Analytical Resources, Incorporated
Analytical Chemists and Consultants

27 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)
21G0286	N/A

Susan Dunnihoo Digitally signed by Susan Dunnihoo
Date: 2021.09.27 14:41:45 -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 1 21G0286

CHAIN-OF-CUSTODY/TEST REQUEST FORM

Tier 1

№ 4132

Project/Client Name: Duwamish AOCA
Project Number: 180067-02.02
Contact Name: Amara Vandervort
Sampled By: Windward

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

Shipping Date: 7.22.2021
Airbill Number: —
Turnaround requested: std.

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	PCBs	TOC / total solids	Archive	PAHs	Metals	Sulfide + Ammonia	Grain Size	Comments / Instructions [Jar tag number(s)]
					Test(s) Requested (check test(s) required)							
7.22.2021	0645	LDW21-SS687	11	Sediment	A	x	x	x	A	x	x	extra volume for tox testing
	0750	LDW21-SS625	4		x	x	x		x			BBP, metals (As, Zn, Pb, Hg)
	0750	LDW21-IT625	3		x	x	x		x			Arsenic
	0810	LDW21-SS627	4		x	x	x		x			BBP, metals (As, Zn, Pb, Hg)
	1150	LDW21-SS646	4		x	x	x					BBP, dioxins / furans
		Total Number of Containers	26	Purchase Order / Statement of Work # CFL-052021-ARI								

1) Released by:	1) Rec'd by:	2) Released by:	2) Rec'd by:
Print name: Aoreiro	Print name: Sambhatla	Print name:	
Signature:	Company: ARI	Signature:	Company:
Company: ~~Windward~~ AOCA		Company:	
Date/Time: 7.22.2021 1730	Date/Time: 07/22/2021 1730	Date/Time:	Date/Time:

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

Wind Ward environmental LLC

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

206.378.1364

To be completed by Laboratory upon sample receipt:

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: windward/Anchor

Project Name: Lower Duwamish AOC4

COC No(s): 4132 NA

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

Assigned ARI Job No: 21G0286

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 1755 1.3 ____ ____ ____ ____ ____

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

Temp Gun ID#: DOO 5206

Cooler Accepted by: JSn Date: 07/23/2021 Time: 1730

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: Trash bag

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: JSn Date: 07/23/2021 Time: 1336 Labels checked by: JSn

*** 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	09/27/2021 14:31

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
21G0286-01	LDW21-SS687	Solid	07/22/21 06:45	07/22/21 17:30
21G0286-02	LDW21-SS625	Solid	07/22/21 07:50	07/22/21 17:30
21G0286-03	LDW21-IT625	Solid	07/22/21 07:50	07/22/21 17:30
21G0286-04	LDW21-SS627	Solid	07/22/21 08:10	07/22/21 17:30
21G0286-05	LDW21-SS646	Solid	07/22/21 11:50	07/22/21 17:30

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	27-Sep-2021 14:31

Case Narrative

Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Work Order: 21G0286

Sample receipt

Samples as listed on the preceding page were received 22-Jul-2021 17:30 under ARI work order 21G0286. 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.

For calibrations SJI0191-CCV1 and SJI0191-CCV2, 13C12-1,2,3,4-TCDD and 13C12-1,2,3,7,8,9-HxCDD were below control limits. For calibration SJI0351-CCV1, 13C12-1,2,3,4,6,7,8-HpCDF and 12C-1,2,3,4,7,8,9-HpCDF were outside limits low.

Labeled internal standard areas were within limits.

The cleanup surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits, with response for OCDD below the reporting limit and "J"-flagged. Associated positive results have been "B"-flagged.

The OPR samples, or blank spike and blank spike duplicate (BS/LCS and BSD/LCSD), spike recoveries and relative percent difference (RPD) were within control limits.

The reference material (SRM) percent recoveries for 1,2,3,7,8,9-HxCDF was outside control limits.

The duplicate (DUP) relative percent difference (RPD) were outside advisory control limits for 2,3,4,6,7,8-HxCDF and 1,2,3,7,8,9-HxCDF.

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
EMPC	Estimated Maximum Possible Concentration qualifier for HRGCMS Dioxin
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-SS646

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0286
Client:	Anchor QEA, LLC				
Project:	Lower Duwamish AOC4				
Matrix:	Sediment	Laboratory ID:	21G0286-05 C	File ID:	21092404
Sampled:	07/22/21 11:50	Prepared:	09/02/21 15:08	Analyzed:	09/24/21 11:17
% Solids:	65.43	Preparation:	EPA 8290	Initial/Final:	15.28 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SJI0383	Calibration:	EH00030
Batch:	BJH0773	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	0.509	0.655-0.886	0.023	1.00	6.95	ng/kg	EMPC
1746-01-6	2,3,7,8-TCDD	1	0.681	0.655-0.886	0.151	1.00	1.64	ng/kg	
57117-41-6	1,2,3,7,8-PeCDF	1	1.556	1.318-1.783	0.340	1.00	3.28	ng/kg	
57117-31-4	2,3,4,7,8-PeCDF	1		1.318-1.783	0.331	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	1.586	1.318-1.783	0.308	1.00	8.90	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.221	1.054-1.426	0.148	1.00	11.5	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.276	1.054-1.426	0.146	1.00	6.63	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.153	1.054-1.426	0.153	1.00	4.03	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.122	1.054-1.426	0.160	1.00	7.02	ng/kg	
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.191	1.054-1.426	0.285	1.00	10.2	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.229	1.054-1.426	0.290	1.00	33.2	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.242	1.054-1.426	0.308	1.00	24.9	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.019	0.893-1.208	0.196	1.00	132	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.990	0.893-1.208	0.272	1.00	9.18	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.055	0.893-1.208	0.507	2.50	813	ng/kg	
39001-02-0	OCDF	1	0.891	0.757-1.024	0.239	2.50	327	ng/kg	
3268-87-9	OCDD	1	0.894	0.757-1.024	0.657	10.0	5860	ng/kg	E, B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	957	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	11.0	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	530	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	18.8	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	181	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	222	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	424	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	1450	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 32.48
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 32.53

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS646

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

Laboratory:	Analytical Resources, Inc.			SDG:	21G0286
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Sediment	Laboratory ID:	21G0286-05	File ID:	21092404
Sampled:	07/22/21 11:50	Prepared:	09/02/21 15:08	Analyzed:	09/24/21 11:17
Solids Wt%:	65.43	Preparation:	EPA 8290	Initial/Final:	15.28 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0383	Calibration:	EH00030
Batch:	BJH0773	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.812	0.655-0.886	0.138	67.5	24 - 169 %	
13C12-2,3,7,8-TCDD		0.754	0.655-0.886	0.109	82.2	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.605	1.318-1.783	0.127	66.0	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.553	1.318-1.783	0.134	65.0	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.575	1.318-1.783	0.157	74.9	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.514	0.434-0.587	0.113	72.7	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.524	0.434-0.587	0.104	68.7	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.516	0.434-0.587	0.115	70.1	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.504	0.434-0.587	0.139	73.9	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.303	1.054-1.426	0.146	86.2	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.284	1.054-1.426	0.134	80.9	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.462	0.374-0.506	0.161	62.0	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.453	0.374-0.506	0.197	63.4	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.028	0.893-1.208	0.140	75.9	23 - 140 %	
13C12-OCDD		0.897	0.757-1.024	0.202	84.3	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.059	84.1	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210924LDW.qld
Last Altered: Friday, September 24, 2021 13:24:53 Pacific Daylight Time
Printed: Friday, September 24, 2021 13:38:25 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210924.mdb 24 Sep 2021 10:55:34
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0286-05, Name: 21092404, Date: 24-Sep-2021, Time: 11:17:11, 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	25.610	1.001	1.113e4	2.188e4	1.108	0.509	0.770	555	1	1.64e5	2.94e5	295.8	293778.0	YES	MM	dd	3.472
12378-PeCDF	29.757	1.000	7.717e3	4.961e3	1.015	1.556	1.550	3453	3368	8.33e4	5.45e4	24.1	16.2	NO	dd	MM	1.638
23478-PeCDF					1.126		1.550	3453	3368								
123478-HxCDF	34.748	1.001	2.300e4	1.884e4	1.017	1.221	1.240	1189	1700	3.56e5	2.98e5	299.3	175.4	NO	dd	dd	5.754
234678-HxCDF	35.762	1.000	7.650e3	6.633e3	1.052	1.153	1.240	1189	1700	1.25e5	1.06e5	105.4	62.2	NO	db	db	2.014
123678-HxCDF	34.882	1.000	1.409e4	1.104e4	1.037	1.276	1.240	1189	1700	2.23e5	1.83e5	187.5	107.9	NO	dd	db	3.315
123789-HxCDF	36.776	1.000	1.126e4	1.004e4	1.030	1.122	1.240	1189	1700	1.69e5	1.54e5	142.3	90.4	NO	db	db	3.510
1234678-HpCDF	38.648	1.001	2.013e5	1.976e5	1.327	1.019	1.050	1505	1794	3.35e6	3.27e6	2226.9	1823.6	NO	bd	bb	66.058
1234789-HpCDF	40.865	1.000	1.115e4	1.126e4	1.283	0.990	1.050	1505	1794	1.71e5	1.77e5	113.9	98.6	NO	bb	bd	4.587
OCDF	45.073	1.005	3.751e5	4.210e5	1.447	0.891	0.890	1295	1210	4.57e6	5.23e6	3531.7	4323.0	NO	bd	bb	163.593
2378-TCDD	26.229	1.001	2.502e3	3.672e3	0.920	0.681	0.770	1502	1360	3.46e4	5.62e4	23.0	41.4	NO	MM	bd	0.821
12378-PeCDD	31.350	1.001	1.325e4	8.356e3	0.995	1.586	1.550	1438	2364	1.91e5	1.22e5	133.1	51.7	NO	bb	bb	4.447
123478-HxCDD	35.874	1.000	1.856e4	1.559e4	1.027	1.191	1.240	2445	2856	3.26e5	2.65e5	133.4	92.8	NO	bd	bd	5.074
123678-HxCDD	35.996	1.001	6.161e4	5.014e4	1.009	1.229	1.240	2445	2856	1.02e6	8.27e5	418.0	289.7	NO	db	db	16.607
123789-HxCDD	36.386	1.012	4.332e4	3.489e4	0.950	1.242	1.240	2445	2856	7.29e5	5.80e5	298.1	203.1	NO	dd	dd	12.447
1234678-HpCDD	40.130	1.001	8.464e5	8.022e5	1.068	1.055	1.050	2697	2805	1.35e7	1.27e7	5016.9	4524.4	NO	bb	bb	406.195
OCDD	44.835	1.000	5.494e6	6.147e6	1.181	0.894	0.890	1942	3680	7.07e7	7.94e7	36401.9	21579.1	NO	bb	bb	2931.022
13C-2378-TCDF	25.579	1.007	3.846e5	4.737e5	1.427	0.812	0.770	2640	1912	5.90e6	7.35e6	2236.5	3843.2	NO	bb	bb	67.543
13C-12378-PeCDF	29.746	1.171	4.699e5	2.928e5	1.297	1.605	1.550	1966	1840	7.31e6	4.53e6	3719.9	2463.5	NO	bb	bb	66.002
13C-23478-PeCDF	31.083	1.224	4.358e5	2.806e5	1.236	1.553	1.550	1966	1840	6.69e6	4.23e6	3402.8	2297.9	NO	bb	bb	65.049
13C-123478-HxCDF	34.726	0.955	2.428e5	4.722e5	1.242	0.514	0.510	1277	1839	3.92e6	7.60e6	3067.6	4134.5	NO	bd	bd	72.696
13C-123678-HxCDF	34.871	0.959	2.513e5	4.798e5	1.343	0.524	0.510	1277	1839	3.94e6	7.62e6	3084.2	4145.2	NO	db	db	68.740
13C-234678-HxCDF	35.751	0.983	2.294e5	4.445e5	1.215	0.516	0.510	1277	1839	3.67e6	7.21e6	2875.4	3918.7	NO	bb	bb	70.061
13C-123789-HxCDF	36.776	1.011	1.975e5	3.918e5	1.008	0.504	0.510	1277	1839	3.53e6	6.86e6	2760.2	3729.6	NO	bb	bb	73.872
13C-1234678-HpCDF	38.626	1.062	1.437e5	3.112e5	0.926	0.462	0.440	1589	1734	2.41e6	5.23e6	1516.5	3018.0	NO	bb	bd	62.022
13C-1234789-HpCDF	40.854	1.123	1.186e5	2.620e5	0.758	0.453	0.440	1589	1734	1.77e6	3.89e6	1112.6	2244.7	NO	bd	bb	63.444
13C-1234-TCDD	25.398	0.000	3.833e5	5.074e5	1.000	0.756	0.770	1879	920	5.95e6	7.85e6	3169.7	8537.3	NO	bb	bb	100.000
13C-2378-TCDD	26.214	1.032	3.513e5	4.661e5	1.116	0.754	0.770	1879	920	5.31e6	7.02e6	2828.7	7635.1	NO	bb	bb	82.187
13C-12378-PeCDD	31.328	1.234	2.986e5	1.896e5	0.732	1.575	1.550	1723	928	4.55e6	2.91e6	2638.1	3135.0	NO	bb	bb	74.874
13C-123478-HxCDD	35.863	0.986	3.706e5	2.845e5	0.960	1.303	1.240	1429	1688	6.16e6	4.68e6	4308.4	2773.6	NO	bd	bd	86.223
13C-123678-HxCDD	35.974	0.989	3.749e5	2.920e5	1.041	1.284	1.240	1429	1688	6.11e6	4.83e6	4274.3	2861.8	NO	db	db	80.889
13C-1234678-HpCDD	40.107	1.103	1.926e5	1.874e5	0.632	1.028	1.050	1074	902	3.09e6	2.99e6	2875.9	3316.7	NO	bb	bb	75.890
13C-OCDD	44.826	1.233	3.180e5	3.546e5	0.504	0.897	0.890	1363	900	4.11e6	4.54e6	3015.9	5041.0	NO	bb	bb	168.665
13C-123789-HxCDD	36.364	0.000	4.413e5	3.504e5	1.000	1.259	1.240	1429	1688	7.45e6	5.90e6	5211.8	3496.7	NO	bb	bb	100.000
37CL-2378-TCDD	26.229	1.033	3.247e5		1.084			1463		4.75e6		3247.2			bd		33.636

Dataset: T:\Autospec\Processed Data Batch\210924LDW.qld
Last Altered: Friday, September 24, 2021 13:24:53 Pacific Daylight Time
Printed: Friday, September 24, 2021 13:38:25 Pacific Daylight Time

ID: 21G0286-05, Name: 21092404, Date: 24-Sep-2021, Time: 11:17:11, 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	22.223	0.869	1.006e5	1.371e5	1.425	0.734	0.770	555	1	1.53e6	2.08e6	2754.3	2080895.0	NO	dd	dd	19.436
1289-TCDF	27.061	1.058	1.839e3	2.399e3	1.043	0.767	0.770	555	1	3.74e4	4.89e4	67.3	48921.0	NO	bd	dd	0.473
13468-PECDF	26.879	0.904	1.403e5	9.055e4	1.376	1.550	1.550	1023	1092	1.85e6	1.21e6	1806.9	1103.3	NO	dd	bd	21.996
12389-PECDF					1.000		1.550	3453	3368								
123468-HXCDF	33.066	0.952	3.648e4	3.013e4	1.087	1.211	1.240	1189	1700	5.99e5	4.88e5	503.5	286.8	NO	bb	bb	8.574
1368-TCDD	23.341	0.890	3.302e3	4.205e3	0.923	0.785	0.770	1502	1360	4.78e4	6.33e4	31.8	46.5	NO	bb	bb	0.995
1289-TCDD	26.743	1.020	1.043e3	1.476e3	0.794	0.707	0.770	1502	1360	1.63e4	2.21e4	10.9	16.2	NO	bd	dd	0.388
12479-PECDD					1.843		1.550	1438	2364								
12389-PECDD	31.751	1.013	1.969e3	1.163e3	1.154	1.693	1.550	1438	2364	2.95e4	1.83e4	20.5	7.7	NO	bb	bb	0.556
124679-HXCDD	33.846	0.944	8.477e4	7.044e4	1.125	1.204	1.240	2445	2856	1.33e6	1.09e6	542.0	383.2	NO	bb	bd	21.058
1234679-HPCDD	39.093	0.975	7.561e5	7.152e5	1.211	1.057	1.050	2697	2805	1.27e7	1.20e7	4703.8	4286.9	NO	bb	bb	319.756
Total-tetrafurans			2.092e6		1.192			555		2.87e7							478.574
Total-penta1			4.261e5					1023		4.89e6							89.368
Total-pentafurans			8.122e5		1.047			3453		1.14e7							175.571
Total-hexafurans			3.518e5		1.045			1189		5.50e6							90.512
Total-heptafurans			6.021e5		1.305			1505		1.00e7							211.847
Total-Furans			5.038e6		1.158			555		7.08e7							1298.830
Total-tetradioxins			1.721e4		0.879			1502		2.50e5							5.506
Total-pentadioxins			3.261e4		1.331			1438		4.52e5							9.418
Total-hexadioxins			4.181e5		1.028			2445		5.90e6							110.827
Total-heptadioxins			1.602e6		1.140			2697		2.62e7							725.951
Total-Dioxins			7.566e6		1.092			1502		1.04e8							3783.122
Total-TEQ			1.260e7					1502		1.74e8							5081.952
FUNCTION1 PFK			1.735e7					595550		1.38e8							
FUNCTION2 PFK			9.006e5					602088		1.07e7							0.000
FUNCTION3 PFK			5.652e6					617839		2.36e7							0.000
FUNCTION4 PFK			2.402e5					311651		2.60e6							
FUNCTION5 PFK			0.000e0					222118		0.00e0							
FUNCTION1 HXCD...			4.923e4					910		7.40e5							0.000
FUNCTION1 HPCD...			4.169e3					776		6.90e4							0.000
FUNCTION2 HPCD...			7.688e3					1303		1.35e5							0.000
FUNCTION3 OCDPE			3.072e3					634		5.62e4							0.000
FUNCTION4 NCDPE			5.182e5					1346		9.01e6							0.000
FUNCTION5 DCDPE			1.009e3					457		9.36e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210924LDW.qld
Last Altered: Friday, September 24, 2021 13:24:53 Pacific Daylight Time
Printed: Friday, September 24, 2021 13:38:25 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210924.mdb 24 Sep 2021 10:55:34
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: 21G0286-05, Name: 21092404, Date: 24-Sep-2021, Time: 11:17:11, 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	23.57	1.596e4	2.194e4	1.192	0.73	0.77	365.2	YES	NO	dd	dd	3.706
2	Total-tetrafurans	23.36	2.681e4	3.592e4	1.192	0.75	0.77	626.7	YES	NO	dd	dd	6.133
3	Total-tetrafurans	23.24	6.834e3	8.625e3	1.192	0.79	0.77	145.2	YES	NO	dd	dd	1.511
4	Total-tetrafurans	22.92	1.444e4	1.956e4	1.192	0.74	0.77	355.7	YES	NO	bd	dd	3.323
5	Total-tetrafurans	22.68	4.344e3	5.663e3	1.192	0.77	0.77	126.8	YES	NO	db	dd	0.978
6	Total-tetrafurans	22.57	5.912e3	7.730e3	1.192	0.76	0.77	150.0	YES	NO	dd	bd	1.333
7	Total-tetrafurans	22.36	1.274e4	1.803e4	1.192	0.71	0.77	337.4	YES	NO	dd	db	3.008
8	1368-TCDF	22.22	1.006e5	1.371e5	1.425	0.73	0.77	2754.3	YES	NO	dd	dd	19.436
9	Total-tetrafurans	22.04	6.477e3	8.988e3	1.192	0.72	0.77	125.3	YES	NO	dd	dd	1.512
10	Total-tetrafurans	21.83	1.320e4	1.792e4	1.192	0.74	0.77	385.5	YES	NO	dd	dd	3.042
11	Total-tetrafurans	25.76	5.342e4	7.421e4	1.192	0.72	0.77	1314.8	YES	NO	dd	dd	12.477
12	Total-tetrafurans	25.68	5.616e4	7.815e4	1.192	0.72	0.77	1433.1	YES	NO	dd	dd	13.130
13	Total-tetrafurans	25.41	2.753e4	3.750e4	1.192	0.73	0.77	596.0	YES	NO	dd	dd	6.357
14	Total-tetrafurans	25.23	1.235e5	1.680e5	1.192	0.74	0.77	2109.2	YES	NO	dd	dd	28.494
15	Total-tetrafurans	25.11	4.673e4	6.266e4	1.192	0.75	0.77	1173.2	YES	NO	dd	dd	10.693
16	Total-tetrafurans	24.93	4.772e4	6.581e4	1.192	0.73	0.77	1018.7	YES	NO	dd	dd	11.098
17	Total-tetrafurans	24.70	6.139e3	8.528e3	1.192	0.72	0.77	139.7	YES	NO	dd	dd	1.434
18	Total-tetrafurans	24.51	2.082e4	2.729e4	1.192	0.76	0.77	504.4	YES	NO	dd	dd	4.703
19	Total-tetrafurans	24.43	2.825e4	3.938e4	1.192	0.72	0.77	809.9	YES	NO	dd	dd	6.611
20	Total-tetrafurans	24.35	5.113e4	6.827e4	1.192	0.75	0.77	1449.7	YES	NO	dd	dd	11.672
21	Total-tetrafurans	24.25	2.468e5	3.379e5	1.192	0.73	0.77	5276.0	YES	NO	dd	dd	57.159
22	Total-tetrafurans	24.08	2.125e5	2.846e5	1.192	0.75	0.77	5631.7	YES	NO	dd	dd	48.599
23	Total-tetrafurans	24.01	1.782e5	2.398e5	1.192	0.74	0.77	4595.8	YES	NO	dd	dd	40.855
24	Total-tetrafurans	23.86	1.690e5	2.267e5	1.192	0.75	0.77	3422.2	YES	NO	dd	dd	38.680
25	Total-tetrafurans	23.69	3.729e5	5.034e5	1.192	0.74	0.77	10639.9	YES	NO	dd	dd	85.665
26	1289-TCDF	27.06	1.839e3	2.399e3	1.043	0.77	0.77	67.3	YES	NO	bd	dd	0.473
27	Total-tetrafurans	26.85	7.558e4	1.053e5	1.192	0.72	0.77	1967.3	YES	NO	db	dd	17.679
28	Total-tetrafurans	26.73	8.202e4	1.134e5	1.192	0.72	0.77	2119.2	YES	NO	dd	dd	19.099
29	Total-tetrafurans	26.47	2.523e4	3.726e4	1.192	0.68	0.77	629.5	YES	NO	bd	dd	6.109
30	Total-tetrafurans	26.20	1.933e4	2.557e4	1.192	0.76	0.77	487.7	YES	NO	bb	bd	4.390
31	Total-tetrafurans	26.02	2.644e3	3.739e3	1.192	0.71	0.77	77.3	YES	NO	db	db	0.624
32	Total-tetrafurans	25.84	3.679e4	5.108e4	1.192	0.72	0.77	816.7	YES	NO	dd	dd	8.590

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PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.82	4.811e4	3.112e4		1.55	1.55	655.2	YES	NO	db	db	11.329
2	Total-penta1	27.35	5.262e4	3.530e4		1.49	1.55	589.8	YES	NO	dd	bd	12.570
3	Total-penta1	27.06	1.850e5	1.190e5		1.55	1.55	1725.4	YES	NO	dd	dd	43.472
4	13468-PECDF	26.88	1.403e5	9.055e4	1.376	1.55	1.55	1806.9	YES	NO	dd	bd	21.996

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	29.20	2.367e4	1.608e4	1.047	1.47	1.55	112.5	YES	NO	dd	dd	5.135
2	Total-pentafurans	29.04	5.750e3	3.916e3	1.047	1.47	1.55	23.3	YES	NO	bd	bd	1.249
3	Total-pentafurans	28.69	2.502e4	1.711e4	1.047	1.46	1.55	104.1	YES	NO	db	db	5.443
4	Total-pentafurans	28.62	1.521e4	1.080e4	1.047	1.41	1.55	76.8	YES	NO	dd	dd	3.360
5	Total-pentafurans	28.51	4.632e4	3.180e4	1.047	1.46	1.55	158.9	YES	NO	dd	dd	10.092
6	Total-pentafurans	28.30	9.656e4	6.420e4	1.047	1.50	1.55	475.8	YES	NO	dd	dd	20.769
7	Total-pentafurans	28.21	9.074e4	6.112e4	1.047	1.48	1.55	422.7	YES	NO	bd	bd	19.619
8	Total-pentafurans	27.97	6.030e4	3.853e4	1.047	1.57	1.55	281.6	YES	NO	bb	bb	12.767
9	Total-pentafurans	31.71	2.234e3	1.517e3	1.047	1.47	1.55	6.0	YES	NO	db	db	0.485
10	Total-pentafurans	31.52	5.030e3	3.255e3	1.047	1.55	1.55	22.6	YES	NO	bd	bd	1.070
11	Total-pentafurans	31.04	8.097e4	5.524e4	1.047	1.47	1.55	255.0	YES	NO	db	db	17.596
12	Total-pentafurans	30.87	1.933e4	1.204e4	1.047	1.61	1.55	66.2	YES	NO	dd	dd	4.052
13	Total-pentafurans	30.73	5.648e3	3.594e3	1.047	1.57	1.55	30.3	YES	NO	bd	bd	1.194
14	Total-pentafurans	30.55	2.146e4	1.456e4	1.047	1.47	1.55	72.8	YES	NO	bb	bb	4.654
15	Total-pentafurans	30.38	9.857e2	6.411e2	1.047	1.54	1.55	5.9	YES	NO	db	db	0.210
16	Total-pentafurans	30.28	2.544e3	1.742e3	1.047	1.46	1.55	9.0	YES	NO	dd	dd	0.554
17	Total-pentafurans	30.12	6.571e4	4.438e4	1.047	1.48	1.55	254.3	YES	NO	dd	dd	14.222
18	Total-pentafurans	29.98	1.866e5	1.270e5	1.047	1.47	1.55	674.7	YES	NO	dd	dd	40.519
19	12378-PeCDF	29.76	7.717e3	4.961e3	1.015	1.56	1.55	24.1	YES	NO	dd	MM	1.638
20	Total-pentafurans	29.63	3.166e4	2.079e4	1.047	1.52	1.55	148.3	YES	NO	bd	bd	6.775
21	Total-pentafurans	29.38	1.455e4	1.066e4	1.047	1.36	1.55	45.4	YES	NO	dd	db	3.256
22	Total-pentafurans	29.31	4.136e3	2.928e3	1.047	1.41	1.55	21.7	YES	NO	dd	dd	0.913

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HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	34.88	1.409e4	1.104e4	1.037	1.28	1.24	187.5	YES	NO	dd	db	3.315
2	123478-HxCDF	34.75	2.300e4	1.884e4	1.017	1.22	1.24	299.3	YES	NO	dd	dd	5.754
3	Total-hexafurans	34.59	5.859e3	4.618e3	1.045	1.27	1.24	65.4	YES	NO	bd	bd	1.481
4	Total-hexafurans	34.11	1.112e5	9.358e4	1.045	1.19	1.24	1497.2	YES	NO	db	db	28.938
5	Total-hexafurans	34.01	7.628e2	6.229e2	1.045	1.22	1.24	15.0	YES	NO	bd	bd	0.196
6	Total-hexafurans	33.81	5.206e3	4.085e3	1.045	1.27	1.24	70.6	YES	NO	bb	bb	1.313
7	Total-hexafurans	33.65	3.266e2	2.915e2	1.045	1.12	1.24	5.5	YES	NO	db	db	0.087
8	Total-hexafurans	33.39	2.061e3	1.776e3	1.045	1.16	1.24	36.5	YES	NO	db	db	0.542
9	Total-hexafurans	33.28	1.225e5	1.030e5	1.045	1.19	1.24	1523.5	YES	NO	bd	bd	31.875
10	123468-HXCDF	33.07	3.648e4	3.013e4	1.087	1.21	1.24	503.5	YES	NO	bb	bb	8.574
11	123789-HxCDF	36.78	1.126e4	1.004e4	1.030	1.12	1.24	142.3	YES	NO	db	db	3.510
12	Total-hexafurans	36.70	9.795e2	7.107e2	1.045	1.38	1.24	18.6	YES	NO	dd	dd	0.239
13	Total-hexafurans	36.55	2.997e2	2.396e2	1.045	1.25	1.24	6.7	YES	NO	bd	bd	0.076
14	Total-hexafurans	36.30	4.403e2	4.001e2	1.045	1.10	1.24	6.3	YES	NO	bd	bb	0.119
15	Total-hexafurans	36.02	2.807e3	2.188e3	1.045	1.28	1.24	33.3	YES	NO	bd	bb	0.706
16	234678-HxCDF	35.76	7.650e3	6.633e3	1.052	1.15	1.24	105.4	YES	NO	db	db	2.014
17	Total-hexafurans	35.73	6.820e3	5.714e3	1.045	1.19	1.24	105.8	YES	NO	bd	bd	1.771

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.29	3.866e5	3.772e5	1.305	1.03	1.05	4299.7	YES	NO	bd	bd	140.050
2	Total-heptafurans	39.05	3.016e3	3.266e3	1.305	0.92	1.05	32.9	YES	NO	bb	bb	1.152
3	1234678-HpCDF	38.65	2.013e5	1.976e5	1.327	1.02	1.05	2226.9	YES	NO	bd	bb	66.058
4	1234789-HpCDF	40.87	1.115e4	1.126e4	1.283	0.99	1.05	113.9	YES	NO	bb	bd	4.587

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.57	1.596e4	2.194e4	1.192	0.73	0.77	365.2	YES	NO	dd	dd	3.706
2	Total-tetrafurans	23.36	2.681e4	3.592e4	1.192	0.75	0.77	626.7	YES	NO	dd	dd	6.133
3	Total-tetrafurans	23.24	6.834e3	8.625e3	1.192	0.79	0.77	145.2	YES	NO	dd	dd	1.511
4	Total-tetrafurans	22.92	1.444e4	1.956e4	1.192	0.74	0.77	355.7	YES	NO	bd	dd	3.323
5	Total-tetrafurans	22.68	4.344e3	5.663e3	1.192	0.77	0.77	126.8	YES	NO	db	dd	0.978
6	Total-tetrafurans	22.57	5.912e3	7.730e3	1.192	0.76	0.77	150.0	YES	NO	dd	bd	1.333
7	Total-tetrafurans	22.36	1.274e4	1.803e4	1.192	0.71	0.77	337.4	YES	NO	dd	db	3.008
8	1368-TCDF	22.22	1.006e5	1.371e5	1.425	0.73	0.77	2754.3	YES	NO	dd	dd	19.436
9	Total-tetrafurans	22.04	6.477e3	8.988e3	1.192	0.72	0.77	125.3	YES	NO	dd	dd	1.512
10	Total-tetrafurans	21.83	1.320e4	1.792e4	1.192	0.74	0.77	385.5	YES	NO	dd	dd	3.042
11	Total-Furans	21.63	1.520e4	2.021e4	1.158	0.75	0.77	423.2	YES	NO	dd	dd	3.562
12	Total-Furans	21.48	4.005e4	5.479e4	1.158	0.73	0.77	1150.7	YES	NO	bd	bd	9.541
13	Total-Furans	21.16	3.474e4	4.757e4	1.158	0.73	0.77	976.6	YES	NO	bb	bb	8.281
14	Total-tetrafurans	25.76	5.342e4	7.421e4	1.192	0.72	0.77	1314.8	YES	NO	dd	dd	12.477
15	Total-tetrafurans	25.68	5.616e4	7.815e4	1.192	0.72	0.77	1433.1	YES	NO	dd	dd	13.130
16	Total-tetrafurans	25.41	2.753e4	3.750e4	1.192	0.73	0.77	596.0	YES	NO	dd	dd	6.357
17	Total-tetrafurans	25.23	1.235e5	1.680e5	1.192	0.74	0.77	2109.2	YES	NO	dd	dd	28.494
18	Total-tetrafurans	25.11	4.673e4	6.266e4	1.192	0.75	0.77	1173.2	YES	NO	dd	dd	10.693
19	Total-tetrafurans	24.93	4.772e4	6.581e4	1.192	0.73	0.77	1018.7	YES	NO	dd	dd	11.098
20	Total-tetrafurans	24.70	6.139e3	8.528e3	1.192	0.72	0.77	139.7	YES	NO	dd	dd	1.434
21	Total-tetrafurans	24.51	2.082e4	2.729e4	1.192	0.76	0.77	504.4	YES	NO	dd	dd	4.703
22	Total-tetrafurans	24.43	2.825e4	3.938e4	1.192	0.72	0.77	809.9	YES	NO	dd	dd	6.611
23	Total-tetrafurans	24.35	5.113e4	6.827e4	1.192	0.75	0.77	1449.7	YES	NO	dd	dd	11.672
24	Total-tetrafurans	24.25	2.468e5	3.379e5	1.192	0.73	0.77	5276.0	YES	NO	dd	dd	57.159
25	Total-tetrafurans	24.08	2.125e5	2.846e5	1.192	0.75	0.77	5631.7	YES	NO	dd	dd	48.599
26	Total-tetrafurans	24.01	1.782e5	2.398e5	1.192	0.74	0.77	4595.8	YES	NO	dd	dd	40.855
27	Total-tetrafurans	23.86	1.690e5	2.267e5	1.192	0.75	0.77	3422.2	YES	NO	dd	dd	38.680
28	Total-tetrafurans	23.69	3.729e5	5.034e5	1.192	0.74	0.77	10639.9	YES	NO	dd	dd	85.665
29	Total-Furans	27.68	1.959e5	2.605e5	1.158	0.75	0.77	5286.7	YES	NO	db	db	45.918
30	Total-Furans	27.50	9.286e4	1.265e5	1.158	0.73	0.77	2609.9	YES	NO	dd	dd	22.066
31	1289-TCDF	27.06	1.839e3	2.399e3	1.043	0.77	0.77	67.3	YES	NO	bd	dd	0.473
32	Total-tetrafurans	26.85	7.558e4	1.053e5	1.192	0.72	0.77	1967.3	YES	NO	db	dd	17.679
33	Total-tetrafurans	26.73	8.202e4	1.134e5	1.192	0.72	0.77	2119.2	YES	NO	dd	dd	19.099
34	Total-tetrafurans	26.47	2.523e4	3.726e4	1.192	0.68	0.77	629.5	YES	NO	bd	dd	6.109
35	Total-tetrafurans	26.20	1.933e4	2.557e4	1.192	0.76	0.77	487.7	YES	NO	bb	bd	4.390
36	Total-tetrafurans	26.02	2.644e3	3.739e3	1.192	0.71	0.77	77.3	YES	NO	db	db	0.624
37	Total-tetrafurans	25.84	3.679e4	5.108e4	1.192	0.72	0.77	816.7	YES	NO	dd	dd	8.590

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-pentafurans	29.20	2.367e4	1.608e4	1.047	1.47	1.55	112.5	YES	NO	dd	dd	5.135
39	Total-pentafurans	29.04	5.750e3	3.916e3	1.047	1.47	1.55	23.3	YES	NO	bd	bd	1.249
40	Total-pentafurans	28.69	2.502e4	1.711e4	1.047	1.46	1.55	104.1	YES	NO	db	db	5.443
41	Total-pentafurans	28.62	1.521e4	1.080e4	1.047	1.41	1.55	76.8	YES	NO	dd	dd	3.360
42	Total-pentafurans	28.51	4.632e4	3.180e4	1.047	1.46	1.55	158.9	YES	NO	dd	dd	10.092
43	Total-pentafurans	28.30	9.656e4	6.420e4	1.047	1.50	1.55	475.8	YES	NO	dd	dd	20.769
44	Total-pentafurans	28.21	9.074e4	6.112e4	1.047	1.48	1.55	422.7	YES	NO	bd	bd	19.619
45	Total-pentafurans	27.97	6.030e4	3.853e4	1.047	1.57	1.55	281.6	YES	NO	bb	bb	12.767
46	Total-pentafurans	31.71	2.234e3	1.517e3	1.047	1.47	1.55	6.0	YES	NO	db	db	0.485
47	Total-pentafurans	31.52	5.030e3	3.255e3	1.047	1.55	1.55	22.6	YES	NO	bd	bd	1.070
48	Total-pentafurans	31.04	8.097e4	5.524e4	1.047	1.47	1.55	255.0	YES	NO	db	db	17.596
49	Total-pentafurans	30.87	1.933e4	1.204e4	1.047	1.61	1.55	66.2	YES	NO	dd	dd	4.052
50	Total-pentafurans	30.73	5.648e3	3.594e3	1.047	1.57	1.55	30.3	YES	NO	bd	bd	1.194
51	Total-pentafurans	30.55	2.146e4	1.456e4	1.047	1.47	1.55	72.8	YES	NO	bb	bb	4.654
52	Total-pentafurans	30.38	9.857e2	6.411e2	1.047	1.54	1.55	5.9	YES	NO	db	db	0.210
53	Total-pentafurans	30.28	2.544e3	1.742e3	1.047	1.46	1.55	9.0	YES	NO	dd	dd	0.554
54	Total-pentafurans	30.12	6.571e4	4.438e4	1.047	1.48	1.55	254.3	YES	NO	dd	dd	14.222
55	Total-pentafurans	29.98	1.866e5	1.270e5	1.047	1.47	1.55	674.7	YES	NO	dd	dd	40.519
56	12378-PeCDF	29.76	7.717e3	4.961e3	1.015	1.56	1.55	24.1	YES	NO	dd	MM	1.638
57	Total-pentafurans	29.63	3.166e4	2.079e4	1.047	1.52	1.55	148.3	YES	NO	bd	bd	6.775
58	Total-pentafurans	29.38	1.455e4	1.066e4	1.047	1.36	1.55	45.4	YES	NO	dd	db	3.256
59	Total-pentafurans	29.31	4.136e3	2.928e3	1.047	1.41	1.55	21.7	YES	NO	dd	dd	0.913
60	123678-HxCDF	34.88	1.409e4	1.104e4	1.037	1.28	1.24	187.5	YES	NO	dd	db	3.315
61	123478-HxCDF	34.75	2.300e4	1.884e4	1.017	1.22	1.24	299.3	YES	NO	dd	dd	5.754
62	Total-hexafurans	34.59	5.859e3	4.618e3	1.045	1.27	1.24	65.4	YES	NO	bd	bd	1.481
63	Total-hexafurans	34.11	1.112e5	9.358e4	1.045	1.19	1.24	1497.2	YES	NO	db	db	28.938
64	Total-hexafurans	34.01	7.628e2	6.229e2	1.045	1.22	1.24	15.0	YES	NO	bd	bd	0.196
65	Total-hexafurans	33.81	5.206e3	4.085e3	1.045	1.27	1.24	70.6	YES	NO	bb	bb	1.313
66	Total-hexafurans	33.65	3.266e2	2.915e2	1.045	1.12	1.24	5.5	YES	NO	db	db	0.087
67	Total-hexafurans	33.39	2.061e3	1.776e3	1.045	1.16	1.24	36.5	YES	NO	db	db	0.542
68	Total-hexafurans	33.28	1.225e5	1.030e5	1.045	1.19	1.24	1523.5	YES	NO	bd	bd	31.875
69	123468-HXCDF	33.07	3.648e4	3.013e4	1.087	1.21	1.24	503.5	YES	NO	bb	bb	8.574
70	123789-HxCDF	36.78	1.126e4	1.004e4	1.030	1.12	1.24	142.3	YES	NO	db	db	3.510
71	Total-hexafurans	36.70	9.795e2	7.107e2	1.045	1.38	1.24	18.6	YES	NO	dd	dd	0.239
72	Total-hexafurans	36.55	2.997e2	2.396e2	1.045	1.25	1.24	6.7	YES	NO	bd	bd	0.076
73	Total-hexafurans	36.30	4.403e2	4.001e2	1.045	1.10	1.24	6.3	YES	NO	bd	bb	0.119
74	Total-hexafurans	36.02	2.807e3	2.188e3	1.045	1.28	1.24	33.3	YES	NO	bd	bb	0.706

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
75	234678-HxCDF	35.76	7.650e3	6.633e3	1.052	1.15	1.24	105.4	YES	NO	db	db	2.014
76	Total-hexafurans	35.73	6.820e3	5.714e3	1.045	1.19	1.24	105.8	YES	NO	bd	bd	1.771
77	Total-heptafurans	39.29	3.866e5	3.772e5	1.305	1.03	1.05	4299.7	YES	NO	bd	bd	140.050
78	Total-heptafurans	39.05	3.016e3	3.266e3	1.305	0.92	1.05	32.9	YES	NO	bb	bb	1.152
79	1234678-HpCDF	38.65	2.013e5	1.976e5	1.327	1.02	1.05	2226.9	YES	NO	bd	bb	66.058
80	1234789-HpCDF	40.87	1.115e4	1.126e4	1.283	0.99	1.05	113.9	YES	NO	bb	bd	4.587
81	OCDF	45.07	3.751e5	4.210e5	1.447	0.89	0.89	3531.7	YES	NO	bd	bb	163.593
82	Total-penta1	27.82	4.811e4	3.112e4		1.55	1.55	655.2	YES	NO	db	db	11.329
83	Total-penta1	27.35	5.262e4	3.530e4		1.49	1.55	589.8	YES	NO	dd	bd	12.570
84	Total-penta1	27.06	1.850e5	1.190e5		1.55	1.55	1725.4	YES	NO	dd	dd	43.472
85	13468-PECDF	26.88	1.403e5	9.055e4	1.376	1.55	1.55	1806.9	YES	NO	dd	bd	21.996

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.23	1.037e3	1.189e3	0.879	0.87	0.77	6.9	YES	NO	dd	dd	0.310
2	Total-tetradioxins	25.10	6.909e2	8.539e2	0.879	0.81	0.77	7.4	YES	NO	bd	bd	0.215
3	Total-tetradioxins	24.84	2.595e3	3.602e3	0.879	0.72	0.77	27.7	YES	NO	bb	bd	0.862
4	Total-tetradioxins	23.84	9.301e2	1.235e3	0.879	0.75	0.77	8.7	YES	NO	db	db	0.301
5	Total-tetradioxins	23.63	2.739e3	3.329e3	0.879	0.82	0.77	26.4	YES	NO	bd	dd	0.844
6	1368-TCDD	23.34	3.302e3	4.205e3	0.923	0.79	0.77	31.8	YES	NO	bb	bb	0.995
7	1289-TCDD	26.74	1.043e3	1.476e3	0.794	0.71	0.77	10.9	YES	NO	bd	dd	0.388
8	Total-tetradioxins	26.37	1.111e3	1.500e3	0.879	0.74	0.77	12.4	YES	NO	db	dd	0.363
9	2378-TCDD	26.23	2.502e3	3.672e3	0.920	0.68	0.77	23.0	YES	NO	MM	bd	0.821
10	Total-tetradioxins	25.85	1.266e3	1.657e3	0.879	0.76	0.77	11.2	YES	NO	bb	bb	0.407

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.29	4.522e3	3.146e3	1.331	1.44	1.55	33.6	YES	NO	bb	db	1.180
2	Total-pentadioxins	30.10	6.899e3	4.106e3	1.331	1.68	1.55	60.5	YES	NO	db	dd	1.694
3	Total-pentadioxins	29.75	5.972e3	4.036e3	1.331	1.48	1.55	66.2	YES	NO	bb	db	1.541
4	12389-PECDD	31.75	1.969e3	1.163e3	1.154	1.69	1.55	20.5	YES	NO	bb	bb	0.556
5	12378-PeCDD	31.35	1.325e4	8.356e3	0.995	1.59	1.55	133.1	YES	NO	bb	bb	4.447

Dataset: T:\Autospec\Processed Data Batch\210924LDW.qld
Last Altered: Friday, September 24, 2021 13:24:53 Pacific Daylight Time
Printed: Friday, September 24, 2021 13:38:25 Pacific Daylight Time

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.39	4.332e4	3.489e4	0.950	1.24	1.24	298.1	YES	NO	dd	dd	12.447
2	Total-hexadioxins	36.16	4.773e3	3.700e3	1.028	1.29	1.24	35.1	YES	NO	bb	bb	1.247
3	123678-HxCDD	36.00	6.161e4	5.014e4	1.009	1.23	1.24	418.0	YES	NO	db	db	16.607
4	123478-HxCDD	35.87	1.856e4	1.559e4	1.027	1.19	1.24	133.4	YES	NO	bd	bd	5.074
5	Total-hexadioxins	35.09	1.440e4	1.123e4	1.028	1.28	1.24	93.0	YES	NO	db	db	3.771
6	Total-hexadioxins	34.98	1.660e5	1.334e5	1.028	1.24	1.24	724.3	YES	NO	bd	bd	44.063
7	Total-hexadioxins	34.61	2.081e4	1.667e4	1.028	1.25	1.24	140.8	YES	NO	bb	bb	5.516
8	Total-hexadioxins	34.44	3.831e3	3.273e3	1.028	1.17	1.24	28.8	YES	NO	bb	bb	1.045
9	124679-HXCDD	33.85	8.477e4	7.044e4	1.125	1.20	1.24	542.0	YES	NO	bb	bd	21.058

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.13	8.464e5	8.022e5	1.068	1.06	1.05	5016.9	YES	NO	bb	bb	406.195
2	1234679-HPCDD	39.09	7.561e5	7.152e5	1.211	1.06	1.05	4703.8	YES	NO	bb	bb	319.756

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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	25.23	1.037e3	1.189e3	0.879	0.87	0.77	6.9	YES	NO	dd	dd	0.310
2	Total-tetradioxins	25.10	6.909e2	8.539e2	0.879	0.81	0.77	7.4	YES	NO	bd	bd	0.215
3	Total-tetradioxins	24.84	2.595e3	3.602e3	0.879	0.72	0.77	27.7	YES	NO	bb	bd	0.862
4	Total-tetradioxins	23.84	9.301e2	1.235e3	0.879	0.75	0.77	8.7	YES	NO	db	db	0.301
5	Total-tetradioxins	23.63	2.739e3	3.329e3	0.879	0.82	0.77	26.4	YES	NO	bd	dd	0.844
6	1368-TCDD	23.34	3.302e3	4.205e3	0.923	0.79	0.77	31.8	YES	NO	bb	bb	0.995
7	Total-Dioxins	21.18	1.032e3	1.317e3	1.092	0.78	0.77	9.7	YES	NO	bb	bb	0.263
8	Total-Dioxins	27.83	5.160e2	6.719e2	1.092	0.77	0.77	4.0	YES	NO	bb	bb	0.133
9	1289-TCDD	26.74	1.043e3	1.476e3	0.794	0.71	0.77	10.9	YES	NO	bd	dd	0.388
10	Total-tetradioxins	26.37	1.111e3	1.500e3	0.879	0.74	0.77	12.4	YES	NO	db	dd	0.363
11	2378-TCDD	26.23	2.502e3	3.672e3	0.920	0.68	0.77	23.0	YES	NO	MM	bd	0.821
12	Total-tetradioxins	25.85	1.266e3	1.657e3	0.879	0.76	0.77	11.2	YES	NO	bb	bb	0.407
13	Total-pentadioxins	30.29	4.522e3	3.146e3	1.331	1.44	1.55	33.6	YES	NO	bb	db	1.180
14	Total-pentadioxins	30.10	6.899e3	4.106e3	1.331	1.68	1.55	60.5	YES	NO	db	dd	1.694
15	Total-pentadioxins	29.75	5.972e3	4.036e3	1.331	1.48	1.55	66.2	YES	NO	bb	db	1.541
16	12389-PECDD	31.75	1.969e3	1.163e3	1.154	1.69	1.55	20.5	YES	NO	bb	bb	0.556
17	12378-PeCDD	31.35	1.325e4	8.356e3	0.995	1.59	1.55	133.1	YES	NO	bb	bb	4.447
18	123789-HxCDD	36.39	4.332e4	3.489e4	0.950	1.24	1.24	298.1	YES	NO	dd	dd	12.447
19	Total-hexadioxins	36.16	4.773e3	3.700e3	1.028	1.29	1.24	35.1	YES	NO	bb	bb	1.247
20	123678-HxCDD	36.00	6.161e4	5.014e4	1.009	1.23	1.24	418.0	YES	NO	db	db	16.607
21	123478-HxCDD	35.87	1.856e4	1.559e4	1.027	1.19	1.24	133.4	YES	NO	bd	bd	5.074
22	Total-hexadioxins	35.09	1.440e4	1.123e4	1.028	1.28	1.24	93.0	YES	NO	db	db	3.771
23	Total-hexadioxins	34.98	1.660e5	1.334e5	1.028	1.24	1.24	724.3	YES	NO	bd	bd	44.063
24	Total-hexadioxins	34.61	2.081e4	1.667e4	1.028	1.25	1.24	140.8	YES	NO	bb	bb	5.516
25	Total-hexadioxins	34.44	3.831e3	3.273e3	1.028	1.17	1.24	28.8	YES	NO	bb	bb	1.045
26	124679-HXCDD	33.85	8.477e4	7.044e4	1.125	1.20	1.24	542.0	YES	NO	bb	bd	21.058
27	1234678-HpCDD	40.13	8.464e5	8.022e5	1.068	1.06	1.05	5016.9	YES	NO	bb	bb	406.195
28	1234679-HPCDD	39.09	7.561e5	7.152e5	1.211	1.06	1.05	4703.8	YES	NO	bb	bb	319.756
29	OCDD	44.84	5.494e6	6.147e6	1.181	0.89	0.89	36401.9	YES	NO	bb	bb	2931.0...

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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	Total-tetrafurans	23.57	1.596e4	2.194e4	1.192	0.73	0.77	365.2	YES	NO	dd	dd	3.706
2	Total-tetrafurans	23.36	2.681e4	3.592e4	1.192	0.75	0.77	626.7	YES	NO	dd	dd	6.133
3	Total-tetrafurans	23.24	6.834e3	8.625e3	1.192	0.79	0.77	145.2	YES	NO	dd	dd	1.511
4	Total-tetrafurans	22.92	1.444e4	1.956e4	1.192	0.74	0.77	355.7	YES	NO	bd	dd	3.323
5	Total-tetrafurans	22.68	4.344e3	5.663e3	1.192	0.77	0.77	126.8	YES	NO	db	dd	0.978
6	Total-tetrafurans	22.57	5.912e3	7.730e3	1.192	0.76	0.77	150.0	YES	NO	dd	bd	1.333
7	Total-tetrafurans	22.36	1.274e4	1.803e4	1.192	0.71	0.77	337.4	YES	NO	dd	db	3.008
8	1368-TCDF	22.22	1.006e5	1.371e5	1.425	0.73	0.77	2754.3	YES	NO	dd	dd	19.436
9	Total-tetrafurans	22.04	6.477e3	8.988e3	1.192	0.72	0.77	125.3	YES	NO	dd	dd	1.512
10	Total-tetrafurans	21.83	1.320e4	1.792e4	1.192	0.74	0.77	385.5	YES	NO	dd	dd	3.042
11	Total-Furans	21.63	1.520e4	2.021e4	1.158	0.75	0.77	423.2	YES	NO	dd	dd	3.562
12	Total-Furans	21.48	4.005e4	5.479e4	1.158	0.73	0.77	1150.7	YES	NO	bd	bd	9.541
13	Total-Furans	21.16	3.474e4	4.757e4	1.158	0.73	0.77	976.6	YES	NO	bb	bb	8.281
14	Total-tetrafurans	25.76	5.342e4	7.421e4	1.192	0.72	0.77	1314.8	YES	NO	dd	dd	12.477
15	Total-tetrafurans	25.68	5.616e4	7.815e4	1.192	0.72	0.77	1433.1	YES	NO	dd	dd	13.130
16	Total-tetrafurans	25.41	2.753e4	3.750e4	1.192	0.73	0.77	596.0	YES	NO	dd	dd	6.357
17	Total-tetrafurans	25.23	1.235e5	1.680e5	1.192	0.74	0.77	2109.2	YES	NO	dd	dd	28.494
18	Total-tetrafurans	25.11	4.673e4	6.266e4	1.192	0.75	0.77	1173.2	YES	NO	dd	dd	10.693
19	Total-tetrafurans	24.93	4.772e4	6.581e4	1.192	0.73	0.77	1018.7	YES	NO	dd	dd	11.098
20	Total-tetrafurans	24.70	6.139e3	8.528e3	1.192	0.72	0.77	139.7	YES	NO	dd	dd	1.434
21	Total-tetrafurans	24.51	2.082e4	2.729e4	1.192	0.76	0.77	504.4	YES	NO	dd	dd	4.703
22	Total-tetrafurans	24.43	2.825e4	3.938e4	1.192	0.72	0.77	809.9	YES	NO	dd	dd	6.611
23	Total-tetrafurans	24.35	5.113e4	6.827e4	1.192	0.75	0.77	1449.7	YES	NO	dd	dd	11.672
24	Total-tetrafurans	24.25	2.468e5	3.379e5	1.192	0.73	0.77	5276.0	YES	NO	dd	dd	57.159
25	Total-tetrafurans	24.08	2.125e5	2.846e5	1.192	0.75	0.77	5631.7	YES	NO	dd	dd	48.599
26	Total-tetrafurans	24.01	1.782e5	2.398e5	1.192	0.74	0.77	4595.8	YES	NO	dd	dd	40.855
27	Total-tetrafurans	23.86	1.690e5	2.267e5	1.192	0.75	0.77	3422.2	YES	NO	dd	dd	38.680
28	Total-tetrafurans	23.69	3.729e5	5.034e5	1.192	0.74	0.77	10639.9	YES	NO	dd	dd	85.665
29	Total-Furans	27.68	1.959e5	2.605e5	1.158	0.75	0.77	5286.7	YES	NO	db	db	45.918
30	Total-Furans	27.50	9.286e4	1.265e5	1.158	0.73	0.77	2609.9	YES	NO	dd	dd	22.066
31	1289-TCDF	27.06	1.839e3	2.399e3	1.043	0.77	0.77	67.3	YES	NO	bd	dd	0.473
32	Total-tetrafurans	26.85	7.558e4	1.053e5	1.192	0.72	0.77	1967.3	YES	NO	db	dd	17.679
33	Total-tetrafurans	26.73	8.202e4	1.134e5	1.192	0.72	0.77	2119.2	YES	NO	dd	dd	19.099
34	Total-tetrafurans	26.47	2.523e4	3.726e4	1.192	0.68	0.77	629.5	YES	NO	bd	dd	6.109
35	Total-tetrafurans	26.20	1.933e4	2.557e4	1.192	0.76	0.77	487.7	YES	NO	bb	bd	4.390
36	Total-tetrafurans	26.02	2.644e3	3.739e3	1.192	0.71	0.77	77.3	YES	NO	db	db	0.624
37	Total-tetrafurans	25.84	3.679e4	5.108e4	1.192	0.72	0.77	816.7	YES	NO	dd	dd	8.590

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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
38	Total-pentafurans	29.20	2.367e4	1.608e4	1.047	1.47	1.55	112.5	YES	NO	dd	dd	5.135
39	Total-pentafurans	29.04	5.750e3	3.916e3	1.047	1.47	1.55	23.3	YES	NO	bd	bd	1.249
40	Total-pentafurans	28.69	2.502e4	1.711e4	1.047	1.46	1.55	104.1	YES	NO	db	db	5.443
41	Total-pentafurans	28.62	1.521e4	1.080e4	1.047	1.41	1.55	76.8	YES	NO	dd	dd	3.360
42	Total-pentafurans	28.51	4.632e4	3.180e4	1.047	1.46	1.55	158.9	YES	NO	dd	dd	10.092
43	Total-pentafurans	28.30	9.656e4	6.420e4	1.047	1.50	1.55	475.8	YES	NO	dd	dd	20.769
44	Total-pentafurans	28.21	9.074e4	6.112e4	1.047	1.48	1.55	422.7	YES	NO	bd	bd	19.619
45	Total-pentafurans	27.97	6.030e4	3.853e4	1.047	1.57	1.55	281.6	YES	NO	bb	bb	12.767
46	Total-pentafurans	31.71	2.234e3	1.517e3	1.047	1.47	1.55	6.0	YES	NO	db	db	0.485
47	Total-pentafurans	31.52	5.030e3	3.255e3	1.047	1.55	1.55	22.6	YES	NO	bd	bd	1.070
48	Total-pentafurans	31.04	8.097e4	5.524e4	1.047	1.47	1.55	255.0	YES	NO	db	db	17.596
49	Total-pentafurans	30.87	1.933e4	1.204e4	1.047	1.61	1.55	66.2	YES	NO	dd	dd	4.052
50	Total-pentafurans	30.73	5.648e3	3.594e3	1.047	1.57	1.55	30.3	YES	NO	bd	bd	1.194
51	Total-pentafurans	30.55	2.146e4	1.456e4	1.047	1.47	1.55	72.8	YES	NO	bb	bb	4.654
52	Total-pentafurans	30.38	9.857e2	6.411e2	1.047	1.54	1.55	5.9	YES	NO	db	db	0.210
53	Total-pentafurans	30.28	2.544e3	1.742e3	1.047	1.46	1.55	9.0	YES	NO	dd	dd	0.554
54	Total-pentafurans	30.12	6.571e4	4.438e4	1.047	1.48	1.55	254.3	YES	NO	dd	dd	14.222
55	Total-pentafurans	29.98	1.866e5	1.270e5	1.047	1.47	1.55	674.7	YES	NO	dd	dd	40.519
56	12378-PeCDF	29.76	7.717e3	4.961e3	1.015	1.56	1.55	24.1	YES	NO	dd	MM	1.638
57	Total-pentafurans	29.63	3.166e4	2.079e4	1.047	1.52	1.55	148.3	YES	NO	bd	bd	6.775
58	Total-pentafurans	29.38	1.455e4	1.066e4	1.047	1.36	1.55	45.4	YES	NO	dd	db	3.256
59	Total-pentafurans	29.31	4.136e3	2.928e3	1.047	1.41	1.55	21.7	YES	NO	dd	dd	0.913
60	123678-HxCDF	34.88	1.409e4	1.104e4	1.037	1.28	1.24	187.5	YES	NO	dd	db	3.315
61	123478-HxCDF	34.75	2.300e4	1.884e4	1.017	1.22	1.24	299.3	YES	NO	dd	dd	5.754
62	Total-hexafurans	34.59	5.859e3	4.618e3	1.045	1.27	1.24	65.4	YES	NO	bd	bd	1.481
63	Total-hexafurans	34.11	1.112e5	9.358e4	1.045	1.19	1.24	1497.2	YES	NO	db	db	28.938
64	Total-hexafurans	34.01	7.628e2	6.229e2	1.045	1.22	1.24	15.0	YES	NO	bd	bd	0.196
65	Total-hexafurans	33.81	5.206e3	4.085e3	1.045	1.27	1.24	70.6	YES	NO	bb	bb	1.313
66	Total-hexafurans	33.65	3.266e2	2.915e2	1.045	1.12	1.24	5.5	YES	NO	db	db	0.087
67	Total-hexafurans	33.39	2.061e3	1.776e3	1.045	1.16	1.24	36.5	YES	NO	db	db	0.542
68	Total-hexafurans	33.28	1.225e5	1.030e5	1.045	1.19	1.24	1523.5	YES	NO	bd	bd	31.875
69	123468-HXCDF	33.07	3.648e4	3.013e4	1.087	1.21	1.24	503.5	YES	NO	bb	bb	8.574
70	123789-HxCDF	36.78	1.126e4	1.004e4	1.030	1.12	1.24	142.3	YES	NO	db	db	3.510
71	Total-hexafurans	36.70	9.795e2	7.107e2	1.045	1.38	1.24	18.6	YES	NO	dd	dd	0.239
72	Total-hexafurans	36.55	2.997e2	2.396e2	1.045	1.25	1.24	6.7	YES	NO	bd	bd	0.076
73	Total-hexafurans	36.30	4.403e2	4.001e2	1.045	1.10	1.24	6.3	YES	NO	bd	bb	0.119
74	Total-hexafurans	36.02	2.807e3	2.188e3	1.045	1.28	1.24	33.3	YES	NO	bd	bb	0.706

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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
75	234678-HxCDF	35.76	7.650e3	6.633e3	1.052	1.15	1.24	105.4	YES	NO	db	db	2.014
76	Total-hexafurans	35.73	6.820e3	5.714e3	1.045	1.19	1.24	105.8	YES	NO	bd	bd	1.771
77	Total-heptafurans	39.29	3.866e5	3.772e5	1.305	1.03	1.05	4299.7	YES	NO	bd	bd	140.050
78	Total-heptafurans	39.05	3.016e3	3.266e3	1.305	0.92	1.05	32.9	YES	NO	bb	bb	1.152
79	1234678-HpCDF	38.65	2.013e5	1.976e5	1.327	1.02	1.05	2226.9	YES	NO	bd	bb	66.058
80	1234789-HpCDF	40.87	1.115e4	1.126e4	1.283	0.99	1.05	113.9	YES	NO	bb	bd	4.587
81	OCDF	45.07	3.751e5	4.210e5	1.447	0.89	0.89	3531.7	YES	NO	bd	bb	163.593
82	Total-penta1	27.82	4.811e4	3.112e4		1.55	1.55	655.2	YES	NO	db	db	11.329
83	Total-penta1	27.35	5.262e4	3.530e4		1.49	1.55	589.8	YES	NO	dd	bd	12.570
84	Total-penta1	27.06	1.850e5	1.190e5		1.55	1.55	1725.4	YES	NO	dd	dd	43.472
85	13468-PECDF	26.88	1.403e5	9.055e4	1.376	1.55	1.55	1806.9	YES	NO	dd	bd	21.996
86	Total-tetradioxins	25.23	1.037e3	1.189e3	0.879	0.87	0.77	6.9	YES	NO	dd	dd	0.310
87	Total-tetradioxins	25.10	6.909e2	8.539e2	0.879	0.81	0.77	7.4	YES	NO	bd	bd	0.215
88	Total-tetradioxins	24.84	2.595e3	3.602e3	0.879	0.72	0.77	27.7	YES	NO	bb	bd	0.862
89	Total-tetradioxins	23.84	9.301e2	1.235e3	0.879	0.75	0.77	8.7	YES	NO	db	db	0.301
90	Total-tetradioxins	23.63	2.739e3	3.329e3	0.879	0.82	0.77	26.4	YES	NO	bd	dd	0.844
91	1368-TCDD	23.34	3.302e3	4.205e3	0.923	0.79	0.77	31.8	YES	NO	bb	bb	0.995
92	Total-Dioxins	21.18	1.032e3	1.317e3	1.092	0.78	0.77	9.7	YES	NO	bb	bb	0.263
93	Total-Dioxins	27.83	5.160e2	6.719e2	1.092	0.77	0.77	4.0	YES	NO	bb	bb	0.133
94	1289-TCDD	26.74	1.043e3	1.476e3	0.794	0.71	0.77	10.9	YES	NO	bd	dd	0.388
95	Total-tetradioxins	26.37	1.111e3	1.500e3	0.879	0.74	0.77	12.4	YES	NO	db	dd	0.363
96	2378-TCDD	26.23	2.502e3	3.672e3	0.920	0.68	0.77	23.0	YES	NO	MM	bd	0.821
97	Total-tetradioxins	25.85	1.266e3	1.657e3	0.879	0.76	0.77	11.2	YES	NO	bb	bb	0.407
98	Total-pentadioxins	30.29	4.522e3	3.146e3	1.331	1.44	1.55	33.6	YES	NO	bb	db	1.180
99	Total-pentadioxins	30.10	6.899e3	4.106e3	1.331	1.68	1.55	60.5	YES	NO	db	dd	1.694
100	Total-pentadioxins	29.75	5.972e3	4.036e3	1.331	1.48	1.55	66.2	YES	NO	bb	db	1.541
101	12389-PECDD	31.75	1.969e3	1.163e3	1.154	1.69	1.55	20.5	YES	NO	bb	bb	0.556
102	12378-PeCDD	31.35	1.325e4	8.356e3	0.995	1.59	1.55	133.1	YES	NO	bb	bb	4.447
103	123789-HxCDD	36.39	4.332e4	3.489e4	0.950	1.24	1.24	298.1	YES	NO	dd	dd	12.447
104	Total-hexadioxins	36.16	4.773e3	3.700e3	1.028	1.29	1.24	35.1	YES	NO	bb	bb	1.247
105	123678-HxCDD	36.00	6.161e4	5.014e4	1.009	1.23	1.24	418.0	YES	NO	db	db	16.607
106	123478-HxCDD	35.87	1.856e4	1.559e4	1.027	1.19	1.24	133.4	YES	NO	bd	bd	5.074
107	Total-hexadioxins	35.09	1.440e4	1.123e4	1.028	1.28	1.24	93.0	YES	NO	db	db	3.771
108	Total-hexadioxins	34.98	1.660e5	1.334e5	1.028	1.24	1.24	724.3	YES	NO	bd	bd	44.063
109	Total-hexadioxins	34.61	2.081e4	1.667e4	1.028	1.25	1.24	140.8	YES	NO	bb	bb	5.516
110	Total-hexadioxins	34.44	3.831e3	3.273e3	1.028	1.17	1.24	28.8	YES	NO	bb	bb	1.045
111	124679-HXCDD	33.85	8.477e4	7.044e4	1.125	1.20	1.24	542.0	YES	NO	bb	bd	21.058

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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
112	1234678-HpCDD	40.13	8.464e5	8.022e5	1.068	1.06	1.05	5016.9	YES	NO	bb	bb	406.195
113	1234679-HPCDD	39.09	7.561e5	7.152e5	1.211	1.06	1.05	4703.8	YES	NO	bb	bb	319.756
114	OCDD	44.84	5.494e6	6.147e6	1.181	0.89	0.89	36401.9	YES	NO	bb	bb	2931.0...

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.34	2.380e5					2.2	NO		db		
2	FUNCTION1 PFK	22.19	2.811e5					6.9	YES		dd		
3	FUNCTION1 PFK	22.13	3.096e5					9.0	YES		dd		
4	FUNCTION1 PFK	22.01	1.297e6					12.6	YES		dd		
5	FUNCTION1 PFK	21.66	3.258e6					23.6	YES		dd		
6	FUNCTION1 PFK	21.60	2.854e6					25.4	YES		dd		
7	FUNCTION1 PFK	21.36	2.731e6					31.4	YES		dd		
8	FUNCTION1 PFK	21.21	2.684e6					34.8	YES		dd		
9	FUNCTION1 PFK	21.12	2.256e6					37.8	YES		bd		
10	FUNCTION1 PFK	24.11	5.324e4					1.5	NO		bb		
11	FUNCTION1 PFK	23.89	6.741e4					2.0	NO		db		
12	FUNCTION1 PFK	23.78	6.497e3					0.6	NO		bd		
13	FUNCTION1 PFK	23.70	2.928e4					1.4	NO		db		
14	FUNCTION1 PFK	23.64	6.338e4					2.0	NO		dd		
15	FUNCTION1 PFK	23.58	4.256e4					1.6	NO		bd		
16	FUNCTION1 PFK	23.49	4.367e4					1.6	NO		bb		
17	FUNCTION1 PFK	23.42	2.864e4					1.5	NO		db		
18	FUNCTION1 PFK	23.37	3.483e4					1.3	NO		dd		
19	FUNCTION1 PFK	23.30	1.637e4					0.8	NO		bd		
20	FUNCTION1 PFK	23.18	6.159e4					1.7	NO		db		
21	FUNCTION1 PFK	23.11	1.487e4					0.8	NO		bd		
22	FUNCTION1 PFK	22.96	5.226e4					0.9	NO		db		
23	FUNCTION1 PFK	22.89	1.272e4					0.7	NO		bd		
24	FUNCTION1 PFK	22.78	1.633e4					0.8	NO		db		
25	FUNCTION1 PFK	22.71	4.254e3					0.4	NO		bd		
26	FUNCTION1 PFK	25.94	5.720e4					1.6	NO		bd		
27	FUNCTION1 PFK	25.84	2.796e4					1.4	NO		db		
28	FUNCTION1 PFK	25.73	1.782e5					1.9	NO		bd		
29	FUNCTION1 PFK	25.53	5.822e4					1.4	NO		db		
30	FUNCTION1 PFK	25.47	6.105e3					0.5	NO		bd		
31	FUNCTION1 PFK	25.31	8.532e3					0.6	NO		bb		
32	FUNCTION1 PFK	25.20	1.384e4					0.6	NO		bb		
33	FUNCTION1 PFK	25.07	4.453e4					1.2	NO		bb		
34	FUNCTION1 PFK	24.96	1.742e4					1.1	NO		bb		
35	FUNCTION1 PFK	24.90	9.068e3					0.6	NO		bb		
36	FUNCTION1 PFK	24.75	1.029e4					0.6	NO		bb		
37	FUNCTION1 PFK	24.70	5.182e3					0.5	NO		db		

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	24.66	7.015e3					0.5	NO		bd		
39	FUNCTION1 PFK	24.38	5.037e4					1.3	NO		db		
40	FUNCTION1 PFK	24.31	3.385e4					1.2	NO		bd		
41	FUNCTION1 PFK	24.19	2.081e4					0.9	NO		bb		
42	FUNCTION1 PFK	26.79	3.259e4					1.5	NO		bb		
43	FUNCTION1 PFK	26.67	8.640e4					2.2	NO		bb		
44	FUNCTION1 PFK	26.59	3.592e4					1.4	NO		bb		
45	FUNCTION1 PFK	26.29	1.527e4					0.8	NO		bb		
46	FUNCTION1 PFK	26.23	1.303e4					0.8	NO		db		
47	FUNCTION1 PFK	26.15	4.270e4					1.6	NO		dd		
48	FUNCTION1 PFK	26.05	6.797e4					2.0	NO		dd		
49	FUNCTION1 PFK	25.99	5.155e4					1.7	NO		dd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.00	1.005e5					3.4	YES		bb		0.000
2	FUNCTION2 PFK	29.20	1.183e5					5.4	YES		bb		0.000
3	FUNCTION2 PFK	28.01	6.818e5					9.0	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	36.54	9.381e5					13.4	YES		bd		0.000
2	FUNCTION3 PFK	34.76	1.657e4					1.4	NO		bb		0.000
3	FUNCTION3 PFK	32.78	2.383e4					1.3	NO		bb		0.000
4	FUNCTION3 PFK	37.23	3.292e6					3.6	YES		bb		0.000
5	FUNCTION3 PFK	36.63	1.382e6					18.6	YES		db		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.21	2.402e5					8.4	YES		bb		

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PFK5

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

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	24.61	4.505e2					6.8	YES		bb		0.000
2	FUNCTION1 HXCD...	24.20	1.396e2					2.4	NO		bb		0.000
3	FUNCTION1 HXCD...	23.57	2.926e3					54.5	YES		db		0.000
4	FUNCTION1 HXCD...	23.45	8.781e1					1.4	NO		bd		0.000
5	FUNCTION1 HXCD...	23.30	9.485e1					1.4	NO		bb		0.000
6	FUNCTION1 HXCD...	22.99	1.320e2					1.4	NO		bb		0.000
7	FUNCTION1 HXCD...	22.57	7.104e1					1.8	NO		bb		0.000
8	FUNCTION1 HXCD...	22.13	5.116e2					9.6	YES		bb		0.000
9	FUNCTION1 HXCD...	21.92	2.149e2					3.7	YES		db		0.000
10	FUNCTION1 HXCD...	21.86	1.558e2					3.7	YES		bd		0.000
11	FUNCTION1 HXCD...	27.06	8.913e1					1.7	NO		bb		0.000
12	FUNCTION1 HXCD...	26.94	8.721e1					2.6	NO		db		0.000
13	FUNCTION1 HXCD...	26.82	4.842e3					83.2	YES		bd		0.000
14	FUNCTION1 HXCD...	26.61	7.127e3					116.7	YES		db		0.000
15	FUNCTION1 HXCD...	26.52	1.691e3					35.8	YES		bd		0.000
16	FUNCTION1 HXCD...	26.40	1.020e2					3.1	YES		db		0.000
17	FUNCTION1 HXCD...	26.23	7.542e3					122.5	YES		dd		0.000
18	FUNCTION1 HXCD...	26.12	3.151e3					58.4	YES		dd		0.000
19	FUNCTION1 HXCD...	26.05	3.281e3					54.4	YES		dd		0.000
20	FUNCTION1 HXCD...	25.93	1.802e2					3.8	YES		bd		0.000
21	FUNCTION1 HXCD...	25.72	3.630e2					6.6	YES		bb		0.000
22	FUNCTION1 HXCD...	25.55	2.693e2					4.5	YES		bb		0.000
23	FUNCTION1 HXCD...	25.38	1.657e2					3.2	YES		bb		0.000
24	FUNCTION1 HXCD...	25.25	7.821e1					2.2	NO		db		0.000
25	FUNCTION1 HXCD...	25.14	3.124e3					47.2	YES		bd		0.000
26	FUNCTION1 HXCD...	24.79	1.287e2					2.7	NO		bb		0.000
27	FUNCTION1 HXCD...	27.82	1.798e3					26.1	YES		db		0.000
28	FUNCTION1 HXCD...	27.74	8.499e2					17.4	YES		dd		0.000
29	FUNCTION1 HXCD...	27.56	3.264e2					4.6	YES		dd		0.000
30	FUNCTION1 HXCD...	27.47	9.331e2					12.6	YES		dd		0.000
31	FUNCTION1 HXCD...	27.33	8.316e3					117.8	YES		bd		0.000

ID: 21G0286-05, Name: 21092404, Date: 24-Sep-2021, Time: 11:17:11, Conditions: AUTOSPEC01, User: pk

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	27.73	1.409e2					2.4	NO		bb		0.000
2	FUNCTION1 HPCD...	26.85	1.464e2					2.9	NO		bb		0.000
3	FUNCTION1 HPCD...	26.18	1.330e2					2.5	NO		bb		0.000
4	FUNCTION1 HPCD...	25.93	7.508e1					2.2	NO		db		0.000
5	FUNCTION1 HPCD...	25.81	8.345e1					1.6	NO		bd		0.000
6	FUNCTION1 HPCD...	24.67	1.291e2					3.1	YES		db		0.000
7	FUNCTION1 HPCD...	24.60	2.305e2					4.1	YES		bd		0.000
8	FUNCTION1 HPCD...	23.16	2.626e3					56.2	YES		bb		0.000
9	FUNCTION1 HPCD...	22.13	2.974e2					7.4	YES		bb		0.000
10	FUNCTION1 HPCD...	21.88	3.067e2					6.6	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...	32.26	8.936e2					11.1	YES		db		0.000
2	FUNCTION2 HPCD...	32.13	2.528e3					31.3	YES		bd		0.000
3	FUNCTION2 HPCD...	30.49	2.244e2					4.0	YES		bb		0.000
4	FUNCTION2 HPCD...	30.37	8.405e2					11.9	YES		bb		0.000
5	FUNCTION2 HPCD...	29.98	4.084e2					6.3	YES		db		0.000
6	FUNCTION2 HPCD...	29.88	2.699e2					6.0	YES		dd		0.000
7	FUNCTION2 HPCD...	29.87	2.845e2					6.8	YES		bd		0.000
8	FUNCTION2 HPCD...	29.04	8.595e1					2.8	NO		bb		0.000
9	FUNCTION2 HPCD...	28.90	4.923e2					3.8	YES		db		0.000
10	FUNCTION2 HPCD...	28.75	5.958e2					8.2	YES		bd		0.000
11	FUNCTION2 HPCD...	28.46	1.064e3					11.6	YES		bb		0.000

ID: 21G0286-05, Name: 21092404, Date: 24-Sep-2021, Time: 11:17:11, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	34.54	9.507e1					4.9	YES		bb		0.000
2	FUNCTION3 OCDPE	34.01	8.543e2					23.7	YES		bb		0.000
3	FUNCTION3 OCDPE	32.90	4.190e2					9.3	YES		bb		0.000
4	FUNCTION3 OCDPE	37.66	3.513e2					12.3	YES		bb		0.000
5	FUNCTION3 OCDPE	37.49	2.459e2					4.8	YES		db		0.000
6	FUNCTION3 OCDPE	37.38	8.821e1					5.3	YES		bd		0.000
7	FUNCTION3 OCDPE	37.12	1.539e2					4.5	YES		bb		0.000
8	FUNCTION3 OCDPE	36.98	1.535e2					5.9	YES		bb		0.000
9	FUNCTION3 OCDPE	36.76	2.870e2					7.9	YES		bb		0.000
10	FUNCTION3 OCDPE	36.38	1.407e2					3.9	YES		bb		0.000
11	FUNCTION3 OCDPE	36.00	1.816e2					3.8	YES		bb		0.000
12	FUNCTION3 OCDPE	34.73	1.014e2					2.6	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.00	1.365e2					3.5	YES		bb		0.000
2	FUNCTION4 NCDPE	41.23	1.486e2					2.9	NO		bb		0.000
3	FUNCTION4 NCDPE	38.70	1.922e2					2.9	NO		bb		0.000
4	FUNCTION4 NCDPE	38.27	5.177e5					6683.7	YES		bb		0.000
5	FUNCTION4 NCDPE	38.15	8.524e1					1.7	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.84	1.009e3					20.5	YES		bb		0.000

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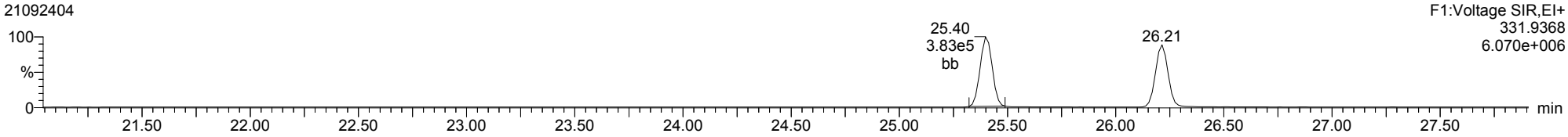
ID: 21G0286-05, Name: 21092404, Date: 24-Sep-2021, Time: 11:17:11, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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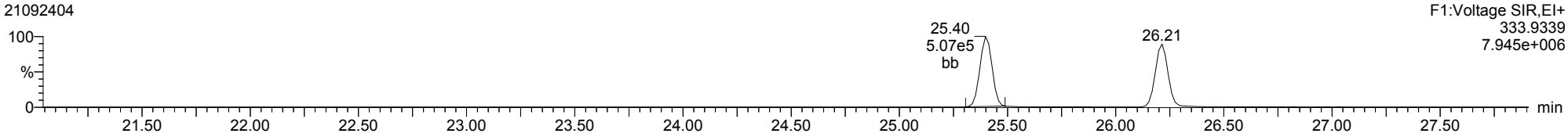

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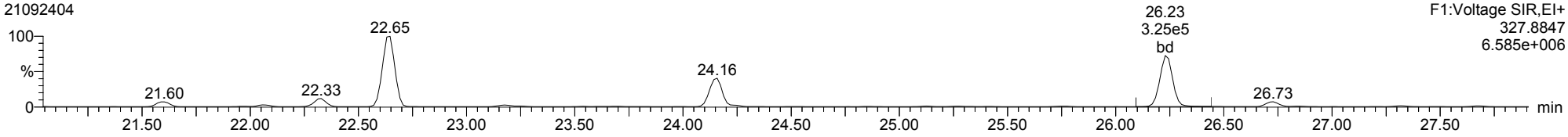

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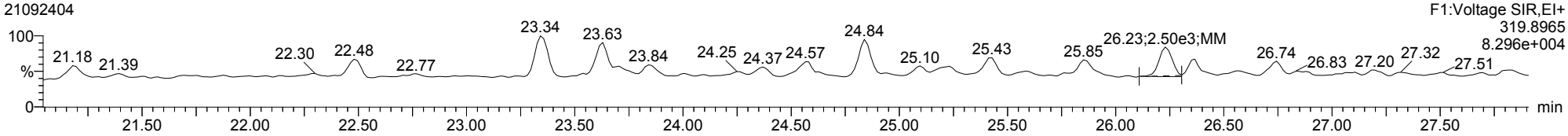
2378-TCDD



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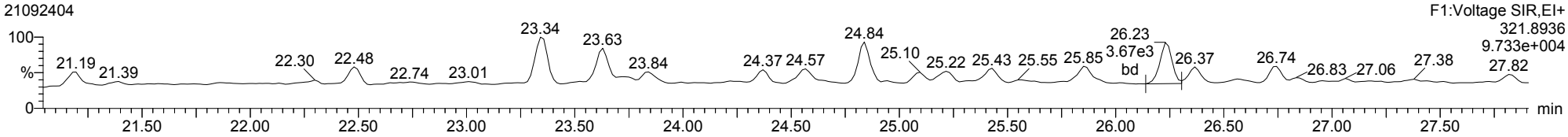

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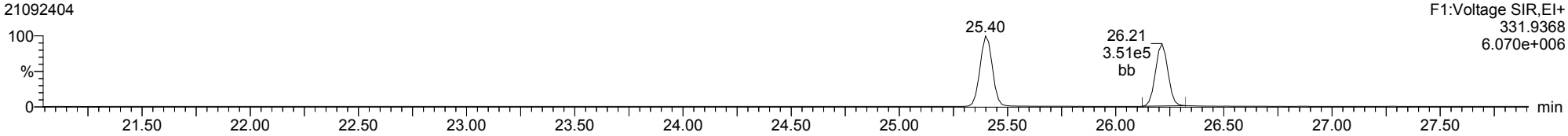

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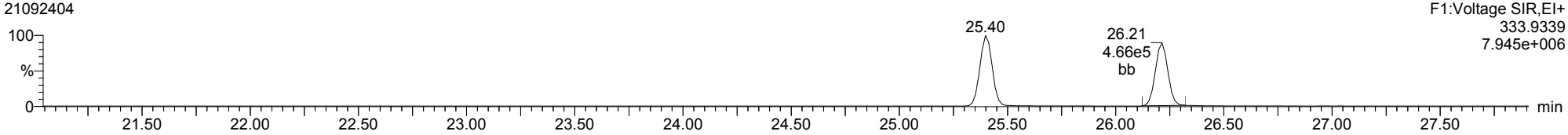

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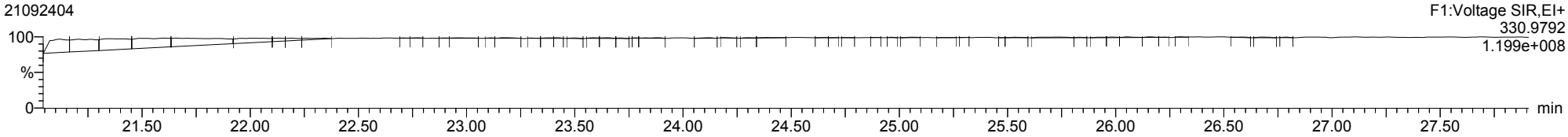

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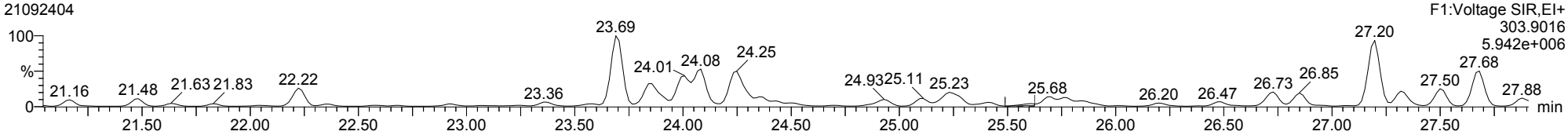
2378-TCDF



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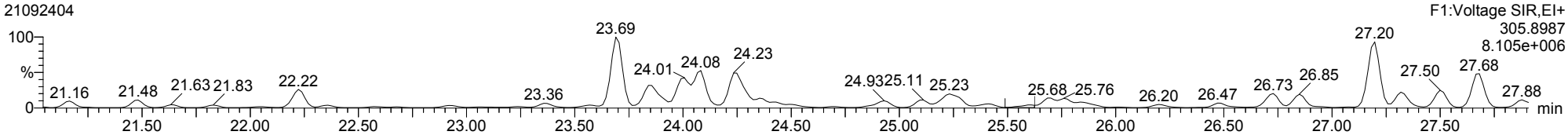

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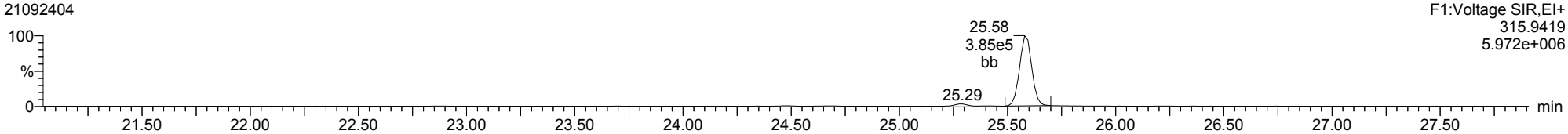

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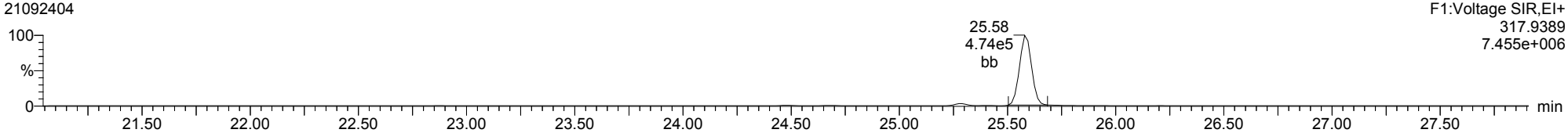
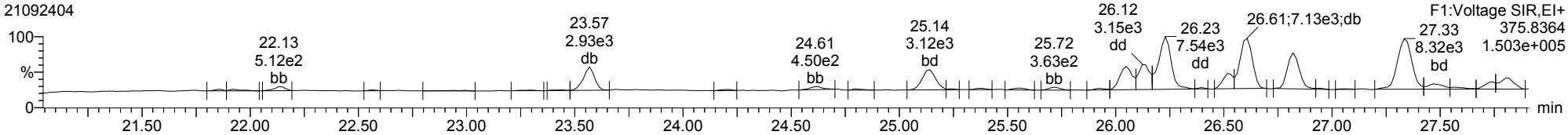


FUNCTION1 HXCDPE



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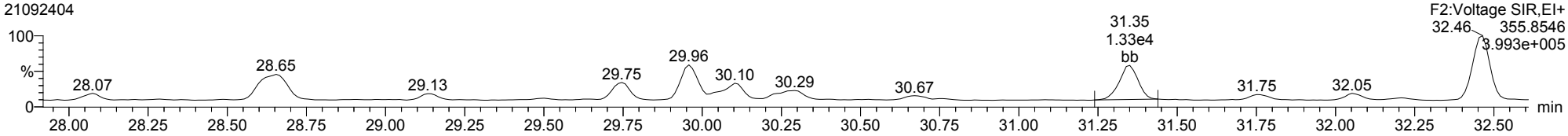
12378-PeCDD



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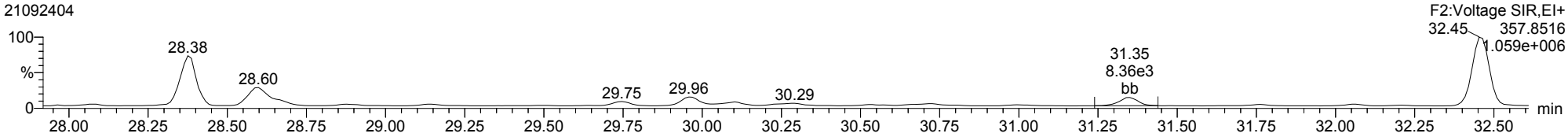

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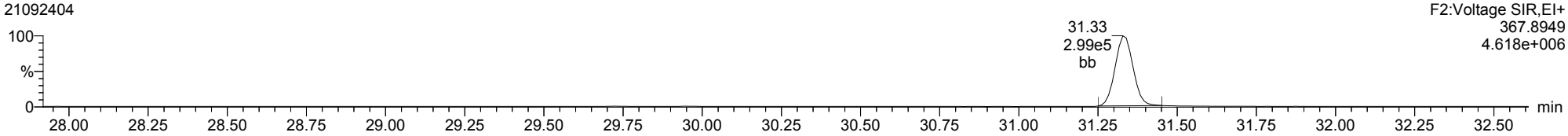

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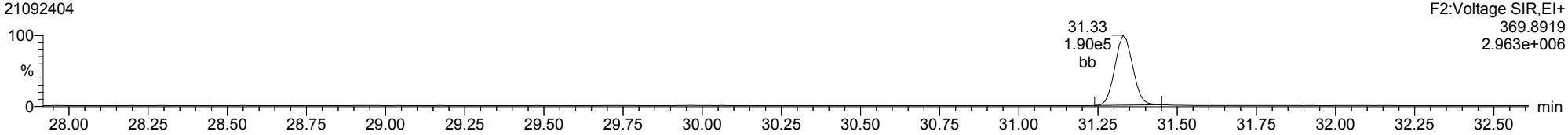

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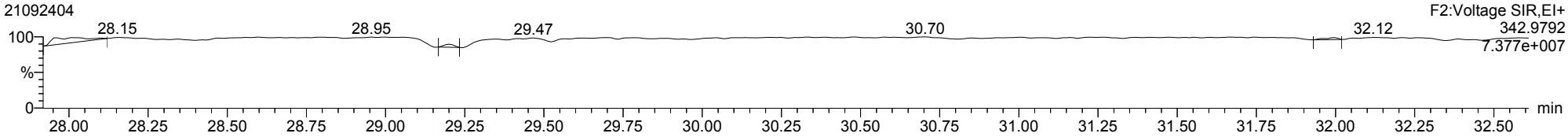

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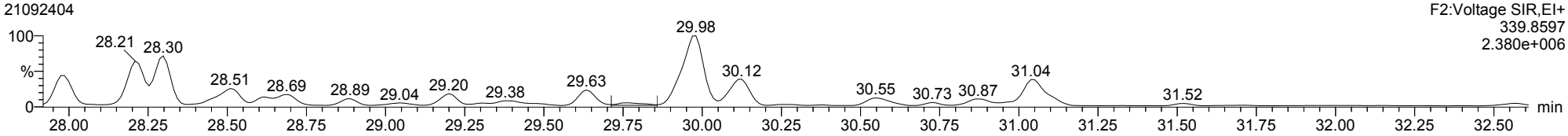

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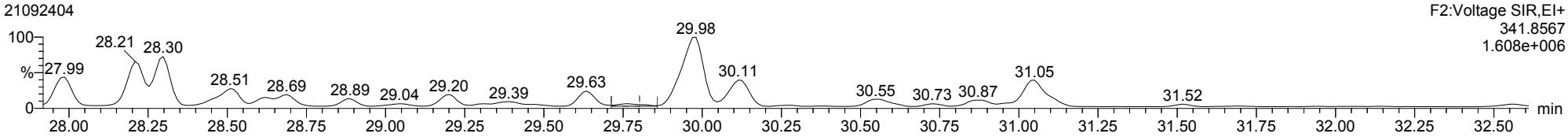

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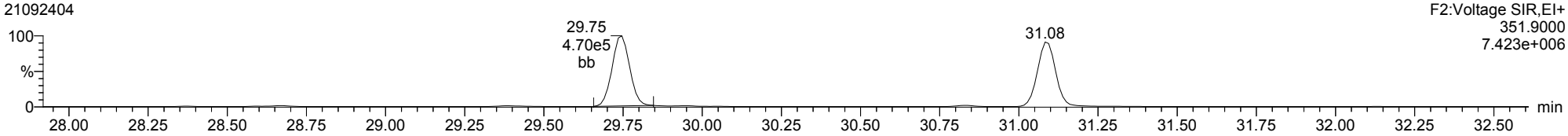

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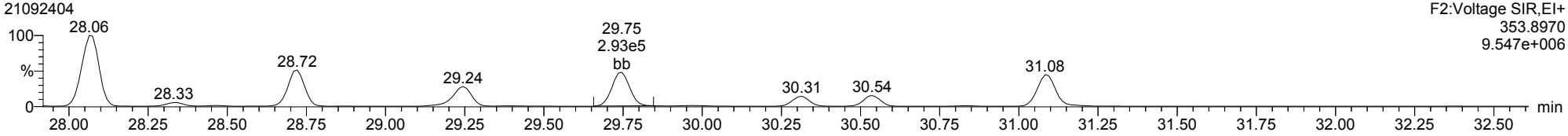
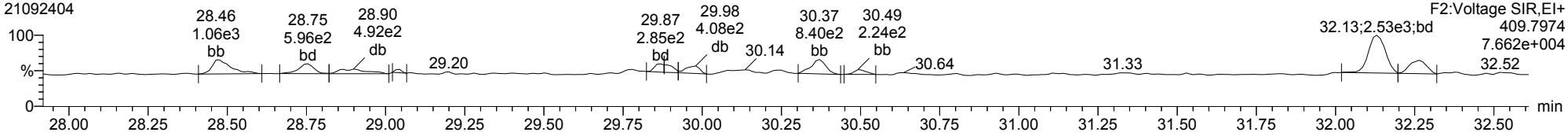


FUNCTION2 HPCDPE



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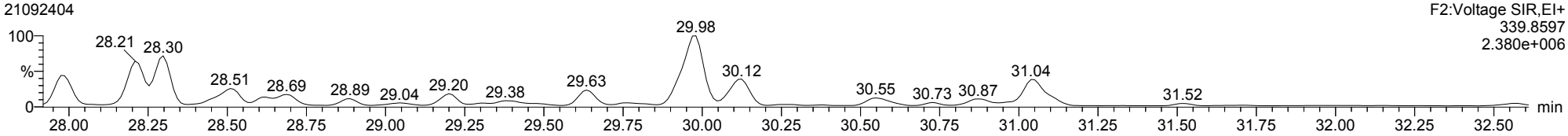
23478-PeCDF



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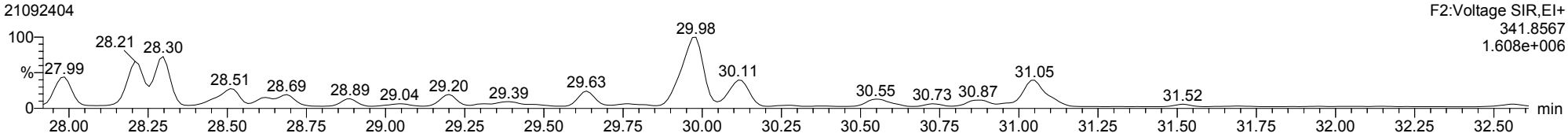

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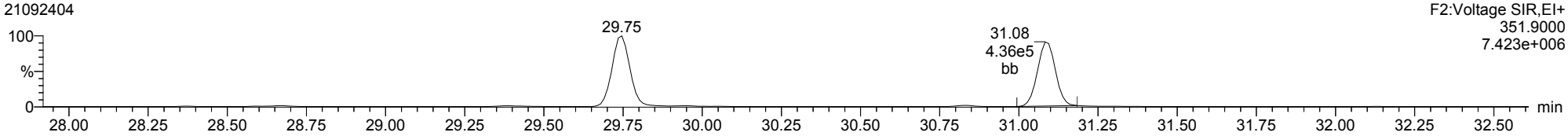

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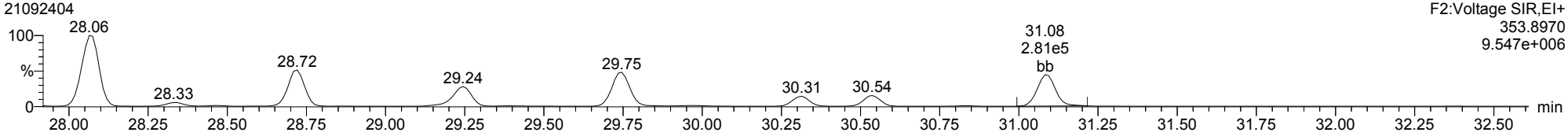

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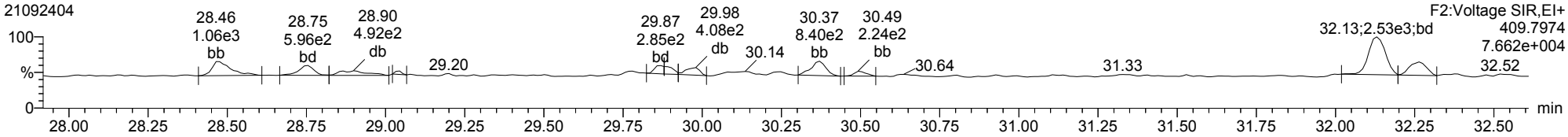

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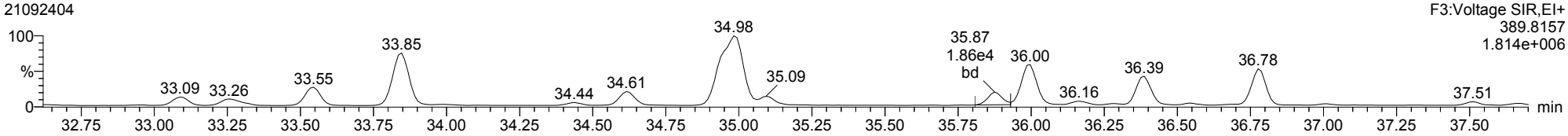
123478-HxCDD



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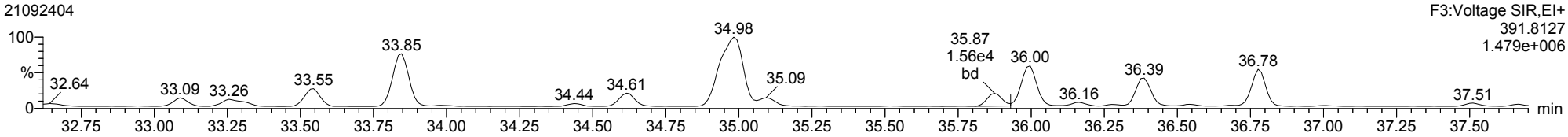

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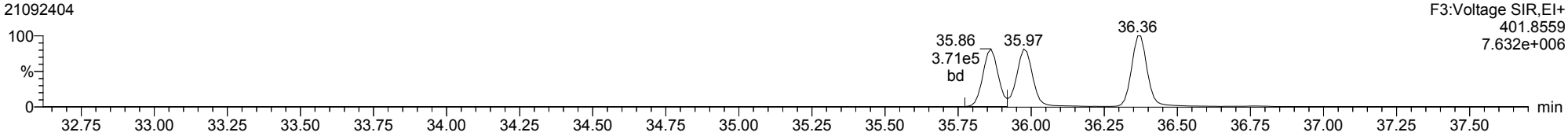

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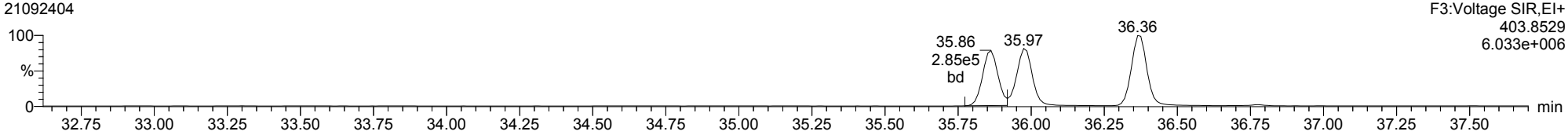
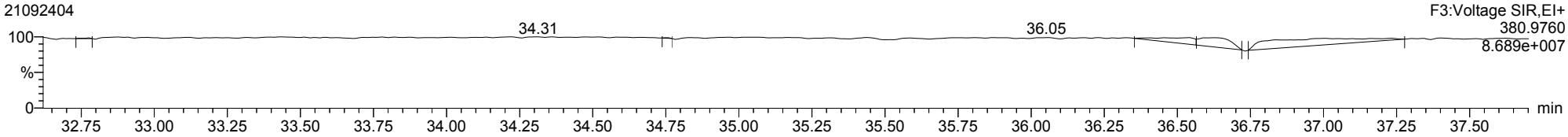


FUNCTION3 PFK



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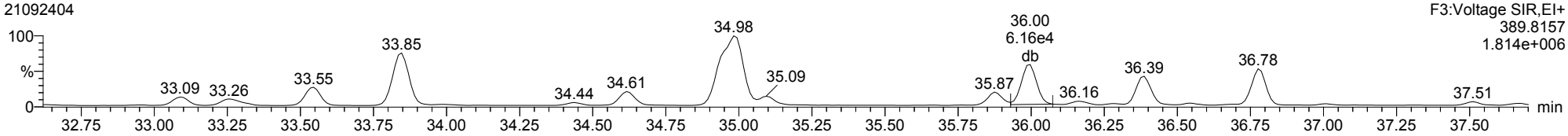
123678-HxCDD



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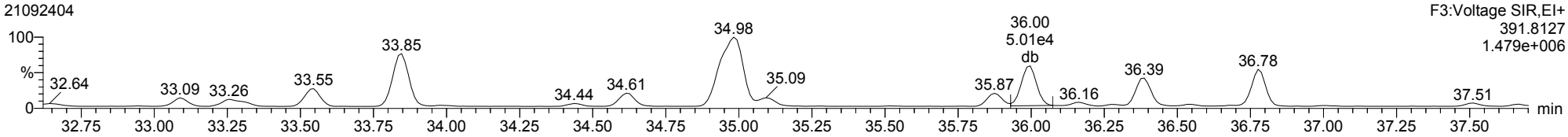

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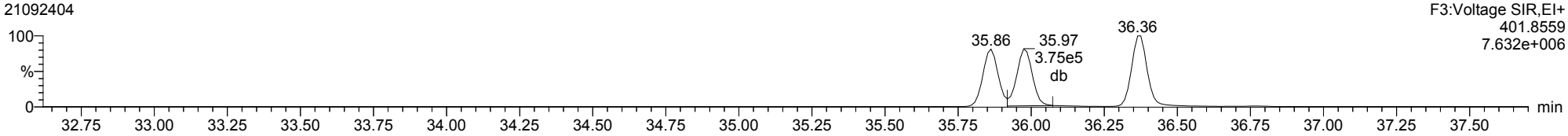

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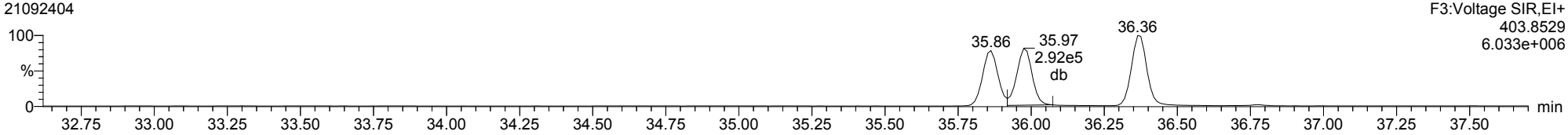

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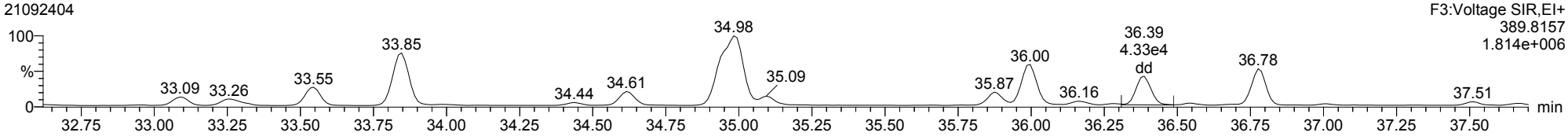

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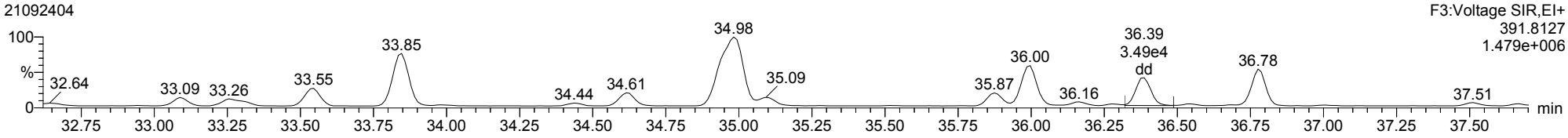

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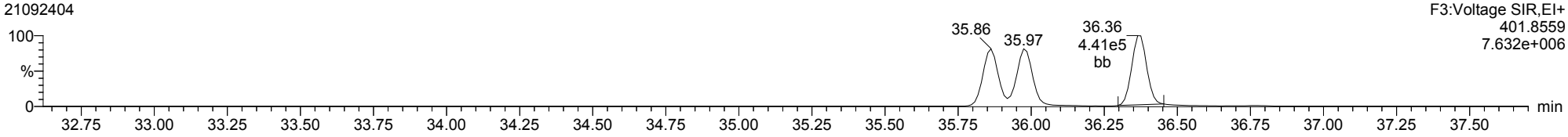

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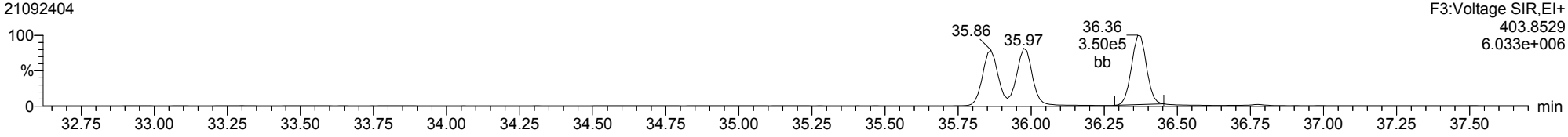

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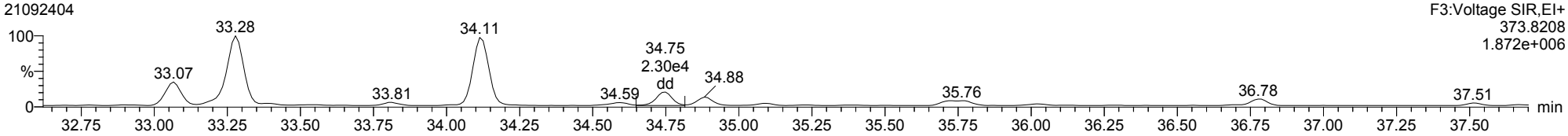

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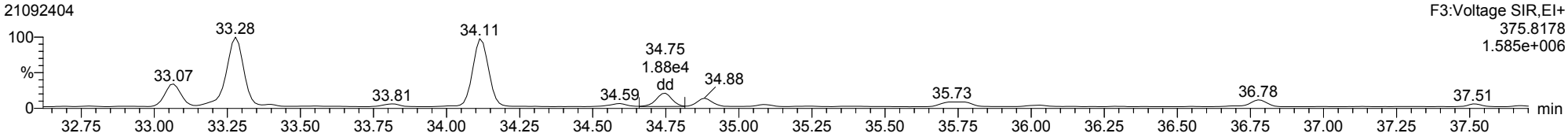

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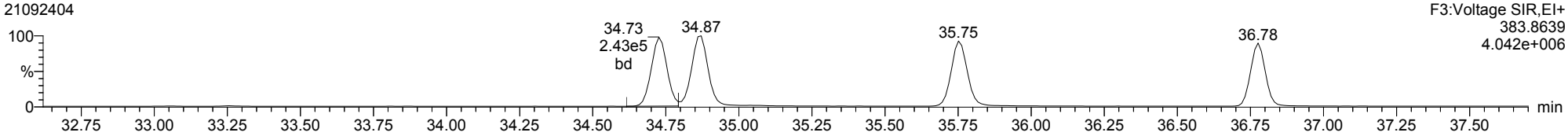

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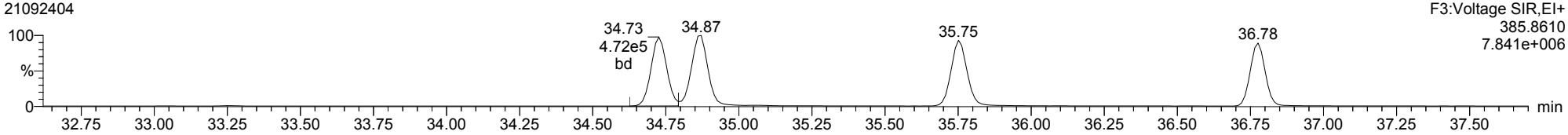

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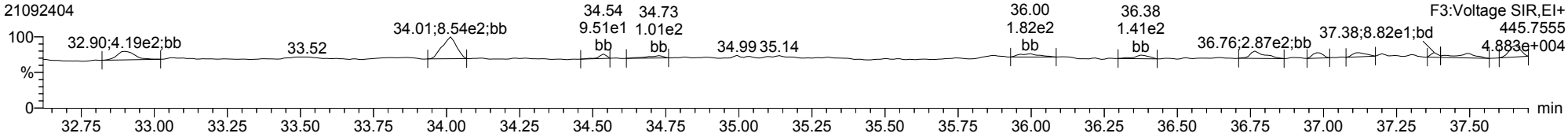

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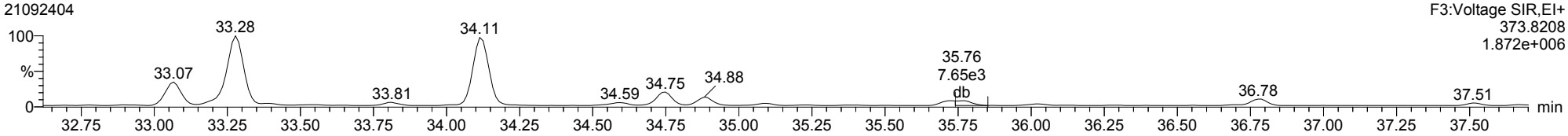

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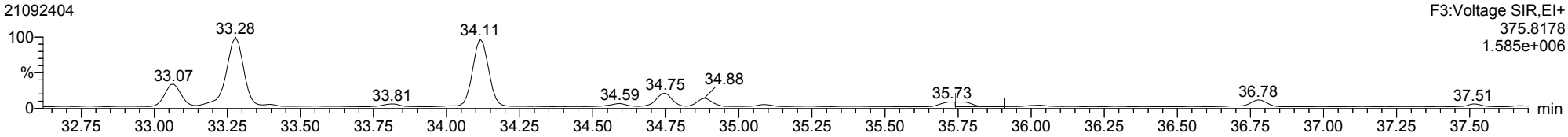

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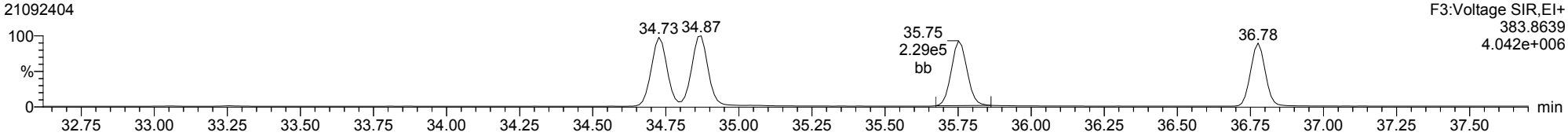

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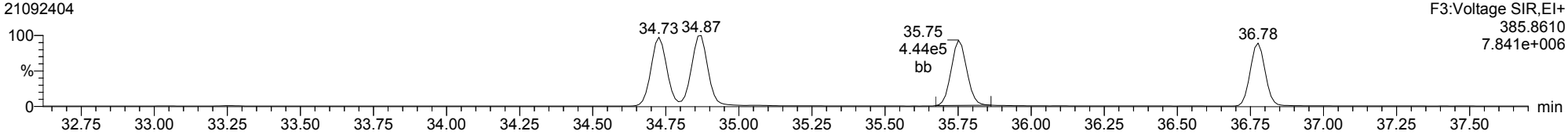

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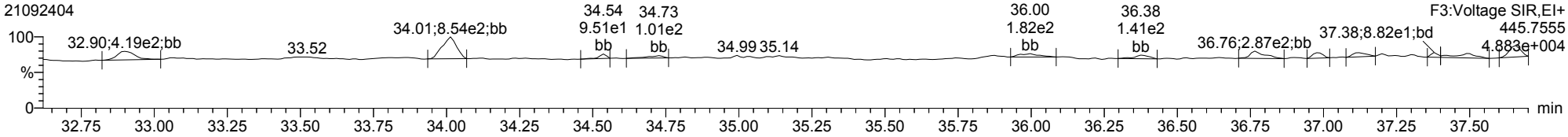

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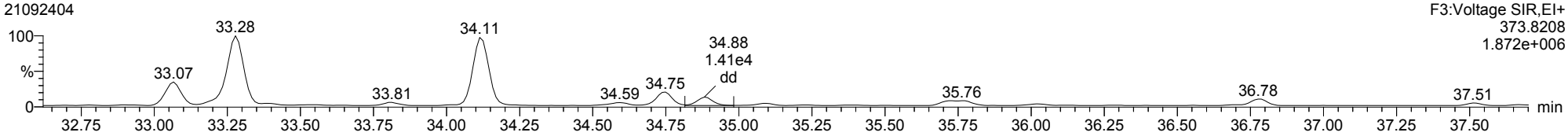

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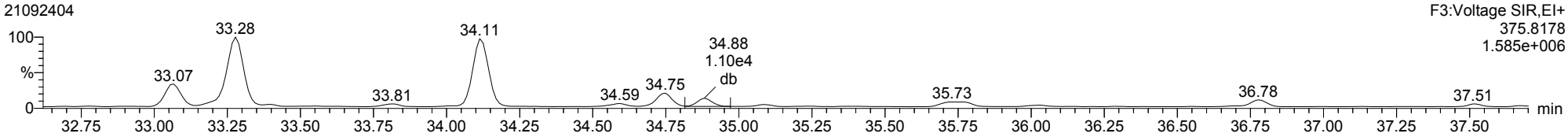

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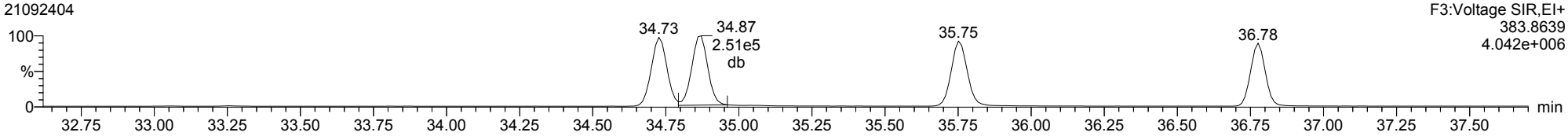

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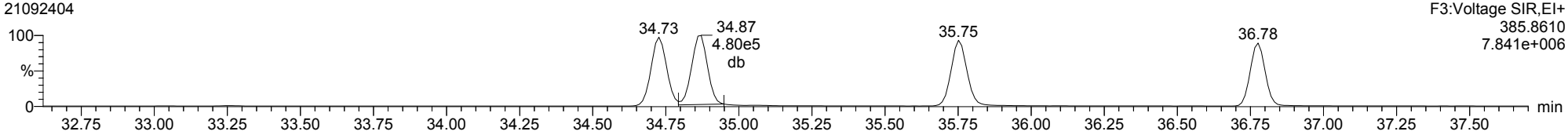

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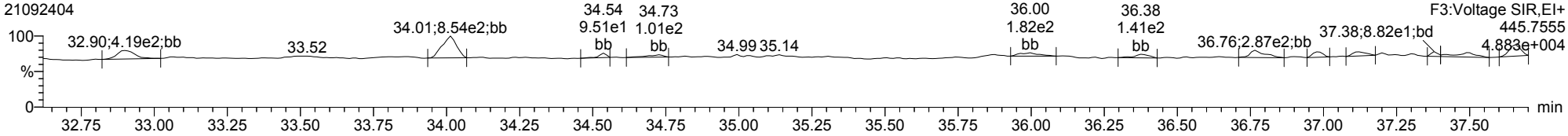

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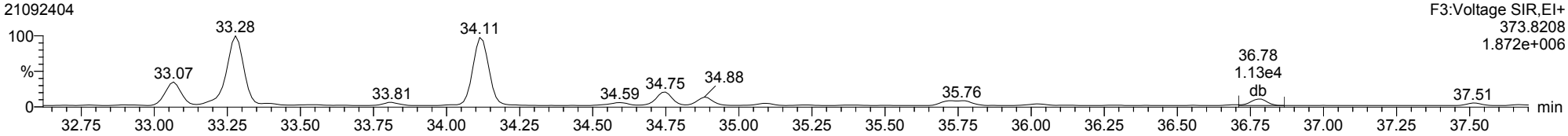

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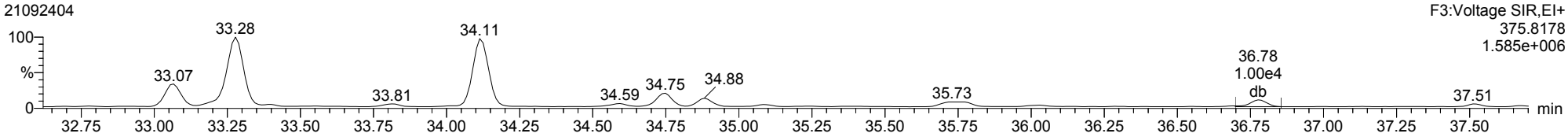

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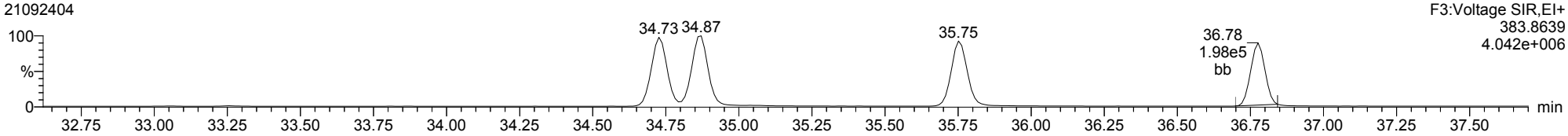

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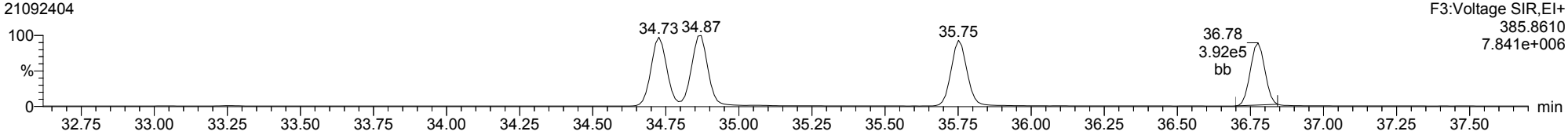

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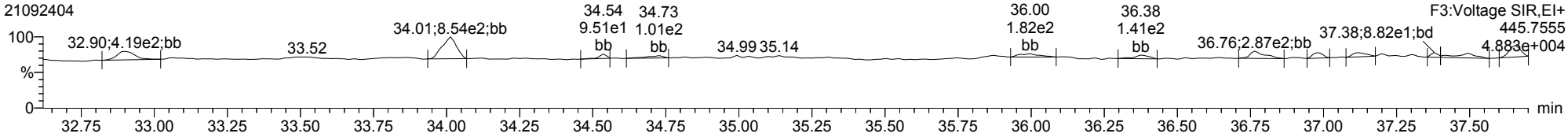

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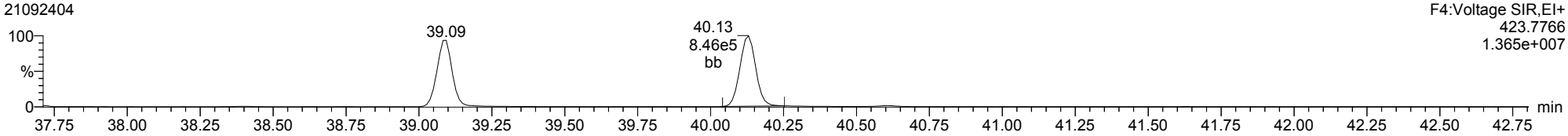

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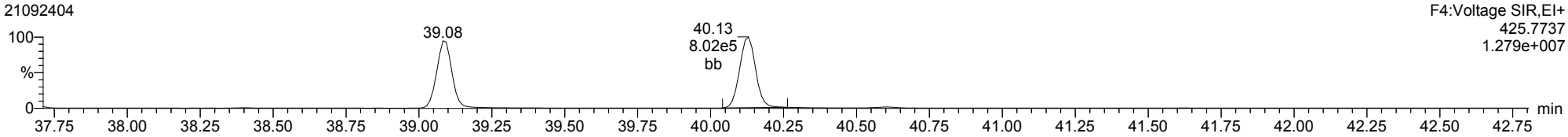

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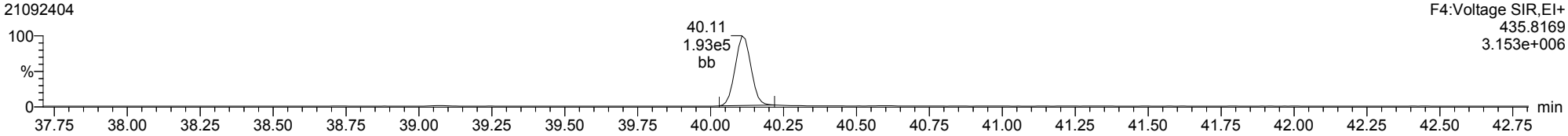

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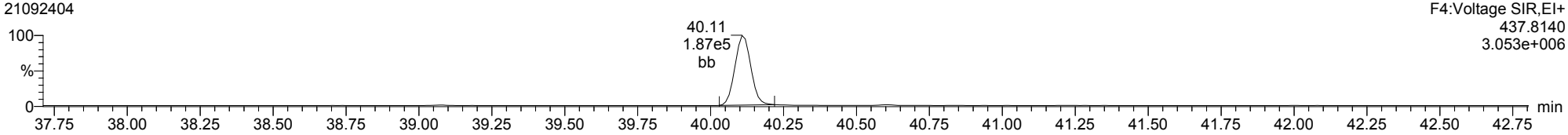
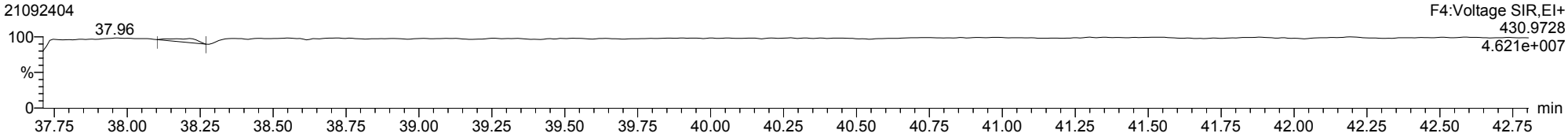


FUNCTION4 PFK



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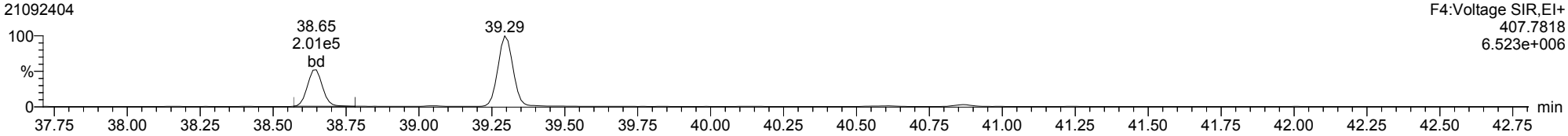

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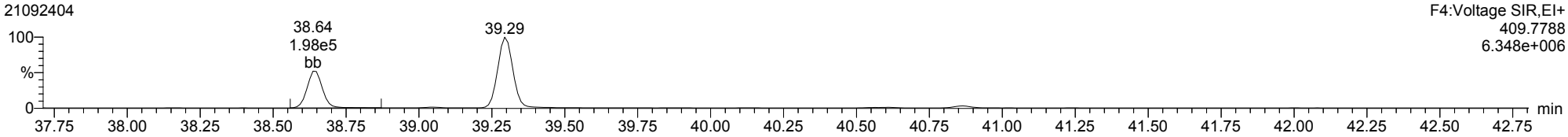

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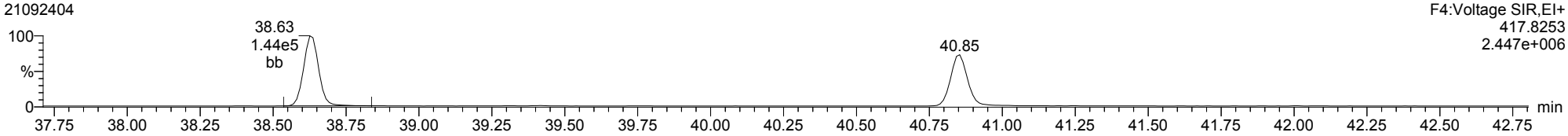

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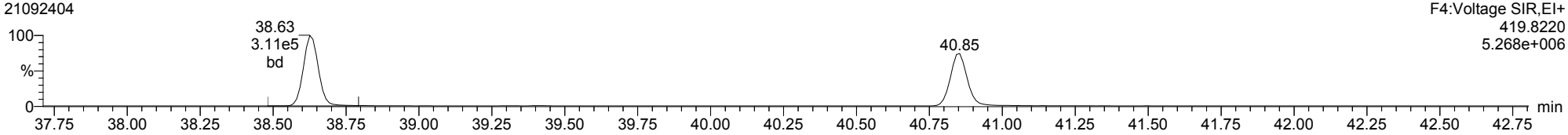

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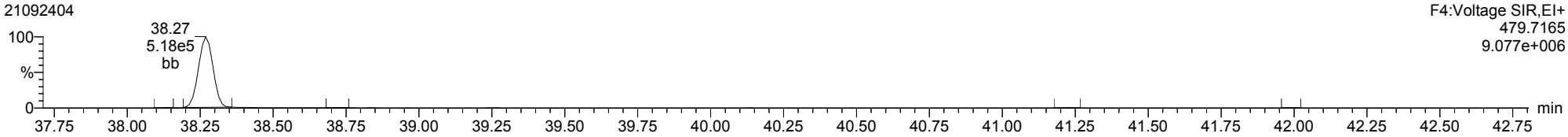

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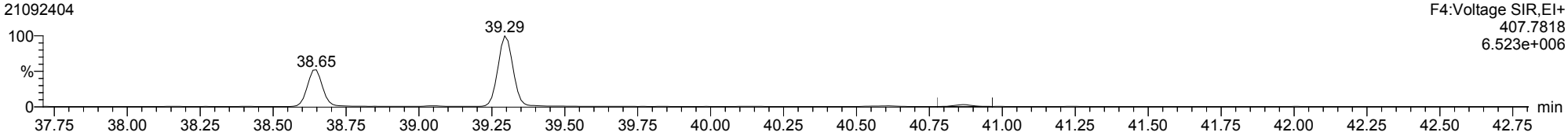

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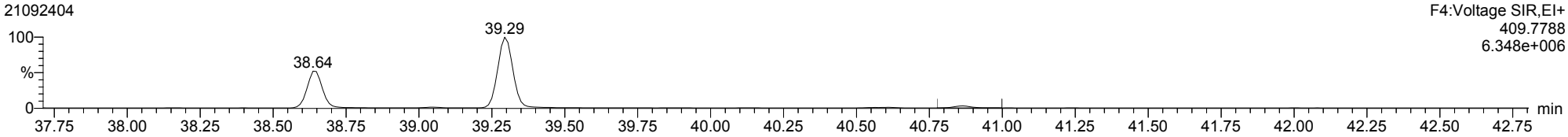

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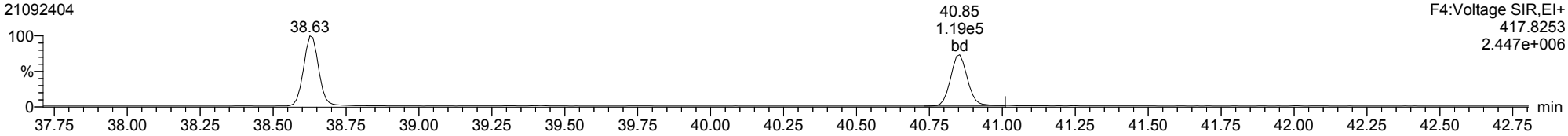

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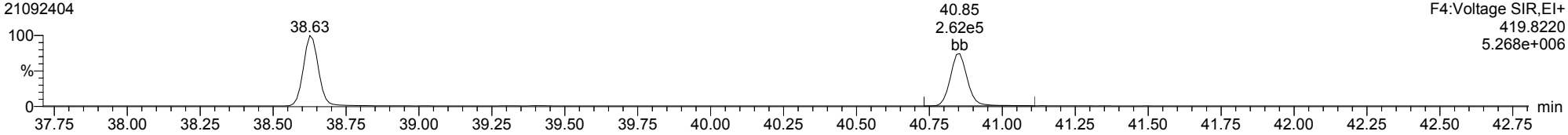

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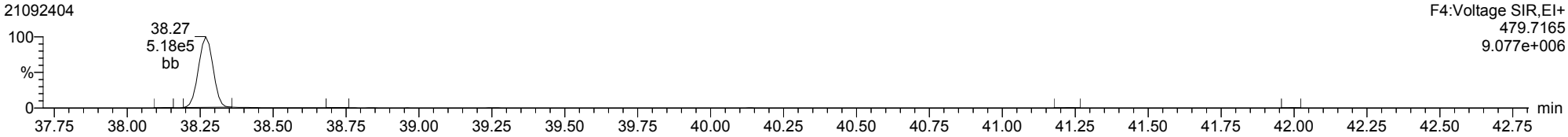

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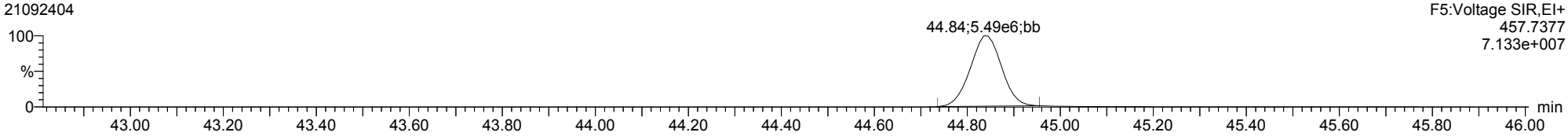
OCDD



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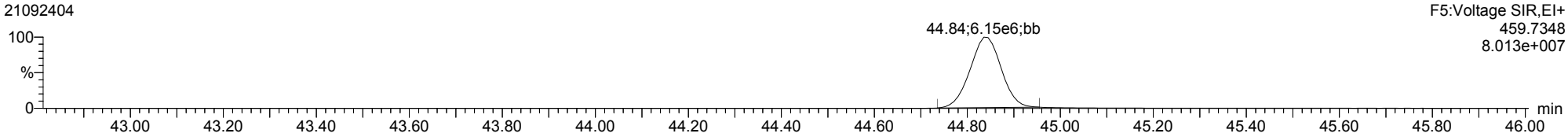

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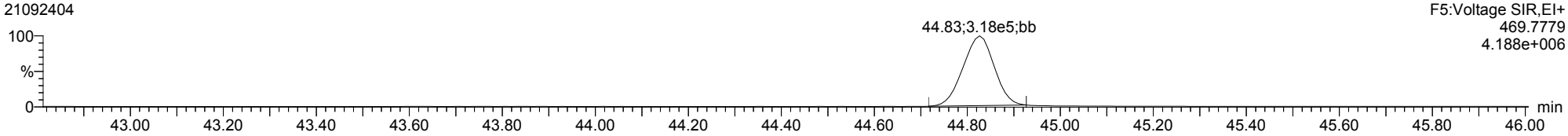

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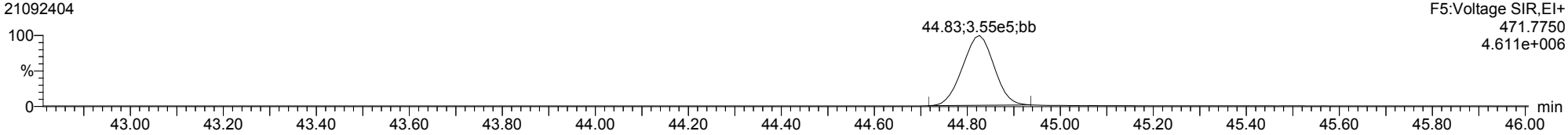
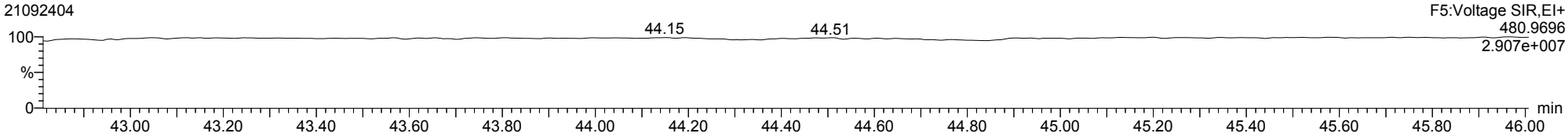


FUNCTION5 PFK



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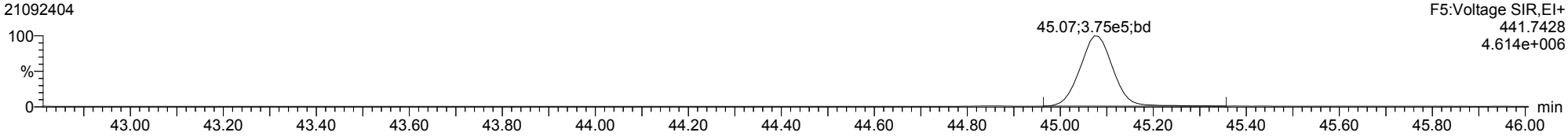
OCDF



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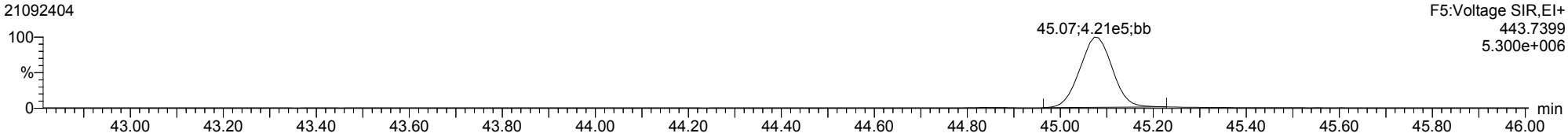

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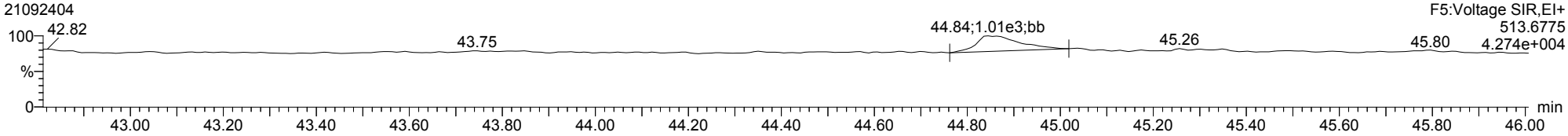

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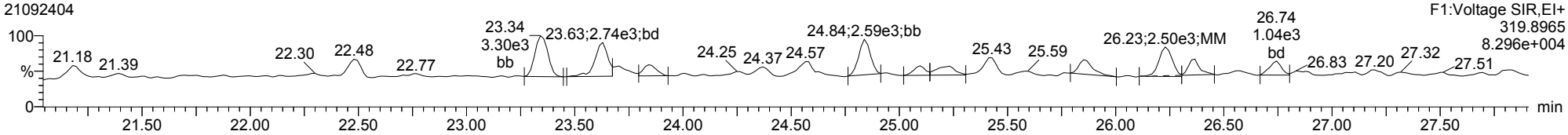
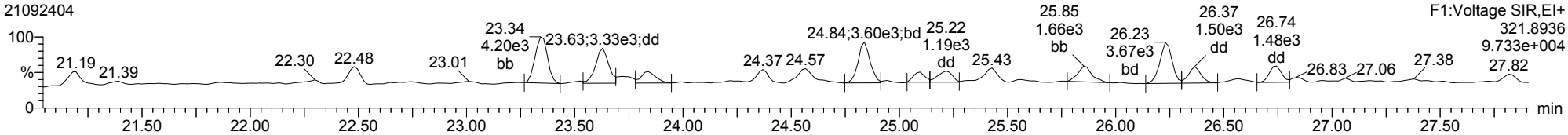
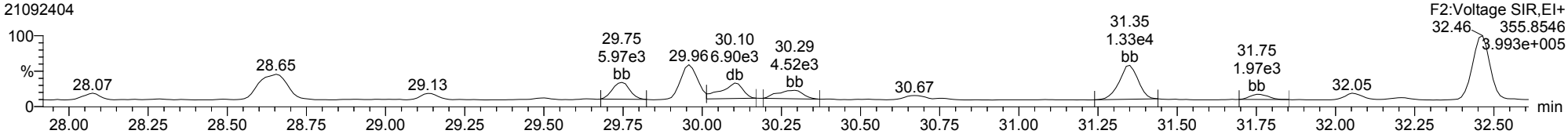
Total-tetradioxins



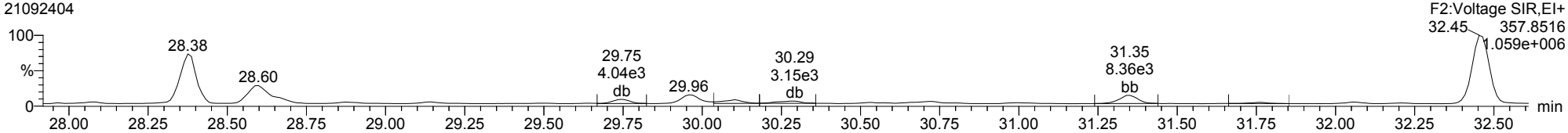
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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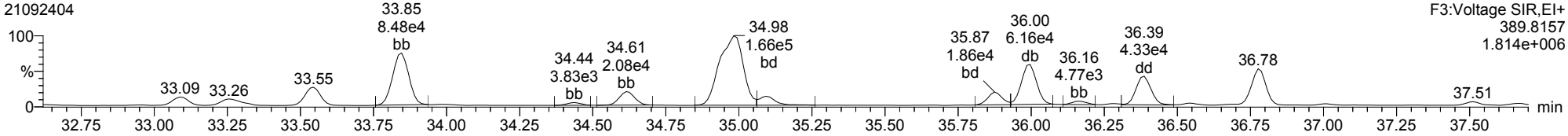
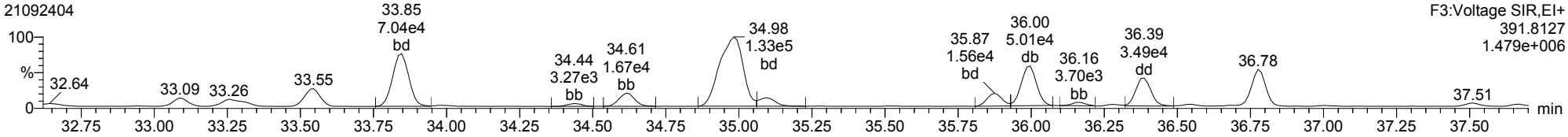
Total-hexadioxins



Total-hexadioxins



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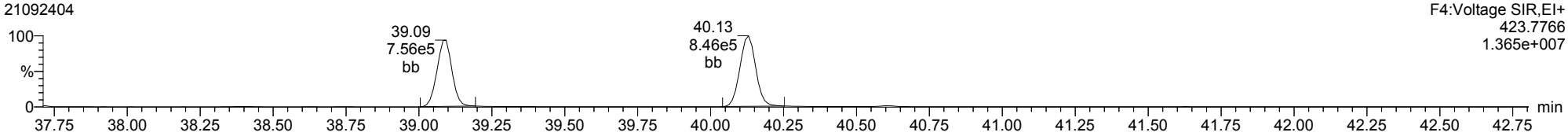
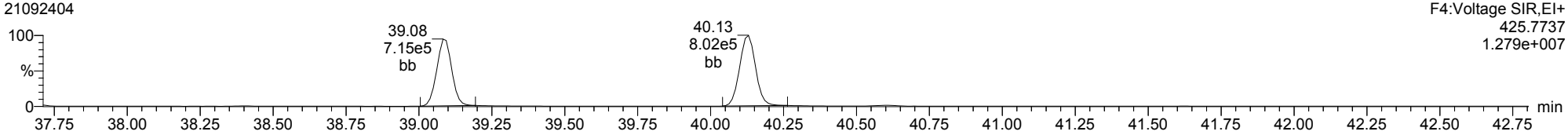


Total-heptadioxins



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Printed: Friday, September 24, 2021 13:38:25 Pacific Daylight Time

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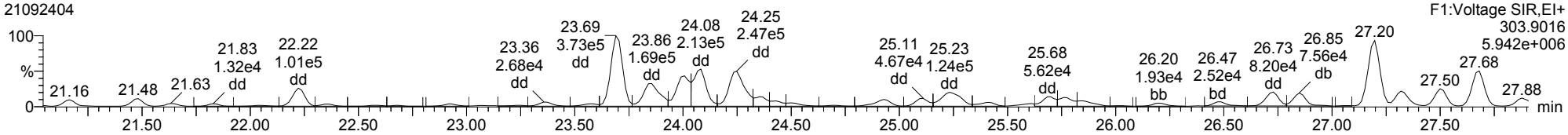
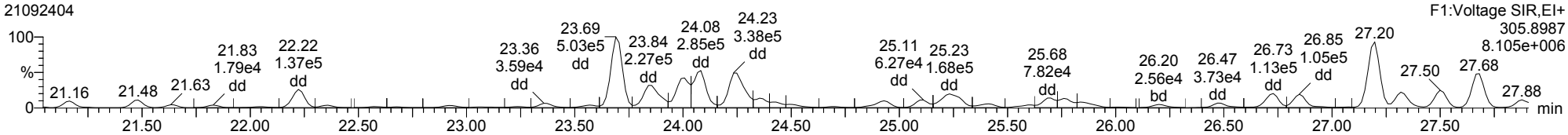
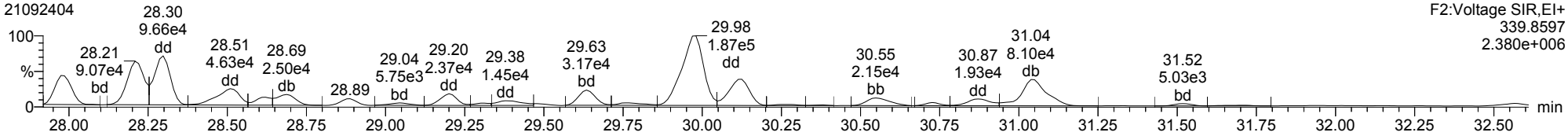
Total-tetrafurans



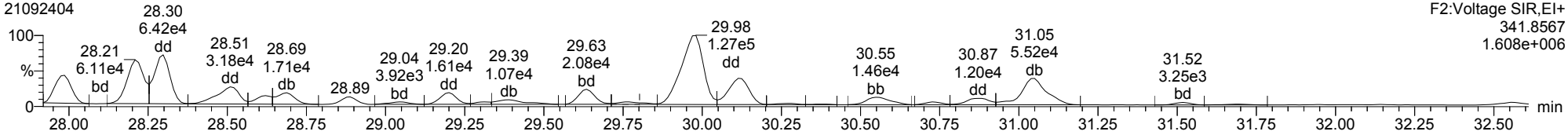
Total-tetrafurans



Total-pentafurans



Total-pentafurans



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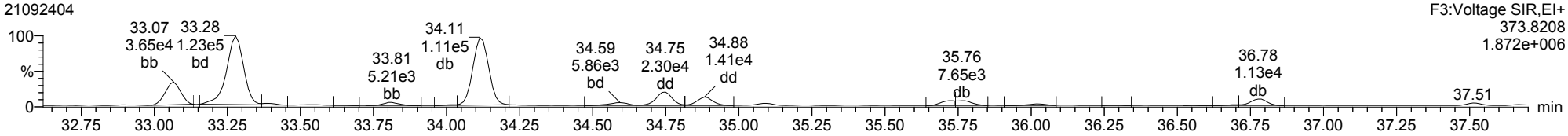
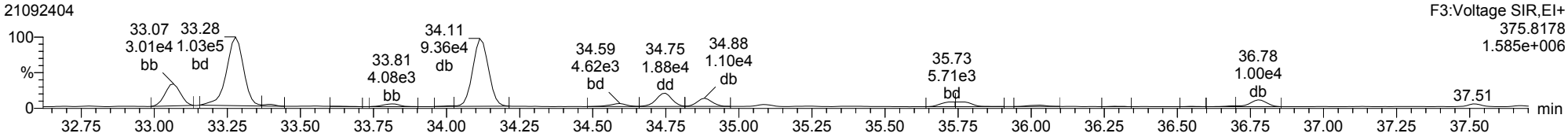
Last Altered: Friday, September 24, 2021 13:24:53 Pacific Daylight Time
Printed: Friday, September 24, 2021 13:38:25 Pacific Daylight Time

ID: 21G0286-05, Name: 21092404, Date: 24-Sep-2021, Time: 11:17:11, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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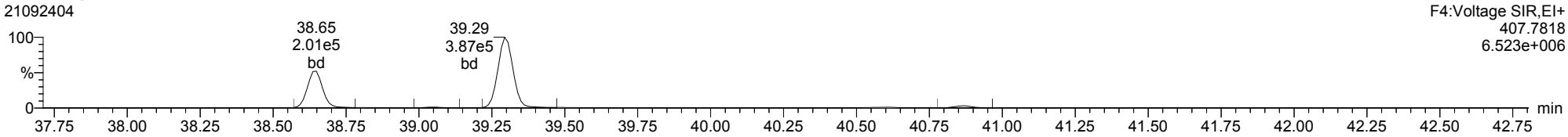
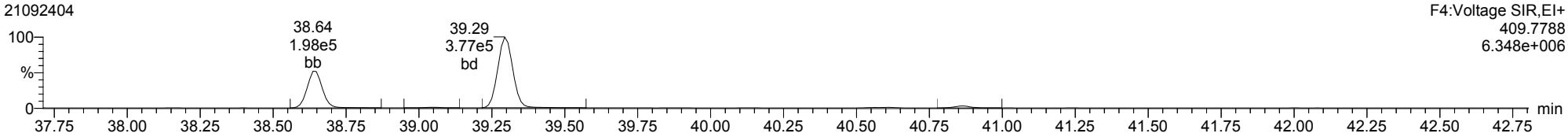


Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.			SDG:	21G0286
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Batch:	BJH0773	Batch Matrix:	Solid	Preparation:	EPA 8290

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LDW21-SS646	21G0286-05	21092404	09/02/21 15:08	
Blank	BJH0773-BLK1	21091308	09/02/21 15:08	
LCS	BJH0773-BS1	21091309	09/02/21 15:08	
LCS Dup	BJH0773-BSD1	21091310	09/02/21 15:08	
LDW21-SS646	BJH0773-DUP1	21092201	09/02/21 15:08	
Reference	BJH0773-SRM1	21091311	09/02/21 15:08	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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

Batch: BJH0773

Solid Samples

ARI Work Orders: 21G0253(Rex),21G0272,21G0276,21G0286,21ZH0004

Matrix (circle one)	[Soil] Sediment	Oil	Tissue
Extraction Method	Start Date/Time:	End Date/Time:	
[Soxhlet] **SepF Shake out**	9/2/21 15:08	9/3/21 7:08	

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Balance		24650344	DP	9/2/21
Toluene		J007944	M	9/2/21
Hexane		J006933	LB	9/4/21/9/8/21
CH2Cl2		J007764	LB	9/8/21
H2SO4		F009222	DP	9/6/21
Na2SO4		J009169	DP/LB	9/2/21 9/8/21 9/6/21
Glasswool		I006679	LB	9/8/21
Basic Silica		J002641	LB	9/8/21
Acid Silica		J007981	LB	9/8/21
0% Silica		J005622	DP/LB	9/1/21/9/8/21
Activated Florisil		J002451	LB	9/8/21
Nonane		H006638	M	9/9/21
Other (RM)		J007935	DP	9/2/21

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)
21G0253-03RE1 C	WW-MNR-05-SS-210710	43.98	(22.74)	22.75	1/(2)	12.1	20
21G0272-01 D	WW-03-SS-0-12-210720	39.26	(25.47)	25.47	(1)/2	15.0	20
21G0272-02 D	WW-04-SS-0-12-210720	39.04	(25.62)	25.65	1/(2)	14.5	20
21G0272-03 D	WW-05-SS-0-12-210720	40.1	(24.94)	24.94	(1)/2	14.5	20
21G0272-04 D	WW-06-SS-0-12-210720	34.25	(29.20)	29.21	1/(2)	18.5	20
21G0276-01 C	WC-15-SS-0-12-210721	82.87	(12.07)	12.07	(1)/2	1.7	20
21G0276-02 C	WC-06-SS-0-12-210721	61.81	(16.18)	16.19	(1)/2	5.9	20
21G0276-03 C	WC-10-SS-0-12-210721	68.19	(14.67)	14.67	1/(2)	4.3	20
21G0276-04 C	WC-16-SS-0-12-210721	66.06	(15.14)	15.14	(1)/2	4.4	20
21G0286-05 C	LDW21-SS646	65.43	(15.28)	15.28	1/(2)	4.8	20
21H0004-01 A	W-1-210729	37.28	(26.82)	26.83	(1)/2	6.0	20
21H0004-02 A	W-2-210729	45.18	(22.13)	22.13	1/(2)	9.0	20
21H0004-03 A	W-3-210729	50.96	(19.62)	19.62	(1)/2	9.0	20
21H0004-04 A	W-4-210729	45.41	(22.02)	22.02	1/(2)	11.0	20
21H0004-05 A	LAI-SS-1-210729	48.75	(20.51)	20.51	(1)/2	9.3	20
BJH0773-BLK1	Blank	100	()		(1)/2		20
BJH0773-BS1	LCS	100	()		1/(2)		20
BJH0773-BSD1	LCS Dup	100	()		1/(2)		20
BJH0773-DUP1	21G0286-05C Duplicate	65.43	(15.28)	15.29	1/(2)	4.9	20
BJH0773-SRM1	Reference	100	()	10.00	(1)/2	0.2	20
Prep Analyst / Date:	DP 9/2/21					LB 9/4/21 DP 9/3/21	M 9/9/21

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	J007665	2/4 ng/mL	7/27/2022	DP	M	9/2/21
OPR	1.0 mL	J006781	0.2/1.0/2.0 ng/mL	6/29/2022	DP	M	9/2/21
~~**QLS Standard**~~	~~1.0 mL~~		~~0.0170.05/0.1ng/mL ng/~~				
Cleanu-up Standard	1.0 mL	J007666	0.8 ng/mL	7/27/2022	LB	DP	9/8/21

Verify Client ID
Analyst / Date: DP 9/2/21

Acid Clean
[Y] N
Analyst / Date: DP 9/6/21

Silica-Florisil Clean
[Y] N
Analyst / Date: LB 9/8/21

Supervisor Review By 9/13/21
Date

Printed: 9/1/2021 7:52:20AM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Extraction Batch BJH0773

Total Solids Batch: BJH0053 Work Order(s): 21G0296, 21H0004

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☑ Standing Water Decanted (Not shared)= 296-1,2,3,4,5,6,11 21H0004-1,2	DaP 8/30/21
☐ Standing Water Homogenized (Shared samples)=	
☑ Clay/Clumps (Difficult to homogenize)= 296-7,8,9,10	DaP 8/30/21
☐ Rocks (%+size)?	
☑ Organics (Leaves/sticks/grass)= 296-2,3,4,6 004-2,1	DaP 8/30/21
☑ Oily, obvious fuel/sulfur odors= 004-1,2	DaP 8/30/21
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☑ Other (Details)= Also standing water decanted = 3,4,5	DaP 8/30/21
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☑ Other Notes/Comments= (Note problems, concerns, corrective actions).	
Oily samples stuck to sides of round bottom: 21H0004-01-04	LB 9/4/21
Double acid silica gel column clean: 21H0004-1,2,	LB 9/8/21
☐ 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 BJH0773

Total Solids Batch: BJH0052 Work Order(s): ~~21G0253~~ MS 8/26/21, 21G0272, 21G0276, ~~21G0284~~ MS 8/26/21, ~~21G0286~~, 21G0322

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= 272-2,3,4	DP 8/30/21
☒ Standing Water Decanted (Not shared)= 272-1 ~~3~~,4 276-3,4 322-7,8,9	DP 8/30/21
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☒ Rocks (%+size)? 80% 1/3" = 276-1 20% 1/3" = 322-9	DP 8/30/21
☒ Organics (Leaves/sticks/grass)= 276-4 322-8	DP 8/30/21
☐ 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).	
Double acid silica column clean: 21G0276-3,2, 21G0272-3,4	MB 9/8/21
☐ 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)

Instrumentation

Batch:	BJH0053
Date:	8/31/2021 5:25
Analyst:	DXP
Drying Oven:	18
Analytical Balance:	24650344

Batch drying time		
Record times as mm/dd/yy hh:mm		Oven Temp, C
Date/time in oven:	8/30/2021 12:06	107
Date/time out:	8/31/2021 5:25	107
Elapsed hrs:	17.3	

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:	107
End Temp:	107

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21G0296-01	0.8100	11.3500	7.1200	6.31	**59.87%**	Yes
21G0296-02	0.8200	11.8200	8.0700	7.25	**65.91%**	Yes
21G0296-03	0.8000	11.2100	7.4000	6.60	**63.40%**	Yes
21G0296-04	0.8000	11.2700	7.4500	6.65	**63.51%**	Yes
21G0296-05	0.7900	11.8700	7.3800	6.59	**59.48%**	Yes
21G0296-06	0.7900	11.2200	7.6600	6.87	**65.87%**	Yes
21G0296-07	0.8000	11.6700	7.3400	6.54	**60.17%**	No
21G0296-08	0.7900	11.2700	7.4500	6.66	**63.55%**	No
21G0296-09	0.7900	11.8900	6.7600	5.97	**53.78%**	No
21G0296-10	0.7900	11.0500	6.7800	5.99	**58.38%**	No
21G0296-11	0.8000	11.5600	7.2600	6.46	**60.04%**	Yes
21G0296-12	0.8000	11.8100	9.4000	8.60	**78.11%**	No
21H0004-01	0.7900	11.2500	4.6900	3.90	**37.28%**	Yes
21H0004-02	0.7900	11.6800	5.7100	4.92	**45.18%**	Yes
21H0004-03	0.8000	11.2600	6.1300	5.33	**50.96%**	Yes
21H0004-04	0.7800	11.1300	5.4800	4.70	**45.41%**	Yes
21H0004-05	0.8000	11.6100	6.0700	5.27	**48.75%**	Yes

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BJH0053
Date:	8/3/2021 12:35 8/31/21 0525
Analyst:	DP 8/31/21
Drying Oven:	018
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:	08/30/21 12:06	107	Final dry wt (g) = (Dry Wt - Tare Wt)
Date/time out:			TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)
Elapsed hrs:	0.0		

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

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21G0296-01	0.91	11.35	7.12			No ~~Yes~~
21G0296-02	0.82	11.82	8.07			No ~~Yes~~
21G0296-03	0.90	11.21	7.40			No ~~Yes~~
21G0296-04	0.80	11.27	7.45			No ~~Yes~~
21G0296-05	0.79	11.87	7.38			No ~~Yes~~
21G0296-06	0.79	11.22	7.66			No ~~Yes~~
21G0296-07	0.80	11.67	7.34			No
21G0296-08	0.79	11.27	7.45			No
21G0296-09	0.79	11.89	6.76			No
21G0296-10	0.79	11.88	6.78			No
21G0296-11	0.80	11.56	7.26			No ~~Yes~~
21G0296-12	0.80	11.81	9.40			No
21H0004-01	0.79	11.25	4.69			No ~~Yes~~
21H0004-02	0.79	11.68	5.71			No ~~Yes~~
21H0004-03	0.80	11.26	6.13			No ~~Yes~~
21H0004-04	0.78	11.13	5.48			No ~~Yes~~
21H0004-05	0.80	11.61	6.07			No ~~Yes~~

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BJH0052
Date:	8/31/2021 5:25
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:	8/30/2021 12:05	107
Date/time out:	8/31/2021 5:25	107
Elapsed hrs:	17.3	

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:	107
End Temp:	107

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21G0272-01	0.8000	11.0900	4.8400	4.04	**39.26%**	Yes
21G0272-02	0.8000	11.6600	5.0400	4.24	**39.04%**	No
21G0272-03	0.8000	11.2500	4.9900	4.19	**40.10%**	No
21G0272-04	0.8000	11.4000	4.4300	3.63	**34.25%**	Yes
21G0276-01	0.8000	11.2500	9.4600	8.66	**82.87%**	No
21G0276-02	0.7800	11.7000	7.5300	6.75	**61.81%**	No
21G0276-03	0.7800	11.2500	7.9200	7.14	**68.19%**	Yes
21G0276-04	0.7900	11.1600	7.6400	6.85	**66.06%**	Yes
21G0286-05	0.7900	11.3200	7.6800	6.89	**65.43%**	No
21G0322-07	0.7900	11.5900	8.5200	7.73	**71.57%**	Yes
21G0322-08	0.8000	11.7800	8.4900	7.69	**70.04%**	Yes
21G0322-09	0.8000	11.7900	8.8100	8.01	**72.88%**	Yes

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BJH0052 8/31/21 0525
Date:	~~8/26/2021 12:08~~ ~~8/27/21~~ M 8/31/21
Analyst:	DR
Drying Oven:	018
Analytical Balance:	2465034-4

Instrumentation

Batch drying time		
Record times as mm/dd/yy hh:mm		Oven Temp, C
Date/time in oven:	08/30/21 12:05	107
Date/time out:	08/31/21 0525	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:	107
End Temp:	107

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
21G0272-01	0.80	11.09	4.84			~~No~~ yes
21G0272-02	0.80	11.66	5.04			No
21G0272-03	0.80	11.25	4.99			No
21G0272-04	0.80	11.40	4.43			No yes
21G0276-01	0.80	11.25	9.46			No
21G0276-02	0.78	11.70	7.53			No
21G0276-03	0.78	11.25	7.92			~~No~~ yes
21G0276-04	0.79	11.16	7.64			~~No~~ yes
21G0286-05	0.79	11.32	7.65			No
21G0322-07	0.79	11.59	8.52			~~No~~ yes
21G0322-08	0.80	11.78	8.49			~~No~~ yes
21G0322-09	0.80	11.79	8.81			~~No~~ yes

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glasswa

Batch ID: BJH0773 Work Order: 21G0253, 21G0272, 21G0276, 21G0286, 21H0004 Extraction Parameter: Dioxin ARI Analyst DA

ARI Sample ID	300 mL Flat Bottom	Small Soxhlet	Large Soxhlet	250 mL Beaker	Funnel	Column	Florisil Column	Turbo Tube	Sep Funnel	Erlenmeyer Flask	Centrifuge Bottle	Turbo-Vap	Vortex Mixer	Heating
BJH0773 -BLK1	60	91		11	96	230	139	78				4	4	A
-BS1	04	98		194	83	199	71	46				4	4	A
-BSD1	18	110		259	16	175	79	49				4	4	A
-DUP1	11	48		34	20	211	29	15				4	4	A
-SRM1	63	103		15	12	118	151	26				4	4	A
21G0253 -03C	53	~~78~~	70	260	95	204	119	47				4	4	A
21G0272 -01D	77		49	257	76	205	84	51				4	4	A6
-02D	80		47	06	23	228	15	36				4	4	B1
-03D	82		31	02	04	208	77	81				4	4	B2
-04D	03		32	216	32	43	141	22				4	4	B3
21G0276 -01C	31	79		177	05	128	136	71				4	4	B4
-02C	70	67		188	48	102	46	21				4	4	B5
-03C	7	~~5~~		261	42	121	59	13				4	4	B6
-04C	9	46		231	71	177	1	38				4	4	C1
21G0286 -05C	6	80		16	48	24	157	74				4	4	C2
21H0004 -01A	25		66	18	9	226	102	57				4	4	C3
21H0004 -02A	51		61	6	11	47	92	17				4	4	C4
21H0004 -03A	68		63	256	81	179	120	52				4	4	C5
21H0004 -04A	16		62	14	19	26	16	83				4	4	C6
21H0004 -05A	87		21	243	8	229	8	67				4	4	D1
												4	4	D2
												4	4	
												4	4	
												4	4	

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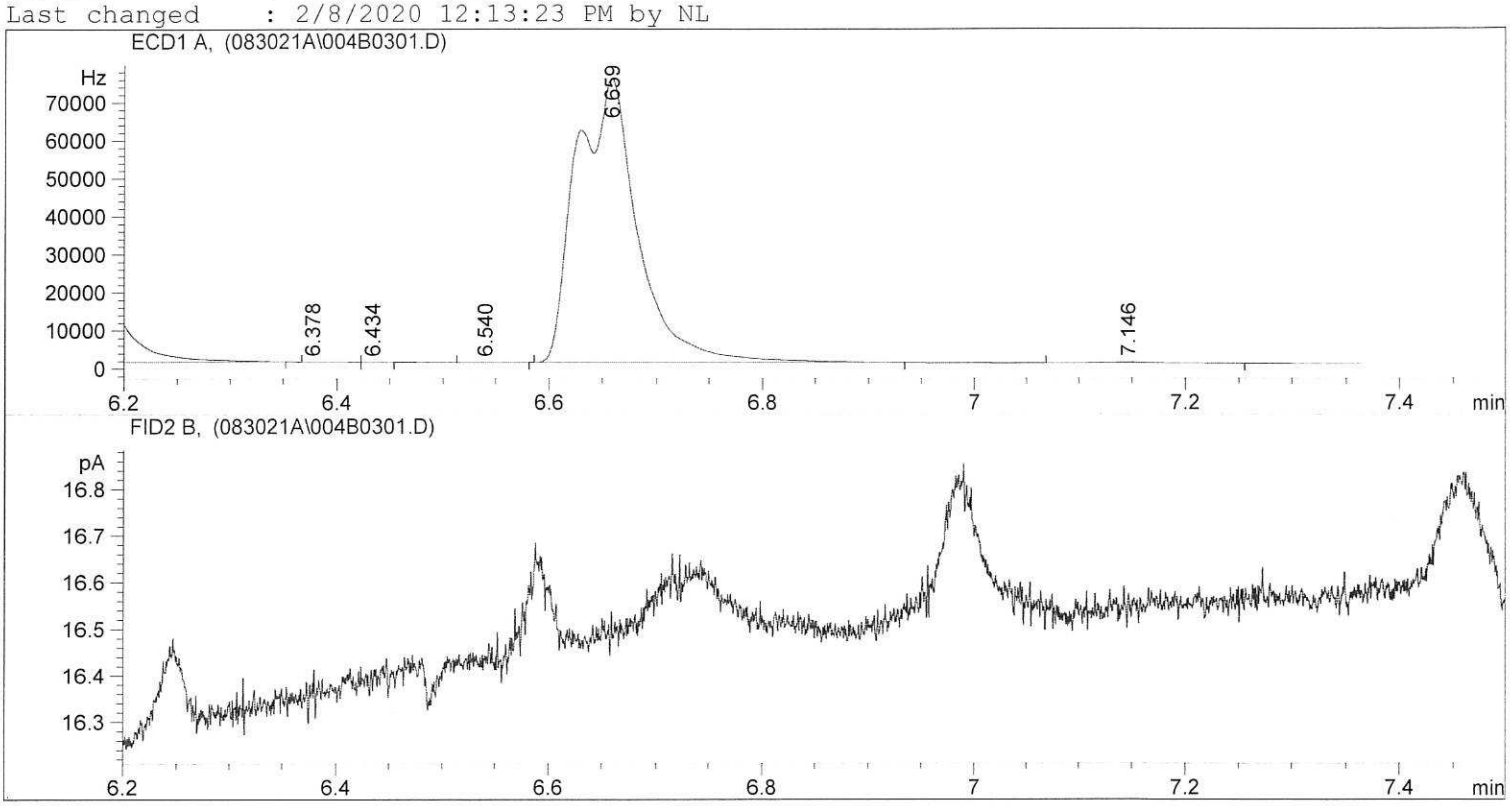
Injection Date : 8/30/2021 2:12:43 PM Seq. Line : 3
Sample Name : CS4 STANDARD Location : Vial 4
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\083021A.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	5.326	PP	9.72e-3	37.89384	49.57647	0.00304
2	5.475	VV S	0.0298	1.66681e5	7.66599e4	13.36121
3	5.574	VV S	0.0433	2.65363e5	1.02157e5	21.27170
4	5.635	VV S	0.0339	1.02104e5	5.02186e4	8.18471
5	5.684	VV S	0.0515	1.21673e5	3.93539e4	9.75337
6	5.931	VV S	0.0335	1.04103e5	5.17402e4	8.34493
7	6.083	VV S	0.0341	8.85818e4	4.33344e4	7.10077
8	6.166	VB S	0.0418	9.82934e4	3.91947e4	7.87926
9	6.378	PP	0.0260	69.55311	32.23580	0.00558
10	6.434	VB	0.0139	34.76606	30.47450	0.00279
11	6.540	PP	0.0216	82.19963	45.60410	0.00659
12	6.659	BB S	0.0668	2.98882e5	7.45689e4	23.95858
13	7.146	PP	0.0575	972.30719	198.75418	0.07794
14	7.663	BP	0.0298	617.97034	252.51730	0.04954
Totals :				1.24750e6	4.77837e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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==========================================================================
Injection Date  : 8/30/2021 2:46:25 PM          Seq. Line :   6
Sample Name     : 21G0272 01                     Location : Vial 5
Acq. Operator   : DXP                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\083021A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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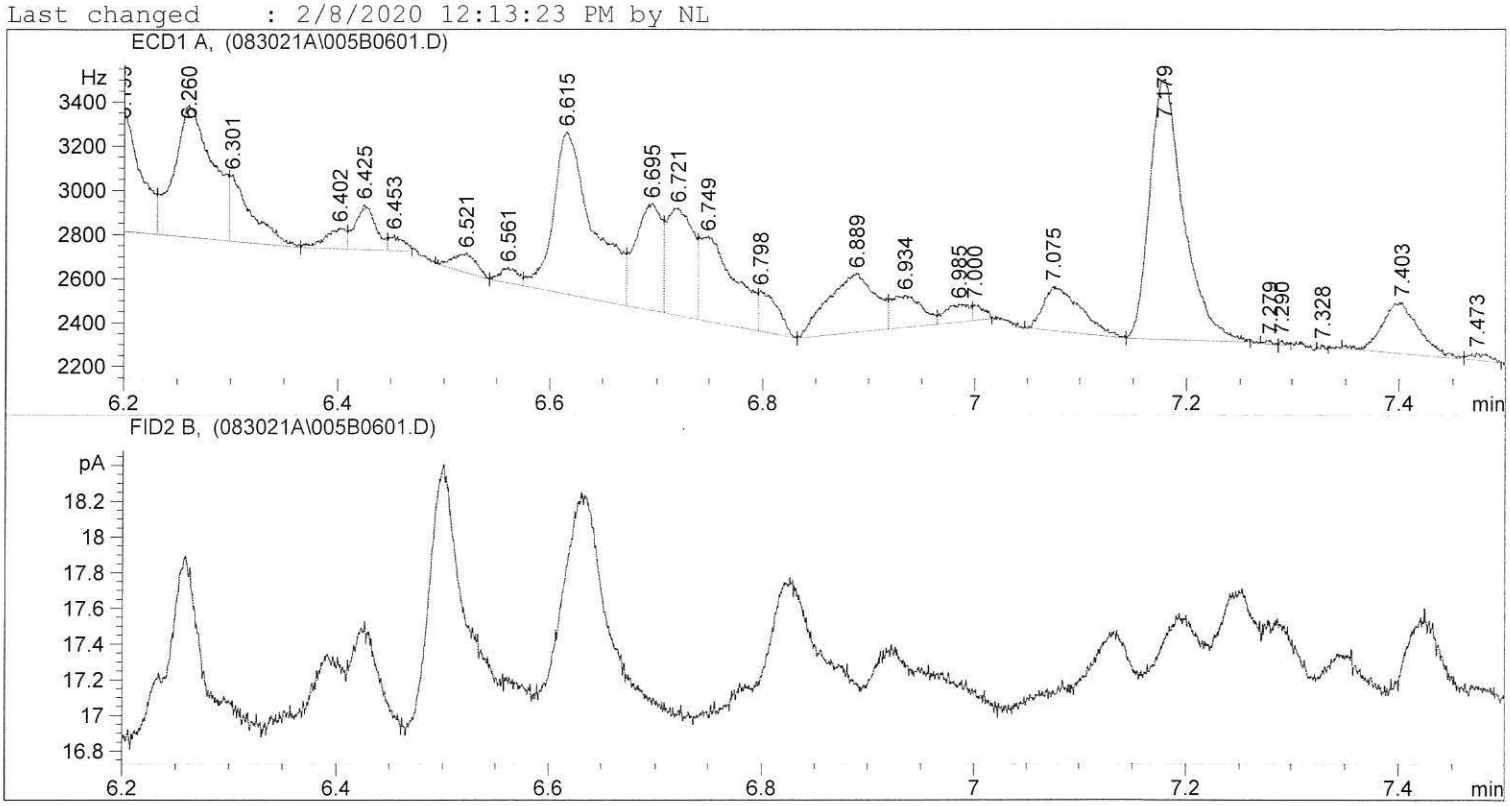


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==========================================================================
                          Area Percent Report
==========================================================================

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

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.248	BP	8.85e-3	169.04218	251.34782	0.48955
2	5.346	PP	0.0174	246.25383	181.31581	0.71315
3	5.415	VV	0.0216	570.61475	314.14911	1.65251
4	5.473	VV	0.0258	1790.07288	870.05426	5.18407
5	5.543	VV	0.0145	562.60706	470.96777	1.62932
6	5.565	VV	0.0290	2427.03955	1113.90149	7.02873
7	5.626	VV	8.58e-3	183.63499	268.57159	0.53181
8	5.651	VV	0.0214	791.90948	467.44083	2.29338
9	5.680	VV	0.0210	786.84027	446.09348	2.27870
10	5.723	VV	0.0165	458.78625	336.69501	1.32865
11	5.741	VV	0.0230	804.66473	426.03574	2.33032
12	5.769	VV	4.50e-3	85.95401	286.18884	0.24892
13	5.798	VV	0.0233	1496.51501	783.32294	4.33392
14	5.855	VV	0.0231	1446.52515	756.64166	4.18915
15	5.874	VV	0.0227	1201.93054	635.17438	3.48080
16	5.927	VV	0.0215	1842.66248	1068.41089	5.33637
17	5.955	VV	0.0205	1029.33521	609.66339	2.98097

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.986	VV	8.82e-3	318.75192	441.76727	0.92311
19	6.010	VV	0.0330	1880.62463	676.30328	5.44631
20	6.077	VV	0.0261	830.83356	377.48282	2.40610
21	6.129	VV	0.0234	1242.28271	669.52655	3.59766
22	6.175	VV	0.0184	547.32397	376.10596	1.58506
23	6.199	VV	0.0226	1010.44110	545.63770	2.92625
24	6.260	VV	0.0306	1497.47302	595.03217	4.33670
25	6.301	VP	0.0173	427.52222	298.38956	1.23811
26	6.402	VV	0.0166	126.32298	94.75263	0.36583
27	6.425	VV	0.0161	269.94144	203.53230	0.78175
28	6.453	VB	0.0122	66.53595	71.61686	0.19269
29	6.521	PP	0.0196	133.35298	87.19674	0.38619
30	6.561	VV	0.0144	82.14500	69.66083	0.23789
31	6.615	VV	0.0319	1943.31091	733.94232	5.62785
32	6.695	VV	0.0196	787.62469	484.06357	2.28097
33	6.721	VV	0.0225	848.72968	487.24429	2.45793
34	6.749	VV	0.0292	916.02094	384.59439	2.65281
35	6.798	VP	0.0153	229.93840	184.42918	0.66590
36	6.889	VV	0.0373	828.17633	266.03912	2.39841
37	6.934	VV	0.0245	293.10767	144.36475	0.84884
38	6.985	VV	0.0192	129.34299	80.15762	0.37458
39	7.000	VB	8.72e-3	49.81910	71.61318	0.14428
40	7.075	PP	0.0301	495.88004	198.98991	1.43607
41	7.179	VB	0.0278	2579.66113	1177.03589	7.47072
42	7.279	PP	6.52e-3	8.29793	18.91979	0.02403
43	7.290	VB	4.79e-3	6.75531	21.94709	0.01956
44	7.328	PB	2.39e-3	2.74466	16.07759	0.00795
45	7.403	BV	0.0283	553.00378	232.80511	1.60150
46	7.473	VB	0.0147	39.90984	32.45039	0.11558
47	7.520	BP	0.0283	157.34175	68.32142	0.45566
48	7.610	VV	0.0275	208.28658	91.56129	0.60320
49	7.655	VV	0.0182	100.92649	66.86866	0.29228
50	7.676	VB	8.70e-3	18.57866	35.57557	0.05380
51	7.724	PP	4.25e-3	4.87127	15.55986	0.01411
Totals :				3.45303e4	1.86055e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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==========================================================================
Injection Date  : 8/30/2021 2:57:25 PM          Seq. Line :   7
Sample Name     : 21G0272 02                     Location : Vial 6
Acq. Operator   : DXP                                Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\083021A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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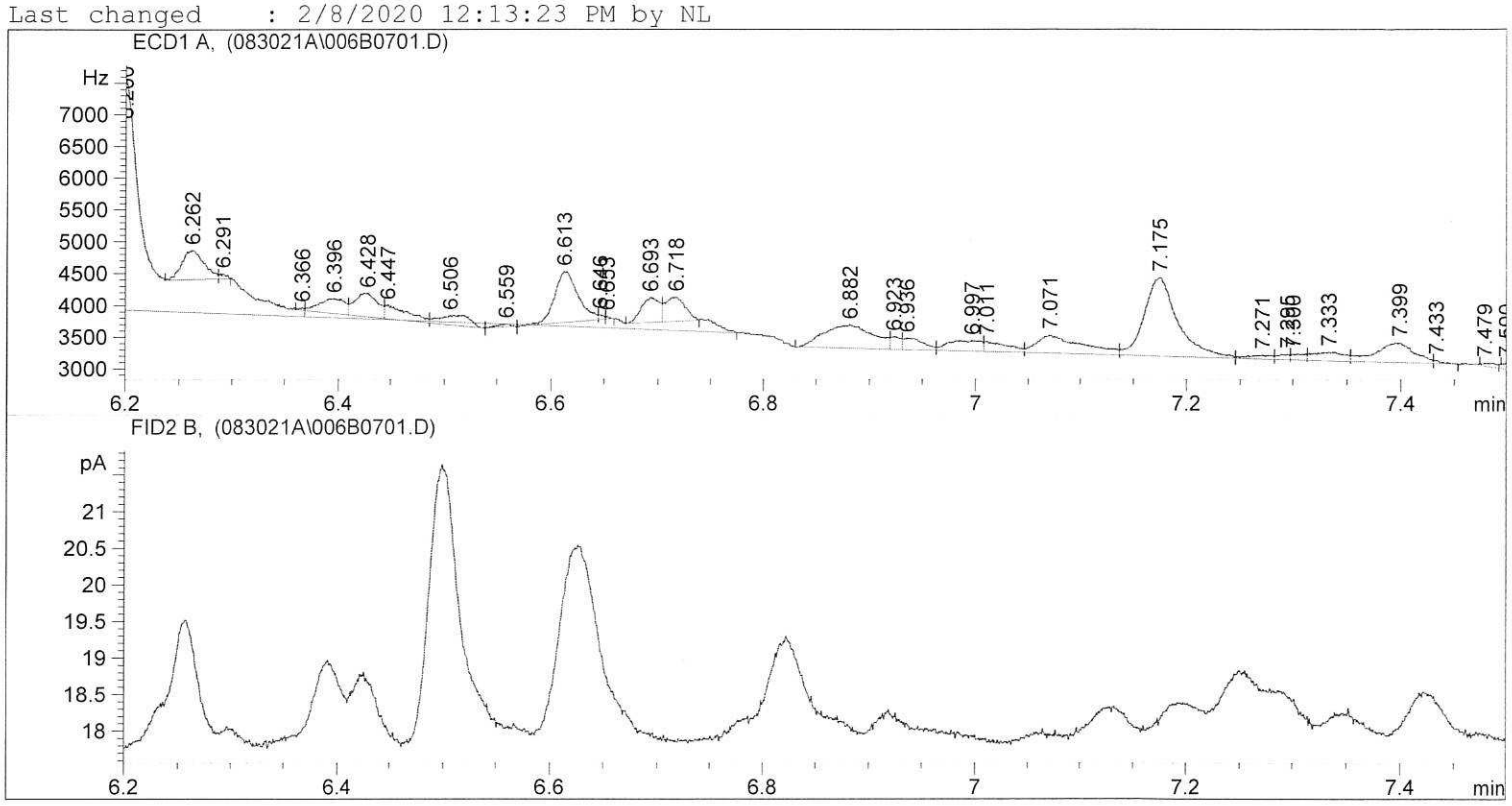


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==========================================================================
                              Area Percent Report
==========================================================================

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

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.251	BP	0.0132	310.49991	302.72986	0.54527
2	5.280	VP	0.0167	62.73288	45.39201	0.11016
3	5.347	VV	0.0212	677.23425	398.76697	1.18929
4	5.416	VV	0.0236	989.20319	505.54687	1.73713
5	5.474	VV	0.0308	3239.09521	1311.07886	5.68816
6	5.538	VV	0.0121	550.61633	612.13196	0.96693
7	5.542	VV	5.52e-3	229.35732	591.62451	0.40277
8	5.564	VV	0.0273	3172.56396	1396.54553	5.57132
9	5.651	VV	0.0251	1483.58228	706.48035	2.60531
10	5.680	VV	0.0194	969.53186	616.18121	1.70259
11	5.698	VV	3.29e-3	98.05466	425.50757	0.17219
12	5.717	VV	0.0142	620.60760	549.54608	1.08985
13	5.725	VV	3.64e-3	145.73489	559.08325	0.25592
14	5.739	VV	0.0194	986.99023	625.71918	1.73325
15	5.758	VV	3.91e-3	126.75451	475.78101	0.22259
16	5.766	VV	6.98e-3	259.23267	489.71204	0.45524
17	5.799	VV	0.0276	2487.68384	1126.40430	4.36861

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.852	VV	0.0214	2081.53442	1180.01257	3.65537
19	5.872	VV	0.0233	2230.03687	1146.31665	3.91615
20	5.926	VV	0.0207	2461.06152	1427.87451	4.32186
21	5.956	VV	0.0252	1987.46826	951.25842	3.49018
22	6.014	VV	0.0312	4468.23340	1715.01147	7.84664
23	6.069	VV	0.0299	1554.03467	618.97650	2.72903
24	6.128	VV	0.0240	1973.93408	985.80865	3.46641
25	6.174	VV	0.0115	609.64093	649.88074	1.07059
26	6.200	VB S	0.0367	1.00551e4	3629.96436	17.65769
27	6.262	BV T	0.0178	660.64014	459.00674	1.16015
28	6.291	PB T	7.93e-3	38.94402	81.86337	0.06839
29	6.366	BV T	4.14e-3	13.19938	43.55317	0.02318
30	6.396	PV T	0.0202	395.27890	234.81287	0.69415
31	6.428	PV T	0.0190	554.37762	371.46466	0.97354
32	6.447	PV T	0.0260	335.02853	215.07347	0.58834
33	6.506	PV T	0.0253	317.93338	150.13857	0.55832
34	6.559	PV T	0.0104	39.05855	45.75155	0.06859
35	6.613	PV T	0.0186	1237.29639	800.60229	2.17281
36	6.646	PV T	5.14e-3	25.70635	83.36597	0.04514
37	6.653	PB T	3.28e-3	10.15614	51.57771	0.01784
38	6.693	BV T	0.0138	454.21570	395.59366	0.79765
39	6.718	PB T	0.0164	499.51984	382.98138	0.87720
40	6.882	PV	0.0385	1185.28760	370.74295	2.08148
41	6.923	VV	8.55e-3	128.48793	203.98421	0.22564
42	6.936	VV	0.0163	249.16182	182.89221	0.43755
43	6.997	VV	0.0251	358.08350	170.82971	0.62883
44	7.011	VV	0.0188	246.97745	162.24083	0.43372
45	7.071	VV	0.0359	849.26422	284.09268	1.49139
46	7.175	VV	0.0268	2706.67969	1232.61328	4.75318
47	7.271	VV	0.0186	98.14944	64.44172	0.17236
48	7.295	VV	9.19e-3	63.72391	86.56940	0.11191
49	7.300	VV	0.0107	83.46078	94.09787	0.14656
50	7.333	VV	0.0240	266.65726	139.07765	0.46828
51	7.399	VV	0.0296	775.08350	311.80313	1.36112
52	7.433	VP	7.07e-3	27.35033	49.28696	0.04803
53	7.479	BB	0.0129	53.94311	51.88870	0.09473
54	7.500	BB	0.0109	80.42442	91.00614	0.14123
55	7.525	BP	0.0286	370.66382	155.80991	0.65092
56	7.633	VV	0.0369	438.68695	140.32280	0.77038
57	7.668	VV	0.0297	340.95493	140.74446	0.59875
58	7.700	VV	0.0125	39.57339	52.76695	0.06949
59	7.721	VV	0.0113	48.06236	53.40277	0.08440
60	7.758	VP	0.0203	122.01579	72.23413	0.21427

Totals : 5.69446e4 3.04700e4

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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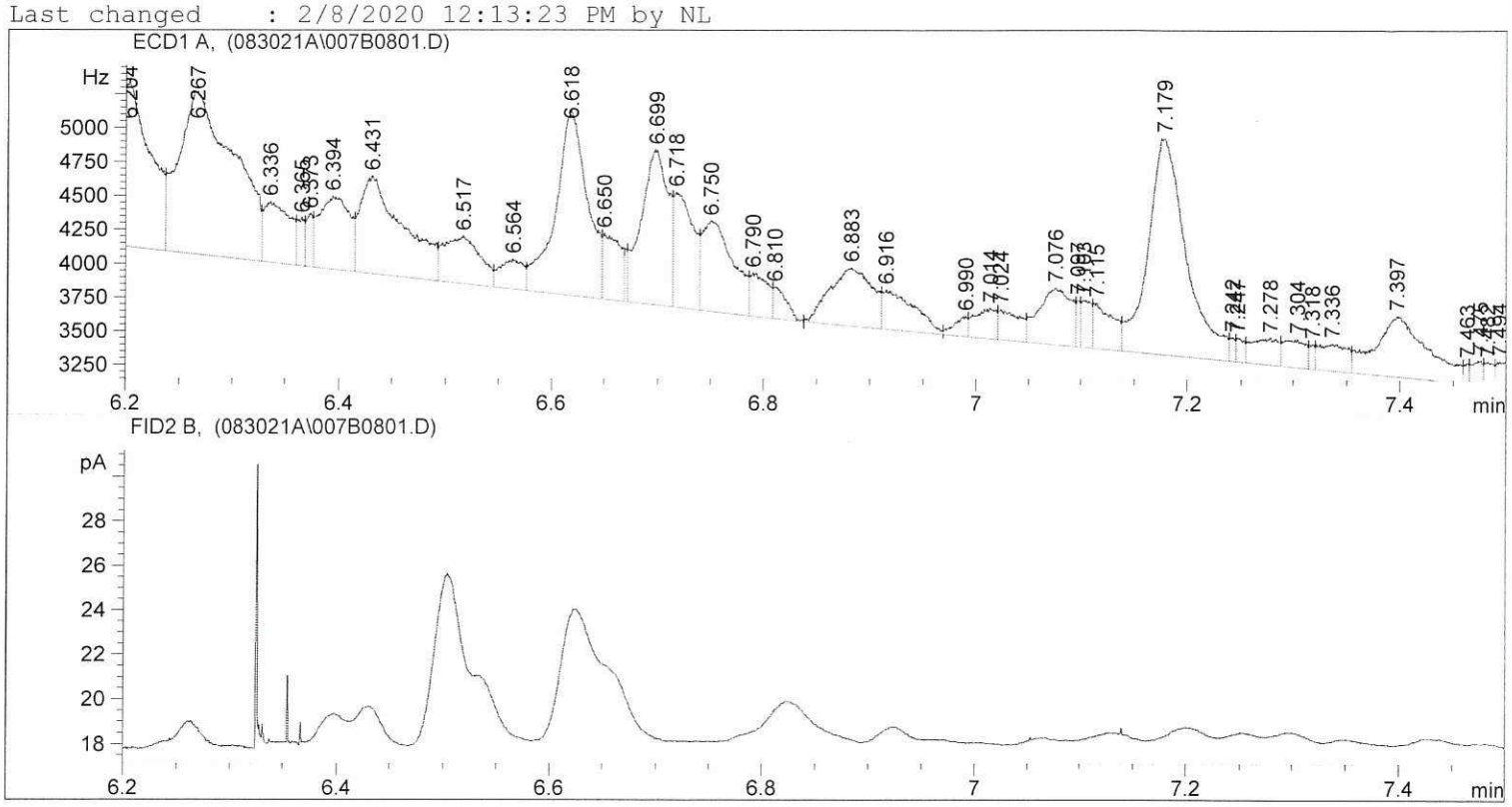
Injection Date : 8/30/2021 3:08:37 PM Seq. Line : 8
Sample Name : 21G0272 03 Location : Vial 7
Acq. Operator : DXP Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\083021A.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	5.252	BV	0.0166	686.98987	512.79425	0.94109
2	5.289	VP	0.0220	240.67754	130.15710	0.32970
3	5.347	VV	0.0191	580.57794	373.73215	0.79532
4	5.412	VV	0.0249	1027.25720	493.59189	1.40722
5	5.478	VV	0.0298	3272.17212	1343.96155	4.48247
6	5.540	VV	0.0204	1091.11194	663.43921	1.49469
7	5.567	VV	0.0288	3311.61206	1463.80847	4.53650
8	5.652	VV	0.0237	1764.77991	916.52631	2.41753
9	5.685	VV	0.0195	1335.77368	843.86627	1.82985
10	5.737	VV	0.0367	2176.26953	710.47479	2.98122
11	5.768	VV	7.50e-3	373.41959	631.09839	0.51154
12	5.802	VV	0.0291	3079.54175	1270.32263	4.21859
13	5.858	VV	0.0423	5061.97803	1423.32544	6.93429
14	5.931	VV	0.0236	3136.29663	1635.78027	4.29634
15	5.959	VV	0.0249	2294.52808	1131.88928	3.14322
16	6.017	VV	0.0323	3402.68628	1250.40918	4.66126
17	6.048	VV	0.0135	928.52655	853.32318	1.27197

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.074	VV	0.0293	1965.13477	810.78656	2.69199
19	6.132	VV	0.0291	2802.03345	1170.83264	3.83844
20	6.178	VV	0.0138	889.51562	810.43964	1.21853
21	6.204	VV	0.0260	2683.26978	1232.80591	3.67575
22	6.267	VV	0.0441	4368.31543	1194.55823	5.98406
23	6.336	VV	0.0200	755.40375	448.89661	1.03481
24	6.365	VV	5.89e-3	165.56766	351.64465	0.22681
25	6.373	VV	5.98e-3	159.58931	389.70291	0.21862
26	6.394	VV	0.0237	1075.43262	537.90009	1.47321
27	6.431	VV	0.0333	2021.94971	720.29840	2.76982
28	6.517	VV	0.0282	825.81616	348.56500	1.13127
29	6.564	VV	0.0182	335.54199	222.44073	0.45965
30	6.618	VV	0.0257	2876.91309	1359.93579	3.94102
31	6.650	VB	0.0140	550.40112	485.73880	0.75398
32	6.699	BV	0.0212	2022.43494	1144.60864	2.77049
33	6.718	VV	0.0212	1076.69495	848.45044	1.47494
34	6.750	VV	0.0246	1370.91101	667.07452	1.87798
35	6.790	VV	0.0137	361.64273	317.74036	0.49541
36	6.810	VP	0.0106	198.14362	231.51253	0.27143
37	6.883	VV	0.0333	1187.06921	431.59216	1.62614
38	6.916	VV	0.0250	609.92169	291.46921	0.83552
39	6.990	VV	0.0116	125.22414	149.00955	0.17154
40	7.014	VV	0.0169	313.54764	224.94962	0.42952
41	7.024	VV	0.0166	305.49646	223.43294	0.41849
42	7.076	VV	0.0259	902.47632	419.59311	1.23628
43	7.097	VV	4.02e-3	94.52416	342.29913	0.12949
44	7.103	VV	8.81e-3	238.32072	347.18475	0.32647
45	7.115	VV	0.0211	425.75134	335.62366	0.58323
46	7.179	VV	0.0310	3994.68018	1595.81250	5.47222
47	7.242	VV	5.60e-3	59.67194	177.67422	0.08174
48	7.247	VV	6.57e-3	92.95943	175.71631	0.12734
49	7.278	VV	0.0215	348.76590	198.00272	0.47777
50	7.304	VV	0.0193	297.14655	207.64975	0.40705
51	7.318	VV	5.20e-3	68.28060	181.25203	0.09354
52	7.336	VV	0.0220	359.74347	199.82104	0.49280
53	7.397	VV	0.0401	1515.41211	445.78452	2.07593
54	7.463	VV	4.55e-3	49.50183	146.17081	0.06781
55	7.475	VV	8.81e-3	123.28999	175.15932	0.16889
56	7.482	VV	8.14e-3	106.54572	164.91061	0.14595
57	7.494	VB	0.0147	207.84647	179.22543	0.28472
58	7.516	BV	5.44e-3	58.56633	179.59438	0.08023
59	7.533	VP	0.0242	453.81979	222.26302	0.62168
60	7.609	VV	0.0323	376.75308	142.29263	0.51611
61	7.661	VB	0.0267	256.94424	117.75589	0.35198
62	7.714	BP	6.49e-3	9.87884	21.00471	0.01353
63	7.766	VV	0.0288	126.43628	52.63438	0.17320
64	7.780	VB	6.54e-3	20.76900	43.75880	0.02845
65	7.798	PBA	1.20e-3	9.79749e-1	13.58392	0.00134

Totals : 7.29992e4 3.63477e4

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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==========================================================================
Injection Date  : 8/30/2021 3:19:50 PM          Seq. Line :   9
Sample Name     : 21G0272 04                     Location : Vial 8
Acq. Operator   : DXP                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\083021A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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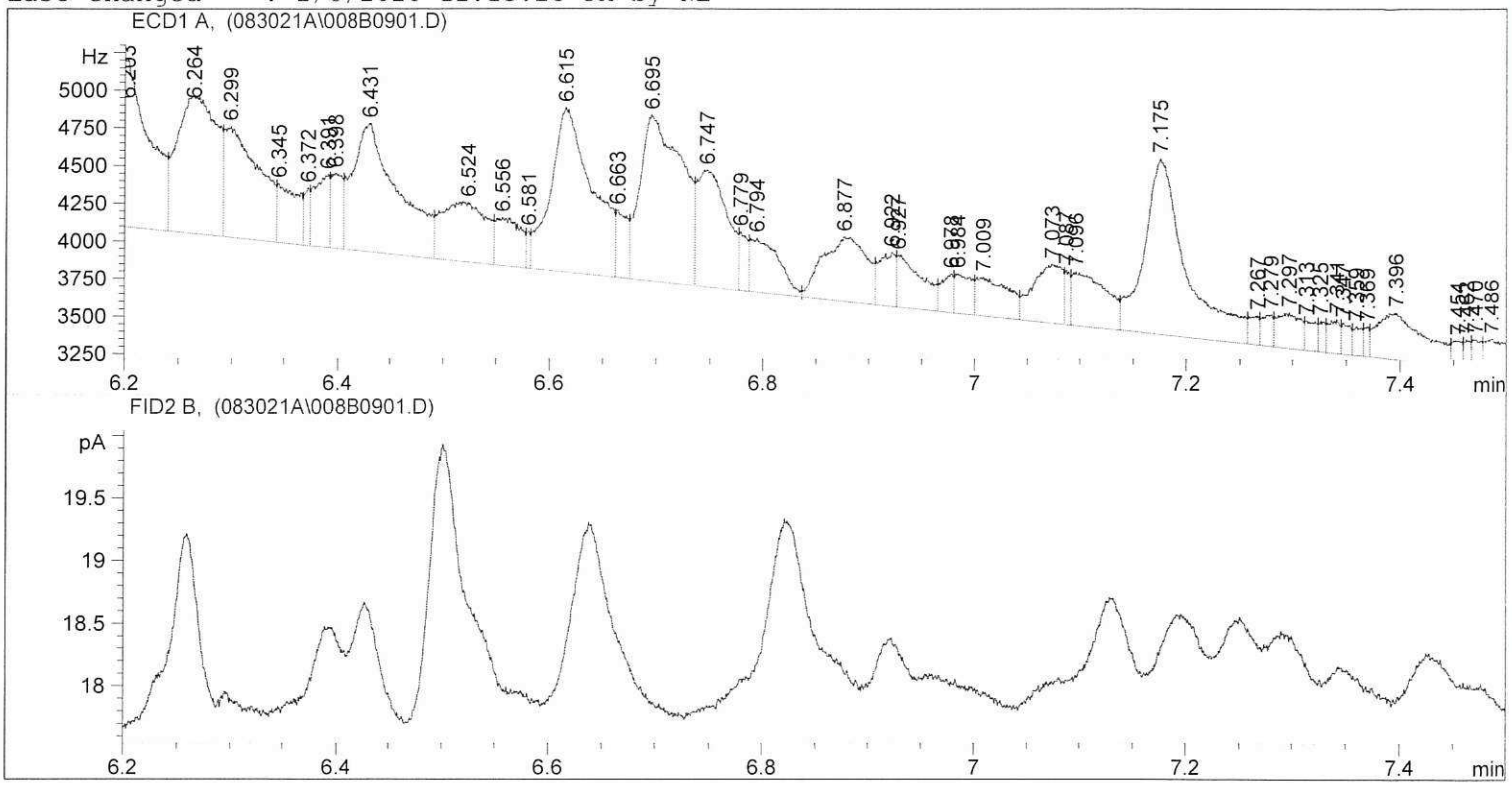


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==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000

