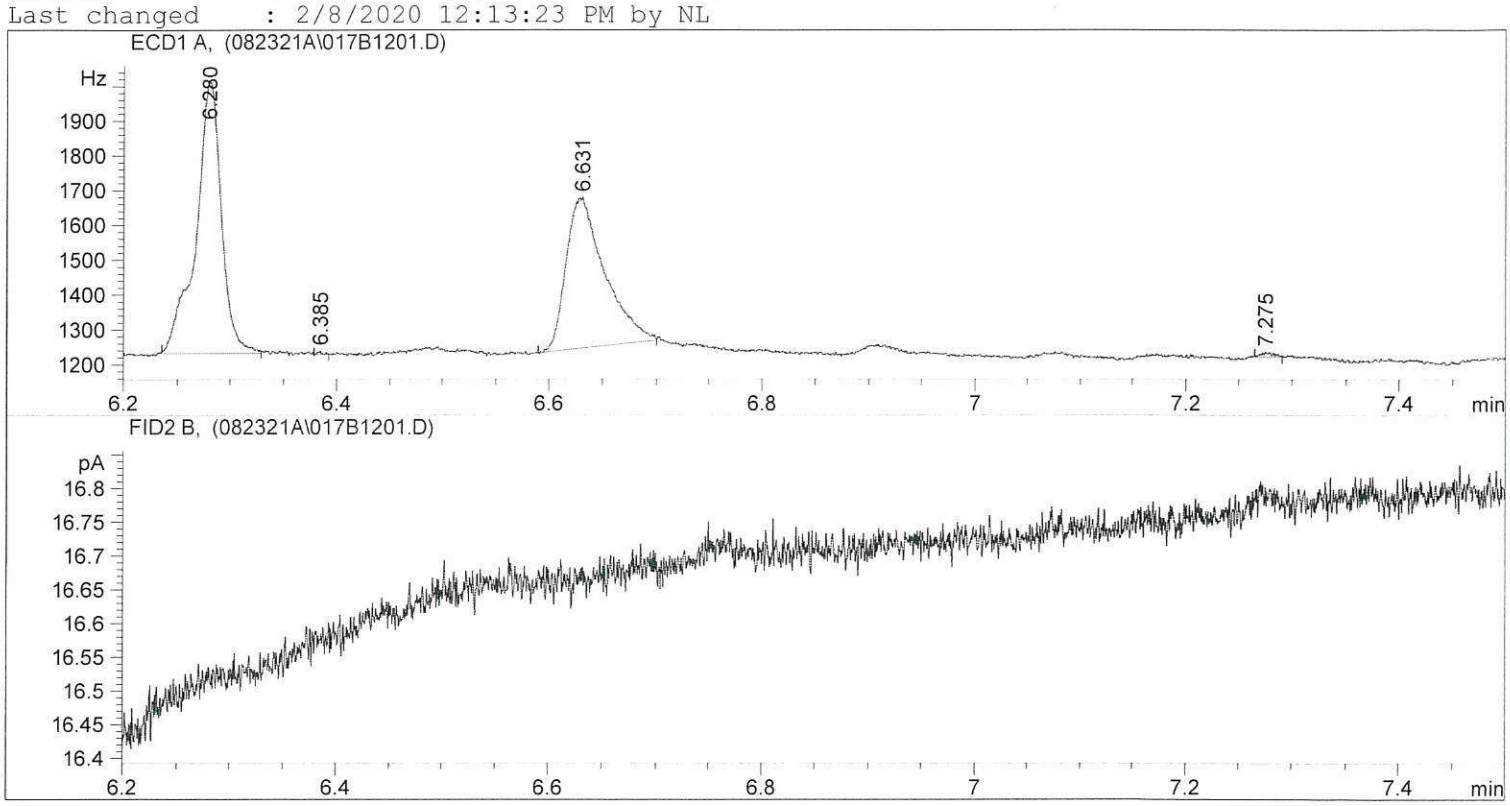
Injection Date : 8/23/2021 5:23:41 PM Seq. Line : 12
Sample Name : 21G0283 17 Location : Vial 17
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.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	5.409	PV	0.0128	35.19315	35.54500	0.69889
2	5.475	BV	0.0172	36.00252	25.33574	0.71496
3	5.503	VP	0.0122	36.19462	35.93015	0.71877
4	5.542	VB	0.0245	207.50183	100.28986	4.12070
5	5.808	BV	0.0186	838.95502	619.73535	16.66047
6	5.866	VV	0.0335	1125.04626	406.23907	22.34184
7	5.932	VV	0.0165	61.79515	47.69192	1.22717
8	5.970	VP	0.0327	199.21083	72.43104	3.95605
9	6.085	BB	0.0201	87.31987	52.74538	1.73405
10	6.280	BB	0.0225	1323.69043	785.82605	26.28664
11	6.385	PB	4.48e-3	2.78823	9.91731	0.05537
12	6.631	PB	0.0295	1070.94092	432.20145	21.26738
13	7.275	BB	9.90e-3	10.96350	13.75702	0.21772

Totals : 5035.60234 2637.64534

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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Injection Date  : 8/23/2021 5:34:53 PM          Seq. Line :  13
Sample Name     : 21G0283 18                     Location : Vial 18
Acq. Operator   : DXP                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\082321A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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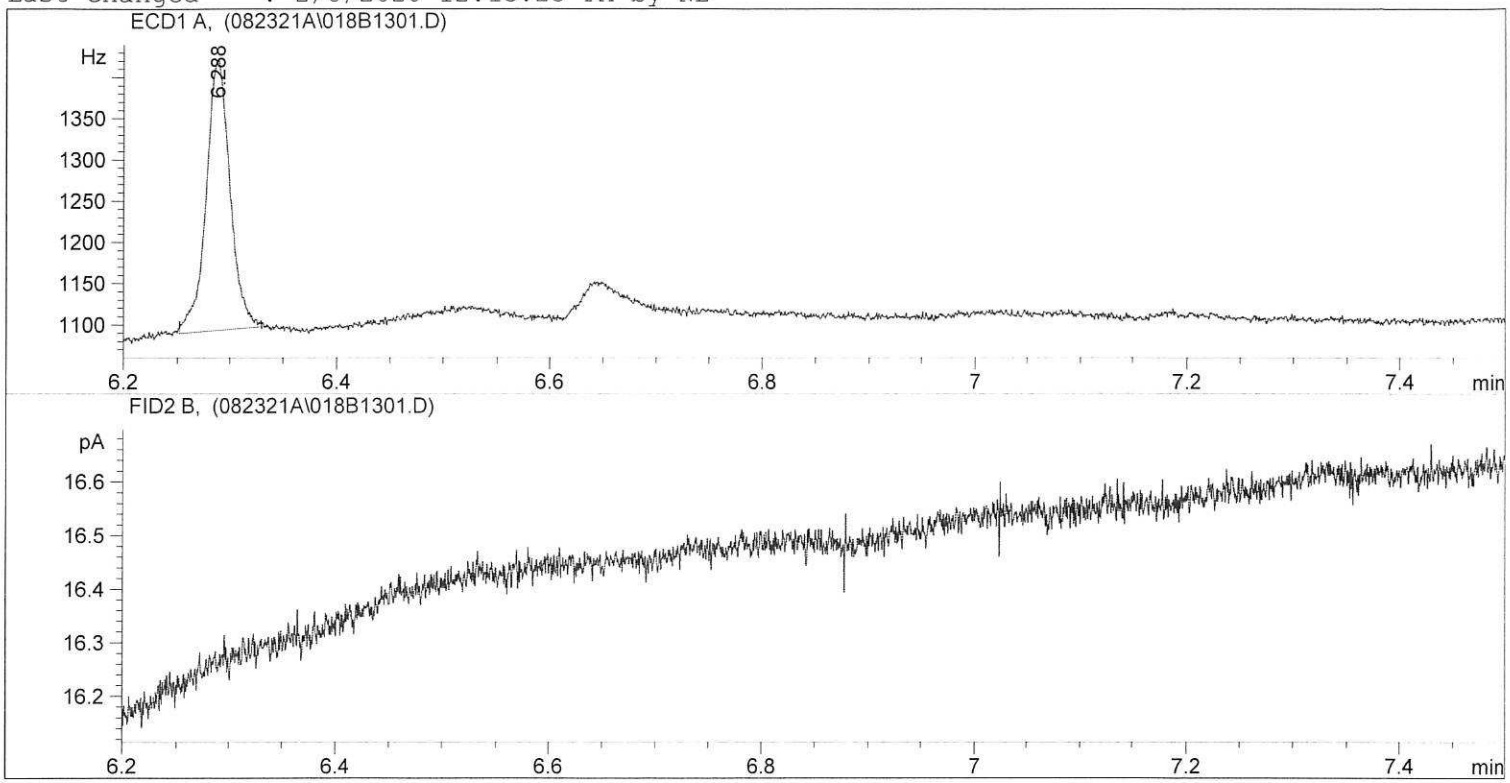


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==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000


Signal 1: ECD1 A,

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [Hz*s]      [Hz]        %
----|-------|----|-------|----------|----------|--------|
   1   5.505 PP    0.0125   56.91249   57.90543  4.64470
   2   5.814 BV    0.0155  346.60864  270.83685 28.28718
   3   5.875 VP    0.0276  299.70752  129.34901 24.45952
   4   6.288 BB    0.0213  522.09210  328.99313 42.60861

Totals :                   1225.32076  787.08443

 Results obtained with enhanced integrator!

Signal 2: FID2 B,

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                          *** End of Report ***
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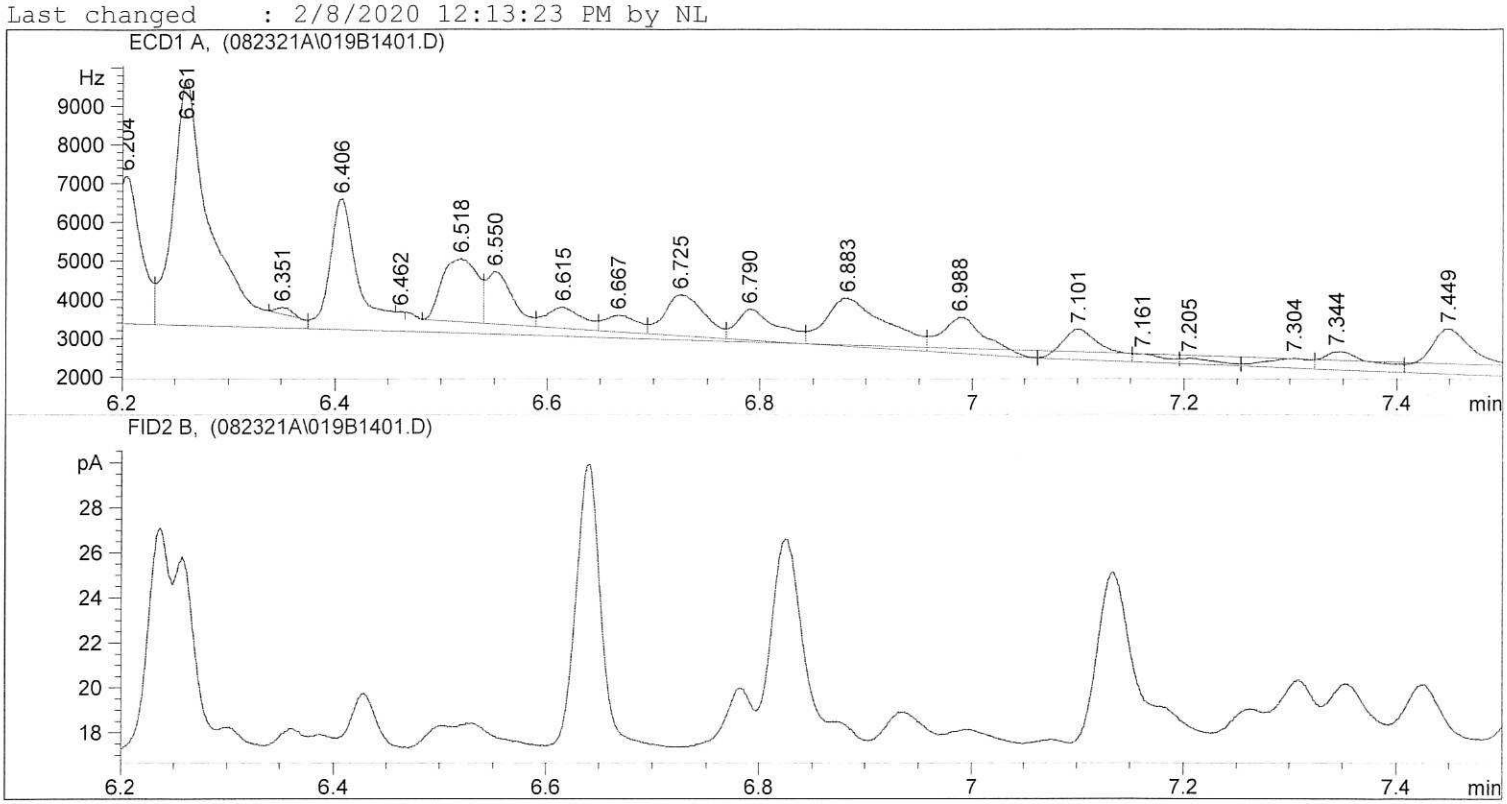
Injection Date : 8/23/2021 5:46:04 PM Seq. Line : 14
Sample Name : 21G0301 01 Location : Vial 19
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.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	5.263	BP	0.0204	1370.06897	834.43292	1.24187
2	5.323	VV	0.0219	775.31219	449.64471	0.70277
3	5.359	VV	0.0256	673.21259	316.24988	0.61022
4	5.401	VV	0.0155	1423.07764	1099.97778	1.28992
5	5.440	VV S	0.0257	7286.00293	3409.74219	6.60427
6	5.475	VV S	0.0256	4106.58203	2670.55029	3.72234
7	5.500	VV S	0.0189	1805.40796	1592.80664	1.63648
8	5.527	VV S	0.0336	2387.98926	1183.15894	2.16455
9	5.703	VV S	0.0639	1.35036e4	3522.10962	12.24007
10	5.783	VV S	0.0354	2507.31274	1180.81165	2.27271
11	5.811	VV S	0.0198	848.87012	714.53754	0.76944
12	5.868	VV S	0.0244	3193.38916	2183.15479	2.89459
13	5.906	VB S	0.0165	136.38409	137.59543	0.12362
14	5.948	BP	0.0167	477.26382	354.05222	0.43261
15	5.990	VV S	0.0187	2393.29395	1848.84375	2.16936
16	6.037	VV S	0.0585	1.16576e4	3320.14795	10.56679
17	6.123	BV T	0.0000	85.06287	157.03416	0.07710

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.175	VV T	0.0000	252.29219	72.73569	0.22869
19	6.204	VV S	0.0241	6683.79736	3801.13818	6.05841
20	6.261	VV S	0.0414	1.57752e4	6348.09912	14.29913
21	6.351	BV T	0.0118	172.31139	179.96883	0.15619
22	6.406	VB S	0.0000	50.95840	3373.28711	0.04619
23	6.462	BB T	3.21e-3	7.47934	31.06009	0.00678
24	6.518	BV T	0.0271	3709.74219	1634.44006	3.36263
25	6.550	VV T	0.0214	2386.20557	1349.54346	2.16293
26	6.615	PV T	0.0289	1302.54846	552.92877	1.18067
27	6.667	PV T	0.0255	936.27844	439.37210	0.84867
28	6.725	PV T	0.0305	2744.08252	1062.05347	2.48732
29	6.790	PV T	0.0323	2156.40039	797.64642	1.95463
30	6.883	PV T	0.0488	5003.50146	1248.50818	4.53533
31	6.988	PV T	0.0348	2738.27075	929.92303	2.48206
32	7.101	PV T	0.0330	2090.25415	780.70563	1.89467
33	7.161	PV T	0.0324	425.22888	218.63805	0.38544
34	7.205	PV T	0.0276	355.45422	153.54782	0.32220
35	7.304	PV T	0.0334	742.52399	264.44916	0.67305
36	7.344	PV T	0.0387	1548.26685	473.80438	1.40340
37	7.449	PV T	0.0389	3848.74683	1165.53918	3.48863
38	7.533	PV T	0.0282	1181.09937	496.14240	1.07059
39	7.666	PB T	0.0478	1570.40930	388.40027	1.42347
40	7.770	BV	3.41e-3	4.47291	17.30910	0.00405
41	7.791	VP	6.44e-3	6.78822	15.12800	0.00615
Totals :				1.10323e5	5.07692e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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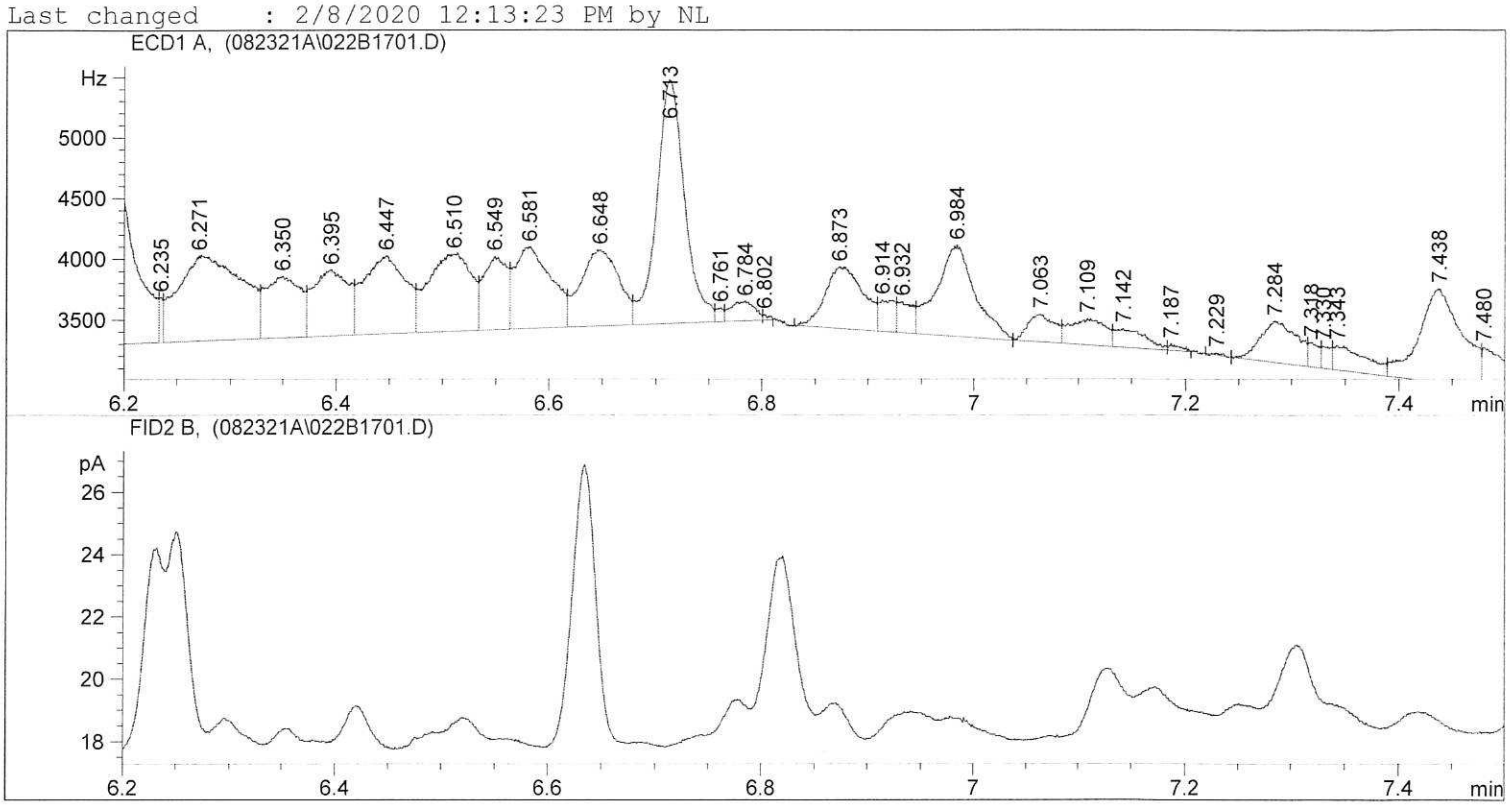
*** End of Report ***

Injection Date : 8/23/2021 6:19:29 PM Seq. Line : 17
Sample Name : 21G0301 04 Location : Vial 22
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\082321A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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	5.253	BV	0.0122	141.93031	140.07651	0.20518
2	5.271	VP	0.0119	178.64467	198.79790	0.25825
3	5.301	VP	0.0188	140.81099	92.13874	0.20356
4	5.358	VV	0.0103	140.40062	165.97324	0.20297
5	5.365	VV	5.47e-3	69.16826	165.79276	0.09999
6	5.379	VV	0.0135	202.31087	194.93631	0.29246
7	5.399	VV	0.0202	467.24200	283.71313	0.67545
8	5.436	VV	9.02e-3	137.94556	191.02638	0.19942
9	5.458	VV	0.0208	993.89874	596.20178	1.43680
10	5.505	VV	0.0159	1456.76318	1226.61926	2.10592
11	5.528	VV	0.0262	3493.62402	1683.17053	5.05044
12	5.593	VV	0.0268	1805.39453	848.14899	2.60991
13	5.647	VV	0.0228	2484.85229	1419.42053	3.59214
14	5.689	VV	0.0253	2339.79028	1225.82080	3.38244
15	5.714	VV	0.0327	3435.85498	1247.79675	4.96693
16	5.795	VV	0.0374	2866.73706	929.17670	4.14420
17	5.864	VV	0.0307	5457.14209	2155.88721	7.88894

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.932	VV	0.0329	2703.16309	987.21210	3.90774
19	5.991	VV	0.0337	2254.34814	800.27875	3.25892
20	6.036	VV	0.0335	4586.41406	1628.12329	6.63020
21	6.105	VV	8.75e-3	246.84384	470.07642	0.35684
22	6.114	VV	0.0171	688.74219	491.74243	0.99566
23	6.193	VV	0.0365	4251.05469	1406.79138	6.14540
24	6.235	VV	4.16e-3	92.99551	372.52289	0.13444
25	6.271	VV	0.0497	2921.77563	700.01862	4.22377
26	6.350	VV	0.0272	1150.17810	505.36652	1.66272
27	6.395	VV	0.0276	1235.82617	538.80182	1.78653
28	6.447	VV	0.0331	1749.96216	640.88202	2.52977
29	6.510	VV	0.0335	1789.99426	635.39410	2.58765
30	6.549	VV	0.0183	917.56854	604.43201	1.32645
31	6.581	VV	0.0285	1590.37292	669.29456	2.29907
32	6.648	VV	0.0303	1590.24341	624.05109	2.29888
33	6.713	VV	0.0248	3632.03906	2000.50842	5.25054
34	6.761	VV	6.83e-3	57.14054	114.44230	0.08260
35	6.784	VV	0.0194	253.66747	158.87961	0.36671
36	6.802	VB	5.40e-3	18.60602	47.19032	0.02690
37	6.873	PV	0.0300	1265.13879	505.76483	1.82891
38	6.914	VV	0.0127	267.95694	257.65918	0.38736
39	6.932	VV	0.0118	246.13577	256.87231	0.35582
40	6.984	VP	0.0304	1924.06763	747.98126	2.78146
41	7.063	VV	0.0217	403.92783	228.02737	0.58392
42	7.109	VV	0.0281	507.80331	215.47514	0.73409
43	7.142	VB	0.0234	304.32776	156.04738	0.43994
44	7.187	BB	9.28e-3	38.39553	52.80625	0.05551
45	7.229	PP	4.84e-3	6.24042	17.99982	0.00902
46	7.284	BV	0.0289	819.25702	340.34186	1.18433
47	7.318	VV	9.96e-3	148.07097	201.80032	0.21405
48	7.330	VB	7.44e-3	108.37174	184.86226	0.15666
49	7.343	BV	0.0259	434.42435	201.95766	0.62801
50	7.438	VV	0.0334	2166.81934	770.55756	3.13239
51	7.480	VV	0.0290	811.51880	333.05356	1.17315
52	7.543	VP	0.0107	107.38152	123.48277	0.15523
53	7.610	VV	0.0189	244.95908	157.89674	0.35412
54	7.617	VV	6.26e-3	73.74618	157.44197	0.10661
55	7.659	VV	0.0213	623.21082	354.89926	0.90092
56	7.665	VV	0.0204	593.35529	353.39810	0.85776
57	7.735	VV	0.0292	378.45587	154.35982	0.54710
58	7.754	VV	0.0102	103.02253	124.75244	0.14893
59	7.772	VV	8.08e-3	42.58125	66.42059	0.06156
60	7.790	VBA	4.80e-3	12.01647	31.89106	0.01737
Totals :				6.91746e4	3.21565e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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Injection Date  : 8/23/2021 6:52:23 PM          Seq. Line :  20
Sample Name     : CS4 STANDARD                   Location : Vial 10
Acq. Operator   : DXP                                Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\082321A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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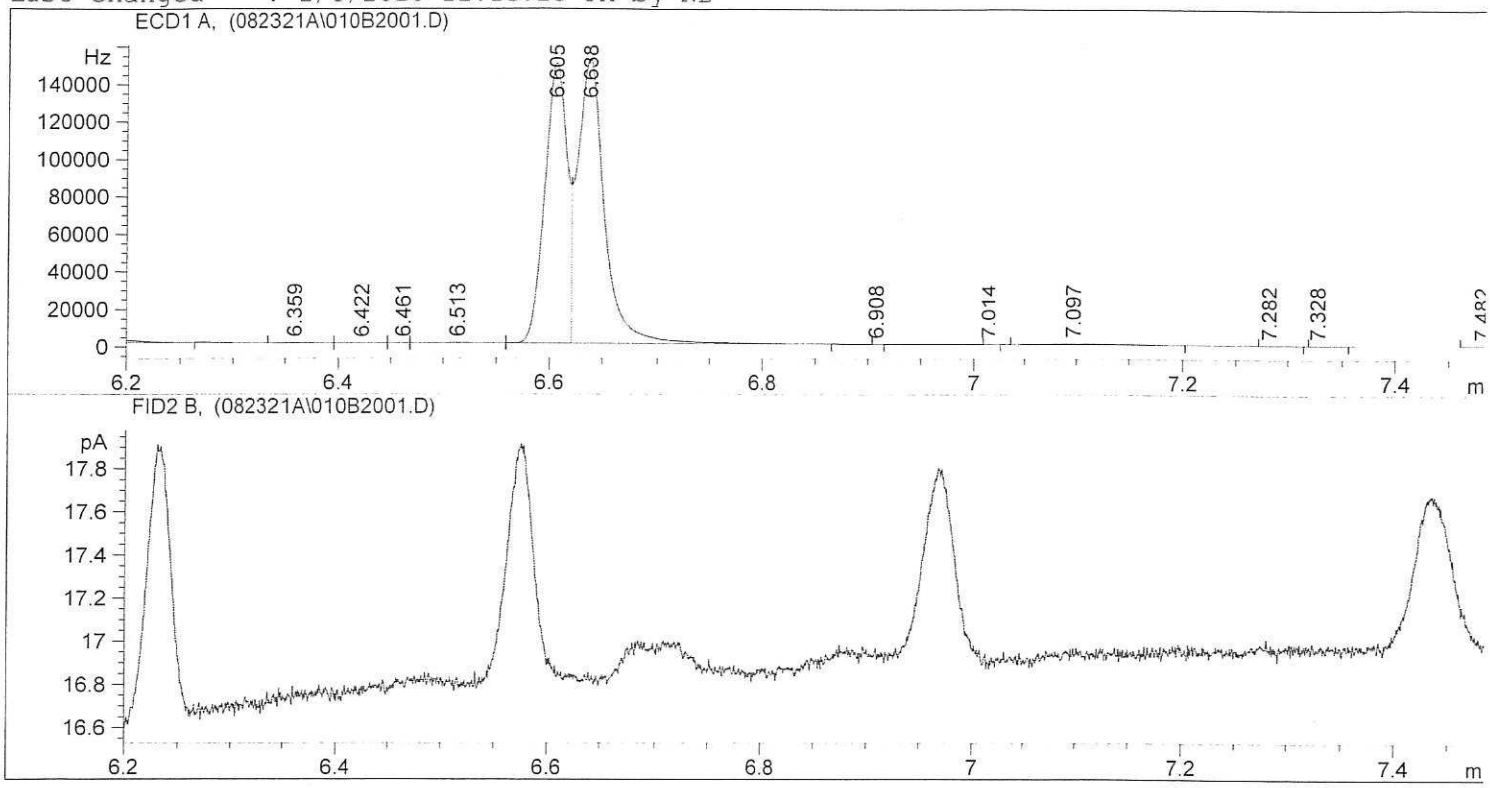


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==========================================================================
                          Area Percent Report
==========================================================================

Sorted By              :      Signal
Multiplier             :      1.0000
Dilution               :      1.0000
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Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.274	BP	9.93e-3	20.48735	29.38240	0.00106
2	5.326	VB	0.0183	188.66721	128.53477	0.00978
3	5.391	PP	0.0128	62.04951	58.54503	0.00322
4	5.466	BV S	0.0256	2.64653e5	1.43272e5	13.71647
5	5.565	VV S	0.0383	4.21908e5	1.83553e5	21.86669
6	5.623	VV S	0.0227	1.54251e5	1.13425e5	7.99452
7	5.669	VV S	0.0276	1.53449e5	9.28077e4	7.95297
8	5.824	VB S	0.0341	1023.36981	500.73782	0.05304
9	5.913	BV S	0.0200	1.55602e5	1.16106e5	8.06456
10	6.062	VV S	0.0204	1.40486e5	1.03816e5	7.28114
11	6.141	VB S	0.0262	1.46282e5	9.29904e4	7.58150
12	6.359	PV	0.0207	353.64255	209.94122	0.01833
13	6.422	VV	0.0229	222.16077	118.26600	0.01151
14	6.461	VV	0.0135	89.16703	84.60288	0.00462
15	6.513	VV	0.0404	679.95789	198.45934	0.03524
16	6.605	VV S	0.0210	2.15274e5	1.49139e5	11.15725
17	6.638	VB S	0.0299	2.71825e5	1.51671e5	14.08818

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.908	PB	2.31e-3	6.52651e-1	5.04636	3.383e-5
19	7.014	BP	6.49e-3	3.44316	8.83638	0.00018
20	7.097	PB	0.0479	1965.19348	490.72467	0.10185
21	7.282	PP	2.28e-3	1.24558	8.67550	6.456e-5
22	7.328	BP	0.0182	12.34835	11.31859	0.00064
23	7.482	BV	0.0104	13.12331	15.36418	0.00068
24	7.505	VB	9.21e-3	9.26239	12.85637	0.00048
25	7.638	PV	0.0300	1080.22180	438.12473	0.05599
Totals :				1.92946e6	1.14910e6	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glasswa

Batch ID: BJH0203 Work Order: 2160211, 2160213, 2160283 Extraction Parameter: Dioxin ARI Analyst DS

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	Treatment
BJH0203 - BLK1	60	51		06 07	12	161	10	48 72				4	4	A1
- BS1	04	89		02	88	72	166	26				4	4	A2
- DUP1	40	109		06	54	186	143	47				4	4	A3
- SRM1	31	94		11	70	143	137	18				4	4	A4
2160211 - 11C	25	~~98~~ 111		188	14	57	113	49				4	4	A5
- 12C	03	62		260	92	21	131	22				4	4	A6
- 13C	80	69		30	44	194	101	67				4	4	B1
- 14C	07	46		18	68	220	158	15				4	4	B2
- 15C	11	107		243	69	210	4	57				4	4	B3
- 16C	68	02		201	37	96	17	4				4	4	B4
2160213 - 01C	87	105		231	07	217	110	69				4	4	B5
- 02C	77	57		14	72	227	3	23				4	4	B6
- 03C	73	56		256	08	223	86	83				4	4	C1
- 06C	18	106		16	75	172	161	62				4	4	C2
- 07C	06	77		33	51	203	44	37				4	4	C3
- 08C	82	113		257	89	185	116	75				4	4	C4
2160283 - 11C	70	67		15	38	170	164	36				4	4	C5
- 12C	53	103		19	83	17	119	84				4	4	C6
- 13C	51	83		177	87	299	2	1				4	4	D1
- 14C	9	107		194	49	228	14	8				4	4	D2
- 15C	23	46		216	46	121	89	11				4	4	D3
- 16C	44	110		259	90	222	81	14				4	4	D4
- 17C	15	104		34	45	199	17	71				4	4	D5
- 18C	16	91		199	11	175	104	37						D6

21G0283 Dioxin CEPLIKE (Rev0) - Page 369 of 384

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJI0112	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT670C	21G0283-15	21092056	09/13/2021	
LDW21-IT650C	21G0283-18	21092059	09/13/2021	
LDW21-IT664B	21G0283-11	21092050	09/13/2021	
Reference	BJH0203-SRM1	21092032	09/13/2021	
LCS	BJH0203-BS1	21092031	09/13/2021	
Blank	BJH0203-BLK1	21092030	09/13/2021	
LDW21-IT664C	21G0283-12	21092051	09/13/2021	
LDW21-IT670B	21G0283-14	21092053	09/13/2021	
LDW21-IT670E	21G0283-16	21092057	09/13/2021	
LDW21-IT650B	21G0283-17	21092058	09/13/2021	
LDW21-IT664E	21G0283-13	21092052	09/13/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJI0112

Matrix: Solid **Cleanup using: HRGCMS - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 9/15/2021 11:46:17AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21G0283-18	C	LDW21-IT650C	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0283-17	C	LDW21-IT650B	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0283-13	C	LDW21-IT664E	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0283-14	C	LDW21-IT670B	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0283-15	C	LDW21-IT670C	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0283-16	C	LDW21-IT670E	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0213-01	C	LDW21-IT655B	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0213-02	C	LDW21-IT655C	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0213-03	C	LDW21-IT655E	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0213-06	C	LDW21-IT663B	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0213-07	C	LDW21-IT663C	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0213-08	C	LDW21-IT663E	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0283-11	C	LDW21-IT664B	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0283-12	C	LDW21-IT664C	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0211-11	C	LDW21-IT665B	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0211-12	C	LDW21-IT665C	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0211-13	C	LDW21-IT665E	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0211-14	C	LDW21-IT666B	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0211-15	C	LDW21-IT666C	C 01	20	20	1613B Dioxin	9/13/2021	VB	
21G0211-16	C	LDW21-IT666E	C 01	20	20	1613B Dioxin	9/13/2021	VB	
BJH0203-SRM1	-	Reference	-	20	20	-	9/13/2021	VB	
BJH0203-DUP1	-	Duplicate	-	20	20	-	9/13/2021	VB	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJI0112

Matrix: Solid **Cleanup using: HRGCMS - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 9/15/2021 11:46:17AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
BJH0203-BLK1	-	Blank	-	20	20	-	9/13/2021	VB	
BJH0203-BS1	-	LCS	-	20	20	-	9/13/2021	VB	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJI0113	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-IT664E	21G0283-13	21092052	09/15/2021	
LDW21-IT670B	21G0283-14	21092053	09/15/2021	
LDW21-IT670C	21G0283-15	21092056	09/15/2021	
LDW21-IT664B	21G0283-11	21092050	09/14/2021	
LDW21-IT650C	21G0283-18	21092059	09/15/2021	
LDW21-IT650B	21G0283-17	21092058	09/15/2021	
LDW21-IT664C	21G0283-12	21092051	09/15/2021	
Reference	BJH0203-SRM1	21092032	09/14/2021	
LDW21-IT670E	21G0283-16	21092057	09/15/2021	
LCS	BJH0203-BS1	21092031	09/14/2021	
Blank	BJH0203-BLK1	21092030	09/14/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJI0113

Matrix: Solid **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup** **Printed: 9/15/2021 11:46:29AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21G0283-18	C	LDW21-IT650C	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-17	C	LDW21-IT650B	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-13	C	LDW21-IT664E	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-14	C	LDW21-IT670B	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-15	C	LDW21-IT670C	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-16	C	LDW21-IT670E	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0213-01	C	LDW21-IT655B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-02	C	LDW21-IT655C	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-03	C	LDW21-IT655E	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-06	C	LDW21-IT663B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-07	C	LDW21-IT663C	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-08	C	LDW21-IT663E	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0283-11	C	LDW21-IT664B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0283-12	C	LDW21-IT664C	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0211-11	C	LDW21-IT665B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-12	C	LDW21-IT665C	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-13	C	LDW21-IT665E	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-14	C	LDW21-IT666B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-15	C	LDW21-IT666C	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-16	C	LDW21-IT666E	C 01	20	20	1613B Dioxin	9/14/2021	VB	
BJH0203-SRM1	-	Reference	-	20	20	-	9/14/2021	VB	
BJH0203-DUP1	-	Duplicate	-	20	20	-	9/14/2021	VB	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJI0113

Matrix: Solid **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup** **Printed: 9/15/2021 11:46:29AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
BJH0203-BLK1	-	Blank	-	20	20	-	9/14/2021	VB	
BJH0203-BS1	-	LCS	-	20	20	-	9/14/2021	VB	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJI0114	Cleanup Type:	Florisil
Cleanup Method:	EPA 3620B Florisil Cleanup (uL)	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-IT650B	21G0283-17	21092058	09/15/2021	
LCS	BJH0203-BS1	21092031	09/14/2021	
Blank	BJH0203-BLK1	21092030	09/14/2021	
LDW21-IT670E	21G0283-16	21092057	09/15/2021	
LDW21-IT670C	21G0283-15	21092056	09/15/2021	
LDW21-IT670B	21G0283-14	21092053	09/15/2021	
LDW21-IT664E	21G0283-13	21092052	09/15/2021	
LDW21-IT664C	21G0283-12	21092051	09/15/2021	
LDW21-IT664B	21G0283-11	21092050	09/14/2021	
Reference	BJH0203-SRM1	21092032	09/14/2021	
LDW21-IT650C	21G0283-18	21092059	09/15/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJI0114

Matrix: Solid **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup (uL)** **Printed: 9/15/2021 11:46:45AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21G0283-18	C	LDW21-IT650C	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-17	C	LDW21-IT650B	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-13	C	LDW21-IT664E	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-14	C	LDW21-IT670B	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-15	C	LDW21-IT670C	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0283-16	C	LDW21-IT670E	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0213-01	C	LDW21-IT655B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-02	C	LDW21-IT655C	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-03	C	LDW21-IT655E	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-06	C	LDW21-IT663B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-07	C	LDW21-IT663C	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0213-08	C	LDW21-IT663E	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0283-11	C	LDW21-IT664B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0283-12	C	LDW21-IT664C	C 01	20	20	1613B Dioxin	9/15/2021	VB	
21G0211-11	C	LDW21-IT665B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-12	C	LDW21-IT665C	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-13	C	LDW21-IT665E	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-14	C	LDW21-IT666B	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-15	C	LDW21-IT666C	C 01	20	20	1613B Dioxin	9/14/2021	VB	
21G0211-16	C	LDW21-IT666E	C 01	20	20	1613B Dioxin	9/14/2021	VB	
BJH0203-SRM1	-	Reference	-	20	20	-	9/14/2021	VB	
BJH0203-DUP1	-	Duplicate	-	20	20	-	9/14/2021	VB	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJI0114

Matrix: Solid **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup (uL)** **Printed: 9/15/2021 11:46:45AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
BJH0203-BLK1	-	Blank	-	20	20	-	9/14/2021	VB	
BJH0203-BS1	-	LCS	-	20	20	-	9/14/2021	VB	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Blank

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Solid	Laboratory ID:	BJH0203-BLK1	File ID:	21092030
Sampled:	N/A	Prepared:	09/09/21 15:30	Analyzed:	09/21/21 16:21
Solids Wt%:		Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	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	0.071	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1	0.000	0.655-0.886	0.095	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	0.000	1.318-1.783	0.089	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	0.000	1.318-1.783	0.084	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	0.000	1.318-1.783	0.110	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.000	1.054-1.426	0.080	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.000	1.054-1.426	0.076	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.000	1.054-1.426	0.080	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.000	1.054-1.426	0.097	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.000	1.054-1.426	0.093	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1	0.000	1.054-1.426	0.094	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1	0.000	1.054-1.426	0.100	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.000	0.893-1.208	0.085	1.00	ND	ng/kg	U
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.000	0.893-1.208	0.128	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.985	0.893-1.208	0.187	2.50	0.247	ng/kg	EMPC, J
39001-02-0	OCDF	1	0.000	0.757-1.024	0.186	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	0.844	0.757-1.024	0.208	10.0	4.03	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	0.266	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.004
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.156

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:	21G0283
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Solid	Laboratory ID:	BJH0203-BLK1	File ID:	21092030
Sampled:	N/A	Prepared:	09/09/21 15:30	Analyzed:	09/21/21 16:21
Solids Wt%:	0.00	Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0282	Calibration:	EH00030
Batch:	BJH0203	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.795	0.655-0.886	0.14	81.1	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.771	0.655-0.886	0.15	95.7	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.608	1.318-1.783	0.12	75.5	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.622	1.318-1.783	0.13	74.2	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.605	1.318-1.783	0.13	81.5	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.520	0.434-0.587	0.22	89.7	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.514	0.434-0.587	0.21	84.6	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.526	0.434-0.587	0.23	86.7	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.535	0.434-0.587	0.27	86.7	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.279	1.054-1.426	0.17	95.1	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.303	1.054-1.426	0.15	88.9	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.462	0.374-0.506	0.19	74.4	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.465	0.374-0.506	0.23	71.4	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.031	0.893-1.208	0.19	85.6	23 - 140 %	
13C12-OCDD	1	0.872	0.757-1.024	0.34	81.6	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.06	93.9	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:08 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, 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	634	809								
12378-PeCDF					1.015		1.550	631	819								
23478-PeCDF					1.126		1.550	631	819								
123478-HxCDF					1.017		1.240	594	705								
234678-HxCDF					1.052		1.240	594	705								
123678-HxCDF					1.037		1.240	594	705								
123789-HxCDF					1.030		1.240	594	705								
1234678-HpCDF					1.327		1.050	624	497								
1234789-HpCDF					1.283		1.050	624	497								
OCDF					1.447		0.890	493	662								
2378-TCDD					0.920		0.770	903	660								
12378-PeCDD					0.995		1.550	601	510								
123478-HxCDD					1.027		1.240	613	664								
123678-HxCDD					1.009		1.240	613	664								
123789-HxCDD					0.950		1.240	613	664								
1234678-HpCDD	40.292	1.001	2.582e2	1.300e2	1.068	1.985	1.050	648	783	3.18e3	3.04e3	4.9	3.9	YES	bb	bb	0.124
OCDD	45.032	1.000	2.435e3	2.884e3	1.181	0.844	0.890	517	538	3.05e4	3.58e4	58.9	66.5	NO	bb	bb	2.017
13C-2378-TCDF	25.761	1.008	3.374e5	4.243e5	1.427	0.795	0.770	2209	1311	4.88e6	6.20e6	2210.4	4727.0	NO	bb	bb	81.065
13C-12378-PeCDF	29.920	1.170	3.979e5	2.474e5	1.297	1.608	1.550	1251	1413	5.94e6	3.67e6	4750.1	2598.4	NO	bb	bb	75.518
13C-23478-PeCDF	31.257	1.223	3.739e5	2.305e5	1.236	1.622	1.550	1251	1413	5.66e6	3.50e6	4528.3	2479.9	NO	bb	bb	74.213
13C-123478-HxCDF	34.878	0.955	2.072e5	3.984e5	1.242	0.520	0.510	1306	2722	3.26e6	6.24e6	2499.9	2290.4	NO	bd	bd	89.738
13C-123678-HxCDF	35.023	0.959	2.095e5	4.076e5	1.343	0.514	0.510	1306	2722	3.35e6	6.53e6	2568.1	2400.4	NO	db	db	84.566
13C-234678-HxCDF	35.892	0.983	1.971e5	3.750e5	1.215	0.526	0.510	1306	2722	3.20e6	6.17e6	2449.2	2266.9	NO	bb	bb	86.692
13C-123789-HxCDF	36.928	1.012	1.655e5	3.092e5	1.008	0.535	0.510	1306	2722	2.71e6	5.13e6	2073.3	1883.8	NO	bb	bb	86.728
13C-1234678-HpCDF	38.766	1.062	1.184e5	2.563e5	0.926	0.462	0.440	1144	1379	1.88e6	4.01e6	1641.1	2909.2	NO	bd	bd	74.448
13C-1234789-HpCDF	41.017	1.124	9.330e4	2.008e5	0.758	0.465	0.440	1144	1379	1.30e6	2.76e6	1140.4	2003.4	NO	bd	bd	71.426
13C-1234-TCDD	25.564	0.000	2.842e5	3.744e5	1.000	0.759	0.770	1869	965	4.43e6	5.80e6	2368.4	6010.9	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	3.065e5	3.973e5	1.116	0.771	0.770	1869	965	4.67e6	6.02e6	2501.5	6244.1	NO	bb	bb	95.705
13C-12378-PeCDD	31.502	1.232	2.421e5	1.509e5	0.732	1.605	1.550	941	703	3.76e6	2.30e6	3996.8	3280.3	NO	bb	bb	81.528
13C-123478-HxCDD	35.992	0.986	2.782e5	2.176e5	0.960	1.279	1.240	1497	852	4.49e6	3.56e6	2997.0	4183.5	NO	bd	bd	95.094
13C-123678-HxCDD	36.115	0.989	2.845e5	2.184e5	1.041	1.303	1.240	1497	852	4.58e6	3.52e6	3061.7	4130.9	NO	db	db	88.914
13C-1234678-HpCDD	40.270	1.103	1.492e5	1.448e5	0.632	1.031	1.050	897	865	2.18e6	2.13e6	2431.5	2463.1	NO	bb	bb	85.581
13C-OCDD	45.022	1.233	2.080e5	2.386e5	0.504	0.872	0.890	1260	1208	2.40e6	2.72e6	1907.3	2249.2	NO	bb	bb	163.199
13C-123789-HxCDD	36.505	0.000	3.026e5	2.406e5	1.000	1.258	1.240	1497	852	4.88e6	3.83e6	3261.2	4500.3	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	2.682e5		1.084			1060		3.82e6		3602.9			bb		37.573

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:08 Pacific Daylight Time

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, 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	634	809								
1289-TCDF					1.043		0.770	634	809								
13468-PECDF					1.376		1.550	508	780								
12389-PECDF					1.000		1.550	631	819								
123468-HXCDF					1.087		1.240	594	705								
1368-TCDD					0.923		0.770	903	660								
1289-TCDD					0.794		0.770	903	660								
12479-PECDD					1.843		1.550	601	510								
12389-PECDD					1.154		1.550	601	510								
124679-HXCDD					1.125		1.240	613	664								
1234679-HPCDD	39.223	0.974	2.273e2	2.456e2	1.211	0.926	1.050	648	783	4.19e3	4.48e3	6.5	5.7	NO	bb	bb	0.133
Total-tetrafurans			0.000e0		1.192			634		0.00e0							
Total-penta1			0.000e0					508		0.00e0							
Total-pentafurans			0.000e0		1.047			631		0.00e0							
Total-hexafurans			0.000e0		1.045			594		0.00e0							
Total-heptafurans			0.000e0		1.305			624		0.00e0							
Total-Furans			0.000e0		1.158			634		0.00e0							
Total-tetradioxins			0.000e0		0.879			903		0.00e0							
Total-pentadioxins			0.000e0		1.331			601		0.00e0							
Total-hexadioxins			0.000e0		1.028			613		0.00e0							
Total-heptadioxins			2.273e2		1.140			648		4.19e3							0.133
Total-Dioxins			2.662e3		1.092			903		3.46e4							2.150
Total-TEQ			2.662e3					903		3.46e4							2.150
FUNCTION1 PFK			5.339e5					456309		8.98e6							
FUNCTION2 PFK			1.127e6					378357		1.88e7							0.000
FUNCTION3 PFK			2.662e5					492960		3.02e6							0.000
FUNCTION4 PFK			1.753e6					207390		2.24e7							
FUNCTION5 PFK			7.339e4					169574		2.79e6							
FUNCTION1 HXCD...			3.857e2					584		5.60e3							0.000
FUNCTION1 HPCD...			2.583e3					714		3.36e4							0.000
FUNCTION2 HPCD...			1.594e2					890		3.49e3							0.000
FUNCTION3 OCDPE			3.230e2					487		4.86e3							0.000
FUNCTION4 NCDPE			0.000e0					608		0.00e0							
FUNCTION5 DCDPE			0.000e0					549		0.00e0							

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, 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													

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, 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	1234679-HPCDD	39.22	2.273e2	2.456e2	1.211	0.93	1.05	6.5	YES	NO	bb	bb	0.133

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	45.03	2.435e3	2.884e3	1.181	0.84	0.89	58.9	YES	NO	bb	bb	2.017
2	1234679-HPCDD	39.22	2.273e2	2.456e2	1.211	0.93	1.05	6.5	YES	NO	bb	bb	0.133

TotalTEQ,Furans,Dioxins

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

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.23	1.638e5					7.1	YES		bd		
2	FUNCTION1 PFK	21.13	4.259e4					2.5	NO		bb		
3	FUNCTION1 PFK	27.45	9.726e4					2.9	NO		bb		
4	FUNCTION1 PFK	24.26	2.302e5					7.2	YES		db		

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Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:08 Pacific Daylight Time

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, 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	30.13	1.844e4					2.1	NO		bb		0.000
2	FUNCTION2 PFK	30.00	9.565e3					1.1	NO		db		0.000
3	FUNCTION2 PFK	29.95	8.538e3					1.0	NO		bd		0.000
4	FUNCTION2 PFK	29.91	2.208e3					0.5	NO		bb		0.000
5	FUNCTION2 PFK	29.63	1.881e4					1.8	NO		bb		0.000
6	FUNCTION2 PFK	29.55	1.104e5					3.2	YES		bb		0.000
7	FUNCTION2 PFK	29.39	6.109e3					0.6	NO		bb		0.000
8	FUNCTION2 PFK	29.21	2.197e4					1.5	NO		bb		0.000
9	FUNCTION2 PFK	28.73	5.441e4					3.3	YES		bb		0.000
10	FUNCTION2 PFK	28.46	3.746e4					2.3	NO		db		0.000
11	FUNCTION2 PFK	28.42	4.299e4					3.0	YES		dd		0.000
12	FUNCTION2 PFK	28.33	1.593e5					4.5	YES		dd		0.000
13	FUNCTION2 PFK	28.19	3.107e5					6.9	YES		bd		0.000
14	FUNCTION2 PFK	32.88	1.394e4					1.4	NO		bb		0.000
15	FUNCTION2 PFK	32.83	2.492e4					2.0	NO		db		0.000
16	FUNCTION2 PFK	32.76	9.539e4					2.5	NO		bd		0.000
17	FUNCTION2 PFK	32.06	4.045e3					0.6	NO		bb		0.000
18	FUNCTION2 PFK	31.40	4.276e4					1.4	NO		db		0.000
19	FUNCTION2 PFK	31.32	1.385e4					1.3	NO		bd		0.000
20	FUNCTION2 PFK	31.22	3.082e4					1.2	NO		bb		0.000
21	FUNCTION2 PFK	31.08	4.570e3					0.6	NO		bb		0.000
22	FUNCTION2 PFK	30.80	9.630e3					0.6	NO		bb		0.000
23	FUNCTION2 PFK	30.74	8.220e3					0.9	NO		bb		0.000
24	FUNCTION2 PFK	30.66	1.779e3					0.4	NO		bb		0.000
25	FUNCTION2 PFK	30.50	2.862e4					1.7	NO		db		0.000
26	FUNCTION2 PFK	30.44	3.509e4					1.9	NO		bd		0.000
27	FUNCTION2 PFK	30.34	7.438e3					0.9	NO		bb		0.000
28	FUNCTION2 PFK	30.30	4.995e3					0.7	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	37.32	2.444e4					1.6	NO		bb		0.000
2	FUNCTION3 PFK	33.59	1.273e5					1.8	NO		bb		0.000
3	FUNCTION3 PFK	33.41	1.145e5					2.7	NO		bb		0.000

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, 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	39.45	6.529e3					1.4	NO		db		
2	FUNCTION4 PFK	39.33	4.089e4					2.5	NO		bd		
3	FUNCTION4 PFK	39.25	7.226e3					0.6	NO		bb		
4	FUNCTION4 PFK	39.18	8.654e2					0.4	NO		bb		
5	FUNCTION4 PFK	38.98	7.152e3					1.5	NO		db		
6	FUNCTION4 PFK	38.93	2.621e4					2.3	NO		bd		
7	FUNCTION4 PFK	38.86	7.120e3					1.7	NO		bb		
8	FUNCTION4 PFK	38.58	2.438e3					0.8	NO		db		
9	FUNCTION4 PFK	38.54	5.308e3					0.9	NO		bd		
10	FUNCTION4 PFK	38.20	7.033e5					13.1	YES		db		
11	FUNCTION4 PFK	38.04	1.715e5					20.0	YES		dd		
12	FUNCTION4 PFK	37.96	4.113e5					23.7	YES		bd		
13	FUNCTION4 PFK	41.57	3.344e4					2.1	NO		bd		
14	FUNCTION4 PFK	41.46	3.289e4					2.7	NO		db		
15	FUNCTION4 PFK	41.37	3.599e3					0.8	NO		bd		
16	FUNCTION4 PFK	41.25	1.447e4					1.6	NO		bb		
17	FUNCTION4 PFK	41.09	1.172e4					1.8	NO		bb		
18	FUNCTION4 PFK	41.04	9.268e3					1.8	NO		db		
19	FUNCTION4 PFK	41.01	1.234e4					1.7	NO		bd		
20	FUNCTION4 PFK	40.76	6.554e3					1.1	NO		bb		
21	FUNCTION4 PFK	40.66	6.960e3					1.2	NO		db		
22	FUNCTION4 PFK	40.55	2.361e4					2.1	NO		bd		
23	FUNCTION4 PFK	40.38	1.530e4					2.2	NO		db		
24	FUNCTION4 PFK	40.35	4.415e4					2.9	NO		bd		
25	FUNCTION4 PFK	40.19	4.779e4					2.3	NO		bb		
26	FUNCTION4 PFK	39.94	2.982e3					0.9	NO		bb		
27	FUNCTION4 PFK	39.85	5.377e3					1.1	NO		bb		
28	FUNCTION4 PFK	39.66	2.795e4					2.5	NO		bb		
29	FUNCTION4 PFK	43.00	5.156e3					0.0	NO		bb		
30	FUNCTION4 PFK	42.70	6.223e3					1.0	NO		bb		
31	FUNCTION4 PFK	42.63	1.376e4					2.2	NO		db		
32	FUNCTION4 PFK	42.60	6.418e3					1.4	NO		bd		
33	FUNCTION4 PFK	42.34	5.776e3					1.2	NO		bb		
34	FUNCTION4 PFK	42.19	9.902e3					1.2	NO		bb		
35	FUNCTION4 PFK	41.96	2.697e3					0.5	NO		bb		
36	FUNCTION4 PFK	41.92	3.946e3					1.0	NO		bb		
37	FUNCTION4 PFK	41.66	1.044e4					1.6	NO		db		

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, 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	44.41	4.919e3					1.4	NO		bb		
2	FUNCTION5 PFK	43.81	9.157e3					1.8	NO		bb		
3	FUNCTION5 PFK	43.35	7.328e3					1.2	NO		bb		
4	FUNCTION5 PFK	43.27	1.118e4					1.8	NO		db		
5	FUNCTION5 PFK	43.21	1.316e4					2.1	NO		dd		
6	FUNCTION5 PFK	43.14	5.525e3					1.4	NO		bd		
7	FUNCTION5 PFK	45.97	1.389e3					0.6	NO		bb		
8	FUNCTION5 PFK	45.93	2.628e3					0.8	NO		bb		
9	FUNCTION5 PFK	45.81	6.147e3					1.8	NO		bb		
10	FUNCTION5 PFK	45.76	2.940e3					1.0	NO		bb		
11	FUNCTION5 PFK	45.51	6.842e2					0.4	NO		bb		
12	FUNCTION5 PFK	44.89	6.632e2					0.4	NO		bb		
13	FUNCTION5 PFK	44.72	7.666e3					1.7	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.74	8.168e1					2.2	NO		bb		0.000
2	FUNCTION1 HXCD...	26.64	8.149e1					1.7	NO		bb		0.000
3	FUNCTION1 HXCD...	24.42	7.690e1					1.9	NO		bb		0.000
4	FUNCTION1 HXCD...	23.52	7.109e1					2.2	NO		bb		0.000
5	FUNCTION1 HXCD...	22.81	7.450e1					1.6	NO		bb		0.000

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, 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...	21.19	1.542e2					3.2	YES		dd		0.000
2	FUNCTION1 HPCD...	21.13	9.637e1					2.3	NO		bd		0.000
3	FUNCTION1 HPCD...	27.95	8.410e1					1.7	NO		db		0.000
4	FUNCTION1 HPCD...	27.77	1.085e2					1.7	NO		bd		0.000
5	FUNCTION1 HPCD...	27.26	8.192e1					1.8	NO		db		0.000
6	FUNCTION1 HPCD...	27.05	1.051e2					2.2	NO		bd		0.000
7	FUNCTION1 HPCD...	26.85	1.007e2					2.1	NO		bb		0.000
8	FUNCTION1 HPCD...	24.75	1.236e2					2.3	NO		db		0.000
9	FUNCTION1 HPCD...	24.63	1.959e2					3.3	YES		bd		0.000
10	FUNCTION1 HPCD...	22.36	7.031e1					2.1	NO		bb		0.000
11	FUNCTION1 HPCD...	21.98	1.570e2					2.4	NO		db		0.000
12	FUNCTION1 HPCD...	21.77	1.860e2					3.4	YES		dd		0.000
13	FUNCTION1 HPCD...	21.68	1.567e2					3.4	YES		dd		0.000
14	FUNCTION1 HPCD...	21.62	2.154e2					3.7	YES		dd		0.000
15	FUNCTION1 HPCD...	21.45	4.250e2					4.2	YES		dd		0.000
16	FUNCTION1 HPCD...	21.39	1.148e2					3.7	YES		dd		0.000
17	FUNCTION1 HPCD...	21.35	2.070e2					3.5	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...	32.54	7.207e1					2.1	NO		bb		0.000
2	FUNCTION2 HPCD...	29.13	8.735e1					1.8	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	36.50	9.645e1					3.2	YES		bb		0.000
2	FUNCTION3 OCDPE	34.87	7.423e1					2.3	NO		db		0.000
3	FUNCTION3 OCDPE	34.81	7.833e1					2.9	NO		bd		0.000
4	FUNCTION3 OCDPE	34.12	7.397e1					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													

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Printed: Wednesday, September 22, 2021 09:38:08 Pacific Daylight Time

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, Conditions: AUTOSPEC01, User: pk

ETHERS6

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

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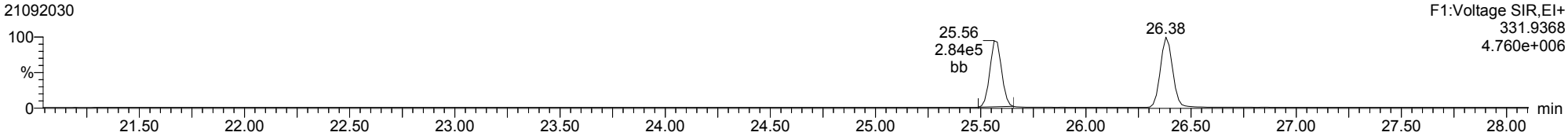

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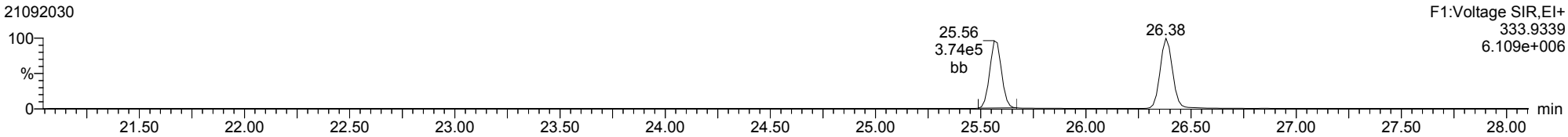

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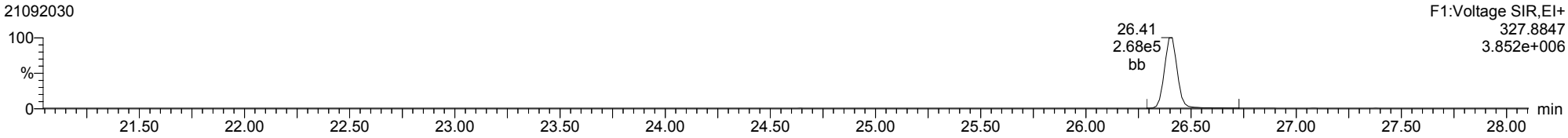

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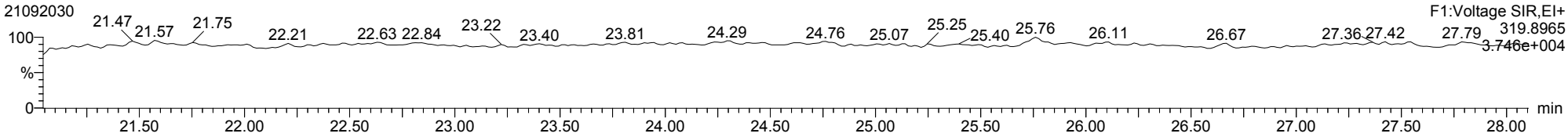
2378-TCDD



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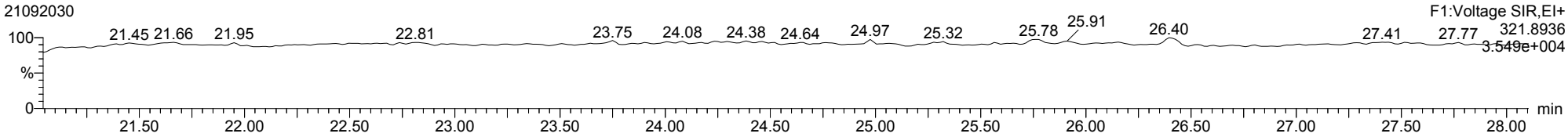

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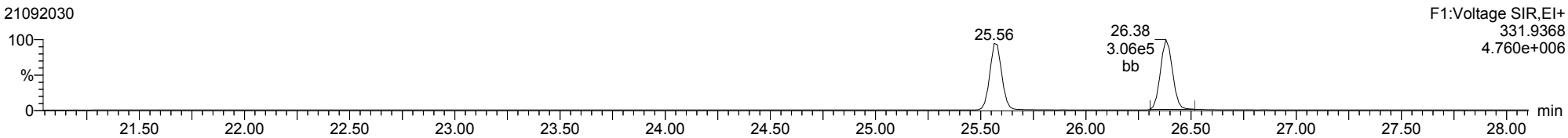

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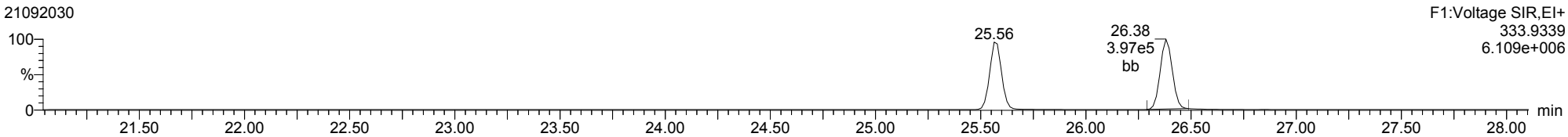

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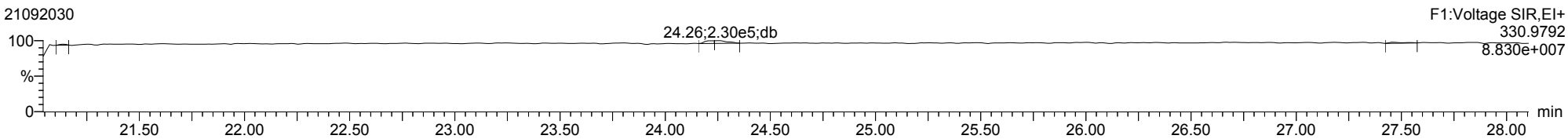

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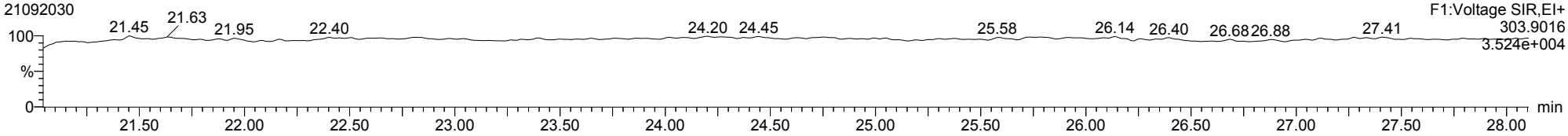

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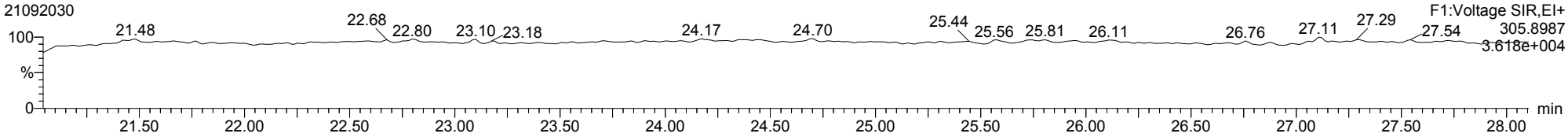

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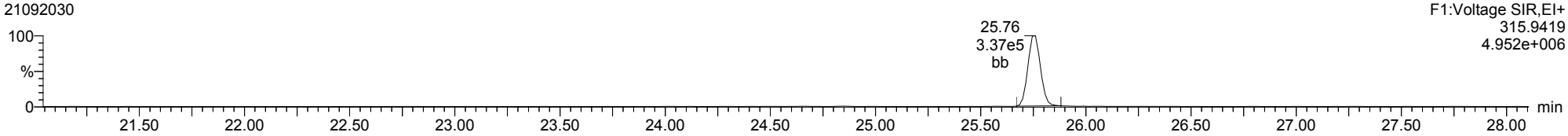

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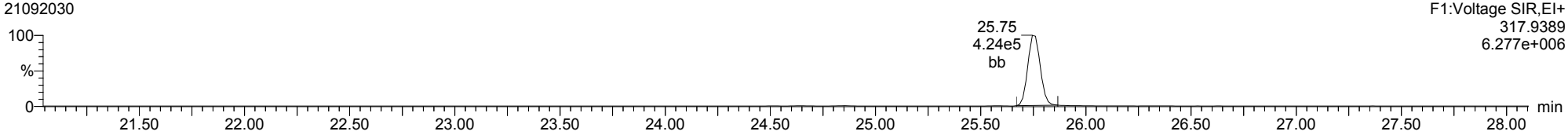

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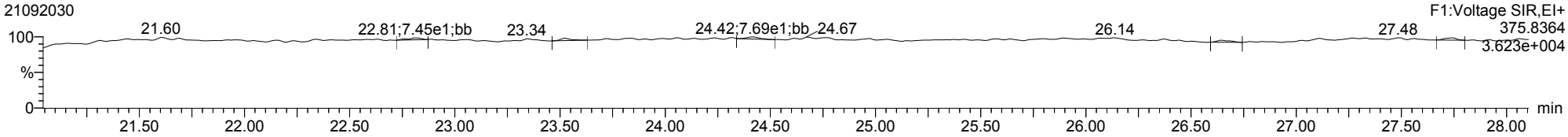

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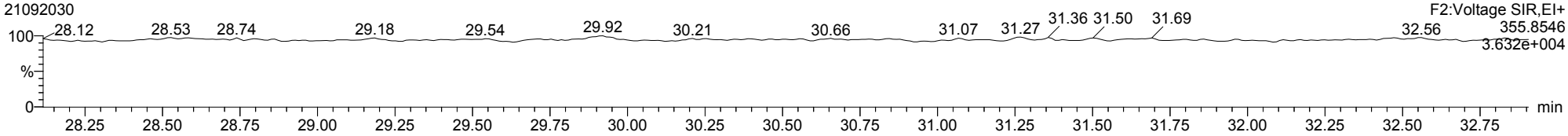

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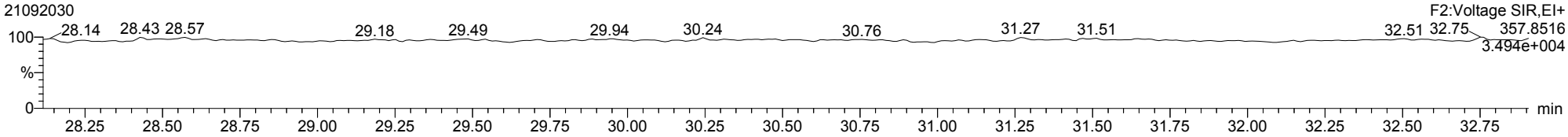

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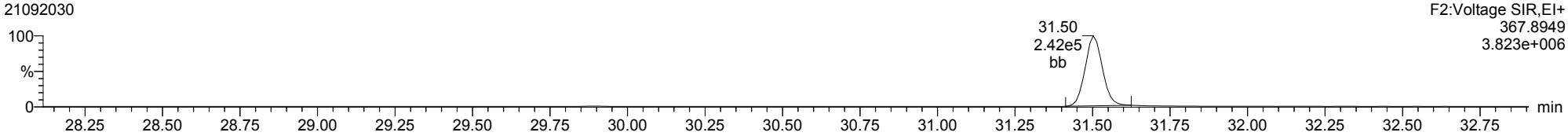

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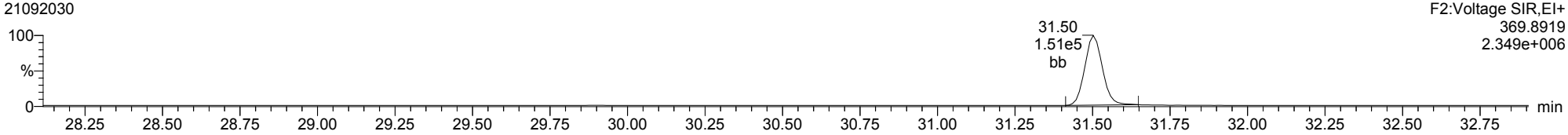
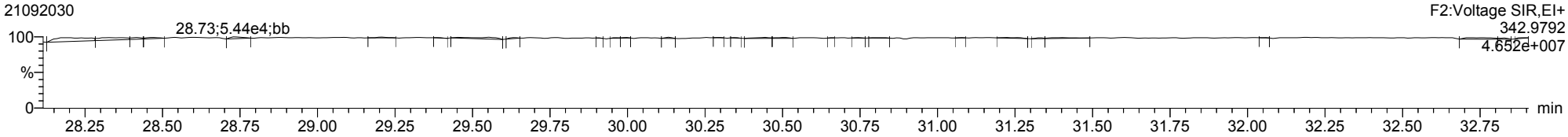


FUNCTION2 PFK



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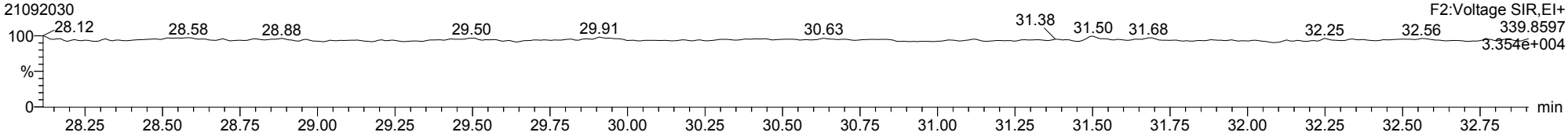
12378-PeCDF



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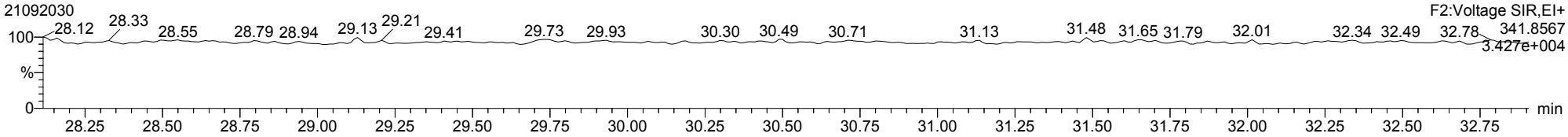

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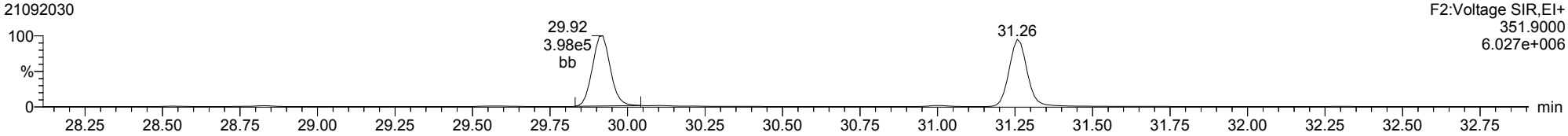

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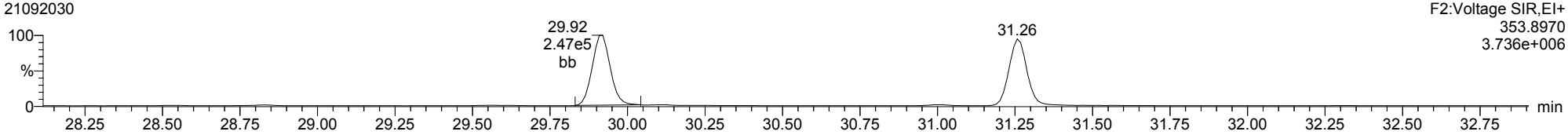

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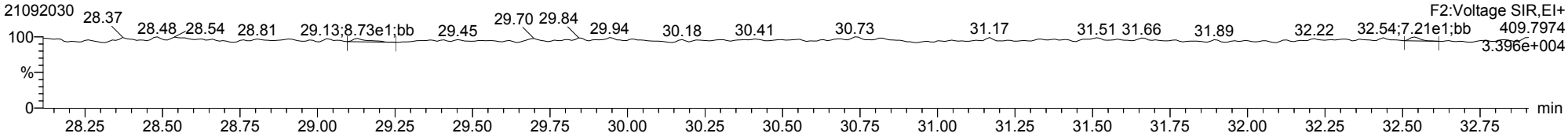

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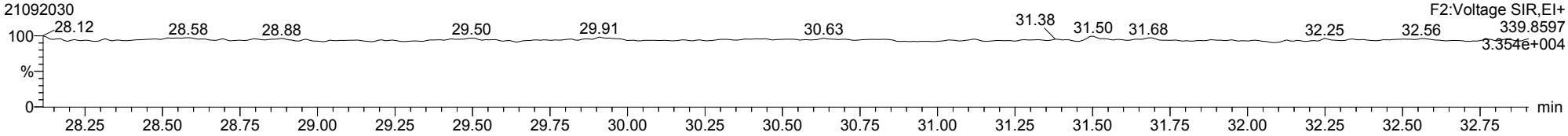
23478-PeCDF



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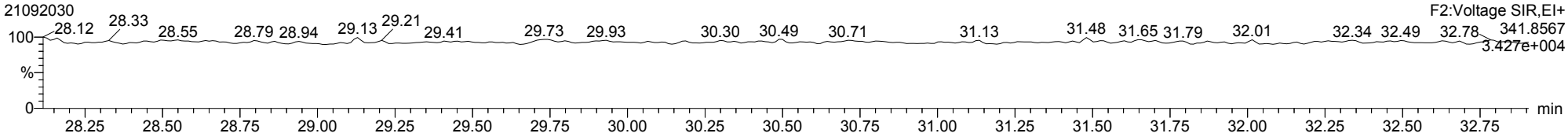

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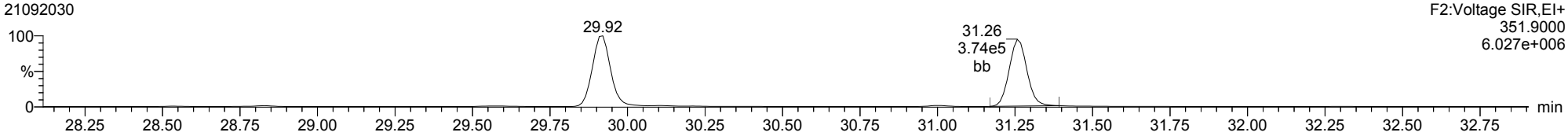

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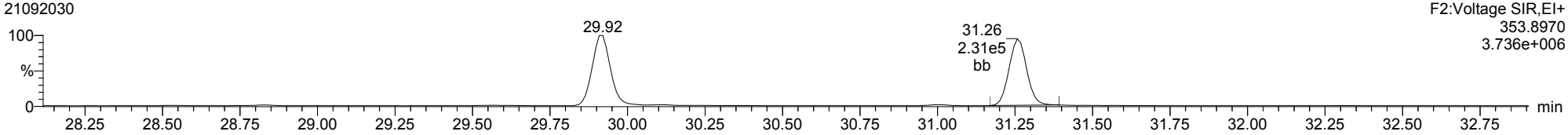

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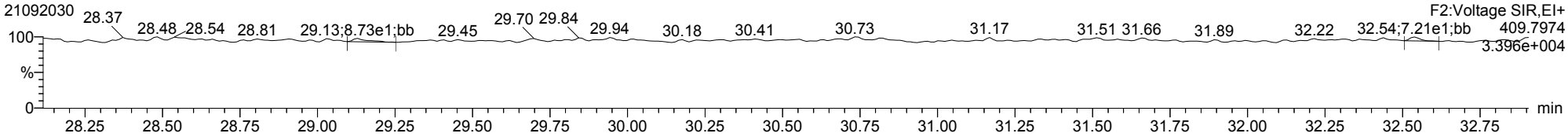

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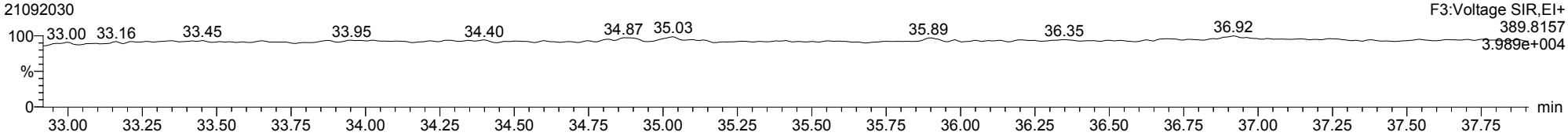

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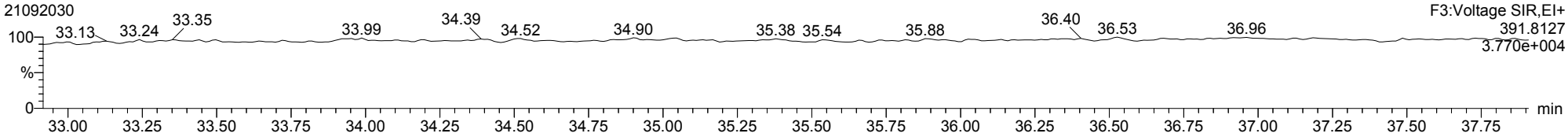

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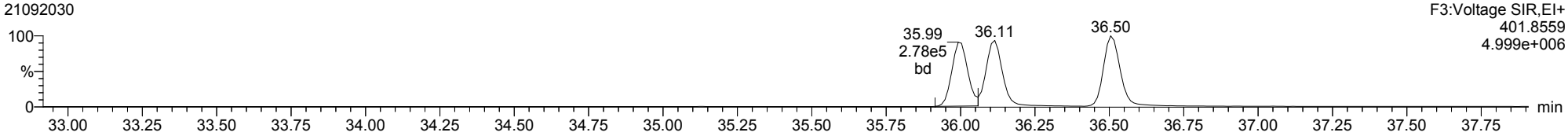

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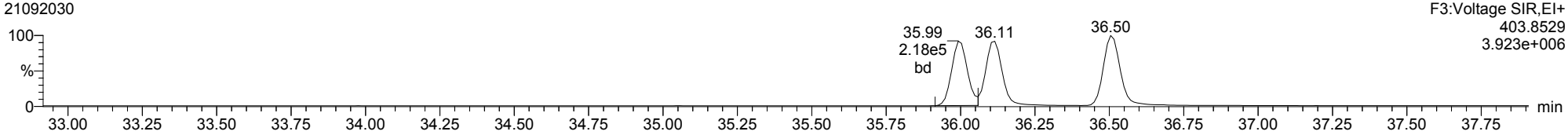

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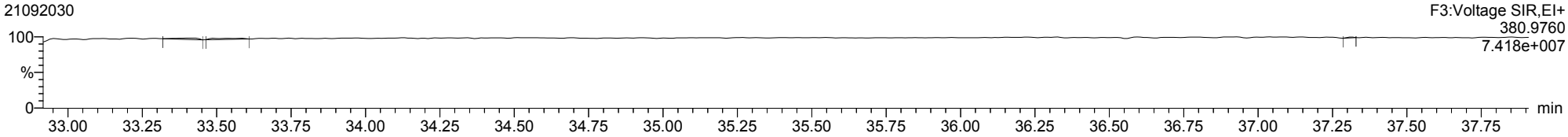

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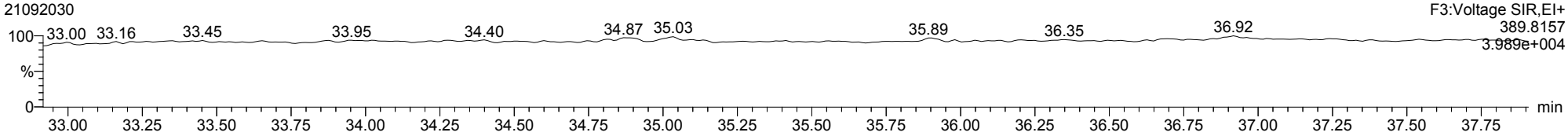

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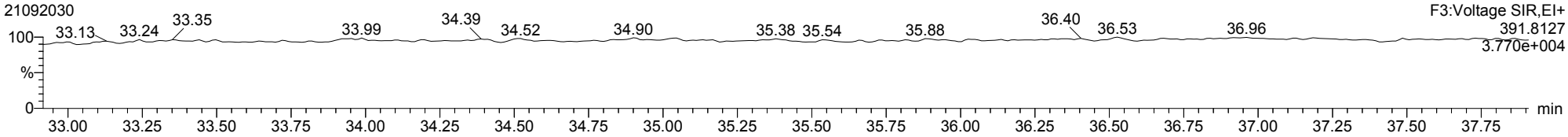

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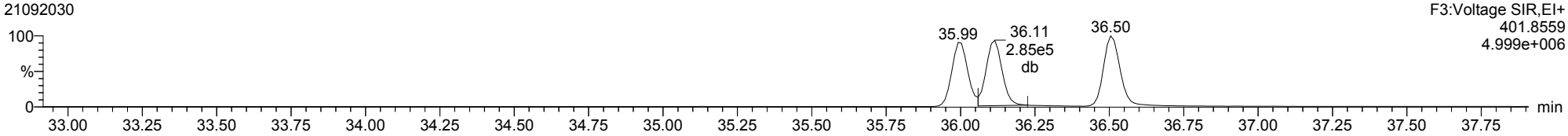

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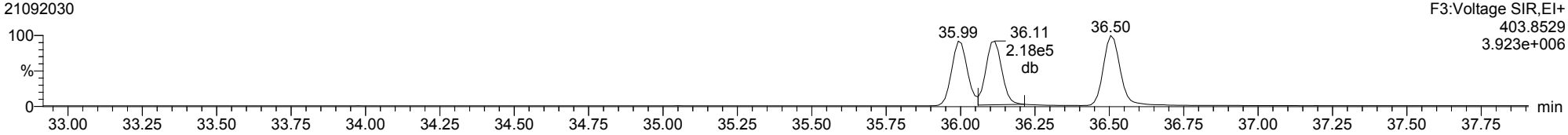

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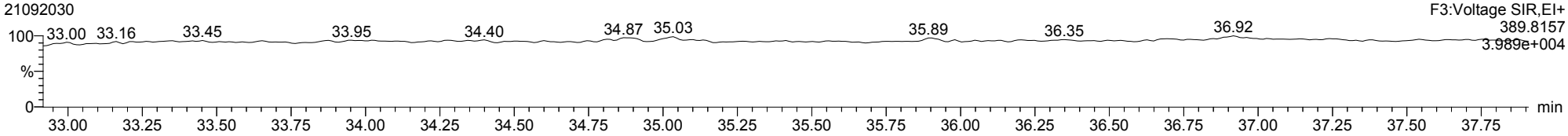

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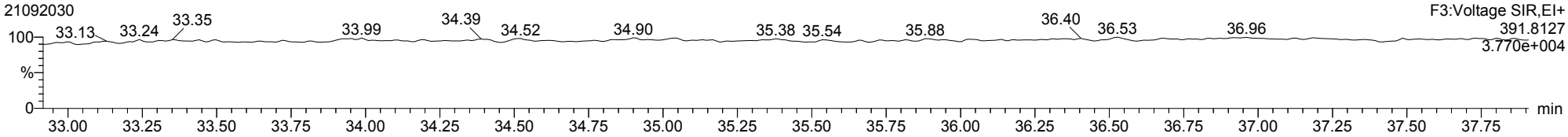

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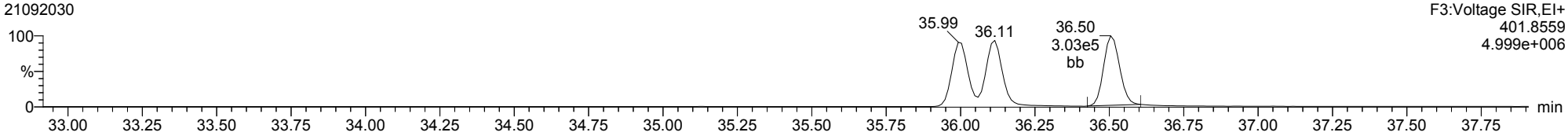

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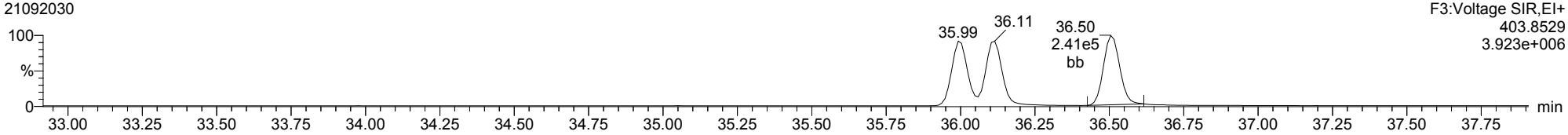

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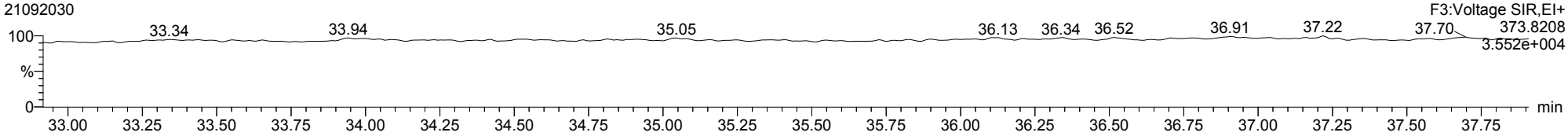

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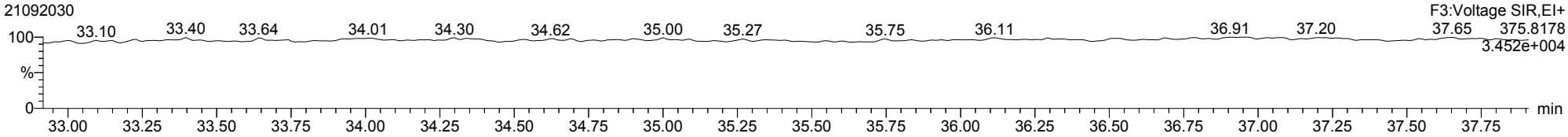

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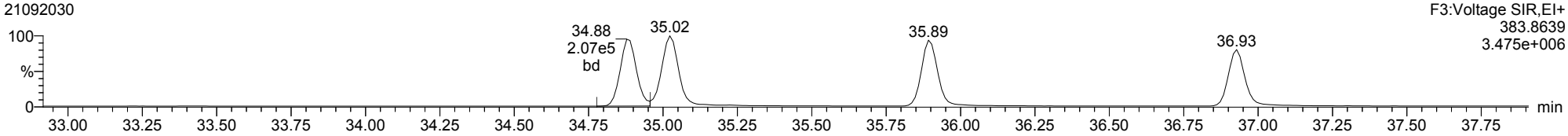

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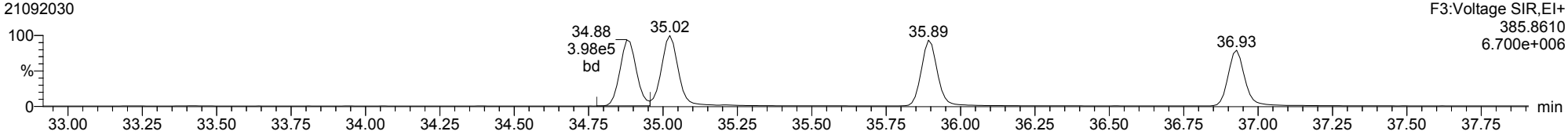
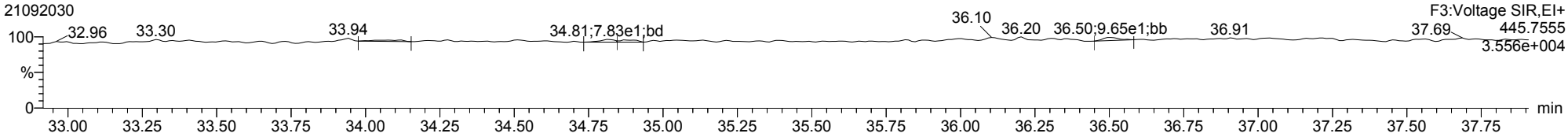


FUNCTION3 OCDPE



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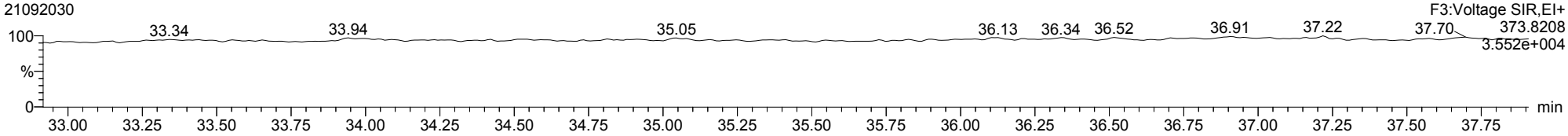
234678-HxCDF



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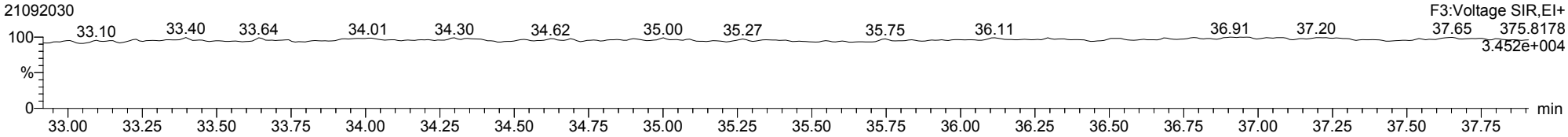

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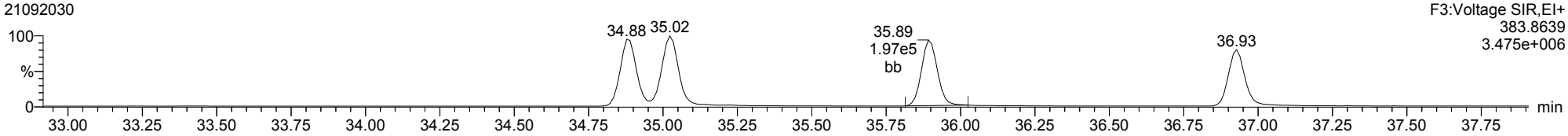

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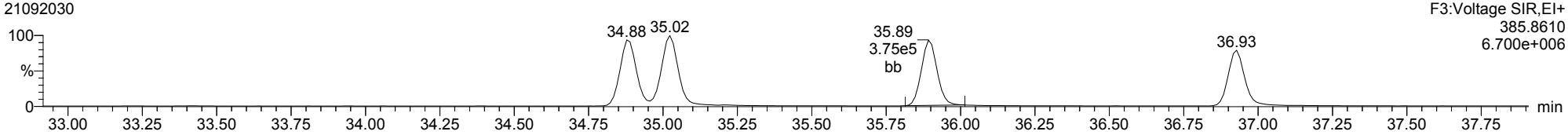

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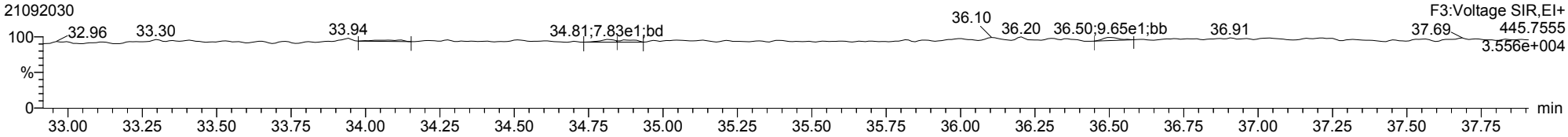

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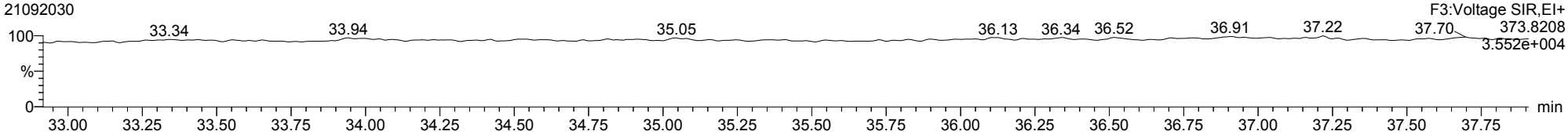

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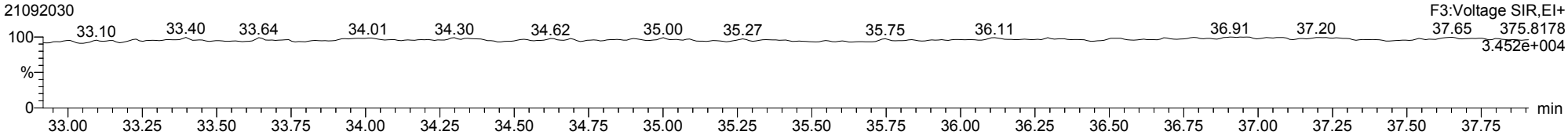

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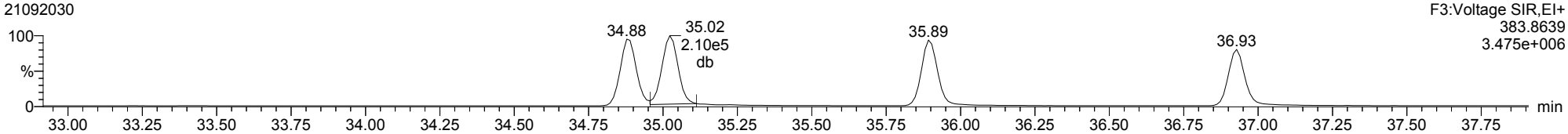

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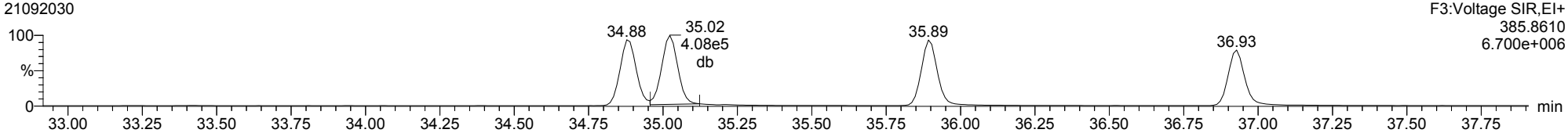
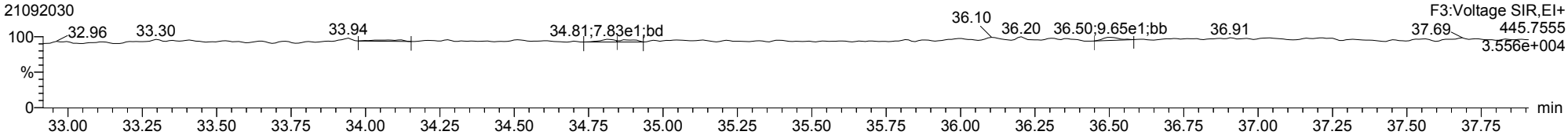


FUNCTION3 OCDPE



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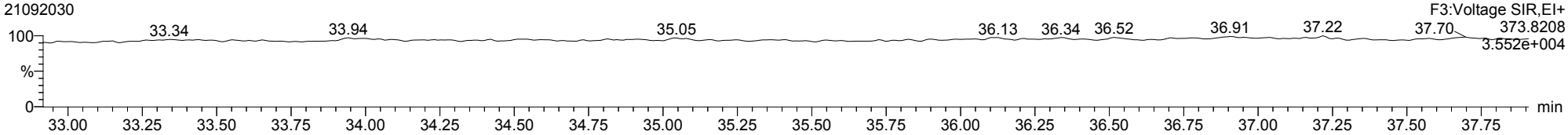

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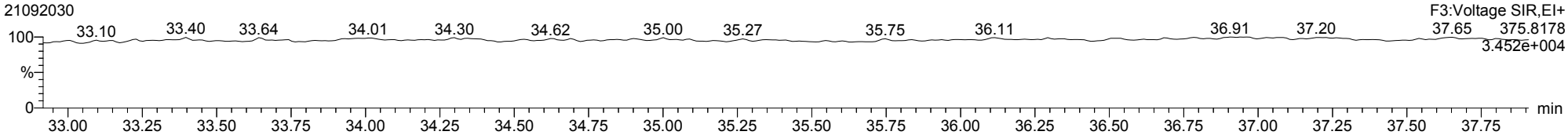

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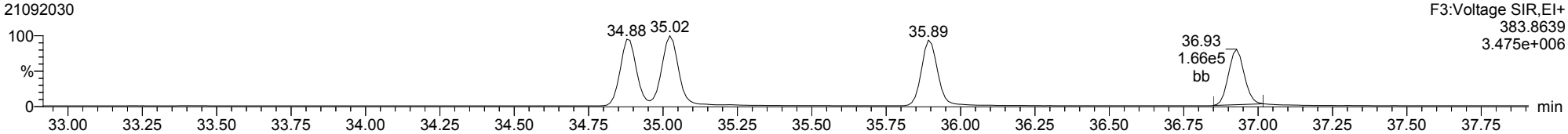

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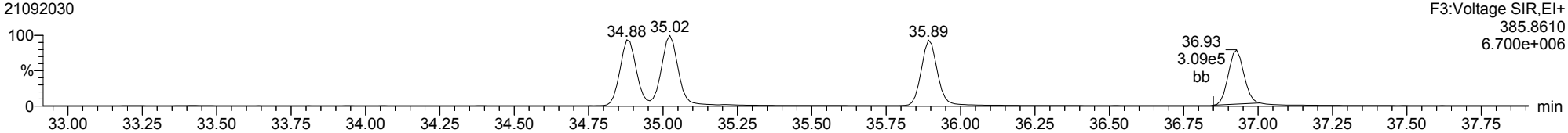
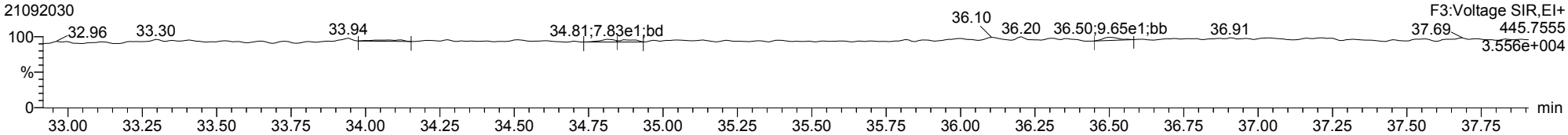


FUNCTION3 OCDPE



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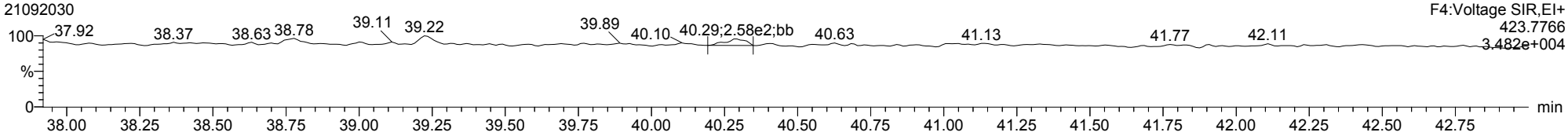
1234678-HpCDD



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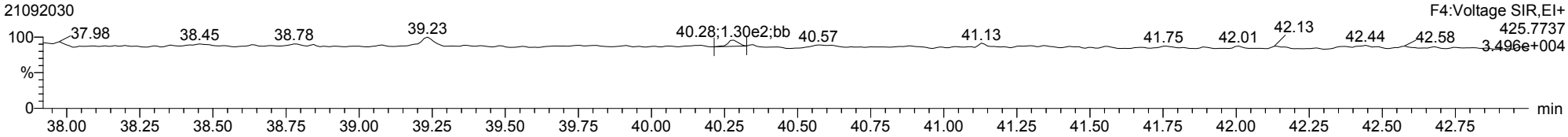

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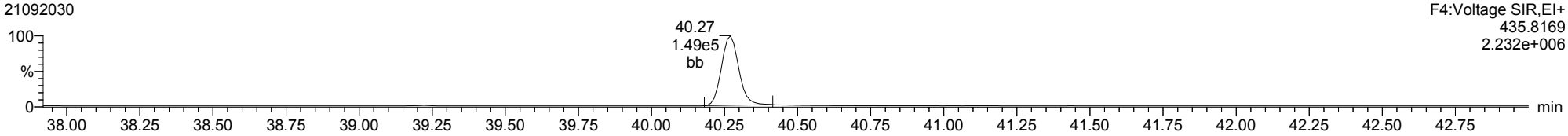

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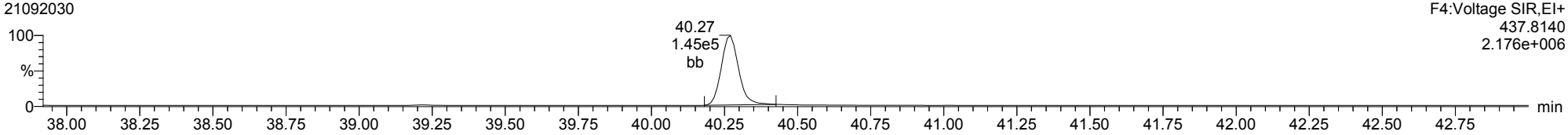
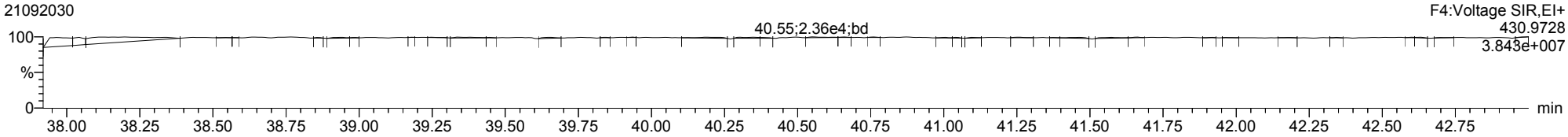


FUNCTION4 PFK



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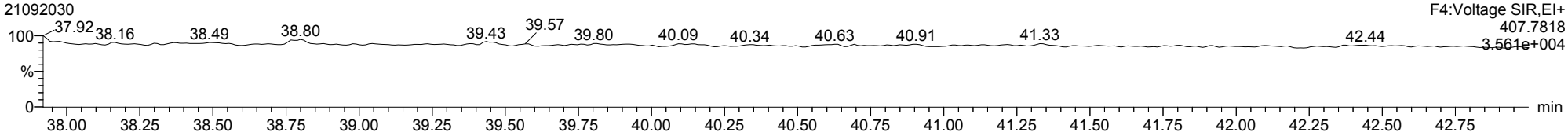

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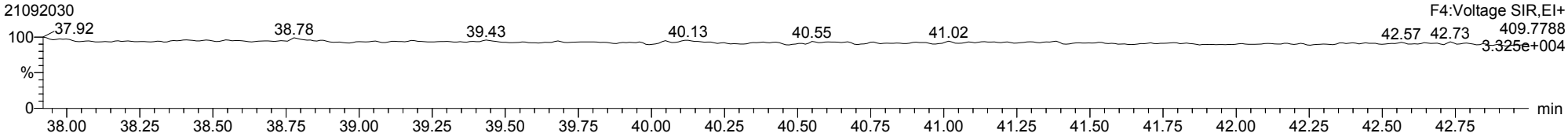

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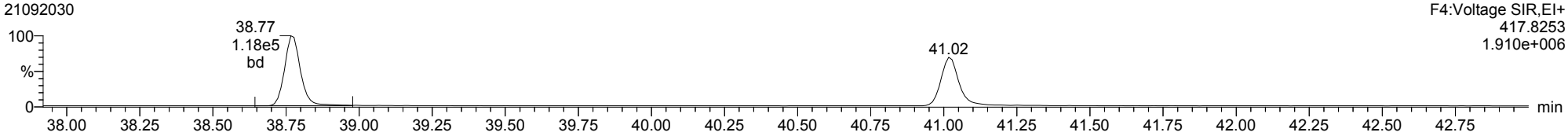

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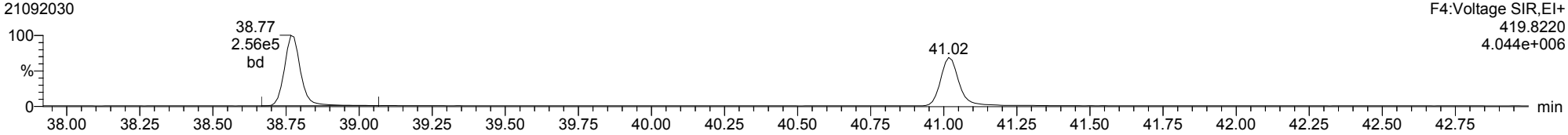
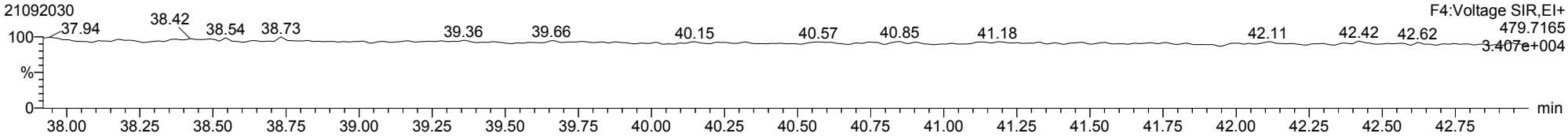


FUNCTION4 NCDPE



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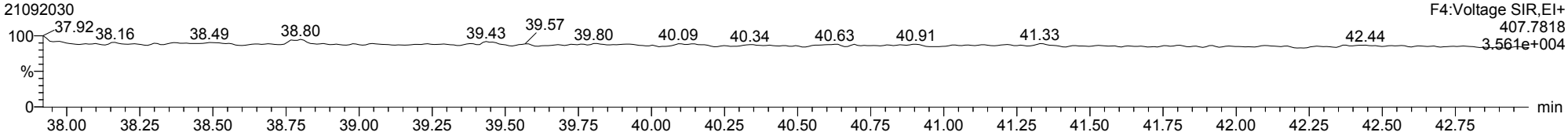
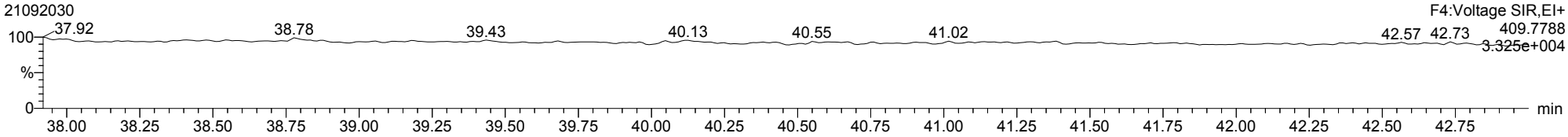
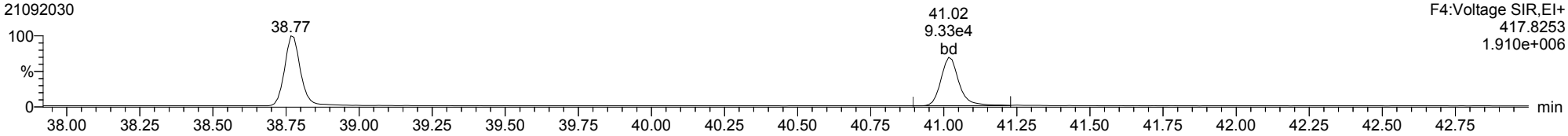
1234789-HpCDF



1234789-HpCDF



13C-1234789-HpCDF



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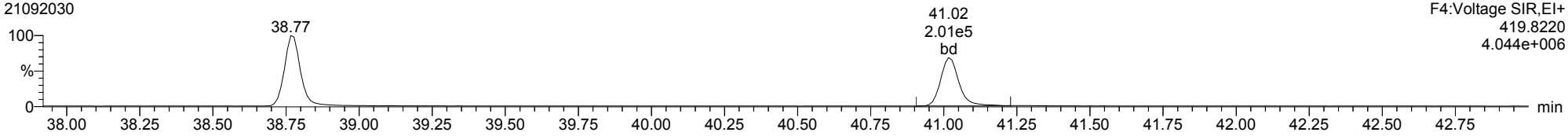
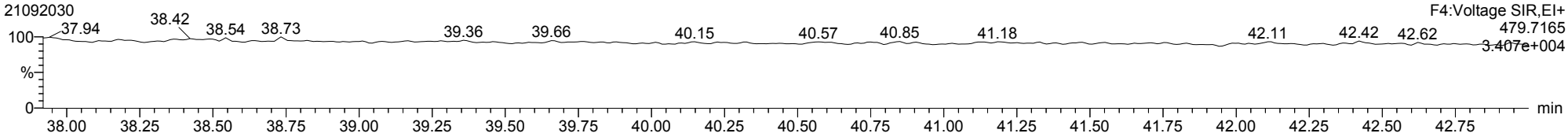
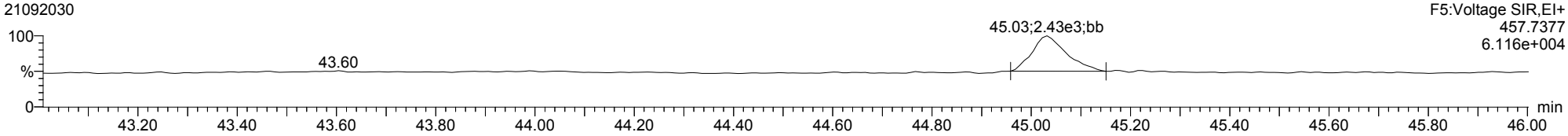


FUNCTION4 NCDPE



ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, Conditions: AUTOSPEC01, User: pk

OCDD



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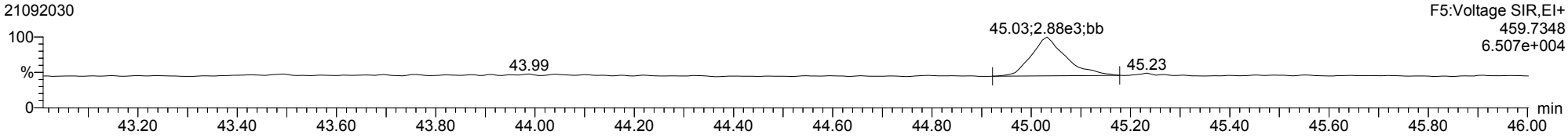

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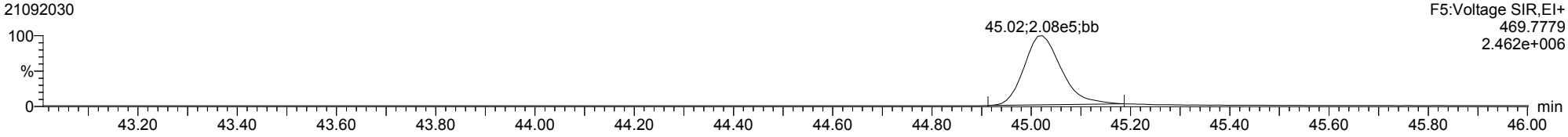
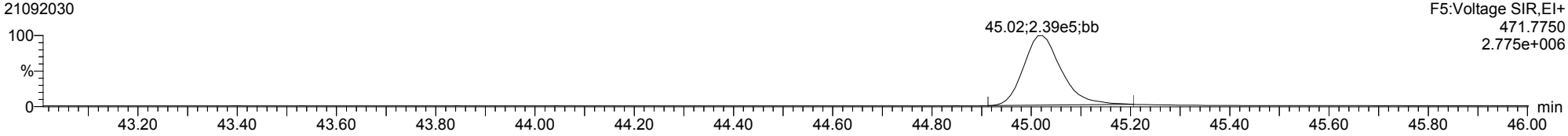
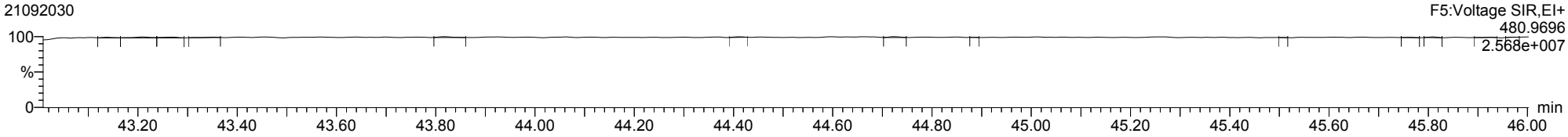


13C-OCDD

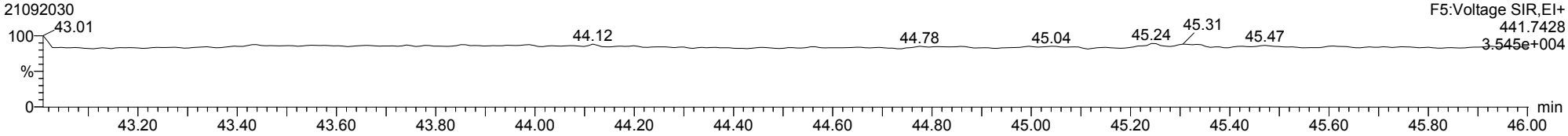


FUNCTION5 PFK

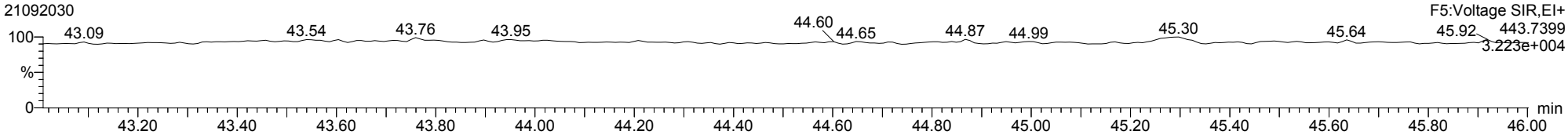


ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, Conditions: AUTOSPEC01, User: pk

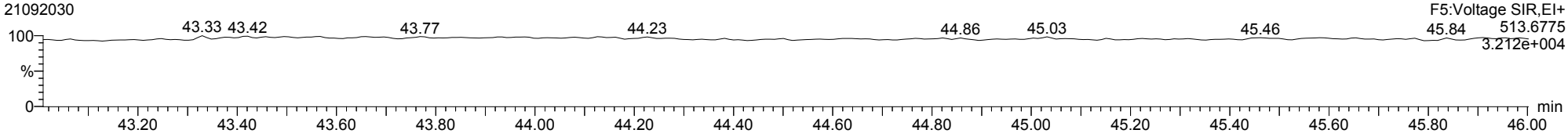
OCDF



OCDF



FUNCTION5 DCDPE



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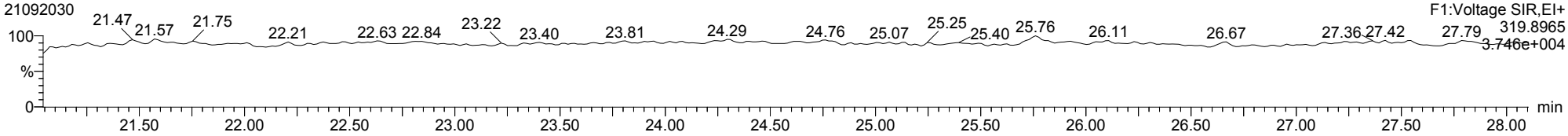
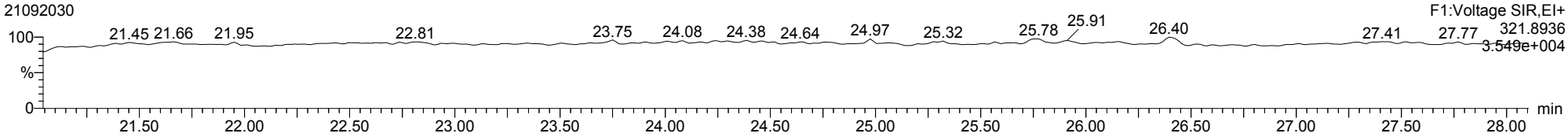
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:08 Pacific Daylight Time

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, Conditions: AUTOSPEC01, User: pk

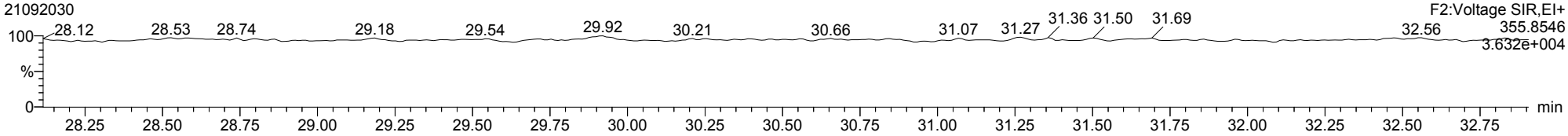
Total-tetradioxins



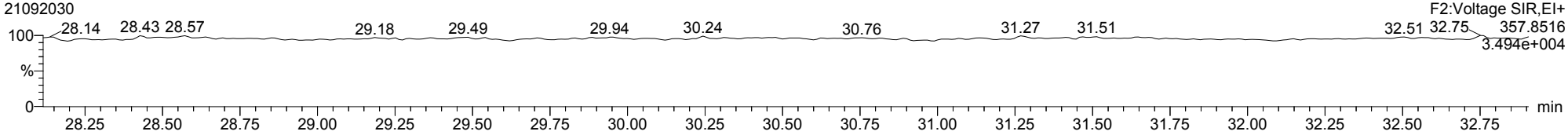
Total-tetradioxins



Total-pentadioxins

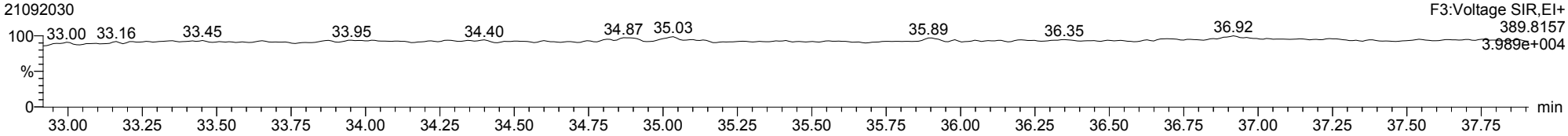


Total-pentadioxins

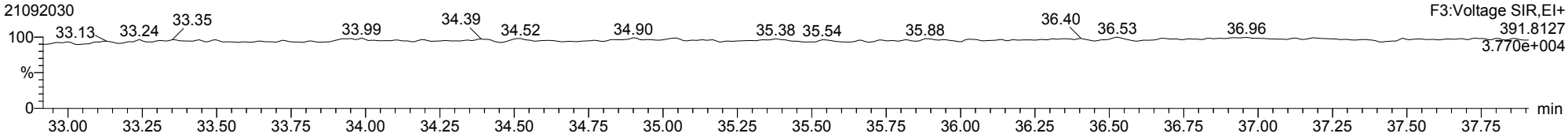


ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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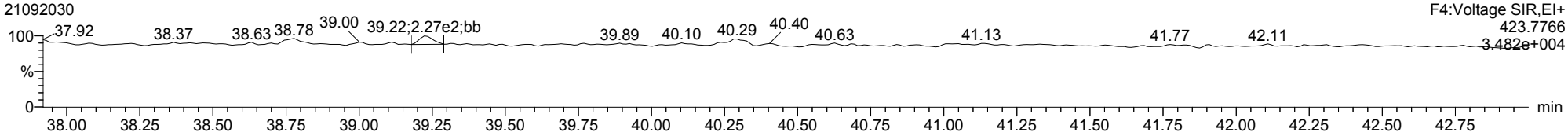
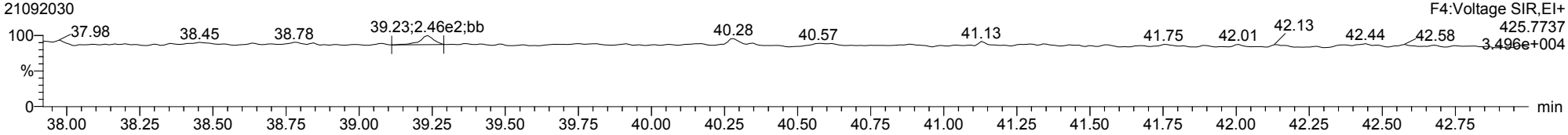


Total-heptadioxins



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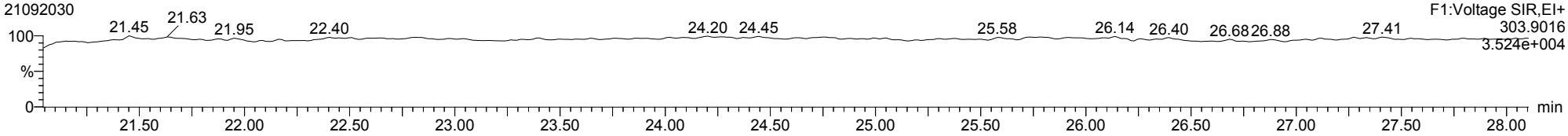
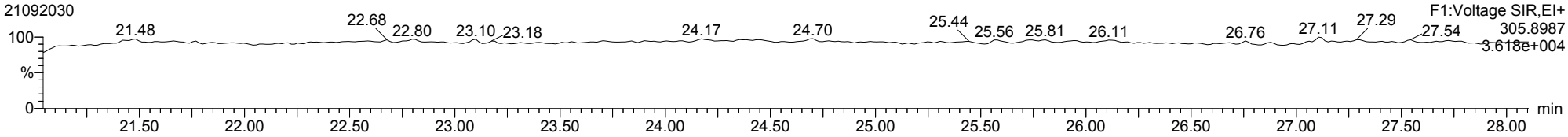
Printed: Wednesday, September 22, 2021 09:38:08 Pacific Daylight Time

ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, Conditions: AUTOSPEC01, User: pk

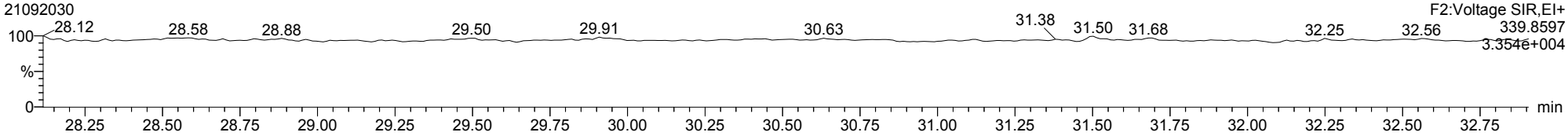
Total-tetrafurans



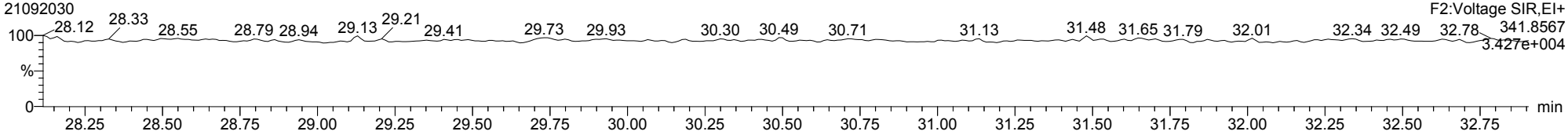
Total-tetrafurans



Total-pentafurans



Total-pentafurans



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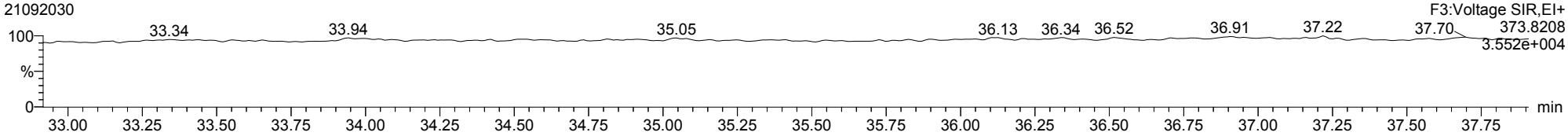
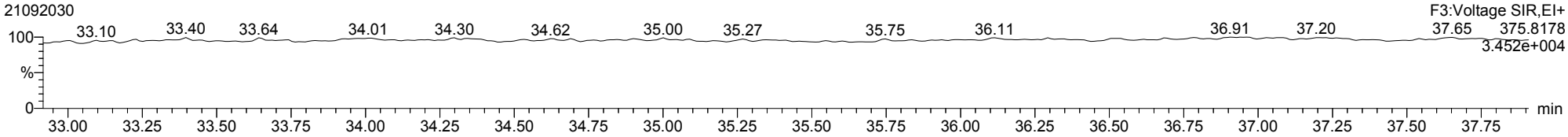
ID: BJH0203-BLK1, Name: 21092030, Date: 21-Sep-2021, Time: 16:21:22, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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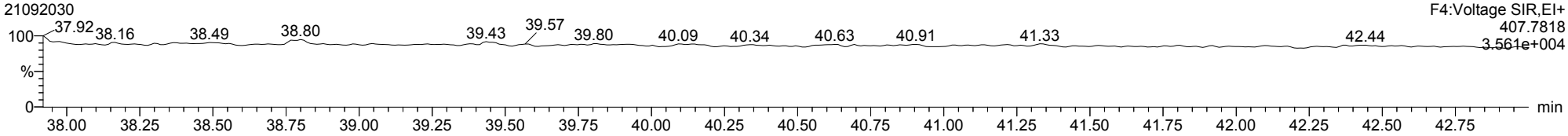
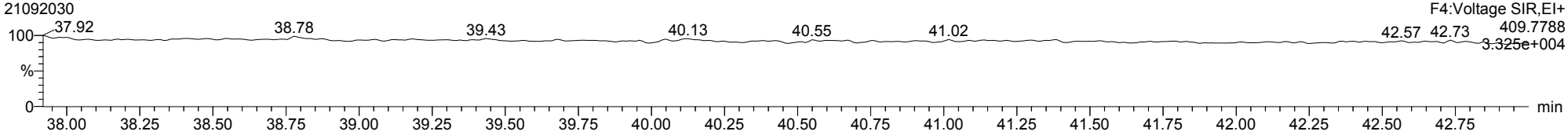


Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

LCS RECOVERY
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Matrix:	Solid	Analyzed:	09/21/21 17:10
Batch:	BJH0203	Laboratory ID:	BJH0203-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	17.0		84.9	75 - 158
2,3,7,8-TCDD	20.0	17.9		89.7	67 - 158
1,2,3,7,8-PeCDF	100	87.7		87.7	80 - 134
2,3,4,7,8-PeCDF	100	85.2		85.2	68 - 160
1,2,3,7,8-PeCDD	100	95.0		95.0	70 - 142
1,2,3,4,7,8-HxCDF	100	91.2		91.2	72 - 134
1,2,3,6,7,8-HxCDF	100	93.0		93.0	84 - 130
2,3,4,6,7,8-HxCDF	100	92.0		92.0	70 - 156
1,2,3,7,8,9-HxCDF	100	93.7		93.7	78 - 130
1,2,3,4,7,8-HxCDD	100	92.9		92.9	70 - 164
1,2,3,6,7,8-HxCDD	100	96.7		96.7	76 - 134
1,2,3,7,8,9-HxCDD	100	97.5		97.5	64 - 162
1,2,3,4,6,7,8-HpCDF	100	93.8		93.8	82 - 122
1,2,3,4,7,8,9-HpCDF	100	90.0		90.0	78 - 138
1,2,3,4,6,7,8-HpCDD	100	93.1	B	93.1	70 - 140
OCDF	200	150		75.1	63 - 170
OCDD	200	183	B	91.5	78 - 144

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:18 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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	3.263e4	4.448e4	1.108	0.734	0.770	566	721	4.87e5	6.51e5	859.7	903.5	NO	bb	bd	8.494
12378-PeCDF	29.942	1.001	1.858e5	1.229e5	1.015	1.512	1.550	1228	1717	2.87e6	1.88e6	2339.7	1096.8	NO	bb	bb	43.857
23478-PeCDF	31.291	1.001	1.846e5	1.244e5	1.126	1.484	1.550	1228	1717	2.80e6	1.87e6	2280.6	1089.8	NO	bb	bb	42.594
123478-HxCDF	34.911	1.001	1.552e5	1.303e5	1.017	1.191	1.240	1306	1231	2.46e6	2.06e6	1885.6	1669.3	NO	bd	bd	45.579
234678-HxCDF	35.925	1.001	1.499e5	1.279e5	1.052	1.172	1.240	1306	1231	2.38e6	2.02e6	1823.5	1640.2	NO	bb	bb	46.003
123678-HxCDF	35.045	1.000	1.632e5	1.400e5	1.037	1.166	1.240	1306	1231	2.56e6	2.18e6	1962.9	1773.3	NO	db	db	46.490
123789-HxCDF	36.950	1.000	1.234e5	1.046e5	1.030	1.180	1.240	1306	1231	1.97e6	1.66e6	1510.1	1345.2	NO	bb	bb	46.873
1234678-HpCDF	38.799	1.001	1.129e5	1.087e5	1.327	1.039	1.050	1260	1104	1.74e6	1.70e6	1379.6	1539.7	NO	bd	bd	46.905
1234789-HpCDF	41.039	1.000	8.273e4	8.123e4	1.283	1.018	1.050	1260	1104	1.18e6	1.12e6	937.1	1018.0	NO	bd	bd	44.977
OCDF	45.290	1.006	1.046e5	1.159e5	1.447	0.902	0.890	784	1190	1.13e6	1.29e6	1443.5	1081.5	NO	bd	bd	75.098
2378-TCDD	26.411	1.001	2.774e4	3.541e4	0.920	0.783	0.770	930	673	4.15e5	5.22e5	445.8	775.9	NO	bb	bb	8.966
12378-PeCDD	31.524	1.000	1.197e5	7.697e4	0.995	1.555	1.550	680	679	1.85e6	1.19e6	2725.1	1754.6	NO	bb	bb	47.504
123478-HxCDD	36.026	1.001	1.328e5	1.032e5	1.027	1.286	1.240	1215	903	2.25e6	1.72e6	1849.9	1902.8	NO	bd	bd	46.427
123678-HxCDD	36.137	1.000	1.359e5	1.063e5	1.009	1.278	1.240	1215	903	2.27e6	1.74e6	1865.2	1932.2	NO	db	db	48.355
123789-HxCDD	36.538	1.011	1.283e5	1.015e5	0.950	1.265	1.240	1215	903	2.05e6	1.64e6	1690.5	1811.5	NO	bb	bb	48.769
1234678-HpCDD	40.292	1.000	7.242e4	6.837e4	1.068	1.059	1.050	735	830	1.02e6	9.99e5	1388.8	1204.1	NO	bd	bd	46.553
OCDD	45.042	1.000	1.062e5	1.131e5	1.181	0.939	0.890	592	1393	1.17e6	1.29e6	1973.1	925.9	NO	bd	bb	91.474
13C-2378-TCDF	25.761	1.007	3.622e5	4.574e5	1.427	0.792	0.770	1682	1474	5.66e6	7.13e6	3366.4	4840.0	NO	bb	bb	78.581
13C-12378-PeCDF	29.920	1.170	4.274e5	2.661e5	1.297	1.606	1.550	1832	1196	6.38e6	4.03e6	3482.3	3367.8	NO	bb	bb	73.110
13C-23478-PeCDF	31.268	1.222	3.971e5	2.474e5	1.236	1.605	1.550	1832	1196	6.09e6	3.83e6	3325.0	3206.9	NO	bb	bb	71.280
13C-123478-HxCDF	34.889	0.955	2.112e5	4.047e5	1.242	0.522	0.510	1607	2121	3.32e6	6.38e6	2067.4	3009.5	NO	bd	bd	90.880
13C-123678-HxCDF	35.034	0.959	2.150e5	4.141e5	1.343	0.519	0.510	1607	2121	3.46e6	6.65e6	2151.4	3134.5	NO	db	db	85.837
13C-234678-HxCDF	35.903	0.983	1.979e5	3.758e5	1.215	0.527	0.510	1607	2121	3.14e6	5.97e6	1955.7	2816.1	NO	bb	bb	86.581
13C-123789-HxCDF	36.939	1.012	1.615e5	3.108e5	1.008	0.520	0.510	1607	2121	2.67e6	5.13e6	1664.1	2417.5	NO	bb	bb	85.926
13C-1234678-HpCDF	38.777	1.062	1.135e5	2.424e5	0.926	0.468	0.440	1047	1411	1.76e6	3.78e6	1676.6	2678.1	NO	bd	bd	70.426
13C-1234789-HpCDF	41.028	1.124	8.873e4	1.953e5	0.758	0.454	0.440	1047	1411	1.23e6	2.69e6	1176.6	1908.0	NO	bd	bb	68.708
13C-1234-TCDD	25.579	0.000	3.151e5	4.161e5	1.000	0.757	0.770	1631	1086	5.04e6	6.59e6	3092.6	6070.5	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.032	3.312e5	4.341e5	1.116	0.763	0.770	1631	1086	5.07e6	6.64e6	3109.5	6115.9	NO	bb	bb	93.747
13C-12378-PeCDD	31.513	1.232	2.537e5	1.622e5	0.732	1.564	1.550	1031	854	3.85e6	2.49e6	3736.8	2910.1	NO	bb	bb	77.703
13C-123478-HxCDD	36.003	0.986	2.809e5	2.139e5	0.960	1.313	1.240	1759	2544	4.71e6	3.56e6	2676.4	1400.9	NO	bd	bd	94.513
13C-123678-HxCDD	36.126	0.989	2.795e5	2.170e5	1.041	1.288	1.240	1759	2544	4.51e6	3.51e6	2562.2	1378.3	NO	db	db	87.413
13C-1234678-HpCDD	40.281	1.103	1.441e5	1.391e5	0.632	1.036	1.050	786	814	2.04e6	1.99e6	2591.4	2450.5	NO	bb	bb	82.081
13C-OCDD	45.033	1.233	1.920e5	2.139e5	0.504	0.898	0.890	915	651	2.25e6	2.52e6	2454.0	3870.3	NO	bb	bb	147.730
13C-123789-HxCDD	36.516	0.000	3.064e5	2.391e5	1.000	1.282	1.240	1759	2544	5.01e6	3.89e6	2848.5	1528.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	2.900e5		1.084			975		4.26e6		4367.2			bd		36.602

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:18 Pacific Daylight Time

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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	566	721								
1289-TCDF					1.043		0.770	566	721								
13468-PECDF					1.376		1.550	712	780								
12389-PECDF	32.338	1.081	1.533e3	9.582e2	1.000	1.600	1.550	1228	1717	2.14e4	1.30e4	17.4	7.6	NO	bb	bb	0.359
123468-HXCDF					1.087		1.240	1306	1231								
1368-TCDD					0.923		0.770	930	673								
1289-TCDD					0.794		0.770	930	673								
12479-PECDD					1.843		1.550	680	679								
12389-PECDD	31.914	1.013	9.230e1	8.439e1	1.154	1.094	1.550	680	679	2.61e3	2.07e3	3.8	3.1	YES	bb	bb	0.037
124679-HXCDD					1.125		1.240	1215	903								
1234679-HPCDD	39.245	0.974	6.045e2	6.141e2	1.211	0.984	1.050	735	830	9.55e3	9.84e3	13.0	11.9	NO	bb	bb	0.355
Total-tetrafurans			3.421e4		1.192			566		5.12e5							8.861
Total-penta1			0.000e0					712		0.00e0							
Total-pentafurans			3.729e5		1.047			1228		5.72e6							87.073
Total-hexafurans			5.917e5		1.045			1306		9.38e6							184.945
Total-heptafurans			1.956e5		1.305			1260		2.92e6							91.882
Total-Furans			1.299e6		1.158			566		1.97e7							447.859
Total-tetradioxins			2.774e4		0.879			930		4.15e5							8.966
Total-pentadioxins			1.197e5		1.331			680		1.85e6							47.504
Total-hexadioxins			3.970e5		1.028			1215		6.57e6							143.551
Total-heptadioxins			7.302e4		1.140			735		1.03e6							46.908
Total-Dioxins			7.236e5		1.092			930		1.10e7							338.404
Total-TEQ			2.023e6					930		3.07e7							786.263
FUNCTION1 PFK			0.000e0					528368		0.00e0							
FUNCTION2 PFK			2.104e6					466348		2.83e7							0.000
FUNCTION3 PFK			1.150e6					470492		2.80e7							0.000
FUNCTION4 PFK			1.615e4					186310		4.70e5							
FUNCTION5 PFK			3.069e3					174271		1.93e5							
FUNCTION1 HXCD...			5.993e2					604		8.51e3							0.000
FUNCTION1 HPCD...			4.833e2					637		6.69e3							0.000
FUNCTION2 HPCD...			1.640e2					721		2.91e3							0.000
FUNCTION3 OCDPE			7.343e2					713		1.24e4							0.000
FUNCTION4 NCDPE			3.116e2					657		3.98e3							0.000
FUNCTION5 DCDPE			0.000e0					564		0.00e0							

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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	26.02	1.653e2	2.187e2	1.192	0.76	0.77	4.4	YES	NO	bb	db	0.039
2	2378-TCDF	25.78	3.263e4	4.448e4	1.108	0.73	0.77	859.7	YES	NO	bb	bd	8.494
3	Total-tetrafurans	24.87	3.182e2	4.382e2	1.192	0.73	0.77	9.6	YES	NO	db	bb	0.077
4	Total-tetrafurans	24.69	6.900e2	8.311e2	1.192	0.83	0.77	18.1	YES	NO	dd	db	0.156
5	Total-tetrafurans	24.55	4.066e2	5.179e2	1.192	0.79	0.77	11.9	YES	NO	bd	bd	0.095

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	31.29	1.846e5	1.244e5	1.126	1.48	1.55	2280.6	YES	NO	bb	bb	42.594
2	Total-pentafurans	30.13	1.044e3	7.918e2	1.047	1.32	1.55	18.0	YES	NO	bb	bb	0.262
3	12378-PeCDF	29.94	1.858e5	1.229e5	1.015	1.51	1.55	2339.7	YES	NO	bb	bb	43.857
4	12389-PECDF	32.34	1.533e3	9.582e2	1.000	1.60	1.55	17.4	YES	NO	bb	bb	0.359

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.95	1.234e5	1.046e5	1.030	1.18	1.24	1510.1	YES	NO	bb	bb	46.873
2	234678-HxCDF	35.93	1.499e5	1.279e5	1.052	1.17	1.24	1823.5	YES	NO	bb	bb	46.003
3	123678-HxCDF	35.05	1.632e5	1.400e5	1.037	1.17	1.24	1962.9	YES	NO	db	db	46.490
4	123478-HxCDF	34.91	1.552e5	1.303e5	1.017	1.19	1.24	1885.6	YES	NO	bd	bd	45.579

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.80	1.129e5	1.087e5	1.327	1.04	1.05	1379.6	YES	NO	bd	bd	46.905
2	1234789-HpCDF	41.04	8.273e4	8.123e4	1.283	1.02	1.05	937.1	YES	NO	bd	bd	44.977

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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	26.02	1.653e2	2.187e2	1.192	0.76	0.77	4.4	YES	NO	bb	db	0.039
2	2378-TCDF	25.78	3.263e4	4.448e4	1.108	0.73	0.77	859.7	YES	NO	bb	bd	8.494
3	Total-tetrafurans	24.87	3.182e2	4.382e2	1.192	0.73	0.77	9.6	YES	NO	db	bb	0.077
4	Total-tetrafurans	24.69	6.900e2	8.311e2	1.192	0.83	0.77	18.1	YES	NO	dd	db	0.156
5	Total-tetrafurans	24.55	4.066e2	5.179e2	1.192	0.79	0.77	11.9	YES	NO	bd	bd	0.095
6	23478-PeCDF	31.29	1.846e5	1.244e5	1.126	1.48	1.55	2280.6	YES	NO	bb	bb	42.594
7	Total-pentafurans	30.13	1.044e3	7.918e2	1.047	1.32	1.55	18.0	YES	NO	bb	bb	0.262
8	12378-PeCDF	29.94	1.858e5	1.229e5	1.015	1.51	1.55	2339.7	YES	NO	bb	bb	43.857
9	12389-PECDF	32.34	1.533e3	9.582e2	1.000	1.60	1.55	17.4	YES	NO	bb	bb	0.359
10	123789-HxCDF	36.95	1.234e5	1.046e5	1.030	1.18	1.24	1510.1	YES	NO	bb	bb	46.873
11	234678-HxCDF	35.93	1.499e5	1.279e5	1.052	1.17	1.24	1823.5	YES	NO	bb	bb	46.003
12	123678-HxCDF	35.05	1.632e5	1.400e5	1.037	1.17	1.24	1962.9	YES	NO	db	db	46.490
13	123478-HxCDF	34.91	1.552e5	1.303e5	1.017	1.19	1.24	1885.6	YES	NO	bd	bd	45.579
14	1234678-HpCDF	38.80	1.129e5	1.087e5	1.327	1.04	1.05	1379.6	YES	NO	bd	bd	46.905
15	OCDF	45.29	1.046e5	1.159e5	1.447	0.90	0.89	1443.5	YES	NO	bd	bd	75.098
16	1234789-HpCDF	41.04	8.273e4	8.123e4	1.283	1.02	1.05	937.1	YES	NO	bd	bd	44.977

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.41	2.774e4	3.541e4	0.920	0.78	0.77	445.8	YES	NO	bb	bb	8.966

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.52	1.197e5	7.697e4	0.995	1.55	1.55	2725.1	YES	NO	bb	bb	47.504

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.54	1.283e5	1.015e5	0.950	1.26	1.24	1690.5	YES	NO	bb	bb	48.769
2	123678-HxCDD	36.14	1.359e5	1.063e5	1.009	1.28	1.24	1865.2	YES	NO	db	db	48.355
3	123478-HxCDD	36.03	1.328e5	1.032e5	1.027	1.29	1.24	1849.9	YES	NO	bd	bd	46.427

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:18 Pacific Daylight Time

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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	40.29	7.242e4	6.837e4	1.068	1.06	1.05	1388.8	YES	NO	bd	bd	46.553
2	1234679-HPCDD	39.25	6.045e2	6.141e2	1.211	0.98	1.05	13.0	YES	NO	bb	bb	0.355

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	2.774e4	3.541e4	0.920	0.78	0.77	445.8	YES	NO	bb	bb	8.966
2	123789-HxCDD	36.54	1.283e5	1.015e5	0.950	1.26	1.24	1690.5	YES	NO	bb	bb	48.769
3	123678-HxCDD	36.14	1.359e5	1.063e5	1.009	1.28	1.24	1865.2	YES	NO	db	db	48.355
4	123478-HxCDD	36.03	1.328e5	1.032e5	1.027	1.29	1.24	1849.9	YES	NO	bd	bd	46.427
5	12378-PeCDD	31.52	1.197e5	7.697e4	0.995	1.55	1.55	2725.1	YES	NO	bb	bb	47.504
6	1234678-HpCDD	40.29	7.242e4	6.837e4	1.068	1.06	1.05	1388.8	YES	NO	bd	bd	46.553
7	1234679-HPCDD	39.25	6.045e2	6.141e2	1.211	0.98	1.05	13.0	YES	NO	bb	bb	0.355
8	OCDD	45.04	1.062e5	1.131e5	1.181	0.94	0.89	1973.1	YES	NO	bd	bb	91.474

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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	26.02	1.653e2	2.187e2	1.192	0.76	0.77	4.4	YES	NO	bb	db	0.039
2	2378-TCDF	25.78	3.263e4	4.448e4	1.108	0.73	0.77	859.7	YES	NO	bb	bd	8.494
3	Total-tetrafurans	24.87	3.182e2	4.382e2	1.192	0.73	0.77	9.6	YES	NO	db	bb	0.077
4	Total-tetrafurans	24.69	6.900e2	8.311e2	1.192	0.83	0.77	18.1	YES	NO	dd	db	0.156
5	Total-tetrafurans	24.55	4.066e2	5.179e2	1.192	0.79	0.77	11.9	YES	NO	bd	bd	0.095
6	23478-PeCDF	31.29	1.846e5	1.244e5	1.126	1.48	1.55	2280.6	YES	NO	bb	bb	42.594
7	Total-pentafurans	30.13	1.044e3	7.918e2	1.047	1.32	1.55	18.0	YES	NO	bb	bb	0.262
8	12378-PeCDF	29.94	1.858e5	1.229e5	1.015	1.51	1.55	2339.7	YES	NO	bb	bb	43.857
9	12389-PECDF	32.34	1.533e3	9.582e2	1.000	1.60	1.55	17.4	YES	NO	bb	bb	0.359
10	123789-HxCDF	36.95	1.234e5	1.046e5	1.030	1.18	1.24	1510.1	YES	NO	bb	bb	46.873
11	234678-HxCDF	35.93	1.499e5	1.279e5	1.052	1.17	1.24	1823.5	YES	NO	bb	bb	46.003
12	123678-HxCDF	35.05	1.632e5	1.400e5	1.037	1.17	1.24	1962.9	YES	NO	db	db	46.490
13	123478-HxCDF	34.91	1.552e5	1.303e5	1.017	1.19	1.24	1885.6	YES	NO	bd	bd	45.579
14	1234678-HpCDF	38.80	1.129e5	1.087e5	1.327	1.04	1.05	1379.6	YES	NO	bd	bd	46.905
15	OCDF	45.29	1.046e5	1.159e5	1.447	0.90	0.89	1443.5	YES	NO	bd	bd	75.098
16	1234789-HpCDF	41.04	8.273e4	8.123e4	1.283	1.02	1.05	937.1	YES	NO	bd	bd	44.977
17	2378-TCDD	26.41	2.774e4	3.541e4	0.920	0.78	0.77	445.8	YES	NO	bb	bb	8.966
18	123789-HxCDD	36.54	1.283e5	1.015e5	0.950	1.26	1.24	1690.5	YES	NO	bb	bb	48.769
19	123678-HxCDD	36.14	1.359e5	1.063e5	1.009	1.28	1.24	1865.2	YES	NO	db	db	48.355
20	123478-HxCDD	36.03	1.328e5	1.032e5	1.027	1.29	1.24	1849.9	YES	NO	bd	bd	46.427
21	12378-PeCDD	31.52	1.197e5	7.697e4	0.995	1.55	1.55	2725.1	YES	NO	bb	bb	47.504
22	1234678-HpCDD	40.29	7.242e4	6.837e4	1.068	1.06	1.05	1388.8	YES	NO	bd	bd	46.553
23	1234679-HPCDD	39.25	6.045e2	6.141e2	1.211	0.98	1.05	13.0	YES	NO	bb	bb	0.355
24	OCDD	45.04	1.062e5	1.131e5	1.181	0.94	0.89	1973.1	YES	NO	bd	bb	91.474

PFK1

	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\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:18 Pacific Daylight Time

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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	1.505e3					0.3	NO		bb		0.000
2	FUNCTION2 PFK	29.69	9.858e3					0.8	NO		bb		0.000
3	FUNCTION2 PFK	29.54	1.194e4					0.9	NO		db		0.000
4	FUNCTION2 PFK	29.50	2.205e4					1.1	NO		dd		0.000
5	FUNCTION2 PFK	29.43	3.418e4					1.3	NO		dd		0.000
6	FUNCTION2 PFK	29.35	1.538e4					1.0	NO		bd		0.000
7	FUNCTION2 PFK	29.25	3.908e3					0.4	NO		bb		0.000
8	FUNCTION2 PFK	29.05	2.686e4					0.8	NO		bb		0.000
9	FUNCTION2 PFK	28.93	3.246e4					1.0	NO		bb		0.000
10	FUNCTION2 PFK	28.77	1.283e4					1.2	NO		db		0.000
11	FUNCTION2 PFK	28.72	5.309e4					2.2	NO		dd		0.000
12	FUNCTION2 PFK	28.48	4.091e5					5.7	YES		dd		0.000
13	FUNCTION2 PFK	28.44	7.115e5					6.3	YES		dd		0.000
14	FUNCTION2 PFK	28.22	1.257e5					8.5	YES		dd		0.000
15	FUNCTION2 PFK	28.15	2.855e5					10.0	YES		bd		0.000
16	FUNCTION2 PFK	31.31	2.301e4					0.8	NO		db		0.000
17	FUNCTION2 PFK	31.29	3.093e3					0.4	NO		bd		0.000
18	FUNCTION2 PFK	31.23	2.033e3					0.4	NO		bb		0.000
19	FUNCTION2 PFK	31.19	1.287e4					0.7	NO		db		0.000
20	FUNCTION2 PFK	31.10	7.819e3					0.6	NO		bd		0.000
21	FUNCTION2 PFK	30.99	6.431e3					0.5	NO		bb		0.000
22	FUNCTION2 PFK	30.81	1.926e4					0.8	NO		bb		0.000
23	FUNCTION2 PFK	30.74	1.689e4					1.4	NO		bb		0.000
24	FUNCTION2 PFK	30.63	4.890e3					0.6	NO		bb		0.000
25	FUNCTION2 PFK	30.59	3.056e3					0.4	NO		bb		0.000
26	FUNCTION2 PFK	30.53	1.171e4					0.6	NO		bb		0.000
27	FUNCTION2 PFK	30.44	1.578e4					0.9	NO		bb		0.000
28	FUNCTION2 PFK	30.32	6.208e4					1.3	NO		db		0.000
29	FUNCTION2 PFK	30.21	1.183e4					1.0	NO		bd		0.000
30	FUNCTION2 PFK	30.13	1.483e3					0.3	NO		bb		0.000
31	FUNCTION2 PFK	30.03	2.353e4					1.2	NO		bb		0.000
32	FUNCTION2 PFK	32.82	4.266e4					1.5	NO		bb		0.000
33	FUNCTION2 PFK	32.76	1.079e3					0.0	NO		bb		0.000
34	FUNCTION2 PFK	32.68	1.308e3					0.3	NO		bb		0.000
35	FUNCTION2 PFK	32.61	6.442e3					0.8	NO		bb		0.000
36	FUNCTION2 PFK	32.40	4.939e3					0.5	NO		bb		0.000
37	FUNCTION2 PFK	32.25	3.658e3					0.4	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:18 Pacific Daylight Time

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, Conditions: AUTOSPEC01, User: pk

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	32.19	1.412e4					0.8	NO		db		0.000
39	FUNCTION2 PFK	32.15	1.841e4					1.2	NO		bd		0.000
40	FUNCTION2 PFK	32.07	1.205e4					0.9	NO		db		0.000
41	FUNCTION2 PFK	32.04	6.776e3					0.6	NO		bd		0.000
42	FUNCTION2 PFK	31.60	1.109e4					0.5	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:18 Pacific Daylight Time

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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	33.14	5.357e4					3.0	NO		dd		0.000
2	FUNCTION3 PFK	33.11	5.529e4					3.1	YES		dd		0.000
3	FUNCTION3 PFK	33.06	4.114e4					2.9	NO		bd		0.000
4	FUNCTION3 PFK	33.01	4.832e4					2.0	NO		bb		0.000
5	FUNCTION3 PFK	34.82	7.726e4					2.5	NO		db		0.000
6	FUNCTION3 PFK	34.70	2.247e4					1.3	NO		bd		0.000
7	FUNCTION3 PFK	34.57	3.982e4					1.9	NO		db		0.000
8	FUNCTION3 PFK	34.51	5.896e4					2.0	NO		bd		0.000
9	FUNCTION3 PFK	34.33	1.156e4					0.8	NO		bb		0.000
10	FUNCTION3 PFK	34.28	2.429e4					1.3	NO		db		0.000
11	FUNCTION3 PFK	34.21	3.413e4					1.2	NO		bd		0.000
12	FUNCTION3 PFK	33.94	2.805e4					1.4	NO		bb		0.000
13	FUNCTION3 PFK	33.65	3.050e4					1.2	NO		db		0.000
14	FUNCTION3 PFK	33.61	1.350e4					0.9	NO		bd		0.000
15	FUNCTION3 PFK	33.56	7.426e3					0.8	NO		db		0.000
16	FUNCTION3 PFK	33.52	6.265e3					0.7	NO		bd		0.000
17	FUNCTION3 PFK	33.39	2.442e4					0.9	NO		db		0.000
18	FUNCTION3 PFK	33.32	3.496e4					1.2	NO		dd		0.000
19	FUNCTION3 PFK	33.25	4.617e4					2.3	NO		dd		0.000
20	FUNCTION3 PFK	33.20	3.715e4					2.1	NO		dd		0.000
21	FUNCTION3 PFK	36.54	5.244e3					0.6	NO		bb		0.000
22	FUNCTION3 PFK	36.39	1.738e4					1.4	NO		db		0.000
23	FUNCTION3 PFK	36.36	2.022e4					1.4	NO		bd		0.000
24	FUNCTION3 PFK	36.08	4.519e4					1.6	NO		bb		0.000
25	FUNCTION3 PFK	35.94	2.757e3					0.4	NO		db		0.000
26	FUNCTION3 PFK	35.89	2.102e4					1.1	NO		bd		0.000
27	FUNCTION3 PFK	35.83	1.677e3					0.3	NO		bb		0.000
28	FUNCTION3 PFK	35.77	7.239e3					0.8	NO		bb		0.000
29	FUNCTION3 PFK	35.69	1.928e3					0.4	NO		bb		0.000
30	FUNCTION3 PFK	35.59	2.466e4					1.7	NO		db		0.000
31	FUNCTION3 PFK	35.55	4.878e4					1.6	NO		dd		0.000
32	FUNCTION3 PFK	35.46	1.505e4					1.1	NO		bd		0.000
33	FUNCTION3 PFK	35.37	1.247e4					0.9	NO		bb		0.000
34	FUNCTION3 PFK	35.27	9.097e3					0.9	NO		bb		0.000
35	FUNCTION3 PFK	35.15	1.237e4					0.6	NO		bb		0.000
36	FUNCTION3 PFK	34.97	3.379e4					1.4	NO		bb		0.000
37	FUNCTION3 PFK	37.81	3.021e4					1.3	NO		db		0.000

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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	37.76	9.089e3					0.9	NO		dd		0.000
39	FUNCTION3 PFK	37.70	2.807e4					1.7	NO		bd		0.000
40	FUNCTION3 PFK	37.38	1.655e4					1.1	NO		db		0.000
41	FUNCTION3 PFK	37.35	1.349e4					1.2	NO		bd		0.000
42	FUNCTION3 PFK	37.27	3.610e4					1.3	NO		bb		0.000
43	FUNCTION3 PFK	37.17	5.500e3					0.5	NO		bb		0.000
44	FUNCTION3 PFK	37.07	1.448e4					0.7	NO		bb		0.000
45	FUNCTION3 PFK	36.72	1.422e3					0.3	NO		bb		0.000
46	FUNCTION3 PFK	36.63	2.141e4					0.9	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	38.48	1.615e4					2.5	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.54	3.069e3					1.1	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.04	7.349e1					1.5	NO		bb		0.000
2	FUNCTION1 HXCD...	26.06	8.538e1					1.8	NO		bb		0.000
3	FUNCTION1 HXCD...	25.64	8.320e1					1.4	NO		bb		0.000
4	FUNCTION1 HXCD...	25.31	8.042e1					1.8	NO		bb		0.000
5	FUNCTION1 HXCD...	24.61	1.911e2					4.2	YES		bb		0.000
6	FUNCTION1 HXCD...	23.73	8.571e1					3.4	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...	26.91	9.850e1					2.0	NO		bb		0.000
2	FUNCTION1 HPCD...	26.55	8.998e1					1.9	NO		bb		0.000
3	FUNCTION1 HPCD...	25.58	8.447e1					2.0	NO		bb		0.000
4	FUNCTION1 HPCD...	22.34	1.231e2					2.4	NO		bb		0.000
5	FUNCTION1 HPCD...	22.06	8.723e1					2.2	NO		bb		0.000

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, 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...	32.33	8.693e1					1.7	NO		bb		0.000
2	FUNCTION2 HPCD...	28.72	7.708e1					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	34.90	1.575e2					2.6	NO		bd		0.000
2	FUNCTION3 OCDPE	37.40	8.103e1					4.0	YES		bb		0.000
3	FUNCTION3 OCDPE	36.53	1.849e2					3.4	YES		bb		0.000
4	FUNCTION3 OCDPE	36.11	1.574e2					3.3	YES		bb		0.000
5	FUNCTION3 OCDPE	36.01	7.898e1					2.5	NO		bb		0.000
6	FUNCTION3 OCDPE	35.03	7.437e1					1.6	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	41.48	1.295e2					2.0	NO		bb		0.000
2	FUNCTION4 NCDPE	39.55	7.163e1					2.2	NO		db		0.000
3	FUNCTION4 NCDPE	39.41	1.104e2					1.8	NO		bd		0.000

ETHERS6

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

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
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ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, Conditions: AUTOSPEC01, User: pk

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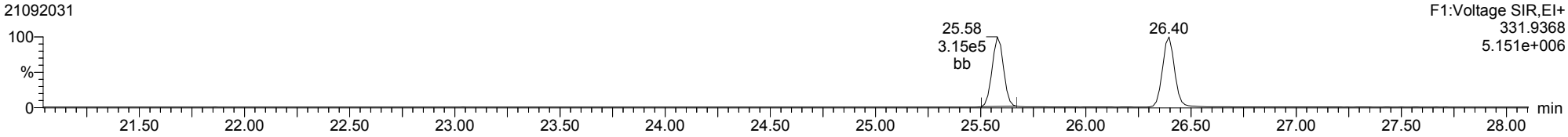

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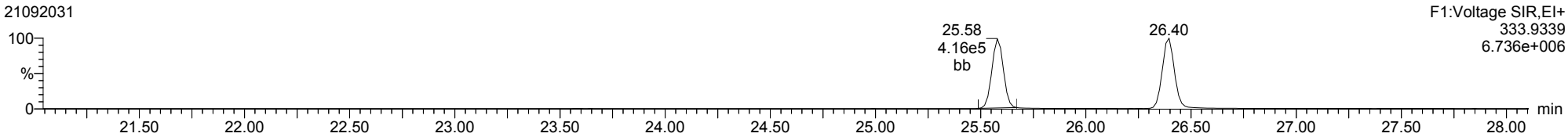

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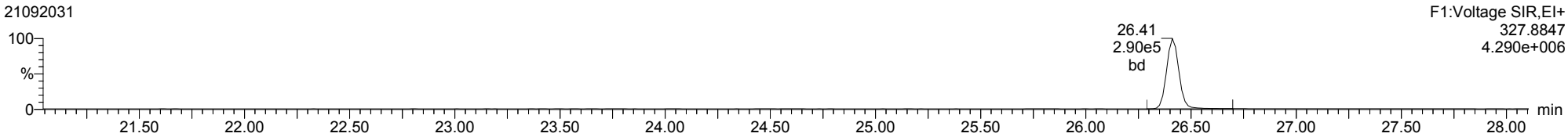

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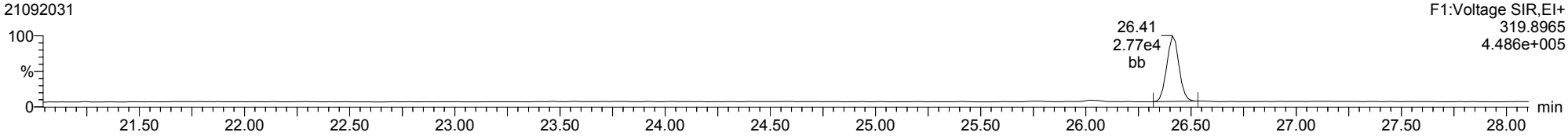

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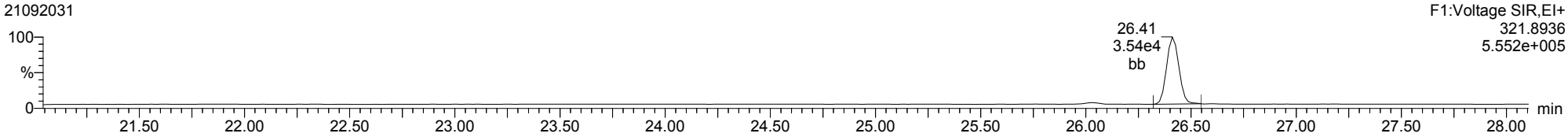

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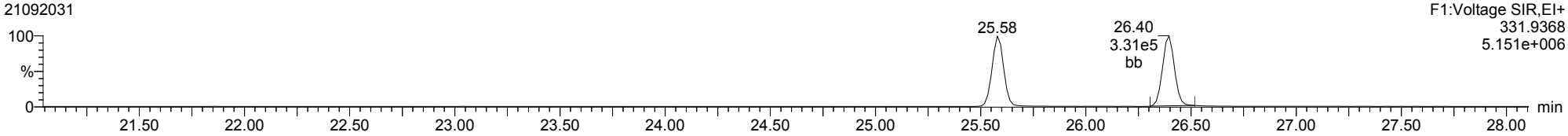

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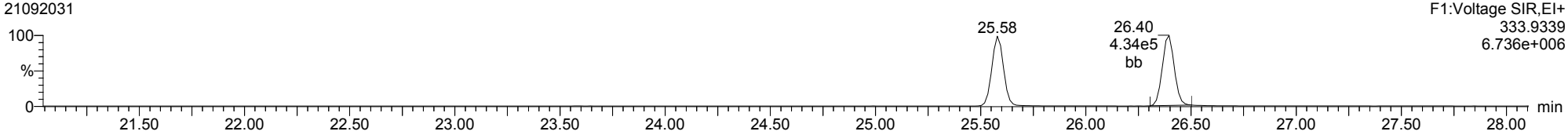
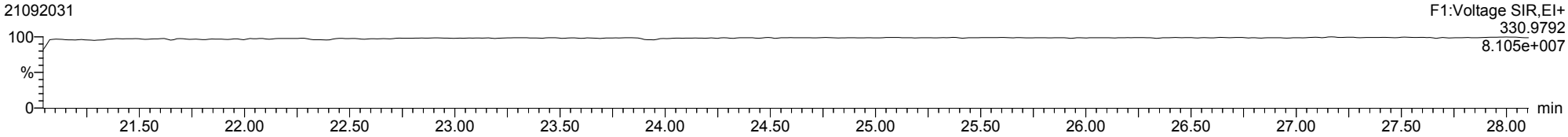


FUNCTION1 PFK



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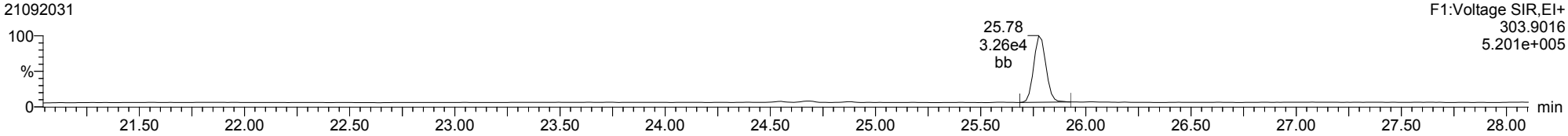
2378-TCDF



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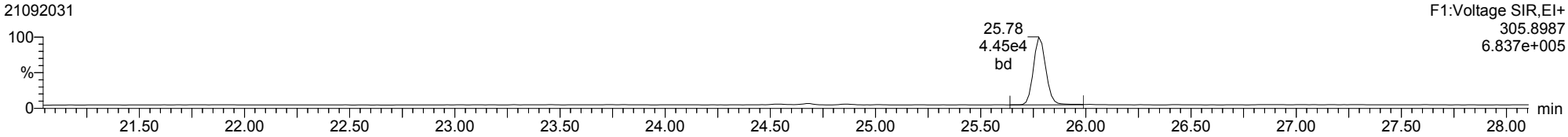

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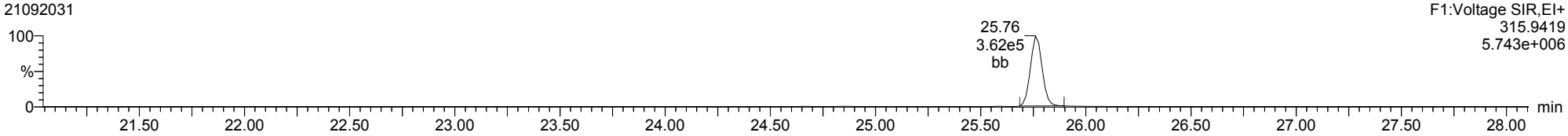

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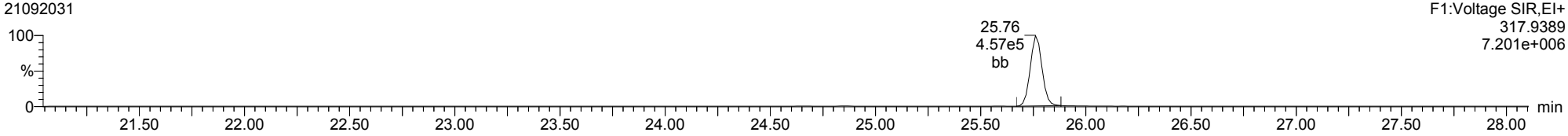

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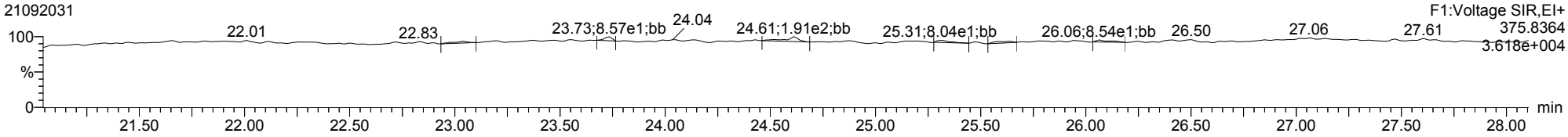

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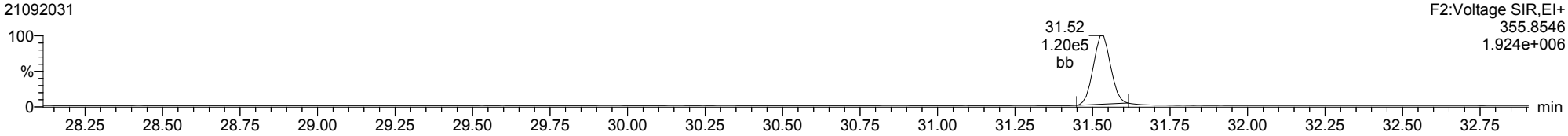
12378-PeCDD