Signal 1: ECD1 A,
```

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.252	BV	0.0158	541.68683	410.14517	0.79241
2	5.285	VP	0.0121	101.01789	105.86157	0.14777
3	5.348	VV	0.0193	475.24850	305.89703	0.69522
4	5.367	VV	0.0112	230.69533	263.75021	0.33747
5	5.414	VV	0.0210	733.34106	415.40924	1.07277
6	5.476	VV	0.0313	2760.69189	1063.85400	4.03849
7	5.510	VV	5.16e-3	131.97491	353.44119	0.19306
8	5.540	VV	0.0198	1195.79517	740.34235	1.74927
9	5.566	VV	0.0192	1796.97803	1167.57520	2.62872
10	5.588	VV	0.0184	961.07788	624.40717	1.40592
11	5.623	VV	5.45e-3	142.87453	374.76651	0.20900
12	5.650	VV	0.0226	1845.52905	977.17932	2.69974
13	5.675	VV	0.0208	1057.81616	605.77075	1.54743
14	5.721	VV	0.0182	946.03259	650.45233	1.38391
15	5.735	VB	0.0210	1129.28003	638.54285	1.65197
16	5.768	BV	5.53e-3	207.71428	559.26166	0.30386
17	5.800	VV	0.0277	2498.39771	1106.45435	3.65479

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.870	VV	0.0440	4519.18311	1236.56958	6.61090
19	5.930	VV	0.0266	3553.57446	1605.89246	5.19836
20	5.958	VV	0.0345	2272.44458	1096.36108	3.32425
21	6.015	VV	0.0248	2073.60059	998.25830	3.03337
22	6.038	VV	0.0167	1176.79077	852.96613	1.72147
23	6.071	VV	0.0299	1829.27393	724.10248	2.67596
24	6.129	VV	0.0265	2123.88550	965.34998	3.10693
25	6.177	VV	0.0139	767.65625	683.80823	1.12297
26	6.203	VV	0.0284	2570.18970	1108.54138	3.75981
27	6.264	VV	0.0308	2344.71533	917.32849	3.42998
28	6.299	VV	0.0277	1722.41907	735.56903	2.51965
29	6.345	VV	0.0158	507.51990	390.32797	0.74243
30	6.372	VV	5.03e-3	145.13443	382.24405	0.21231
31	6.391	VV	0.0125	468.91351	483.43817	0.68595
32	6.398	VV	9.42e-3	359.32816	498.05963	0.52564
33	6.431	VV	0.0365	2573.70898	851.60150	3.76496
34	6.524	VV	0.0350	1154.75537	395.98193	1.68924
35	6.556	VV	0.0194	514.29205	318.45041	0.75233
36	6.581	VV	3.87e-3	65.41128	248.26683	0.09569
37	6.615	VV	0.0321	2946.69946	1090.08606	4.31059
38	6.663	VV	8.59e-3	306.92676	448.01239	0.44899
39	6.695	VV	0.0329	3024.65918	1099.57019	4.42463
40	6.747	VV	0.0251	1548.90137	773.99530	2.26582
41	6.779	VV	7.00e-3	214.04538	389.93134	0.31312
42	6.794	VV	0.0222	668.08917	360.82834	0.97732
43	6.877	VV	0.0341	1231.81714	428.65042	1.80197
44	6.922	VV	0.0127	371.97772	359.22897	0.54415
45	6.927	VV	0.0197	573.63611	346.67389	0.83915
46	6.978	VV	9.80e-3	202.73463	257.09921	0.29657
47	6.984	VV	0.0136	283.09290	262.52036	0.41412
48	7.009	VV	0.0250	543.50348	257.39380	0.79507
49	7.073	VV	0.0235	756.81458	388.75507	1.10711
50	7.087	VV	4.41e-3	124.21736	361.66571	0.18171
51	7.096	VV	0.0276	805.58850	356.26373	1.17846
52	7.175	VV	0.0328	3213.06006	1164.90601	4.70024
53	7.267	VV	8.79e-3	125.87328	193.39380	0.18413
54	7.279	VV	9.03e-3	153.95349	213.07561	0.22521
55	7.297	VV	0.0191	363.94107	237.51172	0.53239
56	7.313	VV	8.60e-3	134.72375	196.56403	0.19708
57	7.325	VV	5.29e-3	85.38931	203.60402	0.12491
58	7.341	VV	0.0115	176.18417	226.54799	0.25773
59	7.347	VV	7.15e-3	117.27895	208.94553	0.17156
60	7.359	VV	7.01e-3	104.97585	191.09145	0.15356
61	7.369	VV	5.31e-3	68.54545	194.56706	0.10027
62	7.396	VV	0.0373	966.21259	312.28513	1.41343
63	7.454	VV	0.0103	111.47057	167.28947	0.16307
64	7.462	VV	5.28e-3	73.89995	176.85040	0.10810
65	7.470	VV	8.26e-3	114.08391	188.48323	0.16689
66	7.486	VB	0.0200	331.71899	203.19911	0.48526
67	7.518	BV	0.0100	171.96082	208.16772	0.25155
68	7.526	VV	4.14e-3	64.62193	228.51735	0.09453
69	7.534	VP	0.0166	314.82312	235.78064	0.46054
70	7.611	VV	0.0267	273.54025	124.11366	0.40015
71	7.638	VV	6.76e-3	33.05079	62.60258	0.04835
72	7.661	VV	0.0210	135.07254	76.58751	0.19759
73	7.680	VV	3.99e-3	13.83008	50.55975	0.02023
74	7.685	VB	5.56e-3	16.92041	39.82965	0.02475
75	7.714	PB	6.70e-3	15.61093	29.85049	0.02284
76	7.738	BV	9.48e-3	25.25697	33.18529	0.03695
77	7.758	VV	0.0114	31.63487	33.40461	0.04628
78	7.766	VV	3.07e-3	4.85426	24.94076	0.00710
79	7.771	VV	4.62e-3	7.71593	21.34736	0.01129
80	7.782	VP	4.60e-3	7.68687	26.40402	0.01124
Totals :				6.83595e4	3.73105e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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Injection Date  : 8/30/2021 3:31:02 PM          Seq. Line :  10
Sample Name     : 21G0276 01                     Location : Vial 9
Acq. Operator   : DXP                                Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\083021A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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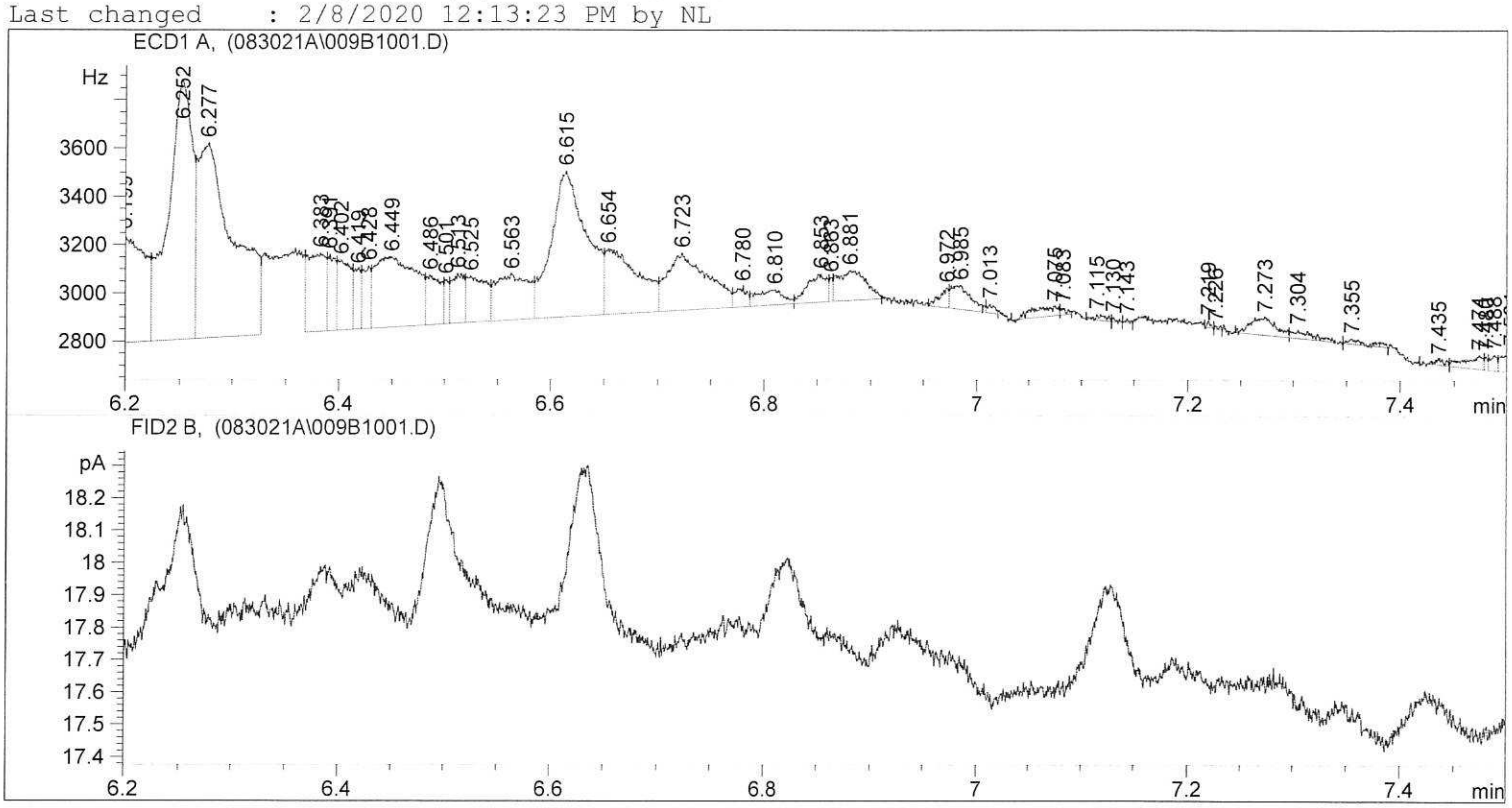


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==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000

Signal 1: ECD1 A,
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Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.207	BP	0.0000	18.44354	51.64801	0.05536
2	5.275	BP	4.07e-3	3.78642	14.37916	0.01137
3	5.305	VV	0.0197	169.44011	103.73674	0.50863
4	5.349	VV	0.0176	274.85959	186.37102	0.82508
5	5.365	VV	3.07e-3	29.24340	138.32292	0.08778
6	5.375	VV	0.0116	139.00874	147.49356	0.41728
7	5.416	VV	0.0321	684.17590	253.16588	2.05377
8	5.473	VV	0.0280	648.63916	276.13364	1.94710
9	5.500	VV	0.0124	171.75546	169.83803	0.51558
10	5.567	VV	0.0374	1147.50330	371.73849	3.44460
11	5.596	VV	0.0302	1057.44128	424.70361	3.17425
12	5.635	VV	5.24e-3	93.81579	298.41257	0.28162
13	5.679	VV	0.0289	1618.32043	666.33563	4.85791
14	5.715	VV	0.0155	554.27417	429.58191	1.66383
15	5.743	VV	0.0256	1520.24255	721.08954	4.56350
16	5.804	VV	0.0288	1543.99316	671.78839	4.63479
17	5.858	VV	0.0364	3404.87939	1109.16931	10.22084

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.928	VV	0.0299	1725.43542	686.18182	5.17945
19	5.973	VV	0.0311	1638.42444	626.66687	4.91826
20	6.005	VV	0.0272	1406.99243	612.75946	4.22354
21	6.047	VV	0.0105	407.41296	487.60620	1.22298
22	6.067	VV	0.0101	402.42267	494.71613	1.20800
23	6.072	VV	0.0217	903.55194	495.56247	2.71230
24	6.122	VV	0.0284	1135.06470	475.54919	3.40726
25	6.149	VV	6.85e-3	206.89801	386.41992	0.62107
26	6.166	VV	0.0138	464.16559	410.93011	1.39334
27	6.199	VV	0.0298	1120.91089	447.28165	3.36477
28	6.252	VV	0.0216	1726.44958	1074.08447	5.18249
29	6.277	VV	0.0283	1911.79590	806.26251	5.73887
30	6.383	BV	0.0159	384.83511	323.89575	1.15521
31	6.391	VV	6.45e-3	158.57642	316.07361	0.47602
32	6.402	VB	0.0107	253.25188	291.15826	0.76022
33	6.419	BV	6.19e-3	119.12766	248.73422	0.35760
34	6.428	VV	6.31e-3	126.64693	258.91751	0.38017
35	6.449	VV	0.0331	782.97473	291.67093	2.35035
36	6.486	VV	0.0155	190.31799	205.25545	0.57130
37	6.501	VV	4.31e-3	58.61320	184.26480	0.17595
38	6.513	VV	0.0103	170.30629	205.74901	0.51123
39	6.525	VB	0.0158	245.48999	190.65839	0.73692
40	6.563	BV	0.0263	407.91754	188.44690	1.22450
41	6.615	VV	0.0282	1415.05859	602.75232	4.24775
42	6.654	VV	0.0254	579.80737	271.06964	1.74048
43	6.723	VV	0.0313	621.70380	236.64116	1.86624
44	6.780	VV	9.63e-3	60.16233	83.21835	0.18060
45	6.810	VV	0.0230	114.12988	62.16156	0.34260
46	6.853	VV	0.0161	147.37746	116.89695	0.44240
47	6.863	VV	3.16e-3	21.88671	99.55840	0.06570
48	6.881	VB	0.0220	228.86758	124.97341	0.68702
49	6.972	PV	7.52e-3	48.95988	82.57797	0.14697
50	6.985	VB	0.0154	124.67971	99.87747	0.37427
51	7.013	BB	6.25e-3	17.93934	37.01112	0.05385
52	7.075	PV	0.0200	64.83788	39.03527	0.19463
53	7.083	VB	6.71e-3	10.88602	27.05714	0.03268
54	7.115	PP	0.0118	15.71235	22.15108	0.04717
55	7.130	VB	3.36e-3	3.99776	16.90894	0.01200
56	7.143	BP	3.79e-3	3.08799	12.05815	0.00927
57	7.219	PP	2.63e-3	4.65206	26.67916	0.01396
58	7.226	VB	5.52e-3	3.59415	8.98874	0.01079
59	7.273	PV	0.0203	122.08449	72.41330	0.36648
60	7.304	VB	0.0161	46.34877	34.99824	0.13913
61	7.355	BP	0.0139	25.10504	21.74692	0.07536
62	7.435	PV	9.44e-3	16.18232	21.86003	0.04858
63	7.474	VV	0.0140	64.56981	57.01361	0.19383
64	7.480	VV	2.89e-3	11.20653	57.10821	0.03364
65	7.488	VV	5.84e-3	30.85753	66.18381	0.09263
66	7.504	VV	0.0281	211.49403	88.96732	0.63487
67	7.544	VB	9.43e-3	43.74410	59.15145	0.13131
68	7.600	BV	0.0215	81.13033	45.39240	0.24354
69	7.630	VB	7.49e-3	16.48568	27.12609	0.04949
70	7.646	BP	4.88e-3	5.10809	17.42793	0.01533
71	7.761	PV	0.0184	99.48757	66.74026	0.29864
72	7.766	VB	5.99e-3	24.55750	53.12075	0.07372
Totals :				3.33131e4	1.84016e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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==========================================================================
Injection Date  : 8/30/2021 3:42:17 PM          Seq. Line :  11
Sample Name     : 21G0276 02                     Location : Vial 10
Acq. Operator   : DXP                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\083021A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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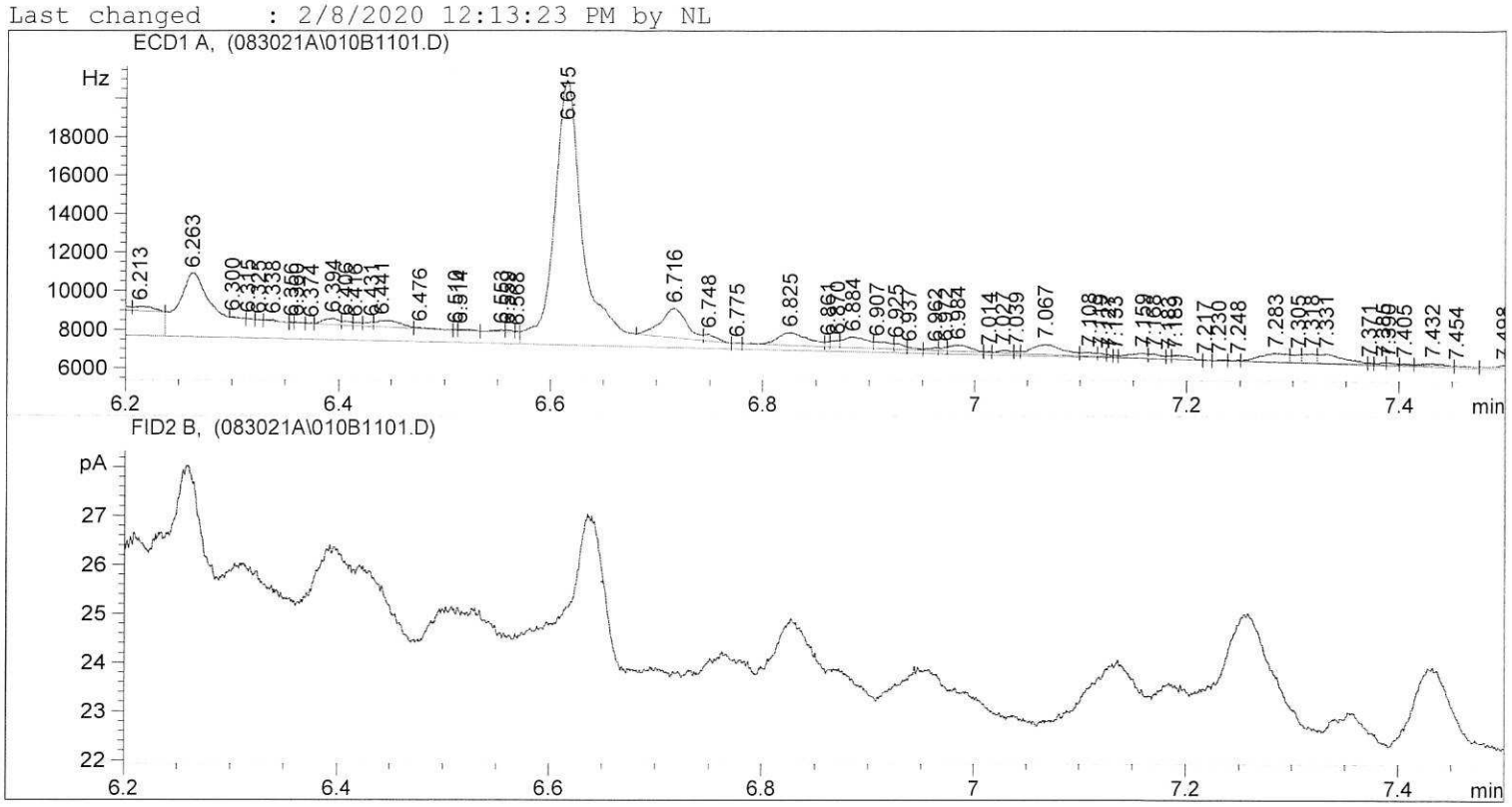


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==========================================================================
                              Area Percent Report
==========================================================================

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

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.234	BV S	0.0179	5824.25635	4674.67676	2.35935
2	5.304	PV T	9.14e-3	176.66222	253.23801	0.07156
3	5.378	PV S	0.0287	1.40194e4	6406.99658	5.67912
4	5.407	PV S	0.0199	7205.64355	4348.25098	2.91894
5	5.479	PV S	0.0407	2.77482e4	1.13709e4	11.24053
6	5.510	BV T	3.80e-3	28.59677	125.39745	0.01158
7	5.567	VV S	0.0435	2.08247e4	5934.62305	8.43590
8	5.635	BV T	0.0105	685.56714	809.90558	0.27772
9	5.649	PV T	0.0148	1394.59448	1310.82043	0.56494
10	5.683	PV S	0.0209	7075.26172	4760.27100	2.86612
11	5.747	PV S	0.0304	1.67251e4	6821.97852	6.77519
12	5.801	PV S	0.0245	1.05629e4	5330.82275	4.27892
13	5.826	BV T	6.67e-3	21.14818	52.82948	0.00857
14	5.862	PV S	0.0338	1.64985e4	6128.69287	6.68341
15	5.927	PV S	0.0743	4.30239e4	6906.95557	17.42860
16	5.961	BV T	0.0116	1001.59332	1109.40076	0.40574
17	5.980	PV T	0.0143	1951.62573	1661.23669	0.79059

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.012	PV T	0.0132	1298.43347	1306.89746	0.52598
19	6.045	PV T	4.29e-3	44.56876	141.06407	0.01805
20	6.049	PV T	6.16e-3	54.84240	148.44440	0.02222
21	6.071	PV T	0.0154	1421.42114	1200.11218	0.57580
22	6.096	PV T	0.0181	566.16174	522.41351	0.22935
23	6.131	PV T	0.0170	2385.93701	1884.41626	0.96652
24	6.176	PV T	0.0166	732.52350	534.36749	0.29674
25	6.213	PV T	0.0142	296.06531	250.30618	0.11993
26	6.263	PV S	0.0697	1.92459e4	3278.69824	7.79632
27	6.300	BV T	8.04e-3	33.20971	68.82081	0.01345
28	6.315	PV T	4.66e-3	13.07258	46.75305	0.00530
29	6.325	PV T	4.44e-3	11.82300	44.35507	0.00479
30	6.338	PV T	7.11e-3	50.05833	105.93674	0.02028
31	6.356	PV T	1.99e-3	7.51694	55.16479	0.00305
32	6.360	PV T	5.24e-3	22.45776	71.46458	0.00910
33	6.374	PV T	5.62e-3	19.20557	56.98502	0.00778
34	6.394	PV T	0.0115	330.37180	352.35098	0.13383
35	6.406	PV T	0.0103	136.44205	221.00014	0.05527
36	6.416	PV T	8.79e-3	99.37433	188.33368	0.04026
37	6.431	PV T	6.32e-3	118.89118	242.70232	0.04816
38	6.441	PV T	0.0186	556.09576	355.95187	0.22527
39	6.476	PV T	0.0106	80.06380	93.61321	0.03243
40	6.510	PV T	2.21e-3	9.16609	66.55756	0.00371
41	6.514	PV T	0.0105	62.43297	72.02895	0.02529
42	6.553	PV T	6.56e-3	66.19464	125.29737	0.02681
43	6.559	PV T	6.67e-3	36.82452	92.06300	0.01492
44	6.568	PV T	2.29e-3	7.39005	53.72484	0.00299
45	6.615	PB S	0.0283	2.93116e4	1.37310e4	11.87388
46	6.716	BV T	0.0203	2546.20215	1521.69165	1.03144
47	6.748	PV T	9.79e-3	296.24359	376.11090	0.12001
48	6.775	PV T	5.93e-3	14.56828	40.93298	0.00590
49	6.825	PV T	0.0243	1378.12708	674.10358	0.55827
50	6.861	PV T	4.39e-3	75.54903	286.86658	0.03060
51	6.870	PV T	6.49e-3	178.99466	354.42255	0.07251
52	6.884	PV T	0.0188	867.40051	557.47943	0.35138
53	6.907	PV T	0.0173	368.53711	354.47195	0.14929
54	6.925	PV T	9.96e-3	179.12801	299.70007	0.07256
55	6.937	PV T	9.84e-3	80.87218	136.97630	0.03276
56	6.962	PV T	7.66e-3	98.69516	163.19150	0.03998
57	6.972	PV T	5.12e-3	83.81614	216.55037	0.03395
58	6.984	PV T	0.0170	458.60211	333.78415	0.18578
59	7.014	PV T	5.25e-3	22.05476	70.05404	0.00893
60	7.027	PV T	0.0106	123.29878	144.37178	0.04995
61	7.039	PV T	5.42e-3	44.05144	135.56133	0.01784
62	7.067	PV T	0.0240	1047.38965	526.75763	0.42429
63	7.108	PV T	0.0124	173.84503	207.20273	0.07042
64	7.119	PV T	7.39e-3	75.32420	169.89200	0.03051
65	7.127	PV T	4.28e-3	33.92875	132.02968	0.01374
66	7.133	PV T	3.75e-3	22.39851	99.49450	0.00907
67	7.159	PV T	0.0126	276.11057	263.73483	0.11185
68	7.168	PV T	0.0129	200.31047	259.67191	0.08114
69	7.183	PV T	4.63e-3	49.78871	179.28723	0.02017
70	7.189	PV T	0.0195	264.67261	226.50430	0.10722
71	7.217	PV T	4.70e-3	12.09458	42.92551	0.00490
72	7.230	PV T	6.54e-3	34.52681	67.79572	0.01399
73	7.248	PV T	7.77e-3	41.80349	89.64658	0.01693
74	7.283	PV T	0.0230	899.16418	486.22174	0.36424
75	7.305	PV T	7.98e-3	290.63840	459.75421	0.11773
76	7.318	PV T	0.0101	404.67200	505.23489	0.16393
77	7.331	PV T	0.0310	962.86542	517.76208	0.39005
78	7.371	PV T	4.18e-3	42.98984	132.78392	0.01741
79	7.385	PV T	7.27e-3	97.52798	183.93599	0.03951
80	7.390	PV T	0.0114	119.07027	173.98001	0.04823
81	7.405	PV T	8.91e-3	103.26859	152.23096	0.04183
82	7.432	PV T	0.0190	329.98425	208.87437	0.13367

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
83	7.454	PV T	0.0186	125.41710	112.25748	0.05081
84	7.498	PV T	0.0133	221.23993	200.10764	0.08962
85	7.506	PV T	5.49e-3	71.28201	216.37219	0.02888
86	7.512	PB T	0.0163	214.53326	219.55801	0.08691
87	7.574	BV T	3.05e-3	7.26079	39.69734	0.00294
88	7.601	PV T	8.06e-3	205.86101	321.79575	0.08339
89	7.609	PV T	6.78e-3	181.72650	332.29941	0.07362
90	7.620	PV T	0.0251	463.65906	307.59332	0.18782
91	7.648	PV T	7.49e-3	130.39783	220.66528	0.05282
92	7.661	PV T	6.85e-3	123.75607	223.84697	0.05013
93	7.669	PV T	4.06e-3	55.42544	227.34396	0.02245
94	7.677	PV T	9.07e-3	202.13855	285.16489	0.08188
95	7.691	PV T	6.08e-3	137.87119	293.46313	0.05585
96	7.695	PV T	0.0134	246.26588	306.64716	0.09976
97	7.716	PV T	0.0119	181.71101	184.00410	0.07361
98	7.732	PV T	0.0183	154.90205	141.40335	0.06275
99	7.761	PV T	5.92e-3	23.13860	65.18245	0.00937
100	7.771	PB T	7.14e-3	22.04332	51.47348	0.00893
101	7.797	BPA	2.06e-3	5.33831	37.54222	0.00216
Totals :				2.46858e5	1.07856e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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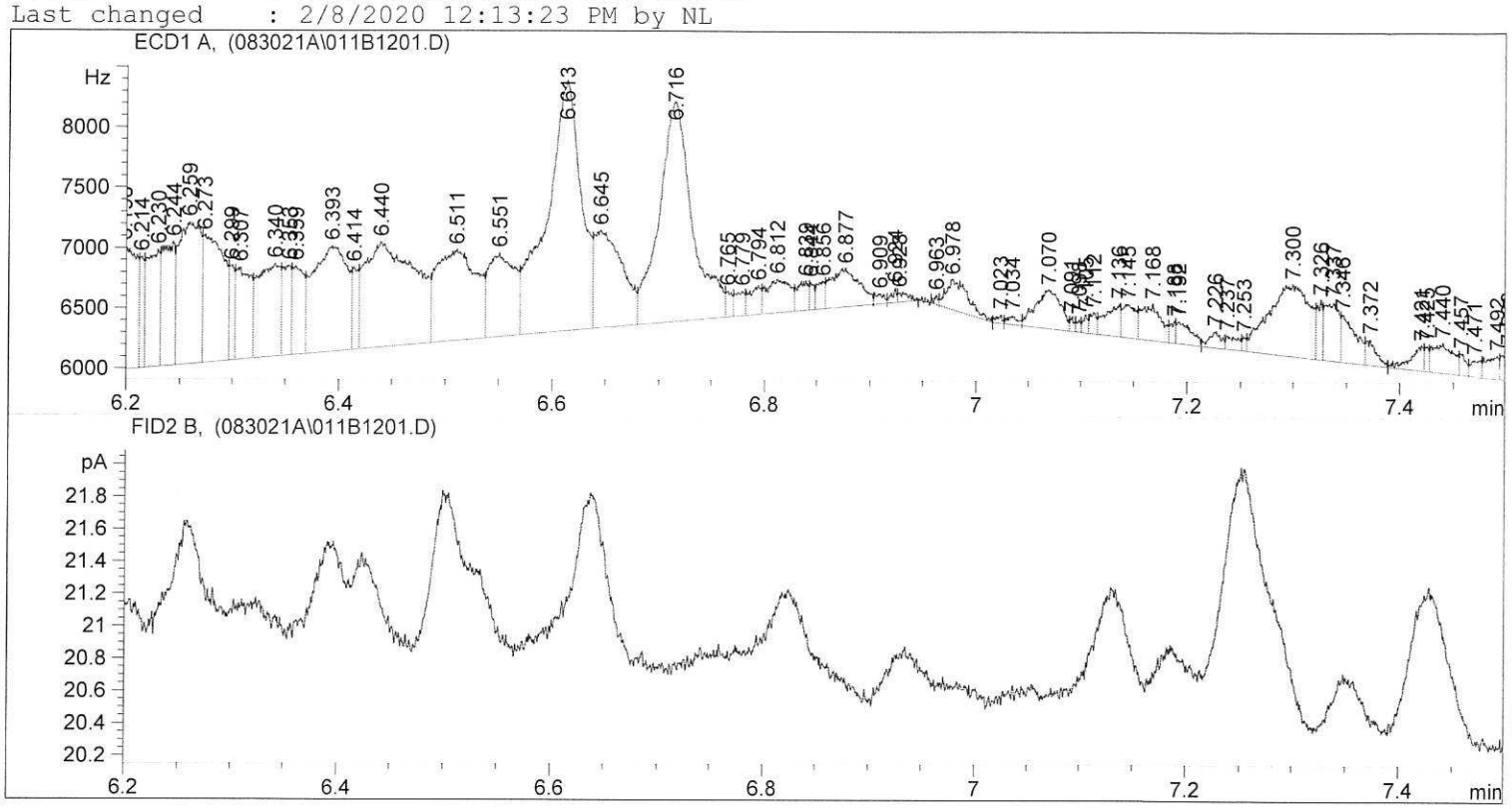
*** End of Report ***

Injection Date : 8/30/2021 3:53:29 PM
Sample Name : 21G0276 03
Acq. Operator : DXP

Seq. Line : 12
Location : Vial 11
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\083021A.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	5.250	BP	8.89e-3	76.47219	110.30860	0.08054
2	5.281	VV	0.0192	134.81891	84.52930	0.14198
3	5.315	VP	4.94e-3	11.84061	35.09644	0.01247
4	5.330	VV	4.11e-3	30.37350	113.86251	0.03199
5	5.351	VV	0.0169	595.66498	422.02325	0.62732
6	5.379	VV	0.0149	494.91217	427.26495	0.52122
7	5.412	VV	0.0249	1574.38208	756.58679	1.65806
8	5.473	VV	0.0332	2933.12793	1049.72729	3.08902
9	5.537	VV	0.0307	3107.36401	1250.53040	3.27251
10	5.567	VV	0.0168	1479.57898	1121.30103	1.55822
11	5.606	VV	0.0258	3142.41724	1452.23523	3.30943
12	5.649	VV	0.0218	2873.82104	1578.32654	3.02656
13	5.685	VV	0.0209	2238.44116	1283.68970	2.35741
14	5.716	VV	0.0120	1135.21924	1159.98145	1.19555
15	5.723	VV	5.78e-3	454.57846	1157.42249	0.47874
16	5.744	VV	0.0338	4268.24902	1499.86096	4.49510
17	5.798	VV	0.0220	2694.25024	1481.32715	2.83744

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.867	VV	0.0470	8194.12793	2113.88721	8.62963
19	5.930	VV	0.0245	3453.91626	1716.46533	3.63749
20	5.961	VV	0.0189	2647.45288	1688.42236	2.78816
21	5.976	VV	4.88e-3	587.25262	1528.39941	0.61846
22	5.991	VV	0.0163	2094.98853	1578.22583	2.20633
23	6.008	VV	7.92e-3	955.53979	1522.59155	1.00632
24	6.019	VV	0.0137	1705.97119	1496.99341	1.79664
25	6.047	VV	0.0166	2085.99341	1498.26245	2.19686
26	6.068	VV	0.0275	3136.76978	1362.40002	3.30348
27	6.105	VV	3.65e-3	246.25232	1026.09277	0.25934
28	6.124	VV	0.0291	2939.40723	1193.62659	3.09563
29	6.166	VV	0.0101	846.02911	1039.27197	0.89099
30	6.176	VV	0.0110	927.52222	1024.85974	0.97682
31	6.191	VV	9.02e-3	786.55927	1065.05664	0.82836
32	6.198	VV	0.0111	922.42798	1024.67371	0.97145
33	6.214	VV	4.10e-3	276.92676	922.17542	0.29164
34	6.230	VV	0.0101	785.08569	968.88049	0.82681
35	6.244	VV	0.0104	824.12646	1022.91547	0.86793
36	6.259	VV	0.0176	1649.19763	1175.00879	1.73685
37	6.273	VV	0.0231	1458.48291	1053.55212	1.53600
38	6.299	VV	5.29e-3	274.99368	783.95978	0.28961
39	6.307	VV	0.0122	720.83075	764.63049	0.75914
40	6.340	VV	0.0181	1154.30640	767.42163	1.21566
41	6.353	VV	6.92e-3	403.21591	744.11853	0.42465
42	6.359	VV	0.0119	524.24445	733.22205	0.55211
43	6.393	VV	0.0265	1962.89941	876.67926	2.06722
44	6.414	VV	5.26e-3	272.54715	681.75500	0.28703
45	6.440	VV	0.0384	2807.03540	870.22870	2.95622
46	6.511	VV	0.0312	1950.72046	748.55823	2.05440
47	6.551	VV	0.0198	1153.32935	692.16766	1.21463
48	6.613	VV	0.0275	4662.44971	2071.41846	4.91025
49	6.645	VV	0.0224	1505.06738	806.02039	1.58506
50	6.716	VV	0.0273	3999.95117	1816.25830	4.21254
51	6.765	VV	5.43e-3	88.34789	213.61784	0.09304
52	6.779	VV	7.96e-3	128.64948	203.97736	0.13549
53	6.794	VV	9.20e-3	179.21840	237.47325	0.18874
54	6.812	VV	0.0186	430.06250	279.03998	0.45292
55	6.839	VV	0.0104	176.77600	240.28716	0.18617
56	6.844	VV	3.95e-3	69.23078	227.53979	0.07291
57	6.856	VV	7.13e-3	122.09511	224.97179	0.12858
58	6.877	VV	0.0235	584.68109	314.75827	0.61576
59	6.909	VV	7.88e-3	49.32568	83.67895	0.05195
60	6.924	VV	4.31e-3	37.83713	118.92576	0.03985
61	6.928	VB	8.55e-3	54.08064	79.37004	0.05695
62	6.963	BV	3.97e-3	19.28734	75.87894	0.02031
63	6.978	VP	0.0184	368.79813	247.51657	0.38840
64	7.023	VV	4.70e-3	24.65501	70.12672	0.02597
65	7.034	VV	8.53e-3	46.15358	73.48801	0.04861
66	7.070	VV	0.0212	539.83948	314.33853	0.56853
67	7.091	VV	3.96e-3	30.45669	112.30328	0.03208
68	7.098	VV	4.45e-3	27.01663	101.21122	0.02845
69	7.105	VV	4.04e-3	44.88503	143.91736	0.04727
70	7.112	VV	5.75e-3	75.13268	176.98161	0.07913
71	7.136	VV	0.0120	252.55597	267.11835	0.26598
72	7.145	VV	0.0112	242.76968	273.61722	0.25567
73	7.168	VV	0.0160	382.23709	298.18011	0.40255
74	7.188	VV	5.39e-3	60.56306	177.05652	0.06378
75	7.192	VV	0.0119	173.51854	178.53439	0.18274
76	7.226	VV	0.0101	102.44038	131.97298	0.10788
77	7.237	VV	0.0103	90.42577	108.66813	0.09523
78	7.253	VV	3.88e-3	31.39796	111.53507	0.03307
79	7.300	VV	0.0337	1595.30969	593.99786	1.68010
80	7.326	VV	5.58e-3	175.05508	488.57962	0.18436
81	7.337	VV	0.0109	428.02777	483.19562	0.45078
82	7.346	VV	0.0122	376.04236	385.02029	0.39603

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
83	7.372	VV	9.35e-3	145.00391	212.84215	0.15271
84	7.421	VV	0.0106	173.26315	202.24794	0.18247
85	7.425	VV	3.85e-3	55.22850	211.53308	0.05816
86	7.440	VV	0.0168	330.65341	247.66936	0.34823
87	7.457	VV	5.75e-3	81.41976	177.67538	0.08575
88	7.471	VV	8.40e-3	93.96904	136.96976	0.09896
89	7.492	VV	0.0110	164.84116	192.85400	0.17360
90	7.503	VV	0.0106	195.58804	247.62482	0.20598
91	7.512	VV	3.91e-3	59.17351	222.04498	0.06232
92	7.516	VV	3.68e-3	64.84432	245.75854	0.06829
93	7.527	VV	0.0186	401.19772	259.83954	0.42252
94	7.570	VP	4.27e-3	10.42227	40.71747	0.01098
95	7.595	VV	7.20e-3	68.21869	120.59135	0.07184
96	7.601	VV	3.83e-3	30.16658	108.81554	0.03177
97	7.605	VB	6.64e-3	50.51153	97.57748	0.05320
98	7.622	BV	7.90e-3	62.91082	97.88596	0.06625
99	7.632	VV	5.01e-3	42.92941	113.63738	0.04521
100	7.638	VV	9.31e-3	74.50284	99.81382	0.07846
101	7.685	VV	0.0188	248.96124	159.72701	0.26219
102	7.695	VV	4.32e-3	46.23341	137.45898	0.04869
103	7.706	VV	0.0100	126.84697	171.09369	0.13359
104	7.717	VV	9.10e-3	111.95706	150.06430	0.11791
105	7.761	VP	0.0136	130.70982	119.17494	0.13766
106	7.781	VV	3.26e-3	11.15746	49.02655	0.01175
107	7.785	VP	2.41e-3	4.68616	30.12294	0.00494
Totals :				9.49534e4	6.42519e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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==========================================================================
Injection Date  : 8/30/2021 4:04:28 PM          Seq. Line :  13
Sample Name     : 21G0276 04                     Location : Vial 12
Acq. Operator   : DXP                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\083021A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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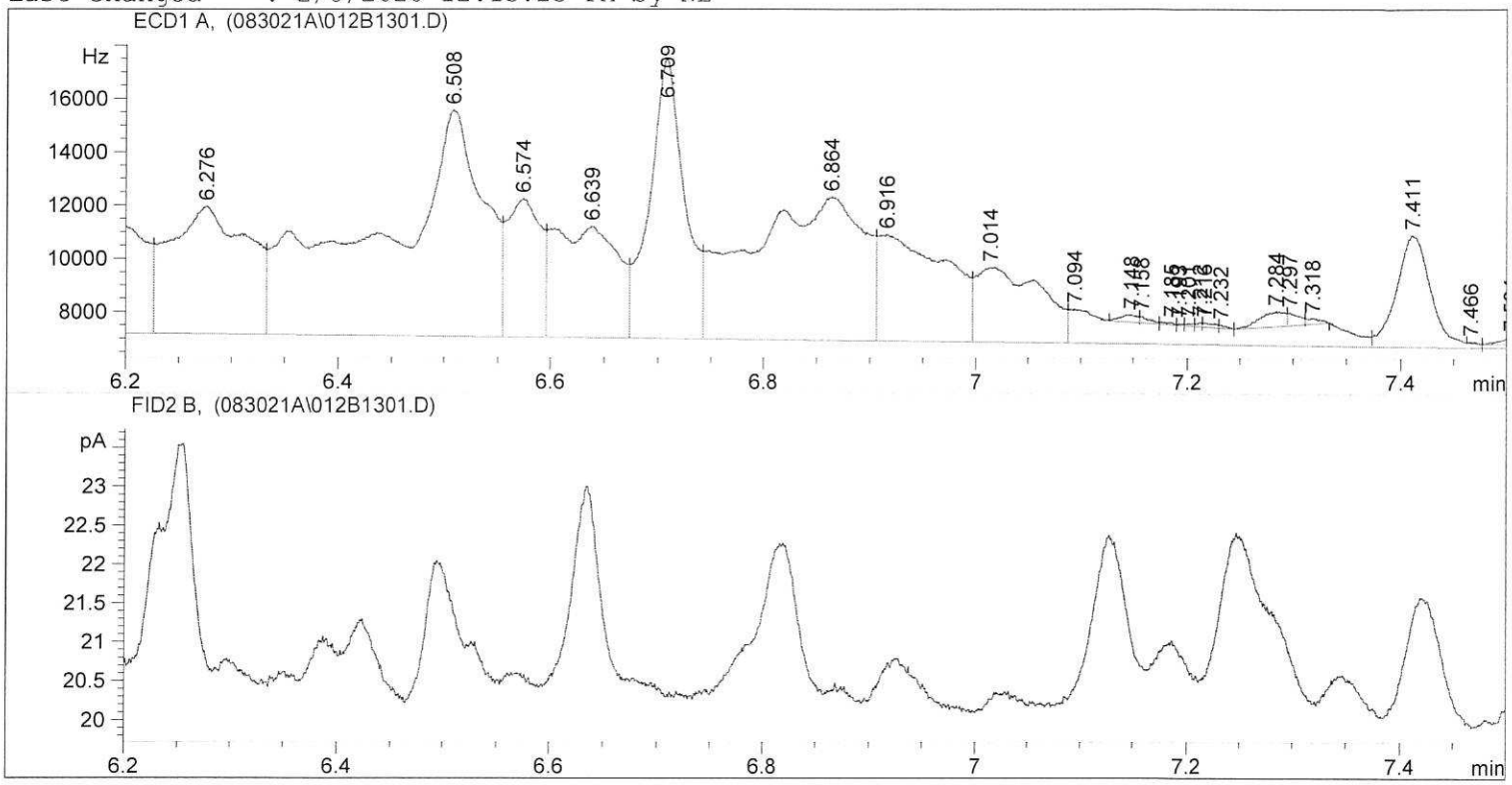


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==========================================================================
                          Area Percent Report
==========================================================================

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	5.254	BV	0.0125	432.62320	423.58658	0.06546
2	5.279	VV	0.0230	1952.05835	1036.55103	0.29537
3	5.353	VV	0.0362	7791.05811	2670.87720	1.17888
4	5.412	VV	0.0310	5486.32275	2116.45459	0.83015
5	5.494	VV S	0.0374	1.74337e4	7770.71680	2.63793
6	5.597	VV S	0.0530	4.62146e4	1.45391e4	6.99283
7	5.643	VV S	0.0442	3.96916e4	1.49648e4	6.00583
8	5.700	VV S	0.0418	1.05964e5	4.22793e4	16.03363
9	5.803	VV S	0.0454	4.06903e4	1.49321e4	6.15694
10	5.862	VV S	0.0493	3.32964e4	1.12505e4	5.03815
11	5.966	VV S	0.0601	5.90102e4	1.16590e4	8.92896
12	6.027	VV S	0.0808	4.53862e4	9363.43750	6.86748
13	6.164	VV S	0.0731	2.56908e4	4813.19678	3.88733
14	6.276	VV S	0.0674	2.45402e4	4787.28760	3.71323
15	6.508	VV S	0.1139	5.80585e4	8495.88184	8.78496
16	6.574	VV S	0.0367	1.14709e4	5205.31689	1.73569
17	6.639	VV S	0.0685	1.72200e4	4191.53223	2.60560

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.709	VV S	0.0384	2.42074e4	1.04943e4	3.66287
19	6.864	VV S	0.1246	4.03127e4	5393.17480	6.09981
20	6.916	VV S	0.0662	1.77752e4	4005.73877	2.68961
21	7.014	VV S	0.0589	1.20807e4	2810.03687	1.82795
22	7.094	VV S	0.1680	1.29874e4	1288.61011	1.96515
23	7.148	BV T	0.0146	299.41714	273.94617	0.04531
24	7.158	VV T	9.73e-3	142.29428	243.67828	0.02153
25	7.185	VV T	9.28e-3	58.26063	82.13342	0.00882
26	7.193	PV T	5.68e-3	23.47055	68.83428	0.00355
27	7.201	PV T	8.26e-3	50.63757	102.12710	0.00766
28	7.212	PV T	4.95e-3	54.98964	155.96362	0.00832
29	7.216	VV T	0.0129	127.92976	165.57968	0.01936
30	7.232	PV T	7.72e-3	53.97431	116.56178	0.00817
31	7.284	PV T	0.0201	934.11609	575.16107	0.14134
32	7.297	VV T	9.53e-3	367.68524	480.32629	0.05564
33	7.318	VB T	0.0119	205.37044	216.31848	0.03108
34	7.411	VBAS	0.0241	8472.19531	4199.79053	1.28195
35	7.466	BV T	7.76e-3	28.43023	49.03156	0.00430
36	7.504	PV T	0.0155	311.82919	244.40390	0.04718
37	7.524	PV T	6.61e-3	68.27968	141.97972	0.01033
38	7.530	PB T	5.47e-3	40.27652	122.74398	0.00609
39	7.574	BV T	1.42e-3	3.36077	39.45288	0.00051
40	7.582	PV T	3.21e-3	14.61060	65.27937	0.00221
41	7.607	PV T	0.0137	176.34450	159.07681	0.02668
42	7.611	PV T	7.02e-3	60.45538	143.46553	0.00915
43	7.628	PV T	8.79e-3	66.38047	94.53885	0.01004
44	7.645	PV T	0.0111	117.68063	127.79210	0.01781
45	7.654	PB T	3.68e-3	13.33842	60.42047	0.00202
46	7.740	BBAT	0.0297	1501.15588	602.41565	0.22714
Totals :				6.60885e5	1.93023e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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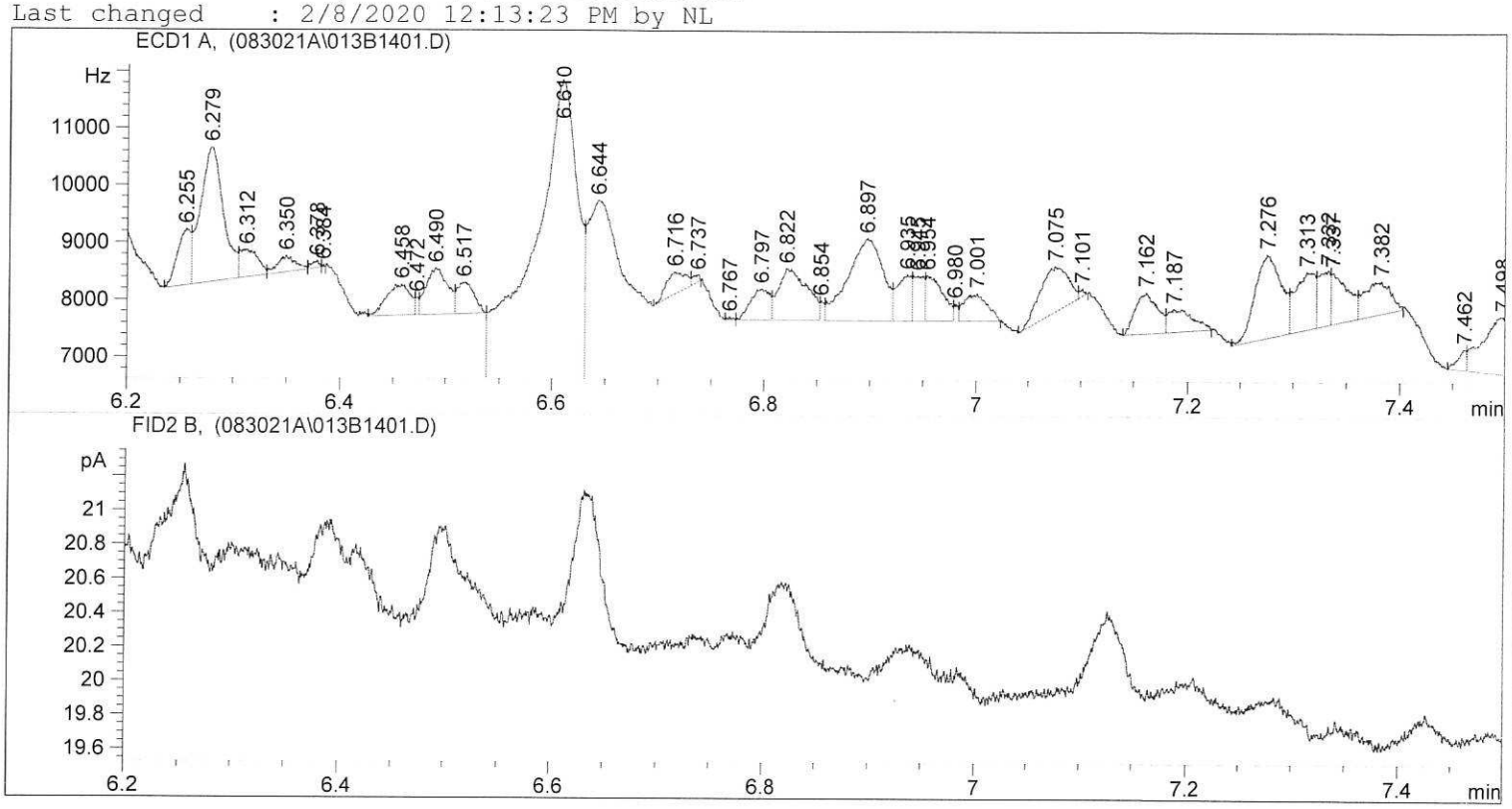
Injection Date : 8/30/2021 4:15:40 PM
Sample Name : 21G0286 05
Acq. Operator : DXP

Seq. Line : 14
Location : Vial 13
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\083021A.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	0.0122	708.63770	864.97821	0.21982
2	5.258	VV	0.0123	497.30124	520.50012	0.15426
3	5.279	VV	0.0128	542.40088	574.98804	0.16825
4	5.303	VP	0.0161	674.47900	608.81934	0.20922
5	5.355	VV S	0.0310	6036.94092	2344.83887	1.87266
6	5.397	BV T	0.0155	778.57758	624.30127	0.24151
7	5.429	PV T	7.26e-3	39.44340	73.45891	0.01224
8	5.437	PV T	3.12e-3	8.54796	45.69528	0.00265
9	5.461	PV S	0.0201	6748.84277	4776.56299	2.09349
10	5.527	VV S	0.0668	1.62244e4	4045.62085	5.03281
11	5.570	BV T	9.97e-3	343.53189	529.42621	0.10656
12	5.612	PV T	0.0104	543.84155	647.37598	0.16870
13	5.644	VV S	0.0226	5811.76807	3615.88013	1.80281
14	5.682	VV S	0.0218	7156.45557	4094.96143	2.21993
15	5.745	VV S	0.0424	1.14477e4	4496.88916	3.55107
16	5.810	VV S	0.0420	1.11242e4	4416.85937	3.45071
17	5.839	VV S	0.0419	2.53277e4	1.00699e4	7.85663

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.029	VV S	0.1340	2.97105e4	3696.61279	9.21618
19	6.122	VV S	0.0725	2.06087e4	3782.46753	6.39280
20	6.190	VV S	0.2329	4.26460e4	3051.31958	13.22876
21	6.255	BV T	0.0105	840.28870	972.29346	0.26066
22	6.279	VV T	0.0199	3576.49707	2350.84717	1.10943
23	6.312	VV T	0.0144	560.56879	473.52972	0.17389
24	6.350	VV T	0.0144	326.49969	276.34781	0.10128
25	6.378	VV T	7.71e-3	60.64127	112.13196	0.01881
26	6.384	VB T	2.56e-3	5.47976	35.67441	0.00170
27	6.458	BV T	0.0207	851.26947	542.40735	0.26406
28	6.472	VV T	3.85e-3	70.00856	303.32574	0.02172
29	6.490	VV T	0.0171	1156.88696	807.35608	0.35887
30	6.517	VV T	0.0135	602.55945	545.98328	0.18691
31	6.610	VV S	0.0372	1.68944e4	5569.76465	5.24064
32	6.644	VBAS	0.3829	7.95596e4	3463.25977	24.67933
33	6.716	BV T	0.0153	459.42258	384.77911	0.14251
34	6.737	VB T	7.37e-3	66.55592	118.23210	0.02065
35	6.767	BV T	4.20e-3	11.86506	47.11317	0.00368
36	6.797	PV T	0.0154	678.78699	540.62494	0.21056
37	6.822	VV T	0.0232	1691.50879	889.53992	0.52470
38	6.854	VV T	4.28e-3	86.29163	336.17184	0.02677
39	6.897	VV T	0.0278	3263.02515	1421.57214	1.01219
40	6.935	VV T	0.0118	769.62225	798.98938	0.23874
41	6.945	VV T	8.69e-3	554.20483	780.20624	0.17191
42	6.954	VV T	0.0184	868.19897	786.66315	0.26931
43	6.980	PV T	4.45e-3	79.86024	298.80032	0.02477
44	7.001	PB T	0.0199	741.64954	472.22977	0.23006
45	7.075	BV T	0.0224	1474.36145	790.52563	0.45735
46	7.101	VB T	5.65e-3	43.37276	127.91856	0.01345
47	7.162	BV T	0.0174	1026.89795	714.13141	0.31854
48	7.187	PB T	0.0195	636.92029	397.43384	0.19757
49	7.276	BV T	0.0213	2493.40332	1450.62915	0.77345
50	7.313	VV T	0.0154	1289.91699	1000.14862	0.40013
51	7.332	VV T	9.76e-3	748.87927	954.17908	0.23230
52	7.337	VV T	0.0183	979.69025	893.08966	0.30390
53	7.382	VB T	0.0210	996.82458	569.34271	0.30921
54	7.462	BV T	8.10e-3	212.12943	369.13626	0.06580
55	7.498	PV T	0.0272	2247.85693	1008.53528	0.69728
56	7.535	PV T	3.36e-3	28.84709	143.29773	0.00895
57	7.542	PV T	7.81e-3	75.75963	161.57066	0.02350
58	7.547	PV T	3.70e-3	38.60373	173.73701	0.01197
59	7.557	PV T	7.86e-3	108.69024	230.50058	0.03372
60	7.611	PV T	0.0383	7098.92480	2219.83643	2.20208
61	7.711	PV T	0.0265	1595.68323	752.21759	0.49498
62	7.775	PV T	0.0120	237.96359	253.06636	0.07382
63	7.783	PV T	0.0111	281.43796	306.68140	0.08730
64	7.800	PBAT	9.62e-4	1.52838	26.47503	0.00047
Totals :				3.22373e5	8.77517e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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Injection Date  : 8/30/2021 5:22:32 PM          Seq. Line :  20
Sample Name     : CS4 STANDARD                   Location : Vial 4
Acq. Operator   : DXP                                Inj :  1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\083021A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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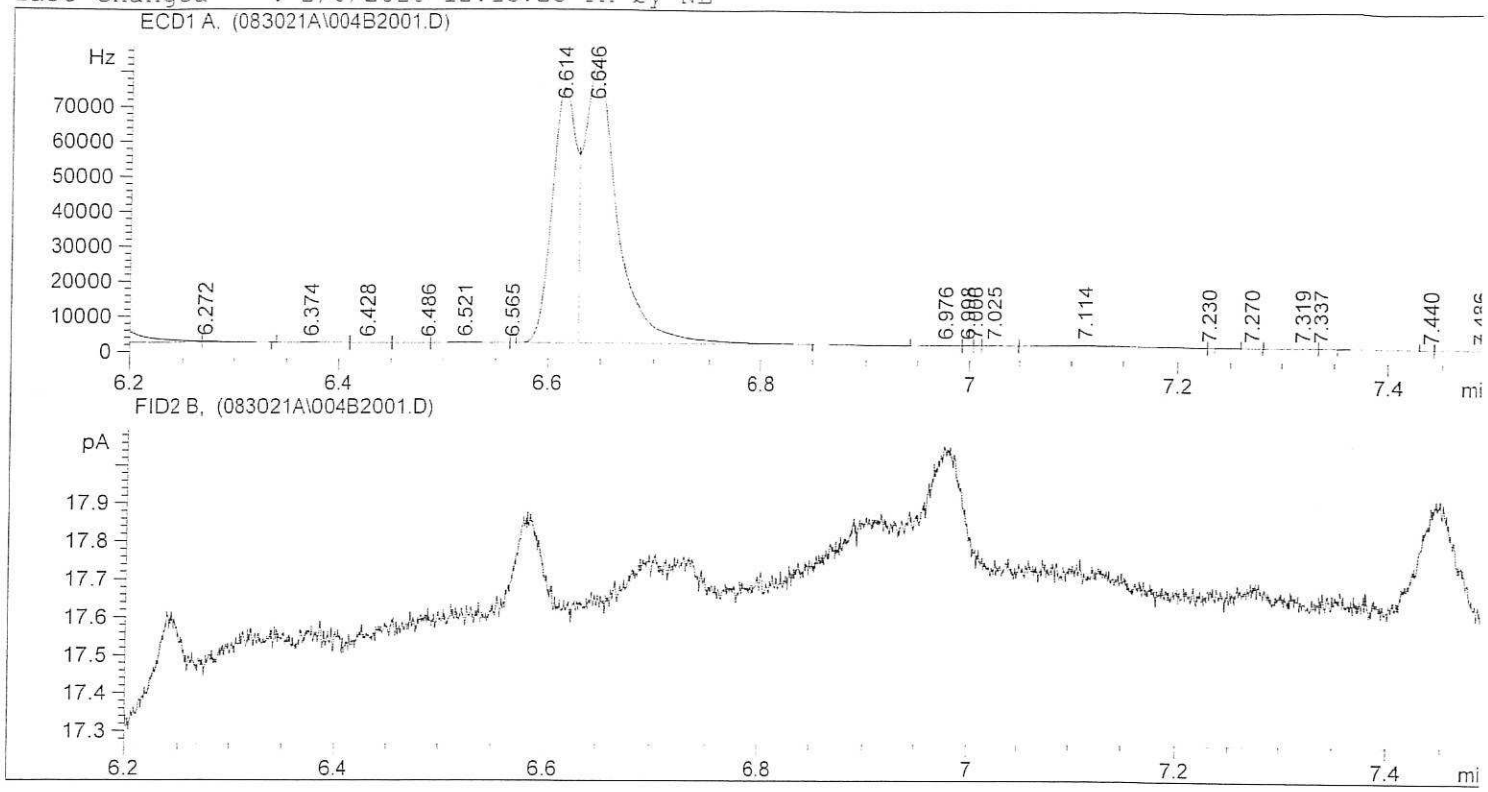


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==========================================================================
                          Area Percent Report
==========================================================================

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	5.326	PP	0.0150	58.52505	47.30511	0.00497
2	5.393	VP	0.0143	44.39404	37.73573	0.00377
3	5.420	VP	4.32e-3	3.72548	11.68708	0.00032
4	5.470	VV S	0.0284	1.58093e5	7.68800e4	13.41897
5	5.571	VV S	0.0408	2.56851e5	1.04900e5	21.80156
6	5.629	VV S	0.0270	9.60253e4	5.93006e4	8.15065
7	5.676	VV S	0.0367	1.02325e5	4.65189e4	8.68539
8	5.828	VB S	0.0373	763.92981	396.20801	0.06484
9	5.920	BV S	0.0227	9.57038e4	6.08917e4	8.12336
10	6.071	VV S	0.0257	8.40642e4	4.93774e4	7.13539
11	6.150	VV S	0.0339	9.09024e4	4.46459e4	7.71582
12	6.272	VB S	0.0324	644.25012	331.51688	0.05468
13	6.374	BP	0.0224	292.09119	155.09500	0.02479
14	6.428	VP	0.0153	45.46979	36.61418	0.00386
15	6.486	VV	0.0148	56.67444	50.08284	0.00481
16	6.521	VV	0.0309	304.02805	116.30077	0.02581
17	6.565	VP	3.21e-3	4.57214	20.45917	0.00039

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.614	VV S	0.0238	1.15078e5	7.28795e4	9.76784
19	6.646	VB S	0.0359	1.74047e5	8.08027e4	14.77316
20	6.976	PV	0.0205	88.75275	52.15902	0.00753
21	6.998	VV	7.22e-3	31.68891	55.83123	0.00269
22	7.006	VV	5.58e-3	23.18902	56.58708	0.00197
23	7.025	VB	0.0222	118.69154	64.69180	0.01007
24	7.114	BV	0.0542	1387.36987	304.10910	0.11776
25	7.230	VB	2.70e-3	3.01528	16.73129	0.00026
26	7.270	PP	6.30e-3	5.38592	11.01442	0.00046
27	7.319	BV	0.0177	36.35451	27.38888	0.00309
28	7.337	VP	8.85e-3	7.94358	14.95365	0.00067
29	7.440	PV	4.22e-3	3.30578	10.65769	0.00028
30	7.486	VV	0.0215	52.95773	29.34954	0.00450
31	7.493	VV	3.23e-3	6.47868	28.71438	0.00055
32	7.502	VB	8.81e-3	15.43013	21.92201	0.00131
33	7.584	BB	0.0000	1.50355	4.74209	0.00013
34	7.648	PV	0.0306	847.24774	347.72250	0.07191
35	7.703	VV	0.0136	23.85218	29.25733	0.00202
36	7.733	VV	9.34e-3	34.73475	46.36555	0.00295
37	7.766	VBA	0.0290	135.17690	55.88032	0.01147

Totals : 1.17813e6 5.98578e5

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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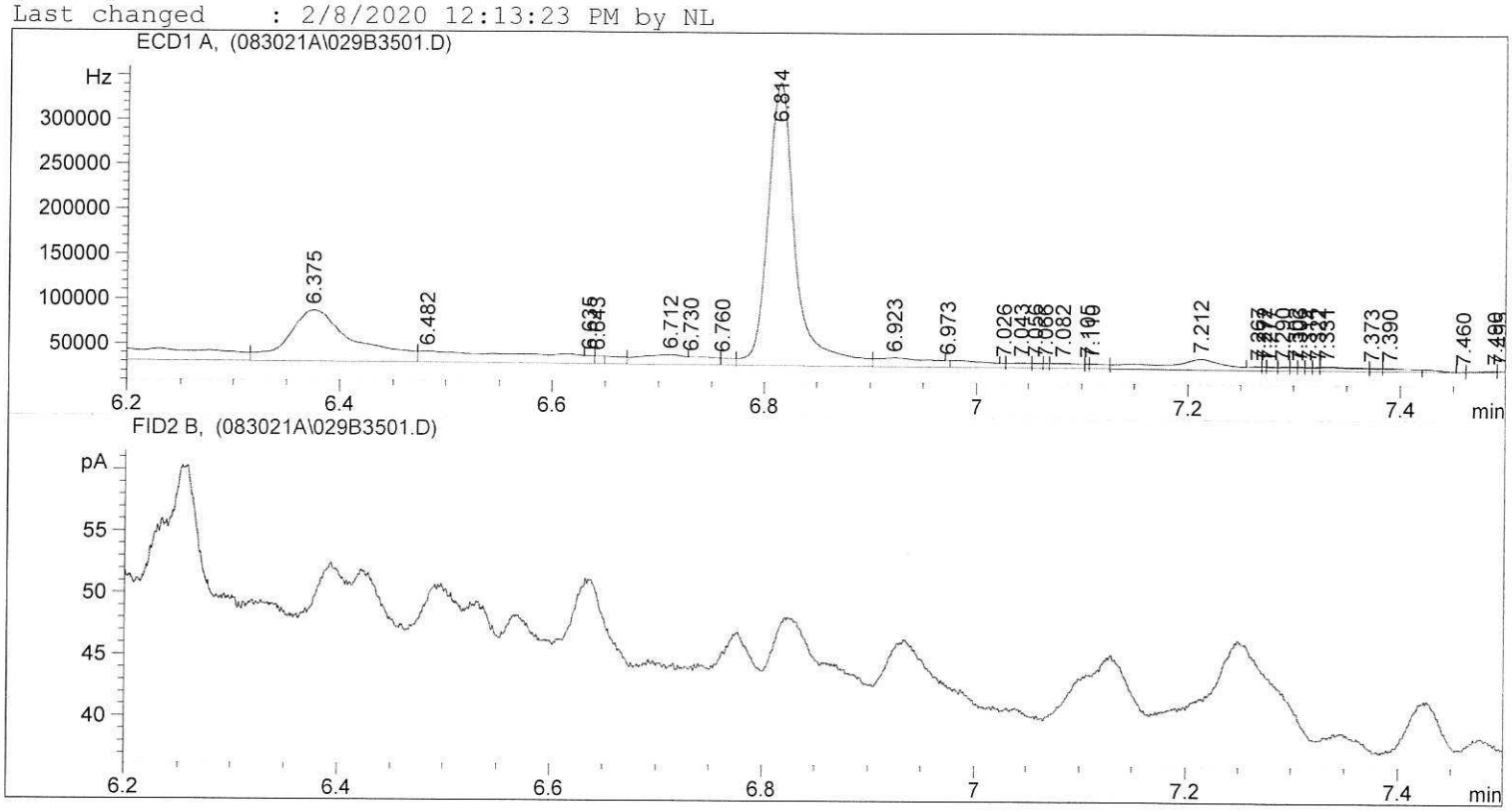
*** End of Report ***

Injection Date : 8/30/2021 8:10:14 PM
Sample Name : 21H0004 01
Acq. Operator : DXP

Seq. Line : 35
Location : Vial 29
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\083021A.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	5.228	BV S	0.0142	7572.85449	7740.02393	0.40525
2	5.275	VV S	0.0342	8413.65430	4099.72559	0.45025
3	5.321	PV T	5.01e-3	98.89363	261.43567	0.00529
4	5.506	PV S	0.0920	6.99565e4	9121.51465	3.74366
5	5.609	VV S	0.0290	6.46149e4	3.71266e4	3.45781
6	5.736	VV S	0.0844	9.24555e4	1.82622e4	4.94767
7	5.864	VV S	0.0725	8.50830e4	1.54294e4	4.55314
8	5.919	VV S	0.0392	3.91669e4	1.66359e4	2.09598
9	6.014	VV S	0.0612	1.01072e5	2.75457e4	5.40876
10	6.040	VV S	0.0294	2.96819e4	1.68328e4	1.58840
11	6.095	VV S	0.0415	5.04247e4	1.60050e4	2.69843
12	6.152	VV S	0.1476	1.23295e5	1.29561e4	6.59803
13	6.375	VV S	0.0712	2.43844e5	5.70429e4	13.04911
14	6.482	VV S	0.1443	1.16975e5	1.24331e4	6.25984
15	6.635	BV T	6.53e-3	111.22304	283.84140	0.00595
16	6.643	PB T	3.50e-3	40.08375	161.26967	0.00215
17	6.712	PV S	0.0584	5.43266e4	1.10854e4	2.90724

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.730	BV T	0.0348	752.64008	257.04816	0.04028
19	6.760	PV T	8.45e-3	100.09328	197.38631	0.00536
20	6.814	PV S	0.0260	5.73705e5	3.15938e5	30.70133
21	6.923	PV S	0.0994	8.45337e4	1.00442e4	4.52375
22	6.973	BB T	2.80e-3	31.71888	188.93631	0.00170
23	7.026	BV T	3.47e-3	59.14774	258.51459	0.00317
24	7.043	PV T	0.0146	830.89929	771.81287	0.04446
25	7.056	PV T	8.91e-3	440.92041	825.06567	0.02360
26	7.066	PV T	5.16e-3	211.88889	684.08105	0.01134
27	7.082	PV T	0.0151	1323.60327	1066.58813	0.07083
28	7.105	PV T	4.00e-3	161.63173	674.13013	0.00865
29	7.110	PV T	0.0122	585.16339	801.48004	0.03131
30	7.212	PV S	0.0872	8.77181e4	1.18448e4	4.69416
31	7.267	BV T	7.77e-3	406.29276	743.98285	0.02174
32	7.272	PV T	3.87e-3	178.14653	768.02759	0.00953
33	7.277	PV T	9.62e-3	553.47754	958.63623	0.02962
34	7.290	PV T	7.57e-3	639.67432	1071.12866	0.03423
35	7.302	PV T	5.20e-3	474.97086	1203.57349	0.02542
36	7.306	PV T	6.27e-3	457.96964	1217.56226	0.02451
37	7.314	PV T	5.85e-3	483.95023	1118.16565	0.02590
38	7.322	PV T	4.82e-3	482.93295	1333.84631	0.02584
39	7.331	PV T	0.0270	3792.87451	1665.29602	0.20297
40	7.373	PV T	0.0118	736.97772	1037.67676	0.03944
41	7.390	PB T	0.0134	1278.02588	1245.57458	0.06839
42	7.460	BV T	2.96e-3	44.46646	219.85539	0.00238
43	7.490	PV T	0.0123	636.63055	632.21875	0.03407
44	7.495	PV T	6.21e-3	271.18887	544.64935	0.01451
45	7.508	PV T	5.41e-3	67.33289	207.51956	0.00360
46	7.554	PBAS	0.0411	1.52584e4	4399.44580	0.81654
47	7.588	BV T	0.0119	160.53633	225.73589	0.00859
48	7.603	PV T	0.0140	330.65616	394.51959	0.01769
49	7.621	PV T	7.93e-3	149.46396	314.14841	0.00800
50	7.629	PV T	6.95e-3	157.94876	378.79736	0.00845
51	7.644	PV T	8.68e-3	227.90895	398.05432	0.01220
52	7.671	PV T	7.37e-3	297.71609	528.32776	0.01593
53	7.683	PP T	0.0158	1221.51660	952.45135	0.06537
54	7.714	PP T	2.14e-3	26.03616	197.12392	0.00139
55	7.728	PV T	7.00e-3	380.50327	672.78485	0.02036
56	7.742	PV T	9.93e-3	709.26959	886.58447	0.03796
57	7.762	PV T	9.86e-3	780.12140	962.46423	0.04175
58	7.769	PP T	0.0165	873.13470	883.88416	0.04673
Totals :				1.86867e6	6.31737e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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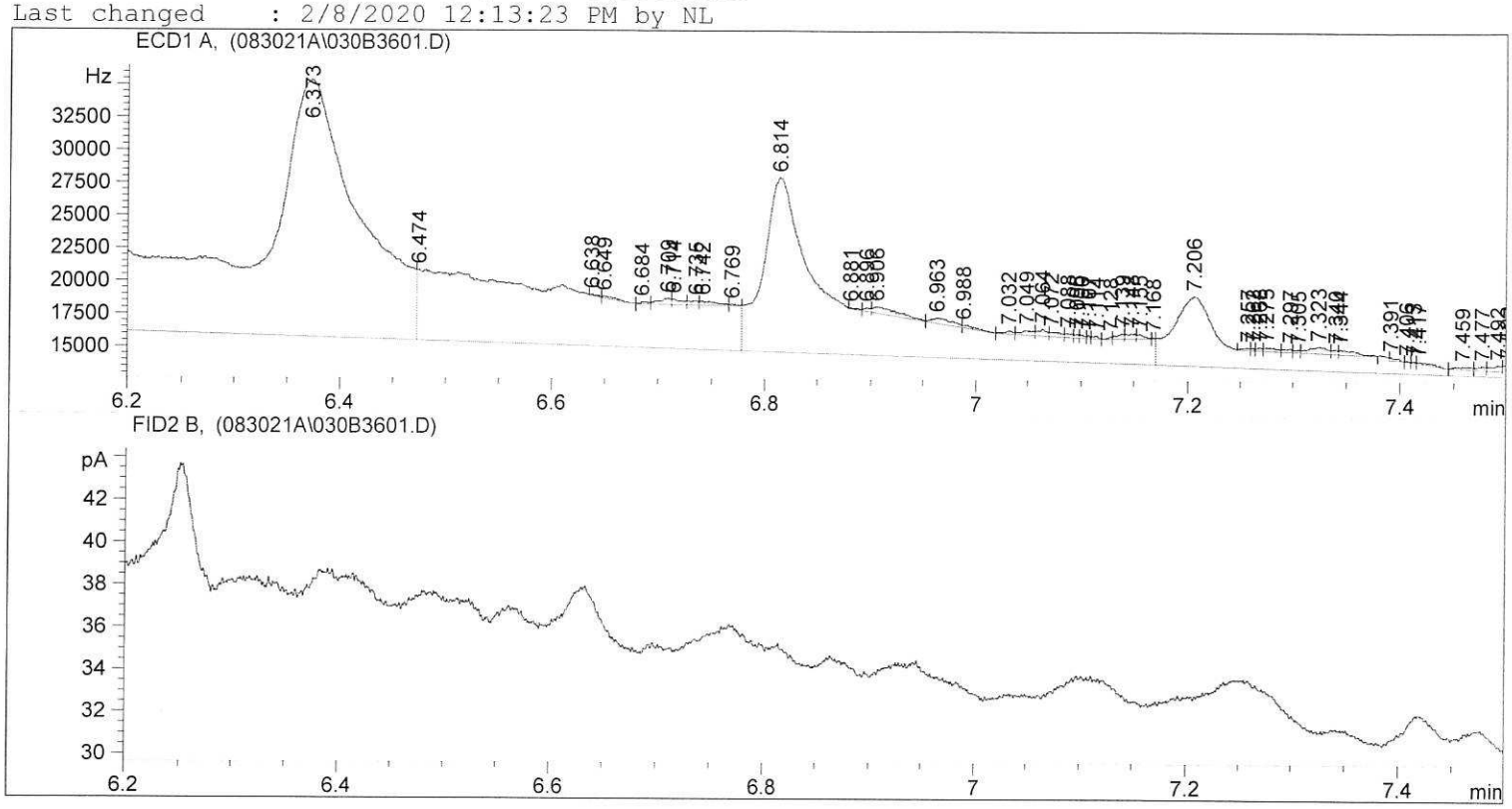
Injection Date : 8/30/2021 8:21:27 PM
Sample Name : 21H0004 02
Acq. Operator : DXP

Seq. Line : 36
Location : Vial 30
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\083021A.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 2/8/2020 12:13:23 PM by NL



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Area Percent Report

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Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: ECD1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.218	BP	9.38e-3	123.21069	167.52768	0.01992
2	5.257	VV S	0.0156	3881.28198	3536.59521	0.62743
3	5.279	VV S	0.1583	2.13696e4	1630.94275	3.45449
4	5.306	BV T	9.99e-4	2.41810	40.35997	0.00039
5	5.317	VV T	2.62e-3	31.37149	180.96114	0.00507
6	5.347	VV T	0.0152	1096.28943	955.41846	0.17722
7	5.379	VV T	9.99e-3	339.20462	430.39914	0.05483
8	5.406	VV T	0.0164	1351.46826	994.87042	0.21847
9	5.462	VV T	0.0000	154.39772	440.80554	0.02496
10	5.466	VV T	7.79e-3	212.43219	454.76587	0.03434
11	5.862	VV S	0.2704	1.31663e5	8116.22607	21.28389
12	6.011	VV S	0.0987	7.36677e4	9553.54004	11.90872
13	6.373	VV S	0.1556	1.83294e5	1.96272e4	29.63037
14	6.474	VV S	0.2303	7.43252e4	5379.11182	12.01500
15	6.638	BV T	5.55e-3	58.05938	136.78017	0.00939
16	6.649	PV T	0.0167	159.77150	159.46002	0.02583
17	6.684	PV T	6.93e-3	101.28464	180.92647	0.01637

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.709	PV T	9.44e-3	354.74142	468.25156	0.05735
19	6.714	PV T	0.0103	264.31152	426.15512	0.04273
20	6.735	PV T	8.56e-3	204.66470	333.25589	0.03308
21	6.742	PV T	0.0161	321.17474	332.82797	0.05192
22	6.769	PV T	4.77e-3	44.51791	118.95298	0.00720
23	6.814	PV S	0.0735	8.16916e4	1.32889e4	13.20582
24	6.881	BV T	9.10e-3	65.97523	120.82486	0.01067
25	6.896	PV T	5.40e-3	127.23355	309.49646	0.02057
26	6.906	PV T	0.0234	934.91406	490.64056	0.15113
27	6.963	PV T	0.0171	615.27832	436.30859	0.09946
28	6.988	PV T	0.0187	231.05786	206.47998	0.03735
29	7.032	PV T	6.79e-3	145.71202	266.10480	0.02356
30	7.049	PV T	9.66e-3	300.06900	378.10300	0.04851
31	7.064	PV T	7.04e-3	298.84866	541.09979	0.04831
32	7.072	PV T	0.0131	266.43289	339.25809	0.04307
33	7.088	PV T	7.49e-3	140.41168	312.46255	0.02270
34	7.096	PV T	4.34e-3	76.75661	294.61087	0.01241
35	7.100	PV T	5.22e-3	81.54163	260.19510	0.01318
36	7.107	PV T	2.61e-3	40.96708	262.07388	0.00662
37	7.114	PV T	6.71e-3	91.02901	226.26131	0.01472
38	7.128	PV T	3.72e-3	51.08116	191.03680	0.00826
39	7.139	PV T	6.19e-3	196.90327	410.84283	0.03183
40	7.148	PV T	7.27e-3	237.53862	415.19907	0.03840
41	7.155	PV T	5.98e-3	164.17300	355.82919	0.02654
42	7.168	PV T	2.21e-3	14.40089	108.59706	0.00233
43	7.206	PBAS	0.0714	3.19568e4	5283.52197	5.16596
44	7.257	BV T	6.91e-3	96.09653	189.80005	0.01553
45	7.262	PV T	3.05e-3	43.49030	207.45120	0.00703
46	7.268	PV T	4.29e-3	89.14455	267.39716	0.01441
47	7.275	PV T	0.0140	231.16246	275.92966	0.03737
48	7.297	PV T	6.59e-3	136.37308	279.01788	0.02205
49	7.305	PV T	5.87e-3	79.43900	225.65880	0.01284
50	7.323	PV T	0.0148	593.10742	502.10083	0.09588
51	7.340	PV T	6.33e-3	138.36607	364.38733	0.02237
52	7.344	PB T	0.0181	413.82761	381.56619	0.06690
53	7.391	BV T	7.78e-3	122.15700	261.77374	0.01975
54	7.406	PV T	3.89e-3	19.81344	84.88707	0.00320
55	7.413	PV T	4.05e-3	27.58296	113.45098	0.00446
56	7.417	PV T	0.0200	161.42175	134.65549	0.02609
57	7.459	PV T	0.0130	213.83408	210.89990	0.03457
58	7.477	PV T	7.12e-3	180.79025	314.05878	0.02923
59	7.492	PV T	9.21e-3	315.24393	427.17508	0.05096
60	7.502	PV T	8.95e-3	387.70035	528.95404	0.06267
61	7.512	PV T	7.36e-3	205.41383	465.47058	0.03321
62	7.524	PV T	8.05e-3	311.14539	474.57455	0.05030
63	7.532	PV T	0.0205	614.28375	499.67334	0.09930
64	7.562	PV T	4.59e-3	57.73709	209.77795	0.00933
65	7.570	PV T	5.54e-3	79.91879	240.59993	0.01292
66	7.576	PV T	5.29e-3	85.12830	268.23956	0.01376
67	7.582	PV T	3.26e-3	58.11861	296.95874	0.00940
68	7.590	PV T	6.58e-3	183.34422	369.91226	0.02964
69	7.595	PV T	4.85e-3	117.59480	404.36954	0.01901
70	7.606	PV T	0.0159	741.64777	564.10846	0.11989
71	7.631	PV T	0.0140	418.79218	363.74808	0.06770
72	7.669	PV T	3.72e-3	37.48862	167.97565	0.00606
73	7.679	PV T	8.19e-3	128.41472	197.51447	0.02076
74	7.692	PV T	3.92e-3	54.24529	190.48236	0.00877
75	7.696	PV T	9.96e-3	104.75764	175.23958	0.01693
76	7.707	PV T	4.29e-3	44.82781	174.27440	0.00725
77	7.743	PV T	0.0220	1316.97083	717.97559	0.21289
78	7.784	PV T	2.94e-3	14.60373	82.66621	0.00236
79	7.789	PV T	2.41e-3	11.59417	74.83069	0.00187
80	7.796	PV T	2.85e-3	17.49843	99.43259	0.00283
81	7.799	PBAT	7.26e-4	1.04982	24.11667	0.00017

Totals : 6.18603e5 8.89942e4

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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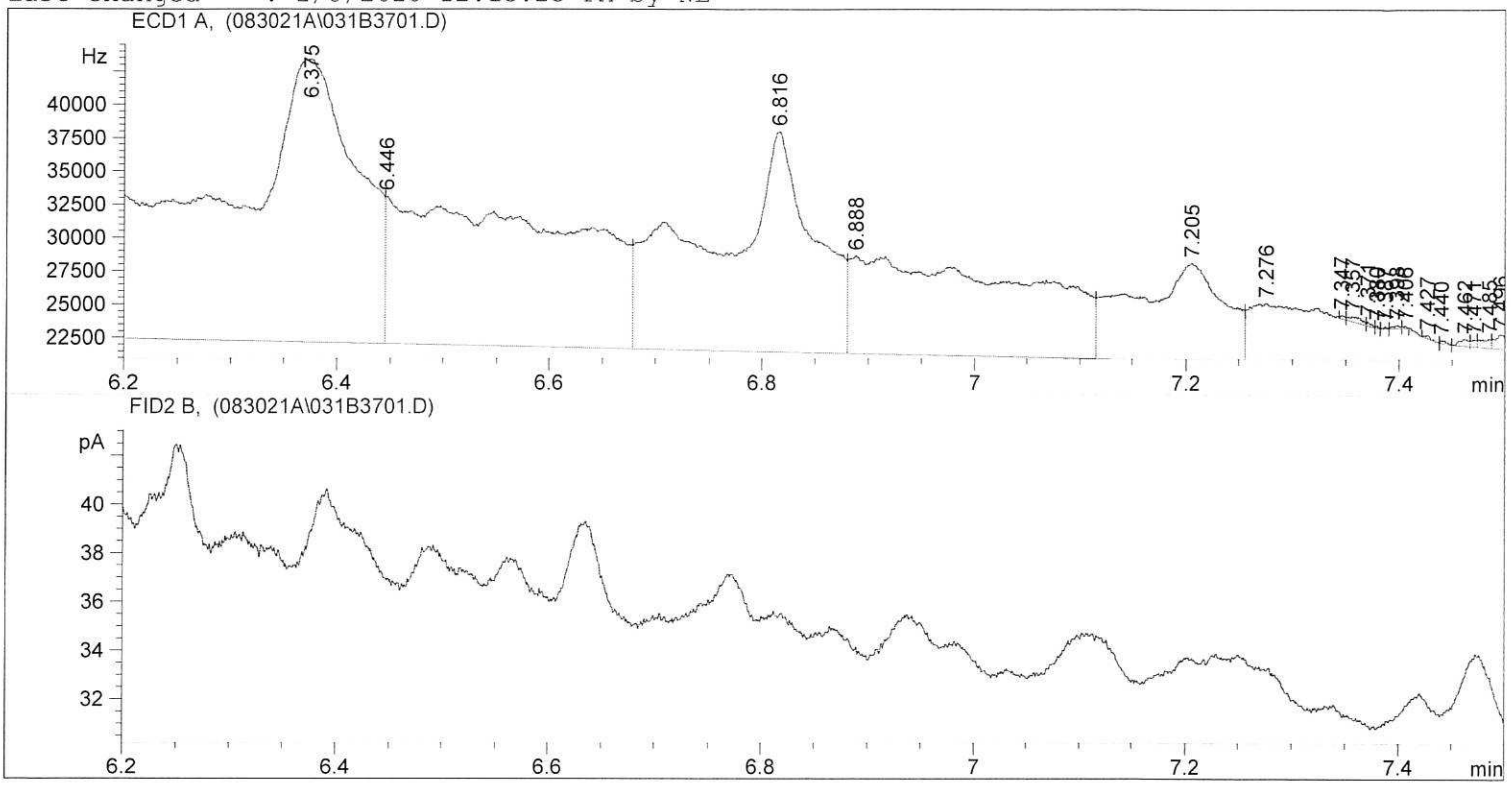
*** End of Report ***

Injection Date	: 8/30/2021 8:32:44 PM	Seq. Line	: 37
Sample Name	: 21H0004 03	Location	: Vial 31
Acq. Operator	: DXP	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\2\SEQUENCE\083021A.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	5.864	BV S	0.3080	2.45749e5	1.32962e4	22.84013
2	6.012	VV S	0.1103	1.26485e5	1.42066e4	11.75558
3	6.375	VV S	0.2131	2.71965e5	2.12741e4	25.27659
4	6.446	VV S	0.1967	1.30276e5	1.10384e4	12.10793
5	6.816	VV S	0.1106	1.09849e5	1.65507e4	10.20947
6	6.888	VV S	0.1957	8.35870e4	7314.33789	7.76864
7	7.205	VV S	0.0976	4.27118e4	7297.14551	3.96966
8	7.276	VBAS	0.1612	5.47451e4	4410.35156	5.08805
9	7.347	BV T	5.13e-3	79.48974	258.43787	0.00739
10	7.357	VV T	0.0155	351.03714	376.59705	0.03263
11	7.371	PV T	4.85e-3	81.72266	281.11874	0.00760
12	7.380	PV T	3.05e-3	31.54925	172.11971	0.00293
13	7.387	PV T	3.04e-3	29.01880	158.83464	0.00270
14	7.398	PV T	6.30e-3	102.18955	224.98682	0.00950
15	7.406	PB T	4.04e-3	38.91140	160.60593	0.00362
16	7.427	BV T	5.40e-3	92.44123	244.93921	0.00859
17	7.440	PV T	6.85e-3	99.09310	241.01198	0.00921

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	7.462	PV T	8.71e-3	334.10629	533.10852	0.03105
19	7.471	PV T	5.13e-3	197.42682	532.44806	0.01835
20	7.485	PV T	9.18e-3	480.49567	669.18719	0.04466
21	7.496	PV T	0.0134	1132.70178	1065.84766	0.10527
22	7.514	PV T	0.0107	736.55377	864.66449	0.06846
23	7.528	PV T	5.29e-3	251.79747	793.56866	0.02340
24	7.532	PV T	0.0114	576.63257	839.87170	0.05359
25	7.553	PV T	6.70e-3	150.65991	374.66907	0.01400
26	7.573	PV T	7.62e-3	118.02143	190.74173	0.01097
27	7.592	PV T	0.0102	466.37173	566.85596	0.04334
28	7.608	PV T	0.0120	683.73889	697.25891	0.06355
29	7.624	PV T	0.0111	432.11243	649.56519	0.04016
30	7.646	PV T	0.0120	271.44391	298.33731	0.02523
31	7.658	PV T	0.0107	235.49918	367.22003	0.02189
32	7.673	PV T	5.79e-3	184.65240	399.72726	0.01716
33	7.688	PV T	8.55e-3	275.09119	414.32333	0.02557
34	7.695	PV T	4.48e-3	161.75128	462.42230	0.01503
35	7.707	PV T	0.0109	454.04138	515.27374	0.04220
36	7.730	PV T	7.36e-3	455.14453	835.27887	0.04230
37	7.735	PV T	9.07e-3	469.78854	862.91138	0.04366
38	7.747	PV T	8.23e-3	597.34247	890.26715	0.05552
39	7.758	PV T	0.0156	734.85510	784.40527	0.06830
40	7.777	PV T	0.0110	257.95462	389.43451	0.02397
41	7.798	PBAT	2.31e-3	23.27956	167.87938	0.00216
Totals :				1.07595e6	1.11672e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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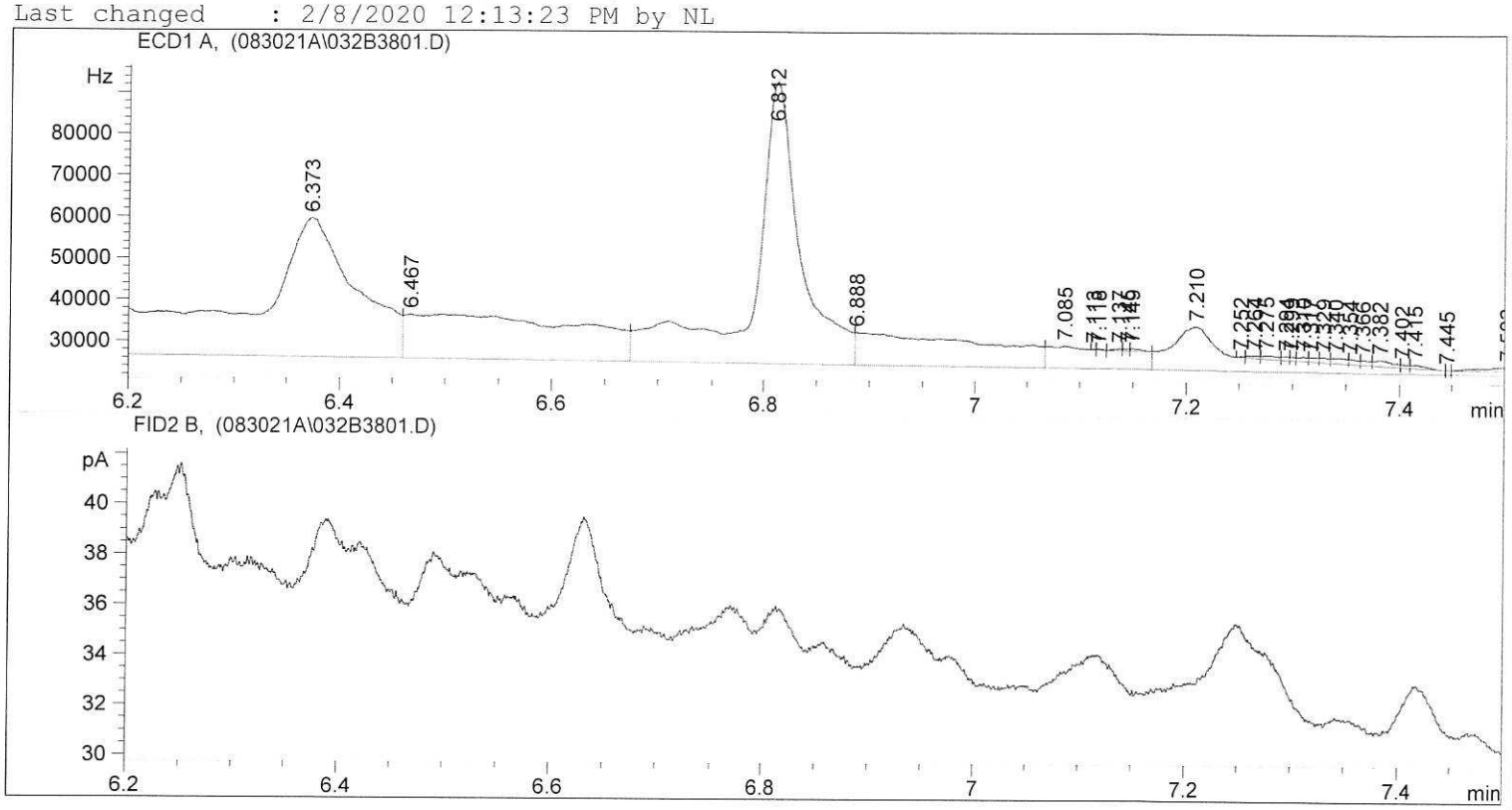
*** End of Report ***

Injection Date : 8/30/2021 8:43:55 PM
Sample Name : 21H0004 04
Acq. Operator : DXP

Seq. Line : 38
Location : Vial 32
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\083021A.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	5.255	BV S	0.0300	1.27327e4	5751.45996	0.24398
2	5.868	VV S	0.2835	2.55955e5	1.50474e4	4.90451
3	5.972	VV S	0.1140	1.38574e5	1.68394e4	2.65529
4	6.373	VV S	0.1590	3.19557e5	3.35015e4	6.12323
5	6.467	VV S	0.1873	1.19608e5	1.06425e4	2.29189
6	6.812	VV S	0.0529	2.15905e5	6.80430e4	4.13708
7	6.888	VV S	0.1464	6.77199e4	7927.88623	1.29762
8	7.085	VV S	0.0874	2.81962e4	5374.07080	0.54028
9	7.113	BV T	2.50e-3	39.84167	244.27547	0.00076
10	7.118	VV T	5.30e-3	105.25353	331.22214	0.00202
11	7.137	PV T	6.71e-3	278.44128	514.58002	0.00534
12	7.145	VV T	6.35e-3	214.04758	562.00220	0.00410
13	7.149	VV T	0.0114	434.02673	635.75891	0.00832
14	7.210	PV S	0.0808	7.21716e4	1.05292e4	1.38292
15	7.252	BV T	4.17e-3	103.84717	339.79074	0.00199
16	7.264	PV T	9.03e-3	453.48242	642.98090	0.00869
17	7.275	PV T	0.0134	908.99615	854.04303	0.01742

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	7.294	PV T	6.75e-3	428.08994	932.93213	0.00820
19	7.299	PV T	5.32e-3	310.43665	973.26740	0.00595
20	7.310	PV T	7.30e-3	685.54639	1194.17053	0.01314
21	7.317	PV T	6.79e-3	577.42950	1053.62512	0.01106
22	7.329	PV T	7.61e-3	745.25739	1276.69543	0.01428
23	7.340	PV T	0.0121	1334.96387	1331.78528	0.02558
24	7.354	PV T	9.43e-3	769.08057	1359.72852	0.01474
25	7.366	PV T	0.0102	729.02667	1191.64099	0.01397
26	7.382	PV T	0.0159	1788.30188	1441.32568	0.03427
27	7.402	PV T	8.48e-3	425.79202	836.91693	0.00816
28	7.415	PV T	0.0126	958.68610	929.14001	0.01837
29	7.445	PV T	1.59e-3	13.46854	140.94421	0.00026
30	7.503	PV T	0.0264	1997.09790	1005.11804	0.03827
31	7.508	PV T	3.65e-3	269.46527	1029.20947	0.00516
32	7.515	PV T	0.0248	1427.08215	959.22375	0.02735
33	7.548	PV T	0.0110	656.39252	784.48572	0.01258
34	7.561	PV T	6.61e-3	148.22763	373.63321	0.00284
35	7.573	PV T	4.45e-3	125.97785	381.63794	0.00241
36	7.577	PV T	3.91e-3	59.38794	253.14989	0.00114
37	7.588	PV T	9.71e-3	366.24789	490.42627	0.00702
38	7.608	PV T	2.45e-3	37.02193	233.68422	0.00071
39	7.621	PV T	6.87e-3	225.75313	419.78323	0.00433
40	7.630	PB T	4.32e-3	64.54027	249.03809	0.00124
41	7.662	BV T	5.09e-3	61.27102	200.80119	0.00117
42	7.667	PV T	0.0131	270.93967	344.97278	0.00519
43	7.683	PV T	0.0105	250.28851	295.40921	0.00480
44	7.704	PP T	5.93e-3	99.25989	209.42599	0.00190
45	7.721	PV T	5.47e-3	22.66750	69.05486	0.00043
46	7.728	PV T	2.72e-3	19.88602	121.03292	0.00038
47	7.740	PBAS	4.46e-3	153.08780	571.50159	0.00293
48	7.752	BV T	3.36e-3	32.91014	163.32391	0.00063
49	7.756	PV T	0.0126	194.97147	257.42053	0.00374
50	7.780	PV T	0.0103	353.25937	426.42380	0.00677
Totals :				5.21877e6	1.99282e5	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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Injection Date  : 8/30/2021 8:55:08 PM          Seq. Line :  39
Sample Name     : 21H0004 05                     Location : Vial 33
Acq. Operator   : DXP                                Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\083021A.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 2/8/2020 12:13:23 PM by NL
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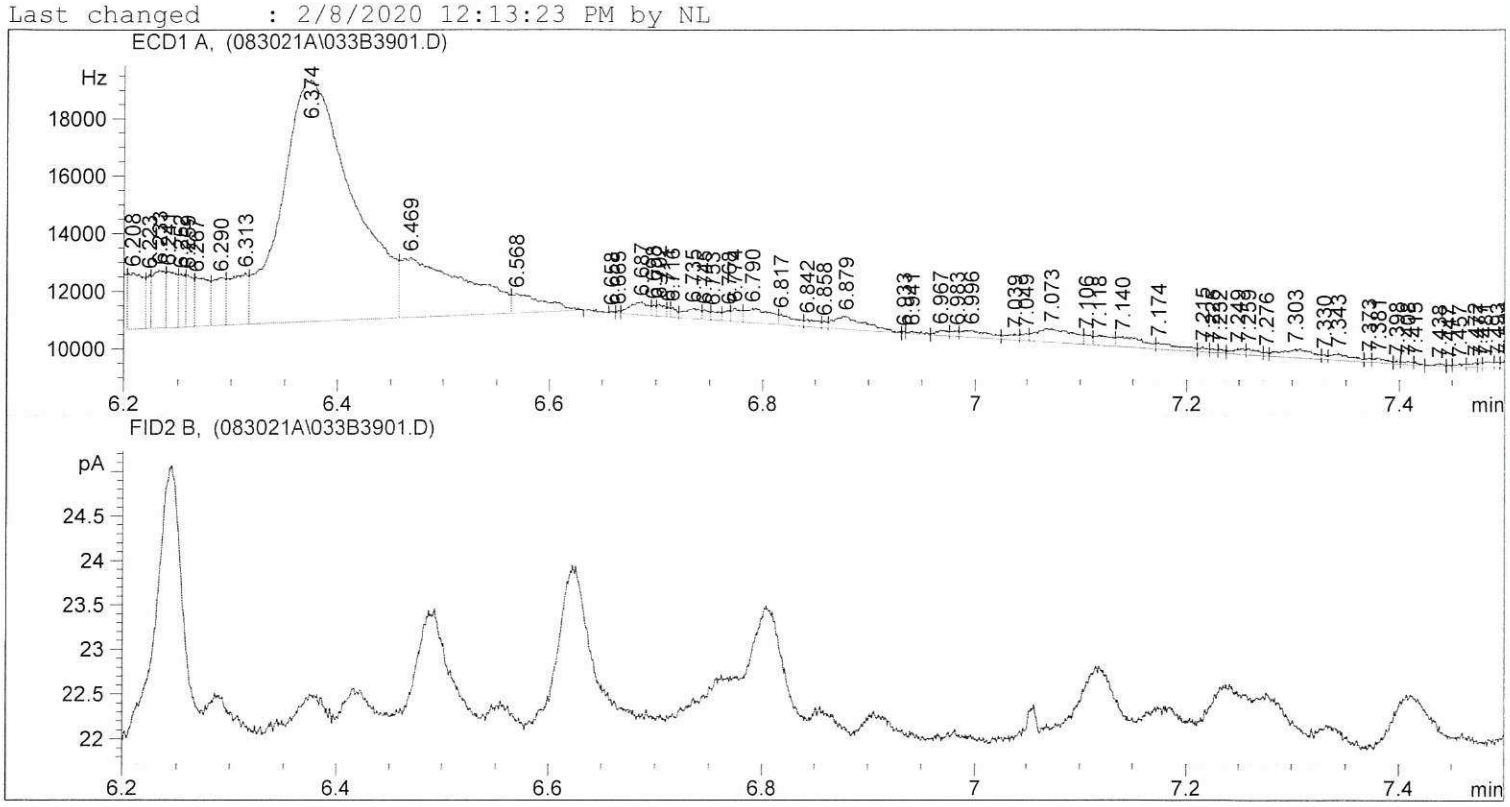


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==========================================================================
                          Area Percent Report
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Sorted By             :      Signal
Multiplier            :      1.0000
Dilution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

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
1	5.217	BP	6.08e-3	63.28089	145.42188	0.03459
2	5.278	VV	0.0203	1079.59460	638.78363	0.59019
3	5.287	VV	3.88e-3	142.14583	538.58478	0.07771
4	5.297	VV	0.0208	962.40814	556.36896	0.52613
5	5.369	VV	0.0329	3103.04370	1127.64160	1.69637
6	5.382	VV	5.42e-3	406.66101	983.96564	0.22231
7	5.391	VV	8.58e-3	683.96234	1000.00049	0.37391
8	5.414	VV	0.0175	1427.12610	1024.40259	0.78018
9	5.425	VB	0.0128	1015.51031	969.60510	0.55516
10	5.476	BV	0.0343	3754.33032	1308.29895	2.05241
11	5.511	VV	0.0170	1711.13611	1216.10205	0.93544
12	5.524	VV	4.68e-3	401.14151	1271.70386	0.21930
13	5.530	VV	5.53e-3	556.39801	1371.57007	0.30417
14	5.535	VV	8.09e-3	677.13629	1395.25073	0.37018
15	5.547	VV	6.66e-3	709.09546	1461.73071	0.38765
16	5.564	VV	0.0115	1596.88806	1745.66211	0.87298
17	5.573	VV	9.55e-3	1318.16357	1756.59473	0.72061

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.585	VV	7.71e-3	1063.54199	1745.58398	0.58142
19	5.593	VV	5.24e-3	555.11591	1766.92676	0.30347
20	5.606	VV	9.53e-3	1395.22021	1782.69250	0.76274
21	5.613	VV	5.34e-3	757.54797	1865.70557	0.41413
22	5.617	VV	8.89e-3	1308.66406	1842.29578	0.71542
23	5.648	VV	0.0191	3166.99609	1993.41357	1.73133
24	5.659	VV	7.97e-3	1259.49023	1993.11487	0.68854
25	5.678	VV	9.48e-3	1529.17822	2056.23755	0.83597
26	5.697	VV	0.0183	3377.01538	2335.82178	1.84614
27	5.737	VV	0.0328	7256.99512	2664.67578	3.96724
28	5.772	VV	0.0142	2651.77051	2275.27344	1.44967
29	5.784	VV	6.49e-3	1183.44055	2345.11377	0.64696
30	5.789	VV	0.0151	2858.01880	2370.66382	1.56242
31	5.841	VV	0.0226	5516.36914	2896.56958	3.01568
32	5.848	VV	3.95e-3	817.25391	2844.61011	0.44677
33	5.859	VV	0.0130	3046.02808	2905.57373	1.66520
34	5.871	VV	0.0136	3066.30566	2743.05273	1.67628
35	5.895	VV	7.40e-3	1286.58630	2588.25757	0.70335
36	5.917	VV	0.0226	5767.93018	3173.16064	3.15320
37	5.945	VV	0.0123	2907.82373	2851.19995	1.58964
38	5.972	VV	0.0283	7968.66992	3359.67383	4.35630
39	6.000	VV	0.0147	3655.42700	3201.19336	1.99834
40	6.013	VV	0.0385	9992.04980	3088.75000	5.46244
41	6.080	VV	7.67e-3	1139.43140	1936.01062	0.62290
42	6.088	VV	9.24e-3	1447.58655	1953.65356	0.79136
43	6.102	VV	4.50e-3	519.88220	1733.95386	0.28421
44	6.113	VV	8.65e-3	1255.06616	1818.05969	0.68612
45	6.123	VV	7.75e-3	1183.40686	1930.62256	0.64694
46	6.129	VV	0.0113	1787.13525	1942.56982	0.97699
47	6.153	VV	0.0103	1682.33582	2027.55750	0.91970
48	6.164	VV	0.0104	1862.98022	2181.93457	1.01845
49	6.185	VV	0.0211	3923.80249	2256.16431	2.14506
50	6.208	VV	0.0116	1853.73853	1969.74548	1.01340
51	6.223	VV	4.69e-3	526.98218	1874.64648	0.28809
52	6.233	VV	0.0103	1636.21521	2007.42126	0.89448
53	6.241	VV	8.66e-3	1287.04016	1959.35681	0.70360
54	6.252	VV	5.83e-3	797.64661	1851.84875	0.43606
55	6.259	VV	5.95e-3	835.68402	1823.37732	0.45685
56	6.267	VV	0.0108	1513.57361	1703.97888	0.82744
57	6.290	VV	0.0100	1382.93347	1678.67529	0.75602
58	6.313	VV	0.0158	2177.13501	1785.27747	1.19019
59	6.374	VV S	0.0556	3.89717e4	8417.99121	21.30498
60	6.469	VV S	0.0699	8776.87598	2093.77710	4.79813
61	6.568	VB S	0.0404	1413.50159	673.65839	0.77273
62	6.658	PV	2.77e-3	11.55013	56.77906	0.00631
63	6.665	VV	2.79e-3	18.84709	112.63007	0.01030
64	6.687	VV	0.0153	528.27692	456.02277	0.28880
65	6.698	VV	3.41e-3	93.37247	387.16714	0.05104
66	6.702	VV	6.31e-3	196.02486	415.33191	0.10716
67	6.711	VV	2.96e-3	75.10200	342.30057	0.04106
68	6.716	VV	5.17e-3	137.98468	352.24808	0.07543
69	6.735	VV	0.0119	357.52176	361.43405	0.19545
70	6.745	VV	5.41e-3	142.04123	344.44888	0.07765
71	6.753	VV	9.52e-3	179.83437	314.89752	0.09831
72	6.768	VV	6.03e-3	156.26192	377.39771	0.08542
73	6.774	VV	7.86e-3	283.97885	469.10880	0.15525
74	6.790	VV	0.0195	838.85791	517.79230	0.45859
75	6.817	VV	0.0121	375.96255	382.06396	0.20553
76	6.842	VV	0.0105	218.57365	263.71213	0.11949
77	6.858	VV	5.67e-3	79.12356	232.65646	0.04326
78	6.879	VP	0.0267	959.98407	456.51743	0.52480
79	6.933	VV	2.82e-3	11.44787	66.15831	0.00626
80	6.941	VV	9.33e-3	72.86355	95.19043	0.03983
81	6.967	VV	8.94e-3	134.38409	192.55641	0.07346
82	6.983	VV	5.82e-3	90.98422	203.20488	0.04974

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
83	6.996	VV	0.0208	430.55875	249.26065	0.23538
84	7.039	VV	9.85e-3	171.39015	216.26465	0.09370
85	7.049	VV	5.91e-3	113.54073	259.43042	0.06207
86	7.073	VV	0.0287	1161.02881	488.86218	0.63471
87	7.106	VV	6.30e-3	162.46463	344.45001	0.08882
88	7.118	VV	0.0137	395.74438	353.73560	0.21634
89	7.140	VV	0.0216	613.66260	362.25146	0.33548
90	7.174	VV	0.0190	345.14883	223.43051	0.18869
91	7.215	VV	6.03e-3	85.49636	183.62419	0.04674
92	7.225	VV	4.89e-3	52.07954	135.45197	0.02847
93	7.232	VV	4.63e-3	48.93085	141.54218	0.02675
94	7.249	VV	9.41e-3	150.88316	195.37062	0.08248
95	7.259	VV	9.26e-3	153.07463	211.03091	0.08368
96	7.276	VV	3.61e-3	38.92915	150.94466	0.02128
97	7.303	VV	0.0229	607.92200	314.53598	0.33234
98	7.330	VV	4.49e-3	54.87292	173.25735	0.03000
99	7.343	VV	0.0175	311.95544	234.54597	0.17054
100	7.373	VV	5.74e-3	54.88019	159.29692	0.03000
101	7.381	VV	0.0126	139.42349	184.24216	0.07622
102	7.398	VV	4.51e-3	28.55854	105.44662	0.01561
103	7.408	VV	7.59e-3	67.83490	116.57019	0.03708
104	7.415	VP	3.84e-3	38.80383	131.57819	0.02121
105	7.438	VV	7.99e-3	54.92074	89.17162	0.03002
106	7.447	VV	4.31e-3	14.87982	52.43038	0.00813
107	7.457	VV	6.78e-3	61.38816	119.83916	0.03356
108	7.472	VV	5.43e-3	73.45819	177.45111	0.04016
109	7.477	VV	3.12e-3	36.95340	171.26094	0.02020
110	7.481	VV	7.93e-3	125.01308	204.62175	0.06834
111	7.493	VV	4.81e-3	64.47696	208.45448	0.03525
112	7.501	VV	4.88e-3	93.21558	266.80615	0.05096
113	7.505	VV	5.59e-3	97.16344	270.51422	0.05312
114	7.518	VV	0.0175	380.57996	298.78464	0.20805
115	7.542	VV	6.02e-3	92.43640	199.01744	0.05053
116	7.550	VV	5.24e-3	80.60990	194.46498	0.04407
117	7.575	VV	0.0140	417.88913	380.09958	0.22845
118	7.583	VV	5.68e-3	152.63661	350.82565	0.08344
119	7.596	VV	8.95e-3	308.48962	430.86438	0.16864
120	7.605	VV	0.0105	406.69952	481.57074	0.22233
121	7.632	VV	0.0118	368.63553	390.07996	0.20153
122	7.641	VV	0.0170	578.97192	411.70050	0.31651
123	7.673	VV	7.47e-3	125.00619	212.40451	0.06834
124	7.702	VV	0.0120	195.12317	202.88132	0.10667
125	7.708	VV	5.07e-3	76.11337	198.73529	0.04161
126	7.716	VV	6.55e-3	127.23943	249.56212	0.06956
127	7.732	VV	8.92e-3	223.33043	305.97913	0.12209
128	7.737	VV	5.29e-3	112.78449	292.85138	0.06166
129	7.745	VV	0.0201	344.23395	286.08542	0.18819
130	7.776	VV	0.0117	138.34105	160.33441	0.07563
131	7.795	VP	5.19e-3	12.08554	38.79084	0.00661

Totals : 1.82923e5 1.38802e5

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

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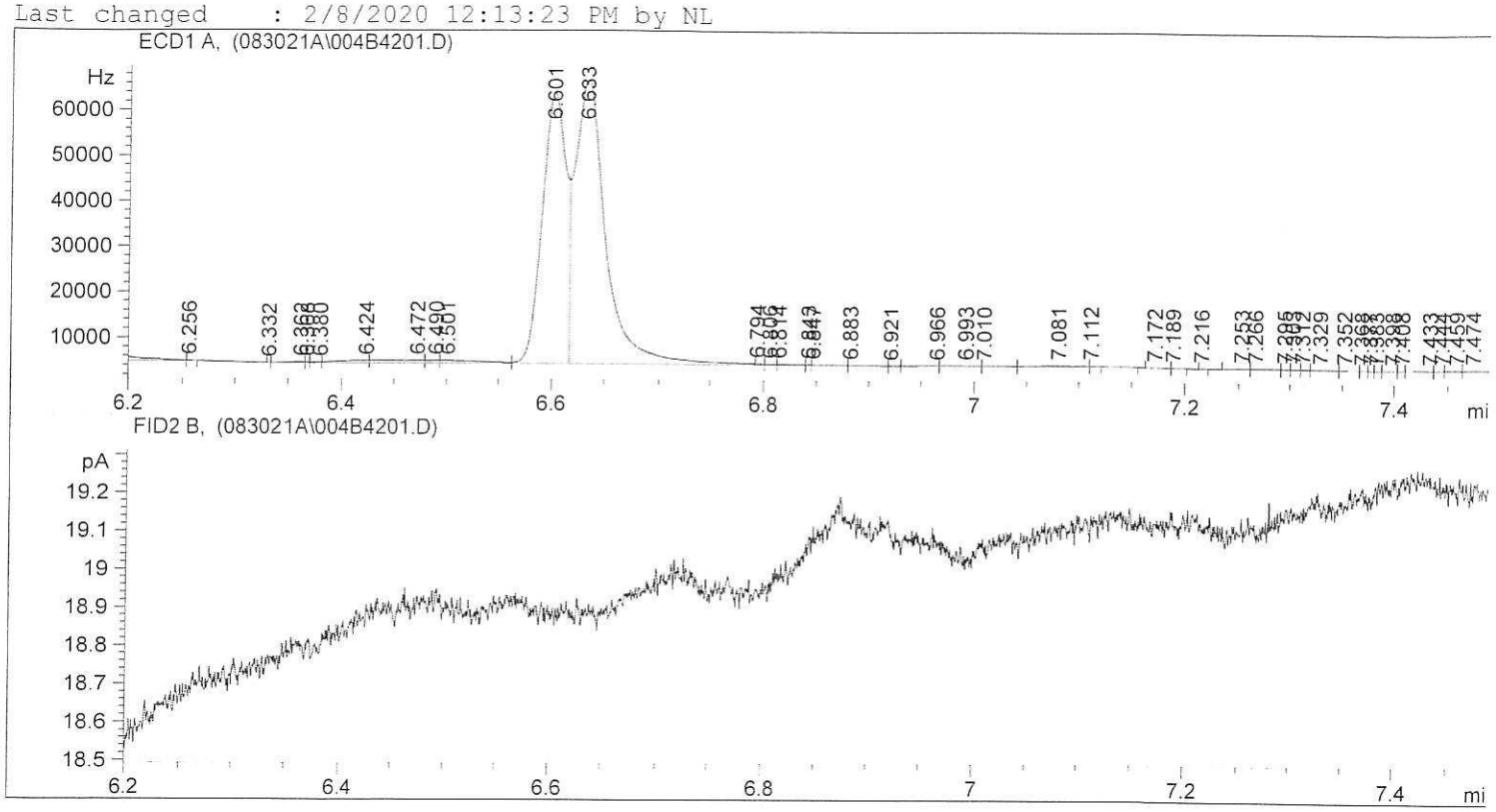
Injection Date : 8/30/2021 9:28:32 PM
Sample Name : CS4 STANDARD
Acq. Operator : DXP

Seq. Line : 42
Location : Vial 4
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\083021A.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	5.229	BP	3.65e-3	4.34650	17.79995	0.00042
2	5.296	PB	9.26e-3	13.60865	18.76868	0.00131
3	5.327	BP	0.0162	70.99007	53.20301	0.00681
4	5.356	VV	0.0130	41.89239	42.70043	0.00402
5	5.391	VP	0.0121	50.06958	50.13617	0.00480
6	5.466	VV S	0.0277	1.51537e5	7.46601e4	14.53894
7	5.564	VV S	0.0397	2.43254e5	1.02148e5	23.33851
8	5.623	VV S	0.0246	8.91478e4	6.03461e4	8.55311
9	5.670	VV S	0.0335	9.23506e4	4.59742e4	8.86040
10	5.822	VB S	0.0231	355.34967	255.84669	0.03409
11	5.910	BV S	0.0217	8.60404e4	5.78801e4	8.25497
12	6.059	VV S	0.0263	7.28700e4	4.61013e4	6.99137
13	6.139	VV S	0.0291	7.65191e4	4.38588e4	7.34148
14	6.256	VB S	5.80e-3	31.28923	89.88251	0.00300
15	6.332	BV	2.20e-3	3.79369	27.73354	0.00036
16	6.362	VV	0.0145	279.32816	234.95990	0.02680
17	6.368	VV	3.78e-3	63.40443	232.68713	0.00608

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	6.380	VV	7.42e-3	151.17529	266.40042	0.01450
19	6.424	VV	0.0267	1168.57520	553.02441	0.11212
20	6.472	VV	0.0350	1811.08435	614.30945	0.17376
21	6.490	VV	0.0104	511.39035	623.71027	0.04906
22	6.501	VV	0.0340	1813.42468	640.52869	0.17399
23	6.601	VV S	0.0228	9.09847e4	5.94899e4	8.72935
24	6.633	VB S	0.0348	1.29523e5	6.21026e4	12.42686
25	6.794	BV T	6.21e-3	14.56146	39.08406	0.00140
26	6.806	VV T	7.83e-3	25.04311	53.31143	0.00240
27	6.814	VV T	0.0134	46.13770	57.43699	0.00443
28	6.843	VV T	3.53e-3	7.19272	33.94090	0.00069
29	6.847	VV T	0.0184	33.05159	29.87198	0.00317
30	6.883	PV T	0.0000	87.55674	10.68963	0.00840
31	6.921	PV T	0.0144	82.38066	95.04330	0.00790
32	6.966	PV T	0.0901	178.25929	23.24173	0.01710
33	6.993	PV T	0.0000	25.12092	17.16420	0.00241
34	7.010	PV T	0.1180	110.82861	15.65225	0.01063
35	7.081	PV T	0.0158	143.62900	110.39737	0.01378
36	7.112	PB T	4.46e-3	21.34024	64.47164	0.00205
37	7.172	BP	5.43e-3	4.64158	14.24007	0.00045
38	7.189	VP	4.68e-3	6.00952	21.37895	0.00058
39	7.216	PP	1.42e-3	1.42344	20.35222	0.00014
40	7.253	BV	0.0127	85.23473	82.26964	0.00818
41	7.266	VV	0.0189	143.41557	90.27348	0.01376
42	7.295	VV	6.25e-3	42.33056	90.66292	0.00406
43	7.303	VV	6.59e-3	51.55907	103.87756	0.00495
44	7.312	VV	5.99e-3	42.51520	91.99133	0.00408
45	7.329	VB	0.0153	97.16094	76.29939	0.00932
46	7.352	BV	7.63e-3	32.41875	52.29380	0.00311
47	7.368	VP	3.41e-3	6.53148	29.19134	0.00063
48	7.377	VV	4.08e-3	5.53874	19.68874	0.00053
49	7.383	VP	3.66e-3	5.75188	23.50435	0.00055
50	7.398	VP	5.77e-3	8.44462	22.83905	0.00081
51	7.408	VV	3.84e-3	7.62851	33.70468	0.00073
52	7.433	VV	9.51e-3	50.26459	64.35032	0.00482
53	7.444	VV	6.33e-3	37.39945	76.15737	0.00359
54	7.459	VV	0.0102	85.58414	108.86080	0.00821
55	7.474	VB	0.0218	211.45607	126.87965	0.02029
56	7.506	BV	4.03e-3	18.73783	63.74156	0.00180
57	7.510	VB	4.67e-3	19.85345	54.23527	0.00190
58	7.554	PP	0.0000	5.31486	6.42203	0.00051
59	7.572	BV	3.54e-3	6.43329	27.44105	0.00062
60	7.623	VV	0.0357	1382.31995	467.52695	0.13262
61	7.685	VV	0.0156	159.45439	122.58121	0.01530
62	7.703	VV	5.17e-3	36.51311	97.50937	0.00350
63	7.712	VV	0.0163	104.13250	106.74062	0.00999
64	7.739	VV	0.0126	107.99496	104.88065	0.01036
65	7.753	VP	0.0177	145.41655	97.84959	0.01395
66	7.796	VP	1.34e-3	1.95541	24.38602	0.00019

Totals : 1.04229e6 5.59155e5

Results obtained with enhanced integrator!

Signal 2: FID2 B,

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*** End of Report ***

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJI0064	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-SS646	21G0286-05	21092404	09/06/2021	
LCS Dup	BJH0773-BSD1	21091310	09/06/2021	
LCS	BJH0773-BS1	21091309	09/06/2021	
Duplicate	BJH0773-DUP1	21092201	09/06/2021	
Blank	BJH0773-BLK1	21091308	09/06/2021	
Reference	BJH0773-SRM1	21091311	09/06/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJI0064

Matrix: Solid **Cleanup using: HRGCMS - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 9/9/2021 8:13:31AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21H0004-05	A	LAI-SS-1-210729	A 01	20	20	1613B Dioxin	9/6/2021	DxP	
21H0004-04	A	W-4-210729	A 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0286-05	C	LDW21-SS646	C 01	20	20	1613B Dioxin	9/6/2021	DxP	
21H0004-01	A	W-1-210729	A 01	20	20	1613B Dioxin	9/6/2021	DxP	
21H0004-02	A	W-2-210729	A 01	20	20	1613B Dioxin	9/6/2021	DxP	
21H0004-03	A	W-3-210729	A 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0272-03	D	WW-05-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0272-04	D	WW-06-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0276-01	C	WC-15-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0276-02	C	WC-06-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0276-03	C	WC-10-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0272-02	D	WW-04-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0272-01	D	WW-03-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0276-04	C	WC-16-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/6/2021	DxP	
21G0253-03RE1	C	WW-MNR-05-SS-210719	C 02	20	20	1613B Dioxin	9/6/2021	DxP	
BJH0773-SRM1	-	Reference	-	20	20	-	9/6/2021	DxP	
BJH0773-DUP1	-	Duplicate	-	20	20	-	9/6/2021	DxP	
BJH0773-BS1	-	LCS	-	20	20	-	9/6/2021	DxP	
BJH0773-BSD1	-	LCS Dup	-	20	20	-	9/6/2021	DxP	
BJH0773-BLK1	-	Blank	-	20	20	-	9/6/2021	DxP	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJI0065	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
Blank	BJH0773-BLK1	21091308	09/08/2021	
Reference	BJH0773-SRM1	21091311	09/08/2021	
LCS Dup	BJH0773-BSD1	21091310	09/08/2021	
LCS	BJH0773-BS1	21091309	09/08/2021	
Duplicate	BJH0773-DUP1	21092201	09/08/2021	
LDW21-SS646	21G0286-05	21092404	09/08/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJI0065

Matrix: Solid **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup** **Printed: 9/9/2021 8:13:47AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21H0004-05	A	LAI-SS-1-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21H0004-04	A	W-4-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0286-05	C	LDW21-SS646	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21H0004-01	A	W-1-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21H0004-02	A	W-2-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21H0004-03	A	W-3-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0272-03	D	WW-05-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0272-04	D	WW-06-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0276-01	C	WC-15-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0276-02	C	WC-06-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0276-03	C	WC-10-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0272-02	D	WW-04-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0272-01	D	WW-03-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0276-04	C	WC-16-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0253-03RE1	C	WW-MNR-05-SS-210719	C 02	20	20	1613B Dioxin	9/8/2021	DxP	
BJH0773-SRM1	-	Reference	-	20	20	-	9/8/2021	DxP	
BJH0773-DUP1	-	Duplicate	-	20	20	-	9/8/2021	DxP	
BJH0773-BS1	-	LCS	-	20	20	-	9/8/2021	DxP	
BJH0773-BSD1	-	LCS Dup	-	20	20	-	9/8/2021	DxP	
BJH0773-BLK1	-	Blank	-	20	20	-	9/8/2021	DxP	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Cleanup Batch:	CJI0066	Cleanup Type:	Florisil
Cleanup Method:	EPA 3620B Florisil Cleanup (uL)	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LCS Dup	BJH0773-BSD1	21091310	09/08/2021	
LDW21-SS646	21G0286-05	21092404	09/08/2021	
LCS	BJH0773-BS1	21091309	09/08/2021	
Duplicate	BJH0773-DUP1	21092201	09/08/2021	
Blank	BJH0773-BLK1	21091308	09/08/2021	
Reference	BJH0773-SRM1	21091311	09/08/2021	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CJI0066

Matrix: Solid **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup (uL)** **Printed: 9/9/2021 8:14:00AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
21H0004-05	A	LAI-SS-1-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21H0004-04	A	W-4-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0286-05	C	LDW21-SS646	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21H0004-01	A	W-1-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21H0004-02	A	W-2-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21H0004-03	A	W-3-210729	A 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0272-03	D	WW-05-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0272-04	D	WW-06-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0276-01	C	WC-15-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0276-02	C	WC-06-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0276-03	C	WC-10-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0272-02	D	WW-04-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0272-01	D	WW-03-SS-0-12-210720	D 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0276-04	C	WC-16-SS-0-12-210721	C 01	20	20	1613B Dioxin	9/8/2021	DxP	
21G0253-03RE1	C	WW-MNR-05-SS-210719	C 02	20	20	1613B Dioxin	9/8/2021	DxP	
BJH0773-SRM1	-	Reference	-	20	20	-	9/8/2021	DxP	
BJH0773-DUP1	-	Duplicate	-	20	20	-	9/8/2021	DxP	
BJH0773-BS1	-	LCS	-	20	20	-	9/8/2021	DxP	
BJH0773-BSD1	-	LCS Dup	-	20	20	-	9/8/2021	DxP	
BJH0773-BLK1	-	Blank	-	20	20	-	9/8/2021	DxP	

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:	21G0286
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Solid	Laboratory ID:	BJH0773-BLK1	File ID:	21091308
Sampled:	N/A	Prepared:	09/02/21 15:08	Analyzed:	09/13/21 17:36
Solids Wt%:		Preparation:	EPA 8290	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0191	Calibration:	EH00030
Batch:	BJH0773	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	0.070	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1	0.000	0.655-0.886	0.132	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	0.000	1.318-1.783	0.090	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	0.000	1.318-1.783	0.085	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	0.000	1.318-1.783	0.159	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.000	1.054-1.426	0.099	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.000	1.054-1.426	0.093	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.000	1.054-1.426	0.101	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.000	1.054-1.426	0.130	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.000	1.054-1.426	0.119	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1	0.000	1.054-1.426	0.117	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1	0.000	1.054-1.426	0.126	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.000	0.893-1.208	0.089	1.00	ND	ng/kg	U
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.000	0.893-1.208	0.133	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	0.000	0.893-1.208	0.269	2.50	ND	ng/kg	U
39001-02-0	OCDF	1	0.000	0.757-1.024	0.263	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	0.859	0.757-1.024	0.313	10.0	4.53	ng/kg	J

Homologue Groups

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

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.001
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.206

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:	21G0286
Client:	Anchor QEA, LLC			Project:	Lower Duwamish AOC4
Matrix:	Solid	Laboratory ID:	BJH0773-BLK1	File ID:	21091308
Sampled:	N/A	Prepared:	09/02/21 15:08	Analyzed:	09/13/21 17:36
Solids Wt%:	0.00	Preparation:	EPA 8290	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SJI0191	Calibration:	EH00030
Batch:	BJH0773	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.808	0.655-0.886	0.22	109	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.763	0.655-0.886	0.21	101	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.659	1.318-1.783	0.27	113	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.592	1.318-1.783	0.29	108	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.527	1.318-1.783	0.23	100	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.512	0.434-0.587	0.30	95.0	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.507	0.434-0.587	0.28	90.0	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.513	0.434-0.587	0.31	91.2	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.520	0.434-0.587	0.38	90.3	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.262	1.054-1.426	0.33	102	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.322	1.054-1.426	0.30	104	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.468	0.374-0.506	0.39	97.5	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.452	0.374-0.506	0.47	84.7	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.071	0.893-1.208	0.40	88.1	23 - 140 %	
13C12-OCDD	1	0.950	0.757-1.024	0.48	93.4	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.08	99.5	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:15:50 Pacific Daylight Time

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

ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, 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	547	771								
12378-PeCDF					1.015		1.550	712	668								
23478-PeCDF					1.126		1.550	712	668								
123478-HxCDF					1.017		1.240	615	556								
234678-HxCDF					1.052		1.240	615	556								
123678-HxCDF					1.037		1.240	615	556								
123789-HxCDF					1.030		1.240	615	556								
1234678-HpCDF					1.327		1.050	448	548								
1234789-HpCDF					1.283		1.050	448	548								
OCDF					1.447		0.890	592	688								
2378-TCDD					0.920		0.770	837	660								
12378-PeCDD					0.995		1.550	772	488								
123478-HxCDD					1.027		1.240	570	631								
123678-HxCDD					1.009		1.240	570	631								
123789-HxCDD					0.950		1.240	570	631								
1234678-HpCDD					1.068		1.050	931	569								
OCDD	44.986	1.000	2.250e3	2.618e3	1.181	0.859	0.890	626	616	2.43e4	3.24e4	38.8	52.6	NO	bb	bd	2.265
13C-2378-TCDF	25.746	1.007	3.058e5	3.782e5	1.427	0.808	0.770	2300	1271	4.55e6	5.56e6	1979.5	4375.7	NO	bb	bb	108.934
13C-12378-PeCDF	29.887	1.169	4.022e5	2.424e5	1.297	1.659	1.550	1950	2043	5.65e6	3.52e6	2898.2	1724.5	NO	bd	bb	112.872
13C-23478-PeCDF	31.235	1.222	3.627e5	2.278e5	1.236	1.592	1.550	1950	2043	5.31e6	3.31e6	2725.8	1620.5	NO	bb	bb	108.490
13C-123478-HxCDF	34.856	0.955	1.546e5	3.023e5	1.242	0.512	0.510	1611	2184	2.36e6	4.54e6	1467.3	2080.9	NO	bd	bd	95.045
13C-123678-HxCDF	35.001	0.959	1.573e5	3.107e5	1.343	0.507	0.510	1611	2184	2.44e6	4.77e6	1513.4	2183.8	NO	db	db	90.031
13C-234678-HxCDF	35.870	0.983	1.452e5	2.833e5	1.215	0.513	0.510	1611	2184	2.23e6	4.32e6	1385.6	1977.6	NO	bb	bb	91.156
13C-123789-HxCDF	36.906	1.012	1.204e5	2.317e5	1.008	0.520	0.510	1611	2184	1.79e6	3.46e6	1112.5	1583.8	NO	MM	MM	90.291
13C-1234678-HpCDF	38.744	1.062	1.115e5	2.380e5	0.926	0.468	0.440	1266	2330	1.62e6	3.51e6	1280.1	1507.2	NO	bd	bd	97.498
13C-1234789-HpCDF	40.984	1.123	7.733e4	1.710e5	0.758	0.452	0.440	1266	2330	1.09e6	2.41e6	858.1	1035.9	NO	bb	bb	84.681
13C-1234-TCDD	25.564	0.000	1.908e5	2.494e5	1.000	0.765	0.770	1615	1077	2.93e6	3.86e6	1815.1	3584.6	NO	bb	bb	100.000
13C-2378-TCDD	26.366	1.031	2.154e5	2.825e5	1.116	0.763	0.770	1615	1077	3.19e6	4.18e6	1976.4	3880.1	NO	bb	bb	101.302
13C-12378-PeCDD	31.480	1.231	1.955e5	1.280e5	0.732	1.527	1.550	861	1000	2.89e6	1.83e6	3356.8	1831.6	NO	bb	bb	100.409
13C-123478-HxCDD	35.970	0.986	2.111e5	1.673e5	0.960	1.262	1.240	1548	1582	3.30e6	2.63e6	2133.6	1662.3	NO	bd	bd	101.889
13C-123678-HxCDD	36.093	0.989	2.383e5	1.803e5	1.041	1.322	1.240	1548	1582	3.49e6	2.79e6	2252.5	1765.3	NO	db	db	103.867
13C-1234678-HpCDD	40.237	1.103	1.114e5	1.041e5	0.632	1.071	1.050	1415	1094	1.62e6	1.48e6	1143.3	1354.0	NO	bb	bb	88.057
13C-OCDD	44.968	1.233	1.773e5	1.868e5	0.504	0.950	0.890	1227	1172	1.97e6	2.15e6	1601.9	1830.4	NO	bd	bb	186.811
13C-123789-HxCDD	36.483	0.000	2.160e5	1.709e5	1.000	1.264	1.240	1548	1582	3.36e6	2.67e6	2170.0	1689.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	1.899e5		1.084			929		2.73e6		2935.1			bb		39.819

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:15:50 Pacific Daylight Time

ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, 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	547	771								
1289-TCDF					1.043		0.770	547	771								
13468-PECDF					1.376		1.550	588	623								
12389-PECDF					1.000		1.550	712	668								
123468-HXCDF					1.087		1.240	615	556								
1368-TCDD					0.923		0.770	837	660								
1289-TCDD					0.794		0.770	837	660								
12479-PECDD					1.843		1.550	772	488								
12389-PECDD					1.154		1.550	772	488								
124679-HXCDD					1.125		1.240	570	631								
1234679-HPCDD	39.179	0.974	9.274e1	1.338e2	1.211	0.693	1.050	931	569	1.50e3	3.47e3	1.6	6.1	YES	bb	bb	0.087
Total-tetrafurans			0.000e0		1.192			547		0.00e0							
Total-penta1			0.000e0					588		0.00e0							
Total-pentafurans			0.000e0		1.047			712		0.00e0							
Total-hexafurans			0.000e0		1.045			615		0.00e0							
Total-heptafurans			0.000e0		1.305			448		0.00e0							
Total-Furans			0.000e0		1.158			547		0.00e0							
Total-tetradioxins			0.000e0		0.879			837		0.00e0							
Total-pentadioxins			0.000e0		1.331			772		0.00e0							
Total-hexadioxins			0.000e0		1.028			570		0.00e0							
Total-heptadioxins			0.000e0		1.140			931		0.00e0							
Total-Dioxins			2.250e3		1.092			837		2.43e4							2.265
Total-TEQ			2.250e3					837		2.43e4							2.265
FUNCTION1 PFK			5.521e6					464745		5.78e7							
FUNCTION2 PFK			5.603e6					300340		2.31e7							0.000
FUNCTION3 PFK			4.368e5					437641		1.27e7							0.000
FUNCTION4 PFK			1.245e7					217494		9.70e7							
FUNCTION5 PFK			2.165e4					155573		8.39e5							
FUNCTION1 HXCD...			2.659e2					621		3.33e3							0.000
FUNCTION1 HPCD...			4.888e2					647		5.85e3							0.000
FUNCTION2 HPCD...			3.458e2					567		5.42e3							0.000
FUNCTION3 OCDPE			4.305e2					588		6.59e3							0.000
FUNCTION4 NCDPE			0.000e0					567		0.00e0							
FUNCTION5 DCDPE			0.000e0					558		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, 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\210913IH1.qld
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ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, Conditions: AUTOSPEC01, User: pk

HD

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

HPD

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

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	OCDD	44.99	2.250e3	2.618e3	1.181	0.86	0.89	38.8	YES	NO	bb	bd	2.265

TotalTEQ,Furans,Dioxins

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

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, 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	21.62	6.132e5					10.0	YES		dd		
2	FUNCTION1 PFK	21.54	3.765e5					11.5	YES		dd		
3	FUNCTION1 PFK	21.36	1.183e6					14.4	YES		dd		
4	FUNCTION1 PFK	21.25	6.189e5					16.0	YES		dd		
5	FUNCTION1 PFK	21.15	1.170e6					16.1	YES		bd		
6	FUNCTION1 PFK	23.78	1.029e4					0.8	NO		bb		
7	FUNCTION1 PFK	23.63	1.280e4					1.0	NO		bb		
8	FUNCTION1 PFK	23.57	2.396e4					1.2	NO		bb		
9	FUNCTION1 PFK	23.18	7.011e4					1.5	NO		bb		
10	FUNCTION1 PFK	23.10	2.841e4					1.3	NO		bb		
11	FUNCTION1 PFK	22.99	7.518e3					0.6	NO		bb		
12	FUNCTION1 PFK	22.87	1.013e4					0.8	NO		db		
13	FUNCTION1 PFK	22.81	2.450e4					1.3	NO		dd		
14	FUNCTION1 PFK	22.75	2.435e4					1.3	NO		dd		
15	FUNCTION1 PFK	22.69	1.754e4					1.1	NO		bd		
16	FUNCTION1 PFK	22.36	8.204e4					2.0	NO		bb		
17	FUNCTION1 PFK	22.12	1.197e5					3.2	YES		db		
18	FUNCTION1 PFK	22.04	8.666e4					3.5	YES		dd		
19	FUNCTION1 PFK	21.91	3.456e5					6.2	YES		dd		
20	FUNCTION1 PFK	21.81	1.996e5					7.9	YES		dd		
21	FUNCTION1 PFK	21.80	2.150e5					7.7	YES		dd		
22	FUNCTION1 PFK	27.68	1.572e4					1.0	NO		bd		
23	FUNCTION1 PFK	27.61	6.447e3					0.6	NO		bb		
24	FUNCTION1 PFK	26.96	1.444e4					0.9	NO		bb		
25	FUNCTION1 PFK	26.88	5.887e3					0.5	NO		bb		
26	FUNCTION1 PFK	26.20	5.184e3					0.7	NO		bb		
27	FUNCTION1 PFK	26.14	2.672e3					0.4	NO		bb		
28	FUNCTION1 PFK	26.08	1.094e4					0.7	NO		db		
29	FUNCTION1 PFK	26.02	2.275e4					1.1	NO		bd		
30	FUNCTION1 PFK	25.96	2.653e3					0.4	NO		bb		
31	FUNCTION1 PFK	25.81	7.764e3					0.8	NO		bb		
32	FUNCTION1 PFK	25.75	9.757e3					0.8	NO		bb		
33	FUNCTION1 PFK	25.61	5.207e4					1.3	NO		bb		
34	FUNCTION1 PFK	25.40	1.101e4					0.6	NO		bb		
35	FUNCTION1 PFK	25.34	1.218e4					1.0	NO		bb		
36	FUNCTION1 PFK	24.97	3.736e4					1.0	NO		bb		
37	FUNCTION1 PFK	24.52	1.276e4					0.9	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, 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	27.92	3.852e4					1.5	NO		bb		
39	FUNCTION1 PFK	27.76	1.275e4					0.9	NO		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.05	8.612e3					1.3	NO		bb		0.000
2	FUNCTION2 PFK	31.78	1.327e4					1.8	NO		bb		0.000
3	FUNCTION2 PFK	29.02	2.119e4					2.9	NO		db		0.000
4	FUNCTION2 PFK	28.33	4.836e6					32.7	YES		dd		0.000
5	FUNCTION2 PFK	28.17	7.237e5					38.3	YES		bd		0.000

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
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ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, 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	33.90	1.024e4					1.0	NO		db		0.000
2	FUNCTION3 PFK	33.86	1.232e4					0.8	NO		bd		0.000
3	FUNCTION3 PFK	33.78	7.607e3					0.3	NO		bb		0.000
4	FUNCTION3 PFK	33.54	1.834e4					0.7	NO		bb		0.000
5	FUNCTION3 PFK	33.11	1.674e3					0.3	NO		bb		0.000
6	FUNCTION3 PFK	33.04	3.895e4					2.1	NO		db		0.000
7	FUNCTION3 PFK	33.00	1.633e4					1.3	NO		bd		0.000
8	FUNCTION3 PFK	36.72	9.688e3					0.9	NO		bb		0.000
9	FUNCTION3 PFK	36.46	2.733e4					1.2	NO		bb		0.000
10	FUNCTION3 PFK	36.40	3.940e3					0.5	NO		bb		0.000
11	FUNCTION3 PFK	36.24	1.795e3					0.4	NO		bb		0.000
12	FUNCTION3 PFK	36.09	8.183e3					0.8	NO		db		0.000
13	FUNCTION3 PFK	36.06	8.139e3					0.9	NO		bd		0.000
14	FUNCTION3 PFK	35.77	1.373e4					1.4	NO		bb		0.000
15	FUNCTION3 PFK	35.59	2.635e4					1.7	NO		bb		0.000
16	FUNCTION3 PFK	35.41	1.597e4					1.2	NO		bb		0.000
17	FUNCTION3 PFK	35.19	3.500e4					2.0	NO		bb		0.000
18	FUNCTION3 PFK	35.12	3.117e4					1.6	NO		bb		0.000
19	FUNCTION3 PFK	34.53	9.854e3					0.6	NO		bb		0.000
20	FUNCTION3 PFK	34.29	1.747e4					0.8	NO		bb		0.000
21	FUNCTION3 PFK	34.22	2.986e4					1.3	NO		db		0.000
22	FUNCTION3 PFK	34.14	7.504e3					0.7	NO		bd		0.000
23	FUNCTION3 PFK	34.10	2.187e3					0.4	NO		bb		0.000
24	FUNCTION3 PFK	37.59	2.595e4					1.5	NO		bb		0.000
25	FUNCTION3 PFK	37.41	2.805e4					1.7	NO		db		0.000
26	FUNCTION3 PFK	37.35	9.366e3					0.9	NO		bd		0.000
27	FUNCTION3 PFK	37.05	6.007e3					0.8	NO		bb		0.000
28	FUNCTION3 PFK	36.92	1.374e4					1.2	NO		bb		0.000

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ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, 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	39.41	2.288e5					12.5	YES		dd		
2	FUNCTION4 PFK	39.30	3.530e5					16.5	YES		dd		
3	FUNCTION4 PFK	39.20	1.405e6					19.9	YES		dd		
4	FUNCTION4 PFK	38.96	1.927e5					27.1	YES		dd		
5	FUNCTION4 PFK	38.42	4.274e6					45.2	YES		dd		
6	FUNCTION4 PFK	38.39	3.291e5					45.6	YES		dd		
7	FUNCTION4 PFK	38.23	1.789e6					51.7	YES		dd		
8	FUNCTION4 PFK	38.13	1.170e6					55.0	YES		dd		
9	FUNCTION4 PFK	38.06	8.176e5					57.5	YES		dd		
10	FUNCTION4 PFK	37.99	1.251e6					59.7	YES		bd		
11	FUNCTION4 PFK	41.23	1.408e4					1.6	NO		bb		
12	FUNCTION4 PFK	41.15	2.765e3					0.8	NO		bb		
13	FUNCTION4 PFK	41.01	7.858e3					1.5	NO		bb		
14	FUNCTION4 PFK	40.94	7.851e3					1.4	NO		db		
15	FUNCTION4 PFK	40.91	1.128e4					1.5	NO		bd		
16	FUNCTION4 PFK	40.76	7.427e3					1.0	NO		bb		
17	FUNCTION4 PFK	40.59	4.128e4					3.6	YES		db		
18	FUNCTION4 PFK	40.50	1.560e4					2.0	NO		dd		
19	FUNCTION4 PFK	40.46	1.845e4					1.8	NO		bd		
20	FUNCTION4 PFK	40.27	4.260e3					0.9	NO		bb		
21	FUNCTION4 PFK	40.08	9.679e3					1.1	NO		db		
22	FUNCTION4 PFK	40.04	1.017e4					1.8	NO		bd		
23	FUNCTION4 PFK	39.91	3.313e4					1.9	NO		db		
24	FUNCTION4 PFK	39.86	5.170e3					0.7	NO		bd		
25	FUNCTION4 PFK	39.62	9.658e4					5.4	YES		db		
26	FUNCTION4 PFK	39.54	1.805e5					8.6	YES		dd		
27	FUNCTION4 PFK	42.53	1.468e4					1.5	NO		bb		
28	FUNCTION4 PFK	42.44	2.546e4					2.1	NO		db		
29	FUNCTION4 PFK	42.40	6.053e3					1.2	NO		dd		
30	FUNCTION4 PFK	42.37	1.804e3					0.6	NO		bd		
31	FUNCTION4 PFK	42.20	1.244e4					1.3	NO		bb		
32	FUNCTION4 PFK	42.09	5.635e3					0.9	NO		bb		
33	FUNCTION4 PFK	42.00	8.148e2					0.3	NO		bb		
34	FUNCTION4 PFK	41.95	1.325e3					0.5	NO		bb		
35	FUNCTION4 PFK	41.89	4.878e3					0.6	NO		bb		
36	FUNCTION4 PFK	41.81	8.672e3					1.1	NO		db		
37	FUNCTION4 PFK	41.78	5.952e3					1.2	NO		dd		

ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, Conditions: AUTOSPEC01, User: pk

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	41.73	1.123e4					1.4	NO		dd		
39	FUNCTION4 PFK	41.67	1.393e4					1.4	NO		dd		
40	FUNCTION4 PFK	41.57	1.218e4					1.0	NO		bd		
41	FUNCTION4 PFK	41.51	6.737e3					1.1	NO		bb		
42	FUNCTION4 PFK	41.44	3.425e3					0.8	NO		bb		
43	FUNCTION4 PFK	42.90	3.050e4					1.6	NO		bb		
44	FUNCTION4 PFK	42.68	1.164e4					1.2	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.51	4.568e3					1.6	NO		bb		
2	FUNCTION5 PFK	45.41	1.039e4					1.7	NO		bb		
3	FUNCTION5 PFK	45.02	2.248e3					1.0	NO		bb		
4	FUNCTION5 PFK	43.63	4.452e3					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...	23.60	1.535e2					2.3	NO		bb		0.000
2	FUNCTION1 HXCD...	21.59	1.124e2					3.1	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...	23.58	2.113e2					2.4	NO		bb		0.000
2	FUNCTION1 HPCD...	22.66	9.808e1					1.9	NO		bb		0.000
3	FUNCTION1 HPCD...	21.88	9.610e1					2.5	NO		db		0.000
4	FUNCTION1 HPCD...	21.78	8.339e1					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...	32.87	7.732e1					1.7	NO		bb		0.000
2	FUNCTION2 HPCD...	29.95	8.935e1					3.8	YES		bb		0.000
3	FUNCTION2 HPCD...	29.19	9.308e1					2.4	NO		bb		0.000
4	FUNCTION2 HPCD...	29.08	8.604e1					1.7	NO		bb		0.000

ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.49	1.751e2					4.0	YES		bb		0.000
2	FUNCTION3 OCDPE	36.10	9.636e1					2.6	NO		bb		0.000
3	FUNCTION3 OCDPE	35.16	7.117e1					2.1	NO		bb		0.000
4	FUNCTION3 OCDPE	34.35	8.778e1					2.5	NO		bb		0.000

ETHERS5

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

ETHERS6

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

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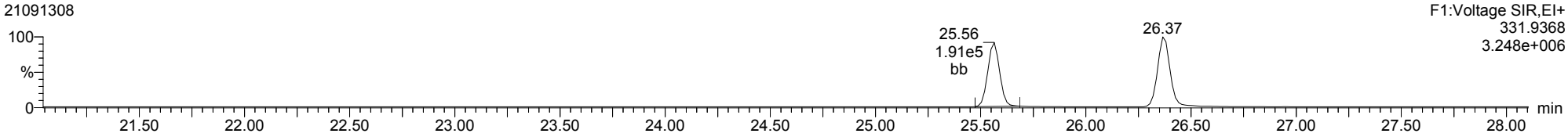
13C-1234-TCDD



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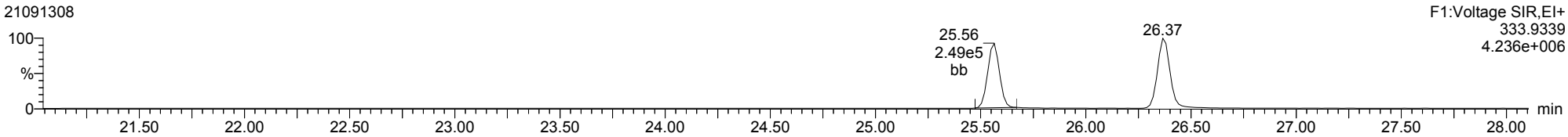

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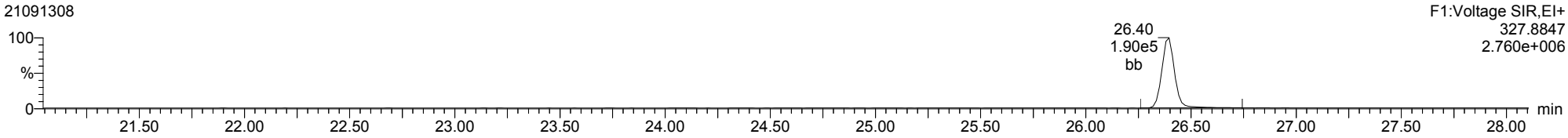

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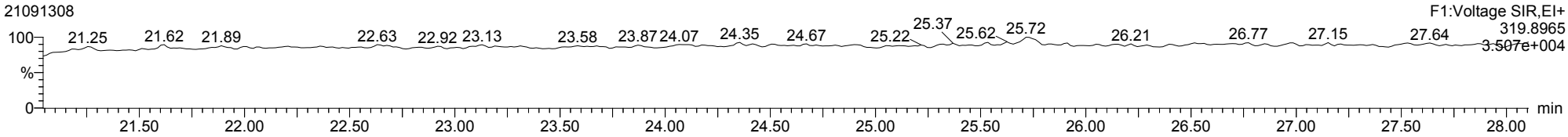

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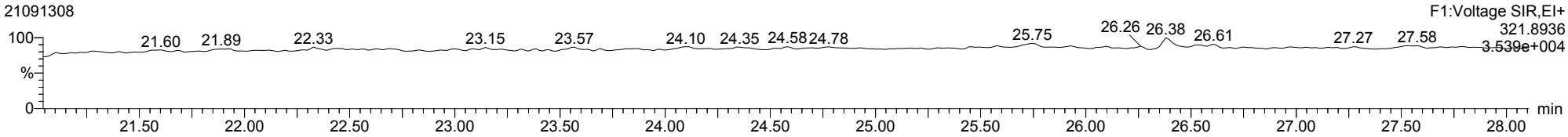

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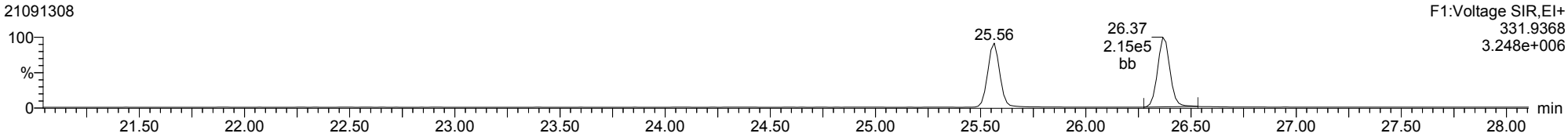

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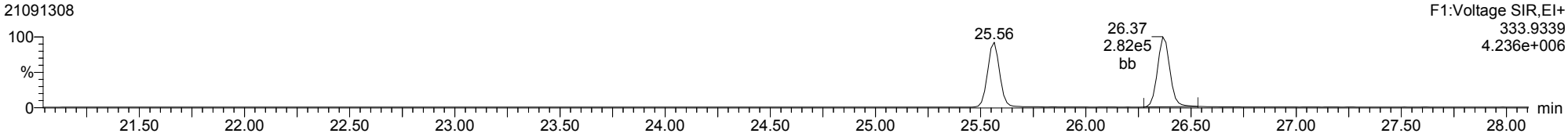

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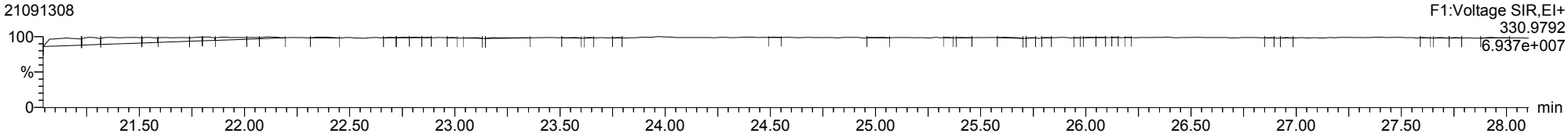

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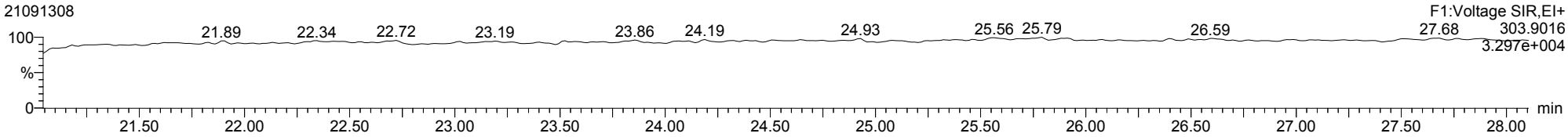

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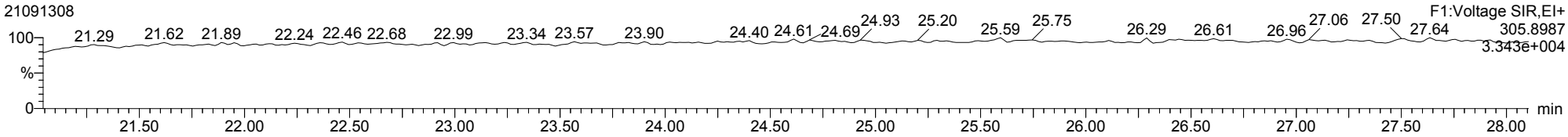

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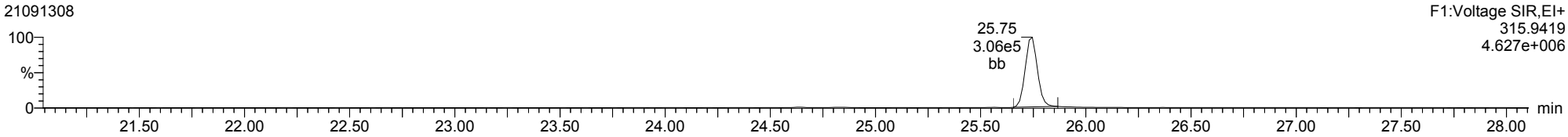

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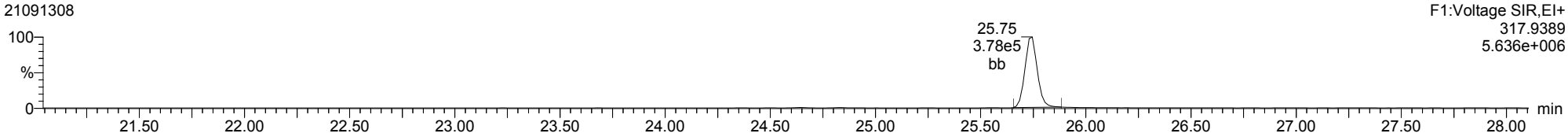

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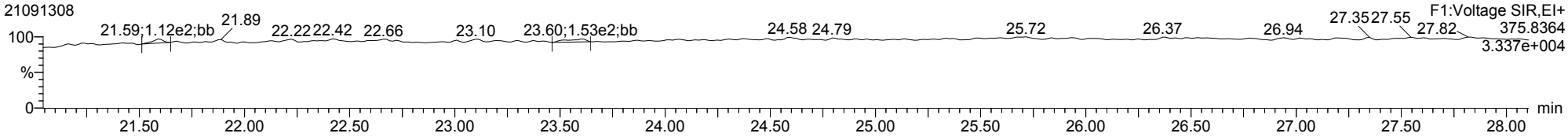

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ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, Conditions: AUTOSPEC01, User: pk

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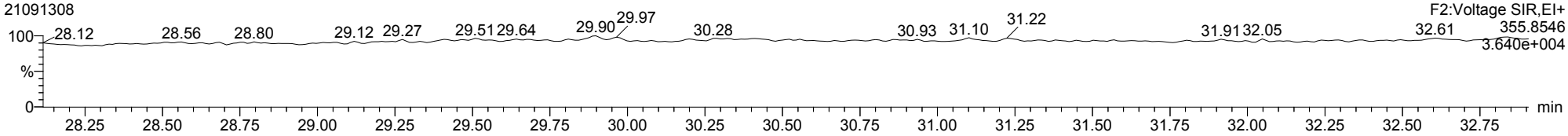

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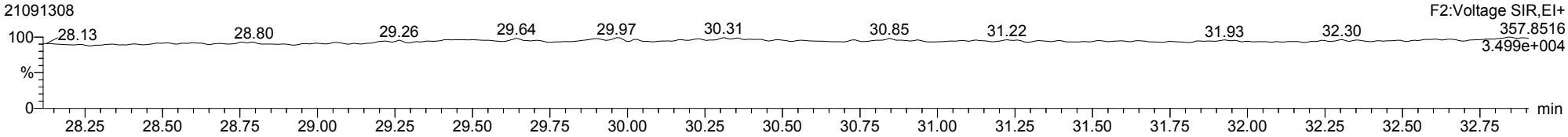

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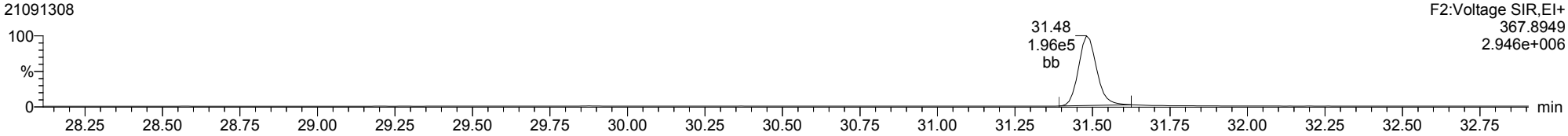

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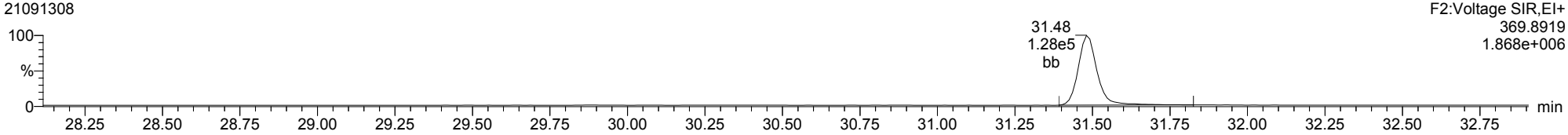

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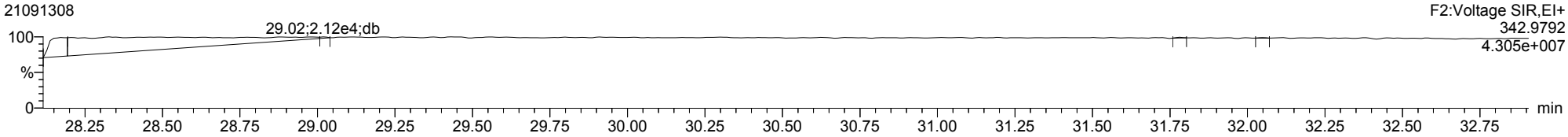

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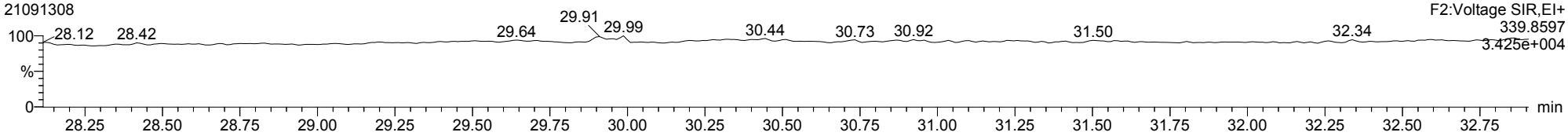

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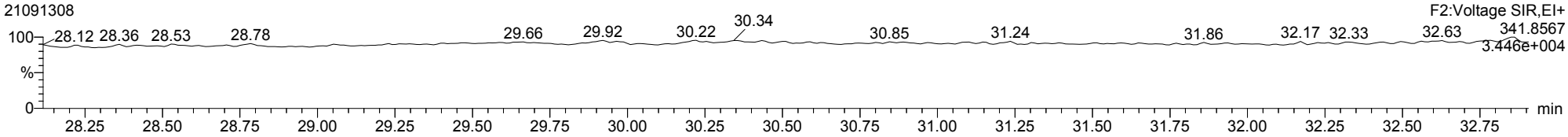

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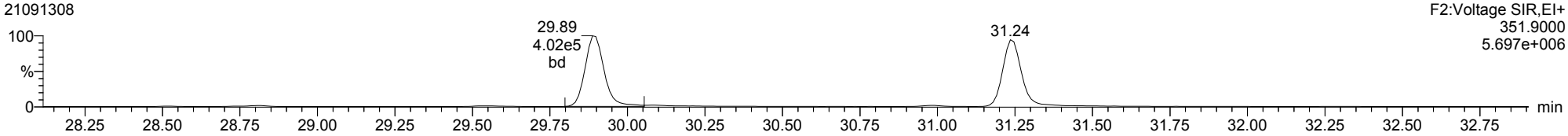

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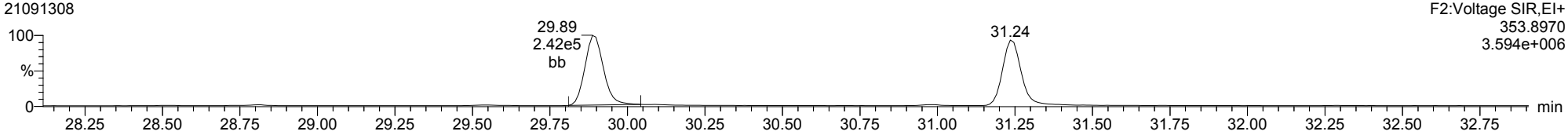
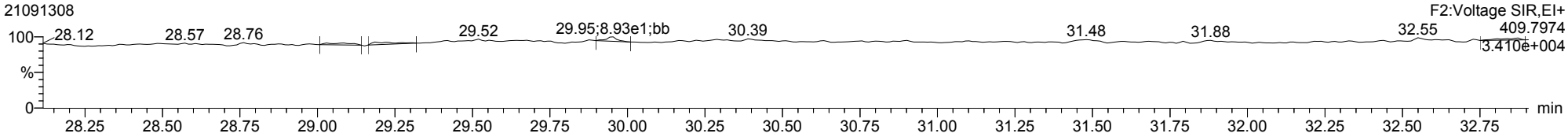


FUNCTION2 HPCDPE



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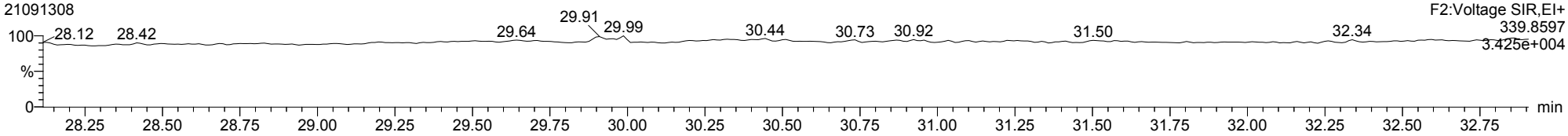

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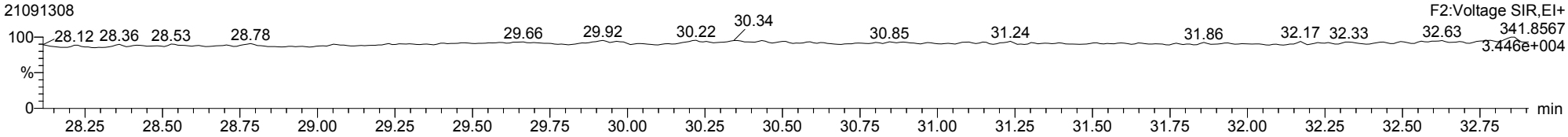

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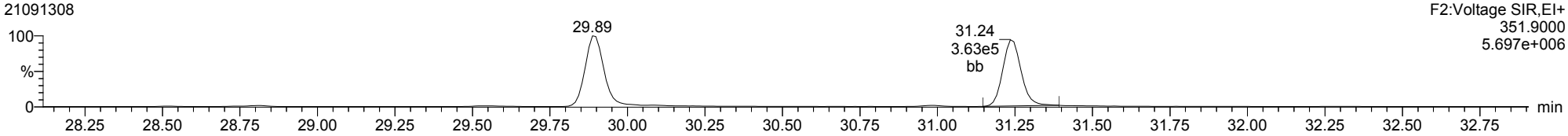

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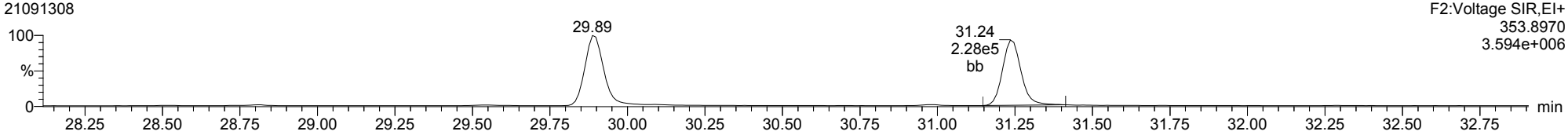

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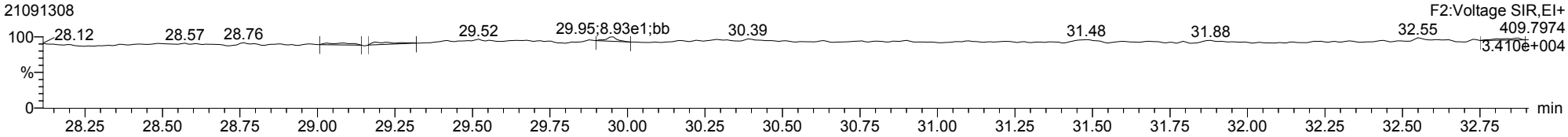

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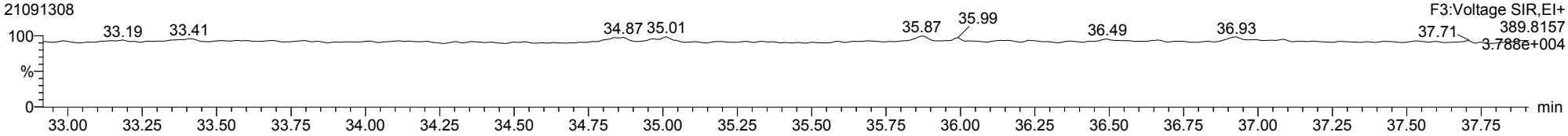
123478-HxCDD



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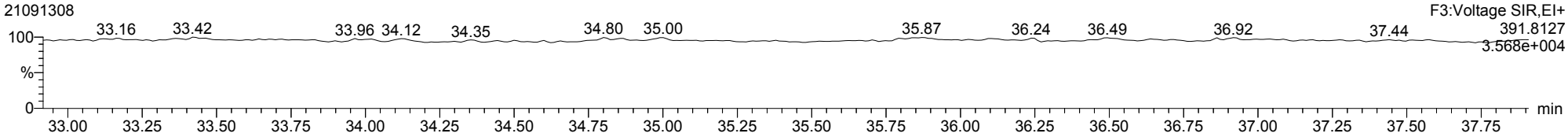

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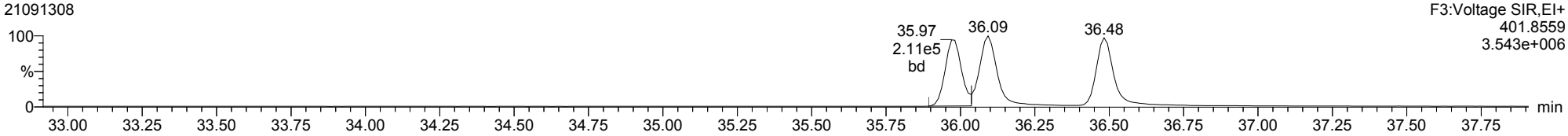

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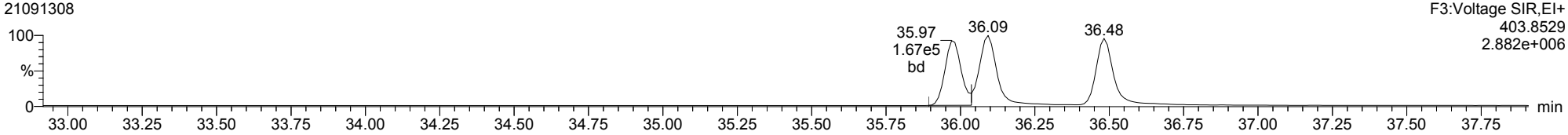

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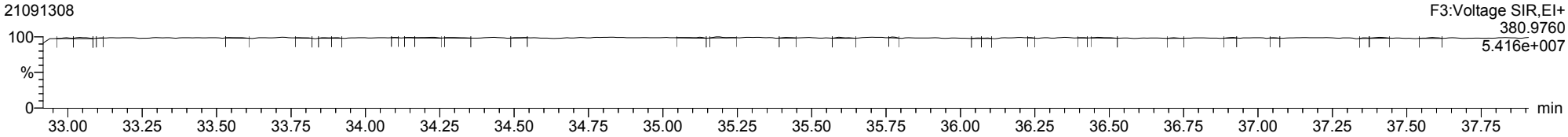

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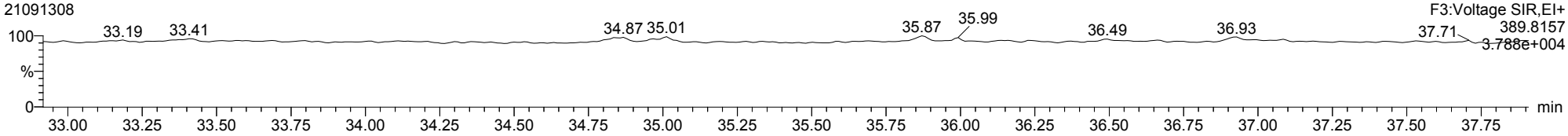

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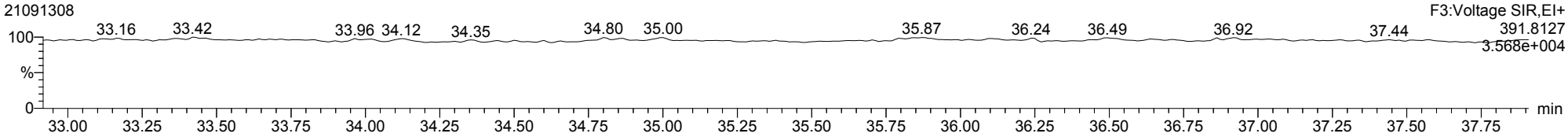

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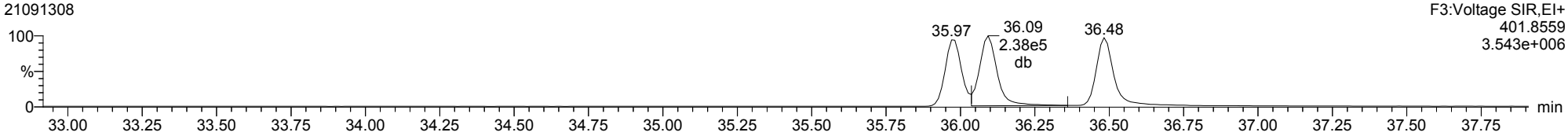

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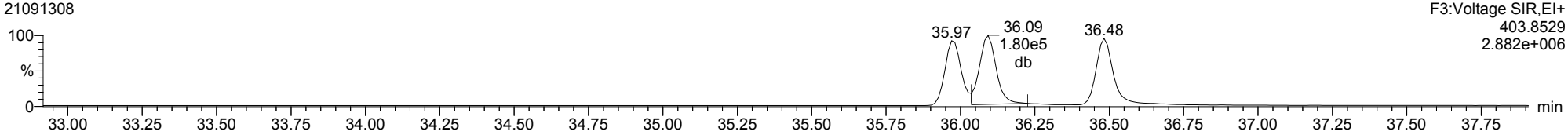

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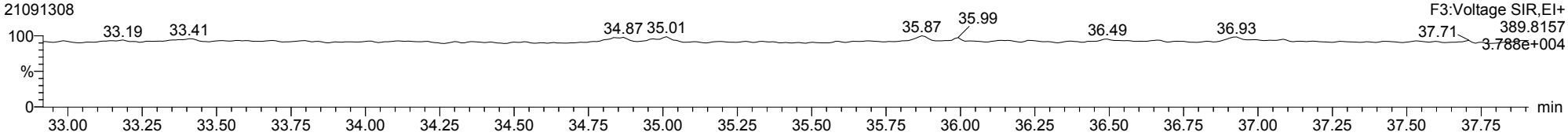

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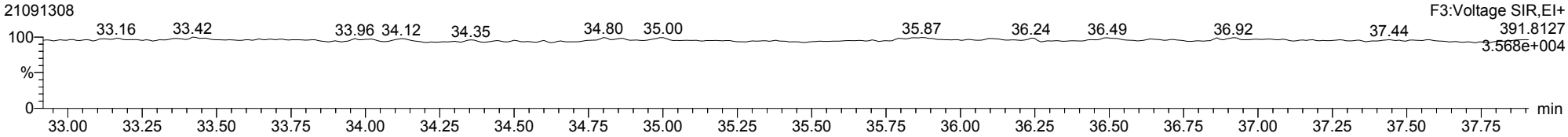

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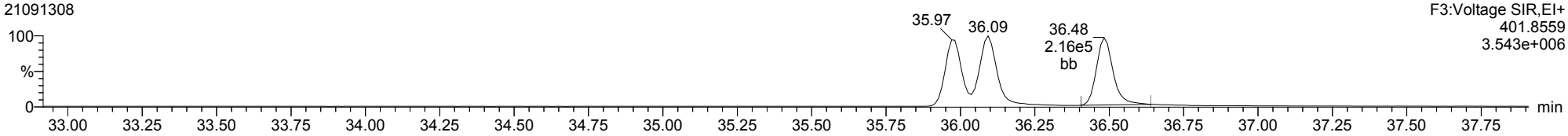

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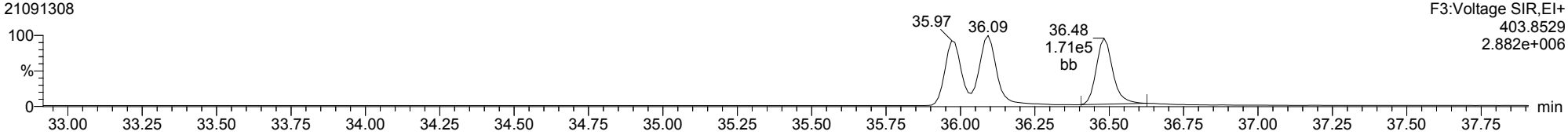

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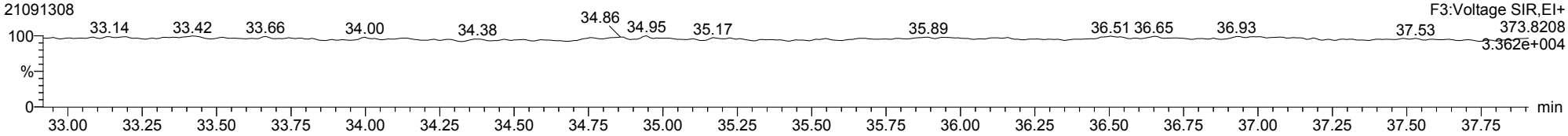

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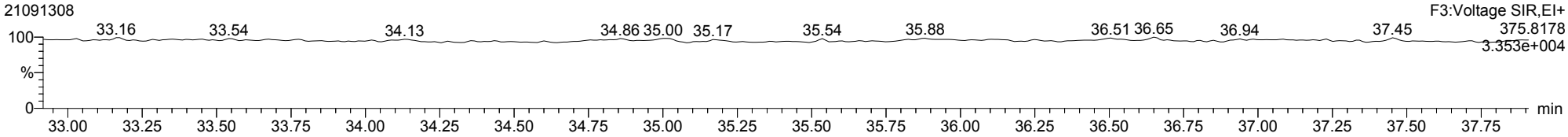

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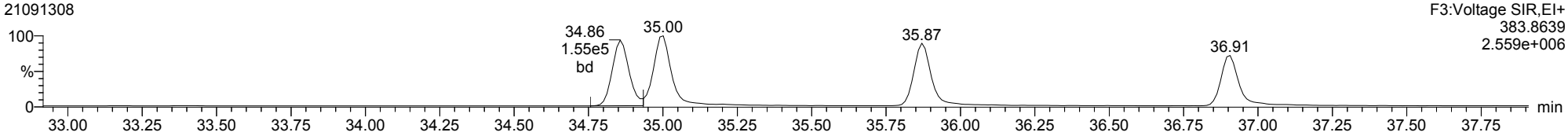

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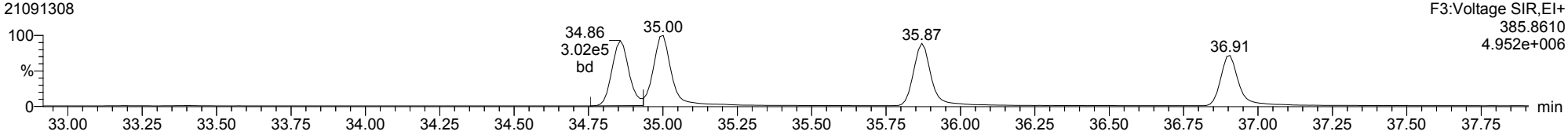

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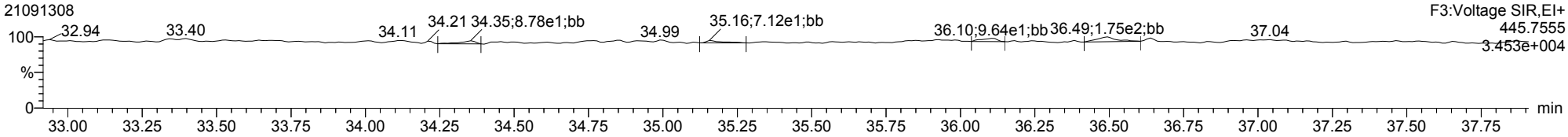

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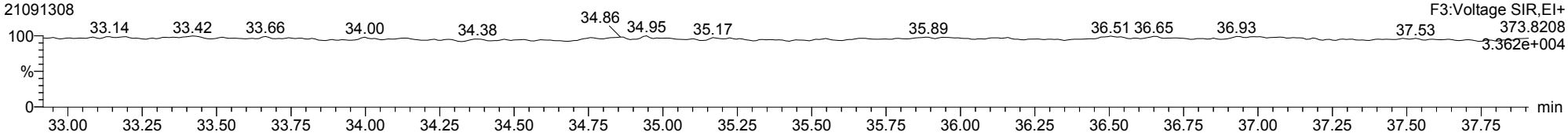