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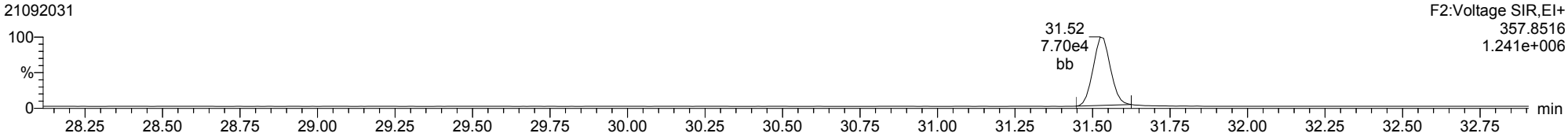

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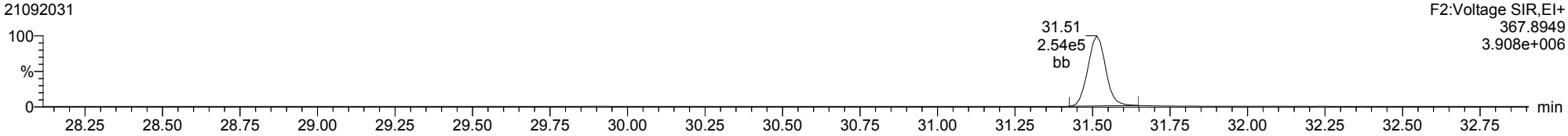

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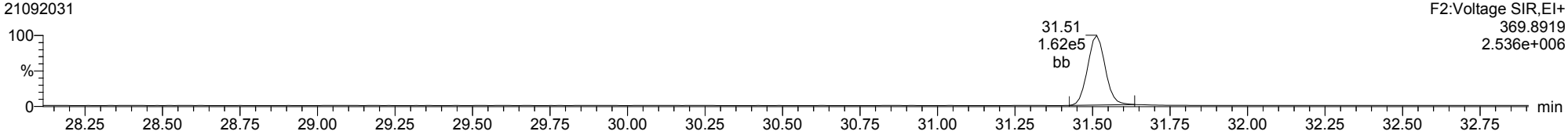
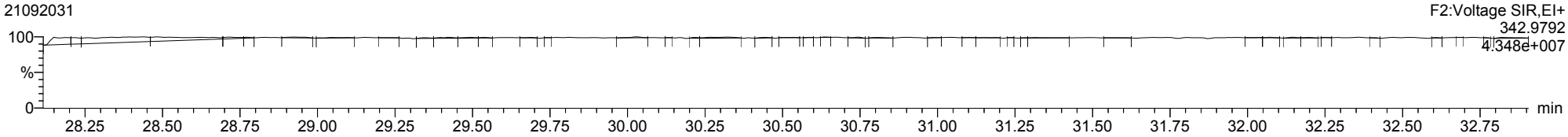


FUNCTION2 PFK



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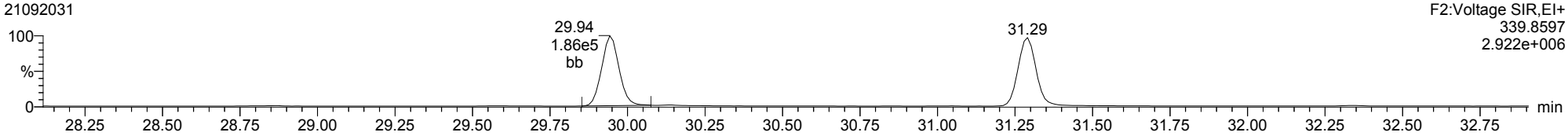
12378-PeCDF



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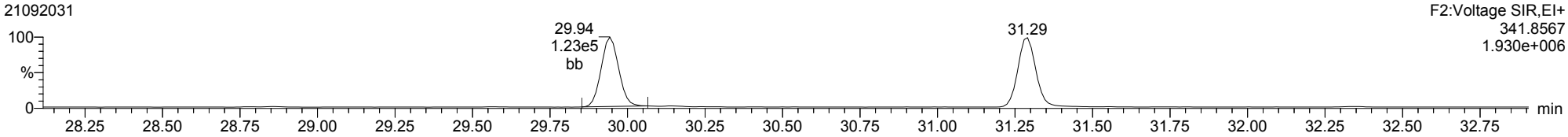

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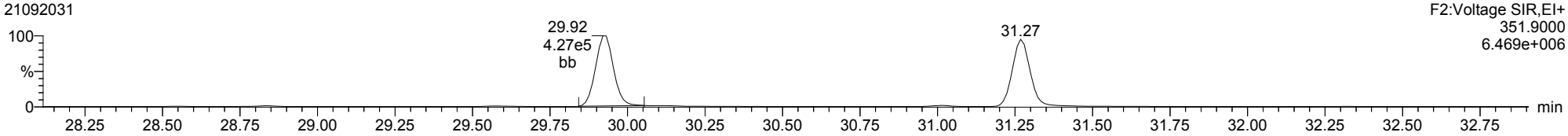

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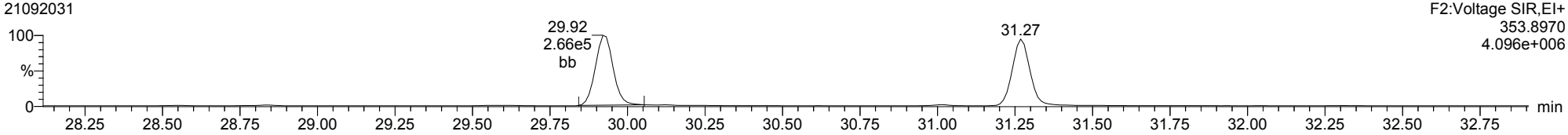
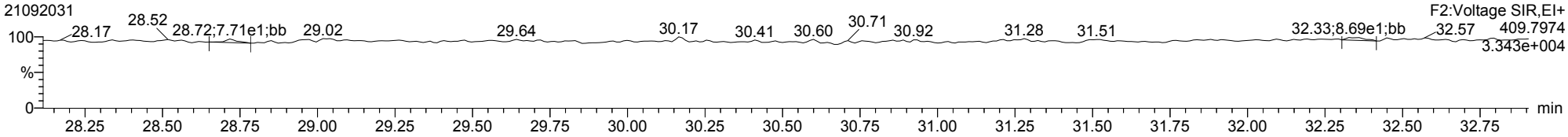


FUNCTION2 HPCDPE



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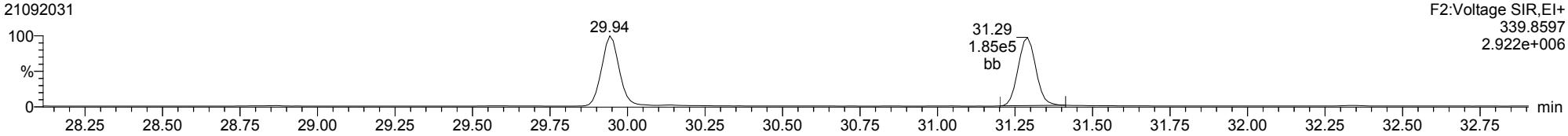
Printed: Wednesday, September 22, 2021 09:38:18 Pacific Daylight Time

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, Conditions: AUTOSPEC01, User: pk

23478-PeCDF



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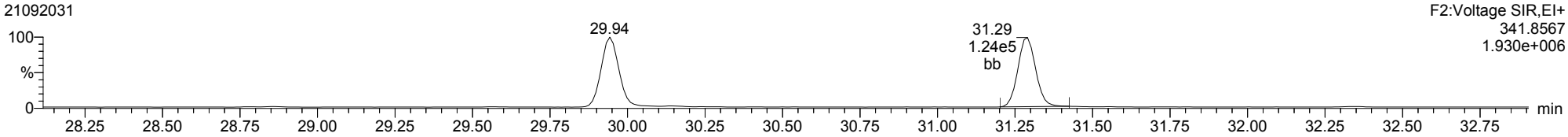

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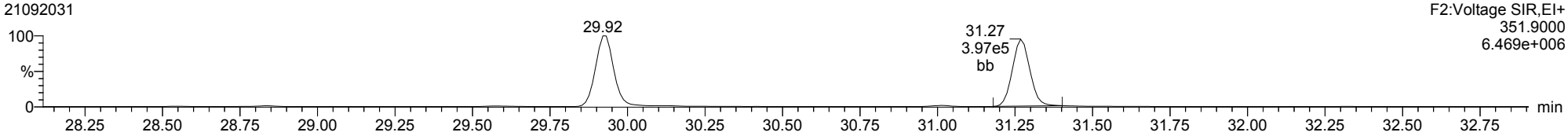

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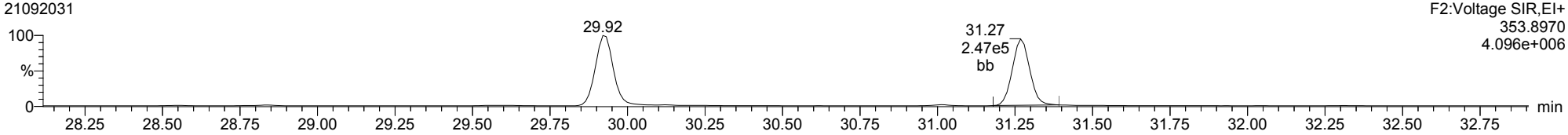

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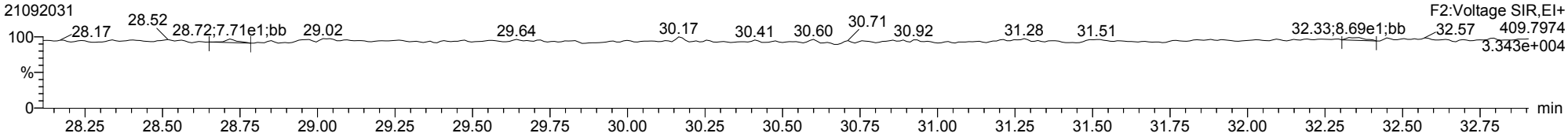

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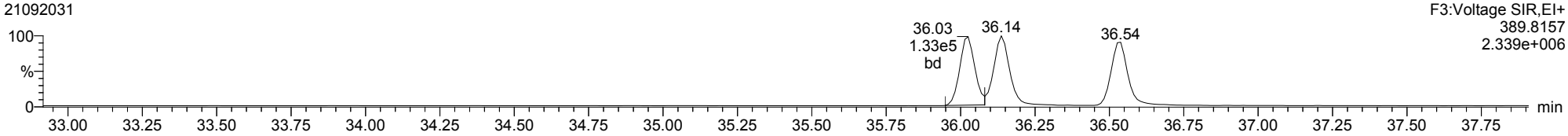
123478-HxCDD



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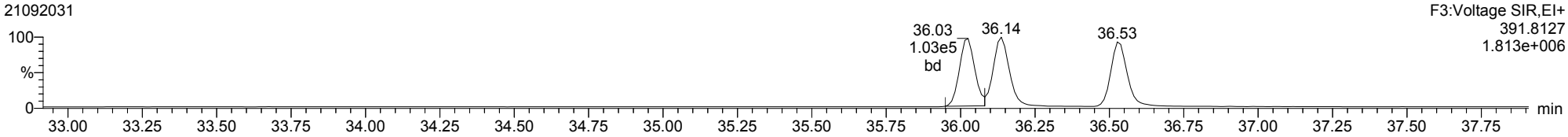

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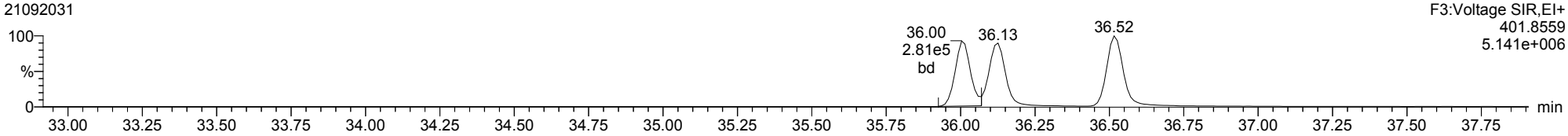

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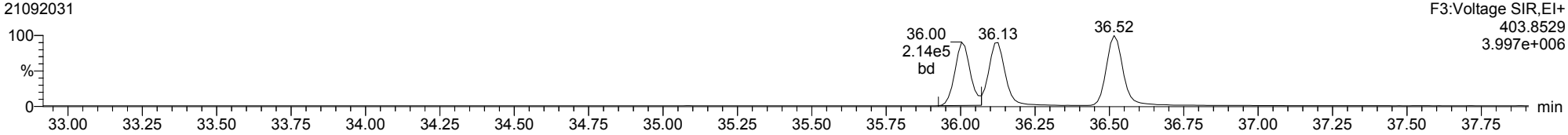

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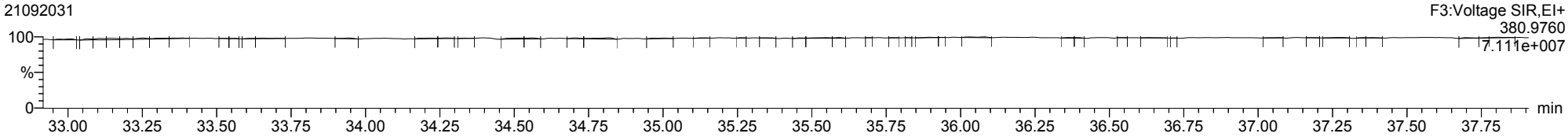

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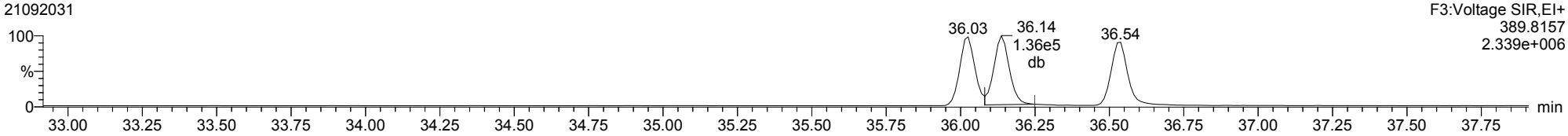

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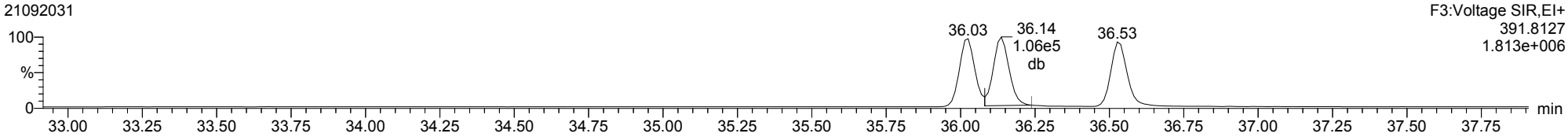

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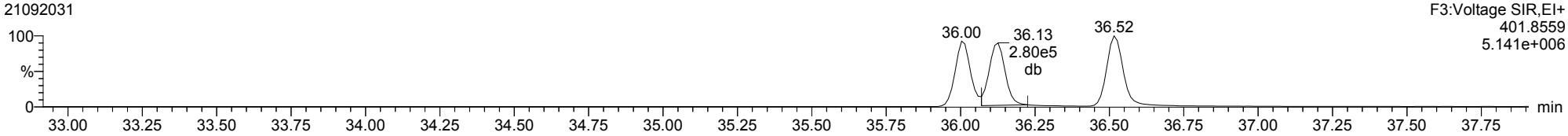

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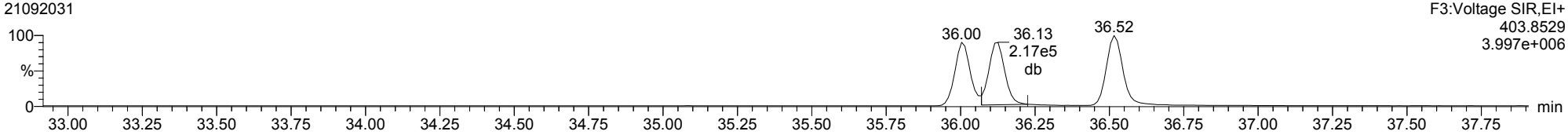

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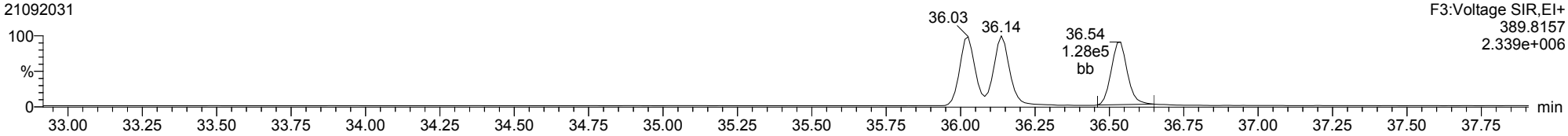

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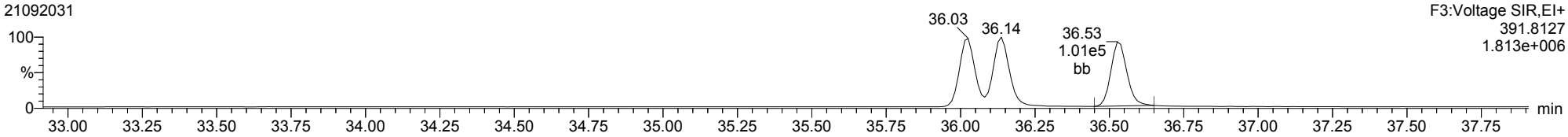

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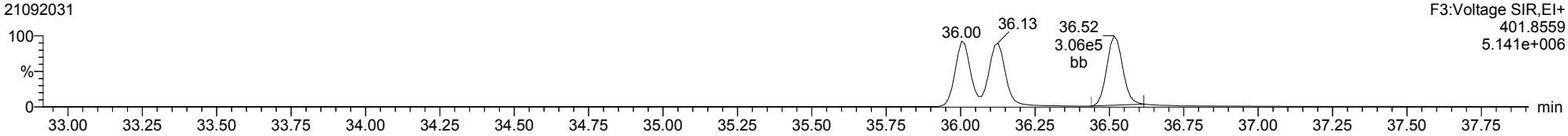

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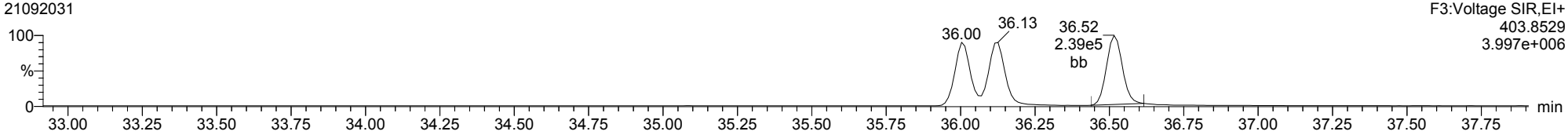

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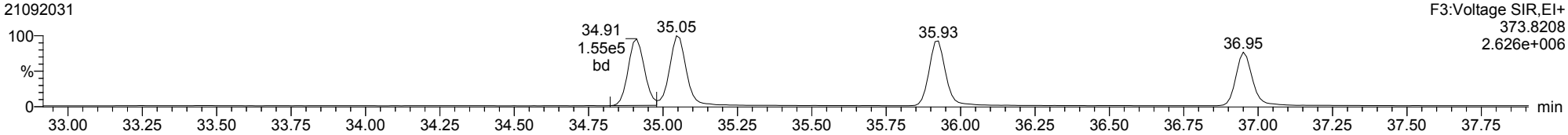

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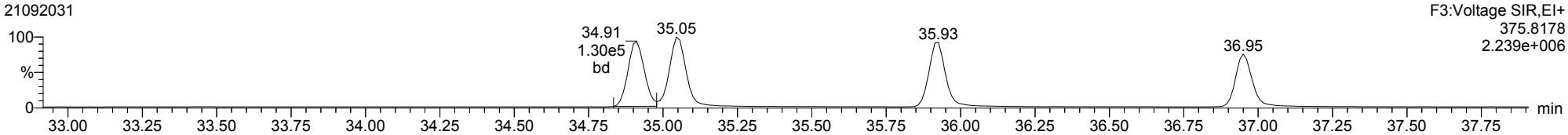

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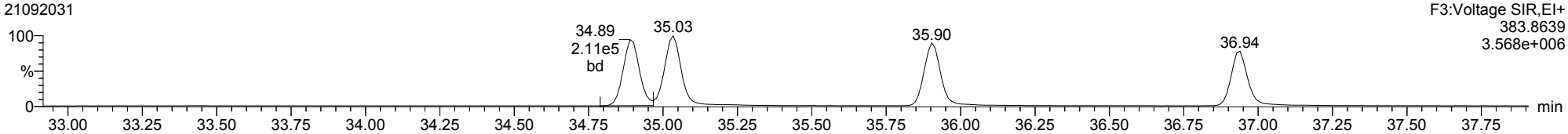

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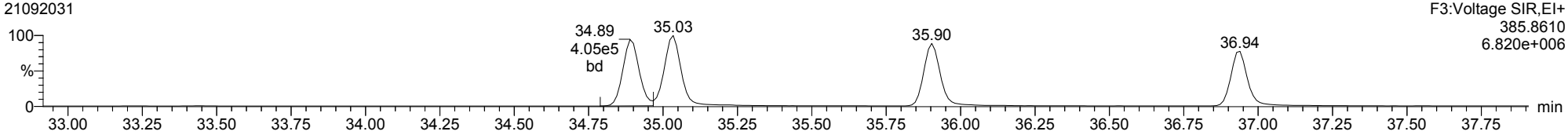

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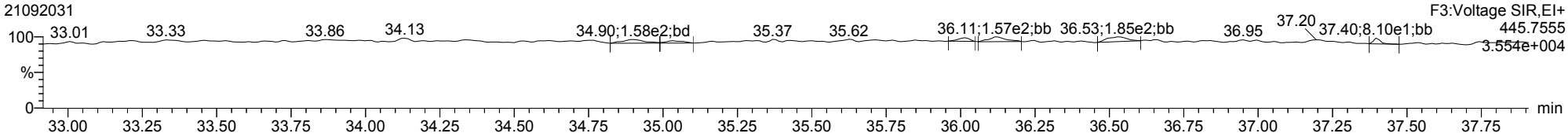

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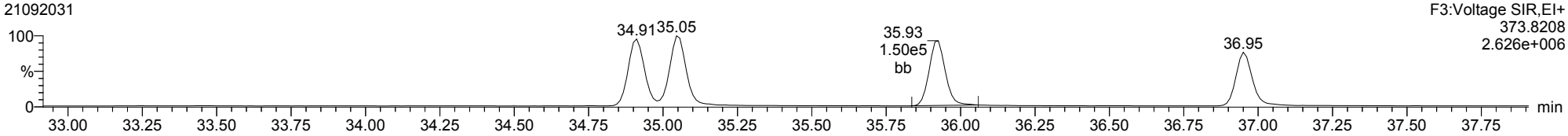

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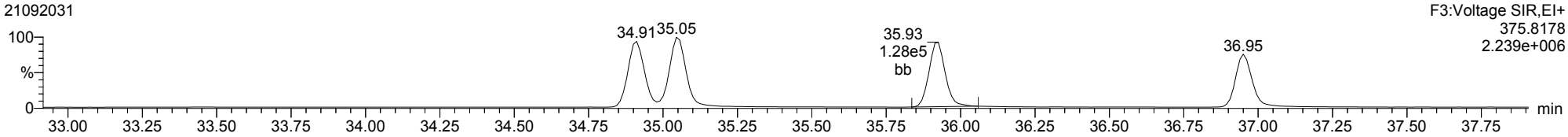

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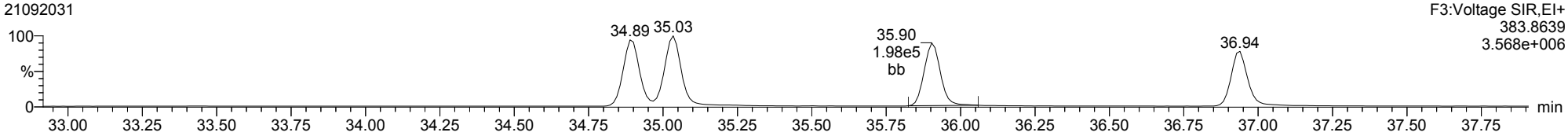

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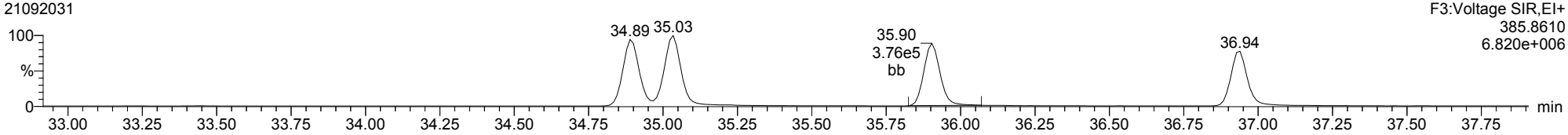

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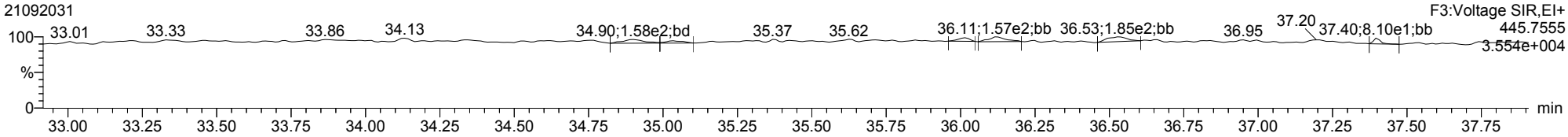

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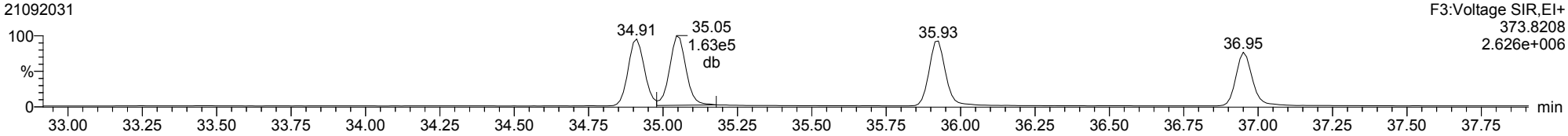

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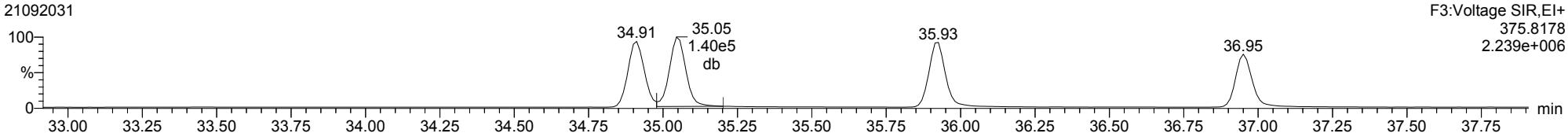

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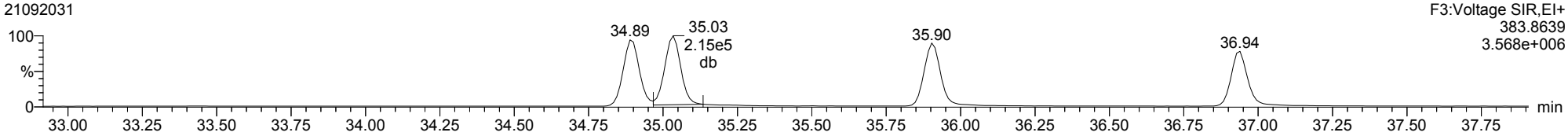

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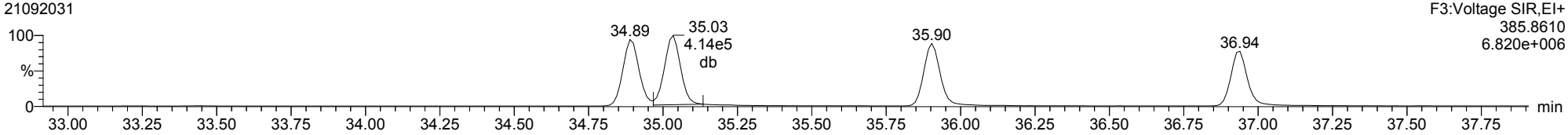

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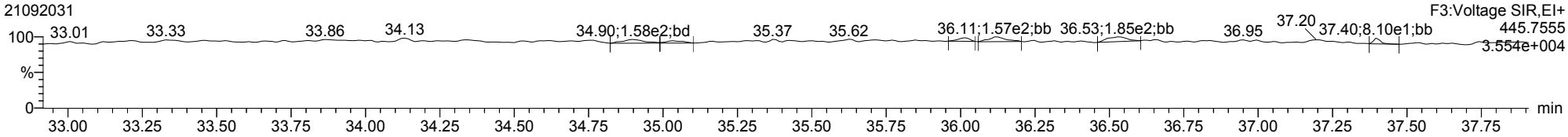

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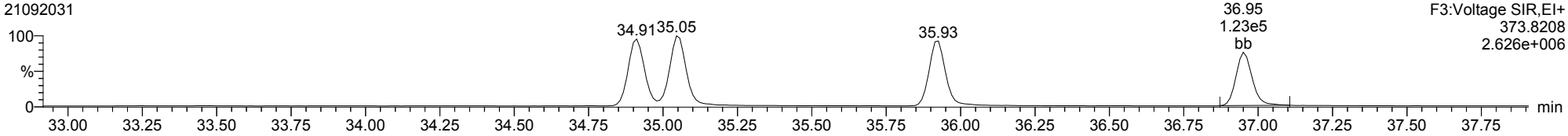

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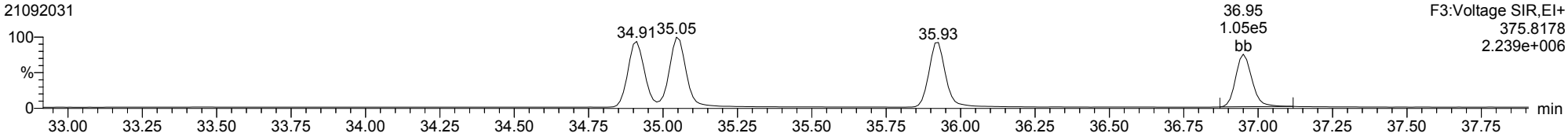

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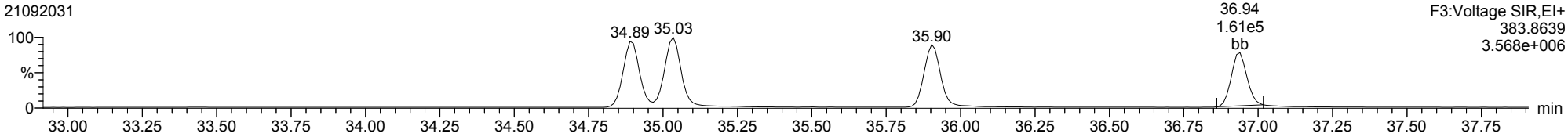

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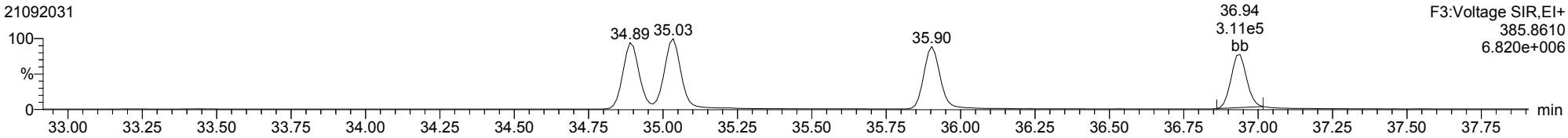

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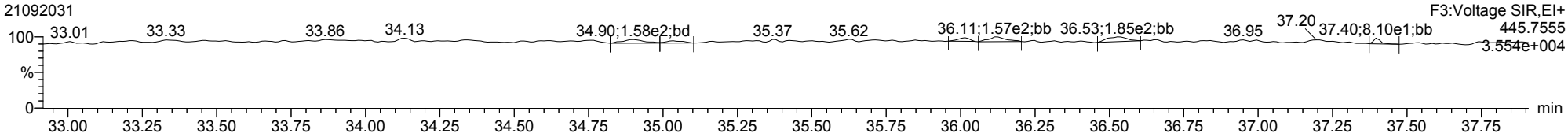

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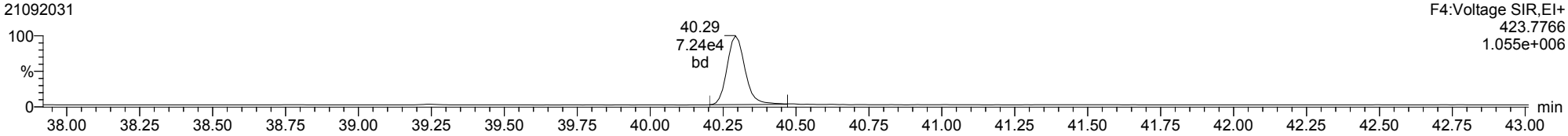

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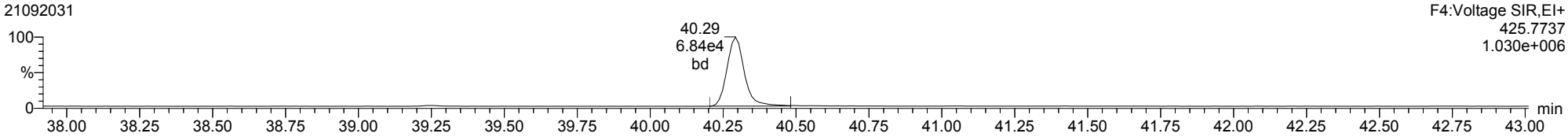

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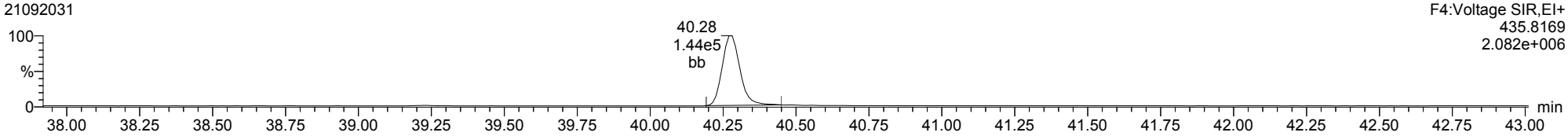

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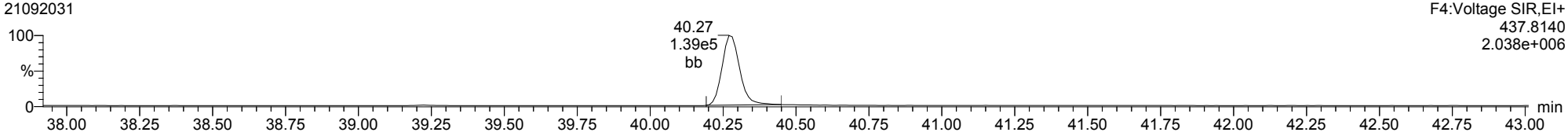

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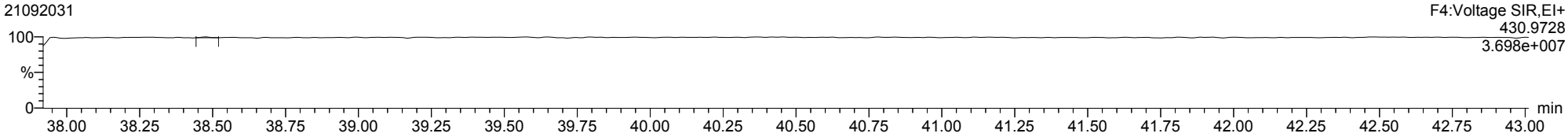

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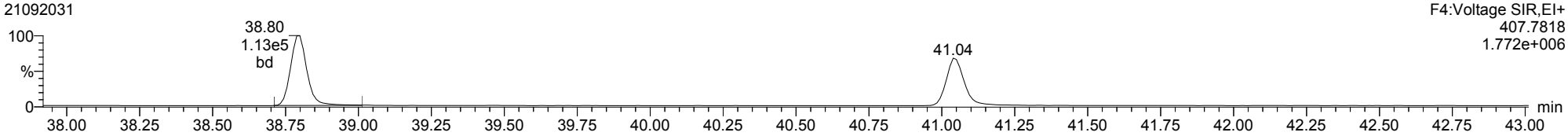

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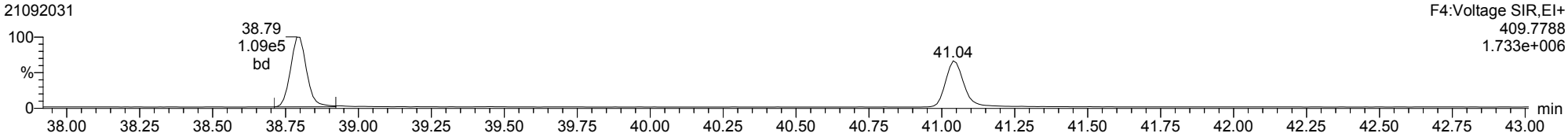

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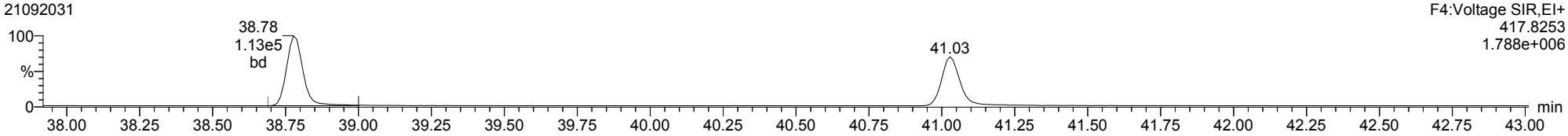

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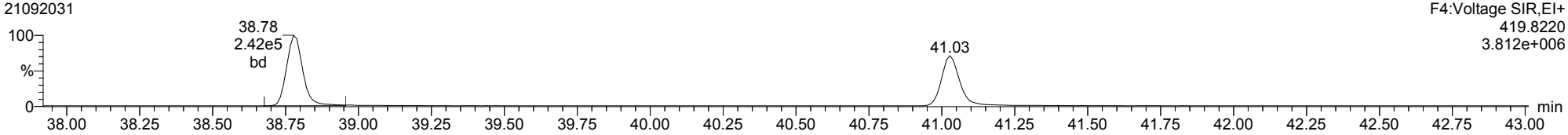

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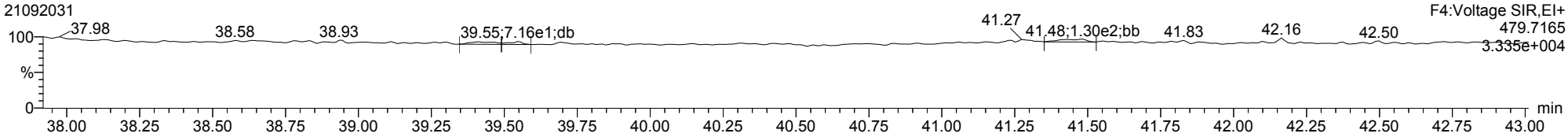

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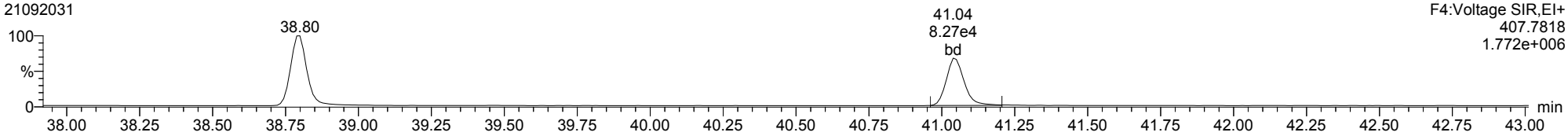

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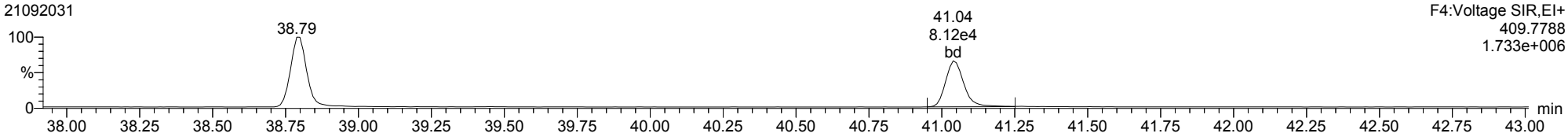

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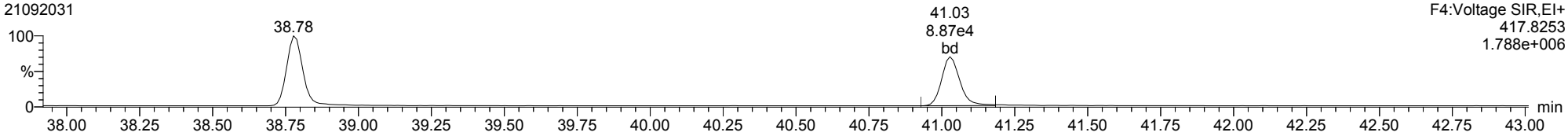

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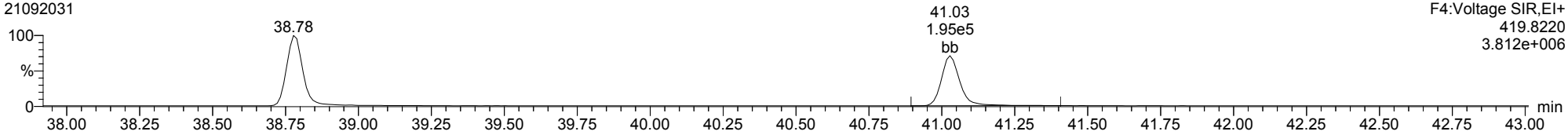

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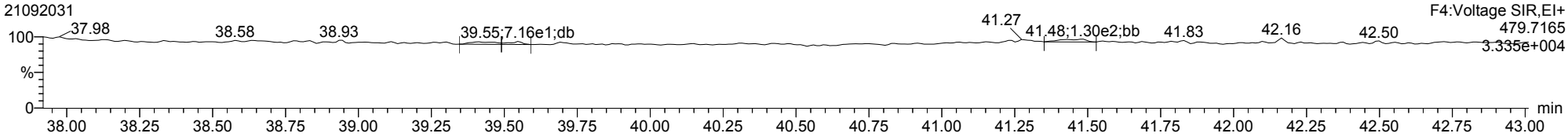

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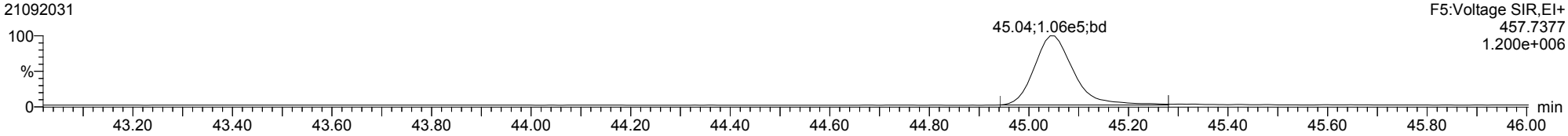

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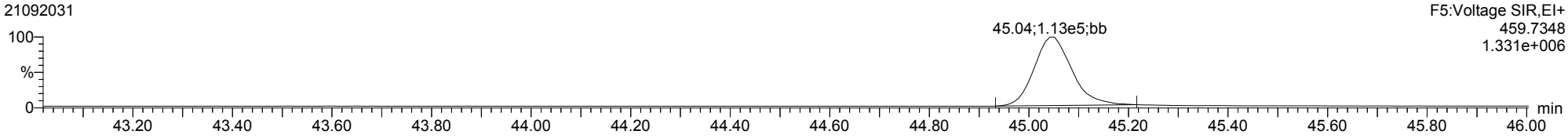
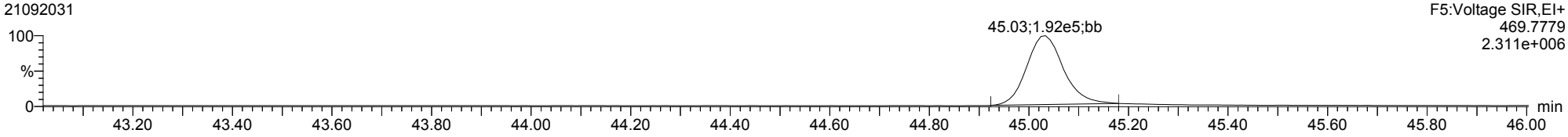


13C-OCDD



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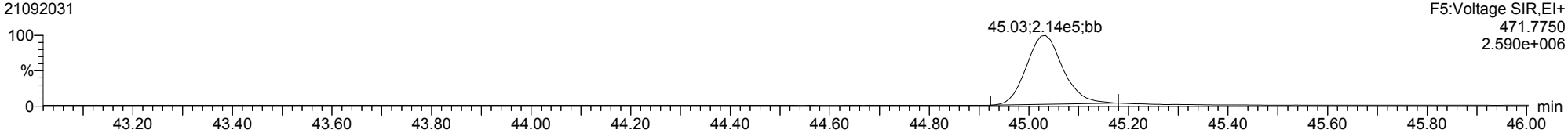
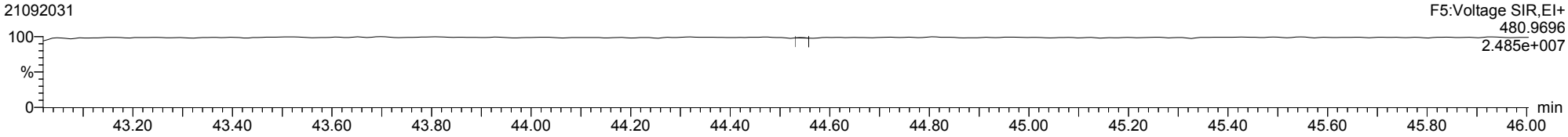
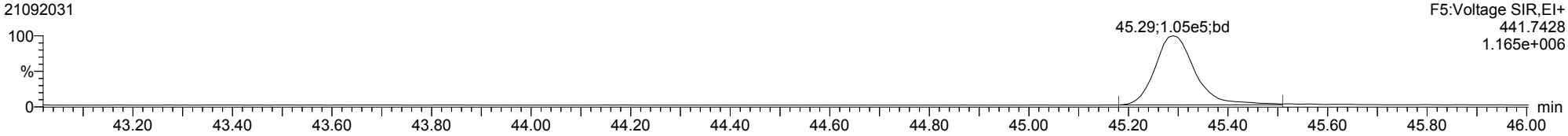


FUNCTION5 PFK

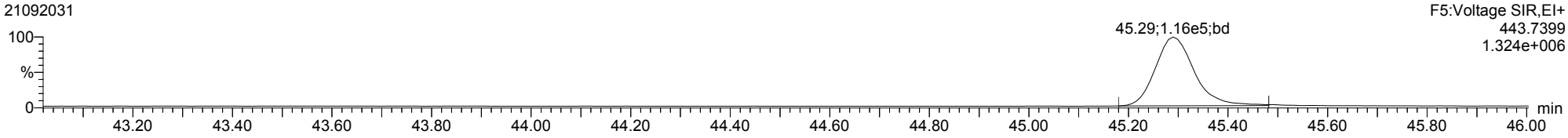


ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, Conditions: AUTOSPEC01, User: pk

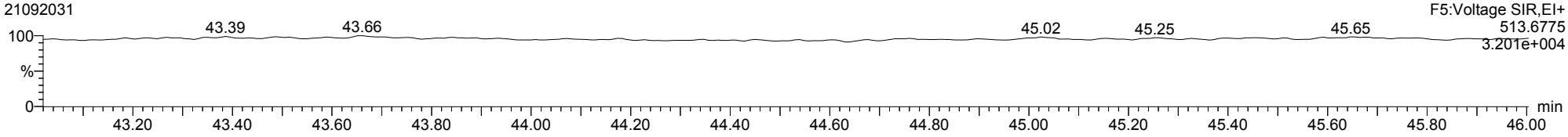
OCDF



OCDF



FUNCTION5 DCDPE



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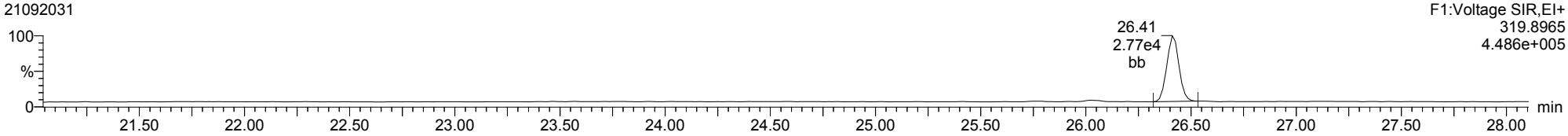
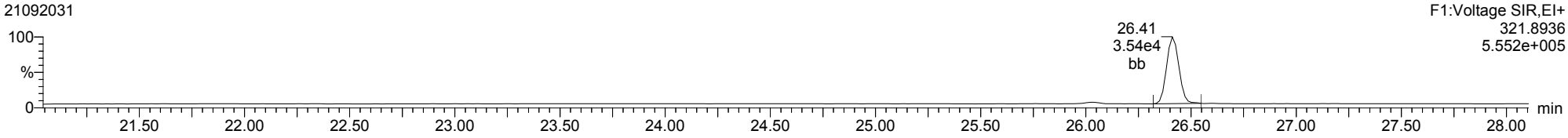
Printed: Wednesday, September 22, 2021 09:38:18 Pacific Daylight Time

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, Conditions: AUTOSPEC01, User: pk

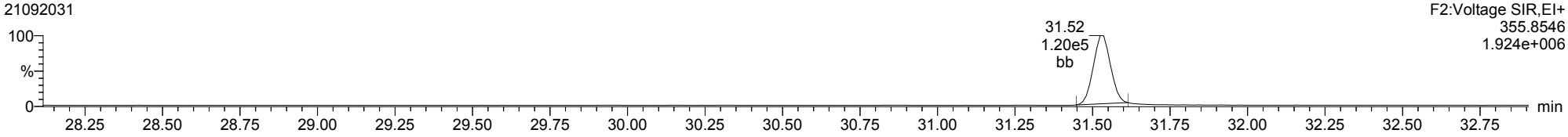
Total-tetradioxins



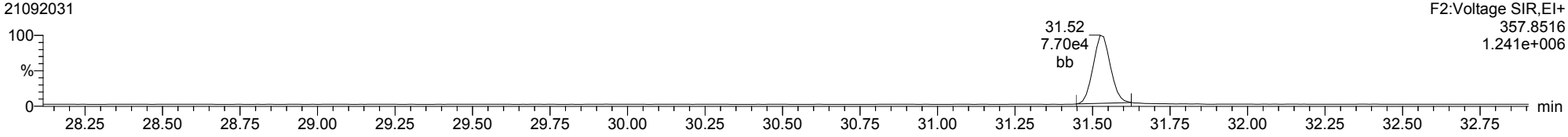
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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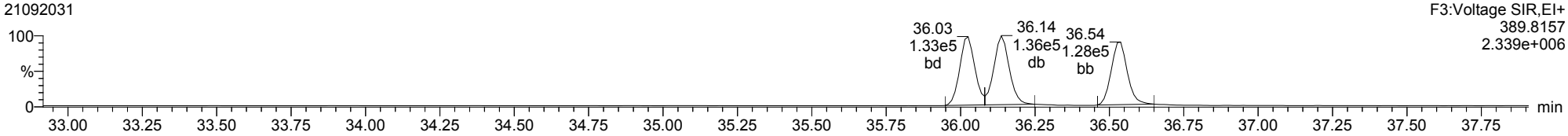
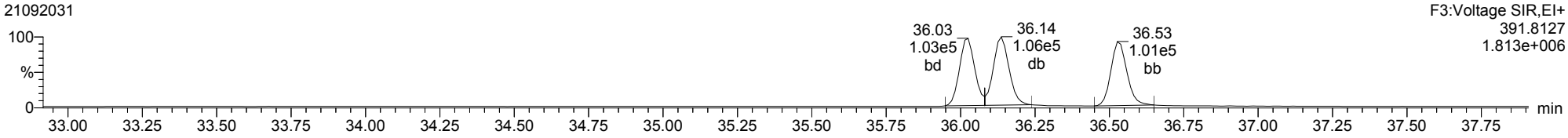
Printed: Wednesday, September 22, 2021 09:38:18 Pacific Daylight Time

ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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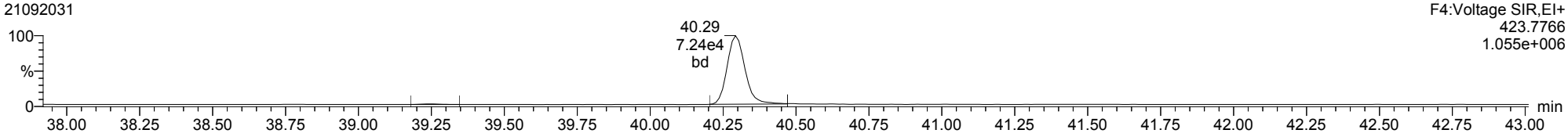

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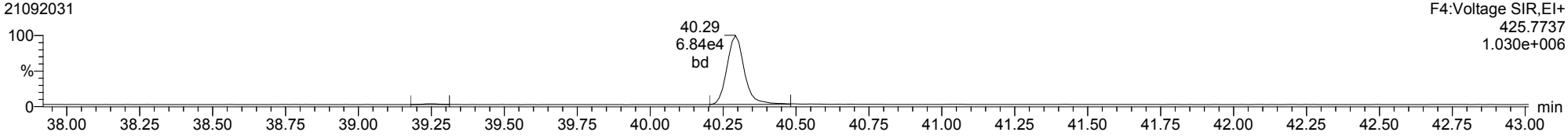
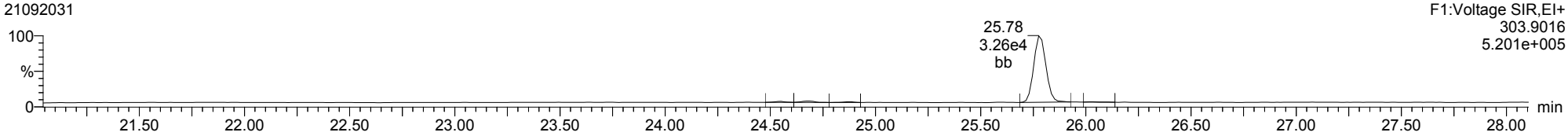
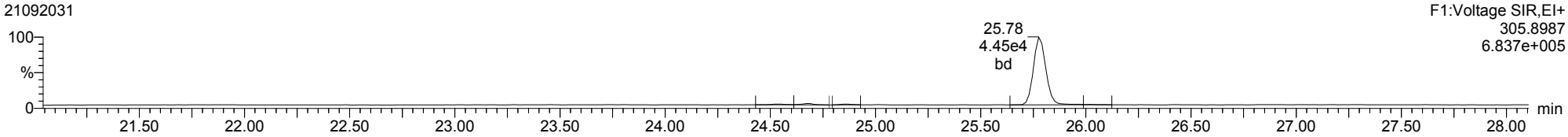


ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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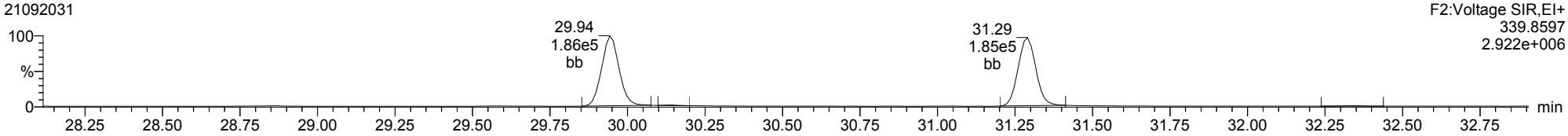

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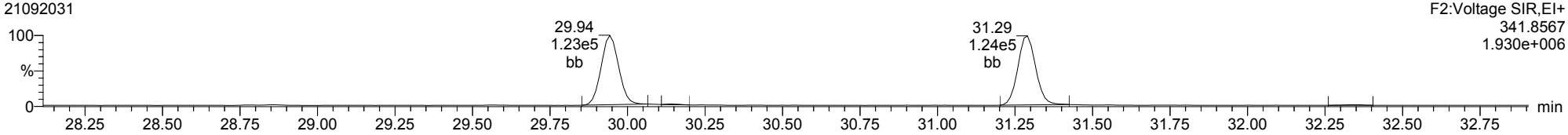

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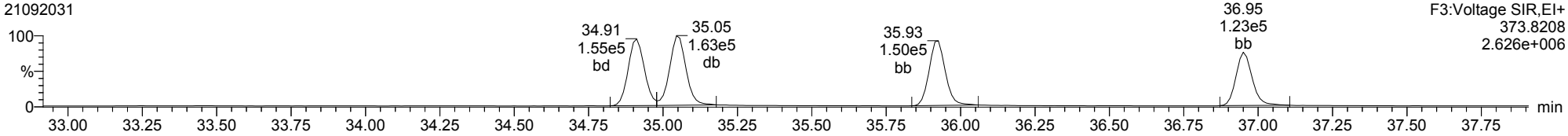
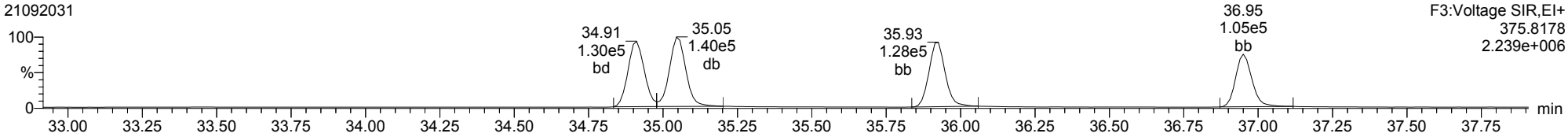
ID: BJH0203-BS1, Name: 21092031, Date: 21-Sep-2021, Time: 17:10:15, Conditions: AUTOSPEC01, User: pk

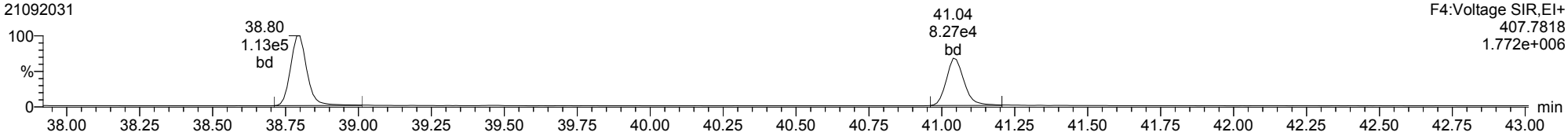
Total-hexafurans



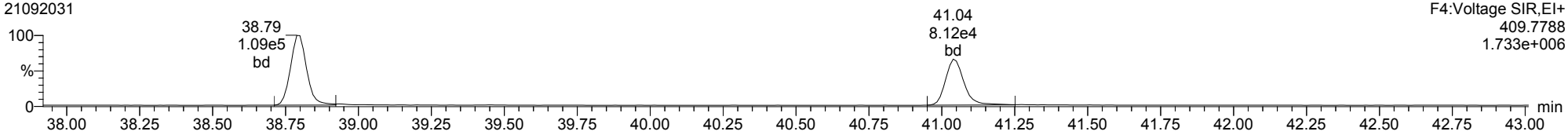
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0283
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0203-SRM1
Batch: BJH0203
Initial/Final: 10 g / 20 uL
Preparation: EPA 1613
Analyzed: 09/21/2021 17:59
Standard ID: J007936
Expires: 01/30/2022
Standard Lot#: PSRM0141
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	0.835	0.088	1.00	J	75.2	50 - 150
2,3,7,8-TCDD	1.0500	0.867	0.150	1.00	EMPC, J	82.6	50 - 150
1,2,3,7,8-PeCDF	1.2300	0.913	0.240	1.00	J	74.2	50 - 150
2,3,4,7,8-PeCDF	1.0700	0.763	0.220	1.00	EMPC, J	71.3	50 - 150
1,2,3,7,8-PeCDD	1.0800	1.21	0.170	1.00		112	50 - 150
1,2,3,4,7,8-HxCDF	3.0200	2.91	0.280	1.00		96.5	50 - 150
1,2,3,6,7,8-HxCDF	1.0900	0.986	0.200	1.00	J	90.4	50 - 150
2,3,4,6,7,8-HxCDF	1.8300	1.86	0.170	1.00		102	50 - 150
1,2,3,7,8,9-HxCDF	0.51100	0.608	0.190	1.00	J	119	50 - 150
1,2,3,4,7,8-HxCDD	1.5900	1.45	0.170	1.00		91.4	50 - 150
1,2,3,6,7,8-HxCDD	3.8800	3.84	0.180	1.00		99.1	50 - 150
1,2,3,7,8,9-HxCDD	3.0400	2.90	0.220	1.00		95.3	50 - 150
1,2,3,4,6,7,8-HpCDF	18.700	19.7	0.210	1.00		105	50 - 150
1,2,3,4,7,8,9-HpCDF	1.6300	1.60	0.240	1.00	EMPC	97.9	50 - 150
1,2,3,4,6,7,8-HpCDD	90.600	104	0.560	2.50	B	114	50 - 150
OCDF	58.400	60.3	1.10	2.50		103	50 - 150
OCDD	811.00	846	4.60	10.0	B	104	50 - 150

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:28 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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	1.866e3	2.247e3	1.108	0.831	0.770	1136	1182	2.13e4	3.20e4	18.7	27.0	NO	dd	dd	0.418
12378-PeCDF	29.942	1.001	2.274e3	1.654e3	1.015	1.375	1.550	786	1225	3.96e4	2.29e4	50.4	18.7	NO	bb	db	0.456
23478-PeCDF	31.291	1.001	1.902e3	1.562e3	1.126	1.217	1.550	786	1225	3.22e4	1.90e4	41.0	15.5	YES	db	db	0.381
123478-HxCDF	34.911	1.000	6.735e3	5.565e3	1.017	1.210	1.240	785	866	1.05e5	8.48e4	134.5	97.9	NO	dd	dd	1.457
234678-HxCDF	35.937	1.000	4.209e3	3.629e3	1.052	1.160	1.240	785	866	4.86e4	3.91e4	61.9	45.1	NO	bb	MM	0.929
123678-HxCDF	35.056	1.001	2.378e3	1.863e3	1.037	1.276	1.240	785	866	4.20e4	3.18e4	53.5	36.7	NO	db	db	0.493
123789-HxCDF	36.928	1.000	1.162e3	9.120e2	1.030	1.274	1.240	785	866	1.56e4	1.51e4	19.9	17.5	NO	bb	bb	0.304
1234678-HpCDF	38.800	1.001	3.265e4	3.061e4	1.327	1.067	1.050	871	952	5.65e5	5.19e5	648.8	545.4	NO	bb	bb	9.859
1234789-HpCDF	41.039	1.000	2.325e3	1.883e3	1.283	1.235	1.050	871	952	3.34e4	3.06e4	38.3	32.2	YES	bb	bb	0.798
OCDF	45.297	1.006	6.391e4	7.259e4	1.447	0.881	0.890	648	898	7.97e5	9.27e5	1229.4	1032.9	NO	bd	bb	30.153
2378-TCDD	26.411	1.001	1.372e3	2.171e3	0.920	0.632	0.770	1046	613	2.20e4	3.44e4	21.0	56.1	YES	bd	bd	0.434
12378-PeCDD	31.524	1.000	1.980e3	1.269e3	0.995	1.560	1.550	736	822	3.12e4	1.91e4	42.3	23.2	NO	bb	bb	0.603
123478-HxCDD	36.048	1.001	2.675e3	2.363e3	1.027	1.132	1.240	830	922	4.46e4	4.29e4	53.8	46.5	NO	bd	bd	0.726
123678-HxCDD	36.159	1.000	7.370e3	6.246e3	1.009	1.180	1.240	830	922	1.27e5	1.04e5	153.4	112.6	NO	db	dd	1.922
123789-HxCDD	36.549	1.011	5.237e3	4.246e3	0.950	1.234	1.240	830	922	8.43e4	7.61e4	101.7	82.5	NO	bb	bb	1.449
1234678-HpCDD	40.293	1.001	1.166e5	1.088e5	1.068	1.072	1.050	1429	1230	1.85e6	1.70e6	1290.8	1384.4	NO	bb	bb	51.842
OCDD	45.050	1.000	7.390e5	8.229e5	1.181	0.898	0.890	1503	1019	9.51e6	1.06e7	6327.7	10363.7	NO	bb	bb	422.753
13C-2378-TCDF	25.761	1.007	3.895e5	4.997e5	1.427	0.780	0.770	1882	1369	6.28e6	8.00e6	3339.0	5843.8	NO	bb	bb	68.757
13C-12378-PeCDF	29.920	1.170	5.241e5	3.240e5	1.297	1.618	1.550	1831	1511	8.19e6	5.10e6	4474.6	3377.6	NO	bb	bb	72.114
13C-23478-PeCDF	31.268	1.222	4.967e5	3.102e5	1.236	1.601	1.550	1831	1511	8.01e6	5.03e6	4375.1	3330.5	NO	bb	bb	71.981
13C-123478-HxCDF	34.900	0.955	2.808e5	5.495e5	1.242	0.511	0.510	1212	1762	4.52e6	8.72e6	3733.3	4945.8	NO	bd	bd	84.559
13C-123678-HxCDF	35.034	0.959	2.855e5	5.445e5	1.343	0.524	0.510	1212	1762	4.64e6	9.01e6	3830.2	5115.0	NO	db	db	78.161
13C-234678-HxCDF	35.925	0.983	2.748e5	5.267e5	1.215	0.522	0.510	1212	1762	4.41e6	8.39e6	3641.9	4763.0	NO	bb	bb	83.481
13C-123789-HxCDF	36.939	1.011	2.248e5	4.377e5	1.008	0.514	0.510	1212	1762	4.00e6	7.67e6	3303.3	4351.3	NO	bb	bb	83.189
13C-1234678-HpCDF	38.778	1.061	1.519e5	3.316e5	0.926	0.458	0.440	834	1022	2.56e6	5.55e6	3065.1	5428.0	NO	bb	bb	66.018
13C-1234789-HpCDF	41.028	1.123	1.317e5	2.792e5	0.758	0.472	0.440	834	1022	1.98e6	4.13e6	2374.9	4042.7	NO	bd	bd	68.604
13C-1234-TCDD	25.579	0.000	3.927e5	5.139e5	1.000	0.764	0.770	2232	1240	6.20e6	8.16e6	2778.9	6578.9	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.032	3.829e5	5.052e5	1.116	0.758	0.770	2232	1240	5.93e6	7.70e6	2655.7	6211.9	NO	bb	bb	87.732
13C-12378-PeCDD	31.513	1.232	3.313e5	2.097e5	0.732	1.579	1.550	826	927	5.15e6	3.27e6	6233.1	3530.5	NO	bb	bb	81.531
13C-123478-HxCDD	36.026	0.986	3.831e5	2.920e5	0.960	1.312	1.240	1402	1376	6.39e6	4.80e6	4560.1	3490.3	NO	bd	bd	88.989
13C-123678-HxCDD	36.148	0.989	3.930e5	3.091e5	1.041	1.271	1.240	1402	1376	6.48e6	5.01e6	4619.8	3638.2	NO	db	db	85.303
13C-1234678-HpCDD	40.270	1.102	2.071e5	2.000e5	0.632	1.036	1.050	704	917	3.33e6	3.23e6	4733.6	3517.5	NO	bb	bb	81.441
13C-OCDD	45.041	1.233	2.969e5	3.288e5	0.504	0.903	0.890	827	1007	3.72e6	4.14e6	4498.5	4105.7	NO	bb	bb	157.163
13C-123789-HxCDD	36.538	0.000	4.414e5	3.490e5	1.000	1.265	1.240	1402	1376	7.54e6	5.90e6	5375.8	4284.6	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	3.300e5		1.084			814		5.09e6		6256.3			db		33.590

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ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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	22.389	0.869	6.962e2	8.221e2	1.425	0.847	0.770	1136	1182	1.04e4	1.09e4	9.2	9.2	NO	dd	dd	0.120
1289-TCDF	27.378	1.063	9.215e2	1.027e3	1.043	0.897	0.770	1136	1182	1.26e4	1.62e4	11.1	13.7	YES	bd	bb	0.210
13468-PECDF	27.061	0.904	2.974e3	1.670e3	1.376	1.781	1.550	866	880	4.01e4	2.56e4	46.2	29.1	NO	bd	bd	0.398
12389-PECDF					1.000		1.550	786	1225								
123468-HXCDF	33.240	0.952	5.816e3	5.234e3	1.087	1.111	1.240	785	866	8.98e4	8.12e4	114.5	93.7	NO	bb	bd	1.225
1368-TCDD	23.508	0.891	8.532e2	1.266e3	0.923	0.674	0.770	1046	613	1.38e4	2.18e4	13.2	35.6	NO	bb	bb	0.258
1289-TCDD					0.794		0.770	1046	613								
12479-PECDD	28.829	0.915	2.817e3	1.397e3	1.843	2.016	1.550	736	822	2.73e4	2.14e4	37.1	26.0	YES	bb	db	0.423
12389-PECDD	31.937	1.013	5.784e2	3.915e2	1.154	1.477	1.550	736	822	8.29e3	5.87e3	11.3	7.1	NO	bb	bb	0.155
124679-HXCDD	34.020	0.944	2.049e4	1.557e4	1.125	1.316	1.240	830	922	3.21e5	2.50e5	387.5	271.0	NO	bb	bb	4.748
1234679-HPCDD	39.245	0.975	1.700e5	1.603e5	1.211	1.061	1.050	1429	1230	2.83e6	2.68e6	1980.5	2181.4	NO	bb	bb	67.004
Total-tetrafurans			2.280e4		1.192			1136		3.18e5							4.939
Total-penta1			2.165e4					866		3.05e5							4.548
Total-pentafurans			2.228e4		1.047			786		3.03e5							4.222
Total-hexafurans			6.693e4		1.045			785		1.03e6							14.962
Total-heptafurans			1.051e5		1.305			871		1.79e6							34.382
Total-Furans			3.081e5		1.158			1136		4.62e6							94.131
Total-tetradioxins			3.853e3		0.879			1046		6.00e4							1.148
Total-pentadioxins			6.634e3		1.331			736		1.00e5							1.665
Total-hexadioxins			6.283e4		1.028			830		8.86e5							15.895
Total-heptadioxins			2.866e5		1.140			1429		4.68e6							118.847
Total-Dioxins			1.099e6		1.092			1046		1.52e7							560.309
Total-TEQ			1.407e6					1046		1.98e7							654.440
FUNCTION1 PFK			4.227e5					594764		5.47e6							
FUNCTION2 PFK			1.353e7					289678		3.71e7							0.000
FUNCTION3 PFK			2.708e7					364031		1.24e8							0.000
FUNCTION4 PFK			9.166e5					200953		1.32e7							
FUNCTION5 PFK			0.000e0					182348		0.00e0							
FUNCTION1 HXCD...			1.426e3					838		2.28e4							0.000
FUNCTION1 HPCD...			5.671e3					667		9.83e4							0.000
FUNCTION2 HPCD...			4.434e2					769		8.31e3							0.000
FUNCTION3 OCDPE			3.929e2					727		6.13e3							0.000
FUNCTION4 NCDPE			1.064e4					680		1.93e5							0.000
FUNCTION5 DCDPE			1.817e2					499		3.94e3							0.000

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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	23.42	1.120e3	1.424e3	1.192	0.79	0.77	14.2	YES	NO	dd	dd	0.240
2	Total-tetrafurans	23.10	2.204e3	3.365e3	1.192	0.65	0.77	28.2	YES	NO	bd	MM	0.525
3	1368-TCDF	22.39	6.962e2	8.221e2	1.425	0.85	0.77	9.2	YES	NO	dd	dd	0.120
4	Total-tetrafurans	25.94	1.037e3	1.200e3	1.192	0.86	0.77	11.7	YES	NO	dd	dd	0.211
5	2378-TCDF	25.78	1.866e3	2.247e3	1.108	0.83	0.77	18.7	YES	NO	dd	dd	0.418
6	Total-tetrafurans	25.44	1.228e3	1.596e3	1.192	0.77	0.77	11.4	YES	NO	dd	dd	0.266
7	Total-tetrafurans	25.28	4.738e2	6.761e2	1.192	0.70	0.77	6.0	YES	NO	bd	bd	0.108
8	Total-tetrafurans	25.10	7.191e2	9.134e2	1.192	0.79	0.77	8.1	YES	NO	db	db	0.154
9	Total-tetrafurans	24.87	2.656e3	3.493e3	1.192	0.76	0.77	33.6	YES	NO	dd	dd	0.580
10	Total-tetrafurans	24.54	2.563e3	3.704e3	1.192	0.69	0.77	35.9	YES	NO	dd	dd	0.591
11	Total-tetrafurans	24.17	2.049e3	2.419e3	1.192	0.85	0.77	26.2	YES	NO	dd	db	0.422
12	Total-tetrafurans	24.02	2.250e3	2.671e3	1.192	0.84	0.77	22.1	YES	NO	dd	dd	0.464
13	Total-tetrafurans	23.87	1.919e3	2.377e3	1.192	0.81	0.77	24.4	YES	NO	dd	dd	0.405
14	Total-tetrafurans	26.89	5.269e2	7.353e2	1.192	0.72	0.77	7.8	YES	NO	bb	bd	0.119
15	Total-tetrafurans	24.67	1.490e3	1.845e3	1.192	0.81	0.77	22.8	YES	NO	MM	MM	0.315

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.56	7.792e2	5.086e2		1.53	1.55	9.8	YES	NO	bb	bb	0.166
2	Total-penta1	27.20	2.087e4	1.321e4		1.58	1.55	342.5	YES	NO	db	db	4.382

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:28 Pacific Daylight Time

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.47	3.655e3	2.650e3	1.047	1.38	1.55	67.3	YES	NO	dd	bb	0.728
2	Total-pentafurans	28.17	5.737e2	3.240e2	1.047	1.77	1.55	16.4	YES	NO	bb	bb	0.104
3	Total-pentafurans	30.15	3.818e3	2.267e3	1.047	1.68	1.55	69.1	YES	NO	bd	bd	0.703
4	12378-PeCDF	29.94	2.274e3	1.654e3	1.015	1.37	1.55	50.4	YES	NO	bb	db	0.456
5	Total-pentafurans	29.83	3.738e2	2.824e2	1.047	1.32	1.55	10.3	YES	NO	db	bd	0.076
6	Total-pentafurans	29.47	3.860e2	2.641e2	1.047	1.46	1.55	8.7	YES	NO	dd	dd	0.075
7	Total-pentafurans	29.39	4.481e2	2.714e2	1.047	1.65	1.55	12.5	YES	NO	bd	bd	0.083
8	Total-pentafurans	29.06	2.180e2	1.274e2	1.047	1.71	1.55	6.1	NO	NO	db	db	0.040
9	Total-pentafurans	28.87	8.975e3	5.422e3	1.047	1.66	1.55	115.8	YES	NO	MM	MM	1.662
10	Total-pentafurans	31.13	1.557e3	9.995e2	1.047	1.56	1.55	29.4	YES	NO	dd	dd	0.295

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	33.45	1.934e4	1.690e4	1.045	1.14	1.24	365.8	YES	NO	bb	db	4.442
2	123468-HXCDF	33.24	5.816e3	5.234e3	1.087	1.11	1.24	114.5	YES	NO	bb	bd	1.225
3	123789-HxCDF	36.93	1.162e3	9.120e2	1.030	1.27	1.24	19.9	YES	NO	bb	bb	0.304
4	234678-HxCDF	35.94	4.209e3	3.629e3	1.052	1.16	1.24	61.9	YES	NO	bb	MM	0.929
5	Total-hexafurans	35.40	2.230e2	1.594e2	1.045	1.40	1.24	4.6	YES	NO	bb	bb	0.047
6	123678-HxCDF	35.06	2.378e3	1.863e3	1.037	1.28	1.24	53.5	YES	NO	db	db	0.493
7	123478-HxCDF	34.91	6.735e3	5.565e3	1.017	1.21	1.24	134.5	YES	NO	dd	dd	1.457
8	Total-hexafurans	34.76	1.132e3	8.926e2	1.045	1.27	1.24	18.8	YES	NO	bd	bd	0.248
9	Total-hexafurans	34.29	2.538e4	2.105e4	1.045	1.21	1.24	529.0	YES	NO	bb	bb	5.690
10	Total-hexafurans	33.99	5.519e2	4.894e2	1.045	1.13	1.24	11.4	YES	NO	bb	bb	0.128

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.46	7.172e4	6.993e4	1.305	1.03	1.05	1395.9	YES	NO	bd	bd	24.265
2	Total-heptafurans	39.21	7.426e2	7.566e2	1.305	0.98	1.05	11.5	YES	NO	bb	bb	0.257
3	1234678-HpCDF	38.80	3.265e4	3.061e4	1.327	1.07	1.05	648.8	YES	NO	bb	bb	9.859

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:28 Pacific Daylight Time

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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	23.42	1.120e3	1.424e3	1.192	0.79	0.77	14.2	YES	NO	dd	dd	0.240
2	Total-tetrafurans	23.10	2.204e3	3.365e3	1.192	0.65	0.77	28.2	YES	NO	bd	MM	0.525
3	1368-TCDF	22.39	6.962e2	8.221e2	1.425	0.85	0.77	9.2	YES	NO	dd	dd	0.120
4	Total-Furans	21.66	1.385e2	1.620e2	1.158	0.86	0.77	2.1	NO	NO	bb	bb	0.029
5	Total-Furans	21.15	2.308e3	2.831e3	1.158	0.82	0.77	25.1	YES	NO	bd	bd	0.499
6	Total-tetrafurans	25.94	1.037e3	1.200e3	1.192	0.86	0.77	11.7	YES	NO	dd	dd	0.211
7	2378-TCDF	25.78	1.866e3	2.247e3	1.108	0.83	0.77	18.7	YES	NO	dd	dd	0.418
8	Total-tetrafurans	25.44	1.228e3	1.596e3	1.192	0.77	0.77	11.4	YES	NO	dd	dd	0.266
9	Total-tetrafurans	25.28	4.738e2	6.761e2	1.192	0.70	0.77	6.0	YES	NO	bd	bd	0.108
10	Total-tetrafurans	25.10	7.191e2	9.134e2	1.192	0.79	0.77	8.1	YES	NO	db	db	0.154
11	Total-tetrafurans	24.87	2.656e3	3.493e3	1.192	0.76	0.77	33.6	YES	NO	dd	dd	0.580
12	Total-tetrafurans	24.54	2.563e3	3.704e3	1.192	0.69	0.77	35.9	YES	NO	dd	dd	0.591
13	Total-tetrafurans	24.17	2.049e3	2.419e3	1.192	0.85	0.77	26.2	YES	NO	dd	db	0.422
14	Total-tetrafurans	24.02	2.250e3	2.671e3	1.192	0.84	0.77	22.1	YES	NO	dd	dd	0.464
15	Total-tetrafurans	23.87	1.919e3	2.377e3	1.192	0.81	0.77	24.4	YES	NO	dd	dd	0.405
16	Total-tetrafurans	26.89	5.269e2	7.353e2	1.192	0.72	0.77	7.8	YES	NO	bb	bd	0.119
17	Total-pentafurans	28.47	3.655e3	2.650e3	1.047	1.38	1.55	67.3	YES	NO	dd	bb	0.728
18	Total-pentafurans	28.17	5.737e2	3.240e2	1.047	1.77	1.55	16.4	YES	NO	bb	bb	0.104
19	Total-pentafurans	30.15	3.818e3	2.267e3	1.047	1.68	1.55	69.1	YES	NO	bd	bd	0.703
20	12378-PeCDF	29.94	2.274e3	1.654e3	1.015	1.37	1.55	50.4	YES	NO	bb	db	0.456
21	Total-pentafurans	29.83	3.738e2	2.824e2	1.047	1.32	1.55	10.3	YES	NO	db	bd	0.076
22	Total-pentafurans	29.47	3.860e2	2.641e2	1.047	1.46	1.55	8.7	YES	NO	dd	dd	0.075
23	Total-pentafurans	29.39	4.481e2	2.714e2	1.047	1.65	1.55	12.5	YES	NO	bd	bd	0.083
24	Total-pentafurans	29.06	2.180e2	1.274e2	1.047	1.71	1.55	6.1	NO	NO	db	db	0.040
25	Total-pentafurans	28.87	8.975e3	5.422e3	1.047	1.66	1.55	115.8	YES	NO	MM	MM	1.662
26	Total-pentafurans	31.13	1.557e3	9.995e2	1.047	1.56	1.55	29.4	YES	NO	dd	dd	0.295
27	Total-hexafurans	33.45	1.934e4	1.690e4	1.045	1.14	1.24	365.8	YES	NO	bb	db	4.442
28	123468-HXCDF	33.24	5.816e3	5.234e3	1.087	1.11	1.24	114.5	YES	NO	bb	bd	1.225
29	123789-HxCDF	36.93	1.162e3	9.120e2	1.030	1.27	1.24	19.9	YES	NO	bb	bb	0.304
30	234678-HxCDF	35.94	4.209e3	3.629e3	1.052	1.16	1.24	61.9	YES	NO	bb	MM	0.929
31	Total-hexafurans	35.40	2.230e2	1.594e2	1.045	1.40	1.24	4.6	YES	NO	bb	bb	0.047
32	123678-HxCDF	35.06	2.378e3	1.863e3	1.037	1.28	1.24	53.5	YES	NO	db	db	0.493
33	123478-HxCDF	34.91	6.735e3	5.565e3	1.017	1.21	1.24	134.5	YES	NO	dd	dd	1.457
34	Total-hexafurans	34.76	1.132e3	8.926e2	1.045	1.27	1.24	18.8	YES	NO	bd	bd	0.248
35	Total-hexafurans	34.29	2.538e4	2.105e4	1.045	1.21	1.24	529.0	YES	NO	bb	bb	5.690
36	Total-hexafurans	33.99	5.519e2	4.894e2	1.045	1.13	1.24	11.4	YES	NO	bb	bb	0.128
37	Total-heptafurans	39.46	7.172e4	6.993e4	1.305	1.03	1.05	1395.9	YES	NO	bd	bd	24.265

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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
38	Total-heptafurans	39.21	7.426e2	7.566e2	1.305	0.98	1.05	11.5	YES	NO	bb	bb	0.257
39	1234678-HpCDF	38.80	3.265e4	3.061e4	1.327	1.07	1.05	648.8	YES	NO	bb	bb	9.859
40	OCDF	45.30	6.391e4	7.259e4	1.447	0.88	0.89	1229.4	YES	NO	bd	bb	30.153
41	Total-penta1	27.56	7.792e2	5.086e2		1.53	1.55	9.8	YES	NO	bb	bb	0.166
42	Total-penta1	27.20	2.087e4	1.321e4		1.58	1.55	342.5	YES	NO	db	db	4.382
43	13468-PECDF	27.06	2.974e3	1.670e3	1.376	1.78	1.55	46.2	YES	NO	bd	bd	0.398
44	Total-tetrafurans	24.67	1.490e3	1.845e3	1.192	0.81	0.77	22.8	YES	NO	MM	MM	0.315

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	26.55	2.219e2	2.978e2	0.879	0.75	0.77	3.6	YES	NO	db	db	0.067
2	Total-tetradioxins	26.05	5.857e2	6.829e2	0.879	0.86	0.77	8.8	YES	NO	bb	bb	0.162
3	Total-tetradioxins	25.59	1.200e3	1.587e3	0.879	0.76	0.77	17.8	YES	NO	bb	bd	0.357
4	Total-tetradioxins	25.02	9.914e2	1.380e3	0.879	0.72	0.77	13.8	YES	NO	bb	bb	0.304
5	1368-TCDD	23.51	8.532e2	1.266e3	0.923	0.67	0.77	13.2	YES	NO	bb	bb	0.258

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.94	5.784e2	3.915e2	1.154	1.48	1.55	11.3	YES	NO	bb	bb	0.155
2	12378-PeCDD	31.52	1.980e3	1.269e3	0.995	1.56	1.55	42.3	YES	NO	bb	bb	0.603
3	Total-pentadioxins	30.86	3.448e2	2.210e2	1.331	1.56	1.55	8.6	YES	NO	bb	bb	0.079
4	Total-pentadioxins	30.45	1.157e3	7.248e2	1.331	1.60	1.55	18.5	YES	NO	db	db	0.261
5	Total-pentadioxins	30.29	1.066e3	6.522e2	1.331	1.63	1.55	24.8	YES	NO	dd	bd	0.239
6	Total-pentadioxins	30.13	1.508e3	8.520e2	1.331	1.77	1.55	31.1	YES	NO	bd	bb	0.328

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.55	5.237e3	4.246e3	0.950	1.23	1.24	101.7	YES	NO	bb	bb	1.449
2	123678-HxCDD	36.16	7.370e3	6.246e3	1.009	1.18	1.24	153.4	YES	NO	db	dd	1.922
3	123478-HxCDD	36.05	2.675e3	2.363e3	1.027	1.13	1.24	53.8	YES	NO	bd	bd	0.726
4	Total-hexadioxins	35.16	2.315e4	1.934e4	1.028	1.20	1.24	296.7	YES	NO	bd	bd	6.003
5	Total-hexadioxins	34.79	3.908e3	3.501e3	1.028	1.12	1.24	75.0	YES	NO	bb	bb	1.047
6	124679-HXCDD	34.02	2.049e4	1.557e4	1.125	1.32	1.24	387.5	YES	NO	bb	bb	4.748

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.25	1.700e5	1.603e5	1.211	1.06	1.05	1980.5	YES	NO	bb	bb	67.004
2	1234678-HpCDD	40.29	1.166e5	1.088e5	1.068	1.07	1.05	1290.8	YES	NO	bb	bb	51.842

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	26.55	2.219e2	2.978e2	0.879	0.75	0.77	3.6	YES	NO	db	db	0.067
2	Total-tetradioxins	26.05	5.857e2	6.829e2	0.879	0.86	0.77	8.8	YES	NO	bb	bb	0.162
3	Total-tetradioxins	25.59	1.200e3	1.587e3	0.879	0.76	0.77	17.8	YES	NO	bb	bd	0.357
4	Total-tetradioxins	25.02	9.914e2	1.380e3	0.879	0.72	0.77	13.8	YES	NO	bb	bb	0.304
5	1368-TCDD	23.51	8.532e2	1.266e3	0.923	0.67	0.77	13.2	YES	NO	bb	bb	0.258
6	12389-PECDD	31.94	5.784e2	3.915e2	1.154	1.48	1.55	11.3	YES	NO	bb	bb	0.155
7	12378-PeCDD	31.52	1.980e3	1.269e3	0.995	1.56	1.55	42.3	YES	NO	bb	bb	0.603
8	Total-pentadioxins	30.86	3.448e2	2.210e2	1.331	1.56	1.55	8.6	YES	NO	bb	bb	0.079
9	Total-pentadioxins	30.45	1.157e3	7.248e2	1.331	1.60	1.55	18.5	YES	NO	db	db	0.261
10	Total-pentadioxins	30.29	1.066e3	6.522e2	1.331	1.63	1.55	24.8	YES	NO	dd	bd	0.239
11	Total-pentadioxins	30.13	1.508e3	8.520e2	1.331	1.77	1.55	31.1	YES	NO	bd	bb	0.328
12	123789-HxCDD	36.55	5.237e3	4.246e3	0.950	1.23	1.24	101.7	YES	NO	bb	bb	1.449
13	123678-HxCDD	36.16	7.370e3	6.246e3	1.009	1.18	1.24	153.4	YES	NO	db	dd	1.922
14	123478-HxCDD	36.05	2.675e3	2.363e3	1.027	1.13	1.24	53.8	YES	NO	bd	bd	0.726
15	Total-hexadioxins	35.16	2.315e4	1.934e4	1.028	1.20	1.24	296.7	YES	NO	bd	bd	6.003
16	Total-hexadioxins	34.79	3.908e3	3.501e3	1.028	1.12	1.24	75.0	YES	NO	bb	bb	1.047
17	124679-HXCDD	34.02	2.049e4	1.557e4	1.125	1.32	1.24	387.5	YES	NO	bb	bb	4.748
18	1234679-HPCDD	39.25	1.700e5	1.603e5	1.211	1.06	1.05	1980.5	YES	NO	bb	bb	67.004
19	OCDD	45.05	7.390e5	8.229e5	1.181	0.90	0.89	6327.7	YES	NO	bb	bb	422.753
20	1234678-HpCDD	40.29	1.166e5	1.088e5	1.068	1.07	1.05	1290.8	YES	NO	bb	bb	51.842

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:28 Pacific Daylight Time

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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	23.42	1.120e3	1.424e3	1.192	0.79	0.77	14.2	YES	NO	dd	dd	0.240
2	Total-tetrafurans	23.10	2.204e3	3.365e3	1.192	0.65	0.77	28.2	YES	NO	bd	MM	0.525
3	1368-TCDF	22.39	6.962e2	8.221e2	1.425	0.85	0.77	9.2	YES	NO	dd	dd	0.120
4	Total-Furans	21.66	1.385e2	1.620e2	1.158	0.86	0.77	2.1	NO	NO	bb	bb	0.029
5	Total-Furans	21.15	2.308e3	2.831e3	1.158	0.82	0.77	25.1	YES	NO	bd	bd	0.499
6	Total-tetrafurans	25.94	1.037e3	1.200e3	1.192	0.86	0.77	11.7	YES	NO	dd	dd	0.211
7	2378-TCDF	25.78	1.866e3	2.247e3	1.108	0.83	0.77	18.7	YES	NO	dd	dd	0.418
8	Total-tetrafurans	25.44	1.228e3	1.596e3	1.192	0.77	0.77	11.4	YES	NO	dd	dd	0.266
9	Total-tetrafurans	25.28	4.738e2	6.761e2	1.192	0.70	0.77	6.0	YES	NO	bd	bd	0.108
10	Total-tetrafurans	25.10	7.191e2	9.134e2	1.192	0.79	0.77	8.1	YES	NO	db	db	0.154
11	Total-tetrafurans	24.87	2.656e3	3.493e3	1.192	0.76	0.77	33.6	YES	NO	dd	dd	0.580
12	Total-tetrafurans	24.54	2.563e3	3.704e3	1.192	0.69	0.77	35.9	YES	NO	dd	dd	0.591
13	Total-tetrafurans	24.17	2.049e3	2.419e3	1.192	0.85	0.77	26.2	YES	NO	dd	db	0.422
14	Total-tetrafurans	24.02	2.250e3	2.671e3	1.192	0.84	0.77	22.1	YES	NO	dd	dd	0.464
15	Total-tetrafurans	23.87	1.919e3	2.377e3	1.192	0.81	0.77	24.4	YES	NO	dd	dd	0.405
16	Total-tetrafurans	26.89	5.269e2	7.353e2	1.192	0.72	0.77	7.8	YES	NO	bb	bd	0.119
17	Total-pentafurans	28.47	3.655e3	2.650e3	1.047	1.38	1.55	67.3	YES	NO	dd	bb	0.728
18	Total-pentafurans	28.17	5.737e2	3.240e2	1.047	1.77	1.55	16.4	YES	NO	bb	bb	0.104
19	Total-pentafurans	30.15	3.818e3	2.267e3	1.047	1.68	1.55	69.1	YES	NO	bd	bd	0.703
20	12378-PeCDF	29.94	2.274e3	1.654e3	1.015	1.37	1.55	50.4	YES	NO	bb	db	0.456
21	Total-pentafurans	29.83	3.738e2	2.824e2	1.047	1.32	1.55	10.3	YES	NO	db	bd	0.076
22	Total-pentafurans	29.47	3.860e2	2.641e2	1.047	1.46	1.55	8.7	YES	NO	dd	dd	0.075
23	Total-pentafurans	29.39	4.481e2	2.714e2	1.047	1.65	1.55	12.5	YES	NO	bd	bd	0.083
24	Total-pentafurans	29.06	2.180e2	1.274e2	1.047	1.71	1.55	6.1	NO	NO	db	db	0.040
25	Total-pentafurans	28.87	8.975e3	5.422e3	1.047	1.66	1.55	115.8	YES	NO	MM	MM	1.662
26	Total-pentafurans	31.13	1.557e3	9.995e2	1.047	1.56	1.55	29.4	YES	NO	dd	dd	0.295
27	Total-hexafurans	33.45	1.934e4	1.690e4	1.045	1.14	1.24	365.8	YES	NO	bb	db	4.442
28	123468-HXCDF	33.24	5.816e3	5.234e3	1.087	1.11	1.24	114.5	YES	NO	bb	bd	1.225
29	123789-HxCDF	36.93	1.162e3	9.120e2	1.030	1.27	1.24	19.9	YES	NO	bb	bb	0.304
30	234678-HxCDF	35.94	4.209e3	3.629e3	1.052	1.16	1.24	61.9	YES	NO	bb	MM	0.929
31	Total-hexafurans	35.40	2.230e2	1.594e2	1.045	1.40	1.24	4.6	YES	NO	bb	bb	0.047
32	123678-HxCDF	35.06	2.378e3	1.863e3	1.037	1.28	1.24	53.5	YES	NO	db	db	0.493
33	123478-HxCDF	34.91	6.735e3	5.565e3	1.017	1.21	1.24	134.5	YES	NO	dd	dd	1.457
34	Total-hexafurans	34.76	1.132e3	8.926e2	1.045	1.27	1.24	18.8	YES	NO	bd	bd	0.248
35	Total-hexafurans	34.29	2.538e4	2.105e4	1.045	1.21	1.24	529.0	YES	NO	bb	bb	5.690
36	Total-hexafurans	33.99	5.519e2	4.894e2	1.045	1.13	1.24	11.4	YES	NO	bb	bb	0.128
37	Total-heptafurans	39.46	7.172e4	6.993e4	1.305	1.03	1.05	1395.9	YES	NO	bd	bd	24.265

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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-heptafurans	39.21	7.426e2	7.566e2	1.305	0.98	1.05	11.5	YES	NO	bb	bb	0.257
39	1234678-HpCDF	38.80	3.265e4	3.061e4	1.327	1.07	1.05	648.8	YES	NO	bb	bb	9.859
40	OCDF	45.30	6.391e4	7.259e4	1.447	0.88	0.89	1229.4	YES	NO	bd	bb	30.153
41	Total-penta1	27.56	7.792e2	5.086e2		1.53	1.55	9.8	YES	NO	bb	bb	0.166
42	Total-penta1	27.20	2.087e4	1.321e4		1.58	1.55	342.5	YES	NO	db	db	4.382
43	13468-PECDF	27.06	2.974e3	1.670e3	1.376	1.78	1.55	46.2	YES	NO	bd	bd	0.398
44	Total-tetrafurans	24.67	1.490e3	1.845e3	1.192	0.81	0.77	22.8	YES	NO	MM	MM	0.315
45	Total-tetradioxins	26.55	2.219e2	2.978e2	0.879	0.75	0.77	3.6	YES	NO	db	db	0.067
46	Total-tetradioxins	26.05	5.857e2	6.829e2	0.879	0.86	0.77	8.8	YES	NO	bb	bb	0.162
47	Total-tetradioxins	25.59	1.200e3	1.587e3	0.879	0.76	0.77	17.8	YES	NO	bb	bd	0.357
48	Total-tetradioxins	25.02	9.914e2	1.380e3	0.879	0.72	0.77	13.8	YES	NO	bb	bb	0.304
49	1368-TCDD	23.51	8.532e2	1.266e3	0.923	0.67	0.77	13.2	YES	NO	bb	bb	0.258
50	12389-PECDD	31.94	5.784e2	3.915e2	1.154	1.48	1.55	11.3	YES	NO	bb	bb	0.155
51	12378-PeCDD	31.52	1.980e3	1.269e3	0.995	1.56	1.55	42.3	YES	NO	bb	bb	0.603
52	Total-pentadioxins	30.86	3.448e2	2.210e2	1.331	1.56	1.55	8.6	YES	NO	bb	bb	0.079
53	Total-pentadioxins	30.45	1.157e3	7.248e2	1.331	1.60	1.55	18.5	YES	NO	db	db	0.261
54	Total-pentadioxins	30.29	1.066e3	6.522e2	1.331	1.63	1.55	24.8	YES	NO	dd	bd	0.239
55	Total-pentadioxins	30.13	1.508e3	8.520e2	1.331	1.77	1.55	31.1	YES	NO	bd	bb	0.328
56	123789-HxCDD	36.55	5.237e3	4.246e3	0.950	1.23	1.24	101.7	YES	NO	bb	bb	1.449
57	123678-HxCDD	36.16	7.370e3	6.246e3	1.009	1.18	1.24	153.4	YES	NO	db	dd	1.922
58	123478-HxCDD	36.05	2.675e3	2.363e3	1.027	1.13	1.24	53.8	YES	NO	bd	bd	0.726
59	Total-hexadioxins	35.16	2.315e4	1.934e4	1.028	1.20	1.24	296.7	YES	NO	bd	bd	6.003
60	Total-hexadioxins	34.79	3.908e3	3.501e3	1.028	1.12	1.24	75.0	YES	NO	bb	bb	1.047
61	124679-HXCDD	34.02	2.049e4	1.557e4	1.125	1.32	1.24	387.5	YES	NO	bb	bb	4.748
62	1234679-HPCDD	39.25	1.700e5	1.603e5	1.211	1.06	1.05	1980.5	YES	NO	bb	bb	67.004
63	OCDD	45.05	7.390e5	8.229e5	1.181	0.90	0.89	6327.7	YES	NO	bb	bb	422.753
64	1234678-HpCDD	40.29	1.166e5	1.088e5	1.068	1.07	1.05	1290.8	YES	NO	bb	bb	51.842

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.10	2.158e4					1.1	NO		bb		
2	FUNCTION1 PFK	21.97	8.984e4					2.1	NO		bb		
3	FUNCTION1 PFK	21.42	1.264e5					1.4	NO		bb		
4	FUNCTION1 PFK	21.15	1.342e5					2.7	NO		bb		
5	FUNCTION1 PFK	27.56	4.331e3					0.5	NO		bb		
6	FUNCTION1 PFK	25.32	4.630e4					1.4	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:28 Pacific Daylight Time

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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	32.42	4.242e5					15.5	YES		db		0.000
2	FUNCTION2 PFK	32.37	3.361e5					14.4	YES		bd		0.000
3	FUNCTION2 PFK	32.19	3.348e5					11.2	YES		bb		0.000
4	FUNCTION2 PFK	31.01	9.379e4					6.6	YES		bb		0.000
5	FUNCTION2 PFK	30.28	4.446e6					6.6	YES		bb		0.000
6	FUNCTION2 PFK	29.40	1.634e5					12.0	YES		db		0.000
7	FUNCTION2 PFK	29.01	5.918e6					30.1	YES		dd		0.000
8	FUNCTION2 PFK	28.34	1.562e6					17.5	YES		dd		0.000
9	FUNCTION2 PFK	28.18	2.529e5					14.3	YES		bd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.82	1.252e6					12.4	YES		bb		0.000
2	FUNCTION3 PFK	33.47	5.849e4					3.4	YES		bb		0.000
3	FUNCTION3 PFK	33.14	3.515e5					5.2	YES		bb		0.000
4	FUNCTION3 PFK	37.89	8.650e4					2.8	NO		db		0.000
5	FUNCTION3 PFK	37.71	7.967e5					15.1	YES		dd		0.000
6	FUNCTION3 PFK	37.55	3.130e6					22.4	YES		dd		0.000
7	FUNCTION3 PFK	37.24	1.977e6					35.1	YES		dd		0.000
8	FUNCTION3 PFK	37.13	8.523e5					39.0	YES		dd		0.000
9	FUNCTION3 PFK	36.98	1.883e6					45.4	YES		bd		0.000
10	FUNCTION3 PFK	36.68	4.940e6					46.7	YES		db		0.000
11	FUNCTION3 PFK	36.39	8.306e6					39.9	YES		dd		0.000
12	FUNCTION3 PFK	35.89	7.791e5					25.4	YES		bd		0.000
13	FUNCTION3 PFK	35.64	1.635e6					19.7	YES		db		0.000
14	FUNCTION3 PFK	35.47	4.069e5					11.8	YES		dd		0.000
15	FUNCTION3 PFK	35.36	3.172e5					9.3	YES		bd		0.000
16	FUNCTION3 PFK	35.03	3.085e5					7.6	YES		bb		0.000

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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	38.05	2.175e4					3.0	YES		dd		
2	FUNCTION4 PFK	38.01	2.059e4					2.9	NO		bd		
3	FUNCTION4 PFK	40.54	6.011e3					0.8	NO		bb		
4	FUNCTION4 PFK	40.45	1.188e4					1.5	NO		bb		
5	FUNCTION4 PFK	40.34	1.134e4					1.2	NO		db		
6	FUNCTION4 PFK	40.27	1.438e4					1.5	NO		bd		
7	FUNCTION4 PFK	40.08	3.657e3					0.9	NO		db		
8	FUNCTION4 PFK	40.04	1.579e5					2.3	NO		dd		
9	FUNCTION4 PFK	39.82	8.578e4					5.4	YES		bd		
10	FUNCTION4 PFK	39.65	1.268e5					6.3	YES		bb		
11	FUNCTION4 PFK	39.18	5.391e4					2.7	NO		bb		
12	FUNCTION4 PFK	39.08	1.320e4					1.1	NO		bb		
13	FUNCTION4 PFK	38.69	8.953e3					1.4	NO		bb		
14	FUNCTION4 PFK	38.60	1.456e4					1.5	NO		db		
15	FUNCTION4 PFK	38.55	7.274e3					1.3	NO		bd		
16	FUNCTION4 PFK	38.22	3.304e4					3.2	YES		bb		
17	FUNCTION4 PFK	38.15	2.661e4					3.8	YES		db		
18	FUNCTION4 PFK	38.11	4.058e4					4.6	YES		dd		
19	FUNCTION4 PFK	42.96	6.771e3					1.0	NO		bb		
20	FUNCTION4 PFK	42.90	8.721e2					0.4	NO		bb		
21	FUNCTION4 PFK	42.75	5.870e4					3.2	YES		db		
22	FUNCTION4 PFK	42.72	1.299e4					2.2	NO		bd		
23	FUNCTION4 PFK	42.65	6.924e3					1.4	NO		bb		
24	FUNCTION4 PFK	42.36	9.324e4					2.6	NO		bb		
25	FUNCTION4 PFK	41.94	3.942e3					0.9	NO		bb		
26	FUNCTION4 PFK	41.89	4.640e3					0.8	NO		bb		
27	FUNCTION4 PFK	41.59	2.552e4					2.6	NO		db		
28	FUNCTION4 PFK	41.53	1.189e4					1.6	NO		bd		
29	FUNCTION4 PFK	41.05	7.330e3					0.6	NO		bb		
30	FUNCTION4 PFK	40.85	1.497e4					2.1	NO		db		
31	FUNCTION4 PFK	40.77	1.059e4					1.4	NO		bd		

PFK5

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

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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...	21.16	8.758e1					1.2	NO		bb		0.000
2	FUNCTION1 HXCD...	27.68	7.826e1					1.3	NO		db		0.000
3	FUNCTION1 HXCD...	27.50	1.017e2					1.4	NO		bd		0.000
4	FUNCTION1 HXCD...	26.76	1.418e2					2.5	NO		bb		0.000
5	FUNCTION1 HXCD...	26.37	8.665e1					2.3	NO		db		0.000
6	FUNCTION1 HXCD...	26.31	8.962e1					2.1	NO		dd		0.000
7	FUNCTION1 HXCD...	26.24	7.474e1					1.6	NO		dd		0.000
8	FUNCTION1 HXCD...	26.12	2.046e2					3.2	YES		bd		0.000
9	FUNCTION1 HXCD...	25.73	9.954e1					2.8	NO		bb		0.000
10	FUNCTION1 HXCD...	24.78	8.634e1					2.0	NO		bb		0.000
11	FUNCTION1 HXCD...	24.07	1.471e2					2.3	NO		bb		0.000
12	FUNCTION1 HXCD...	22.16	1.442e2					3.3	YES		bb		0.000
13	FUNCTION1 HXCD...	21.84	8.358e1					1.2	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...	22.04	5.074e3					135.6	YES		bb		0.000
2	FUNCTION1 HPCD...	21.81	8.027e1					2.0	NO		bb		0.000
3	FUNCTION1 HPCD...	21.15	1.135e2					2.2	NO		bb		0.000
4	FUNCTION1 HPCD...	26.11	1.032e2					2.3	NO		bb		0.000
5	FUNCTION1 HPCD...	25.90	1.966e2					2.2	NO		bb		0.000
6	FUNCTION1 HPCD...	23.34	1.041e2					2.9	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...	31.66	8.796e1					3.1	YES		bb		0.000
2	FUNCTION2 HPCD...	30.81	1.035e2					1.8	NO		bb		0.000
3	FUNCTION2 HPCD...	29.88	8.852e1					2.2	NO		bb		0.000
4	FUNCTION2 HPCD...	28.94	1.634e2					3.8	YES		bb		0.000

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, 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	37.82	7.382e1					1.7	NO		bb		0.000
2	FUNCTION3 OCDPE	36.55	1.444e2					2.6	NO		bb		0.000
3	FUNCTION3 OCDPE	36.17	9.039e1					2.1	NO		bb		0.000
4	FUNCTION3 OCDPE	36.01	8.421e1					2.1	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	38.42	1.064e4					284.3	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.23	8.232e1					3.0	YES		bb		0.000
2	FUNCTION5 DCDPE	43.60	9.938e1					4.9	YES		bb		0.000

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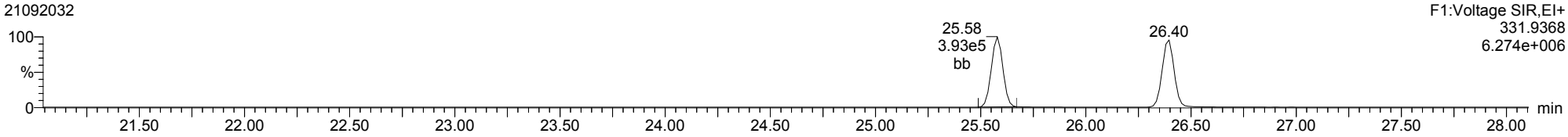
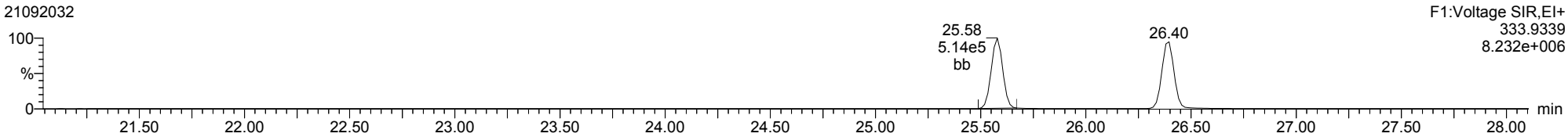
ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

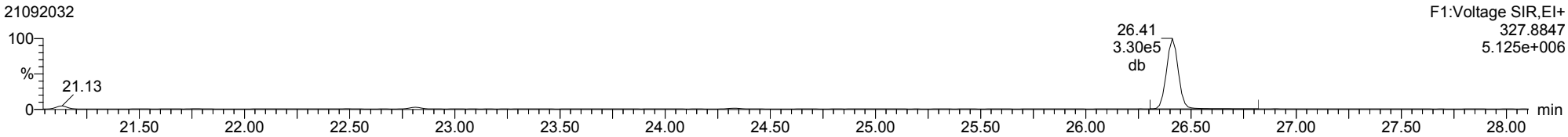
13C-1234-TCDD



13C-1234-TCDD



37CL-2378-TCDD



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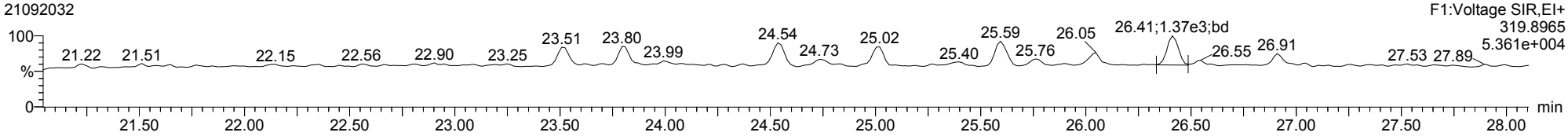
Printed: Wednesday, September 22, 2021 09:38:28 Pacific Daylight Time

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

2378-TCDD



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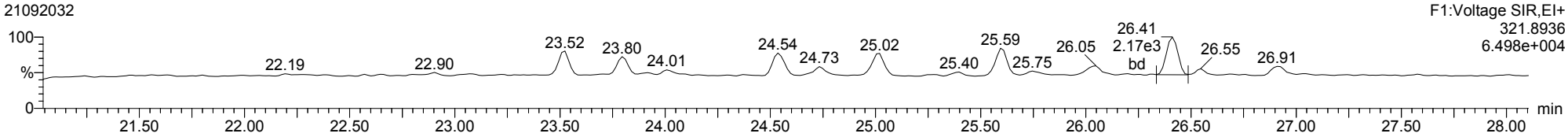

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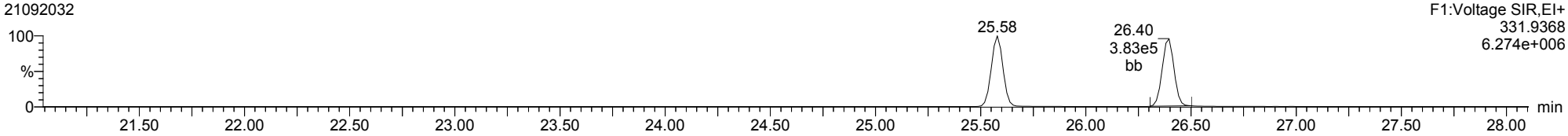

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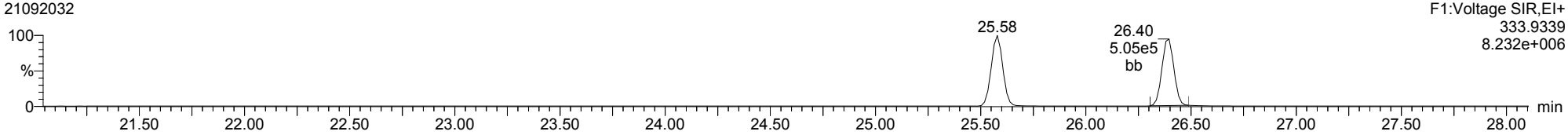
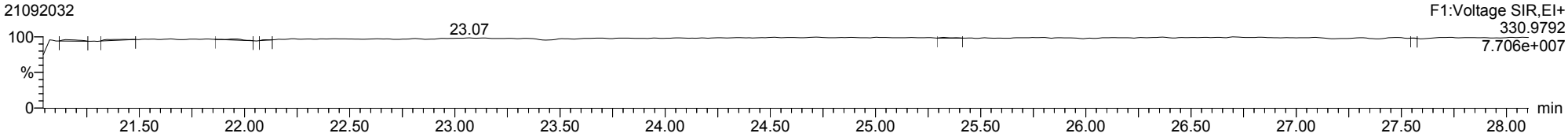


FUNCTION1 PFK



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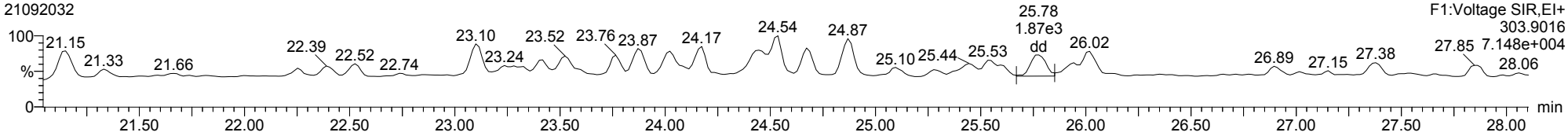
ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

2378-TCDF



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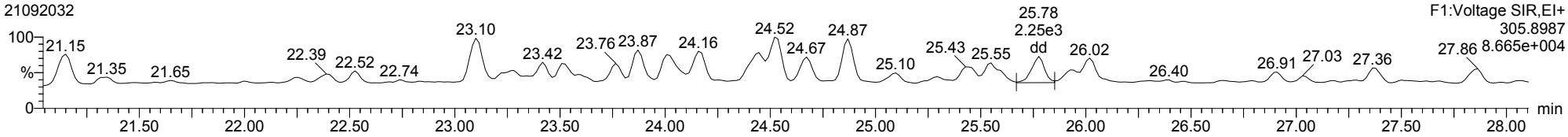

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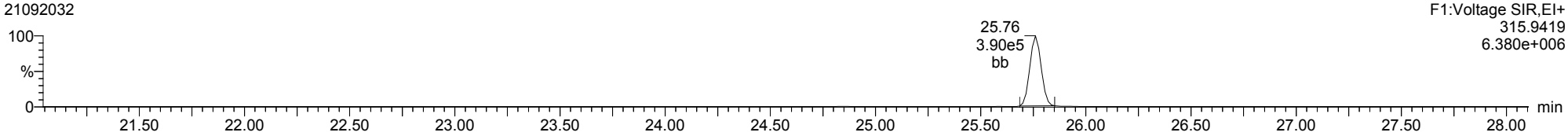

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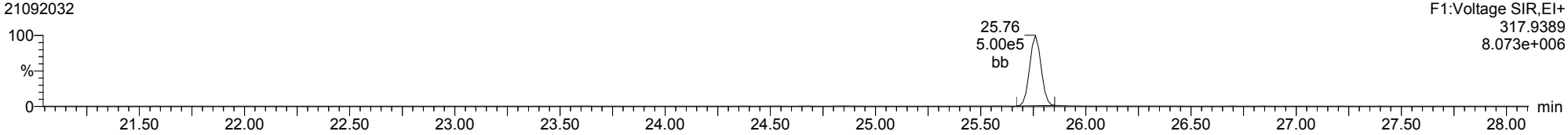
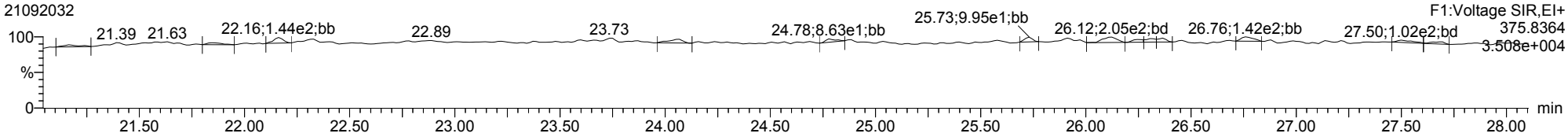
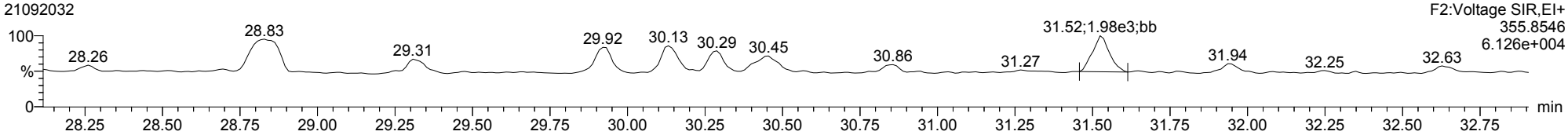


FUNCTION1 HXCDPE



ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

12378-PeCDD



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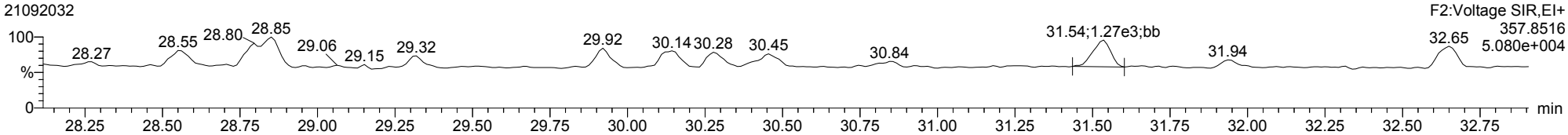

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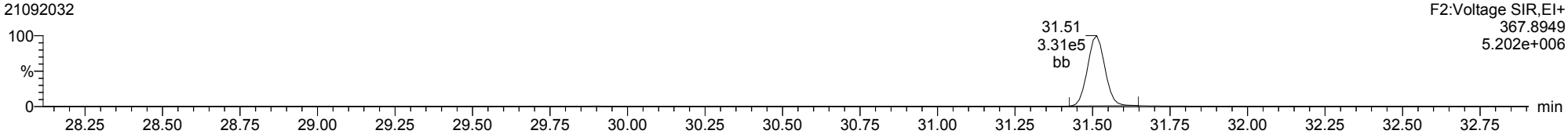

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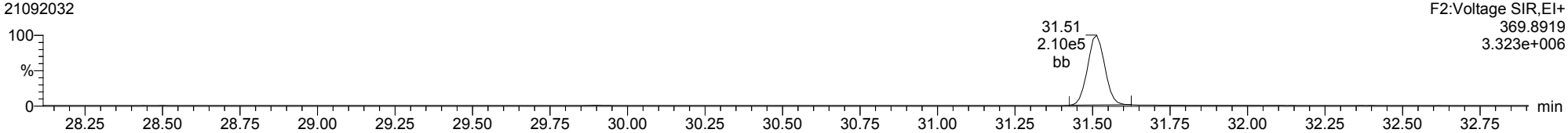

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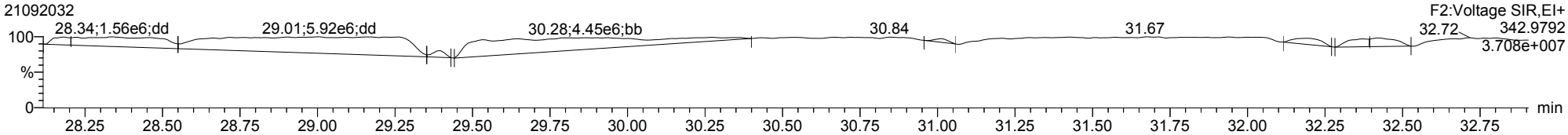

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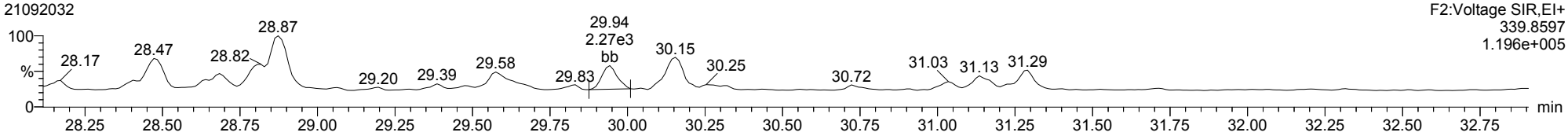

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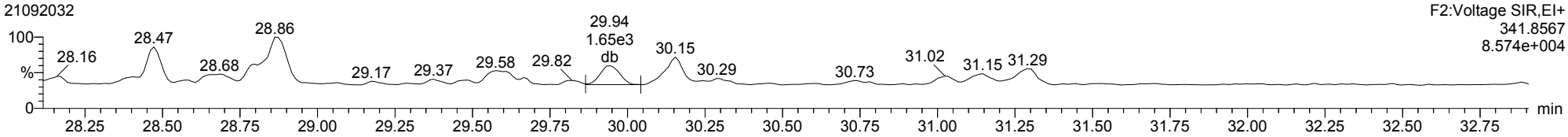

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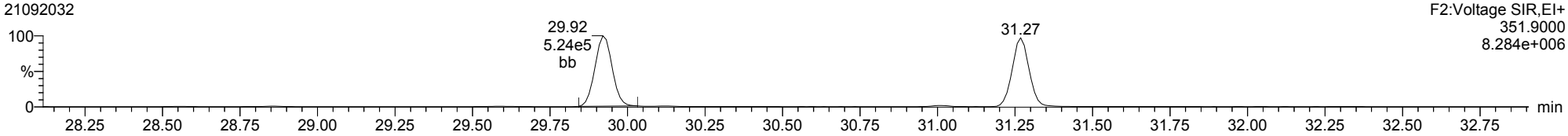

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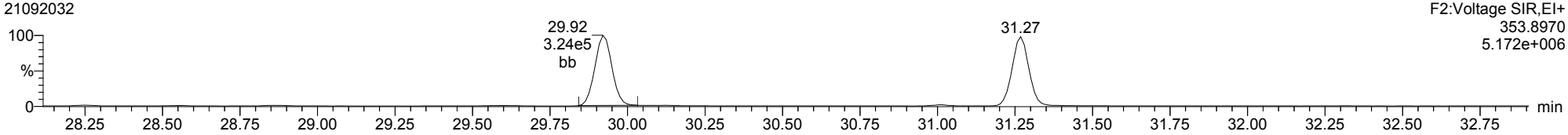
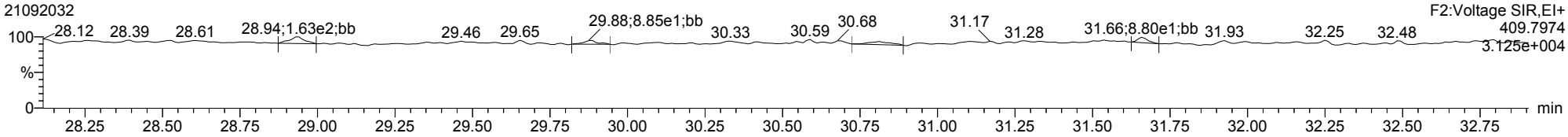


FUNCTION2 HPCDPE



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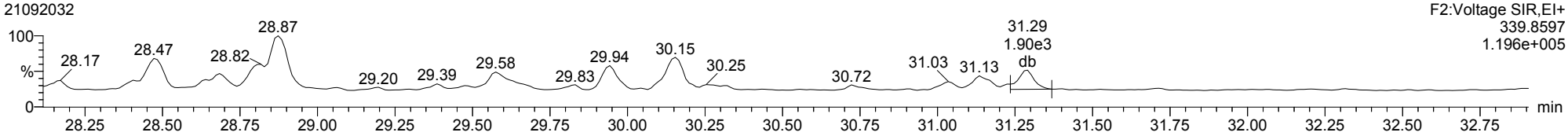
ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

23478-PeCDF



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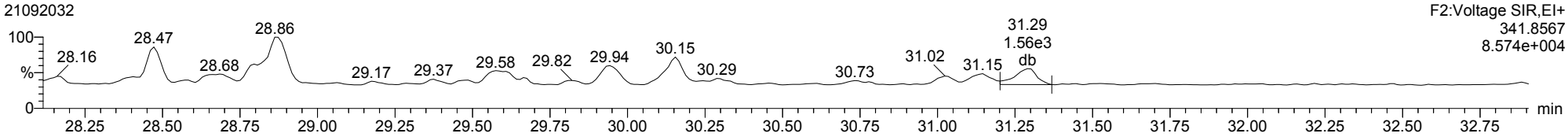

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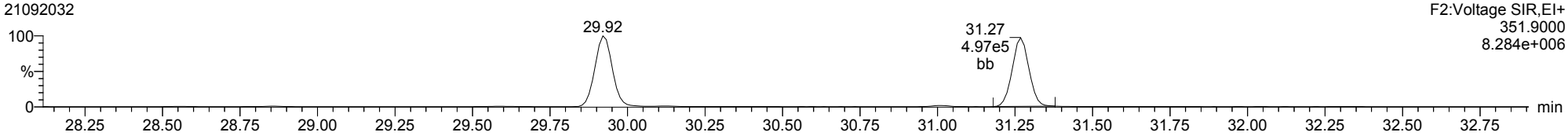

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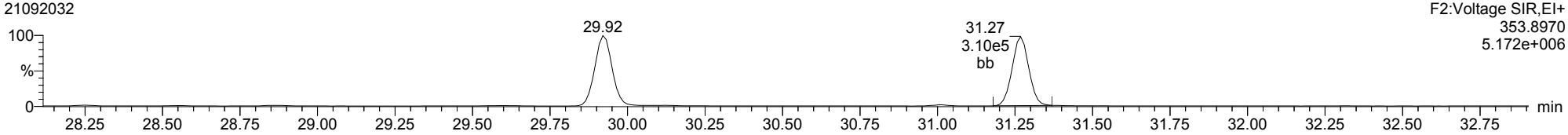

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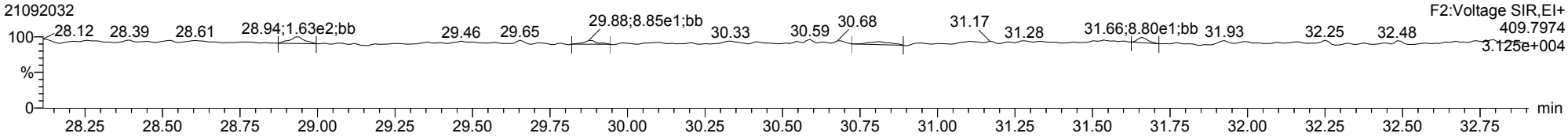

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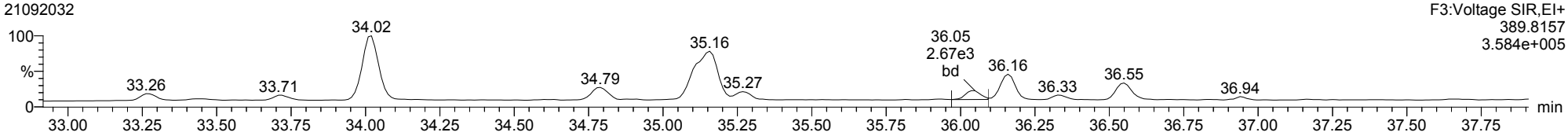
123478-HxCDD



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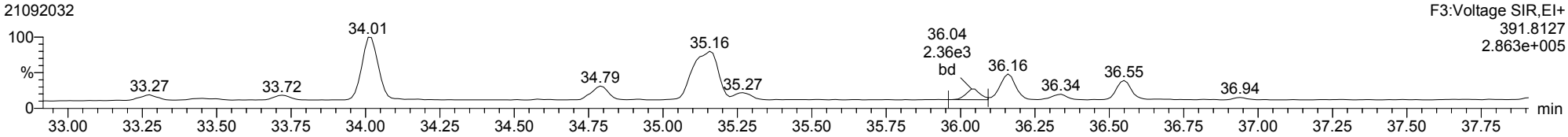

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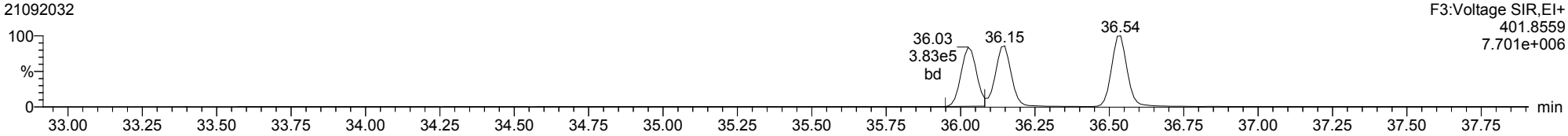

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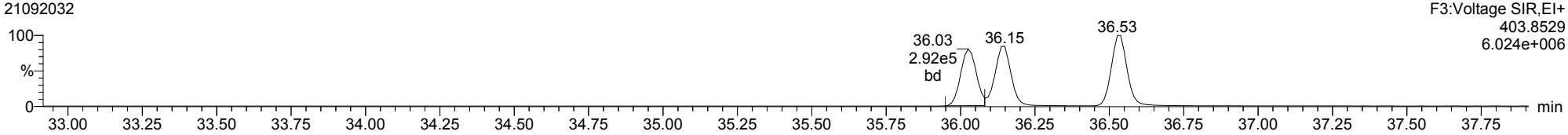

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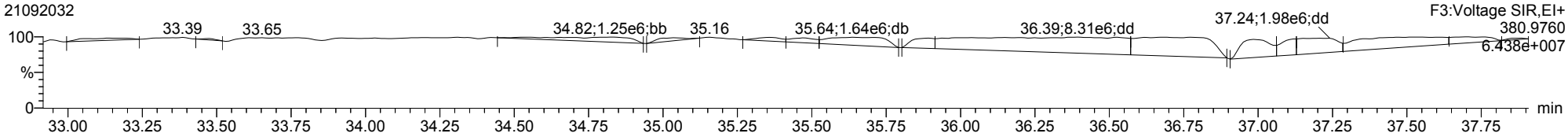

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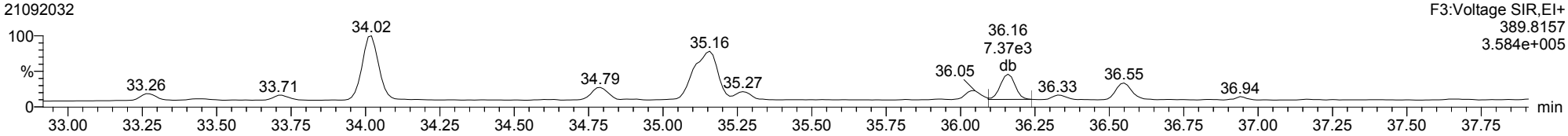

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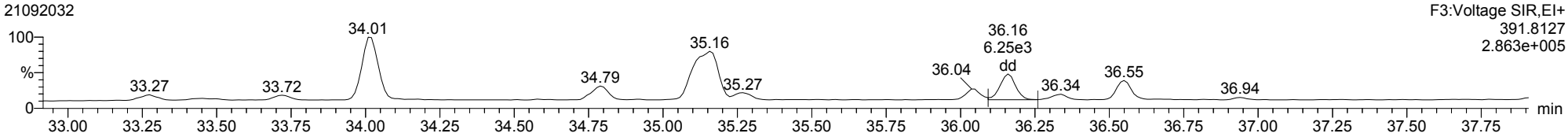

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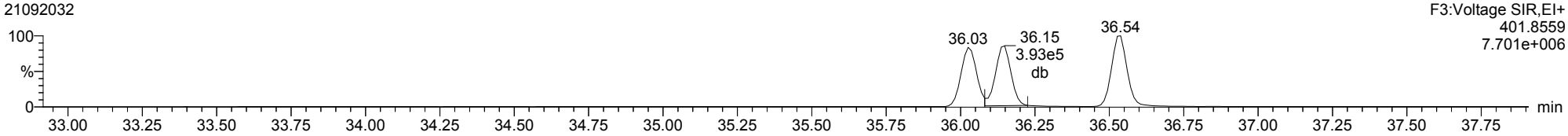

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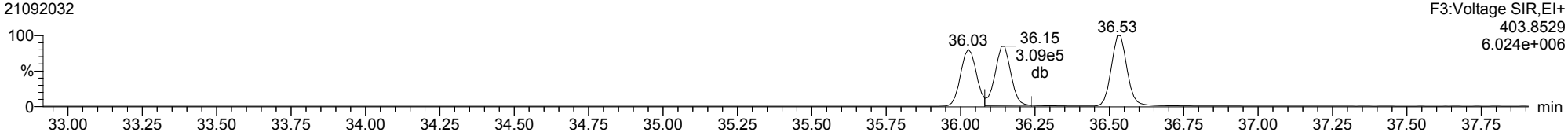

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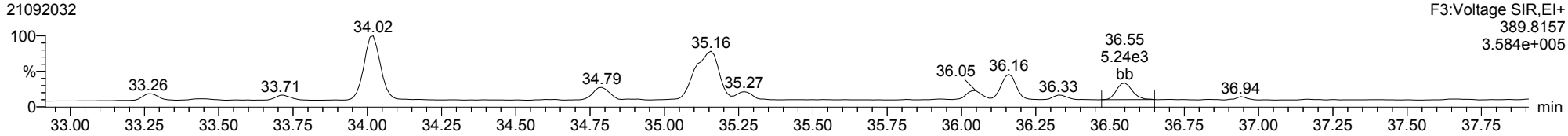

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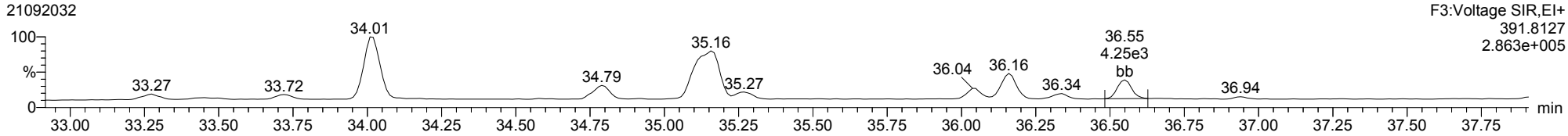

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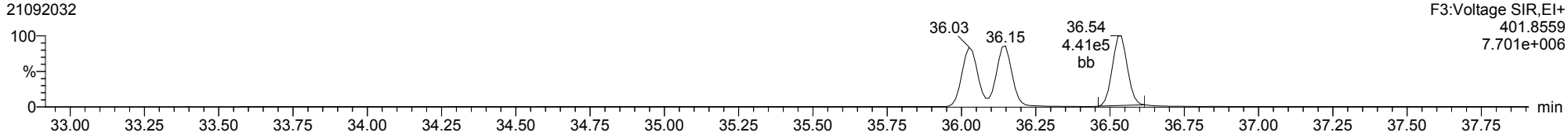

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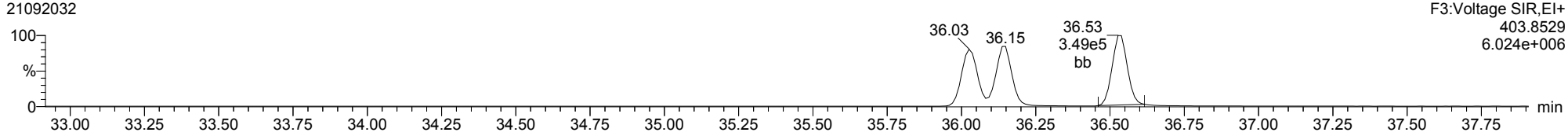

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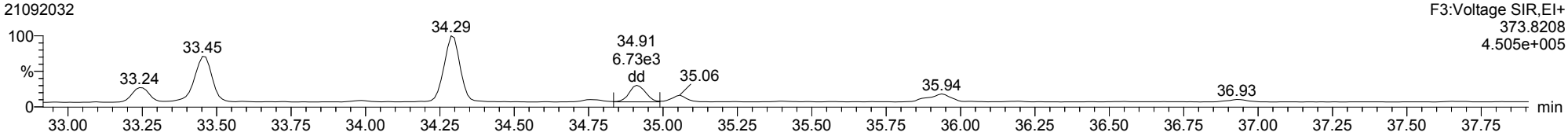

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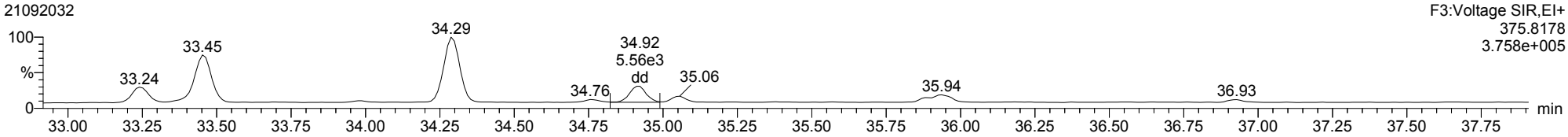

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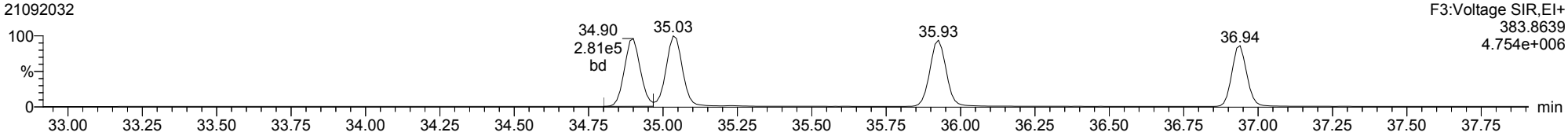

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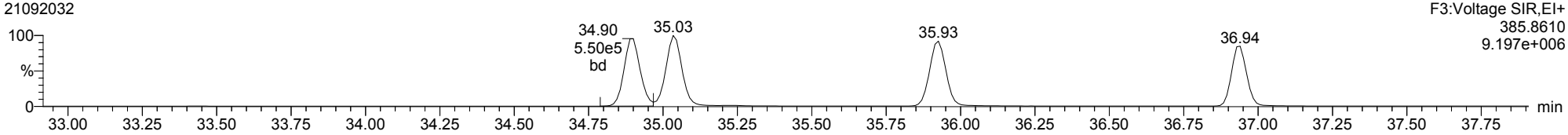
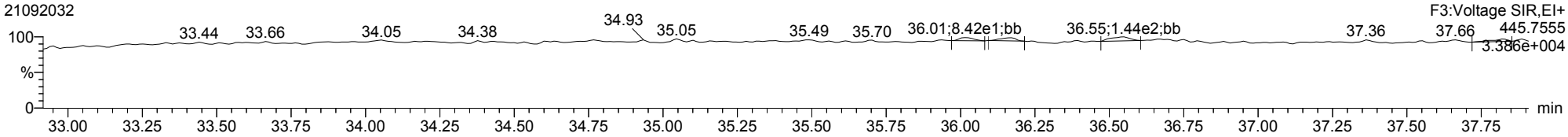


FUNCTION3 OCDPE



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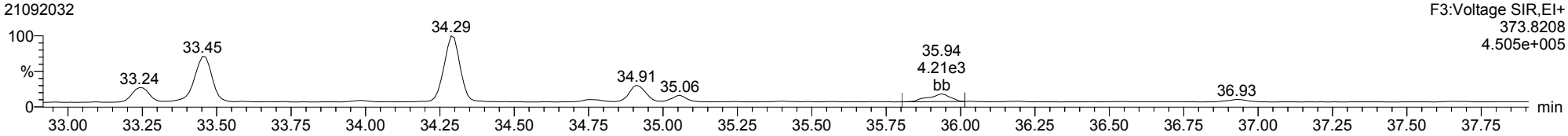
234678-HxCDF



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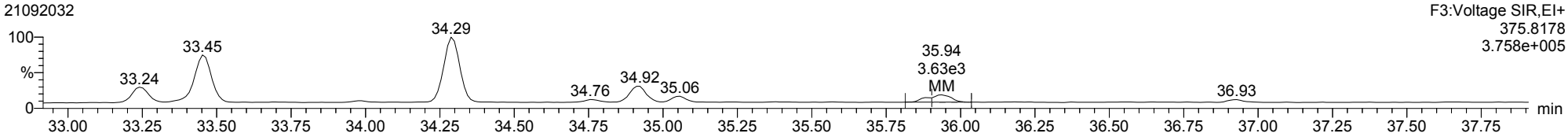

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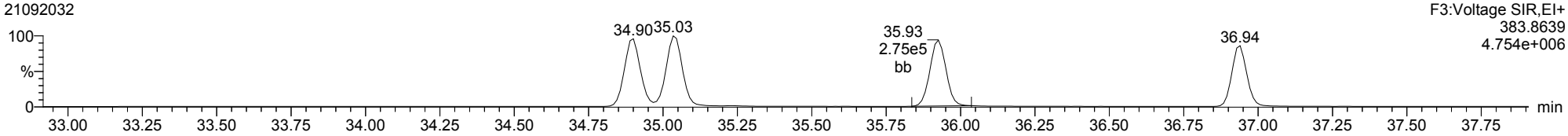

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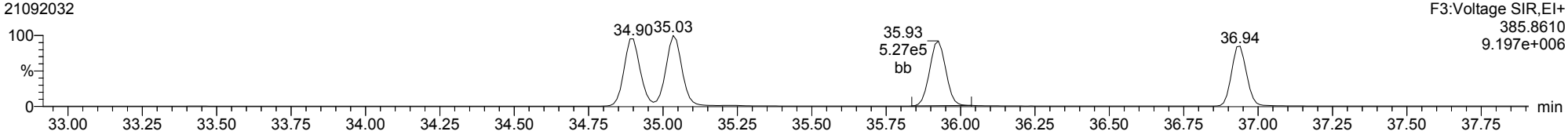

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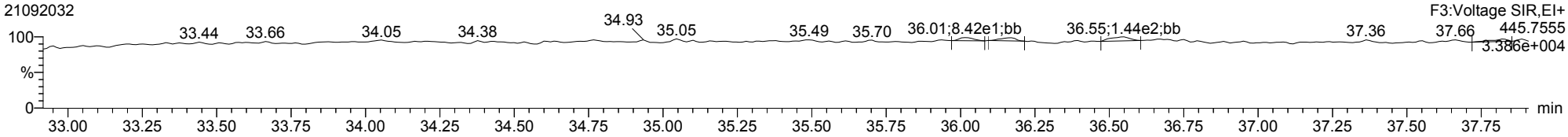

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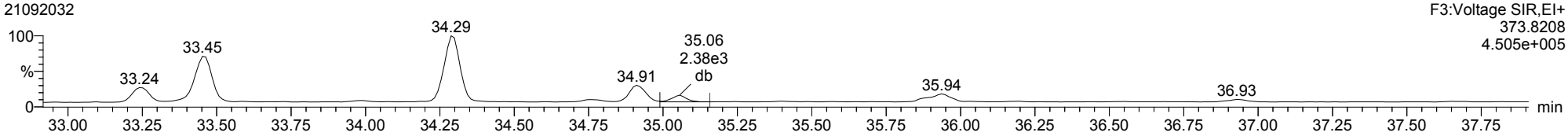

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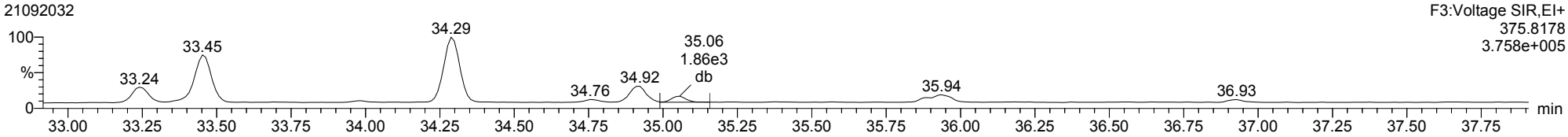

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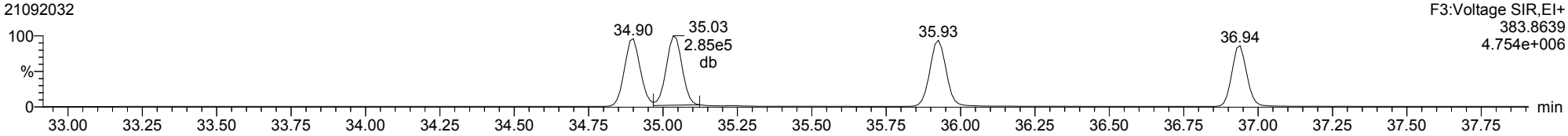

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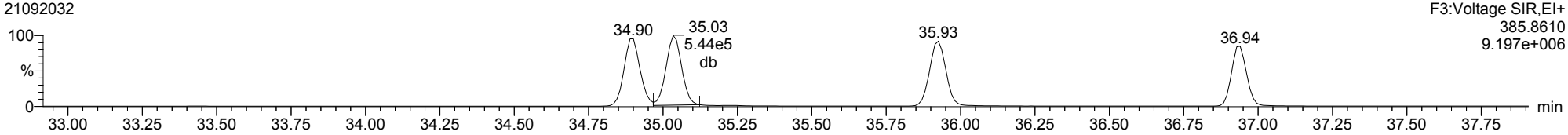

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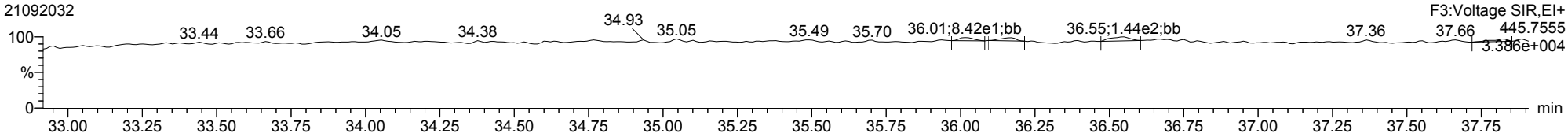

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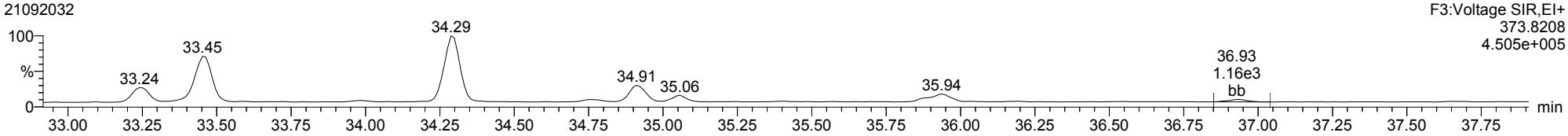

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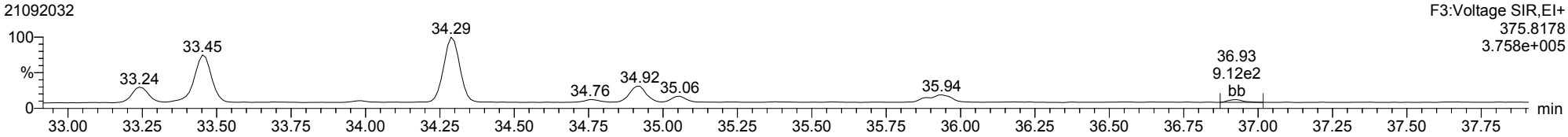

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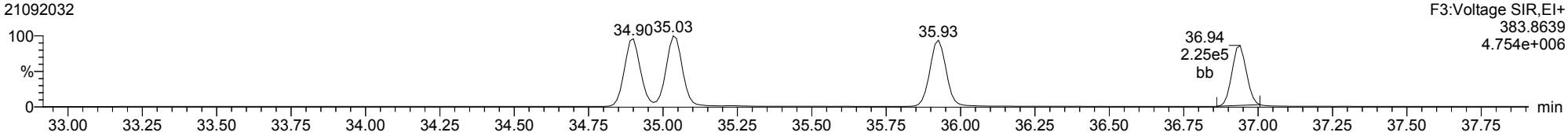

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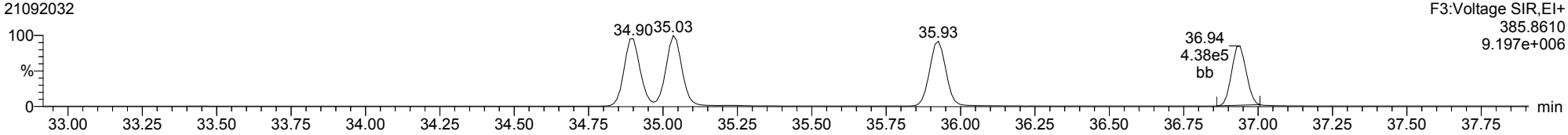

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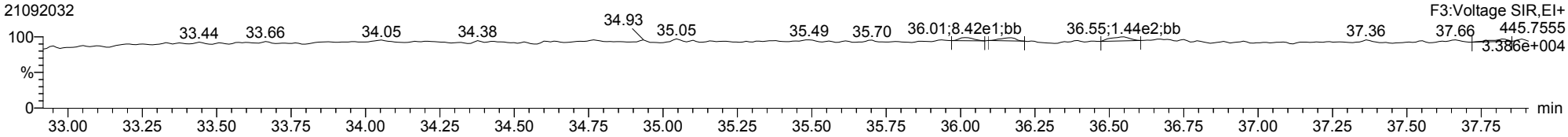

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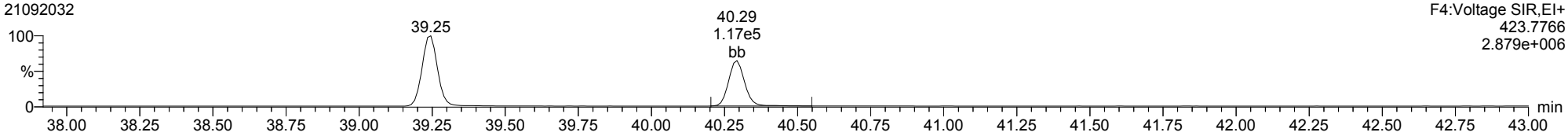

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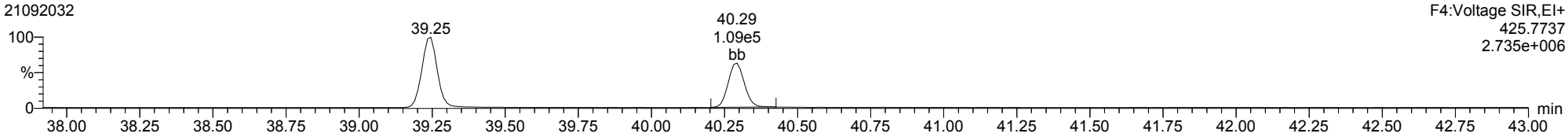

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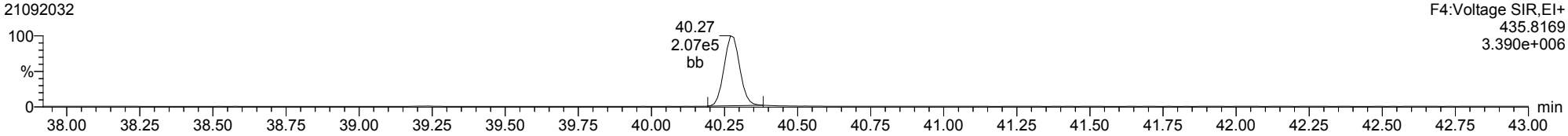

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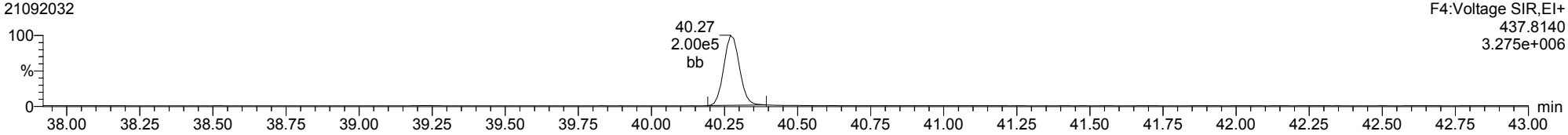

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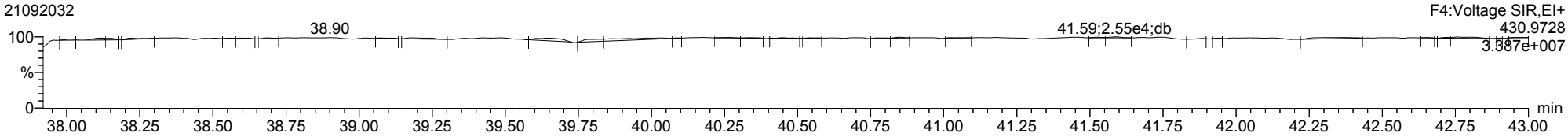

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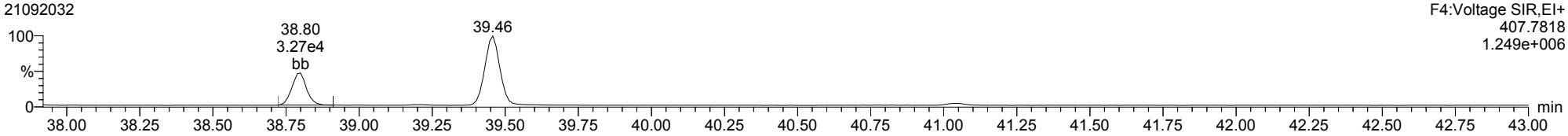

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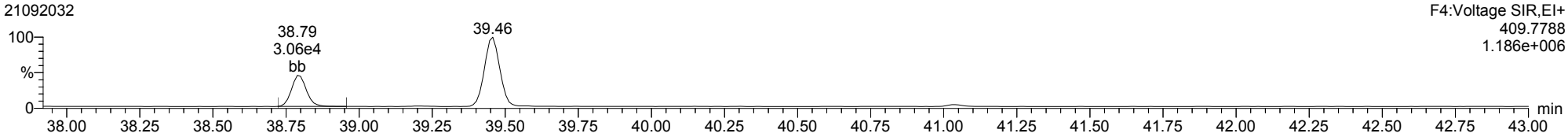

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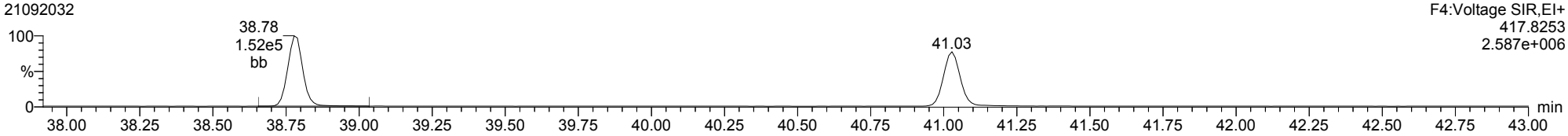

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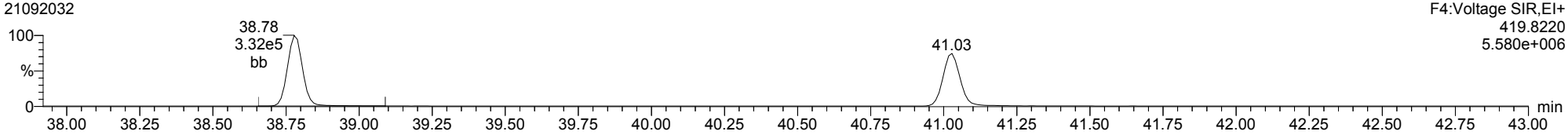
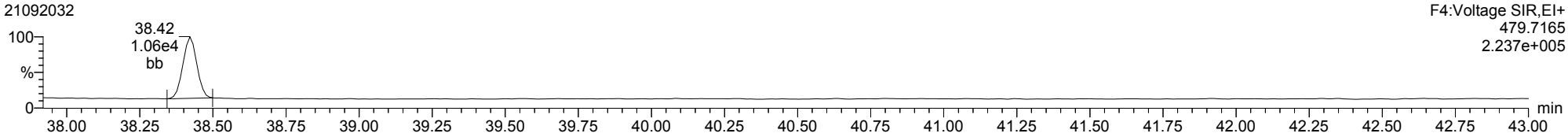


FUNCTION4 NCDPE



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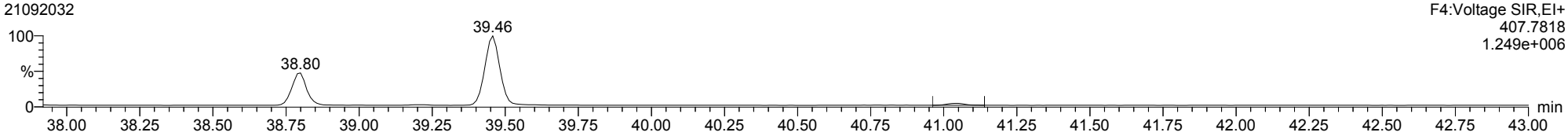

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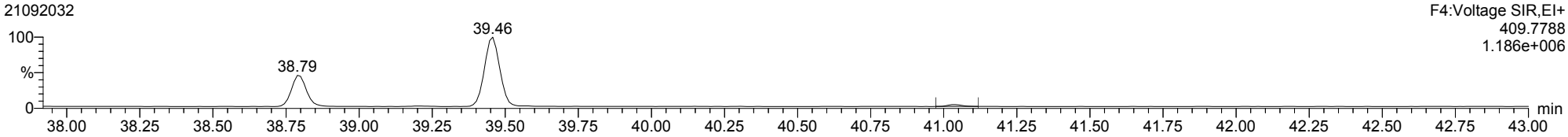

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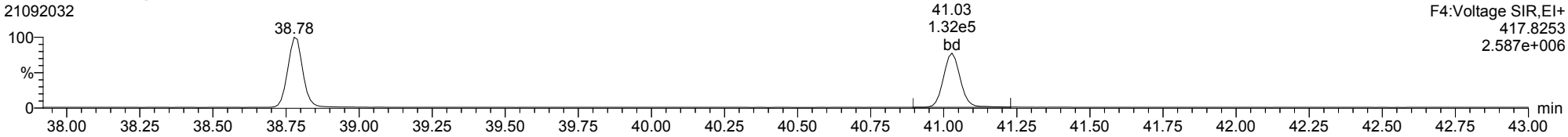

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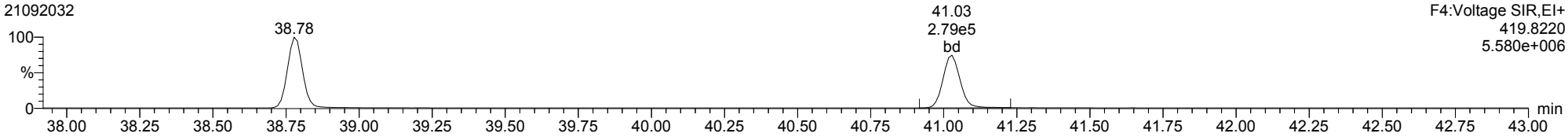

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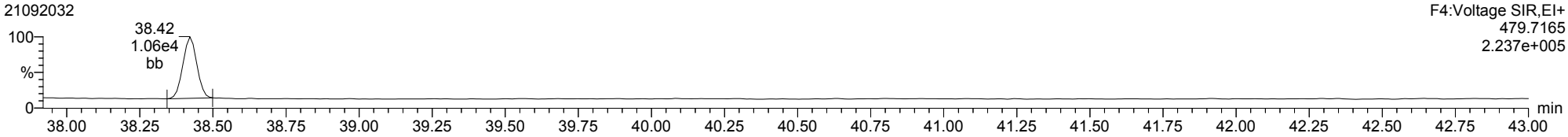

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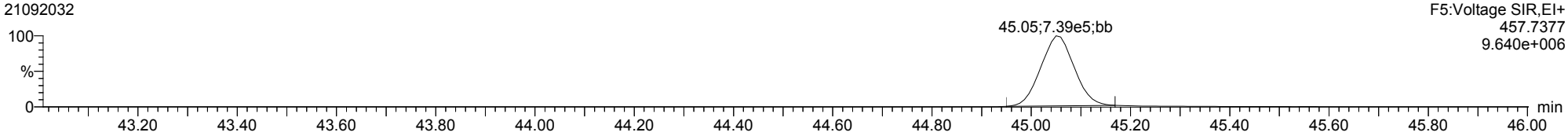
OCDD



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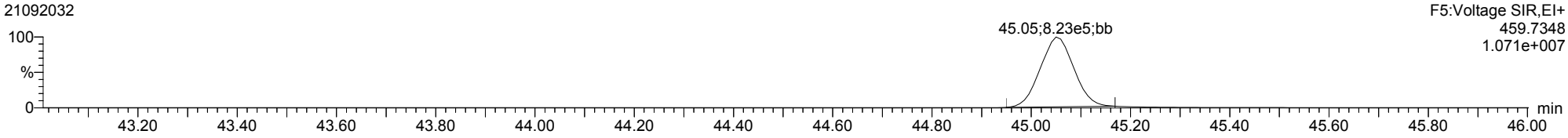

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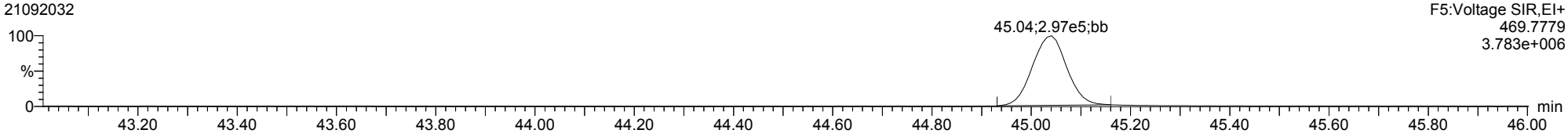

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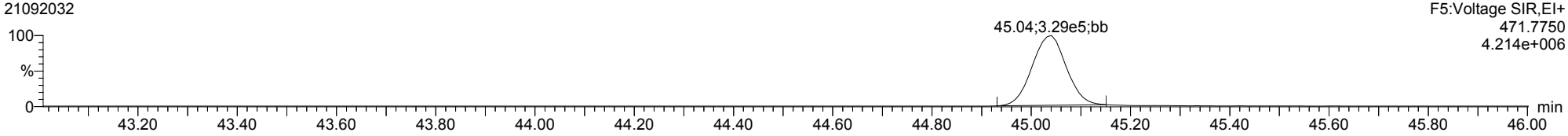
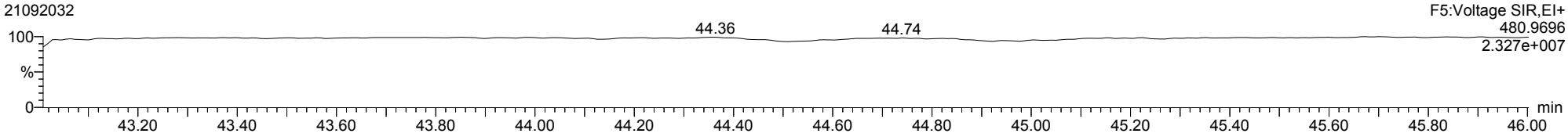


FUNCTION5 PFK



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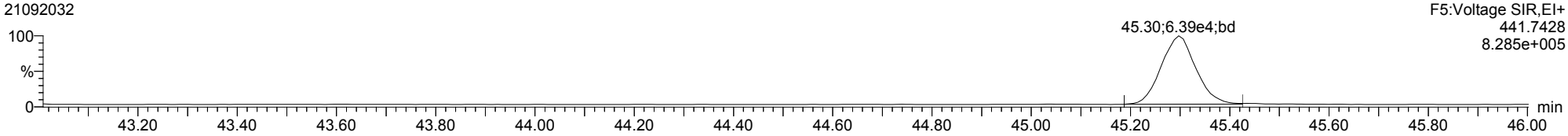
OCDF



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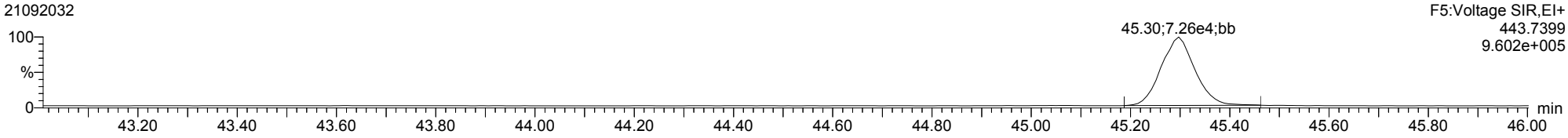
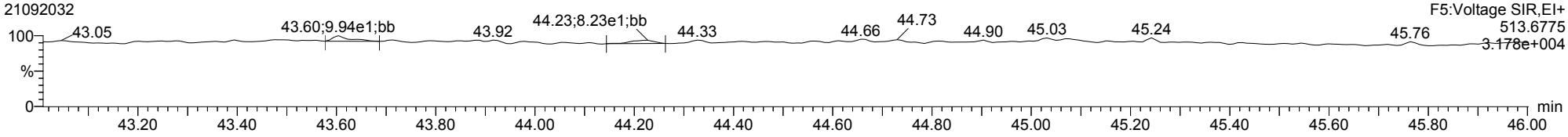


FUNCTION5 DCDPE



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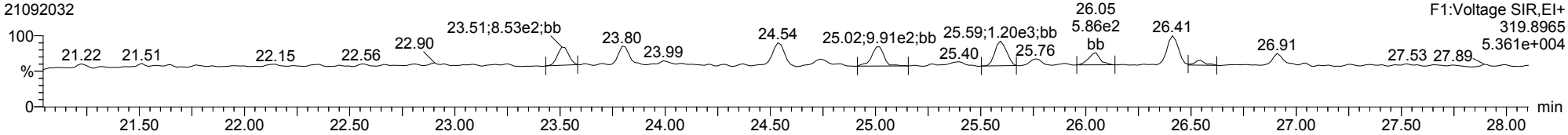
Printed: Wednesday, September 22, 2021 09:38:28 Pacific Daylight Time

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



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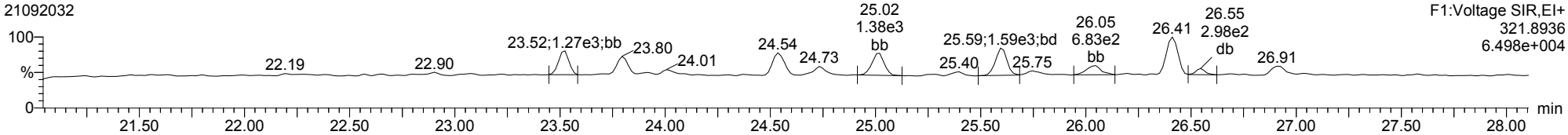
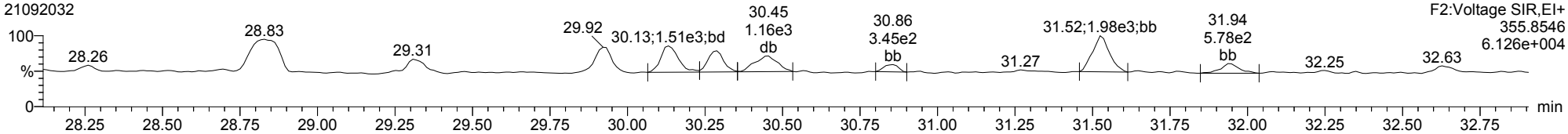


Total-pentadioxins



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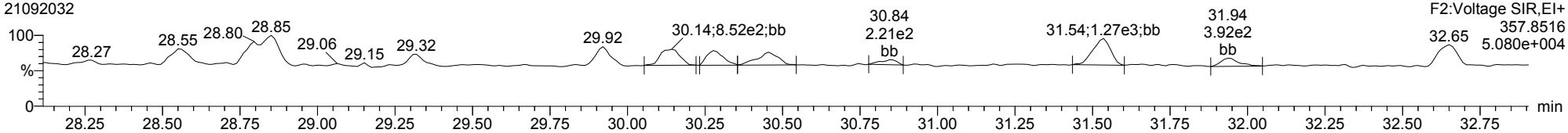

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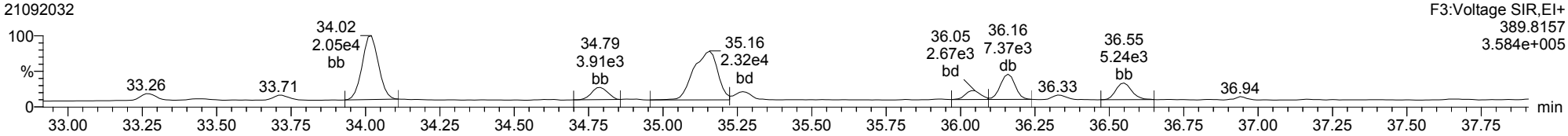
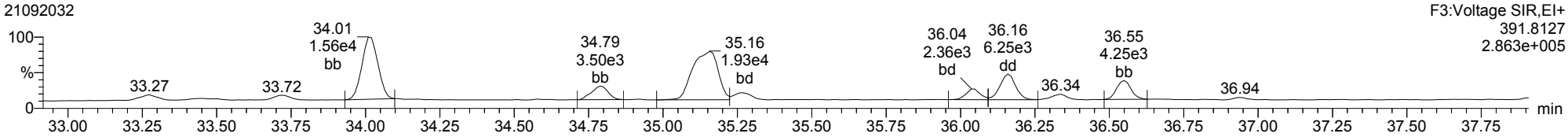