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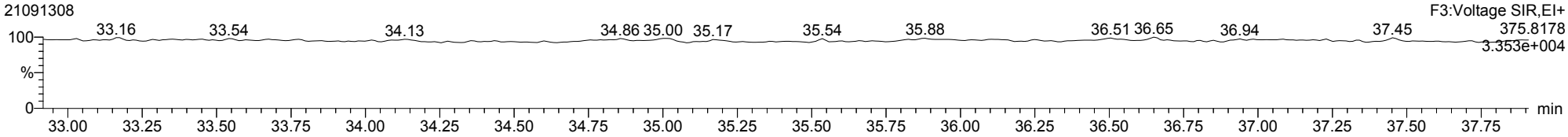

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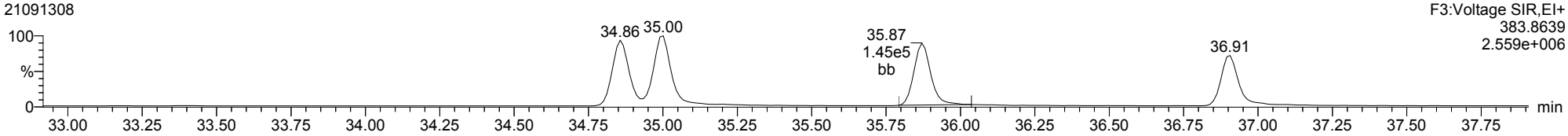

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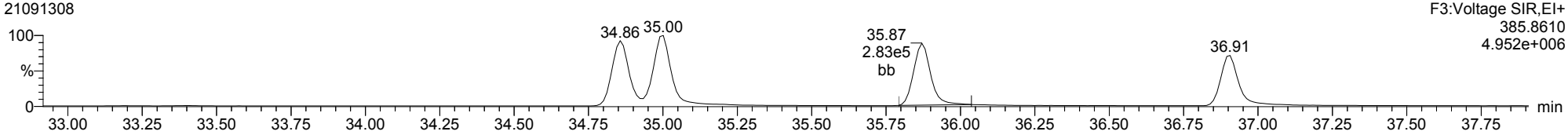

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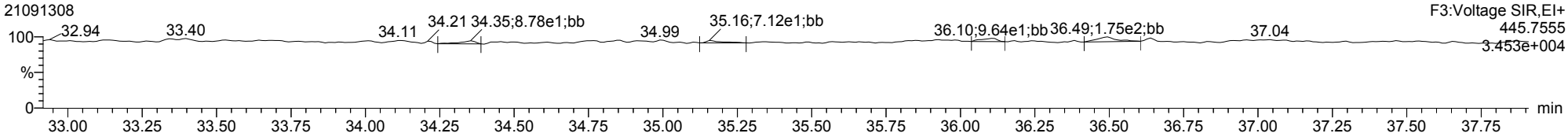

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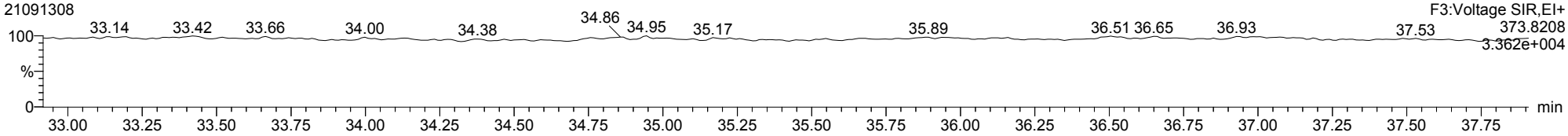

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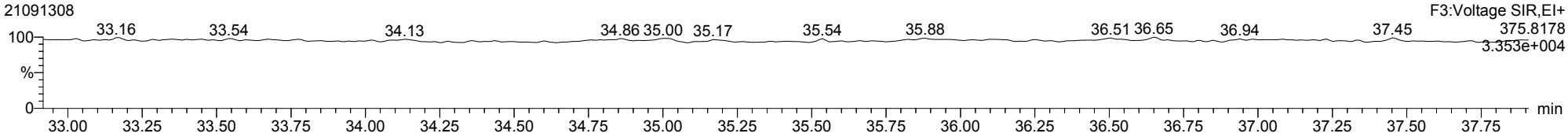

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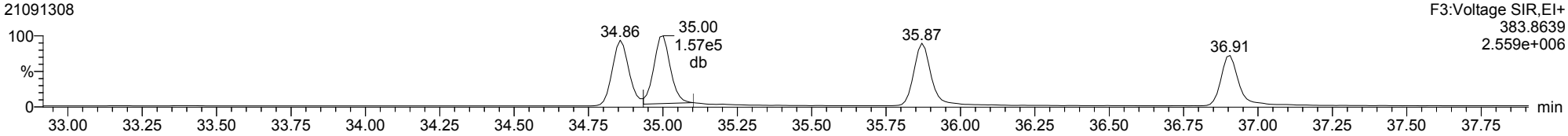

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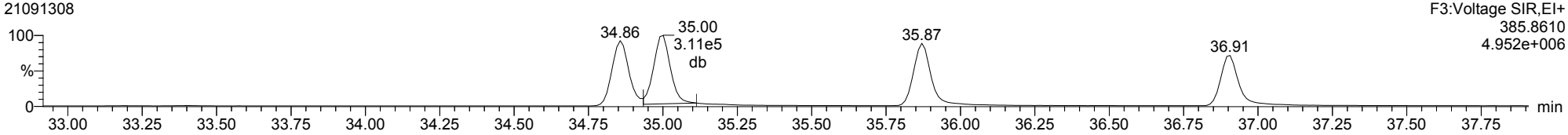

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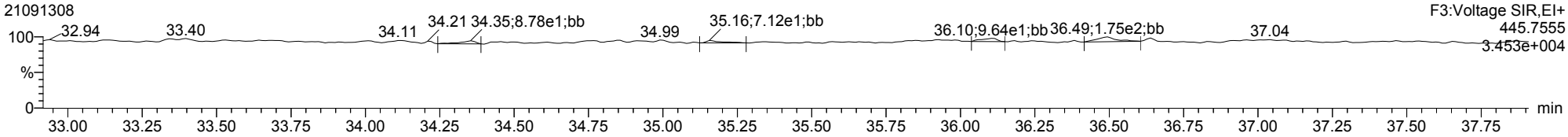

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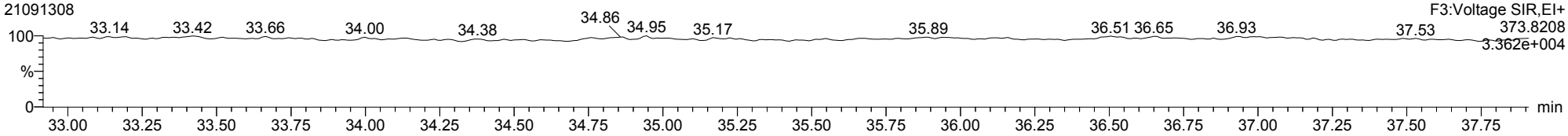

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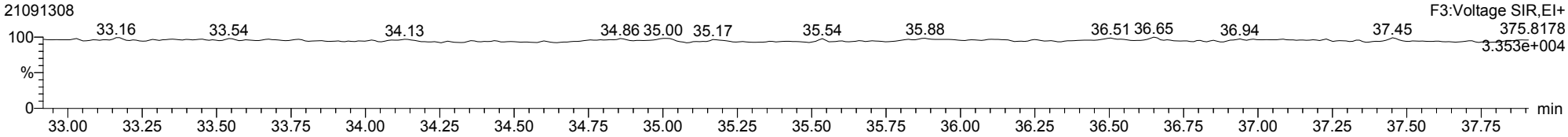

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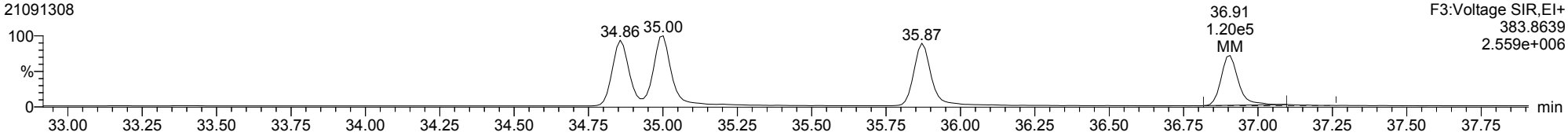

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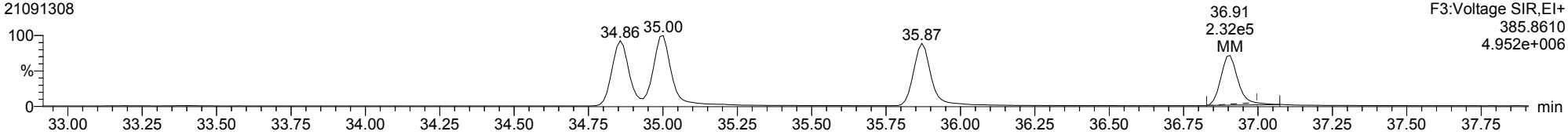

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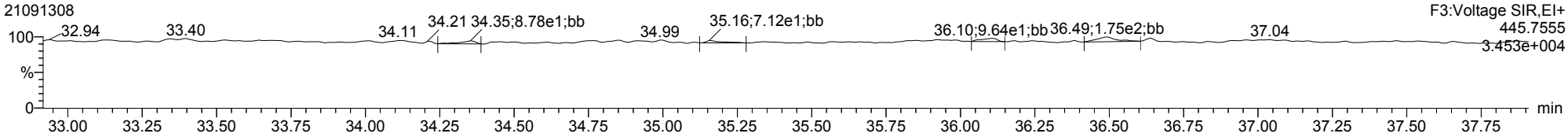

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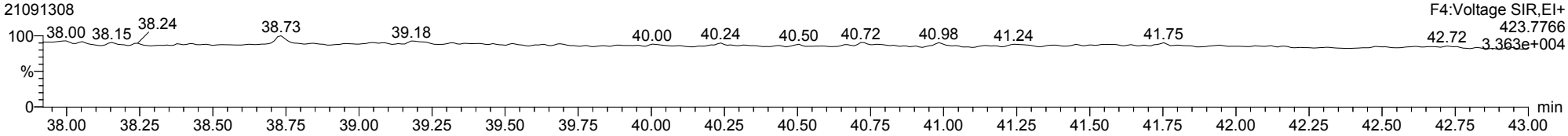

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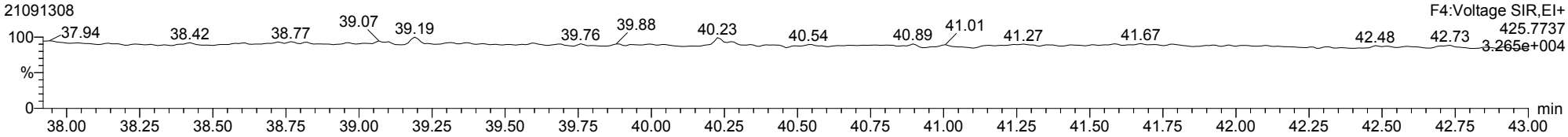

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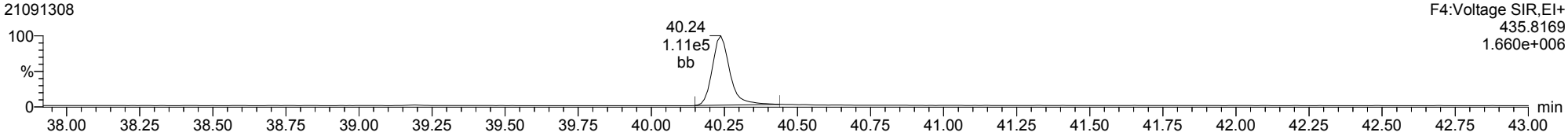

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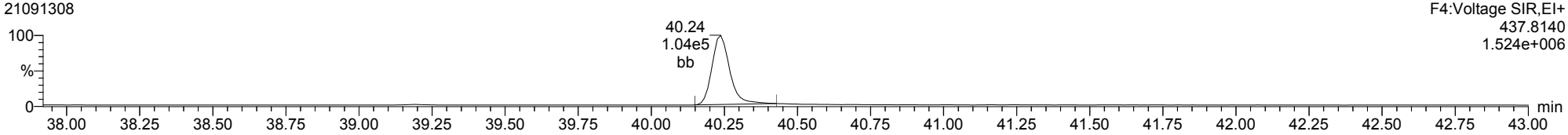

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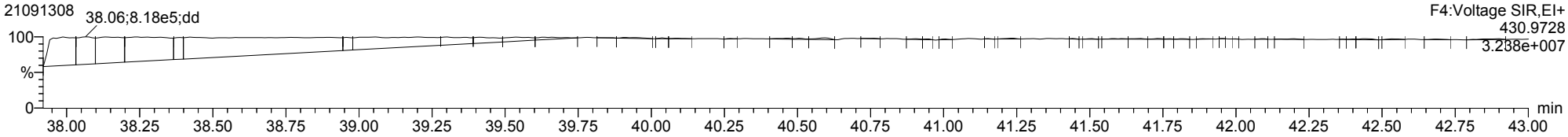

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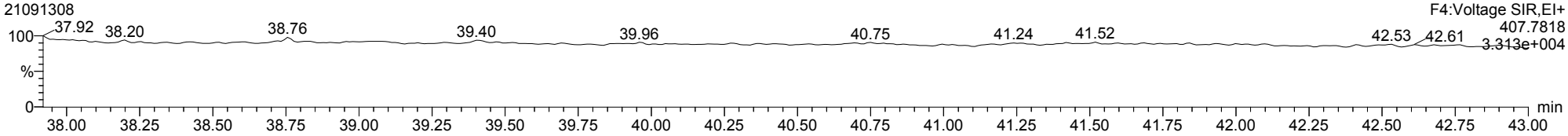

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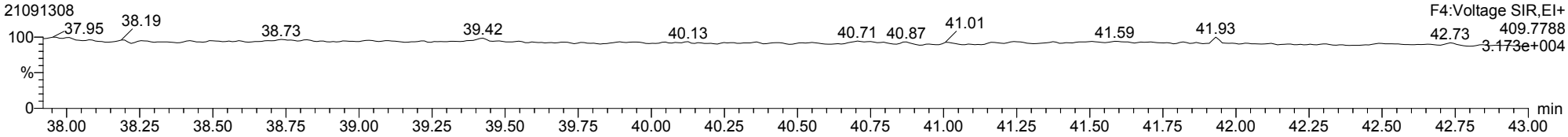

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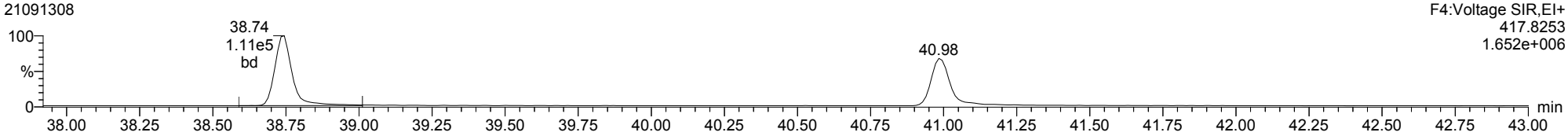

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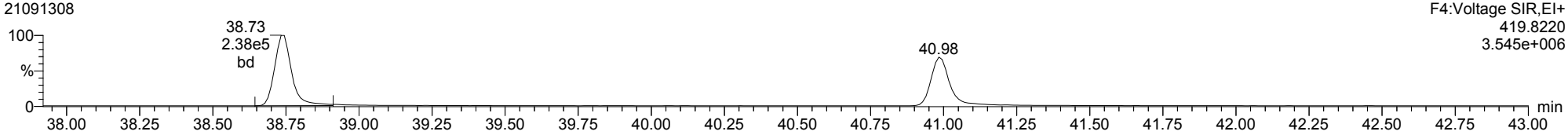

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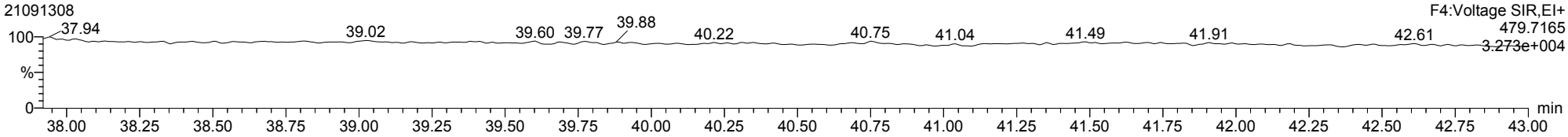

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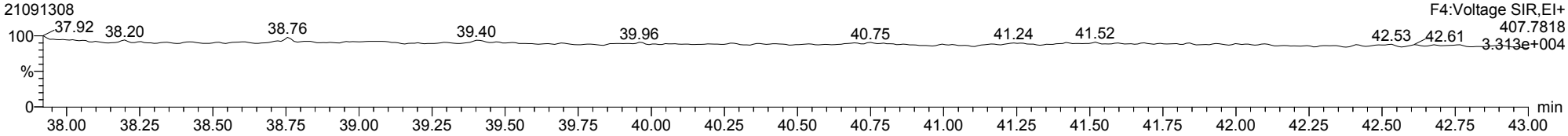

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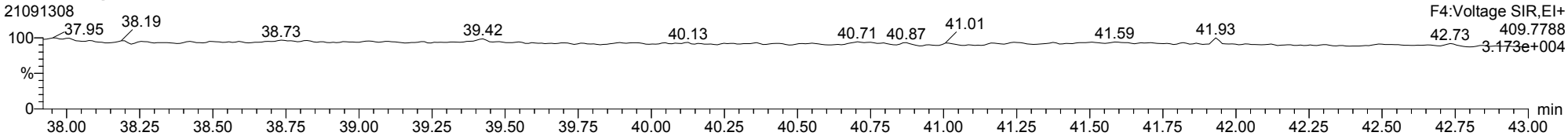

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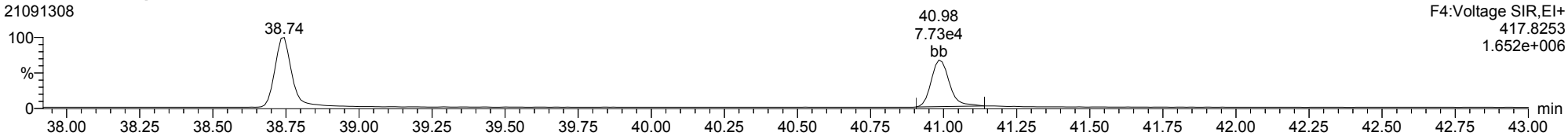

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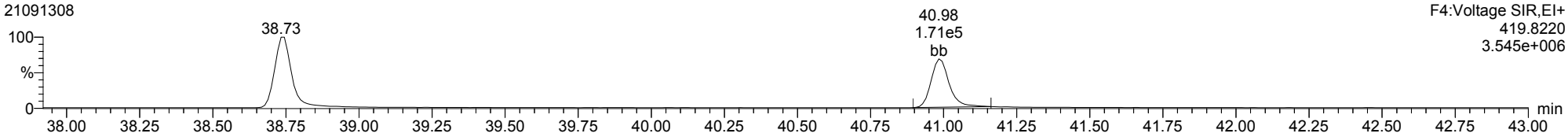

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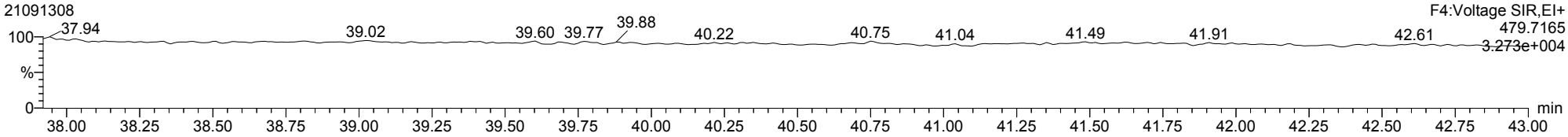

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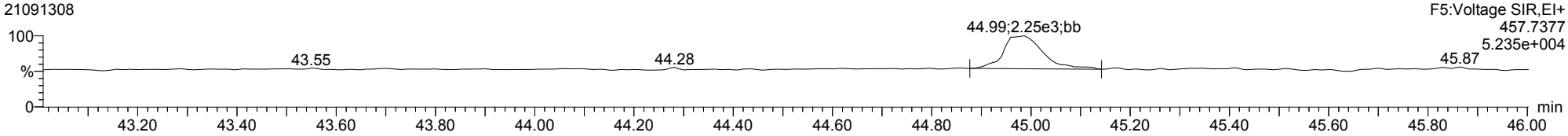
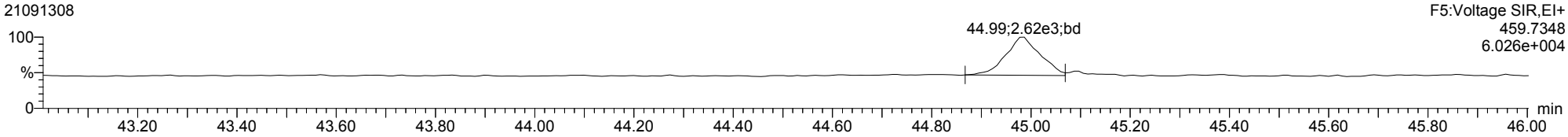
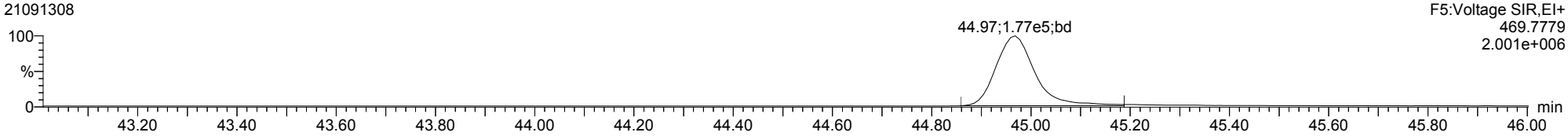


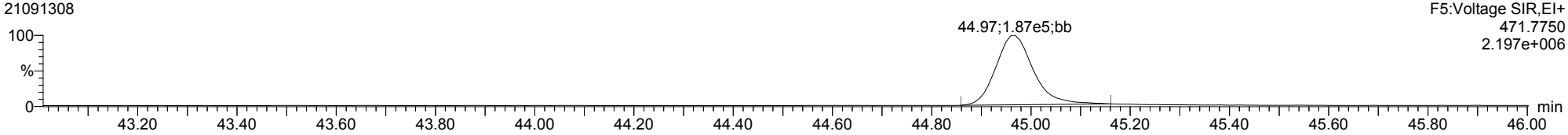
OCDD



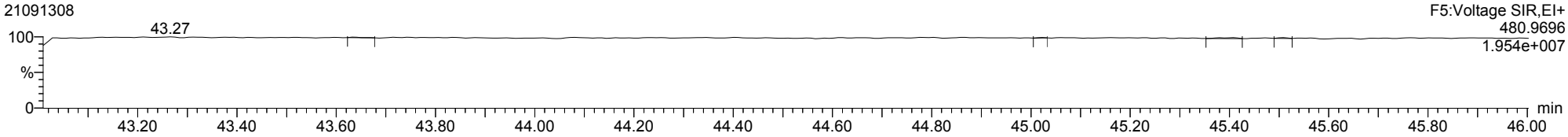
13C-OCDD



13C-OCDD



FUNCTION5 PFK



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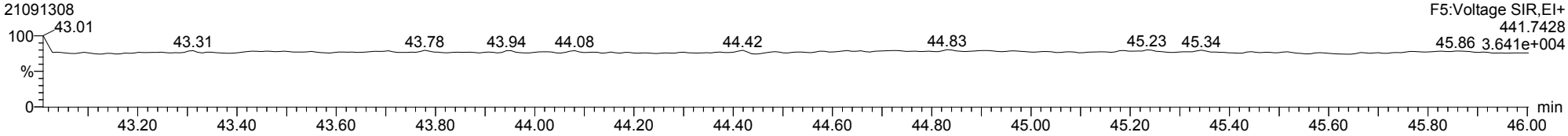
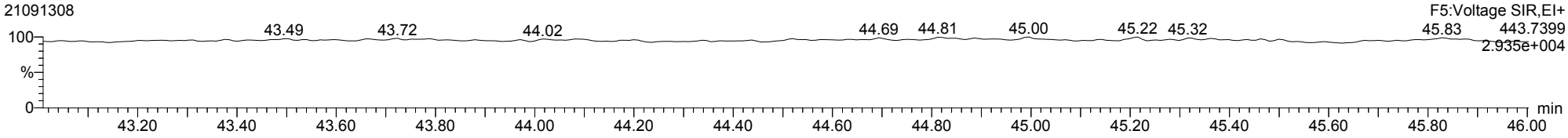
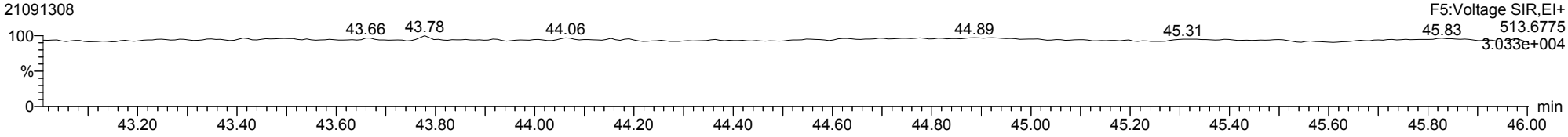
OCDF



OCDF



FUNCTION5 DCDPE



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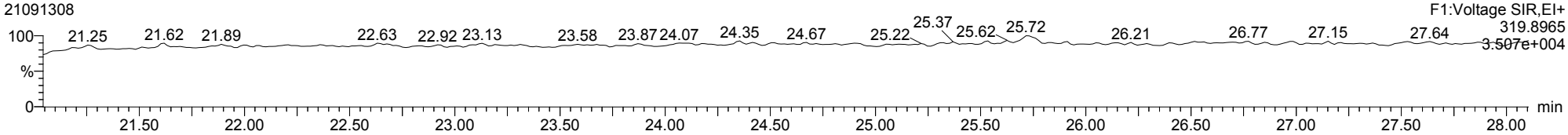
Total-tetradioxins



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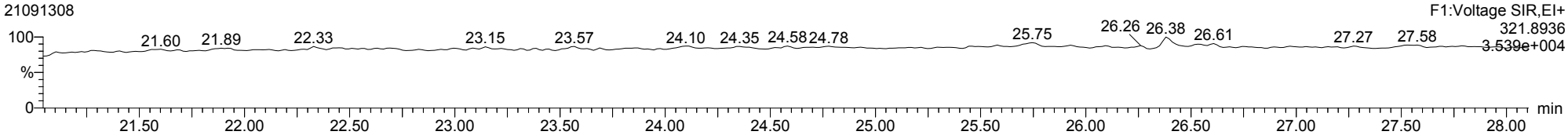
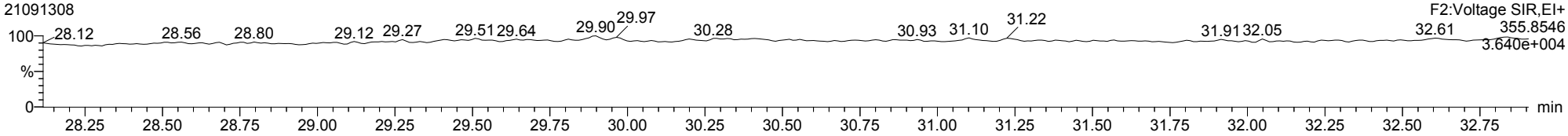
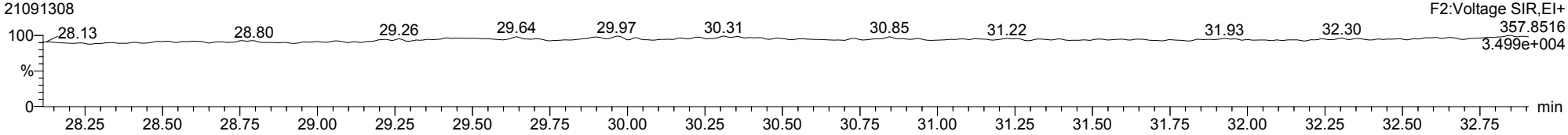


Total-pentadioxins



Total-pentadioxins



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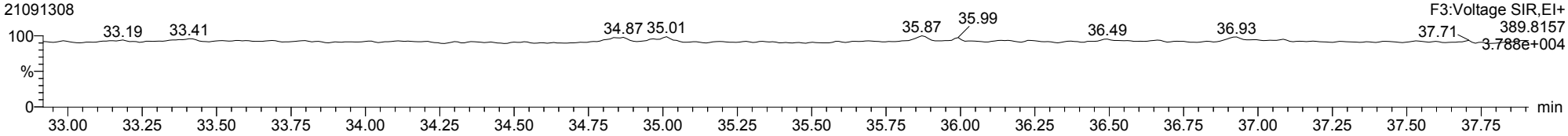
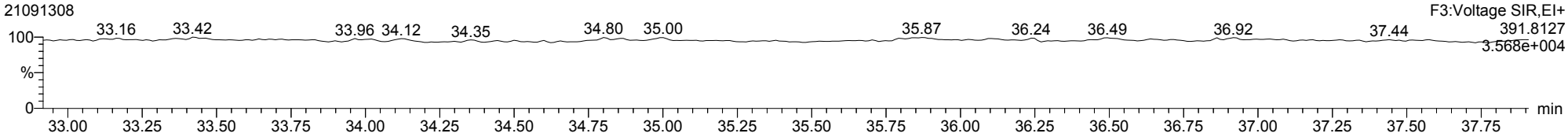
Total-hexadioxins



Total-hexadioxins



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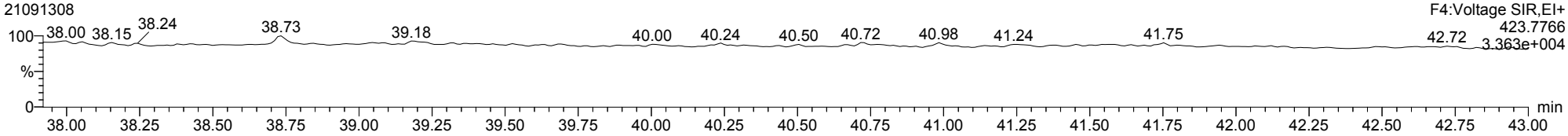
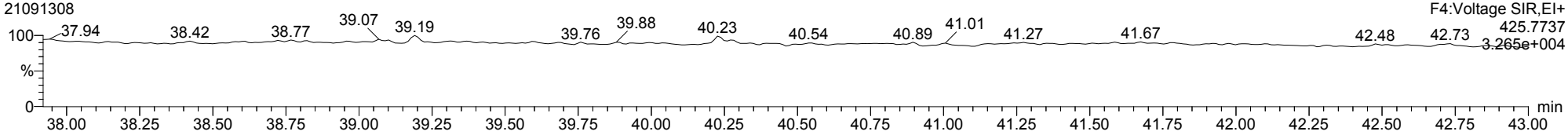


Total-heptadioxins



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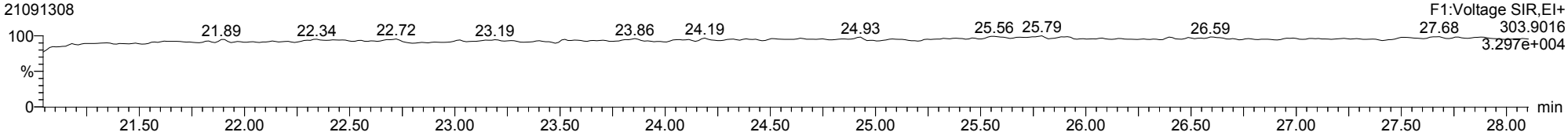
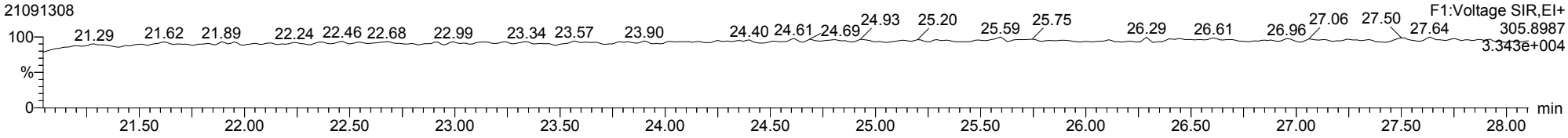
Printed: Tuesday, September 14, 2021 11:15:50 Pacific Daylight Time

ID: BJH0773-BLK1, Name: 21091308, Date: 13-Sep-2021, Time: 17:36:34, Conditions: AUTOSPEC01, User: pk

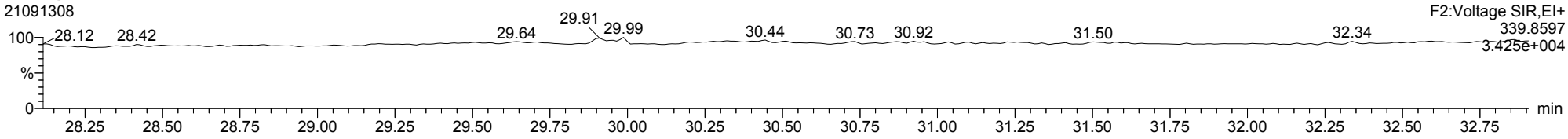
Total-tetrafurans



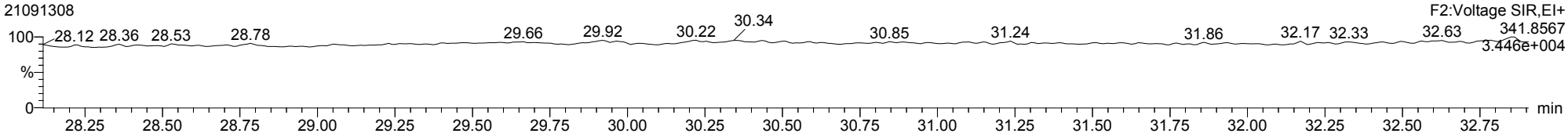
Total-tetrafurans



Total-pentafurans



Total-pentafurans



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Printed: Tuesday, September 14, 2021 11:15:50 Pacific Daylight Time

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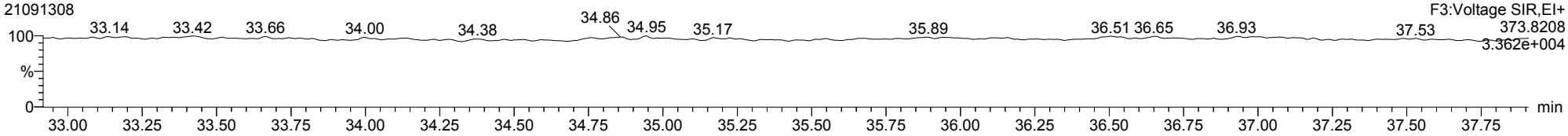
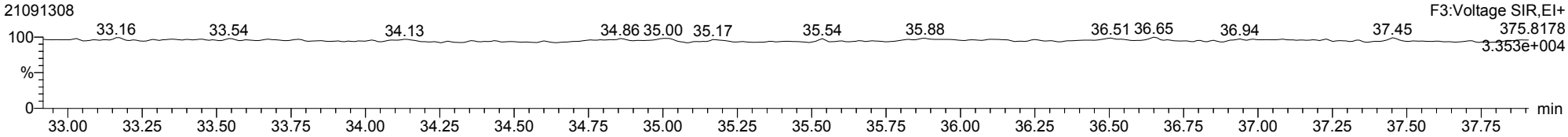
Total-hexafurans



Total-hexafurans



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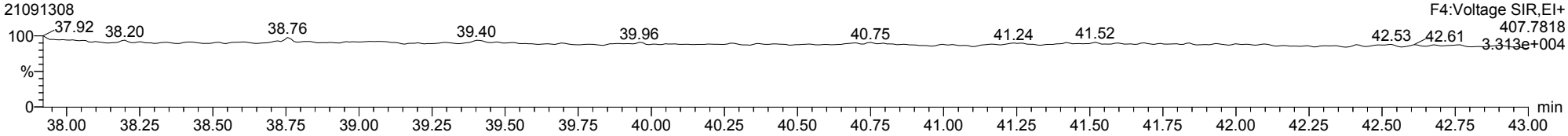

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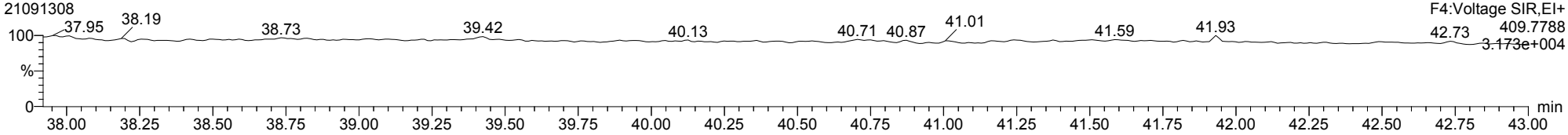

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LCS RECOVERY
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Matrix:	Solid	Analyzed:	09/13/21 18:25
Batch:	BJH0773	Laboratory ID:	BJH0773-BS1
Preparation:	EPA 8290	Sequence Name:	LCS
Initial/Final:	10 g / 20 uL		

COMPOUND	SPIKE ADDED (ng/kg wet)	LCS CONCENTRATION (ng/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
2,3,7,8-TCDF	20.0	18.1		90.7	75 - 158
2,3,7,8-TCDD	20.0	20.4		102	67 - 158
1,2,3,7,8-PeCDF	100	92.2		92.2	80 - 134
2,3,4,7,8-PeCDF	100	88.0		88.0	68 - 160
1,2,3,7,8-PeCDD	100	104		104	70 - 142
1,2,3,4,7,8-HxCDF	100	89.6		89.6	72 - 134
1,2,3,6,7,8-HxCDF	100	90.5		90.5	84 - 130
2,3,4,6,7,8-HxCDF	100	90.8		90.8	70 - 156
1,2,3,7,8,9-HxCDF	100	94.4		94.4	78 - 130
1,2,3,4,7,8-HxCDD	100	90.9		90.9	70 - 164
1,2,3,6,7,8-HxCDD	100	90.8		90.8	76 - 134
1,2,3,7,8,9-HxCDD	100	92.0		92.0	64 - 162
1,2,3,4,6,7,8-HpCDF	100	100		100	82 - 122
1,2,3,4,7,8,9-HpCDF	100	97.7		97.7	78 - 138
1,2,3,4,6,7,8-HpCDD	100	116		116	70 - 140
OCDF	200	167		83.5	63 - 170
OCDD	200	192	B	95.9	78 - 144

* Indicates values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LCS DUPLICATE RECOVERY/RPD
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Matrix:	Solid	Analyzed:	09/13/21 19:14
Batch:	BJH0773	Laboratory ID:	BJH0773-BSD1
Preparation:	EPA 8290	Sequence Name:	LCS Dup
Initial/Final:	10 g / 20 uL		

COMPOUND	SPIKE ADDED (ng/kg wet)	LCSD CONCENTRATION (ng/kg wet)	Q	LCSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
2,3,7,8-TCDF	20.0	17.6		88.1	2.90	25	75 - 158
2,3,7,8-TCDD	20.0	20.5		103	0.716	25	67 - 158
1,2,3,7,8-PeCDF	100	88.8		88.8	3.81	25	80 - 134
2,3,4,7,8-PeCDF	100	87.2		87.2	0.863	25	68 - 160
1,2,3,7,8-PeCDD	100	103		103	1.25	25	70 - 142
1,2,3,4,7,8-HxCDF	100	87.3		87.3	2.57	25	72 - 134
1,2,3,6,7,8-HxCDF	100	89.5		89.5	1.12	25	84 - 130
2,3,4,6,7,8-HxCDF	100	87.5		87.5	3.67	25	70 - 156
1,2,3,7,8,9-HxCDF	100	90.8		90.8	3.94	25	78 - 130
1,2,3,4,7,8-HxCDD	100	87.5		87.5	3.80	25	70 - 164
1,2,3,6,7,8-HxCDD	100	90.5		90.5	0.395	25	76 - 134
1,2,3,7,8,9-HxCDD	100	90.9		90.9	1.15	25	64 - 162
1,2,3,4,6,7,8-HpCDF	100	98.4		98.4	1.92	25	82 - 122
1,2,3,4,7,8,9-HpCDF	100	96.3		96.3	1.45	25	78 - 138
1,2,3,4,6,7,8-HpCDD	100	109		109	6.03	25	70 - 140
OCDF	200	167		83.3	0.232	25	63 - 170
OCDD	200	191	B	95.6	0.315	25	78 - 144

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0773-BS1, Name: 21091309, Date: 13-Sep-2021, Time: 18:25:27, 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	3.139e4	4.117e4	1.108	0.762	0.770	672	792	4.90e5	6.38e5	728.8	806.1	NO	bb	bb	9.068
12378-PeCDF	29.909	1.000	1.858e5	1.286e5	1.015	1.445	1.550	1432	1314	2.84e6	1.89e6	1981.6	1440.4	NO	bb	bd	46.097
23478-PeCDF	31.257	1.000	1.843e5	1.233e5	1.126	1.494	1.550	1432	1314	2.68e6	1.81e6	1870.3	1375.6	NO	bb	bb	43.995
123478-HxCDF	34.878	1.001	1.171e5	9.663e4	1.017	1.212	1.240	1606	1395	1.87e6	1.54e6	1165.7	1101.0	NO	bd	bd	44.799
234678-HxCDF	35.892	1.001	1.147e5	9.670e4	1.052	1.187	1.240	1606	1395	1.80e6	1.52e6	1122.4	1088.7	NO	bb	bb	45.386
123678-HxCDF	35.012	1.000	1.278e5	1.047e5	1.037	1.221	1.240	1606	1395	1.87e6	1.57e6	1165.9	1125.4	NO	db	db	45.239
123789-HxCDF	36.917	1.000	7.490e4	5.842e4	1.030	1.282	1.240	1606	1395	1.12e6	9.34e5	695.3	669.8	NO	bd	bb	47.216
1234678-HpCDF	38.755	1.000	8.834e4	8.835e4	1.327	1.000	1.050	1449	1494	1.39e6	1.40e6	955.9	937.2	NO	bd	bd	50.154
1234789-HpCDF	41.006	1.000	6.284e4	6.174e4	1.283	1.018	1.050	1449	1494	8.55e5	8.72e5	590.1	583.3	NO	bd	bd	48.865
OCDF	45.233	1.006	7.688e4	8.368e4	1.447	0.919	0.890	1553	1092	9.11e5	1.03e6	586.9	940.7	NO	bd	bb	83.513
2378-TCDD	26.396	1.001	2.238e4	2.772e4	0.920	0.807	0.770	733	676	3.41e5	4.23e5	464.9	625.1	NO	bd	bb	10.186
12378-PeCDD	31.503	1.000	1.079e5	6.804e4	0.995	1.586	1.550	806	766	1.65e6	1.05e6	2051.8	1365.0	NO	bb	bb	52.040
123478-HxCDD	35.992	1.000	9.747e4	7.938e4	1.027	1.228	1.240	1471	955	1.62e6	1.34e6	1099.8	1398.8	NO	bd	bd	45.457
123678-HxCDD	36.115	1.001	1.054e5	8.594e4	1.009	1.227	1.240	1471	955	1.61e6	1.33e6	1097.7	1395.3	NO	db	db	45.419
123789-HxCDD	36.505	1.011	9.278e4	8.126e4	0.950	1.142	1.240	1471	955	1.48e6	1.23e6	1003.5	1289.5	NO	bb	MM	45.990
1234678-HpCDD	40.259	1.000	5.241e4	4.790e4	1.068	1.094	1.050	1004	692	7.44e5	6.75e5	740.9	974.9	NO	bd	bb	57.847
OCDD	44.986	1.000	7.181e4	7.869e4	1.181	0.913	0.890	812	894	8.67e5	9.05e5	1067.1	1011.9	NO	bb	bb	95.921
13C-2378-TCDF	25.746	1.007	3.225e5	4.000e5	1.427	0.806	0.770	2087	1545	4.87e6	6.11e6	2333.0	3957.0	NO	bb	bb	99.042
13C-12378-PeCDF	29.898	1.169	4.093e5	2.629e5	1.297	1.557	1.550	2589	2164	6.23e6	3.87e6	2407.8	1786.4	NO	bb	bd	101.327
13C-23478-PeCDF	31.246	1.222	3.839e5	2.373e5	1.236	1.618	1.550	2589	2164	5.66e6	3.47e6	2185.0	1603.2	NO	bb	bb	98.244
13C-123478-HxCDF	34.856	0.955	1.584e5	3.107e5	1.242	0.510	0.510	1817	2255	2.37e6	4.75e6	1303.1	2105.6	NO	bd	bd	88.074
13C-123678-HxCDF	35.001	0.959	1.681e5	3.277e5	1.343	0.513	0.510	1817	2255	2.56e6	4.95e6	1407.4	2194.9	NO	db	db	86.092
13C-234678-HxCDF	35.870	0.983	1.498e5	2.928e5	1.215	0.512	0.510	1817	2255	2.29e6	4.48e6	1259.5	1984.5	NO	bb	bb	84.990
13C-123789-HxCDF	36.906	1.012	9.505e4	1.790e5	1.008	0.531	0.510	1817	2255	1.58e6	3.00e6	868.6	1328.4	NO	bb	bb	63.450
13C-1234678-HpCDF	38.744	1.062	8.437e4	1.811e5	0.926	0.466	0.440	1305	2062	1.34e6	2.87e6	1025.7	1393.0	NO	bb	bb	66.826
13C-1234789-HpCDF	40.995	1.124	6.029e4	1.384e5	0.758	0.436	0.440	1305	2062	8.46e5	1.87e6	648.3	908.1	NO	bb	bd	61.138
13C-1234-TCDD	25.564	0.000	2.210e5	2.903e5	1.000	0.761	0.770	1394	920	3.48e6	4.53e6	2494.7	4927.5	NO	bb	bb	100.000
13C-2378-TCDD	26.381	1.032	2.306e5	3.039e5	1.116	0.759	0.770	1394	920	3.37e6	4.49e6	2417.7	4878.4	NO	bb	bb	93.620
13C-12378-PeCDD	31.491	1.232	2.079e5	1.317e5	0.732	1.579	1.550	745	733	3.07e6	1.95e6	4120.0	2664.8	NO	bb	bb	90.741
13C-123478-HxCDD	35.981	0.986	2.100e5	1.687e5	0.960	1.245	1.240	1716	1662	3.43e6	2.75e6	1998.7	1656.5	NO	bd	bd	92.031
13C-123678-HxCDD	36.093	0.989	2.403e5	1.773e5	1.041	1.355	1.240	1716	1662	3.55e6	2.80e6	2067.4	1684.9	NO	dd	db	93.533
13C-1234678-HpCDD	40.237	1.103	8.295e4	7.941e4	0.632	1.044	1.050	807	818	1.22e6	1.19e6	1516.0	1453.9	NO	bb	bb	59.879
13C-OCDD	44.968	1.233	1.269e5	1.388e5	0.504	0.914	0.890	1546	1084	1.52e6	1.65e6	983.5	1525.7	NO	bb	bb	123.053
13C-123789-HxCDD	36.482	0.000	2.385e5	1.902e5	1.000	1.254	1.240	1716	1662	3.67e6	2.87e6	2139.6	1725.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	2.037e5		1.084			581		3.04e6		5237.4			bb		36.765

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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
1368-TCDF					1.425		0.770	672	792								
1289-TCDF					1.043		0.770	672	792								
13468-PECDF					1.376		1.550	535	538								
12389-PECDF	32.305	1.081	1.425e3	9.640e2	1.000	1.478	1.550	1432	1314	1.92e4	1.37e4	13.4	10.4	NO	bb	bb	0.356
123468-HXCDF					1.087		1.240	1606	1395								
1368-TCDD					0.923		0.770	733	676								
1289-TCDD					0.794		0.770	733	676								
12479-PECDD					1.843		1.550	806	766								
12389-PECDD					1.154		1.550	806	766								
124679-HXCDD					1.125		1.240	1471	955								
1234679-HPCDD	39.201	0.974	5.642e2	7.320e2	1.211	0.771	1.050	1004	692	8.33e3	9.39e3	8.3	13.6	YES	bb	bb	0.659
Total-tetrafurans			3.250e4		1.192			672		5.05e5							9.375
Total-penta1			0.000e0					535		0.00e0							
Total-pentafurans			3.746e5		1.047			1432		5.58e6							91.191
Total-hexafurans			4.352e5		1.045			1606		6.67e6							182.880
Total-heptafurans			1.517e5		1.305			1449		2.25e6							99.324
Total-Furans			1.071e6		1.158			672		1.59e7							466.283
Total-tetradioxins			2.238e4		0.879			733		3.41e5							10.186
Total-pentadioxins			1.079e5		1.331			806		1.65e6							52.040
Total-hexadioxins			2.957e5		1.028			1471		4.71e6							136.866
Total-heptadioxins			5.241e4		1.140			1004		7.44e5							57.847
Total-Dioxins			5.502e5		1.092			733		8.31e6							352.860
Total-TEQ			1.621e6					733		2.42e7							819.143
FUNCTION1 PFK			3.626e5					477758		9.29e6							
FUNCTION2 PFK			2.229e5					242825		5.49e6							0.000
FUNCTION3 PFK			1.426e7					336605		5.60e6							0.000
FUNCTION4 PFK			6.198e6					180689		2.28e7							
FUNCTION5 PFK			1.051e5					119467		4.04e6							
FUNCTION1 HXCD...			5.736e2					466		5.08e3							0.000
FUNCTION1 HPCD...			5.579e2					520		7.49e3							0.000
FUNCTION2 HPCD...			8.371e1					441		1.31e3							0.000
FUNCTION3 OCDPE			1.921e2					503		3.00e3							0.000
FUNCTION4 NCDPE			0.000e0					492		0.00e0							
FUNCTION5 DCDPE			0.000e0					390		0.00e0							

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

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.76	3.139e4	4.117e4	1.108	0.76	0.77	728.8	YES	NO	bb	bb	9.068
2	Total-tetrafurans	24.66	7.500e2	1.015e3	1.192	0.74	0.77	13.8	YES	NO	dd	dd	0.205
3	Total-tetrafurans	24.52	3.614e2	5.199e2	1.192	0.70	0.77	8.6	YES	NO	bd	bd	0.102

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	12389-PECDF	32.30	1.425e3	9.640e2	1.000	1.48	1.55	13.4	YES	NO	bb	bb	0.356
2	23478-PeCDF	31.26	1.843e5	1.233e5	1.126	1.49	1.55	1870.3	YES	NO	bb	bb	43.995
3	12378-PeCDF	29.91	1.858e5	1.286e5	1.015	1.44	1.55	1981.6	YES	NO	bb	bd	46.097
4	Total-pentafurans	29.54	1.026e3	6.990e2	1.047	1.47	1.55	9.6	YES	NO	bd	bb	0.255
5	Total-pentafurans	28.82	1.399e3	9.169e2	1.047	1.53	1.55	13.5	YES	NO	db	db	0.342
6	Total-pentafurans	28.76	5.855e2	4.021e2	1.047	1.46	1.55	7.9	YES	NO	bd	bd	0.146

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.92	7.490e4	5.842e4	1.030	1.28	1.24	695.3	YES	NO	bd	bb	47.216
2	234678-HxCDF	35.89	1.147e5	9.670e4	1.052	1.19	1.24	1122.4	YES	NO	bb	bb	45.386
3	123678-HxCDF	35.01	1.278e5	1.047e5	1.037	1.22	1.24	1165.9	YES	NO	db	db	45.239
4	123478-HxCDF	34.88	1.171e5	9.663e4	1.017	1.21	1.24	1165.7	YES	NO	bd	bd	44.799
5	Total-hexafurans	33.42	5.982e2	4.542e2	1.045	1.32	1.24	6.0	YES	NO	bb	bb	0.240

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.01	6.284e4	6.174e4	1.283	1.02	1.05	590.1	YES	NO	bd	bd	48.865
2	Total-heptafurans	39.44	5.025e2	4.224e2	1.305	1.19	1.05	5.2	YES	NO	bb	bd	0.305
3	1234678-HpCDF	38.76	8.834e4	8.835e4	1.327	1.00	1.05	955.9	YES	NO	bd	bd	50.154

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.76	3.139e4	4.117e4	1.108	0.76	0.77	728.8	YES	NO	bb	bb	9.068
2	Total-tetrafurans	24.66	7.500e2	1.015e3	1.192	0.74	0.77	13.8	YES	NO	dd	dd	0.205
3	Total-tetrafurans	24.52	3.614e2	5.199e2	1.192	0.70	0.77	8.6	YES	NO	bd	bd	0.102
4	12389-PECDF	32.30	1.425e3	9.640e2	1.000	1.48	1.55	13.4	YES	NO	bb	bb	0.356
5	23478-PeCDF	31.26	1.843e5	1.233e5	1.126	1.49	1.55	1870.3	YES	NO	bb	bb	43.995
6	12378-PeCDF	29.91	1.858e5	1.286e5	1.015	1.44	1.55	1981.6	YES	NO	bb	bd	46.097
7	Total-pentafurans	29.54	1.026e3	6.990e2	1.047	1.47	1.55	9.6	YES	NO	bd	bb	0.255
8	Total-pentafurans	28.82	1.399e3	9.169e2	1.047	1.53	1.55	13.5	YES	NO	db	db	0.342
9	Total-pentafurans	28.76	5.855e2	4.021e2	1.047	1.46	1.55	7.9	YES	NO	bd	bd	0.146
10	123789-HxCDF	36.92	7.490e4	5.842e4	1.030	1.28	1.24	695.3	YES	NO	bd	bb	47.216
11	234678-HxCDF	35.89	1.147e5	9.670e4	1.052	1.19	1.24	1122.4	YES	NO	bb	bb	45.386
12	123678-HxCDF	35.01	1.278e5	1.047e5	1.037	1.22	1.24	1165.9	YES	NO	db	db	45.239
13	123478-HxCDF	34.88	1.171e5	9.663e4	1.017	1.21	1.24	1165.7	YES	NO	bd	bd	44.799
14	Total-hexafurans	33.42	5.982e2	4.542e2	1.045	1.32	1.24	6.0	YES	NO	bb	bb	0.240
15	1234789-HpCDF	41.01	6.284e4	6.174e4	1.283	1.02	1.05	590.1	YES	NO	bd	bd	48.865
16	Total-heptafurans	39.44	5.025e2	4.224e2	1.305	1.19	1.05	5.2	YES	NO	bb	bd	0.305
17	1234678-HpCDF	38.76	8.834e4	8.835e4	1.327	1.00	1.05	955.9	YES	NO	bd	bd	50.154
18	OCDF	45.23	7.688e4	8.368e4	1.447	0.92	0.89	586.9	YES	NO	bd	bb	83.513

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.40	2.238e4	2.772e4	0.920	0.81	0.77	464.9	YES	NO	bd	bb	10.186

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.50	1.079e5	6.804e4	0.995	1.59	1.55	2051.8	YES	NO	bb	bb	52.040

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.50	9.278e4	8.126e4	0.950	1.14	1.24	1003.5	YES	NO	bb	MM	45.990
2	123678-HxCDD	36.12	1.054e5	8.594e4	1.009	1.23	1.24	1097.7	YES	NO	db	db	45.419
3	123478-HxCDD	35.99	9.747e4	7.938e4	1.027	1.23	1.24	1099.8	YES	NO	bd	bd	45.457

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.26	5.241e4	4.790e4	1.068	1.09	1.05	740.9	YES	NO	bd	bb	57.847

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.50	1.079e5	6.804e4	0.995	1.59	1.55	2051.8	YES	NO	bb	bb	52.040
2	2378-TCDD	26.40	2.238e4	2.772e4	0.920	0.81	0.77	464.9	YES	NO	bd	bb	10.186
3	123789-HxCDD	36.50	9.278e4	8.126e4	0.950	1.14	1.24	1003.5	YES	NO	bb	MM	45.990
4	123678-HxCDD	36.12	1.054e5	8.594e4	1.009	1.23	1.24	1097.7	YES	NO	db	db	45.419
5	123478-HxCDD	35.99	9.747e4	7.938e4	1.027	1.23	1.24	1099.8	YES	NO	bd	bd	45.457
6	OCDD	44.99	7.181e4	7.869e4	1.181	0.91	0.89	1067.1	YES	NO	bb	bb	95.921
7	1234678-HpCDD	40.26	5.241e4	4.790e4	1.068	1.09	1.05	740.9	YES	NO	bd	bb	57.847

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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	2378-TCDF	25.76	3.139e4	4.117e4	1.108	0.76	0.77	728.8	YES	NO	bb	bb	9.068
2	Total-tetrafurans	24.66	7.500e2	1.015e3	1.192	0.74	0.77	13.8	YES	NO	dd	dd	0.205
3	Total-tetrafurans	24.52	3.614e2	5.199e2	1.192	0.70	0.77	8.6	YES	NO	bd	bd	0.102
4	12389-PECDF	32.30	1.425e3	9.640e2	1.000	1.48	1.55	13.4	YES	NO	bb	bb	0.356
5	23478-PeCDF	31.26	1.843e5	1.233e5	1.126	1.49	1.55	1870.3	YES	NO	bb	bb	43.995
6	12378-PeCDF	29.91	1.858e5	1.286e5	1.015	1.44	1.55	1981.6	YES	NO	bb	bd	46.097
7	Total-pentafurans	29.54	1.026e3	6.990e2	1.047	1.47	1.55	9.6	YES	NO	bd	bb	0.255
8	Total-pentafurans	28.82	1.399e3	9.169e2	1.047	1.53	1.55	13.5	YES	NO	db	db	0.342
9	Total-pentafurans	28.76	5.855e2	4.021e2	1.047	1.46	1.55	7.9	YES	NO	bd	bd	0.146
10	123789-HxCDF	36.92	7.490e4	5.842e4	1.030	1.28	1.24	695.3	YES	NO	bd	bb	47.216
11	234678-HxCDF	35.89	1.147e5	9.670e4	1.052	1.19	1.24	1122.4	YES	NO	bb	bb	45.386
12	123678-HxCDF	35.01	1.278e5	1.047e5	1.037	1.22	1.24	1165.9	YES	NO	db	db	45.239
13	123478-HxCDF	34.88	1.171e5	9.663e4	1.017	1.21	1.24	1165.7	YES	NO	bd	bd	44.799
14	Total-hexafurans	33.42	5.982e2	4.542e2	1.045	1.32	1.24	6.0	YES	NO	bb	bb	0.240
15	1234789-HpCDF	41.01	6.284e4	6.174e4	1.283	1.02	1.05	590.1	YES	NO	bd	bd	48.865
16	Total-heptafurans	39.44	5.025e2	4.224e2	1.305	1.19	1.05	5.2	YES	NO	bb	bd	0.305
17	1234678-HpCDF	38.76	8.834e4	8.835e4	1.327	1.00	1.05	955.9	YES	NO	bd	bd	50.154
18	OCDF	45.23	7.688e4	8.368e4	1.447	0.92	0.89	586.9	YES	NO	bd	bb	83.513
19	12378-PeCDD	31.50	1.079e5	6.804e4	0.995	1.59	1.55	2051.8	YES	NO	bb	bb	52.040
20	2378-TCDD	26.40	2.238e4	2.772e4	0.920	0.81	0.77	464.9	YES	NO	bd	bb	10.186
21	123789-HxCDD	36.50	9.278e4	8.126e4	0.950	1.14	1.24	1003.5	YES	NO	bb	MM	45.990
22	123678-HxCDD	36.12	1.054e5	8.594e4	1.009	1.23	1.24	1097.7	YES	NO	db	db	45.419
23	123478-HxCDD	35.99	9.747e4	7.938e4	1.027	1.23	1.24	1099.8	YES	NO	bd	bd	45.457
24	OCDD	44.99	7.181e4	7.869e4	1.181	0.91	0.89	1067.1	YES	NO	bb	bb	95.921
25	1234678-HpCDD	40.26	5.241e4	4.790e4	1.068	1.09	1.05	740.9	YES	NO	bd	bb	57.847

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.46	4.410e3					0.5	NO		bb		
2	FUNCTION1 PFK	25.19	2.759e4					1.7	NO		db		
3	FUNCTION1 PFK	25.11	1.843e4					1.0	NO		bd		
4	FUNCTION1 PFK	24.60	8.883e3					0.8	NO		bb		
5	FUNCTION1 PFK	24.32	3.890e3					0.5	NO		bb		
6	FUNCTION1 PFK	23.93	3.545e3					0.5	NO		bb		
7	FUNCTION1 PFK	23.33	3.978e3					0.5	NO		bb		
8	FUNCTION1 PFK	23.07	4.068e3					0.6	NO		bb		
9	FUNCTION1 PFK	22.66	3.756e3					0.5	NO		bb		
10	FUNCTION1 PFK	22.54	2.238e4					1.4	NO		bb		
11	FUNCTION1 PFK	22.13	4.946e4					1.8	NO		db		
12	FUNCTION1 PFK	22.03	1.788e4					1.1	NO		bd		
13	FUNCTION1 PFK	21.74	1.079e4					0.9	NO		bb		
14	FUNCTION1 PFK	21.48	1.842e4					1.1	NO		bb		
15	FUNCTION1 PFK	21.19	5.905e4					1.3	NO		bb		
16	FUNCTION1 PFK	27.88	5.186e4					2.1	NO		bb		
17	FUNCTION1 PFK	27.39	3.842e4					1.7	NO		bb		
18	FUNCTION1 PFK	26.82	3.780e3					0.5	NO		bb		
19	FUNCTION1 PFK	25.52	1.205e4					0.9	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.63	9.381e3					1.6	NO		bb		0.000
2	FUNCTION2 PFK	30.44	2.001e3					0.7	NO		bb		0.000
3	FUNCTION2 PFK	30.35	2.902e4					2.2	NO		bb		0.000
4	FUNCTION2 PFK	30.03	6.099e3					1.1	NO		bb		0.000
5	FUNCTION2 PFK	29.80	1.361e3					0.5	NO		bb		0.000
6	FUNCTION2 PFK	29.44	7.748e3					1.1	NO		bb		0.000
7	FUNCTION2 PFK	29.35	1.092e4					1.6	NO		bb		0.000
8	FUNCTION2 PFK	29.24	1.152e4					1.8	NO		bb		0.000
9	FUNCTION2 PFK	28.53	1.388e4					1.8	NO		bb		0.000
10	FUNCTION2 PFK	28.47	1.283e4					1.4	NO		bb		0.000
11	FUNCTION2 PFK	28.27	6.051e4					2.3	NO		bb		0.000
12	FUNCTION2 PFK	32.76	8.433e3					1.4	NO		bb		0.000
13	FUNCTION2 PFK	32.39	1.416e4					1.8	NO		db		0.000
14	FUNCTION2 PFK	32.28	2.912e4					2.0	NO		bd		0.000
15	FUNCTION2 PFK	31.06	5.903e3					1.1	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	37.85	7.881e4					2.3	NO		bb		0.000
2	FUNCTION3 PFK	34.91	1.286e7					9.6	YES		bb		0.000
3	FUNCTION3 PFK	33.47	1.317e6					4.7	YES		bb		0.000

ID: BJH0773-BS1, Name: 21091309, Date: 13-Sep-2021, Time: 18:25:27, 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	39.80	4.364e3					1.1	NO		bd		
2	FUNCTION4 PFK	39.76	3.053e3					0.8	NO		db		
3	FUNCTION4 PFK	39.71	5.354e3					1.3	NO		bd		
4	FUNCTION4 PFK	39.36	3.688e3					0.8	NO		bb		
5	FUNCTION4 PFK	38.86	3.837e5					13.5	YES		db		
6	FUNCTION4 PFK	38.44	4.236e6					33.3	YES		dd		
7	FUNCTION4 PFK	37.99	1.423e6					53.4	YES		bd		
8	FUNCTION4 PFK	42.16	9.887e3					1.5	NO		db		
9	FUNCTION4 PFK	42.10	6.055e3					1.4	NO		bd		
10	FUNCTION4 PFK	42.04	4.817e3					1.1	NO		db		
11	FUNCTION4 PFK	42.00	1.047e4					1.4	NO		bd		
12	FUNCTION4 PFK	41.64	1.217e4					1.6	NO		db		
13	FUNCTION4 PFK	41.51	2.014e4					1.5	NO		bd		
14	FUNCTION4 PFK	41.26	4.233e3					0.6	NO		bb		
15	FUNCTION4 PFK	40.89	3.390e3					0.9	NO		bb		
16	FUNCTION4 PFK	40.79	8.594e2					0.4	NO		bb		
17	FUNCTION4 PFK	40.48	4.263e3					1.0	NO		bb		
18	FUNCTION4 PFK	40.39	1.436e4					1.6	NO		bb		
19	FUNCTION4 PFK	40.18	6.925e3					1.0	NO		db		
20	FUNCTION4 PFK	40.14	1.553e4					1.8	NO		dd		
21	FUNCTION4 PFK	40.04	4.542e3					1.2	NO		bd		
22	FUNCTION4 PFK	39.97	6.370e3					1.5	NO		bb		
23	FUNCTION4 PFK	39.84	5.572e3					1.1	NO		db		
24	FUNCTION4 PFK	42.70	1.647e3					0.6	NO		bb		
25	FUNCTION4 PFK	42.59	4.743e3					1.1	NO		bb		
26	FUNCTION4 PFK	42.44	3.584e3					0.7	NO		bb		

ID: BJH0773-BS1, Name: 21091309, Date: 13-Sep-2021, Time: 18:25:27, 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	44.22	2.579e3					0.8	NO		db		
2	FUNCTION5 PFK	44.14	4.022e3					1.4	NO		bd		
3	FUNCTION5 PFK	44.03	3.354e3					1.0	NO		bb		
4	FUNCTION5 PFK	43.92	3.822e2					0.4	NO		bb		
5	FUNCTION5 PFK	43.52	1.684e3					0.9	NO		db		
6	FUNCTION5 PFK	43.49	1.054e3					0.6	NO		dd		
7	FUNCTION5 PFK	43.47	1.314e3					0.9	NO		bd		
8	FUNCTION5 PFK	43.42	3.464e3					1.2	NO		bb		
9	FUNCTION5 PFK	43.31	1.411e4					1.7	NO		bb		
10	FUNCTION5 PFK	43.18	1.234e4					2.3	NO		bb		
11	FUNCTION5 PFK	43.14	4.826e3					1.7	NO		bb		
12	FUNCTION5 PFK	43.06	5.370e2					0.5	NO		bb		
13	FUNCTION5 PFK	45.77	2.411e3					0.9	NO		bb		
14	FUNCTION5 PFK	45.60	4.001e3					1.4	NO		bb		
15	FUNCTION5 PFK	45.41	2.481e3					1.0	NO		bb		
16	FUNCTION5 PFK	45.26	4.478e3					1.2	NO		bb		
17	FUNCTION5 PFK	45.20	4.470e3					1.5	NO		db		
18	FUNCTION5 PFK	45.16	5.433e3					1.8	NO		bd		
19	FUNCTION5 PFK	45.11	4.465e3					2.1	NO		db		
20	FUNCTION5 PFK	45.09	8.574e3					2.0	NO		bd		
21	FUNCTION5 PFK	44.85	3.026e3					1.3	NO		db		
22	FUNCTION5 PFK	44.81	2.931e3					1.1	NO		bd		
23	FUNCTION5 PFK	44.70	5.885e2					0.5	NO		bb		
24	FUNCTION5 PFK	44.57	2.613e3					1.2	NO		bb		
25	FUNCTION5 PFK	44.40	1.373e3					0.7	NO		bb		
26	FUNCTION5 PFK	44.36	9.866e2					0.6	NO		bb		
27	FUNCTION5 PFK	44.31	7.394e2					0.4	NO		bb		
28	FUNCTION5 PFK	44.27	3.145e3					1.2	NO		bb		
29	FUNCTION5 PFK	45.97	1.948e3					0.9	NO		bb		
30	FUNCTION5 PFK	45.89	1.768e3					0.8	NO		bb		

ID: BJH0773-BS1, Name: 21091309, Date: 13-Sep-2021, Time: 18:25:27, 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...	27.17	7.972e1					2.3	NO		bb		0.000
2	FUNCTION1 HXCD...	26.83	1.049e2					2.5	NO		bb		0.000
3	FUNCTION1 HXCD...	25.46	2.274e2					3.6	YES		bb		0.000
4	FUNCTION1 HXCD...	21.22	1.616e2					2.5	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...	26.50	7.406e1					1.9	NO		bb		0.000
2	FUNCTION1 HPCD...	25.72	8.273e1					2.8	NO		db		0.000
3	FUNCTION1 HPCD...	25.66	7.799e1					3.1	YES		dd		0.000
4	FUNCTION1 HPCD...	25.55	1.387e2					3.3	YES		dd		0.000
5	FUNCTION1 HPCD...	25.46	1.844e2					3.4	YES		bd		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	29.73	8.371e1					3.0	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	36.48	7.080e1					2.3	NO		bb		0.000
2	FUNCTION3 OCDPE	36.08	1.213e2					3.7	YES		bb		0.000

ETHERS5

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

ETHERS6

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

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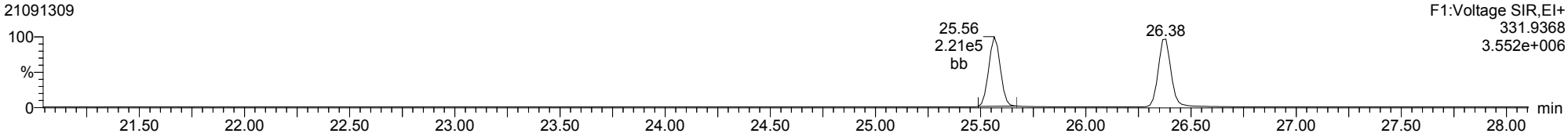
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0773-BS1, Name: 21091309, Date: 13-Sep-2021, Time: 18:25:27, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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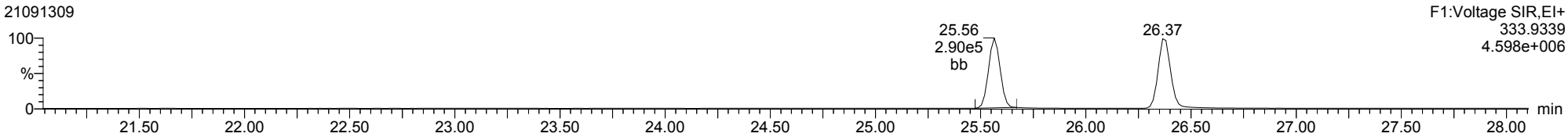

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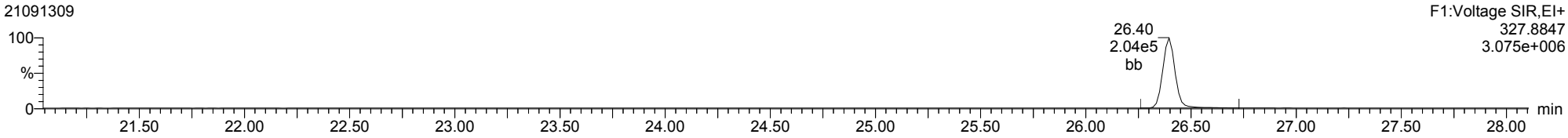

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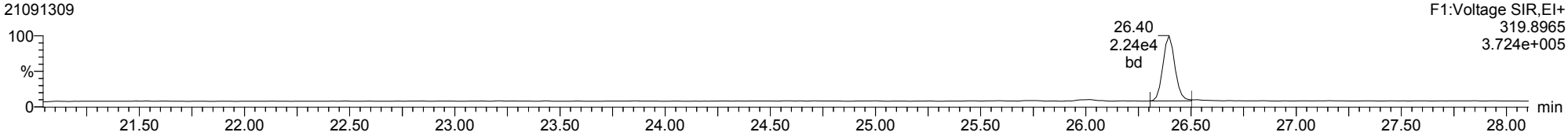

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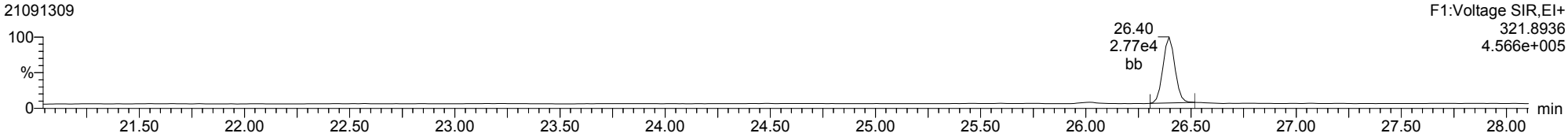

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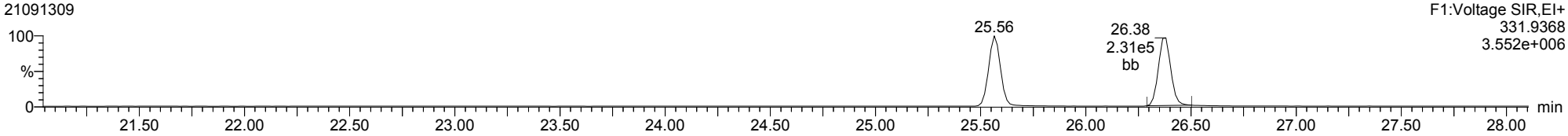

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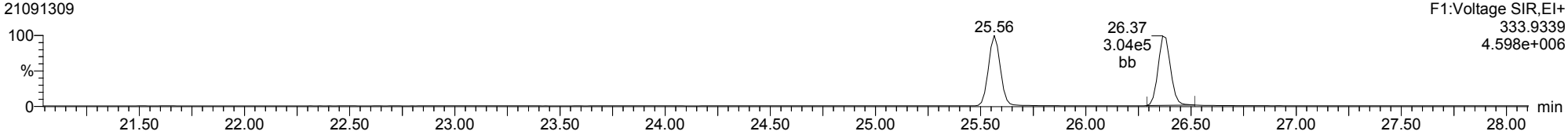

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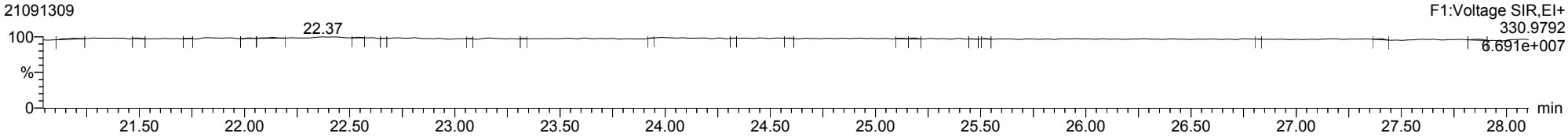

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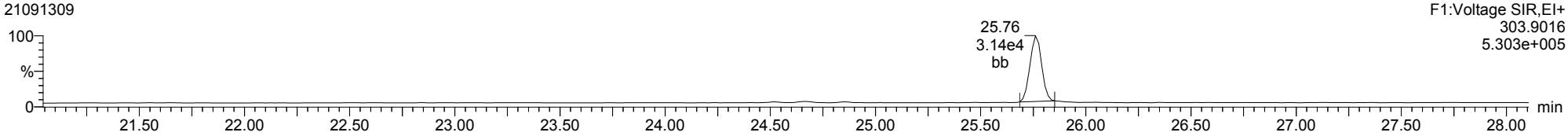

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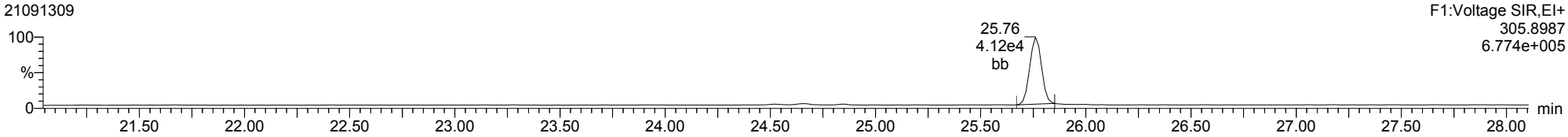

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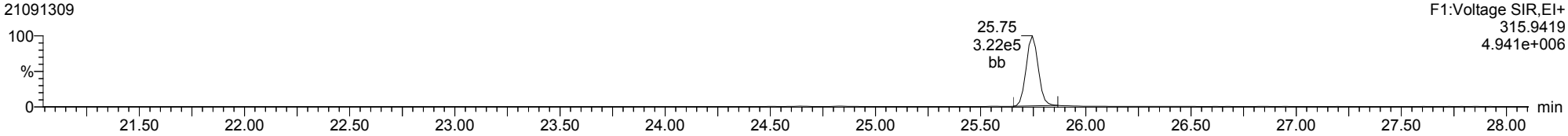

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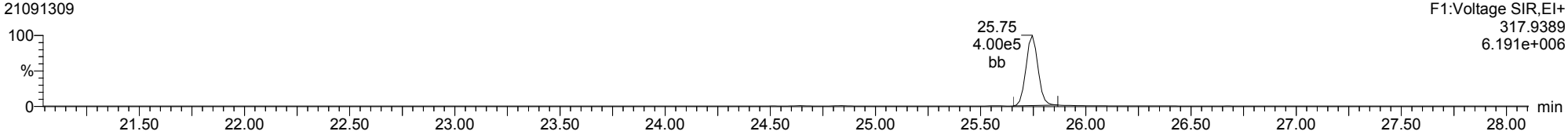

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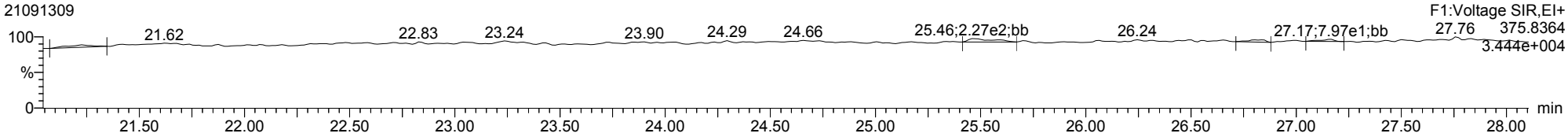

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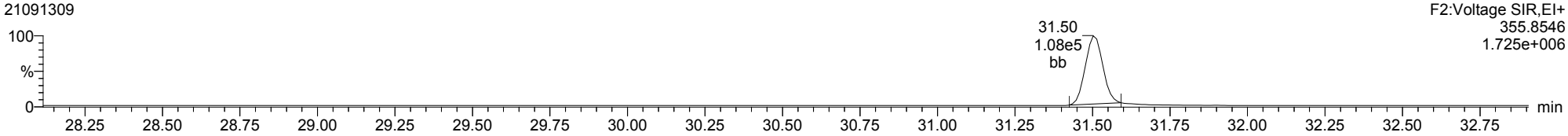
12378-PeCDD



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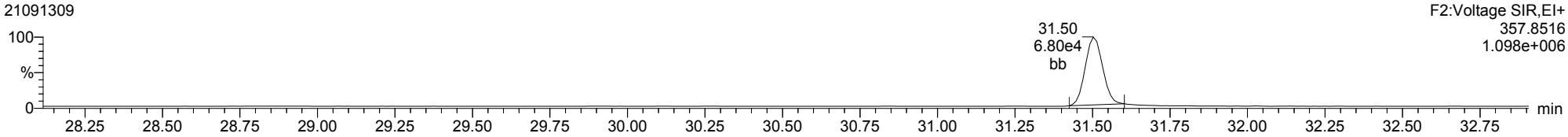

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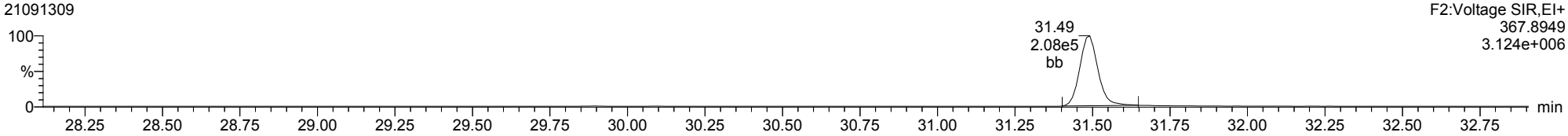

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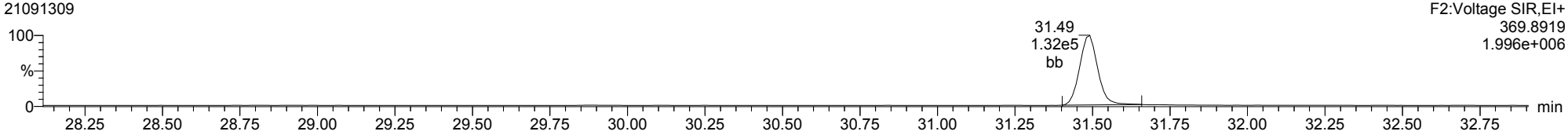

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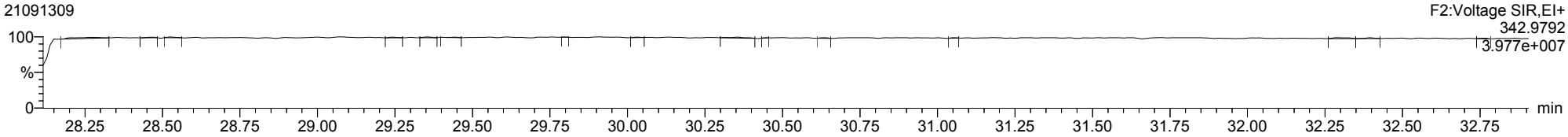

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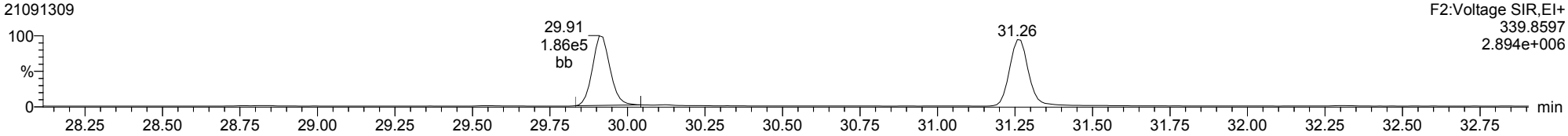

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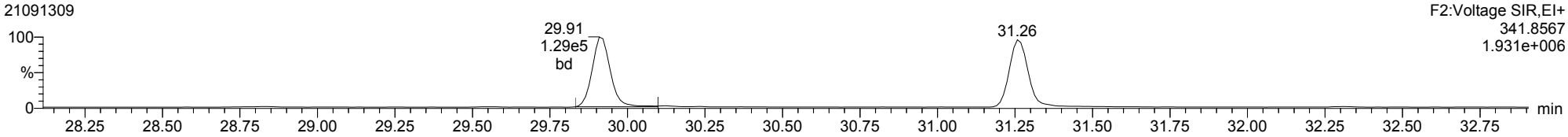

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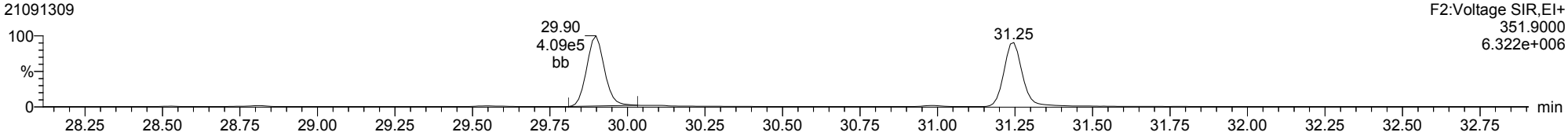

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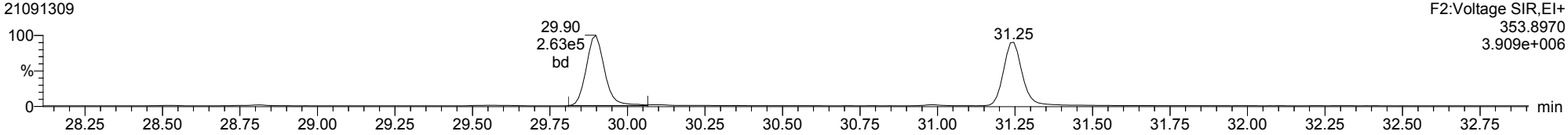

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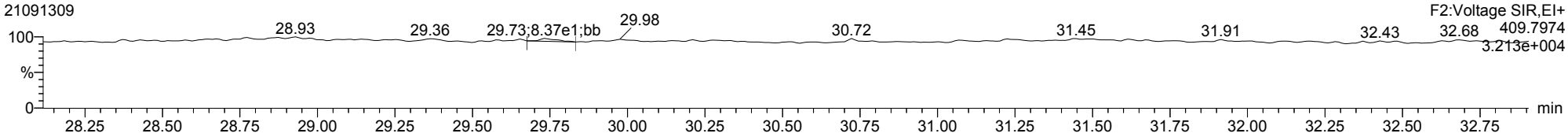

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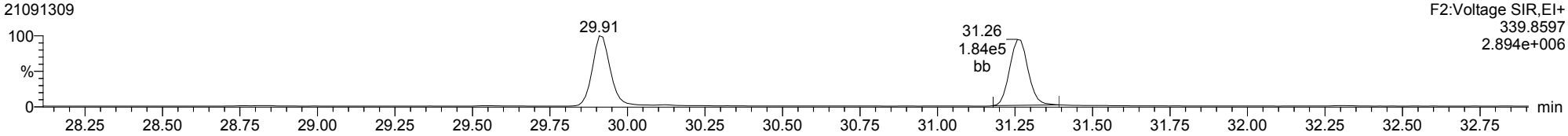
23478-PeCDF



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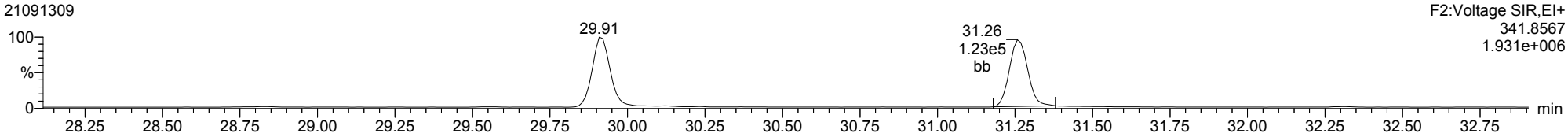

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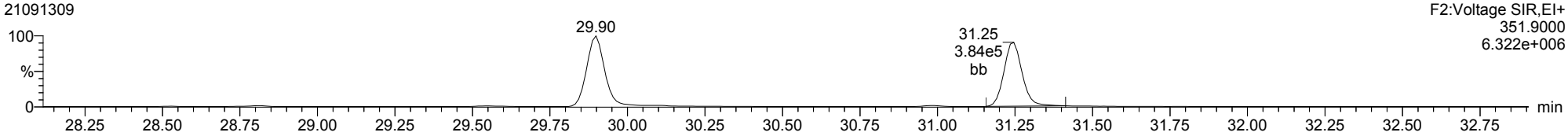

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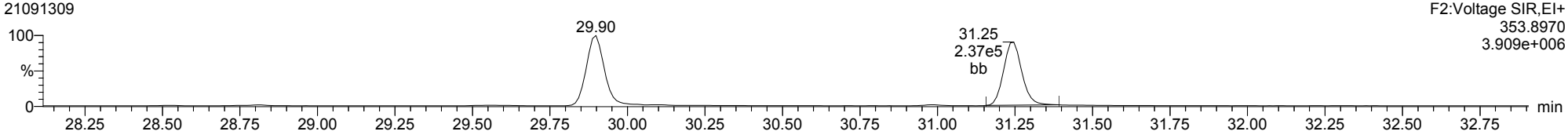
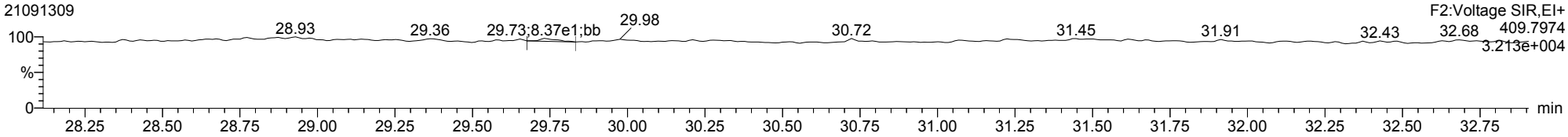


FUNCTION2 HPCDPE



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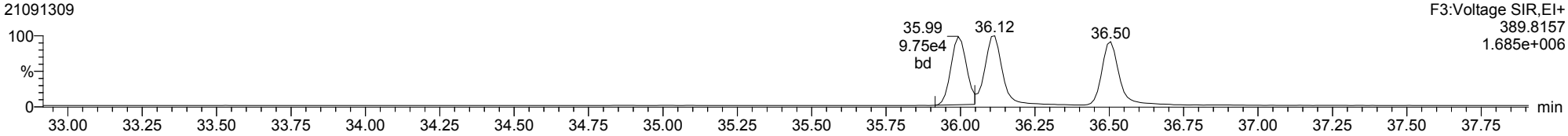
123478-HxCDD



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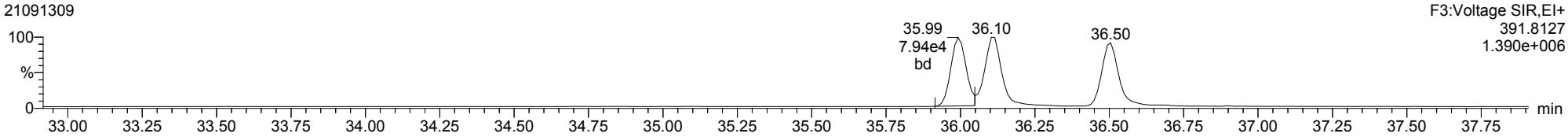

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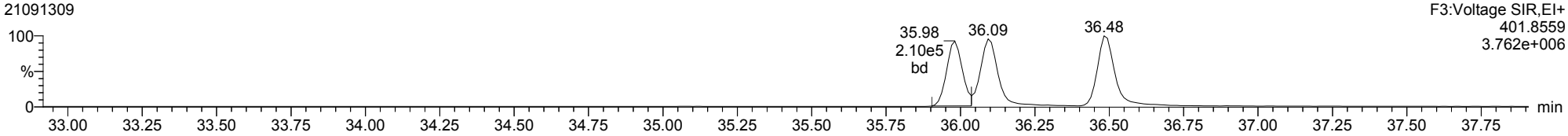

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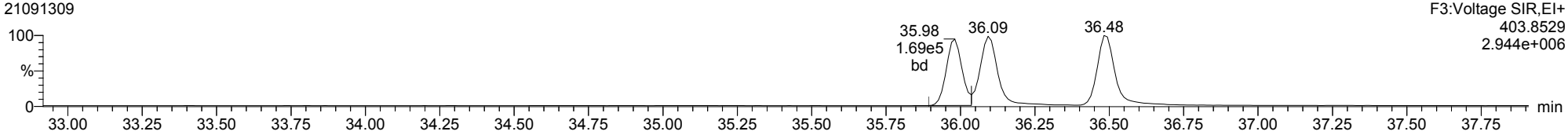

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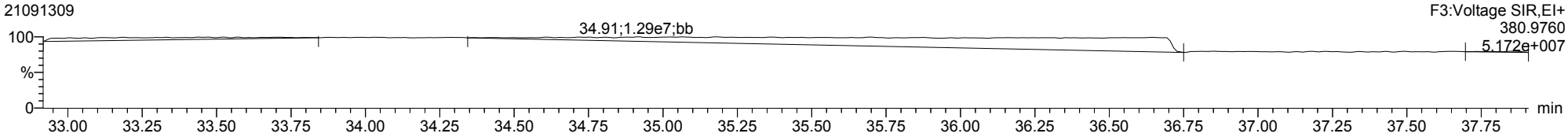

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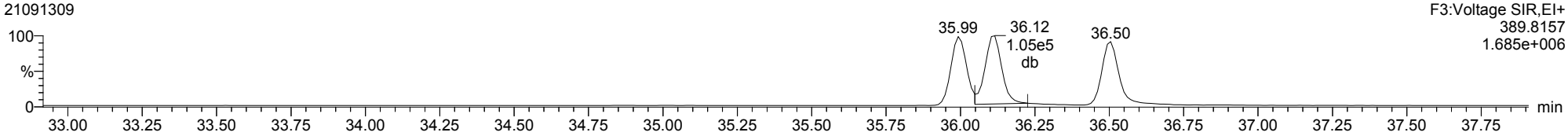

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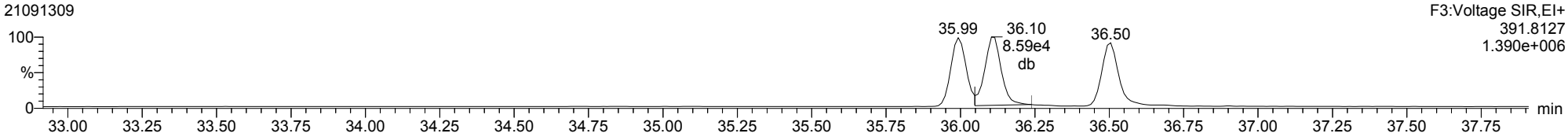

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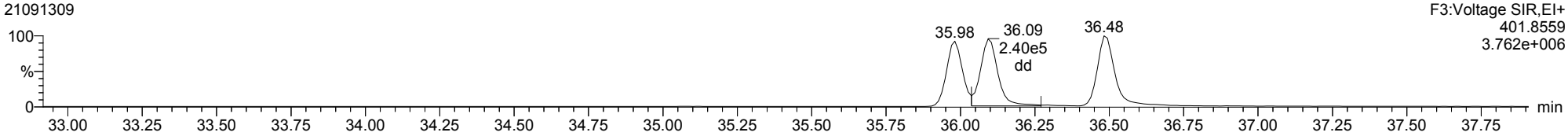

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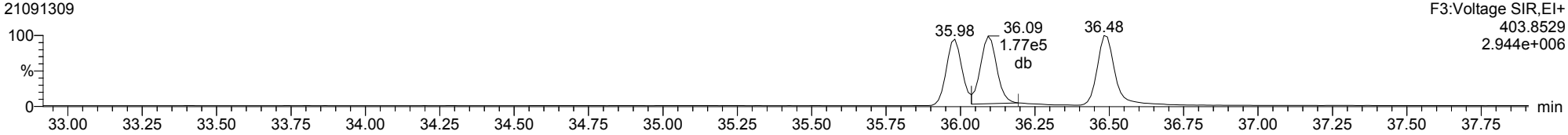

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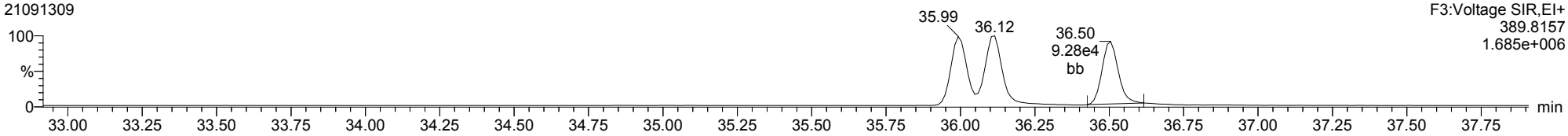

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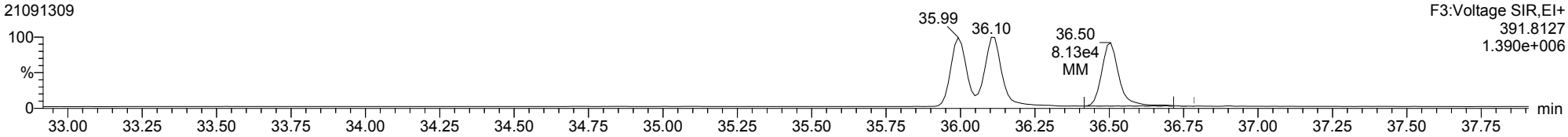

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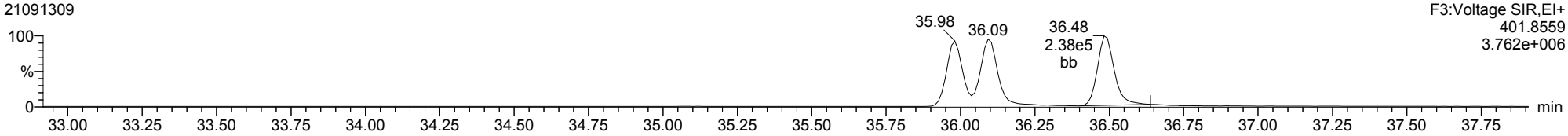

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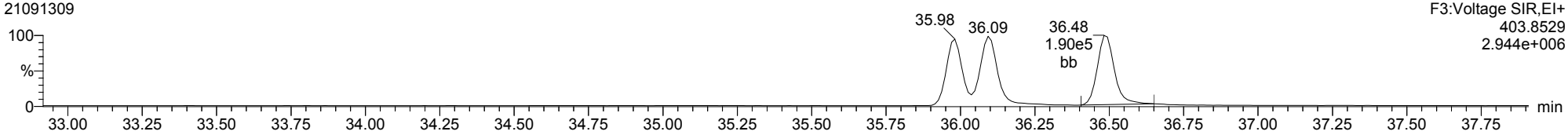

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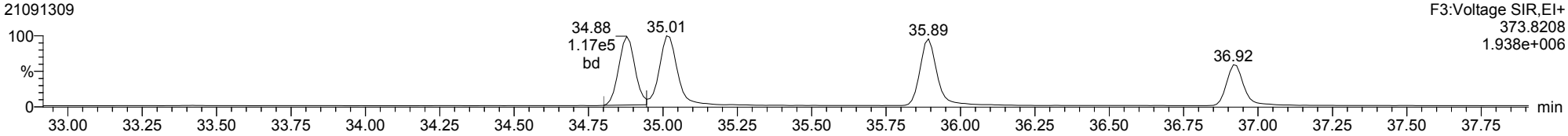

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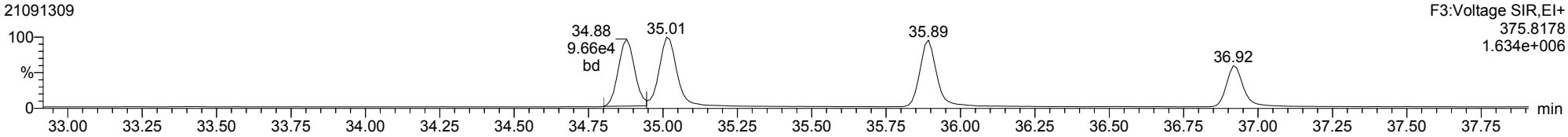

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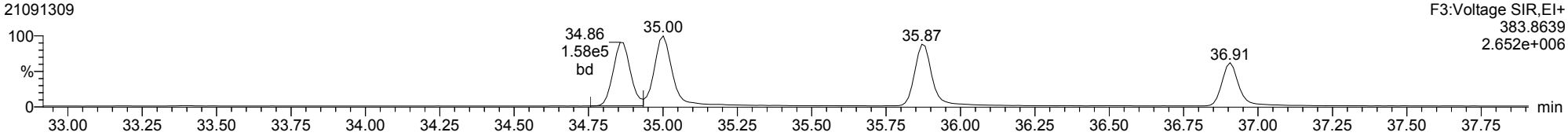

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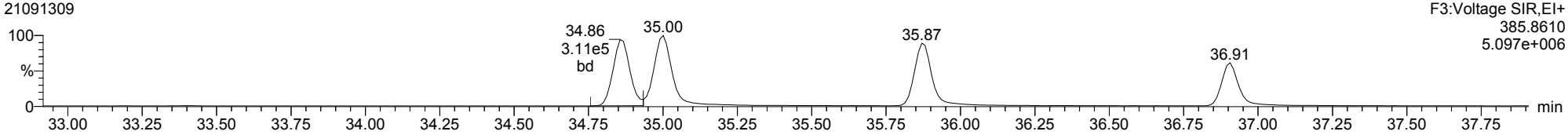

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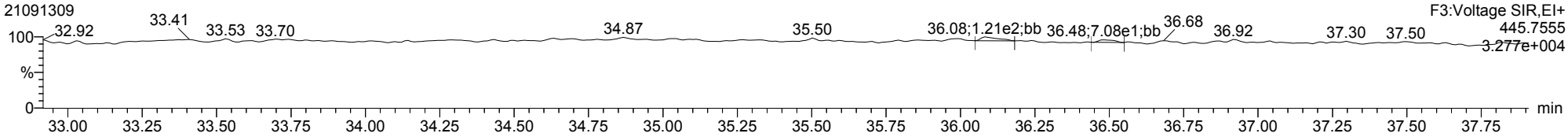

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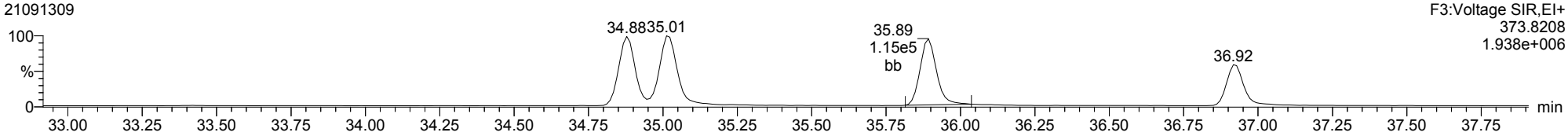

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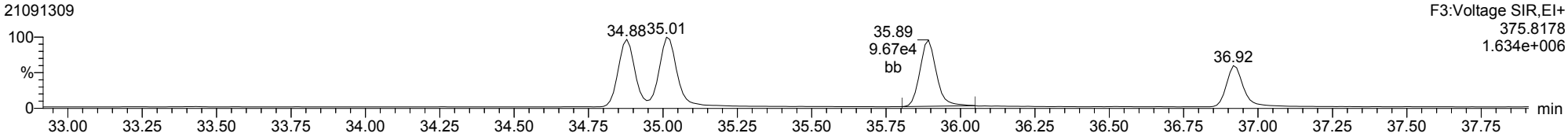

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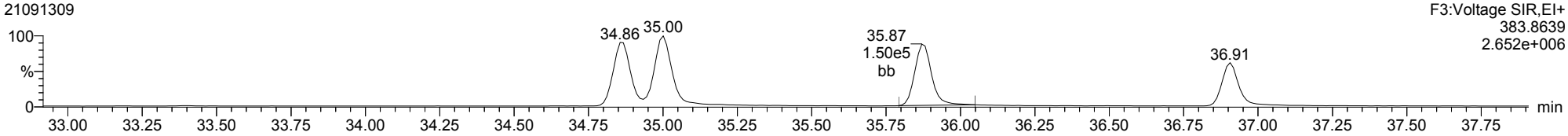

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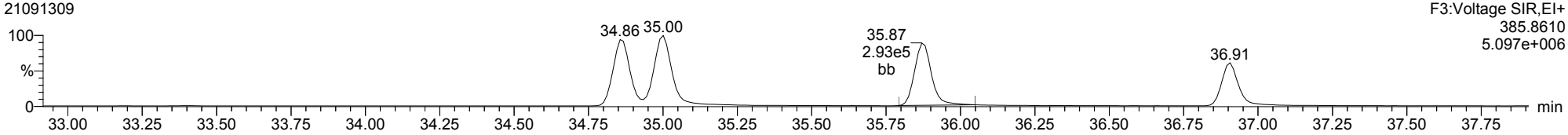

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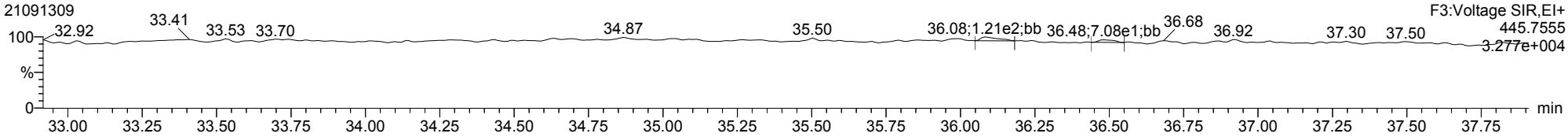

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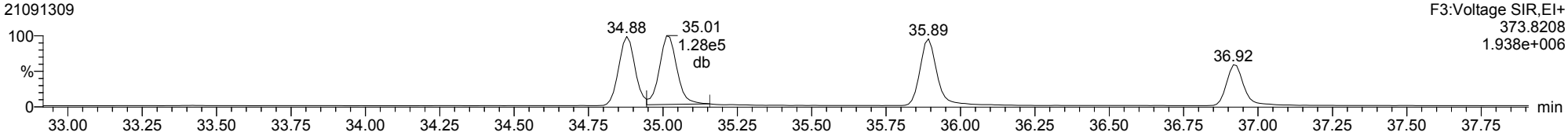

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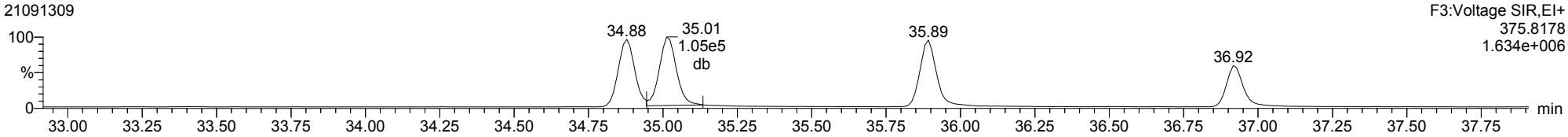

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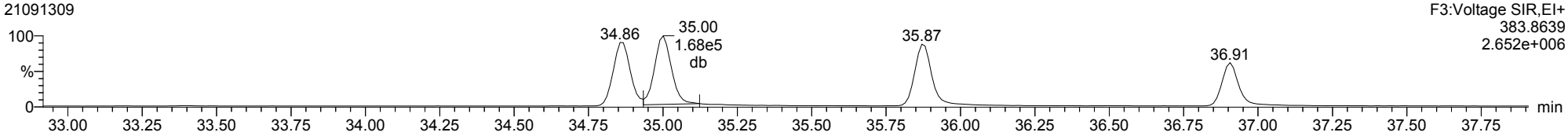

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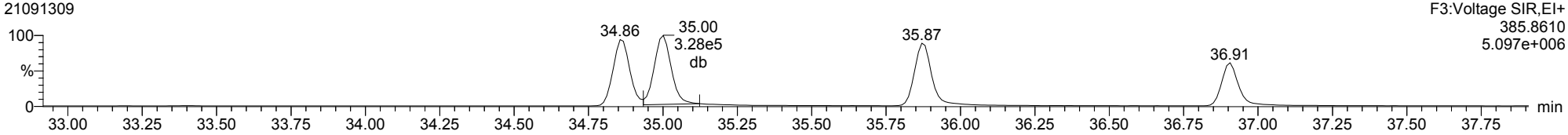

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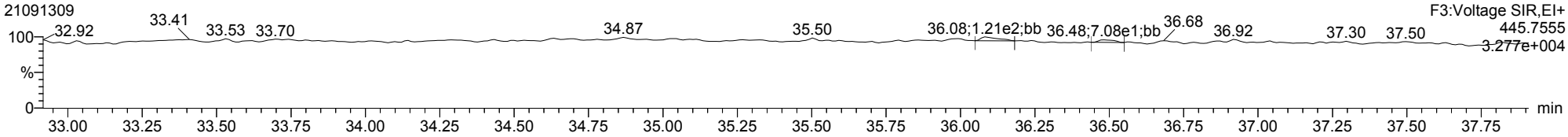

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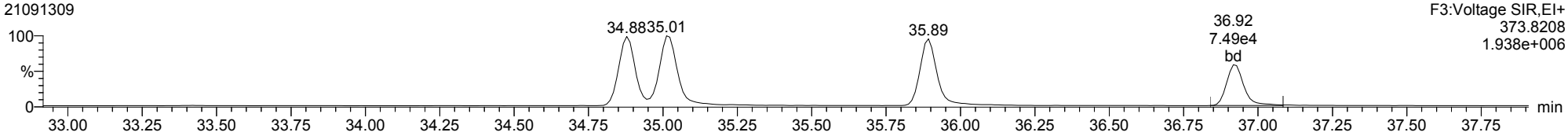

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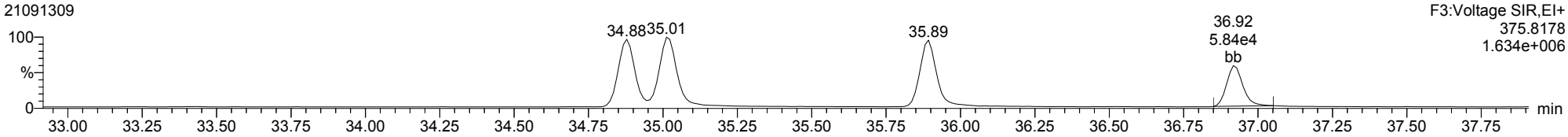

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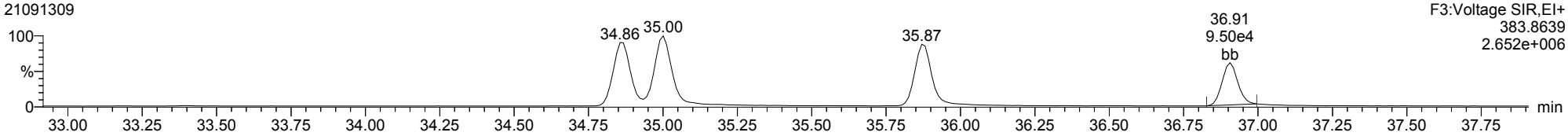

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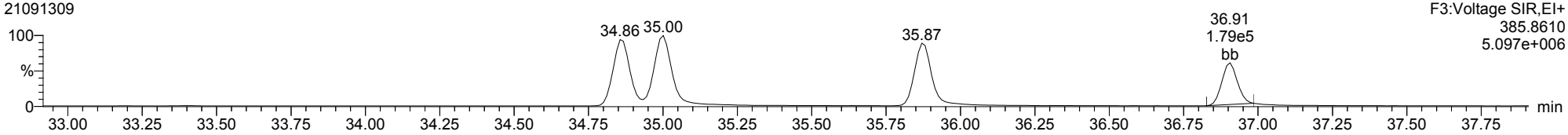

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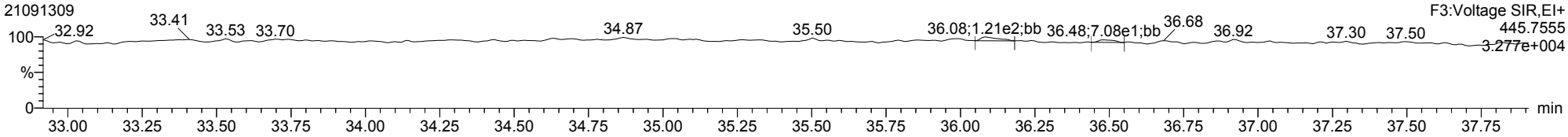

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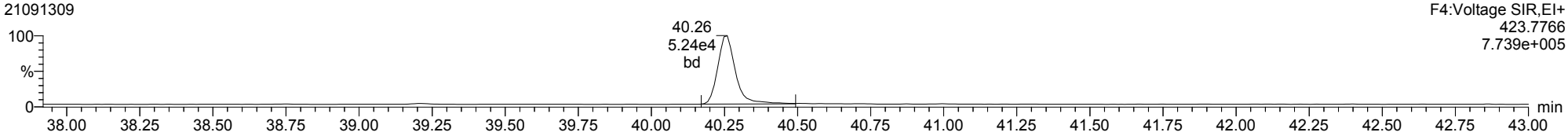

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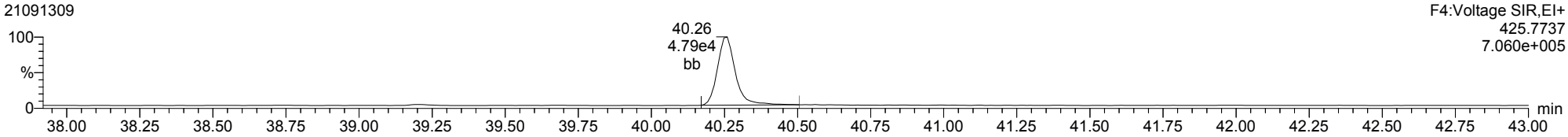

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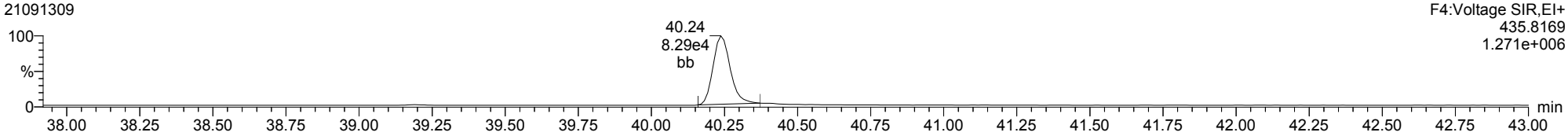

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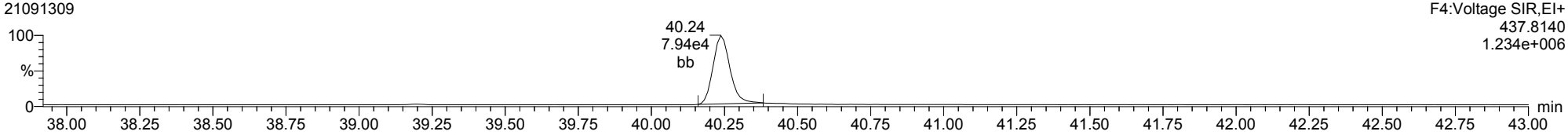
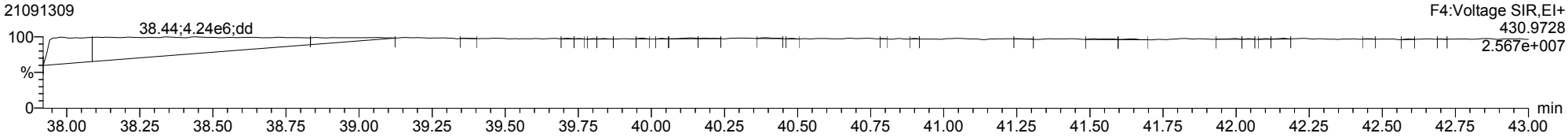


FUNCTION4 PFK



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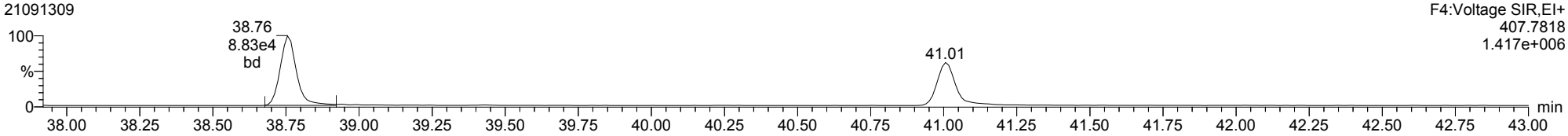

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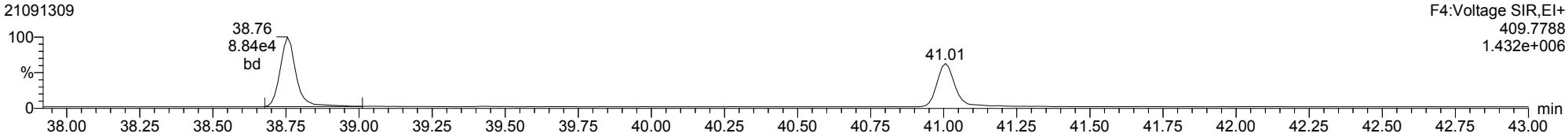

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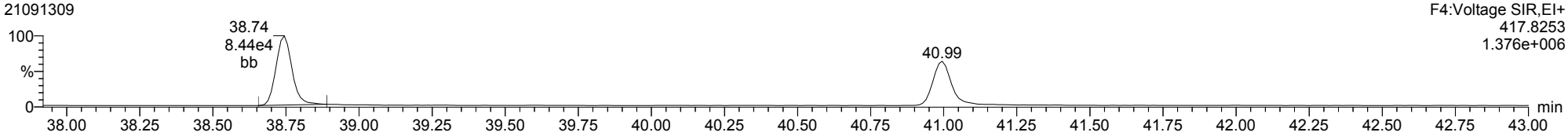

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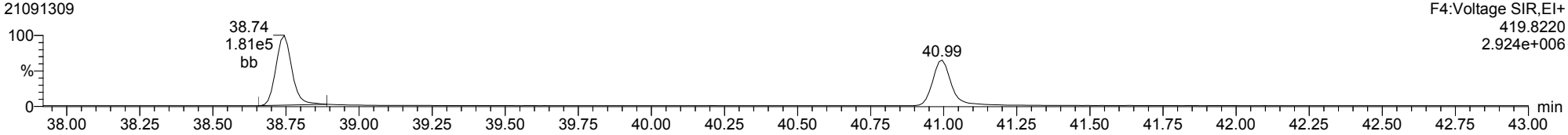

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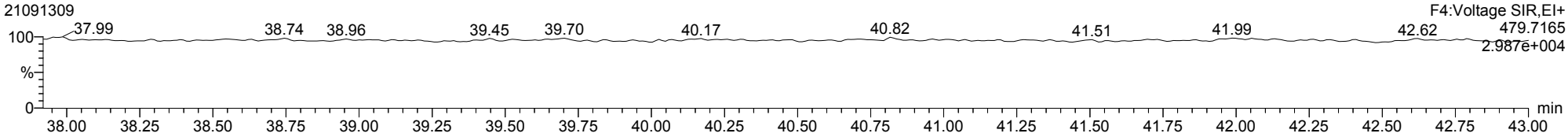

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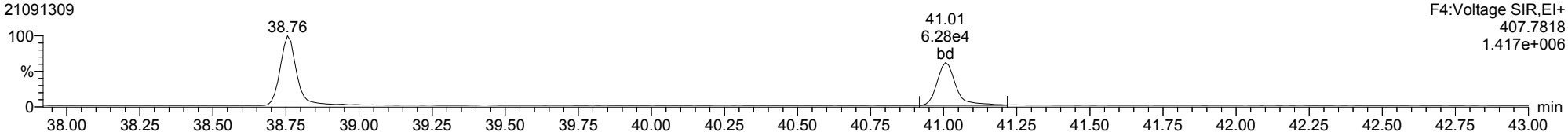

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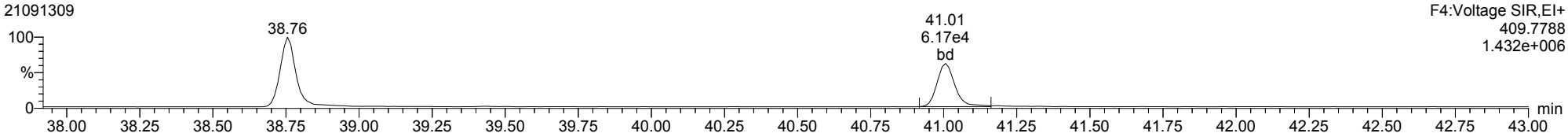

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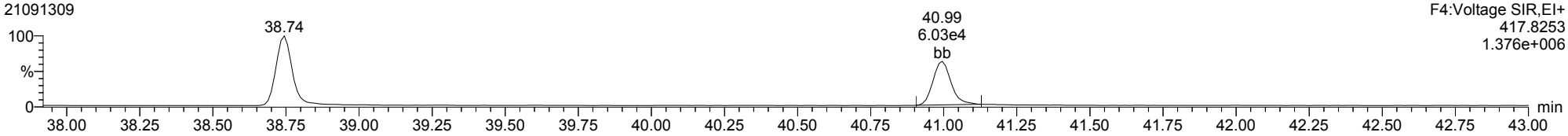

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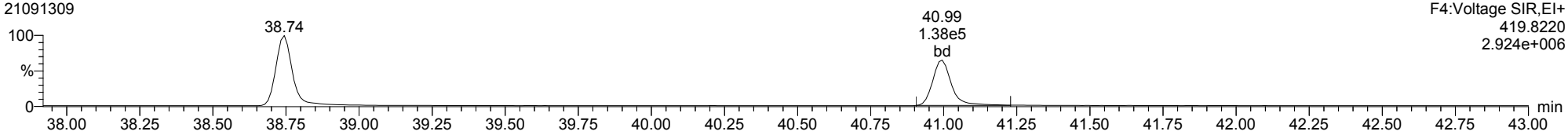

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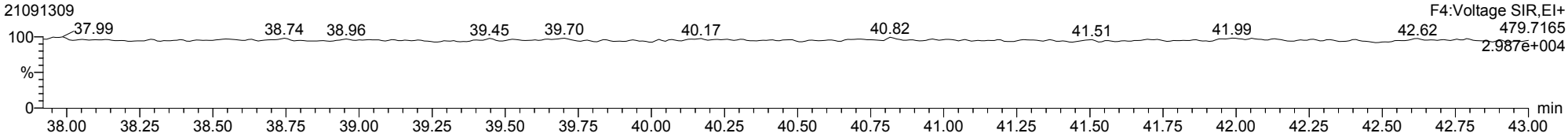

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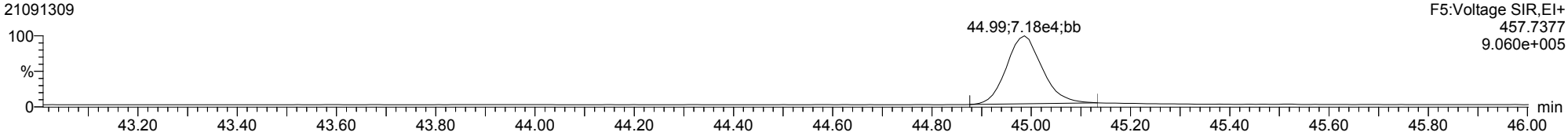
OCDD



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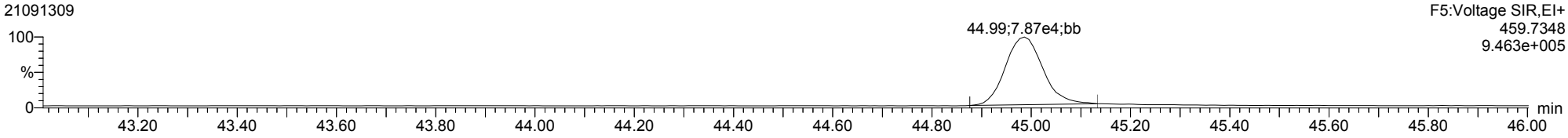

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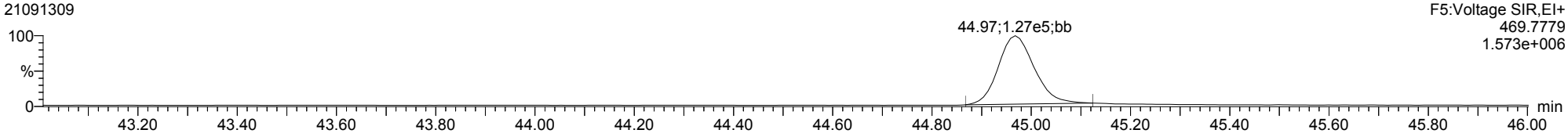

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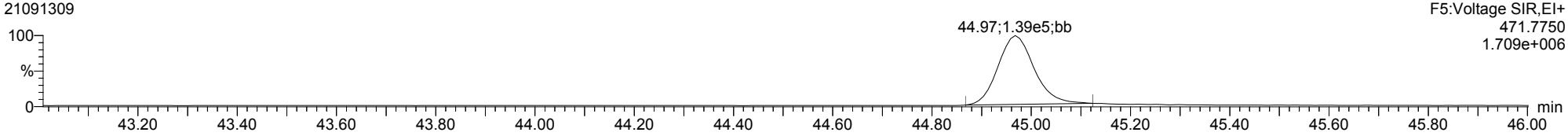
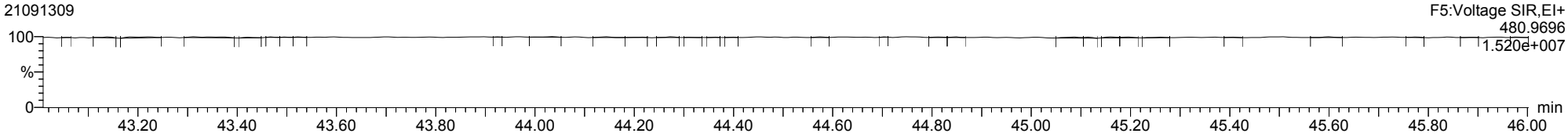


FUNCTION5 PFK



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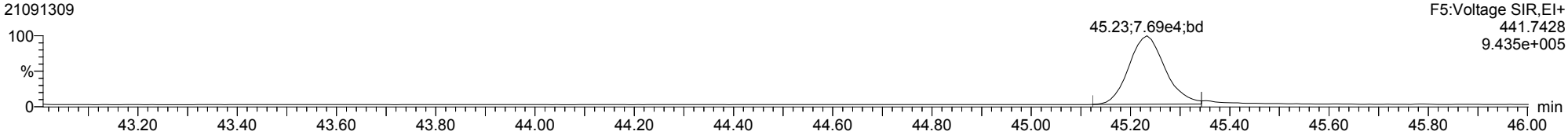
OCDF



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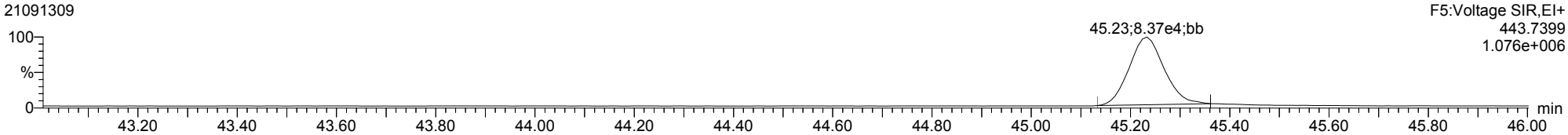
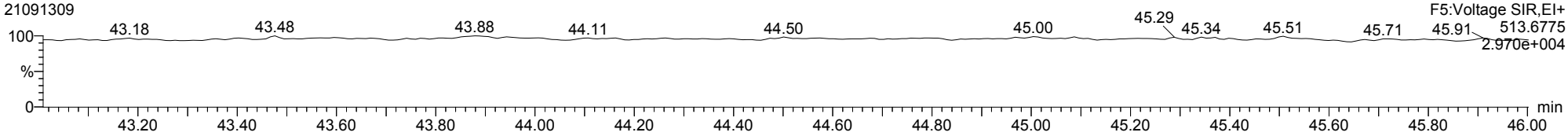
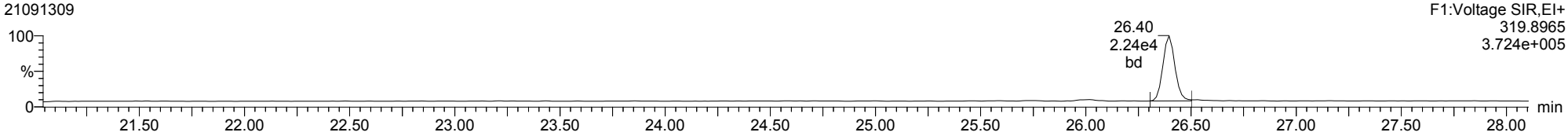


FUNCTION5 DCDPE

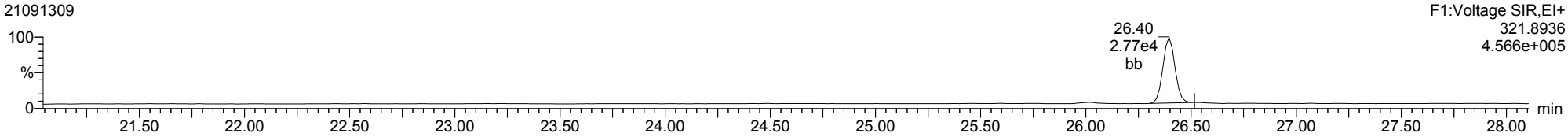


ID: BJH0773-BS1, Name: 21091309, Date: 13-Sep-2021, Time: 18:25:27, Conditions: AUTOSPEC01, User: pk

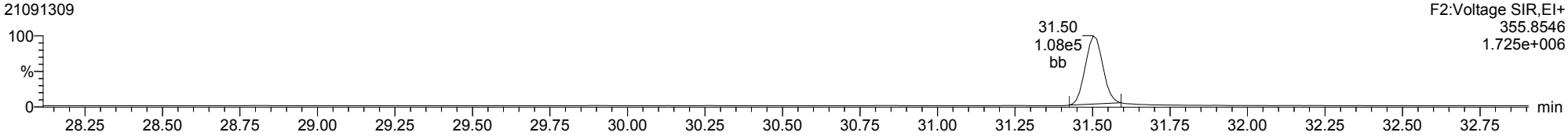
Total-tetradioxins



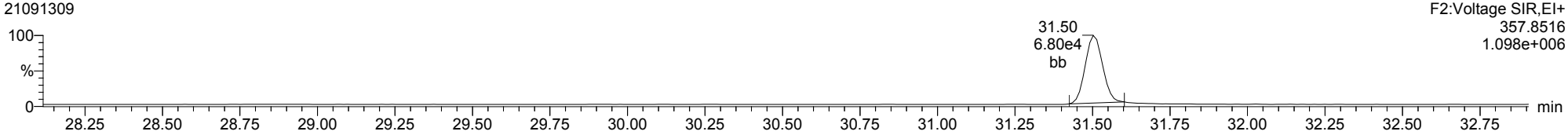
Total-tetradioxins



Total-pentadioxins



Total-pentadioxins



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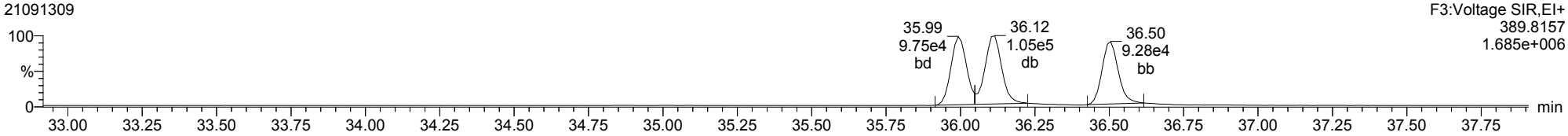
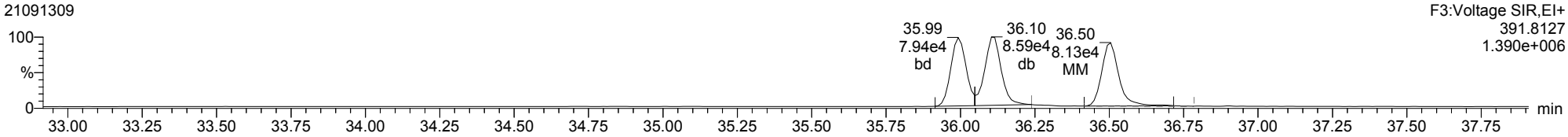
Printed: Tuesday, September 14, 2021 11:16:00 Pacific Daylight Time

ID: BJH0773-BS1, Name: 21091309, Date: 13-Sep-2021, Time: 18:25:27, Conditions: AUTOSPEC01, User: pk

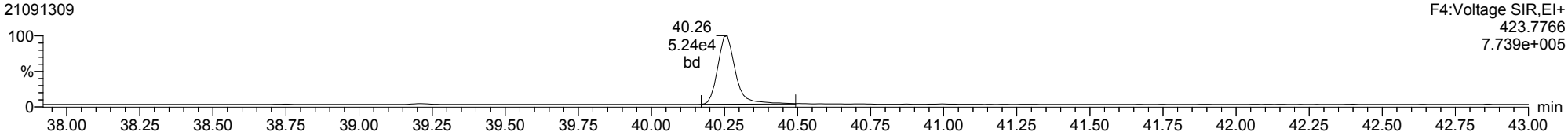
Total-hexadioxins



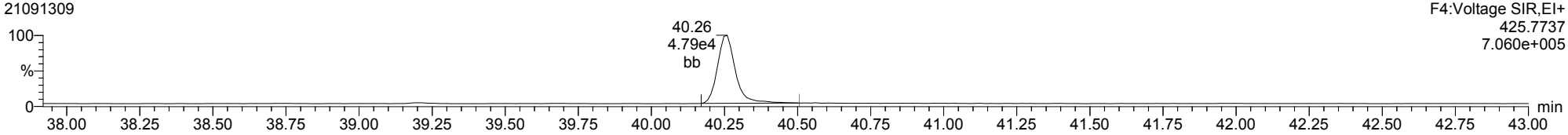
Total-hexadioxins



Total-heptadioxins



Total-heptadioxins



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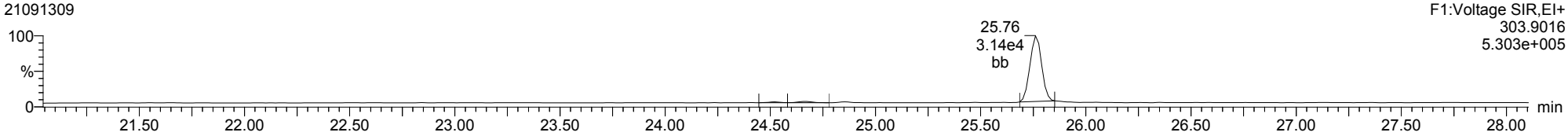
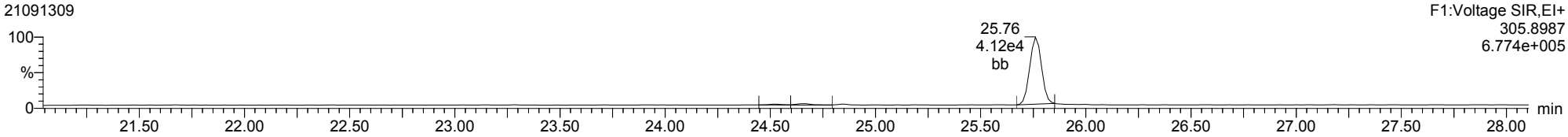
ID: BJH0773-BS1, Name: 21091309, Date: 13-Sep-2021, Time: 18:25:27, Conditions: AUTOSPEC01, User: pk

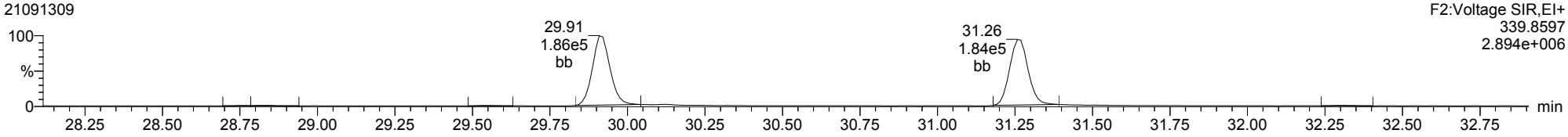
Total-tetrafurans



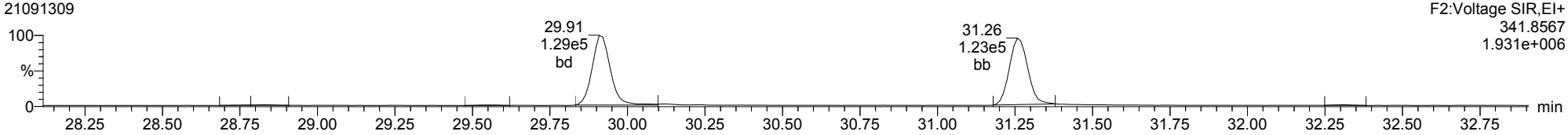
Total-tetrafurans



Total-pentafurans



Total-pentafurans



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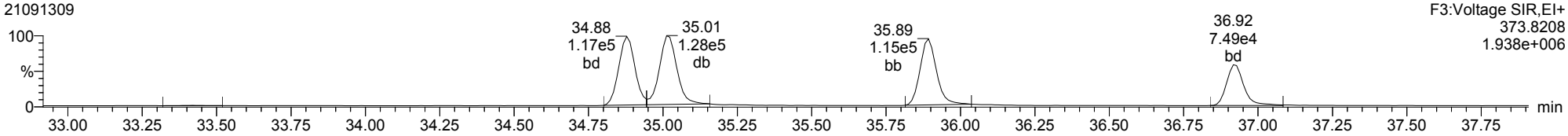
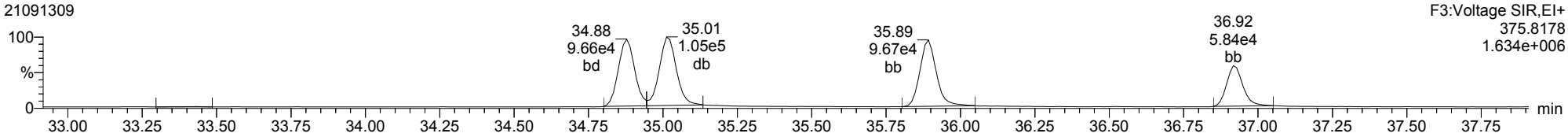
ID: BJH0773-BS1, Name: 21091309, Date: 13-Sep-2021, Time: 18:25:27, Conditions: AUTOSPEC01, User: pk

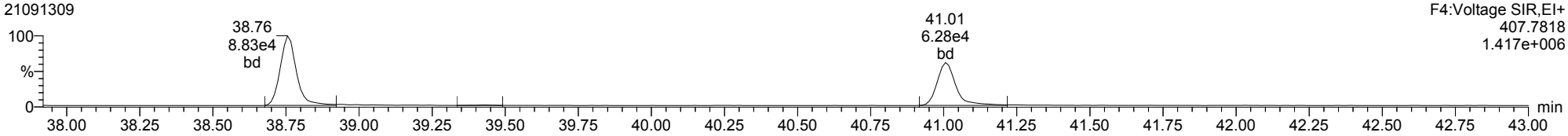
Total-hexafurans



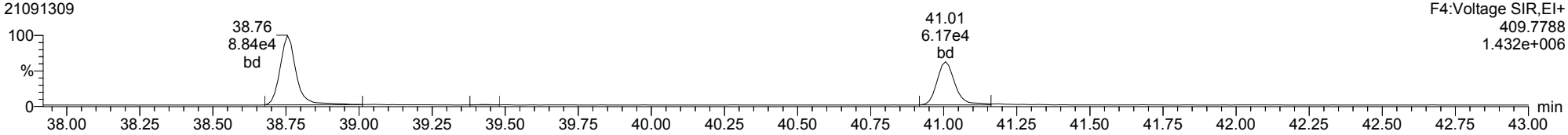
Total-hexafurans



Total-heptafurans



Total-heptafurans



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Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:16:10 Pacific Daylight Time

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

ID: BJH0773-BSD1, Name: 21091310, Date: 13-Sep-2021, Time: 19:14:31, 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	25.746	1.001	2.656e4	3.608e4	1.108	0.736	0.770	874	1227	4.20e5	5.59e5	480.0	455.7	NO	bb	bb	8.809
12378-PeCDF	29.909	1.001	1.601e5	1.071e5	1.015	1.494	1.550	1666	1418	2.43e6	1.64e6	1459.5	1157.9	NO	bb	bb	44.376
23478-PeCDF	31.246	1.000	1.632e5	1.079e5	1.126	1.513	1.550	1666	1418	2.48e6	1.66e6	1490.5	1168.0	NO	bb	bd	43.617
123478-HxCDF	34.867	1.000	1.029e5	8.483e4	1.017	1.213	1.240	1346	1383	1.68e6	1.41e6	1248.2	1017.9	NO	bd	bd	43.664
234678-HxCDF	35.881	1.001	9.949e4	8.320e4	1.052	1.196	1.240	1346	1383	1.60e6	1.32e6	1188.4	954.4	NO	bb	bb	43.750
123678-HxCDF	35.001	1.000	1.117e5	9.104e4	1.037	1.227	1.240	1346	1383	1.70e6	1.39e6	1265.1	1003.1	NO	db	db	44.737
123789-HxCDF	36.906	1.000	7.783e4	6.727e4	1.030	1.157	1.240	1346	1383	1.24e6	1.03e6	917.6	746.9	NO	bb	bd	45.393
1234678-HpCDF	38.744	1.000	1.018e5	9.478e4	1.327	1.074	1.050	1342	1242	1.65e6	1.61e6	1228.7	1296.5	NO	bd	bb	49.201
1234789-HpCDF	40.995	1.000	6.977e4	7.007e4	1.283	0.996	1.050	1342	1242	9.69e5	9.98e5	722.1	803.5	NO	bd	bd	48.160
OCDF	45.215	1.006	8.943e4	1.020e5	1.447	0.877	0.890	1063	1086	1.06e6	1.18e6	1001.1	1085.0	NO	bb	bd	83.320
2378-TCDD	26.381	1.001	1.985e4	2.353e4	0.920	0.844	0.770	1143	1114	2.98e5	3.51e5	260.5	315.3	NO	bb	bb	10.259
12378-PeCDD	31.492	1.000	9.523e4	5.876e4	0.995	1.621	1.550	1136	783	1.49e6	9.31e5	1309.2	1188.3	NO	bb	bb	51.396
123478-HxCDD	35.981	1.000	8.894e4	7.232e4	1.027	1.230	1.240	1231	1397	1.51e6	1.23e6	1230.1	880.4	NO	bd	bd	43.762
123678-HxCDD	36.093	1.000	9.630e4	7.822e4	1.009	1.231	1.240	1231	1397	1.47e6	1.19e6	1194.9	853.5	NO	db	db	45.240
123789-HxCDD	36.494	1.011	9.048e4	6.962e4	0.950	1.300	1.240	1231	1397	1.38e6	1.11e6	1118.7	792.7	NO	bd	bb	45.463
1234678-HpCDD	40.249	1.001	5.658e4	5.455e4	1.068	1.037	1.050	869	826	8.58e5	7.66e5	986.5	926.4	NO	bb	bd	54.460
OCDD	44.977	1.000	8.628e4	9.301e4	1.181	0.928	0.890	976	930	1.03e6	1.12e6	1056.6	1201.1	NO	bd	bd	95.619
13C-2378-TCDF	25.730	1.007	2.879e5	3.541e5	1.427	0.813	0.770	1777	1751	4.46e6	5.54e6	2510.7	3165.9	NO	bb	bb	98.096
13C-12378-PeCDF	29.887	1.170	3.601e5	2.332e5	1.297	1.544	1.550	2003	1755	5.57e6	3.56e6	2782.0	2028.6	NO	bb	bd	99.682
13C-23478-PeCDF	31.235	1.223	3.358e5	2.164e5	1.236	1.551	1.550	2003	1755	5.12e6	3.19e6	2555.4	1818.2	NO	bb	bb	97.343
13C-123478-HxCDF	34.856	0.956	1.412e5	2.816e5	1.242	0.501	0.510	1951	1691	2.19e6	4.32e6	1120.4	2555.6	NO	bd	bd	83.579
13C-123678-HxCDF	34.990	0.959	1.480e5	2.892e5	1.343	0.512	0.510	1951	1691	2.32e6	4.58e6	1187.6	2707.4	NO	db	db	79.903
13C-234678-HxCDF	35.859	0.983	1.343e5	2.625e5	1.215	0.512	0.510	1951	1691	2.06e6	4.04e6	1055.3	2388.1	NO	bb	bb	80.202
13C-123789-HxCDF	36.895	1.012	1.056e5	2.047e5	1.008	0.516	0.510	1951	1691	1.77e6	3.48e6	908.3	2060.7	NO	bb	bb	75.626
13C-1234678-HpCDF	38.733	1.062	9.366e4	2.073e5	0.926	0.452	0.440	1277	1822	1.56e6	3.37e6	1223.1	1849.0	NO	bb	bb	79.783
13C-1234789-HpCDF	40.984	1.124	7.113e4	1.551e5	0.758	0.458	0.440	1277	1822	1.00e6	2.19e6	786.6	1202.5	NO	bd	bb	73.310
13C-1234-TCDD	25.549	0.000	1.984e5	2.604e5	1.000	0.762	0.770	1210	1255	3.00e6	4.00e6	2482.4	3189.2	NO	bb	bb	100.000
13C-2378-TCDD	26.365	1.032	1.974e5	2.622e5	1.116	0.753	0.770	1210	1255	3.03e6	4.01e6	2503.0	3194.4	NO	bb	bb	89.720
13C-12378-PeCDD	31.480	1.232	1.843e5	1.167e5	0.732	1.579	1.550	989	832	2.76e6	1.73e6	2788.1	2083.8	NO	bb	bb	89.646
13C-123478-HxCDD	35.970	0.986	2.004e5	1.583e5	0.960	1.266	1.240	1969	1771	3.31e6	2.61e6	1679.9	1473.8	NO	bd	bd	91.768
13C-123678-HxCDD	36.082	0.989	2.133e5	1.691e5	1.041	1.261	1.240	1969	1771	3.38e6	2.73e6	1716.1	1539.5	NO	db	db	90.154
13C-1234678-HpCDD	40.226	1.103	9.723e4	9.381e4	0.632	1.036	1.050	990	844	1.45e6	1.41e6	1465.3	1666.8	NO	bb	bb	74.179
13C-OCDD	44.959	1.233	1.506e5	1.670e5	0.504	0.902	0.890	1101	1176	1.80e6	1.99e6	1631.5	1692.9	NO	bb	bb	154.822
13C-123789-HxCDD	36.472	0.000	2.218e5	1.854e5	1.000	1.196	1.240	1969	1771	3.57e6	2.91e6	1813.0	1644.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.381	1.033	1.762e5		1.084			863		2.63e6		3049.2			bb		35.445

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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ID: BJH0773-BSD1, Name: 21091310, Date: 13-Sep-2021, Time: 19:14:31, 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	874	1227								
1289-TCDF	27.288	1.061	1.345e2	2.610e2	1.043	0.515	0.770	874	1227	3.88e3	3.96e3	4.4	3.2	YES	db	db	0.059
13468-PECDF	27.016	0.904	1.438e2	1.579e2	1.376	0.911	1.550	747	781	3.10e3	4.64e3	4.2	5.9	YES	bb	bb	0.037
12389-PECDF	32.305	1.081	1.351e3	8.026e2	1.000	1.684	1.550	1666	1418	1.80e4	1.29e4	10.8	9.1	NO	bb	bb	0.363
123468-HXCDF					1.087		1.240	1346	1383								
1368-TCDD					0.923		0.770	1143	1114								
1289-TCDD					0.794		0.770	1143	1114								
12479-PECDD					1.843		1.550	1136	783								
12389-PECDD					1.154		1.550	1136	783								
124679-HXCDD					1.125		1.240	1231	1397								
1234679-HPCDD	39.190	0.974	6.836e2	3.317e2	1.211	2.061	1.050	869	826	1.06e4	6.63e3	12.2	8.0	YES	bb	bb	0.439
Total-tetrafurans			2.683e4		1.192			874		4.24e5							8.892
Total-penta1			0.000e0					747		0.00e0							
Total-pentafurans			3.246e5		1.047			1666		4.93e6							88.356
Total-hexafurans			3.920e5		1.045			1346		6.22e6							177.543
Total-heptafurans			1.719e5		1.305			1342		2.62e6							97.580
Total-Furans			1.005e6		1.158			874		1.53e7							455.691
Total-tetradioxins			2.024e4		0.879			1143		3.03e5							10.496
Total-pentadioxins			9.523e4		1.331			1136		1.49e6							51.396
Total-hexadioxins			2.757e5		1.028			1231		4.36e6							134.465
Total-heptadioxins			5.658e4		1.140			869		8.58e5							54.460
Total-Dioxins			5.341e5		1.092			1143		8.04e6							346.435
Total-TEQ			1.539e6					1143		2.33e7							802.127
FUNCTION1 PFK			0.000e0					386753		0.00e0							
FUNCTION2 PFK			3.223e6					194445		6.37e6							0.000
FUNCTION3 PFK			7.787e5					239481		1.79e7							0.000
FUNCTION4 PFK			0.000e0					183200		0.00e0							
FUNCTION5 PFK			3.108e5					116507		3.27e6							
FUNCTION1 HXCD...			2.069e3					694		3.89e4							0.000
FUNCTION1 HPCD...			7.946e2					904		1.76e4							0.000
FUNCTION2 HPCD...			4.090e2					657		8.07e3							0.000
FUNCTION3 OCDPE			1.012e2					505		1.71e3							0.000
FUNCTION4 NCDPE			0.000e0					617		0.00e0							
FUNCTION5 DCDPE			0.000e0					531		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
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Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: BJH0773-BSD1, Name: 21091310, Date: 13-Sep-2021, Time: 19:14:31, 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	24.52	2.663e2	3.714e2	1.192	0.72	0.77	5.4	YES	NO	bb	bd	0.083
2	2378-TCDF	25.75	2.656e4	3.608e4	1.108	0.74	0.77	480.0	YES	NO	bb	bb	8.809

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	12389-PECDF	32.30	1.351e3	8.026e2	1.000	1.68	1.55	10.8	YES	NO	bb	bb	0.363
2	23478-PeCDF	31.25	1.632e5	1.079e5	1.126	1.51	1.55	1490.5	YES	NO	bb	bd	43.617
3	12378-PeCDF	29.91	1.601e5	1.071e5	1.015	1.49	1.55	1459.5	YES	NO	bb	bb	44.376

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	35.00	1.117e5	9.104e4	1.037	1.23	1.24	1265.1	YES	NO	db	db	44.737
2	123478-HxCDF	34.87	1.029e5	8.483e4	1.017	1.21	1.24	1248.2	YES	NO	bd	bd	43.664
3	123789-HxCDF	36.91	7.783e4	6.727e4	1.030	1.16	1.24	917.6	YES	NO	bb	bd	45.393
4	234678-HxCDF	35.88	9.949e4	8.320e4	1.052	1.20	1.24	1188.4	YES	NO	bb	bb	43.750

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.99	6.977e4	7.007e4	1.283	1.00	1.05	722.1	YES	NO	bd	bd	48.160
2	Total-heptafurans	39.41	3.766e2	3.774e2	1.305	1.00	1.05	4.3	YES	NO	bb	bb	0.219
3	1234678-HpCDF	38.74	1.018e5	9.478e4	1.327	1.07	1.05	1228.7	YES	NO	bd	bb	49.201

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.52	2.663e2	3.714e2	1.192	0.72	0.77	5.4	YES	NO	bb	bd	0.083
2	2378-TCDF	25.75	2.656e4	3.608e4	1.108	0.74	0.77	480.0	YES	NO	bb	bb	8.809
3	12389-PECDF	32.30	1.351e3	8.026e2	1.000	1.68	1.55	10.8	YES	NO	bb	bb	0.363
4	23478-PeCDF	31.25	1.632e5	1.079e5	1.126	1.51	1.55	1490.5	YES	NO	bb	bd	43.617
5	12378-PeCDF	29.91	1.601e5	1.071e5	1.015	1.49	1.55	1459.5	YES	NO	bb	bb	44.376
6	123678-HxCDF	35.00	1.117e5	9.104e4	1.037	1.23	1.24	1265.1	YES	NO	db	db	44.737
7	123478-HxCDF	34.87	1.029e5	8.483e4	1.017	1.21	1.24	1248.2	YES	NO	bd	bd	43.664
8	123789-HxCDF	36.91	7.783e4	6.727e4	1.030	1.16	1.24	917.6	YES	NO	bb	bd	45.393
9	234678-HxCDF	35.88	9.949e4	8.320e4	1.052	1.20	1.24	1188.4	YES	NO	bb	bb	43.750
10	1234789-HpCDF	40.99	6.977e4	7.007e4	1.283	1.00	1.05	722.1	YES	NO	bd	bd	48.160
11	Total-heptafurans	39.41	3.766e2	3.774e2	1.305	1.00	1.05	4.3	YES	NO	bb	bb	0.219
12	1234678-HpCDF	38.74	1.018e5	9.478e4	1.327	1.07	1.05	1228.7	YES	NO	bd	bb	49.201
13	OCDF	45.22	8.943e4	1.020e5	1.447	0.88	0.89	1001.1	YES	NO	bb	bd	83.320

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.38	1.985e4	2.353e4	0.920	0.84	0.77	260.5	YES	NO	bb	bb	10.259
2	Total-tetradioxins	26.00	3.837e2	5.741e2	0.879	0.67	0.77	4.8	YES	NO	bb	bb	0.237

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.49	9.523e4	5.876e4	0.995	1.62	1.55	1309.2	YES	NO	bb	bb	51.396

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.49	9.048e4	6.962e4	0.950	1.30	1.24	1118.7	YES	NO	bd	bb	45.463
2	123678-HxCDD	36.09	9.630e4	7.822e4	1.009	1.23	1.24	1194.9	YES	NO	db	db	45.240
3	123478-HxCDD	35.98	8.894e4	7.232e4	1.027	1.23	1.24	1230.1	YES	NO	bd	bd	43.762

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.25	5.658e4	5.455e4	1.068	1.04	1.05	986.5	YES	NO	bb	bd	54.460

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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	26.38	1.985e4	2.353e4	0.920	0.84	0.77	260.5	YES	NO	bb	bb	10.259
2	Total-tetradioxins	26.00	3.837e2	5.741e2	0.879	0.67	0.77	4.8	YES	NO	bb	bb	0.237
3	12378-PeCDD	31.49	9.523e4	5.876e4	0.995	1.62	1.55	1309.2	YES	NO	bb	bb	51.396
4	123789-HxCDD	36.49	9.048e4	6.962e4	0.950	1.30	1.24	1118.7	YES	NO	bd	bb	45.463
5	123678-HxCDD	36.09	9.630e4	7.822e4	1.009	1.23	1.24	1194.9	YES	NO	db	db	45.240
6	123478-HxCDD	35.98	8.894e4	7.232e4	1.027	1.23	1.24	1230.1	YES	NO	bd	bd	43.762
7	1234678-HpCDD	40.25	5.658e4	5.455e4	1.068	1.04	1.05	986.5	YES	NO	bb	bd	54.460
8	OCDD	44.98	8.628e4	9.301e4	1.181	0.93	0.89	1056.6	YES	NO	bd	bd	95.619

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	24.52	2.663e2	3.714e2	1.192	0.72	0.77	5.4	YES	NO	bb	bd	0.083
2	2378-TCDF	25.75	2.656e4	3.608e4	1.108	0.74	0.77	480.0	YES	NO	bb	bb	8.809
3	12389-PECDF	32.30	1.351e3	8.026e2	1.000	1.68	1.55	10.8	YES	NO	bb	bb	0.363
4	23478-PeCDF	31.25	1.632e5	1.079e5	1.126	1.51	1.55	1490.5	YES	NO	bb	bd	43.617
5	12378-PeCDF	29.91	1.601e5	1.071e5	1.015	1.49	1.55	1459.5	YES	NO	bb	bb	44.376
6	123678-HxCDF	35.00	1.117e5	9.104e4	1.037	1.23	1.24	1265.1	YES	NO	db	db	44.737
7	123478-HxCDF	34.87	1.029e5	8.483e4	1.017	1.21	1.24	1248.2	YES	NO	bd	bd	43.664
8	123789-HxCDF	36.91	7.783e4	6.727e4	1.030	1.16	1.24	917.6	YES	NO	bb	bd	45.393
9	234678-HxCDF	35.88	9.949e4	8.320e4	1.052	1.20	1.24	1188.4	YES	NO	bb	bb	43.750
10	1234789-HpCDF	40.99	6.977e4	7.007e4	1.283	1.00	1.05	722.1	YES	NO	bd	bd	48.160
11	Total-heptafurans	39.41	3.766e2	3.774e2	1.305	1.00	1.05	4.3	YES	NO	bb	bb	0.219
12	1234678-HpCDF	38.74	1.018e5	9.478e4	1.327	1.07	1.05	1228.7	YES	NO	bd	bb	49.201
13	OCDF	45.22	8.943e4	1.020e5	1.447	0.88	0.89	1001.1	YES	NO	bb	bd	83.320
14	2378-TCDD	26.38	1.985e4	2.353e4	0.920	0.84	0.77	260.5	YES	NO	bb	bb	10.259
15	Total-tetradioxins	26.00	3.837e2	5.741e2	0.879	0.67	0.77	4.8	YES	NO	bb	bb	0.237
16	12378-PeCDD	31.49	9.523e4	5.876e4	0.995	1.62	1.55	1309.2	YES	NO	bb	bb	51.396
17	123789-HxCDD	36.49	9.048e4	6.962e4	0.950	1.30	1.24	1118.7	YES	NO	bd	bb	45.463
18	123678-HxCDD	36.09	9.630e4	7.822e4	1.009	1.23	1.24	1194.9	YES	NO	db	db	45.240
19	123478-HxCDD	35.98	8.894e4	7.232e4	1.027	1.23	1.24	1230.1	YES	NO	bd	bd	43.762
20	1234678-HpCDD	40.25	5.658e4	5.455e4	1.068	1.04	1.05	986.5	YES	NO	bb	bd	54.460
21	OCDD	44.98	8.628e4	9.301e4	1.181	0.93	0.89	1056.6	YES	NO	bd	bd	95.619

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:16:10 Pacific Daylight Time

ID: BJH0773-BSD1, Name: 21091310, Date: 13-Sep-2021, Time: 19:14:31, Conditions: AUTOSPEC01, User: pk

PFK1

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

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.91	1.017e4					1.7	NO		bb		0.000
2	FUNCTION2 PFK	28.37	3.213e6					31.0	YES		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210913IH1.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	33.25	6.964e3					1.4	NO		bd		0.000
2	FUNCTION3 PFK	33.15	4.413e3					1.0	NO		bb		0.000
3	FUNCTION3 PFK	33.04	1.193e3					0.4	NO		bb		0.000
4	FUNCTION3 PFK	34.60	3.827e3					0.9	NO		bb		0.000
5	FUNCTION3 PFK	34.56	2.254e4					1.7	NO		db		0.000
6	FUNCTION3 PFK	34.47	5.086e4					2.2	NO		dd		0.000
7	FUNCTION3 PFK	34.37	8.878e3					1.6	NO		bd		0.000
8	FUNCTION3 PFK	34.27	2.910e4					1.9	NO		bb		0.000
9	FUNCTION3 PFK	34.13	4.150e4					2.3	NO		db		0.000
10	FUNCTION3 PFK	34.08	1.030e4					1.5	NO		bd		0.000
11	FUNCTION3 PFK	33.96	6.772e3					0.9	NO		db		0.000
12	FUNCTION3 PFK	33.91	2.151e3					0.6	NO		dd		0.000
13	FUNCTION3 PFK	33.88	5.564e3					1.0	NO		bd		0.000
14	FUNCTION3 PFK	33.74	9.190e2					0.3	NO		bb		0.000
15	FUNCTION3 PFK	33.54	9.904e3					1.3	NO		db		0.000
16	FUNCTION3 PFK	33.50	1.598e4					2.1	NO		dd		0.000
17	FUNCTION3 PFK	33.42	3.750e4					2.1	NO		dd		0.000
18	FUNCTION3 PFK	33.36	9.471e3					1.4	NO		dd		0.000
19	FUNCTION3 PFK	33.29	1.146e4					1.3	NO		dd		0.000
20	FUNCTION3 PFK	36.35	1.029e4					1.3	NO		dd		0.000
21	FUNCTION3 PFK	36.30	6.920e3					1.0	NO		bd		0.000
22	FUNCTION3 PFK	36.23	1.541e4					1.1	NO		bb		0.000
23	FUNCTION3 PFK	36.10	6.549e3					1.0	NO		bb		0.000
24	FUNCTION3 PFK	36.04	7.995e3					1.3	NO		bb		0.000
25	FUNCTION3 PFK	35.95	7.684e3					0.7	NO		bb		0.000
26	FUNCTION3 PFK	35.90	3.725e3					0.7	NO		bb		0.000
27	FUNCTION3 PFK	35.75	1.638e4					1.8	NO		bb		0.000
28	FUNCTION3 PFK	35.68	2.699e3					0.6	NO		bb		0.000
29	FUNCTION3 PFK	35.57	1.540e4					1.3	NO		db		0.000
30	FUNCTION3 PFK	35.50	1.788e4					2.0	NO		dd		0.000
31	FUNCTION3 PFK	35.48	1.138e4					2.0	NO		bd		0.000
32	FUNCTION3 PFK	35.26	1.677e4					1.4	NO		bb		0.000
33	FUNCTION3 PFK	35.05	2.463e3					0.5	NO		bb		0.000
34	FUNCTION3 PFK	34.99	7.439e3					1.1	NO		bb		0.000
35	FUNCTION3 PFK	34.82	1.322e4					1.2	NO		bb		0.000
36	FUNCTION3 PFK	37.74	7.544e3					0.6	NO		bb		0.000
37	FUNCTION3 PFK	37.70	1.795e4					1.7	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	37.54	3.180e3					0.6	NO		db		0.000
39	FUNCTION3 PFK	37.49	5.025e3					0.9	NO		bd		0.000
40	FUNCTION3 PFK	37.32	2.818e3					0.7	NO		bb		0.000
41	FUNCTION3 PFK	37.23	3.515e4					2.3	NO		db		0.000
42	FUNCTION3 PFK	37.13	2.476e4					2.2	NO		bd		0.000
43	FUNCTION3 PFK	37.04	9.398e3					1.2	NO		db		0.000
44	FUNCTION3 PFK	37.00	4.862e3					0.9	NO		bd		0.000
45	FUNCTION3 PFK	36.84	1.282e4					1.9	NO		db		0.000
46	FUNCTION3 PFK	36.75	3.376e4					2.7	NO		bd		0.000
47	FUNCTION3 PFK	36.67	3.885e4					3.2	YES		db		0.000
48	FUNCTION3 PFK	36.59	6.551e4					3.5	YES		dd		0.000
49	FUNCTION3 PFK	36.53	1.747e4					2.6	NO		dd		0.000
50	FUNCTION3 PFK	36.49	2.446e4					2.5	NO		dd		0.000
51	FUNCTION3 PFK	36.43	3.273e4					2.3	NO		dd		0.000
52	FUNCTION3 PFK	37.82	9.082e2					0.3	NO		bb		0.000

PFK4

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

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.71	4.254e3					1.3	NO		bb		
2	FUNCTION5 PFK	45.15	3.132e3					1.3	NO		bb		
3	FUNCTION5 PFK	44.80	4.903e3					1.7	NO		bb		
4	FUNCTION5 PFK	44.74	4.559e3					1.5	NO		bb		
5	FUNCTION5 PFK	44.28	3.555e3					1.4	NO		bb		
6	FUNCTION5 PFK	43.25	1.988e5					5.1	YES		db		
7	FUNCTION5 PFK	43.06	9.166e4					15.7	YES		bd		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	22.01	7.576e1					2.2	NO		bb		0.000
2	FUNCTION1 HXCD...	21.75	1.463e2					2.9	NO		bb		0.000
3	FUNCTION1 HXCD...	21.56	1.373e2					3.8	YES		db		0.000
4	FUNCTION1 HXCD...	21.50	1.261e2					3.6	YES		dd		0.000
5	FUNCTION1 HXCD...	21.44	1.235e2					3.2	YES		bd		0.000
6	FUNCTION1 HXCD...	27.27	1.730e2					6.0	YES		db		0.000
7	FUNCTION1 HXCD...	27.20	1.101e2					2.6	NO		dd		0.000
8	FUNCTION1 HXCD...	27.11	1.118e2					3.0	YES		dd		0.000
9	FUNCTION1 HXCD...	27.03	3.216e2					9.3	YES		dd		0.000
10	FUNCTION1 HXCD...	26.91	8.443e1					2.8	NO		dd		0.000
11	FUNCTION1 HXCD...	26.83	1.314e2					3.1	YES		dd		0.000
12	FUNCTION1 HXCD...	26.73	7.746e1					3.0	YES		bd		0.000
13	FUNCTION1 HXCD...	26.41	9.871e1					1.9	NO		bb		0.000
14	FUNCTION1 HXCD...	24.04	1.091e2					1.9	NO		bb		0.000
15	FUNCTION1 HXCD...	22.65	1.716e2					5.7	YES		bb		0.000
16	FUNCTION1 HXCD...	22.28	7.056e1					1.0	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...	26.83	1.504e2					5.5	YES		bb		0.000
2	FUNCTION1 HPCD...	22.62	1.200e2					1.7	NO		bb		0.000
3	FUNCTION1 HPCD...	21.56	1.010e2					2.2	NO		db		0.000
4	FUNCTION1 HPCD...	21.47	1.957e2					2.6	NO		bd		0.000
5	FUNCTION1 HPCD...	27.21	8.750e1					2.3	NO		bb		0.000
6	FUNCTION1 HPCD...	27.12	1.400e2					5.1	YES		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.84	8.176e1					1.9	NO		bb		0.000
2	FUNCTION2 HPCD...	30.14	8.671e1					2.4	NO		bb		0.000
3	FUNCTION2 HPCD...	29.53	7.604e1					2.4	NO		bb		0.000
4	FUNCTION2 HPCD...	28.59	1.645e2					5.6	YES		bb		0.000

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.88	1.012e2					3.4	YES		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													

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

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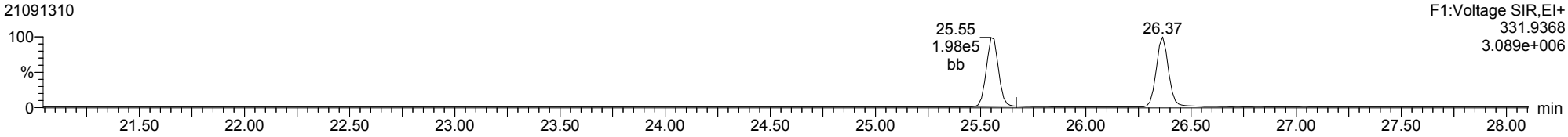
13C-1234-TCDD



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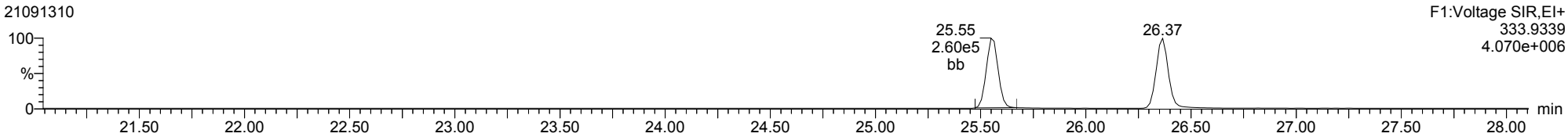

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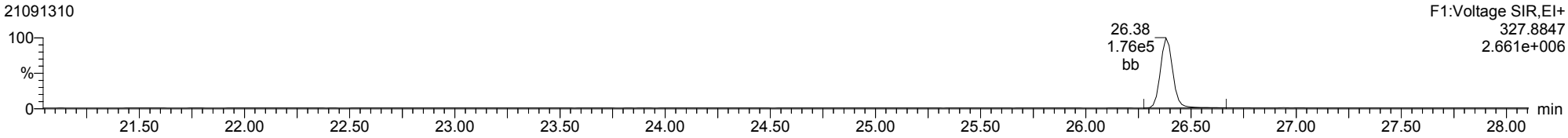

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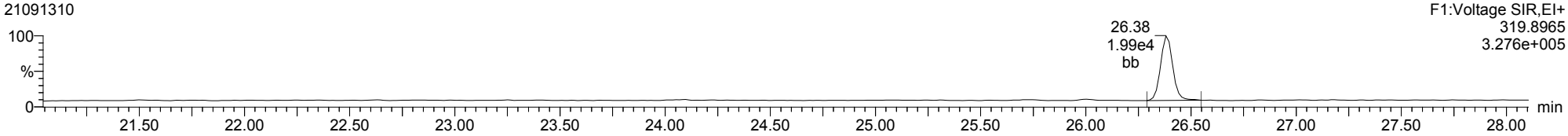
2378-TCDD



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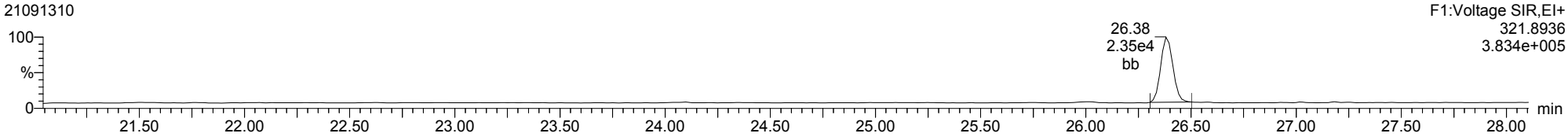
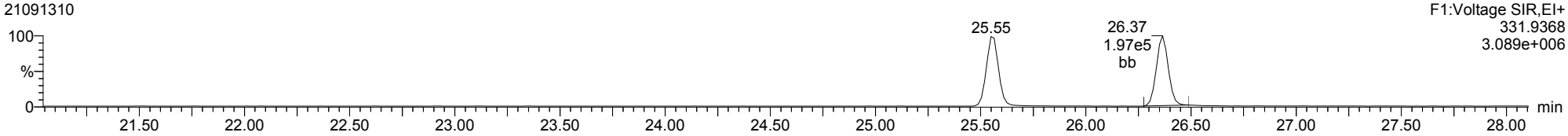


13C-2378-TCDD



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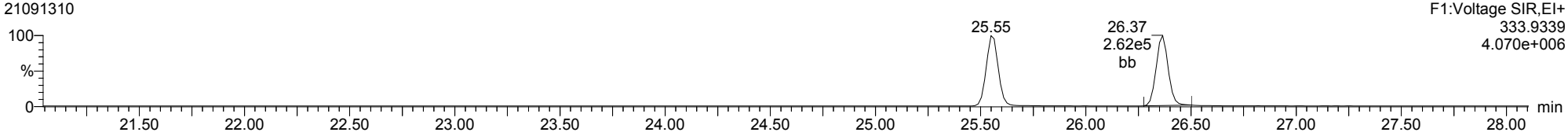
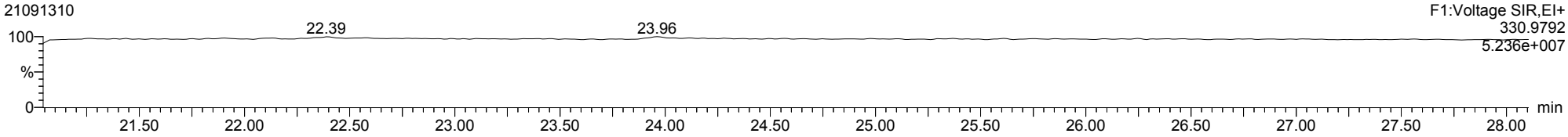


FUNCTION1 PFK



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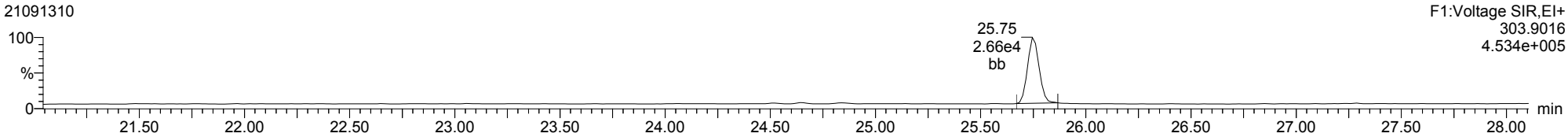
2378-TCDF



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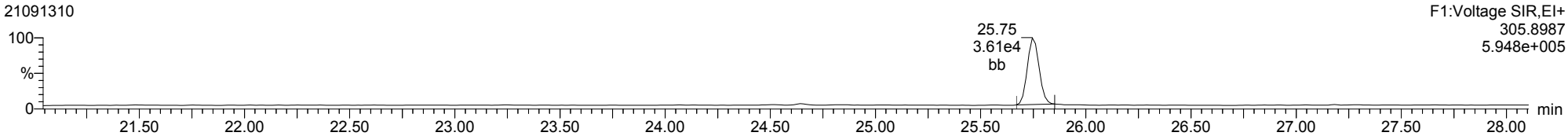

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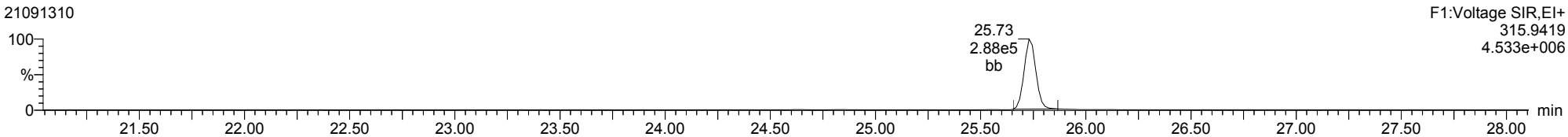

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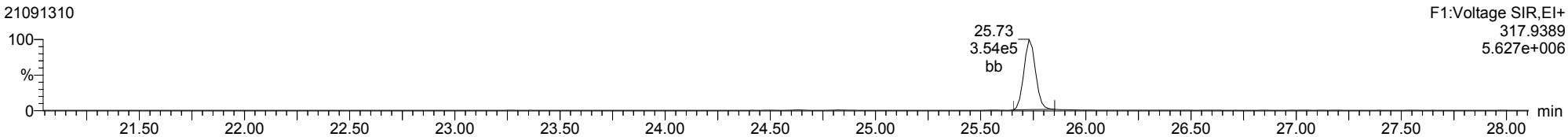
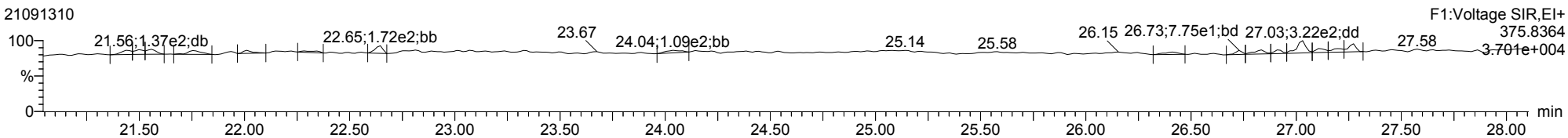


FUNCTION1 HXCDPE



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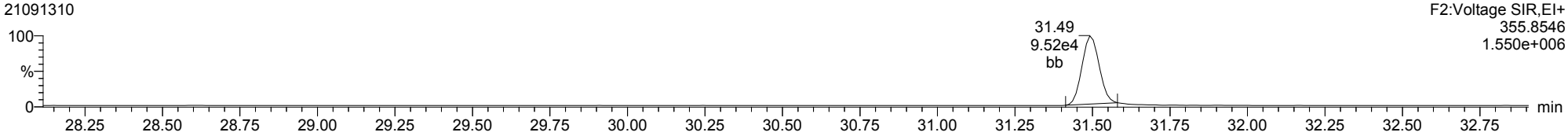
12378-PeCDD



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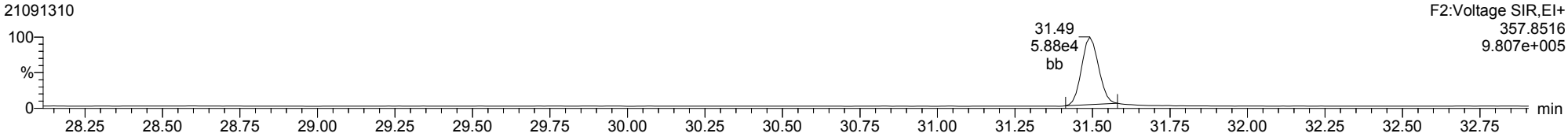

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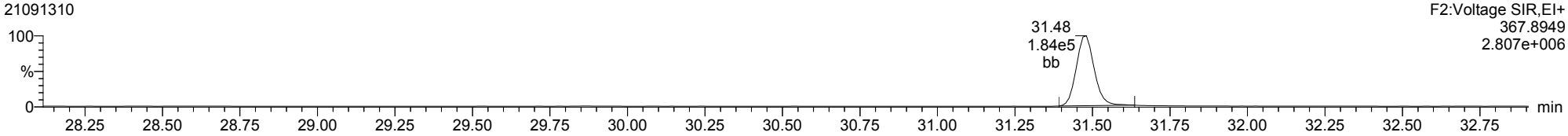

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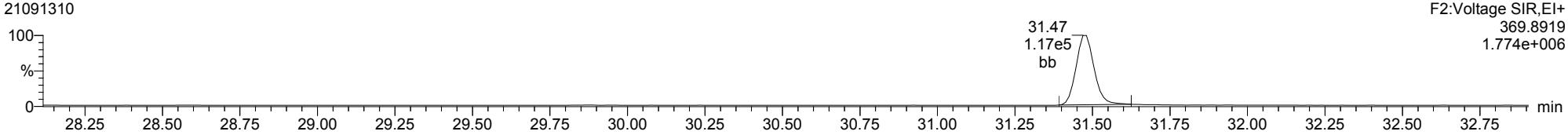

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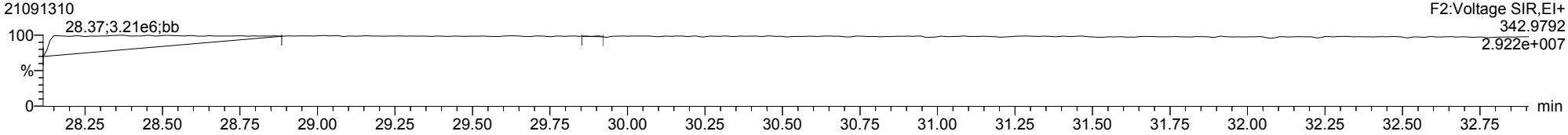

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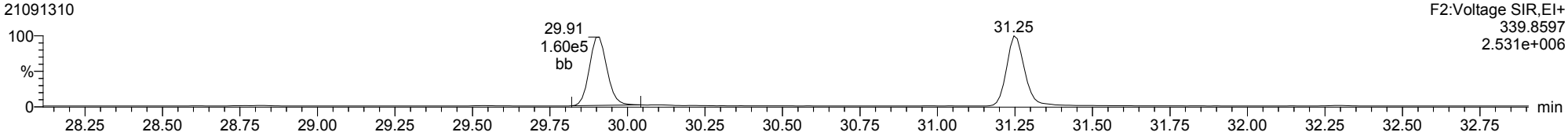
12378-PeCDF



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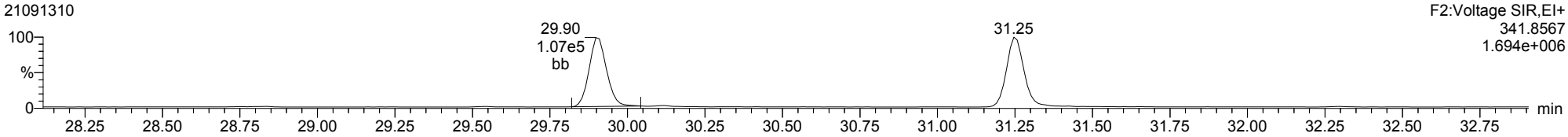

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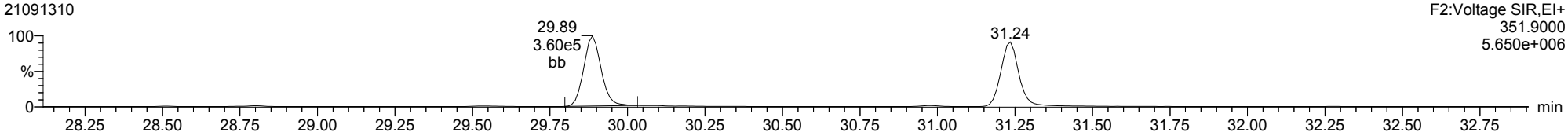

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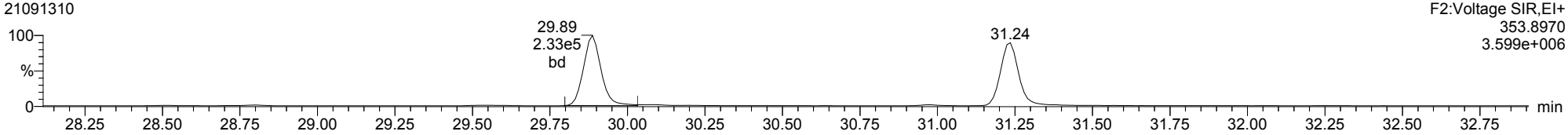
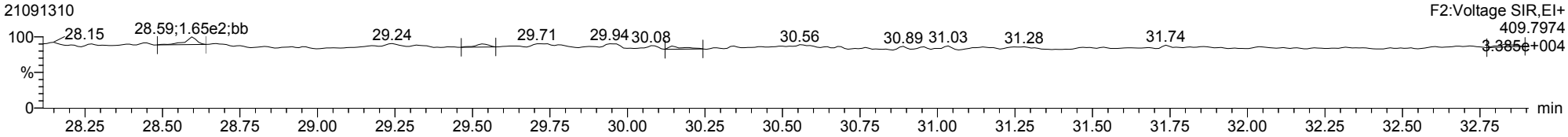


FUNCTION2 HPCDPE



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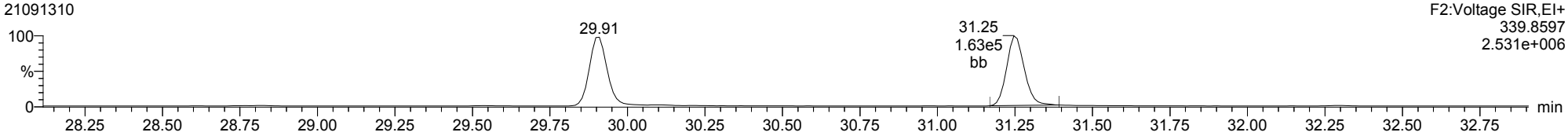
23478-PeCDF



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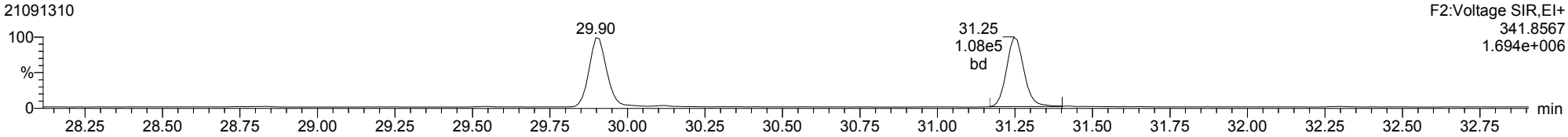

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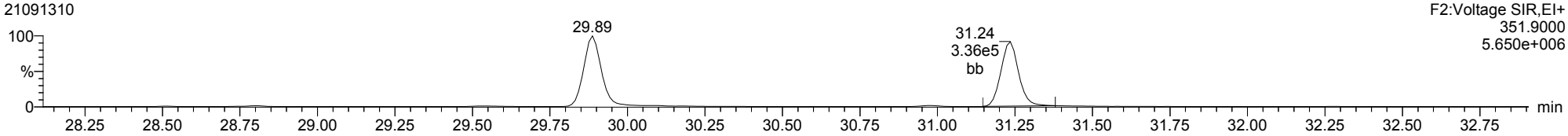

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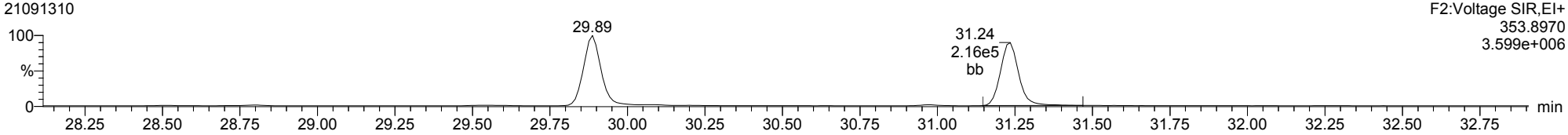

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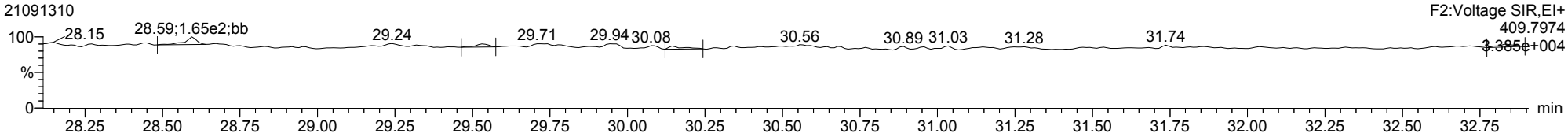

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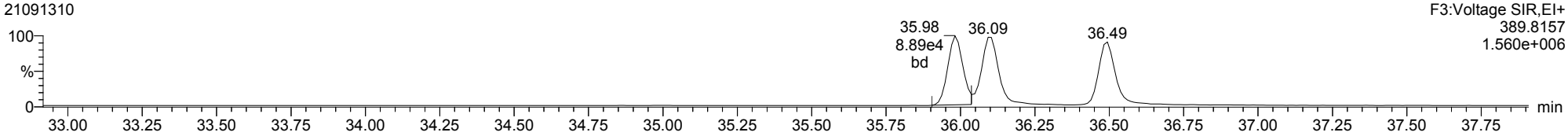
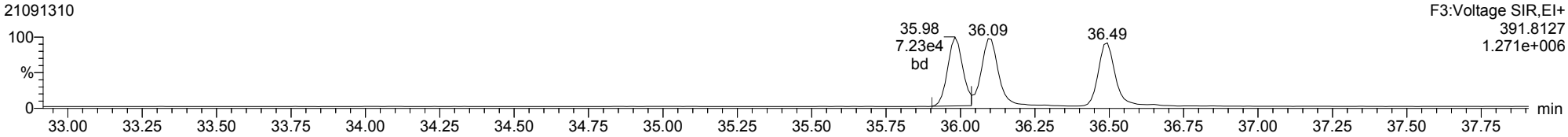
123478-HxCDD



123478-HxCDD



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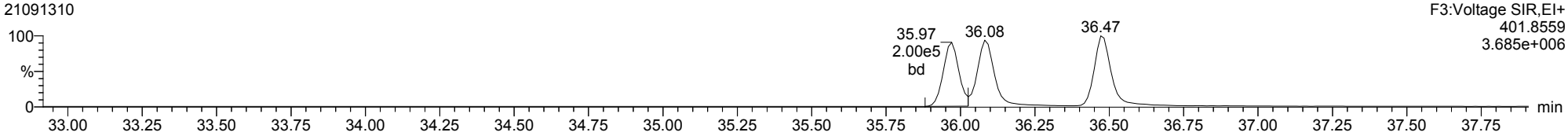

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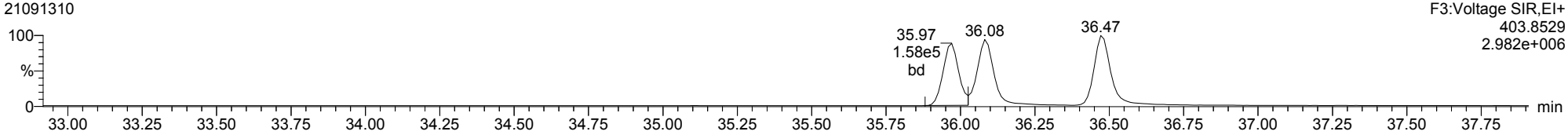

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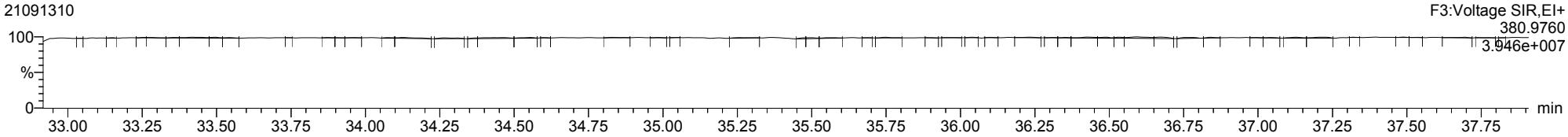

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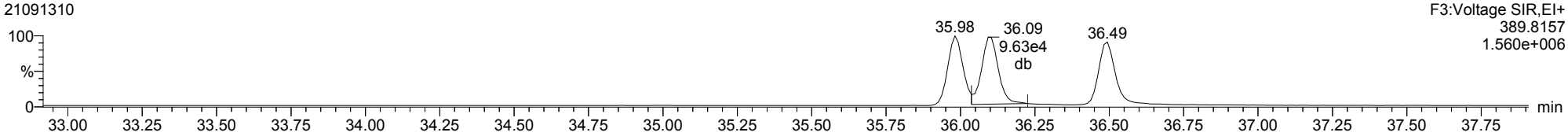

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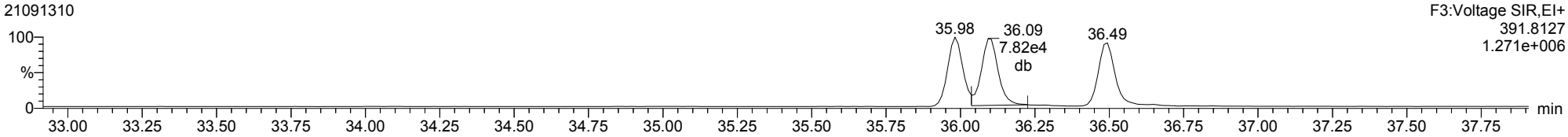

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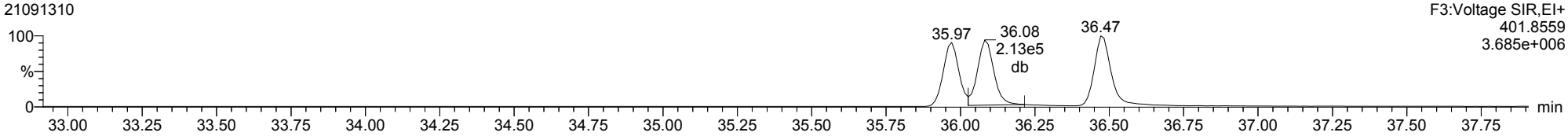

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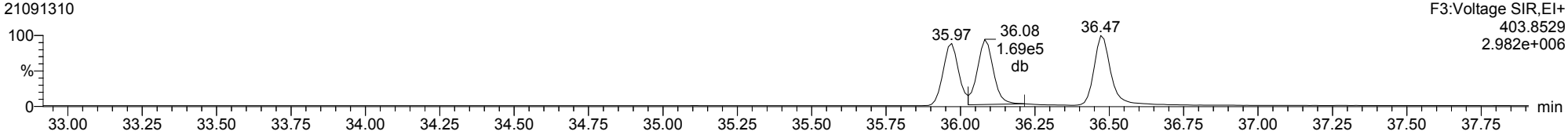

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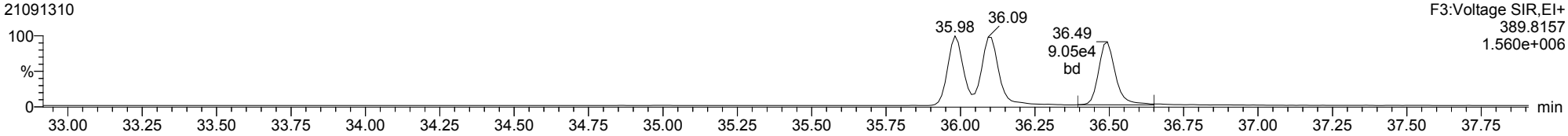

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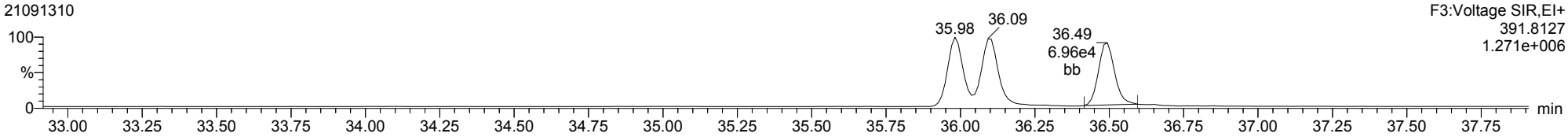

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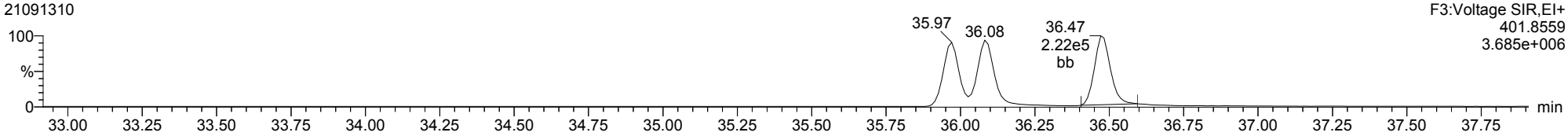

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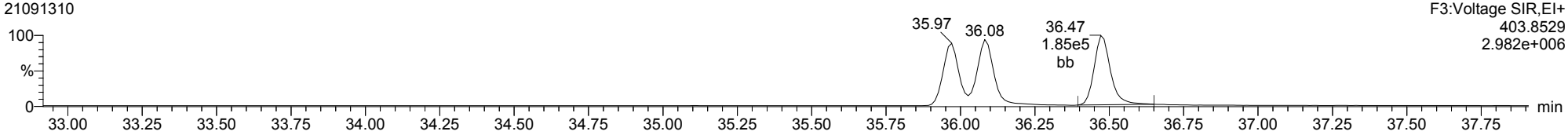

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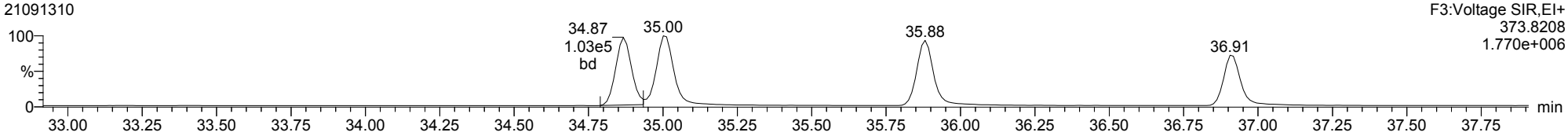
123478-HxCDF



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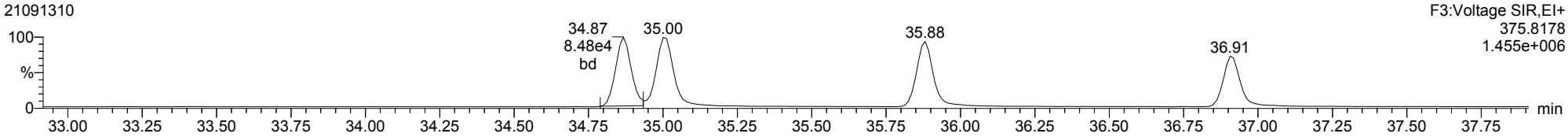

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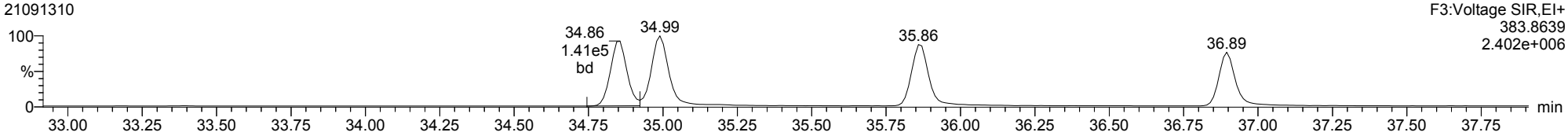

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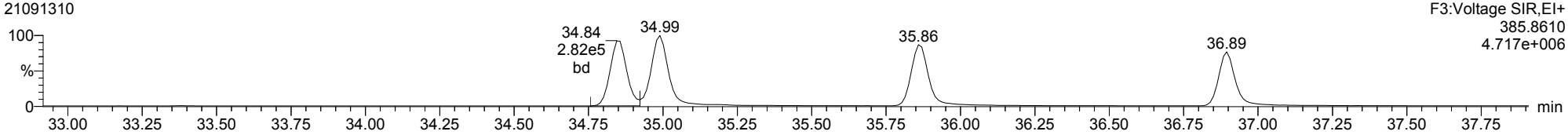

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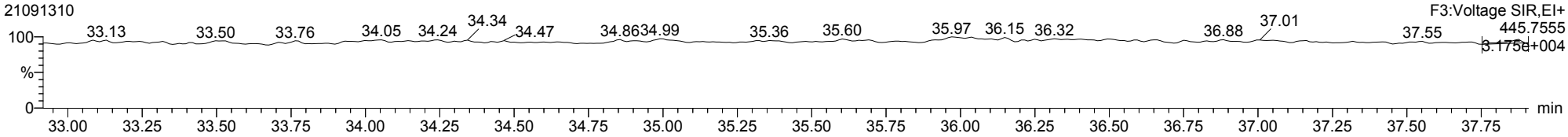

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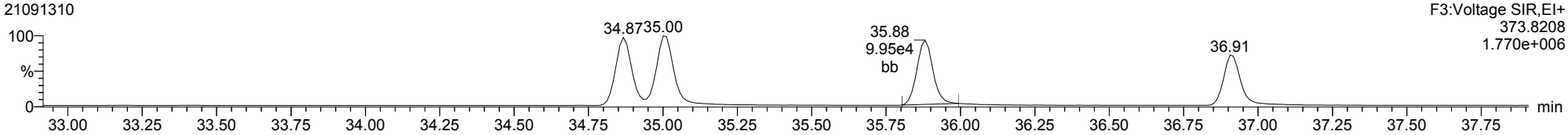
234678-HxCDF



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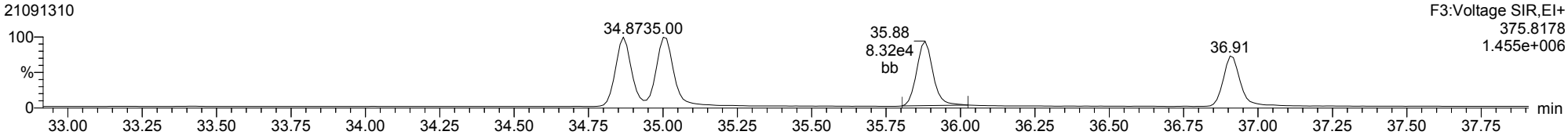

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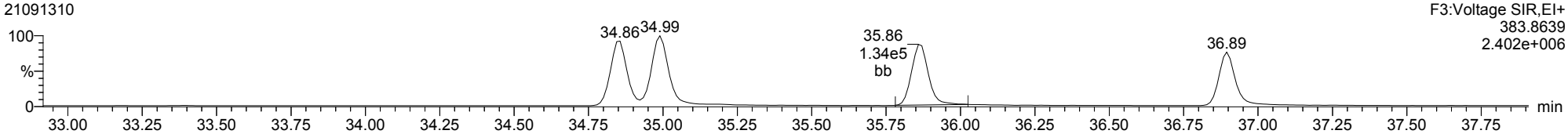

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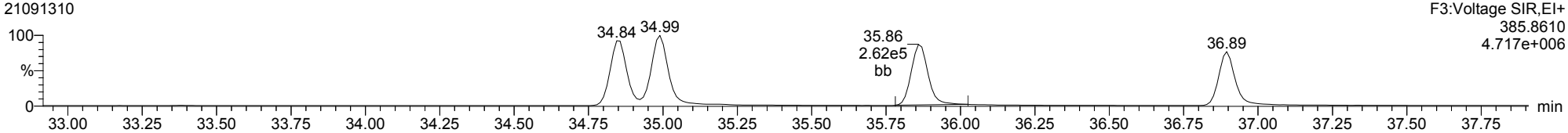
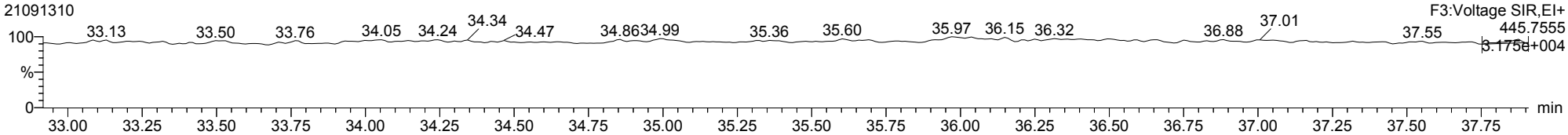


FUNCTION3 OCDPE



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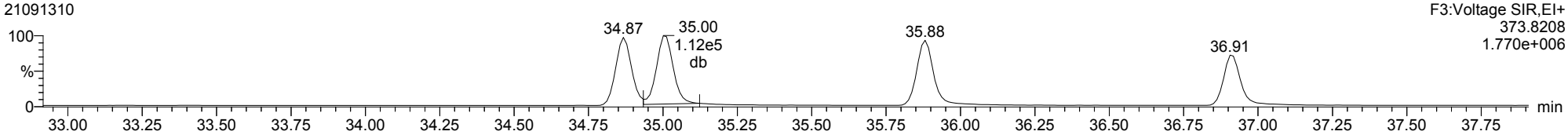

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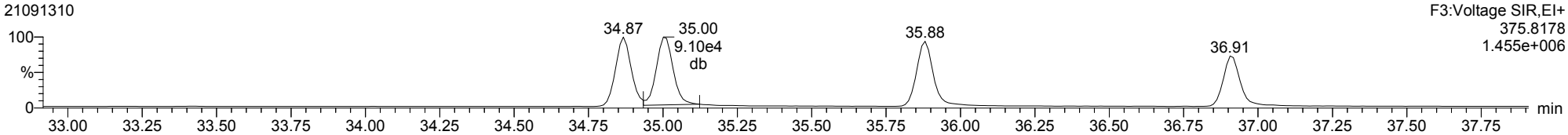

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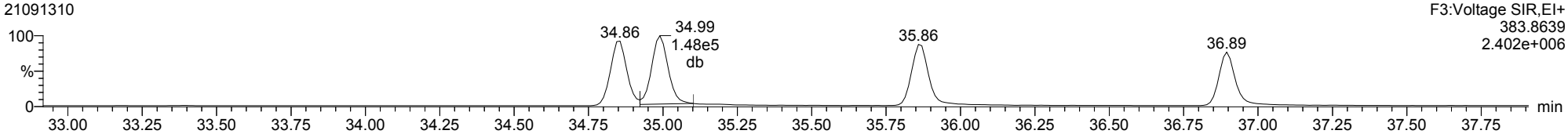

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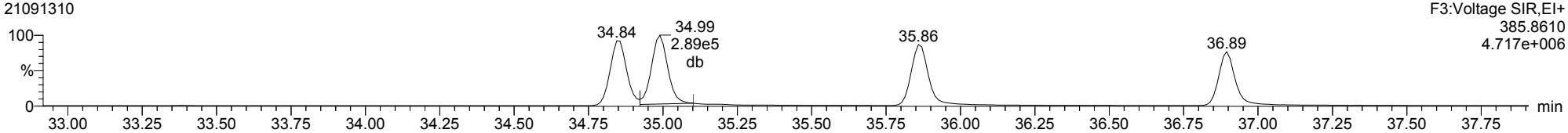
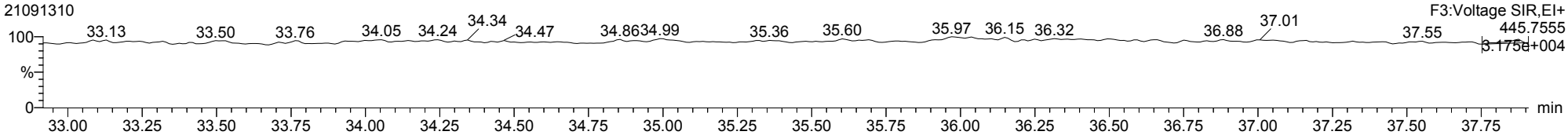


FUNCTION3 OCDPE



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ID: BJH0773-BSD1, Name: 21091310, Date: 13-Sep-2021, Time: 19:14:31, Conditions: AUTOSPEC01, User: pk

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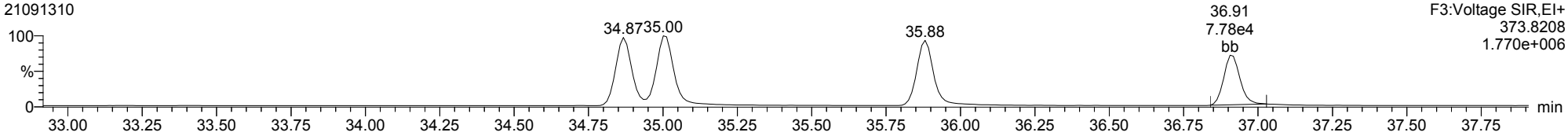

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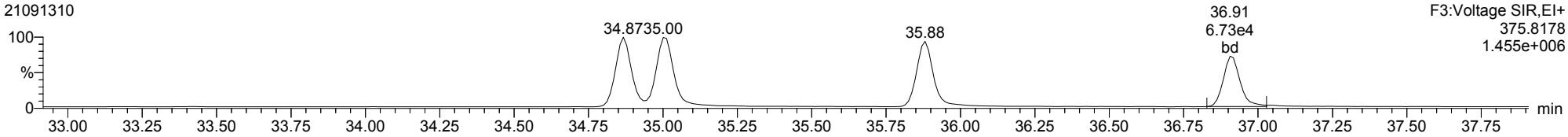

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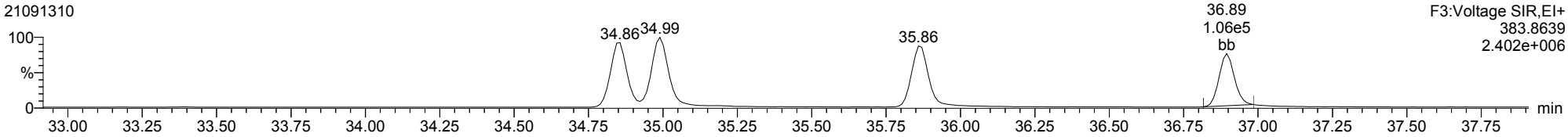

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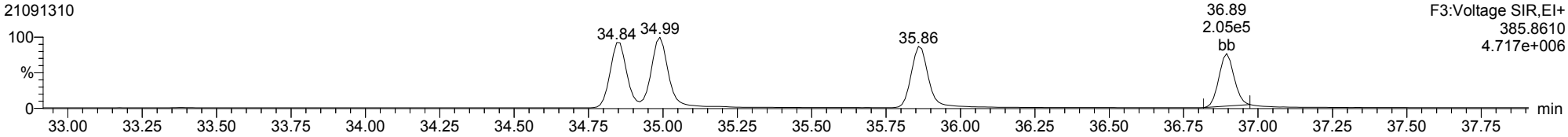
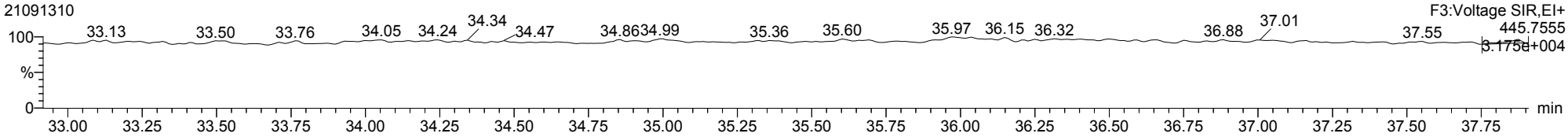


FUNCTION3 OCDPE



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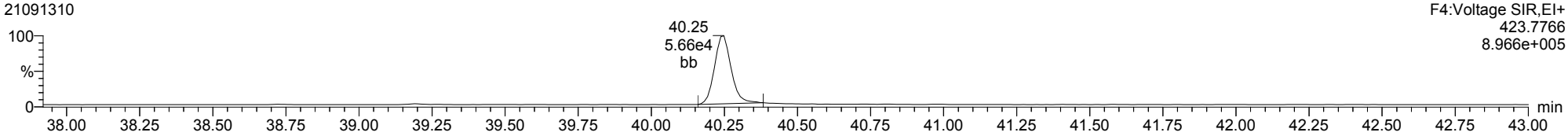
1234678-HpCDD



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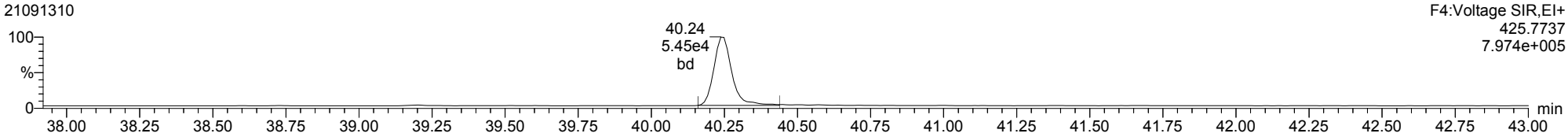

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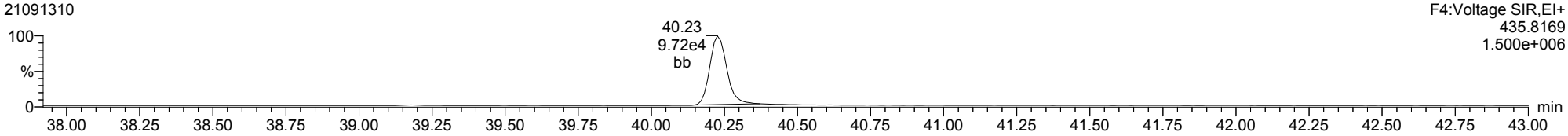

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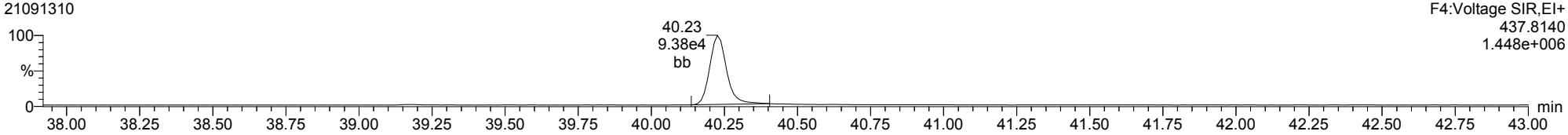
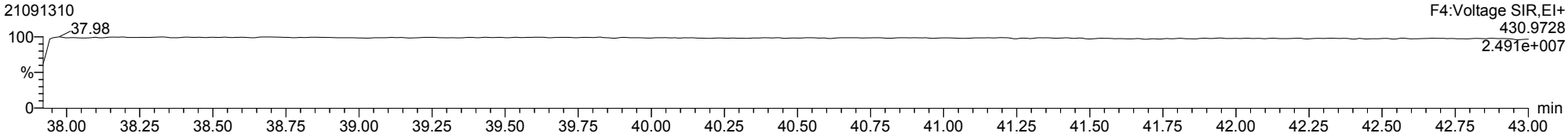


FUNCTION4 PFK



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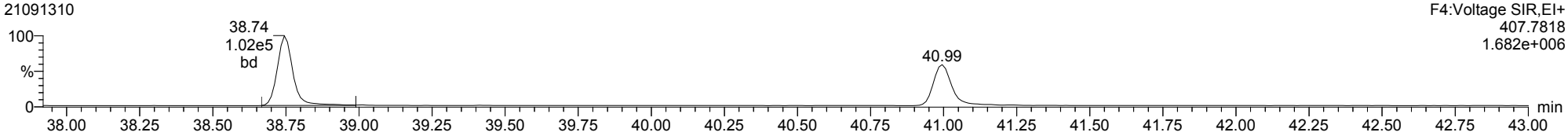

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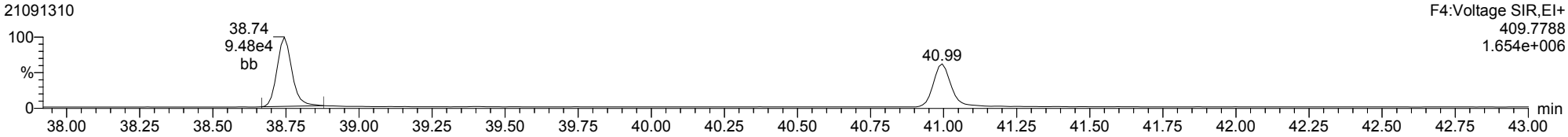

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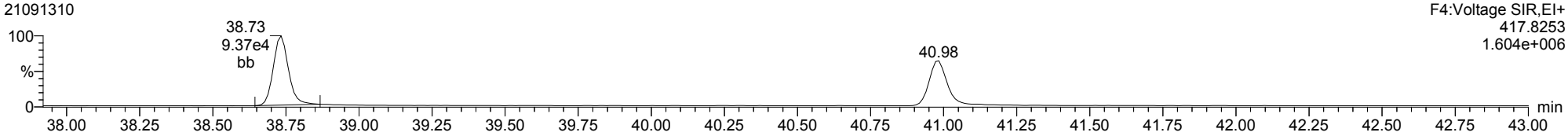

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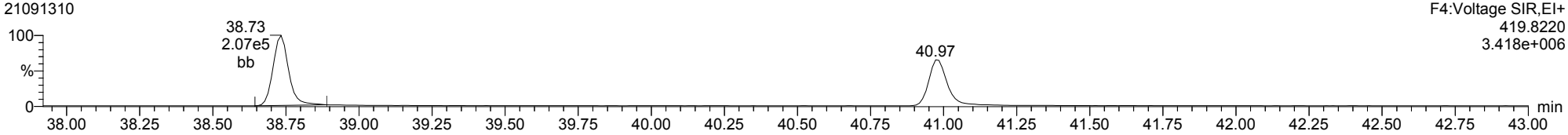
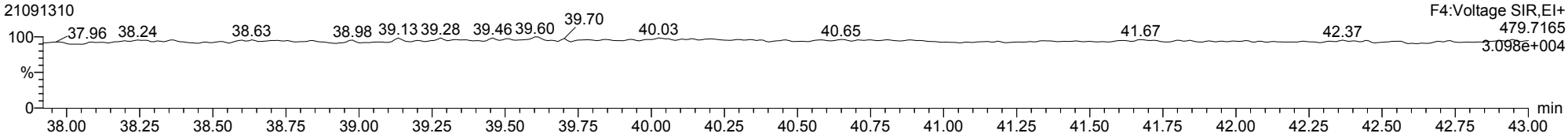


FUNCTION4 NCDPE



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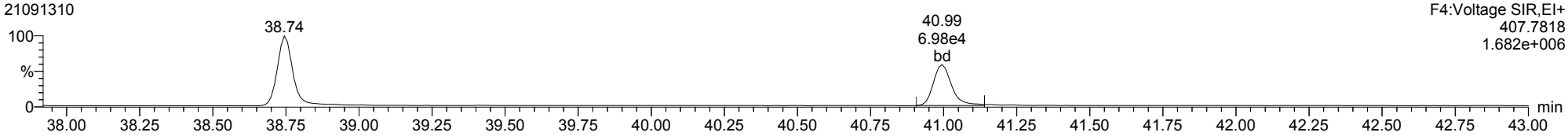

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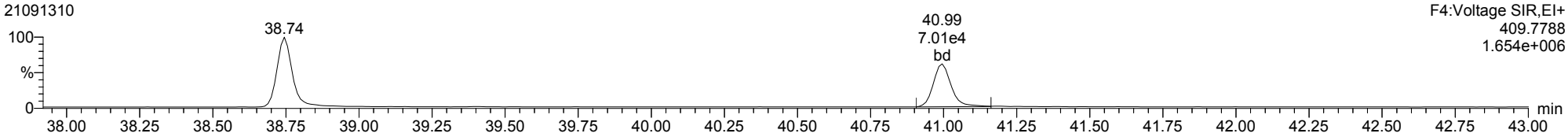

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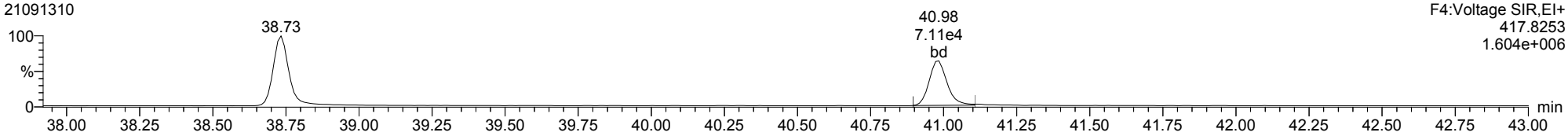

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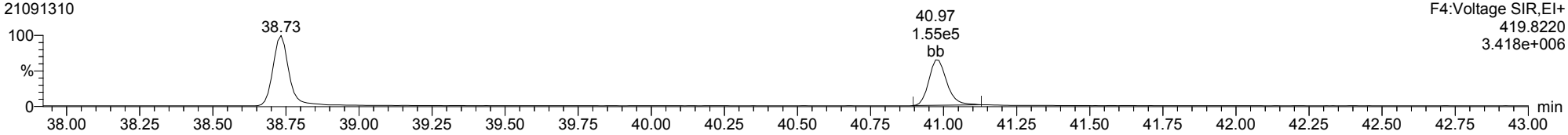
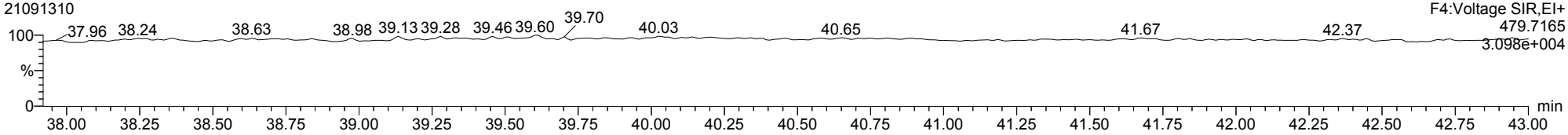


FUNCTION4 NCDPE



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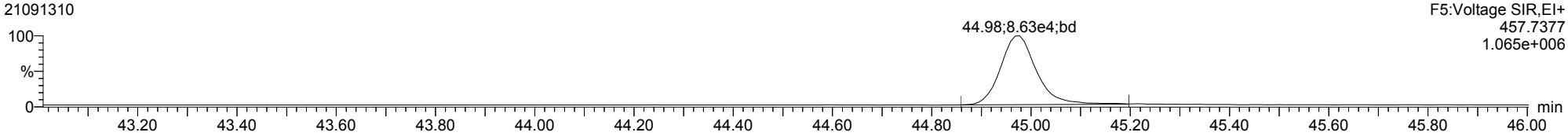

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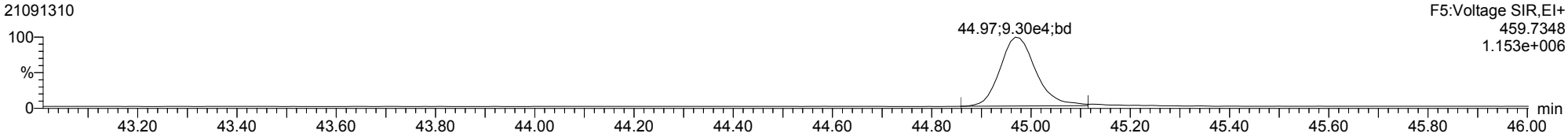

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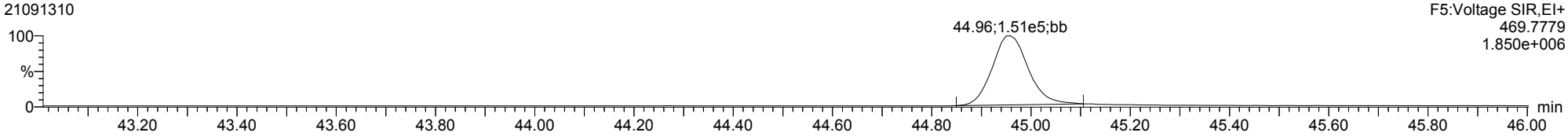

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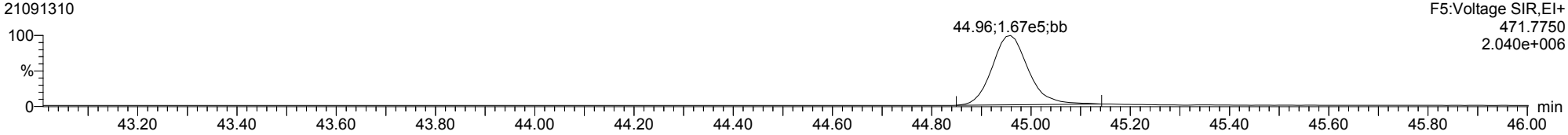
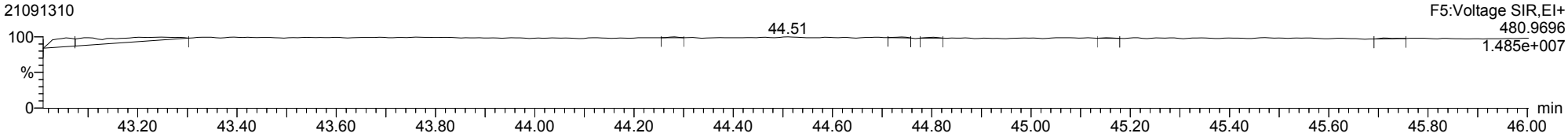


FUNCTION5 PFK



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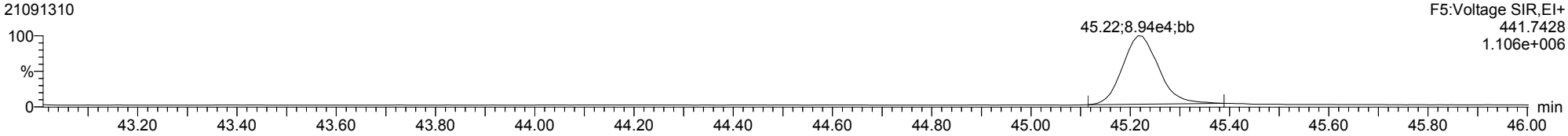

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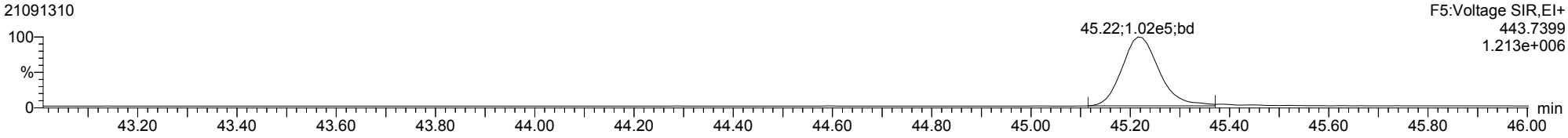
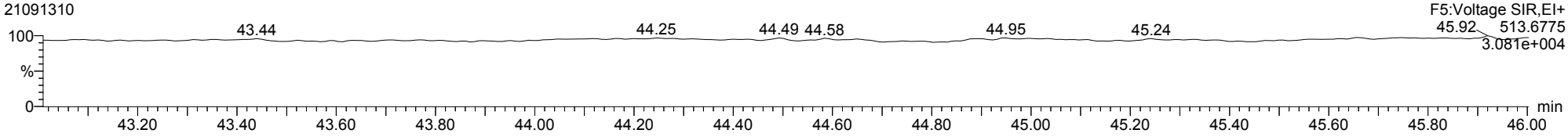


FUNCTION5 DCDPE



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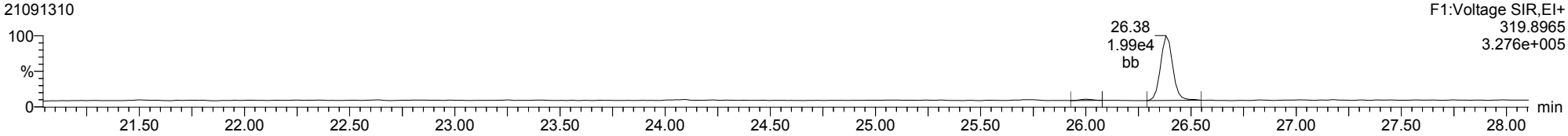
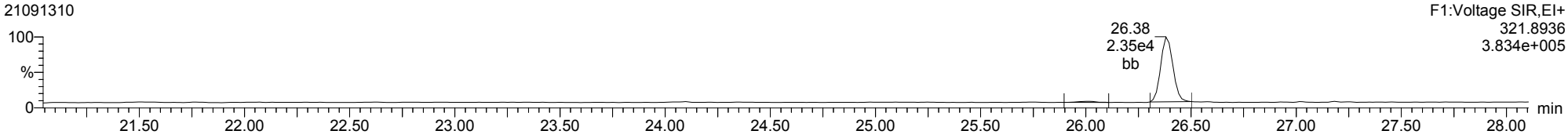
Total-tetradioxins



Total-tetradioxins



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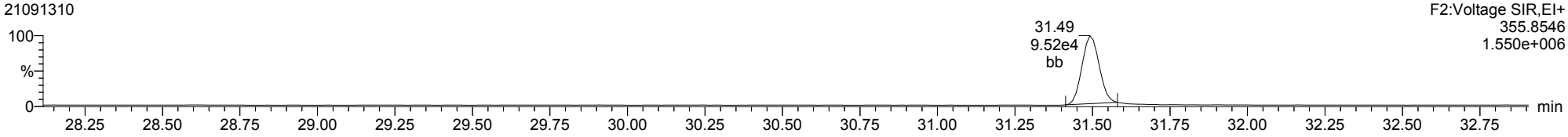

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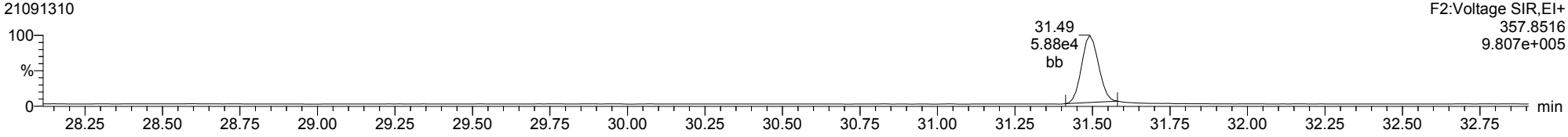

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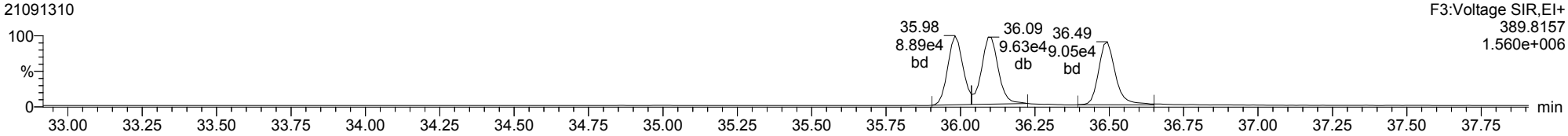

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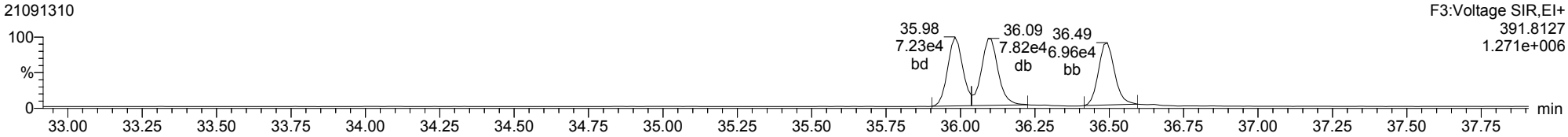

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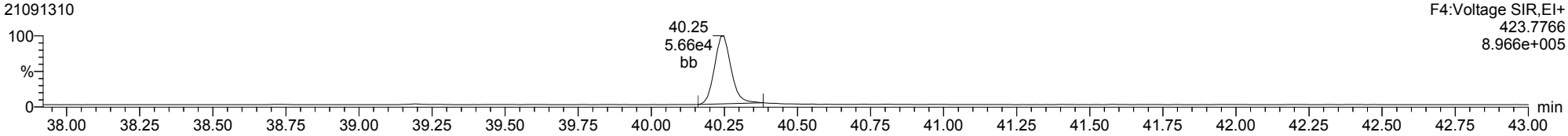

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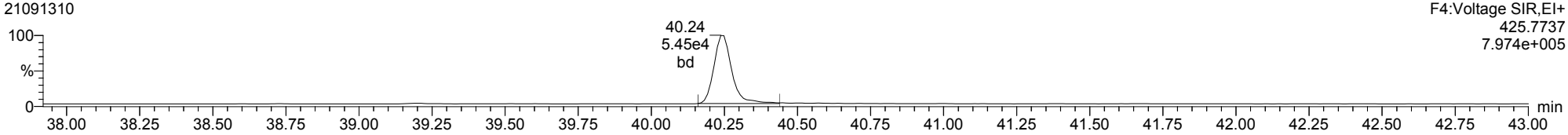

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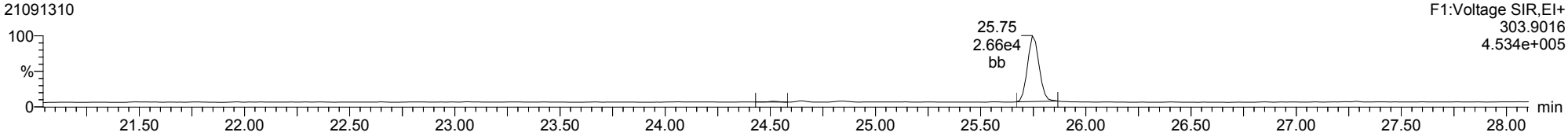
Total-tetrafurans



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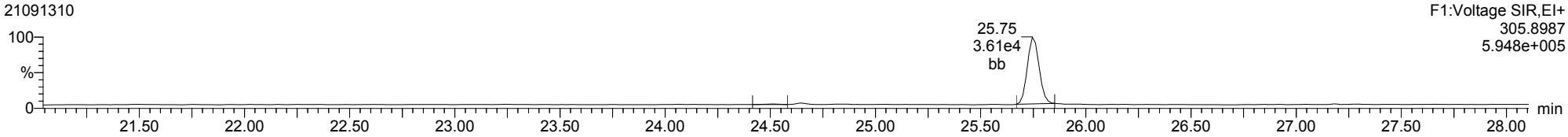

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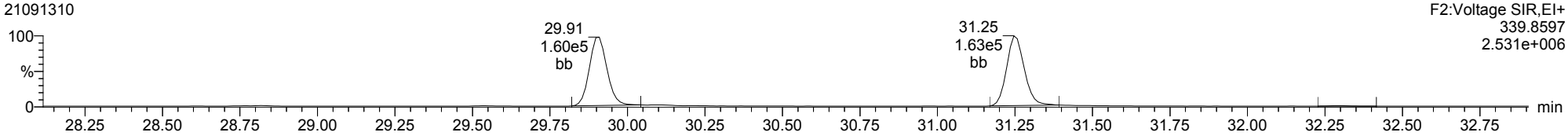

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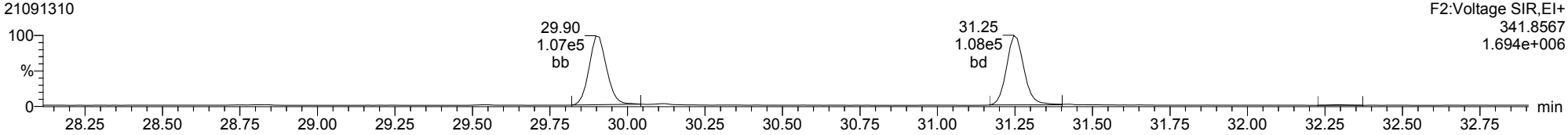

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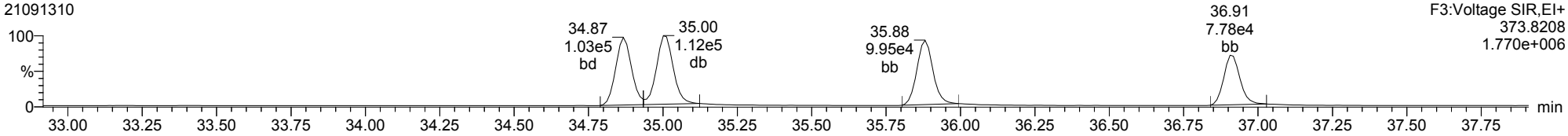
Total-hexafurans



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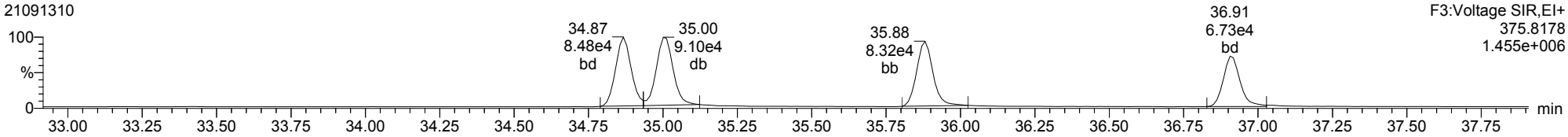

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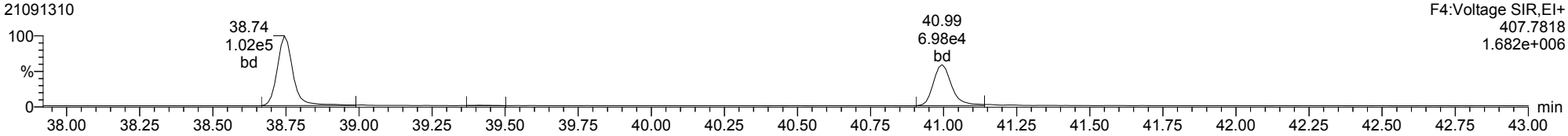

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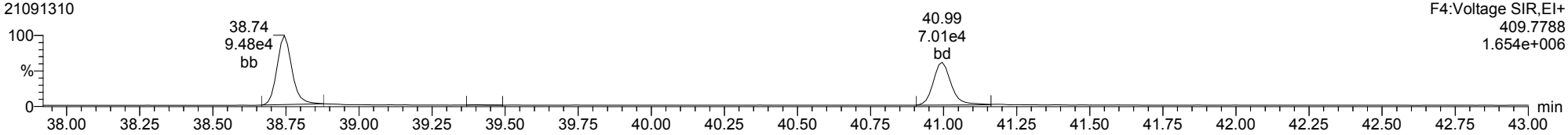

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS646

DUPLICATES
EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0286
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0773-DUP1
Batch: BJH0773
Lab Source ID: 21G0286-05
Preparation: EPA 8290
Initial/Final: 15.29 g / 20 uL
Source Sample Name: LDW21-SS646
% Solids: 65.43

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
2,3,7,8-TCDF	25	6.95	ND		
2,3,7,8-TCDD	25	1.64	1.45	12.2	
1,2,3,7,8-PeCDF	25	3.28	2.38	31.6	
2,3,4,7,8-PeCDF	25	ND	ND		
1,2,3,7,8-PeCDD	25	8.90	8.94	0.503	
1,2,3,4,7,8-HxCDF	25	11.5	11.3	1.72	
1,2,3,6,7,8-HxCDF	25	6.63	6.23	6.28	
2,3,4,6,7,8-HxCDF	25	4.03	7.51	60.3	
1,2,3,7,8,9-HxCDF	25	7.02	9.76	32.7	*
1,2,3,4,7,8-HxCDD	25	10.2	10.1	0.912	
1,2,3,6,7,8-HxCDD	25	33.2	34.2	2.84	
1,2,3,7,8,9-HxCDD	25	24.9	25.0	0.279	
1,2,3,4,6,7,8-HpCDF	25	132	117	12.0	
1,2,3,4,7,8,9-HpCDF	25	9.18	8.78	4.44	
1,2,3,4,6,7,8-HpCDD	25	813	718	12.4	
OCDF	25	327	290	12.0	
OCDD	25	5860	5640	3.88	
Total TCDF	200	957	751	24.2	
Total TCDD	200	11.0	10.5	5.17	
Total PeCDF	200	530	459	14.4	
Total PeCDD	200	18.8	27.7	37.9	
Total HxCDF	200	181	183	1.30	
Total HxCDD	200	222	229	3.26	
Total HpCDF	200	424	394	7.40	
Total HpCDD	200	1450	1280	12.3	
13C12-2,3,7,8-TCDF		135	184		
13C12-2,3,7,8-TCDD		164	215		

* Values outside of QC limits
L Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD

Analytical Resources, Incorporated
Analytical Chemists and Consultants

LDW21-SS646

DUPLICATES
EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0286
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0773-DUP1
Batch: BJH0773
Lab Source ID: 21G0286-05
Preparation: EPA 8290
Initial/Final: 15.29 g / 20 uL
Source Sample Name: LDW21-SS646
% Solids: 65.43

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
13C12-1,2,3,7,8-PeCDF		132	175		
13C12-2,3,4,7,8-PeCDF		130	171		
13C12-1,2,3,7,8-PeCDD		150	190		
13C12-1,2,3,4,7,8-HxCDF		145	188		
13C12-1,2,3,6,7,8-HxCDF		138	175		
13C12-2,3,4,6,7,8-HxCDF		140	185		
13C12-1,2,3,7,8,9-HxCDF		148	198		
13C12-1,2,3,4,7,8-HxCDD		172	205		
13C12-1,2,3,6,7,8-HxCDD		162	190		
13C12-1,2,3,4,6,7,8-HpCDF		124	155		
13C12-1,2,3,4,7,8,9-HpCDF		127	159		
13C12-1,2,3,4,6,7,8-HpCDD		152	193		
13C12-OCDD		337	394		
37Cl4-2,3,7,8-TCDD		67.3	93.6		

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

Dataset: T:\Autospec\Processed Data Batch\210922D1.qld
Last Altered: Thursday, September 23, 2021 10:36:03 Pacific Daylight Time
Printed: Thursday, September 23, 2021 11:57:34 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: BJH0773-DUP1, Name: 21092201, Date: 22-Sep-2021, Time: 20:35:48, 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	3473	8260								
12378-PeCDF	29.920	1.000	5.275e3	3.424e3	1.015	1.540	1.550	2592	2389	7.25e4	4.97e4	28.0	20.8	NO	dd	dd	1.192
23478-PeCDF					1.126		1.550	2592	2389								
123478-HxCDF	34.890	1.000	2.079e4	1.778e4	1.017	1.169	1.240	1142	1041	3.19e5	2.73e5	279.7	262.6	NO	dd	dd	5.660
234678-HxCDF	35.915	1.001	1.370e4	1.176e4	1.052	1.165	1.240	1142	1041	1.24e5	1.14e5	108.7	110.0	NO	bd	MM	3.757
123678-HxCDF	35.035	1.000	1.139e4	1.041e4	1.037	1.094	1.240	1142	1041	1.84e5	1.70e5	160.7	163.6	NO	db	dd	3.115
123789-HxCDF	36.928	1.000	1.588e4	1.286e4	1.030	1.235	1.240	1142	1041	2.50e5	2.07e5	218.7	199.1	NO	db	db	4.884
1234678-HpCDF	38.778	1.000	1.637e5	1.572e5	1.327	1.041	1.050	1638	1951	2.69e6	2.56e6	1639.3	1314.4	NO	bd	bd	58.637
1234789-HpCDF	41.028	1.000	9.866e3	9.575e3	1.283	1.030	1.050	1638	1951	1.43e5	1.43e5	87.3	73.0	NO	bb	bb	4.391
OCDF	45.270	1.006	2.790e5	3.182e5	1.447	0.877	0.890	687	956	3.36e6	3.82e6	4897.2	3989.7	NO	bb	bb	145.107
2378-TCDD	26.396	1.001	2.147e3	2.924e3	0.920	0.734	0.770	845	942	3.24e4	4.44e4	38.3	47.1	NO	bd	bd	0.727
12378-PeCDD	31.514	1.001	1.195e4	7.618e3	0.995	1.568	1.550	1635	1101	1.76e5	1.13e5	107.9	102.3	NO	bb	bb	4.472
123478-HxCDD	36.015	1.000	1.560e4	1.349e4	1.027	1.156	1.240	1694	2446	2.76e5	2.28e5	163.0	93.4	NO	bd	bd	5.031
123678-HxCDD	36.126	1.000	5.471e4	4.325e4	1.009	1.265	1.240	1694	2446	9.12e5	7.38e5	538.4	301.8	NO	db	db	17.097
123789-HxCDD	36.527	1.011	3.681e4	3.030e4	0.950	1.215	1.240	1694	2446	6.26e5	5.09e5	369.8	208.2	NO	db	db	12.490
1234678-HpCDD	40.282	1.001	6.853e5	6.546e5	1.068	1.047	1.050	2352	2766	1.08e7	1.02e7	4597.0	3697.8	NO	bb	bb	359.074
OCDD	45.032	1.000	4.457e6	5.019e6	1.181	0.888	0.890	2338	1475	5.67e7	6.37e7	24270.5	43159.6	NO	bb	bb	2821.388
13C-2378-TCDF	25.746	1.007	3.658e5	4.636e5	1.427	0.789	0.770	1392	1408	5.59e6	7.11e6	4016.6	5051.3	NO	bb	bb	91.983
13C-12378-PeCDF	29.909	1.170	4.430e5	2.762e5	1.297	1.604	1.550	1501	2146	6.88e6	4.24e6	4585.6	1977.2	NO	bb	bb	87.708
13C-23478-PeCDF	31.246	1.222	4.091e5	2.588e5	1.236	1.581	1.550	1501	2146	6.26e6	3.95e6	4171.3	1841.2	NO	bb	bb	85.467
13C-123478-HxCDF	34.879	0.955	2.281e5	4.422e5	1.242	0.516	0.510	2108	2011	3.68e6	7.07e6	1747.0	3513.8	NO	bd	bd	94.200
13C-123678-HxCDF	35.023	0.959	2.318e5	4.432e5	1.343	0.523	0.510	2108	2011	3.66e6	6.99e6	1736.5	3476.8	NO	db	db	87.739
13C-234678-HxCDF	35.892	0.983	2.193e5	4.247e5	1.215	0.516	0.510	2108	2011	3.56e6	6.95e6	1687.6	3457.7	NO	bb	bb	92.563
13C-123789-HxCDF	36.917	1.011	1.926e5	3.787e5	1.008	0.508	0.510	2108	2011	3.24e6	6.42e6	1539.1	3189.8	NO	bb	bb	99.002
13C-1234678-HpCDF	38.767	1.062	1.300e5	2.823e5	0.926	0.461	0.440	1239	1359	2.13e6	4.67e6	1716.0	3432.6	NO	bd	bd	77.712
13C-1234789-HpCDF	41.006	1.123	1.072e5	2.378e5	0.758	0.451	0.440	1239	1359	1.53e6	3.42e6	1234.8	2518.9	NO	bd	bb	79.492
13C-1234-TCDD	25.564	0.000	2.703e5	3.617e5	1.000	0.747	0.770	1355	876	4.22e6	5.62e6	3114.3	6411.2	NO	bb	bb	100.000
13C-2378-TCDD	26.365	1.031	3.258e5	4.320e5	1.116	0.754	0.770	1355	876	4.95e6	6.64e6	3654.5	7576.8	NO	bb	bb	107.386
13C-12378-PeCDD	31.491	1.232	2.672e5	1.723e5	0.732	1.551	1.550	1146	1107	4.18e6	2.72e6	3644.8	2459.8	NO	bb	bb	94.995
13C-123478-HxCDD	36.004	0.986	3.183e5	2.445e5	0.960	1.302	1.240	1575	1323	5.26e6	4.01e6	3338.7	3034.7	NO	bd	bd	102.388
13C-123678-HxCDD	36.115	0.989	3.165e5	2.514e5	1.041	1.259	1.240	1575	1323	5.20e6	4.11e6	3301.4	3107.6	NO	db	db	95.226
13C-1234678-HpCDD	40.260	1.103	1.743e5	1.750e5	0.632	0.996	1.050	1046	821	2.78e6	2.72e6	2655.0	3311.3	NO	bb	bd	96.464
13C-OCDD	45.014	1.233	2.680e5	3.009e5	0.504	0.890	0.890	1190	1161	3.36e6	3.76e6	2824.5	3242.5	NO	bb	bb	197.206
13C-123789-HxCDD	36.505	0.000	3.202e5	2.525e5	1.000	1.268	1.240	1575	1323	5.37e6	4.31e6	3410.3	3260.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	3.207e5		1.084			2547		4.79e6		1881.6			bb		46.830

Dataset: T:\Autospec\Processed Data Batch\210922D1.qld
Last Altered: Thursday, September 23, 2021 10:36:03 Pacific Daylight Time
Printed: Thursday, September 23, 2021 11:57:34 Pacific Daylight Time

ID: BJH0773-DUP1, Name: 21092201, Date: 22-Sep-2021, Time: 20:35:48, 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	3.432e4	4.503e4	1.425	0.762	0.770	3473	8260	5.54e5	7.24e5	159.4	87.6	NO	dd	bd	6.713
1289-TCDF	27.348	1.062	3.236e5	4.331e5	1.043	0.747	0.770	3473	8260	5.24e6	6.99e6	1509.7	846.3	NO	dd	dd	87.474
13468-PECDF	27.046	0.904	5.696e4	3.744e4	1.376	1.521	1.550	1133	964	7.32e5	4.72e5	646.3	489.3	NO	bd	bd	9.538
12389-PECDF					1.000		1.550	2592	2389								
123468-HXCDF	33.229	0.953	3.067e4	2.667e4	1.087	1.150	1.240	1142	1041	4.80e5	4.14e5	420.3	397.8	NO	dd	dd	7.874
1368-TCDD	23.493	0.891	3.541e3	4.317e3	0.923	0.820	0.770	845	942	5.58e4	6.82e4	66.0	72.4	NO	bb	bb	1.123
1289-TCDD	27.000	1.024	3.897e2	2.468e2	0.794	1.579	0.770	845	942	4.23e3	3.15e3	5.0	3.3	YES	db	bb	0.106
12479-PECDD					1.843		1.550	1635	1101								
12389-PECDD	31.915	1.013	1.517e3	9.650e2	1.154	1.572	1.550	1635	1101	2.34e4	1.47e4	14.3	13.4	NO	bb	bb	0.489
124679-HXCDD	33.998	0.944	7.482e4	6.067e4	1.125	1.233	1.240	1694	2446	1.22e6	9.80e5	718.2	400.6	NO	bb	bd	21.402
1234679-HPCDD	39.224	0.974	6.150e5	5.831e5	1.211	1.055	1.050	2352	2766	1.01e7	9.46e6	4282.5	3421.2	NO	bb	bb	283.194
Total-tetrafurans			1.541e6		1.192			3473		2.17e7							375.413
Total-penta1			2.293e5					1133		2.48e6							57.706
Total-pentafurans			7.509e5		1.047			2592		1.10e7							171.854
Total-hexafurans			3.330e5		1.045			1142		4.91e6							91.752
Total-heptafurans			5.084e5		1.305			1638		8.09e6							196.863
Total-Furans			3.958e6		1.158			3473		5.64e7							1111.779
Total-tetradioxins			1.525e4		0.879			845		2.26e5							5.232
Total-pentadioxins			4.475e4		1.331			1635		6.73e5							13.835
Total-hexadioxins			3.726e5		1.028			1694		5.30e6							114.580
Total-heptadioxins			1.300e6		1.140			2352		2.09e7							642.268
Total-Dioxins			6.190e6		1.092			845		8.38e7							3597.303
Total-TEQ			1.015e7					845		1.40e8							4709.082
FUNCTION1 PFK			1.291e5					354057		2.88e6							
FUNCTION2 PFK			1.721e6					174419		7.40e6							0.000
FUNCTION3 PFK			2.356e6					342405		7.37e6							0.000
FUNCTION4 PFK			8.996e5					255144		4.79e6							
FUNCTION5 PFK			0.000e0					147357		0.00e0							
FUNCTION1 HXCD...			2.851e4					1030		4.14e5							0.000
FUNCTION1 HPCD...			2.583e3					486		3.40e4							0.000
FUNCTION2 HPCD...			7.268e3					916		1.27e5							0.000
FUNCTION3 OCDPE			2.009e3					584		3.45e4							0.000
FUNCTION4 NCDPE			6.832e5					935		1.19e7							0.000
FUNCTION5 DCDPE			6.853e2					558		6.71e3							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: BJH0773-DUP1, Name: 21092201, Date: 22-Sep-2021, Time: 20:35:48, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	1.842e4	2.562e4	1.192	0.72	0.77	69.8	YES	NO	dd	dd	4.455
2	Total-tetrafurans	23.39	8.049e3	9.407e3	1.192	0.86	0.77	29.4	YES	NO	dd	dd	1.766
3	Total-tetrafurans	23.08	8.937e3	1.176e4	1.192	0.76	0.77	35.6	YES	NO	bd	bd	2.093
4	Total-tetrafurans	22.75	8.012e3	1.174e4	1.192	0.68	0.77	32.0	YES	NO	bb	bb	1.998
5	Total-tetrafurans	22.51	7.704e3	9.732e3	1.192	0.79	0.77	32.5	YES	NO	db	db	1.764
6	1368-TCDF	22.37	3.432e4	4.503e4	1.425	0.76	0.77	159.4	YES	NO	dd	bd	6.713
7	Total-tetrafurans	25.85	1.738e5	2.323e5	1.192	0.75	0.77	566.3	YES	NO	bd	dd	41.077
8	Total-tetrafurans	25.56	2.087e4	2.895e4	1.192	0.72	0.77	69.2	YES	NO	db	dd	5.040
9	Total-tetrafurans	25.41	6.222e4	8.384e4	1.192	0.74	0.77	179.0	YES	NO	dd	dd	14.775
10	Total-tetrafurans	25.26	2.679e4	3.686e4	1.192	0.73	0.77	110.6	YES	NO	bd	dd	6.439
11	Total-tetrafurans	25.07	1.889e4	2.554e4	1.192	0.74	0.77	65.5	YES	NO	db	dd	4.494
12	Total-tetrafurans	24.85	4.358e3	6.395e3	1.192	0.68	0.77	18.6	YES	NO	dd	dd	1.088
13	Total-tetrafurans	24.66	1.569e4	2.115e4	1.192	0.74	0.77	66.1	YES	NO	dd	dd	3.727
14	Total-tetrafurans	24.58	2.797e4	3.811e4	1.192	0.73	0.77	138.5	YES	NO	dd	dd	6.685
15	Total-tetrafurans	24.52	2.371e4	3.236e4	1.192	0.73	0.77	123.9	YES	NO	dd	dd	5.672
16	Total-tetrafurans	24.40	1.606e5	2.212e5	1.192	0.73	0.77	530.1	YES	NO	dd	dd	38.631
17	Total-tetrafurans	24.23	9.635e4	1.298e5	1.192	0.74	0.77	406.3	YES	NO	dd	dd	22.874
18	Total-tetrafurans	24.16	1.498e5	1.993e5	1.192	0.75	0.77	610.3	YES	NO	dd	dd	35.318
19	Total-tetrafurans	24.01	1.279e5	1.763e5	1.192	0.73	0.77	516.5	YES	NO	dd	dd	30.767
20	Total-tetrafurans	23.86	1.552e5	2.075e5	1.192	0.75	0.77	694.4	YES	NO	dd	dd	36.694
21	Total-tetrafurans	23.73	1.135e4	1.507e4	1.192	0.75	0.77	41.2	YES	NO	dd	dd	2.673
22	1289-TCDF	27.35	3.236e5	4.331e5	1.043	0.75	0.77	1509.7	YES	NO	dd	dd	87.474
23	Total-tetrafurans	27.00	3.044e4	3.962e4	1.192	0.77	0.77	122.9	YES	NO	db	db	7.087
24	Total-tetrafurans	26.88	2.637e4	3.405e4	1.192	0.77	0.77	111.3	YES	NO	dd	bd	6.112

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.68	4.938e3	3.001e3		1.65	1.55	52.4	YES	NO	db	db	1.204
2	Total-penta1	27.51	3.712e4	2.562e4		1.45	1.55	384.4	YES	NO	bd	bd	9.512
3	Total-penta1	27.23	1.495e5	9.828e4		1.52	1.55	1290.8	YES	NO	db	dd	37.568
4	Total-penta1	27.97	3.261e4	2.131e4		1.53	1.55	381.4	YES	NO	db	db	8.176
5	Total-penta1	27.82	5.098e3	3.115e3		1.64	1.55	82.9	YES	NO	bd	bd	1.245

Dataset: T:\Autospec\Processed Data Batch\210922D1.qld
Last Altered: Thursday, September 23, 2021 10:36:03 Pacific Daylight Time
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ID: BJH0773-DUP1, Name: 21092201, Date: 22-Sep-2021, Time: 20:35:48, 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	29.80	2.076e4	1.372e4	1.047	1.51	1.55	137.0	YES	NO	dd	bd	4.749
2	Total-pentafurans	29.54	1.604e4	1.190e4	1.047	1.35	1.55	69.2	YES	NO	dd	db	3.849
3	Total-pentafurans	29.35	1.594e4	1.001e4	1.047	1.59	1.55	101.3	YES	NO	dd	bd	3.574
4	Total-pentafurans	29.04	1.249e4	8.162e3	1.047	1.53	1.55	84.0	YES	NO	bb	bb	2.845
5	Total-pentafurans	28.84	2.658e4	1.741e4	1.047	1.53	1.55	156.0	YES	NO	db	db	6.061
6	Total-pentafurans	28.67	9.761e4	6.369e4	1.047	1.53	1.55	578.9	YES	NO	bd	bd	22.221
7	Total-pentafurans	28.45	8.358e4	5.476e4	1.047	1.53	1.55	579.2	YES	NO	db	db	19.057
8	Total-pentafurans	28.37	1.423e5	9.464e4	1.047	1.50	1.55	887.4	YES	NO	bd	bd	32.637
9	Total-pentafurans	32.01	7.679e2	4.852e2	1.047	1.58	1.55	5.1	YES	NO	bb	bb	0.173
10	Total-pentafurans	31.67	4.412e3	2.607e3	1.047	1.69	1.55	25.8	YES	NO	bd	bb	0.967
11	Total-pentafurans	31.20	8.054e4	5.434e4	1.047	1.48	1.55	346.3	YES	NO	db	db	18.581
12	Total-pentafurans	31.03	1.604e4	1.128e4	1.047	1.42	1.55	81.6	YES	NO	dd	dd	3.763
13	Total-pentafurans	30.89	5.469e3	3.526e3	1.047	1.55	1.55	37.4	YES	NO	bd	dd	1.239
14	Total-pentafurans	30.71	1.916e4	1.229e4	1.047	1.56	1.55	89.5	YES	NO	db	dd	4.331
15	Total-pentafurans	30.41	2.035e3	1.381e3	1.047	1.47	1.55	12.4	YES	NO	db	db	0.471
16	Total-pentafurans	30.28	8.306e4	5.633e4	1.047	1.47	1.55	442.3	YES	NO	dd	dd	19.202
17	Total-pentafurans	30.13	1.188e5	7.679e4	1.047	1.55	1.55	593.9	YES	NO	dd	dd	26.944
18	12378-PeCDF	29.92	5.275e3	3.424e3	1.015	1.54	1.55	28.0	YES	NO	dd	dd	1.192

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HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	33.44	1.097e5	9.429e4	1.045	1.16	1.24	1323.7	YES	NO	dd	dd	30.504
2	123468-HXCDF	33.23	3.067e4	2.667e4	1.087	1.15	1.24	420.3	YES	NO	dd	dd	7.874
3	Total-hexafurans	36.17	3.170e3	2.246e3	1.045	1.41	1.24	33.5	YES	NO	dd	bb	0.810
4	234678-HxCDF	35.91	1.370e4	1.176e4	1.052	1.16	1.24	108.7	YES	NO	bd	MM	3.757
5	Total-hexafurans	35.66	3.516e2	2.770e2	1.045	1.27	1.24	7.2	YES	NO	db	db	0.094
6	123678-HxCDF	35.03	1.139e4	1.041e4	1.037	1.09	1.24	160.7	YES	NO	db	dd	3.115
7	123478-HxCDF	34.89	2.079e4	1.778e4	1.017	1.17	1.24	279.7	YES	NO	dd	dd	5.660
8	Total-hexafurans	34.74	4.770e3	4.232e3	1.045	1.13	1.24	55.6	YES	NO	bd	bd	1.346
9	Total-hexafurans	34.28	1.054e5	8.809e4	1.045	1.20	1.24	1434.6	YES	NO	db	db	28.931
10	Total-hexafurans	34.18	1.710e3	1.559e3	1.045	1.10	1.24	34.7	YES	NO	bd	bd	0.489
11	Total-hexafurans	33.96	5.006e3	4.460e3	1.045	1.12	1.24	68.6	YES	NO	bb	bb	1.416
12	Total-hexafurans	33.80	1.095e3	9.697e2	1.045	1.13	1.24	13.3	YES	NO	db	db	0.309
13	Total-hexafurans	33.55	6.943e3	5.635e3	1.045	1.23	1.24	99.8	YES	NO	dd	dd	1.881
14	123789-HxCDF	36.93	1.588e4	1.286e4	1.030	1.24	1.24	218.7	YES	NO	db	db	4.884
15	Total-hexafurans	36.83	1.884e3	1.514e3	1.045	1.24	1.24	29.7	YES	NO	dd	dd	0.508
16	Total-hexafurans	36.43	6.141e2	5.512e2	1.045	1.11	1.24	9.7	YES	NO	db	bb	0.174

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.19	3.026e3	3.297e3	1.305	0.92	1.05	32.2	YES	NO	bb	db	1.279
2	1234678-HpCDF	38.78	1.637e5	1.572e5	1.327	1.04	1.05	1639.3	YES	NO	bd	bd	58.637
3	1234789-HpCDF	41.03	9.866e3	9.575e3	1.283	1.03	1.05	87.3	YES	NO	bb	bb	4.391
4	Total-heptafurans	39.45	3.318e5	3.234e5	1.305	1.03	1.05	3182.2	YES	NO	bb	bd	132.556

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.52	1.842e4	2.562e4	1.192	0.72	0.77	69.8	YES	NO	dd	dd	4.455
2	Total-tetrafurans	23.39	8.049e3	9.407e3	1.192	0.86	0.77	29.4	YES	NO	dd	dd	1.766
3	Total-tetrafurans	23.08	8.937e3	1.176e4	1.192	0.76	0.77	35.6	YES	NO	bd	bd	2.093
4	Total-tetrafurans	22.75	8.012e3	1.174e4	1.192	0.68	0.77	32.0	YES	NO	bb	bb	1.998
5	Total-tetrafurans	22.51	7.704e3	9.732e3	1.192	0.79	0.77	32.5	YES	NO	db	db	1.764
6	1368-TCDF	22.37	3.432e4	4.503e4	1.425	0.76	0.77	159.4	YES	NO	dd	bd	6.713
7	Total-Furans	21.98	5.456e3	7.376e3	1.158	0.74	0.77	24.4	YES	NO	db	bb	1.336
8	Total-Furans	21.78	1.152e4	1.400e4	1.158	0.82	0.77	51.4	YES	NO	dd	db	2.657
9	Total-Furans	21.63	1.397e4	1.867e4	1.158	0.75	0.77	65.8	YES	NO	bd	bd	3.399
10	Total-Furans	21.32	2.365e4	3.296e4	1.158	0.72	0.77	107.3	YES	NO	db	db	5.893
11	Total-Furans	21.13	9.285e4	1.249e5	1.158	0.74	0.77	443.4	YES	NO	bd	bd	22.671
12	Total-tetrafurans	25.85	1.738e5	2.323e5	1.192	0.75	0.77	566.3	YES	NO	bd	dd	41.077
13	Total-tetrafurans	25.56	2.087e4	2.895e4	1.192	0.72	0.77	69.2	YES	NO	db	dd	5.040
14	Total-tetrafurans	25.41	6.222e4	8.384e4	1.192	0.74	0.77	179.0	YES	NO	dd	dd	14.775
15	Total-tetrafurans	25.26	2.679e4	3.686e4	1.192	0.73	0.77	110.6	YES	NO	bd	dd	6.439
16	Total-tetrafurans	25.07	1.889e4	2.554e4	1.192	0.74	0.77	65.5	YES	NO	db	dd	4.494
17	Total-tetrafurans	24.85	4.358e3	6.395e3	1.192	0.68	0.77	18.6	YES	NO	dd	dd	1.088
18	Total-tetrafurans	24.66	1.569e4	2.115e4	1.192	0.74	0.77	66.1	YES	NO	dd	dd	3.727
19	Total-tetrafurans	24.58	2.797e4	3.811e4	1.192	0.73	0.77	138.5	YES	NO	dd	dd	6.685
20	Total-tetrafurans	24.52	2.371e4	3.236e4	1.192	0.73	0.77	123.9	YES	NO	dd	dd	5.672
21	Total-tetrafurans	24.40	1.606e5	2.212e5	1.192	0.73	0.77	530.1	YES	NO	dd	dd	38.631
22	Total-tetrafurans	24.23	9.635e4	1.298e5	1.192	0.74	0.77	406.3	YES	NO	dd	dd	22.874
23	Total-tetrafurans	24.16	1.498e5	1.993e5	1.192	0.75	0.77	610.3	YES	NO	dd	dd	35.318
24	Total-tetrafurans	24.01	1.279e5	1.763e5	1.192	0.73	0.77	516.5	YES	NO	dd	dd	30.767
25	Total-tetrafurans	23.86	1.552e5	2.075e5	1.192	0.75	0.77	694.4	YES	NO	dd	dd	36.694
26	Total-tetrafurans	23.73	1.135e4	1.507e4	1.192	0.75	0.77	41.2	YES	NO	dd	dd	2.673
27	Total-Furans	28.03	3.054e4	4.277e4	1.158	0.71	0.77	143.2	YES	NO	bb	bb	7.632
28	Total-Furans	27.83	8.139e4	1.103e5	1.158	0.74	0.77	364.9	YES	NO	db	db	19.957
29	1289-TCDF	27.35	3.236e5	4.331e5	1.043	0.75	0.77	1509.7	YES	NO	dd	dd	87.474
30	Total-tetrafurans	27.00	3.044e4	3.962e4	1.192	0.77	0.77	122.9	YES	NO	db	db	7.087
31	Total-tetrafurans	26.88	2.637e4	3.405e4	1.192	0.77	0.77	111.3	YES	NO	dd	bd	6.112
32	Total-pentafurans	29.80	2.076e4	1.372e4	1.047	1.51	1.55	137.0	YES	NO	dd	bd	4.749
33	Total-pentafurans	29.54	1.604e4	1.190e4	1.047	1.35	1.55	69.2	YES	NO	dd	db	3.849
34	Total-pentafurans	29.35	1.594e4	1.001e4	1.047	1.59	1.55	101.3	YES	NO	dd	bd	3.574
35	Total-pentafurans	29.04	1.249e4	8.162e3	1.047	1.53	1.55	84.0	YES	NO	bb	bb	2.845
36	Total-pentafurans	28.84	2.658e4	1.741e4	1.047	1.53	1.55	156.0	YES	NO	db	db	6.061
37	Total-pentafurans	28.67	9.761e4	6.369e4	1.047	1.53	1.55	578.9	YES	NO	bd	bd	22.221

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-pentafurans	28.45	8.358e4	5.476e4	1.047	1.53	1.55	579.2	YES	NO	db	db	19.057
39	Total-pentafurans	28.37	1.423e5	9.464e4	1.047	1.50	1.55	887.4	YES	NO	bd	bd	32.637
40	Total-pentafurans	32.01	7.679e2	4.852e2	1.047	1.58	1.55	5.1	YES	NO	bb	bb	0.173
41	Total-pentafurans	31.67	4.412e3	2.607e3	1.047	1.69	1.55	25.8	YES	NO	bd	bb	0.967
42	Total-pentafurans	31.20	8.054e4	5.434e4	1.047	1.48	1.55	346.3	YES	NO	db	db	18.581
43	Total-pentafurans	31.03	1.604e4	1.128e4	1.047	1.42	1.55	81.6	YES	NO	dd	dd	3.763