Total-hexadioxins



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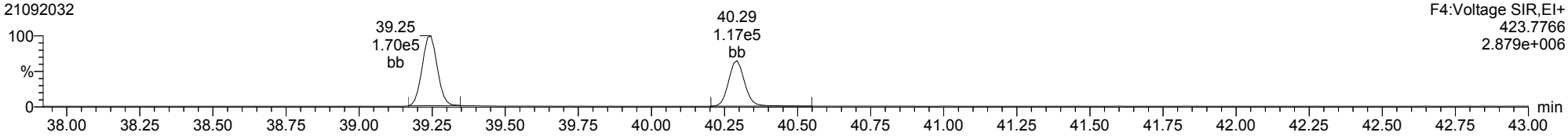

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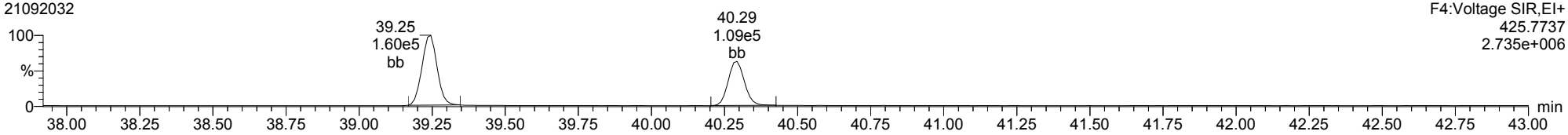

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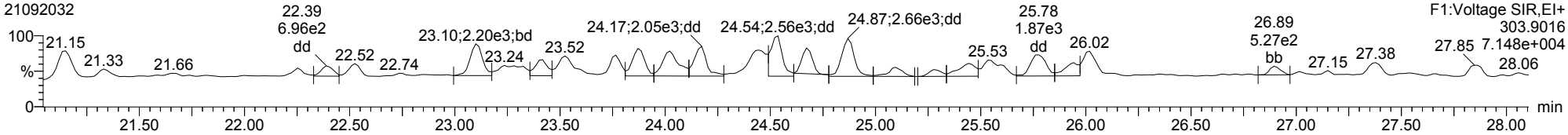
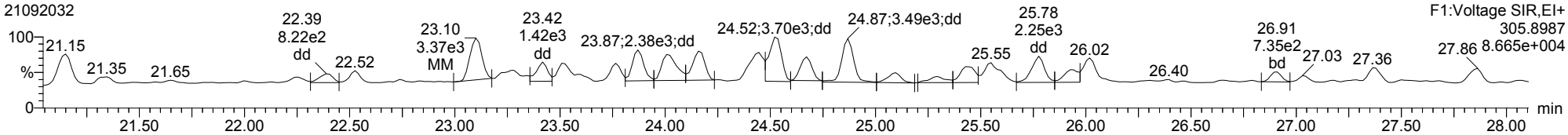
ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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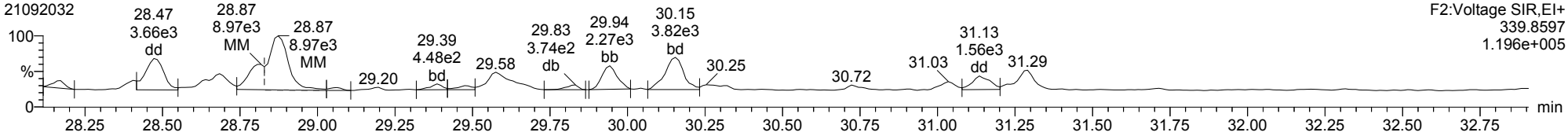

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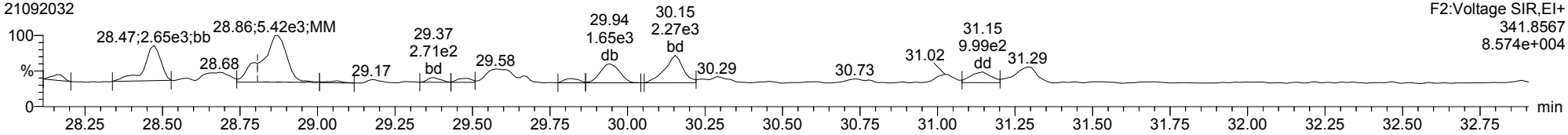

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Printed: Wednesday, September 22, 2021 09:38:28 Pacific Daylight Time

ID: BJH0203-SRM1, Name: 21092032, Date: 21-Sep-2021, Time: 17:59:21, Conditions: AUTOSPEC01, User: pk

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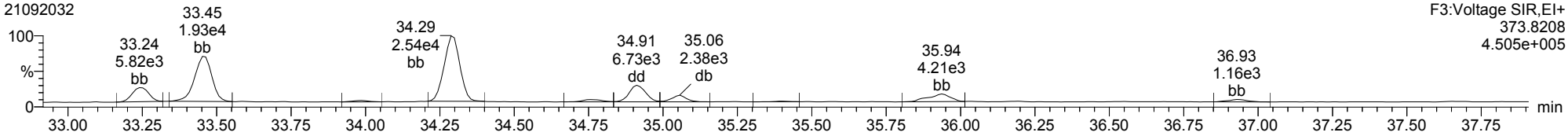

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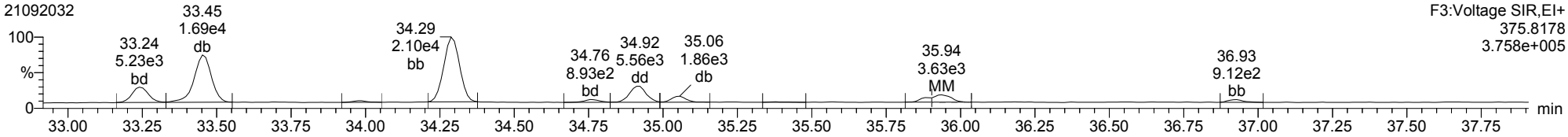

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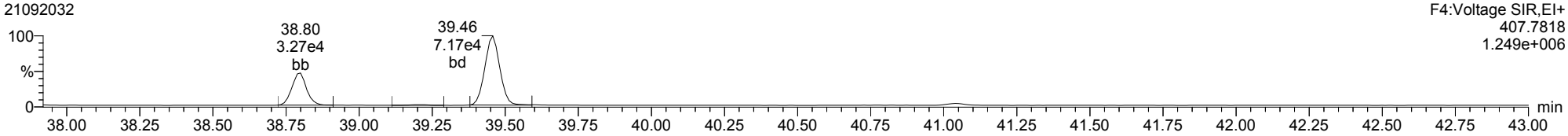

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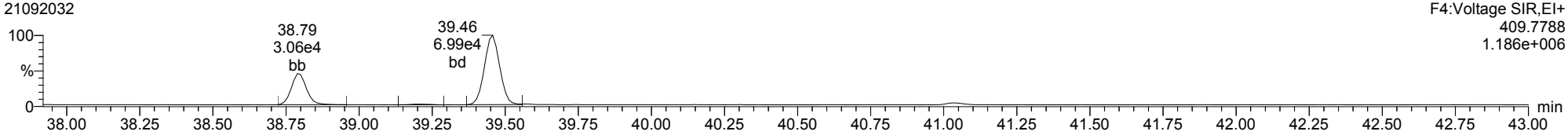

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
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:	21G0283
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
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
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 ()	

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INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
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: UNASSIGNED
Sequence: SJH0117

SDG: 21G0283
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	
2,3,7,8-TCDD	10.000	11.1	10.6	
1,2,3,7,8-PeCDF	50.000	52.8	5.7	
2,3,4,7,8-PeCDF	50.000	50.7	1.4	
1,2,3,7,8-PeCDD	50.000	52.2	4.4	
1,2,3,4,7,8-HxCDF	50.000	54.0	8.0	
1,2,3,6,7,8-HxCDF	50.000	51.5	3.0	
2,3,4,6,7,8-HxCDF	50.000	55.5	11.0	
1,2,3,7,8,9-HxCDF	50.000	53.6	7.2	
1,2,3,4,7,8-HxCDD	50.000	54.6	9.3	
1,2,3,6,7,8-HxCDD	50.000	50.6	1.1	
1,2,3,7,8,9-HxCDD	50.000	52.3	4.7	
1,2,3,4,6,7,8-HpCDF	50.000	54.8	9.6	
1,2,3,4,7,8,9-HpCDF	50.000	59.1	18.3	
1,2,3,4,6,7,8-HpCDD	50.000	51.9	3.7	
OCDF	100.00	105	5.4	
OCDD	100.00	105	5.0	
13C12-2,3,7,8-TCDF	100.00	102	1.7	
13C12-2,3,7,8-TCDD	100.00	81.6	-18.4	
13C12-1,2,3,7,8-PeCDF	100.00	105	4.8	
13C12-2,3,4,7,8-PeCDF	100.00	104	4.3	
13C12-1,2,3,7,8-PeCDD	100.00	98.4	-1.6	
13C12-1,2,3,4,7,8-HxCDF	100.00	116	15.9	
13C12-1,2,3,6,7,8-HxCDF	100.00	119	19.4	
13C12-2,3,4,6,7,8-HxCDF	100.00	109	8.8	
13C12-1,2,3,7,8,9-HxCDF	100.00	113	13.2	
13C12-1,2,3,4,7,8-HxCDD	100.00	114	14.1	
13C12-1,2,3,6,7,8-HxCDD	100.00	119	19.5	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	114	13.7	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	110	9.8	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	110	10.5	
13C12-OCDD	200.00	212	5.9	
37Cl4-2,3,7,8-TCDD	10.000	10.4	4.0	

* Indicates values outside of QC limits

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Printed: Friday, August 13, 2021 13:51:56 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
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

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
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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

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
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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

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

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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

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
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

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

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

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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

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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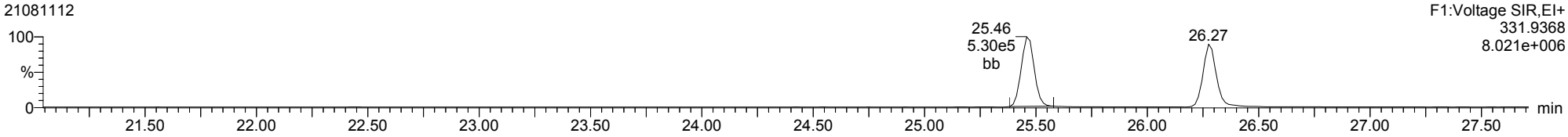

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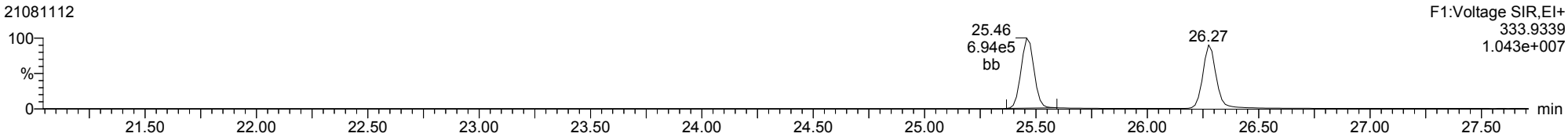

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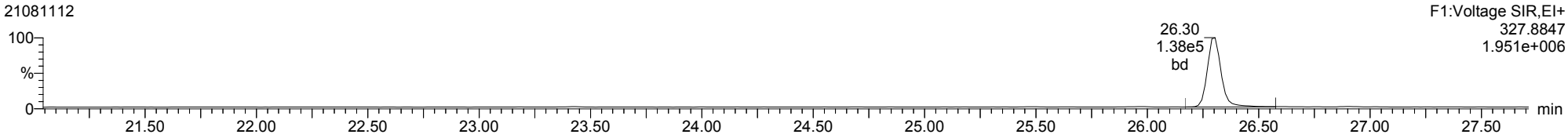

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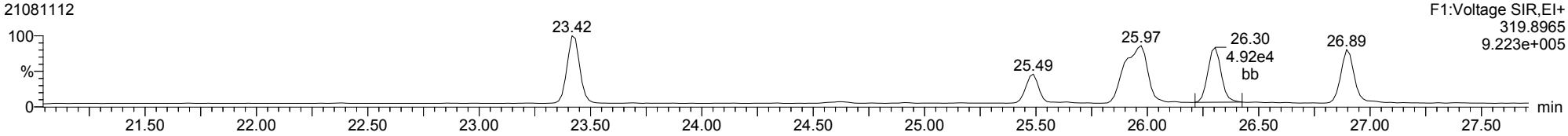

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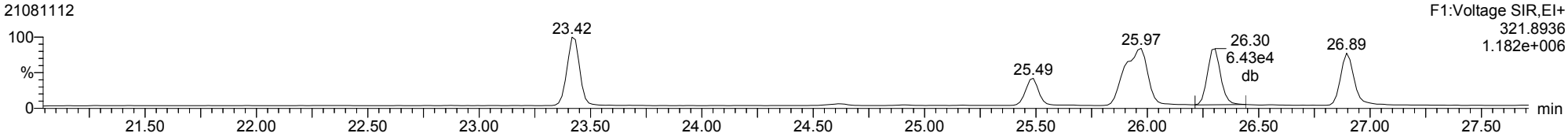

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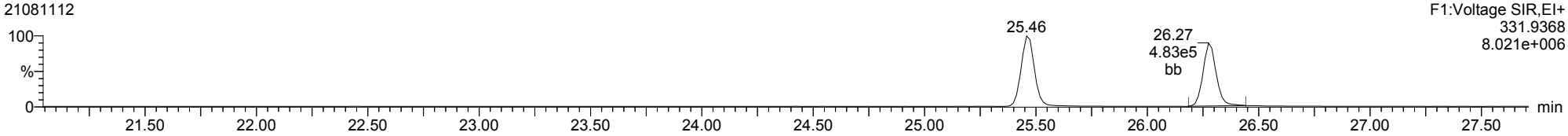

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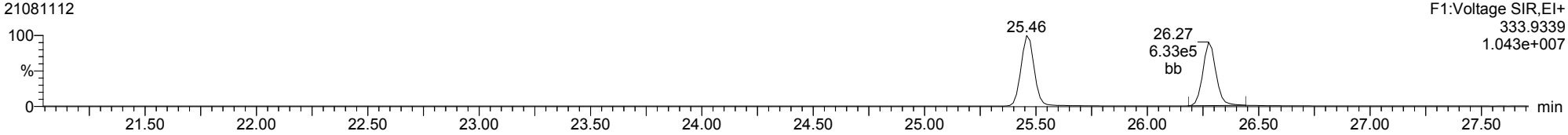

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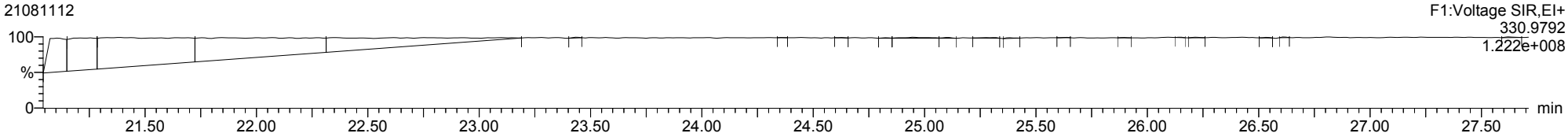

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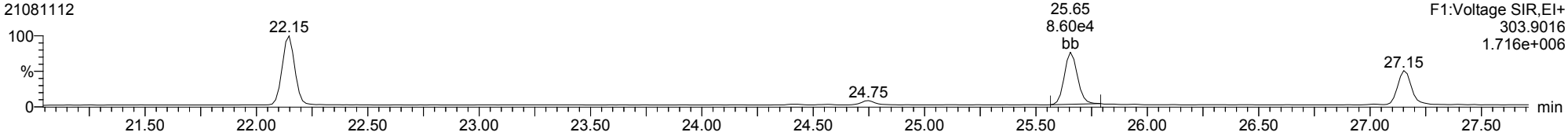

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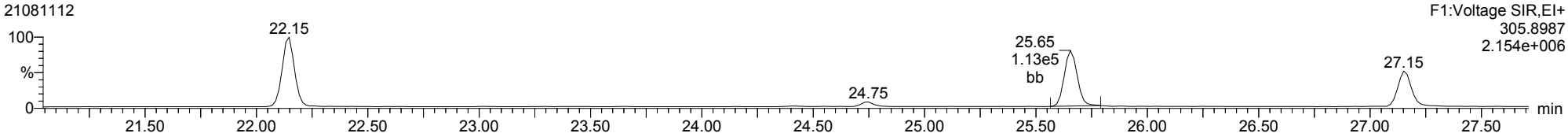

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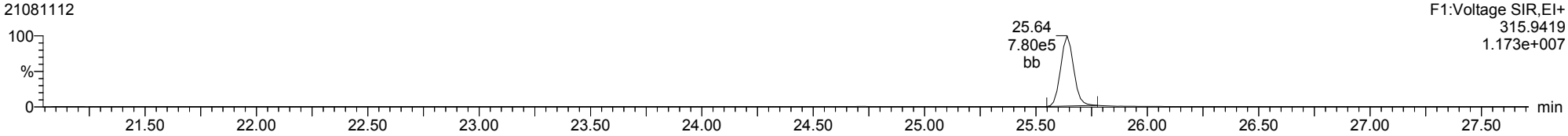

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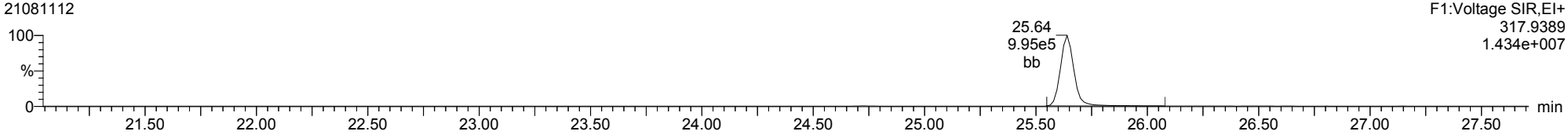

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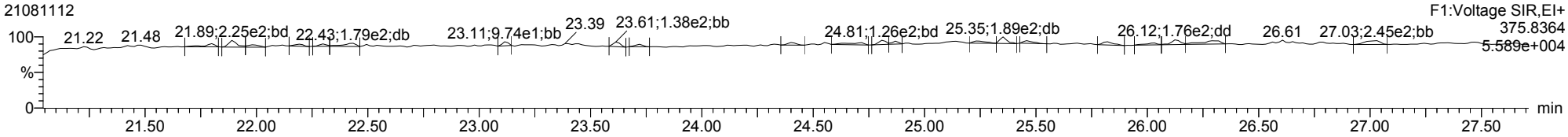

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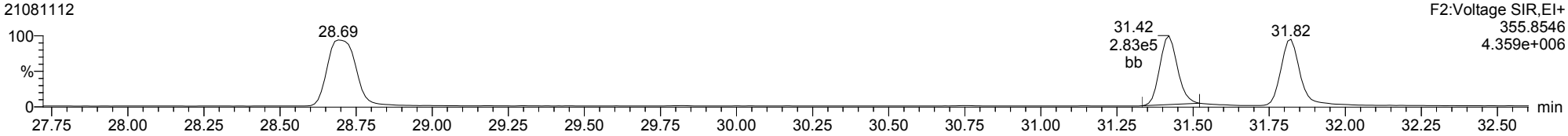

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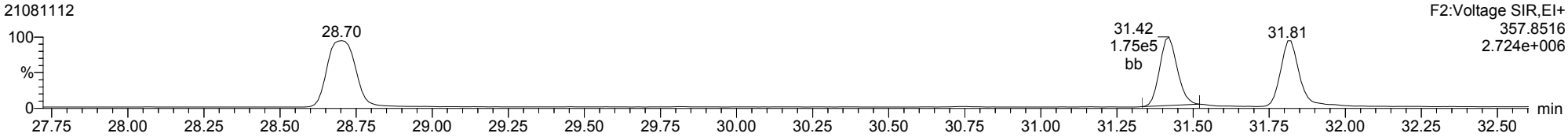

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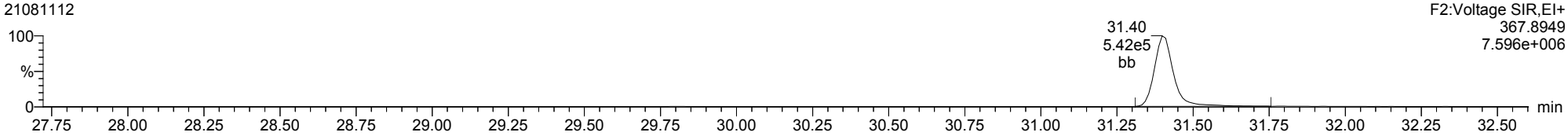

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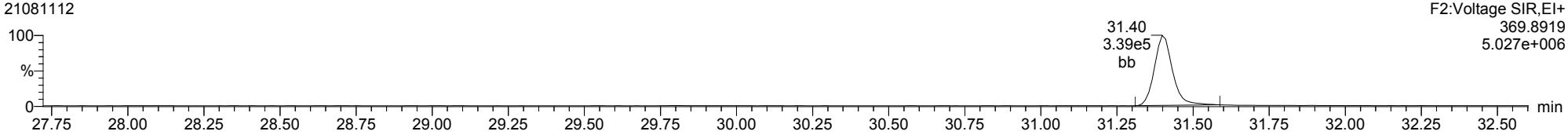

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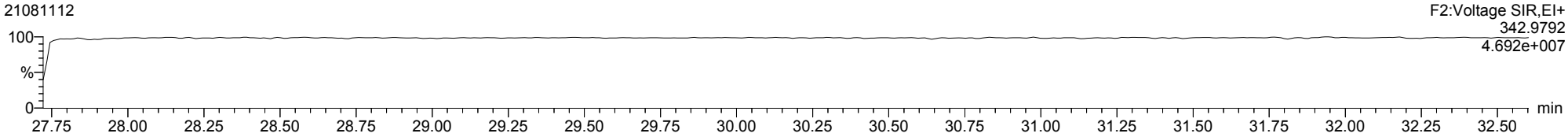

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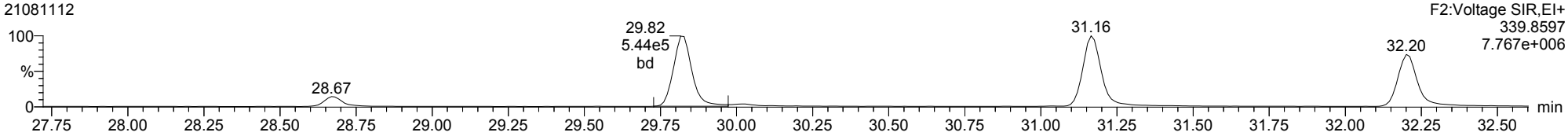

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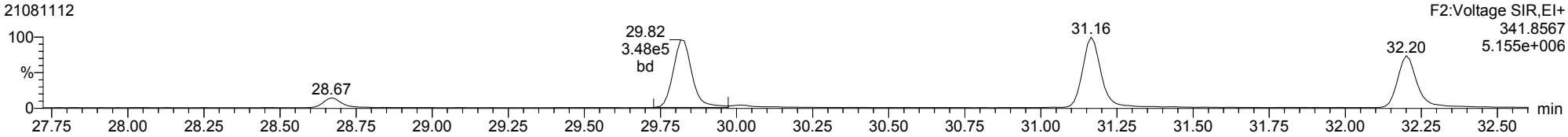

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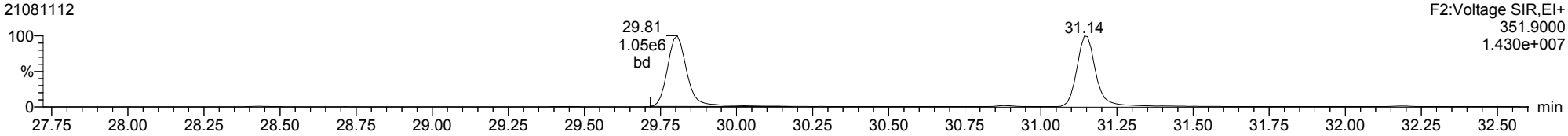

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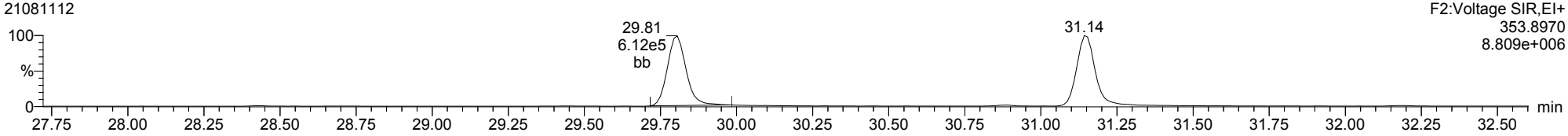

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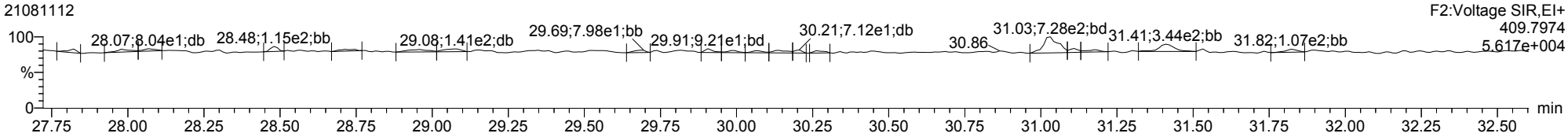

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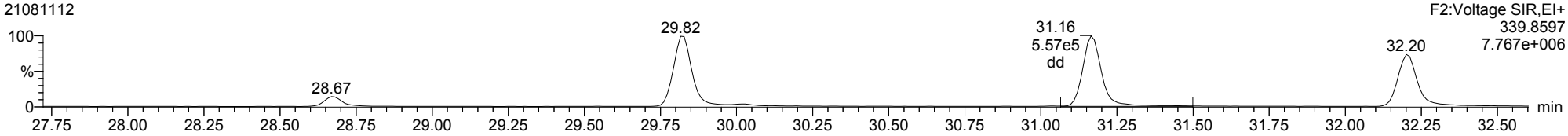

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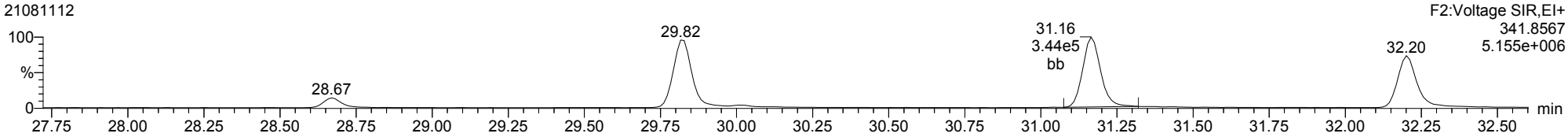

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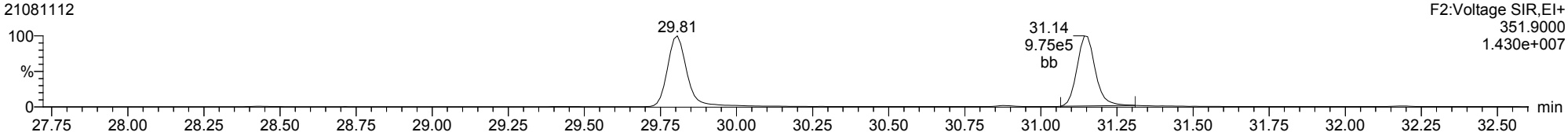

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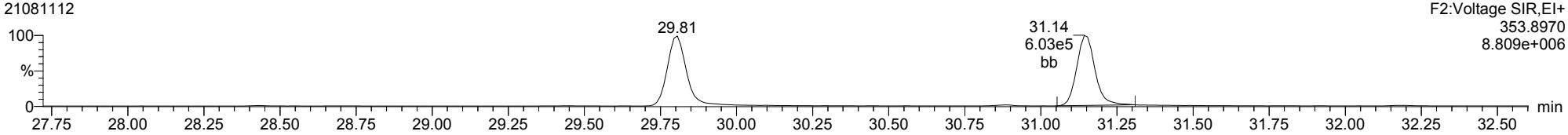

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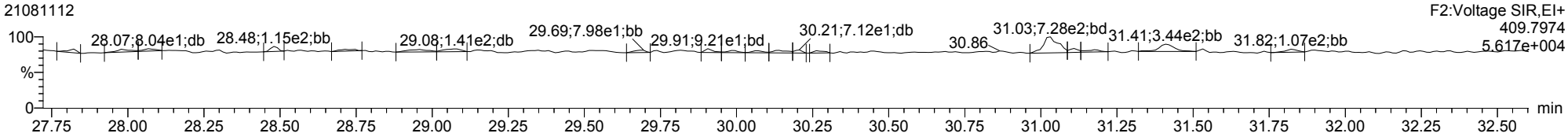

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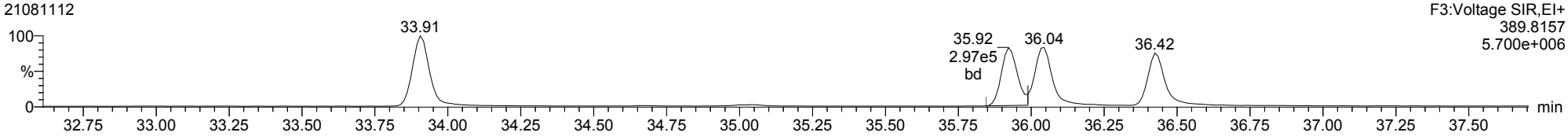

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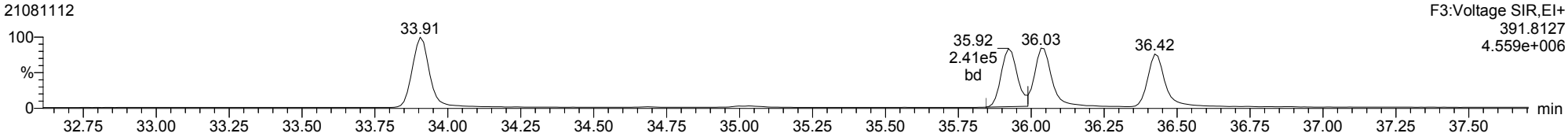

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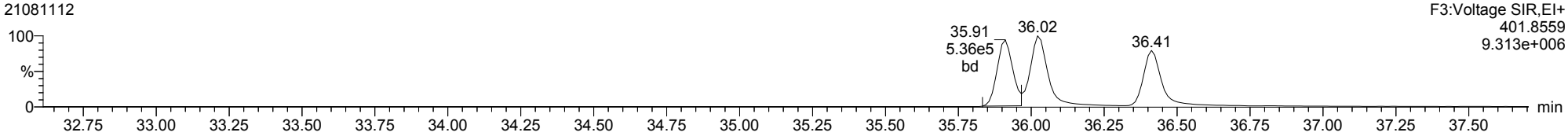

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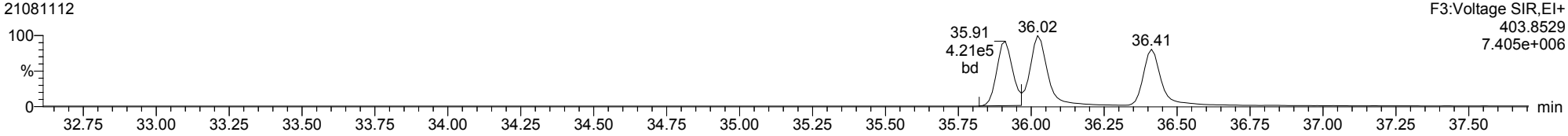

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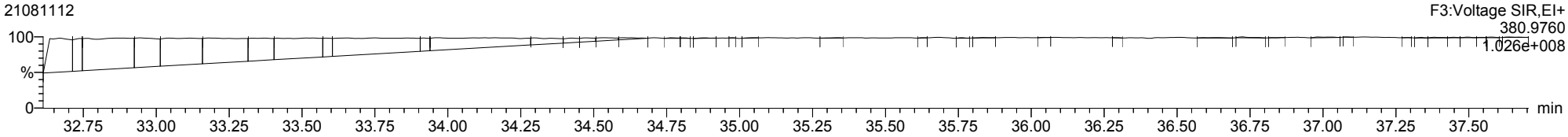

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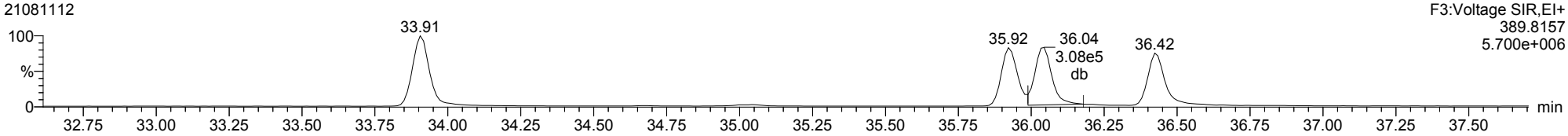

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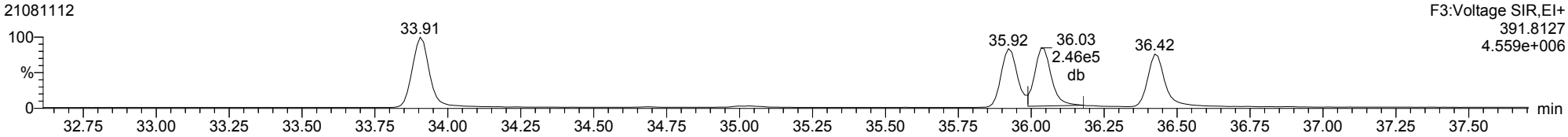

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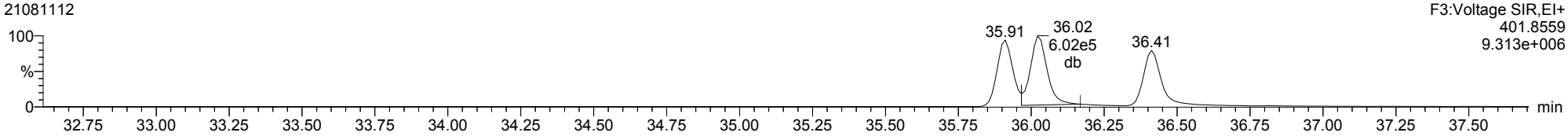

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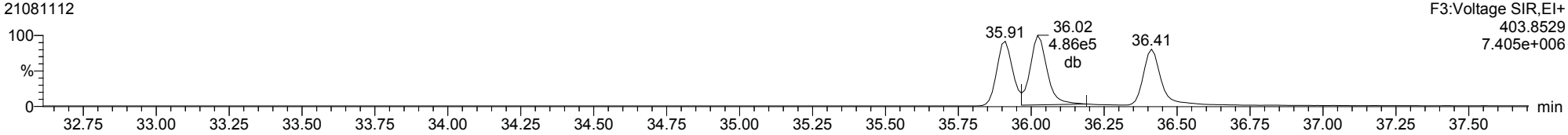

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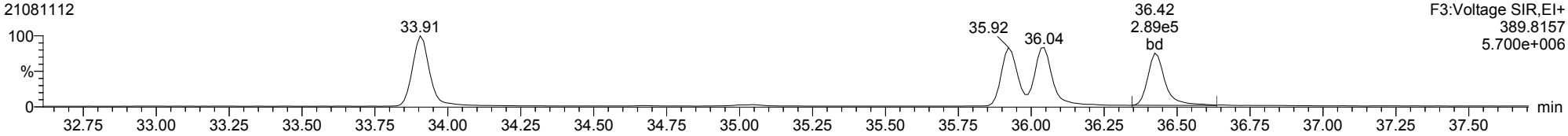

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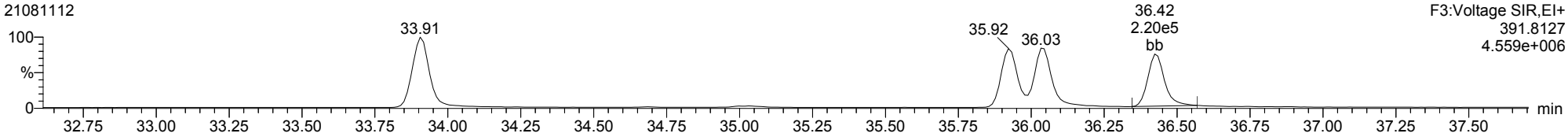

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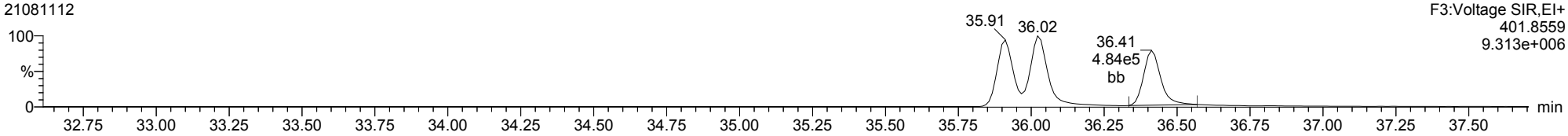

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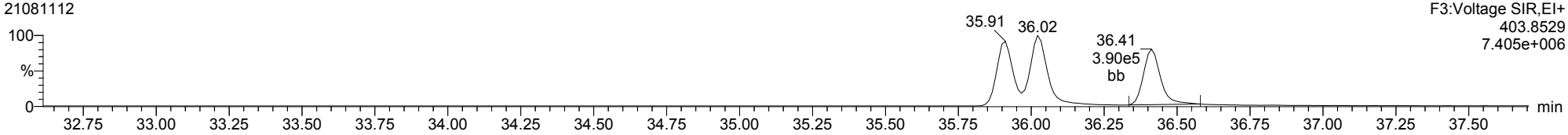

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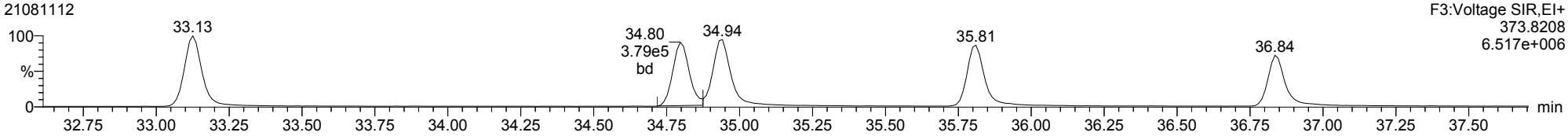

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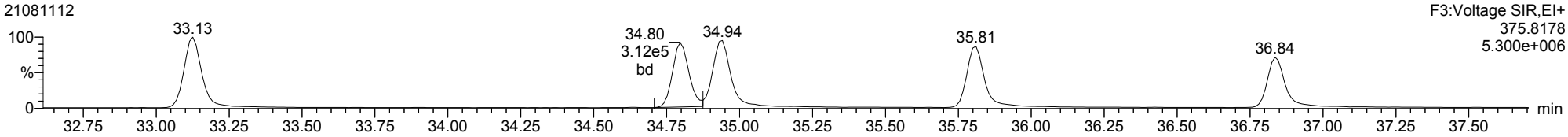

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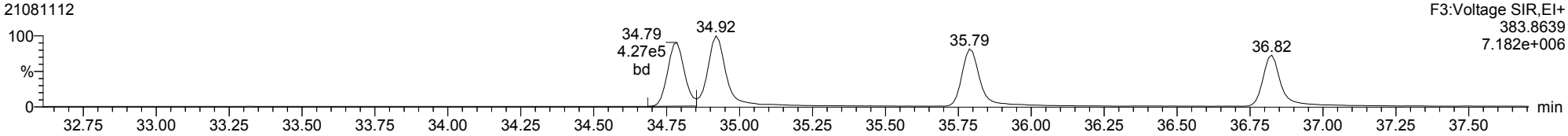

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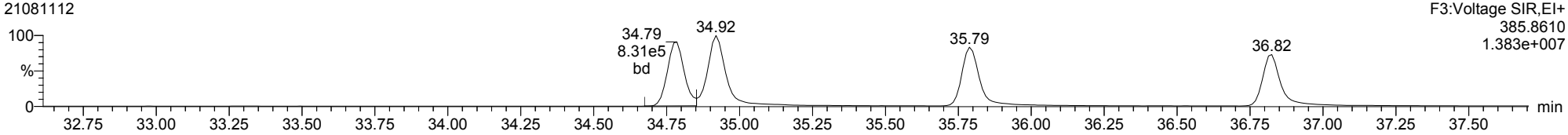

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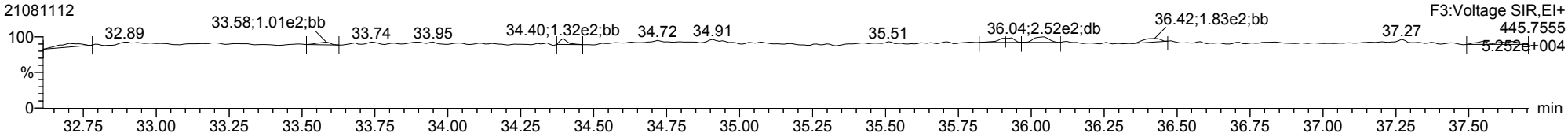

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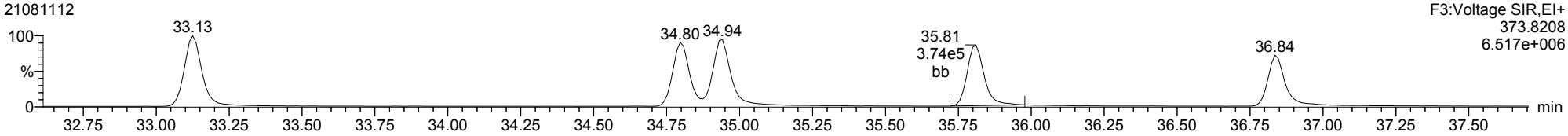

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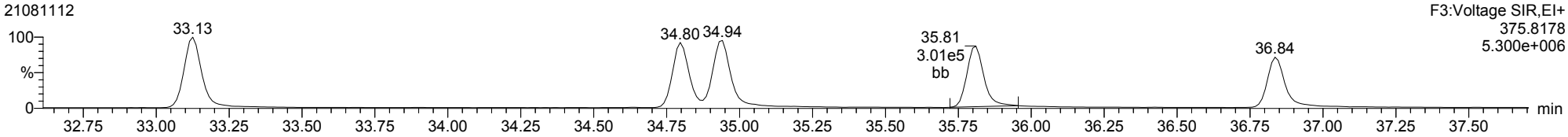

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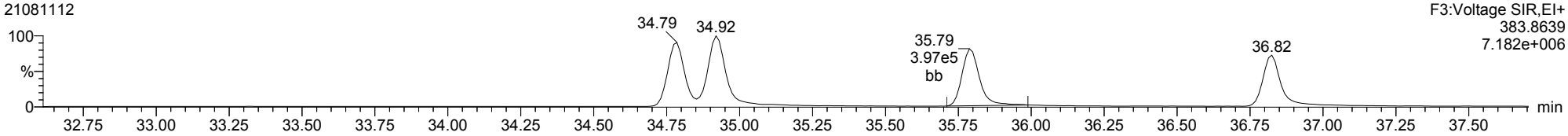

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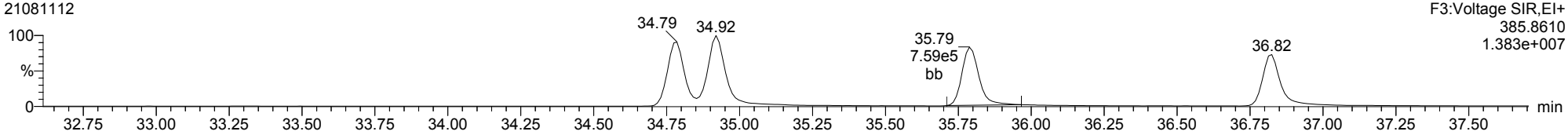

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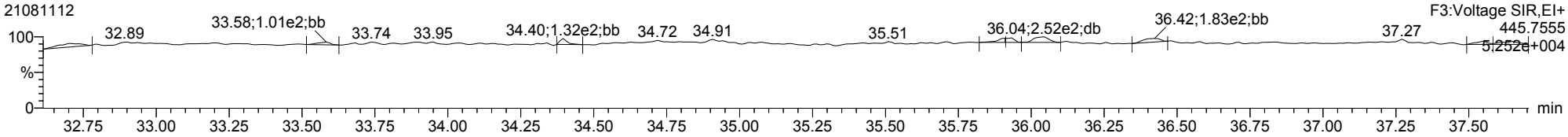

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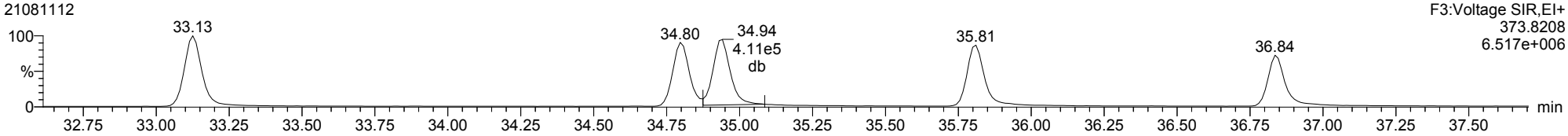

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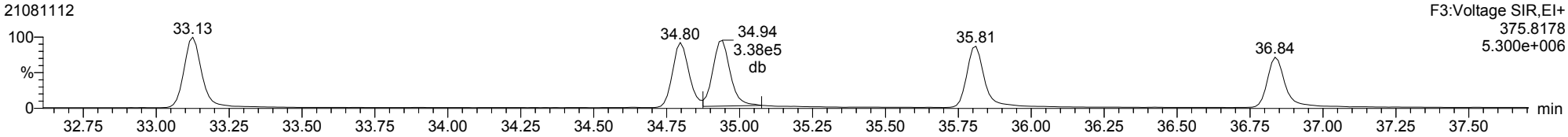

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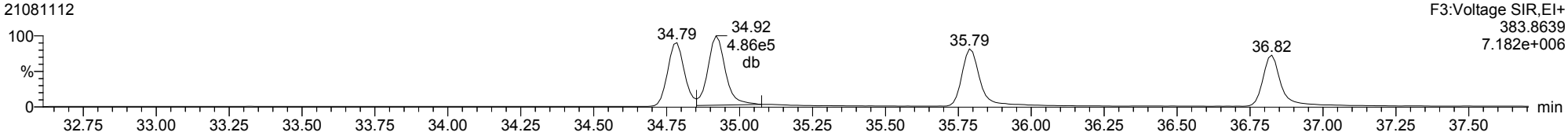

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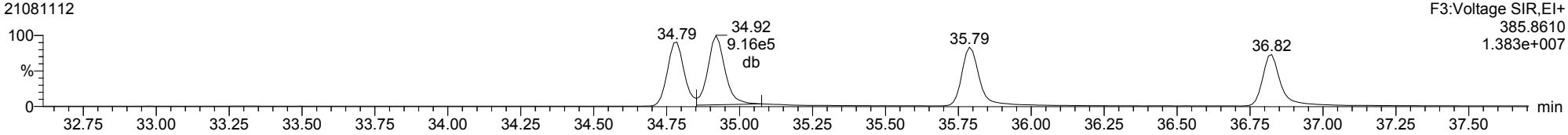

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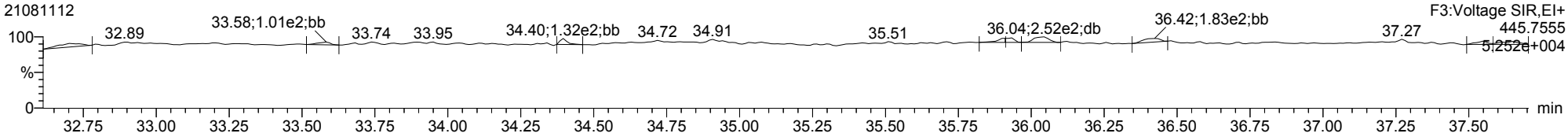

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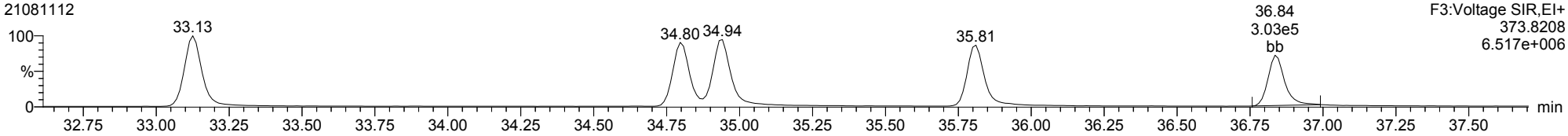

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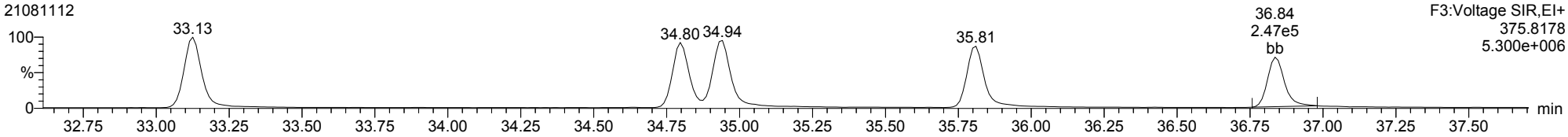

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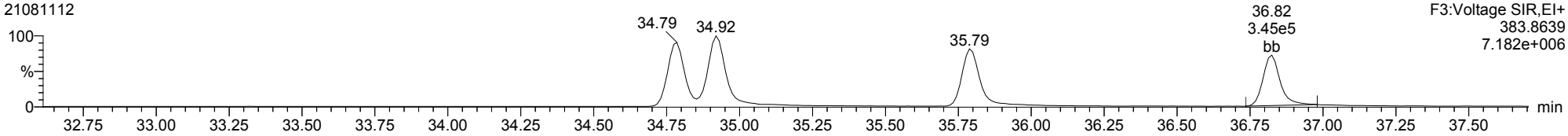

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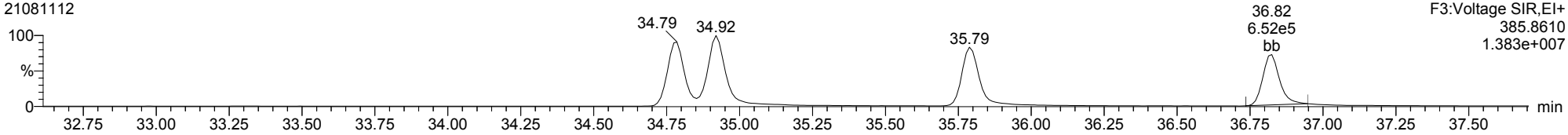

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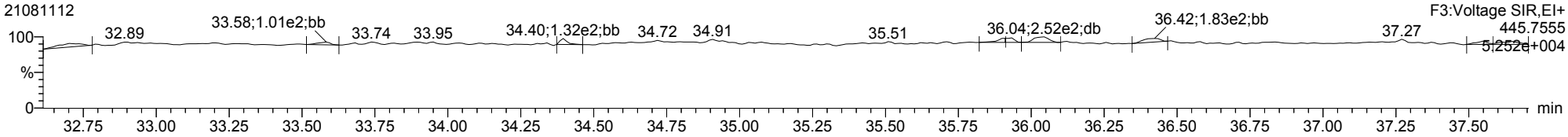

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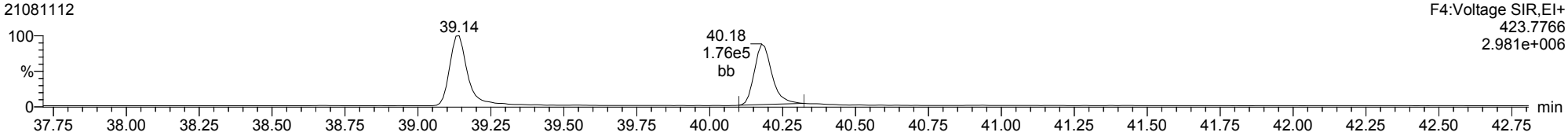

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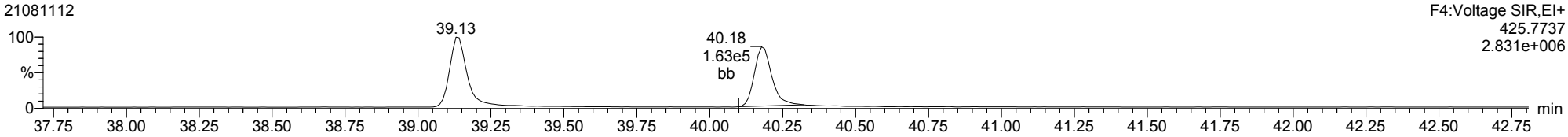

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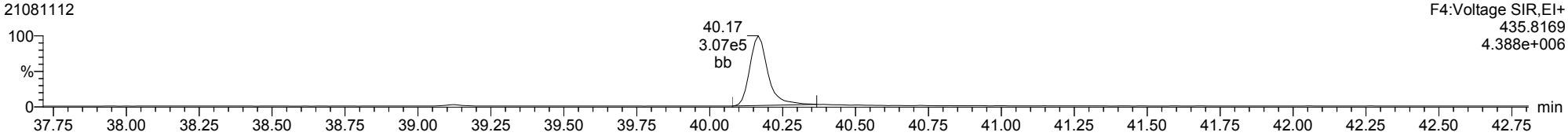

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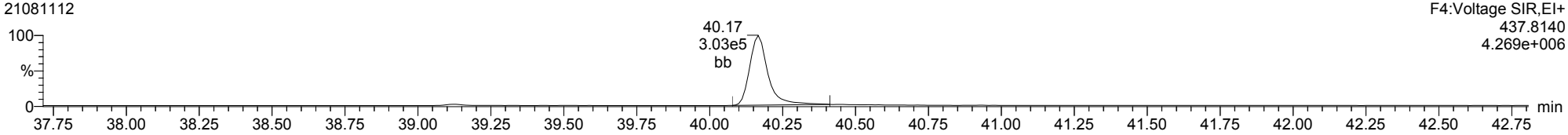

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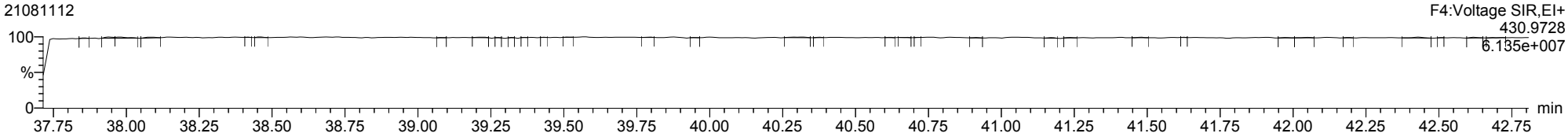

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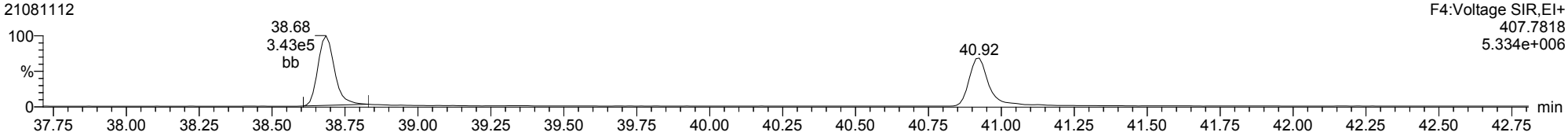

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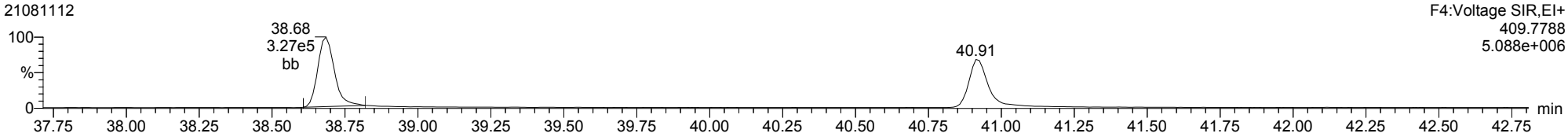

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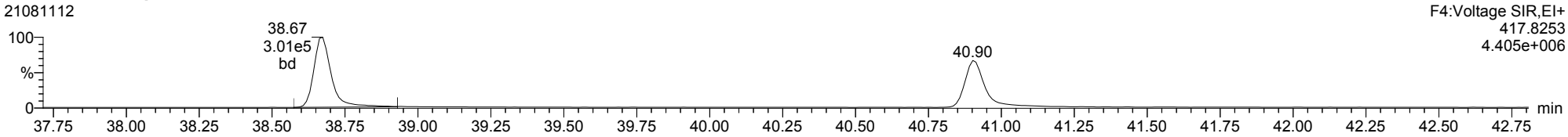

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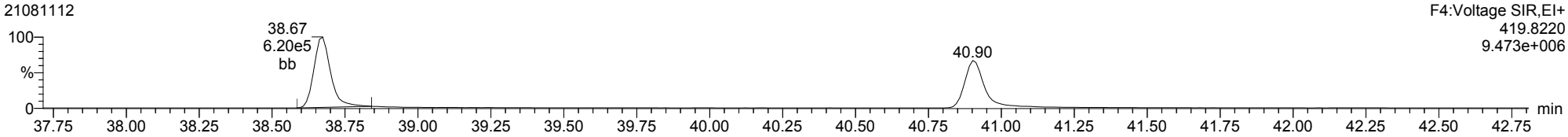

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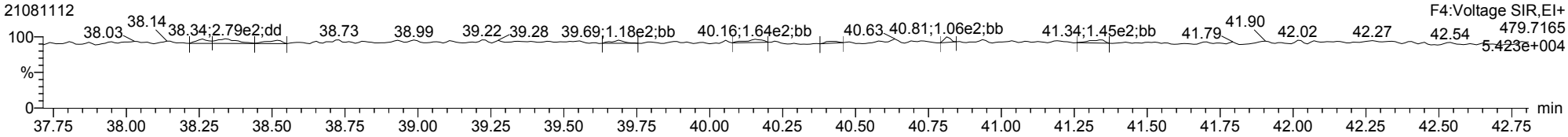

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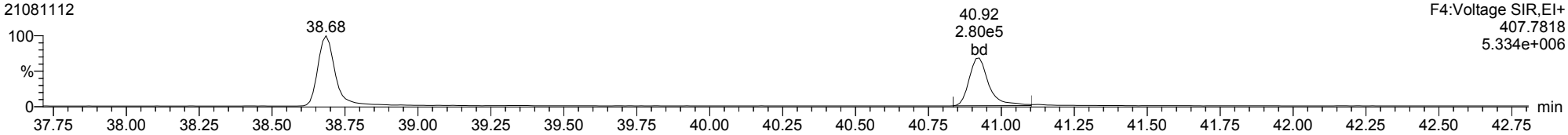

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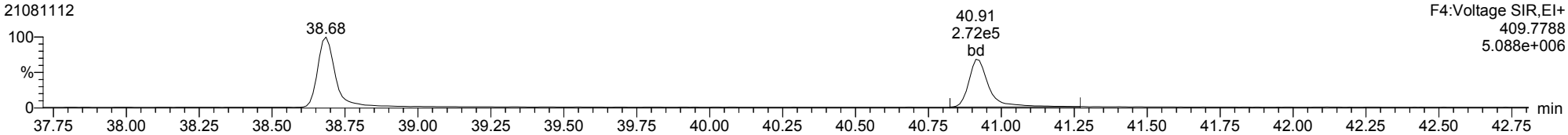

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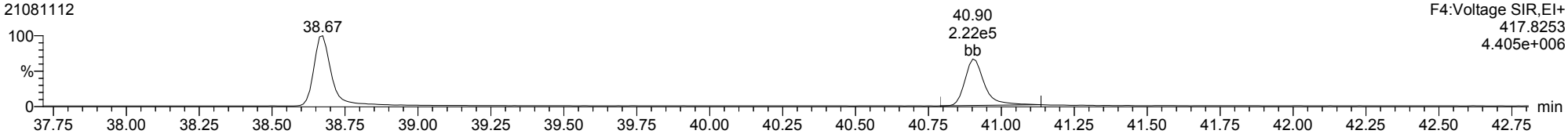

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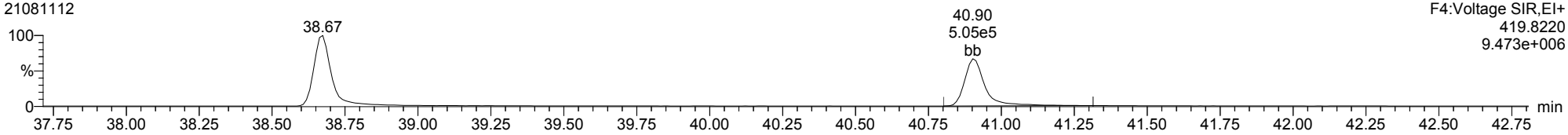

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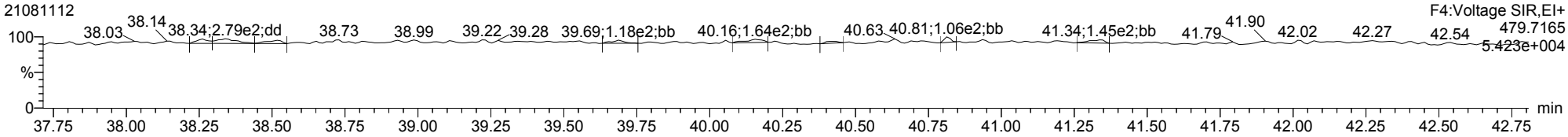

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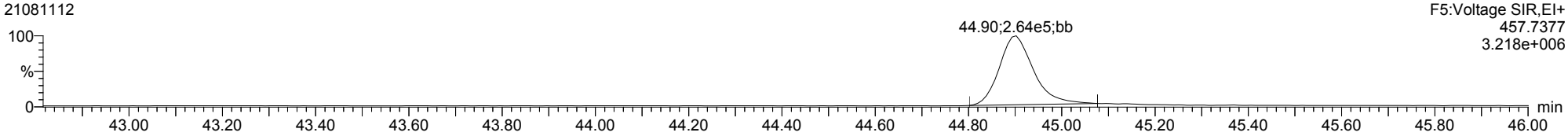

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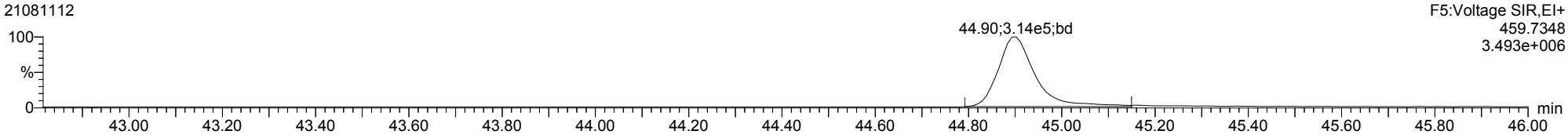

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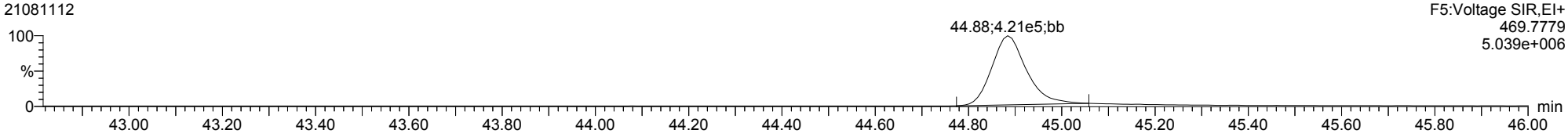

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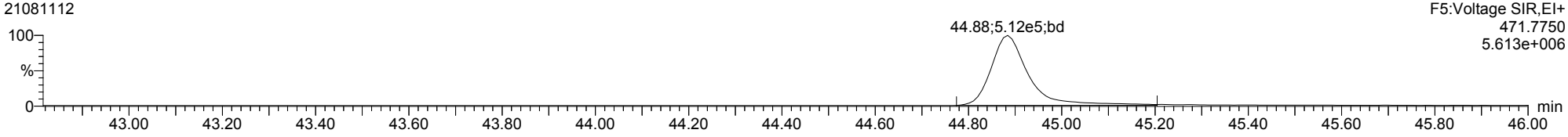

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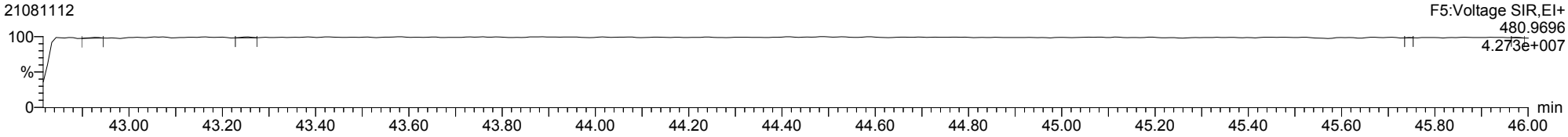

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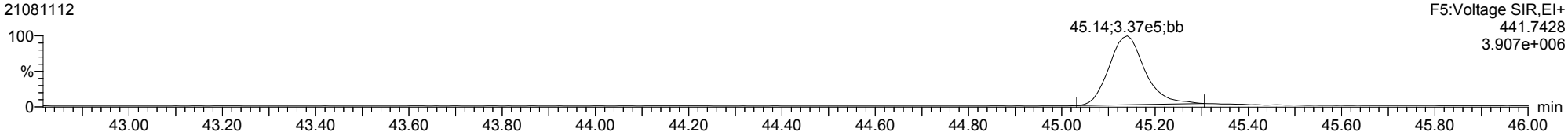

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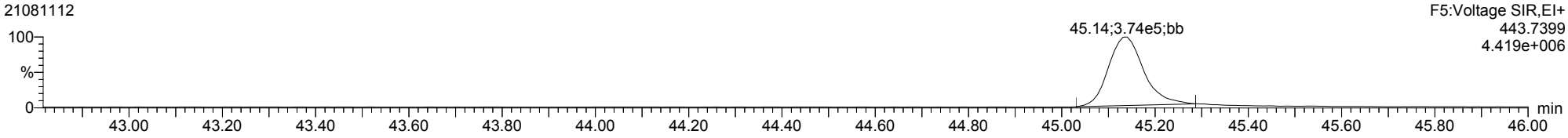

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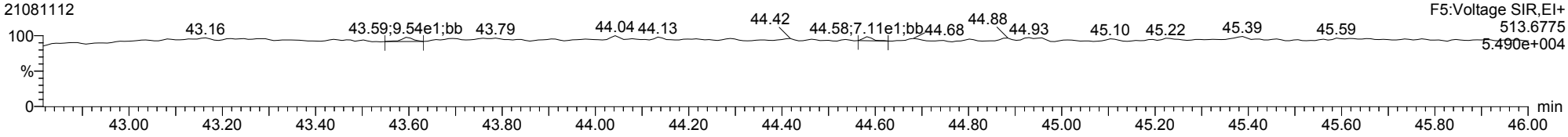

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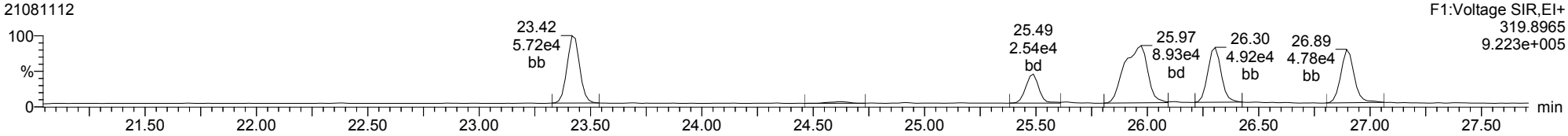

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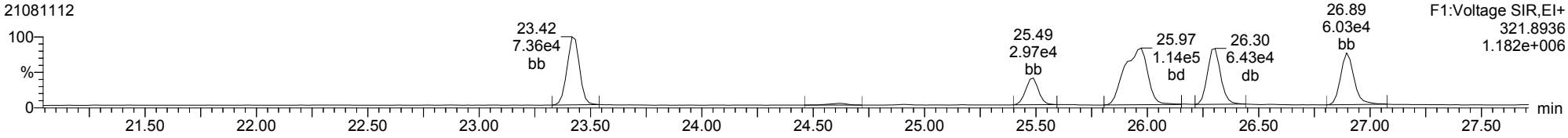

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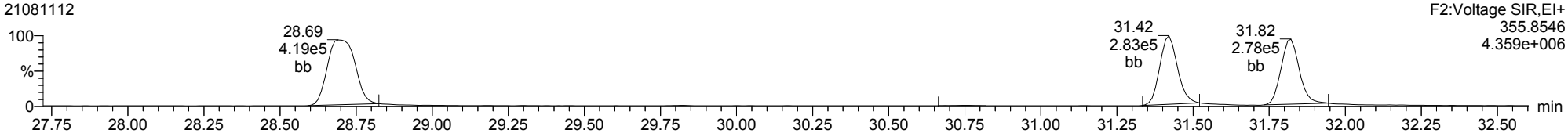

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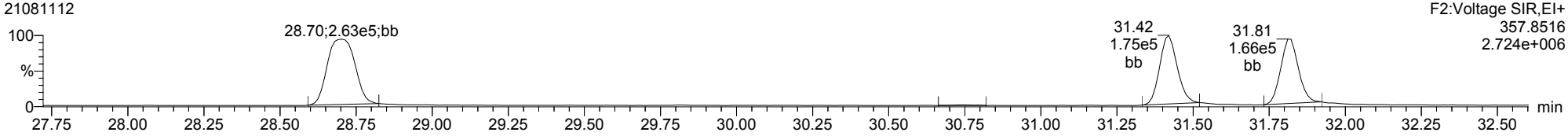

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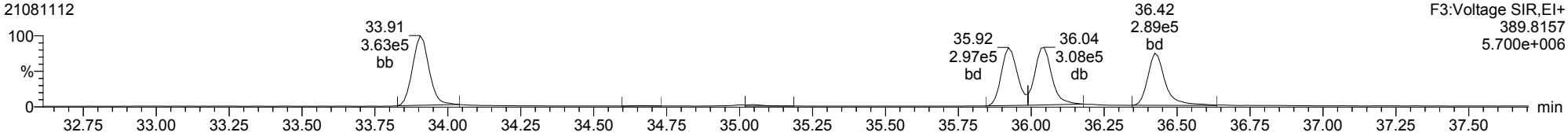

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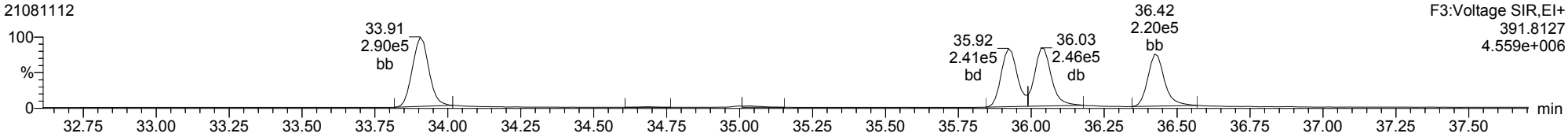

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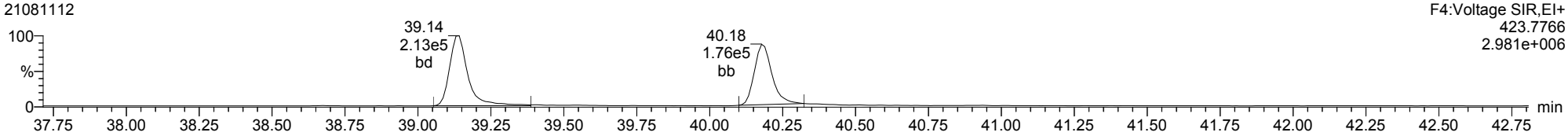

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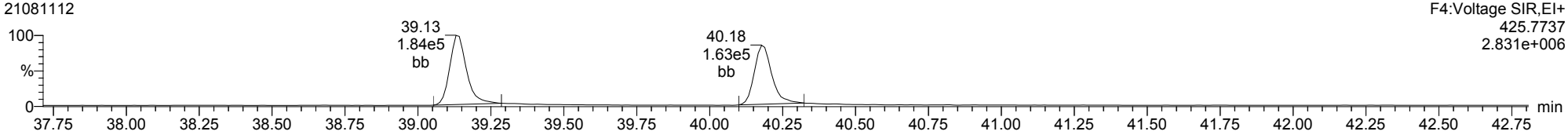

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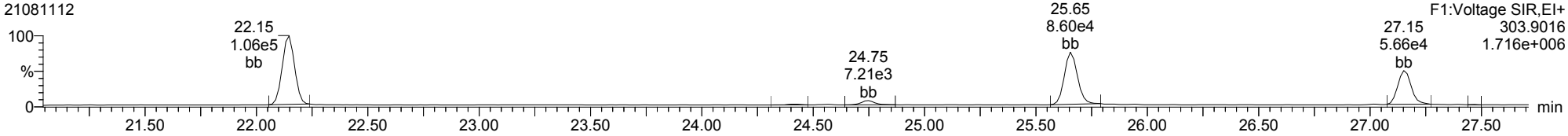
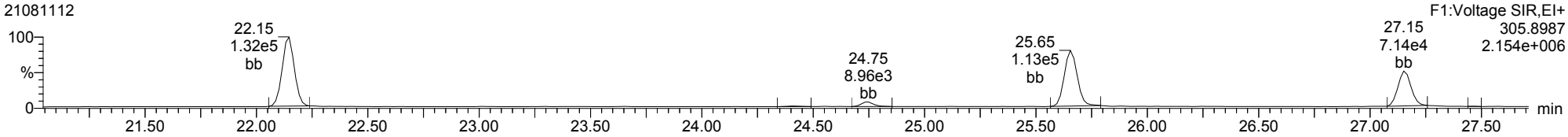
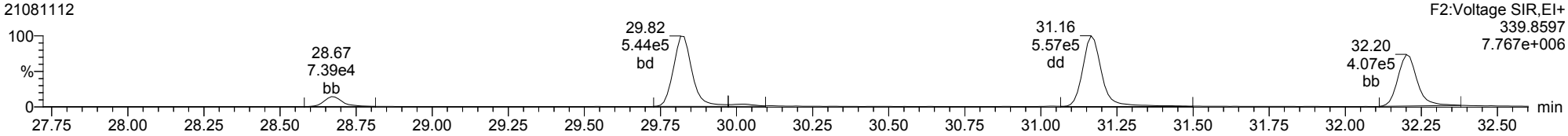


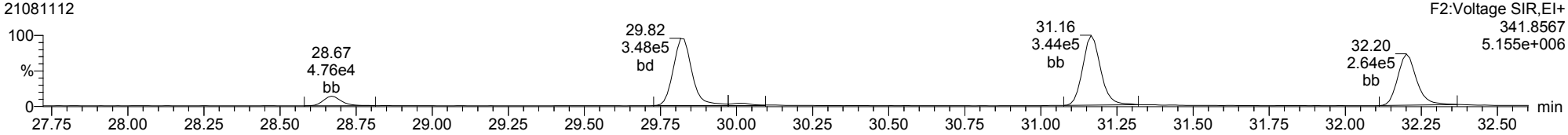
Total-tetrafurans



Total-pentafurans

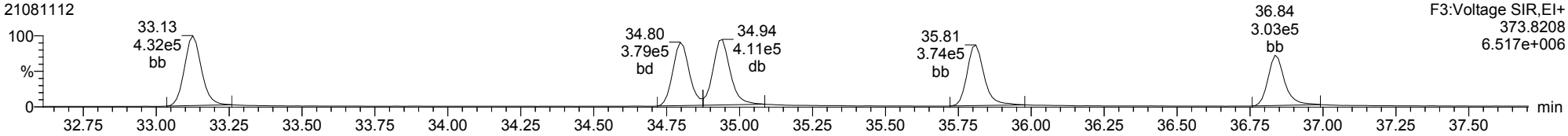


Total-pentafurans



ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



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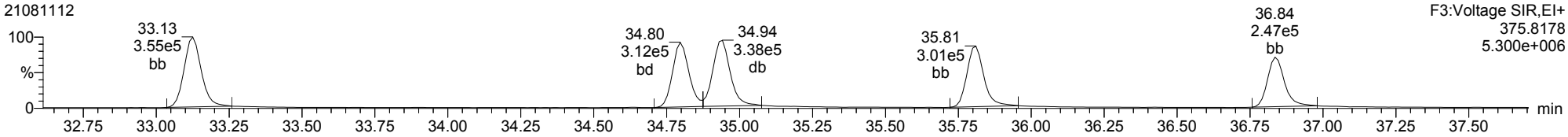

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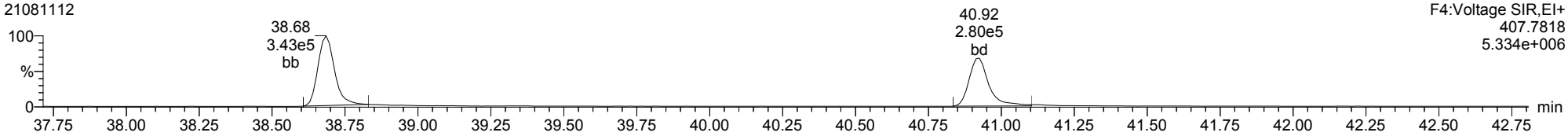
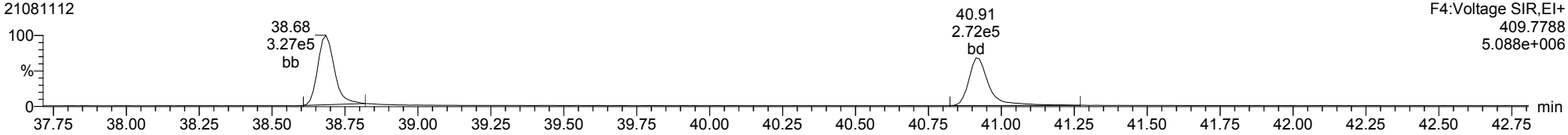


Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0283
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Calibration: UNASSIGNED
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	
OCDD	100.00	105	5.0	
13C12-2,3,7,8-TCDF	100.00	102	1.7	
13C12-2,3,7,8-TCDD	100.00	81.6	-18.4	
13C12-1,2,3,7,8-PeCDF	100.00	105	4.8	
13C12-2,3,4,7,8-PeCDF	100.00	104	4.3	
13C12-1,2,3,7,8-PeCDD	100.00	98.4	-1.6	
13C12-1,2,3,4,7,8-HxCDF	100.00	116	15.9	
13C12-1,2,3,6,7,8-HxCDF	100.00	119	19.4	
13C12-2,3,4,6,7,8-HxCDF	100.00	109	8.8	
13C12-1,2,3,7,8,9-HxCDF	100.00	113	13.2	
13C12-1,2,3,4,7,8-HxCDD	100.00	114	14.1	
13C12-1,2,3,6,7,8-HxCDD	100.00	119	19.5	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	114	13.7	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	110	9.8	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	110	10.5	
13C12-OCDD	200.00	212	5.9	
37Cl4-2,3,7,8-TCDD	10.000	10.4	4.0	

* 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
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
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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

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
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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

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
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

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

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

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

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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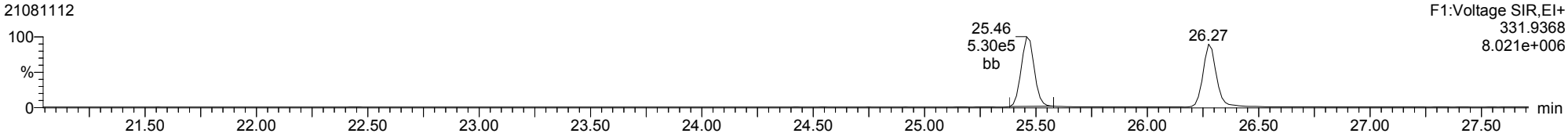

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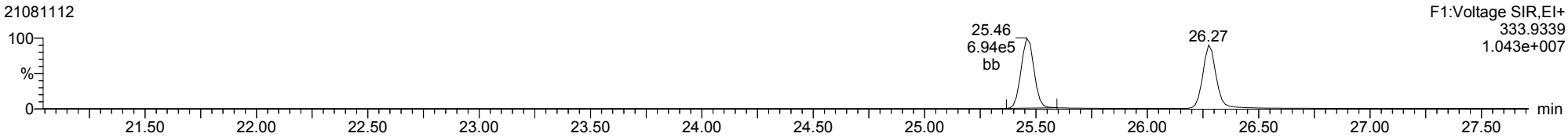

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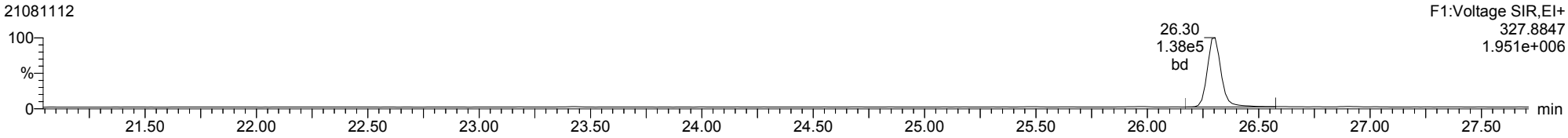

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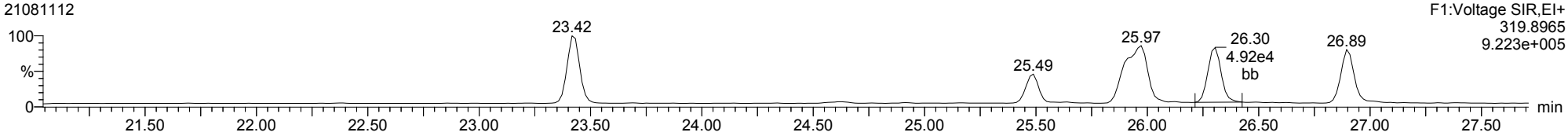

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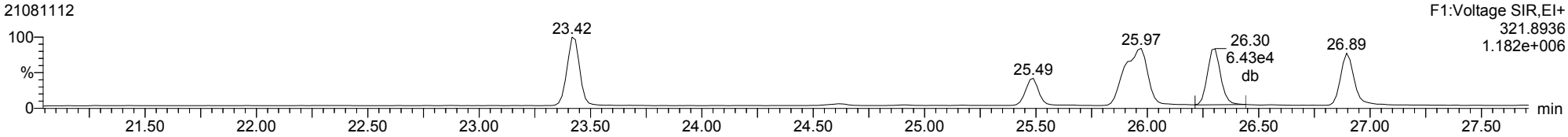

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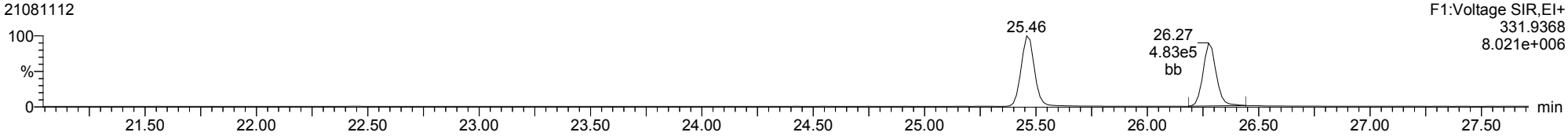

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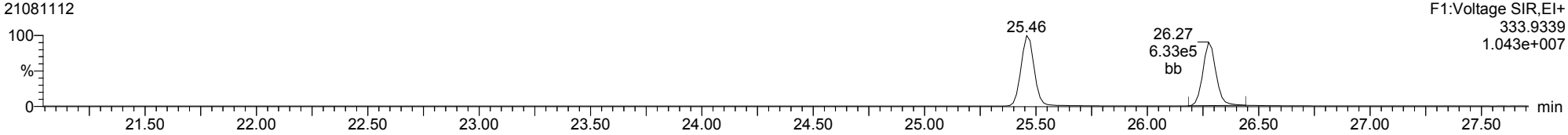

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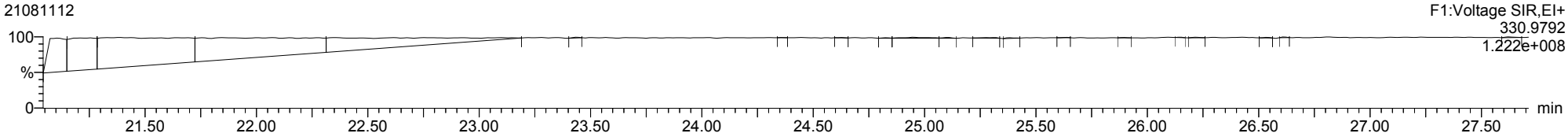

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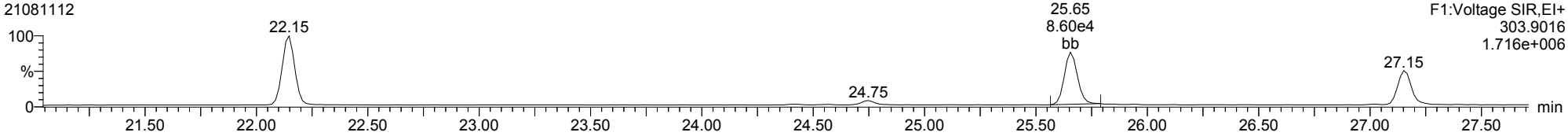

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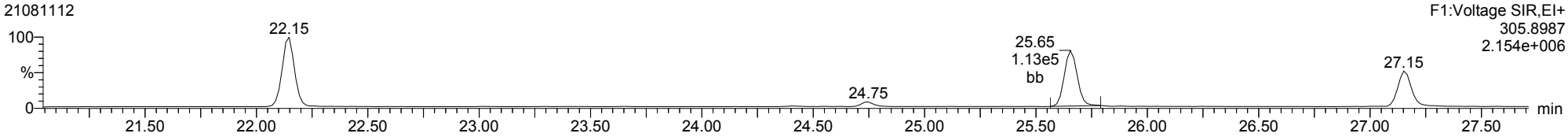

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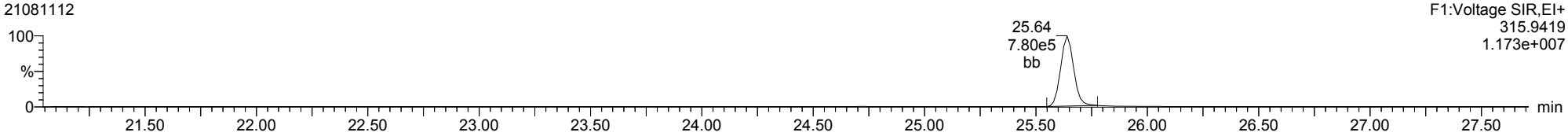

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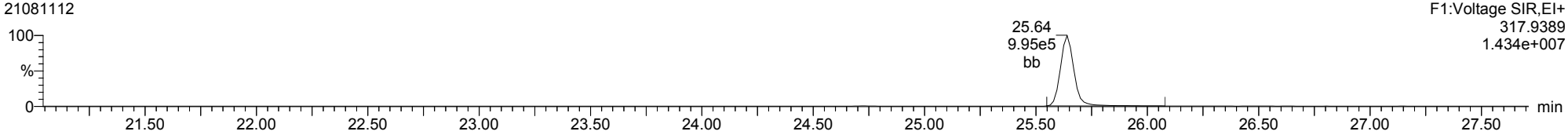

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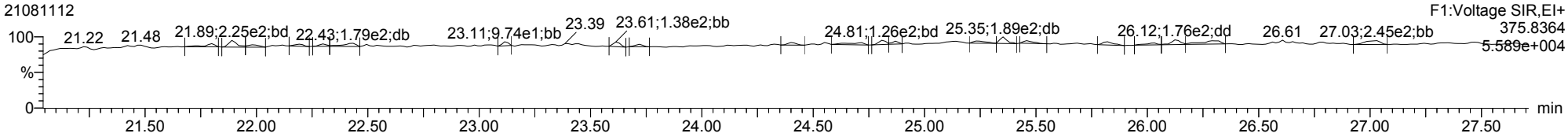

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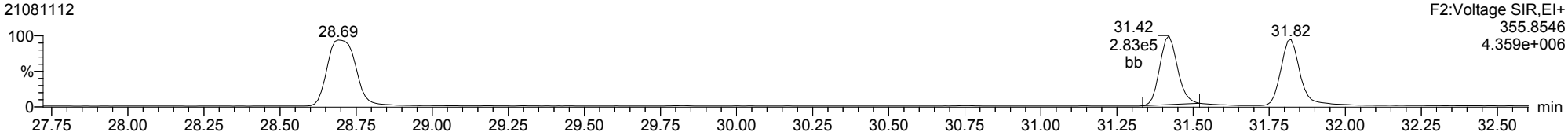
12378-PeCDD



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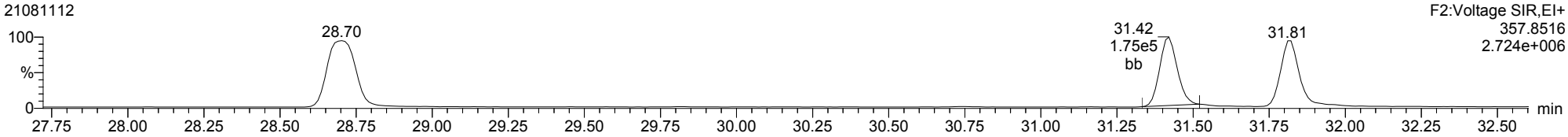

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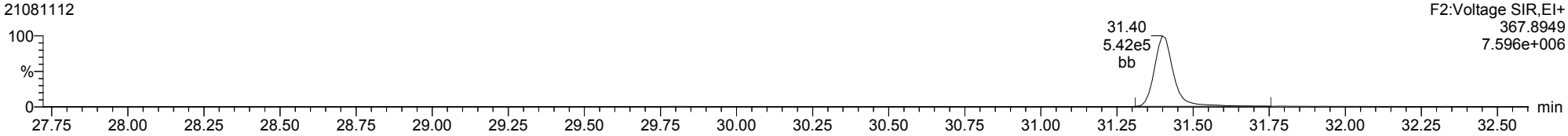

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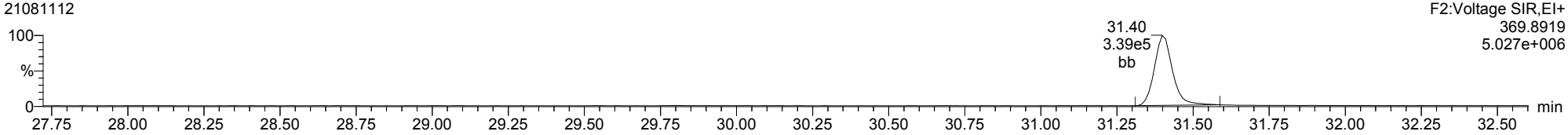
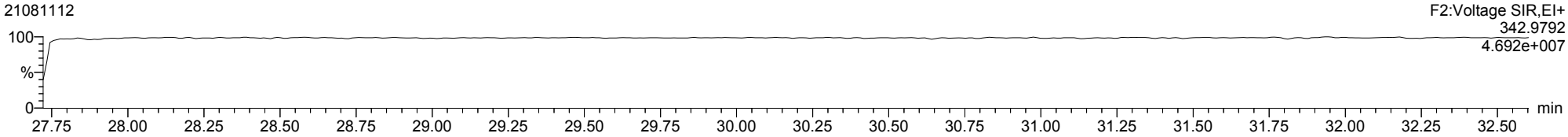


FUNCTION2 PFK



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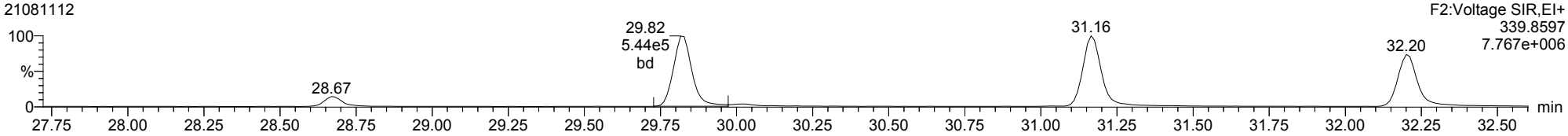

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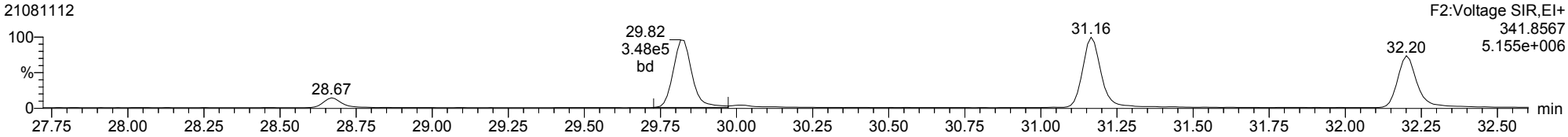

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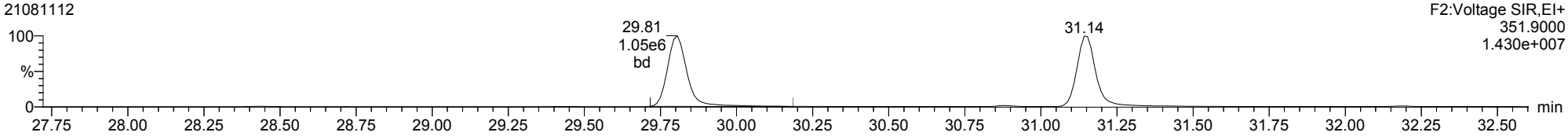

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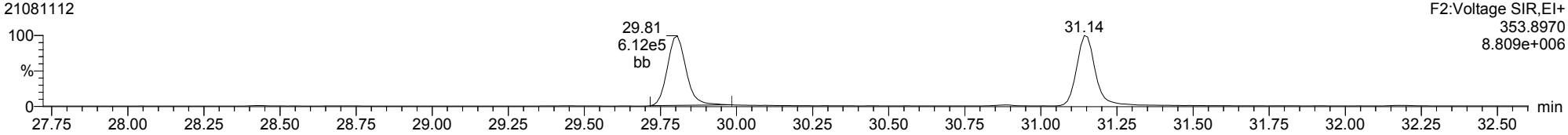

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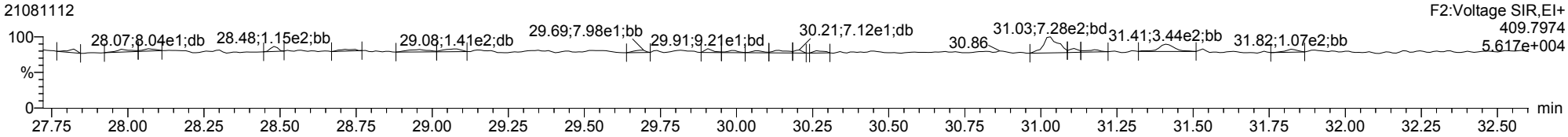

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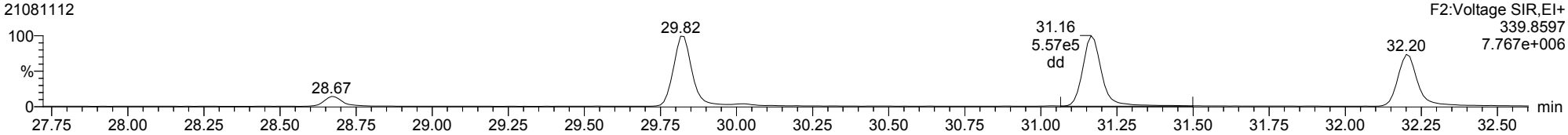

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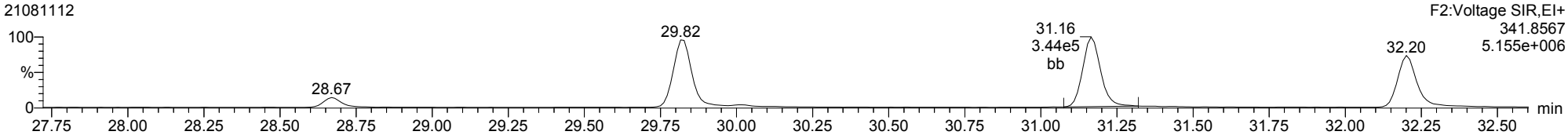

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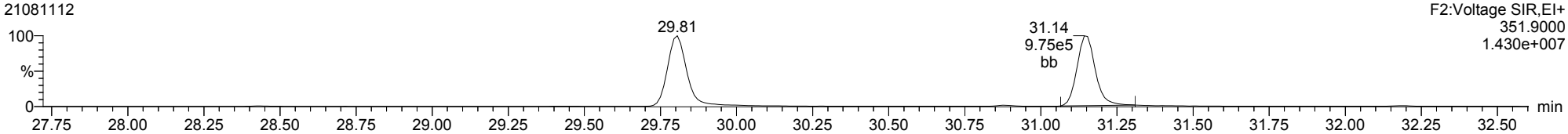

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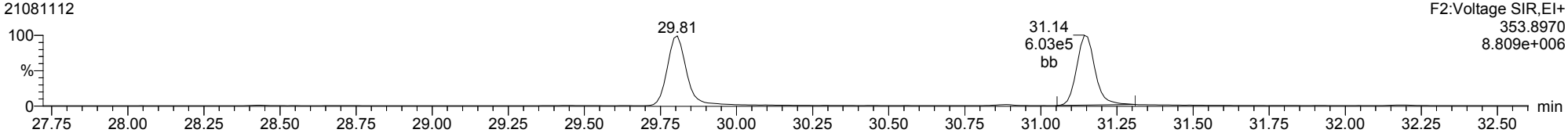

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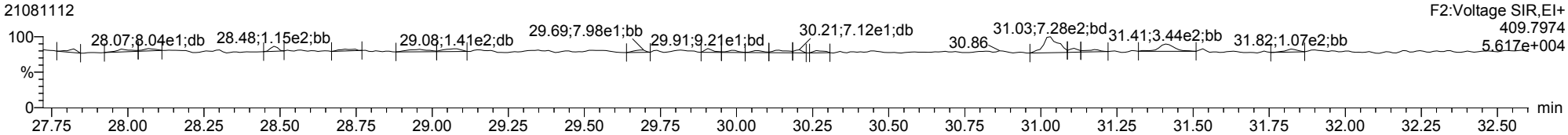

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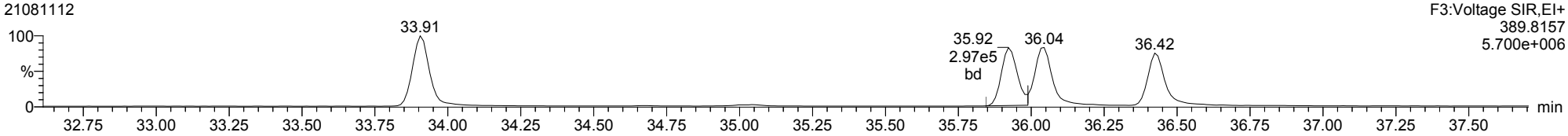

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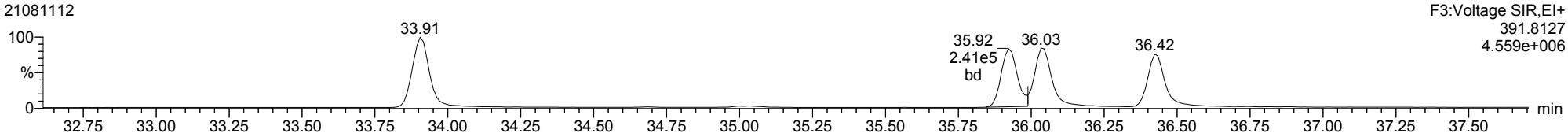

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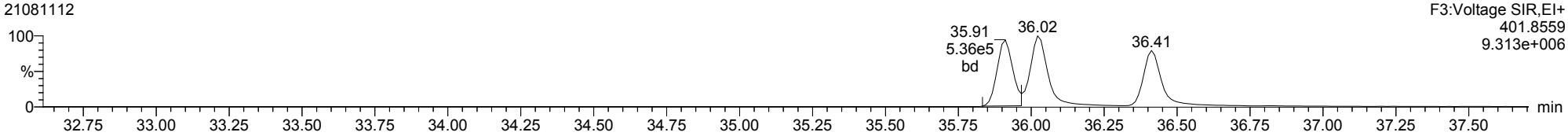

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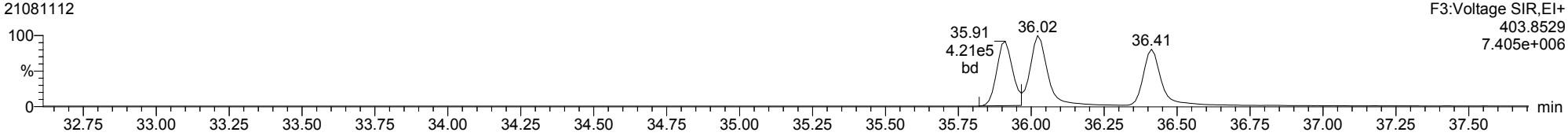

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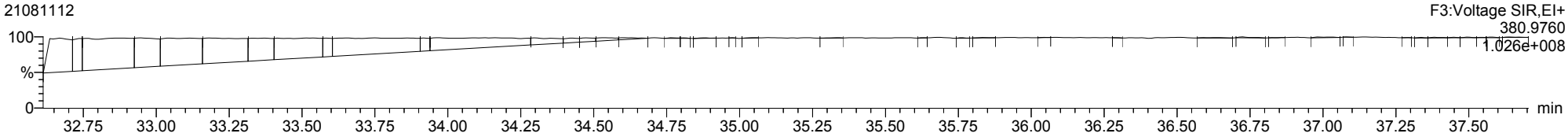

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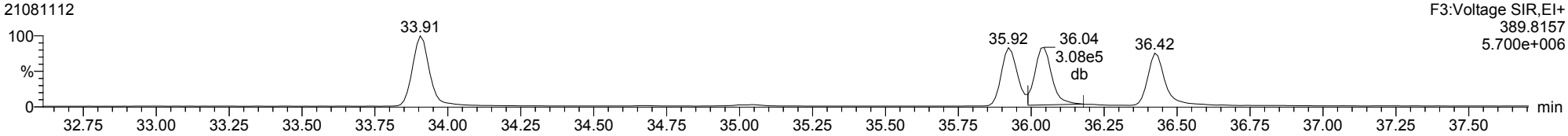

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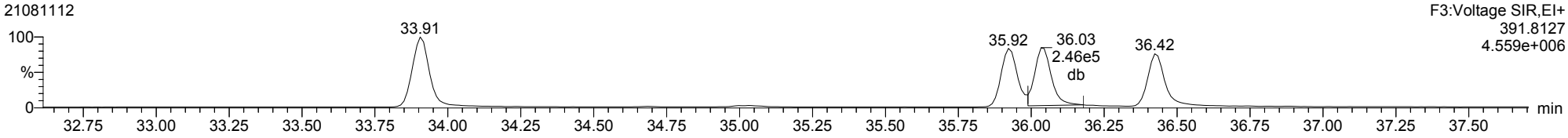

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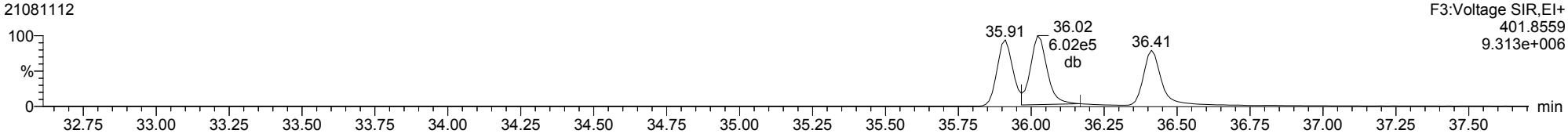

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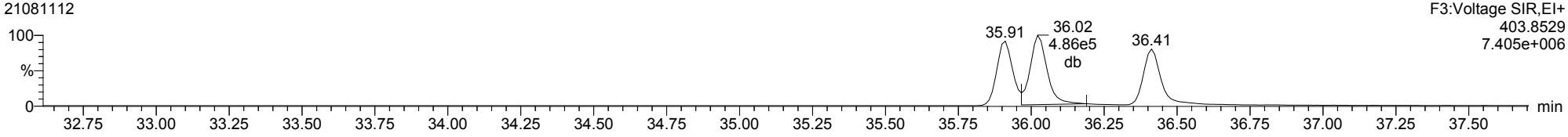

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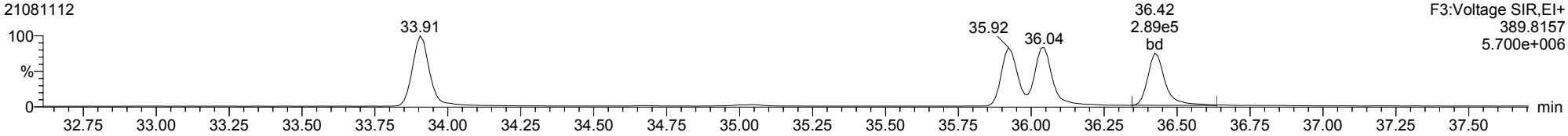

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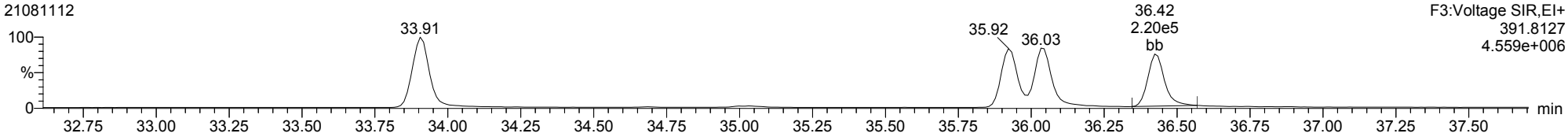

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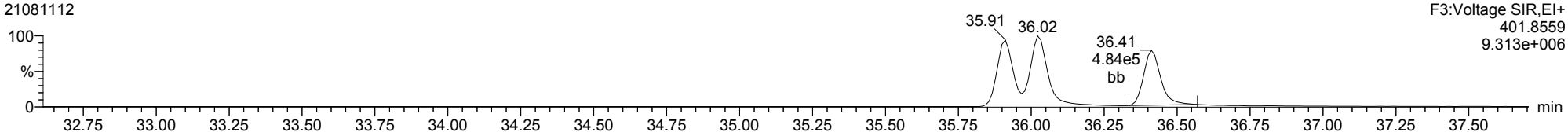

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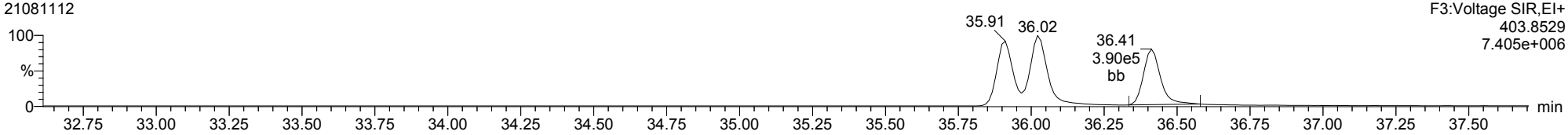

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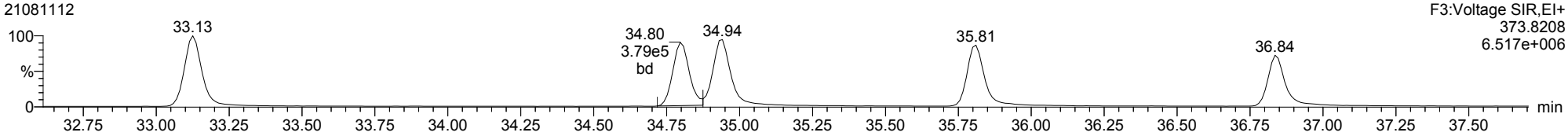

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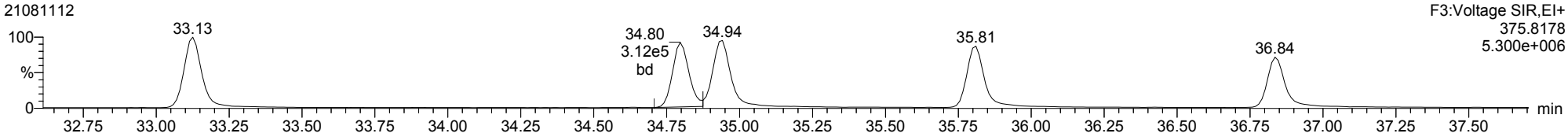

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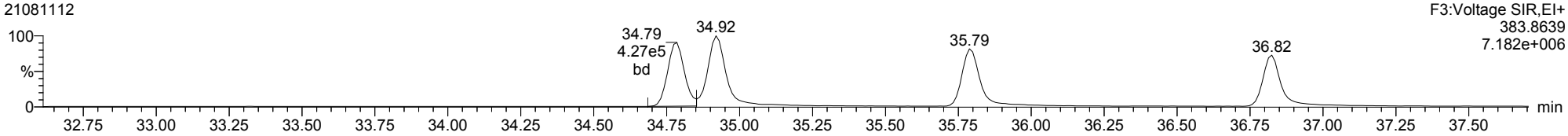

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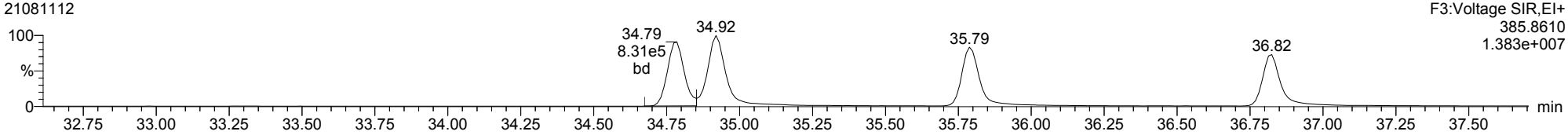

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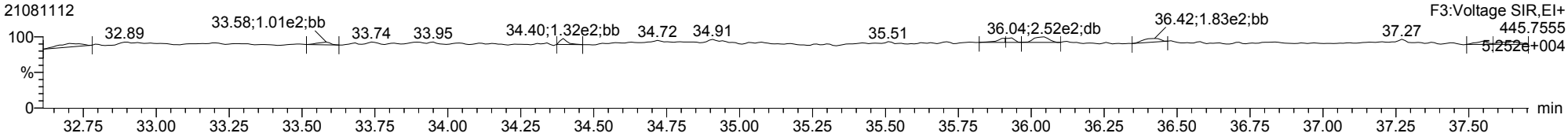

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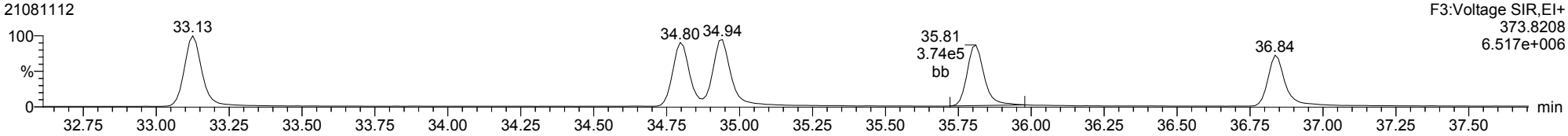

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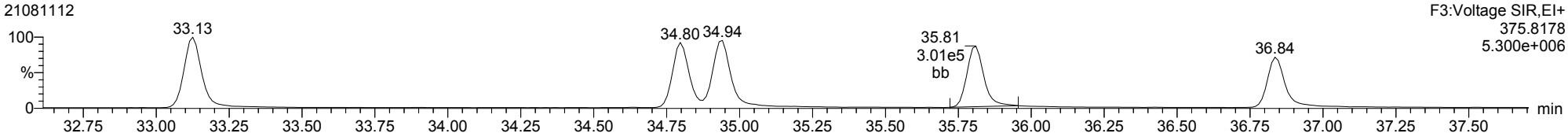

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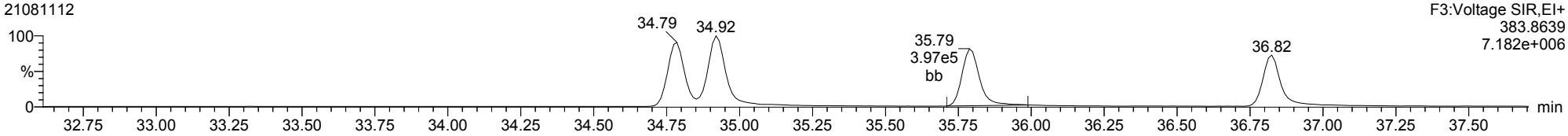

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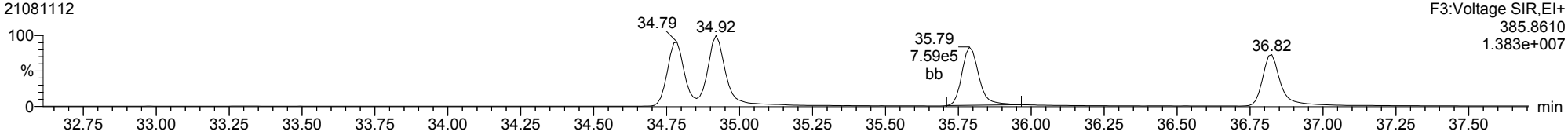

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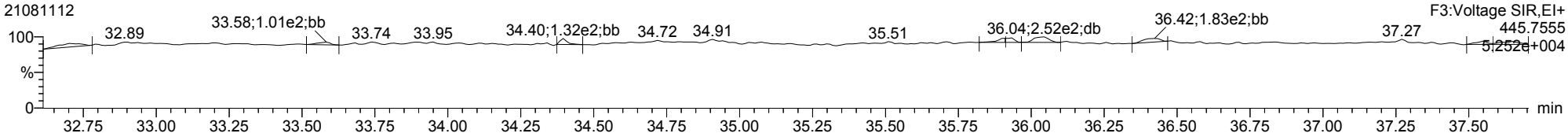

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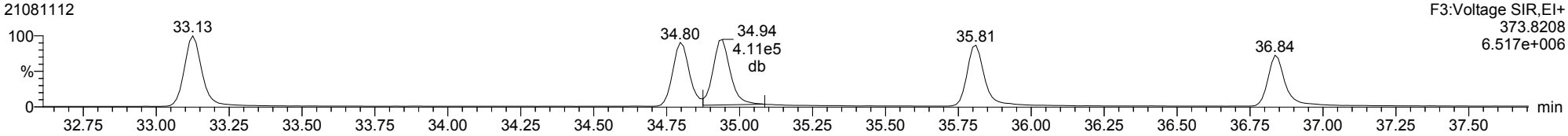

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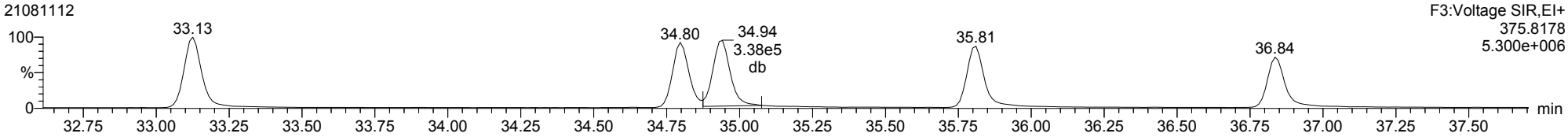

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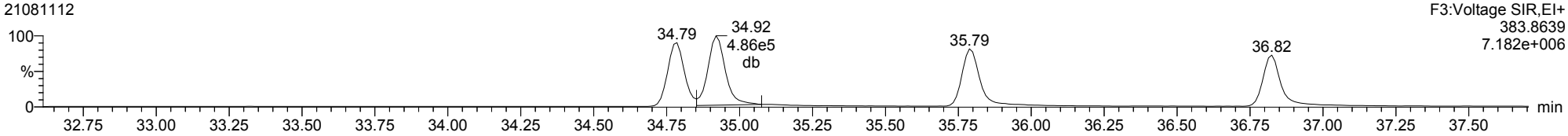

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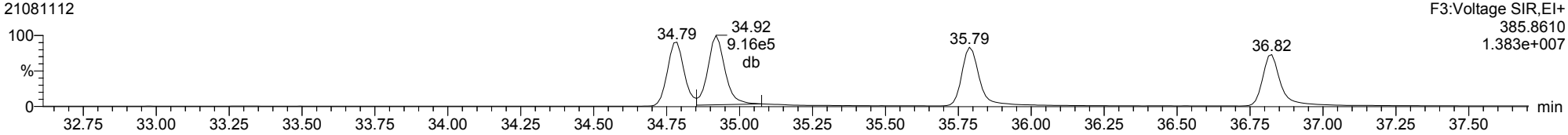

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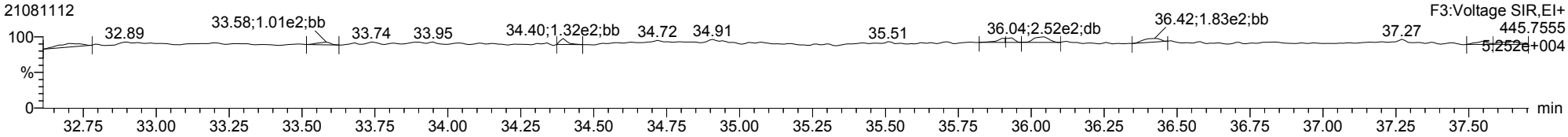

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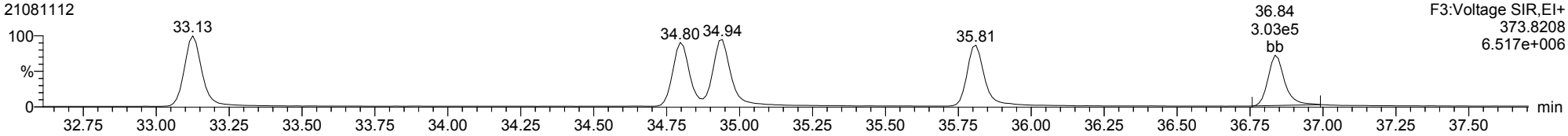

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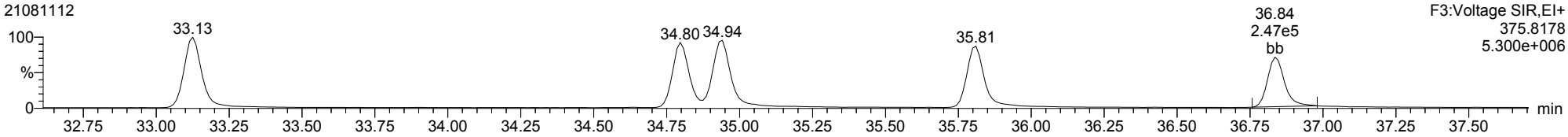

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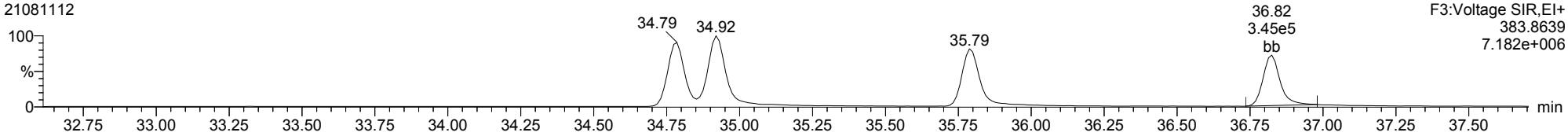

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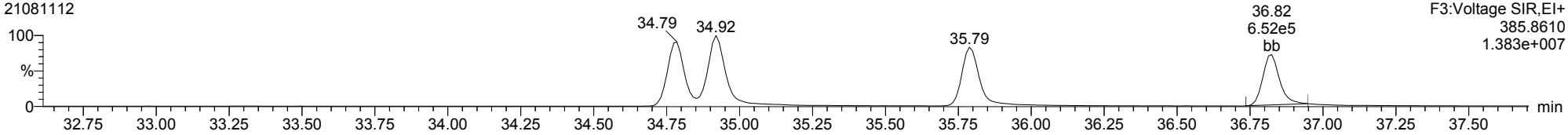

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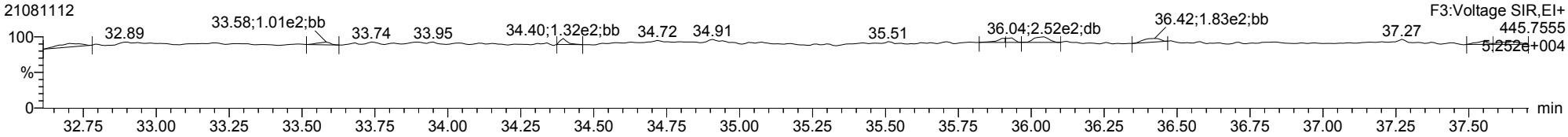

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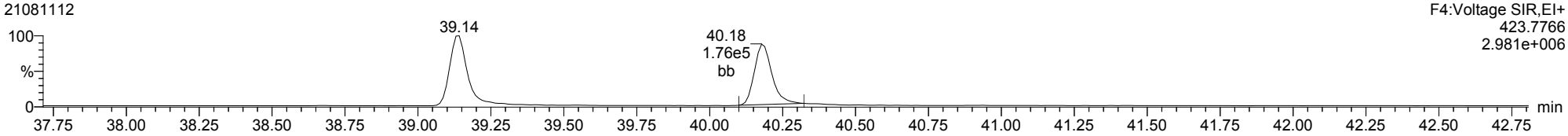

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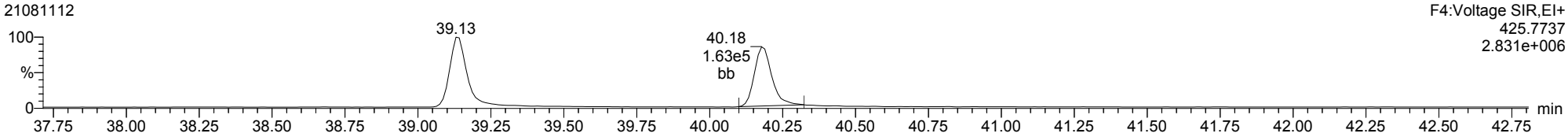

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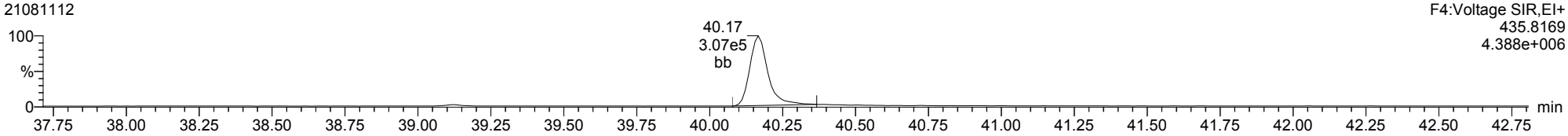

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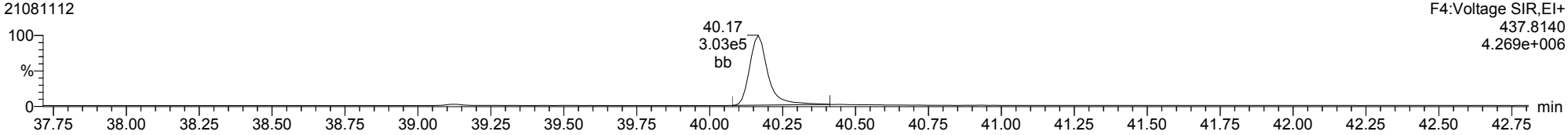

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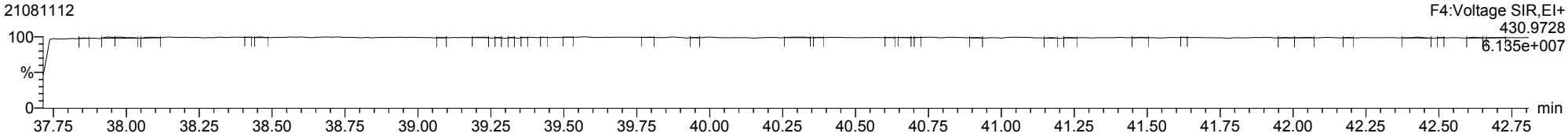

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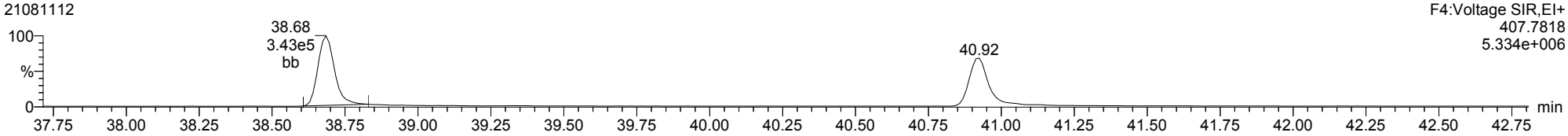

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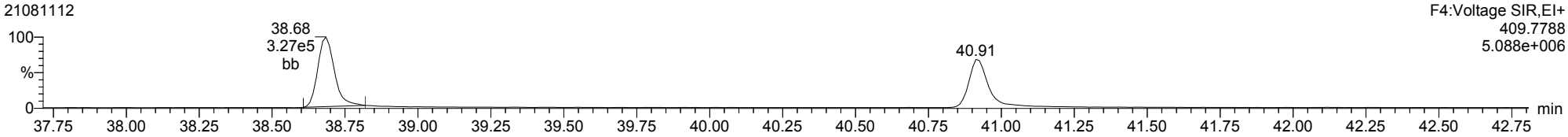

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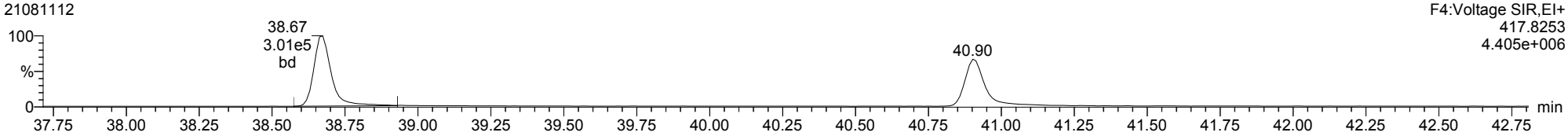

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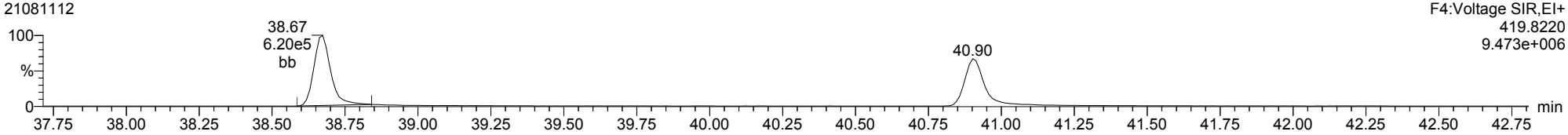
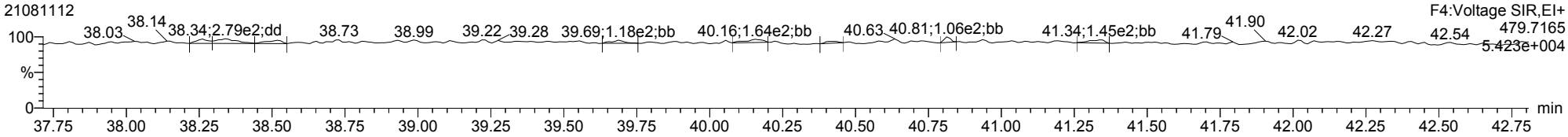


FUNCTION4 NCDPE



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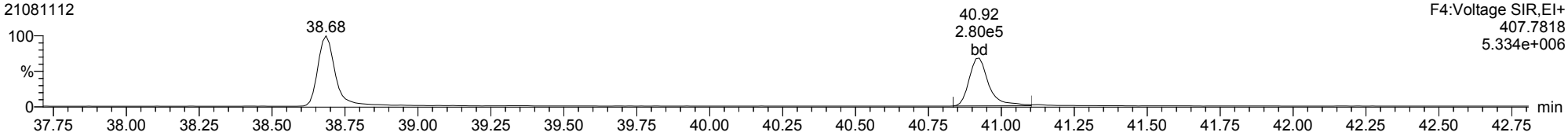

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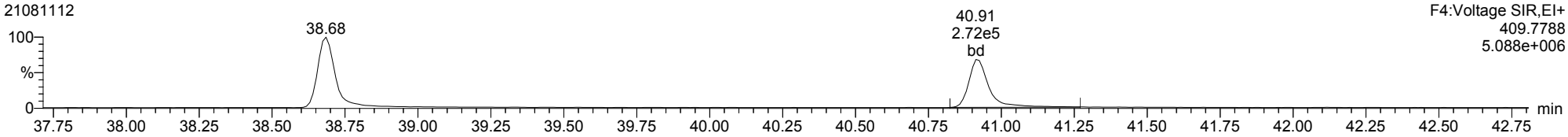

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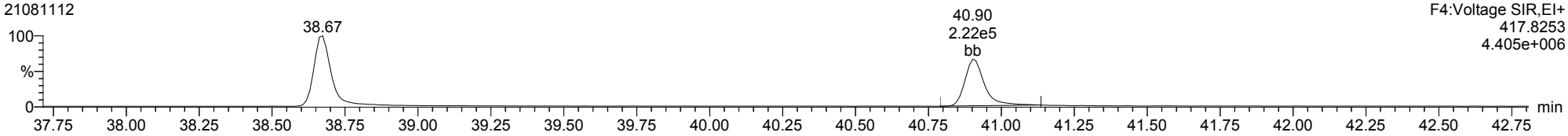

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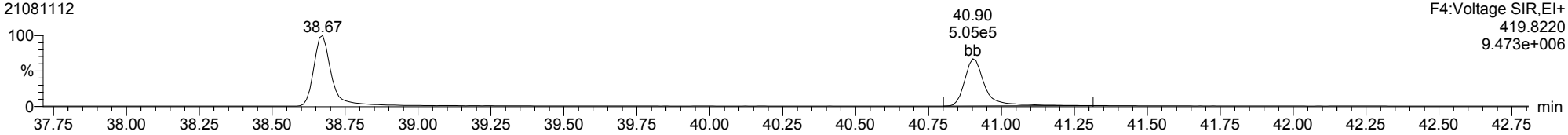
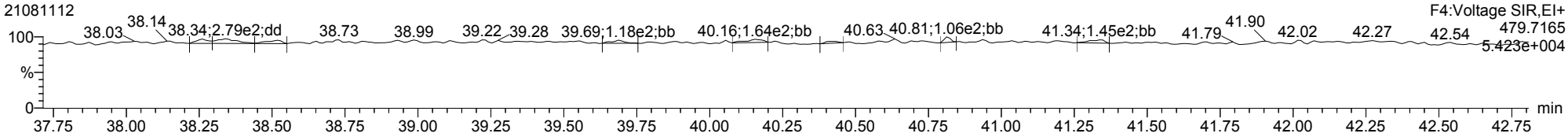


FUNCTION4 NCDPE



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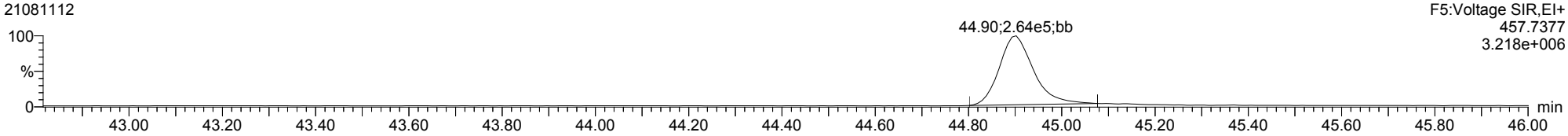
OCDD



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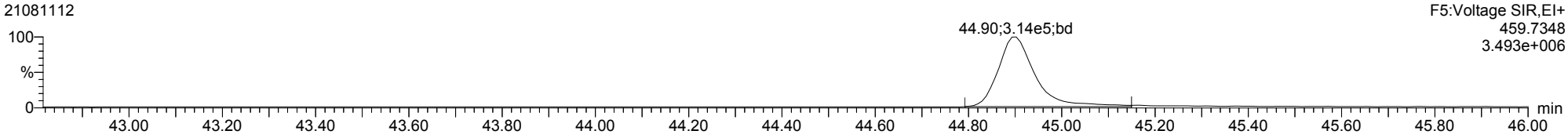

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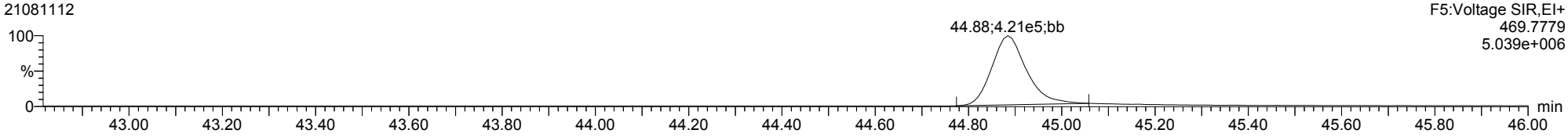

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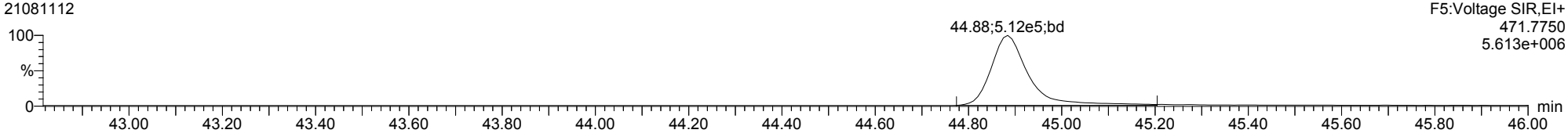

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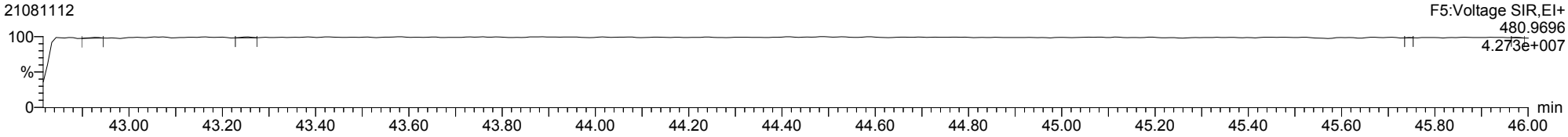

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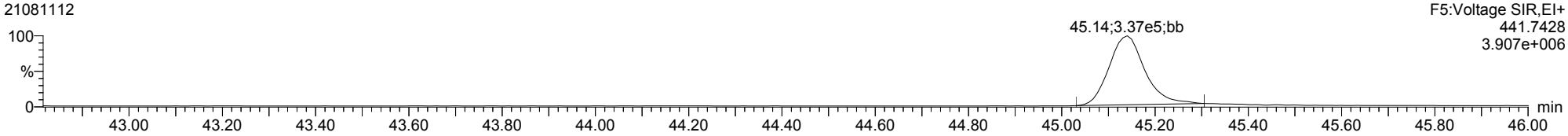
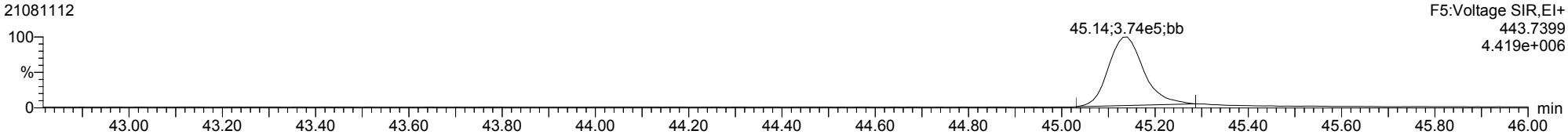
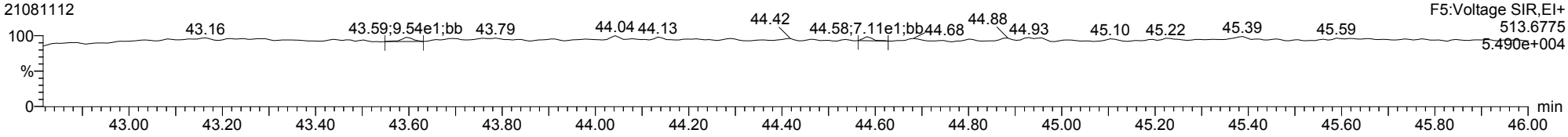


OCDF



FUNCTION5 DCDPE



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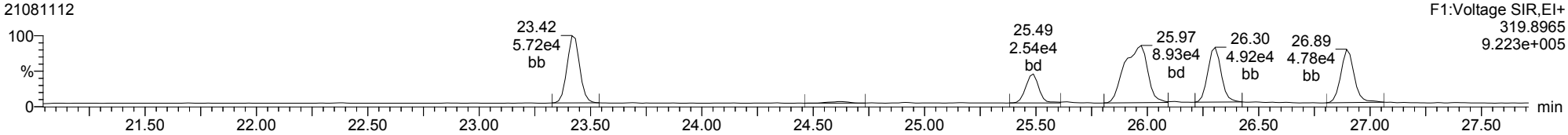
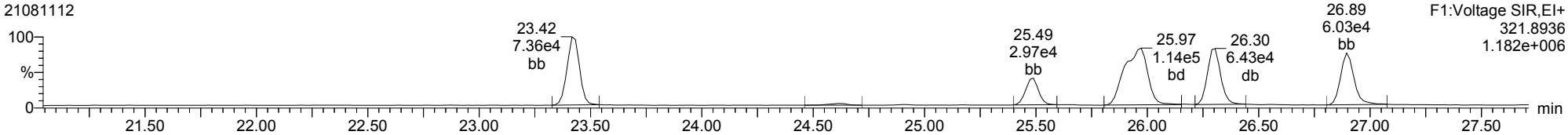


Total-tetradioxins



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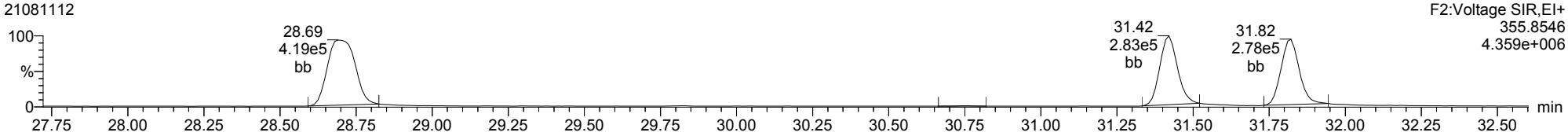
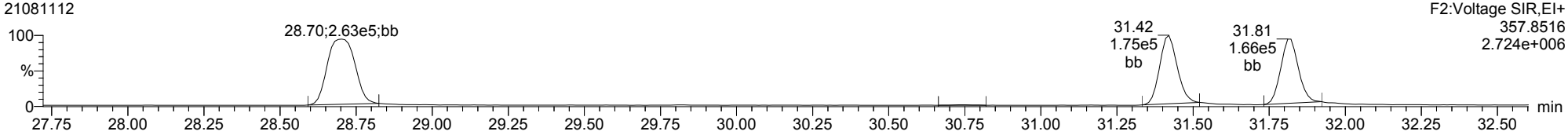


Total-pentadioxins



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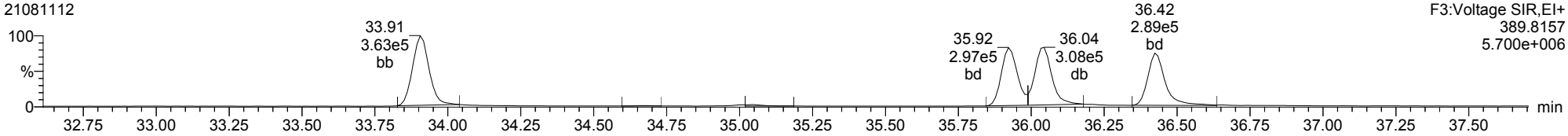
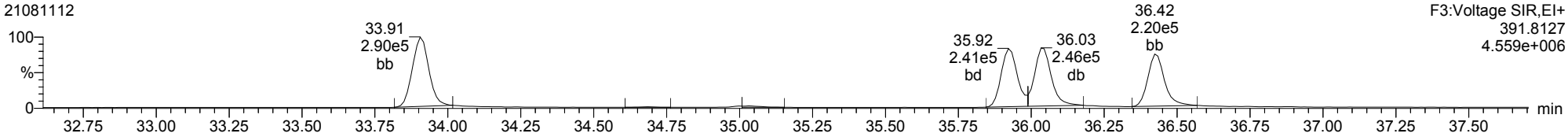
Total-hexadioxins



Total-hexadioxins



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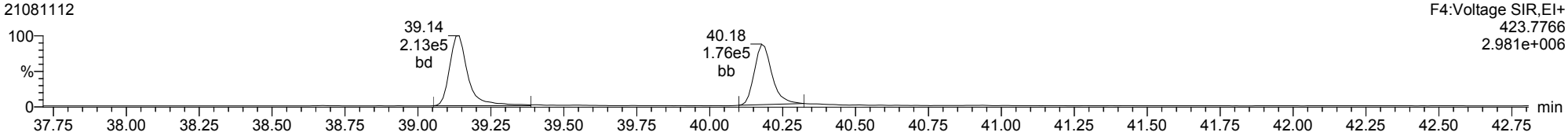

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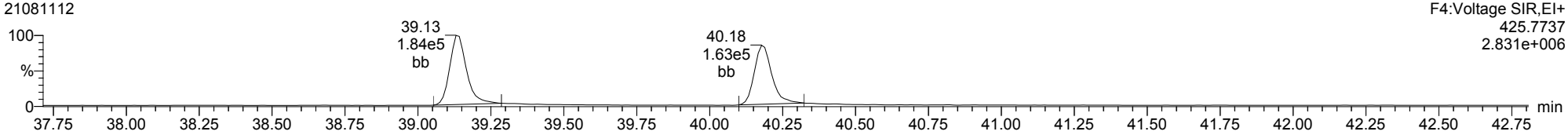

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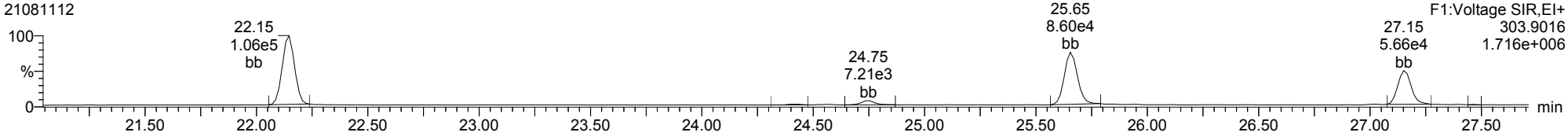

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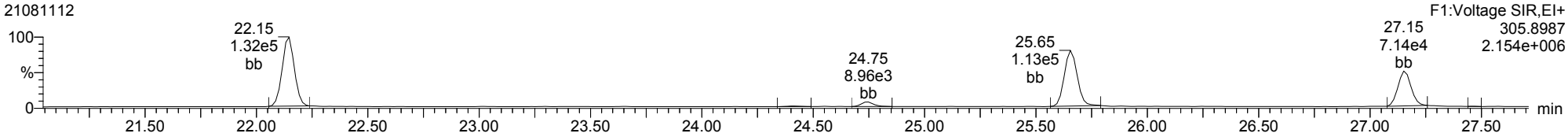

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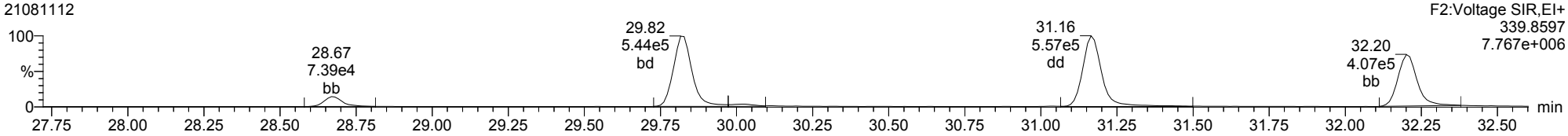

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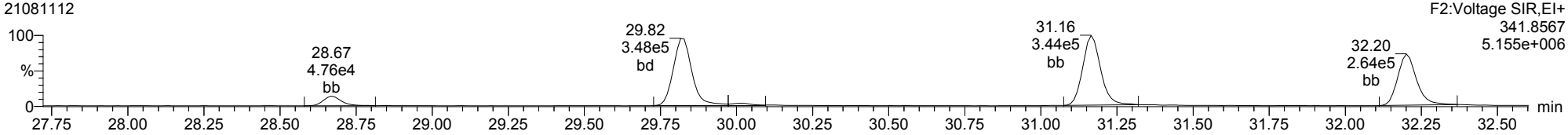

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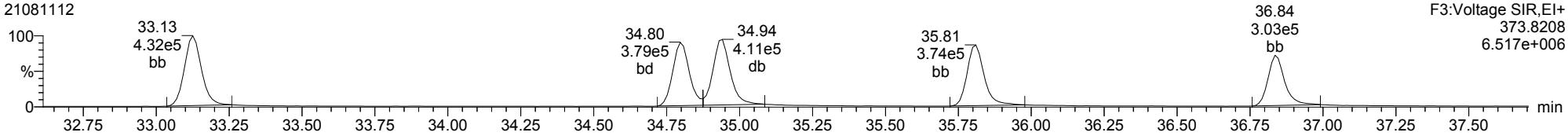
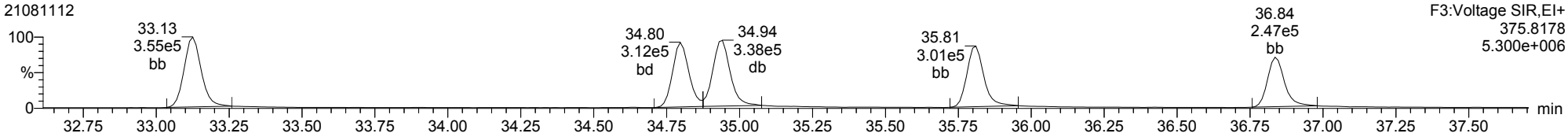
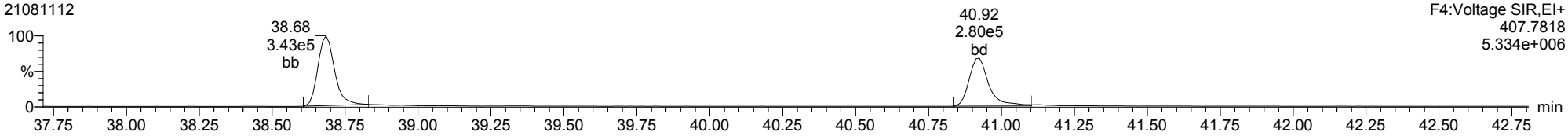
Total-hexafurans



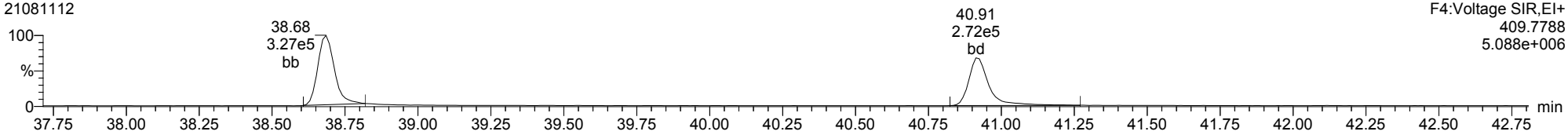
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092022A	Calibration Date:	08/11/2021
Sequence:	SJI0282	Injection Date:	09/21/21
Lab Sample ID:	SJI0282-ICV1	Injection Time:	09:36
Sequence Name:	CS3S3		

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	9.00	1.1075930	0.9971538		-10.0	+/-16
2,3,7,8-TCDD	A	10.000	9.81	0.9202875	0.9030215		-1.9	+/-22
1,2,3,7,8-PeCDF	A	50.000	44.1	1.0148670	0.8955406		-11.8	+/-18
2,3,4,7,8-PeCDF	A	50.000	44.5	1.1255490	1.0023210		-10.9	+/-18
1,2,3,7,8-PeCDD	A	50.000	48.9	0.9953229	0.9742293		-2.1	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.6	1.0168930	0.9675911		-4.8	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	47.8	1.0368310	0.9902760		-4.5	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	47.0	1.0524660	0.9898356		-6.0	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	46.7	1.0301540	0.9630725		-6.5	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.3	1.0273630	0.9713503		-5.5	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	47.7	1.0089800	0.9634866		-4.5	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.2	0.9504865	0.9552367		0.5	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	45.1	1.3273500	1.1979120		-9.8	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	45.9	1.2833380	1.1774090		-8.3	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	46.7	1.0680880	0.9968081		-6.7	+/-14
OCDF	A	100.00	74.1	1.4469010	1.0728520		-25.9	+/-37
OCDD	A	100.00	89.1	1.1808230	1.0526300		-10.9	+/-21
13C12-2,3,7,8-TCDF	A	100.00	95.2	1.4265830	1.3582032		-4.8	+/-29
13C12-2,3,7,8-TCDD	A	100.00	105	1.1164910	1.1764820		5.4	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	85.2	1.2973130	1.1049153		-14.8	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	83.1	1.2364800	1.0280804		-16.9	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	93.3	0.7319833	0.6825818		-6.7	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	93.6	1.2424560	1.1634992		-6.4	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	85.9	1.3434760	1.1547172		-14.1	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	88.2	1.2148550	1.0712828		-11.8	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	91.2	1.0076370	0.9187089		-8.8	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	98.4	0.9598233	0.9445651		-1.6	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	93.9	1.0413850	0.9777363		-6.1	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	72.7	0.9264704	0.6734246		-27.3	+/-22 *
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	69.9	0.7579160	0.5298441		-30.1	+/-23 *
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	83.9	0.6324476	0.5303382		-16.1	+/-28

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092022A	Calibration Date:	08/11/2021
Sequence:	SJI0282	Injection Date:	09/21/21
Lab Sample ID:	SJI0282-ICV1	Injection Time:	09:36
Sequence Name:	CS3S3		

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-OCDD	A	200.00	154	0.5037432	0.3866381		-23.2	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.85	1.0835930	1.0676427		-1.5	

* Values outside of QC limits

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ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	4.116e4	5.541e4	1.108	0.743	0.770	615	853	6.04e5	8.02e5	982.7	940.7	NO	bb	bb	9.003
12378-PeCDF	29.931	1.001	2.132e5	1.396e5	1.015	1.528	1.550	1437	966	3.27e6	2.11e6	2275.2	2184.4	NO	bb	bb	44.121
23478-PeCDF	31.268	1.000	2.231e5	1.442e5	1.126	1.547	1.550	1437	966	3.49e6	2.24e6	2430.3	2319.9	NO	bb	bb	44.526
123478-HxCDF	34.889	1.000	1.998e5	1.706e5	1.017	1.171	1.240	1571	1394	3.22e6	2.75e6	2051.7	1972.4	NO	bd	bd	47.576
234678-HxCDF	35.903	1.001	1.895e5	1.593e5	1.052	1.189	1.240	1571	1394	3.15e6	2.61e6	2006.3	1872.8	NO	bb	bb	47.025
123678-HxCDF	35.034	1.001	2.041e5	1.721e5	1.037	1.186	1.240	1571	1394	3.28e6	2.74e6	2089.7	1969.2	NO	db	db	47.755
123789-HxCDF	36.939	1.001	1.584e5	1.327e5	1.030	1.194	1.240	1571	1394	2.54e6	2.14e6	1615.9	1535.2	NO	bb	bb	46.744
1234678-HpCDF	38.778	1.001	1.351e5	1.303e5	1.327	1.036	1.050	1192	1017	2.24e6	2.13e6	1876.7	2091.9	NO	bd	bd	45.124
1234789-HpCDF	41.017	1.000	1.034e5	1.018e5	1.283	1.015	1.050	1192	1017	1.43e6	1.41e6	1196.9	1385.6	NO	bd	bd	45.873
OCDF	45.270	1.006	1.282e5	1.447e5	1.447	0.886	0.890	510	1903	1.51e6	1.70e6	2952.5	892.7	NO	bb	bb	74.148
2378-TCDD	26.396	1.001	3.420e4	4.155e4	0.920	0.823	0.770	737	709	4.98e5	6.24e5	675.0	879.8	NO	bb	bb	9.812
12378-PeCDD	31.514	1.001	1.462e5	9.086e4	0.995	1.609	1.550	922	820	2.25e6	1.40e6	2439.2	1711.9	NO	bb	bb	48.940
123478-HxCDD	36.003	1.000	1.668e5	1.350e5	1.027	1.235	1.240	1533	1287	2.84e6	2.29e6	1854.2	1782.4	NO	bd	bd	47.274
123678-HxCDD	36.115	1.000	1.709e5	1.390e5	1.009	1.230	1.240	1533	1287	2.78e6	2.29e6	1812.4	1781.2	NO	db	db	47.746
123789-HxCDD	36.516	1.011	1.680e5	1.341e5	0.950	1.253	1.240	1533	1287	2.83e6	2.24e6	1842.5	1736.2	NO	bb	bb	50.250
1234678-HpCDD	40.271	1.000	8.969e4	8.422e4	1.068	1.065	1.050	846	822	1.41e6	1.33e6	1668.6	1611.4	NO	bb	bb	46.663
OCDD	45.023	1.000	1.263e5	1.414e5	1.181	0.893	0.890	1236	769	1.45e6	1.62e6	1172.2	2102.9	NO	bb	bb	89.144
13C-2378-TCDF	25.746	1.007	4.289e5	5.396e5	1.427	0.795	0.770	1252	916	6.50e6	8.17e6	5197.6	8916.7	NO	bb	bb	95.207
13C-12378-PeCDF	29.909	1.170	4.858e5	3.020e5	1.297	1.608	1.550	1753	1179	7.35e6	4.56e6	4191.7	3868.5	NO	bb	bb	85.169
13C-23478-PeCDF	31.257	1.223	4.515e5	2.816e5	1.236	1.603	1.550	1753	1179	6.91e6	4.31e6	3941.6	3657.2	NO	bb	bb	83.146
13C-123478-HxCDF	34.878	0.956	2.594e5	5.061e5	1.242	0.512	0.510	1872	3320	4.16e6	8.01e6	2219.5	2413.3	NO	bd	bd	93.645
13C-123678-HxCDF	35.012	0.959	2.606e5	4.992e5	1.343	0.522	0.510	1872	3320	4.29e6	8.16e6	2289.0	2457.9	NO	db	db	85.950
13C-234678-HxCDF	35.881	0.983	2.402e5	4.647e5	1.215	0.517	0.510	1872	3320	3.84e6	7.40e6	2053.5	2230.6	NO	bb	bb	88.182
13C-123789-HxCDF	36.917	1.012	2.052e5	3.992e5	1.008	0.514	0.510	1872	3320	3.48e6	6.83e6	1857.6	2058.0	NO	bb	bb	91.175
13C-1234678-HpCDF	38.755	1.062	1.405e5	3.026e5	0.926	0.464	0.440	1091	1131	2.26e6	4.87e6	2072.4	4304.2	NO	bd	bd	72.687
13C-1234789-HpCDF	41.006	1.124	1.101e5	2.385e5	0.758	0.461	0.440	1091	1131	1.57e6	3.34e6	1436.5	2955.8	NO	bd	bb	69.908
13C-1234-TCDD	25.564	0.000	3.066e5	4.064e5	1.000	0.754	0.770	1115	853	4.84e6	6.44e6	4340.0	7556.5	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	3.624e5	4.765e5	1.116	0.761	0.770	1115	853	5.46e6	7.19e6	4897.3	8429.8	NO	bb	bb	105.373
13C-12378-PeCDD	31.491	1.232	2.987e5	1.880e5	0.732	1.589	1.550	590	1078	4.63e6	2.90e6	7843.6	2689.9	NO	bb	bb	93.251
13C-123478-HxCDD	35.992	0.986	3.480e5	2.735e5	0.960	1.273	1.240	1004	1727	5.75e6	4.44e6	5727.9	2571.9	NO	bd	bd	98.410
13C-123678-HxCDD	36.104	0.989	3.587e5	2.846e5	1.041	1.260	1.240	1004	1727	5.97e6	4.75e6	5947.0	2751.7	NO	db	db	93.888
13C-1234678-HpCDD	40.259	1.103	1.777e5	1.713e5	0.632	1.037	1.050	1062	907	2.74e6	2.62e6	2583.2	2891.2	NO	bb	bb	83.855
13C-OCDD	45.004	1.233	2.417e5	2.671e5	0.504	0.905	0.890	975	1165	2.70e6	3.05e6	2765.8	2613.9	NO	bb	bb	153.506
13C-123789-HxCDD	36.494	0.000	3.664e5	2.916e5	1.000	1.256	1.240	1004	1727	5.94e6	4.80e6	5913.1	2777.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	7.613e4		1.084			1208		1.12e6		923.5			bb		9.853

Dataset: T:\Autospec\Processed Data Batch\210920D2.qld
Last Altered: Tuesday, September 21, 2021 13:21:12 Pacific Daylight Time
Printed: Tuesday, September 21, 2021 13:29:48 Pacific Daylight Time

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	5.174e4	6.945e4	1.425	0.745	0.770	615	853	7.84e5	1.05e6	1275.8	1231.5	NO	bb	bb	8.781
1289-TCDF	27.272	1.059	3.864e4	5.261e4	1.043	0.734	0.770	615	853	5.64e5	7.61e5	918.1	892.2	NO	db	dd	9.035
13468-PECDF	27.106	0.906	3.651e5	2.378e5	1.376	1.535	1.550	685	550	5.58e6	3.64e6	8140.0	6611.6	NO	bb	bb	55.604
12389-PECDF	32.316	1.081	2.092e5	1.375e5	1.000	1.521	1.550	1437	966	3.14e6	2.07e6	2187.2	2139.4	NO	bb	bb	44.031
123468-HXCDF	33.218	0.952	2.116e5	1.798e5	1.087	1.177	1.240	1571	1394	3.29e6	2.82e6	2093.1	2021.2	NO	bb	bb	47.056
1368-TCDD	23.508	0.891	3.317e4	4.163e4	0.923	0.797	0.770	737	709	5.05e5	6.53e5	685.6	920.4	NO	bb	bb	9.658
1289-TCDD	27.015	1.024	2.887e4	3.611e4	0.794	0.800	0.770	737	709	4.16e5	5.13e5	564.1	723.5	NO	bb	bb	9.756
12479-PECDD	28.773	0.914	2.579e5	1.647e5	1.843	1.566	1.550	922	820	2.49e6	1.58e6	2695.7	1923.4	NO	bb	bb	47.113
12389-PECDD	31.926	1.014	1.723e5	1.064e5	1.154	1.619	1.550	922	820	2.67e6	1.67e6	2892.3	2035.6	NO	bb	bb	49.631
124679-HXCDD	33.998	0.945	1.899e5	1.502e5	1.125	1.265	1.240	1533	1287	2.99e6	2.36e6	1947.7	1829.4	NO	bb	bb	48.652
1234679-HPCDD	39.223	0.974	1.024e5	9.586e4	1.211	1.069	1.050	846	822	1.71e6	1.59e6	2024.4	1935.7	NO	bb	bb	46.930
Total-tetrafurans			1.322e5		1.192			615		1.96e6							26.966
Total-penta1			3.651e5					685		5.58e6							55.604
Total-pentafurans			6.819e5		1.047			1437		1.05e7							140.286
Total-hexafurans			9.634e5		1.045			1571		1.55e7							236.155
Total-heptafurans			2.385e5		1.305			1192		3.66e6							90.997
Total-Furans			2.509e6		1.158			615		3.87e7							624.157
Total-tetradioxins			1.631e5		0.879			737		2.19e6							49.922
Total-pentadioxins			5.764e5		1.331			922		7.40e6							145.684
Total-hexadioxins			6.957e5		1.028			1533		1.14e7							193.921
Total-heptadioxins			1.921e5		1.140			846		3.12e6							93.593
Total-Dioxins			1.754e6		1.092			737		2.56e7							572.265
Total-TEQ			4.263e6					737		6.43e7							1196.422
FUNCTION1 PFK			2.073e5					263896		5.77e6							
FUNCTION2 PFK			9.201e4					155296		3.06e6							0.000
FUNCTION3 PFK			2.209e5					192669		6.19e6							0.000
FUNCTION4 PFK			1.221e5					133682		3.65e6							
FUNCTION5 PFK			5.656e5					100519		9.64e6							
FUNCTION1 HXCD...			6.565e2					472		5.98e3							0.000
FUNCTION1 HPCD...			5.265e2					501		6.49e3							0.000
FUNCTION2 HPCD...			4.031e2					518		6.43e3							0.000
FUNCTION3 OCDPE			1.837e2					408		3.08e3							0.000
FUNCTION4 NCDPE			8.073e1					600		1.27e3							0.000
FUNCTION5 DCDPE			0.000e0					467		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210920D2.qld
Last Altered: Tuesday, September 21, 2021 13:21:12 Pacific Daylight Time
Printed: Tuesday, September 21, 2021 13:29:48 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	3.864e4	5.261e4	1.043	0.73	0.77	918.1	YES	NO	db	dd	9.035
2	Total-tetrafurans	27.12	6.860e2	1.014e3	1.192	0.68	0.77	15.0	YES	NO	bd	bd	0.147
3	2378-TCDF	25.78	4.116e4	5.541e4	1.108	0.74	0.77	982.7	YES	NO	bb	bb	9.003
4	1368-TCDF	22.24	5.174e4	6.945e4	1.425	0.75	0.77	1275.8	YES	NO	bb	bb	8.781

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.11	3.651e5	2.378e5	1.376	1.54	1.55	8140.0	YES	NO	bb	bb	55.604

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.32	2.092e5	1.375e5	1.000	1.52	1.55	2187.2	YES	NO	bb	bb	44.031
2	23478-PeCDF	31.27	2.231e5	1.442e5	1.126	1.55	1.55	2430.3	YES	NO	bb	bb	44.526
3	12378-PeCDF	29.93	2.132e5	1.396e5	1.015	1.53	1.55	2275.2	YES	NO	bb	bb	44.121
4	Total-pentafurans	28.77	3.637e4	2.419e4	1.047	1.50	1.55	398.2	YES	NO	bb	bb	7.608

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	1.584e5	1.327e5	1.030	1.19	1.24	1615.9	YES	NO	bb	bb	46.744
2	234678-HxCDF	35.90	1.895e5	1.593e5	1.052	1.19	1.24	2006.3	YES	NO	bb	bb	47.025
3	123678-HxCDF	35.03	2.041e5	1.721e5	1.037	1.19	1.24	2089.7	YES	NO	db	db	47.755
4	123478-HxCDF	34.89	1.998e5	1.706e5	1.017	1.17	1.24	2051.7	YES	NO	bd	bd	47.576
5	123468-HXCDF	33.22	2.116e5	1.798e5	1.087	1.18	1.24	2093.1	YES	NO	bb	bb	47.056

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.78	1.351e5	1.303e5	1.327	1.04	1.05	1876.7	YES	NO	bd	bd	45.124
2	1234789-HpCDF	41.02	1.034e5	1.018e5	1.283	1.02	1.05	1196.9	YES	NO	bd	bd	45.873

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	3.864e4	5.261e4	1.043	0.73	0.77	918.1	YES	NO	db	dd	9.035
2	Total-tetrafurans	27.12	6.860e2	1.014e3	1.192	0.68	0.77	15.0	YES	NO	bd	bd	0.147
3	2378-TCDF	25.78	4.116e4	5.541e4	1.108	0.74	0.77	982.7	YES	NO	bb	bb	9.003
4	1368-TCDF	22.24	5.174e4	6.945e4	1.425	0.75	0.77	1275.8	YES	NO	bb	bb	8.781
5	12389-PECDF	32.32	2.092e5	1.375e5	1.000	1.52	1.55	2187.2	YES	NO	bb	bb	44.031
6	23478-PeCDF	31.27	2.231e5	1.442e5	1.126	1.55	1.55	2430.3	YES	NO	bb	bb	44.526
7	12378-PeCDF	29.93	2.132e5	1.396e5	1.015	1.53	1.55	2275.2	YES	NO	bb	bb	44.121
8	Total-pentafurans	28.77	3.637e4	2.419e4	1.047	1.50	1.55	398.2	YES	NO	bb	bb	7.608
9	123789-HxCDF	36.94	1.584e5	1.327e5	1.030	1.19	1.24	1615.9	YES	NO	bb	bb	46.744
10	234678-HxCDF	35.90	1.895e5	1.593e5	1.052	1.19	1.24	2006.3	YES	NO	bb	bb	47.025
11	123678-HxCDF	35.03	2.041e5	1.721e5	1.037	1.19	1.24	2089.7	YES	NO	db	db	47.755
12	123478-HxCDF	34.89	1.998e5	1.706e5	1.017	1.17	1.24	2051.7	YES	NO	bd	bd	47.576
13	123468-HXCDF	33.22	2.116e5	1.798e5	1.087	1.18	1.24	2093.1	YES	NO	bb	bb	47.056
14	1234678-HpCDF	38.78	1.351e5	1.303e5	1.327	1.04	1.05	1876.7	YES	NO	bd	bd	45.124
15	1234789-HpCDF	41.02	1.034e5	1.018e5	1.283	1.02	1.05	1196.9	YES	NO	bd	bd	45.873
16	OCDF	45.27	1.282e5	1.447e5	1.447	0.89	0.89	2952.5	YES	NO	bb	bb	74.148
17	13468-PECDF	27.11	3.651e5	2.378e5	1.376	1.54	1.55	8140.0	YES	NO	bb	bb	55.604

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.51	3.317e4	4.163e4	0.923	0.80	0.77	685.6	YES	NO	bb	bb	9.658
2	1289-TCDD	27.02	2.887e4	3.611e4	0.794	0.80	0.77	564.1	YES	NO	bb	bb	9.756
3	2378-TCDD	26.40	3.420e4	4.155e4	0.920	0.82	0.77	675.0	YES	NO	bb	bb	9.812
4	Total-tetradioxins	26.08	4.935e4	6.332e4	0.879	0.78	0.77	690.0	YES	NO	bb	bb	15.277
5	Total-tetradioxins	25.59	1.586e4	2.014e4	0.879	0.79	0.77	329.3	YES	NO	bb	bb	4.880
6	Total-tetradioxins	24.99	3.778e2	5.081e2	0.879	0.74	0.77	8.2	YES	NO	bb	bb	0.120
7	Total-tetradioxins	24.72	1.264e3	1.828e3	0.879	0.69	0.77	19.4	YES	NO	bb	bb	0.419

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.93	1.723e5	1.064e5	1.154	1.62	1.55	2892.3	YES	NO	bb	bb	49.631
2	12378-PeCDD	31.51	1.462e5	9.086e4	0.995	1.61	1.55	2439.2	YES	NO	bb	bb	48.940
3	12479-PECDD	28.77	2.579e5	1.647e5	1.843	1.57	1.55	2695.7	YES	NO	bb	bb	47.113

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	1.680e5	1.341e5	0.950	1.25	1.24	1842.5	YES	NO	bb	bb	50.250
2	123678-HxCDD	36.11	1.709e5	1.390e5	1.009	1.23	1.24	1812.4	YES	NO	db	db	47.746
3	123478-HxCDD	36.00	1.668e5	1.350e5	1.027	1.24	1.24	1854.2	YES	NO	bd	bd	47.274
4	124679-HXCDD	34.00	1.899e5	1.502e5	1.125	1.26	1.24	1947.7	YES	NO	bb	bb	48.652

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	8.969e4	8.422e4	1.068	1.06	1.05	1668.6	YES	NO	bb	bb	46.663
2	1234679-HPCDD	39.22	1.024e5	9.586e4	1.211	1.07	1.05	2024.4	YES	NO	bb	bb	46.930