44	Total-pentafurans	30.89	5.469e3	3.526e3	1.047	1.55	1.55	37.4	YES	NO	bd	dd	1.239
45	Total-pentafurans	30.71	1.916e4	1.229e4	1.047	1.56	1.55	89.5	YES	NO	db	dd	4.331
46	Total-pentafurans	30.41	2.035e3	1.381e3	1.047	1.47	1.55	12.4	YES	NO	db	db	0.471
47	Total-pentafurans	30.28	8.306e4	5.633e4	1.047	1.47	1.55	442.3	YES	NO	dd	dd	19.202
48	Total-pentafurans	30.13	1.188e5	7.679e4	1.047	1.55	1.55	593.9	YES	NO	dd	dd	26.944
49	12378-PeCDF	29.92	5.275e3	3.424e3	1.015	1.54	1.55	28.0	YES	NO	dd	dd	1.192
50	Total-hexafurans	33.44	1.097e5	9.429e4	1.045	1.16	1.24	1323.7	YES	NO	dd	dd	30.504
51	123468-HXCDF	33.23	3.067e4	2.667e4	1.087	1.15	1.24	420.3	YES	NO	dd	dd	7.874
52	Total-hexafurans	36.17	3.170e3	2.246e3	1.045	1.41	1.24	33.5	YES	NO	dd	bb	0.810
53	234678-HxCDF	35.91	1.370e4	1.176e4	1.052	1.16	1.24	108.7	YES	NO	bd	MM	3.757
54	Total-hexafurans	35.66	3.516e2	2.770e2	1.045	1.27	1.24	7.2	YES	NO	db	db	0.094
55	123678-HxCDF	35.03	1.139e4	1.041e4	1.037	1.09	1.24	160.7	YES	NO	db	dd	3.115
56	123478-HxCDF	34.89	2.079e4	1.778e4	1.017	1.17	1.24	279.7	YES	NO	dd	dd	5.660
57	Total-hexafurans	34.74	4.770e3	4.232e3	1.045	1.13	1.24	55.6	YES	NO	bd	bd	1.346
58	Total-hexafurans	34.28	1.054e5	8.809e4	1.045	1.20	1.24	1434.6	YES	NO	db	db	28.931
59	Total-hexafurans	34.18	1.710e3	1.559e3	1.045	1.10	1.24	34.7	YES	NO	bd	bd	0.489
60	Total-hexafurans	33.96	5.006e3	4.460e3	1.045	1.12	1.24	68.6	YES	NO	bb	bb	1.416
61	Total-hexafurans	33.80	1.095e3	9.697e2	1.045	1.13	1.24	13.3	YES	NO	db	db	0.309
62	Total-hexafurans	33.55	6.943e3	5.635e3	1.045	1.23	1.24	99.8	YES	NO	dd	dd	1.881
63	123789-HxCDF	36.93	1.588e4	1.286e4	1.030	1.24	1.24	218.7	YES	NO	db	db	4.884
64	Total-hexafurans	36.83	1.884e3	1.514e3	1.045	1.24	1.24	29.7	YES	NO	dd	dd	0.508
65	Total-hexafurans	36.43	6.141e2	5.512e2	1.045	1.11	1.24	9.7	YES	NO	db	bb	0.174
66	Total-heptafurans	39.19	3.026e3	3.297e3	1.305	0.92	1.05	32.2	YES	NO	bb	db	1.279
67	1234678-HpCDF	38.78	1.637e5	1.572e5	1.327	1.04	1.05	1639.3	YES	NO	bd	bd	58.637
68	1234789-HpCDF	41.03	9.866e3	9.575e3	1.283	1.03	1.05	87.3	YES	NO	bb	bb	4.391
69	Total-heptafurans	39.45	3.318e5	3.234e5	1.305	1.03	1.05	3182.2	YES	NO	bb	bd	132.556
70	OCDF	45.27	2.790e5	3.182e5	1.447	0.88	0.89	4897.2	YES	NO	bb	bb	145.107
71	Total-penta1	27.68	4.938e3	3.001e3		1.65	1.55	52.4	YES	NO	db	db	1.204
72	Total-penta1	27.51	3.712e4	2.562e4		1.45	1.55	384.4	YES	NO	bd	bd	9.512
73	Total-penta1	27.23	1.495e5	9.828e4		1.52	1.55	1290.8	YES	NO	db	dd	37.568
74	13468-PECDF	27.05	5.696e4	3.744e4	1.376	1.52	1.55	646.3	YES	NO	bd	bd	9.538

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	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
75	Total-penta1	27.97	3.261e4	2.131e4		1.53	1.55	381.4	YES	NO	db	db	8.176
76	Total-penta1	27.82	5.098e3	3.115e3		1.64	1.55	82.9	YES	NO	bd	bd	1.245

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.58	1.186e3	1.556e3	0.879	0.76	0.77	22.2	YES	NO	bb	dd	0.411
2	Total-tetradioxins	25.34	7.761e2	1.005e3	0.879	0.77	0.77	10.8	YES	NO	db	dd	0.267
3	Total-tetradioxins	25.25	7.871e2	1.004e3	0.879	0.78	0.77	13.8	YES	NO	bd	bd	0.269
4	Total-tetradioxins	24.99	2.764e3	3.603e3	0.879	0.77	0.77	43.9	YES	NO	bb	bb	0.956
5	Total-tetradioxins	24.52	6.708e2	8.426e2	0.879	0.80	0.77	12.7	YES	NO	bd	bd	0.227
6	Total-tetradioxins	23.99	6.634e2	8.907e2	0.879	0.74	0.77	13.5	YES	NO	bb	db	0.233
7	Total-tetradioxins	23.80	1.772e3	2.684e3	0.879	0.66	0.77	29.4	YES	NO	bd	bd	0.669
8	1368-TCDD	23.49	3.541e3	4.317e3	0.923	0.82	0.77	66.0	YES	NO	bb	bb	1.123
9	Total-tetradioxins	26.52	9.434e2	1.387e3	0.879	0.68	0.77	17.1	YES	NO	db	db	0.350
10	2378-TCDD	26.40	2.147e3	2.924e3	0.920	0.73	0.77	38.3	YES	NO	bd	bd	0.727

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.51	1.195e4	7.618e3	0.995	1.57	1.55	107.9	YES	NO	bb	bb	4.472
2	Total-pentadioxins	30.44	4.410e3	2.977e3	1.331	1.48	1.55	26.7	YES	NO	db	db	1.263
3	Total-pentadioxins	30.27	5.295e3	3.479e3	1.331	1.52	1.55	46.9	YES	NO	dd	dd	1.500
4	Total-pentadioxins	30.12	1.198e4	7.769e3	1.331	1.54	1.55	119.2	YES	NO	bd	bd	3.377
5	Total-pentadioxins	29.90	4.893e3	3.270e3	1.331	1.50	1.55	50.4	YES	NO	bb	bb	1.396
6	Total-pentadioxins	29.30	2.183e3	1.531e3	1.331	1.43	1.55	21.5	YES	NO	bb	bb	0.635
7	Total-pentadioxins	32.22	2.528e3	1.577e3	1.331	1.60	1.55	24.9	YES	NO	bd	bb	0.702
8	12389-PECDD	31.91	1.517e3	9.650e2	1.154	1.57	1.55	14.3	YES	NO	bb	bb	0.489

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Last Altered: Thursday, September 23, 2021 10:36:03 Pacific Daylight Time
Printed: Thursday, September 23, 2021 11:57:34 Pacific Daylight Time

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.13	1.467e5	1.163e5	1.028	1.26	1.24	917.1	YES	NO	bd	bd	45.268
2	Total-hexadioxins	34.77	1.999e4	1.484e4	1.028	1.35	1.24	193.6	YES	NO	bb	bb	5.994
3	Total-hexadioxins	34.59	4.200e3	3.398e3	1.028	1.24	1.24	45.0	YES	NO	bb	bb	1.308
4	124679-HXCDD	34.00	7.482e4	6.067e4	1.125	1.23	1.24	718.2	YES	NO	bb	bd	21.402
5	123789-HxCDD	36.53	3.681e4	3.030e4	0.950	1.21	1.24	369.8	YES	NO	db	db	12.490
6	Total-hexadioxins	36.43	2.590e3	2.216e3	1.028	1.17	1.24	29.9	YES	NO	bd	bd	0.827
7	Total-hexadioxins	36.30	4.534e3	3.545e3	1.028	1.28	1.24	48.5	YES	NO	bb	bb	1.390
8	123678-HxCDD	36.13	5.471e4	4.325e4	1.009	1.26	1.24	538.4	YES	NO	db	db	17.097
9	123478-HxCDD	36.01	1.560e4	1.349e4	1.027	1.16	1.24	163.0	YES	NO	bd	bd	5.031
10	Total-hexadioxins	35.24	1.264e4	9.285e3	1.028	1.36	1.24	107.9	YES	NO	db	db	3.773

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.28	6.853e5	6.546e5	1.068	1.05	1.05	4597.0	YES	NO	bb	bb	359.074
2	1234679-HPCDD	39.22	6.150e5	5.831e5	1.211	1.05	1.05	4282.5	YES	NO	bb	bb	283.194

Dataset: T:\Autospec\Processed Data Batch\210922D1.qld
Last Altered: Thursday, September 23, 2021 10:36:03 Pacific Daylight Time
Printed: Thursday, September 23, 2021 11:57:34 Pacific Daylight Time

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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	1.186e3	1.556e3	0.879	0.76	0.77	22.2	YES	NO	bb	dd	0.411
2	Total-tetradioxins	25.34	7.761e2	1.005e3	0.879	0.77	0.77	10.8	YES	NO	db	dd	0.267
3	Total-tetradioxins	25.25	7.871e2	1.004e3	0.879	0.78	0.77	13.8	YES	NO	bd	bd	0.269
4	Total-tetradioxins	24.99	2.764e3	3.603e3	0.879	0.77	0.77	43.9	YES	NO	bb	bb	0.956
5	Total-tetradioxins	24.52	6.708e2	8.426e2	0.879	0.80	0.77	12.7	YES	NO	bd	bd	0.227
6	Total-tetradioxins	23.99	6.634e2	8.907e2	0.879	0.74	0.77	13.5	YES	NO	bb	db	0.233
7	Total-tetradioxins	23.80	1.772e3	2.684e3	0.879	0.66	0.77	29.4	YES	NO	bd	bd	0.669
8	1368-TCDD	23.49	3.541e3	4.317e3	0.923	0.82	0.77	66.0	YES	NO	bb	bb	1.123
9	Total-tetradioxins	26.52	9.434e2	1.387e3	0.879	0.68	0.77	17.1	YES	NO	db	db	0.350
10	2378-TCDD	26.40	2.147e3	2.924e3	0.920	0.73	0.77	38.3	YES	NO	bd	bd	0.727
11	12378-PeCDD	31.51	1.195e4	7.618e3	0.995	1.57	1.55	107.9	YES	NO	bb	bb	4.472
12	Total-pentadioxins	30.44	4.410e3	2.977e3	1.331	1.48	1.55	26.7	YES	NO	db	db	1.263
13	Total-pentadioxins	30.27	5.295e3	3.479e3	1.331	1.52	1.55	46.9	YES	NO	dd	dd	1.500
14	Total-pentadioxins	30.12	1.198e4	7.769e3	1.331	1.54	1.55	119.2	YES	NO	bd	bd	3.377
15	Total-pentadioxins	29.90	4.893e3	3.270e3	1.331	1.50	1.55	50.4	YES	NO	bb	bb	1.396
16	Total-pentadioxins	29.30	2.183e3	1.531e3	1.331	1.43	1.55	21.5	YES	NO	bb	bb	0.635
17	Total-pentadioxins	32.22	2.528e3	1.577e3	1.331	1.60	1.55	24.9	YES	NO	bd	bb	0.702
18	12389-PECDD	31.91	1.517e3	9.650e2	1.154	1.57	1.55	14.3	YES	NO	bb	bb	0.489
19	Total-hexadioxins	35.13	1.467e5	1.163e5	1.028	1.26	1.24	917.1	YES	NO	bd	bd	45.268
20	Total-hexadioxins	34.77	1.999e4	1.484e4	1.028	1.35	1.24	193.6	YES	NO	bb	bb	5.994
21	Total-hexadioxins	34.59	4.200e3	3.398e3	1.028	1.24	1.24	45.0	YES	NO	bb	bb	1.308
22	124679-HXCDD	34.00	7.482e4	6.067e4	1.125	1.23	1.24	718.2	YES	NO	bb	bd	21.402
23	123789-HxCDD	36.53	3.681e4	3.030e4	0.950	1.21	1.24	369.8	YES	NO	db	db	12.490
24	Total-hexadioxins	36.43	2.590e3	2.216e3	1.028	1.17	1.24	29.9	YES	NO	bd	bd	0.827
25	Total-hexadioxins	36.30	4.534e3	3.545e3	1.028	1.28	1.24	48.5	YES	NO	bb	bb	1.390
26	123678-HxCDD	36.13	5.471e4	4.325e4	1.009	1.26	1.24	538.4	YES	NO	db	db	17.097
27	123478-HxCDD	36.01	1.560e4	1.349e4	1.027	1.16	1.24	163.0	YES	NO	bd	bd	5.031
28	Total-hexadioxins	35.24	1.264e4	9.285e3	1.028	1.36	1.24	107.9	YES	NO	db	db	3.773
29	1234678-HpCDD	40.28	6.853e5	6.546e5	1.068	1.05	1.05	4597.0	YES	NO	bb	bb	359.074
30	1234679-HPCDD	39.22	6.150e5	5.831e5	1.211	1.05	1.05	4282.5	YES	NO	bb	bb	283.194
31	OCDD	45.03	4.457e6	5.019e6	1.181	0.89	0.89	24270.5	YES	NO	bb	bb	2821.3...

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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	Total-tetrafurans	23.52	1.842e4	2.562e4	1.192	0.72	0.77	69.8	YES	NO	dd	dd	4.455
2	Total-tetrafurans	23.39	8.049e3	9.407e3	1.192	0.86	0.77	29.4	YES	NO	dd	dd	1.766
3	Total-tetrafurans	23.08	8.937e3	1.176e4	1.192	0.76	0.77	35.6	YES	NO	bd	bd	2.093
4	Total-tetrafurans	22.75	8.012e3	1.174e4	1.192	0.68	0.77	32.0	YES	NO	bb	bb	1.998
5	Total-tetrafurans	22.51	7.704e3	9.732e3	1.192	0.79	0.77	32.5	YES	NO	db	db	1.764
6	1368-TCDF	22.37	3.432e4	4.503e4	1.425	0.76	0.77	159.4	YES	NO	dd	bd	6.713
7	Total-Furans	21.98	5.456e3	7.376e3	1.158	0.74	0.77	24.4	YES	NO	db	bb	1.336
8	Total-Furans	21.78	1.152e4	1.400e4	1.158	0.82	0.77	51.4	YES	NO	dd	db	2.657
9	Total-Furans	21.63	1.397e4	1.867e4	1.158	0.75	0.77	65.8	YES	NO	bd	bd	3.399
10	Total-Furans	21.32	2.365e4	3.296e4	1.158	0.72	0.77	107.3	YES	NO	db	db	5.893
11	Total-Furans	21.13	9.285e4	1.249e5	1.158	0.74	0.77	443.4	YES	NO	bd	bd	22.671
12	Total-tetrafurans	25.85	1.738e5	2.323e5	1.192	0.75	0.77	566.3	YES	NO	bd	dd	41.077
13	Total-tetrafurans	25.56	2.087e4	2.895e4	1.192	0.72	0.77	69.2	YES	NO	db	dd	5.040
14	Total-tetrafurans	25.41	6.222e4	8.384e4	1.192	0.74	0.77	179.0	YES	NO	dd	dd	14.775
15	Total-tetrafurans	25.26	2.679e4	3.686e4	1.192	0.73	0.77	110.6	YES	NO	bd	dd	6.439
16	Total-tetrafurans	25.07	1.889e4	2.554e4	1.192	0.74	0.77	65.5	YES	NO	db	dd	4.494
17	Total-tetrafurans	24.85	4.358e3	6.395e3	1.192	0.68	0.77	18.6	YES	NO	dd	dd	1.088
18	Total-tetrafurans	24.66	1.569e4	2.115e4	1.192	0.74	0.77	66.1	YES	NO	dd	dd	3.727
19	Total-tetrafurans	24.58	2.797e4	3.811e4	1.192	0.73	0.77	138.5	YES	NO	dd	dd	6.685
20	Total-tetrafurans	24.52	2.371e4	3.236e4	1.192	0.73	0.77	123.9	YES	NO	dd	dd	5.672
21	Total-tetrafurans	24.40	1.606e5	2.212e5	1.192	0.73	0.77	530.1	YES	NO	dd	dd	38.631
22	Total-tetrafurans	24.23	9.635e4	1.298e5	1.192	0.74	0.77	406.3	YES	NO	dd	dd	22.874
23	Total-tetrafurans	24.16	1.498e5	1.993e5	1.192	0.75	0.77	610.3	YES	NO	dd	dd	35.318
24	Total-tetrafurans	24.01	1.279e5	1.763e5	1.192	0.73	0.77	516.5	YES	NO	dd	dd	30.767
25	Total-tetrafurans	23.86	1.552e5	2.075e5	1.192	0.75	0.77	694.4	YES	NO	dd	dd	36.694
26	Total-tetrafurans	23.73	1.135e4	1.507e4	1.192	0.75	0.77	41.2	YES	NO	dd	dd	2.673
27	Total-Furans	28.03	3.054e4	4.277e4	1.158	0.71	0.77	143.2	YES	NO	bb	bb	7.632
28	Total-Furans	27.83	8.139e4	1.103e5	1.158	0.74	0.77	364.9	YES	NO	db	db	19.957
29	1289-TCDF	27.35	3.236e5	4.331e5	1.043	0.75	0.77	1509.7	YES	NO	dd	dd	87.474
30	Total-tetrafurans	27.00	3.044e4	3.962e4	1.192	0.77	0.77	122.9	YES	NO	db	db	7.087
31	Total-tetrafurans	26.88	2.637e4	3.405e4	1.192	0.77	0.77	111.3	YES	NO	dd	bd	6.112
32	Total-pentafurans	29.80	2.076e4	1.372e4	1.047	1.51	1.55	137.0	YES	NO	dd	bd	4.749
33	Total-pentafurans	29.54	1.604e4	1.190e4	1.047	1.35	1.55	69.2	YES	NO	dd	db	3.849
34	Total-pentafurans	29.35	1.594e4	1.001e4	1.047	1.59	1.55	101.3	YES	NO	dd	bd	3.574
35	Total-pentafurans	29.04	1.249e4	8.162e3	1.047	1.53	1.55	84.0	YES	NO	bb	bb	2.845
36	Total-pentafurans	28.84	2.658e4	1.741e4	1.047	1.53	1.55	156.0	YES	NO	db	db	6.061
37	Total-pentafurans	28.67	9.761e4	6.369e4	1.047	1.53	1.55	578.9	YES	NO	bd	bd	22.221

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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
38	Total-pentafurans	28.45	8.358e4	5.476e4	1.047	1.53	1.55	579.2	YES	NO	db	db	19.057
39	Total-pentafurans	28.37	1.423e5	9.464e4	1.047	1.50	1.55	887.4	YES	NO	bd	bd	32.637
40	Total-pentafurans	32.01	7.679e2	4.852e2	1.047	1.58	1.55	5.1	YES	NO	bb	bb	0.173
41	Total-pentafurans	31.67	4.412e3	2.607e3	1.047	1.69	1.55	25.8	YES	NO	bd	bb	0.967
42	Total-pentafurans	31.20	8.054e4	5.434e4	1.047	1.48	1.55	346.3	YES	NO	db	db	18.581
43	Total-pentafurans	31.03	1.604e4	1.128e4	1.047	1.42	1.55	81.6	YES	NO	dd	dd	3.763
44	Total-pentafurans	30.89	5.469e3	3.526e3	1.047	1.55	1.55	37.4	YES	NO	bd	dd	1.239
45	Total-pentafurans	30.71	1.916e4	1.229e4	1.047	1.56	1.55	89.5	YES	NO	db	dd	4.331
46	Total-pentafurans	30.41	2.035e3	1.381e3	1.047	1.47	1.55	12.4	YES	NO	db	db	0.471
47	Total-pentafurans	30.28	8.306e4	5.633e4	1.047	1.47	1.55	442.3	YES	NO	dd	dd	19.202
48	Total-pentafurans	30.13	1.188e5	7.679e4	1.047	1.55	1.55	593.9	YES	NO	dd	dd	26.944
49	12378-PeCDF	29.92	5.275e3	3.424e3	1.015	1.54	1.55	28.0	YES	NO	dd	dd	1.192
50	Total-hexafurans	33.44	1.097e5	9.429e4	1.045	1.16	1.24	1323.7	YES	NO	dd	dd	30.504
51	123468-HXCDF	33.23	3.067e4	2.667e4	1.087	1.15	1.24	420.3	YES	NO	dd	dd	7.874
52	Total-hexafurans	36.17	3.170e3	2.246e3	1.045	1.41	1.24	33.5	YES	NO	dd	bb	0.810
53	234678-HxCDF	35.91	1.370e4	1.176e4	1.052	1.16	1.24	108.7	YES	NO	bd	MM	3.757
54	Total-hexafurans	35.66	3.516e2	2.770e2	1.045	1.27	1.24	7.2	YES	NO	db	db	0.094
55	123678-HxCDF	35.03	1.139e4	1.041e4	1.037	1.09	1.24	160.7	YES	NO	db	dd	3.115
56	123478-HxCDF	34.89	2.079e4	1.778e4	1.017	1.17	1.24	279.7	YES	NO	dd	dd	5.660
57	Total-hexafurans	34.74	4.770e3	4.232e3	1.045	1.13	1.24	55.6	YES	NO	bd	bd	1.346
58	Total-hexafurans	34.28	1.054e5	8.809e4	1.045	1.20	1.24	1434.6	YES	NO	db	db	28.931
59	Total-hexafurans	34.18	1.710e3	1.559e3	1.045	1.10	1.24	34.7	YES	NO	bd	bd	0.489
60	Total-hexafurans	33.96	5.006e3	4.460e3	1.045	1.12	1.24	68.6	YES	NO	bb	bb	1.416
61	Total-hexafurans	33.80	1.095e3	9.697e2	1.045	1.13	1.24	13.3	YES	NO	db	db	0.309
62	Total-hexafurans	33.55	6.943e3	5.635e3	1.045	1.23	1.24	99.8	YES	NO	dd	dd	1.881
63	123789-HxCDF	36.93	1.588e4	1.286e4	1.030	1.24	1.24	218.7	YES	NO	db	db	4.884
64	Total-hexafurans	36.83	1.884e3	1.514e3	1.045	1.24	1.24	29.7	YES	NO	dd	dd	0.508
65	Total-hexafurans	36.43	6.141e2	5.512e2	1.045	1.11	1.24	9.7	YES	NO	db	bb	0.174
66	Total-heptafurans	39.19	3.026e3	3.297e3	1.305	0.92	1.05	32.2	YES	NO	bb	db	1.279
67	1234678-HpCDF	38.78	1.637e5	1.572e5	1.327	1.04	1.05	1639.3	YES	NO	bd	bd	58.637
68	1234789-HpCDF	41.03	9.866e3	9.575e3	1.283	1.03	1.05	87.3	YES	NO	bb	bb	4.391
69	Total-heptafurans	39.45	3.318e5	3.234e5	1.305	1.03	1.05	3182.2	YES	NO	bb	bd	132.556
70	OCDF	45.27	2.790e5	3.182e5	1.447	0.88	0.89	4897.2	YES	NO	bb	bb	145.107
71	Total-penta1	27.68	4.938e3	3.001e3		1.65	1.55	52.4	YES	NO	db	db	1.204
72	Total-penta1	27.51	3.712e4	2.562e4		1.45	1.55	384.4	YES	NO	bd	bd	9.512
73	Total-penta1	27.23	1.495e5	9.828e4		1.52	1.55	1290.8	YES	NO	db	dd	37.568
74	13468-PECDF	27.05	5.696e4	3.744e4	1.376	1.52	1.55	646.3	YES	NO	bd	bd	9.538

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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
75	Total-penta1	27.97	3.261e4	2.131e4		1.53	1.55	381.4	YES	NO	db	db	8.176
76	Total-penta1	27.82	5.098e3	3.115e3		1.64	1.55	82.9	YES	NO	bd	bd	1.245
77	Total-tetradioxins	25.58	1.186e3	1.556e3	0.879	0.76	0.77	22.2	YES	NO	bb	dd	0.411
78	Total-tetradioxins	25.34	7.761e2	1.005e3	0.879	0.77	0.77	10.8	YES	NO	db	dd	0.267
79	Total-tetradioxins	25.25	7.871e2	1.004e3	0.879	0.78	0.77	13.8	YES	NO	bd	bd	0.269
80	Total-tetradioxins	24.99	2.764e3	3.603e3	0.879	0.77	0.77	43.9	YES	NO	bb	bb	0.956
81	Total-tetradioxins	24.52	6.708e2	8.426e2	0.879	0.80	0.77	12.7	YES	NO	bd	bd	0.227
82	Total-tetradioxins	23.99	6.634e2	8.907e2	0.879	0.74	0.77	13.5	YES	NO	bb	db	0.233
83	Total-tetradioxins	23.80	1.772e3	2.684e3	0.879	0.66	0.77	29.4	YES	NO	bd	bd	0.669
84	1368-TCDD	23.49	3.541e3	4.317e3	0.923	0.82	0.77	66.0	YES	NO	bb	bb	1.123
85	Total-tetradioxins	26.52	9.434e2	1.387e3	0.879	0.68	0.77	17.1	YES	NO	db	db	0.350
86	2378-TCDD	26.40	2.147e3	2.924e3	0.920	0.73	0.77	38.3	YES	NO	bd	bd	0.727
87	12378-PeCDD	31.51	1.195e4	7.618e3	0.995	1.57	1.55	107.9	YES	NO	bb	bb	4.472
88	Total-pentadioxins	30.44	4.410e3	2.977e3	1.331	1.48	1.55	26.7	YES	NO	db	db	1.263
89	Total-pentadioxins	30.27	5.295e3	3.479e3	1.331	1.52	1.55	46.9	YES	NO	dd	dd	1.500
90	Total-pentadioxins	30.12	1.198e4	7.769e3	1.331	1.54	1.55	119.2	YES	NO	bd	bd	3.377
91	Total-pentadioxins	29.90	4.893e3	3.270e3	1.331	1.50	1.55	50.4	YES	NO	bb	bb	1.396
92	Total-pentadioxins	29.30	2.183e3	1.531e3	1.331	1.43	1.55	21.5	YES	NO	bb	bb	0.635
93	Total-pentadioxins	32.22	2.528e3	1.577e3	1.331	1.60	1.55	24.9	YES	NO	bd	bb	0.702
94	12389-PECDD	31.91	1.517e3	9.650e2	1.154	1.57	1.55	14.3	YES	NO	bb	bb	0.489
95	Total-hexadioxins	35.13	1.467e5	1.163e5	1.028	1.26	1.24	917.1	YES	NO	bd	bd	45.268
96	Total-hexadioxins	34.77	1.999e4	1.484e4	1.028	1.35	1.24	193.6	YES	NO	bb	bb	5.994
97	Total-hexadioxins	34.59	4.200e3	3.398e3	1.028	1.24	1.24	45.0	YES	NO	bb	bb	1.308
98	124679-HXCDD	34.00	7.482e4	6.067e4	1.125	1.23	1.24	718.2	YES	NO	bb	bd	21.402
99	123789-HxCDD	36.53	3.681e4	3.030e4	0.950	1.21	1.24	369.8	YES	NO	db	db	12.490
100	Total-hexadioxins	36.43	2.590e3	2.216e3	1.028	1.17	1.24	29.9	YES	NO	bd	bd	0.827
101	Total-hexadioxins	36.30	4.534e3	3.545e3	1.028	1.28	1.24	48.5	YES	NO	bb	bb	1.390
102	123678-HxCDD	36.13	5.471e4	4.325e4	1.009	1.26	1.24	538.4	YES	NO	db	db	17.097
103	123478-HxCDD	36.01	1.560e4	1.349e4	1.027	1.16	1.24	163.0	YES	NO	bd	bd	5.031
104	Total-hexadioxins	35.24	1.264e4	9.285e3	1.028	1.36	1.24	107.9	YES	NO	db	db	3.773
105	1234678-HpCDD	40.28	6.853e5	6.546e5	1.068	1.05	1.05	4597.0	YES	NO	bb	bb	359.074
106	1234679-HPCDD	39.22	6.150e5	5.831e5	1.211	1.05	1.05	4282.5	YES	NO	bb	bb	283.194
107	OCDD	45.03	4.457e6	5.019e6	1.181	0.89	0.89	24270.5	YES	NO	bb	bb	2821.3...

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.97	1.771e4					1.6	NO		bb		
2	FUNCTION1 PFK	26.74	5.070e4					2.2	NO		bb		
3	FUNCTION1 PFK	25.19	1.844e4					1.2	NO		bb		
4	FUNCTION1 PFK	25.13	1.723e4					1.2	NO		bb		
5	FUNCTION1 PFK	21.16	2.502e4					2.0	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.37	3.080e4					4.0	YES		bb		0.000
2	FUNCTION2 PFK	29.23	1.498e5					8.7	YES		bb		0.000
3	FUNCTION2 PFK	28.26	1.541e6					29.7	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	37.15	1.003e6					6.3	YES		bb		0.000
2	FUNCTION3 PFK	36.73	1.350e6					14.2	YES		bb		0.000
3	FUNCTION3 PFK	33.07	3.666e3					1.0	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	38.71	1.668e4					1.9	NO		db		
2	FUNCTION4 PFK	38.63	3.853e5					5.1	YES		bd		
3	FUNCTION4 PFK	38.20	4.321e5					5.5	YES		db		
4	FUNCTION4 PFK	38.10	1.789e4					2.6	NO		bd		
5	FUNCTION4 PFK	37.96	4.766e4					3.7	YES		bb		

PFK5

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

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.72	1.471e3					23.9	YES		bb		0.000
2	FUNCTION1 HXCD...	22.28	1.590e2					3.3	YES		bb		0.000
3	FUNCTION1 HXCD...	21.69	9.086e1					1.6	NO		bb		0.000
4	FUNCTION1 HXCD...	21.10	1.915e2					2.5	NO		bb		0.000
5	FUNCTION1 HXCD...	26.76	4.047e3					60.7	YES		db		0.000
6	FUNCTION1 HXCD...	26.68	7.240e2					15.0	YES		bd		0.000
7	FUNCTION1 HXCD...	26.40	3.450e3					40.4	YES		db		0.000
8	FUNCTION1 HXCD...	26.29	1.443e3					23.0	YES		dd		0.000
9	FUNCTION1 HXCD...	26.20	1.949e3					26.8	YES		dd		0.000
10	FUNCTION1 HXCD...	26.11	2.863e2					4.8	YES		bd		0.000
11	FUNCTION1 HXCD...	25.88	1.966e3					26.4	YES		db		0.000
12	FUNCTION1 HXCD...	25.70	6.531e2					7.5	YES		dd		0.000
13	FUNCTION1 HXCD...	25.56	1.567e2					3.5	YES		dd		0.000
14	FUNCTION1 HXCD...	25.52	3.327e2					4.8	YES		dd		0.000
15	FUNCTION1 HXCD...	25.41	1.297e2					3.0	NO		dd		0.000
16	FUNCTION1 HXCD...	25.29	2.053e3					25.4	YES		bd		0.000
17	FUNCTION1 HXCD...	24.96	1.613e2					3.1	YES		bb		0.000
18	FUNCTION1 HXCD...	24.75	2.615e2					3.6	YES		bb		0.000
19	FUNCTION1 HXCD...	24.40	8.345e1					1.7	NO		db		0.000
20	FUNCTION1 HXCD...	24.34	1.033e2					1.9	NO		bd		0.000
21	FUNCTION1 HXCD...	27.95	9.789e2					15.9	YES		db		0.000
22	FUNCTION1 HXCD...	27.89	6.533e2					11.2	YES		dd		0.000
23	FUNCTION1 HXCD...	27.65	1.039e3					9.7	YES		dd		0.000
24	FUNCTION1 HXCD...	27.50	4.468e3					55.6	YES		bd		0.000
25	FUNCTION1 HXCD...	26.99	1.654e3					26.2	YES		bb		0.000

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	27.12	8.269e1					3.7	YES		bb		0.000
2	FUNCTION1 HPCD...	25.55	8.033e1					2.2	NO		bb		0.000
3	FUNCTION1 HPCD...	25.31	1.051e2					2.7	NO		bb		0.000
4	FUNCTION1 HPCD...	24.79	1.437e2					4.1	YES		bb		0.000
5	FUNCTION1 HPCD...	23.73	1.271e2					2.3	NO		bb		0.000
6	FUNCTION1 HPCD...	23.52	7.406e1					2.7	NO		bb		0.000
7	FUNCTION1 HPCD...	23.34	1.047e3					25.5	YES		bb		0.000
8	FUNCTION1 HPCD...	22.63	8.083e1					2.2	NO		bb		0.000
9	FUNCTION1 HPCD...	22.01	6.359e2					20.9	YES		bb		0.000
10	FUNCTION1 HPCD...	21.12	2.057e2					3.7	YES		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.42	6.194e2					9.7	YES		db		0.000
2	FUNCTION2 HPCD...	32.28	1.227e3					23.4	YES		dd		0.000
3	FUNCTION2 HPCD...	32.17	2.069e2					4.2	YES		bd		0.000
4	FUNCTION2 HPCD...	31.56	8.901e1					4.1	YES		bb		0.000
5	FUNCTION2 HPCD...	30.64	3.537e2					6.1	YES		bb		0.000
6	FUNCTION2 HPCD...	30.52	9.868e2					17.5	YES		db		0.000
7	FUNCTION2 HPCD...	30.39	1.909e2					5.0	YES		dd		0.000
8	FUNCTION2 HPCD...	30.31	2.925e2					5.5	YES		bd		0.000
9	FUNCTION2 HPCD...	30.03	3.916e2					6.8	YES		db		0.000
10	FUNCTION2 HPCD...	29.95	3.494e2					7.3	YES		dd		0.000
11	FUNCTION2 HPCD...	29.82	1.341e2					3.4	YES		bd		0.000
12	FUNCTION2 HPCD...	29.06	2.821e2					7.5	YES		db		0.000
13	FUNCTION2 HPCD...	29.03	1.674e2					5.1	YES		bd		0.000
14	FUNCTION2 HPCD...	28.90	7.851e2					13.9	YES		db		0.000
15	FUNCTION2 HPCD...	28.65	9.833e2					14.9	YES		bd		0.000
16	FUNCTION2 HPCD...	32.61	2.087e2					4.6	YES		bb		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.92	4.333e2					12.9	YES		bb		0.000
2	FUNCTION3 OCDPE	35.97	1.026e2					3.5	YES		bb		0.000
3	FUNCTION3 OCDPE	35.69	1.442e2					5.1	YES		bb		0.000
4	FUNCTION3 OCDPE	34.17	8.318e2					24.9	YES		bb		0.000
5	FUNCTION3 OCDPE	33.06	4.967e2					12.6	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	40.77	4.543e2					8.1	YES		db		0.000
2	FUNCTION4 NCDPE	40.71	2.433e2					5.4	YES		bd		0.000
3	FUNCTION4 NCDPE	38.83	9.309e1					3.9	YES		db		0.000
4	FUNCTION4 NCDPE	38.72	2.905e2					2.3	NO		dd		0.000
5	FUNCTION4 NCDPE	38.68	1.471e2					6.6	YES		bd		0.000
6	FUNCTION4 NCDPE	38.41	6.819e5					12658.4	YES		bb		0.000
7	FUNCTION4 NCDPE	38.28	1.377e2					5.7	YES		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.05	6.853e2					12.0	YES		bb		0.000

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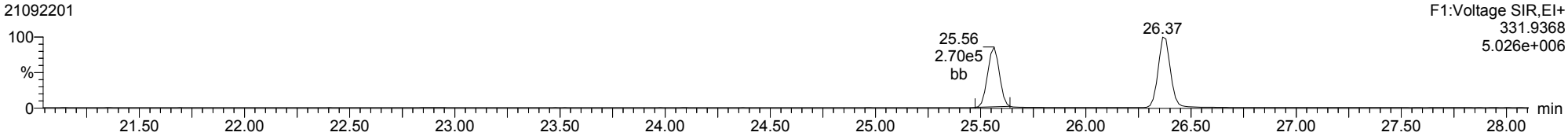

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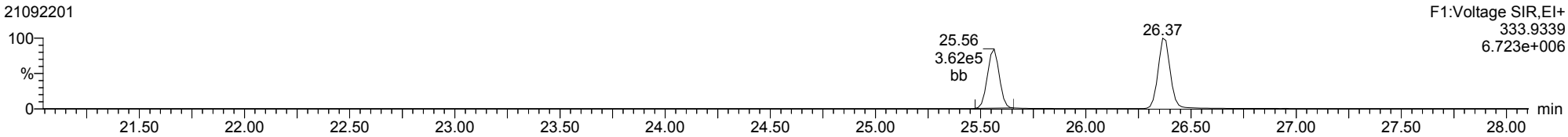

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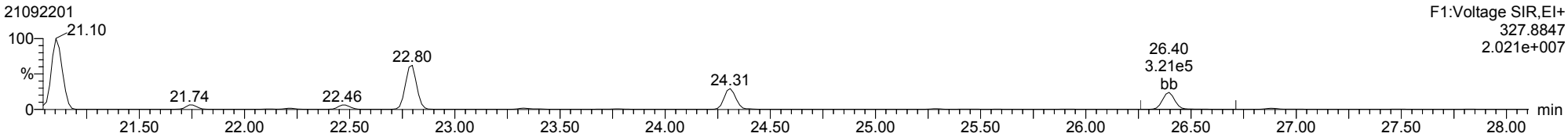

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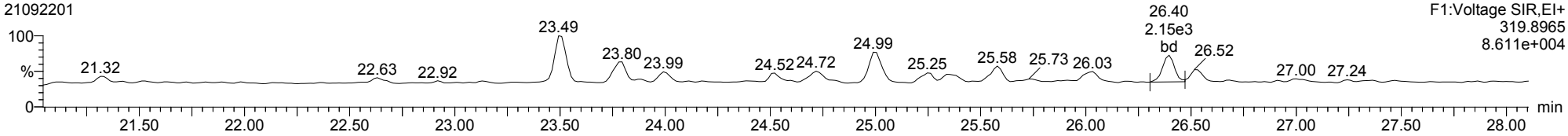

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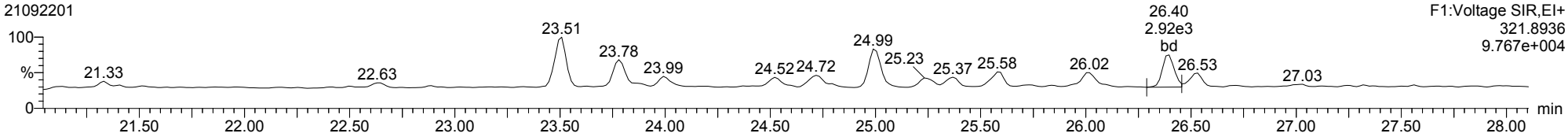

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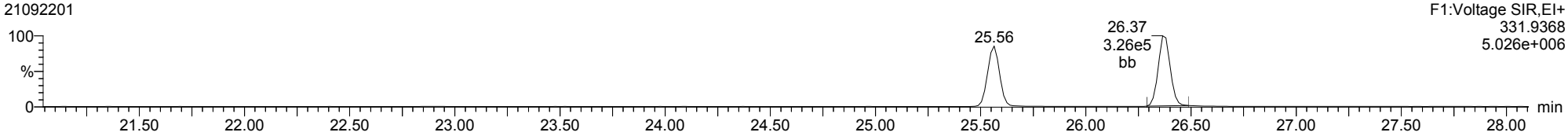

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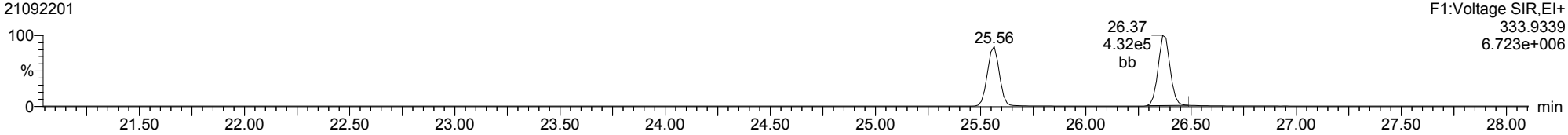

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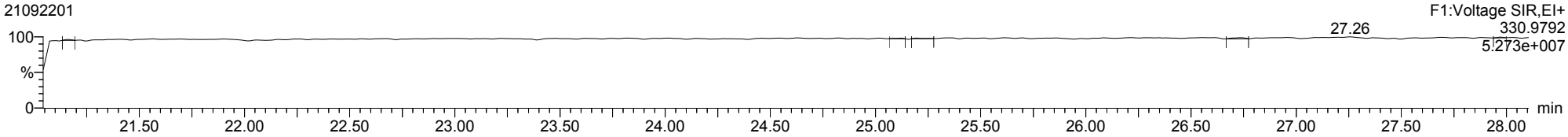

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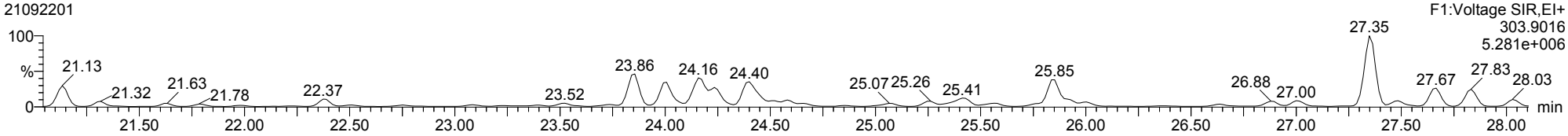

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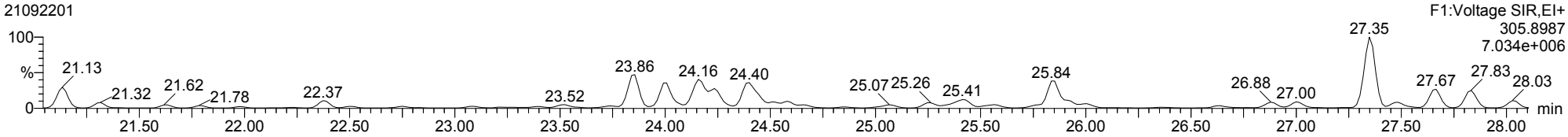

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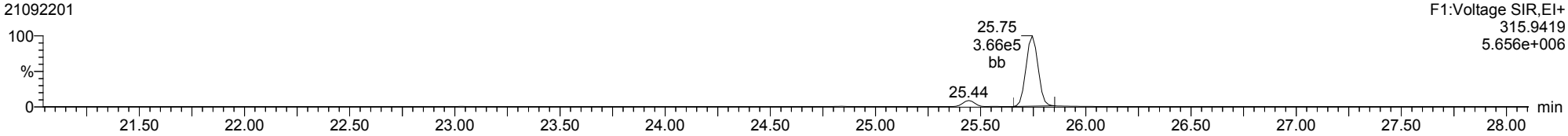

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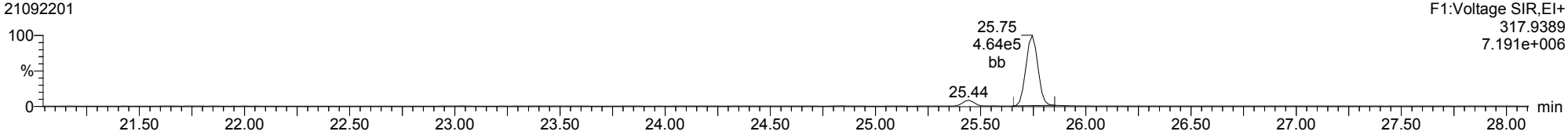

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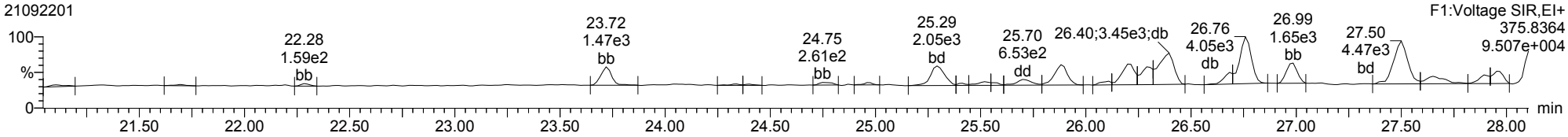

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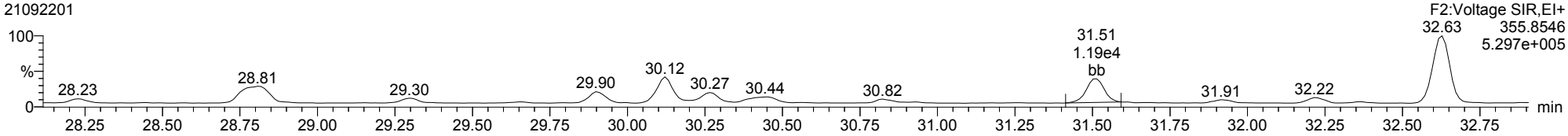

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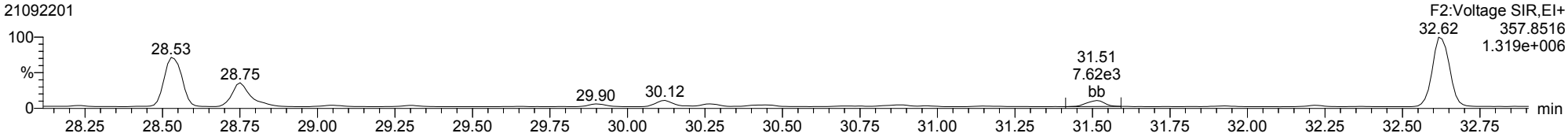

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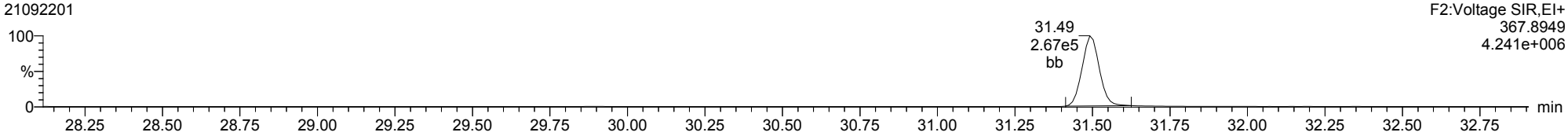

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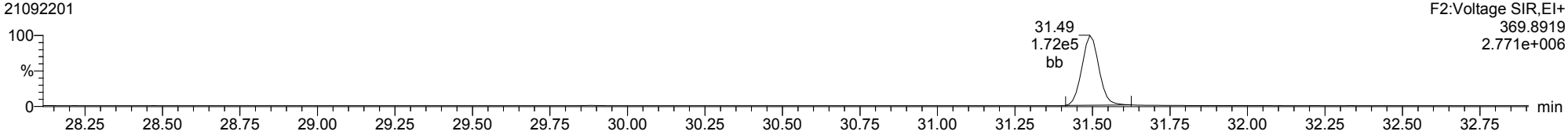
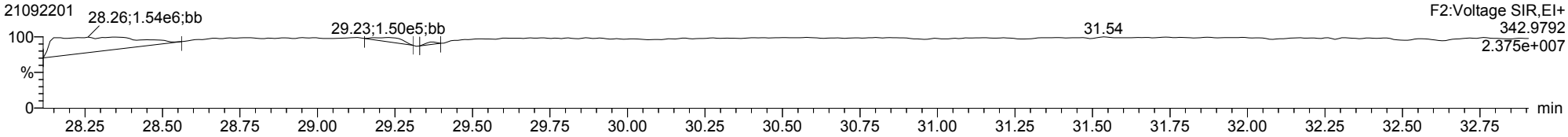


FUNCTION2 PFK



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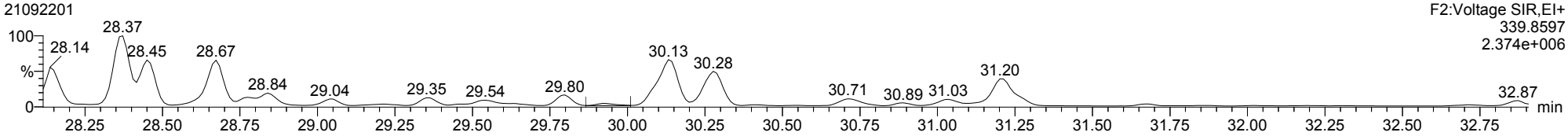

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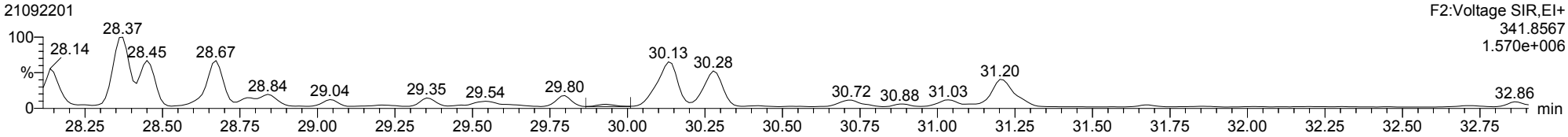

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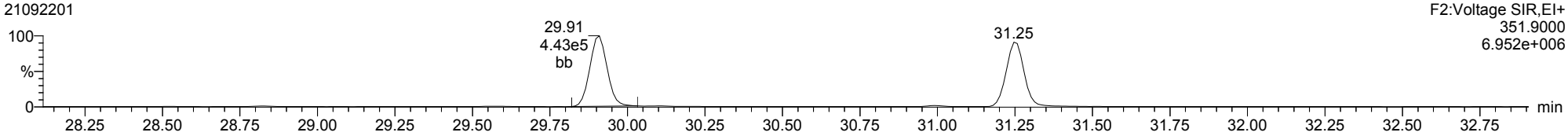

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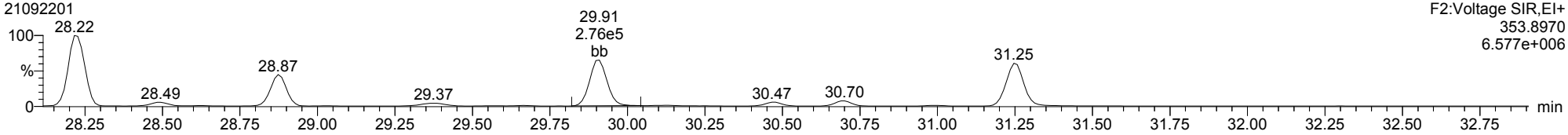

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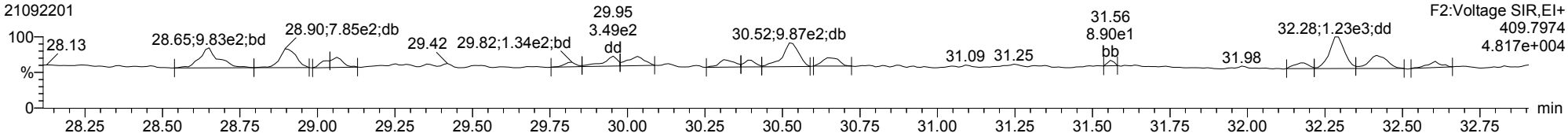

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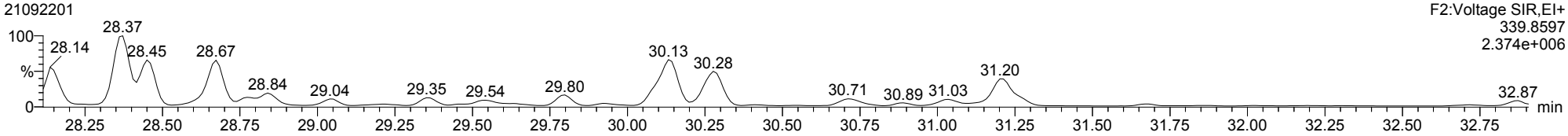
23478-PeCDF



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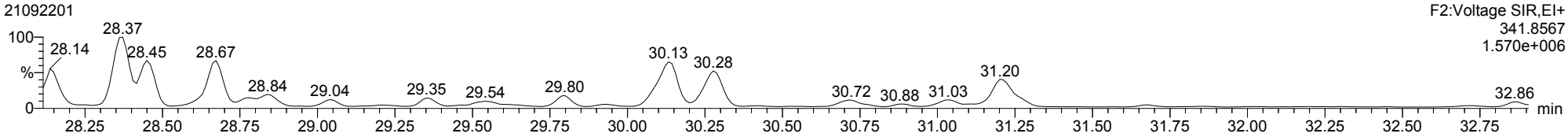

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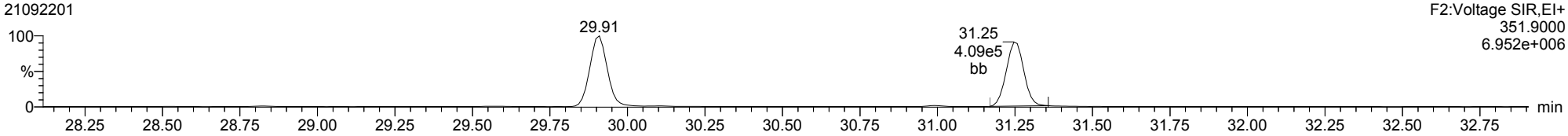

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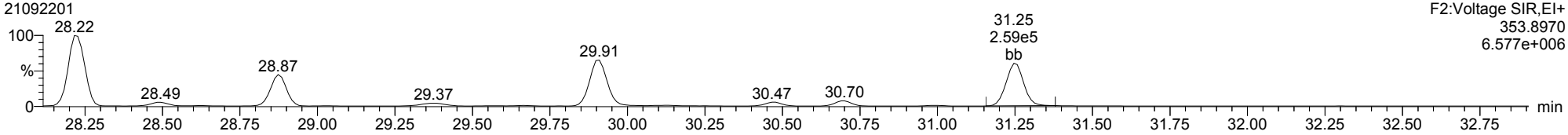

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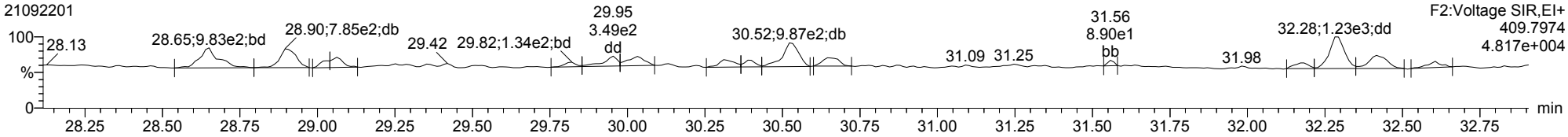

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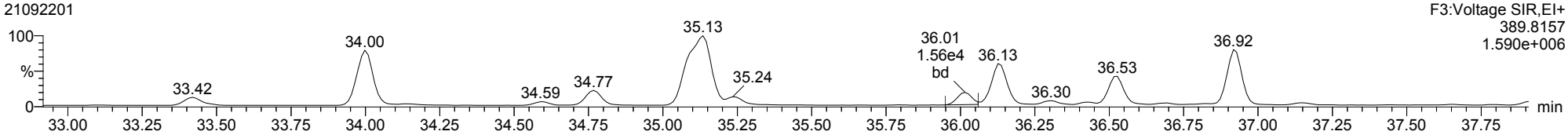
123478-HxCDD



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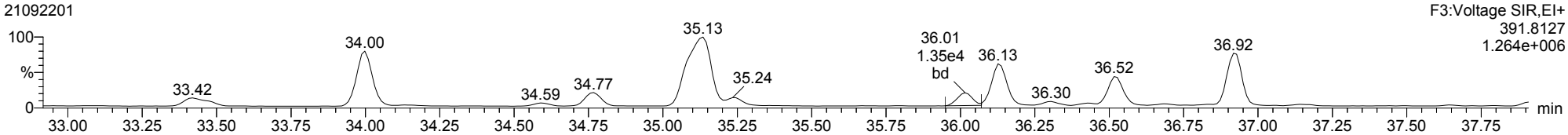

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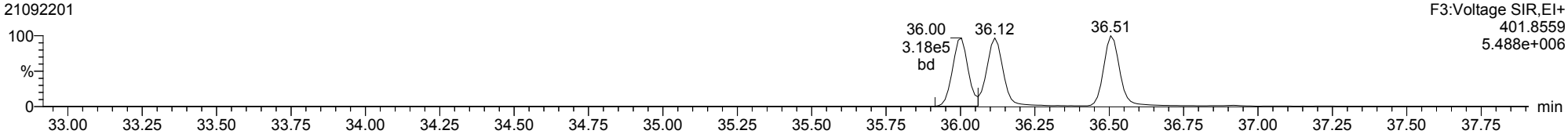

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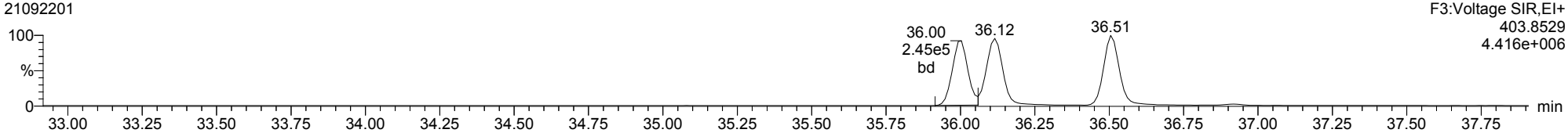

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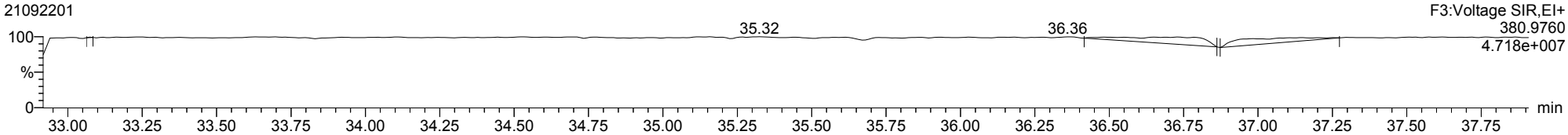

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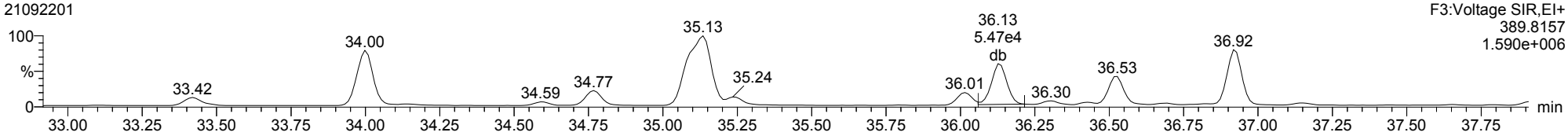

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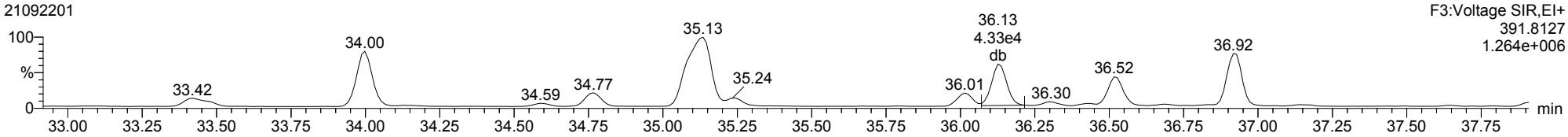

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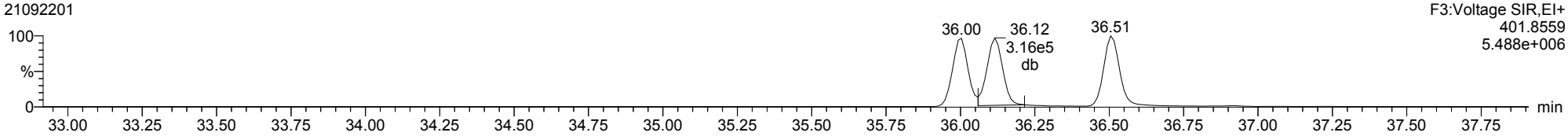

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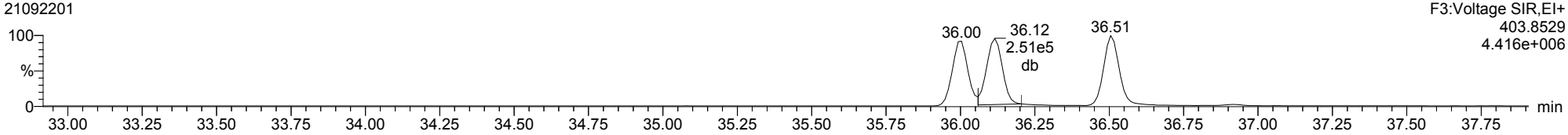

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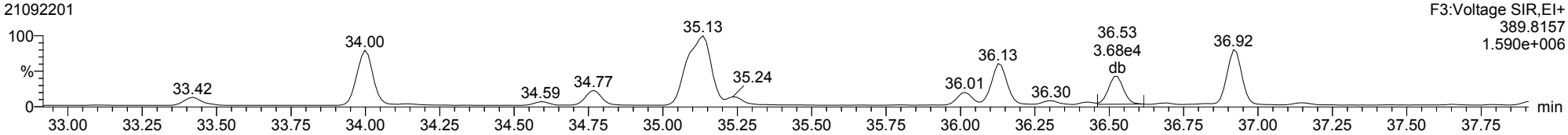

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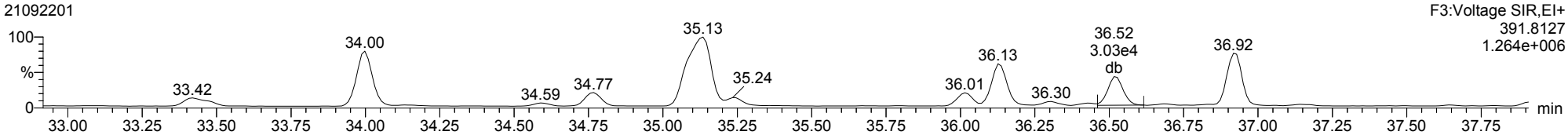

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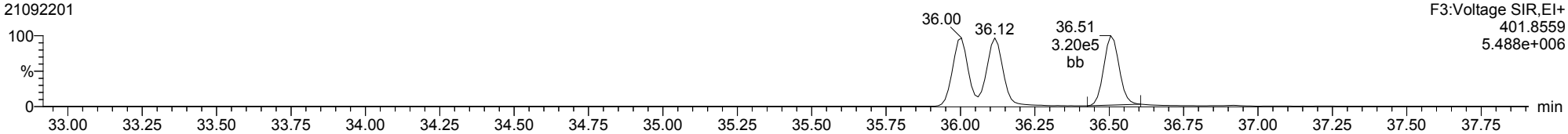

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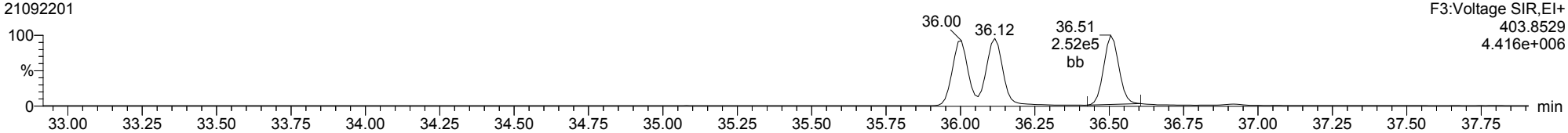

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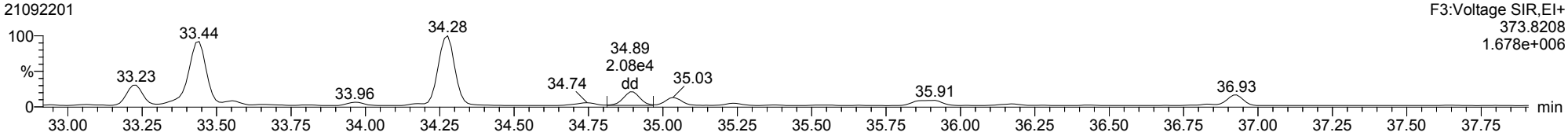

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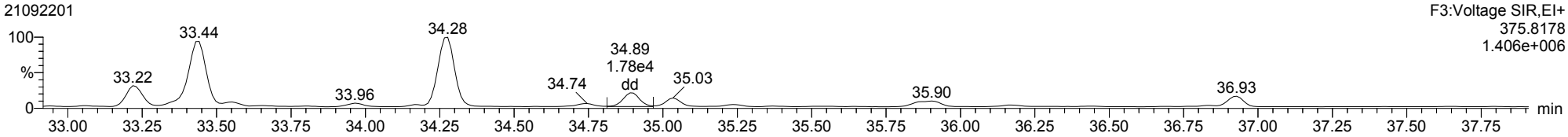

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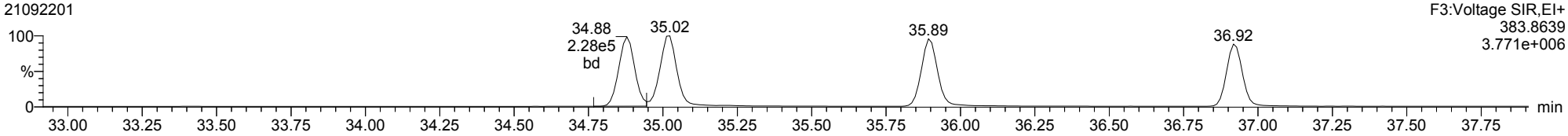

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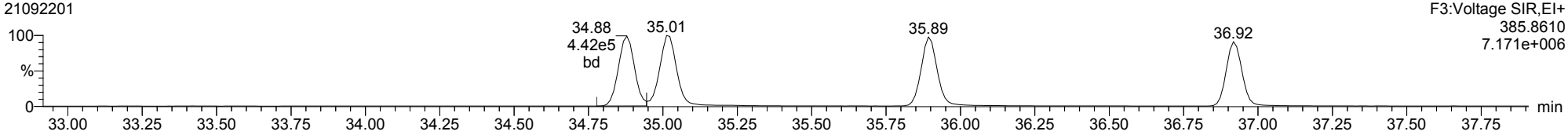

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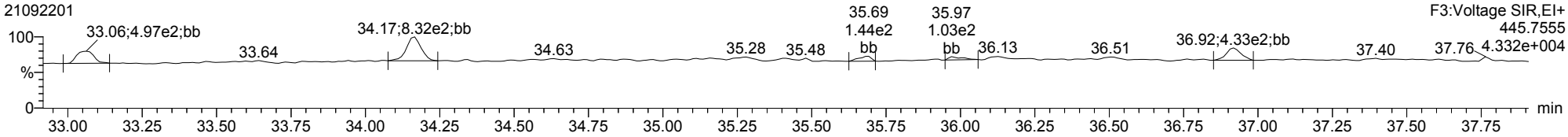

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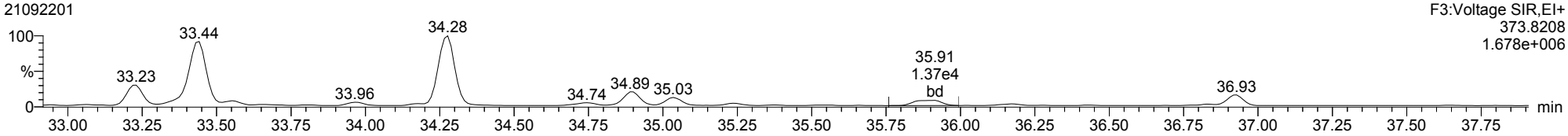

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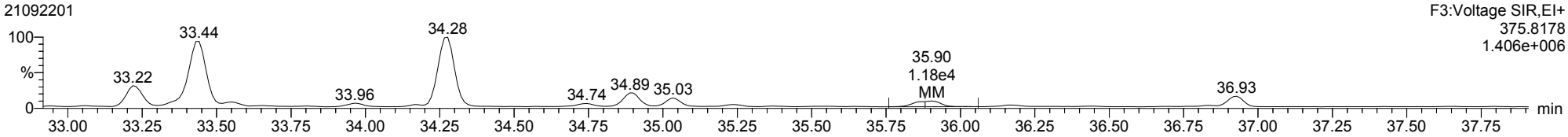

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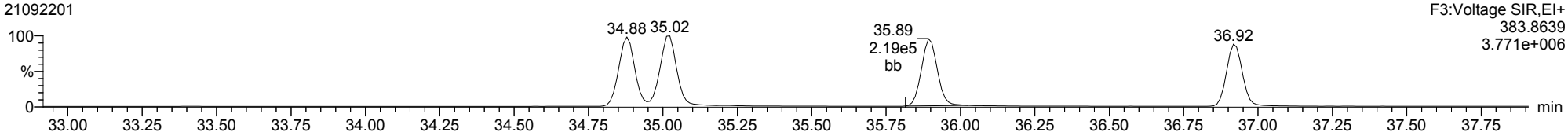

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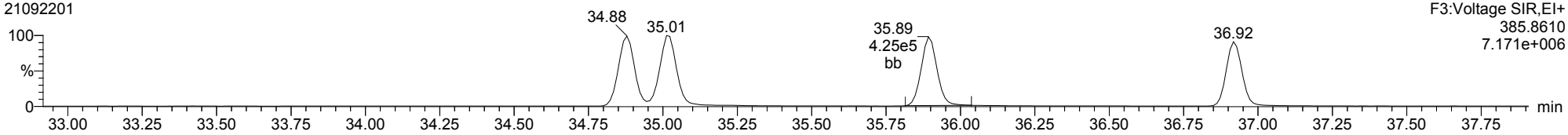

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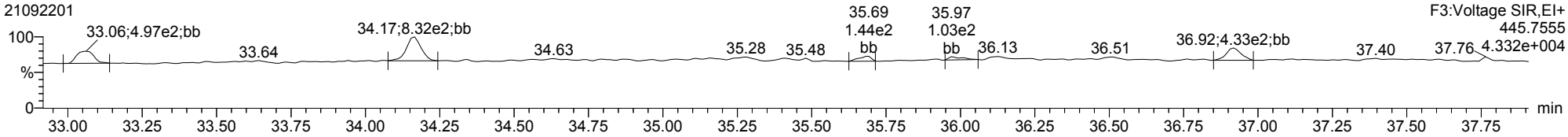

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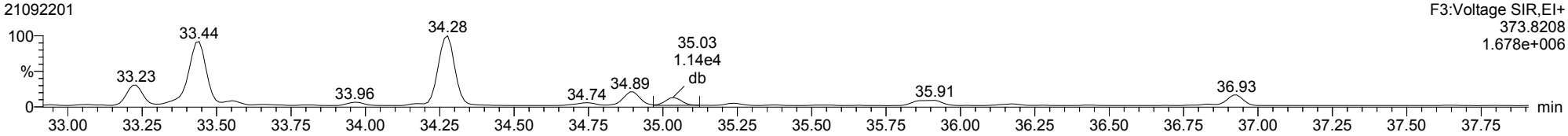

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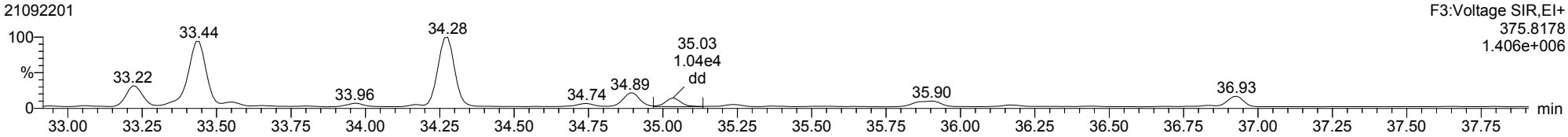

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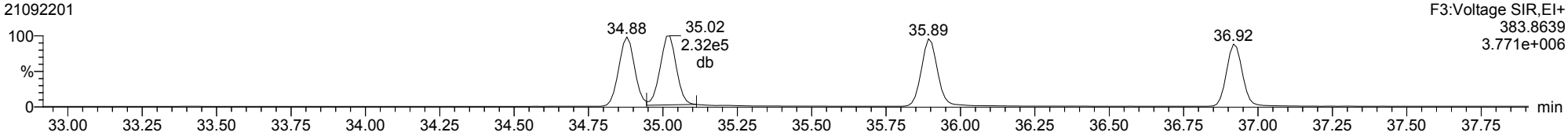

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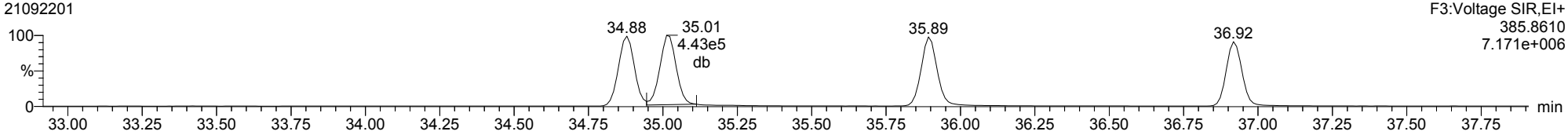

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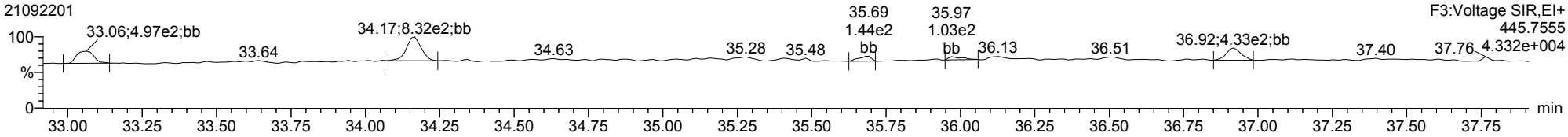

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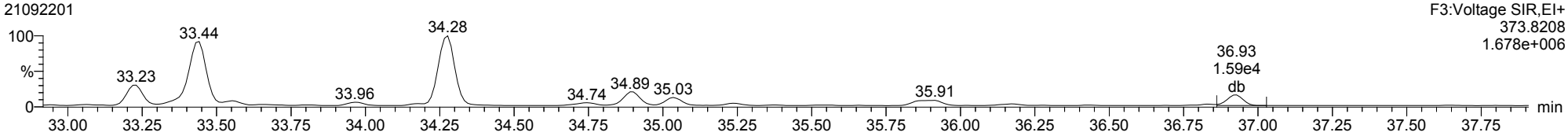

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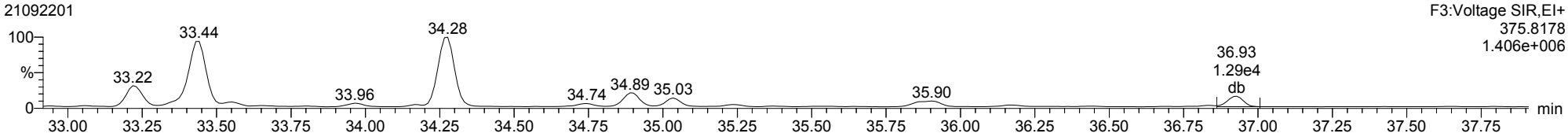

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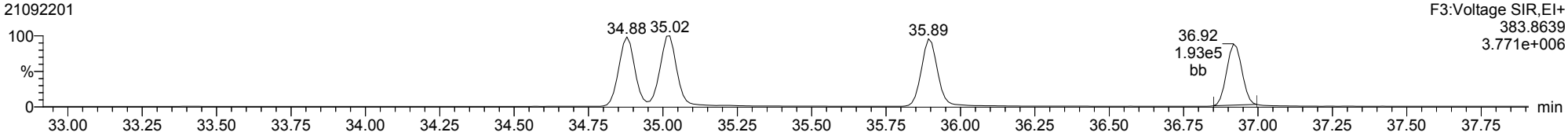

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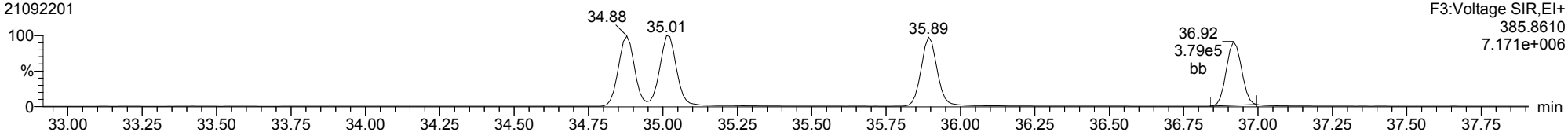

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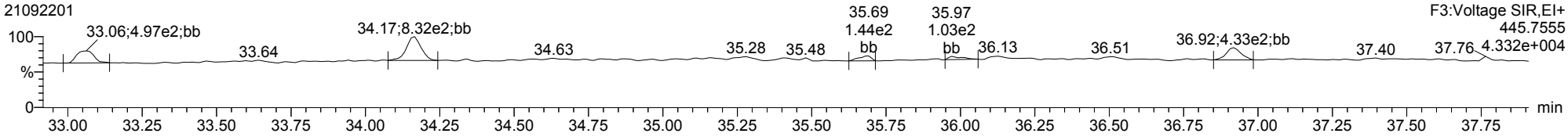

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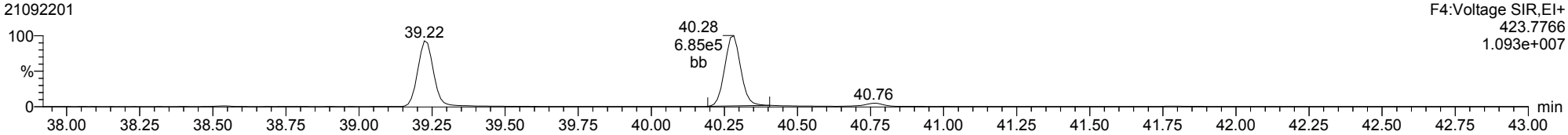

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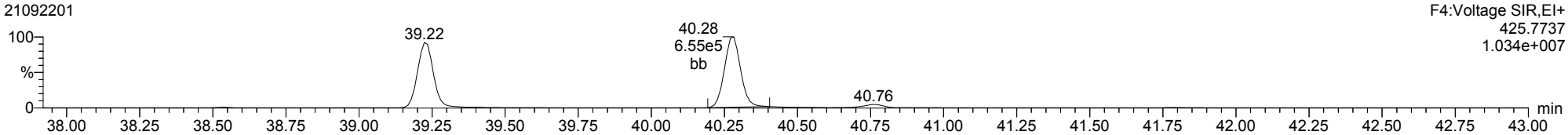

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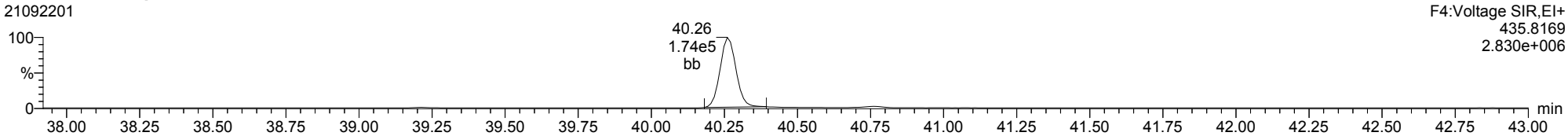

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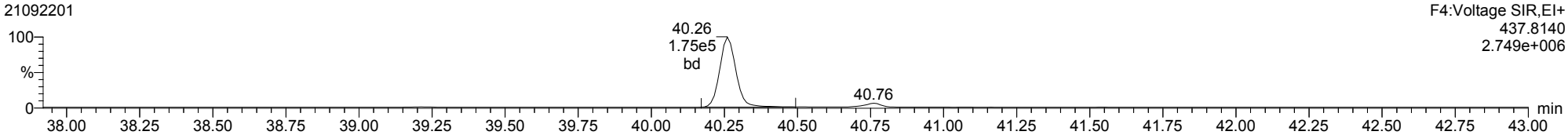

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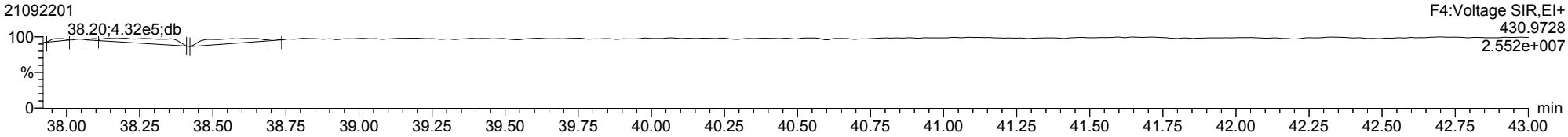

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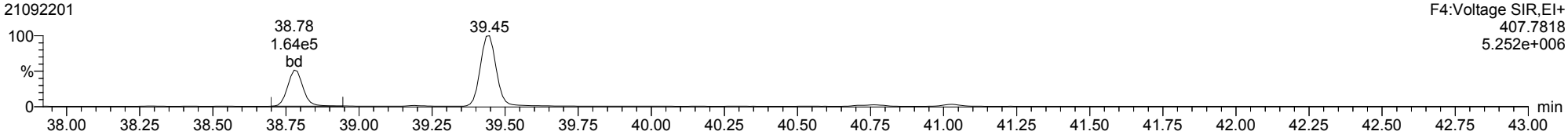

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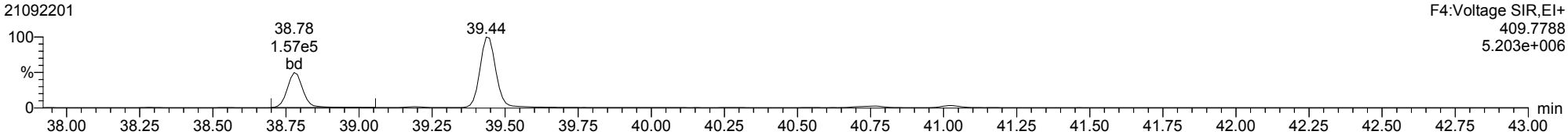

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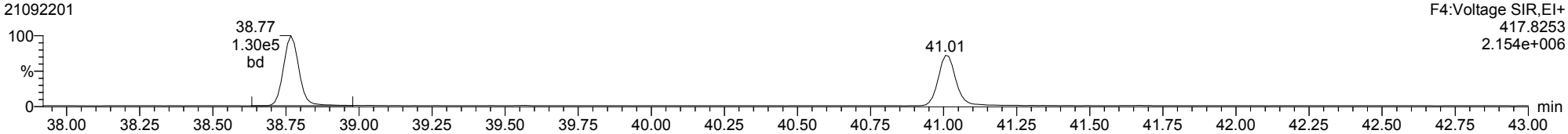

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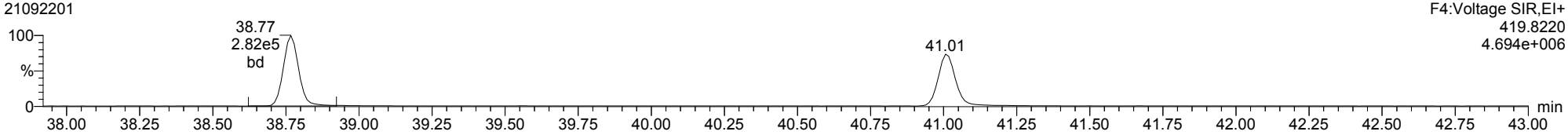

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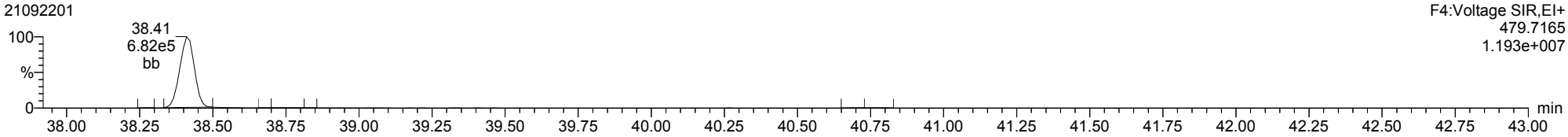

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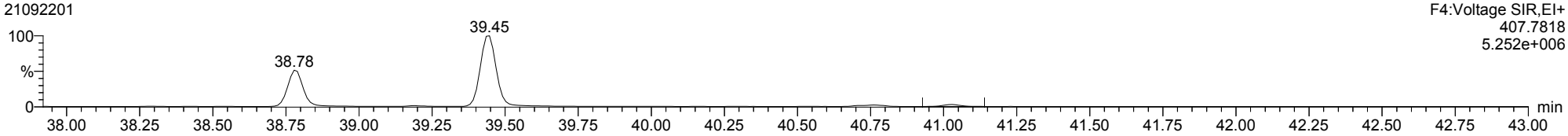

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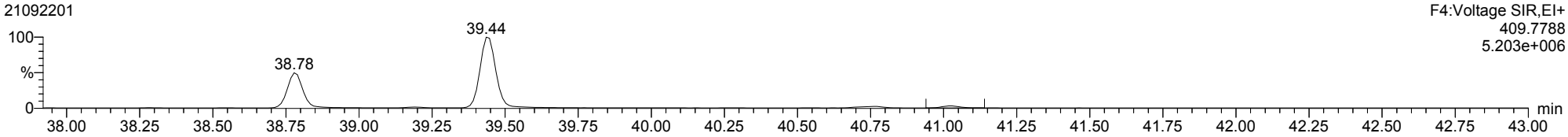

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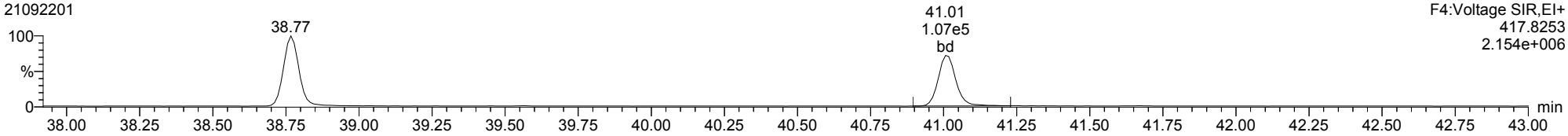

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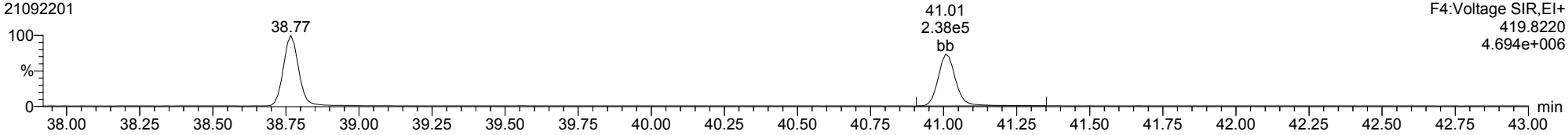

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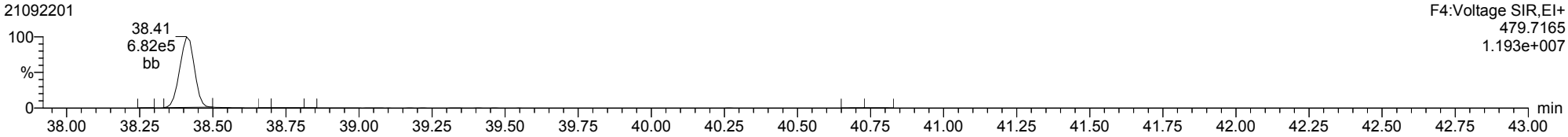

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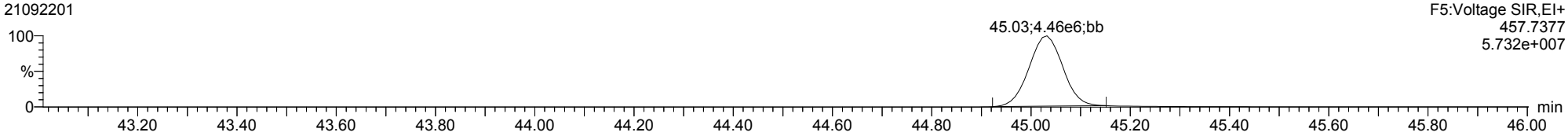

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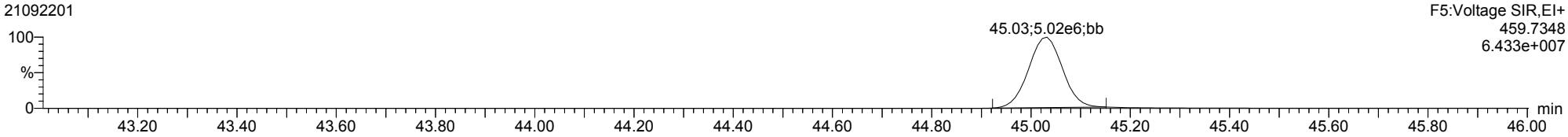

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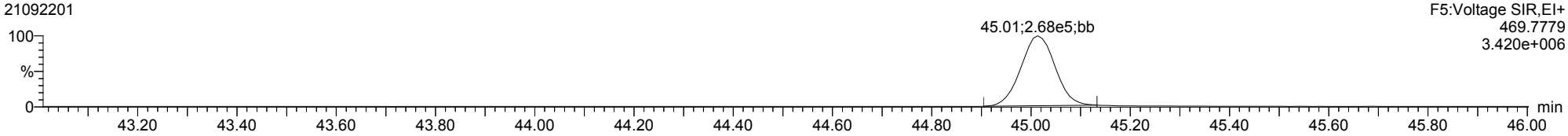
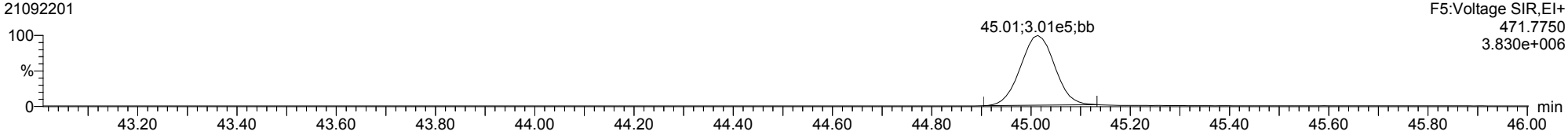
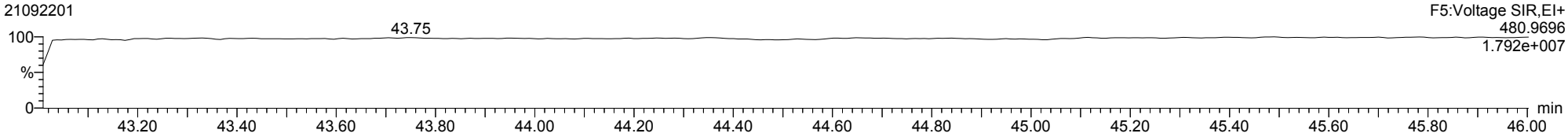


13C-OCDD

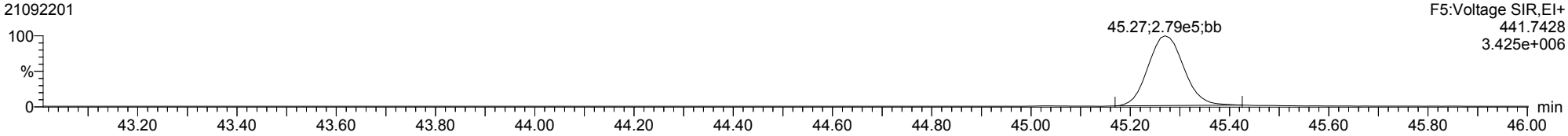


FUNCTION5 PFK

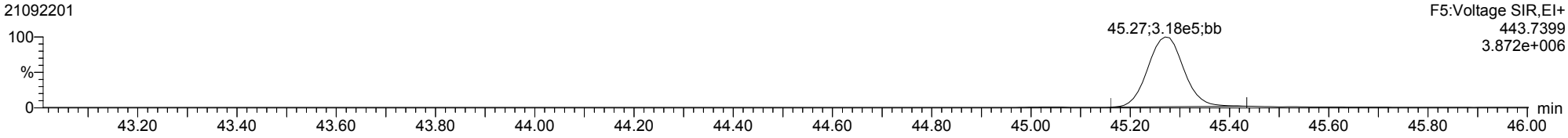


ID: BJH0773-DUP1, Name: 21092201, Date: 22-Sep-2021, Time: 20:35:48, Conditions: AUTOSPEC01, User: pk

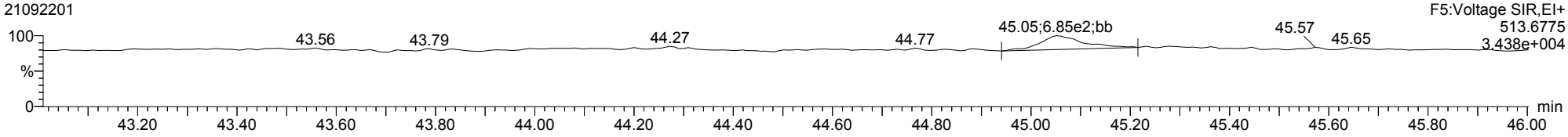
OCDF



OCDF



FUNCTION5 DCDPE



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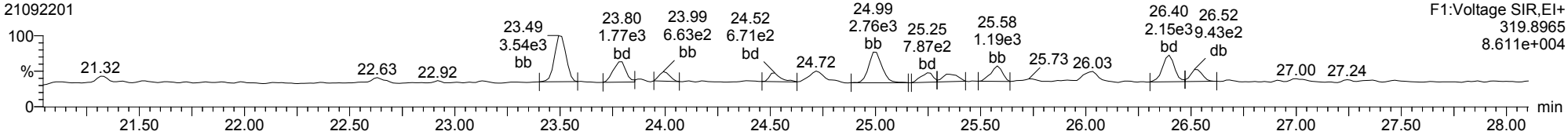
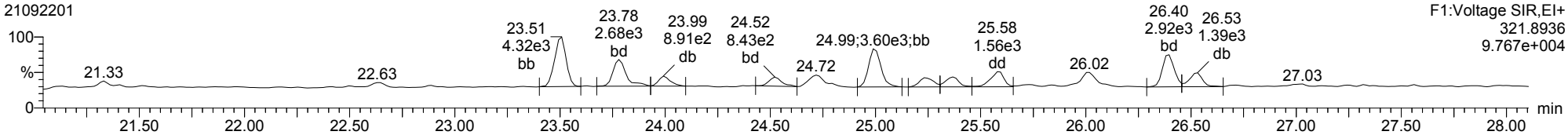
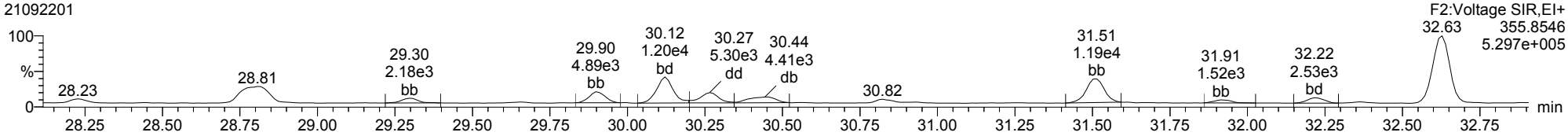
Total-tetradioxins



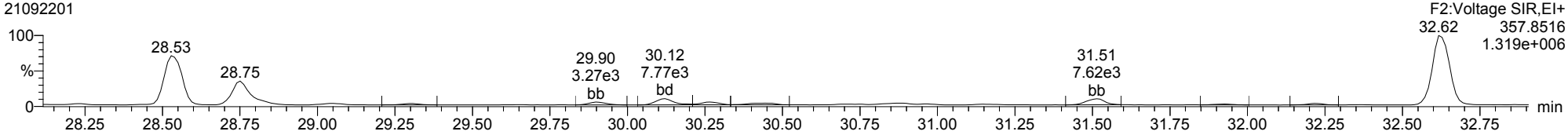
Total-tetradioxins



Total-pentadioxins

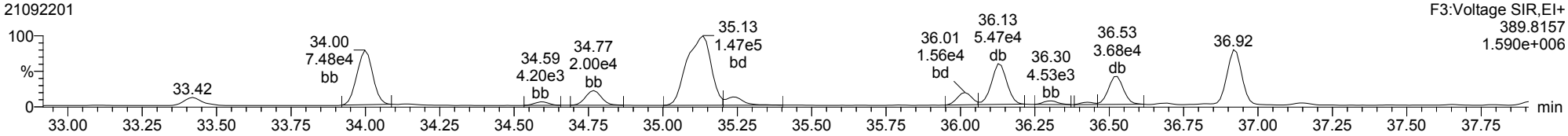


Total-pentadioxins

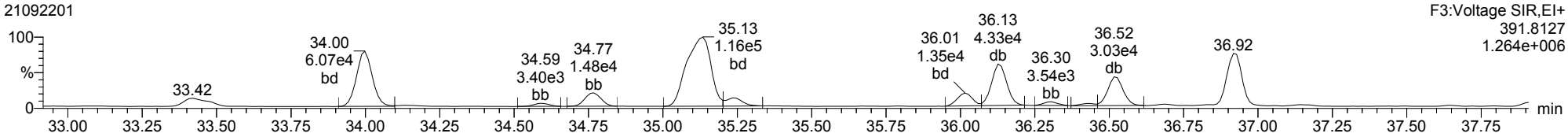


ID: BJH0773-DUP1, Name: 21092201, Date: 22-Sep-2021, Time: 20:35:48, Conditions: AUTOSPEC01, User: pk

Total-hexadioxins



Total-hexadioxins



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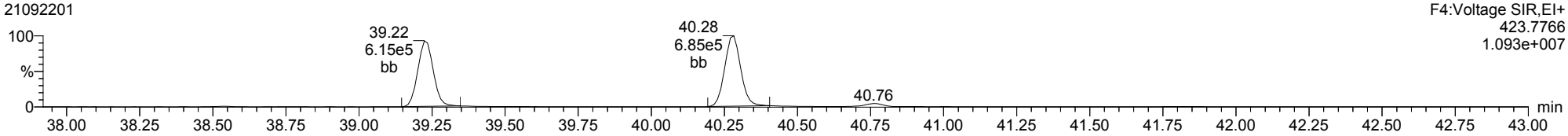
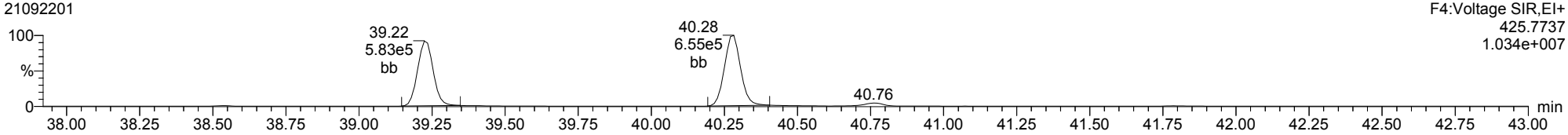


Total-heptadioxins



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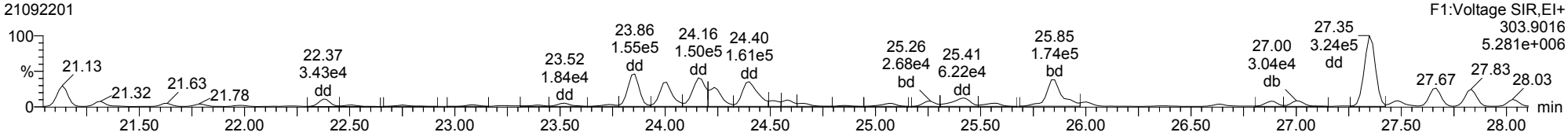
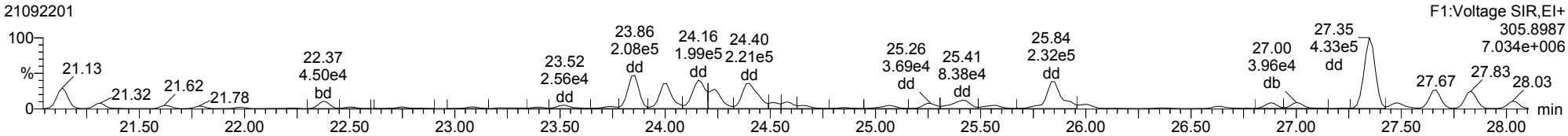
Printed: Thursday, September 23, 2021 11:57:34 Pacific Daylight Time

ID: BJH0773-DUP1, Name: 21092201, Date: 22-Sep-2021, Time: 20:35:48, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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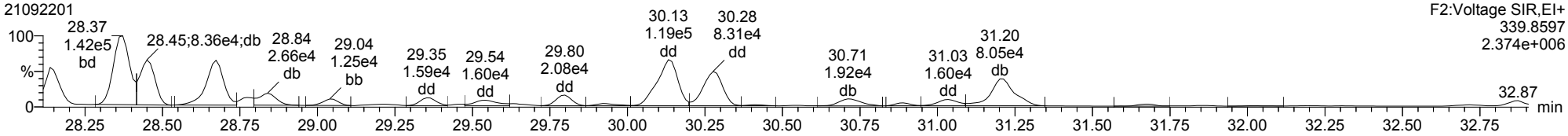
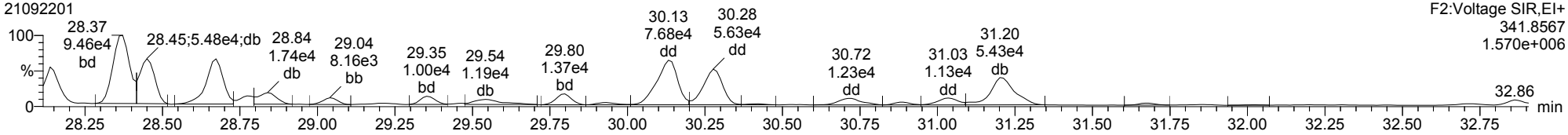


Total-pentafurans



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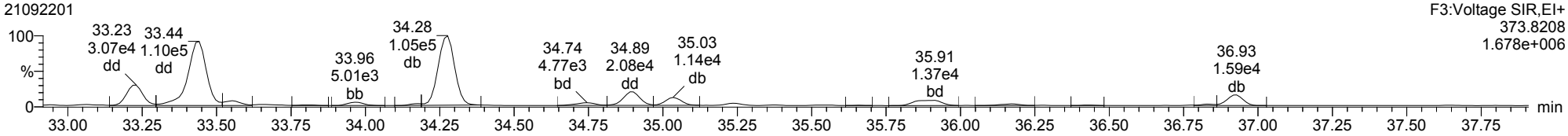
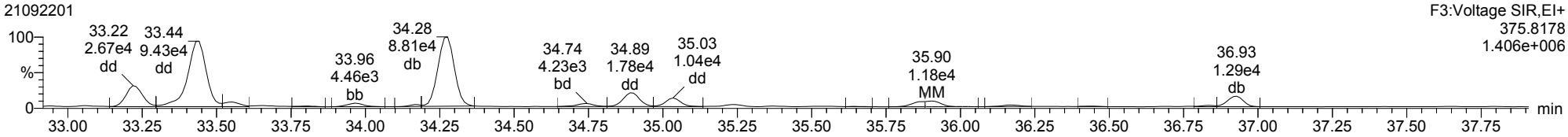
Printed: Thursday, September 23, 2021 11:57:34 Pacific Daylight Time

ID: BJH0773-DUP1, Name: 21092201, Date: 22-Sep-2021, Time: 20:35:48, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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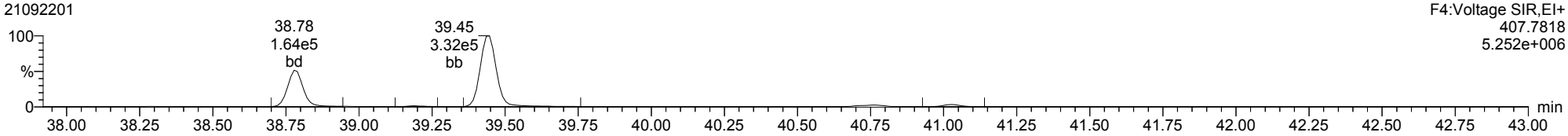
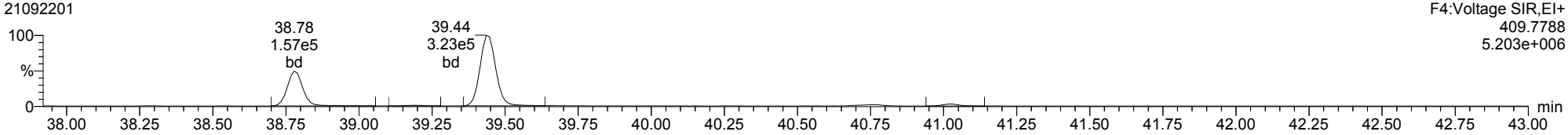


Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0286
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Laboratory ID: BJH0773-SRM1
Batch: BJH0773
Initial/Final: 10 g / 20 uL
Preparation: EPA 8290
Analyzed: 09/13/2021 20:03
Standard ID: J007935
Expires: 01/30/2022
Standard Lot#: PSRM0140
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	0.834	0.107	1.00	EMPC, J	75.1	50 - 150
2,3,7,8-TCDD	1.0500	1.01	0.150	1.00		95.7	50 - 150
1,2,3,7,8-PeCDF	1.2300	1.10	0.240	1.00		89.0	50 - 150
2,3,4,7,8-PeCDF	1.0700	0.971	0.220	1.00	J	90.8	50 - 150
1,2,3,7,8-PeCDD	1.0800	1.30	0.184	1.00		120	50 - 150
1,2,3,4,7,8-HxCDF	3.0200	3.42	0.280	1.00		113	50 - 150
1,2,3,6,7,8-HxCDF	1.0900	1.01	0.200	1.00		92.9	50 - 150
2,3,4,6,7,8-HxCDF	1.8300	1.94	0.170	1.00		106	50 - 150
1,2,3,7,8,9-HxCDF	0.51100	0.787	0.190	1.00	*, J	154 *	50 - 150
1,2,3,4,7,8-HxCDD	1.5900	1.26	0.170	1.00		78.9	50 - 150
1,2,3,6,7,8-HxCDD	3.8800	3.68	0.180	1.00		94.9	50 - 150
1,2,3,7,8,9-HxCDD	3.0400	2.81	0.220	1.00		92.3	50 - 150
1,2,3,4,6,7,8-HpCDF	18.700	20.4	0.210	1.00		109	50 - 150
1,2,3,4,7,8,9-HpCDF	1.6300	1.68	0.240	1.00		103	50 - 150
1,2,3,4,6,7,8-HpCDD	90.600	108	0.560	2.50		119	50 - 150
OCDF	58.400	56.1	1.10	2.50		96.1	50 - 150
OCDD	811.00	858	4.60	10.0	B	106	50 - 150

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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Printed: Tuesday, September 14, 2021 11:16:20 Pacific Daylight Time

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

ID: BJH0773-SRM1, Name: 21091311, Date: 13-Sep-2021, Time: 20:03:26, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.761	1.001	1.341e3	2.261e3	1.108	0.593	0.770	1103	1241	2.11e4	3.78e4	19.1	30.4	YES	bd	bd	0.417
12378-PeCDF	29.909	1.000	2.457e3	1.711e3	1.015	1.436	1.550	922	937	3.75e4	2.44e4	40.7	26.0	NO	db	dd	0.548
23478-PeCDF	31.257	1.001	2.346e3	1.475e3	1.126	1.591	1.550	922	937	3.33e4	1.84e4	36.2	19.6	NO	db	MM	0.486
123478-HxCDF	34.878	1.001	5.495e3	4.622e3	1.017	1.189	1.240	1029	830	8.58e4	7.45e4	83.4	89.7	NO	dd	dd	1.711
234678-HxCDF	35.903	1.001	3.211e3	2.668e3	1.052	1.204	1.240	1029	830	3.51e4	3.05e4	34.1	36.8	NO	bb	bb	0.972
123678-HxCDF	35.012	1.000	1.750e3	1.404e3	1.037	1.246	1.240	1029	830	2.76e4	2.19e4	26.8	26.3	NO	db	db	0.506
123789-HxCDF	36.884	0.999	1.208e3	1.012e3	1.030	1.194	1.240	1029	830	1.60e4	1.50e4	15.6	18.0	NO	bb	bb	0.394
1234678-HpCDF	38.755	1.001	3.264e4	2.946e4	1.327	1.108	1.050	924	1213	5.23e5	5.01e5	565.9	412.9	NO	bd	bb	10.212
1234789-HpCDF	41.006	1.000	1.876e3	2.080e3	1.283	0.902	1.050	924	1213	2.92e4	2.98e4	31.6	24.6	NO	bb	bb	0.838
OCDF	45.233	1.006	5.518e4	6.262e4	1.447	0.881	0.890	619	761	6.72e5	7.67e5	1086.2	1008.6	NO	bb	bb	28.069
2378-TCDD	26.396	1.001	1.172e3	1.539e3	0.920	0.761	0.770	1124	522	1.63e4	2.30e4	14.5	44.2	NO	dd	bd	0.503
12378-PeCDD	31.503	1.001	1.491e3	1.075e3	0.995	1.387	1.550	903	960	2.15e4	1.61e4	23.8	16.7	NO	bb	bb	0.648
123478-HxCDD	36.004	1.000	1.847e3	1.313e3	1.027	1.407	1.240	739	742	3.36e4	2.50e4	45.4	33.7	NO	bd	bd	0.628
123678-HxCDD	36.126	1.001	5.310e3	4.211e3	1.009	1.261	1.240	739	742	8.88e4	6.95e4	120.1	93.7	NO	db	db	1.841
123789-HxCDD	36.505	1.011	3.580e3	3.104e3	0.950	1.153	1.240	739	742	6.24e4	5.15e4	84.4	69.5	NO	bb	bb	1.403
1234678-HpCDD	40.248	1.000	9.550e4	8.795e4	1.068	1.086	1.050	2072	1890	1.50e6	1.39e6	725.8	737.6	NO	bb	bb	53.801
OCDD	44.986	1.000	6.914e5	7.775e5	1.181	0.889	0.890	2116	754	8.90e6	9.98e6	4207.1	13246.3	NO	bb	bb	428.903
13C-2378-TCDF	25.746	1.007	3.467e5	4.334e5	1.427	0.800	0.770	2125	1390	5.27e6	6.61e6	2478.9	4753.3	NO	bb	bb	84.102
13C-12378-PeCDF	29.898	1.169	4.603e5	2.896e5	1.297	1.590	1.550	1344	2683	7.02e6	4.35e6	5220.5	1620.9	NO	bb	bb	88.898
13C-23478-PeCDF	31.235	1.222	4.287e5	2.705e5	1.236	1.585	1.550	1344	2683	6.53e6	4.12e6	4856.4	1534.2	NO	bb	bb	86.963
13C-123478-HxCDF	34.856	0.955	1.955e5	3.859e5	1.242	0.507	0.510	1311	1962	3.07e6	6.09e6	2344.0	3105.5	NO	bd	bd	70.792
13C-123678-HxCDF	35.001	0.959	2.042e5	3.969e5	1.343	0.515	0.510	1311	1962	3.25e6	6.33e6	2478.1	3226.3	NO	db	db	67.685
13C-234678-HxCDF	35.881	0.983	1.948e5	3.800e5	1.215	0.513	0.510	1311	1962	3.12e6	6.08e6	2378.0	3098.8	NO	bb	bb	71.575
13C-123789-HxCDF	36.906	1.011	1.857e5	3.618e5	1.008	0.513	0.510	1311	1962	3.24e6	6.33e6	2474.2	3227.9	NO	bb	bb	82.194
13C-1234678-HpCDF	38.733	1.061	1.457e5	3.125e5	0.926	0.466	0.440	1030	1648	2.36e6	5.13e6	2294.6	3112.1	NO	bd	bd	74.805
13C-1234789-HpCDF	40.984	1.123	1.158e5	2.518e5	0.758	0.460	0.440	1030	1648	1.79e6	3.84e6	1737.3	2331.7	NO	bb	bb	73.376
13C-1234-TCDD	25.564	0.000	2.826e5	3.676e5	1.000	0.769	0.770	1685	973	4.47e6	5.81e6	2655.0	5965.6	NO	bb	bb	100.000
13C-2378-TCDD	26.366	1.031	2.491e5	3.370e5	1.116	0.739	0.770	1685	973	3.78e6	5.10e6	2243.6	5243.2	NO	bb	bb	80.735
13C-12378-PeCDD	31.480	1.231	2.445e5	1.530e5	0.732	1.598	1.550	791	1162	3.75e6	2.36e6	4742.8	2033.0	NO	bb	bb	83.520
13C-123478-HxCDD	35.992	0.986	2.744e5	2.157e5	0.960	1.272	1.240	1052	1473	4.62e6	3.59e6	4391.4	2440.5	NO	bd	bd	77.248
13C-123678-HxCDD	36.104	0.989	2.856e5	2.270e5	1.041	1.258	1.240	1052	1473	4.50e6	3.63e6	4273.7	2467.4	NO	db	db	74.457
13C-1234678-HpCDD	40.237	1.103	1.624e5	1.569e5	0.632	1.035	1.050	884	1121	2.54e6	2.38e6	2873.5	2126.2	NO	bb	bd	76.362
13C-OCDD	44.968	1.232	2.772e5	3.029e5	0.504	0.915	0.890	910	890	3.56e6	3.88e6	3910.5	4357.3	NO	bb	bb	174.199
13C-123789-HxCDD	36.494	0.000	3.679e5	2.931e5	1.000	1.255	1.240	1052	1473	6.16e6	4.93e6	5854.9	3345.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	2.377e5		1.084			795		3.47e6		4362.7			db		33.737

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ID: BJH0773-SRM1, Name: 21091311, Date: 13-Sep-2021, Time: 20:03:26, 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	4.347e2	5.333e2	1.425	0.815	0.770	1103	1241	8.00e3	8.76e3	7.2	7.1	NO	db	bb	0.087
1289-TCDF	27.364	1.063	1.264e3	1.471e3	1.043	0.859	0.770	1103	1241	2.10e4	2.32e4	19.0	18.7	NO	dd	bb	0.336
13468-PECDF	27.076	0.906	1.466e3	7.807e2	1.376	1.878	1.550	574	655	2.38e4	1.49e4	41.4	22.7	YES	bd	bd	0.218
12389-PECDF					1.000		1.550	922	937								
123468-HXCDF	33.207	0.953	5.021e3	4.213e3	1.087	1.192	1.240	1029	830	8.09e4	6.61e4	78.6	79.7	NO	bb	bb	1.462
1368-TCDD	23.508	0.892	9.460e2	9.659e2	0.923	0.979	0.770	1124	522	1.43e4	1.44e4	12.7	27.7	YES	bb	bb	0.353
1289-TCDD					0.794		0.770	1124	522								
12479-PECDD	28.817	0.915	2.557e3	1.341e3	1.843	1.907	1.550	903	960	2.63e4	1.99e4	29.1	20.7	YES	bb	db	0.532
12389-PECDD	31.903	1.013	3.191e2	2.344e2	1.154	1.361	1.550	903	960	5.80e3	3.35e3	6.4	3.5	NO	bb	bb	0.121
124679-HXCDD	33.987	0.944	1.330e4	1.110e4	1.125	1.198	1.240	739	742	2.17e5	1.87e5	293.6	252.2	NO	bb	bb	4.425
1234679-HPCDD	39.201	0.974	1.423e5	1.306e5	1.211	1.089	1.050	2072	1890	2.42e6	2.23e6	1167.3	1182.3	NO	bb	bb	70.603
Total-tetrafurans			2.541e4		1.192			1103		3.48e5							6.188
Total-penta1			1.463e4					574		2.01e5							3.564
Total-pentafurans			2.709e4		1.047			922		3.78e5							6.002
Total-hexafurans			5.174e4		1.045			1029		7.75e5							15.620
Total-heptafurans			9.686e4		1.305			924		1.56e6							33.792
Total-Furans			2.725e5		1.158			1103		3.96e6							93.661
Total-tetradioxins			3.686e3		0.879			1124		5.54e4							1.640
Total-pentadioxins			4.395e3		1.331			903		6.93e4							1.594
Total-hexadioxins			4.305e4		1.028			739		6.19e5							14.832
Total-heptadioxins			2.378e5		1.140			2072		3.92e6							124.404
Total-Dioxins			9.803e5		1.092			1124		1.36e7							571.374
Total-TEQ			1.253e6					1124		1.75e7							665.035
FUNCTION1 PFK			7.761e6					477058		9.53e7							
FUNCTION2 PFK			1.936e6					218102		4.99e6							0.000
FUNCTION3 PFK			1.664e6					407993		8.87e6							0.000
FUNCTION4 PFK			1.671e5					248246		3.78e6							
FUNCTION5 PFK			7.976e4					155657		3.23e6							
FUNCTION1 HXCD...			2.327e3					874		3.62e4							0.000
FUNCTION1 HPCD...			2.061e4					658		3.49e5							0.000
FUNCTION2 HPCD...			5.189e2					795		9.03e3							0.000
FUNCTION3 OCDPE			2.281e2					618		2.38e3							0.000
FUNCTION4 NCDPE			6.894e3					720		1.15e5							0.000
FUNCTION5 DCDPE			0.000e0					498		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.08	2.327e3	3.003e3	1.192	0.77	0.77	28.9	YES	NO	bd	bd	0.573
2	Total-tetrafurans	22.39	3.010e2	3.820e2	1.192	0.79	0.77	4.5	YES	NO	bd	bd	0.073
3	1368-TCDF	22.24	4.347e2	5.333e2	1.425	0.81	0.77	7.2	YES	NO	db	bb	0.087
4	Total-tetrafurans	25.99	1.817e3	2.130e3	1.192	0.85	0.77	17.7	YES	NO	dd	dd	0.425
5	Total-tetrafurans	25.88	1.048e3	1.401e3	1.192	0.75	0.77	12.4	YES	NO	dd	dd	0.263
6	Total-tetrafurans	25.53	1.605e3	2.149e3	1.192	0.75	0.77	17.1	YES	NO	db	db	0.404
7	Total-tetrafurans	25.44	1.230e3	1.415e3	1.192	0.87	0.77	11.0	YES	NO	dd	dd	0.284
8	Total-tetrafurans	24.85	2.715e3	3.261e3	1.192	0.83	0.77	35.7	YES	NO	db	bb	0.643
9	Total-tetrafurans	24.64	1.819e3	2.075e3	1.192	0.88	0.77	21.1	YES	NO	dd	db	0.419
10	Total-tetrafurans	24.51	3.324e3	4.614e3	1.192	0.72	0.77	43.0	YES	NO	dd	dd	0.854
11	Total-tetrafurans	24.43	2.012e3	2.820e3	1.192	0.71	0.77	24.6	YES	NO	bd	dd	0.520
12	Total-tetrafurans	24.01	2.657e3	3.175e3	1.192	0.84	0.77	28.9	YES	NO	dd	dd	0.627
13	Total-tetrafurans	23.87	1.469e3	1.736e3	1.192	0.85	0.77	23.5	YES	NO	dd	dd	0.345
14	Total-tetrafurans	23.75	1.392e3	1.727e3	1.192	0.81	0.77	20.4	YES	NO	bd	bd	0.335
15	1289-TCDF	27.36	1.264e3	1.471e3	1.043	0.86	0.77	19.0	YES	NO	dd	bb	0.336

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.17	1.463e4	9.880e3		1.48	1.55	349.8	YES	NO	db	db	3.564

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PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.66	2.077e3	1.280e3	1.047	1.62	1.55	23.5	YES	NO	MM	MM	0.443
2	Total-pentafurans	28.47	4.217e3	3.102e3	1.047	1.36	1.55	79.3	YES	NO	dd	dd	0.965
3	Total-pentafurans	28.16	1.253e3	7.541e2	1.047	1.66	1.55	19.8	YES	NO	bb	bb	0.265
4	12378-PeCDF	29.91	2.457e3	1.711e3	1.015	1.44	1.55	40.7	YES	NO	db	dd	0.548
5	Total-pentafurans	29.55	2.727e3	1.997e3	1.047	1.37	1.55	41.1	YES	NO	dd	db	0.623
6	Total-pentafurans	29.35	6.107e2	3.661e2	1.047	1.67	1.55	10.0	YES	NO	dd	bd	0.129
7	Total-pentafurans	28.94	3.127e2	2.324e2	1.047	1.35	1.55	7.2	YES	NO	dd	db	0.072
8	Total-pentafurans	28.84	8.108e3	5.933e3	1.047	1.37	1.55	103.3	YES	NO	MM	MM	1.852
9	23478-PeCDF	31.26	2.346e3	1.475e3	1.126	1.59	1.55	36.2	YES	NO	db	MM	0.486
10	Total-pentafurans	31.12	1.656e3	9.553e2	1.047	1.73	1.55	26.9	YES	NO	dd	dd	0.344
11	Total-pentafurans	31.00	8.109e2	4.576e2	1.047	1.77	1.55	13.0	YES	NO	bd	bd	0.167
12	Total-pentafurans	30.76	5.096e2	3.165e2	1.047	1.61	1.55	8.7	YES	NO	bb	bb	0.109

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.88	1.208e3	1.012e3	1.030	1.19	1.24	15.6	YES	NO	bb	bb	0.394
2	234678-HxCDF	35.90	3.211e3	2.668e3	1.052	1.20	1.24	34.1	YES	NO	bb	bb	0.972
3	123678-HxCDF	35.01	1.750e3	1.404e3	1.037	1.25	1.24	26.8	YES	NO	db	db	0.506
4	123478-HxCDF	34.88	5.495e3	4.622e3	1.017	1.19	1.24	83.4	YES	NO	dd	dd	1.711
5	Total-hexafurans	34.72	9.026e2	7.822e2	1.045	1.15	1.24	15.1	YES	NO	bd	bd	0.280
6	Total-hexafurans	34.25	1.813e4	1.490e4	1.045	1.22	1.24	271.6	YES	NO	bb	bb	5.488
7	Total-hexafurans	33.95	3.919e2	3.671e2	1.045	1.07	1.24	5.6	YES	NO	bb	bb	0.126
8	Total-hexafurans	33.42	1.563e4	1.255e4	1.045	1.25	1.24	222.4	YES	NO	bb	bb	4.681
9	123468-HXCDF	33.21	5.021e3	4.213e3	1.087	1.19	1.24	78.6	YES	NO	bb	bb	1.462

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.76	3.264e4	2.946e4	1.327	1.11	1.05	565.9	YES	NO	bd	bb	10.212
2	1234789-HpCDF	41.01	1.876e3	2.080e3	1.283	0.90	1.05	31.6	YES	NO	bb	bb	0.838
3	Total-heptafurans	39.41	6.234e4	6.022e4	1.305	1.04	1.05	1087.3	YES	NO	bb	bb	22.742

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.08	2.327e3	3.003e3	1.192	0.77	0.77	28.9	YES	NO	bd	bd	0.573
2	Total-tetrafurans	22.39	3.010e2	3.820e2	1.192	0.79	0.77	4.5	YES	NO	bd	bd	0.073
3	1368-TCDF	22.24	4.347e2	5.333e2	1.425	0.81	0.77	7.2	YES	NO	db	bb	0.087
4	Total-Furans	21.35	5.906e2	6.892e2	1.158	0.86	0.77	8.5	YES	NO	db	db	0.142
5	Total-Furans	21.15	1.019e3	1.544e3	1.158	0.66	0.77	13.8	YES	NO	bd	bd	0.284
6	Total-tetrafurans	25.99	1.817e3	2.130e3	1.192	0.85	0.77	17.7	YES	NO	dd	dd	0.425
7	Total-tetrafurans	25.88	1.048e3	1.401e3	1.192	0.75	0.77	12.4	YES	NO	dd	dd	0.263
8	Total-tetrafurans	25.53	1.605e3	2.149e3	1.192	0.75	0.77	17.1	YES	NO	db	db	0.404
9	Total-tetrafurans	25.44	1.230e3	1.415e3	1.192	0.87	0.77	11.0	YES	NO	dd	dd	0.284
10	Total-tetrafurans	24.85	2.715e3	3.261e3	1.192	0.83	0.77	35.7	YES	NO	db	bb	0.643
11	Total-tetrafurans	24.64	1.819e3	2.075e3	1.192	0.88	0.77	21.1	YES	NO	dd	db	0.419
12	Total-tetrafurans	24.51	3.324e3	4.614e3	1.192	0.72	0.77	43.0	YES	NO	dd	dd	0.854
13	Total-tetrafurans	24.43	2.012e3	2.820e3	1.192	0.71	0.77	24.6	YES	NO	bd	dd	0.520
14	Total-tetrafurans	24.01	2.657e3	3.175e3	1.192	0.84	0.77	28.9	YES	NO	dd	dd	0.627
15	Total-tetrafurans	23.87	1.469e3	1.736e3	1.192	0.85	0.77	23.5	YES	NO	dd	dd	0.345
16	Total-tetrafurans	23.75	1.392e3	1.727e3	1.192	0.81	0.77	20.4	YES	NO	bd	bd	0.335
17	1289-TCDF	27.36	1.264e3	1.471e3	1.043	0.86	0.77	19.0	YES	NO	dd	bb	0.336
18	Total-pentafurans	28.66	2.077e3	1.280e3	1.047	1.62	1.55	23.5	YES	NO	MM	MM	0.443
19	Total-pentafurans	28.47	4.217e3	3.102e3	1.047	1.36	1.55	79.3	YES	NO	dd	dd	0.965
20	Total-pentafurans	28.16	1.253e3	7.541e2	1.047	1.66	1.55	19.8	YES	NO	bb	bb	0.265
21	12378-PeCDF	29.91	2.457e3	1.711e3	1.015	1.44	1.55	40.7	YES	NO	db	dd	0.548
22	Total-pentafurans	29.55	2.727e3	1.997e3	1.047	1.37	1.55	41.1	YES	NO	dd	db	0.623
23	Total-pentafurans	29.35	6.107e2	3.661e2	1.047	1.67	1.55	10.0	YES	NO	dd	bd	0.129
24	Total-pentafurans	28.94	3.127e2	2.324e2	1.047	1.35	1.55	7.2	YES	NO	dd	db	0.072
25	Total-pentafurans	28.84	8.108e3	5.933e3	1.047	1.37	1.55	103.3	YES	NO	MM	MM	1.852
26	23478-PeCDF	31.26	2.346e3	1.475e3	1.126	1.59	1.55	36.2	YES	NO	db	MM	0.486
27	Total-pentafurans	31.12	1.656e3	9.553e2	1.047	1.73	1.55	26.9	YES	NO	dd	dd	0.344
28	Total-pentafurans	31.00	8.109e2	4.576e2	1.047	1.77	1.55	13.0	YES	NO	bd	bd	0.167
29	Total-pentafurans	30.76	5.096e2	3.165e2	1.047	1.61	1.55	8.7	YES	NO	bb	bb	0.109
30	123789-HxCDF	36.88	1.208e3	1.012e3	1.030	1.19	1.24	15.6	YES	NO	bb	bb	0.394
31	234678-HxCDF	35.90	3.211e3	2.668e3	1.052	1.20	1.24	34.1	YES	NO	bb	bb	0.972
32	123678-HxCDF	35.01	1.750e3	1.404e3	1.037	1.25	1.24	26.8	YES	NO	db	db	0.506
33	123478-HxCDF	34.88	5.495e3	4.622e3	1.017	1.19	1.24	83.4	YES	NO	dd	dd	1.711
34	Total-hexafurans	34.72	9.026e2	7.822e2	1.045	1.15	1.24	15.1	YES	NO	bd	bd	0.280
35	Total-hexafurans	34.25	1.813e4	1.490e4	1.045	1.22	1.24	271.6	YES	NO	bb	bb	5.488
36	Total-hexafurans	33.95	3.919e2	3.671e2	1.045	1.07	1.24	5.6	YES	NO	bb	bb	0.126
37	Total-hexafurans	33.42	1.563e4	1.255e4	1.045	1.25	1.24	222.4	YES	NO	bb	bb	4.681

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	123468-HXCDF	33.21	5.021e3	4.213e3	1.087	1.19	1.24	78.6	YES	NO	bb	bb	1.462
39	1234678-HpCDF	38.76	3.264e4	2.946e4	1.327	1.11	1.05	565.9	YES	NO	bd	bb	10.212
40	1234789-HpCDF	41.01	1.876e3	2.080e3	1.283	0.90	1.05	31.6	YES	NO	bb	bb	0.838
41	Total-heptafurans	39.41	6.234e4	6.022e4	1.305	1.04	1.05	1087.3	YES	NO	bb	bb	22.742
42	OCDF	45.23	5.518e4	6.262e4	1.447	0.88	0.89	1086.2	YES	NO	bb	bb	28.069
43	Total-penta1	27.17	1.463e4	9.880e3		1.48	1.55	349.8	YES	NO	db	db	3.564

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.52	7.104e2	1.070e3	0.879	0.66	0.77	9.6	YES	NO	bb	bd	0.346
2	2378-TCDD	26.40	1.172e3	1.539e3	0.920	0.76	0.77	14.5	YES	NO	dd	bd	0.503
3	Total-tetradioxins	25.58	1.096e3	1.252e3	0.879	0.88	0.77	15.1	YES	NO	bb	bb	0.456
4	Total-tetradioxins	25.00	7.085e2	1.023e3	0.879	0.69	0.77	10.1	YES	NO	bb	bb	0.336

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.90	3.191e2	2.344e2	1.154	1.36	1.55	6.4	YES	NO	bb	bb	0.121
2	12378-PeCDD	31.50	1.491e3	1.075e3	0.995	1.39	1.55	23.8	YES	NO	bb	bb	0.648
3	Total-pentadioxins	30.82	4.224e2	3.050e2	1.331	1.38	1.55	7.0	YES	NO	bb	bb	0.138
4	Total-pentadioxins	30.25	8.394e2	4.986e2	1.331	1.68	1.55	15.2	YES	NO	db	dd	0.253
5	Total-pentadioxins	30.12	1.323e3	9.765e2	1.331	1.36	1.55	24.4	YES	NO	bd	bd	0.435

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	36.13	5.310e3	4.211e3	1.009	1.26	1.24	120.1	YES	NO	db	db	1.841
2	123478-HxCDD	36.00	1.847e3	1.313e3	1.027	1.41	1.24	45.4	YES	NO	bd	bd	0.628
3	Total-hexadioxins	35.12	1.610e4	1.246e4	1.028	1.29	1.24	232.4	YES	NO	bd	bd	5.542
4	Total-hexadioxins	34.76	2.919e3	2.201e3	1.028	1.33	1.24	61.1	YES	NO	bd	bb	0.994
5	124679-HXCDD	33.99	1.330e4	1.110e4	1.125	1.20	1.24	293.6	YES	NO	bb	bb	4.425
6	123789-HxCDD	36.50	3.580e3	3.104e3	0.950	1.15	1.24	84.4	YES	NO	bb	bb	1.403

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.25	9.550e4	8.795e4	1.068	1.09	1.05	725.8	YES	NO	bb	bb	53.801
2	1234679-HPCDD	39.20	1.423e5	1.306e5	1.211	1.09	1.05	1167.3	YES	NO	bb	bb	70.603

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	7.104e2	1.070e3	0.879	0.66	0.77	9.6	YES	NO	bb	bd	0.346
2	2378-TCDD	26.40	1.172e3	1.539e3	0.920	0.76	0.77	14.5	YES	NO	dd	bd	0.503
3	Total-tetradioxins	25.58	1.096e3	1.252e3	0.879	0.88	0.77	15.1	YES	NO	bb	bb	0.456
4	Total-tetradioxins	25.00	7.085e2	1.023e3	0.879	0.69	0.77	10.1	YES	NO	bb	bb	0.336
5	12389-PECDD	31.90	3.191e2	2.344e2	1.154	1.36	1.55	6.4	YES	NO	bb	bb	0.121
6	12378-PeCDD	31.50	1.491e3	1.075e3	0.995	1.39	1.55	23.8	YES	NO	bb	bb	0.648
7	Total-pentadioxins	30.82	4.224e2	3.050e2	1.331	1.38	1.55	7.0	YES	NO	bb	bb	0.138
8	Total-pentadioxins	30.25	8.394e2	4.986e2	1.331	1.68	1.55	15.2	YES	NO	db	dd	0.253
9	Total-pentadioxins	30.12	1.323e3	9.765e2	1.331	1.36	1.55	24.4	YES	NO	bd	bd	0.435
10	123678-HxCDD	36.13	5.310e3	4.211e3	1.009	1.26	1.24	120.1	YES	NO	db	db	1.841
11	123478-HxCDD	36.00	1.847e3	1.313e3	1.027	1.41	1.24	45.4	YES	NO	bd	bd	0.628
12	Total-hexadioxins	35.12	1.610e4	1.246e4	1.028	1.29	1.24	232.4	YES	NO	bd	bd	5.542
13	Total-hexadioxins	34.76	2.919e3	2.201e3	1.028	1.33	1.24	61.1	YES	NO	bd	bb	0.994
14	124679-HXCDD	33.99	1.330e4	1.110e4	1.125	1.20	1.24	293.6	YES	NO	bb	bb	4.425
15	123789-HxCDD	36.50	3.580e3	3.104e3	0.950	1.15	1.24	84.4	YES	NO	bb	bb	1.403
16	1234678-HpCDD	40.25	9.550e4	8.795e4	1.068	1.09	1.05	725.8	YES	NO	bb	bb	53.801
17	1234679-HPCDD	39.20	1.423e5	1.306e5	1.211	1.09	1.05	1167.3	YES	NO	bb	bb	70.603
18	OCDD	44.99	6.914e5	7.775e5	1.181	0.89	0.89	4207.1	YES	NO	bb	bb	428.903

ID: BJH0773-SRM1, Name: 21091311, Date: 13-Sep-2021, Time: 20:03:26, 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	23.08	2.327e3	3.003e3	1.192	0.77	0.77	28.9	YES	NO	bd	bd	0.573
2	Total-tetrafurans	22.39	3.010e2	3.820e2	1.192	0.79	0.77	4.5	YES	NO	bd	bd	0.073
3	1368-TCDF	22.24	4.347e2	5.333e2	1.425	0.81	0.77	7.2	YES	NO	db	bb	0.087
4	Total-Furans	21.35	5.906e2	6.892e2	1.158	0.86	0.77	8.5	YES	NO	db	db	0.142
5	Total-Furans	21.15	1.019e3	1.544e3	1.158	0.66	0.77	13.8	YES	NO	bd	bd	0.284
6	Total-tetrafurans	25.99	1.817e3	2.130e3	1.192	0.85	0.77	17.7	YES	NO	dd	dd	0.425
7	Total-tetrafurans	25.88	1.048e3	1.401e3	1.192	0.75	0.77	12.4	YES	NO	dd	dd	0.263
8	Total-tetrafurans	25.53	1.605e3	2.149e3	1.192	0.75	0.77	17.1	YES	NO	db	db	0.404
9	Total-tetrafurans	25.44	1.230e3	1.415e3	1.192	0.87	0.77	11.0	YES	NO	dd	dd	0.284
10	Total-tetrafurans	24.85	2.715e3	3.261e3	1.192	0.83	0.77	35.7	YES	NO	db	bb	0.643
11	Total-tetrafurans	24.64	1.819e3	2.075e3	1.192	0.88	0.77	21.1	YES	NO	dd	db	0.419
12	Total-tetrafurans	24.51	3.324e3	4.614e3	1.192	0.72	0.77	43.0	YES	NO	dd	dd	0.854
13	Total-tetrafurans	24.43	2.012e3	2.820e3	1.192	0.71	0.77	24.6	YES	NO	bd	dd	0.520
14	Total-tetrafurans	24.01	2.657e3	3.175e3	1.192	0.84	0.77	28.9	YES	NO	dd	dd	0.627
15	Total-tetrafurans	23.87	1.469e3	1.736e3	1.192	0.85	0.77	23.5	YES	NO	dd	dd	0.345
16	Total-tetrafurans	23.75	1.392e3	1.727e3	1.192	0.81	0.77	20.4	YES	NO	bd	bd	0.335
17	1289-TCDF	27.36	1.264e3	1.471e3	1.043	0.86	0.77	19.0	YES	NO	dd	bb	0.336
18	Total-pentafurans	28.66	2.077e3	1.280e3	1.047	1.62	1.55	23.5	YES	NO	MM	MM	0.443
19	Total-pentafurans	28.47	4.217e3	3.102e3	1.047	1.36	1.55	79.3	YES	NO	dd	dd	0.965
20	Total-pentafurans	28.16	1.253e3	7.541e2	1.047	1.66	1.55	19.8	YES	NO	bb	bb	0.265
21	12378-PeCDF	29.91	2.457e3	1.711e3	1.015	1.44	1.55	40.7	YES	NO	db	dd	0.548
22	Total-pentafurans	29.55	2.727e3	1.997e3	1.047	1.37	1.55	41.1	YES	NO	dd	db	0.623
23	Total-pentafurans	29.35	6.107e2	3.661e2	1.047	1.67	1.55	10.0	YES	NO	dd	bd	0.129
24	Total-pentafurans	28.94	3.127e2	2.324e2	1.047	1.35	1.55	7.2	YES	NO	dd	db	0.072
25	Total-pentafurans	28.84	8.108e3	5.933e3	1.047	1.37	1.55	103.3	YES	NO	MM	MM	1.852
26	23478-PeCDF	31.26	2.346e3	1.475e3	1.126	1.59	1.55	36.2	YES	NO	db	MM	0.486
27	Total-pentafurans	31.12	1.656e3	9.553e2	1.047	1.73	1.55	26.9	YES	NO	dd	dd	0.344
28	Total-pentafurans	31.00	8.109e2	4.576e2	1.047	1.77	1.55	13.0	YES	NO	bd	bd	0.167
29	Total-pentafurans	30.76	5.096e2	3.165e2	1.047	1.61	1.55	8.7	YES	NO	bb	bb	0.109
30	123789-HxCDF	36.88	1.208e3	1.012e3	1.030	1.19	1.24	15.6	YES	NO	bb	bb	0.394
31	234678-HxCDF	35.90	3.211e3	2.668e3	1.052	1.20	1.24	34.1	YES	NO	bb	bb	0.972
32	123678-HxCDF	35.01	1.750e3	1.404e3	1.037	1.25	1.24	26.8	YES	NO	db	db	0.506
33	123478-HxCDF	34.88	5.495e3	4.622e3	1.017	1.19	1.24	83.4	YES	NO	dd	dd	1.711
34	Total-hexafurans	34.72	9.026e2	7.822e2	1.045	1.15	1.24	15.1	YES	NO	bd	bd	0.280
35	Total-hexafurans	34.25	1.813e4	1.490e4	1.045	1.22	1.24	271.6	YES	NO	bb	bb	5.488
36	Total-hexafurans	33.95	3.919e2	3.671e2	1.045	1.07	1.24	5.6	YES	NO	bb	bb	0.126
37	Total-hexafurans	33.42	1.563e4	1.255e4	1.045	1.25	1.24	222.4	YES	NO	bb	bb	4.681

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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
38	123468-HXCDF	33.21	5.021e3	4.213e3	1.087	1.19	1.24	78.6	YES	NO	bb	bb	1.462
39	1234678-HpCDF	38.76	3.264e4	2.946e4	1.327	1.11	1.05	565.9	YES	NO	bd	bb	10.212
40	1234789-HpCDF	41.01	1.876e3	2.080e3	1.283	0.90	1.05	31.6	YES	NO	bb	bb	0.838
41	Total-heptafurans	39.41	6.234e4	6.022e4	1.305	1.04	1.05	1087.3	YES	NO	bb	bb	22.742
42	OCDF	45.23	5.518e4	6.262e4	1.447	0.88	0.89	1086.2	YES	NO	bb	bb	28.069
43	Total-penta1	27.17	1.463e4	9.880e3		1.48	1.55	349.8	YES	NO	db	db	3.564
44	Total-tetradioxins	24.52	7.104e2	1.070e3	0.879	0.66	0.77	9.6	YES	NO	bb	bd	0.346
45	2378-TCDD	26.40	1.172e3	1.539e3	0.920	0.76	0.77	14.5	YES	NO	dd	bd	0.503
46	Total-tetradioxins	25.58	1.096e3	1.252e3	0.879	0.88	0.77	15.1	YES	NO	bb	bb	0.456
47	Total-tetradioxins	25.00	7.085e2	1.023e3	0.879	0.69	0.77	10.1	YES	NO	bb	bb	0.336
48	12389-PECDD	31.90	3.191e2	2.344e2	1.154	1.36	1.55	6.4	YES	NO	bb	bb	0.121
49	12378-PeCDD	31.50	1.491e3	1.075e3	0.995	1.39	1.55	23.8	YES	NO	bb	bb	0.648
50	Total-pentadioxins	30.82	4.224e2	3.050e2	1.331	1.38	1.55	7.0	YES	NO	bb	bb	0.138
51	Total-pentadioxins	30.25	8.394e2	4.986e2	1.331	1.68	1.55	15.2	YES	NO	db	dd	0.253
52	Total-pentadioxins	30.12	1.323e3	9.765e2	1.331	1.36	1.55	24.4	YES	NO	bd	bd	0.435
53	123678-HxCDD	36.13	5.310e3	4.211e3	1.009	1.26	1.24	120.1	YES	NO	db	db	1.841
54	123478-HxCDD	36.00	1.847e3	1.313e3	1.027	1.41	1.24	45.4	YES	NO	bd	bd	0.628
55	Total-hexadioxins	35.12	1.610e4	1.246e4	1.028	1.29	1.24	232.4	YES	NO	bd	bd	5.542
56	Total-hexadioxins	34.76	2.919e3	2.201e3	1.028	1.33	1.24	61.1	YES	NO	bd	bb	0.994
57	124679-HXCDD	33.99	1.330e4	1.110e4	1.125	1.20	1.24	293.6	YES	NO	bb	bb	4.425
58	123789-HxCDD	36.50	3.580e3	3.104e3	0.950	1.15	1.24	84.4	YES	NO	bb	bb	1.403
59	1234678-HpCDD	40.25	9.550e4	8.795e4	1.068	1.09	1.05	725.8	YES	NO	bb	bb	53.801
60	1234679-HPCDD	39.20	1.423e5	1.306e5	1.211	1.09	1.05	1167.3	YES	NO	bb	bb	70.603
61	OCDD	44.99	6.914e5	7.775e5	1.181	0.89	0.89	4207.1	YES	NO	bb	bb	428.903

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.97	2.452e5					6.9	YES		db		
2	FUNCTION1 PFK	21.92	1.800e5					6.7	YES		dd		
3	FUNCTION1 PFK	21.84	2.599e5					5.9	YES		dd		
4	FUNCTION1 PFK	21.71	1.324e5					3.7	YES		dd		
5	FUNCTION1 PFK	21.63	8.339e4					3.0	NO		bd		
6	FUNCTION1 PFK	21.45	1.108e4					0.7	NO		db		
7	FUNCTION1 PFK	21.38	1.961e4					1.0	NO		dd		
8	FUNCTION1 PFK	21.32	4.709e4					1.9	NO		dd		
9	FUNCTION1 PFK	21.25	3.317e4					1.6	NO		dd		
10	FUNCTION1 PFK	21.19	3.103e4					1.3	NO		dd		
11	FUNCTION1 PFK	21.15	2.148e4					1.5	NO		bd		
12	FUNCTION1 PFK	23.76	1.349e4					1.0	NO		bd		
13	FUNCTION1 PFK	23.61	5.274e4					1.9	NO		db		
14	FUNCTION1 PFK	23.55	7.302e4					2.9	NO		dd		
15	FUNCTION1 PFK	23.49	1.005e5					3.6	YES		bd		
16	FUNCTION1 PFK	23.37	1.118e5					3.5	YES		db		
17	FUNCTION1 PFK	23.30	7.592e4					2.9	NO		dd		
18	FUNCTION1 PFK	23.22	1.201e5					3.7	YES		dd		
19	FUNCTION1 PFK	23.10	2.381e5					4.7	YES		dd		
20	FUNCTION1 PFK	22.95	3.573e5					5.7	YES		dd		
21	FUNCTION1 PFK	22.83	3.302e5					6.3	YES		dd		
22	FUNCTION1 PFK	22.75	3.639e5					6.9	YES		dd		
23	FUNCTION1 PFK	22.63	2.347e5					7.0	YES		dd		
24	FUNCTION1 PFK	22.53	4.160e5					7.8	YES		dd		
25	FUNCTION1 PFK	22.39	8.551e5					8.3	YES		dd		
26	FUNCTION1 PFK	22.16	5.078e5					9.4	YES		dd		
27	FUNCTION1 PFK	22.10	3.139e5					10.1	YES		bd		
28	FUNCTION1 PFK	25.26	2.742e4					1.1	NO		bd		
29	FUNCTION1 PFK	25.00	5.218e4					1.4	NO		db		
30	FUNCTION1 PFK	24.93	2.322e4					1.0	NO		dd		
31	FUNCTION1 PFK	24.85	9.805e3					0.6	NO		dd		
32	FUNCTION1 PFK	24.79	1.607e4					1.1	NO		dd		
33	FUNCTION1 PFK	24.72	1.617e4					0.9	NO		dd		
34	FUNCTION1 PFK	24.66	2.784e4					1.2	NO		dd		
35	FUNCTION1 PFK	24.61	1.697e4					1.0	NO		bd		
36	FUNCTION1 PFK	24.40	2.101e4					0.9	NO		db		
37	FUNCTION1 PFK	24.35	9.527e3					0.7	NO		bd		

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	24.28	7.705e3					0.4	NO		bb		
39	FUNCTION1 PFK	24.16	4.739e4					1.0	NO		bb		
40	FUNCTION1 PFK	24.01	6.700e3					0.5	NO		db		
41	FUNCTION1 PFK	23.95	3.670e4					1.4	NO		dd		
42	FUNCTION1 PFK	23.89	2.369e4					1.1	NO		dd		
43	FUNCTION1 PFK	23.81	2.314e4					1.0	NO		dd		
44	FUNCTION1 PFK	26.79	5.970e4					1.6	NO		dd		
45	FUNCTION1 PFK	26.70	3.336e4					1.3	NO		bd		
46	FUNCTION1 PFK	26.62	9.807e3					0.6	NO		bb		
47	FUNCTION1 PFK	26.50	5.663e4					1.8	NO		db		
48	FUNCTION1 PFK	26.44	3.109e4					1.6	NO		dd		
49	FUNCTION1 PFK	26.34	3.351e4					1.6	NO		dd		
50	FUNCTION1 PFK	26.24	9.611e4					1.8	NO		dd		
51	FUNCTION1 PFK	26.03	1.623e5					2.4	NO		dd		
52	FUNCTION1 PFK	25.93	2.352e4					1.3	NO		bd		
53	FUNCTION1 PFK	25.84	1.606e4					1.0	NO		db		
54	FUNCTION1 PFK	25.78	3.096e4					1.1	NO		dd		
55	FUNCTION1 PFK	25.73	1.749e4					1.1	NO		bd		
56	FUNCTION1 PFK	25.56	7.607e3					0.6	NO		bb		
57	FUNCTION1 PFK	25.50	2.496e3					0.3	NO		bb		
58	FUNCTION1 PFK	25.44	2.369e4					0.9	NO		bb		
59	FUNCTION1 PFK	25.34	1.806e4					0.9	NO		db		
60	FUNCTION1 PFK	28.01	8.700e4					1.7	NO		db		
61	FUNCTION1 PFK	27.83	1.765e5					3.7	YES		dd		
62	FUNCTION1 PFK	27.77	9.025e4					4.5	YES		dd		
63	FUNCTION1 PFK	27.67	3.044e5					5.9	YES		bd		
64	FUNCTION1 PFK	27.53	1.294e5					4.8	YES		db		
65	FUNCTION1 PFK	27.50	1.184e5					4.4	YES		dd		
66	FUNCTION1 PFK	27.42	2.153e5					3.7	YES		dd		
67	FUNCTION1 PFK	27.30	7.735e4					3.0	YES		dd		
68	FUNCTION1 PFK	27.23	1.126e5					3.7	YES		dd		
69	FUNCTION1 PFK	27.15	7.260e4					3.0	NO		dd		
70	FUNCTION1 PFK	27.09	6.877e4					2.0	NO		dd		
71	FUNCTION1 PFK	27.00	3.122e4					1.4	NO		dd		
72	FUNCTION1 PFK	26.92	3.730e4					1.4	NO		dd		
73	FUNCTION1 PFK	26.88	2.277e4					1.3	NO		dd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.43	1.882e6					15.5	YES		bb		0.000
2	FUNCTION2 PFK	29.80	1.118e4					2.1	NO		bb		0.000
3	FUNCTION2 PFK	29.37	4.254e4					5.3	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.12	3.906e5					7.3	YES		db		0.000
2	FUNCTION3 PFK	36.95	5.622e5					10.2	YES		bd		0.000
3	FUNCTION3 PFK	36.62	7.112e5					4.3	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	40.87	6.174e4					2.5	NO		bb		
2	FUNCTION4 PFK	40.73	1.019e4					1.7	NO		bb		
3	FUNCTION4 PFK	39.49	1.103e4					1.4	NO		bb		
4	FUNCTION4 PFK	39.32	1.063e3					0.4	NO		bb		
5	FUNCTION4 PFK	39.13	4.388e3					1.1	NO		bb		
6	FUNCTION4 PFK	39.09	1.668e3					0.6	NO		bb		
7	FUNCTION4 PFK	38.94	2.620e4					1.2	NO		bb		
8	FUNCTION4 PFK	38.43	1.732e4					1.5	NO		db		
9	FUNCTION4 PFK	38.40	3.000e3					0.7	NO		bd		
10	FUNCTION4 PFK	42.92	9.599e3					1.3	NO		bb		
11	FUNCTION4 PFK	42.39	6.228e3					1.0	NO		db		
12	FUNCTION4 PFK	42.32	1.185e4					1.2	NO		bd		
13	FUNCTION4 PFK	41.98	2.788e3					0.6	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.69	1.784e3					0.7	NO		db		
2	FUNCTION5 PFK	44.66	8.041e3					1.5	NO		bd		
3	FUNCTION5 PFK	44.53	7.939e3					1.9	NO		db		
4	FUNCTION5 PFK	44.50	4.959e3					1.8	NO		bd		
5	FUNCTION5 PFK	44.44	1.766e4					2.3	NO		bb		
6	FUNCTION5 PFK	44.24	8.196e2					0.6	NO		bb		
7	FUNCTION5 PFK	43.89	8.713e3					1.9	NO		bb		
8	FUNCTION5 PFK	43.49	2.693e3					1.0	NO		bb		
9	FUNCTION5 PFK	43.36	6.057e2					0.4	NO		bb		
10	FUNCTION5 PFK	43.27	5.044e3					1.4	NO		bb		
11	FUNCTION5 PFK	43.10	8.785e3					2.1	NO		bb		
12	FUNCTION5 PFK	45.82	2.296e3					0.9	NO		bb		
13	FUNCTION5 PFK	45.69	1.577e3					0.5	NO		bb		
14	FUNCTION5 PFK	45.66	6.293e2					0.4	NO		bb		
15	FUNCTION5 PFK	45.63	6.348e2					0.4	NO		bb		
16	FUNCTION5 PFK	45.56	8.611e2					0.6	NO		bb		
17	FUNCTION5 PFK	45.02	3.658e3					1.0	NO		db		
18	FUNCTION5 PFK	45.00	3.060e3					1.1	NO		bd		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	24.79	9.559e1					2.0	NO		bb		0.000
2	FUNCTION1 HXCD...	24.05	1.075e2					1.5	NO		db		0.000
3	FUNCTION1 HXCD...	23.84	1.411e2					2.2	NO		dd		0.000
4	FUNCTION1 HXCD...	23.73	8.728e1					1.6	NO		bd		0.000
5	FUNCTION1 HXCD...	23.24	9.208e1					1.8	NO		bb		0.000
6	FUNCTION1 HXCD...	22.98	8.632e1					1.1	NO		bb		0.000
7	FUNCTION1 HXCD...	22.33	2.270e2					5.1	YES		bb		0.000
8	FUNCTION1 HXCD...	22.16	1.988e2					3.2	YES		bb		0.000
9	FUNCTION1 HXCD...	27.53	2.039e2					2.5	NO		bb		0.000
10	FUNCTION1 HXCD...	27.15	1.239e2					1.6	NO		bb		0.000
11	FUNCTION1 HXCD...	26.80	1.104e2					2.8	NO		db		0.000
12	FUNCTION1 HXCD...	26.74	8.064e1					2.4	NO		bd		0.000
13	FUNCTION1 HXCD...	26.20	8.132e1					1.5	NO		db		0.000
14	FUNCTION1 HXCD...	26.09	2.512e2					4.6	YES		dd		0.000
15	FUNCTION1 HXCD...	25.90	3.575e2					5.0	YES		bd		0.000
16	FUNCTION1 HXCD...	25.56	8.288e1					2.6	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...	23.04	9.461e1					3.2	YES		bb		0.000
2	FUNCTION1 HPCD...	22.42	8.823e1					2.9	NO		db		0.000
3	FUNCTION1 HPCD...	22.31	1.880e2					4.8	YES		bd		0.000
4	FUNCTION1 HPCD...	22.04	1.668e4					443.9	YES		bb		0.000
5	FUNCTION1 HPCD...	21.80	7.540e1					1.7	NO		bb		0.000
6	FUNCTION1 HPCD...	21.41	1.144e2					2.4	NO		db		0.000
7	FUNCTION1 HPCD...	21.33	8.090e1					1.9	NO		bd		0.000
8	FUNCTION1 HPCD...	27.53	7.482e1					1.5	NO		bb		0.000
9	FUNCTION1 HPCD...	25.29	8.477e1					2.2	NO		bb		0.000
10	FUNCTION1 HPCD...	23.90	9.394e1					1.5	NO		bb		0.000
11	FUNCTION1 HPCD...	23.34	3.032e3					64.4	YES		bb		0.000

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Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:16:20 Pacific Daylight Time

ID: BJH0773-SRM1, Name: 21091311, Date: 13-Sep-2021, Time: 20:03:26, 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...	32.46	9.961e1					2.0	NO		bb		0.000
2	FUNCTION2 HPCD...	32.33	7.955e1					2.7	NO		bb		0.000
3	FUNCTION2 HPCD...	30.80	1.238e2					2.2	NO		bb		0.000
4	FUNCTION2 HPCD...	28.93	2.159e2					4.4	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	36.49	2.281e2					3.9	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	6.894e3					159.9	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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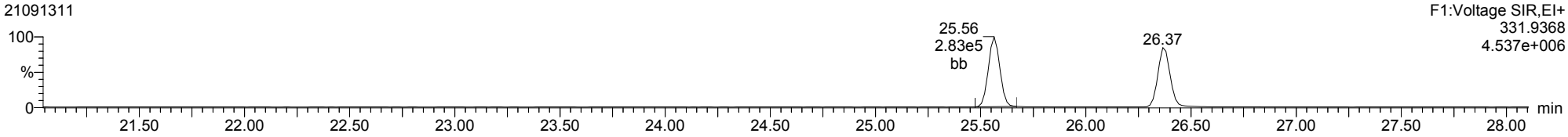
ID: BJH0773-SRM1, Name: 21091311, Date: 13-Sep-2021, Time: 20:03:26, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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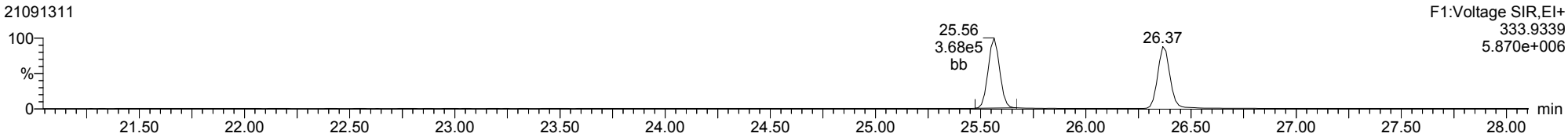
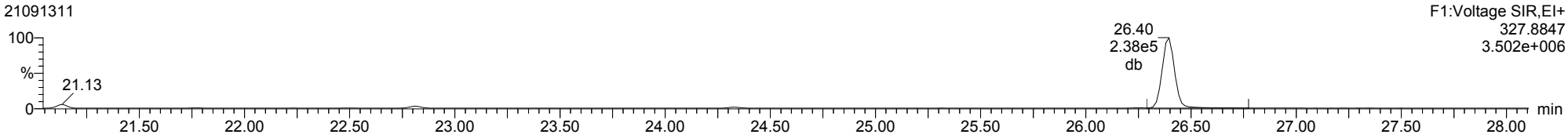


37CL-2378-TCDD



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Printed: Tuesday, September 14, 2021 11:16:20 Pacific Daylight Time

ID: BJH0773-SRM1, Name: 21091311, Date: 13-Sep-2021, Time: 20:03:26, Conditions: AUTOSPEC01, User: pk

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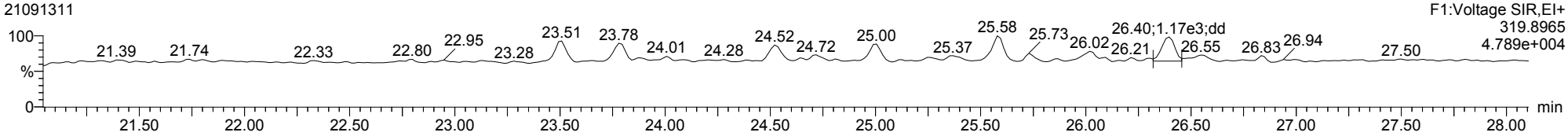

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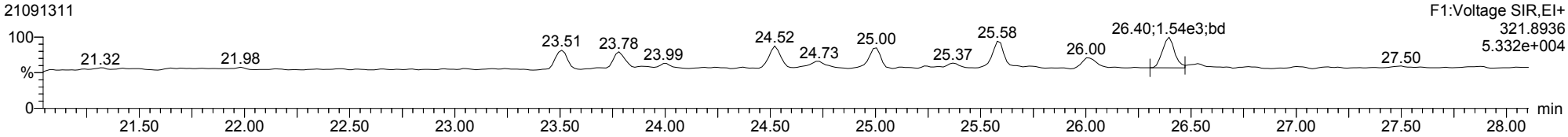

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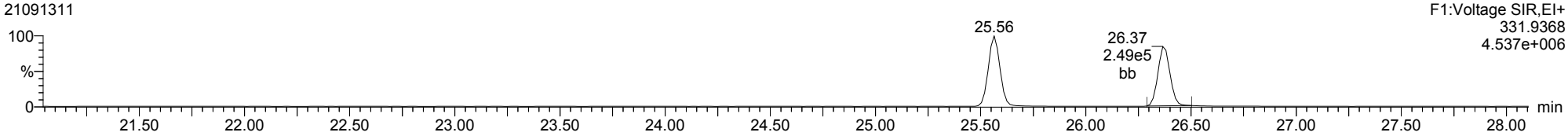

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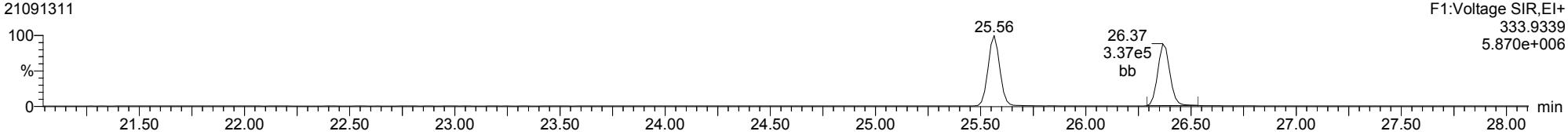

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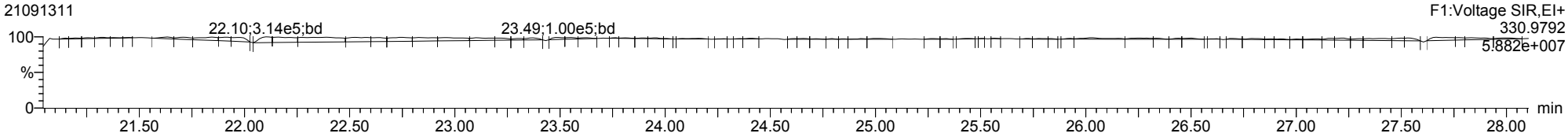
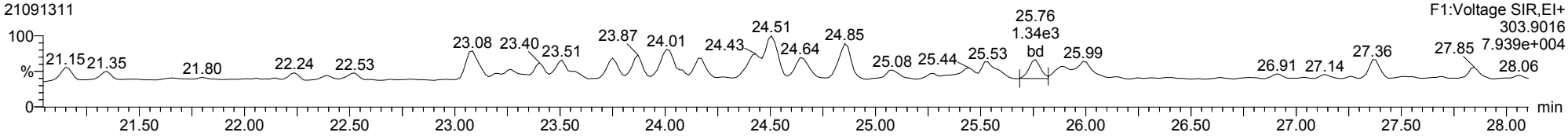


ID: BJH0773-SRM1, Name: 21091311, Date: 13-Sep-2021, Time: 20:03:26, Conditions: AUTOSPEC01, User: pk

2378-TCDF



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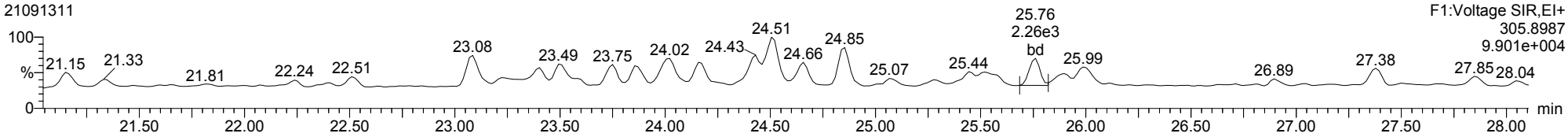

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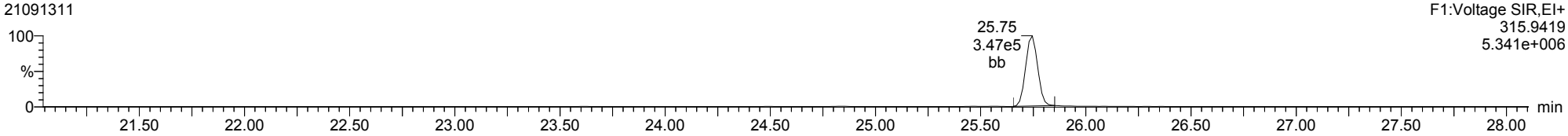

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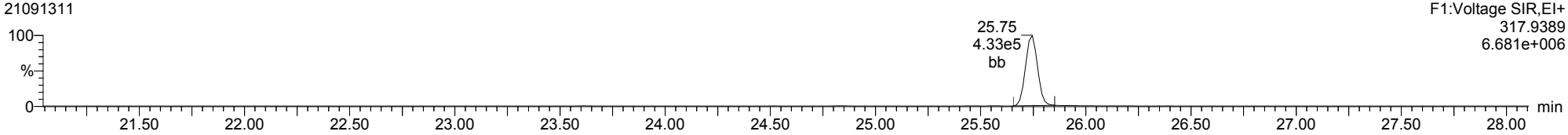

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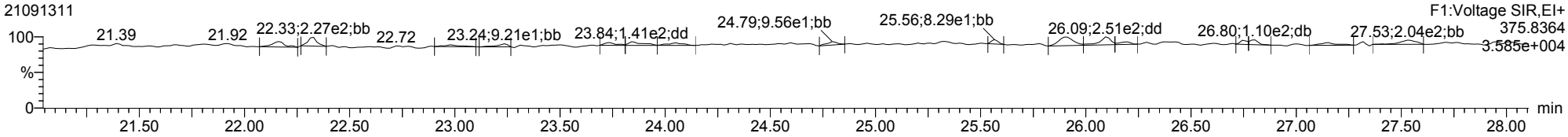

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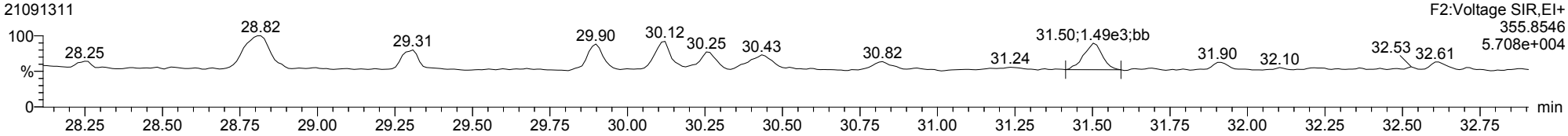
12378-PeCDD



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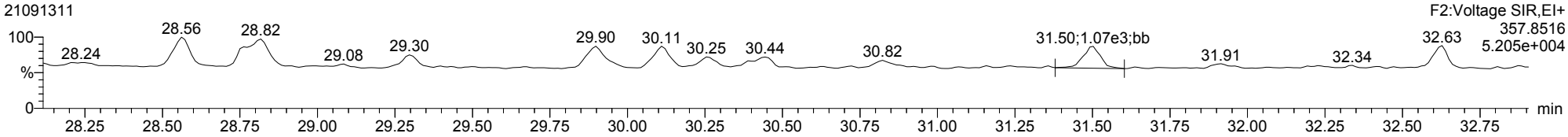

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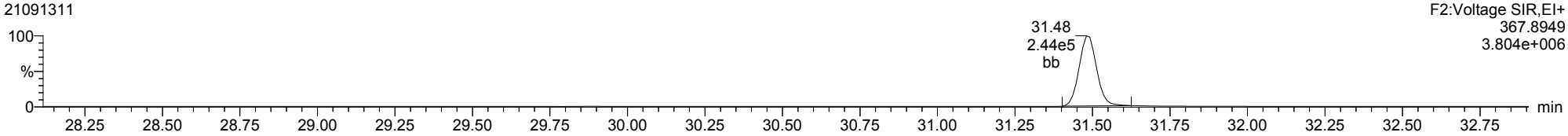

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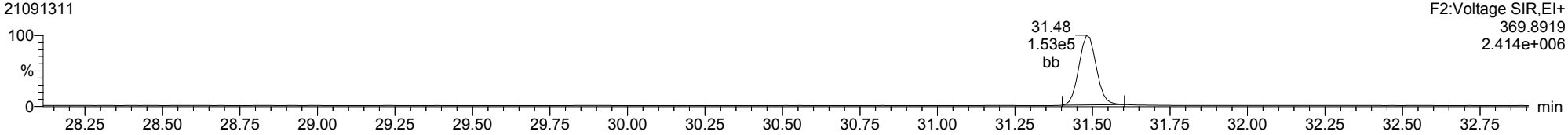

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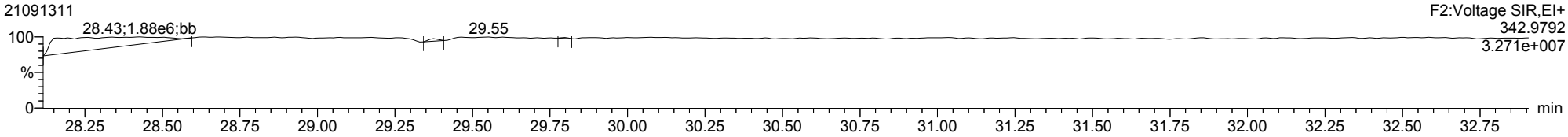

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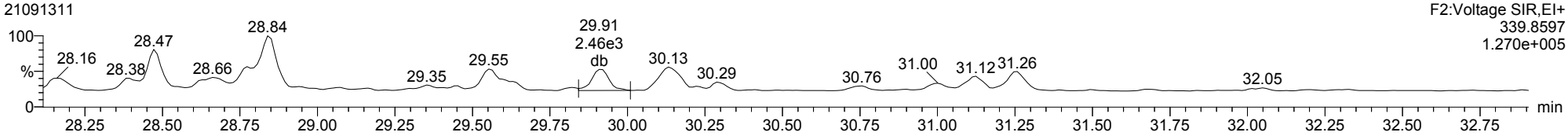

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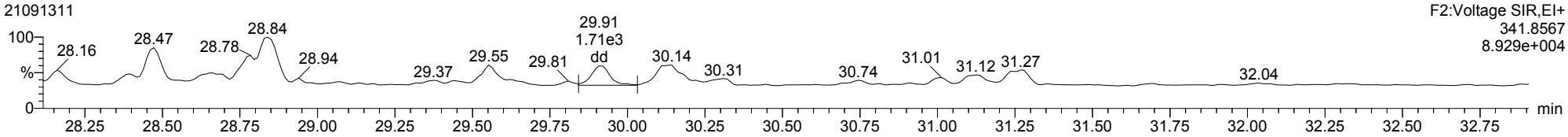

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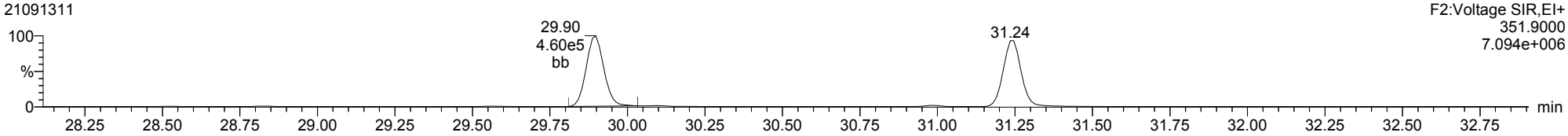

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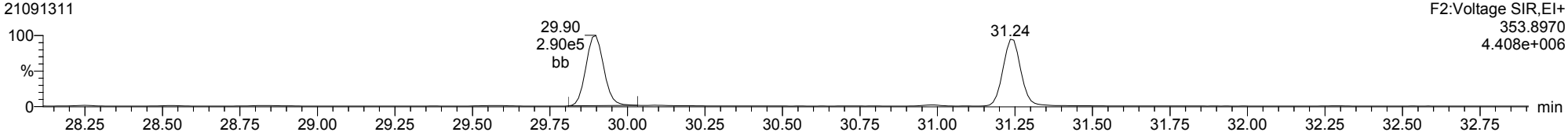
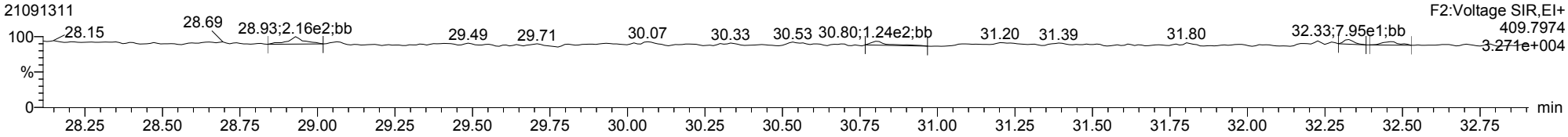


FUNCTION2 HPCDPE



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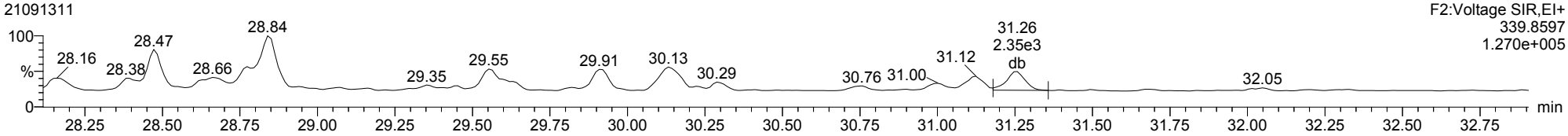
23478-PeCDF



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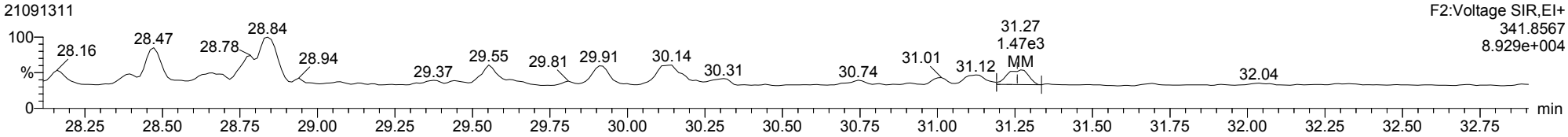

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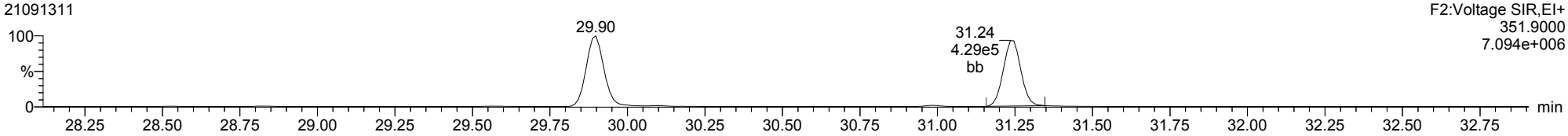

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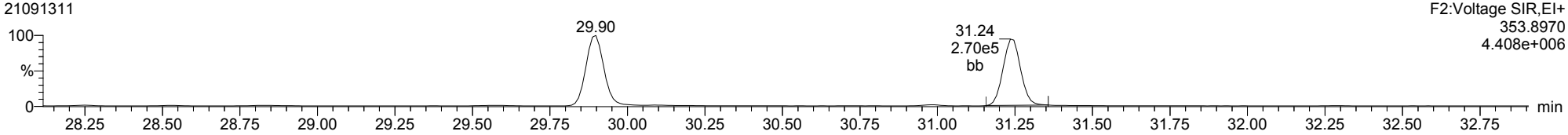

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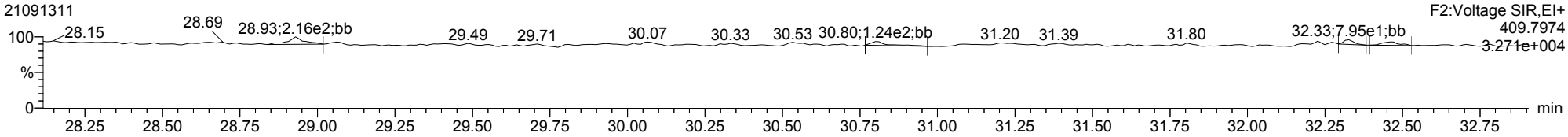

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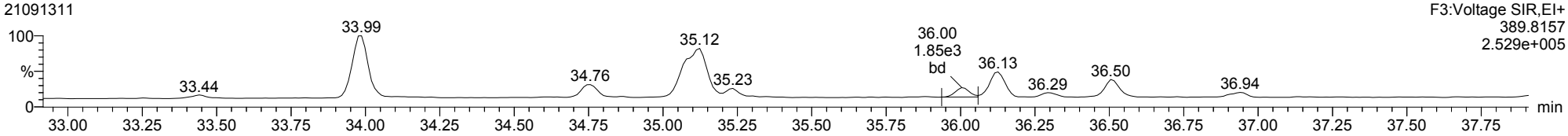
123478-HxCDD



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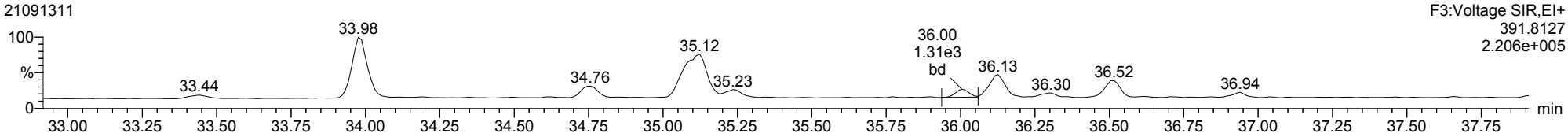

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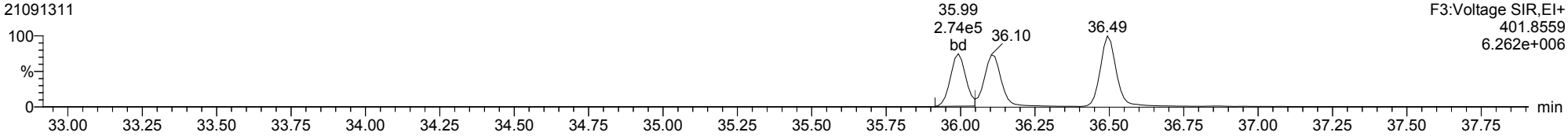

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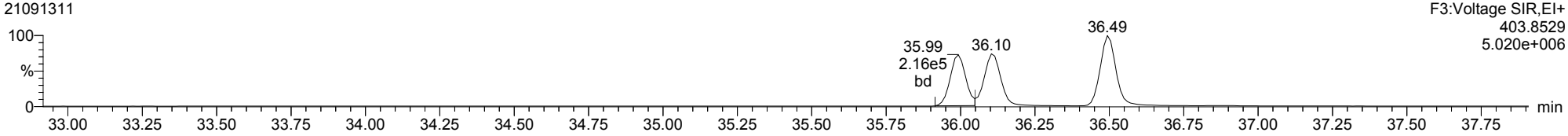

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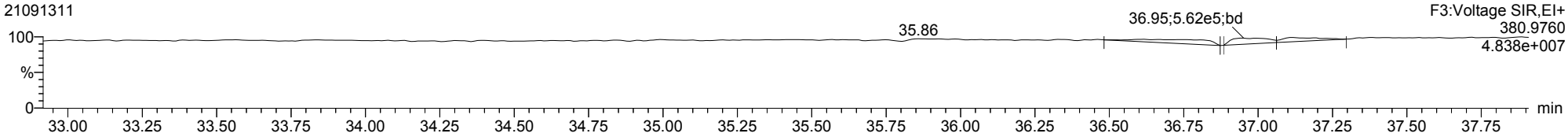

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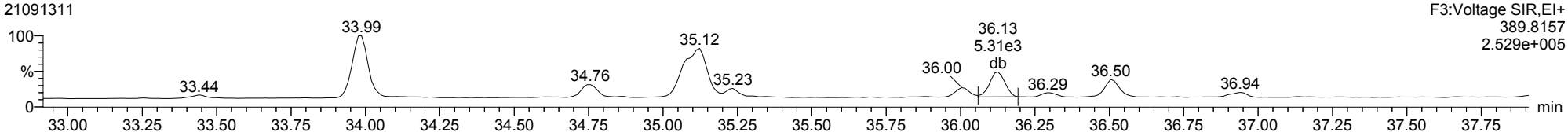

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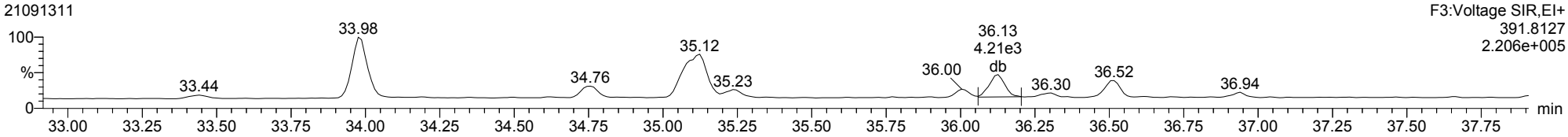

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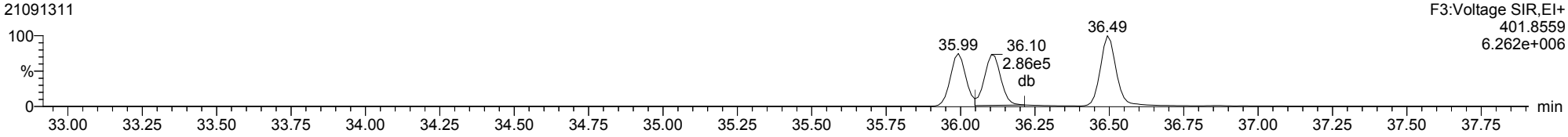

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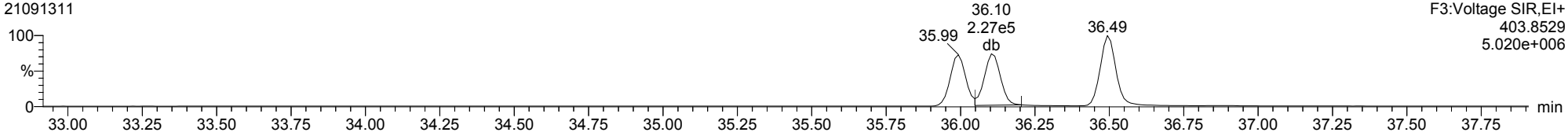

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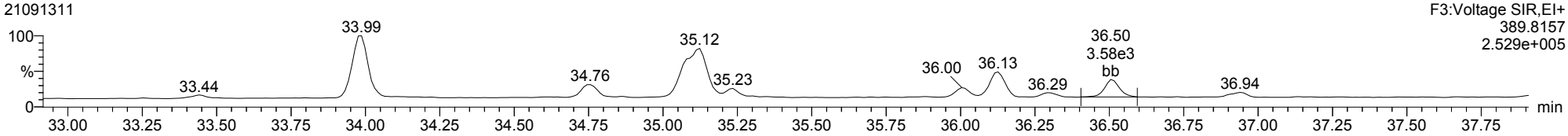

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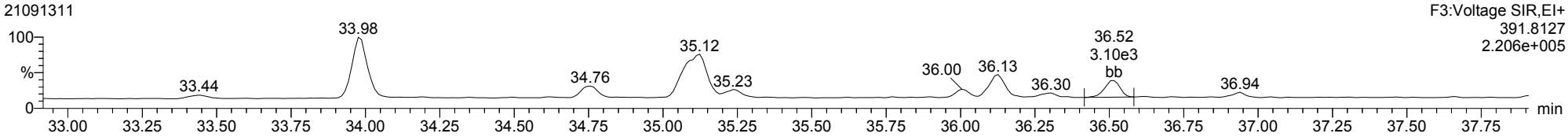

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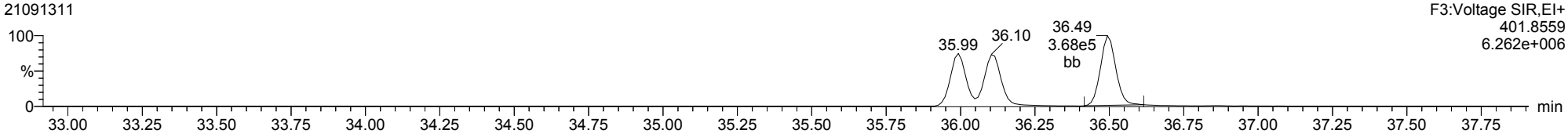

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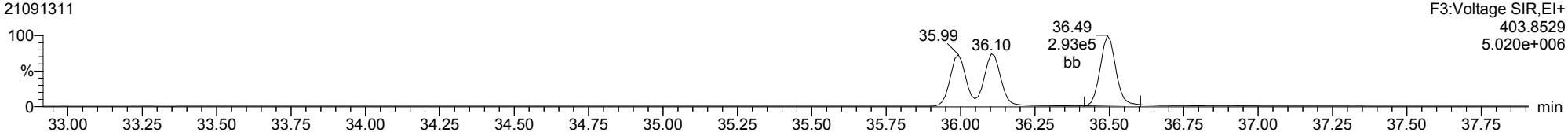

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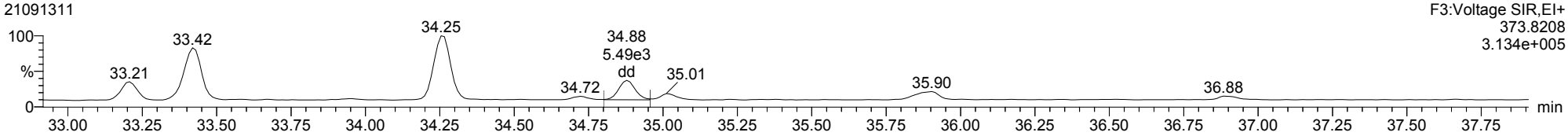

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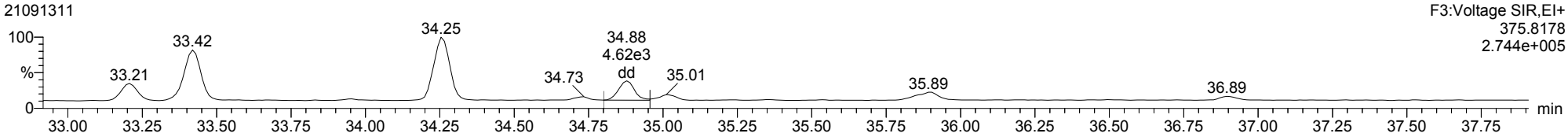

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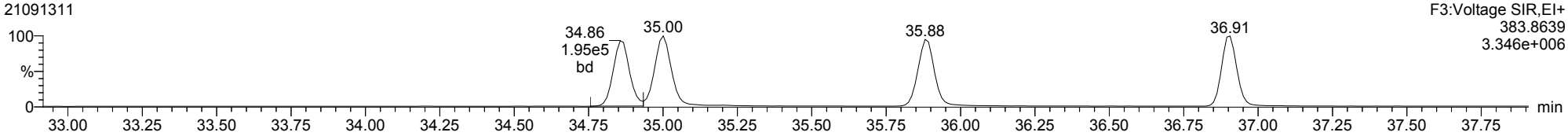

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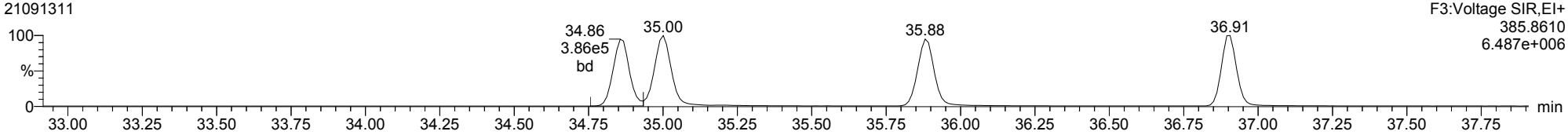

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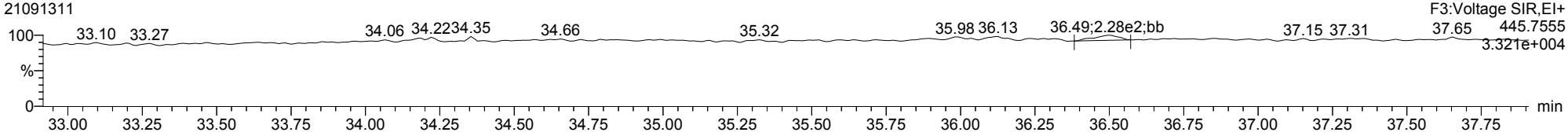

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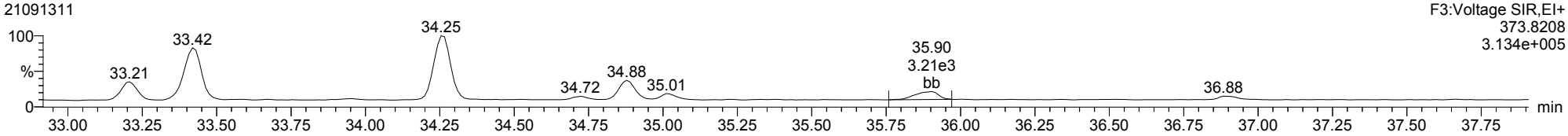

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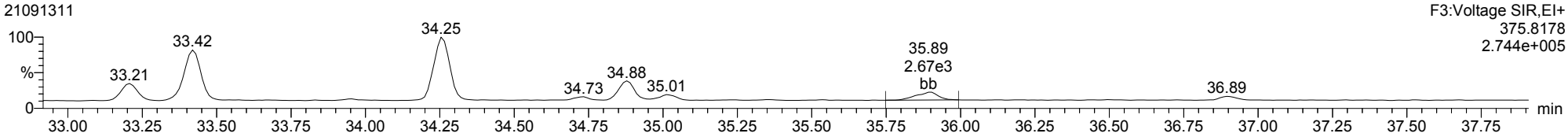

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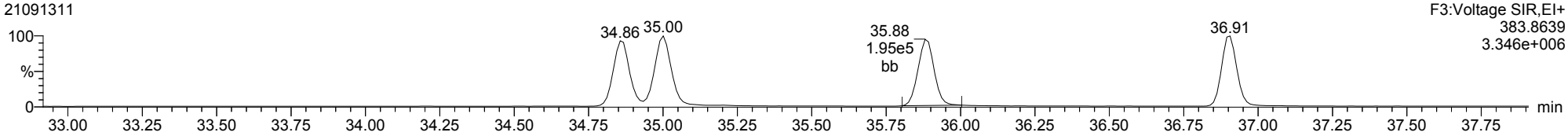

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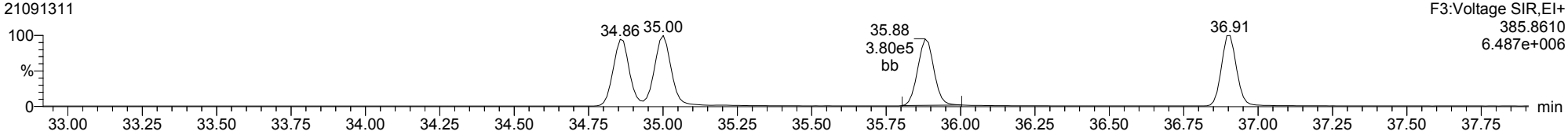

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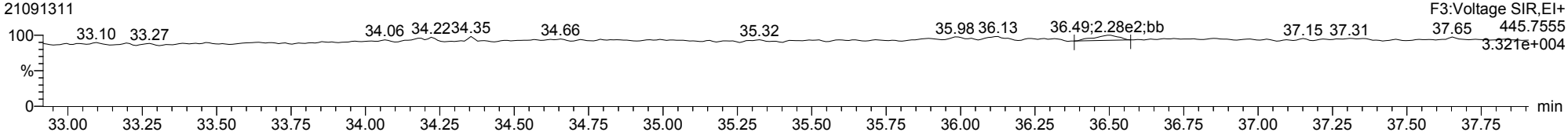

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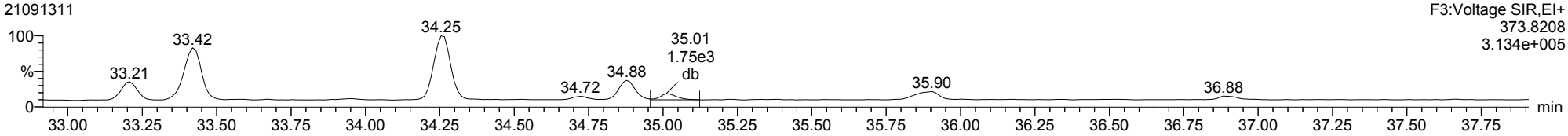

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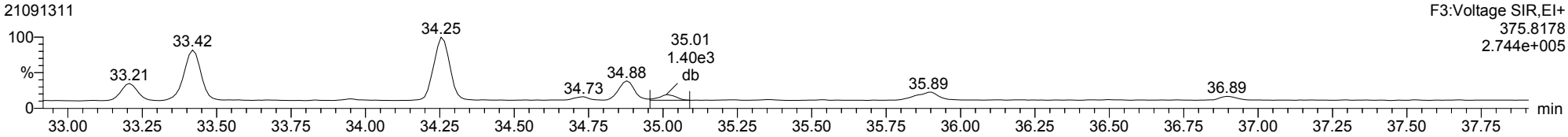

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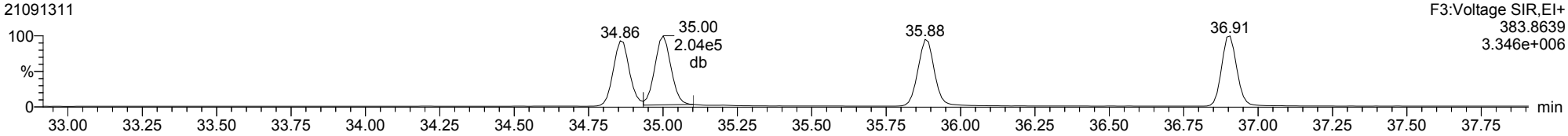

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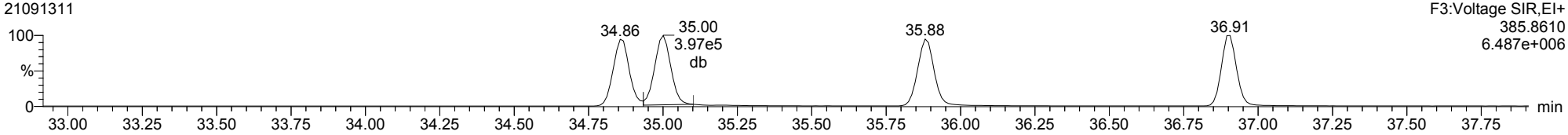

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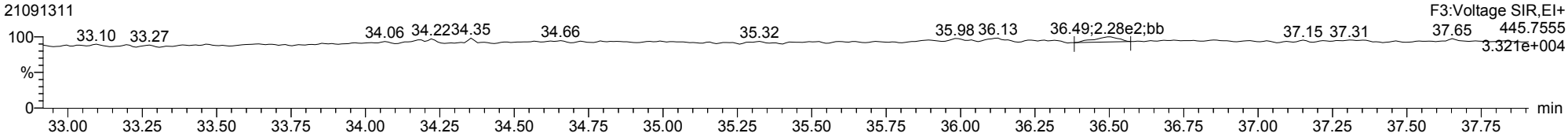

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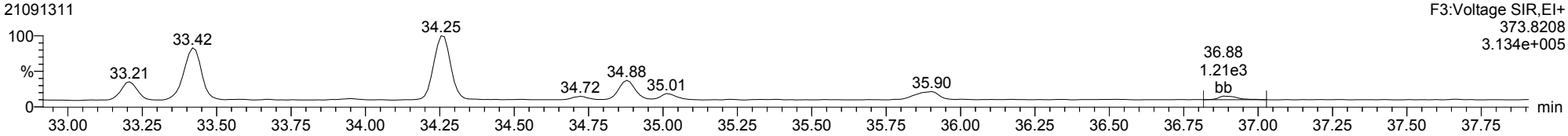

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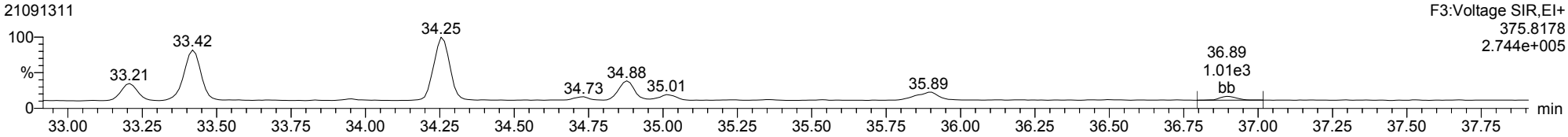

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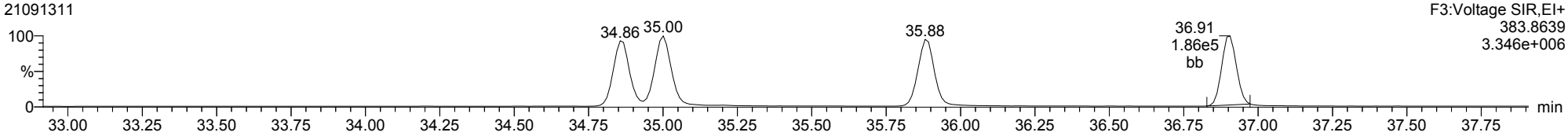

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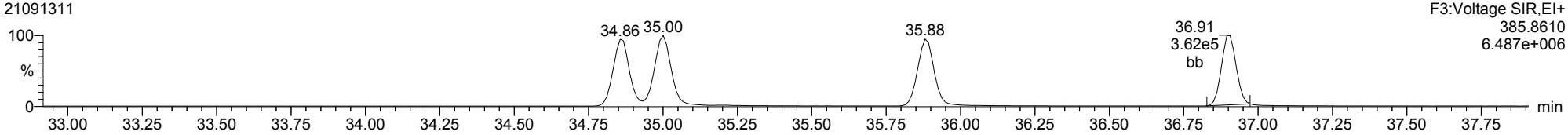

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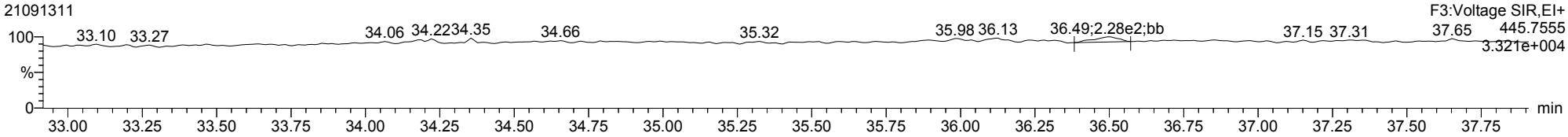

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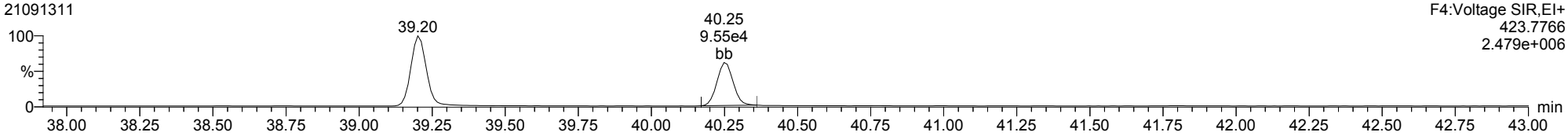

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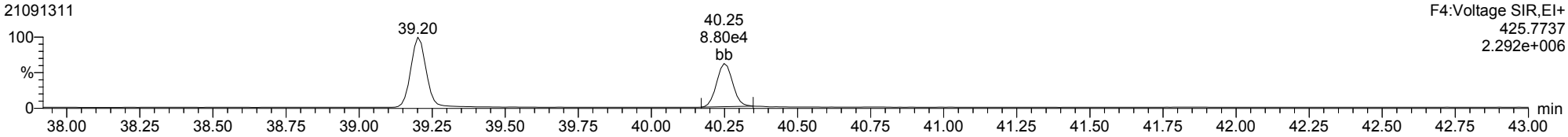

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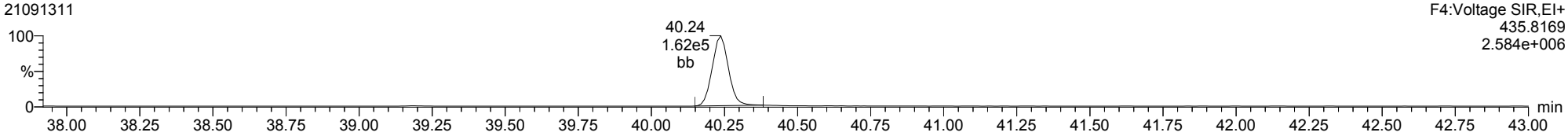

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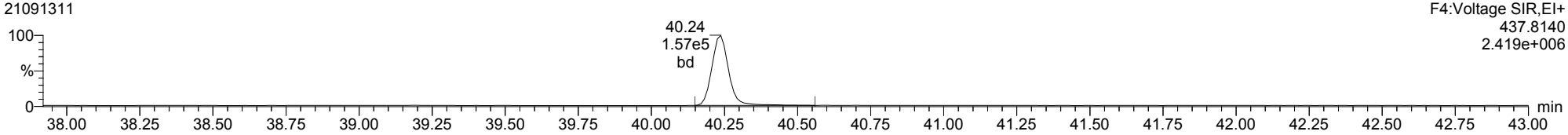

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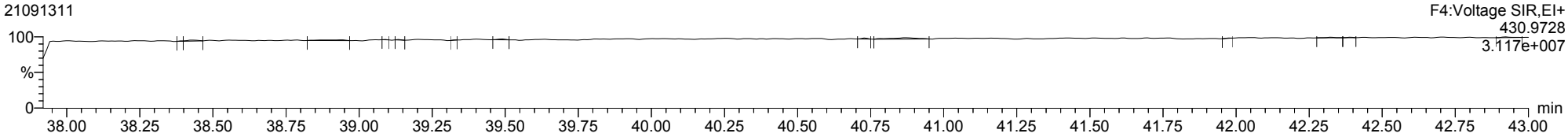

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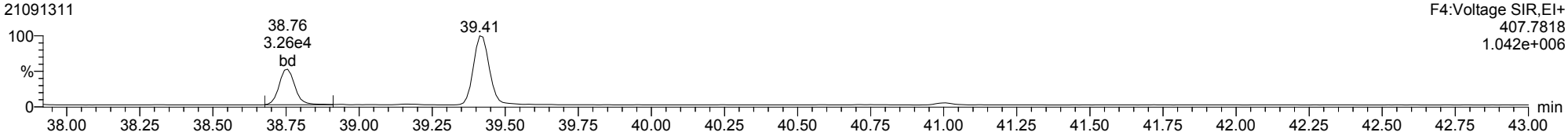

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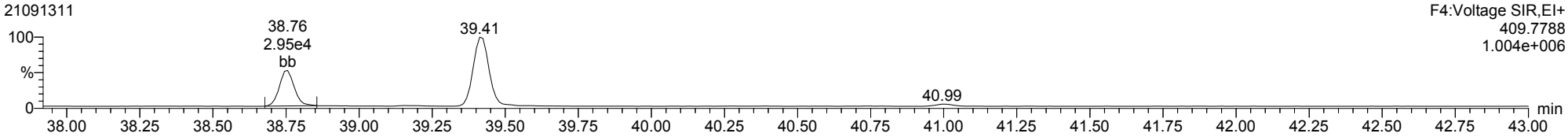

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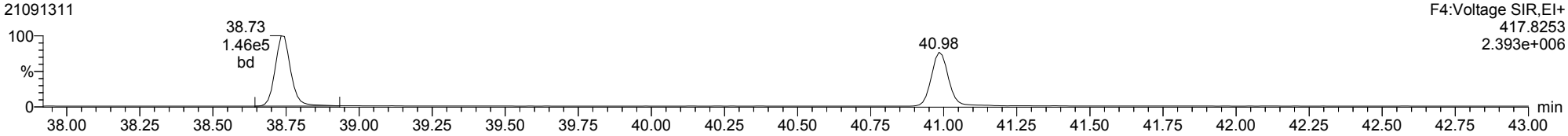

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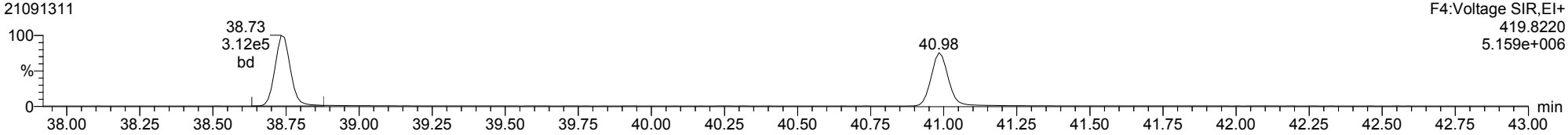

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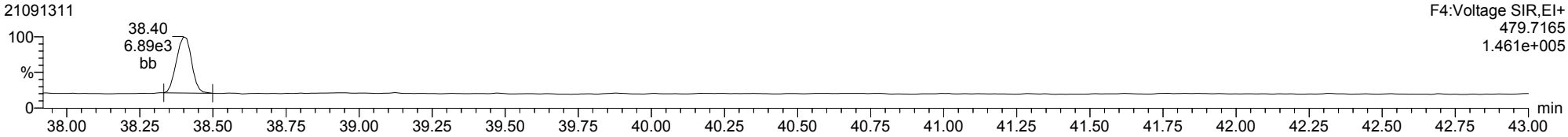

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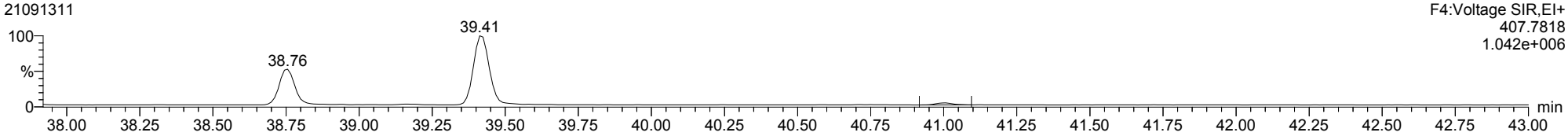

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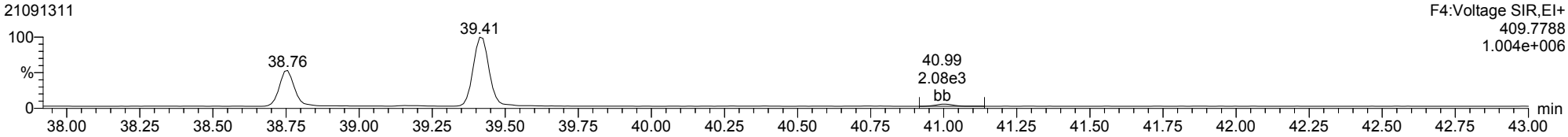

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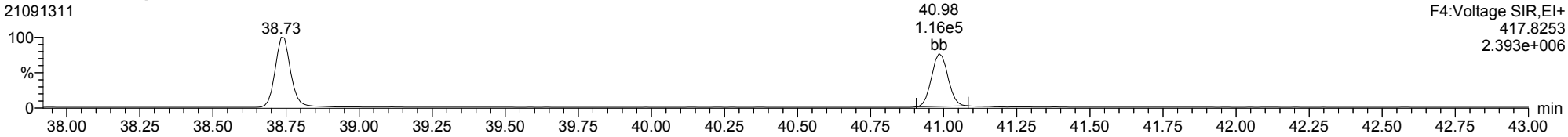

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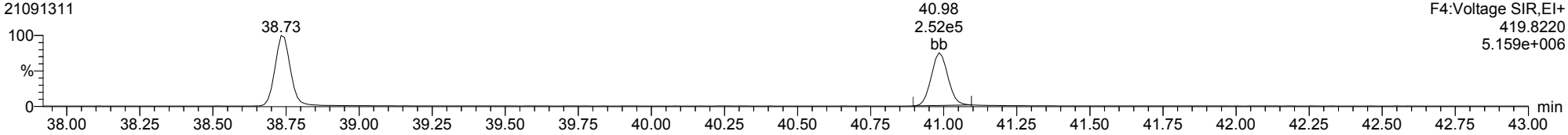

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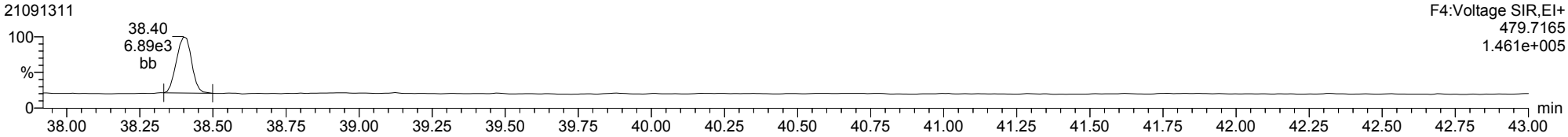

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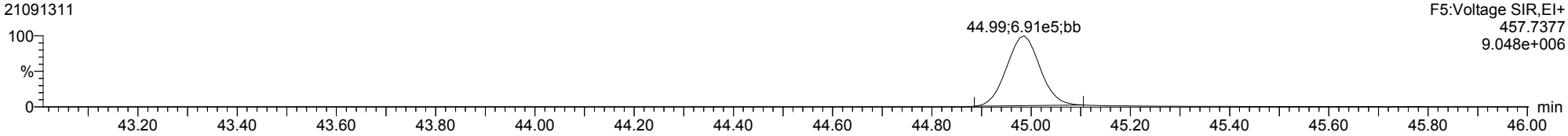

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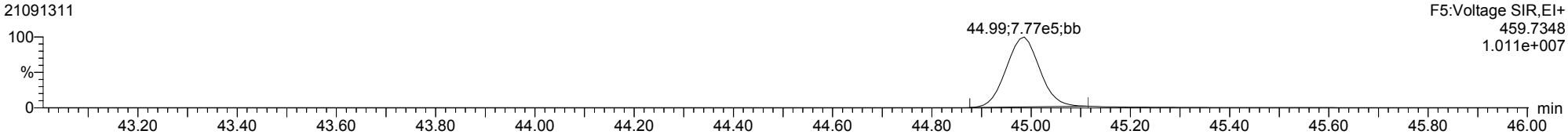

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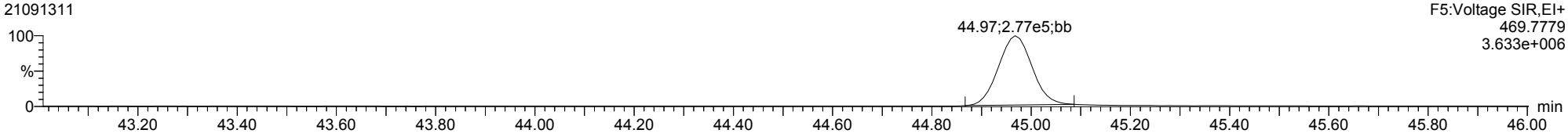

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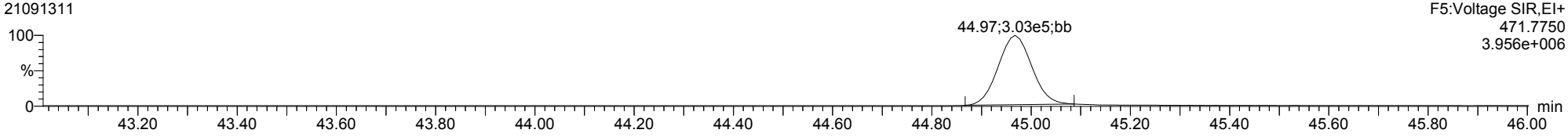
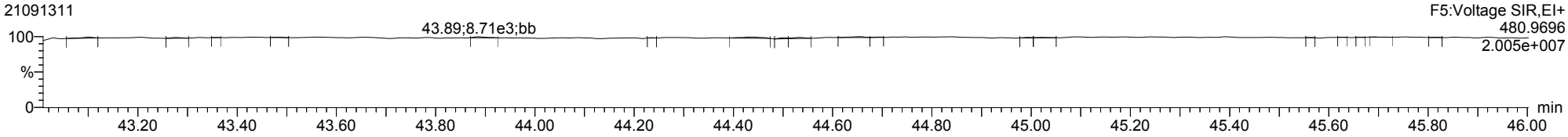


FUNCTION5 PFK



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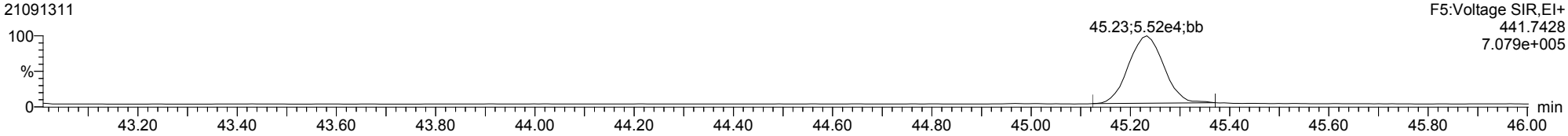

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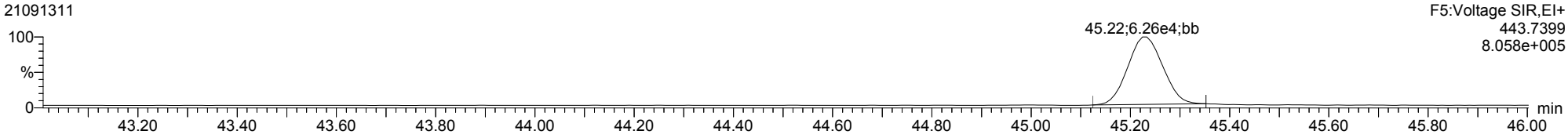

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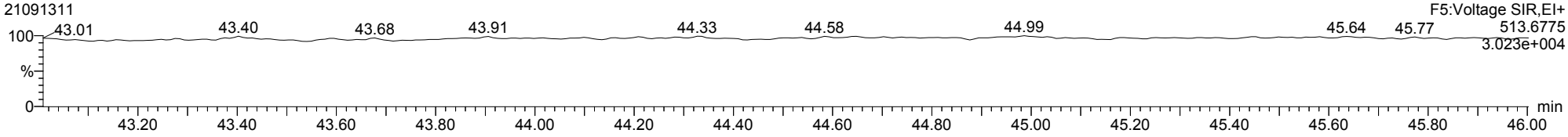

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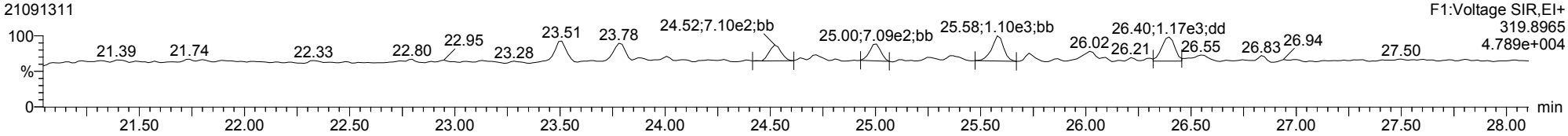

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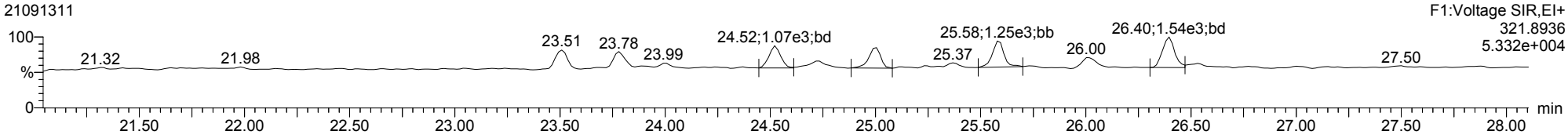

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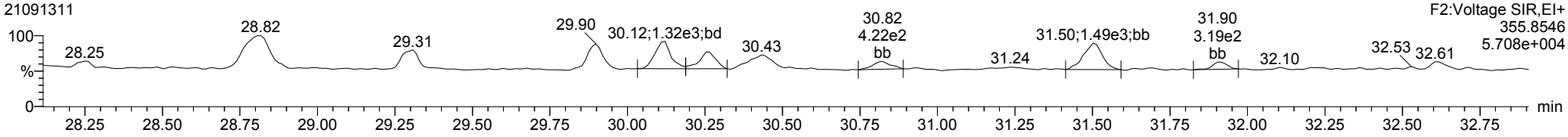

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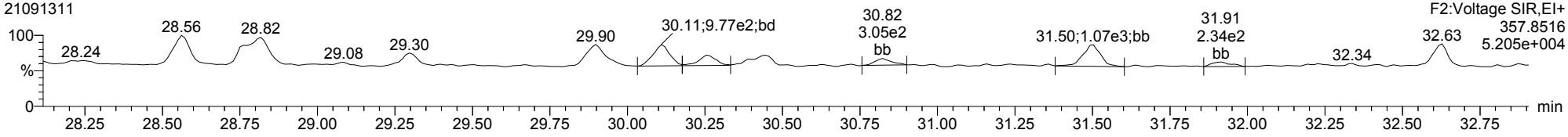

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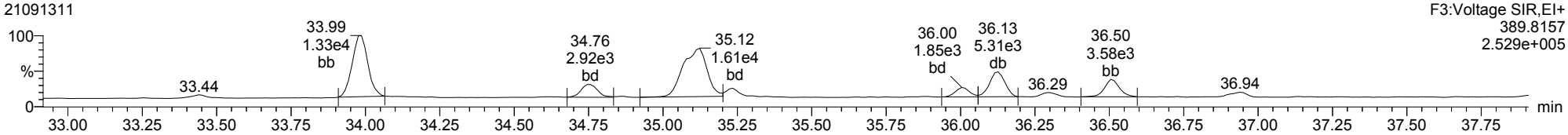
Total-hexadioxins



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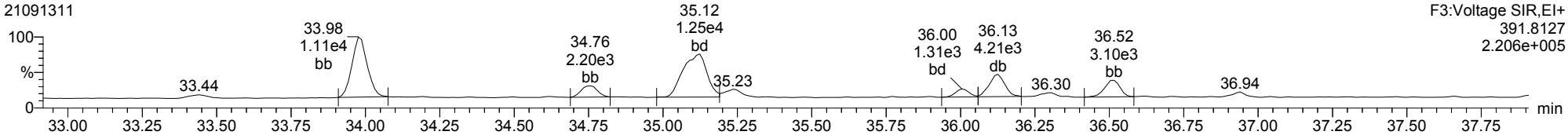
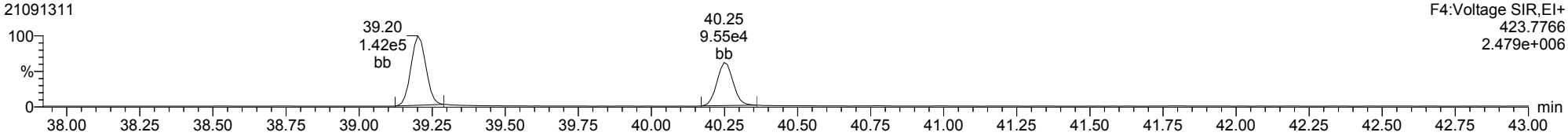
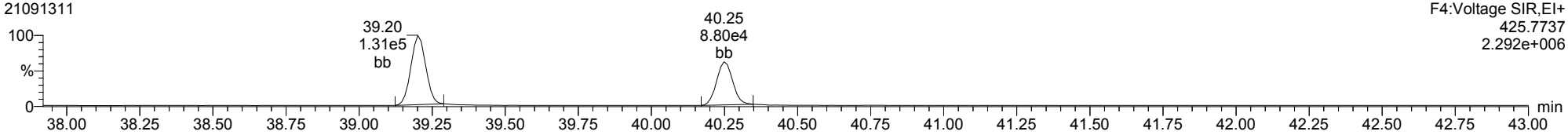


Total-heptadioxins



Total-heptadioxins



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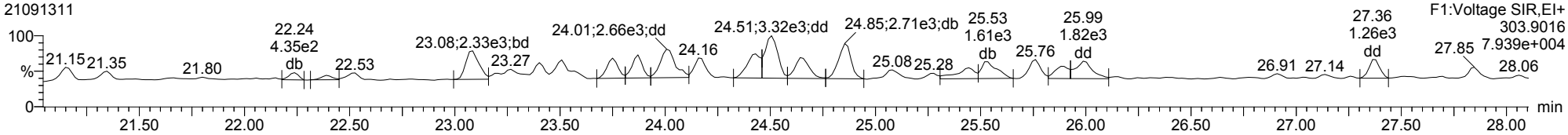
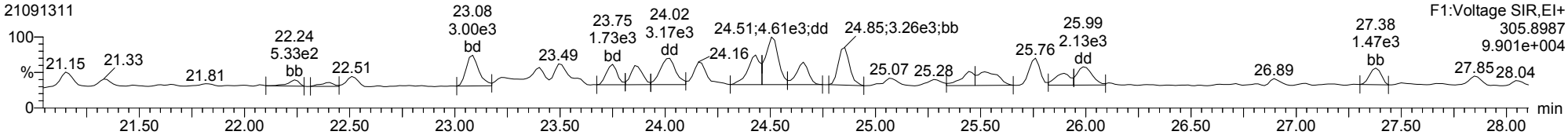
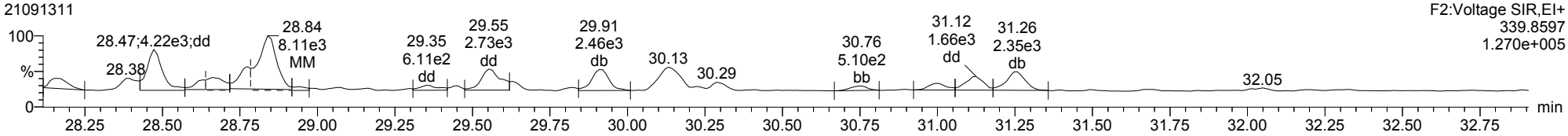
Total-tetrafurans



Total-tetrafurans



Total-pentafurans



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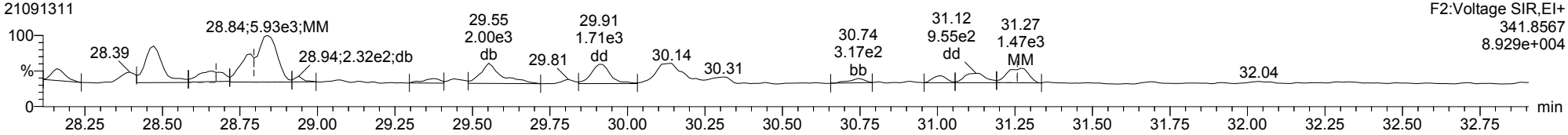

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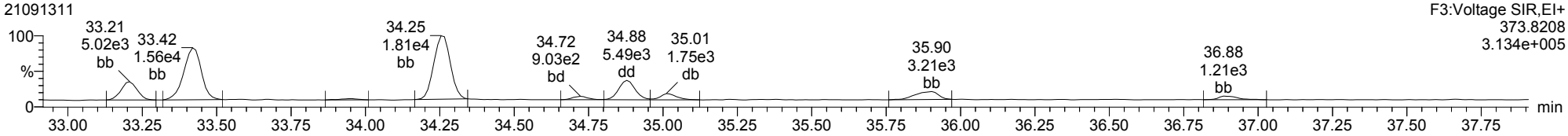

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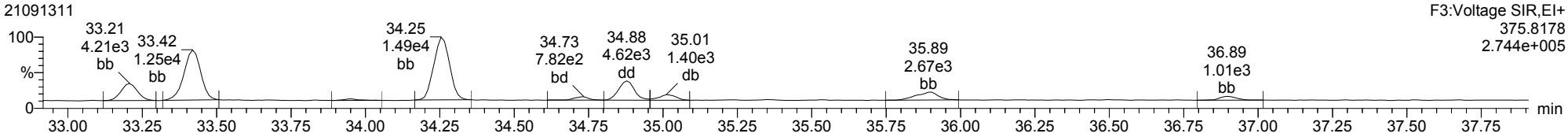

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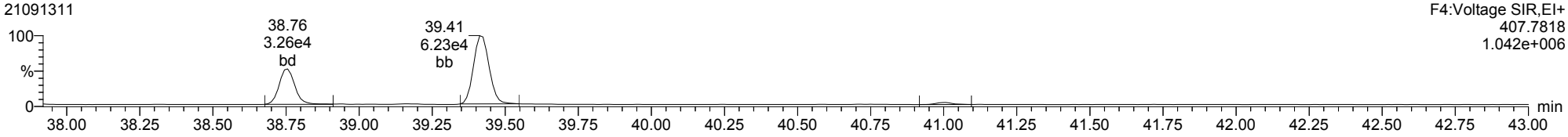

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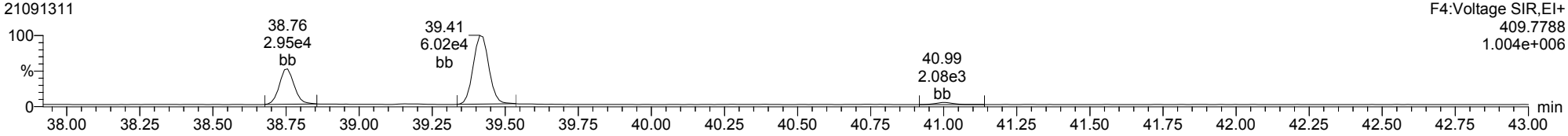

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
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:	21G0286
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:	21G0286
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:	21G0286
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: 21G0286
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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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
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ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.147	0.864	1.063e5	1.324e5	1.425	0.802	0.770	1727	2357	1.66e6	2.09e6	959.0	886.5	NO	bb	bb	9.436
1289-TCDF	27.152	1.059	5.661e4	7.137e4	1.043	0.793	0.770	1727	2357	8.15e5	1.06e6	472.0	447.8	NO	bb	bb	6.913
13468-PECDF	27.015	0.906	5.743e5	3.714e5	1.376	1.546	1.550	1557	1759	8.45e6	5.45e6	5425.9	3099.7	NO	bb	bb	41.310
12389-PECDF	32.201	1.080	4.075e5	2.638e5	1.000	1.544	1.550	6428	5298	5.63e6	3.72e6	875.5	702.7	NO	bb	bb	40.376
123468-HXCDF	33.125	0.952	4.315e5	3.546e5	1.087	1.217	1.240	6025	4489	6.40e6	5.20e6	1061.8	1158.1	NO	bb	bb	57.507
1368-TCDD	23.417	0.891	5.716e4	7.362e4	0.923	0.776	0.770	2440	1603	8.73e5	1.13e6	357.6	706.6	NO	bb	bb	12.700
1289-TCDD	26.895	1.024	4.776e4	6.026e4	0.794	0.793	0.770	2440	1603	6.91e5	8.63e5	283.1	538.1	NO	bb	bb	12.197
12479-PECDD	28.691	0.914	4.186e5	2.632e5	1.843	1.590	1.550	4032	3115	3.99e6	2.51e6	988.7	804.5	NO	bb	bb	41.945
12389-PECDD	31.822	1.013	2.780e5	1.664e5	1.154	1.671	1.550	4032	3115	4.00e6	2.46e6	992.1	791.3	NO	bb	bb	43.683
124679-HXCDD	33.905	0.944	3.632e5	2.896e5	1.125	1.254	1.240	4241	3010	5.57e6	4.44e6	1314.1	1475.1	NO	bb	bb	60.629
1234679-HPCDD	39.141	0.975	2.129e5	1.840e5	1.211	1.157	1.050	3111	3083	2.93e6	2.75e6	941.5	893.1	NO	bd	bb	53.689
Total-tetrafurans			2.574e5		1.192			1727		3.86e6							27.363
Total-penta1			5.743e5					1557		8.45e6							41.310
Total-pentafurans			1.602e6		1.047			6428		2.23e7							153.079
Total-hexafurans			1.898e6		1.045			6025		2.84e7							272.082
Total-heptafurans			6.227e5		1.305			5528		8.82e6							113.929
Total-Furans			5.291e6		1.158			1727		7.56e7							713.177
Total-tetradioxins			2.709e5		0.879			2440		3.41e6							62.800
Total-pentadioxins			9.817e5		1.331			4032		1.22e7							138.087
Total-hexadioxins			1.266e6		1.028			4241		1.92e7							219.741
Total-heptadioxins			3.886e5		1.140			3111		5.46e6							105.554
Total-Dioxins			3.171e6		1.092			2440		4.34e7							631.178
Total-TEQ			8.462e6					2440		1.19e8							1344.355
FUNCTION1 PFK			6.450e7					839971		2.37e8							
FUNCTION2 PFK			0.000e0					483349		0.00e0							
FUNCTION3 PFK			5.184e7					675979		4.54e8							0.000
FUNCTION4 PFK			3.964e5					425264		1.39e7							
FUNCTION5 PFK			3.414e4					345829		1.67e6							
FUNCTION1 HXCD...			2.903e3					1258		5.64e4							0.000
FUNCTION1 HPCD...			2.863e3					1421		5.44e4							0.000
FUNCTION2 HPCD...			2.720e3					1471		5.70e4							0.000
FUNCTION3 OCDPE			1.392e3					890		2.72e4							0.000
FUNCTION4 NCDPE			1.187e3					1520		2.23e4							0.000
FUNCTION5 DCDPE			1.665e2					1065		6.42e3							0.000

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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

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020
7	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
8	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
9	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
10	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
11	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831
12	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
13	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
14	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
15	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
16	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003
17	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
18	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145
19	OCDF	45.14	3.368e5	3.743e5	1.447	0.90	0.89	729.8	YES	NO	bb	bb	105.415
20	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
2	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
3	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
4	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
5	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
6	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
2	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
3	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
4	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
2	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
3	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
4	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
5	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
6	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865
2	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689

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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

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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
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													

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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	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
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Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

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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

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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		

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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

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	22.51	7.992e1					1.4	NO		bb		0.000
2	FUNCTION1 HPCD...	22.07	1.029e2					2.1	NO		bb		0.000
3	FUNCTION1 HPCD...	21.98	1.510e2					1.6	NO		db		0.000
4	FUNCTION1 HPCD...	21.88	1.949e2					3.5	YES		bd		0.000
5	FUNCTION1 HPCD...	21.75	2.528e2					1.8	NO		bb		0.000
6	FUNCTION1 HPCD...	21.47	1.508e2					2.1	NO		bb		0.000
7	FUNCTION1 HPCD...	21.25	1.018e2					1.3	NO		db		0.000
8	FUNCTION1 HPCD...	21.16	1.149e2					1.6	NO		dd		0.000
9	FUNCTION1 HPCD...	21.09	2.200e2					3.0	NO		bd		0.000
10	FUNCTION1 HPCD...	27.00	1.586e2					1.8	NO		bb		0.000
11	FUNCTION1 HPCD...	26.83	9.159e1					0.8	NO		bb		0.000
12	FUNCTION1 HPCD...	26.59	1.663e2					2.5	NO		bb		0.000
13	FUNCTION1 HPCD...	26.32	1.753e2					1.6	NO		db		0.000
14	FUNCTION1 HPCD...	26.14	2.616e2					2.2	NO		bd		0.000
15	FUNCTION1 HPCD...	25.59	8.230e1					1.9	NO		bb		0.000
16	FUNCTION1 HPCD...	25.44	8.713e1					1.0	NO		bb		0.000
17	FUNCTION1 HPCD...	25.16	7.125e1					1.1	NO		db		0.000
18	FUNCTION1 HPCD...	25.05	1.030e2					1.1	NO		bd		0.000
19	FUNCTION1 HPCD...	24.07	1.494e2					2.5	NO		bb		0.000
20	FUNCTION1 HPCD...	23.83	1.478e2					3.3	YES		bb		0.000

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.48	1.146e2					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	28.07	8.040e1					1.2	NO		db		0.000
3	FUNCTION2 HPCD...	27.98	1.117e2					1.5	NO		bd		0.000
4	FUNCTION2 HPCD...	27.82	9.308e1					2.0	NO		bb		0.000
5	FUNCTION2 HPCD...	31.82	1.073e2					1.6	NO		bb		0.000
6	FUNCTION2 HPCD...	31.41	3.440e2					4.0	YES		bb		0.000
7	FUNCTION2 HPCD...	31.18	9.044e1					1.2	NO		db		0.000
8	FUNCTION2 HPCD...	31.11	9.781e1					2.1	NO		dd		0.000
9	FUNCTION2 HPCD...	31.03	7.279e2					8.6	YES		bd		0.000
10	FUNCTION2 HPCD...	30.26	7.257e1					1.3	NO		bb		0.000
11	FUNCTION2 HPCD...	30.21	7.122e1					1.7	NO		db		0.000
12	FUNCTION2 HPCD...	30.14	1.157e2					1.5	NO		dd		0.000
13	FUNCTION2 HPCD...	30.06	7.412e1					1.1	NO		dd		0.000
14	FUNCTION2 HPCD...	29.98	7.219e1					1.2	NO		dd		0.000
15	FUNCTION2 HPCD...	29.91	9.212e1					2.0	NO		bd		0.000
16	FUNCTION2 HPCD...	29.69	7.977e1					1.3	NO		bb		0.000
17	FUNCTION2 HPCD...	29.08	1.408e2					1.5	NO		db		0.000
18	FUNCTION2 HPCD...	28.96	1.497e2					1.4	NO		bd		0.000
19	FUNCTION2 HPCD...	28.71	8.490e1					1.0	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	37.65	1.580e2					2.6	NO		db		0.000
2	FUNCTION3 OCDPE	37.55	1.150e2					2.8	NO		bd		0.000
3	FUNCTION3 OCDPE	36.42	1.835e2					2.9	NO		bb		0.000
4	FUNCTION3 OCDPE	36.04	2.520e2					4.7	YES		db		0.000
5	FUNCTION3 OCDPE	35.93	1.106e2					3.8	YES		dd		0.000
6	FUNCTION3 OCDPE	35.90	1.018e2					3.4	YES		bd		0.000
7	FUNCTION3 OCDPE	34.40	1.321e2					5.0	YES		bb		0.000
8	FUNCTION3 OCDPE	33.58	1.010e2					2.3	NO		bb		0.000
9	FUNCTION3 OCDPE	32.70	2.382e2					3.1	YES		bb		0.000