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	3.317e4	4.163e4	0.923	0.80	0.77	685.6	YES	NO	bb	bb	9.658
2	1289-TCDD	27.02	2.887e4	3.611e4	0.794	0.80	0.77	564.1	YES	NO	bb	bb	9.756
3	2378-TCDD	26.40	3.420e4	4.155e4	0.920	0.82	0.77	675.0	YES	NO	bb	bb	9.812
4	Total-tetradioxins	26.08	4.935e4	6.332e4	0.879	0.78	0.77	690.0	YES	NO	bb	bb	15.277
5	Total-tetradioxins	25.59	1.586e4	2.014e4	0.879	0.79	0.77	329.3	YES	NO	bb	bb	4.880
6	Total-tetradioxins	24.99	3.778e2	5.081e2	0.879	0.74	0.77	8.2	YES	NO	bb	bb	0.120
7	Total-tetradioxins	24.72	1.264e3	1.828e3	0.879	0.69	0.77	19.4	YES	NO	bb	bb	0.419
8	12389-PECDD	31.93	1.723e5	1.064e5	1.154	1.62	1.55	2892.3	YES	NO	bb	bb	49.631
9	12378-PeCDD	31.51	1.462e5	9.086e4	0.995	1.61	1.55	2439.2	YES	NO	bb	bb	48.940
10	12479-PECDD	28.77	2.579e5	1.647e5	1.843	1.57	1.55	2695.7	YES	NO	bb	bb	47.113
11	123789-HxCDD	36.52	1.680e5	1.341e5	0.950	1.25	1.24	1842.5	YES	NO	bb	bb	50.250
12	123678-HxCDD	36.11	1.709e5	1.390e5	1.009	1.23	1.24	1812.4	YES	NO	db	db	47.746
13	123478-HxCDD	36.00	1.668e5	1.350e5	1.027	1.24	1.24	1854.2	YES	NO	bd	bd	47.274
14	124679-HXCDD	34.00	1.899e5	1.502e5	1.125	1.26	1.24	1947.7	YES	NO	bb	bb	48.652
15	OCDD	45.02	1.263e5	1.414e5	1.181	0.89	0.89	1172.2	YES	NO	bb	bb	89.144
16	1234678-HpCDD	40.27	8.969e4	8.422e4	1.068	1.06	1.05	1668.6	YES	NO	bb	bb	46.663
17	1234679-HPCDD	39.22	1.024e5	9.586e4	1.211	1.07	1.05	2024.4	YES	NO	bb	bb	46.930

Dataset: T:\Autospec\Processed Data Batch\210920D2.qld
Last Altered: Tuesday, September 21, 2021 13:21:12 Pacific Daylight Time
Printed: Tuesday, September 21, 2021 13:29:48 Pacific Daylight Time

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	3.864e4	5.261e4	1.043	0.73	0.77	918.1	YES	NO	db	dd	9.035
2	Total-tetrafurans	27.12	6.860e2	1.014e3	1.192	0.68	0.77	15.0	YES	NO	bd	bd	0.147
3	2378-TCDF	25.78	4.116e4	5.541e4	1.108	0.74	0.77	982.7	YES	NO	bb	bb	9.003
4	1368-TCDF	22.24	5.174e4	6.945e4	1.425	0.75	0.77	1275.8	YES	NO	bb	bb	8.781
5	12389-PECDF	32.32	2.092e5	1.375e5	1.000	1.52	1.55	2187.2	YES	NO	bb	bb	44.031
6	23478-PeCDF	31.27	2.231e5	1.442e5	1.126	1.55	1.55	2430.3	YES	NO	bb	bb	44.526
7	12378-PeCDF	29.93	2.132e5	1.396e5	1.015	1.53	1.55	2275.2	YES	NO	bb	bb	44.121
8	Total-pentafurans	28.77	3.637e4	2.419e4	1.047	1.50	1.55	398.2	YES	NO	bb	bb	7.608
9	123789-HxCDF	36.94	1.584e5	1.327e5	1.030	1.19	1.24	1615.9	YES	NO	bb	bb	46.744
10	234678-HxCDF	35.90	1.895e5	1.593e5	1.052	1.19	1.24	2006.3	YES	NO	bb	bb	47.025
11	123678-HxCDF	35.03	2.041e5	1.721e5	1.037	1.19	1.24	2089.7	YES	NO	db	db	47.755
12	123478-HxCDF	34.89	1.998e5	1.706e5	1.017	1.17	1.24	2051.7	YES	NO	bd	bd	47.576
13	123468-HXCDF	33.22	2.116e5	1.798e5	1.087	1.18	1.24	2093.1	YES	NO	bb	bb	47.056
14	1234678-HpCDF	38.78	1.351e5	1.303e5	1.327	1.04	1.05	1876.7	YES	NO	bd	bd	45.124
15	1234789-HpCDF	41.02	1.034e5	1.018e5	1.283	1.02	1.05	1196.9	YES	NO	bd	bd	45.873
16	OCDF	45.27	1.282e5	1.447e5	1.447	0.89	0.89	2952.5	YES	NO	bb	bb	74.148
17	13468-PECDF	27.11	3.651e5	2.378e5	1.376	1.54	1.55	8140.0	YES	NO	bb	bb	55.604
18	1368-TCDD	23.51	3.317e4	4.163e4	0.923	0.80	0.77	685.6	YES	NO	bb	bb	9.658
19	1289-TCDD	27.02	2.887e4	3.611e4	0.794	0.80	0.77	564.1	YES	NO	bb	bb	9.756
20	2378-TCDD	26.40	3.420e4	4.155e4	0.920	0.82	0.77	675.0	YES	NO	bb	bb	9.812
21	Total-tetradioxins	26.08	4.935e4	6.332e4	0.879	0.78	0.77	690.0	YES	NO	bb	bb	15.277
22	Total-tetradioxins	25.59	1.586e4	2.014e4	0.879	0.79	0.77	329.3	YES	NO	bb	bb	4.880
23	Total-tetradioxins	24.99	3.778e2	5.081e2	0.879	0.74	0.77	8.2	YES	NO	bb	bb	0.120
24	Total-tetradioxins	24.72	1.264e3	1.828e3	0.879	0.69	0.77	19.4	YES	NO	bb	bb	0.419
25	12389-PECDD	31.93	1.723e5	1.064e5	1.154	1.62	1.55	2892.3	YES	NO	bb	bb	49.631
26	12378-PeCDD	31.51	1.462e5	9.086e4	0.995	1.61	1.55	2439.2	YES	NO	bb	bb	48.940
27	12479-PECDD	28.77	2.579e5	1.647e5	1.843	1.57	1.55	2695.7	YES	NO	bb	bb	47.113
28	123789-HxCDD	36.52	1.680e5	1.341e5	0.950	1.25	1.24	1842.5	YES	NO	bb	bb	50.250
29	123678-HxCDD	36.11	1.709e5	1.390e5	1.009	1.23	1.24	1812.4	YES	NO	db	db	47.746
30	123478-HxCDD	36.00	1.668e5	1.350e5	1.027	1.24	1.24	1854.2	YES	NO	bd	bd	47.274
31	124679-HXCDD	34.00	1.899e5	1.502e5	1.125	1.26	1.24	1947.7	YES	NO	bb	bb	48.652
32	OCDD	45.02	1.263e5	1.414e5	1.181	0.89	0.89	1172.2	YES	NO	bb	bb	89.144
33	1234678-HpCDD	40.27	8.969e4	8.422e4	1.068	1.06	1.05	1668.6	YES	NO	bb	bb	46.663
34	1234679-HPCDD	39.22	1.024e5	9.586e4	1.211	1.07	1.05	2024.4	YES	NO	bb	bb	46.930

Dataset: T:\Autospec\Processed Data Batch\210920D2.qld
Last Altered: Tuesday, September 21, 2021 13:21:12 Pacific Daylight Time
Printed: Tuesday, September 21, 2021 13:29:48 Pacific Daylight Time

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	24.69	9.215e3					0.9	NO		bb		
2	FUNCTION1 PFK	24.48	5.666e3					0.9	NO		bb		
3	FUNCTION1 PFK	24.17	1.394e4					1.5	NO		bb		
4	FUNCTION1 PFK	23.36	9.190e3					1.1	NO		bb		
5	FUNCTION1 PFK	22.16	1.118e4					1.3	NO		bb		
6	FUNCTION1 PFK	21.60	2.300e3					0.5	NO		db		
7	FUNCTION1 PFK	21.53	1.838e4					1.6	NO		bd		
8	FUNCTION1 PFK	21.33	8.220e3					1.3	NO		bb		
9	FUNCTION1 PFK	21.27	9.109e3					1.1	NO		bb		
10	FUNCTION1 PFK	21.21	1.268e4					1.8	NO		bb		
11	FUNCTION1 PFK	27.73	1.969e4					1.8	NO		db		
12	FUNCTION1 PFK	27.65	2.934e4					2.1	NO		bd		
13	FUNCTION1 PFK	27.18	4.123e3					0.7	NO		bb		
14	FUNCTION1 PFK	26.20	2.136e4					1.7	NO		bb		
15	FUNCTION1 PFK	26.12	2.672e3					0.7	NO		bb		
16	FUNCTION1 PFK	25.72	2.260e4					1.4	NO		bb		
17	FUNCTION1 PFK	25.53	4.058e3					0.7	NO		bb		
18	FUNCTION1 PFK	25.34	1.900e3					0.5	NO		bb		
19	FUNCTION1 PFK	25.00	1.731e3					0.4	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\210920D2.qld
Last Altered: Tuesday, September 21, 2021 13:21:12 Pacific Daylight Time
Printed: Tuesday, September 21, 2021 13:29:48 Pacific Daylight Time

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	28.80	5.340e3					1.2	NO		bb		0.000
2	FUNCTION2 PFK	28.65	4.843e3					1.3	NO		bb		0.000
3	FUNCTION2 PFK	28.51	4.870e3					1.3	NO		bb		0.000
4	FUNCTION2 PFK	28.34	1.859e3					0.7	NO		bb		0.000
5	FUNCTION2 PFK	28.27	8.371e3					1.9	NO		bb		0.000
6	FUNCTION2 PFK	28.23	5.283e3					1.3	NO		bb		0.000
7	FUNCTION2 PFK	32.67	6.547e3					1.3	NO		bb		0.000
8	FUNCTION2 PFK	32.04	5.229e3					1.1	NO		bb		0.000
9	FUNCTION2 PFK	31.74	8.063e2					0.5	NO		bb		0.000
10	FUNCTION2 PFK	31.65	3.658e3					0.8	NO		bb		0.000
11	FUNCTION2 PFK	31.05	1.268e4					1.5	NO		bb		0.000
12	FUNCTION2 PFK	30.20	1.055e4					1.6	NO		bb		0.000
13	FUNCTION2 PFK	29.41	7.220e3					1.3	NO		db		0.000
14	FUNCTION2 PFK	29.37	2.991e3					0.9	NO		bd		0.000
15	FUNCTION2 PFK	29.29	4.047e3					1.0	NO		bb		0.000
16	FUNCTION2 PFK	28.90	1.628e3					0.6	NO		db		0.000
17	FUNCTION2 PFK	28.85	6.091e3					1.5	NO		bd		0.000

Dataset: T:\Autospec\Processed Data Batch\210920D2.qld
Last Altered: Tuesday, September 21, 2021 13:21:12 Pacific Daylight Time
Printed: Tuesday, September 21, 2021 13:29:48 Pacific Daylight Time

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	33.98	7.733e3					1.5	NO		bb		0.000
2	FUNCTION3 PFK	33.72	1.198e4					1.6	NO		bb		0.000
3	FUNCTION3 PFK	33.45	5.862e3					1.2	NO		bb		0.000
4	FUNCTION3 PFK	33.41	2.375e3					0.7	NO		bb		0.000
5	FUNCTION3 PFK	37.82	2.907e3					0.8	NO		bb		0.000
6	FUNCTION3 PFK	37.76	1.846e4					1.6	NO		bb		0.000
7	FUNCTION3 PFK	37.54	1.890e4					2.1	NO		bb		0.000
8	FUNCTION3 PFK	36.91	5.557e3					1.5	NO		bb		0.000
9	FUNCTION3 PFK	36.76	8.221e3					1.8	NO		db		0.000
10	FUNCTION3 PFK	36.72	1.471e4					1.6	NO		bd		0.000
11	FUNCTION3 PFK	36.54	7.534e3					1.7	NO		db		0.000
12	FUNCTION3 PFK	36.53	7.376e3					1.2	NO		bd		0.000
13	FUNCTION3 PFK	36.40	4.701e4					3.9	YES		bb		0.000
14	FUNCTION3 PFK	36.36	6.801e3					2.0	NO		bb		0.000
15	FUNCTION3 PFK	36.26	9.644e2					0.4	NO		bb		0.000
16	FUNCTION3 PFK	35.86	8.710e3					1.8	NO		bb		0.000
17	FUNCTION3 PFK	35.68	6.610e3					1.3	NO		bb		0.000
18	FUNCTION3 PFK	35.35	1.115e3					0.5	NO		bb		0.000
19	FUNCTION3 PFK	34.73	1.154e4					2.0	NO		bb		0.000
20	FUNCTION3 PFK	34.41	2.655e4					2.9	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210920D2.qld
Last Altered: Tuesday, September 21, 2021 13:21:12 Pacific Daylight Time
Printed: Tuesday, September 21, 2021 13:29:48 Pacific Daylight Time

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	41.17	4.850e3					1.3	NO		db		
2	FUNCTION4 PFK	41.14	3.994e3					1.0	NO		bd		
3	FUNCTION4 PFK	40.89	1.535e3					0.7	NO		bb		
4	FUNCTION4 PFK	40.58	5.300e3					1.1	NO		bb		
5	FUNCTION4 PFK	40.08	2.606e3					0.8	NO		db		
6	FUNCTION4 PFK	40.04	4.409e3					1.2	NO		bd		
7	FUNCTION4 PFK	39.47	1.652e3					0.7	NO		bb		
8	FUNCTION4 PFK	39.18	4.056e3					1.0	NO		bb		
9	FUNCTION4 PFK	39.04	6.700e2					0.4	NO		bb		
10	FUNCTION4 PFK	38.98	5.033e3					1.4	NO		db		
11	FUNCTION4 PFK	38.93	5.054e3					1.3	NO		bd		
12	FUNCTION4 PFK	38.88	5.318e3					1.3	NO		bb		
13	FUNCTION4 PFK	38.73	5.917e2					0.4	NO		bb		
14	FUNCTION4 PFK	38.57	1.631e4					1.4	NO		bb		
15	FUNCTION4 PFK	38.03	9.334e3					1.8	NO		bb		
16	FUNCTION4 PFK	42.53	1.247e4					2.6	NO		bb		
17	FUNCTION4 PFK	42.35	2.016e4					2.8	NO		bb		
18	FUNCTION4 PFK	41.92	8.142e2					0.5	NO		bb		
19	FUNCTION4 PFK	41.82	1.476e3					0.6	NO		bb		
20	FUNCTION4 PFK	41.77	8.480e3					1.6	NO		bb		
21	FUNCTION4 PFK	41.60	1.937e3					0.7	NO		bb		
22	FUNCTION4 PFK	41.45	1.991e3					0.7	NO		bb		
23	FUNCTION4 PFK	41.28	2.348e3					0.9	NO		bb		
24	FUNCTION4 PFK	41.24	1.750e3					0.8	NO		bb		

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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	43.62	2.771e3					0.9	NO		bb		
2	FUNCTION5 PFK	43.36	1.159e4					3.5	YES		db		
3	FUNCTION5 PFK	43.32	4.810e4					6.2	YES		dd		
4	FUNCTION5 PFK	43.24	1.028e5					10.6	YES		dd		
5	FUNCTION5 PFK	43.13	8.104e4					16.7	YES		dd		
6	FUNCTION5 PFK	43.05	2.004e5					22.0	YES		bd		
7	FUNCTION5 PFK	45.39	1.619e3					0.9	NO		bb		
8	FUNCTION5 PFK	45.26	2.110e3					0.9	NO		bb		
9	FUNCTION5 PFK	45.10	1.608e4					2.3	NO		bb		
10	FUNCTION5 PFK	44.98	2.484e3					1.4	NO		db		
11	FUNCTION5 PFK	44.95	6.624e3					2.3	NO		dd		
12	FUNCTION5 PFK	44.91	1.604e4					3.5	YES		dd		
13	FUNCTION5 PFK	44.86	1.476e4					2.9	NO		bd		
14	FUNCTION5 PFK	44.78	9.261e3					2.3	NO		db		
15	FUNCTION5 PFK	44.73	9.014e3					2.5	NO		bd		
16	FUNCTION5 PFK	44.43	2.533e3					1.4	NO		db		
17	FUNCTION5 PFK	44.40	4.565e3					1.5	NO		bd		
18	FUNCTION5 PFK	44.07	1.006e3					0.7	NO		bb		
19	FUNCTION5 PFK	43.92	7.783e3					2.3	NO		bb		
20	FUNCTION5 PFK	43.82	7.392e3					2.4	NO		db		
21	FUNCTION5 PFK	43.80	3.417e3					1.9	NO		bd		
22	FUNCTION5 PFK	43.72	4.416e2					0.5	NO		bb		
23	FUNCTION5 PFK	45.88	7.009e2					0.8	NO		bb		
24	FUNCTION5 PFK	45.79	3.639e3					1.6	NO		bb		
25	FUNCTION5 PFK	45.70	8.478e2					0.7	NO		db		
26	FUNCTION5 PFK	45.67	4.758e2					0.5	NO		bd		
27	FUNCTION5 PFK	45.49	3.967e3					1.3	NO		db		
28	FUNCTION5 PFK	45.44	4.113e3					1.5	NO		bd		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.86	7.614e1					2.2	NO		db		0.000
2	FUNCTION1 HXCD...	27.64	2.304e2					4.5	YES		bd		0.000
3	FUNCTION1 HXCD...	27.12	1.416e2					3.4	YES		bb		0.000
4	FUNCTION1 HXCD...	24.11	2.084e2					2.6	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210920D2.qld
Last Altered: Tuesday, September 21, 2021 13:21:12 Pacific Daylight Time
Printed: Tuesday, September 21, 2021 13:29:48 Pacific Daylight Time

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, 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...	26.79	7.226e1					3.8	YES		bb		0.000
2	FUNCTION1 HPCD...	26.12	1.169e2					2.4	NO		bb		0.000
3	FUNCTION1 HPCD...	25.13	1.398e2					2.0	NO		bb		0.000
4	FUNCTION1 HPCD...	23.15	8.494e1					2.4	NO		bb		0.000
5	FUNCTION1 HPCD...	27.14	1.125e2					2.3	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...	31.61	7.335e1					3.3	YES		bb		0.000
2	FUNCTION2 HPCD...	31.09	3.298e2					9.1	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	36.13	7.636e1					4.1	YES		db		0.000
2	FUNCTION3 OCDPE	35.99	1.074e2					3.4	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	42.62	8.073e1					2.1	NO		bb		0.000

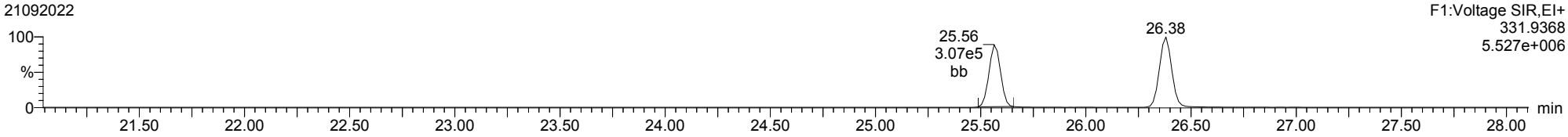
ETHERS6

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

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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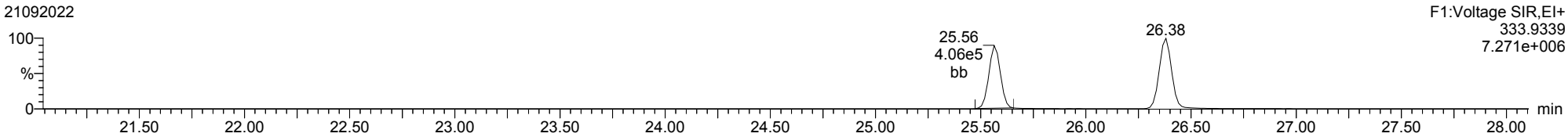
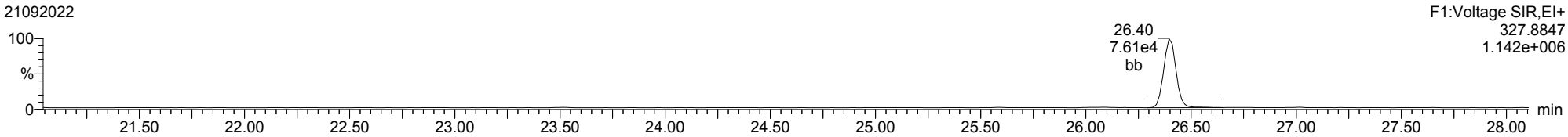


37CL-2378-TCDD



Dataset: T:\Autospec\Processed Data Batch\210920D2.qld
Last Altered: Tuesday, September 21, 2021 13:21:12 Pacific Daylight Time
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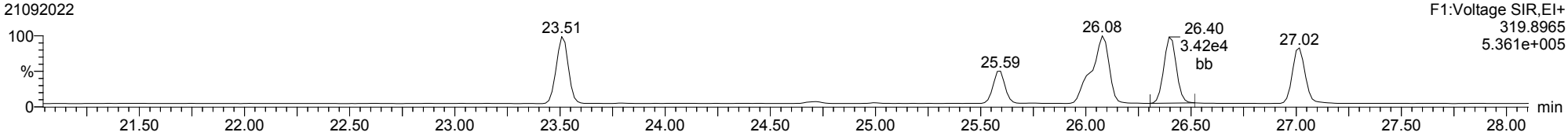
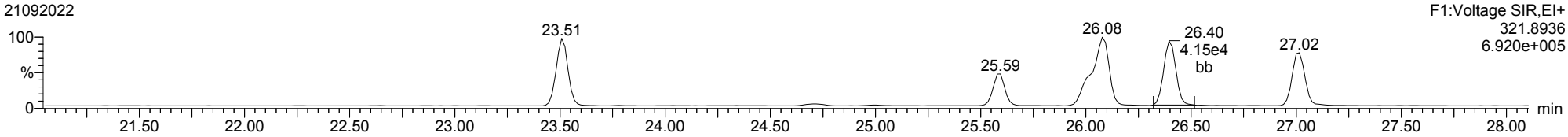
ID: CS3S3, Name: 21092022, Date: 21-Sep-2021, Time: 09:36:53, Conditions: AUTOSPEC01, User: pk

2378-TCDD



2378-TCDD



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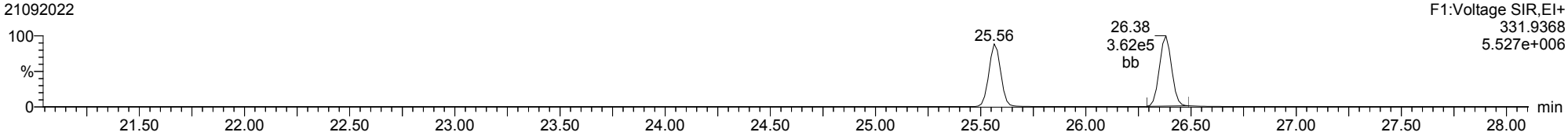

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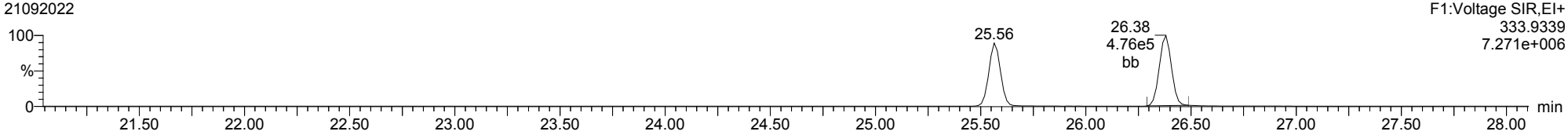

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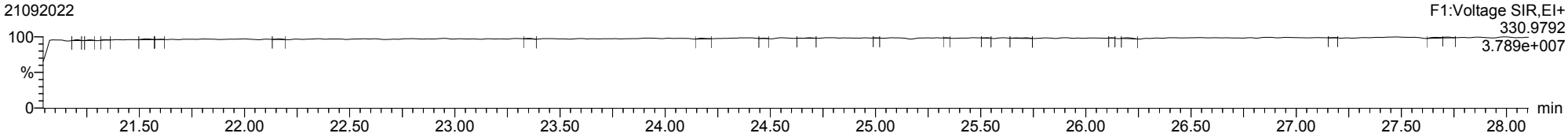

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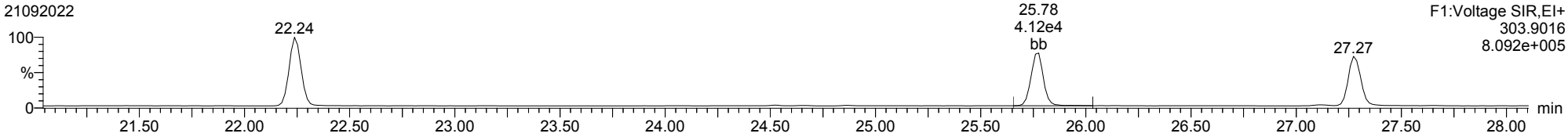

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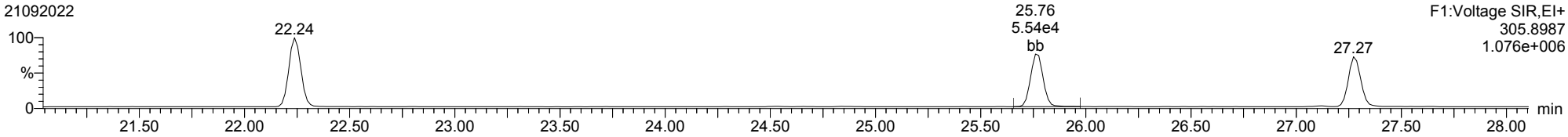

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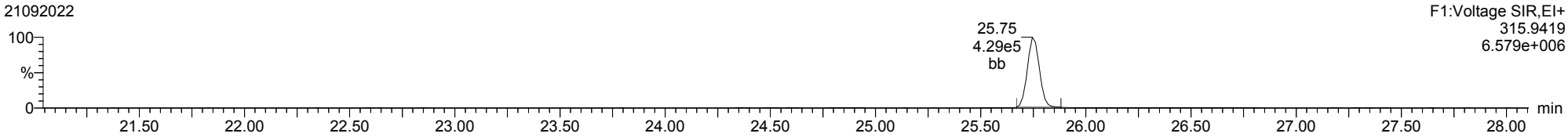

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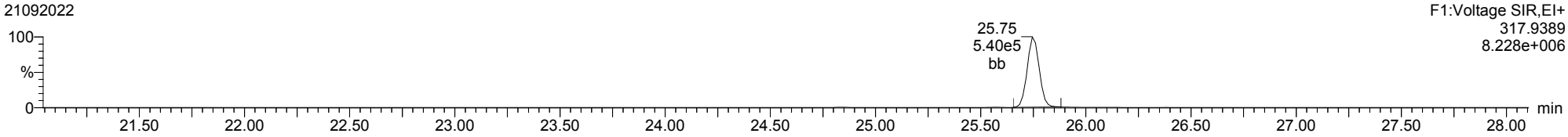

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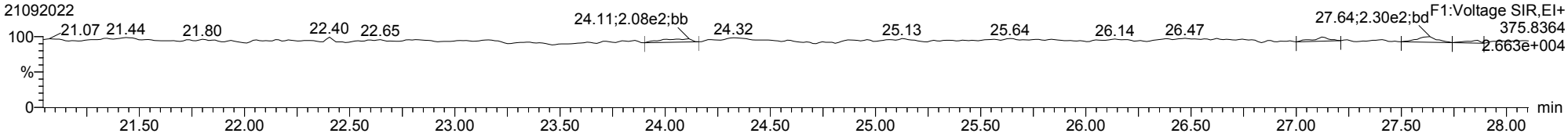

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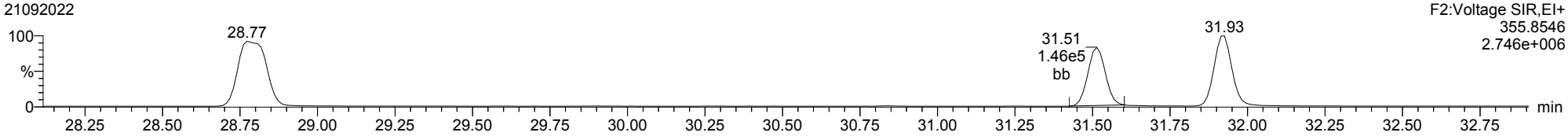
12378-PeCDD



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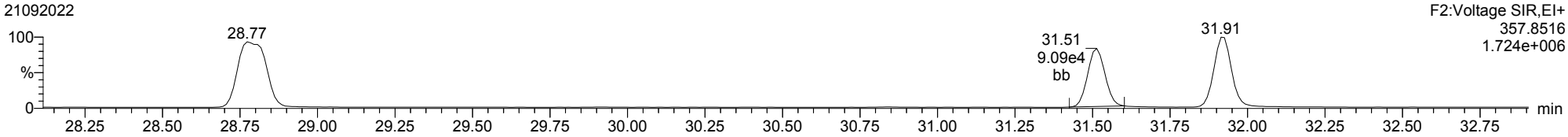

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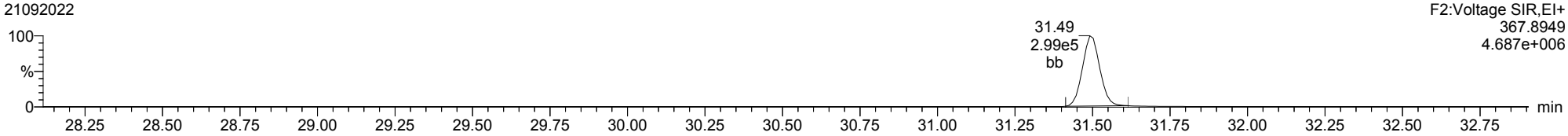

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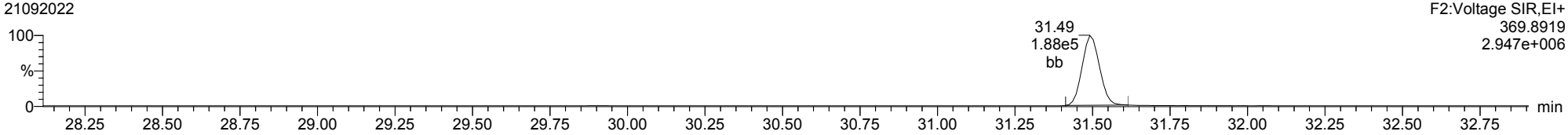

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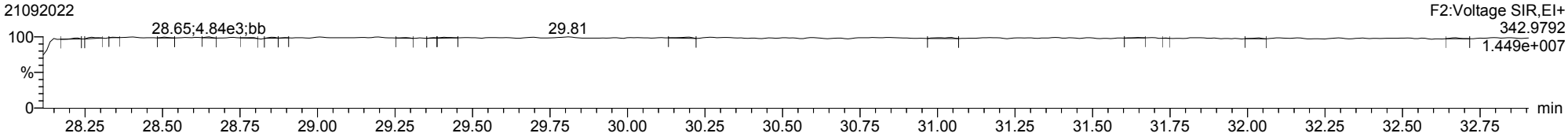

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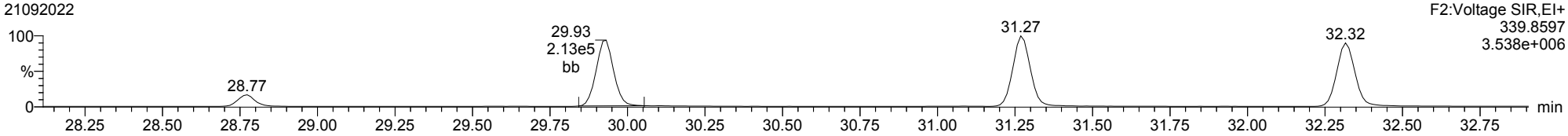

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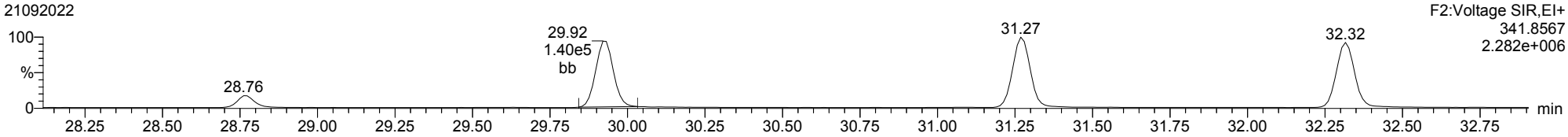

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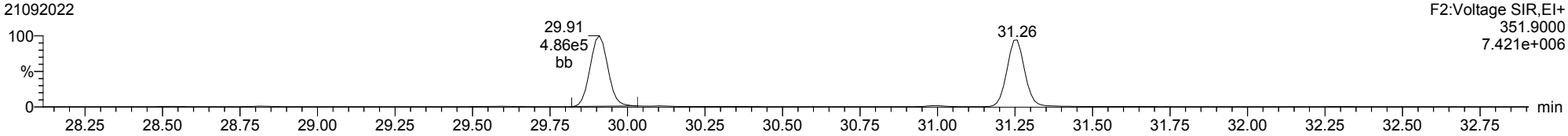

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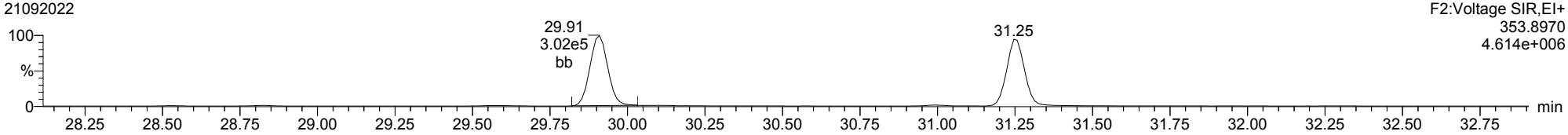

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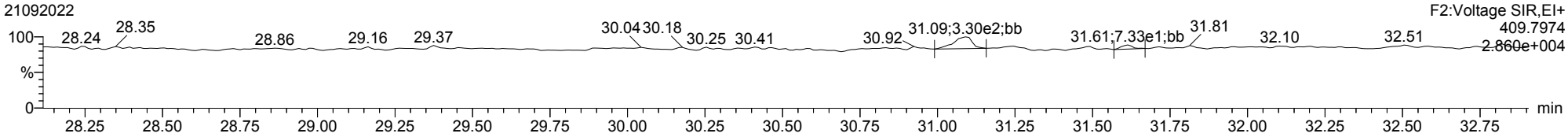

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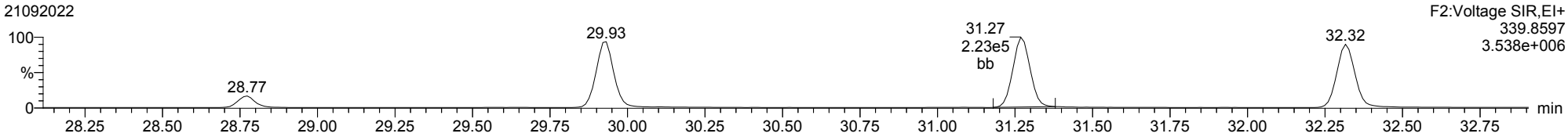
23478-PeCDF



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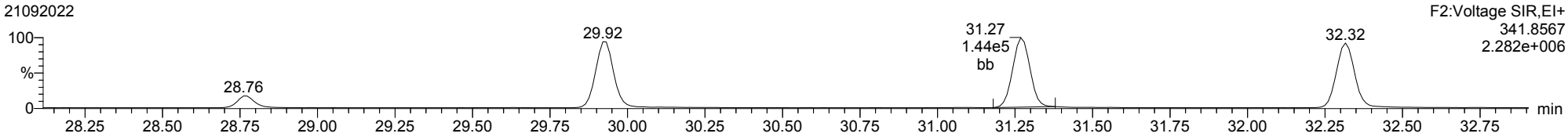

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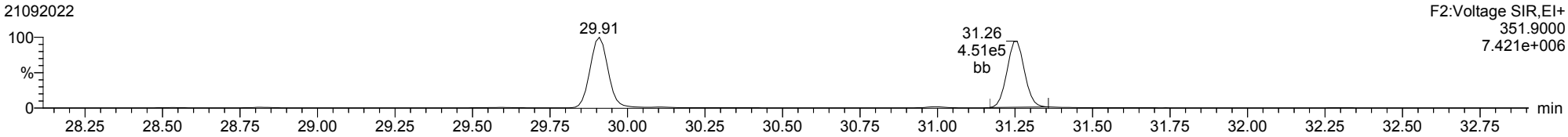

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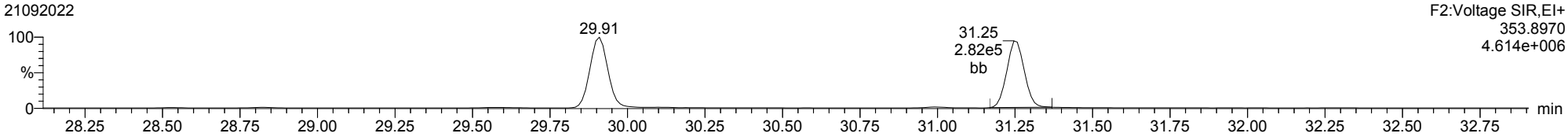

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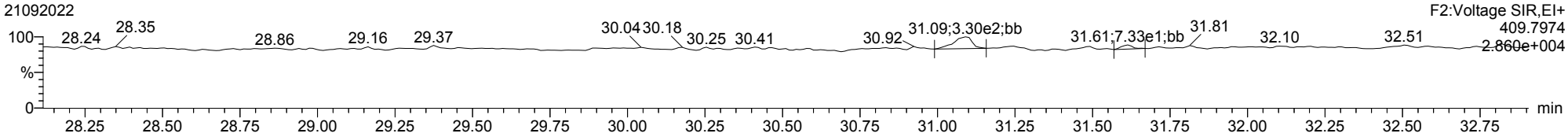

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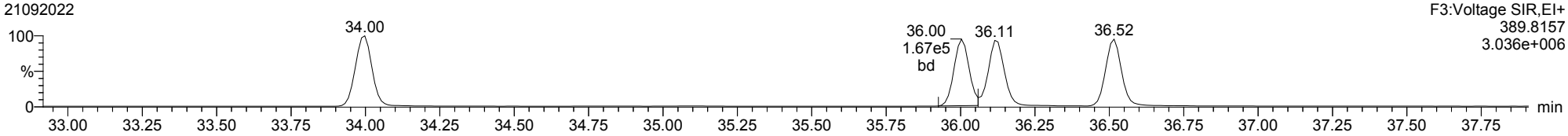

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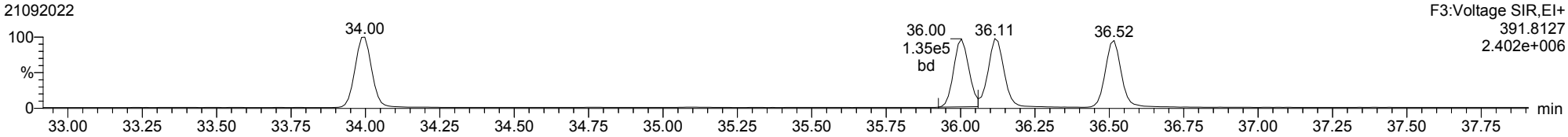

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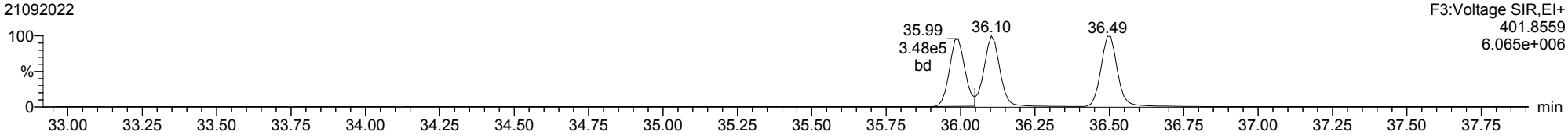

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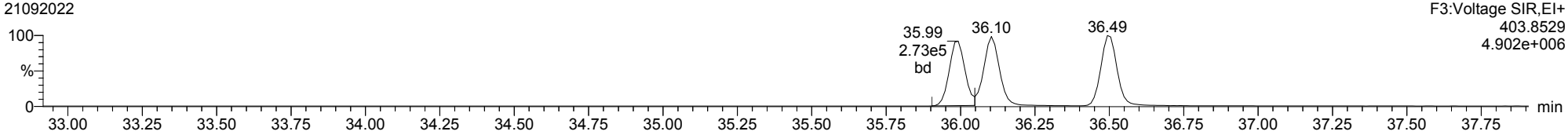
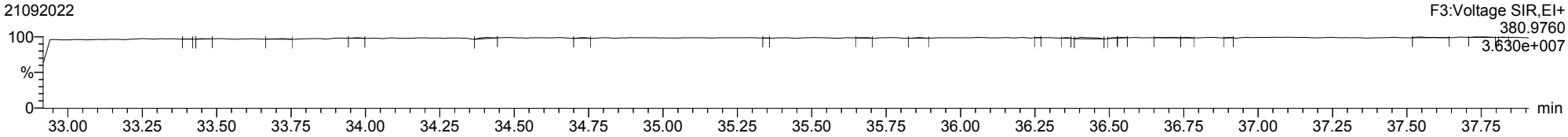


FUNCTION3 PFK



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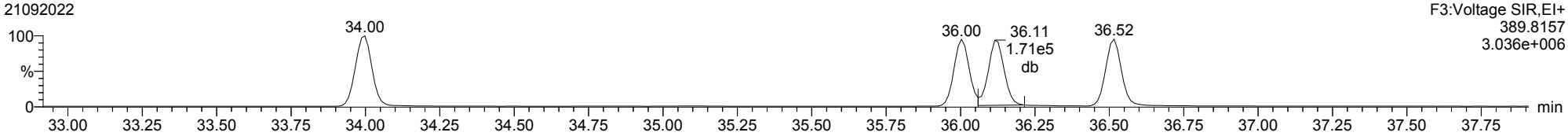

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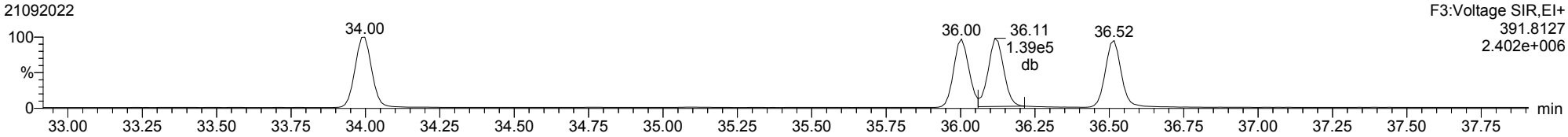

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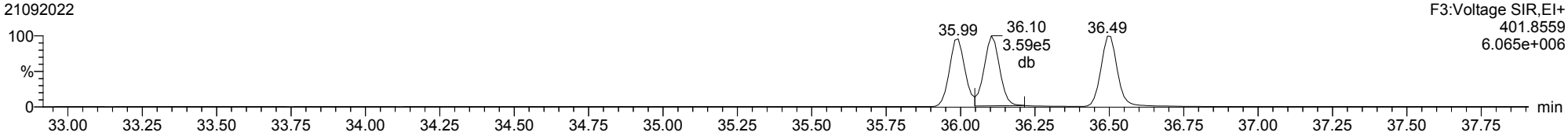

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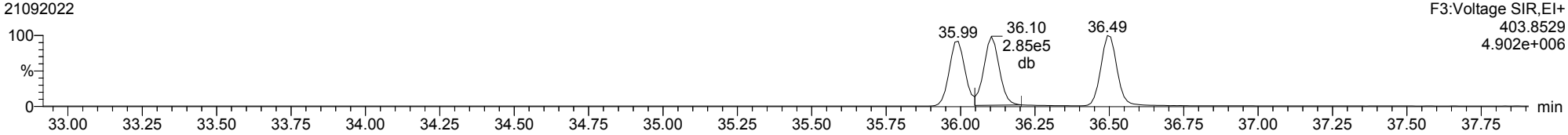

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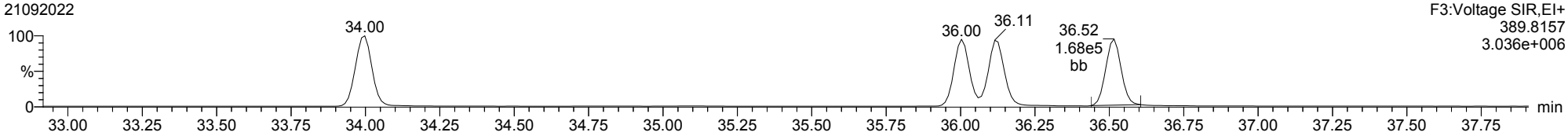

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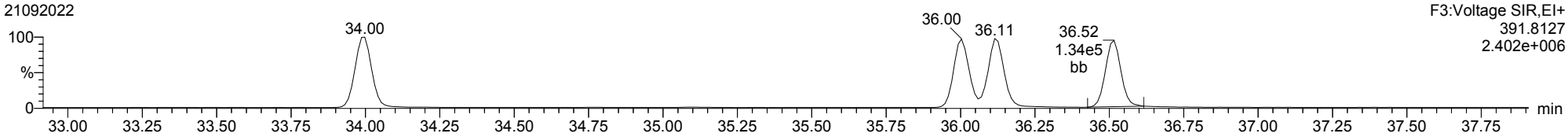

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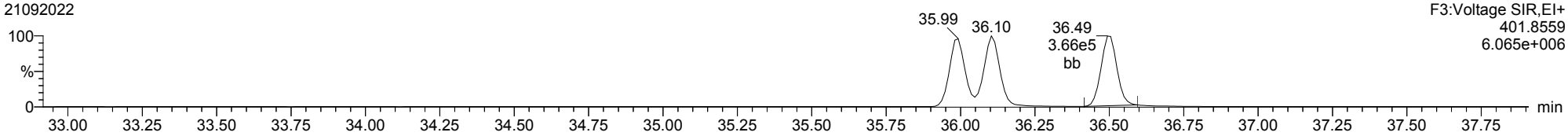

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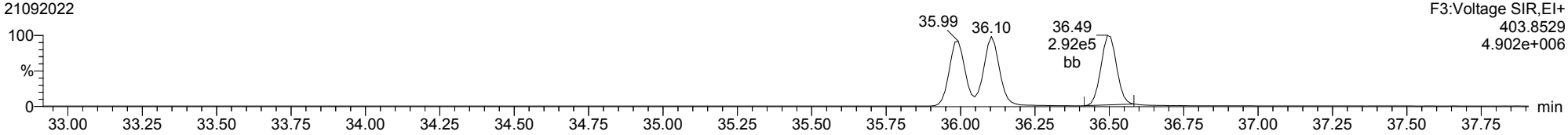

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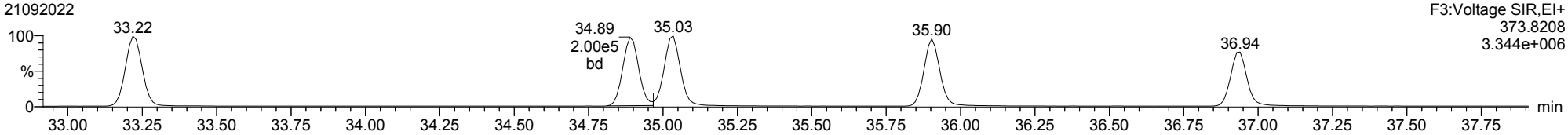

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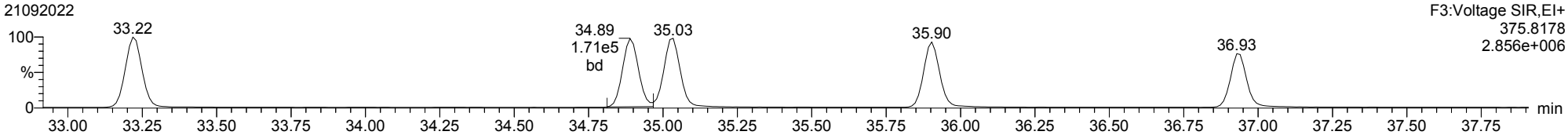

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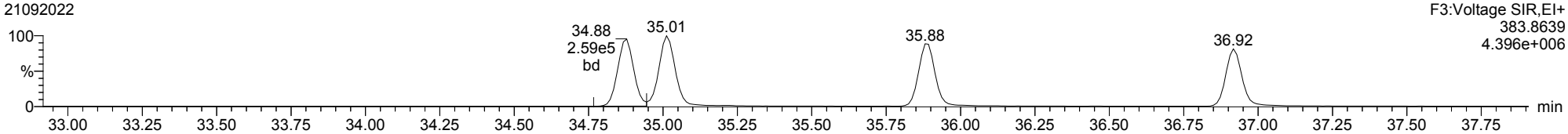

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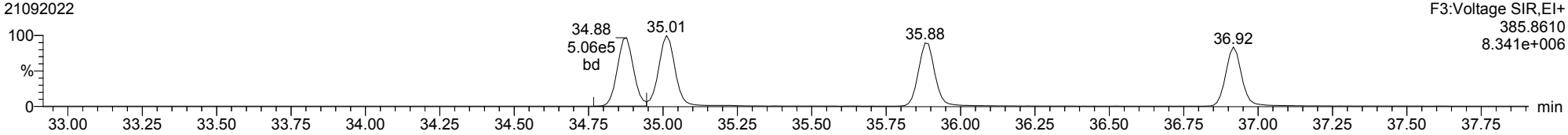

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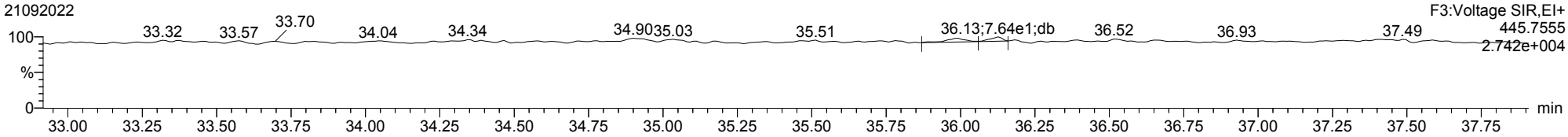

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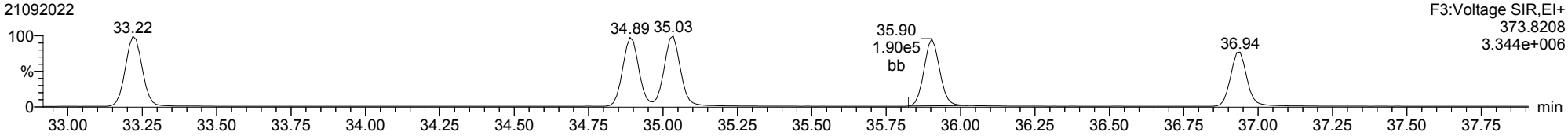

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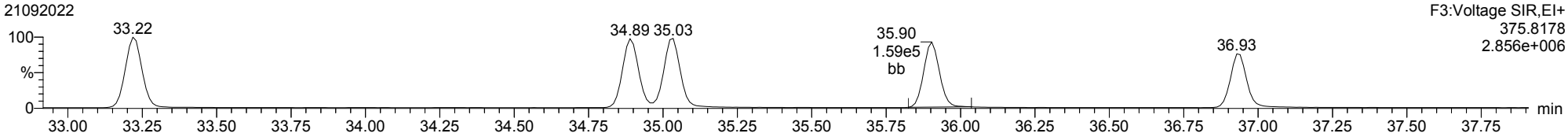

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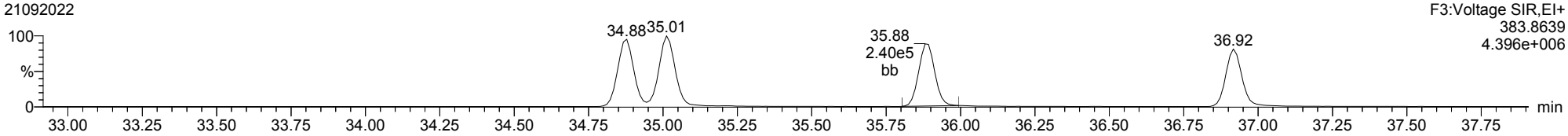

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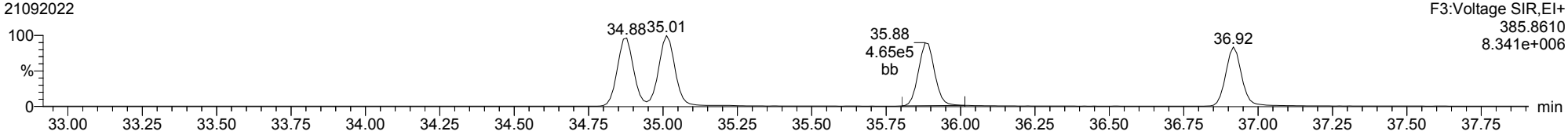
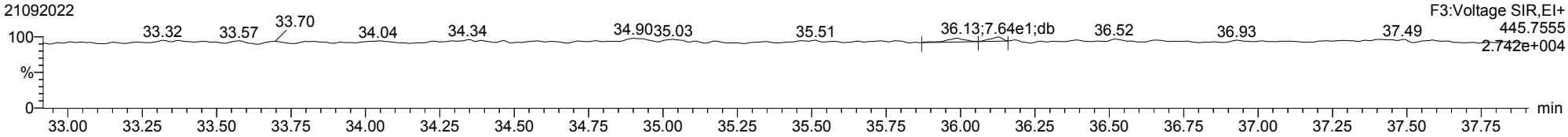


FUNCTION3 OCDPE



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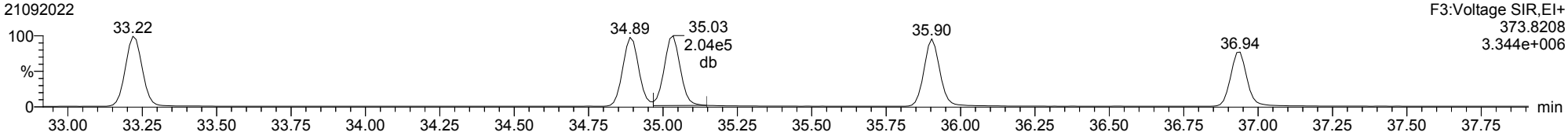

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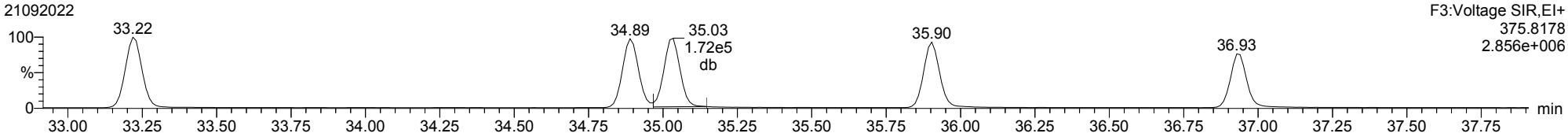

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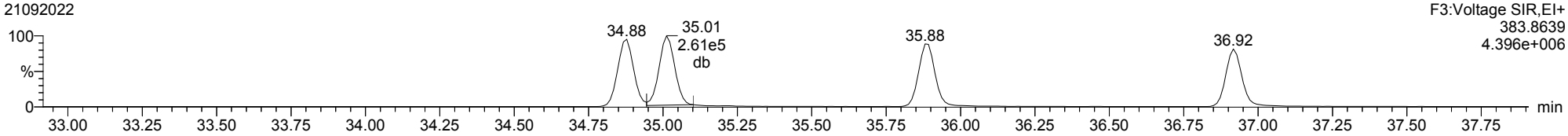

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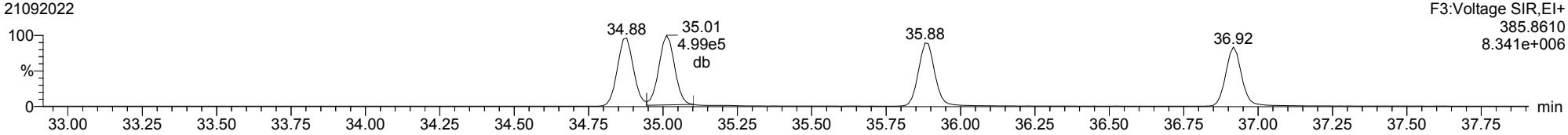

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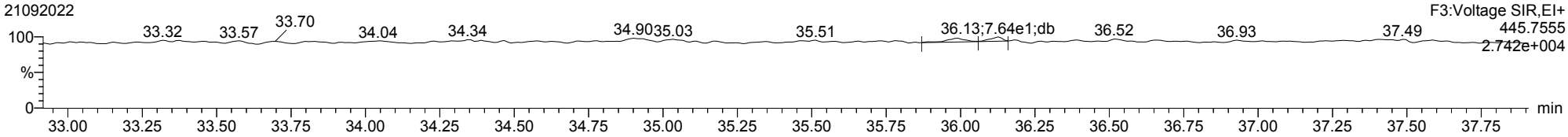

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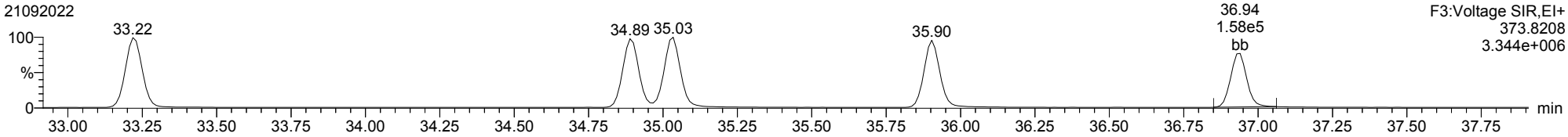

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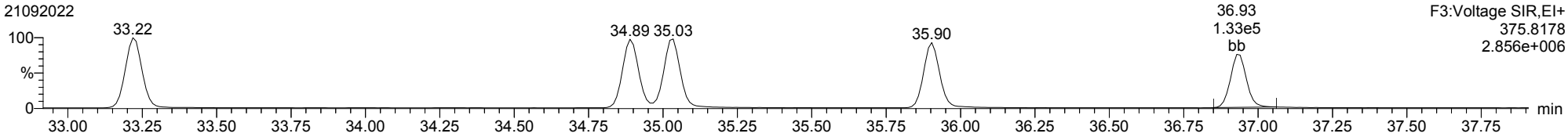

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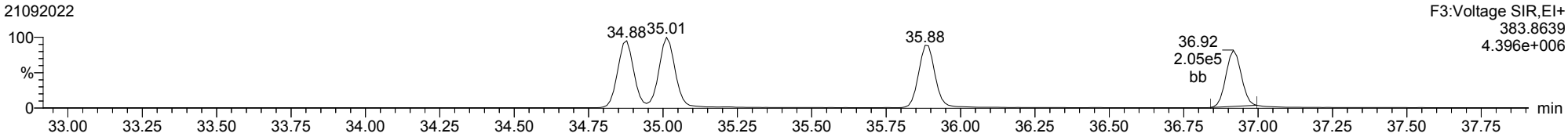

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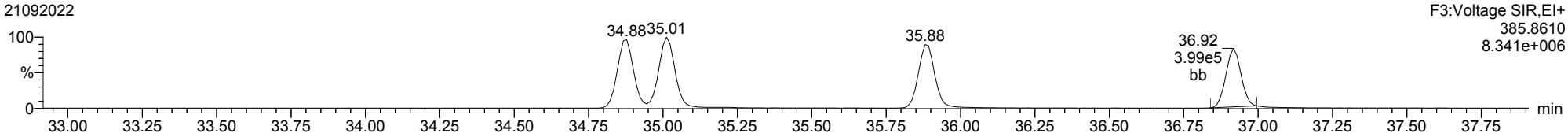

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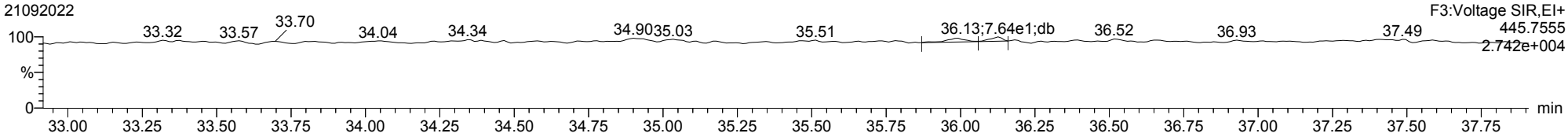

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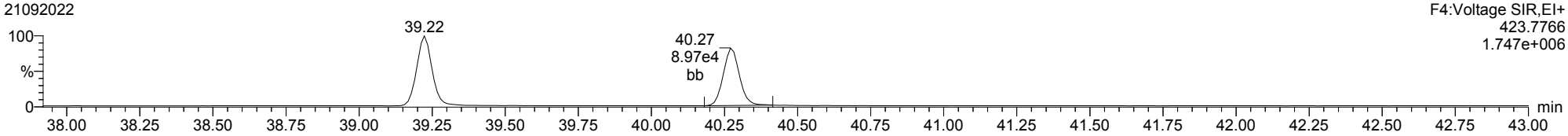

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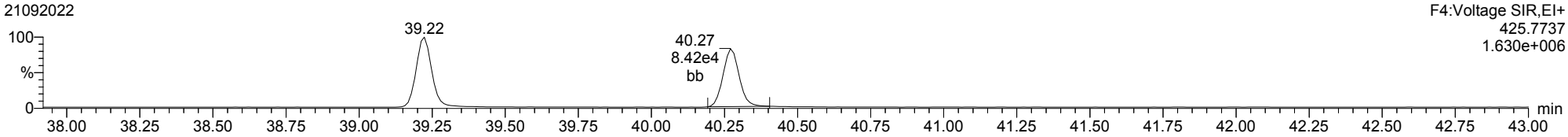

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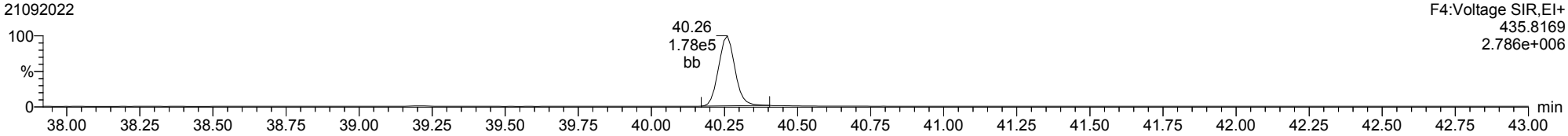

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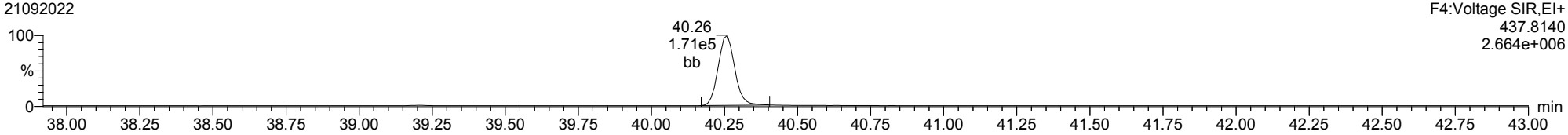

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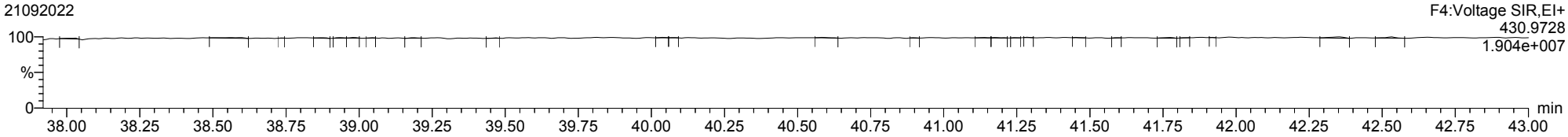

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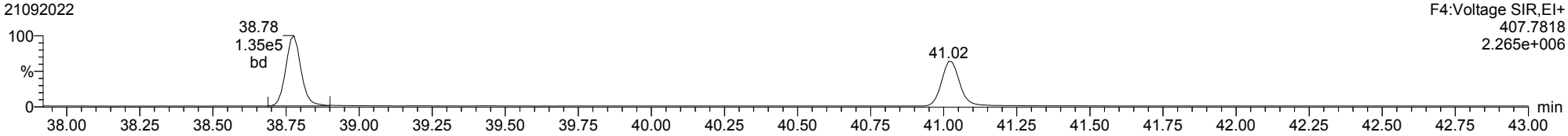

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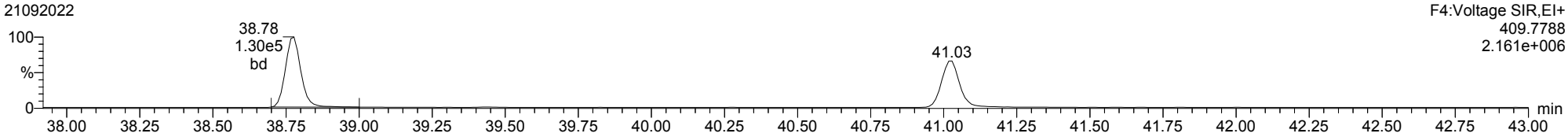

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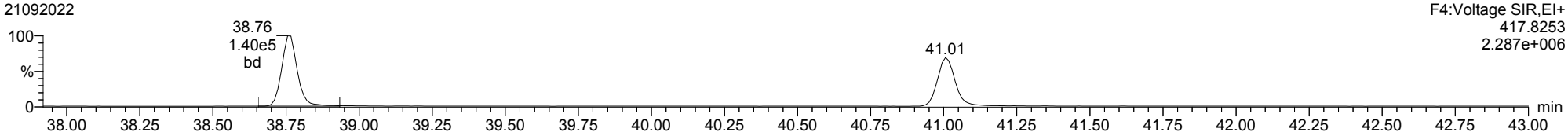

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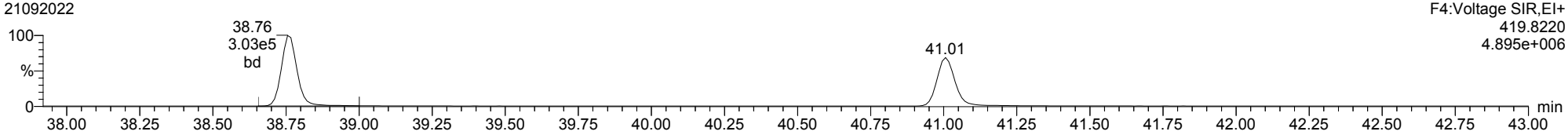

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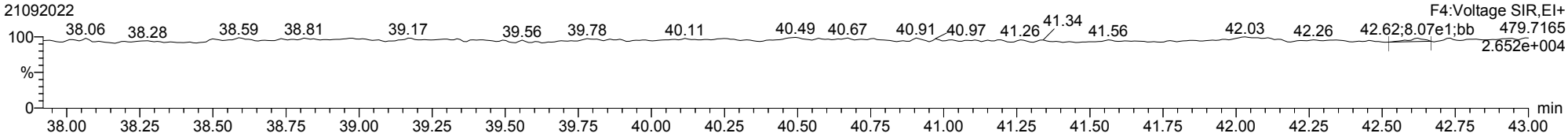

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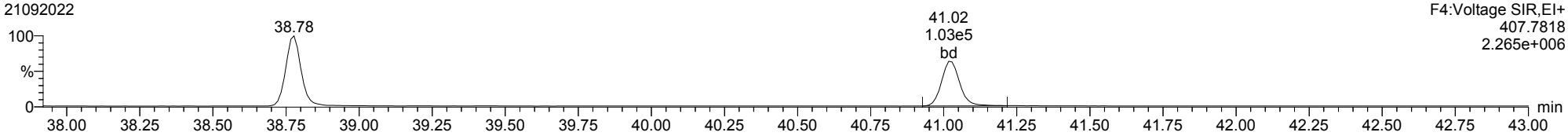

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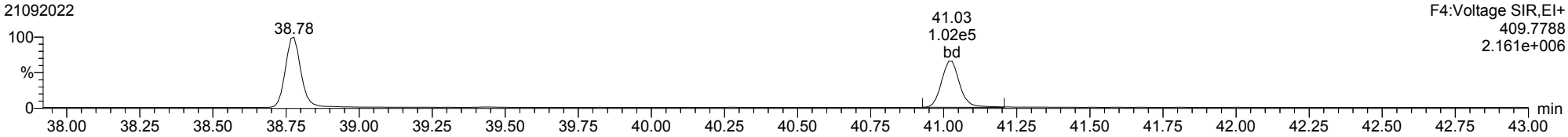

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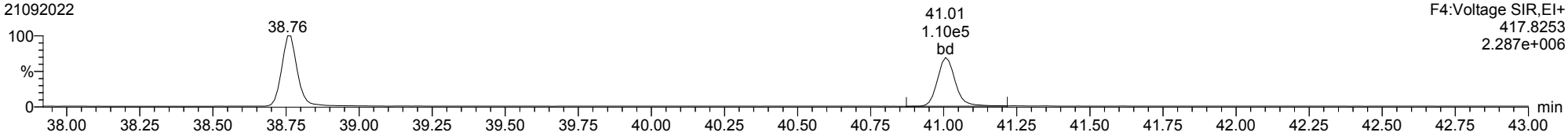

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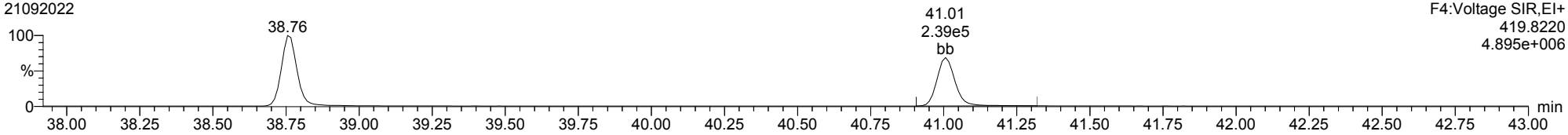

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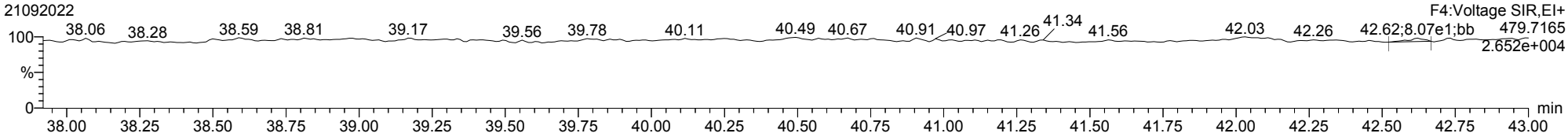

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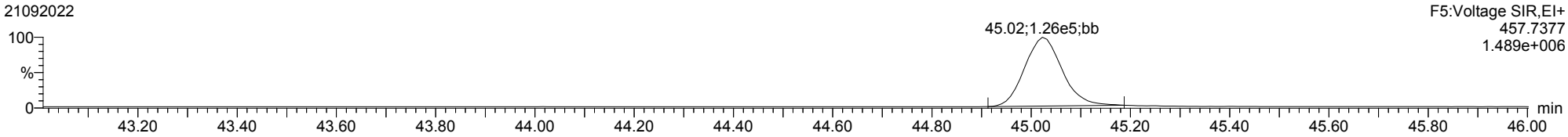

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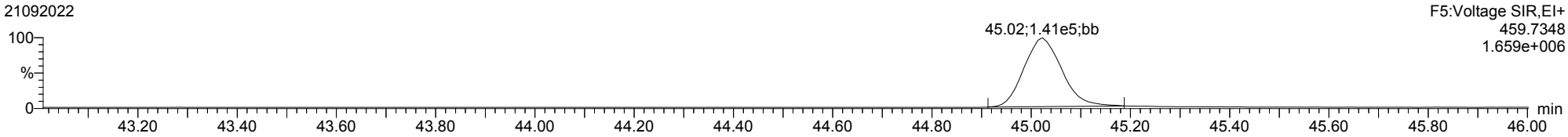

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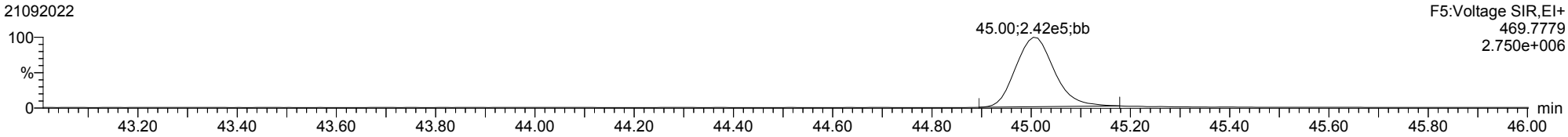

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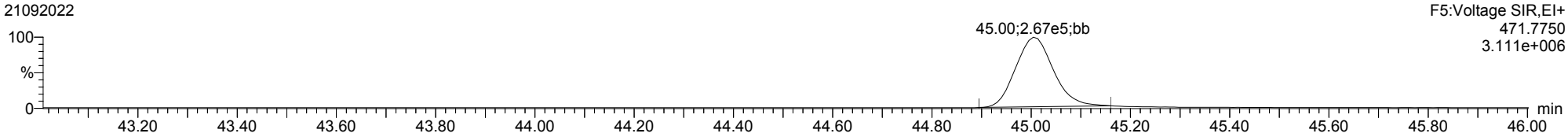

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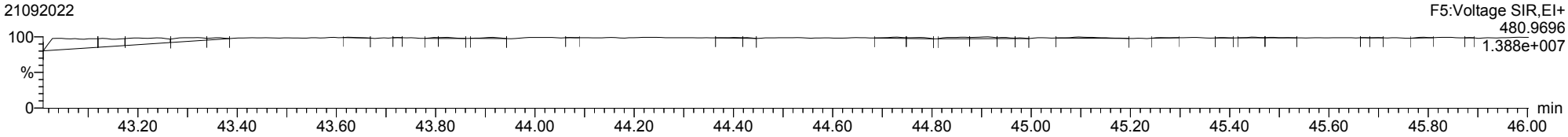

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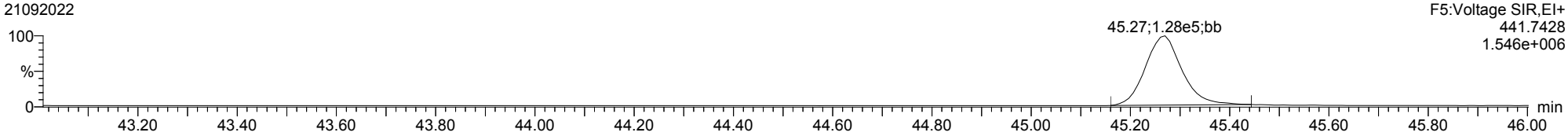

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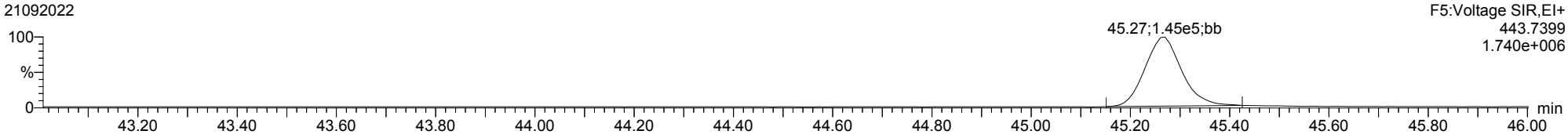

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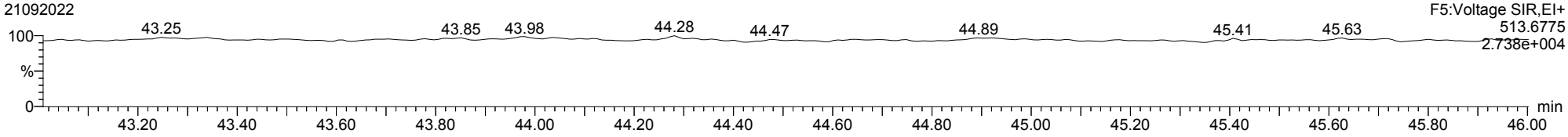

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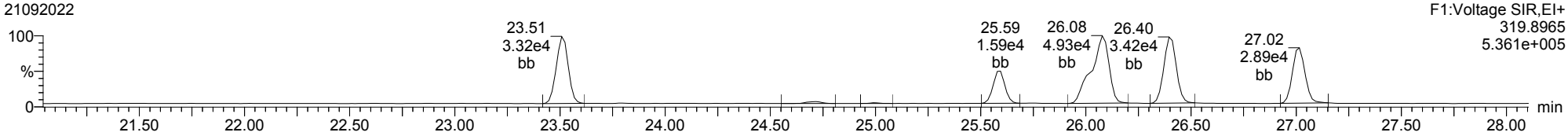

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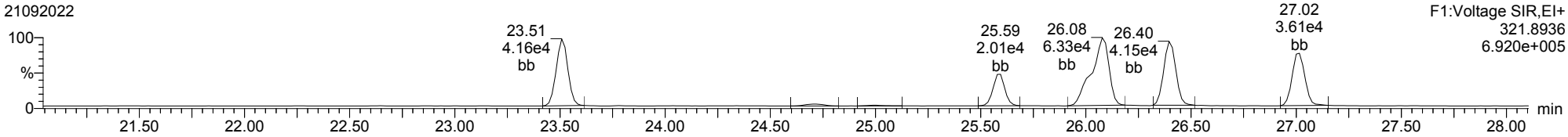

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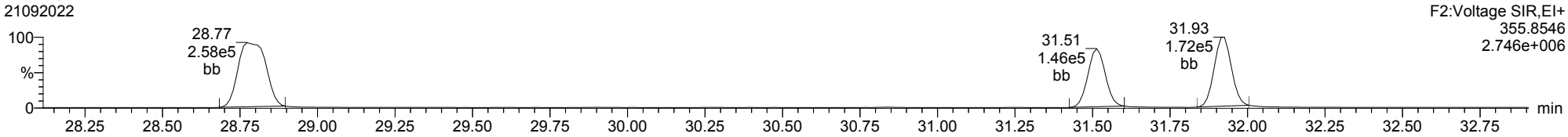

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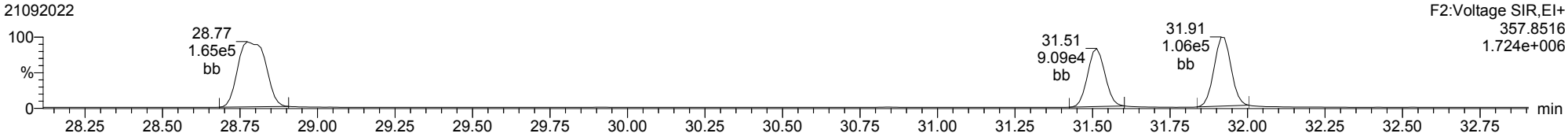

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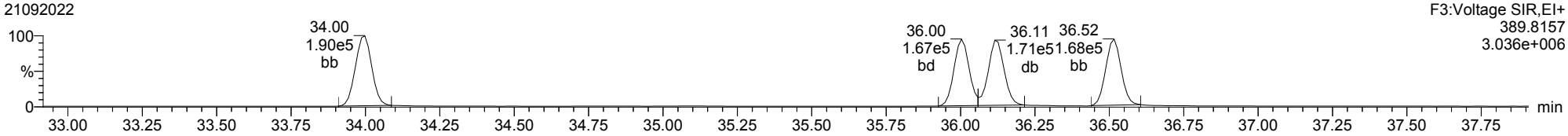

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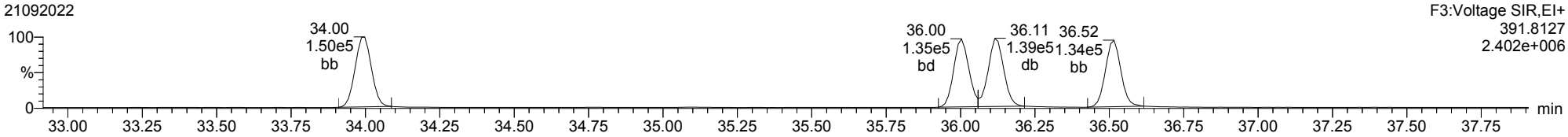

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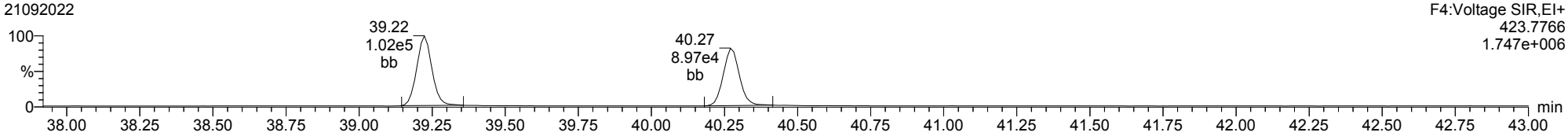

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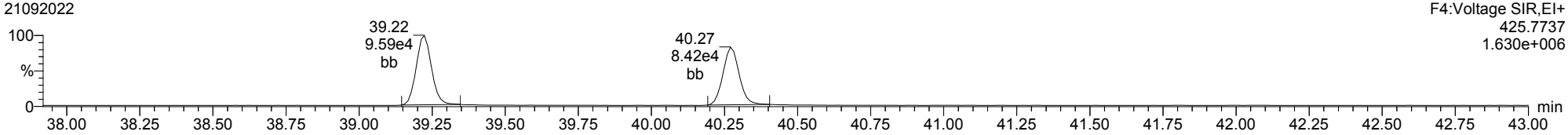

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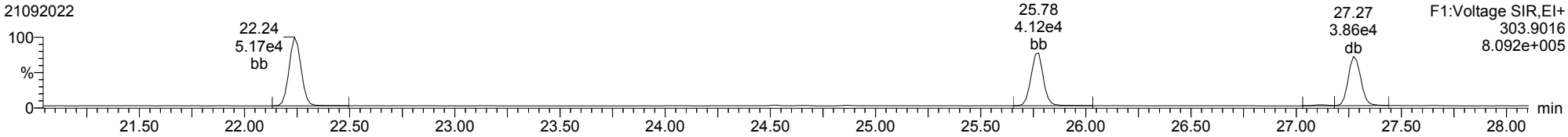

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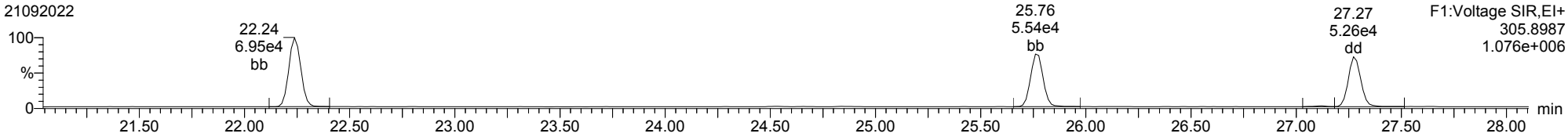

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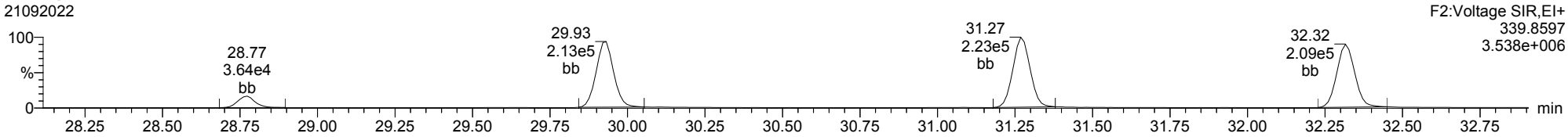

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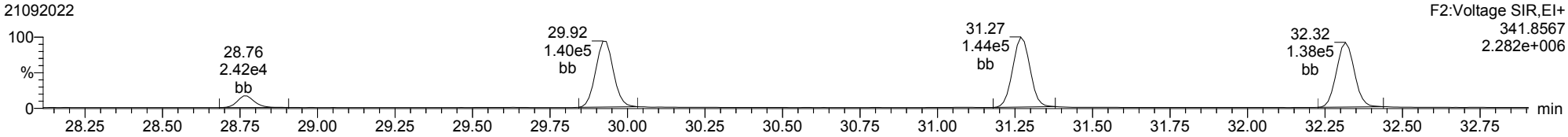

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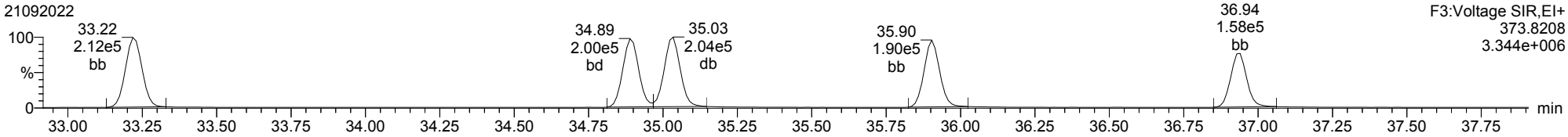

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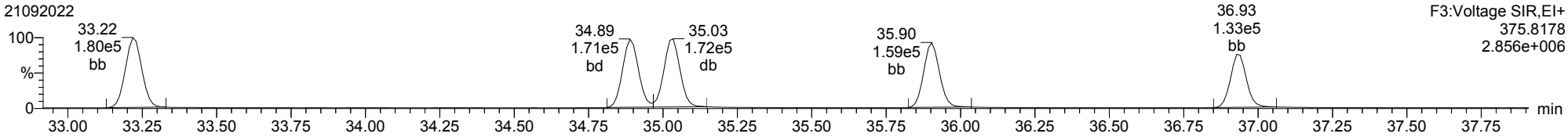

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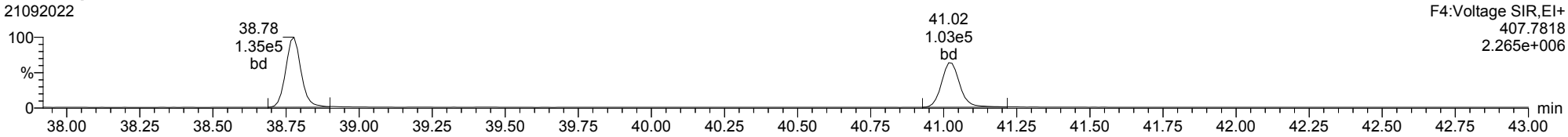

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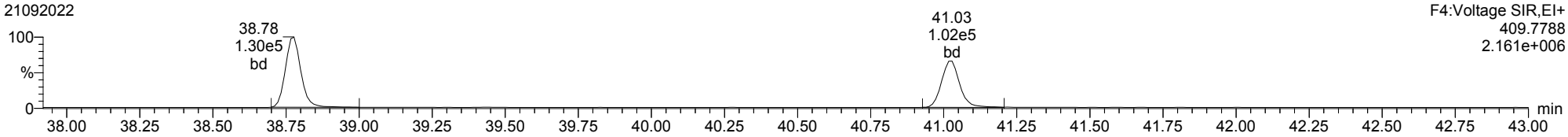

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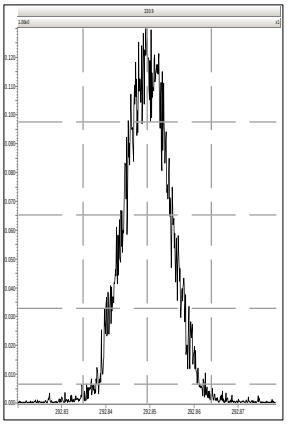

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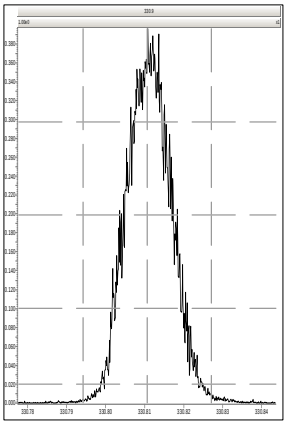

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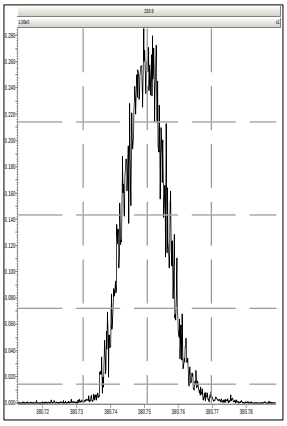
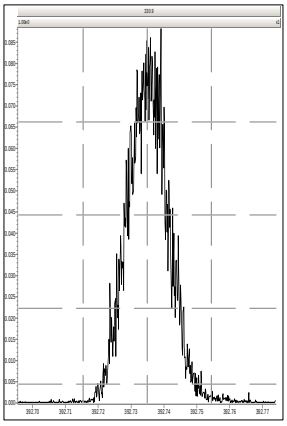
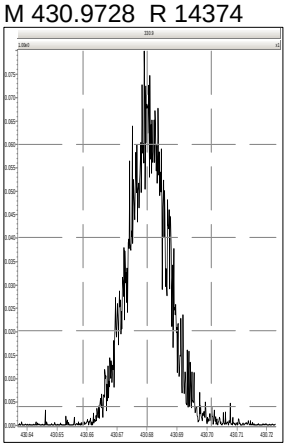


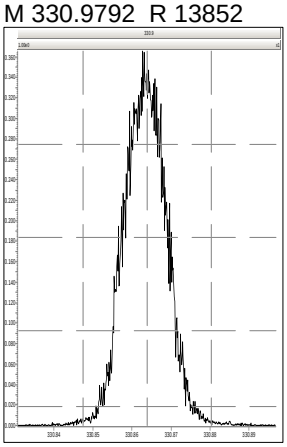
M 392.9760 R 14208



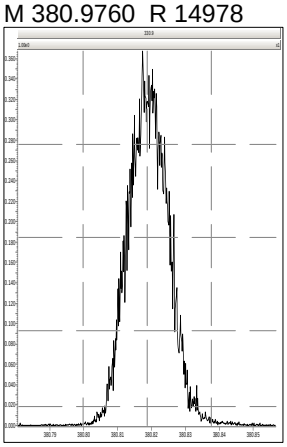
M 430.9728 R 14374



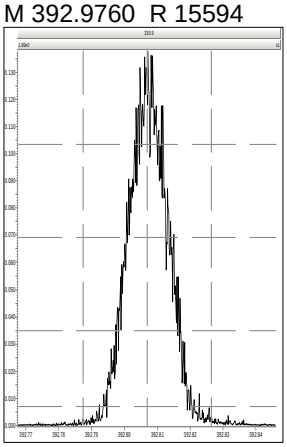
M 330.9792 R 13852



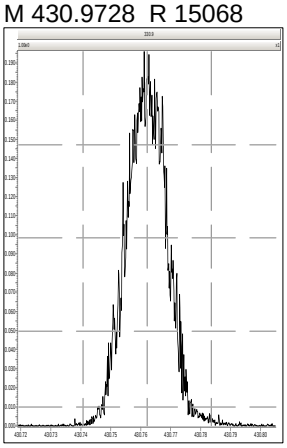
M 380.9760 R 14978



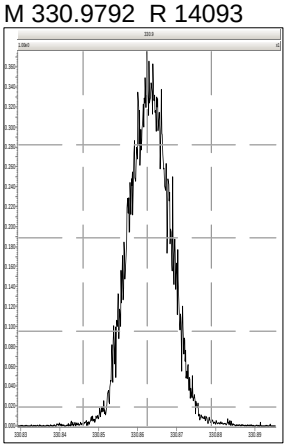
M 392.9760 R 15594



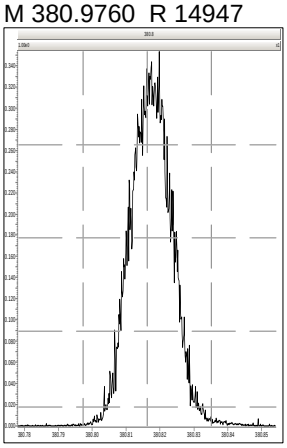
M 430.9728 R 15068



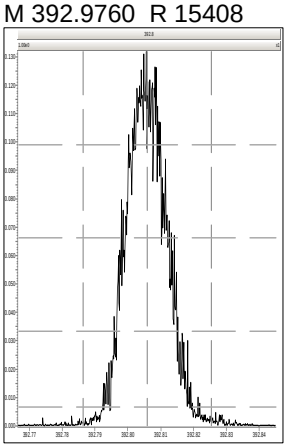
M 330.9792 R 14093



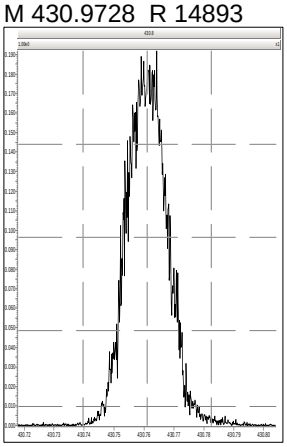
M 380.9760 R 14947



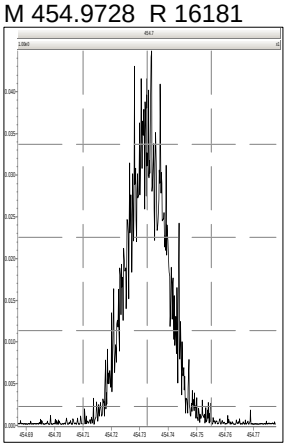
M 392.9760 R 15408



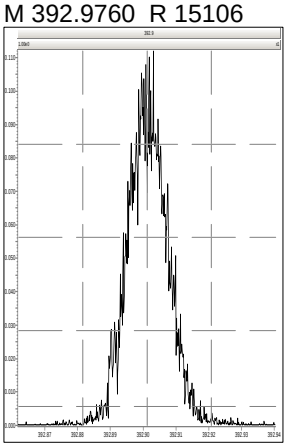
M 430.9728 R 14893



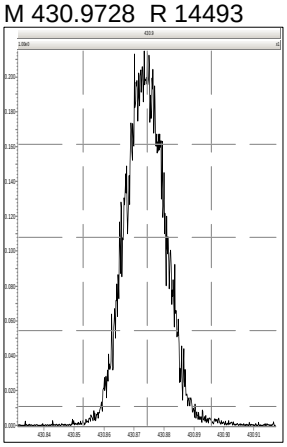
M 454.9728 R 16181



M 392.9760 R 15106

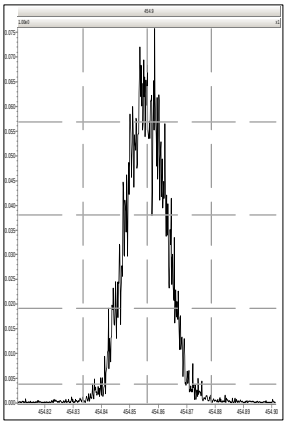


M 430.9728 R 14493

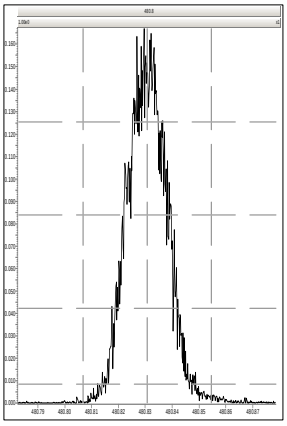


Printed: Tuesday, September 21, 2021 10:37:38 Pacific Daylight Time

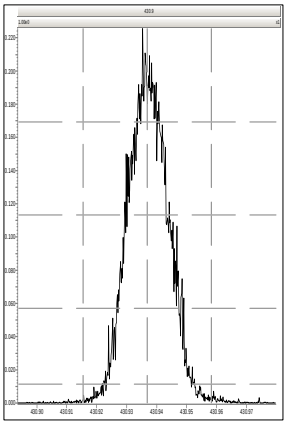
M 454.9728 R 15832



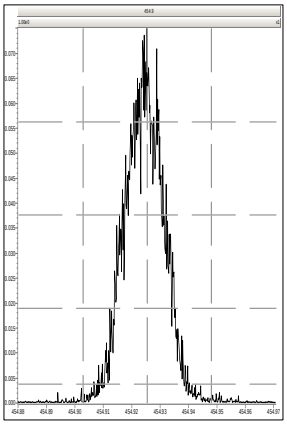
M 480.9696 R 14941



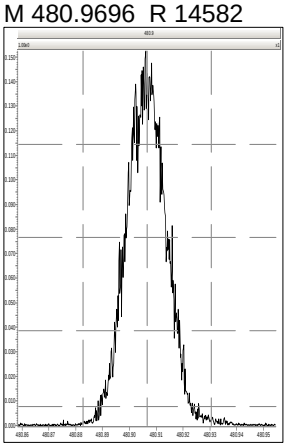
M 430.9728 R 15353



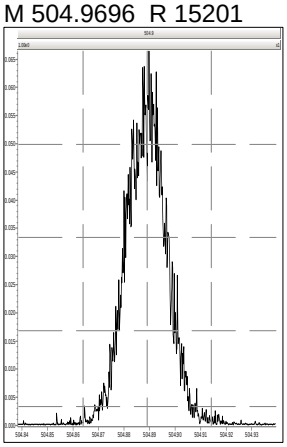
M 454.9728 R 15452



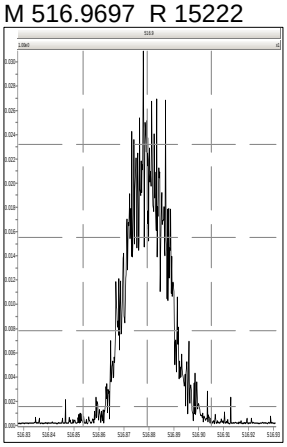
M 480.9696 R 14582

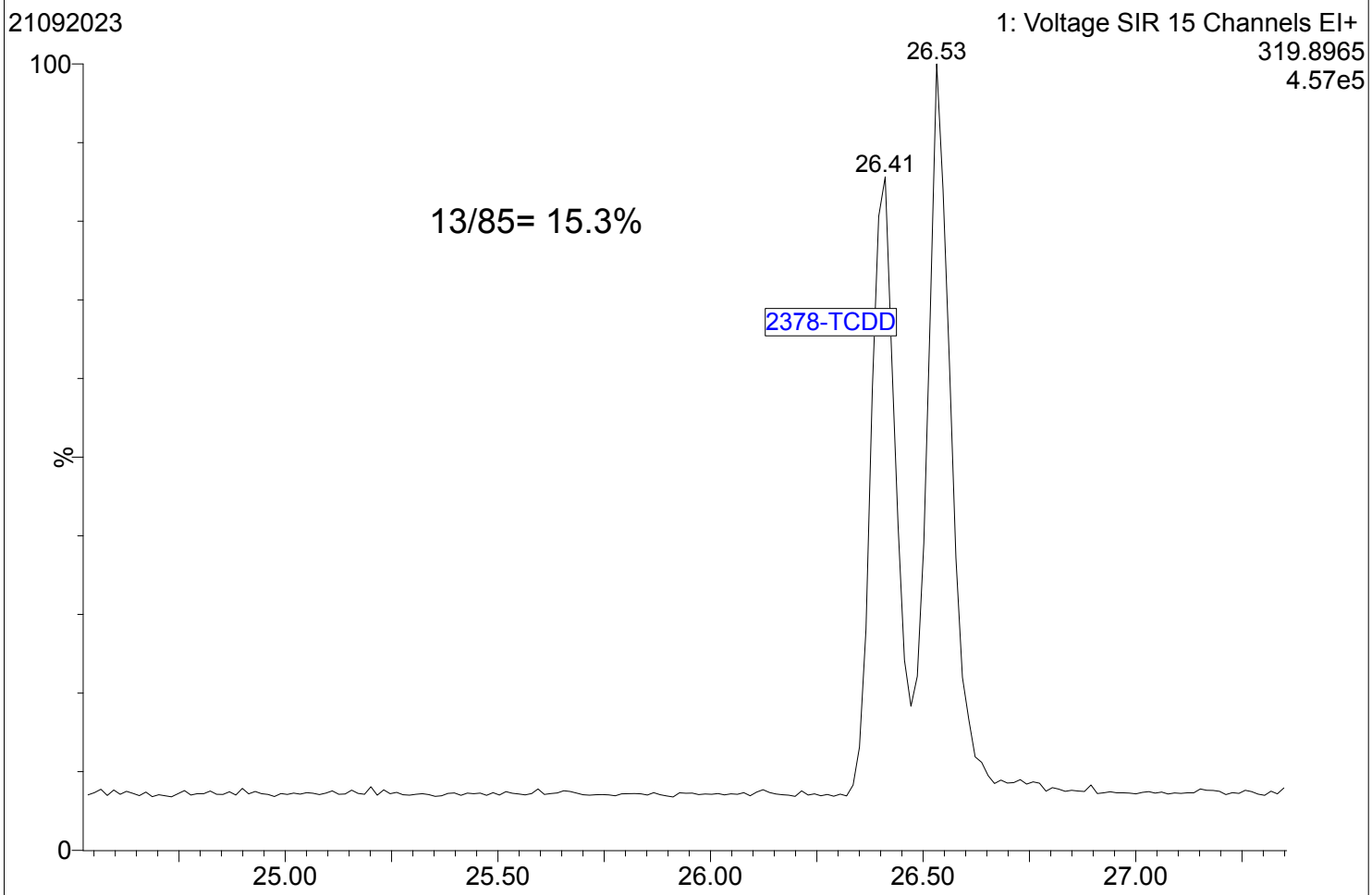


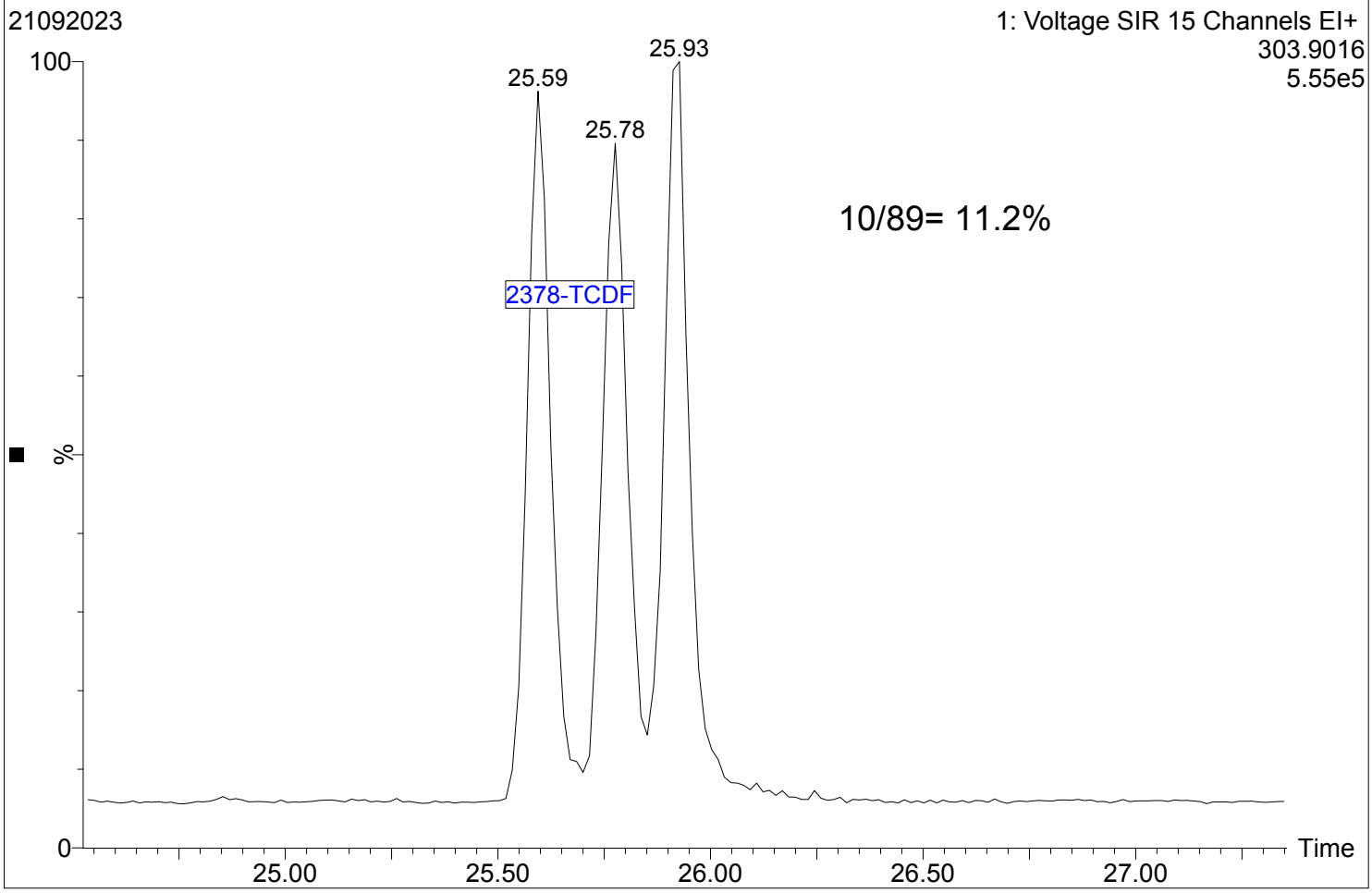
M 504.9696 R 15201



M 516.9697 R 15222




21092023
1: Voltage SIR 15 Channels EI+
319.8965
4.57e5
26.53
26.41
13/85= 15.3%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21092023
1: Voltage SIR 15 Channels EI+
303.9016
5.55e5
25.93
25.59
25.78
10/89= 11.2%
2378-TCDF
100
%
0
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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092034A	Calibration Date:	08/11/2021
Sequence:	SJI0282	Injection Date:	09/21/21
Lab Sample ID:	SJI0282-CCV1	Injection Time:	19:37
Sequence Name:	CS3S4		

		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	8.98	1.1075930	0.9949200		-10.2	+/-16
2,3,7,8-TCDD	A	10.000	9.62	0.9202875	0.8850186		-3.8	+/-22
1,2,3,7,8-PeCDF	A	50.000	44.5	1.0148670	0.9036635		-11.0	+/-18
2,3,4,7,8-PeCDF	A	50.000	43.8	1.1255490	0.9851844		-12.5	+/-18
1,2,3,7,8-PeCDD	A	50.000	49.5	0.9953229	0.9863302		-0.9	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.4	1.0168930	0.9630273		-5.3	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	47.2	1.0368310	0.9784772		-5.6	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	47.3	1.0524660	0.9956772		-5.4	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	47.0	1.0301540	0.9691928		-5.9	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.4	1.0273630	0.9729998		-5.3	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	49.7	1.0089800	1.0038010		-0.5	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.8	0.9504865	0.9653490		1.6	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	45.0	1.3273500	1.1951880		-10.0	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	45.4	1.2833380	1.1658060		-9.2	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	47.4	1.0680880	1.0126890		-5.2	+/-14
OCDF	A	100.00	76.1	1.4469010	1.1011330		-23.9	+/-37
OCDD	A	100.00	91.3	1.1808230	1.0777590		-8.7	+/-21
13C12-2,3,7,8-TCDF	A	100.00	90.2	1.4265830	1.2866258		-9.8	+/-29
13C12-2,3,7,8-TCDD	A	100.00	104	1.1164910	1.1556000		3.5	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	79.4	1.2973130	1.0299390		-20.6	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	79.0	1.2364800	0.9768381		-21.0	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	86.4	0.7319833	0.6323505		-13.6	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	96.7	1.2424560	1.2011834		-3.3	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	89.0	1.3434760	1.1959137		-11.0	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	92.3	1.2148550	1.1214778		-7.7	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	94.1	1.0076370	0.9481570		-5.9	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	103	0.9598233	0.9848137		2.6	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	92.6	1.0413850	0.9647198		-7.4	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	76.2	0.9264704	0.7057658		-23.8	+/-22 *
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	72.9	0.7579160	0.5527332		-27.1	+/-23 *
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	88.0	0.6324476	0.5568552		-12.0	+/-28
13C12-OCDD	A	200.00	157	0.5037432	0.3957951		-21.4	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.82	1.0835930	1.0642593		-1.8	

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:52 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	25.775	1.001	4.039e4	5.658e4	1.108	0.714	0.770	728	1029	6.00e5	8.49e5	824.6	825.6	NO	bb	bb	8.983
12378-PeCDF	29.931	1.000	2.130e5	1.396e5	1.015	1.526	1.550	2171	1680	3.28e6	2.15e6	1512.8	1281.6	NO	bb	bb	44.521
23478-PeCDF	31.279	1.001	2.201e5	1.444e5	1.126	1.524	1.550	2171	1680	3.33e6	2.21e6	1533.1	1315.3	NO	bb	bb	43.765
123478-HxCDF	34.900	1.001	1.939e5	1.653e5	1.017	1.173	1.240	1557	1541	3.13e6	2.69e6	2010.7	1743.9	NO	bd	bd	47.351
234678-HxCDF	35.914	1.001	1.871e5	1.596e5	1.052	1.172	1.240	1557	1541	3.03e6	2.59e6	1944.5	1679.9	NO	bb	bb	47.302
123678-HxCDF	35.034	1.000	1.964e5	1.669e5	1.037	1.177	1.240	1557	1541	3.07e6	2.65e6	1974.5	1717.8	NO	db	db	47.186
123789-HxCDF	36.939	1.000	1.542e5	1.311e5	1.030	1.176	1.240	1557	1541	2.45e6	2.09e6	1574.4	1356.8	NO	bb	bb	47.041
1234678-HpCDF	38.788	1.001	1.324e5	1.294e5	1.327	1.023	1.050	1364	1498	2.16e6	2.07e6	1586.9	1380.2	NO	bd	bd	45.022
1234789-HpCDF	41.039	1.001	1.030e5	9.704e4	1.283	1.062	1.050	1364	1498	1.44e6	1.31e6	1054.5	874.2	NO	bd	bb	45.421
OCDF	45.280	1.006	1.277e5	1.429e5	1.447	0.893	0.890	747	938	1.44e6	1.62e6	1924.0	1732.5	NO	bd	bb	76.103
2378-TCDD	26.410	1.001	3.413e4	4.334e4	0.920	0.788	0.770	1153	680	5.12e5	6.55e5	444.5	962.4	NO	bb	bb	9.617
12378-PeCDD	31.524	1.001	1.454e5	9.087e4	0.995	1.600	1.550	957	960	2.29e6	1.43e6	2388.7	1491.7	NO	bb	bb	49.548
123478-HxCDD	36.014	1.001	1.673e5	1.302e5	1.027	1.285	1.240	1248	1658	2.74e6	2.17e6	2196.6	1309.2	NO	bd	bd	47.354
123678-HxCDD	36.125	1.000	1.676e5	1.331e5	1.009	1.260	1.240	1248	1658	2.79e6	2.24e6	2238.9	1349.5	NO	db	db	49.743
123789-HxCDD	36.527	1.011	1.623e5	1.298e5	0.950	1.250	1.240	1248	1658	2.72e6	2.16e6	2180.2	1302.0	NO	bb	bb	50.782
1234678-HpCDD	40.281	1.000	9.127e4	8.380e4	1.068	1.089	1.050	1017	771	1.36e6	1.25e6	1340.6	1626.9	NO	bb	bb	47.407
OCDD	45.033	1.000	1.241e5	1.407e5	1.181	0.882	0.890	1304	1545	1.42e6	1.58e6	1085.4	1020.7	NO	bb	bb	91.272
13C-2378-TCDF	25.760	1.007	4.301e5	5.446e5	1.427	0.790	0.770	1501	1379	6.31e6	7.95e6	4204.9	5765.1	NO	bb	bb	90.189
13C-12378-PeCDF	29.920	1.170	4.830e5	2.973e5	1.297	1.625	1.550	1437	1138	7.38e6	4.43e6	5138.6	3889.3	NO	bb	bb	79.390
13C-23478-PeCDF	31.257	1.222	4.567e5	2.833e5	1.236	1.612	1.550	1437	1138	7.05e6	4.43e6	4906.3	3892.3	NO	bb	bb	79.002
13C-123478-HxCDF	34.878	0.955	2.534e5	4.924e5	1.242	0.515	0.510	2086	2300	3.92e6	7.77e6	1878.0	3376.8	NO	bd	bd	96.678
13C-123678-HxCDF	35.022	0.959	2.534e5	4.892e5	1.343	0.518	0.510	2086	2300	4.20e6	8.14e6	2014.4	3539.8	NO	db	db	89.016
13C-234678-HxCDF	35.892	0.983	2.382e5	4.581e5	1.215	0.520	0.510	2086	2300	3.86e6	7.40e6	1851.6	3218.7	NO	bb	bb	92.314
13C-123789-HxCDF	36.928	1.012	2.014e5	3.873e5	1.008	0.520	0.510	2086	2300	3.28e6	6.34e6	1570.1	2755.5	NO	bb	bb	94.097
13C-1234678-HpCDF	38.766	1.062	1.379e5	3.003e5	0.926	0.459	0.440	907	1206	2.23e6	4.86e6	2462.9	4025.8	NO	bb	bd	76.178
13C-1234789-HpCDF	41.016	1.124	1.082e5	2.350e5	0.758	0.460	0.440	907	1206	1.50e6	3.28e6	1654.4	2718.2	NO	bb	bd	72.928
13C-1234-TCDD	25.579	0.000	3.268e5	4.308e5	1.000	0.759	0.770	1636	888	4.96e6	6.51e6	3029.9	7331.8	NO	bb	bb	100.000
13C-2378-TCDD	26.380	1.031	3.730e5	5.024e5	1.116	0.743	0.770	1636	888	5.62e6	7.55e6	3439.0	8503.2	NO	bb	bb	103.503
13C-12378-PeCDD	31.502	1.232	2.922e5	1.869e5	0.732	1.564	1.550	884	839	4.57e6	2.95e6	5174.2	3516.2	NO	bb	bb	86.389
13C-123478-HxCDD	35.992	0.986	3.451e5	2.664e5	0.960	1.295	1.240	1427	1226	5.70e6	4.47e6	3990.0	3643.0	NO	bd	bd	102.604
13C-123678-HxCDD	36.114	0.989	3.352e5	2.638e5	1.041	1.270	1.240	1427	1226	5.64e6	4.40e6	3950.3	3588.7	NO	db	db	92.638
13C-1234678-HpCDD	40.270	1.103	1.755e5	1.702e5	0.632	1.031	1.050	1071	805	2.63e6	2.53e6	2458.9	3147.8	NO	bb	bb	88.048
13C-OCDD	45.024	1.233	2.308e5	2.607e5	0.504	0.886	0.890	1796	844	2.68e6	2.99e6	1491.3	3543.5	NO	bb	bb	157.142
13C-123789-HxCDD	36.504	0.000	3.505e5	2.704e5	1.000	1.296	1.240	1427	1226	5.75e6	4.50e6	4024.9	3667.3	NO	bb	bb	100.000
37CL-2378-TCDD	26.410	1.033	8.063e4		1.084			1036		1.18e6		1138.7			bb		9.822

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:52 Pacific Daylight Time

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	22.238	0.863	5.192e4	7.051e4	1.425	0.736	0.770	728	1029	7.82e5	1.06e6	1074.6	1028.6	NO	bb	bb	8.814
1289-TCDF	27.287	1.059	3.965e4	5.221e4	1.043	0.759	0.770	728	1029	5.76e5	7.51e5	790.6	729.8	NO	db	dd	9.036
13468-PECDF	27.106	0.906	3.785e5	2.461e5	1.376	1.538	1.550	539	729	5.62e6	3.69e6	10417.7	5053.2	NO	bb	bb	58.165
12389-PECDF	32.326	1.080	2.081e5	1.375e5	1.000	1.513	1.550	2171	1680	3.08e6	2.03e6	1420.7	1210.1	NO	bb	bb	44.309
123468-HXCDF	33.229	0.953	2.064e5	1.718e5	1.087	1.201	1.240	1557	1541	3.24e6	2.69e6	2078.6	1744.4	NO	bb	bb	46.664
1368-TCDD	23.508	0.891	3.489e4	4.464e4	0.923	0.781	0.770	1153	680	5.52e5	7.05e5	479.0	1036.0	NO	bb	bb	9.839
1289-TCDD	27.015	1.024	2.941e4	3.912e4	0.794	0.752	0.770	1153	680	4.39e5	5.78e5	381.0	849.0	NO	bd	bb	9.860
12479-PECDD	28.784	0.914	2.614e5	1.653e5	1.843	1.582	1.550	957	960	2.63e6	1.62e6	2742.5	1687.1	NO	bb	bb	48.322
12389-PECDD	31.925	1.013	1.735e5	1.087e5	1.154	1.597	1.550	957	960	2.70e6	1.68e6	2823.0	1754.7	NO	bb	bb	51.065
124679-HXCDD	33.998	0.945	1.842e5	1.449e5	1.125	1.271	1.240	1248	1658	2.87e6	2.25e6	2302.8	1358.7	NO	bb	bb	47.852
1234679-HPCDD	39.234	0.974	1.040e5	9.520e4	1.211	1.092	1.050	1017	771	1.70e6	1.56e6	1674.5	2027.2	NO	bb	bb	47.575
Total-tetrafurans			1.337e5		1.192			728		1.98e6							27.194
Total-penta1			3.785e5					539		5.62e6							58.165
Total-pentafurans			6.776e5		1.047			2171		1.03e7							140.267
Total-hexafurans			9.379e5		1.045			1557		1.49e7							235.544
Total-heptafurans			2.354e5		1.305			1364		3.60e6							90.442
Total-Furans			2.491e6		1.158			728		3.78e7							627.716
Total-tetradioxins			1.708e5		0.879			1153		2.33e6							50.538
Total-pentadioxins			5.815e5		1.331			957		7.63e6							149.245
Total-hexadioxins			6.819e5		1.028			1248		1.11e7							195.877
Total-heptadioxins			1.953e5		1.140			1017		3.07e6							94.981
Total-Dioxins			1.754e6		1.092			1153		2.56e7							581.912
Total-TEQ			4.244e6					1153		6.34e7							1209.628
FUNCTION1 PFK			8.599e4					375963		2.34e6							
FUNCTION2 PFK			7.787e5					382994		9.44e6							0.000
FUNCTION3 PFK			1.110e6					386864		2.11e7							0.000
FUNCTION4 PFK			3.038e6					200132		2.33e7							
FUNCTION5 PFK			1.062e5					142793		3.61e6							
FUNCTION1 HXCD...			5.739e2					482		6.39e3							0.000
FUNCTION1 HPCD...			0.000e0					567		0.00e0							
FUNCTION2 HPCD...			3.345e2					1052		6.43e3							0.000
FUNCTION3 OCDPE			0.000e0					721		0.00e0							
FUNCTION4 NCDPE			0.000e0					480		0.00e0							
FUNCTION5 DCDPE			1.630e2					496		2.46e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:52 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	3.965e4	5.221e4	1.043	0.76	0.77	790.6	YES	NO	db	dd	9.036
2	Total-tetrafurans	27.12	8.125e2	1.147e3	1.192	0.71	0.77	14.8	YES	NO	bd	bd	0.169
3	2378-TCDF	25.78	4.039e4	5.658e4	1.108	0.71	0.77	824.6	YES	NO	bb	bb	8.983
4	Total-tetrafurans	24.87	3.941e2	5.857e2	1.192	0.67	0.77	6.8	YES	NO	db	db	0.084
5	Total-tetrafurans	24.54	5.352e2	7.325e2	1.192	0.73	0.77	9.5	YES	NO	bd	bd	0.109
6	1368-TCDF	22.24	5.192e4	7.051e4	1.425	0.74	0.77	1074.6	YES	NO	bb	bb	8.814

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.11	3.785e5	2.461e5	1.376	1.54	1.55	10417.7	YES	NO	bb	bb	58.165

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.28	2.201e5	1.444e5	1.126	1.52	1.55	1533.1	YES	NO	bb	bb	43.765
2	Total-pentafurans	30.13	3.694e2	2.742e2	1.047	1.35	1.55	5.1	YES	NO	bb	bb	0.081
3	12378-PeCDF	29.93	2.130e5	1.396e5	1.015	1.53	1.55	1512.8	YES	NO	bb	bb	44.521
4	Total-pentafurans	28.77	3.610e4	2.430e4	1.047	1.49	1.55	251.1	YES	NO	bb	bb	7.591
5	12389-PECDF	32.33	2.081e5	1.375e5	1.000	1.51	1.55	1420.7	YES	NO	bb	bb	44.309

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	35.03	1.964e5	1.669e5	1.037	1.18	1.24	1974.5	YES	NO	db	db	47.186
2	123478-HxCDF	34.90	1.939e5	1.653e5	1.017	1.17	1.24	2010.7	YES	NO	bd	bd	47.351
3	123468-HXCDF	33.23	2.064e5	1.718e5	1.087	1.20	1.24	2078.6	YES	NO	bb	bb	46.664
4	123789-HxCDF	36.94	1.542e5	1.311e5	1.030	1.18	1.24	1574.4	YES	NO	bb	bb	47.041
5	234678-HxCDF	35.91	1.871e5	1.596e5	1.052	1.17	1.24	1944.5	YES	NO	bb	bb	47.302

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.04	1.030e5	9.704e4	1.283	1.06	1.05	1054.5	YES	NO	bd	bb	45.421
2	1234678-HpCDF	38.79	1.324e5	1.294e5	1.327	1.02	1.05	1586.9	YES	NO	bd	bd	45.022

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	1289-TCDF	27.29	3.965e4	5.221e4	1.043	0.76	0.77	790.6	YES	NO	db	dd	9.036
2	Total-tetrafurans	27.12	8.125e2	1.147e3	1.192	0.71	0.77	14.8	YES	NO	bd	bd	0.169
3	2378-TCDF	25.78	4.039e4	5.658e4	1.108	0.71	0.77	824.6	YES	NO	bb	bb	8.983
4	Total-tetrafurans	24.87	3.941e2	5.857e2	1.192	0.67	0.77	6.8	YES	NO	db	db	0.084
5	Total-tetrafurans	24.54	5.352e2	7.325e2	1.192	0.73	0.77	9.5	YES	NO	bd	bd	0.109
6	1368-TCDF	22.24	5.192e4	7.051e4	1.425	0.74	0.77	1074.6	YES	NO	bb	bb	8.814
7	23478-PeCDF	31.28	2.201e5	1.444e5	1.126	1.52	1.55	1533.1	YES	NO	bb	bb	43.765
8	Total-pentafurans	30.13	3.694e2	2.742e2	1.047	1.35	1.55	5.1	YES	NO	bb	bb	0.081
9	12378-PeCDF	29.93	2.130e5	1.396e5	1.015	1.53	1.55	1512.8	YES	NO	bb	bb	44.521
10	Total-pentafurans	28.77	3.610e4	2.430e4	1.047	1.49	1.55	251.1	YES	NO	bb	bb	7.591
11	123678-HxCDF	35.03	1.964e5	1.669e5	1.037	1.18	1.24	1974.5	YES	NO	db	db	47.186
12	123478-HxCDF	34.90	1.939e5	1.653e5	1.017	1.17	1.24	2010.7	YES	NO	bd	bd	47.351
13	123468-HXCDF	33.23	2.064e5	1.718e5	1.087	1.20	1.24	2078.6	YES	NO	bb	bb	46.664
14	12389-PECDF	32.33	2.081e5	1.375e5	1.000	1.51	1.55	1420.7	YES	NO	bb	bb	44.309
15	123789-HxCDF	36.94	1.542e5	1.311e5	1.030	1.18	1.24	1574.4	YES	NO	bb	bb	47.041
16	234678-HxCDF	35.91	1.871e5	1.596e5	1.052	1.17	1.24	1944.5	YES	NO	bb	bb	47.302
17	1234789-HpCDF	41.04	1.030e5	9.704e4	1.283	1.06	1.05	1054.5	YES	NO	bd	bb	45.421
18	1234678-HpCDF	38.79	1.324e5	1.294e5	1.327	1.02	1.05	1586.9	YES	NO	bd	bd	45.022
19	OCDF	45.28	1.277e5	1.429e5	1.447	0.89	0.89	1924.0	YES	NO	bd	bb	76.103
20	13468-PECDF	27.11	3.785e5	2.461e5	1.376	1.54	1.55	10417.7	YES	NO	bb	bb	58.165

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.00	3.572e2	4.669e2	0.879	0.77	0.77	4.2	YES	NO	bb	bb	0.107
2	Total-tetradioxins	24.70	1.455e3	1.738e3	0.879	0.84	0.77	11.9	YES	NO	bb	bb	0.415
3	1368-TCDD	23.51	3.489e4	4.464e4	0.923	0.78	0.77	479.0	YES	NO	bb	bb	9.839
4	1289-TCDD	27.02	2.941e4	3.912e4	0.794	0.75	0.77	381.0	YES	NO	bd	bb	9.860
5	2378-TCDD	26.41	3.413e4	4.334e4	0.920	0.79	0.77	444.5	YES	NO	bb	bb	9.617
6	Total-tetradioxins	26.08	5.348e4	6.736e4	0.879	0.79	0.77	461.9	YES	NO	bb	bb	15.700
7	Total-tetradioxins	25.59	1.706e4	2.143e4	0.879	0.80	0.77	235.3	YES	NO	bb	bb	5.001

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:52 Pacific Daylight Time

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	31.93	1.735e5	1.087e5	1.154	1.60	1.55	2823.0	YES	NO	bb	bb	51.065
2	12378-PeCDD	31.52	1.454e5	9.087e4	0.995	1.60	1.55	2388.7	YES	NO	bb	bb	49.548
3	Total-pentadioxins	30.86	6.021e2	4.143e2	1.331	1.45	1.55	7.9	YES	NO	bb	bb	0.159
4	Total-pentadioxins	29.91	5.567e2	3.998e2	1.331	1.39	1.55	9.0	YES	NO	bb	bb	0.150
5	12479-PECDD	28.78	2.614e5	1.653e5	1.843	1.58	1.55	2742.5	YES	NO	bb	bb	48.322

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	34.00	1.842e5	1.449e5	1.125	1.27	1.24	2302.8	YES	NO	bb	bb	47.852
2	123789-HxCDD	36.53	1.623e5	1.298e5	0.950	1.25	1.24	2180.2	YES	NO	bb	bb	50.782
3	123678-HxCDD	36.13	1.676e5	1.331e5	1.009	1.26	1.24	2238.9	YES	NO	db	db	49.743
4	123478-HxCDD	36.01	1.673e5	1.302e5	1.027	1.28	1.24	2196.6	YES	NO	bd	bd	47.354
5	Total-hexadioxins	34.77	4.766e2	4.246e2	1.028	1.12	1.24	7.9	YES	NO	bd	bb	0.145

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.28	9.127e4	8.380e4	1.068	1.09	1.05	1340.6	YES	NO	bb	bb	47.407
2	1234679-HPCDD	39.23	1.040e5	9.520e4	1.211	1.09	1.05	1674.5	YES	NO	bb	bb	47.575

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	Total-tetradioxins	25.00	3.572e2	4.669e2	0.879	0.77	0.77	4.2	YES	NO	bb	bb	0.107
2	Total-tetradioxins	24.70	1.455e3	1.738e3	0.879	0.84	0.77	11.9	YES	NO	bb	bb	0.415
3	1368-TCDD	23.51	3.489e4	4.464e4	0.923	0.78	0.77	479.0	YES	NO	bb	bb	9.839
4	1289-TCDD	27.02	2.941e4	3.912e4	0.794	0.75	0.77	381.0	YES	NO	bd	bb	9.860
5	2378-TCDD	26.41	3.413e4	4.334e4	0.920	0.79	0.77	444.5	YES	NO	bb	bb	9.617
6	Total-tetradioxins	26.08	5.348e4	6.736e4	0.879	0.79	0.77	461.9	YES	NO	bb	bb	15.700
7	Total-tetradioxins	25.59	1.706e4	2.143e4	0.879	0.80	0.77	235.3	YES	NO	bb	bb	5.001
8	124679-HXCDD	34.00	1.842e5	1.449e5	1.125	1.27	1.24	2302.8	YES	NO	bb	bb	47.852
9	12389-PECDD	31.93	1.735e5	1.087e5	1.154	1.60	1.55	2823.0	YES	NO	bb	bb	51.065
10	12378-PeCDD	31.52	1.454e5	9.087e4	0.995	1.60	1.55	2388.7	YES	NO	bb	bb	49.548
11	Total-pentadioxins	30.86	6.021e2	4.143e2	1.331	1.45	1.55	7.9	YES	NO	bb	bb	0.159
12	Total-pentadioxins	29.91	5.567e2	3.998e2	1.331	1.39	1.55	9.0	YES	NO	bb	bb	0.150
13	12479-PECDD	28.78	2.614e5	1.653e5	1.843	1.58	1.55	2742.5	YES	NO	bb	bb	48.322
14	123789-HxCDD	36.53	1.623e5	1.298e5	0.950	1.25	1.24	2180.2	YES	NO	bb	bb	50.782
15	123678-HxCDD	36.13	1.676e5	1.331e5	1.009	1.26	1.24	2238.9	YES	NO	db	db	49.743
16	123478-HxCDD	36.01	1.673e5	1.302e5	1.027	1.28	1.24	2196.6	YES	NO	bd	bd	47.354
17	Total-hexadioxins	34.77	4.766e2	4.246e2	1.028	1.12	1.24	7.9	YES	NO	bd	bb	0.145
18	1234678-HpCDD	40.28	9.127e4	8.380e4	1.068	1.09	1.05	1340.6	YES	NO	bb	bb	47.407
19	1234679-HPCDD	39.23	1.040e5	9.520e4	1.211	1.09	1.05	1674.5	YES	NO	bb	bb	47.575
20	OCDD	45.03	1.241e5	1.407e5	1.181	0.88	0.89	1085.4	YES	NO	bb	bb	91.272

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
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ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	3.965e4	5.221e4	1.043	0.76	0.77	790.6	YES	NO	db	dd	9.036
2	Total-tetrafurans	27.12	8.125e2	1.147e3	1.192	0.71	0.77	14.8	YES	NO	bd	bd	0.169
3	2378-TCDF	25.78	4.039e4	5.658e4	1.108	0.71	0.77	824.6	YES	NO	bb	bb	8.983
4	Total-tetrafurans	24.87	3.941e2	5.857e2	1.192	0.67	0.77	6.8	YES	NO	db	db	0.084
5	Total-tetrafurans	24.54	5.352e2	7.325e2	1.192	0.73	0.77	9.5	YES	NO	bd	bd	0.109
6	1368-TCDF	22.24	5.192e4	7.051e4	1.425	0.74	0.77	1074.6	YES	NO	bb	bb	8.814
7	23478-PeCDF	31.28	2.201e5	1.444e5	1.126	1.52	1.55	1533.1	YES	NO	bb	bb	43.765
8	Total-pentafurans	30.13	3.694e2	2.742e2	1.047	1.35	1.55	5.1	YES	NO	bb	bb	0.081
9	12378-PeCDF	29.93	2.130e5	1.396e5	1.015	1.53	1.55	1512.8	YES	NO	bb	bb	44.521
10	Total-pentafurans	28.77	3.610e4	2.430e4	1.047	1.49	1.55	251.1	YES	NO	bb	bb	7.591
11	123678-HxCDF	35.03	1.964e5	1.669e5	1.037	1.18	1.24	1974.5	YES	NO	db	db	47.186
12	123478-HxCDF	34.90	1.939e5	1.653e5	1.017	1.17	1.24	2010.7	YES	NO	bd	bd	47.351
13	123468-HXCDF	33.23	2.064e5	1.718e5	1.087	1.20	1.24	2078.6	YES	NO	bb	bb	46.664
14	12389-PECDF	32.33	2.081e5	1.375e5	1.000	1.51	1.55	1420.7	YES	NO	bb	bb	44.309
15	123789-HxCDF	36.94	1.542e5	1.311e5	1.030	1.18	1.24	1574.4	YES	NO	bb	bb	47.041
16	234678-HxCDF	35.91	1.871e5	1.596e5	1.052	1.17	1.24	1944.5	YES	NO	bb	bb	47.302
17	1234789-HpCDF	41.04	1.030e5	9.704e4	1.283	1.06	1.05	1054.5	YES	NO	bd	bb	45.421
18	1234678-HpCDF	38.79	1.324e5	1.294e5	1.327	1.02	1.05	1586.9	YES	NO	bd	bd	45.022
19	OCDF	45.28	1.277e5	1.429e5	1.447	0.89	0.89	1924.0	YES	NO	bd	bb	76.103
20	13468-PECDF	27.11	3.785e5	2.461e5	1.376	1.54	1.55	10417.7	YES	NO	bb	bb	58.165
21	Total-tetradioxins	25.00	3.572e2	4.669e2	0.879	0.77	0.77	4.2	YES	NO	bb	bb	0.107
22	Total-tetradioxins	24.70	1.455e3	1.738e3	0.879	0.84	0.77	11.9	YES	NO	bb	bb	0.415
23	1368-TCDD	23.51	3.489e4	4.464e4	0.923	0.78	0.77	479.0	YES	NO	bb	bb	9.839
24	1289-TCDD	27.02	2.941e4	3.912e4	0.794	0.75	0.77	381.0	YES	NO	bd	bb	9.860
25	2378-TCDD	26.41	3.413e4	4.334e4	0.920	0.79	0.77	444.5	YES	NO	bb	bb	9.617
26	Total-tetradioxins	26.08	5.348e4	6.736e4	0.879	0.79	0.77	461.9	YES	NO	bb	bb	15.700
27	Total-tetradioxins	25.59	1.706e4	2.143e4	0.879	0.80	0.77	235.3	YES	NO	bb	bb	5.001
28	124679-HXCDD	34.00	1.842e5	1.449e5	1.125	1.27	1.24	2302.8	YES	NO	bb	bb	47.852
29	12389-PECDD	31.93	1.735e5	1.087e5	1.154	1.60	1.55	2823.0	YES	NO	bb	bb	51.065
30	12378-PeCDD	31.52	1.454e5	9.087e4	0.995	1.60	1.55	2388.7	YES	NO	bb	bb	49.548
31	Total-pentadioxins	30.86	6.021e2	4.143e2	1.331	1.45	1.55	7.9	YES	NO	bb	bb	0.159
32	Total-pentadioxins	29.91	5.567e2	3.998e2	1.331	1.39	1.55	9.0	YES	NO	bb	bb	0.150
33	12479-PECDD	28.78	2.614e5	1.653e5	1.843	1.58	1.55	2742.5	YES	NO	bb	bb	48.322
34	123789-HxCDD	36.53	1.623e5	1.298e5	0.950	1.25	1.24	2180.2	YES	NO	bb	bb	50.782
35	123678-HxCDD	36.13	1.676e5	1.331e5	1.009	1.26	1.24	2238.9	YES	NO	db	db	49.743
36	123478-HxCDD	36.01	1.673e5	1.302e5	1.027	1.28	1.24	2196.6	YES	NO	bd	bd	47.354
37	Total-hexadioxins	34.77	4.766e2	4.246e2	1.028	1.12	1.24	7.9	YES	NO	bd	bb	0.145

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	1234678-HpCDD	40.28	9.127e4	8.380e4	1.068	1.09	1.05	1340.6	YES	NO	bb	bb	47.407
39	1234679-HPCDD	39.23	1.040e5	9.520e4	1.211	1.09	1.05	1674.5	YES	NO	bb	bb	47.575
40	OCDD	45.03	1.241e5	1.407e5	1.181	0.88	0.89	1085.4	YES	NO	bb	bb	91.272

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.30	1.134e4					1.3	NO		bb		
2	FUNCTION1 PFK	21.24	2.335e4					2.0	NO		db		
3	FUNCTION1 PFK	21.18	5.129e4					2.9	NO		bd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.90	5.920e3					0.7	NO		bb		0.000
2	FUNCTION2 PFK	29.41	5.416e3					0.6	NO		bb		0.000
3	FUNCTION2 PFK	28.84	1.223e4					1.0	NO		bb		0.000
4	FUNCTION2 PFK	28.69	1.417e3					0.3	NO		bb		0.000
5	FUNCTION2 PFK	28.56	8.849e3					1.0	NO		bb		0.000
6	FUNCTION2 PFK	28.23	5.700e5					8.3	YES		bb		0.000
7	FUNCTION2 PFK	32.72	1.786e3					0.4	NO		bb		0.000
8	FUNCTION2 PFK	32.55	1.529e4					0.9	NO		bb		0.000
9	FUNCTION2 PFK	32.14	3.893e3					0.6	NO		bb		0.000
10	FUNCTION2 PFK	31.97	1.109e4					1.2	NO		db		0.000
11	FUNCTION2 PFK	31.87	3.145e4					1.3	NO		bd		0.000
12	FUNCTION2 PFK	31.79	3.369e4					1.6	NO		bb		0.000
13	FUNCTION2 PFK	31.49	8.047e3					0.8	NO		bb		0.000
14	FUNCTION2 PFK	31.33	3.367e3					0.5	NO		bb		0.000
15	FUNCTION2 PFK	31.12	1.733e4					0.9	NO		bb		0.000
16	FUNCTION2 PFK	30.90	1.110e4					1.1	NO		bb		0.000
17	FUNCTION2 PFK	30.84	1.096e4					1.2	NO		db		0.000
18	FUNCTION2 PFK	30.80	8.958e3					1.0	NO		bd		0.000
19	FUNCTION2 PFK	29.94	1.790e4					1.2	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:52 Pacific Daylight Time

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	33.14	9.515e4					4.7	YES		bd		0.000
2	FUNCTION3 PFK	33.05	8.497e4					3.1	YES		bb		0.000
3	FUNCTION3 PFK	34.63	1.777e4					1.5	NO		dd		0.000
4	FUNCTION3 PFK	34.58	1.295e4					1.5	NO		dd		0.000
5	FUNCTION3 PFK	34.53	3.941e4					2.1	NO		dd		0.000
6	FUNCTION3 PFK	34.48	6.031e4					2.3	NO		dd		0.000
7	FUNCTION3 PFK	34.40	5.087e4					2.6	NO		bd		0.000
8	FUNCTION3 PFK	34.29	5.777e4					2.5	NO		db		0.000
9	FUNCTION3 PFK	34.21	1.101e4					1.0	NO		bd		0.000
10	FUNCTION3 PFK	33.98	5.834e3					0.9	NO		bb		0.000
11	FUNCTION3 PFK	33.88	3.220e3					0.7	NO		bb		0.000
12	FUNCTION3 PFK	33.83	2.698e4					1.4	NO		db		0.000
13	FUNCTION3 PFK	33.75	3.759e3					0.5	NO		bd		0.000
14	FUNCTION3 PFK	33.63	1.391e4					1.4	NO		bb		0.000
15	FUNCTION3 PFK	33.49	3.577e4					1.8	NO		db		0.000
16	FUNCTION3 PFK	33.43	1.281e4					1.2	NO		bd		0.000
17	FUNCTION3 PFK	33.33	2.748e4					2.4	NO		db		0.000
18	FUNCTION3 PFK	33.24	1.831e5					4.2	YES		dd		0.000
19	FUNCTION3 PFK	37.38	3.173e4					0.9	NO		bb		0.000
20	FUNCTION3 PFK	37.30	1.323e4					1.5	NO		db		0.000
21	FUNCTION3 PFK	37.26	3.255e4					1.7	NO		bd		0.000
22	FUNCTION3 PFK	36.88	2.589e4					1.5	NO		db		0.000
23	FUNCTION3 PFK	36.82	7.160e3					0.7	NO		bd		0.000
24	FUNCTION3 PFK	36.69	4.349e3					0.6	NO		bb		0.000
25	FUNCTION3 PFK	36.56	2.484e3					0.6	NO		bb		0.000
26	FUNCTION3 PFK	36.37	6.493e3					0.7	NO		bb		0.000
27	FUNCTION3 PFK	36.28	4.865e3					0.6	NO		bb		0.000
28	FUNCTION3 PFK	36.11	3.208e3					0.3	NO		bb		0.000
29	FUNCTION3 PFK	35.72	6.678e4					2.1	NO		db		0.000
30	FUNCTION3 PFK	35.64	8.841e4					2.1	NO		dd		0.000
31	FUNCTION3 PFK	35.50	3.472e4					1.9	NO		bd		0.000
32	FUNCTION3 PFK	34.87	4.841e3					0.7	NO		bb		0.000
33	FUNCTION3 PFK	34.77	1.603e3					0.4	NO		bb		0.000
34	FUNCTION3 PFK	34.68	4.657e3					0.6	NO		db		0.000
35	FUNCTION3 PFK	37.80	5.835e3					0.7	NO		bb		0.000
36	FUNCTION3 PFK	37.54	2.824e4					1.4	NO		bb		0.000

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	40.58	6.354e3					1.2	NO		bb		
2	FUNCTION4 PFK	40.17	4.901e3					1.0	NO		bb		
3	FUNCTION4 PFK	39.84	3.538e3					0.8	NO		bb		
4	FUNCTION4 PFK	39.68	4.077e3					0.9	NO		bb		
5	FUNCTION4 PFK	39.48	3.279e3					0.8	NO		bb		
6	FUNCTION4 PFK	39.39	6.026e3					1.2	NO		bb		
7	FUNCTION4 PFK	39.19	9.173e2					0.4	NO		bb		
8	FUNCTION4 PFK	38.92	5.050e3					0.9	NO		bb		
9	FUNCTION4 PFK	38.78	1.451e4					2.4	NO		db		
10	FUNCTION4 PFK	38.54	1.561e6					11.6	YES		dd		
11	FUNCTION4 PFK	38.14	3.994e5					26.0	YES		dd		
12	FUNCTION4 PFK	38.08	2.475e5					28.5	YES		dd		
13	FUNCTION4 PFK	37.99	7.284e5					31.9	YES		bd		
14	FUNCTION4 PFK	42.92	8.073e3					1.6	NO		bb		
15	FUNCTION4 PFK	42.42	1.987e3					0.6	NO		bb		
16	FUNCTION4 PFK	42.10	1.746e3					0.6	NO		bb		
17	FUNCTION4 PFK	41.99	9.772e2					0.4	NO		bb		
18	FUNCTION4 PFK	41.94	1.556e3					0.7	NO		bb		
19	FUNCTION4 PFK	41.84	1.321e3					0.6	NO		bb		
20	FUNCTION4 PFK	41.80	5.071e3					1.2	NO		bb		
21	FUNCTION4 PFK	40.94	2.294e4					1.8	NO		bb		
22	FUNCTION4 PFK	40.65	9.789e3					1.3	NO		bb		

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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	43.73	8.251e2					0.6	NO		bb		
2	FUNCTION5 PFK	43.69	7.819e3					1.4	NO		bb		
3	FUNCTION5 PFK	43.57	3.794e3					0.9	NO		bb		
4	FUNCTION5 PFK	43.35	3.428e3					1.2	NO		bb		
5	FUNCTION5 PFK	43.25	5.614e3					1.4	NO		bb		
6	FUNCTION5 PFK	43.07	1.786e3					1.1	NO		bb		
7	FUNCTION5 PFK	45.94	1.888e3					0.8	NO		bb		
8	FUNCTION5 PFK	45.66	7.132e3					1.0	NO		bb		
9	FUNCTION5 PFK	45.57	2.994e3					1.0	NO		bb		
10	FUNCTION5 PFK	45.53	2.148e3					0.6	NO		bb		
11	FUNCTION5 PFK	45.43	2.990e3					1.1	NO		bb		
12	FUNCTION5 PFK	44.97	4.710e3					1.5	NO		bb		
13	FUNCTION5 PFK	44.92	1.019e4					1.9	NO		bb		
14	FUNCTION5 PFK	44.76	1.003e4					1.5	NO		db		
15	FUNCTION5 PFK	44.66	7.554e3					1.3	NO		bd		
16	FUNCTION5 PFK	44.18	2.048e3					0.9	NO		bb		
17	FUNCTION5 PFK	44.08	7.452e3					1.6	NO		db		
18	FUNCTION5 PFK	44.04	5.205e3					1.5	NO		bd		
19	FUNCTION5 PFK	43.89	8.228e3					1.6	NO		bb		
20	FUNCTION5 PFK	43.79	1.039e4					2.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.68	8.044e1					1.4	NO		bb		0.000
2	FUNCTION1 HXCD...	27.12	2.249e2					4.8	YES		db		0.000
3	FUNCTION1 HXCD...	27.02	1.053e2					2.6	NO		bd		0.000
4	FUNCTION1 HXCD...	25.58	8.429e1					2.3	NO		bb		0.000
5	FUNCTION1 HXCD...	23.17	7.895e1					2.2	NO		bb		0.000

ETHERS2

	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\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:52 Pacific Daylight Time

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, 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...	31.51	7.024e1					1.3	NO		bb		0.000
2	FUNCTION2 HPCD...	31.08	1.739e2					3.2	YES		bb		0.000
3	FUNCTION2 HPCD...	28.83	9.031e1					1.5	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													

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.02	8.571e1					3.1	YES		bb		0.000
2	FUNCTION5 DCDPE	44.47	7.733e1					1.8	NO		bb		0.000

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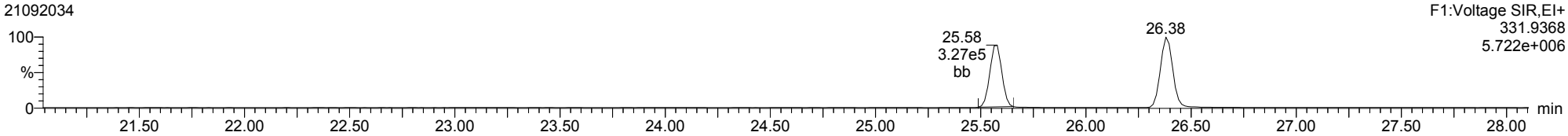
ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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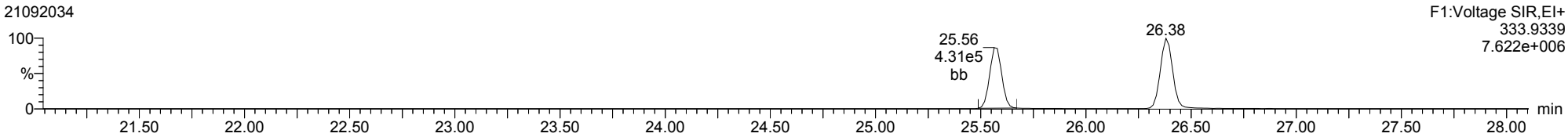

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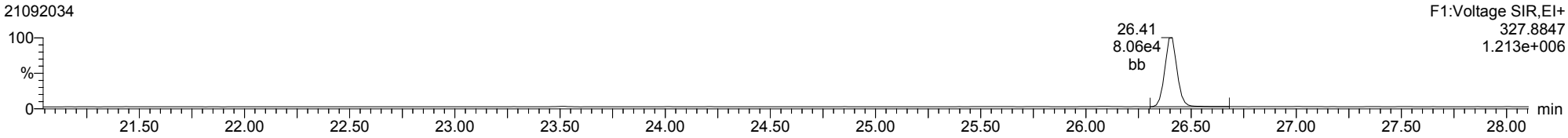

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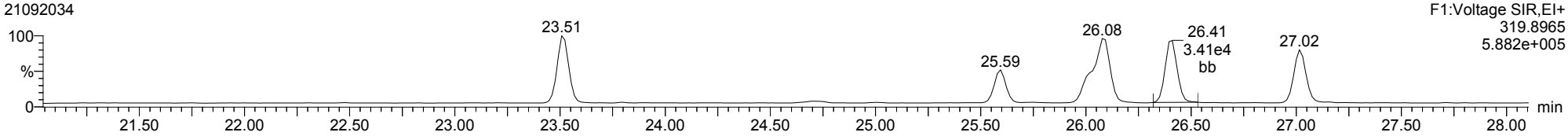
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:38:52 Pacific Daylight Time

ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, Conditions: AUTOSPEC01, User: pk

2378-TCDD



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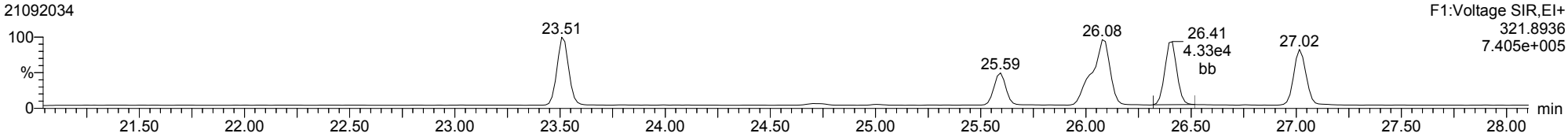

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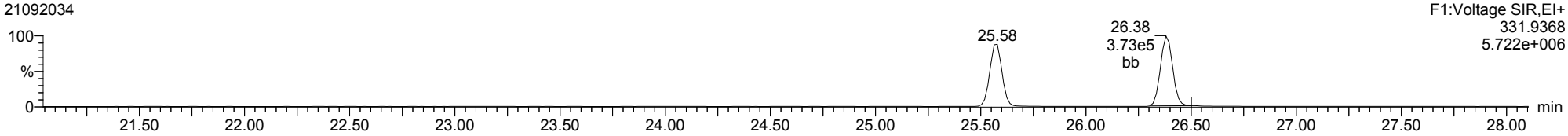

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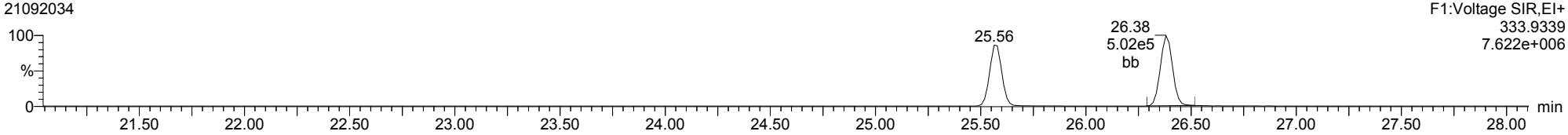

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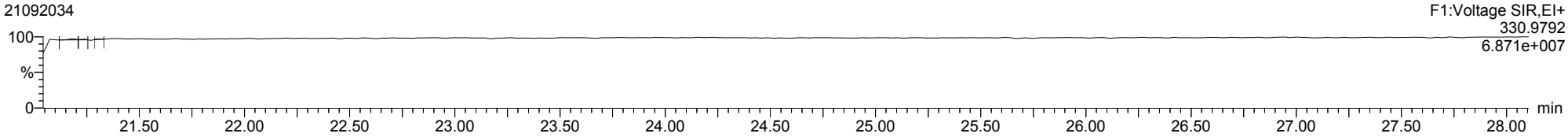

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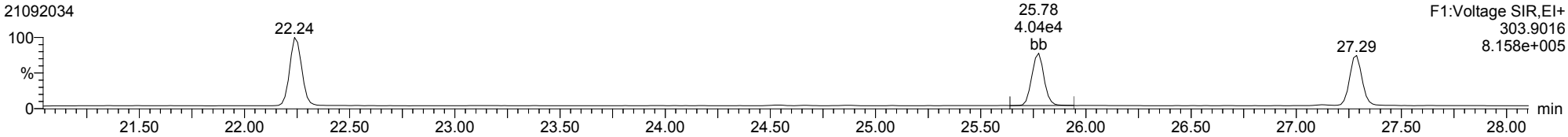
ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, Conditions: AUTOSPEC01, User: pk

2378-TCDF



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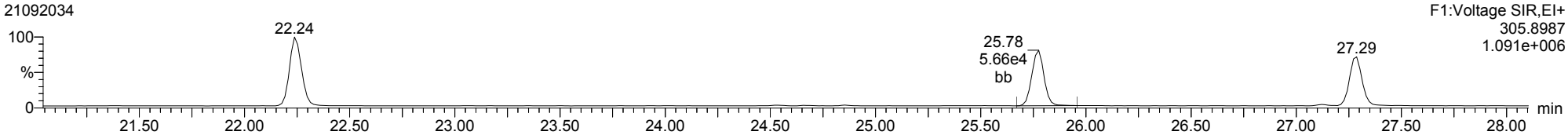

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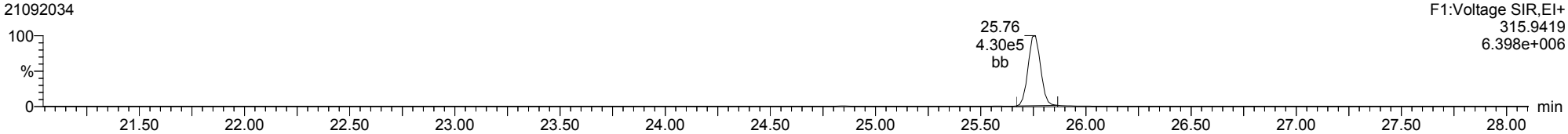

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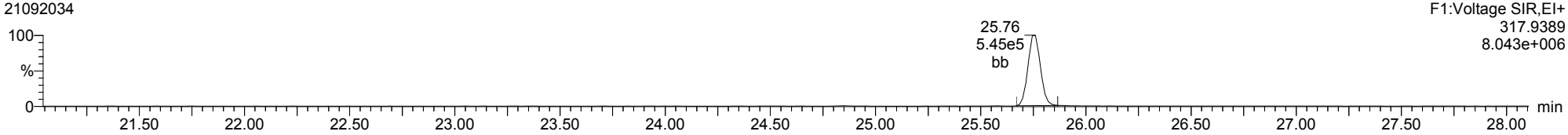

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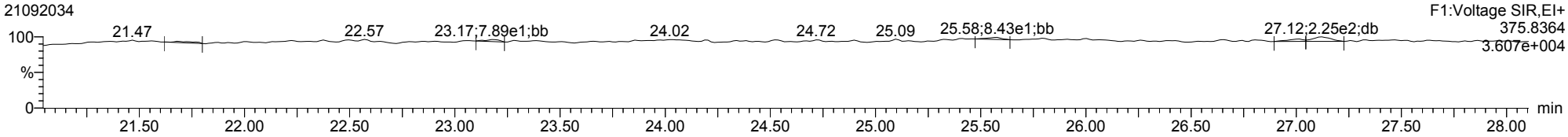

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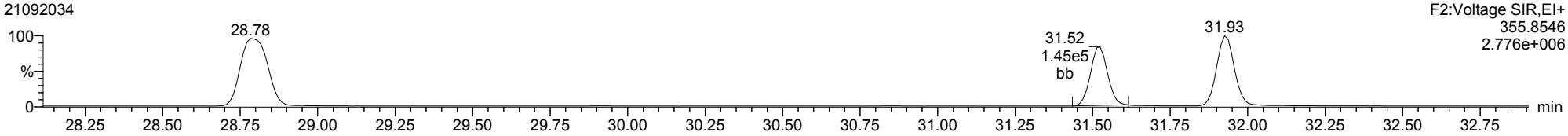
12378-PeCDD



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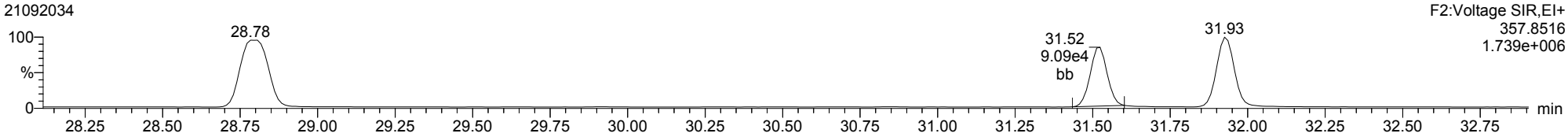

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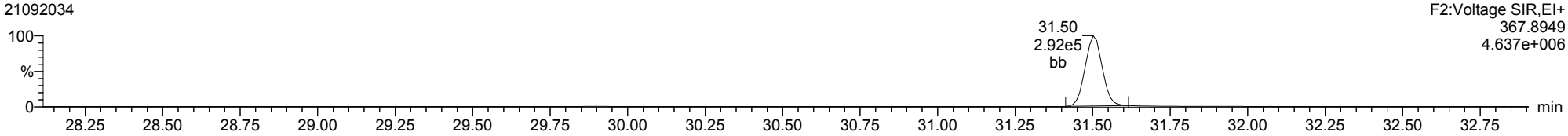

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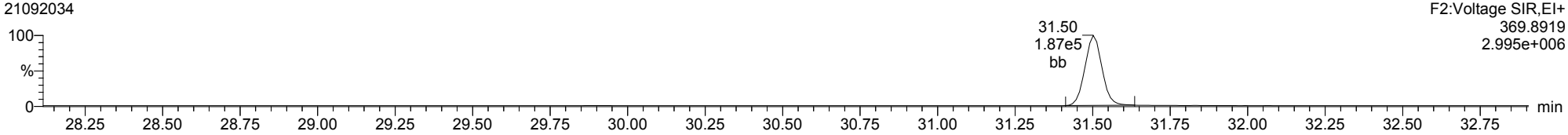

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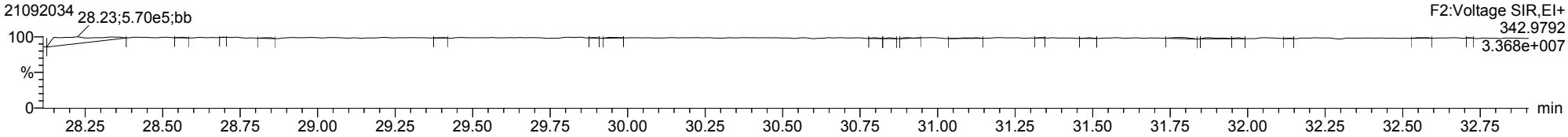

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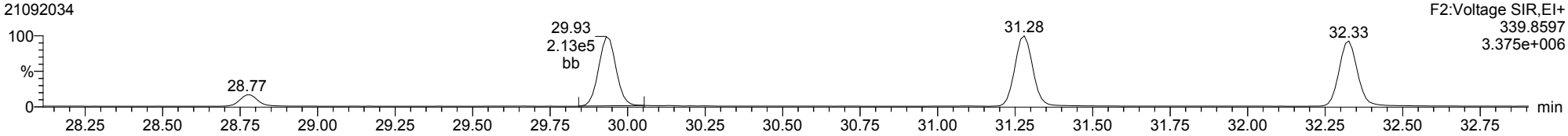

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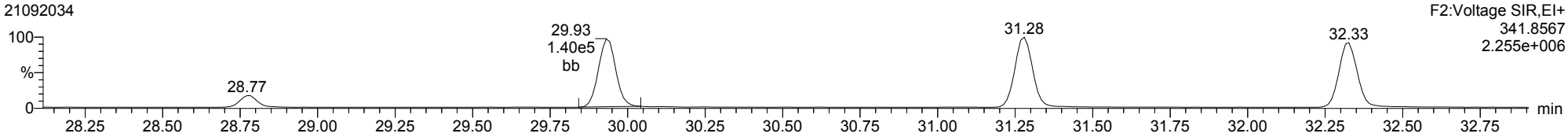

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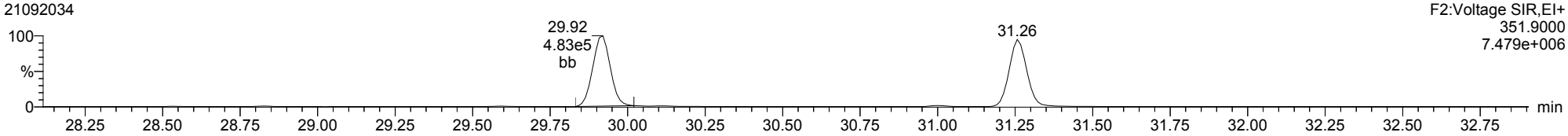

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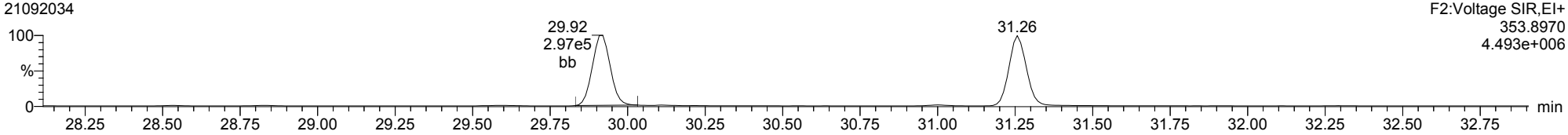

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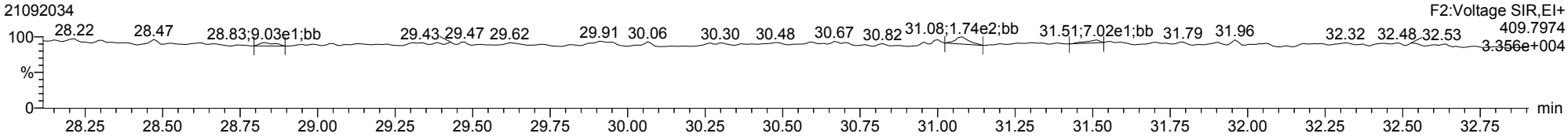

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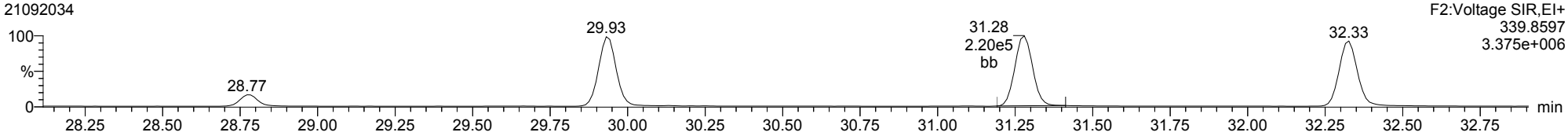

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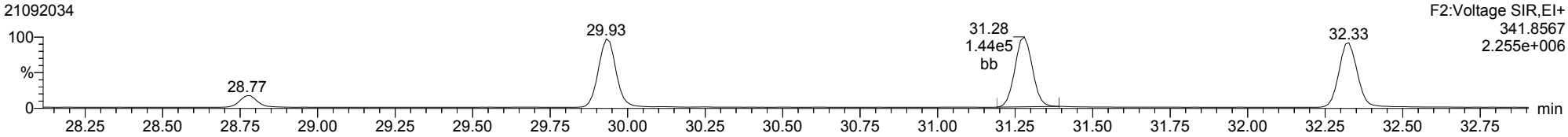

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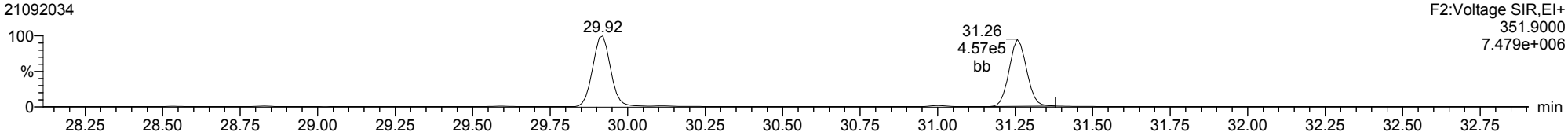

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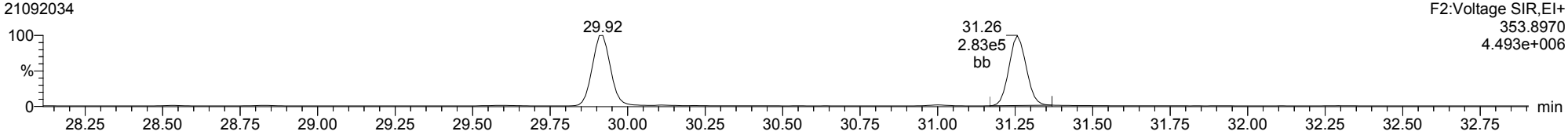

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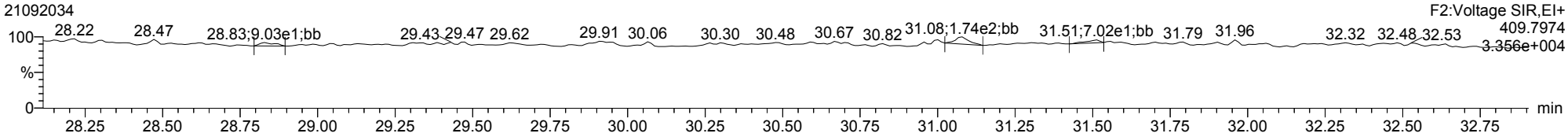

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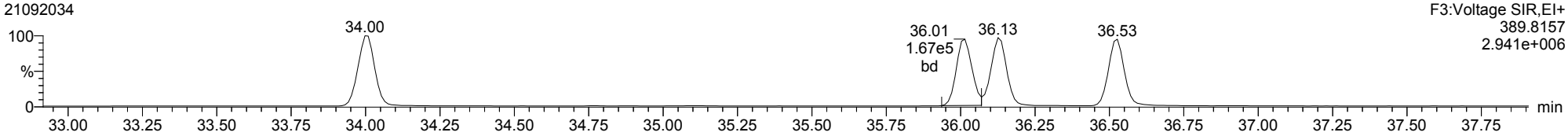
123478-HxCDD



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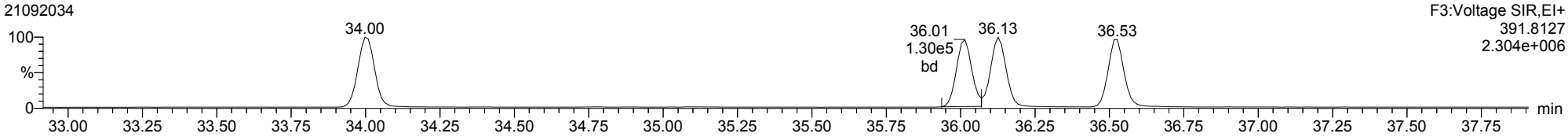

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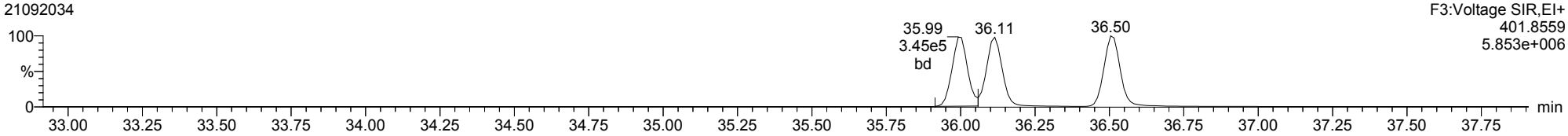

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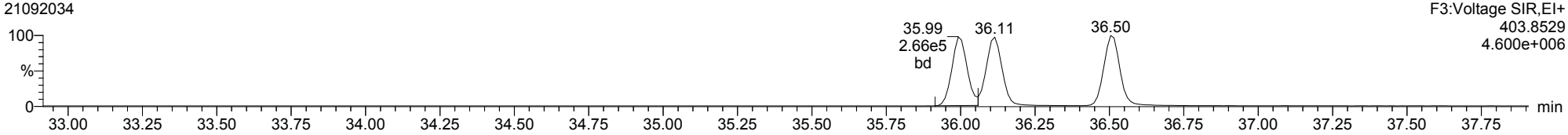

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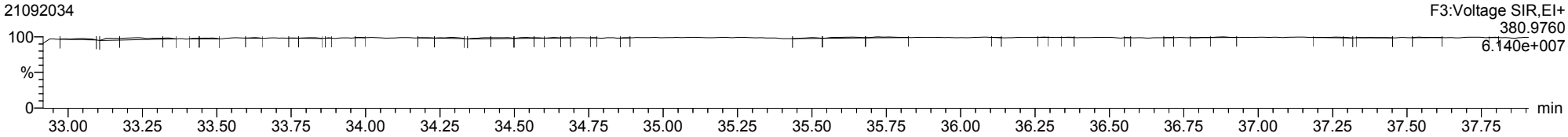

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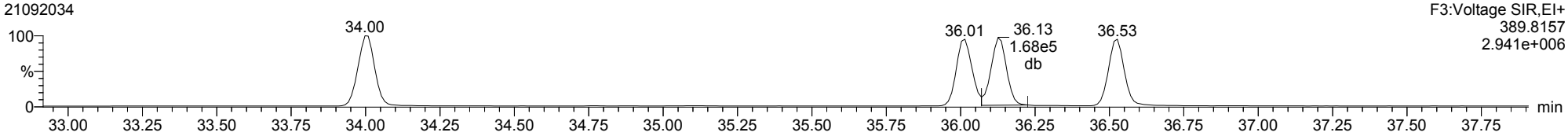