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

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.42	7.136e1					0.9	NO		bb		0.000
2	FUNCTION4 NCDPE	40.16	1.641e2					1.6	NO		bb		0.000
3	FUNCTION4 NCDPE	39.69	1.182e2					1.5	NO		bb		0.000
4	FUNCTION4 NCDPE	38.52	1.487e2					1.6	NO		db		0.000
5	FUNCTION4 NCDPE	38.34	2.790e2					2.3	NO		dd		0.000
6	FUNCTION4 NCDPE	38.26	1.556e2					2.2	NO		bd		0.000
7	FUNCTION4 NCDPE	41.34	1.448e2					1.6	NO		bb		0.000
8	FUNCTION4 NCDPE	40.81	1.056e2					2.8	NO		bb		0.000

ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.58	7.112e1					3.0	NO		bb		0.000
2	FUNCTION5 DCDPE	43.59	9.542e1					3.1	YES		bb		0.000

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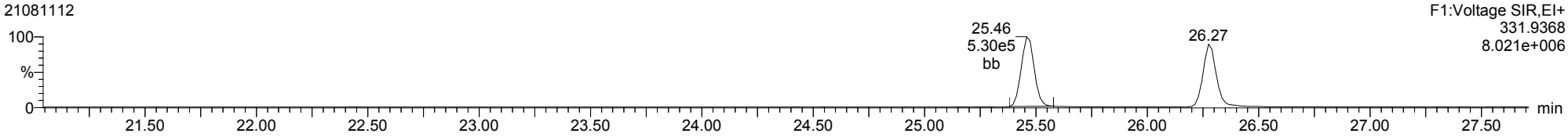

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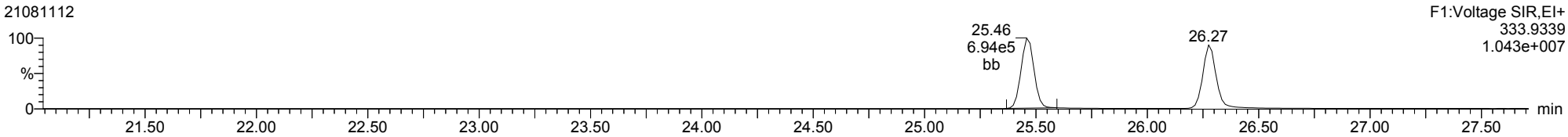

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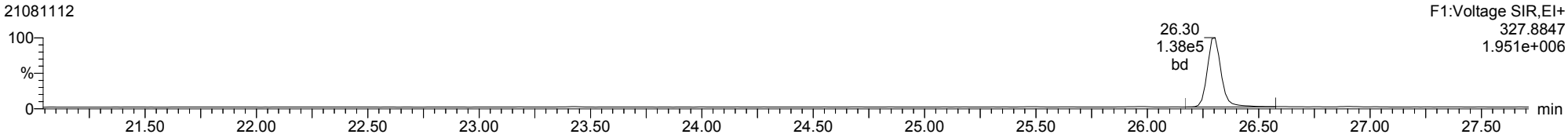

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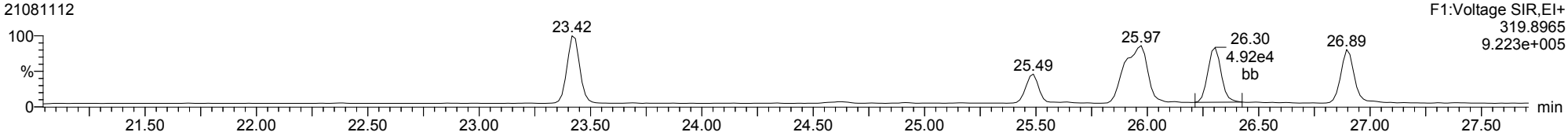

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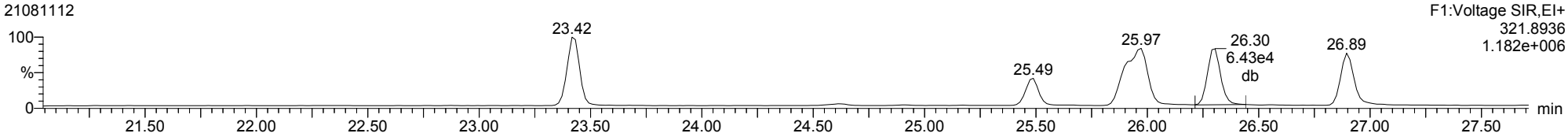

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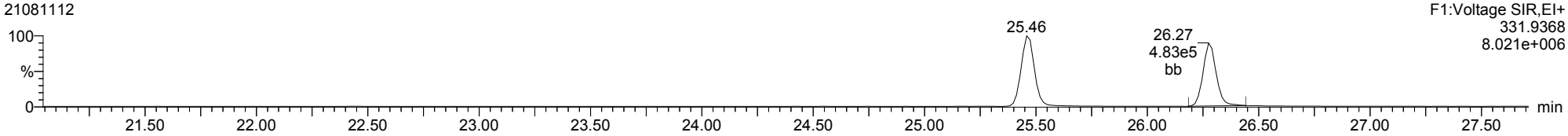

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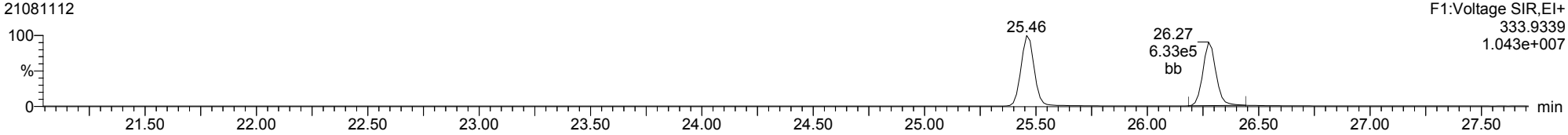

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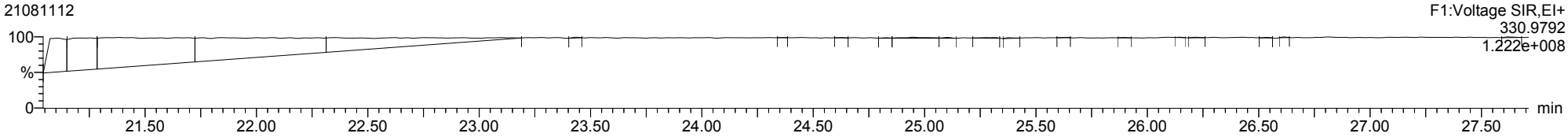

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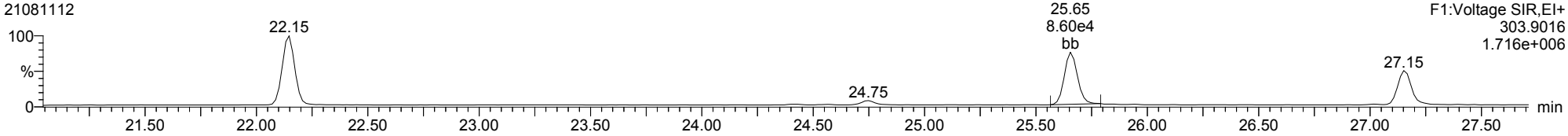

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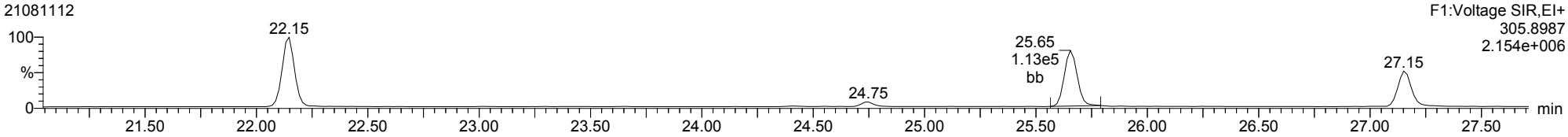

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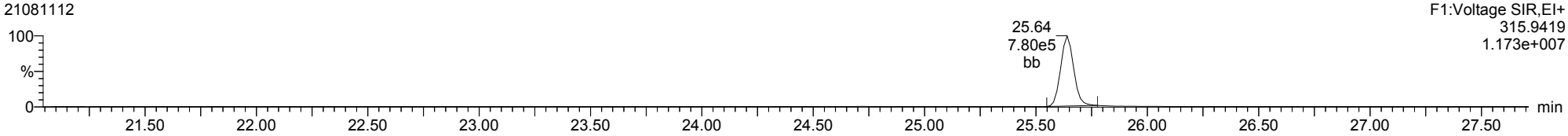

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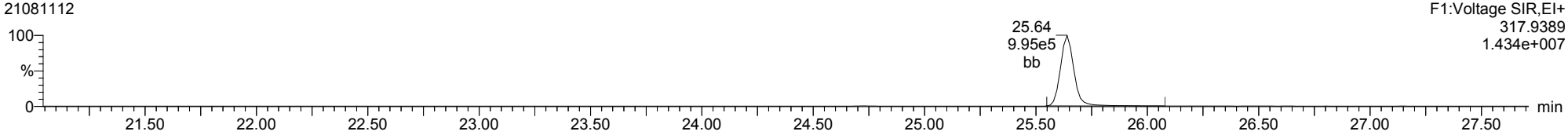

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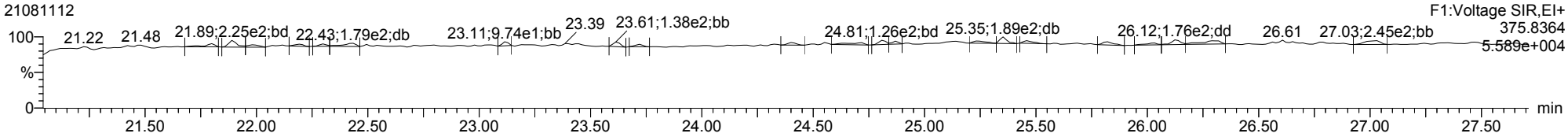

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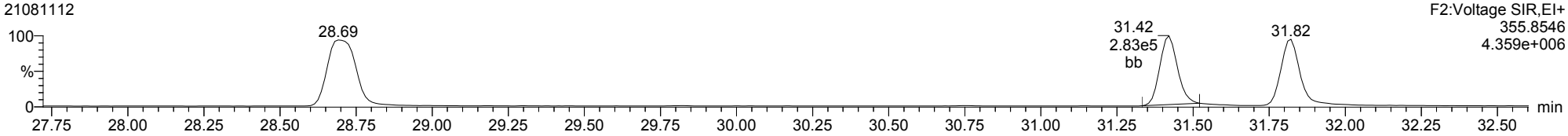

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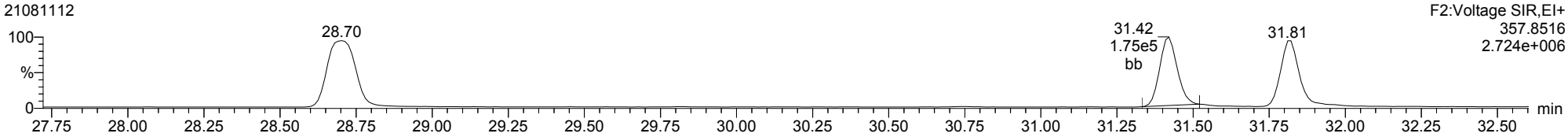

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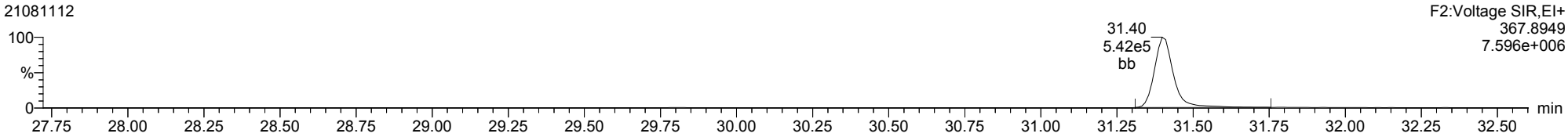

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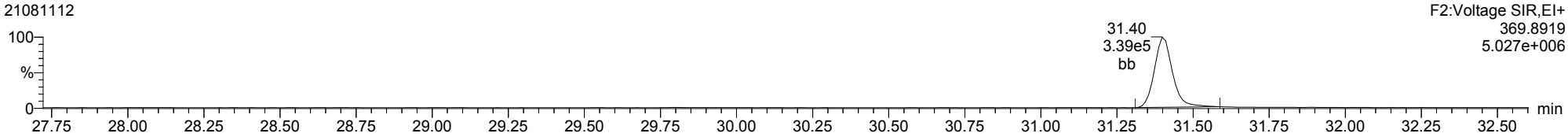

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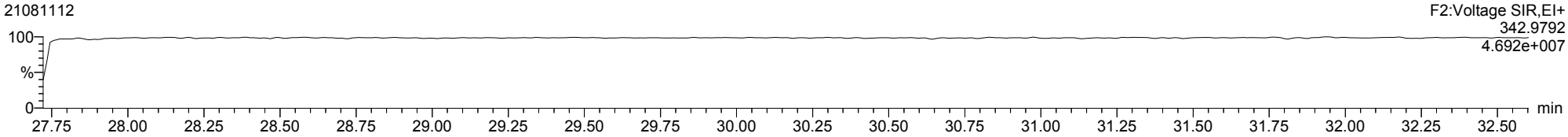

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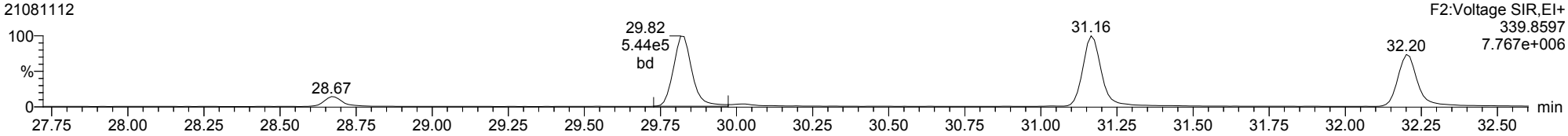

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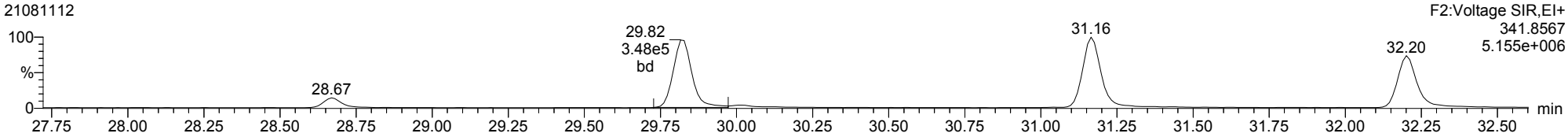

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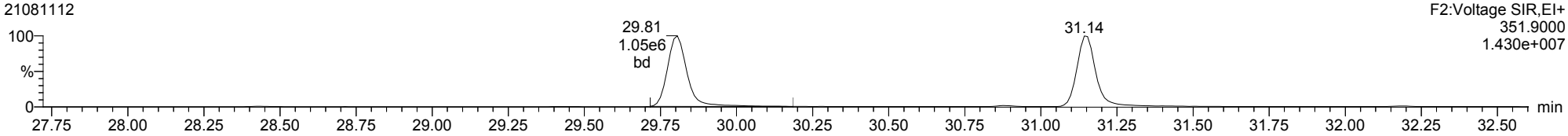

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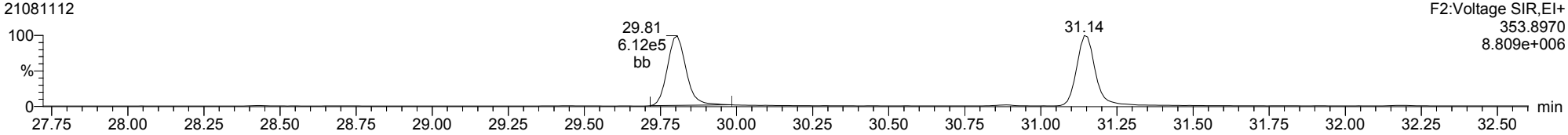

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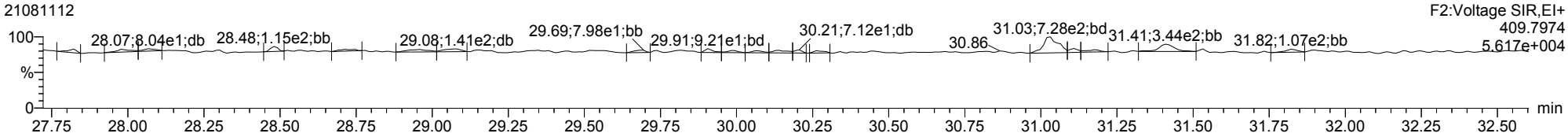

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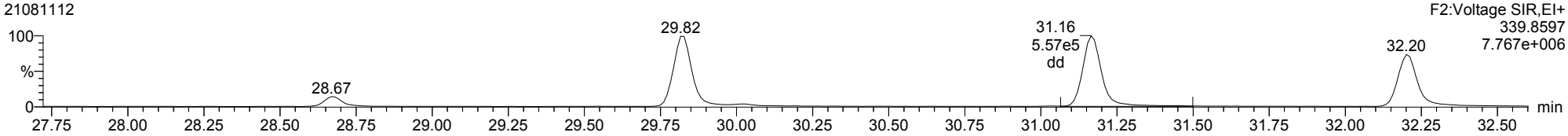
23478-PeCDF



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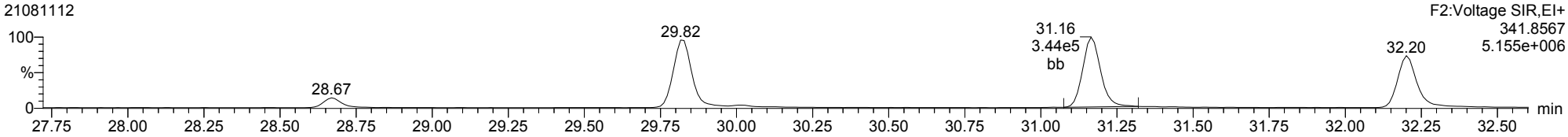

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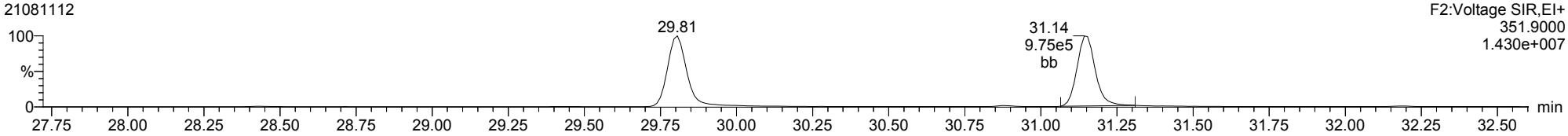

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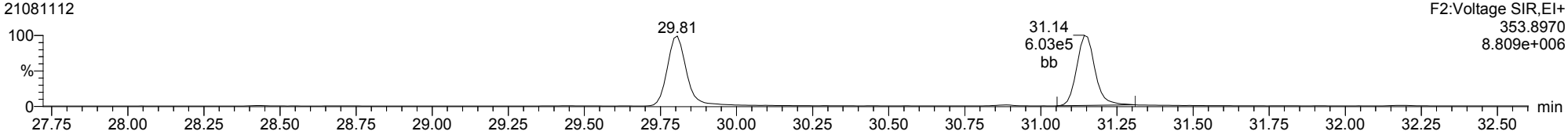

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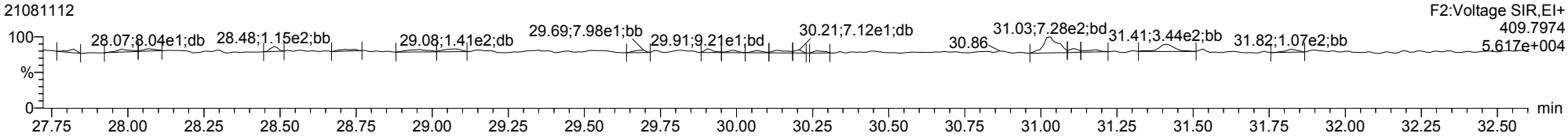

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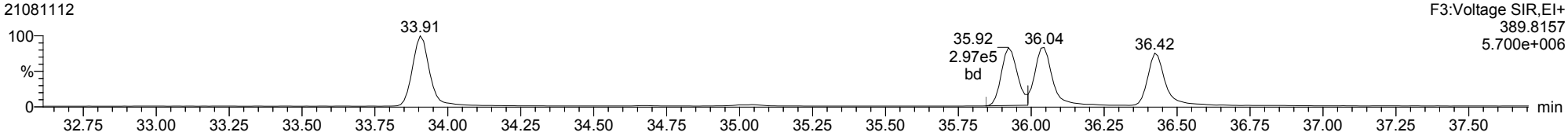
123478-HxCDD



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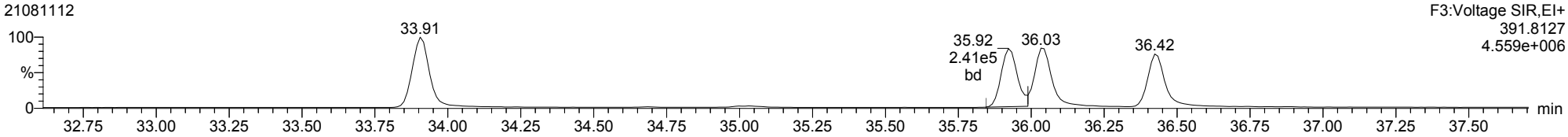

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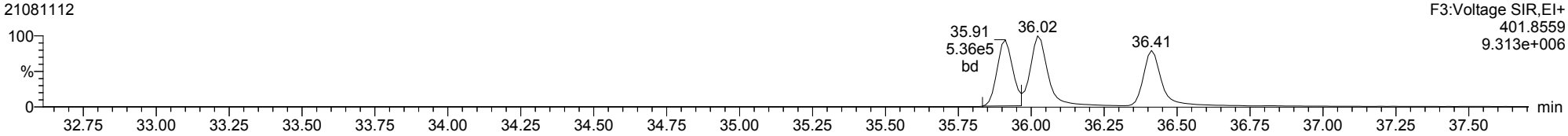

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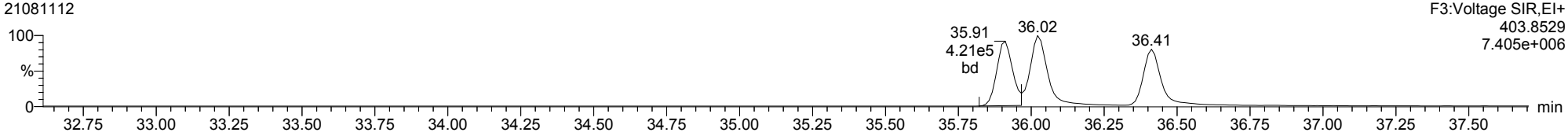

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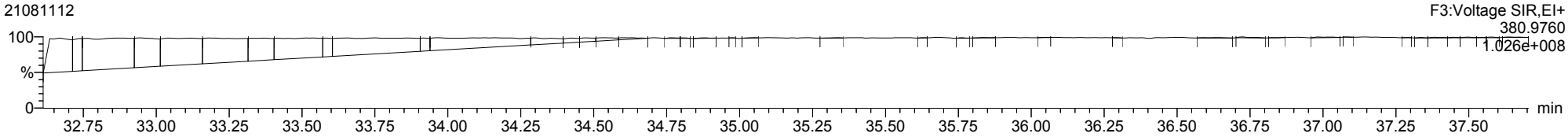

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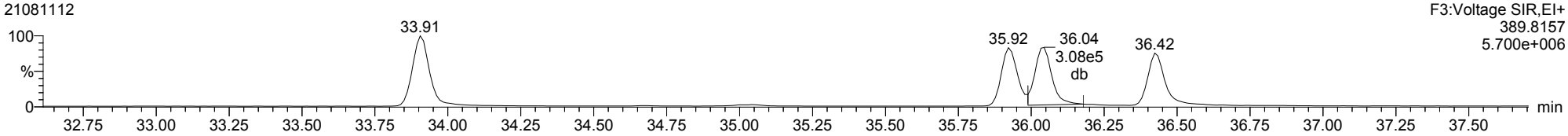

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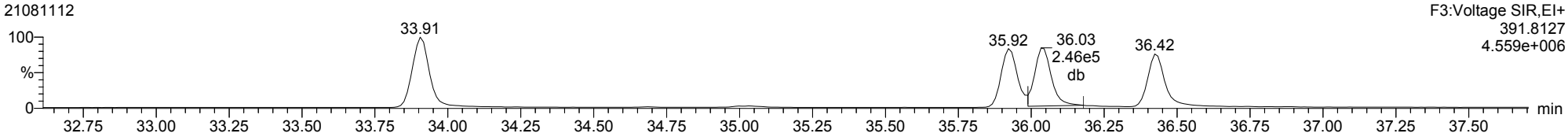

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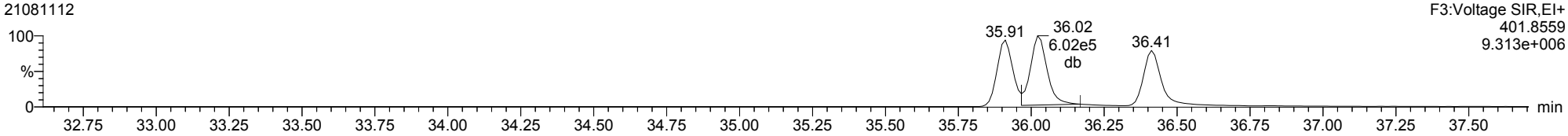

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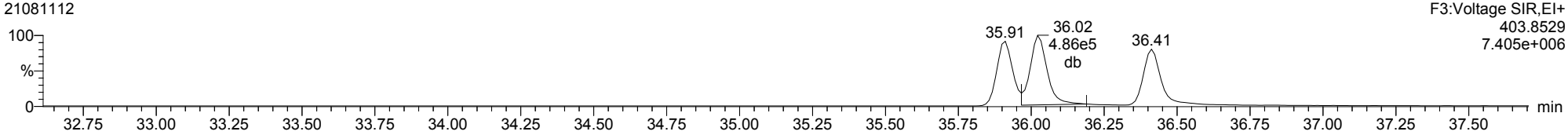

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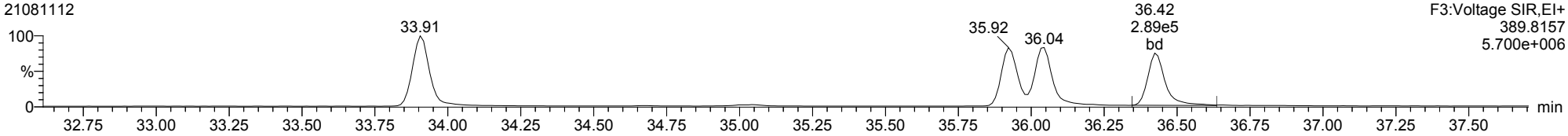

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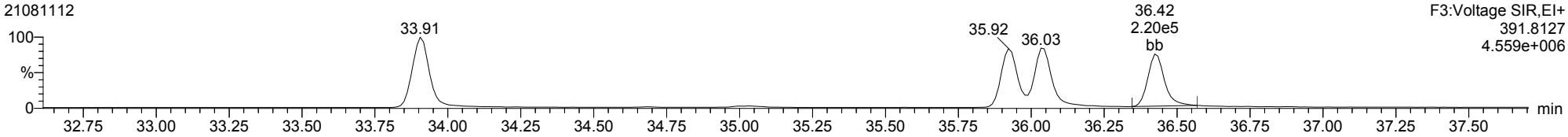

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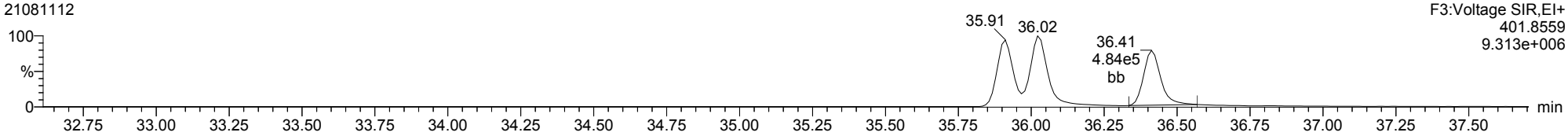

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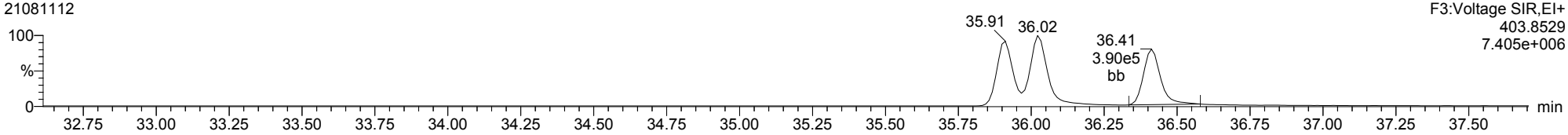

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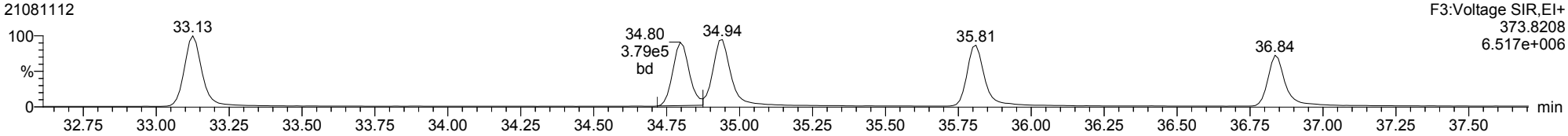

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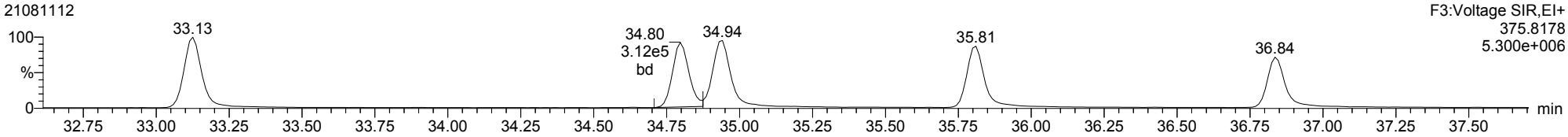

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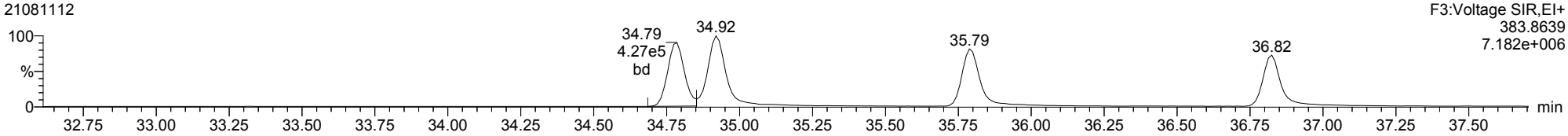

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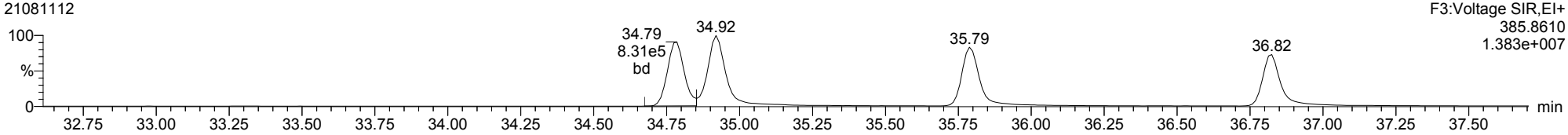

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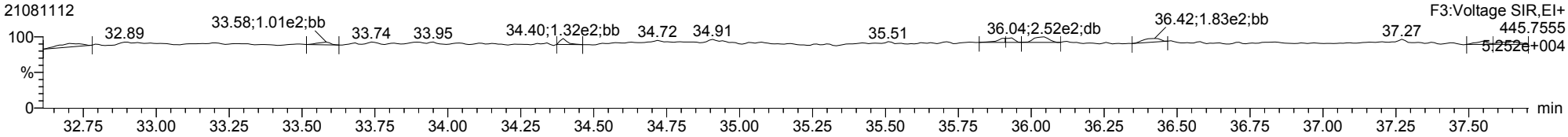

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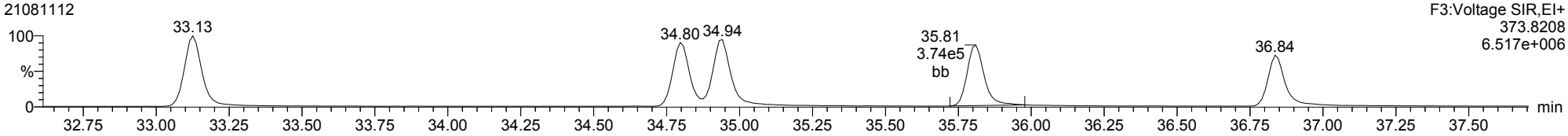

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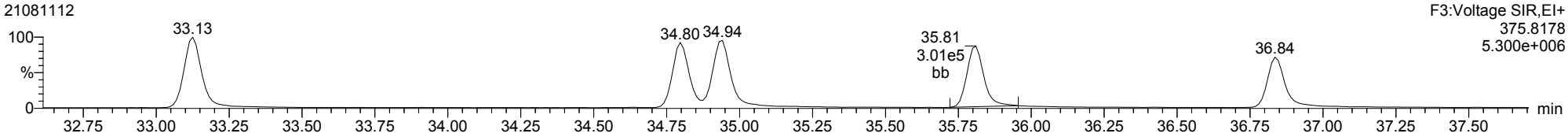

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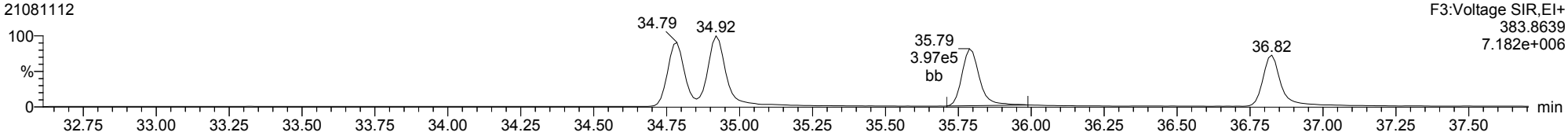

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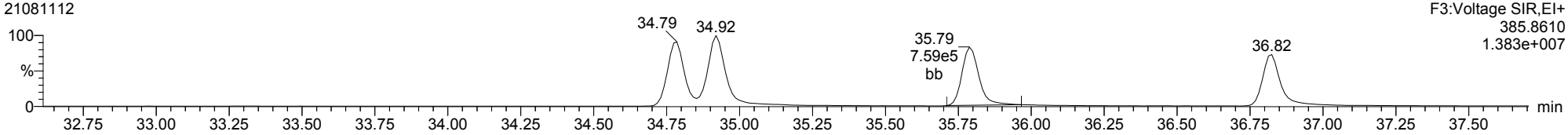

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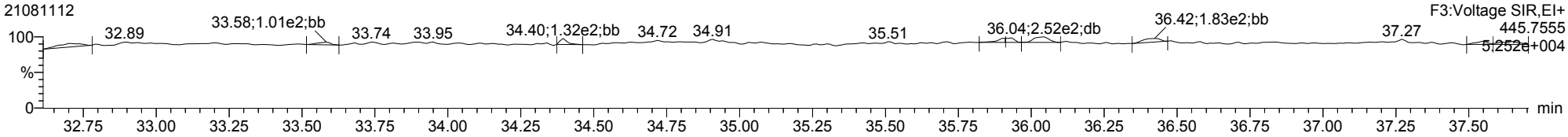

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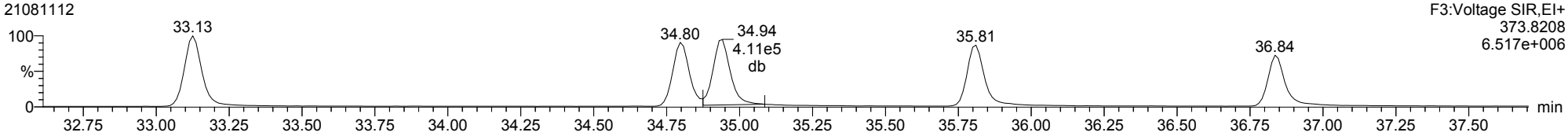

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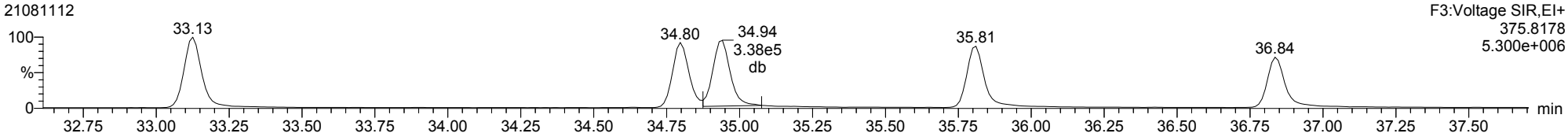

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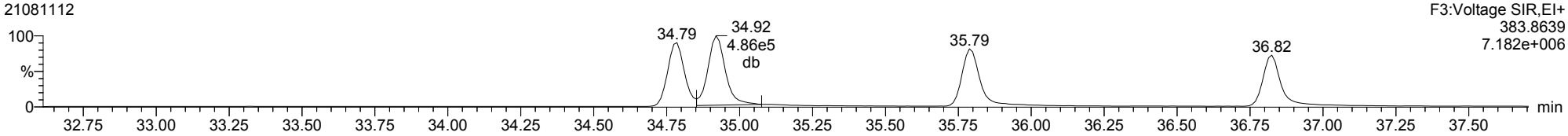

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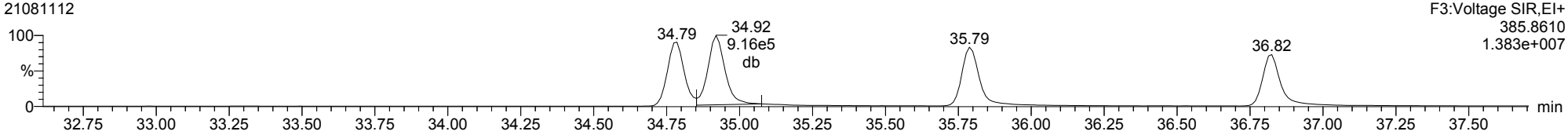

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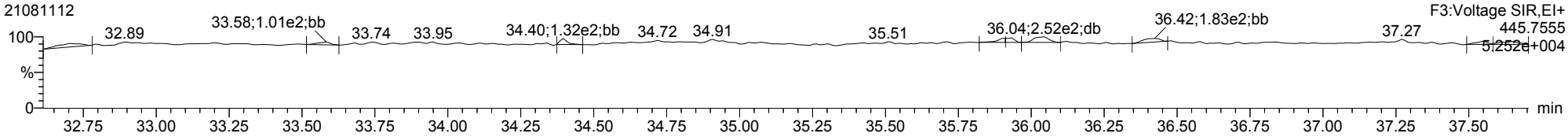

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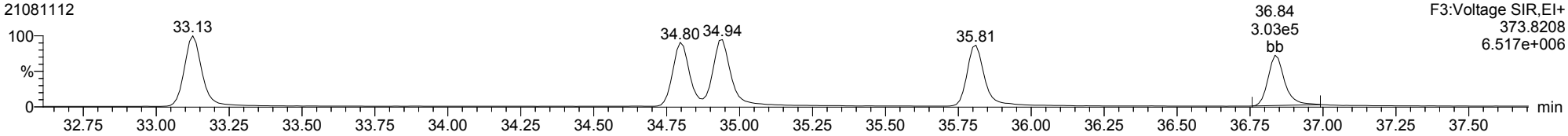

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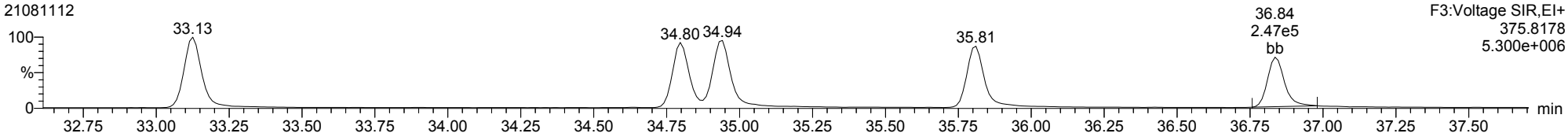

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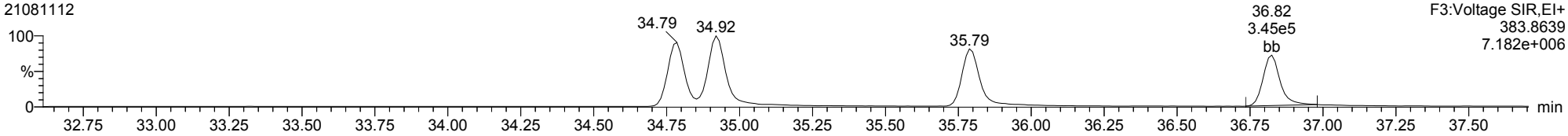

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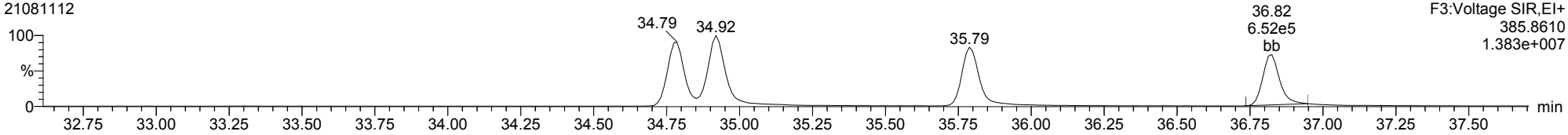

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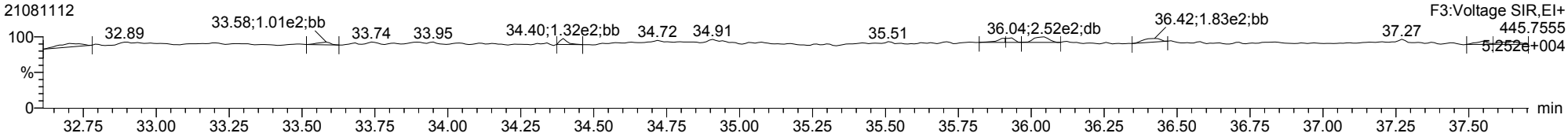

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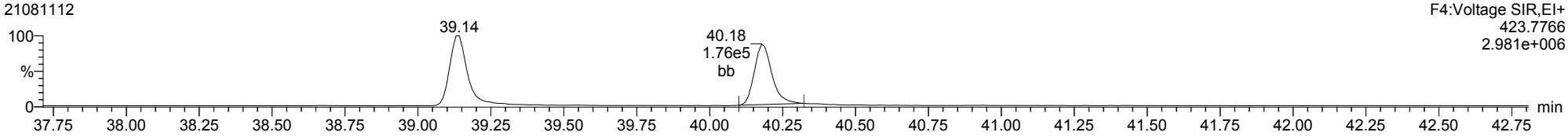

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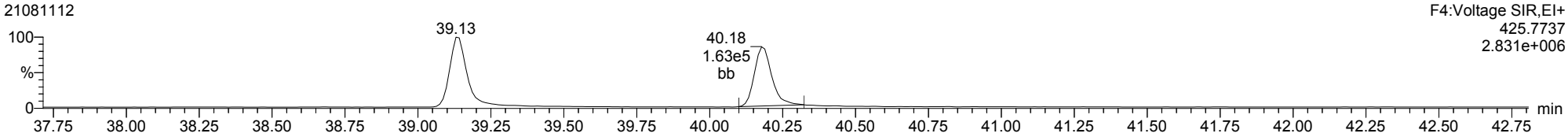

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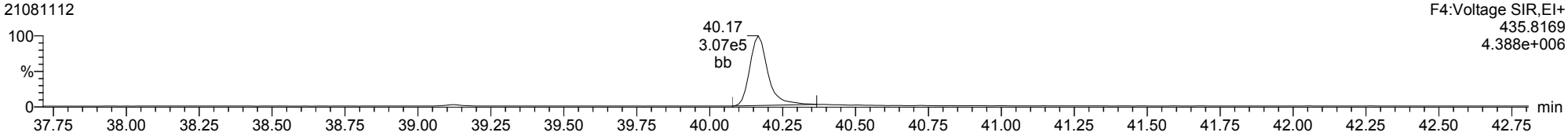

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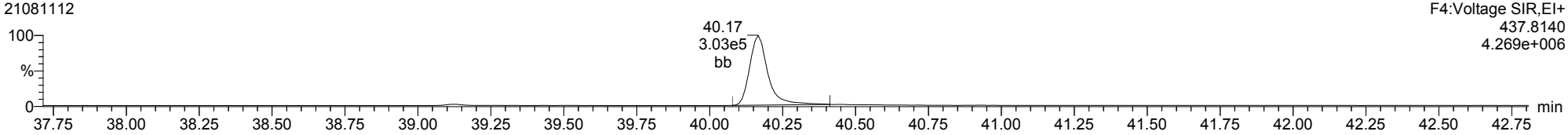

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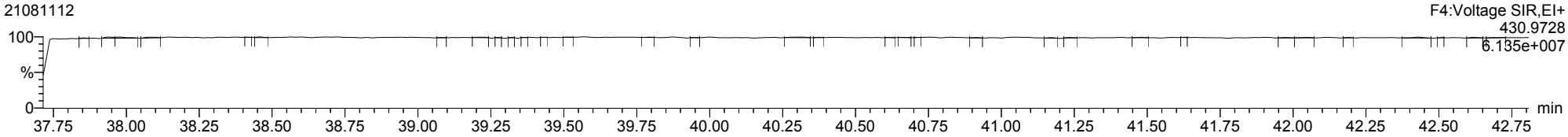

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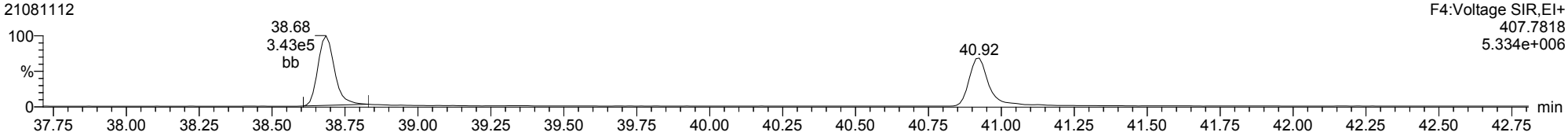

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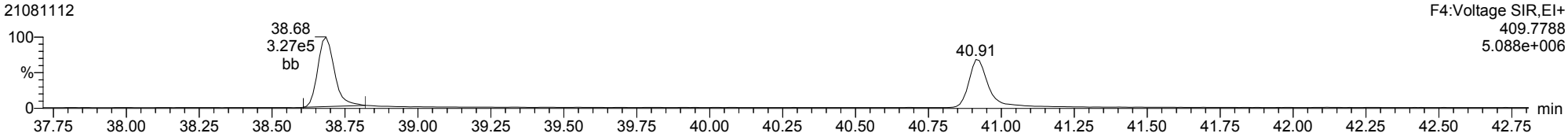

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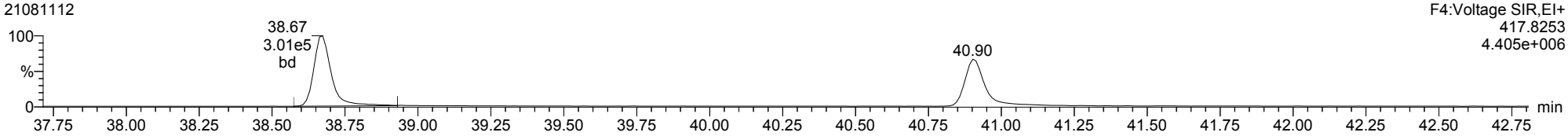

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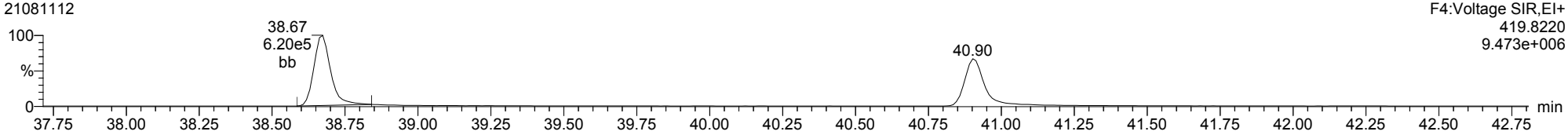

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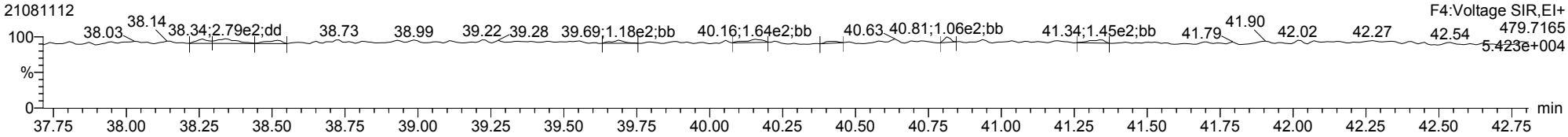

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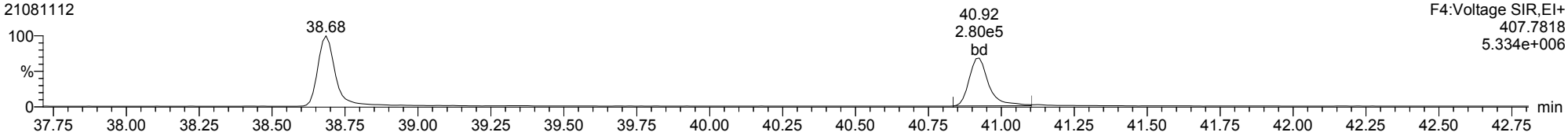

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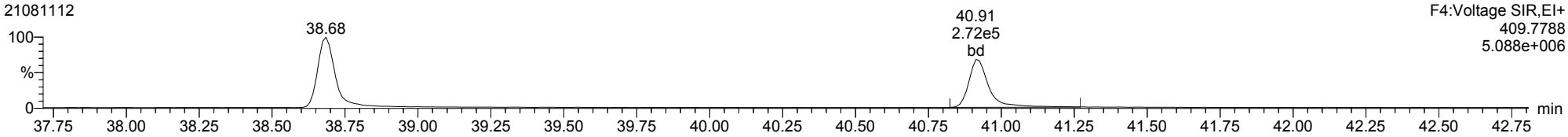

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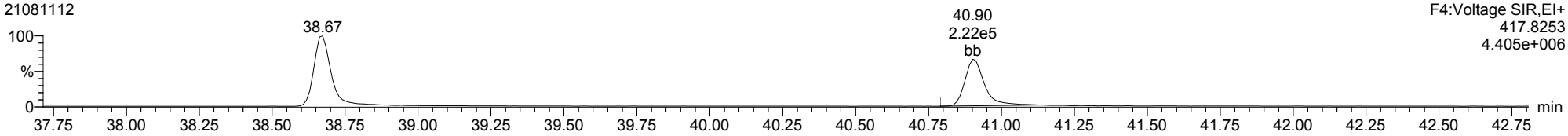

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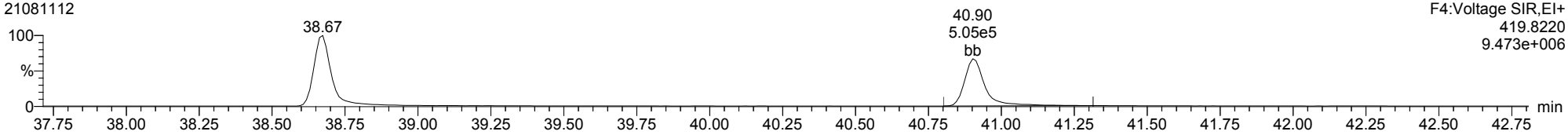

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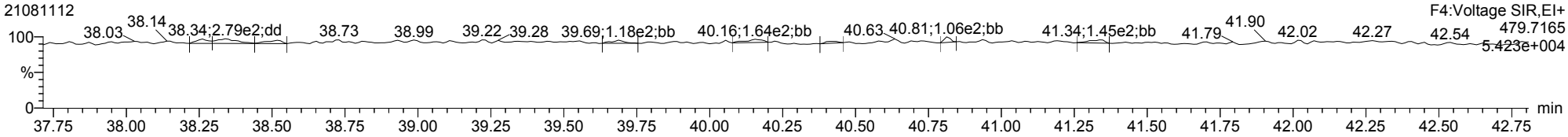

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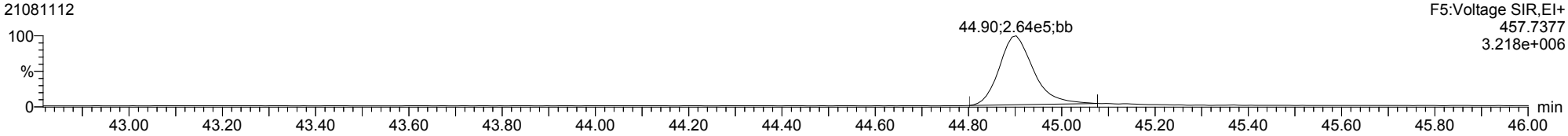

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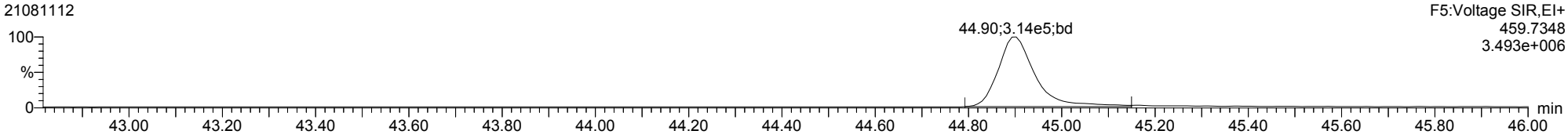

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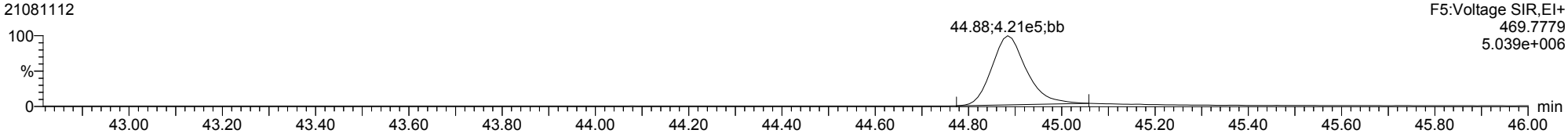

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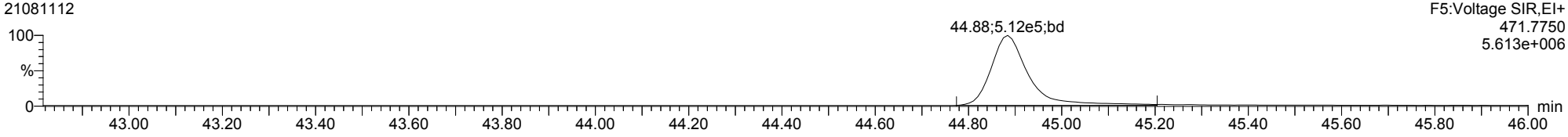

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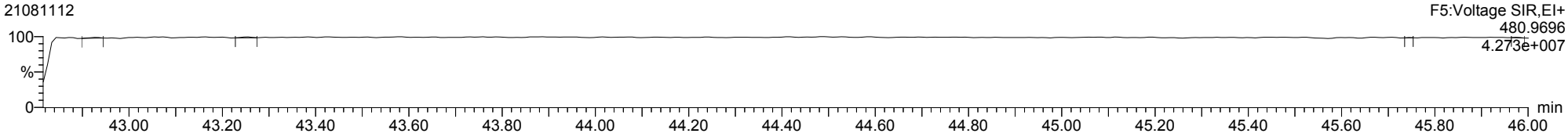

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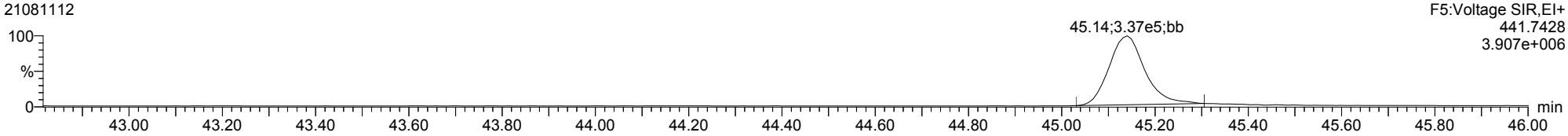

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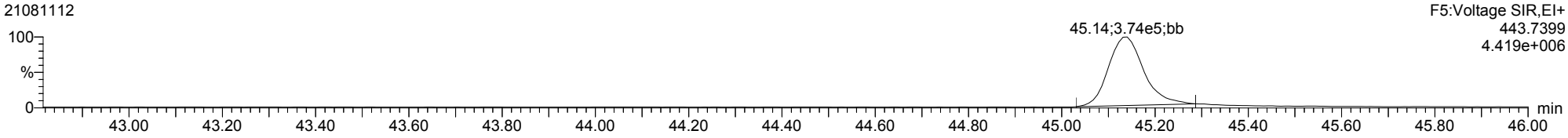

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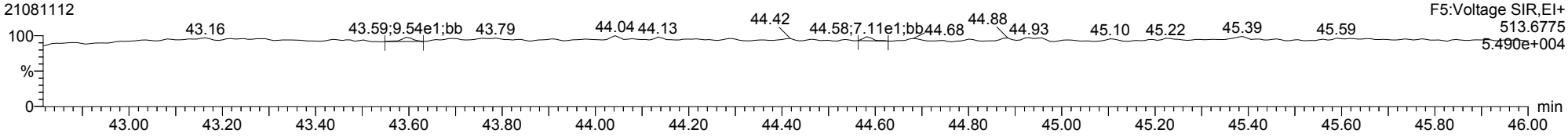

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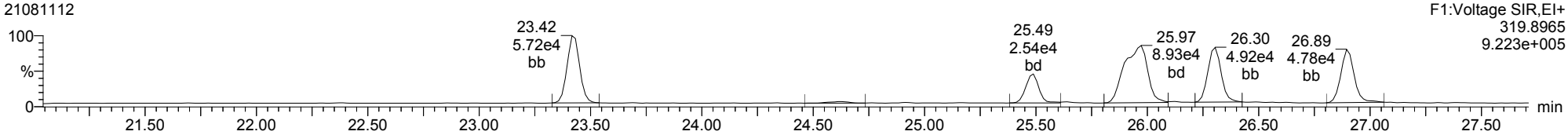

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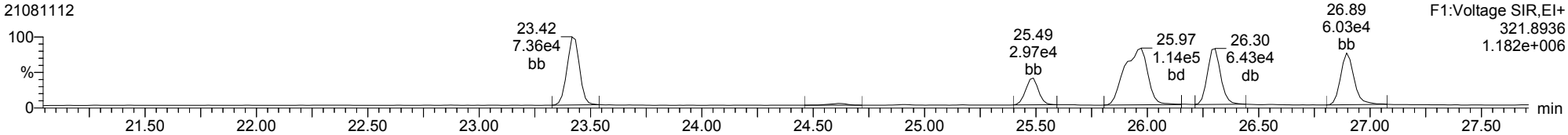

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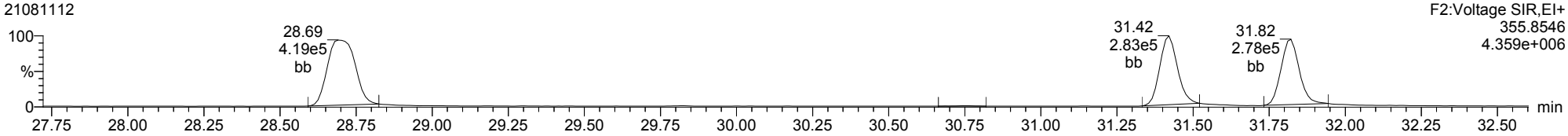

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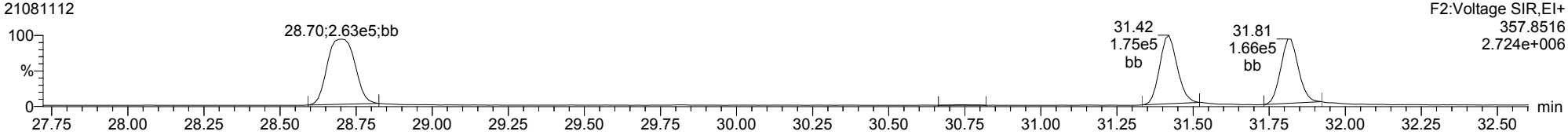

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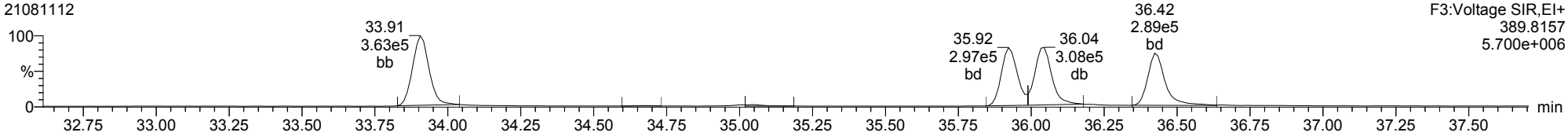
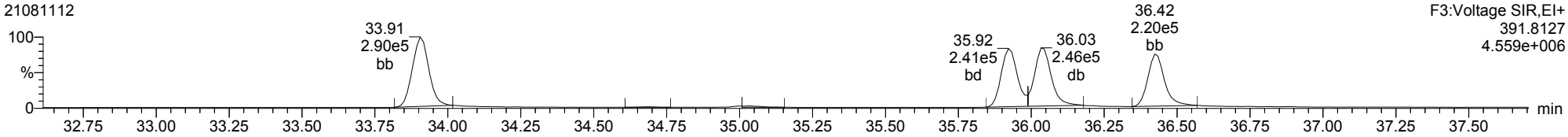
Total-hexadioxins



Total-hexadioxins



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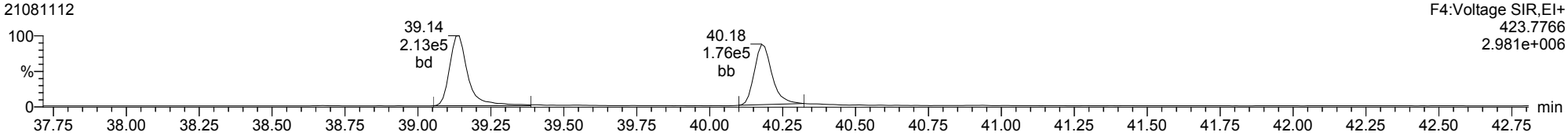

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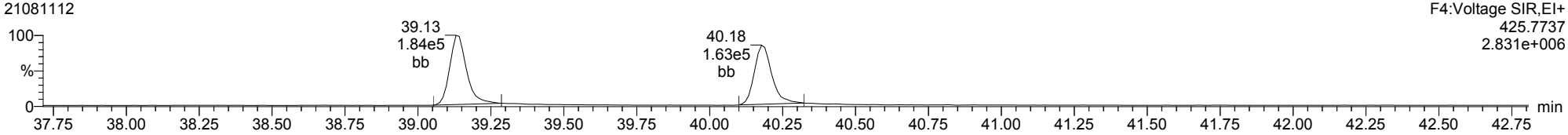
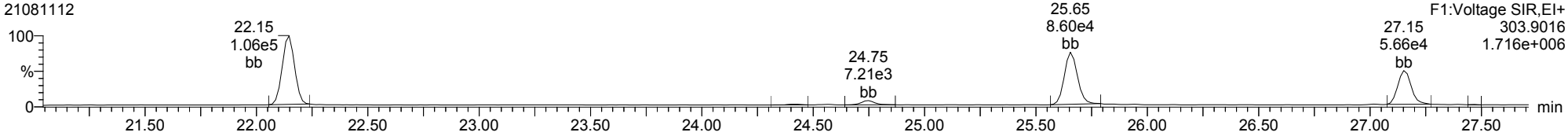
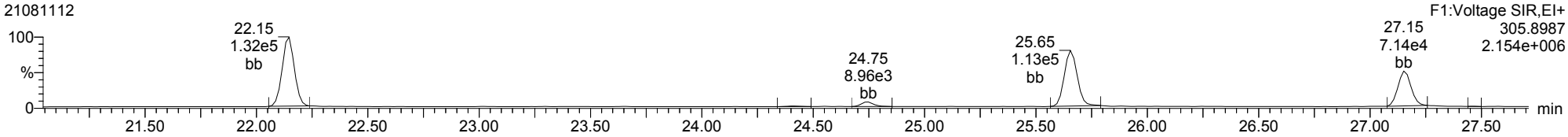


ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



Total-tetrafurans



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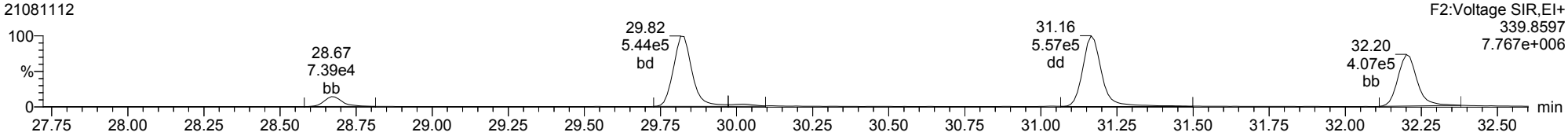

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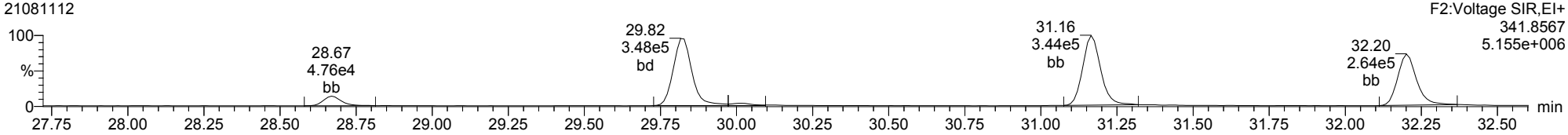

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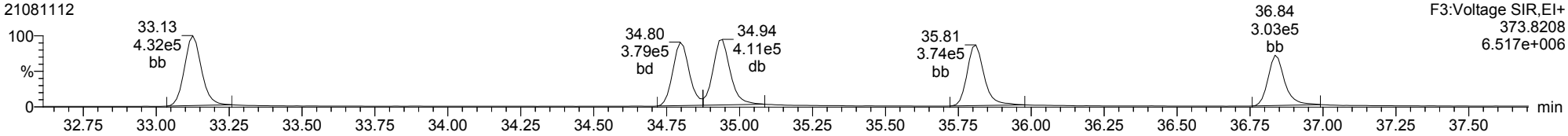
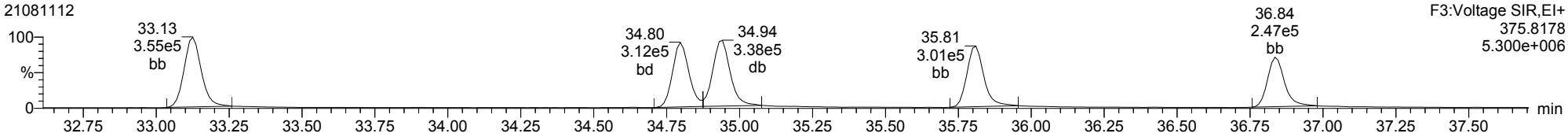
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

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

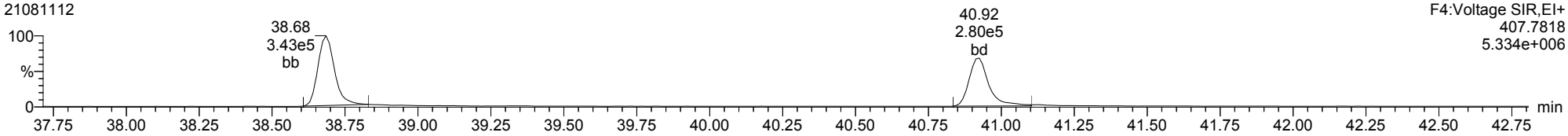
Total-hexafurans



Total-hexafurans



Total-heptafurans



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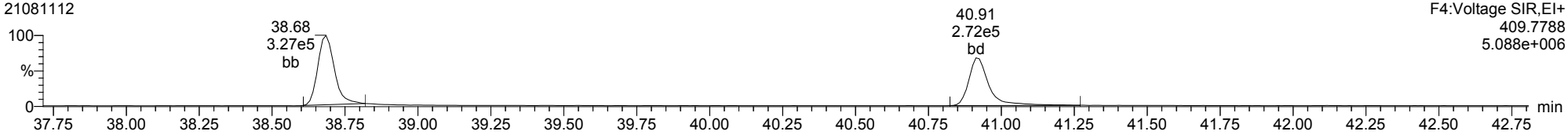

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0286
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

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

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.147	0.864	1.063e5	1.324e5	1.425	0.802	0.770	1727	2357	1.66e6	2.09e6	959.0	886.5	NO	bb	bb	9.436
1289-TCDF	27.152	1.059	5.661e4	7.137e4	1.043	0.793	0.770	1727	2357	8.15e5	1.06e6	472.0	447.8	NO	bb	bb	6.913
13468-PECDF	27.015	0.906	5.743e5	3.714e5	1.376	1.546	1.550	1557	1759	8.45e6	5.45e6	5425.9	3099.7	NO	bb	bb	41.310
12389-PECDF	32.201	1.080	4.075e5	2.638e5	1.000	1.544	1.550	6428	5298	5.63e6	3.72e6	875.5	702.7	NO	bb	bb	40.376
123468-HXCDF	33.125	0.952	4.315e5	3.546e5	1.087	1.217	1.240	6025	4489	6.40e6	5.20e6	1061.8	1158.1	NO	bb	bb	57.507
1368-TCDD	23.417	0.891	5.716e4	7.362e4	0.923	0.776	0.770	2440	1603	8.73e5	1.13e6	357.6	706.6	NO	bb	bb	12.700
1289-TCDD	26.895	1.024	4.776e4	6.026e4	0.794	0.793	0.770	2440	1603	6.91e5	8.63e5	283.1	538.1	NO	bb	bb	12.197
12479-PECDD	28.691	0.914	4.186e5	2.632e5	1.843	1.590	1.550	4032	3115	3.99e6	2.51e6	988.7	804.5	NO	bb	bb	41.945
12389-PECDD	31.822	1.013	2.780e5	1.664e5	1.154	1.671	1.550	4032	3115	4.00e6	2.46e6	992.1	791.3	NO	bb	bb	43.683
124679-HXCDD	33.905	0.944	3.632e5	2.896e5	1.125	1.254	1.240	4241	3010	5.57e6	4.44e6	1314.1	1475.1	NO	bb	bb	60.629
1234679-HPCDD	39.141	0.975	2.129e5	1.840e5	1.211	1.157	1.050	3111	3083	2.93e6	2.75e6	941.5	893.1	NO	bd	bb	53.689
Total-tetrafurans			2.574e5		1.192			1727		3.86e6							27.363
Total-penta1			5.743e5					1557		8.45e6							41.310
Total-pentafurans			1.602e6		1.047			6428		2.23e7							153.079
Total-hexafurans			1.898e6		1.045			6025		2.84e7							272.082
Total-heptafurans			6.227e5		1.305			5528		8.82e6							113.929
Total-Furans			5.291e6		1.158			1727		7.56e7							713.177
Total-tetradioxins			2.709e5		0.879			2440		3.41e6							62.800
Total-pentadioxins			9.817e5		1.331			4032		1.22e7							138.087
Total-hexadioxins			1.266e6		1.028			4241		1.92e7							219.741
Total-heptadioxins			3.886e5		1.140			3111		5.46e6							105.554
Total-Dioxins			3.171e6		1.092			2440		4.34e7							631.178
Total-TEQ			8.462e6					2440		1.19e8							1344.355
FUNCTION1 PFK			6.450e7					839971		2.37e8							
FUNCTION2 PFK			0.000e0					483349		0.00e0							
FUNCTION3 PFK			5.184e7					675979		4.54e8							0.000
FUNCTION4 PFK			3.964e5					425264		1.39e7							
FUNCTION5 PFK			3.414e4					345829		1.67e6							
FUNCTION1 HXCD...			2.903e3					1258		5.64e4							0.000
FUNCTION1 HPCD...			2.863e3					1421		5.44e4							0.000
FUNCTION2 HPCD...			2.720e3					1471		5.70e4							0.000
FUNCTION3 OCDPE			1.392e3					890		2.72e4							0.000
FUNCTION4 NCDPE			1.187e3					1520		2.23e4							0.000
FUNCTION5 DCDPE			1.665e2					1065		6.42e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210811ICVIH.qld
Last Altered: Friday, August 13, 2021 13:47:27 Pacific Daylight Time
Printed: Friday, August 13, 2021 13:51:56 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210720.mdb 11 Aug 2021 14:23:13
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

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

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
2	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
3	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
4	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
5	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
2	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
3	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
4	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
5	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
2	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.15	5.661e4	7.137e4	1.043	0.79	0.77	472.0	YES	NO	bb	bb	6.913
2	2378-TCDF	25.65	8.598e4	1.128e5	1.108	0.76	0.77	728.4	YES	NO	bb	bb	10.110
3	Total-tetrafurans	24.75	7.210e3	8.958e3	1.192	0.80	0.77	60.0	YES	NO	bb	bb	0.764
4	Total-tetrafurans	24.42	1.138e3	1.365e3	1.192	0.83	0.77	9.8	YES	NO	bb	bb	0.118
5	1368-TCDF	22.15	1.063e5	1.324e5	1.425	0.80	0.77	959.0	YES	NO	bb	bb	9.436
6	Total-tetrafurans	27.47	1.965e2	2.354e2	1.192	0.83	0.77	3.7	YES	NO	db	bb	0.020
7	Total-pentafurans	28.67	7.393e4	4.763e4	1.047	1.55	1.55	167.4	YES	NO	bb	bb	7.165
8	12389-PECDF	32.20	4.075e5	2.638e5	1.000	1.54	1.55	875.5	YES	NO	bb	bb	40.376
9	23478-PeCDF	31.16	5.567e5	3.442e5	1.126	1.62	1.55	1200.0	YES	NO	dd	bb	50.709
10	Total-pentafurans	30.02	2.035e4	1.353e4	1.047	1.50	1.55	37.7	YES	NO	dd	dd	1.997
11	12378-PeCDF	29.82	5.436e5	3.483e5	1.015	1.56	1.55	1193.2	YES	NO	bd	bd	52.831
12	123468-HXCDF	33.13	4.315e5	3.546e5	1.087	1.22	1.24	1061.8	YES	NO	bb	bb	57.507
13	123789-HxCDF	36.84	3.029e5	2.474e5	1.030	1.22	1.24	767.5	YES	NO	bb	bb	53.582
14	234678-HxCDF	35.81	3.741e5	3.010e5	1.052	1.24	1.24	922.2	YES	NO	bb	bb	55.515
15	123678-HxCDF	34.94	4.107e5	3.376e5	1.037	1.22	1.24	994.0	YES	NO	db	db	51.475
16	123478-HxCDF	34.80	3.790e5	3.119e5	1.017	1.22	1.24	963.5	YES	NO	bd	bd	54.003
17	1234678-HpCDF	38.68	3.428e5	3.268e5	1.327	1.05	1.05	945.1	YES	NO	bb	bb	54.784
18	1234789-HpCDF	40.92	2.799e5	2.719e5	1.283	1.03	1.05	650.7	YES	NO	bd	bd	59.145
19	OCDF	45.14	3.368e5	3.743e5	1.447	0.90	0.89	729.8	YES	NO	bb	bb	105.415
20	13468-PECDF	27.02	5.743e5	3.714e5	1.376	1.55	1.55	5425.9	YES	NO	bb	bb	41.310

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.97	8.932e4	1.141e5	0.879	0.78	0.77	303.9	YES	NO	bd	bd	20.744
2	Total-tetradioxins	25.49	2.543e4	2.972e4	0.879	0.86	0.77	154.2	YES	NO	bd	bb	5.625
3	Total-tetradioxins	24.63	2.020e3	2.647e3	0.879	0.76	0.77	8.0	YES	NO	bd	bb	0.476
4	1368-TCDD	23.42	5.716e4	7.362e4	0.923	0.78	0.77	357.6	YES	NO	bb	bb	12.700
5	1289-TCDD	26.89	4.776e4	6.026e4	0.794	0.79	0.77	283.1	YES	NO	bb	bb	12.197
6	2378-TCDD	26.30	4.924e4	6.425e4	0.920	0.77	0.77	291.6	YES	NO	bb	db	11.057

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.82	2.780e5	1.664e5	1.154	1.67	1.55	992.1	YES	NO	bb	bb	43.683
2	12378-PeCDD	31.42	2.834e5	1.748e5	0.995	1.62	1.55	1046.5	YES	NO	bb	bb	52.211
3	Total-pentadioxins	30.75	1.739e3	1.177e3	1.331	1.48	1.55	6.0	YES	NO	bb	bb	0.249
4	12479-PECDD	28.69	4.186e5	2.632e5	1.843	1.59	1.55	988.7	YES	NO	bb	bb	41.945

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.91	3.632e5	2.896e5	1.125	1.25	1.24	1314.1	YES	NO	bb	bb	60.629
2	123789-HxCDD	36.42	2.887e5	2.199e5	0.950	1.31	1.24	989.1	YES	NO	bd	bb	52.339
3	123678-HxCDD	36.04	3.082e5	2.464e5	1.009	1.25	1.24	1085.9	YES	NO	db	db	50.555
4	123478-HxCDD	35.92	2.965e5	2.407e5	1.027	1.23	1.24	1096.7	YES	NO	bd	bd	54.629
5	Total-hexadioxins	35.04	7.156e3	6.136e3	1.028	1.17	1.24	26.9	YES	NO	db	db	1.265
6	Total-hexadioxins	34.67	1.781e3	1.631e3	1.028	1.09	1.24	7.7	YES	NO	bb	bb	0.325

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.18	1.757e5	1.625e5	1.068	1.08	1.05	814.6	YES	NO	bb	bb	51.865
2	1234679-HPCDD	39.14	2.129e5	1.840e5	1.211	1.16	1.05	941.5	YES	NO	bd	bb	53.689

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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

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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
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													

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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	34.47	2.892e5					8.3	YES		dd		0.000
2	FUNCTION3 PFK	34.42	3.441e5					9.9	YES		dd		0.000
3	FUNCTION3 PFK	34.30	9.123e5					14.6	YES		dd		0.000
4	FUNCTION3 PFK	33.96	4.870e6					27.1	YES		dd		0.000
5	FUNCTION3 PFK	33.92	6.208e5					27.9	YES		dd		0.000
6	FUNCTION3 PFK	33.75	6.775e6					34.2	YES		dd		0.000
7	FUNCTION3 PFK	33.58	8.843e5					39.8	YES		dd		0.000
8	FUNCTION3 PFK	33.52	4.828e6					42.2	YES		dd		0.000
9	FUNCTION3 PFK	33.37	2.844e6					47.3	YES		dd		0.000
10	FUNCTION3 PFK	33.18	5.432e6					54.3	YES		dd		0.000
11	FUNCTION3 PFK	33.04	5.575e6					59.2	YES		dd		0.000
12	FUNCTION3 PFK	32.95	3.680e6					62.9	YES		dd		0.000
13	FUNCTION3 PFK	32.86	7.904e6					65.6	YES		dd		0.000
14	FUNCTION3 PFK	32.74	1.549e6					69.1	YES		dd		0.000
15	FUNCTION3 PFK	32.67	4.268e6					72.4	YES		bd		0.000
16	FUNCTION3 PFK	36.86	8.449e3					0.3	NO		bb		0.000
17	FUNCTION3 PFK	36.72	6.925e4					2.0	NO		bb		0.000
18	FUNCTION3 PFK	36.59	5.799e4					1.2	NO		bb		0.000
19	FUNCTION3 PFK	36.30	7.563e3					0.7	NO		bb		0.000
20	FUNCTION3 PFK	36.04	6.922e3					0.5	NO		bb		0.000
21	FUNCTION3 PFK	35.83	2.532e4					1.1	NO		bb		0.000
22	FUNCTION3 PFK	35.75	1.516e4					0.9	NO		bb		0.000
23	FUNCTION3 PFK	35.63	1.004e4					0.7	NO		bb		0.000
24	FUNCTION3 PFK	35.33	1.433e4					0.8	NO		bb		0.000
25	FUNCTION3 PFK	35.04	1.089e4					0.6	NO		bb		0.000
26	FUNCTION3 PFK	34.97	5.517e3					0.7	NO		bb		0.000
27	FUNCTION3 PFK	34.89	3.001e4					1.0	NO		bb		0.000
28	FUNCTION3 PFK	34.81	1.594e4					1.0	NO		db		0.000
29	FUNCTION3 PFK	34.76	3.092e4					1.3	NO		bd		0.000
30	FUNCTION3 PFK	34.60	1.659e5					4.5	YES		db		0.000
31	FUNCTION3 PFK	34.53	2.985e5					6.7	YES		dd		0.000
32	FUNCTION3 PFK	37.64	2.742e4					1.1	NO		bb		0.000
33	FUNCTION3 PFK	37.58	2.711e4					1.4	NO		db		0.000
34	FUNCTION3 PFK	37.54	1.758e4					0.9	NO		dd		0.000
35	FUNCTION3 PFK	37.49	3.447e4					1.6	NO		dd		0.000
36	FUNCTION3 PFK	37.45	2.646e4					1.5	NO		dd		0.000
37	FUNCTION3 PFK	37.38	4.745e4					1.5	NO		dd		0.000

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

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	37.34	2.452e4					1.6	NO		bd		0.000
39	FUNCTION3 PFK	37.29	9.653e3					0.8	NO		bb		0.000
40	FUNCTION3 PFK	37.08	5.064e3					0.5	NO		bb		0.000
41	FUNCTION3 PFK	36.98	6.612e4					1.7	NO		bb		0.000

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

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.42	2.469e3					0.5	NO		bb		
2	FUNCTION4 PFK	38.08	2.954e4					1.7	NO		bb		
3	FUNCTION4 PFK	37.98	4.856e4					2.3	NO		db		
4	FUNCTION4 PFK	37.94	3.614e4					2.6	NO		bd		
5	FUNCTION4 PFK	37.85	8.390e3					1.0	NO		bb		
6	FUNCTION4 PFK	40.91	1.035e4					1.0	NO		bb		
7	FUNCTION4 PFK	40.71	1.742e3					0.4	NO		bb		
8	FUNCTION4 PFK	40.68	3.176e3					0.5	NO		bb		
9	FUNCTION4 PFK	40.61	6.362e3					0.7	NO		bb		
10	FUNCTION4 PFK	40.38	7.075e3					0.8	NO		bb		
11	FUNCTION4 PFK	40.32	3.115e4					1.2	NO		bb		
12	FUNCTION4 PFK	39.94	4.461e3					0.6	NO		bb		
13	FUNCTION4 PFK	39.80	5.746e3					0.6	NO		bb		
14	FUNCTION4 PFK	39.51	2.799e3					0.4	NO		bb		
15	FUNCTION4 PFK	39.43	1.949e3					0.4	NO		bb		
16	FUNCTION4 PFK	39.36	2.879e3					0.6	NO		bb		
17	FUNCTION4 PFK	39.32	5.365e3					1.1	NO		bb		
18	FUNCTION4 PFK	39.28	3.621e3					0.8	NO		bb		
19	FUNCTION4 PFK	39.21	1.666e4					1.0	NO		bb		
20	FUNCTION4 PFK	39.07	6.512e3					0.8	NO		bb		
21	FUNCTION4 PFK	38.46	1.263e4					1.2	NO		bb		
22	FUNCTION4 PFK	42.68	1.445e4					0.9	NO		bb		
23	FUNCTION4 PFK	42.62	2.052e4					1.7	NO		bb		
24	FUNCTION4 PFK	42.51	2.321e3					0.5	NO		bb		
25	FUNCTION4 PFK	42.43	3.121e4					1.9	NO		bb		
26	FUNCTION4 PFK	42.18	7.742e3					0.8	NO		bb		
27	FUNCTION4 PFK	42.05	1.748e4					1.2	NO		db		
28	FUNCTION4 PFK	41.97	1.470e4					1.2	NO		bd		
29	FUNCTION4 PFK	41.63	2.487e3					0.5	NO		bb		
30	FUNCTION4 PFK	41.48	1.442e4					1.2	NO		bb		
31	FUNCTION4 PFK	41.24	1.211e4					1.0	NO		bb		
32	FUNCTION4 PFK	41.17	1.136e4					1.2	NO		bb		

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

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.97	5.710e3					1.0	NO		bb		
2	FUNCTION5 PFK	45.74	1.859e3					0.6	NO		bb		
3	FUNCTION5 PFK	43.26	1.526e4					1.8	NO		bb		
4	FUNCTION5 PFK	42.93	1.131e4					1.5	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.35	1.892e2					4.2	YES		db		0.000
2	FUNCTION1 HXCD...	25.23	1.187e2					1.3	NO		bd		0.000
3	FUNCTION1 HXCD...	24.87	7.961e1					1.9	NO		db		0.000
4	FUNCTION1 HXCD...	24.81	1.259e2					2.7	NO		bd		0.000
5	FUNCTION1 HXCD...	24.72	1.584e2					1.4	NO		bb		0.000
6	FUNCTION1 HXCD...	24.40	9.113e1					1.6	NO		bb		0.000
7	FUNCTION1 HXCD...	23.72	7.480e1					1.5	NO		bb		0.000
8	FUNCTION1 HXCD...	23.61	1.381e2					2.9	NO		bb		0.000
9	FUNCTION1 HXCD...	23.11	9.740e1					2.5	NO		bb		0.000
10	FUNCTION1 HXCD...	22.43	1.791e2					2.1	NO		db		0.000
11	FUNCTION1 HXCD...	22.30	7.125e1					1.5	NO		bd		0.000
12	FUNCTION1 HXCD...	22.19	7.195e1					1.3	NO		bb		0.000
13	FUNCTION1 HXCD...	21.98	1.102e2					1.5	NO		db		0.000
14	FUNCTION1 HXCD...	21.89	2.251e2					4.2	YES		bd		0.000
15	FUNCTION1 HXCD...	21.80	1.414e2					2.0	NO		bb		0.000
16	FUNCTION1 HXCD...	27.03	2.453e2					2.4	NO		bb		0.000
17	FUNCTION1 HXCD...	26.29	2.686e2					2.1	NO		db		0.000
18	FUNCTION1 HXCD...	26.12	1.763e2					2.9	NO		dd		0.000
19	FUNCTION1 HXCD...	26.03	9.387e1					1.2	NO		bd		0.000
20	FUNCTION1 HXCD...	25.82	1.399e2					2.0	NO		bb		0.000
21	FUNCTION1 HXCD...	25.46	1.064e2					1.7	NO		bb		0.000

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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

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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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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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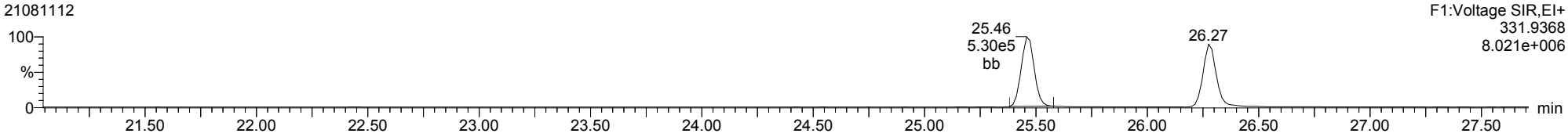

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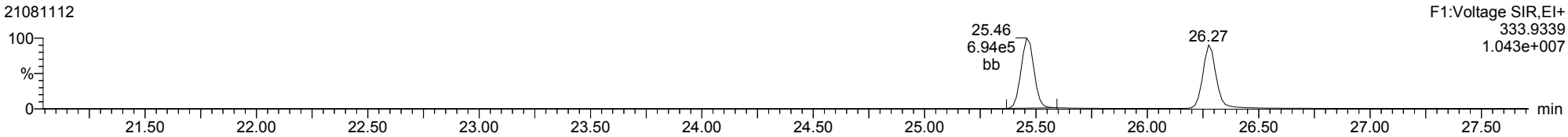

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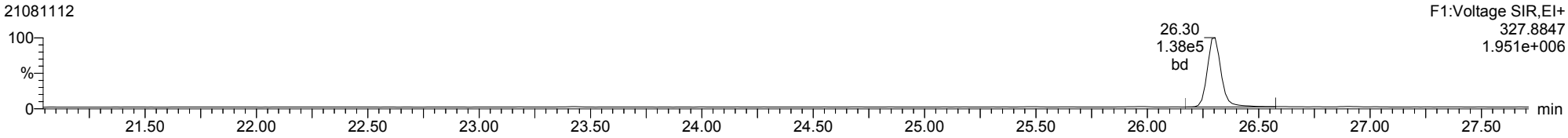

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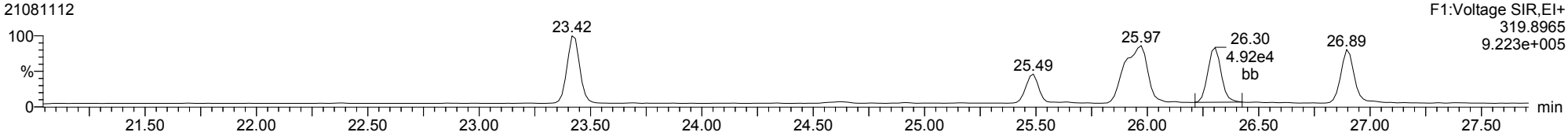

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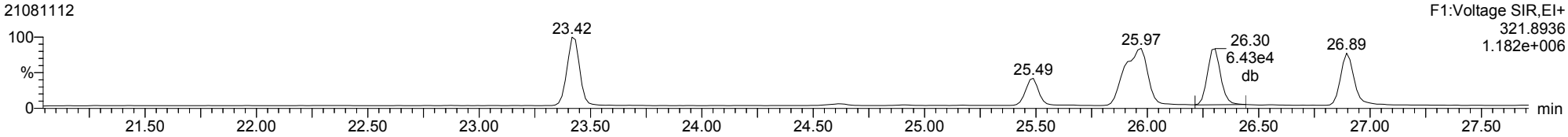

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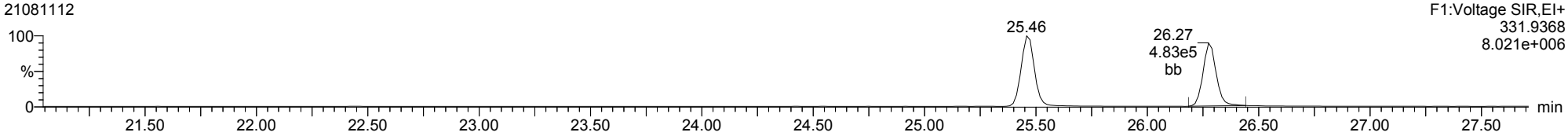

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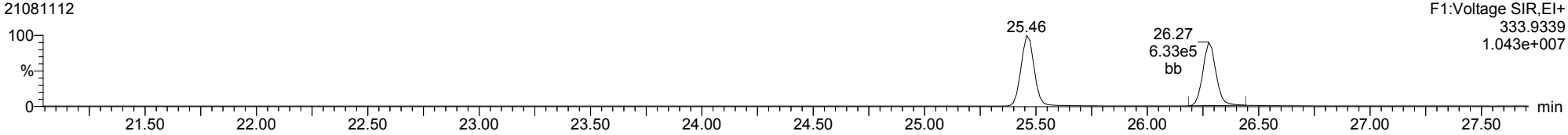

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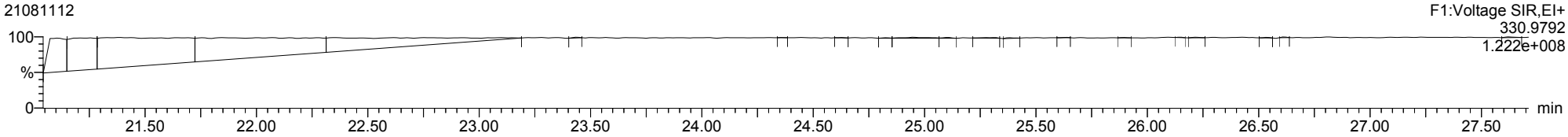

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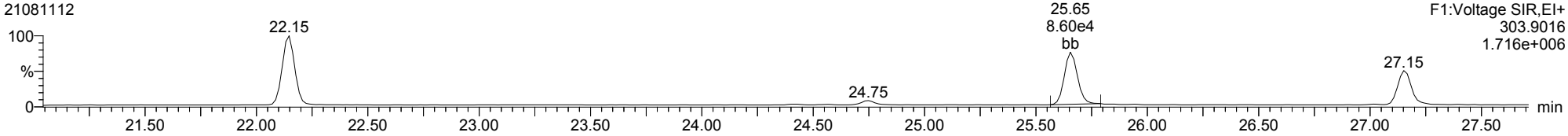

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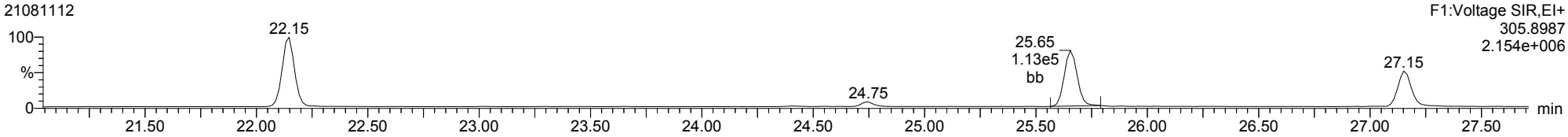

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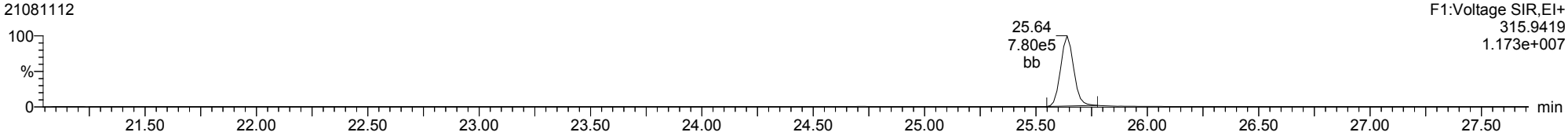

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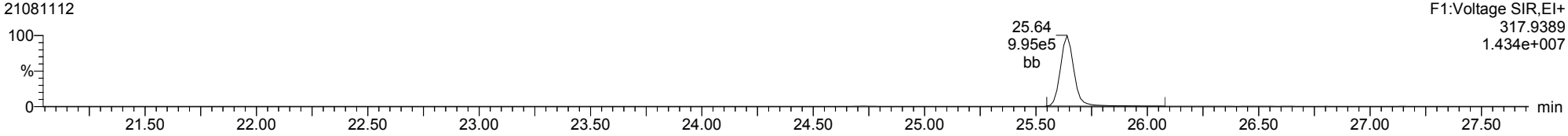

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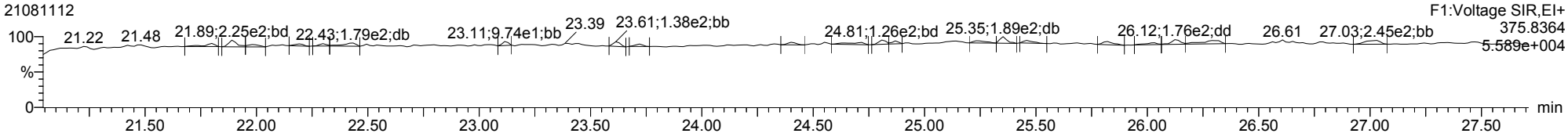

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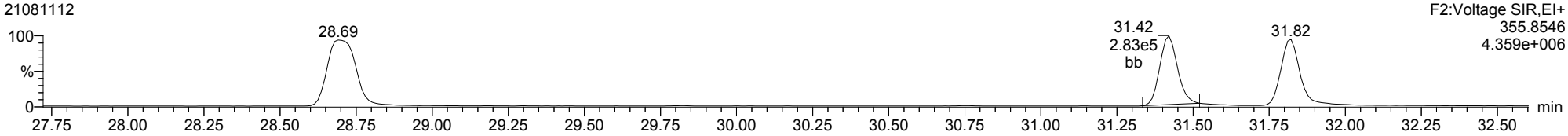

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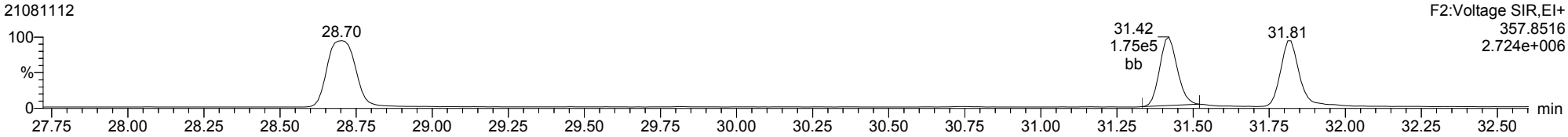

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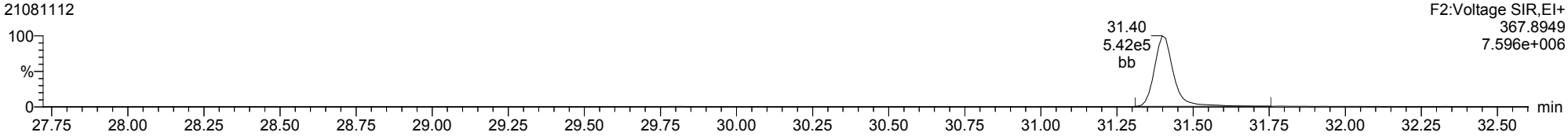

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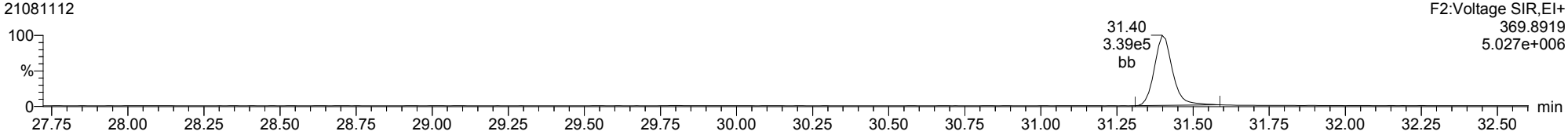

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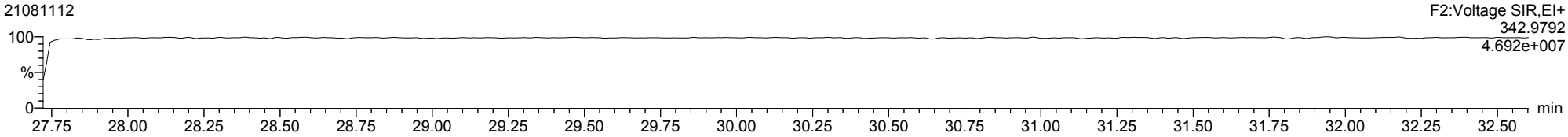

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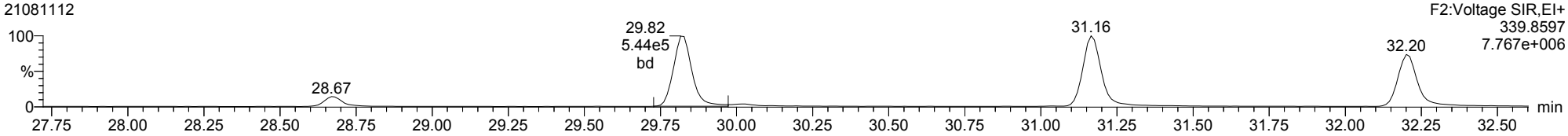

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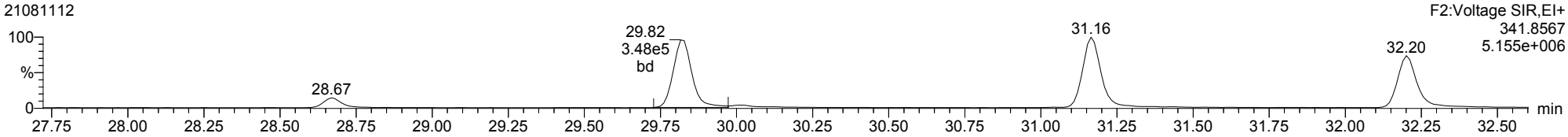

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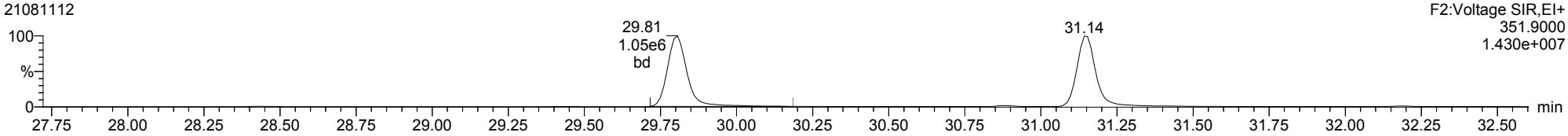

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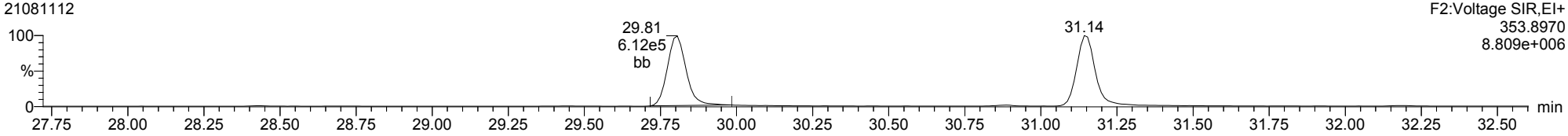

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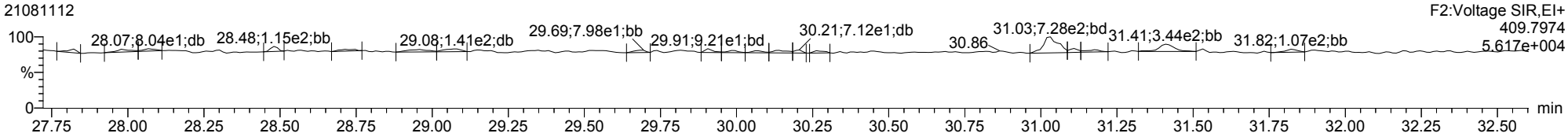

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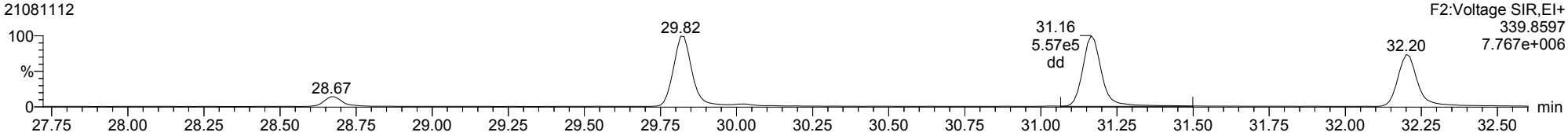

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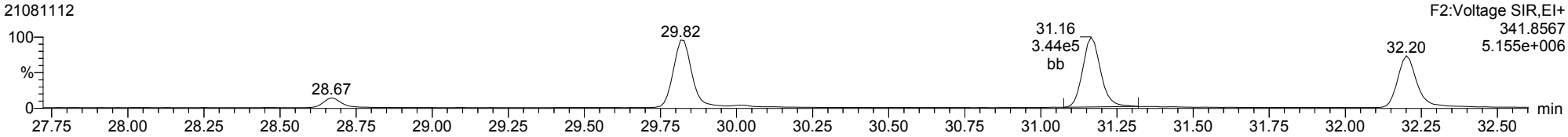

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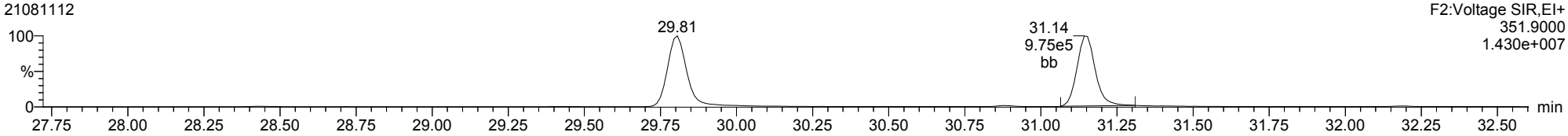

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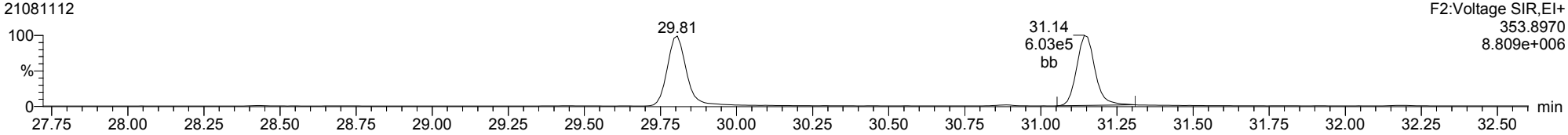

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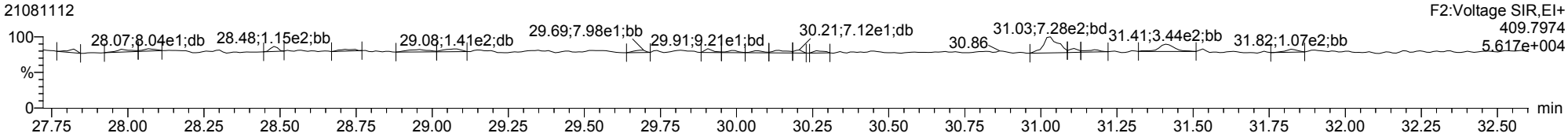

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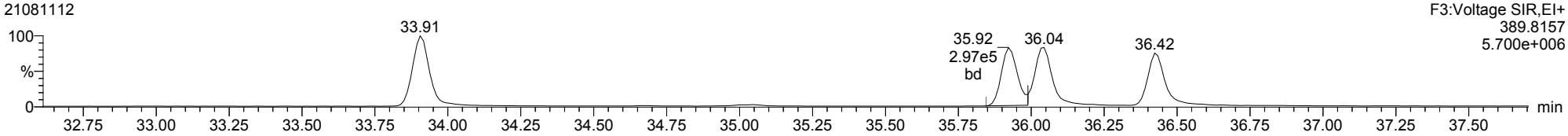

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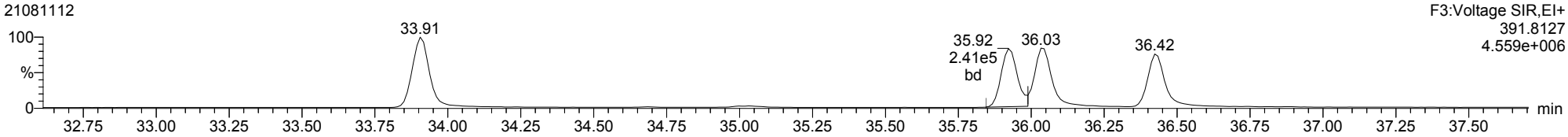

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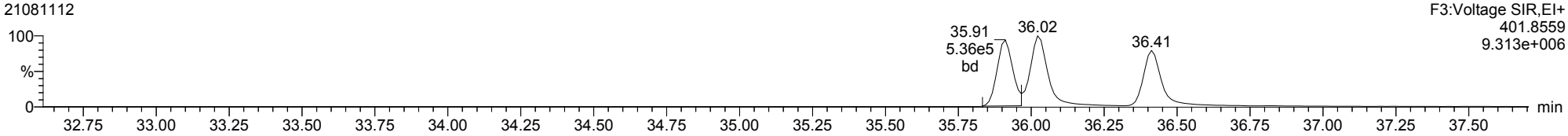

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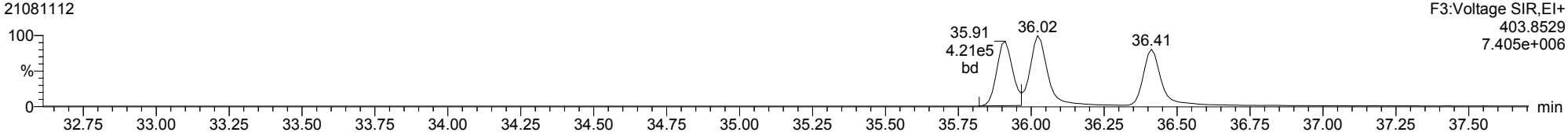

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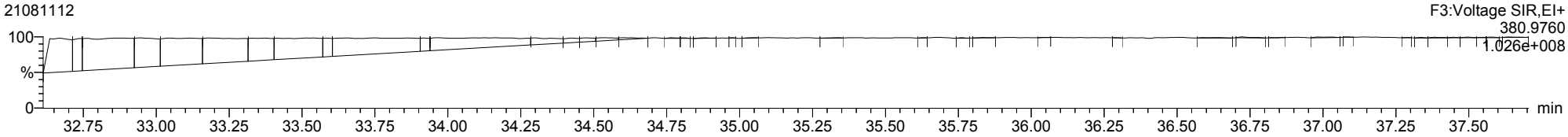

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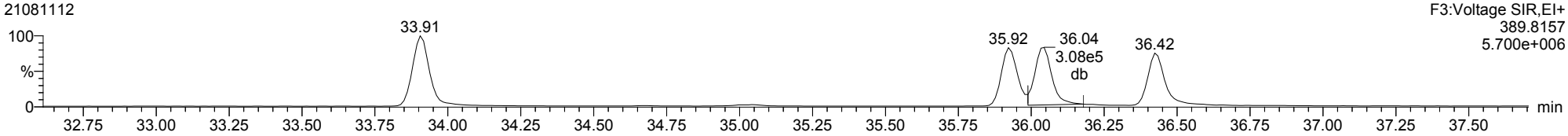

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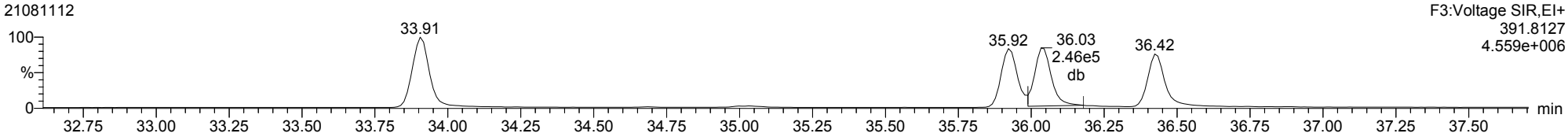

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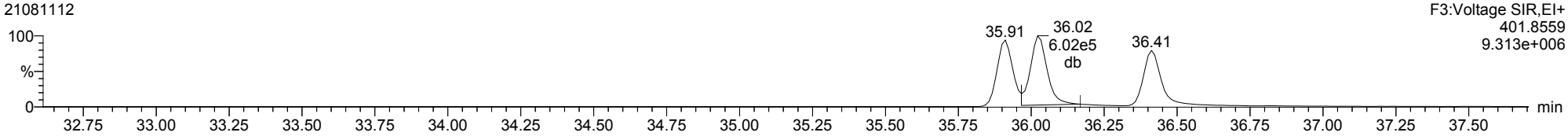

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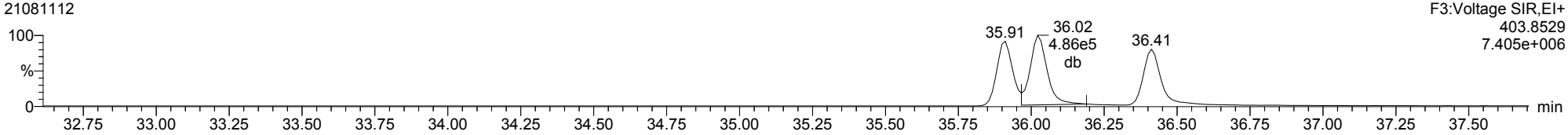

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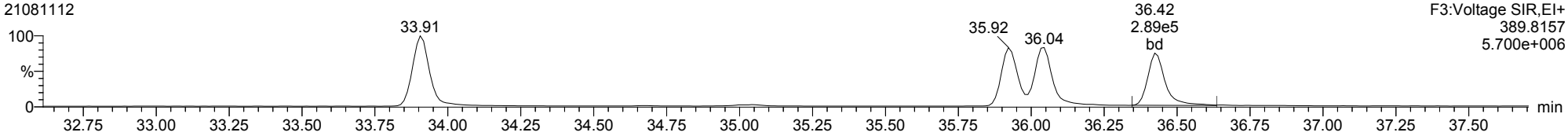

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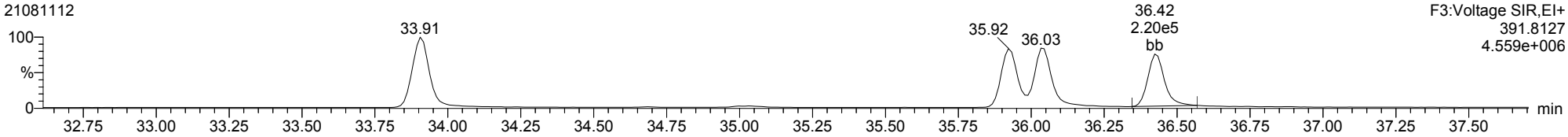

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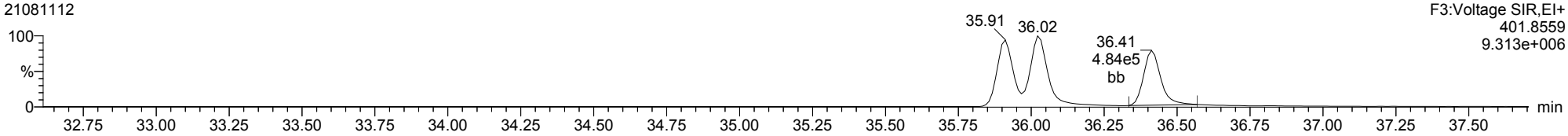

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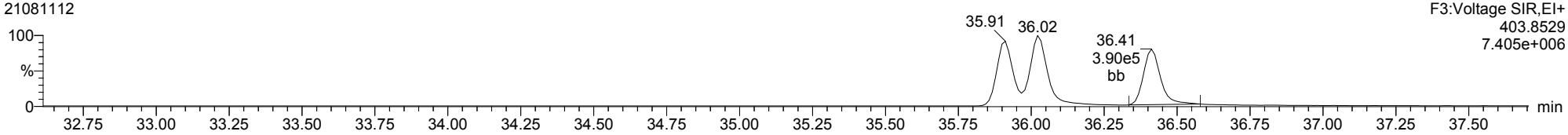

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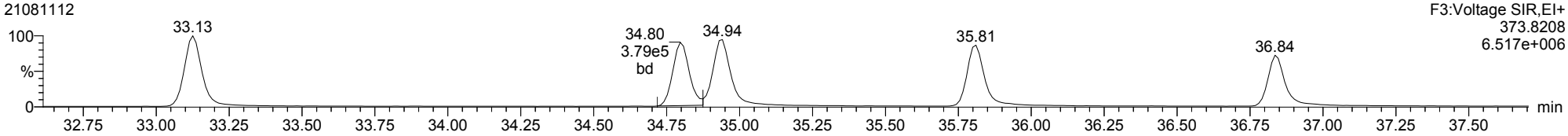

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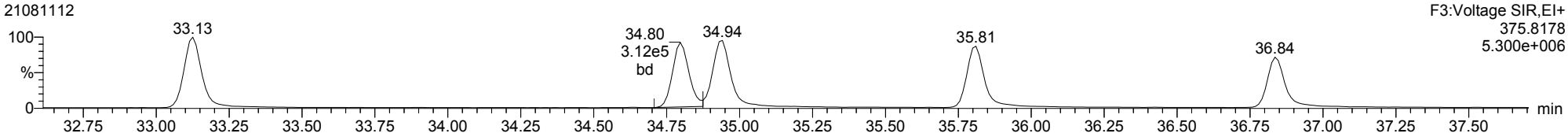

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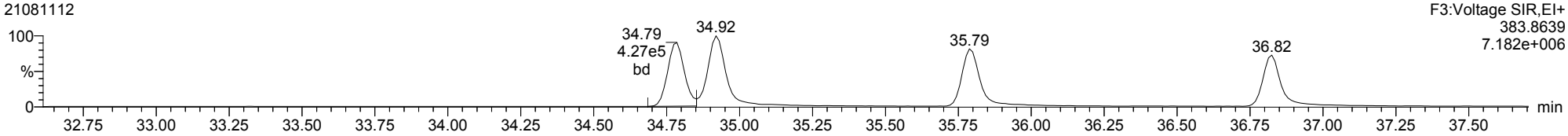

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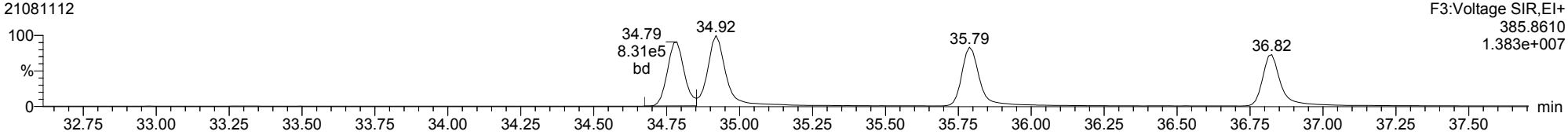

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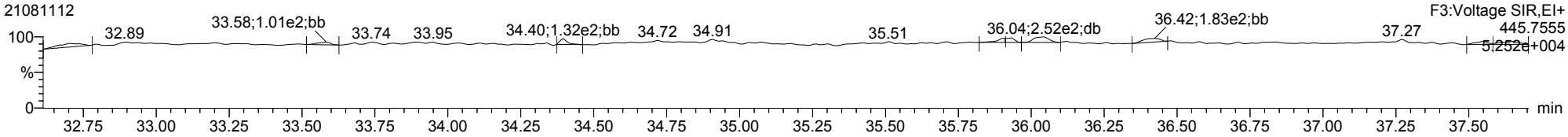

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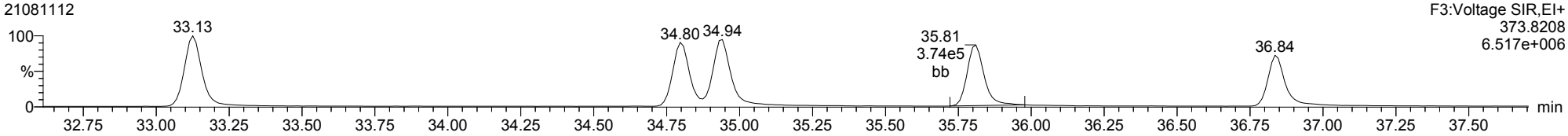

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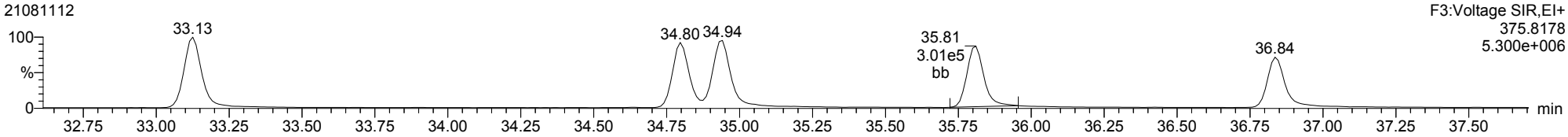

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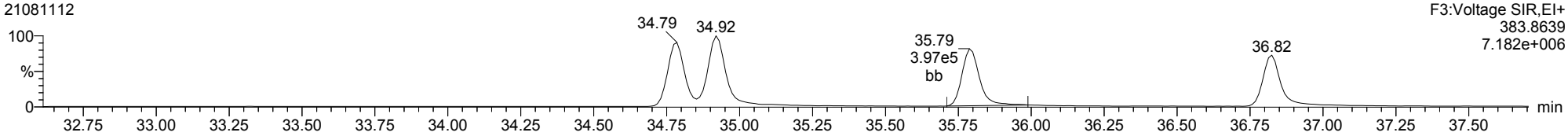

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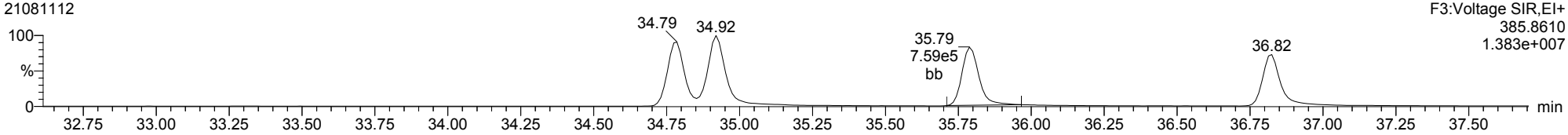

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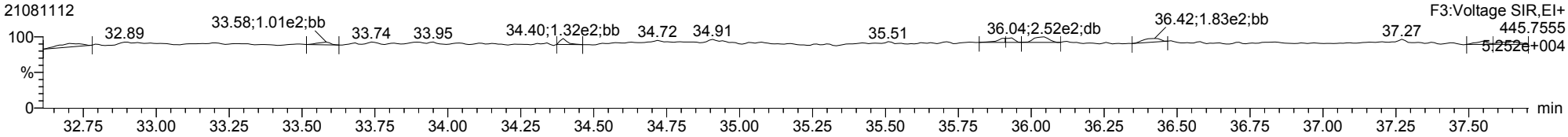

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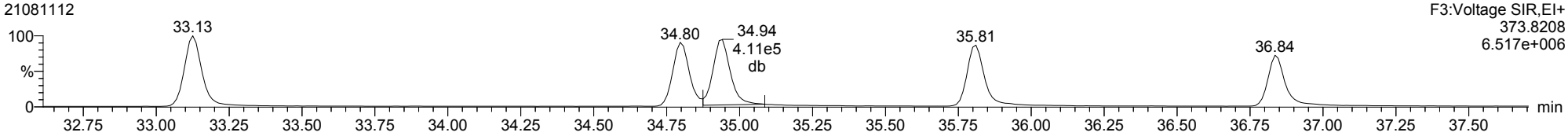

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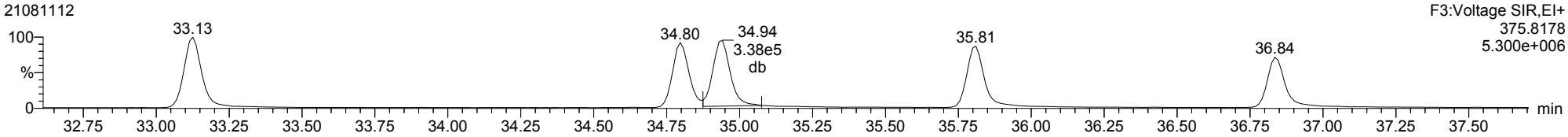

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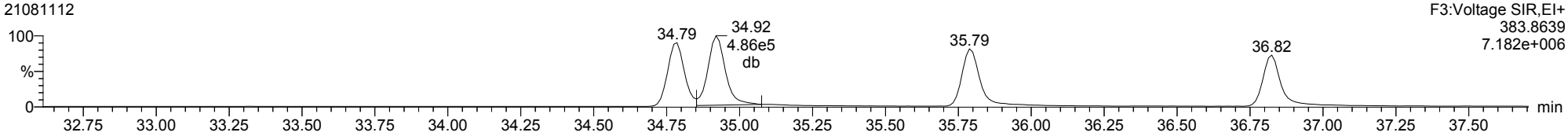

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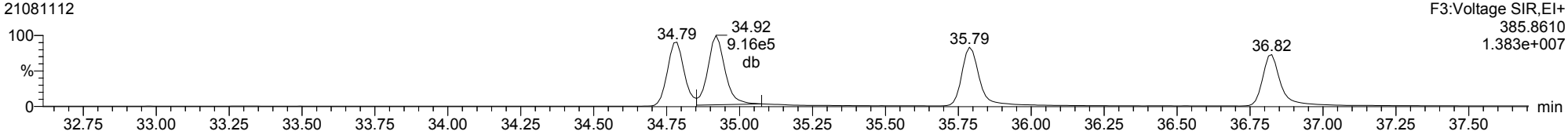

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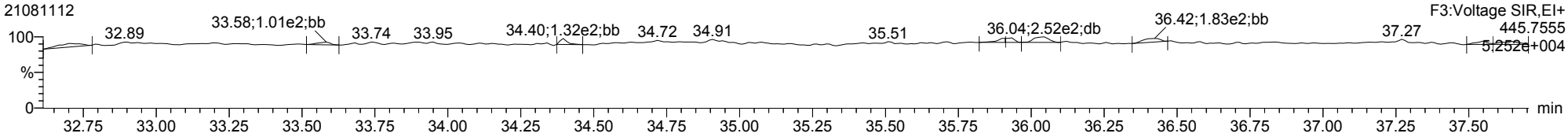

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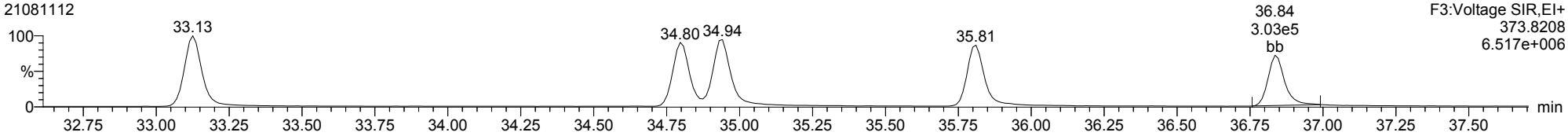

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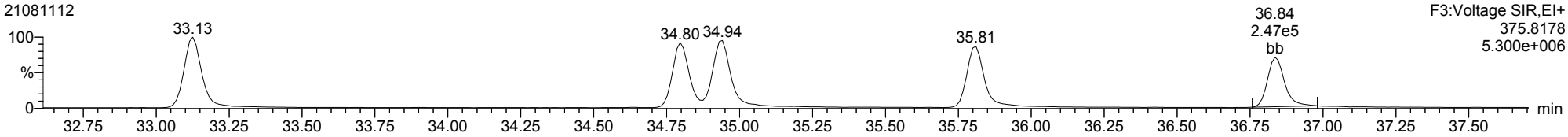

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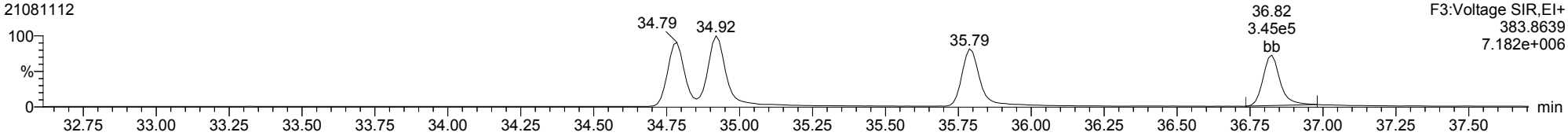

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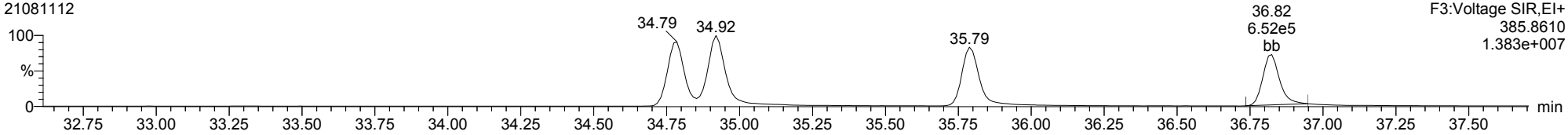

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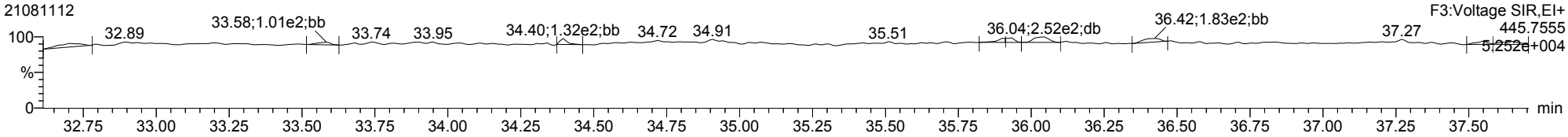

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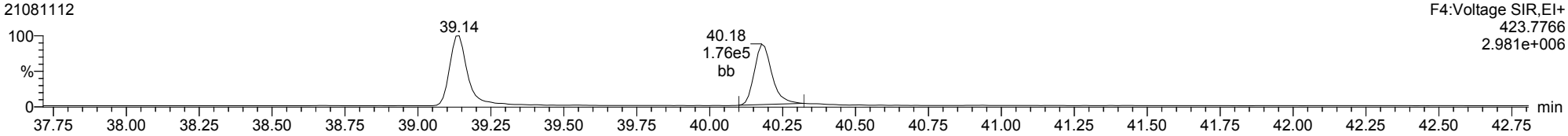

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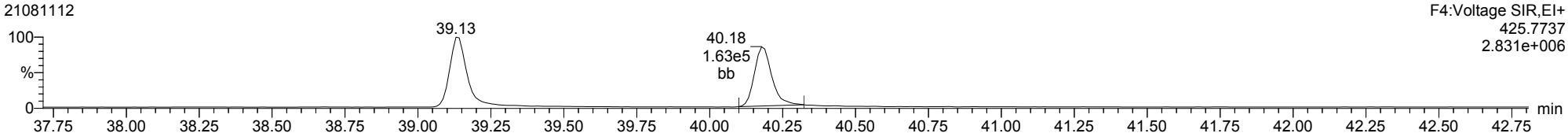

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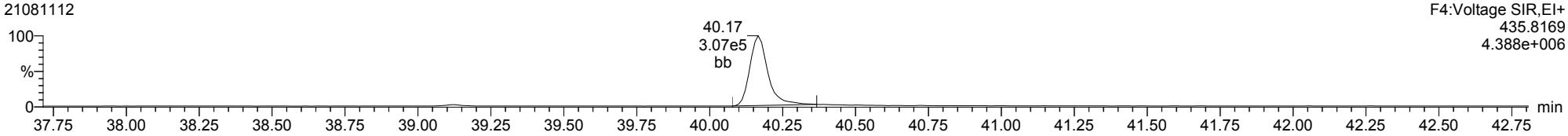

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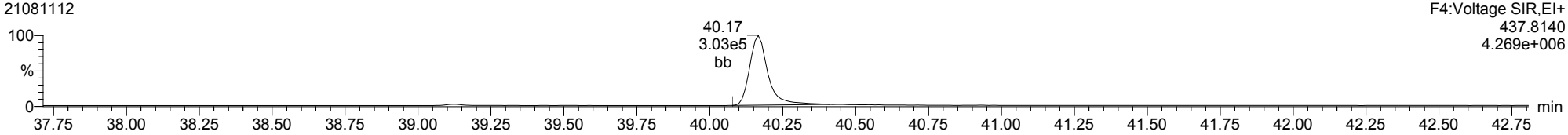
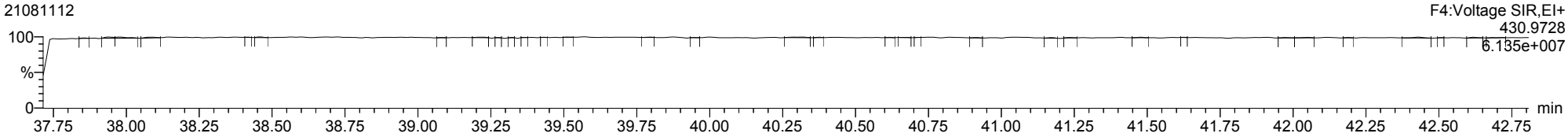


FUNCTION4 PFK



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

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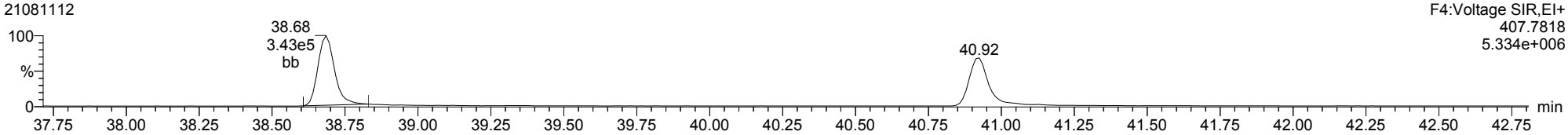

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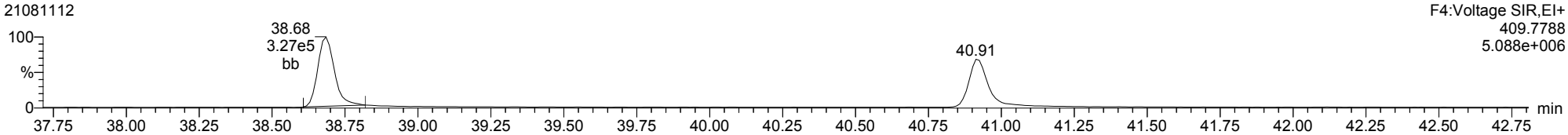

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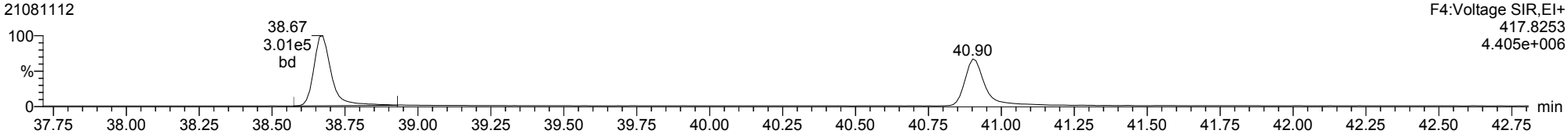

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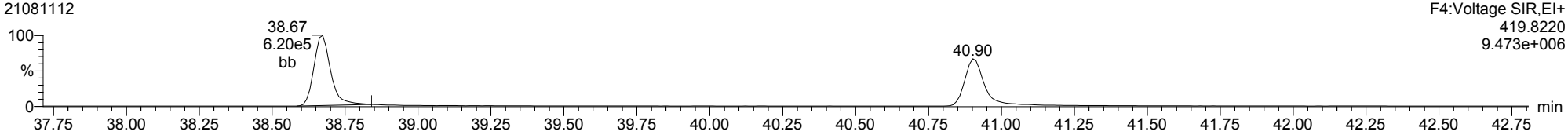
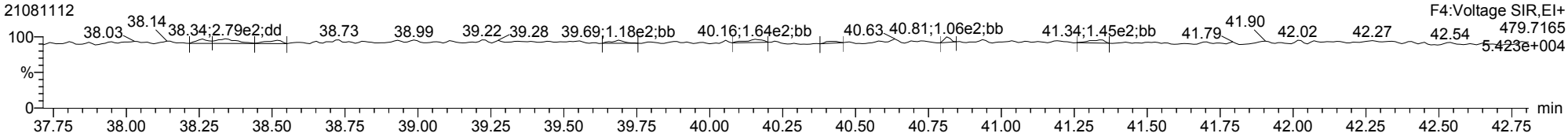


FUNCTION4 NCDPE



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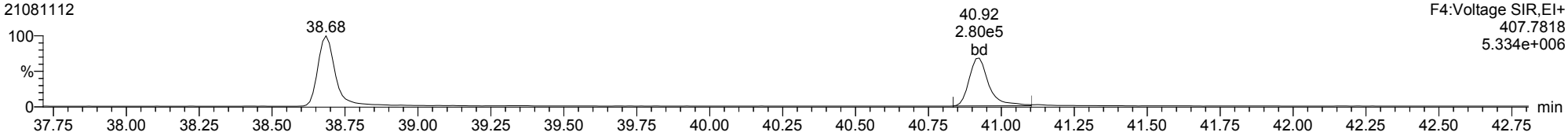
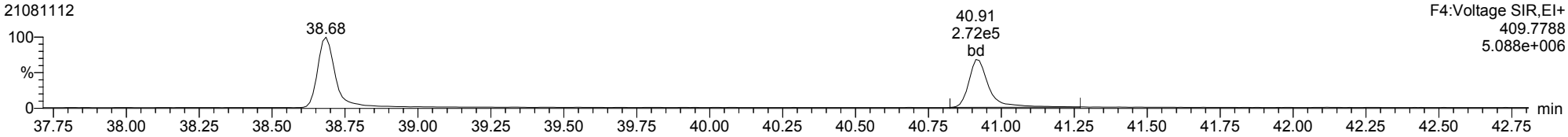


1234789-HpCDF



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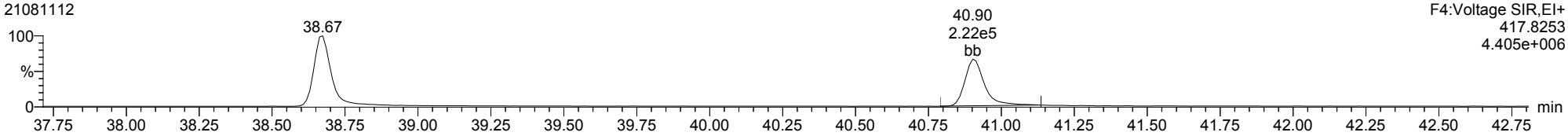

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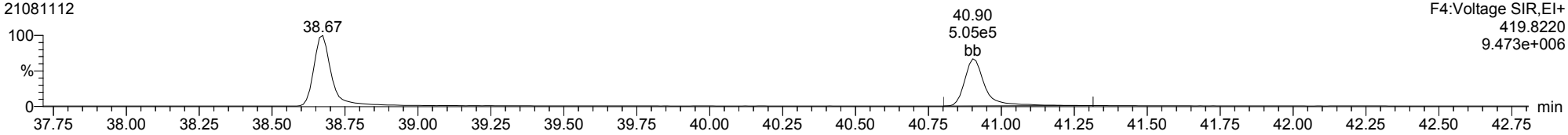
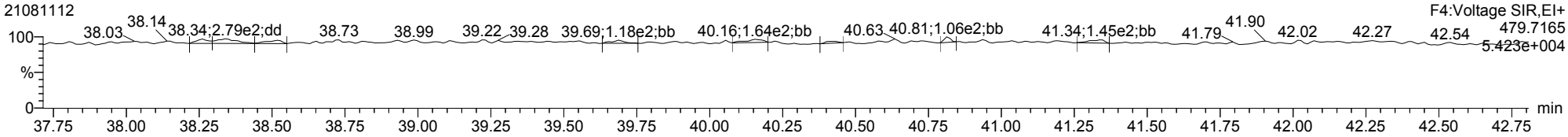
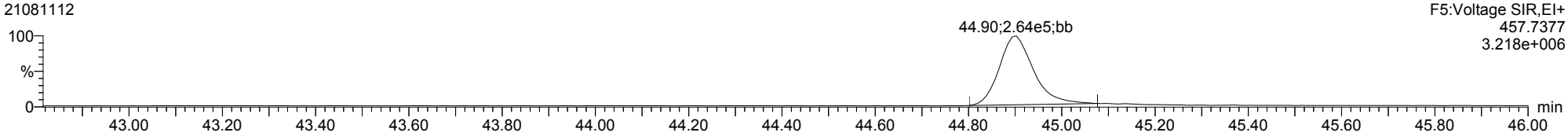


FUNCTION4 NCDPE

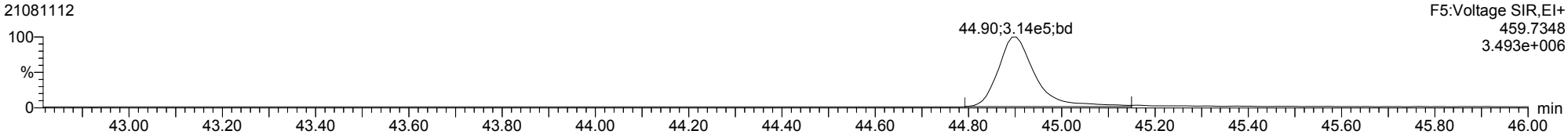


ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

OCDD



OCDD



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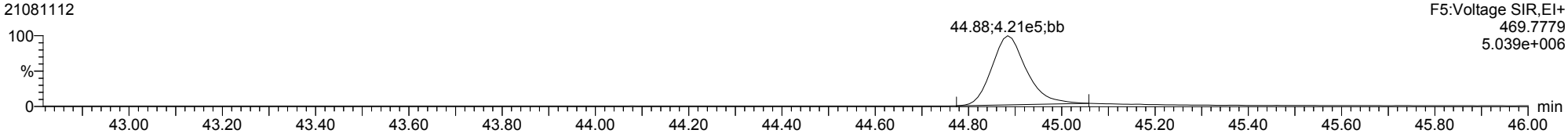

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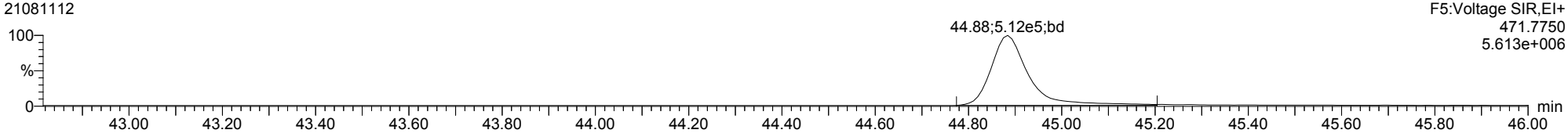
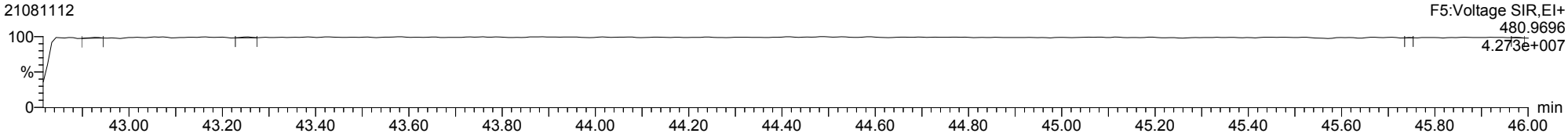
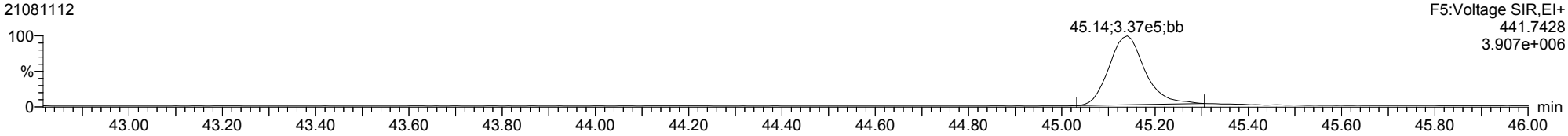


FUNCTION5 PFK



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

OCDF



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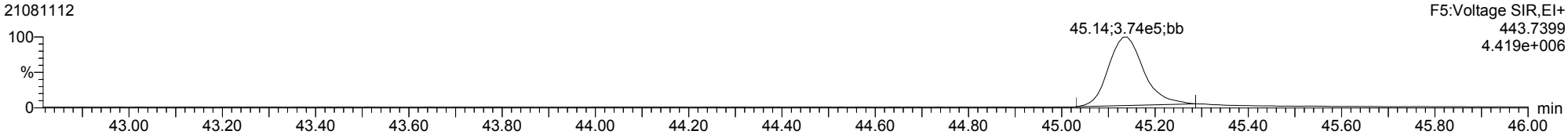
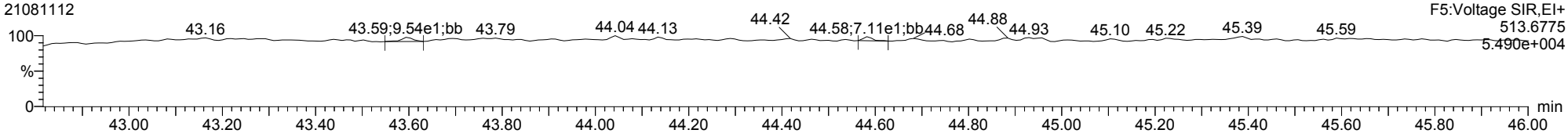
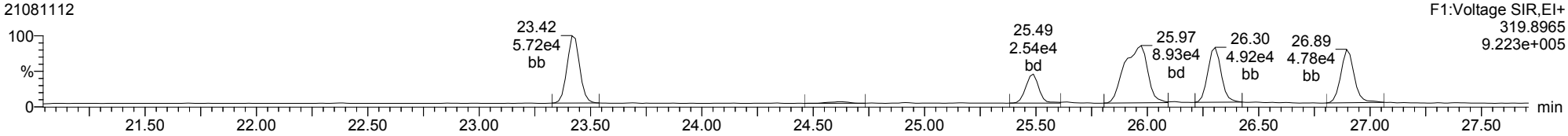


FUNCTION5 DCDPE

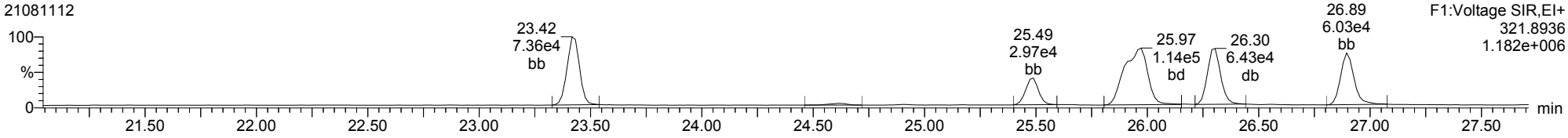


ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

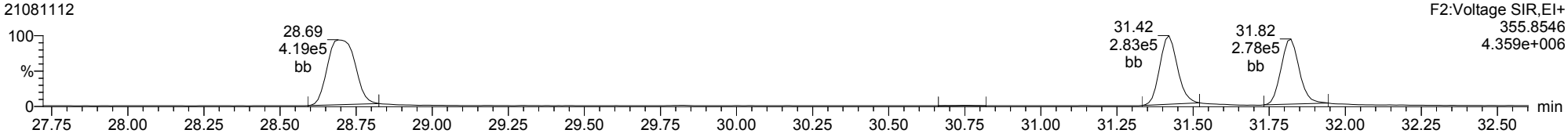
Total-tetradioxins



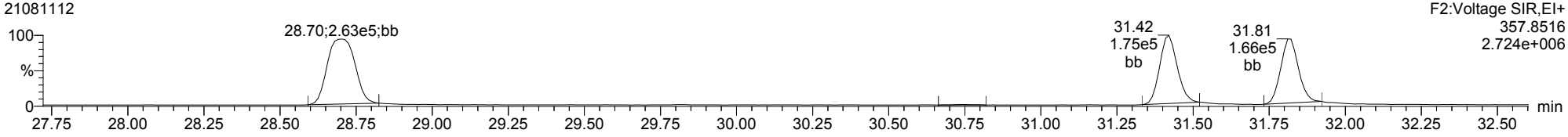
Total-tetradioxins



Total-pentadioxins

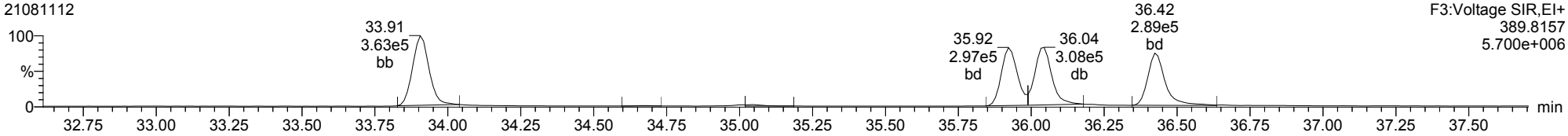


Total-pentadioxins



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

Total-hexadioxins



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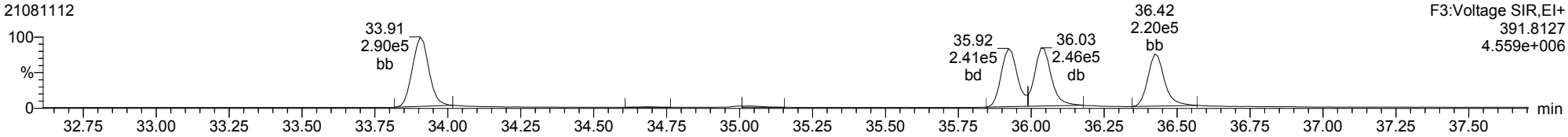

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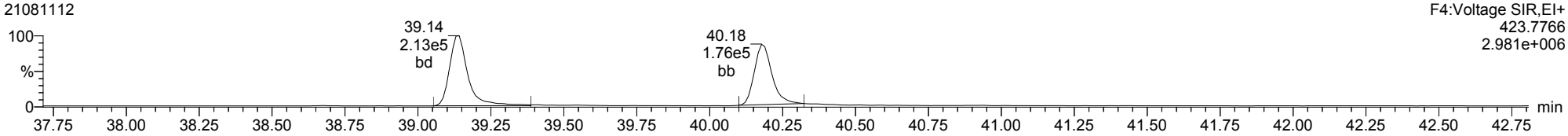
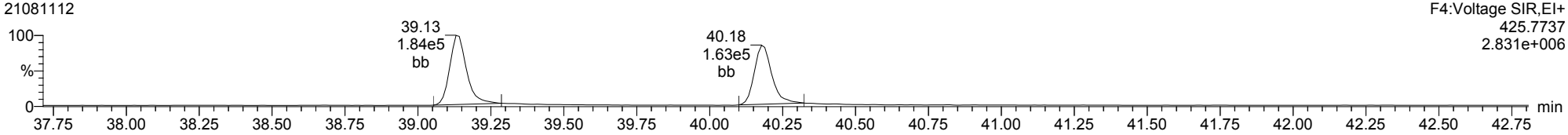
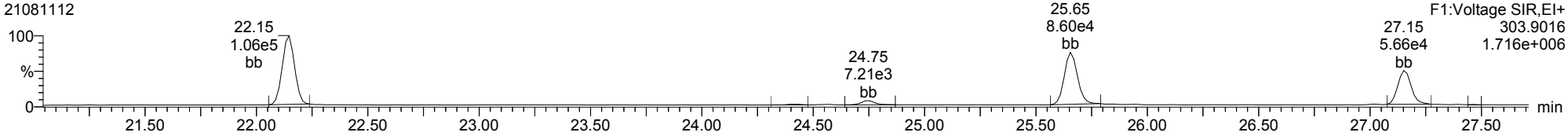


Total-heptadioxins



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

Total-tetrafurans



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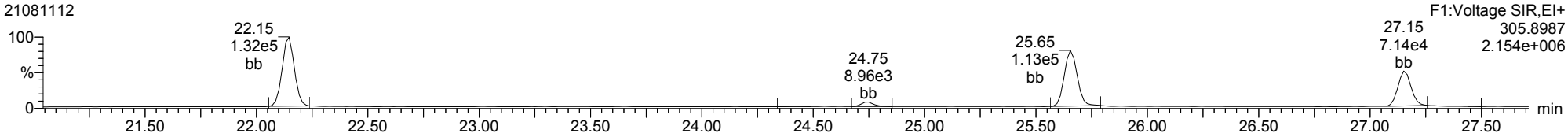
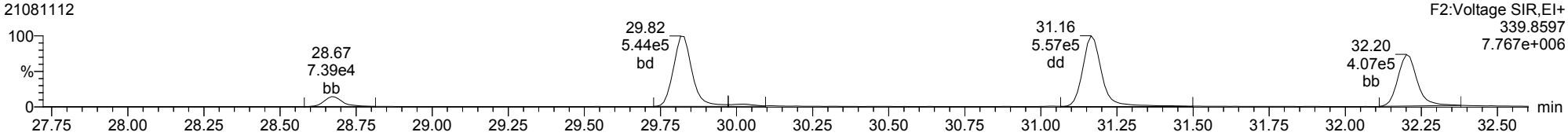
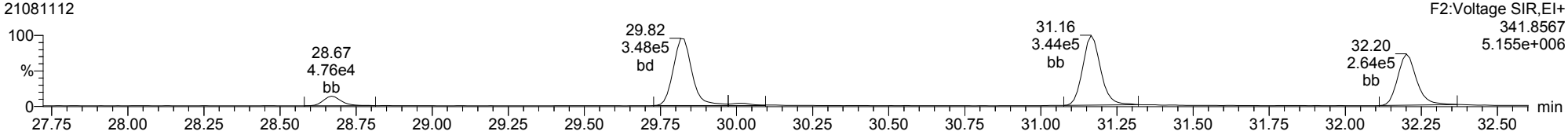


Total-pentafurans

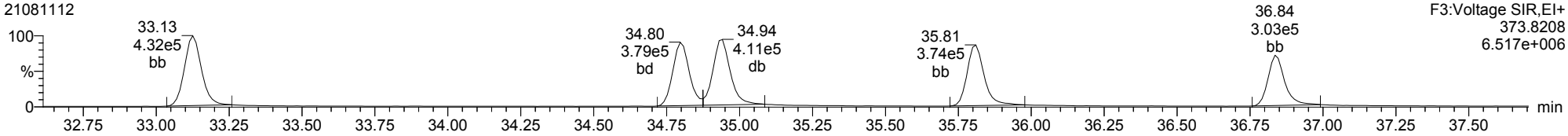


Total-pentafurans

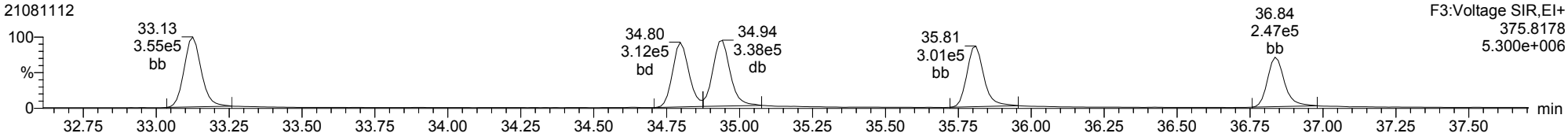


ID: ICVCZ, Name: 21081112, Date: 12-Aug-2021, Time: 00:00:03, Conditions: AUTOSPEC01, User: pk

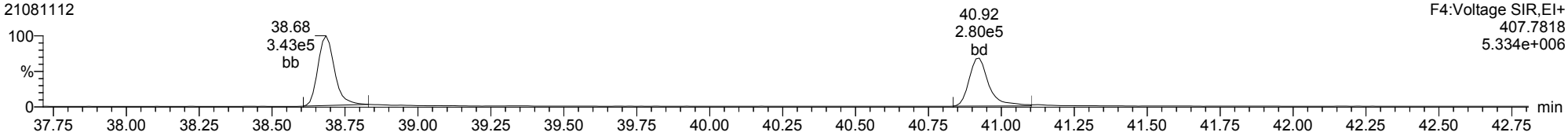
Total-hexafurans



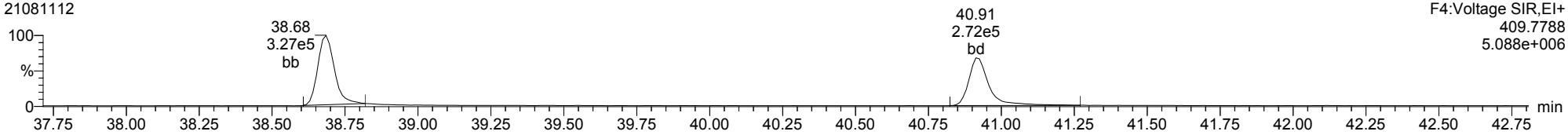
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21091306A	Calibration Date:	08/11/2021
Sequence:	SJI0191	Injection Date:	09/13/21
Lab Sample ID:	SJI0191-ICV1	Injection Time:	15:52
Sequence Name:	CS3Q2		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	9.27	1.1075930	1.0264200		-7.3	+/-16
2,3,7,8-TCDD	A	10.000	10.6	0.9202875	0.9745721		5.9	+/-22
1,2,3,7,8-PeCDF	A	50.000	47.7	1.0148670	0.9686948		-4.5	+/-18
2,3,4,7,8-PeCDF	A	50.000	46.6	1.1255490	1.0494090		-6.8	+/-18
1,2,3,7,8-PeCDD	A	50.000	55.4	0.9953229	1.1035200		10.9	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.7	1.0168930	0.9711044		-4.5	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	46.6	1.0368310	0.9661829		-6.8	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	45.8	1.0524660	0.9642035		-8.4	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	46.3	1.0301540	0.9541644		-7.4	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.5	1.0273630	0.9764935		-5.0	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	47.5	1.0089800	0.9577704		-5.1	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	49.2	0.9504865	0.9351520		-1.6	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	48.8	1.3273500	1.2956960		-2.4	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	49.6	1.2833380	1.2733630		-0.8	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	54.2	1.0680880	1.1580630		8.4	+/-14
OCDF	A	100.00	92.3	1.4469010	1.3356040		-7.7	+/-37
OCDD	A	100.00	94.1	1.1808230	1.1111570		-5.9	+/-21
13C12-2,3,7,8-TCDF	A	100.00	121	1.4265830	1.7268170		21.0	+/-29
13C12-2,3,7,8-TCDD	A	100.00	105	1.1164910	1.1731821		5.1	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	117	1.2973130	1.5120370		16.6	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	118	1.2364800	1.4601225		18.1	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	106	0.7319833	0.7790282		6.4	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	94.9	1.2424560	1.1795899		-5.1	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	89.3	1.3434760	1.1995955		-10.7	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	92.7	1.2148550	1.1265761		-7.3	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	90.4	1.0076370	0.9108591		-9.6	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	98.9	0.9598233	0.9497100		-1.1	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	96.7	1.0413850	1.0066690		-3.3	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	99.4	0.9264704	0.9207559		-0.6	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	92.2	0.7579160	0.6986827		-7.8	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	91.7	0.6324476	0.5798165		-8.3	+/-28

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21091306A	Calibration Date:	08/11/2021
Sequence:	SJI0191	Injection Date:	09/13/21
Lab Sample ID:	SJI0191-ICV1	Injection Time:	15:52
Sequence Name:	CS3Q2		

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-OCDD	A	200.00	209	0.5037432	0.5273770		4.7	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.2	1.0835930	1.1045217		1.9	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:15:22 Pacific Daylight Time

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

ID: CS3Q2, Name: 21091306, Date: 13-Sep-2021, Time: 15:52:01, 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	25.761	1.001	4.744e4	6.236e4	1.108	0.761	0.770	1111	1003	7.08e5	9.18e5	636.9	916.1	NO	bb	bb	9.267
12378-PeCDF	29.909	1.001	2.735e5	1.802e5	1.015	1.518	1.550	2017	1559	4.23e6	2.73e6	2095.9	1750.0	NO	bb	bb	47.725
23478-PeCDF	31.257	1.001	2.872e5	1.874e5	1.126	1.533	1.550	2017	1559	4.32e6	2.80e6	2144.2	1796.8	NO	bb	bb	46.618
123478-HxCDF	34.867	1.000	1.941e5	1.618e5	1.017	1.200	1.240	1897	2167	3.09e6	2.62e6	1627.1	1209.4	NO	bd	bd	47.749
234678-HxCDF	35.881	1.000	1.832e5	1.543e5	1.052	1.187	1.240	1897	2167	2.99e6	2.49e6	1575.2	1148.9	NO	bb	bb	45.807
123678-HxCDF	35.012	1.001	1.996e5	1.605e5	1.037	1.244	1.240	1897	2167	3.11e6	2.51e6	1640.7	1160.2	NO	db	db	46.593
123789-HxCDF	36.917	1.001	1.467e5	1.234e5	1.030	1.189	1.240	1897	2167	2.35e6	1.98e6	1236.1	913.5	NO	bb	bb	46.312
1234678-HpCDF	38.745	1.000	1.894e5	1.813e5	1.327	1.045	1.050	1431	1801	3.06e6	2.96e6	2140.5	1643.0	NO	bb	bb	48.808
1234789-HpCDF	40.995	1.000	1.388e5	1.376e5	1.283	1.008	1.050	1431	1801	2.04e6	1.99e6	1427.2	1107.5	NO	bb	bb	49.611
OCDF	45.224	1.006	2.028e5	2.349e5	1.447	0.863	0.890	1255	1609	2.40e6	2.67e6	1915.2	1659.8	NO	bb	bd	92.308
2378-TCDD	26.381	1.001	3.179e4	3.904e4	0.920	0.814	0.770	1128	1084	4.64e5	5.86e5	411.2	541.3	NO	bb	bb	10.590
12378-PeCDD	31.492	1.000	1.670e5	9.927e4	0.995	1.683	1.550	1569	1327	2.49e6	1.53e6	1585.6	1155.9	NO	bb	bb	55.435
123478-HxCDD	35.981	1.000	1.594e5	1.287e5	1.027	1.239	1.240	1924	1620	2.55e6	2.10e6	1325.2	1295.7	NO	bd	bd	47.524
123678-HxCDD	36.104	1.001	1.664e5	1.331e5	1.009	1.250	1.240	1924	1620	2.68e6	2.11e6	1391.8	1302.4	NO	db	db	47.462
123789-HxCDD	36.494	1.011	1.574e5	1.269e5	0.950	1.240	1.240	1924	1620	2.59e6	2.05e6	1346.6	1262.4	NO	bb	bb	49.193
1234678-HpCDD	40.249	1.000	1.070e5	1.016e5	1.068	1.053	1.050	1573	1195	1.64e6	1.53e6	1043.9	1277.8	NO	bb	bb	54.212
OCDD	44.977	1.000	1.700e5	1.942e5	1.181	0.875	0.890	1859	1127	2.13e6	2.37e6	1144.1	2103.2	NO	bb	bb	94.100
13C-2378-TCDF	25.731	1.007	4.773e5	5.924e5	1.427	0.806	0.770	2349	1468	7.17e6	8.83e6	3051.0	6013.2	NO	bb	bb	121.046
13C-12378-PeCDF	29.887	1.169	5.736e5	3.631e5	1.297	1.580	1.550	2128	1767	8.80e6	5.58e6	4134.3	3158.2	NO	bb	bb	116.551
13C-23478-PeCDF	31.235	1.222	5.568e5	3.478e5	1.236	1.601	1.550	2128	1767	8.35e6	5.27e6	3925.6	2980.6	NO	bb	bb	118.087
13C-123478-HxCDF	34.856	0.955	2.487e5	4.843e5	1.242	0.513	0.510	2545	2845	3.85e6	7.49e6	1514.4	2632.3	NO	bd	bd	94.940
13C-123678-HxCDF	34.990	0.959	2.560e5	4.895e5	1.343	0.523	0.510	2545	2845	4.00e6	7.78e6	1570.3	2734.4	NO	db	db	89.290
13C-234678-HxCDF	35.870	0.983	2.391e5	4.611e5	1.215	0.518	0.510	2545	2845	3.66e6	7.06e6	1437.6	2481.4	NO	bb	bb	92.733
13C-123789-HxCDF	36.895	1.011	1.929e5	3.731e5	1.008	0.517	0.510	2545	2845	3.10e6	6.10e6	1219.7	2145.5	NO	bb	bb	90.396
13C-1234678-HpCDF	38.734	1.062	1.794e5	3.928e5	0.926	0.457	0.440	1438	2346	2.92e6	6.37e6	2030.9	2716.7	NO	bb	bb	99.383
13C-1234789-HpCDF	40.984	1.123	1.362e5	2.980e5	0.758	0.457	0.440	1438	2346	1.98e6	4.34e6	1376.2	1847.6	NO	bb	bb	92.185
13C-1234-TCDD	25.564	0.000	2.684e5	3.512e5	1.000	0.764	0.770	1900	918	4.03e6	5.26e6	2122.9	5725.2	NO	bb	bb	100.000
13C-2378-TCDD	26.366	1.031	3.121e5	4.147e5	1.116	0.753	0.770	1900	918	4.76e6	6.36e6	2507.8	6926.7	NO	bb	bb	105.078
13C-12378-PeCDD	31.480	1.231	2.955e5	1.871e5	0.732	1.580	1.550	881	779	4.48e6	2.82e6	5088.5	3626.5	NO	bb	bb	106.427
13C-123478-HxCDD	35.970	0.986	3.330e5	2.572e5	0.960	1.295	1.240	1703	1577	5.55e6	4.26e6	3257.1	2699.9	NO	bd	bd	98.946
13C-123678-HxCDD	36.082	0.989	3.470e5	2.786e5	1.041	1.245	1.240	1703	1577	5.38e6	4.29e6	3159.4	2720.2	NO	db	db	96.666
13C-1234678-HpCDD	40.237	1.103	1.848e5	1.755e5	0.632	1.053	1.050	1225	1159	2.69e6	2.57e6	2198.1	2212.9	NO	bb	bb	91.678
13C-OCDD	44.959	1.232	3.029e5	3.526e5	0.504	0.859	0.890	1877	1088	3.75e6	4.16e6	1999.4	3827.6	NO	bb	bd	209.383
13C-123789-HxCDD	36.483	0.000	3.437e5	2.778e5	1.000	1.237	1.240	1703	1577	5.54e6	4.41e6	3251.0	2798.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.381	1.032	6.843e4		1.084			711		1.00e6		1411.4			bb		10.193

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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ID: CS3Q2, Name: 21091306, Date: 13-Sep-2021, Time: 15:52:01, 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	22.223	0.864	6.047e4	7.743e4	1.425	0.781	0.770	1111	1003	9.39e5	1.22e6	845.5	1217.9	NO	bb	bb	9.045
1289-TCDF	27.273	1.060	4.505e4	5.900e4	1.043	0.764	0.770	1111	1003	6.60e5	8.67e5	594.2	864.9	NO	bb	bb	9.326
13468-PECDF	27.091	0.906	3.655e5	2.384e5	1.376	1.533	1.550	1283	907	5.69e6	3.70e6	4436.2	4076.3	NO	bb	bb	46.844
12389-PECDF	32.305	1.081	2.646e5	1.717e5	1.000	1.541	1.550	2017	1559	3.78e6	2.45e6	1872.5	1568.7	NO	bb	bb	46.604
123468-HXCDF	33.196	0.952	2.007e5	1.650e5	1.087	1.216	1.240	1897	2167	3.14e6	2.56e6	1653.4	1182.2	NO	bb	bb	45.924
1368-TCDD	23.508	0.892	3.282e4	3.951e4	0.923	0.831	0.770	1128	1084	5.02e5	6.09e5	444.7	562.4	NO	bd	bb	10.779
1289-TCDD	27.001	1.024	2.839e4	3.568e4	0.794	0.796	0.770	1128	1084	4.17e5	5.25e5	369.4	484.7	NO	bb	bb	11.102
12479-PECDD	28.762	0.914	2.915e5	1.803e5	1.843	1.617	1.550	1569	1327	2.90e6	1.80e6	1848.2	1356.3	NO	bb	bb	53.035
12389-PECDD	31.904	1.013	1.867e5	1.178e5	1.154	1.584	1.550	1569	1327	2.87e6	1.76e6	1827.5	1324.4	NO	bb	bb	54.703
124679-HXCDD	33.976	0.945	1.761e5	1.446e5	1.125	1.217	1.240	1924	1620	2.71e6	2.19e6	1407.3	1348.7	NO	bb	bb	48.306
1234679-HPCDD	39.201	0.974	1.204e5	1.113e5	1.211	1.082	1.050	1573	1195	1.92e6	1.79e6	1217.9	1500.0	NO	bb	bb	53.099
Total-tetrafurans			1.544e5		1.192			1111		2.33e6							27.889
Total-penta1			3.655e5					1283		5.69e6							46.844
Total-pentafurans			8.722e5		1.047			2017		1.30e7							148.996
Total-hexafurans			9.244e5		1.045			1897		1.47e7							232.384
Total-heptafurans			3.282e5		1.305			1431		5.11e6							98.419
Total-Furans			2.847e6		1.158			1111		4.32e7							646.841
Total-tetradioxins			1.590e5		0.879			1128		2.13e6							55.555
Total-pentadioxins			6.459e5		1.331			1569		8.27e6							163.351
Total-hexadioxins			6.598e5		1.028			1924		1.05e7							192.614
Total-heptadioxins			2.274e5		1.140			1573		3.56e6							107.311
Total-Dioxins			1.862e6		1.092			1128		2.66e7							612.931
Total-TEQ			4.709e6					1128		6.99e7							1259.772
FUNCTION1 PFK			4.543e5					470909		9.92e6							
FUNCTION2 PFK			6.243e6					367665		3.26e7							0.000
FUNCTION3 PFK			4.501e5					372563		1.25e7							0.000
FUNCTION4 PFK			3.092e5					234437		9.89e6							
FUNCTION5 PFK			0.000e0					194766		0.00e0							
FUNCTION1 HXCD...			3.823e2					511		4.34e3							0.000
FUNCTION1 HPCD...			1.099e3					612		1.30e4							0.000
FUNCTION2 HPCD...			2.921e2					697		4.77e3							0.000
FUNCTION3 OCDPE			3.332e2					539		5.43e3							0.000
FUNCTION4 NCDPE			1.482e2					646		3.71e3							0.000
FUNCTION5 DCDPE			0.000e0					495		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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Method: T:\Autospec\Methods\Dioxin210913.mdb 13 Sep 2021 15:49:19
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3Q2, Name: 21091306, Date: 13-Sep-2021, Time: 15:52:01, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	4.505e4	5.900e4	1.043	0.76	0.77	594.2	YES	NO	bb	bb	9.326
2	2378-TCDF	25.76	4.744e4	6.236e4	1.108	0.76	0.77	636.9	YES	NO	bb	bb	9.267
3	Total-tetrafurans	24.84	3.876e2	5.595e2	1.192	0.69	0.77	6.2	YES	NO	bb	bb	0.074
4	Total-tetrafurans	24.66	4.015e2	4.657e2	1.192	0.86	0.77	5.3	YES	NO	db	db	0.068
5	Total-tetrafurans	24.52	6.374e2	7.447e2	1.192	0.86	0.77	9.2	YES	NO	bd	bd	0.108
6	1368-TCDF	22.22	6.047e4	7.743e4	1.425	0.78	0.77	845.5	YES	NO	bb	bb	9.045

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.09	3.655e5	2.384e5	1.376	1.53	1.55	4436.2	YES	NO	bb	bb	46.844

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.91	2.735e5	1.802e5	1.015	1.52	1.55	2095.9	YES	NO	bb	bb	47.725
2	Total-pentafurans	28.75	4.683e4	3.074e4	1.047	1.52	1.55	352.4	YES	NO	bb	bb	8.050
3	12389-PECDF	32.30	2.646e5	1.717e5	1.000	1.54	1.55	1872.5	YES	NO	bb	bb	46.604
4	23478-PeCDF	31.26	2.872e5	1.874e5	1.126	1.53	1.55	2144.2	YES	NO	bb	bb	46.618

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.92	1.467e5	1.234e5	1.030	1.19	1.24	1236.1	YES	NO	bb	bb	46.312
2	234678-HxCDF	35.88	1.832e5	1.543e5	1.052	1.19	1.24	1575.2	YES	NO	bb	bb	45.807
3	123678-HxCDF	35.01	1.996e5	1.605e5	1.037	1.24	1.24	1640.7	YES	NO	db	db	46.593
4	123478-HxCDF	34.87	1.941e5	1.618e5	1.017	1.20	1.24	1627.1	YES	NO	bd	bd	47.749
5	123468-HXCDF	33.20	2.007e5	1.650e5	1.087	1.22	1.24	1653.4	YES	NO	bb	bb	45.924

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.00	1.388e5	1.376e5	1.283	1.01	1.05	1427.2	YES	NO	bb	bb	49.611
2	1234678-HpCDF	38.74	1.894e5	1.813e5	1.327	1.04	1.05	2140.5	YES	NO	bb	bb	48.808

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	4.505e4	5.900e4	1.043	0.76	0.77	594.2	YES	NO	bb	bb	9.326
2	2378-TCDF	25.76	4.744e4	6.236e4	1.108	0.76	0.77	636.9	YES	NO	bb	bb	9.267
3	Total-tetrafurans	24.84	3.876e2	5.595e2	1.192	0.69	0.77	6.2	YES	NO	bb	bb	0.074
4	Total-tetrafurans	24.66	4.015e2	4.657e2	1.192	0.86	0.77	5.3	YES	NO	db	db	0.068
5	Total-tetrafurans	24.52	6.374e2	7.447e2	1.192	0.86	0.77	9.2	YES	NO	bd	bd	0.108
6	1368-TCDF	22.22	6.047e4	7.743e4	1.425	0.78	0.77	845.5	YES	NO	bb	bb	9.045
7	12378-PeCDF	29.91	2.735e5	1.802e5	1.015	1.52	1.55	2095.9	YES	NO	bb	bb	47.725
8	Total-pentafurans	28.75	4.683e4	3.074e4	1.047	1.52	1.55	352.4	YES	NO	bb	bb	8.050
9	12389-PECDF	32.30	2.646e5	1.717e5	1.000	1.54	1.55	1872.5	YES	NO	bb	bb	46.604
10	23478-PeCDF	31.26	2.872e5	1.874e5	1.126	1.53	1.55	2144.2	YES	NO	bb	bb	46.618
11	123789-HxCDF	36.92	1.467e5	1.234e5	1.030	1.19	1.24	1236.1	YES	NO	bb	bb	46.312
12	234678-HxCDF	35.88	1.832e5	1.543e5	1.052	1.19	1.24	1575.2	YES	NO	bb	bb	45.807
13	123678-HxCDF	35.01	1.996e5	1.605e5	1.037	1.24	1.24	1640.7	YES	NO	db	db	46.593
14	123478-HxCDF	34.87	1.941e5	1.618e5	1.017	1.20	1.24	1627.1	YES	NO	bd	bd	47.749
15	123468-HXCDF	33.20	2.007e5	1.650e5	1.087	1.22	1.24	1653.4	YES	NO	bb	bb	45.924
16	1234789-HpCDF	41.00	1.388e5	1.376e5	1.283	1.01	1.05	1427.2	YES	NO	bb	bb	49.611
17	1234678-HpCDF	38.74	1.894e5	1.813e5	1.327	1.04	1.05	2140.5	YES	NO	bb	bb	48.808
18	OCDF	45.22	2.028e5	2.349e5	1.447	0.86	0.89	1915.2	YES	NO	bb	bd	92.308
19	13468-PECDF	27.09	3.655e5	2.384e5	1.376	1.53	1.55	4436.2	YES	NO	bb	bb	46.844

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.69	1.399e3	1.845e3	0.879	0.76	0.77	12.6	YES	NO	bb	bb	0.508
2	1368-TCDD	23.51	3.282e4	3.951e4	0.923	0.83	0.77	444.7	YES	NO	bd	bb	10.779
3	1289-TCDD	27.00	2.839e4	3.568e4	0.794	0.80	0.77	369.4	YES	NO	bb	bb	11.102
4	2378-TCDD	26.38	3.179e4	3.904e4	0.920	0.81	0.77	411.2	YES	NO	bb	bb	10.590
5	Total-tetradioxins	26.06	4.907e4	6.071e4	0.879	0.81	0.77	432.3	YES	NO	bb	bb	17.181
6	Total-tetradioxins	25.58	1.554e4	1.894e4	0.879	0.82	0.77	216.0	YES	NO	bd	bb	5.396

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.90	1.867e5	1.178e5	1.154	1.58	1.55	1827.5	YES	NO	bb	bb	54.703
2	12378-PeCDD	31.49	1.670e5	9.927e4	0.995	1.68	1.55	1585.6	YES	NO	bb	bb	55.435
3	Total-pentadioxins	30.82	6.661e2	4.784e2	1.331	1.39	1.55	6.3	YES	NO	bb	bb	0.178
4	12479-PECDD	28.76	2.915e5	1.803e5	1.843	1.62	1.55	1848.2	YES	NO	bb	bb	53.035

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.49	1.574e5	1.269e5	0.950	1.24	1.24	1346.6	YES	NO	bb	bb	49.193
2	123678-HxCDD	36.10	1.664e5	1.331e5	1.009	1.25	1.24	1391.8	YES	NO	db	db	47.462
3	123478-HxCDD	35.98	1.594e5	1.287e5	1.027	1.24	1.24	1325.2	YES	NO	bd	bd	47.524
4	Total-hexadioxins	34.74	4.446e2	3.574e2	1.028	1.24	1.24	3.4	NO	NO	bd	bb	0.128
5	124679-HXCDD	33.98	1.761e5	1.446e5	1.125	1.22	1.24	1407.3	YES	NO	bb	bb	48.306

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.20	1.204e5	1.113e5	1.211	1.08	1.05	1217.9	YES	NO	bb	bb	53.099
2	1234678-HpCDD	40.25	1.070e5	1.016e5	1.068	1.05	1.05	1043.9	YES	NO	bb	bb	54.212

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	24.69	1.399e3	1.845e3	0.879	0.76	0.77	12.6	YES	NO	bb	bb	0.508
2	1368-TCDD	23.51	3.282e4	3.951e4	0.923	0.83	0.77	444.7	YES	NO	bd	bb	10.779
3	1289-TCDD	27.00	2.839e4	3.568e4	0.794	0.80	0.77	369.4	YES	NO	bb	bb	11.102
4	2378-TCDD	26.38	3.179e4	3.904e4	0.920	0.81	0.77	411.2	YES	NO	bb	bb	10.590
5	Total-tetradioxins	26.06	4.907e4	6.071e4	0.879	0.81	0.77	432.3	YES	NO	bb	bb	17.181
6	Total-tetradioxins	25.58	1.554e4	1.894e4	0.879	0.82	0.77	216.0	YES	NO	bd	bb	5.396
7	12389-PECDD	31.90	1.867e5	1.178e5	1.154	1.58	1.55	1827.5	YES	NO	bb	bb	54.703
8	12378-PeCDD	31.49	1.670e5	9.927e4	0.995	1.68	1.55	1585.6	YES	NO	bb	bb	55.435
9	Total-pentadioxins	30.82	6.661e2	4.784e2	1.331	1.39	1.55	6.3	YES	NO	bb	bb	0.178
10	12479-PECDD	28.76	2.915e5	1.803e5	1.843	1.62	1.55	1848.2	YES	NO	bb	bb	53.035
11	123789-HxCDD	36.49	1.574e5	1.269e5	0.950	1.24	1.24	1346.6	YES	NO	bb	bb	49.193
12	123678-HxCDD	36.10	1.664e5	1.331e5	1.009	1.25	1.24	1391.8	YES	NO	db	db	47.462
13	123478-HxCDD	35.98	1.594e5	1.287e5	1.027	1.24	1.24	1325.2	YES	NO	bd	bd	47.524
14	Total-hexadioxins	34.74	4.446e2	3.574e2	1.028	1.24	1.24	3.4	NO	NO	bd	bb	0.128
15	124679-HXCDD	33.98	1.761e5	1.446e5	1.125	1.22	1.24	1407.3	YES	NO	bb	bb	48.306
16	1234679-HPCDD	39.20	1.204e5	1.113e5	1.211	1.08	1.05	1217.9	YES	NO	bb	bb	53.099
17	1234678-HpCDD	40.25	1.070e5	1.016e5	1.068	1.05	1.05	1043.9	YES	NO	bb	bb	54.212
18	OCDD	44.98	1.700e5	1.942e5	1.181	0.88	0.89	1144.1	YES	NO	bb	bb	94.100

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
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ID: CS3Q2, Name: 21091306, Date: 13-Sep-2021, Time: 15:52:01, 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	1289-TCDF	27.27	4.505e4	5.900e4	1.043	0.76	0.77	594.2	YES	NO	bb	bb	9.326
2	2378-TCDF	25.76	4.744e4	6.236e4	1.108	0.76	0.77	636.9	YES	NO	bb	bb	9.267
3	Total-tetrafurans	24.84	3.876e2	5.595e2	1.192	0.69	0.77	6.2	YES	NO	bb	bb	0.074
4	Total-tetrafurans	24.66	4.015e2	4.657e2	1.192	0.86	0.77	5.3	YES	NO	db	db	0.068
5	Total-tetrafurans	24.52	6.374e2	7.447e2	1.192	0.86	0.77	9.2	YES	NO	bd	bd	0.108
6	1368-TCDF	22.22	6.047e4	7.743e4	1.425	0.78	0.77	845.5	YES	NO	bb	bb	9.045
7	12378-PeCDF	29.91	2.735e5	1.802e5	1.015	1.52	1.55	2095.9	YES	NO	bb	bb	47.725
8	Total-pentafurans	28.75	4.683e4	3.074e4	1.047	1.52	1.55	352.4	YES	NO	bb	bb	8.050
9	12389-PECDF	32.30	2.646e5	1.717e5	1.000	1.54	1.55	1872.5	YES	NO	bb	bb	46.604
10	23478-PeCDF	31.26	2.872e5	1.874e5	1.126	1.53	1.55	2144.2	YES	NO	bb	bb	46.618
11	123789-HxCDF	36.92	1.467e5	1.234e5	1.030	1.19	1.24	1236.1	YES	NO	bb	bb	46.312
12	234678-HxCDF	35.88	1.832e5	1.543e5	1.052	1.19	1.24	1575.2	YES	NO	bb	bb	45.807
13	123678-HxCDF	35.01	1.996e5	1.605e5	1.037	1.24	1.24	1640.7	YES	NO	db	db	46.593
14	123478-HxCDF	34.87	1.941e5	1.618e5	1.017	1.20	1.24	1627.1	YES	NO	bd	bd	47.749
15	123468-HXCDF	33.20	2.007e5	1.650e5	1.087	1.22	1.24	1653.4	YES	NO	bb	bb	45.924
16	1234789-HpCDF	41.00	1.388e5	1.376e5	1.283	1.01	1.05	1427.2	YES	NO	bb	bb	49.611
17	1234678-HpCDF	38.74	1.894e5	1.813e5	1.327	1.04	1.05	2140.5	YES	NO	bb	bb	48.808
18	OCDF	45.22	2.028e5	2.349e5	1.447	0.86	0.89	1915.2	YES	NO	bb	bd	92.308
19	13468-PECDF	27.09	3.655e5	2.384e5	1.376	1.53	1.55	4436.2	YES	NO	bb	bb	46.844
20	Total-tetradioxins	24.69	1.399e3	1.845e3	0.879	0.76	0.77	12.6	YES	NO	bb	bb	0.508
21	1368-TCDD	23.51	3.282e4	3.951e4	0.923	0.83	0.77	444.7	YES	NO	bd	bb	10.779
22	1289-TCDD	27.00	2.839e4	3.568e4	0.794	0.80	0.77	369.4	YES	NO	bb	bb	11.102
23	2378-TCDD	26.38	3.179e4	3.904e4	0.920	0.81	0.77	411.2	YES	NO	bb	bb	10.590
24	Total-tetradioxins	26.06	4.907e4	6.071e4	0.879	0.81	0.77	432.3	YES	NO	bb	bb	17.181
25	Total-tetradioxins	25.58	1.554e4	1.894e4	0.879	0.82	0.77	216.0	YES	NO	bd	bb	5.396
26	12389-PECDD	31.90	1.867e5	1.178e5	1.154	1.58	1.55	1827.5	YES	NO	bb	bb	54.703
27	12378-PeCDD	31.49	1.670e5	9.927e4	0.995	1.68	1.55	1585.6	YES	NO	bb	bb	55.435
28	Total-pentadioxins	30.82	6.661e2	4.784e2	1.331	1.39	1.55	6.3	YES	NO	bb	bb	0.178
29	12479-PECDD	28.76	2.915e5	1.803e5	1.843	1.62	1.55	1848.2	YES	NO	bb	bb	53.035
30	123789-HxCDD	36.49	1.574e5	1.269e5	0.950	1.24	1.24	1346.6	YES	NO	bb	bb	49.193
31	123678-HxCDD	36.10	1.664e5	1.331e5	1.009	1.25	1.24	1391.8	YES	NO	db	db	47.462
32	123478-HxCDD	35.98	1.594e5	1.287e5	1.027	1.24	1.24	1325.2	YES	NO	bd	bd	47.524
33	Total-hexadioxins	34.74	4.446e2	3.574e2	1.028	1.24	1.24	3.4	NO	NO	bd	bb	0.128
34	124679-HXCDD	33.98	1.761e5	1.446e5	1.125	1.22	1.24	1407.3	YES	NO	bb	bb	48.306
35	1234679-HPCDD	39.20	1.204e5	1.113e5	1.211	1.08	1.05	1217.9	YES	NO	bb	bb	53.099
36	1234678-HpCDD	40.25	1.070e5	1.016e5	1.068	1.05	1.05	1043.9	YES	NO	bb	bb	54.212
37	OCDD	44.98	1.700e5	1.942e5	1.181	0.88	0.89	1144.1	YES	NO	bb	bb	94.100

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.78	7.651e3					0.7	NO		bb		
2	FUNCTION1 PFK	24.46	7.081e4					2.0	NO		bb		
3	FUNCTION1 PFK	23.83	1.523e4					1.0	NO		bb		
4	FUNCTION1 PFK	23.72	4.088e3					0.6	NO		bb		
5	FUNCTION1 PFK	23.43	4.680e3					0.7	NO		bb		
6	FUNCTION1 PFK	23.02	1.076e4					1.0	NO		bb		
7	FUNCTION1 PFK	22.53	8.462e3					0.8	NO		db		
8	FUNCTION1 PFK	22.45	5.601e4					2.3	NO		bd		
9	FUNCTION1 PFK	22.06	8.473e3					0.8	NO		bb		
10	FUNCTION1 PFK	21.59	1.444e4					1.1	NO		bb		
11	FUNCTION1 PFK	21.33	2.773e4					1.3	NO		bb		
12	FUNCTION1 PFK	28.06	2.043e4					0.8	NO		bb		
13	FUNCTION1 PFK	27.97	9.973e3					0.8	NO		bb		
14	FUNCTION1 PFK	27.58	3.338e4					1.4	NO		bb		
15	FUNCTION1 PFK	26.49	3.842e3					0.5	NO		bb		
16	FUNCTION1 PFK	26.29	2.076e4					1.3	NO		bb		
17	FUNCTION1 PFK	26.21	1.440e4					0.9	NO		bb		
18	FUNCTION1 PFK	26.15	1.196e4					1.1	NO		bb		
19	FUNCTION1 PFK	26.09	1.112e5					1.9	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.58	4.359e6					20.6	YES		db		0.000
2	FUNCTION2 PFK	28.26	5.398e5					33.8	YES		dd		0.000
3	FUNCTION2 PFK	28.23	1.344e6					34.3	YES		bd		0.000

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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	33.52	5.118e3					0.7	NO		bb		0.000
2	FUNCTION3 PFK	33.24	2.010e4					1.3	NO		bb		0.000
3	FUNCTION3 PFK	33.07	1.868e4					1.8	NO		bb		0.000
4	FUNCTION3 PFK	36.95	2.789e3					0.5	NO		bb		0.000
5	FUNCTION3 PFK	36.91	2.907e4					1.9	NO		bb		0.000
6	FUNCTION3 PFK	36.72	8.923e3					0.9	NO		bb		0.000
7	FUNCTION3 PFK	36.61	2.973e4					1.8	NO		bb		0.000
8	FUNCTION3 PFK	35.93	1.528e4					0.7	NO		bb		0.000
9	FUNCTION3 PFK	35.88	1.618e3					0.4	NO		bb		0.000
10	FUNCTION3 PFK	35.59	9.239e3					1.0	NO		db		0.000
11	FUNCTION3 PFK	35.55	2.459e4					2.5	NO		bd		0.000
12	FUNCTION3 PFK	34.69	7.074e3					0.8	NO		db		0.000
13	FUNCTION3 PFK	34.64	2.223e4					1.8	NO		bd		0.000
14	FUNCTION3 PFK	34.59	3.121e3					0.8	NO		bb		0.000
15	FUNCTION3 PFK	34.35	6.310e3					1.0	NO		bb		0.000
16	FUNCTION3 PFK	34.30	3.307e3					0.6	NO		bb		0.000
17	FUNCTION3 PFK	34.15	1.119e4					1.0	NO		bb		0.000
18	FUNCTION3 PFK	33.64	5.190e4					2.1	NO		bb		0.000
19	FUNCTION3 PFK	33.60	1.973e3					0.5	NO		bb		0.000
20	FUNCTION3 PFK	37.88	2.217e3					0.5	NO		bb		0.000
21	FUNCTION3 PFK	37.83	4.606e3					0.7	NO		bb		0.000
22	FUNCTION3 PFK	37.70	1.670e4					1.5	NO		bb		0.000
23	FUNCTION3 PFK	37.65	8.739e3					0.9	NO		bb		0.000
24	FUNCTION3 PFK	37.47	4.781e4					2.6	NO		db		0.000
25	FUNCTION3 PFK	37.42	2.231e4					1.9	NO		bd		0.000
26	FUNCTION3 PFK	37.20	5.714e3					0.8	NO		bb		0.000
27	FUNCTION3 PFK	37.07	6.758e4					1.9	NO		bb		0.000
28	FUNCTION3 PFK	37.00	2.155e3					0.5	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.44	5.093e3					1.0	NO		bb		
2	FUNCTION4 PFK	38.30	6.726e3					1.1	NO		bb		
3	FUNCTION4 PFK	38.21	2.398e4					2.3	NO		db		
4	FUNCTION4 PFK	38.14	1.839e4					2.3	NO		bd		
5	FUNCTION4 PFK	38.09	1.448e4					1.5	NO		db		
6	FUNCTION4 PFK	38.00	4.324e3					0.9	NO		bd		
7	FUNCTION4 PFK	40.86	4.079e3					0.9	NO		bd		
8	FUNCTION4 PFK	40.71	8.724e3					1.2	NO		bb		
9	FUNCTION4 PFK	40.43	3.783e3					0.8	NO		bb		
10	FUNCTION4 PFK	40.36	8.400e3					1.3	NO		bb		
11	FUNCTION4 PFK	40.20	3.929e3					0.7	NO		bb		
12	FUNCTION4 PFK	39.68	9.539e3					1.2	NO		bb		
13	FUNCTION4 PFK	39.61	7.171e3					1.3	NO		bb		
14	FUNCTION4 PFK	39.50	1.783e4					1.4	NO		db		
15	FUNCTION4 PFK	39.45	4.762e3					0.9	NO		bd		
16	FUNCTION4 PFK	39.40	7.509e3					1.2	NO		db		
17	FUNCTION4 PFK	39.36	1.097e4					1.4	NO		bd		
18	FUNCTION4 PFK	39.15	2.156e4					2.3	NO		bb		
19	FUNCTION4 PFK	38.89	4.934e3					0.8	NO		bb		
20	FUNCTION4 PFK	38.82	1.042e3					0.4	NO		bb		
21	FUNCTION4 PFK	38.76	8.601e3					0.9	NO		bb		
22	FUNCTION4 PFK	38.51	2.175e3					0.5	NO		bb		
23	FUNCTION4 PFK	42.77	8.815e3					1.1	NO		db		
24	FUNCTION4 PFK	42.73	1.509e3					0.5	NO		bd		
25	FUNCTION4 PFK	42.69	3.786e3					0.9	NO		bb		
26	FUNCTION4 PFK	42.55	1.259e3					0.5	NO		bb		
27	FUNCTION4 PFK	42.45	1.097e4					1.3	NO		bb		
28	FUNCTION4 PFK	42.35	2.574e3					0.6	NO		bb		
29	FUNCTION4 PFK	42.23	4.759e3					0.9	NO		bb		
30	FUNCTION4 PFK	42.14	1.282e4					1.1	NO		bb		
31	FUNCTION4 PFK	41.94	1.637e4					1.8	NO		bb		
32	FUNCTION4 PFK	41.71	2.436e3					0.6	NO		db		
33	FUNCTION4 PFK	41.67	6.524e3					1.0	NO		dd		
34	FUNCTION4 PFK	41.63	1.698e4					1.5	NO		bd		
35	FUNCTION4 PFK	41.52	8.645e3					1.1	NO		db		
36	FUNCTION4 PFK	41.46	3.478e3					0.8	NO		bd		
37	FUNCTION4 PFK	41.32	4.932e3					1.0	NO		bb		

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	40.91	5.336e3					0.9	NO		db		

PFK5

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

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.08	2.429e2					3.8	YES		bb		0.000
2	FUNCTION1 HXCD...	21.27	1.394e2					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...	26.65	8.503e1					1.2	NO		bb		0.000
2	FUNCTION1 HPCD...	26.03	1.059e2					1.6	NO		bb		0.000
3	FUNCTION1 HPCD...	23.25	1.128e2					2.3	NO		bb		0.000
4	FUNCTION1 HPCD...	23.07	7.544e1					1.8	NO		bb		0.000
5	FUNCTION1 HPCD...	21.51	1.408e2					2.6	NO		db		0.000
6	FUNCTION1 HPCD...	21.25	3.851e2					5.2	YES		dd		0.000
7	FUNCTION1 HPCD...	21.19	8.665e1					3.7	YES		dd		0.000
8	FUNCTION1 HPCD...	21.13	1.072e2					2.9	NO		bd		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.08	2.921e2					6.8	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.52	7.246e1					3.1	YES		db		0.000
2	FUNCTION3 OCDPE	36.48	1.270e2					4.5	YES		bd		0.000
3	FUNCTION3 OCDPE	34.24	1.337e2					2.5	NO		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.20	7.503e1					2.2	NO		db		0.000
2	FUNCTION4 NCDPE	40.17	7.315e1					3.5	YES		bd		0.000

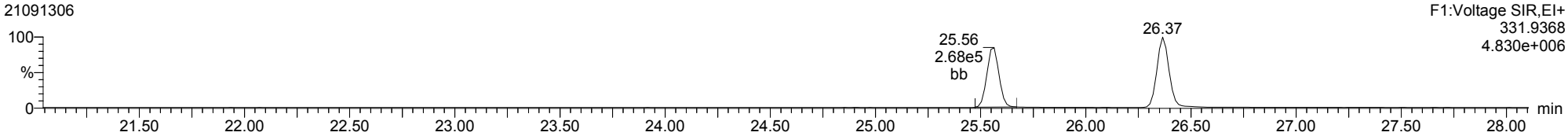
ETHERS6

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

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

ID: CS3Q2, Name: 21091306, Date: 13-Sep-2021, Time: 15:52:01, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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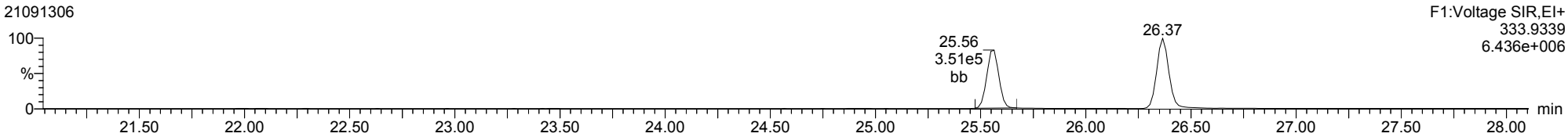
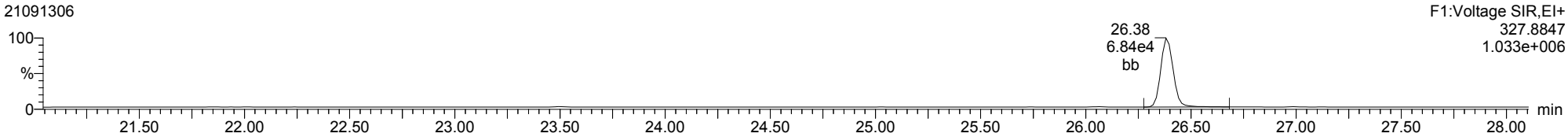


37CL-2378-TCDD



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Printed: Tuesday, September 14, 2021 11:15:22 Pacific Daylight Time

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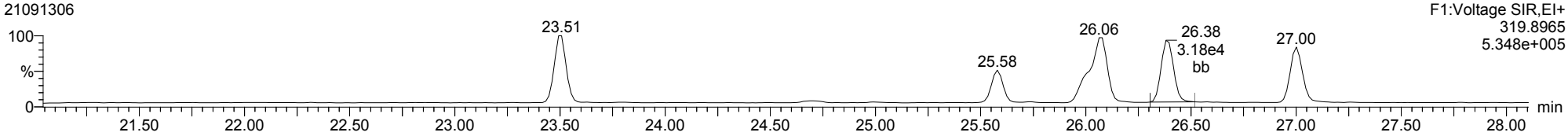
2378-TCDD



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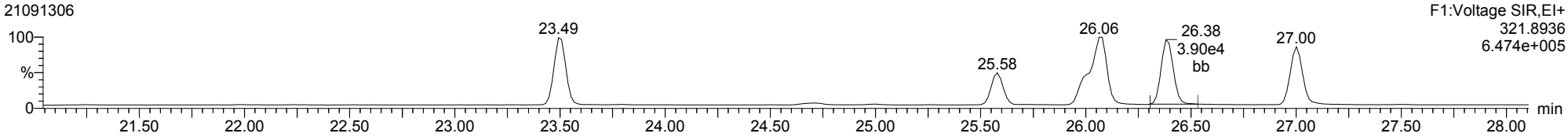

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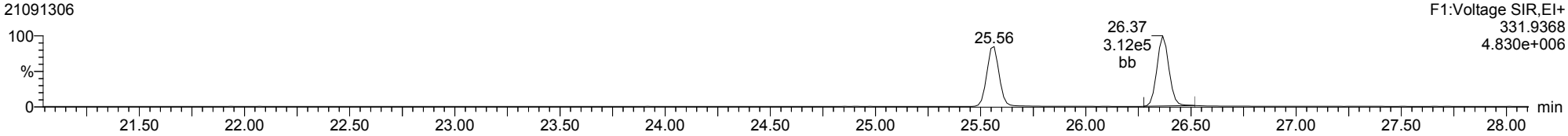

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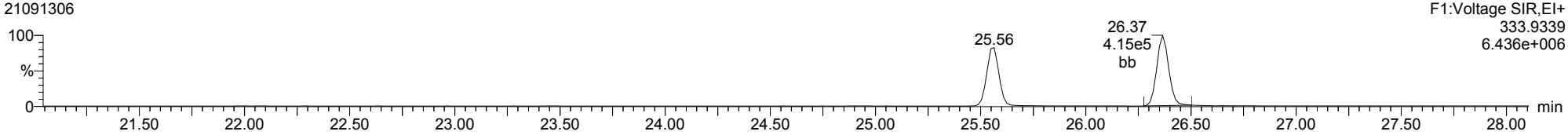
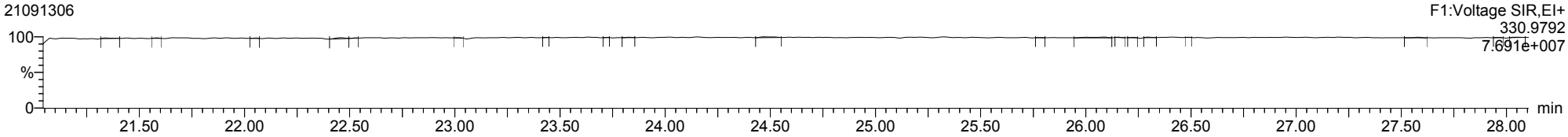


FUNCTION1 PFK



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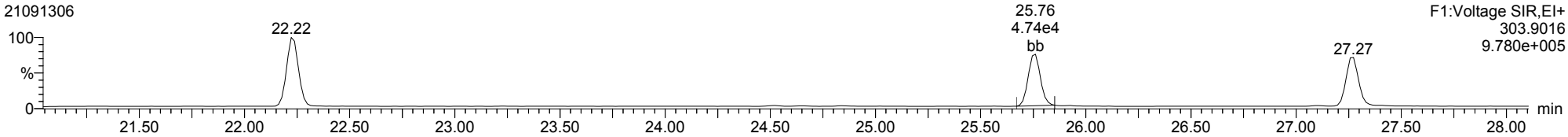
2378-TCDF



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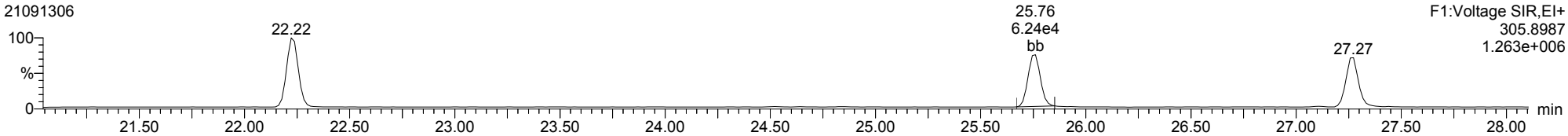

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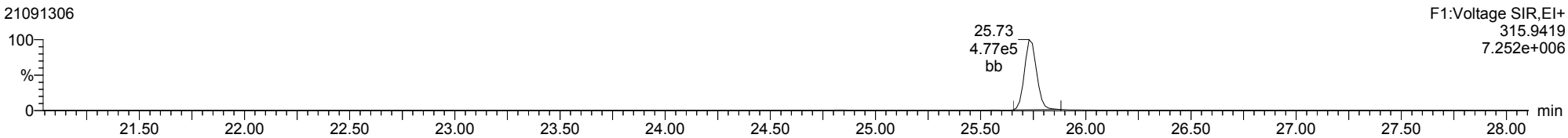

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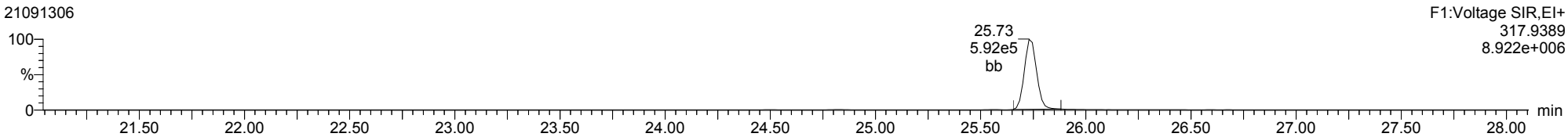

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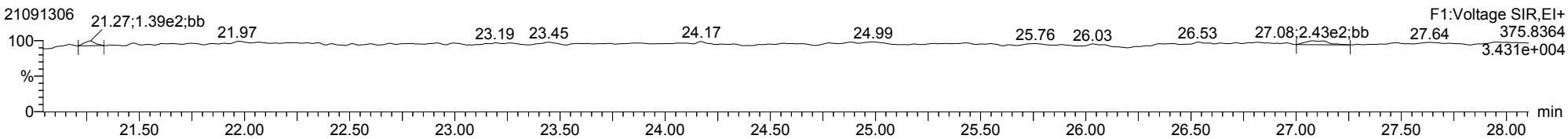

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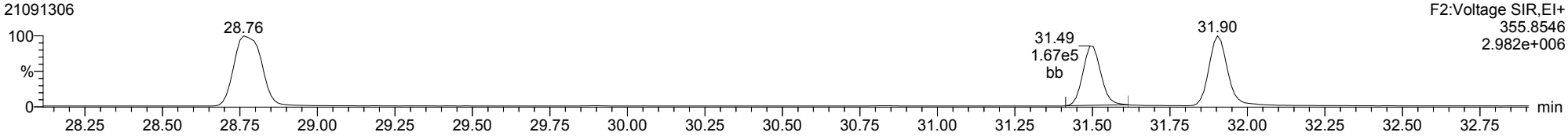
12378-PeCDD



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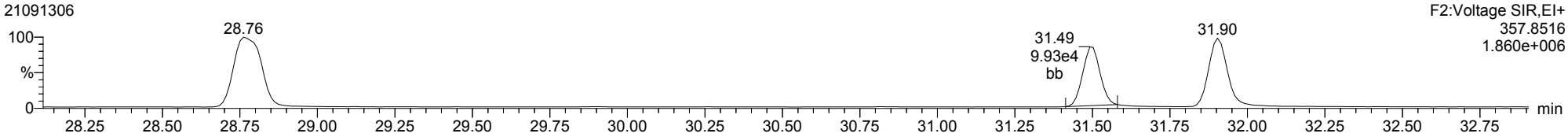

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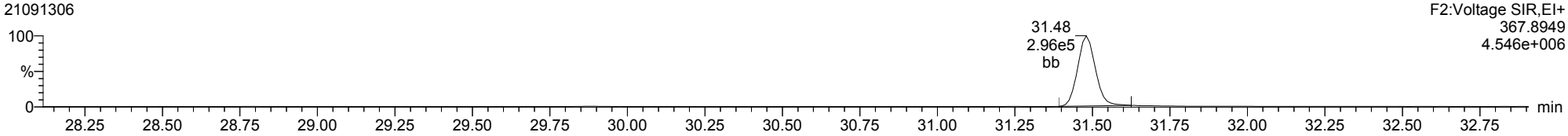

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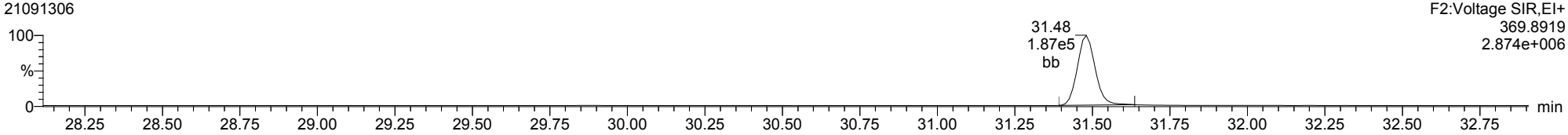
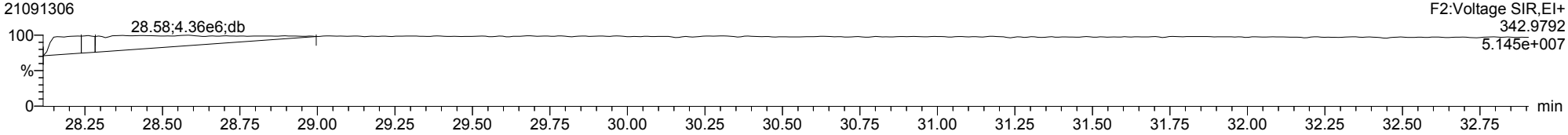


FUNCTION2 PFK



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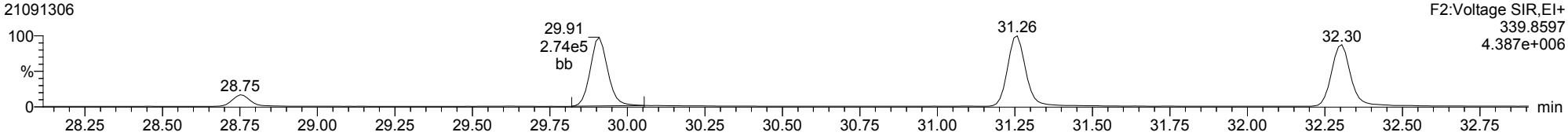
12378-PeCDF



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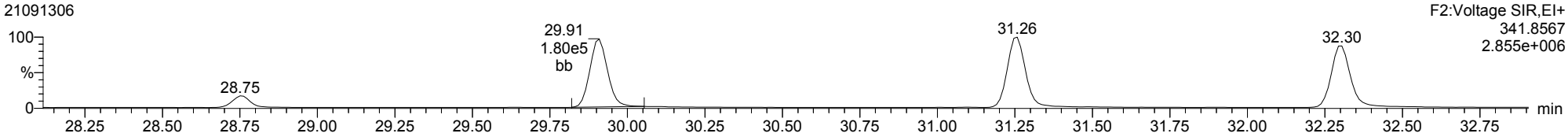

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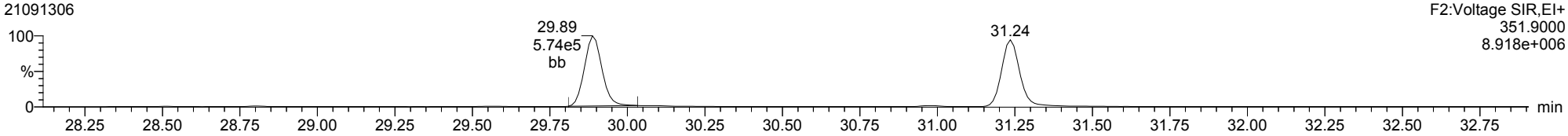

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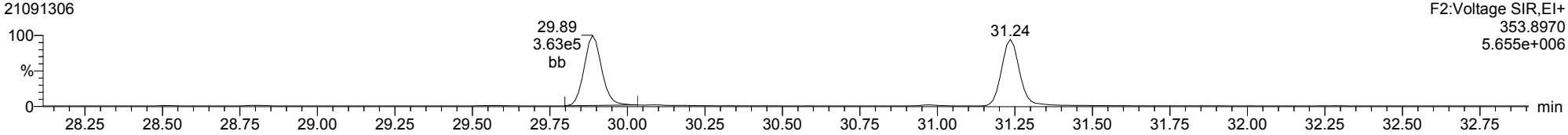
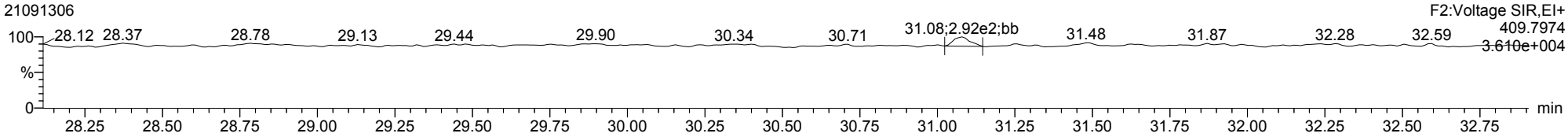


FUNCTION2 HPCDPE



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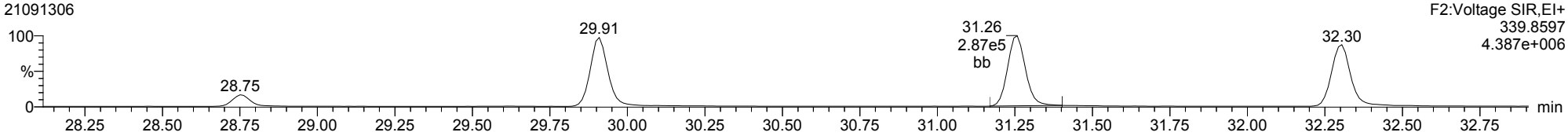
23478-PeCDF



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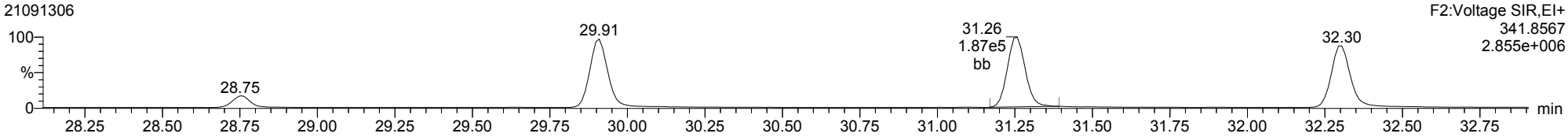

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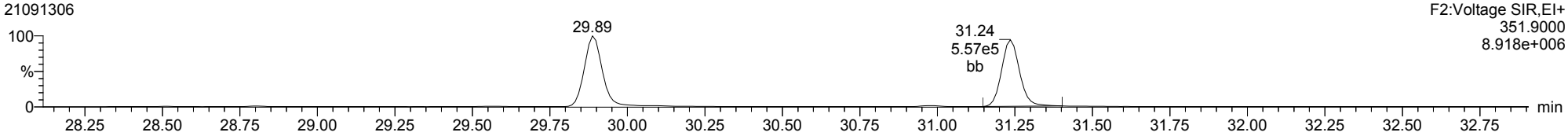

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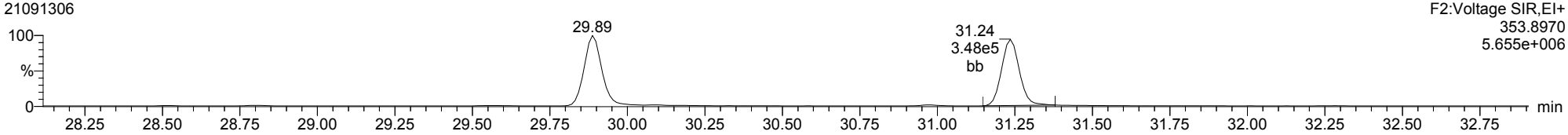

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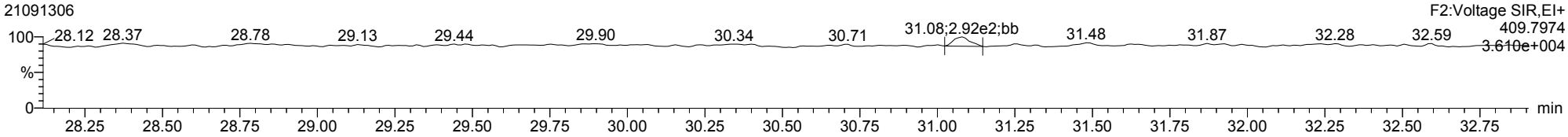

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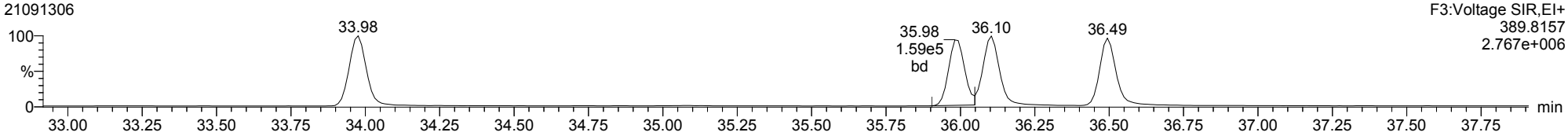
123478-HxCDD



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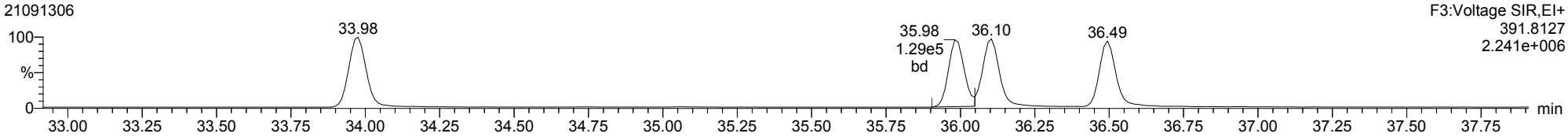

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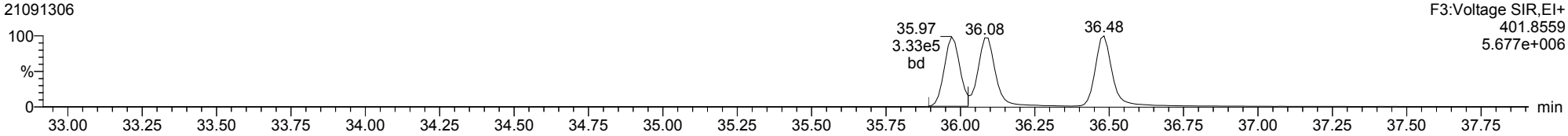

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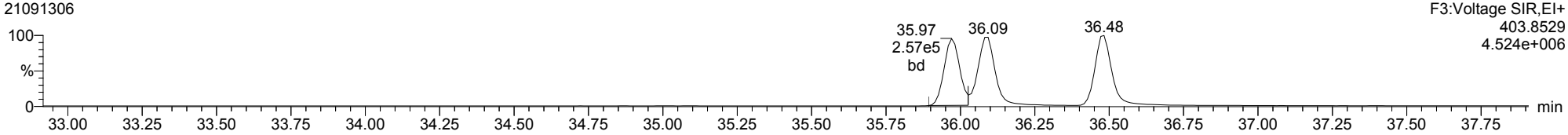

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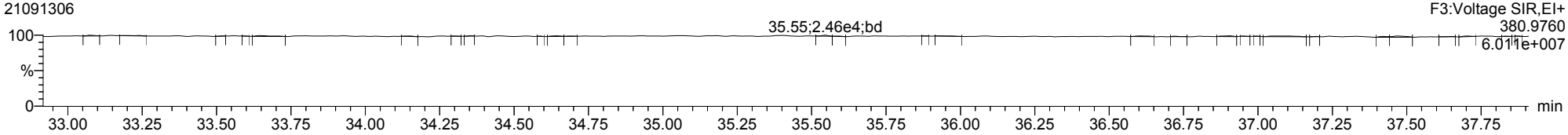

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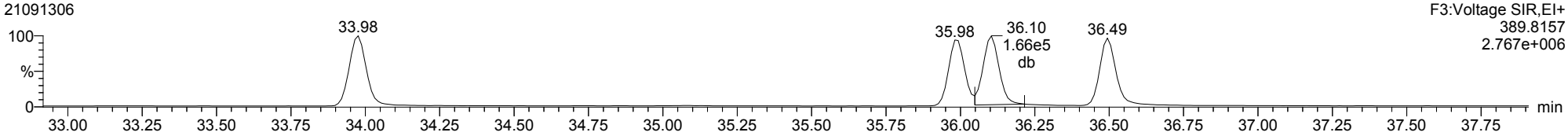
123678-HxCDD



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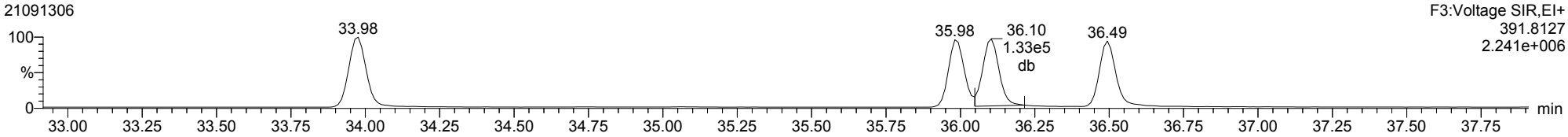

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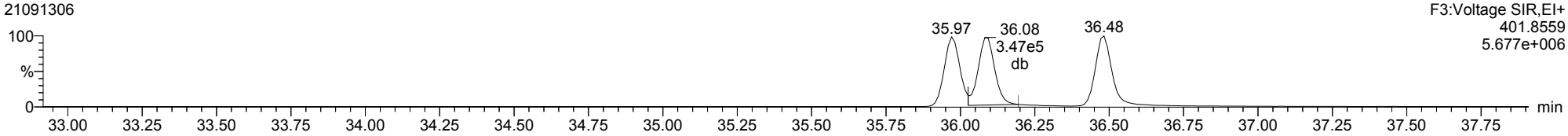

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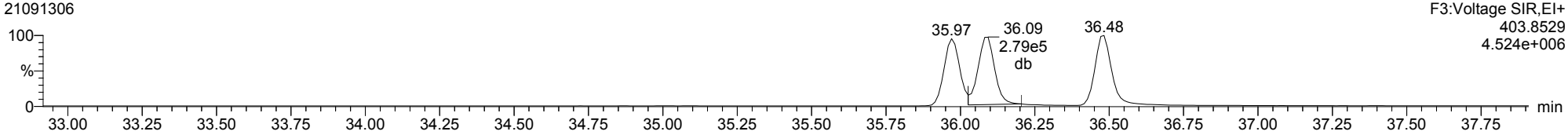

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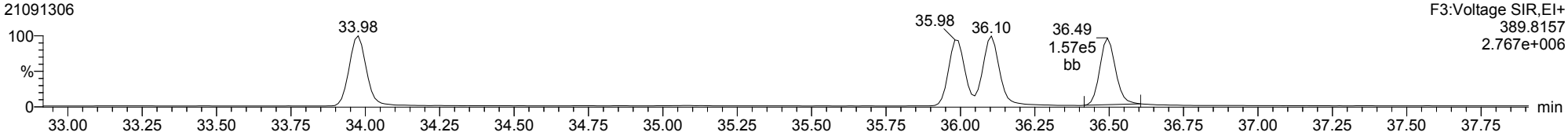
123789-HxCDD



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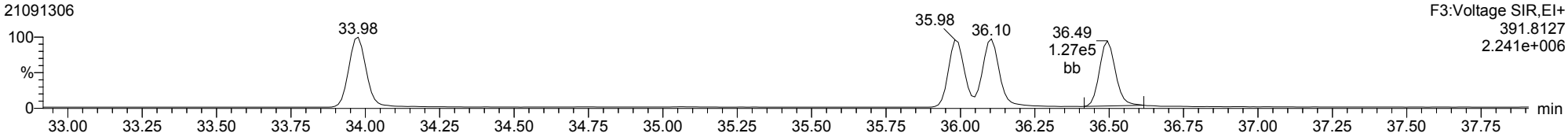

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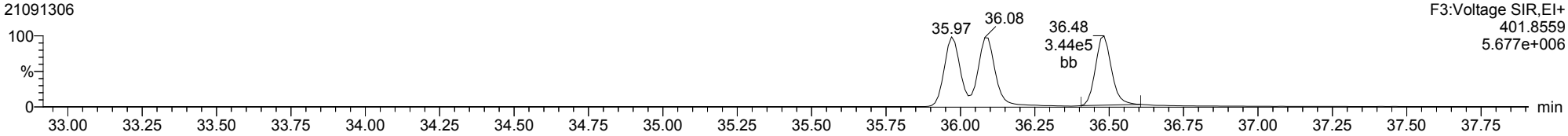

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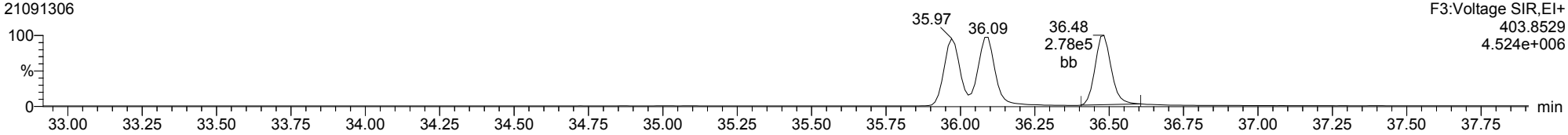

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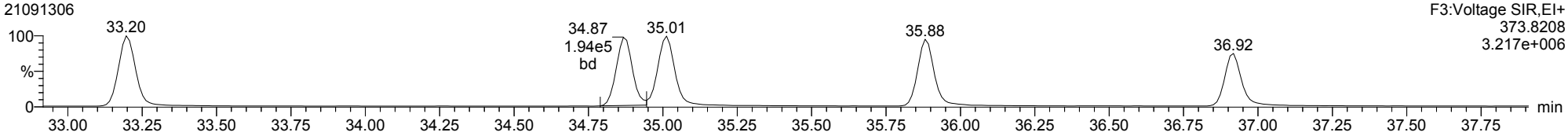
123478-HxCDF



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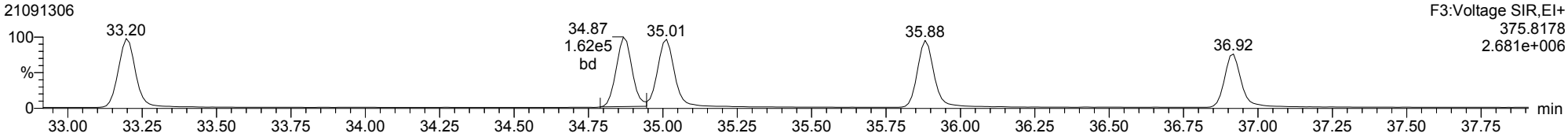

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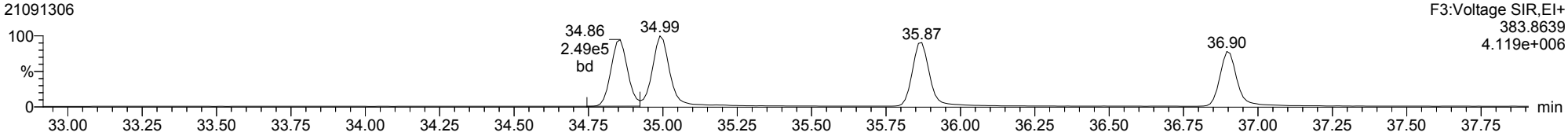

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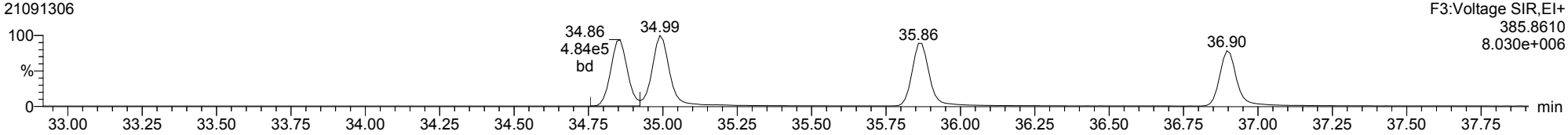
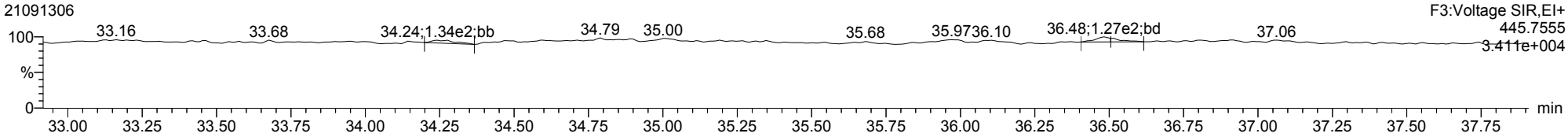


FUNCTION3 OCDPE



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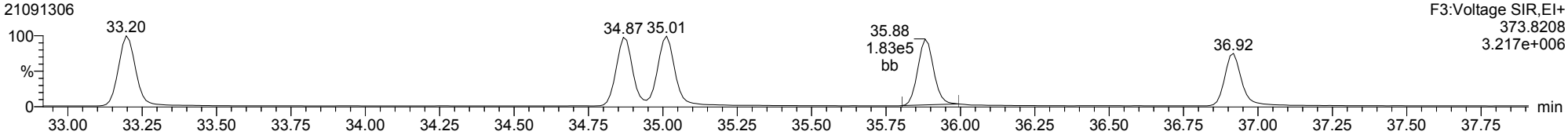
234678-HxCDF



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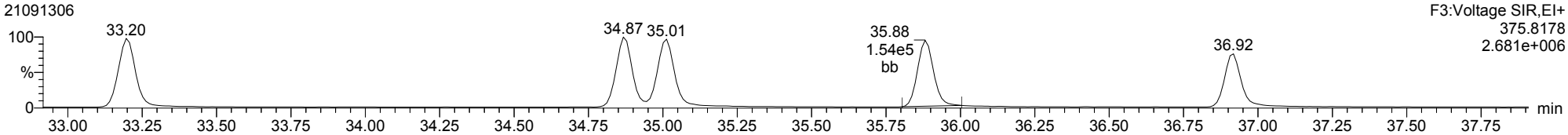

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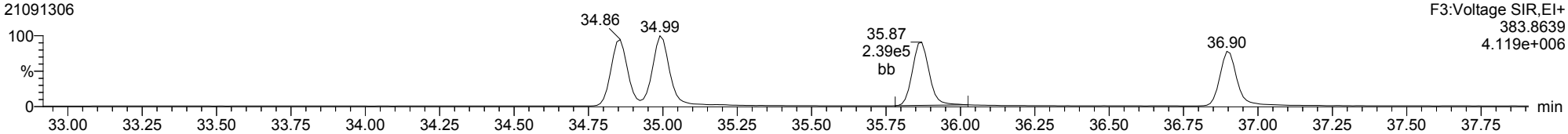

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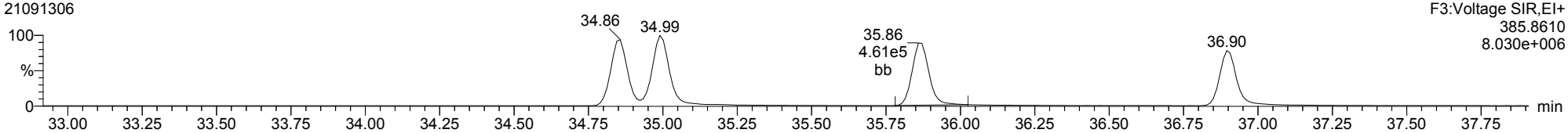
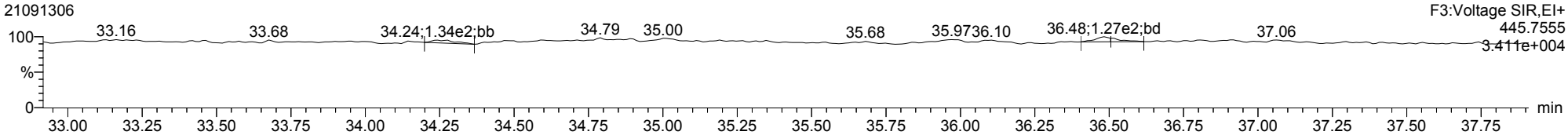


FUNCTION3 OCDPE



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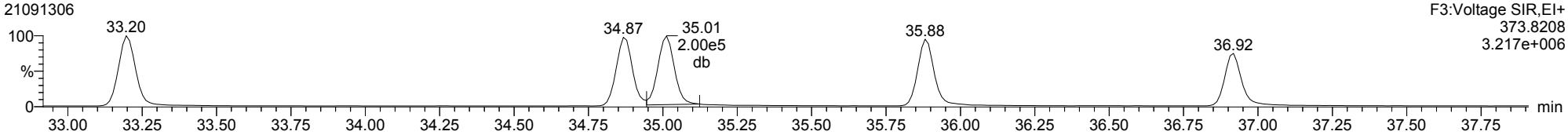

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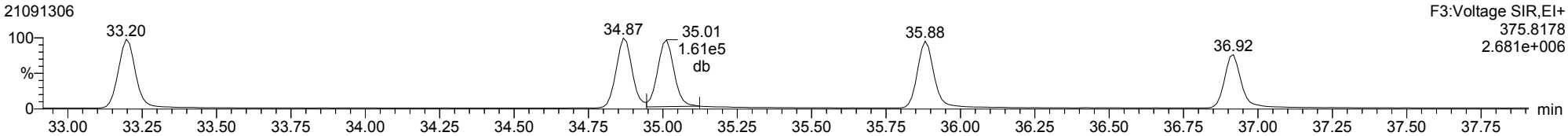

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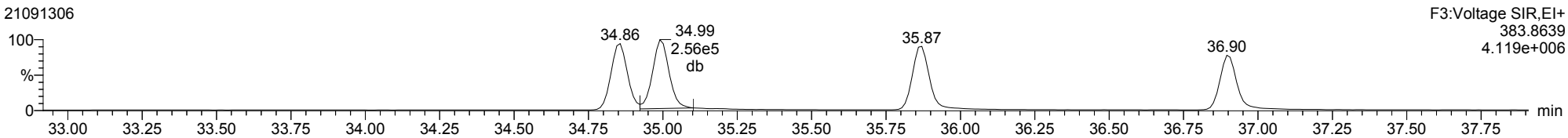

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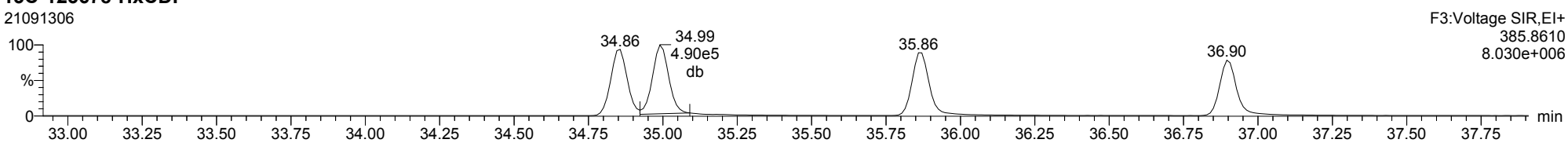

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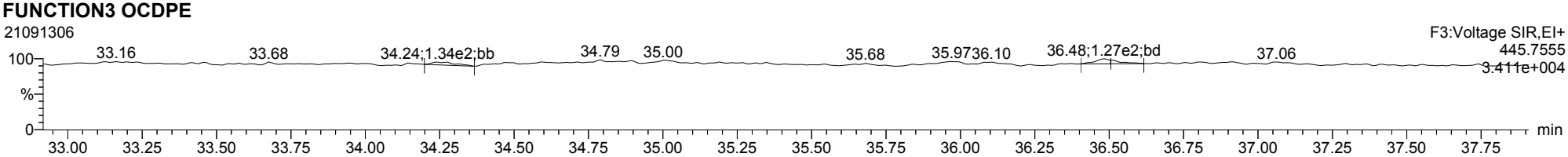

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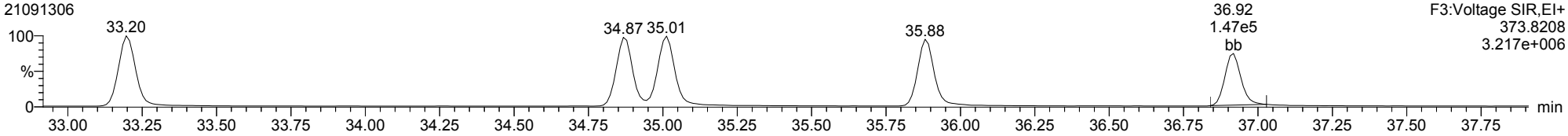

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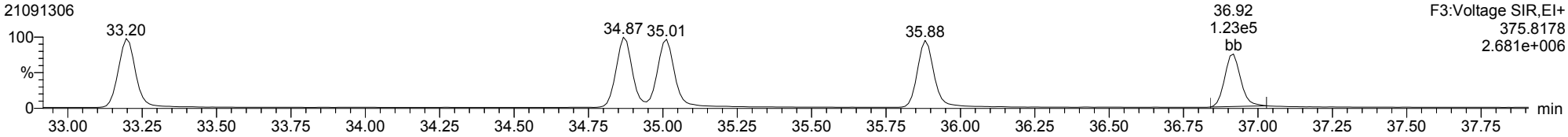

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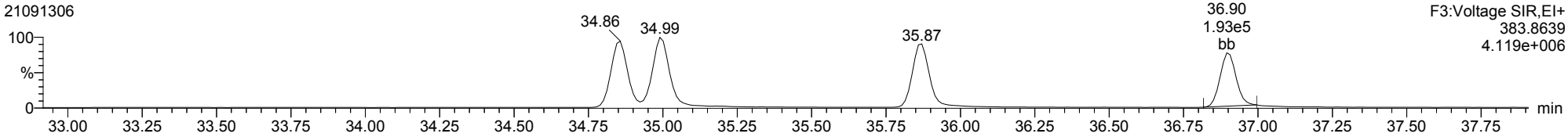

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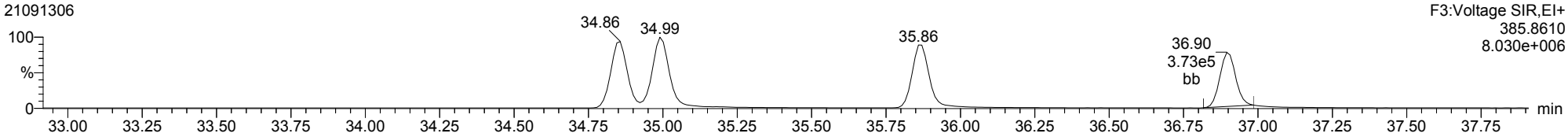

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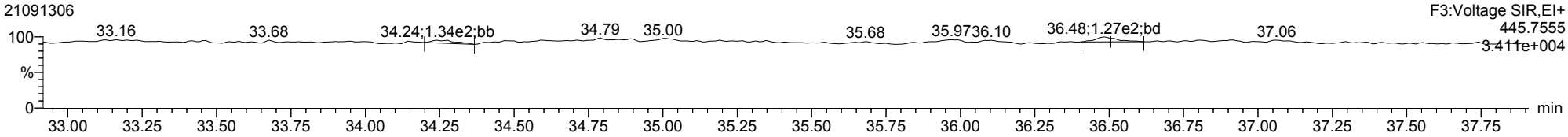

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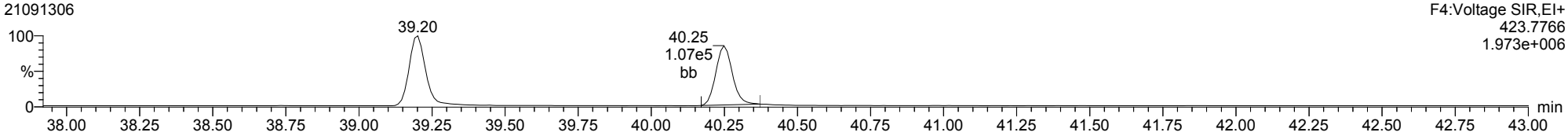

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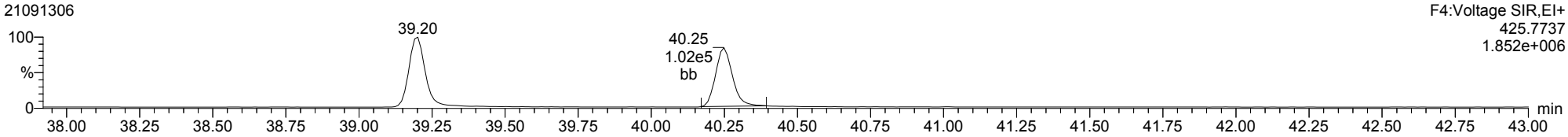

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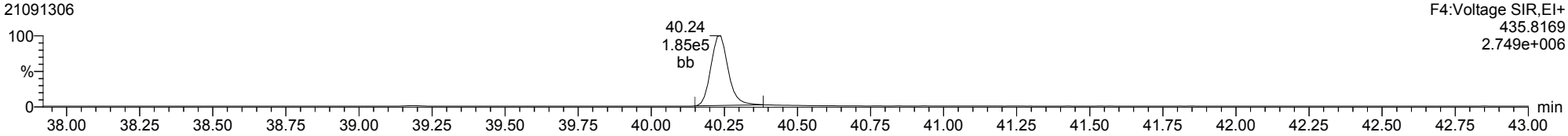

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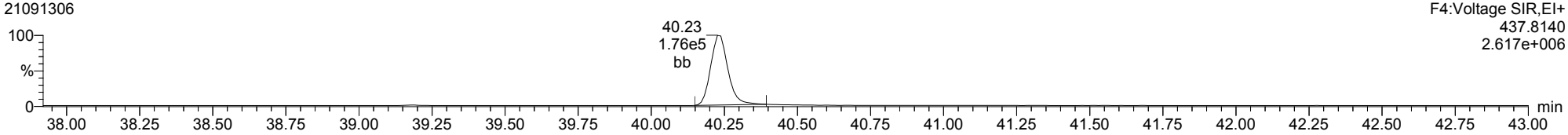

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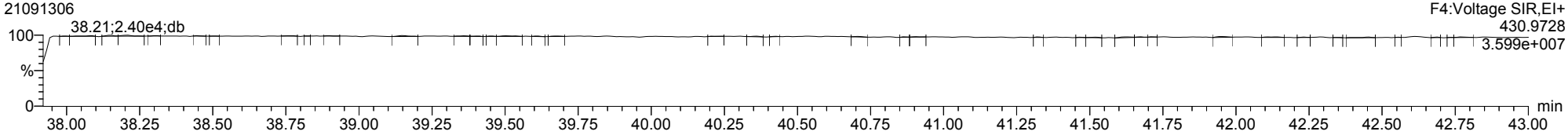

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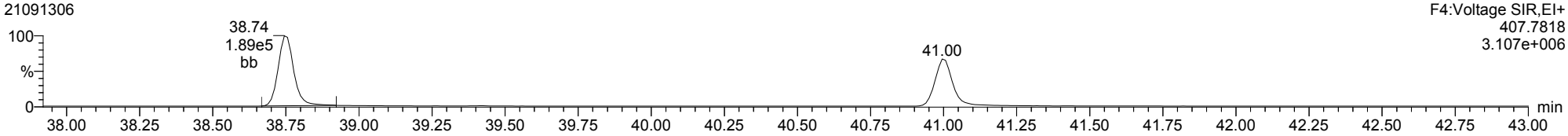

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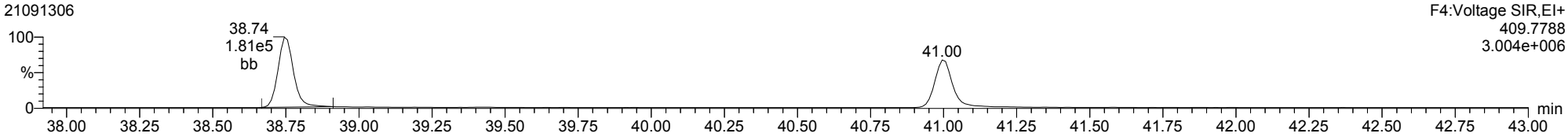

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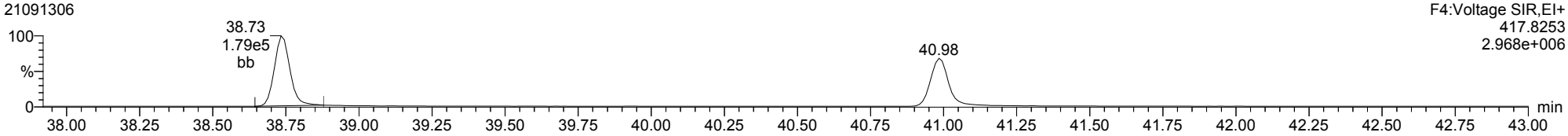

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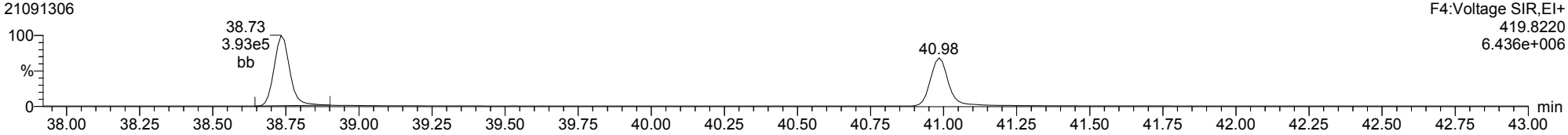

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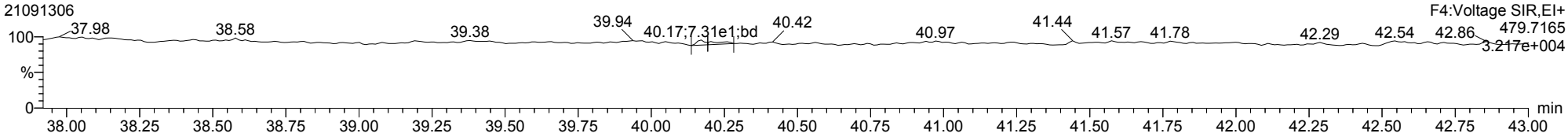

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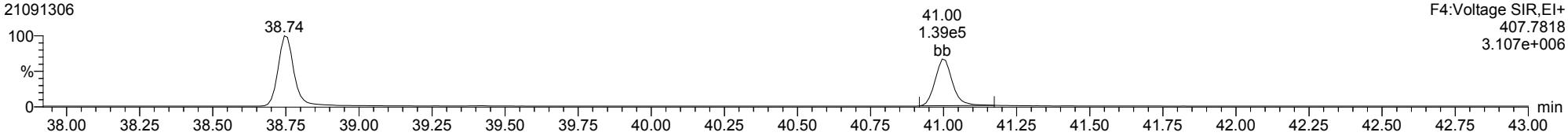

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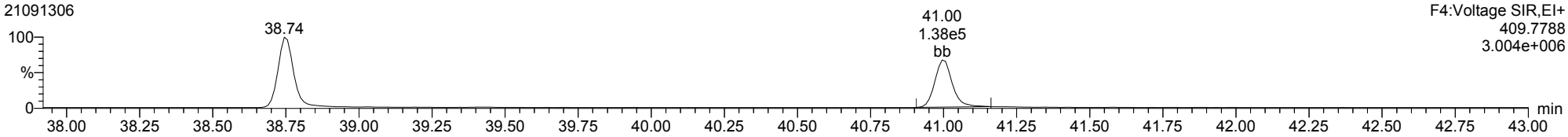

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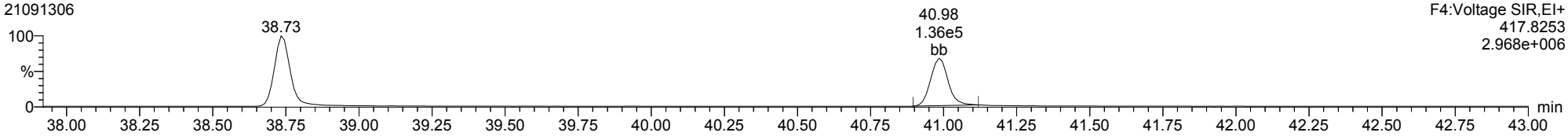

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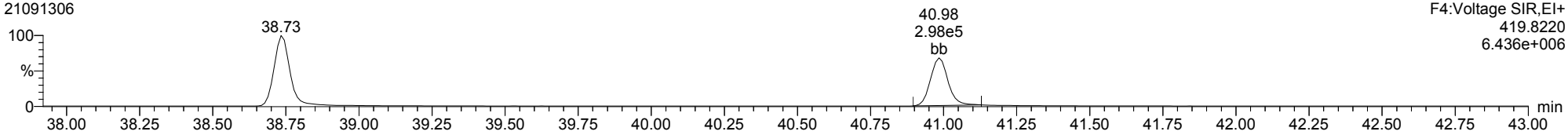

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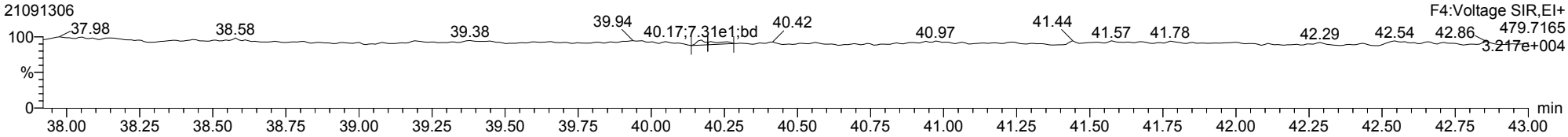

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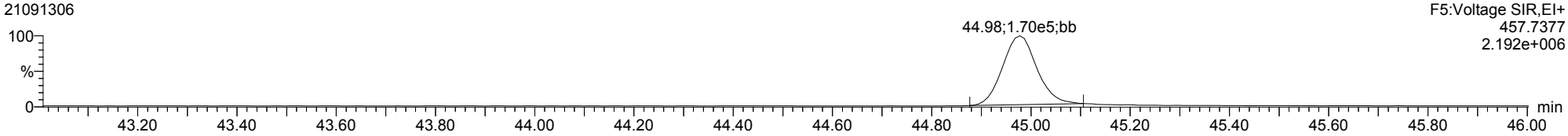

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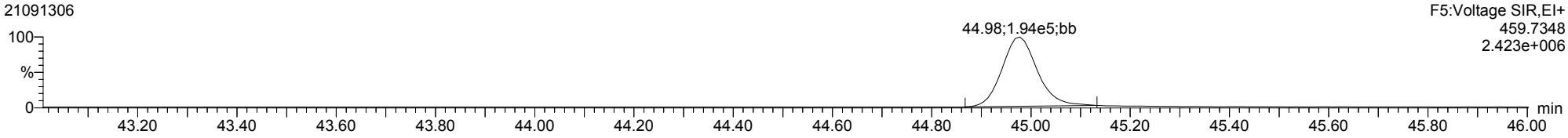

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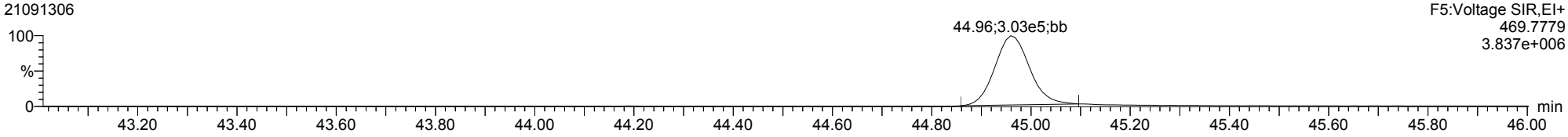

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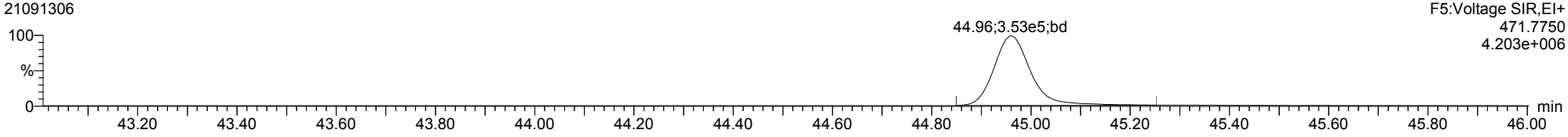

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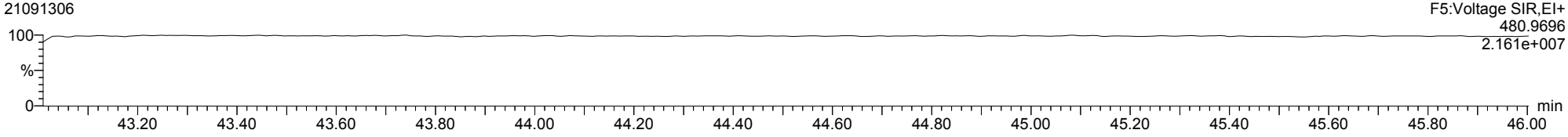

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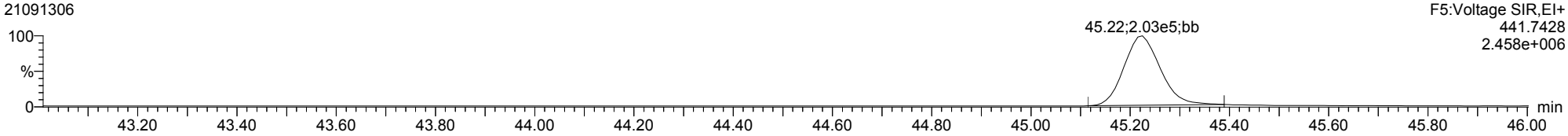

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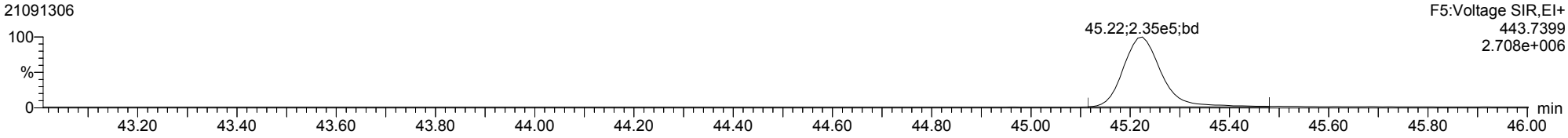

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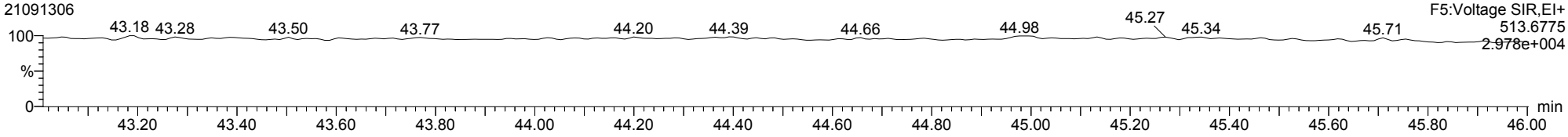

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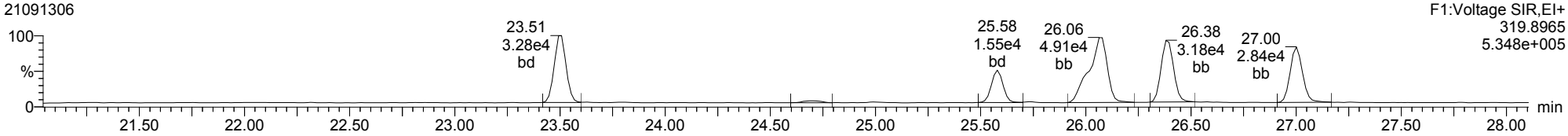

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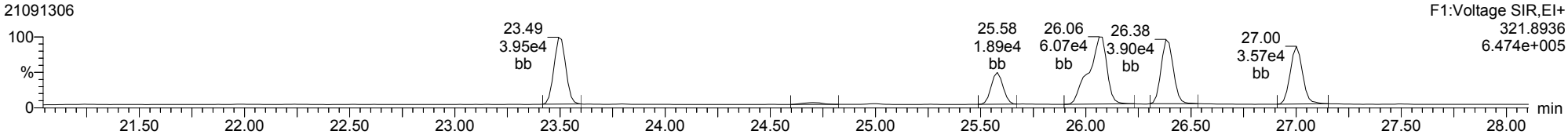

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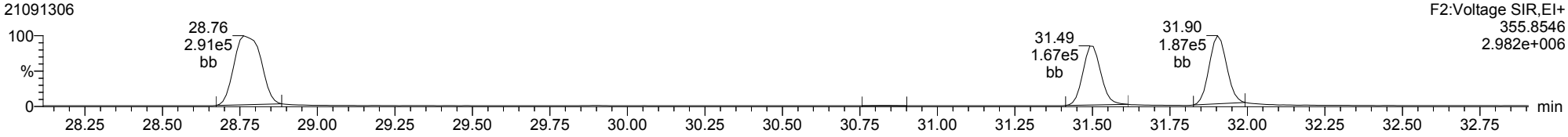

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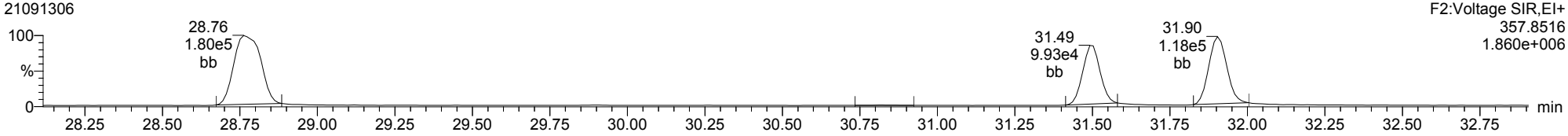

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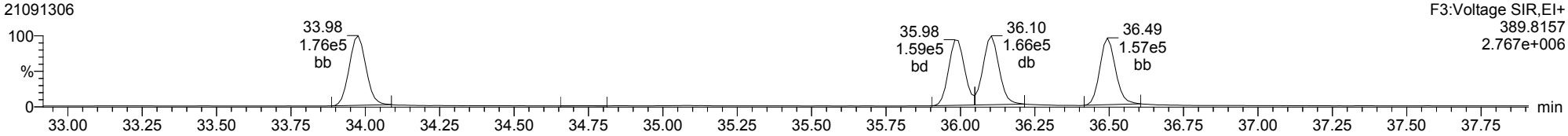

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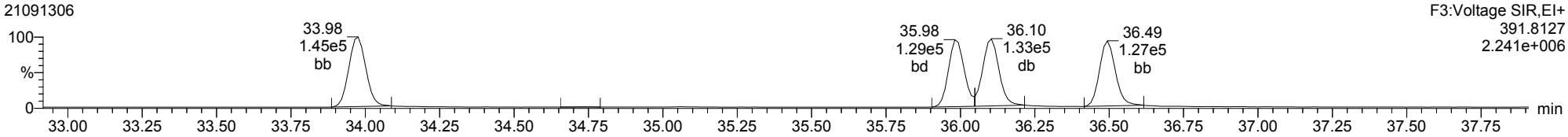

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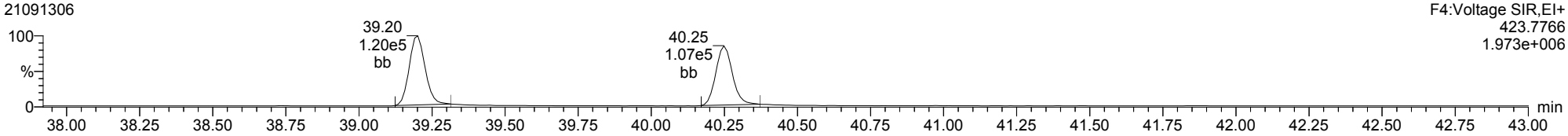

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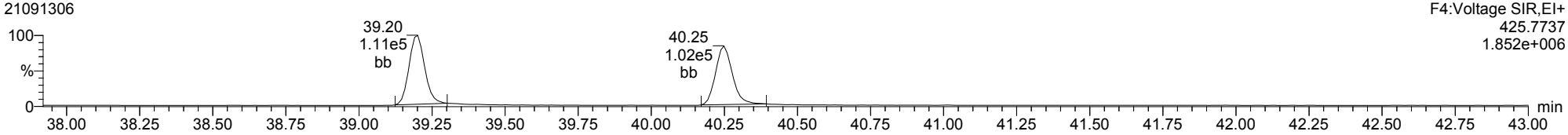

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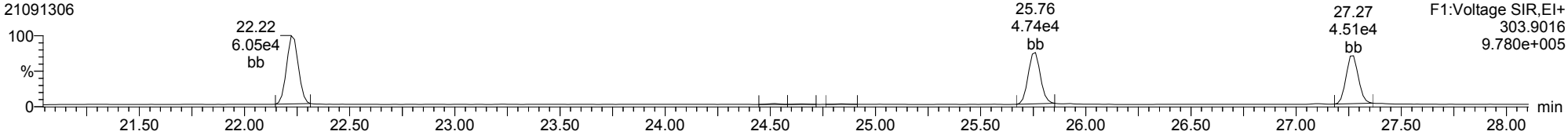
Total-tetrafurans



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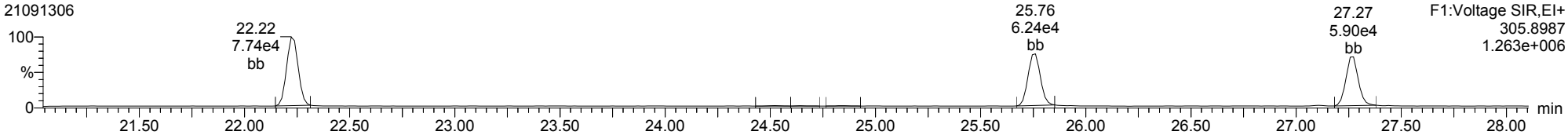

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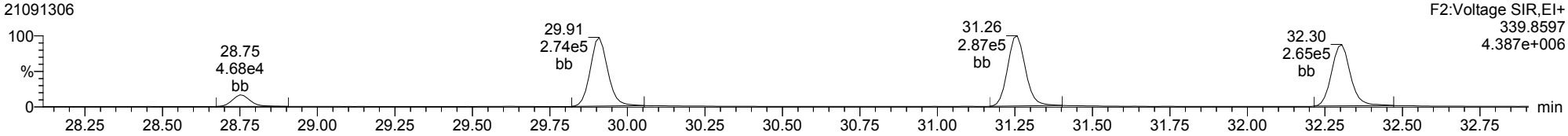

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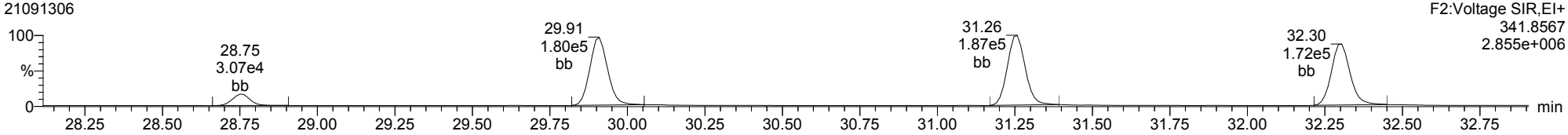

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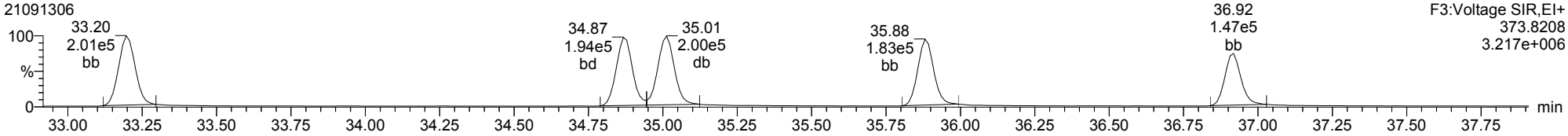
Total-hexafurans



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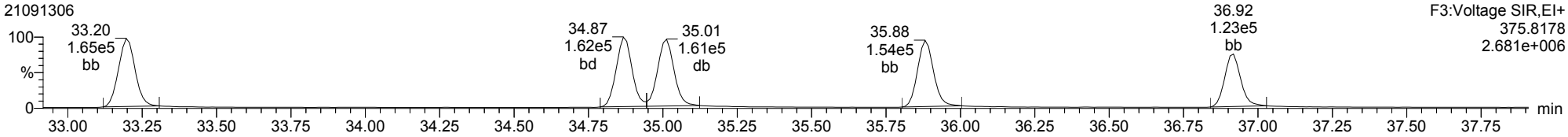

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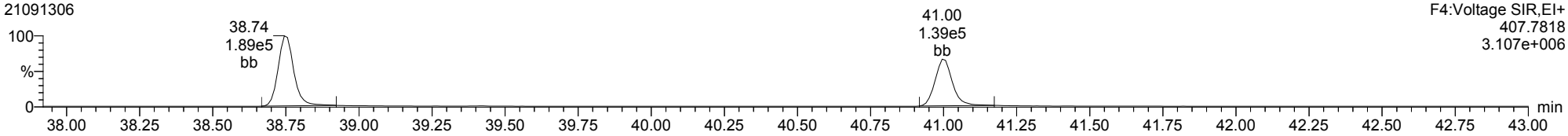

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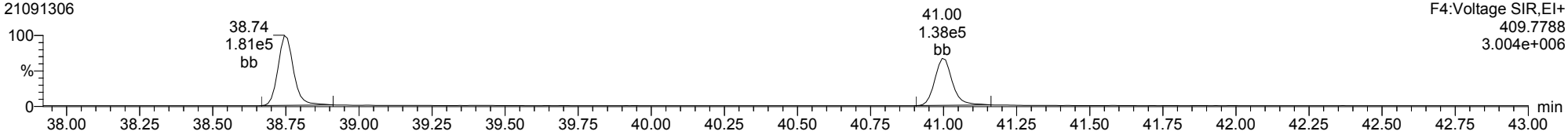

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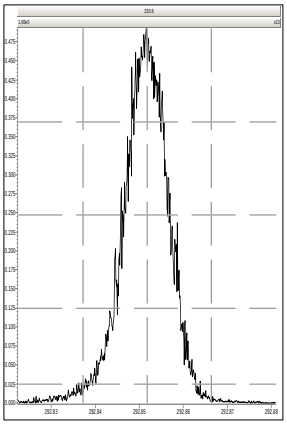

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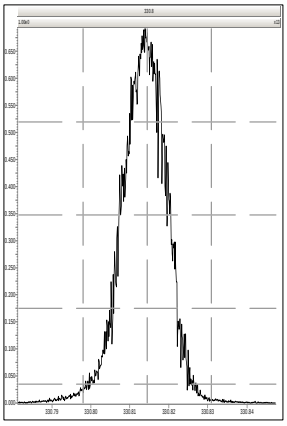
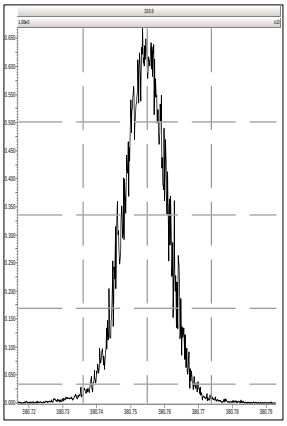
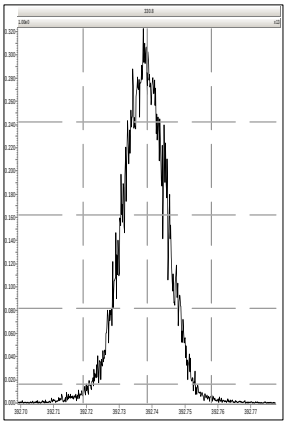


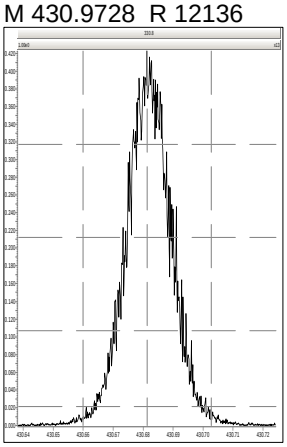
M 380.9760 R 13125



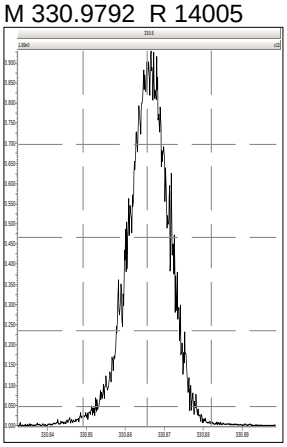
M 392.9760 R 13196



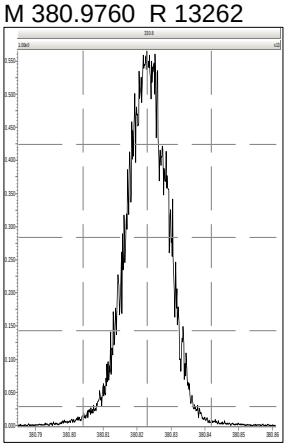
M 430.9728 R 12136



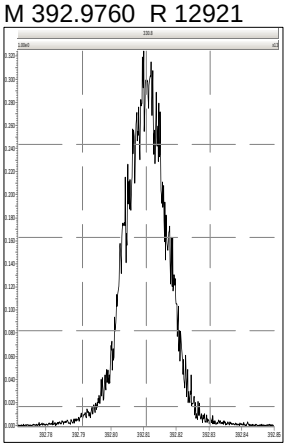
M 330.9792 R 14005



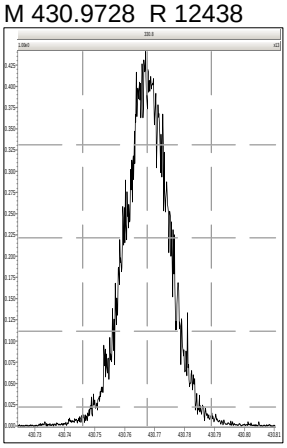
M 380.9760 R 13262



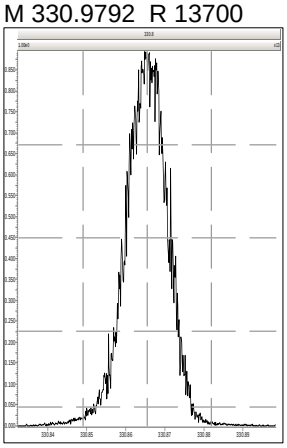
M 392.9760 R 12921



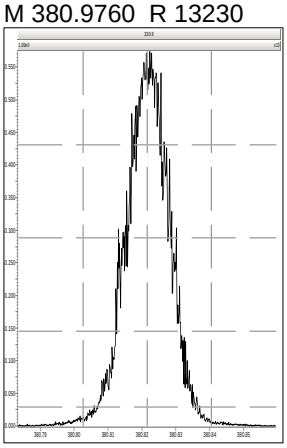
M 430.9728 R 12438



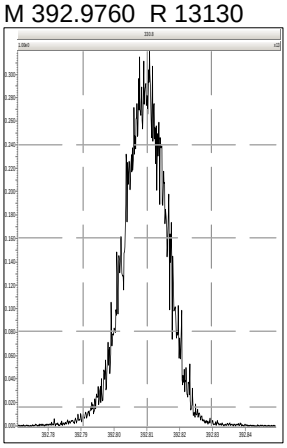
M 330.9792 R 13700



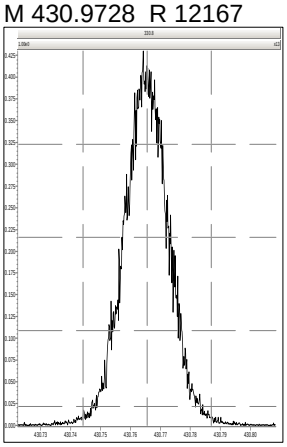
M 380.9760 R 13230



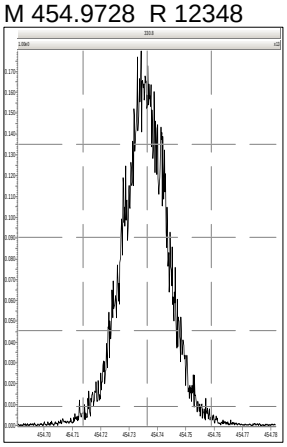
M 392.9760 R 13130



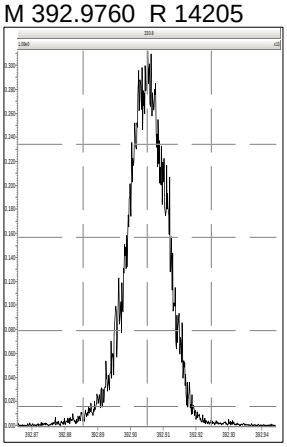
M 430.9728 R 12167



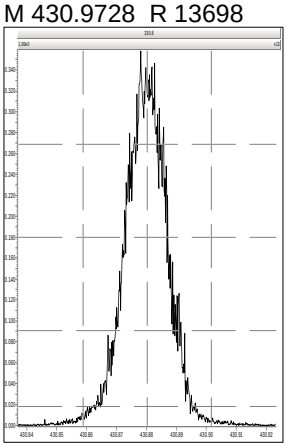
M 454.9728 R 12348



M 392.9760 R 14205

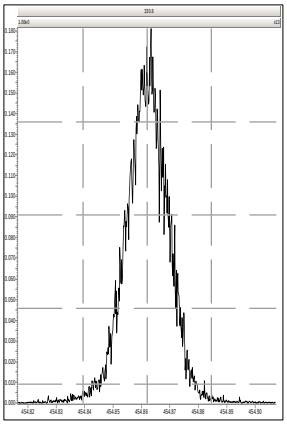


M 430.9728 R 13698

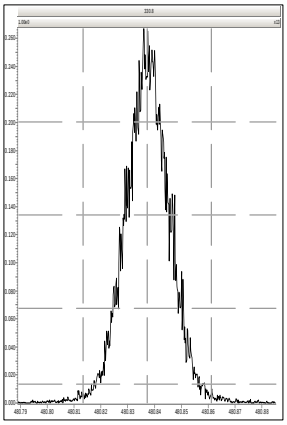


Printed: Monday, September 13, 2021 16:45:14 Pacific Daylight Time

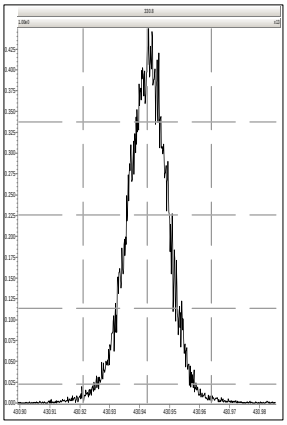
M 454.9728 R 13406



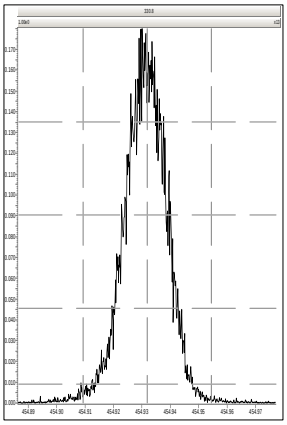
M 480.9696 R 12756



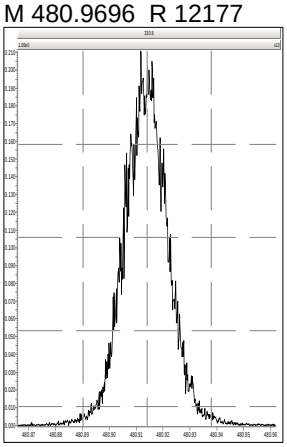
M 430.9728 R 13966



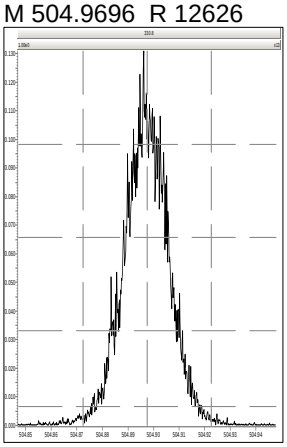
M 454.9728 R 14044



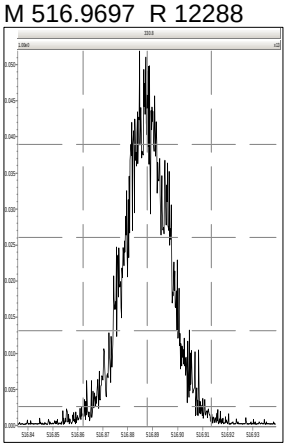
M 480.9696 R 12177

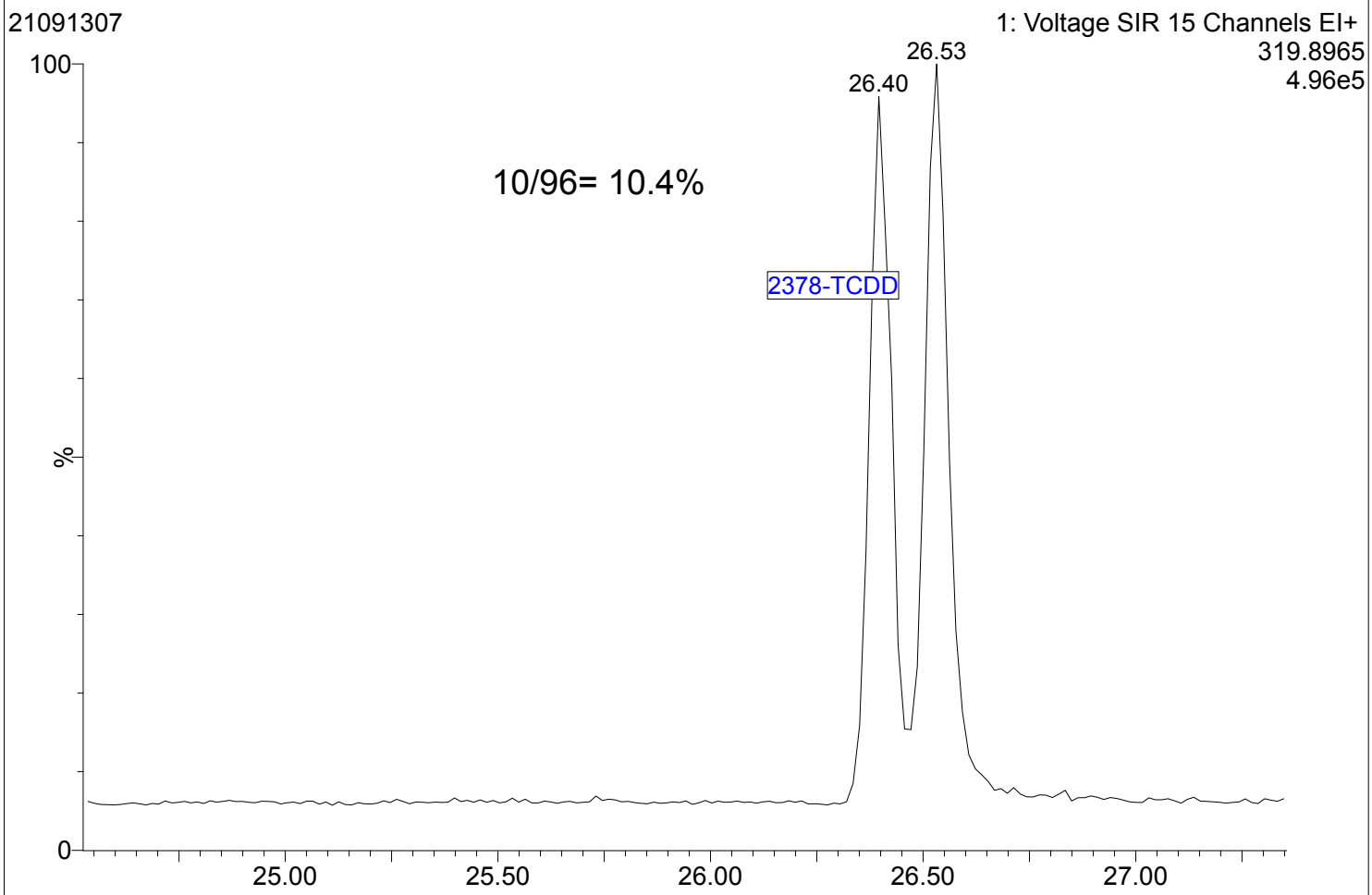


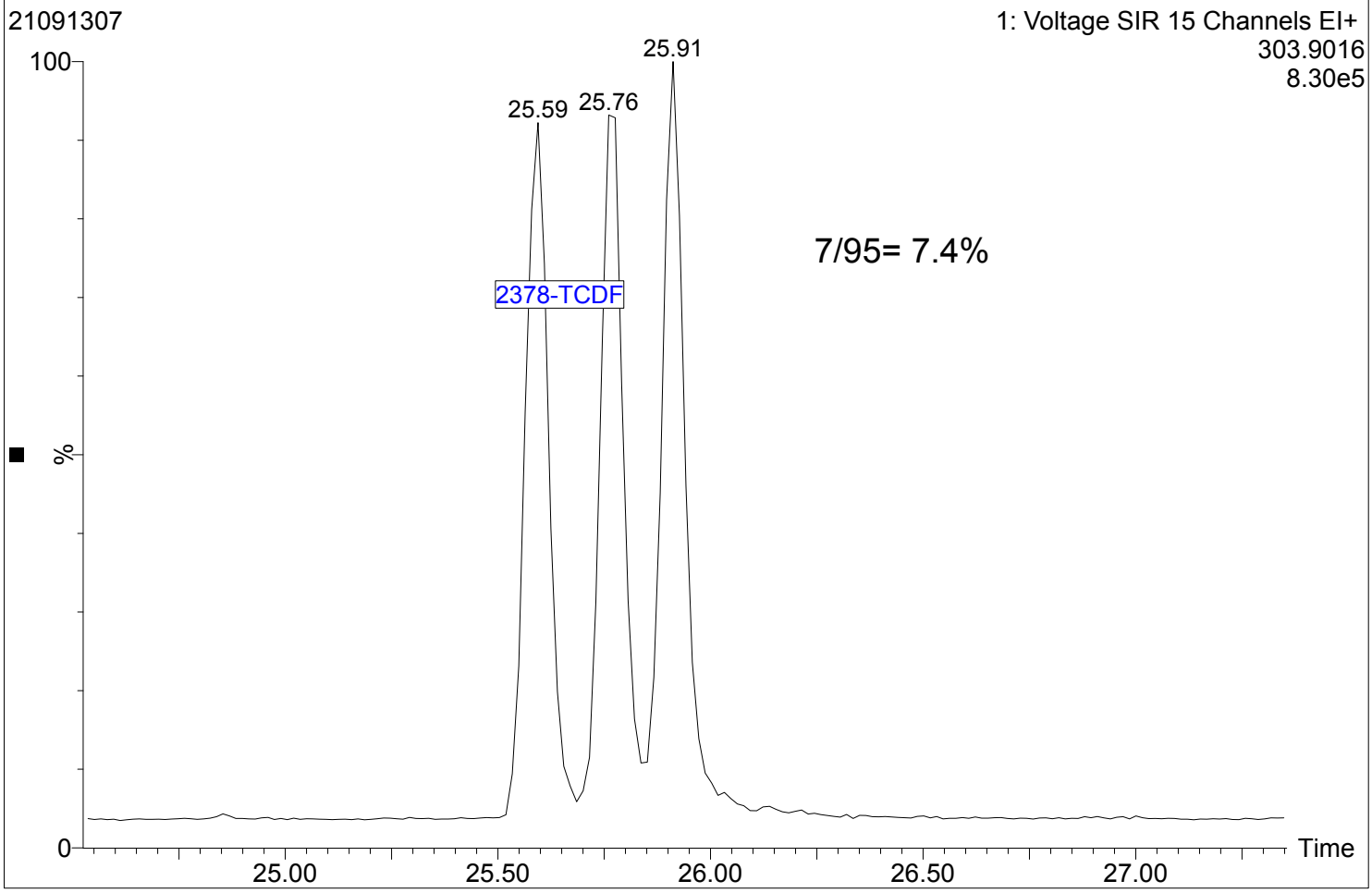
M 504.9696 R 12626



M 516.9697 R 12288




21091307
1: Voltage SIR 15 Channels EI+
319.8965
4.96e5
26.40
26.53
10/96= 10.4%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21091307
1: Voltage SIR 15 Channels EI+
303.9016
8.30e5
25.59
25.76
25.91
7/95= 7.4%
2378-TCDF
100
%
0
Time
25.00
25.50
26.00
26.50
27.00

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092062A	Calibration Date:	08/11/2021
Sequence:	SJI0351	Injection Date:	09/22/21
Lab Sample ID:	SJI0351-ICV1	Injection Time:	18:51
Sequence Name:	CS3S7		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	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	1.1954870		-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

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092062A	Calibration Date:	08/11/2021
Sequence:	SJI0351	Injection Date:	09/22/21
Lab Sample ID:	SJI0351-ICV1	Injection Time:	18:51
Sequence Name:	CS3S7		

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
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

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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
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

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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

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	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

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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

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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

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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	27.27	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

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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

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		

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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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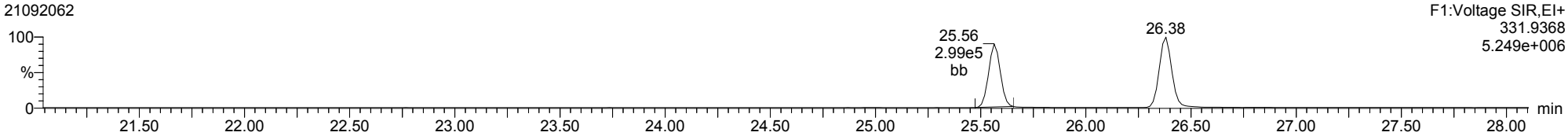

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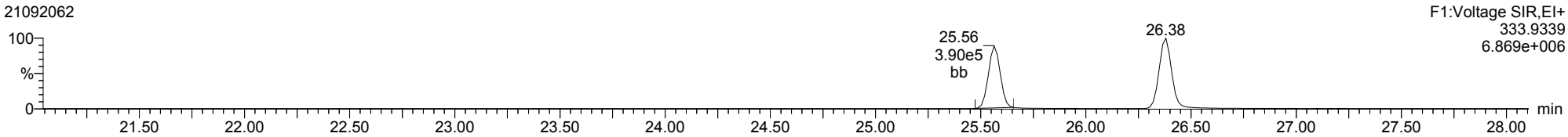

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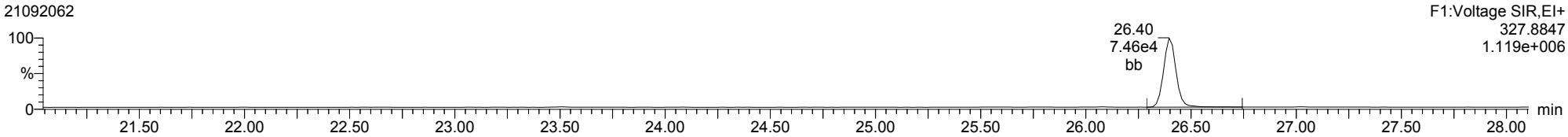

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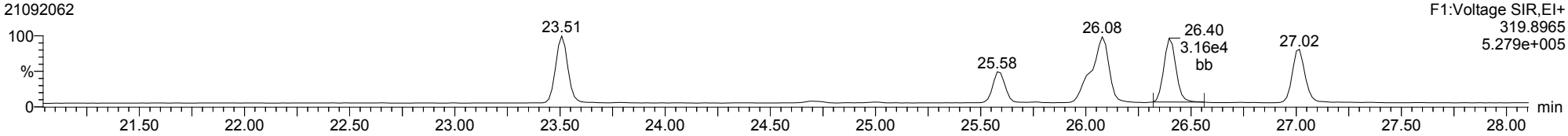

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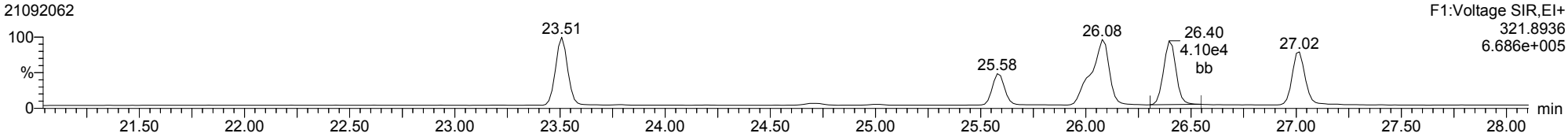

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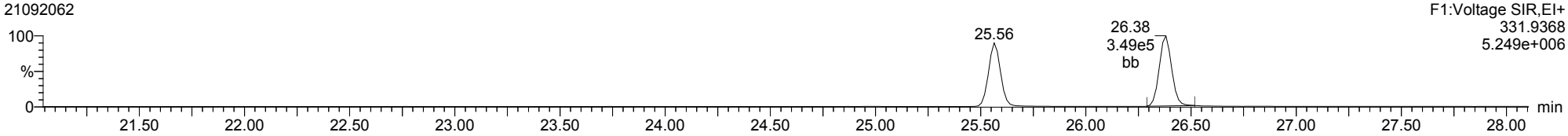

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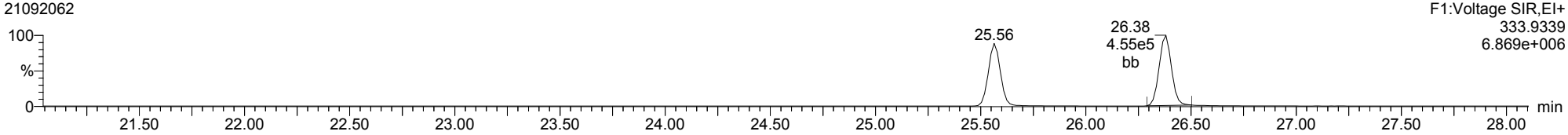

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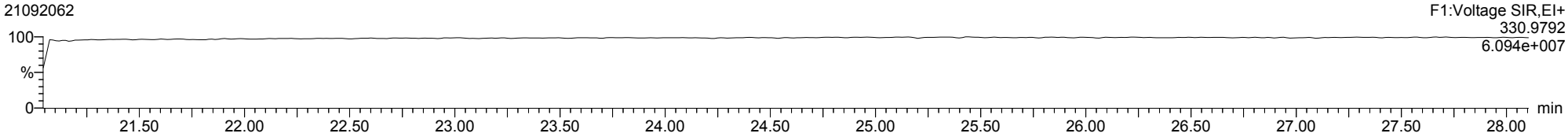

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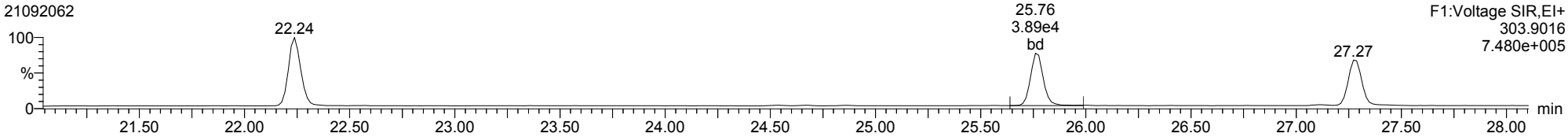

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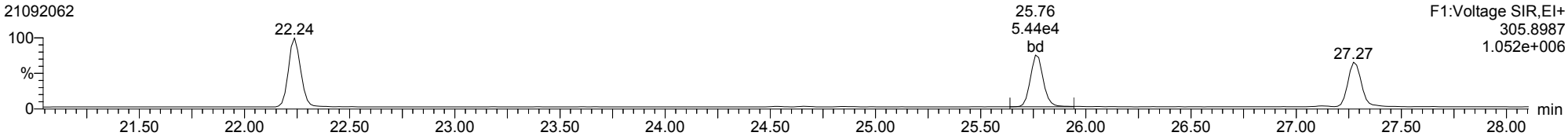

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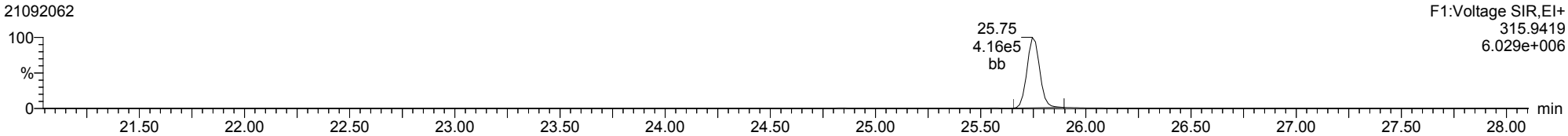

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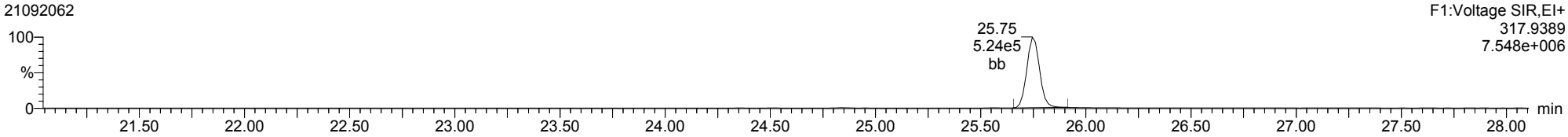

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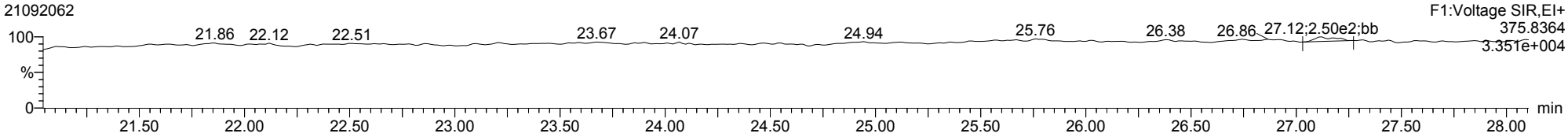

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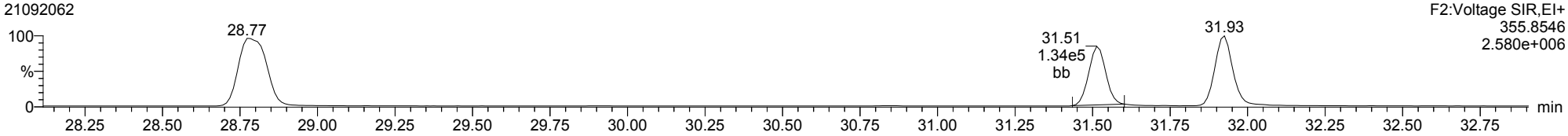
12378-PeCDD



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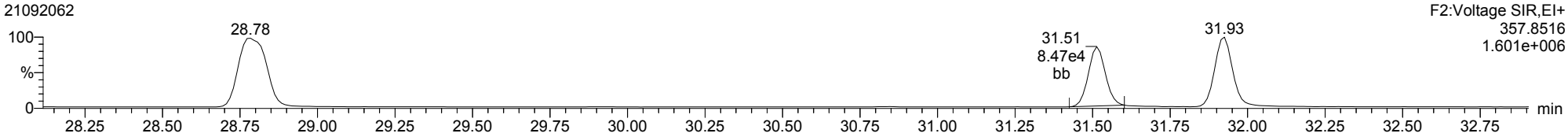

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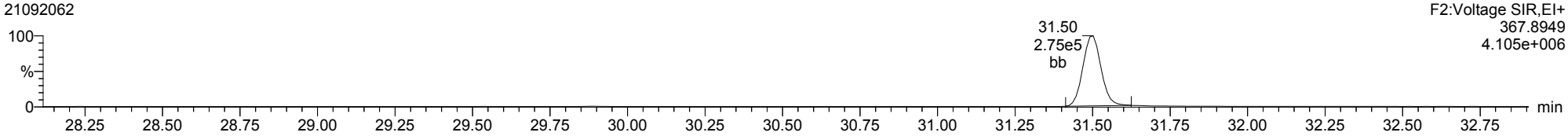

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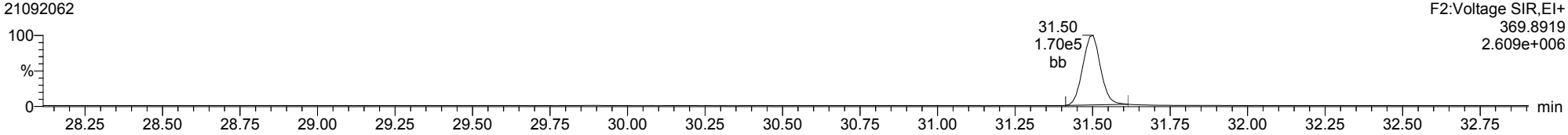
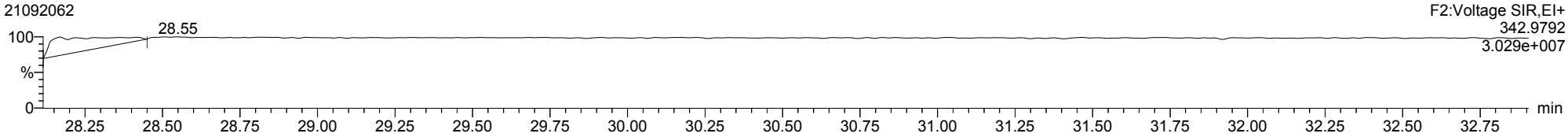


FUNCTION2 PFK



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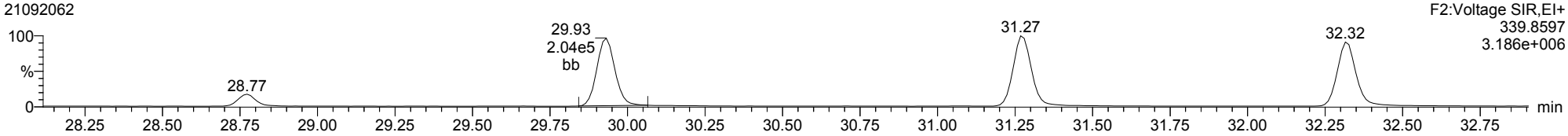
12378-PeCDF



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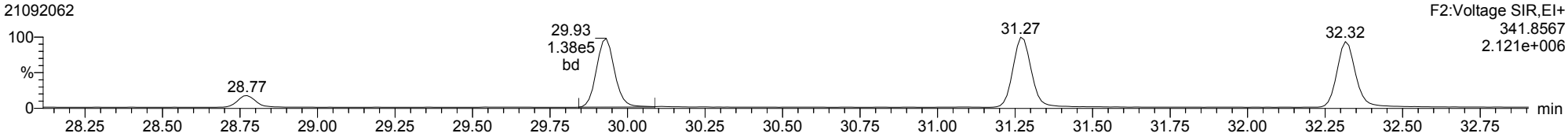

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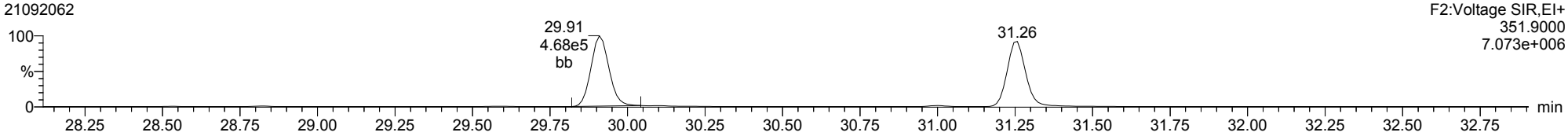

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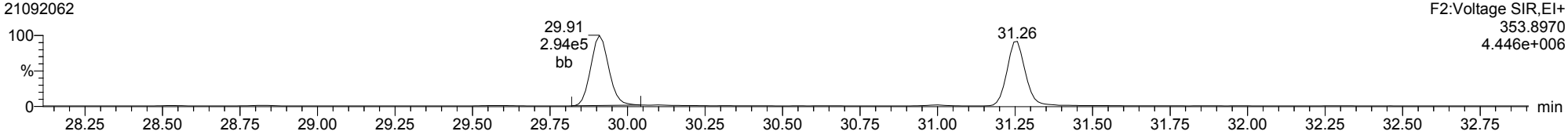
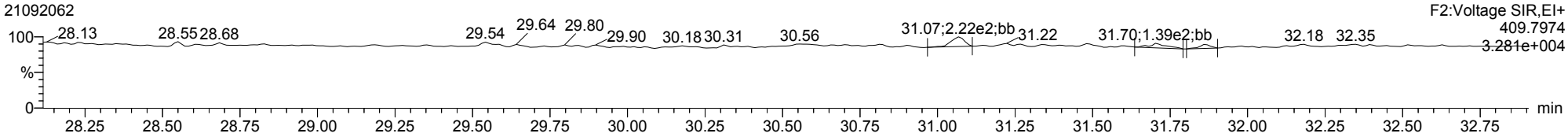


FUNCTION2 HPCDPE



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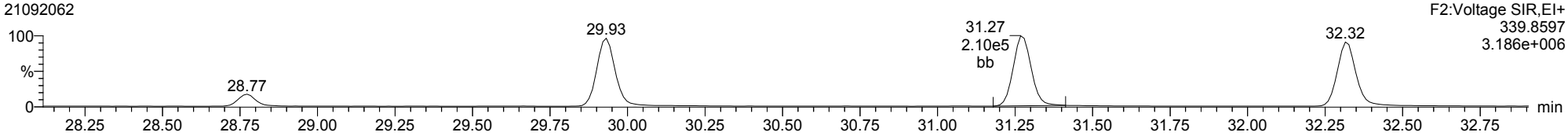
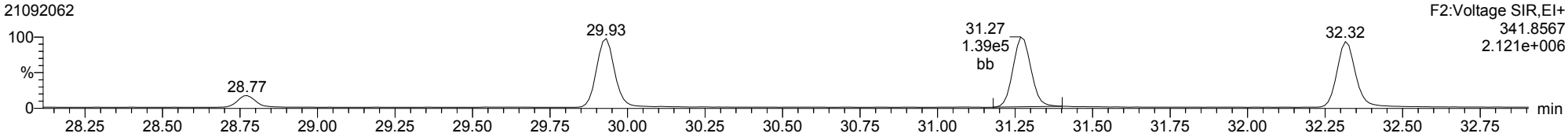
23478-PeCDF



23478-PeCDF



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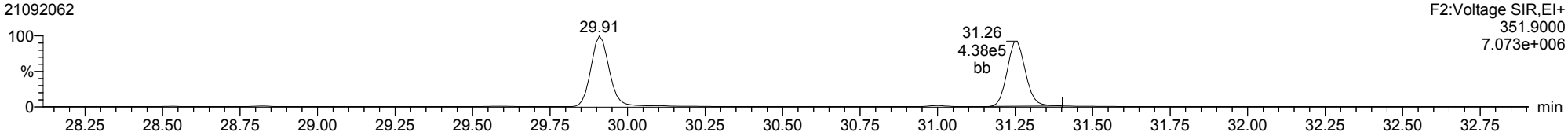

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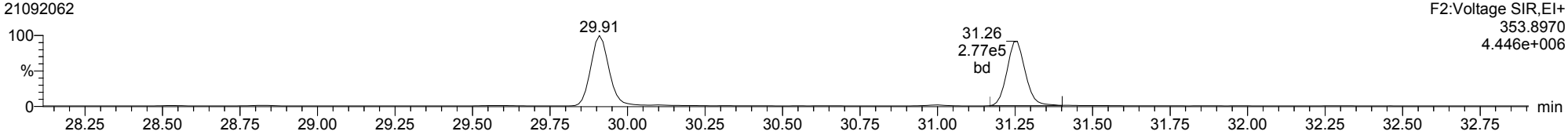

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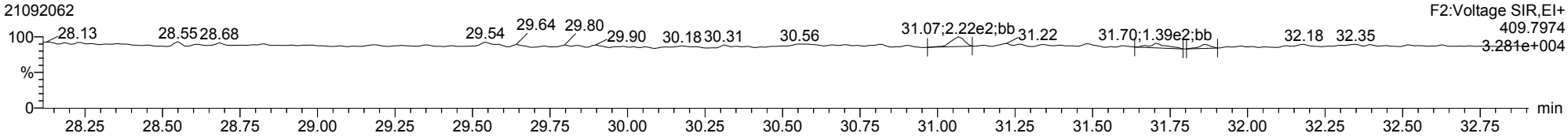

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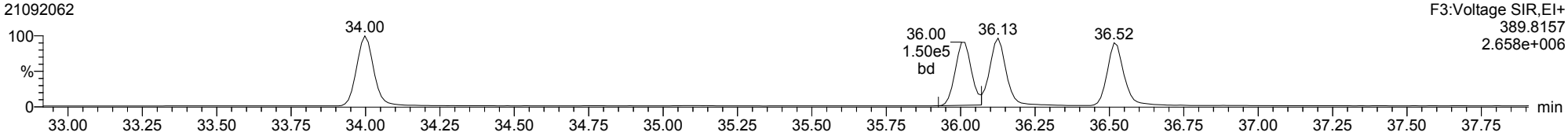

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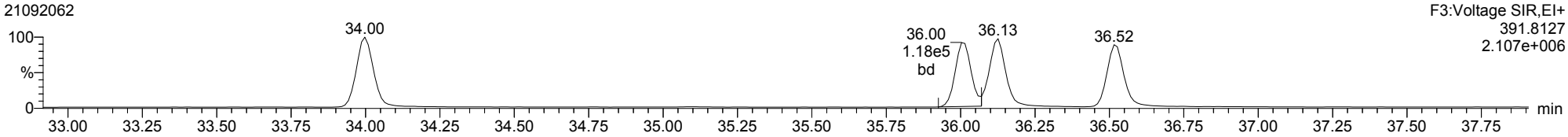

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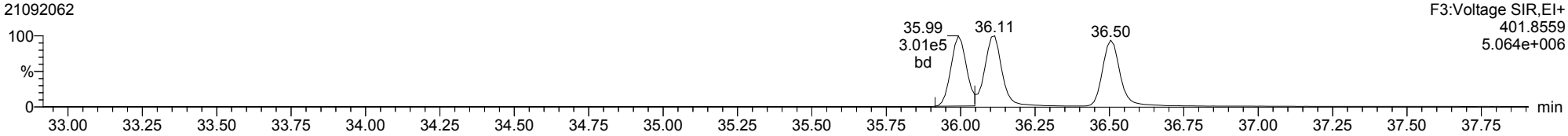

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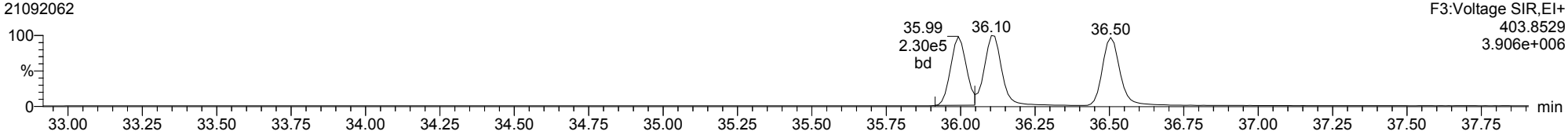

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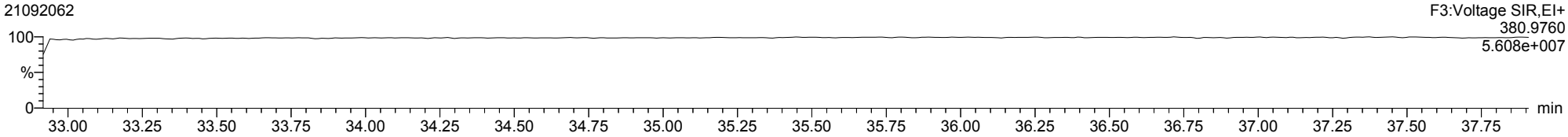

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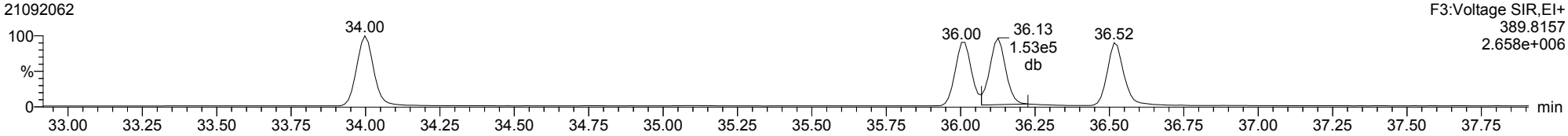

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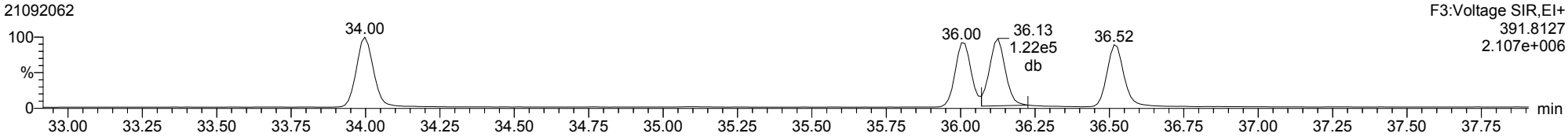

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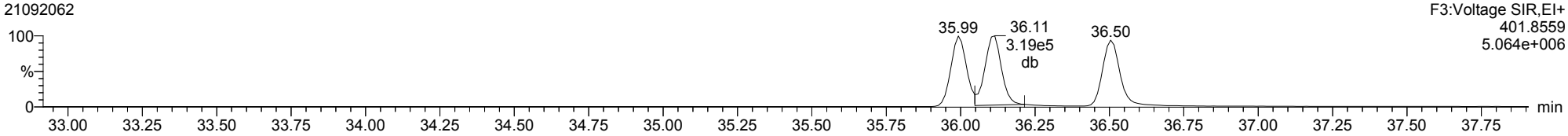

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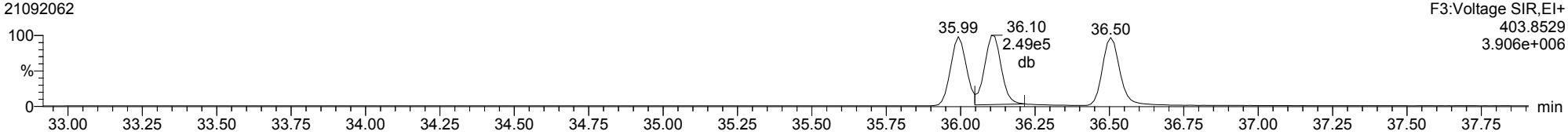

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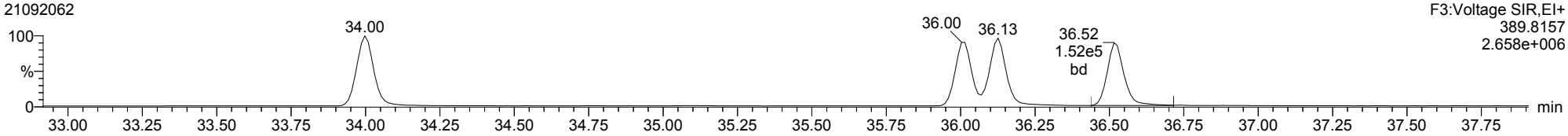

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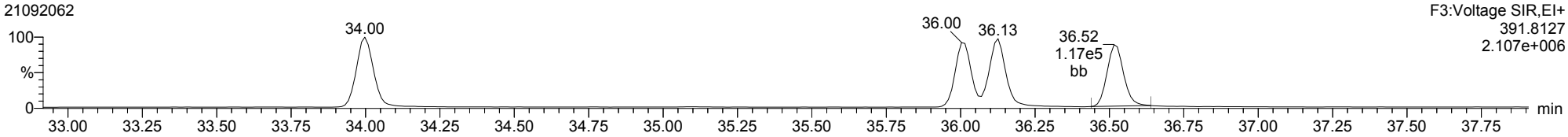

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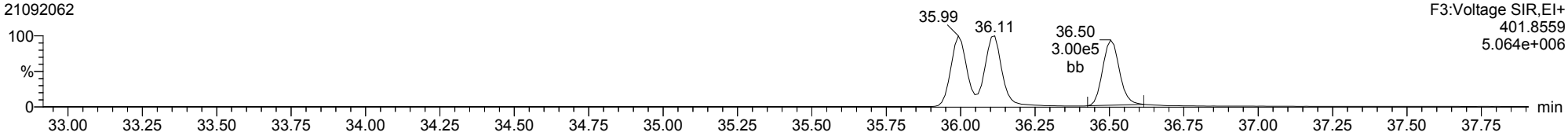

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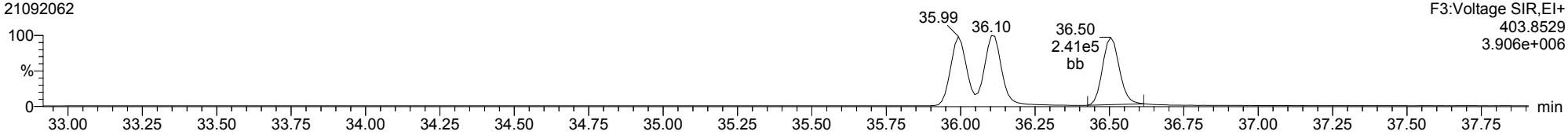

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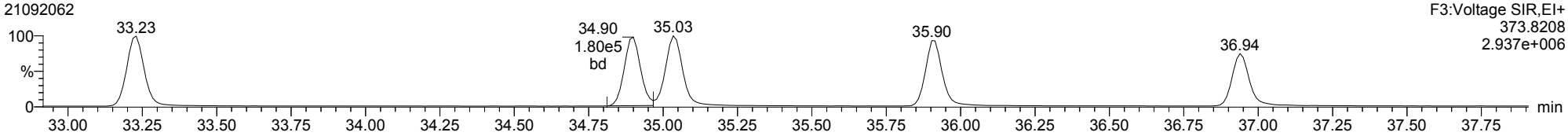

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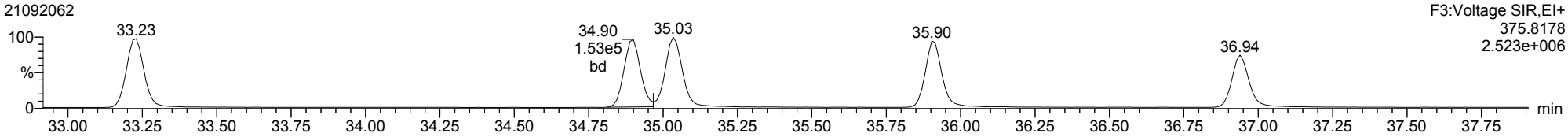

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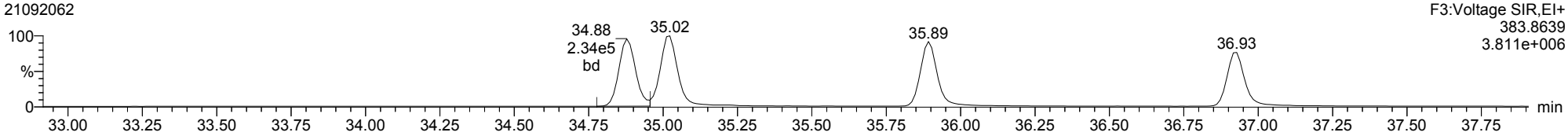

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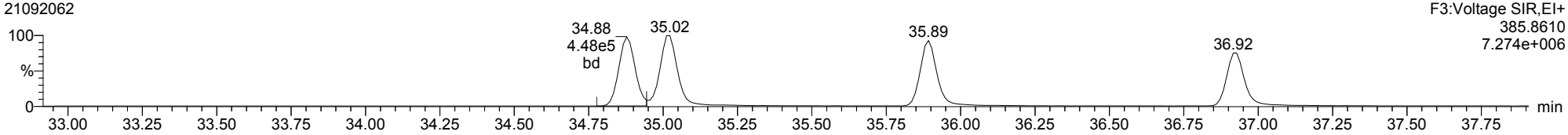

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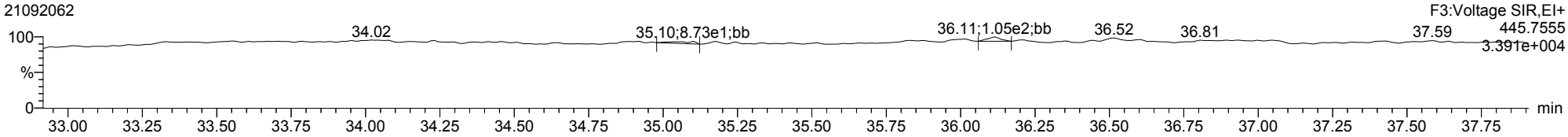

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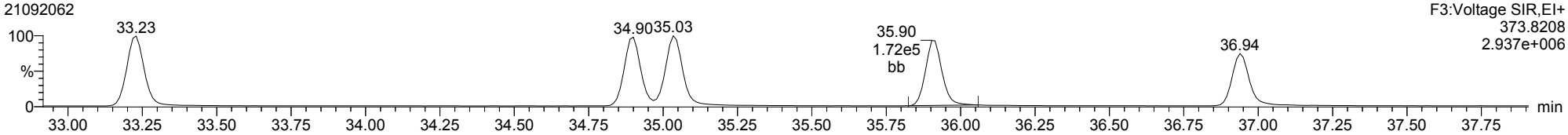

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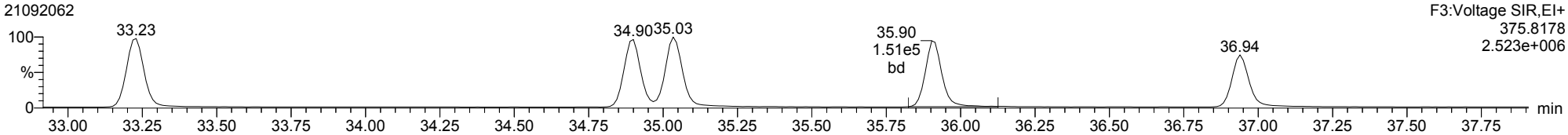

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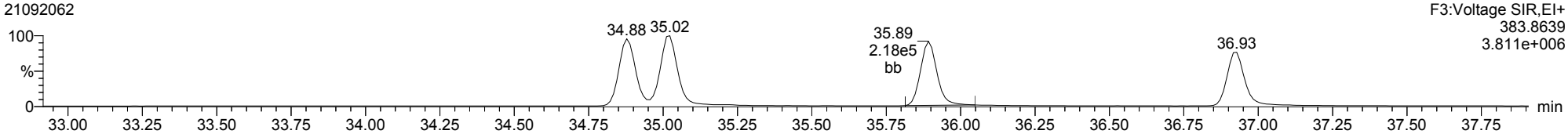

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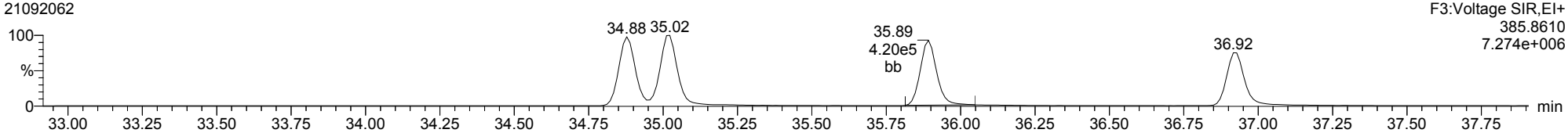

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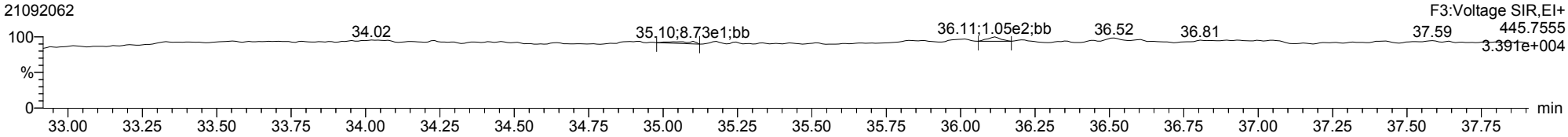

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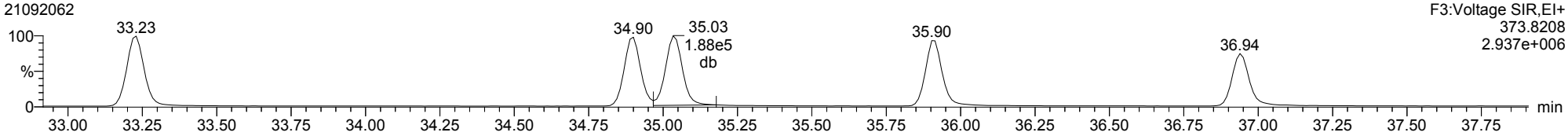

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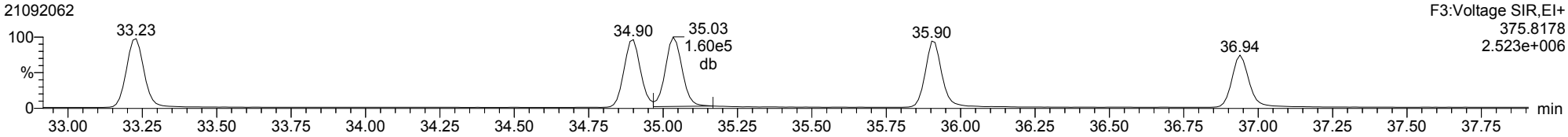

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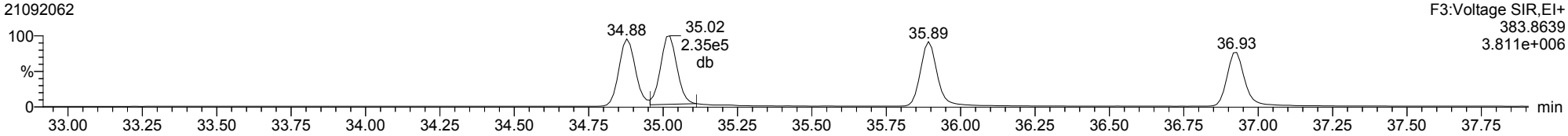

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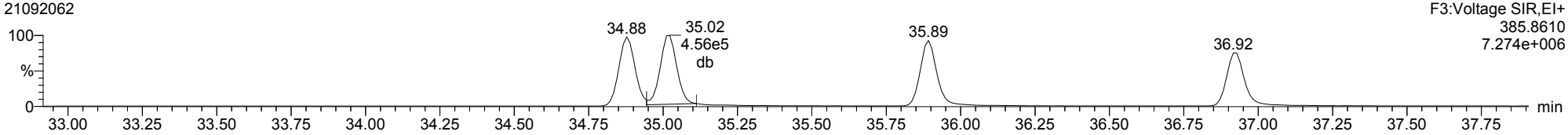

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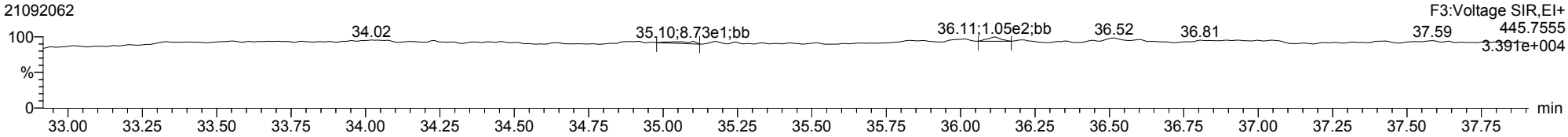

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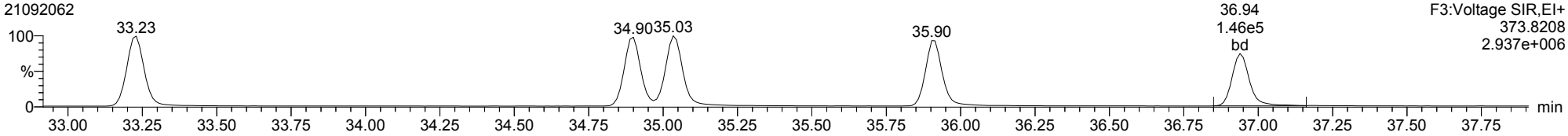

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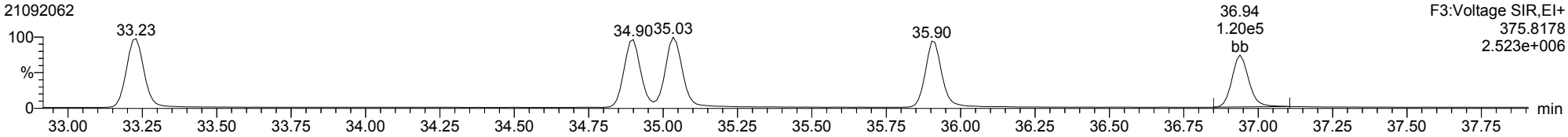

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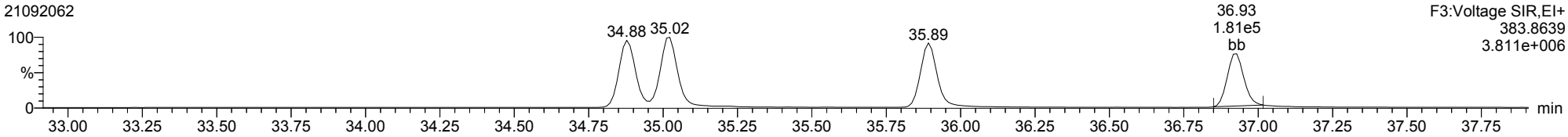

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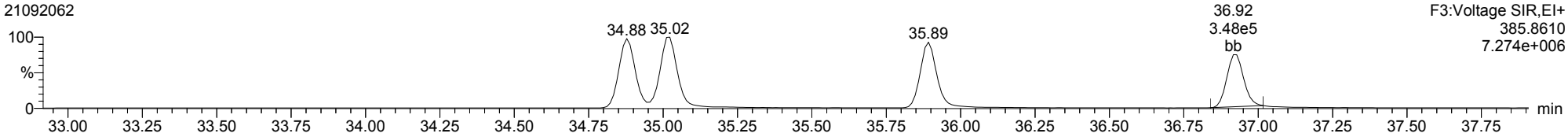

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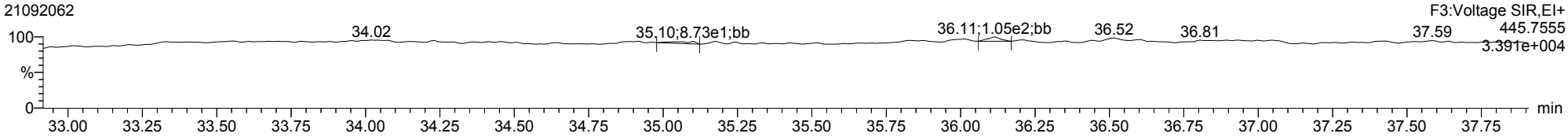

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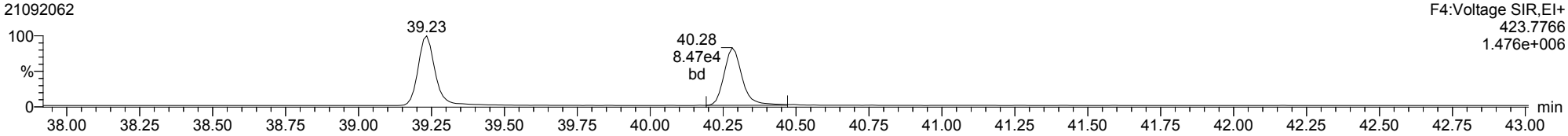

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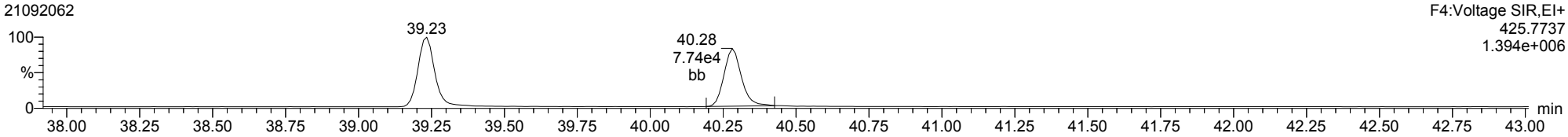

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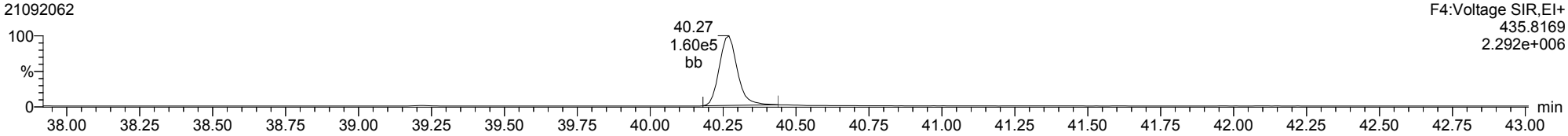

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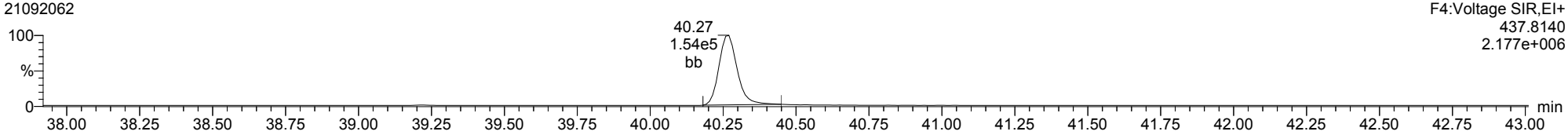

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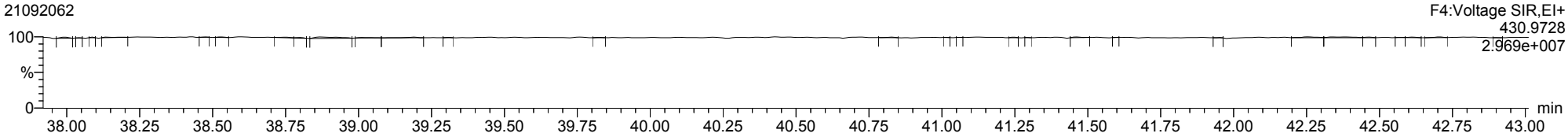

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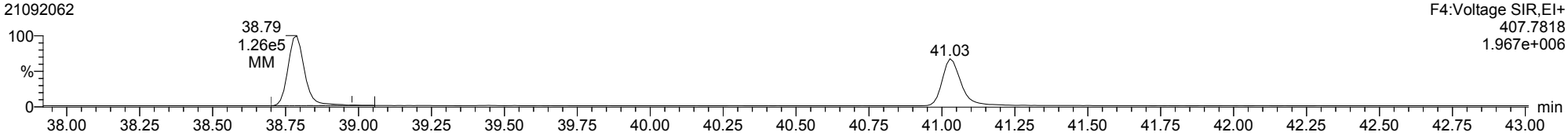

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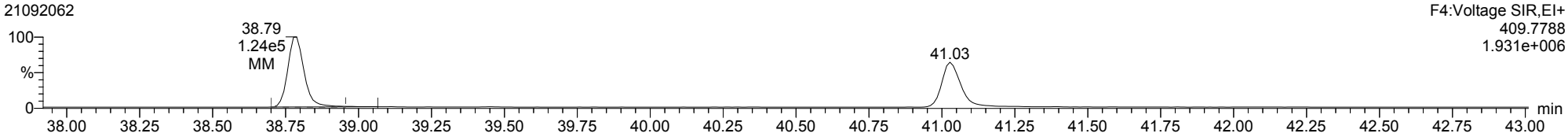

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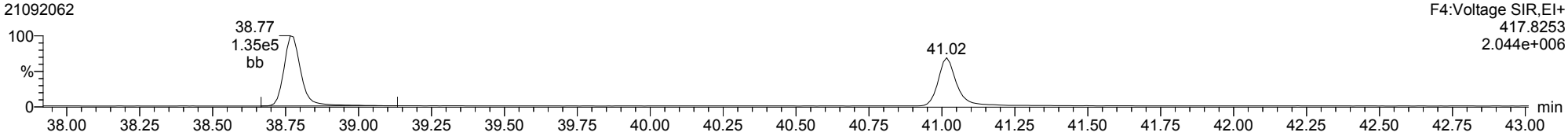

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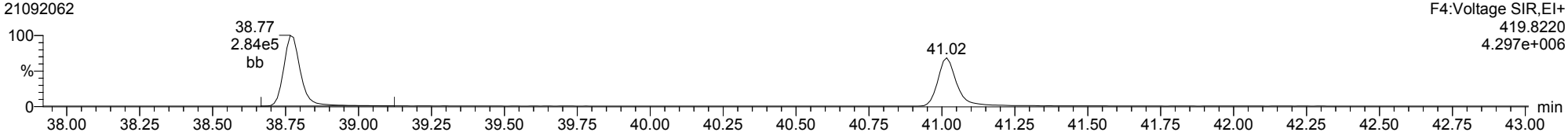

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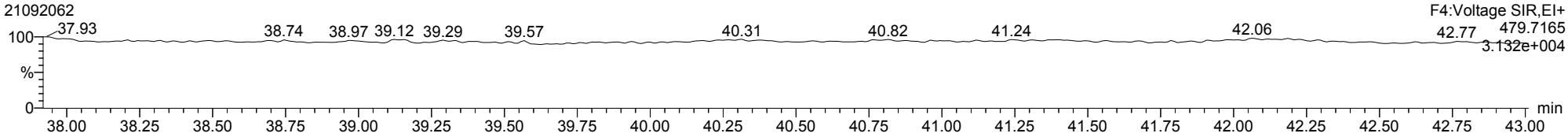

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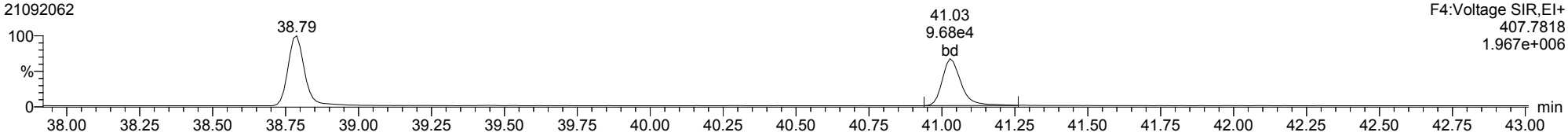

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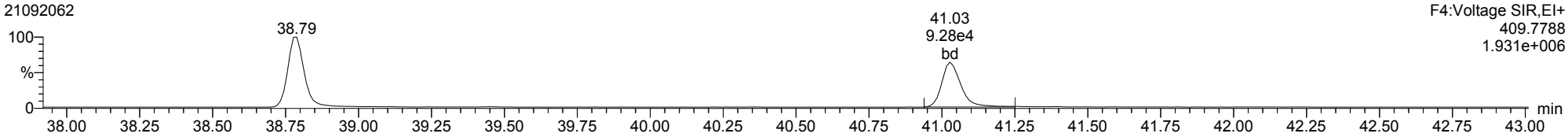

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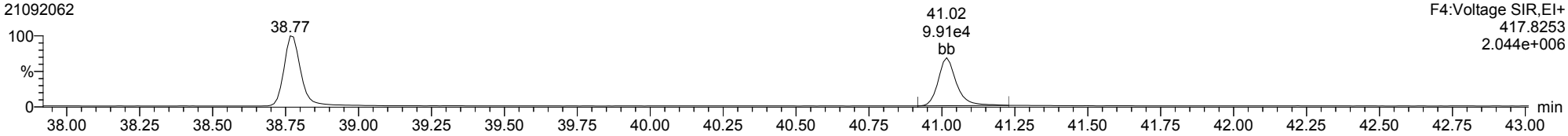

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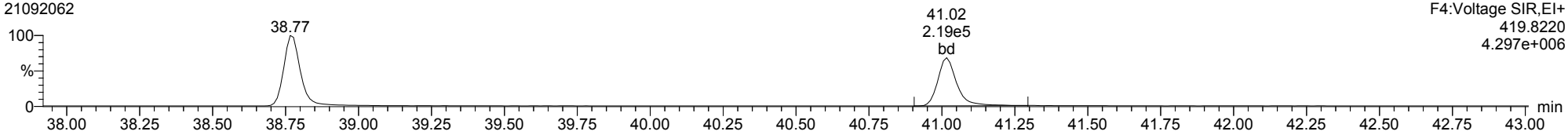

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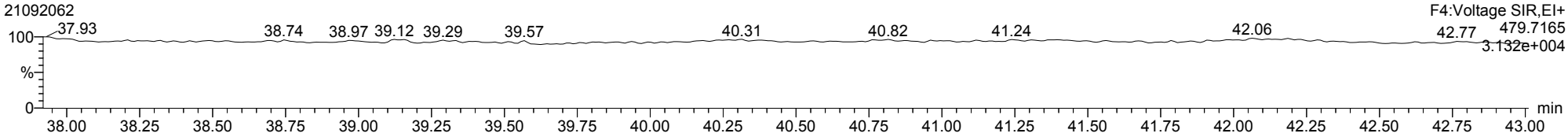

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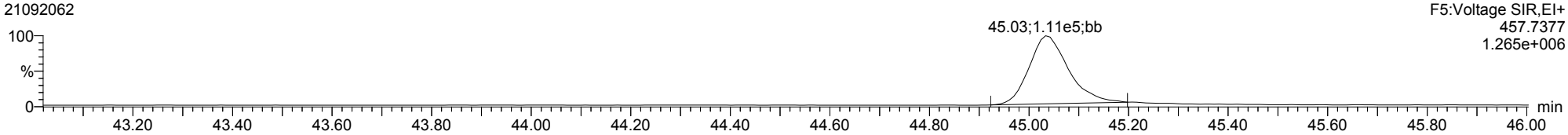

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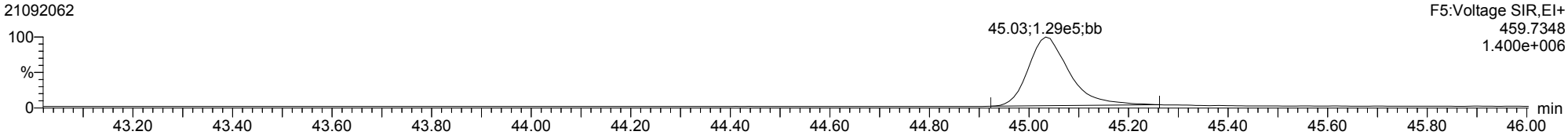

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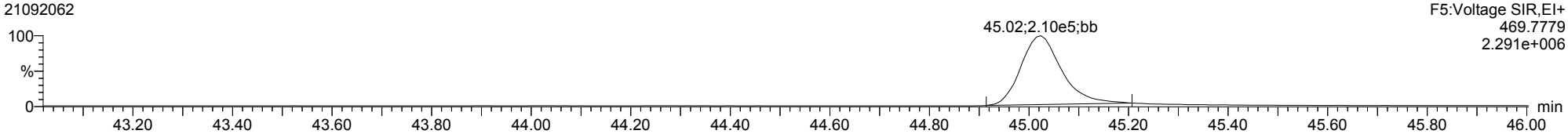

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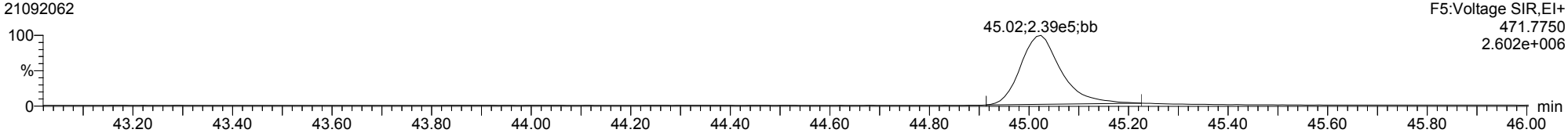

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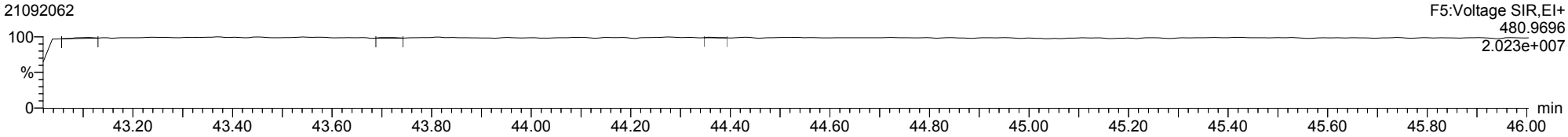

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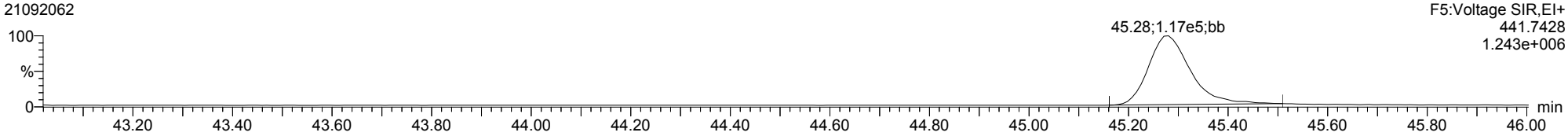

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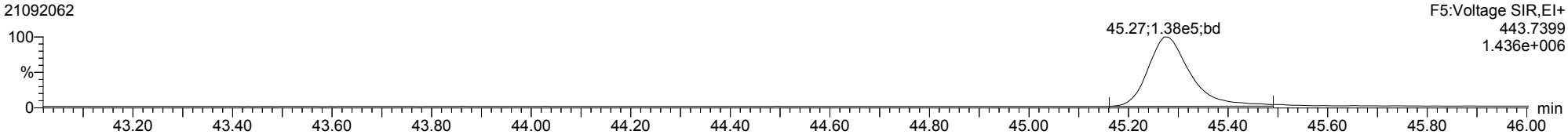

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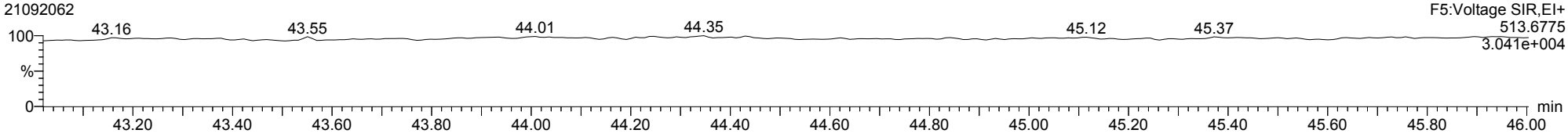

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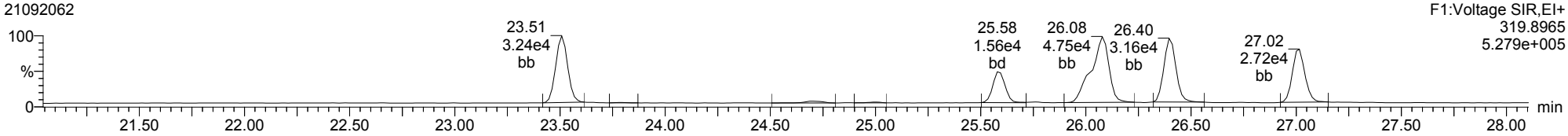

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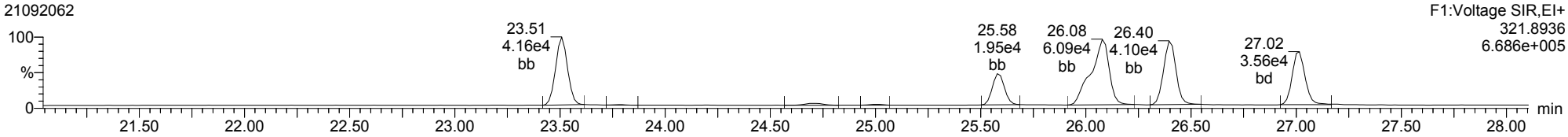

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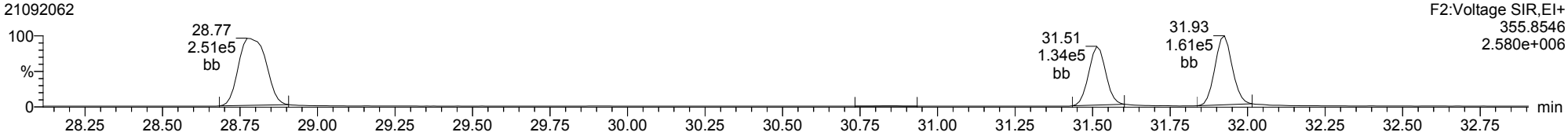

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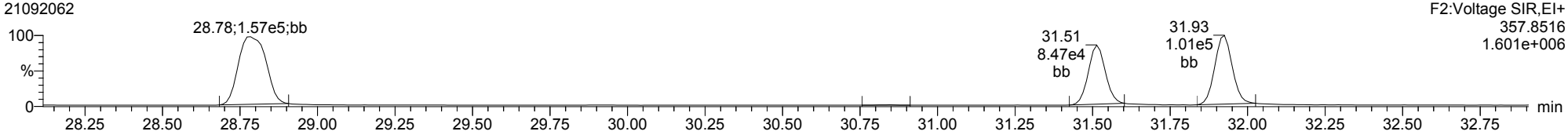

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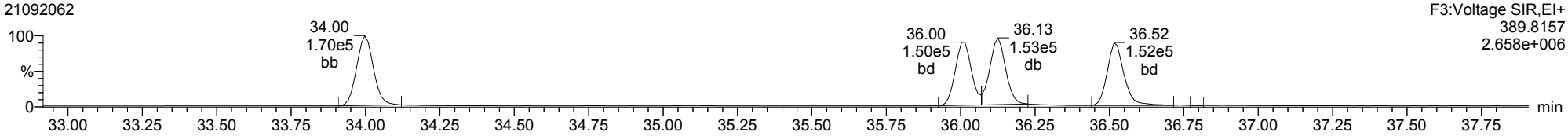

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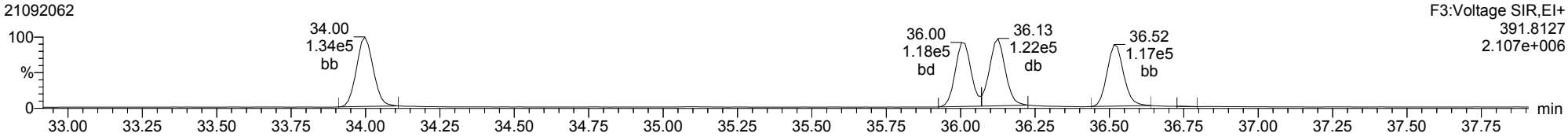

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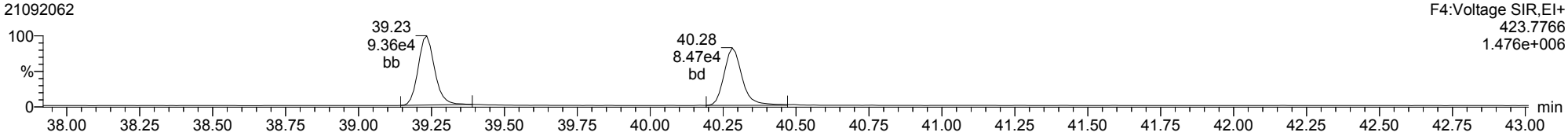

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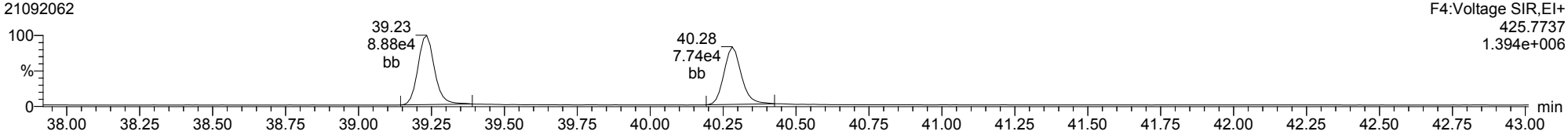

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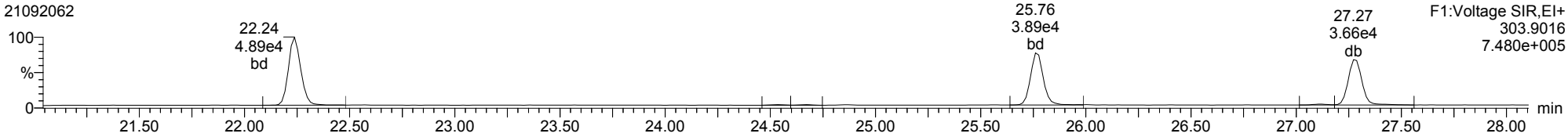

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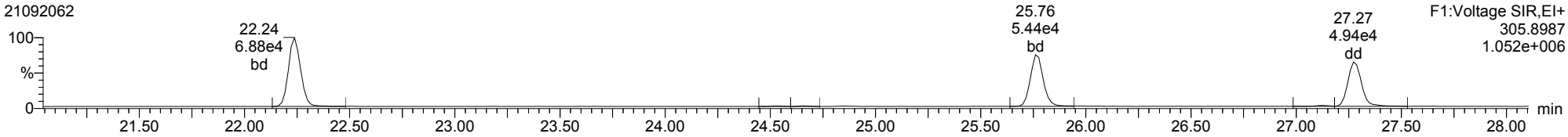

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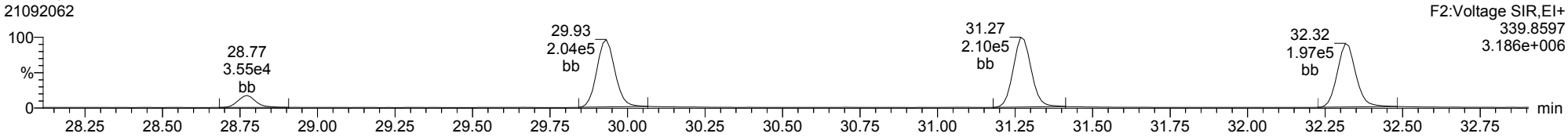

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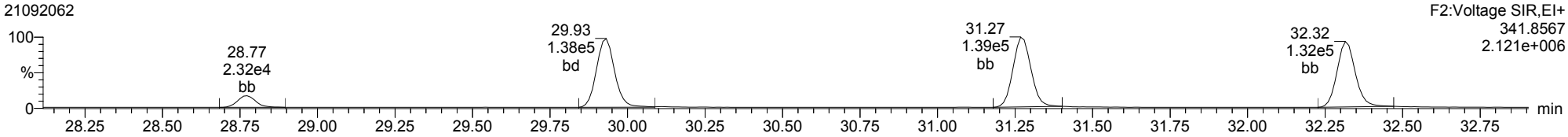

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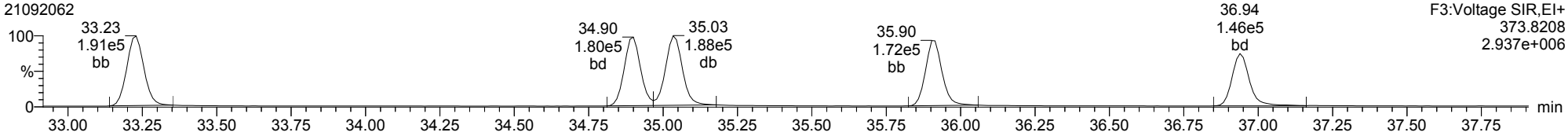

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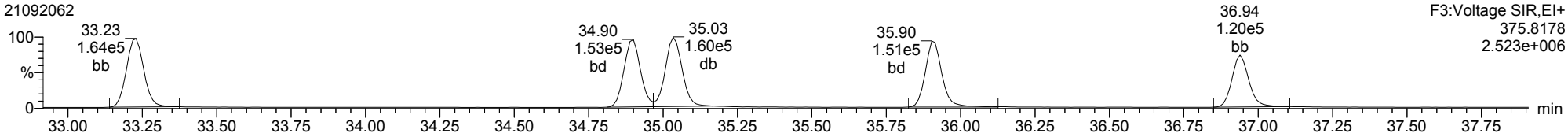

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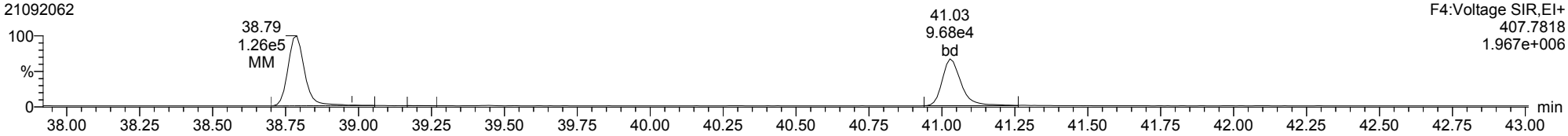

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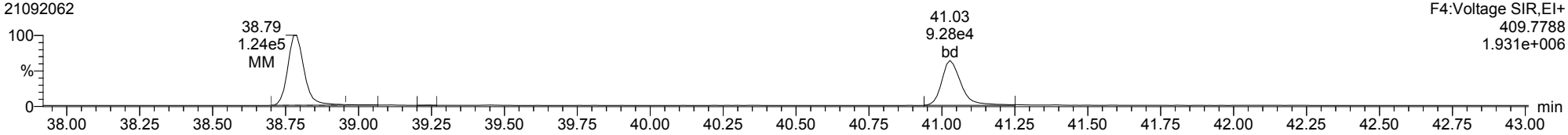

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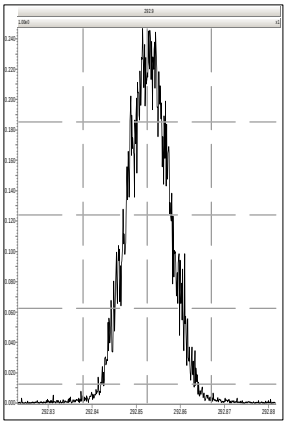

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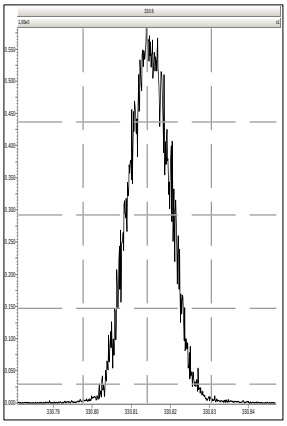

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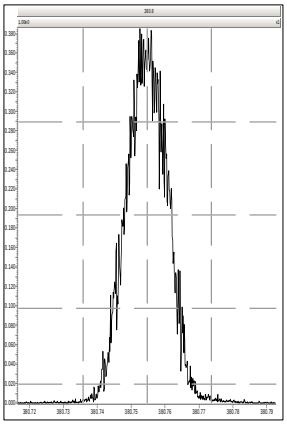

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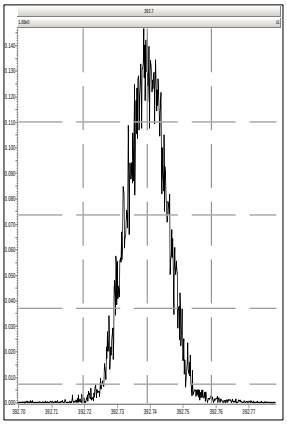

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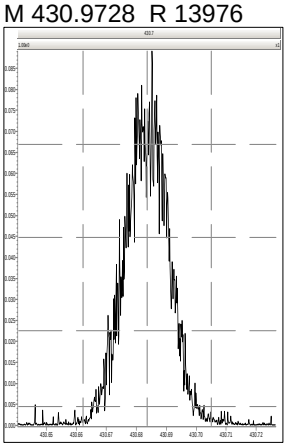

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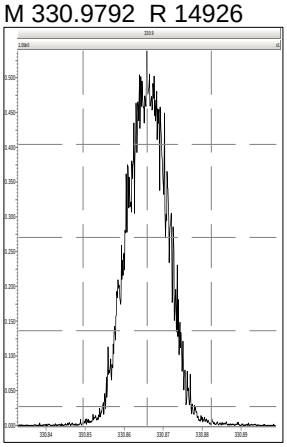

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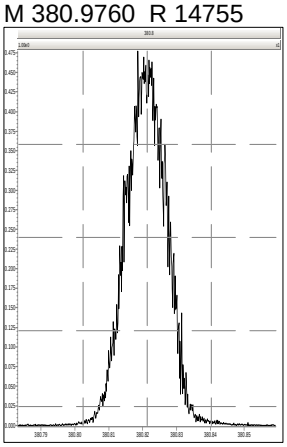

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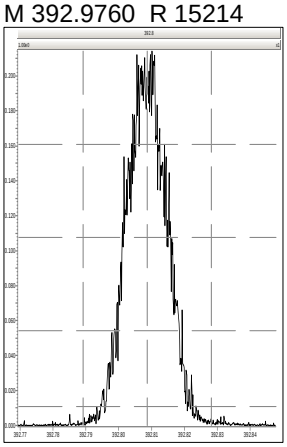

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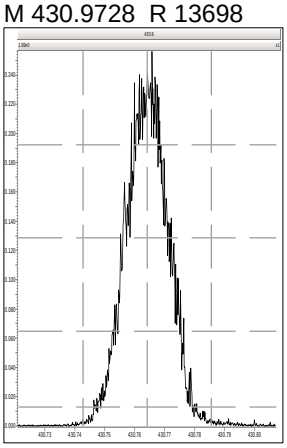

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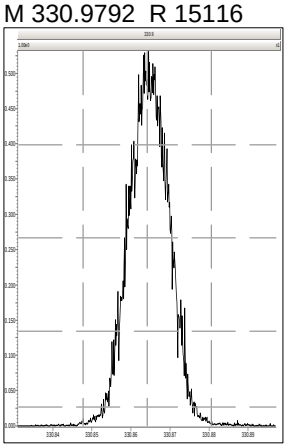

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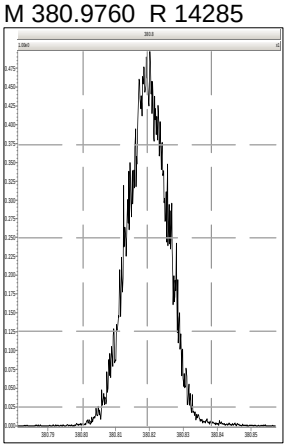

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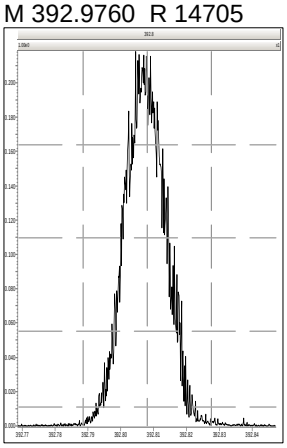

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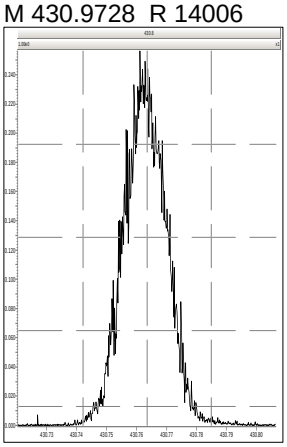

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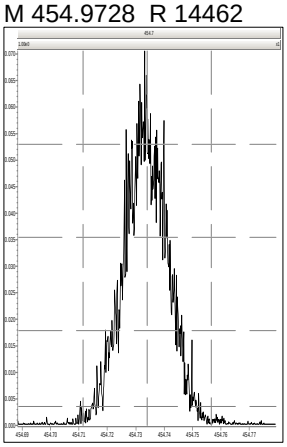

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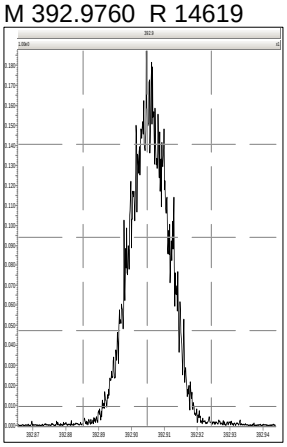

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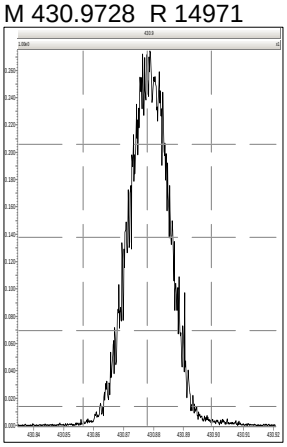

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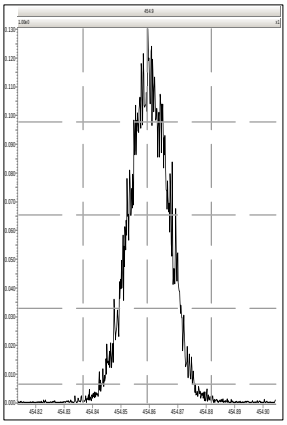

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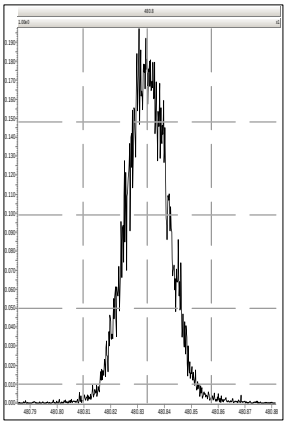

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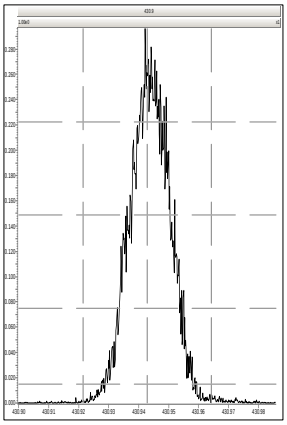

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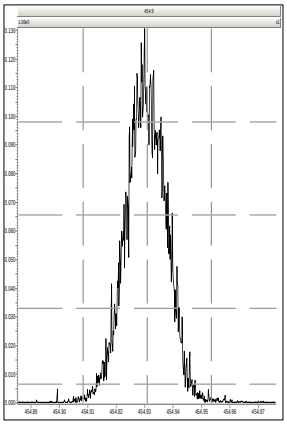

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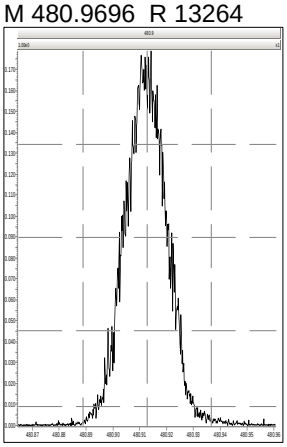

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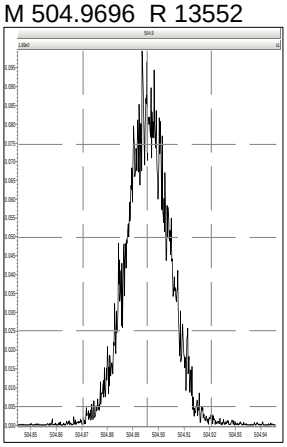

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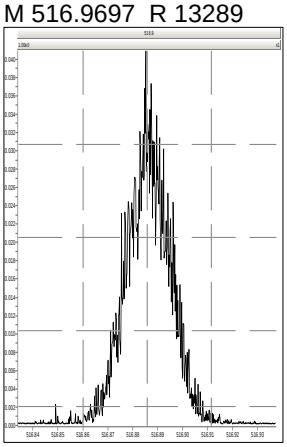

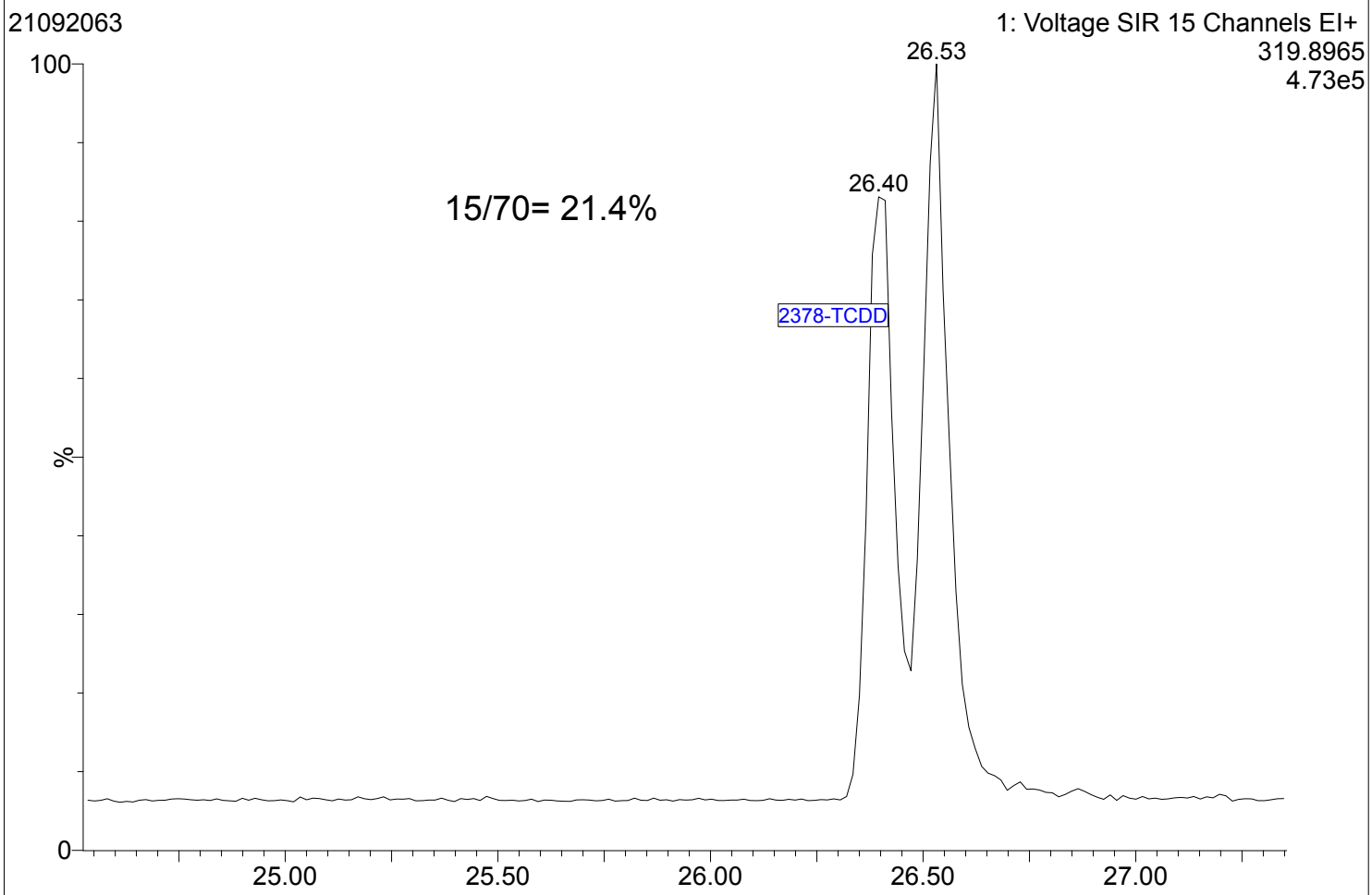
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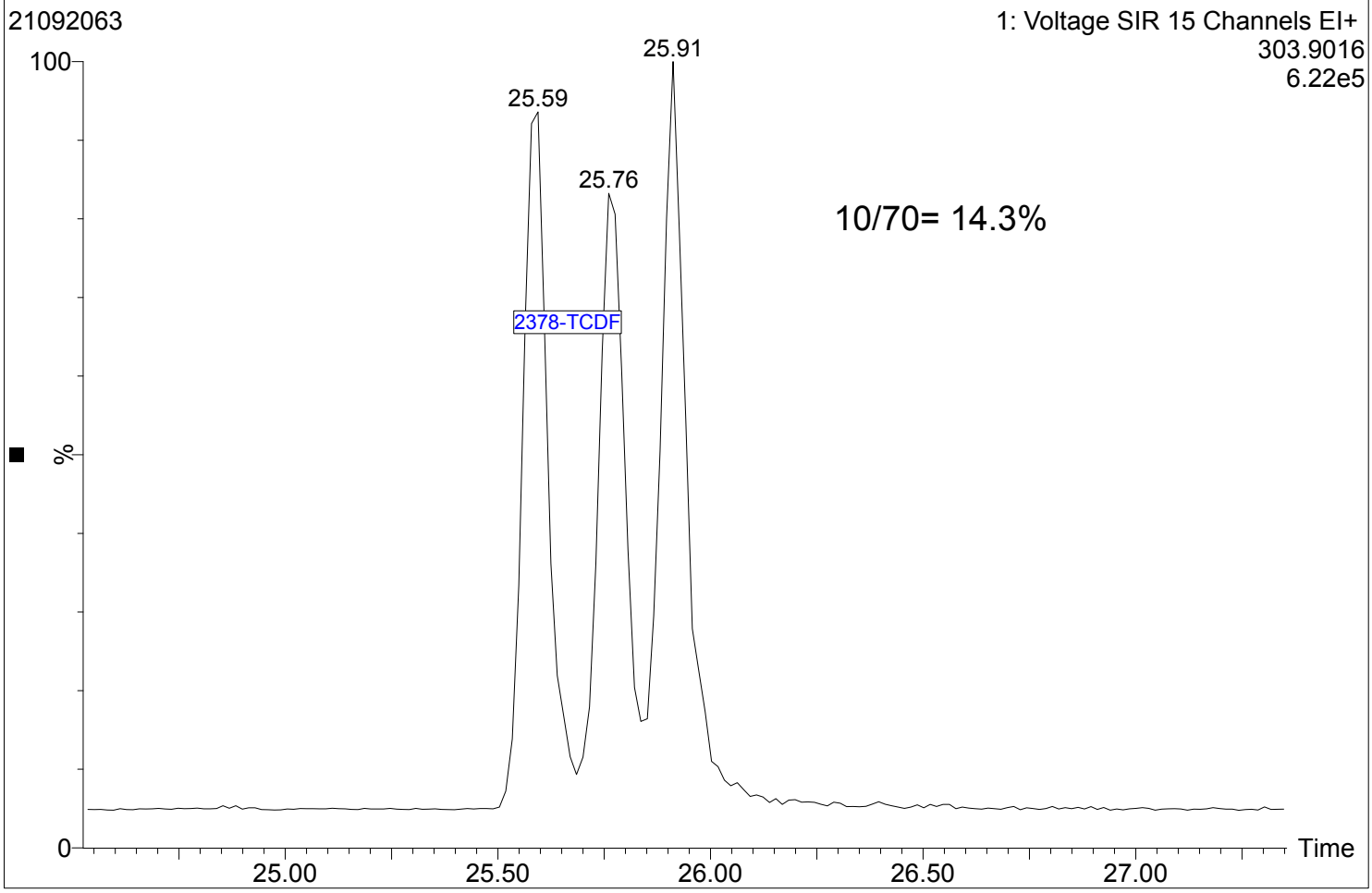
27.00


21092063
1: Voltage SIR 15 Channels EI+
303.9016
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

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092402	Calibration Date:	08/11/2021
Sequence:	SJI0383	Injection Date:	09/24/21
Lab Sample ID:	SJI0383-ICV1	Injection Time:	09:27
Sequence Name:	CS3T1		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	9.19	1.1075930	1.0179110		-8.1	+/-16
2,3,7,8-TCDD	A	10.000	10.2	0.9202875	0.9345494		1.5	+/-22
1,2,3,7,8-PeCDF	A	50.000	45.5	1.0148670	0.9225528		-9.1	+/-18
2,3,4,7,8-PeCDF	A	50.000	45.6	1.1255490	1.0273080		-8.7	+/-18
1,2,3,7,8-PeCDD	A	50.000	49.1	0.9953229	0.9783538		-1.7	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	48.8	1.0168930	0.9935027		-2.3	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	48.3	1.0368310	1.0006200		-3.5	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	47.6	1.0524660	1.0012750		-4.9	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	47.2	1.0301540	0.9715964		-5.7	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	48.2	1.0273630	0.9905073		-3.6	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	47.0	1.0089800	0.9476091		-6.1	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.3	0.9504865	0.9761244		2.7	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	45.2	1.3273500	1.1998920		-9.6	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	46.7	1.2833380	1.1986480		-6.6	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	47.3	1.0680880	1.0107470		-5.4	+/-14
OCDF	A	100.00	79.1	1.4469010	1.1448530		-20.9	+/-37
OCDD	A	100.00	94.3	1.1808230	1.1134200		-5.7	+/-21
13C12-2,3,7,8-TCDF	A	100.00	103	1.4265830	1.4662733		2.8	+/-29
13C12-2,3,7,8-TCDD	A	100.00	107	1.1164910	1.1960634		7.1	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	99.6	1.2973130	1.2915740		-0.4	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	97.5	1.2364800	1.2057108		-2.5	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	107	0.7319833	0.7867233		7.5	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	91.3	1.2424560	1.1337451		-8.7	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	86.4	1.3434760	1.1609777		-13.6	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	88.3	1.2148550	1.0729865		-11.7	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	92.4	1.0076370	0.9315475		-7.6	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	95.4	0.9598233	0.9154603		-4.6	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	92.5	1.0413850	0.9629317		-7.5	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	83.4	0.9264704	0.7723655		-16.6	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	79.2	0.7579160	0.6001013		-20.8	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	90.0	0.6324476	0.5694097		-10.0	+/-18

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092402	Calibration Date:	08/11/2021
Sequence:	SJI0383	Injection Date:	09/24/21
Lab Sample ID:	SJI0383-ICV1	Injection Time:	09:27
Sequence Name:	CS3T1		

COMPOUND	TYPE	CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-OCDD	A	200.00	183	0.5037432	0.4618465		-8.3	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.3	1.0835930	1.1201651		3.4	+/-21

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210924OP.qld
Last Altered: Friday, September 24, 2021 11:37:19 Pacific Daylight Time
Printed: Friday, September 24, 2021 11:56:02 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210924.mdb 24 Sep 2021 10:55:34
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3T1, Name: 21092402, Date: 24-Sep-2021, Time: 09:27:49, 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	25.594	1.001	5.769e4	7.862e4	1.108	0.734	0.770	609	999	8.54e5	1.16e6	1403.2	1161.7	NO	db	dd	9.190
12378-PeCDF	29.757	1.001	3.276e5	2.165e5	1.015	1.513	1.550	1630	1610	4.93e6	3.25e6	3024.3	2017.5	NO	bd	bd	45.452
23478-PeCDF	31.094	1.000	3.399e5	2.257e5	1.126	1.506	1.550	1630	1610	5.27e6	3.53e6	3233.0	2194.3	NO	bd	bb	45.636
123478-HxCDF	34.726	1.000	2.927e5	2.422e5	1.017	1.208	1.240	1841	1794	4.72e6	3.92e6	2564.5	2184.6	NO	bd	bd	48.850
234678-HxCDF	35.740	1.000	2.778e5	2.325e5	1.052	1.195	1.240	1841	1794	4.42e6	3.70e6	2402.0	2061.1	NO	bb	bb	47.568
123678-HxCDF	34.871	1.001	3.057e5	2.460e5	1.037	1.242	1.240	1841	1794	4.71e6	3.88e6	2556.2	2161.0	NO	dd	db	48.254
123789-HxCDF	36.776	1.000	2.340e5	1.959e5	1.030	1.194	1.240	1841	1794	3.80e6	3.22e6	2062.0	1796.2	NO	bb	bb	47.158
1234678-HpCDF	38.626	1.000	2.242e5	2.160e5	1.327	1.038	1.050	1338	1512	3.78e6	3.67e6	2829.1	2427.2	NO	bd	bd	45.199
1234789-HpCDF	40.854	1.001	1.724e5	1.692e5	1.283	1.019	1.050	1338	1512	2.51e6	2.44e6	1877.8	1613.9	NO	bd	bd	46.700
OCDF	45.055	1.006	2.338e5	2.684e5	1.447	0.871	0.890	1021	1957	2.93e6	3.34e6	2874.1	1708.2	NO	bb	bb	79.125
2378-TCDD	26.229	1.001	4.469e4	5.740e4	0.920	0.779	0.770	735	713	6.78e5	8.89e5	922.3	1247.7	NO	bb	bb	10.155
12378-PeCDD	31.339	1.001	2.182e5	1.333e5	0.995	1.637	1.550	1820	1133	3.42e6	2.10e6	1877.2	1854.0	NO	bb	bb	49.148
123478-HxCDD	35.852	1.001	2.426e5	1.881e5	1.027	1.290	1.240	1748	1796	4.08e6	3.11e6	2336.9	1729.4	NO	bd	bd	48.206
123678-HxCDD	35.963	1.000	2.419e5	1.915e5	1.009	1.263	1.240	1748	1796	3.96e6	3.18e6	2266.7	1772.4	NO	db	db	46.959
123789-HxCDD	36.353	1.011	2.460e5	1.894e5	0.950	1.299	1.240	1748	1796	4.00e6	3.08e6	2286.6	1713.4	NO	bb	bb	51.349
1234678-HpCDD	40.108	1.000	1.422e5	1.311e5	1.068	1.085	1.050	1126	1135	2.27e6	2.09e6	2019.5	1844.7	NO	bb	bb	47.316
OCDD	44.817	1.000	2.307e5	2.578e5	1.181	0.895	0.890	1116	1254	2.98e6	3.30e6	2670.0	2627.4	NO	bb	bb	94.292
13C-2378-TCDF	25.579	1.007	5.968e5	7.424e5	1.427	0.804	0.770	1188	1046	9.24e6	1.14e7	7776.9	10910.0	NO	bb	bb	102.782
13C-12378-PeCDF	29.735	1.171	7.220e5	4.576e5	1.297	1.578	1.550	1664	2521	1.12e7	7.08e6	6731.5	2809.6	NO	bb	bb	99.558
13C-23478-PeCDF	31.083	1.224	6.755e5	4.256e5	1.236	1.587	1.550	1664	2521	1.05e7	6.65e6	6313.6	2639.0	NO	bb	bb	97.512
13C-123478-HxCDF	34.715	0.955	3.663e5	7.106e5	1.242	0.516	0.510	2245	2375	5.76e6	1.12e7	2566.2	4703.4	NO	bd	bd	91.250
13C-123678-HxCDF	34.849	0.959	3.705e5	7.323e5	1.343	0.506	0.510	2245	2375	5.90e6	1.16e7	2626.6	4896.8	NO	db	db	86.416
13C-234678-HxCDF	35.729	0.983	3.457e5	6.735e5	1.215	0.513	0.510	2245	2375	5.58e6	1.08e7	2486.7	4568.6	NO	bb	bb	88.322
13C-123789-HxCDF	36.765	1.012	3.056e5	5.793e5	1.008	0.527	0.510	2245	2375	5.03e6	9.68e6	2238.8	4075.3	NO	bb	bb	92.449
13C-1234678-HpCDF	38.615	1.063	2.314e5	5.023e5	0.926	0.461	0.440	1587	1967	3.82e6	8.40e6	2406.9	4271.0	NO	bd	bd	83.366
13C-1234789-HpCDF	40.832	1.124	1.766e5	3.934e5	0.758	0.449	0.440	1587	1967	2.63e6	5.74e6	1659.6	2919.9	NO	bb	bd	79.178
13C-1234-TCDD	25.398	0.000	4.005e5	5.128e5	1.000	0.781	0.770	2249	726	6.23e6	8.00e6	2770.5	11019.1	NO	bb	bb	100.000
13C-2378-TCDD	26.199	1.032	4.731e5	6.192e5	1.116	0.764	0.770	2249	726	7.09e6	9.32e6	3154.3	12836.6	NO	bb	bb	107.127
13C-12378-PeCDD	31.317	1.233	4.353e5	2.832e5	0.732	1.537	1.550	1333	879	6.70e6	4.41e6	5028.6	5019.7	NO	bb	bb	107.478
13C-123478-HxCDD	35.829	0.986	4.861e5	3.835e5	0.960	1.268	1.240	1601	1345	8.28e6	6.56e6	5172.4	4878.9	NO	bd	bd	95.378
13C-123678-HxCDD	35.952	0.989	5.099e5	4.048e5	1.041	1.260	1.240	1601	1345	8.08e6	6.44e6	5046.2	4789.9	NO	db	db	92.466
13C-1234678-HpCDD	40.097	1.103	2.709e5	2.699e5	0.632	1.004	1.050	999	1271	4.34e6	4.19e6	4345.4	3298.5	NO	bb	bd	90.033
13C-OCDD	44.799	1.233	4.152e5	4.622e5	0.504	0.898	0.890	1168	1072	5.39e6	5.93e6	4614.6	5531.2	NO	bb	bb	183.366
13C-123789-HxCDD	36.342	0.000	5.311e5	4.187e5	1.000	1.268	1.240	1601	1345	8.85e6	6.97e6	5525.8	5186.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.229	1.033	1.023e5		1.084			1143		1.54e6		1350.8			bb		10.338

Dataset: T:\Autospec\Processed Data Batch\210924OP.qld
Last Altered: Friday, September 24, 2021 11:37:19 Pacific Daylight Time
Printed: Friday, September 24, 2021 11:56:02 Pacific Daylight Time

ID: CS3T1, Name: 21092402, Date: 24-Sep-2021, Time: 09:27:49, 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	22.072	0.863	7.331e4	9.611e4	1.425	0.763	0.770	609	999	1.15e6	1.53e6	1891.2	1526.6	NO	bb	bb	8.877
1289-TCDF	27.106	1.060	5.364e4	7.281e4	1.043	0.737	0.770	609	999	7.52e5	1.02e6	1236.2	1024.1	NO	dd	db	9.054
13468-PECDF	26.940	0.906	4.901e5	3.228e5	1.376	1.518	1.550	560	902	7.48e6	4.89e6	13356.9	5418.5	NO	bb	bb	50.071
12389-PECDF	32.141	1.081	3.195e5	2.100e5	1.000	1.522	1.550	1630	1610	4.76e6	3.11e6	2918.0	1932.7	NO	bd	bd	44.908
123468-HXCDF	33.055	0.952	3.046e5	2.534e5	1.087	1.202	1.240	1841	1794	4.75e6	3.94e6	2581.5	2195.8	NO	bb	bb	47.685
1368-TCDD	23.341	0.891	4.399e4	5.547e4	0.923	0.793	0.770	735	713	7.07e5	8.89e5	961.5	1246.8	NO	bb	bb	9.862
1289-TCDD	26.834	1.024	3.785e4	4.972e4	0.794	0.761	0.770	735	713	5.73e5	7.40e5	779.6	1037.6	NO	bb	bb	10.096
12479-PECDD	28.610	0.914	3.853e5	2.387e5	1.843	1.614	1.550	1820	1133	3.79e6	2.38e6	2079.8	2103.2	NO	bb	bb	47.118
12389-PECDD	31.740	1.014	2.535e5	1.579e5	1.154	1.605	1.550	1820	1133	3.92e6	2.44e6	2153.4	2151.1	NO	bb	bb	49.643
124679-HXCDD	33.824	0.944	2.623e5	2.105e5	1.125	1.246	1.240	1748	1796	4.20e6	3.41e6	2401.3	1900.1	NO	bb	bb	48.334
1234679-HPCDD	39.071	0.974	1.589e5	1.510e5	1.211	1.052	1.050	1126	1135	2.67e6	2.52e6	2374.9	2220.5	NO	bb	bb	47.313
Total-tetrafurans			1.855e5		1.192			609		2.77e6							27.248
Total-penta1			4.901e5					560		7.48e6							50.071
Total-pentafurans			1.044e6		1.047			1630		1.58e7							143.883
Total-hexafurans			1.415e6		1.045			1841		2.24e7							239.514
Total-heptafurans			3.966e5		1.305			1338		6.30e6							91.899
Total-Furans			3.765e6		1.158			609		5.77e7							631.741
Total-tetradioxins			2.171e5		0.879			735		3.01e6							51.404
Total-pentadioxins			8.586e5		1.331			1820		1.11e7							146.182
Total-hexadioxins			9.928e5		1.028			1748		1.62e7							194.848
Total-heptadioxins			3.011e5		1.140			1126		4.95e6							94.629
Total-Dioxins			2.600e6		1.092			735		3.83e7							581.354
Total-TEQ			6.365e6					735		9.60e7							1213.095
FUNCTION1 PFK			9.642e5					353176		1.61e7							
FUNCTION2 PFK			9.780e6					160682		7.45e7							0.000
FUNCTION3 PFK			2.779e5					317239		4.33e6							0.000
FUNCTION4 PFK			3.233e5					165372		7.40e6							
FUNCTION5 PFK			5.869e4					122944		2.28e6							
FUNCTION1 HXCD...			1.969e3					563		2.37e4							0.000
FUNCTION1 HPCD...			8.349e2					608		1.25e4							0.000
FUNCTION2 HPCD...			7.290e2					610		1.22e4							0.000
FUNCTION3 OCDPE			7.175e2					502		1.05e4							0.000
FUNCTION4 NCDPE			1.710e2					644		3.37e3							0.000
FUNCTION5 DCDPE			0.000e0					315		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210924OP.qld
Last Altered: Friday, September 24, 2021 11:37:19 Pacific Daylight Time
Printed: Friday, September 24, 2021 11:56:02 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210924.mdb 24 Sep 2021 10:55:34
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3T1, Name: 21092402, Date: 24-Sep-2021, Time: 09:27:49, 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	27.11	5.364e4	7.281e4	1.043	0.74	0.77	1236.2	YES	NO	dd	db	9.054
2	2378-TCDF	25.59	5.769e4	7.862e4	1.108	0.73	0.77	1403.2	YES	NO	db	dd	9.190
3	Total-tetrafurans	25.43	1.511e2	1.855e2	1.192	0.81	0.77	3.9	YES	NO	bd	bd	0.021
4	Total-tetrafurans	24.35	7.391e2	9.484e2	1.192	0.78	0.77	17.7	YES	NO	bd	bd	0.106
5	1368-TCDF	22.07	7.331e4	9.611e4	1.425	0.76	0.77	1891.2	YES	NO	bb	bb	8.877

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.94	4.901e5	3.228e5	1.376	1.52	1.55	13356.9	YES	NO	bb	bb	50.071

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	29.94	1.864e3	1.200e3	1.047	1.55	1.55	20.9	YES	NO	dd	dd	0.257
2	12378-PeCDF	29.76	3.276e5	2.165e5	1.015	1.51	1.55	3024.3	YES	NO	bd	bd	45.452
3	Total-pentafurans	28.60	5.523e4	3.584e4	1.047	1.54	1.55	525.7	YES	NO	bb	bb	7.630
4	12389-PECDF	32.14	3.195e5	2.100e5	1.000	1.52	1.55	2918.0	YES	NO	bd	bd	44.908
5	23478-PeCDF	31.09	3.399e5	2.257e5	1.126	1.51	1.55	3233.0	YES	NO	bd	bb	45.636

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.78	2.340e5	1.959e5	1.030	1.19	1.24	2062.0	YES	NO	bb	bb	47.158
2	234678-HxCDF	35.74	2.778e5	2.325e5	1.052	1.20	1.24	2402.0	YES	NO	bb	bb	47.568
3	123678-HxCDF	34.87	3.057e5	2.460e5	1.037	1.24	1.24	2556.2	YES	NO	dd	db	48.254
4	123478-HxCDF	34.73	2.927e5	2.422e5	1.017	1.21	1.24	2564.5	YES	NO	bd	bd	48.850
5	123468-HXCDF	33.06	3.046e5	2.534e5	1.087	1.20	1.24	2581.5	YES	NO	bb	bb	47.685

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.85	1.724e5	1.692e5	1.283	1.02	1.05	1877.8	YES	NO	bd	bd	46.700
2	1234678-HpCDF	38.63	2.242e5	2.160e5	1.327	1.04	1.05	2829.1	YES	NO	bd	bd	45.199

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.11	5.364e4	7.281e4	1.043	0.74	0.77	1236.2	YES	NO	dd	db	9.054
2	2378-TCDF	25.59	5.769e4	7.862e4	1.108	0.73	0.77	1403.2	YES	NO	db	dd	9.190
3	Total-tetrafurans	25.43	1.511e2	1.855e2	1.192	0.81	0.77	3.9	YES	NO	bd	bd	0.021
4	Total-tetrafurans	24.35	7.391e2	9.484e2	1.192	0.78	0.77	17.7	YES	NO	bd	bd	0.106
5	1368-TCDF	22.07	7.331e4	9.611e4	1.425	0.76	0.77	1891.2	YES	NO	bb	bb	8.877
6	Total-pentafurans	29.94	1.864e3	1.200e3	1.047	1.55	1.55	20.9	YES	NO	dd	dd	0.257
7	12378-PeCDF	29.76	3.276e5	2.165e5	1.015	1.51	1.55	3024.3	YES	NO	bd	bd	45.452
8	Total-pentafurans	28.60	5.523e4	3.584e4	1.047	1.54	1.55	525.7	YES	NO	bb	bb	7.630
9	12389-PECDF	32.14	3.195e5	2.100e5	1.000	1.52	1.55	2918.0	YES	NO	bd	bd	44.908
10	23478-PeCDF	31.09	3.399e5	2.257e5	1.126	1.51	1.55	3233.0	YES	NO	bd	bb	45.636
11	123789-HxCDF	36.78	2.340e5	1.959e5	1.030	1.19	1.24	2062.0	YES	NO	bb	bb	47.158
12	234678-HxCDF	35.74	2.778e5	2.325e5	1.052	1.20	1.24	2402.0	YES	NO	bb	bb	47.568
13	123678-HxCDF	34.87	3.057e5	2.460e5	1.037	1.24	1.24	2556.2	YES	NO	dd	db	48.254
14	123478-HxCDF	34.73	2.927e5	2.422e5	1.017	1.21	1.24	2564.5	YES	NO	bd	bd	48.850
15	123468-HXCDF	33.06	3.046e5	2.534e5	1.087	1.20	1.24	2581.5	YES	NO	bb	bb	47.685
16	1234789-HpCDF	40.85	1.724e5	1.692e5	1.283	1.02	1.05	1877.8	YES	NO	bd	bd	46.700
17	1234678-HpCDF	38.63	2.242e5	2.160e5	1.327	1.04	1.05	2829.1	YES	NO	bd	bd	45.199
18	OCDF	45.06	2.338e5	2.684e5	1.447	0.87	0.89	2874.1	YES	NO	bb	bb	79.125
19	13468-PECDF	26.94	4.901e5	3.228e5	1.376	1.52	1.55	13356.9	YES	NO	bb	bb	50.071

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.83	3.785e4	4.972e4	0.794	0.76	0.77	779.6	YES	NO	bb	bb	10.096
2	2378-TCDD	26.23	4.469e4	5.740e4	0.920	0.78	0.77	922.3	YES	NO	bb	bb	10.155
3	Total-tetradioxins	25.91	6.630e4	8.532e4	0.879	0.78	0.77	932.0	YES	NO	bb	bd	15.787
4	Total-tetradioxins	25.41	2.158e4	2.515e4	0.879	0.86	0.77	450.0	YES	NO	bd	bb	4.866
5	Total-tetradioxins	24.82	6.030e2	7.613e2	0.879	0.79	0.77	12.6	YES	NO	bb	db	0.142
6	Total-tetradioxins	24.54	2.127e3	2.643e3	0.879	0.80	0.77	31.5	YES	NO	bb	bd	0.497
7	1368-TCDD	23.34	4.399e4	5.547e4	0.923	0.79	0.77	961.5	YES	NO	bb	bb	9.862

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.72	6.792e2	4.876e2	1.331	1.39	1.55	5.3	YES	NO	bb	bb	0.122
2	12479-PECDD	28.61	3.853e5	2.387e5	1.843	1.61	1.55	2079.8	YES	NO	bb	bb	47.118
3	12389-PECDD	31.74	2.535e5	1.579e5	1.154	1.61	1.55	2153.4	YES	NO	bb	bb	49.643
4	12378-PeCDD	31.34	2.182e5	1.333e5	0.995	1.64	1.55	1877.2	YES	NO	bb	bb	49.148
5	Total-pentadioxins	30.66	9.136e2	5.275e2	1.331	1.73	1.55	7.8	YES	NO	bb	bb	0.151

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.82	2.623e5	2.105e5	1.125	1.25	1.24	2401.3	YES	NO	bb	bb	48.334
2	123789-HxCDD	36.35	2.460e5	1.894e5	0.950	1.30	1.24	2286.6	YES	NO	bb	bb	51.349
3	123678-HxCDD	35.96	2.419e5	1.915e5	1.009	1.26	1.24	2266.7	YES	NO	db	db	46.959
4	123478-HxCDD	35.85	2.426e5	1.881e5	1.027	1.29	1.24	2336.9	YES	NO	bd	bd	48.206

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.11	1.422e5	1.311e5	1.068	1.08	1.05	2019.5	YES	NO	bb	bb	47.316
2	1234679-HPCDD	39.07	1.589e5	1.510e5	1.211	1.05	1.05	2374.9	YES	NO	bb	bb	47.313

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.83	3.785e4	4.972e4	0.794	0.76	0.77	779.6	YES	NO	bb	bb	10.096
2	2378-TCDD	26.23	4.469e4	5.740e4	0.920	0.78	0.77	922.3	YES	NO	bb	bb	10.155
3	Total-tetradioxins	25.91	6.630e4	8.532e4	0.879	0.78	0.77	932.0	YES	NO	bb	bd	15.787
4	Total-tetradioxins	25.41	2.158e4	2.515e4	0.879	0.86	0.77	450.0	YES	NO	bd	bb	4.866
5	Total-tetradioxins	24.82	6.030e2	7.613e2	0.879	0.79	0.77	12.6	YES	NO	bb	db	0.142
6	Total-tetradioxins	24.54	2.127e3	2.643e3	0.879	0.80	0.77	31.5	YES	NO	bb	bd	0.497
7	1368-TCDD	23.34	4.399e4	5.547e4	0.923	0.79	0.77	961.5	YES	NO	bb	bb	9.862
8	Total-pentadioxins	29.72	6.792e2	4.876e2	1.331	1.39	1.55	5.3	YES	NO	bb	bb	0.122
9	12479-PECDD	28.61	3.853e5	2.387e5	1.843	1.61	1.55	2079.8	YES	NO	bb	bb	47.118
10	124679-HXCDD	33.82	2.623e5	2.105e5	1.125	1.25	1.24	2401.3	YES	NO	bb	bb	48.334
11	12389-PECDD	31.74	2.535e5	1.579e5	1.154	1.61	1.55	2153.4	YES	NO	bb	bb	49.643
12	12378-PeCDD	31.34	2.182e5	1.333e5	0.995	1.64	1.55	1877.2	YES	NO	bb	bb	49.148
13	Total-pentadioxins	30.66	9.136e2	5.275e2	1.331	1.73	1.55	7.8	YES	NO	bb	bb	0.151
14	123789-HxCDD	36.35	2.460e5	1.894e5	0.950	1.30	1.24	2286.6	YES	NO	bb	bb	51.349
15	123678-HxCDD	35.96	2.419e5	1.915e5	1.009	1.26	1.24	2266.7	YES	NO	db	db	46.959
16	123478-HxCDD	35.85	2.426e5	1.881e5	1.027	1.29	1.24	2336.9	YES	NO	bd	bd	48.206
17	1234678-HpCDD	40.11	1.422e5	1.311e5	1.068	1.08	1.05	2019.5	YES	NO	bb	bb	47.316
18	1234679-HPCDD	39.07	1.589e5	1.510e5	1.211	1.05	1.05	2374.9	YES	NO	bb	bb	47.313
19	OCDD	44.82	2.307e5	2.578e5	1.181	0.89	0.89	2670.0	YES	NO	bb	bb	94.292

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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	27.11	5.364e4	7.281e4	1.043	0.74	0.77	1236.2	YES	NO	dd	db	9.054
2	2378-TCDF	25.59	5.769e4	7.862e4	1.108	0.73	0.77	1403.2	YES	NO	db	dd	9.190
3	Total-tetrafurans	25.43	1.511e2	1.855e2	1.192	0.81	0.77	3.9	YES	NO	bd	bd	0.021
4	Total-tetrafurans	24.35	7.391e2	9.484e2	1.192	0.78	0.77	17.7	YES	NO	bd	bd	0.106
5	1368-TCDF	22.07	7.331e4	9.611e4	1.425	0.76	0.77	1891.2	YES	NO	bb	bb	8.877
6	Total-pentafurans	29.94	1.864e3	1.200e3	1.047	1.55	1.55	20.9	YES	NO	dd	dd	0.257
7	12378-PeCDF	29.76	3.276e5	2.165e5	1.015	1.51	1.55	3024.3	YES	NO	bd	bd	45.452
8	Total-pentafurans	28.60	5.523e4	3.584e4	1.047	1.54	1.55	525.7	YES	NO	bb	bb	7.630
9	12389-PECDF	32.14	3.195e5	2.100e5	1.000	1.52	1.55	2918.0	YES	NO	bd	bd	44.908
10	23478-PeCDF	31.09	3.399e5	2.257e5	1.126	1.51	1.55	3233.0	YES	NO	bd	bb	45.636
11	123789-HxCDF	36.78	2.340e5	1.959e5	1.030	1.19	1.24	2062.0	YES	NO	bb	bb	47.158
12	234678-HxCDF	35.74	2.778e5	2.325e5	1.052	1.20	1.24	2402.0	YES	NO	bb	bb	47.568
13	123678-HxCDF	34.87	3.057e5	2.460e5	1.037	1.24	1.24	2556.2	YES	NO	dd	db	48.254
14	123478-HxCDF	34.73	2.927e5	2.422e5	1.017	1.21	1.24	2564.5	YES	NO	bd	bd	48.850
15	123468-HXCDF	33.06	3.046e5	2.534e5	1.087	1.20	1.24	2581.5	YES	NO	bb	bb	47.685
16	1234789-HpCDF	40.85	1.724e5	1.692e5	1.283	1.02	1.05	1877.8	YES	NO	bd	bd	46.700
17	1234678-HpCDF	38.63	2.242e5	2.160e5	1.327	1.04	1.05	2829.1	YES	NO	bd	bd	45.199
18	OCDF	45.06	2.338e5	2.684e5	1.447	0.87	0.89	2874.1	YES	NO	bb	bb	79.125
19	13468-PECDF	26.94	4.901e5	3.228e5	1.376	1.52	1.55	13356.9	YES	NO	bb	bb	50.071
20	1289-TCDD	26.83	3.785e4	4.972e4	0.794	0.76	0.77	779.6	YES	NO	bb	bb	10.096
21	2378-TCDD	26.23	4.469e4	5.740e4	0.920	0.78	0.77	922.3	YES	NO	bb	bb	10.155
22	Total-tetradioxins	25.91	6.630e4	8.532e4	0.879	0.78	0.77	932.0	YES	NO	bb	bd	15.787
23	Total-tetradioxins	25.41	2.158e4	2.515e4	0.879	0.86	0.77	450.0	YES	NO	bd	bb	4.866
24	Total-tetradioxins	24.82	6.030e2	7.613e2	0.879	0.79	0.77	12.6	YES	NO	bb	db	0.142
25	Total-tetradioxins	24.54	2.127e3	2.643e3	0.879	0.80	0.77	31.5	YES	NO	bb	bd	0.497
26	1368-TCDD	23.34	4.399e4	5.547e4	0.923	0.79	0.77	961.5	YES	NO	bb	bb	9.862
27	Total-pentadioxins	29.72	6.792e2	4.876e2	1.331	1.39	1.55	5.3	YES	NO	bb	bb	0.122
28	12479-PECDD	28.61	3.853e5	2.387e5	1.843	1.61	1.55	2079.8	YES	NO	bb	bb	47.118
29	124679-HXCDD	33.82	2.623e5	2.105e5	1.125	1.25	1.24	2401.3	YES	NO	bb	bb	48.334
30	12389-PECDD	31.74	2.535e5	1.579e5	1.154	1.61	1.55	2153.4	YES	NO	bb	bb	49.643
31	12378-PeCDD	31.34	2.182e5	1.333e5	0.995	1.64	1.55	1877.2	YES	NO	bb	bb	49.148
32	Total-pentadioxins	30.66	9.136e2	5.275e2	1.331	1.73	1.55	7.8	YES	NO	bb	bb	0.151
33	123789-HxCDD	36.35	2.460e5	1.894e5	0.950	1.30	1.24	2286.6	YES	NO	bb	bb	51.349
34	123678-HxCDD	35.96	2.419e5	1.915e5	1.009	1.26	1.24	2266.7	YES	NO	db	db	46.959
35	123478-HxCDD	35.85	2.426e5	1.881e5	1.027	1.29	1.24	2336.9	YES	NO	bd	bd	48.206
36	1234678-HpCDD	40.11	1.422e5	1.311e5	1.068	1.08	1.05	2019.5	YES	NO	bb	bb	47.316
37	1234679-HPCDD	39.07	1.589e5	1.510e5	1.211	1.05	1.05	2374.9	YES	NO	bb	bb	47.313

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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
38	OCDD	44.82	2.307e5	2.578e5	1.181	0.89	0.89	2670.0	YES	NO	bb	bb	94.292

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.62	5.269e3					0.6	NO		bd		
2	FUNCTION1 PFK	22.56	1.496e4					1.2	NO		bb		
3	FUNCTION1 PFK	22.28	1.393e4					1.2	NO		bb		
4	FUNCTION1 PFK	22.22	7.917e4					2.4	NO		db		
5	FUNCTION1 PFK	22.09	9.183e4					2.5	NO		dd		
6	FUNCTION1 PFK	21.94	2.806e4					1.1	NO		dd		
7	FUNCTION1 PFK	21.74	1.264e5					2.2	NO		dd		
8	FUNCTION1 PFK	21.62	3.783e4					1.9	NO		bd		
9	FUNCTION1 PFK	21.38	3.018e4					1.4	NO		db		
10	FUNCTION1 PFK	21.35	9.265e3					1.1	NO		bd		
11	FUNCTION1 PFK	21.27	1.888e4					1.4	NO		db		
12	FUNCTION1 PFK	21.18	2.371e4					2.1	NO		dd		
13	FUNCTION1 PFK	21.16	2.563e4					1.9	NO		bd		
14	FUNCTION1 PFK	26.21	2.646e4					1.0	NO		bb		
15	FUNCTION1 PFK	25.82	4.002e4					1.6	NO		db		
16	FUNCTION1 PFK	25.73	8.528e3					0.6	NO		bd		
17	FUNCTION1 PFK	25.67	1.176e4					1.0	NO		db		
18	FUNCTION1 PFK	25.61	1.131e4					0.9	NO		bd		
19	FUNCTION1 PFK	25.29	4.420e4					1.1	NO		bb		
20	FUNCTION1 PFK	25.14	5.603e3					0.5	NO		bb		
21	FUNCTION1 PFK	24.82	3.619e4					1.6	NO		bb		
22	FUNCTION1 PFK	24.58	7.006e3					0.6	NO		bb		
23	FUNCTION1 PFK	24.23	5.424e4					1.7	NO		bb		
24	FUNCTION1 PFK	23.98	6.258e3					0.7	NO		bb		
25	FUNCTION1 PFK	23.73	1.691e3					0.3	NO		bb		
26	FUNCTION1 PFK	23.27	4.242e4					1.2	NO		bb		
27	FUNCTION1 PFK	22.93	9.975e3					0.7	NO		bb		
28	FUNCTION1 PFK	22.80	2.019e3					0.4	NO		bb		
29	FUNCTION1 PFK	22.68	1.417e4					1.1	NO		db		
30	FUNCTION1 PFK	27.85	2.522e4					1.3	NO		db		
31	FUNCTION1 PFK	27.79	7.935e3					0.7	NO		bd		
32	FUNCTION1 PFK	27.73	5.676e3					0.7	NO		bb		
33	FUNCTION1 PFK	27.38	1.127e4					0.9	NO		bb		
34	FUNCTION1 PFK	27.18	1.198e4					1.2	NO		db		
35	FUNCTION1 PFK	27.12	2.475e4					1.5	NO		bd		
36	FUNCTION1 PFK	26.46	1.404e4					1.1	NO		bb		
37	FUNCTION1 PFK	26.37	3.134e4					1.5	NO		db		

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	26.29	5.028e3					0.6	NO		bd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.72	4.036e5					38.8	YES		dd		0.000
2	FUNCTION2 PFK	28.33	2.947e6					55.7	YES		dd		0.000
3	FUNCTION2 PFK	28.18	1.600e6					62.7	YES		dd		0.000
4	FUNCTION2 PFK	28.12	7.822e5					62.8	YES		dd		0.000
5	FUNCTION2 PFK	28.03	5.916e5					68.3	YES		dd		0.000
6	FUNCTION2 PFK	27.99	8.401e5					69.7	YES		bd		0.000
7	FUNCTION2 PFK	31.25	8.128e3					1.6	NO		bb		0.000
8	FUNCTION2 PFK	31.19	1.052e3					0.6	NO		bb		0.000
9	FUNCTION2 PFK	31.15	6.953e3					1.5	NO		bb		0.000
10	FUNCTION2 PFK	30.37	7.384e2					0.4	NO		bb		0.000
11	FUNCTION2 PFK	30.34	7.608e2					0.4	NO		bb		0.000
12	FUNCTION2 PFK	30.20	1.631e4					1.6	NO		db		0.000
13	FUNCTION2 PFK	30.16	1.028e4					1.8	NO		dd		0.000
14	FUNCTION2 PFK	30.11	1.703e4					2.8	NO		dd		0.000
15	FUNCTION2 PFK	30.02	2.009e4					2.4	NO		dd		0.000
16	FUNCTION2 PFK	29.97	1.718e4					2.6	NO		bd		0.000
17	FUNCTION2 PFK	29.87	1.247e4					2.1	NO		db		0.000
18	FUNCTION2 PFK	29.77	1.654e4					1.8	NO		bd		0.000
19	FUNCTION2 PFK	29.46	1.035e5					7.8	YES		db		0.000
20	FUNCTION2 PFK	29.39	3.778e5					10.4	YES		dd		0.000
21	FUNCTION2 PFK	29.13	1.288e6					21.2	YES		dd		0.000
22	FUNCTION2 PFK	28.79	6.524e5					35.9	YES		dd		0.000
23	FUNCTION2 PFK	32.55	5.772e3					1.5	NO		bb		0.000
24	FUNCTION2 PFK	32.13	1.528e3					0.9	NO		bb		0.000
25	FUNCTION2 PFK	32.09	1.234e3					0.7	NO		bb		0.000
26	FUNCTION2 PFK	31.91	6.357e3					0.4	NO		bb		0.000
27	FUNCTION2 PFK	31.77	1.127e4					1.7	NO		db		0.000
28	FUNCTION2 PFK	31.71	2.358e4					2.5	NO		dd		0.000
29	FUNCTION2 PFK	31.65	4.831e3					1.4	NO		bd		0.000
30	FUNCTION2 PFK	31.31	1.215e4					1.7	NO		bb		0.000

ID: CS3T1, Name: 21092402, Date: 24-Sep-2021, Time: 09:27:49, Conditions: AUTOSPEC01, User: pk

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.95	1.187e5					5.3	YES		bb		0.000
2	FUNCTION3 PFK	36.73	2.031e4					2.6	NO		bb		0.000
3	FUNCTION3 PFK	36.14	1.248e5					3.9	YES		bb		0.000
4	FUNCTION3 PFK	35.31	1.404e4					1.8	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.85	1.704e3					0.9	NO		bb		
2	FUNCTION4 PFK	37.80	3.727e3					1.0	NO		bb		
3	FUNCTION4 PFK	41.09	9.165e4					4.3	YES		bd		
4	FUNCTION4 PFK	40.73	1.098e4					1.7	NO		bb		
5	FUNCTION4 PFK	40.42	2.516e3					0.9	NO		bb		
6	FUNCTION4 PFK	40.03	9.896e3					1.6	NO		bb		
7	FUNCTION4 PFK	39.87	5.505e3					1.4	NO		bb		
8	FUNCTION4 PFK	39.70	1.476e4					2.5	NO		db		
9	FUNCTION4 PFK	39.66	1.161e4					2.2	NO		dd		
10	FUNCTION4 PFK	39.60	9.166e3					2.1	NO		bd		
11	FUNCTION4 PFK	39.54	1.083e4					2.3	NO		bb		
12	FUNCTION4 PFK	39.31	1.106e4					1.7	NO		bb		
13	FUNCTION4 PFK	39.19	9.444e2					0.5	NO		bb		
14	FUNCTION4 PFK	39.16	8.885e2					0.5	NO		bb		
15	FUNCTION4 PFK	38.97	3.536e3					0.9	NO		bb		
16	FUNCTION4 PFK	38.43	2.367e4					3.5	YES		db		
17	FUNCTION4 PFK	38.36	5.496e4					4.6	YES		bd		
18	FUNCTION4 PFK	38.00	2.733e3					0.9	NO		bb		
19	FUNCTION4 PFK	42.64	4.832e3					1.6	NO		bb		
20	FUNCTION4 PFK	42.27	9.862e3					1.9	NO		bb		
21	FUNCTION4 PFK	42.05	4.786e3					1.0	NO		bb		
22	FUNCTION4 PFK	41.99	1.972e4					2.7	NO		db		
23	FUNCTION4 PFK	41.93	2.560e3					1.0	NO		bd		
24	FUNCTION4 PFK	41.87	1.837e3					0.6	NO		bb		
25	FUNCTION4 PFK	41.65	5.530e3					1.4	NO		bb		
26	FUNCTION4 PFK	41.26	4.003e3					1.2	NO		db		

ID: CS3T1, Name: 21092402, Date: 24-Sep-2021, Time: 09:27:49, 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	43.85	6.952e3					1.6	NO		bb		
2	FUNCTION5 PFK	43.73	5.064e3					1.6	NO		bb		
3	FUNCTION5 PFK	43.11	1.128e4					1.6	NO		db		
4	FUNCTION5 PFK	43.00	4.010e3					1.6	NO		bd		
5	FUNCTION5 PFK	42.93	2.232e3					1.0	NO		bb		
6	FUNCTION5 PFK	42.90	3.300e3					1.4	NO		db		
7	FUNCTION5 PFK	42.86	6.132e2					0.5	NO		bd		
8	FUNCTION5 PFK	45.92	9.662e2					0.9	NO		bb		
9	FUNCTION5 PFK	45.89	3.939e3					1.3	NO		bb		
10	FUNCTION5 PFK	45.75	5.838e2					0.5	NO		bb		
11	FUNCTION5 PFK	45.59	1.914e3					0.9	NO		bb		
12	FUNCTION5 PFK	45.39	2.940e3					1.1	NO		bb		
13	FUNCTION5 PFK	45.27	4.769e3					1.4	NO		bb		
14	FUNCTION5 PFK	44.28	5.065e3					1.7	NO		bb		
15	FUNCTION5 PFK	44.22	5.060e3					1.6	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.55	1.027e2					2.4	NO		bb		0.000
2	FUNCTION1 HXCD...	23.24	1.126e2					1.2	NO		bb		0.000
3	FUNCTION1 HXCD...	22.92	8.955e1					2.0	NO		db		0.000
4	FUNCTION1 HXCD...	22.78	9.988e1					1.7	NO		dd		0.000
5	FUNCTION1 HXCD...	22.63	1.102e2					2.1	NO		bd		0.000
6	FUNCTION1 HXCD...	22.16	8.861e1					1.7	NO		bb		0.000
7	FUNCTION1 HXCD...	21.91	1.570e2					1.8	NO		bb		0.000
8	FUNCTION1 HXCD...	27.44	1.718e2					4.2	YES		db		0.000
9	FUNCTION1 HXCD...	27.33	2.561e2					3.0	YES		dd		0.000
10	FUNCTION1 HXCD...	27.12	9.867e1					2.4	NO		dd		0.000
11	FUNCTION1 HXCD...	27.00	1.118e2					3.4	YES		dd		0.000
12	FUNCTION1 HXCD...	26.96	1.477e2					4.4	YES		dd		0.000
13	FUNCTION1 HXCD...	26.88	7.681e1					3.4	YES		bd		0.000
14	FUNCTION1 HXCD...	26.23	9.991e1					2.2	NO		bb		0.000
15	FUNCTION1 HXCD...	26.03	8.117e1					1.5	NO		bb		0.000
16	FUNCTION1 HXCD...	23.78	9.431e1					2.8	NO		db		0.000
17	FUNCTION1 HXCD...	23.72	7.021e1					2.0	NO		bd		0.000

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ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	26.21	9.517e1					2.1	NO		bb		0.000
2	FUNCTION1 HPCD...	26.03	9.025e1					3.9	YES		bb		0.000
3	FUNCTION1 HPCD...	25.41	1.237e2					2.3	NO		bb		0.000
4	FUNCTION1 HPCD...	21.54	1.244e2					1.9	NO		db		0.000
5	FUNCTION1 HPCD...	21.38	1.333e2					2.5	NO		bd		0.000
6	FUNCTION1 HPCD...	27.71	7.189e1					1.7	NO		bb		0.000
7	FUNCTION1 HPCD...	26.92	8.419e1					2.8	NO		db		0.000
8	FUNCTION1 HPCD...	26.88	1.119e2					3.5	YES		bd		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.34	9.228e1					2.4	NO		bb		0.000
2	FUNCTION2 HPCD...	30.89	6.368e2					17.6	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	36.77	7.025e1					2.0	NO		bb		0.000
2	FUNCTION3 OCDPE	36.33	2.936e2					7.3	YES		bb		0.000
3	FUNCTION3 OCDPE	35.94	1.689e2					5.1	YES		db		0.000
4	FUNCTION3 OCDPE	35.83	1.136e2					3.6	YES		bd		0.000
5	FUNCTION3 OCDPE	34.86	7.118e1					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	FUNCTION4 NCDPE	41.39	8.970e1					1.9	NO		bb		0.000
2	FUNCTION4 NCDPE	37.76	8.135e1					3.3	YES		bb		0.000

ETHERS6

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

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ID: CS3T1, Name: 21092402, Date: 24-Sep-2021, Time: 09:27:49, Conditions: AUTOSPEC01, User: pk

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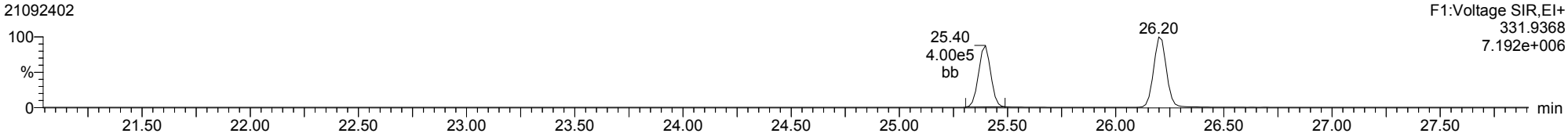

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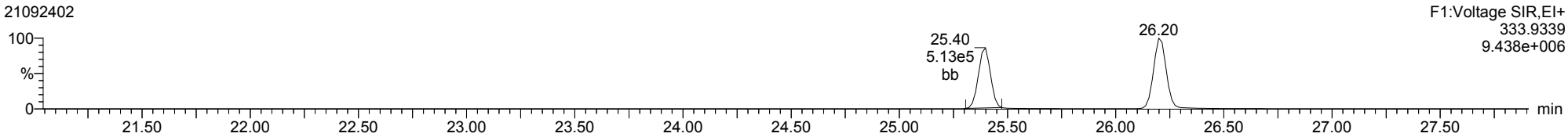

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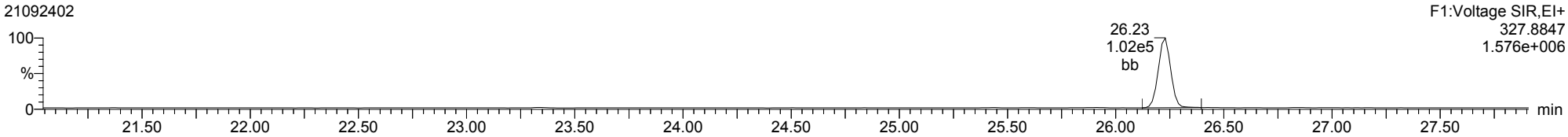

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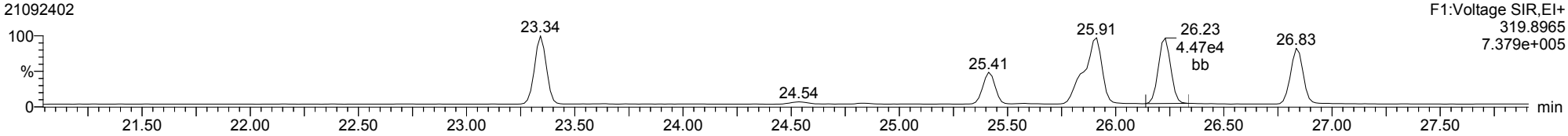

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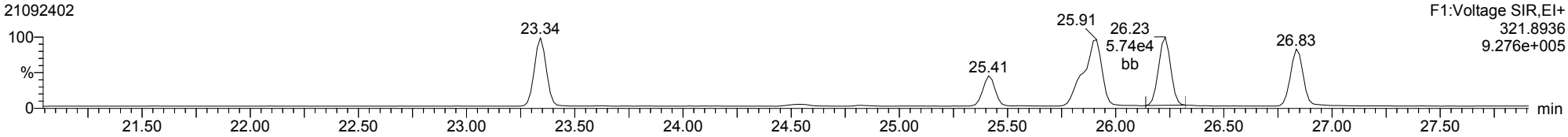

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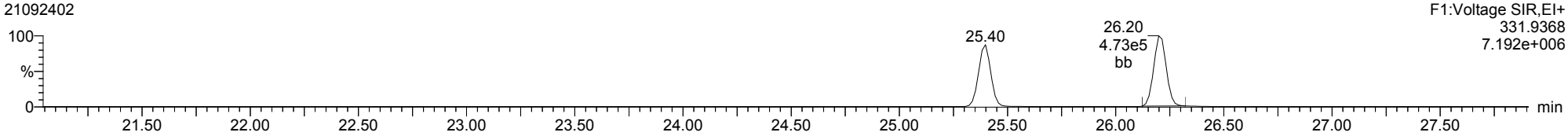

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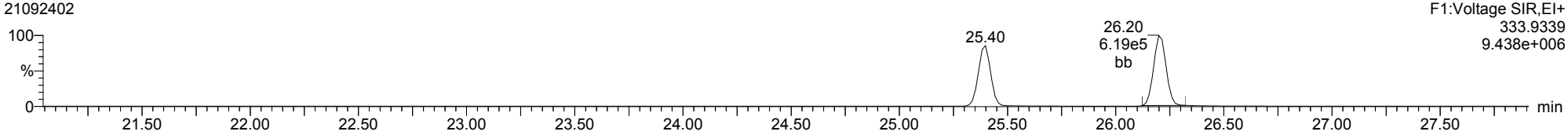

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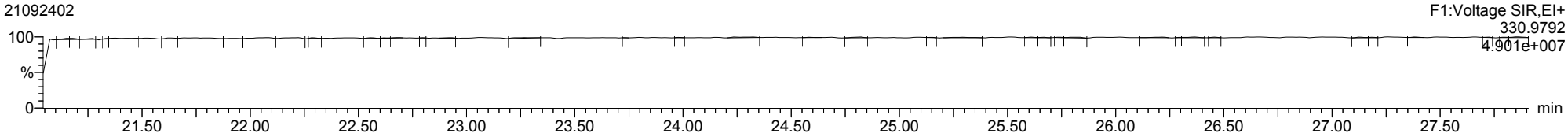

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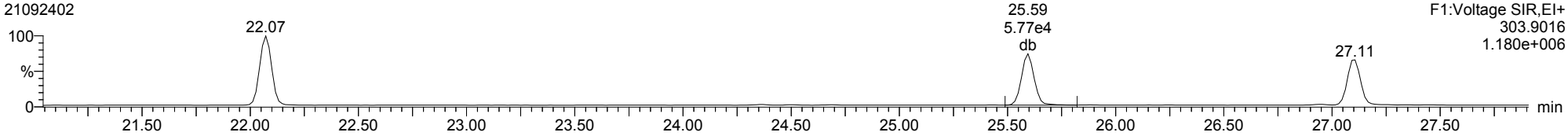

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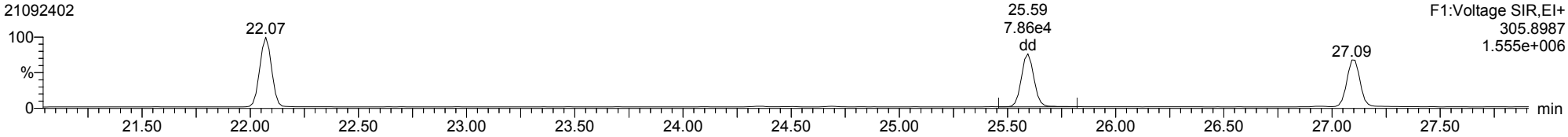

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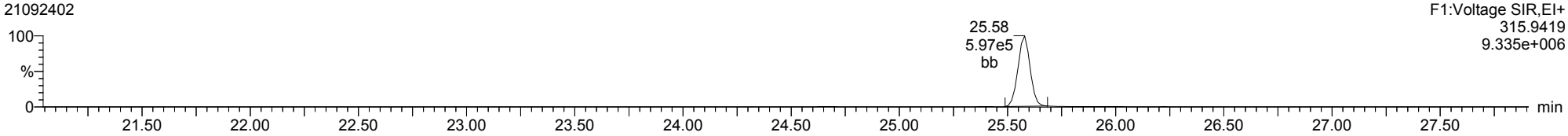

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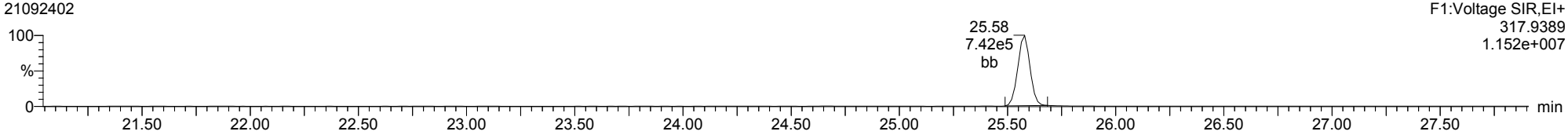

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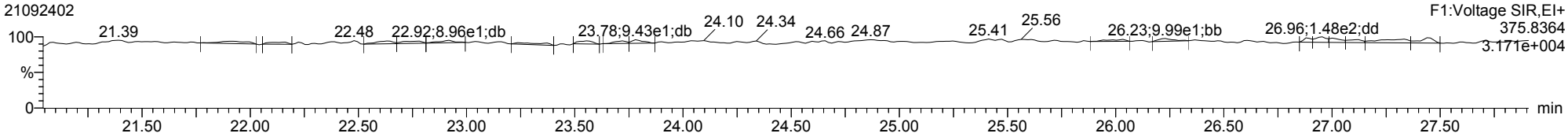

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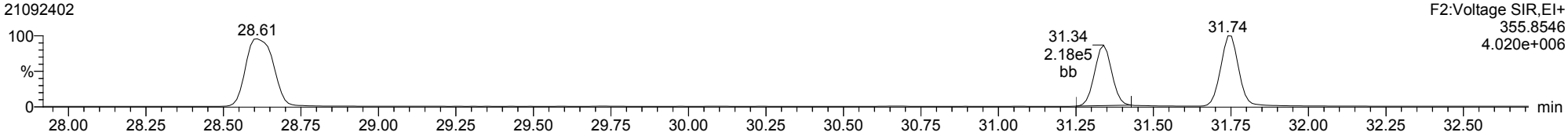

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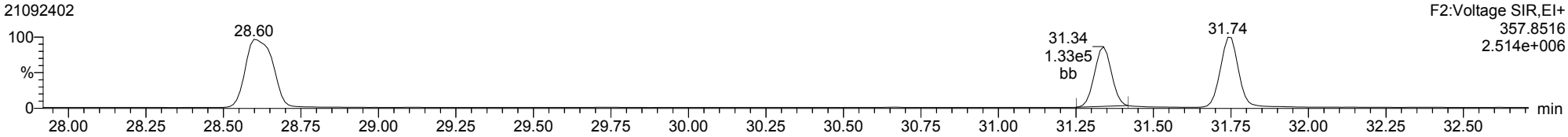

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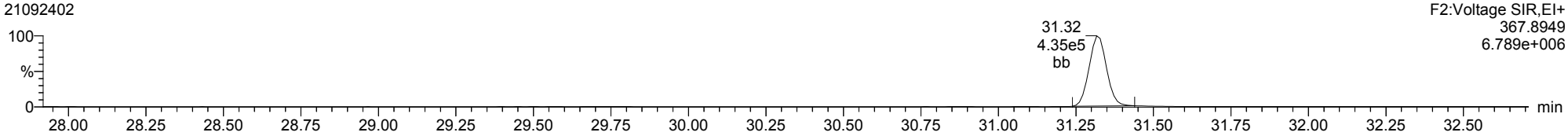

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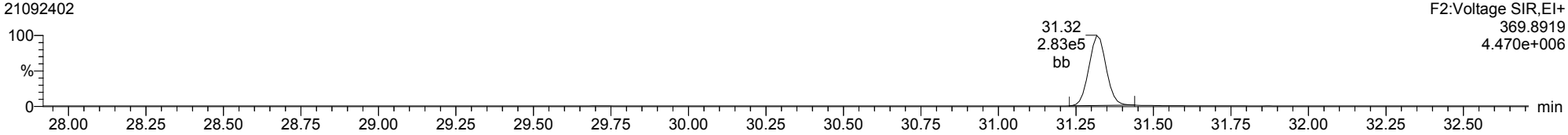

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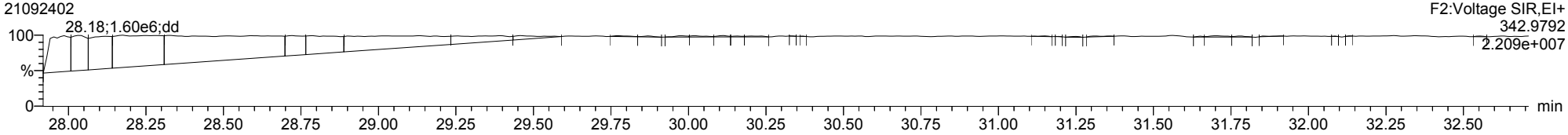

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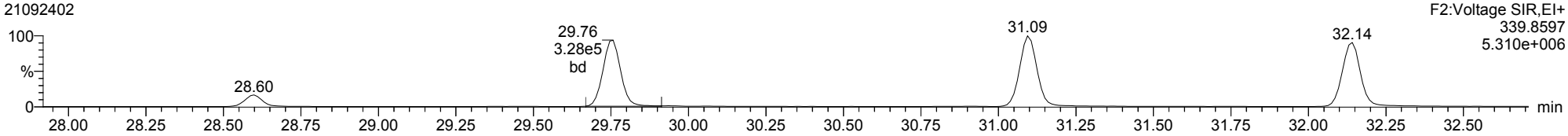
12378-PeCDF



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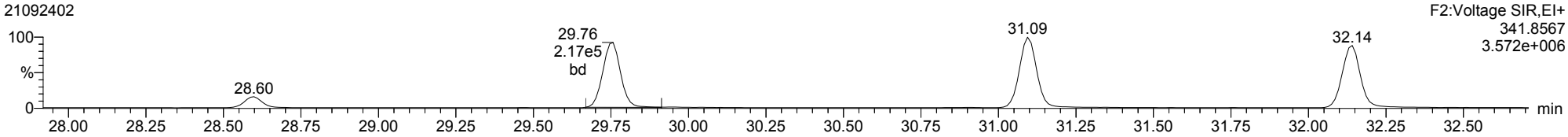

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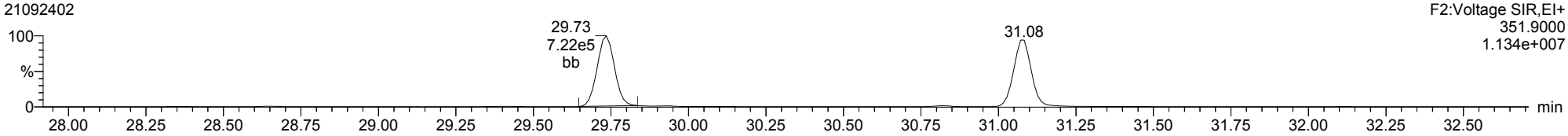

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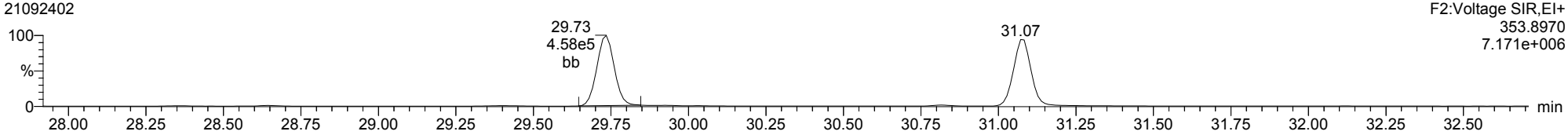
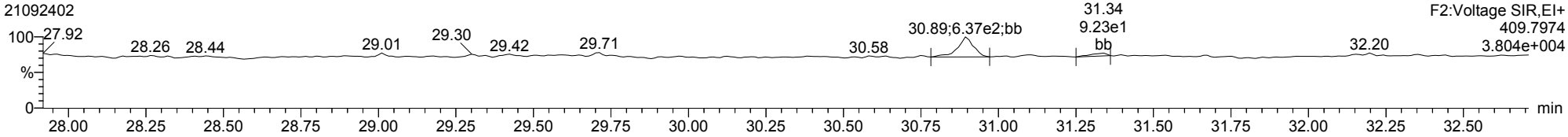


FUNCTION2 HPCDPE



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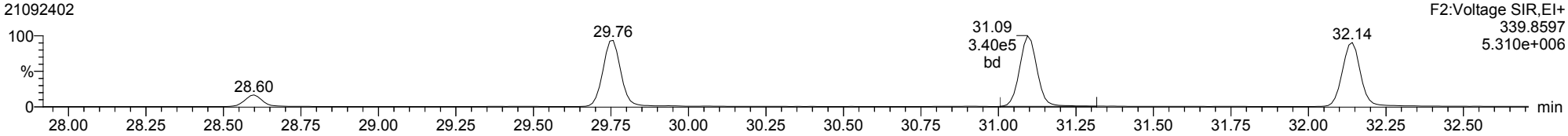
23478-PeCDF



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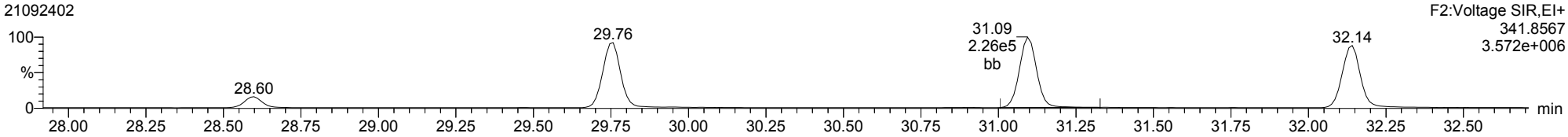

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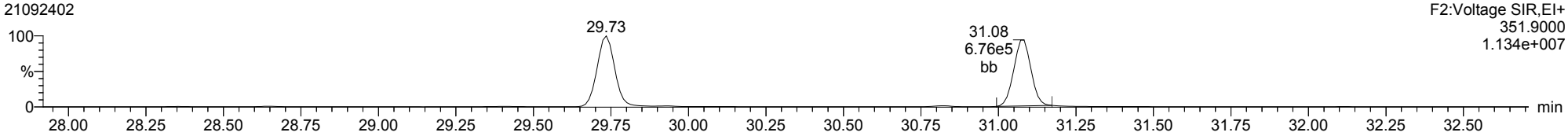

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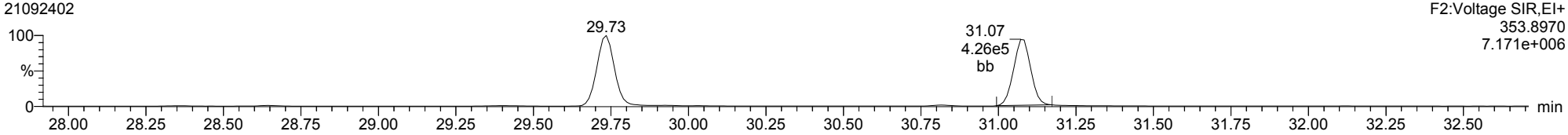
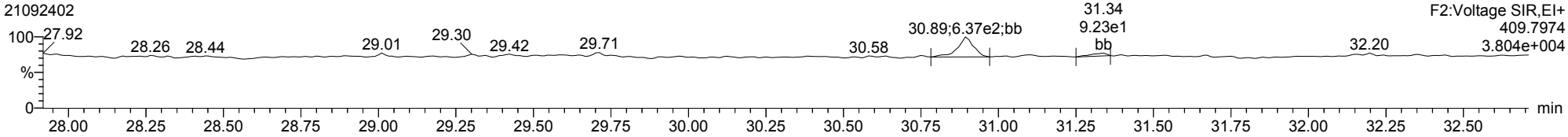


FUNCTION2 HPCDPE



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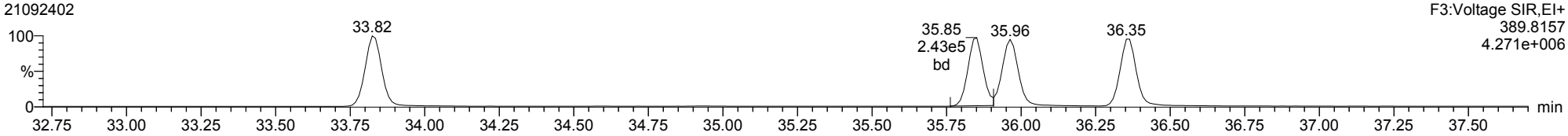

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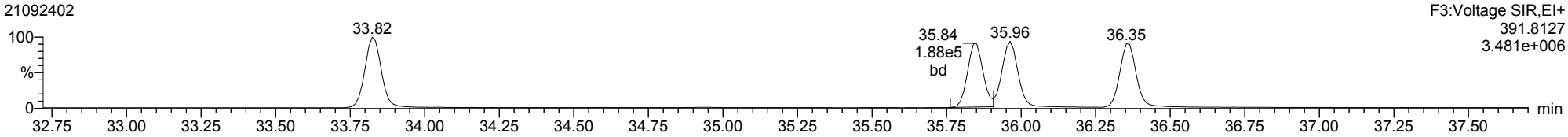

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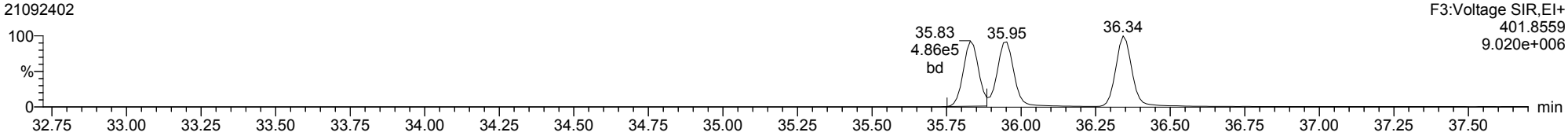

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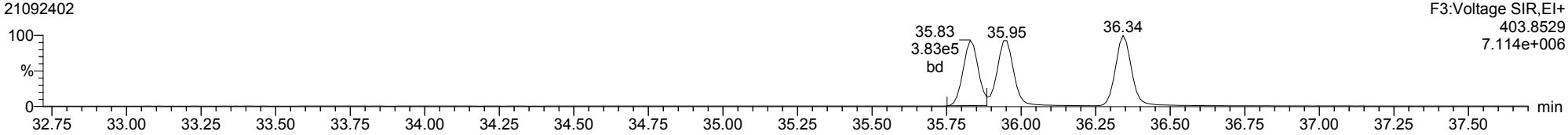

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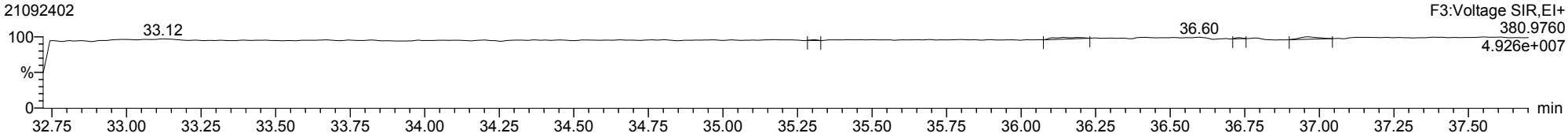

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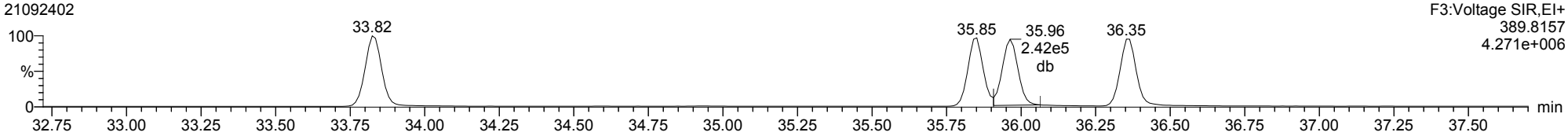

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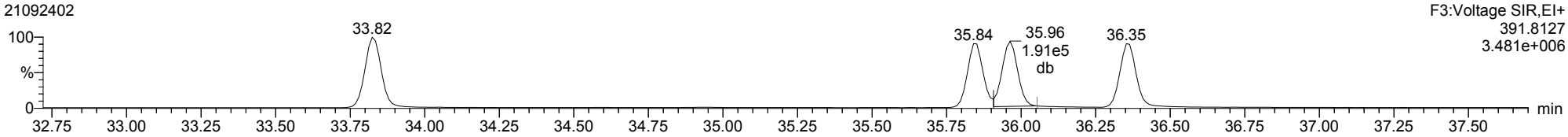

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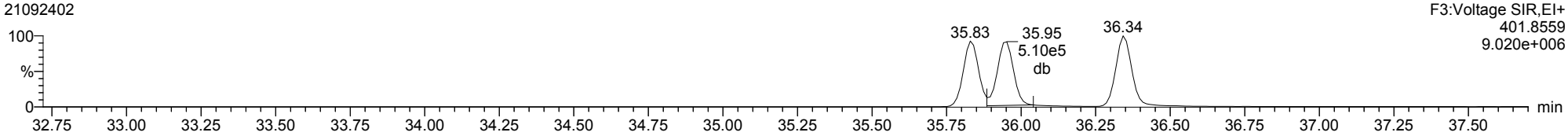

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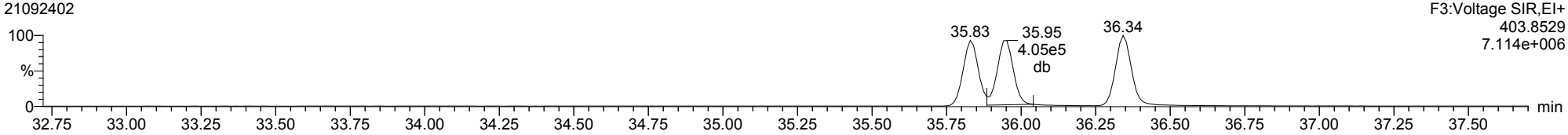

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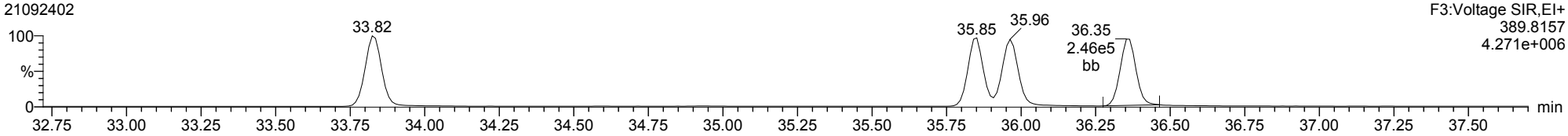

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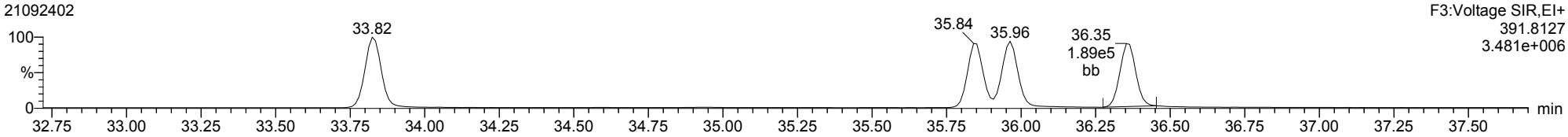

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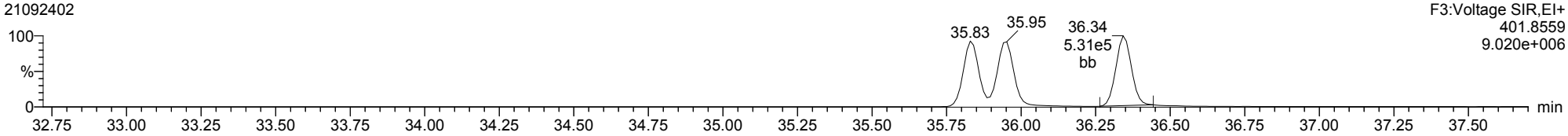

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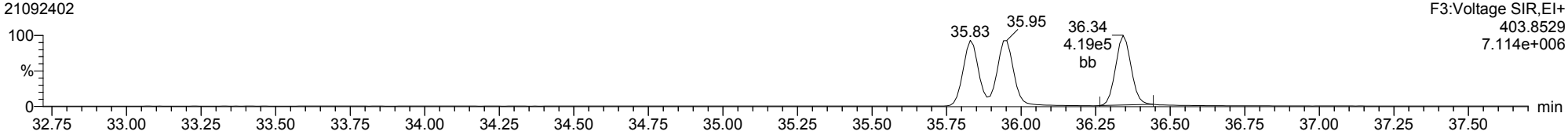

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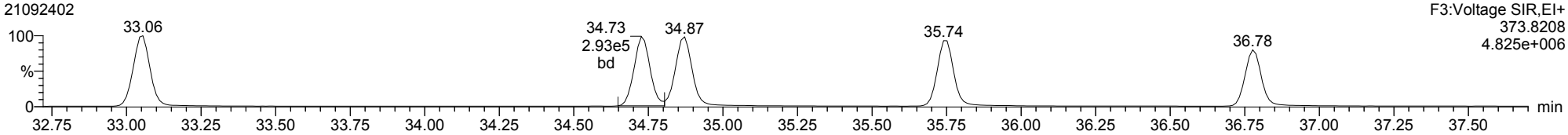

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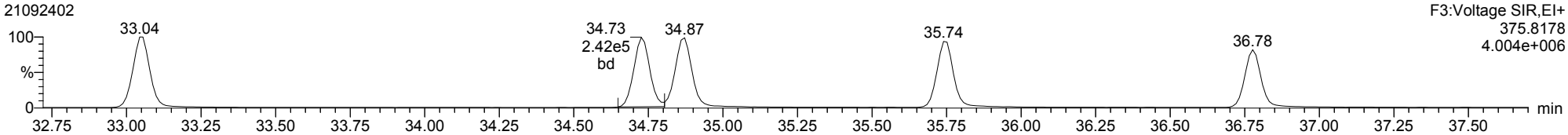

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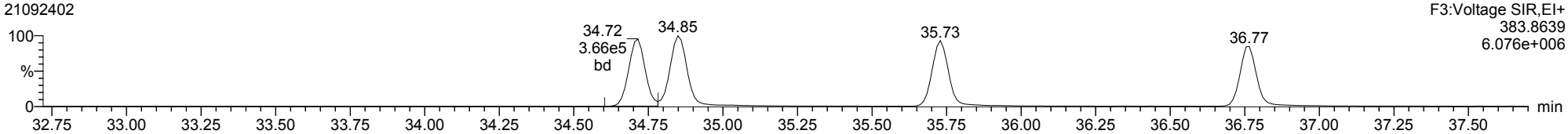

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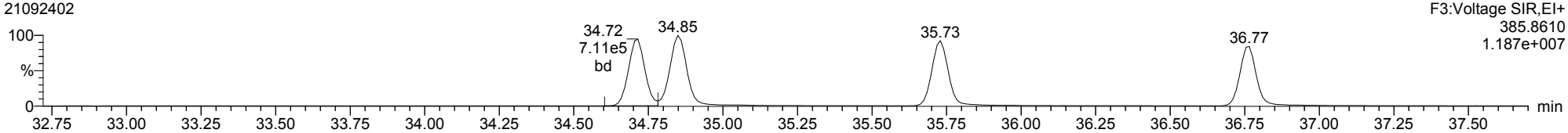

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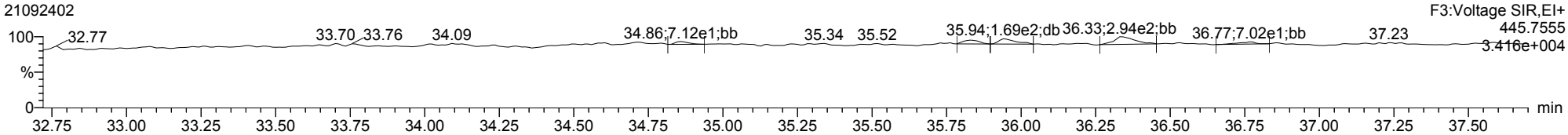

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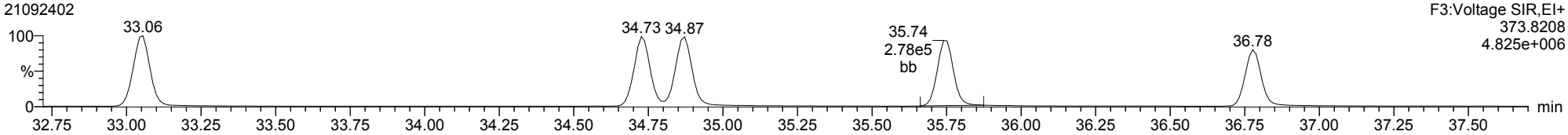

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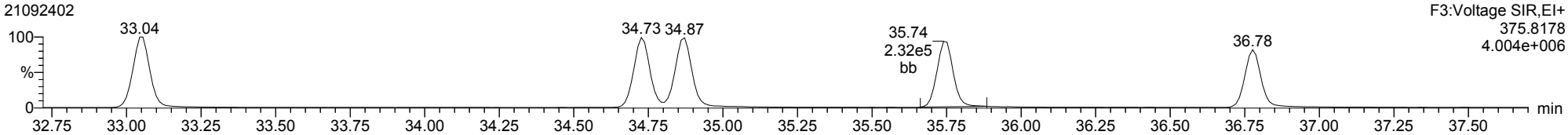

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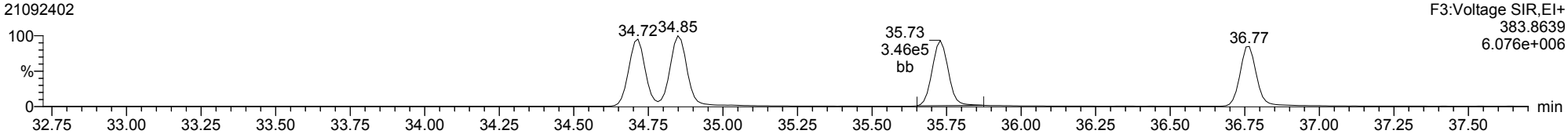

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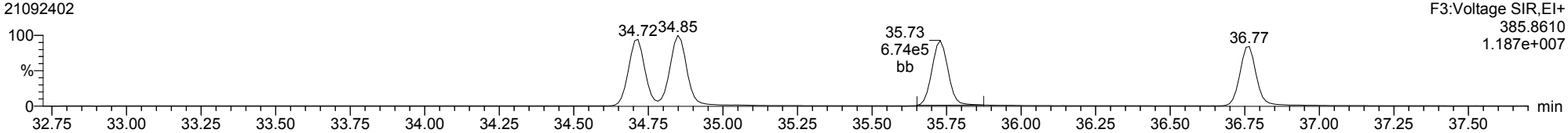

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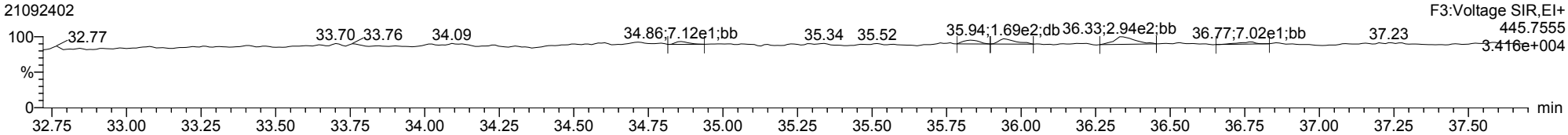

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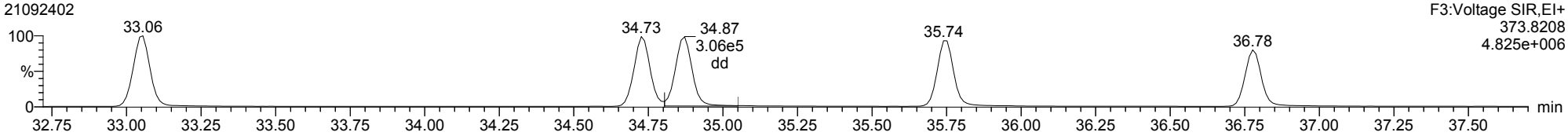

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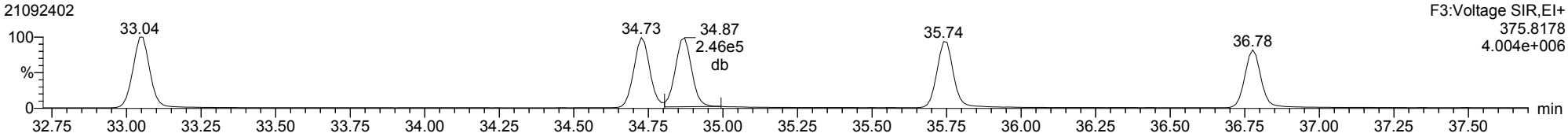

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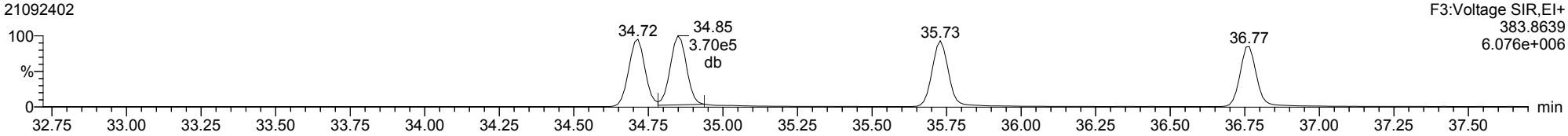

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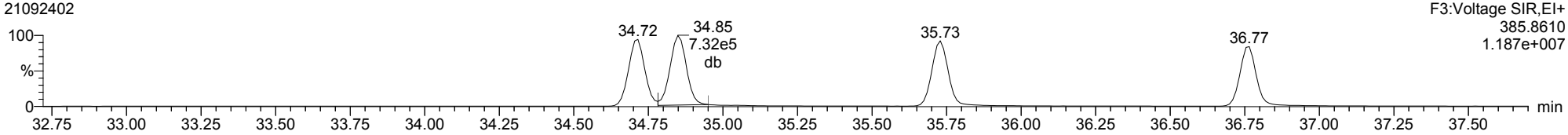

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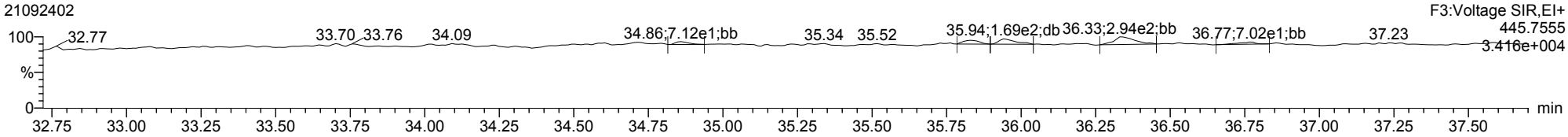

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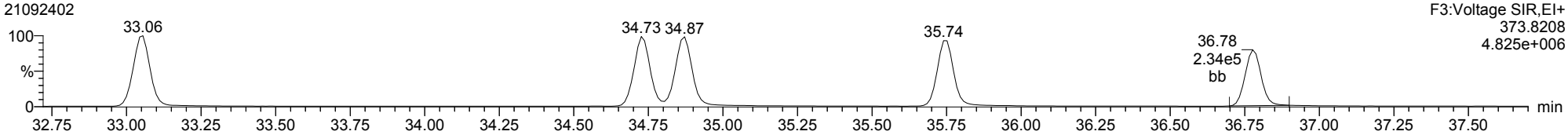

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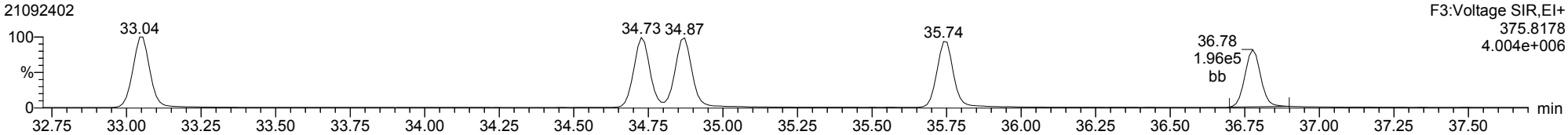

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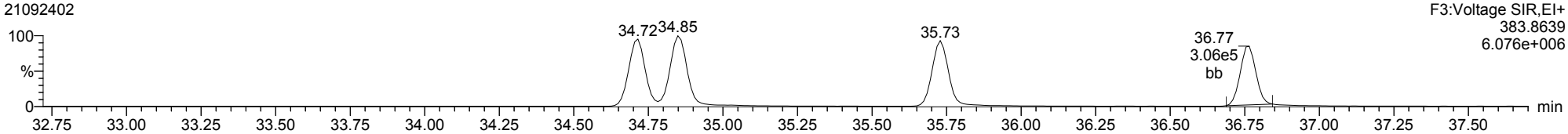

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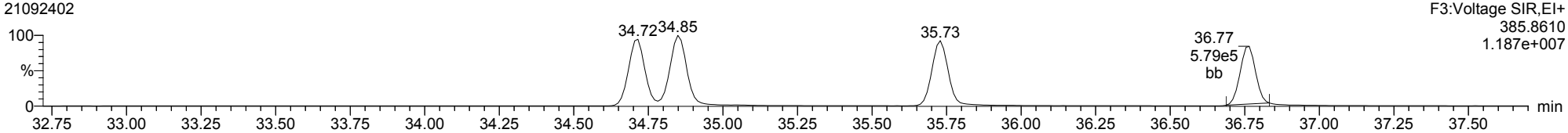
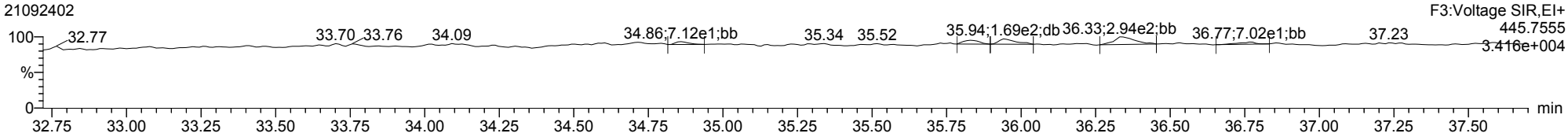


FUNCTION3 OCDPE



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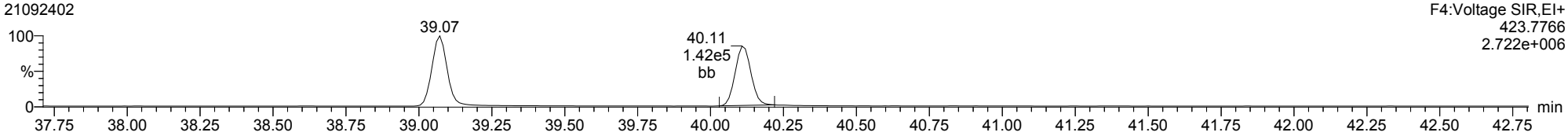

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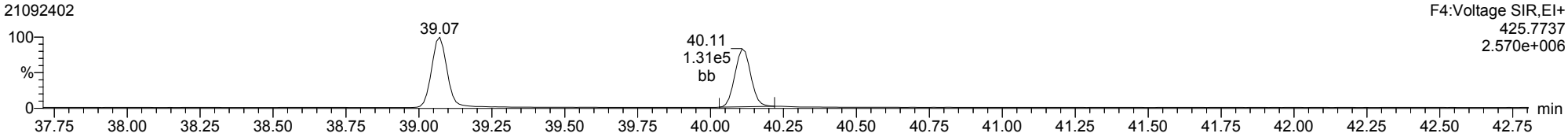

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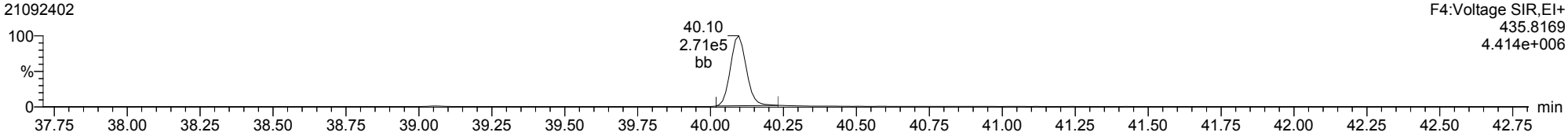

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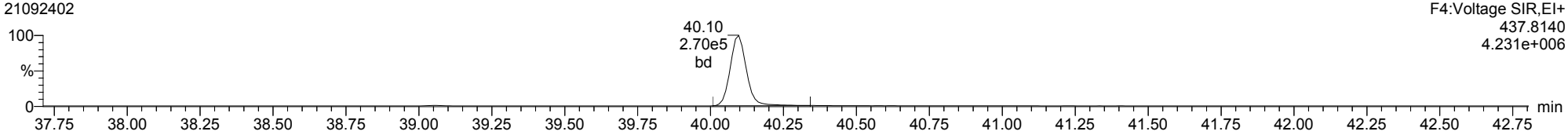
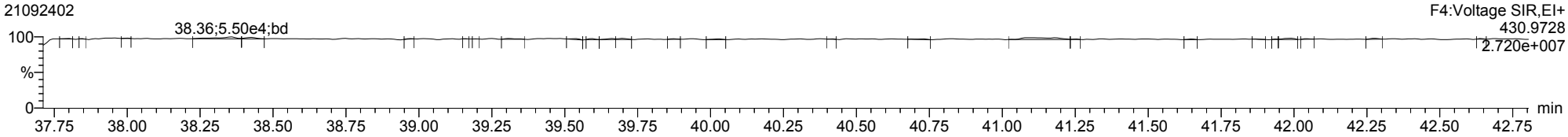


FUNCTION4 PFK



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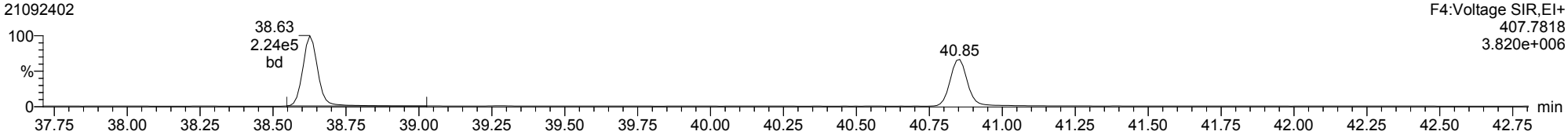

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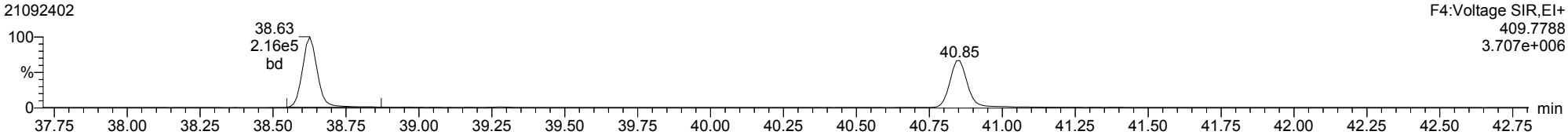

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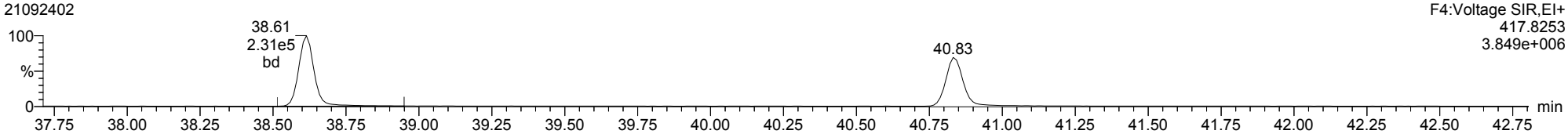

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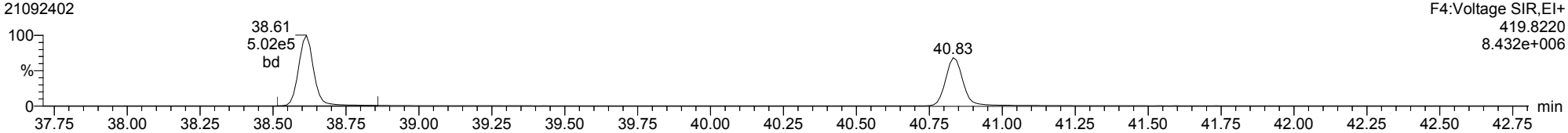

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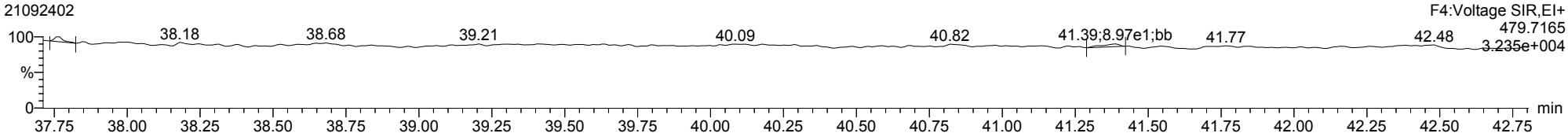

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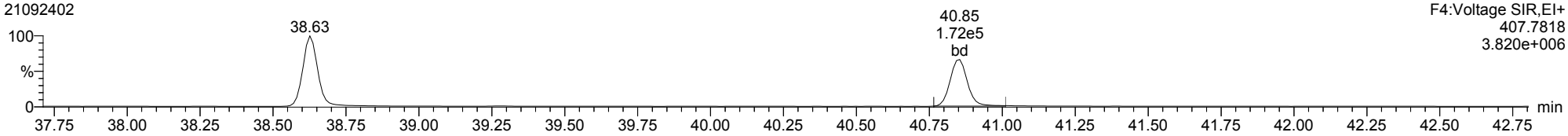
1234789-HpCDF



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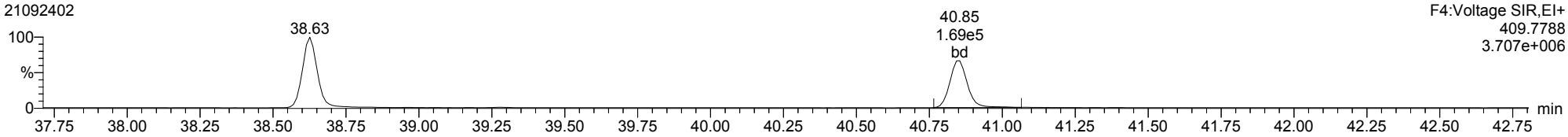

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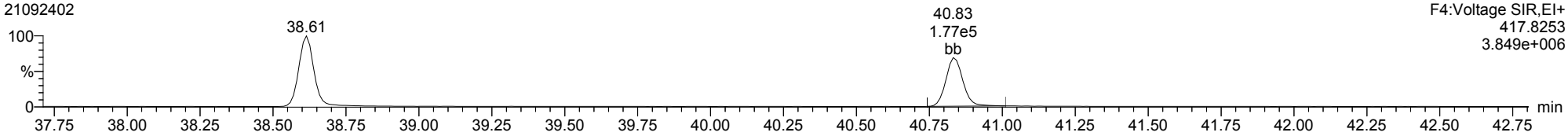

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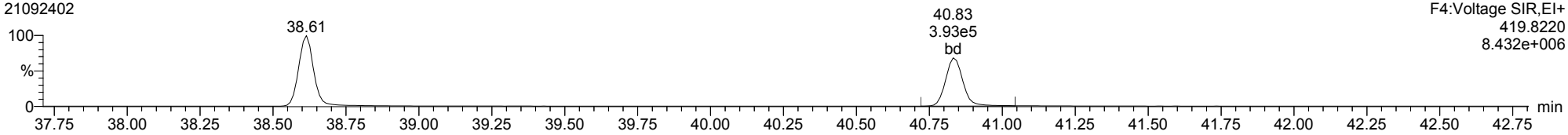

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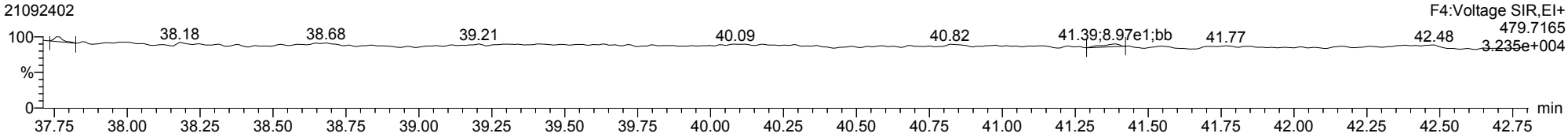

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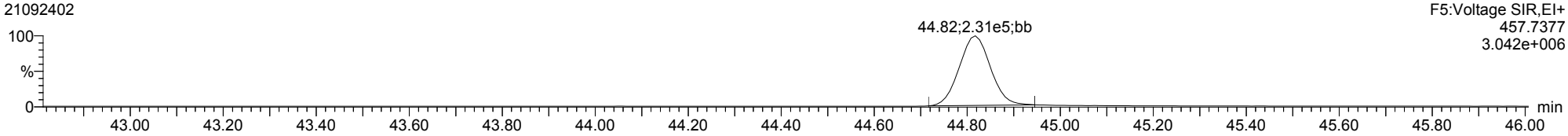
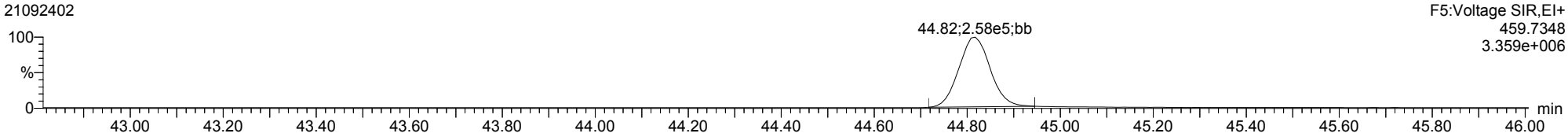
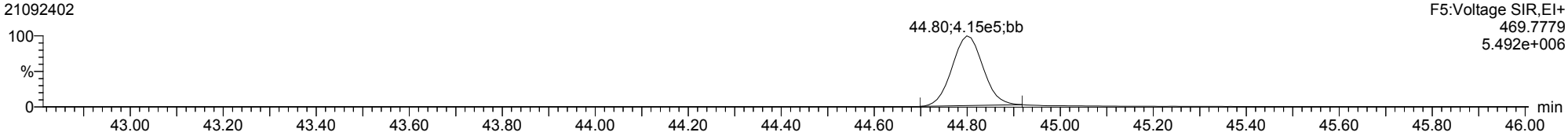
OCDD



OCDD



13C-OCDD



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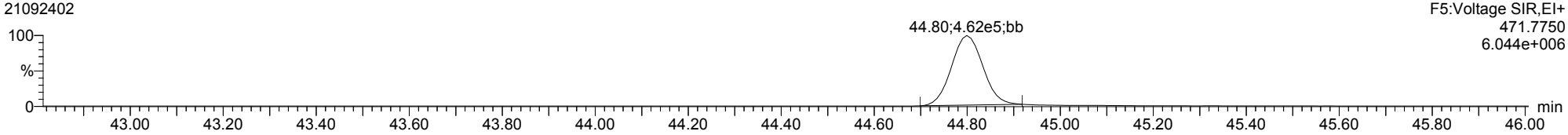
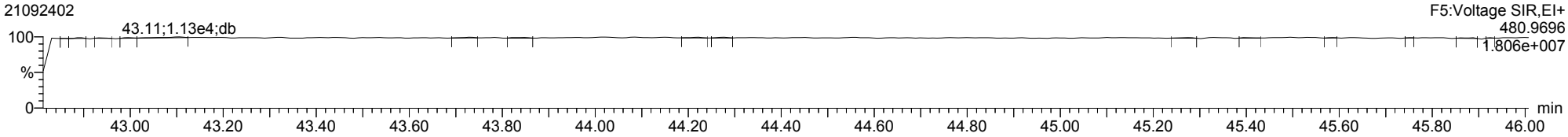


FUNCTION5 PFK



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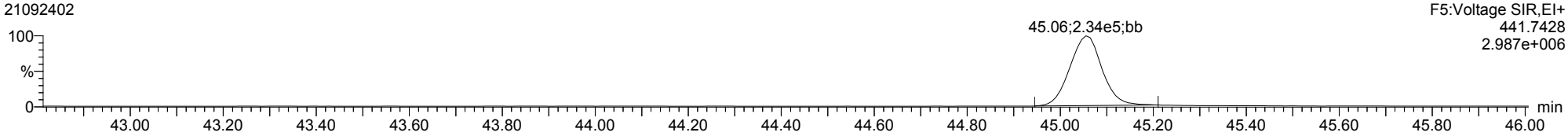
OCDF



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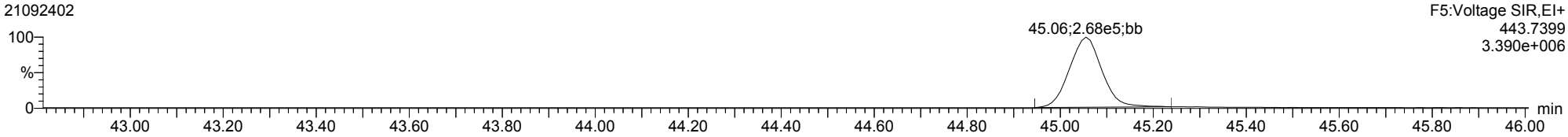

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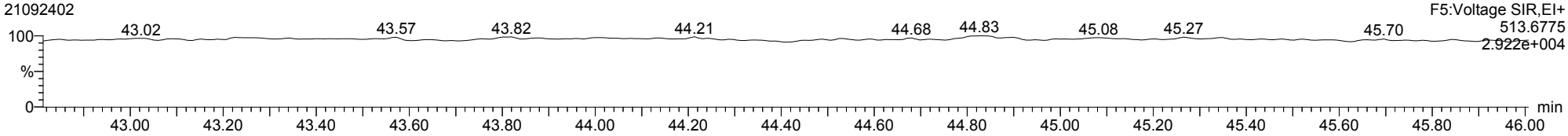

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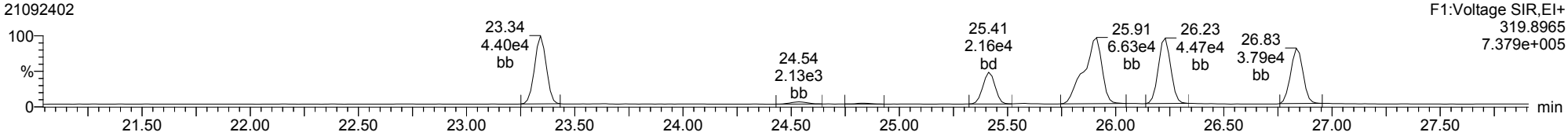

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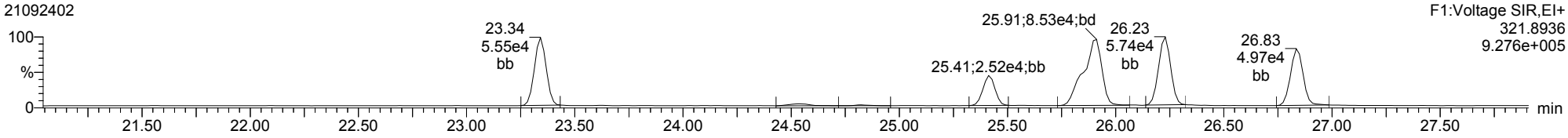

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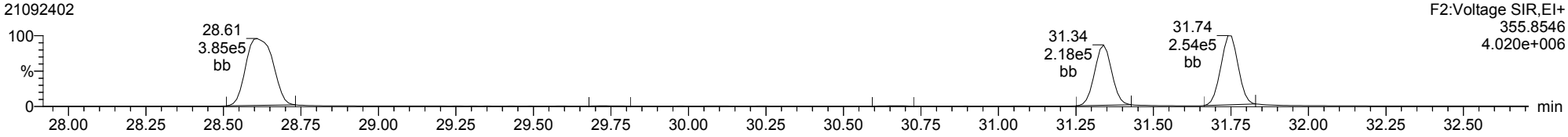

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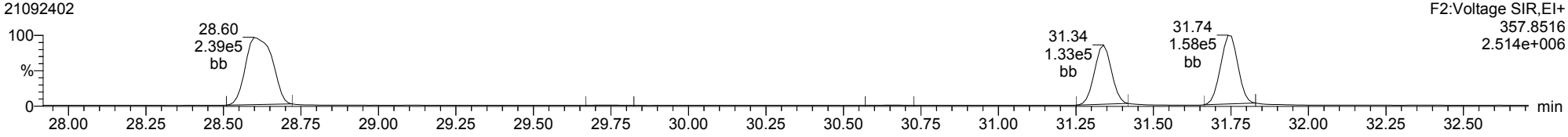

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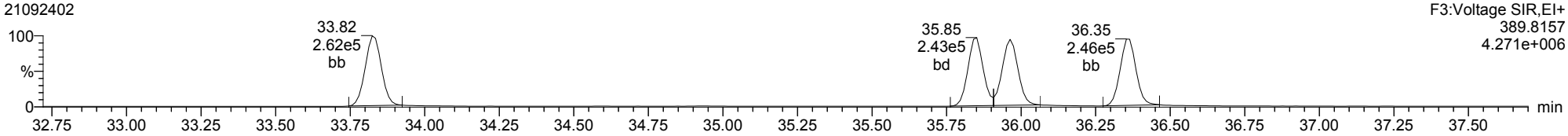

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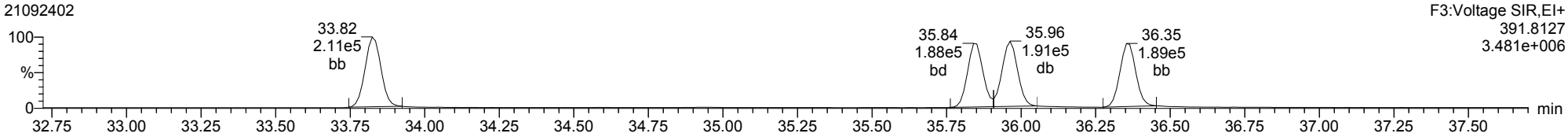

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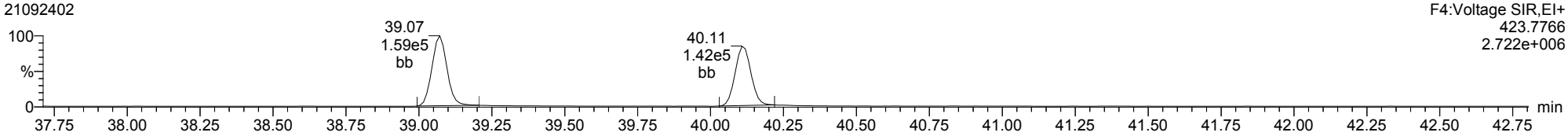

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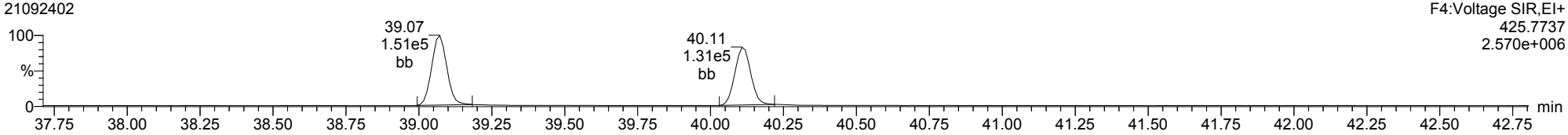

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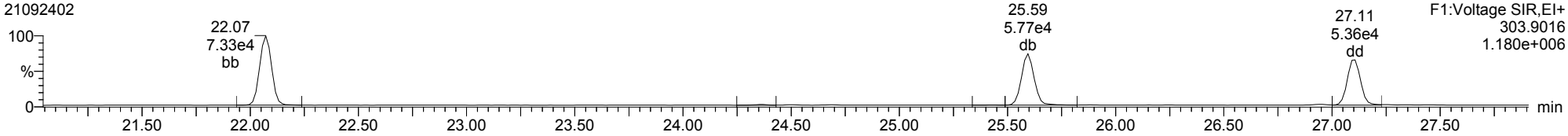

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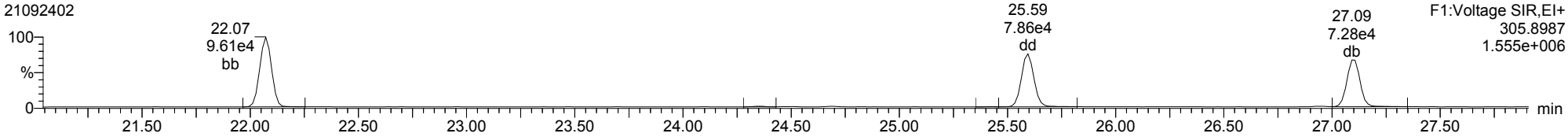

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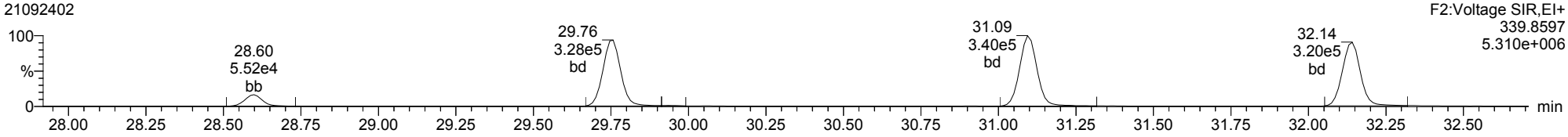

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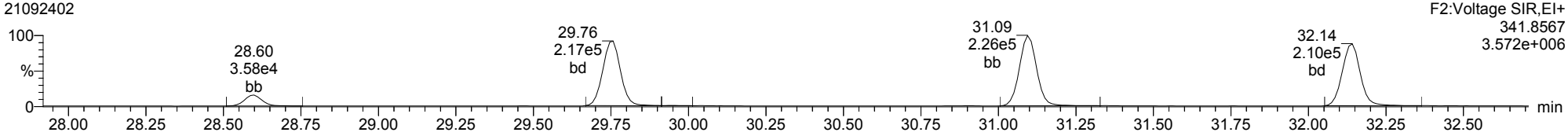

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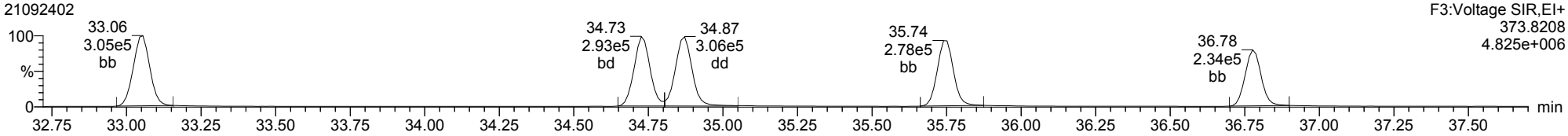

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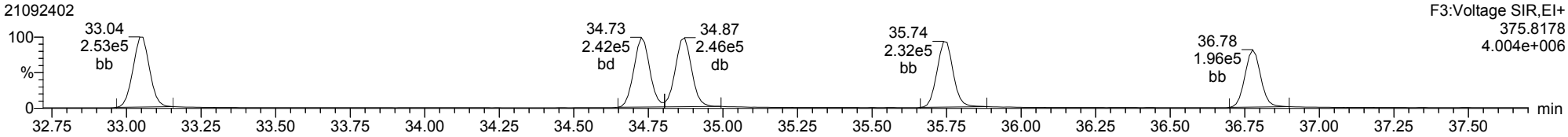

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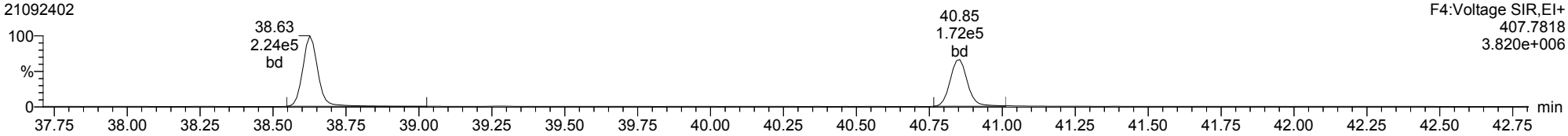

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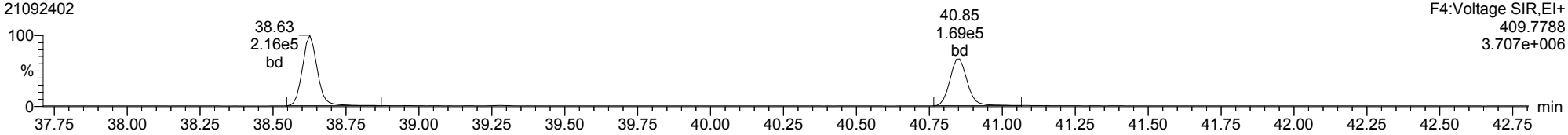

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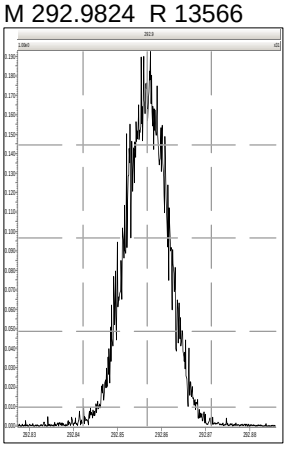
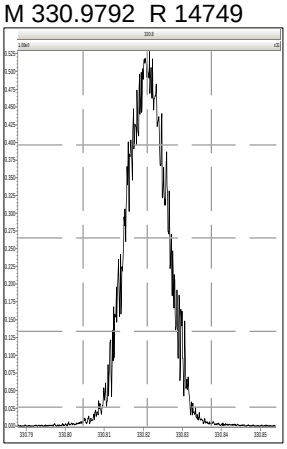


M 330.9792 R 14749



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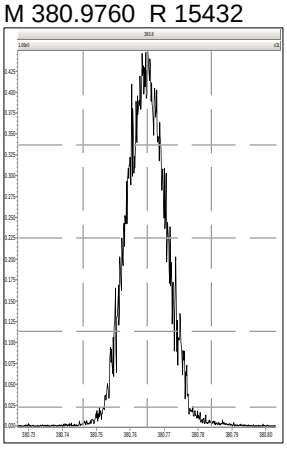

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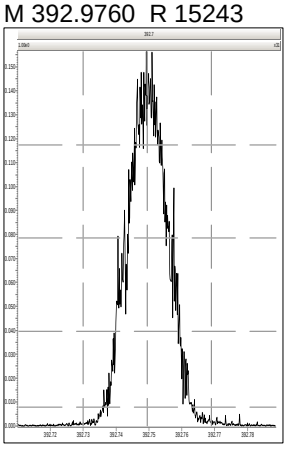
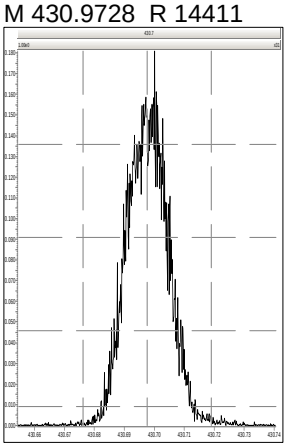


M 430.9728 R 14411



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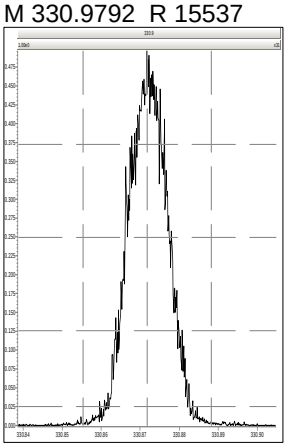

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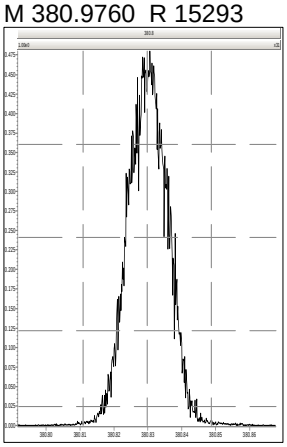

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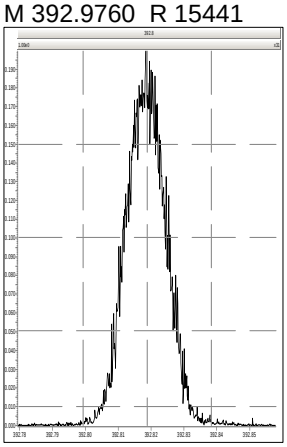

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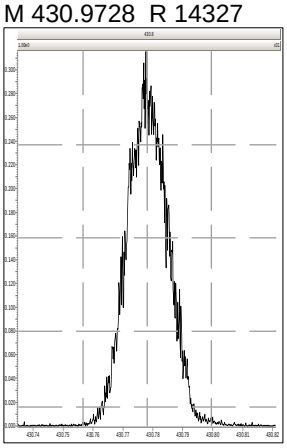

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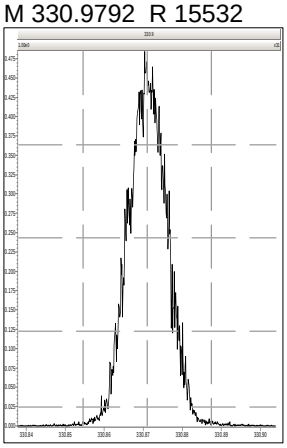

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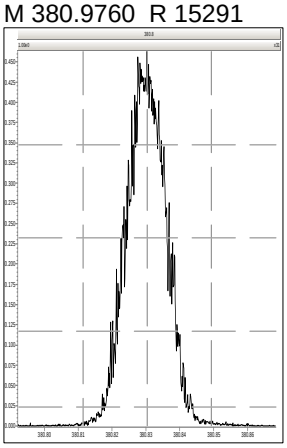

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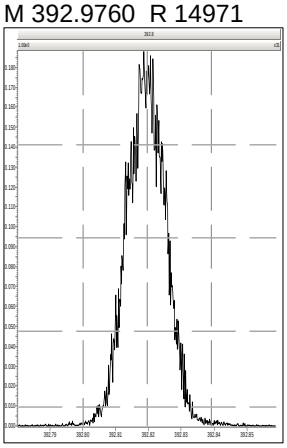

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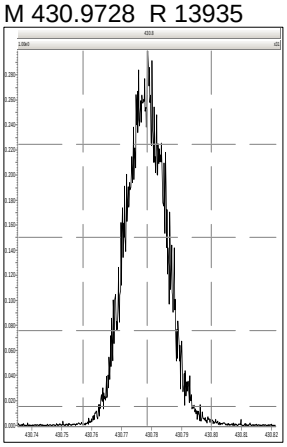

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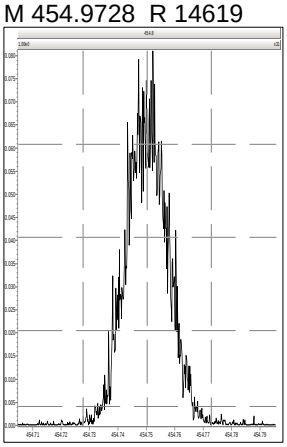

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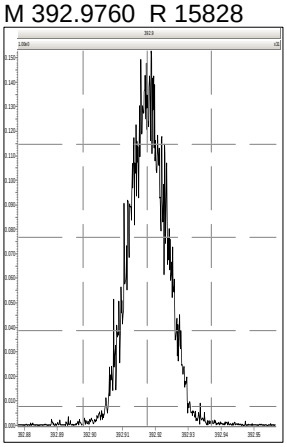

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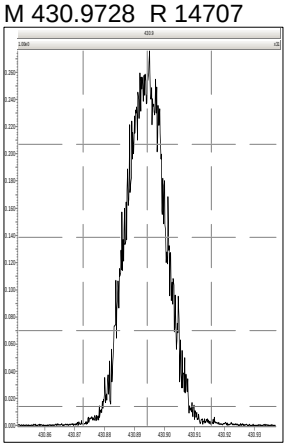

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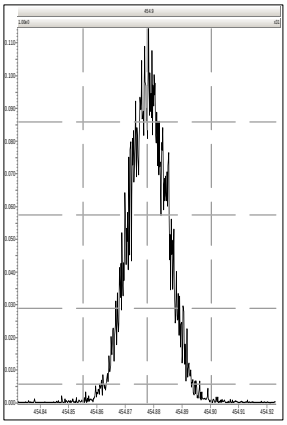

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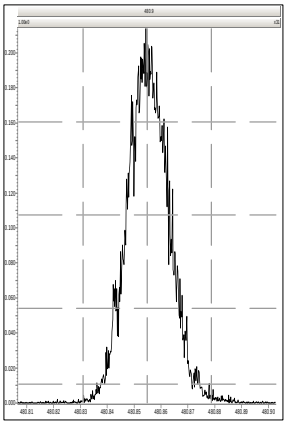

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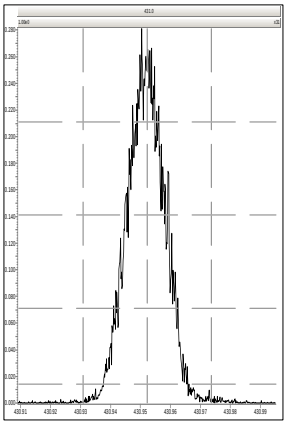

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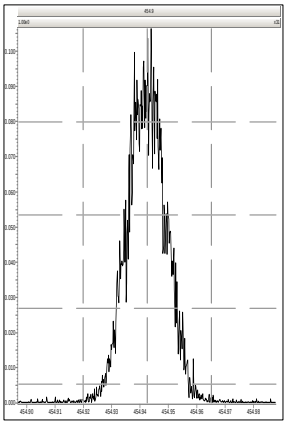

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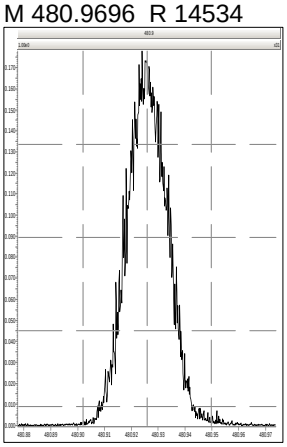

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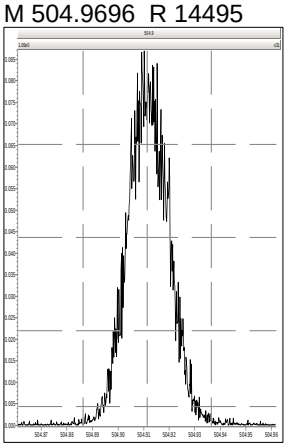

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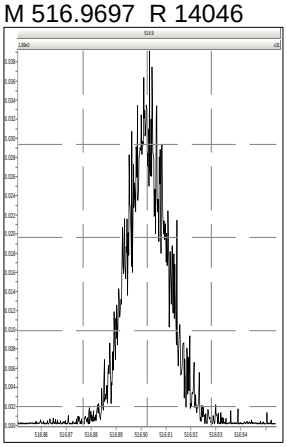
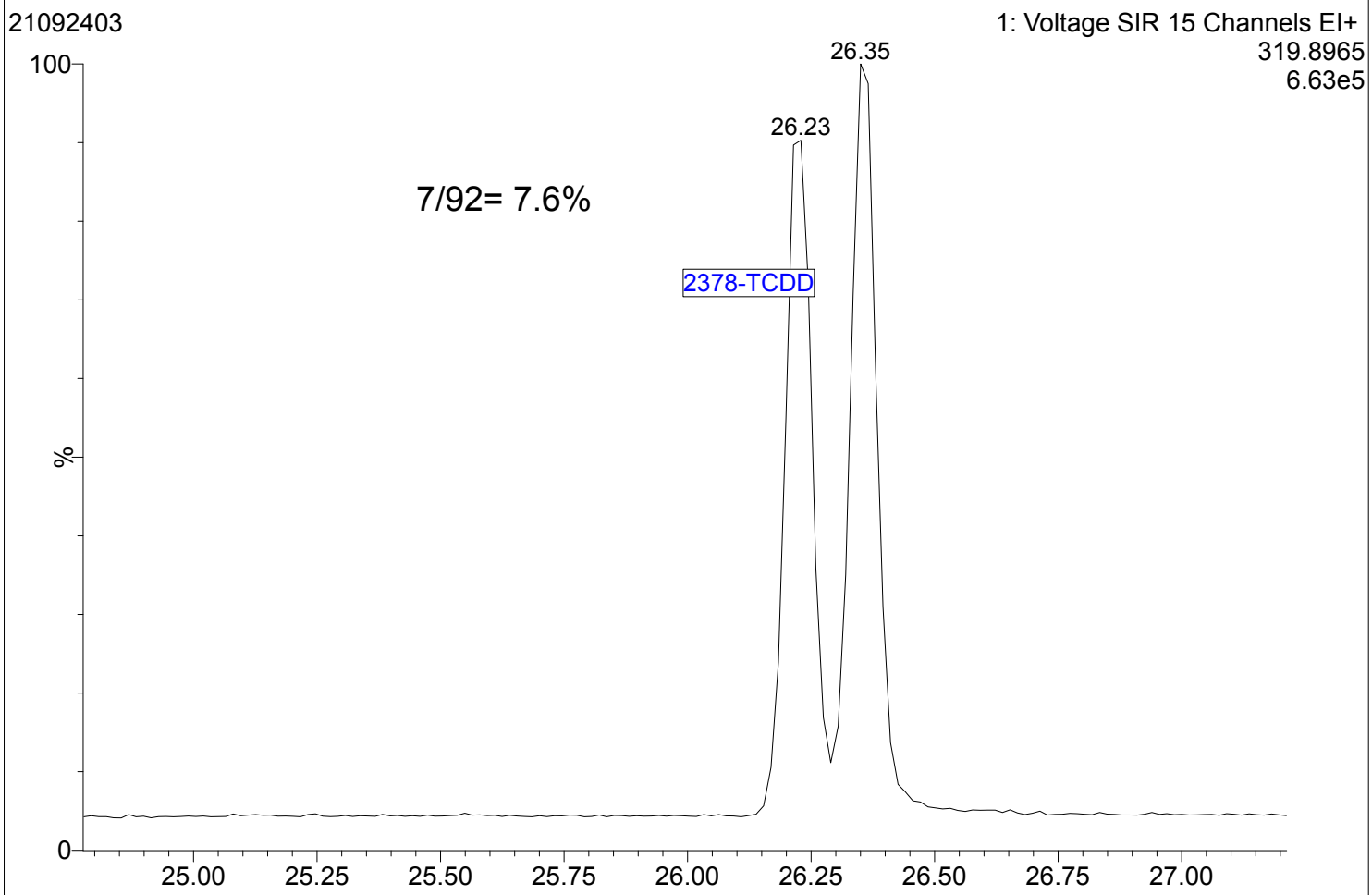
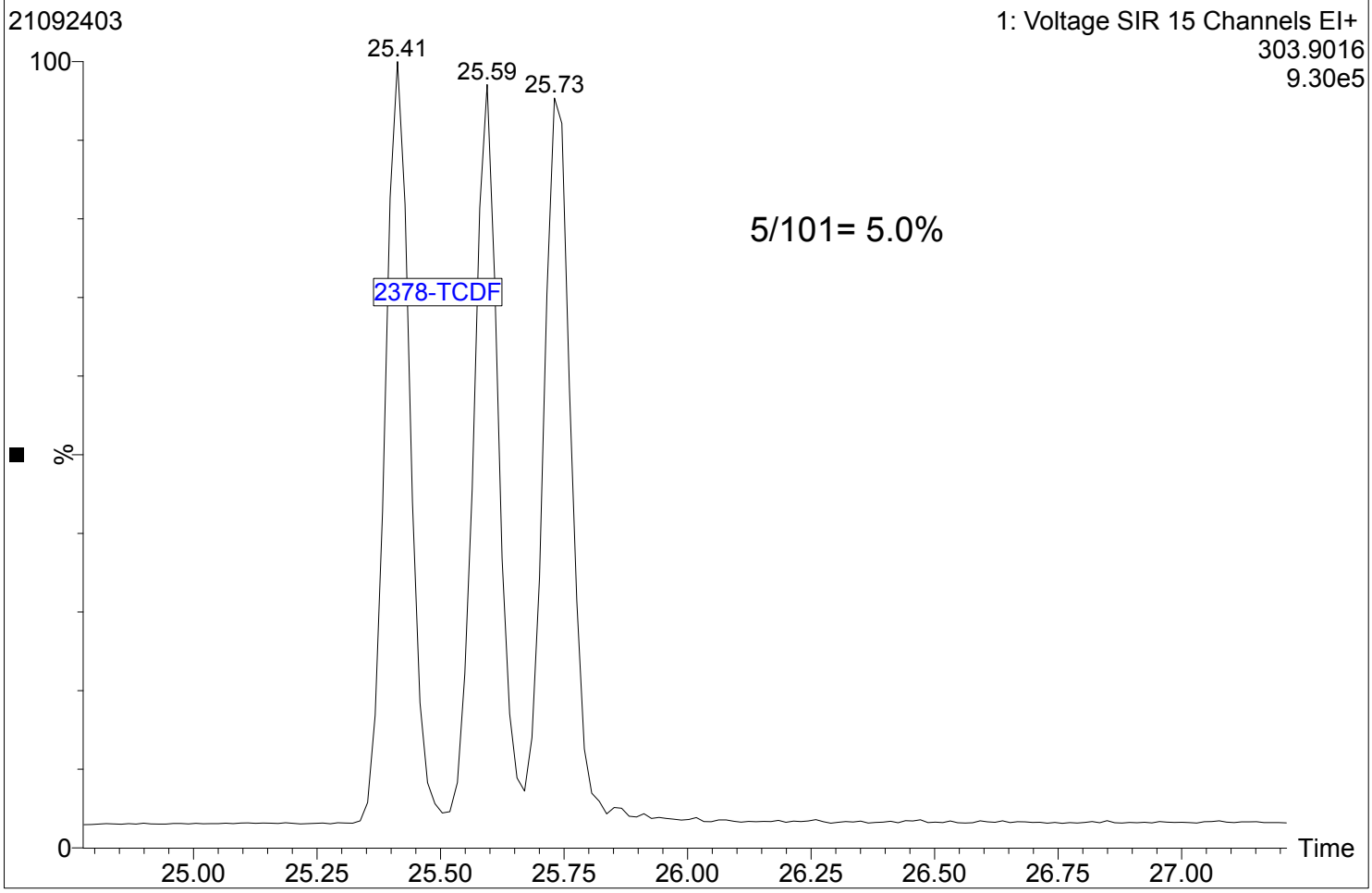



21092403
1: Voltage SIR 15 Channels EI+
319.8965
6.63e5
26.35
26.23
7/92= 7.6%
2378-TCDD
100
%
0
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00


21092403
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25.73
5/101= 5.0%
2378-TCDF
100
%
0
Time
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21091317	Calibration Date:	08/11/2021
Sequence:	SJI0191	Injection Date:	09/14/21
Lab Sample ID:	SJI0191-CCV1	Injection Time:	00:57
Sequence Name:	CS3Q3		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.31	1.1075930	1.0306810		-6.9	+/-16
2,3,7,8-TCDD	A	10.000	10.6	0.9202875	0.9754769		6.0	+/-22
1,2,3,7,8-PeCDF	A	50.000	46.4	1.0148670	0.9412404		-7.3	+/-18
2,3,4,7,8-PeCDF	A	50.000	46.2	1.1255490	1.0393880		-7.7	+/-18
1,2,3,7,8-PeCDD	A	50.000	54.7	0.9953229	1.0884080		9.4	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	46.9	1.0168930	0.9543428		-6.2	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	46.3	1.0368310	0.9600850		-7.4	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	46.7	1.0524660	0.9825994		-6.6	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	46.0	1.0301540	0.9479519		-8.0	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	46.3	1.0273630	0.9503951		-7.5	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	48.5	1.0089800	0.9795780		-2.9	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.8	0.9504865	0.9650283		1.5	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.9	1.3273500	1.2707020		-4.3	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	49.6	1.2833380	1.2735400		-0.8	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	54.4	1.0680880	1.1611420		8.7	+/-14
OCDF	A	100.00	85.0	1.4469010	1.2305840		-15.0	+/-37
OCDD	A	100.00	97.3	1.1808230	1.1494340		-2.7	+/-21
13C12-2,3,7,8-TCDF	A	100.00	111	1.4265830	1.5888794		11.4	+/-29
13C12-2,3,7,8-TCDD	A	100.00	104	1.1164910	1.1575014		3.7	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	107	1.2973130	1.3838161		6.7	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	106	1.2364800	1.3083957		5.8	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	99.0	0.7319833	0.7246477		-1.0	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	89.6	1.2424560	1.1131256		-10.4	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	83.1	1.3434760	1.1169882		-16.9	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	86.5	1.2148550	1.0505022		-13.5	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	89.0	1.0076370	0.8972682		-11.0	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	97.7	0.9598233	0.9380793		-2.3	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	89.8	1.0413850	0.9349851		-10.2	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	88.8	0.9264704	0.8223239		-11.2	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	83.5	0.7579160	0.6331233		-16.5	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	87.3	0.6324476	0.5518974		-12.7	+/-28
13C12-OCDD	A	200.00	184	0.5037432	0.4636274		-8.0	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.86	1.0835930	1.0687280		-1.4	

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:17:32 Pacific Daylight Time

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

ID: CS3Q3, Name: 21091317, Date: 14-Sep-2021, Time: 00:57:28, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.761	1.001	5.450e4	7.081e4	1.108	0.770	0.770	787	909	8.55e5	1.11e6	1086.9	1221.1	NO	bb	bb	9.306
12378-PeCDF	29.909	1.000	3.024e5	1.959e5	1.015	1.544	1.550	1326	1398	4.74e6	3.02e6	3576.9	2163.2	NO	bb	bb	46.373
23478-PeCDF	31.257	1.000	3.124e5	2.078e5	1.126	1.503	1.550	1326	1398	4.78e6	3.22e6	3607.3	2300.3	NO	bb	bb	46.173
123478-HxCDF	34.879	1.001	2.056e5	1.693e5	1.017	1.214	1.240	1401	1565	3.42e6	2.82e6	2439.4	1800.4	NO	bd	bd	46.924
234678-HxCDF	35.892	1.001	1.971e5	1.671e5	1.052	1.179	1.240	1401	1565	3.39e6	2.86e6	2418.1	1825.4	NO	bb	bb	46.681
123678-HxCDF	35.023	1.001	2.077e5	1.707e5	1.037	1.217	1.240	1401	1565	3.32e6	2.76e6	2372.2	1765.6	NO	db	db	46.299
123789-HxCDF	36.917	1.000	1.640e5	1.362e5	1.030	1.204	1.240	1401	1565	2.73e6	2.27e6	1946.4	1449.9	NO	bb	bb	46.010
1234678-HpCDF	38.756	1.000	1.880e5	1.808e5	1.327	1.040	1.050	1003	1184	3.23e6	3.09e6	3223.7	2611.5	NO	bb	bb	47.866
1234789-HpCDF	41.006	1.000	1.452e5	1.393e5	1.283	1.043	1.050	1003	1184	2.26e6	2.20e6	2254.7	1861.4	NO	bb	bb	49.618
OCDF	45.234	1.006	1.894e5	2.133e5	1.447	0.888	0.890	916	848	2.41e6	2.69e6	2627.1	3169.2	NO	bb	bb	85.050
2378-TCDD	26.396	1.001	3.837e4	4.802e4	0.920	0.799	0.770	1069	673	6.08e5	7.48e5	568.2	1112.0	NO	bb	bb	10.600
12378-PeCDD	31.503	1.000	1.858e5	1.160e5	0.995	1.601	1.550	1831	1477	2.98e6	1.87e6	1629.3	1266.4	NO	bb	bb	54.676
123478-HxCDD	35.993	1.000	1.751e5	1.396e5	1.027	1.254	1.240	1420	1258	3.06e6	2.39e6	2153.4	1901.7	NO	bd	bd	46.254
123678-HxCDD	36.115	1.001	1.780e5	1.452e5	1.009	1.225	1.240	1420	1258	2.95e6	2.42e6	2077.8	1923.6	NO	db	db	48.543
123789-HxCDD	36.505	1.011	1.765e5	1.424e5	0.950	1.240	1.240	1420	1258	2.97e6	2.42e6	2093.6	1926.0	NO	bb	bb	50.765
1234678-HpCDD	40.260	1.001	1.173e5	1.089e5	1.068	1.078	1.050	1222	941	1.90e6	1.72e6	1558.9	1829.9	NO	bb	bb	54.356
OCDD	44.996	1.000	1.779e5	1.982e5	1.181	0.898	0.890	911	1160	2.26e6	2.46e6	2482.9	2121.8	NO	bb	bb	97.342
13C-2378-TCDF	25.746	1.007	5.458e5	6.699e5	1.427	0.815	0.770	1811	1096	8.59e6	1.05e7	4743.1	9536.1	NO	bb	bb	111.377
13C-12378-PeCDF	29.898	1.169	6.508e5	4.081e5	1.297	1.595	1.550	1443	1544	1.02e7	6.37e6	7069.9	4126.1	NO	bb	bb	106.668
13C-23478-PeCDF	31.246	1.222	6.164e5	3.847e5	1.236	1.602	1.550	1443	1544	9.59e6	5.95e6	6651.1	3853.8	NO	bb	bb	105.816
13C-123478-HxCDF	34.856	0.955	2.644e5	5.213e5	1.242	0.507	0.510	1287	2255	4.22e6	8.45e6	3281.3	3749.6	NO	bd	bd	89.591
13C-123678-HxCDF	35.001	0.959	2.657e5	5.227e5	1.343	0.508	0.510	1287	2255	4.41e6	8.65e6	3428.6	3834.2	NO	db	db	83.142
13C-234678-HxCDF	35.870	0.983	2.509e5	4.905e5	1.215	0.512	0.510	1287	2255	4.20e6	8.22e6	3265.2	3645.5	NO	bb	bb	86.471
13C-123789-HxCDF	36.906	1.012	2.130e5	4.203e5	1.008	0.507	0.510	1287	2255	3.67e6	7.27e6	2852.5	3224.6	NO	bb	bb	89.047
13C-1234678-HpCDF	38.744	1.062	1.845e5	3.959e5	0.926	0.466	0.440	984	1837	3.09e6	6.78e6	3142.3	3687.8	NO	bd	bb	88.759
13C-1234789-HpCDF	40.995	1.124	1.422e5	3.047e5	0.758	0.467	0.440	984	1837	2.23e6	4.74e6	2263.0	2581.9	NO	bb	bb	83.535
13C-1234-TCDD	25.564	0.000	3.311e5	4.341e5	1.000	0.763	0.770	1640	1281	5.18e6	6.84e6	3158.2	5335.8	NO	bb	bb	100.000
13C-2378-TCDD	26.365	1.031	3.816e5	5.041e5	1.116	0.757	0.770	1640	1281	5.68e6	7.59e6	3462.6	5925.2	NO	bb	bb	103.673
13C-12378-PeCDD	31.492	1.232	3.391e5	2.154e5	0.732	1.574	1.550	883	678	5.20e6	3.31e6	5887.0	4888.2	NO	bb	bb	98.998
13C-123478-HxCDD	35.981	0.986	3.712e5	2.909e5	0.960	1.276	1.240	1218	1401	6.35e6	4.88e6	5216.9	3481.6	NO	bd	bd	97.735
13C-123678-HxCDD	36.093	0.989	3.676e5	2.924e5	1.041	1.257	1.240	1218	1401	6.10e6	4.82e6	5008.1	3436.1	NO	db	db	89.783
13C-1234678-HpCDD	40.237	1.103	2.009e5	1.887e5	0.632	1.065	1.050	901	835	3.26e6	3.04e6	3614.9	3643.9	NO	bb	bb	87.264
13C-OCDD	44.977	1.233	3.140e5	3.405e5	0.504	0.922	0.890	1562	759	3.94e6	4.23e6	2519.7	5576.8	NO	bb	bb	184.073
13C-123789-HxCDD	36.483	0.000	3.939e5	3.119e5	1.000	1.263	1.240	1218	1401	6.67e6	5.25e6	5480.1	3746.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	8.178e4		1.084			1426		1.27e6		890.5			bb		9.863

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:17:32 Pacific Daylight Time

ID: CS3Q3, Name: 21091317, Date: 14-Sep-2021, Time: 00:57:28, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.238	0.864	6.940e4	8.907e4	1.425	0.779	0.770	787	909	1.14e6	1.44e6	1453.8	1579.3	NO	bb	bb	9.147
1289-TCDF	27.273	1.059	5.325e4	6.867e4	1.043	0.775	0.770	787	909	8.02e5	1.06e6	1020.0	1168.1	NO	bb	bb	9.615
13468-PECDF	27.091	0.906	4.072e5	2.693e5	1.376	1.512	1.550	619	835	6.10e6	4.04e6	9852.8	4836.0	NO	bb	bb	46.428
12389-PECDF	32.305	1.081	2.976e5	1.948e5	1.000	1.528	1.550	1326	1398	4.63e6	3.06e6	3495.3	2192.1	NO	bb	bb	46.529
123468-HXCDF	33.207	0.953	2.158e5	1.790e5	1.087	1.206	1.240	1401	1565	3.44e6	2.90e6	2458.5	1851.3	NO	bb	bb	46.248
1368-TCDD	23.508	0.892	3.905e4	4.892e4	0.923	0.798	0.770	1069	673	6.30e5	7.79e5	588.8	1157.1	NO	bb	bb	10.758
1289-TCDD	27.001	1.024	3.433e4	4.340e4	0.794	0.791	0.770	1069	673	5.14e5	6.38e5	480.3	948.3	NO	bb	bb	11.053
12479-PECDD	28.762	0.913	3.415e5	2.109e5	1.843	1.619	1.550	1831	1477	3.35e6	2.06e6	1832.6	1392.1	NO	bb	bb	54.047
12389-PECDD	31.915	1.013	2.335e5	1.407e5	1.154	1.660	1.550	1831	1477	3.69e6	2.21e6	2018.0	1495.6	NO	bb	bb	58.495
124679-HXCDD	33.987	0.945	1.946e5	1.601e5	1.125	1.215	1.240	1420	1258	3.14e6	2.56e6	2210.4	2039.1	NO	bb	bb	47.628
1234679-HPCDD	39.201	0.974	1.304e5	1.217e5	1.211	1.072	1.050	1222	941	2.27e6	2.09e6	1856.6	2224.1	NO	bb	bb	53.430
Total-tetrafurans			1.779e5		1.192			787		2.81e6							28.194
Total-penta1			4.072e5					619		6.10e6							46.428
Total-pentafurans			9.637e5		1.047			1326		1.50e7							147.063
Total-hexafurans			9.902e5		1.045			1401		1.63e7							232.162
Total-heptafurans			3.333e5		1.305			1003		5.49e6							97.484
Total-Furans			3.062e6		1.158			787		4.81e7							636.381
Total-tetradioxins			1.898e5		0.879			1069		2.66e6							55.117
Total-pentadioxins			7.614e5		1.331			1831		1.00e7							167.370
Total-hexadioxins			7.256e5		1.028			1420		1.21e7							193.570
Total-heptadioxins			2.477e5		1.140			1222		4.17e6							107.786
Total-Dioxins			2.102e6		1.092			1069		3.13e7							621.185
Total-TEQ			5.164e6					1069		7.94e7							1257.566
FUNCTION1 PFK			1.112e6					401504		2.07e7							
FUNCTION2 PFK			1.773e5					195968		5.32e6							0.000
FUNCTION3 PFK			1.597e6					311563		1.96e7							0.000
FUNCTION4 PFK			2.603e4					200811		9.81e5							
FUNCTION5 PFK			1.928e4					137396		9.92e5							
FUNCTION1 HXCD...			6.294e2					528		8.31e3							0.000
FUNCTION1 HPCD...			2.440e2					751		4.07e3							0.000
FUNCTION2 HPCD...			6.460e2					729		1.45e4							0.000
FUNCTION3 OCDPE			1.726e2					619		2.42e3							0.000
FUNCTION4 NCDPE			9.088e1					528		1.12e3							0.000
FUNCTION5 DCDPE			8.157e1					641		3.37e3							0.000

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

ID: CS3Q3, Name: 21091317, Date: 14-Sep-2021, Time: 00:57:28, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	5.325e4	6.867e4	1.043	0.78	0.77	1020.0	YES	NO	bb	bb	9.615
2	2378-TCDF	25.76	5.450e4	7.081e4	1.108	0.77	0.77	1086.9	YES	NO	bb	bb	9.306
3	Total-tetrafurans	24.85	4.667e2	6.530e2	1.192	0.71	0.77	9.9	YES	NO	bb	bb	0.077
4	Total-tetrafurans	24.67	3.196e2	3.880e2	1.192	0.82	0.77	6.7	YES	NO	db	db	0.049
5	1368-TCDF	22.24	6.940e4	8.907e4	1.425	0.78	0.77	1453.8	YES	NO	bb	bb	9.147

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.09	4.072e5	2.693e5	1.376	1.51	1.55	9852.8	YES	NO	bb	bb	46.428

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.26	3.124e5	2.078e5	1.126	1.50	1.55	3607.3	YES	NO	bb	bb	46.173
2	Total-pentafurans	31.10	7.015e2	4.773e2	1.047	1.47	1.55	9.8	YES	NO	db	bb	0.109
3	12378-PeCDF	29.91	3.024e5	1.959e5	1.015	1.54	1.55	3576.9	YES	NO	bb	bb	46.373
4	Total-pentafurans	28.76	5.049e4	3.445e4	1.047	1.47	1.55	603.2	YES	NO	bb	bb	7.879
5	12389-PECDF	32.30	2.976e5	1.948e5	1.000	1.53	1.55	3495.3	YES	NO	bb	bb	46.529

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.92	1.640e5	1.362e5	1.030	1.20	1.24	1946.4	YES	NO	bb	bb	46.010
2	234678-HxCDF	35.89	1.971e5	1.671e5	1.052	1.18	1.24	2418.1	YES	NO	bb	bb	46.681
3	123678-HxCDF	35.02	2.077e5	1.707e5	1.037	1.22	1.24	2372.2	YES	NO	db	db	46.299
4	123478-HxCDF	34.88	2.056e5	1.693e5	1.017	1.21	1.24	2439.4	YES	NO	bd	bd	46.924
5	123468-HXCDF	33.21	2.158e5	1.790e5	1.087	1.21	1.24	2458.5	YES	NO	bb	bb	46.248

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.76	1.880e5	1.808e5	1.327	1.04	1.05	3223.7	YES	NO	bb	bb	47.866
2	1234789-HpCDF	41.01	1.452e5	1.393e5	1.283	1.04	1.05	2254.7	YES	NO	bb	bb	49.618

ID: CS3Q3, Name: 21091317, Date: 14-Sep-2021, Time: 00:57:28, Conditions: AUTOSPEC01, User: pk

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	5.325e4	6.867e4	1.043	0.78	0.77	1020.0	YES	NO	bb	bb	9.615
2	2378-TCDF	25.76	5.450e4	7.081e4	1.108	0.77	0.77	1086.9	YES	NO	bb	bb	9.306
3	Total-tetrafurans	24.85	4.667e2	6.530e2	1.192	0.71	0.77	9.9	YES	NO	bb	bb	0.077
4	Total-tetrafurans	24.67	3.196e2	3.880e2	1.192	0.82	0.77	6.7	YES	NO	db	db	0.049
5	1368-TCDF	22.24	6.940e4	8.907e4	1.425	0.78	0.77	1453.8	YES	NO	bb	bb	9.147
6	23478-PeCDF	31.26	3.124e5	2.078e5	1.126	1.50	1.55	3607.3	YES	NO	bb	bb	46.173
7	Total-pentafurans	31.10	7.015e2	4.773e2	1.047	1.47	1.55	9.8	YES	NO	db	bb	0.109
8	12378-PeCDF	29.91	3.024e5	1.959e5	1.015	1.54	1.55	3576.9	YES	NO	bb	bb	46.373
9	Total-pentafurans	28.76	5.049e4	3.445e4	1.047	1.47	1.55	603.2	YES	NO	bb	bb	7.879
10	12389-PECDF	32.30	2.976e5	1.948e5	1.000	1.53	1.55	3495.3	YES	NO	bb	bb	46.529
11	123789-HxCDF	36.92	1.640e5	1.362e5	1.030	1.20	1.24	1946.4	YES	NO	bb	bb	46.010
12	234678-HxCDF	35.89	1.971e5	1.671e5	1.052	1.18	1.24	2418.1	YES	NO	bb	bb	46.681
13	123678-HxCDF	35.02	2.077e5	1.707e5	1.037	1.22	1.24	2372.2	YES	NO	db	db	46.299
14	123478-HxCDF	34.88	2.056e5	1.693e5	1.017	1.21	1.24	2439.4	YES	NO	bd	bd	46.924
15	123468-HXCDF	33.21	2.158e5	1.790e5	1.087	1.21	1.24	2458.5	YES	NO	bb	bb	46.248
16	1234678-HpCDF	38.76	1.880e5	1.808e5	1.327	1.04	1.05	3223.7	YES	NO	bb	bb	47.866
17	OCDF	45.23	1.894e5	2.133e5	1.447	0.89	0.89	2627.1	YES	NO	bb	bb	85.050
18	1234789-HpCDF	41.01	1.452e5	1.393e5	1.283	1.04	1.05	2254.7	YES	NO	bb	bb	49.618
19	13468-PECDF	27.09	4.072e5	2.693e5	1.376	1.51	1.55	9852.8	YES	NO	bb	bb	46.428

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	27.00	3.433e4	4.340e4	0.794	0.79	0.77	480.3	YES	NO	bb	bb	11.053
2	2378-TCDD	26.40	3.837e4	4.802e4	0.920	0.80	0.77	568.2	YES	NO	bb	bb	10.600
3	Total-tetradioxins	26.08	5.847e4	7.351e4	0.879	0.80	0.77	567.6	YES	NO	bb	bb	16.949
4	Total-tetradioxins	25.58	1.863e4	2.382e4	0.879	0.78	0.77	268.4	YES	NO	bd	bd	5.451
5	Total-tetradioxins	24.73	9.876e2	1.387e3	0.879	0.71	0.77	15.8	YES	NO	db	db	0.305
6	1368-TCDD	23.51	3.905e4	4.892e4	0.923	0.80	0.77	588.8	YES	NO	bb	bb	10.758

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	29.89	6.987e2	4.243e2	1.331	1.65	1.55	5.1	YES	NO	bb	bb	0.152
2	12479-PECDD	28.76	3.415e5	2.109e5	1.843	1.62	1.55	1832.6	YES	NO	bb	bb	54.047
3	12389-PECDD	31.91	2.335e5	1.407e5	1.154	1.66	1.55	2018.0	YES	NO	bb	bb	58.495
4	12378-PeCDD	31.50	1.858e5	1.160e5	0.995	1.60	1.55	1629.3	YES	NO	bb	bb	54.676

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.99	1.946e5	1.601e5	1.125	1.22	1.24	2210.4	YES	NO	bb	bb	47.628
2	123789-HxCDD	36.51	1.765e5	1.424e5	0.950	1.24	1.24	2093.6	YES	NO	bb	bb	50.765
3	Total-hexadioxins	36.30	9.859e1	7.393e1	1.028	1.33	1.24	2.6	NO	NO	bb	bd	0.025
4	123678-HxCDD	36.12	1.780e5	1.452e5	1.009	1.23	1.24	2077.8	YES	NO	db	db	48.543
5	123478-HxCDD	35.99	1.751e5	1.396e5	1.027	1.25	1.24	2153.4	YES	NO	bd	bd	46.254
6	Total-hexadioxins	35.07	1.296e3	1.111e3	1.028	1.17	1.24	9.2	YES	NO	db	bb	0.354

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.26	1.173e5	1.089e5	1.068	1.08	1.05	1558.9	YES	NO	bb	bb	54.356
2	1234679-HPCDD	39.20	1.304e5	1.217e5	1.211	1.07	1.05	1856.6	YES	NO	bb	bb	53.430

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	27.00	3.433e4	4.340e4	0.794	0.79	0.77	480.3	YES	NO	bb	bb	11.053
2	2378-TCDD	26.40	3.837e4	4.802e4	0.920	0.80	0.77	568.2	YES	NO	bb	bb	10.600
3	Total-tetradioxins	26.08	5.847e4	7.351e4	0.879	0.80	0.77	567.6	YES	NO	bb	bb	16.949
4	Total-tetradioxins	25.58	1.863e4	2.382e4	0.879	0.78	0.77	268.4	YES	NO	bd	bd	5.451
5	Total-tetradioxins	24.73	9.876e2	1.387e3	0.879	0.71	0.77	15.8	YES	NO	db	db	0.305
6	1368-TCDD	23.51	3.905e4	4.892e4	0.923	0.80	0.77	588.8	YES	NO	bb	bb	10.758
7	Total-pentadioxins	29.89	6.987e2	4.243e2	1.331	1.65	1.55	5.1	YES	NO	bb	bb	0.152
8	12479-PECDD	28.76	3.415e5	2.109e5	1.843	1.62	1.55	1832.6	YES	NO	bb	bb	54.047
9	124679-HXCDD	33.99	1.946e5	1.601e5	1.125	1.22	1.24	2210.4	YES	NO	bb	bb	47.628
10	12389-PECDD	31.91	2.335e5	1.407e5	1.154	1.66	1.55	2018.0	YES	NO	bb	bb	58.495
11	12378-PeCDD	31.50	1.858e5	1.160e5	0.995	1.60	1.55	1629.3	YES	NO	bb	bb	54.676
12	123789-HxCDD	36.51	1.765e5	1.424e5	0.950	1.24	1.24	2093.6	YES	NO	bb	bb	50.765
13	Total-hexadioxins	36.30	9.859e1	7.393e1	1.028	1.33	1.24	2.6	NO	NO	bb	bd	0.025
14	123678-HxCDD	36.12	1.780e5	1.452e5	1.009	1.23	1.24	2077.8	YES	NO	db	db	48.543
15	123478-HxCDD	35.99	1.751e5	1.396e5	1.027	1.25	1.24	2153.4	YES	NO	bd	bd	46.254
16	Total-hexadioxins	35.07	1.296e3	1.111e3	1.028	1.17	1.24	9.2	YES	NO	db	bb	0.354
17	1234678-HpCDD	40.26	1.173e5	1.089e5	1.068	1.08	1.05	1558.9	YES	NO	bb	bb	54.356
18	1234679-HPCDD	39.20	1.304e5	1.217e5	1.211	1.07	1.05	1856.6	YES	NO	bb	bb	53.430
19	OCDD	45.00	1.779e5	1.982e5	1.181	0.90	0.89	2482.9	YES	NO	bb	bb	97.342

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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	27.27	5.325e4	6.867e4	1.043	0.78	0.77	1020.0	YES	NO	bb	bb	9.615
2	2378-TCDF	25.76	5.450e4	7.081e4	1.108	0.77	0.77	1086.9	YES	NO	bb	bb	9.306
3	Total-tetrafurans	24.85	4.667e2	6.530e2	1.192	0.71	0.77	9.9	YES	NO	bb	bb	0.077
4	Total-tetrafurans	24.67	3.196e2	3.880e2	1.192	0.82	0.77	6.7	YES	NO	db	db	0.049
5	1368-TCDF	22.24	6.940e4	8.907e4	1.425	0.78	0.77	1453.8	YES	NO	bb	bb	9.147
6	23478-PeCDF	31.26	3.124e5	2.078e5	1.126	1.50	1.55	3607.3	YES	NO	bb	bb	46.173
7	Total-pentafurans	31.10	7.015e2	4.773e2	1.047	1.47	1.55	9.8	YES	NO	db	bb	0.109
8	12378-PeCDF	29.91	3.024e5	1.959e5	1.015	1.54	1.55	3576.9	YES	NO	bb	bb	46.373
9	Total-pentafurans	28.76	5.049e4	3.445e4	1.047	1.47	1.55	603.2	YES	NO	bb	bb	7.879
10	12389-PECDF	32.30	2.976e5	1.948e5	1.000	1.53	1.55	3495.3	YES	NO	bb	bb	46.529
11	123789-HxCDF	36.92	1.640e5	1.362e5	1.030	1.20	1.24	1946.4	YES	NO	bb	bb	46.010
12	234678-HxCDF	35.89	1.971e5	1.671e5	1.052	1.18	1.24	2418.1	YES	NO	bb	bb	46.681
13	123678-HxCDF	35.02	2.077e5	1.707e5	1.037	1.22	1.24	2372.2	YES	NO	db	db	46.299
14	123478-HxCDF	34.88	2.056e5	1.693e5	1.017	1.21	1.24	2439.4	YES	NO	bd	bd	46.924
15	123468-HXCDF	33.21	2.158e5	1.790e5	1.087	1.21	1.24	2458.5	YES	NO	bb	bb	46.248
16	1234678-HpCDF	38.76	1.880e5	1.808e5	1.327	1.04	1.05	3223.7	YES	NO	bb	bb	47.866
17	OCDF	45.23	1.894e5	2.133e5	1.447	0.89	0.89	2627.1	YES	NO	bb	bb	85.050
18	1234789-HpCDF	41.01	1.452e5	1.393e5	1.283	1.04	1.05	2254.7	YES	NO	bb	bb	49.618
19	13468-PECDF	27.09	4.072e5	2.693e5	1.376	1.51	1.55	9852.8	YES	NO	bb	bb	46.428
20	1289-TCDD	27.00	3.433e4	4.340e4	0.794	0.79	0.77	480.3	YES	NO	bb	bb	11.053
21	2378-TCDD	26.40	3.837e4	4.802e4	0.920	0.80	0.77	568.2	YES	NO	bb	bb	10.600
22	Total-tetradioxins	26.08	5.847e4	7.351e4	0.879	0.80	0.77	567.6	YES	NO	bb	bb	16.949
23	Total-tetradioxins	25.58	1.863e4	2.382e4	0.879	0.78	0.77	268.4	YES	NO	bd	bd	5.451
24	Total-tetradioxins	24.73	9.876e2	1.387e3	0.879	0.71	0.77	15.8	YES	NO	db	db	0.305
25	1368-TCDD	23.51	3.905e4	4.892e4	0.923	0.80	0.77	588.8	YES	NO	bb	bb	10.758
26	Total-pentadioxins	29.89	6.987e2	4.243e2	1.331	1.65	1.55	5.1	YES	NO	bb	bb	0.152
27	12479-PECDD	28.76	3.415e5	2.109e5	1.843	1.62	1.55	1832.6	YES	NO	bb	bb	54.047
28	124679-HXCDD	33.99	1.946e5	1.601e5	1.125	1.22	1.24	2210.4	YES	NO	bb	bb	47.628
29	12389-PECDD	31.91	2.335e5	1.407e5	1.154	1.66	1.55	2018.0	YES	NO	bb	bb	58.495
30	12378-PeCDD	31.50	1.858e5	1.160e5	0.995	1.60	1.55	1629.3	YES	NO	bb	bb	54.676
31	123789-HxCDD	36.51	1.765e5	1.424e5	0.950	1.24	1.24	2093.6	YES	NO	bb	bb	50.765
32	Total-hexadioxins	36.30	9.859e1	7.393e1	1.028	1.33	1.24	2.6	NO	NO	bb	bd	0.025
33	123678-HxCDD	36.12	1.780e5	1.452e5	1.009	1.23	1.24	2077.8	YES	NO	db	db	48.543
34	123478-HxCDD	35.99	1.751e5	1.396e5	1.027	1.25	1.24	2153.4	YES	NO	bd	bd	46.254
35	Total-hexadioxins	35.07	1.296e3	1.111e3	1.028	1.17	1.24	9.2	YES	NO	db	bb	0.354
36	1234678-HpCDD	40.26	1.173e5	1.089e5	1.068	1.08	1.05	1558.9	YES	NO	bb	bb	54.356
37	1234679-HPCDD	39.20	1.304e5	1.217e5	1.211	1.07	1.05	1856.6	YES	NO	bb	bb	53.430

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
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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
38	OCDD	45.00	1.779e5	1.982e5	1.181	0.90	0.89	2482.9	YES	NO	bb	bb	97.342

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.41	1.579e3					0.3	NO		bb		
2	FUNCTION1 PFK	21.24	1.915e4					1.1	NO		bb		
3	FUNCTION1 PFK	21.18	1.381e4					1.3	NO		bb		
4	FUNCTION1 PFK	21.09	6.437e3					0.4	NO		bb		
5	FUNCTION1 PFK	23.42	1.311e4					1.0	NO		bb		
6	FUNCTION1 PFK	23.31	5.607e3					0.5	NO		db		
7	FUNCTION1 PFK	23.25	1.904e4					1.1	NO		dd		
8	FUNCTION1 PFK	23.21	1.427e4					1.1	NO		bd		
9	FUNCTION1 PFK	23.13	2.921e4					1.4	NO		bb		
10	FUNCTION1 PFK	22.89	2.346e4					1.1	NO		bb		
11	FUNCTION1 PFK	22.66	2.176e3					0.4	NO		bb		
12	FUNCTION1 PFK	22.54	1.315e4					0.8	NO		db		
13	FUNCTION1 PFK	22.45	3.129e4					1.1	NO		bd		
14	FUNCTION1 PFK	22.27	2.763e4					1.3	NO		db		
15	FUNCTION1 PFK	22.18	8.663e3					0.7	NO		bd		
16	FUNCTION1 PFK	22.04	3.770e4					1.2	NO		bb		
17	FUNCTION1 PFK	21.88	7.115e4					1.8	NO		bb		
18	FUNCTION1 PFK	21.60	1.294e4					1.1	NO		db		
19	FUNCTION1 PFK	21.54	2.366e4					1.2	NO		bd		
20	FUNCTION1 PFK	21.47	1.309e4					0.9	NO		bb		
21	FUNCTION1 PFK	26.15	1.887e4					1.2	NO		dd		
22	FUNCTION1 PFK	26.08	1.968e4					1.3	NO		dd		
23	FUNCTION1 PFK	26.02	2.390e4					1.2	NO		bd		
24	FUNCTION1 PFK	25.66	1.220e4					1.0	NO		db		
25	FUNCTION1 PFK	25.59	2.633e4					1.4	NO		bd		
26	FUNCTION1 PFK	25.49	3.359e4					1.5	NO		bb		
27	FUNCTION1 PFK	25.34	2.059e3					0.3	NO		bb		
28	FUNCTION1 PFK	25.22	2.055e4					1.2	NO		db		
29	FUNCTION1 PFK	25.17	6.423e4					1.4	NO		bd		
30	FUNCTION1 PFK	24.76	1.145e5					1.8	NO		bb		
31	FUNCTION1 PFK	24.58	7.542e3					0.7	NO		bb		
32	FUNCTION1 PFK	24.51	6.997e3					0.6	NO		bb		
33	FUNCTION1 PFK	24.23	2.945e4					1.4	NO		bb		
34	FUNCTION1 PFK	23.83	2.547e4					1.5	NO		bb		
35	FUNCTION1 PFK	23.69	3.464e4					1.3	NO		bb		
36	FUNCTION1 PFK	23.55	5.967e3					0.6	NO		bb		
37	FUNCTION1 PFK	28.03	2.179e4					1.6	NO		db		

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	27.95	3.827e4					1.7	NO		bd		
39	FUNCTION1 PFK	27.56	2.195e4					1.2	NO		bb		
40	FUNCTION1 PFK	27.15	2.972e4					1.1	NO		db		
41	FUNCTION1 PFK	27.06	1.705e4					1.0	NO		bd		
42	FUNCTION1 PFK	26.64	8.475e4					2.1	NO		db		
43	FUNCTION1 PFK	26.59	2.017e4					1.7	NO		bd		
44	FUNCTION1 PFK	26.38	3.045e3					0.5	NO		bb		
45	FUNCTION1 PFK	26.32	2.973e3					0.5	NO		bb		
46	FUNCTION1 PFK	26.24	1.721e4					1.0	NO		db		
47	FUNCTION1 PFK	26.20	2.184e4					1.2	NO		dd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.59	3.483e3					1.0	NO		bb		0.000
2	FUNCTION2 PFK	28.35	1.404e4					2.2	NO		bb		0.000
3	FUNCTION2 PFK	28.24	1.981e3					0.9	NO		bb		0.000
4	FUNCTION2 PFK	28.19	1.974e3					0.9	NO		bb		0.000
5	FUNCTION2 PFK	32.78	1.181e4					1.9	NO		bb		0.000
6	FUNCTION2 PFK	32.58	1.236e3					0.6	NO		bb		0.000
7	FUNCTION2 PFK	31.56	1.473e4					1.6	NO		bb		0.000
8	FUNCTION2 PFK	31.47	9.011e3					1.7	NO		bb		0.000
9	FUNCTION2 PFK	31.39	9.359e3					1.8	NO		bb		0.000
10	FUNCTION2 PFK	31.02	2.245e4					2.1	NO		db		0.000
11	FUNCTION2 PFK	30.88	3.215e4					2.3	NO		bd		0.000
12	FUNCTION2 PFK	30.68	8.707e3					1.5	NO		bb		0.000
13	FUNCTION2 PFK	30.28	1.247e3					0.6	NO		bb		0.000
14	FUNCTION2 PFK	30.01	1.495e4					2.4	NO		bb		0.000
15	FUNCTION2 PFK	29.69	5.308e3					1.2	NO		bb		0.000
16	FUNCTION2 PFK	29.53	8.725e3					1.4	NO		bb		0.000
17	FUNCTION2 PFK	29.35	8.532e3					1.0	NO		bb		0.000
18	FUNCTION2 PFK	29.16	3.988e3					1.3	NO		bb		0.000
19	FUNCTION2 PFK	28.67	3.638e3					1.0	NO		bb		0.000

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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	36.83	4.096e3					0.7	NO		bb		0.000
2	FUNCTION3 PFK	36.19	1.991e4					1.7	NO		bb		0.000
3	FUNCTION3 PFK	35.97	8.888e3					1.0	NO		bb		0.000
4	FUNCTION3 PFK	35.22	1.787e4					1.2	NO		bb		0.000
5	FUNCTION3 PFK	35.13	4.555e4					2.3	NO		db		0.000
6	FUNCTION3 PFK	35.07	3.472e4					2.0	NO		bd		0.000
7	FUNCTION3 PFK	34.98	4.010e3					0.7	NO		bb		0.000
8	FUNCTION3 PFK	34.62	3.037e3					0.5	NO		bb		0.000
9	FUNCTION3 PFK	34.34	2.151e4					1.6	NO		bb		0.000
10	FUNCTION3 PFK	34.23	4.614e4					3.0	NO		db		0.000
11	FUNCTION3 PFK	34.13	3.105e4					1.6	NO		bd		0.000
12	FUNCTION3 PFK	33.99	6.156e3					0.9	NO		bb		0.000
13	FUNCTION3 PFK	33.29	2.637e5					7.1	YES		db		0.000
14	FUNCTION3 PFK	33.22	9.298e4					7.7	YES		dd		0.000
15	FUNCTION3 PFK	33.12	3.685e5					10.8	YES		dd		0.000
16	FUNCTION3 PFK	32.96	5.812e5					15.0	YES		bd		0.000
17	FUNCTION3 PFK	37.71	1.221e4					1.2	NO		bb		0.000
18	FUNCTION3 PFK	37.50	8.416e3					1.1	NO		bb		0.000
19	FUNCTION3 PFK	37.05	1.055e4					1.4	NO		bb		0.000
20	FUNCTION3 PFK	36.97	1.650e4					1.7	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	42.81	1.888e4					2.5	NO		bb		
2	FUNCTION4 PFK	38.05	1.840e3					0.8	NO		bb		
3	FUNCTION4 PFK	38.01	5.314e3					1.5	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.67	1.251e3					0.7	NO		bb		
2	FUNCTION5 PFK	44.98	1.915e3					0.9	NO		bb		
3	FUNCTION5 PFK	44.03	5.333e3					1.6	NO		db		
4	FUNCTION5 PFK	43.99	4.449e3					1.4	NO		bd		
5	FUNCTION5 PFK	43.11	2.331e3					0.8	NO		bb		
6	FUNCTION5 PFK	43.07	4.002e3					1.8	NO		bb		

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ID: CS3Q3, Name: 21091317, Date: 14-Sep-2021, Time: 00:57:28, 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...	27.88	1.617e2					3.2	YES		bb		0.000
2	FUNCTION1 HXCD...	27.62	1.172e2					2.8	NO		bb		0.000
3	FUNCTION1 HXCD...	27.33	1.910e2					4.4	YES		bb		0.000
4	FUNCTION1 HXCD...	25.58	7.694e1					2.4	NO		bb		0.000
5	FUNCTION1 HXCD...	21.45	8.260e1					2.9	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...	27.33	1.511e2					3.0	NO		bb		0.000
2	FUNCTION1 HPCD...	25.41	9.293e1					2.5	NO		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.08	3.075e2					8.1	YES		bb		0.000
2	FUNCTION2 HPCD...	30.90	7.122e1					1.3	NO		bb		0.000
3	FUNCTION2 HPCD...	29.94	7.940e1					2.9	NO		bb		0.000
4	FUNCTION2 HPCD...	29.04	7.332e1					2.2	NO		bb		0.000
5	FUNCTION2 HPCD...	28.47	1.145e2					5.4	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	36.51	1.726e2					3.9	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	40.33	9.088e1					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	FUNCTION5 DCDPE	45.11	8.157e1					5.3	YES		bb		0.000

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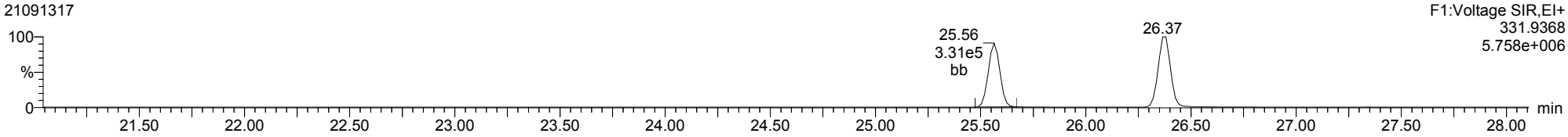
13C-1234-TCDD



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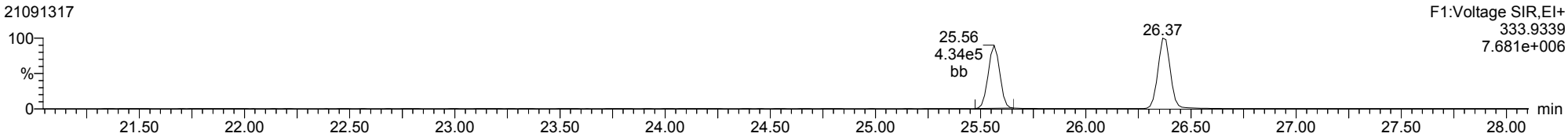
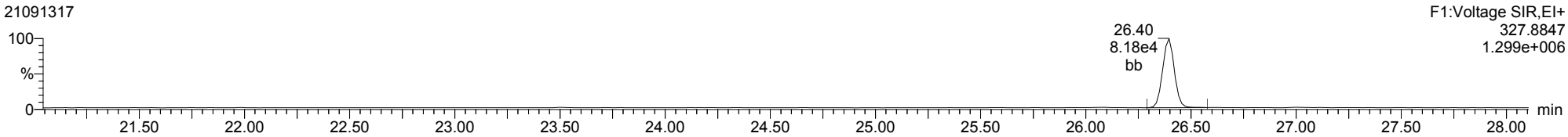


37CL-2378-TCDD



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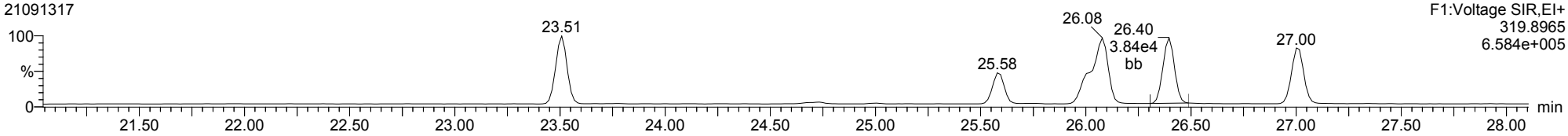

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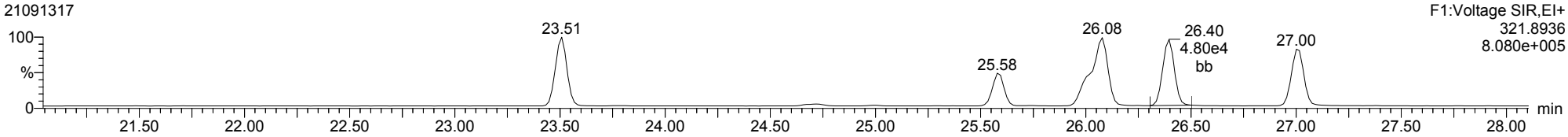

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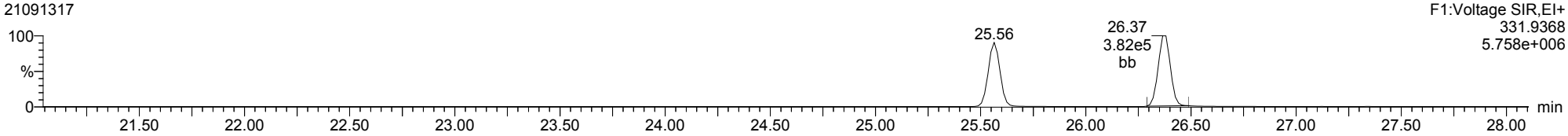

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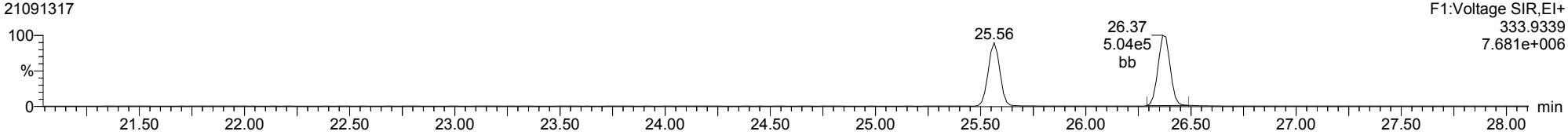

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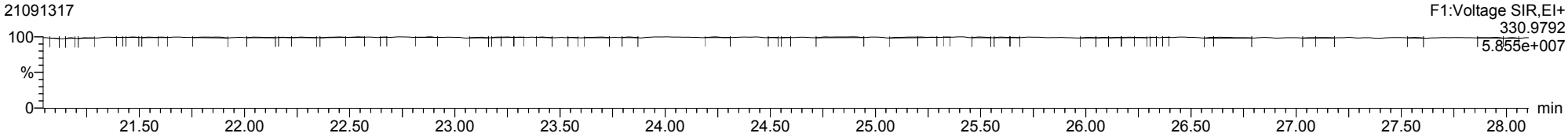

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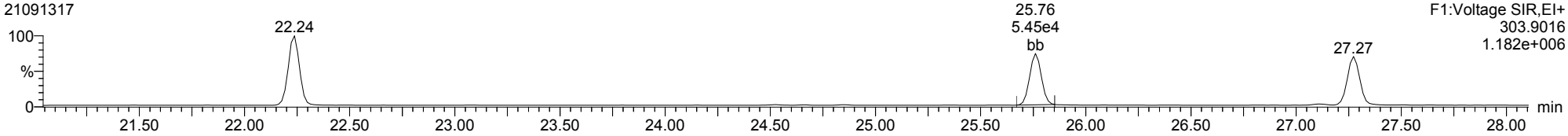

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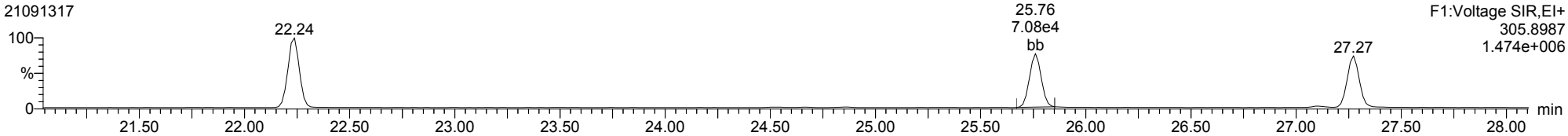

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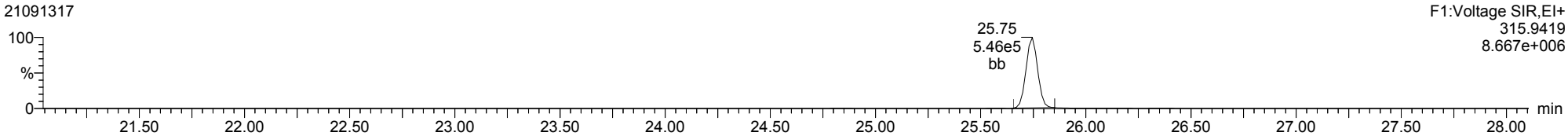

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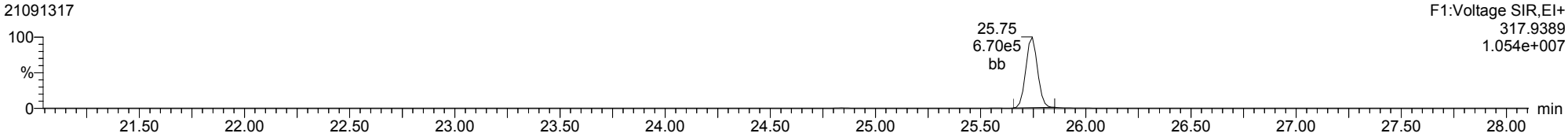

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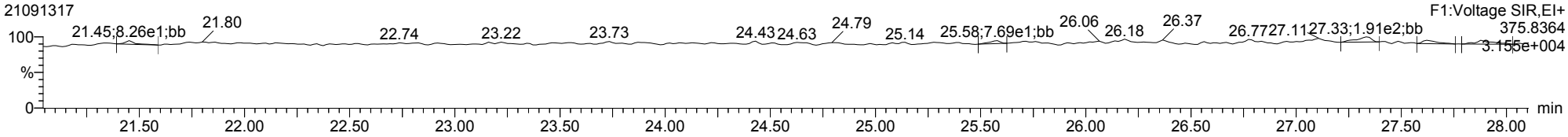

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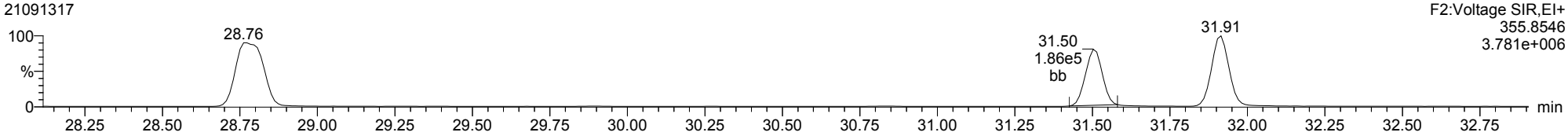

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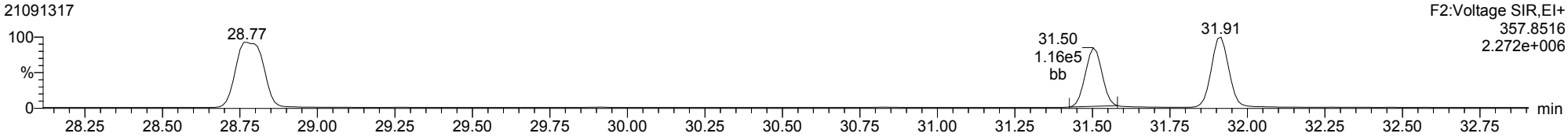

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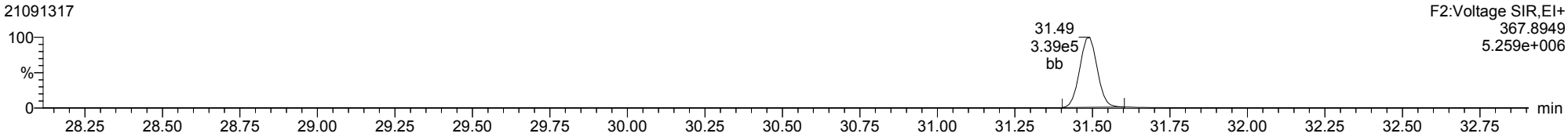

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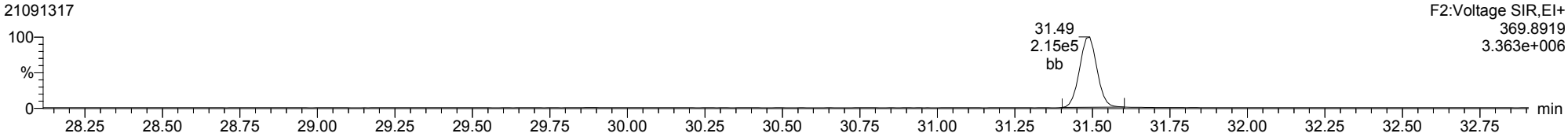

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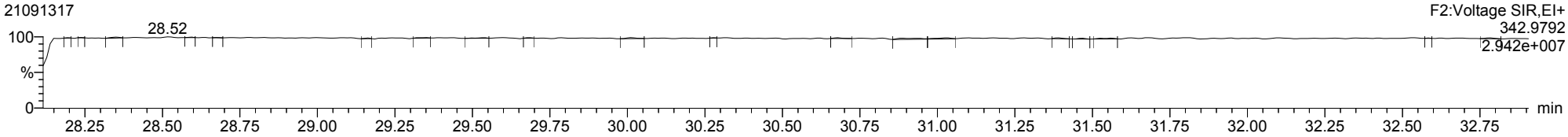

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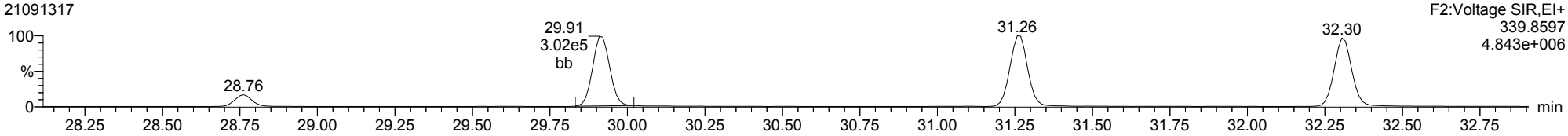

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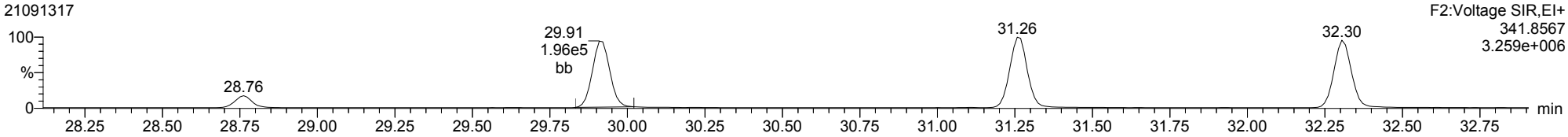

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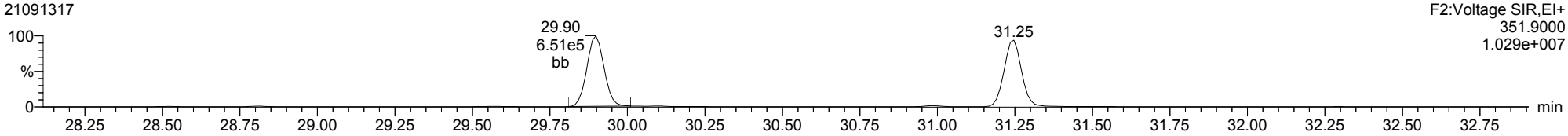

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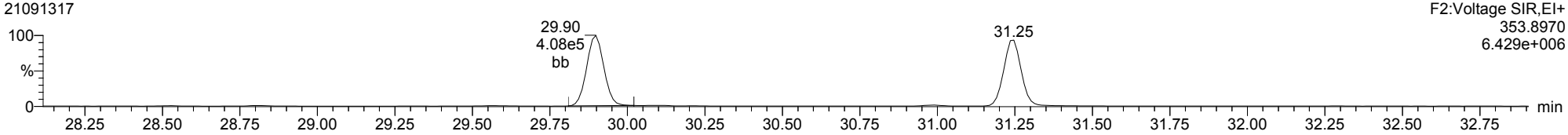
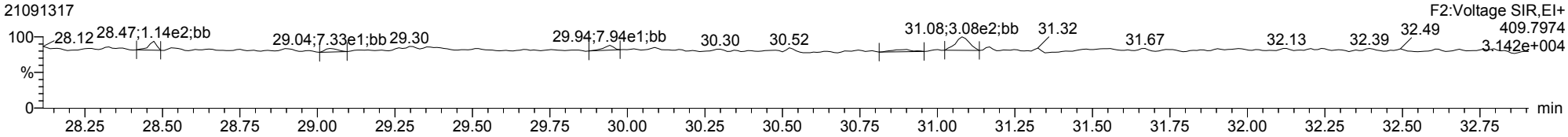


FUNCTION2 HPCDPE



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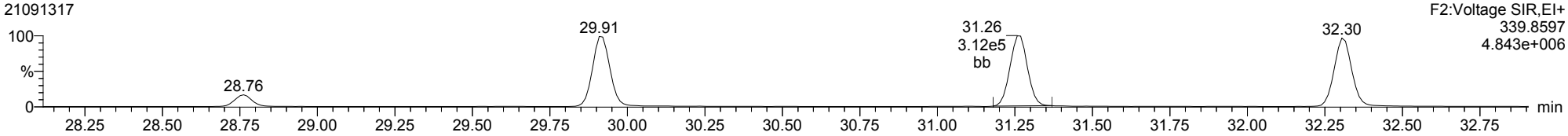

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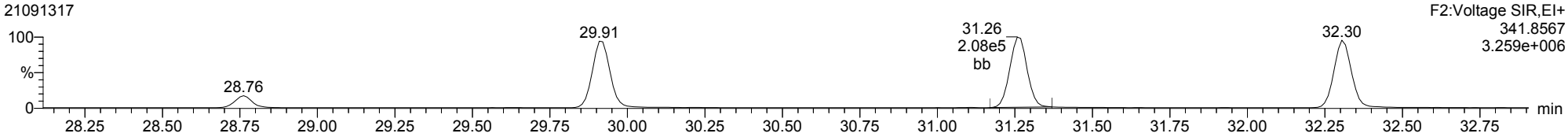

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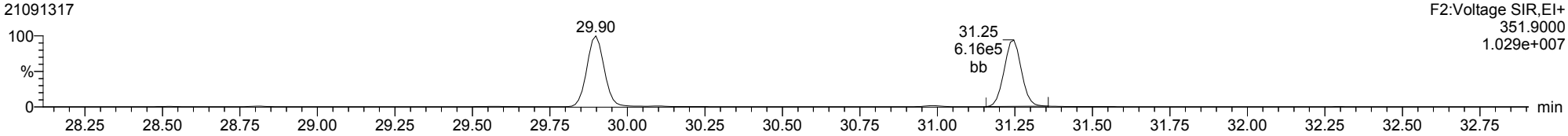

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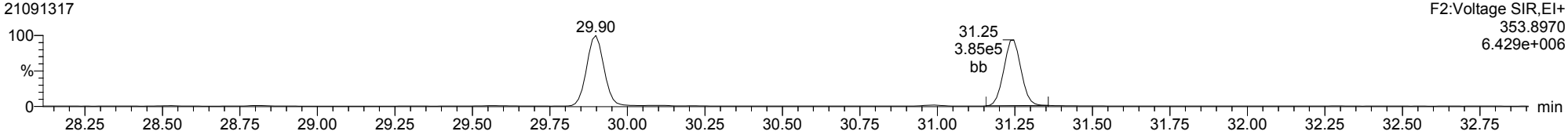
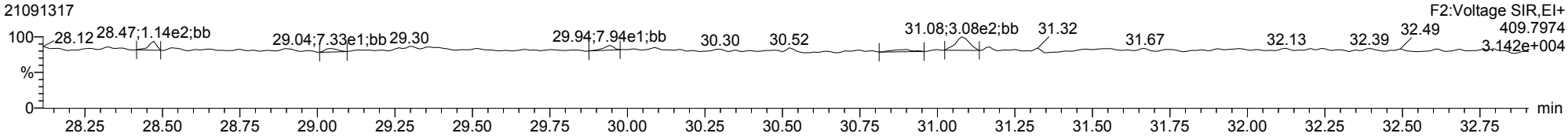


FUNCTION2 HPCDPE



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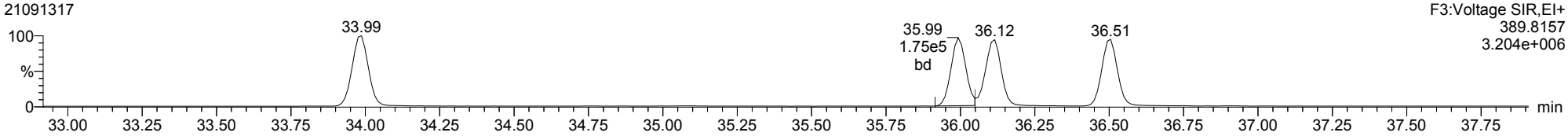
123478-HxCDD



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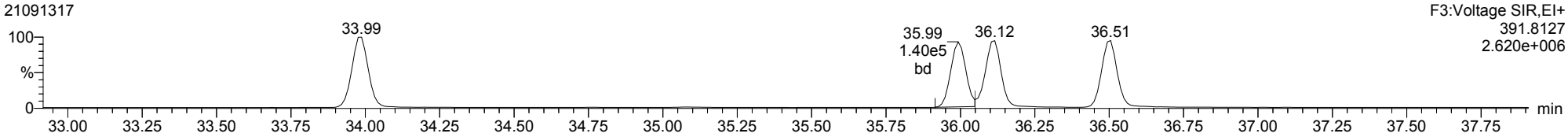

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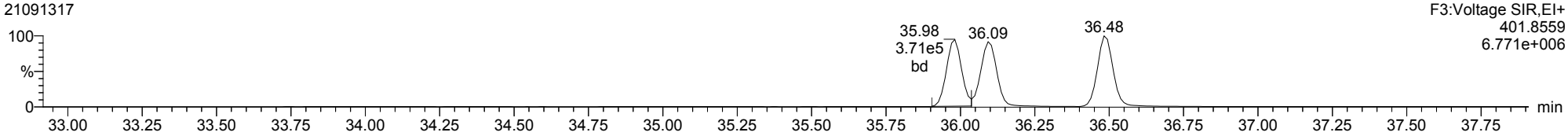

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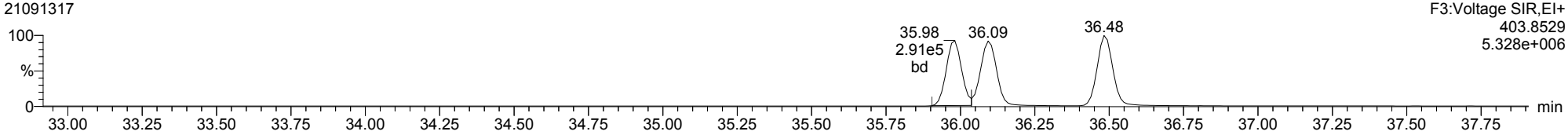

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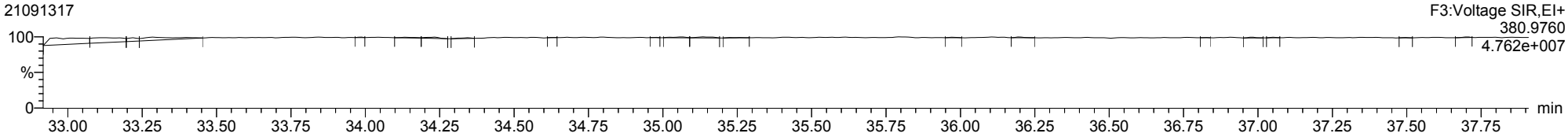

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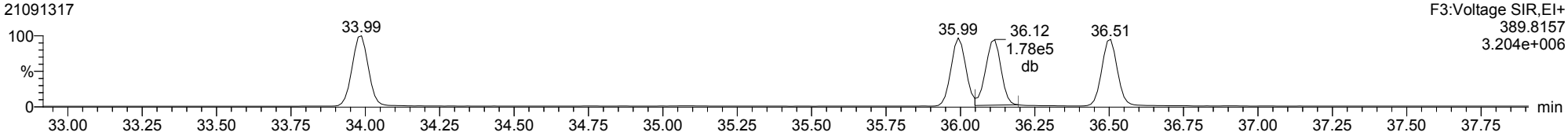

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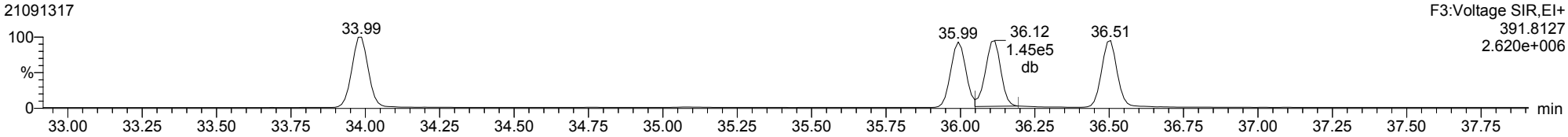

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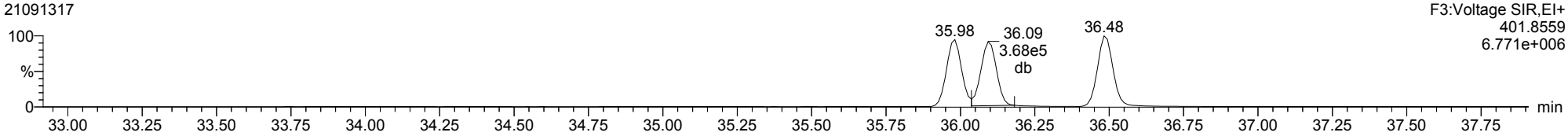

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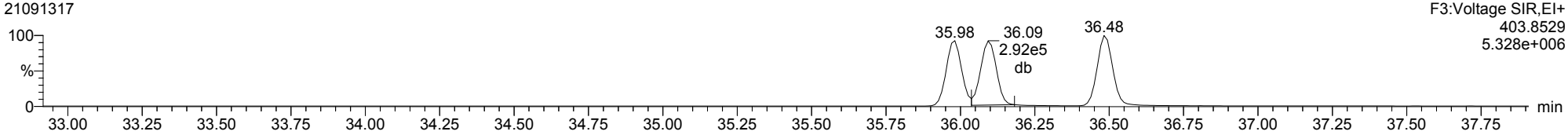

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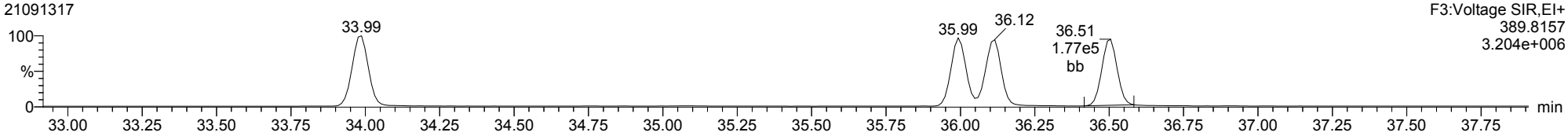

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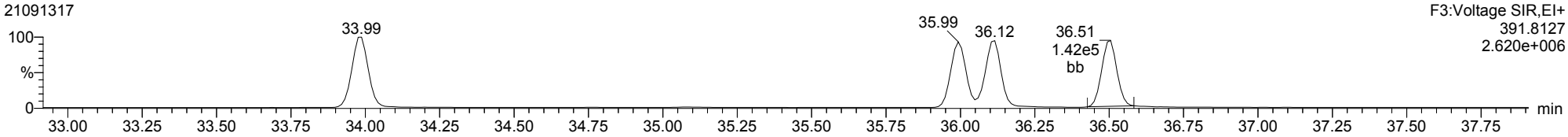

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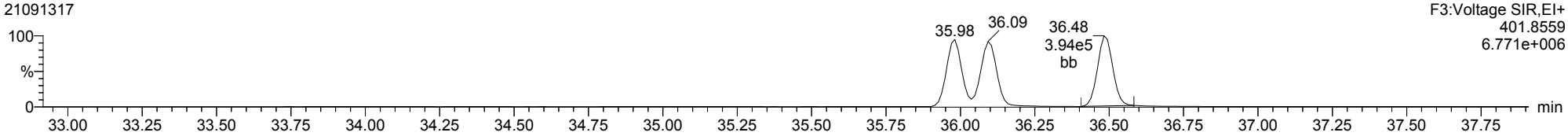

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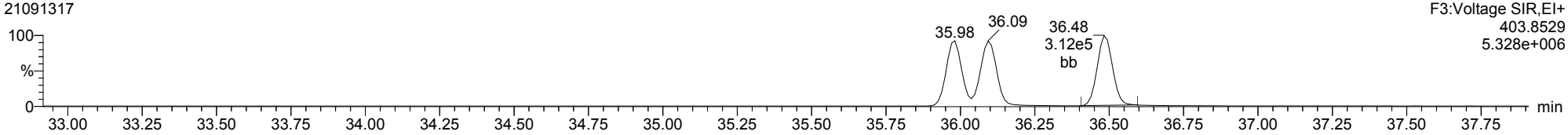

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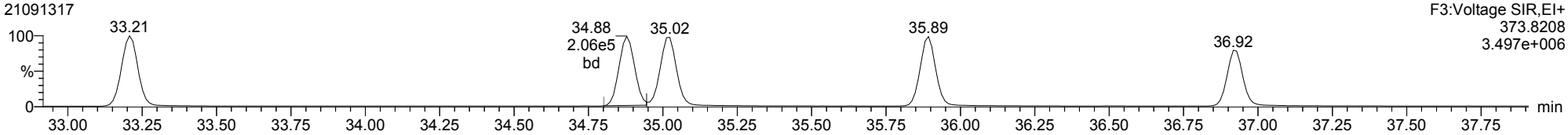

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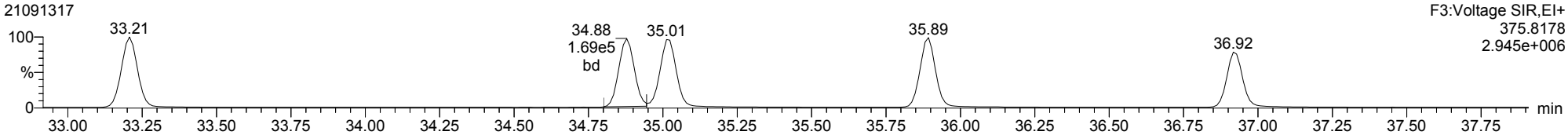

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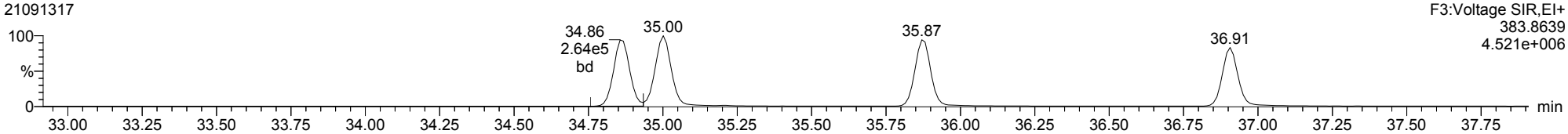

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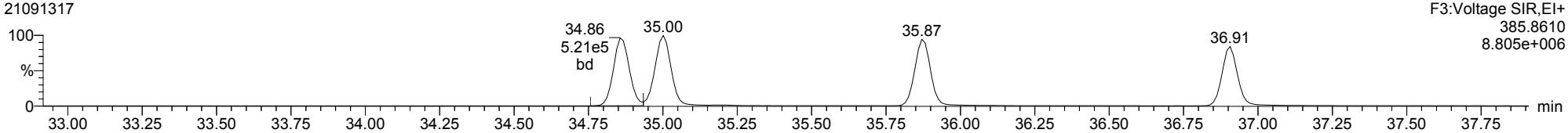

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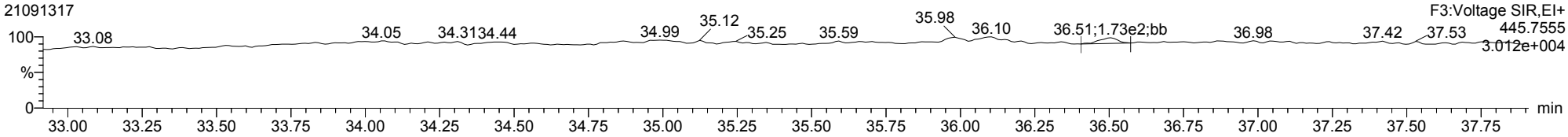

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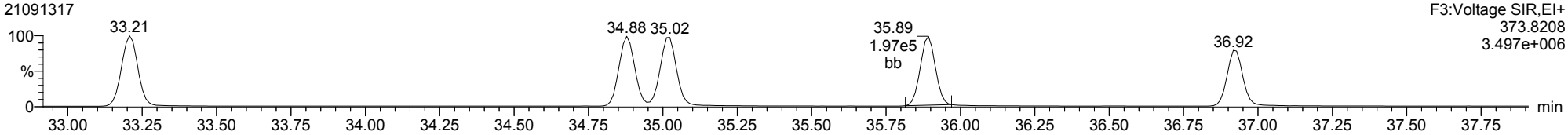

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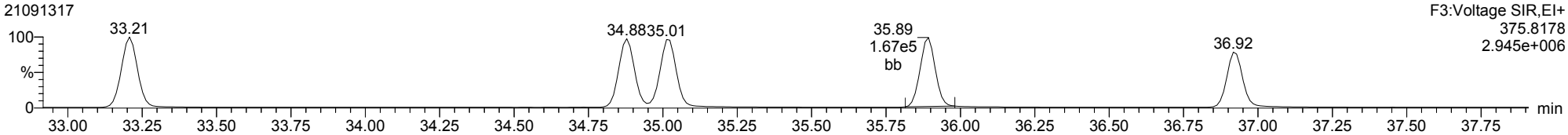

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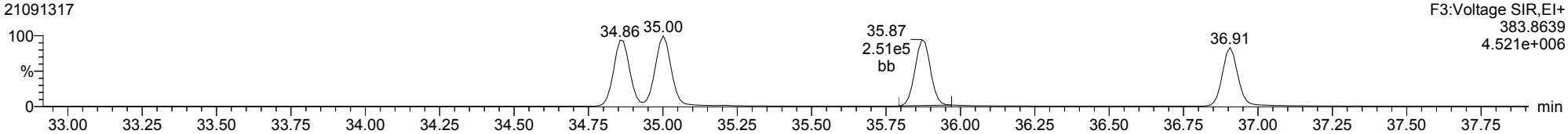

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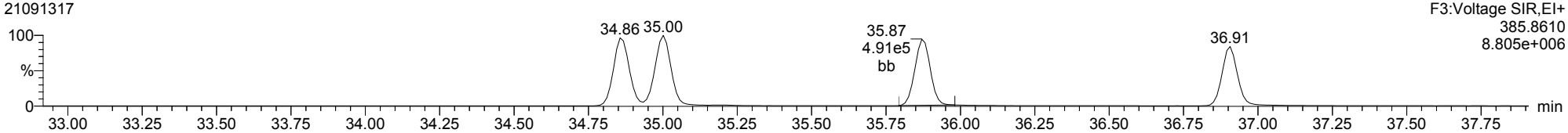

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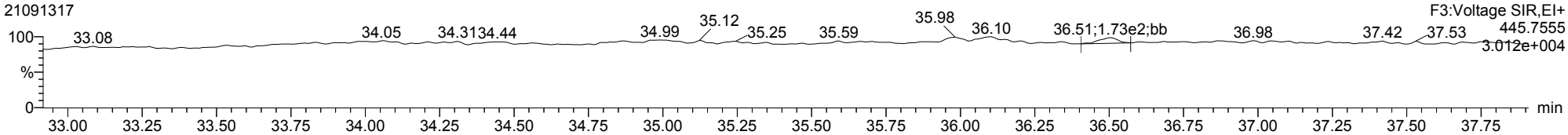

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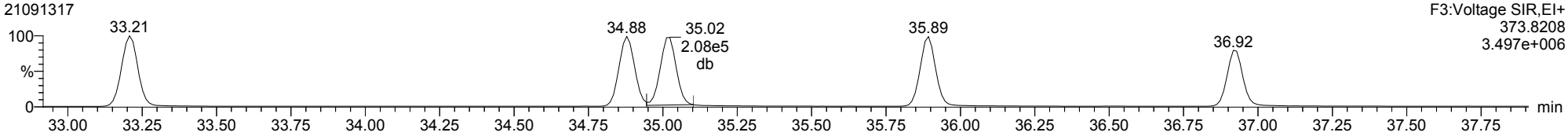

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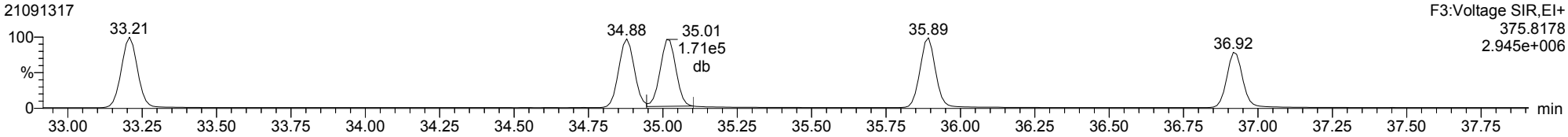

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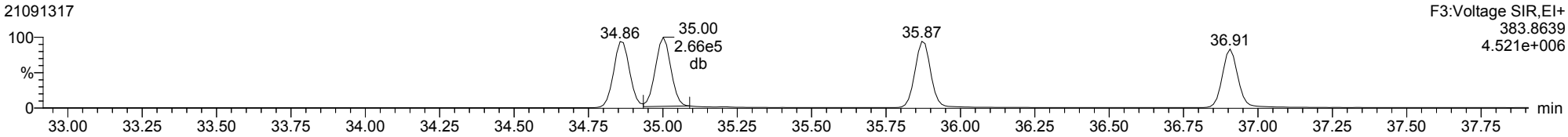

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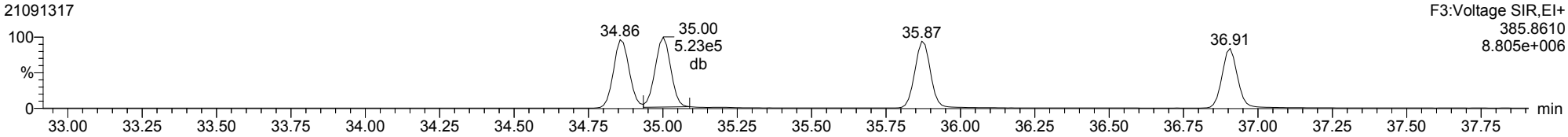

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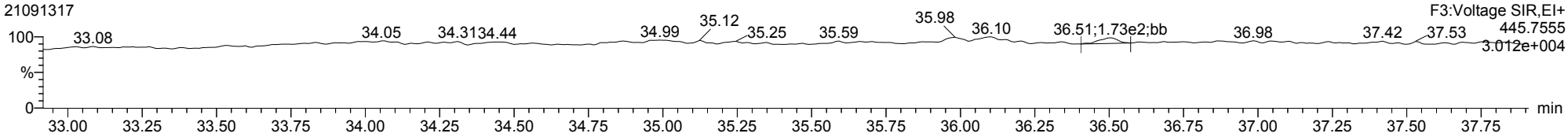

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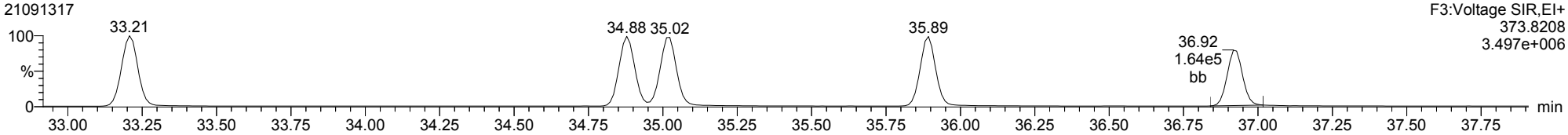

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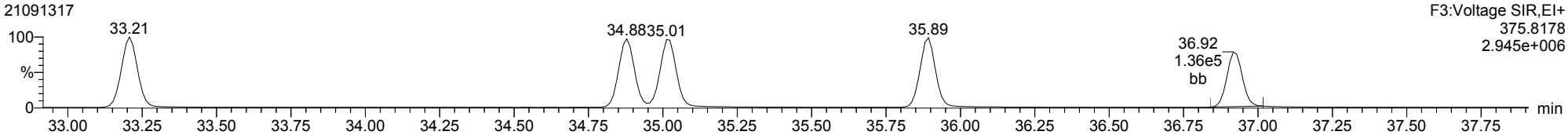

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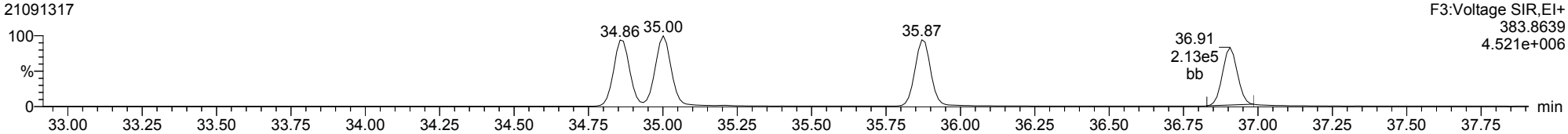

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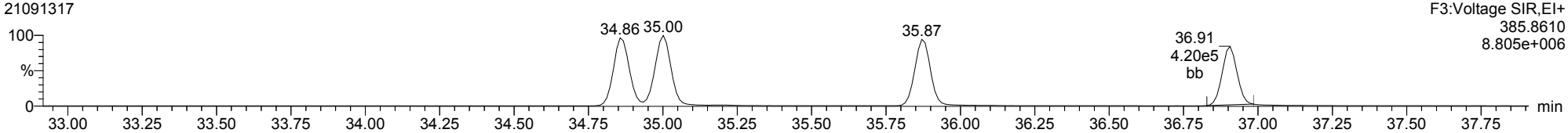

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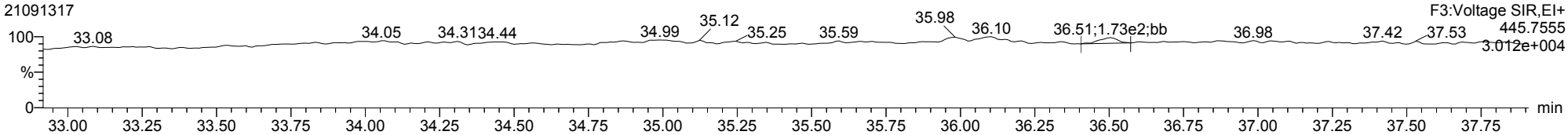

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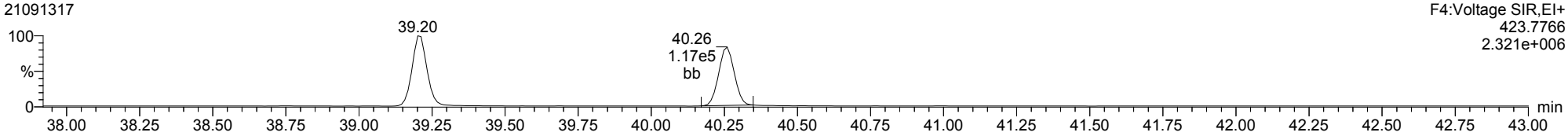

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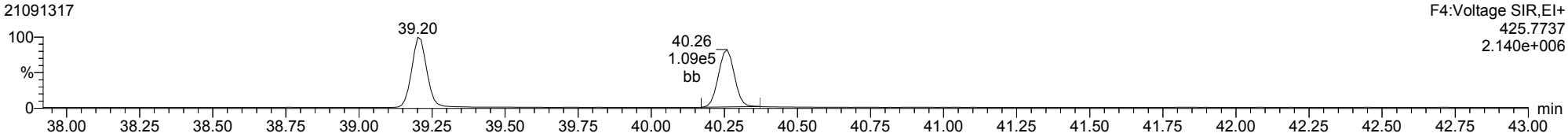

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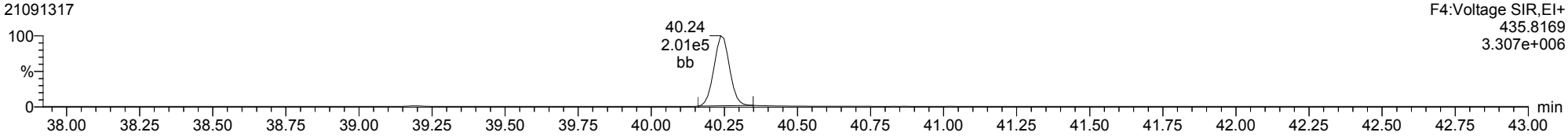

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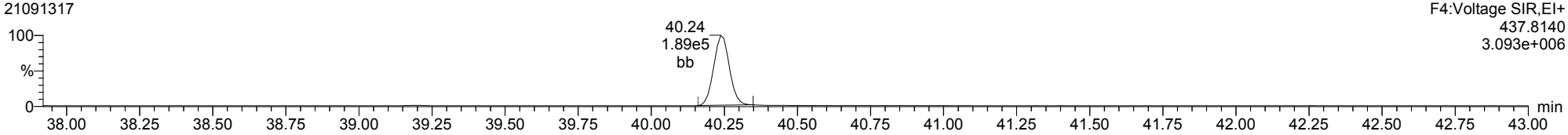

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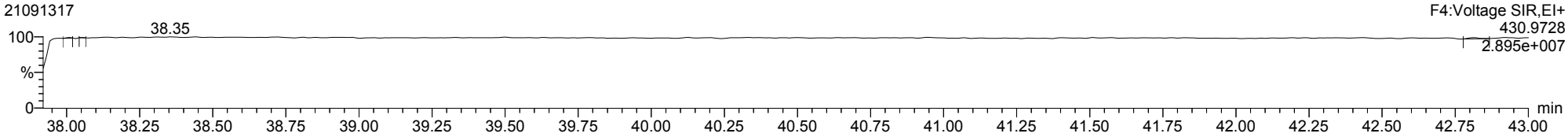

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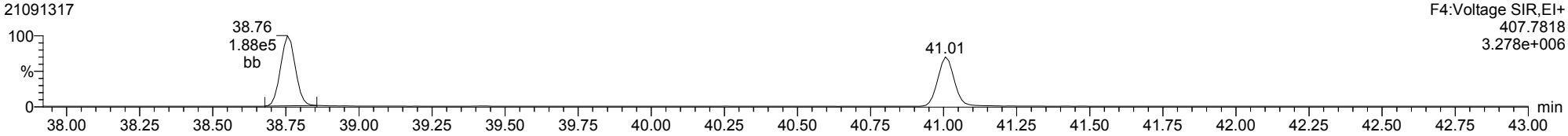

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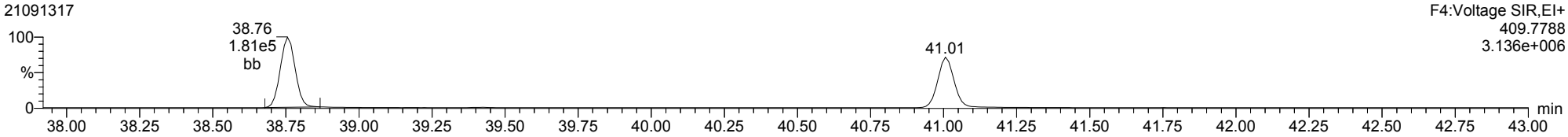

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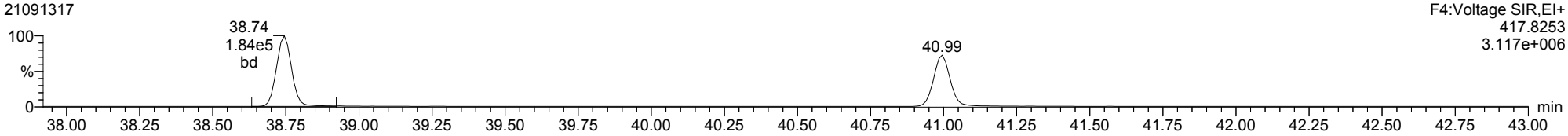

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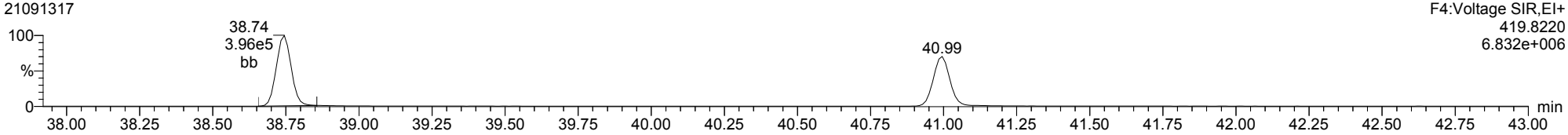

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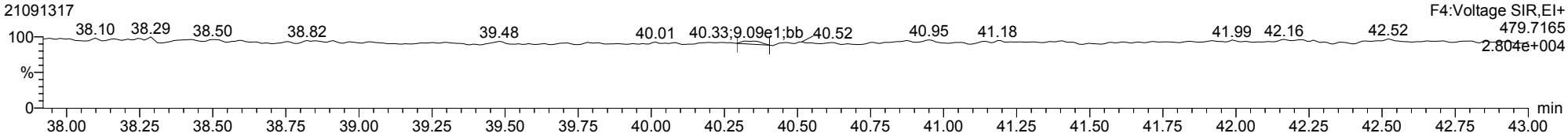

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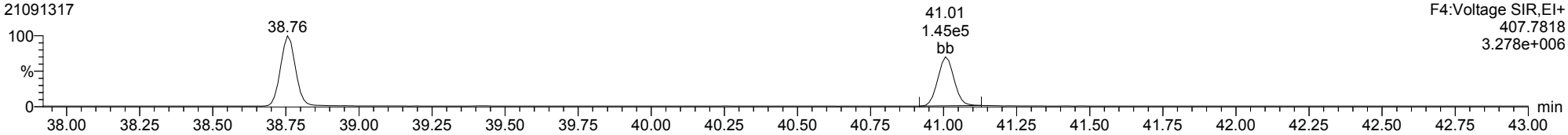

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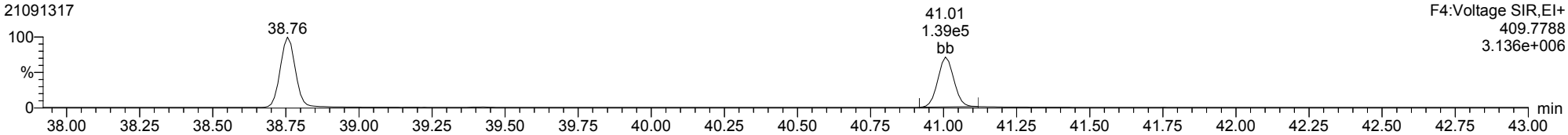

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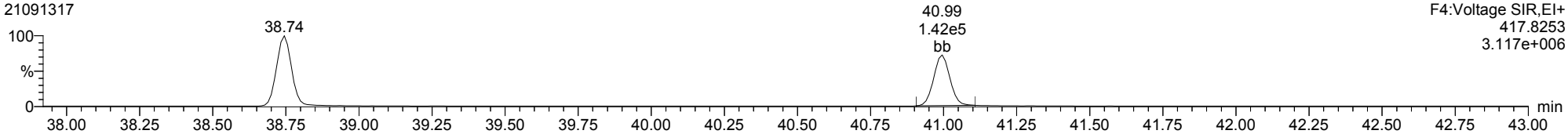

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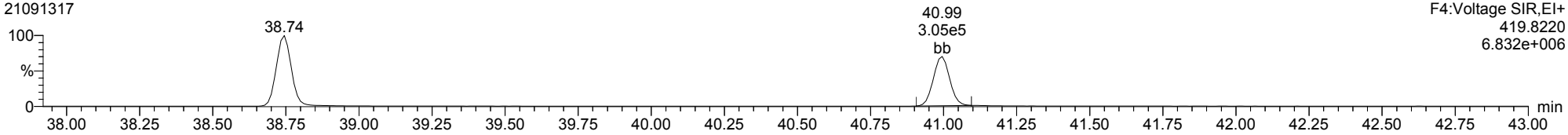

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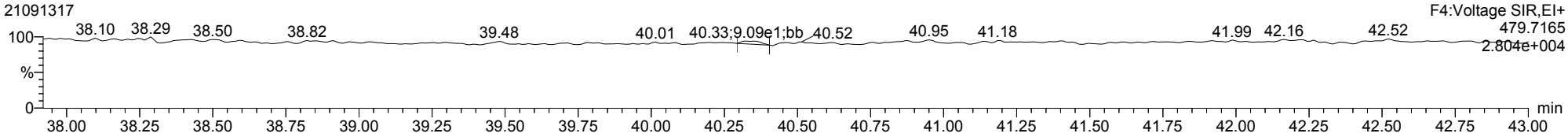

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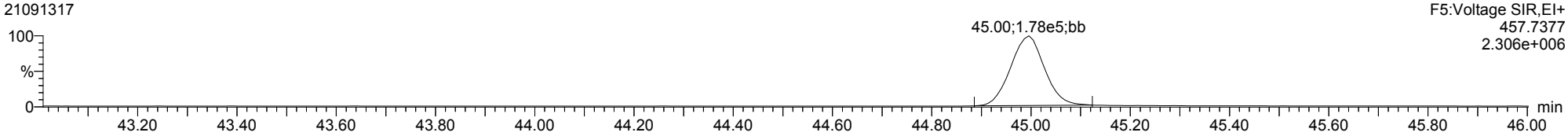

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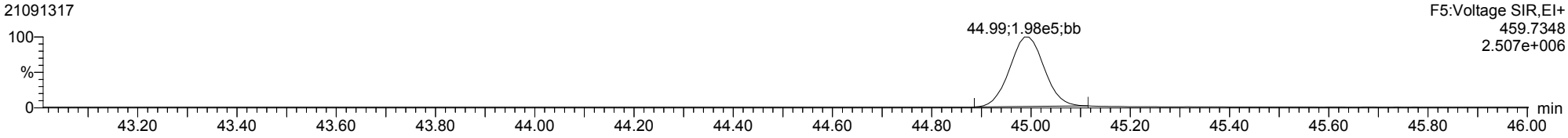

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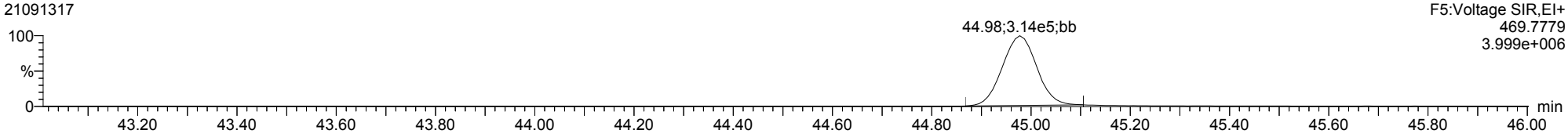

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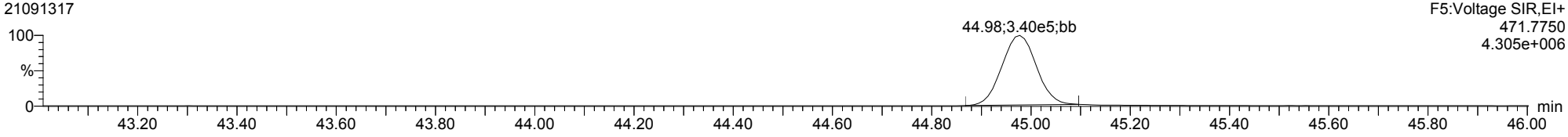

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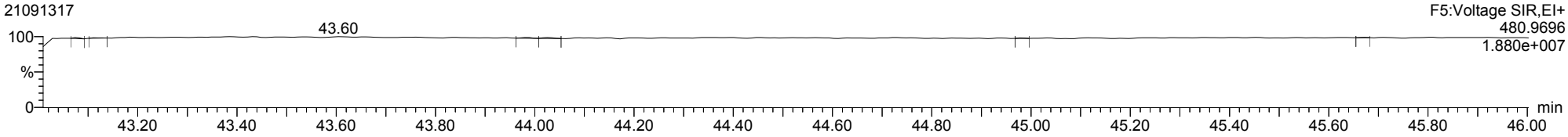

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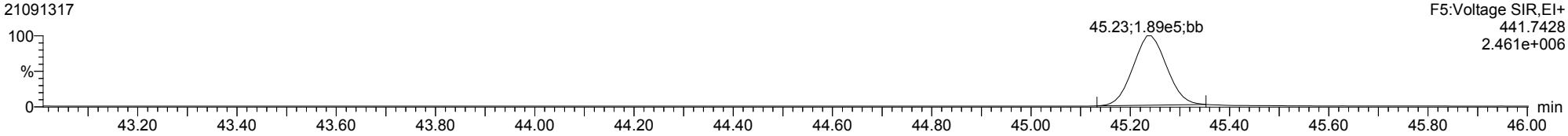

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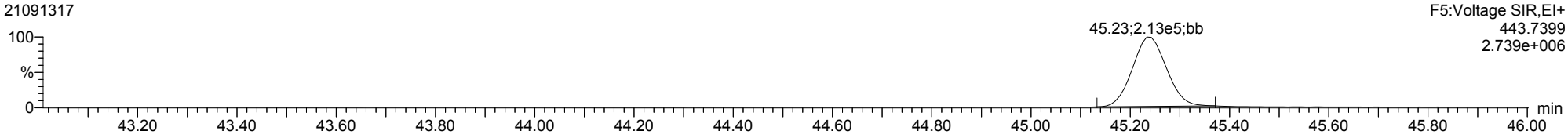

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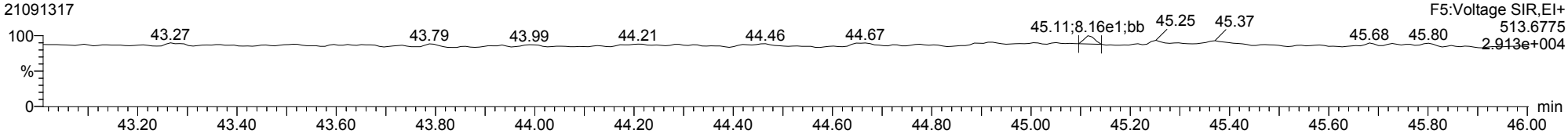

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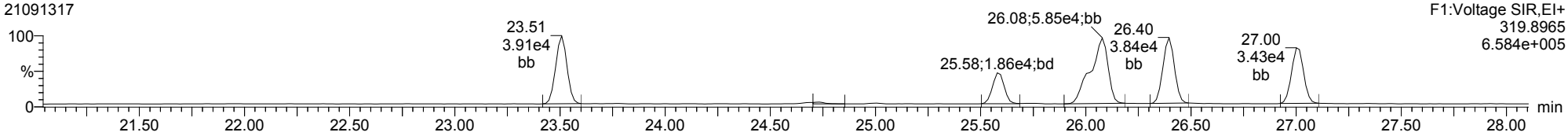

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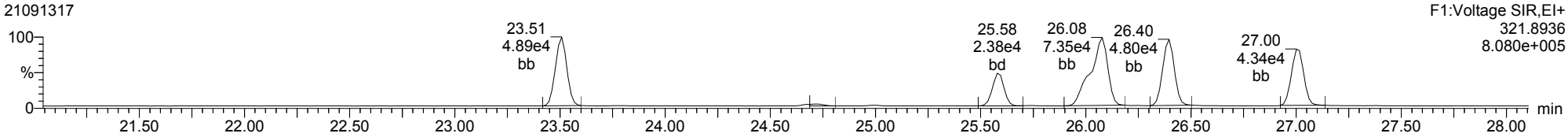

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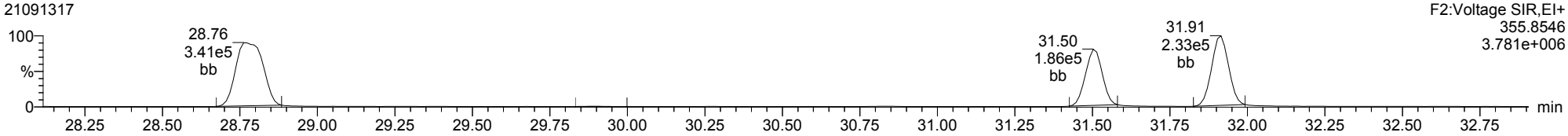

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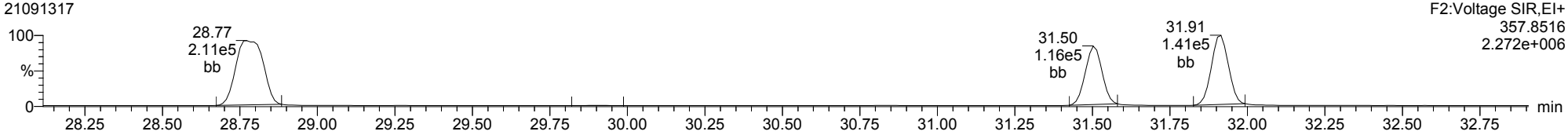

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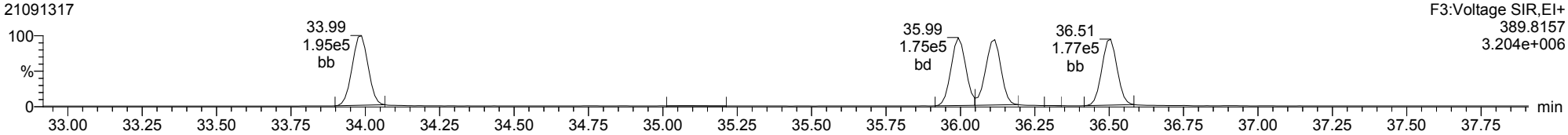
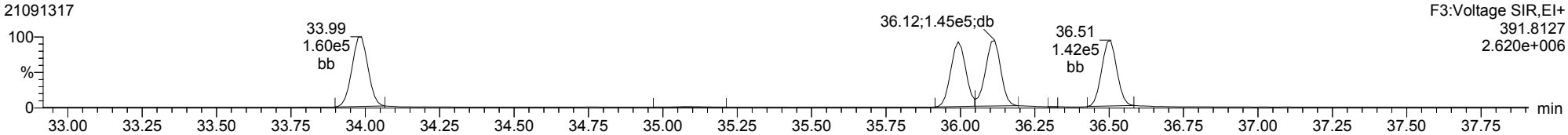
Total-hexadioxins



Total-hexadioxins



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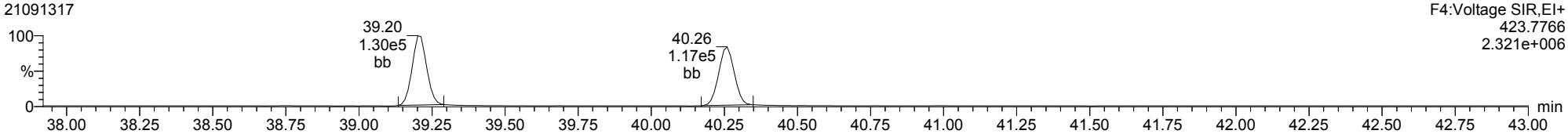
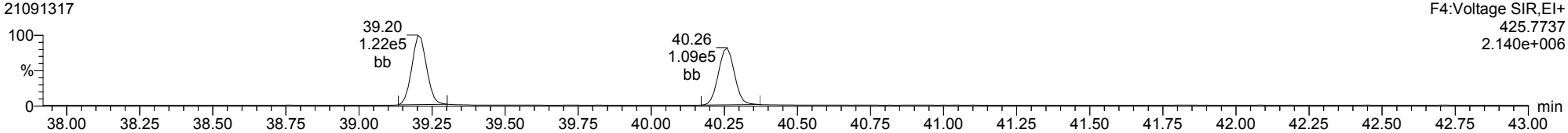


Total-heptadioxins



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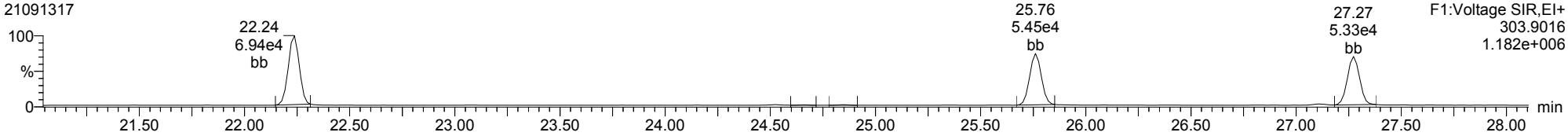
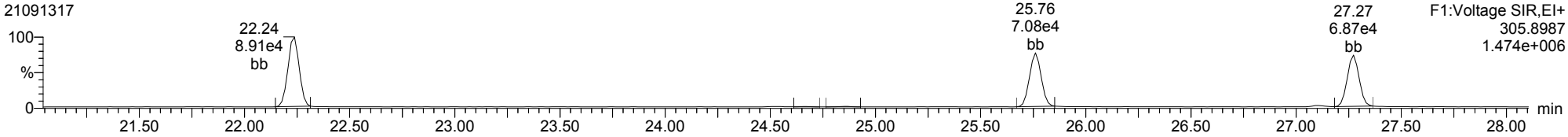
Printed: Tuesday, September 14, 2021 11:17:32 Pacific Daylight Time

ID: CS3Q3, Name: 21091317, Date: 14-Sep-2021, Time: 00:57:28, Conditions: AUTOSPEC01, User: pk

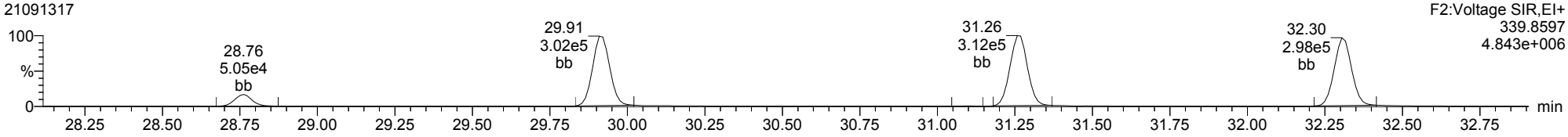
Total-tetrafurans



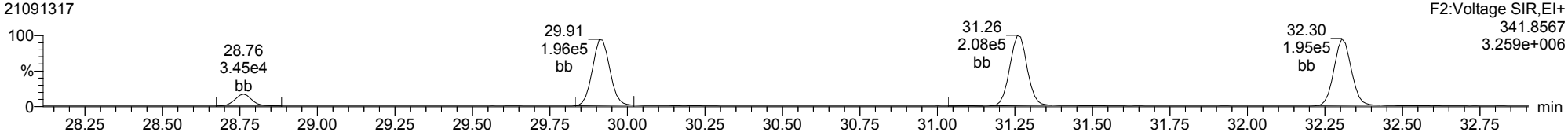
Total-tetrafurans



Total-pentafurans



Total-pentafurans



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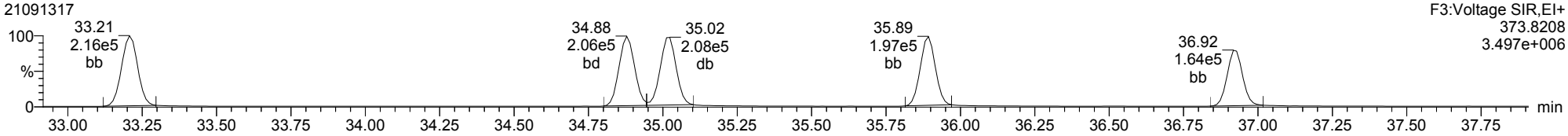
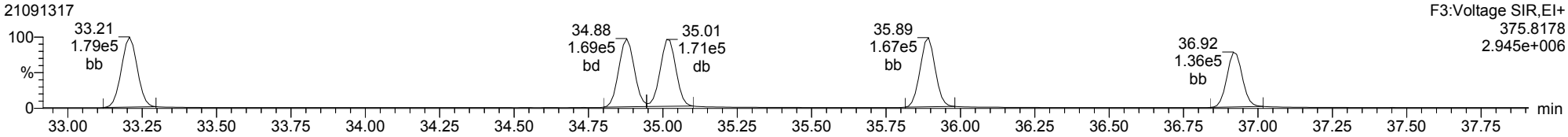
ID: CS3Q3, Name: 21091317, Date: 14-Sep-2021, Time: 00:57:28, Conditions: AUTOSPEC01, User: pk

Total-hexafurans



Total-hexafurans



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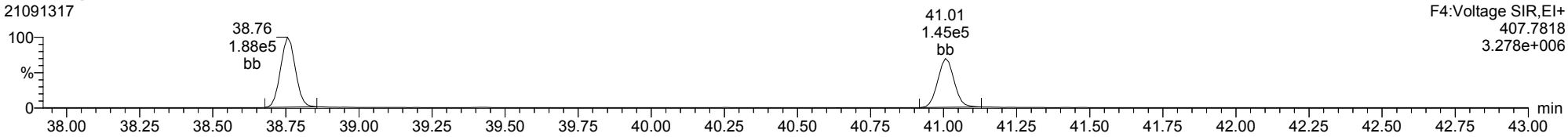

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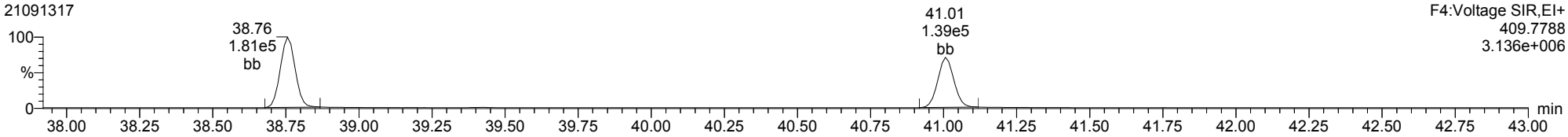

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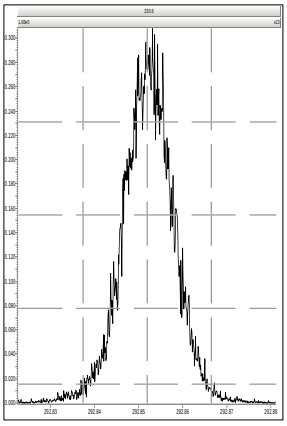
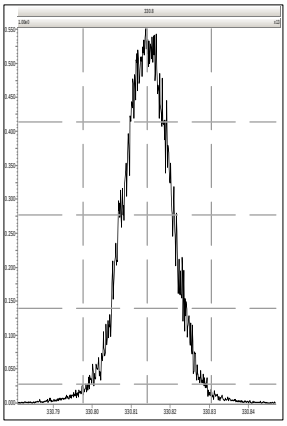
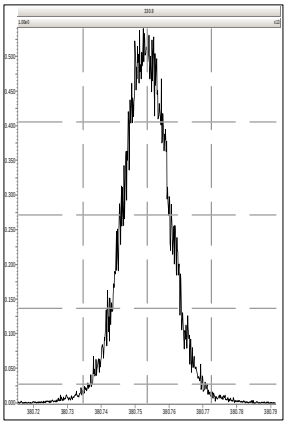
M 292.9824 R 11160



M 330.9792 R 11312



M 380.9760 R 11848



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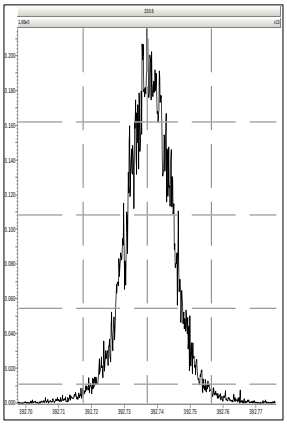
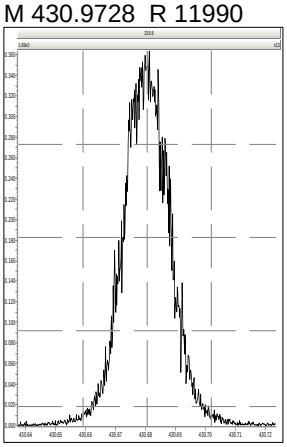
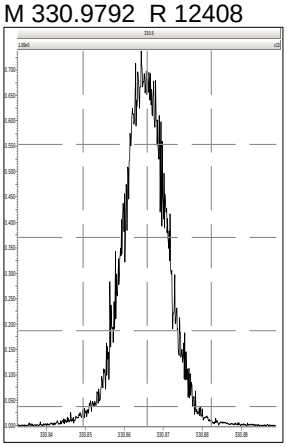


M 430.9728 R 11990



M 330.9792 R 12408



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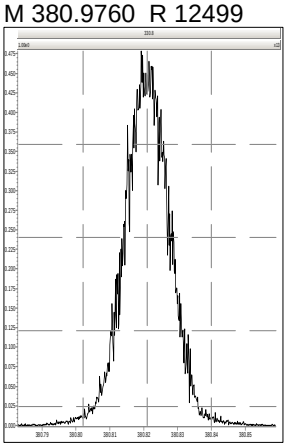

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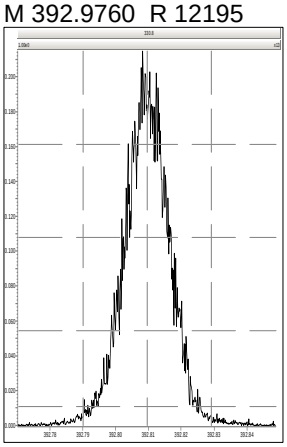

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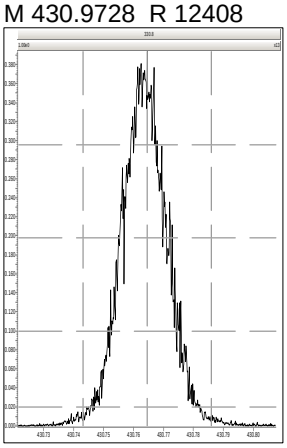
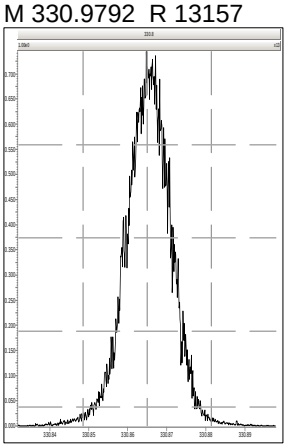


M 330.9792 R 13157



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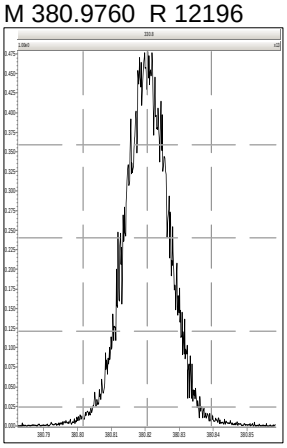

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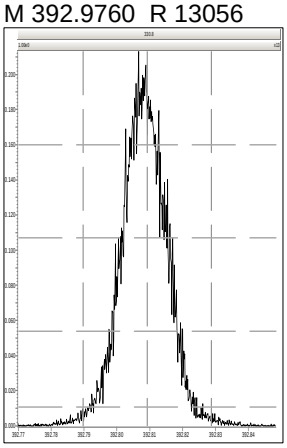

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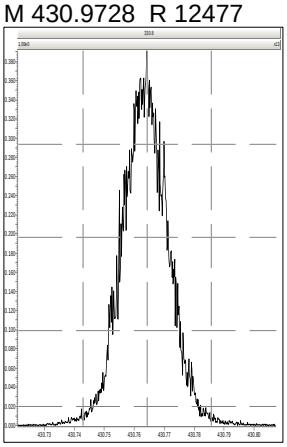

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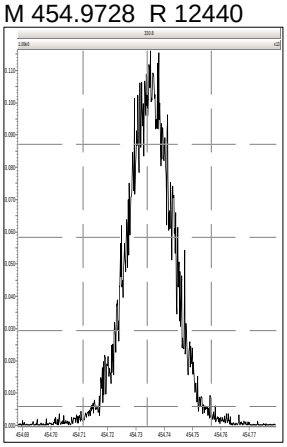

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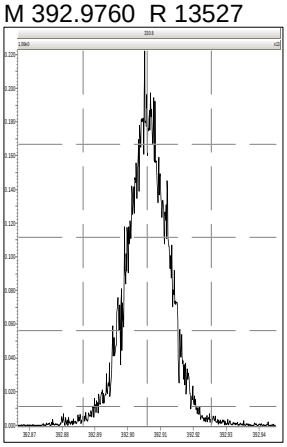
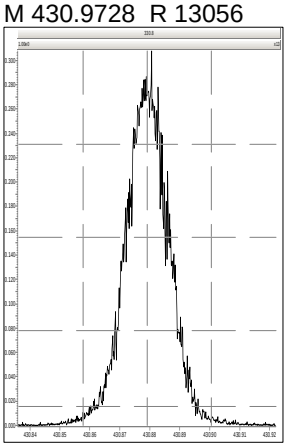


M 430.9728 R 13056



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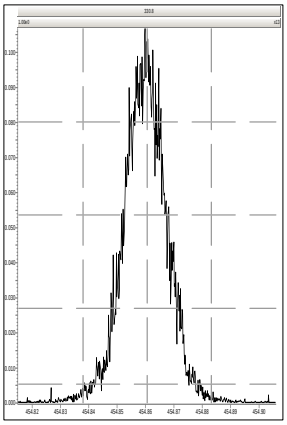
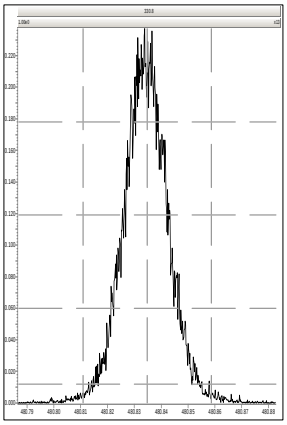
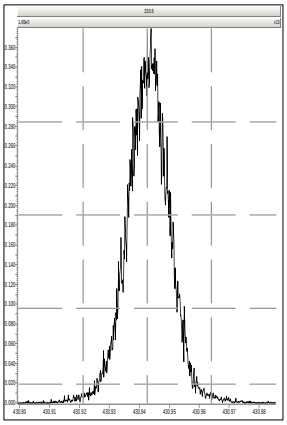
M 454.9728 R 14189



M 480.9696 R 12286



M 430.9728 R 13624



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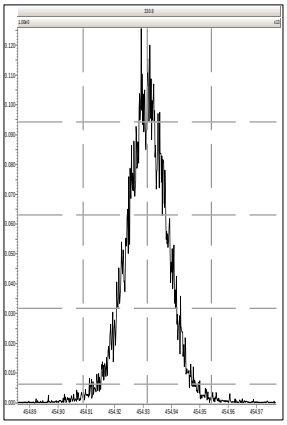

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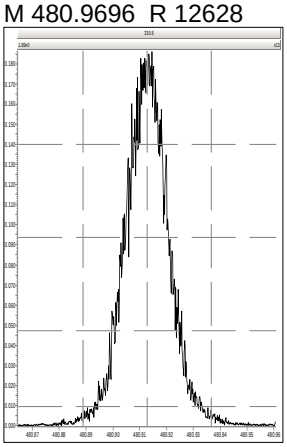

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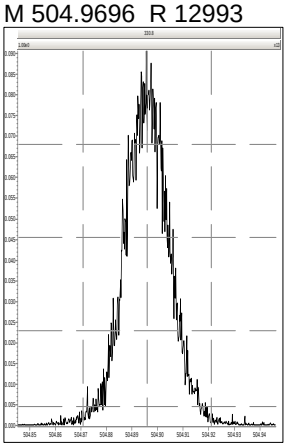

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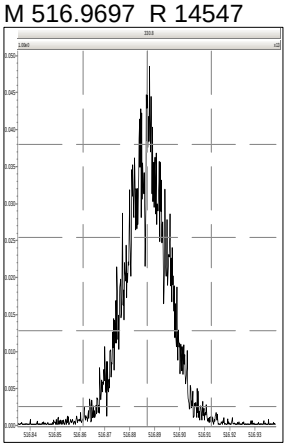
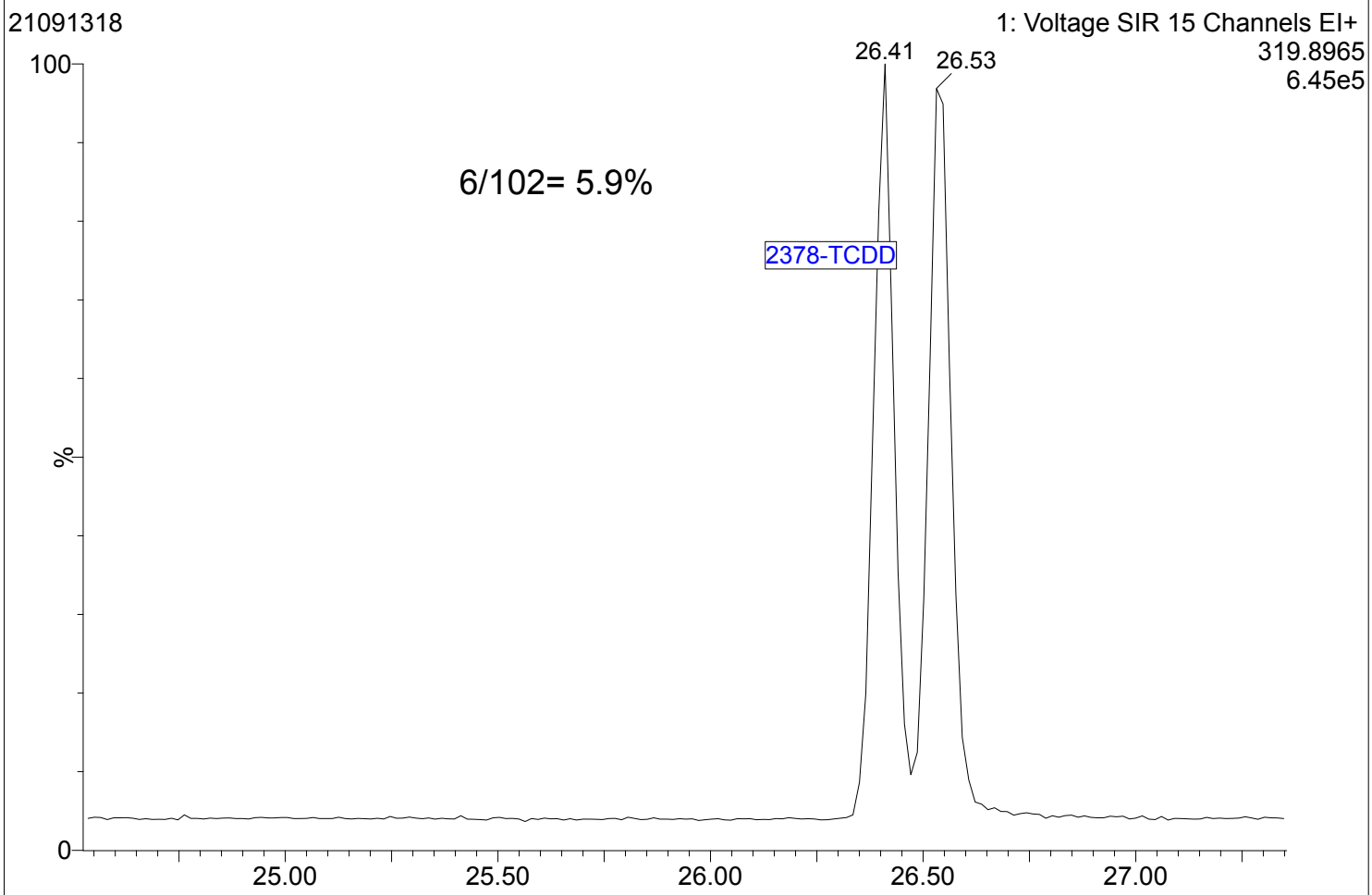
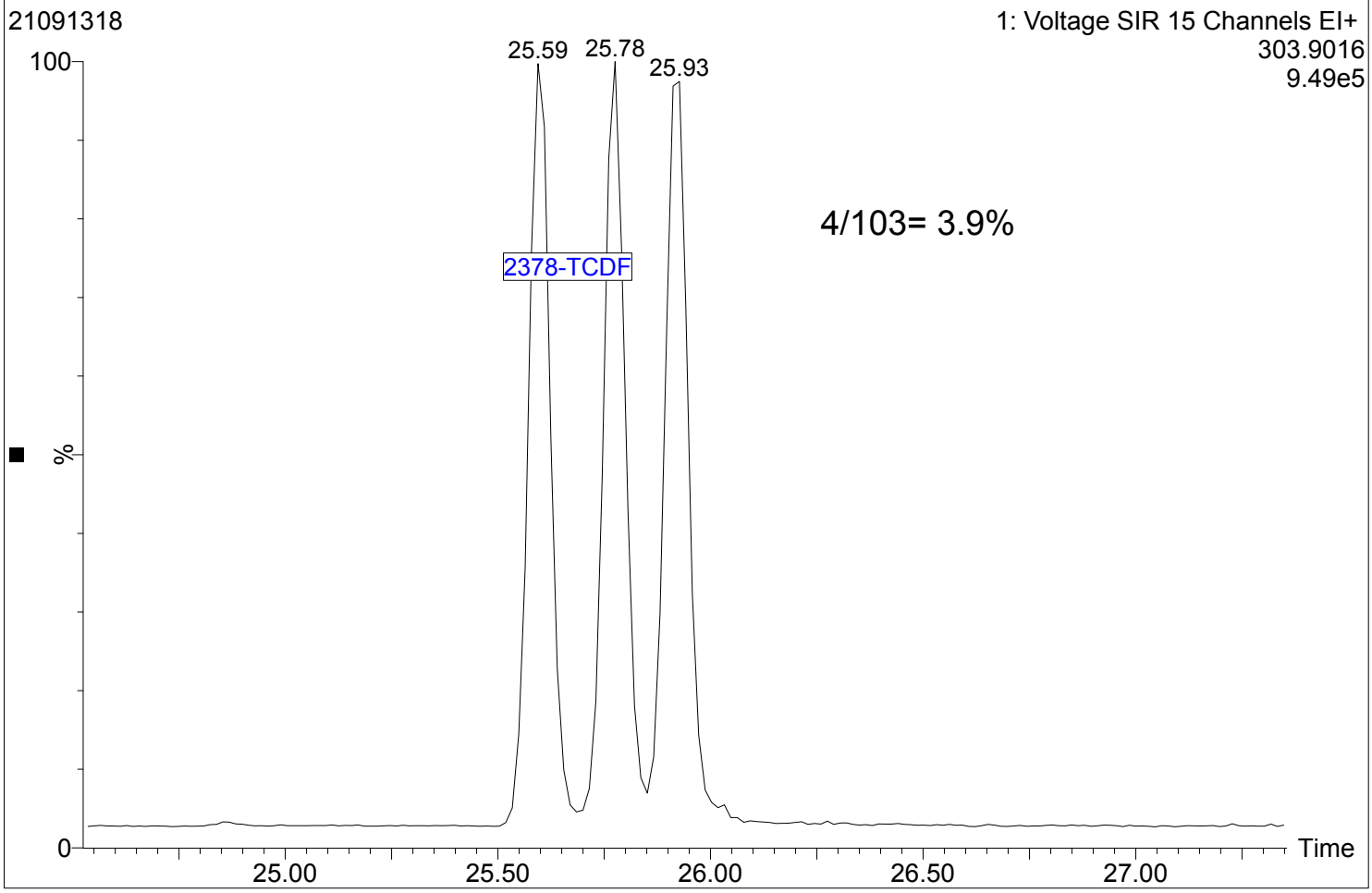



21091318
1: Voltage SIR 15 Channels EI+
319.8965
6.45e5
26.41
26.53
6/102= 5.9%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21091318
1: Voltage SIR 15 Channels EI+
303.9016
9.49e5
25.59
25.78
25.93
4/103= 3.9%
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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21091328A	Calibration Date:	08/11/2021
Sequence:	SJI0191	Injection Date:	09/14/21
Lab Sample ID:	SJI0191-CCV2	Injection Time:	10:03
Sequence Name:	CS3Q4		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.58	1.1075930	1.0614050		-4.2	+/-16
2,3,7,8-TCDD	A	10.000	10.7	0.9202875	0.9840905		6.9	+/-22
1,2,3,7,8-PeCDF	A	50.000	47.7	1.0148670	0.9689803		-4.5	+/-18
2,3,4,7,8-PeCDF	A	50.000	46.6	1.1255490	1.0499760		-6.7	+/-18
1,2,3,7,8-PeCDD	A	50.000	54.0	0.9953229	1.0758960		8.1	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.3	1.0168930	0.9628050		-5.3	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	46.9	1.0368310	0.9721603		-6.2	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	45.9	1.0524660	0.9668221		-8.1	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	45.6	1.0301540	0.9392397		-8.8	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.2	1.0273630	0.9704404		-5.5	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	49.7	1.0089800	1.0034200		-0.6	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	48.3	0.9504865	0.9183810		-3.4	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	49.0	1.3273500	1.3007570		-2.0	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	49.7	1.2833380	1.2754410		-0.6	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	53.5	1.0680880	1.1436030		7.1	+/-14