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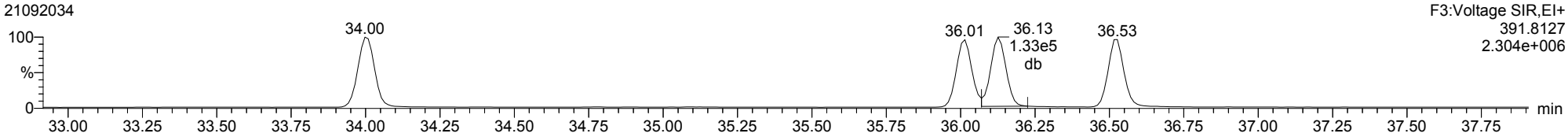

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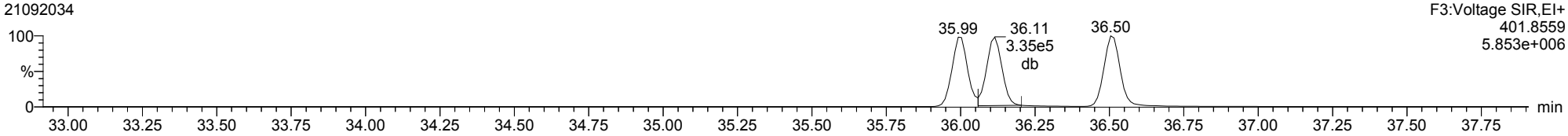

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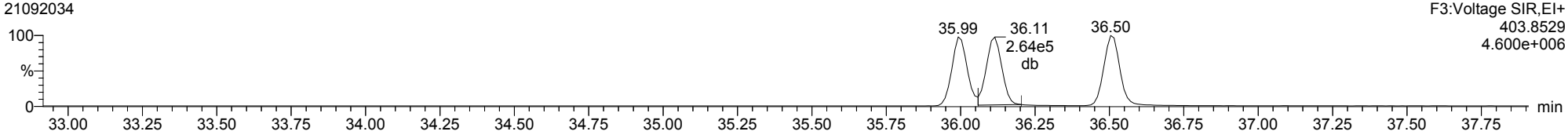

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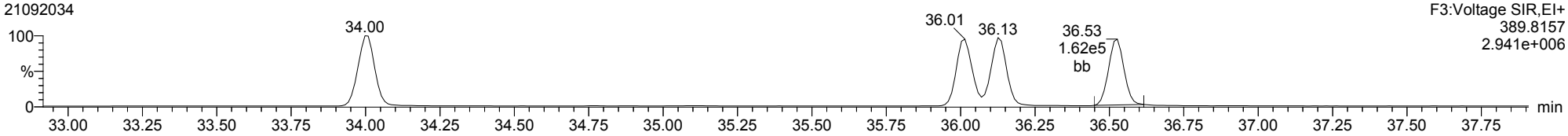

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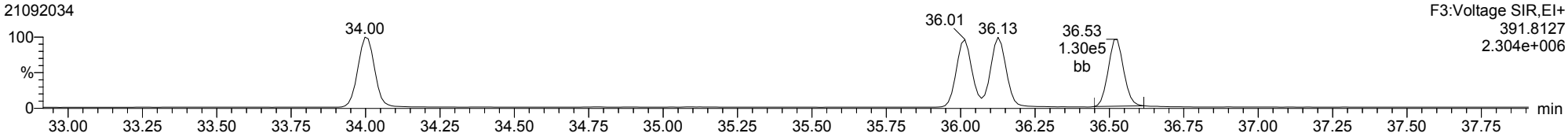

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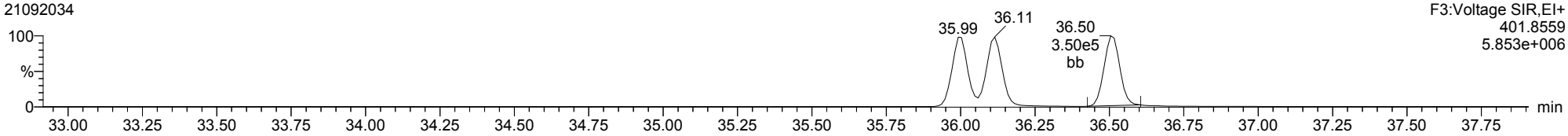

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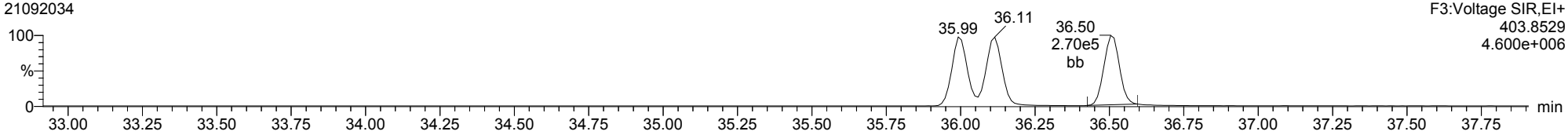

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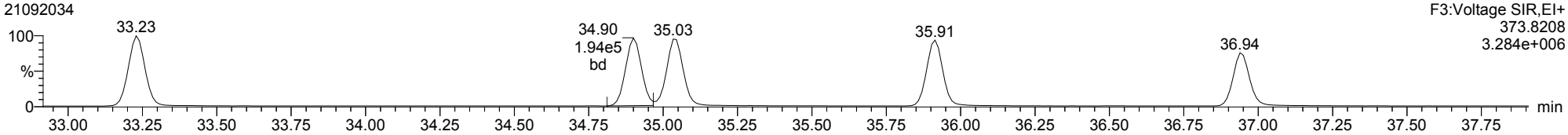

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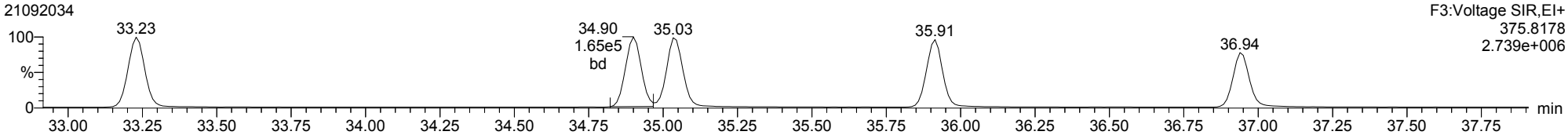

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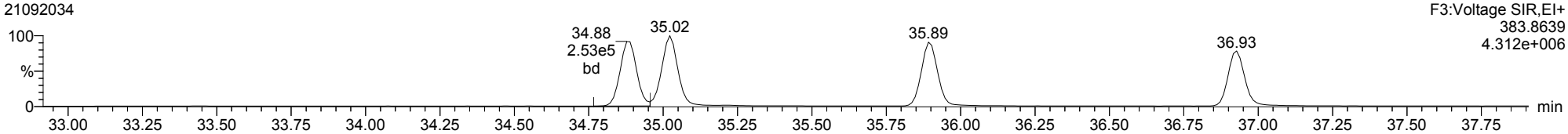

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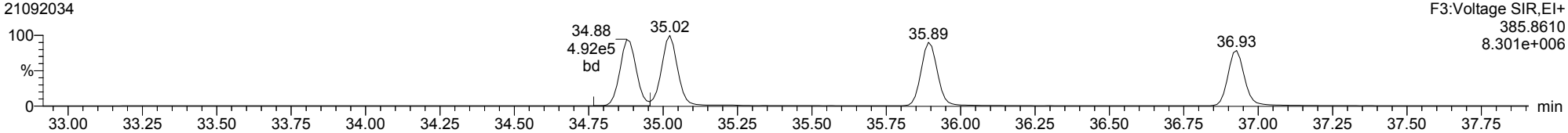

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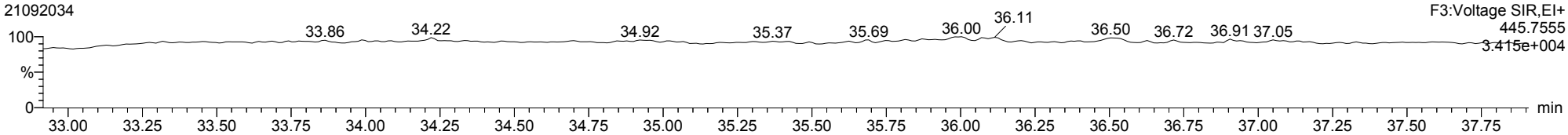

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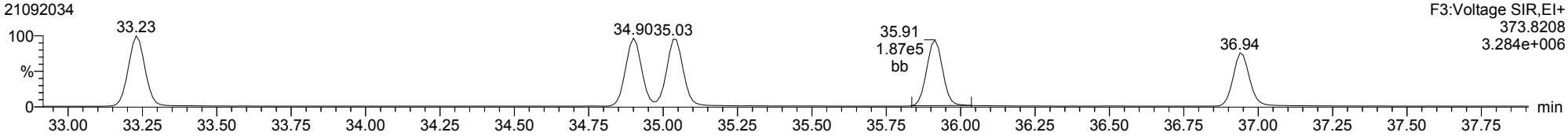
234678-HxCDF



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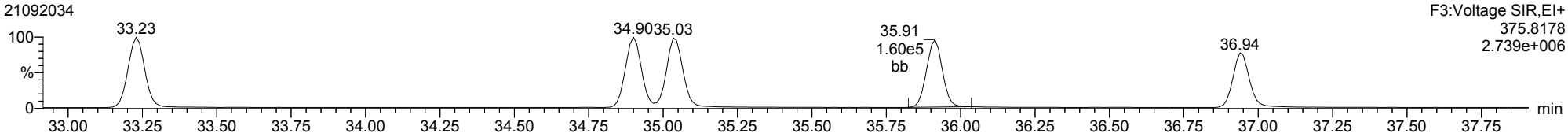

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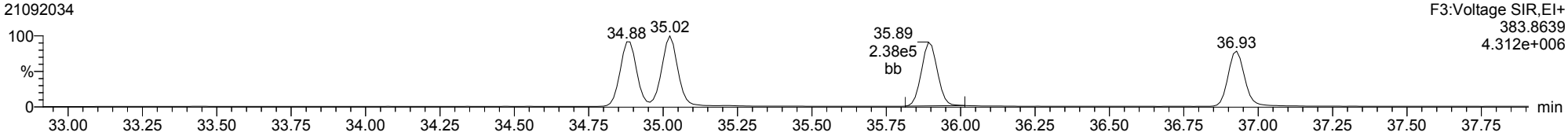

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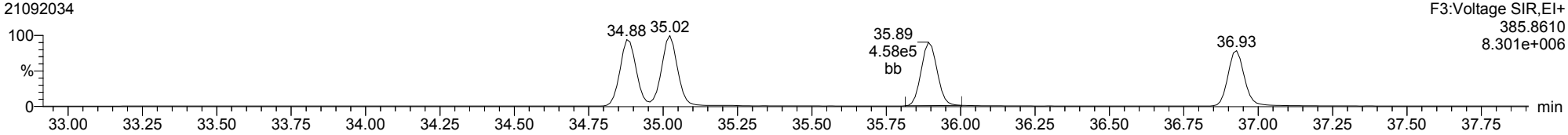

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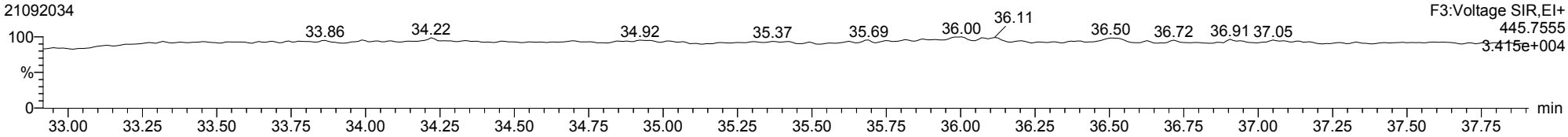

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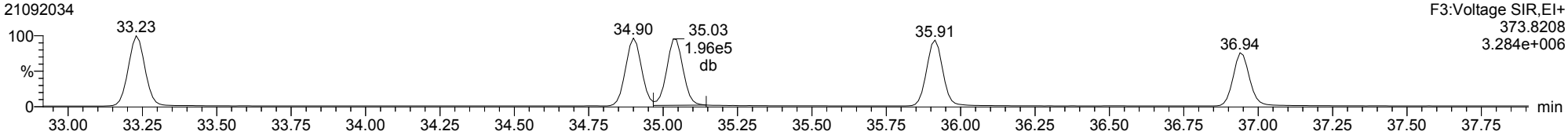

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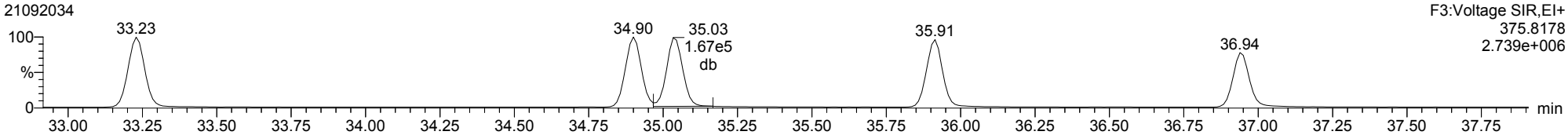

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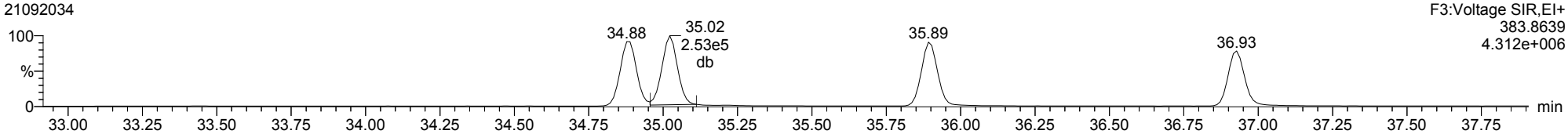

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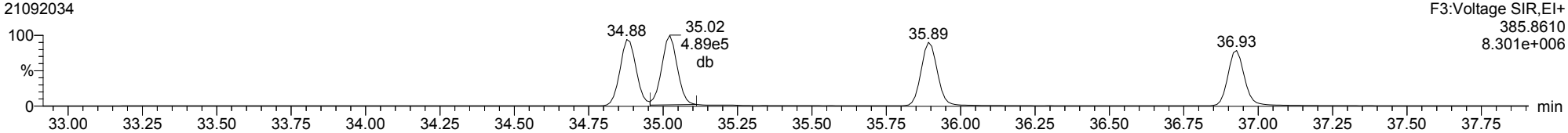
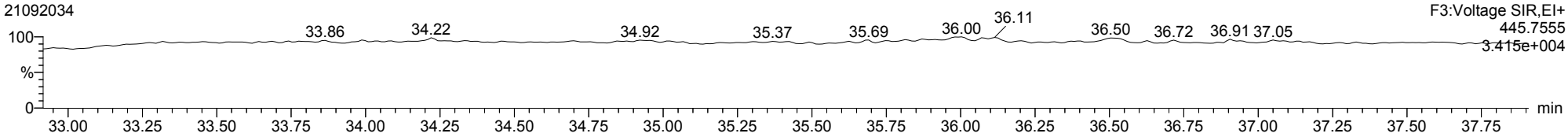


FUNCTION3 OCDPE



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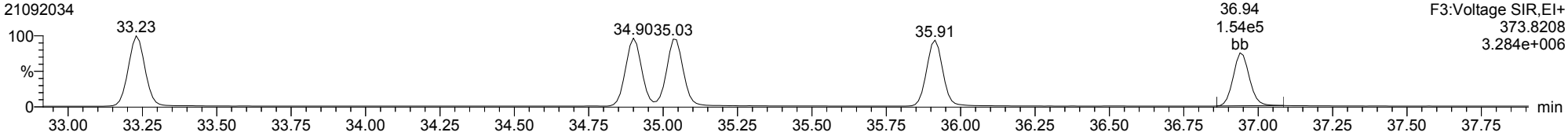

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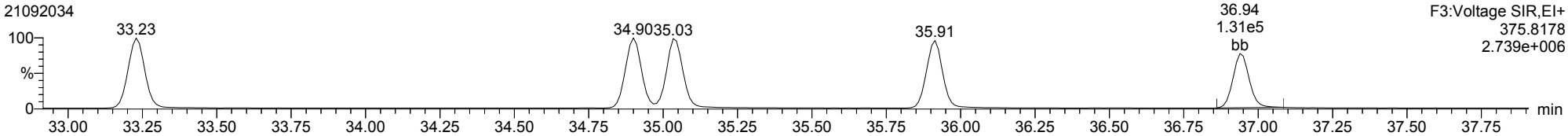

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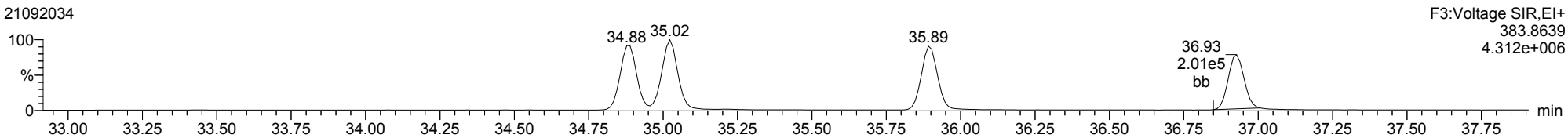

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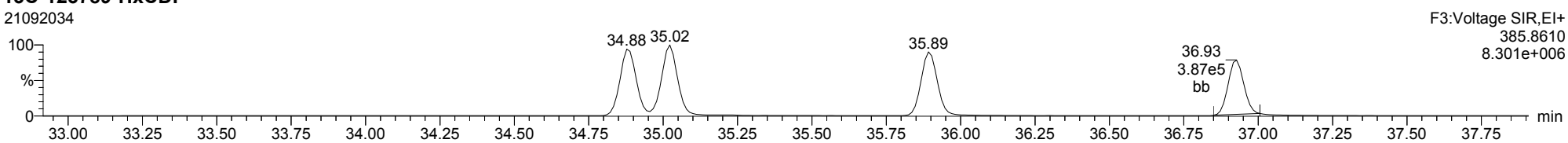
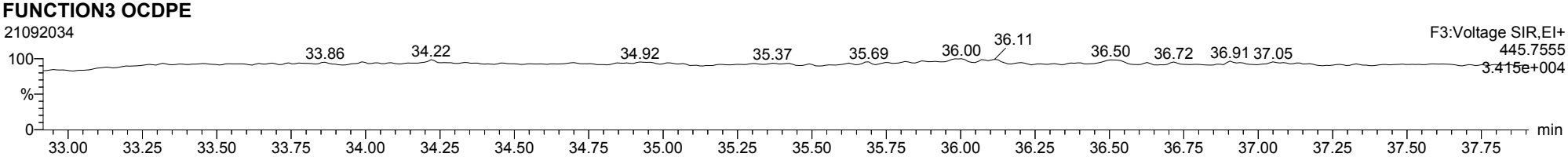


FUNCTION3 OCDPE



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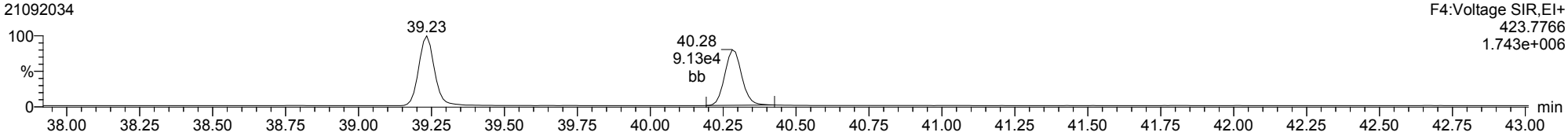

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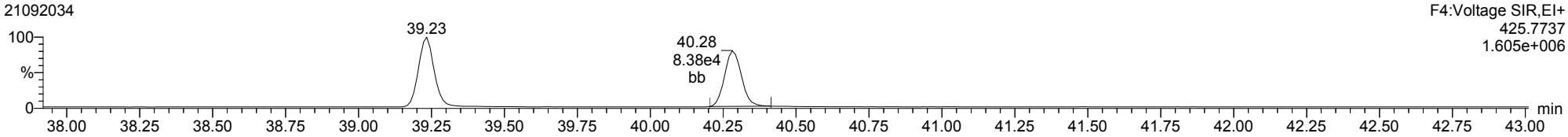

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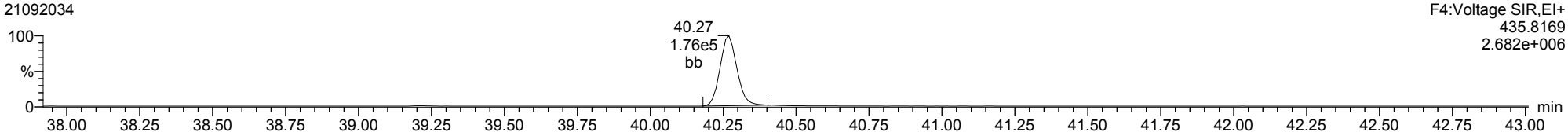

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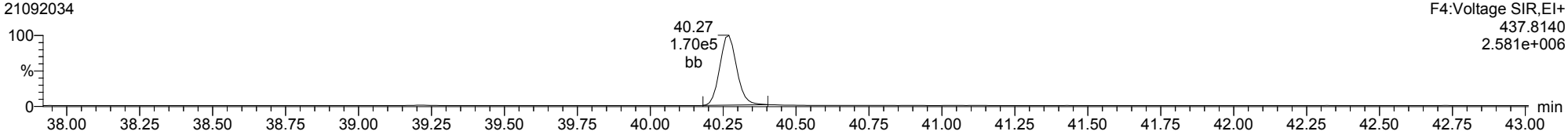

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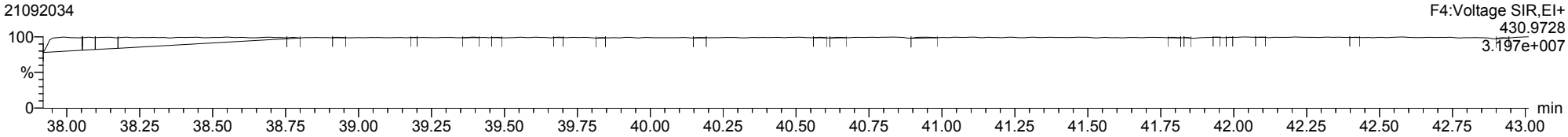

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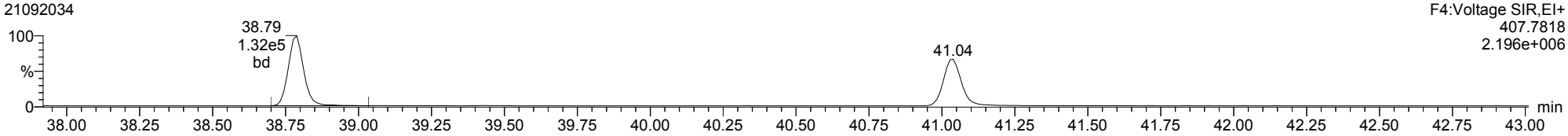

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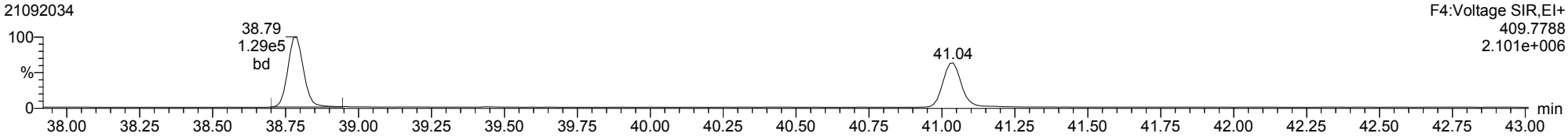

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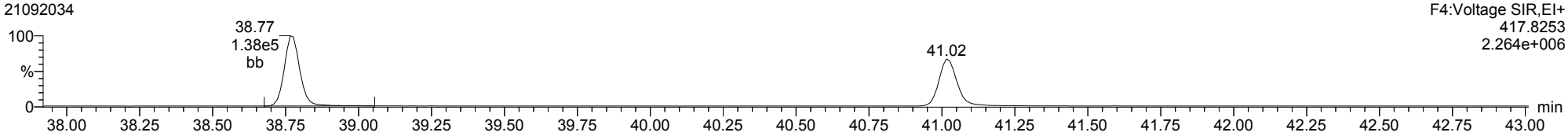

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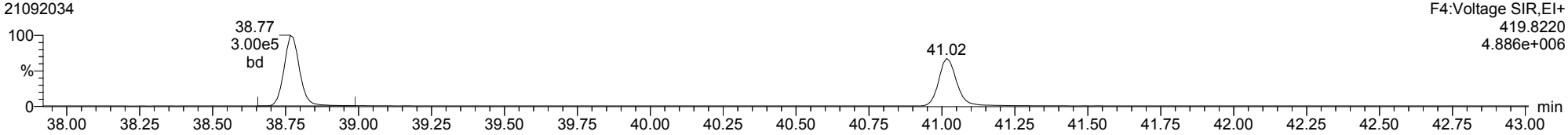

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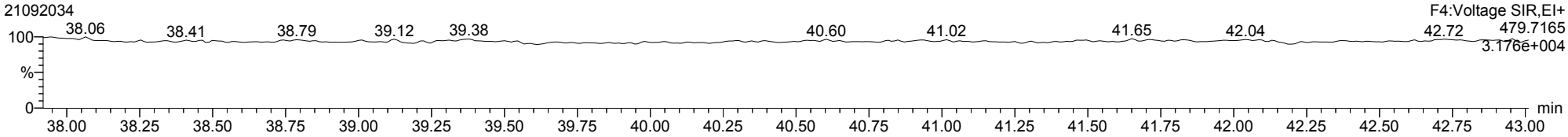

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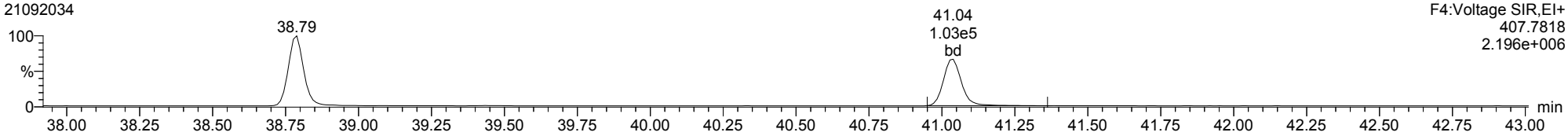

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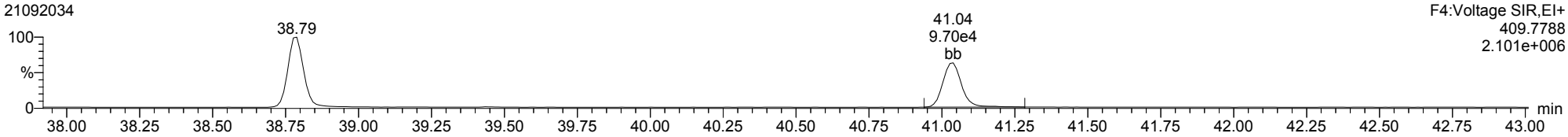

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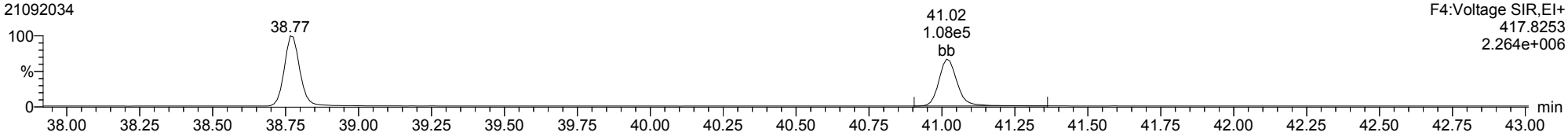

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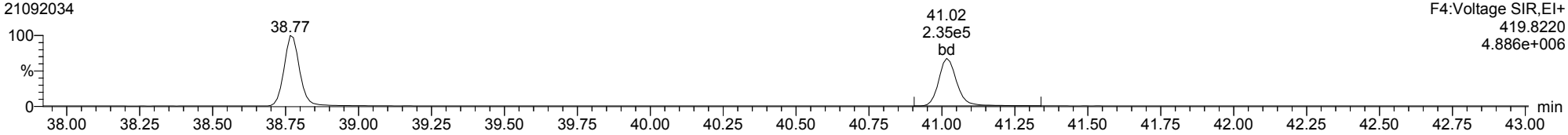
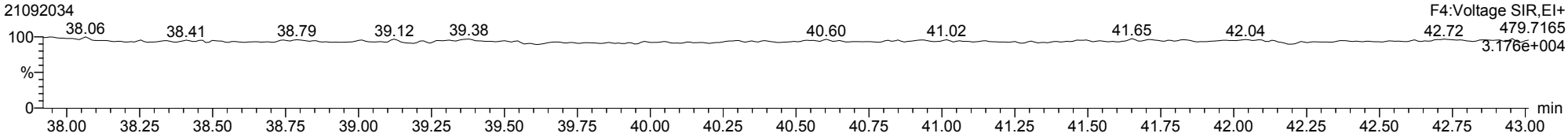


FUNCTION4 NCDPE



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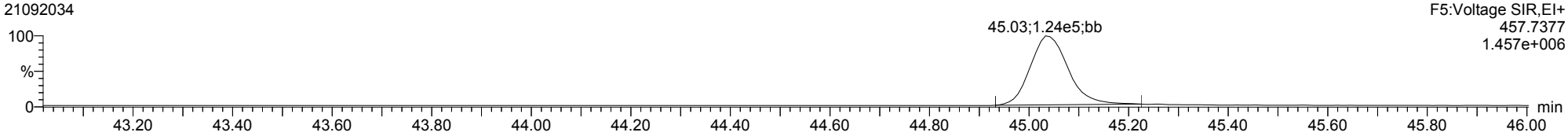

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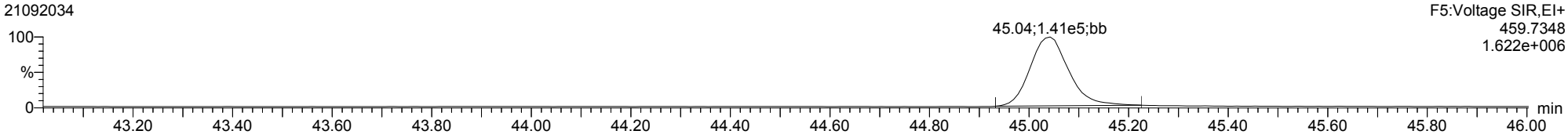

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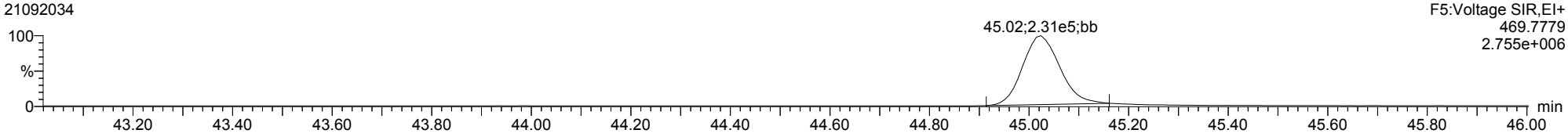

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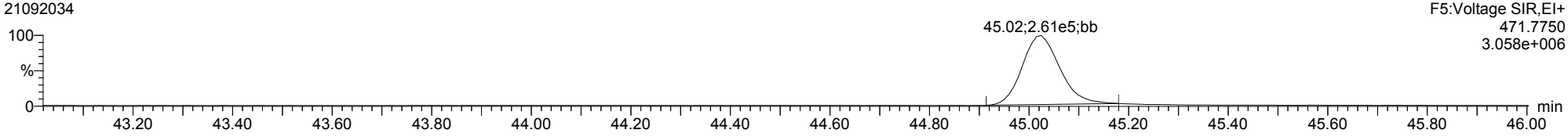

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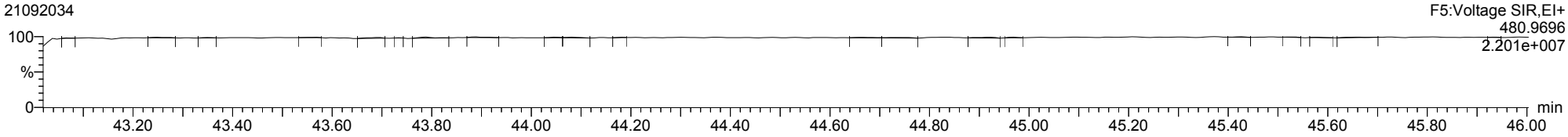

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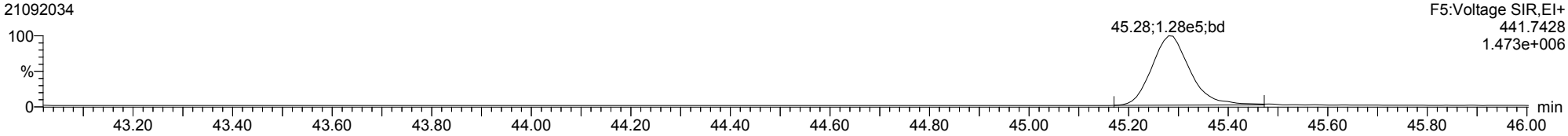
OCDF



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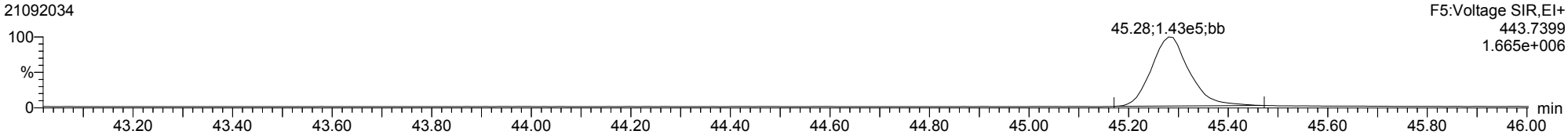

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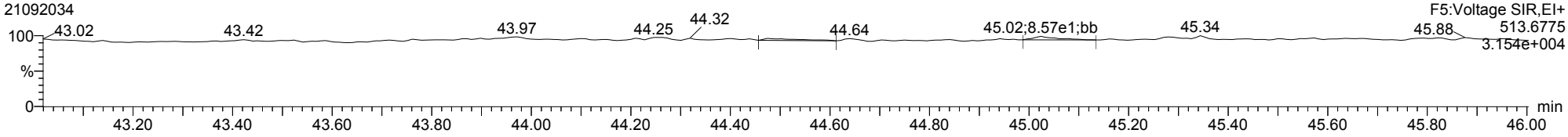

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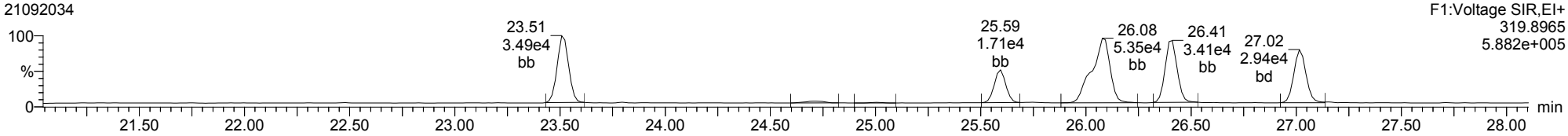
ID: CS3S4, Name: 21092034, Date: 21-Sep-2021, Time: 19:37:20, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



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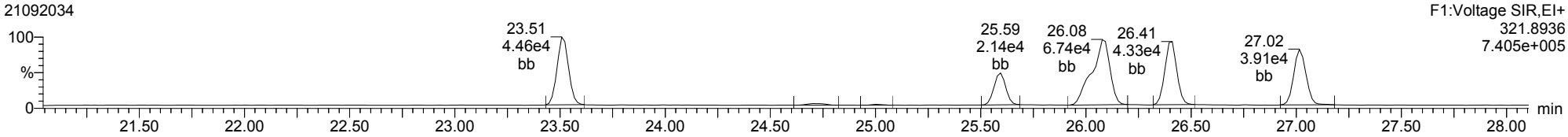

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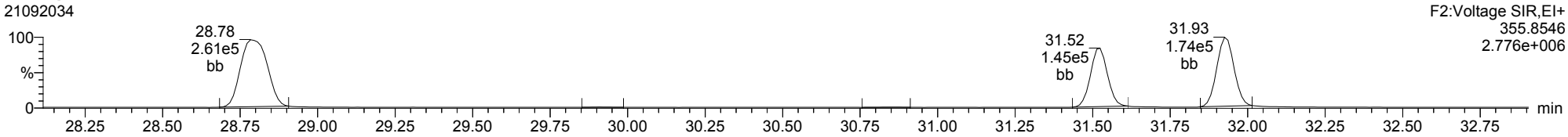

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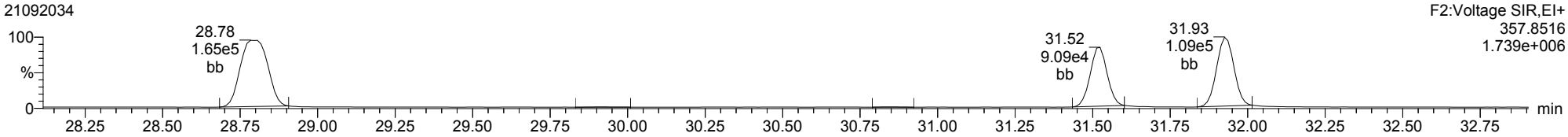

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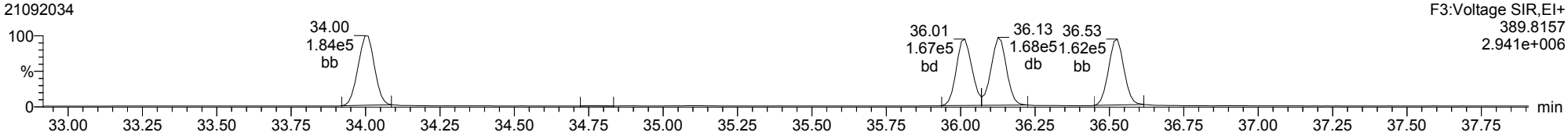

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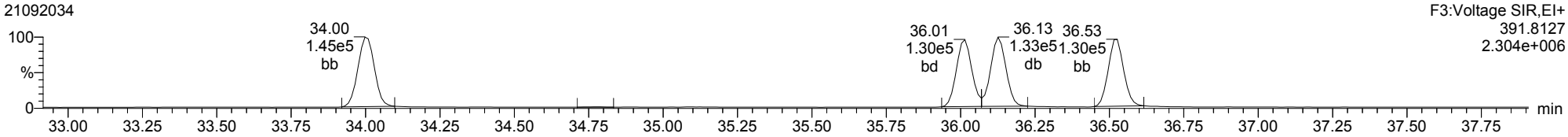

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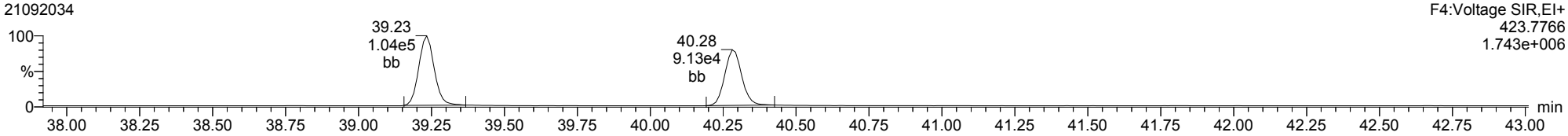

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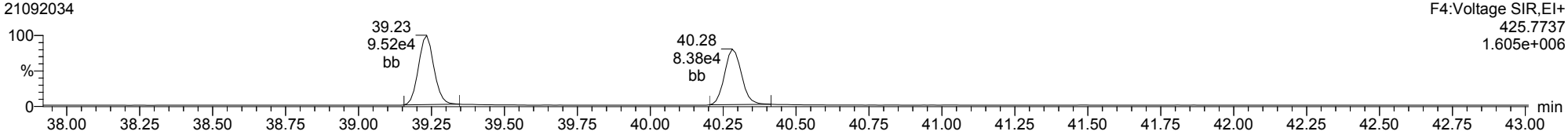

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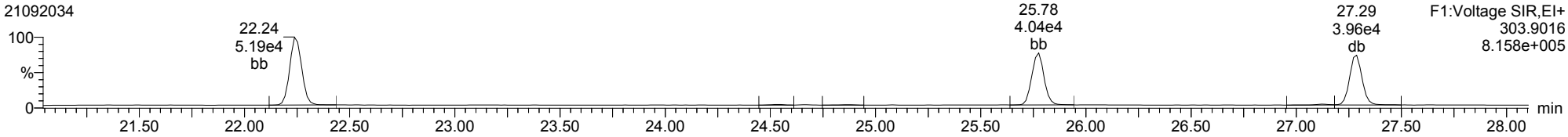
Total-tetrafurans



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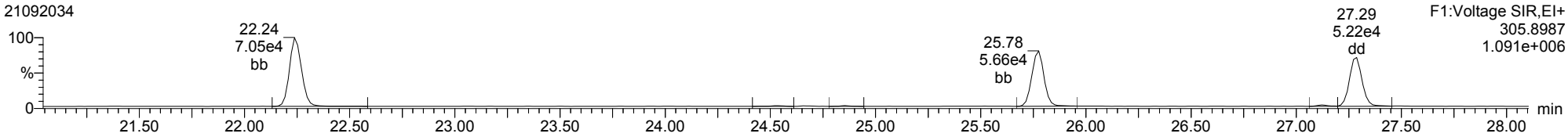

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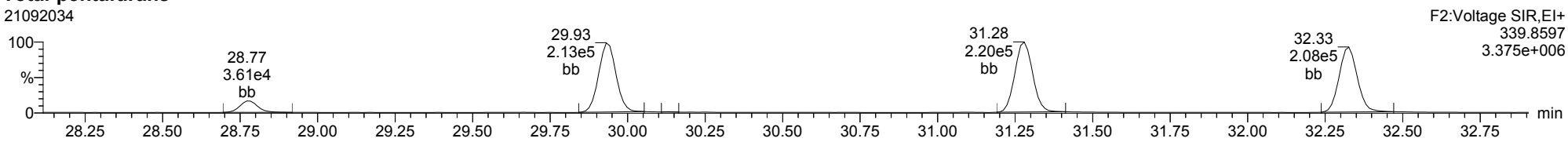

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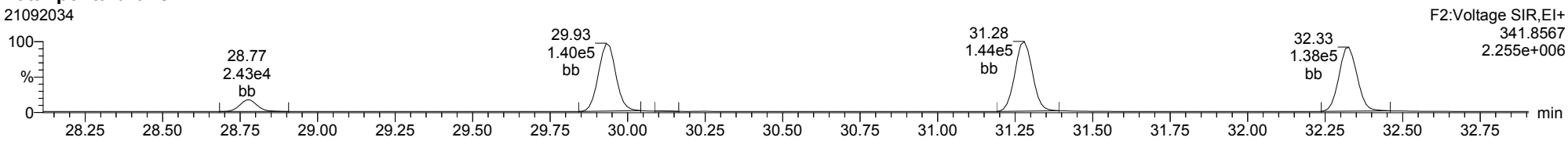

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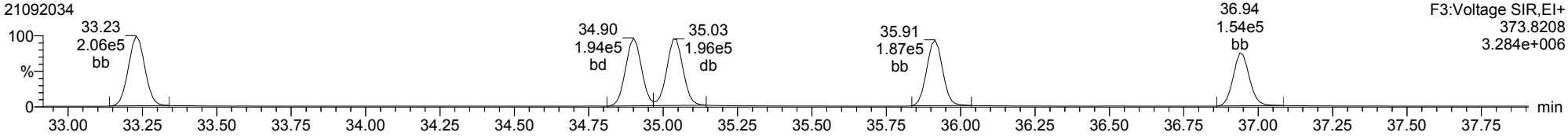
Total-hexafurans



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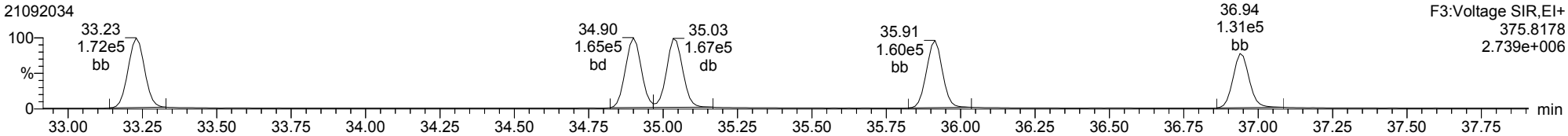

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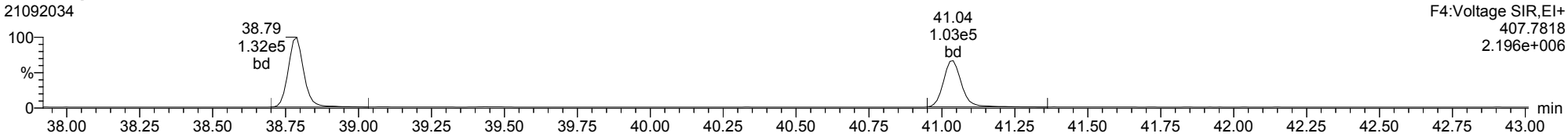

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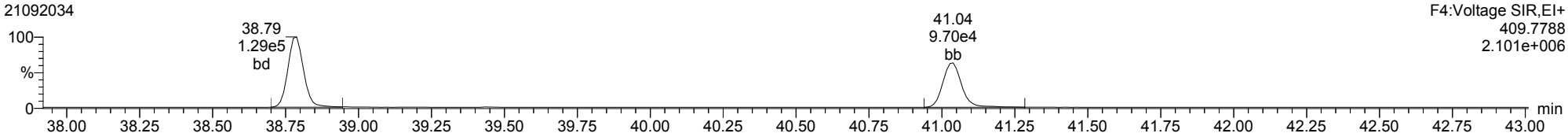

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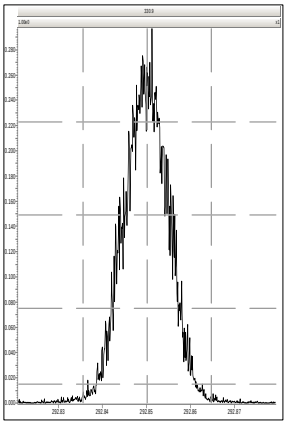

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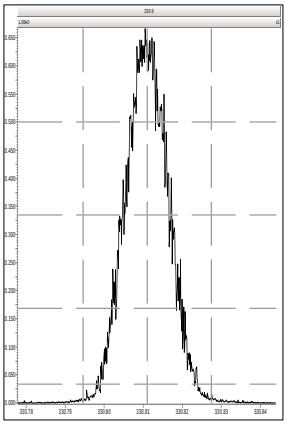

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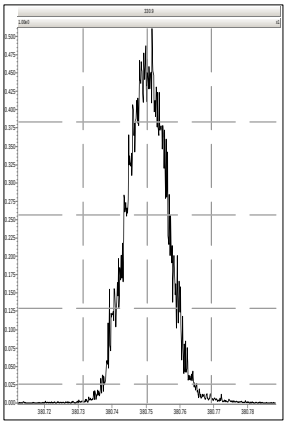

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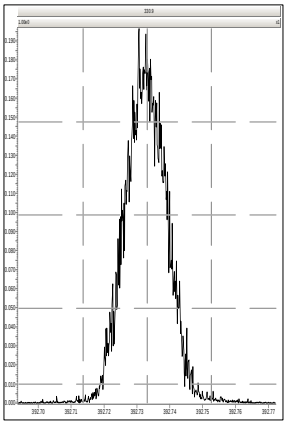

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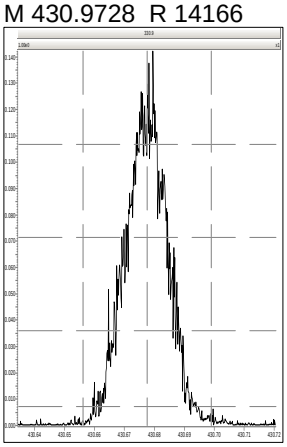

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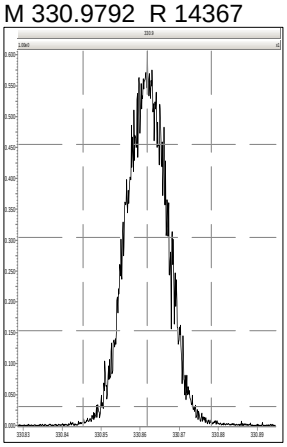

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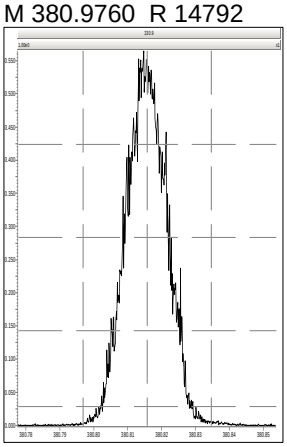

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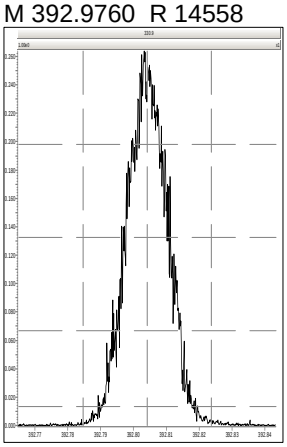

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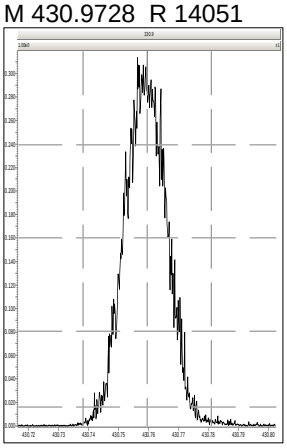

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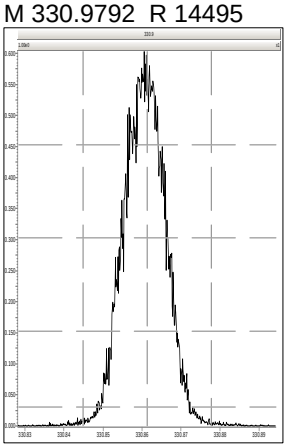

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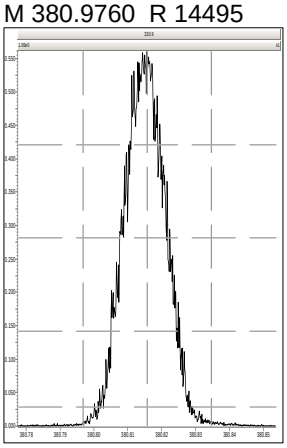
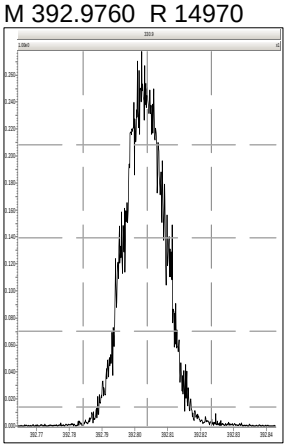
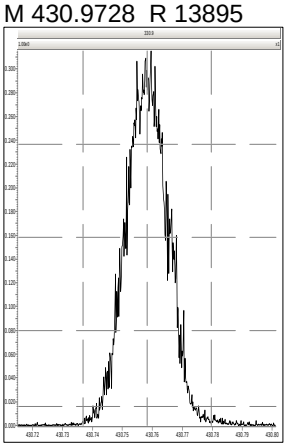


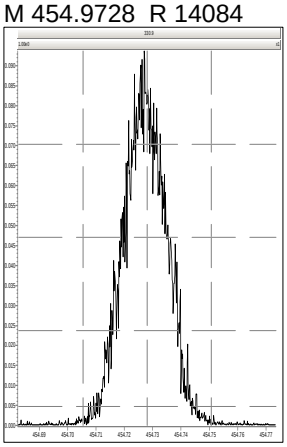
M 392.9760 R 14970



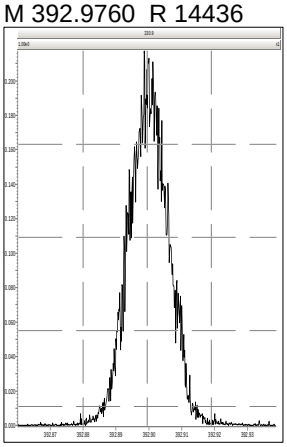
M 430.9728 R 13895



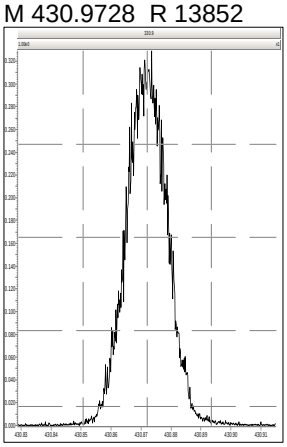
M 454.9728 R 14084



M 392.9760 R 14436

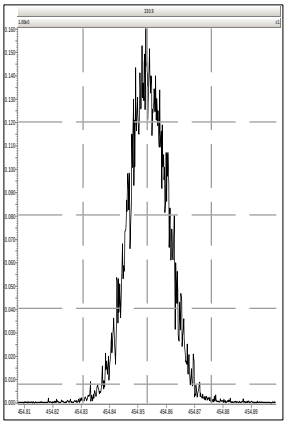


M 430.9728 R 13852

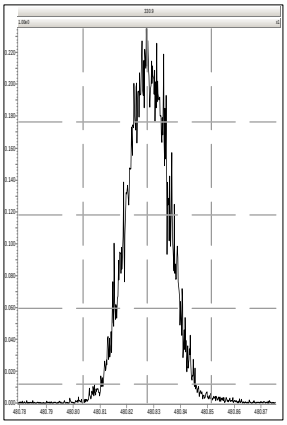


Printed: Tuesday, September 21, 2021 20:30:42 Pacific Daylight Time

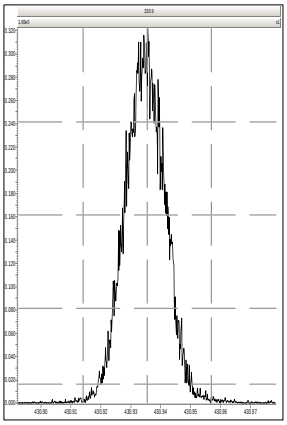
M 454.9728 R 13968



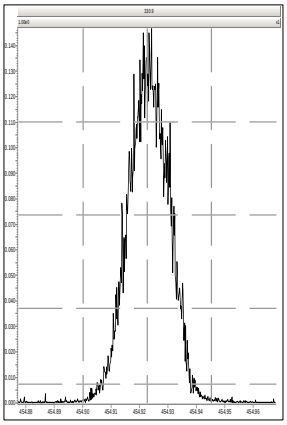
M 480.9696 R 14006



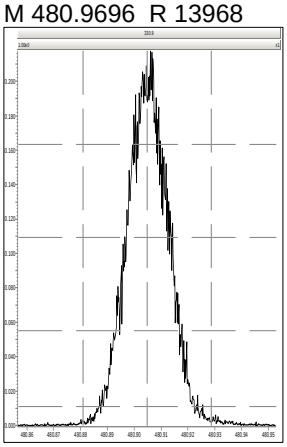
M 430.9728 R 14124



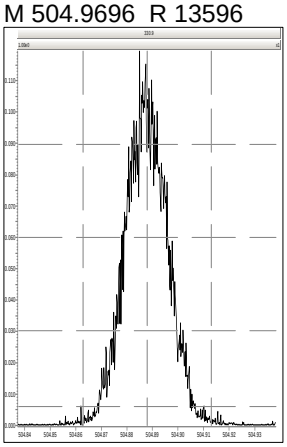
M 454.9728 R 14619



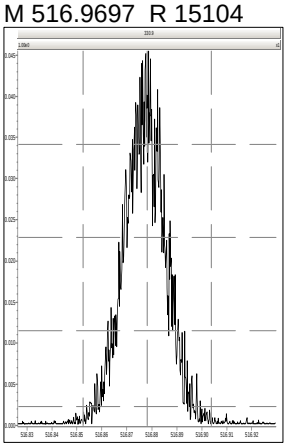
M 480.9696 R 13968

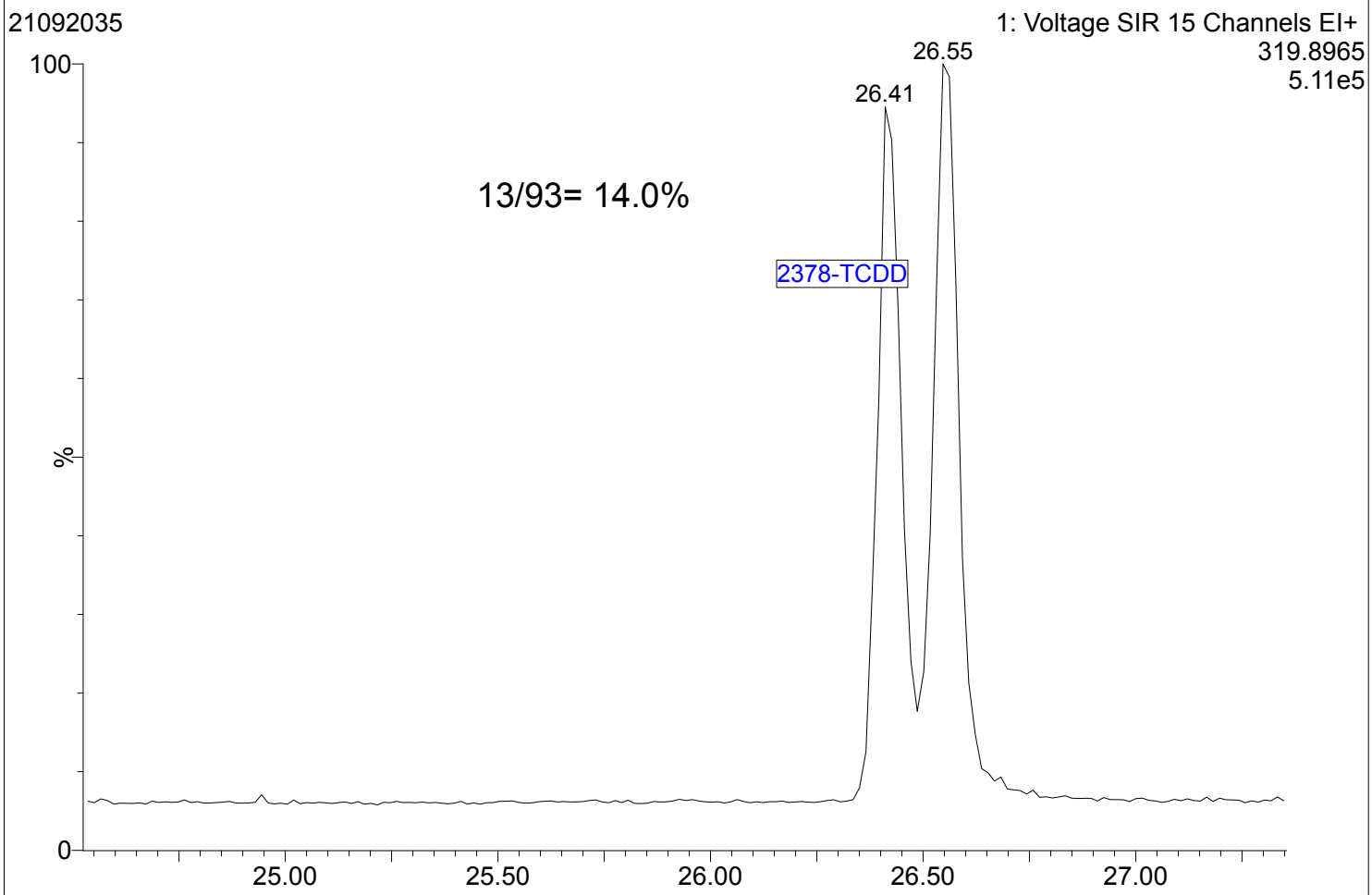


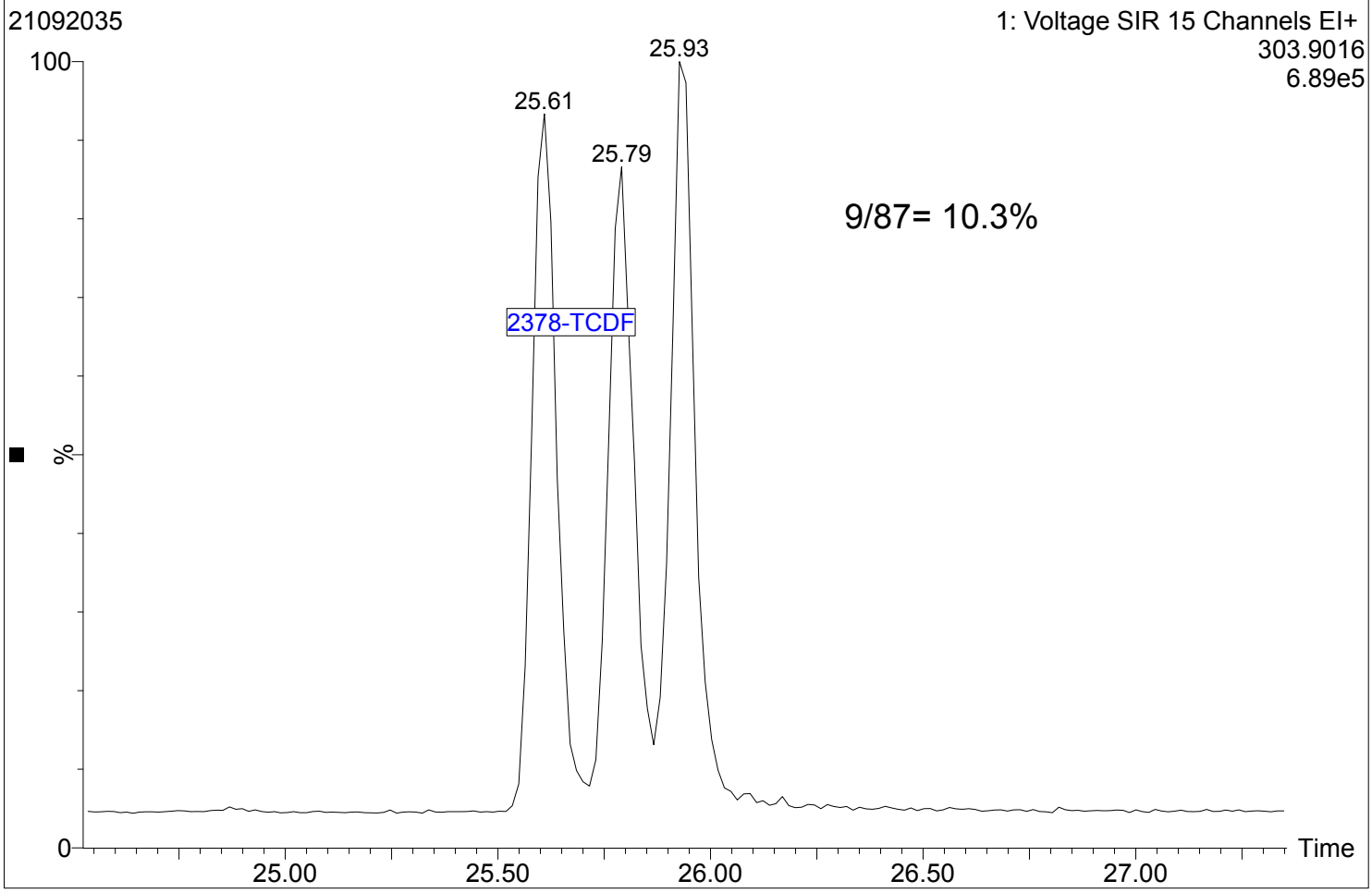
M 504.9696 R 13596



M 516.9697 R 15104




21092035
1: Voltage SIR 15 Channels EI+
319.8965
5.11e5
26.55
26.41
13/93= 14.0%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21092035
1: Voltage SIR 15 Channels EI+
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6.89e5
25.93
25.61
25.79
9/87= 10.3%
2378-TCDF
100
%
0
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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092044	Calibration Date:	08/11/2021
Sequence:	SJI0282	Injection Date:	09/22/21
Lab Sample ID:	SJI0282-CCV2	Injection Time:	03:54
Sequence Name:	CS3S5		

		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	8.83	1.1075930	0.9785076		-11.7	+/-16
2,3,7,8-TCDD	A	10.000	9.65	0.9202875	0.8884601		-3.5	+/-22
1,2,3,7,8-PeCDF	A	50.000	44.4	1.0148670	0.9007923		-11.2	+/-18
2,3,4,7,8-PeCDF	A	50.000	43.7	1.1255490	0.9848090		-12.5	+/-18
1,2,3,7,8-PeCDD	A	50.000	48.8	0.9953229	0.9707953		-2.5	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	48.3	1.0168930	0.9826078		-3.4	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	49.3	1.0368310	1.0215980		-1.5	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	47.3	1.0524660	0.9956335		-5.4	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	47.6	1.0301540	0.9815508		-4.7	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	48.4	1.0273630	0.9952445		-3.1	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	48.4	1.0089800	0.9760038		-3.3	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.1	0.9504865	0.9711059		2.2	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	45.3	1.3273500	1.2037180		-9.3	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	46.5	1.2833380	1.1936170		-7.0	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	48.1	1.0680880	1.0282730		-3.7	+/-14
OCDF	A	100.00	77.9	1.4469010	1.1269290		-22.1	+/-37
OCDD	A	100.00	90.2	1.1808230	1.0655700		-9.8	+/-21
13C12-2,3,7,8-TCDF	A	100.00	95.3	1.4265830	1.3590244		-4.7	+/-29
13C12-2,3,7,8-TCDD	A	100.00	106	1.1164910	1.1792700		5.6	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	85.8	1.2973130	1.1136862		-14.2	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	85.3	1.2364800	1.0544192		-14.7	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	92.8	0.7319833	0.6794128		-7.2	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	97.3	1.2424560	1.2087779		-2.7	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	92.1	1.3434760	1.2371866		-7.9	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	93.8	1.2148550	1.1390795		-6.2	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	93.6	1.0076370	0.9426664		-6.4	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	98.6	0.9598233	0.9464983		-1.4	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	97.4	1.0413850	1.0148223		-2.6	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	77.3	0.9264704	0.7161001		-22.7	+/-22 *
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	72.5	0.7579160	0.5493963		-27.5	+/-23 *
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	86.1	0.6324476	0.5443574		-13.9	+/-28
13C12-OCDD	A	200.00	155	0.5037432	0.3898782		-22.6	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.0	1.0835930	1.0846295		0.1	

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:32:41 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	4.130e4	5.767e4	1.108	0.716	0.770	696	956	6.11e5	8.63e5	876.7	902.9	NO	bd	bd	8.835
12378-PeCDF	29.943	1.001	2.238e5	1.495e5	1.015	1.497	1.550	1967	1623	3.34e6	2.20e6	1698.1	1356.1	NO	bb	bb	44.380
23478-PeCDF	31.279	1.000	2.334e5	1.530e5	1.126	1.526	1.550	1967	1623	3.49e6	2.34e6	1772.8	1440.1	NO	bb	bb	43.748
123478-HxCDF	34.900	1.000	2.057e5	1.736e5	1.017	1.185	1.240	1863	2181	3.18e6	2.71e6	1706.8	1241.2	NO	bd	bd	48.314
234678-HxCDF	35.914	1.000	1.959e5	1.662e5	1.052	1.179	1.240	1863	2181	3.12e6	2.63e6	1676.6	1208.3	NO	bb	bb	47.300
123678-HxCDF	35.045	1.001	2.232e5	1.804e5	1.037	1.237	1.240	1863	2181	3.37e6	2.79e6	1806.6	1280.1	NO	db	db	49.265
123789-HxCDF	36.950	1.001	1.626e5	1.328e5	1.030	1.224	1.240	1863	2181	2.53e6	2.09e6	1357.6	957.8	NO	bb	bb	47.641
1234678-HpCDF	38.788	1.000	1.402e5	1.350e5	1.327	1.038	1.050	1486	1771	2.28e6	2.16e6	1532.1	1222.2	NO	bd	bd	45.343
1234789-HpCDF	41.039	1.000	1.060e5	1.034e5	1.283	1.025	1.050	1486	1771	1.45e6	1.46e6	978.2	822.6	NO	bd	bd	46.504
OCDF	45.289	1.006	1.336e5	1.470e5	1.447	0.909	0.890	886	1528	1.41e6	1.55e6	1594.2	1013.0	NO	bd	bd	77.886
2378-TCDD	26.411	1.001	3.387e4	4.411e4	0.920	0.768	0.770	804	952	5.27e5	6.77e5	655.9	711.4	NO	bb	bb	9.654
12378-PeCDD	31.524	1.001	1.510e5	9.449e4	0.995	1.597	1.550	1772	1718	2.38e6	1.48e6	1342.5	860.5	NO	bb	bb	48.768
123478-HxCDD	36.014	1.000	1.699e5	1.309e5	1.027	1.298	1.240	1709	963	2.73e6	2.20e6	1599.7	2287.0	NO	bd	bd	48.437
123678-HxCDD	36.137	1.001	1.732e5	1.431e5	1.009	1.211	1.240	1709	963	2.80e6	2.25e6	1639.5	2341.0	NO	db	db	48.366
123789-HxCDD	36.527	1.011	1.684e5	1.358e5	0.950	1.240	1.240	1709	963	2.72e6	2.19e6	1591.7	2275.4	NO	bb	bb	51.085
1234678-HpCDD	40.292	1.001	9.139e4	8.736e4	1.068	1.046	1.050	1177	1235	1.31e6	1.22e6	1112.0	989.6	NO	bd	bd	48.136
OCDD	45.042	1.000	1.259e5	1.394e5	1.181	0.903	0.890	1016	710	1.39e6	1.54e6	1370.9	2162.9	NO	bb	bb	90.240
13C-2378-TCDF	25.761	1.007	4.513e5	5.601e5	1.427	0.806	0.770	1902	1136	6.77e6	8.43e6	3562.5	7426.6	NO	bb	bb	95.264
13C-12378-PeCDF	29.920	1.170	5.105e5	3.183e5	1.297	1.604	1.550	2151	1517	7.74e6	4.84e6	3600.0	3187.7	NO	bb	bb	85.846
13C-23478-PeCDF	31.268	1.222	4.842e5	3.006e5	1.236	1.611	1.550	2151	1517	7.14e6	4.47e6	3317.2	2947.4	NO	bb	bb	85.276
13C-123478-HxCDF	34.889	0.955	2.632e5	5.088e5	1.242	0.517	0.510	1312	2555	4.08e6	7.91e6	3107.3	3097.5	NO	bd	bd	97.289
13C-123678-HxCDF	35.023	0.959	2.718e5	5.184e5	1.343	0.524	0.510	1312	2555	4.24e6	8.18e6	3233.4	3200.2	NO	db	db	92.088
13C-234678-HxCDF	35.903	0.983	2.482e5	4.793e5	1.215	0.518	0.510	1312	2555	3.93e6	7.66e6	2992.8	2999.4	NO	bb	bb	93.763
13C-123789-HxCDF	36.928	1.011	2.045e5	3.976e5	1.008	0.514	0.510	1312	2555	3.30e6	6.43e6	2518.1	2516.6	NO	bb	bb	93.552
13C-1234678-HpCDF	38.777	1.062	1.429e5	3.145e5	0.926	0.454	0.440	1308	1998	2.32e6	5.08e6	1775.9	2540.1	NO	bb	bd	77.293
13C-1234789-HpCDF	41.028	1.124	1.092e5	2.417e5	0.758	0.452	0.440	1308	1998	1.49e6	3.24e6	1139.5	1623.5	NO	bb	bd	72.488
13C-1234-TCDD	25.579	0.000	3.231e5	4.211e5	1.000	0.767	0.770	1755	1127	5.01e6	6.48e6	2857.0	5748.5	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.031	3.778e5	4.999e5	1.116	0.756	0.770	1755	1127	5.50e6	7.30e6	3132.6	6473.4	NO	bb	bb	105.623
13C-12378-PeCDD	31.502	1.232	3.085e5	1.972e5	0.732	1.564	1.550	1188	1293	4.69e6	3.01e6	3945.3	2331.3	NO	bb	bb	92.818
13C-123478-HxCDD	36.003	0.986	3.383e5	2.663e5	0.960	1.270	1.240	1506	939	5.54e6	4.44e6	3678.6	4732.5	NO	bd	bd	98.612
13C-123678-HxCDD	36.114	0.989	3.653e5	2.828e5	1.041	1.292	1.240	1506	939	5.76e6	4.49e6	3824.0	4781.1	NO	db	db	97.449
13C-1234678-HpCDD	40.270	1.103	1.783e5	1.693e5	0.632	1.053	1.050	1286	936	2.66e6	2.53e6	2065.8	2706.3	NO	bb	bb	86.072
13C-OCDD	45.024	1.233	2.357e5	2.623e5	0.504	0.899	0.890	1022	972	2.66e6	2.98e6	2603.9	3070.4	NO	bb	bb	154.792
13C-123789-HxCDD	36.515	0.000	3.588e5	2.799e5	1.000	1.282	1.240	1506	939	5.88e6	4.58e6	3905.1	4874.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.411	1.033	8.072e4		1.084			1303		1.19e6		911.1			bb		10.010

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:32:41 Pacific Daylight Time

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	5.337e4	7.265e4	1.425	0.735	0.770	696	956	7.77e5	1.06e6	1116.0	1109.3	NO	bb	bb	8.742
1289-TCDF	27.288	1.059	4.022e4	5.349e4	1.043	0.752	0.770	696	956	5.86e5	7.58e5	841.5	793.0	NO	dd	dd	8.883
13468-PECDF	27.122	0.906	3.828e5	2.481e5	1.376	1.543	1.550	816	813	5.64e6	3.67e6	6914.2	4512.4	NO	bb	bb	55.302
12389-PECDF	32.327	1.080	2.226e5	1.419e5	1.000	1.569	1.550	1967	1623	3.19e6	2.11e6	1622.7	1300.9	NO	bb	bb	43.995
123468-HXCDF	33.240	0.953	2.153e5	1.845e5	1.087	1.167	1.240	1863	2181	3.23e6	2.76e6	1731.3	1265.8	NO	bb	bd	47.666
1368-TCDD	23.523	0.892	3.507e4	4.511e4	0.923	0.777	0.770	804	952	5.41e5	6.89e5	672.1	723.8	NO	bb	bb	9.894
1289-TCDD	27.016	1.024	2.994e4	3.721e4	0.794	0.804	0.770	804	952	4.40e5	5.60e5	547.1	588.2	NO	bb	bb	9.636
12479-PECDD	28.784	0.914	2.737e5	1.694e5	1.843	1.616	1.550	1772	1718	2.68e6	1.66e6	1513.4	964.3	NO	bb	bb	47.538
12389-PECDD	31.937	1.014	1.778e5	1.123e5	1.154	1.583	1.550	1772	1718	2.71e6	1.73e6	1531.1	1004.8	NO	bb	bb	49.721
124679-HXCDD	34.009	0.945	1.927e5	1.511e5	1.125	1.275	1.240	1709	963	3.02e6	2.37e6	1768.5	2461.4	NO	bb	bb	50.559
1234679-HPCDD	39.234	0.974	1.035e5	1.024e5	1.211	1.010	1.050	1177	1235	1.61e6	1.56e6	1367.5	1260.8	NO	bb	bd	48.901
Total-tetrafurans			1.358e5		1.192			696		1.99e6							26.636
Total-penta1			3.828e5					816		5.64e6							55.302
Total-pentafurans			7.181e5		1.047			1967		1.06e7							139.692
Total-hexafurans			1.003e6		1.045			1863		1.54e7							240.187
Total-heptafurans			2.468e5		1.305			1486		3.74e6							92.050
Total-Furans			2.620e6		1.158			696		3.88e7							631.752
Total-tetradioxins			1.689e5		0.879			804		2.31e6							50.013
Total-pentadioxins			6.024e5		1.331			1772		7.78e6							146.027
Total-hexadioxins			7.042e5		1.028			1709		1.13e7							198.447
Total-heptadioxins			1.950e5		1.140			1177		2.92e6							97.104
Total-Dioxins			1.797e6		1.092			804		2.57e7							581.830
Total-TEQ			4.416e6					804		6.45e7							1213.582
FUNCTION1 PFK			0.000e0					327917		0.00e0							
FUNCTION2 PFK			1.296e5					185702		3.92e6							0.000
FUNCTION3 PFK			1.253e6					330664		2.32e7							0.000
FUNCTION4 PFK			2.073e6					132087		2.74e7							
FUNCTION5 PFK			2.569e5					130152		7.77e6							
FUNCTION1 HXCD...			2.624e2					728		5.10e3							0.000
FUNCTION1 HPCD...			3.679e2					788		6.52e3							0.000
FUNCTION2 HPCD...			2.367e3					1285		6.42e4							0.000
FUNCTION3 OCDPE			6.580e2					416		1.11e4							0.000
FUNCTION4 NCDPE			1.975e2					653		4.16e3							0.000
FUNCTION5 DCDPE			0.000e0					706		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:32:41 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	4.022e4	5.349e4	1.043	0.75	0.77	841.5	YES	NO	dd	dd	8.883
2	2378-TCDF	25.78	4.130e4	5.767e4	1.108	0.72	0.77	876.7	YES	NO	bd	bd	8.835
3	Total-tetrafurans	24.88	4.269e2	6.310e2	1.192	0.68	0.77	7.0	YES	NO	bb	bb	0.088
4	Total-tetrafurans	24.52	4.820e2	5.791e2	1.192	0.83	0.77	10.8	YES	NO	bb	bd	0.088
5	1368-TCDF	22.25	5.337e4	7.265e4	1.425	0.73	0.77	1116.0	YES	NO	bb	bb	8.742

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.12	3.828e5	2.481e5	1.376	1.54	1.55	6914.2	YES	NO	bb	bb	55.302

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.33	2.226e5	1.419e5	1.000	1.57	1.55	1622.7	YES	NO	bb	bb	43.995
2	23478-PeCDF	31.28	2.334e5	1.530e5	1.126	1.53	1.55	1772.8	YES	NO	bb	bb	43.748
3	12378-PeCDF	29.94	2.238e5	1.495e5	1.015	1.50	1.55	1698.1	YES	NO	bb	bb	44.380
4	Total-pentafurans	28.78	3.817e4	2.574e4	1.047	1.48	1.55	289.3	YES	NO	bb	bb	7.569

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.95	1.626e5	1.328e5	1.030	1.22	1.24	1357.6	YES	NO	bb	bb	47.641
2	234678-HxCDF	35.91	1.959e5	1.662e5	1.052	1.18	1.24	1676.6	YES	NO	bb	bb	47.300
3	123678-HxCDF	35.04	2.232e5	1.804e5	1.037	1.24	1.24	1806.6	YES	NO	db	db	49.265
4	123478-HxCDF	34.90	2.057e5	1.736e5	1.017	1.19	1.24	1706.8	YES	NO	bd	bd	48.314
5	123468-HXCDF	33.24	2.153e5	1.845e5	1.087	1.17	1.24	1731.3	YES	NO	bb	bd	47.666

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.04	1.060e5	1.034e5	1.283	1.03	1.05	978.2	YES	NO	bd	bd	46.504
2	Total-heptafurans	39.43	5.317e2	5.367e2	1.305	0.99	1.05	8.2	YES	NO	db	bb	0.203
3	1234678-HpCDF	38.79	1.402e5	1.350e5	1.327	1.04	1.05	1532.1	YES	NO	bd	bd	45.343

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	4.022e4	5.349e4	1.043	0.75	0.77	841.5	YES	NO	dd	dd	8.883
2	2378-TCDF	25.78	4.130e4	5.767e4	1.108	0.72	0.77	876.7	YES	NO	bd	bd	8.835
3	Total-tetrafurans	24.88	4.269e2	6.310e2	1.192	0.68	0.77	7.0	YES	NO	bb	bb	0.088
4	Total-tetrafurans	24.52	4.820e2	5.791e2	1.192	0.83	0.77	10.8	YES	NO	bb	bd	0.088
5	1368-TCDF	22.25	5.337e4	7.265e4	1.425	0.73	0.77	1116.0	YES	NO	bb	bb	8.742
6	12389-PECDF	32.33	2.226e5	1.419e5	1.000	1.57	1.55	1622.7	YES	NO	bb	bb	43.995
7	23478-PeCDF	31.28	2.334e5	1.530e5	1.126	1.53	1.55	1772.8	YES	NO	bb	bb	43.748
8	12378-PeCDF	29.94	2.238e5	1.495e5	1.015	1.50	1.55	1698.1	YES	NO	bb	bb	44.380
9	Total-pentafurans	28.78	3.817e4	2.574e4	1.047	1.48	1.55	289.3	YES	NO	bb	bb	7.569
10	123789-HxCDF	36.95	1.626e5	1.328e5	1.030	1.22	1.24	1357.6	YES	NO	bb	bb	47.641
11	234678-HxCDF	35.91	1.959e5	1.662e5	1.052	1.18	1.24	1676.6	YES	NO	bb	bb	47.300
12	123678-HxCDF	35.04	2.232e5	1.804e5	1.037	1.24	1.24	1806.6	YES	NO	db	db	49.265
13	123478-HxCDF	34.90	2.057e5	1.736e5	1.017	1.19	1.24	1706.8	YES	NO	bd	bd	48.314
14	123468-HXCDF	33.24	2.153e5	1.845e5	1.087	1.17	1.24	1731.3	YES	NO	bb	bd	47.666
15	1234789-HpCDF	41.04	1.060e5	1.034e5	1.283	1.03	1.05	978.2	YES	NO	bd	bd	46.504
16	Total-heptafurans	39.43	5.317e2	5.367e2	1.305	0.99	1.05	8.2	YES	NO	db	bb	0.203
17	1234678-HpCDF	38.79	1.402e5	1.350e5	1.327	1.04	1.05	1532.1	YES	NO	bd	bd	45.343
18	OCDF	45.29	1.336e5	1.470e5	1.447	0.91	0.89	1594.2	YES	NO	bd	bd	77.886
19	13468-PECDF	27.12	3.828e5	2.481e5	1.376	1.54	1.55	6914.2	YES	NO	bb	bb	55.302

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	27.33	7.291e1	8.851e1	0.879	0.82	0.77	2.5	NO	NO	bb	bb	0.021
2	1289-TCDD	27.02	2.994e4	3.721e4	0.794	0.80	0.77	547.1	YES	NO	bb	bb	9.636
3	2378-TCDD	26.41	3.387e4	4.411e4	0.920	0.77	0.77	655.9	YES	NO	bb	bb	9.654
4	Total-tetradioxins	26.09	5.226e4	6.707e4	0.879	0.78	0.77	666.0	YES	NO	bb	bb	15.463
5	Total-tetradioxins	25.59	1.594e4	2.116e4	0.879	0.75	0.77	308.0	YES	NO	bb	bb	4.807
6	Total-tetradioxins	25.02	3.662e2	5.348e2	0.879	0.68	0.77	7.0	YES	NO	bb	bb	0.117
7	Total-tetradioxins	24.70	1.442e3	1.805e3	0.879	0.80	0.77	19.0	YES	NO	bb	bb	0.421
8	1368-TCDD	23.52	3.507e4	4.511e4	0.923	0.78	0.77	672.1	YES	NO	bb	bb	9.894

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:32:41 Pacific Daylight Time

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	28.78	2.737e5	1.694e5	1.843	1.62	1.55	1513.4	YES	NO	bb	bb	47.538
2	12389-PECDD	31.94	1.778e5	1.123e5	1.154	1.58	1.55	1531.1	YES	NO	bb	bb	49.721
3	12378-PeCDD	31.52	1.510e5	9.449e4	0.995	1.60	1.55	1342.5	YES	NO	bb	bb	48.768

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	34.01	1.927e5	1.511e5	1.125	1.27	1.24	1768.5	YES	NO	bb	bb	50.559
2	123789-HxCDD	36.53	1.684e5	1.358e5	0.950	1.24	1.24	1591.7	YES	NO	bb	bb	51.085
3	123678-HxCDD	36.14	1.732e5	1.431e5	1.009	1.21	1.24	1639.5	YES	NO	db	db	48.366
4	123478-HxCDD	36.01	1.699e5	1.309e5	1.027	1.30	1.24	1599.7	YES	NO	bd	bd	48.437

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.29	9.139e4	8.736e4	1.068	1.05	1.05	1112.0	YES	NO	bd	bd	48.136
2	Total-heptadioxins	39.60	1.399e2	1.233e2	1.140	1.13	1.05	2.6	NO	NO	bb	db	0.066
3	1234679-HPCDD	39.23	1.035e5	1.024e5	1.211	1.01	1.05	1367.5	YES	NO	bb	bd	48.901

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:32:41 Pacific Daylight Time

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	27.33	7.291e1	8.851e1	0.879	0.82	0.77	2.5	NO	NO	bb	bb	0.021
2	1289-TCDD	27.02	2.994e4	3.721e4	0.794	0.80	0.77	547.1	YES	NO	bb	bb	9.636
3	2378-TCDD	26.41	3.387e4	4.411e4	0.920	0.77	0.77	655.9	YES	NO	bb	bb	9.654
4	Total-tetradioxins	26.09	5.226e4	6.707e4	0.879	0.78	0.77	666.0	YES	NO	bb	bb	15.463
5	Total-tetradioxins	25.59	1.594e4	2.116e4	0.879	0.75	0.77	308.0	YES	NO	bb	bb	4.807
6	Total-tetradioxins	25.02	3.662e2	5.348e2	0.879	0.68	0.77	7.0	YES	NO	bb	bb	0.117
7	Total-tetradioxins	24.70	1.442e3	1.805e3	0.879	0.80	0.77	19.0	YES	NO	bb	bb	0.421
8	1368-TCDD	23.52	3.507e4	4.511e4	0.923	0.78	0.77	672.1	YES	NO	bb	bb	9.894
9	12479-PECDD	28.78	2.737e5	1.694e5	1.843	1.62	1.55	1513.4	YES	NO	bb	bb	47.538
10	124679-HXCDD	34.01	1.927e5	1.511e5	1.125	1.27	1.24	1768.5	YES	NO	bb	bb	50.559
11	12389-PECDD	31.94	1.778e5	1.123e5	1.154	1.58	1.55	1531.1	YES	NO	bb	bb	49.721
12	12378-PeCDD	31.52	1.510e5	9.449e4	0.995	1.60	1.55	1342.5	YES	NO	bb	bb	48.768
13	123789-HxCDD	36.53	1.684e5	1.358e5	0.950	1.24	1.24	1591.7	YES	NO	bb	bb	51.085
14	123678-HxCDD	36.14	1.732e5	1.431e5	1.009	1.21	1.24	1639.5	YES	NO	db	db	48.366
15	123478-HxCDD	36.01	1.699e5	1.309e5	1.027	1.30	1.24	1599.7	YES	NO	bd	bd	48.437
16	1234678-HpCDD	40.29	9.139e4	8.736e4	1.068	1.05	1.05	1112.0	YES	NO	bd	bd	48.136
17	Total-heptadioxins	39.60	1.399e2	1.233e2	1.140	1.13	1.05	2.6	NO	NO	bb	db	0.066
18	1234679-HPCDD	39.23	1.035e5	1.024e5	1.211	1.01	1.05	1367.5	YES	NO	bb	bd	48.901
19	OCDD	45.04	1.259e5	1.394e5	1.181	0.90	0.89	1370.9	YES	NO	bb	bb	90.240

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:32:41 Pacific Daylight Time

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	4.022e4	5.349e4	1.043	0.75	0.77	841.5	YES	NO	dd	dd	8.883
2	2378-TCDF	25.78	4.130e4	5.767e4	1.108	0.72	0.77	876.7	YES	NO	bd	bd	8.835
3	Total-tetrafurans	24.88	4.269e2	6.310e2	1.192	0.68	0.77	7.0	YES	NO	bb	bb	0.088
4	Total-tetrafurans	24.52	4.820e2	5.791e2	1.192	0.83	0.77	10.8	YES	NO	bb	bd	0.088
5	1368-TCDF	22.25	5.337e4	7.265e4	1.425	0.73	0.77	1116.0	YES	NO	bb	bb	8.742
6	12389-PECDF	32.33	2.226e5	1.419e5	1.000	1.57	1.55	1622.7	YES	NO	bb	bb	43.995
7	23478-PeCDF	31.28	2.334e5	1.530e5	1.126	1.53	1.55	1772.8	YES	NO	bb	bb	43.748
8	12378-PeCDF	29.94	2.238e5	1.495e5	1.015	1.50	1.55	1698.1	YES	NO	bb	bb	44.380
9	Total-pentafurans	28.78	3.817e4	2.574e4	1.047	1.48	1.55	289.3	YES	NO	bb	bb	7.569
10	123789-HxCDF	36.95	1.626e5	1.328e5	1.030	1.22	1.24	1357.6	YES	NO	bb	bb	47.641
11	234678-HxCDF	35.91	1.959e5	1.662e5	1.052	1.18	1.24	1676.6	YES	NO	bb	bb	47.300
12	123678-HxCDF	35.04	2.232e5	1.804e5	1.037	1.24	1.24	1806.6	YES	NO	db	db	49.265
13	123478-HxCDF	34.90	2.057e5	1.736e5	1.017	1.19	1.24	1706.8	YES	NO	bd	bd	48.314
14	123468-HXCDF	33.24	2.153e5	1.845e5	1.087	1.17	1.24	1731.3	YES	NO	bb	bd	47.666
15	1234789-HpCDF	41.04	1.060e5	1.034e5	1.283	1.03	1.05	978.2	YES	NO	bd	bd	46.504
16	Total-heptafurans	39.43	5.317e2	5.367e2	1.305	0.99	1.05	8.2	YES	NO	db	bb	0.203
17	1234678-HpCDF	38.79	1.402e5	1.350e5	1.327	1.04	1.05	1532.1	YES	NO	bd	bd	45.343
18	OCDF	45.29	1.336e5	1.470e5	1.447	0.91	0.89	1594.2	YES	NO	bd	bd	77.886
19	13468-PECDF	27.12	3.828e5	2.481e5	1.376	1.54	1.55	6914.2	YES	NO	bb	bb	55.302
20	Total-tetradioxins	27.33	7.291e1	8.851e1	0.879	0.82	0.77	2.5	NO	NO	bb	bb	0.021
21	1289-TCDD	27.02	2.994e4	3.721e4	0.794	0.80	0.77	547.1	YES	NO	bb	bb	9.636
22	2378-TCDD	26.41	3.387e4	4.411e4	0.920	0.77	0.77	655.9	YES	NO	bb	bb	9.654
23	Total-tetradioxins	26.09	5.226e4	6.707e4	0.879	0.78	0.77	666.0	YES	NO	bb	bb	15.463
24	Total-tetradioxins	25.59	1.594e4	2.116e4	0.879	0.75	0.77	308.0	YES	NO	bb	bb	4.807
25	Total-tetradioxins	25.02	3.662e2	5.348e2	0.879	0.68	0.77	7.0	YES	NO	bb	bb	0.117
26	Total-tetradioxins	24.70	1.442e3	1.805e3	0.879	0.80	0.77	19.0	YES	NO	bb	bb	0.421
27	1368-TCDD	23.52	3.507e4	4.511e4	0.923	0.78	0.77	672.1	YES	NO	bb	bb	9.894
28	12479-PECDD	28.78	2.737e5	1.694e5	1.843	1.62	1.55	1513.4	YES	NO	bb	bb	47.538
29	124679-HXCDD	34.01	1.927e5	1.511e5	1.125	1.27	1.24	1768.5	YES	NO	bb	bb	50.559
30	12389-PECDD	31.94	1.778e5	1.123e5	1.154	1.58	1.55	1531.1	YES	NO	bb	bb	49.721
31	12378-PeCDD	31.52	1.510e5	9.449e4	0.995	1.60	1.55	1342.5	YES	NO	bb	bb	48.768
32	123789-HxCDD	36.53	1.684e5	1.358e5	0.950	1.24	1.24	1591.7	YES	NO	bb	bb	51.085
33	123678-HxCDD	36.14	1.732e5	1.431e5	1.009	1.21	1.24	1639.5	YES	NO	db	db	48.366
34	123478-HxCDD	36.01	1.699e5	1.309e5	1.027	1.30	1.24	1599.7	YES	NO	bd	bd	48.437
35	1234678-HpCDD	40.29	9.139e4	8.736e4	1.068	1.05	1.05	1112.0	YES	NO	bd	bd	48.136
36	Total-heptadioxins	39.60	1.399e2	1.233e2	1.140	1.13	1.05	2.6	NO	NO	bb	db	0.066
37	1234679-HPCDD	39.23	1.035e5	1.024e5	1.211	1.01	1.05	1367.5	YES	NO	bb	bd	48.901

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:32:41 Pacific Daylight Time

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	45.04	1.259e5	1.394e5	1.181	0.90	0.89	1370.9	YES	NO	bb	bb	90.240

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	31.85	2.677e3					0.8	NO		bb		0.000
2	FUNCTION2 PFK	31.61	1.679e4					1.3	NO		bb		0.000
3	FUNCTION2 PFK	31.37	2.309e4					2.5	NO		db		0.000
4	FUNCTION2 PFK	31.30	9.269e3					1.8	NO		bd		0.000
5	FUNCTION2 PFK	31.03	6.768e3					1.3	NO		bb		0.000
6	FUNCTION2 PFK	30.90	1.056e4					1.8	NO		bb		0.000
7	FUNCTION2 PFK	30.60	4.644e3					1.1	NO		bb		0.000
8	FUNCTION2 PFK	29.55	5.825e3					0.9	NO		bb		0.000
9	FUNCTION2 PFK	29.24	6.977e3					1.7	NO		db		0.000
10	FUNCTION2 PFK	29.20	1.252e4					1.8	NO		bd		0.000
11	FUNCTION2 PFK	28.93	6.910e3					1.2	NO		bb		0.000
12	FUNCTION2 PFK	28.84	1.194e4					1.3	NO		bb		0.000
13	FUNCTION2 PFK	28.43	1.061e3					0.5	NO		bb		0.000
14	FUNCTION2 PFK	28.26	1.322e3					0.6	NO		bb		0.000
15	FUNCTION2 PFK	32.69	4.142e3					1.0	NO		bb		0.000
16	FUNCTION2 PFK	32.65	1.112e3					0.5	NO		bb		0.000
17	FUNCTION2 PFK	32.42	3.968e3					0.9	NO		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:32:41 Pacific Daylight Time

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	34.01	3.447e3					0.5	NO		bb		0.000
2	FUNCTION3 PFK	33.95	7.471e3					1.0	NO		bb		0.000
3	FUNCTION3 PFK	33.88	7.179e3					0.8	NO		db		0.000
4	FUNCTION3 PFK	33.84	8.774e3					0.9	NO		bd		0.000
5	FUNCTION3 PFK	33.72	1.314e4					1.1	NO		bb		0.000
6	FUNCTION3 PFK	33.66	2.500e4					1.4	NO		bb		0.000
7	FUNCTION3 PFK	33.43	6.487e3					0.8	NO		bb		0.000
8	FUNCTION3 PFK	33.34	1.045e4					0.9	NO		db		0.000
9	FUNCTION3 PFK	33.25	1.749e4					0.9	NO		bd		0.000
10	FUNCTION3 PFK	33.20	7.280e3					0.9	NO		bb		0.000
11	FUNCTION3 PFK	33.05	1.310e4					1.6	NO		db		0.000
12	FUNCTION3 PFK	33.01	2.184e4					2.0	NO		bd		0.000
13	FUNCTION3 PFK	35.46	6.212e3					0.7	NO		bb		0.000
14	FUNCTION3 PFK	35.31	7.761e3					0.7	NO		bb		0.000
15	FUNCTION3 PFK	35.26	6.809e3					0.8	NO		db		0.000
16	FUNCTION3 PFK	35.21	1.432e4					0.8	NO		dd		0.000
17	FUNCTION3 PFK	35.12	1.283e5					1.8	NO		bd		0.000
18	FUNCTION3 PFK	34.88	3.188e4					2.5	NO		db		0.000
19	FUNCTION3 PFK	34.81	7.787e4					3.0	YES		dd		0.000
20	FUNCTION3 PFK	34.76	3.466e4					2.7	NO		dd		0.000
21	FUNCTION3 PFK	34.72	2.314e4					2.5	NO		dd		0.000
22	FUNCTION3 PFK	34.64	5.410e4					2.4	NO		dd		0.000
23	FUNCTION3 PFK	34.60	4.143e4					2.8	NO		dd		0.000
24	FUNCTION3 PFK	34.43	1.745e5					2.9	NO		dd		0.000
25	FUNCTION3 PFK	34.32	1.091e4					2.0	NO		bd		0.000
26	FUNCTION3 PFK	34.28	8.169e3					1.6	NO		db		0.000
27	FUNCTION3 PFK	34.24	1.417e4					1.2	NO		bd		0.000
28	FUNCTION3 PFK	34.15	8.984e2					0.2	NO		bb		0.000
29	FUNCTION3 PFK	37.46	1.559e4					1.1	NO		bd		0.000
30	FUNCTION3 PFK	37.28	6.969e3					0.9	NO		bb		0.000
31	FUNCTION3 PFK	37.01	1.026e4					1.0	NO		bb		0.000
32	FUNCTION3 PFK	36.96	5.565e3					0.6	NO		bb		0.000
33	FUNCTION3 PFK	36.86	6.252e3					0.8	NO		db		0.000
34	FUNCTION3 PFK	36.83	1.918e4					1.1	NO		bd		0.000
35	FUNCTION3 PFK	36.70	3.951e4					1.2	NO		db		0.000
36	FUNCTION3 PFK	36.59	5.172e3					0.7	NO		bd		0.000
37	FUNCTION3 PFK	36.50	2.874e4					2.0	NO		db		0.000

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	36.45	1.933e4					1.6	NO		dd		0.000
39	FUNCTION3 PFK	36.40	1.250e4					1.4	NO		dd		0.000
40	FUNCTION3 PFK	36.36	3.778e3					0.5	NO		bd		0.000
41	FUNCTION3 PFK	35.80	7.944e4					2.5	NO		bb		0.000
42	FUNCTION3 PFK	35.71	2.276e4					1.4	NO		db		0.000
43	FUNCTION3 PFK	35.65	2.046e4					1.3	NO		dd		0.000
44	FUNCTION3 PFK	35.58	2.066e4					1.3	NO		bd		0.000
45	FUNCTION3 PFK	37.91	3.119e4					0.0	NO		bb		0.000
46	FUNCTION3 PFK	37.71	3.671e4					2.2	NO		db		0.000
47	FUNCTION3 PFK	37.66	2.392e4					2.0	NO		dd		0.000
48	FUNCTION3 PFK	37.61	2.798e4					2.0	NO		dd		0.000
49	FUNCTION3 PFK	37.55	2.981e4					2.0	NO		dd		0.000
50	FUNCTION3 PFK	37.50	1.072e4					1.0	NO		dd		0.000

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	38.79	1.071e4					1.7	NO		db		
2	FUNCTION4 PFK	38.72	2.489e4					4.5	YES		dd		
3	FUNCTION4 PFK	38.59	1.182e5					9.1	YES		dd		
4	FUNCTION4 PFK	38.39	3.195e5					15.6	YES		dd		
5	FUNCTION4 PFK	38.28	2.543e5					19.6	YES		dd		
6	FUNCTION4 PFK	38.20	2.121e5					21.7	YES		dd		
7	FUNCTION4 PFK	38.15	3.060e5					23.2	YES		dd		
8	FUNCTION4 PFK	38.03	2.225e5					26.3	YES		dd		
9	FUNCTION4 PFK	37.95	2.973e5					30.4	YES		bd		
10	FUNCTION4 PFK	40.70	2.575e3					0.7	NO		db		
11	FUNCTION4 PFK	40.65	6.644e3					1.3	NO		dd		
12	FUNCTION4 PFK	40.60	1.422e4					1.3	NO		dd		
13	FUNCTION4 PFK	40.48	7.833e3					1.6	NO		bd		
14	FUNCTION4 PFK	40.38	1.228e3					0.6	NO		bb		
15	FUNCTION4 PFK	40.04	5.686e3					1.5	NO		bb		
16	FUNCTION4 PFK	39.79	5.052e3					1.7	NO		bb		
17	FUNCTION4 PFK	39.71	1.077e4					2.1	NO		db		
18	FUNCTION4 PFK	39.67	5.112e3					1.4	NO		dd		
19	FUNCTION4 PFK	39.57	1.182e4					1.2	NO		bd		
20	FUNCTION4 PFK	39.51	5.649e3					1.5	NO		bb		
21	FUNCTION4 PFK	39.37	4.537e3					0.9	NO		bb		
22	FUNCTION4 PFK	39.31	2.317e3					0.9	NO		db		
23	FUNCTION4 PFK	39.26	2.577e3					0.7	NO		bd		
24	FUNCTION4 PFK	39.07	7.007e3					1.4	NO		bb		
25	FUNCTION4 PFK	38.93	1.585e3					0.6	NO		bb		
26	FUNCTION4 PFK	41.84	1.917e4					2.0	NO		bb		
27	FUNCTION4 PFK	41.75	5.656e3					1.5	NO		db		
28	FUNCTION4 PFK	41.68	1.971e4					2.6	NO		dd		
29	FUNCTION4 PFK	41.58	5.643e3					1.1	NO		dd		
30	FUNCTION4 PFK	41.55	2.857e3					1.0	NO		bd		
31	FUNCTION4 PFK	41.50	1.002e4					2.3	NO		db		
32	FUNCTION4 PFK	41.43	1.295e4					1.8	NO		bd		
33	FUNCTION4 PFK	41.31	9.714e3					1.1	NO		bb		
34	FUNCTION4 PFK	41.19	1.824e3					0.6	NO		bb		
35	FUNCTION4 PFK	41.14	1.661e3					0.4	NO		bb		
36	FUNCTION4 PFK	41.02	7.795e3					1.4	NO		bb		
37	FUNCTION4 PFK	40.93	6.589e3					1.5	NO		db		

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	40.88	8.392e3					1.8	NO		dd		
39	FUNCTION4 PFK	40.84	5.748e3					1.3	NO		dd		
40	FUNCTION4 PFK	40.79	4.941e3					1.0	NO		dd		
41	FUNCTION4 PFK	40.75	8.215e2					0.4	NO		bd		
42	FUNCTION4 PFK	42.90	2.248e4					2.0	NO		bb		
43	FUNCTION4 PFK	42.71	1.753e3					0.7	NO		db		
44	FUNCTION4 PFK	42.68	3.799e3					1.0	NO		bd		
45	FUNCTION4 PFK	42.60	6.399e3					1.5	NO		db		
46	FUNCTION4 PFK	42.56	1.849e4					1.9	NO		bd		
47	FUNCTION4 PFK	42.36	6.435e3					1.4	NO		db		
48	FUNCTION4 PFK	42.30	1.245e4					2.1	NO		bd		
49	FUNCTION4 PFK	42.20	4.725e3					1.2	NO		bb		
50	FUNCTION4 PFK	42.13	6.588e3					1.0	NO		bb		
51	FUNCTION4 PFK	41.95	6.656e3					1.1	NO		bb		

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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	43.35	2.680e3					0.9	NO		bb		
2	FUNCTION5 PFK	43.27	3.931e3					1.4	NO		db		
3	FUNCTION5 PFK	43.19	1.580e4					2.5	NO		bd		
4	FUNCTION5 PFK	43.14	7.313e2					0.6	NO		bb		
5	FUNCTION5 PFK	43.10	3.406e3					1.0	NO		bb		
6	FUNCTION5 PFK	44.48	7.443e3					1.9	NO		db		
7	FUNCTION5 PFK	44.43	6.456e3					1.6	NO		dd		
8	FUNCTION5 PFK	44.37	4.440e3					1.0	NO		bd		
9	FUNCTION5 PFK	44.23	4.370e3					1.5	NO		db		
10	FUNCTION5 PFK	44.19	3.532e3					1.1	NO		dd		
11	FUNCTION5 PFK	44.10	1.332e4					1.9	NO		bd		
12	FUNCTION5 PFK	44.04	6.536e3					1.2	NO		db		
13	FUNCTION5 PFK	43.96	8.317e3					1.5	NO		dd		
14	FUNCTION5 PFK	43.91	9.078e3					1.8	NO		bd		
15	FUNCTION5 PFK	43.84	9.040e3					1.2	NO		bb		
16	FUNCTION5 PFK	43.71	1.069e3					0.5	NO		bb		
17	FUNCTION5 PFK	43.66	3.897e3					1.5	NO		db		
18	FUNCTION5 PFK	43.64	5.838e3					1.5	NO		bd		
19	FUNCTION5 PFK	43.57	7.632e3					1.4	NO		bb		
20	FUNCTION5 PFK	43.48	5.636e3					1.7	NO		db		
21	FUNCTION5 PFK	43.44	2.952e3					0.9	NO		bd		
22	FUNCTION5 PFK	45.57	4.596e3					1.3	NO		db		
23	FUNCTION5 PFK	45.55	3.024e3					1.2	NO		bd		
24	FUNCTION5 PFK	45.48	5.582e3					1.2	NO		bb		
25	FUNCTION5 PFK	45.42	1.293e4					1.9	NO		db		
26	FUNCTION5 PFK	45.36	5.793e3					1.7	NO		dd		
27	FUNCTION5 PFK	45.30	4.757e3					1.0	NO		bd		
28	FUNCTION5 PFK	45.25	1.727e3					0.7	NO		bb		
29	FUNCTION5 PFK	45.13	2.836e2					0.2	NO		bb		
30	FUNCTION5 PFK	45.01	2.059e3					0.7	NO		bb		
31	FUNCTION5 PFK	44.93	1.388e3					0.7	NO		bb		
32	FUNCTION5 PFK	44.89	9.509e3					1.6	NO		db		
33	FUNCTION5 PFK	44.81	8.077e3					2.0	NO		bd		
34	FUNCTION5 PFK	44.77	9.591e3					3.0	YES		db		
35	FUNCTION5 PFK	44.72	1.777e4					3.2	YES		dd		
36	FUNCTION5 PFK	44.68	1.491e4					2.3	NO		dd		
37	FUNCTION5 PFK	44.62	3.792e3					1.6	NO		bd		

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, Conditions: AUTOSPEC01, User: pk

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION5 PFK	45.95	1.546e3					0.6	NO		db		
39	FUNCTION5 PFK	45.89	6.364e3					1.4	NO		bd		
40	FUNCTION5 PFK	45.80	9.329e3					1.6	NO		bb		
41	FUNCTION5 PFK	45.73	3.987e3					1.3	NO		bb		
42	FUNCTION5 PFK	45.67	1.565e3					0.8	NO		bb		
43	FUNCTION5 PFK	45.63	2.220e3					0.8	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.72	9.833e1					1.5	NO		bb		0.000
2	FUNCTION1 HXCD...	23.83	8.554e1					3.4	YES		bb		0.000
3	FUNCTION1 HXCD...	22.40	7.852e1					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...	27.82	1.086e2					3.7	YES		bb		0.000
2	FUNCTION1 HPCD...	26.99	9.066e1					2.2	NO		bb		0.000
3	FUNCTION1 HPCD...	26.73	7.686e1					1.1	NO		bb		0.000
4	FUNCTION1 HPCD...	25.61	9.182e1					1.2	NO		bb		0.000

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, 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...	32.04	1.851e2					2.6	NO		bb		0.000
2	FUNCTION2 HPCD...	31.52	1.092e2					2.6	NO		bb		0.000
3	FUNCTION2 HPCD...	31.18	1.468e2					3.9	YES		bb		0.000
4	FUNCTION2 HPCD...	31.09	2.008e2					3.4	YES		db		0.000
5	FUNCTION2 HPCD...	31.00	2.034e2					4.4	YES		dd		0.000
6	FUNCTION2 HPCD...	30.97	1.106e2					3.2	YES		bd		0.000
7	FUNCTION2 HPCD...	30.59	3.120e2					7.4	YES		bb		0.000
8	FUNCTION2 HPCD...	30.14	1.626e2					3.2	YES		db		0.000
9	FUNCTION2 HPCD...	30.11	1.874e2					4.2	YES		dd		0.000
10	FUNCTION2 HPCD...	30.08	1.177e2					4.5	YES		bd		0.000
11	FUNCTION2 HPCD...	29.79	9.068e1					1.4	NO		bb		0.000
12	FUNCTION2 HPCD...	29.64	7.787e1					1.4	NO		bb		0.000
13	FUNCTION2 HPCD...	29.05	1.099e2					2.1	NO		bb		0.000
14	FUNCTION2 HPCD...	28.90	1.051e2					1.1	NO		bb		0.000
15	FUNCTION2 HPCD...	28.66	1.253e2					2.7	NO		bb		0.000
16	FUNCTION2 HPCD...	28.22	1.224e2					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	36.13	8.541e1					3.6	YES		db		0.000
2	FUNCTION3 OCDPE	35.99	3.886e2					15.6	YES		bd		0.000
3	FUNCTION3 OCDPE	33.66	9.622e1					2.8	NO		bb		0.000
4	FUNCTION3 OCDPE	32.98	8.768e1					4.8	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	42.21	7.125e1					2.5	NO		bb		0.000
2	FUNCTION4 NCDPE	39.39	1.263e2					3.9	YES		bb		0.000

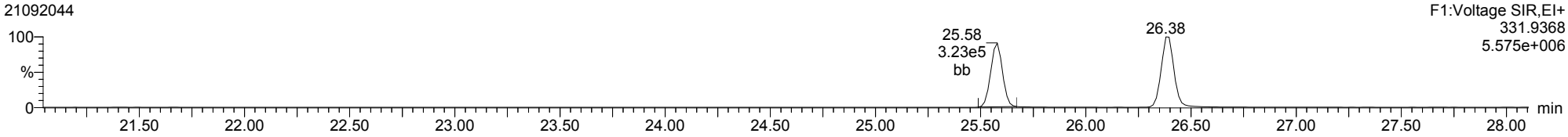
ETHERS6

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

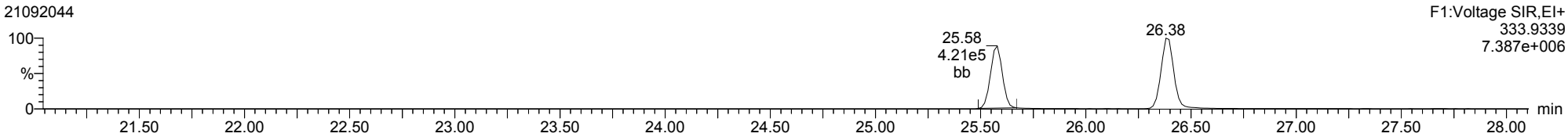
Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, Conditions: AUTOSPEC01, User: pk

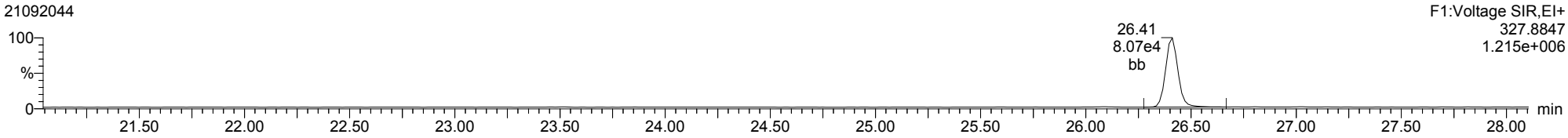
13C-1234-TCDD



13C-1234-TCDD



37CL-2378-TCDD



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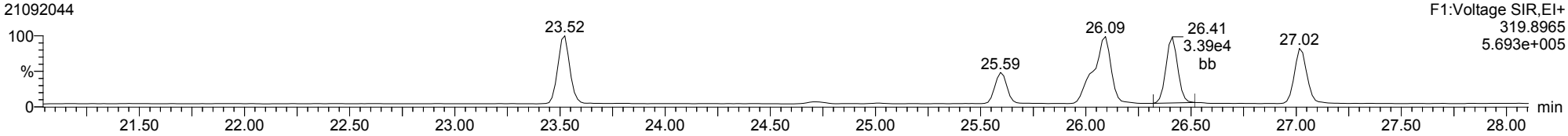
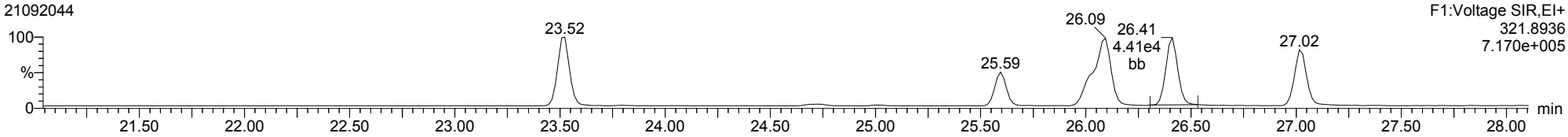
2378-TCDD



2378-TCDD



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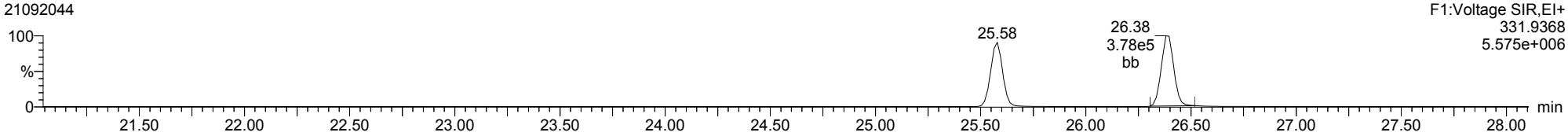

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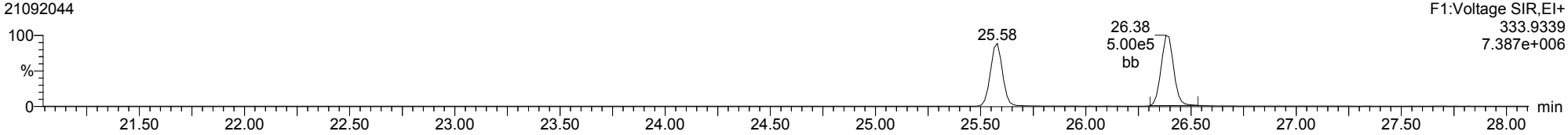
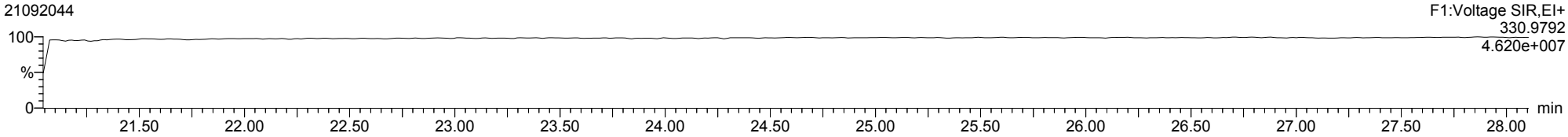


FUNCTION1 PFK



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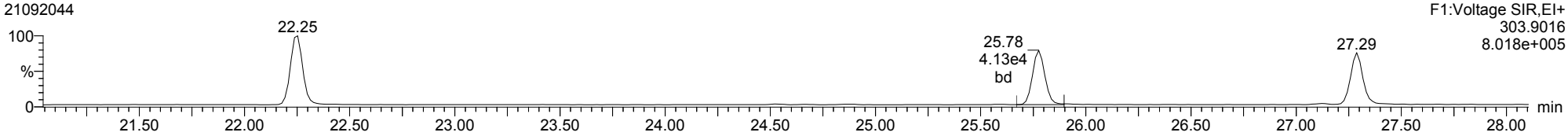
2378-TCDF



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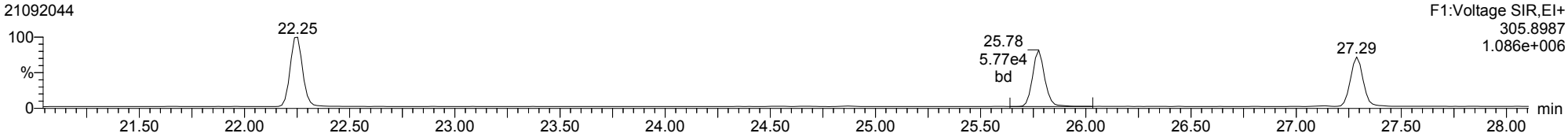

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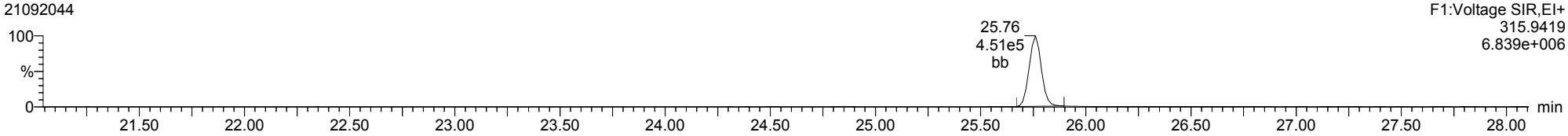

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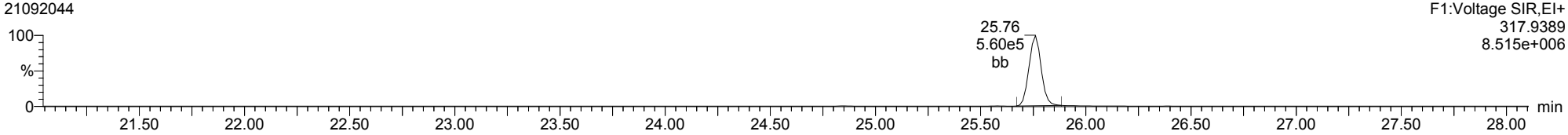
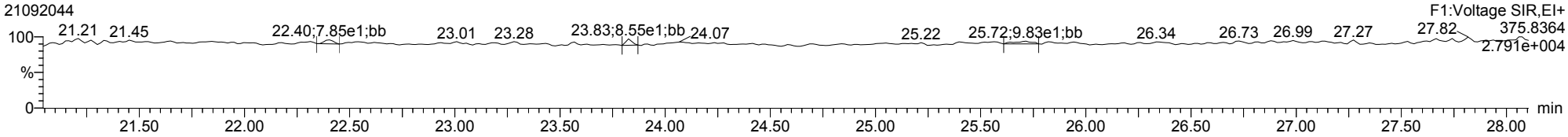


FUNCTION1 HXCDPE



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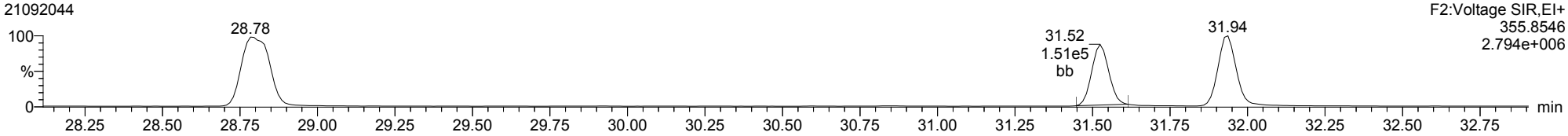
12378-PeCDD



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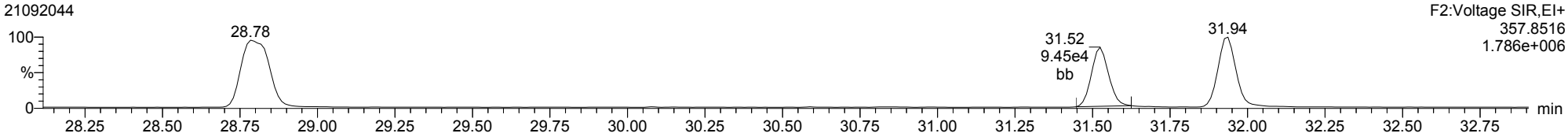

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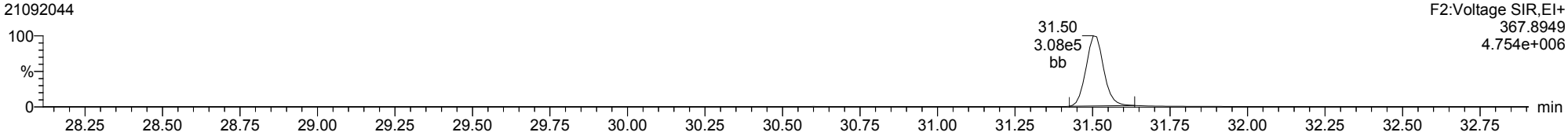

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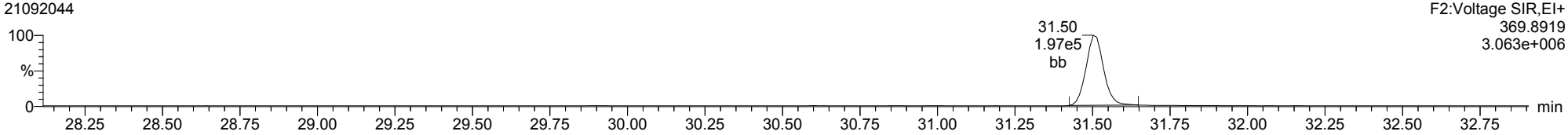
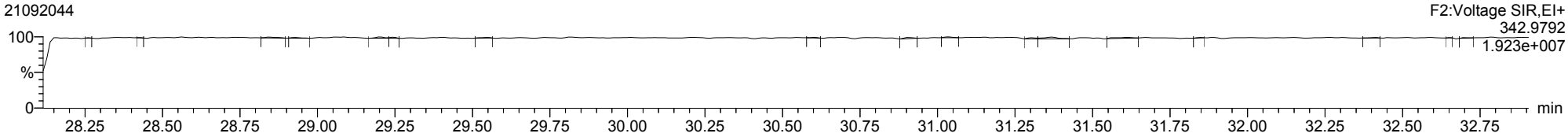


FUNCTION2 PFK



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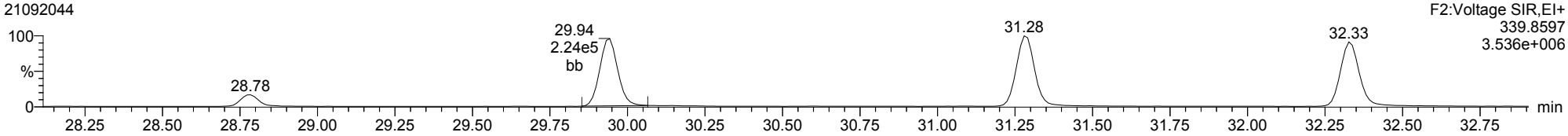
12378-PeCDF



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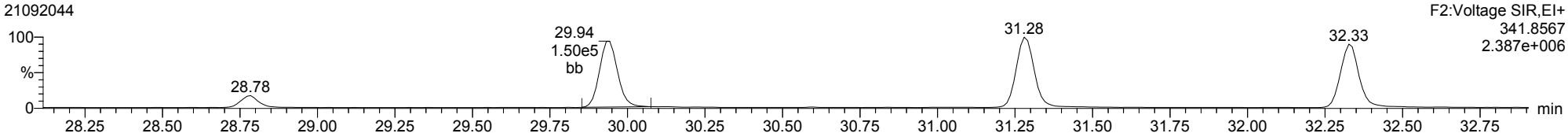

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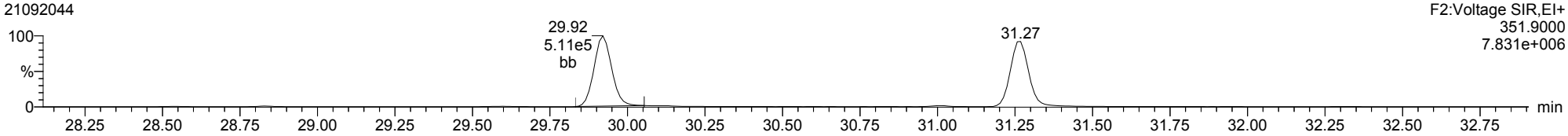

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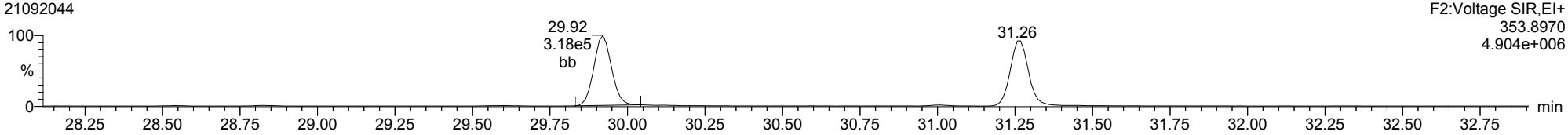
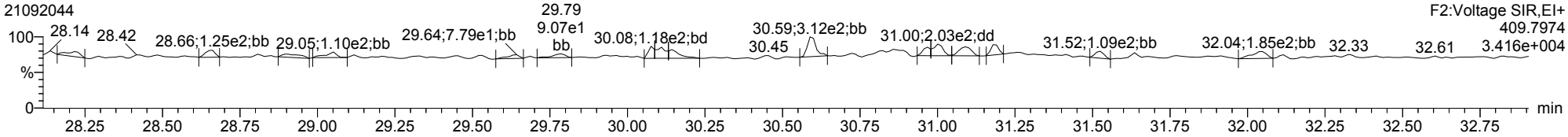


FUNCTION2 HPCDPE



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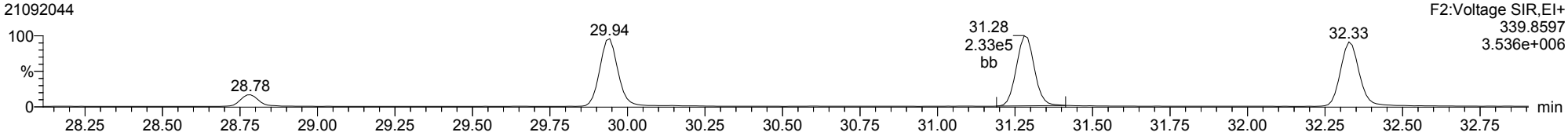
23478-PeCDF



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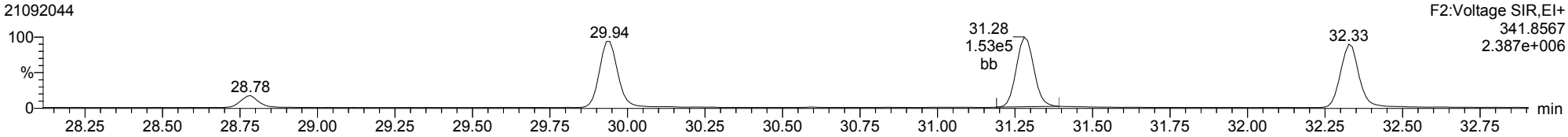

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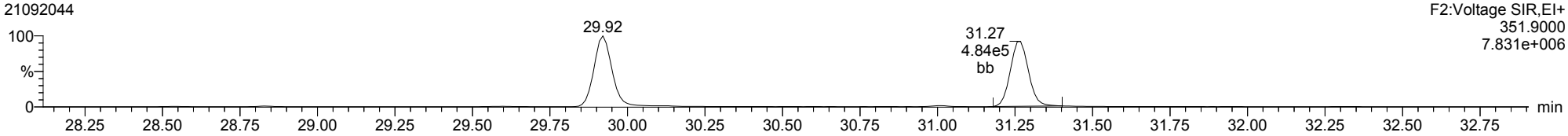

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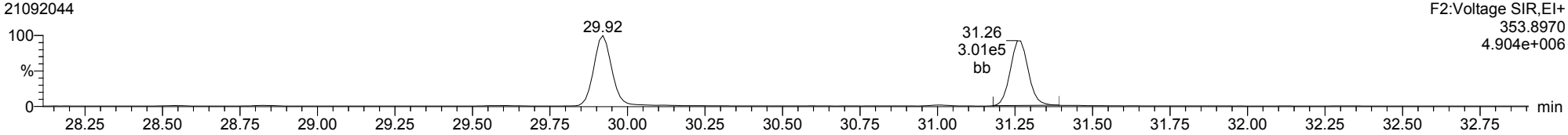

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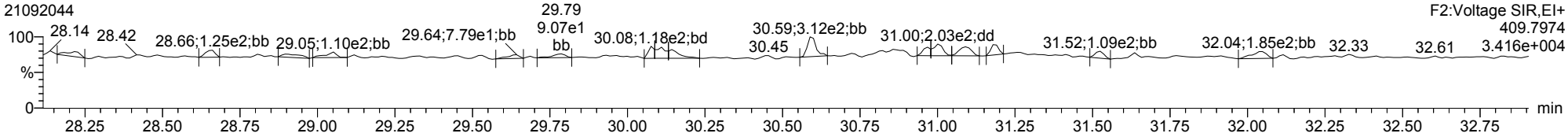

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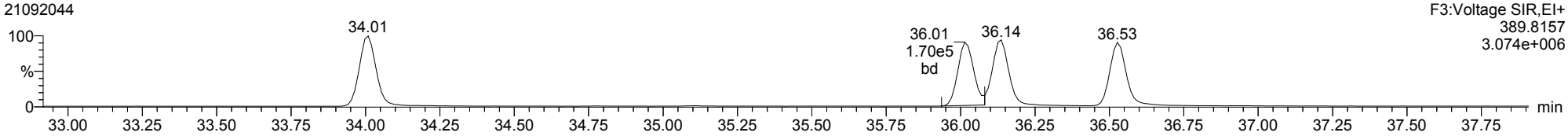
123478-HxCDD



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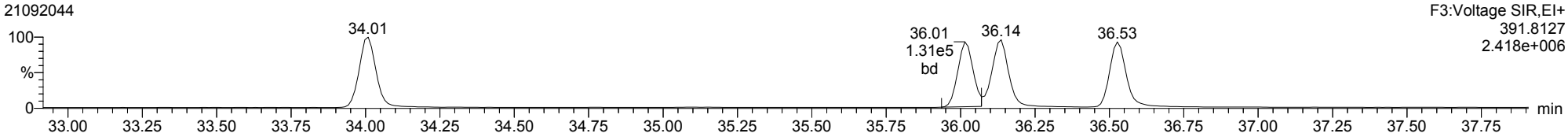

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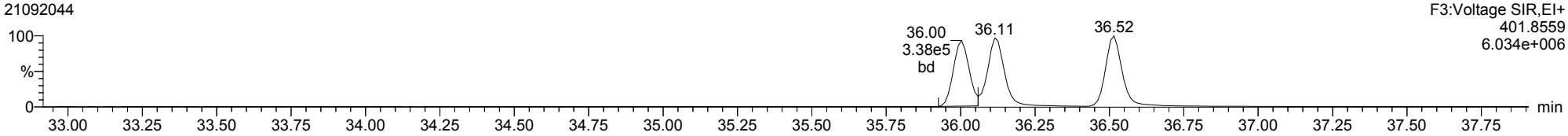

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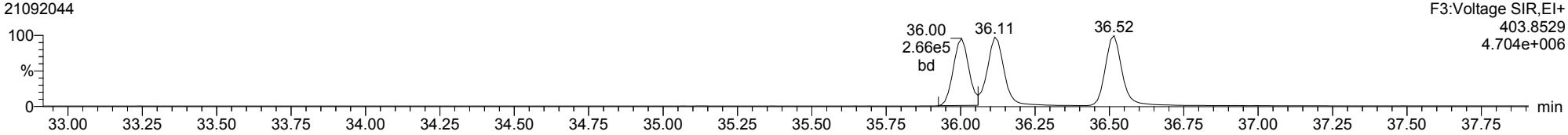
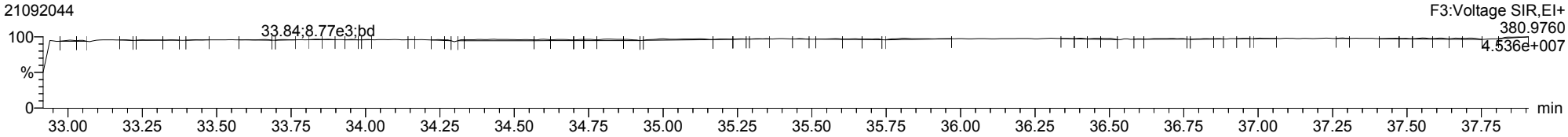


FUNCTION3 PFK



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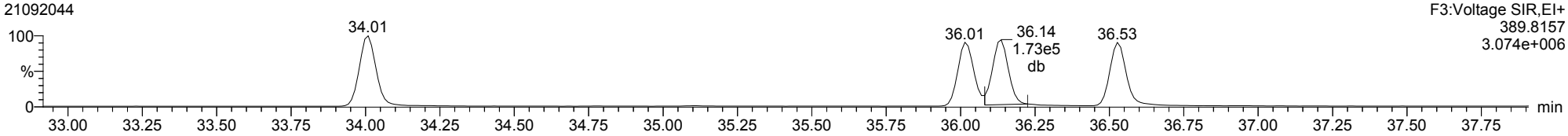
123678-HxCDD



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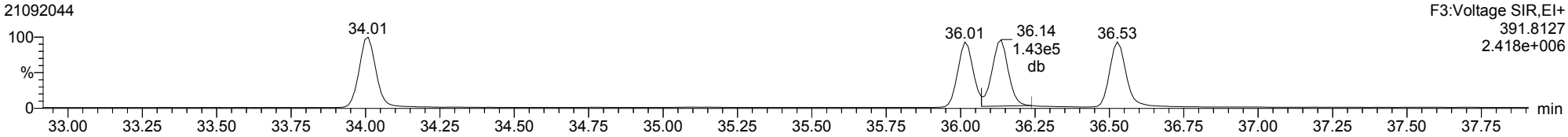

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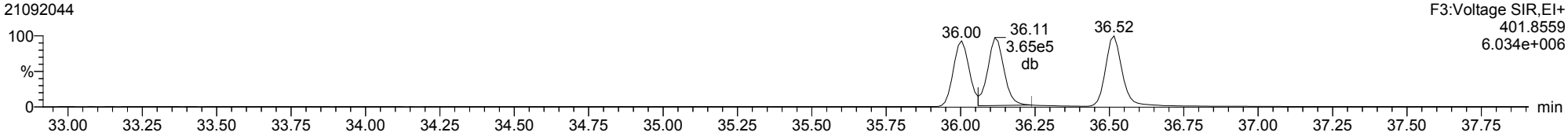

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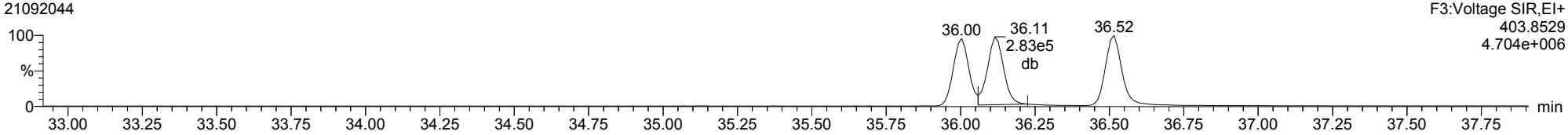

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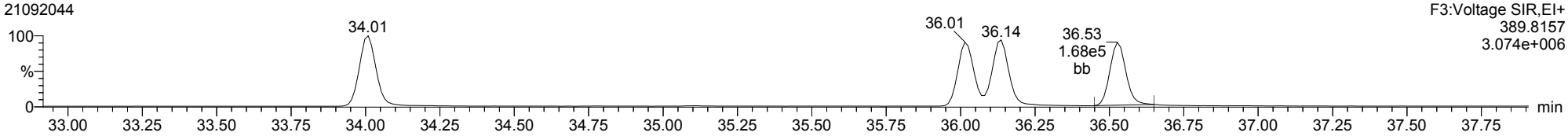

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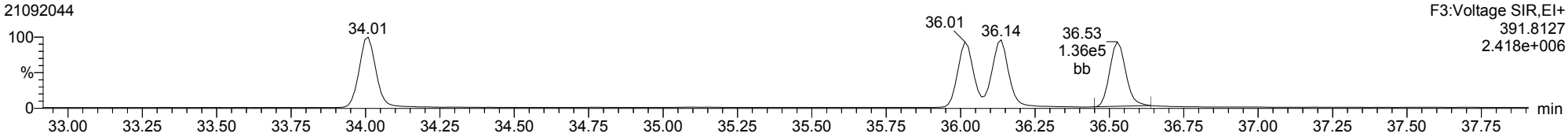

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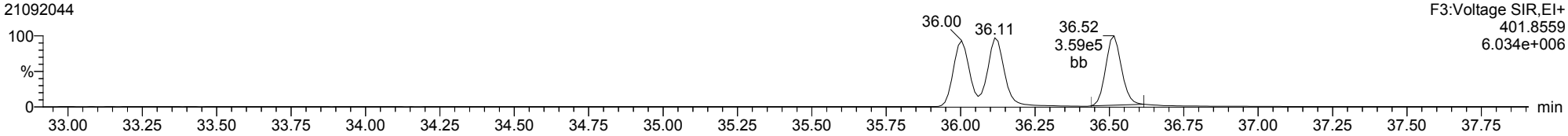

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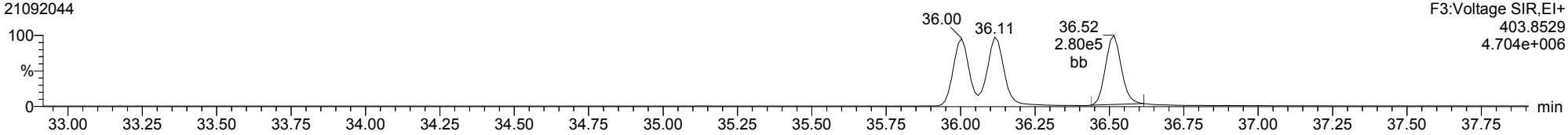

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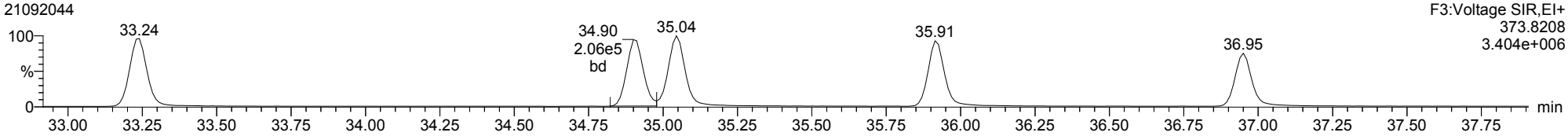
123478-HxCDF



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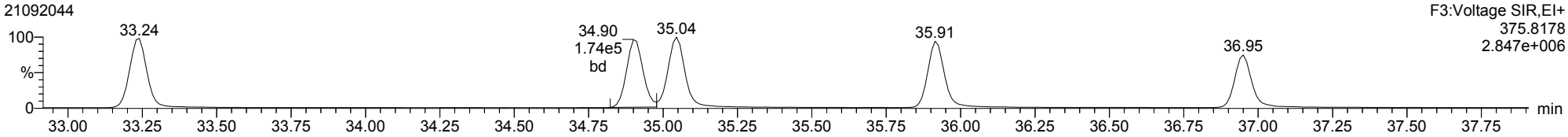

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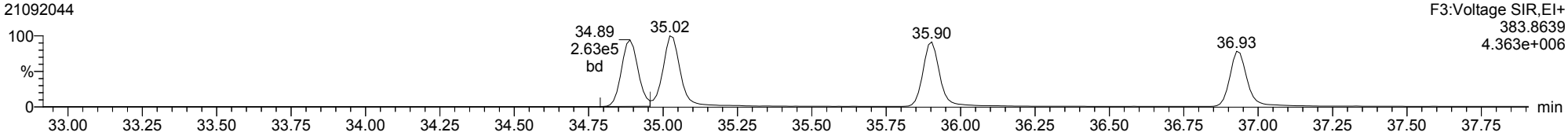

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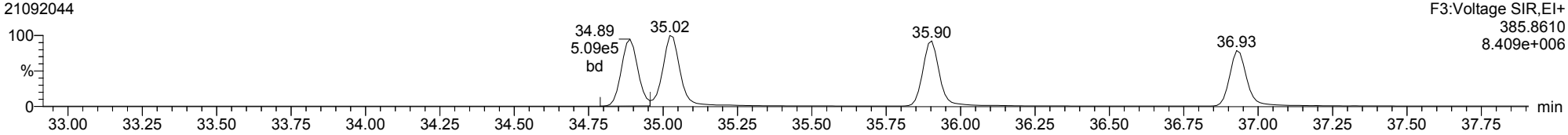
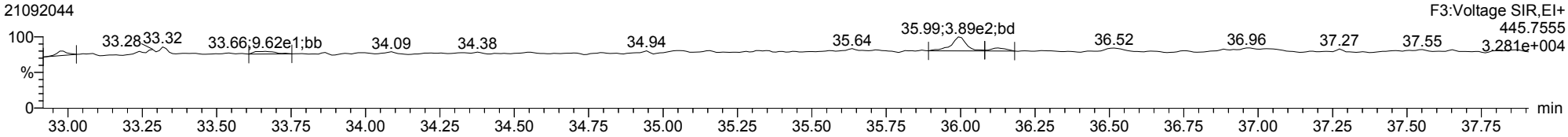


FUNCTION3 OCDPE



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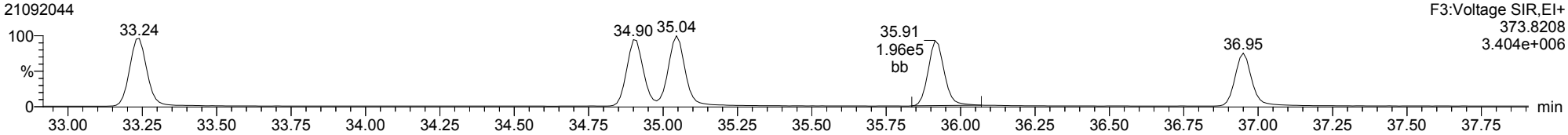
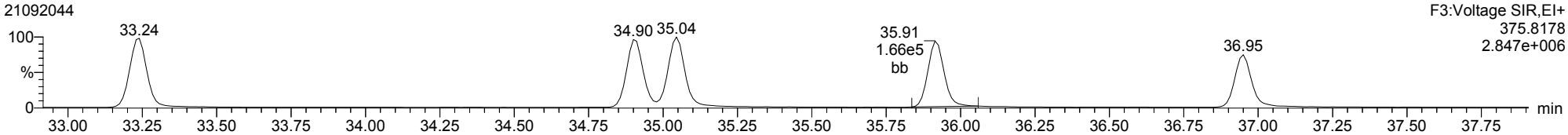
234678-HxCDF



234678-HxCDF



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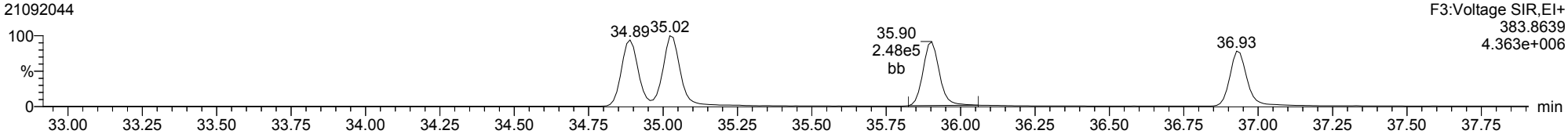

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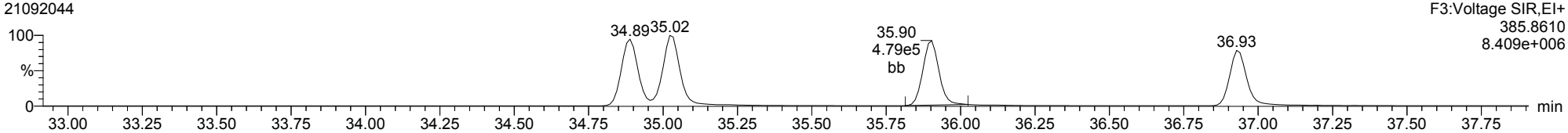
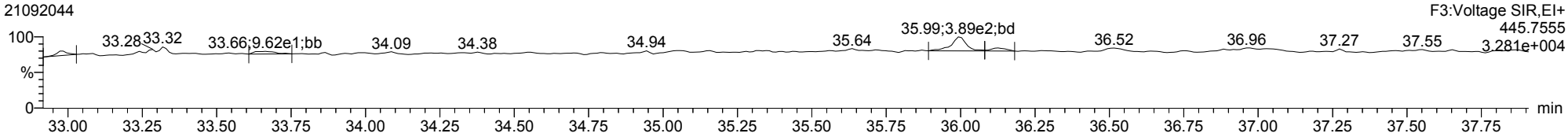


FUNCTION3 OCDPE



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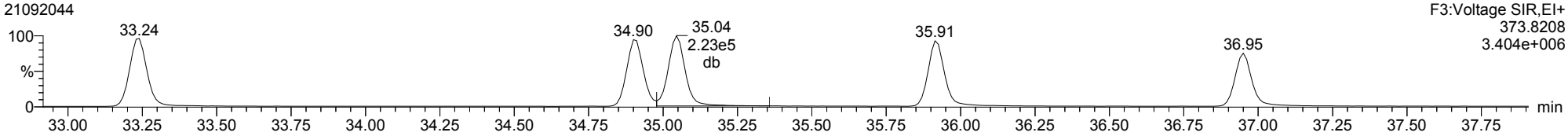
123678-HxCDF



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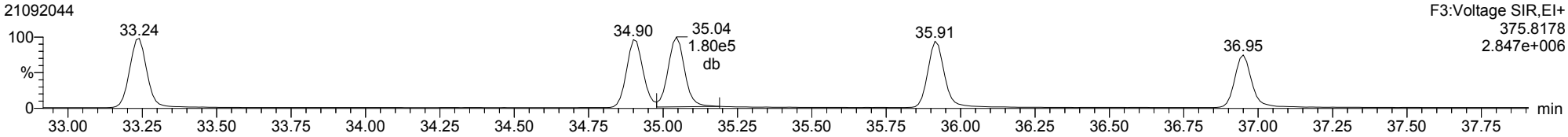

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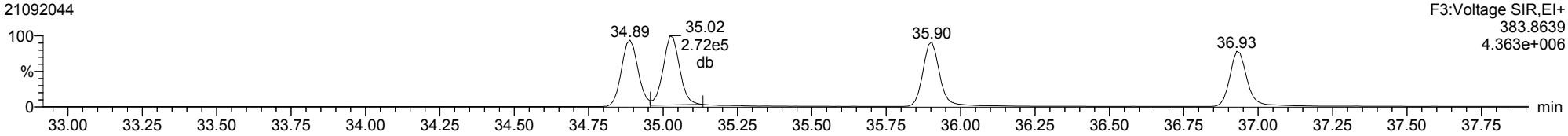

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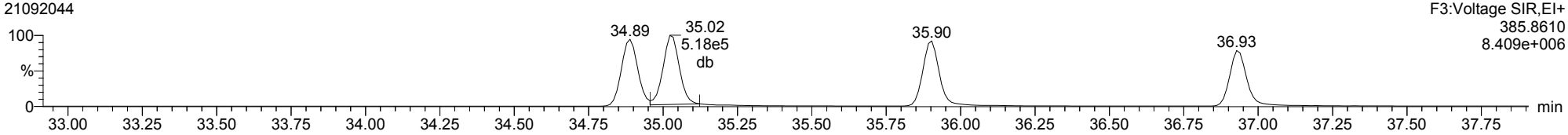

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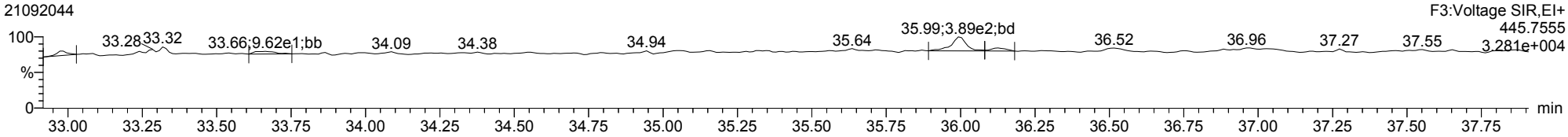

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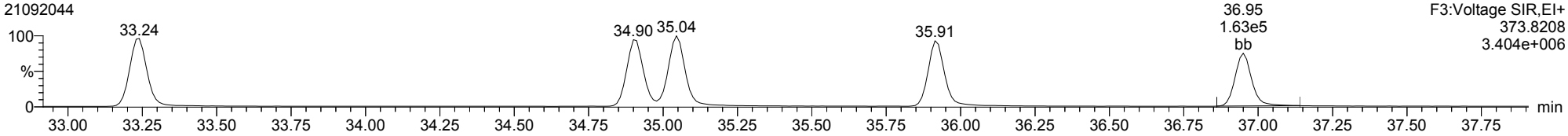

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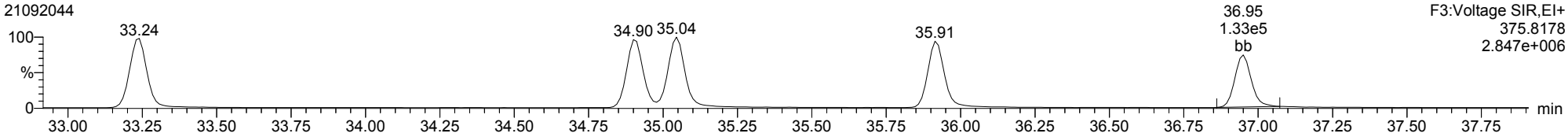

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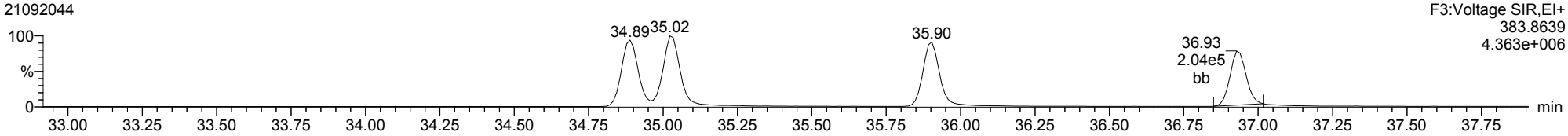

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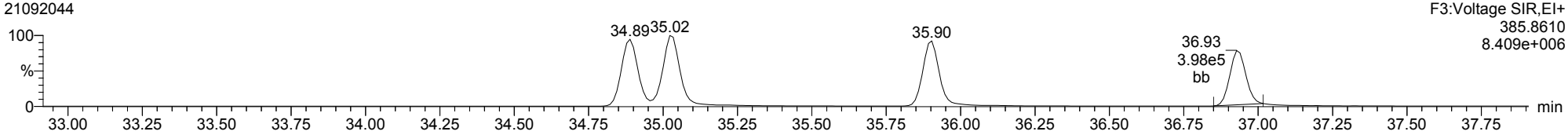

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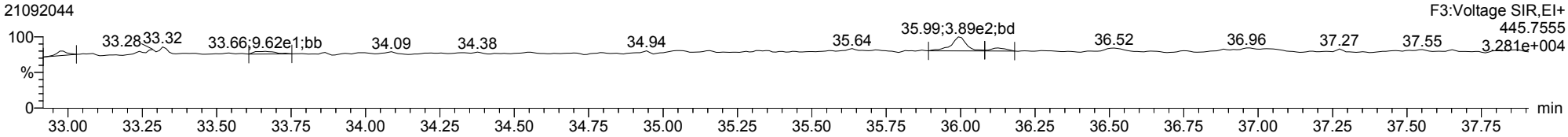

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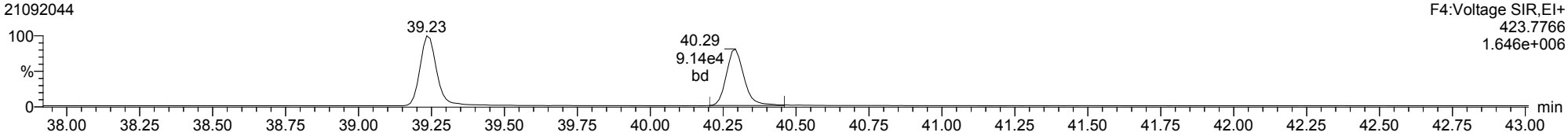

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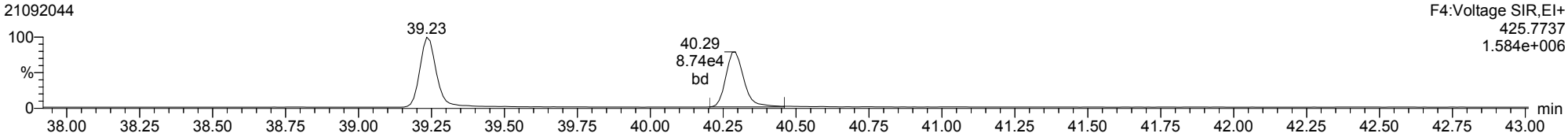

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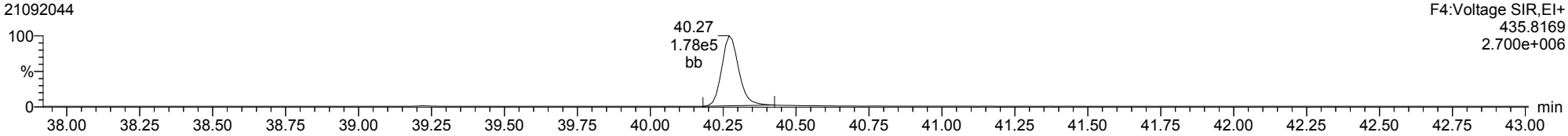

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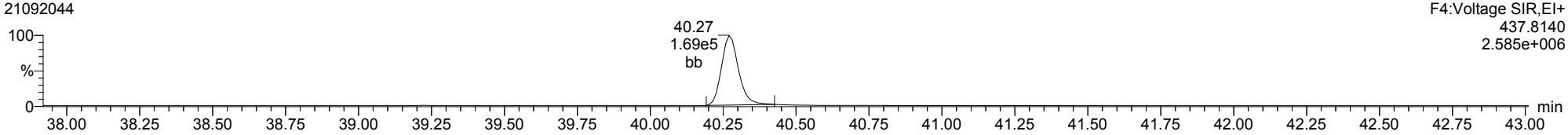

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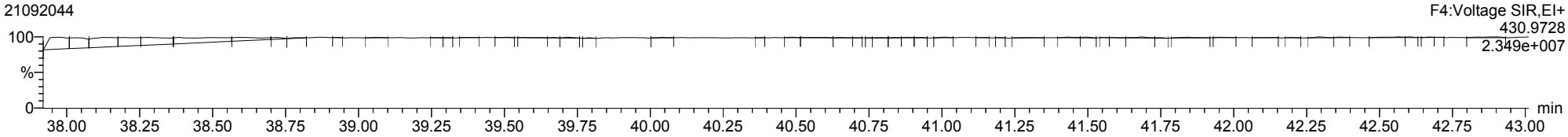

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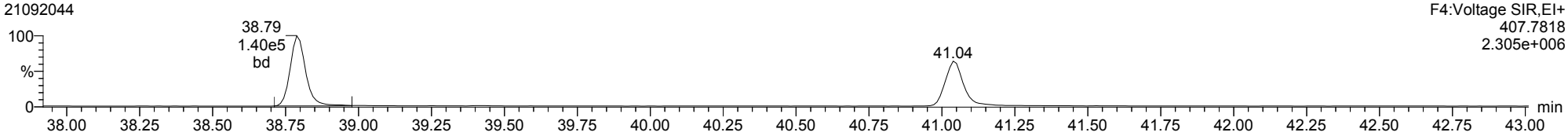

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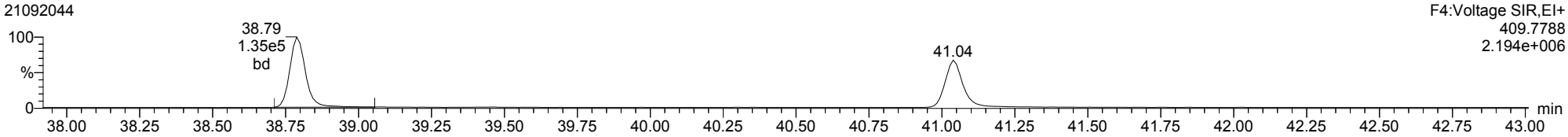

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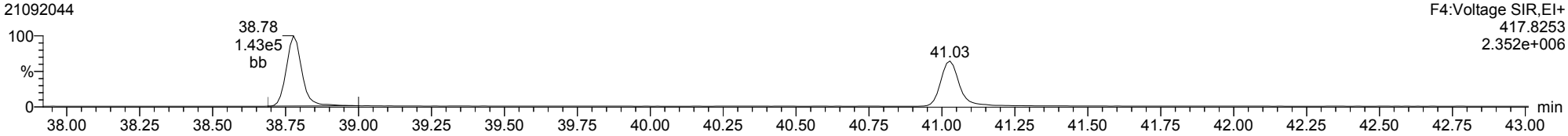

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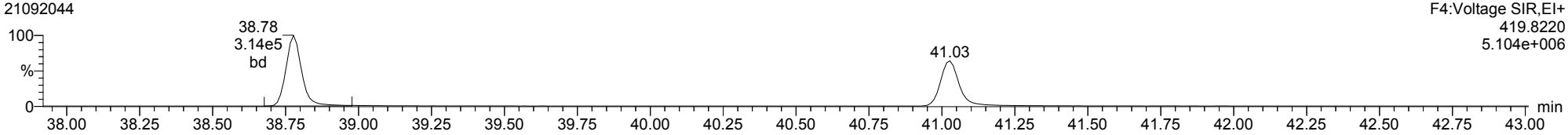

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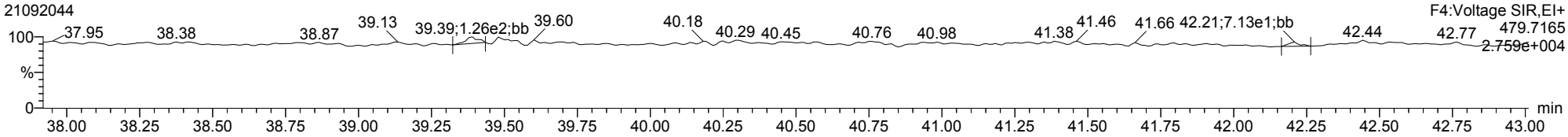

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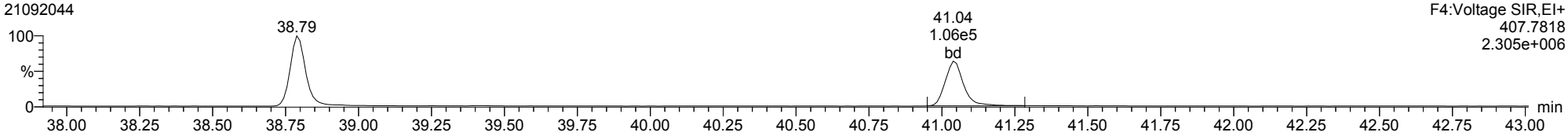

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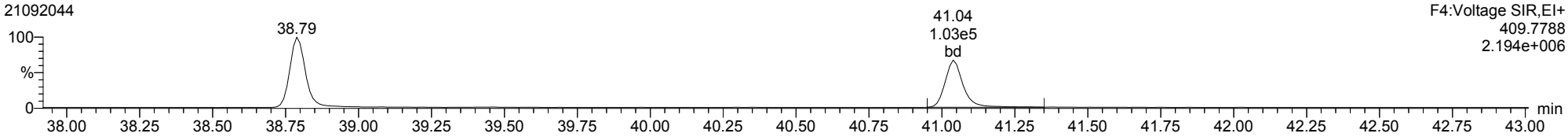

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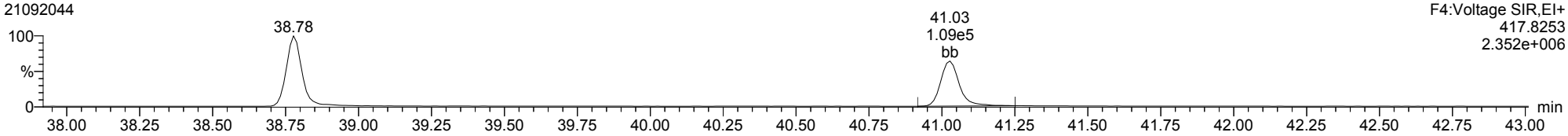

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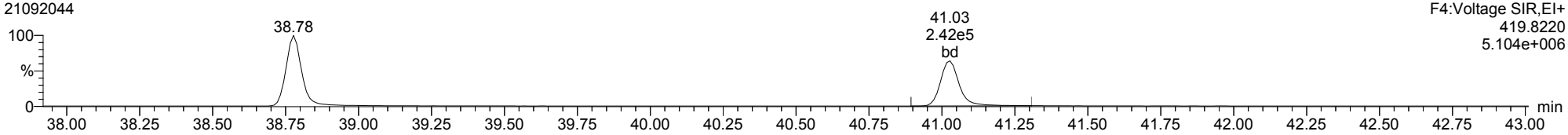

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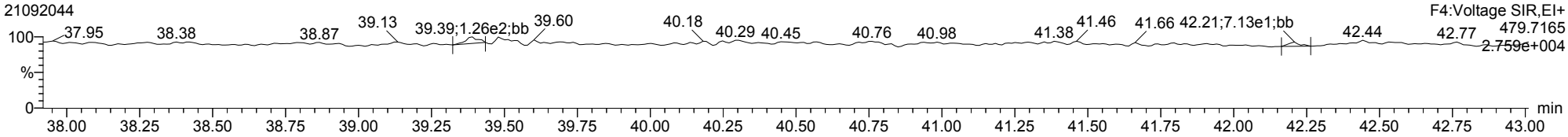

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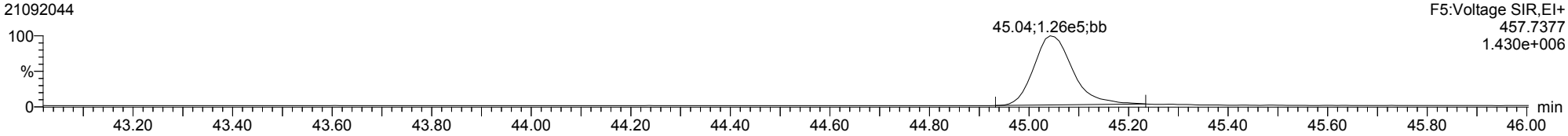

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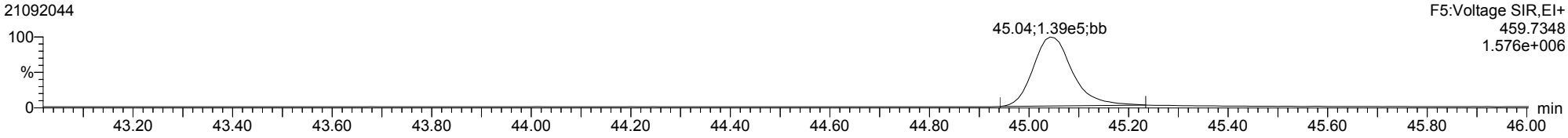

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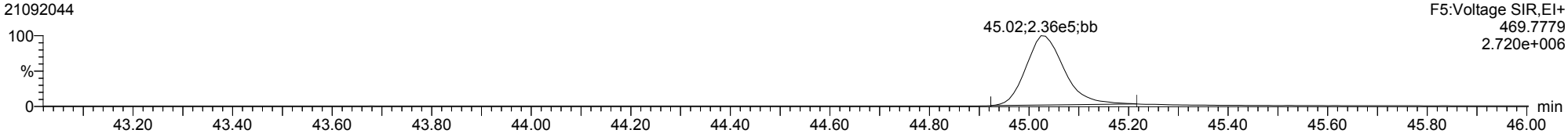

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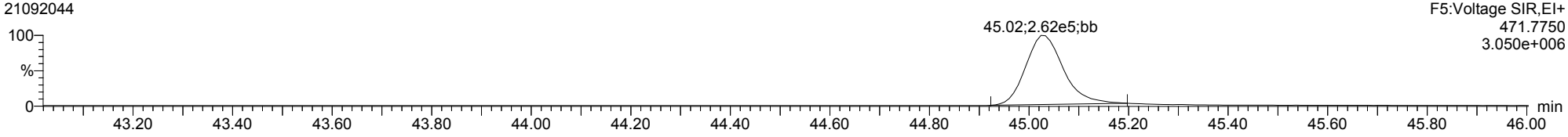

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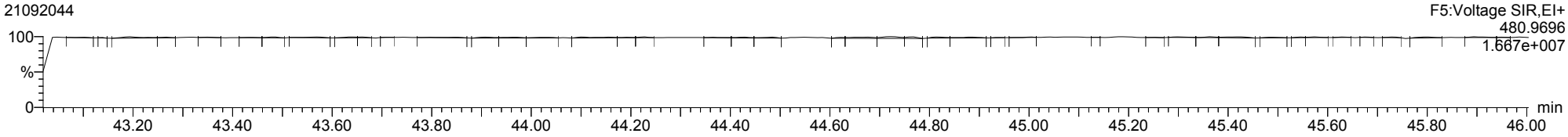

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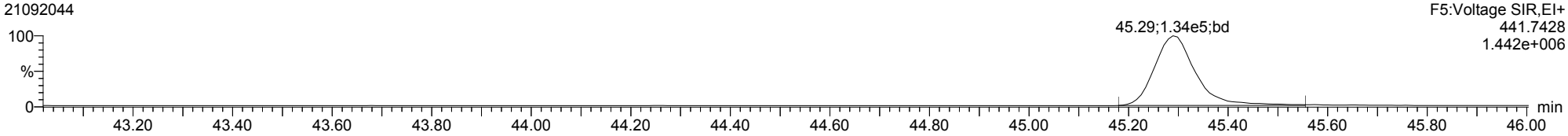

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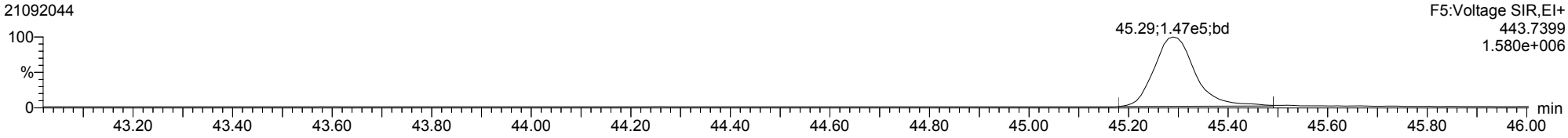

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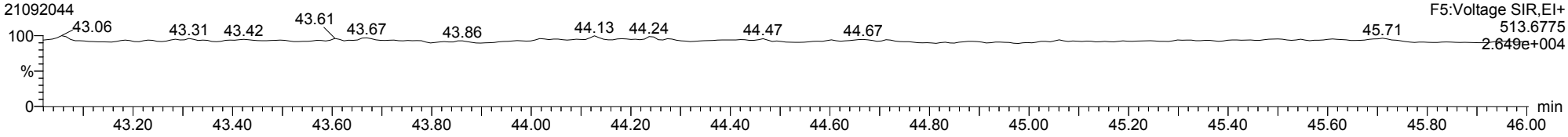

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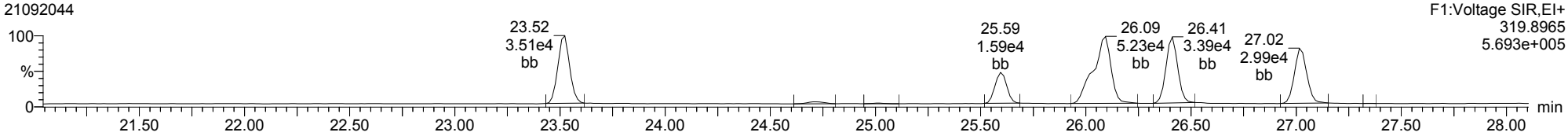
ID: CS3S5, Name: 21092044, Date: 22-Sep-2021, Time: 03:54:10, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



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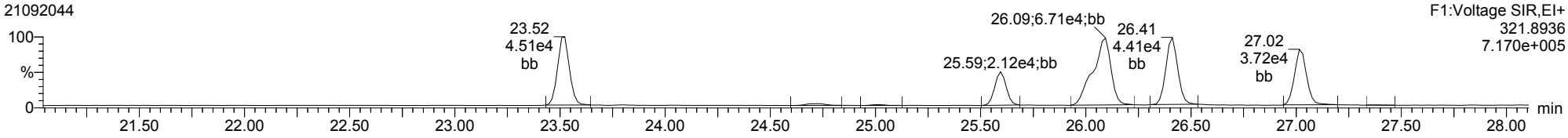

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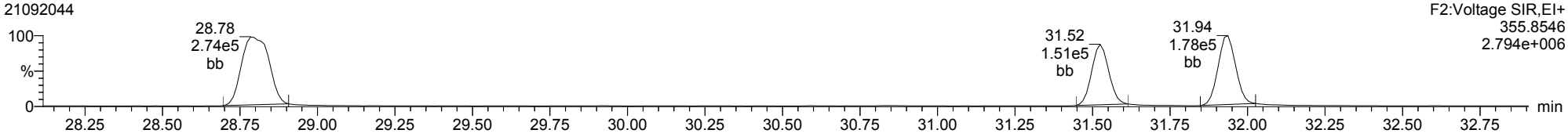

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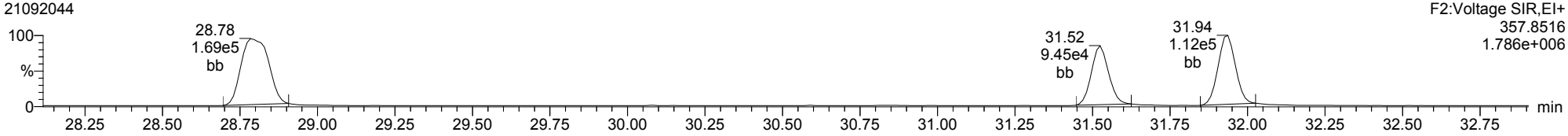

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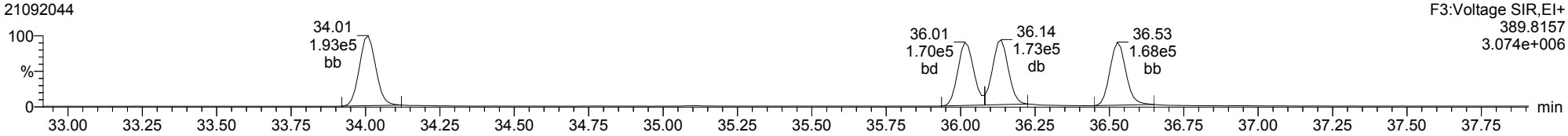

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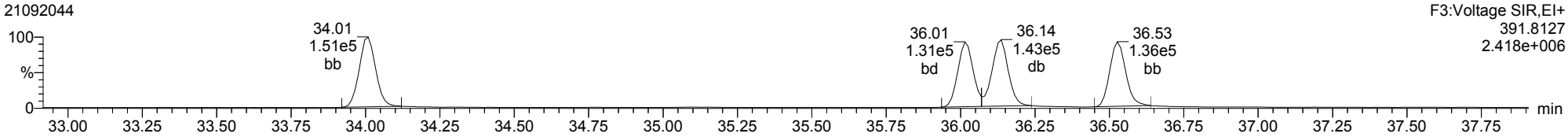

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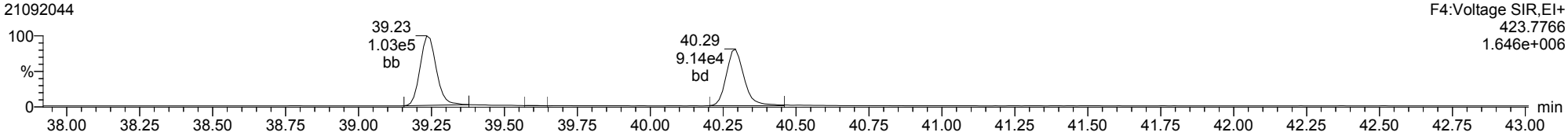

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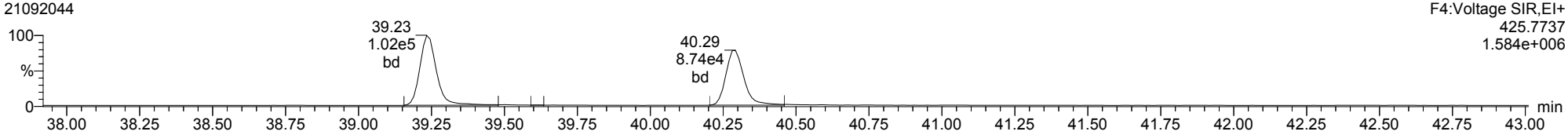

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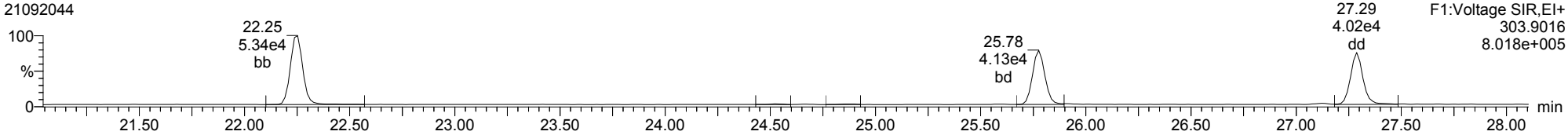
Total-tetrafurans



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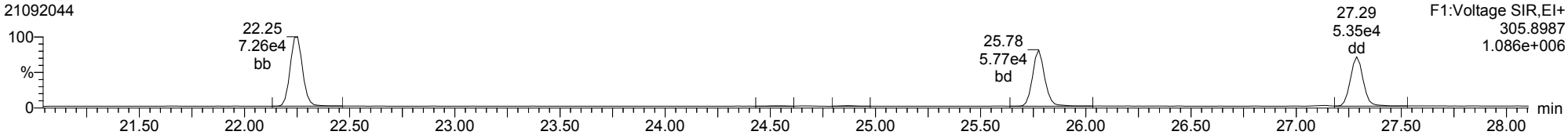

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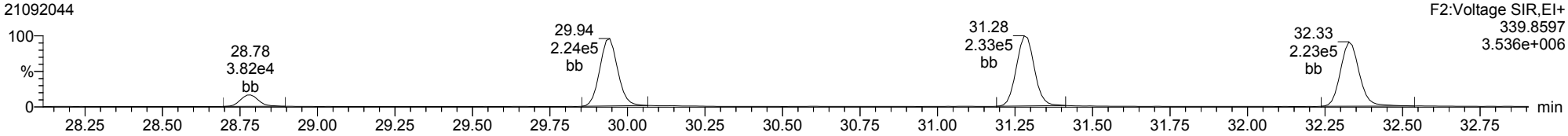

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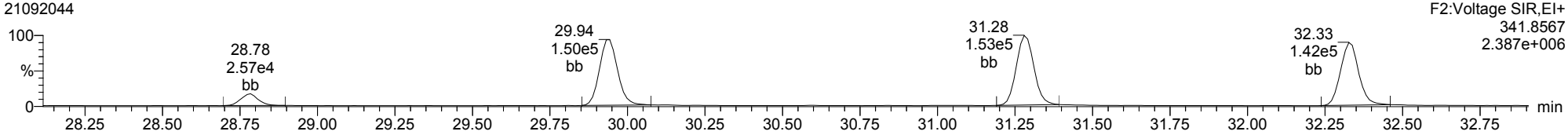

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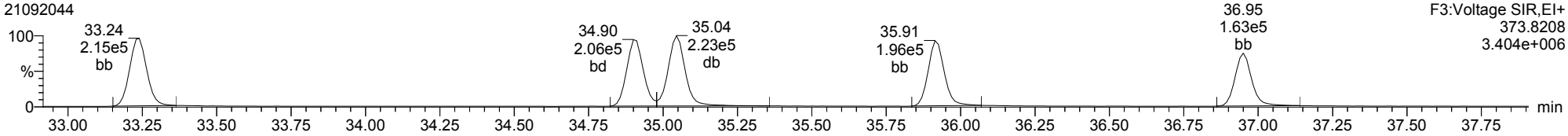
Total-hexafurans



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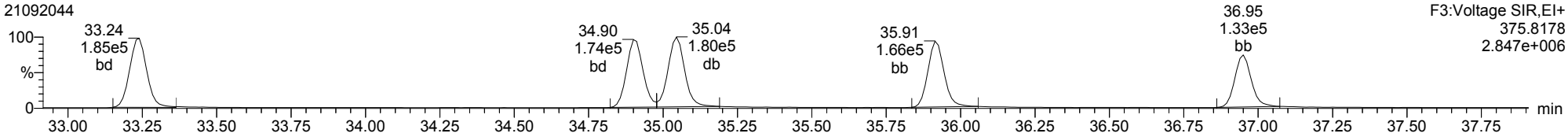

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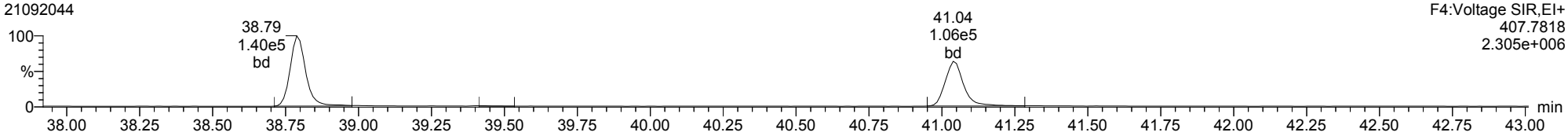

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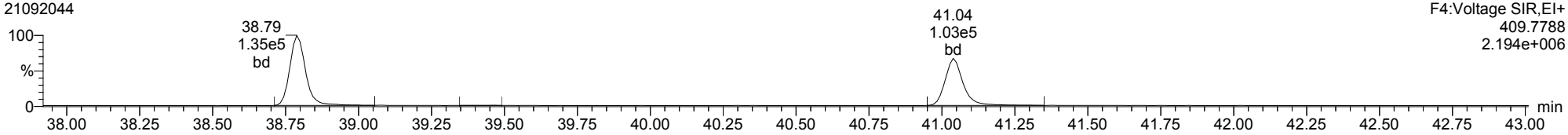

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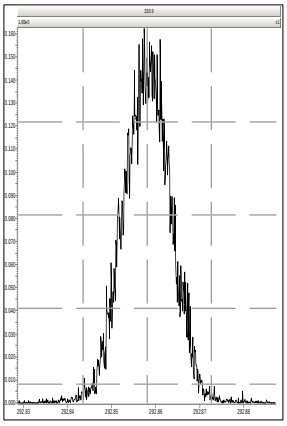

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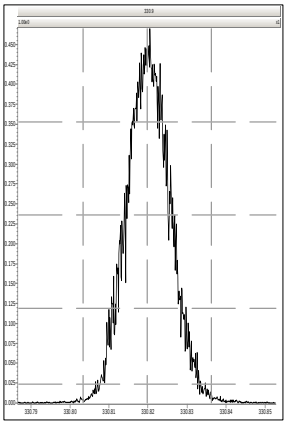
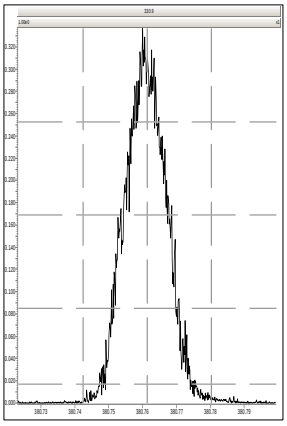
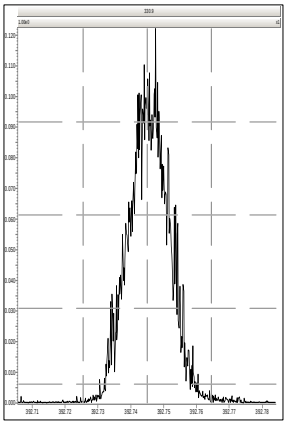


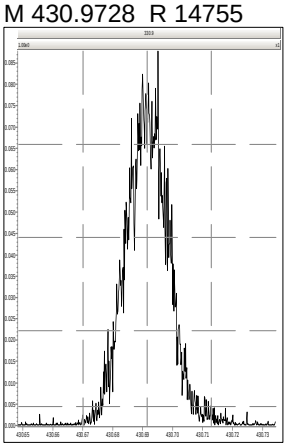
M 380.9760 R 15106



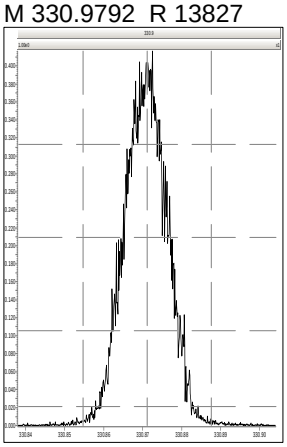
M 392.9760 R 13973



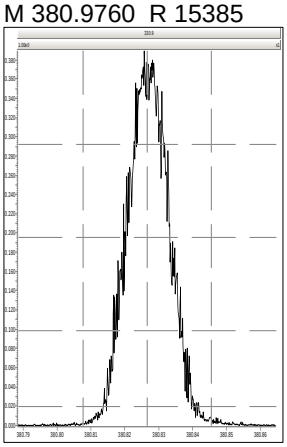
M 430.9728 R 14755



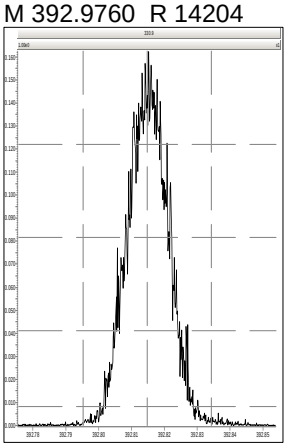
M 330.9792 R 13827



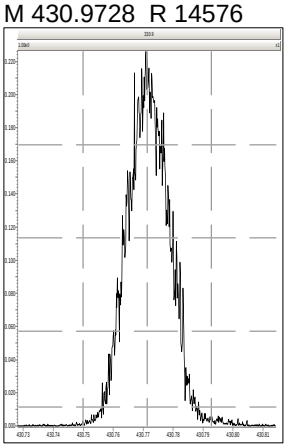
M 380.9760 R 15385



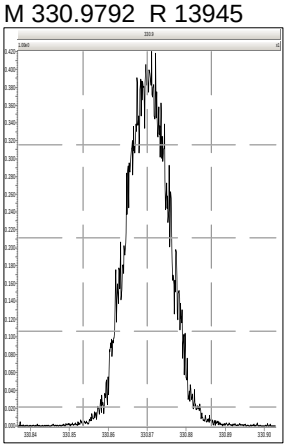
M 392.9760 R 14204



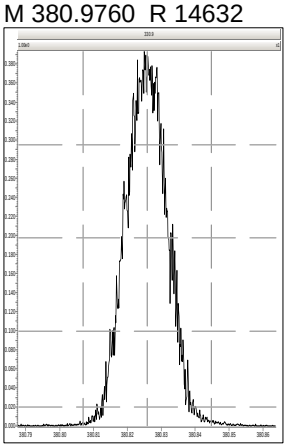
M 430.9728 R 14576



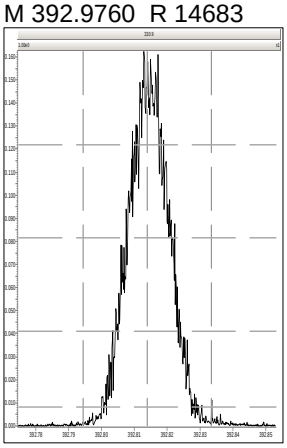
M 330.9792 R 13945



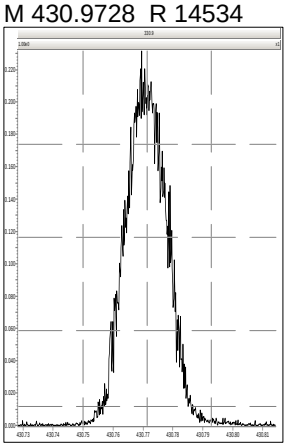
M 380.9760 R 14632



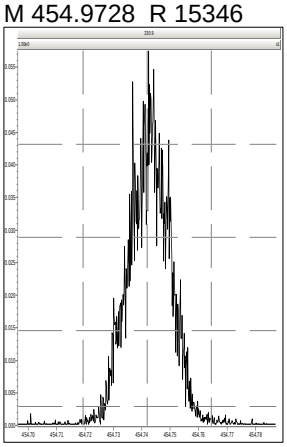
M 392.9760 R 14683



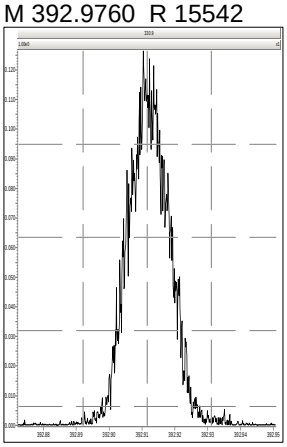
M 430.9728 R 14534



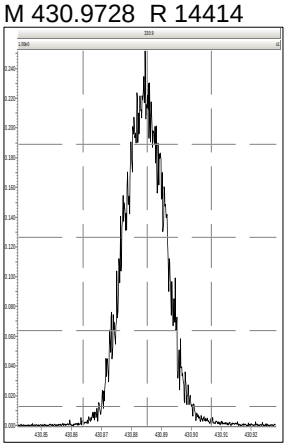
M 454.9728 R 15346



M 392.9760 R 15542

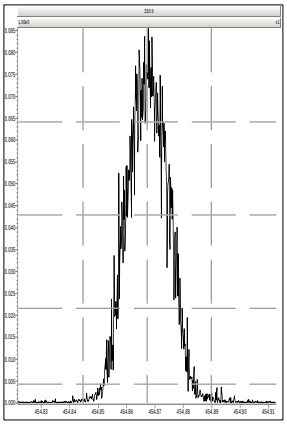


M 430.9728 R 14414

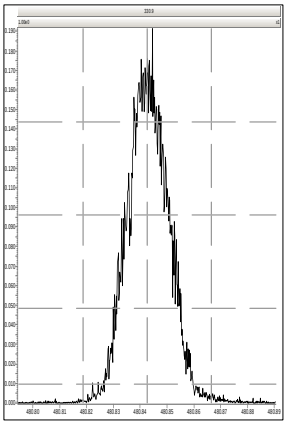


Printed: Wednesday, September 22, 2021 04:47:32 Pacific Daylight Time

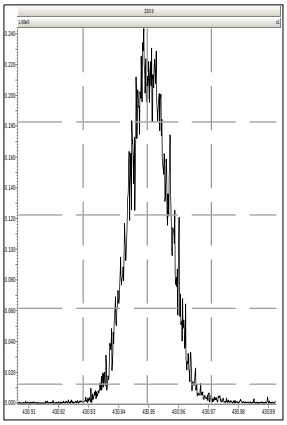
M 454.9728 R 14481



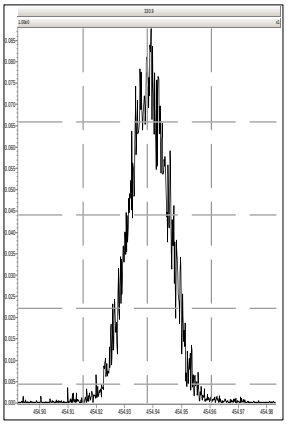
M 480.9696 R 14534



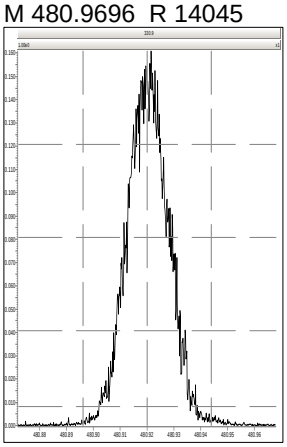
M 430.9728 R 15385



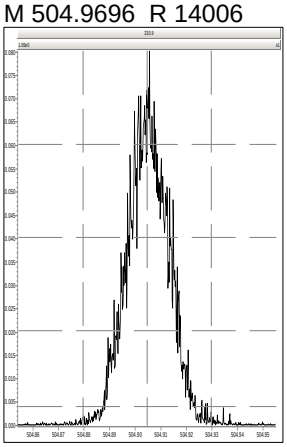
M 454.9728 R 15017



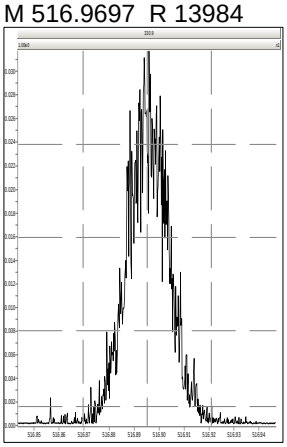
M 480.9696 R 14045

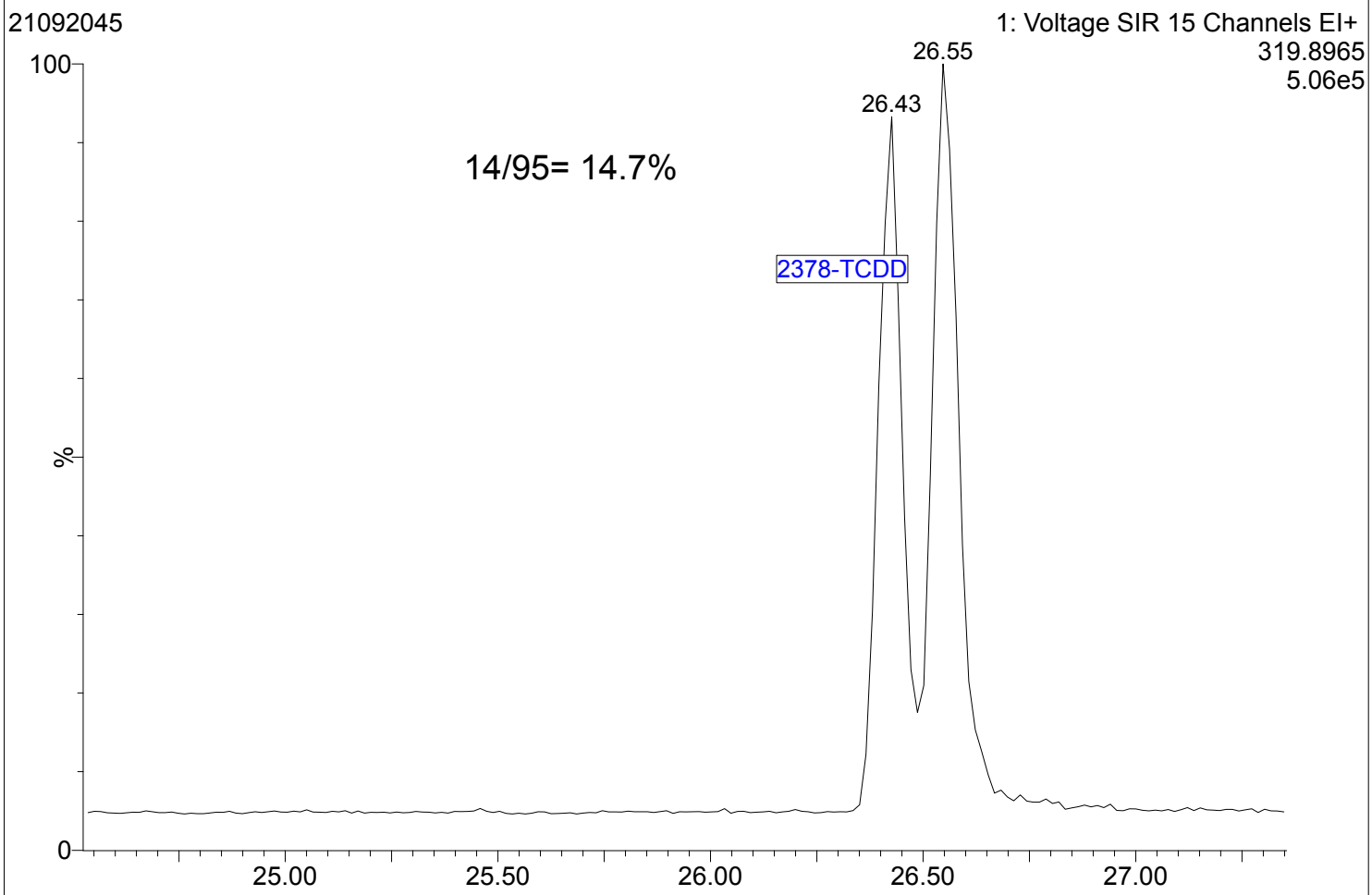


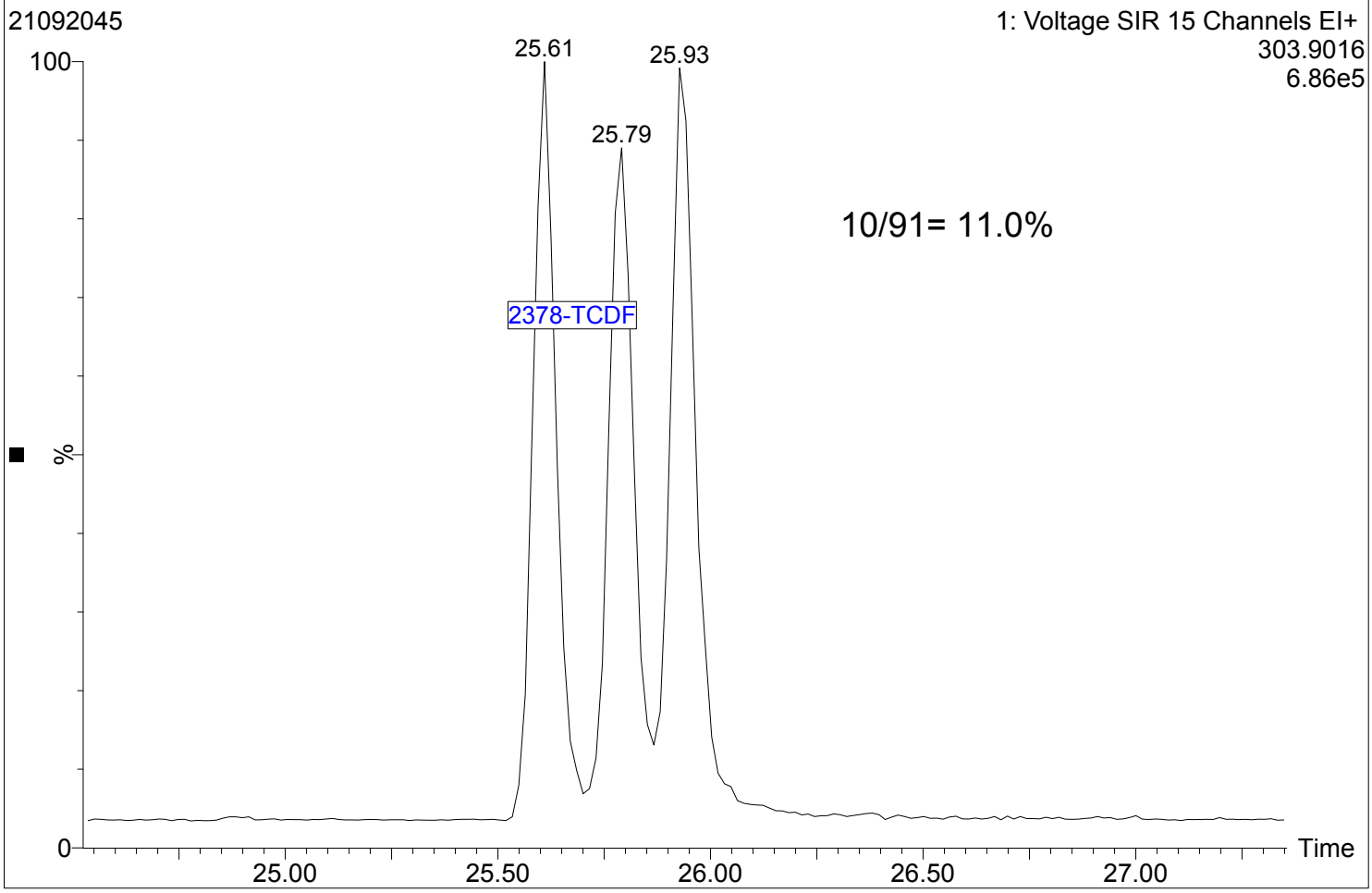
M 504.9696 R 14006



M 516.9697 R 13984




21092045
1: Voltage SIR 15 Channels EI+
319.8965
5.06e5
26.55
26.43
14/95= 14.7%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21092045
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6.86e5
25.61
25.93
25.79
10/91= 11.0%
2378-TCDF
100
%
0
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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092054	Calibration Date:	08/11/2021
Sequence:	SJI0282	Injection Date:	09/22/21
Lab Sample ID:	SJI0282-CCV3	Injection Time:	12:11
Sequence Name:	CS3S6		

		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	8.53	1.1075930	0.9446037		-14.7	+/-16
2,3,7,8-TCDD	A	10.000	9.89	0.9202875	0.9102800		-1.1	+/-22
1,2,3,7,8-PeCDF	A	50.000	45.1	1.0148670	0.9163551		-9.7	+/-18
2,3,4,7,8-PeCDF	A	50.000	43.1	1.1255490	0.9701167		-13.8	+/-18
1,2,3,7,8-PeCDD	A	50.000	48.6	0.9953229	0.9682660		-2.7	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.7	1.0168930	0.9708959		-4.5	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	48.1	1.0368310	0.9969185		-3.8	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	47.8	1.0524660	1.0070310		-4.3	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.1	1.0301540	0.9900357		-3.9	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	48.4	1.0273630	0.9935481		-3.3	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	49.5	1.0089800	0.9996812		-0.9	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.1	0.9504865	0.8939381		2.2	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	45.0	1.3273500	1.1952090		-10.0	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	45.5	1.2833380	1.1682710		-9.0	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	47.9	1.0680880	1.0238150		-4.1	+/-14
OCDF	A	100.00	75.9	1.4469010	1.0977710		-24.1	+/-37
OCDD	A	100.00	96.2	1.1808230	1.1358240		-3.8	+/-21
13C12-2,3,7,8-TCDF	A	100.00	93.4	1.4265830	1.3325658		-6.6	+/-29
13C12-2,3,7,8-TCDD	A	100.00	105	1.1164910	1.1668230		4.5	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	76.6	1.2973130	0.9942700		-23.4	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	76.4	1.2364800	0.9443796		-23.6	+/-23 *
13C12-1,2,3,7,8-PeCDD	A	100.00	81.4	0.7319833	0.5959225		-18.6	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	101	1.2424560	1.2517250		0.7	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	95.2	1.3434760	1.2783967		-4.8	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	95.2	1.2148550	1.1563595		-4.8	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	92.8	1.0076370	0.9345957		-7.2	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	101	0.9598233	0.9662140		0.7	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	97.3	1.0413850	1.0127737		-2.7	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	82.5	0.9264704	0.7642663		-17.5	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	76.0	0.7579160	0.5757043		-24.0	+/-23 *
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	90.0	0.6324476	0.5688940		-10.0	+/-28
13C12-OCDD	A	200.00	162	0.5037432	0.4089740		-18.8	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.93	1.0835930	1.0761041		-0.7	

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D6CL.qld
Last Altered: Wednesday, September 22, 2021 14:15:04 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:37:10 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	3.728e4	5.342e4	1.108	0.698	0.770	1065	1227	5.27e5	7.72e5	495.3	628.9	NO	bb	bb	8.528
12378-PeCDF	29.931	1.001	1.951e5	1.331e5	1.015	1.466	1.550	1497	1612	2.92e6	1.98e6	1953.8	1230.1	NO	bb	bd	45.147
23478-PeCDF	31.280	1.001	1.986e5	1.315e5	1.126	1.510	1.550	1497	1612	2.93e6	1.94e6	1960.3	1205.5	NO	bb	bb	43.095
123478-HxCDF	34.901	1.001	1.718e5	1.463e5	1.017	1.174	1.240	1836	1543	2.72e6	2.31e6	1479.1	1496.1	NO	bd	bd	47.738
234678-HxCDF	35.914	1.001	1.647e5	1.400e5	1.052	1.176	1.240	1836	1543	2.56e6	2.19e6	1396.5	1420.3	NO	bb	bb	47.842
123678-HxCDF	35.034	1.000	1.803e5	1.532e5	1.037	1.177	1.240	1836	1543	2.70e6	2.31e6	1470.4	1498.3	NO	db	db	48.075
123789-HxCDF	36.939	1.000	1.308e5	1.114e5	1.030	1.174	1.240	1836	1543	2.01e6	1.76e6	1097.1	1141.0	NO	bb	bb	48.053
1234678-HpCDF	38.789	1.001	1.208e5	1.182e5	1.327	1.022	1.050	1388	1238	1.83e6	1.81e6	1321.4	1459.5	NO	bd	bd	45.022
1234789-HpCDF	41.028	1.000	8.861e4	8.741e4	1.283	1.014	1.050	1388	1238	1.21e6	1.14e6	870.6	923.4	NO	bd	bd	45.517
OCDF	45.279	1.006	1.113e5	1.237e5	1.447	0.899	0.890	1542	711	1.16e6	1.32e6	753.7	1853.6	NO	bd	bd	75.871
2378-TCDD	26.396	1.001	3.373e4	4.280e4	0.920	0.788	0.770	1044	1085	4.99e5	6.30e5	478.5	580.6	NO	bd	bb	9.891
12378-PeCDD	31.514	1.000	1.276e5	8.031e4	0.995	1.589	1.550	1934	1151	1.98e6	1.26e6	1025.9	1097.6	NO	bb	bb	48.641
123478-HxCDD	36.014	1.001	1.395e5	1.118e5	1.027	1.248	1.240	1560	1352	2.27e6	1.79e6	1458.0	1324.6	NO	bd	bd	48.354
123678-HxCDD	36.126	1.000	1.474e5	1.175e5	1.009	1.254	1.240	1560	1352	2.39e6	1.88e6	1532.9	1387.5	NO	db	db	49.539
123789-HxCDD	36.516	1.011	1.416e5	1.100e5	0.950	1.287	1.240	1560	1352	2.26e6	1.80e6	1447.6	1328.3	NO	bb	bb	51.111
1234678-HpCDD	40.282	1.000	7.881e4	7.363e4	1.068	1.070	1.050	1188	1090	1.13e6	1.09e6	950.9	997.2	NO	bb	bb	47.927
OCDD	45.041	1.000	1.160e5	1.272e5	1.181	0.912	0.890	848	1070	1.20e6	1.32e6	1414.9	1235.4	NO	bd	bd	96.189
13C-2378-TCDF	25.746	1.007	4.208e5	5.393e5	1.427	0.780	0.770	2136	1423	6.18e6	7.98e6	2892.3	5605.3	NO	bb	bb	93.410
13C-12378-PeCDF	29.909	1.170	4.408e5	2.756e5	1.297	1.599	1.550	1574	2033	6.62e6	4.14e6	4203.3	2035.3	NO	bb	bb	76.641
13C-23478-PeCDF	31.257	1.223	4.188e5	2.617e5	1.236	1.601	1.550	1574	2033	6.21e6	3.78e6	3945.2	1861.8	NO	bb	bb	76.376
13C-123478-HxCDF	34.878	0.955	2.217e5	4.335e5	1.242	0.512	0.510	1867	2625	3.39e6	6.74e6	1818.1	2569.8	NO	bd	bd	100.746
13C-123678-HxCDF	35.023	0.959	2.317e5	4.375e5	1.343	0.530	0.510	1867	2625	3.55e6	6.70e6	1898.6	2552.5	NO	db	db	95.156
13C-234678-HxCDF	35.892	0.983	2.082e5	3.971e5	1.215	0.524	0.510	1867	2625	3.22e6	6.26e6	1724.6	2383.8	NO	bb	bb	95.185
13C-123789-HxCDF	36.928	1.012	1.682e5	3.210e5	1.008	0.524	0.510	1867	2625	2.71e6	5.27e6	1451.1	2009.0	NO	bb	bb	92.751
13C-1234678-HpCDF	38.766	1.062	1.233e5	2.768e5	0.926	0.445	0.440	1305	1217	1.87e6	4.21e6	1432.6	3461.7	NO	bd	bd	82.492
13C-1234789-HpCDF	41.017	1.124	9.290e4	2.084e5	0.758	0.446	0.440	1305	1217	1.28e6	2.84e6	981.7	2332.9	NO	bd	bb	75.959
13C-1234-TCDD	25.564	0.000	3.115e5	4.090e5	1.000	0.762	0.770	1970	928	4.87e6	6.38e6	2469.6	6877.9	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	3.626e5	4.781e5	1.116	0.758	0.770	1970	928	5.43e6	7.15e6	2756.8	7706.5	NO	bb	bb	104.508
13C-12378-PeCDD	31.502	1.232	2.595e5	1.699e5	0.732	1.528	1.550	949	764	3.87e6	2.48e6	4079.1	3238.7	NO	bb	bd	81.412
13C-123478-HxCDD	35.992	0.986	2.808e5	2.249e5	0.960	1.249	1.240	1736	1332	4.81e6	3.76e6	2770.6	2820.3	NO	bd	bd	100.666
13C-123678-HxCDD	36.115	0.989	2.990e5	2.311e5	1.041	1.294	1.240	1736	1332	4.70e6	3.61e6	2704.9	2710.6	NO	db	db	97.253
13C-1234678-HpCDD	40.270	1.103	1.527e5	1.451e5	0.632	1.052	1.050	1082	1086	2.18e6	2.10e6	2011.0	1929.4	NO	bb	bb	89.951
13C-OCDD	45.022	1.233	2.034e5	2.248e5	0.504	0.905	0.890	1066	1154	2.22e6	2.46e6	2082.2	2135.4	NO	bb	bb	162.374
13C-123789-HxCDD	36.505	0.000	2.910e5	2.325e5	1.000	1.252	1.240	1736	1332	4.73e6	3.86e6	2725.1	2896.6	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	7.754e4		1.084			1358		1.14e6		841.6			bb		9.931

Dataset: T:\Autospec\Processed Data Batch\210920D6CL.qld
Last Altered: Wednesday, September 22, 2021 14:15:04 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:37:10 Pacific Daylight Time

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	5.051e4	6.758e4	1.425	0.748	0.770	1065	1227	7.52e5	1.02e6	706.2	834.6	NO	bb	bd	8.630
1289-TCDF	27.273	1.059	3.651e4	5.118e4	1.043	0.713	0.770	1065	1227	4.97e5	7.11e5	466.5	579.4	NO	dd	db	8.756
13468-PECDF	27.106	0.906	3.738e5	2.421e5	1.376	1.544	1.550	657	1080	5.62e6	3.63e6	8554.1	3356.2	NO	bb	bb	62.468
12389-PECDF	32.315	1.080	1.860e5	1.285e5	1.000	1.447	1.550	1497	1612	2.66e6	1.80e6	1774.1	1113.6	NO	bb	bb	43.931
123468-HXCDF	33.229	0.953	1.846e5	1.543e5	1.087	1.197	1.240	1836	1543	2.83e6	2.34e6	1540.7	1515.4	NO	bb	bb	47.602
1368-TCDD	23.508	0.891	3.366e4	4.395e4	0.923	0.766	0.770	1044	1085	5.19e5	6.89e5	497.4	634.9	NO	bb	bb	9.998
1289-TCDD	27.016	1.024	2.965e4	3.640e4	0.794	0.814	0.770	1044	1085	4.34e5	5.28e5	416.3	486.1	NO	bd	bb	9.895
12479-PECDD	28.784	0.914	2.413e5	1.476e5	1.843	1.634	1.550	1934	1151	2.35e6	1.43e6	1215.9	1240.6	NO	bb	bb	49.135
12389-PECDD	31.926	1.013	1.511e5	9.465e4	1.154	1.597	1.550	1934	1151	2.36e6	1.45e6	1218.5	1258.5	NO	bb	bb	49.620
124679-HXCDD	33.998	0.945	1.604e5	1.272e5	1.125	1.261	1.240	1560	1352	2.50e6	1.92e6	1602.1	1420.5	NO	bb	bb	50.538
1234679-HPCDD	39.234	0.974	8.942e4	8.423e4	1.211	1.062	1.050	1188	1090	1.38e6	1.31e6	1162.7	1202.5	NO	bb	bb	48.157
Total-tetrafurans			1.250e5		1.192			1065		1.78e6							26.066
Total-penta1			3.738e5					657		5.62e6							62.468
Total-pentafurans			6.128e5		1.047			1497		9.01e6							139.794
Total-hexafurans			8.322e5		1.045			1836		1.28e7							239.310
Total-heptafurans			2.101e5		1.305			1388		3.05e6							90.816
Total-Furans			2.265e6		1.158			1065		3.35e7							634.325
Total-tetradioxins			1.644e5		0.879			1044		2.21e6							50.824
Total-pentadioxins			5.206e5		1.331			1934		6.70e6							147.578
Total-hexadioxins			5.894e5		1.028			1560		9.43e6							199.709
Total-heptadioxins			1.682e5		1.140			1188		2.51e6							96.084
Total-Dioxins			1.559e6		1.092			1044		2.21e7							590.384
Total-TEQ			3.824e6					1044		5.55e7							1224.709
FUNCTION1 PFK			1.964e6					596506		3.93e7							
FUNCTION2 PFK			5.135e6					407960		1.66e7							0.000
FUNCTION3 PFK			5.952e4					439457		6.90e5							0.000
FUNCTION4 PFK			2.141e5					255541		5.67e6							
FUNCTION5 PFK			3.449e6					196586		2.23e7							
FUNCTION1 HXCD...			1.200e3					562		1.80e4							0.000
FUNCTION1 HPCD...			1.635e3					703		2.34e4							0.000
FUNCTION2 HPCD...			3.725e2					1126		8.48e3							0.000
FUNCTION3 OCDPE			6.548e2					830		1.36e4							0.000
FUNCTION4 NCDPE			9.860e1					603		2.93e3							0.000
FUNCTION5 DCDPE			0.000e0					546		0.00e0							

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	3.651e4	5.118e4	1.043	0.71	0.77	466.5	YES	NO	dd	db	8.756
2	2378-TCDF	25.78	3.728e4	5.342e4	1.108	0.70	0.77	495.3	YES	NO	bb	bb	8.528
3	Total-tetrafurans	24.67	2.933e2	4.394e2	1.192	0.67	0.77	3.9	YES	NO	db	db	0.064
4	Total-tetrafurans	24.54	4.214e2	5.672e2	1.192	0.74	0.77	4.8	YES	NO	bd	bd	0.086
5	1368-TCDF	22.24	5.051e4	6.758e4	1.425	0.75	0.77	706.2	YES	NO	bb	bd	8.630

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.11	3.738e5	2.421e5	1.376	1.54	1.55	8554.1	YES	NO	bb	bb	62.468

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.28	1.986e5	1.315e5	1.126	1.51	1.55	1960.3	YES	NO	bb	bb	43.095
2	12378-PeCDF	29.93	1.951e5	1.331e5	1.015	1.47	1.55	1953.8	YES	NO	bb	bd	45.147
3	Total-pentafurans	28.77	3.311e4	2.260e4	1.047	1.47	1.55	334.1	YES	NO	bb	bb	7.621
4	12389-PECDF	32.32	1.860e5	1.285e5	1.000	1.45	1.55	1774.1	YES	NO	bb	bb	43.931

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	35.03	1.803e5	1.532e5	1.037	1.18	1.24	1470.4	YES	NO	db	db	48.075
2	123478-HxCDF	34.90	1.718e5	1.463e5	1.017	1.17	1.24	1479.1	YES	NO	bd	bd	47.738
3	123468-HXCDF	33.23	1.846e5	1.543e5	1.087	1.20	1.24	1540.7	YES	NO	bb	bb	47.602
4	123789-HxCDF	36.94	1.308e5	1.114e5	1.030	1.17	1.24	1097.1	YES	NO	bb	bb	48.053
5	234678-HxCDF	35.91	1.647e5	1.400e5	1.052	1.18	1.24	1396.5	YES	NO	bb	bb	47.842

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	41.30	6.303e2	6.380e2	1.305	0.99	1.05	6.1	YES	NO	db	dd	0.277
2	1234789-HpCDF	41.03	8.861e4	8.741e4	1.283	1.01	1.05	870.6	YES	NO	bd	bd	45.517
3	1234678-HpCDF	38.79	1.208e5	1.182e5	1.327	1.02	1.05	1321.4	YES	NO	bd	bd	45.022

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	3.651e4	5.118e4	1.043	0.71	0.77	466.5	YES	NO	dd	db	8.756
2	2378-TCDF	25.78	3.728e4	5.342e4	1.108	0.70	0.77	495.3	YES	NO	bb	bb	8.528
3	Total-tetrafurans	24.67	2.933e2	4.394e2	1.192	0.67	0.77	3.9	YES	NO	db	db	0.064
4	Total-tetrafurans	24.54	4.214e2	5.672e2	1.192	0.74	0.77	4.8	YES	NO	bd	bd	0.086
5	1368-TCDF	22.24	5.051e4	6.758e4	1.425	0.75	0.77	706.2	YES	NO	bb	bd	8.630
6	23478-PeCDF	31.28	1.986e5	1.315e5	1.126	1.51	1.55	1960.3	YES	NO	bb	bb	43.095
7	12378-PeCDF	29.93	1.951e5	1.331e5	1.015	1.47	1.55	1953.8	YES	NO	bb	bd	45.147
8	Total-pentafurans	28.77	3.311e4	2.260e4	1.047	1.47	1.55	334.1	YES	NO	bb	bb	7.621
9	123678-HxCDF	35.03	1.803e5	1.532e5	1.037	1.18	1.24	1470.4	YES	NO	db	db	48.075
10	123478-HxCDF	34.90	1.718e5	1.463e5	1.017	1.17	1.24	1479.1	YES	NO	bd	bd	47.738
11	123468-HXCDF	33.23	1.846e5	1.543e5	1.087	1.20	1.24	1540.7	YES	NO	bb	bb	47.602
12	12389-PECDF	32.32	1.860e5	1.285e5	1.000	1.45	1.55	1774.1	YES	NO	bb	bb	43.931
13	123789-HxCDF	36.94	1.308e5	1.114e5	1.030	1.17	1.24	1097.1	YES	NO	bb	bb	48.053
14	234678-HxCDF	35.91	1.647e5	1.400e5	1.052	1.18	1.24	1396.5	YES	NO	bb	bb	47.842
15	Total-heptafurans	41.30	6.303e2	6.380e2	1.305	0.99	1.05	6.1	YES	NO	db	dd	0.277
16	1234789-HpCDF	41.03	8.861e4	8.741e4	1.283	1.01	1.05	870.6	YES	NO	bd	bd	45.517
17	1234678-HpCDF	38.79	1.208e5	1.182e5	1.327	1.02	1.05	1321.4	YES	NO	bd	bd	45.022
18	OCDF	45.28	1.113e5	1.237e5	1.447	0.90	0.89	753.7	YES	NO	bd	bd	75.871
19	13468-PECDF	27.11	3.738e5	2.421e5	1.376	1.54	1.55	8554.1	YES	NO	bb	bb	62.468

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	27.02	2.965e4	3.640e4	0.794	0.81	0.77	416.3	YES	NO	bd	bb	9.895
2	2378-TCDD	26.40	3.373e4	4.280e4	0.920	0.79	0.77	478.5	YES	NO	bd	bb	9.891
3	Total-tetradioxins	26.08	5.004e4	6.537e4	0.879	0.77	0.77	486.1	YES	NO	bb	bb	15.614
4	Total-tetradioxins	25.58	1.536e4	2.027e4	0.879	0.76	0.77	221.4	YES	NO	bb	bb	4.820
5	Total-tetradioxins	24.99	4.331e2	5.548e2	0.879	0.78	0.77	5.2	YES	NO	bb	bb	0.134
6	Total-tetradioxins	24.72	1.571e3	1.923e3	0.879	0.82	0.77	13.7	YES	NO	bb	bb	0.473
7	1368-TCDD	23.51	3.366e4	4.395e4	0.923	0.77	0.77	497.4	YES	NO	bb	bb	9.998

Dataset: T:\Autospec\Processed Data Batch\210920D6CL.qld
Last Altered: Wednesday, September 22, 2021 14:15:04 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:37:10 Pacific Daylight Time

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	31.93	1.511e5	9.465e4	1.154	1.60	1.55	1218.5	YES	NO	bb	bb	49.620
2	12378-PeCDD	31.51	1.276e5	8.031e4	0.995	1.59	1.55	1025.9	YES	NO	bb	bb	48.641
3	Total-pentadioxins	30.83	6.270e2	4.115e2	1.331	1.52	1.55	5.7	YES	NO	bb	bb	0.182
4	12479-PECDD	28.78	2.413e5	1.476e5	1.843	1.63	1.55	1215.9	YES	NO	bb	bb	49.135

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.52	1.416e5	1.100e5	0.950	1.29	1.24	1447.6	YES	NO	bb	bb	51.111
2	123678-HxCDD	36.13	1.474e5	1.175e5	1.009	1.25	1.24	1532.9	YES	NO	db	db	49.539
3	123478-HxCDD	36.01	1.395e5	1.118e5	1.027	1.25	1.24	1458.0	YES	NO	bd	bd	48.354
4	Total-hexadioxins	35.15	4.690e2	4.183e2	1.028	1.12	1.24	6.3	YES	NO	db	db	0.167
5	124679-HXCDD	34.00	1.604e5	1.272e5	1.125	1.26	1.24	1602.1	YES	NO	bb	bb	50.538

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.23	8.942e4	8.423e4	1.211	1.06	1.05	1162.7	YES	NO	bb	bb	48.157
2	1234678-HpCDD	40.28	7.881e4	7.363e4	1.068	1.07	1.05	950.9	YES	NO	bb	bb	47.927

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	27.02	2.965e4	3.640e4	0.794	0.81	0.77	416.3	YES	NO	bd	bb	9.895
2	2378-TCDD	26.40	3.373e4	4.280e4	0.920	0.79	0.77	478.5	YES	NO	bd	bb	9.891
3	Total-tetradioxins	26.08	5.004e4	6.537e4	0.879	0.77	0.77	486.1	YES	NO	bb	bb	15.614
4	Total-tetradioxins	25.58	1.536e4	2.027e4	0.879	0.76	0.77	221.4	YES	NO	bb	bb	4.820
5	Total-tetradioxins	24.99	4.331e2	5.548e2	0.879	0.78	0.77	5.2	YES	NO	bb	bb	0.134
6	Total-tetradioxins	24.72	1.571e3	1.923e3	0.879	0.82	0.77	13.7	YES	NO	bb	bb	0.473
7	1368-TCDD	23.51	3.366e4	4.395e4	0.923	0.77	0.77	497.4	YES	NO	bb	bb	9.998
8	12389-PECDD	31.93	1.511e5	9.465e4	1.154	1.60	1.55	1218.5	YES	NO	bb	bb	49.620
9	12378-PeCDD	31.51	1.276e5	8.031e4	0.995	1.59	1.55	1025.9	YES	NO	bb	bb	48.641
10	Total-pentadioxins	30.83	6.270e2	4.115e2	1.331	1.52	1.55	5.7	YES	NO	bb	bb	0.182
11	12479-PECDD	28.78	2.413e5	1.476e5	1.843	1.63	1.55	1215.9	YES	NO	bb	bb	49.135
12	123789-HxCDD	36.52	1.416e5	1.100e5	0.950	1.29	1.24	1447.6	YES	NO	bb	bb	51.111
13	123678-HxCDD	36.13	1.474e5	1.175e5	1.009	1.25	1.24	1532.9	YES	NO	db	db	49.539
14	123478-HxCDD	36.01	1.395e5	1.118e5	1.027	1.25	1.24	1458.0	YES	NO	bd	bd	48.354
15	Total-hexadioxins	35.15	4.690e2	4.183e2	1.028	1.12	1.24	6.3	YES	NO	db	db	0.167
16	124679-HXCDD	34.00	1.604e5	1.272e5	1.125	1.26	1.24	1602.1	YES	NO	bb	bb	50.538
17	1234679-HPCDD	39.23	8.942e4	8.423e4	1.211	1.06	1.05	1162.7	YES	NO	bb	bb	48.157
18	OCDD	45.04	1.160e5	1.272e5	1.181	0.91	0.89	1414.9	YES	NO	bd	bd	96.189
19	1234678-HpCDD	40.28	7.881e4	7.363e4	1.068	1.07	1.05	950.9	YES	NO	bb	bb	47.927

Dataset: T:\Autospec\Processed Data Batch\210920D6CL.qld
Last Altered: Wednesday, September 22, 2021 14:15:04 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:37:10 Pacific Daylight Time

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	3.651e4	5.118e4	1.043	0.71	0.77	466.5	YES	NO	dd	db	8.756
2	2378-TCDF	25.78	3.728e4	5.342e4	1.108	0.70	0.77	495.3	YES	NO	bb	bb	8.528
3	Total-tetrafurans	24.67	2.933e2	4.394e2	1.192	0.67	0.77	3.9	YES	NO	db	db	0.064
4	Total-tetrafurans	24.54	4.214e2	5.672e2	1.192	0.74	0.77	4.8	YES	NO	bd	bd	0.086
5	1368-TCDF	22.24	5.051e4	6.758e4	1.425	0.75	0.77	706.2	YES	NO	bb	bd	8.630
6	23478-PeCDF	31.28	1.986e5	1.315e5	1.126	1.51	1.55	1960.3	YES	NO	bb	bb	43.095
7	12378-PeCDF	29.93	1.951e5	1.331e5	1.015	1.47	1.55	1953.8	YES	NO	bb	bd	45.147
8	Total-pentafurans	28.77	3.311e4	2.260e4	1.047	1.47	1.55	334.1	YES	NO	bb	bb	7.621
9	123678-HxCDF	35.03	1.803e5	1.532e5	1.037	1.18	1.24	1470.4	YES	NO	db	db	48.075
10	123478-HxCDF	34.90	1.718e5	1.463e5	1.017	1.17	1.24	1479.1	YES	NO	bd	bd	47.738
11	123468-HXCDF	33.23	1.846e5	1.543e5	1.087	1.20	1.24	1540.7	YES	NO	bb	bb	47.602
12	12389-PECDF	32.32	1.860e5	1.285e5	1.000	1.45	1.55	1774.1	YES	NO	bb	bb	43.931
13	123789-HxCDF	36.94	1.308e5	1.114e5	1.030	1.17	1.24	1097.1	YES	NO	bb	bb	48.053
14	234678-HxCDF	35.91	1.647e5	1.400e5	1.052	1.18	1.24	1396.5	YES	NO	bb	bb	47.842
15	Total-heptafurans	41.30	6.303e2	6.380e2	1.305	0.99	1.05	6.1	YES	NO	db	dd	0.277
16	1234789-HpCDF	41.03	8.861e4	8.741e4	1.283	1.01	1.05	870.6	YES	NO	bd	bd	45.517
17	1234678-HpCDF	38.79	1.208e5	1.182e5	1.327	1.02	1.05	1321.4	YES	NO	bd	bd	45.022
18	OCDF	45.28	1.113e5	1.237e5	1.447	0.90	0.89	753.7	YES	NO	bd	bd	75.871
19	13468-PECDF	27.11	3.738e5	2.421e5	1.376	1.54	1.55	8554.1	YES	NO	bb	bb	62.468
20	1289-TCDD	27.02	2.965e4	3.640e4	0.794	0.81	0.77	416.3	YES	NO	bd	bb	9.895
21	2378-TCDD	26.40	3.373e4	4.280e4	0.920	0.79	0.77	478.5	YES	NO	bd	bb	9.891
22	Total-tetradioxins	26.08	5.004e4	6.537e4	0.879	0.77	0.77	486.1	YES	NO	bb	bb	15.614
23	Total-tetradioxins	25.58	1.536e4	2.027e4	0.879	0.76	0.77	221.4	YES	NO	bb	bb	4.820
24	Total-tetradioxins	24.99	4.331e2	5.548e2	0.879	0.78	0.77	5.2	YES	NO	bb	bb	0.134
25	Total-tetradioxins	24.72	1.571e3	1.923e3	0.879	0.82	0.77	13.7	YES	NO	bb	bb	0.473
26	1368-TCDD	23.51	3.366e4	4.395e4	0.923	0.77	0.77	497.4	YES	NO	bb	bb	9.998
27	12389-PECDD	31.93	1.511e5	9.465e4	1.154	1.60	1.55	1218.5	YES	NO	bb	bb	49.620
28	12378-PeCDD	31.51	1.276e5	8.031e4	0.995	1.59	1.55	1025.9	YES	NO	bb	bb	48.641
29	Total-pentadioxins	30.83	6.270e2	4.115e2	1.331	1.52	1.55	5.7	YES	NO	bb	bb	0.182
30	12479-PECDD	28.78	2.413e5	1.476e5	1.843	1.63	1.55	1215.9	YES	NO	bb	bb	49.135
31	123789-HxCDD	36.52	1.416e5	1.100e5	0.950	1.29	1.24	1447.6	YES	NO	bb	bb	51.111
32	123678-HxCDD	36.13	1.474e5	1.175e5	1.009	1.25	1.24	1532.9	YES	NO	db	db	49.539
33	123478-HxCDD	36.01	1.395e5	1.118e5	1.027	1.25	1.24	1458.0	YES	NO	bd	bd	48.354
34	Total-hexadioxins	35.15	4.690e2	4.183e2	1.028	1.12	1.24	6.3	YES	NO	db	db	0.167
35	124679-HXCDD	34.00	1.604e5	1.272e5	1.125	1.26	1.24	1602.1	YES	NO	bb	bb	50.538
36	1234679-HPCDD	39.23	8.942e4	8.423e4	1.211	1.06	1.05	1162.7	YES	NO	bb	bb	48.157
37	OCDD	45.04	1.160e5	1.272e5	1.181	0.91	0.89	1414.9	YES	NO	bd	bd	96.189

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ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	1234678-HpCDD	40.28	7.881e4	7.363e4	1.068	1.07	1.05	950.9	YES	NO	bb	bb	47.927

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	21.71	5.909e3					0.7	NO		bb		
2	FUNCTION1 PFK	21.60	7.036e4					2.0	NO		db		
3	FUNCTION1 PFK	21.44	2.420e5					2.9	NO		dd		
4	FUNCTION1 PFK	21.36	1.171e5					2.9	NO		dd		
5	FUNCTION1 PFK	21.25	4.631e4					2.4	NO		bd		
6	FUNCTION1 PFK	21.18	1.924e4					1.2	NO		bb		
7	FUNCTION1 PFK	23.60	2.515e4					1.1	NO		db		
8	FUNCTION1 PFK	23.52	3.014e4					1.1	NO		dd		
9	FUNCTION1 PFK	23.45	5.424e4					1.7	NO		bd		
10	FUNCTION1 PFK	23.39	2.418e4					1.1	NO		db		
11	FUNCTION1 PFK	23.33	4.482e4					1.4	NO		bd		
12	FUNCTION1 PFK	23.24	1.074e4					0.7	NO		bb		
13	FUNCTION1 PFK	23.10	1.476e4					0.8	NO		bb		
14	FUNCTION1 PFK	23.02	6.056e4					2.2	NO		bb		
15	FUNCTION1 PFK	22.93	3.367e4					1.6	NO		db		
16	FUNCTION1 PFK	22.84	2.827e4					1.1	NO		bd		
17	FUNCTION1 PFK	22.62	2.091e4					1.0	NO		bb		
18	FUNCTION1 PFK	22.54	1.969e4					1.0	NO		bb		
19	FUNCTION1 PFK	22.43	4.396e3					0.5	NO		bb		
20	FUNCTION1 PFK	22.33	2.081e4					0.8	NO		bb		
21	FUNCTION1 PFK	22.12	1.407e4					1.0	NO		bb		
22	FUNCTION1 PFK	21.77	3.155e3					0.4	NO		bb		
23	FUNCTION1 PFK	26.27	1.272e5					2.4	NO		bb		
24	FUNCTION1 PFK	26.21	2.439e4					1.1	NO		db		
25	FUNCTION1 PFK	26.15	3.643e4					1.4	NO		bd		
26	FUNCTION1 PFK	26.02	7.860e3					0.4	NO		bb		
27	FUNCTION1 PFK	25.91	9.254e4					2.0	NO		bb		
28	FUNCTION1 PFK	25.73	1.969e4					0.8	NO		bb		
29	FUNCTION1 PFK	25.53	4.999e4					1.2	NO		bb		
30	FUNCTION1 PFK	25.10	3.899e3					0.4	NO		bb		
31	FUNCTION1 PFK	24.72	4.628e3					0.4	NO		db		
32	FUNCTION1 PFK	24.67	7.678e3					0.5	NO		bd		
33	FUNCTION1 PFK	24.25	2.518e4					1.1	NO		db		
34	FUNCTION1 PFK	24.19	2.208e4					1.1	NO		dd		
35	FUNCTION1 PFK	24.13	2.379e4					1.0	NO		bd		
36	FUNCTION1 PFK	24.04	4.210e4					1.5	NO		bb		
37	FUNCTION1 PFK	23.84	1.362e4					0.8	NO		bb		

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	23.76	2.079e4					1.0	NO		bb		
39	FUNCTION1 PFK	27.56	1.821e4					0.8	NO		bb		
40	FUNCTION1 PFK	27.27	2.526e4					1.3	NO		db		
41	FUNCTION1 PFK	27.21	7.032e4					2.6	NO		dd		
42	FUNCTION1 PFK	27.18	5.534e4					2.9	NO		bd		
43	FUNCTION1 PFK	27.11	4.686e4					2.2	NO		db		
44	FUNCTION1 PFK	27.06	6.705e4					2.2	NO		dd		
45	FUNCTION1 PFK	27.00	4.542e4					2.0	NO		dd		
46	FUNCTION1 PFK	26.94	7.080e4					2.2	NO		bd		
47	FUNCTION1 PFK	26.77	4.083e4					0.5	NO		bb		
48	FUNCTION1 PFK	26.62	4.326e4					0.9	NO		bb		
49	FUNCTION1 PFK	26.49	4.839e4					1.8	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.40	1.835e4					1.9	NO		bb		0.000
2	FUNCTION2 PFK	28.16	5.117e6					38.8	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	33.01	1.181e4					1.6	NO		bb		0.000
2	FUNCTION3 PFK	33.15	4.771e4					0.0	NO		bb		0.000

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	41.28	1.519e4					1.6	NO		bb		
2	FUNCTION4 PFK	41.09	1.305e3					0.5	NO		bb		
3	FUNCTION4 PFK	40.70	1.634e3					0.6	NO		bb		
4	FUNCTION4 PFK	40.60	3.083e3					0.6	NO		bb		
5	FUNCTION4 PFK	40.28	8.235e3					0.8	NO		bb		
6	FUNCTION4 PFK	39.87	1.078e4					1.3	NO		bb		
7	FUNCTION4 PFK	39.32	3.124e3					0.6	NO		bb		
8	FUNCTION4 PFK	38.88	3.374e3					0.7	NO		bb		
9	FUNCTION4 PFK	38.59	4.362e3					0.8	NO		db		
10	FUNCTION4 PFK	38.53	1.128e4					1.5	NO		dd		
11	FUNCTION4 PFK	38.48	9.814e3					1.6	NO		dd		
12	FUNCTION4 PFK	38.43	2.038e4					2.0	NO		bd		
13	FUNCTION4 PFK	38.16	5.663e4					1.9	NO		bb		
14	FUNCTION4 PFK	37.95	3.207e4					3.9	YES		bb		
15	FUNCTION4 PFK	42.79	9.369e3					0.9	NO		bb		
16	FUNCTION4 PFK	42.47	2.661e3					0.6	NO		bb		
17	FUNCTION4 PFK	42.08	3.458e3					0.7	NO		bb		
18	FUNCTION4 PFK	41.43	1.733e4					1.6	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.65	3.908e5					8.2	YES		db		
2	FUNCTION5 PFK	43.49	2.060e6					18.0	YES		dd		
3	FUNCTION5 PFK	43.10	4.369e5					42.0	YES		dd		
4	FUNCTION5 PFK	43.06	5.619e5					45.1	YES		bd		

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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...	26.41	1.306e2					4.7	YES		bb		0.000
2	FUNCTION1 HXCD...	26.17	2.387e2					6.8	YES		bb		0.000
3	FUNCTION1 HXCD...	25.84	7.748e1					1.6	NO		bb		0.000
4	FUNCTION1 HXCD...	25.17	8.379e1					3.3	YES		bb		0.000
5	FUNCTION1 HXCD...	24.17	1.486e2					3.1	YES		bb		0.000
6	FUNCTION1 HXCD...	22.83	8.442e1					2.3	NO		bb		0.000
7	FUNCTION1 HXCD...	27.95	7.050e1					2.0	NO		bb		0.000
8	FUNCTION1 HXCD...	27.11	2.031e2					4.0	YES		bb		0.000
9	FUNCTION1 HXCD...	26.73	1.629e2					4.4	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...	26.82	7.489e1					3.2	YES		db		0.000
2	FUNCTION1 HPCD...	26.73	1.898e2					4.3	YES		bd		0.000
3	FUNCTION1 HPCD...	26.17	1.715e2					5.8	YES		bb		0.000
4	FUNCTION1 HPCD...	25.53	9.104e1					1.3	NO		bb		0.000
5	FUNCTION1 HPCD...	25.16	8.403e1					1.2	NO		bb		0.000
6	FUNCTION1 HPCD...	24.61	9.508e1					2.0	NO		bb		0.000
7	FUNCTION1 HPCD...	24.25	8.682e1					1.7	NO		db		0.000
8	FUNCTION1 HPCD...	24.08	9.542e1					1.4	NO		bd		0.000
9	FUNCTION1 HPCD...	22.30	1.142e2					1.7	NO		bb		0.000
10	FUNCTION1 HPCD...	21.74	1.438e2					2.5	NO		db		0.000
11	FUNCTION1 HPCD...	21.60	1.225e2					1.9	NO		bd		0.000
12	FUNCTION1 HPCD...	21.16	2.416e2					3.3	YES		bb		0.000
13	FUNCTION1 HPCD...	27.27	1.239e2					3.1	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...	31.08	1.800e2					3.0	NO		bb		0.000
2	FUNCTION2 HPCD...	28.98	1.100e2					2.6	NO		bb		0.000
3	FUNCTION2 HPCD...	28.73	8.245e1					1.9	NO		bb		0.000

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Printed: Wednesday, September 22, 2021 14:37:10 Pacific Daylight Time

ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, 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	36.96	8.170e1					2.0	NO		bb		0.000
2	FUNCTION3 OCDPE	36.58	8.961e1					2.9	NO		db		0.000
3	FUNCTION3 OCDPE	36.50	1.704e2					2.7	NO		bd		0.000
4	FUNCTION3 OCDPE	36.01	1.185e2					2.5	NO		bb		0.000
5	FUNCTION3 OCDPE	35.79	1.234e2					4.7	YES		bb		0.000
6	FUNCTION3 OCDPE	33.15	7.111e1					1.6	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.40	9.860e1					4.9	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: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, Conditions: AUTOSPEC01, User: pk

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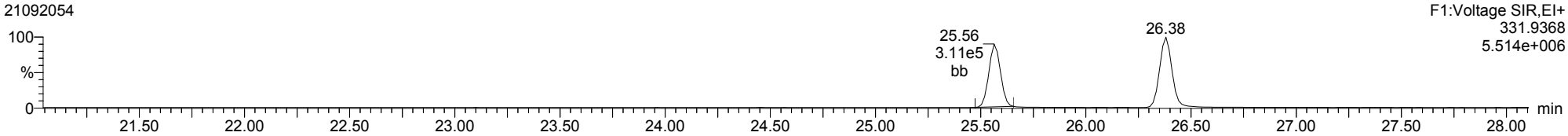

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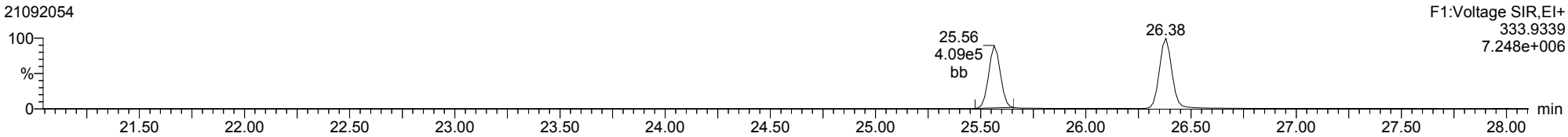

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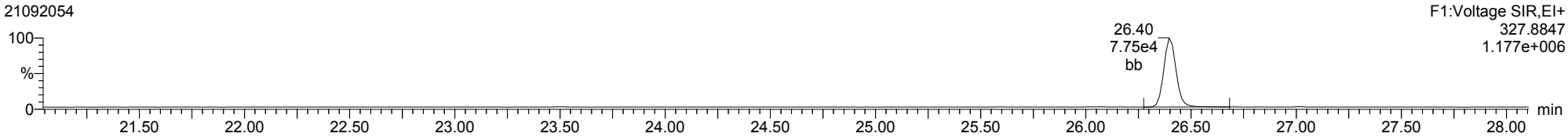

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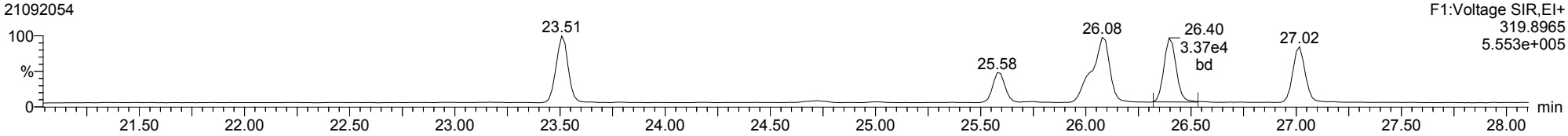
2378-TCDD



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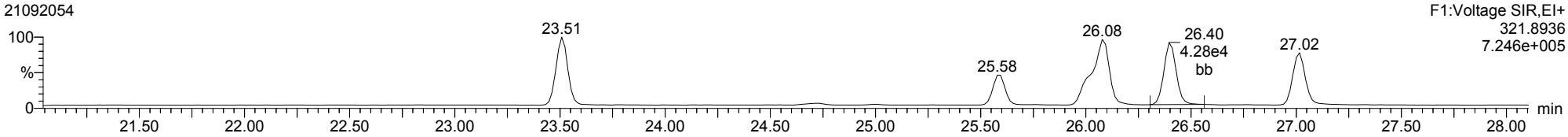

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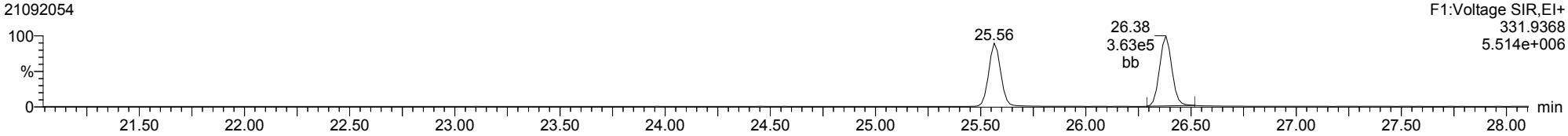

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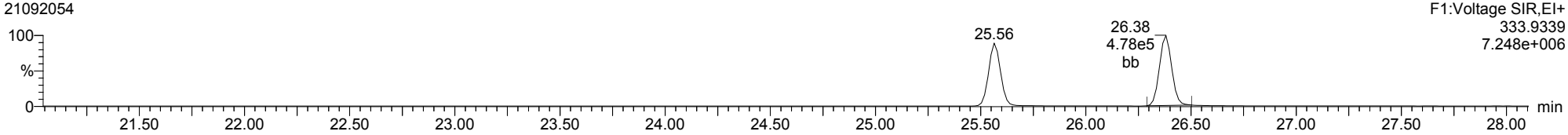

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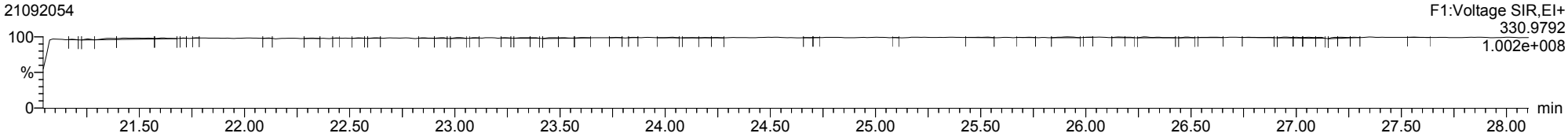

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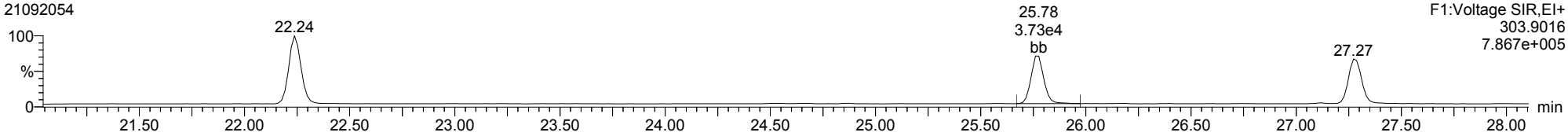

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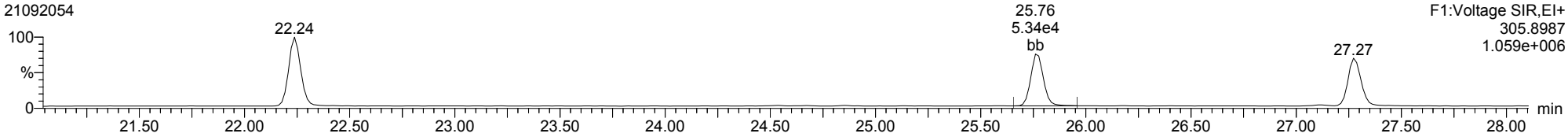

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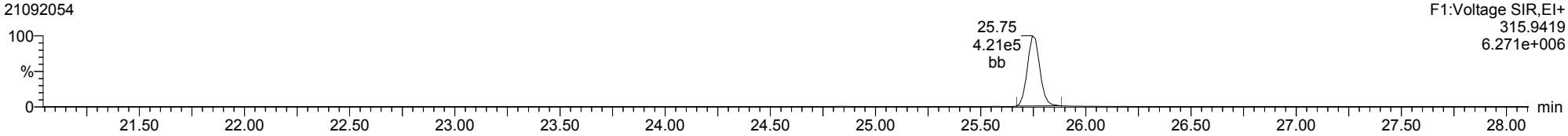

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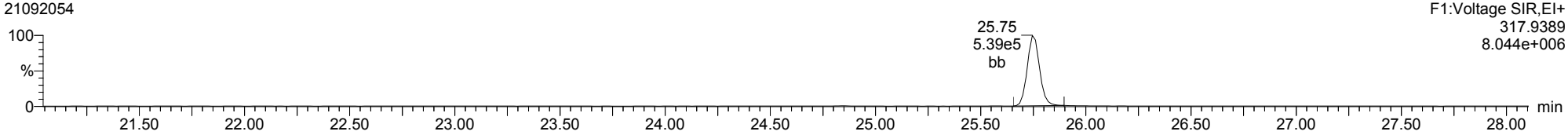

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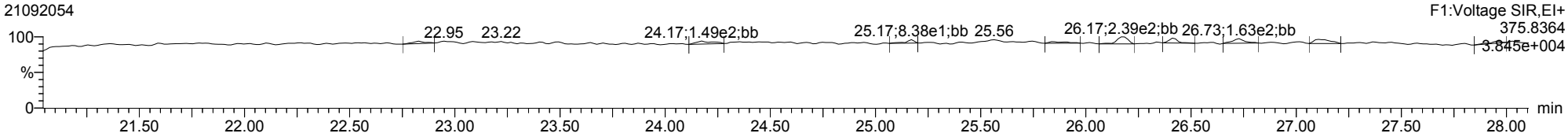

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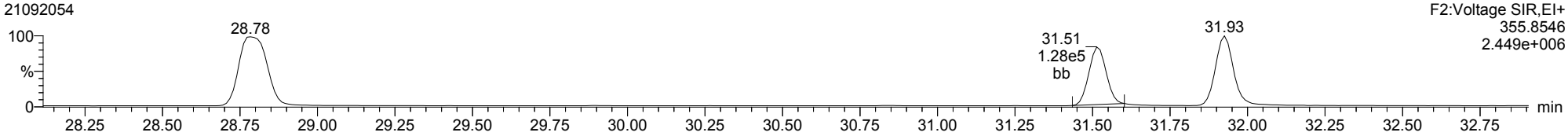
12378-PeCDD



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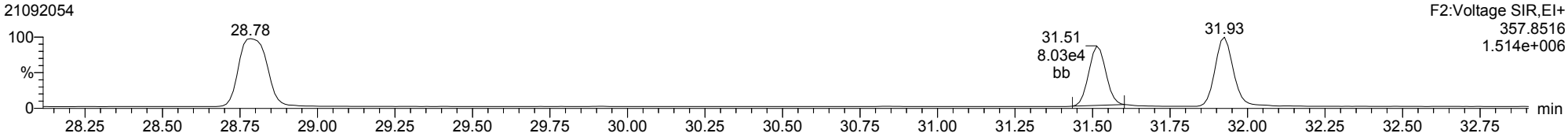

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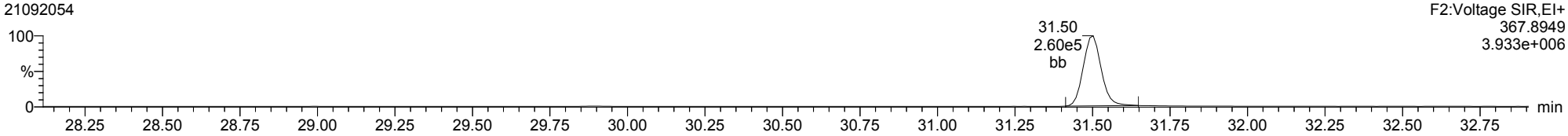

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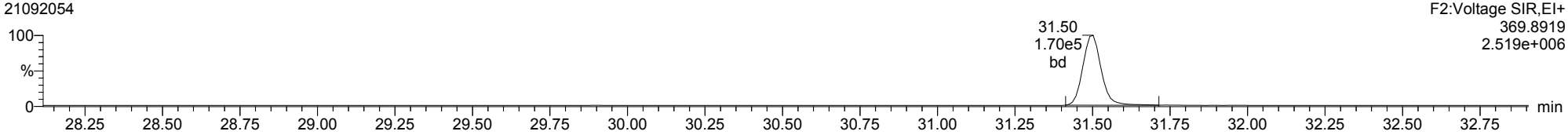

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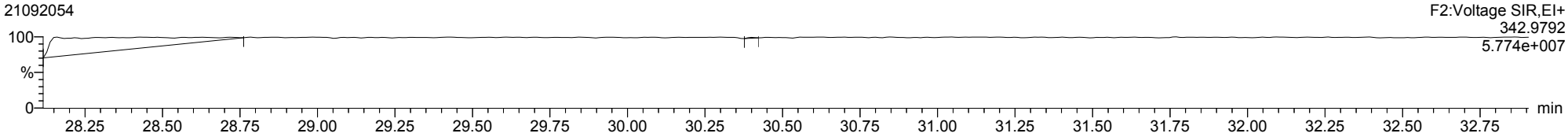

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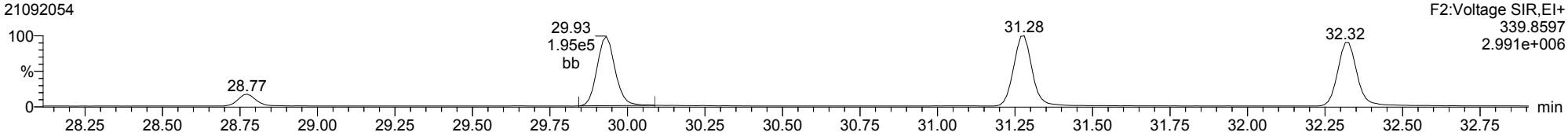

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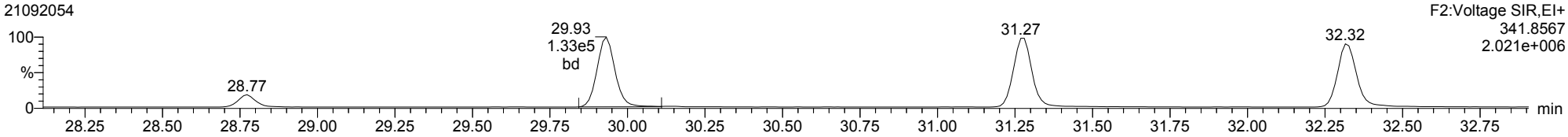

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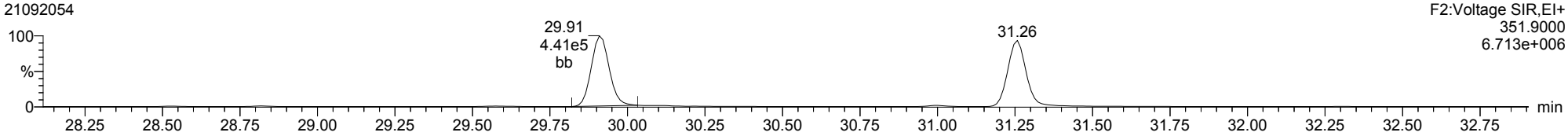

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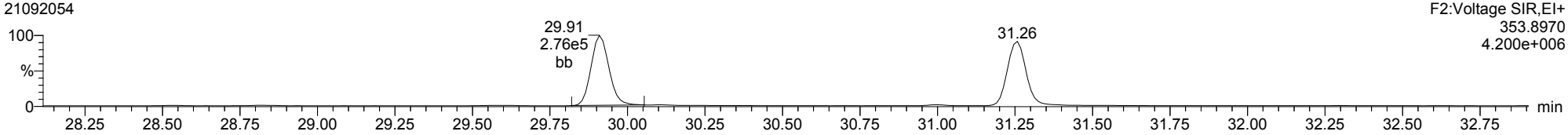
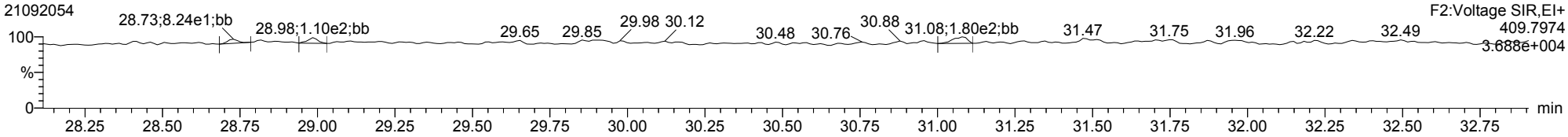


FUNCTION2 HPCDPE



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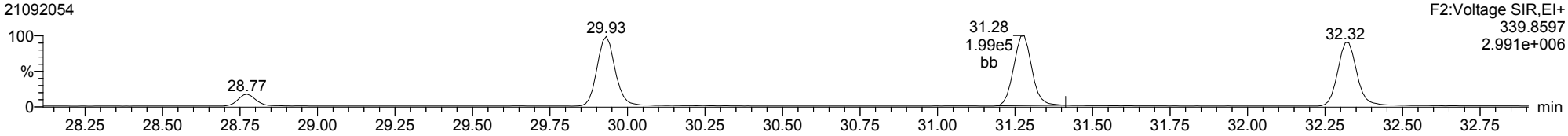

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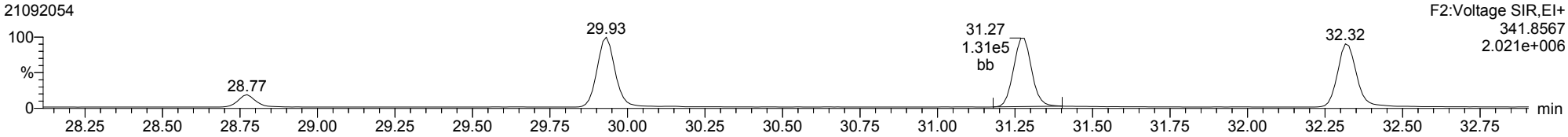

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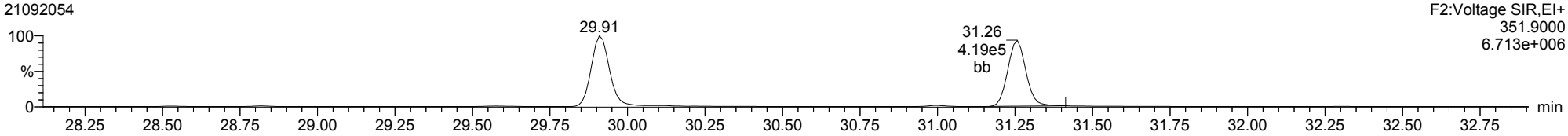

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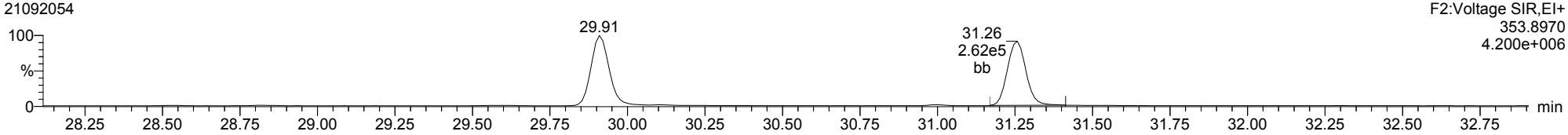

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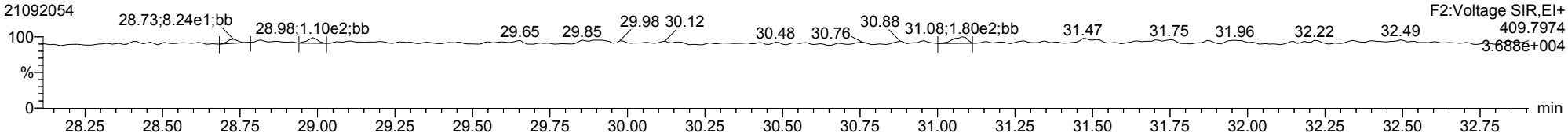

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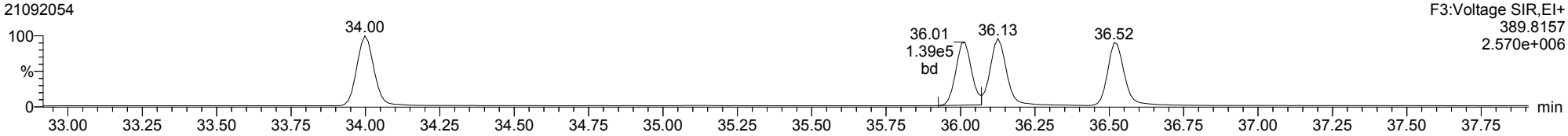

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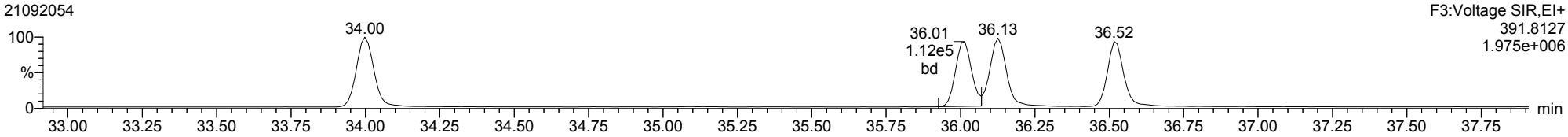

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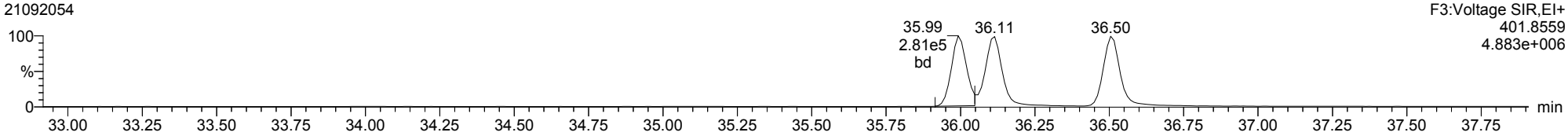

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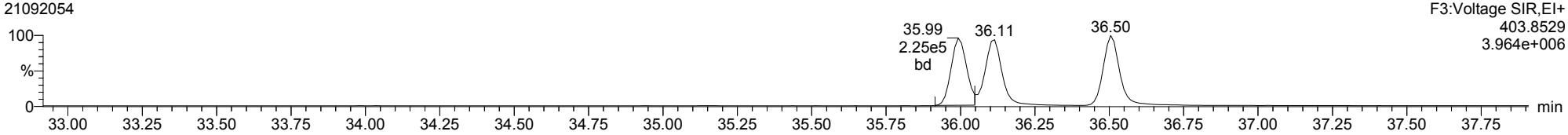
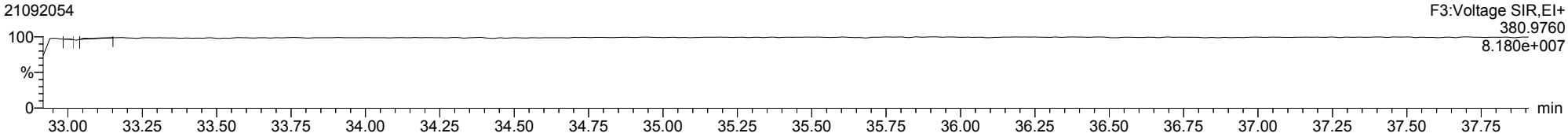


FUNCTION3 PFK



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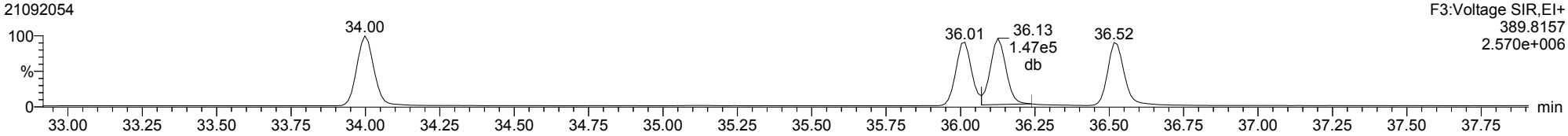

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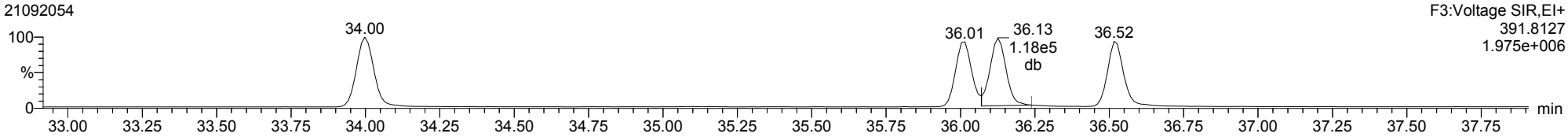

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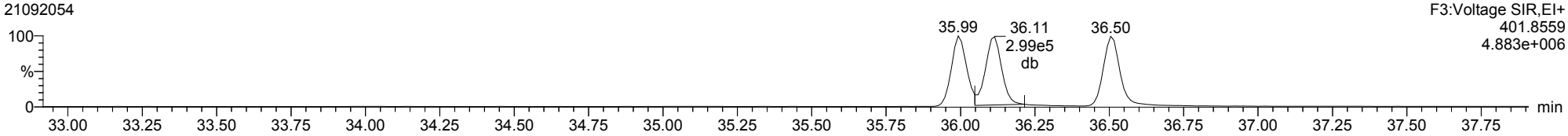

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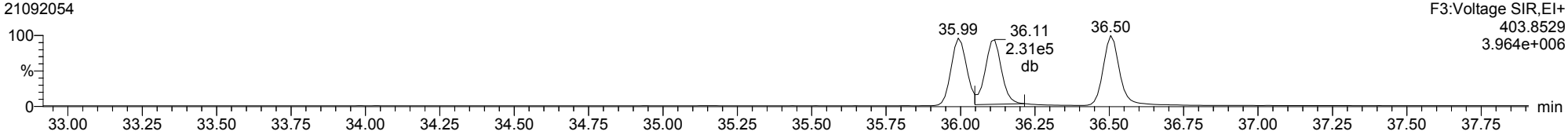

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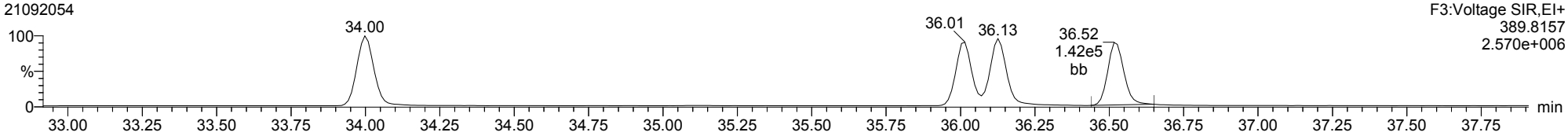

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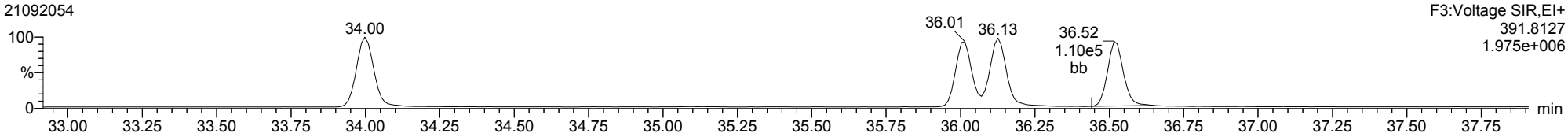

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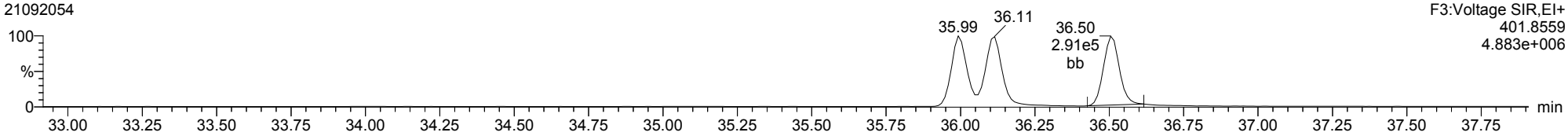

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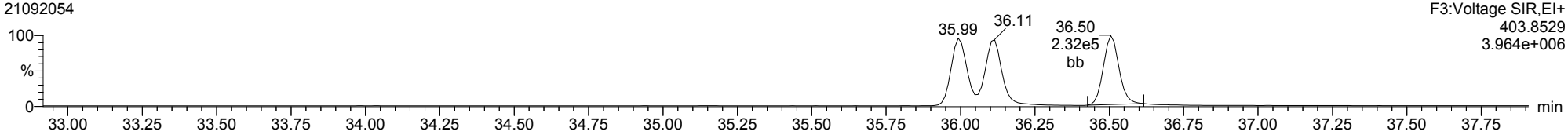

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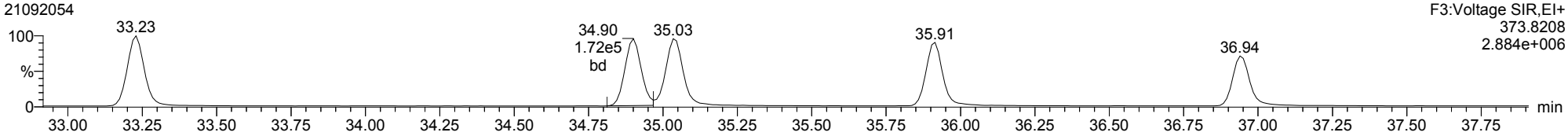

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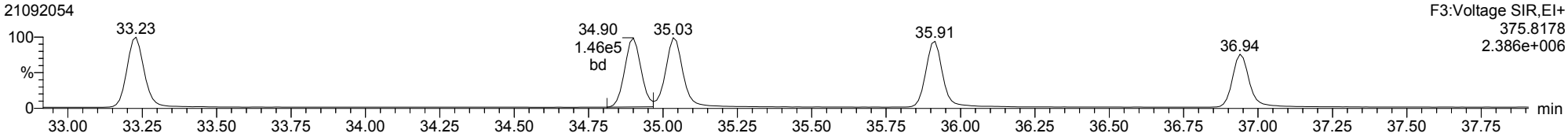

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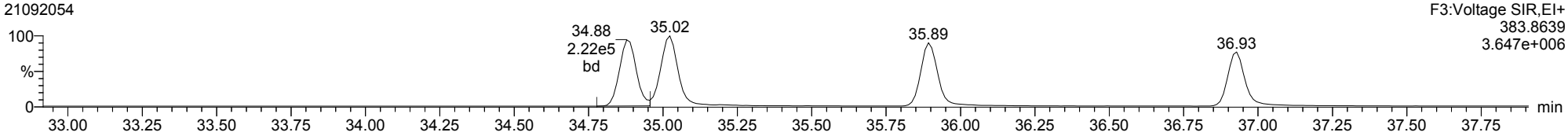

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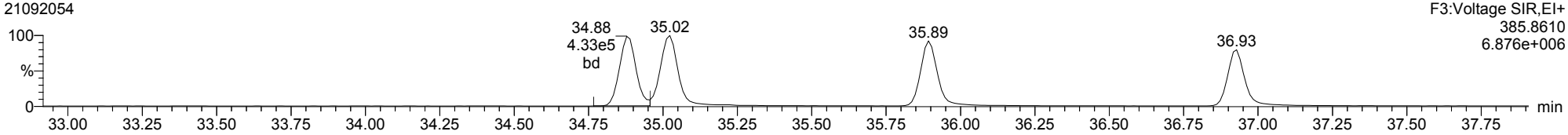

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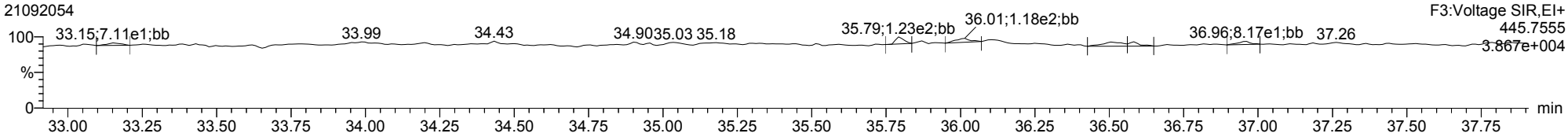

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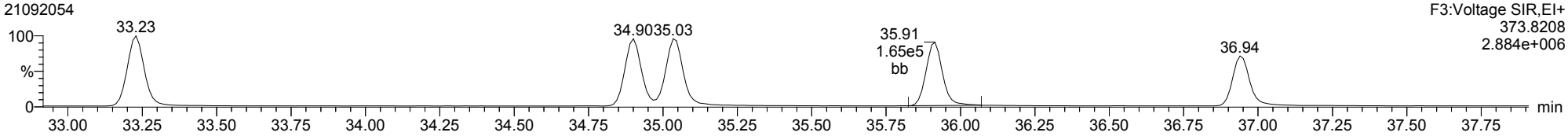
234678-HxCDF



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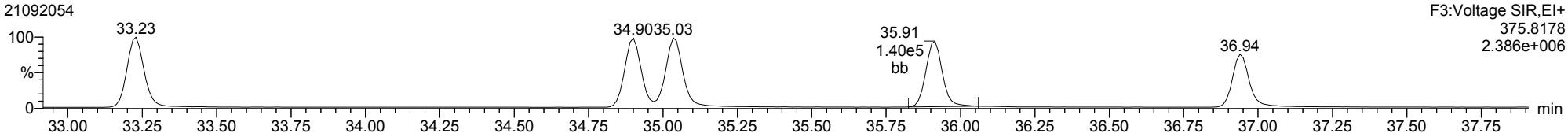

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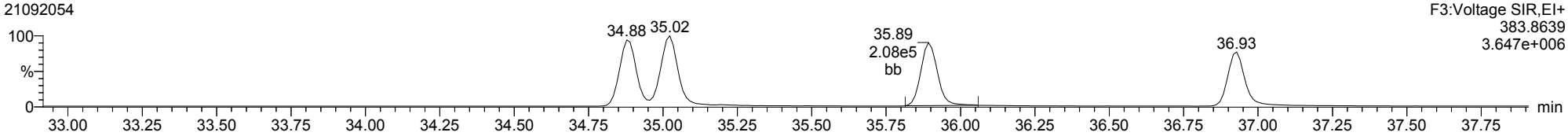

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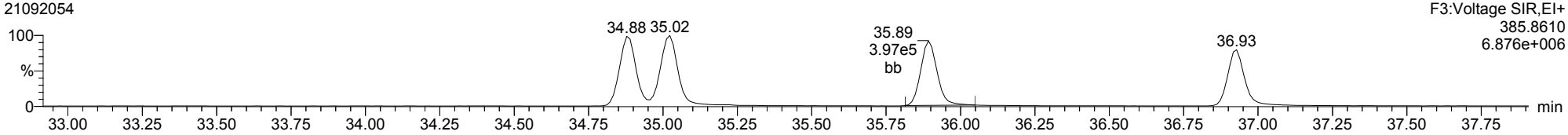
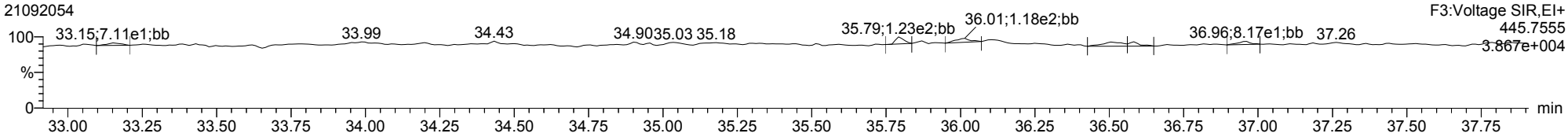


FUNCTION3 OCDPE



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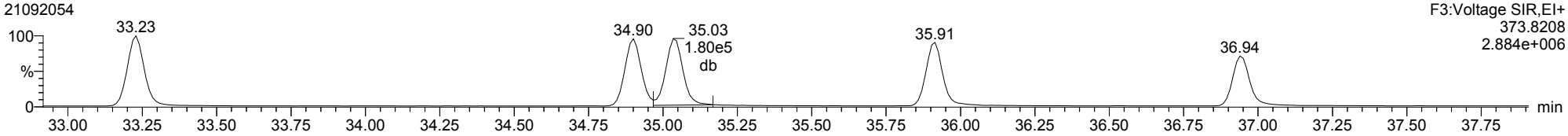

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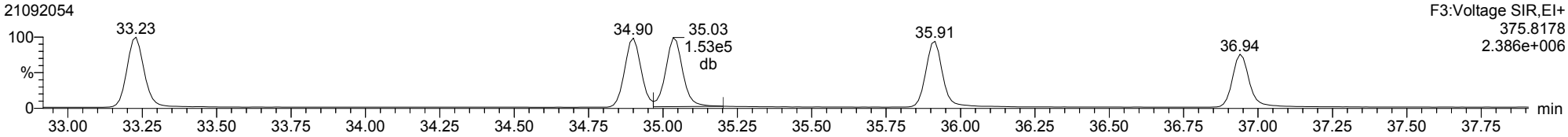

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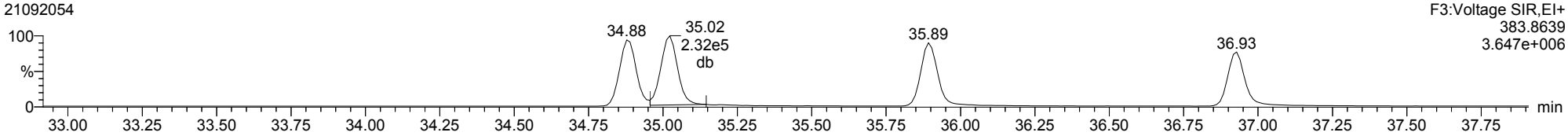

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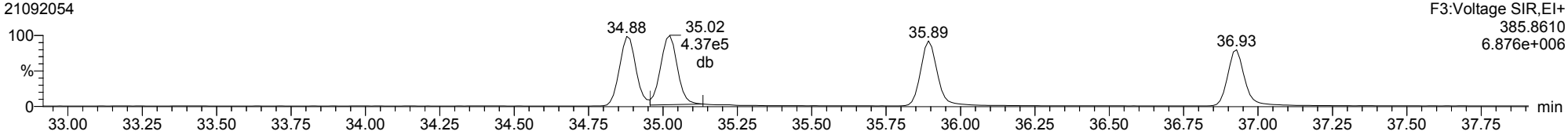

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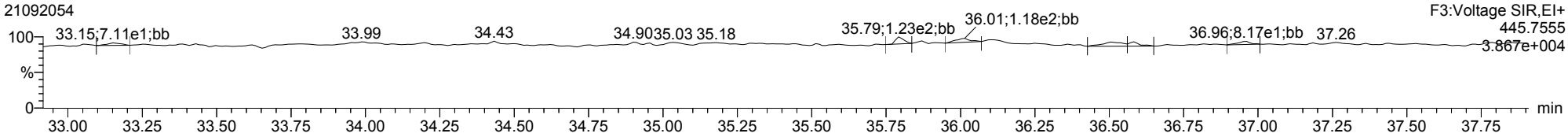

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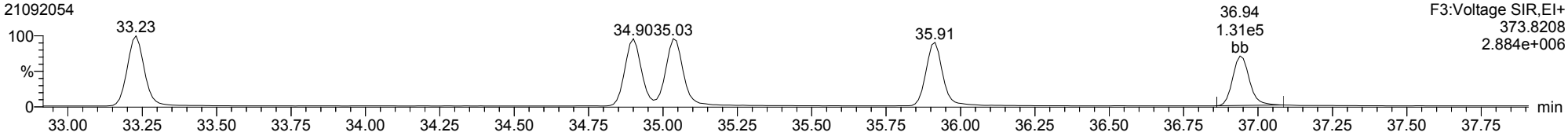

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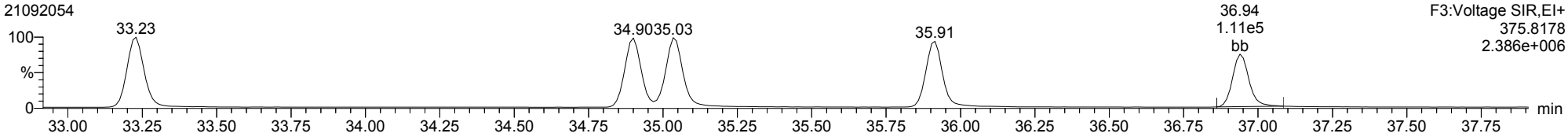

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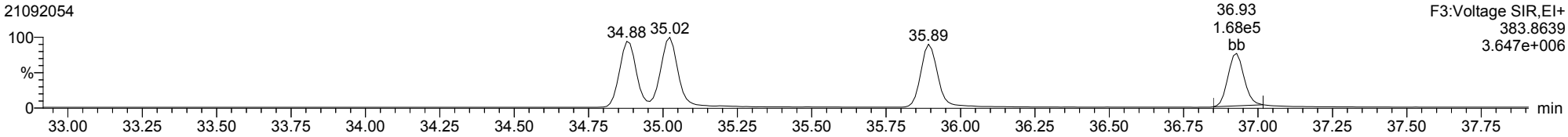

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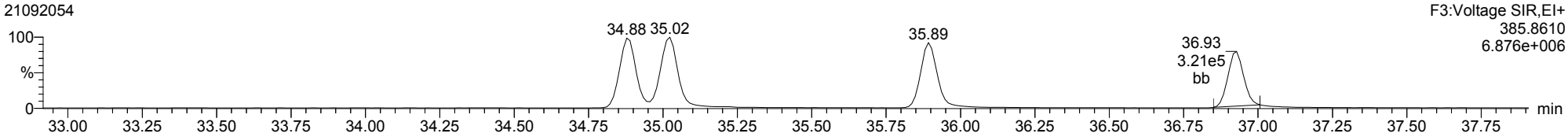
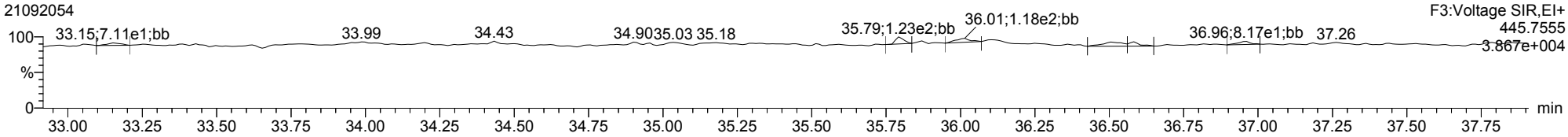


FUNCTION3 OCDPE



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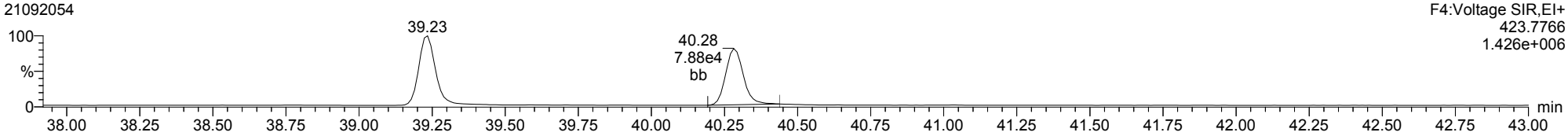

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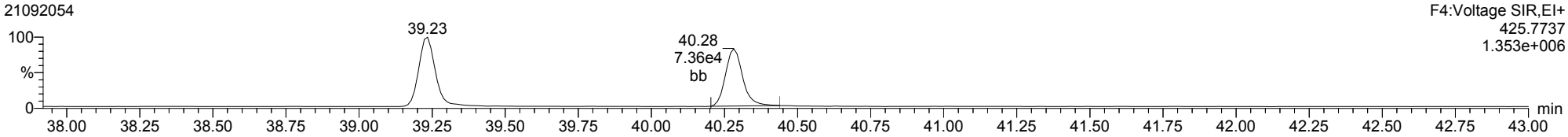

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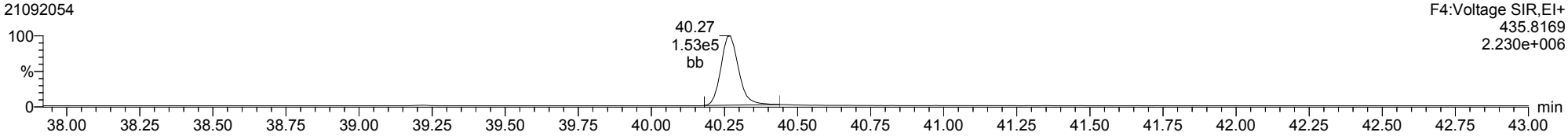

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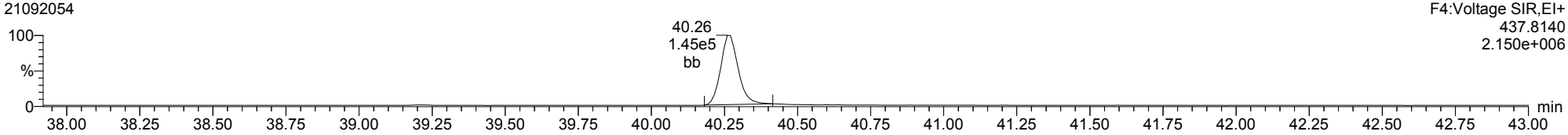

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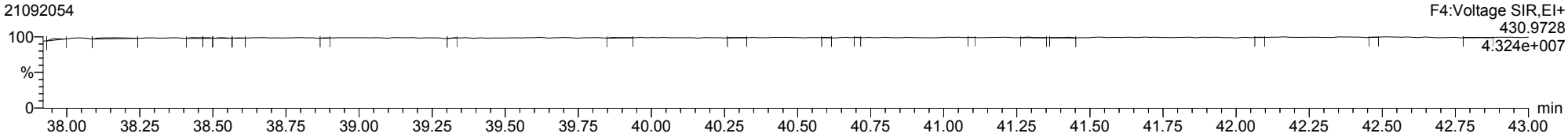

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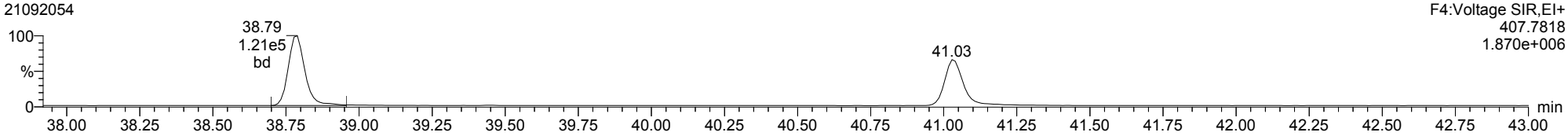

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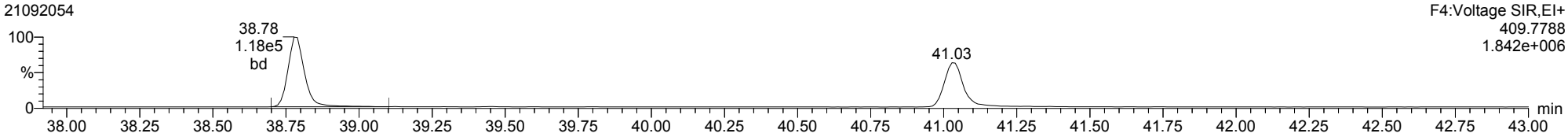

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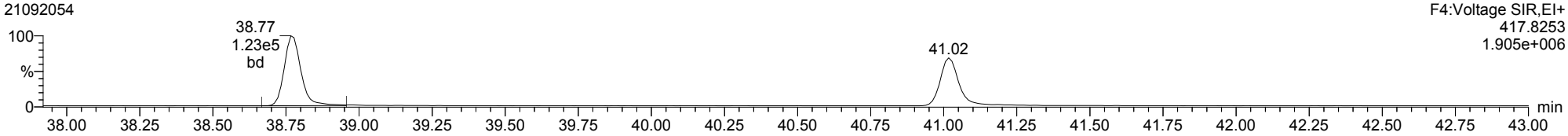

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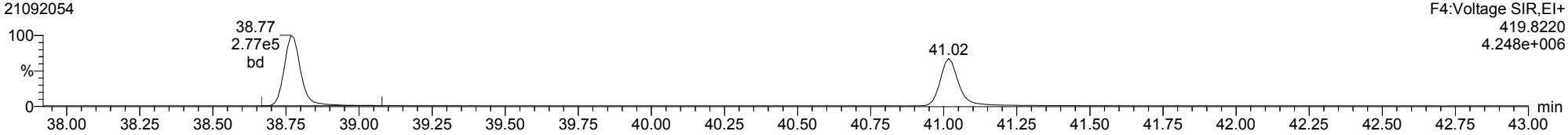

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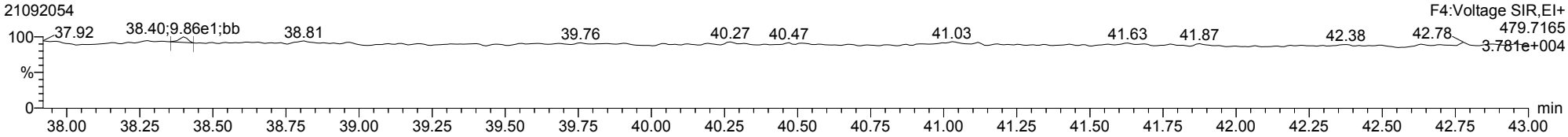

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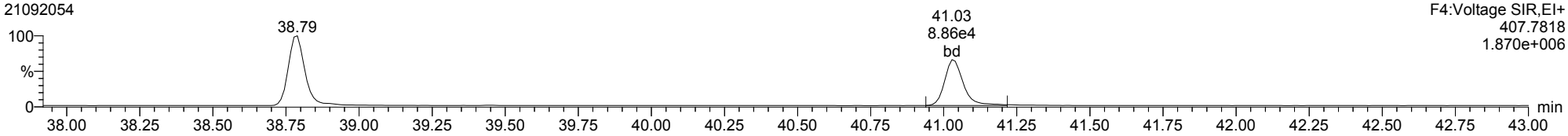

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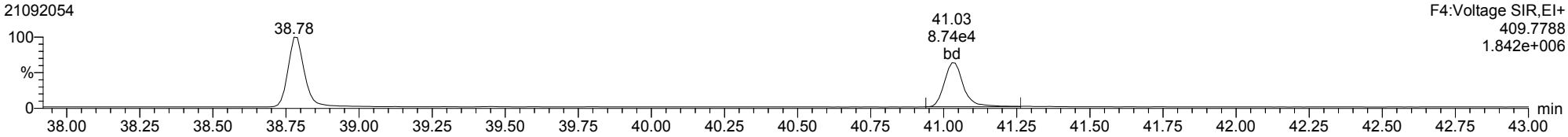

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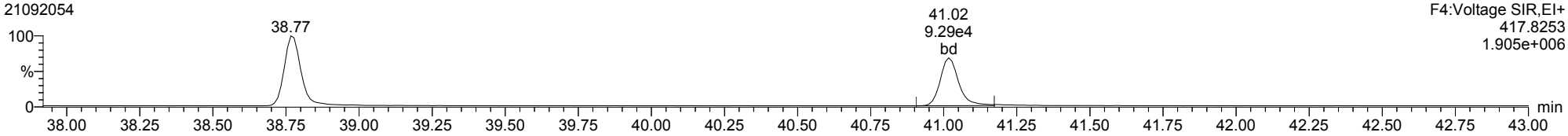

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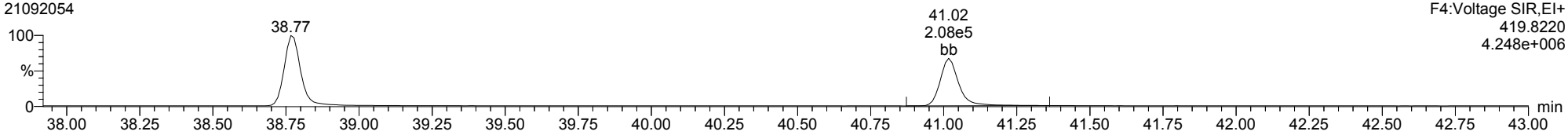
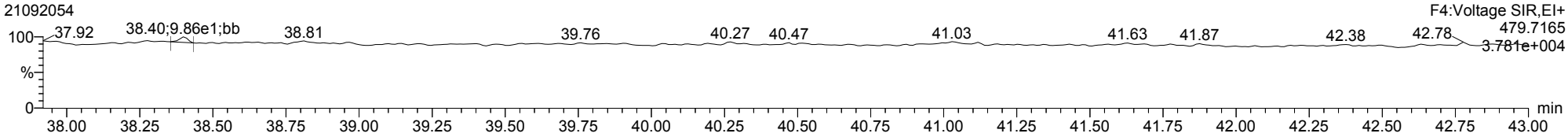


FUNCTION4 NCDPE



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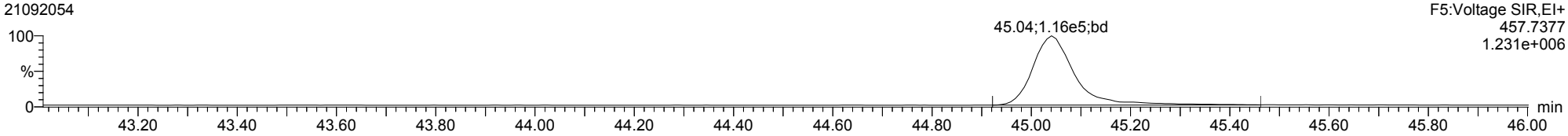

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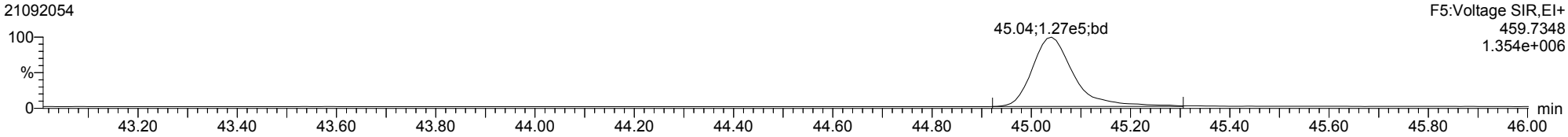

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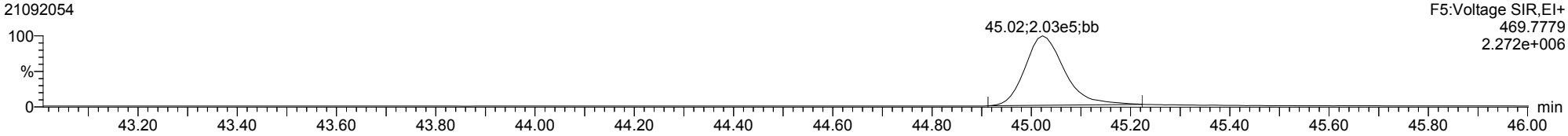

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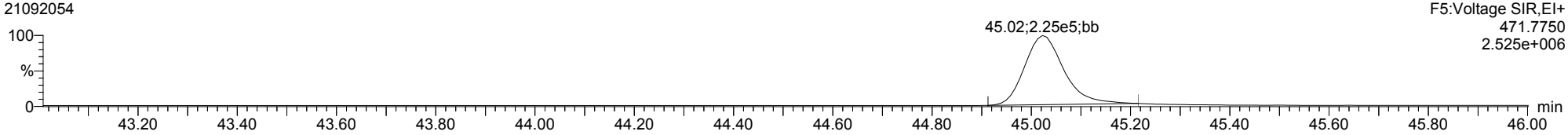

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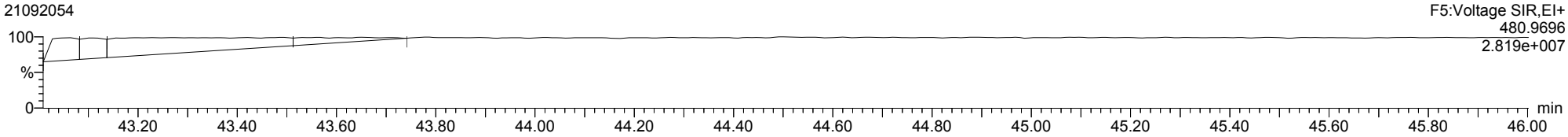

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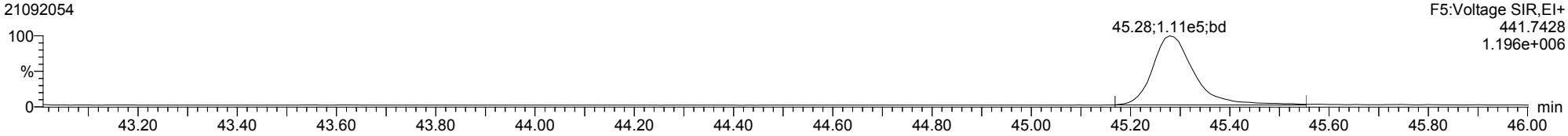

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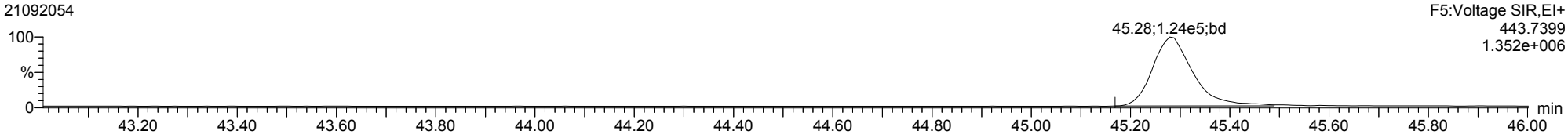

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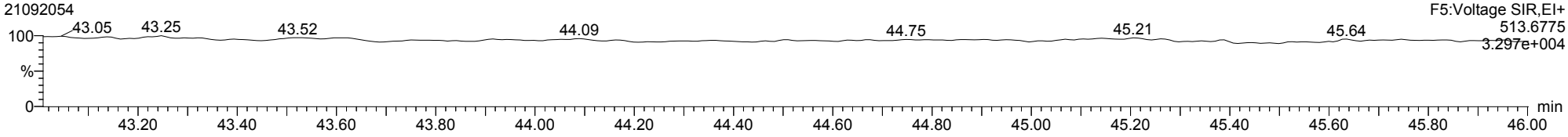

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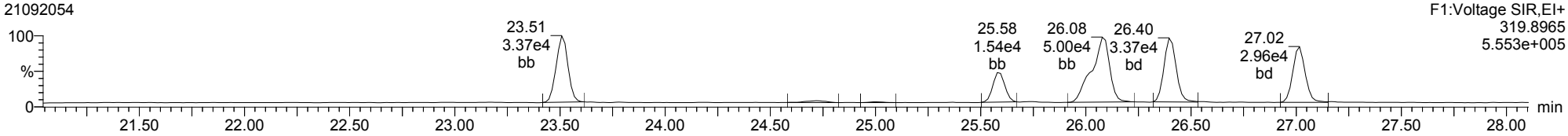

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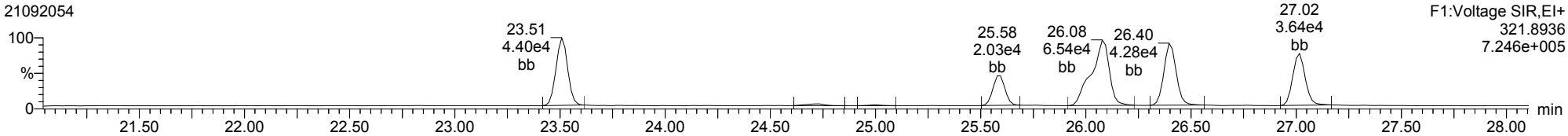

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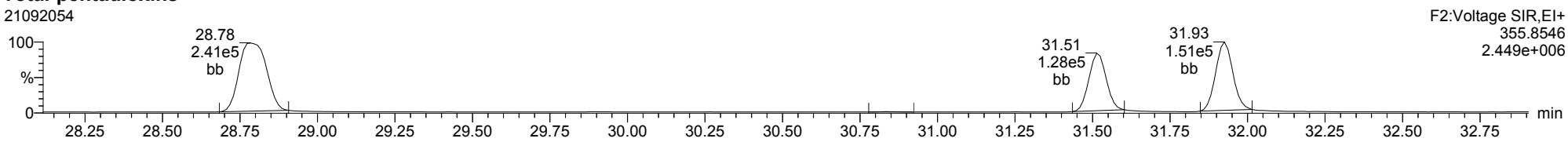

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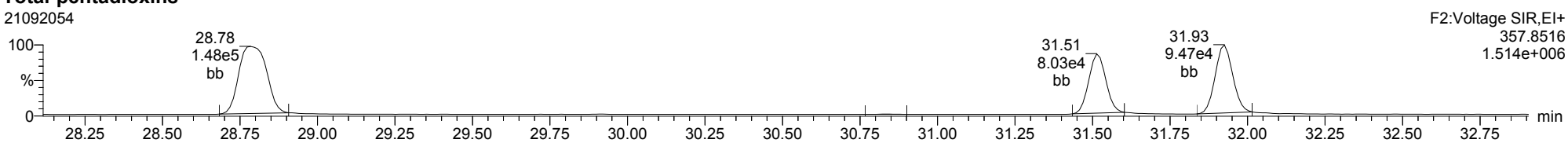

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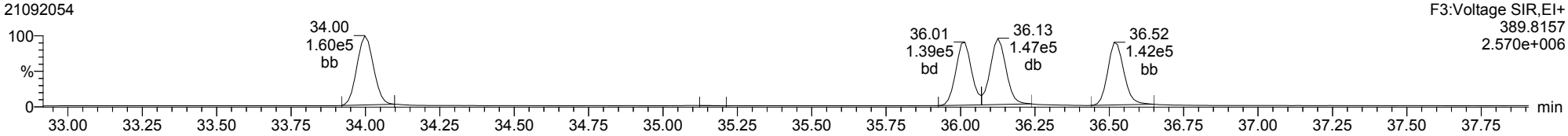

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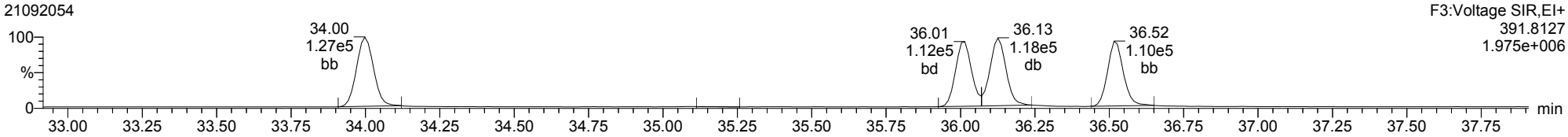

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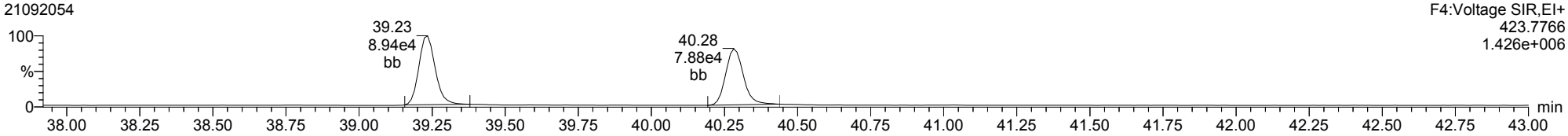

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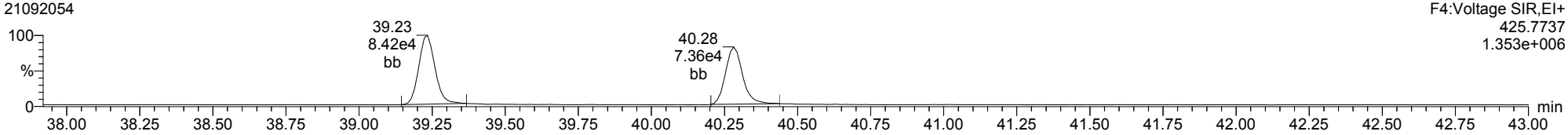

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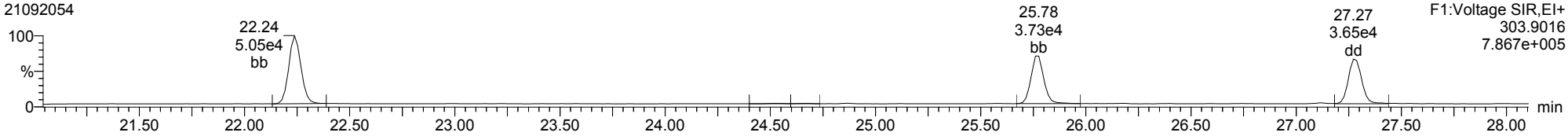
ID: CS3S6, Name: 21092054, Date: 22-Sep-2021, Time: 12:11:56, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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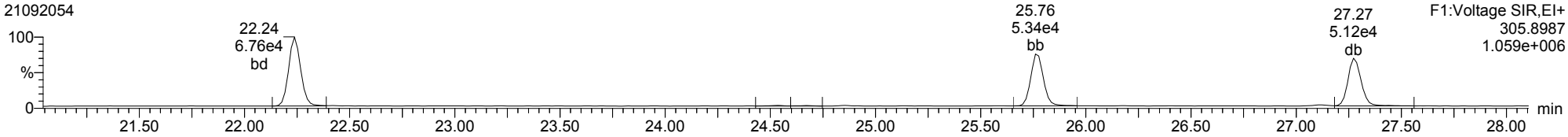

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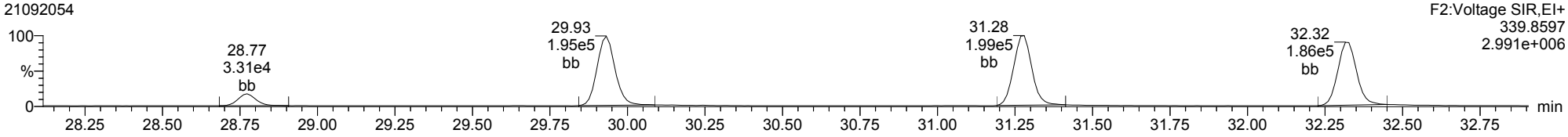

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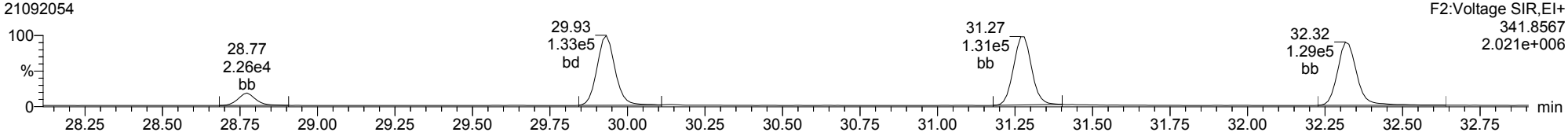

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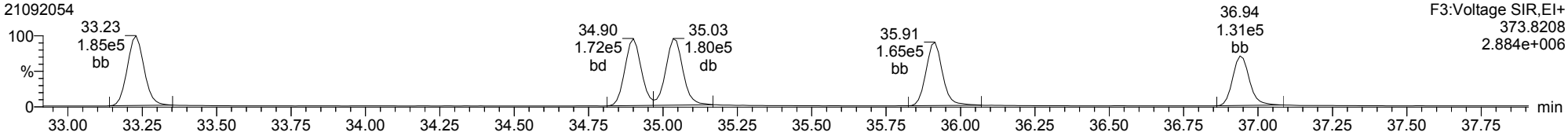

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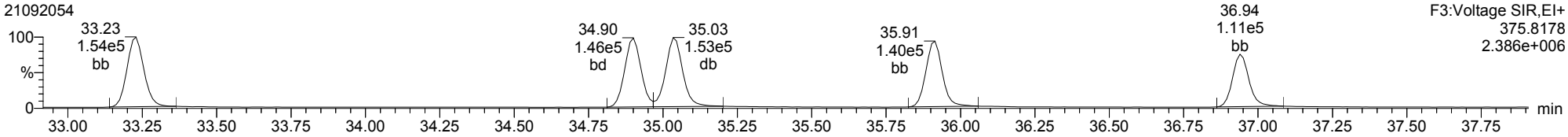

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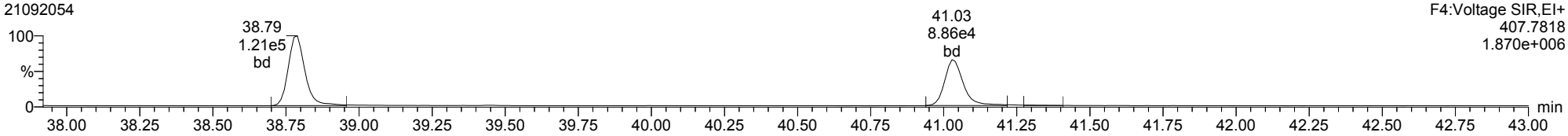

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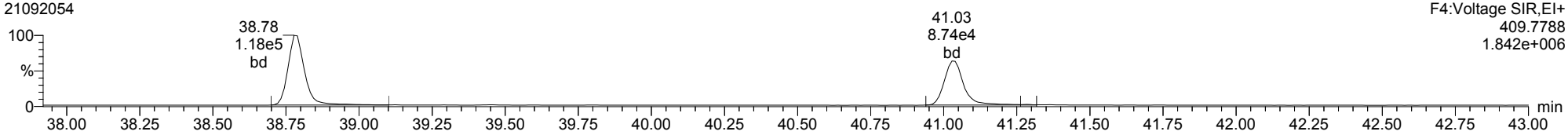

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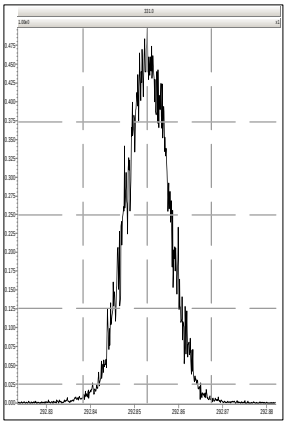

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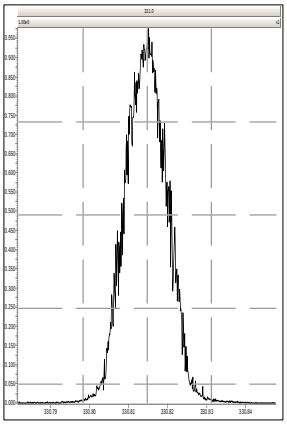

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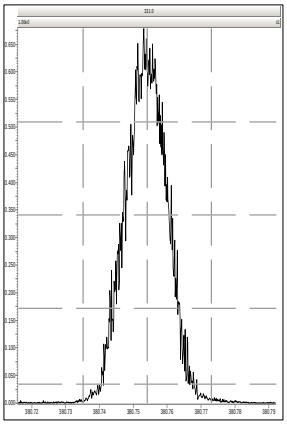

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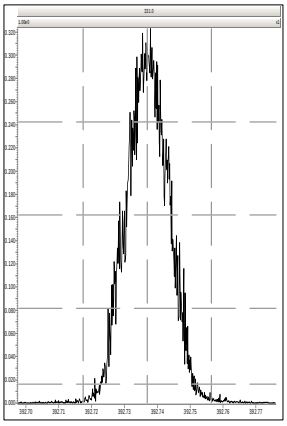

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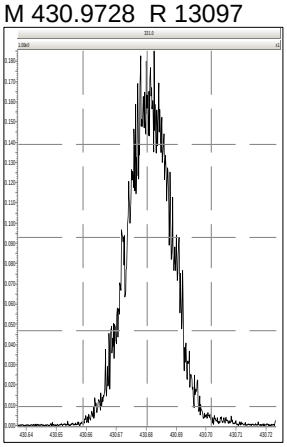

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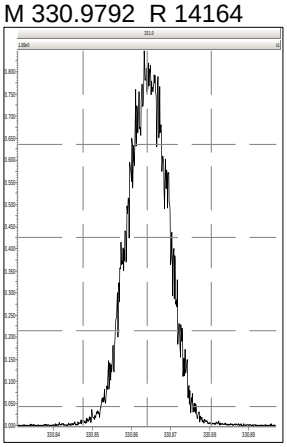

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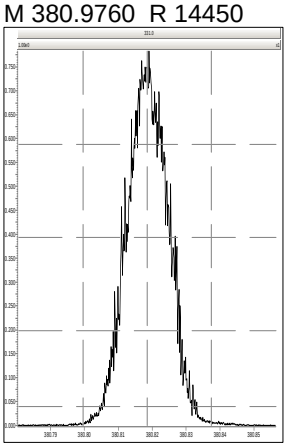

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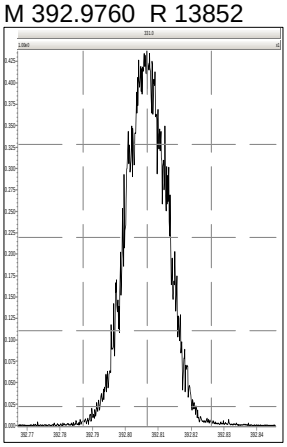

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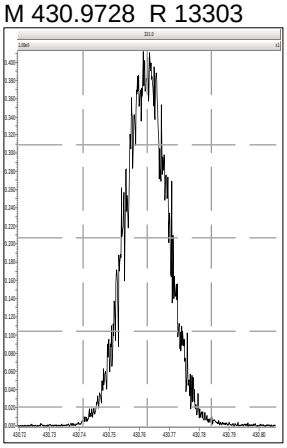

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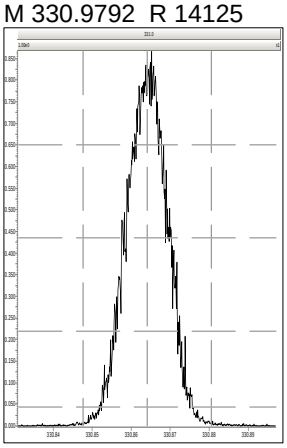

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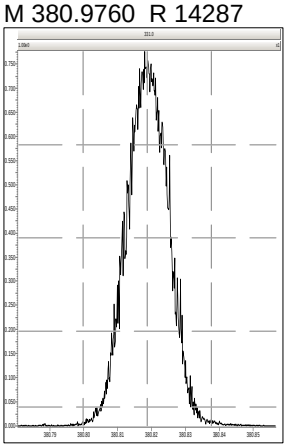

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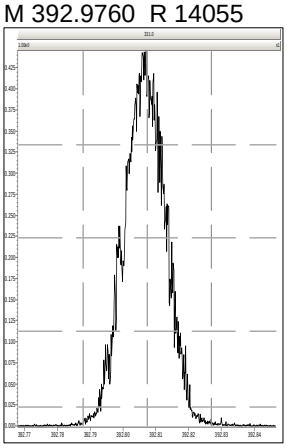
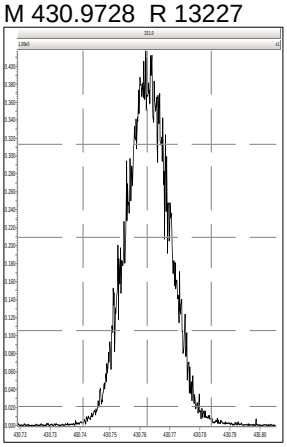
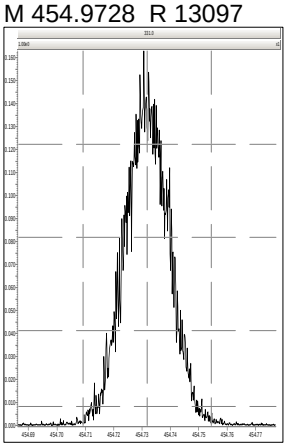


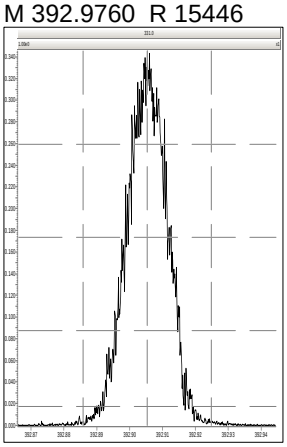
M 430.9728 R 13227



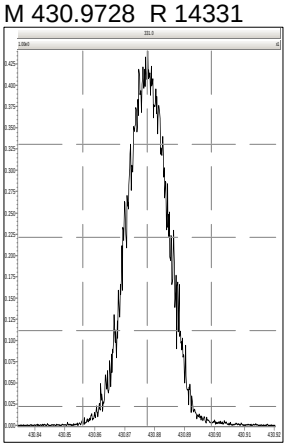
M 454.9728 R 13097



M 392.9760 R 15446

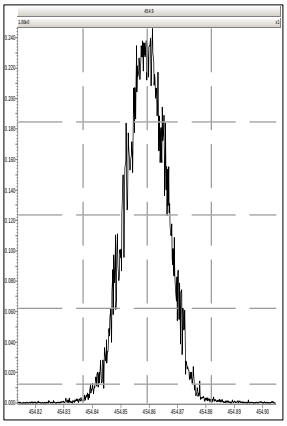


M 430.9728 R 14331

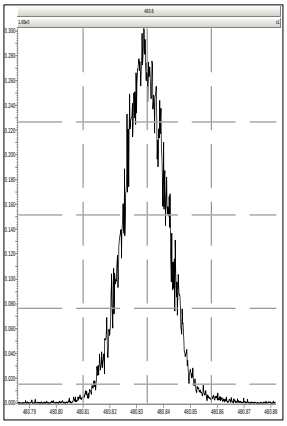


Printed: Wednesday, September 22, 2021 13:05:25 Pacific Daylight Time

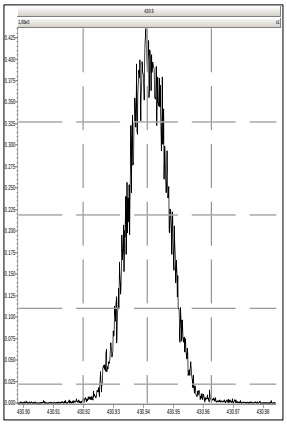
M 454.9728 R 14086



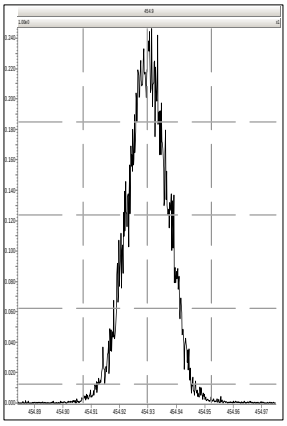
M 480.9696 R 13088



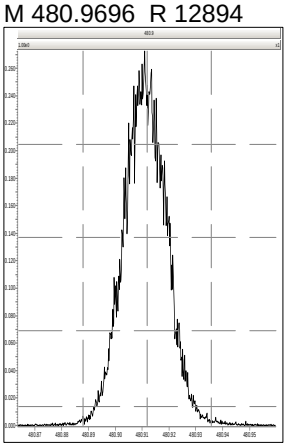
M 430.9728 R 14327



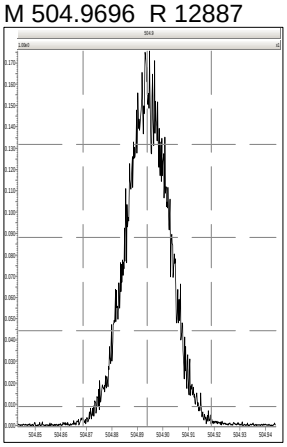
M 454.9728 R 13930



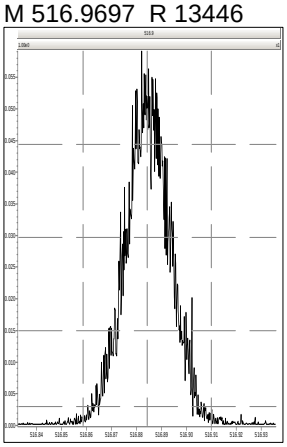
M 480.9696 R 12894

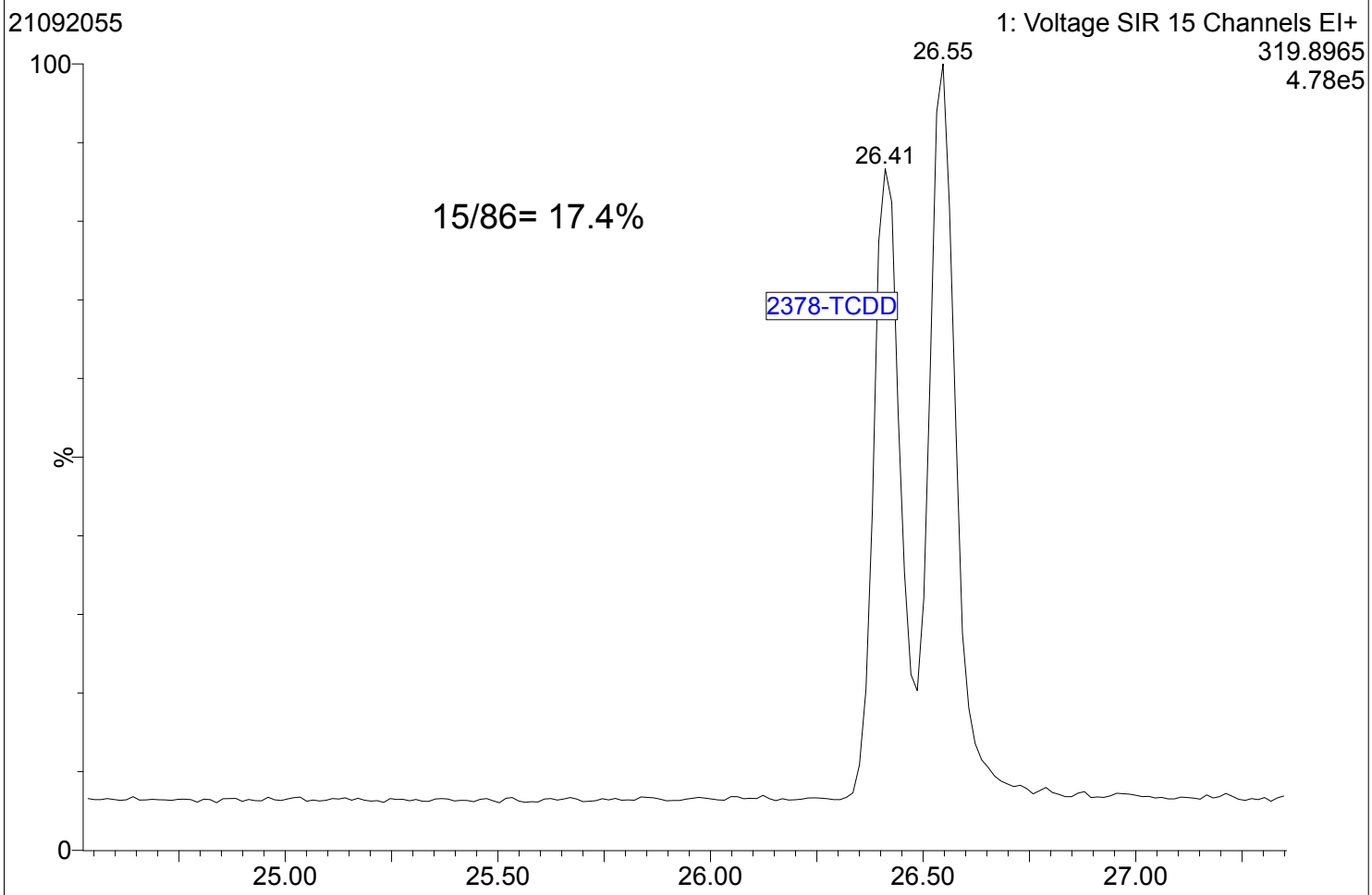


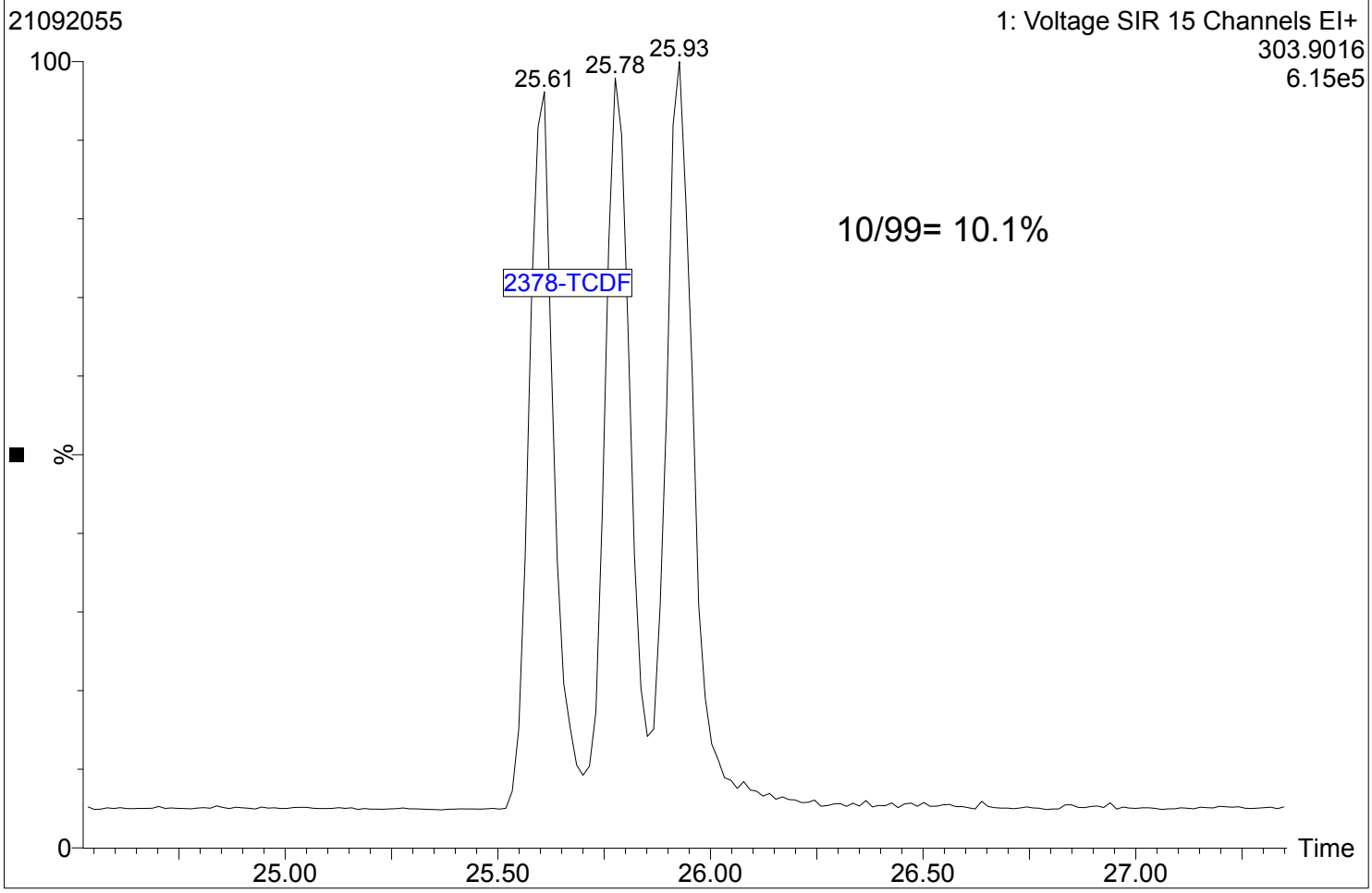
M 504.9696 R 12887



M 516.9697 R 13446




21092055
1: Voltage SIR 15 Channels EI+
319.8965
4.78e5
26.55
26.41
15/86= 17.4%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21092055
1: Voltage SIR 15 Channels EI+
303.9016
6.15e5
25.61
25.78
25.93
10/99= 10.1%
2378-TCDF
100
%
0
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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092062	Calibration Date:	08/11/2021
Sequence:	SJI0282	Injection Date:	09/22/21
Lab Sample ID:	SJI0282-CCV4	Injection Time:	18:51
Sequence Name:	CS3S7		

		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	8.96	1.1075930	0.9919824		-10.4	+/-16
2,3,7,8-TCDD	A	10.000	9.80	0.9202875	0.9017222		-2.0	+/-22
1,2,3,7,8-PeCDF	A	50.000	44.3	1.0148670	0.8990036		-11.4	+/-18
2,3,4,7,8-PeCDF	A	50.000	43.4	1.1255490	0.9777972		-13.1	+/-18
1,2,3,7,8-PeCDD	A	50.000	49.5	0.9953229	0.9861581		-0.9	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	48.0	1.0168930	0.9759387		-4.0	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	48.6	1.0368310	1.0068160		-2.9	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	48.1	1.0524660	1.0128560		-3.8	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.8	1.0301540	1.0060420		-2.3	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	49.2	1.0273630	1.0116690		-1.5	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	48.0	1.0089800	0.9690244		-4.0	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.5	0.9504865	0.9793020		3.0	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	45.0	1.3273500	1.1918580		-9.9	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	46.4	1.2833380	1.1920080		-7.1	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	48.4	1.0680880	1.0337480		-3.2	+/-14
OCDF	A	100.00	78.6	1.4469010	1.1375370		-21.4	+/-37
OCDD	A	100.00	90.3	1.1808230	1.0657670		-9.7	+/-21
13C12-2,3,7,8-TCDF	A	100.00	95.6	1.4265830	1.3635514		-4.4	+/-29
13C12-2,3,7,8-TCDD	A	100.00	105	1.1164910	1.1676742		4.6	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	85.2	1.2973130	1.1047272		-14.8	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	83.9	1.2364800	1.0370790		-16.1	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	88.0	0.7319833	0.6444908		-12.0	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	102	1.2424560	1.2630096		1.7	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	95.2	1.3434760	1.2790349		-4.8	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	97.3	1.2148550	1.1814580		-2.7	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	97.3	1.0076370	0.9803563		-2.7	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	102	0.9598233	0.9817154		2.3	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	101	1.0413850	1.0509981		0.9	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	83.8	0.9264704	0.7762433		-16.2	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	77.7	0.7579160	0.5888015		-22.3	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	91.8	0.6324476	0.5804457		-8.2	+/-28
13C12-OCDD	A	200.00	165	0.5037432	0.4151966		-17.6	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.99	1.0835930	1.0826417		-0.09	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:04:42 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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	3.887e4	5.437e4	1.108	0.715	0.770	779	924	5.52e5	7.68e5	707.9	831.0	NO	bd	bd	8.956
12378-PeCDF	29.931	1.001	2.039e5	1.383e5	1.015	1.474	1.550	2345	1178	3.03e6	2.05e6	1291.8	1736.8	NO	bb	bd	44.292
23478-PeCDF	31.268	1.000	2.103e5	1.392e5	1.126	1.511	1.550	2345	1178	3.14e6	2.08e6	1338.5	1763.3	NO	bb	bb	43.436
123478-HxCDF	34.900	1.001	1.797e5	1.533e5	1.017	1.173	1.240	1502	1586	2.83e6	2.39e6	1883.4	1505.9	NO	bd	bd	47.986
234678-HxCDF	35.903	1.000	1.724e5	1.509e5	1.052	1.142	1.240	1502	1586	2.69e6	2.34e6	1789.9	1476.3	NO	bb	bd	48.118
123678-HxCDF	35.034	1.000	1.880e5	1.599e5	1.037	1.176	1.240	1502	1586	2.87e6	2.46e6	1911.5	1550.2	NO	db	db	48.553
123789-HxCDF	36.939	1.000	1.464e5	1.201e5	1.030	1.219	1.240	1502	1586	2.17e6	1.84e6	1443.2	1159.7	NO	bd	bb	48.830
1234678-HpCDF	38.788	1.001	1.263e5	1.244e5	1.327	1.016	1.050	1481	1453	1.93e6	1.90e6	1304.8	1306.4	NO	MM	MM	45.033
1234789-HpCDF	41.028	1.000	9.678e4	9.284e4	1.283	1.042	1.050	1481	1453	1.30e6	1.22e6	877.5	837.8	NO	bd	bd	46.442
OCDF	45.280	1.006	1.173e5	1.379e5	1.447	0.850	0.890	842	789	1.20e6	1.41e6	1430.2	1781.9	NO	bb	bd	78.619
2378-TCDD	26.396	1.001	3.160e4	4.097e4	0.920	0.771	0.770	1010	680	4.74e5	5.97e5	469.1	877.6	NO	bb	bb	9.798
12378-PeCDD	31.513	1.000	1.343e5	8.470e4	0.995	1.586	1.550	1548	1015	2.13e6	1.33e6	1373.6	1315.0	NO	bb	bb	49.540
123478-HxCDD	36.003	1.000	1.500e5	1.183e5	1.027	1.268	1.240	1867	1526	2.36e6	1.89e6	1263.1	1238.6	NO	bd	bd	49.236
123678-HxCDD	36.126	1.000	1.531e5	1.221e5	1.009	1.254	1.240	1867	1526	2.49e6	1.99e6	1333.7	1301.0	NO	db	db	48.020
123789-HxCDD	36.515	1.011	1.524e5	1.165e5	0.950	1.308	1.240	1867	1526	2.35e6	1.82e6	1258.6	1193.1	NO	bd	bb	51.516
1234678-HpCDD	40.281	1.000	8.473e4	7.738e4	1.068	1.095	1.050	1862	1204	1.19e6	1.13e6	640.7	938.4	NO	bd	bb	48.392
OCDD	45.033	1.000	1.105e5	1.286e5	1.181	0.860	0.890	1134	1701	1.21e6	1.36e6	1070.8	798.0	NO	bb	bb	90.256
13C-2378-TCDF	25.746	1.007	4.157e5	5.242e5	1.427	0.793	0.770	1345	1137	5.97e6	7.49e6	4439.0	6584.0	NO	bb	bb	95.582
13C-12378-PeCDF	29.909	1.170	4.679e5	2.936e5	1.297	1.594	1.550	1839	1512	6.99e6	4.39e6	3801.2	2902.0	NO	bb	bb	85.155
13C-23478-PeCDF	31.257	1.223	4.382e5	2.766e5	1.236	1.584	1.550	1839	1512	6.46e6	4.03e6	3510.1	2667.5	NO	bb	bd	83.873
13C-123478-HxCDF	34.878	0.955	2.345e5	4.480e5	1.242	0.523	0.510	2103	2279	3.61e6	7.10e6	1715.4	3113.6	NO	bd	bd	101.654
13C-123678-HxCDF	35.023	0.959	2.348e5	4.563e5	1.343	0.515	0.510	2103	2279	3.67e6	7.05e6	1745.0	3093.0	NO	db	db	95.203
13C-234678-HxCDF	35.892	0.983	2.182e5	4.202e5	1.215	0.519	0.510	2103	2279	3.44e6	6.67e6	1636.3	2926.7	NO	bb	bb	97.251
13C-123789-HxCDF	36.928	1.012	1.814e5	3.483e5	1.008	0.521	0.510	2103	2279	2.81e6	5.33e6	1337.7	2341.2	NO	bb	bb	97.293
13C-1234678-HpCDF	38.766	1.062	1.351e5	2.843e5	0.926	0.475	0.440	1228	1628	2.01e6	4.27e6	1640.4	2619.4	NO	bb	bb	83.785
13C-1234789-HpCDF	41.016	1.124	9.912e4	2.190e5	0.758	0.452	0.440	1228	1628	1.38e6	2.92e6	1123.2	1792.2	NO	bb	bd	77.687
13C-1234-TCDD	25.564	0.000	2.994e5	3.899e5	1.000	0.768	0.770	1416	1031	4.65e6	6.02e6	3287.5	5838.5	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	3.494e5	4.554e5	1.116	0.767	0.770	1416	1031	5.17e6	6.77e6	3653.7	6570.6	NO	bb	bb	104.584
13C-12378-PeCDD	31.502	1.232	2.747e5	1.696e5	0.732	1.620	1.550	1137	798	4.04e6	2.55e6	3554.3	3200.8	NO	bb	bb	88.047
13C-123478-HxCDD	35.992	0.986	3.006e5	2.299e5	0.960	1.308	1.240	1489	1207	4.98e6	3.78e6	3346.4	3135.2	NO	bd	bd	102.281
13C-123678-HxCDD	36.114	0.989	3.194e5	2.485e5	1.041	1.285	1.240	1489	1207	4.93e6	3.80e6	3311.4	3150.5	NO	db	db	100.923
13C-1234678-HpCDD	40.270	1.103	1.595e5	1.541e5	0.632	1.035	1.050	949	1049	2.24e6	2.13e6	2362.7	2027.7	NO	bb	bb	91.778
13C-OCDD	45.024	1.233	2.098e5	2.389e5	0.504	0.878	0.890	679	1377	2.22e6	2.54e6	3272.6	1842.8	NO	bb	bb	164.845
13C-123789-HxCDD	36.504	0.000	2.998e5	2.406e5	1.000	1.246	1.240	1489	1207	4.64e6	3.70e6	3114.9	3062.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	7.462e4		1.084			1017		1.09e6		1070.1			bb		9.991

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:04:42 Pacific Daylight Time

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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	4.890e4	6.882e4	1.425	0.711	0.770	779	924	7.19e5	1.02e6	922.3	1107.6	NO	bd	bd	8.789
1289-TCDF	27.273	1.059	3.659e4	4.944e4	1.043	0.740	0.770	779	924	4.81e5	6.60e5	617.4	714.3	NO	db	dd	8.777
13468-PECDF	27.106	0.906	3.547e5	2.277e5	1.376	1.558	1.550	526	704	5.32e6	3.43e6	10098.6	4876.3	NO	bb	bb	55.575
12389-PECDF	32.315	1.081	1.967e5	1.322e5	1.000	1.488	1.550	2345	1178	2.86e6	1.95e6	1220.5	1653.5	NO	bb	bb	43.220
123468-HXCDF	33.229	0.953	1.907e5	1.638e5	1.087	1.164	1.240	1502	1586	2.87e6	2.42e6	1912.0	1527.1	NO	bb	bb	47.813
1368-TCDD	23.508	0.891	3.242e4	4.158e4	0.923	0.780	0.770	1010	680	4.95e5	6.37e5	490.8	936.6	NO	bb	bb	9.958
1289-TCDD	27.015	1.024	2.725e4	3.557e4	0.794	0.766	0.770	1010	680	3.93e5	4.97e5	389.6	729.9	NO	bb	bd	9.829
12479-PECDD	28.773	0.913	2.507e5	1.571e5	1.843	1.596	1.550	1548	1015	2.44e6	1.53e6	1573.0	1505.7	NO	bb	bb	49.794
12389-PECDD	31.926	1.013	1.612e5	1.011e5	1.154	1.594	1.550	1548	1015	2.50e6	1.55e6	1615.0	1526.4	NO	bb	bb	51.180
124679-HXCDD	33.998	0.945	1.700e5	1.339e5	1.125	1.270	1.240	1867	1526	2.60e6	2.05e6	1395.1	1345.7	NO	bb	bb	50.932
1234679-HPCDD	39.234	0.974	9.364e4	8.881e4	1.211	1.054	1.050	1862	1204	1.44e6	1.36e6	772.0	1127.7	NO	bb	bb	48.040
Total-tetrafurans			1.260e5		1.192			779		1.77e6							26.864
Total-penta1			3.547e5					526		5.32e6							55.575
Total-pentafurans			6.465e5		1.047			2345		9.57e6							138.540
Total-hexafurans			8.773e5		1.045			1502		1.34e7							241.299
Total-heptafurans			2.233e5		1.305			1481		3.24e6							91.538
Total-Furans			2.345e6		1.158			779		3.45e7							632.435
Total-tetradioxins			1.561e5		0.879			1010		2.10e6							50.474
Total-pentadioxins			5.469e5		1.331			1548		7.07e6							150.717
Total-hexadioxins			6.257e5		1.028			1867		9.81e6							199.773
Total-heptadioxins			1.784e5		1.140			1862		2.63e6							96.432
Total-Dioxins			1.618e6		1.092			1010		2.28e7							587.652
Total-TEQ			3.963e6					1010		5.73e7							1220.088
FUNCTION1 PFK			0.000e0					403141		0.00e0							
FUNCTION2 PFK			1.406e6					242107		7.78e6							0.000
FUNCTION3 PFK			0.000e0					322070		0.00e0							
FUNCTION4 PFK			2.608e5					171244		6.46e6							
FUNCTION5 PFK			1.982e4					157809		5.73e5							
FUNCTION1 HXCD...			2.495e2					472		2.21e3							0.000
FUNCTION1 HPCD...			3.345e2					457		4.94e3							0.000
FUNCTION2 HPCD...			4.384e2					429		8.41e3							0.000
FUNCTION3 OCDPE			1.920e2					459		3.38e3							0.000
FUNCTION4 NCDPE			0.000e0					507		0.00e0							
FUNCTION5 DCDPE			0.000e0					429		0.00e0							

Method: T:\Autospec\Methods\Dioxin210920.mdb 21 Sep 2021 09:52:17
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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	3.659e4	4.944e4	1.043	0.74	0.77	617.4	YES	NO	db	dd	8.777
2	Total-tetrafurans	27.11	8.178e2	1.006e3	1.192	0.81	0.77	13.4	YES	NO	bd	bd	0.163
3	2378-TCDF	25.76	3.887e4	5.437e4	1.108	0.71	0.77	707.9	YES	NO	bd	bd	8.956
4	Total-tetrafurans	24.67	4.194e2	6.153e2	1.192	0.68	0.77	7.2	YES	NO	db	db	0.092
5	Total-tetrafurans	24.54	4.380e2	5.344e2	1.192	0.82	0.77	7.4	YES	NO	bd	bd	0.087
6	1368-TCDF	22.24	4.890e4	6.882e4	1.425	0.71	0.77	922.3	YES	NO	bd	bd	8.789

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.11	3.547e5	2.277e5	1.376	1.56	1.55	10098.6	YES	NO	bb	bb	55.575

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.93	2.039e5	1.383e5	1.015	1.47	1.55	1291.8	YES	NO	bb	bd	44.292
2	Total-pentafurans	28.77	3.547e4	2.318e4	1.047	1.53	1.55	229.2	YES	NO	bb	bb	7.592
3	12389-PECDF	32.32	1.967e5	1.322e5	1.000	1.49	1.55	1220.5	YES	NO	bb	bb	43.220
4	23478-PeCDF	31.27	2.103e5	1.392e5	1.126	1.51	1.55	1338.5	YES	NO	bb	bb	43.436