OCDF	A	100.00	87.3	1.4469010	1.2629180		-12.7	+/-37
OCDD	A	100.00	96.0	1.1808230	1.1336790		-4.0	+/-21
13C12-2,3,7,8-TCDF	A	100.00	119	1.4265830	1.6997416		19.1	+/-29
13C12-2,3,7,8-TCDD	A	100.00	106	1.1164910	1.1801444		5.7	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	114	1.2973130	1.4732288		13.6	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	113	1.2364800	1.3984402		13.1	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	104	0.7319833	0.7645939		4.5	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	93.4	1.2424560	1.1606991		-6.6	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	87.5	1.3434760	1.1749436		-12.5	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	90.6	1.2148550	1.1011596		-9.4	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	88.2	1.0076370	0.8886858		-11.8	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	98.2	0.9598233	0.9423883		-1.8	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	93.7	1.0413850	0.9760866		-6.3	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	88.7	0.9264704	0.8219847		-11.3	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	83.0	0.7579160	0.6291364		-17.0	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	83.1	0.6324476	0.5254225		-16.9	+/-28
13C12-OCDD	A	200.00	174	0.5037432	0.4377135		-13.1	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.2	1.0835930	1.1005919		1.6	

* Values outside of QC limits

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Printed: Wednesday, September 15, 2021 14:44:29 Pacific Daylight Time

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

ID: CS3Q4, Name: 21091328, Date: 14-Sep-2021, Time: 10:03:06, 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	3.830e4	4.977e4	1.108	0.770	0.770	537	977	5.88e5	7.84e5	1095.5	802.5	NO	bb	bb	9.583
12378-PeCDF	29.920	1.001	2.135e5	1.349e5	1.015	1.583	1.550	1924	1316	3.27e6	2.08e6	1697.6	1577.8	NO	bd	bb	47.739
23478-PeCDF	31.258	1.000	2.163e5	1.421e5	1.126	1.522	1.550	1924	1316	3.38e6	2.21e6	1756.6	1681.5	NO	bb	bb	46.643
123478-HxCDF	34.879	1.000	1.434e5	1.164e5	1.017	1.232	1.240	1342	1093	2.31e6	1.90e6	1723.8	1737.9	NO	bd	bd	47.341
234678-HxCDF	35.892	1.001	1.361e5	1.115e5	1.052	1.220	1.240	1342	1093	2.29e6	1.85e6	1703.3	1692.5	NO	bb	bb	45.931
123678-HxCDF	35.023	1.001	1.472e5	1.184e5	1.037	1.242	1.240	1342	1093	2.28e6	1.88e6	1700.6	1723.1	NO	db	db	46.881
123789-HxCDF	36.929	1.001	1.052e5	8.891e4	1.030	1.183	1.240	1342	1093	1.72e6	1.47e6	1279.5	1347.0	NO	bb	bb	45.587
1234678-HpCDF	38.756	1.000	1.267e5	1.219e5	1.327	1.039	1.050	1090	1078	2.07e6	2.00e6	1898.5	1854.9	NO	bb	bb	48.998
1234789-HpCDF	41.006	1.000	9.274e4	9.384e4	1.283	0.988	1.050	1090	1078	1.38e6	1.34e6	1266.2	1247.2	NO	bb	bd	49.692
OCDF	45.243	1.006	1.212e5	1.359e5	1.447	0.892	0.890	1085	682	1.50e6	1.70e6	1382.5	2499.0	NO	bb	bb	87.284
2378-TCDD	26.396	1.001	2.473e4	3.196e4	0.920	0.774	0.770	869	660	3.78e5	4.98e5	435.7	754.7	NO	bb	bb	10.693
12378-PeCDD	31.503	1.000	1.254e5	7.534e4	0.995	1.665	1.550	1019	1055	2.00e6	1.21e6	1960.0	1151.4	NO	bb	bb	54.048
123478-HxCDD	35.993	1.000	1.175e5	9.517e4	1.027	1.234	1.240	1316	1615	1.99e6	1.60e6	1513.3	990.9	NO	bd	bd	47.230
123678-HxCDD	36.115	1.001	1.228e5	1.049e5	1.009	1.171	1.240	1316	1615	1.94e6	1.61e6	1471.9	999.3	NO	db	dd	49.724
123789-HxCDD	36.505	1.011	1.128e5	9.204e4	0.950	1.225	1.240	1316	1615	1.88e6	1.54e6	1429.5	955.6	NO	bb	bb	48.311
1234678-HpCDD	40.260	1.001	7.153e4	6.819e4	1.068	1.049	1.050	957	966	1.17e6	1.10e6	1219.8	1135.5	NO	bb	bb	53.535
OCDD	44.996	1.000	1.108e5	1.200e5	1.181	0.923	0.890	1043	1190	1.40e6	1.51e6	1339.3	1265.4	NO	bb	bb	96.007
13C-2378-TCDF	25.746	1.007	3.734e5	4.564e5	1.427	0.818	0.770	1435	1183	5.72e6	7.00e6	3986.7	5914.5	NO	bb	bb	119.148
13C-12378-PeCDF	29.898	1.170	4.419e5	2.772e5	1.297	1.594	1.550	1680	1634	6.86e6	4.26e6	4081.4	2607.2	NO	bb	bb	113.560
13C-23478-PeCDF	31.247	1.222	4.213e5	2.614e5	1.236	1.612	1.550	1680	1634	6.50e6	4.06e6	3866.2	2482.7	NO	bb	bb	113.098
13C-123478-HxCDF	34.868	0.955	1.819e5	3.579e5	1.242	0.508	0.510	1225	1840	2.81e6	5.53e6	2292.0	3003.0	NO	bd	bd	93.420
13C-123678-HxCDF	35.001	0.959	1.845e5	3.619e5	1.343	0.510	0.510	1225	1840	2.92e6	5.73e6	2381.3	3114.1	NO	db	db	87.455
13C-234678-HxCDF	35.870	0.983	1.741e5	3.380e5	1.215	0.515	0.510	1225	1840	2.80e6	5.46e6	2284.1	2969.0	NO	bb	bb	90.641
13C-123789-HxCDF	36.906	1.011	1.396e5	2.737e5	1.008	0.510	0.510	1225	1840	2.41e6	4.76e6	1966.9	2587.8	NO	bb	bb	88.195
13C-1234678-HpCDF	38.745	1.062	1.204e5	2.619e5	0.926	0.460	0.440	1048	1622	2.00e6	4.36e6	1910.7	2685.6	NO	bb	bb	88.722
13C-1234789-HpCDF	40.995	1.123	8.866e4	2.039e5	0.758	0.435	0.440	1048	1622	1.31e6	2.90e6	1246.7	1789.2	NO	bb	bd	83.009
13C-1234-TCDD	25.564	0.000	2.120e5	2.762e5	1.000	0.768	0.770	1343	947	3.34e6	4.32e6	2486.9	4564.3	NO	bb	bb	100.000
13C-2378-TCDD	26.366	1.031	2.491e5	3.270e5	1.116	0.762	0.770	1343	947	3.73e6	4.88e6	2776.3	5156.9	NO	bb	bb	105.701
13C-12378-PeCDD	31.492	1.232	2.281e5	1.451e5	0.732	1.572	1.550	878	787	3.49e6	2.24e6	3974.0	2848.8	NO	bb	bb	104.455
13C-123478-HxCDD	35.981	0.986	2.441e5	1.941e5	0.960	1.258	1.240	1614	1553	4.10e6	3.25e6	2541.8	2093.3	NO	bd	bd	98.184
13C-123678-HxCDD	36.093	0.989	2.514e5	2.026e5	1.041	1.241	1.240	1614	1553	4.13e6	3.35e6	2557.9	2156.7	NO	db	db	93.730
13C-1234678-HpCDD	40.238	1.103	1.253e5	1.191e5	0.632	1.052	1.050	757	901	1.96e6	1.84e6	2590.1	2047.7	NO	bb	bb	83.078
13C-OCDD	44.978	1.232	1.951e5	2.120e5	0.504	0.920	0.890	962	747	2.44e6	2.64e6	2530.5	3539.6	NO	bb	bb	173.784
13C-123789-HxCDD	36.494	0.000	2.568e5	2.083e5	1.000	1.233	1.240	1614	1553	4.14e6	3.36e6	2565.6	2161.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	5.373e4		1.084			792		8.06e5		1018.2			bb		10.157

Dataset: T:\Autospec\Processed Data Batch\210913IH2.qld
Last Altered: Wednesday, September 15, 2021 14:31:28 Pacific Daylight Time
Printed: Wednesday, September 15, 2021 14:44:29 Pacific Daylight Time

ID: CS3Q4, Name: 21091328, Date: 14-Sep-2021, Time: 10:03:06, 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	4.667e4	6.141e4	1.425	0.760	0.770	537	977	7.20e5	9.57e5	1341.1	979.3	NO	bb	bb	9.140
1289-TCDF	27.273	1.059	3.610e4	4.517e4	1.043	0.799	0.770	537	977	5.59e5	6.97e5	1041.7	713.3	NO	bb	bb	9.391
13468-PECDF	27.091	0.906	2.745e5	1.811e5	1.376	1.515	1.550	606	589	4.17e6	2.77e6	6879.1	4703.7	NO	bb	bb	46.034
12389-PECDF	32.305	1.080	1.978e5	1.336e5	1.000	1.480	1.550	1924	1316	2.99e6	1.95e6	1554.7	1482.5	NO	bb	bd	46.099
123468-HXCDF	33.208	0.952	1.450e5	1.234e5	1.087	1.175	1.240	1342	1093	2.27e6	1.92e6	1691.6	1757.0	NO	bb	bb	45.758
1368-TCDD	23.508	0.892	2.485e4	3.108e4	0.923	0.799	0.770	869	660	4.01e5	4.95e5	461.8	750.1	NO	bb	bb	10.516
1289-TCDD	27.001	1.024	2.167e4	2.663e4	0.794	0.814	0.770	869	660	3.14e5	4.00e5	361.8	606.0	NO	bb	bb	10.559
12479-PECDD	28.773	0.914	2.247e5	1.377e5	1.843	1.631	1.550	1019	1055	2.19e6	1.34e6	2153.6	1268.4	NO	bb	bb	52.679
12389-PECDD	31.915	1.013	1.451e5	9.042e4	1.154	1.605	1.550	1019	1055	2.27e6	1.41e6	2224.5	1333.6	NO	bb	bb	54.700
124679-HXCDD	33.987	0.945	1.302e5	1.059e5	1.125	1.230	1.240	1316	1615	2.10e6	1.69e6	1595.4	1046.5	NO	bb	bb	47.891
1234679-HPCDD	39.213	0.975	8.122e4	7.767e4	1.211	1.046	1.050	957	966	1.37e6	1.28e6	1426.8	1328.5	NO	bb	bb	53.701
Total-tetrafurans			1.220e5		1.192			537		1.88e6							28.331
Total-penta1			2.745e5					606		4.17e6							46.034
Total-pentafurans			6.633e5		1.047			1924		1.02e7							148.527
Total-hexafurans			6.768e5		1.045			1342		1.09e7							231.498
Total-heptafurans			2.194e5		1.305			1090		3.45e6							98.691
Total-Furans			2.077e6		1.158			537		3.21e7							640.365
Total-tetradioxins			1.216e5		0.879			869		1.68e6							53.878
Total-pentadioxins			4.952e5		1.331			1019		6.46e6							161.427
Total-hexadioxins			4.836e5		1.028			1316		7.91e6							193.257
Total-heptadioxins			1.527e5		1.140			957		2.53e6							107.236
Total-Dioxins			1.364e6		1.092			869		2.00e7							611.805
Total-TEQ			3.441e6					869		5.21e7							1252.170
FUNCTION1 PFK			6.640e5					227146		1.25e7							
FUNCTION2 PFK			4.195e5					114560		6.15e6							0.000
FUNCTION3 PFK			9.144e4					187537		2.83e6							0.000
FUNCTION4 PFK			3.724e4					135842		1.36e6							
FUNCTION5 PFK			5.878e4					101246		2.09e6							
FUNCTION1 HXCD...			2.371e2					550		4.02e3							0.000
FUNCTION1 HPCD...			3.054e2					426		3.69e3							0.000
FUNCTION2 HPCD...			2.012e2					539		3.35e3							0.000
FUNCTION3 OCDPE			0.000e0					437		0.00e0							
FUNCTION4 NCDPE			0.000e0					506		0.00e0							
FUNCTION5 DCDPE			8.731e1					521		1.21e3							0.000

Dataset: T:\Autospec\Processed Data Batch\210913IH2.qld
Last Altered: Wednesday, September 15, 2021 14:31:28 Pacific Daylight Time
Printed: Wednesday, September 15, 2021 14:44:29 Pacific Daylight Time

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

ID: CS3Q4, Name: 21091328, Date: 14-Sep-2021, Time: 10:03:06, 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	3.610e4	4.517e4	1.043	0.80	0.77	1041.7	YES	NO	bb	bb	9.391
2	Total-tetrafurans	27.11	4.767e2	6.261e2	1.192	0.76	0.77	15.5	YES	NO	bb	bb	0.112
3	2378-TCDF	25.76	3.830e4	4.977e4	1.108	0.77	0.77	1095.5	YES	NO	bb	bb	9.583
4	Total-tetrafurans	24.52	4.874e2	5.558e2	1.192	0.88	0.77	13.9	YES	NO	bd	bd	0.105
5	1368-TCDF	22.24	4.667e4	6.141e4	1.425	0.76	0.77	1341.1	YES	NO	bb	bb	9.140

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.09	2.745e5	1.811e5	1.376	1.52	1.55	6879.1	YES	NO	bb	bb	46.034

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.92	2.135e5	1.349e5	1.015	1.58	1.55	1697.6	YES	NO	bd	bb	47.739
2	Total-pentafurans	28.76	3.571e4	2.332e4	1.047	1.53	1.55	291.9	YES	NO	bb	bb	8.046
3	12389-PECDF	32.30	1.978e5	1.336e5	1.000	1.48	1.55	1554.7	YES	NO	bb	bd	46.099
4	23478-PeCDF	31.26	2.163e5	1.421e5	1.126	1.52	1.55	1756.6	YES	NO	bb	bb	46.643

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.93	1.052e5	8.891e4	1.030	1.18	1.24	1279.5	YES	NO	bb	bb	45.587
2	234678-HxCDF	35.89	1.361e5	1.115e5	1.052	1.22	1.24	1703.3	YES	NO	bb	bb	45.931
3	123678-HxCDF	35.02	1.472e5	1.184e5	1.037	1.24	1.24	1700.6	YES	NO	db	db	46.881
4	123478-HxCDF	34.88	1.434e5	1.164e5	1.017	1.23	1.24	1723.8	YES	NO	bd	bd	47.341
5	123468-HXCDF	33.21	1.450e5	1.234e5	1.087	1.18	1.24	1691.6	YES	NO	bb	bb	45.758

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.01	9.274e4	9.384e4	1.283	0.99	1.05	1266.2	YES	NO	bb	bd	49.692
2	1234678-HpCDF	38.76	1.267e5	1.219e5	1.327	1.04	1.05	1898.5	YES	NO	bb	bb	48.998

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.610e4	4.517e4	1.043	0.80	0.77	1041.7	YES	NO	bb	bb	9.391
2	Total-tetrafurans	27.11	4.767e2	6.261e2	1.192	0.76	0.77	15.5	YES	NO	bb	bb	0.112
3	2378-TCDF	25.76	3.830e4	4.977e4	1.108	0.77	0.77	1095.5	YES	NO	bb	bb	9.583
4	Total-tetrafurans	24.52	4.874e2	5.558e2	1.192	0.88	0.77	13.9	YES	NO	bd	bd	0.105
5	1368-TCDF	22.24	4.667e4	6.141e4	1.425	0.76	0.77	1341.1	YES	NO	bb	bb	9.140
6	12378-PeCDF	29.92	2.135e5	1.349e5	1.015	1.58	1.55	1697.6	YES	NO	bd	bb	47.739
7	Total-pentafurans	28.76	3.571e4	2.332e4	1.047	1.53	1.55	291.9	YES	NO	bb	bb	8.046
8	12389-PECDF	32.30	1.978e5	1.336e5	1.000	1.48	1.55	1554.7	YES	NO	bb	bd	46.099
9	23478-PeCDF	31.26	2.163e5	1.421e5	1.126	1.52	1.55	1756.6	YES	NO	bb	bb	46.643
10	123789-HxCDF	36.93	1.052e5	8.891e4	1.030	1.18	1.24	1279.5	YES	NO	bb	bb	45.587
11	234678-HxCDF	35.89	1.361e5	1.115e5	1.052	1.22	1.24	1703.3	YES	NO	bb	bb	45.931
12	123678-HxCDF	35.02	1.472e5	1.184e5	1.037	1.24	1.24	1700.6	YES	NO	db	db	46.881
13	123478-HxCDF	34.88	1.434e5	1.164e5	1.017	1.23	1.24	1723.8	YES	NO	bd	bd	47.341
14	123468-HXCDF	33.21	1.450e5	1.234e5	1.087	1.18	1.24	1691.6	YES	NO	bb	bb	45.758
15	1234789-HpCDF	41.01	9.274e4	9.384e4	1.283	0.99	1.05	1266.2	YES	NO	bb	bd	49.692
16	1234678-HpCDF	38.76	1.267e5	1.219e5	1.327	1.04	1.05	1898.5	YES	NO	bb	bb	48.998
17	OCDF	45.24	1.212e5	1.359e5	1.447	0.89	0.89	1382.5	YES	NO	bb	bb	87.284
18	13468-PECDF	27.09	2.745e5	1.811e5	1.376	1.52	1.55	6879.1	YES	NO	bb	bb	46.034

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.58	1.175e4	1.474e4	0.879	0.80	0.77	206.7	YES	NO	bb	bb	5.230
2	1368-TCDD	23.51	2.485e4	3.108e4	0.923	0.80	0.77	461.8	YES	NO	bb	bb	10.516
3	1289-TCDD	27.00	2.167e4	2.663e4	0.794	0.81	0.77	361.8	YES	NO	bb	bb	10.559
4	2378-TCDD	26.40	2.473e4	3.196e4	0.920	0.77	0.77	435.7	YES	NO	bb	bb	10.693
5	Total-tetradioxins	26.08	3.856e4	4.693e4	0.879	0.82	0.77	472.4	YES	NO	bb	bb	16.879

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.91	1.451e5	9.042e4	1.154	1.60	1.55	2224.5	YES	NO	bb	bb	54.700
2	12378-PeCDD	31.50	1.254e5	7.534e4	0.995	1.66	1.55	1960.0	YES	NO	bb	bb	54.048
3	12479-PECDD	28.77	2.247e5	1.377e5	1.843	1.63	1.55	2153.6	YES	NO	bb	bb	52.679

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.51	1.128e5	9.204e4	0.950	1.23	1.24	1429.5	YES	NO	bb	bb	48.311
2	123678-HxCDD	36.12	1.228e5	1.049e5	1.009	1.17	1.24	1471.9	YES	NO	db	dd	49.724
3	123478-HxCDD	35.99	1.175e5	9.517e4	1.027	1.23	1.24	1513.3	YES	NO	bd	bd	47.230
4	Total-hexadioxins	34.77	2.541e2	2.069e2	1.028	1.23	1.24	2.7	NO	NO	bd	bb	0.101
5	124679-HXCDD	33.99	1.302e5	1.059e5	1.125	1.23	1.24	1595.4	YES	NO	bb	bb	47.891

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.26	7.153e4	6.819e4	1.068	1.05	1.05	1219.8	YES	NO	bb	bb	53.535
2	1234679-HPCDD	39.21	8.122e4	7.767e4	1.211	1.05	1.05	1426.8	YES	NO	bb	bb	53.701

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	1.175e4	1.474e4	0.879	0.80	0.77	206.7	YES	NO	bb	bb	5.230
2	1368-TCDD	23.51	2.485e4	3.108e4	0.923	0.80	0.77	461.8	YES	NO	bb	bb	10.516
3	1289-TCDD	27.00	2.167e4	2.663e4	0.794	0.81	0.77	361.8	YES	NO	bb	bb	10.559
4	2378-TCDD	26.40	2.473e4	3.196e4	0.920	0.77	0.77	435.7	YES	NO	bb	bb	10.693
5	Total-tetradioxins	26.08	3.856e4	4.693e4	0.879	0.82	0.77	472.4	YES	NO	bb	bb	16.879
6	12389-PECDD	31.91	1.451e5	9.042e4	1.154	1.60	1.55	2224.5	YES	NO	bb	bb	54.700
7	12378-PeCDD	31.50	1.254e5	7.534e4	0.995	1.66	1.55	1960.0	YES	NO	bb	bb	54.048
8	12479-PECDD	28.77	2.247e5	1.377e5	1.843	1.63	1.55	2153.6	YES	NO	bb	bb	52.679
9	123789-HxCDD	36.51	1.128e5	9.204e4	0.950	1.23	1.24	1429.5	YES	NO	bb	bb	48.311
10	123678-HxCDD	36.12	1.228e5	1.049e5	1.009	1.17	1.24	1471.9	YES	NO	db	dd	49.724
11	123478-HxCDD	35.99	1.175e5	9.517e4	1.027	1.23	1.24	1513.3	YES	NO	bd	bd	47.230
12	Total-hexadioxins	34.77	2.541e2	2.069e2	1.028	1.23	1.24	2.7	NO	NO	bd	bb	0.101
13	124679-HXCDD	33.99	1.302e5	1.059e5	1.125	1.23	1.24	1595.4	YES	NO	bb	bb	47.891
14	1234678-HpCDD	40.26	7.153e4	6.819e4	1.068	1.05	1.05	1219.8	YES	NO	bb	bb	53.535
15	1234679-HPCDD	39.21	8.122e4	7.767e4	1.211	1.05	1.05	1426.8	YES	NO	bb	bb	53.701
16	OCDD	45.00	1.108e5	1.200e5	1.181	0.92	0.89	1339.3	YES	NO	bb	bb	96.007

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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	27.27	3.610e4	4.517e4	1.043	0.80	0.77	1041.7	YES	NO	bb	bb	9.391
2	Total-tetrafurans	27.11	4.767e2	6.261e2	1.192	0.76	0.77	15.5	YES	NO	bb	bb	0.112
3	2378-TCDF	25.76	3.830e4	4.977e4	1.108	0.77	0.77	1095.5	YES	NO	bb	bb	9.583
4	Total-tetrafurans	24.52	4.874e2	5.558e2	1.192	0.88	0.77	13.9	YES	NO	bd	bd	0.105
5	1368-TCDF	22.24	4.667e4	6.141e4	1.425	0.76	0.77	1341.1	YES	NO	bb	bb	9.140
6	12378-PeCDF	29.92	2.135e5	1.349e5	1.015	1.58	1.55	1697.6	YES	NO	bd	bb	47.739
7	Total-pentafurans	28.76	3.571e4	2.332e4	1.047	1.53	1.55	291.9	YES	NO	bb	bb	8.046
8	12389-PECDF	32.30	1.978e5	1.336e5	1.000	1.48	1.55	1554.7	YES	NO	bb	bd	46.099
9	23478-PeCDF	31.26	2.163e5	1.421e5	1.126	1.52	1.55	1756.6	YES	NO	bb	bb	46.643
10	123789-HxCDF	36.93	1.052e5	8.891e4	1.030	1.18	1.24	1279.5	YES	NO	bb	bb	45.587
11	234678-HxCDF	35.89	1.361e5	1.115e5	1.052	1.22	1.24	1703.3	YES	NO	bb	bb	45.931
12	123678-HxCDF	35.02	1.472e5	1.184e5	1.037	1.24	1.24	1700.6	YES	NO	db	db	46.881
13	123478-HxCDF	34.88	1.434e5	1.164e5	1.017	1.23	1.24	1723.8	YES	NO	bd	bd	47.341
14	123468-HXCDF	33.21	1.450e5	1.234e5	1.087	1.18	1.24	1691.6	YES	NO	bb	bb	45.758
15	1234789-HpCDF	41.01	9.274e4	9.384e4	1.283	0.99	1.05	1266.2	YES	NO	bb	bd	49.692
16	1234678-HpCDF	38.76	1.267e5	1.219e5	1.327	1.04	1.05	1898.5	YES	NO	bb	bb	48.998
17	OCDF	45.24	1.212e5	1.359e5	1.447	0.89	0.89	1382.5	YES	NO	bb	bb	87.284
18	13468-PECDF	27.09	2.745e5	1.811e5	1.376	1.52	1.55	6879.1	YES	NO	bb	bb	46.034
19	Total-tetradioxins	25.58	1.175e4	1.474e4	0.879	0.80	0.77	206.7	YES	NO	bb	bb	5.230
20	1368-TCDD	23.51	2.485e4	3.108e4	0.923	0.80	0.77	461.8	YES	NO	bb	bb	10.516
21	1289-TCDD	27.00	2.167e4	2.663e4	0.794	0.81	0.77	361.8	YES	NO	bb	bb	10.559
22	2378-TCDD	26.40	2.473e4	3.196e4	0.920	0.77	0.77	435.7	YES	NO	bb	bb	10.693
23	Total-tetradioxins	26.08	3.856e4	4.693e4	0.879	0.82	0.77	472.4	YES	NO	bb	bb	16.879
24	12389-PECDD	31.91	1.451e5	9.042e4	1.154	1.60	1.55	2224.5	YES	NO	bb	bb	54.700
25	12378-PeCDD	31.50	1.254e5	7.534e4	0.995	1.66	1.55	1960.0	YES	NO	bb	bb	54.048
26	12479-PECDD	28.77	2.247e5	1.377e5	1.843	1.63	1.55	2153.6	YES	NO	bb	bb	52.679
27	123789-HxCDD	36.51	1.128e5	9.204e4	0.950	1.23	1.24	1429.5	YES	NO	bb	bb	48.311
28	123678-HxCDD	36.12	1.228e5	1.049e5	1.009	1.17	1.24	1471.9	YES	NO	db	dd	49.724
29	123478-HxCDD	35.99	1.175e5	9.517e4	1.027	1.23	1.24	1513.3	YES	NO	bd	bd	47.230
30	Total-hexadioxins	34.77	2.541e2	2.069e2	1.028	1.23	1.24	2.7	NO	NO	bd	bb	0.101
31	124679-HXCDD	33.99	1.302e5	1.059e5	1.125	1.23	1.24	1595.4	YES	NO	bb	bb	47.891
32	1234678-HpCDD	40.26	7.153e4	6.819e4	1.068	1.05	1.05	1219.8	YES	NO	bb	bb	53.535
33	1234679-HPCDD	39.21	8.122e4	7.767e4	1.211	1.05	1.05	1426.8	YES	NO	bb	bb	53.701
34	OCDD	45.00	1.108e5	1.200e5	1.181	0.92	0.89	1339.3	YES	NO	bb	bb	96.007

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.24	1.410e4					2.0	NO		db		
2	FUNCTION1 PFK	21.15	4.211e4					2.1	NO		bd		
3	FUNCTION1 PFK	23.54	2.318e3					0.5	NO		bd		
4	FUNCTION1 PFK	23.19	7.140e3					0.8	NO		bb		
5	FUNCTION1 PFK	22.98	7.670e3					0.8	NO		bb		
6	FUNCTION1 PFK	22.89	1.423e3					0.4	NO		db		
7	FUNCTION1 PFK	22.84	4.614e3					0.6	NO		dd		
8	FUNCTION1 PFK	22.78	4.043e3					0.6	NO		bd		
9	FUNCTION1 PFK	22.60	1.081e4					0.9	NO		db		
10	FUNCTION1 PFK	22.51	2.448e4					1.9	NO		bd		
11	FUNCTION1 PFK	22.42	1.063e3					0.3	NO		bb		
12	FUNCTION1 PFK	22.15	7.457e3					1.0	NO		bb		
13	FUNCTION1 PFK	22.09	6.735e3					0.9	NO		db		
14	FUNCTION1 PFK	22.04	9.774e3					1.1	NO		bd		
15	FUNCTION1 PFK	21.88	1.322e4					1.2	NO		bb		
16	FUNCTION1 PFK	21.56	1.142e3					0.3	NO		bb		
17	FUNCTION1 PFK	21.42	1.876e4					1.6	NO		db		
18	FUNCTION1 PFK	21.38	3.628e4					1.9	NO		bd		
19	FUNCTION1 PFK	25.31	3.876e3					0.5	NO		bb		
20	FUNCTION1 PFK	25.02	1.543e4					1.6	NO		bb		
21	FUNCTION1 PFK	24.88	3.275e3					0.6	NO		bb		
22	FUNCTION1 PFK	24.70	2.704e4					1.2	NO		db		
23	FUNCTION1 PFK	24.54	5.649e3					0.7	NO		bd		
24	FUNCTION1 PFK	24.46	2.022e3					0.5	NO		bb		
25	FUNCTION1 PFK	24.32	7.822e3					1.1	NO		bb		
26	FUNCTION1 PFK	24.26	9.081e3					0.7	NO		db		
27	FUNCTION1 PFK	24.17	7.520e3					0.9	NO		dd		
28	FUNCTION1 PFK	24.13	3.158e3					0.5	NO		dd		
29	FUNCTION1 PFK	24.08	1.682e3					0.4	NO		bd		
30	FUNCTION1 PFK	23.96	5.656e3					0.6	NO		bb		
31	FUNCTION1 PFK	23.89	1.119e4					1.6	NO		db		
32	FUNCTION1 PFK	23.83	2.735e4					2.1	NO		dd		
33	FUNCTION1 PFK	23.75	2.211e4					1.7	NO		bd		
34	FUNCTION1 PFK	23.60	1.613e4					1.3	NO		db		
35	FUNCTION1 PFK	27.53	1.363e4					1.0	NO		bb		
36	FUNCTION1 PFK	27.36	2.837e3					0.4	NO		bb		
37	FUNCTION1 PFK	27.27	1.647e4					1.2	NO		bb		

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	27.11	5.361e4					1.7	NO		db		
39	FUNCTION1 PFK	26.96	1.400e4					1.3	NO		dd		
40	FUNCTION1 PFK	26.89	9.041e3					1.0	NO		dd		
41	FUNCTION1 PFK	26.82	2.569e4					1.9	NO		dd		
42	FUNCTION1 PFK	26.76	1.026e4					1.4	NO		dd		
43	FUNCTION1 PFK	26.56	4.643e4					1.7	NO		dd		
44	FUNCTION1 PFK	26.52	1.477e4					1.4	NO		bd		
45	FUNCTION1 PFK	26.38	2.370e4					1.2	NO		bb		
46	FUNCTION1 PFK	26.15	8.828e3					0.7	NO		bb		
47	FUNCTION1 PFK	25.87	1.070e4					0.8	NO		bb		
48	FUNCTION1 PFK	25.70	2.241e3					0.5	NO		bb		
49	FUNCTION1 PFK	25.64	6.240e3					0.8	NO		bb		
50	FUNCTION1 PFK	25.55	1.741e4					1.6	NO		bb		
51	FUNCTION1 PFK	27.91	1.848e3					0.4	NO		bb		
52	FUNCTION1 PFK	27.83	2.185e3					0.4	NO		bb		
53	FUNCTION1 PFK	27.77	1.933e3					0.6	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.09	1.113e4					3.1	YES		db		0.000
2	FUNCTION2 PFK	32.02	1.608e4					2.4	NO		bd		0.000
3	FUNCTION2 PFK	31.06	1.028e3					0.8	NO		bb		0.000
4	FUNCTION2 PFK	30.79	1.607e4					2.4	NO		bb		0.000
5	FUNCTION2 PFK	30.75	2.883e3					1.3	NO		bb		0.000
6	FUNCTION2 PFK	30.00	8.770e2					0.7	NO		bb		0.000
7	FUNCTION2 PFK	29.21	5.234e3					1.9	NO		bb		0.000
8	FUNCTION2 PFK	29.16	1.272e3					1.0	NO		bb		0.000
9	FUNCTION2 PFK	28.34	9.602e4					9.4	YES		db		0.000
10	FUNCTION2 PFK	28.23	1.435e5					13.8	YES		dd		0.000
11	FUNCTION2 PFK	28.15	1.255e5					16.9	YES		bd		0.000

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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	37.63	4.245e3					1.2	NO		bb		0.000
2	FUNCTION3 PFK	37.39	1.127e3					0.5	NO		bb		0.000
3	FUNCTION3 PFK	37.27	2.621e4					2.8	NO		bb		0.000
4	FUNCTION3 PFK	36.09	8.495e3					1.4	NO		bb		0.000
5	FUNCTION3 PFK	35.81	1.234e3					0.6	NO		bb		0.000
6	FUNCTION3 PFK	35.77	6.334e3					1.4	NO		bb		0.000
7	FUNCTION3 PFK	34.80	3.305e3					0.9	NO		bb		0.000
8	FUNCTION3 PFK	34.62	2.212e4					2.2	NO		bb		0.000
9	FUNCTION3 PFK	34.40	1.157e3					0.6	NO		bb		0.000
10	FUNCTION3 PFK	34.35	6.965e3					1.5	NO		bb		0.000
11	FUNCTION3 PFK	33.06	1.224e3					0.6	NO		db		0.000
12	FUNCTION3 PFK	33.03	9.023e3					1.4	NO		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.33	5.105e3					1.3	NO		bb		
2	FUNCTION4 PFK	39.81	8.834e2					0.6	NO		bb		
3	FUNCTION4 PFK	39.69	3.592e3					1.0	NO		bb		
4	FUNCTION4 PFK	42.49	7.319e2					0.5	NO		bb		
5	FUNCTION4 PFK	42.30	4.763e3					1.3	NO		bb		
6	FUNCTION4 PFK	42.20	7.878e2					0.5	NO		bb		
7	FUNCTION4 PFK	42.01	3.222e3					1.1	NO		bb		
8	FUNCTION4 PFK	41.51	1.667e3					0.8	NO		bb		
9	FUNCTION4 PFK	41.25	1.142e4					1.7	NO		bb		
10	FUNCTION4 PFK	40.67	5.072e3					1.3	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.26	2.225e3					1.1	NO		dd		
2	FUNCTION5 PFK	44.24	7.052e2					0.6	NO		bd		
3	FUNCTION5 PFK	44.09	4.224e2					0.5	NO		bb		
4	FUNCTION5 PFK	43.93	2.713e3					1.4	NO		db		
5	FUNCTION5 PFK	43.90	6.091e3					1.8	NO		bd		
6	FUNCTION5 PFK	43.53	2.190e3					1.0	NO		bb		
7	FUNCTION5 PFK	43.32	4.396e3					1.4	NO		bb		
8	FUNCTION5 PFK	43.13	4.058e2					0.4	NO		bb		
9	FUNCTION5 PFK	45.76	5.221e2					0.6	NO		bb		
10	FUNCTION5 PFK	45.73	2.189e3					1.1	NO		bb		
11	FUNCTION5 PFK	45.64	1.668e3					0.9	NO		bb		
12	FUNCTION5 PFK	45.39	5.115e2					0.5	NO		db		
13	FUNCTION5 PFK	45.36	7.356e2					0.5	NO		bd		
14	FUNCTION5 PFK	45.23	1.693e3					1.0	NO		bb		
15	FUNCTION5 PFK	45.02	6.146e3					1.2	NO		db		
16	FUNCTION5 PFK	44.95	5.183e3					1.2	NO		bd		
17	FUNCTION5 PFK	44.82	1.099e4					2.1	NO		db		
18	FUNCTION5 PFK	44.72	4.458e3					1.2	NO		dd		
19	FUNCTION5 PFK	44.69	2.974e3					1.0	NO		bd		
20	FUNCTION5 PFK	44.32	2.569e3					1.2	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.43	7.643e1					4.7	YES		bb		0.000
2	FUNCTION1 HXCD...	23.33	1.607e2					2.6	NO		bb		0.000

ETHERS2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HPCD...	24.60	7.376e1					2.4	NO		bb		0.000
2	FUNCTION1 HPCD...	23.33	1.070e2					3.1	YES		bb		0.000
3	FUNCTION1 HPCD...	21.09	1.246e2					3.2	YES		bb		0.000

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.10	2.012e2					6.2	YES		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	45.39	8.731e1					2.3	NO		bb		0.000

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

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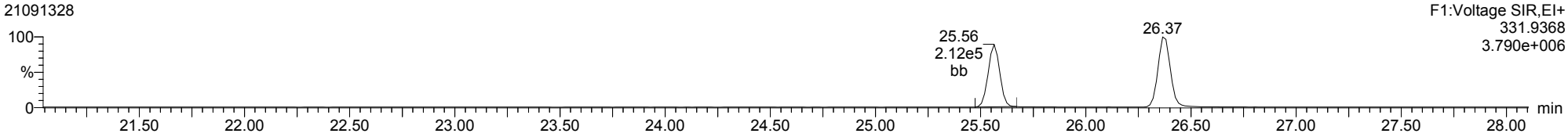
13C-1234-TCDD



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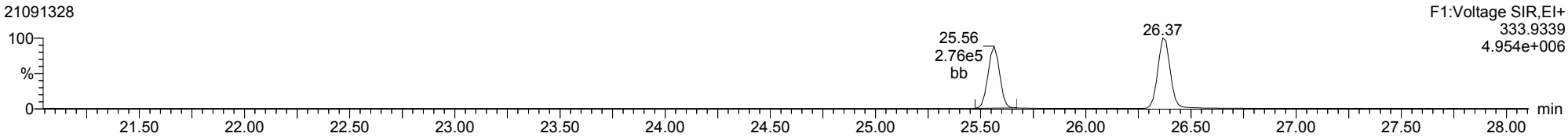

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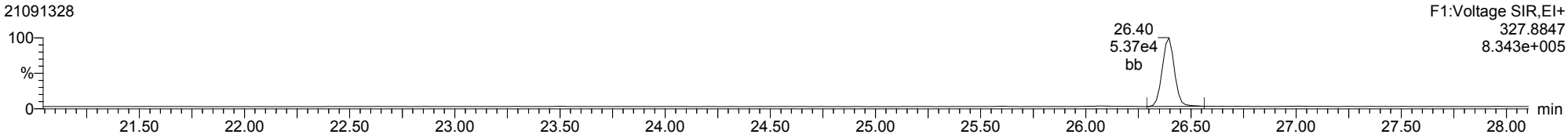

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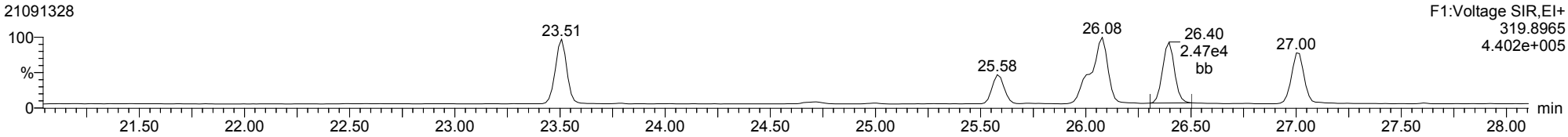
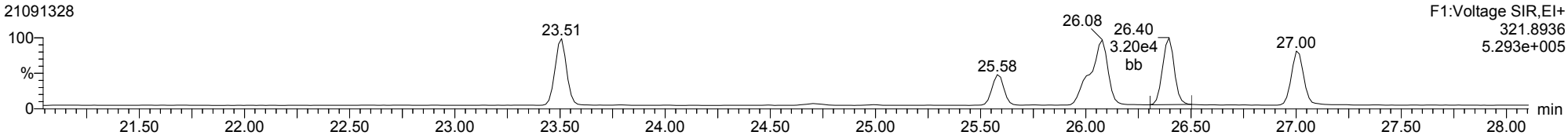
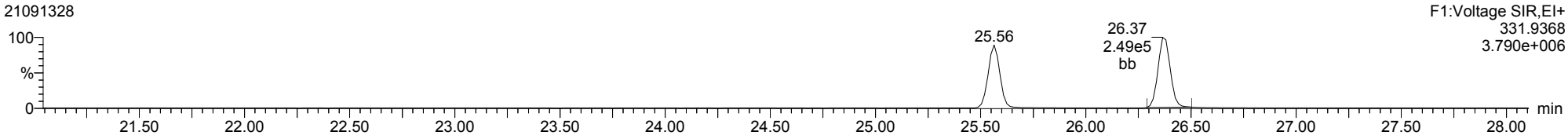
2378-TCDD



2378-TCDD



13C-2378-TCDD



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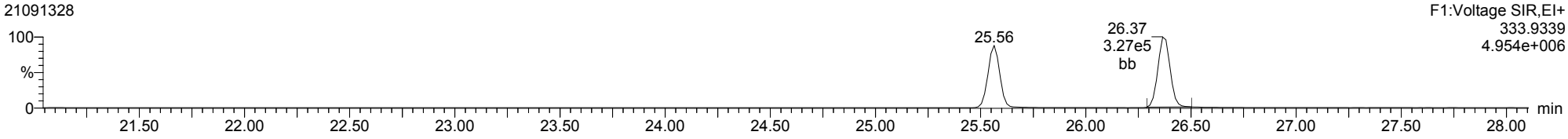

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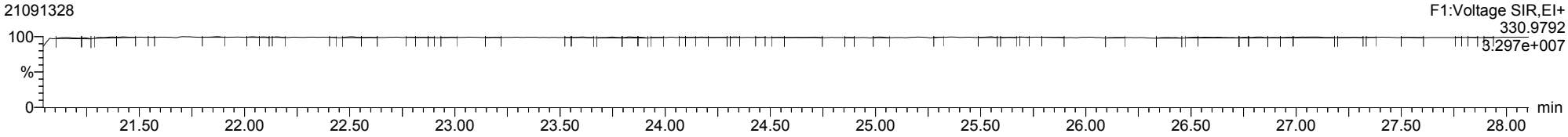

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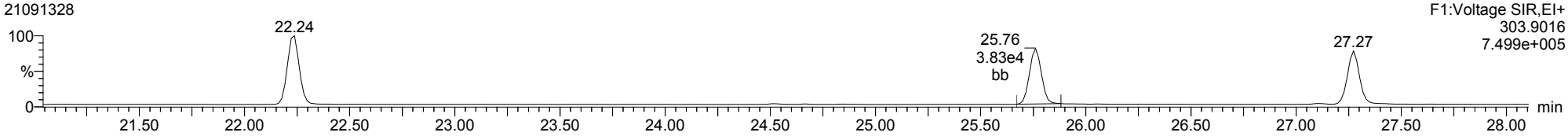
2378-TCDF



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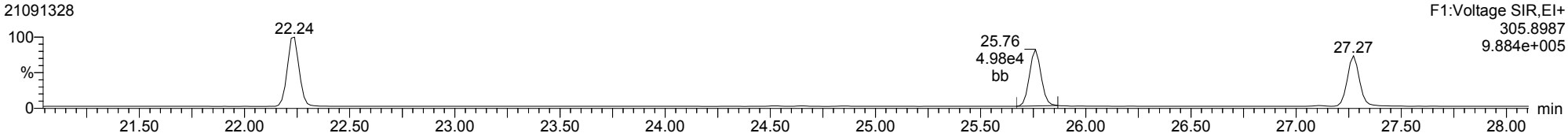

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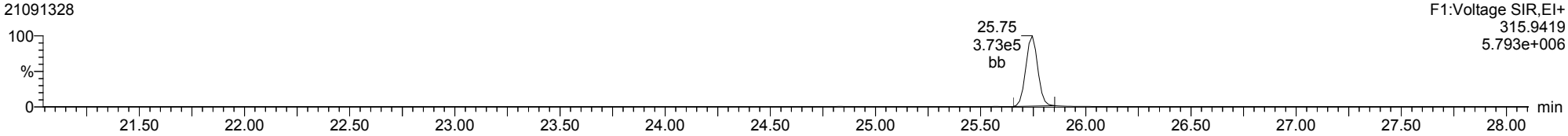

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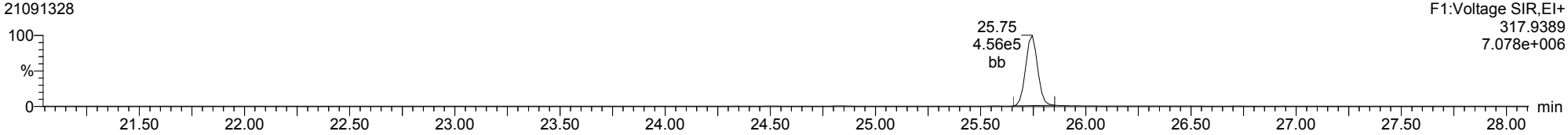

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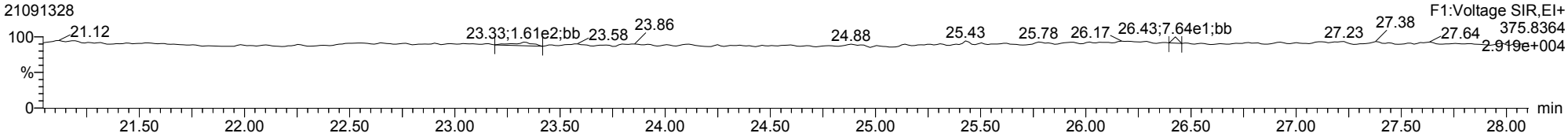

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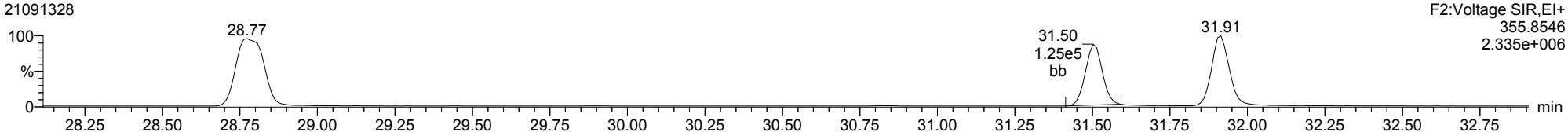
12378-PeCDD



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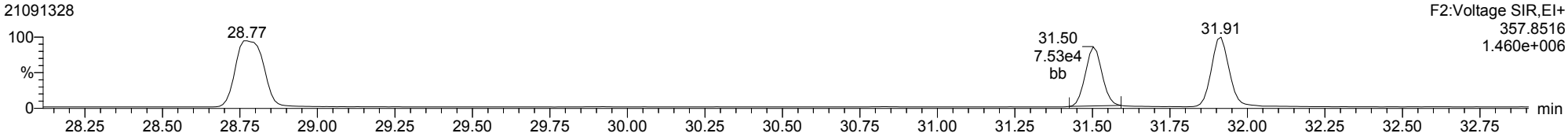

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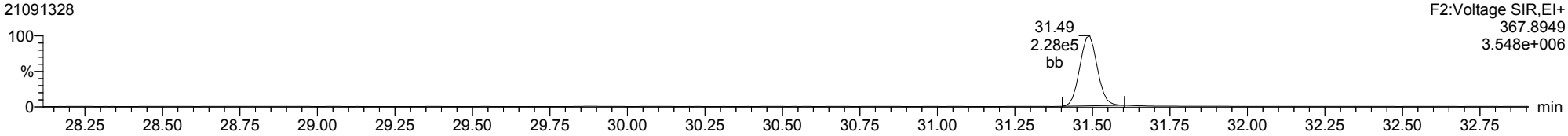

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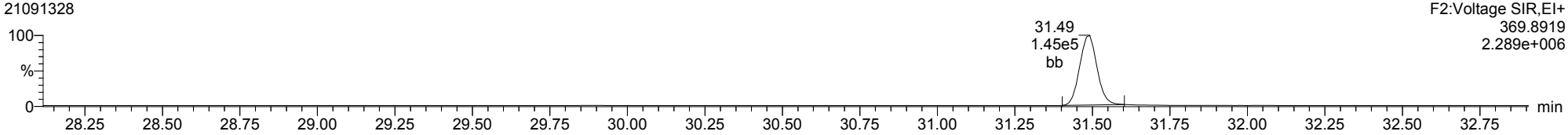
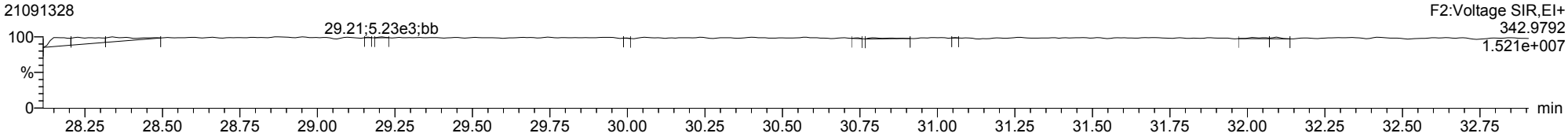


FUNCTION2 PFK



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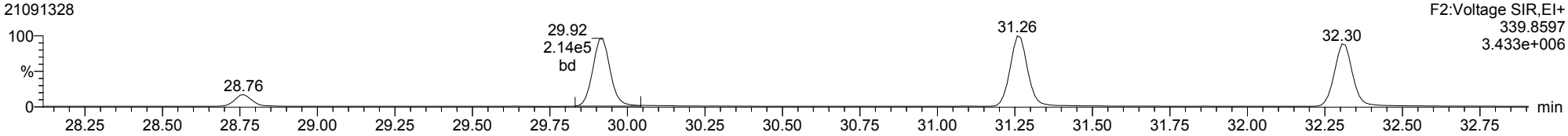
12378-PeCDF



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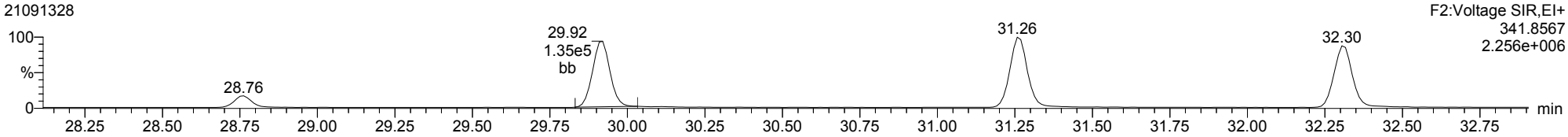

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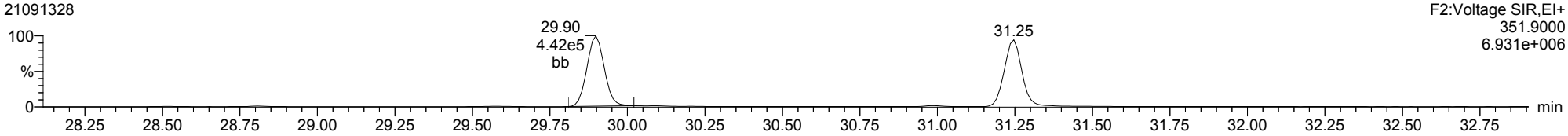

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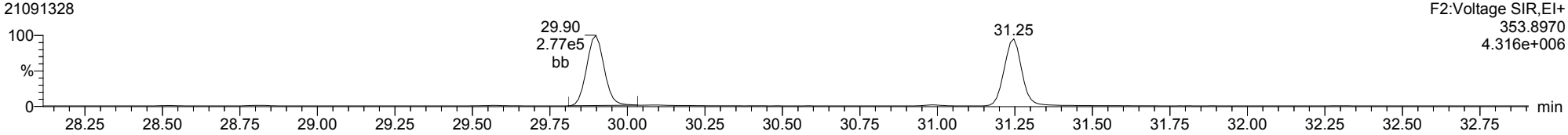
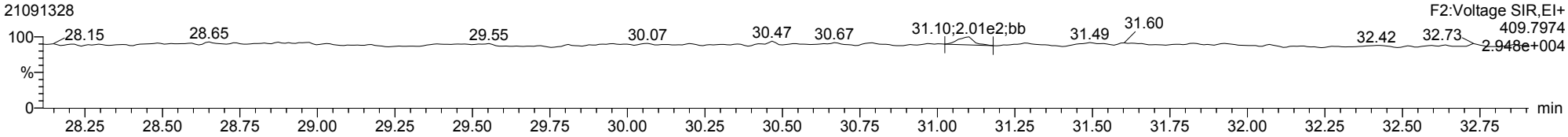


FUNCTION2 HPCDPE



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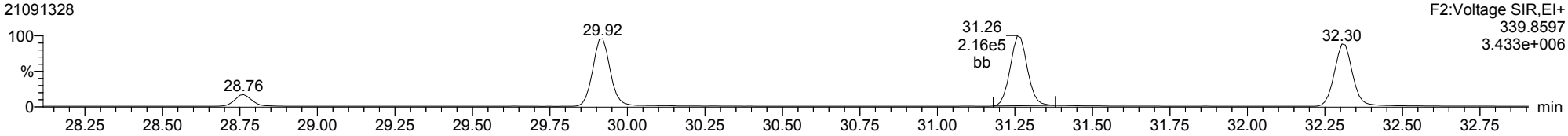
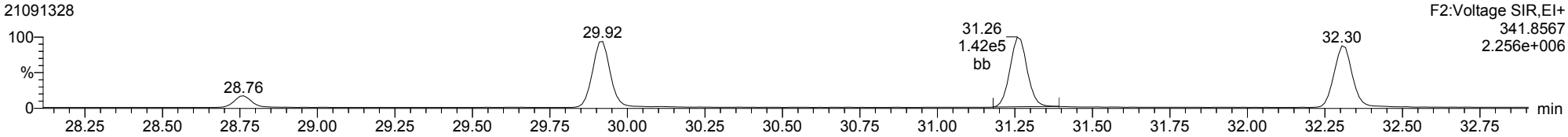
23478-PeCDF



23478-PeCDF



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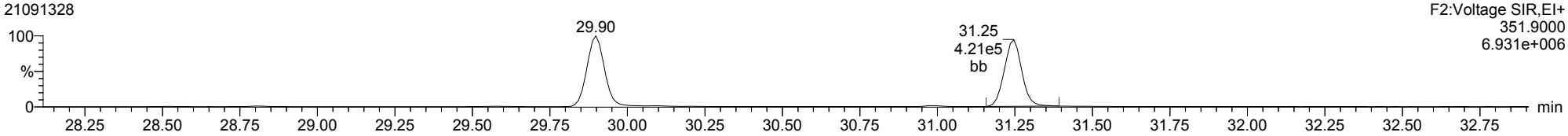

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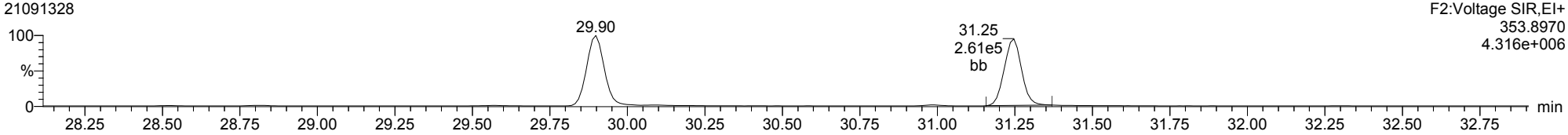
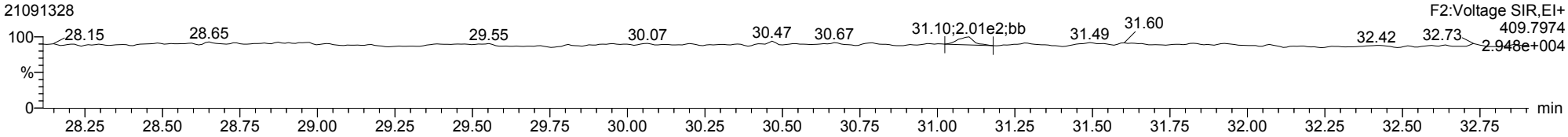


FUNCTION2 HPCDPE



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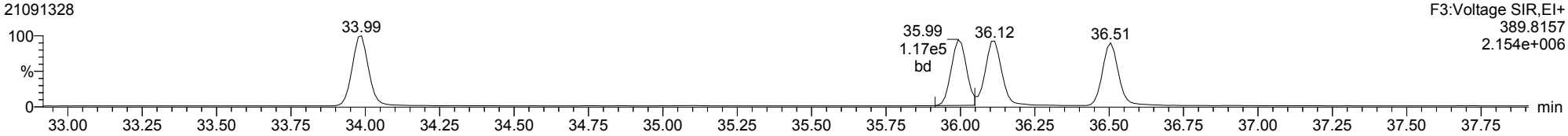
123478-HxCDD



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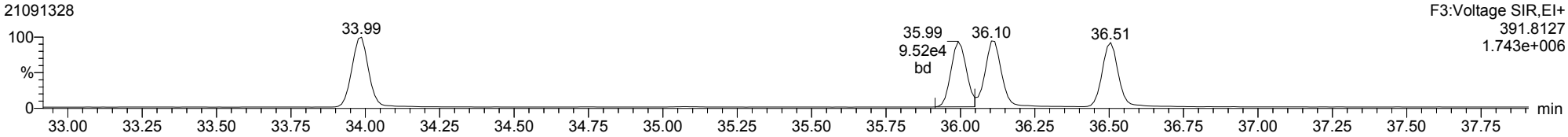

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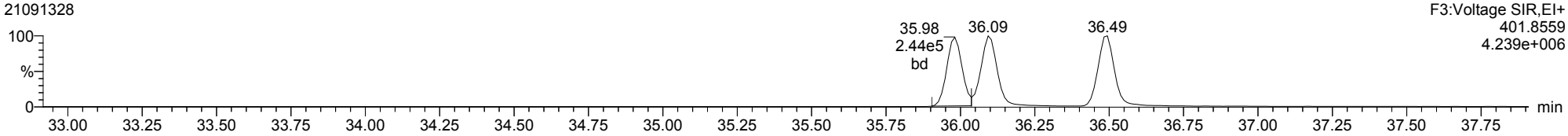

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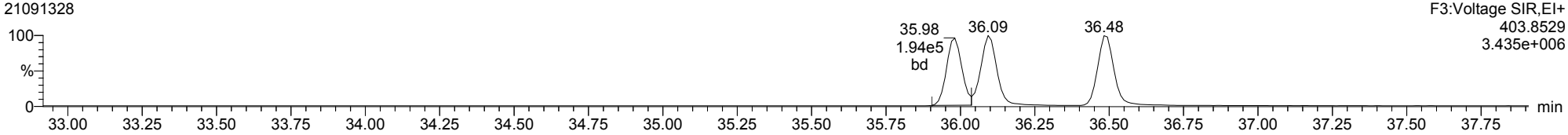
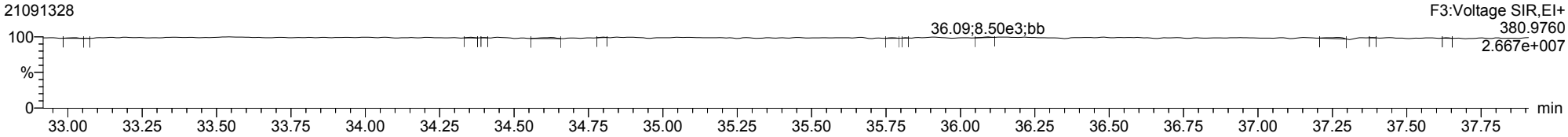


FUNCTION3 PFK



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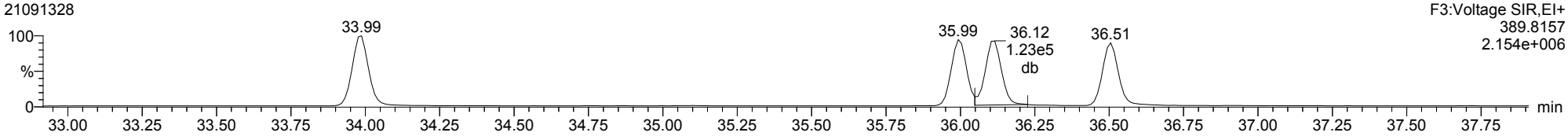
123678-HxCDD



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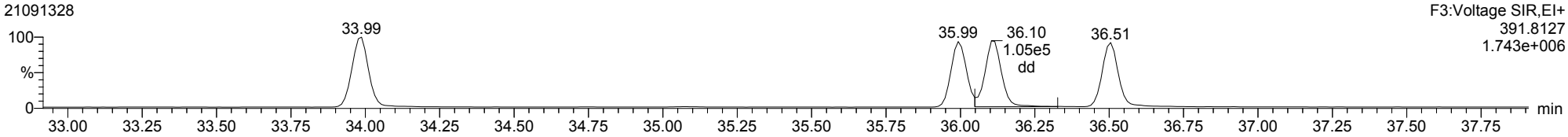

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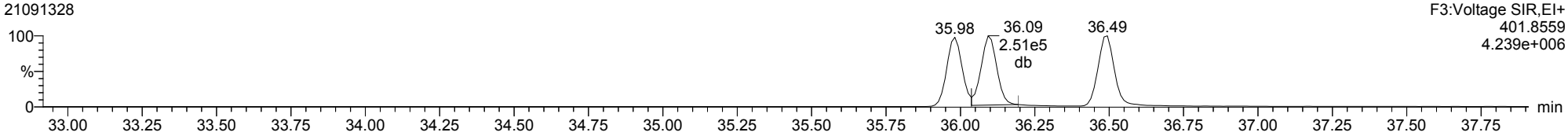

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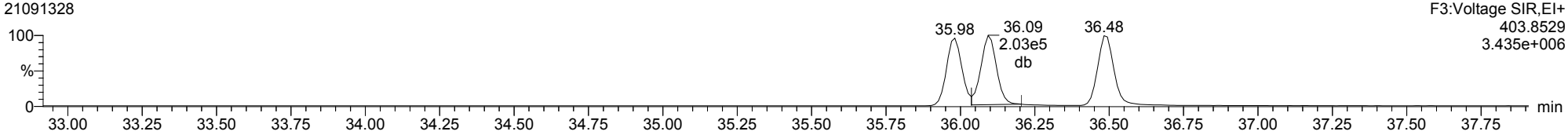

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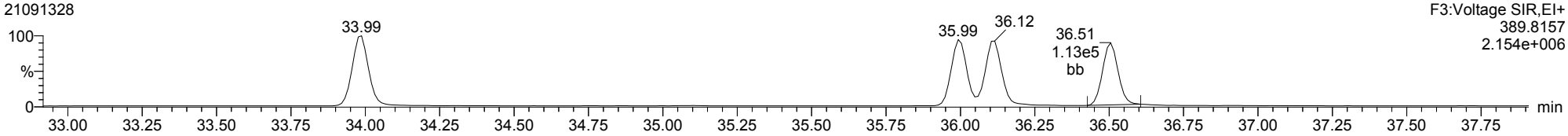
123789-HxCDD



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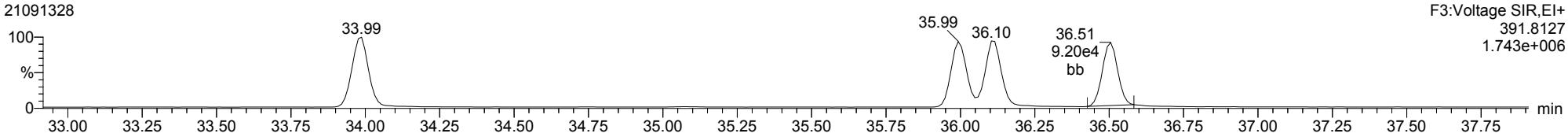

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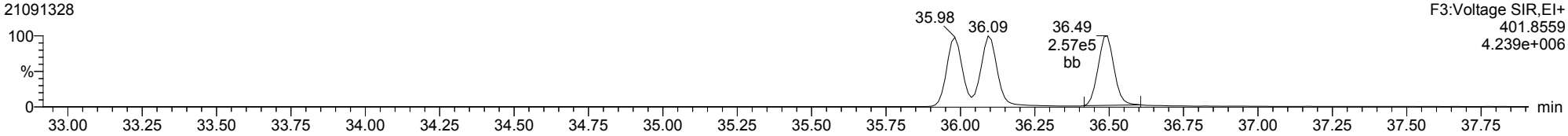

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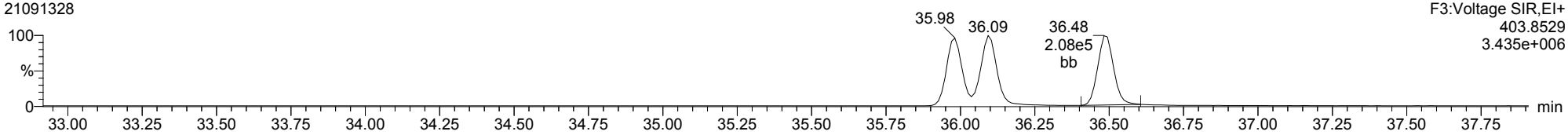

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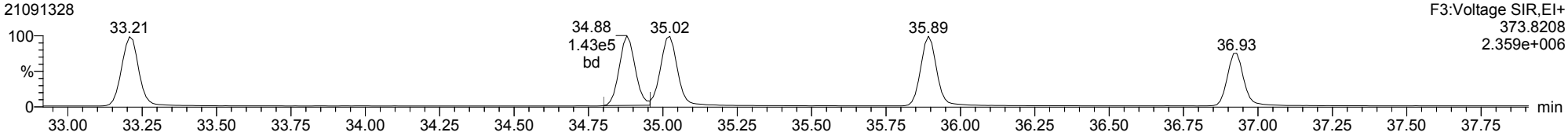
123478-HxCDF



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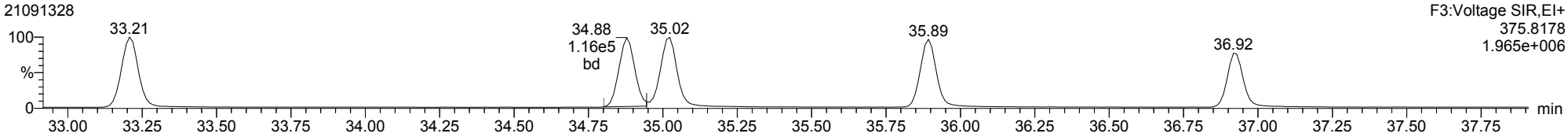

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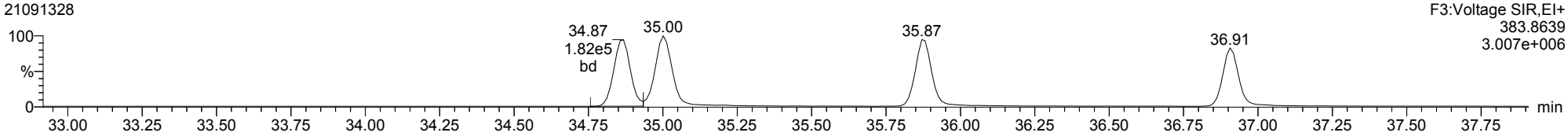

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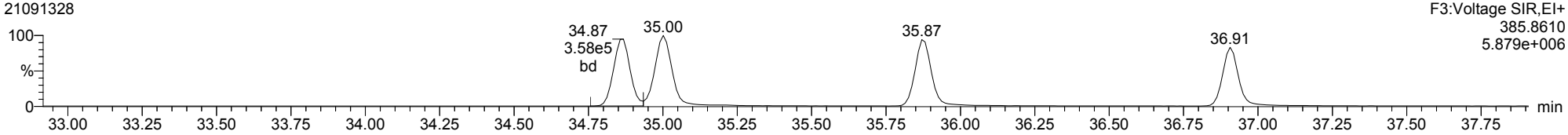
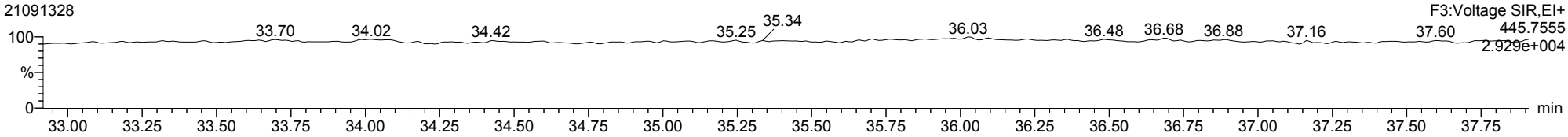


FUNCTION3 OCDPE



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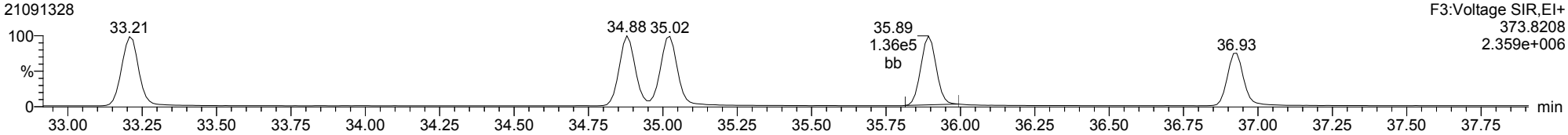
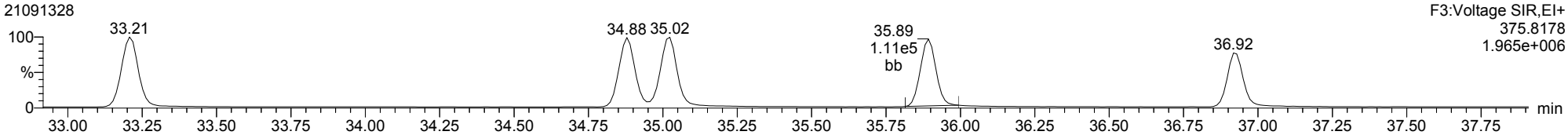
234678-HxCDF



234678-HxCDF



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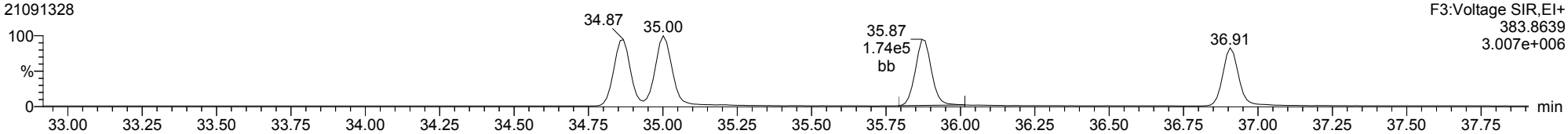

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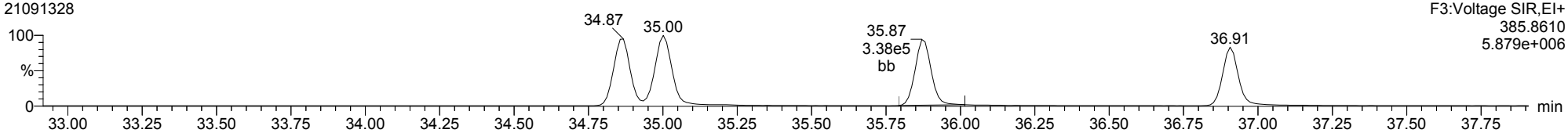
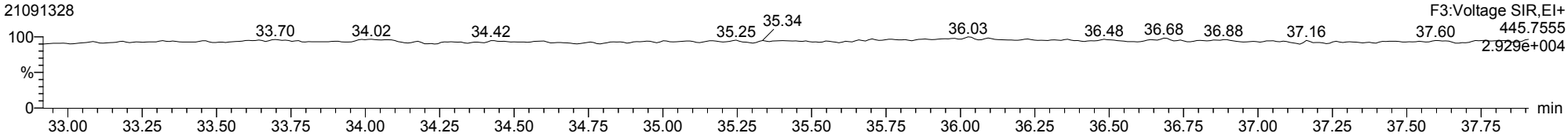


FUNCTION3 OCDPE



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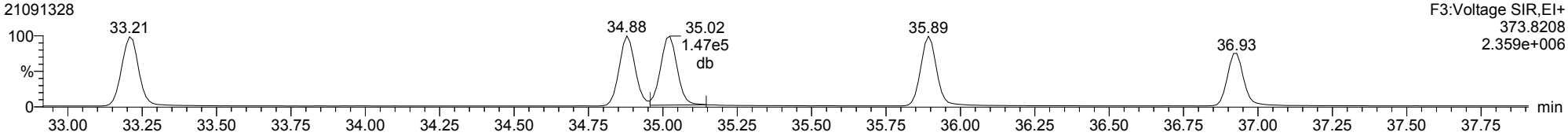

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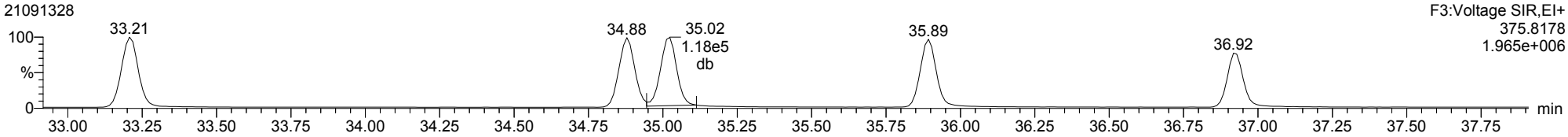

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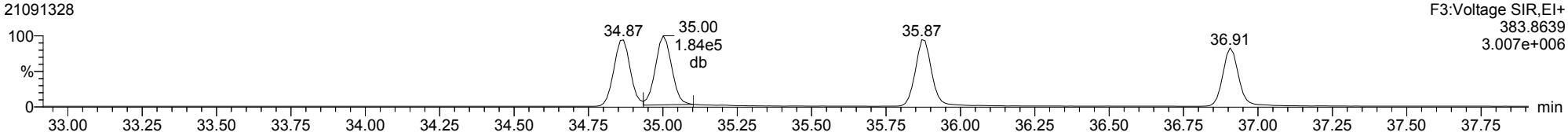

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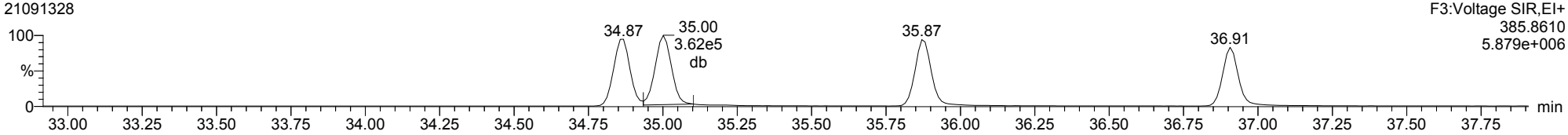

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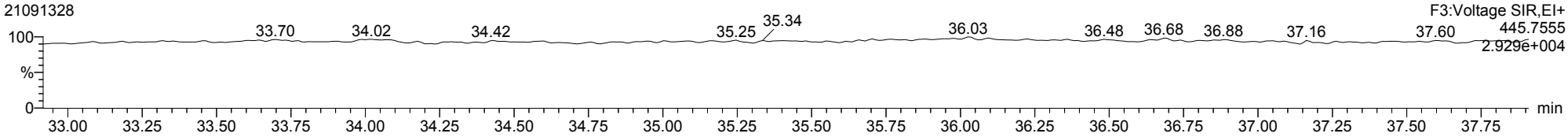

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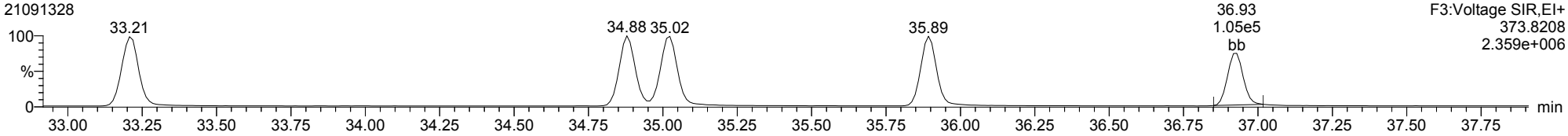

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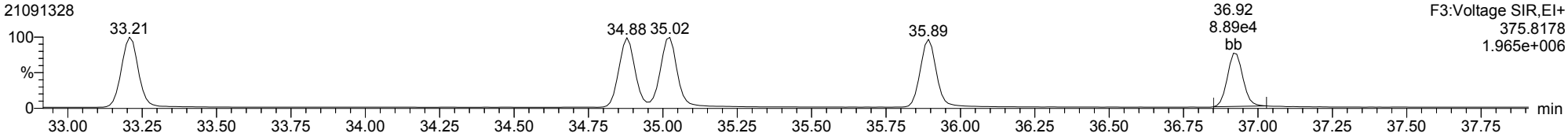

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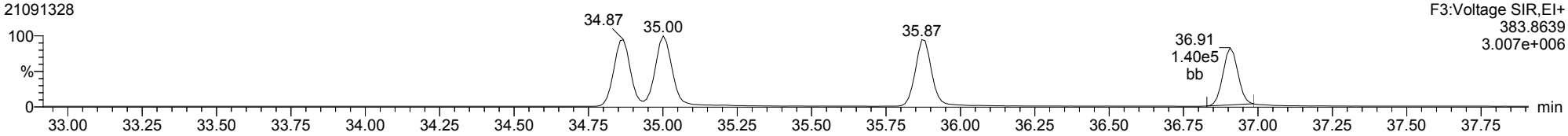

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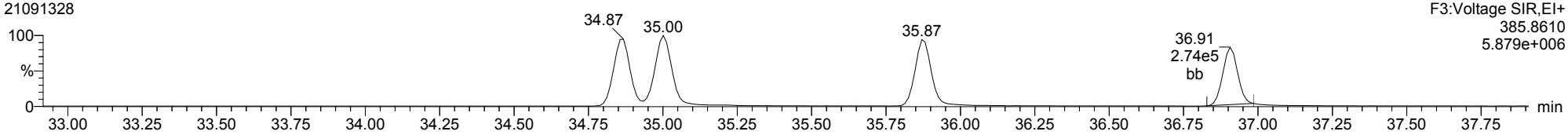

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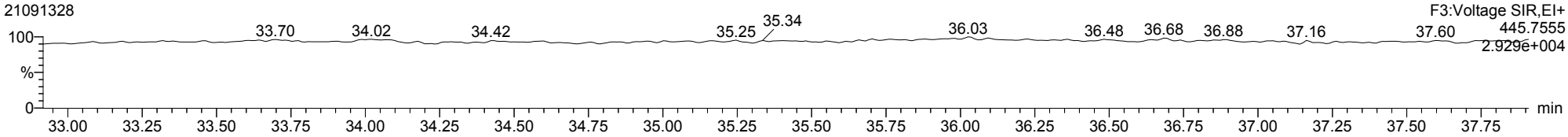

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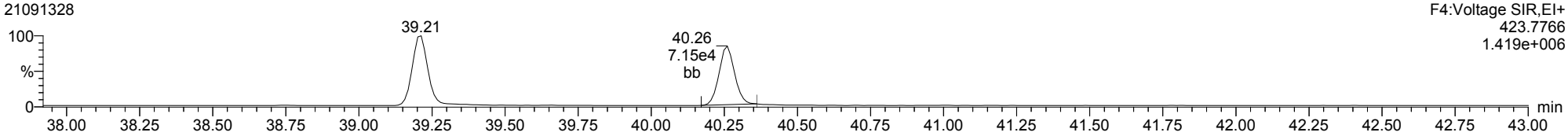

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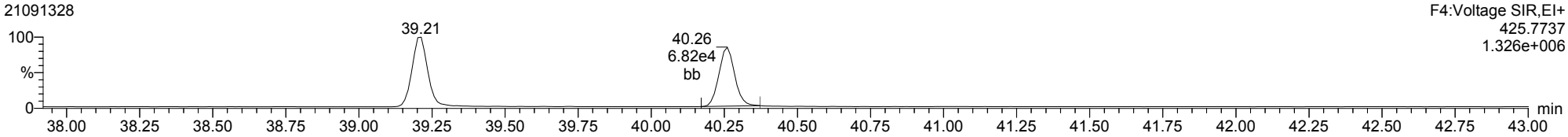

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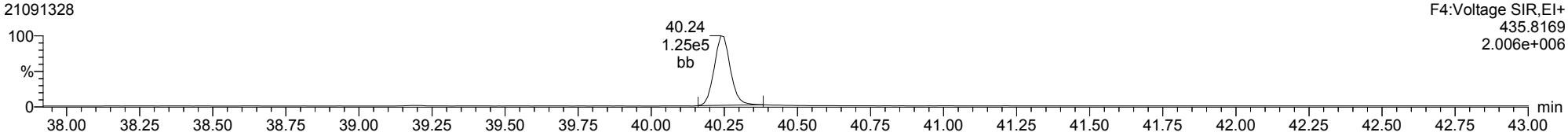

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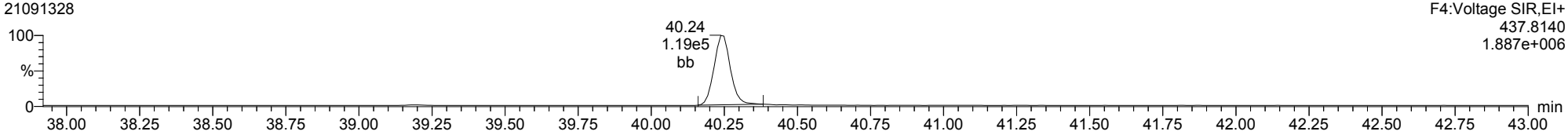

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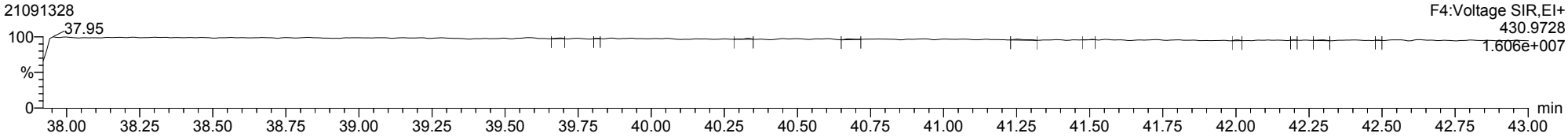

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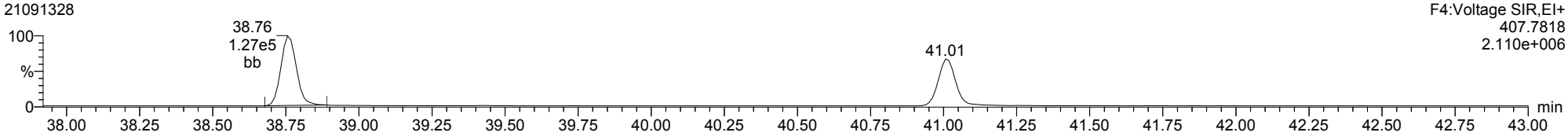

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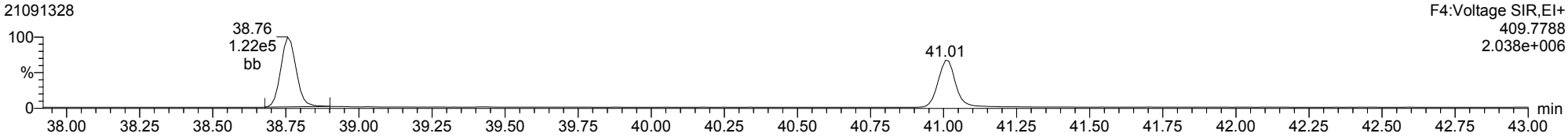

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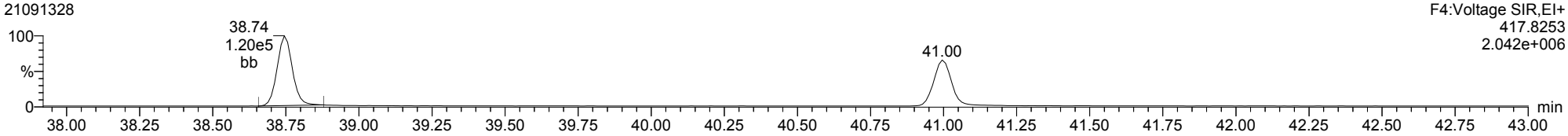

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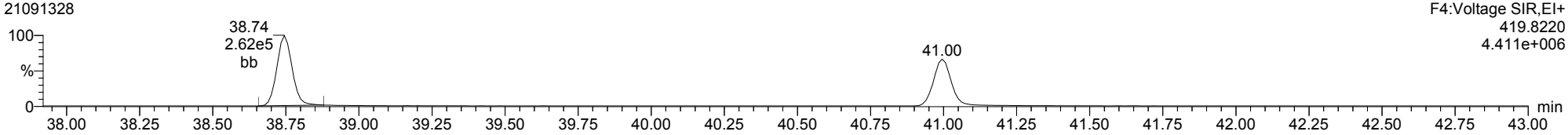

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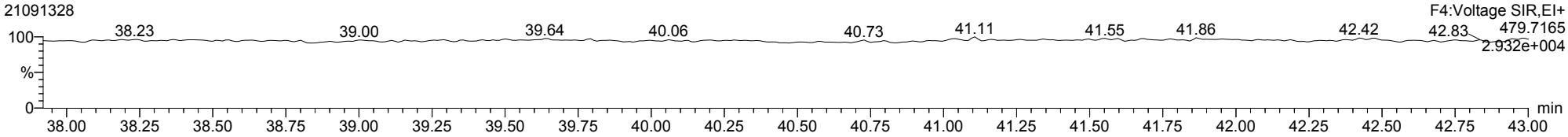

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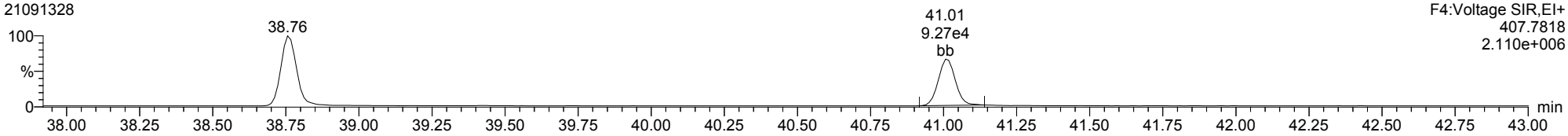

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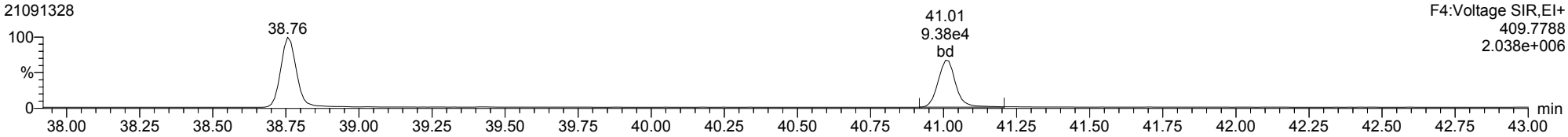

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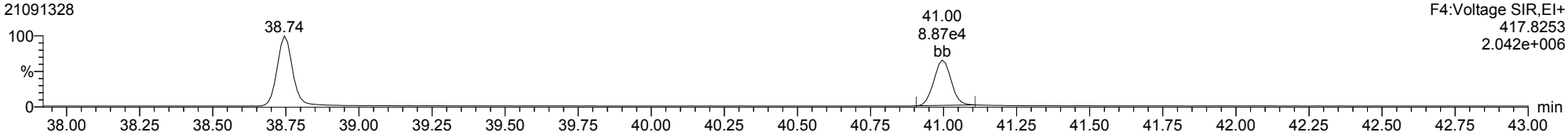

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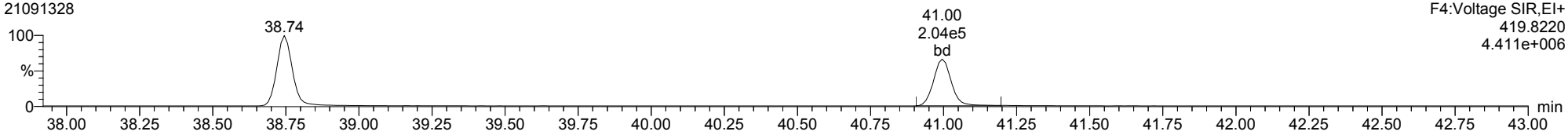

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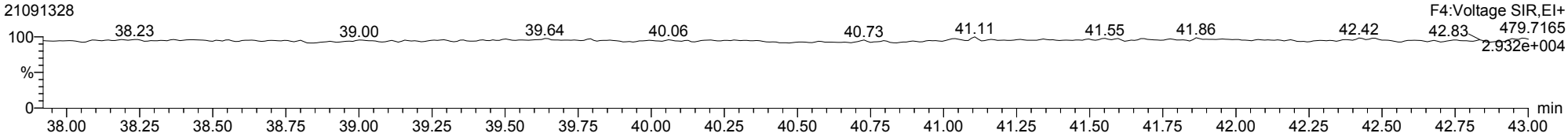

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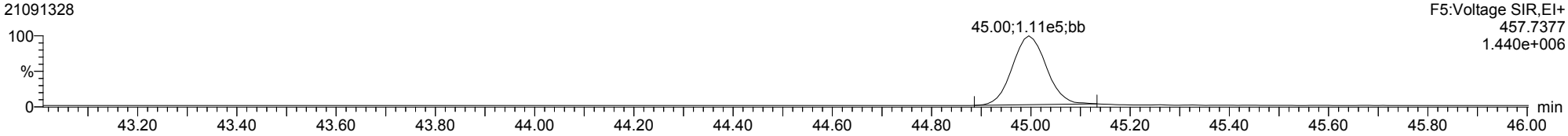

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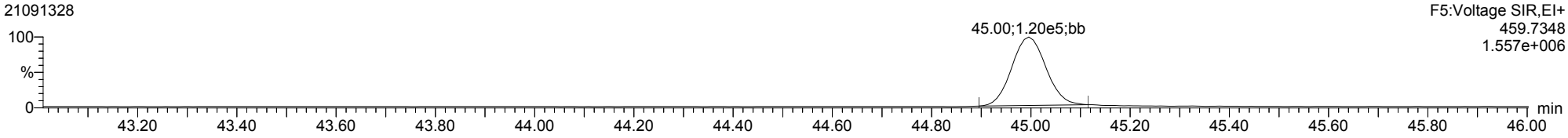

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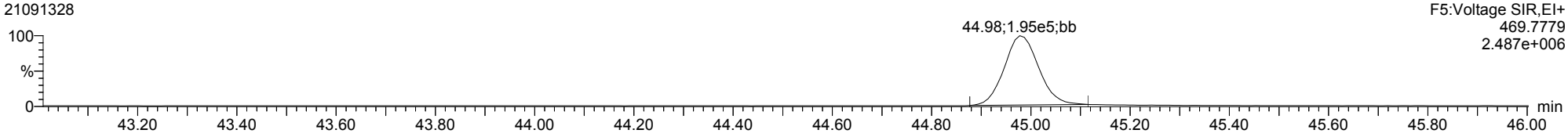

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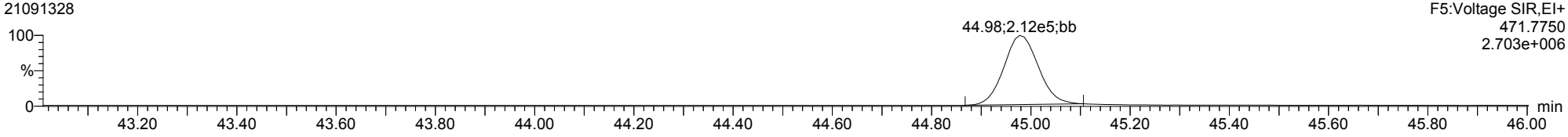

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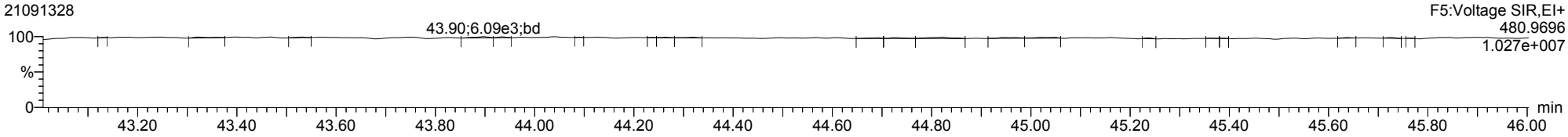

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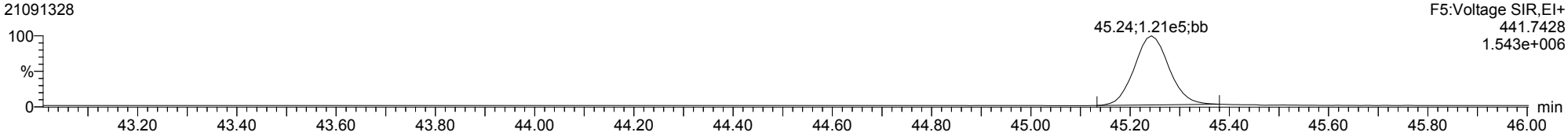

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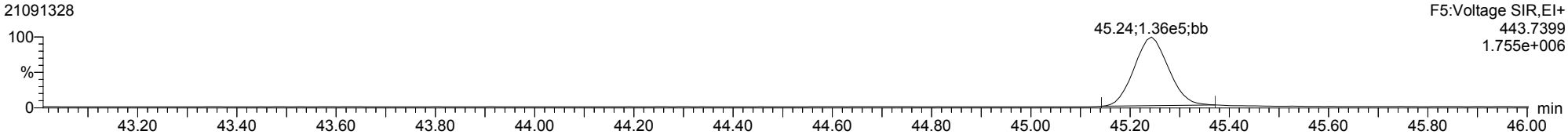

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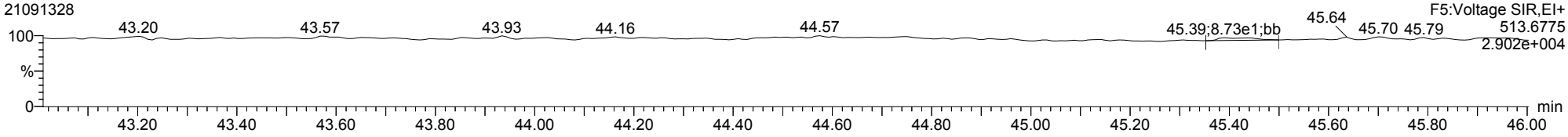

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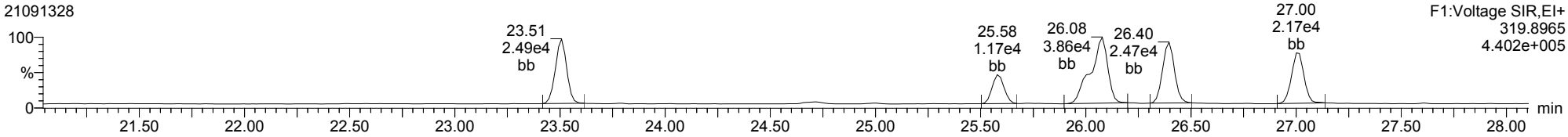

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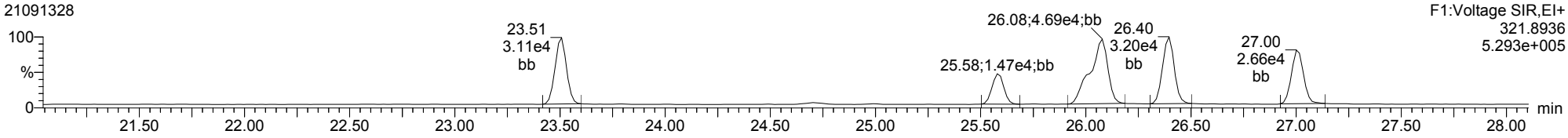

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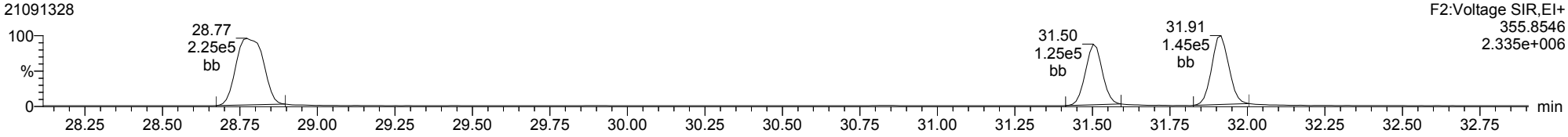

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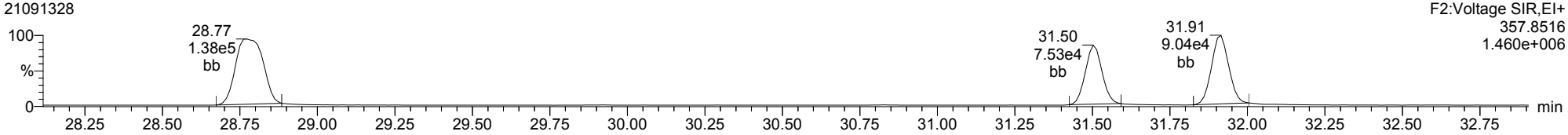

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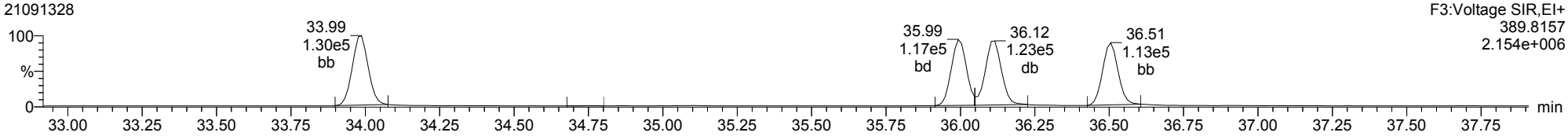

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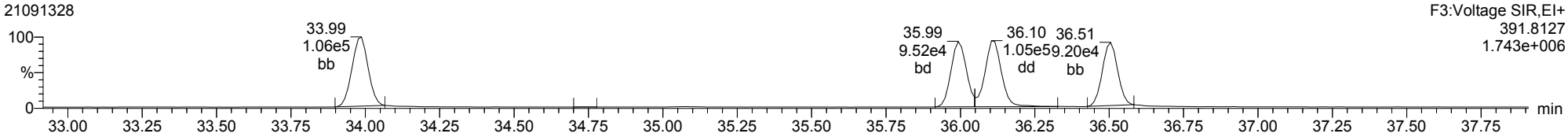

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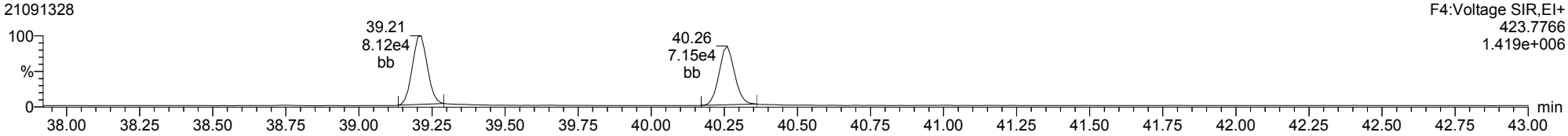

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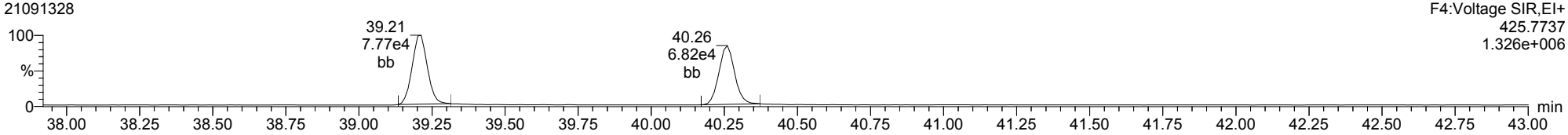

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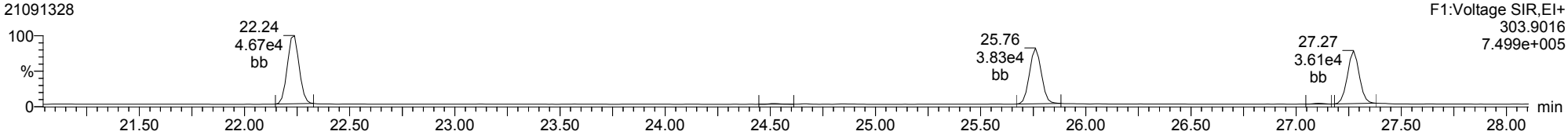
Printed: Wednesday, September 15, 2021 14:44:29 Pacific Daylight Time

ID: CS3Q4, Name: 21091328, Date: 14-Sep-2021, Time: 10:03:06, Conditions: AUTOSPEC01, User: pk

Total-tetrafurans



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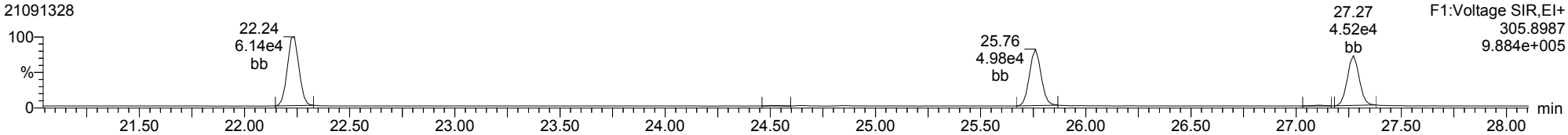

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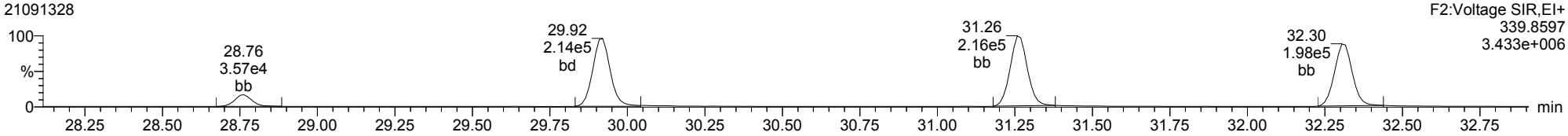

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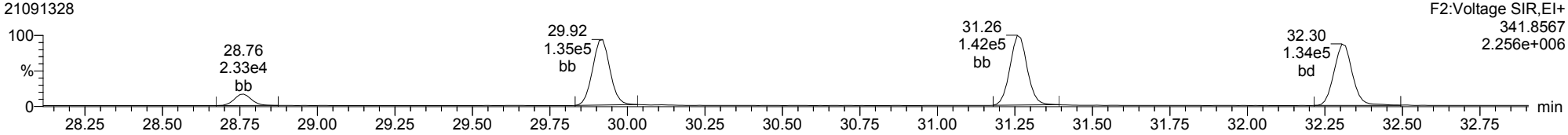

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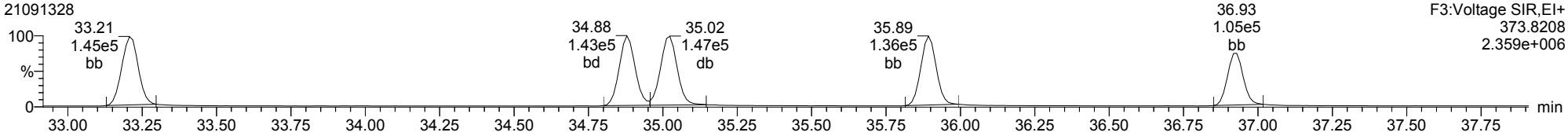
Total-hexafurans



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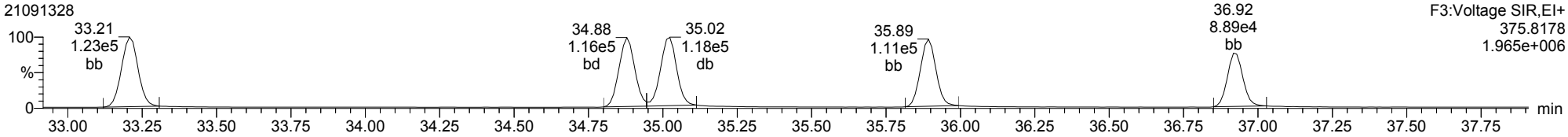

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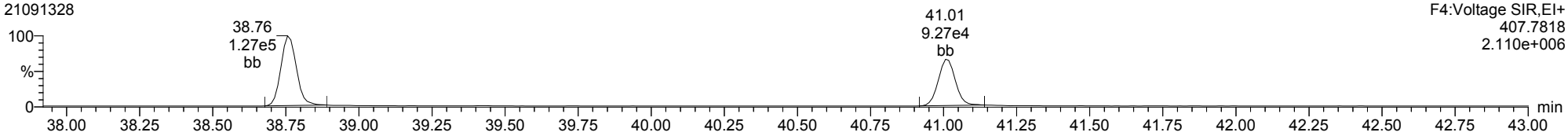

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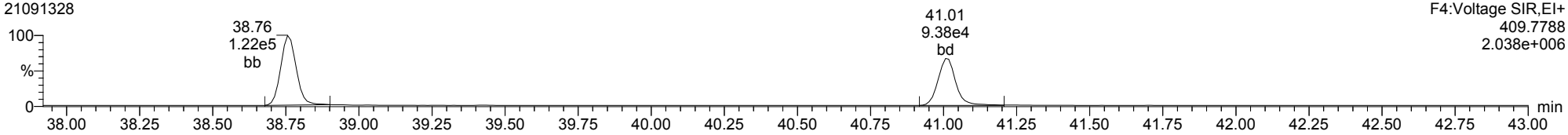

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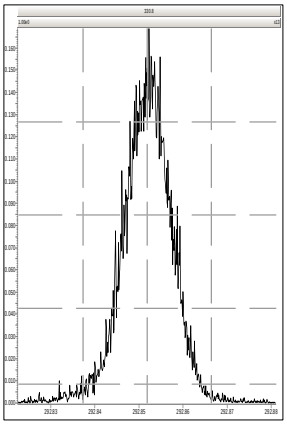

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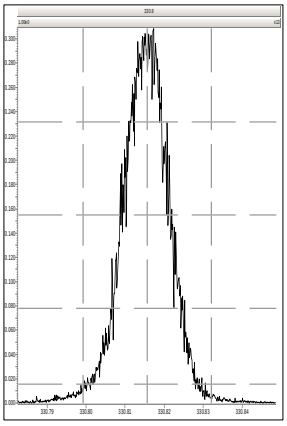

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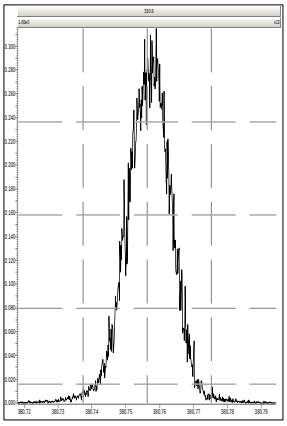

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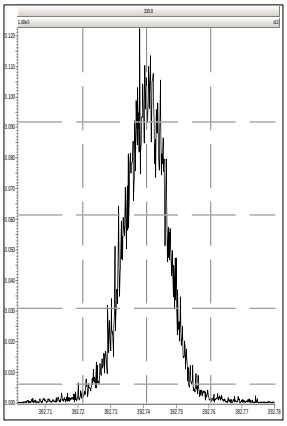

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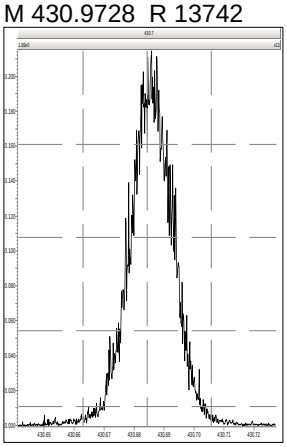
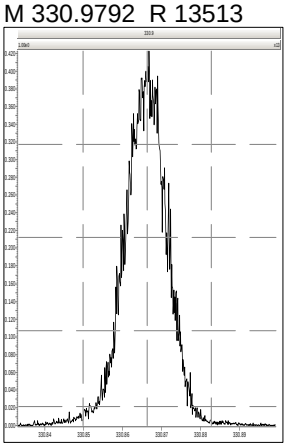
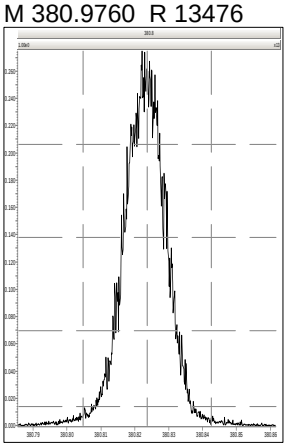


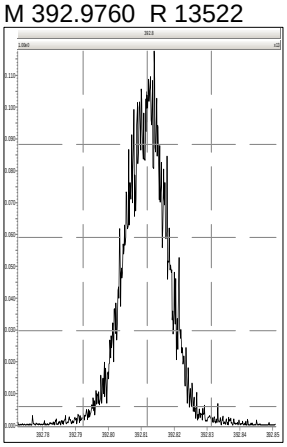
M 330.9792 R 13513



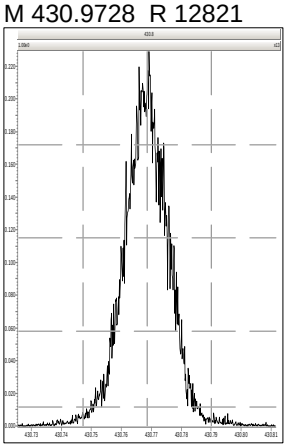
M 380.9760 R 13476



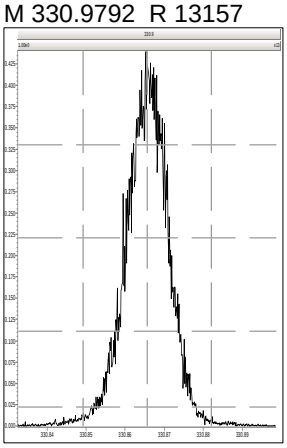
M 392.9760 R 13522



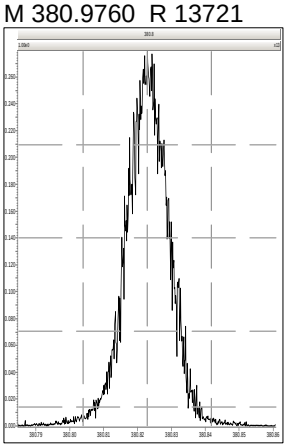
M 430.9728 R 12821



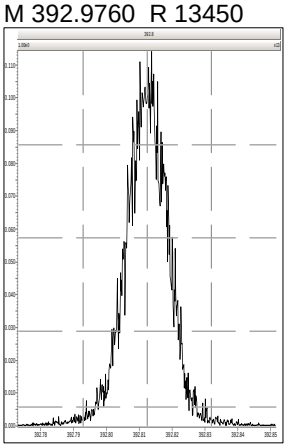
M 330.9792 R 13157



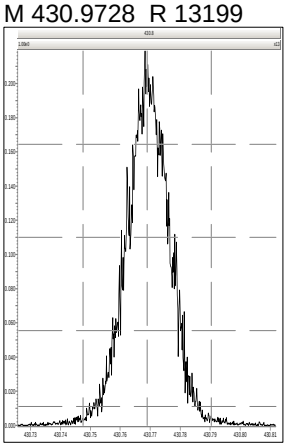
M 380.9760 R 13721



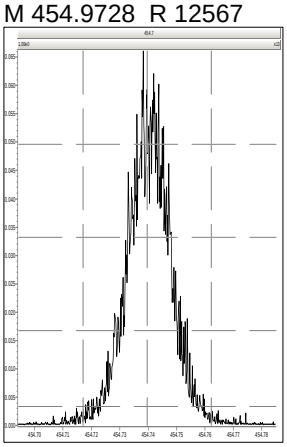
M 392.9760 R 13450



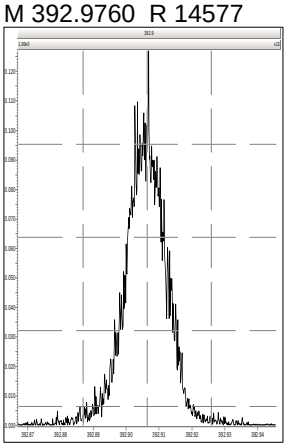
M 430.9728 R 13199



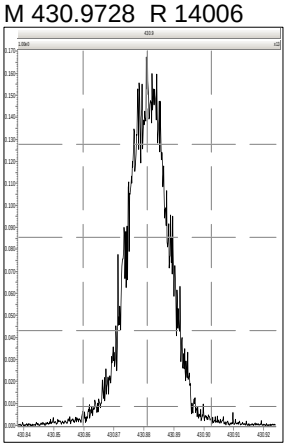
M 454.9728 R 12567



M 392.9760 R 14577



M 430.9728 R 14006



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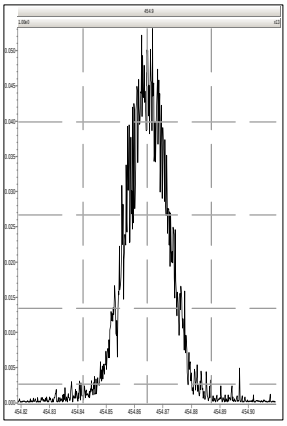
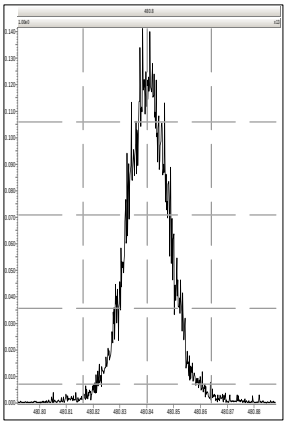
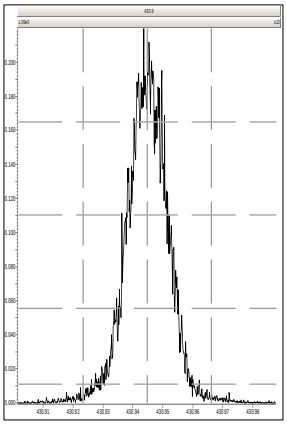
M 454.9728 R 14140



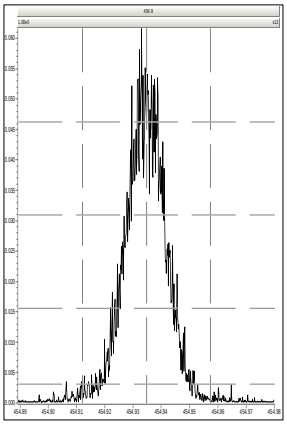
M 480.9696 R 13056



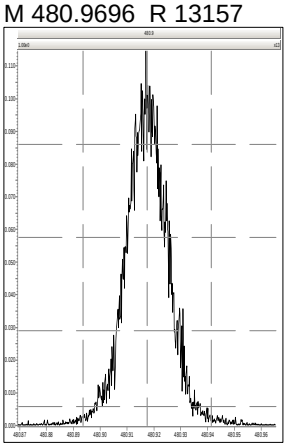
M 430.9728 R 14329



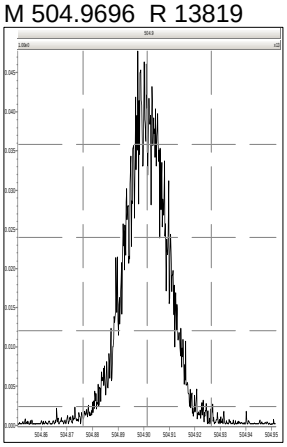
M 454.9728 R 14285



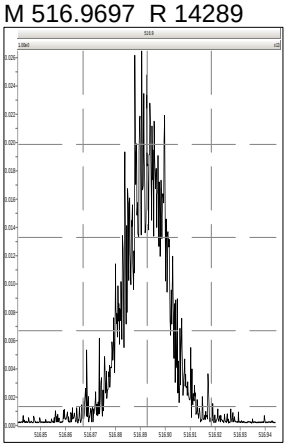
M 480.9696 R 13157

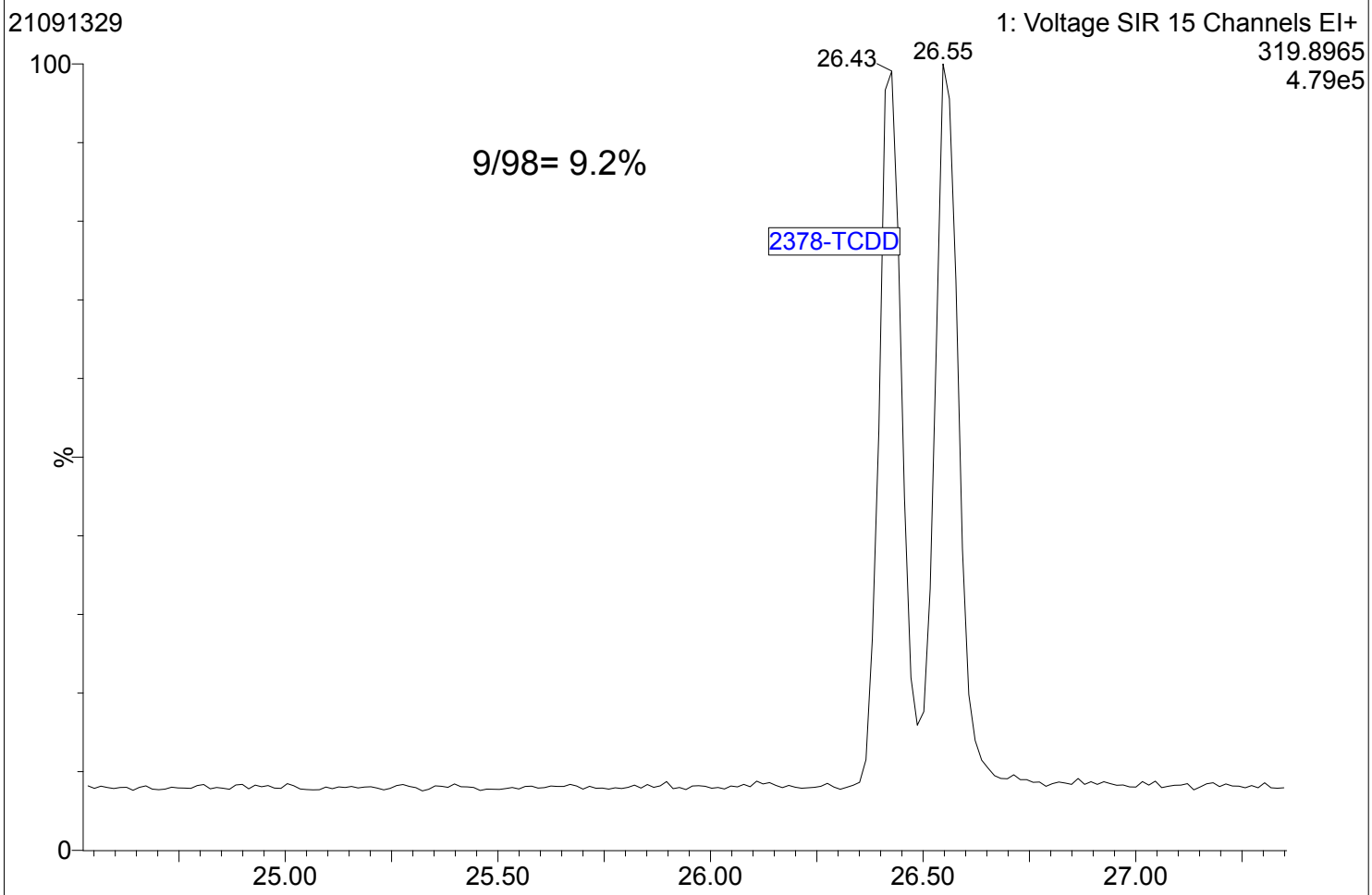


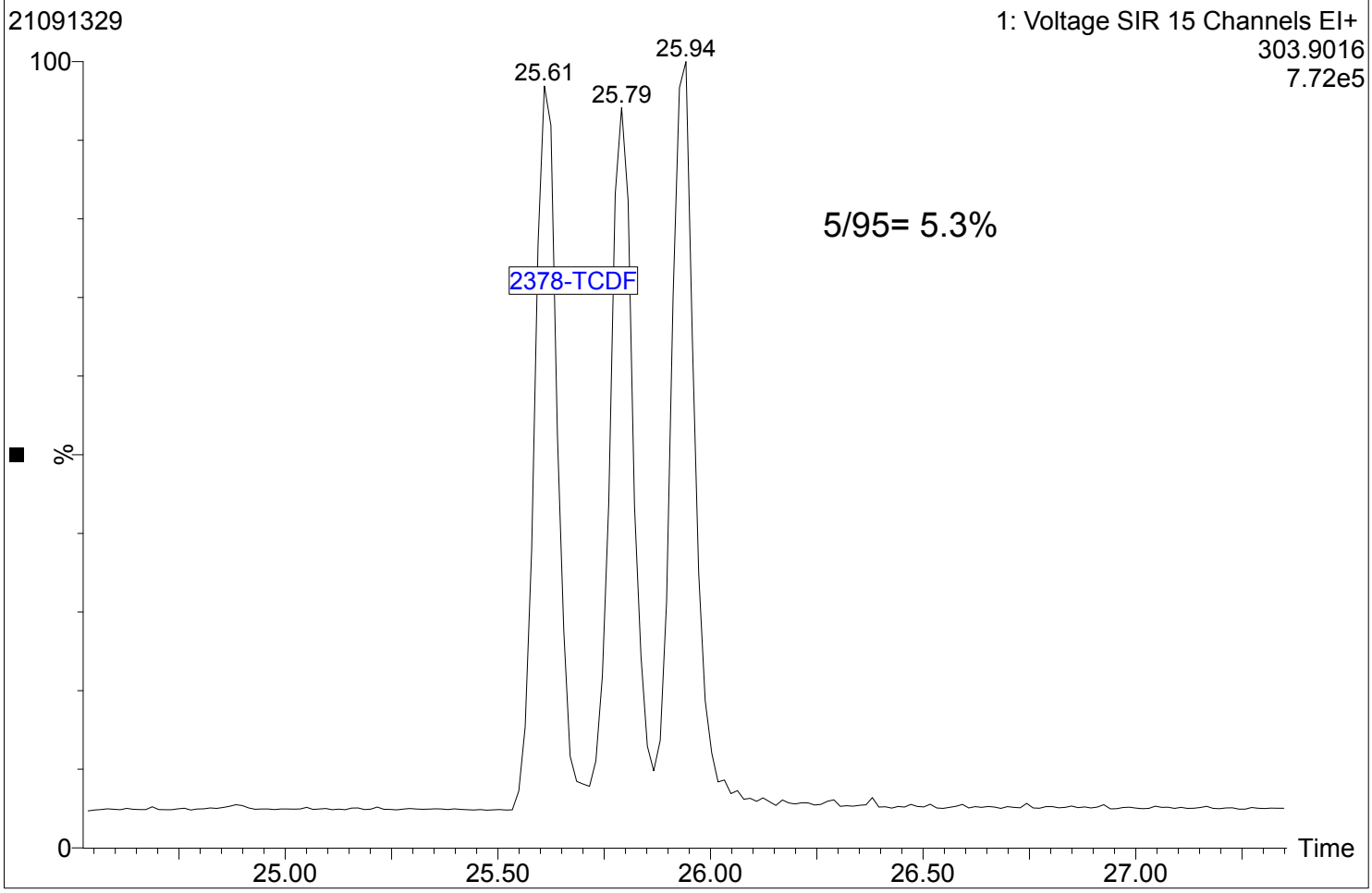
M 504.9696 R 13819



M 516.9697 R 14289




21091329
1: Voltage SIR 15 Channels EI+
319.8965
4.79e5
26.43
26.55
9/98= 9.2%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21091329
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7.72e5
25.61
25.79
25.94
5/95= 5.3%
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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092211	Calibration Date:	08/11/2021
Sequence:	SJI0351	Injection Date:	09/23/21
Lab Sample ID:	SJI0351-CCV1	Injection Time:	04:45
Sequence Name:	CS3S8		

		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	8.91	1.1075930	0.9866416		-10.9	+/-16
2,3,7,8-TCDD	A	10.000	9.70	0.9202875	0.8922201		-3.0	+/-22
1,2,3,7,8-PeCDF	A	50.000	43.6	1.0148670	0.8859769		-12.7	+/-18
2,3,4,7,8-PeCDF	A	50.000	43.7	1.1255490	0.9839595		-12.6	+/-18
1,2,3,7,8-PeCDD	A	50.000	49.1	0.9953229	0.9767223		-1.9	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.2	1.0168930	0.9601407		-5.6	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	47.0	1.0368310	0.9755024		-5.9	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	46.7	1.0524660	0.9823901		-6.7	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	47.2	1.0301540	0.9729110		-5.6	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	45.6	1.0273630	0.9374332		-8.8	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	48.9	1.0089800	0.9870559		-2.2	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.3	0.9504865	0.9564788		0.6	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	45.1	1.3273500	1.1962790		-9.9	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	45.1	1.2833380	1.1585830		-9.7	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	47.5	1.0680880	1.0154320		-4.9	+/-14
OCDF	A	100.00	74.6	1.4469010	1.0789120		-25.4	+/-37
OCDD	A	100.00	92.1	1.1808230	1.0878070		-7.9	+/-21
13C12-2,3,7,8-TCDF	A	100.00	91.3	1.4265830	1.3029419		-8.7	+/-29
13C12-2,3,7,8-TCDD	A	100.00	104	1.1164910	1.1630140		4.2	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	86.6	1.2973130	1.1236041		-13.4	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	85.5	1.2364800	1.0575495		-14.5	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	96.4	0.7319833	0.7058762		-3.6	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	93.1	1.2424560	1.1568671		-6.9	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	85.7	1.3434760	1.1509560		-14.3	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	90.0	1.2148550	1.0935772		-10.0	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	91.7	1.0076370	0.9236138		-8.3	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	104	0.9598233	0.9994045		4.1	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	94.0	1.0413850	0.9790718		-6.0	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	74.1	0.9264704	0.6862788		-25.9	+/-22 *
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	71.9	0.7579160	0.5448729		-28.1	+/-23 *
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	86.3	0.6324476	0.5459212		-13.7	+/-28
13C12-OCDD	A	200.00	150	0.5037432	0.3785610		-24.9	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.78	1.0835930	1.0599289		-2.2	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210922D1.qld
Last Altered: Thursday, September 23, 2021 10:36:03 Pacific Daylight Time
Printed: Thursday, September 23, 2021 11:59:34 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: CS3S8, Name: 21092211, Date: 23-Sep-2021, Time: 04:45:59, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.761	1.001	4.088e4	5.591e4	1.108	0.731	0.770	690	790	6.28e5	8.60e5	909.9	1088.9	NO	dd	bb	8.908
12378-PeCDF	29.920	1.000	2.238e5	1.510e5	1.015	1.482	1.550	1654	1510	3.44e6	2.32e6	2079.5	1539.1	NO	bb	bb	43.650
23478-PeCDF	31.268	1.001	2.342e5	1.575e5	1.126	1.487	1.550	1654	1510	3.63e6	2.42e6	2194.4	1603.1	NO	bb	bb	43.710
123478-HxCDF	34.889	1.000	2.158e5	1.827e5	1.017	1.181	1.240	1422	1313	3.44e6	2.90e6	2416.5	2211.6	NO	bd	bd	47.210
234678-HxCDF	35.903	1.000	2.093e5	1.761e5	1.052	1.189	1.240	1422	1313	3.44e6	2.89e6	2417.1	2200.7	NO	bb	bb	46.671
123678-HxCDF	35.034	1.001	2.178e5	1.850e5	1.037	1.177	1.240	1422	1313	3.46e6	2.92e6	2435.5	2227.6	NO	db	db	47.043
123789-HxCDF	36.939	1.001	1.772e5	1.452e5	1.030	1.221	1.240	1422	1313	2.73e6	2.27e6	1918.6	1731.2	NO	bd	bb	47.222
1234678-HpCDF	38.777	1.000	1.484e5	1.461e5	1.327	1.016	1.050	1558	1039	2.34e6	2.33e6	1504.9	2241.4	NO	bd	bb	45.063
1234789-HpCDF	41.028	1.000	1.147e5	1.117e5	1.283	1.027	1.050	1558	1039	1.61e6	1.58e6	1033.4	1518.2	NO	bd	bd	45.139
OCDF	45.271	1.006	1.383e5	1.548e5	1.447	0.893	0.890	668	940	1.47e6	1.70e6	2199.5	1803.9	NO	bb	bb	74.567
2378-TCDD	26.396	1.001	3.437e4	4.376e4	0.920	0.785	0.770	753	590	5.32e5	6.60e5	706.4	1119.1	NO	bb	bb	9.695
12378-PeCDD	31.513	1.001	1.597e5	9.984e4	0.995	1.600	1.550	1312	877	2.48e6	1.54e6	1891.2	1755.2	NO	bb	bb	49.066
123478-HxCDD	36.003	1.000	1.883e5	1.478e5	1.027	1.275	1.240	1596	908	3.10e6	2.44e6	1943.8	2689.3	NO	bd	bd	45.623
123678-HxCDD	36.114	1.000	1.958e5	1.509e5	1.009	1.297	1.240	1596	908	3.17e6	2.47e6	1984.9	2715.9	NO	db	db	48.914
123789-HxCDD	36.515	1.011	1.895e5	1.499e5	0.950	1.264	1.240	1596	908	3.08e6	2.47e6	1929.1	2719.5	NO	bb	bb	50.315
1234678-HpCDD	40.281	1.001	1.026e5	9.630e4	1.068	1.065	1.050	931	921	1.49e6	1.39e6	1604.5	1506.8	NO	bb	bb	47.535
OCDD	45.033	1.000	1.360e5	1.595e5	1.181	0.852	0.890	956	674	1.44e6	1.66e6	1508.2	2468.6	NO	bb	bd	92.123
13C-2378-TCDF	25.746	1.007	4.340e5	5.471e5	1.427	0.793	0.770	1372	948	6.58e6	8.33e6	4800.5	8790.1	NO	bb	bb	91.333
13C-12378-PeCDF	29.909	1.170	5.216e5	3.244e5	1.297	1.608	1.550	1208	1089	7.94e6	4.98e6	6571.5	4574.2	NO	bb	bb	86.610
13C-23478-PeCDF	31.246	1.222	4.903e5	3.059e5	1.236	1.603	1.550	1208	1089	7.66e6	4.75e6	6337.9	4364.7	NO	bb	bb	85.529
13C-123478-HxCDF	34.878	0.955	2.833e5	5.468e5	1.242	0.518	0.510	2109	2041	4.55e6	8.62e6	2158.9	4220.6	NO	bd	bd	93.111
13C-123678-HxCDF	35.011	0.959	2.815e5	5.443e5	1.343	0.517	0.510	2109	2041	4.44e6	8.59e6	2105.2	4207.2	NO	db	db	85.670
13C-234678-HxCDF	35.891	0.983	2.707e5	5.140e5	1.215	0.527	0.510	2109	2041	4.30e6	8.23e6	2039.2	4031.6	NO	bb	bb	90.017
13C-123789-HxCDF	36.917	1.011	2.219e5	4.408e5	1.008	0.503	0.510	2109	2041	3.59e6	7.28e6	1704.2	3566.3	NO	bb	bb	91.661
13C-1234678-HpCDF	38.766	1.062	1.541e5	3.383e5	0.926	0.456	0.440	1032	1527	2.44e6	5.29e6	2363.8	3462.0	NO	bb	bd	74.075
13C-1234789-HpCDF	41.016	1.124	1.219e5	2.691e5	0.758	0.453	0.440	1032	1527	1.68e6	3.62e6	1624.9	2368.6	NO	bd	bd	71.891
13C-1234-TCDD	25.564	0.000	3.268e5	4.262e5	1.000	0.767	0.770	1355	993	4.99e6	6.46e6	3681.6	6502.5	NO	bb	bb	100.000
13C-2378-TCDD	26.365	1.031	3.761e5	4.996e5	1.116	0.753	0.770	1355	993	5.62e6	7.55e6	4149.6	7599.9	NO	bb	bb	104.167
13C-12378-PeCDD	31.491	1.232	3.263e5	2.052e5	0.732	1.591	1.550	696	656	5.04e6	3.14e6	7240.7	4794.6	NO	bb	bb	96.433
13C-123478-HxCDD	35.992	0.986	4.009e5	3.162e5	0.960	1.268	1.240	1372	1602	6.45e6	5.07e6	4702.9	3166.4	NO	bd	bd	104.124
13C-123678-HxCDD	36.103	0.989	3.925e5	3.100e5	1.041	1.266	1.240	1372	1602	6.48e6	5.23e6	4726.1	3262.2	NO	db	db	94.016
13C-1234678-HpCDD	40.259	1.103	2.001e5	1.916e5	0.632	1.044	1.050	731	857	2.99e6	2.84e6	4091.1	3314.3	NO	bb	bb	86.319
13C-OCDD	45.015	1.233	2.504e5	2.929e5	0.504	0.855	0.890	926	1103	2.69e6	3.11e6	2904.8	2819.5	NO	bb	bb	150.299
13C-123789-HxCDD	36.504	0.000	4.023e5	3.152e5	1.000	1.276	1.240	1372	1602	6.56e6	5.06e6	4784.9	3156.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	7.981e4		1.084			1066		1.17e6		1100.0			bb		9.782

Dataset: T:\Autospec\Processed Data Batch\210922D1.qld
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ID: CS3S8, Name: 21092211, Date: 23-Sep-2021, Time: 04:45:59, 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	5.054e4	6.570e4	1.425	0.769	0.770	690	790	7.39e5	9.32e5	1071.8	1179.5	NO	bd	bb	8.314
1289-TCDF	27.272	1.059	3.853e4	5.344e4	1.043	0.721	0.770	690	790	5.68e5	7.61e5	823.7	963.5	NO	db	dd	8.989
13468-PECDF	27.106	0.906	3.896e5	2.499e5	1.376	1.559	1.550	612	775	5.86e6	3.71e6	9580.1	4782.3	NO	bb	bb	54.919
12389-PECDF	32.315	1.080	2.248e5	1.509e5	1.000	1.490	1.550	1654	1510	3.35e6	2.26e6	2028.5	1494.3	NO	bb	bb	44.431
123468-HXCDF	33.218	0.952	2.244e5	1.879e5	1.087	1.194	1.240	1422	1313	3.46e6	2.93e6	2435.7	2233.8	NO	bb	bb	45.722
1368-TCDD	23.508	0.892	3.344e4	4.271e4	0.923	0.783	0.770	753	590	5.19e5	6.45e5	690.1	1092.4	NO	bb	bb	9.420
1289-TCDD	27.000	1.024	2.994e4	3.900e4	0.794	0.768	0.770	753	590	4.42e5	5.69e5	587.6	964.2	NO	bd	bb	9.916
12479-PECDD	28.773	0.914	2.793e5	1.765e5	1.843	1.582	1.550	1312	877	2.74e6	1.73e6	2087.2	1970.3	NO	bb	bb	46.526
12389-PECDD	31.914	1.013	1.916e5	1.186e5	1.154	1.616	1.550	1312	877	2.91e6	1.84e6	2216.5	2099.3	NO	bb	bb	50.603
124679-HXCDD	33.998	0.945	2.088e5	1.645e5	1.125	1.269	1.240	1596	908	3.31e6	2.57e6	2075.2	2832.4	NO	bb	bb	46.277
1234679-HPCDD	39.223	0.974	1.161e5	1.094e5	1.211	1.062	1.050	931	921	1.85e6	1.77e6	1983.1	1922.7	NO	bb	bb	47.541
Total-tetrafurans			1.301e5		1.192			690		1.94e6							26.240
Total-penta1			3.896e5					612		5.86e6							54.919
Total-pentafurans			7.212e5		1.047			1654		1.10e7							139.269
Total-hexafurans			1.045e6		1.045			1422		1.65e7							233.917
Total-heptafurans			2.635e5		1.305			1558		3.96e6							90.336
Total-Furans			2.687e6		1.158			690		4.08e7							619.248
Total-tetradioxins			1.676e5		0.879			753		2.29e6							49.804
Total-pentadioxins			6.320e5		1.331			1312		8.15e6							146.520
Total-hexadioxins			7.827e5		1.028			1596		1.27e7							191.196
Total-heptadioxins			2.187e5		1.140			931		3.34e6							95.076
Total-Dioxins			1.937e6		1.092			753		2.79e7							574.719
Total-TEQ			4.624e6					753		6.87e7							1193.968
FUNCTION1 PFK			1.779e7					259148		1.09e8							
FUNCTION2 PFK			1.707e5					141406		5.39e6							0.000
FUNCTION3 PFK			1.144e6					201260		2.51e7							0.000
FUNCTION4 PFK			0.000e0					129283		0.00e0							
FUNCTION5 PFK			3.687e4					112634		1.50e6							
FUNCTION1 HXCD...			4.511e2					509		5.20e3							0.000
FUNCTION1 HPCD...			7.223e1					513		1.47e3							0.000
FUNCTION2 HPCD...			3.838e2					573		5.68e3							0.000
FUNCTION3 OCDPE			0.000e0					518		0.00e0							
FUNCTION4 NCDPE			7.248e1					567		1.31e3							0.000
FUNCTION5 DCDPE			0.000e0					495		0.00e0							

Dataset: T:\Autospec\Processed Data Batch\210922D1.qld
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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: CS3S8, Name: 21092211, Date: 23-Sep-2021, Time: 04:45:59, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.853e4	5.344e4	1.043	0.72	0.77	823.7	YES	NO	db	dd	8.989
2	2378-TCDF	25.76	4.088e4	5.591e4	1.108	0.73	0.77	909.9	YES	NO	dd	bb	8.908
3	Total-tetrafurans	25.56	1.467e2	1.908e2	1.192	0.77	0.77	3.0	NO	NO	bd	bb	0.029
4	1368-TCDF	22.24	5.054e4	6.570e4	1.425	0.77	0.77	1071.8	YES	NO	bd	bb	8.314

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.11	3.896e5	2.499e5	1.376	1.56	1.55	9580.1	YES	NO	bb	bb	54.919

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.92	2.238e5	1.510e5	1.015	1.48	1.55	2079.5	YES	NO	bb	bb	43.650
2	Total-pentafurans	28.76	3.838e4	2.589e4	1.047	1.48	1.55	349.6	YES	NO	bb	bb	7.478
3	12389-PECDF	32.32	2.248e5	1.509e5	1.000	1.49	1.55	2028.5	YES	NO	bb	bb	44.431
4	23478-PeCDF	31.27	2.342e5	1.575e5	1.126	1.49	1.55	2194.4	YES	NO	bb	bb	43.710

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	1.772e5	1.452e5	1.030	1.22	1.24	1918.6	YES	NO	bd	bb	47.222
2	234678-HxCDF	35.90	2.093e5	1.761e5	1.052	1.19	1.24	2417.1	YES	NO	bb	bb	46.671
3	123678-HxCDF	35.03	2.178e5	1.850e5	1.037	1.18	1.24	2435.5	YES	NO	db	db	47.043
4	123478-HxCDF	34.89	2.158e5	1.827e5	1.017	1.18	1.24	2416.5	YES	NO	bd	bd	47.210
5	Total-hexafurans	34.74	2.262e2	1.810e2	1.045	1.25	1.24	4.2	YES	NO	bb	bb	0.050
6	123468-HXCDF	33.22	2.244e5	1.879e5	1.087	1.19	1.24	2435.7	YES	NO	bb	bb	45.722

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.45	3.857e2	3.863e2	1.305	1.00	1.05	4.6	YES	NO	bb	bb	0.134
2	1234678-HpCDF	38.78	1.484e5	1.461e5	1.327	1.02	1.05	1504.9	YES	NO	bd	bb	45.063
3	1234789-HpCDF	41.03	1.147e5	1.117e5	1.283	1.03	1.05	1033.4	YES	NO	bd	bd	45.139

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.853e4	5.344e4	1.043	0.72	0.77	823.7	YES	NO	db	dd	8.989
2	2378-TCDF	25.76	4.088e4	5.591e4	1.108	0.73	0.77	909.9	YES	NO	dd	bb	8.908
3	Total-tetrafurans	25.56	1.467e2	1.908e2	1.192	0.77	0.77	3.0	NO	NO	bd	bb	0.029
4	1368-TCDF	22.24	5.054e4	6.570e4	1.425	0.77	0.77	1071.8	YES	NO	bd	bb	8.314
5	12378-PeCDF	29.92	2.238e5	1.510e5	1.015	1.48	1.55	2079.5	YES	NO	bb	bb	43.650
6	Total-pentafurans	28.76	3.838e4	2.589e4	1.047	1.48	1.55	349.6	YES	NO	bb	bb	7.478
7	12389-PECDF	32.32	2.248e5	1.509e5	1.000	1.49	1.55	2028.5	YES	NO	bb	bb	44.431
8	23478-PeCDF	31.27	2.342e5	1.575e5	1.126	1.49	1.55	2194.4	YES	NO	bb	bb	43.710
9	123789-HxCDF	36.94	1.772e5	1.452e5	1.030	1.22	1.24	1918.6	YES	NO	bd	bb	47.222
10	234678-HxCDF	35.90	2.093e5	1.761e5	1.052	1.19	1.24	2417.1	YES	NO	bb	bb	46.671
11	123678-HxCDF	35.03	2.178e5	1.850e5	1.037	1.18	1.24	2435.5	YES	NO	db	db	47.043
12	123478-HxCDF	34.89	2.158e5	1.827e5	1.017	1.18	1.24	2416.5	YES	NO	bd	bd	47.210
13	Total-hexafurans	34.74	2.262e2	1.810e2	1.045	1.25	1.24	4.2	YES	NO	bb	bb	0.050
14	123468-HXCDF	33.22	2.244e5	1.879e5	1.087	1.19	1.24	2435.7	YES	NO	bb	bb	45.722
15	Total-heptafurans	39.45	3.857e2	3.863e2	1.305	1.00	1.05	4.6	YES	NO	bb	bb	0.134
16	1234678-HpCDF	38.78	1.484e5	1.461e5	1.327	1.02	1.05	1504.9	YES	NO	bd	bb	45.063
17	1234789-HpCDF	41.03	1.147e5	1.117e5	1.283	1.03	1.05	1033.4	YES	NO	bd	bd	45.139
18	OCDF	45.27	1.383e5	1.548e5	1.447	0.89	0.89	2199.5	YES	NO	bb	bb	74.567
19	13468-PECDF	27.11	3.896e5	2.499e5	1.376	1.56	1.55	9580.1	YES	NO	bb	bb	54.919

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	27.00	2.994e4	3.900e4	0.794	0.77	0.77	587.6	YES	NO	bd	bb	9.916
2	2378-TCDD	26.40	3.437e4	4.376e4	0.920	0.79	0.77	706.4	YES	NO	bb	bb	9.695
3	Total-tetradioxins	26.08	5.200e4	6.704e4	0.879	0.78	0.77	696.2	YES	NO	bb	bb	15.462
4	Total-tetradioxins	25.58	1.645e4	2.125e4	0.879	0.77	0.77	345.4	YES	NO	bb	bb	4.896
5	Total-tetradioxins	24.72	1.220e3	1.566e3	0.879	0.78	0.77	17.7	YES	NO	bb	bb	0.362
6	Total-tetradioxins	23.78	1.835e2	2.321e2	0.879	0.79	0.77	3.8	YES	NO	bb	bb	0.054
7	1368-TCDD	23.51	3.344e4	4.271e4	0.923	0.78	0.77	690.1	YES	NO	bb	bb	9.420

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.83	9.154e2	5.673e2	1.331	1.61	1.55	10.6	YES	NO	bb	bb	0.210
2	Total-pentadioxins	29.91	5.110e2	3.117e2	1.331	1.64	1.55	5.5	YES	NO	bb	bb	0.116
3	12479-PECDD	28.77	2.793e5	1.765e5	1.843	1.58	1.55	2087.2	YES	NO	bb	bb	46.526
4	12389-PECDD	31.91	1.916e5	1.186e5	1.154	1.62	1.55	2216.5	YES	NO	bb	bb	50.603
5	12378-PeCDD	31.51	1.597e5	9.984e4	0.995	1.60	1.55	1891.2	YES	NO	bb	bb	49.066

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	34.00	2.088e5	1.645e5	1.125	1.27	1.24	2075.2	YES	NO	bb	bb	46.277
2	Total-hexadioxins	36.91	2.768e2	2.145e2	1.028	1.29	1.24	3.1	YES	NO	bb	bd	0.067
3	123789-HxCDD	36.52	1.895e5	1.499e5	0.950	1.26	1.24	1929.1	YES	NO	bb	bb	50.315
4	123678-HxCDD	36.11	1.958e5	1.509e5	1.009	1.30	1.24	1984.9	YES	NO	db	db	48.914
5	123478-HxCDD	36.00	1.883e5	1.478e5	1.027	1.27	1.24	1943.8	YES	NO	bd	bd	45.623

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.28	1.026e5	9.630e4	1.068	1.07	1.05	1604.5	YES	NO	bb	bb	47.535
2	1234679-HPCDD	39.22	1.161e5	1.094e5	1.211	1.06	1.05	1983.1	YES	NO	bb	bb	47.541

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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	27.00	2.994e4	3.900e4	0.794	0.77	0.77	587.6	YES	NO	bd	bb	9.916
2	2378-TCDD	26.40	3.437e4	4.376e4	0.920	0.79	0.77	706.4	YES	NO	bb	bb	9.695
3	Total-tetradioxins	26.08	5.200e4	6.704e4	0.879	0.78	0.77	696.2	YES	NO	bb	bb	15.462
4	Total-tetradioxins	25.58	1.645e4	2.125e4	0.879	0.77	0.77	345.4	YES	NO	bb	bb	4.896
5	Total-tetradioxins	24.72	1.220e3	1.566e3	0.879	0.78	0.77	17.7	YES	NO	bb	bb	0.362
6	Total-tetradioxins	23.78	1.835e2	2.321e2	0.879	0.79	0.77	3.8	YES	NO	bb	bb	0.054
7	1368-TCDD	23.51	3.344e4	4.271e4	0.923	0.78	0.77	690.1	YES	NO	bb	bb	9.420
8	Total-pentadioxins	30.83	9.154e2	5.673e2	1.331	1.61	1.55	10.6	YES	NO	bb	bb	0.210
9	Total-pentadioxins	29.91	5.110e2	3.117e2	1.331	1.64	1.55	5.5	YES	NO	bb	bb	0.116
10	12479-PECDD	28.77	2.793e5	1.765e5	1.843	1.58	1.55	2087.2	YES	NO	bb	bb	46.526
11	124679-HXCDD	34.00	2.088e5	1.645e5	1.125	1.27	1.24	2075.2	YES	NO	bb	bb	46.277
12	12389-PECDD	31.91	1.916e5	1.186e5	1.154	1.62	1.55	2216.5	YES	NO	bb	bb	50.603
13	12378-PeCDD	31.51	1.597e5	9.984e4	0.995	1.60	1.55	1891.2	YES	NO	bb	bb	49.066
14	Total-hexadioxins	36.91	2.768e2	2.145e2	1.028	1.29	1.24	3.1	YES	NO	bb	bd	0.067
15	123789-HxCDD	36.52	1.895e5	1.499e5	0.950	1.26	1.24	1929.1	YES	NO	bb	bb	50.315
16	123678-HxCDD	36.11	1.958e5	1.509e5	1.009	1.30	1.24	1984.9	YES	NO	db	db	48.914
17	123478-HxCDD	36.00	1.883e5	1.478e5	1.027	1.27	1.24	1943.8	YES	NO	bd	bd	45.623
18	1234678-HpCDD	40.28	1.026e5	9.630e4	1.068	1.07	1.05	1604.5	YES	NO	bb	bb	47.535
19	1234679-HPCDD	39.22	1.161e5	1.094e5	1.211	1.06	1.05	1983.1	YES	NO	bb	bb	47.541
20	OCDD	45.03	1.360e5	1.595e5	1.181	0.85	0.89	1508.2	YES	NO	bb	bd	92.123

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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	27.27	3.853e4	5.344e4	1.043	0.72	0.77	823.7	YES	NO	db	dd	8.989
2	2378-TCDF	25.76	4.088e4	5.591e4	1.108	0.73	0.77	909.9	YES	NO	dd	bb	8.908
3	Total-tetrafurans	25.56	1.467e2	1.908e2	1.192	0.77	0.77	3.0	NO	NO	bd	bb	0.029
4	1368-TCDF	22.24	5.054e4	6.570e4	1.425	0.77	0.77	1071.8	YES	NO	bd	bb	8.314
5	12378-PeCDF	29.92	2.238e5	1.510e5	1.015	1.48	1.55	2079.5	YES	NO	bb	bb	43.650
6	Total-pentafurans	28.76	3.838e4	2.589e4	1.047	1.48	1.55	349.6	YES	NO	bb	bb	7.478
7	12389-PECDF	32.32	2.248e5	1.509e5	1.000	1.49	1.55	2028.5	YES	NO	bb	bb	44.431
8	23478-PeCDF	31.27	2.342e5	1.575e5	1.126	1.49	1.55	2194.4	YES	NO	bb	bb	43.710
9	123789-HxCDF	36.94	1.772e5	1.452e5	1.030	1.22	1.24	1918.6	YES	NO	bd	bb	47.222
10	234678-HxCDF	35.90	2.093e5	1.761e5	1.052	1.19	1.24	2417.1	YES	NO	bb	bb	46.671
11	123678-HxCDF	35.03	2.178e5	1.850e5	1.037	1.18	1.24	2435.5	YES	NO	db	db	47.043
12	123478-HxCDF	34.89	2.158e5	1.827e5	1.017	1.18	1.24	2416.5	YES	NO	bd	bd	47.210
13	Total-hexafurans	34.74	2.262e2	1.810e2	1.045	1.25	1.24	4.2	YES	NO	bb	bb	0.050
14	123468-HXCDF	33.22	2.244e5	1.879e5	1.087	1.19	1.24	2435.7	YES	NO	bb	bb	45.722
15	Total-heptafurans	39.45	3.857e2	3.863e2	1.305	1.00	1.05	4.6	YES	NO	bb	bb	0.134
16	1234678-HpCDF	38.78	1.484e5	1.461e5	1.327	1.02	1.05	1504.9	YES	NO	bd	bb	45.063
17	1234789-HpCDF	41.03	1.147e5	1.117e5	1.283	1.03	1.05	1033.4	YES	NO	bd	bd	45.139
18	OCDF	45.27	1.383e5	1.548e5	1.447	0.89	0.89	2199.5	YES	NO	bb	bb	74.567
19	13468-PECDF	27.11	3.896e5	2.499e5	1.376	1.56	1.55	9580.1	YES	NO	bb	bb	54.919
20	1289-TCDD	27.00	2.994e4	3.900e4	0.794	0.77	0.77	587.6	YES	NO	bd	bb	9.916
21	2378-TCDD	26.40	3.437e4	4.376e4	0.920	0.79	0.77	706.4	YES	NO	bb	bb	9.695
22	Total-tetradioxins	26.08	5.200e4	6.704e4	0.879	0.78	0.77	696.2	YES	NO	bb	bb	15.462
23	Total-tetradioxins	25.58	1.645e4	2.125e4	0.879	0.77	0.77	345.4	YES	NO	bb	bb	4.896
24	Total-tetradioxins	24.72	1.220e3	1.566e3	0.879	0.78	0.77	17.7	YES	NO	bb	bb	0.362
25	Total-tetradioxins	23.78	1.835e2	2.321e2	0.879	0.79	0.77	3.8	YES	NO	bb	bb	0.054
26	1368-TCDD	23.51	3.344e4	4.271e4	0.923	0.78	0.77	690.1	YES	NO	bb	bb	9.420
27	Total-pentadioxins	30.83	9.154e2	5.673e2	1.331	1.61	1.55	10.6	YES	NO	bb	bb	0.210
28	Total-pentadioxins	29.91	5.110e2	3.117e2	1.331	1.64	1.55	5.5	YES	NO	bb	bb	0.116
29	12479-PECDD	28.77	2.793e5	1.765e5	1.843	1.58	1.55	2087.2	YES	NO	bb	bb	46.526
30	124679-HXCDD	34.00	2.088e5	1.645e5	1.125	1.27	1.24	2075.2	YES	NO	bb	bb	46.277
31	12389-PECDD	31.91	1.916e5	1.186e5	1.154	1.62	1.55	2216.5	YES	NO	bb	bb	50.603
32	12378-PeCDD	31.51	1.597e5	9.984e4	0.995	1.60	1.55	1891.2	YES	NO	bb	bb	49.066
33	Total-hexadioxins	36.91	2.768e2	2.145e2	1.028	1.29	1.24	3.1	YES	NO	bb	bd	0.067
34	123789-HxCDD	36.52	1.895e5	1.499e5	0.950	1.26	1.24	1929.1	YES	NO	bb	bb	50.315
35	123678-HxCDD	36.11	1.958e5	1.509e5	1.009	1.30	1.24	1984.9	YES	NO	db	db	48.914
36	123478-HxCDD	36.00	1.883e5	1.478e5	1.027	1.27	1.24	1943.8	YES	NO	bd	bd	45.623
37	1234678-HpCDD	40.28	1.026e5	9.630e4	1.068	1.07	1.05	1604.5	YES	NO	bb	bb	47.535

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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
38	1234679-HPCDD	39.22	1.161e5	1.094e5	1.211	1.06	1.05	1983.1	YES	NO	bb	bb	47.541
39	OCDD	45.03	1.360e5	1.595e5	1.181	0.85	0.89	1508.2	YES	NO	bb	bd	92.123

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.47	4.308e6					53.4	YES		dd		
2	FUNCTION1 PFK	21.24	1.336e6					58.5	YES		dd		
3	FUNCTION1 PFK	21.19	9.365e5					60.5	YES		dd		
4	FUNCTION1 PFK	21.13	1.676e6					61.9	YES		bd		
5	FUNCTION1 PFK	27.94	1.636e3					0.4	NO		bb		
6	FUNCTION1 PFK	26.68	1.007e4					1.3	NO		bb		
7	FUNCTION1 PFK	25.85	6.361e3					0.7	NO		bb		
8	FUNCTION1 PFK	23.40	5.818e3					0.9	NO		bb		
9	FUNCTION1 PFK	23.04	9.471e4					4.8	YES		db		
10	FUNCTION1 PFK	22.75	7.020e5					13.7	YES		dd		
11	FUNCTION1 PFK	22.63	5.240e5					18.1	YES		dd		
12	FUNCTION1 PFK	22.56	7.052e5					19.8	YES		dd		
13	FUNCTION1 PFK	22.43	3.625e5					23.7	YES		dd		
14	FUNCTION1 PFK	22.18	1.736e6					31.7	YES		dd		
15	FUNCTION1 PFK	22.06	1.165e6					34.7	YES		dd		
16	FUNCTION1 PFK	21.97	4.221e6					38.0	YES		dd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.56	7.166e2					0.5	NO		bb		0.000
2	FUNCTION2 PFK	28.52	1.012e4					2.0	NO		bb		0.000
3	FUNCTION2 PFK	28.26	4.029e3					1.2	NO		bb		0.000
4	FUNCTION2 PFK	30.13	3.099e3					0.8	NO		bb		0.000
5	FUNCTION2 PFK	30.00	7.839e2					0.5	NO		bb		0.000
6	FUNCTION2 PFK	29.95	1.864e3					0.8	NO		db		0.000
7	FUNCTION2 PFK	29.92	6.112e3					1.3	NO		dd		0.000
8	FUNCTION2 PFK	29.85	1.083e4					1.7	NO		bd		0.000
9	FUNCTION2 PFK	29.79	8.218e3					1.7	NO		db		0.000
10	FUNCTION2 PFK	29.74	4.105e3					1.1	NO		bd		0.000
11	FUNCTION2 PFK	29.57	1.581e3					0.5	NO		db		0.000
12	FUNCTION2 PFK	29.50	4.454e3					1.0	NO		bd		0.000
13	FUNCTION2 PFK	29.35	2.760e3					0.8	NO		bb		0.000
14	FUNCTION2 PFK	29.21	5.395e3					1.2	NO		db		0.000
15	FUNCTION2 PFK	29.15	1.363e4					1.8	NO		bd		0.000
16	FUNCTION2 PFK	29.05	2.134e3					0.8	NO		bb		0.000
17	FUNCTION2 PFK	28.95	6.703e3					1.4	NO		bb		0.000
18	FUNCTION2 PFK	28.77	1.844e4					2.1	NO		bb		0.000
19	FUNCTION2 PFK	28.68	1.622e3					0.6	NO		bb		0.000
20	FUNCTION2 PFK	32.59	8.149e2					0.5	NO		bb		0.000
21	FUNCTION2 PFK	32.55	8.346e3					1.2	NO		db		0.000
22	FUNCTION2 PFK	32.46	2.297e3					0.7	NO		bd		0.000
23	FUNCTION2 PFK	32.42	2.314e3					0.6	NO		bb		0.000
24	FUNCTION2 PFK	32.30	2.329e3					0.8	NO		bb		0.000
25	FUNCTION2 PFK	32.25	6.752e3					1.9	NO		bb		0.000
26	FUNCTION2 PFK	32.19	8.180e2					0.5	NO		bb		0.000
27	FUNCTION2 PFK	32.12	7.795e3					1.1	NO		bb		0.000
28	FUNCTION2 PFK	31.89	2.672e3					0.9	NO		bb		0.000
29	FUNCTION2 PFK	31.83	7.971e3					1.3	NO		bb		0.000
30	FUNCTION2 PFK	31.60	8.020e2					0.5	NO		bb		0.000
31	FUNCTION2 PFK	31.45	7.917e3					1.8	NO		bb		0.000
32	FUNCTION2 PFK	31.03	1.145e3					0.5	NO		bb		0.000
33	FUNCTION2 PFK	30.62	3.675e3					1.1	NO		bb		0.000
34	FUNCTION2 PFK	30.57	4.174e3					1.3	NO		bb		0.000
35	FUNCTION2 PFK	30.30	2.060e3					0.7	NO		bb		0.000
36	FUNCTION2 PFK	32.83	1.752e3					0.7	NO		bb		0.000
37	FUNCTION2 PFK	32.73	5.155e2					0.3	NO		bb		0.000

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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	33.75	2.795e4					1.9	NO		dd		0.000
2	FUNCTION3 PFK	33.62	2.605e4					2.8	NO		bd		0.000
3	FUNCTION3 PFK	33.52	2.817e4					2.5	NO		db		0.000
4	FUNCTION3 PFK	33.47	1.767e4					2.3	NO		dd		0.000
5	FUNCTION3 PFK	33.43	1.368e4					2.1	NO		dd		0.000
6	FUNCTION3 PFK	33.38	1.911e4					2.6	NO		dd		0.000
7	FUNCTION3 PFK	33.32	2.241e4					2.4	NO		dd		0.000
8	FUNCTION3 PFK	33.26	1.979e4					2.4	NO		dd		0.000
9	FUNCTION3 PFK	33.20	2.648e4					2.7	NO		dd		0.000
10	FUNCTION3 PFK	33.13	3.455e4					2.8	NO		bd		0.000
11	FUNCTION3 PFK	33.07	1.945e3					0.9	NO		bb		0.000
12	FUNCTION3 PFK	32.99	3.953e3					1.2	NO		db		0.000
13	FUNCTION3 PFK	32.97	4.013e3					1.3	NO		bd		0.000
14	FUNCTION3 PFK	35.18	8.490e2					0.4	NO		bb		0.000
15	FUNCTION3 PFK	34.99	8.515e3					1.9	NO		db		0.000
16	FUNCTION3 PFK	34.92	1.389e4					1.6	NO		dd		0.000
17	FUNCTION3 PFK	34.88	1.009e4					1.4	NO		dd		0.000
18	FUNCTION3 PFK	34.83	1.542e4					1.5	NO		dd		0.000
19	FUNCTION3 PFK	34.74	1.129e4					1.6	NO		dd		0.000
20	FUNCTION3 PFK	34.69	1.471e4					1.8	NO		bd		0.000
21	FUNCTION3 PFK	34.61	1.157e4					1.4	NO		bb		0.000
22	FUNCTION3 PFK	34.52	7.812e3					1.2	NO		bb		0.000
23	FUNCTION3 PFK	34.47	8.092e3					1.1	NO		bb		0.000
24	FUNCTION3 PFK	34.34	4.901e3					0.8	NO		bb		0.000
25	FUNCTION3 PFK	34.22	2.850e3					0.7	NO		db		0.000
26	FUNCTION3 PFK	34.18	6.077e3					1.0	NO		dd		0.000
27	FUNCTION3 PFK	34.12	1.028e4					1.6	NO		bd		0.000
28	FUNCTION3 PFK	34.02	1.593e4					1.1	NO		bb		0.000
29	FUNCTION3 PFK	33.84	1.668e4					1.5	NO		db		0.000
30	FUNCTION3 PFK	36.43	3.300e4					3.4	YES		bd		0.000
31	FUNCTION3 PFK	36.33	2.390e4					2.8	NO		db		0.000
32	FUNCTION3 PFK	36.28	3.211e4					3.3	YES		dd		0.000
33	FUNCTION3 PFK	36.24	5.262e4					3.0	NO		dd		0.000
34	FUNCTION3 PFK	36.14	9.873e3					1.8	NO		dd		0.000
35	FUNCTION3 PFK	36.09	1.477e4					1.9	NO		dd		0.000
36	FUNCTION3 PFK	36.05	1.669e4					2.2	NO		dd		0.000
37	FUNCTION3 PFK	35.97	5.269e4					5.5	YES		dd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	35.91	5.876e4					4.6	YES		bd		0.000
39	FUNCTION3 PFK	35.82	4.414e3					1.0	NO		db		0.000
40	FUNCTION3 PFK	35.78	6.837e3					1.3	NO		dd		0.000
41	FUNCTION3 PFK	35.74	6.156e3					0.9	NO		bd		0.000
42	FUNCTION3 PFK	35.57	2.527e4					1.9	NO		db		0.000
43	FUNCTION3 PFK	35.46	2.881e4					1.7	NO		dd		0.000
44	FUNCTION3 PFK	35.35	1.838e4					1.4	NO		bd		0.000
45	FUNCTION3 PFK	35.29	2.282e3					0.6	NO		bb		0.000
46	FUNCTION3 PFK	37.44	8.727e3					1.2	NO		db		0.000
47	FUNCTION3 PFK	37.41	3.015e3					0.6	NO		bd		0.000
48	FUNCTION3 PFK	37.32	5.861e3					0.9	NO		bb		0.000
49	FUNCTION3 PFK	37.19	3.107e3					0.7	NO		db		0.000
50	FUNCTION3 PFK	37.16	1.424e4					1.6	NO		dd		0.000
51	FUNCTION3 PFK	37.07	1.658e4					2.0	NO		dd		0.000
52	FUNCTION3 PFK	37.02	2.486e4					2.7	NO		dd		0.000
53	FUNCTION3 PFK	36.97	2.687e4					2.5	NO		dd		0.000
54	FUNCTION3 PFK	36.87	2.682e4					3.0	YES		dd		0.000
55	FUNCTION3 PFK	36.81	2.778e4					2.5	NO		dd		0.000
56	FUNCTION3 PFK	36.78	1.348e4					1.7	NO		dd		0.000
57	FUNCTION3 PFK	36.68	4.207e4					3.2	YES		dd		0.000
58	FUNCTION3 PFK	36.62	3.925e4					3.0	YES		dd		0.000
59	FUNCTION3 PFK	36.55	1.471e4					2.1	NO		dd		0.000
60	FUNCTION3 PFK	36.50	1.131e4					1.9	NO		dd		0.000
61	FUNCTION3 PFK	36.47	1.783e4					2.3	NO		dd		0.000
62	FUNCTION3 PFK	37.85	1.267e4					1.4	NO		bb		0.000
63	FUNCTION3 PFK	37.76	1.447e4					1.7	NO		db		0.000
64	FUNCTION3 PFK	37.71	2.029e4					1.8	NO		bd		0.000
65	FUNCTION3 PFK	37.62	7.568e3					1.4	NO		bb		0.000
66	FUNCTION3 PFK	37.57	1.046e3					0.5	NO		bb		0.000

PFK4

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

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.12	6.454e3					1.0	NO		bb		
2	FUNCTION5 PFK	45.01	5.286e3					1.1	NO		bb		
3	FUNCTION5 PFK	44.53	3.700e3					1.0	NO		bb		
4	FUNCTION5 PFK	44.17	1.329e3					0.7	NO		bb		
5	FUNCTION5 PFK	44.08	3.090e3					1.2	NO		db		
6	FUNCTION5 PFK	44.05	1.992e3					1.1	NO		bd		
7	FUNCTION5 PFK	43.68	4.974e2					0.5	NO		bb		
8	FUNCTION5 PFK	43.50	2.295e3					1.1	NO		bb		
9	FUNCTION5 PFK	43.27	2.640e3					1.2	NO		bb		
10	FUNCTION5 PFK	45.71	2.566e3					1.2	NO		db		
11	FUNCTION5 PFK	45.68	1.191e3					0.9	NO		dd		
12	FUNCTION5 PFK	45.66	2.137e3					1.1	NO		bd		
13	FUNCTION5 PFK	45.48	3.688e3					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...	27.36	7.211e1					2.7	NO		bb		0.000
2	FUNCTION1 HXCD...	26.03	7.336e1					2.1	NO		bb		0.000
3	FUNCTION1 HXCD...	24.85	8.632e1					1.7	NO		bb		0.000
4	FUNCTION1 HXCD...	22.95	1.004e2					2.5	NO		bb		0.000
5	FUNCTION1 HXCD...	22.53	1.189e2					1.3	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...	26.03	7.223e1					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...	31.28	1.041e2					3.0	NO		bb		0.000
2	FUNCTION2 HPCD...	31.06	2.796e2					6.9	YES		bb		0.000

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ETHERS4

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

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.75	7.248e1					2.3	NO		bb		0.000

ETHERS6

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

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

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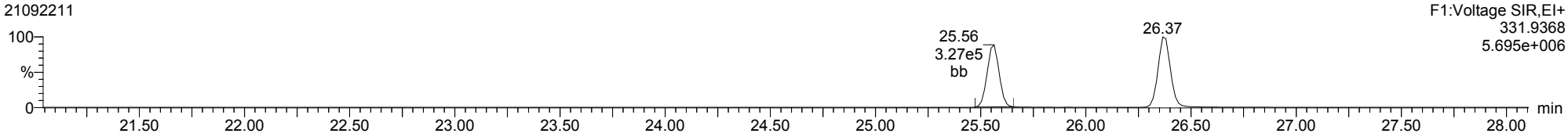
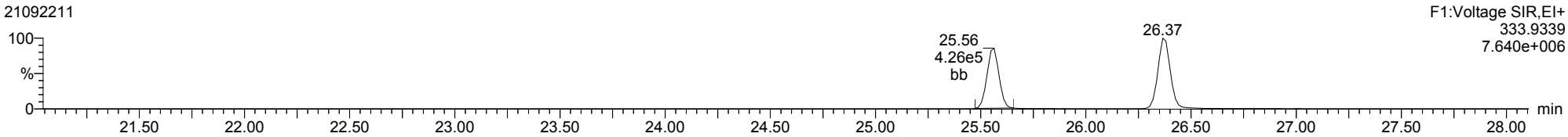
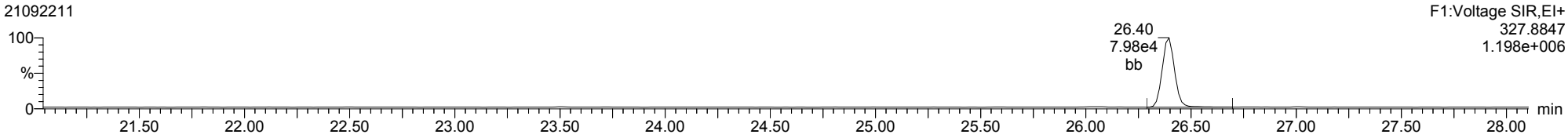
13C-1234-TCDD



13C-1234-TCDD



37CL-2378-TCDD



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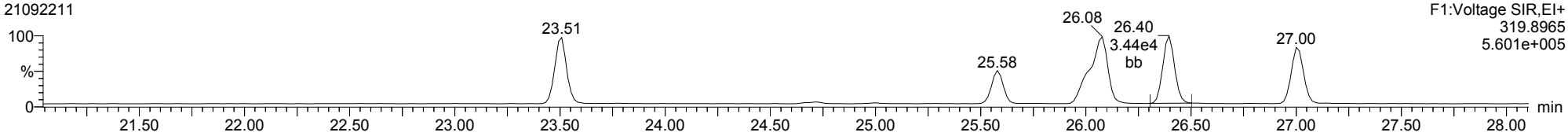
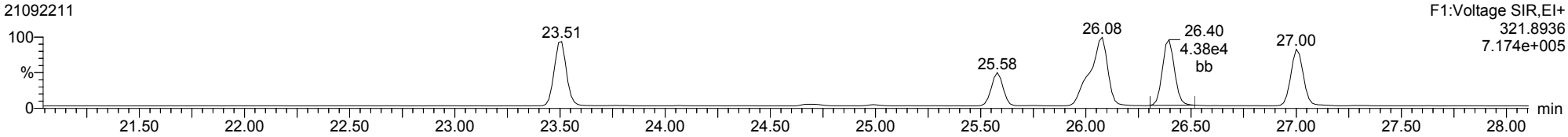
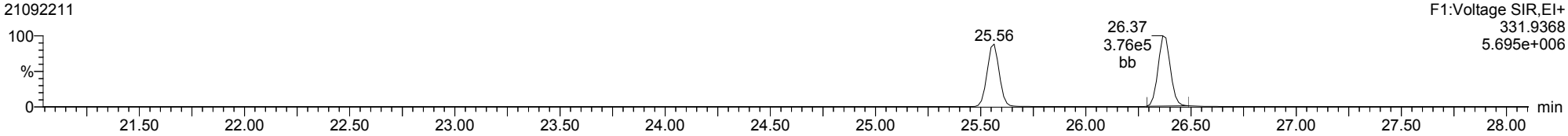
2378-TCDD



2378-TCDD



13C-2378-TCDD



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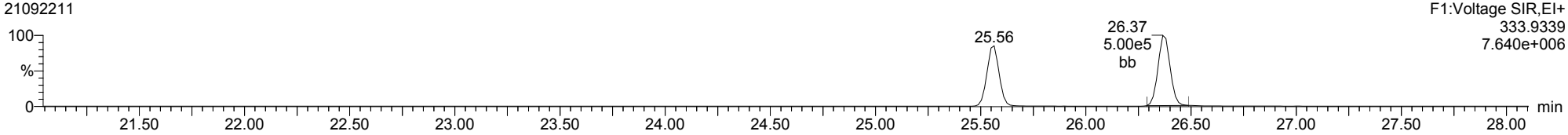
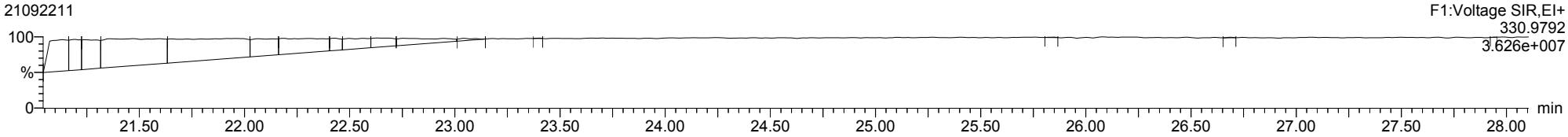


FUNCTION1 PFK



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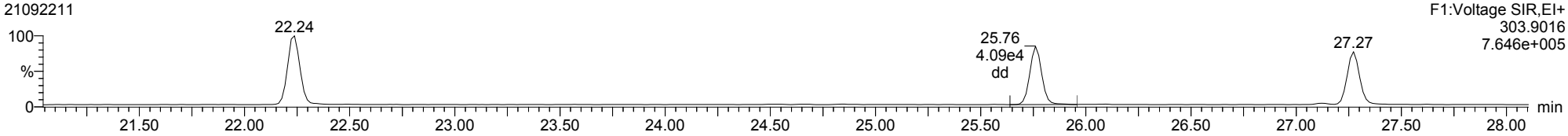
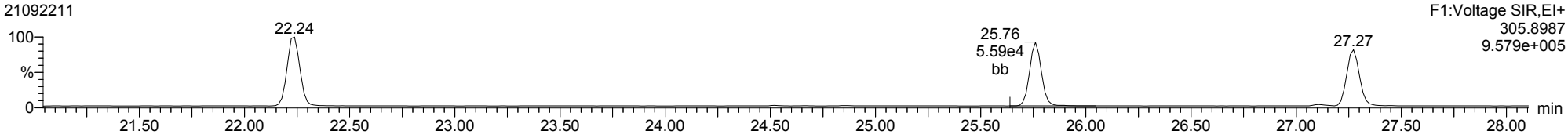
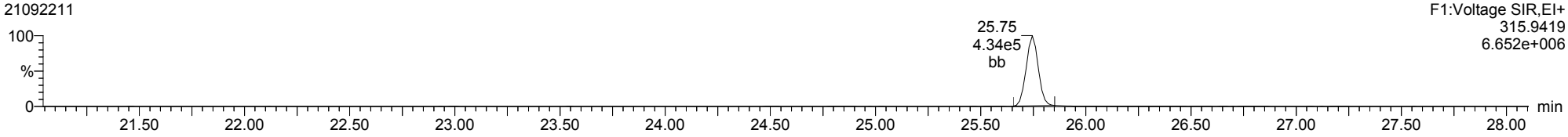
2378-TCDF



2378-TCDF



13C-2378-TCDF



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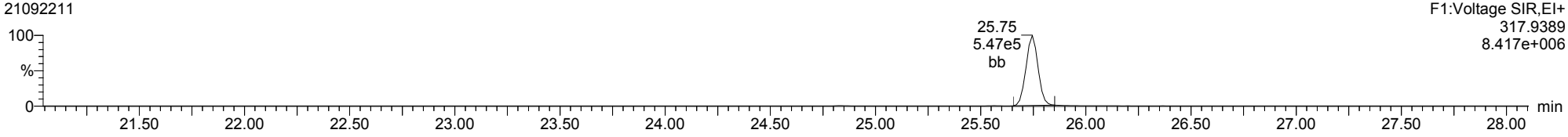

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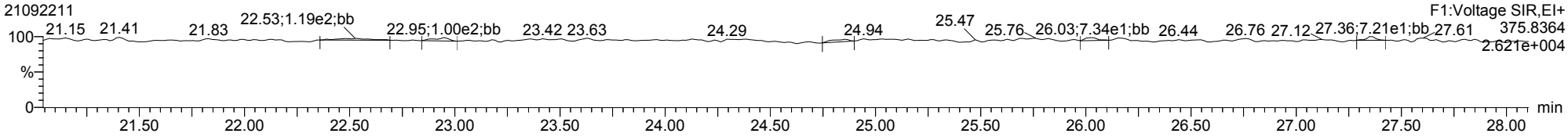

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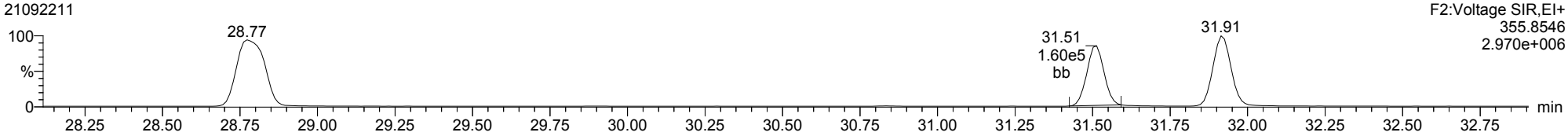
12378-PeCDD



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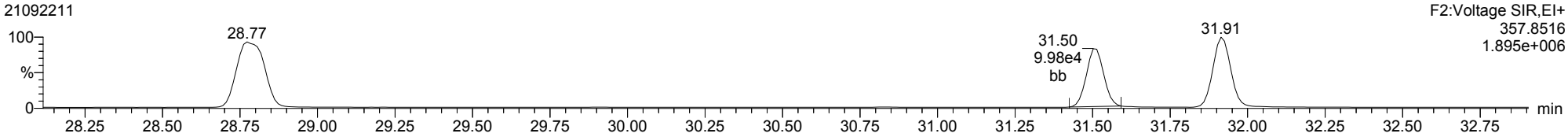

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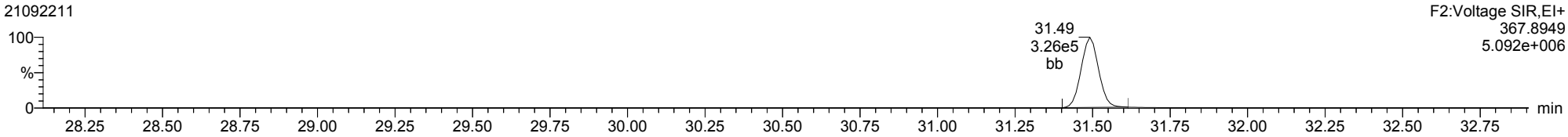

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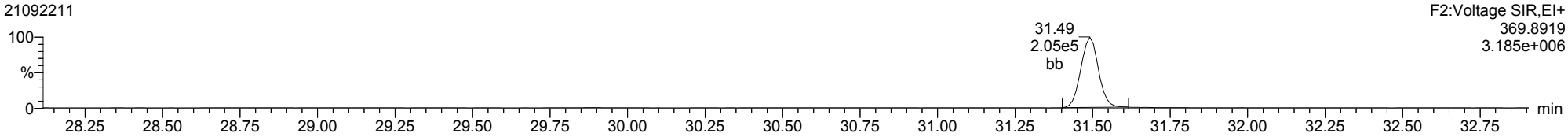
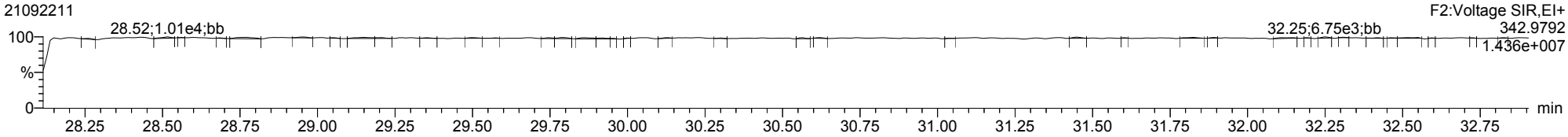


FUNCTION2 PFK



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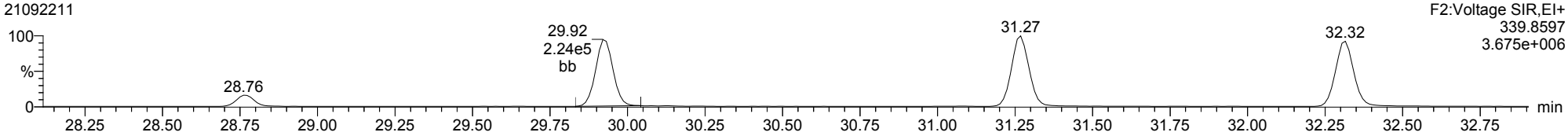

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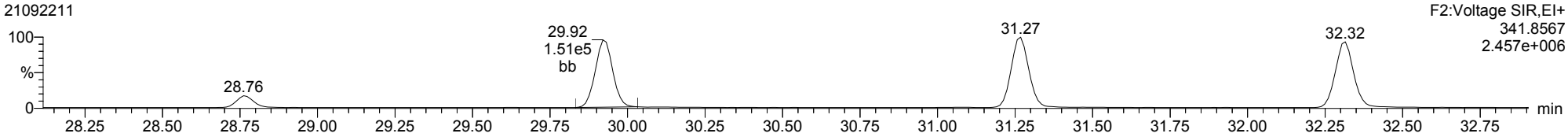

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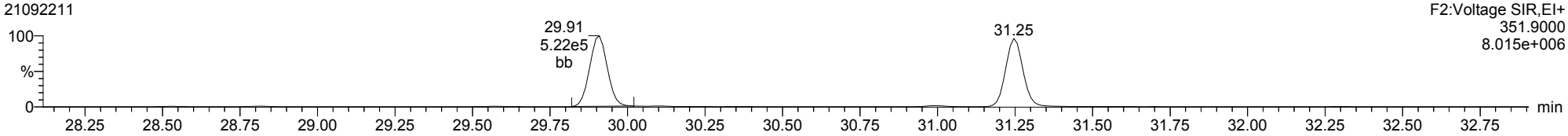

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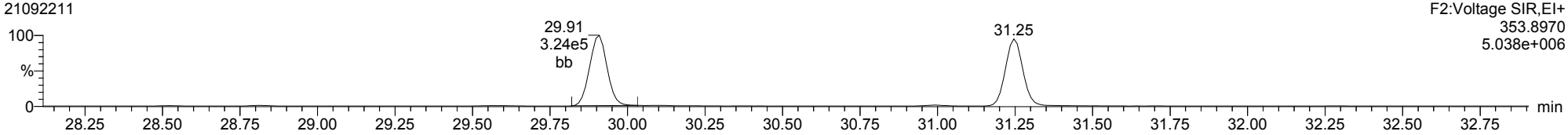
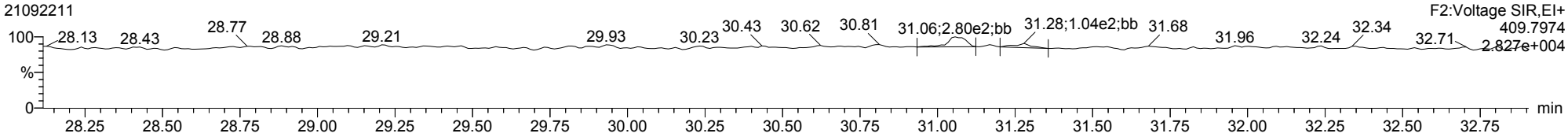


FUNCTION2 HPCDPE



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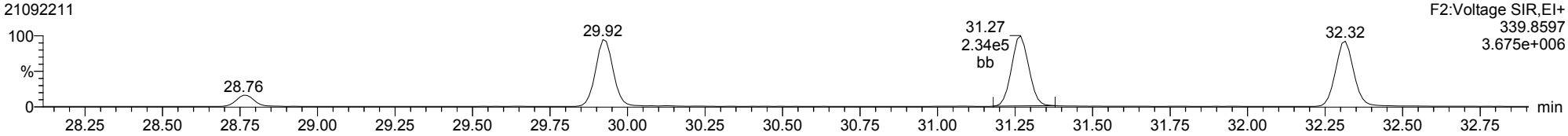
23478-PeCDF



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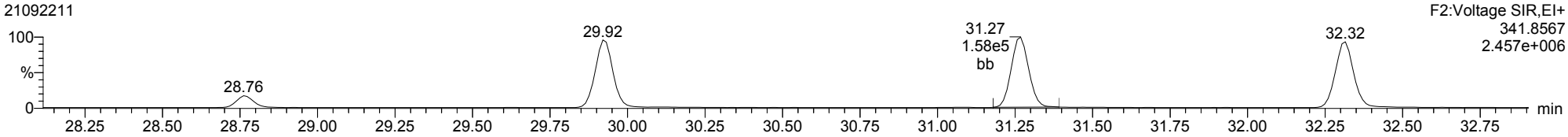

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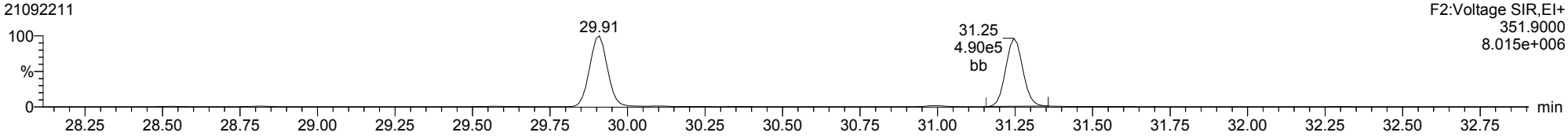

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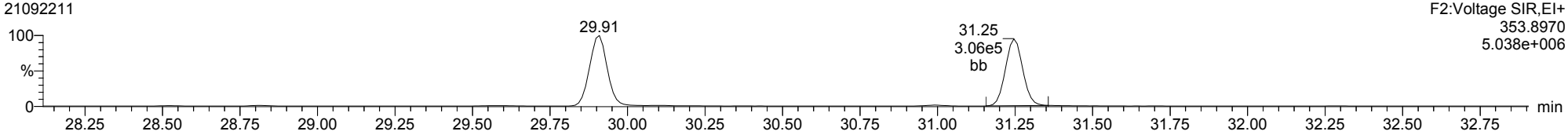

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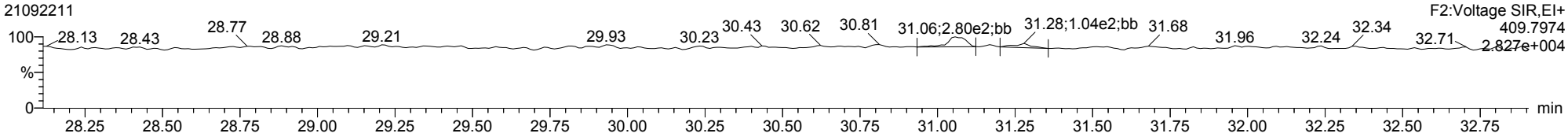

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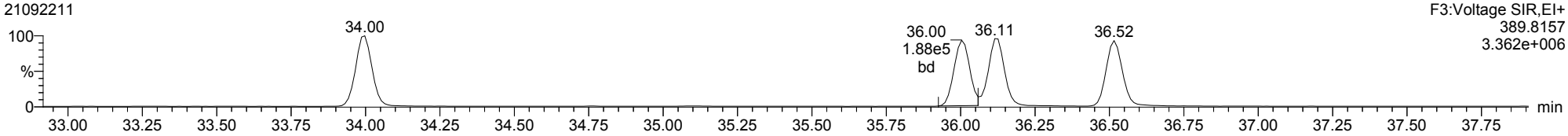
123478-HxCDD



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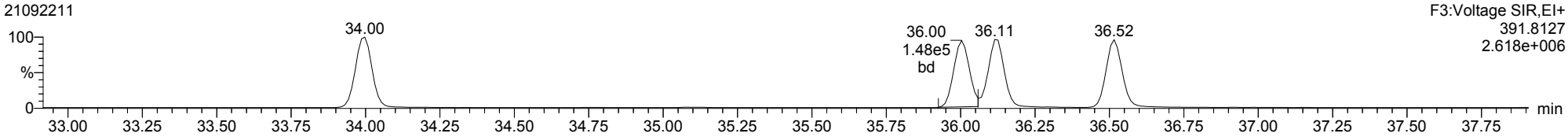

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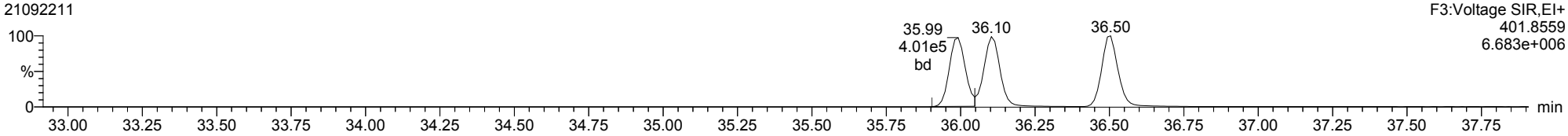

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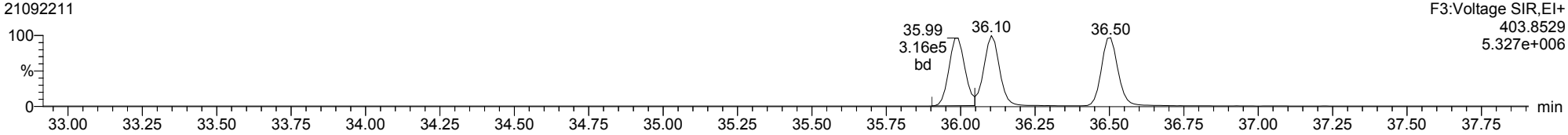
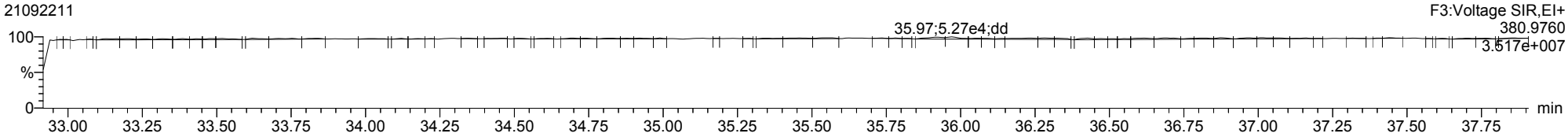


FUNCTION3 PFK



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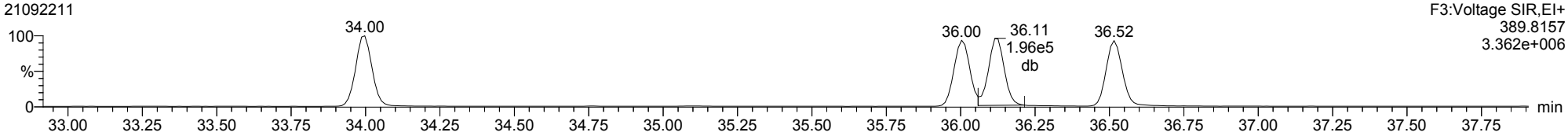
123678-HxCDD



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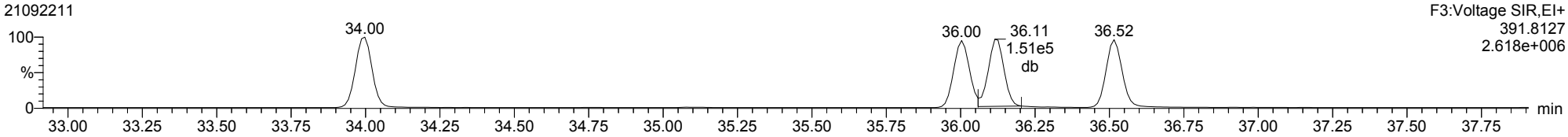

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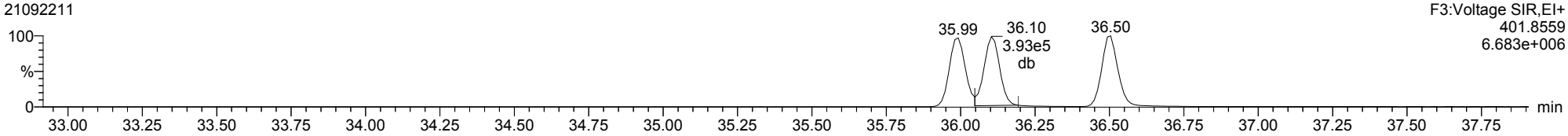

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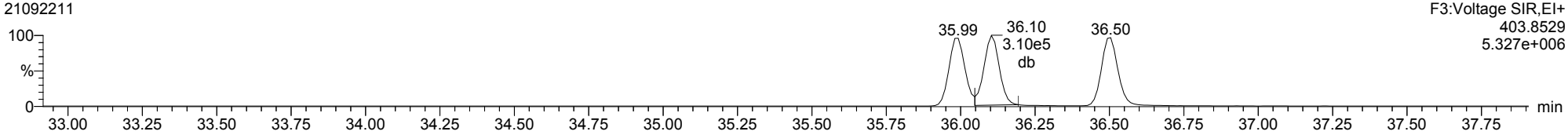

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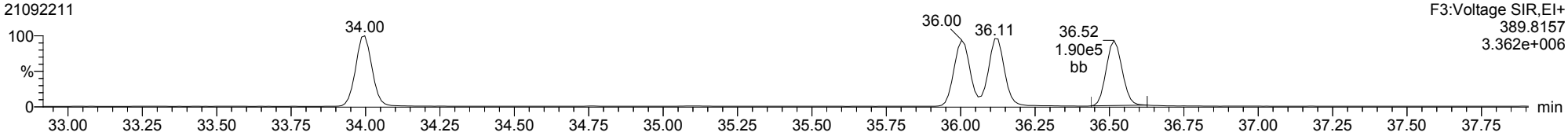

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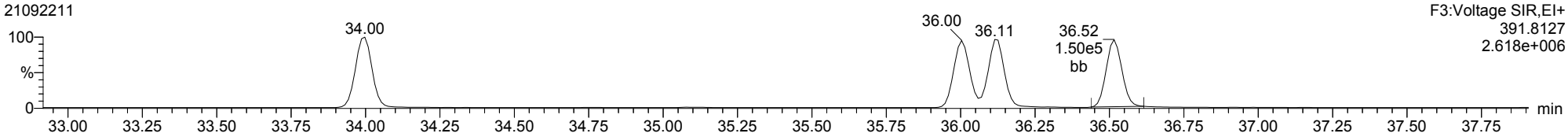

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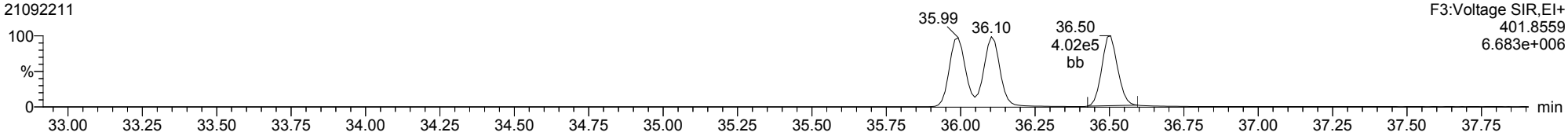

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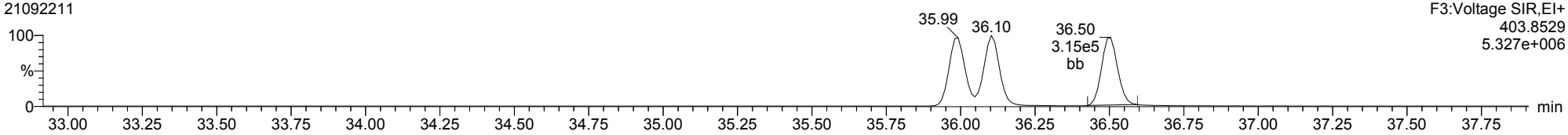

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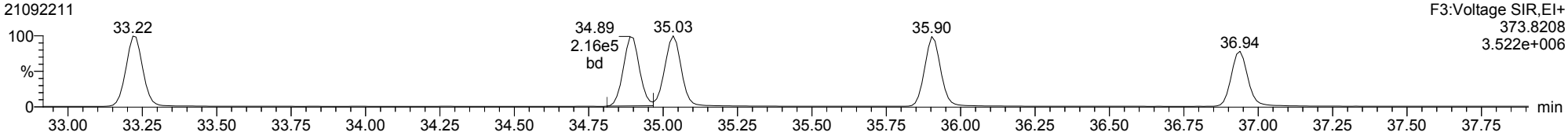

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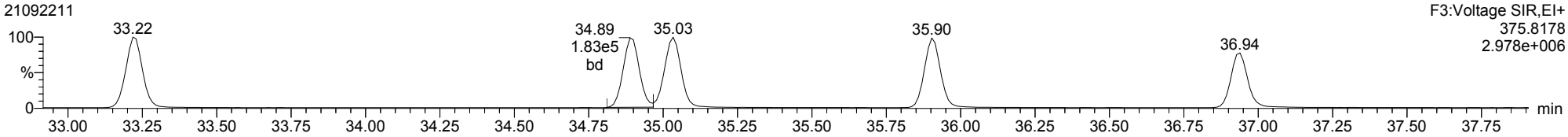

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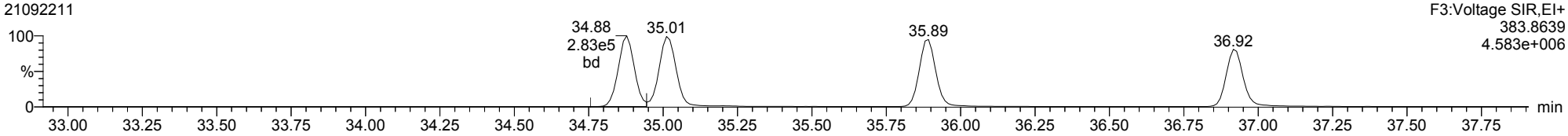

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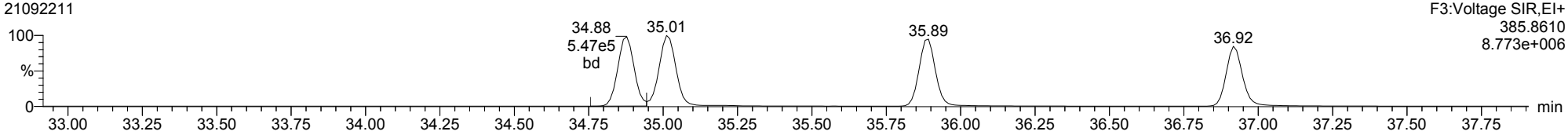
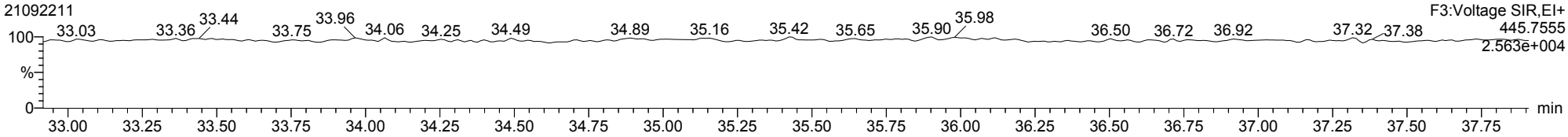


FUNCTION3 OCDPE



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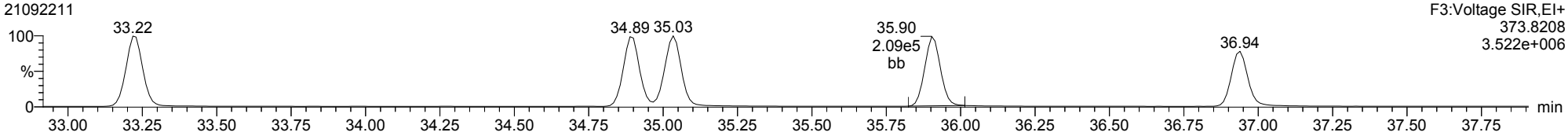
234678-HxCDF



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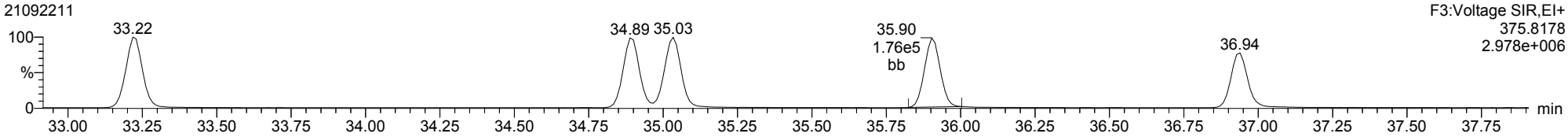

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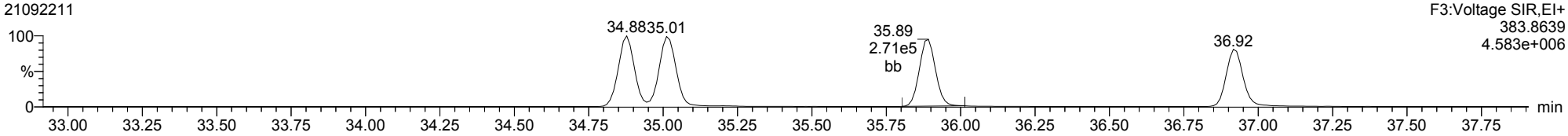

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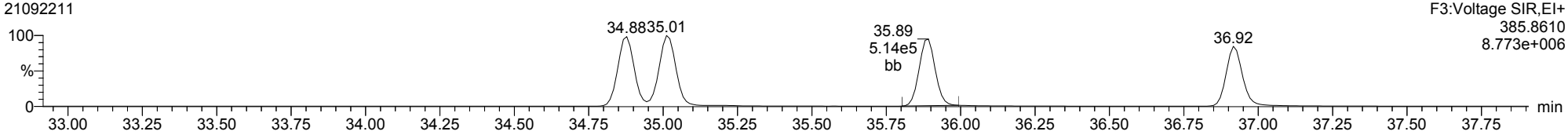
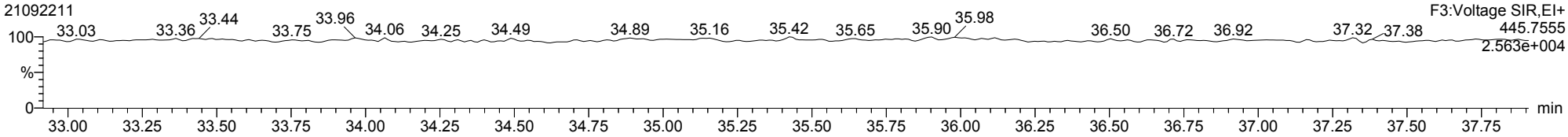


FUNCTION3 OCDPE



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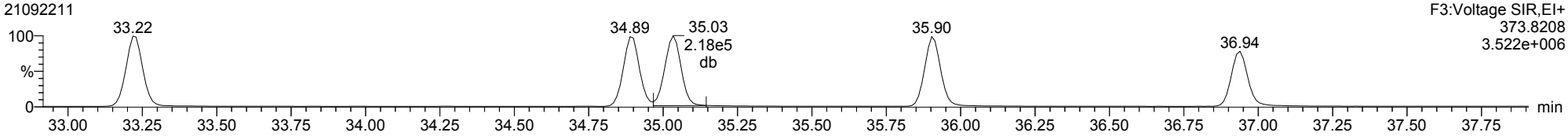

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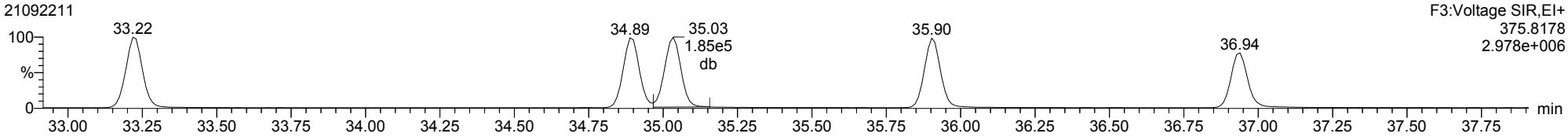

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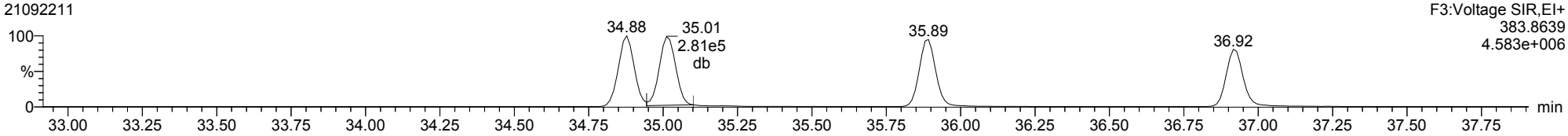

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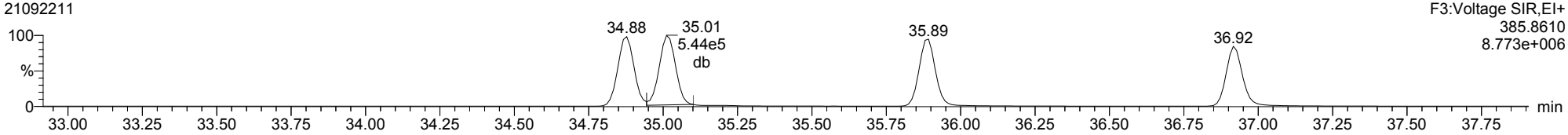
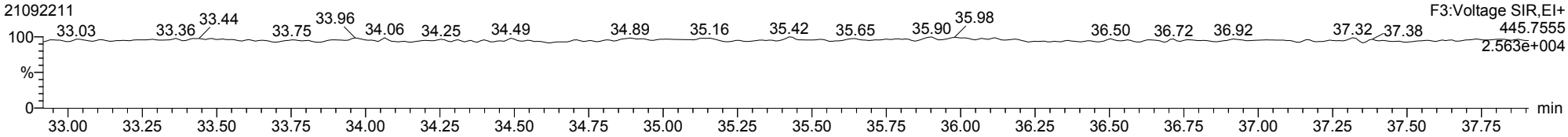


FUNCTION3 OCDPE



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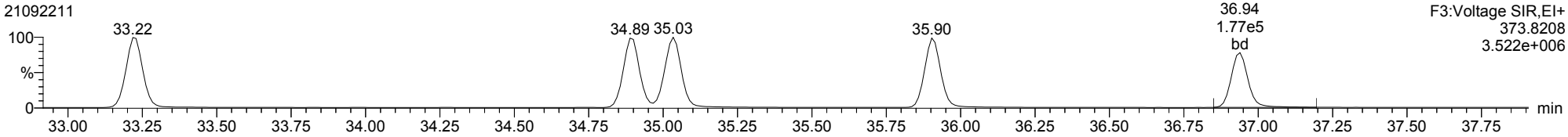
123789-HxCDF



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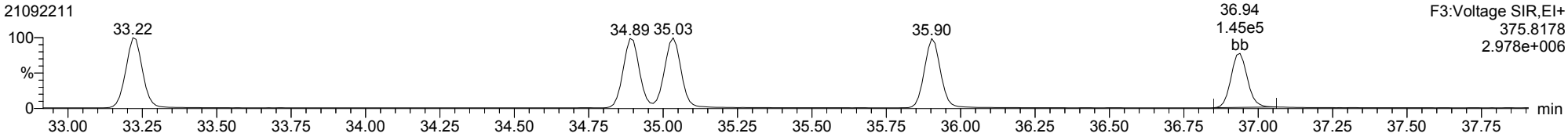

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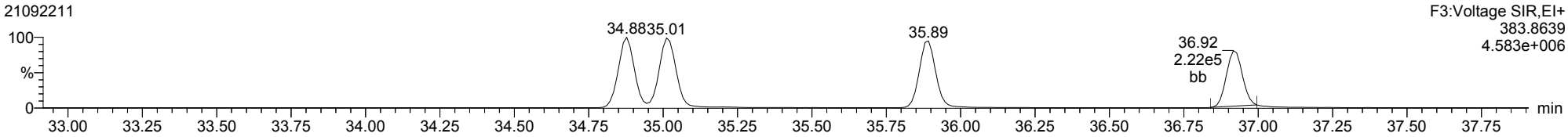

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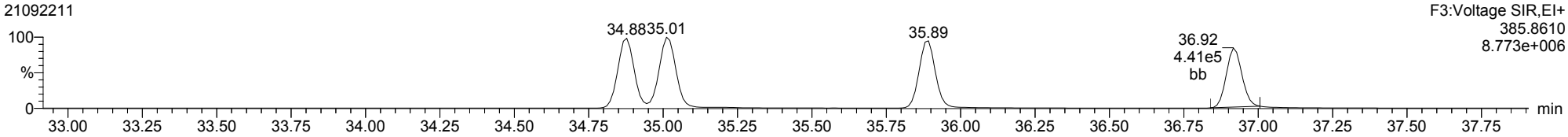

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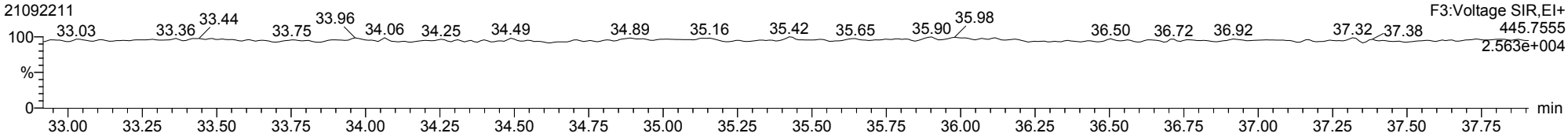

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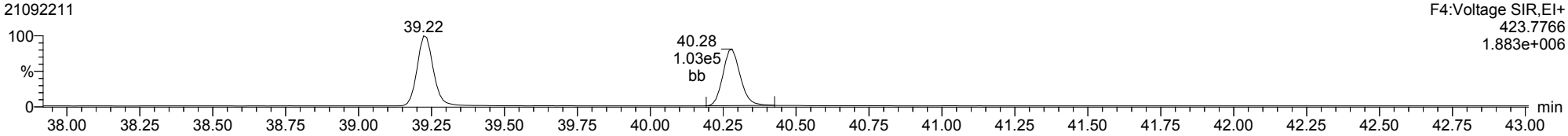

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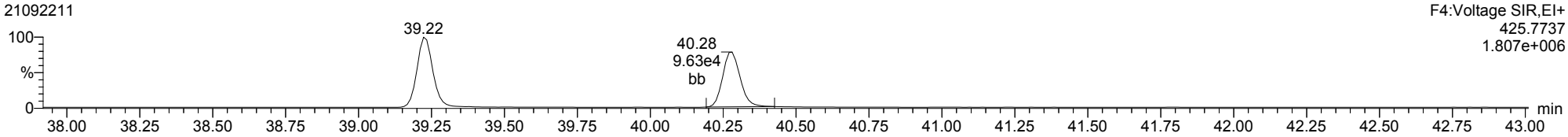

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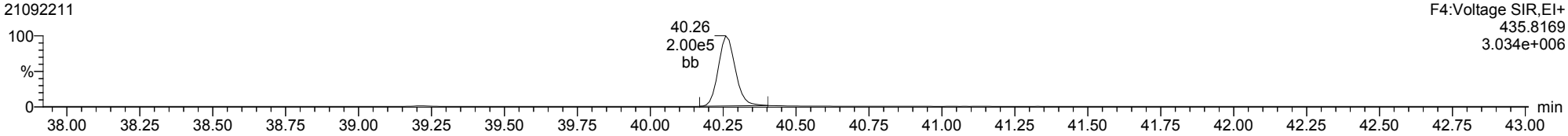

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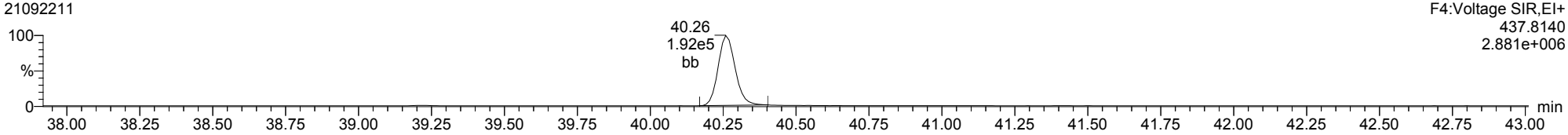

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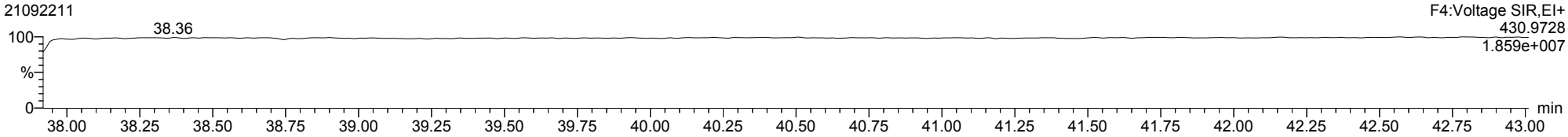

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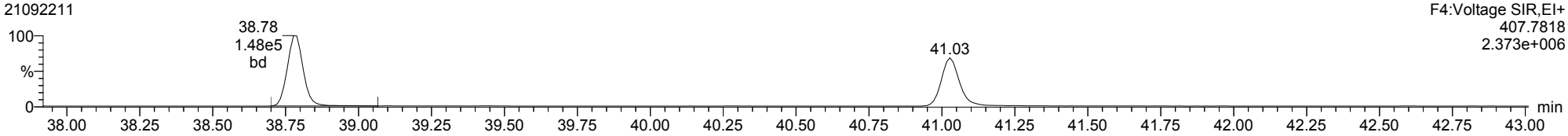

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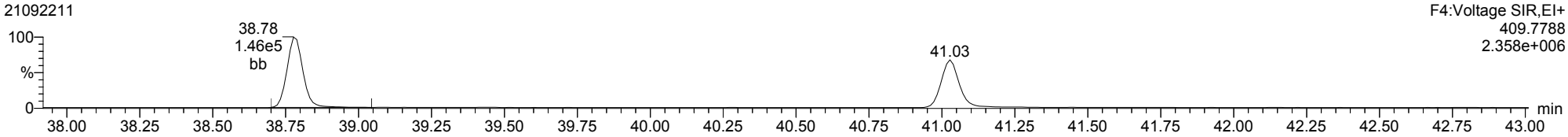

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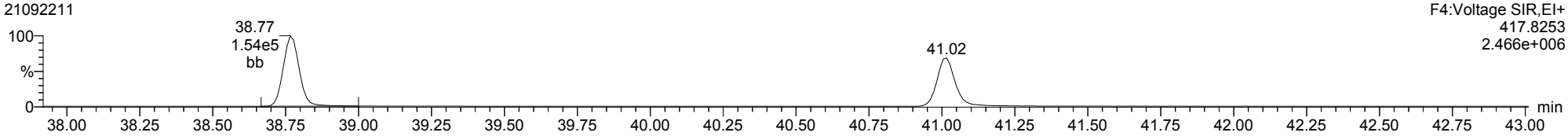

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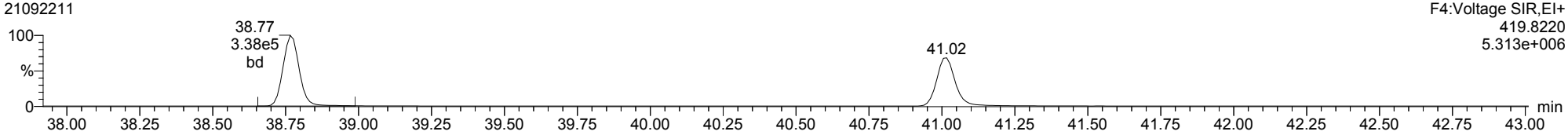

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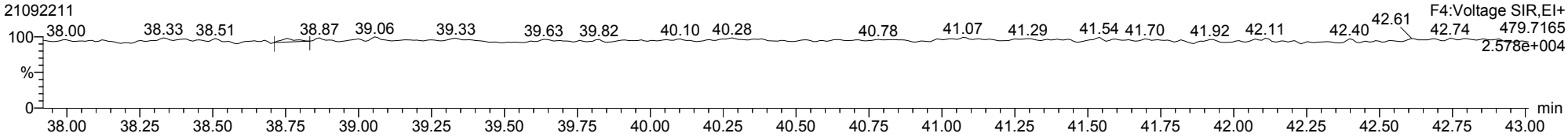

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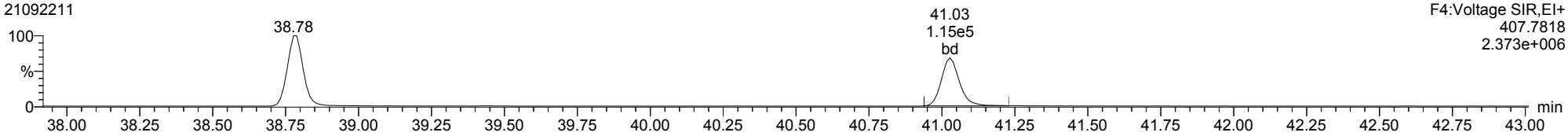

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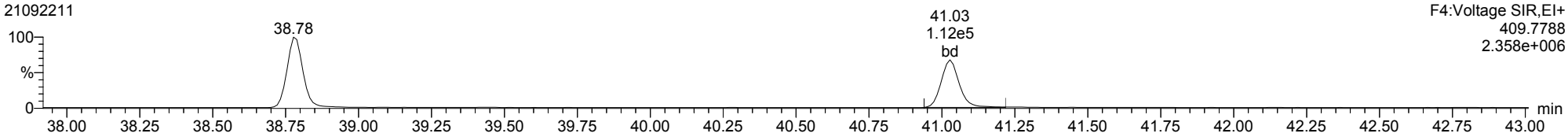

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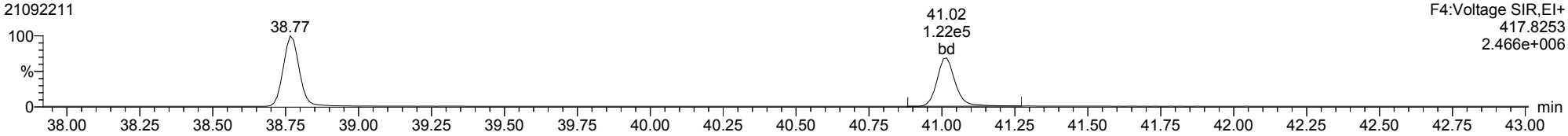

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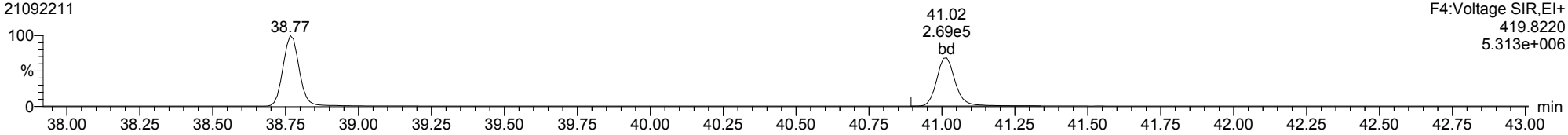

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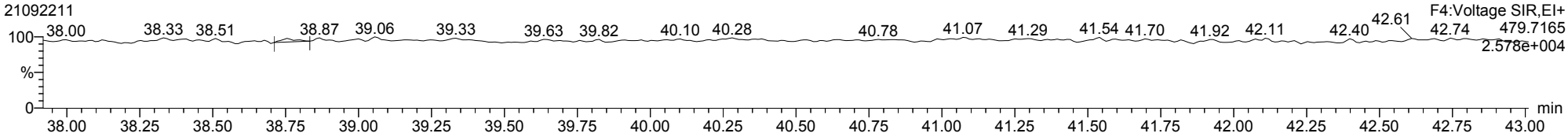

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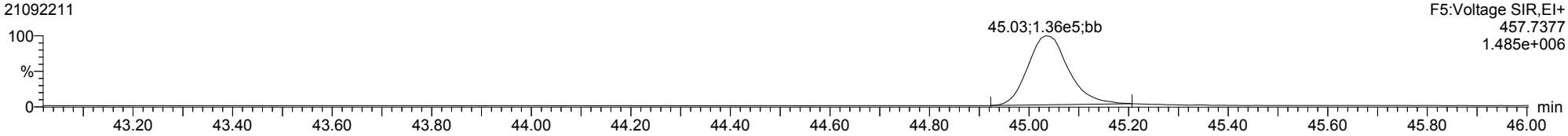

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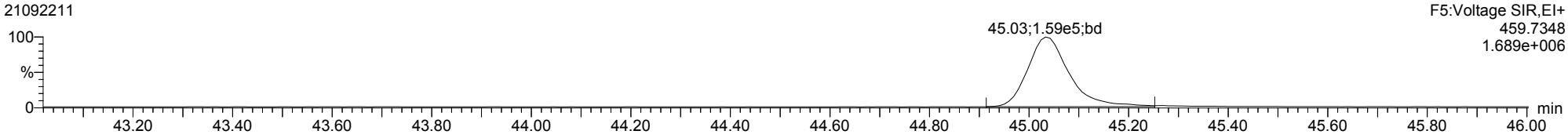

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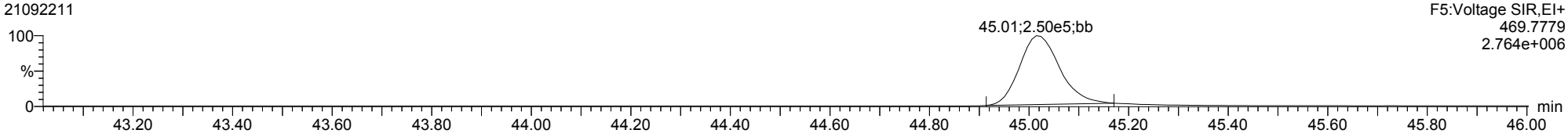

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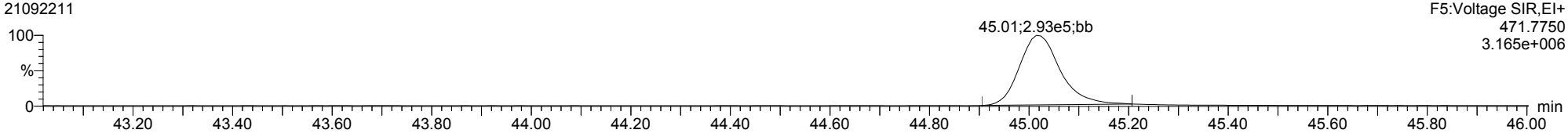

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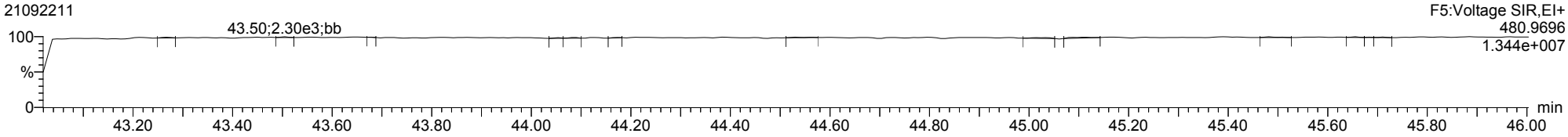

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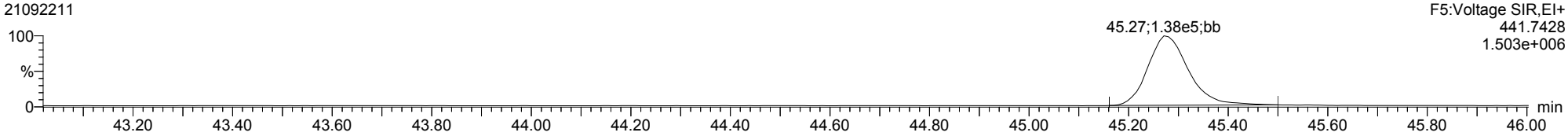

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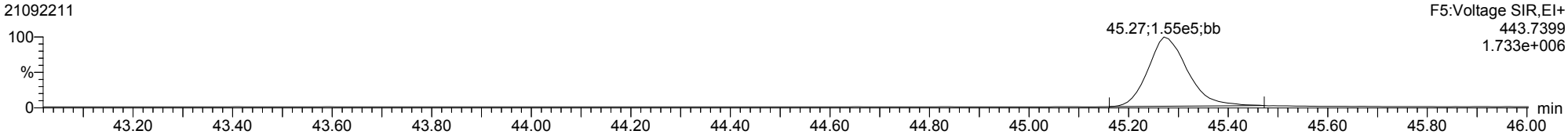

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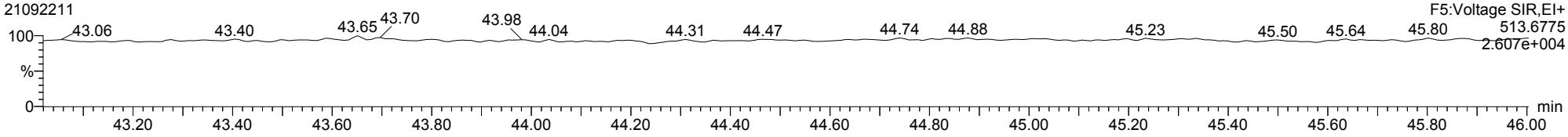

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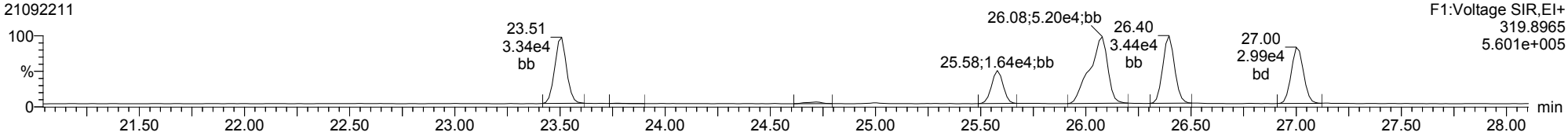

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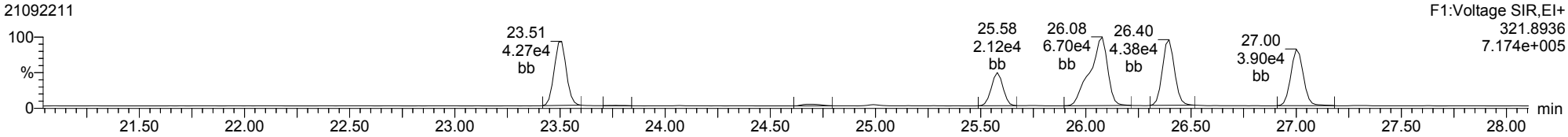

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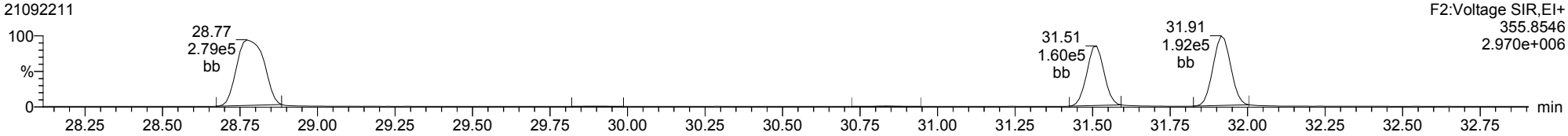

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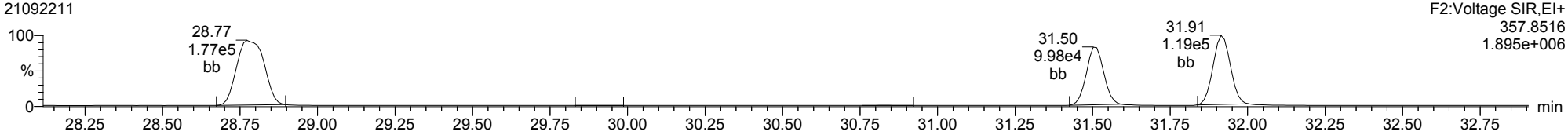

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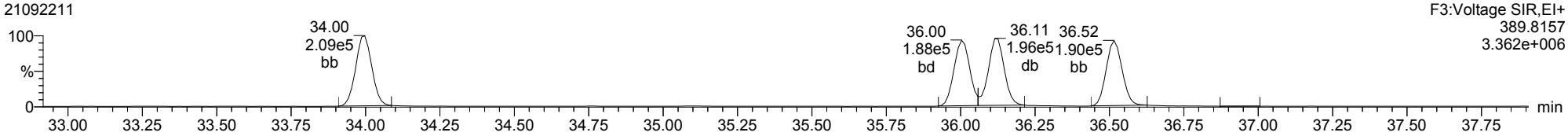

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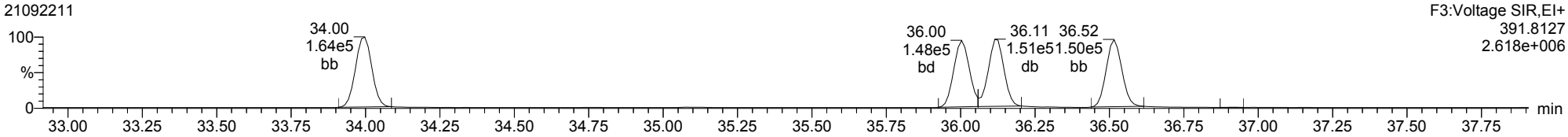

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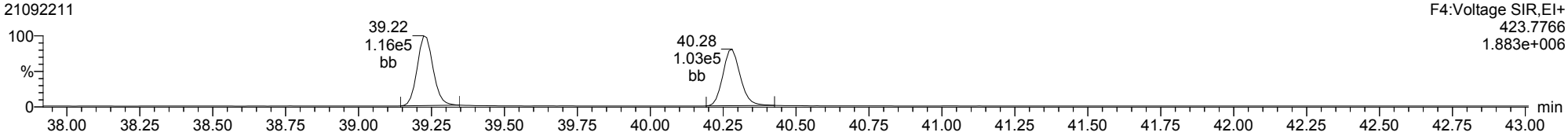

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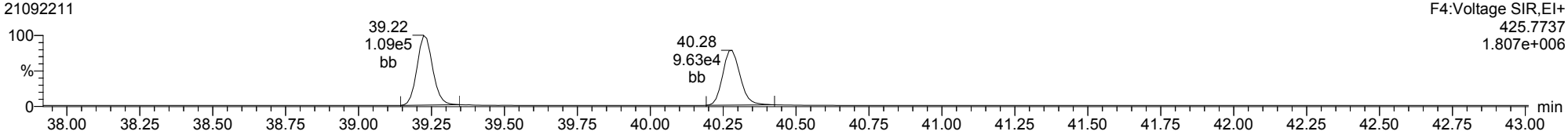

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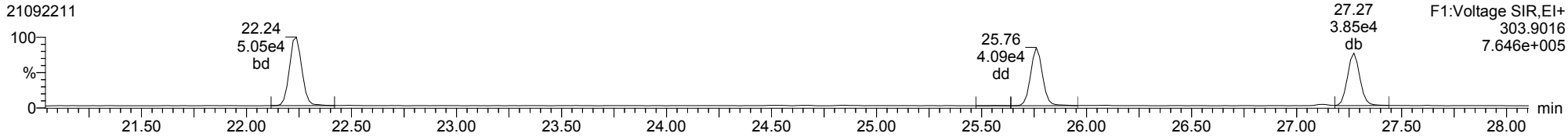

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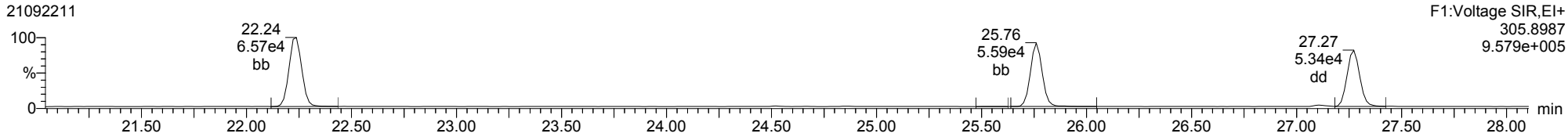

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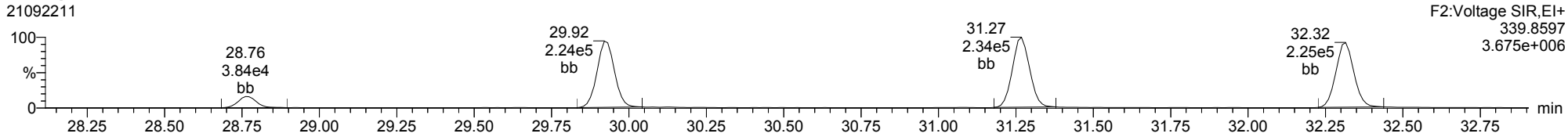

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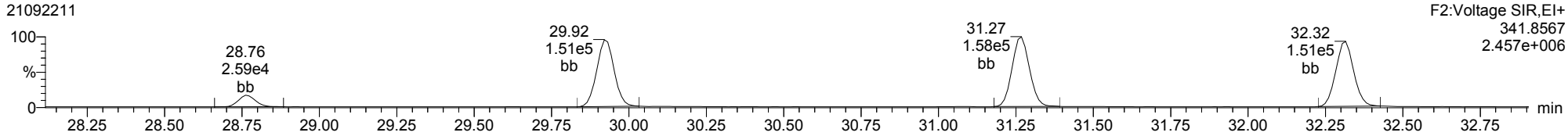

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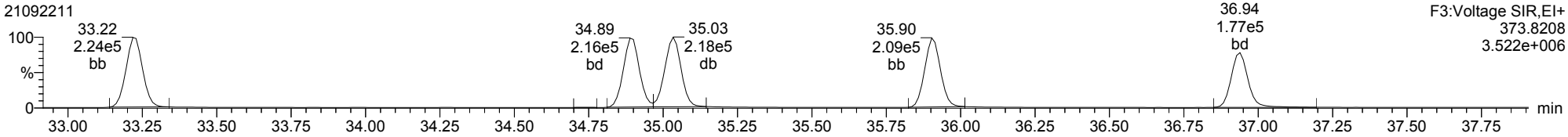

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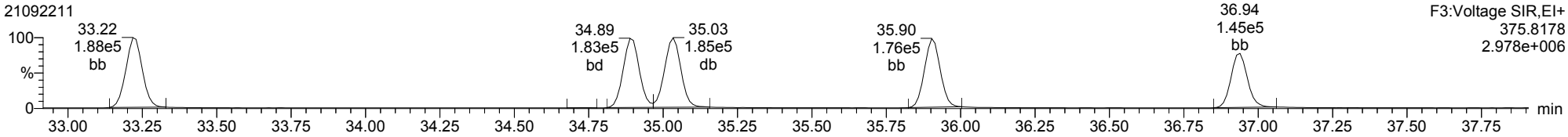

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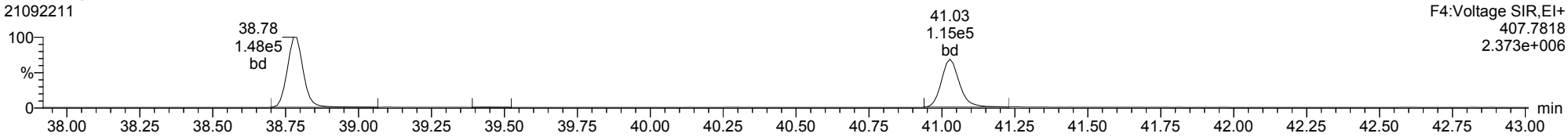

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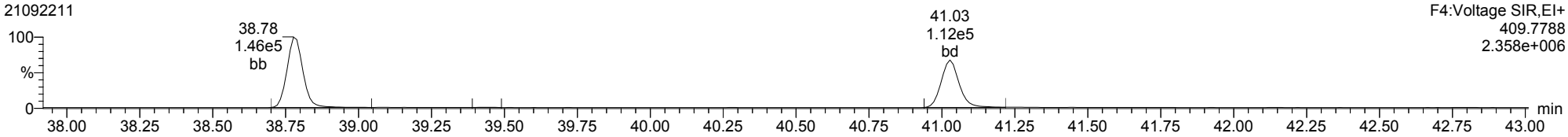

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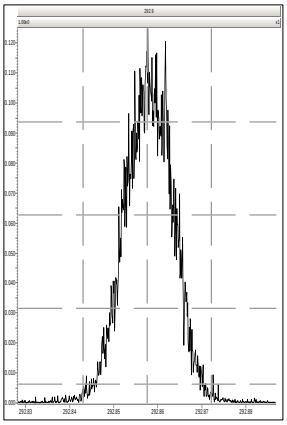

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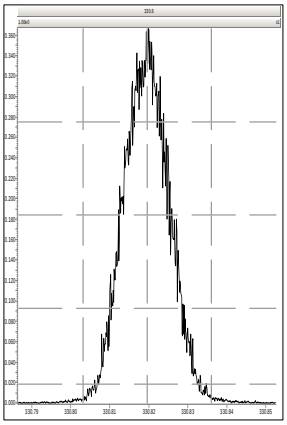

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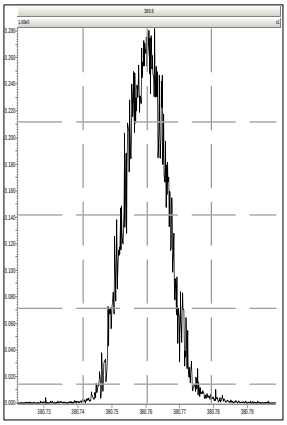

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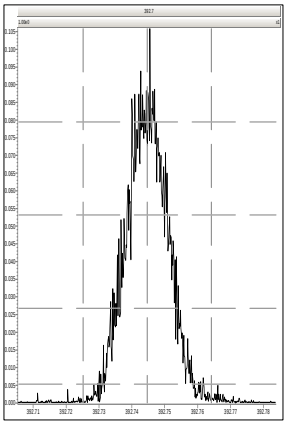

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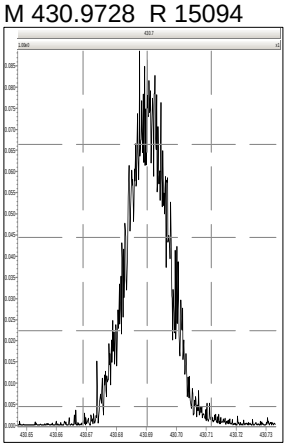

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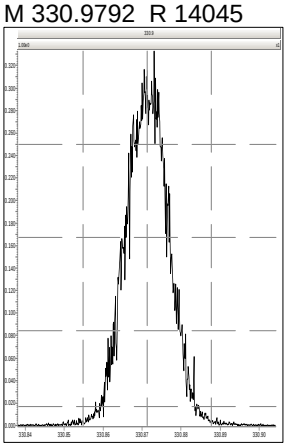

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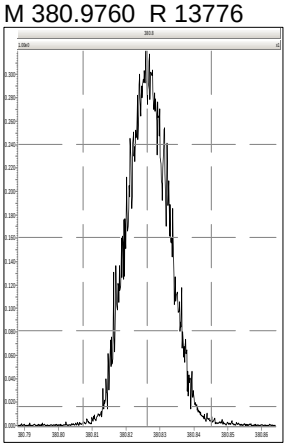

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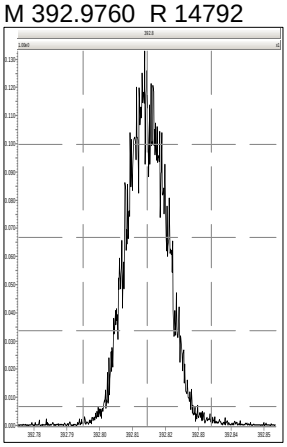

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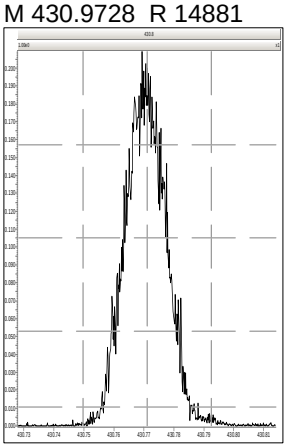

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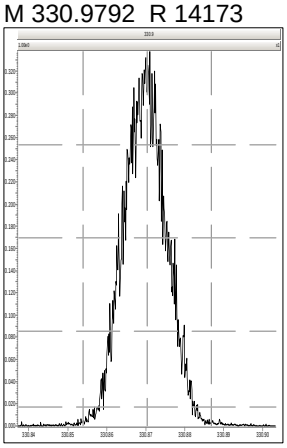
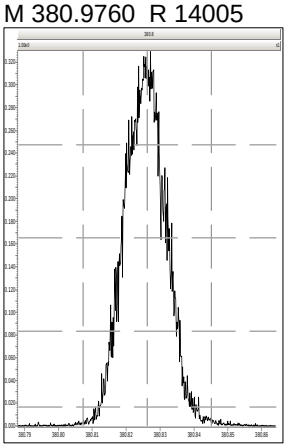
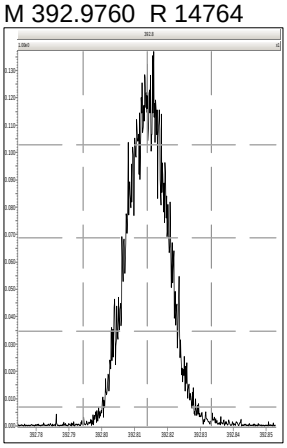


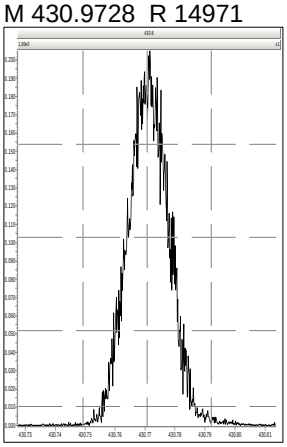
M 380.9760 R 14005



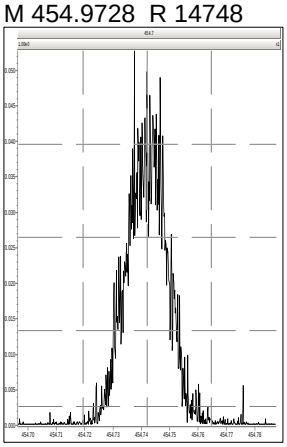
M 392.9760 R 14764



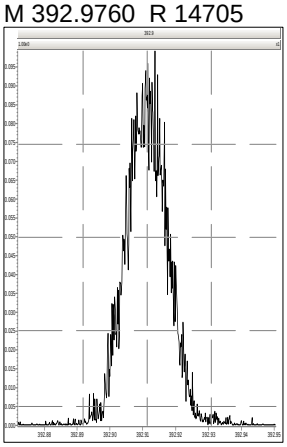
M 430.9728 R 14971



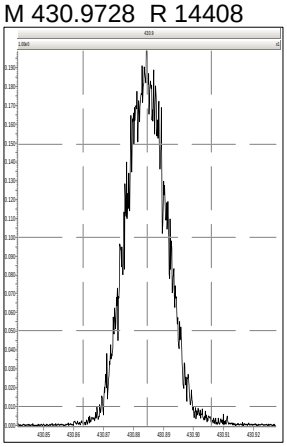
M 454.9728 R 14748



M 392.9760 R 14705

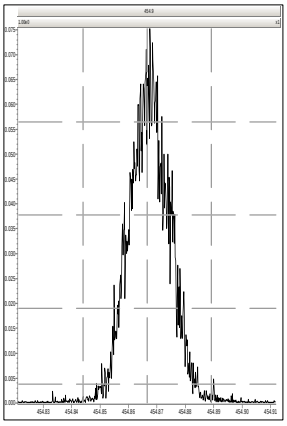


M 430.9728 R 14408

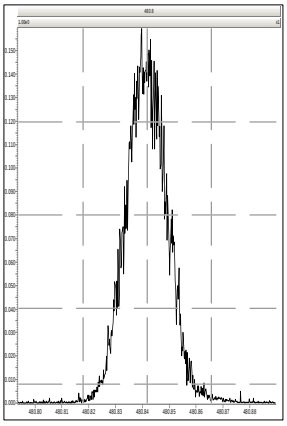


Printed: Thursday, September 23, 2021 05:39:15 Pacific Daylight Time

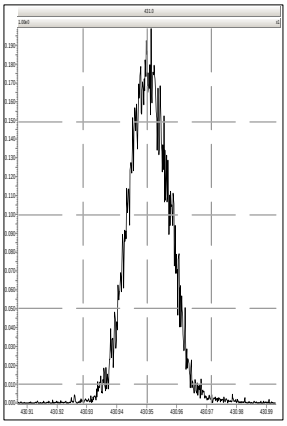
M 454.9728 R 14893



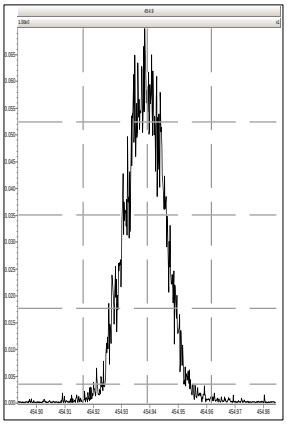
M 480.9696 R 14125



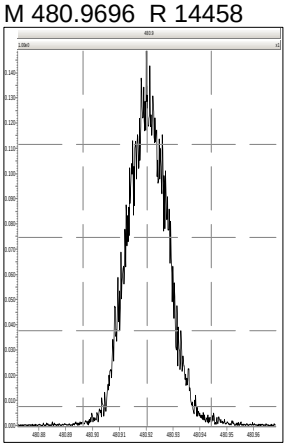
M 430.9728 R 14933



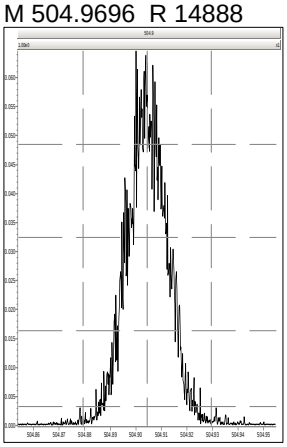
M 454.9728 R 15634



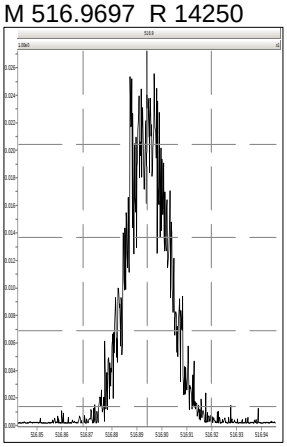
M 480.9696 R 14458

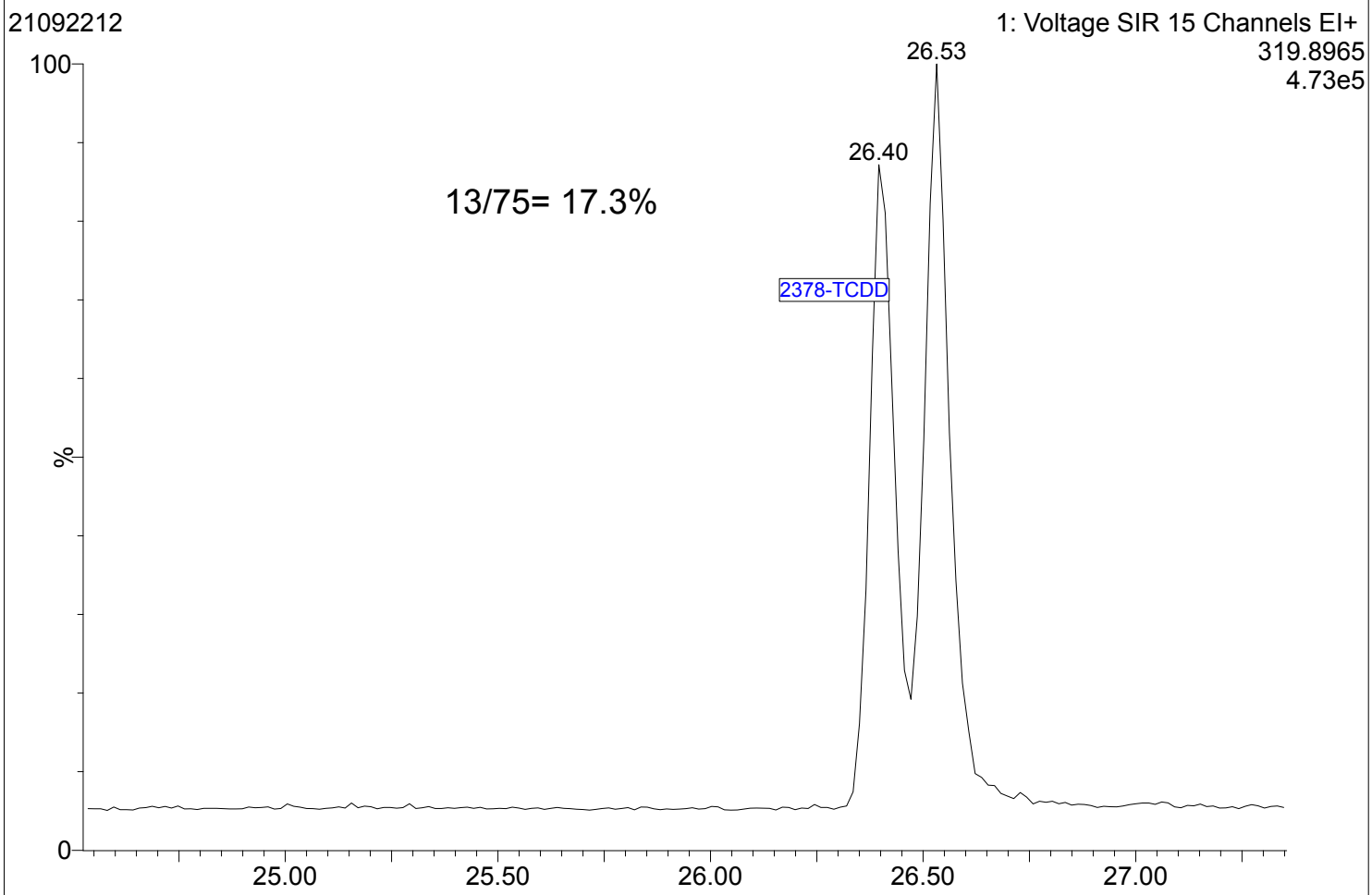


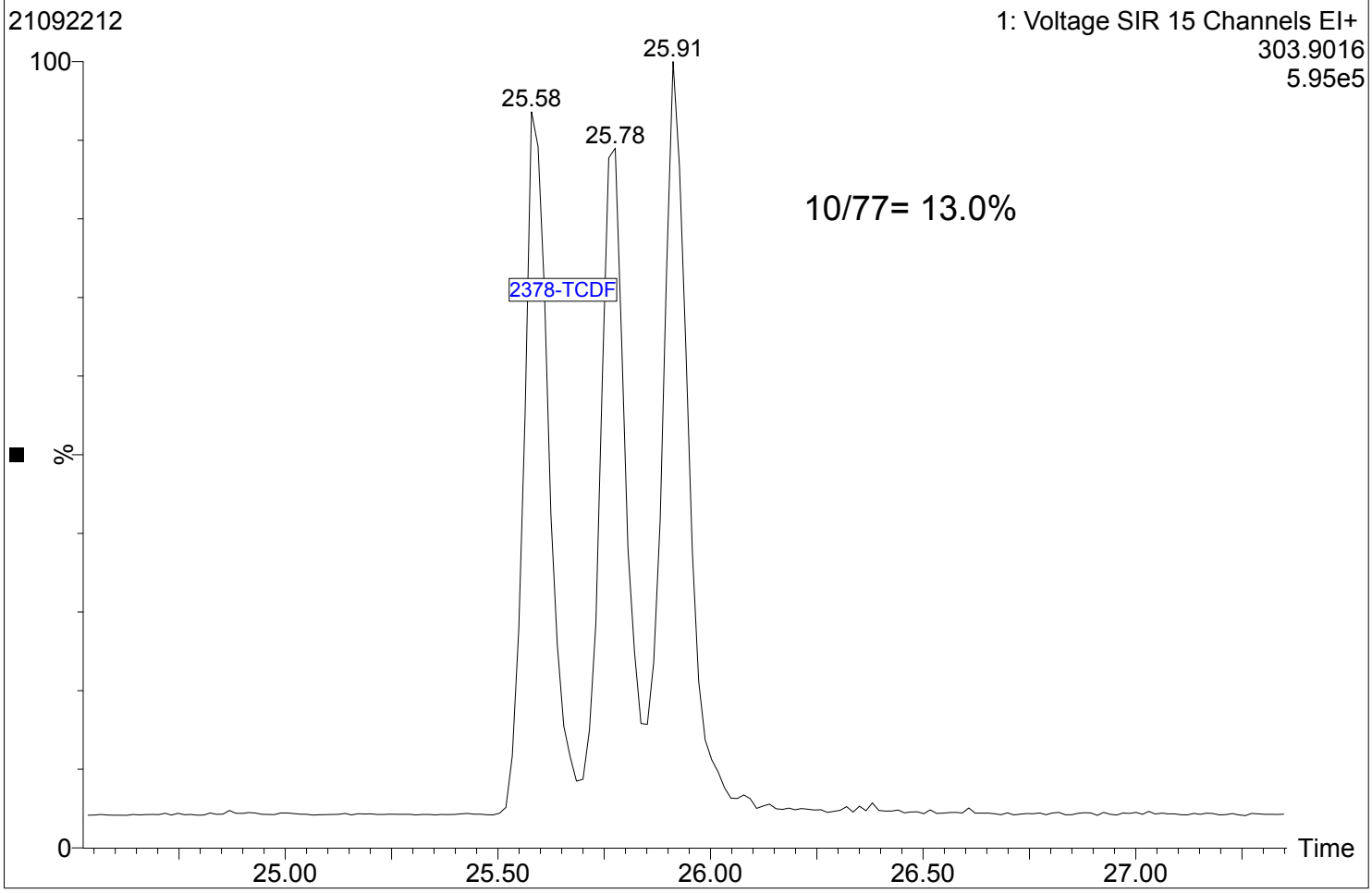
M 504.9696 R 14888



M 516.9697 R 14250




21092212
1: Voltage SIR 15 Channels EI+
319.8965
4.73e5
26.53
26.40
13/75= 17.3%
2378-TCDD
100
%
0
25.00
25.50
26.00
26.50
27.00


21092212
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5.95e5
25.91
25.58
25.78
10/77= 13.0%
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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Instrument ID:	AUTOSPEC01	Calibration:	EH00030
Lab File ID:	21092414	Calibration Date:	08/11/2021
Sequence:	SJI0383	Injection Date:	09/24/21
Lab Sample ID:	SJI0383-CCV1	Injection Time:	19:26
Sequence Name:	CS3T2		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.34	1.1075930	1.0350310		-6.6	+/-16
2,3,7,8-TCDD	A	10.000	10.1	0.9202875	0.9337981		1.5	+/-22
1,2,3,7,8-PeCDF	A	50.000	46.0	1.0148670	0.9338509		-8.0	+/-18
2,3,4,7,8-PeCDF	A	50.000	45.4	1.1255490	1.0211950		-9.3	+/-18
1,2,3,7,8-PeCDD	A	50.000	50.9	0.9953229	1.0125900		1.7	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	48.1	1.0168930	0.9775538		-3.9	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	48.7	1.0368310	1.0102980		-2.6	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	48.5	1.0524660	1.0210320		-3.0	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.3	1.0301540	0.9957943		-3.3	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.4	1.0273630	0.9744722		-5.1	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	50.0	1.0089800	1.0095380		0.06	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.6	0.9504865	0.9816012		3.3	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	45.1	1.3273500	1.1901300		-9.8	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	46.6	1.2833380	1.1959640		-6.8	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	51.4	1.0680880	1.0971410		2.7	+/-14
OCDF	A	100.00	83.9	1.4469010	1.2137600		-16.1	+/-37
OCDD	A	100.00	92.8	1.1808230	1.0954680		-7.2	+/-21
13C12-2,3,7,8-TCDF	A	100.00	109	1.4265830	1.5516119		8.8	+/-29
13C12-2,3,7,8-TCDD	A	100.00	109	1.1164910	1.2121753		8.6	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	98.3	1.2973130	1.2758618		-1.7	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	98.0	1.2364800	1.2113253		-2.0	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	105	0.7319833	0.7679217		4.9	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	98.2	1.2424560	1.2204678		-1.8	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	91.9	1.3434760	1.2346542		-8.1	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	93.3	1.2148550	1.1340517		-6.7	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	96.8	1.0076370	0.9748971		-3.2	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	101	0.9598233	0.9672941		0.8	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	95.4	1.0413850	0.9938689		-4.6	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	94.4	0.9264704	0.8745491		-5.6	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	93.8	0.7579160	0.7109827		-6.2	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	99.3	0.6324476	0.6279016		-0.7	+/-18
13C12-OCDD	A	200.00	218	0.5037432	0.5479445		8.8	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	10.4	1.0835930	1.1275080		4.1	+/-21

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\210924D1.qld
Last Altered: Monday, September 27, 2021 10:16:54 Pacific Daylight Time
Printed: Monday, September 27, 2021 10:18:18 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin210924.mdb 24 Sep 2021 10:55:34
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

ID: CS3T2, Name: 21092414, Date: 24-Sep-2021, Time: 19:26:37, 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	25.610	1.001	5.995e4	8.364e4	1.108	0.717	0.770	931	1161	9.07e5	1.25e6	974.1	1078.0	NO	bd	bb	9.345
12378-PeCDF	29.768	1.001	3.189e5	2.137e5	1.015	1.492	1.550	2040	1643	4.93e6	3.24e6	2417.0	1970.0	NO	bd	bd	46.009
23478-PeCDF	31.116	1.001	3.327e5	2.203e5	1.126	1.511	1.550	2040	1643	5.17e6	3.36e6	2536.1	2042.8	NO	bb	bd	45.364
123478-HxCDF	34.749	1.001	2.844e5	2.422e5	1.017	1.174	1.240	1796	1701	4.52e6	3.85e6	2519.0	2264.8	NO	bd	bd	48.066
234678-HxCDF	35.762	1.000	2.770e5	2.341e5	1.052	1.183	1.240	1796	1701	4.42e6	3.74e6	2457.9	2196.8	NO	bb	bb	48.507
123678-HxCDF	34.882	1.000	2.990e5	2.516e5	1.037	1.189	1.240	1796	1701	4.56e6	3.85e6	2539.4	2266.0	NO	db	db	48.720
123789-HxCDF	36.798	1.001	2.299e5	1.987e5	1.030	1.157	1.240	1796	1701	3.77e6	3.23e6	2097.3	1901.9	NO	bb	bb	48.332
1234678-HpCDF	38.648	1.000	2.338e5	2.283e5	1.327	1.024	1.050	1976	1809	3.87e6	3.75e6	1956.4	2071.0	NO	bb	MM	45.088
1234789-HpCDF	40.865	1.000	1.866e5	1.888e5	1.283	0.988	1.050	1976	1809	2.67e6	2.67e6	1353.4	1475.7	NO	bd	bd	46.596
OCDF	45.073	1.006	2.746e5	3.125e5	1.447	0.879	0.890	1614	1497	3.27e6	3.71e6	2024.3	2475.2	NO	bd	bd	83.887
2378-TCDD	26.244	1.001	4.549e4	5.571e4	0.920	0.817	0.770	1454	1026	6.80e5	8.34e5	468.1	812.6	NO	bb	bb	10.147
12378-PeCDD	31.350	1.000	2.159e5	1.317e5	0.995	1.639	1.550	1390	1222	3.37e6	2.07e6	2422.8	1695.8	NO	bb	bb	50.867
123478-HxCDD	35.862	1.000	2.330e5	1.831e5	1.027	1.273	1.240	1723	2203	3.90e6	3.07e6	2263.2	1392.1	NO	bd	bd	47.426
123678-HxCDD	35.985	1.001	2.461e5	1.968e5	1.009	1.251	1.240	1723	2203	4.02e6	3.26e6	2331.7	1481.0	NO	db	db	50.028
123789-HxCDD	36.375	1.012	2.371e5	1.877e5	0.950	1.263	1.240	1723	2203	4.02e6	3.20e6	2331.0	1453.7	NO	bb	bb	51.637
1234678-HpCDD	40.130	1.000	1.600e5	1.441e5	1.068	1.110	1.050	1229	1316	2.48e6	2.33e6	2019.1	1770.8	NO	bd	bb	51.360
OCDD	44.835	1.000	2.501e5	2.798e5	1.181	0.894	0.890	872	2295	3.19e6	3.61e6	3656.1	1571.9	NO	bb	bb	92.772
13C-2378-TCDF	25.594	1.007	6.276e5	7.597e5	1.427	0.826	0.770	1472	1559	9.53e6	1.14e7	6473.6	7331.6	NO	bb	bb	108.764
13C-12378-PeCDF	29.746	1.171	7.020e5	4.388e5	1.297	1.600	1.550	2402	2218	1.09e7	6.83e6	4528.0	3078.1	NO	bb	bb	98.346
13C-23478-PeCDF	31.094	1.224	6.655e5	4.175e5	1.236	1.594	1.550	2402	2218	1.04e7	6.54e6	4334.0	2950.3	NO	bb	bb	97.966
13C-123478-HxCDF	34.726	0.955	3.661e5	7.113e5	1.242	0.515	0.510	2105	2683	5.75e6	1.12e7	2730.4	4172.2	NO	bd	bd	98.230
13C-123678-HxCDF	34.871	0.959	3.709e5	7.191e5	1.343	0.516	0.510	2105	2683	5.87e6	1.13e7	2790.1	4226.6	NO	db	db	91.900
13C-234678-HxCDF	35.751	0.983	3.424e5	6.588e5	1.215	0.520	0.510	2105	2683	5.31e6	1.03e7	2524.1	3843.1	NO	bb	bb	93.349
13C-123789-HxCDF	36.776	1.011	2.925e5	5.682e5	1.008	0.515	0.510	2105	2683	5.01e6	9.63e6	2381.5	3590.0	NO	bb	bb	96.751
13C-1234678-HpCDF	38.637	1.063	2.431e5	5.290e5	0.926	0.460	0.440	1458	1936	3.91e6	8.43e6	2683.7	4353.4	NO	bd	bb	94.396
13C-1234789-HpCDF	40.854	1.123	1.955e5	4.321e5	0.758	0.452	0.440	1458	1936	2.85e6	6.24e6	1958.6	3222.8	NO	bd	bb	93.808
13C-1234-TCDD	25.413	0.000	3.854e5	5.087e5	1.000	0.757	0.770	1508	1238	5.92e6	7.76e6	3923.5	6268.1	NO	bb	bb	100.000
13C-2378-TCDD	26.214	1.031	4.691e5	6.147e5	1.116	0.763	0.770	1508	1238	7.07e6	9.30e6	4687.9	7514.2	NO	bb	bb	108.570
13C-12378-PeCDD	31.339	1.233	4.184e5	2.682e5	0.732	1.560	1.550	881	1015	6.46e6	4.13e6	7324.3	4069.8	NO	bb	bb	104.910