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	33.23	1.907e5	1.638e5	1.087	1.16	1.24	1912.0	YES	NO	bb	bb	47.813
2	123789-HxCDF	36.94	1.464e5	1.201e5	1.030	1.22	1.24	1443.2	YES	NO	bd	bb	48.830
3	234678-HxCDF	35.90	1.724e5	1.509e5	1.052	1.14	1.24	1789.9	YES	NO	bb	bd	48.118
4	123678-HxCDF	35.03	1.880e5	1.599e5	1.037	1.18	1.24	1911.5	YES	NO	db	db	48.553
5	123478-HxCDF	34.90	1.797e5	1.533e5	1.017	1.17	1.24	1883.4	YES	NO	bd	bd	47.986

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.03	9.678e4	9.284e4	1.283	1.04	1.05	877.5	YES	NO	bd	bd	46.442
2	Total-heptafurans	39.23	1.656e2	1.404e2	1.305	1.18	1.05	2.5	NO	NO	bb	bb	0.064
3	1234678-HpCDF	38.79	1.263e5	1.244e5	1.327	1.02	1.05	1304.8	YES	NO	MM	MM	45.033

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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	3.659e4	4.944e4	1.043	0.74	0.77	617.4	YES	NO	db	dd	8.777
2	Total-tetrafurans	27.11	8.178e2	1.006e3	1.192	0.81	0.77	13.4	YES	NO	bd	bd	0.163
3	2378-TCDF	25.76	3.887e4	5.437e4	1.108	0.71	0.77	707.9	YES	NO	bd	bd	8.956
4	Total-tetrafurans	24.67	4.194e2	6.153e2	1.192	0.68	0.77	7.2	YES	NO	db	db	0.092
5	Total-tetrafurans	24.54	4.380e2	5.344e2	1.192	0.82	0.77	7.4	YES	NO	bd	bd	0.087
6	1368-TCDF	22.24	4.890e4	6.882e4	1.425	0.71	0.77	922.3	YES	NO	bd	bd	8.789
7	12378-PeCDF	29.93	2.039e5	1.383e5	1.015	1.47	1.55	1291.8	YES	NO	bb	bd	44.292
8	Total-pentafurans	28.77	3.547e4	2.318e4	1.047	1.53	1.55	229.2	YES	NO	bb	bb	7.592
9	123468-HXCDF	33.23	1.907e5	1.638e5	1.087	1.16	1.24	1912.0	YES	NO	bb	bb	47.813
10	12389-PECDF	32.32	1.967e5	1.322e5	1.000	1.49	1.55	1220.5	YES	NO	bb	bb	43.220
11	23478-PeCDF	31.27	2.103e5	1.392e5	1.126	1.51	1.55	1338.5	YES	NO	bb	bb	43.436
12	123789-HxCDF	36.94	1.464e5	1.201e5	1.030	1.22	1.24	1443.2	YES	NO	bd	bb	48.830
13	234678-HxCDF	35.90	1.724e5	1.509e5	1.052	1.14	1.24	1789.9	YES	NO	bb	bd	48.118
14	123678-HxCDF	35.03	1.880e5	1.599e5	1.037	1.18	1.24	1911.5	YES	NO	db	db	48.553
15	123478-HxCDF	34.90	1.797e5	1.533e5	1.017	1.17	1.24	1883.4	YES	NO	bd	bd	47.986
16	1234789-HpCDF	41.03	9.678e4	9.284e4	1.283	1.04	1.05	877.5	YES	NO	bd	bd	46.442
17	Total-heptafurans	39.23	1.656e2	1.404e2	1.305	1.18	1.05	2.5	NO	NO	bb	bb	0.064
18	1234678-HpCDF	38.79	1.263e5	1.244e5	1.327	1.02	1.05	1304.8	YES	NO	MM	MM	45.033
19	OCDF	45.28	1.173e5	1.379e5	1.447	0.85	0.89	1430.2	YES	NO	bb	bd	78.619
20	13468-PECDF	27.11	3.547e5	2.277e5	1.376	1.56	1.55	10098.6	YES	NO	bb	bb	55.575

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.40	3.160e4	4.097e4	0.920	0.77	0.77	469.1	YES	NO	bb	bb	9.798
2	Total-tetradioxins	26.08	4.747e4	6.093e4	0.879	0.78	0.77	483.7	YES	NO	bb	bb	15.319
3	Total-tetradioxins	25.58	1.560e4	1.949e4	0.879	0.80	0.77	226.5	YES	NO	bd	bb	4.959
4	Total-tetradioxins	25.00	3.393e2	4.636e2	0.879	0.73	0.77	4.9	YES	NO	bb	bb	0.113
5	Total-tetradioxins	24.70	1.303e3	1.789e3	0.879	0.73	0.77	12.4	YES	NO	bb	bb	0.437
6	Total-tetradioxins	23.80	1.688e2	2.523e2	0.879	0.67	0.77	3.0	NO	NO	bb	bb	0.060
7	1368-TCDD	23.51	3.242e4	4.158e4	0.923	0.78	0.77	490.8	YES	NO	bb	bb	9.958
8	1289-TCDD	27.02	2.725e4	3.557e4	0.794	0.77	0.77	389.6	YES	NO	bb	bd	9.829

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:04:42 Pacific Daylight Time

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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	28.77	2.507e5	1.571e5	1.843	1.60	1.55	1573.0	YES	NO	bb	bb	49.794
2	12389-PECDD	31.93	1.612e5	1.011e5	1.154	1.59	1.55	1615.0	YES	NO	bb	bb	51.180
3	12378-PeCDD	31.51	1.343e5	8.470e4	0.995	1.59	1.55	1373.6	YES	NO	bb	bb	49.540
4	Total-pentadioxins	30.84	7.486e2	4.573e2	1.331	1.64	1.55	7.1	YES	NO	bb	bb	0.204

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	34.00	1.700e5	1.339e5	1.125	1.27	1.24	1395.1	YES	NO	bb	bb	50.932
2	Total-hexadioxins	36.77	2.075e2	1.770e2	1.028	1.17	1.24	3.0	YES	NO	dd	bb	0.068
3	123789-HxCDD	36.52	1.524e5	1.165e5	0.950	1.31	1.24	1258.6	YES	NO	bd	bb	51.516
4	123678-HxCDD	36.13	1.531e5	1.221e5	1.009	1.25	1.24	1333.7	YES	NO	db	db	48.020
5	123478-HxCDD	36.00	1.500e5	1.183e5	1.027	1.27	1.24	1263.1	YES	NO	bd	bd	49.236

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.28	8.473e4	7.738e4	1.068	1.10	1.05	640.7	YES	NO	bd	bb	48.392
2	1234679-HPCDD	39.23	9.364e4	8.881e4	1.211	1.05	1.05	772.0	YES	NO	bb	bb	48.040

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:04:42 Pacific Daylight Time

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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	3.160e4	4.097e4	0.920	0.77	0.77	469.1	YES	NO	bb	bb	9.798
2	Total-tetradioxins	26.08	4.747e4	6.093e4	0.879	0.78	0.77	483.7	YES	NO	bb	bb	15.319
3	Total-tetradioxins	25.58	1.560e4	1.949e4	0.879	0.80	0.77	226.5	YES	NO	bd	bb	4.959
4	Total-tetradioxins	25.00	3.393e2	4.636e2	0.879	0.73	0.77	4.9	YES	NO	bb	bb	0.113
5	Total-tetradioxins	24.70	1.303e3	1.789e3	0.879	0.73	0.77	12.4	YES	NO	bb	bb	0.437
6	Total-tetradioxins	23.80	1.688e2	2.523e2	0.879	0.67	0.77	3.0	NO	NO	bb	bb	0.060
7	1368-TCDD	23.51	3.242e4	4.158e4	0.923	0.78	0.77	490.8	YES	NO	bb	bb	9.958
8	12479-PECDD	28.77	2.507e5	1.571e5	1.843	1.60	1.55	1573.0	YES	NO	bb	bb	49.794
9	1289-TCDD	27.02	2.725e4	3.557e4	0.794	0.77	0.77	389.6	YES	NO	bb	bd	9.829
10	124679-HXCDD	34.00	1.700e5	1.339e5	1.125	1.27	1.24	1395.1	YES	NO	bb	bb	50.932
11	12389-PECDD	31.93	1.612e5	1.011e5	1.154	1.59	1.55	1615.0	YES	NO	bb	bb	51.180
12	12378-PeCDD	31.51	1.343e5	8.470e4	0.995	1.59	1.55	1373.6	YES	NO	bb	bb	49.540
13	Total-pentadioxins	30.84	7.486e2	4.573e2	1.331	1.64	1.55	7.1	YES	NO	bb	bb	0.204
14	Total-hexadioxins	36.77	2.075e2	1.770e2	1.028	1.17	1.24	3.0	YES	NO	dd	bb	0.068
15	123789-HxCDD	36.52	1.524e5	1.165e5	0.950	1.31	1.24	1258.6	YES	NO	bd	bb	51.516
16	123678-HxCDD	36.13	1.531e5	1.221e5	1.009	1.25	1.24	1333.7	YES	NO	db	db	48.020
17	123478-HxCDD	36.00	1.500e5	1.183e5	1.027	1.27	1.24	1263.1	YES	NO	bd	bd	49.236
18	1234678-HpCDD	40.28	8.473e4	7.738e4	1.068	1.10	1.05	640.7	YES	NO	bd	bb	48.392
19	1234679-HPCDD	39.23	9.364e4	8.881e4	1.211	1.05	1.05	772.0	YES	NO	bb	bb	48.040
20	OCDD	45.03	1.105e5	1.286e5	1.181	0.86	0.89	1070.8	YES	NO	bb	bb	90.256

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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	3.659e4	4.944e4	1.043	0.74	0.77	617.4	YES	NO	db	dd	8.777
2	Total-tetrafurans	27.11	8.178e2	1.006e3	1.192	0.81	0.77	13.4	YES	NO	bd	bd	0.163
3	2378-TCDF	25.76	3.887e4	5.437e4	1.108	0.71	0.77	707.9	YES	NO	bd	bd	8.956
4	Total-tetrafurans	24.67	4.194e2	6.153e2	1.192	0.68	0.77	7.2	YES	NO	db	db	0.092
5	Total-tetrafurans	24.54	4.380e2	5.344e2	1.192	0.82	0.77	7.4	YES	NO	bd	bd	0.087
6	1368-TCDF	22.24	4.890e4	6.882e4	1.425	0.71	0.77	922.3	YES	NO	bd	bd	8.789
7	12378-PeCDF	29.93	2.039e5	1.383e5	1.015	1.47	1.55	1291.8	YES	NO	bb	bd	44.292
8	Total-pentafurans	28.77	3.547e4	2.318e4	1.047	1.53	1.55	229.2	YES	NO	bb	bb	7.592
9	123468-HXCDF	33.23	1.907e5	1.638e5	1.087	1.16	1.24	1912.0	YES	NO	bb	bb	47.813
10	12389-PECDF	32.32	1.967e5	1.322e5	1.000	1.49	1.55	1220.5	YES	NO	bb	bb	43.220
11	23478-PeCDF	31.27	2.103e5	1.392e5	1.126	1.51	1.55	1338.5	YES	NO	bb	bb	43.436
12	123789-HxCDF	36.94	1.464e5	1.201e5	1.030	1.22	1.24	1443.2	YES	NO	bd	bb	48.830
13	234678-HxCDF	35.90	1.724e5	1.509e5	1.052	1.14	1.24	1789.9	YES	NO	bb	bd	48.118
14	123678-HxCDF	35.03	1.880e5	1.599e5	1.037	1.18	1.24	1911.5	YES	NO	db	db	48.553
15	123478-HxCDF	34.90	1.797e5	1.533e5	1.017	1.17	1.24	1883.4	YES	NO	bd	bd	47.986
16	1234789-HpCDF	41.03	9.678e4	9.284e4	1.283	1.04	1.05	877.5	YES	NO	bd	bd	46.442
17	Total-heptafurans	39.23	1.656e2	1.404e2	1.305	1.18	1.05	2.5	NO	NO	bb	bb	0.064
18	1234678-HpCDF	38.79	1.263e5	1.244e5	1.327	1.02	1.05	1304.8	YES	NO	MM	MM	45.033
19	OCDF	45.28	1.173e5	1.379e5	1.447	0.85	0.89	1430.2	YES	NO	bb	bd	78.619
20	13468-PECDF	27.11	3.547e5	2.277e5	1.376	1.56	1.55	10098.6	YES	NO	bb	bb	55.575
21	2378-TCDD	26.40	3.160e4	4.097e4	0.920	0.77	0.77	469.1	YES	NO	bb	bb	9.798
22	Total-tetradioxins	26.08	4.747e4	6.093e4	0.879	0.78	0.77	483.7	YES	NO	bb	bb	15.319
23	Total-tetradioxins	25.58	1.560e4	1.949e4	0.879	0.80	0.77	226.5	YES	NO	bd	bb	4.959
24	Total-tetradioxins	25.00	3.393e2	4.636e2	0.879	0.73	0.77	4.9	YES	NO	bb	bb	0.113
25	Total-tetradioxins	24.70	1.303e3	1.789e3	0.879	0.73	0.77	12.4	YES	NO	bb	bb	0.437
26	Total-tetradioxins	23.80	1.688e2	2.523e2	0.879	0.67	0.77	3.0	NO	NO	bb	bb	0.060
27	1368-TCDD	23.51	3.242e4	4.158e4	0.923	0.78	0.77	490.8	YES	NO	bb	bb	9.958
28	12479-PECDD	28.77	2.507e5	1.571e5	1.843	1.60	1.55	1573.0	YES	NO	bb	bb	49.794
29	1289-TCDD	27.02	2.725e4	3.557e4	0.794	0.77	0.77	389.6	YES	NO	bb	bd	9.829
30	124679-HXCDD	34.00	1.700e5	1.339e5	1.125	1.27	1.24	1395.1	YES	NO	bb	bb	50.932
31	12389-PECDD	31.93	1.612e5	1.011e5	1.154	1.59	1.55	1615.0	YES	NO	bb	bb	51.180
32	12378-PeCDD	31.51	1.343e5	8.470e4	0.995	1.59	1.55	1373.6	YES	NO	bb	bb	49.540
33	Total-pentadioxins	30.84	7.486e2	4.573e2	1.331	1.64	1.55	7.1	YES	NO	bb	bb	0.204
34	Total-hexadioxins	36.77	2.075e2	1.770e2	1.028	1.17	1.24	3.0	YES	NO	dd	bb	0.068
35	123789-HxCDD	36.52	1.524e5	1.165e5	0.950	1.31	1.24	1258.6	YES	NO	bd	bb	51.516
36	123678-HxCDD	36.13	1.531e5	1.221e5	1.009	1.25	1.24	1333.7	YES	NO	db	db	48.020
37	123478-HxCDD	36.00	1.500e5	1.183e5	1.027	1.27	1.24	1263.1	YES	NO	bd	bd	49.236

Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:04:42 Pacific Daylight Time

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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	1234678-HpCDD	40.28	8.473e4	7.738e4	1.068	1.10	1.05	640.7	YES	NO	bd	bb	48.392
39	1234679-HPCDD	39.23	9.364e4	8.881e4	1.211	1.05	1.05	772.0	YES	NO	bb	bb	48.040
40	OCDD	45.03	1.105e5	1.286e5	1.181	0.86	0.89	1070.8	YES	NO	bb	bb	90.256

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	28.17	1.406e6					32.1	YES		bb		0.000

PFK3

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

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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	38.53	5.536e3					1.3	NO		bb		
2	FUNCTION4 PFK	38.48	2.182e3					0.7	NO		bb		
3	FUNCTION4 PFK	38.13	7.707e3					1.3	NO		bb		
4	FUNCTION4 PFK	38.09	3.031e3					1.6	NO		bb		
5	FUNCTION4 PFK	38.04	1.435e3					0.8	NO		bb		
6	FUNCTION4 PFK	38.00	1.762e4					3.0	NO		bb		
7	FUNCTION4 PFK	42.25	1.941e4					2.0	NO		bd		
8	FUNCTION4 PFK	41.95	2.722e3					1.0	NO		bb		
9	FUNCTION4 PFK	41.60	9.023e2					0.5	NO		bb		
10	FUNCTION4 PFK	41.46	8.690e3					1.6	NO		bb		
11	FUNCTION4 PFK	41.29	9.452e2					0.5	NO		bb		
12	FUNCTION4 PFK	41.25	4.852e3					1.4	NO		bb		
13	FUNCTION4 PFK	41.06	7.940e2					0.4	NO		bb		
14	FUNCTION4 PFK	41.02	8.896e2					0.5	NO		bb		
15	FUNCTION4 PFK	40.83	7.466e3					1.4	NO		bb		
16	FUNCTION4 PFK	39.82	4.716e3					1.1	NO		bb		
17	FUNCTION4 PFK	39.31	3.110e3					0.9	NO		bb		
18	FUNCTION4 PFK	39.19	1.860e4					1.9	NO		db		
19	FUNCTION4 PFK	39.01	1.229e4					1.4	NO		bd		
20	FUNCTION4 PFK	38.87	5.627e4					3.6	YES		bb		
21	FUNCTION4 PFK	38.80	9.305e3					1.8	NO		db		
22	FUNCTION4 PFK	38.75	1.157e4					1.7	NO		bd		
23	FUNCTION4 PFK	42.90	1.898e3					0.6	NO		bb		
24	FUNCTION4 PFK	42.71	9.581e3					1.5	NO		bb		
25	FUNCTION4 PFK	42.61	7.828e3					1.4	NO		db		
26	FUNCTION4 PFK	42.56	3.021e3					0.7	NO		bd		
27	FUNCTION4 PFK	42.46	8.134e3					1.7	NO		db		
28	FUNCTION4 PFK	42.34	3.031e4					1.7	NO		dd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.36	3.022e3					0.9	NO		bb		
2	FUNCTION5 PFK	43.71	7.084e3					1.1	NO		bb		
3	FUNCTION5 PFK	43.11	9.716e3					1.6	NO		bb		

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, 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...	27.12	2.495e2					4.7	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...	27.12	1.069e2					3.1	YES		bd		0.000
2	FUNCTION1 HPCD...	26.40	7.300e1					2.5	NO		bb		0.000
3	FUNCTION1 HPCD...	24.91	7.651e1					1.9	NO		bb		0.000
4	FUNCTION1 HPCD...	27.18	7.813e1					3.3	YES		db		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.86	7.762e1					4.3	YES		bb		0.000
2	FUNCTION2 HPCD...	31.70	1.392e2					4.9	YES		bb		0.000
3	FUNCTION2 HPCD...	31.07	2.215e2					10.4	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	36.11	1.047e2					4.6	YES		bb		0.000
2	FUNCTION3 OCDPE	35.10	8.735e1					2.8	NO		bb		0.000

ETHERS5

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

ETHERS6

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

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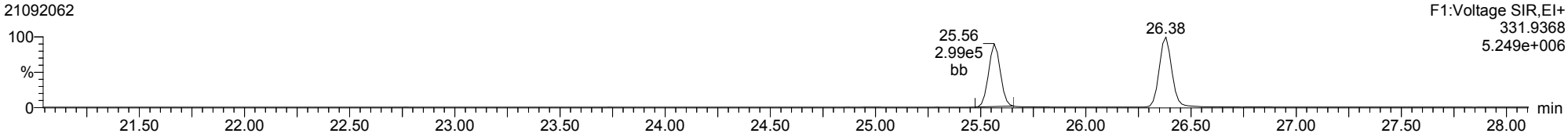
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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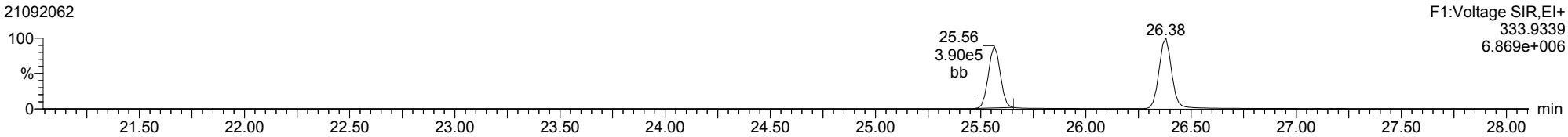
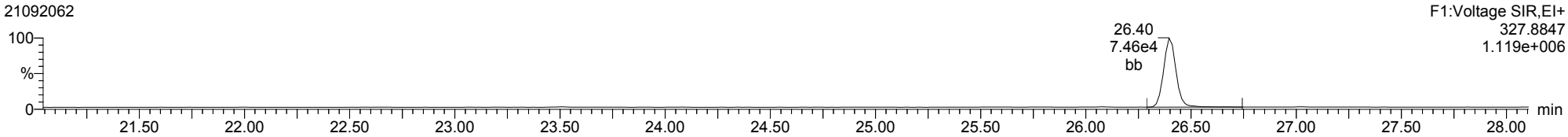


37CL-2378-TCDD



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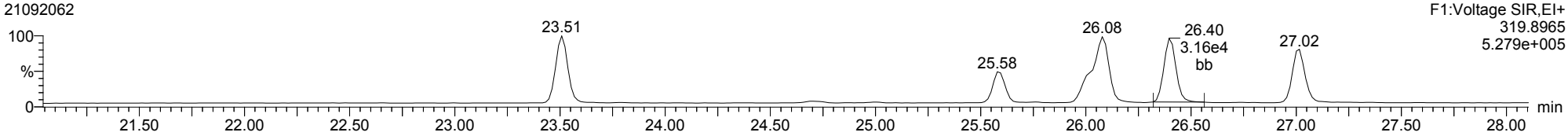

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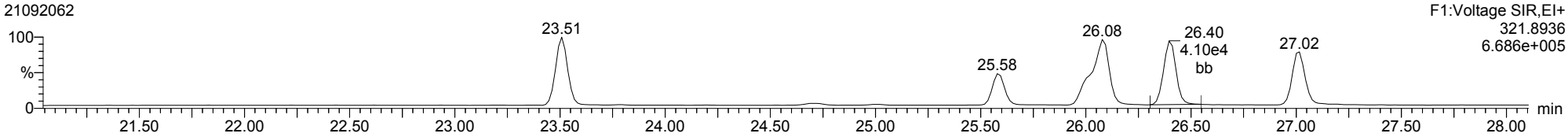

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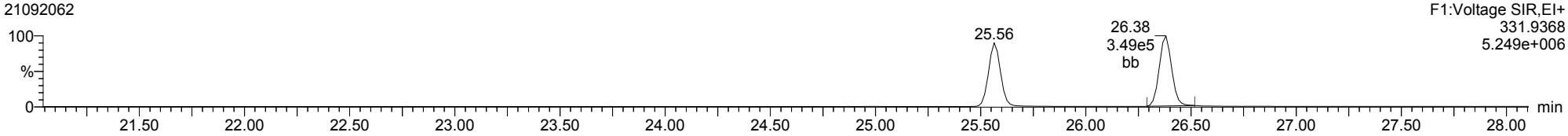

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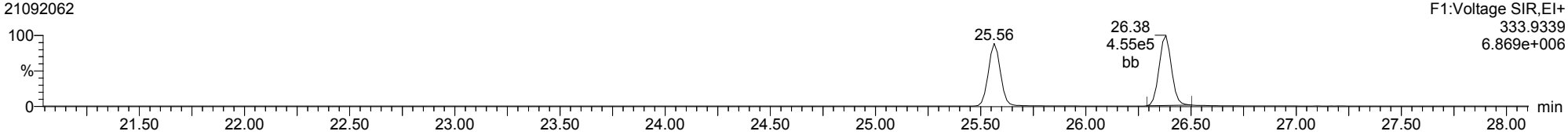

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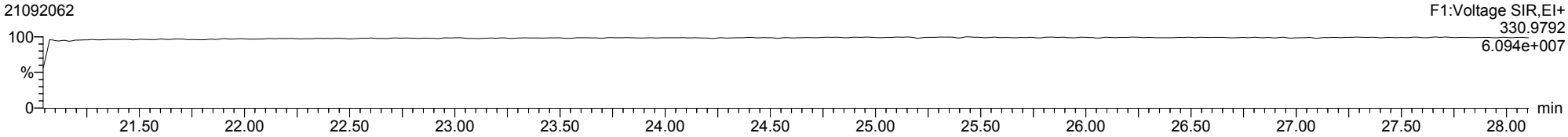

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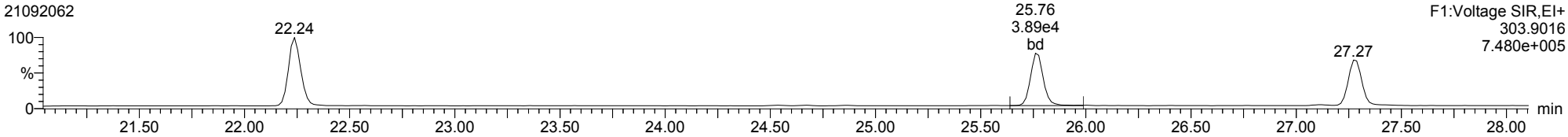

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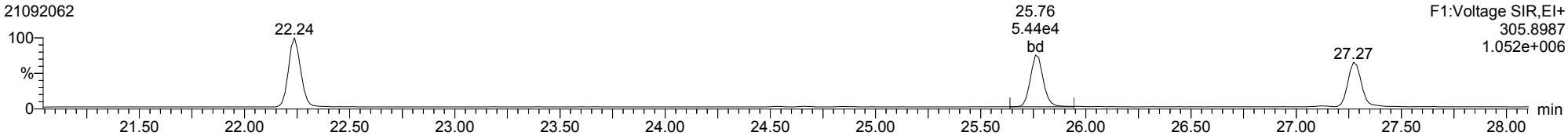

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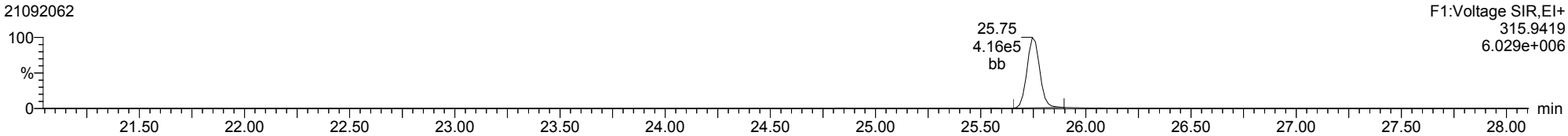

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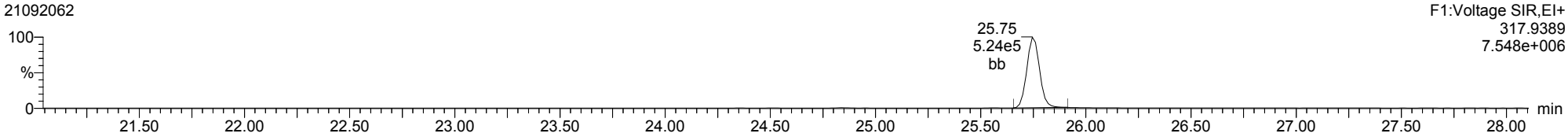
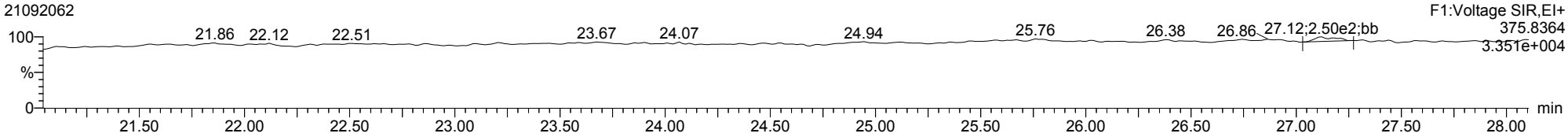


FUNCTION1 HXCDPE



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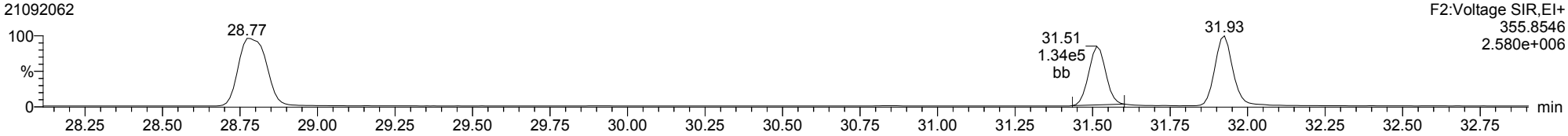
12378-PeCDD



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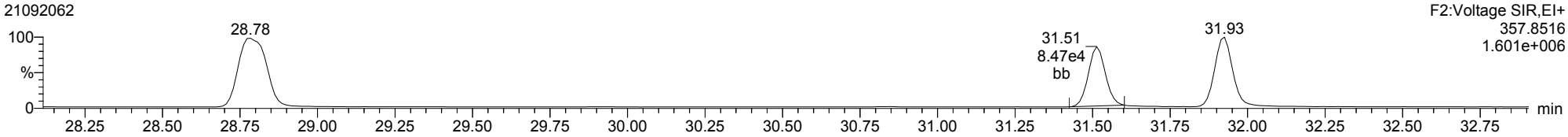

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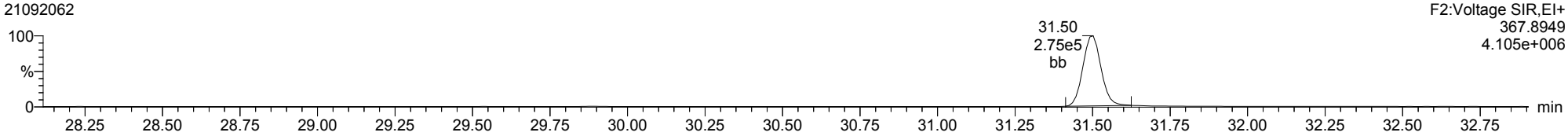

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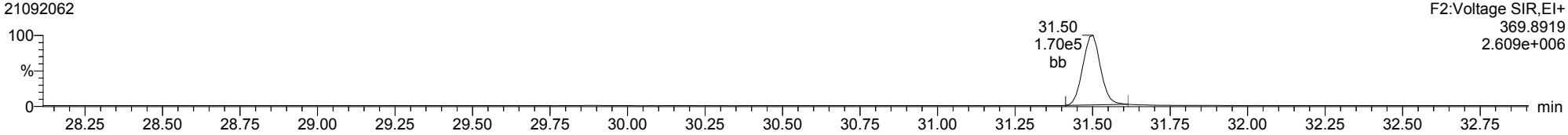
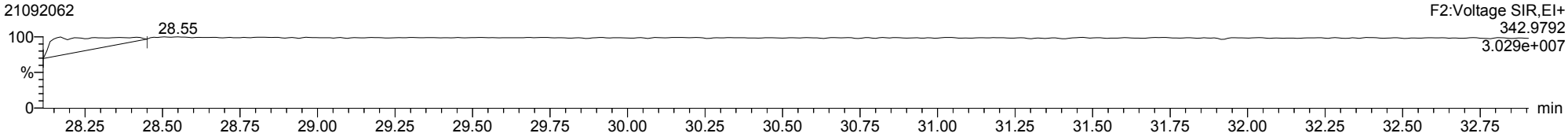


FUNCTION2 PFK



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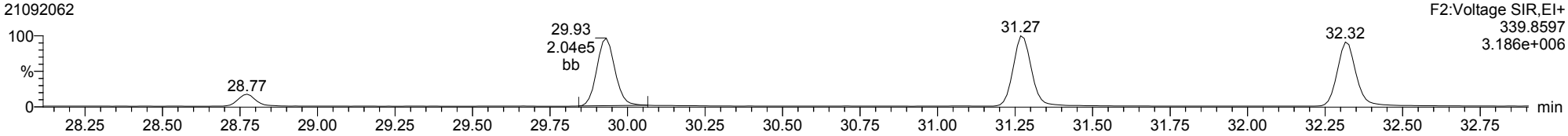
12378-PeCDF



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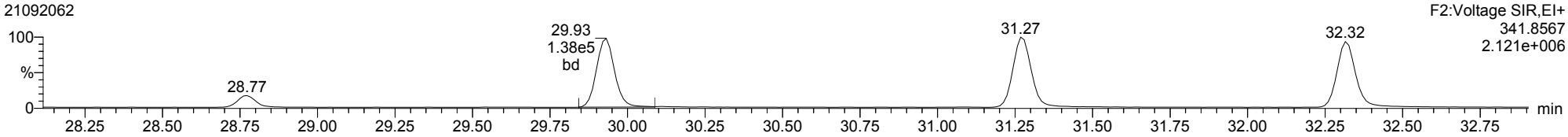

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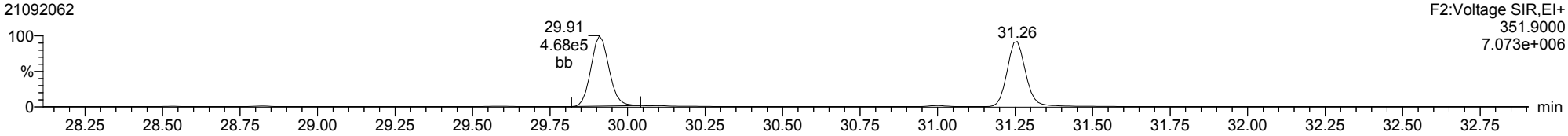

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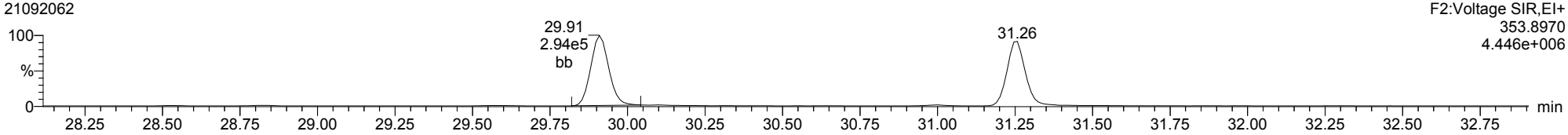
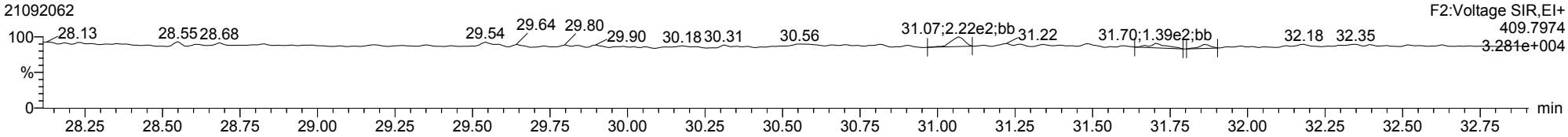


FUNCTION2 HPCDPE



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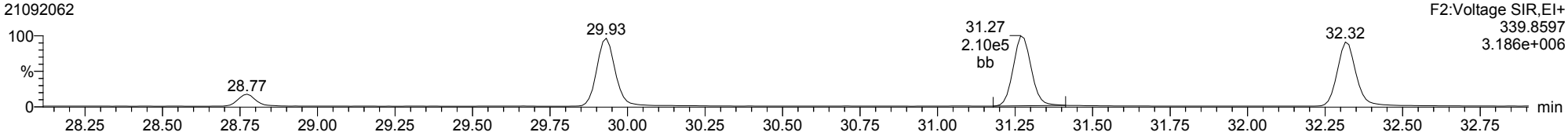
23478-PeCDF



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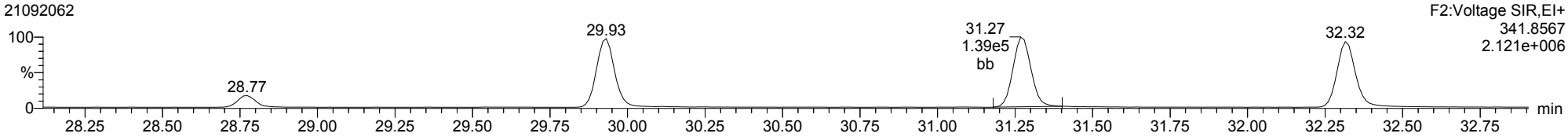

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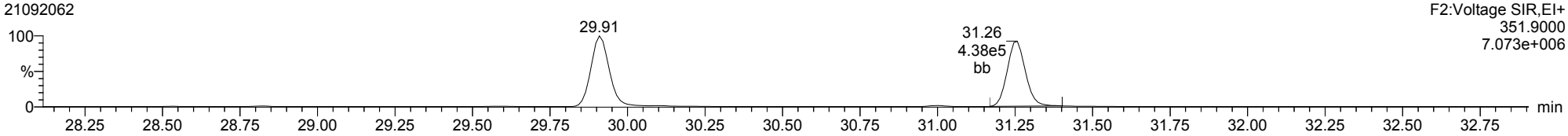

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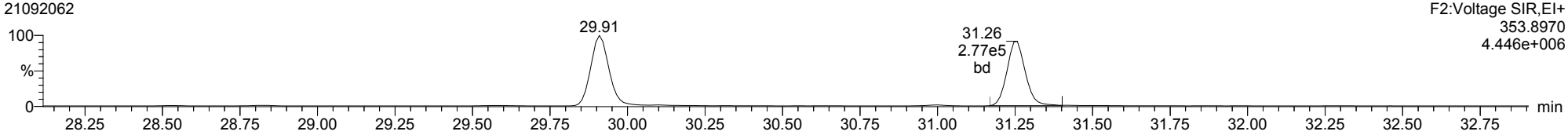
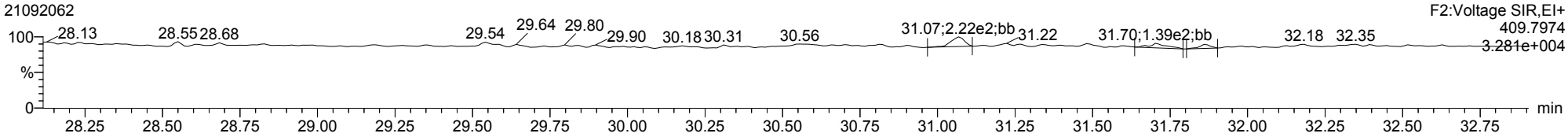


FUNCTION2 HPCDPE



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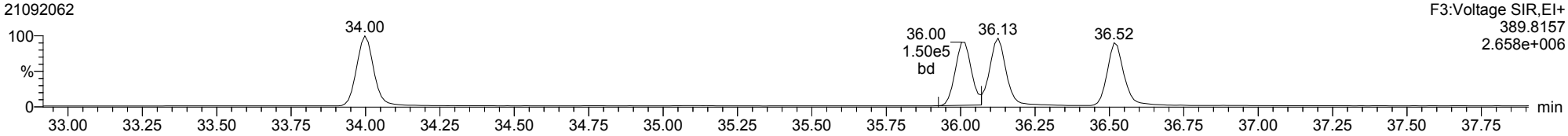
123478-HxCDD



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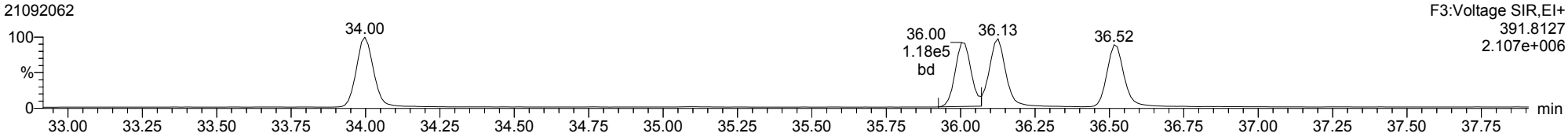

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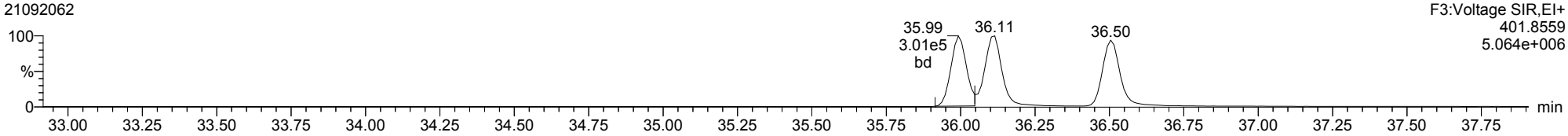

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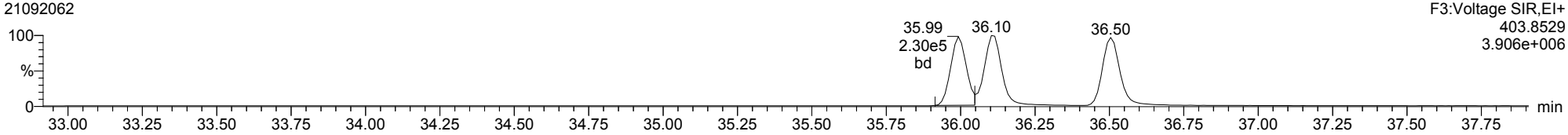

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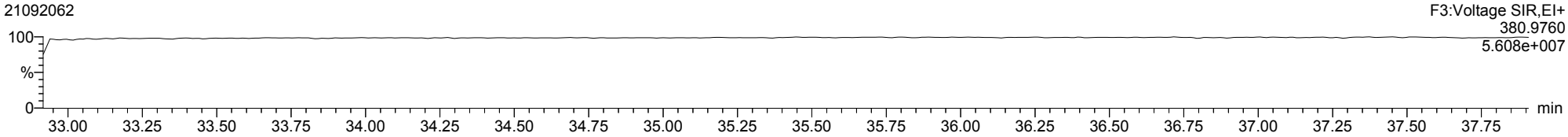

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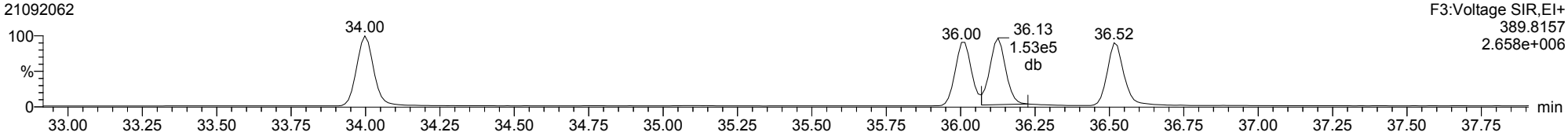
123678-HxCDD



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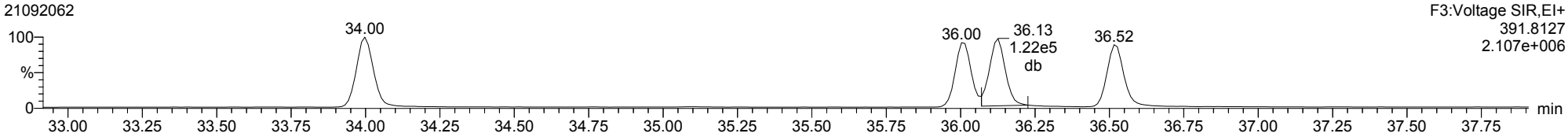

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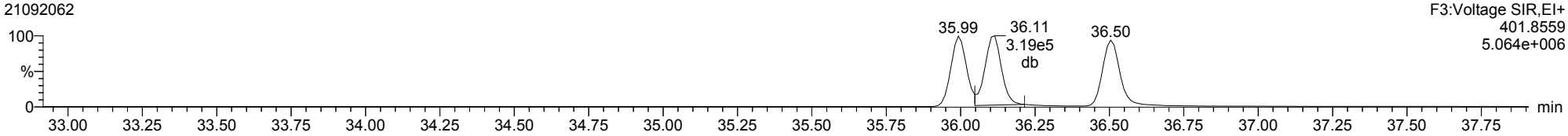

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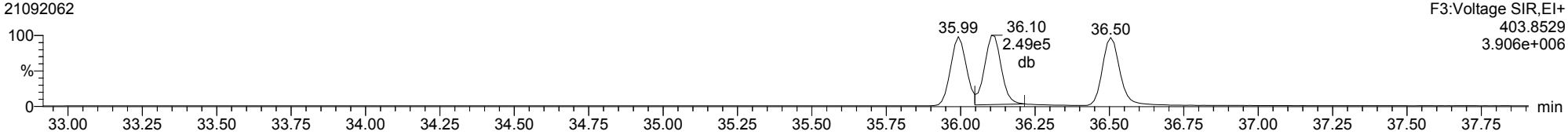

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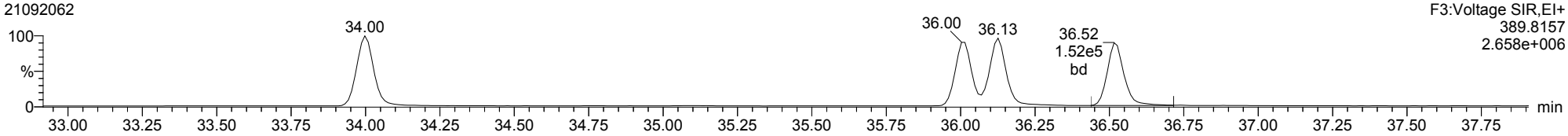

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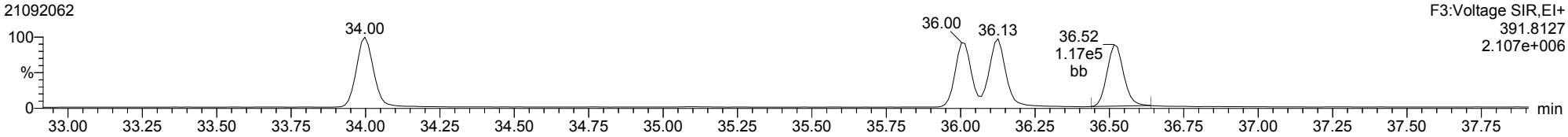

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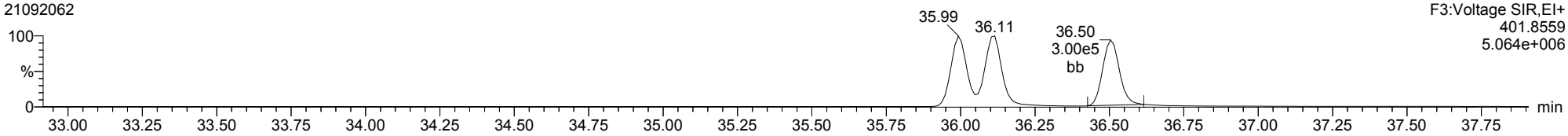

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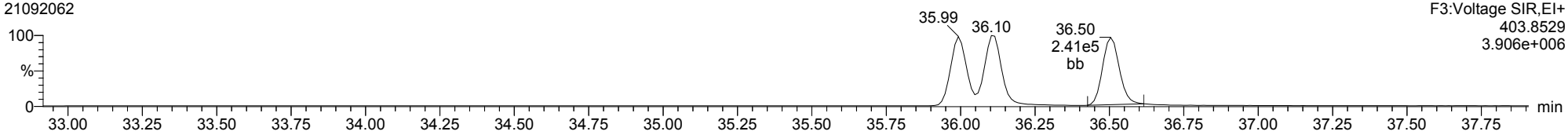

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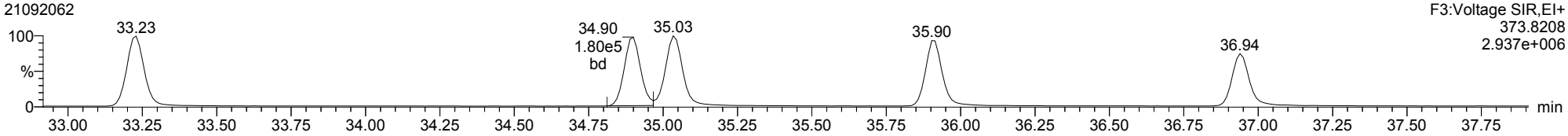

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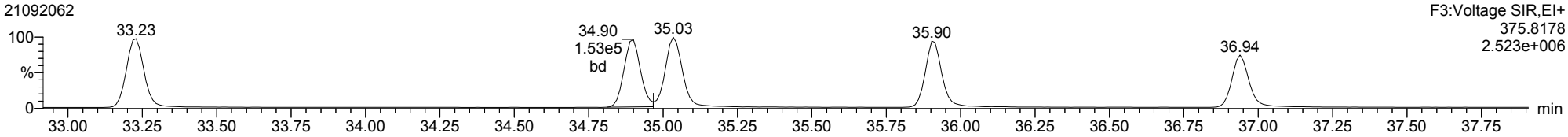

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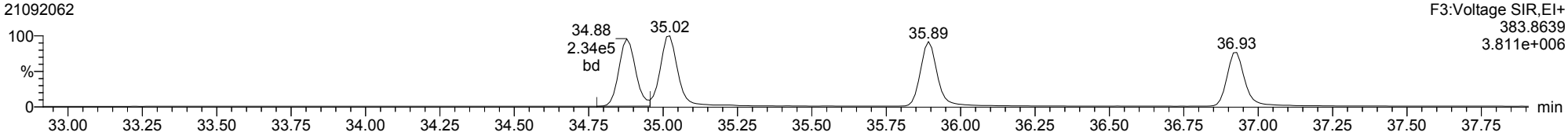

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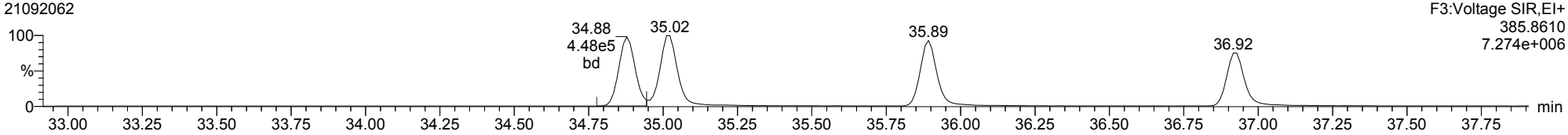

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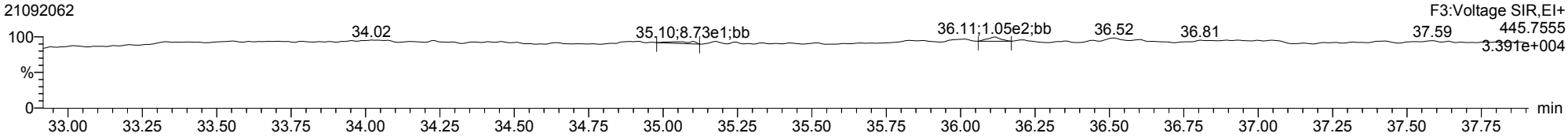

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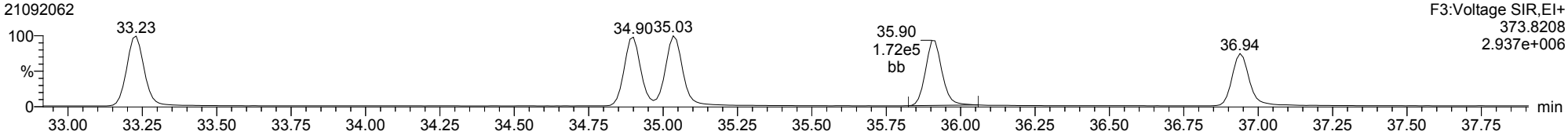

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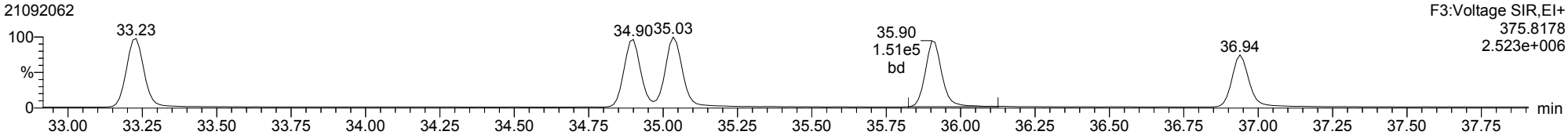

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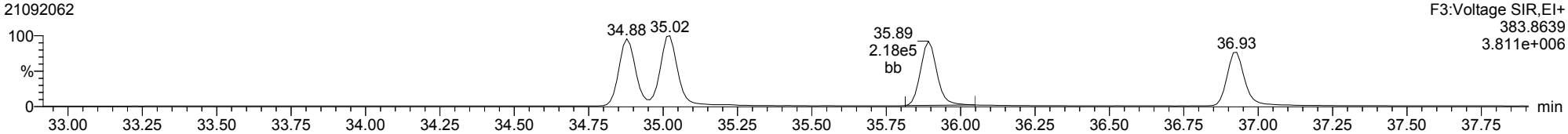

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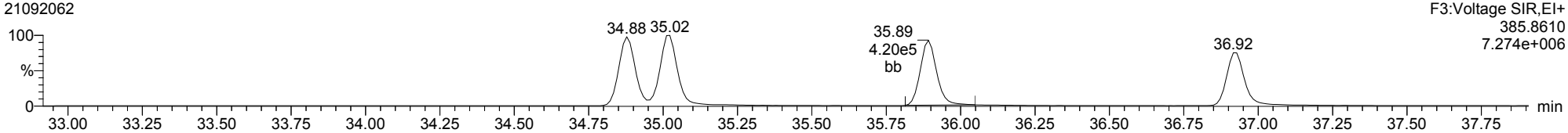

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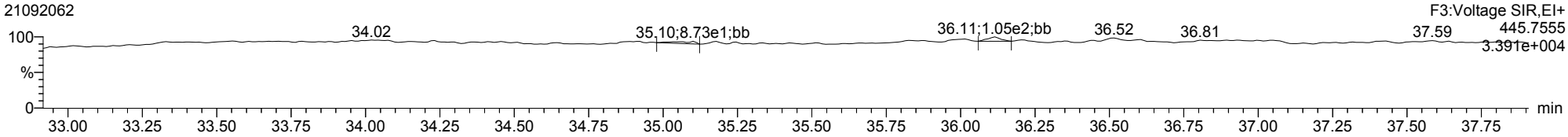

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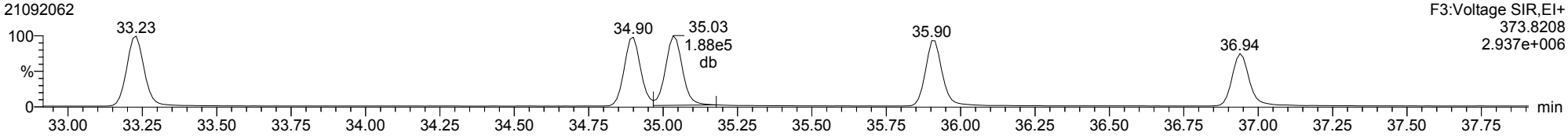

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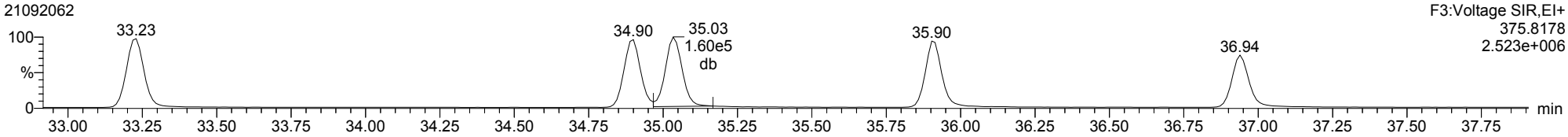

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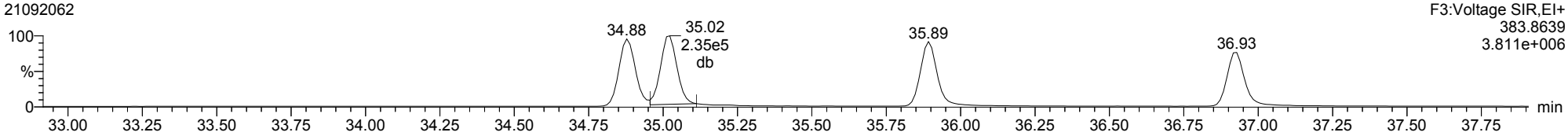

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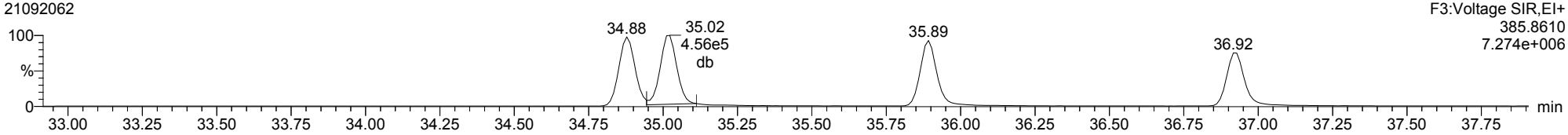

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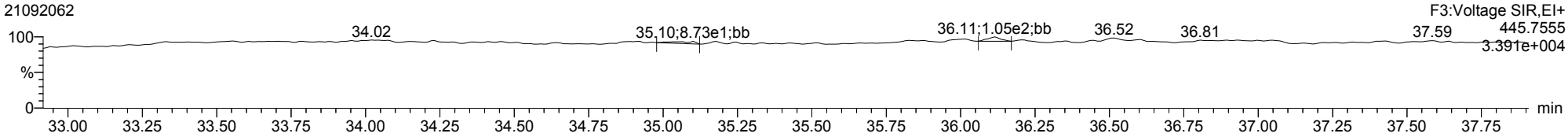

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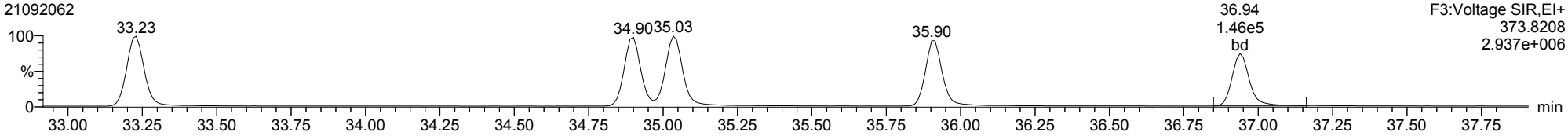

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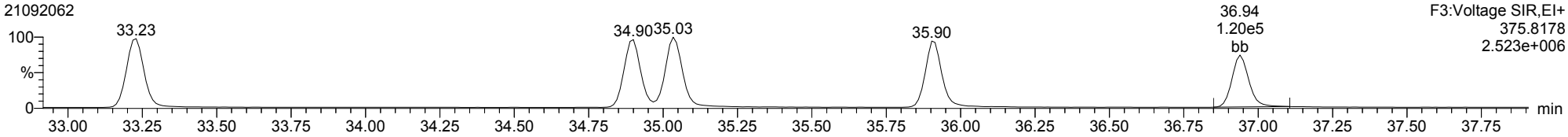

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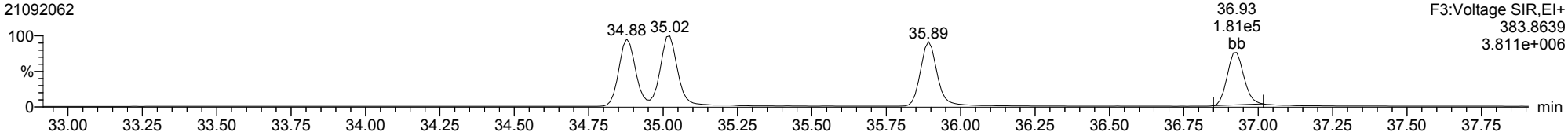

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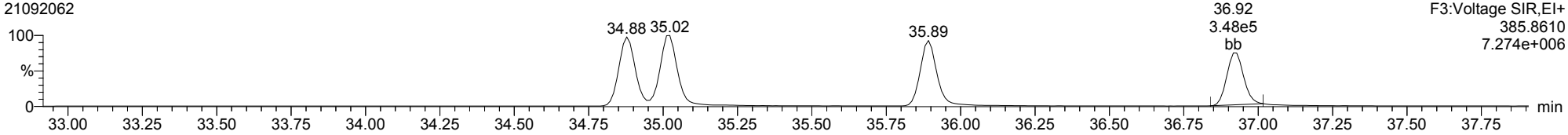

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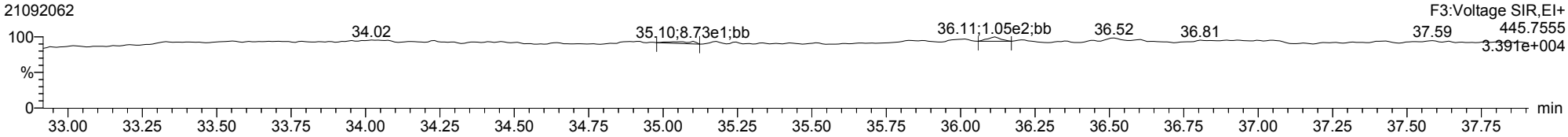

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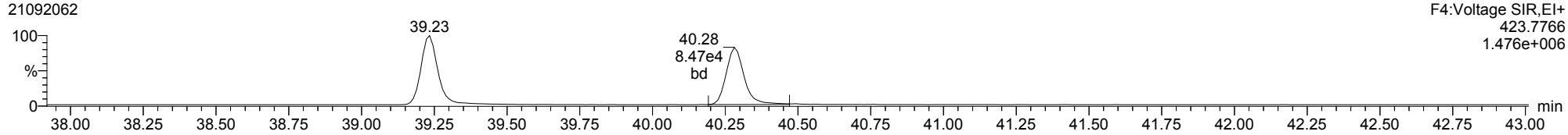

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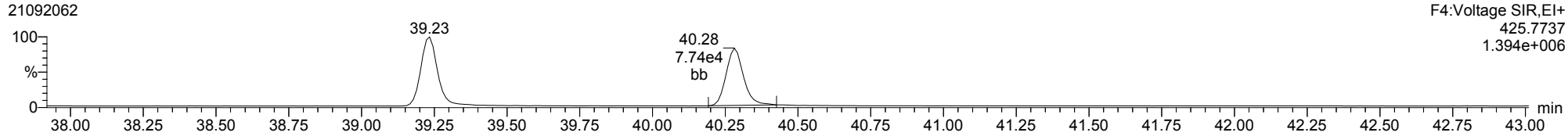

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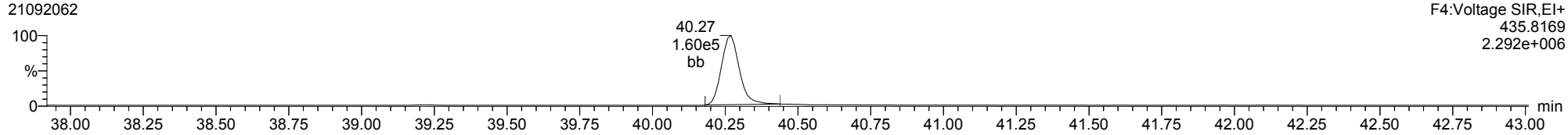

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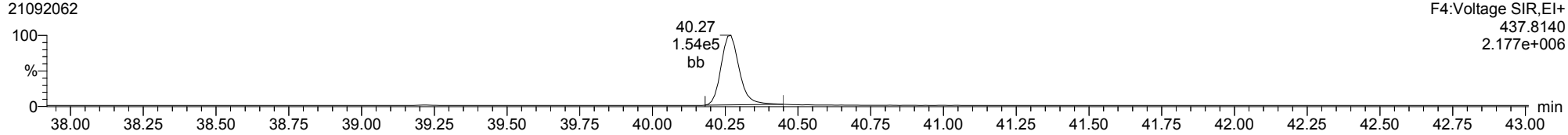

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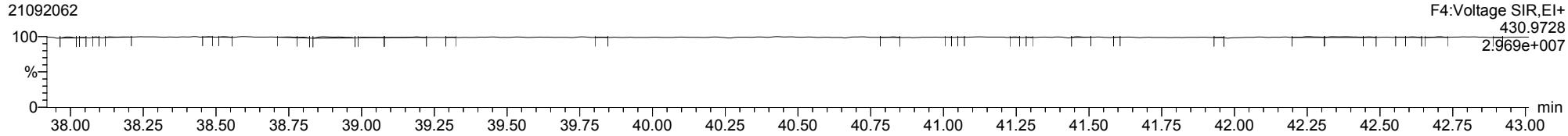

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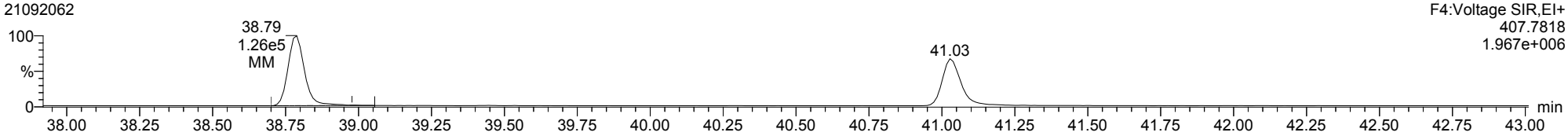

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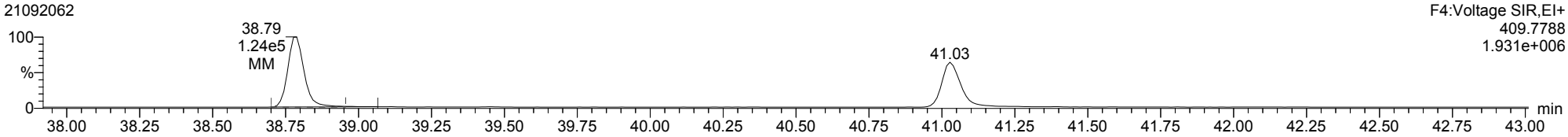

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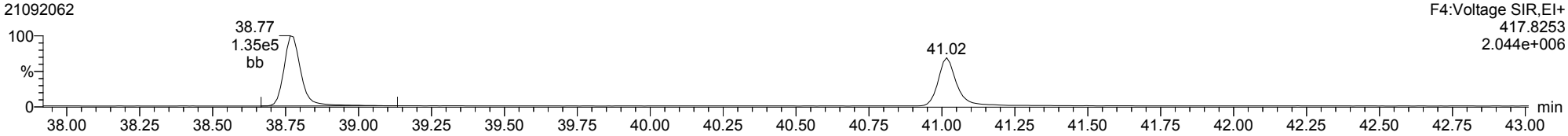

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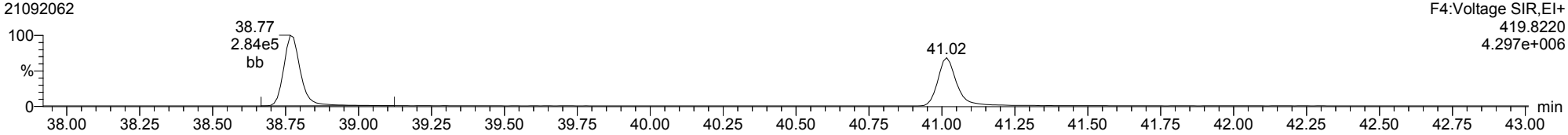

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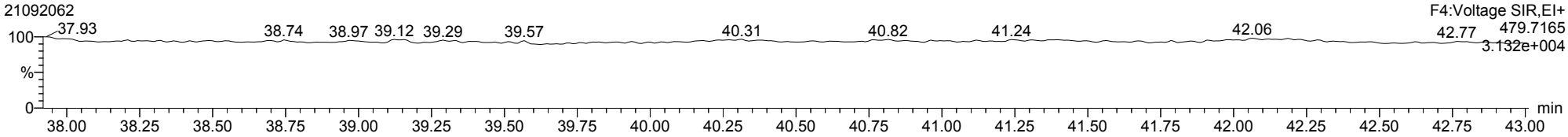

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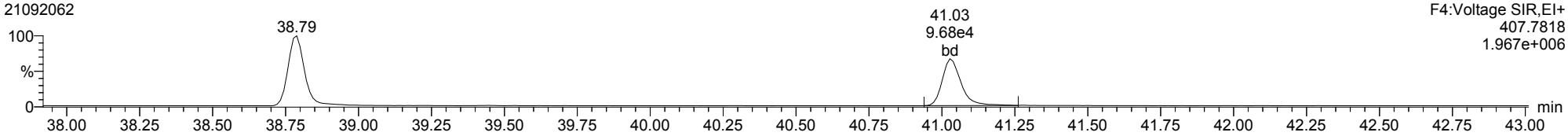

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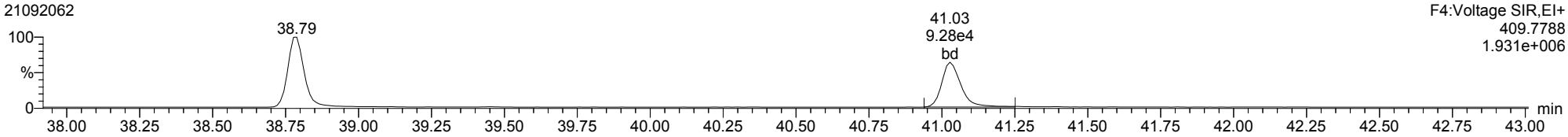

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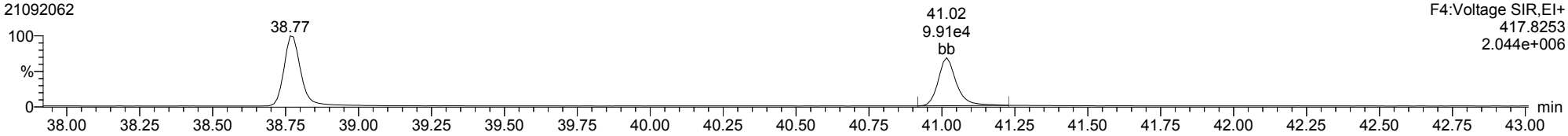

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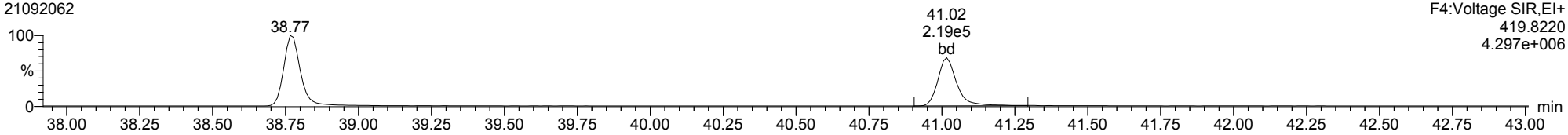

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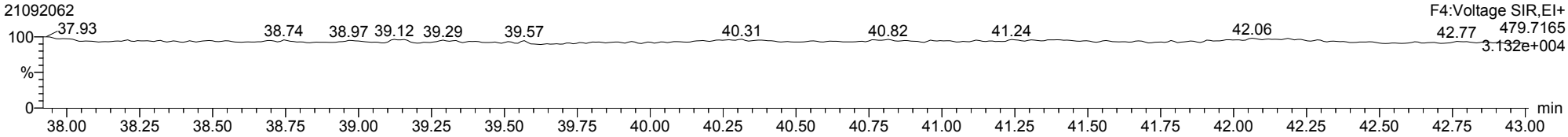

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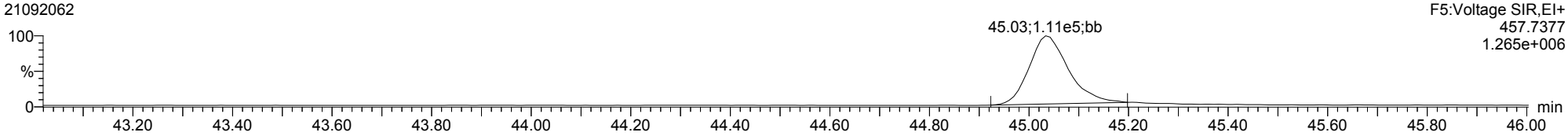

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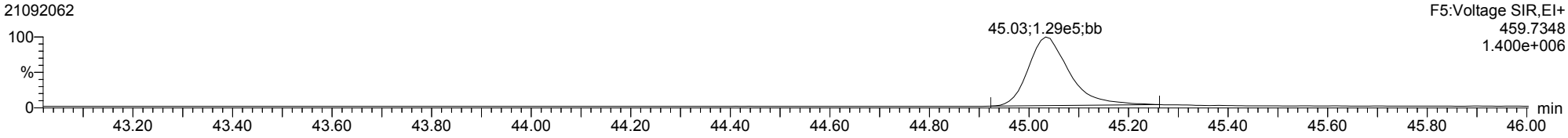

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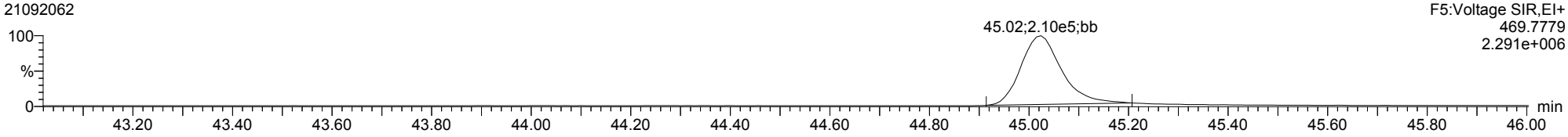

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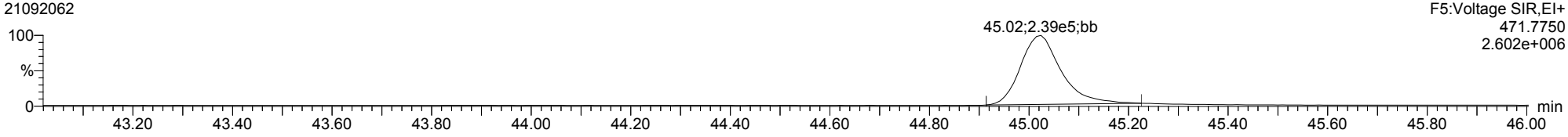
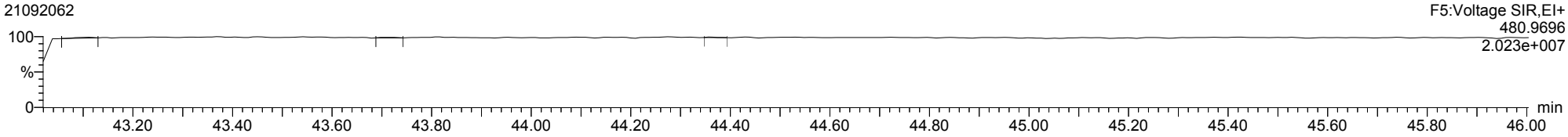


FUNCTION5 PFK



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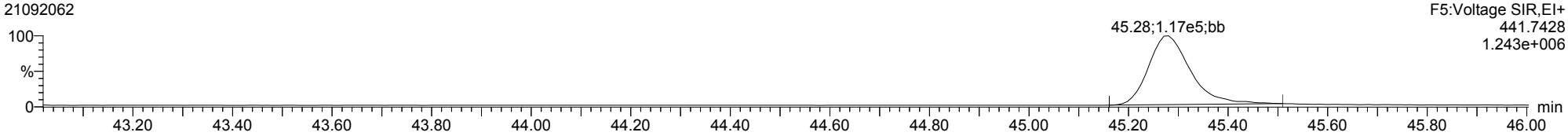

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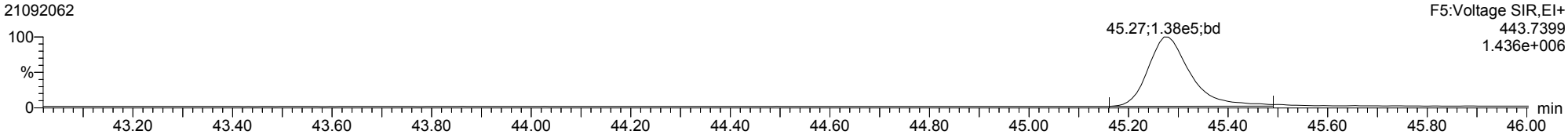

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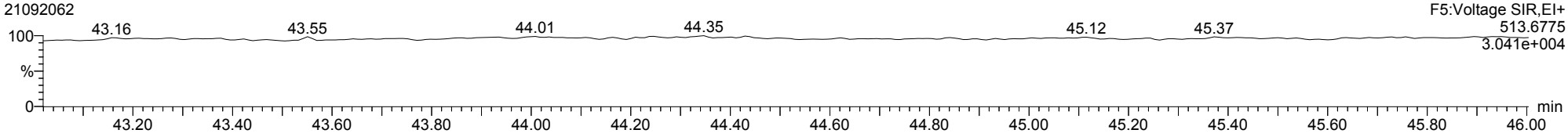

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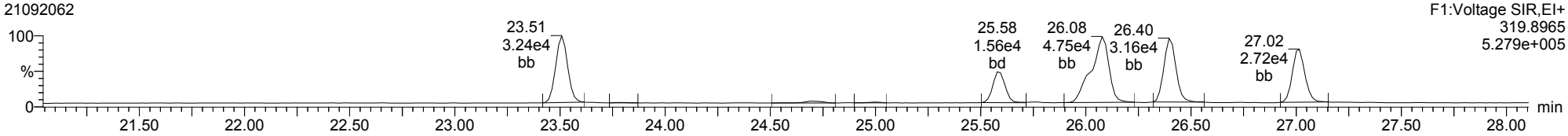
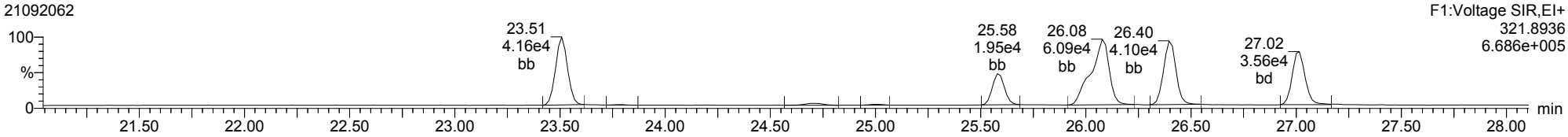
ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, Conditions: AUTOSPEC01, User: pk

Total-tetradioxins



Total-tetradioxins



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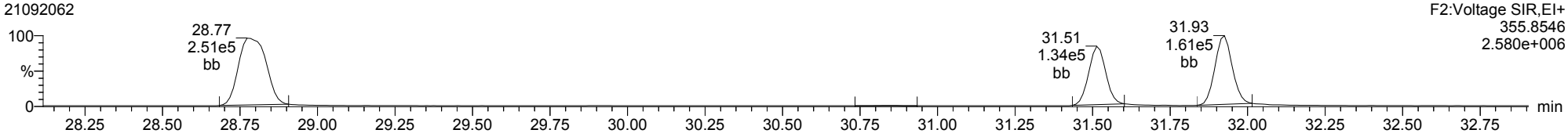
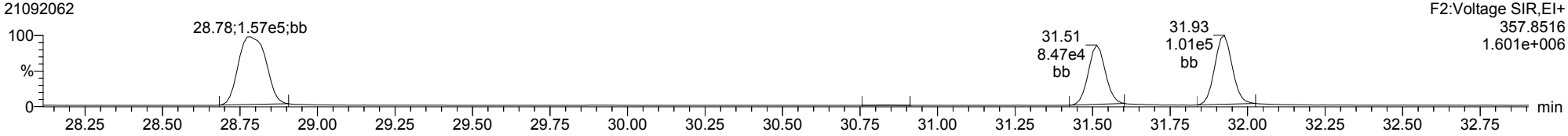


Total-pentadioxins



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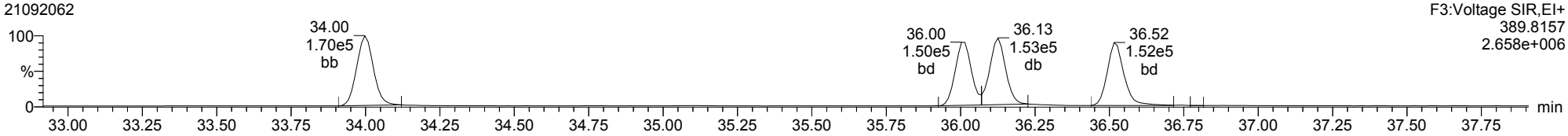
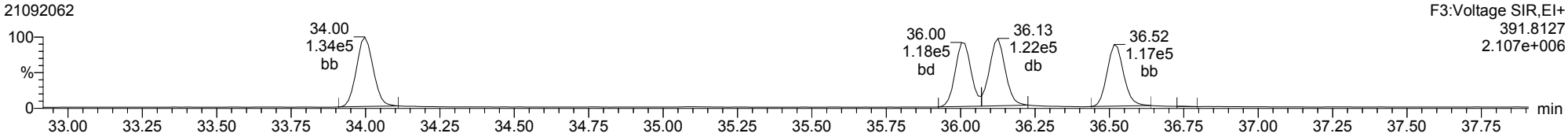
Total-hexadioxins



Total-hexadioxins



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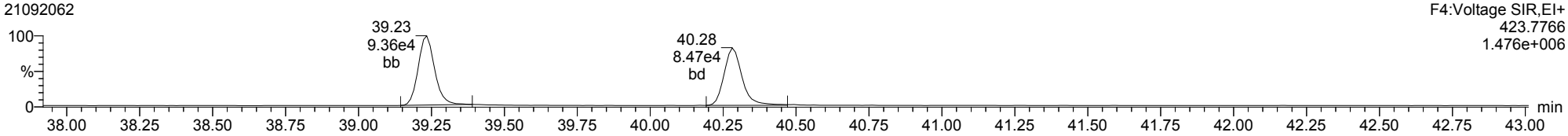
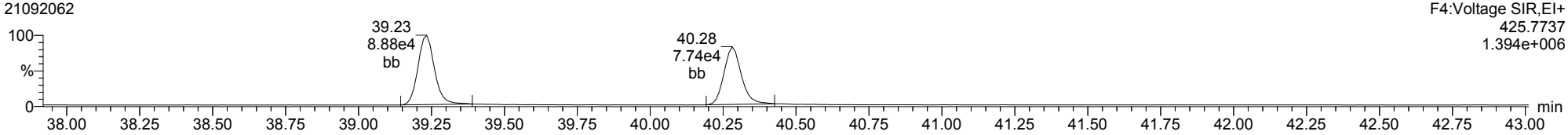


Total-heptadioxins



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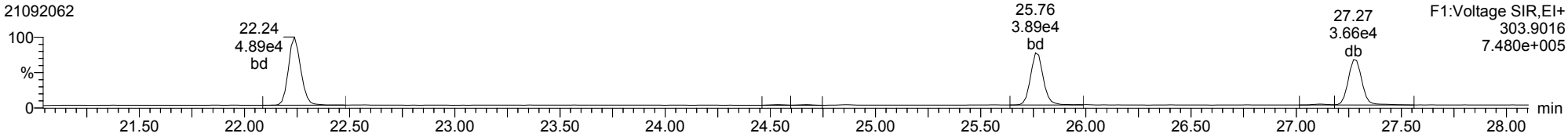
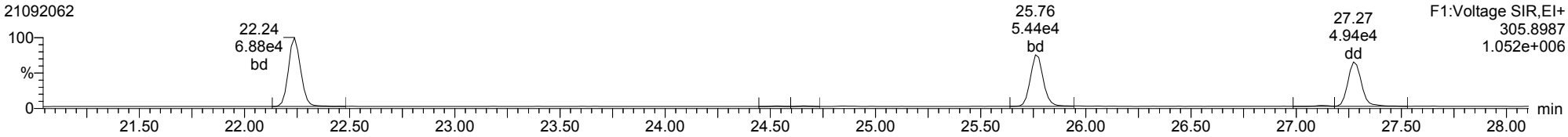
Last Altered: Thursday, September 23, 2021 09:03:02 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:04:42 Pacific Daylight Time

ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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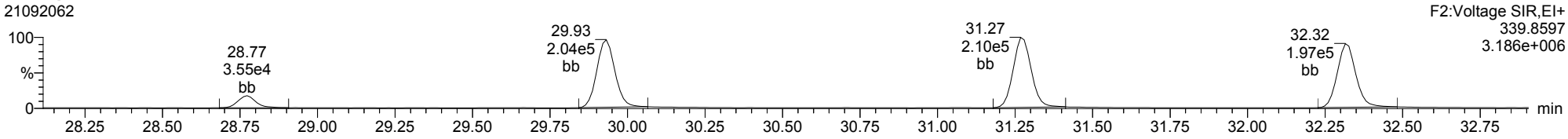
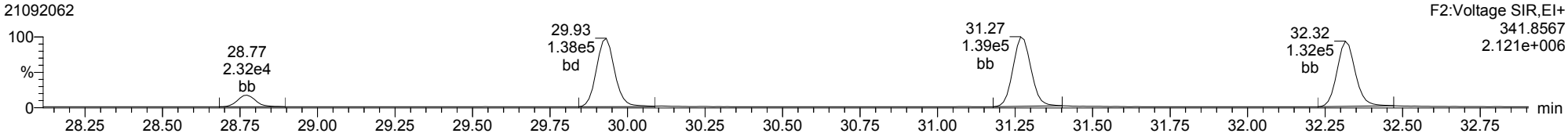


Total-pentafurans



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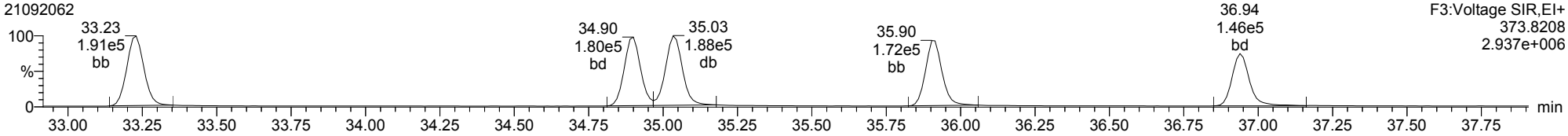
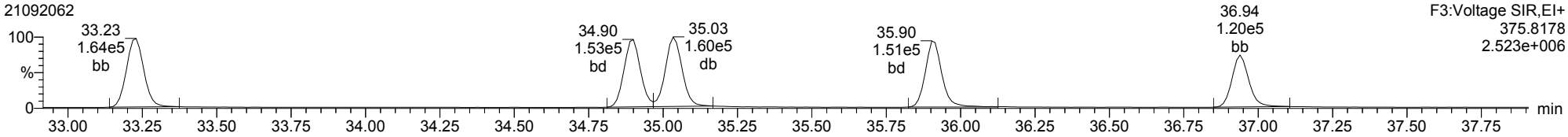
ID: CS3S7, Name: 21092062, Date: 22-Sep-2021, Time: 18:51:05, Conditions: AUTOSPEC01, User: pk

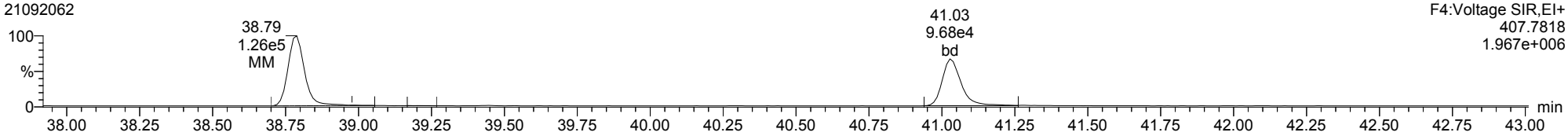
Total-hexafurans



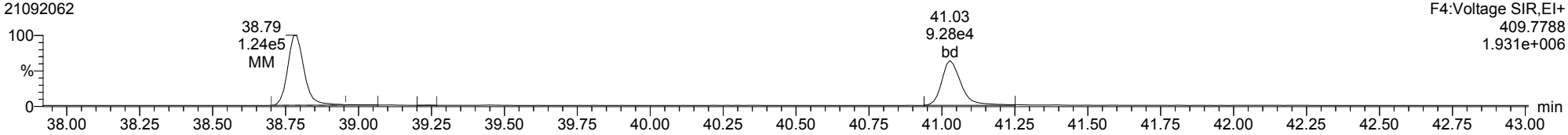
Total-hexafurans



Total-heptafurans



Total-heptafurans



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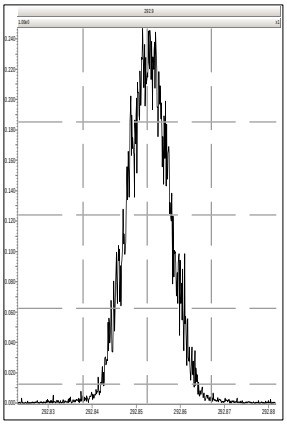
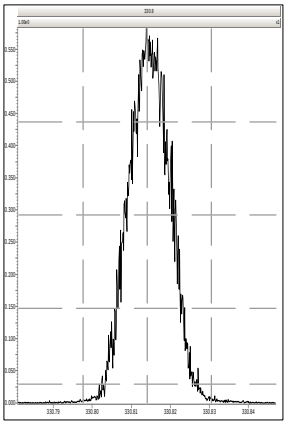
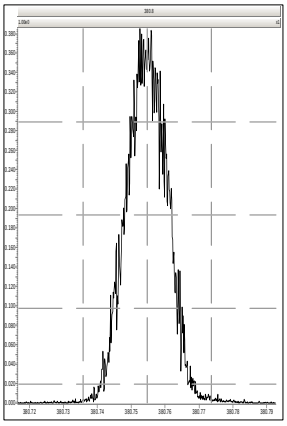
M 292.9824 R 14089



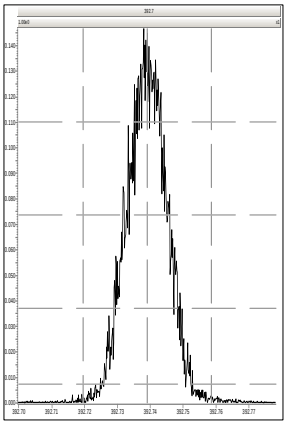
M 330.9792 R 14792



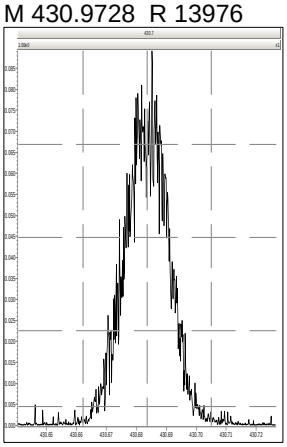
M 380.9760 R 14710



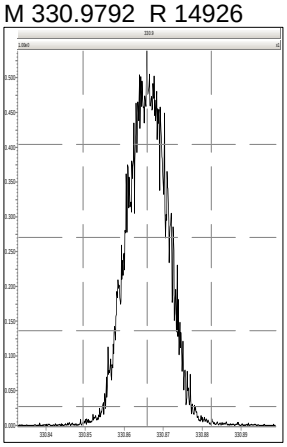
M 392.9760 R 15220



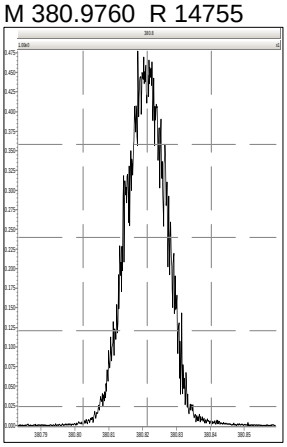
M 430.9728 R 13976



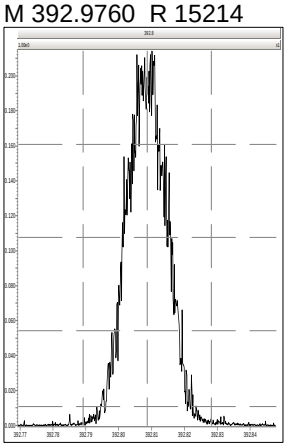
M 330.9792 R 14926



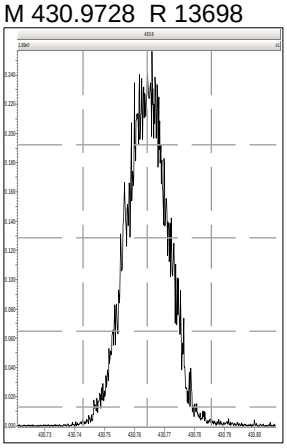
M 380.9760 R 14755



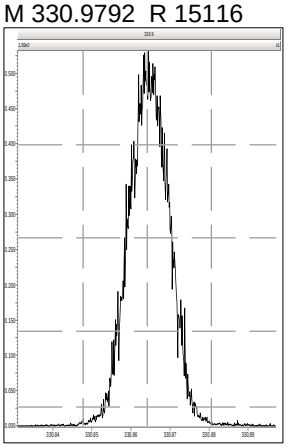
M 392.9760 R 15214



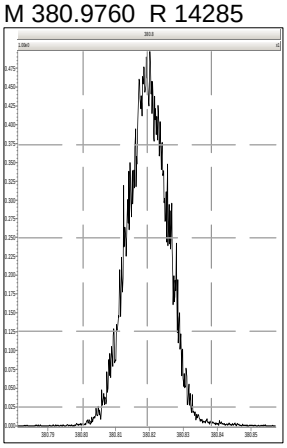
M 430.9728 R 13698



M 330.9792 R 15116



M 380.9760 R 14285



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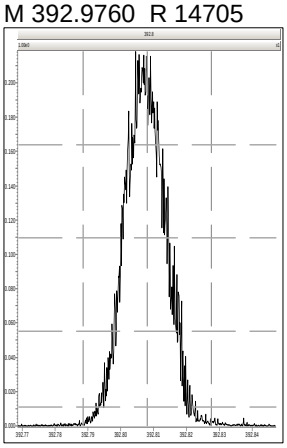
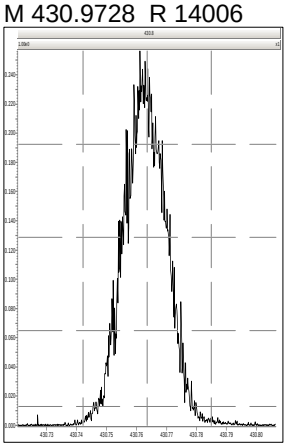
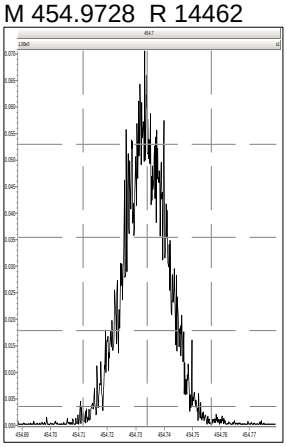


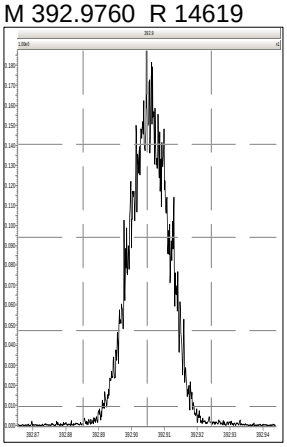
M 430.9728 R 14006



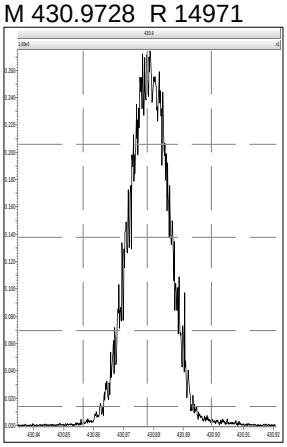
M 454.9728 R 14462



M 392.9760 R 14619



M 430.9728 R 14971



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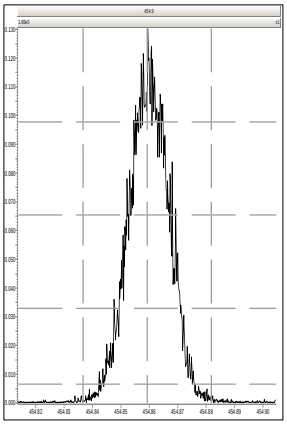
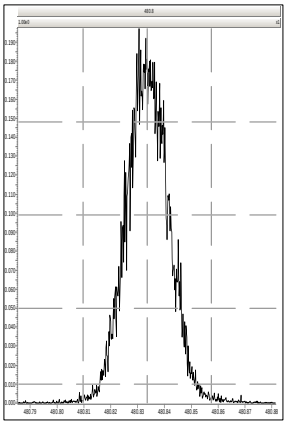
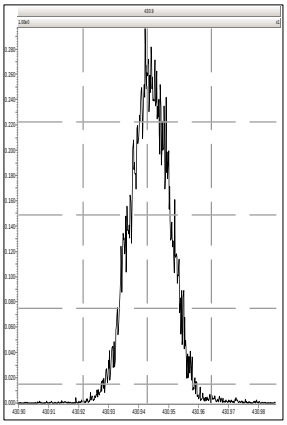
M 454.9728 R 14498



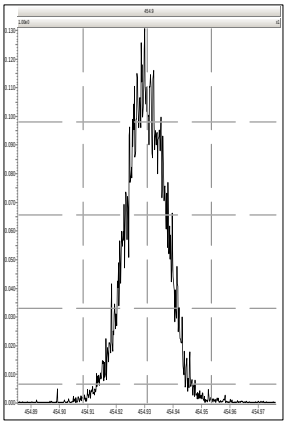
M 480.9696 R 13909



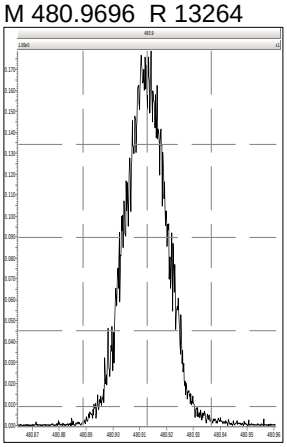
M 430.9728 R 14619



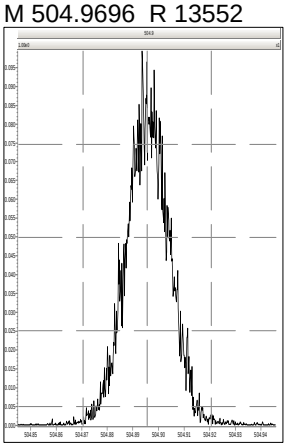
M 454.9728 R 14124



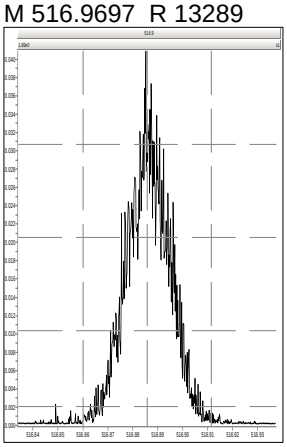
M 480.9696 R 13264

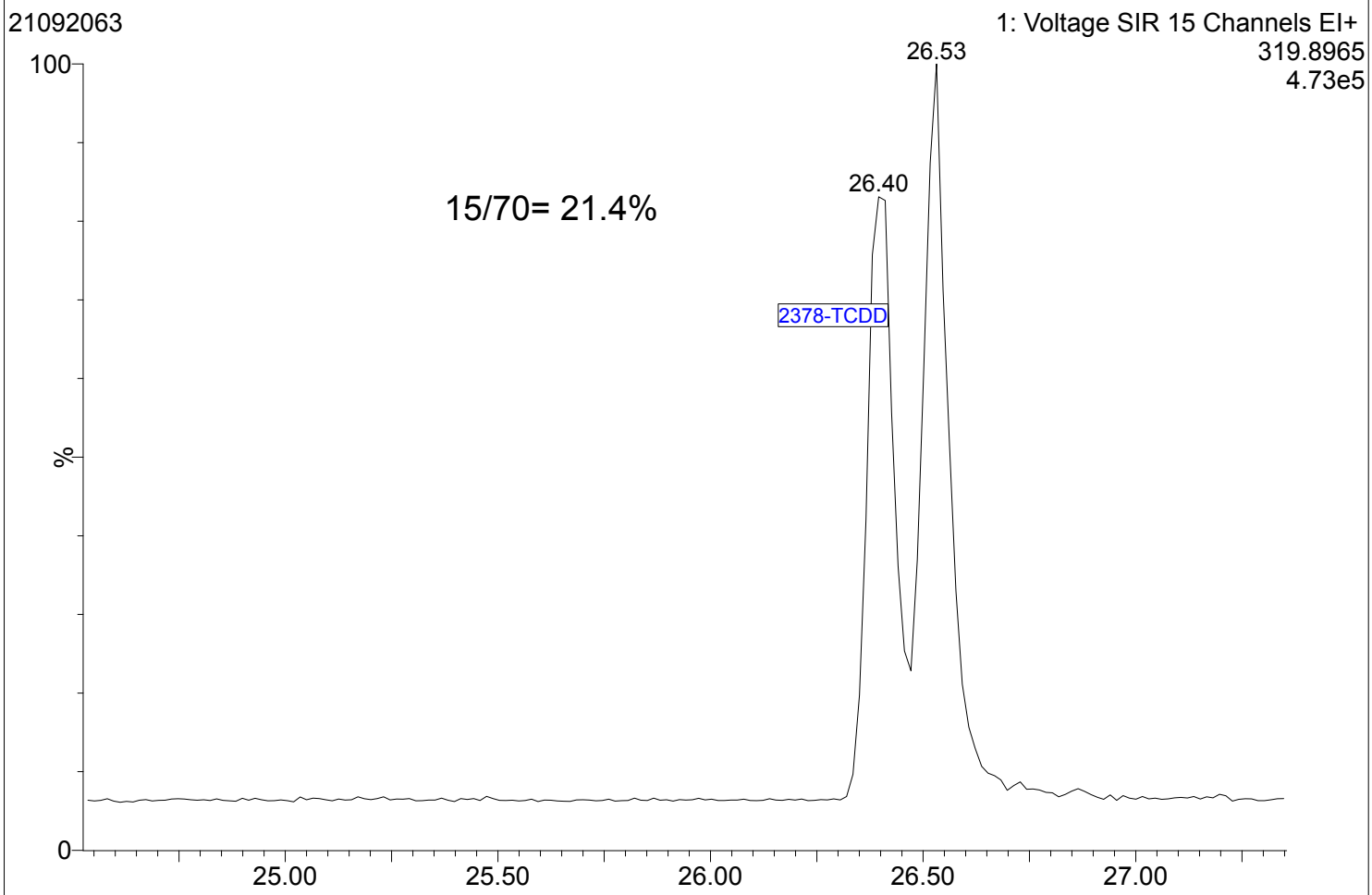


M 504.9696 R 13552



M 516.9697 R 13289




21092063
1: Voltage SIR 15 Channels EI+
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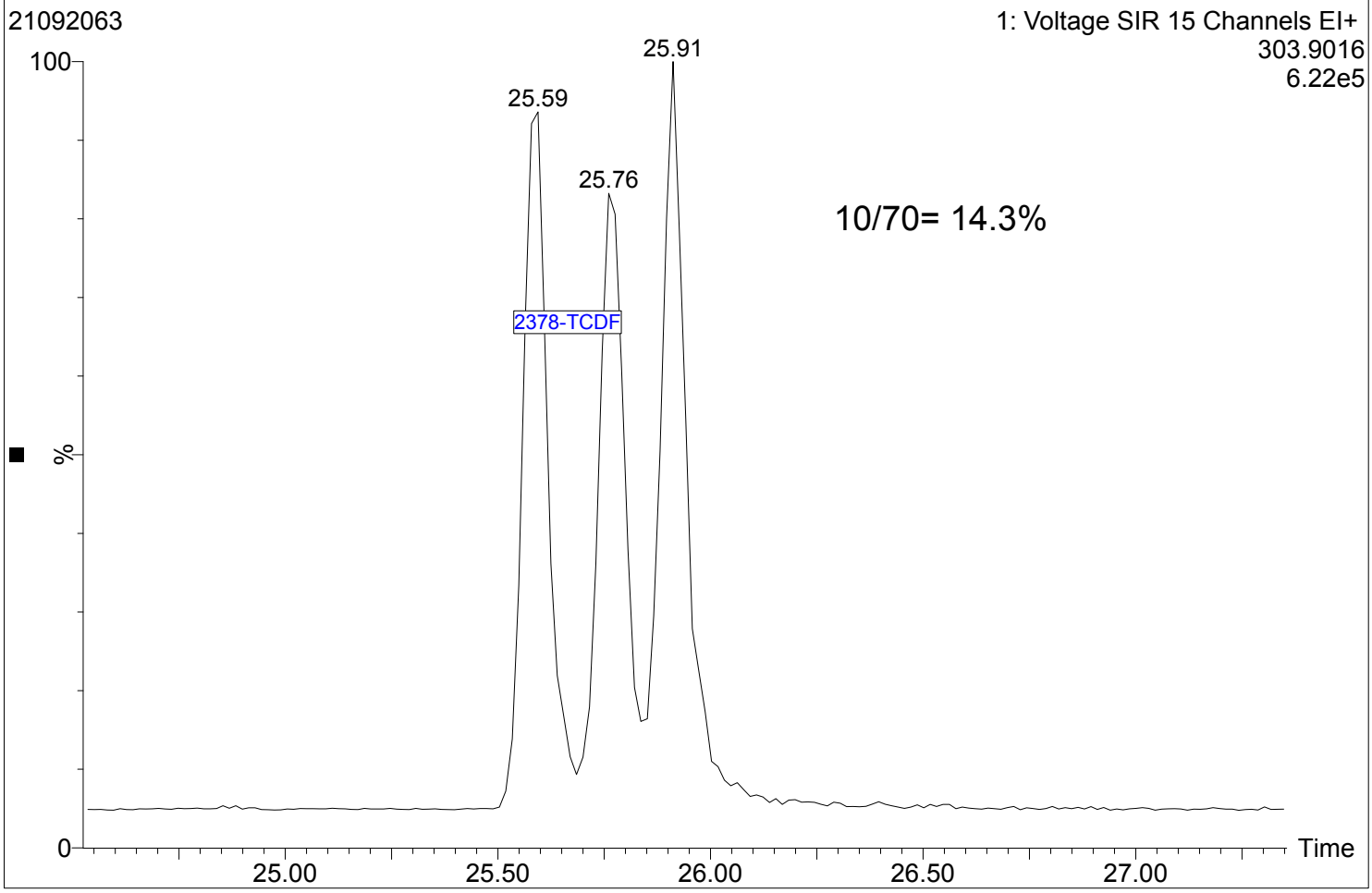
4.73e5
26.53
26.40
15/70= 21.4%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21092063
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6.22e5
25.91
25.59
25.76
10/70= 14.3%
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: 21G0283
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
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: 21G0283
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: 21G0283
Instrument .ID: AUTOSPEC01
Lab File ID: 21092023
Date Analyzed: 09/21/21
Time Analyzed: 10:38
Lab Sample ID: SJI0282-RES1
Sequence: SJI0282

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 15.3

3467-TCDF/2378-TCDF: 11.2

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0282-ICV1	CS3S3	21092022A	09/21/2021	09:36
SJI0282-RES1	ISCS3	21092023	09/21/2021	10:38
BJH0203-BLK1	Blank	21092030	09/21/2021	16:21
BJH0203-BS1	LCS	21092031	09/21/2021	17:10
BJH0203-SRM1	Reference	21092032	09/21/2021	17:59
SJI0282-CCV1	CS3S4	21092034A	09/21/2021	19:37
SJI0282-RES2	ISCS4	21092035	09/21/2021	20:30
SJI0282-CCV2	CS3S5	21092044	09/22/2021	03:54
SJI0282-RES3	ISCS5	21092045	09/22/2021	04:47
21G0283-11	LDW21-IT664B	21092050	09/22/2021	08:54
21G0283-12	LDW21-IT664C	21092051	09/22/2021	09:43
21G0283-13	LDW21-IT664E	21092052	09/22/2021	10:34
21G0283-14	LDW21-IT670B	21092053	09/22/2021	11:22
SJI0282-CCV3	CS3S6	21092054	09/22/2021	12:11
SJI0282-RES4	ISCS6	21092055	09/22/2021	13:05
21G0283-15	LDW21-IT670C	21092056	09/22/2021	13:56
21G0283-16	LDW21-IT670E	21092057	09/22/2021	14:46
21G0283-17	LDW21-IT650B	21092058	09/22/2021	15:35
21G0283-18	LDW21-IT650C	21092059	09/22/2021	16:24
SJI0282-CCV4	CS3S7	21092062	09/22/2021	18:51
SJI0282-RES5	ISCS7	21092063	09/22/2021	19:44

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0283
Instrument .ID: AUTOSPEC01
Lab File ID: 21092035
Date Analyzed: 09/21/21
Time Analyzed: 20:30
Lab Sample ID: SJI0282-RES2
Sequence: SJI0282

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 14

3467-TCDF/2378-TCDF: 10.3

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0282-ICV1	CS3S3	21092022A	09/21/2021	09:36
SJI0282-RES1	ISCS3	21092023	09/21/2021	10:38
BJH0203-BLK1	Blank	21092030	09/21/2021	16:21
BJH0203-BS1	LCS	21092031	09/21/2021	17:10
BJH0203-SRM1	Reference	21092032	09/21/2021	17:59
SJI0282-CCV1	CS3S4	21092034A	09/21/2021	19:37
SJI0282-RES2	ISCS4	21092035	09/21/2021	20:30
SJI0282-CCV2	CS3S5	21092044	09/22/2021	03:54
SJI0282-RES3	ISCS5	21092045	09/22/2021	04:47
21G0283-11	LDW21-IT664B	21092050	09/22/2021	08:54
21G0283-12	LDW21-IT664C	21092051	09/22/2021	09:43
21G0283-13	LDW21-IT664E	21092052	09/22/2021	10:34
21G0283-14	LDW21-IT670B	21092053	09/22/2021	11:22
SJI0282-CCV3	CS3S6	21092054	09/22/2021	12:11
SJI0282-RES4	ISCS6	21092055	09/22/2021	13:05
21G0283-15	LDW21-IT670C	21092056	09/22/2021	13:56
21G0283-16	LDW21-IT670E	21092057	09/22/2021	14:46
21G0283-17	LDW21-IT650B	21092058	09/22/2021	15:35
21G0283-18	LDW21-IT650C	21092059	09/22/2021	16:24
SJI0282-CCV4	CS3S7	21092062	09/22/2021	18:51
SJI0282-RES5	ISCS7	21092063	09/22/2021	19:44

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0283
Instrument .ID: AUTOSPEC01
Lab File ID: 21092045
Date Analyzed: 09/22/21
Time Analyzed: 04:47
Lab Sample ID: SJI0282-RES3
Sequence: SJI0282

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 14.7

3467-TCDF/2378-TCDF: 11

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0282-ICV1	CS3S3	21092022A	09/21/2021	09:36
SJI0282-RES1	ISCS3	21092023	09/21/2021	10:38
BJH0203-BLK1	Blank	21092030	09/21/2021	16:21
BJH0203-BS1	LCS	21092031	09/21/2021	17:10
BJH0203-SRM1	Reference	21092032	09/21/2021	17:59
SJI0282-CCV1	CS3S4	21092034A	09/21/2021	19:37
SJI0282-RES2	ISCS4	21092035	09/21/2021	20:30
SJI0282-CCV2	CS3S5	21092044	09/22/2021	03:54
SJI0282-RES3	ISCS5	21092045	09/22/2021	04:47
21G0283-11	LDW21-IT664B	21092050	09/22/2021	08:54
21G0283-12	LDW21-IT664C	21092051	09/22/2021	09:43
21G0283-13	LDW21-IT664E	21092052	09/22/2021	10:34
21G0283-14	LDW21-IT670B	21092053	09/22/2021	11:22
SJI0282-CCV3	CS3S6	21092054	09/22/2021	12:11
SJI0282-RES4	ISCS6	21092055	09/22/2021	13:05
21G0283-15	LDW21-IT670C	21092056	09/22/2021	13:56
21G0283-16	LDW21-IT670E	21092057	09/22/2021	14:46
21G0283-17	LDW21-IT650B	21092058	09/22/2021	15:35
21G0283-18	LDW21-IT650C	21092059	09/22/2021	16:24
SJI0282-CCV4	CS3S7	21092062	09/22/2021	18:51
SJI0282-RES5	ISCS7	21092063	09/22/2021	19:44

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0283
Instrument .ID: AUTOSPEC01
Lab File ID: 21092055
Date Analyzed: 09/22/21
Time Analyzed: 13:05
Lab Sample ID: SJI0282-RES4
Sequence: SJI0282

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 17.4

3467-TCDF/2378-TCDF: 10.1

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0282-ICV1	CS3S3	21092022A	09/21/2021	09:36
SJI0282-RES1	ISCS3	21092023	09/21/2021	10:38
BJH0203-BLK1	Blank	21092030	09/21/2021	16:21
BJH0203-BS1	LCS	21092031	09/21/2021	17:10
BJH0203-SRM1	Reference	21092032	09/21/2021	17:59
SJI0282-CCV1	CS3S4	21092034A	09/21/2021	19:37
SJI0282-RES2	ISCS4	21092035	09/21/2021	20:30
SJI0282-CCV2	CS3S5	21092044	09/22/2021	03:54
SJI0282-RES3	ISCS5	21092045	09/22/2021	04:47
21G0283-11	LDW21-IT664B	21092050	09/22/2021	08:54
21G0283-12	LDW21-IT664C	21092051	09/22/2021	09:43
21G0283-13	LDW21-IT664E	21092052	09/22/2021	10:34
21G0283-14	LDW21-IT670B	21092053	09/22/2021	11:22
SJI0282-CCV3	CS3S6	21092054	09/22/2021	12:11
SJI0282-RES4	ISCS6	21092055	09/22/2021	13:05
21G0283-15	LDW21-IT670C	21092056	09/22/2021	13:56
21G0283-16	LDW21-IT670E	21092057	09/22/2021	14:46
21G0283-17	LDW21-IT650B	21092058	09/22/2021	15:35
21G0283-18	LDW21-IT650C	21092059	09/22/2021	16:24
SJI0282-CCV4	CS3S7	21092062	09/22/2021	18:51
SJI0282-RES5	ISCS7	21092063	09/22/2021	19:44

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0283
Instrument .ID: AUTOSPEC01
Lab File ID: 21092063
Date Analyzed: 09/22/21
Time Analyzed: 19:44
Lab Sample ID: SJI0282-RES5
Sequence: SJI0282

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 21.4

3467-TCDF/2378-TCDF: 14.3

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0282-ICV1	CS3S3	21092022A	09/21/2021	09:36
SJI0282-RES1	ISCS3	21092023	09/21/2021	10:38
BJH0203-BLK1	Blank	21092030	09/21/2021	16:21
BJH0203-BS1	LCS	21092031	09/21/2021	17:10
BJH0203-SRM1	Reference	21092032	09/21/2021	17:59
SJI0282-CCV1	CS3S4	21092034A	09/21/2021	19:37
SJI0282-RES2	ISCS4	21092035	09/21/2021	20:30
SJI0282-CCV2	CS3S5	21092044	09/22/2021	03:54
SJI0282-RES3	ISCS5	21092045	09/22/2021	04:47
21G0283-11	LDW21-IT664B	21092050	09/22/2021	08:54
21G0283-12	LDW21-IT664C	21092051	09/22/2021	09:43
21G0283-13	LDW21-IT664E	21092052	09/22/2021	10:34
21G0283-14	LDW21-IT670B	21092053	09/22/2021	11:22
SJI0282-CCV3	CS3S6	21092054	09/22/2021	12:11
SJI0282-RES4	ISCS6	21092055	09/22/2021	13:05
21G0283-15	LDW21-IT670C	21092056	09/22/2021	13:56
21G0283-16	LDW21-IT670E	21092057	09/22/2021	14:46
21G0283-17	LDW21-IT650B	21092058	09/22/2021	15:35
21G0283-18	LDW21-IT650C	21092059	09/22/2021	16:24
SJI0282-CCV4	CS3S7	21092062	09/22/2021	18:51
SJI0282-RES5	ISCS7	21092063	09/22/2021	19:44

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJH0117	Instrument:	AUTOSPEC01
		Calibration:	UNASSIGNED

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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
		Calibration:	EH00030

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3S3	SJI0282-ICV1	21092022A	NA	09/21/21 09:36
ISCS3	SJI0282-RES1	21092023	NA	09/21/21 10:38
Blank	BJH0203-BLK1	21092030	Solid	09/21/21 16:21
LCS	BJH0203-BS1	21092031	Solid	09/21/21 17:10
Reference	BJH0203-SRM1	21092032	Solid	09/21/21 17:59
CS3S4	SJI0282-CCV1	21092034A	NA	09/21/21 19:37
ISCS4	SJI0282-RES2	21092035	NA	09/21/21 20:30
CS3S5	SJI0282-CCV2	21092044	NA	09/22/21 03:54
ISCS5	SJI0282-RES3	21092045	NA	09/22/21 04:47
LDW21-IT664B	21G0283-11	21092050	Solid	09/22/21 08:54
LDW21-IT664C	21G0283-12	21092051	Solid	09/22/21 09:43
LDW21-IT664E	21G0283-13	21092052	Solid	09/22/21 10:34
LDW21-IT670B	21G0283-14	21092053	Solid	09/22/21 11:22
CS3S6	SJI0282-CCV3	21092054	NA	09/22/21 12:11
ISCS6	SJI0282-RES4	21092055	NA	09/22/21 13:05
LDW21-IT670C	21G0283-15	21092056	Solid	09/22/21 13:56
LDW21-IT670E	21G0283-16	21092057	Solid	09/22/21 14:46
LDW21-IT650B	21G0283-17	21092058	Solid	09/22/21 15:35
LDW21-IT650C	21G0283-18	21092059	Solid	09/22/21 16:24
CS3S7	SJI0282-CCV4	21092062	NA	09/22/21 18:51
ISCS7	SJI0282-RES5	21092063	NA	09/22/21 19:44

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/23/2021 9:58:06AM

ANALYSIS SEQUENCE

SJI0282

Instrument: AUTOSPEC01 Element Column ID: J6460
Calibration ID: EH00030 Tune File: SEP0321_1-5
EM Voltage: 350 Resolution check times : 10:37, 20:30, 04:47, 13:05, 19:4

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SJI0282-ICV1	CS3S3	QC		1	J001522		09/21/2021 09:36	21092022A	PK	
SJI0282-RES1	ISCS3	QC		2	J005595		09/21/2021 10:38	21092023	PK	
BJH0203-BLK1	Blank	QC		3		J005741	09/21/2021 16:21	21092030	PK	
BJH0203-BS1	LCS	QC		4		J005741	09/21/2021 17:10	21092031	PK	
BJH0203-SRM1	Reference	QC		5		J005741	09/21/2021 17:59	21092032	PK	
BJH0203-DUP1	Duplicate	QC		6		J005741	09/21/2021 18:48	21092033	PK	
SJI0282-CCV1	CS3S4	QC		7	J001522		09/21/2021 19:37	21092034A	PK	
SJI0282-RES2	ISCS4	QC		8	J005595		09/21/2021 20:30	21092035	PK	
21G0211-11	LDW21-IT665B	1613B Dioxin	C 01	9		J005741	09/21/2021 21:22	21092036	PK	
21G0211-12	LDW21-IT665C	1613B Dioxin	C 01	10		J005741	09/21/2021 22:10	21092037	PK	
21G0211-13	LDW21-IT665E	1613B Dioxin	C 01	11		J005741	09/21/2021 22:59	21092038	PK	
21G0211-14	LDW21-IT666B	1613B Dioxin	C 01	12		J005741	09/21/2021 23:48	21092039	PK	
21G0211-15	LDW21-IT666C	1613B Dioxin	C 01	13		J005741	09/22/2021 00:38	21092040	PK	
21G0211-16	LDW21-IT666E	1613B Dioxin	C 01	14		J005741	09/22/2021 01:27	21092041	PK	
21G0213-01	LDW21-IT655B	1613B Dioxin	C 01	15		J005741	09/22/2021 02:16	21092042	PK	
21G0213-02	LDW21-IT655C	1613B Dioxin	C 01	16		J005741	09/22/2021 03:05	21092043	PK	
SJI0282-CCV2	CS3S5	QC		17	J001522		09/22/2021 03:54	21092044	PK	
SJI0282-RES3	ISCS5	QC		18	J005595		09/22/2021 04:47	21092045	PK	
21G0213-03	LDW21-IT655E	1613B Dioxin	C 01	19		J005741	09/22/2021 05:38	21092046	PK	
21G0213-06	LDW21-IT663B	1613B Dioxin	C 01	20		J005741	09/22/2021 06:27	21092047	PK	
21G0213-07	LDW21-IT663C	1613B Dioxin	C 01	21		J005741	09/22/2021 07:16	21092048	PK	
21G0213-08	LDW21-IT663E	1613B Dioxin	C 01	22		J005741	09/22/2021 08:05	21092049	PK	

Analytical Resources, Incorporated
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Printed: 9/23/2021 9:58:06AM

ANALYSIS SEQUENCE

SJI0282

Instrument: AUTOSPEC01 Element Column ID: J6460
Calibration ID: EH00030 Tune File: SEP0321_1-5
EM Voltage: 350 Resolution check times : 10:37, 20:30, 04:47, 13:05, 19:4

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
21G0283-11	LDW21-IT664B	1613B Dioxin	C 01	23		J005741	09/22/2021 08:54	21092050	PK	
21G0283-12	LDW21-IT664C	1613B Dioxin	C 01	24		J005741	09/22/2021 09:43	21092051	PK	
21G0283-13	LDW21-IT664E	1613B Dioxin	C 01	25		J005741	09/22/2021 10:34	21092052	PK	
21G0283-14	LDW21-IT670B	1613B Dioxin	C 01	26		J005741	09/22/2021 11:22	21092053	PK	
SJI0282-CCV3	CS3S6	QC		27	J001522		09/22/2021 12:11	21092054	PK	
SJI0282-RES4	ISCS6	QC		28	J005595		09/22/2021 13:05	21092055	PK	
21G0283-15	LDW21-IT670C	1613B Dioxin	C 01	29		J005741	09/22/2021 13:56	21092056	PK	
21G0283-16	LDW21-IT670E	1613B Dioxin	C 01	30		J005741	09/22/2021 14:46	21092057	PK	
21G0283-17	LDW21-IT650B	1613B Dioxin	C 01	31		J005741	09/22/2021 15:35	21092058	PK	
21G0283-18	LDW21-IT650C	1613B Dioxin	C 01	32		J005741	09/22/2021 16:24	21092059	PK	
21G0213-06RE1	LDW21-IT663BDL	1613B Dioxin	C 01	33		J005741	09/22/2021 17:13	21092060	PK	Added 9/22/2021 by PK
21G0213-07RE1	LDW21-IT663CDL	1613B Dioxin	C 01	34		J005741	09/22/2021 18:01	21092061	PK	Added 9/22/2021 by PK
SJI0282-CCV4	CS3S7	QC		35	J001522		09/22/2021 18:51	21092062	PK	
SJI0282-RES5	ISCS7	QC		36	J005595		09/22/2021 19:44	21092063	PK	

Quantify Audit Report MassLynx MassLynx V4.1 SCN909
Dataset: T:\Autospec\Processed Data Batch\210920D4.qld
Last Altered: Wednesday, September 22, 2021 09:29:09 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 09:30:11 Pacific Daylight Time 9/22/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:21092027, Compound:HF, RT:34.276	1
Peak deleted	Sample:21092027, Compound:PP, RT:27.182	1
Peak deleted	Sample:21092027, Compound:TF, RT:24.158	1
Peak deleted	Sample:21092028, Compound:HD, RT:36.293	2
Pre modification peak	Sample:21092029, Compound:HF, RT:35.045	3
Peak modified	Sample:21092029, Compound:HF, RT:35.045	3
Pre modification peak	Sample:21092029, Compound:HF, RT:35.903	3
Peak modified	Sample:21092029, Compound:HF, RT:35.903	3
Peak added	Sample:21092029, Compound:PF, RT:28.851	3
Peak added	Sample:21092029, Compound:PF, RT:28.851	3
Pre modification peak	Sample:21092029, Compound:PF, RT:29.575	3
Peak modified	Sample:21092029, Compound:PF, RT:29.575	3
Pre modification peak	Sample:21092029, Compound:PF, RT:29.575	3
Peak modified	Sample:21092029, Compound:PF, RT:29.575	3
Pre modification peak	Sample:21092029, Compound:TD, RT:26.411	3
Peak modified	Sample:21092029, Compound:TD, RT:26.411	3
Peak deleted	Sample:21092029, Compound:TD, RT:26.759	3
Peak deleted	Sample:21092029, Compound:TD, RT:27.031	3
Peak deleted	Sample:21092029, Compound:TF, RT:22.752	3
Peak deleted	Sample:21092030, Compound:HF, RT:36.527	4
Peak deleted	Sample:21092030, Compound:HF, RT:36.906	4
Peak deleted	Sample:21092030, Compound:OF, RT:45.297	4
Peak deleted	Sample:21092030, Compound:TF, RT:25.564	4
Peak deleted	Sample:21092031, Compound:HPD, RT:40.493	5
Pre modification peak	Sample:21092032, Compound:HF, RT:35.937	6
Peak modified	Sample:21092032, Compound:HF, RT:35.937	6
Peak deleted	Sample:21092032, Compound:HPD, RT:39.869	6
Peak added	Sample:21092032, Compound:PD, RT:29.920	6
Peak added	Sample:21092032, Compound:PD, RT:29.920	6
Pre modification peak	Sample:21092032, Compound:PF, RT:28.862	6
Peak modified	Sample:21092032, Compound:PF, RT:28.862	6
Pre modification peak	Sample:21092032, Compound:PF, RT:28.873	6
Peak modified	Sample:21092032, Compound:PF, RT:28.873	6
Peak deleted	Sample:21092032, Compound:TF, RT:22.737	6
Peak added	Sample:21092032, Compound:TF, RT:23.100	6
Peak added	Sample:21092032, Compound:TF, RT:23.100	6
Peak added	Sample:21092032, Compound:TF, RT:24.672	6
Peak added	Sample:21092032, Compound:TF, RT:24.672	6
Peak deleted	Sample:21092033, Compound:HD, RT:36.950	7
Peak deleted	Sample:21092033, Compound:HF, RT:33.107	7
Peak deleted	Sample:21092033, Compound:HPD, RT:40.783	7
Peak added	Sample:21092033, Compound:PD, RT:28.829	7
Peak added	Sample:21092033, Compound:PD, RT:28.829	7
Peak added	Sample:21092033, Compound:PD, RT:29.931	7
Peak added	Sample:21092033, Compound:PD, RT:29.931	7
Pre modification peak	Sample:21092033, Compound:PF, RT:31.302	7
Peak modified	Sample:21092033, Compound:PF, RT:31.302	7
Peak deleted	Sample:21092033, Compound:TF, RT:26.335	7
Peak deleted	Sample:21092033, Compound:TF, RT:27.378	7
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210920D4.qld'	

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:02:35 Pacific Daylight Time 9/22/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:21092036, Compound:HF, RT:33.095	1
Peak deleted	Sample:21092036, Compound:HF, RT:34.566	1
Peak added	Sample:21092036, Compound:PD, RT:28.795	1
Peak added	Sample:21092036, Compound:PD, RT:28.828	1
Peak added	Sample:21092036, Compound:PF, RT:28.862	1
Peak added	Sample:21092036, Compound:PF, RT:28.862	1
Peak deleted	Sample:21092036, Compound:PF, RT:32.204	1
Peak added	Sample:21092036, Compound:TF, RT:23.553	1
Peak added	Sample:21092036, Compound:TF, RT:23.553	1
Pre modification peak	Sample:21092036, Compound:TF, RT:23.553	1
Peak modified	Sample:21092036, Compound:TF, RT:23.553	1
Peak deleted	Sample:21092036, Compound:TF, RT:24.173	1
Peak deleted	Sample:21092036, Compound:TF, RT:24.279	1
Peak added	Sample:21092036, Compound:TF, RT:25.292	1
Peak added	Sample:21092036, Compound:TF, RT:25.307	1
Peak deleted	Sample:21092036, Compound:TF, RT:27.288	1
Peak deleted	Sample:21092037, Compound:HD, RT:36.939	2
Pre modification peak	Sample:21092037, Compound:PF, RT:28.873	2
Peak modified	Sample:21092037, Compound:PF, RT:28.873	2
Pre modification peak	Sample:21092037, Compound:PF, RT:28.873	2
Peak modified	Sample:21092037, Compound:PF, RT:28.873	2
Peak deleted	Sample:21092038, Compound:HF, RT:35.569	3
Peak added	Sample:21092038, Compound:PF, RT:28.873	3
Peak added	Sample:21092038, Compound:PF, RT:28.873	3
Pre modification peak	Sample:21092039, Compound:HD, RT:36.015	4
Peak modified	Sample:21092039, Compound:HD, RT:36.015	4
Peak deleted	Sample:21092039, Compound:HD, RT:36.939	4
Peak added	Sample:21092039, Compound:HF, RT:35.870	4
Peak added	Sample:21092039, Compound:HF, RT:35.881	4
Peak added	Sample:21092039, Compound:HF, RT:35.892	4
Pre modification peak	Sample:21092039, Compound:HF, RT:35.903	4
Peak modified	Sample:21092039, Compound:HF, RT:35.903	4
Peak added	Sample:21092039, Compound:HF, RT:35.903	4
Pre modification peak	Sample:21092039, Compound:HF, RT:36.939	4
Peak modified	Sample:21092039, Compound:HF, RT:36.939	4
Peak deleted	Sample:21092039, Compound:HPD, RT:40.783	4
Peak deleted	Sample:21092039, Compound:PD, RT:32.227	4
Peak added	Sample:21092039, Compound:PF, RT:28.851	4
Peak added	Sample:21092039, Compound:PF, RT:28.851	4
Peak added	Sample:21092039, Compound:TD, RT:26.033	4
Peak added	Sample:21092039, Compound:TD, RT:26.033	4
Peak added	Sample:21092039, Compound:TD, RT:26.547	4
Peak added	Sample:21092039, Compound:TD, RT:26.547	4
Peak deleted	Sample:21092039, Compound:TF, RT:27.500	4
Peak deleted	Sample:21092039, Compound:TF, RT:27.681	4
Peak deleted	Sample:21092040, Compound:HD, RT:36.939	5
Pre modification peak	Sample:21092040, Compound:HF, RT:35.915	5
Peak modified	Sample:21092040, Compound:HF, RT:35.915	5
Pre modification peak	Sample:21092040, Compound:HF, RT:36.928	5
Peak modified	Sample:21092040, Compound:HF, RT:36.928	5
Peak deleted	Sample:21092040, Compound:PF, RT:30.433	5

Dataset: T:\Autospec\Processed Data Batch\210920D5.qld
Last Altered: Wednesday, September 22, 2021 11:00:57 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 11:02:35 Pacific Daylight Time

Event	Details	Sample ID
Peak added	Sample:21092040, Compound:TF, RT:25.096	5
Peak added	Sample:21092040, Compound:TF, RT:25.096	5
Peak deleted	Sample:21092040, Compound:TF, RT:27.500	5
Peak deleted	Sample:21092041, Compound:HD, RT:35.045	6
Pre modification peak	Sample:21092041, Compound:OF, RT:45.306	6
Peak modified	Sample:21092041, Compound:OF, RT:45.306	6
Peak deleted	Sample:21092041, Compound:PD, RT:29.319	6
Peak deleted	Sample:21092041, Compound:PD, RT:29.931	6
Peak deleted	Sample:21092041, Compound:PF, RT:31.279	6
Peak deleted	Sample:21092041, Compound:TD, RT:25.579	6
Peak deleted	Sample:21092041, Compound:TF, RT:23.084	6
Peak deleted	Sample:21092041, Compound:TF, RT:24.445	6
Peak deleted	Sample:21092042, Compound:HD, RT:36.939	7
Peak deleted	Sample:21092042, Compound:HPD, RT:40.761	7
Peak deleted	Sample:21092042, Compound:OF, RT:45.050	7
Peak deleted	Sample:21092042, Compound:OF, RT:45.078	7
Peak deleted	Sample:21092042, Compound:OF, RT:45.114	7
Peak deleted	Sample:21092042, Compound:OF, RT:45.151	7
Peak deleted	Sample:21092042, Compound:OF, RT:45.234	7
Peak deleted	Sample:21092042, Compound:OF, RT:45.279	7
Peak added	Sample:21092042, Compound:PF, RT:29.809	7
Peak added	Sample:21092042, Compound:PF, RT:29.809	7
Peak added	Sample:21092042, Compound:PF, RT:30.154	7
Peak added	Sample:21092042, Compound:PF, RT:30.166	7
Peak deleted	Sample:21092042, Compound:TF, RT:25.730	7
Peak deleted	Sample:21092042, Compound:TF, RT:27.500	7
Peak deleted	Sample:21092042, Compound:TF, RT:27.681	7
Pre modification peak	Sample:21092043, Compound:HD, RT:36.527	8
Peak modified	Sample:21092043, Compound:HD, RT:36.527	8
Peak deleted	Sample:21092043, Compound:HF, RT:34.912	8
Peak deleted	Sample:21092043, Compound:HF, RT:35.057	8
Peak deleted	Sample:21092043, Compound:OF, RT:45.298	8
Peak deleted	Sample:21092043, Compound:PF, RT:28.383	8
Peak deleted	Sample:21092043, Compound:PF, RT:29.954	8
Peak deleted	Sample:21092043, Compound:TD, RT:24.173	8
Peak deleted	Sample:21092043, Compound:TD, RT:25.096	8
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210920D5.qld'	

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:05:37 Pacific Daylight Time 9/22/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:21092046, Compound:HF, RT:34.299	1
Peak deleted	Sample:21092046, Compound:OF, RT:45.316	1
Peak deleted	Sample:21092046, Compound:TF, RT:22.752	1
Peak added	Sample:21092046, Compound:TF, RT:25.942	1
Peak added	Sample:21092046, Compound:TF, RT:25.942	1
Peak deleted	Sample:21092046, Compound:TF, RT:27.500	1
Peak deleted	Sample:21092046, Compound:TF, RT:27.681	1
Peak deleted	Sample:21092047, Compound:HD, RT:36.928	2
Peak deleted	Sample:21092047, Compound:HF, RT:33.084	2
Pre modification peak	Sample:21092047, Compound:HPF, RT:38.789	2
Peak modified	Sample:21092047, Compound:HPF, RT:38.789	2
Pre modification peak	Sample:21092047, Compound:HPF, RT:38.800	2
Peak modified	Sample:21092047, Compound:HPF, RT:38.800	2
Peak deleted	Sample:21092048, Compound:HD, RT:36.706	3
Peak deleted	Sample:21092048, Compound:HD, RT:36.784	3
Peak deleted	Sample:21092048, Compound:TF, RT:26.290	3
Peak deleted	Sample:21092048, Compound:TF, RT:27.363	3
Peak deleted	Sample:21092049, Compound:HF, RT:33.953	4
Pre modification peak	Sample:21092049, Compound:HPF, RT:41.050	4
Peak modified	Sample:21092049, Compound:HPF, RT:41.050	4
Pre modification peak	Sample:21092049, Compound:OF, RT:45.262	4
Peak modified	Sample:21092049, Compound:OF, RT:45.262	4
Peak deleted	Sample:21092050, Compound:HPD, RT:40.794	5
Peak added	Sample:21092050, Compound:PD, RT:30.288	5
Peak added	Sample:21092050, Compound:PD, RT:30.299	5
Peak added	Sample:21092050, Compound:TD, RT:24.748	5
Peak added	Sample:21092050, Compound:TD, RT:24.748	5
Peak added	Sample:21092050, Compound:TD, RT:24.748	5
Peak added	Sample:21092050, Compound:TD, RT:24.748	5
Pre modification peak	Sample:21092051, Compound:HF, RT:35.045	6
Peak modified	Sample:21092051, Compound:HF, RT:35.045	6
Pre modification peak	Sample:21092051, Compound:HPF, RT:41.050	6
Peak modified	Sample:21092051, Compound:HPF, RT:41.050	6
Pre modification peak	Sample:21092051, Compound:PF, RT:28.862	6
Peak modified	Sample:21092051, Compound:PF, RT:28.862	6
Pre modification peak	Sample:21092051, Compound:PF, RT:28.862	6
Peak modified	Sample:21092051, Compound:PF, RT:28.862	6
Peak added	Sample:21092051, Compound:TD, RT:23.795	6
Peak added	Sample:21092051, Compound:TD, RT:23.795	6
Peak added	Sample:21092051, Compound:TD, RT:24.551	6
Peak added	Sample:21092051, Compound:TD, RT:24.551	6
Peak deleted	Sample:21092051, Compound:TF, RT:27.273	6
Peak added	Sample:21092052, Compound:HD, RT:33.998	7
Peak added	Sample:21092052, Compound:HD, RT:33.998	7
Pre modification peak	Sample:21092052, Compound:HF, RT:35.903	7
Peak modified	Sample:21092052, Compound:HF, RT:35.903	7
Pre modification peak	Sample:21092052, Compound:PF, RT:29.931	7
Peak modified	Sample:21092052, Compound:PF, RT:29.931	7
Peak added	Sample:21092052, Compound:TD, RT:23.795	7
Peak added	Sample:21092052, Compound:TD, RT:23.795	7
Pre modification peak	Sample:21092052, Compound:TD, RT:26.411	7

Dataset: T:\Autospec\Processed Data Batch\210920D6.qld
Last Altered: Wednesday, September 22, 2021 14:04:48 Pacific Daylight Time
Printed: Wednesday, September 22, 2021 14:05:37 Pacific Daylight Time

Event	Details	Sample ID
Peak modified	Sample:21092052, Compound:TD, RT:26.411	7
Peak deleted	Sample:21092052, Compound:TD, RT:27.000	7
Peak deleted	Sample:21092053, Compound:HD, RT:36.528	8
Peak deleted	Sample:21092053, Compound:HPD, RT:40.772	8
Peak deleted	Sample:21092053, Compound:TD, RT:26.396	8
Pre modification peak	Sample:21092053, Compound:TF, RT:25.050	8
Peak modified	Sample:21092053, Compound:TF, RT:25.050	8
Pre modification peak	Sample:21092053, Compound:TF, RT:25.065	8
Peak modified	Sample:21092053, Compound:TF, RT:25.065	8
Peak added	Sample:21092053, Compound:TF, RT:25.564	8
Peak added	Sample:21092053, Compound:TF, RT:25.580	8
Peak added	Sample:21092053, Compound:TF, RT:25.927	8
Peak added	Sample:21092053, Compound:TF, RT:25.927	8
Peak deleted	Sample:21092053, Compound:TF, RT:27.469	8
Peak deleted	Sample:21092053, Compound:TF, RT:27.651	8
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210920D6.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210920D6.qld'	

Quantify Audit Report MassLynx MassLynx V4.1 SCN909
Dataset: T:\Autospec\Processed Data Batch\210920D7.qld
Last Altered: Thursday, September 23, 2021 09:24:11 Pacific Daylight Time
Printed: Thursday, September 23, 2021 09:25:21 Pacific Daylight Time 9/23/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:21092056, Compound:HPF, RT:38.778	1
Peak deleted	Sample:21092056, Compound:HPF, RT:41.195	1
Peak deleted	Sample:21092056, Compound:TF, RT:25.897	1
Peak deleted	Sample:21092056, Compound:TF, RT:26.169	1
Peak deleted	Sample:21092057, Compound:HF, RT:36.794	2
Peak deleted	Sample:21092057, Compound:PF, RT:30.143	2
Peak deleted	Sample:21092058, Compound:HD, RT:36.683	3
Peak deleted	Sample:21092058, Compound:HD, RT:36.917	3
Pre modification peak	Sample:21092058, Compound:HF, RT:35.892	3
Peak modified	Sample:21092058, Compound:HF, RT:35.892	3
Peak deleted	Sample:21092058, Compound:HPD, RT:40.761	3
Peak added	Sample:21092058, Compound:PD, RT:30.110	3
Peak added	Sample:21092058, Compound:PD, RT:30.121	3
Peak deleted	Sample:21092058, Compound:PF, RT:29.909	3
Pre modification peak	Sample:21092059, Compound:HD, RT:36.493	4
Peak modified	Sample:21092059, Compound:HD, RT:36.493	4
Peak deleted	Sample:21092059, Compound:HD, RT:36.682	4
Peak deleted	Sample:21092059, Compound:HD, RT:36.917	4
Pre modification peak	Sample:21092059, Compound:HF, RT:36.917	4
Peak modified	Sample:21092059, Compound:HF, RT:36.917	4
Peak deleted	Sample:21092059, Compound:PD, RT:31.491	4
Peak deleted	Sample:21092059, Compound:TF, RT:23.493	4
Pre modification peak	Sample:21092059, Compound:TF, RT:25.700	4
Peak modified	Sample:21092059, Compound:TF, RT:25.700	4
Peak deleted	Sample:21092059, Compound:TF, RT:27.469	4
Peak deleted	Sample:21092059, Compound:TF, RT:27.650	4
Peak added	Sample:21092060, Compound:PF, RT:28.829	5
Peak added	Sample:21092060, Compound:PF, RT:28.840	5
Peak deleted	Sample:21092060, Compound:TD, RT:25.277	5
Peak deleted	Sample:21092060, Compound:TD, RT:26.986	5
Peak deleted	Sample:21092061, Compound:HD, RT:36.917	6
Peak deleted	Sample:21092061, Compound:HF, RT:33.074	6
Pre modification peak	Sample:21092061, Compound:HF, RT:36.906	6
Peak modified	Sample:21092061, Compound:HF, RT:36.906	6
Peak deleted	Sample:21092061, Compound:HPD, RT:40.761	6
Peak added	Sample:21092061, Compound:TF, RT:23.084	6
Peak added	Sample:21092061, Compound:TF, RT:23.084	6
Peak deleted	Sample:21092061, Compound:TF, RT:23.402	6
Peak deleted	Sample:21092061, Compound:TF, RT:25.216	6
Pre modification peak	Sample:21092061, Compound:TF, RT:25.761	6
Peak modified	Sample:21092061, Compound:TF, RT:25.761	6
Pre modification peak	Sample:21092062, Compound:HPF, RT:38.788	7
Peak modified	Sample:21092062, Compound:HPF, RT:38.788	7
Pre modification peak	Sample:21092062, Compound:HPF, RT:38.788	7
Peak modified	Sample:21092062, Compound:HPF, RT:38.788	7
Peak deleted	Sample:21092063, Compound:13C-123789-HxCDD, RT:36.482	8
Peak deleted	Sample:21092063, Compound:13C-123789-HxCDD, RT:36.538	8
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210920D7.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210920D7.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210920D7.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210920D7.qld'	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	SJI0282-ICV1	Calibration:	EH00030
File ID:	21092022A	Analyzed:	09/21/21 09:36

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	95.2	71 - 129	25.7455	25.63973	0.1058	N/A	
13C12-2,3,7,8-TCDD	100.00	105	82 - 118	26.3805	26.27478	0.1057	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	85.2	76 - 124	29.9092	29.80383	0.1054	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	83.1	77 - 123	31.2573	31.14815	0.1092	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	93.3	62 - 138	31.4913	31.40067	0.0906	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.6	76 - 124	34.8782	34.782	0.0962	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	85.9	70 - 130	35.0118	34.91943	0.0924	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	88.2	73 - 127	35.8808	35.7884	0.0924	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	91.2	74 - 126	36.917	36.8227	0.0943	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.4	85 - 115	35.9922	35.90912	0.0831	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	93.9	85 - 115	36.1037	36.0242	0.0795	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	72.7	78 - 122	38.7553	38.67025	0.0850	N/A	*
13C12-1,2,3,4,7,8,9-HpCDF	100.00	69.9	77 - 123	41.0058	40.90587	0.0999	N/A	*
13C12-1,2,3,4,6,7,8-HpCDD	100.00	83.9	72 - 128	40.2593	40.16678	0.0925	N/A	
13C12-OCDD	200.00	76.8	48 - 152	45.0043	44.88763	0.1167	N/A	
37Cl4-2,3,7,8-TCDD	10.000	98.5	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	BJH0203-BLK1	Calibration:	EH00030
File ID:	21092030	Analyzed:	09/21/21 16:21

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	81.1	24 - 169	25.7607	25.63973	0.1210	N/A	
13C12-2,3,7,8-TCDD	200.00	95.7	25 - 164	26.3805	26.27478	0.1057	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	75.5	24 - 185	29.9202	29.80383	0.1164	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	74.2	21 - 178	31.2572	31.14815	0.1091	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	81.5	25 - 181	31.5023	31.40067	0.1016	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	89.7	26 - 152	34.878	34.782	0.0960	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	84.6	26 - 123	35.0228	34.91943	0.1034	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	86.7	28 - 136	35.8918	35.7884	0.1034	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	86.7	29 - 147	36.928	36.8227	0.1053	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	95.1	32 - 141	35.9922	35.90912	0.0831	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	88.9	28 - 130	36.1147	36.0242	0.0905	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	74.4	28 - 143	38.7663	38.67025	0.0960	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	71.4	26 - 138	41.0168	40.90587	0.1109	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	85.6	23 - 140	40.2703	40.16678	0.1035	N/A	
13C12-OCDD	400.00	81.6	17 - 157	45.0225	44.88763	0.1349	N/A	
37Cl4-2,3,7,8-TCDD	80.000	93.9	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	BJH0203-BS1	Calibration:	EH00030
File ID:	21092031	Analyzed:	09/21/21 17:10

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	78.6	24 - 169	25.7607	25.63973	0.1210	N/A	
13C12-2,3,7,8-TCDD	200.00	93.7	25 - 164	26.3957	26.27478	0.1209	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	73.1	24 - 185	29.9202	29.80383	0.1164	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	71.3	21 - 178	31.2682	31.14815	0.1200	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	77.7	25 - 181	31.5133	31.40067	0.1126	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	90.9	26 - 152	34.8892	34.782	0.1072	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	85.8	26 - 123	35.034	34.91943	0.1146	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	86.6	28 - 136	35.903	35.7884	0.1146	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	85.9	29 - 147	36.939	36.8227	0.1163	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	94.5	32 - 141	36.0033	35.90912	0.0942	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	87.4	28 - 130	36.1258	36.0242	0.1016	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	70.4	28 - 143	38.7773	38.67025	0.1070	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	68.7	26 - 138	41.0278	40.90587	0.1219	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	82.1	23 - 140	40.2813	40.16678	0.1145	N/A	
13C12-OCDD	400.00	73.9	17 - 157	45.0333	44.88763	0.1457	N/A	
37Cl4-2,3,7,8-TCDD	80.000	91.5	35 - 197	26.4108	26.30253	0.1083	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	BJH0203-SRM1	Calibration:	EH00030
File ID:	21092032	Analyzed:	09/21/21 17:59

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	68.8	24 - 169	25.7607	25.63973	0.1210	N/A	
13C12-2,3,7,8-TCDD	200.00	87.7	25 - 164	26.3957	26.27478	0.1209	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	72.1	24 - 185	29.9202	29.80383	0.1164	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	72.0	21 - 178	31.2683	31.14815	0.1201	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	81.5	25 - 181	31.5133	31.40067	0.1126	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	84.6	26 - 152	34.9003	34.782	0.1183	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	78.2	26 - 123	35.034	34.91943	0.1146	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	83.5	28 - 136	35.9253	35.7884	0.1369	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	83.2	29 - 147	36.9393	36.8227	0.1166	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	89.0	32 - 141	36.0255	35.90912	0.1164	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	85.3	28 - 130	36.1482	36.0242	0.1240	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	66.0	28 - 143	38.7777	38.67025	0.1075	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	68.6	26 - 138	41.028	40.90587	0.1221	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	81.4	23 - 140	40.2703	40.16678	0.1035	N/A	
13C12-OCDD	400.00	78.6	17 - 157	45.0408	44.88763	0.1532	N/A	
37Cl4-2,3,7,8-TCDD	80.000	84.0	35 - 197	26.4108	26.30253	0.1083	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	SJI0282-CCV1	Calibration:	EH00030
File ID:	21092034A	Analyzed:	09/21/21 19:37

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	90.2	71 - 129	25.7603	25.63973	0.1206	N/A	
13C12-2,3,7,8-TCDD	100.00	104	82 - 118	26.3802	26.27478	0.1054	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	79.4	76 - 124	29.9198	29.80383	0.1160	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	79.0	77 - 123	31.2568	31.14815	0.1086	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	86.4	62 - 138	31.502	31.40067	0.1013	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	96.7	76 - 124	34.8777	34.782	0.0957	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	89.0	70 - 130	35.0225	34.91943	0.1031	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	92.3	73 - 127	35.8917	35.7884	0.1033	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	94.1	74 - 126	36.9277	36.8227	0.1050	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	103	85 - 115	35.9918	35.90912	0.0827	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	92.6	85 - 115	36.1145	36.0242	0.0903	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	76.2	78 - 122	38.766	38.67025	0.0957	N/A	*
13C12-1,2,3,4,7,8,9-HpCDF	100.00	72.9	77 - 123	41.0163	40.90587	0.1104	N/A	*
13C12-1,2,3,4,6,7,8-HpCDD	100.00	88.0	72 - 128	40.2698	40.16678	0.1030	N/A	
13C12-OCDD	200.00	78.6	48 - 152	45.0238	44.88763	0.1362	N/A	
37Cl4-2,3,7,8-TCDD	10.000	98.2	0 - 200	26.4103	26.30253	0.1078	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	SJI0282-CCV2	Calibration:	EH00030
File ID:	21092044	Analyzed:	09/22/21 03:54

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	95.3	71 - 129	25.7608	25.63973	0.1211	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	85.8	76 - 124	29.9203	29.80383	0.1165	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	85.3	77 - 123	31.2683	31.14815	0.1201	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	92.8	62 - 138	31.5022	31.40067	0.1015	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	97.3	76 - 124	34.889	34.782	0.1070	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	92.1	70 - 130	35.0227	34.91943	0.1033	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.8	73 - 127	35.9028	35.7884	0.1144	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	93.6	74 - 126	36.9278	36.8227	0.1051	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.6	85 - 115	36.0032	35.90912	0.0941	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	97.4	85 - 115	36.1145	36.0242	0.0903	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	77.3	78 - 122	38.7772	38.67025	0.1069	N/A	*
13C12-1,2,3,4,7,8,9-HpCDF	100.00	72.5	77 - 123	41.0275	40.90587	0.1216	N/A	*
13C12-1,2,3,4,6,7,8-HpCDD	100.00	86.1	72 - 128	40.27	40.16678	0.1032	N/A	
13C12-OCDD	200.00	77.4	48 - 152	45.024	44.88763	0.1364	N/A	
37Cl4-2,3,7,8-TCDD	10.000	100	0 - 200	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	21G0283-11	Calibration:	EH00030
File ID:	21092050	Analyzed:	09/22/21 08:54

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	199.82	69.3	24 - 169	25.7758	25.63973	0.1361	N/A	
13C12-2,3,7,8-TCDD	199.82	86.4	25 - 164	26.3958	26.27478	0.1210	N/A	
13C12-1,2,3,7,8-PeCDF	199.82	70.9	24 - 185	29.9315	29.80383	0.1277	N/A	
13C12-2,3,4,7,8-PeCDF	199.82	70.8	21 - 178	31.2797	31.14815	0.1315	N/A	
13C12-1,2,3,7,8-PeCDD	199.82	79.5	25 - 181	31.5248	31.40067	0.1241	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.82	76.3	26 - 152	34.9007	34.782	0.1187	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.82	71.5	26 - 123	35.0455	34.91943	0.1261	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.82	74.3	28 - 136	35.9143	35.7884	0.1259	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.82	80.2	29 - 147	36.9393	36.8227	0.1166	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.82	85.5	32 - 141	36.0147	35.90912	0.1056	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.82	78.0	28 - 130	36.1372	36.0242	0.1130	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.82	57.0	28 - 143	38.7888	38.67025	0.1185	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.82	56.4	26 - 138	41.0393	40.90587	0.1334	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.82	69.6	23 - 140	40.2817	40.16678	0.1149	N/A	
13C12-OCDD	399.64	64.2	17 - 157	45.041	44.88763	0.1534	N/A	
37Cl4-2,3,7,8-TCDD	79.928	86.2	35 - 197	26.426	26.30253	0.1235	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	21G0283-12	Calibration:	EH00030
File ID:	21092051	Analyzed:	09/22/21 09:43

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	199.92	45.4	24 - 169	25.7607	25.63973	0.1210	N/A	
13C12-2,3,7,8-TCDD	199.92	61.1	25 - 164	26.3958	26.27478	0.1210	N/A	
13C12-1,2,3,7,8-PeCDF	199.92	42.9	24 - 185	29.9315	29.80383	0.1277	N/A	
13C12-2,3,4,7,8-PeCDF	199.92	41.6	21 - 178	31.2683	31.14815	0.1201	N/A	
13C12-1,2,3,7,8-PeCDD	199.92	48.5	25 - 181	31.5135	31.40067	0.1128	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.92	61.0	26 - 152	34.9003	34.782	0.1183	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.92	55.5	26 - 123	35.034	34.91943	0.1146	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.92	58.4	28 - 136	35.9142	35.7884	0.1258	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.92	62.8	29 - 147	36.9392	36.8227	0.1165	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.92	67.3	32 - 141	36.0145	35.90912	0.1054	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.92	63.4	28 - 130	36.1258	36.0242	0.1016	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.92	44.0	28 - 143	38.7887	38.67025	0.1184	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.92	43.9	26 - 138	41.0278	40.90587	0.1219	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.92	54.7	23 - 140	40.2817	40.16678	0.1149	N/A	
13C12-OCDD	399.84	49.1	17 - 157	45.0315	44.88763	0.1439	N/A	
37Cl4-2,3,7,8-TCDD	79.969	75.8	35 - 197	26.4108	26.30253	0.1083	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	21G0283-13	Calibration:	EH00030
File ID:	21092052	Analyzed:	09/22/21 10:34

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	199.99	76.7	24 - 169	25.7607	25.63973	0.1210	N/A	
13C12-2,3,7,8-TCDD	199.99	91.4	25 - 164	26.3807	26.27478	0.1059	N/A	
13C12-1,2,3,7,8-PeCDF	199.99	62.3	24 - 185	29.9092	29.80383	0.1054	N/A	
13C12-2,3,4,7,8-PeCDF	199.99	62.0	21 - 178	31.2573	31.14815	0.1092	N/A	
13C12-1,2,3,7,8-PeCDD	199.99	70.5	25 - 181	31.5023	31.40067	0.1016	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.99	79.4	26 - 152	34.8782	34.782	0.0962	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.99	72.0	26 - 123	35.023	34.91943	0.1036	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.99	75.3	28 - 136	35.892	35.7884	0.1036	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.99	81.2	29 - 147	36.928	36.8227	0.1053	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.99	84.8	32 - 141	35.9922	35.90912	0.0831	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.99	79.4	28 - 130	36.1147	36.0242	0.0905	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.99	61.6	28 - 143	38.7663	38.67025	0.0960	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.99	61.5	26 - 138	41.0168	40.90587	0.1109	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.99	74.8	23 - 140	40.2592	40.16678	0.0924	N/A	
13C12-OCDD	399.98	68.6	17 - 157	45.0133	44.88763	0.1257	N/A	
37Cl4-2,3,7,8-TCDD	79.995	90.8	35 - 197	26.4108	26.30253	0.1083	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	21G0283-14	Calibration:	EH00030
File ID:	21092053	Analyzed:	09/22/21 11:22

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	200.06	69.8	24 - 169	25.7457	25.63973	0.1060	N/A	
13C12-2,3,7,8-TCDD	200.06	85.8	25 - 164	26.3808	26.27478	0.1060	N/A	
13C12-1,2,3,7,8-PeCDF	200.06	65.1	24 - 185	29.9093	29.80383	0.1055	N/A	
13C12-2,3,4,7,8-PeCDF	200.06	59.4	21 - 178	31.2463	31.14815	0.0982	N/A	
13C12-1,2,3,7,8-PeCDD	200.06	68.2	25 - 181	31.4915	31.40067	0.0908	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.06	76.7	26 - 152	34.8787	34.782	0.0967	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.06	76.0	26 - 123	35.0123	34.91943	0.0929	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.06	73.6	28 - 136	35.8923	35.7884	0.1039	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.06	71.1	29 - 147	36.9175	36.8227	0.0948	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.06	86.6	32 - 141	35.9927	35.90912	0.0836	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.06	79.7	28 - 130	36.104	36.0242	0.0798	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.06	58.6	28 - 143	38.767	38.67025	0.0968	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.06	54.5	26 - 138	41.0175	40.90587	0.1116	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.06	72.0	23 - 140	40.2598	40.16678	0.0930	N/A	
13C12-OCDD	400.12	61.8	17 - 157	45.0235	44.88763	0.1359	N/A	
37Cl4-2,3,7,8-TCDD	80.024	88.7	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	SJI0282-CCV3	Calibration:	EH00030
File ID:	21092054	Analyzed:	09/22/21 12:11

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	93.4	71 - 129	25.7455	25.63973	0.1058	N/A	
13C12-2,3,7,8-TCDD	100.00	105	82 - 118	26.3807	26.27478	0.1059	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	76.6	76 - 124	29.9092	29.80383	0.1054	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	76.4	77 - 123	31.2573	31.14815	0.1092	N/A	*
13C12-1,2,3,7,8-PeCDD	100.00	81.4	62 - 138	31.5023	31.40067	0.1016	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	101	76 - 124	34.8782	34.782	0.0962	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	95.2	70 - 130	35.023	34.91943	0.1036	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	95.2	73 - 127	35.892	35.7884	0.1036	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	92.8	74 - 126	36.9282	36.8227	0.1055	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	101	85 - 115	35.9923	35.90912	0.0832	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	97.3	85 - 115	36.1147	36.0242	0.0905	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	82.5	78 - 122	38.7663	38.67025	0.0960	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	76.0	77 - 123	41.0168	40.90587	0.1109	N/A	*
13C12-1,2,3,4,6,7,8-HpCDD	100.00	90.0	72 - 128	40.2703	40.16678	0.1035	N/A	
13C12-OCDD	200.00	81.2	48 - 152	45.0225	44.88763	0.1349	N/A	
37Cl4-2,3,7,8-TCDD	10.000	99.3	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	21G0283-15	Calibration:	EH00030
File ID:	21092056	Analyzed:	09/22/21 13:56

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	199.86	70.1	24 - 169	25.7455	25.63973	0.1058	N/A	
13C12-2,3,7,8-TCDD	199.86	84.9	25 - 164	26.3805	26.27478	0.1057	N/A	
13C12-1,2,3,7,8-PeCDF	199.86	68.8	24 - 185	29.9203	29.80383	0.1165	N/A	
13C12-2,3,4,7,8-PeCDF	199.86	65.5	21 - 178	31.2573	31.14815	0.1092	N/A	
13C12-1,2,3,7,8-PeCDD	199.86	71.5	25 - 181	31.5025	31.40067	0.1018	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.86	81.4	26 - 152	34.8893	34.782	0.1073	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.86	79.1	26 - 123	35.023	34.91943	0.1036	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.86	77.5	28 - 136	35.8922	35.7884	0.1038	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.86	75.7	29 - 147	36.9282	36.8227	0.1055	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.86	86.2	32 - 141	35.9923	35.90912	0.0832	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.86	81.4	28 - 130	36.1148	36.0242	0.0906	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.86	63.1	28 - 143	38.7777	38.67025	0.1075	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.86	60.7	26 - 138	41.0282	40.90587	0.1223	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.86	75.8	23 - 140	40.2707	40.16678	0.1039	N/A	
13C12-OCDD	399.73	67.6	17 - 157	45.0228	44.88763	0.1352	N/A	
37Cl4-2,3,7,8-TCDD	79.945	91.3	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	21G0283-16	Calibration:	EH00030
File ID:	21092057	Analyzed:	09/22/21 14:46

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	200.00	76.5	24 - 169	25.7455	25.63973	0.1058	N/A	
13C12-2,3,7,8-TCDD	200.00	92.0	25 - 164	26.3655	26.27478	0.0907	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	73.9	24 - 185	29.898	29.80383	0.0942	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	71.3	21 - 178	31.246	31.14815	0.0978	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	78.0	25 - 181	31.4912	31.40067	0.0905	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	85.1	26 - 152	34.867	34.782	0.0850	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	81.0	26 - 123	35.0118	34.91943	0.0924	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	80.1	28 - 136	35.8808	35.7884	0.0924	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	77.5	29 - 147	36.917	36.8227	0.0943	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	88.1	32 - 141	35.9812	35.90912	0.0721	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	82.7	28 - 130	36.1037	36.0242	0.0795	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	65.3	28 - 143	38.7553	38.67025	0.0850	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	60.0	26 - 138	41.0058	40.90587	0.0999	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	77.2	23 - 140	40.2593	40.16678	0.0925	N/A	
13C12-OCDD	400.01	68.3	17 - 157	45.0137	44.88763	0.1261	N/A	
37Cl4-2,3,7,8-TCDD	80.001	95.2	35 - 197	26.3807	26.30253	0.0782	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	21G0283-17	Calibration:	EH00030
File ID:	21092058	Analyzed:	09/22/21 15:35

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	199.78	64.7	24 - 169	25.7457	25.63973	0.1060	N/A	
13C12-2,3,7,8-TCDD	199.78	80.3	25 - 164	26.3655	26.27478	0.0907	N/A	
13C12-1,2,3,7,8-PeCDF	199.78	73.9	24 - 185	29.8982	29.80383	0.0944	N/A	
13C12-2,3,4,7,8-PeCDF	199.78	71.1	21 - 178	31.2462	31.14815	0.0981	N/A	
13C12-1,2,3,7,8-PeCDD	199.78	79.1	25 - 181	31.4913	31.40067	0.0906	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.78	87.8	26 - 152	34.8783	34.782	0.0963	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.78	83.8	26 - 123	35.012	34.91943	0.0926	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.78	85.9	28 - 136	35.8812	35.7884	0.0928	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.78	83.2	29 - 147	36.9172	36.8227	0.0945	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.78	91.9	32 - 141	35.9925	35.90912	0.0834	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.78	87.3	28 - 130	36.1038	36.0242	0.0796	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.78	72.0	28 - 143	38.7665	38.67025	0.0962	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.78	68.1	26 - 138	41.0058	40.90587	0.0999	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.78	86.6	23 - 140	40.2593	40.16678	0.0925	N/A	
13C12-OCDD	399.55	84.9	17 - 157	45.0137	44.88763	0.1261	N/A	
37Cl4-2,3,7,8-TCDD	79.910	81.7	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	21G0283-18	Calibration:	EH00030
File ID:	21092059	Analyzed:	09/22/21 16:24

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	199.76	61.0	24 - 169	25.7303	25.63973	0.0906	N/A	
13C12-2,3,7,8-TCDD	199.76	76.1	25 - 164	26.3653	26.27478	0.0905	N/A	
13C12-1,2,3,7,8-PeCDF	199.76	72.6	24 - 185	29.8978	29.80383	0.0940	N/A	
13C12-2,3,4,7,8-PeCDF	199.76	68.4	21 - 178	31.2458	31.14815	0.0976	N/A	
13C12-1,2,3,7,8-PeCDD	199.76	74.9	25 - 181	31.491	31.40067	0.0903	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.76	85.3	26 - 152	34.8667	34.782	0.0847	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.76	81.2	26 - 123	35.0115	34.91943	0.0921	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.76	80.6	28 - 136	35.8805	35.7884	0.0921	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.76	78.0	29 - 147	36.9165	36.8227	0.0938	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.76	89.2	32 - 141	35.9808	35.90912	0.0717	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.76	85.2	28 - 130	36.1033	36.0242	0.0791	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.76	66.3	28 - 143	38.766	38.67025	0.0957	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.76	62.6	26 - 138	41.0053	40.90587	0.0994	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.76	77.6	23 - 140	40.259	40.16678	0.0922	N/A	
13C12-OCDD	399.51	69.1	17 - 157	45.0057	44.88763	0.1181	N/A	
37Cl4-2,3,7,8-TCDD	79.903	76.4	35 - 197	26.3805	26.30253	0.0780	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:	21G0283
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0282	Instrument:	AUTOSPEC01
Sample ID:	SJI0282-CCV4	Calibration:	EH00030
File ID:	21092062	Analyzed:	09/22/21 18:51

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	95.6	71 - 129	25.7455	25.63973	0.1058	N/A	
13C12-2,3,7,8-TCDD	100.00	105	82 - 118	26.3805	26.27478	0.1057	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	85.2	76 - 124	29.909	29.80383	0.1052	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	83.9	77 - 123	31.2572	31.14815	0.1091	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	88.0	62 - 138	31.5022	31.40067	0.1015	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	102	76 - 124	34.8778	34.782	0.0958	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	95.2	70 - 130	35.0227	34.91943	0.1033	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	97.3	73 - 127	35.8917	35.7884	0.1033	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	97.3	74 - 126	36.9278	36.8227	0.1051	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	102	85 - 115	35.992	35.90912	0.0829	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	101	85 - 115	36.1145	36.0242	0.0903	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	83.8	78 - 122	38.766	38.67025	0.0957	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	77.7	77 - 123	41.0165	40.90587	0.1106	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	91.8	72 - 128	40.27	40.16678	0.1032	N/A	
13C12-OCDD	200.00	82.4	48 - 152	45.0242	44.88763	0.1366	N/A	
37Cl4-2,3,7,8-TCDD	10.000	99.9	0 - 200	26.3957	26.30253	0.0932	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: 21G0283

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-IT664B 21G0283-11	07/20/21 12:41	07/20/21 17:45	09/09/21 15:30	51	365	09/22/21 08:54	13	365	
LDW21-IT664C 21G0283-12	07/20/21 12:41	07/20/21 17:45	09/09/21 15:30	51	365	09/22/21 09:43	13	365	
LDW21-IT664E 21G0283-13	07/20/21 12:41	07/20/21 17:45	09/09/21 15:30	51	365	09/22/21 10:34	13	365	
LDW21-IT670B 21G0283-14	07/20/21 13:42	07/20/21 17:45	09/09/21 15:30	51	365	09/22/21 11:22	13	365	
LDW21-IT670C 21G0283-15	07/20/21 13:42	07/20/21 17:45	09/09/21 15:30	51	365	09/22/21 13:56	13	365	
LDW21-IT670E 21G0283-16	07/20/21 13:42	07/20/21 17:45	09/09/21 15:30	51	365	09/22/21 14:46	13	365	
LDW21-IT650B 21G0283-17	07/20/21 14:39	07/20/21 17:45	09/09/21 15:30	51	365	09/22/21 15:35	13	365	
LDW21-IT650C 21G0283-18	07/20/21 14:39	07/20/21 17:45	09/09/21 15:30	51	365	09/22/21 16:24	13	365	

* Indicates hold time exceedance.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0283
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

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

G 001361
Recd.
02/13/18

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

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

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. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

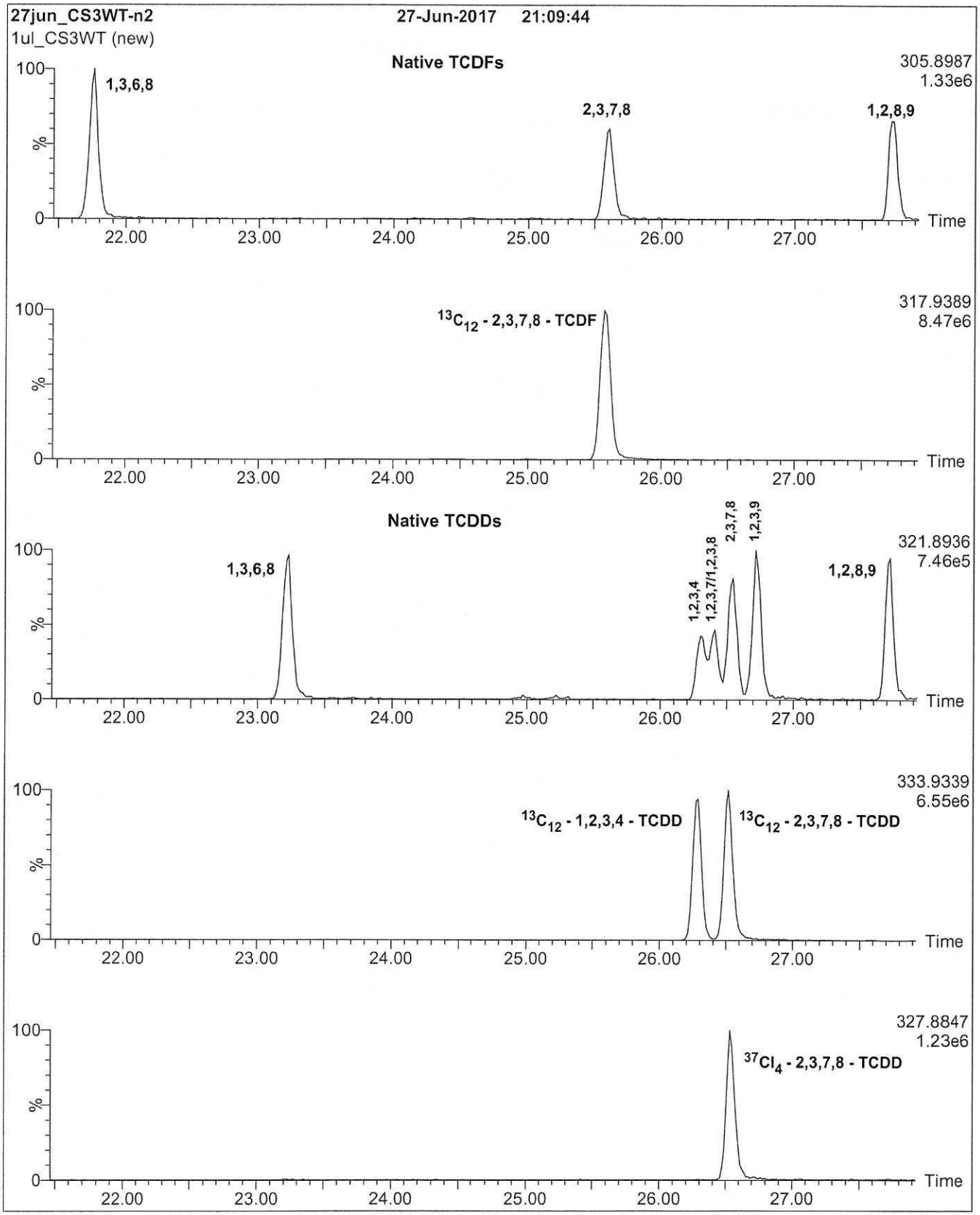


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

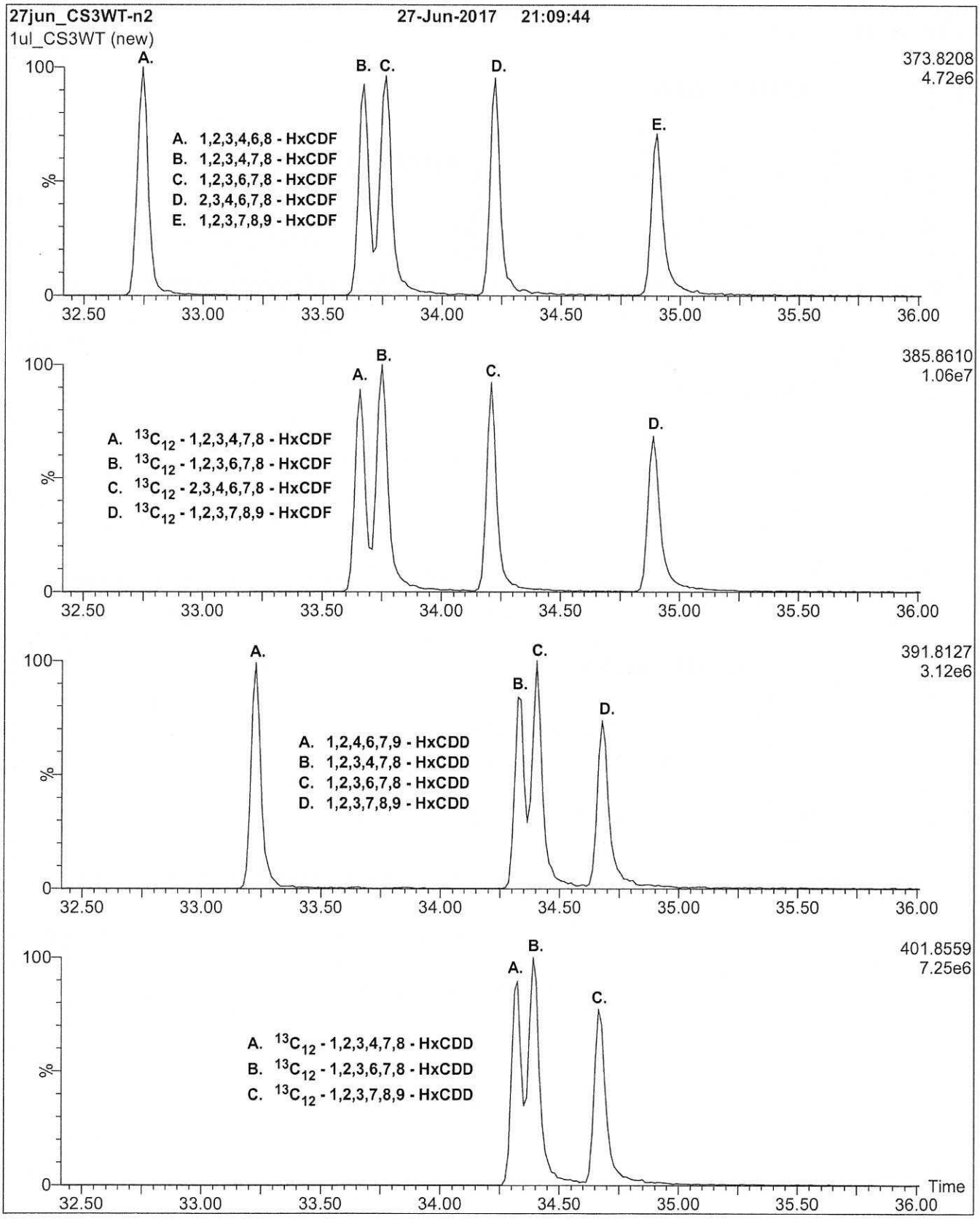
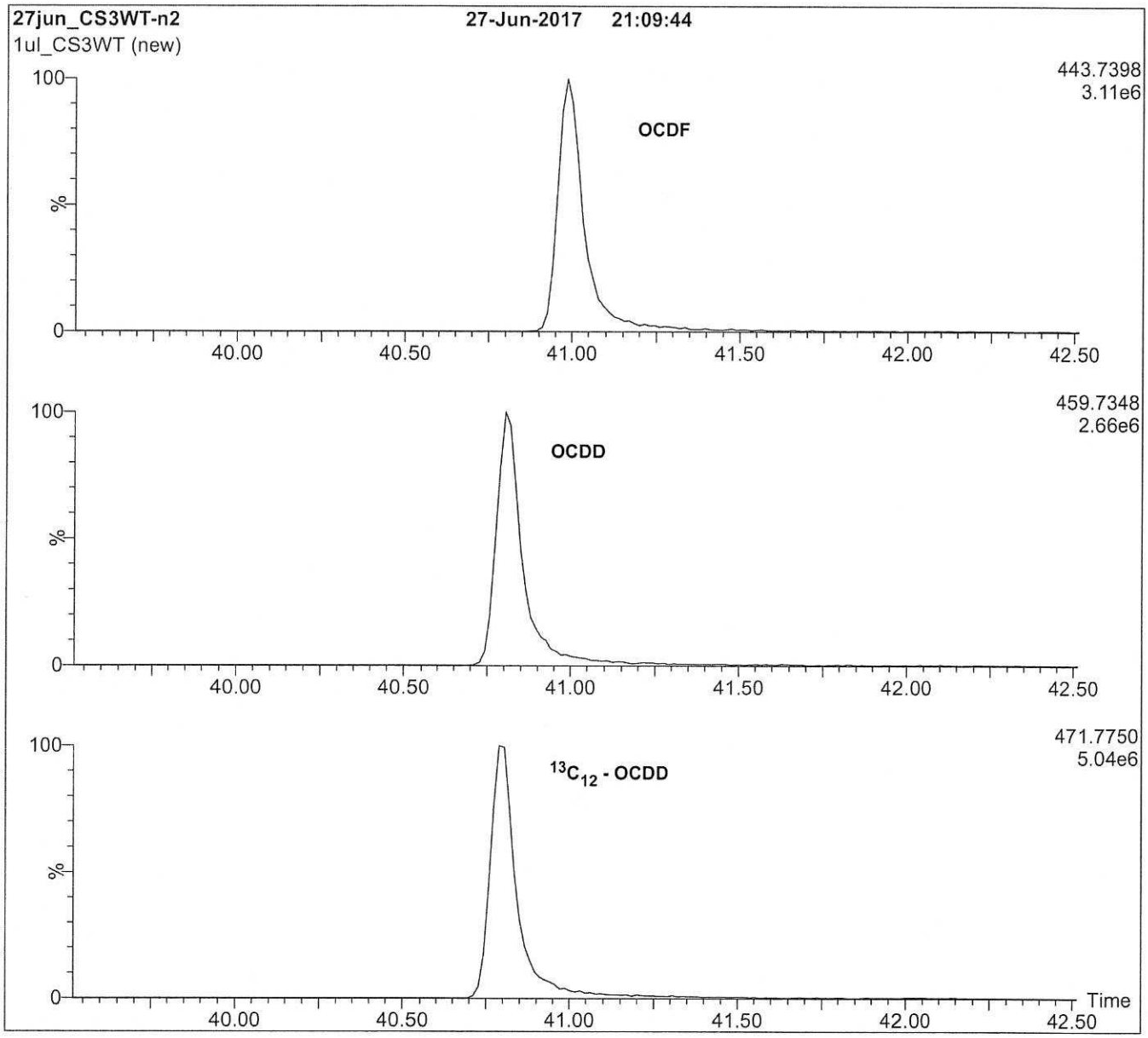


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



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

I 000197

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. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

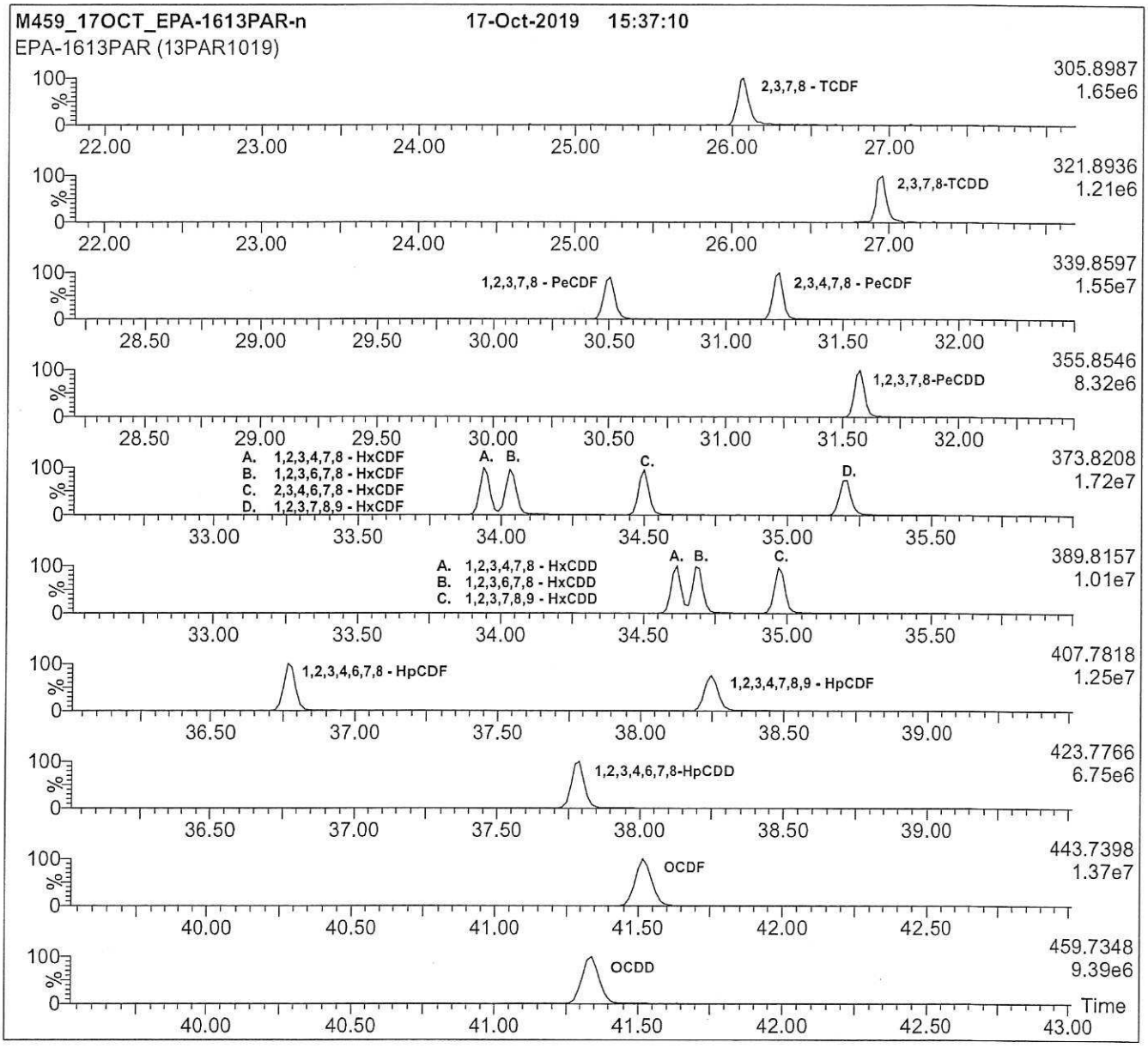
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-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 I005456
	EPA-1613CS2		13CS21019 I005457
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019 I005458
	EPA-1613CS5		13CS51019 I005459

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 I005460
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

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%.

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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. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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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)

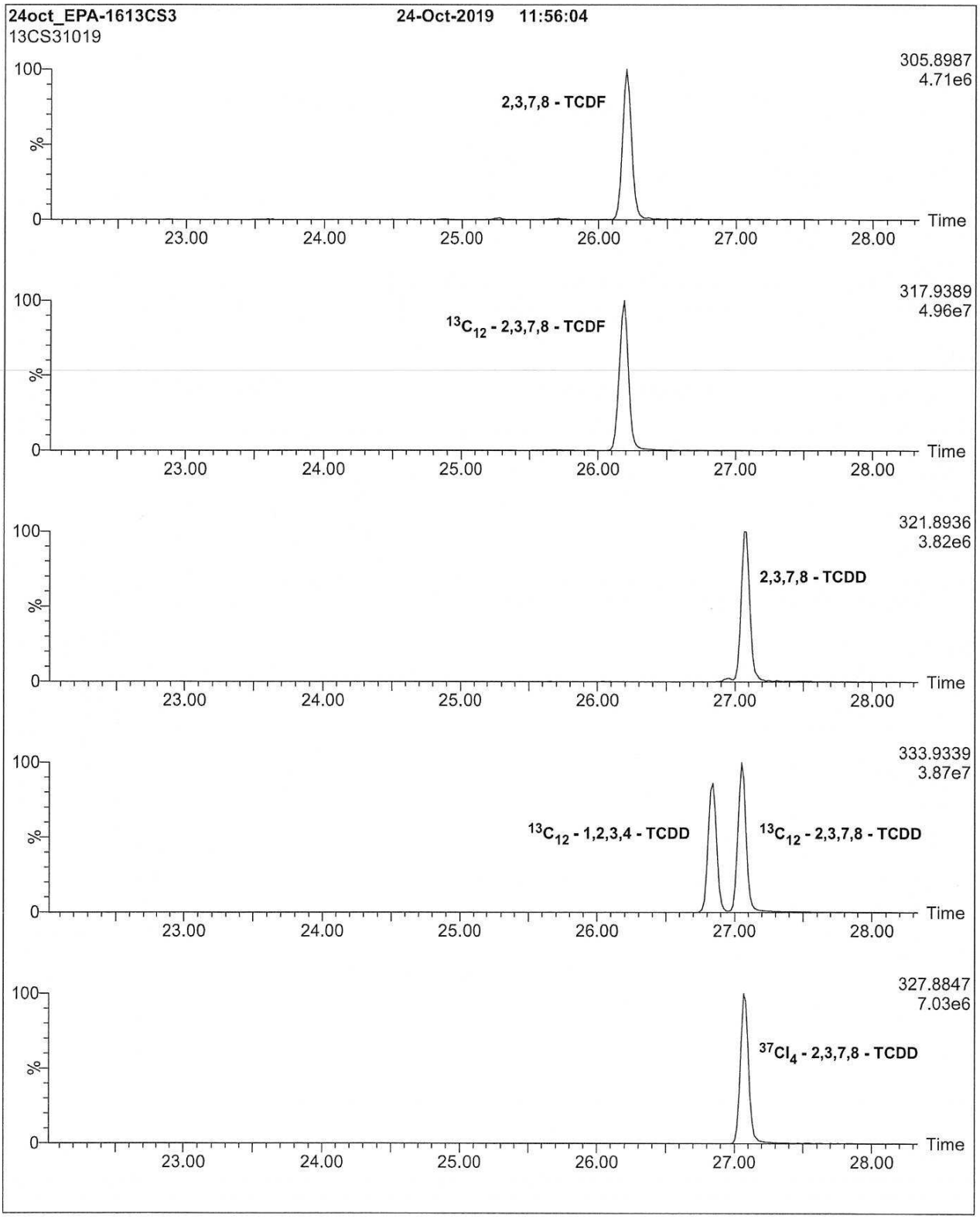


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

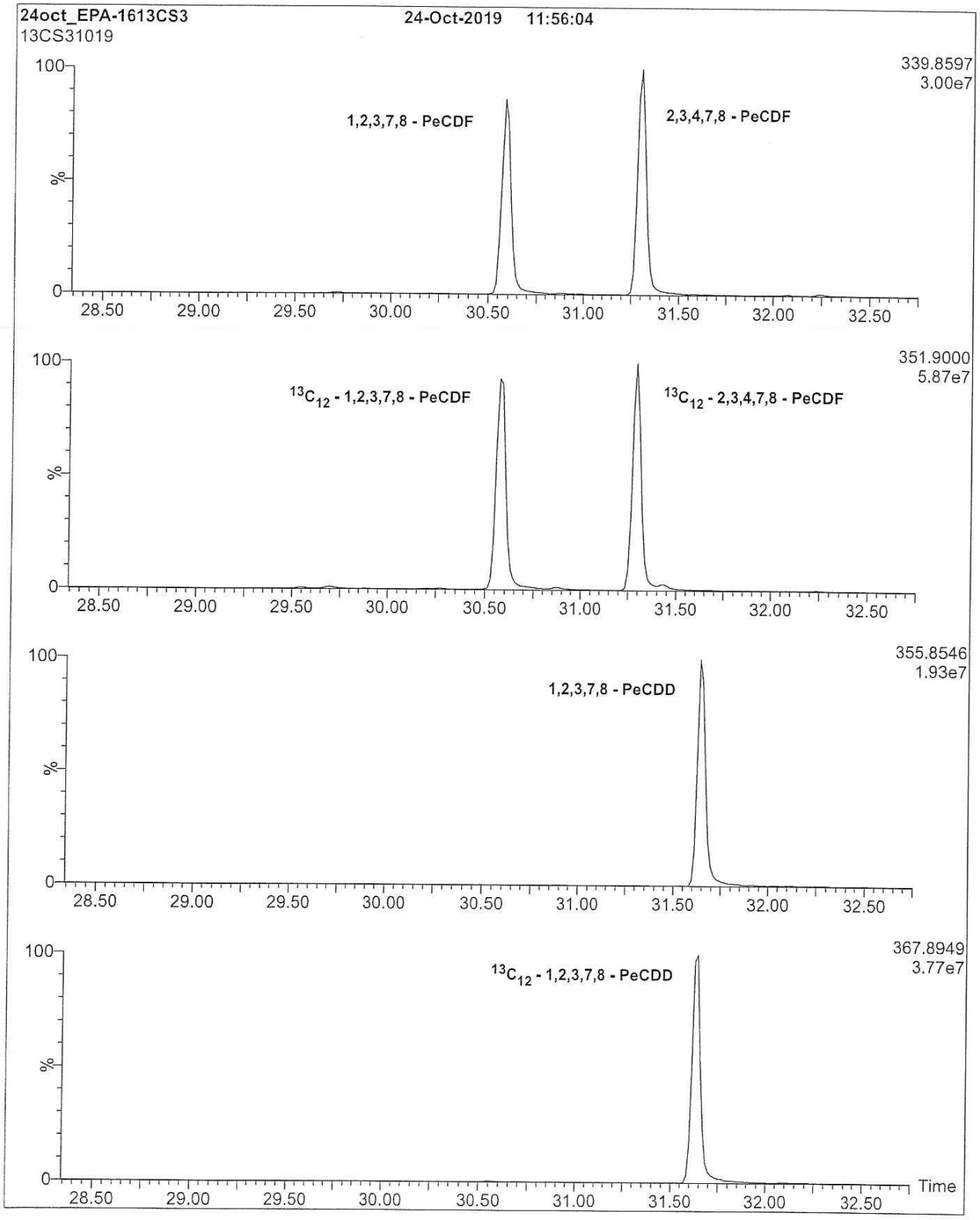


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

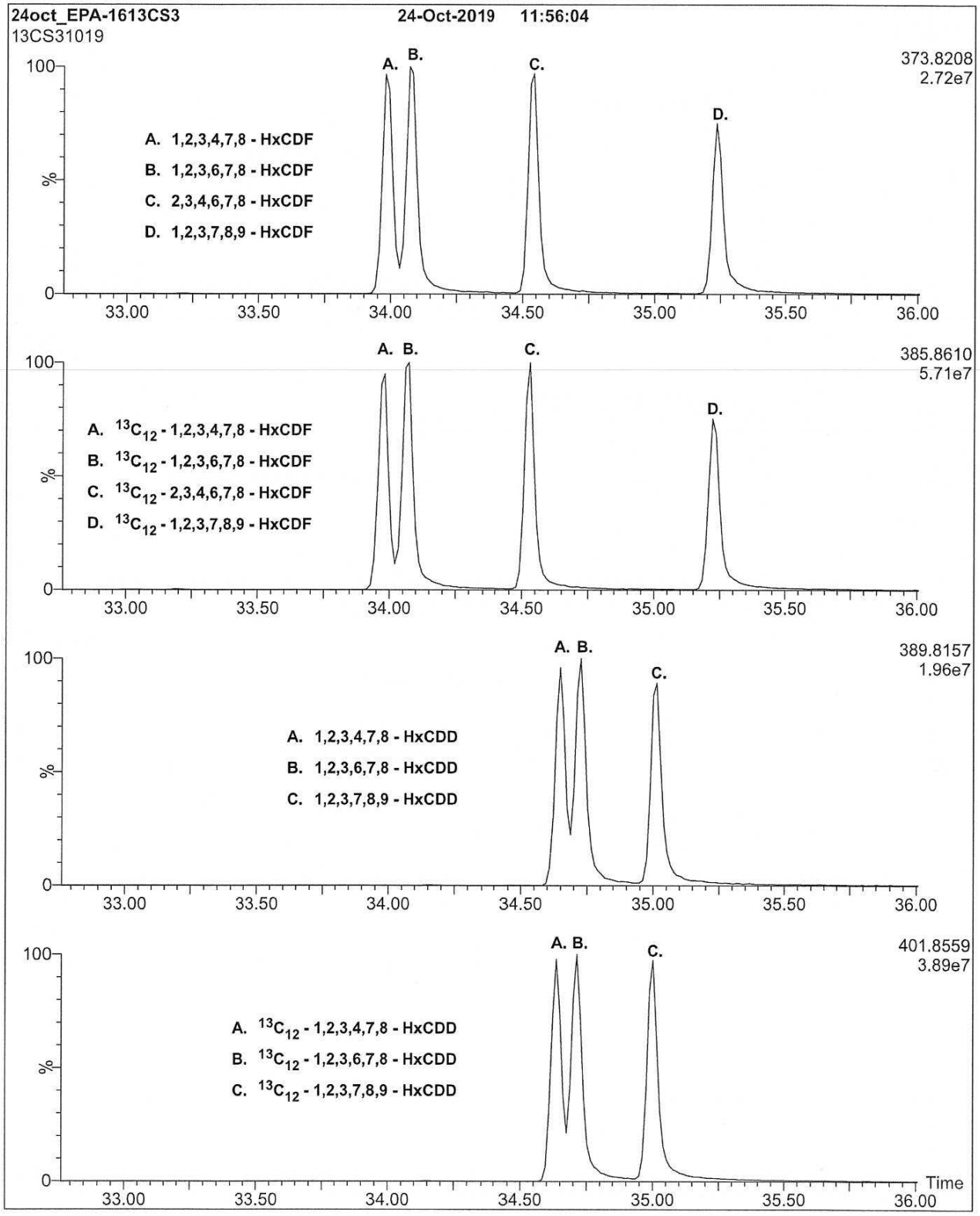


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

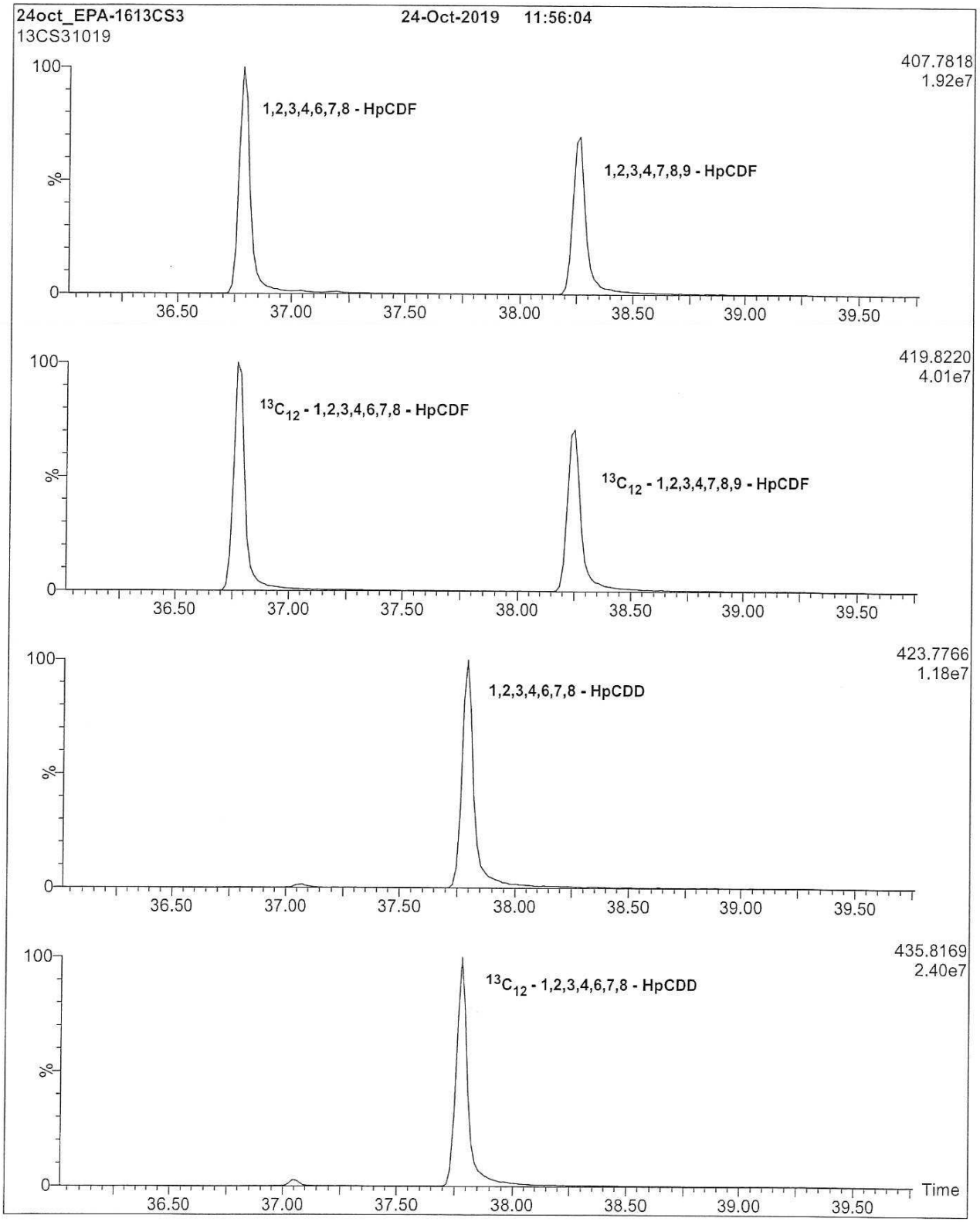
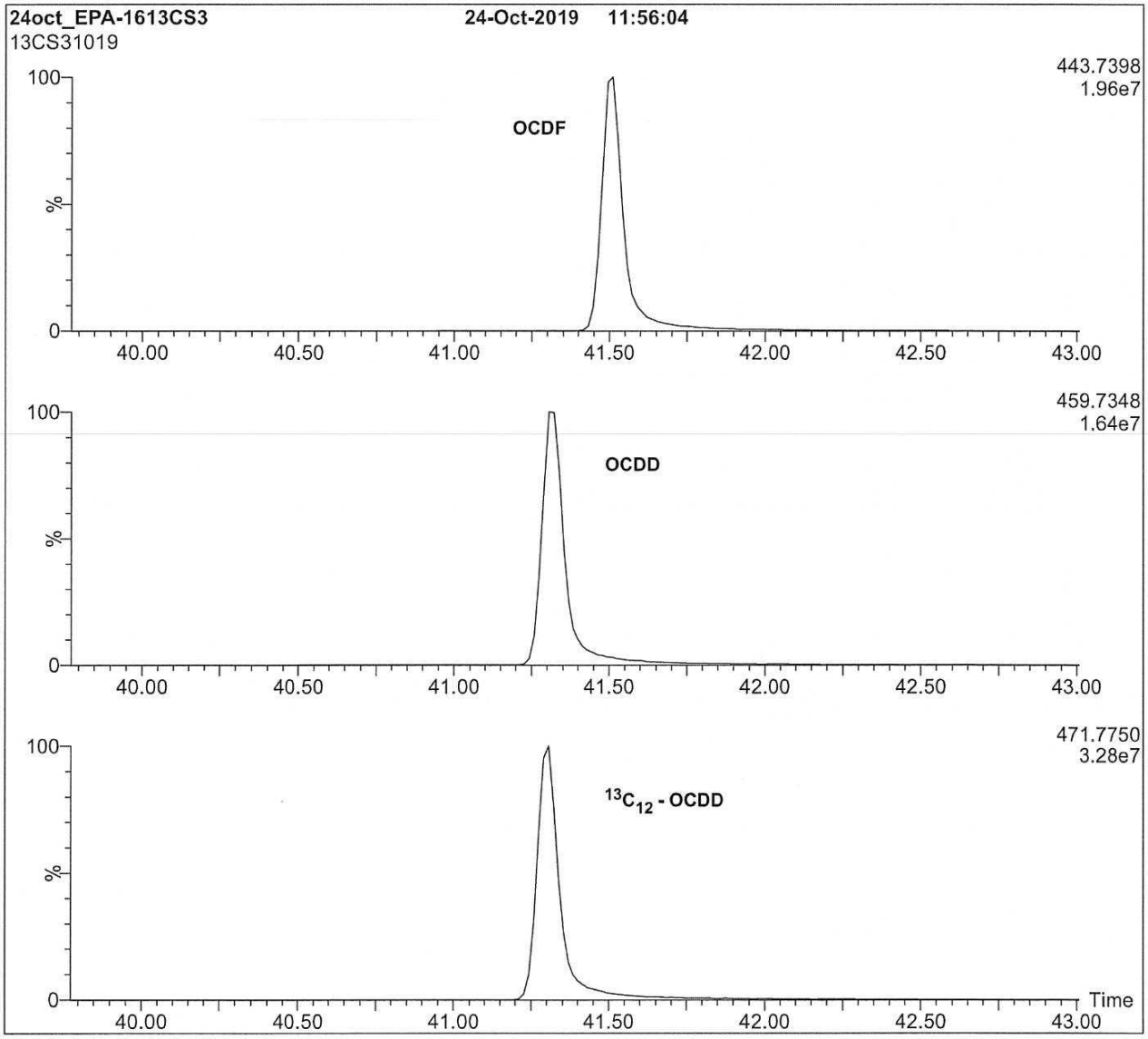


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



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)	06/23/20
	EPA-1613CS1		13CS11019	I005456
	EPA-1613CS2		13CS21019	I005457
	EPA-1613CS3		13CS31019	
	EPA-1613CS4		13CS41019	I005458
	EPA-1613CS5		13CS51019	I005459

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 I005460
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

DESCRIPTION: 06/23/20

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

Form#:52, Issued 2010-07-26

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)

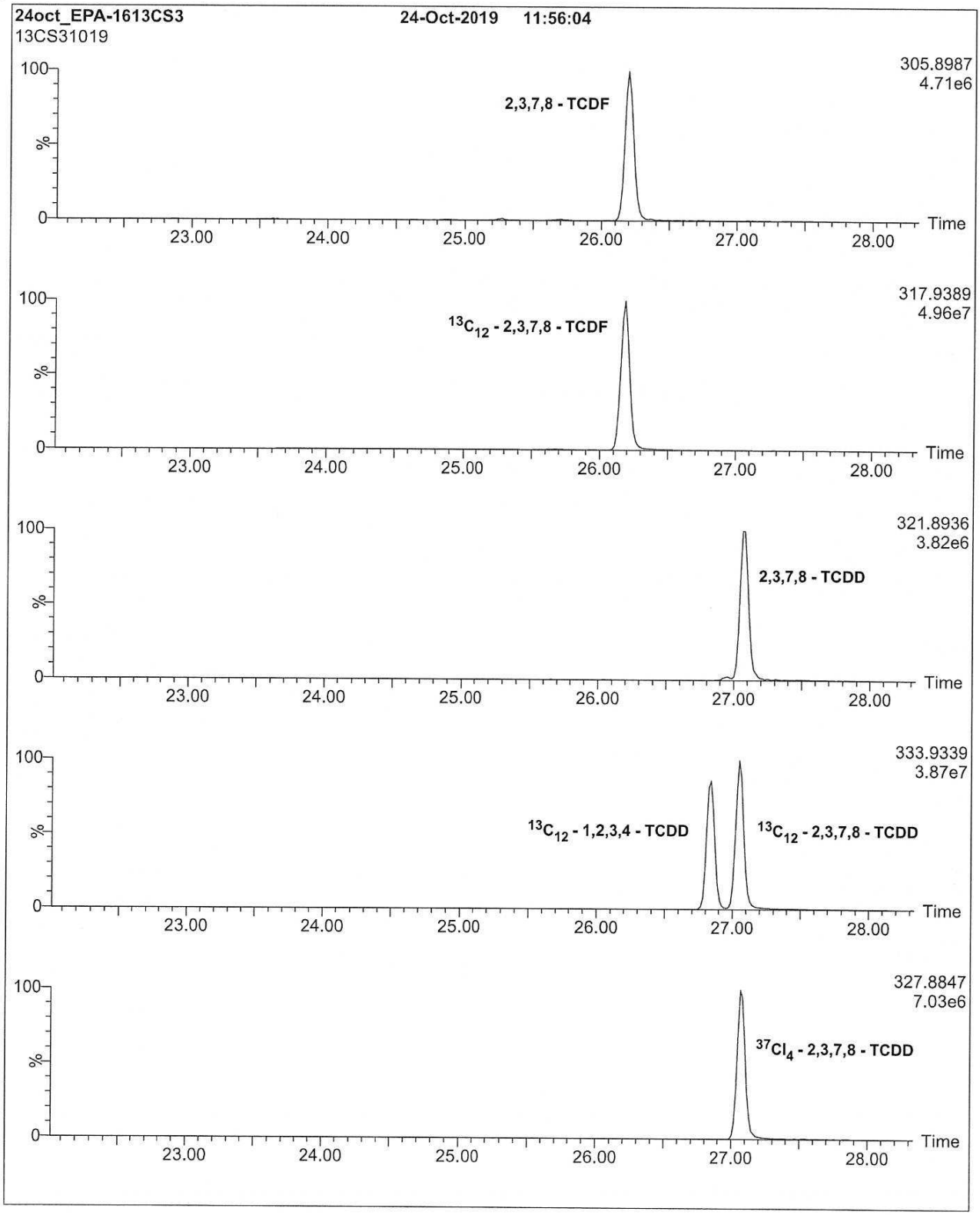


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

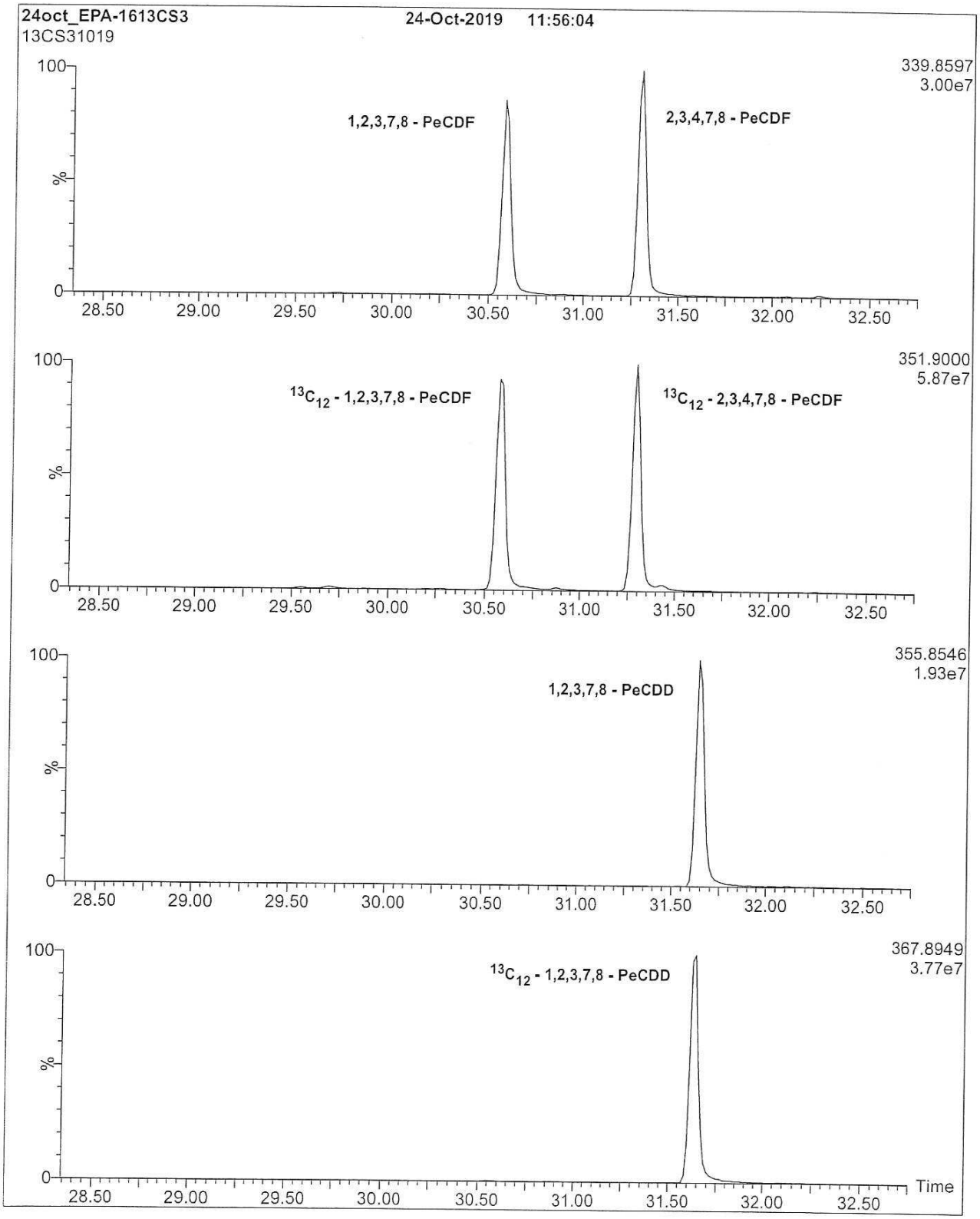


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

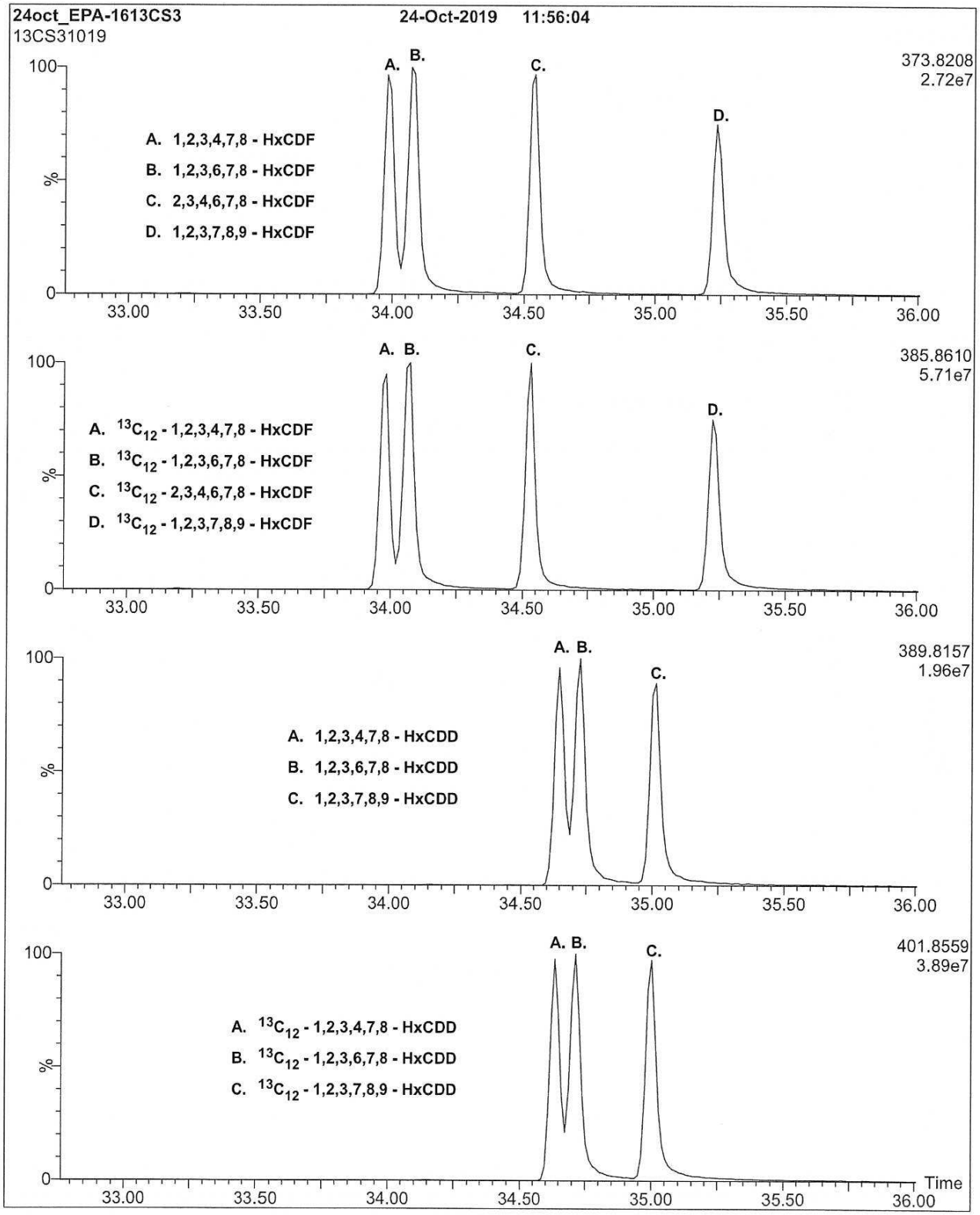


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

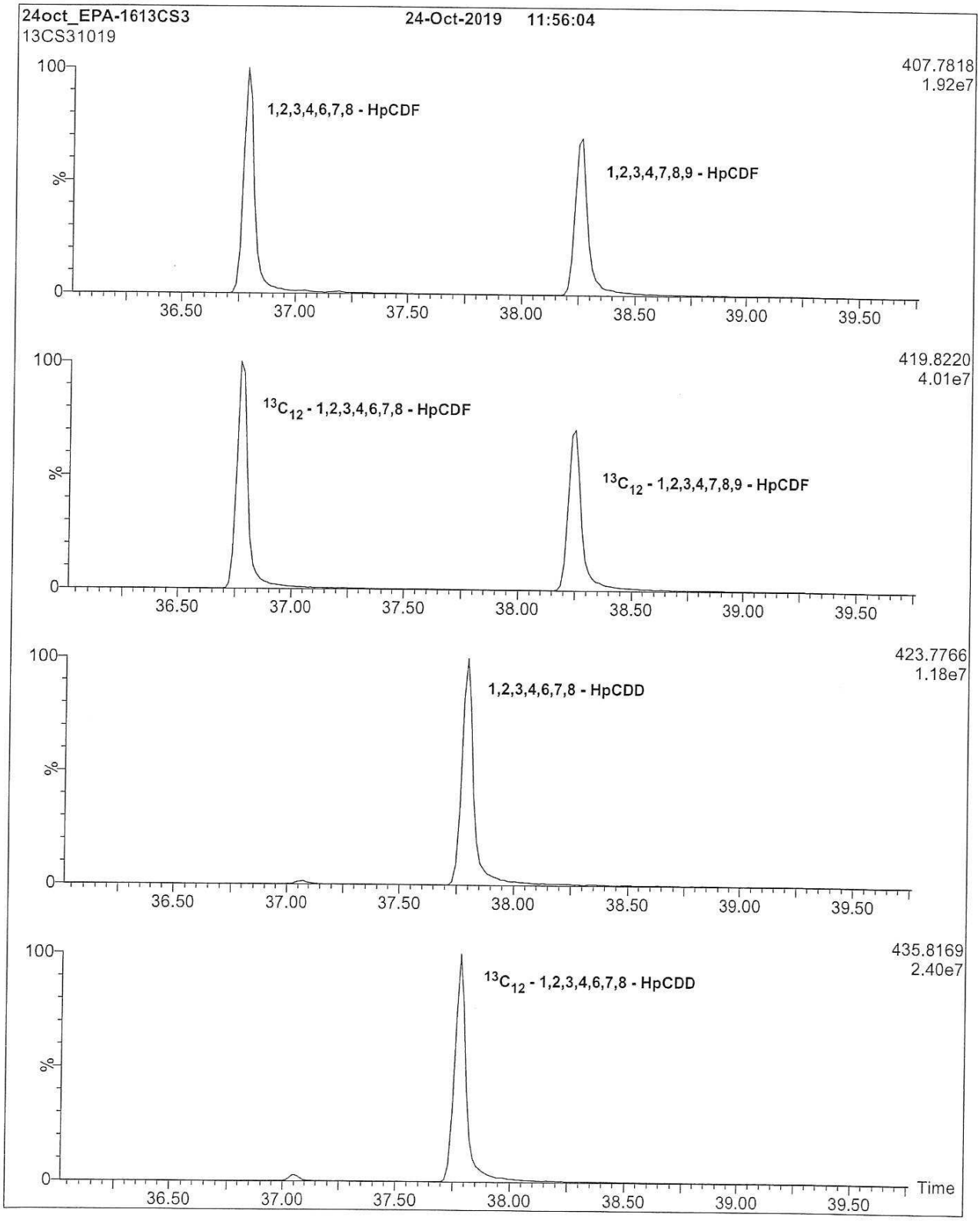
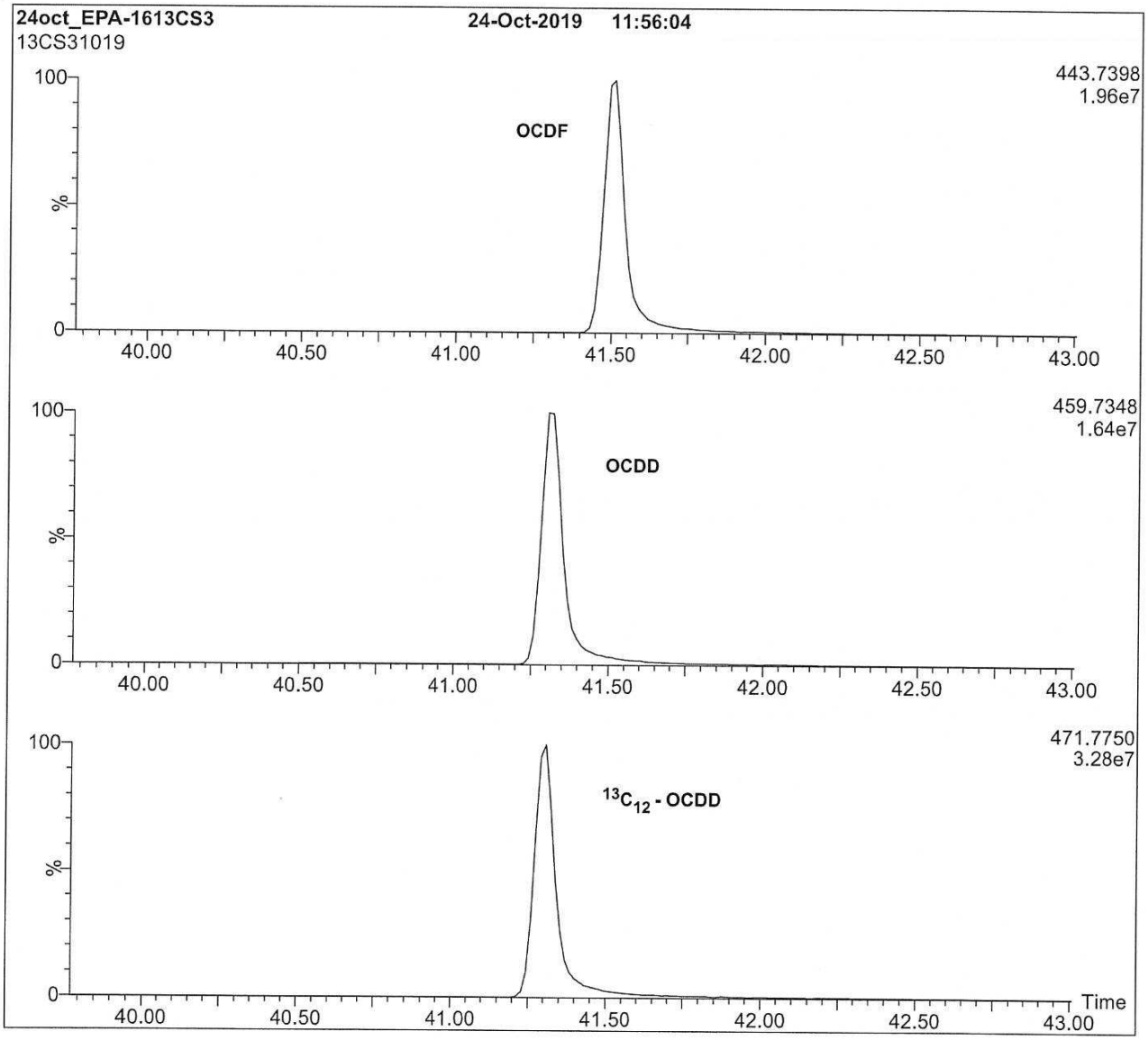


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



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 I005456
	EPA-1613CS2		13CS21019 I005457
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019 I005458
	EPA-1613CS5		13CS51019 I005459

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 I005460
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

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)

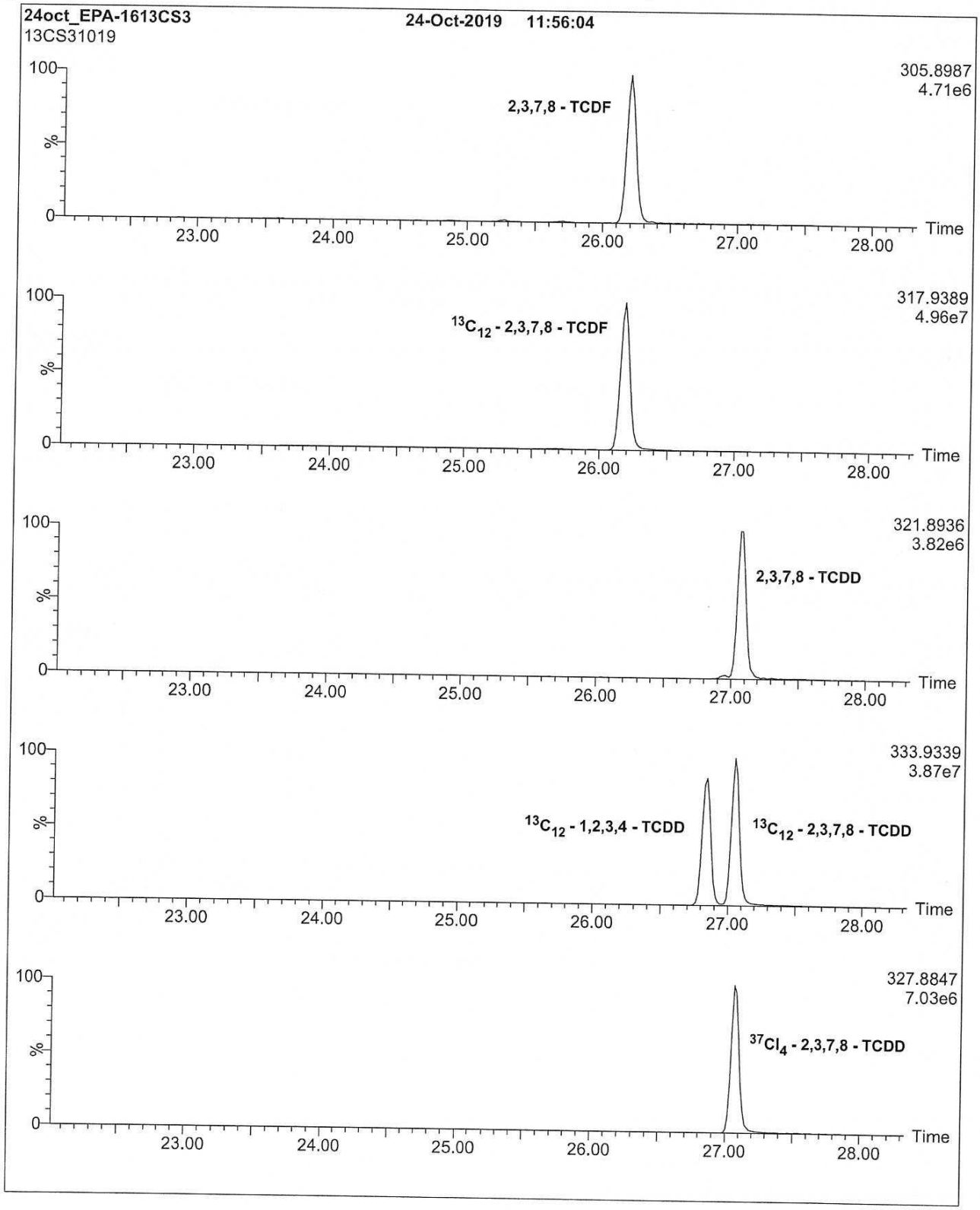


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

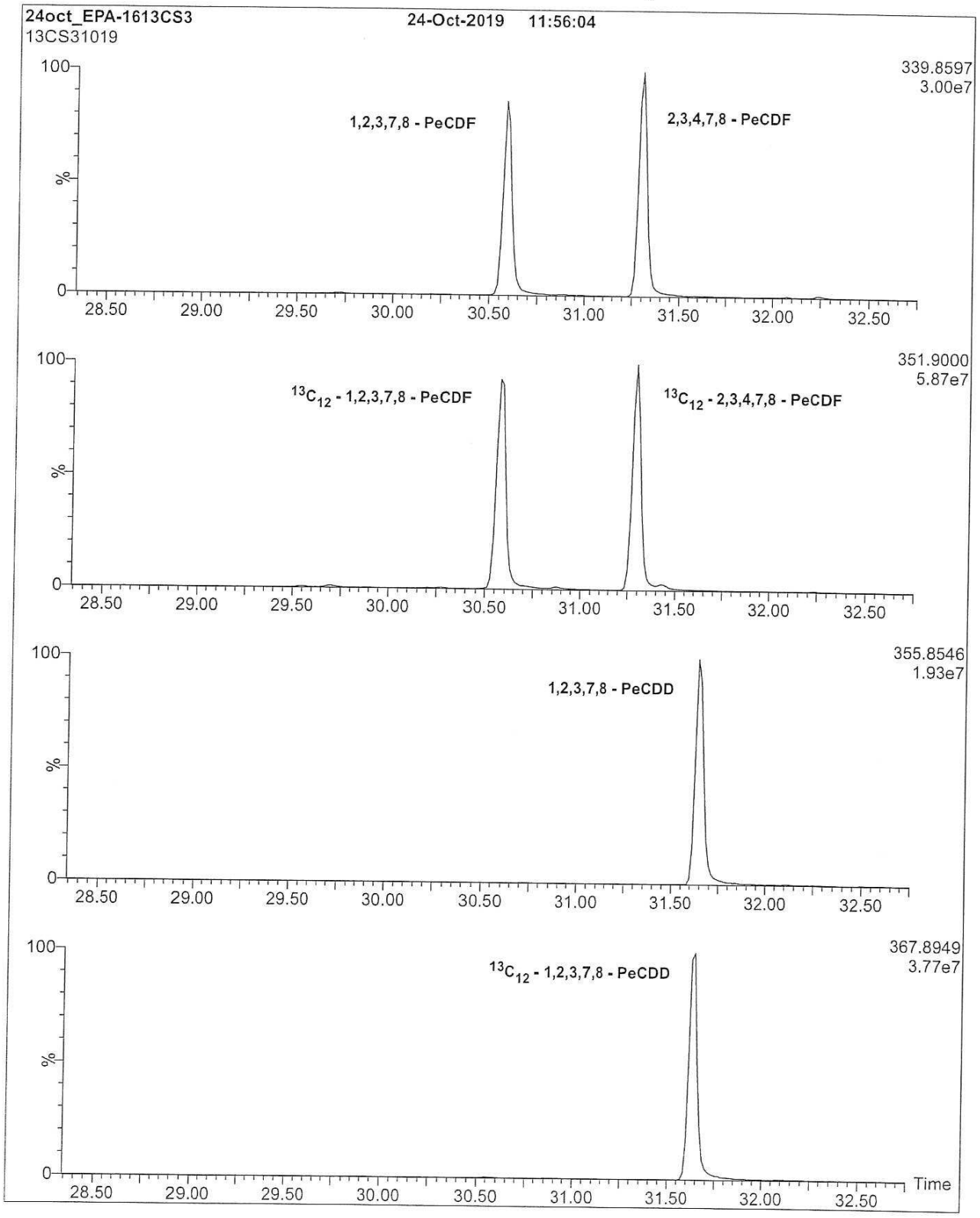


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

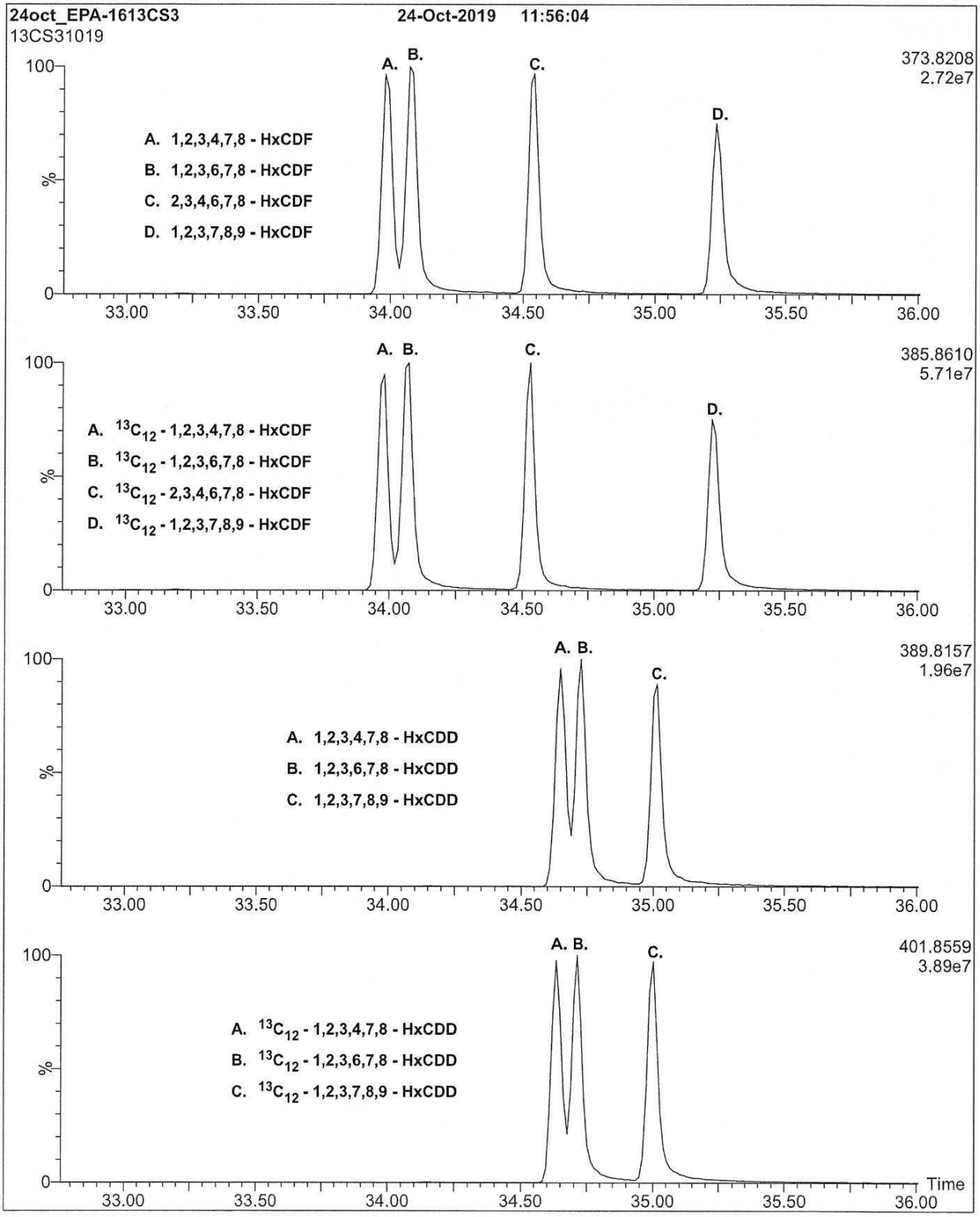


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

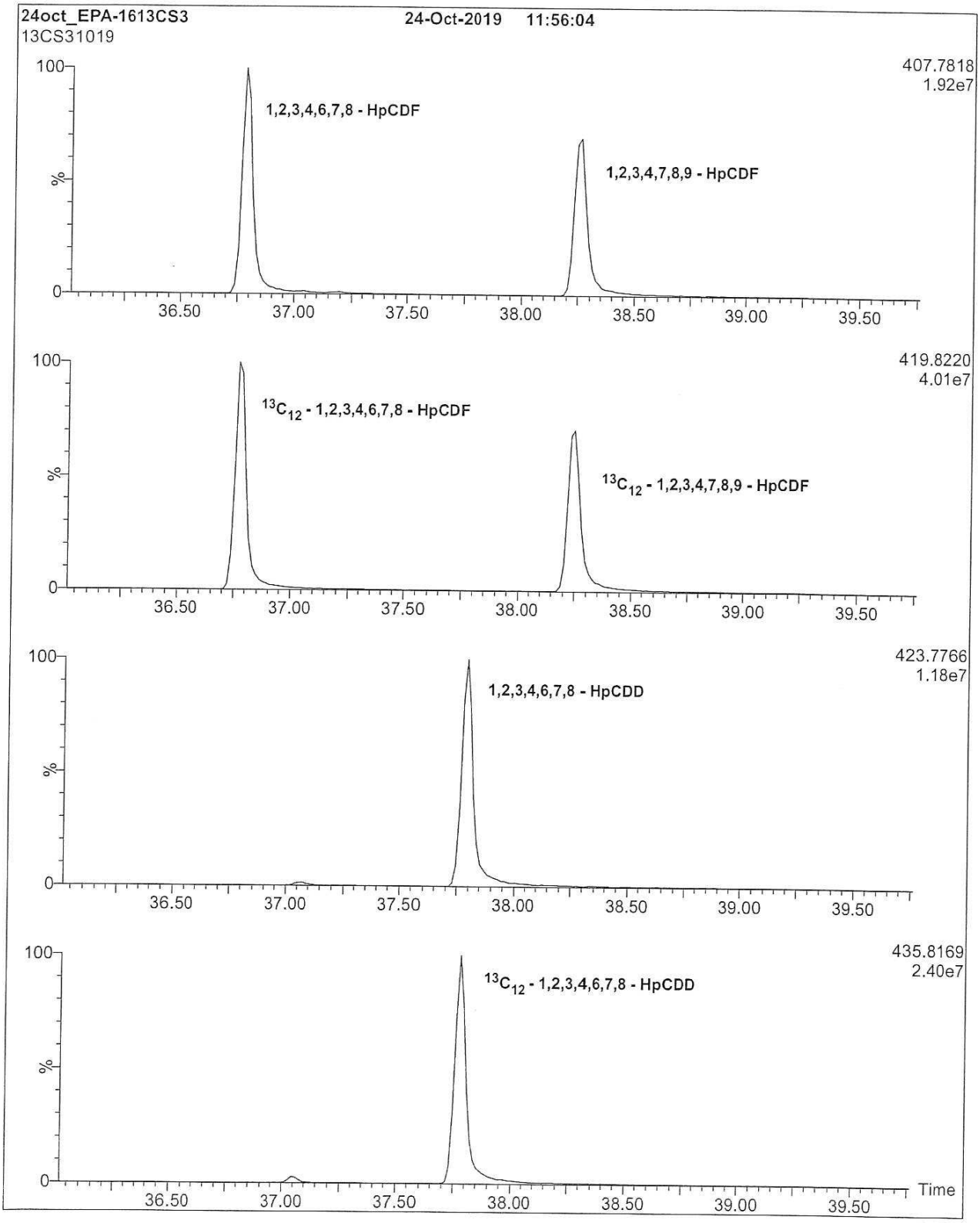
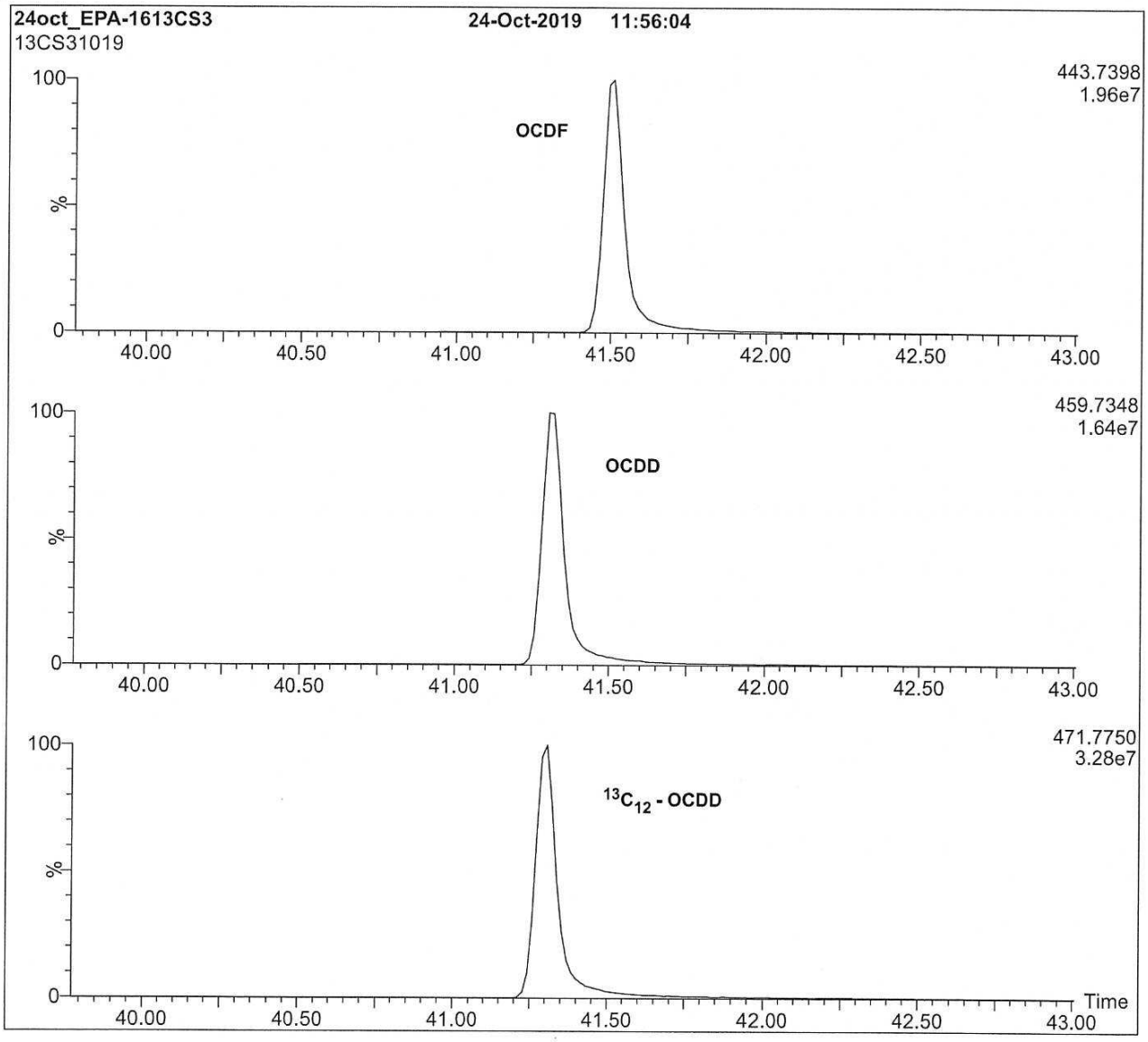


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



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) 06/23/20
	EPA-1613CS1		13CS11019 I005456
	EPA-1613CS2		13CS21019 I005457
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019 I005458
	EPA-1613CS5		13CS51019 I005459

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 I005460
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

DESCRIPTION: 06/23/20

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)

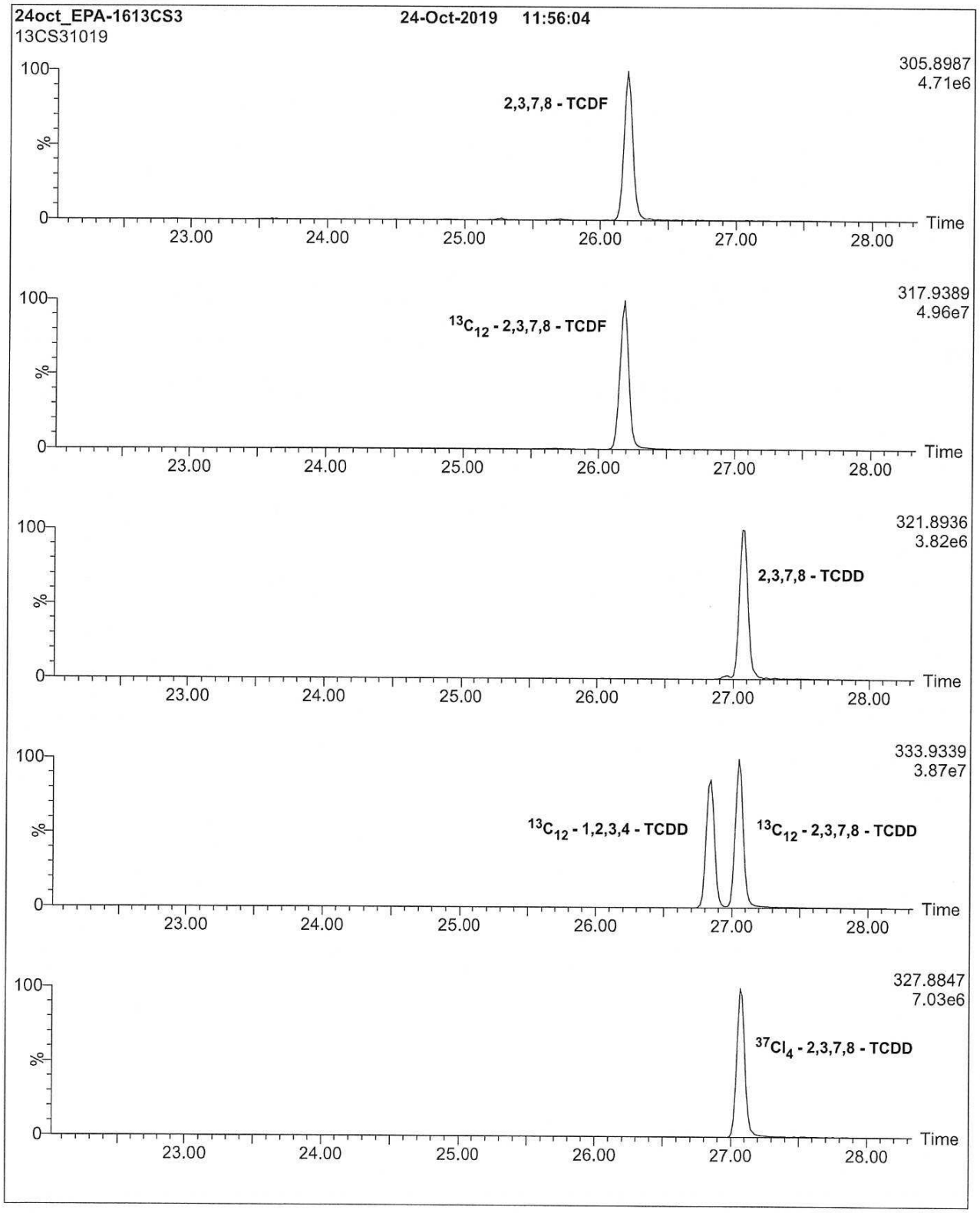


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

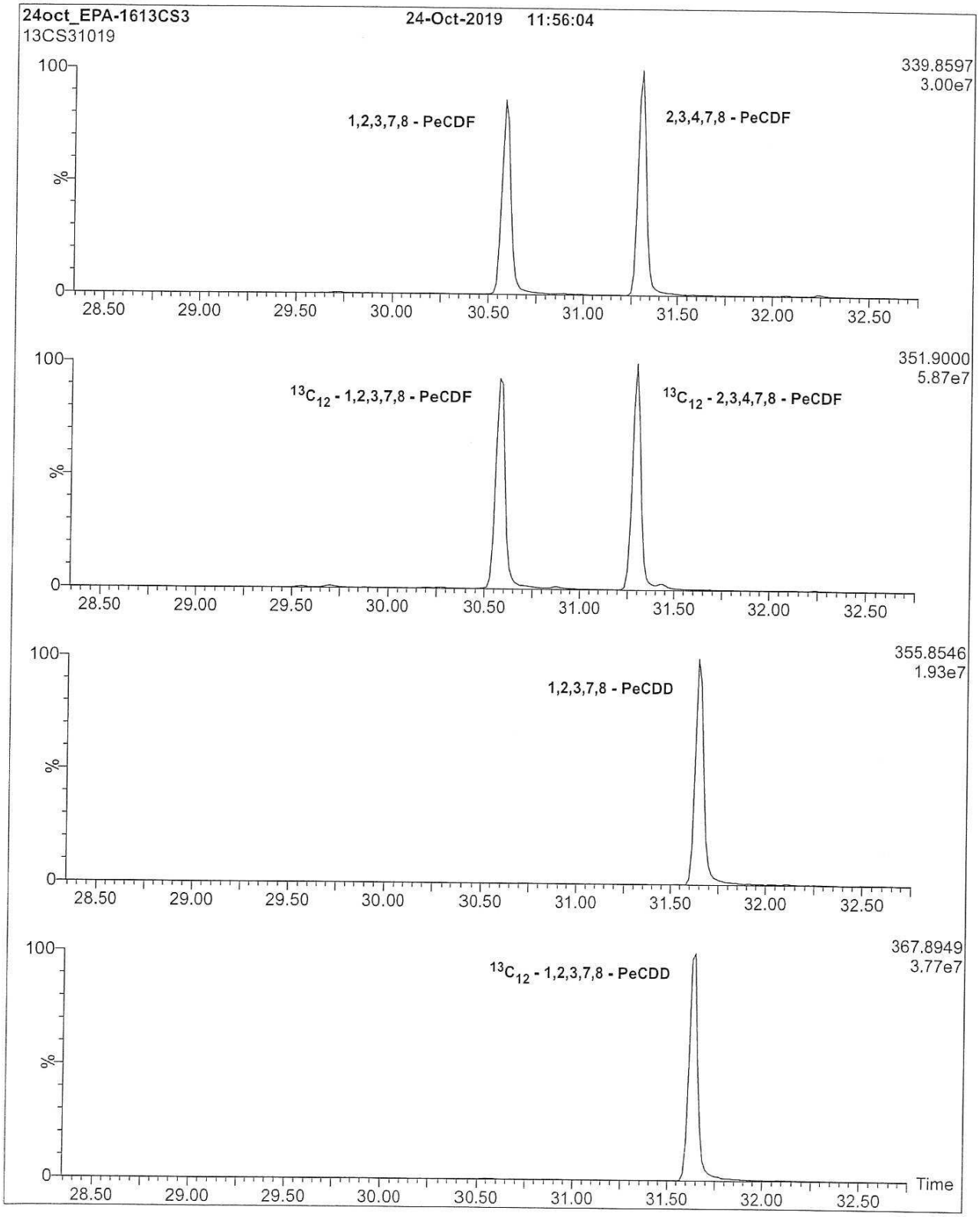


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

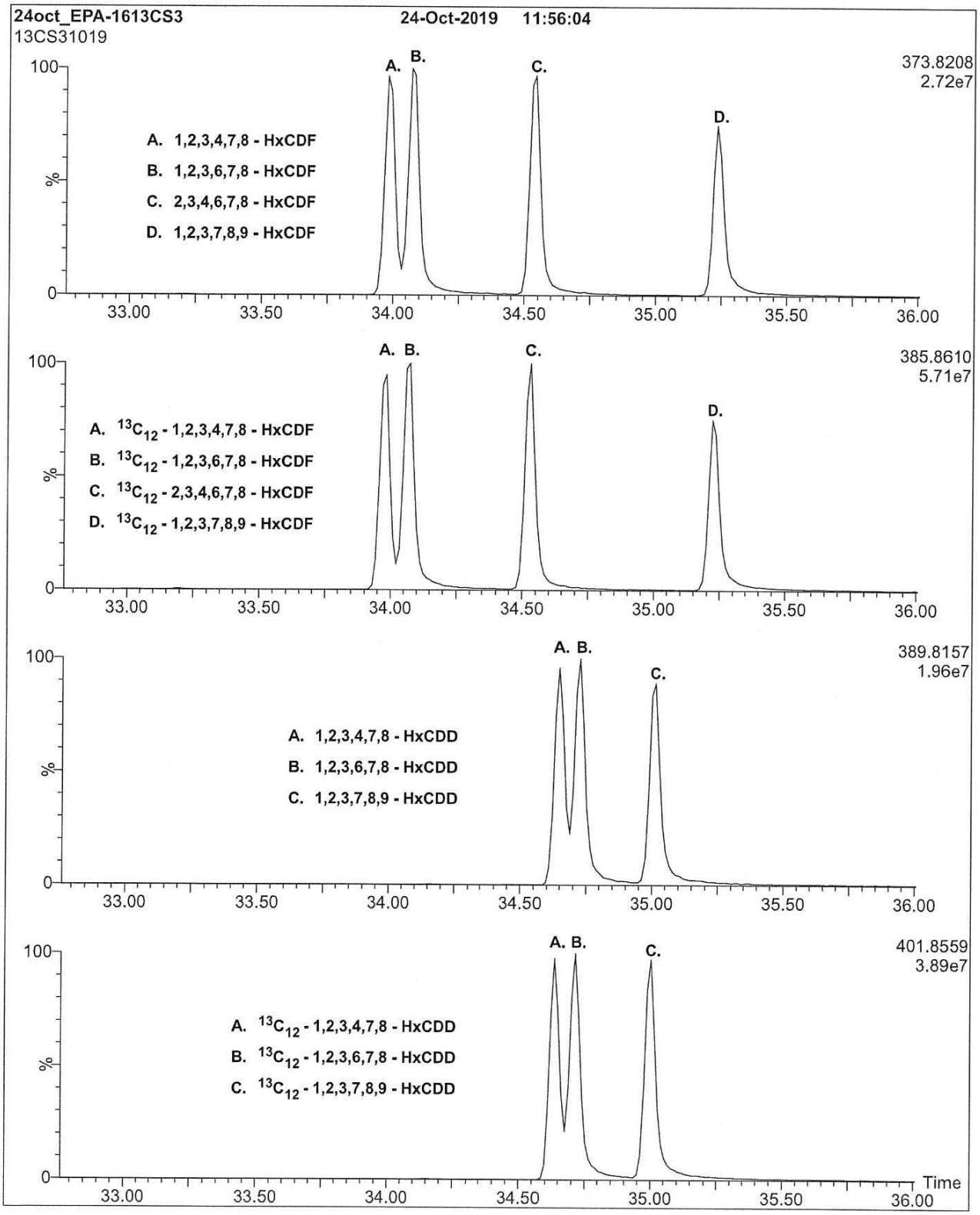


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

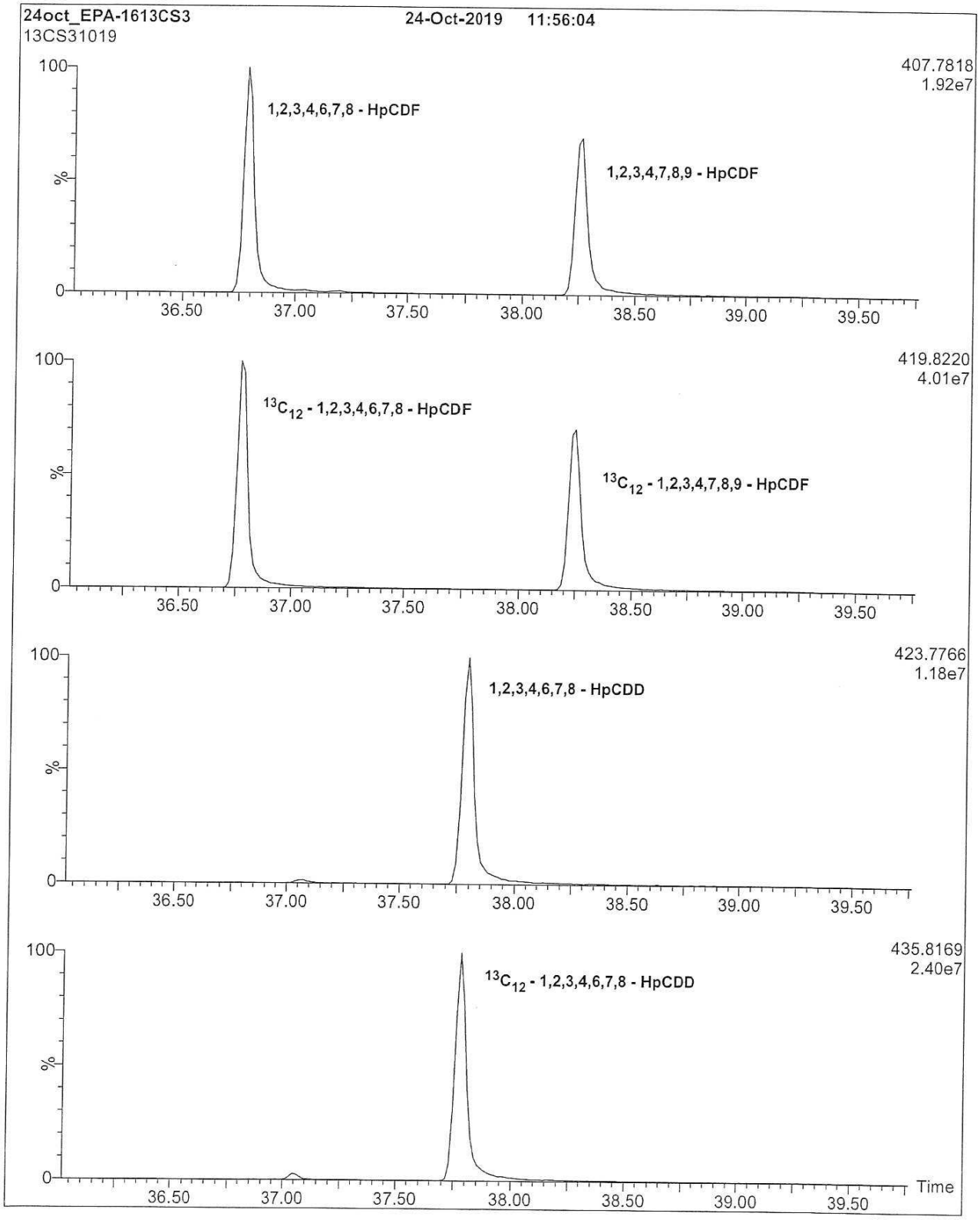
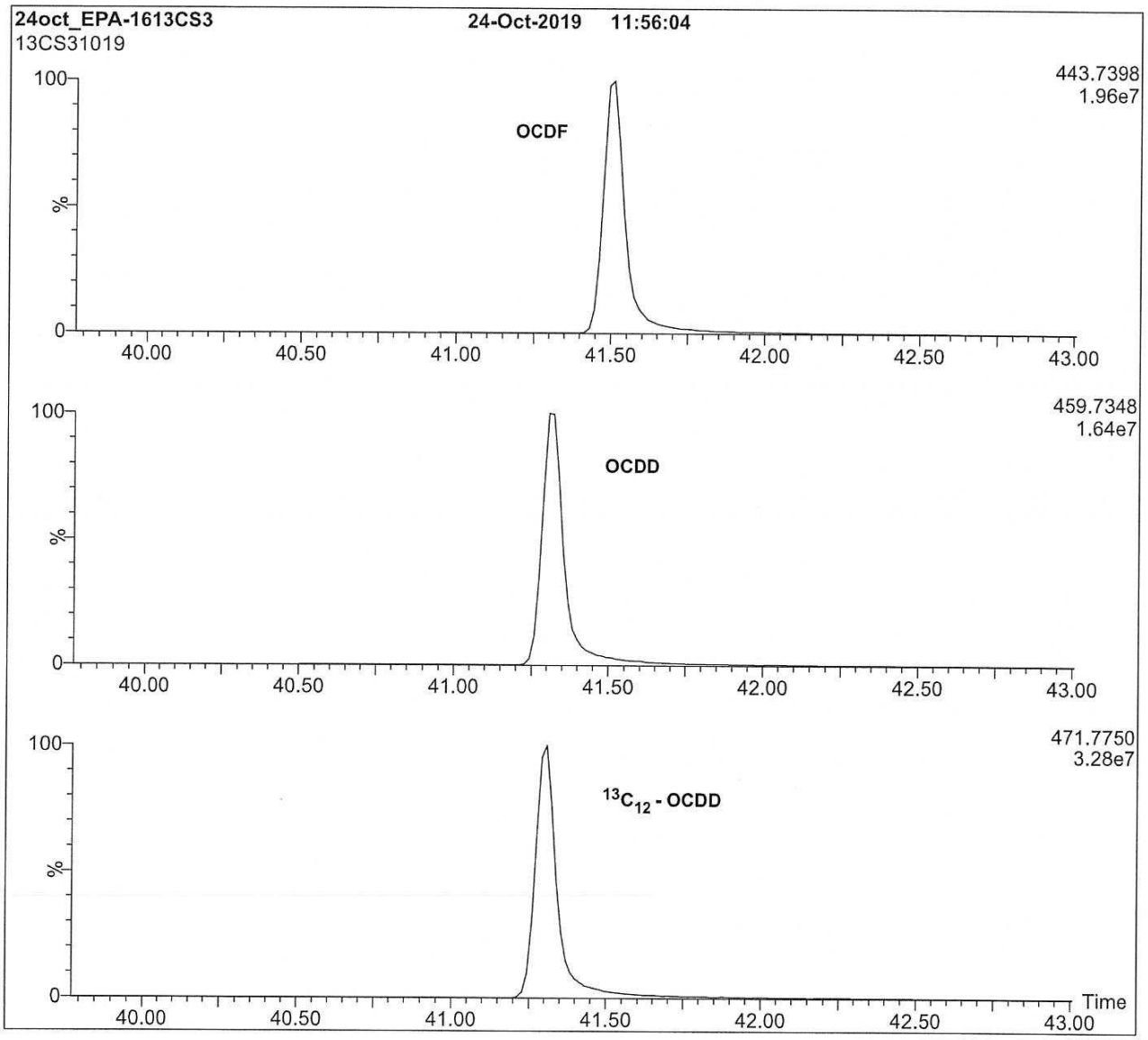


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)



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)	06/23/20
	EPA-1613CS1		13CS11019	I005456
	EPA-1613CS2		13CS21019	I005457
	EPA-1613CS3		13CS31019	
	EPA-1613CS4		13CS41019	I005458
	EPA-1613CS5		13CS51019	I005459

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 I005460
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

DESCRIPTION: 06/23/20

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. 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-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

Form#:52, Issued 2010-07-26

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)

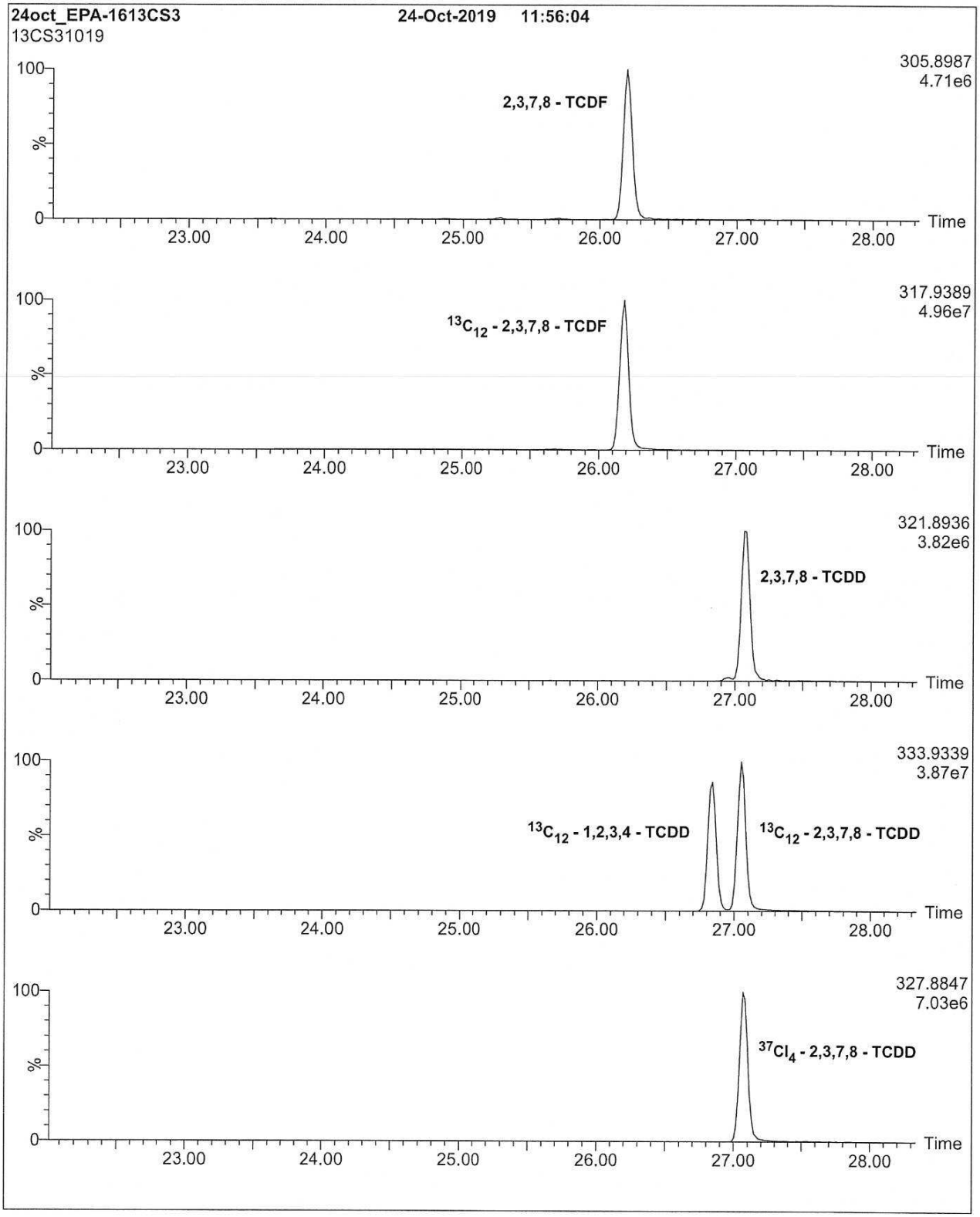


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

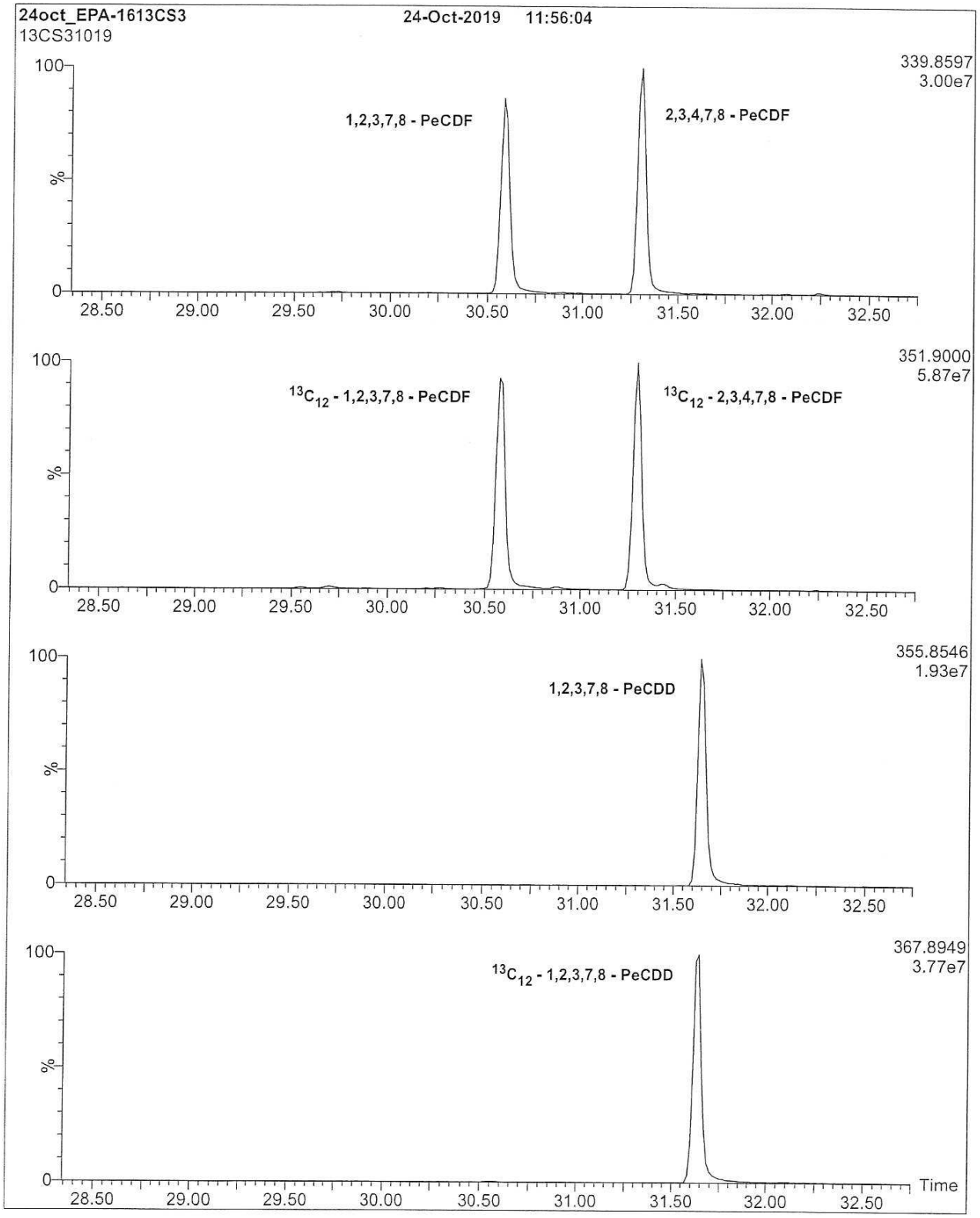


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

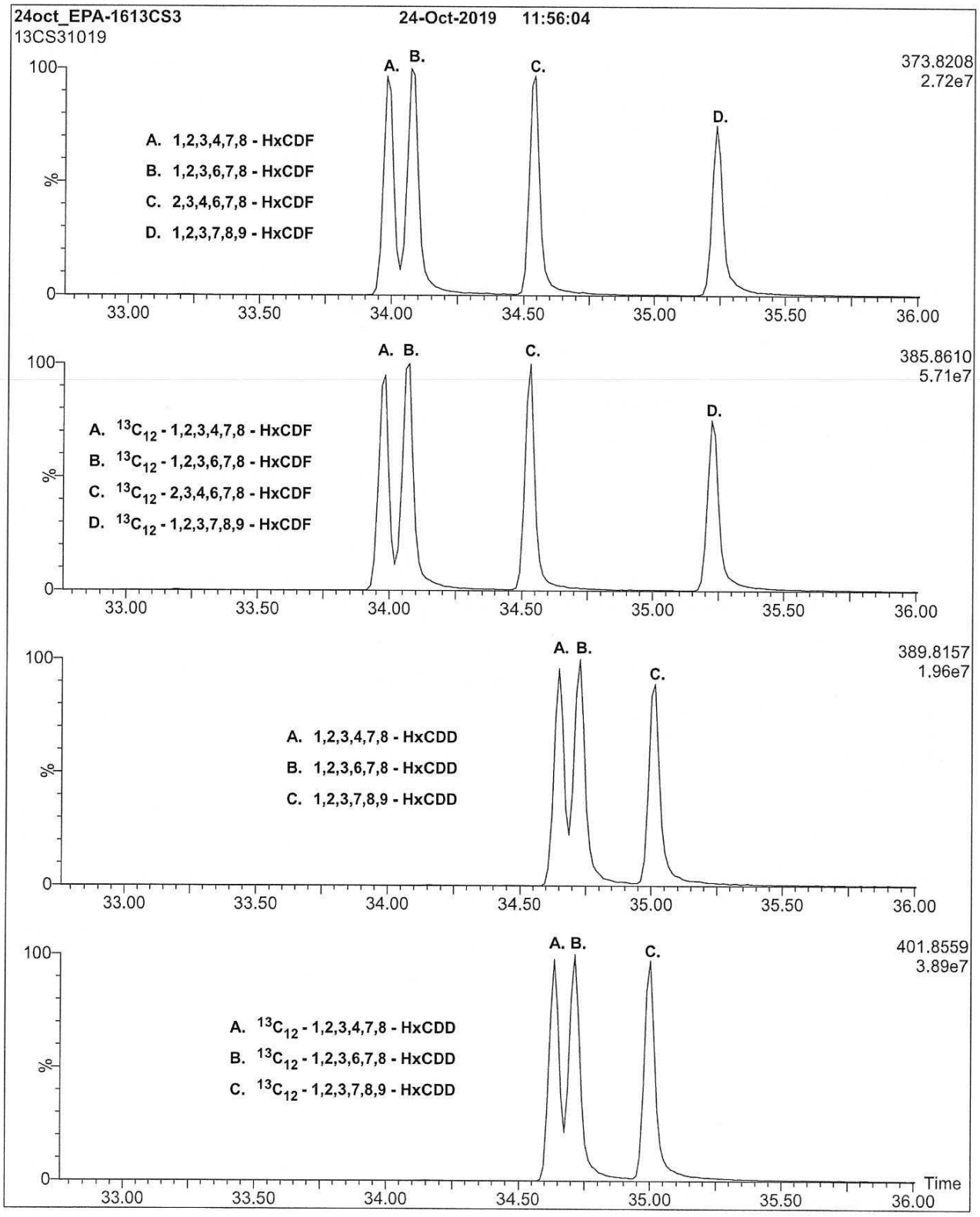


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

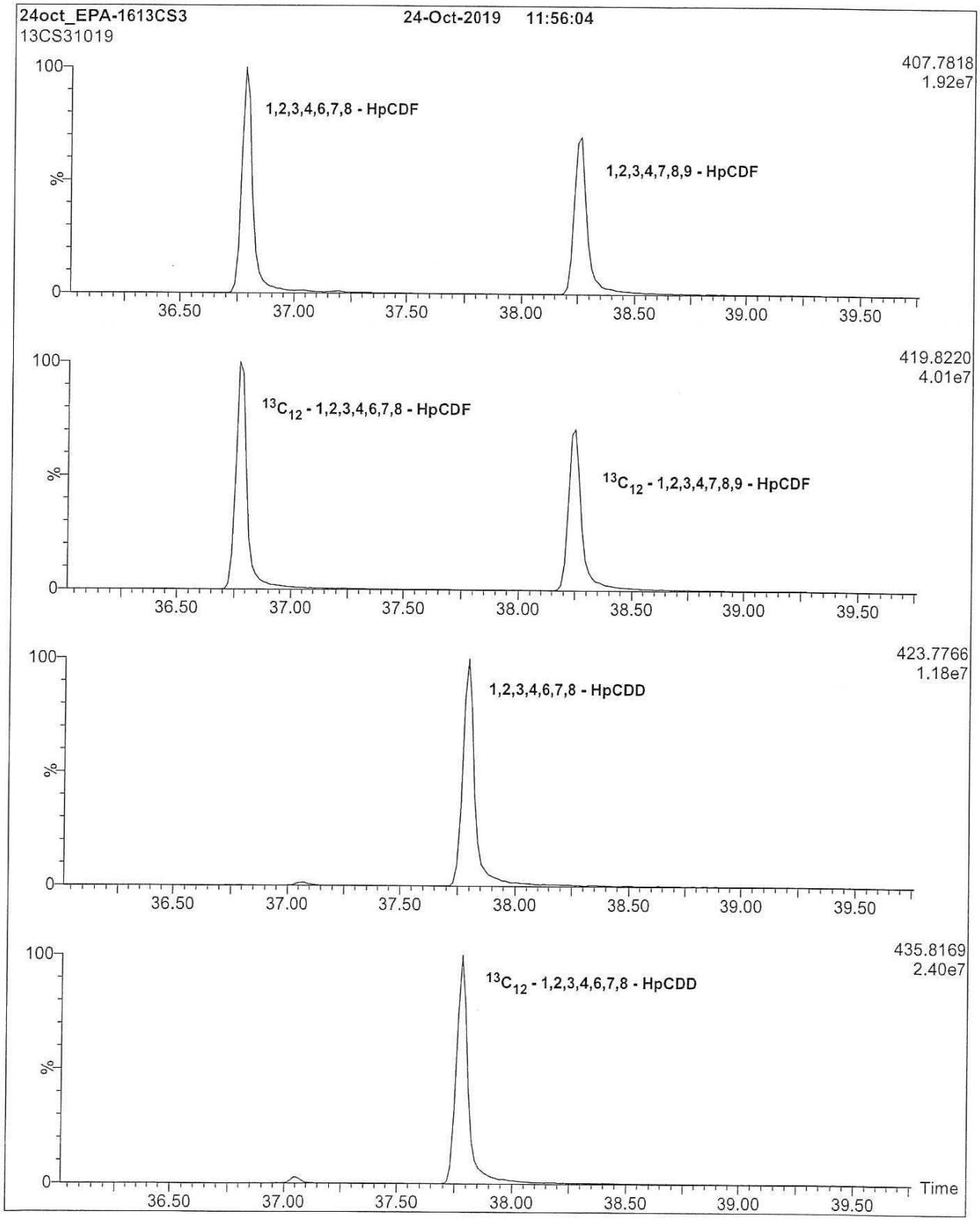
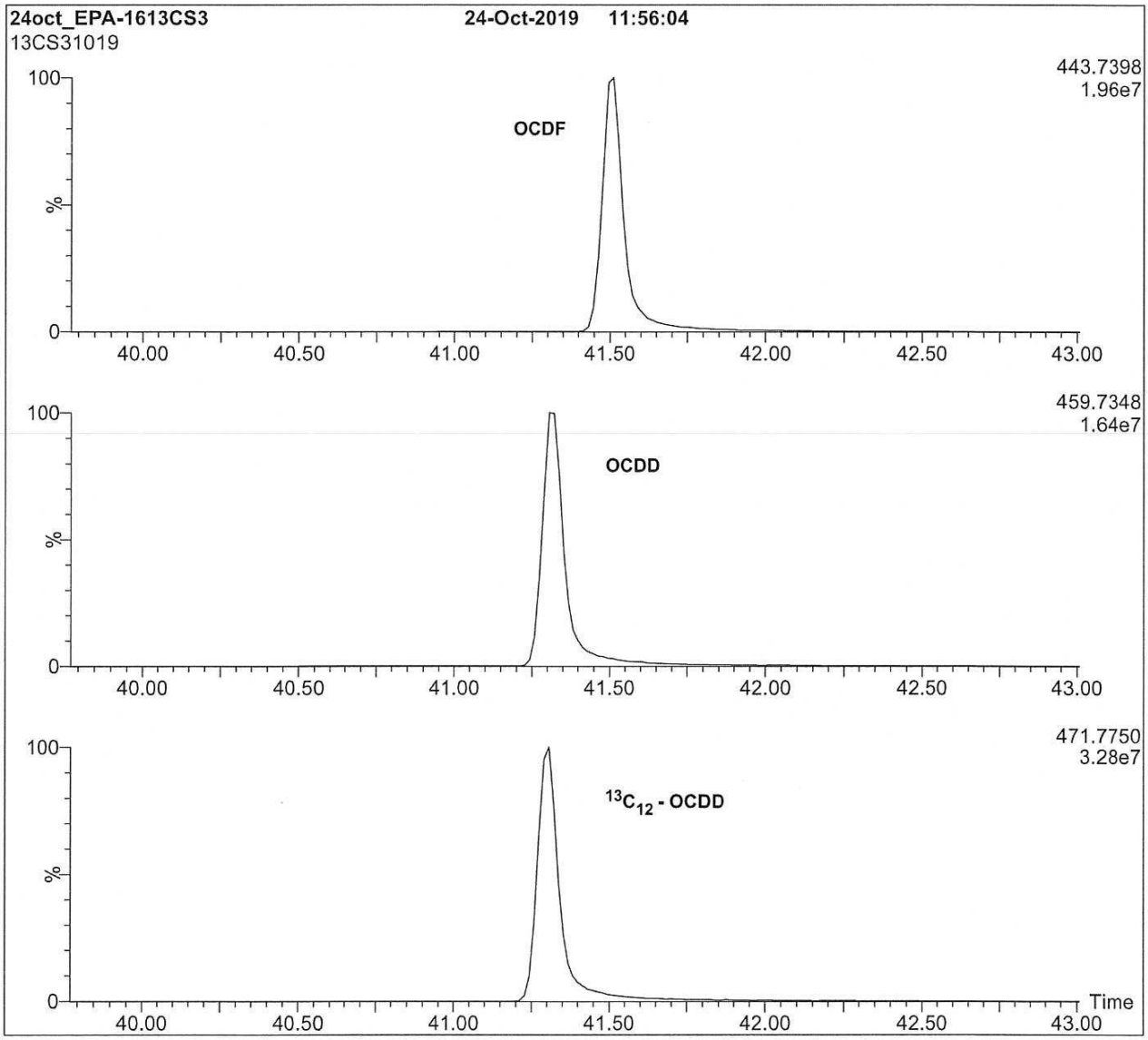


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



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

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

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) chlorinated 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:** 01/07/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)

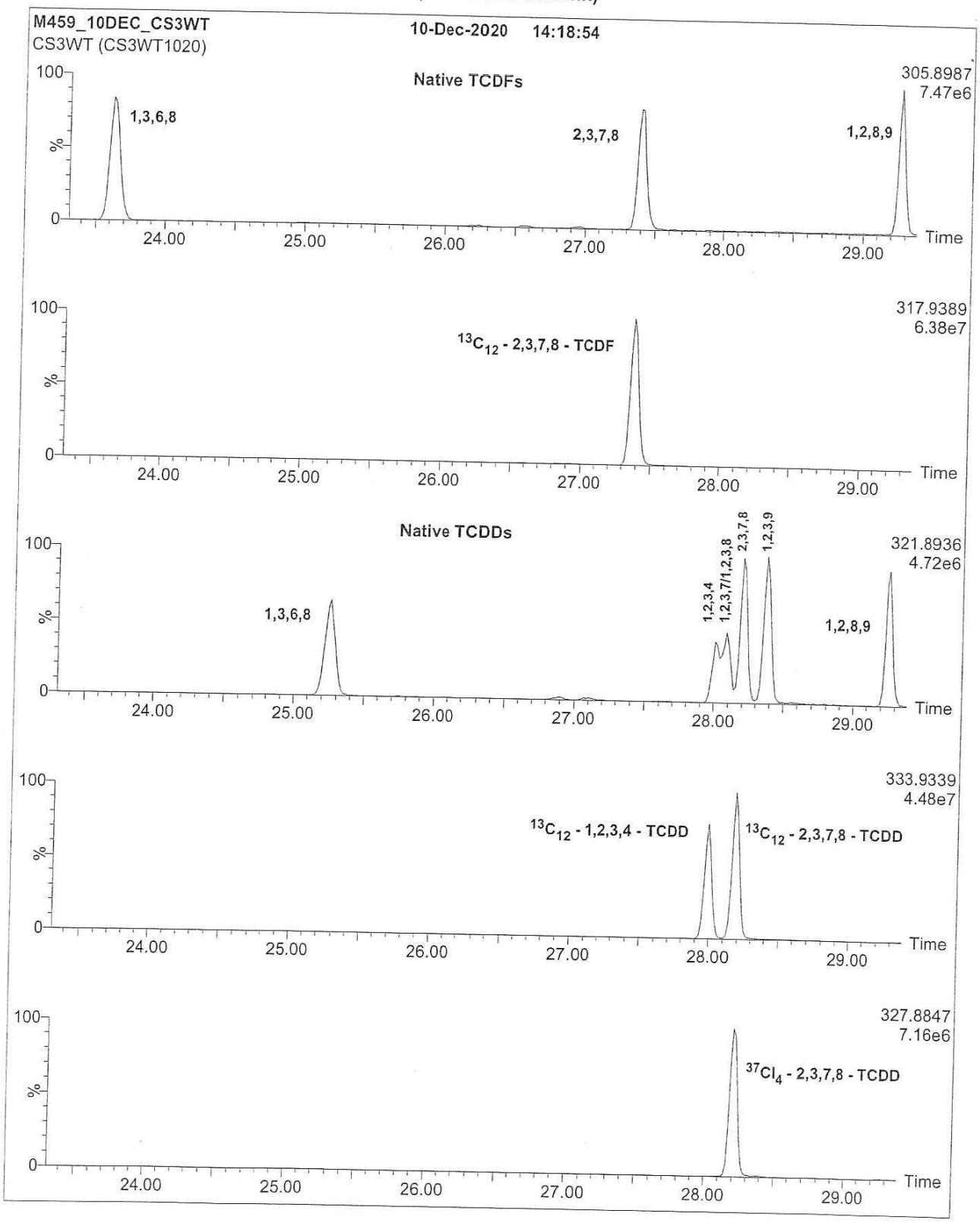


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

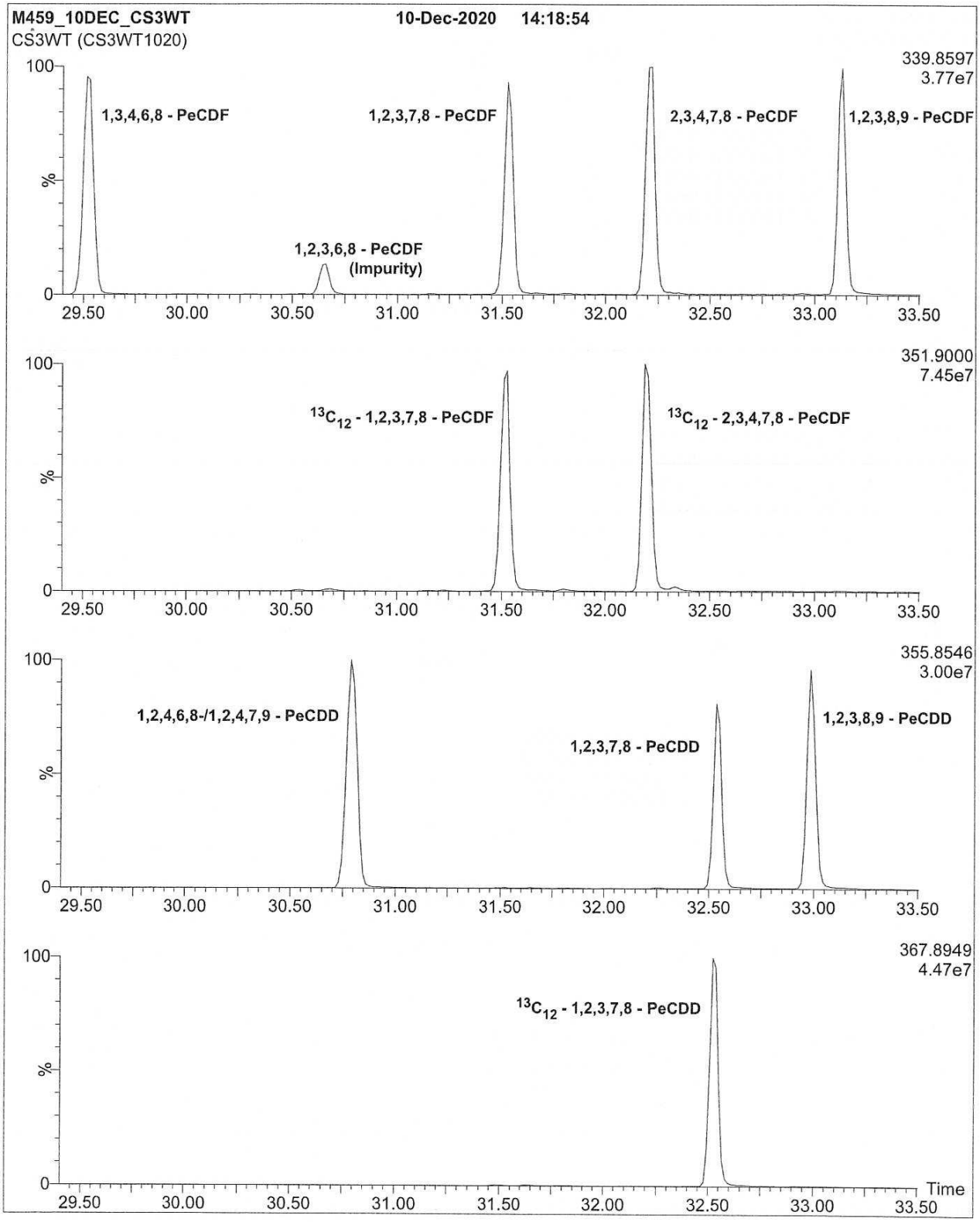


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)

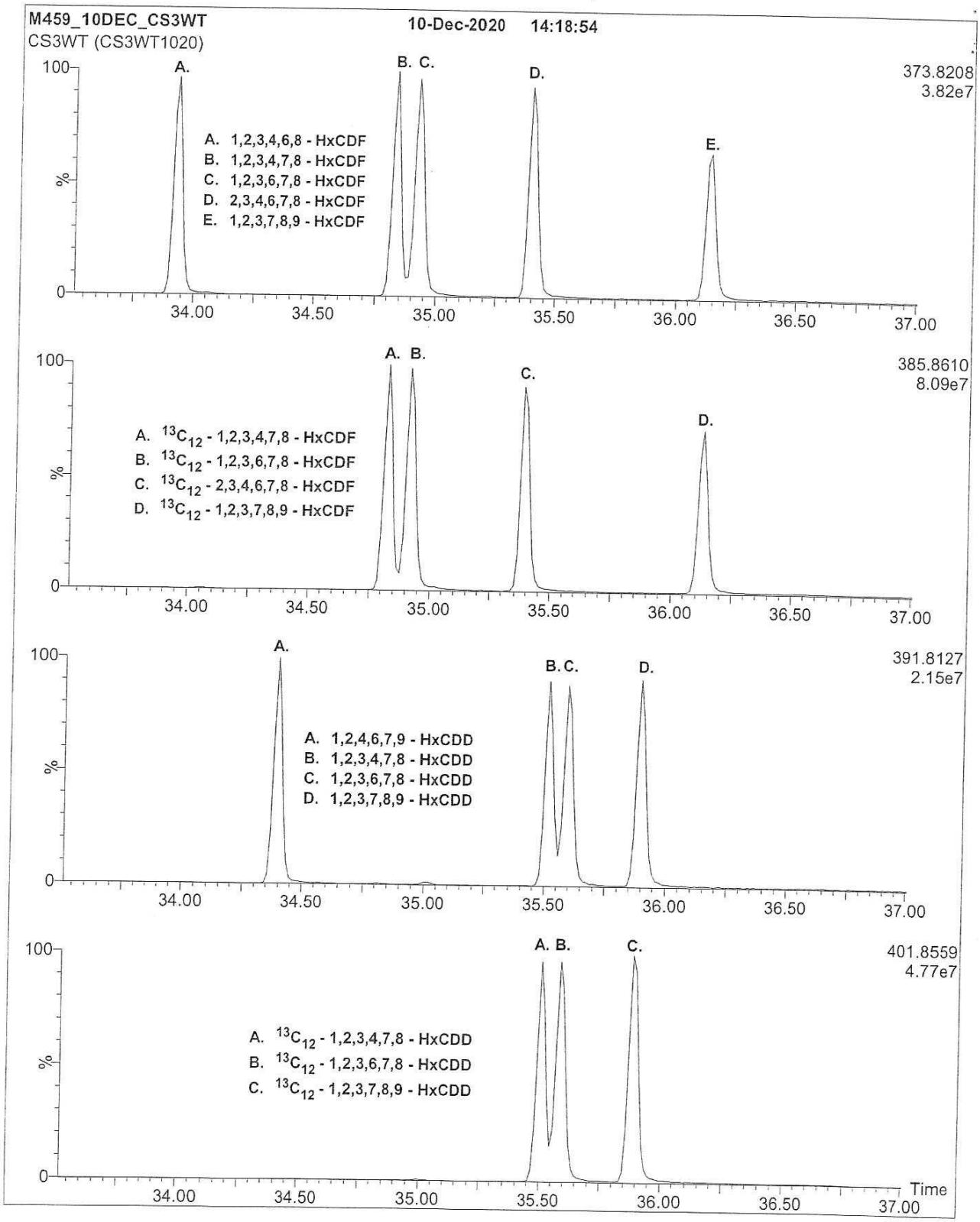


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

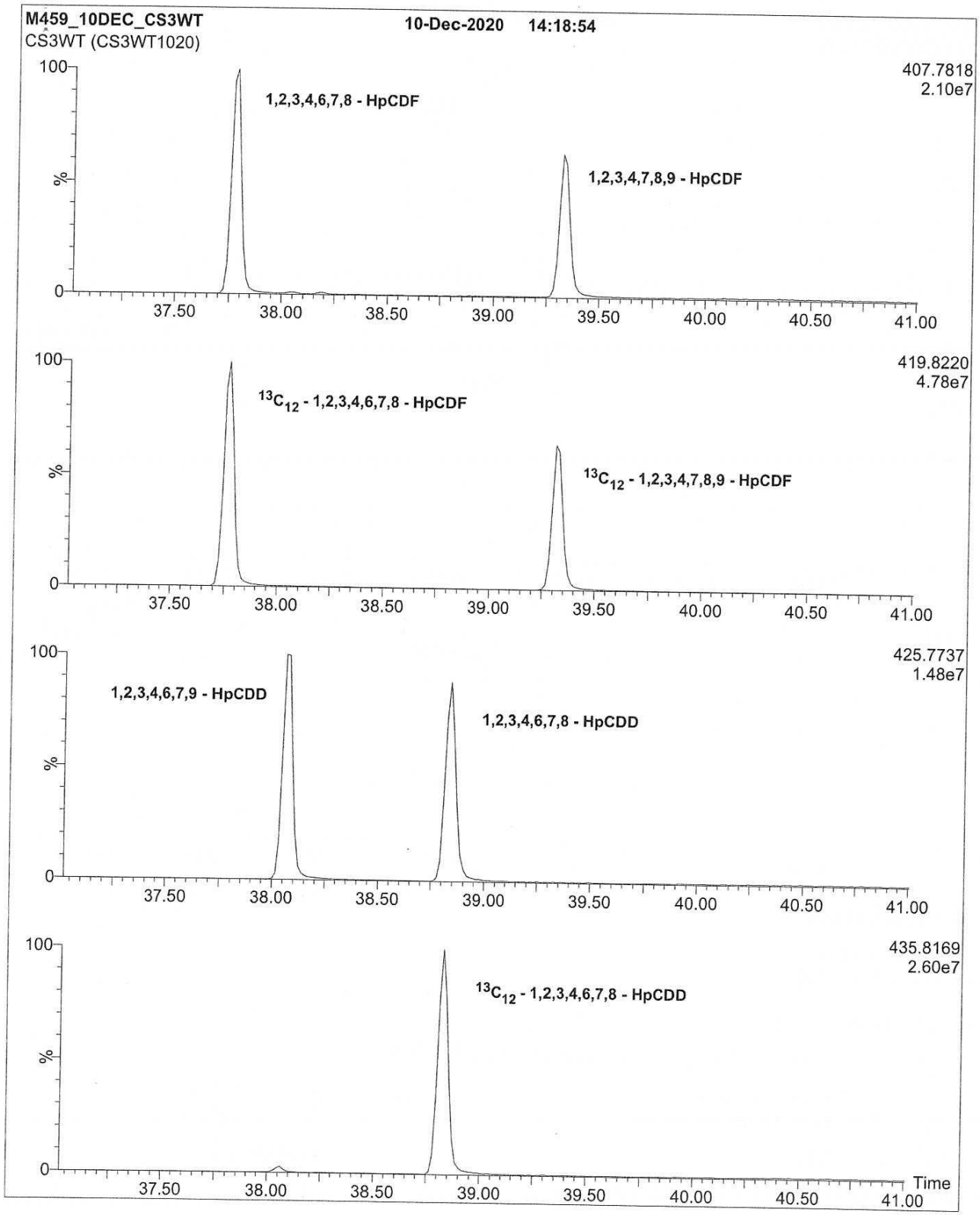
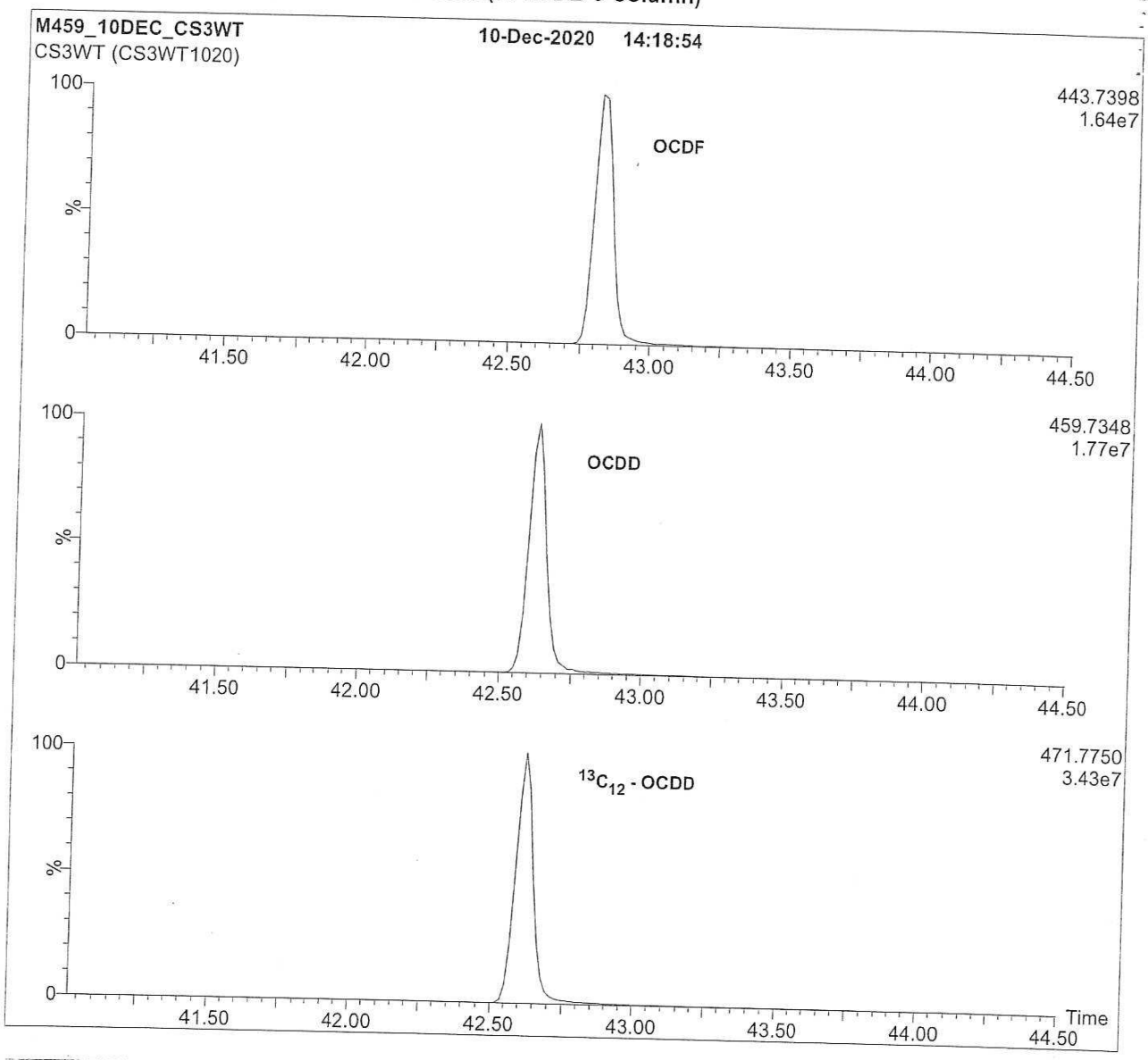


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)



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
Injector: 280°C (Splitless Injection)
Ionization: EI+
Detector: 280°C
SIR at 10,000 mass resolving power

Oven: 150°C (1 min)
12°C/min to 200°C
3°C/min to 235°C
235°C (8 min)
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 pr
Recd. 04/30/21

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:

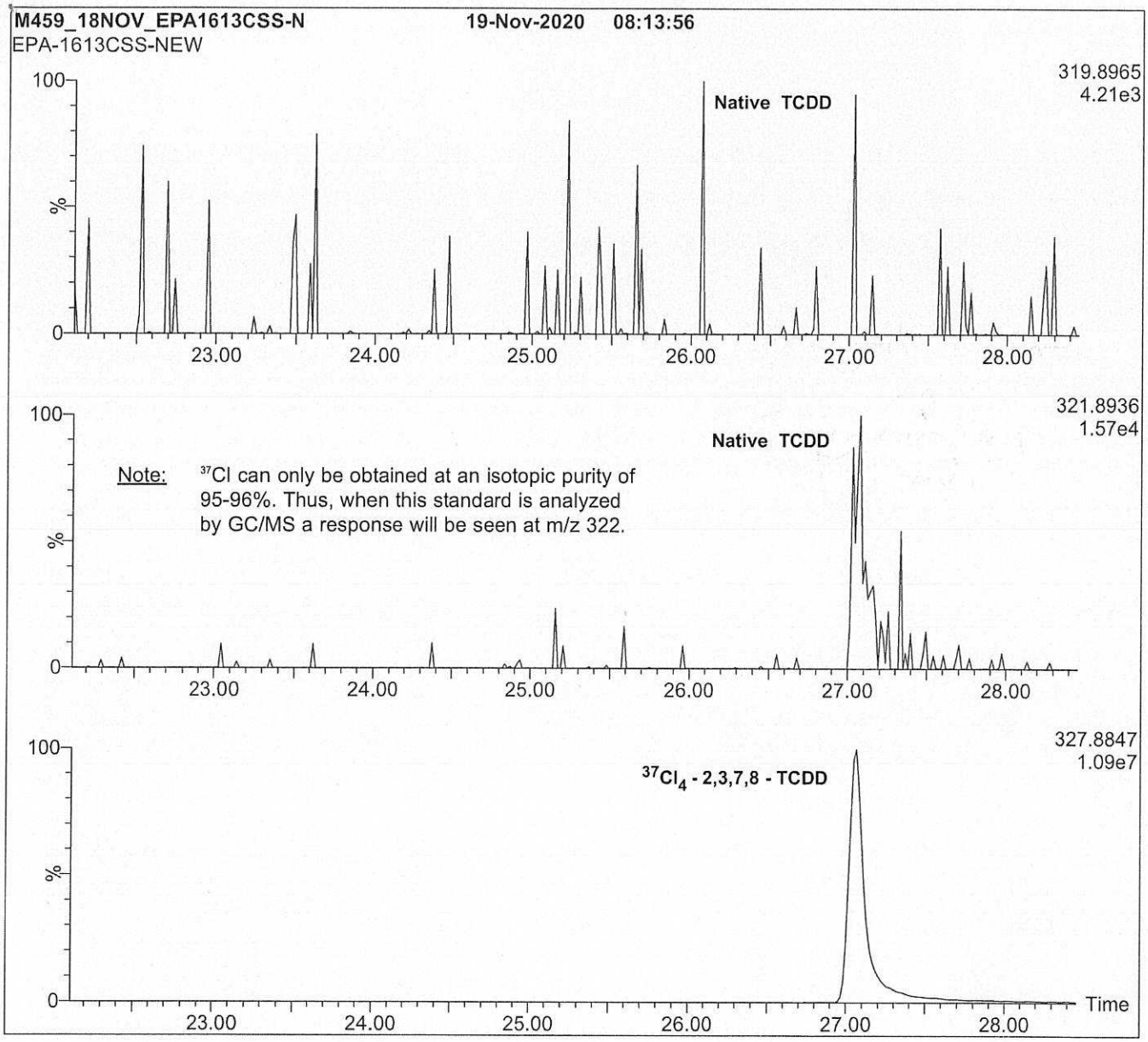
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

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
Recd. JR
01/30/21

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:

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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

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)

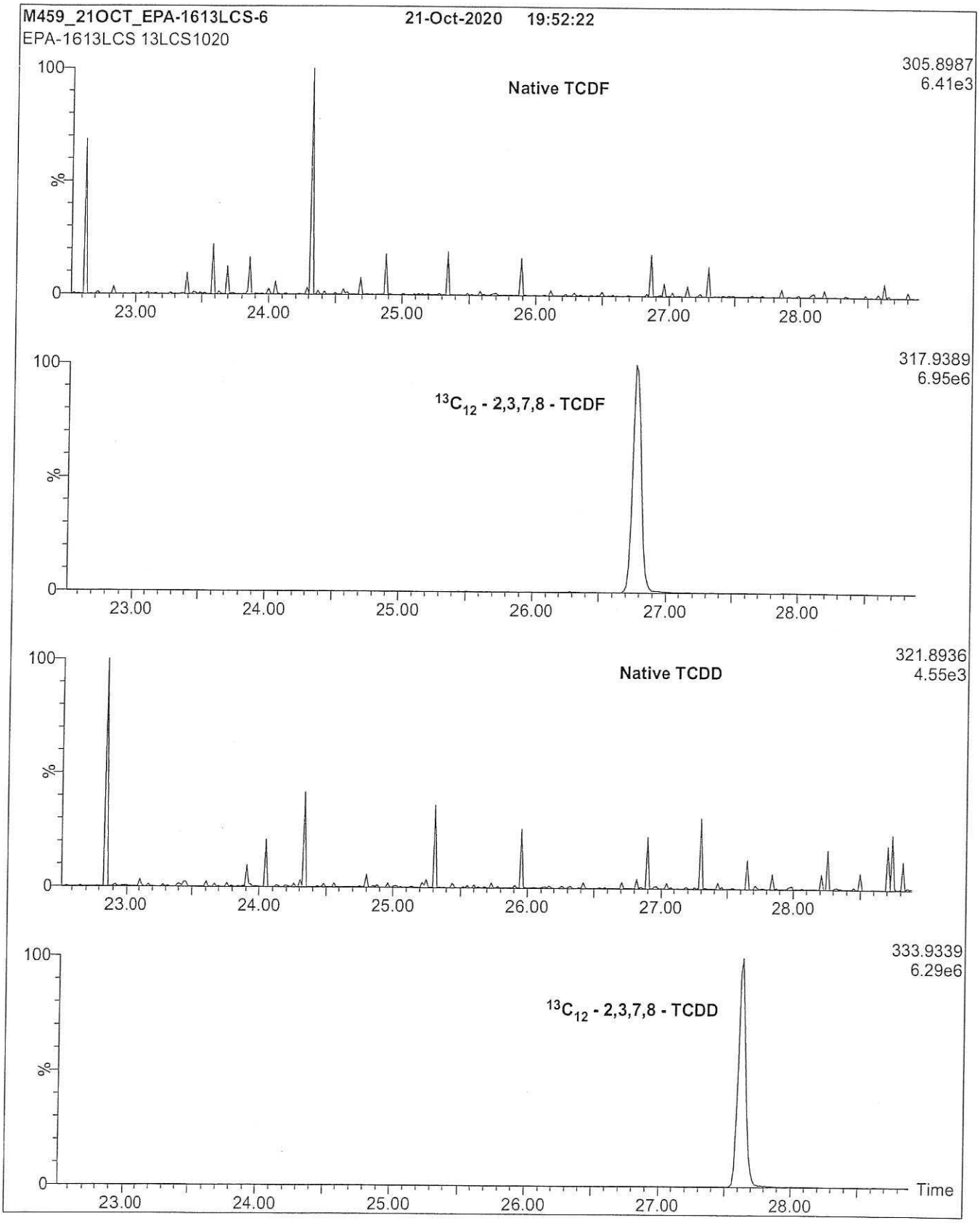


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

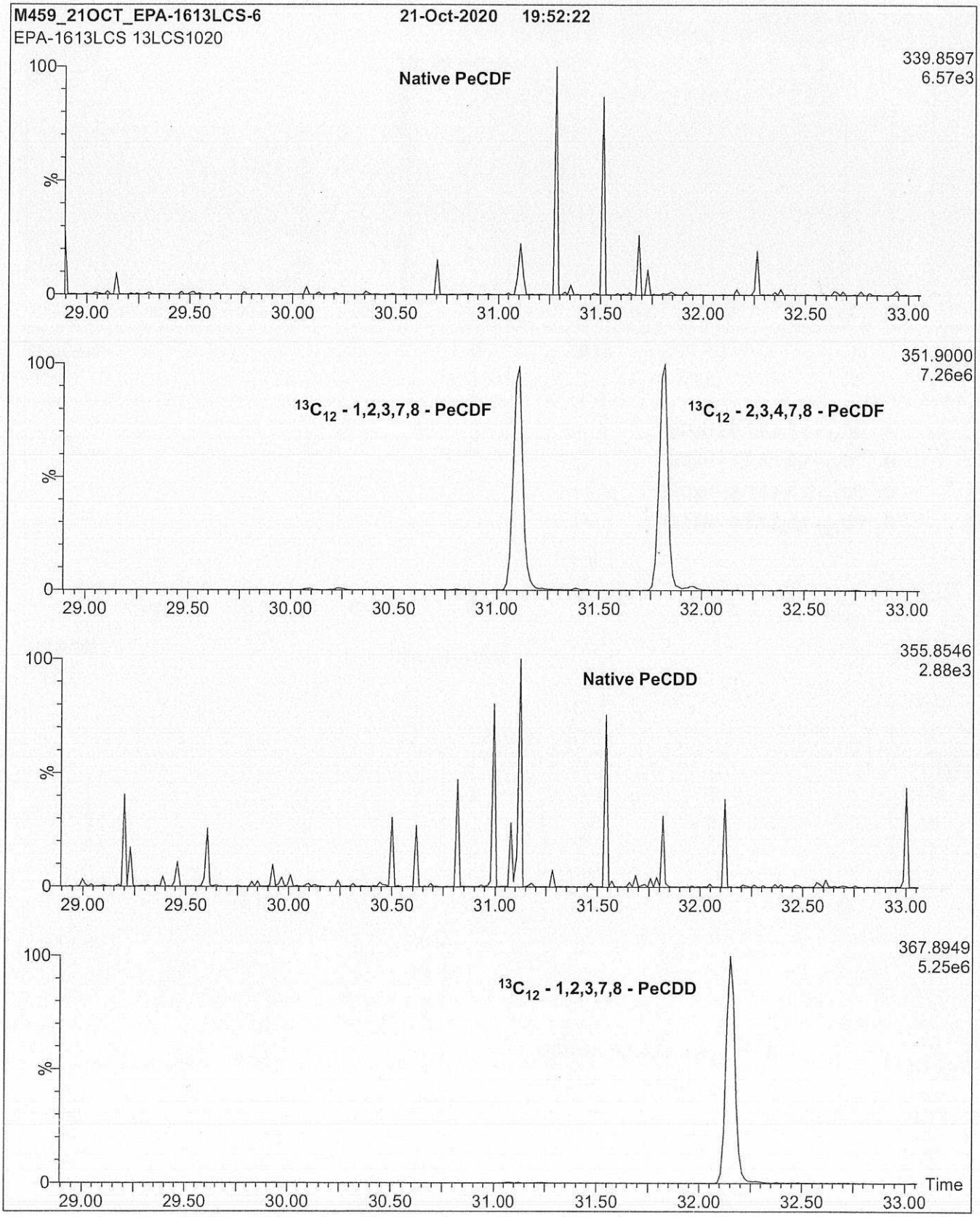
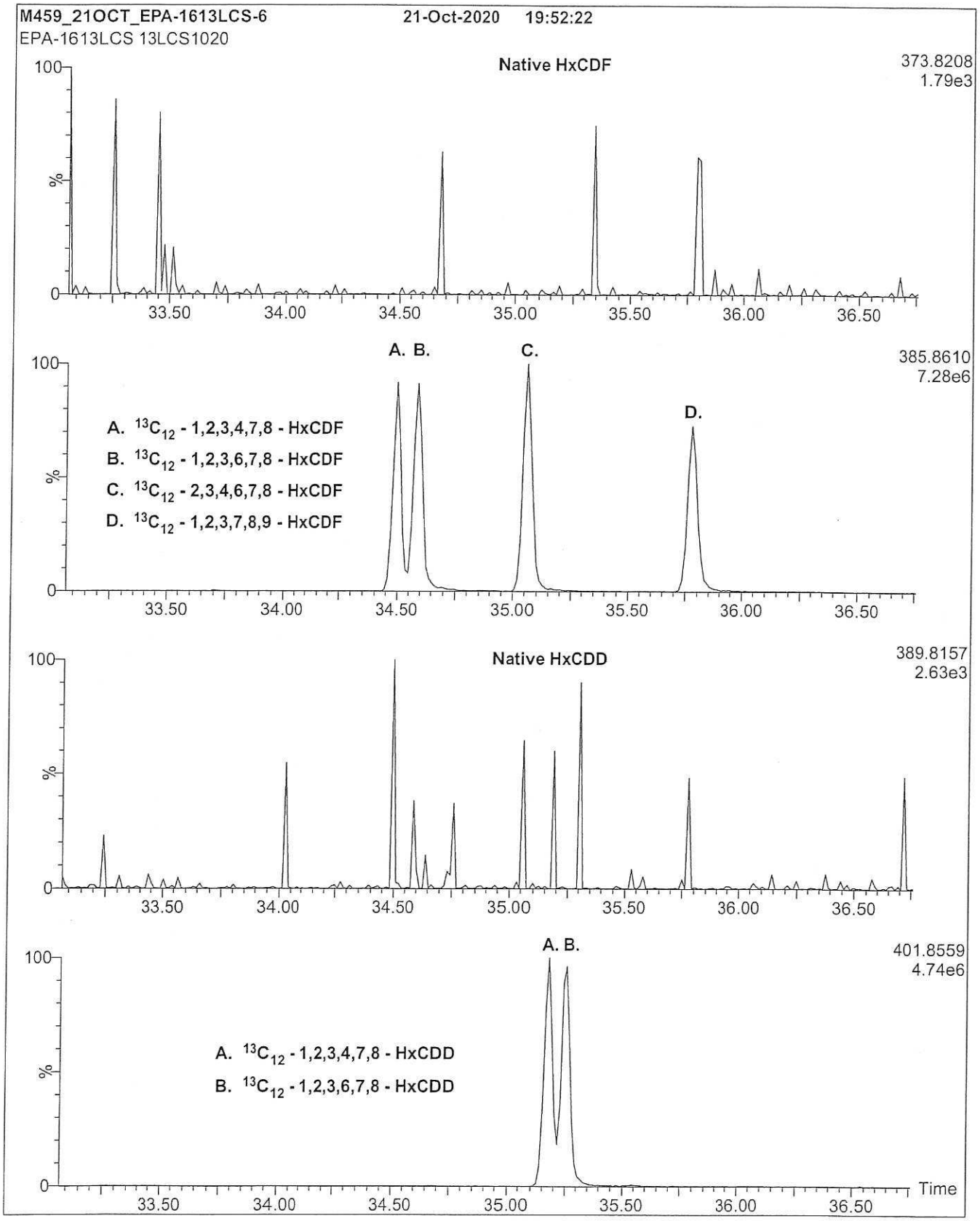


Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)



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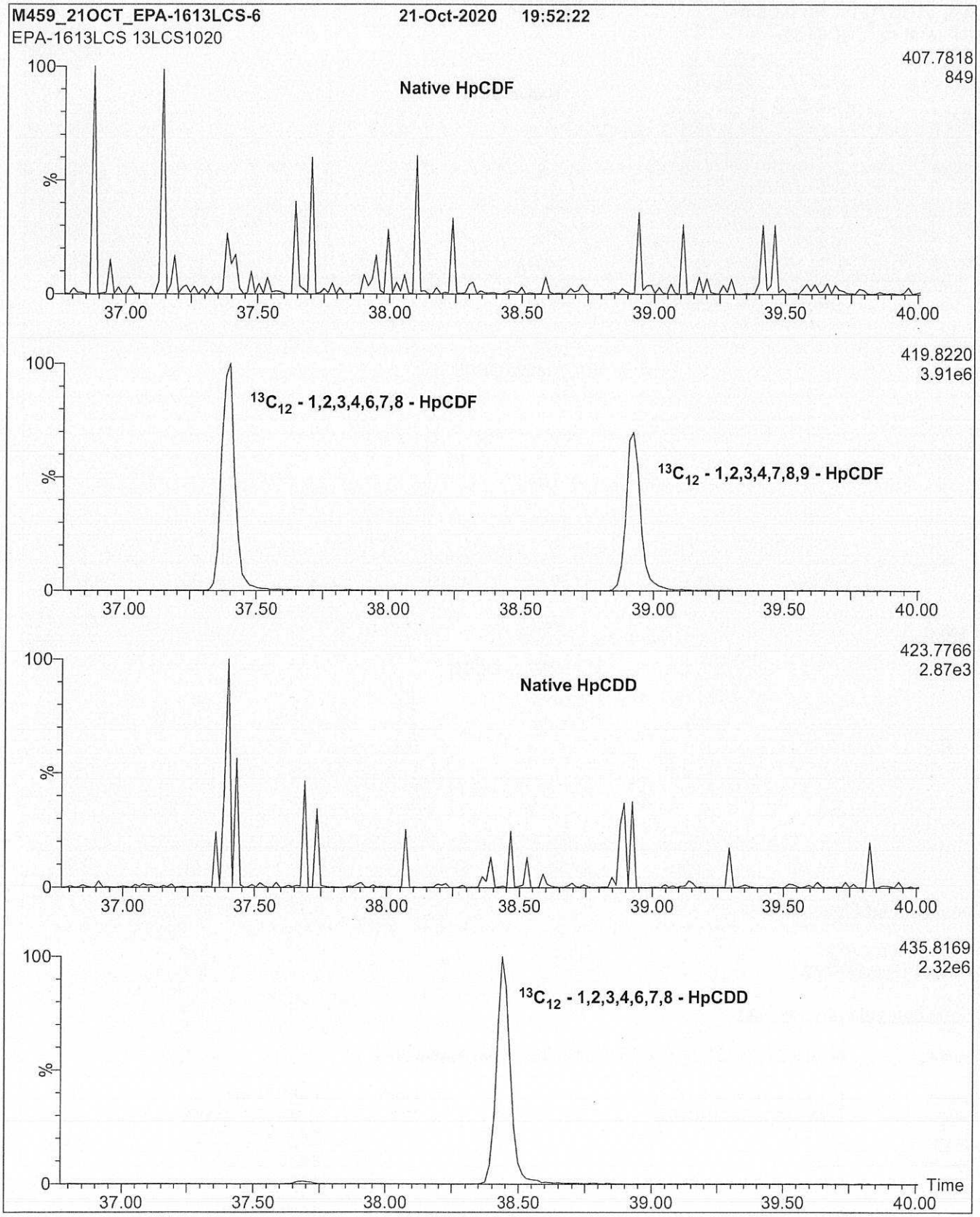

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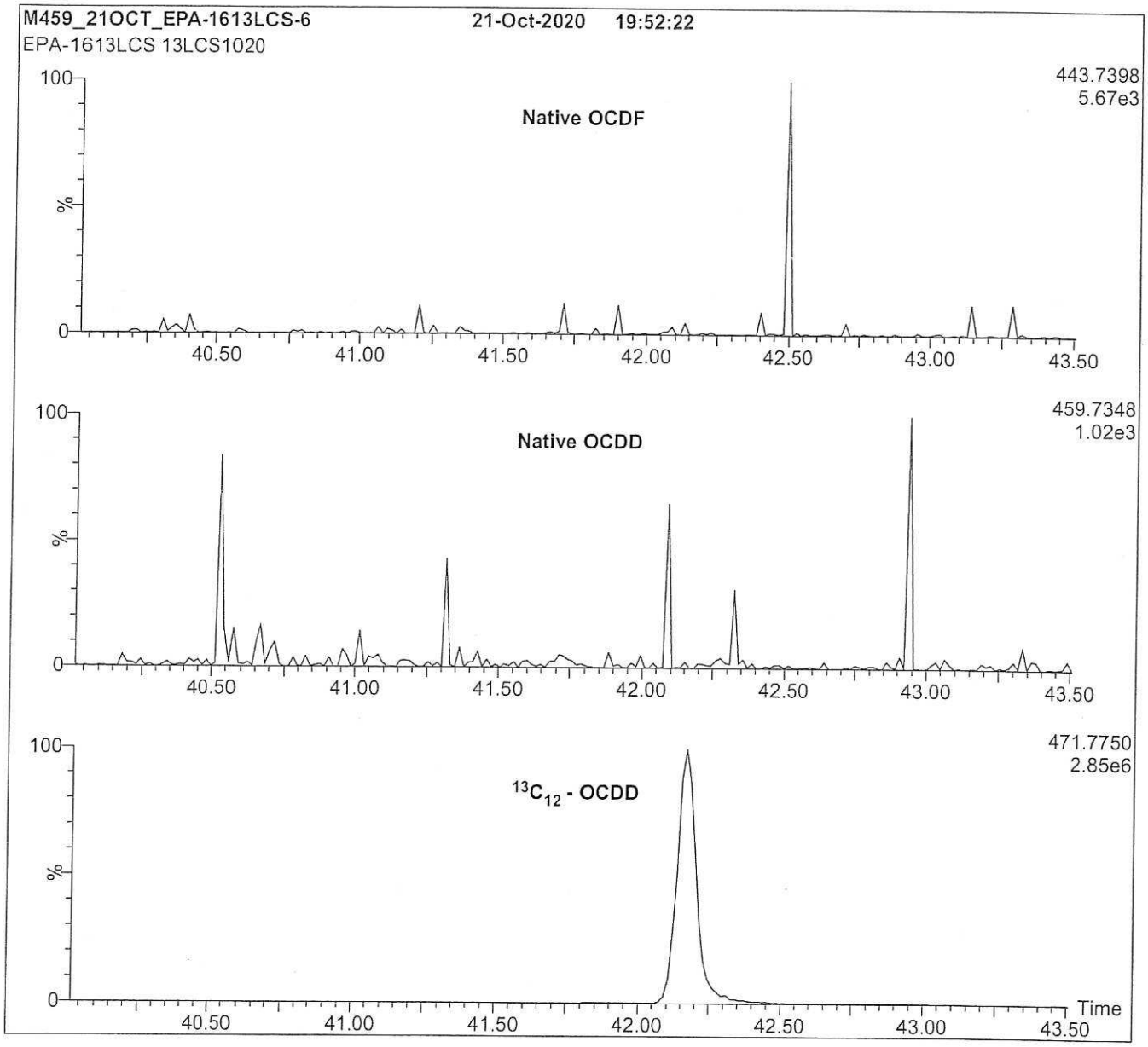

Conditions for Figure 1:

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. 15155

Order Number: CB014575 Date Shipped: 8/2/2021 AirBill No(s): 460843970024

From: QATS LABORATORY
2700 CHANDLER AVENUE, BLDG. B
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
PSRM0140 J007935	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0141 J007936	1	PUGET SOUND SEDIMENT RM	PS-SRM
		DUWAMISH AOC4	

8/2/2021

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 8/2/2021	Received by: Jacob Leitte (Signature)	Date/Time 08/03/2021 1138
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*

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

J 9511 Rec'd 09/02/21

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:

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:

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CALA Testing Accreditation No. A1226

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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
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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)

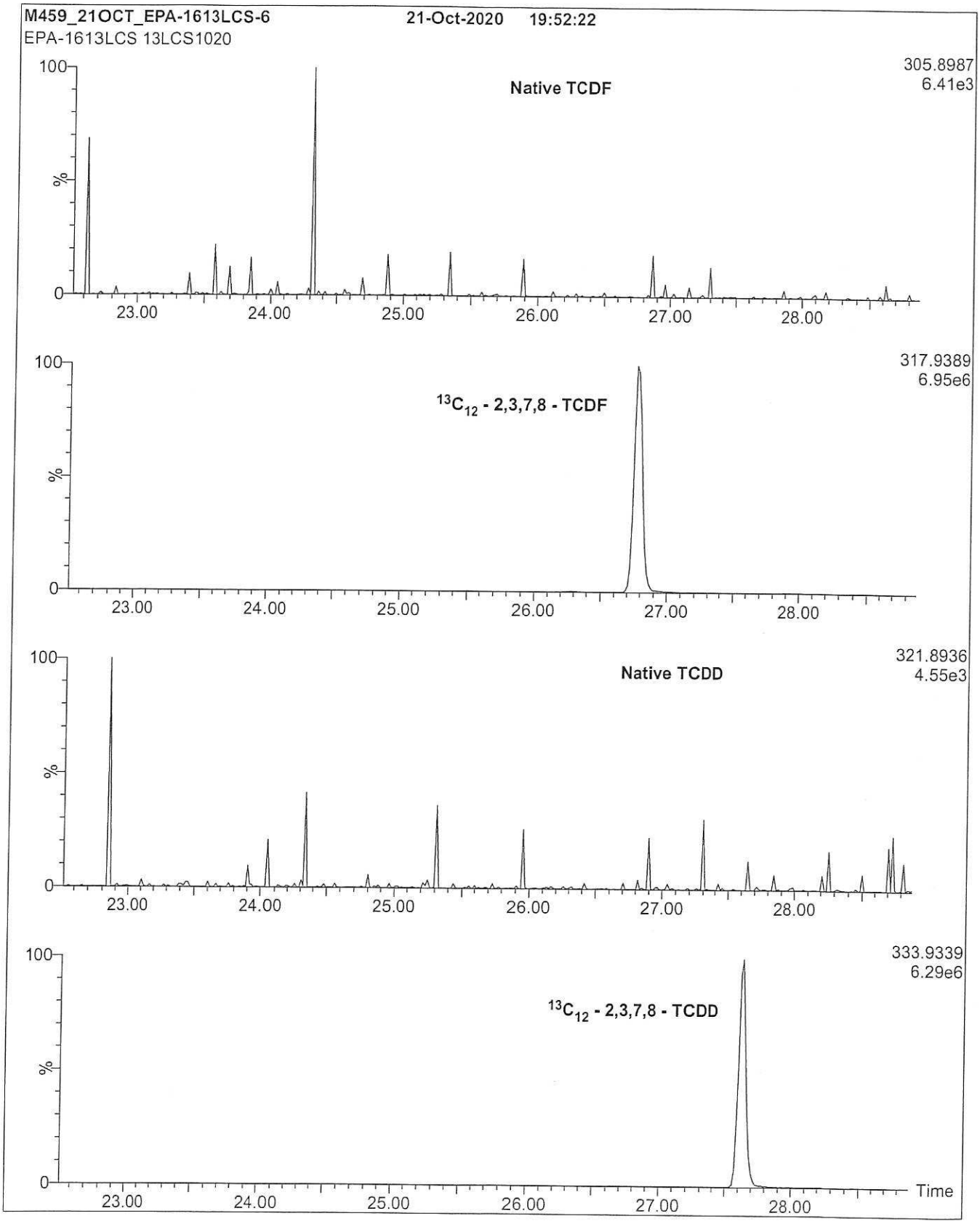
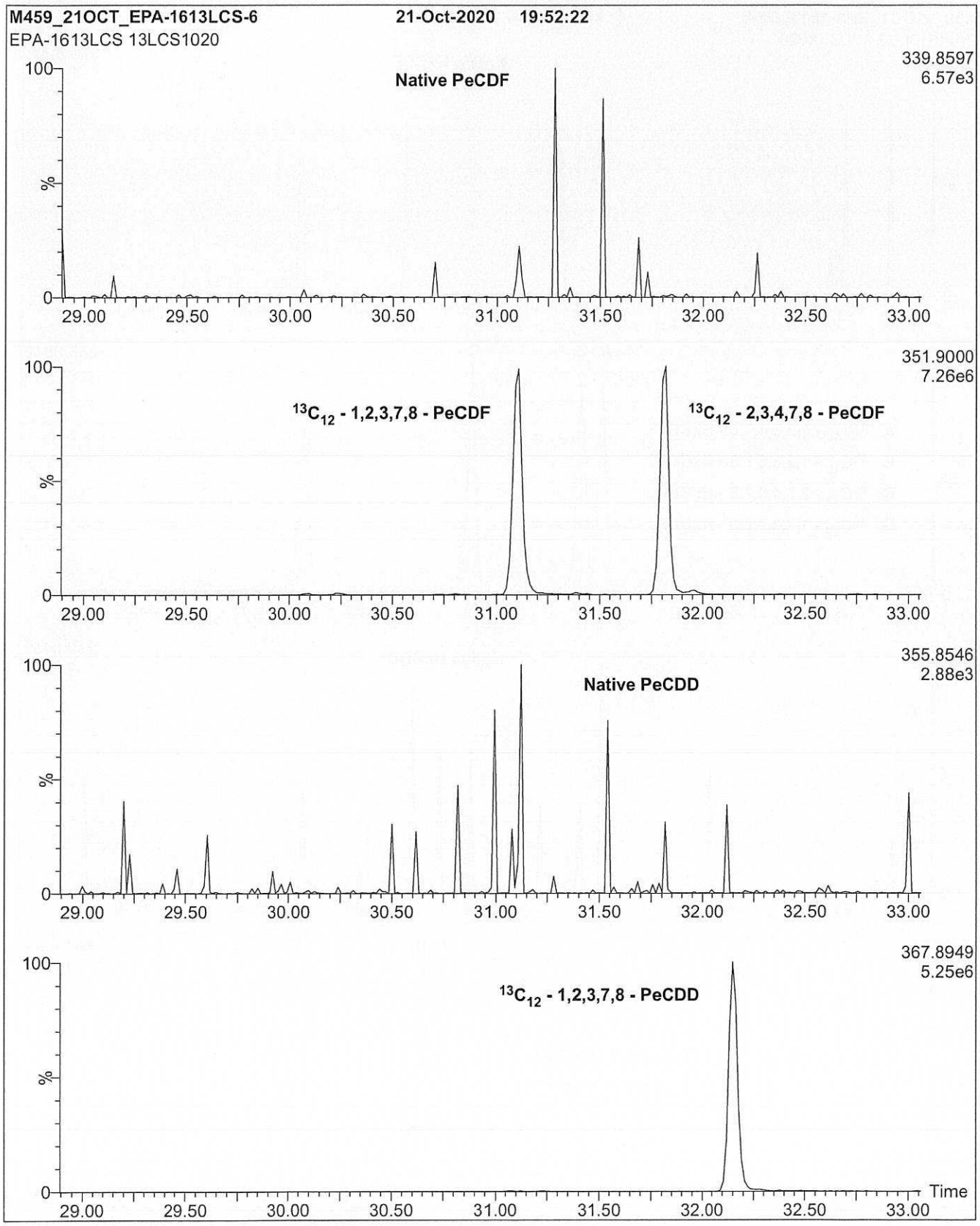


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



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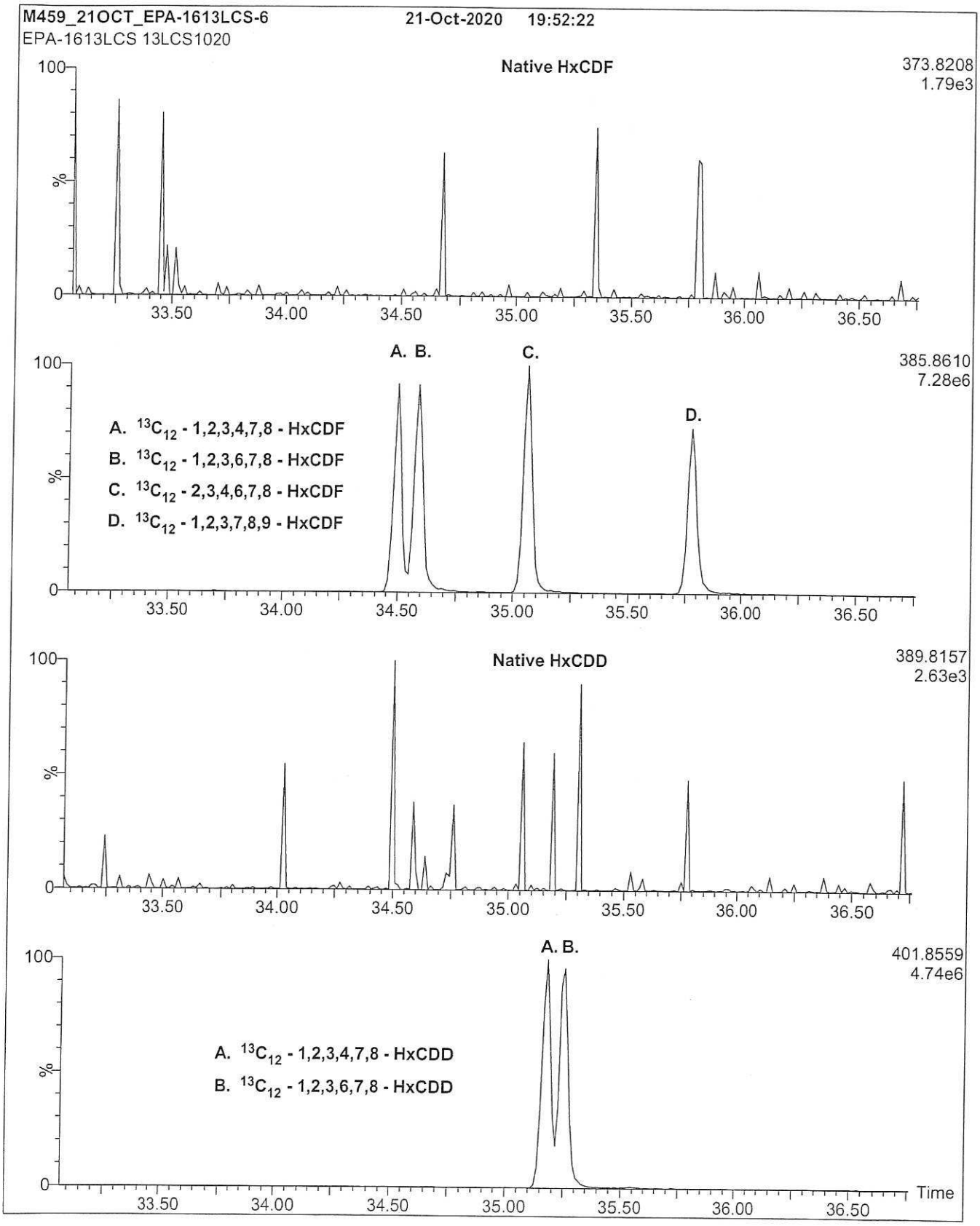

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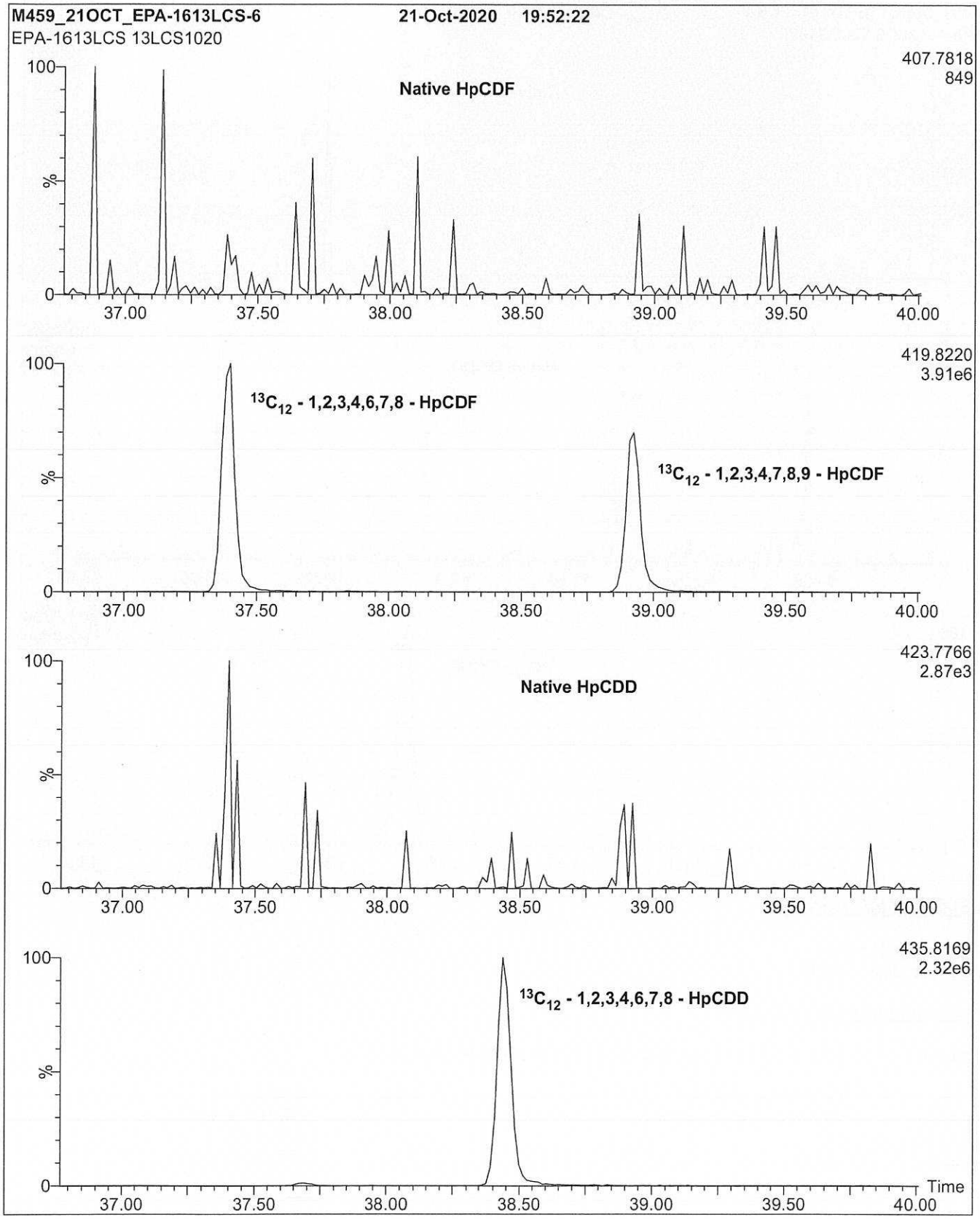

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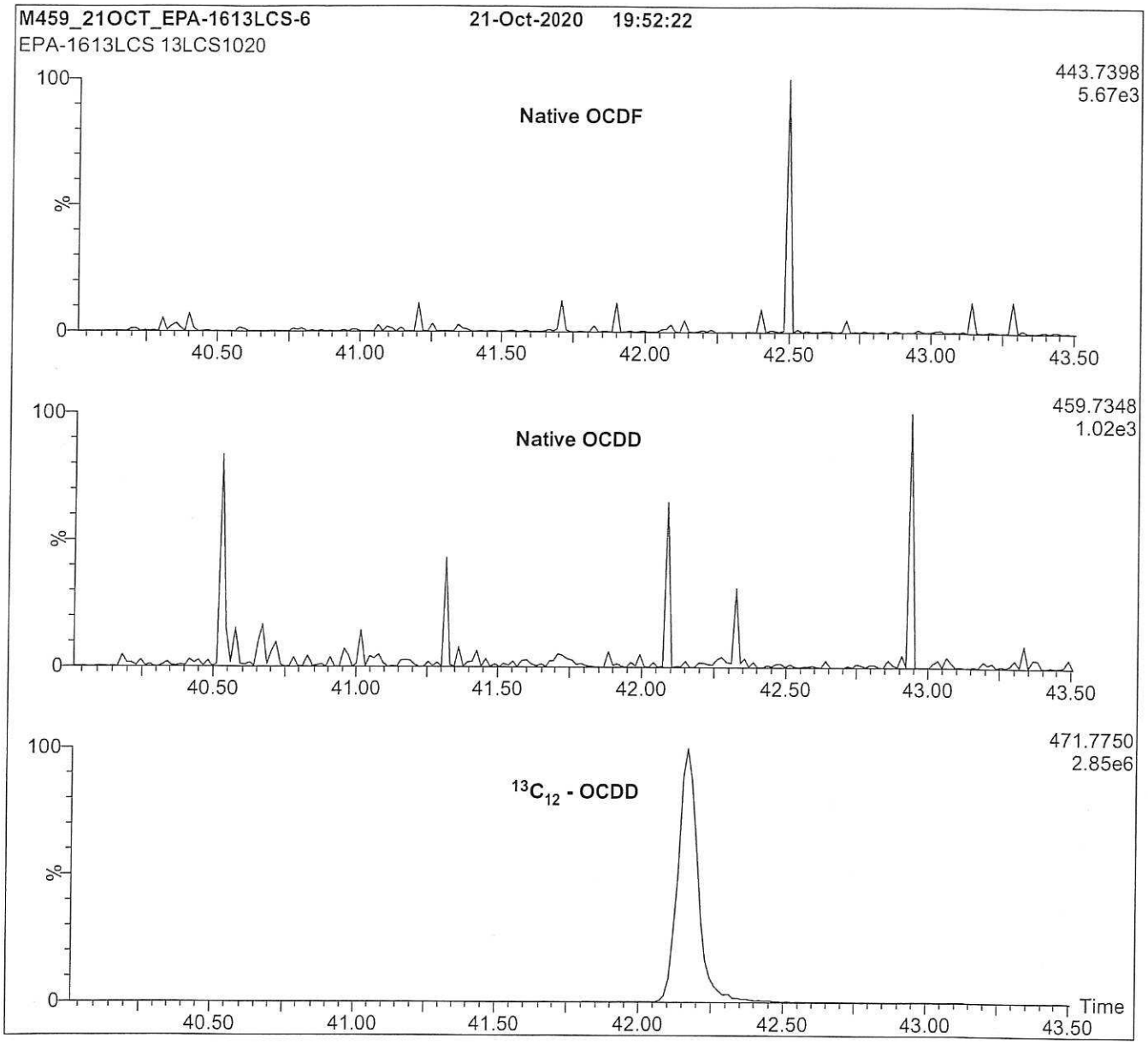

Conditions for Figure 1:

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)