13C-123478-HxCDD	35.852	0.986	4.818e5	3.722e5	0.960	1.294	1.240	1294	2365	7.99e6	6.17e6	6171.4	2611.0	NO	bd	bd	100.778
13C-123678-HxCDD	35.963	0.989	4.943e5	3.831e5	1.041	1.290	1.240	1294	2365	7.95e6	6.17e6	6143.3	2608.9	NO	db	db	95.437
13C-1234678-HpCDD	40.119	1.103	2.820e5	2.723e5	0.632	1.035	1.050	1150	1491	4.46e6	4.25e6	3877.5	2853.9	NO	bb	bb	99.281
13C-OCDD	44.817	1.232	4.581e5	5.093e5	0.504	0.900	0.890	1613	1718	5.89e6	6.48e6	3649.2	3771.4	NO	bb	bb	217.549
13C-123789-HxCDD	36.364	0.000	4.953e5	3.875e5	1.000	1.278	1.240	1294	2365	8.44e6	6.60e6	6524.1	2791.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.244	1.033	1.008e5		1.084			737		1.50e6		2040.9			bb		10.405

Dataset: T:\Autospec\Processed Data Batch\210924D1.qld
Last Altered: Monday, September 27, 2021 10:16:54 Pacific Daylight Time
Printed: Monday, September 27, 2021 10:18:18 Pacific Daylight Time

ID: CS3T2, Name: 21092414, Date: 24-Sep-2021, Time: 19:26:37, 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	22.087	0.863	7.437e4	1.010e5	1.425	0.736	0.770	931	1161	1.16e6	1.55e6	1247.6	1335.2	NO	bb	bd	8.873
1289-TCDF	27.106	1.059	5.750e4	7.902e4	1.043	0.728	0.770	931	1161	8.12e5	1.12e6	871.8	967.0	NO	dd	dd	9.435
13468-PECDF	26.955	0.906	4.809e5	3.103e5	1.376	1.550	1.550	794	844	7.18e6	4.61e6	9051.5	5456.7	NO	bb	bb	50.400
12389-PECDF	32.153	1.081	3.176e5	2.113e5	1.000	1.503	1.550	2040	1643	4.68e6	3.14e6	2294.5	1910.2	NO	bd	bd	46.383
123468-HXCDF	33.066	0.952	2.933e5	2.493e5	1.087	1.176	1.240	1796	1701	4.55e6	3.91e6	2533.7	2297.7	NO	bb	bb	46.349
1368-TCDD	23.357	0.891	4.427e4	5.658e4	0.923	0.782	0.770	1454	1026	6.85e5	8.83e5	471.0	861.0	NO	bb	bb	10.078
1289-TCDD	26.849	1.024	3.872e4	5.014e4	0.794	0.772	0.770	1454	1026	5.88e5	7.55e5	404.7	735.9	NO	bb	bb	10.326
12479-PECDD	28.621	0.913	3.729e5	2.283e5	1.843	1.634	1.550	1390	1222	3.77e6	2.26e6	2714.0	1849.2	NO	bb	bb	47.504
12389-PECDD	31.763	1.013	2.549e5	1.543e5	1.154	1.652	1.550	1390	1222	4.13e6	2.50e6	2974.9	2043.3	NO	bb	bb	51.668
124679-HXCDD	33.846	0.944	2.576e5	2.089e5	1.125	1.233	1.240	1723	2203	4.08e6	3.30e6	2367.1	1499.2	NO	bb	bb	48.563
1234679-HPCDD	39.093	0.974	1.736e5	1.583e5	1.211	1.097	1.050	1229	1316	2.87e6	2.67e6	2335.6	2031.7	NO	bd	bb	49.442
Total-tetrafurans			1.932e5		1.192			931		2.90e6							27.859
Total-penta1			4.809e5					794		7.18e6							50.400
Total-pentafurans			1.023e6		1.047			2040		1.56e7							145.466
Total-hexafurans			1.384e6		1.045			1796		2.18e7							239.974
Total-heptafurans			4.214e5		1.305			1976		6.56e6							91.890
Total-Furans			3.777e6		1.158			931		5.73e7							639.476
Total-tetradioxins			2.187e5		0.879			1454		2.97e6							52.105
Total-pentadioxins			8.455e5		1.331			1390		1.13e7							150.346
Total-hexadioxins			9.739e5		1.028			1723		1.60e7							197.654
Total-heptadioxins			3.336e5		1.140			1229		5.35e6							100.802
Total-Dioxins			2.622e6		1.092			1454		3.88e7							593.678
Total-TEQ			6.399e6					1454		9.61e7							1233.154
FUNCTION1 PFK			1.670e7					585019		1.44e8							
FUNCTION2 PFK			1.241e6					529317		2.17e7							0.000
FUNCTION3 PFK			5.586e5					519473		1.42e7							0.000
FUNCTION4 PFK			0.000e0					300810		0.00e0							
FUNCTION5 PFK			5.589e3					201824		3.31e5							
FUNCTION1 HXCD...			1.361e3					780		1.94e4							0.000
FUNCTION1 HPCD...			1.003e3					845		1.48e4							0.000
FUNCTION2 HPCD...			8.917e2					671		1.77e4							0.000
FUNCTION3 OCDPE			3.768e2					600		6.43e3							0.000
FUNCTION4 NCDPE			7.193e1					657		1.94e3							0.000
FUNCTION5 DCDPE			0.000e0					522		0.00e0							

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Method: T:\Autospec\Methods\Dioxin210924.mdb 24 Sep 2021 10:55:34
Calibration: T:\Autospec\Curves\210811ICIH.cdb 13 Aug 2021 13:44:39

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.11	5.750e4	7.902e4	1.043	0.73	0.77	871.8	YES	NO	dd	dd	9.435
2	2378-TCDF	25.61	5.995e4	8.364e4	1.108	0.72	0.77	974.1	YES	NO	bd	bb	9.345
3	Total-tetrafurans	24.69	4.524e2	6.504e2	1.192	0.70	0.77	6.5	YES	NO	db	bb	0.067
4	Total-tetrafurans	24.51	3.485e2	5.275e2	1.192	0.66	0.77	5.8	YES	NO	dd	db	0.053
5	Total-tetrafurans	24.37	6.281e2	8.053e2	1.192	0.78	0.77	8.8	YES	NO	bd	bd	0.087
6	1368-TCDF	22.09	7.437e4	1.010e5	1.425	0.74	0.77	1247.6	YES	NO	bb	bd	8.873

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	26.96	4.809e5	3.103e5	1.376	1.55	1.55	9051.5	YES	NO	bb	bb	50.400

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.15	3.176e5	2.113e5	1.000	1.50	1.55	2294.5	YES	NO	bd	bd	46.383
2	23478-PeCDF	31.12	3.327e5	2.203e5	1.126	1.51	1.55	2536.1	YES	NO	bb	bd	45.364
3	12378-PeCDF	29.77	3.189e5	2.137e5	1.015	1.49	1.55	2417.0	YES	NO	bd	bd	46.009
4	Total-pentafurans	28.61	5.394e4	3.579e4	1.047	1.51	1.55	399.5	YES	NO	bb	bb	7.710

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.80	2.299e5	1.987e5	1.030	1.16	1.24	2097.3	YES	NO	bb	bb	48.332
2	234678-HxCDF	35.76	2.770e5	2.341e5	1.052	1.18	1.24	2457.9	YES	NO	bb	bb	48.507
3	123678-HxCDF	34.88	2.990e5	2.516e5	1.037	1.19	1.24	2539.4	YES	NO	db	db	48.720
4	123478-HxCDF	34.75	2.844e5	2.422e5	1.017	1.17	1.24	2519.0	YES	NO	bd	bd	48.066
5	123468-HXCDF	33.07	2.933e5	2.493e5	1.087	1.18	1.24	2533.7	YES	NO	bb	bb	46.349

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.65	2.338e5	2.283e5	1.327	1.02	1.05	1956.4	YES	NO	bb	MM	45.088
2	1234789-HpCDF	40.87	1.866e5	1.888e5	1.283	0.99	1.05	1353.4	YES	NO	bd	bd	46.596
3	Total-heptafurans	39.29	1.001e3	8.796e2	1.305	1.14	1.05	7.2	YES	NO	bb	bb	0.206

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.11	5.750e4	7.902e4	1.043	0.73	0.77	871.8	YES	NO	dd	dd	9.435
2	2378-TCDF	25.61	5.995e4	8.364e4	1.108	0.72	0.77	974.1	YES	NO	bd	bb	9.345
3	Total-tetrafurans	24.69	4.524e2	6.504e2	1.192	0.70	0.77	6.5	YES	NO	db	bb	0.067
4	Total-tetrafurans	24.51	3.485e2	5.275e2	1.192	0.66	0.77	5.8	YES	NO	dd	db	0.053
5	Total-tetrafurans	24.37	6.281e2	8.053e2	1.192	0.78	0.77	8.8	YES	NO	bd	bd	0.087
6	1368-TCDF	22.09	7.437e4	1.010e5	1.425	0.74	0.77	1247.6	YES	NO	bb	bd	8.873
7	12389-PECDF	32.15	3.176e5	2.113e5	1.000	1.50	1.55	2294.5	YES	NO	bd	bd	46.383
8	23478-PeCDF	31.12	3.327e5	2.203e5	1.126	1.51	1.55	2536.1	YES	NO	bb	bd	45.364
9	12378-PeCDF	29.77	3.189e5	2.137e5	1.015	1.49	1.55	2417.0	YES	NO	bd	bd	46.009
10	Total-pentafurans	28.61	5.394e4	3.579e4	1.047	1.51	1.55	399.5	YES	NO	bb	bb	7.710
11	123789-HxCDF	36.80	2.299e5	1.987e5	1.030	1.16	1.24	2097.3	YES	NO	bb	bb	48.332
12	234678-HxCDF	35.76	2.770e5	2.341e5	1.052	1.18	1.24	2457.9	YES	NO	bb	bb	48.507
13	123678-HxCDF	34.88	2.990e5	2.516e5	1.037	1.19	1.24	2539.4	YES	NO	db	db	48.720
14	123478-HxCDF	34.75	2.844e5	2.422e5	1.017	1.17	1.24	2519.0	YES	NO	bd	bd	48.066
15	123468-HXCDF	33.07	2.933e5	2.493e5	1.087	1.18	1.24	2533.7	YES	NO	bb	bb	46.349
16	1234678-HpCDF	38.65	2.338e5	2.283e5	1.327	1.02	1.05	1956.4	YES	NO	bb	MM	45.088
17	1234789-HpCDF	40.87	1.866e5	1.888e5	1.283	0.99	1.05	1353.4	YES	NO	bd	bd	46.596
18	Total-heptafurans	39.29	1.001e3	8.796e2	1.305	1.14	1.05	7.2	YES	NO	bb	bb	0.206
19	OCDF	45.07	2.746e5	3.125e5	1.447	0.88	0.89	2024.3	YES	NO	bd	bd	83.887
20	13468-PECDF	26.96	4.809e5	3.103e5	1.376	1.55	1.55	9051.5	YES	NO	bb	bb	50.400

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.24	4.549e4	5.571e4	0.920	0.82	0.77	468.1	YES	NO	bb	bb	10.147
2	Total-tetradioxins	25.91	6.778e4	8.514e4	0.879	0.80	0.77	464.4	YES	NO	bb	bb	16.048
3	Total-tetradioxins	25.43	2.061e4	2.752e4	0.879	0.75	0.77	223.0	YES	NO	bb	bd	5.051
4	Total-tetradioxins	24.55	1.827e3	2.503e3	0.879	0.73	0.77	12.2	YES	NO	bb	bb	0.454
5	1368-TCDD	23.36	4.427e4	5.658e4	0.923	0.78	0.77	471.0	YES	NO	bb	bb	10.078
6	1289-TCDD	26.85	3.872e4	5.014e4	0.794	0.77	0.77	404.7	YES	NO	bb	bb	10.326

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.76	2.549e5	1.543e5	1.154	1.65	1.55	2974.9	YES	NO	bb	bb	51.668
2	12378-PeCDD	31.35	2.159e5	1.317e5	0.995	1.64	1.55	2422.8	YES	NO	bb	bb	50.867
3	Total-pentadioxins	30.69	9.410e2	5.867e2	1.331	1.60	1.55	9.4	YES	NO	bb	bb	0.167
4	Total-pentadioxins	29.75	7.491e2	5.248e2	1.331	1.43	1.55	9.9	YES	NO	bb	bb	0.139
5	12479-PECDD	28.62	3.729e5	2.283e5	1.843	1.63	1.55	2714.0	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	36.38	2.371e5	1.877e5	0.950	1.26	1.24	2331.0	YES	NO	bb	bb	51.637
2	123678-HxCDD	35.99	2.461e5	1.968e5	1.009	1.25	1.24	2331.7	YES	NO	db	db	50.028
3	123478-HxCDD	35.86	2.330e5	1.831e5	1.027	1.27	1.24	2263.2	YES	NO	bd	bd	47.426
4	124679-HXCDD	33.85	2.576e5	2.089e5	1.125	1.23	1.24	2367.1	YES	NO	bb	bb	48.563

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.13	1.600e5	1.441e5	1.068	1.11	1.05	2019.1	YES	NO	bd	bb	51.360
2	1234679-HPCDD	39.09	1.736e5	1.583e5	1.211	1.10	1.05	2335.6	YES	NO	bd	bb	49.442

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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	26.24	4.549e4	5.571e4	0.920	0.82	0.77	468.1	YES	NO	bb	bb	10.147
2	Total-tetradioxins	25.91	6.778e4	8.514e4	0.879	0.80	0.77	464.4	YES	NO	bb	bb	16.048
3	Total-tetradioxins	25.43	2.061e4	2.752e4	0.879	0.75	0.77	223.0	YES	NO	bb	bd	5.051
4	Total-tetradioxins	24.55	1.827e3	2.503e3	0.879	0.73	0.77	12.2	YES	NO	bb	bb	0.454
5	1368-TCDD	23.36	4.427e4	5.658e4	0.923	0.78	0.77	471.0	YES	NO	bb	bb	10.078
6	1289-TCDD	26.85	3.872e4	5.014e4	0.794	0.77	0.77	404.7	YES	NO	bb	bb	10.326
7	12389-PECDD	31.76	2.549e5	1.543e5	1.154	1.65	1.55	2974.9	YES	NO	bb	bb	51.668
8	12378-PeCDD	31.35	2.159e5	1.317e5	0.995	1.64	1.55	2422.8	YES	NO	bb	bb	50.867
9	Total-pentadioxins	30.69	9.410e2	5.867e2	1.331	1.60	1.55	9.4	YES	NO	bb	bb	0.167
10	Total-pentadioxins	29.75	7.491e2	5.248e2	1.331	1.43	1.55	9.9	YES	NO	bb	bb	0.139
11	12479-PECDD	28.62	3.729e5	2.283e5	1.843	1.63	1.55	2714.0	YES	NO	bb	bb	47.504
12	123789-HxCDD	36.38	2.371e5	1.877e5	0.950	1.26	1.24	2331.0	YES	NO	bb	bb	51.637
13	123678-HxCDD	35.99	2.461e5	1.968e5	1.009	1.25	1.24	2331.7	YES	NO	db	db	50.028
14	123478-HxCDD	35.86	2.330e5	1.831e5	1.027	1.27	1.24	2263.2	YES	NO	bd	bd	47.426
15	124679-HXCDD	33.85	2.576e5	2.089e5	1.125	1.23	1.24	2367.1	YES	NO	bb	bb	48.563
16	1234678-HpCDD	40.13	1.600e5	1.441e5	1.068	1.11	1.05	2019.1	YES	NO	bd	bb	51.360
17	1234679-HPCDD	39.09	1.736e5	1.583e5	1.211	1.10	1.05	2335.6	YES	NO	bd	bb	49.442
18	OCDD	44.84	2.501e5	2.798e5	1.181	0.89	0.89	3656.1	YES	NO	bb	bb	92.772

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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	27.11	5.750e4	7.902e4	1.043	0.73	0.77	871.8	YES	NO	dd	dd	9.435
2	2378-TCDF	25.61	5.995e4	8.364e4	1.108	0.72	0.77	974.1	YES	NO	bd	bb	9.345
3	Total-tetrafurans	24.69	4.524e2	6.504e2	1.192	0.70	0.77	6.5	YES	NO	db	bb	0.067
4	Total-tetrafurans	24.51	3.485e2	5.275e2	1.192	0.66	0.77	5.8	YES	NO	dd	db	0.053
5	Total-tetrafurans	24.37	6.281e2	8.053e2	1.192	0.78	0.77	8.8	YES	NO	bd	bd	0.087
6	1368-TCDF	22.09	7.437e4	1.010e5	1.425	0.74	0.77	1247.6	YES	NO	bb	bd	8.873
7	12389-PECDF	32.15	3.176e5	2.113e5	1.000	1.50	1.55	2294.5	YES	NO	bd	bd	46.383
8	23478-PeCDF	31.12	3.327e5	2.203e5	1.126	1.51	1.55	2536.1	YES	NO	bb	bd	45.364
9	12378-PeCDF	29.77	3.189e5	2.137e5	1.015	1.49	1.55	2417.0	YES	NO	bd	bd	46.009
10	Total-pentafurans	28.61	5.394e4	3.579e4	1.047	1.51	1.55	399.5	YES	NO	bb	bb	7.710
11	123789-HxCDF	36.80	2.299e5	1.987e5	1.030	1.16	1.24	2097.3	YES	NO	bb	bb	48.332
12	234678-HxCDF	35.76	2.770e5	2.341e5	1.052	1.18	1.24	2457.9	YES	NO	bb	bb	48.507
13	123678-HxCDF	34.88	2.990e5	2.516e5	1.037	1.19	1.24	2539.4	YES	NO	db	db	48.720
14	123478-HxCDF	34.75	2.844e5	2.422e5	1.017	1.17	1.24	2519.0	YES	NO	bd	bd	48.066
15	123468-HXCDF	33.07	2.933e5	2.493e5	1.087	1.18	1.24	2533.7	YES	NO	bb	bb	46.349
16	1234678-HpCDF	38.65	2.338e5	2.283e5	1.327	1.02	1.05	1956.4	YES	NO	bb	MM	45.088
17	1234789-HpCDF	40.87	1.866e5	1.888e5	1.283	0.99	1.05	1353.4	YES	NO	bd	bd	46.596
18	Total-heptafurans	39.29	1.001e3	8.796e2	1.305	1.14	1.05	7.2	YES	NO	bb	bb	0.206
19	OCDF	45.07	2.746e5	3.125e5	1.447	0.88	0.89	2024.3	YES	NO	bd	bd	83.887
20	13468-PECDF	26.96	4.809e5	3.103e5	1.376	1.55	1.55	9051.5	YES	NO	bb	bb	50.400
21	2378-TCDD	26.24	4.549e4	5.571e4	0.920	0.82	0.77	468.1	YES	NO	bb	bb	10.147
22	Total-tetradioxins	25.91	6.778e4	8.514e4	0.879	0.80	0.77	464.4	YES	NO	bb	bb	16.048
23	Total-tetradioxins	25.43	2.061e4	2.752e4	0.879	0.75	0.77	223.0	YES	NO	bb	bd	5.051
24	Total-tetradioxins	24.55	1.827e3	2.503e3	0.879	0.73	0.77	12.2	YES	NO	bb	bb	0.454
25	1368-TCDD	23.36	4.427e4	5.658e4	0.923	0.78	0.77	471.0	YES	NO	bb	bb	10.078
26	1289-TCDD	26.85	3.872e4	5.014e4	0.794	0.77	0.77	404.7	YES	NO	bb	bb	10.326
27	12389-PECDD	31.76	2.549e5	1.543e5	1.154	1.65	1.55	2974.9	YES	NO	bb	bb	51.668
28	12378-PeCDD	31.35	2.159e5	1.317e5	0.995	1.64	1.55	2422.8	YES	NO	bb	bb	50.867
29	Total-pentadioxins	30.69	9.410e2	5.867e2	1.331	1.60	1.55	9.4	YES	NO	bb	bb	0.167
30	Total-pentadioxins	29.75	7.491e2	5.248e2	1.331	1.43	1.55	9.9	YES	NO	bb	bb	0.139
31	12479-PECDD	28.62	3.729e5	2.283e5	1.843	1.63	1.55	2714.0	YES	NO	bb	bb	47.504
32	123789-HxCDD	36.38	2.371e5	1.877e5	0.950	1.26	1.24	2331.0	YES	NO	bb	bb	51.637
33	123678-HxCDD	35.99	2.461e5	1.968e5	1.009	1.25	1.24	2331.7	YES	NO	db	db	50.028
34	123478-HxCDD	35.86	2.330e5	1.831e5	1.027	1.27	1.24	2263.2	YES	NO	bd	bd	47.426
35	124679-HXCDD	33.85	2.576e5	2.089e5	1.125	1.23	1.24	2367.1	YES	NO	bb	bb	48.563
36	1234678-HpCDD	40.13	1.600e5	1.441e5	1.068	1.11	1.05	2019.1	YES	NO	bd	bb	51.360
37	1234679-HPCDD	39.09	1.736e5	1.583e5	1.211	1.10	1.05	2335.6	YES	NO	bd	bb	49.442

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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
38	OCDD	44.84	2.501e5	2.798e5	1.181	0.89	0.89	3656.1	YES	NO	bb	bb	92.772

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.21	5.932e4					1.4	NO		dd		
2	FUNCTION1 PFK	23.05	6.822e4					1.4	NO		bd		
3	FUNCTION1 PFK	22.98	1.208e4					0.7	NO		bb		
4	FUNCTION1 PFK	22.74	6.490e4					1.0	NO		bb		
5	FUNCTION1 PFK	22.27	3.675e5					6.0	YES		db		
6	FUNCTION1 PFK	22.21	3.076e5					7.3	YES		dd		
7	FUNCTION1 PFK	21.84	4.688e6					18.2	YES		dd		
8	FUNCTION1 PFK	21.62	8.401e5					24.4	YES		dd		
9	FUNCTION1 PFK	21.51	1.617e6					27.4	YES		dd		
10	FUNCTION1 PFK	21.36	2.586e6					31.3	YES		dd		
11	FUNCTION1 PFK	21.30	1.101e6					32.2	YES		dd		
12	FUNCTION1 PFK	21.24	1.180e6					34.4	YES		dd		
13	FUNCTION1 PFK	21.10	3.097e6					37.8	YES		bd		
14	FUNCTION1 PFK	26.76	3.713e4					1.6	NO		db		
15	FUNCTION1 PFK	26.71	2.895e4					1.6	NO		bd		
16	FUNCTION1 PFK	26.61	5.605e4					2.0	NO		bb		
17	FUNCTION1 PFK	25.65	1.327e4					0.7	NO		bb		
18	FUNCTION1 PFK	25.49	7.607e4					1.5	NO		bb		
19	FUNCTION1 PFK	25.35	2.216e4					0.5	NO		bb		
20	FUNCTION1 PFK	25.16	1.175e4					0.7	NO		bb		
21	FUNCTION1 PFK	24.81	3.561e4					1.4	NO		db		
22	FUNCTION1 PFK	24.75	4.153e4					1.5	NO		bd		
23	FUNCTION1 PFK	24.66	6.883e3					0.7	NO		bb		
24	FUNCTION1 PFK	24.42	3.728e4					1.2	NO		bb		
25	FUNCTION1 PFK	24.22	7.036e4					1.7	NO		bb		
26	FUNCTION1 PFK	24.10	1.168e5					2.2	NO		bb		
27	FUNCTION1 PFK	23.57	4.173e4					1.3	NO		bb		
28	FUNCTION1 PFK	23.42	1.620e4					0.9	NO		bb		
29	FUNCTION1 PFK	23.27	1.971e4					1.0	NO		db		
30	FUNCTION1 PFK	27.65	4.292e3					0.5	NO		bb		
31	FUNCTION1 PFK	27.58	4.263e4					1.1	NO		bb		
32	FUNCTION1 PFK	27.00	3.158e4					1.2	NO		bb		
33	FUNCTION1 PFK	26.82	3.046e3					0.3	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.70	1.113e4					0.7	NO		db		0.000
2	FUNCTION2 PFK	29.65	6.710e3					0.6	NO		bd		0.000
3	FUNCTION2 PFK	29.58	8.953e3					0.5	NO		bb		0.000
4	FUNCTION2 PFK	29.21	1.432e4					0.7	NO		bb		0.000
5	FUNCTION2 PFK	29.11	7.358e3					0.5	NO		bb		0.000
6	FUNCTION2 PFK	28.75	3.096e4					1.2	NO		bb		0.000
7	FUNCTION2 PFK	28.68	2.168e3					0.4	NO		bb		0.000
8	FUNCTION2 PFK	28.31	3.148e4					1.5	NO		db		0.000
9	FUNCTION2 PFK	28.16	3.711e5					4.4	YES		dd		0.000
10	FUNCTION2 PFK	28.03	2.803e5					6.1	YES		dd		0.000
11	FUNCTION2 PFK	27.95	1.444e5					6.8	YES		bd		0.000
12	FUNCTION2 PFK	31.70	7.503e3					0.9	NO		bd		0.000
13	FUNCTION2 PFK	31.64	1.106e4					0.7	NO		bb		0.000
14	FUNCTION2 PFK	31.47	2.798e4					0.8	NO		bb		0.000
15	FUNCTION2 PFK	31.40	6.645e3					0.7	NO		bb		0.000
16	FUNCTION2 PFK	31.24	3.380e3					0.4	NO		db		0.000
17	FUNCTION2 PFK	31.21	5.174e3					0.5	NO		bd		0.000
18	FUNCTION2 PFK	31.14	1.214e4					0.7	NO		bb		0.000
19	FUNCTION2 PFK	30.86	5.104e3					0.5	NO		bb		0.000
20	FUNCTION2 PFK	30.80	4.031e3					0.5	NO		bb		0.000
21	FUNCTION2 PFK	30.74	7.075e3					0.4	NO		bb		0.000
22	FUNCTION2 PFK	30.45	7.435e3					0.6	NO		bb		0.000
23	FUNCTION2 PFK	30.19	8.232e3					0.6	NO		bb		0.000
24	FUNCTION2 PFK	30.04	9.727e3					0.8	NO		bb		0.000
25	FUNCTION2 PFK	29.90	1.042e4					0.7	NO		bb		0.000
26	FUNCTION2 PFK	29.87	2.007e3					0.3	NO		bb		0.000
27	FUNCTION2 PFK	29.79	7.082e3					0.2	NO		bb		0.000
28	FUNCTION2 PFK	32.50	5.169e4					1.4	NO		db		0.000
29	FUNCTION2 PFK	32.45	1.812e4					1.4	NO		dd		0.000
30	FUNCTION2 PFK	32.42	2.666e4					1.3	NO		bd		0.000
31	FUNCTION2 PFK	32.29	6.623e4					1.8	NO		db		0.000
32	FUNCTION2 PFK	32.20	1.856e4					1.0	NO		bd		0.000
33	FUNCTION2 PFK	32.14	1.503e3					0.3	NO		bb		0.000
34	FUNCTION2 PFK	31.96	3.841e3					0.4	NO		bb		0.000
35	FUNCTION2 PFK	31.72	1.023e4					0.9	NO		db		0.000

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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	33.86	2.929e3					0.5	NO		bb		0.000
2	FUNCTION3 PFK	33.81	1.902e4					1.6	NO		bb		0.000
3	FUNCTION3 PFK	33.48	2.982e4					1.3	NO		bb		0.000
4	FUNCTION3 PFK	33.43	3.295e3					0.6	NO		bb		0.000
5	FUNCTION3 PFK	33.31	1.543e4					1.2	NO		db		0.000
6	FUNCTION3 PFK	33.28	6.439e3					0.8	NO		bd		0.000
7	FUNCTION3 PFK	32.69	9.887e4					2.2	NO		bb		0.000
8	FUNCTION3 PFK	36.92	3.014e3					0.5	NO		bb		0.000
9	FUNCTION3 PFK	36.88	2.550e3					0.4	NO		bb		0.000
10	FUNCTION3 PFK	36.83	5.748e3					0.7	NO		bb		0.000
11	FUNCTION3 PFK	36.43	1.065e4					1.0	NO		bb		0.000
12	FUNCTION3 PFK	36.23	5.648e3					0.6	NO		bb		0.000
13	FUNCTION3 PFK	35.92	7.195e3					0.7	NO		bb		0.000
14	FUNCTION3 PFK	35.49	3.062e4					2.1	NO		db		0.000
15	FUNCTION3 PFK	35.44	2.939e4					1.5	NO		bd		0.000
16	FUNCTION3 PFK	35.10	3.912e3					0.7	NO		bb		0.000
17	FUNCTION3 PFK	34.84	1.279e5					2.6	NO		bb		0.000
18	FUNCTION3 PFK	34.78	2.206e4					1.5	NO		db		0.000
19	FUNCTION3 PFK	34.73	2.539e4					1.4	NO		bd		0.000
20	FUNCTION3 PFK	34.66	3.982e3					0.7	NO		bb		0.000
21	FUNCTION3 PFK	34.60	3.503e4					1.8	NO		db		0.000
22	FUNCTION3 PFK	34.50	6.426e4					1.9	NO		bd		0.000
23	FUNCTION3 PFK	34.14	2.844e3					0.5	NO		bb		0.000
24	FUNCTION3 PFK	37.11	2.614e3					0.5	NO		bb		0.000

PFK4

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

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.87	1.134e3					0.6	NO		bb		
2	FUNCTION5 PFK	42.94	4.455e3					1.0	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.77	1.745e2					1.9	NO		bb		0.000
2	FUNCTION1 HXCD...	25.40	1.098e2					1.5	NO		bb		0.000
3	FUNCTION1 HXCD...	24.82	7.114e1					3.0	YES		bb		0.000
4	FUNCTION1 HXCD...	23.66	8.177e1					1.7	NO		bb		0.000
5	FUNCTION1 HXCD...	22.95	9.528e1					2.6	NO		db		0.000
6	FUNCTION1 HXCD...	22.89	2.373e2					3.3	YES		dd		0.000
7	FUNCTION1 HXCD...	22.75	1.158e2					3.1	YES		dd		0.000
8	FUNCTION1 HXCD...	22.71	1.201e2					3.5	YES		dd		0.000
9	FUNCTION1 HXCD...	22.63	1.222e2					1.9	NO		bd		0.000
10	FUNCTION1 HXCD...	22.13	2.333e2					2.5	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...	26.92	1.237e2					3.1	YES		bb		0.000
2	FUNCTION1 HPCD...	26.73	7.202e1					1.7	NO		bb		0.000
3	FUNCTION1 HPCD...	25.41	8.099e1					2.3	NO		db		0.000
4	FUNCTION1 HPCD...	25.37	1.726e2					2.5	NO		bd		0.000
5	FUNCTION1 HPCD...	22.84	8.582e1					0.7	NO		bb		0.000
6	FUNCTION1 HPCD...	22.60	8.841e1					1.6	NO		bb		0.000
7	FUNCTION1 HPCD...	21.68	9.512e1					1.3	NO		bb		0.000
8	FUNCTION1 HPCD...	21.48	1.046e2					2.9	NO		bb		0.000
9	FUNCTION1 HPCD...	21.18	1.798e2					1.5	NO		bb		0.000

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.33	1.244e2					2.0	NO		bb		0.000
2	FUNCTION2 HPCD...	30.94	2.000e2					7.7	YES		db		0.000
3	FUNCTION2 HPCD...	30.92	2.080e2					7.6	YES		bd		0.000
4	FUNCTION2 HPCD...	30.07	7.929e1					1.9	NO		bb		0.000
5	FUNCTION2 HPCD...	29.77	1.931e2					3.7	YES		bb		0.000
6	FUNCTION2 HPCD...	32.33	8.687e1					3.6	YES		bb		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.36	1.925e2					4.8	YES		bb		0.000
2	FUNCTION3 OCDPE	35.97	7.103e1					2.5	NO		bb		0.000
3	FUNCTION3 OCDPE	35.85	1.132e2					3.4	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	37.79	7.193e1					3.0	NO		bb		0.000

ETHERS6

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

Method: T:\Autospec\Methods\Dioxin210924.mdb 24 Sep 2021 10:55:34
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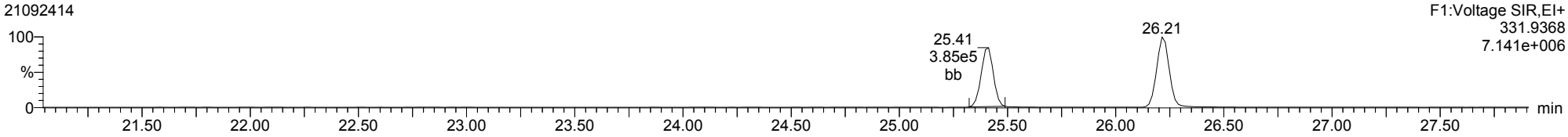
13C-1234-TCDD



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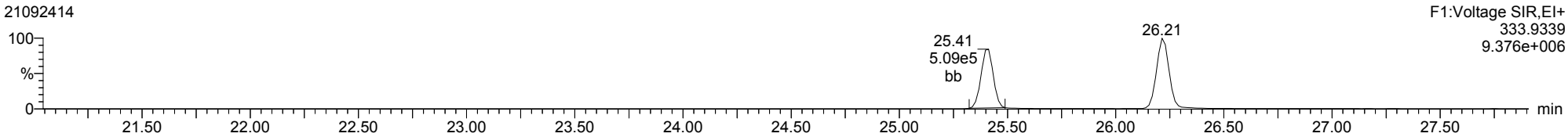
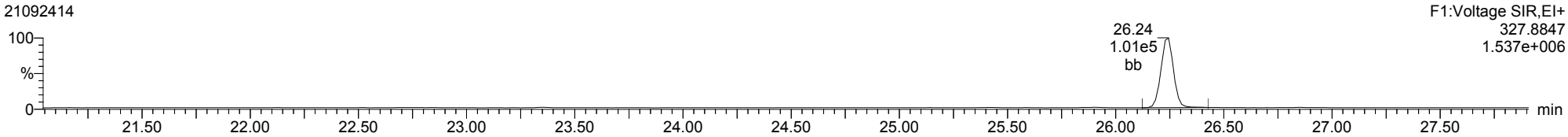


37CL-2378-TCDD



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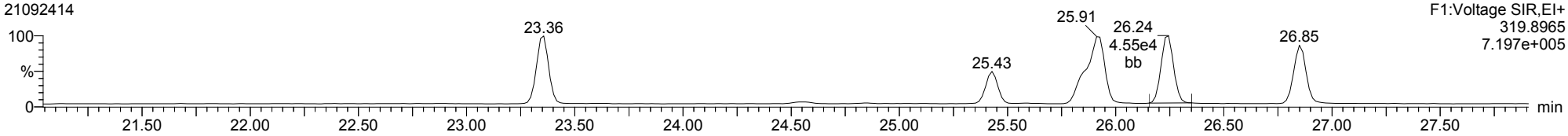
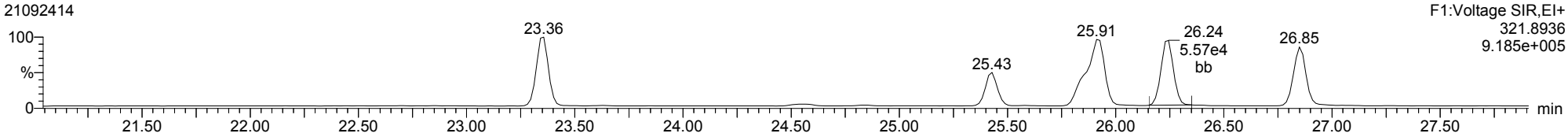
2378-TCDD



2378-TCDD



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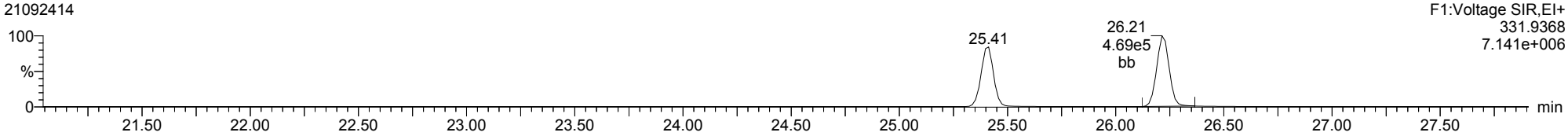

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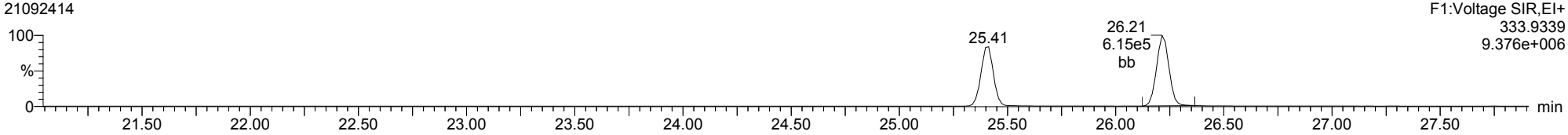
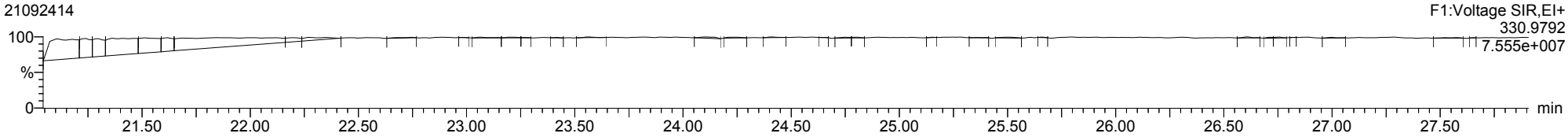


FUNCTION1 PFK



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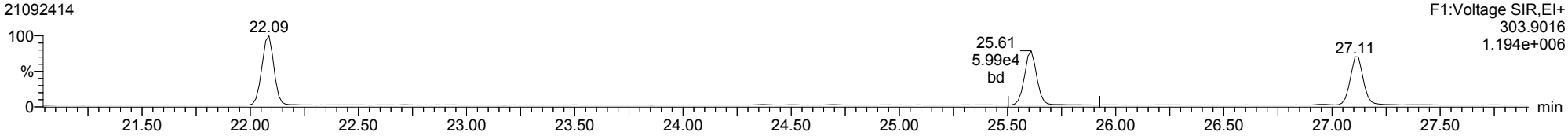
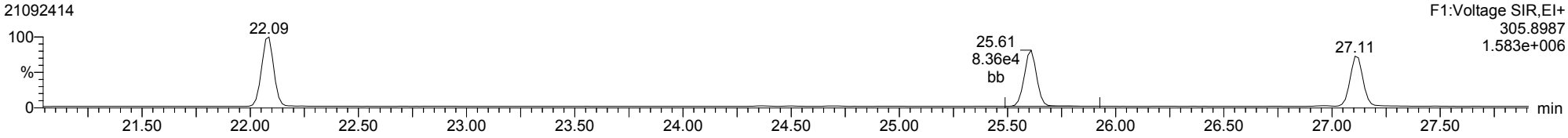
2378-TCDF



2378-TCDF



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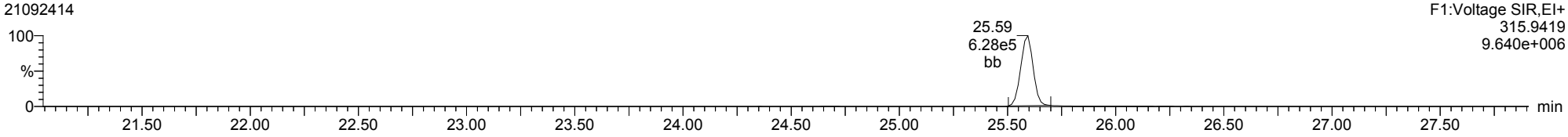

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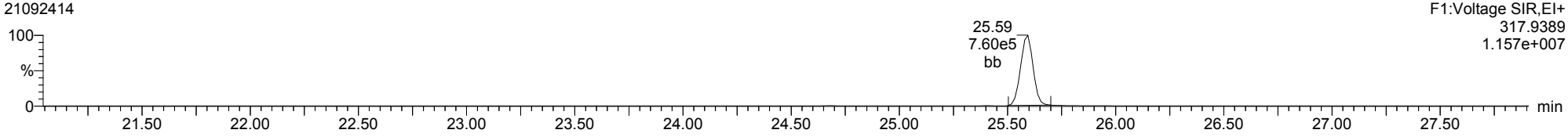

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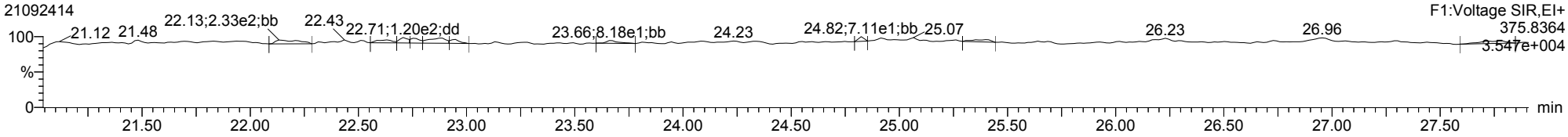

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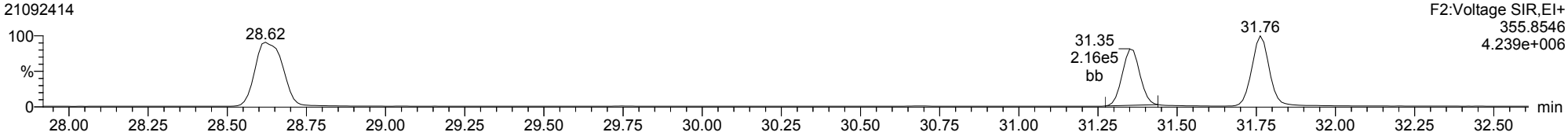
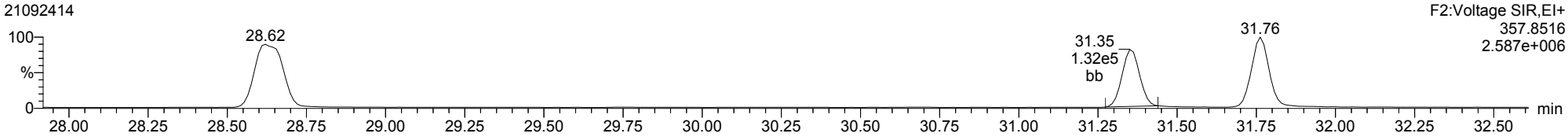
12378-PeCDD



12378-PeCDD



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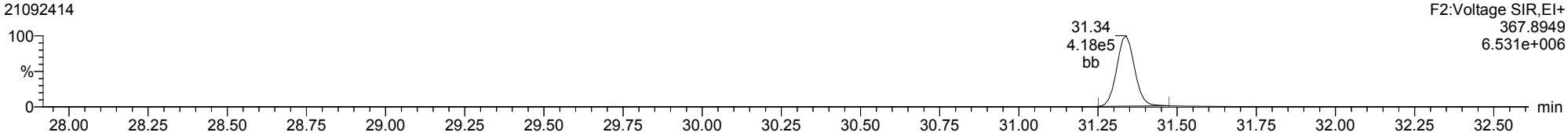

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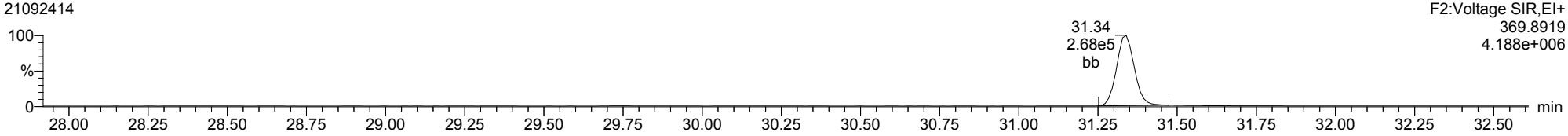

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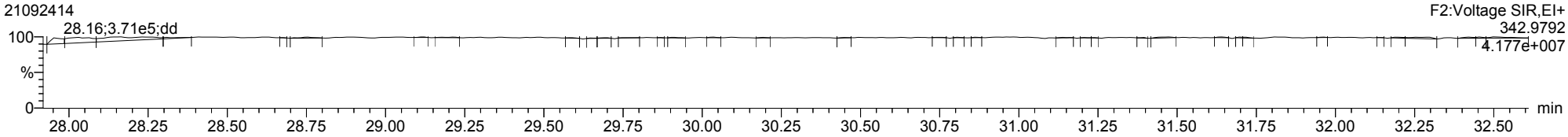

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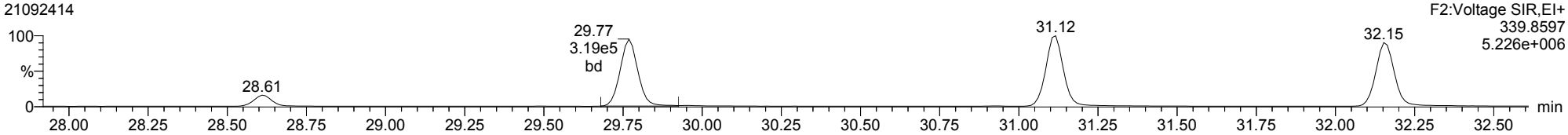

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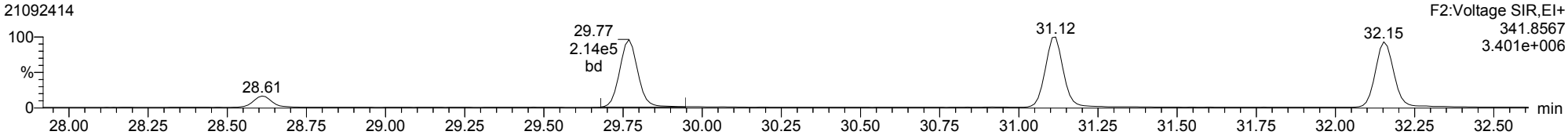

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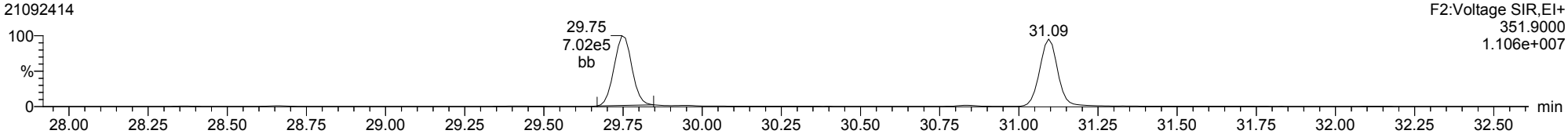

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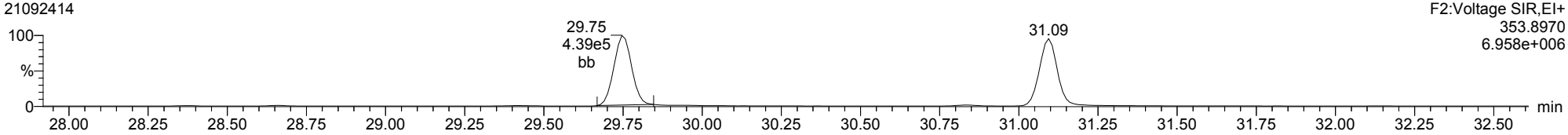

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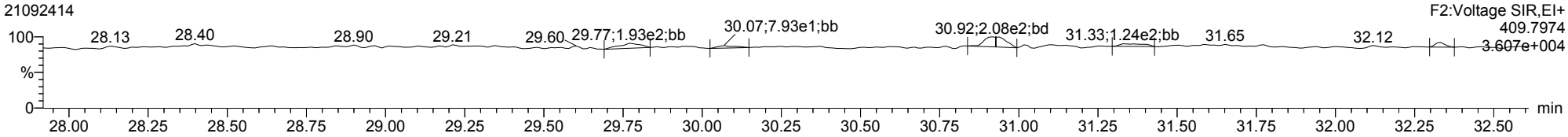

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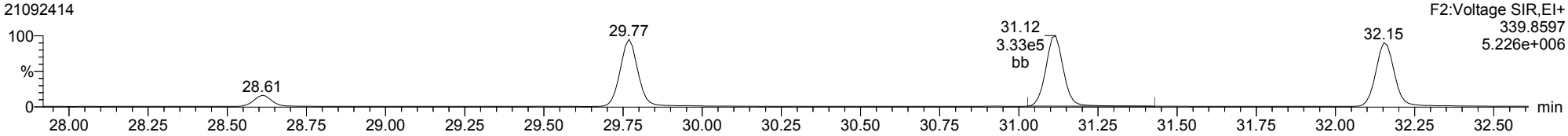

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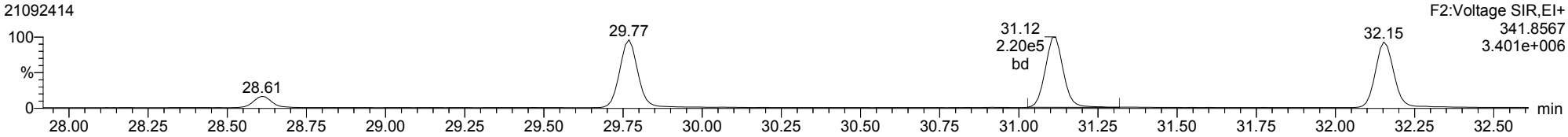

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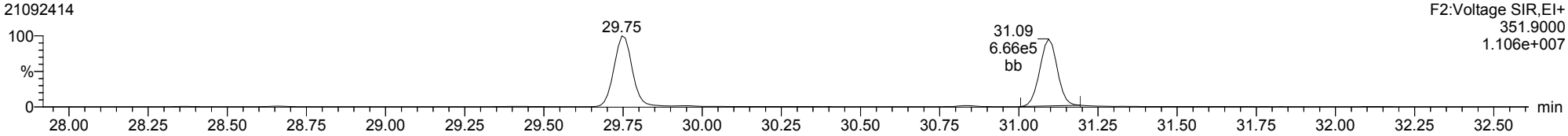

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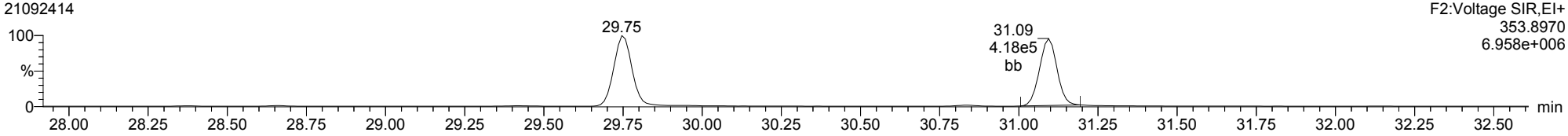

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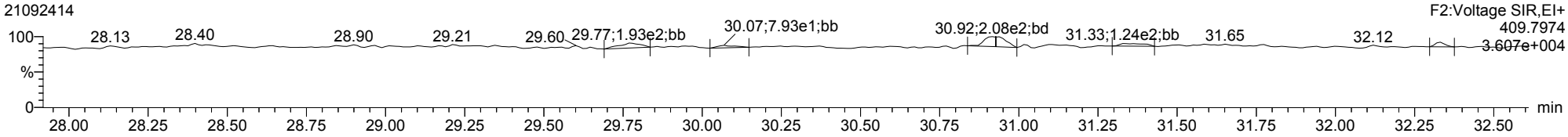

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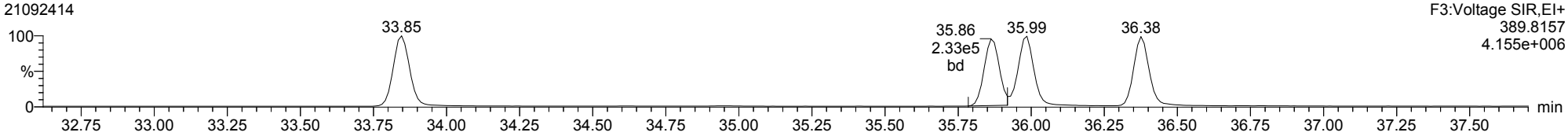

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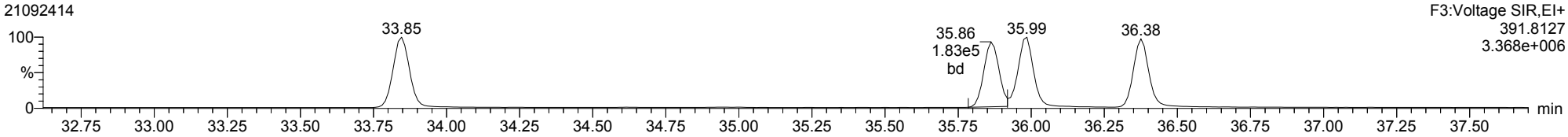

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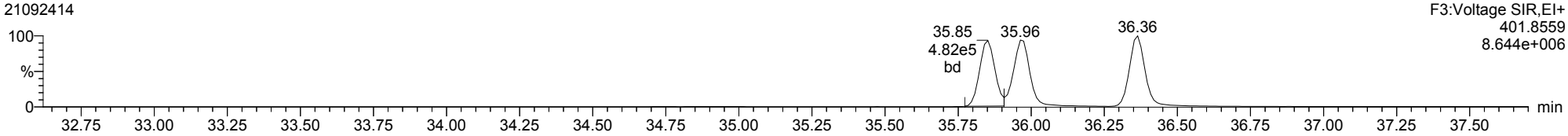

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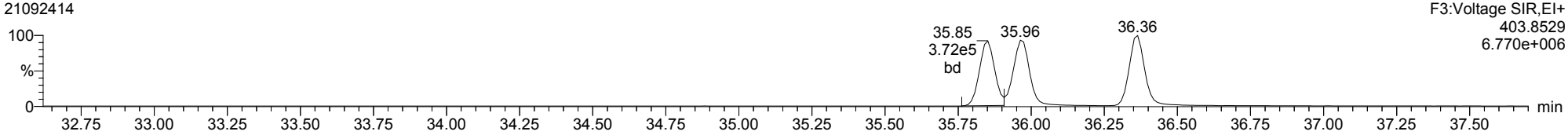

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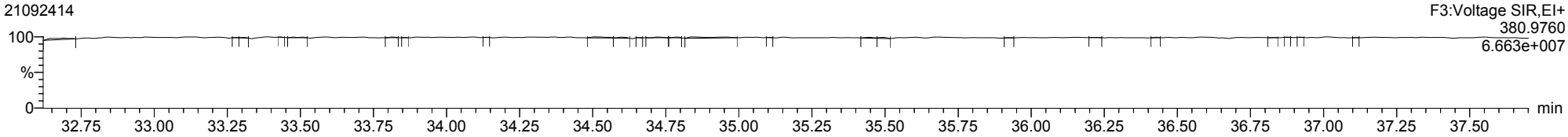

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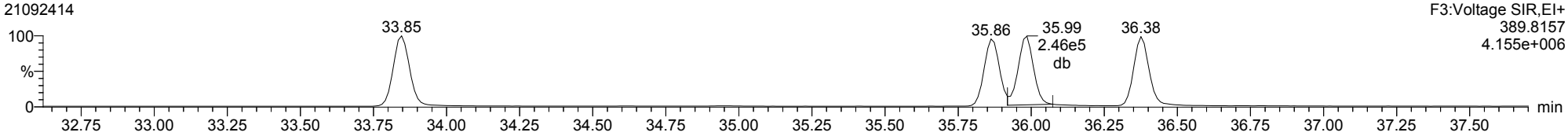

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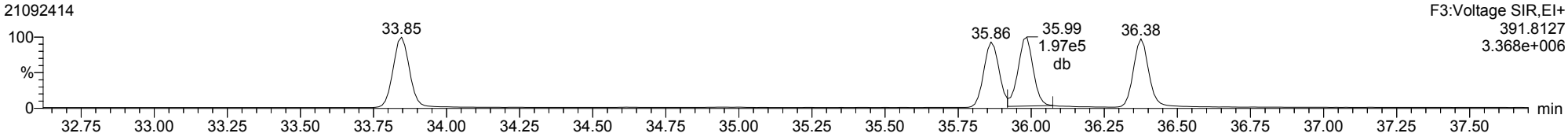

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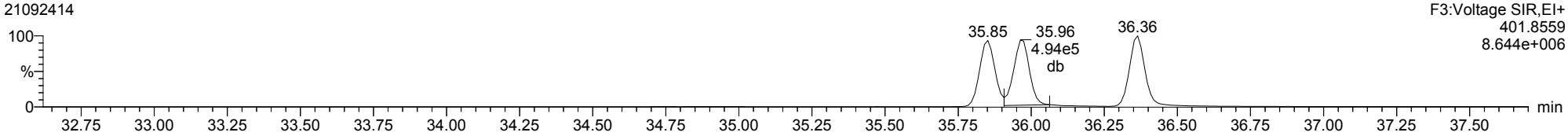

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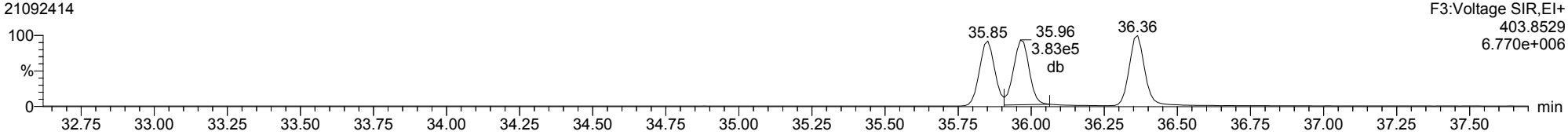

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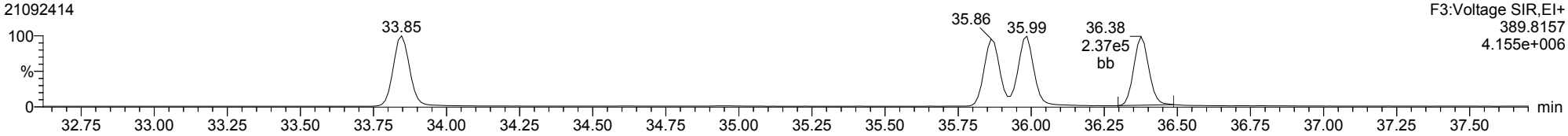

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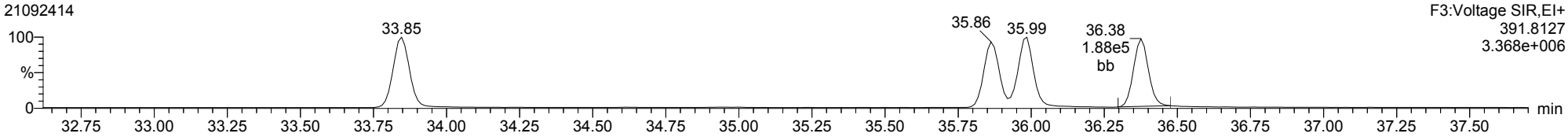

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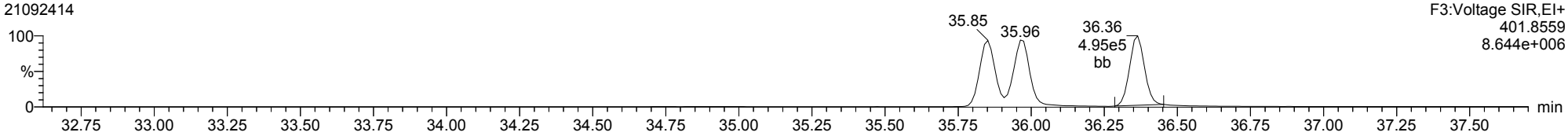

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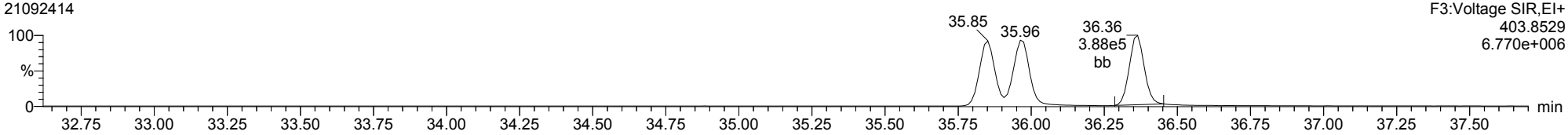

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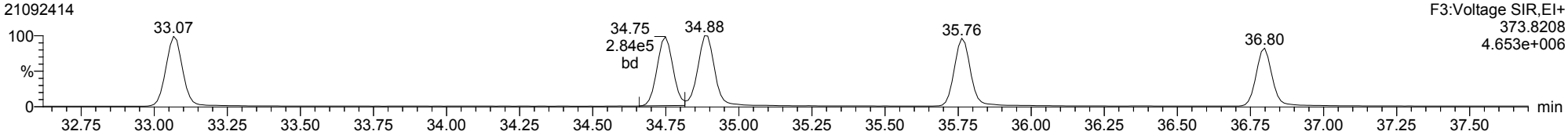

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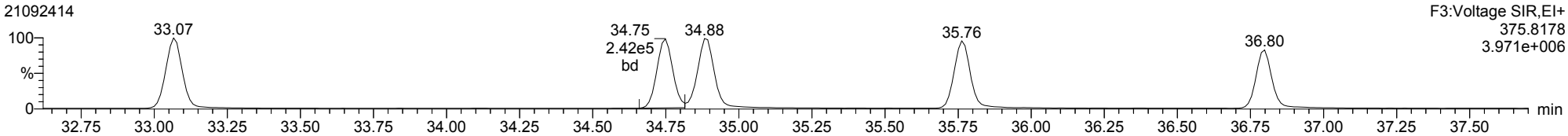

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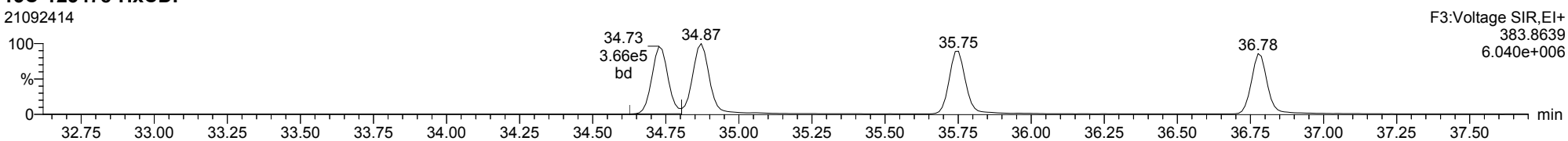

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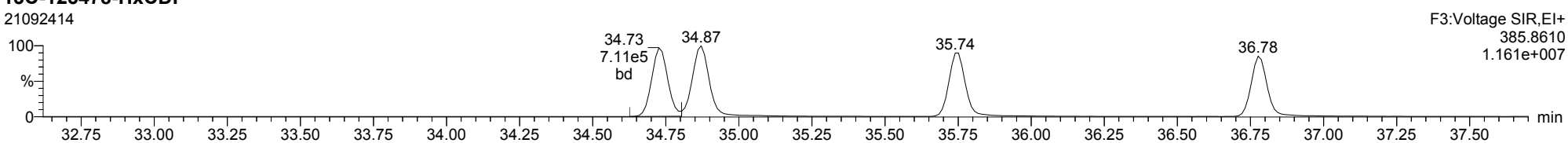

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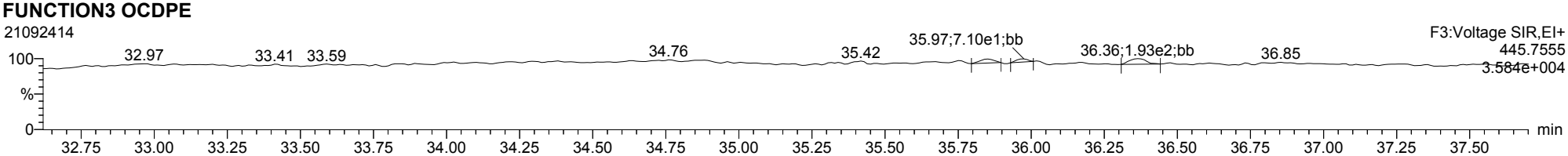

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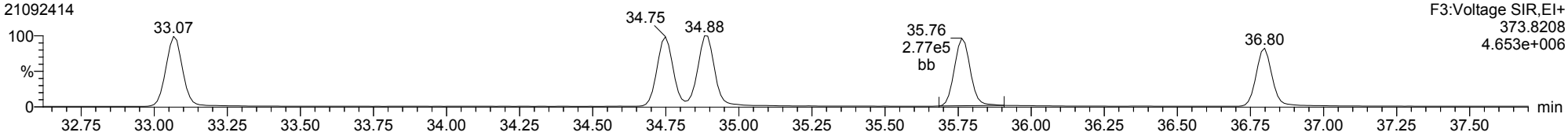

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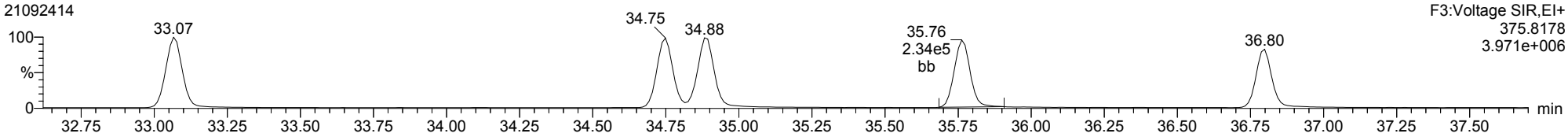

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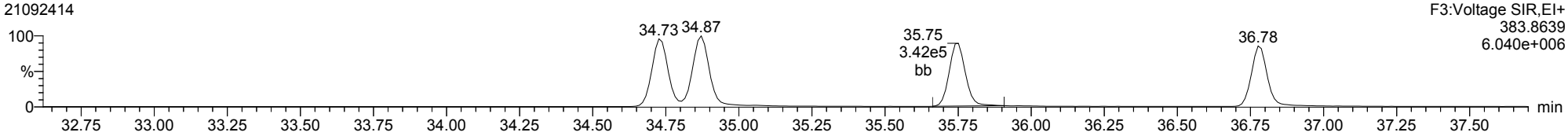

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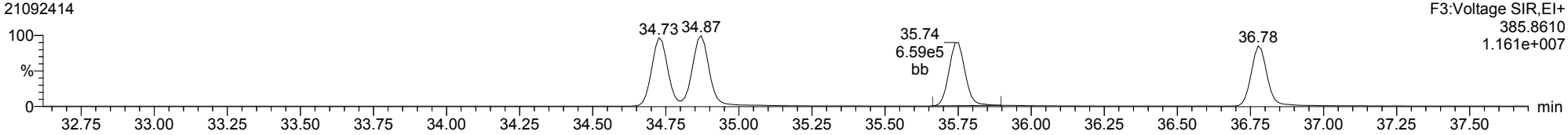

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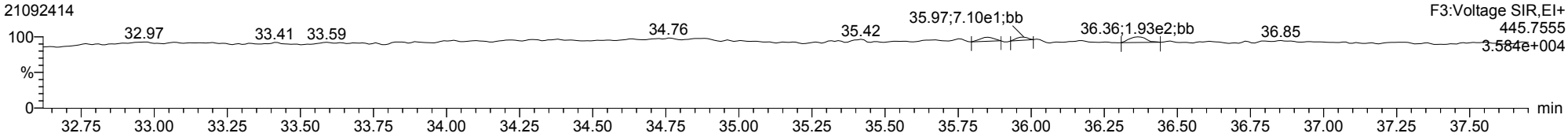

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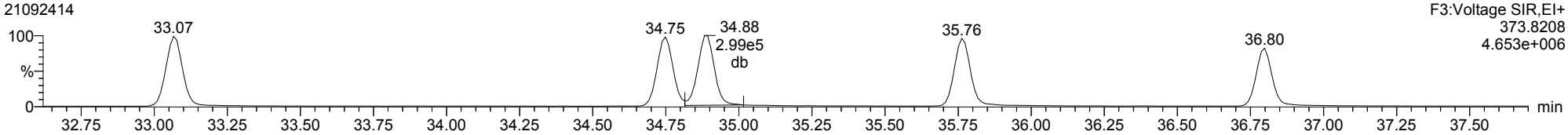

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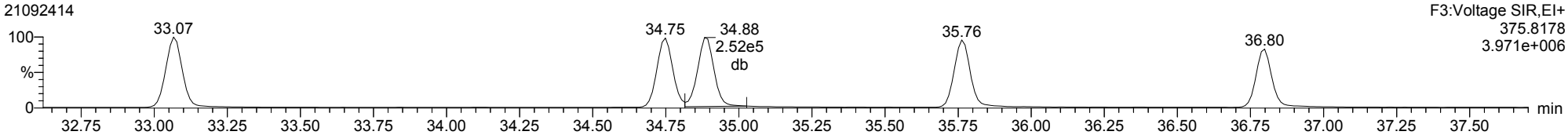

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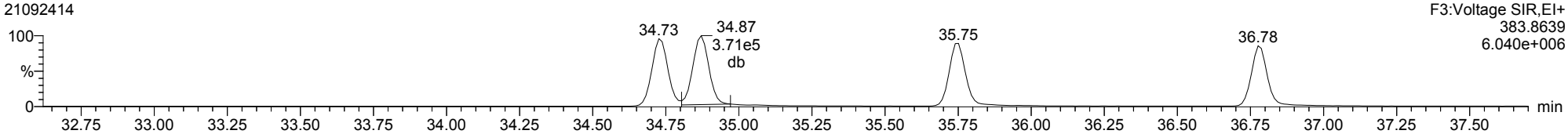

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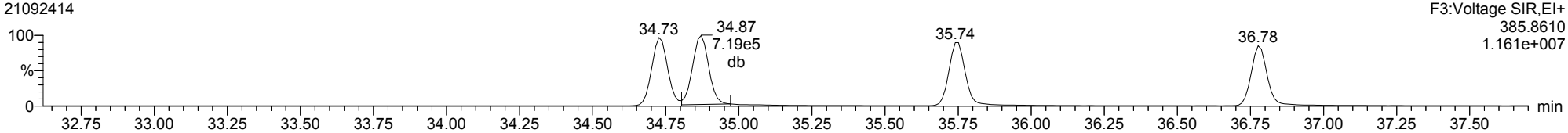

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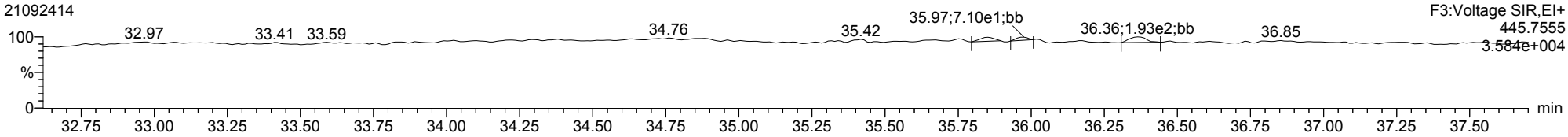

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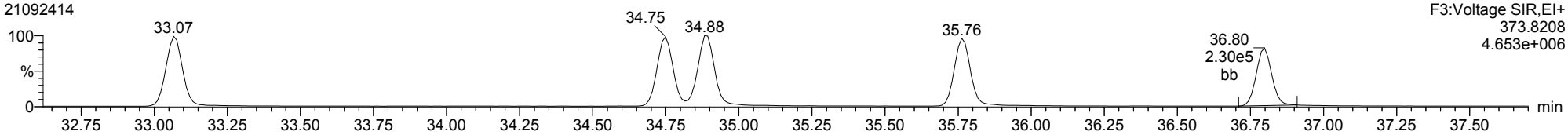

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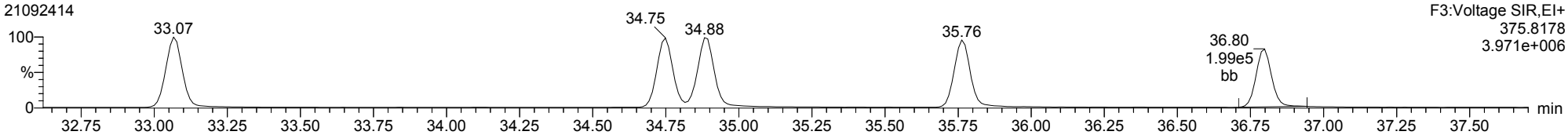

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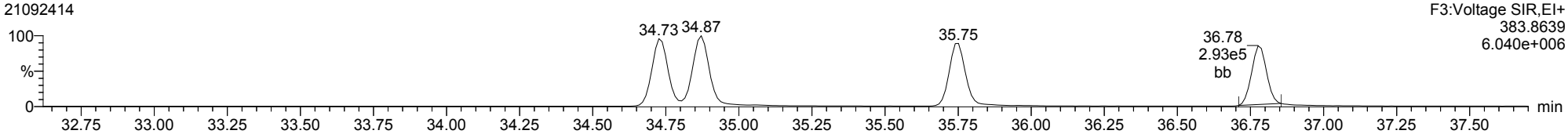

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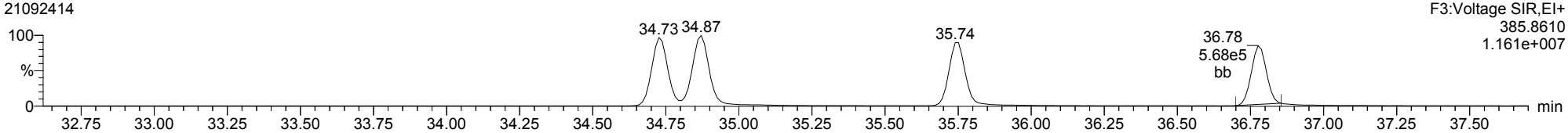

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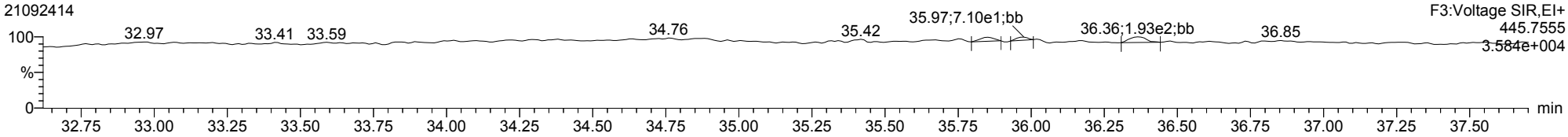

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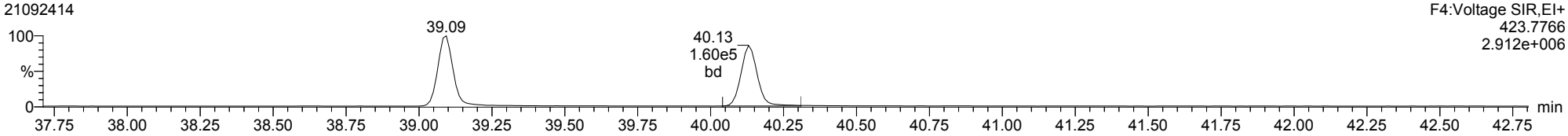

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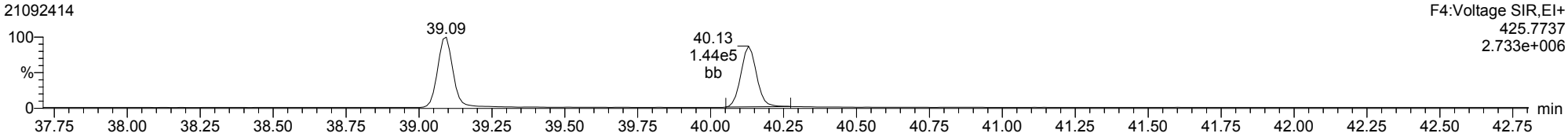

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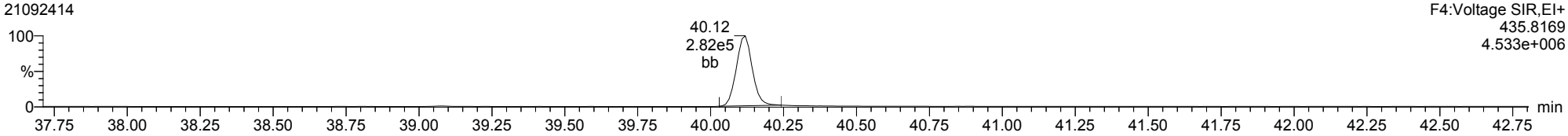

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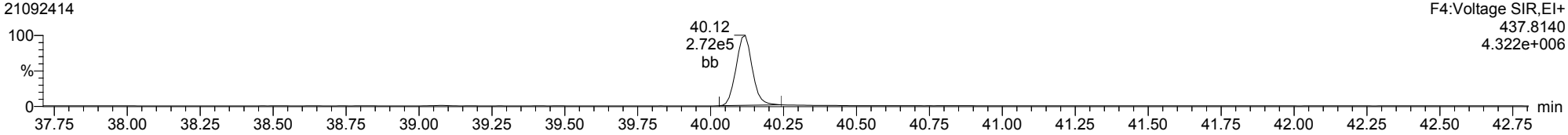
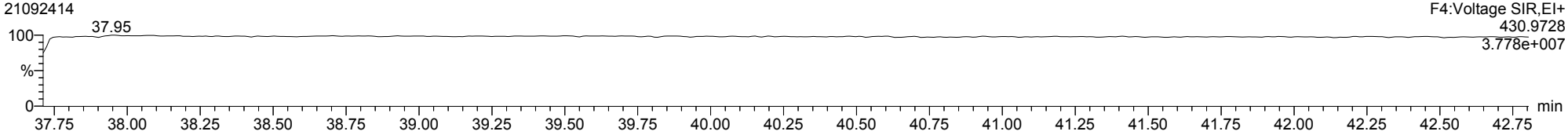


FUNCTION4 PFK



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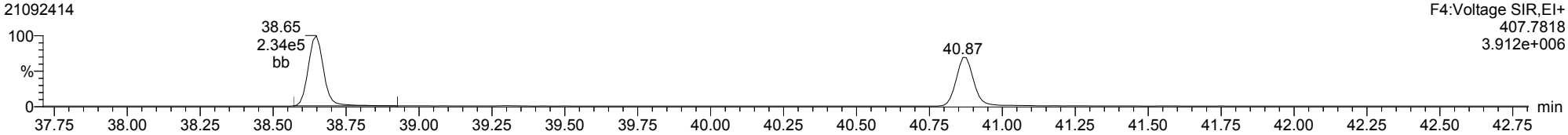

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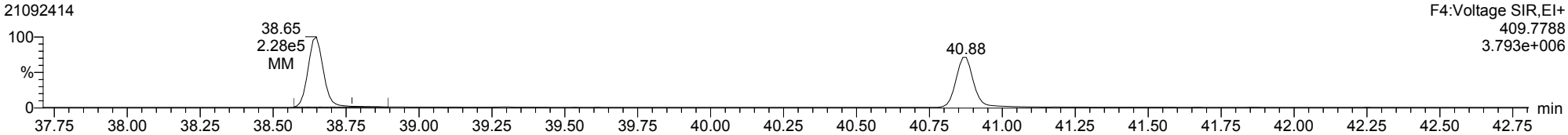

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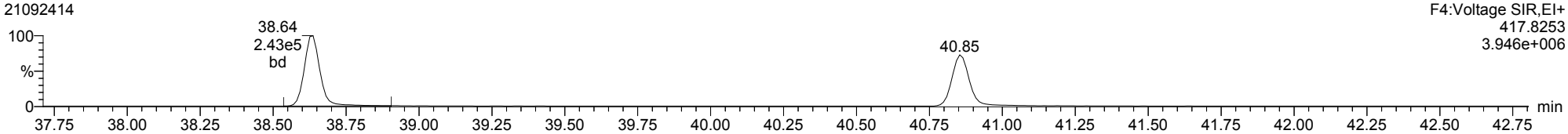

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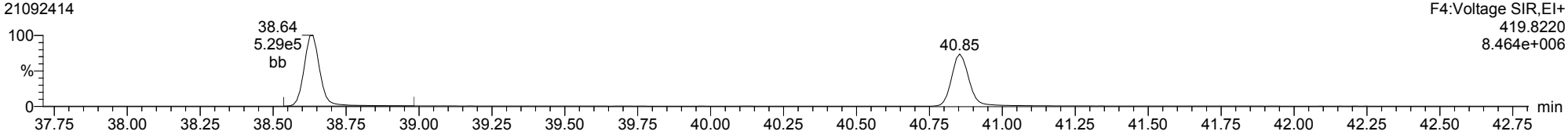

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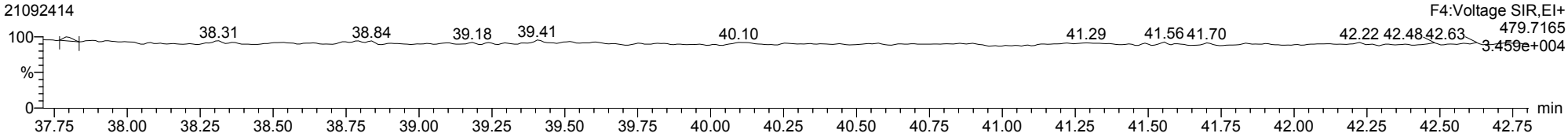

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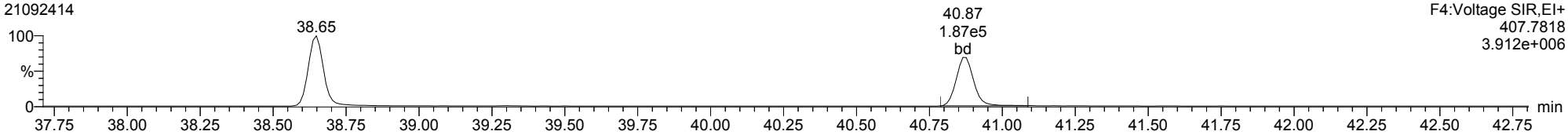

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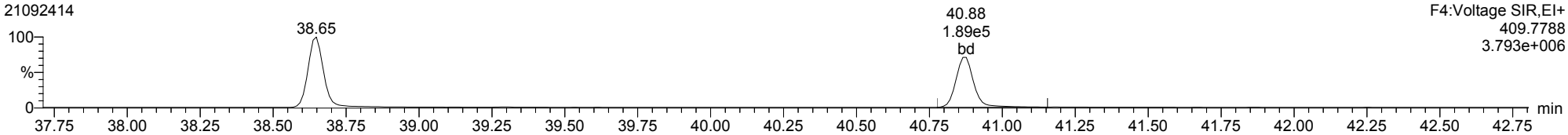

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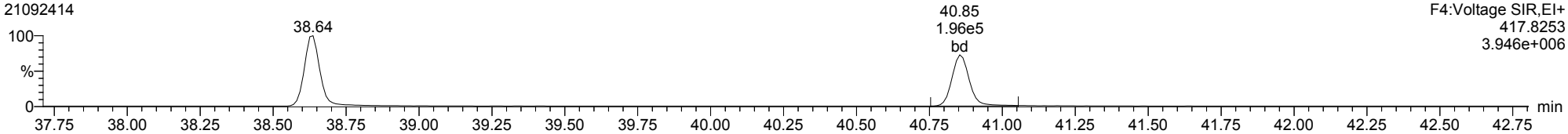

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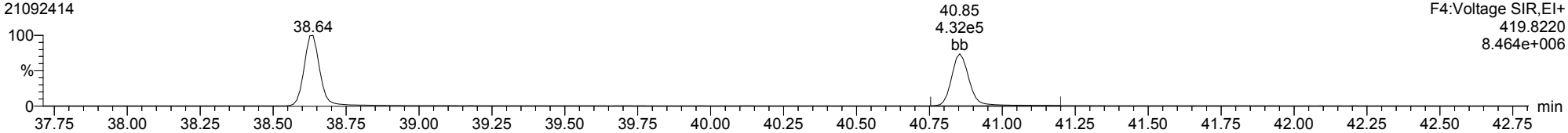
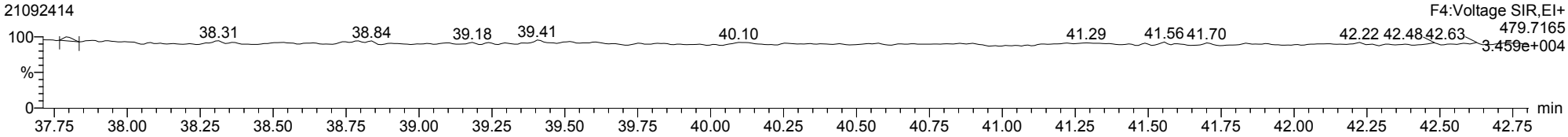


FUNCTION4 NCDPE



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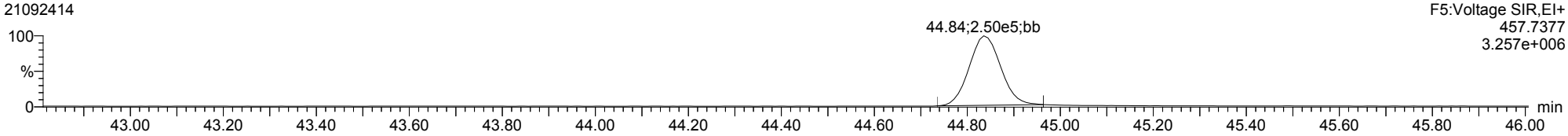

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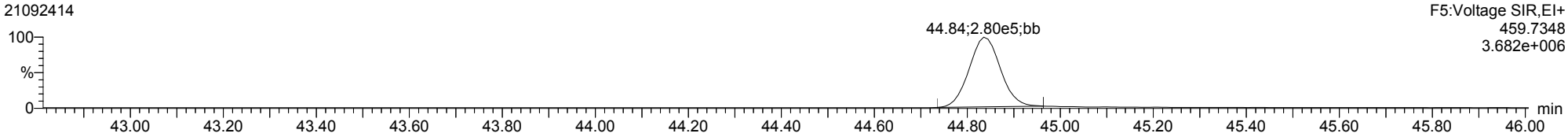

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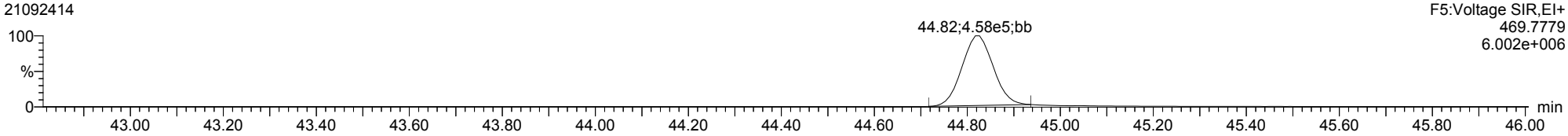

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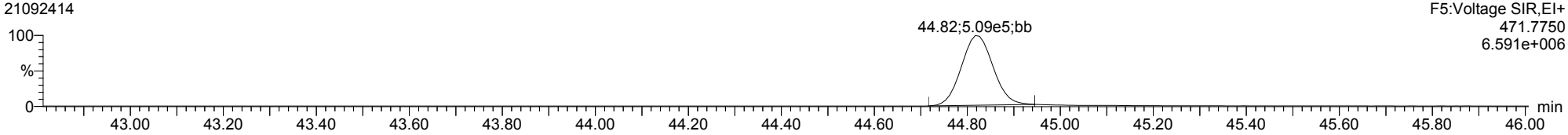

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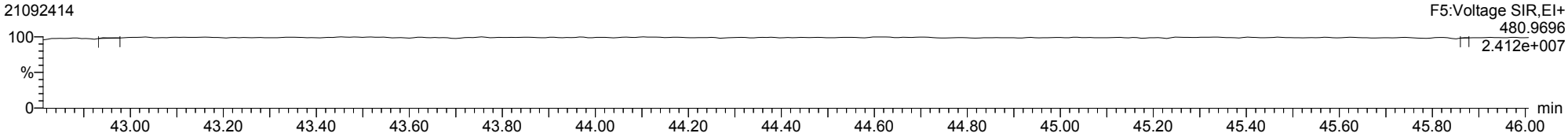

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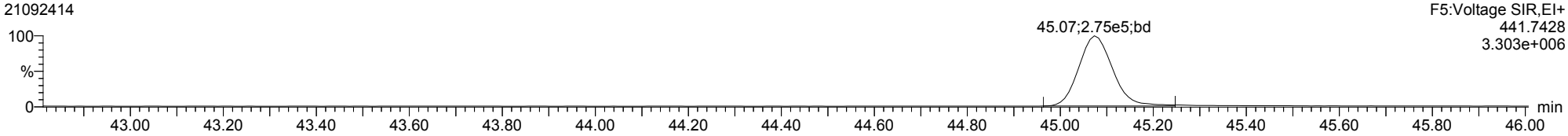

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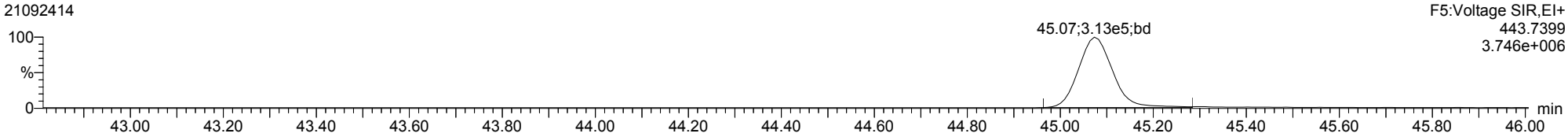

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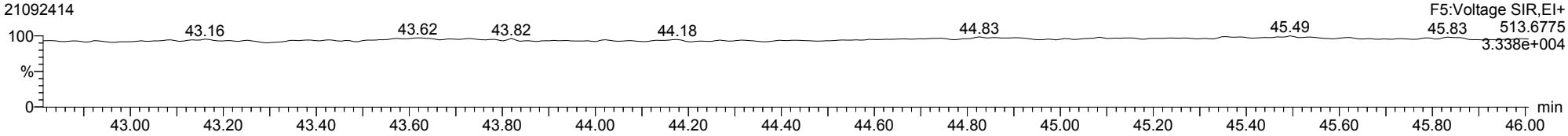

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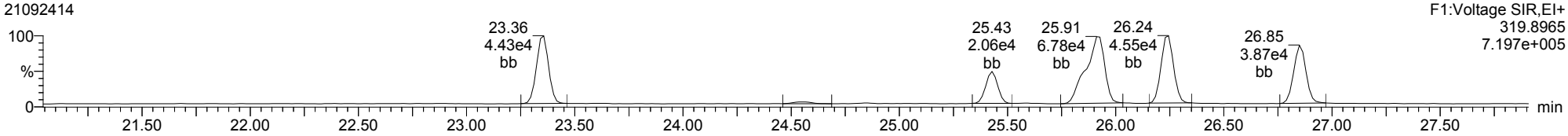

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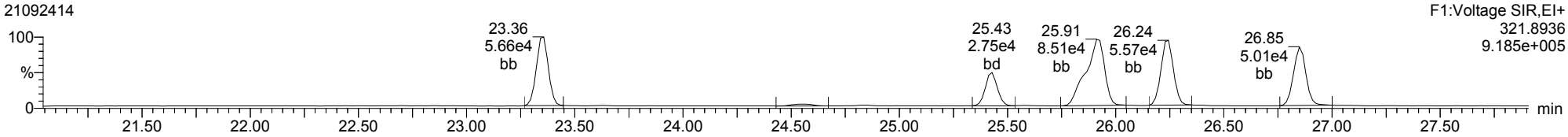

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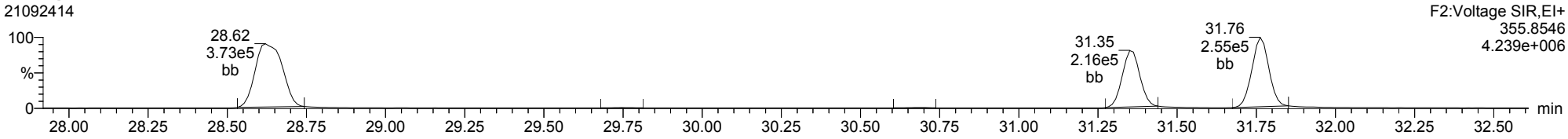

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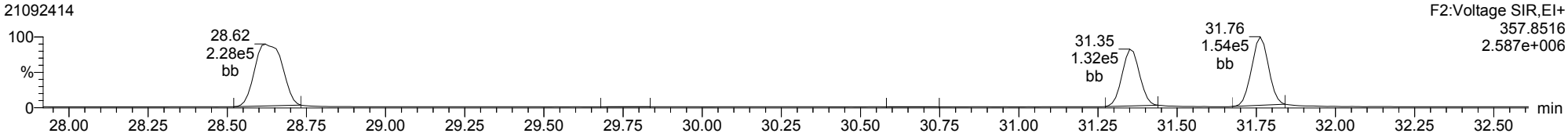

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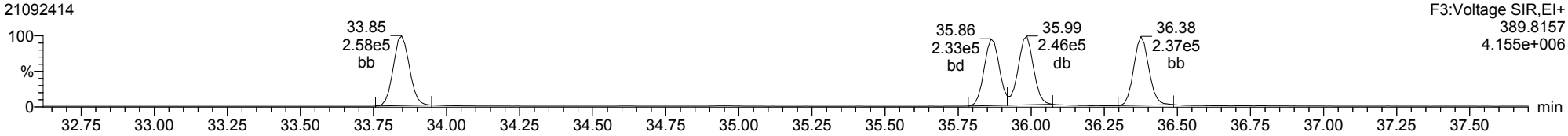

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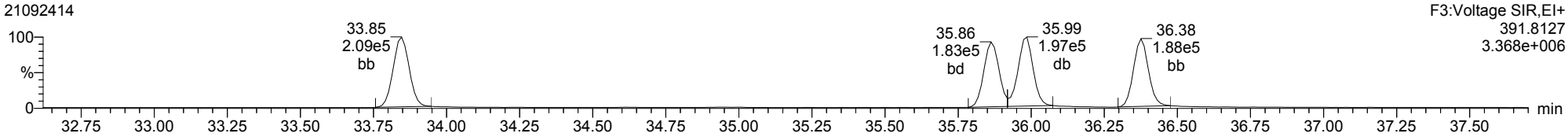

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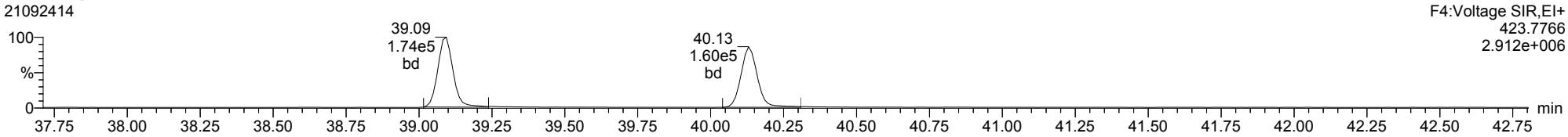

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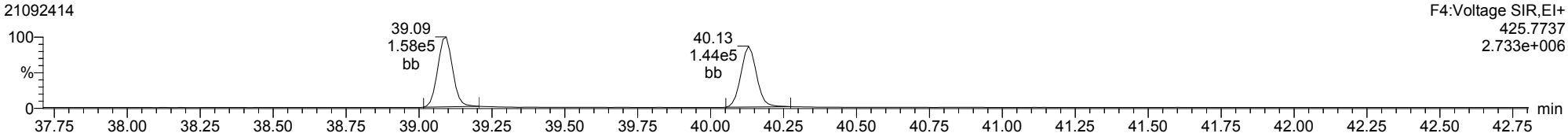

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Printed: Monday, September 27, 2021 10:18:18 Pacific Daylight Time

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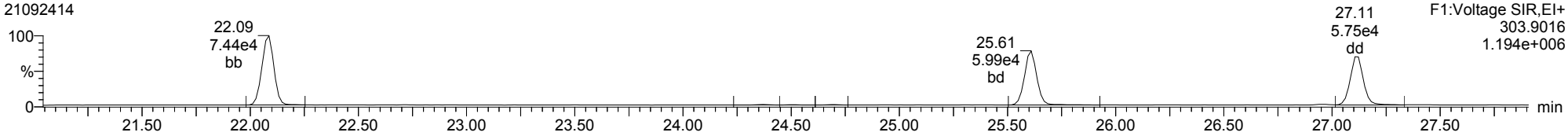
Total-tetrafurans



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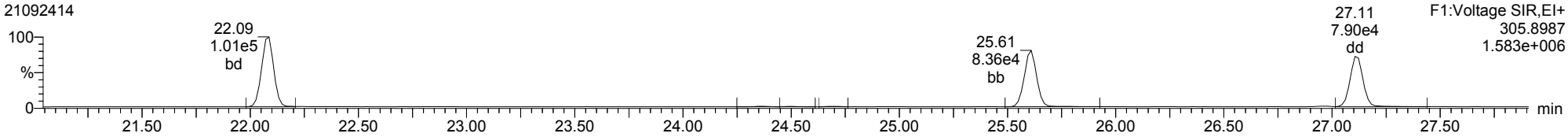

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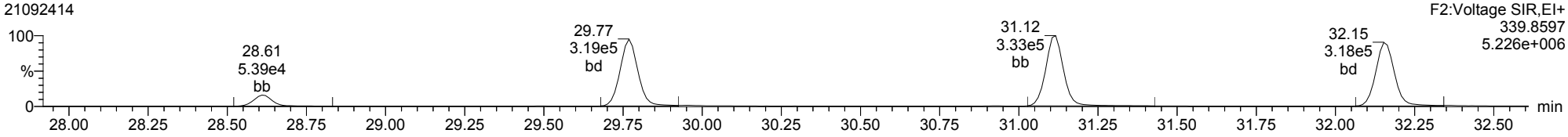

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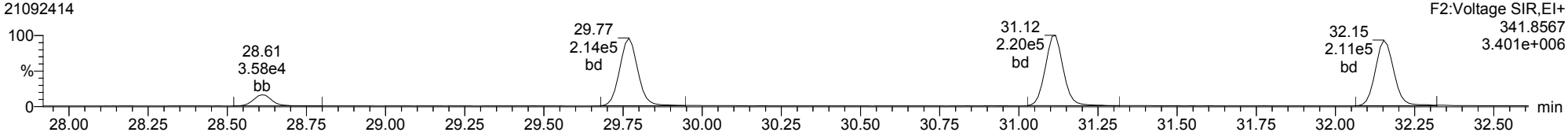

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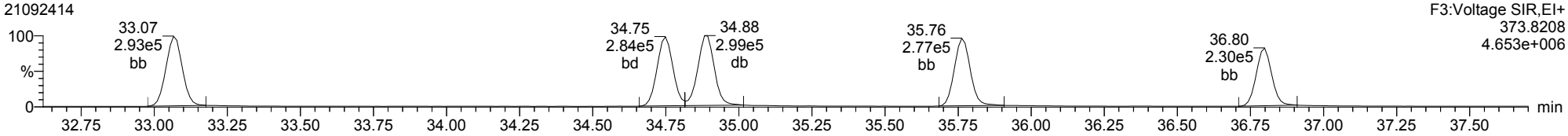

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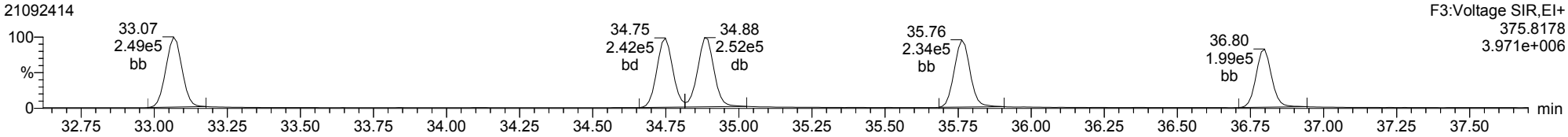

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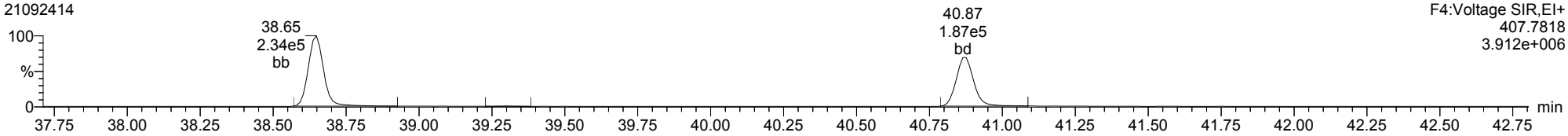

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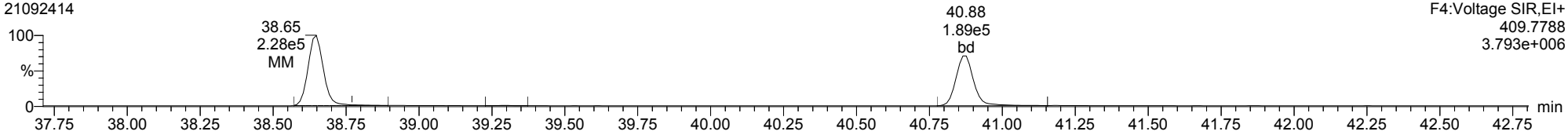

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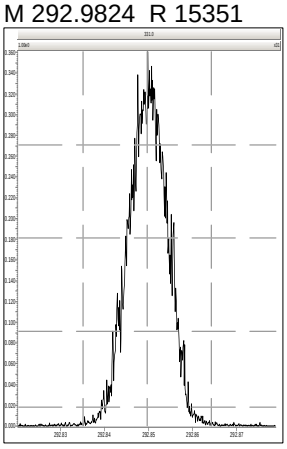

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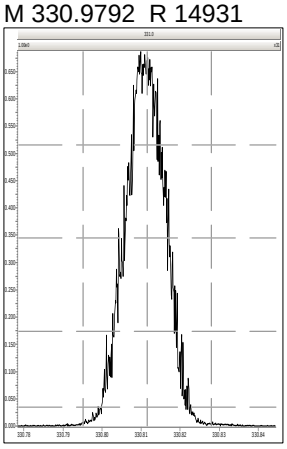

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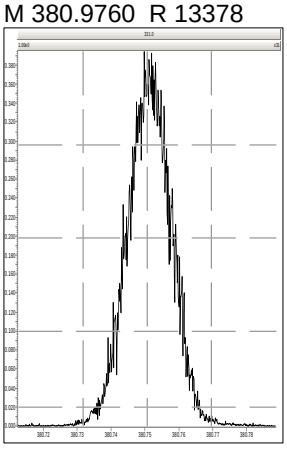

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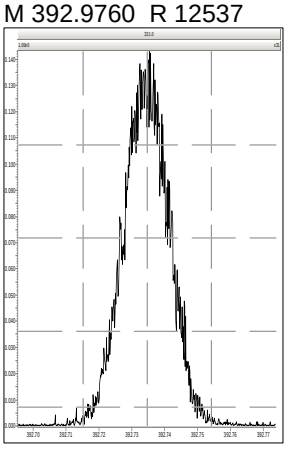

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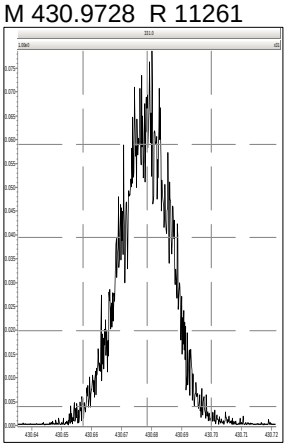

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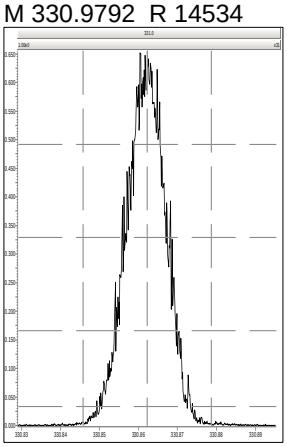

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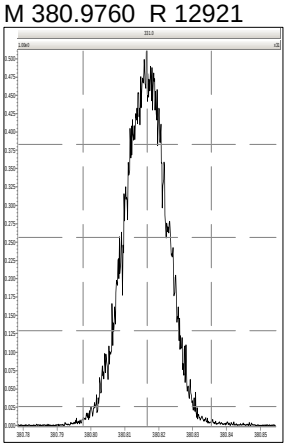

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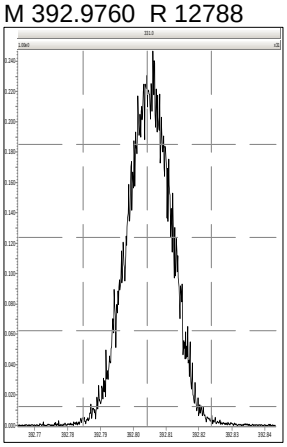

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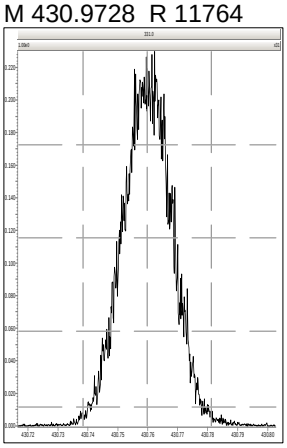

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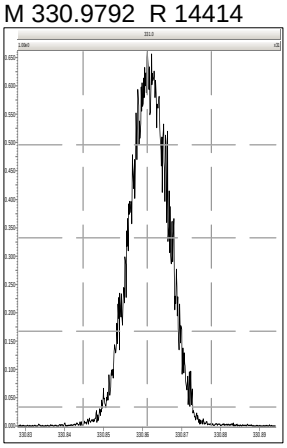

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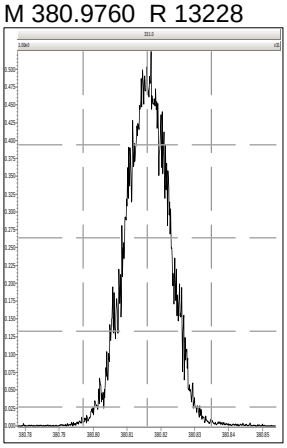

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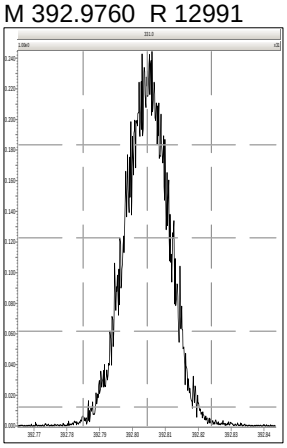

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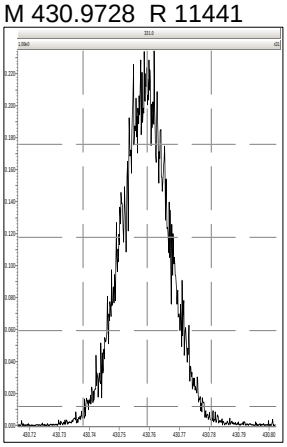

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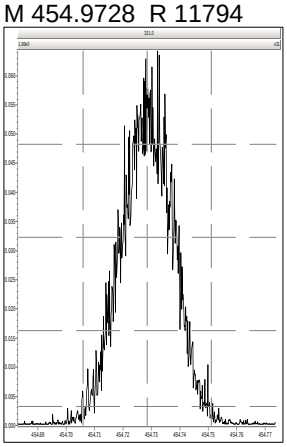
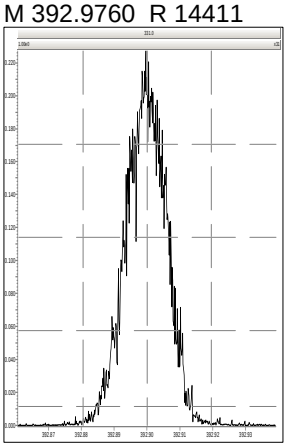
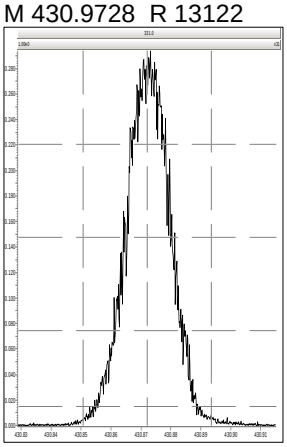


M 392.9760 R 14411

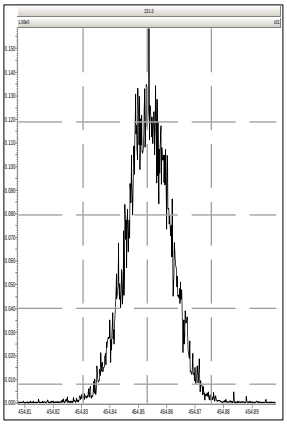


M 430.9728 R 13122

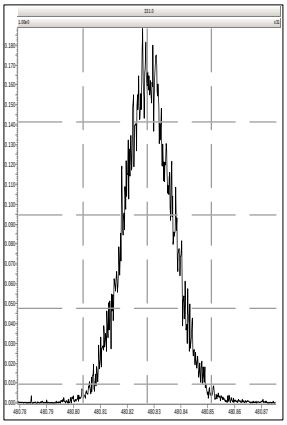


Printed: Friday, September 24, 2021 20:19:51 Pacific Daylight Time

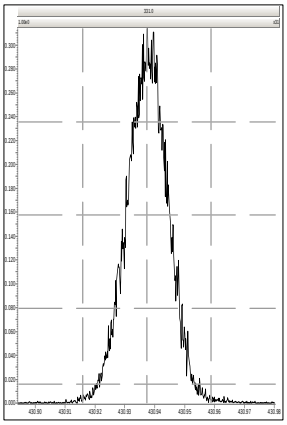
M 454.9728 R 12376



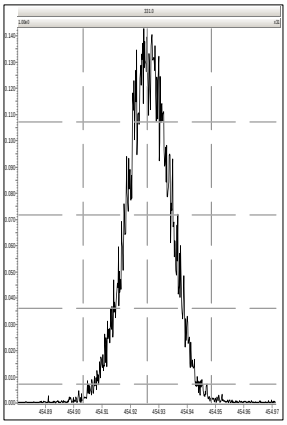
M 480.9696 R 11682



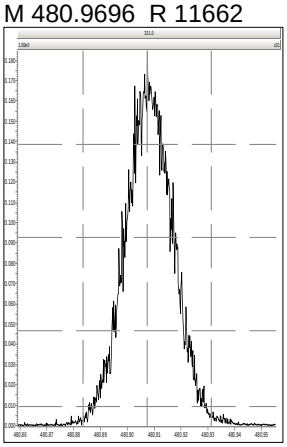
M 430.9728 R 13476



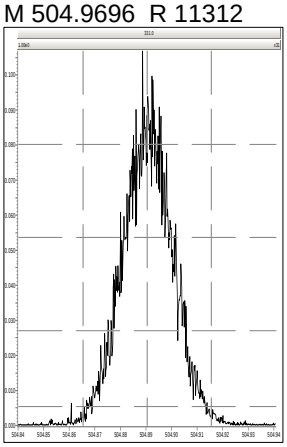
M 454.9728 R 12857



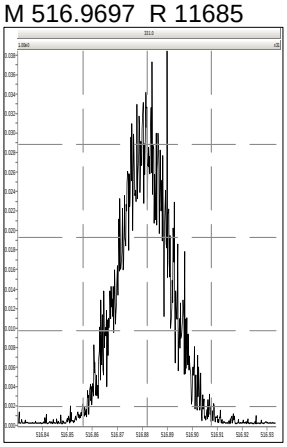
M 480.9696 R 11662

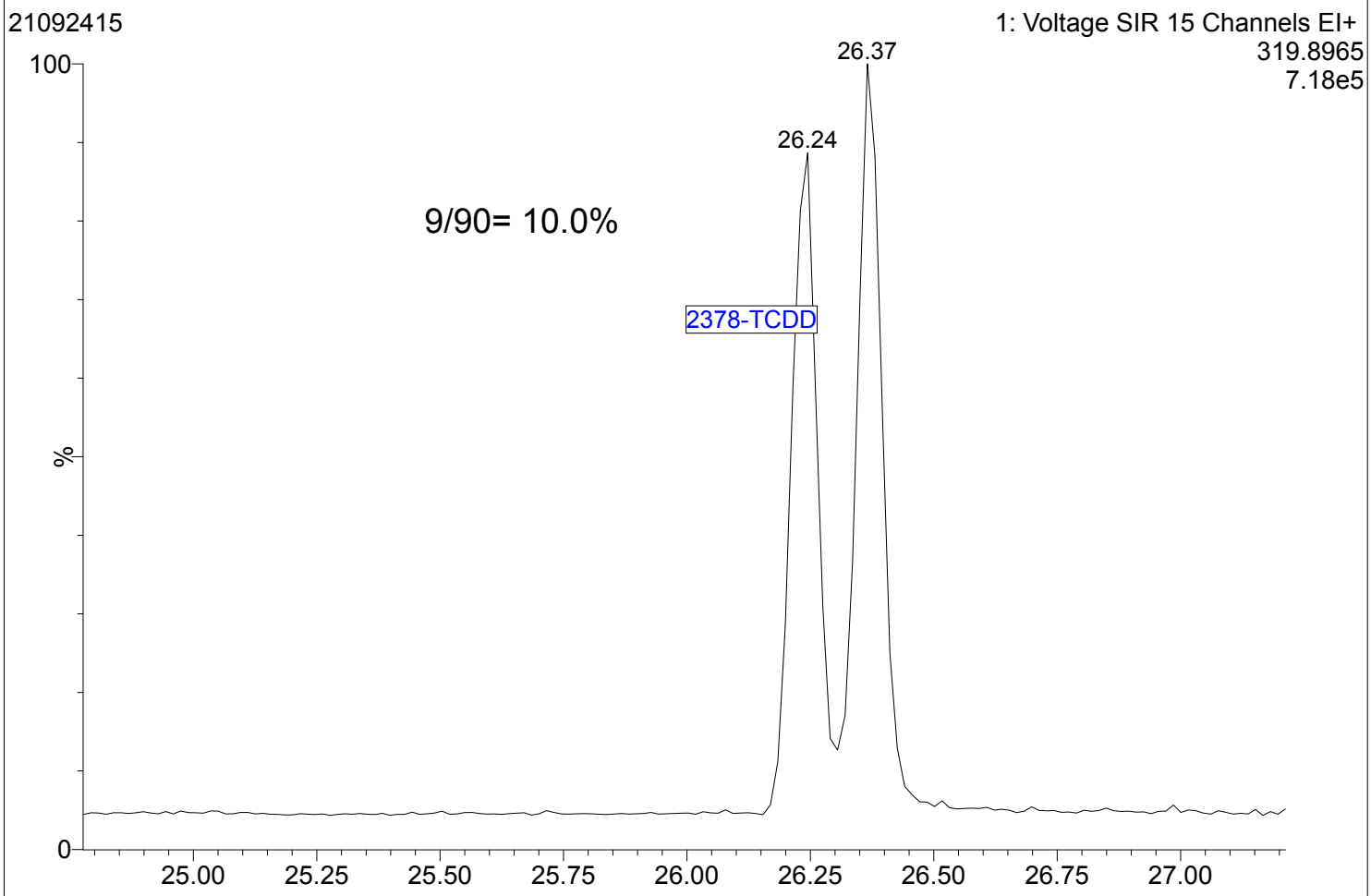


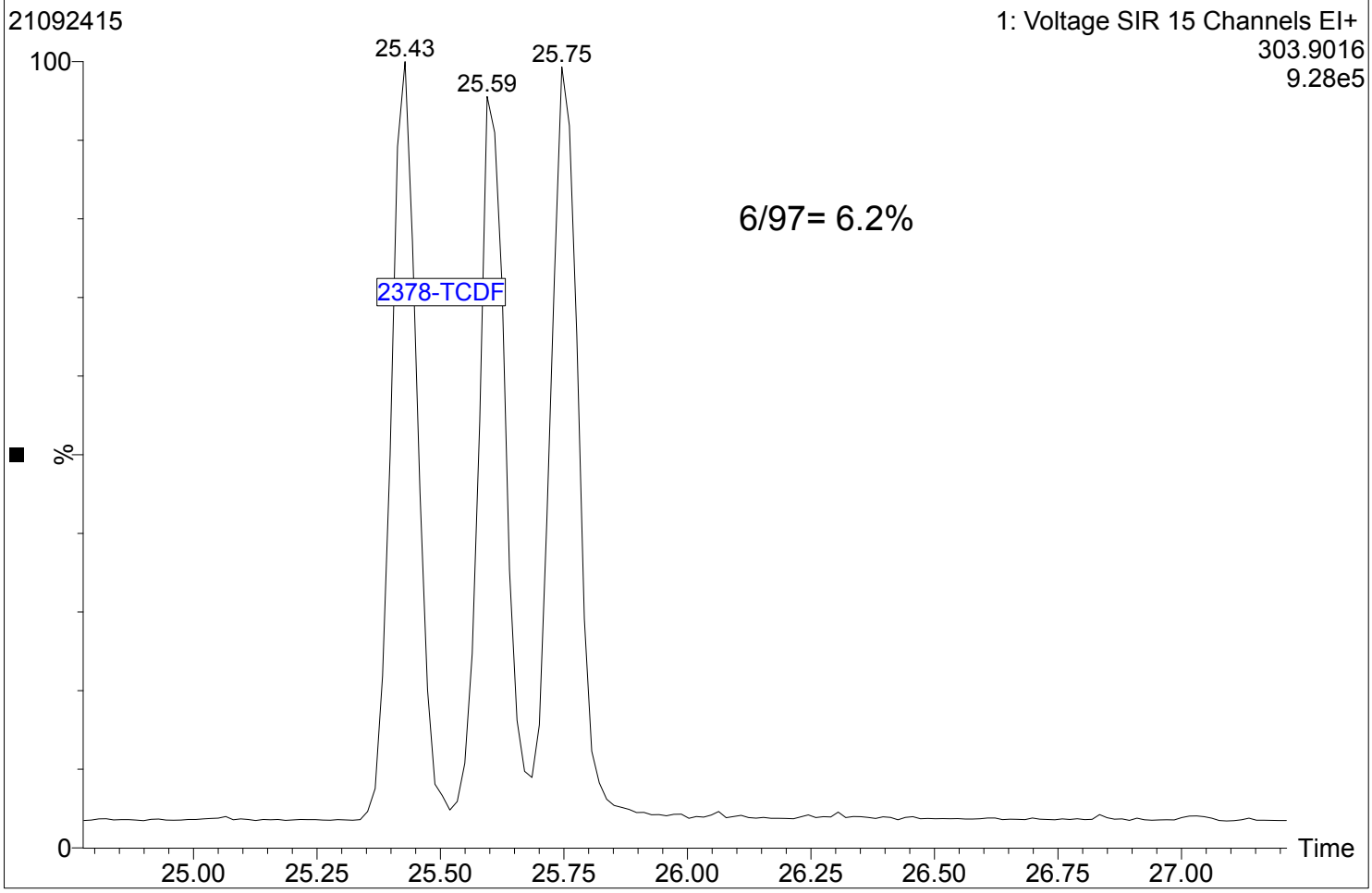
M 504.9696 R 11312



M 516.9697 R 11685




21092415
1: Voltage SIR 15 Channels EI+
319.8965
7.18e5
100
%
0
26.37
26.24
9/90= 10.0%
2378-TCDD
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00


21092415
1: Voltage SIR 15 Channels EI+
303.9016
9.28e5
100
%
0
25.43
25.59
25.75
6/97= 6.2%
2378-TCDF
Time
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0286
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

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0286
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

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0286
Instrument .ID: AUTOSPEC01
Lab File ID: 21091307
Date Analyzed: 09/13/21
Time Analyzed: 16:45
Lab Sample ID: SJI0191-RES1
Sequence: SJI0191

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

1278-TCDD/2378-TCDD: 10.4

3467-TCDF/2378-TCDF: 7.4

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0191-ICV1	CS3Q2	21091306A	09/13/2021	15:52
SJI0191-RES1	ISCQ2	21091307	09/13/2021	16:45
BJH0773-BLK1	Blank	21091308	09/13/2021	17:36
BJH0773-BS1	LCS	21091309	09/13/2021	18:25
BJH0773-BSD1	LCS Dup	21091310	09/13/2021	19:14
BJH0773-SRM1	Reference	21091311	09/13/2021	20:03
SJI0191-CCV1	CS3Q3	21091317	09/14/2021	00:57
SJI0191-RES2	ISCQ3	21091318	09/14/2021	01:50
SJI0191-CCV2	CS3Q4	21091328A	09/14/2021	10:03
SJI0191-RES3	ISCQ4	21091329	09/14/2021	10:56

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0286
Instrument .ID: AUTOSPEC01
Lab File ID: 21091318
Date Analyzed: 09/14/21
Time Analyzed: 01:50
Lab Sample ID: SJI0191-RES2
Sequence: SJI0191

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

1278-TCDD/2378-TCDD: 5.9

3467-TCDF/2378-TCDF: 3.9

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0191-ICV1	CS3Q2	21091306A	09/13/2021	15:52
SJI0191-RES1	ISCQ2	21091307	09/13/2021	16:45
BJH0773-BLK1	Blank	21091308	09/13/2021	17:36
BJH0773-BS1	LCS	21091309	09/13/2021	18:25
BJH0773-BSD1	LCS Dup	21091310	09/13/2021	19:14
BJH0773-SRM1	Reference	21091311	09/13/2021	20:03
SJI0191-CCV1	CS3Q3	21091317	09/14/2021	00:57
SJI0191-RES2	ISCQ3	21091318	09/14/2021	01:50
SJI0191-CCV2	CS3Q4	21091328A	09/14/2021	10:03
SJI0191-RES3	ISCQ4	21091329	09/14/2021	10:56

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0286
Instrument .ID: AUTOSPEC01
Lab File ID: 21091329
Date Analyzed: 09/14/21
Time Analyzed: 10:56
Lab Sample ID: SJI0191-RES3
Sequence: SJI0191

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

1278-TCDD/2378-TCDD: 9.2

3467-TCDF/2378-TCDF: 5.3

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0191-ICV1	CS3Q2	21091306A	09/13/2021	15:52
SJI0191-RES1	ISCQ2	21091307	09/13/2021	16:45
BJH0773-BLK1	Blank	21091308	09/13/2021	17:36
BJH0773-BS1	LCS	21091309	09/13/2021	18:25
BJH0773-BSD1	LCS Dup	21091310	09/13/2021	19:14
BJH0773-SRM1	Reference	21091311	09/13/2021	20:03
SJI0191-CCV1	CS3Q3	21091317	09/14/2021	00:57
SJI0191-RES2	ISCQ3	21091318	09/14/2021	01:50
SJI0191-CCV2	CS3Q4	21091328A	09/14/2021	10:03
SJI0191-RES3	ISCQ4	21091329	09/14/2021	10:56

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0286
Instrument .ID: AUTOSPEC01
Lab File ID: 21092063
Date Analyzed: 09/22/21
Time Analyzed: 19:44
Lab Sample ID: SJI0351-RES1
Sequence: SJI0351

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
SJI0351-ICV1	CS3S7	21092062A	09/22/2021	18:51
SJI0351-RES1	ISCS7	21092063	09/22/2021	19:44
BJH0773-DUP1	Duplicate	21092201	09/22/2021	20:35
SJI0351-CCV1	CS3S8	21092211	09/23/2021	04:45
SJI0351-RES2	ISCS8	21092212	09/23/2021	05:39

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0286
Instrument .ID: AUTOSPEC01
Lab File ID: 21092212
Date Analyzed: 09/23/21
Time Analyzed: 05:39
Lab Sample ID: SJI0351-RES2
Sequence: SJI0351

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

1278-TCDD/2378-TCDD: 17.3

3467-TCDF/2378-TCDF: 13

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0351-ICV1	CS3S7	21092062A	09/22/2021	18:51
SJI0351-RES1	ISCS7	21092063	09/22/2021	19:44
BJH0773-DUP1	Duplicate	21092201	09/22/2021	20:35
SJI0351-CCV1	CS3S8	21092211	09/23/2021	04:45
SJI0351-RES2	ISCS8	21092212	09/23/2021	05:39

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0286
Instrument .ID: AUTOSPEC01
Lab File ID: 21092403
Date Analyzed: 09/24/21
Time Analyzed: 10:24
Lab Sample ID: SJI0383-RES1
Sequence: SJI0383

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

1278-TCDD/2378-TCDD: 7.6

3467-TCDF/2378-TCDF: 5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0383-ICV1	CS3T1	21092402	09/24/2021	09:27
SJI0383-RES1	ISCT1	21092403	09/24/2021	10:24
21G0286-05	LDW21-SS646	21092404	09/24/2021	11:17
SJI0383-CCV1	CS3T2	21092414	09/24/2021	19:26
SJI0383-RES2	ISCT2	21092415	09/24/2021	20:19

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CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY
EPA 1613B

Lab Name: Analytical Resources, Inc.
SDG: 21G0286
Instrument .ID: AUTOSPEC01
Lab File ID: 21092415
Date Analyzed: 09/24/21
Time Analyzed: 20:19
Lab Sample ID: SJI0383-RES2
Sequence: SJI0383

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

1278-TCDD/2378-TCDD: 10

3467-TCDF/2378-TCDF: 6.2

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SJI0383-ICV1	CS3T1	21092402	09/24/2021	09:27
SJI0383-RES1	ISCT1	21092403	09/24/2021	10:24
21G0286-05	LDW21-SS646	21092404	09/24/2021	11:17
SJI0383-CCV1	CS3T2	21092414	09/24/2021	19:26
SJI0383-RES2	ISCT2	21092415	09/24/2021	20:19

Analytical Resources, Incorporated
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ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0191	Instrument:	AUTOSPEC01
		Calibration:	EH00030

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3Q2	SJI0191-ICV1	21091306A	NA	09/13/21 15:52
ISCQ2	SJI0191-RES1	21091307	NA	09/13/21 16:45
Blank	BJH0773-BLK1	21091308	Solid	09/13/21 17:36
LCS	BJH0773-BS1	21091309	Solid	09/13/21 18:25
LCS Dup	BJH0773-BSD1	21091310	Solid	09/13/21 19:14
Reference	BJH0773-SRM1	21091311	Solid	09/13/21 20:03
CS3Q3	SJI0191-CCV1	21091317	NA	09/14/21 00:57
ISCQ3	SJI0191-RES2	21091318	NA	09/14/21 01:50
CS3Q4	SJI0191-CCV2	21091328A	NA	09/14/21 10:03
ISCQ4	SJI0191-RES3	21091329	NA	09/14/21 10:56

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Printed: 9/15/2021 3:39:45PM

ANALYSIS SEQUENCE

SJI0191

Instrument: AUTOSPEC01 Element Column ID: J6460
Calibration ID: EH00030 Tune File: SEP0321_1-5
EM Voltage: 350 Resolution check times : 16:45, 01:50, 10:56

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SJI0191-ICV1	CS3Q2	QC		1	J001522		09/13/2021 15:52	21091306A	PK	
SJI0191-RES1	ISCQ2	QC		2	J005595		09/13/2021 16:45	21091307	PK	
BJH0773-BLK1	Blank	QC		3		J005741	09/13/2021 17:36	21091308	PK	
BJH0773-BS1	LCS	QC		4		J005741	09/13/2021 18:25	21091309	PK	
BJH0773-BSD1	LCS Dup	QC		5		J005741	09/13/2021 19:14	21091310	PK	
BJH0773-SRM1	Reference	QC		6		J005741	09/13/2021 20:03	21091311	PK	
21H0004-01	W-1-210729	1613B Dioxin	A 01	7		J005741	09/13/2021 20:52	21091312	PK	
21H0004-02	W-2-210729	1613B Dioxin	A 01	8		J005741	09/13/2021 21:41	21091313	PK	
21H0004-03	W-3-210729	1613B Dioxin	A 01	9		J005741	09/13/2021 22:30	21091314	PK	
21H0004-04	W-4-210729	1613B Dioxin	A 01	10		J005741	09/13/2021 23:19	21091315	PK	
21H0004-05	LAI-SS-1-210729	1613B Dioxin	A 01	11		J005741	09/14/2021 00:08	21091316	PK	
SJI0191-CCV1	CS3Q3	QC		12	J001522		09/14/2021 00:57	21091317	PK	
SJI0191-RES2	ISCQ3	QC		13	J005595		09/14/2021 01:50	21091318	PK	
21G0296-13	RM10W-EB11	8290 Dioxin	A 01	14		J005741	09/14/2021 02:42	21091319	PK	
21G0296-14	RM10W-EB12	8290 Dioxin	A 01	15		J005741	09/14/2021 03:31	21091320	PK	
21G0354-36	RM10W-EB13	8290 Dioxin	A 01	16		J005741	09/14/2021 04:20	21091321	PK	
21G0354-37	RM10W-EB14	8290 Dioxin	A 01	17		J005741	09/14/2021 05:09	21091322	PK	
21G0354-38	RM10W-EB15	8290 Dioxin	A	18		J005741	09/14/2021 05:58	21091323	PK	
21G0354-39	RM10W-EB16	8290 Dioxin	A	19		J005741	09/14/2021 06:47	21091324	PK	
21H0016-03	45-334 August Sample	1613B Dioxin	A 01	20		J005741	09/14/2021 07:36	21091325	PK	
21G0138-02RE1	LDW21-IT662B DL	1613B Dioxin	C 01	21		J005741	09/14/2021 08:25	21091326	PK	Added 9/13/2021 by PK
BJH0150-DUP3	DUP DL	QC		22		J005741	09/14/2021 09:14	21091327	PK	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/15/2021 3:39:45PM

ANALYSIS SEQUENCE

SJI0191

Instrument:	AUTOSPEC01	Element Column ID:	J6460
Calibration ID:	EH00030	Tune File:	SEP0321_1-5
EM Voltage:	350	Resolution check times :	16:45, 01:50, 10:56

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SJI0191-CCV2	CS3Q4	QC		23	J001522		09/14/2021 10:03	21091328A	PK	
SJI0191-RES3	ISCQ4	QC		24	J005595		09/14/2021 10:56	21091329	PK	

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:01:37 Pacific Daylight Time 9/14/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Pre modification peak	Sample:21091308, Compound:13C-123789-HxCDF, RT:36.906	3
Peak modified	Sample:21091308, Compound:13C-123789-HxCDF, RT:36.906	3
Pre modification peak	Sample:21091308, Compound:13C-123789-HxCDF, RT:36.906	3
Peak modified	Sample:21091308, Compound:13C-123789-HxCDF, RT:36.906	3
Peak deleted	Sample:21091308, Compound:PF, RT:29.920	3
Pre modification peak	Sample:21091309, Compound:HD, RT:36.505	4
Peak modified	Sample:21091309, Compound:HD, RT:36.505	4
Peak deleted	Sample:21091309, Compound:HD, RT:36.895	4
Peak deleted	Sample:21091310, Compound:HF, RT:36.761	5
Peak deleted	Sample:21091310, Compound:PD, RT:30.823	5
Pre modification peak	Sample:21091311, Compound:PF, RT:28.662	6
Peak modified	Sample:21091311, Compound:PF, RT:28.662	6
Pre modification peak	Sample:21091311, Compound:PF, RT:28.662	6
Peak modified	Sample:21091311, Compound:PF, RT:28.662	6
Pre modification peak	Sample:21091311, Compound:PF, RT:28.840	6
Peak modified	Sample:21091311, Compound:PF, RT:28.840	6
Pre modification peak	Sample:21091311, Compound:PF, RT:28.840	6
Peak modified	Sample:21091311, Compound:PF, RT:28.840	6
Pre modification peak	Sample:21091311, Compound:PF, RT:31.268	6
Peak modified	Sample:21091311, Compound:PF, RT:31.268	6
Peak deleted	Sample:21091311, Compound:TD, RT:23.992	6
Peak deleted	Sample:21091312, Compound:HD, RT:36.951	7
Pre modification peak	Sample:21091312, Compound:HF, RT:35.892	7
Peak modified	Sample:21091312, Compound:HF, RT:35.892	7
Peak deleted	Sample:21091312, Compound:HPD, RT:40.794	7
Peak added	Sample:21091312, Compound:HPF, RT:38.767	7
Peak added	Sample:21091312, Compound:HPF, RT:38.778	7
Peak added	Sample:21091312, Compound:PD, RT:30.266	7
Peak added	Sample:21091312, Compound:PD, RT:30.277	7
Peak deleted	Sample:21091312, Compound:TF, RT:27.212	7
Peak deleted	Sample:21091313, Compound:HD, RT:36.939	8
Peak deleted	Sample:21091313, Compound:HPD, RT:40.560	8
Peak deleted	Sample:21091313, Compound:HPD, RT:40.783	8
Peak added	Sample:21091313, Compound:PD, RT:29.898	8
Peak added	Sample:21091313, Compound:PD, RT:29.909	8
Peak added	Sample:21091313, Compound:PF, RT:28.851	8
Peak added	Sample:21091313, Compound:PF, RT:28.851	8
Peak added	Sample:21091313, Compound:TD, RT:24.007	8
Peak added	Sample:21091313, Compound:TD, RT:24.007	8
Peak added	Sample:21091313, Compound:TD, RT:24.521	8
Peak added	Sample:21091313, Compound:TD, RT:24.536	8
Pre modification peak	Sample:21091313, Compound:TD, RT:26.411	8
Peak modified	Sample:21091313, Compound:TD, RT:26.411	8
Peak added	Sample:21091313, Compound:TF, RT:23.856	8
Peak added	Sample:21091313, Compound:TF, RT:23.856	8
Peak added	Sample:21091313, Compound:TF, RT:24.007	8
Peak added	Sample:21091313, Compound:TF, RT:24.022	8
Peak deleted	Sample:21091313, Compound:TF, RT:24.264	8
Peak added	Sample:21091314, Compound:PD, RT:28.829	9
Peak added	Sample:21091314, Compound:PD, RT:28.840	9
Peak added	Sample:21091314, Compound:PD, RT:30.132	9

Dataset: T:\Autospec\Processed Data Batch\210913IH1.qld
Last Altered: Tuesday, September 14, 2021 10:50:52 Pacific Daylight Time
Printed: Tuesday, September 14, 2021 11:01:37 Pacific Daylight Time

Event	Details	Sample ID
Peak added	Sample:21091314, Compound:PD, RT:30.143	9
Peak added	Sample:21091314, Compound:PD, RT:30.288	9
Peak added	Sample:21091314, Compound:PD, RT:30.288	9
Peak added	Sample:21091314, Compound:PD, RT:30.455	9
Peak added	Sample:21091314, Compound:PD, RT:30.466	9
Peak added	Sample:21091314, Compound:TD, RT:25.005	9
Peak added	Sample:21091314, Compound:TD, RT:25.020	9
Peak added	Sample:21091314, Compound:TF, RT:23.765	9
Peak added	Sample:21091314, Compound:TF, RT:23.765	9
Peak deleted	Sample:21091314, Compound:TF, RT:26.910	9
Peak deleted	Sample:21091314, Compound:TF, RT:27.696	9
Peak deleted	Sample:21091315, Compound:HD, RT:36.973	10
Pre modification peak	Sample:21091315, Compound:HPF, RT:41.051	10
Peak modified	Sample:21091315, Compound:HPF, RT:41.051	10
Peak added	Sample:21091315, Compound:PD, RT:30.299	10
Peak added	Sample:21091315, Compound:PD, RT:30.311	10
Peak added	Sample:21091315, Compound:PD, RT:30.489	10
Peak added	Sample:21091315, Compound:PD, RT:30.489	10
Peak added	Sample:21091315, Compound:PF, RT:28.907	10
Peak added	Sample:21091315, Compound:PF, RT:28.907	10
Pre modification peak	Sample:21091315, Compound:PF, RT:31.291	10
Peak modified	Sample:21091315, Compound:PF, RT:31.291	10
Peak added	Sample:21091315, Compound:TD, RT:24.022	10
Peak added	Sample:21091315, Compound:TD, RT:24.037	10
Peak added	Sample:21091315, Compound:TD, RT:24.551	10
Peak added	Sample:21091315, Compound:TD, RT:24.551	10
Peak deleted	Sample:21091315, Compound:TF, RT:26.940	10
Peak added	Sample:21091316, Compound:PD, RT:30.277	11
Peak added	Sample:21091316, Compound:PD, RT:30.277	11
Peak deleted	Sample:21091316, Compound:PD, RT:31.625	11
Pre modification peak	Sample:21091316, Compound:PF, RT:28.851	11
Peak modified	Sample:21091316, Compound:PF, RT:28.851	11
Pre modification peak	Sample:21091316, Compound:PF, RT:28.851	11
Peak modified	Sample:21091316, Compound:PF, RT:28.851	11
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210913IH1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210913IH1.qld'	

Quantify Audit Report MassLynx MassLynx V4.1 SCN909

Dataset: T:\Autospec\Processed Data Batch\210913IH2.qld
Last Altered: Wednesday, September 15, 2021 14:31:28 Pacific Daylight Time
Printed: Wednesday, September 15, 2021 14:32:32 Pacific Daylight Time 9/15/21 pk

Event	Details	Sample ID
Dataset Created		
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210913IH2.qld'	
Peak added	Sample:21091326, Compound:PD, RT:28.806	8
Peak added	Sample:21091326, Compound:PD, RT:28.806	8
Peak added	Sample:21091327, Compound:TD, RT:23.795	9
Peak added	Sample:21091327, Compound:TD, RT:23.795	9
Peak deleted	Sample:21091319, Compound:TD, RT:26.396	1
Peak deleted	Sample:21091321, Compound:HPF, RT:38.744	3
Peak deleted	Sample:21091321, Compound:OF, RT:45.079	3
Peak deleted	Sample:21091322, Compound:PF, RT:29.954	4
Peak deleted	Sample:21091323, Compound:HF, RT:35.881	5
Peak deleted	Sample:21091319, Compound:TF, RT:26.124	1
Peak deleted	Sample:21091319, Compound:TF, RT:25.882	1
Peak deleted	Sample:21091319, Compound:Furans,TF,PP,PF,HF,HPF,OF, RT:22.011	1
Peak deleted	Sample:21091319, Compound:PD, RT:30.667	1
Peak deleted	Sample:21091321, Compound:PF, RT:32.360	3
Peak deleted	Sample:21091323, Compound:HPD, RT:39.213	5
Peak deleted	Sample:21091325, Compound:HPF, RT:40.092	7
Peak deleted	Sample:21091325, Compound:HPF, RT:39.012	7
Peak deleted	Sample:21091327, Compound:TF, RT:24.279	9
Peak modified	Sample:21091327, Compound:PD, RT:31.503	9
Peak modified	Sample:21091327, Compound:PD, RT:31.503	9
Peak modified	Sample:21091327, Compound:PD, RT:31.503	9
Pre modification peak	Sample:21091327, Compound:PD, RT:31.503	9
Pre modification peak	Sample:21091327, Compound:PD, RT:31.503	9
Process Extract		
Process Integrate		
Process Quantify		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0351	Instrument:	AUTOSPEC01
		Calibration:	EH00030

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3S7	SJI0351-ICV1	21092062A	NA	09/22/21 18:51
ISCS7	SJI0351-RES1	21092063	NA	09/22/21 19:44
LDW21-SS646	BJH0773-DUP1	21092201	Solid	09/22/21 20:35
CS3S8	SJI0351-CCV1	21092211	NA	09/23/21 04:45
ISCS8	SJI0351-RES2	21092212	NA	09/23/21 05:39

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0383	Instrument:	AUTOSPEC01
		Calibration:	EH00030

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3T1	SJI0383-ICV1	21092402	NA	09/24/21 09:27
ISCT1	SJI0383-RES1	21092403	NA	09/24/21 10:24
LDW21-SS646	21G0286-05	21092404	Solid	09/24/21 11:17
CS3T2	SJI0383-CCV1	21092414	NA	09/24/21 19:26
ISCT2	SJI0383-RES2	21092415	NA	09/24/21 20:19

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/27/2021 2:06:15PM

ANALYSIS SEQUENCE

SJI0383

Instrument: AUTOSPEC01 Element Column ID: J6460
Calibration ID: EH00030 Tune File: SEP0321_1-5
EM Voltage: 350 Resolution check times : 09:27, 19:51

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SJI0383-ICV1	CS3T1	QC		1	J001522		09/24/2021 09:27	21092402	PK	
SJI0383-RES1	ISCT1	QC		2	J005595		09/24/2021 10:24	21092403	PK	
21G0286-05	LDW21-SS646	1613B Dioxin	C	3		J005741	09/24/2021 11:17	21092404	PK	
BJH0527-BSD1	LCSD	QC		4		J005741	09/24/2021 12:05	21092405	PK	
21H0005-37	PG-PDI-FB-20210729	1613B Dioxin	A 01	5		J005741	09/24/2021 12:54	21092406	PK	Store samples in freezer
21H0005-38	PG-PDI-EB-20210729	1613B Dioxin	A 01	6		J005741	09/24/2021 13:43	21092407	PK	Store samples in freezer
21H0006-23	RM10W-EB17	8290 Dioxin	A 01	7		J005741	09/24/2021 14:32	21092408	PK	
21H0006-24	RM10W-EB18	8290 Dioxin	A 01	8		J005741	09/24/2021 15:21	21092409	PK	
21H0006-25	RM10W-EB19	8290 Dioxin	A 01	9		J005741	09/24/2021 16:10	21092410	PK	
21H0091-18	RM10W-EB20	8290 Dioxin	A 01	10		J005741	09/24/2021 16:59	21092411	PK	
21H0091-19	RM10W-EB21	8290 Dioxin	A 01	11		J005741	09/24/2021 17:48	21092412	PK	
21H0204-22	RM10W-FD07	8290 Dioxin	A 01	12		J005741	09/24/2021 18:37	21092413	PK	
SJI0383-CCV1	CS3T2	QC		13	J001522		09/24/2021 19:26	21092414	PK	
SJI0383-RES2	ISCT2	QC		14	J005595		09/24/2021 20:19	21092415	PK	
BJI0123-BLK1	Blank	QC		15		J005741				
BJI0123-BS1	LCS	QC		16		J005741				
BJI0123-SRM1	Reference	QC		17		J005741				
BJI0123-DUP1	Duplicate	QC		18		J005741				
BJI0123-DUP2	Duplicate	QC		19		J005741				
21G0296-01	M10W-G-SD01-210720-0_20c	8290 Dioxin	A 01	20		J005741				
21G0296-02	M10W-G-SD42-210720-0_22c	8290 Dioxin	A 01	21		J005741				
21G0296-03	M10W-G-SD47-210720-0_20c	8290 Dioxin	A 01	22		J005741				

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/27/2021 2:06:15PM

ANALYSIS SEQUENCE

SJI0383

Instrument: AUTOSPEC01 Element Column ID: J6460
Calibration ID: EH00030 Tune File: SEP0321_1-5
EM Voltage: 350 Resolution check times : 09:27, 19:51

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
21G0296-04	M10W-G-SD48-210720-0_22c	8290 Dioxin	A 01	23		J005741				
21G0296-05	M10W-G-SD52-210720-0_28c	8290 Dioxin	A 01	24		J005741				
SJI0383-CCV2	CS3T3	QC		25	J001522					
SJI0383-RES3	ISCT3	QC		26	J005595					
21G0296-06	RM10W-FD05	8290 Dioxin	A 01	27		J005741				
21G0296-07	RM10W-C-SD24-210721-4_5ft	8290 Dioxin	A 01	28		J005741				
21G0296-08	RM10W-C-SD24-210721-9_10f	8290 Dioxin	A 01	29		J005741				
21G0296-09	RM10W-C-SD25-210721-4_5ft	8290 Dioxin	A 01	30		J005741				
21G0296-10	RM10W-C-SD25-210721-9_10f	8290 Dioxin	A 01	31		J005741				
21G0296-11	RM10W-C-SD30-210721-4_5ft	8290 Dioxin	A 01	32		J005741				
21G0296-12	RM10W-C-SD30-210721-9_10f	8290 Dioxin	A 01	33		J005741				
21G0322-07	WW-P1CM-04-SS-210726	1613B Dioxin	D 01	34		J005741				
21G0322-08	WC-14-SS-0-12-210723	1613B Dioxin	D 01	35		J005741				
21G0322-09	WC-11-SS-0-12-210723	1613B Dioxin	D 01	36		J005741				
SJI0383-CCV3	CS3T4	QC		37	J001522					
SJI0383-RES4	ISCT4	QC		38	J005595					

Dataset: T:\Autospec\Processed Data Batch\210924D1.qld
Last Altered: Monday, September 27, 2021 11:06:06 Pacific Daylight Time
Printed: Monday, September 27, 2021 11:08:02 Pacific Daylight Time 9/27/21 pk

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:21092405, Compound:HPF, RT:41.088	1
Pre modification peak	Sample:21092406, Compound:HD, RT:35.961	2
Peak modified	Sample:21092406, Compound:HD, RT:35.961	2
Peak modified	Sample:21092406, Compound:HD, RT:35.961	2
Pre modification peak	Sample:21092406, Compound:HF, RT:34.736	2
Peak modified	Sample:21092406, Compound:HF, RT:34.736	2
Peak modified	Sample:21092406, Compound:HF, RT:34.736	2
Peak deleted	Sample:21092406, Compound:HF, RT:35.739	2
Pre modification peak	Sample:21092406, Compound:OF, RT:45.035	2
Peak modified	Sample:21092406, Compound:OF, RT:45.035	2
Peak deleted	Sample:21092407, Compound:HD, RT:34.715	3
Pre modification peak	Sample:21092407, Compound:OF, RT:45.046	3
Peak modified	Sample:21092407, Compound:OF, RT:45.046	3
Pre modification peak	Sample:21092407, Compound:OF, RT:45.064	3
Peak modified	Sample:21092407, Compound:OF, RT:45.064	3
Peak deleted	Sample:21092407, Compound:PD, RT:31.094	3
Peak deleted	Sample:21092407, Compound:TF, RT:22.419	3
Peak deleted	Sample:21092408, Compound:HF, RT:36.787	4
Pre modification peak	Sample:21092408, Compound:HPD, RT:40.129	4
Peak modified	Sample:21092408, Compound:HPD, RT:40.129	4
Pre modification peak	Sample:21092408, Compound:HPD, RT:40.129	4
Peak modified	Sample:21092408, Compound:HPD, RT:40.129	4
Pre modification peak	Sample:21092408, Compound:HPF, RT:38.625	4
Peak modified	Sample:21092408, Compound:HPF, RT:38.625	4
Peak deleted	Sample:21092408, Compound:HPF, RT:40.854	4
Peak deleted	Sample:21092408, Compound:OF, RT:45.045	4
Peak deleted	Sample:21092408, Compound:OF, RT:45.082	4
Peak deleted	Sample:21092408, Compound:TD, RT:26.471	4
Peak deleted	Sample:21092409, Compound:TD, RT:26.229	5
Peak deleted	Sample:21092409, Compound:TF, RT:21.920	5
Peak deleted	Sample:21092410, Compound:HF, RT:35.138	6
Peak deleted	Sample:21092410, Compound:PF, RT:29.735	6
Peak deleted	Sample:21092410, Compound:PF, RT:29.791	6
Peak deleted	Sample:21092410, Compound:TF, RT:24.566	6
Pre modification peak	Sample:21092411, Compound:HPD, RT:40.129	7
Peak modified	Sample:21092411, Compound:HPD, RT:40.129	7
Peak deleted	Sample:21092411, Compound:HPF, RT:38.602	7
Peak deleted	Sample:21092411, Compound:HPF, RT:38.647	7
Peak deleted	Sample:21092411, Compound:PF, RT:29.690	7
Peak deleted	Sample:21092411, Compound:TF, RT:25.247	7
Peak deleted	Sample:21092411, Compound:TF, RT:25.413	7
Peak deleted	Sample:21092412, Compound:HD, RT:34.737	8
Peak deleted	Sample:21092412, Compound:HD, RT:36.186	8
Peak deleted	Sample:21092412, Compound:HF, RT:36.798	8
Pre modification peak	Sample:21092413, Compound:HD, RT:36.386	9
Peak modified	Sample:21092413, Compound:HD, RT:36.386	9
Peak deleted	Sample:21092413, Compound:HF, RT:35.740	9
Peak deleted	Sample:21092413, Compound:HPF, RT:38.637	9
Pre modification peak	Sample:21092414, Compound:HPF, RT:38.648	10
Peak modified	Sample:21092414, Compound:HPF, RT:38.648	10
Peak deleted	Sample:21092415, Compound:13C-1234-TCDD, RT:25.398	11

Dataset: T:\Autospec\Processed Data Batch\210924D1.qld
Last Altered: Monday, September 27, 2021 11:06:06 Pacific Daylight Time
Printed: Monday, September 27, 2021 11:08:02 Pacific Daylight Time

Event	Details	Sample ID
Peak deleted	Sample:21092415, Compound:13C-123789-HxCDD, RT:36.364	11
Peak deleted	Sample:21092415, Compound:13C-123789-HxCDD, RT:36.397	11
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210924D1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210924D1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\210924D1.qld'	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0191	Instrument:	AUTOSPEC01
Sample ID:	SJI0191-ICV1	Calibration:	EH00030
File ID:	21091306A	Analyzed:	09/13/21 15:52

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	121	71 - 129	25.7307	25.63973	0.0910	N/A	
13C12-2,3,7,8-TCDD	100.00	105	82 - 118	26.3657	26.27478	0.0909	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	117	76 - 124	29.887	29.80383	0.0832	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	118	77 - 123	31.2352	31.14815	0.0870	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	106	62 - 138	31.4803	31.40067	0.0796	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	94.9	76 - 124	34.8563	34.782	0.0743	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	89.3	70 - 130	34.99	34.91943	0.0706	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	92.7	73 - 127	35.8702	35.7884	0.0818	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	90.4	74 - 126	36.8952	36.8227	0.0725	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.9	85 - 115	35.9703	35.90912	0.0612	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	96.7	85 - 115	36.0817	36.0242	0.0575	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	99.4	78 - 122	38.7335	38.67025	0.0632	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	92.2	77 - 123	40.984	40.90587	0.0781	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	91.7	72 - 128	40.2375	40.16678	0.0707	N/A	
13C12-OCDD	200.00	105	48 - 152	44.9592	44.88763	0.0716	N/A	
37Cl4-2,3,7,8-TCDD	10.000	102	0 - 200	26.3808	26.30253	0.0783	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0191	Instrument:	AUTOSPEC01
Sample ID:	BJH0773-BLK1	Calibration:	EH00030
File ID:	21091308	Analyzed:	09/13/21 17:36

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	109	24 - 169	25.7457	25.63973	0.1060	N/A	
13C12-2,3,7,8-TCDD	200.00	101	25 - 164	26.3657	26.27478	0.0909	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	113	24 - 185	29.887	29.80383	0.0832	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	108	21 - 178	31.2353	31.14815	0.0871	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	100	25 - 181	31.4803	31.40067	0.0796	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	95.0	26 - 152	34.8562	34.782	0.0742	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	90.0	26 - 123	35.001	34.91943	0.0816	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	91.2	28 - 136	35.87	35.7884	0.0816	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	90.3	29 - 147	36.906	36.8227	0.0833	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	102	32 - 141	35.9702	35.90912	0.0611	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	104	28 - 130	36.0928	36.0242	0.0686	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	97.5	28 - 143	38.7443	38.67025	0.0740	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	84.7	26 - 138	40.9838	40.90587	0.0779	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	88.1	23 - 140	40.2373	40.16678	0.0705	N/A	
13C12-OCDD	400.00	93.4	17 - 157	44.9683	44.88763	0.0807	N/A	
37Cl4-2,3,7,8-TCDD	80.000	99.5	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0191	Instrument:	AUTOSPEC01
Sample ID:	BJH0773-BS1	Calibration:	EH00030
File ID:	21091309	Analyzed:	09/13/21 18:25

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	99.0	24 - 169	25.7457	25.63973	0.1060	N/A	
13C12-2,3,7,8-TCDD	200.00	93.6	25 - 164	26.3807	26.27478	0.1059	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	101	24 - 185	29.8982	29.80383	0.0944	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	98.2	21 - 178	31.2463	31.14815	0.0982	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	90.7	25 - 181	31.4913	31.40067	0.0906	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	88.1	26 - 152	34.856	34.782	0.0740	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	86.1	26 - 123	35.0008	34.91943	0.0814	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	85.0	28 - 136	35.8698	35.7884	0.0814	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	63.5	29 - 147	36.9058	36.8227	0.0831	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	92.0	32 - 141	35.9812	35.90912	0.0721	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	93.5	28 - 130	36.0927	36.0242	0.0685	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	66.8	28 - 143	38.7442	38.67025	0.0739	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	61.1	26 - 138	40.9947	40.90587	0.0888	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	59.9	23 - 140	40.2372	40.16678	0.0704	N/A	
13C12-OCDD	400.00	61.5	17 - 157	44.9677	44.88763	0.0801	N/A	
37Cl4-2,3,7,8-TCDD	80.000	91.9	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0191	Instrument:	AUTOSPEC01
Sample ID:	BJH0773-BSD1	Calibration:	EH00030
File ID:	21091310	Analyzed:	09/13/21 19:14

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	98.1	24 - 169	25.7305	25.63973	0.0908	N/A	
13C12-2,3,7,8-TCDD	200.00	89.7	25 - 164	26.3655	26.27478	0.0907	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	99.7	24 - 185	29.887	29.80383	0.0832	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	97.3	21 - 178	31.2352	31.14815	0.0870	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	89.6	25 - 181	31.4803	31.40067	0.0796	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	83.6	26 - 152	34.856	34.782	0.0740	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	79.9	26 - 123	34.9897	34.91943	0.0703	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	80.2	28 - 136	35.8587	35.7884	0.0703	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	75.6	29 - 147	36.8948	36.8227	0.0721	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	91.8	32 - 141	35.9702	35.90912	0.0611	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	90.2	28 - 130	36.0815	36.0242	0.0573	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	79.8	28 - 143	38.7333	38.67025	0.0630	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	73.3	26 - 138	40.9838	40.90587	0.0779	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	74.2	23 - 140	40.2262	40.16678	0.0594	N/A	
13C12-OCDD	400.00	77.4	17 - 157	44.959	44.88763	0.0714	N/A	
37Cl4-2,3,7,8-TCDD	80.000	88.6	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0191	Instrument:	AUTOSPEC01
Sample ID:	BJH0773-SRM1	Calibration:	EH00030
File ID:	21091311	Analyzed:	09/13/21 20:03

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	84.1	24 - 169	25.7457	25.63973	0.1060	N/A	
13C12-2,3,7,8-TCDD	200.00	80.7	25 - 164	26.3657	26.27478	0.0909	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	88.9	24 - 185	29.898	29.80383	0.0942	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	87.0	21 - 178	31.235	31.14815	0.0868	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	83.5	25 - 181	31.4802	31.40067	0.0795	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	70.8	26 - 152	34.856	34.782	0.0740	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	67.7	26 - 123	35.0008	34.91943	0.0814	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	71.6	28 - 136	35.8808	35.7884	0.0924	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	82.2	29 - 147	36.906	36.8227	0.0833	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	77.2	32 - 141	35.9923	35.90912	0.0832	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	74.5	28 - 130	36.1037	36.0242	0.0795	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	74.8	28 - 143	38.7332	38.67025	0.0629	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	73.4	26 - 138	40.9837	40.90587	0.0778	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	76.4	23 - 140	40.2372	40.16678	0.0704	N/A	
13C12-OCDD	400.00	87.1	17 - 157	44.9678	44.88763	0.0802	N/A	
37Cl4-2,3,7,8-TCDD	80.000	84.3	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0191	Instrument:	AUTOSPEC01
Sample ID:	SJI0191-CCV1	Calibration:	EH00030
File ID:	21091317	Analyzed:	09/14/21 00:57

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	111	71 - 129	25.7457	25.63973	0.1060	N/A	
13C12-2,3,7,8-TCDD	100.00	104	82 - 118	26.3655	26.27478	0.0907	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	107	76 - 124	29.8983	29.80383	0.0945	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	106	77 - 123	31.2463	31.14815	0.0982	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	99.0	62 - 138	31.4915	31.40067	0.0908	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	89.6	76 - 124	34.8562	34.782	0.0742	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	83.1	70 - 130	35.001	34.91943	0.0816	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	86.5	73 - 127	35.8702	35.7884	0.0818	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	89.0	74 - 126	36.9062	36.8227	0.0835	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	97.7	85 - 115	35.9815	35.90912	0.0724	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	89.8	85 - 115	36.0928	36.0242	0.0686	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	88.8	78 - 122	38.7445	38.67025	0.0742	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	83.5	77 - 123	40.995	40.90587	0.0891	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	87.3	72 - 128	40.2373	40.16678	0.0705	N/A	
13C12-OCDD	200.00	92.0	48 - 152	44.9773	44.88763	0.0897	N/A	
37Cl4-2,3,7,8-TCDD	10.000	98.6	0 - 200	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0191	Instrument:	AUTOSPEC01
Sample ID:	SJI0191-CCV2	Calibration:	EH00030
File ID:	21091328A	Analyzed:	09/14/21 10:03

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	119	71 - 129	25.7457	25.63973	0.1060	N/A	
13C12-2,3,7,8-TCDD	100.00	106	82 - 118	26.3657	26.27478	0.0909	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	114	76 - 124	29.8982	29.80383	0.0944	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	113	77 - 123	31.2465	31.14815	0.0983	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	104	62 - 138	31.4917	31.40067	0.0910	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.4	76 - 124	34.8675	34.782	0.0855	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	87.5	70 - 130	35.0012	34.91943	0.0818	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	90.6	73 - 127	35.8702	35.7884	0.0818	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	88.2	74 - 126	36.9063	36.8227	0.0836	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.2	85 - 115	35.9815	35.90912	0.0724	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	93.7	85 - 115	36.093	36.0242	0.0688	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	88.7	78 - 122	38.7447	38.67025	0.0744	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	83.0	77 - 123	40.9952	40.90587	0.0893	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	83.1	72 - 128	40.2377	40.16678	0.0709	N/A	
13C12-OCDD	200.00	86.9	48 - 152	44.9775	44.88763	0.0899	N/A	
37Cl4-2,3,7,8-TCDD	10.000	102	0 - 200	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0351	Instrument:	AUTOSPEC01
Sample ID:	SJI0351-ICV1	Calibration:	EH00030
File ID:	21092062A	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

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, Inc.	SDG:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0351	Instrument:	AUTOSPEC01
Sample ID:	BJH0773-DUP1	Calibration:	EH00030
File ID:	21092201	Analyzed:	09/22/21 20:35

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	199.92	92.0	24 - 169	25.7457	25.63973	0.1060	N/A	
13C12-2,3,7,8-TCDD	199.92	107	25 - 164	26.3655	26.27478	0.0907	N/A	
13C12-1,2,3,7,8-PeCDF	199.92	87.7	24 - 185	29.9093	29.80383	0.1055	N/A	
13C12-2,3,4,7,8-PeCDF	199.92	85.5	21 - 178	31.2463	31.14815	0.0982	N/A	
13C12-1,2,3,7,8-PeCDD	199.92	95.0	25 - 181	31.4913	31.40067	0.0906	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.92	94.2	26 - 152	34.8785	34.782	0.0965	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.92	87.7	26 - 123	35.0233	34.91943	0.1039	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.92	92.6	28 - 136	35.8923	35.7884	0.1039	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.92	99.0	29 - 147	36.9173	36.8227	0.0946	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.92	102	32 - 141	36.0037	35.90912	0.0946	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.92	95.2	28 - 130	36.115	36.0242	0.0908	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.92	77.7	28 - 143	38.7668	38.67025	0.0966	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.92	79.5	26 - 138	41.0062	40.90587	0.1003	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.92	96.5	23 - 140	40.2597	40.16678	0.0929	N/A	
13C12-OCDD	399.83	98.6	17 - 157	45.0138	44.88763	0.1262	N/A	
37Cl4-2,3,7,8-TCDD	79.966	117	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0351	Instrument:	AUTOSPEC01
Sample ID:	SJI0351-CCV1	Calibration:	EH00030
File ID:	21092211	Analyzed:	09/23/21 04:45

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	91.3	71 - 129	25.7455	25.63973	0.1058	N/A	
13C12-2,3,7,8-TCDD	100.00	104	82 - 118	26.3655	26.27478	0.0907	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	86.6	76 - 124	29.9092	29.80383	0.1054	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	85.5	77 - 123	31.2458	31.14815	0.0976	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	96.4	62 - 138	31.491	31.40067	0.0903	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.1	76 - 124	34.8777	34.782	0.0957	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	85.7	70 - 130	35.0113	34.91943	0.0919	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	90.0	73 - 127	35.8915	35.7884	0.1031	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	91.7	74 - 126	36.9165	36.8227	0.0938	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	104	85 - 115	35.9918	35.90912	0.0827	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	94.0	85 - 115	36.1033	36.0242	0.0791	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	74.1	78 - 122	38.7658	38.67025	0.0955	N/A	*
13C12-1,2,3,4,7,8,9-HpCDF	100.00	71.9	77 - 123	41.0163	40.90587	0.1104	N/A	*
13C12-1,2,3,4,6,7,8-HpCDD	100.00	86.3	72 - 128	40.2588	40.16678	0.0920	N/A	
13C12-OCDD	200.00	75.1	48 - 152	45.0147	44.88763	0.1271	N/A	
37Cl4-2,3,7,8-TCDD	10.000	97.8	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0383	Instrument:	AUTOSPEC01
Sample ID:	SJI0383-ICV1	Calibration:	EH00030
File ID:	21092402	Analyzed:	09/24/21 09:27

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	103	71 - 129	25.5792	25.63973	-0.0605	N/A	
13C12-2,3,7,8-TCDD	100.00	107	82 - 118	26.1992	26.27478	-0.0756	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	99.6	76 - 124	29.7348	29.80383	-0.0690	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	97.5	77 - 123	31.083	31.14815	-0.0652	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	107	62 - 138	31.317	31.40067	-0.0837	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	91.3	76 - 124	34.7152	34.782	-0.0668	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	86.4	70 - 130	34.8488	34.91943	-0.0706	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	88.3	73 - 127	35.729	35.7884	-0.0594	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	92.4	74 - 126	36.7652	36.8227	-0.0575	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	95.4	85 - 115	35.8293	35.90912	-0.0798	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	92.5	85 - 115	35.9518	36.0242	-0.0724	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	83.4	78 - 122	38.6147	38.67025	-0.0556	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	79.2	77 - 123	40.8318	40.90587	-0.0741	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	90.0	82 - 118	40.0965	40.16678	-0.0703	N/A	
13C12-OCDD	200.00	91.7	48 - 152	44.799	44.88763	-0.0886	N/A	
37Cl4-2,3,7,8-TCDD	10.000	103	79 - 121	26.2293	26.30253	-0.0732	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0383	Instrument:	AUTOSPEC01
Sample ID:	21G0286-05	Calibration:	EH00030
File ID:	21092404	Analyzed:	09/24/21 11:17

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.05	67.5	24 - 169	25.5792	25.63973	-0.0605	N/A	
13C12-2,3,7,8-TCDD	200.05	82.2	25 - 164	26.2142	26.27478	-0.0606	N/A	
13C12-1,2,3,7,8-PeCDF	200.05	66.0	24 - 185	29.746	29.80383	-0.0578	N/A	
13C12-2,3,4,7,8-PeCDF	200.05	65.0	21 - 178	31.0828	31.14815	-0.0654	N/A	
13C12-1,2,3,7,8-PeCDD	200.05	74.9	25 - 181	31.328	31.40067	-0.0727	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.05	72.7	26 - 152	34.7262	34.782	-0.0558	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.05	68.7	26 - 123	34.871	34.91943	-0.0484	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.05	70.1	28 - 136	35.7512	35.7884	-0.0372	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.05	73.9	29 - 147	36.7762	36.8227	-0.0465	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.05	86.2	32 - 141	35.8627	35.90912	-0.0464	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.05	80.9	28 - 130	35.9742	36.0242	-0.0500	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.05	62.0	28 - 143	38.6257	38.67025	-0.0446	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.05	63.4	26 - 138	40.8538	40.90587	-0.0521	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.05	75.9	23 - 140	40.1075	40.16678	-0.0593	N/A	
13C12-OCDD	400.09	84.3	17 - 157	44.8262	44.88763	-0.0614	N/A	
37Cl4-2,3,7,8-TCDD	80.018	84.1	35 - 197	26.2293	26.30253	-0.0732	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:	21G0286
Client:	Anchor QEA, LLC	Project:	Lower Duwamish AOC4
Sequence:	SJI0383	Instrument:	AUTOSPEC01
Sample ID:	SJI0383-CCV1	Calibration:	EH00030
File ID:	21092414	Analyzed:	09/24/21 19:26

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	109	71 - 129	25.5943	25.63973	-0.0454	N/A	
13C12-2,3,7,8-TCDD	100.00	109	82 - 118	26.2143	26.27478	-0.0605	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	98.3	76 - 124	29.746	29.80383	-0.0578	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	98.0	77 - 123	31.094	31.14815	-0.0541	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	105	62 - 138	31.3392	31.40067	-0.0615	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	98.2	76 - 124	34.7262	34.782	-0.0558	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	91.9	70 - 130	34.871	34.91943	-0.0484	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.3	73 - 127	35.7512	35.7884	-0.0372	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	96.8	74 - 126	36.7762	36.8227	-0.0465	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	101	85 - 115	35.8515	35.90912	-0.0576	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	95.4	85 - 115	35.9628	36.0242	-0.0614	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	94.4	78 - 122	38.6368	38.67025	-0.0335	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	93.8	77 - 123	40.8538	40.90587	-0.0521	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	99.3	82 - 118	40.1187	40.16678	-0.0481	N/A	
13C12-OCDD	200.00	109	48 - 152	44.817	44.88763	-0.0706	N/A	
37Cl4-2,3,7,8-TCDD	10.000	104	79 - 121	26.2445	26.30253	-0.0580	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: 21G0286

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-SS646 21G0286-05	07/22/21 11:50	07/22/21 17:30	09/02/21 15:08	42	365	09/24/21 11:17	22	365	
Duplicate BJH0773-DUP1	07/22/21 11:50	07/22/21 17:30	09/02/21 15:08	42	365	09/22/21 20:35	20	365	

* Indicates hold time exceedance.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0286
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Solid
Instrument: AUTOSPEC01

Analyte	MDL	RL	Units
2,3,7,8-TCDF	0.058	1.00	ng/kg
2,3,7,8-TCDD	0.150	1.00	ng/kg
1,2,3,7,8-PeCDF	0.240	1.00	ng/kg
2,3,4,7,8-PeCDF	0.220	1.00	ng/kg
1,2,3,7,8-PeCDD	0.170	1.00	ng/kg
1,2,3,4,7,8-HxCDF	0.280	1.00	ng/kg
1,2,3,6,7,8-HxCDF	0.200	1.00	ng/kg
2,3,4,6,7,8-HxCDF	0.170	1.00	ng/kg
1,2,3,7,8,9-HxCDF	0.190	1.00	ng/kg
1,2,3,4,7,8-HxCDD	0.170	1.00	ng/kg
1,2,3,6,7,8-HxCDD	0.180	1.00	ng/kg
1,2,3,7,8,9-HxCDD	0.220	1.00	ng/kg
1,2,3,4,6,7,8-HpCDF	0.210	1.00	ng/kg
1,2,3,4,7,8,9-HpCDF	0.240	1.00	ng/kg
1,2,3,4,6,7,8-HpCDD	0.560	2.50	ng/kg
OCDF	1.10	2.50	ng/kg
OCDD	4.60	10.0	ng/kg
Total TCDF		1.00	ng/kg
Total TCDD		1.00	ng/kg
Total PeCDF		1.00	ng/kg
Total PeCDD		1.00	ng/kg
Total HxCDF		1.00	ng/kg
Total HxCDD		1.00	ng/kg
Total HpCDF		1.00	ng/kg
Total HpCDD		1.00	ng/kg

Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, Inc.
SDG: 21G0286
Client: Anchor QEA, LLC
Project: Lower Duwamish AOC4
Matrix: Water
Instrument: AUTOSPEC01

Analyte	MDL	RL	Units
2,3,7,8-TCDF	1.20	10.0	pg/L
2,3,7,8-TCDD	1.30	10.0	pg/L
1,2,3,7,8-PeCDF	4.20	10.0	pg/L
2,3,4,7,8-PeCDF	4.00	10.0	pg/L
1,2,3,7,8-PeCDD	4.00	10.0	pg/L
1,2,3,4,7,8-HxCDF	3.80	10.0	pg/L
1,2,3,6,7,8-HxCDF	3.90	10.0	pg/L
2,3,4,6,7,8-HxCDF	3.50	10.0	pg/L
1,2,3,7,8,9-HxCDF	3.60	10.0	pg/L
1,2,3,4,7,8-HxCDD	4.10	10.0	pg/L
1,2,3,6,7,8-HxCDD	3.80	10.0	pg/L
1,2,3,7,8,9-HxCDD	3.40	10.0	pg/L
1,2,3,4,6,7,8-HpCDF	11.0	20.0	pg/L
1,2,3,4,7,8,9-HpCDF	3.60	10.0	pg/L
1,2,3,4,6,7,8-HpCDD	6.00	10.0	pg/L
OCDF	16.0	20.0	pg/L
OCDD	39.0	50.0	pg/L

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

G 00136 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

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: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

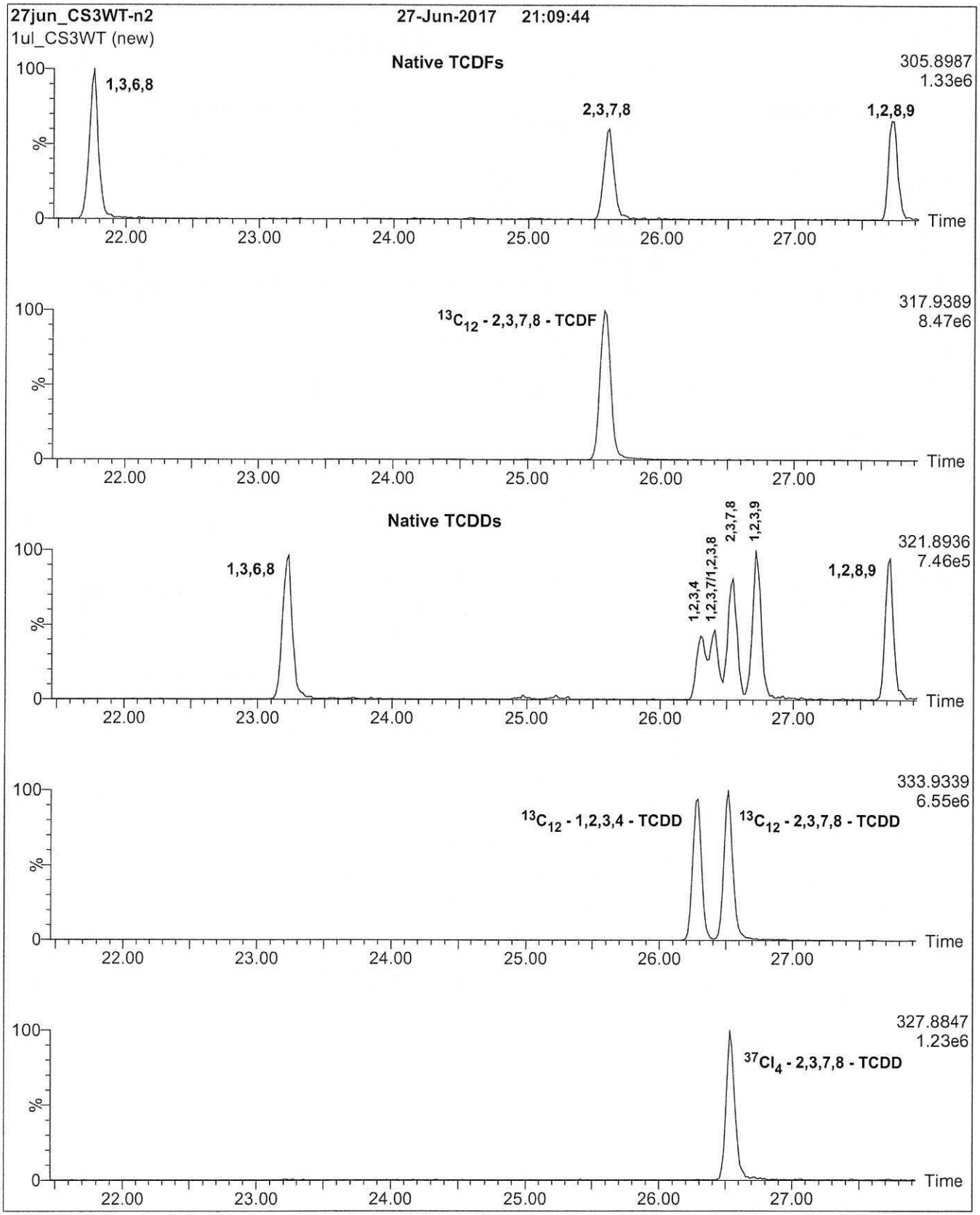


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

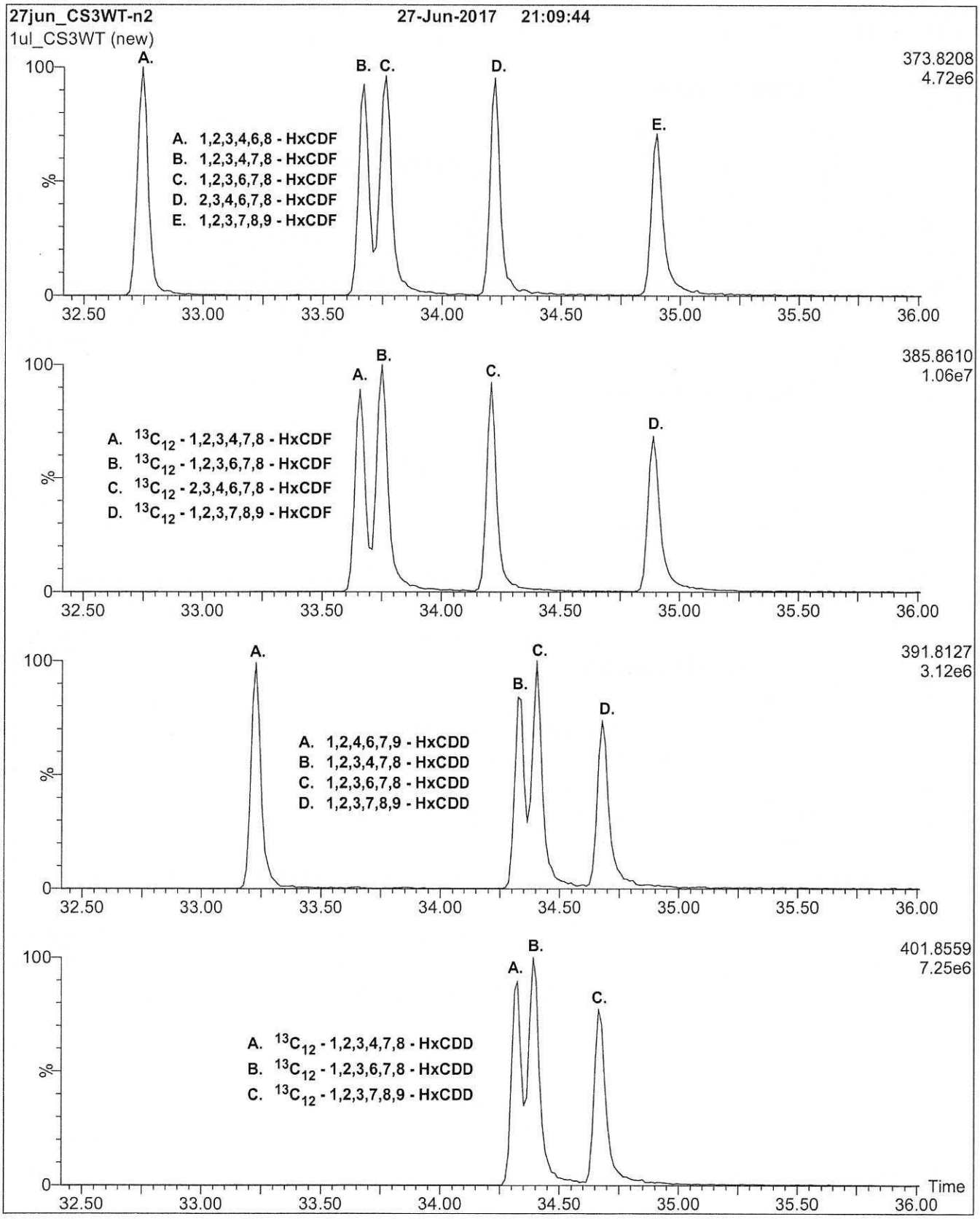
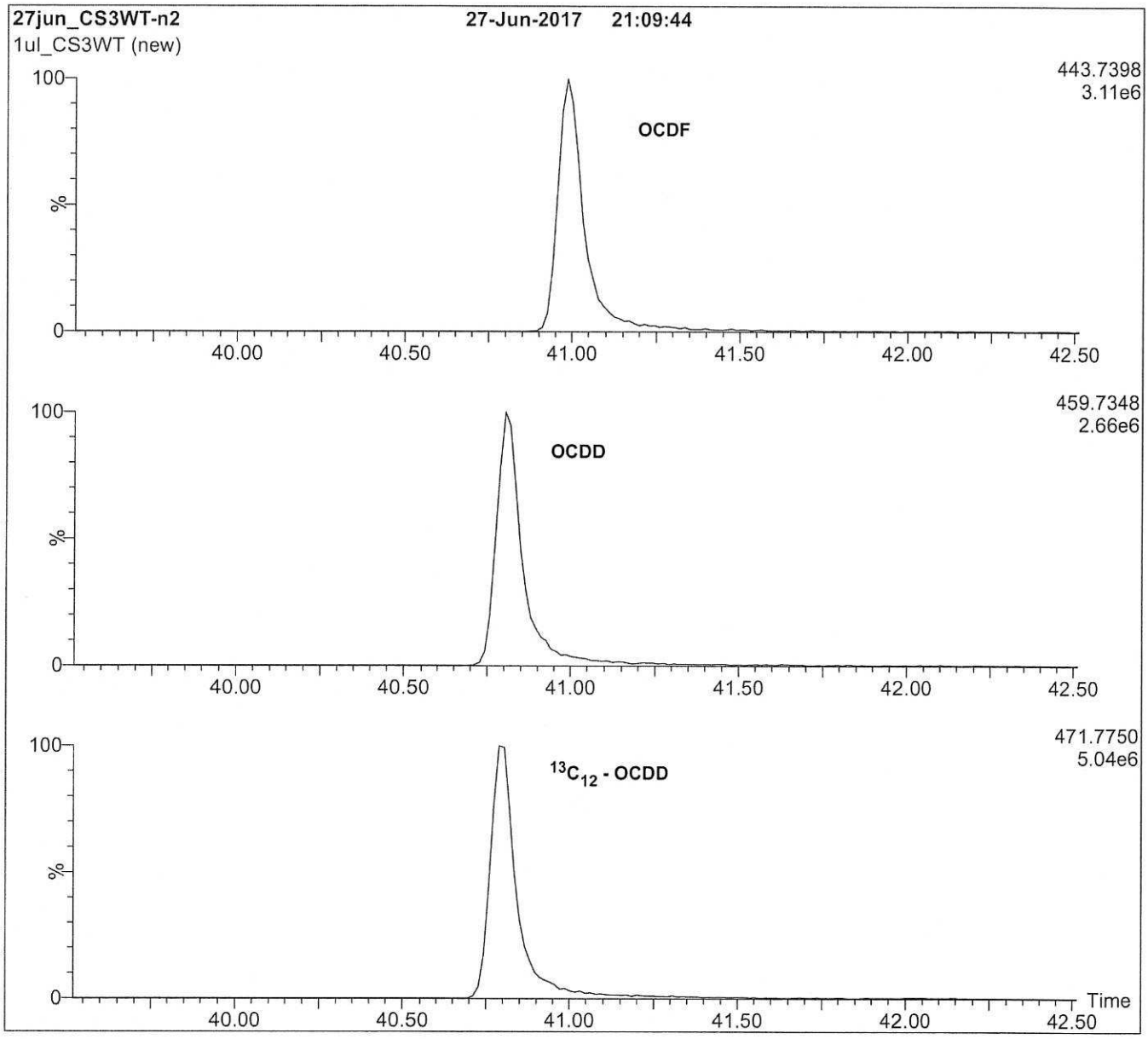


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



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.

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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

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

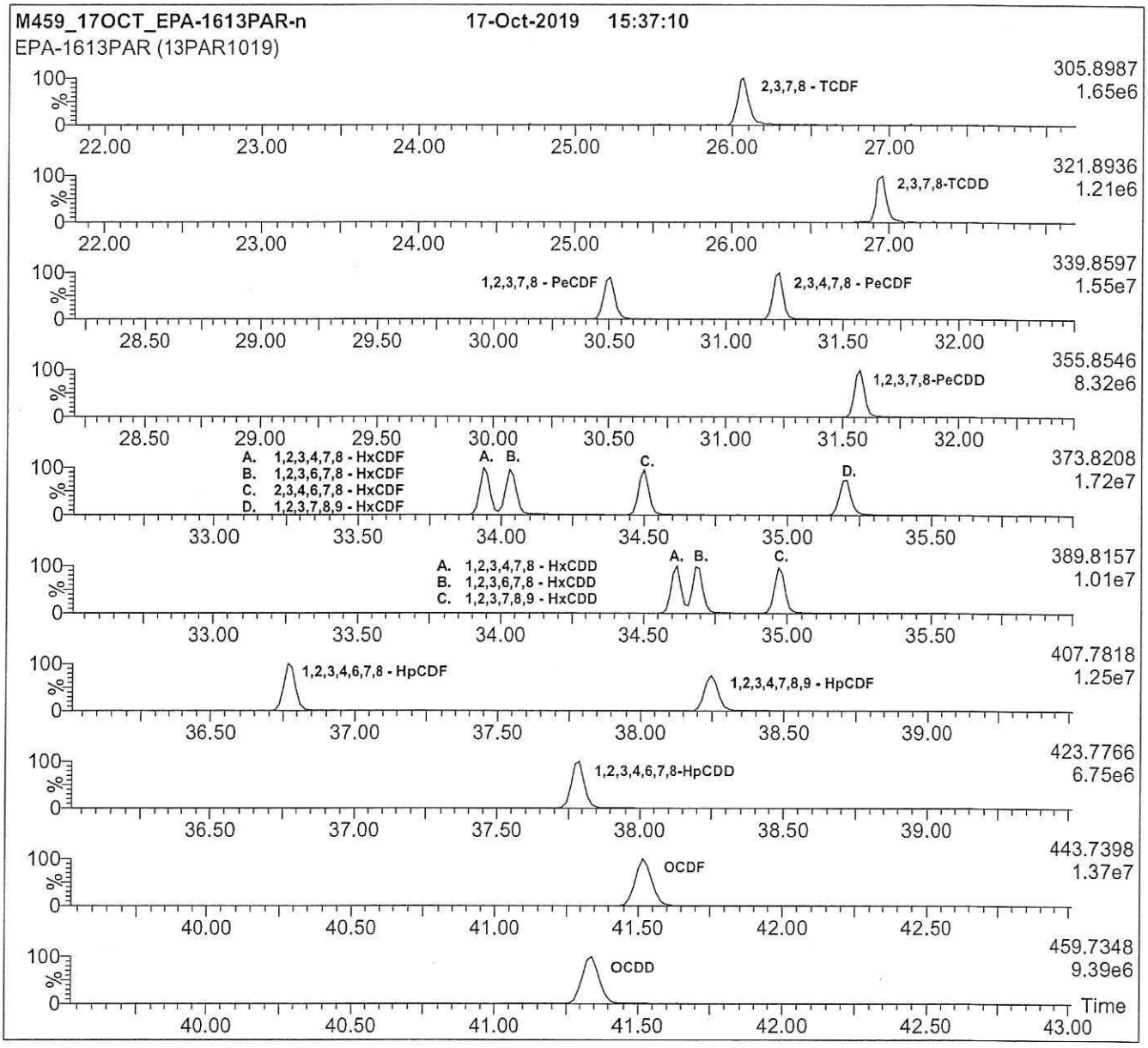
Table A: **EPA-1613PAR; Components and Concentrations (ng/ml, ± 5% in nonane/ 2.4% toluene)**

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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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

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)

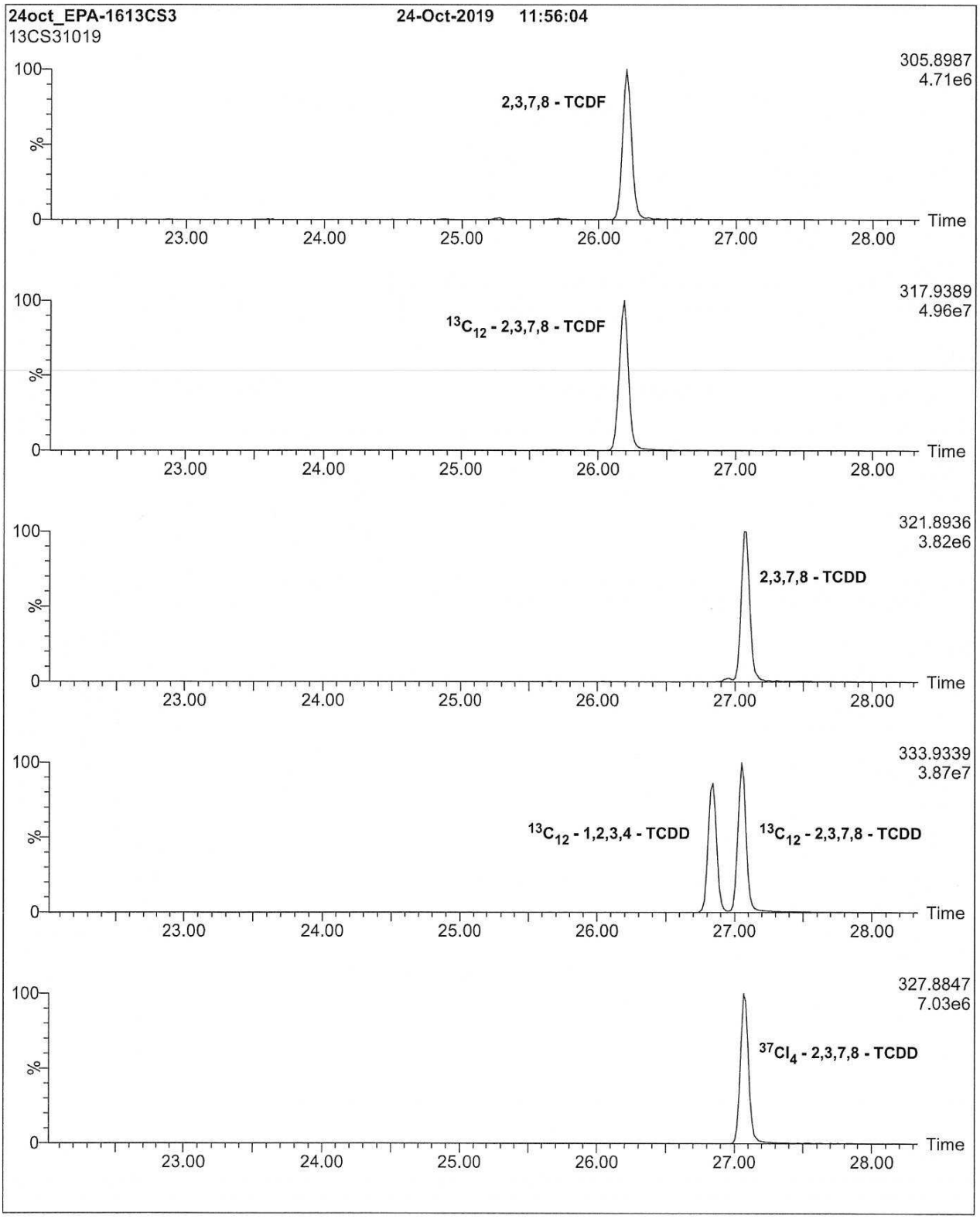


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

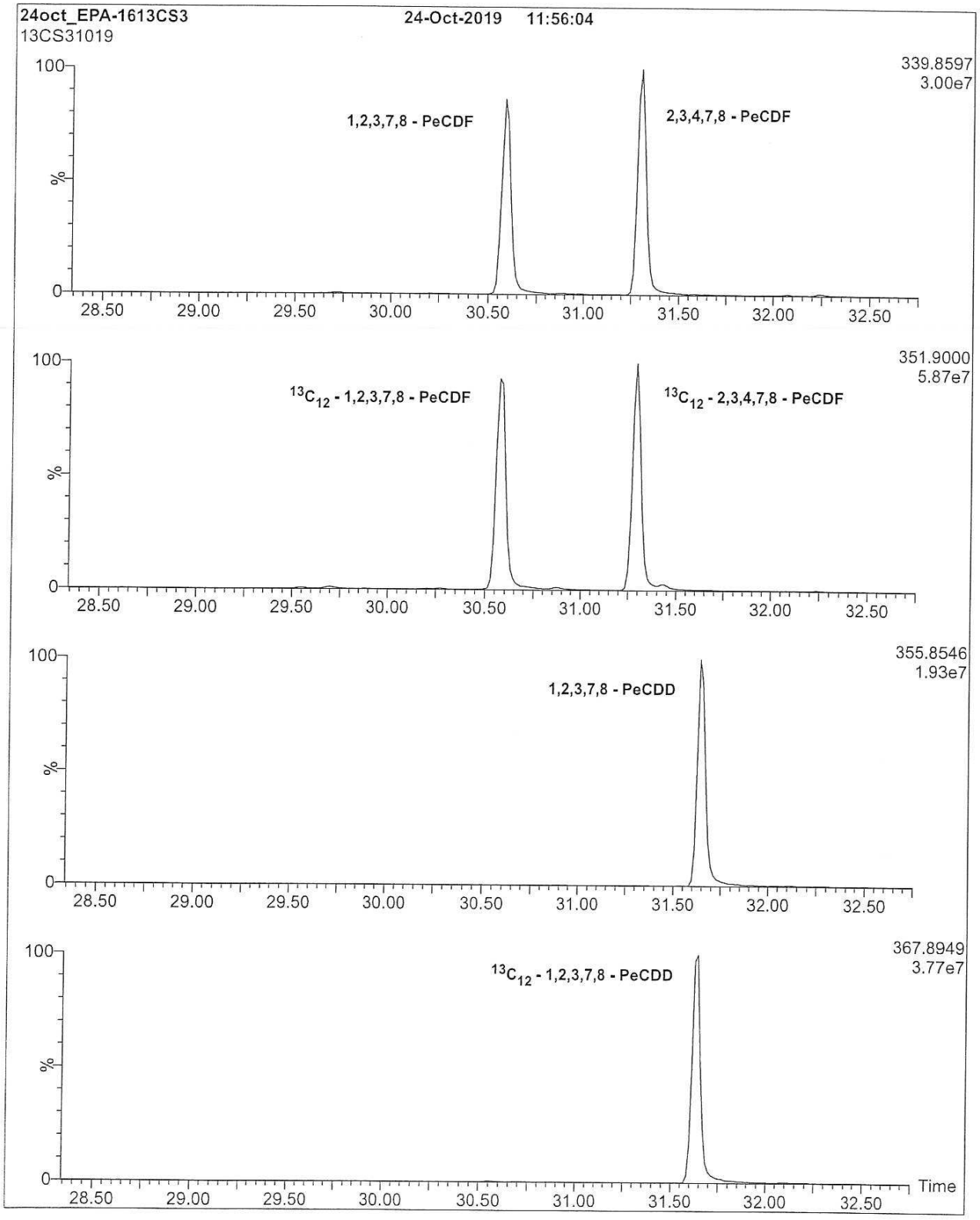


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

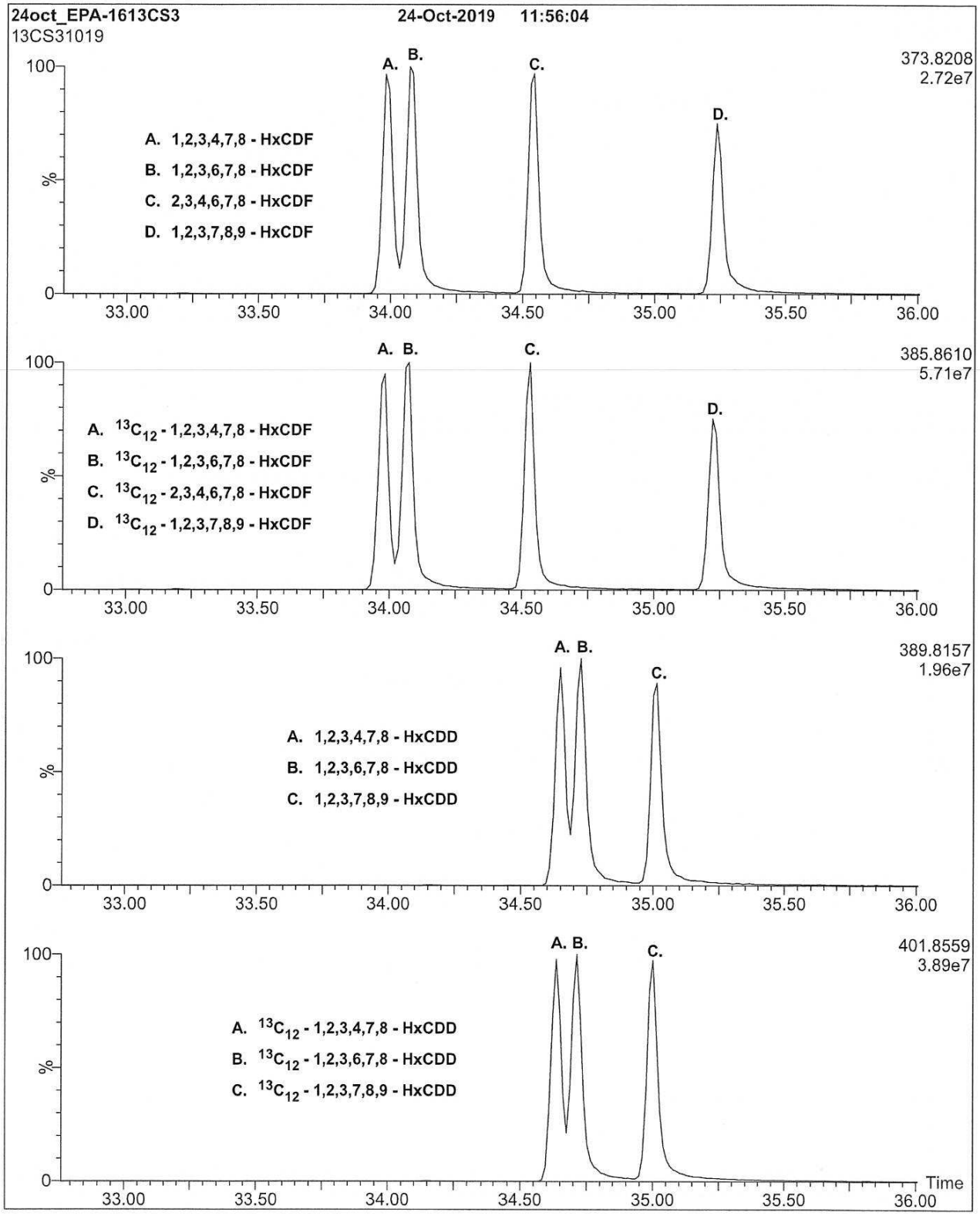


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

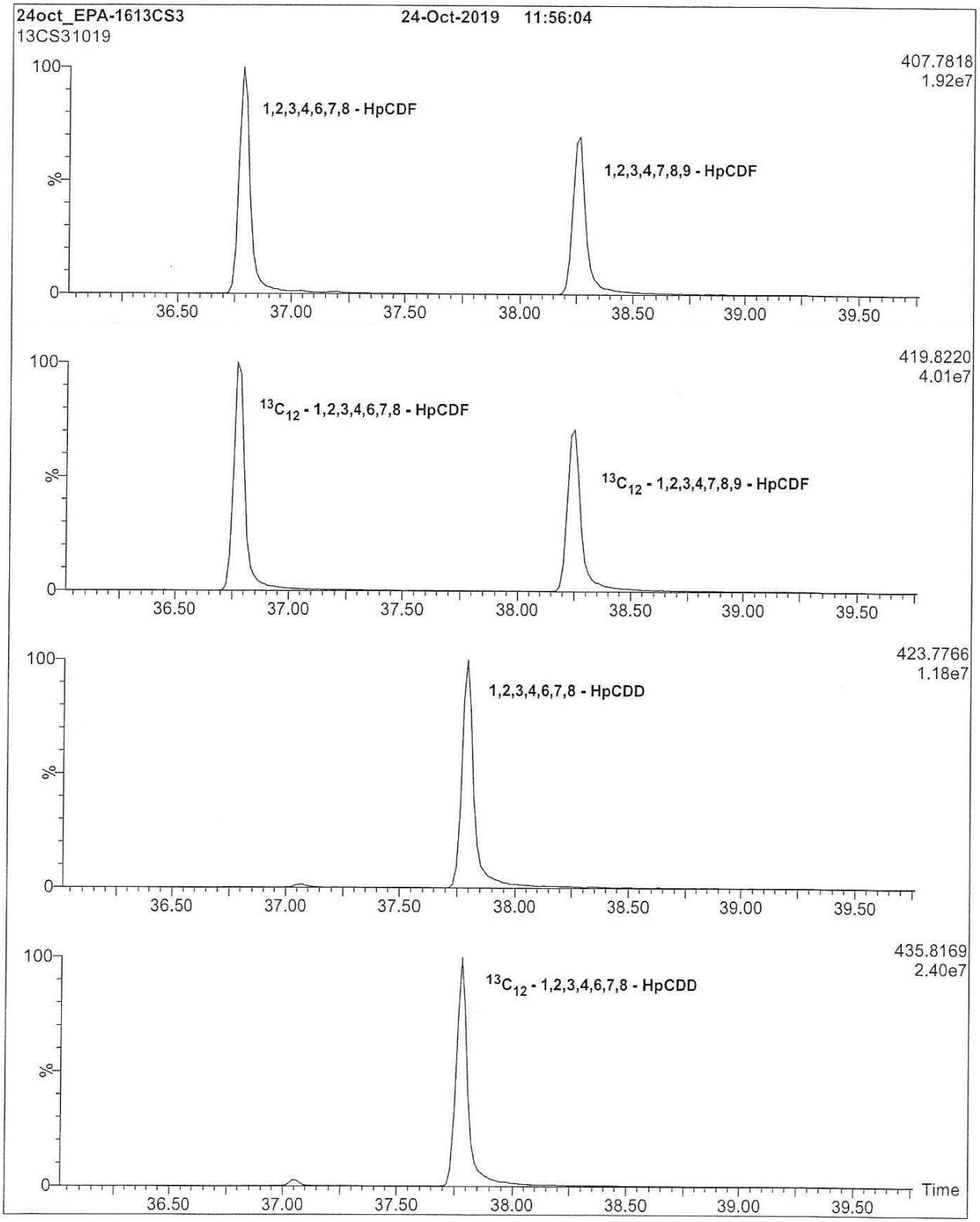
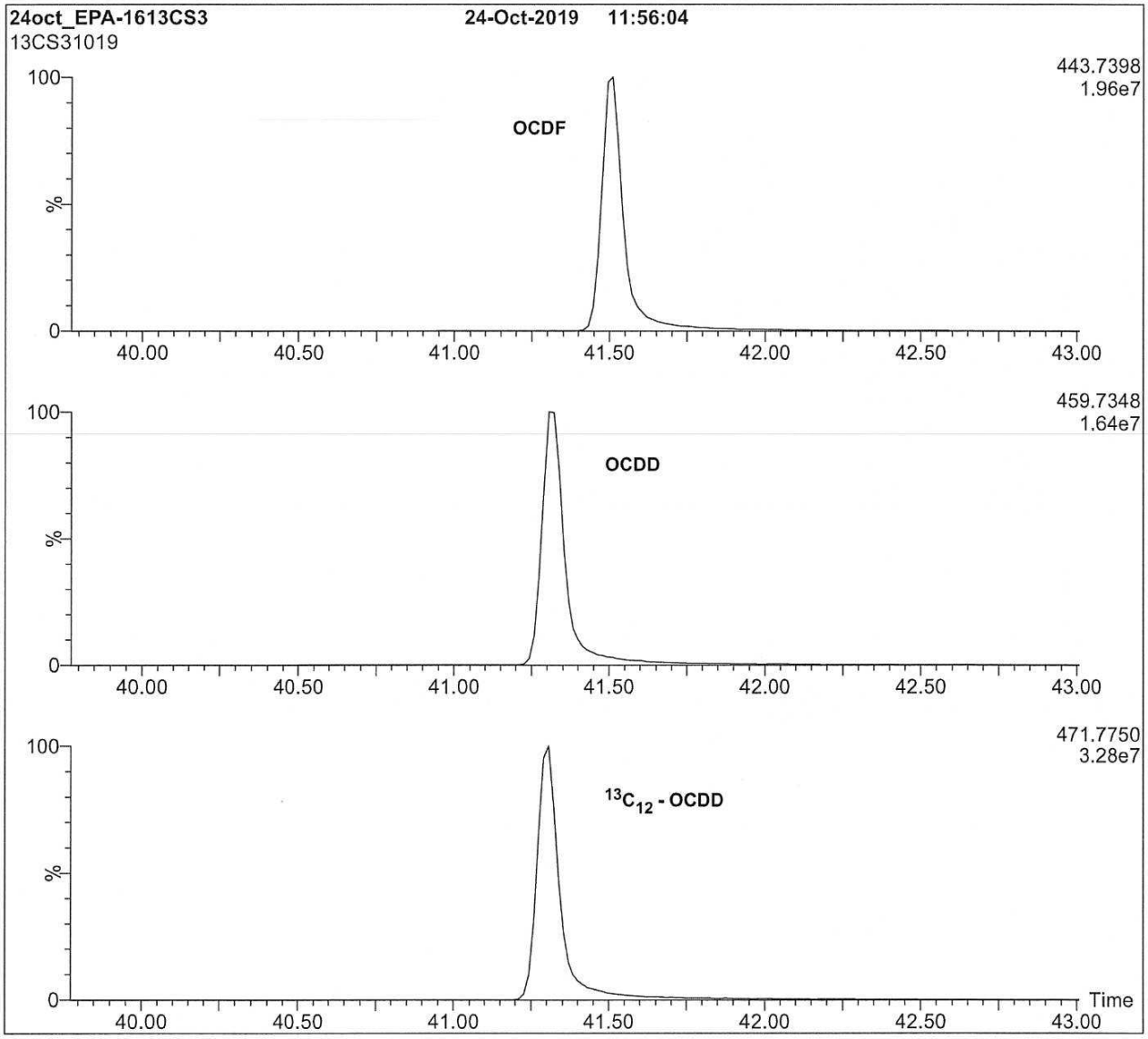


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



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)

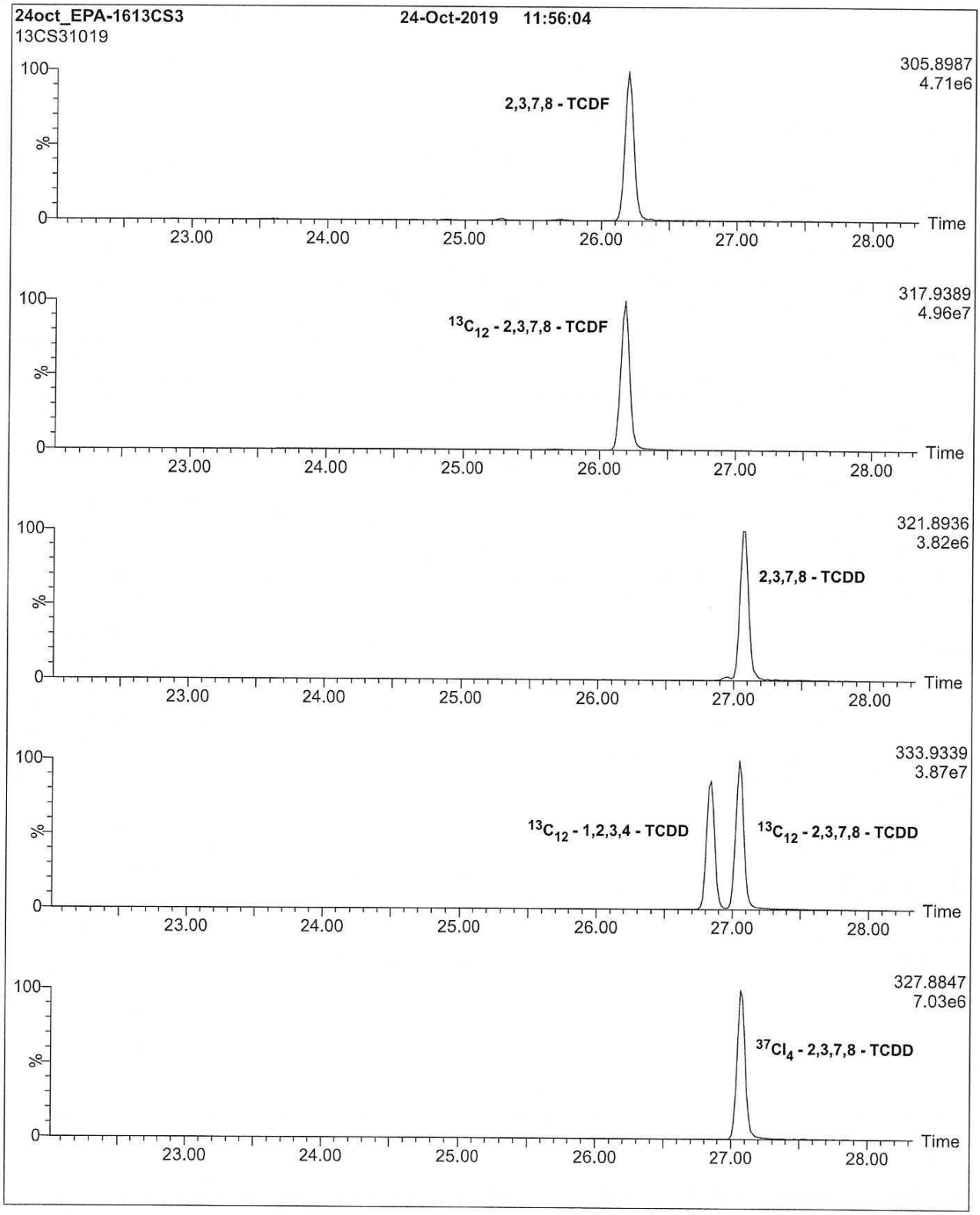


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

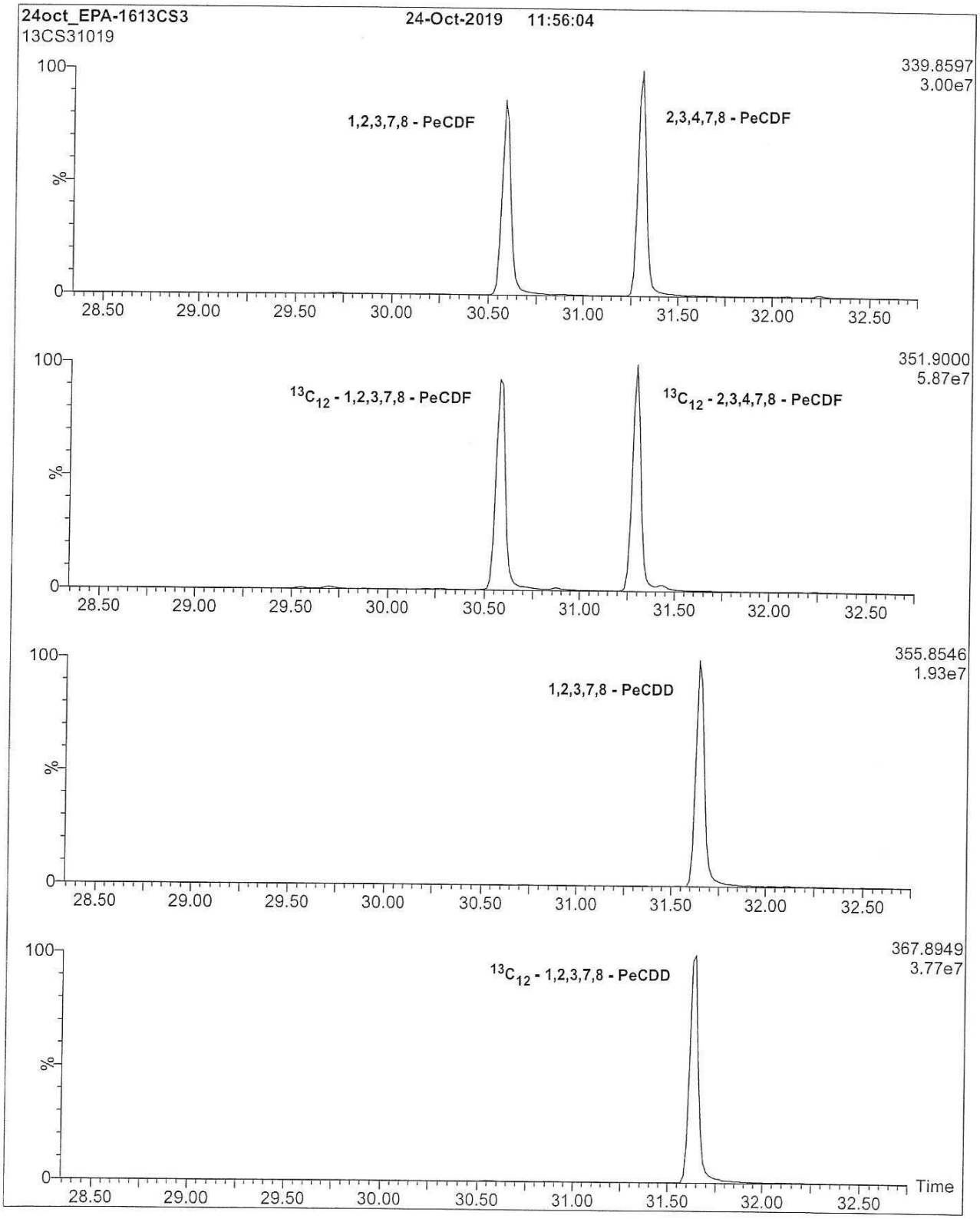


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

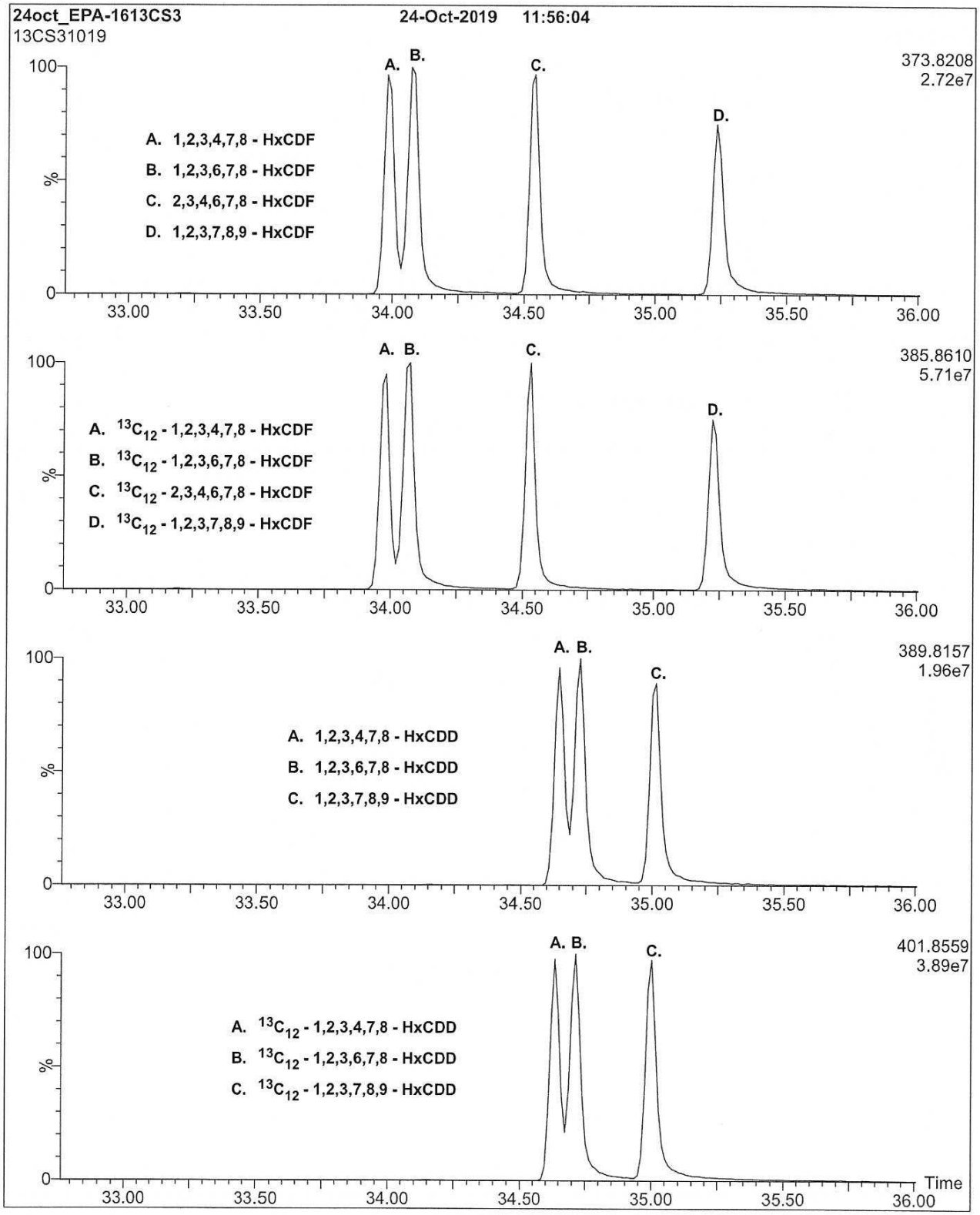


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

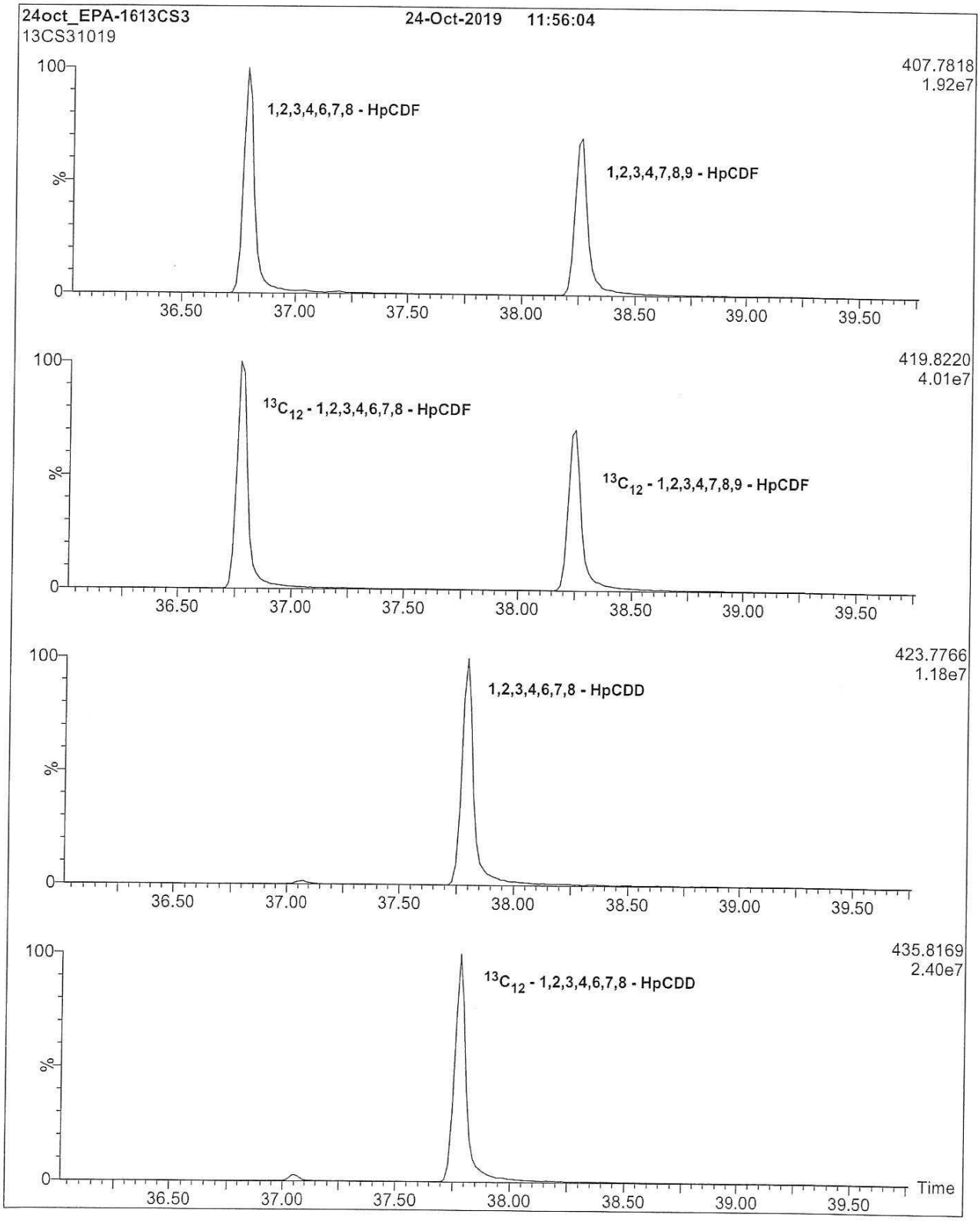
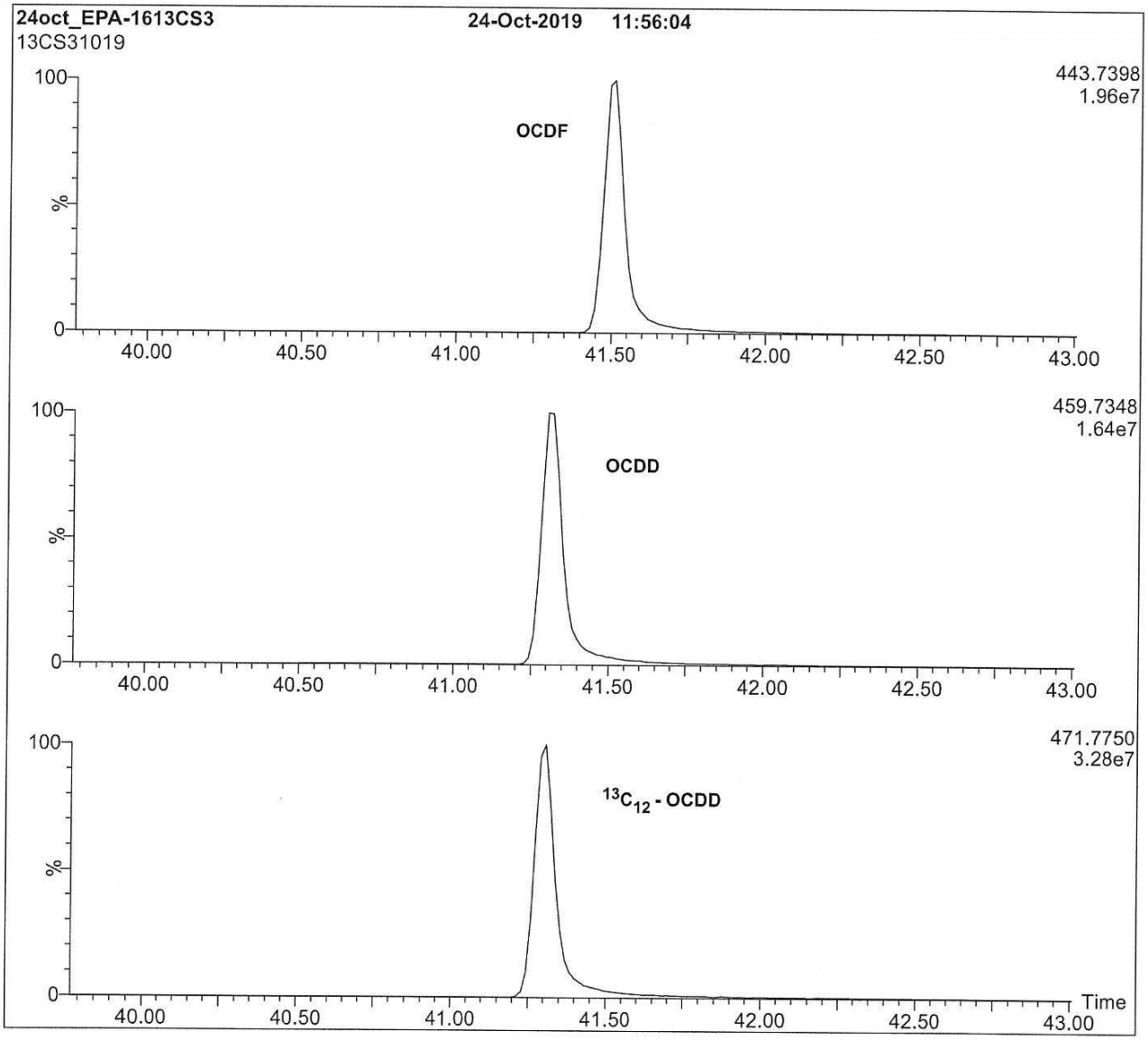


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)



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)
	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)

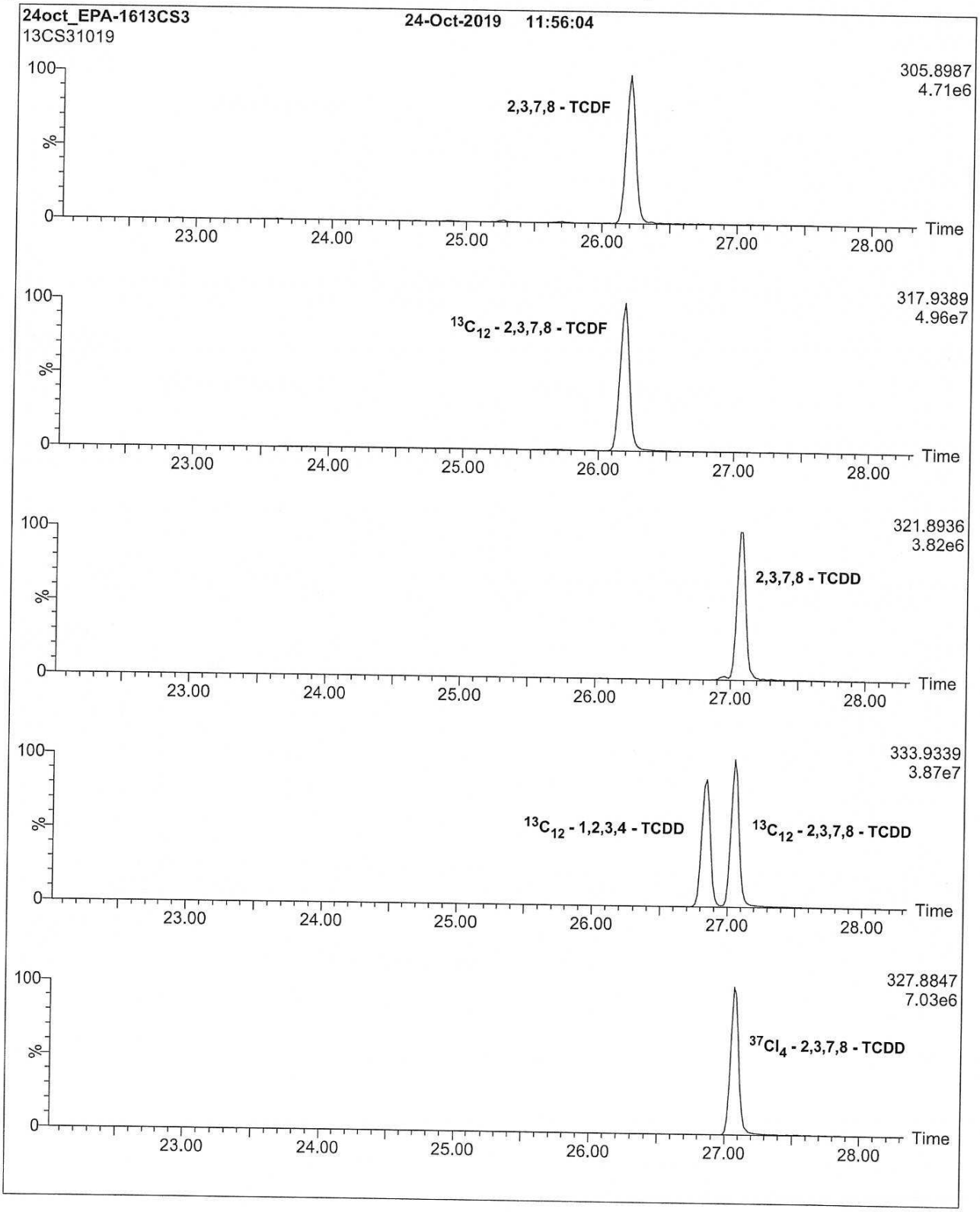


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

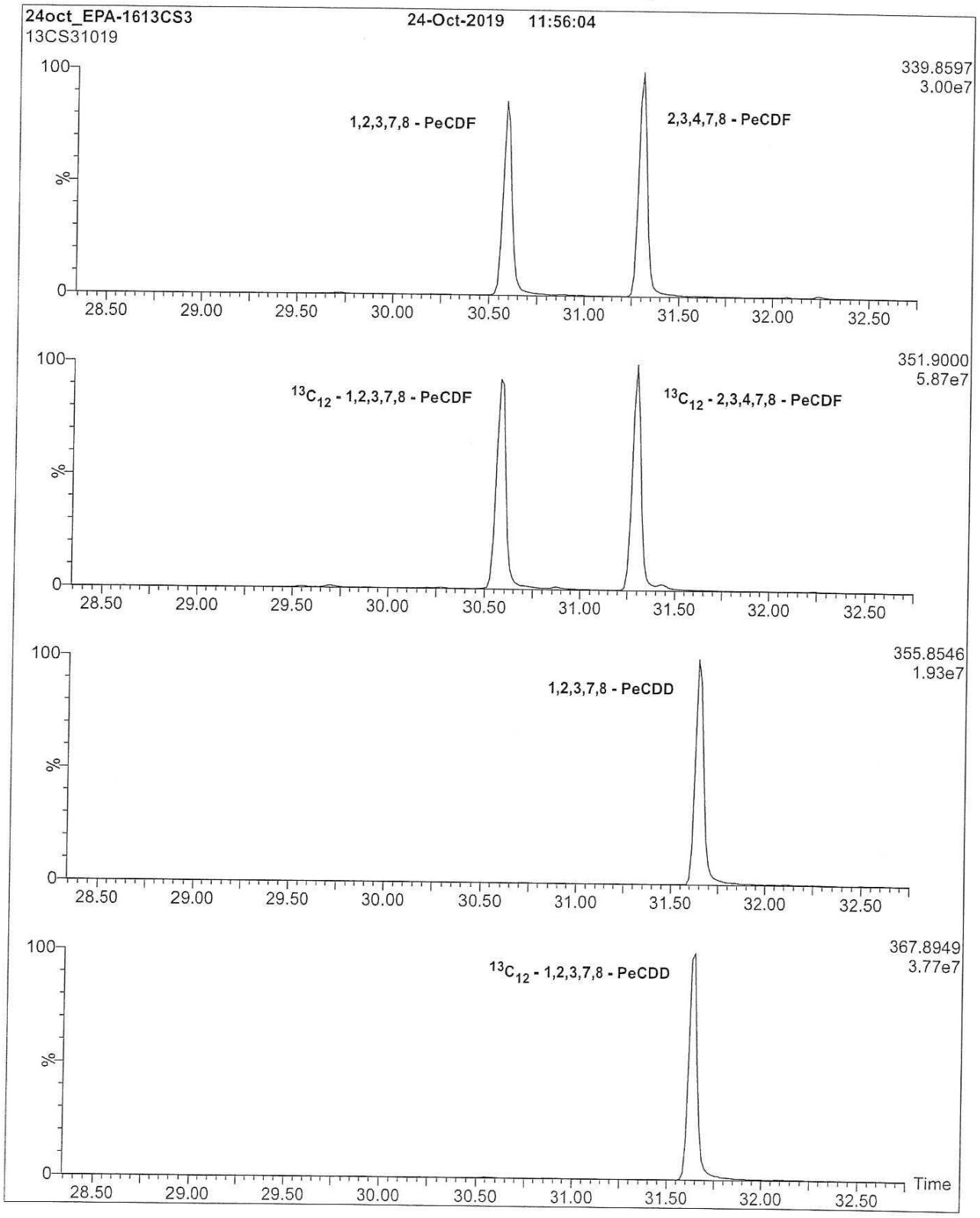


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

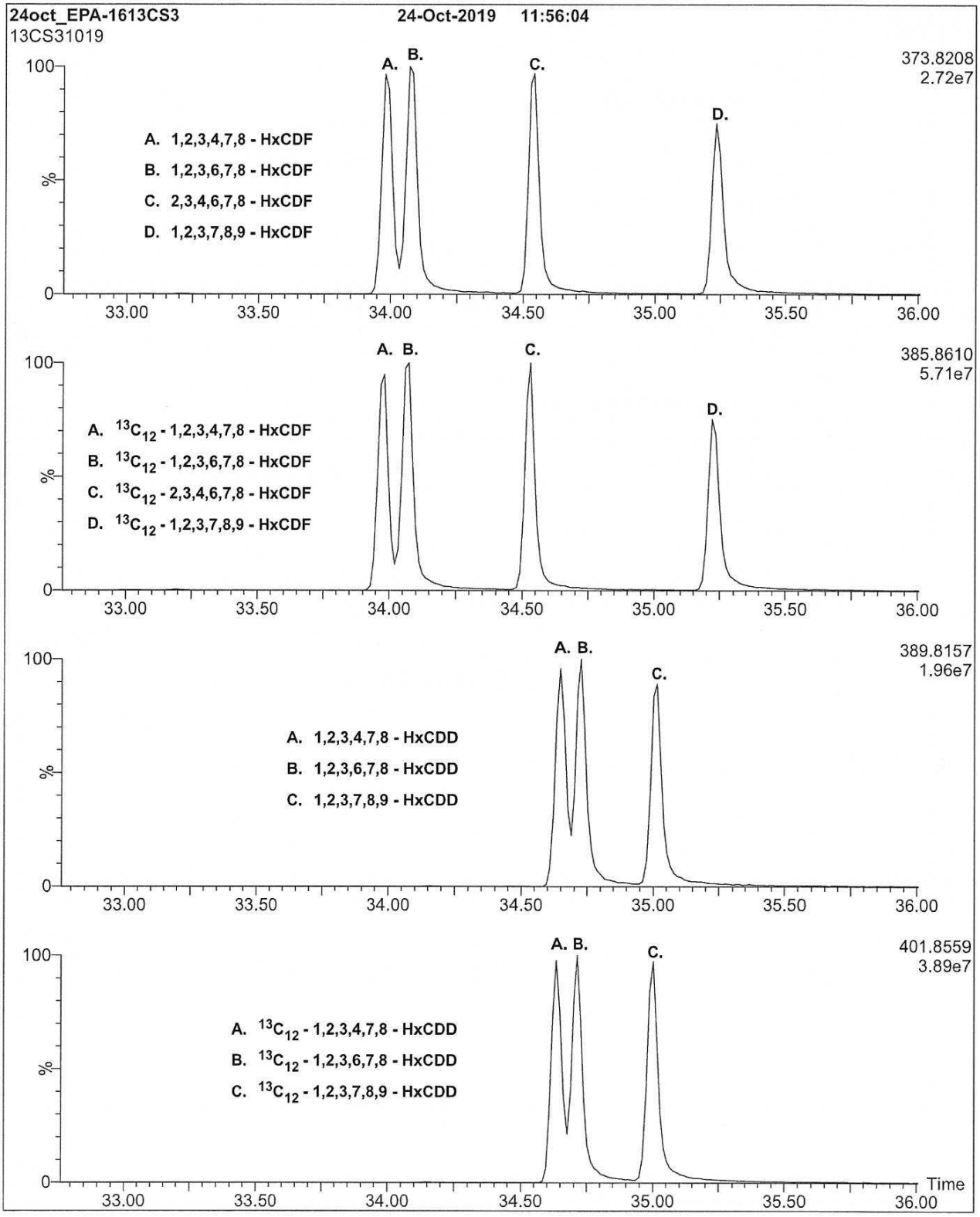


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

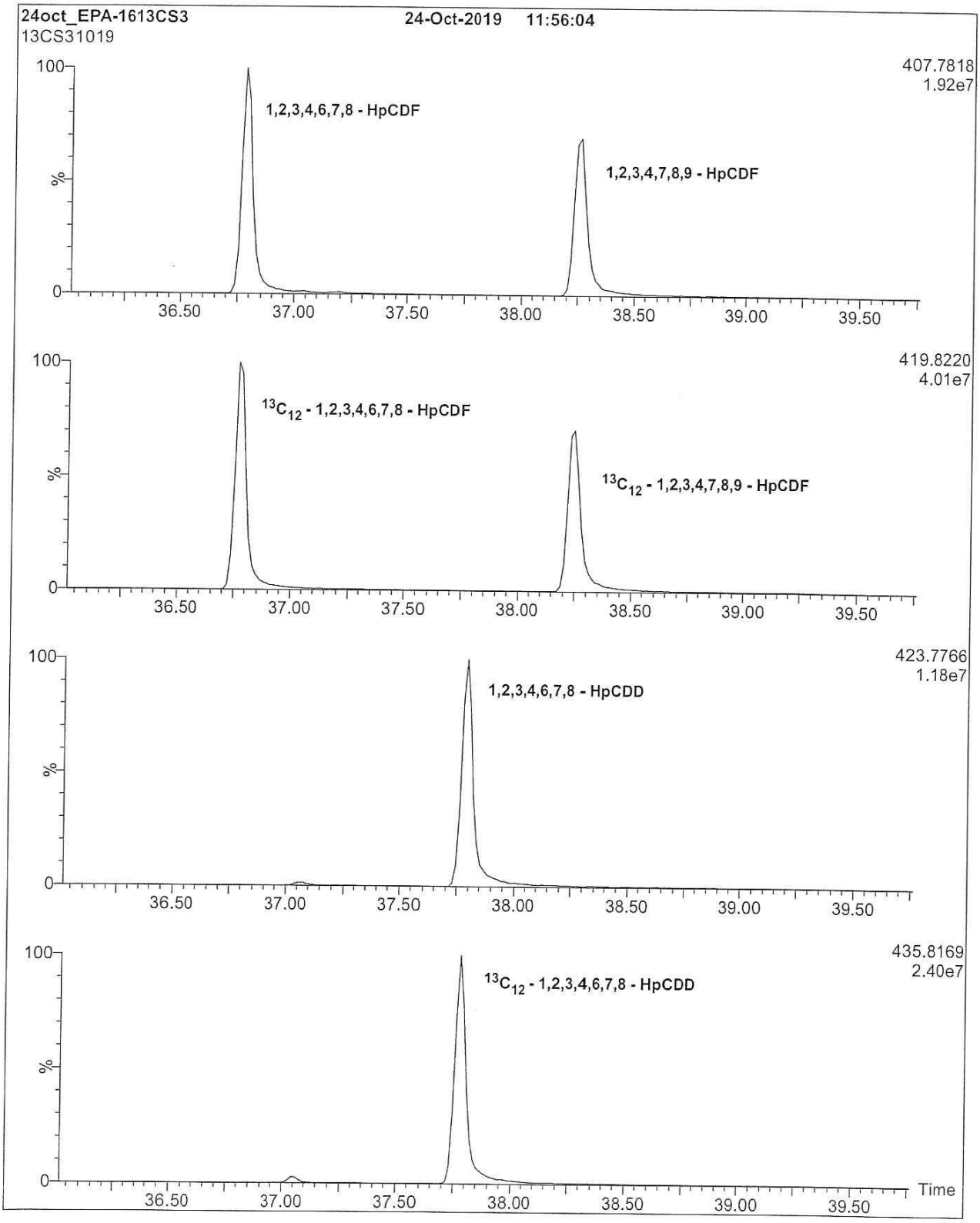
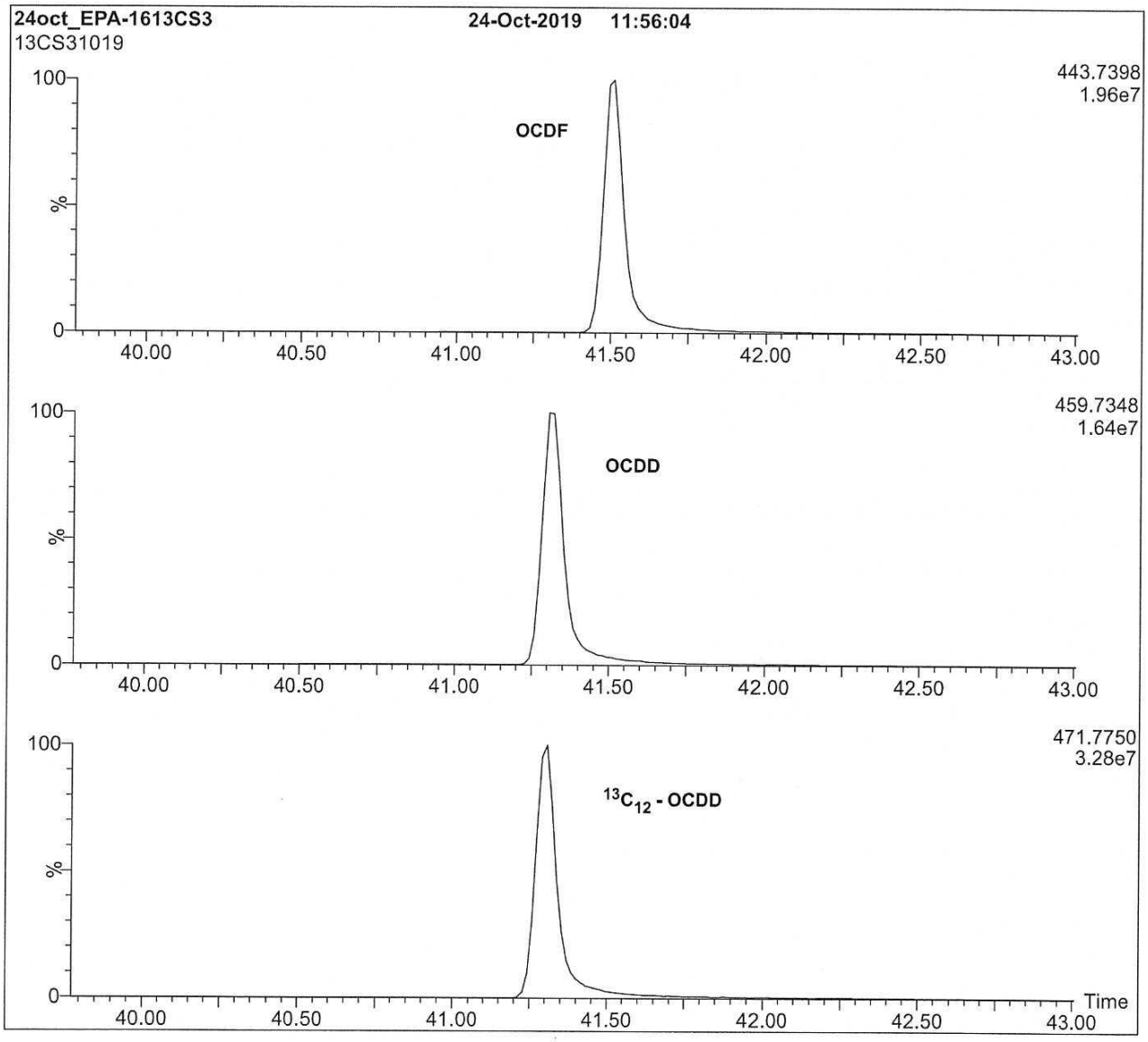


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)



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)

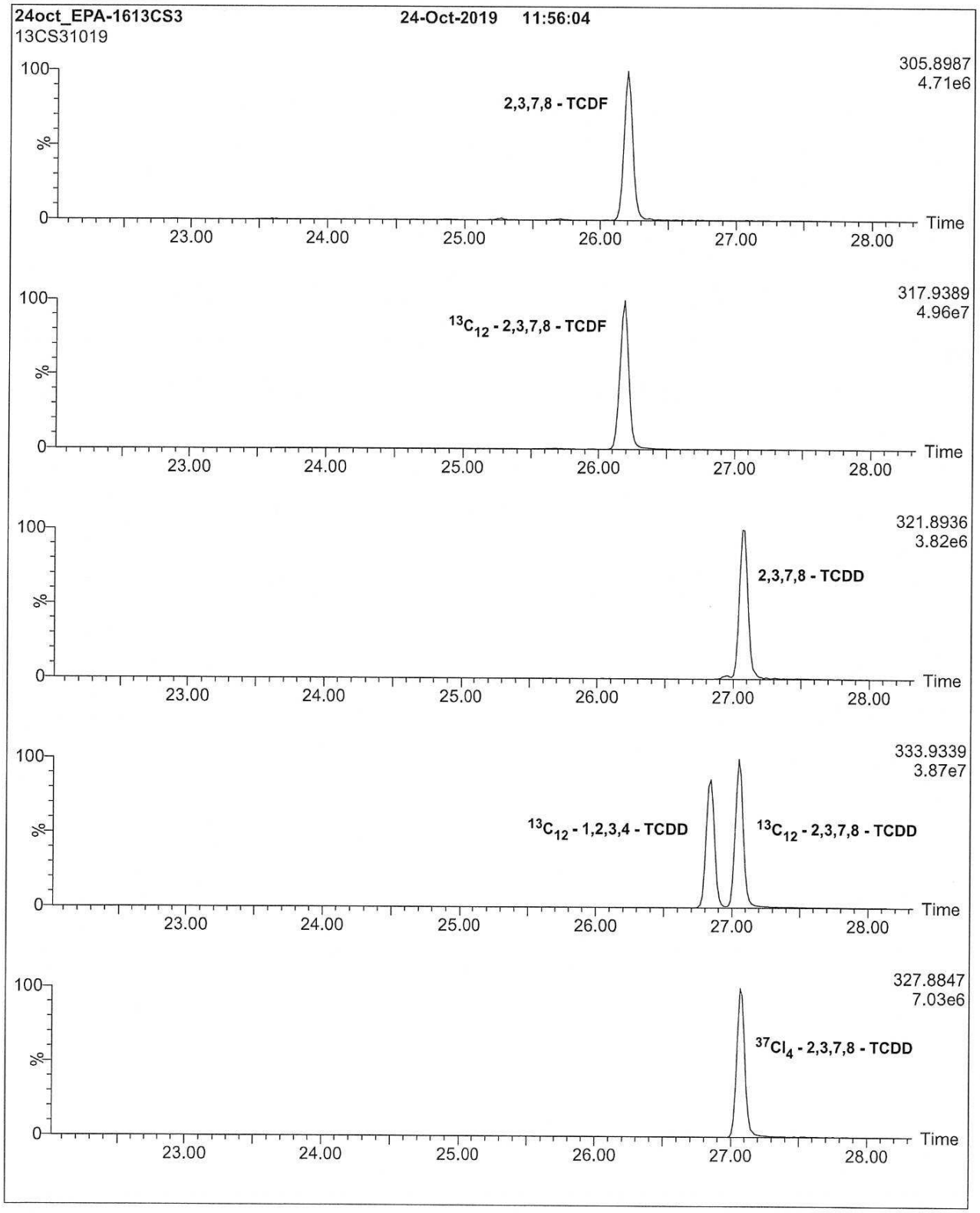


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

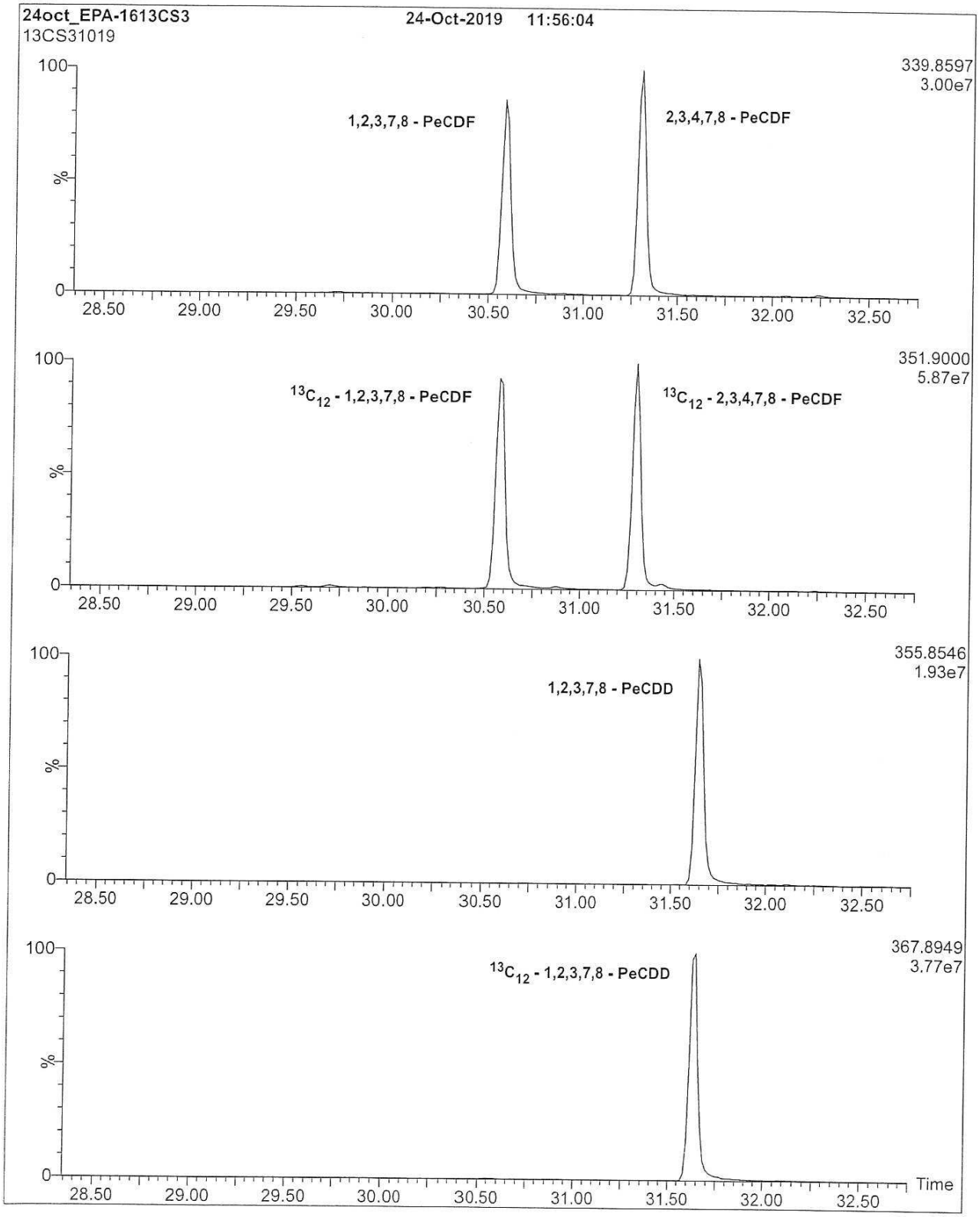


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

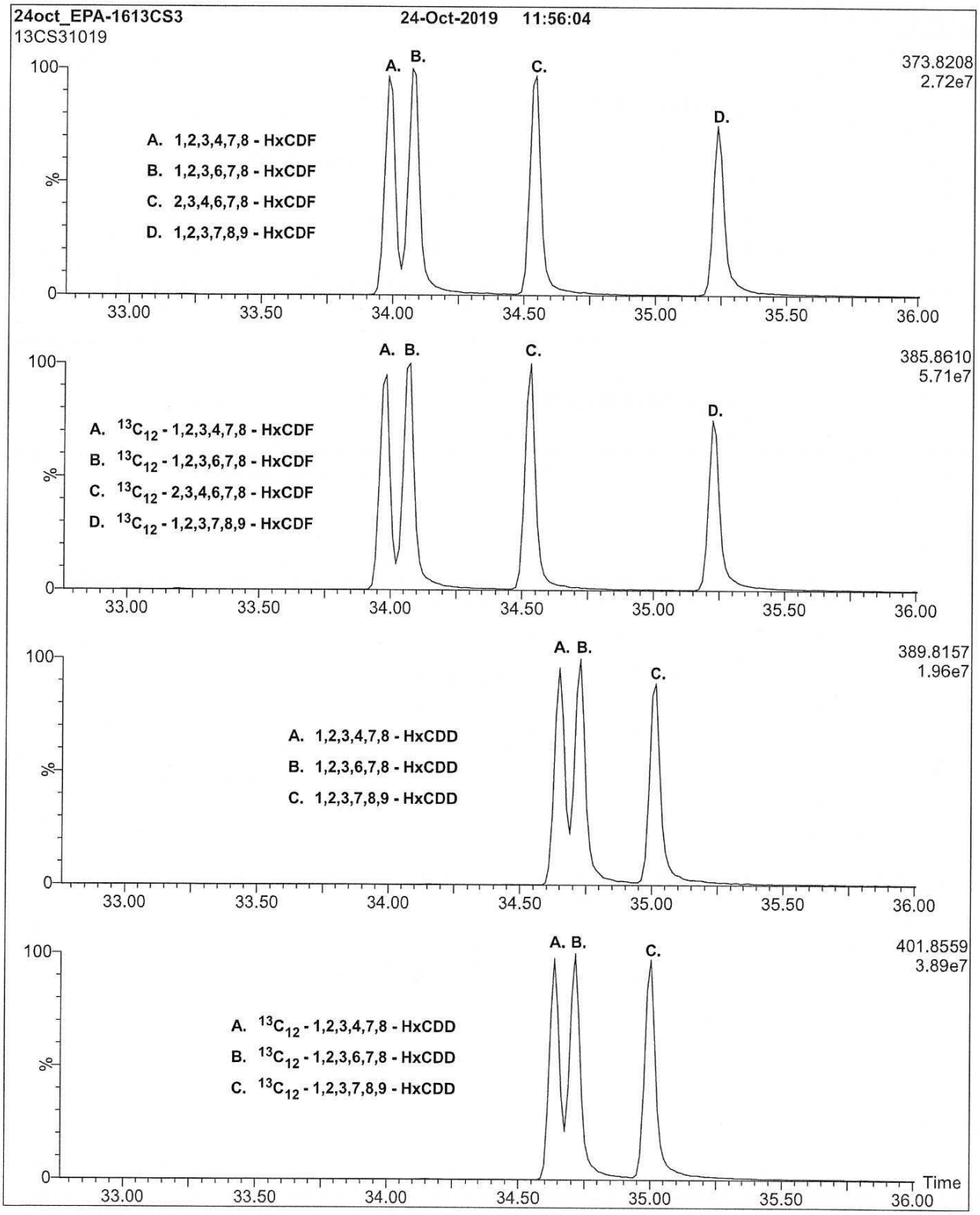


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

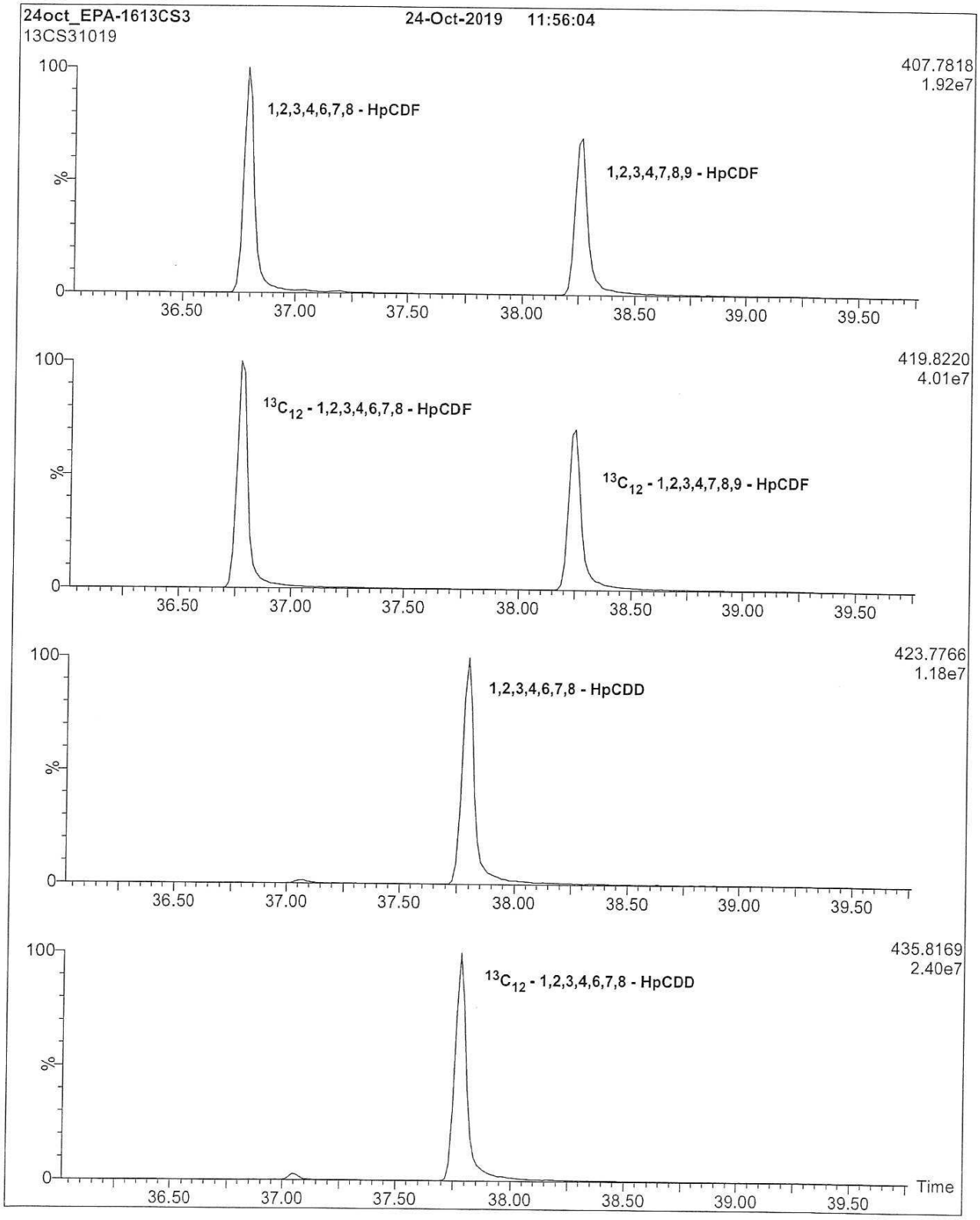
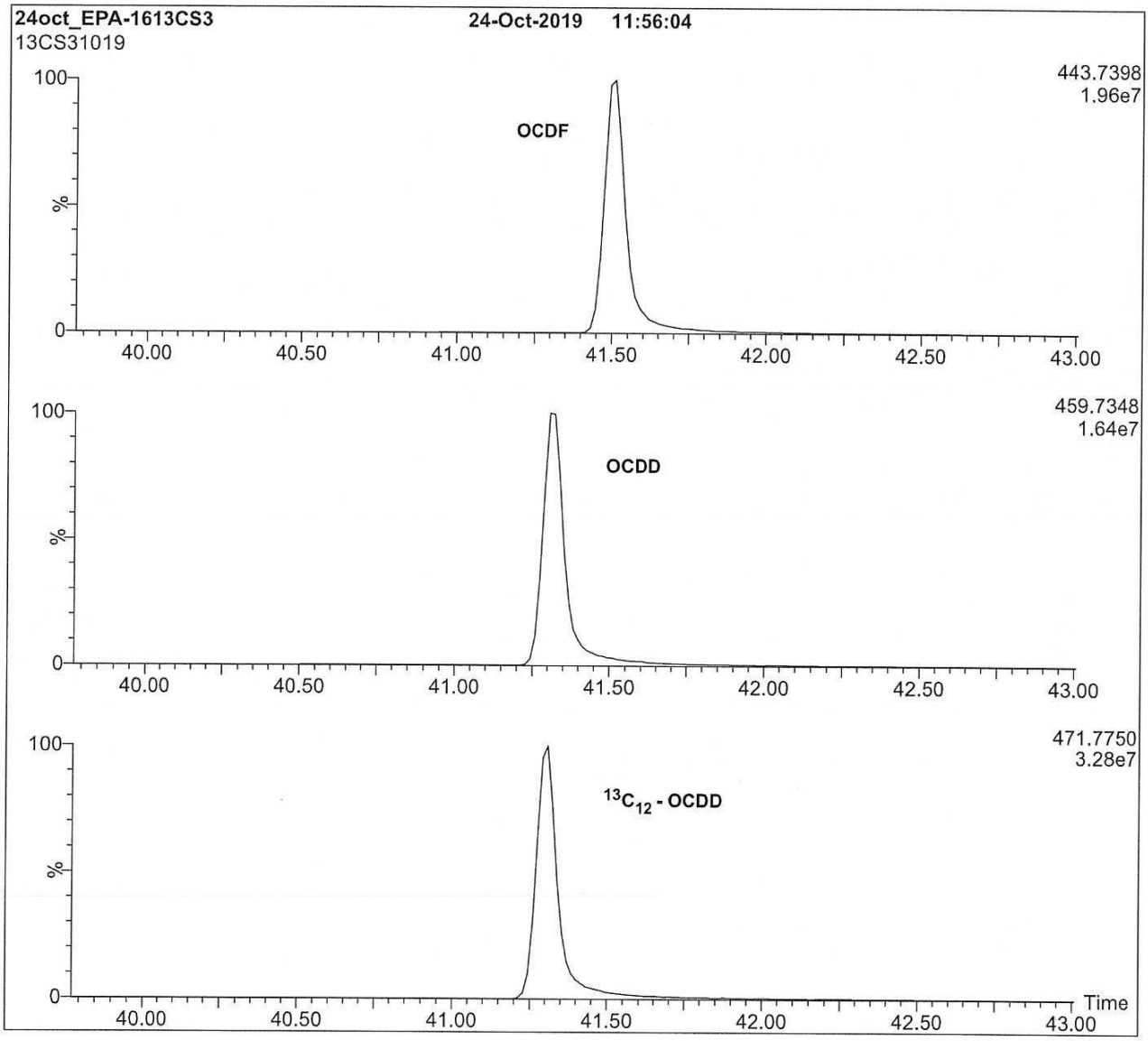


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)



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)
	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. 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)

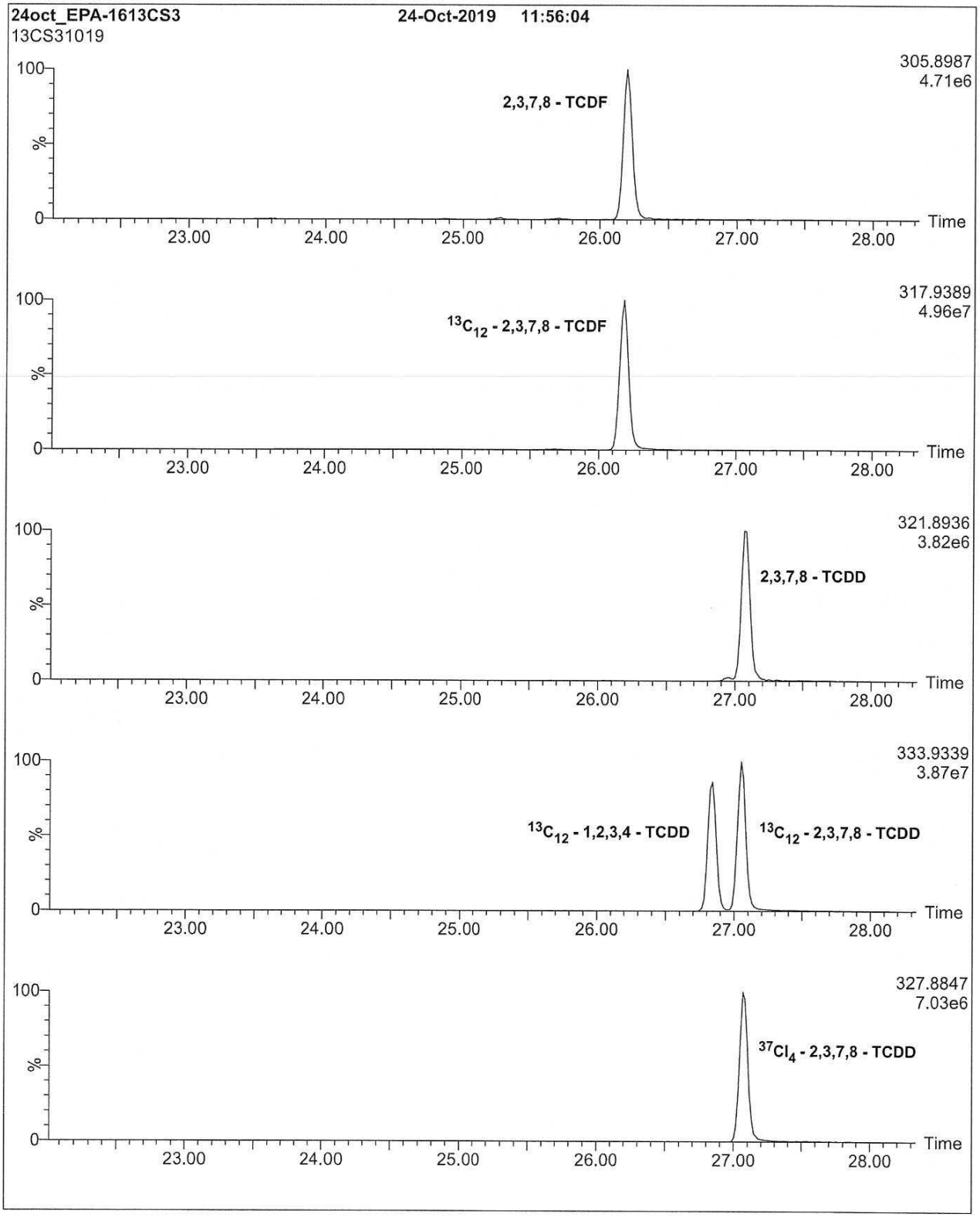


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

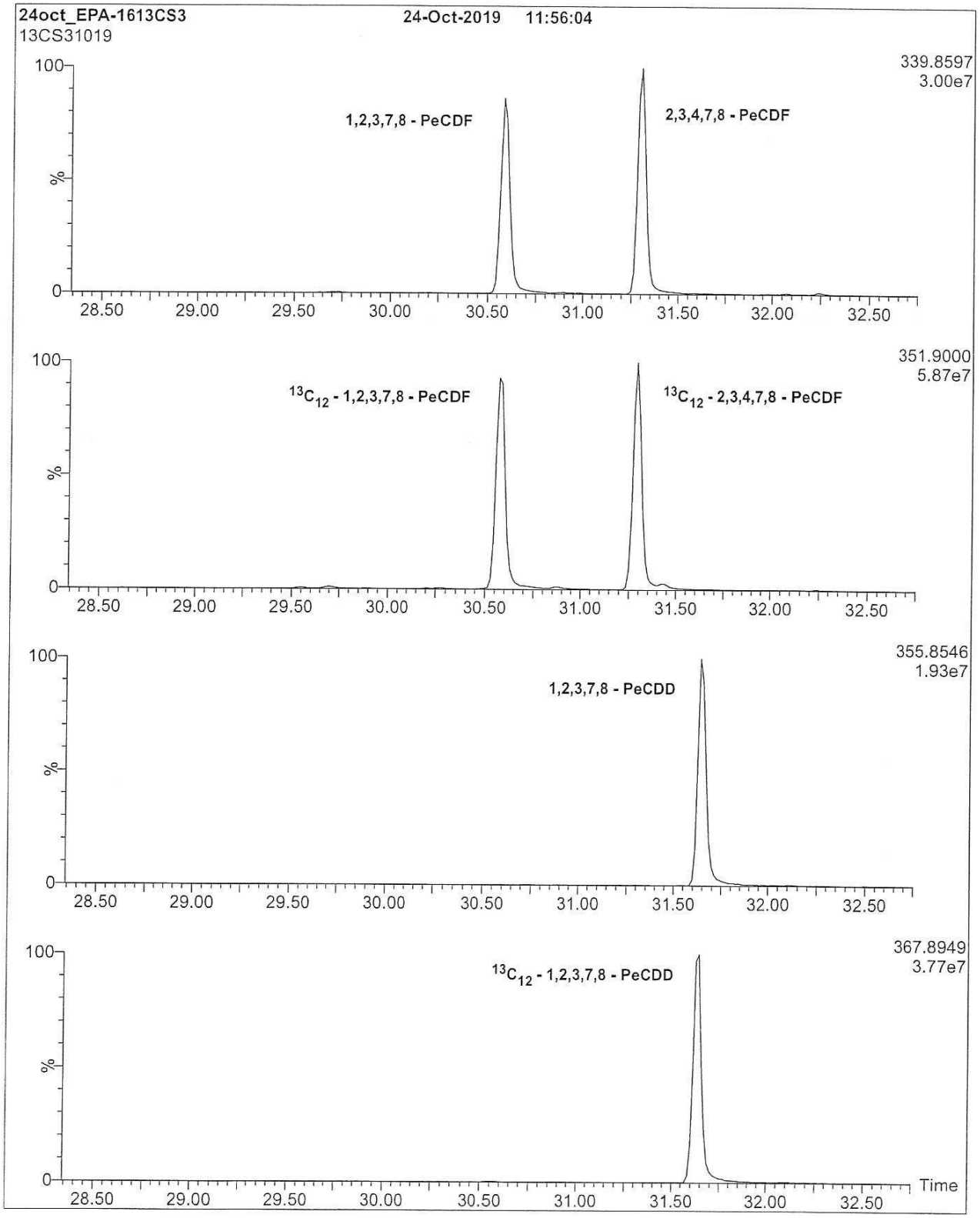


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

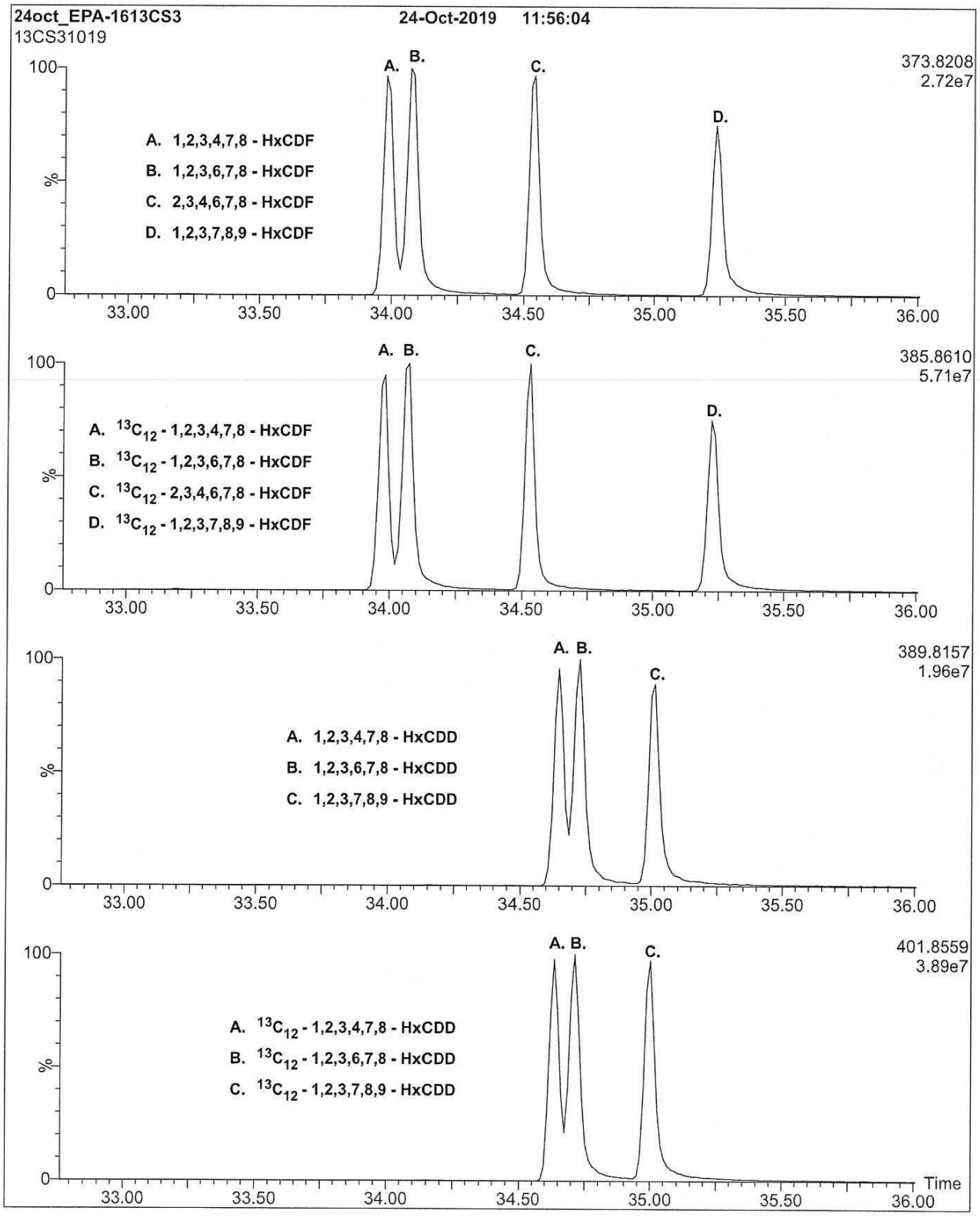


Figure 1: EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)

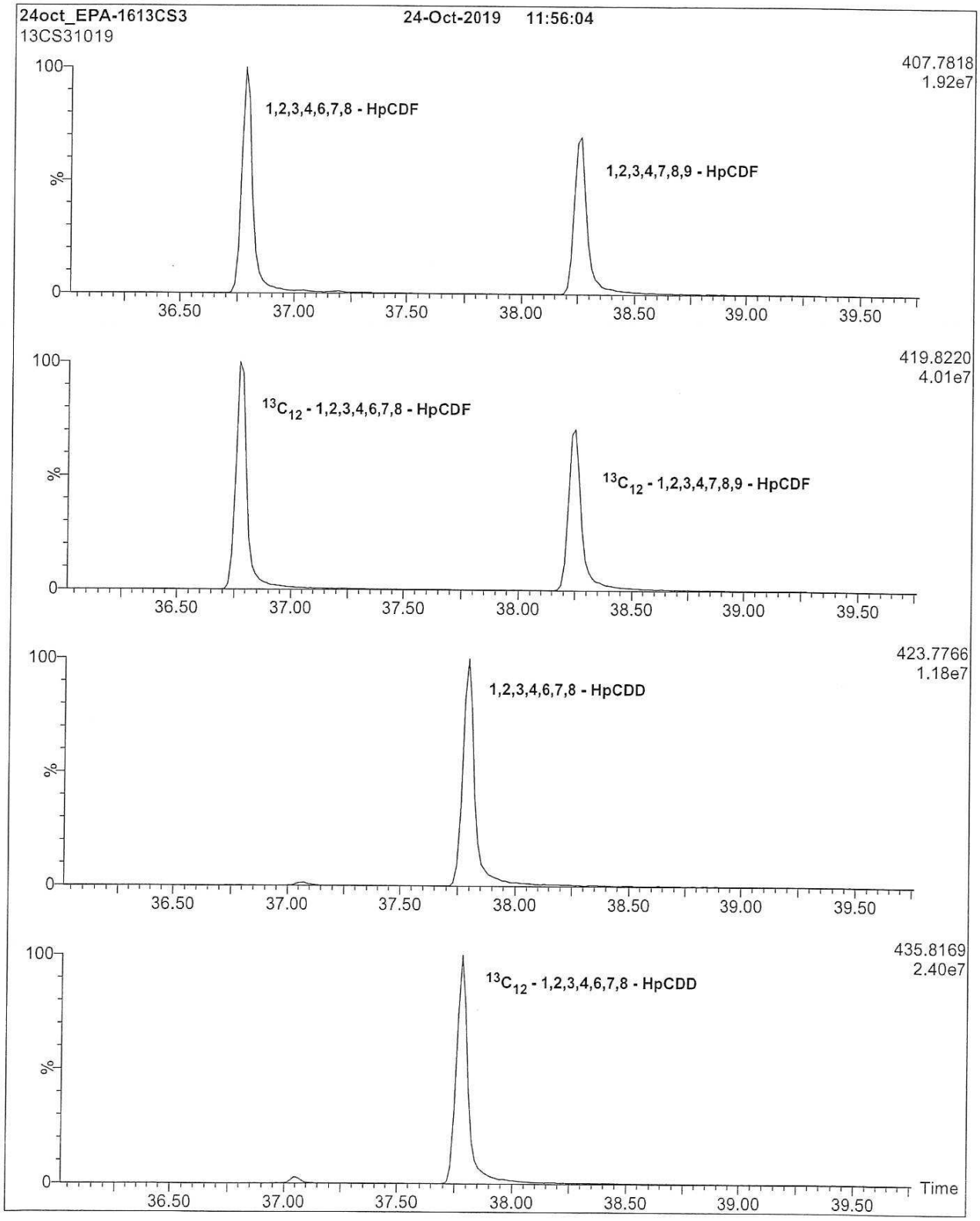
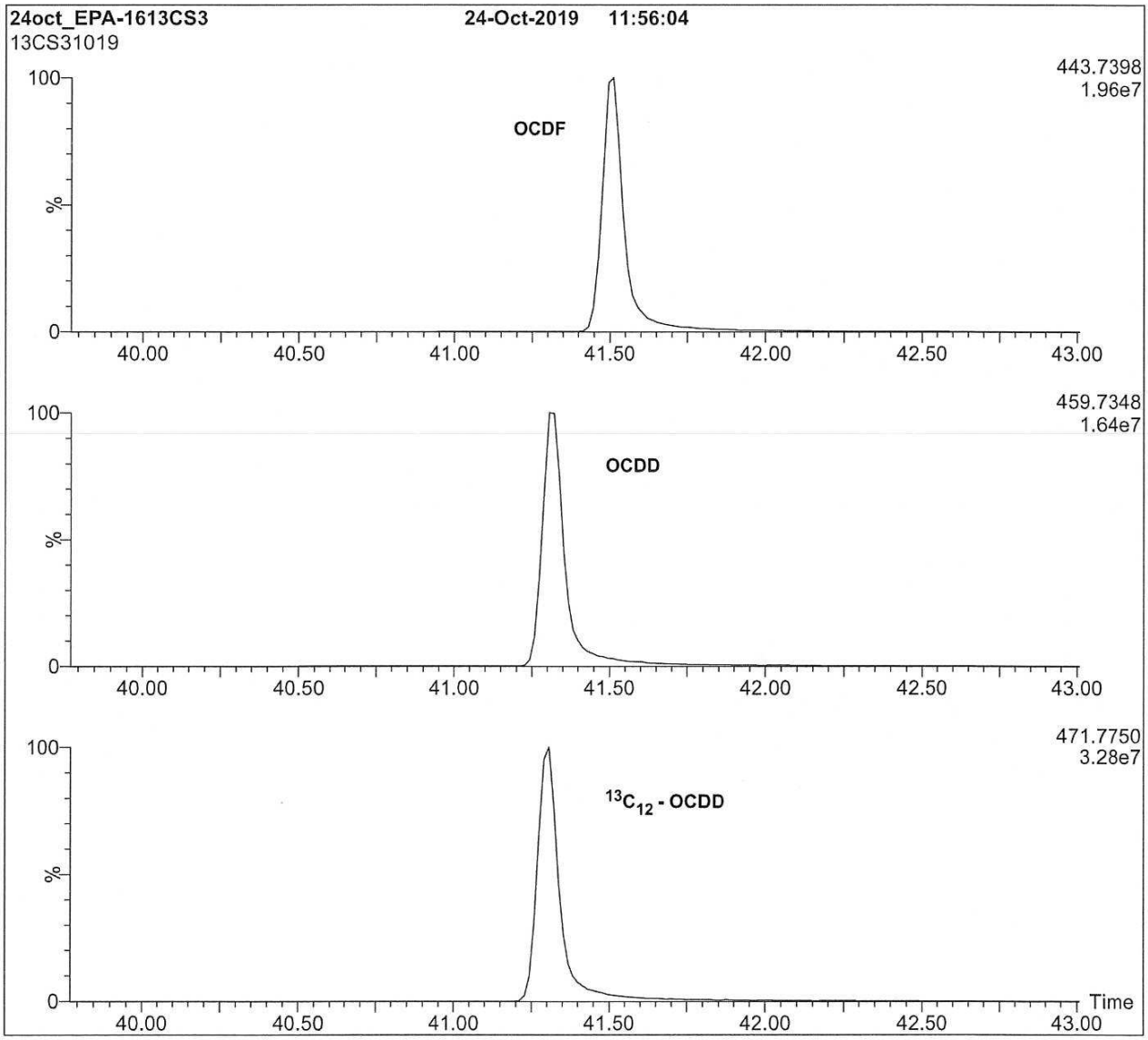


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



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

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)	11/19/2020
EXPIRY DATE: (mm/dd/yyyy)	11/19/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

I 11575

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:** 11/20/2020 (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:

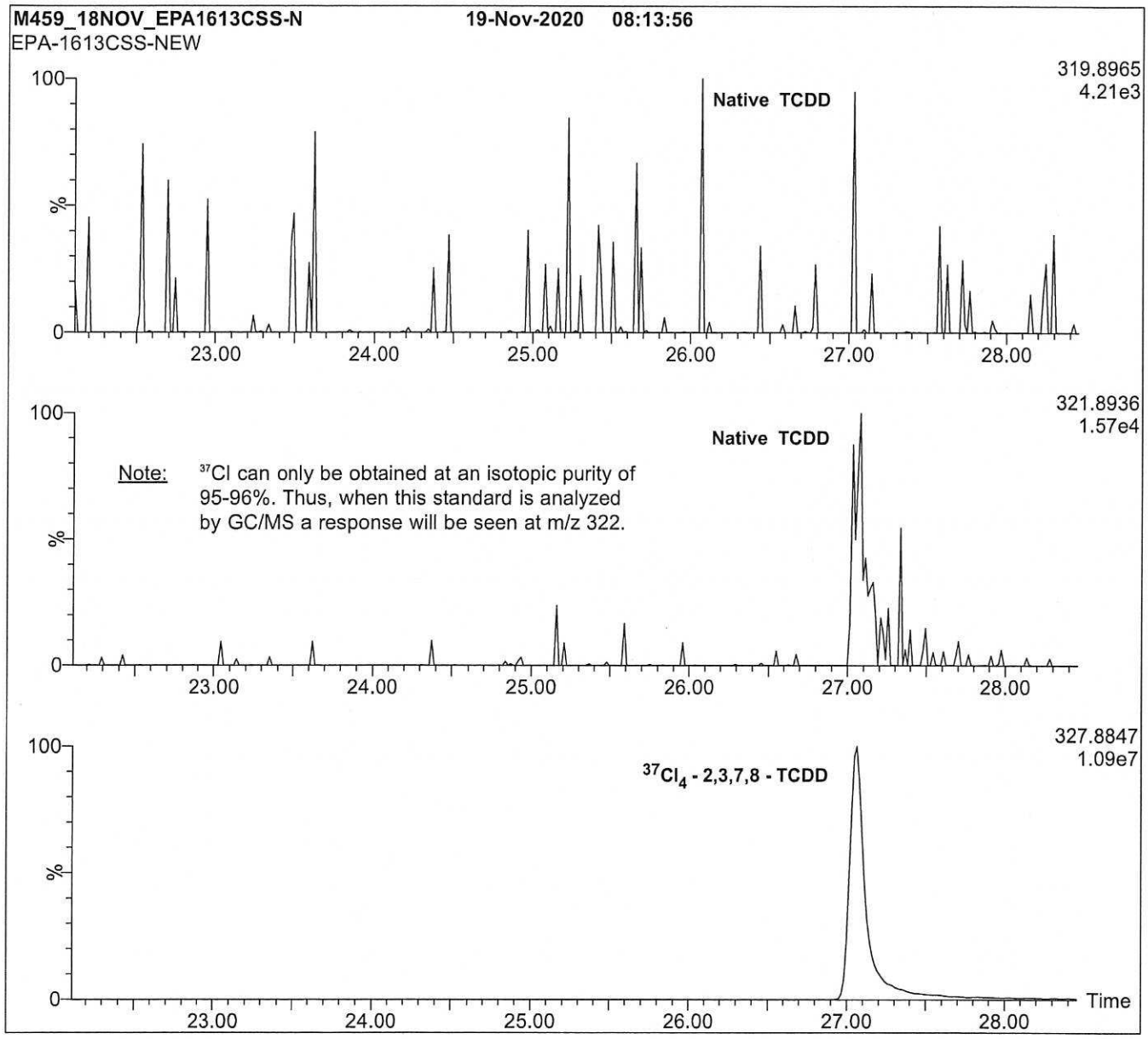
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1020
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/16/2020
LAST TESTED: (mm/dd/yyyy)	10/21/2020
EXPIRY DATE: (mm/dd/yyyy)	10/21/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

I 11 576

DESCRIPTION:

EPA-1613LCS is a solution/mixture of mass-labelled ($^{13}C_{12}$) chlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613LCS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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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-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613LCS; Components and Concentrations (ng/mL, ± 5% in nonane/3.2% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
Mass-Labelled PCDDs:			
2,3,7,8-Tetrachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro[$^{13}C_{12}$]dibenzo-*p*-dioxin	$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:			
2,3,7,8-Tetrachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro[$^{13}C_{12}$]dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100

Certified By: _____ **Date:** 11/09/2020 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)

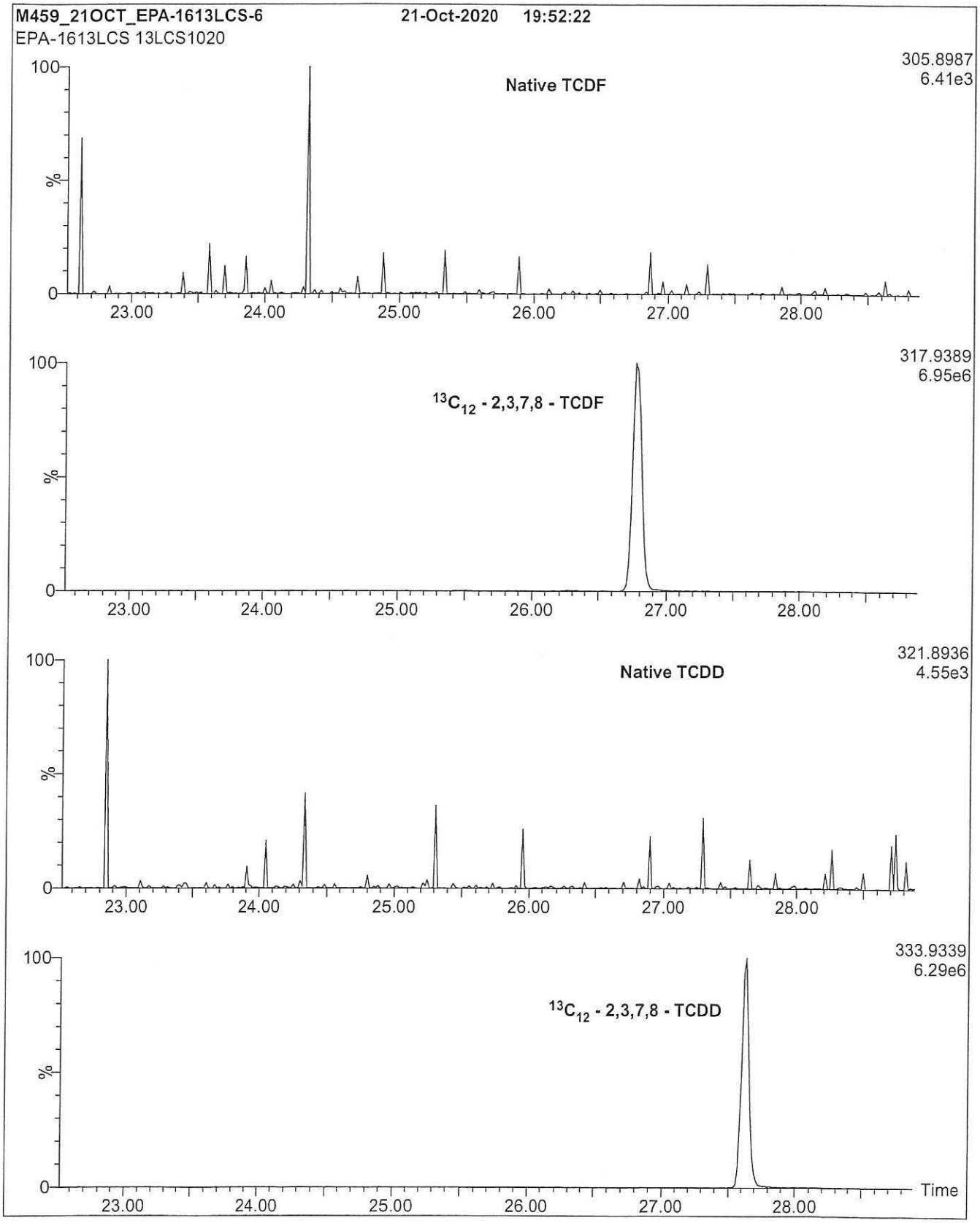


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

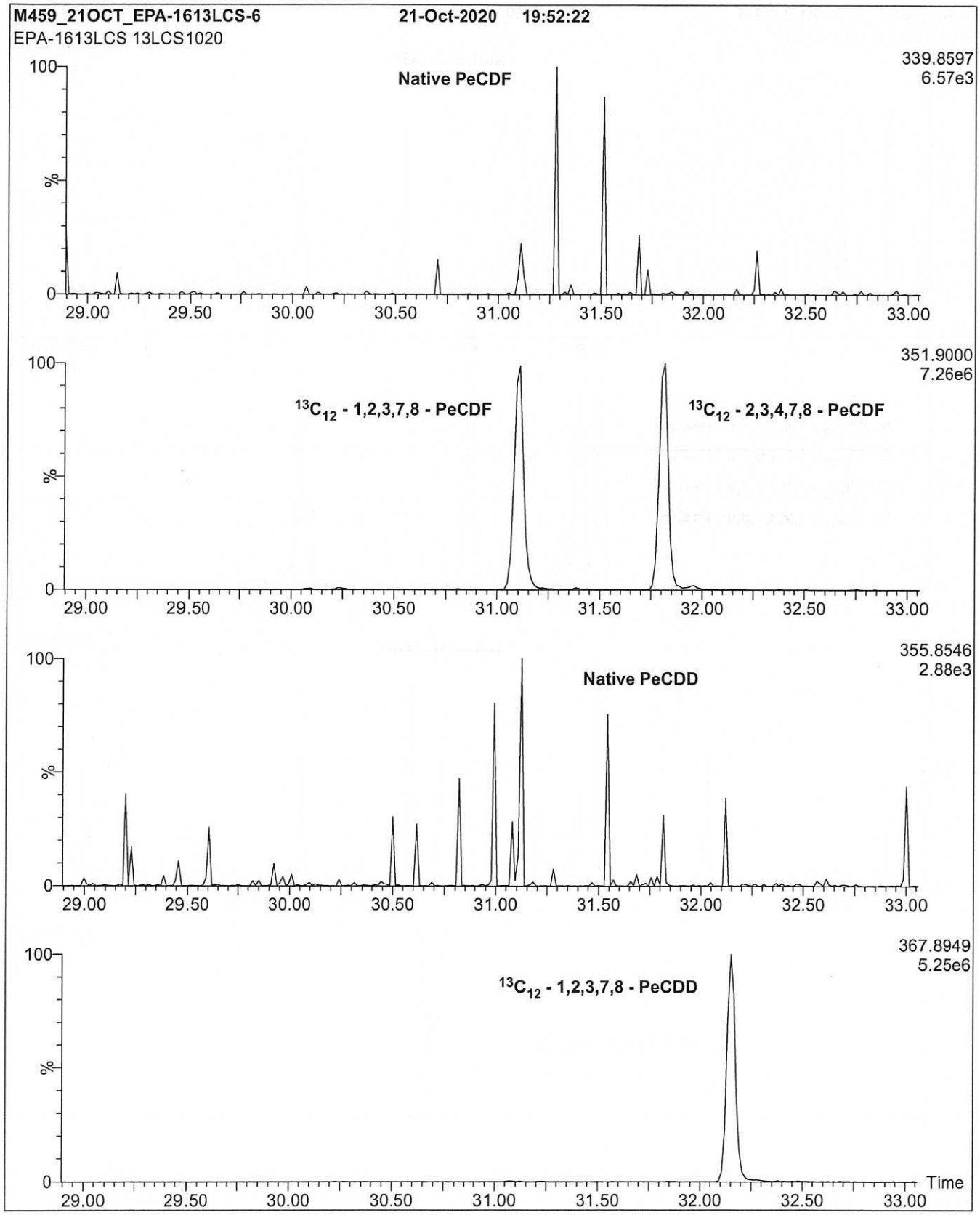


Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)

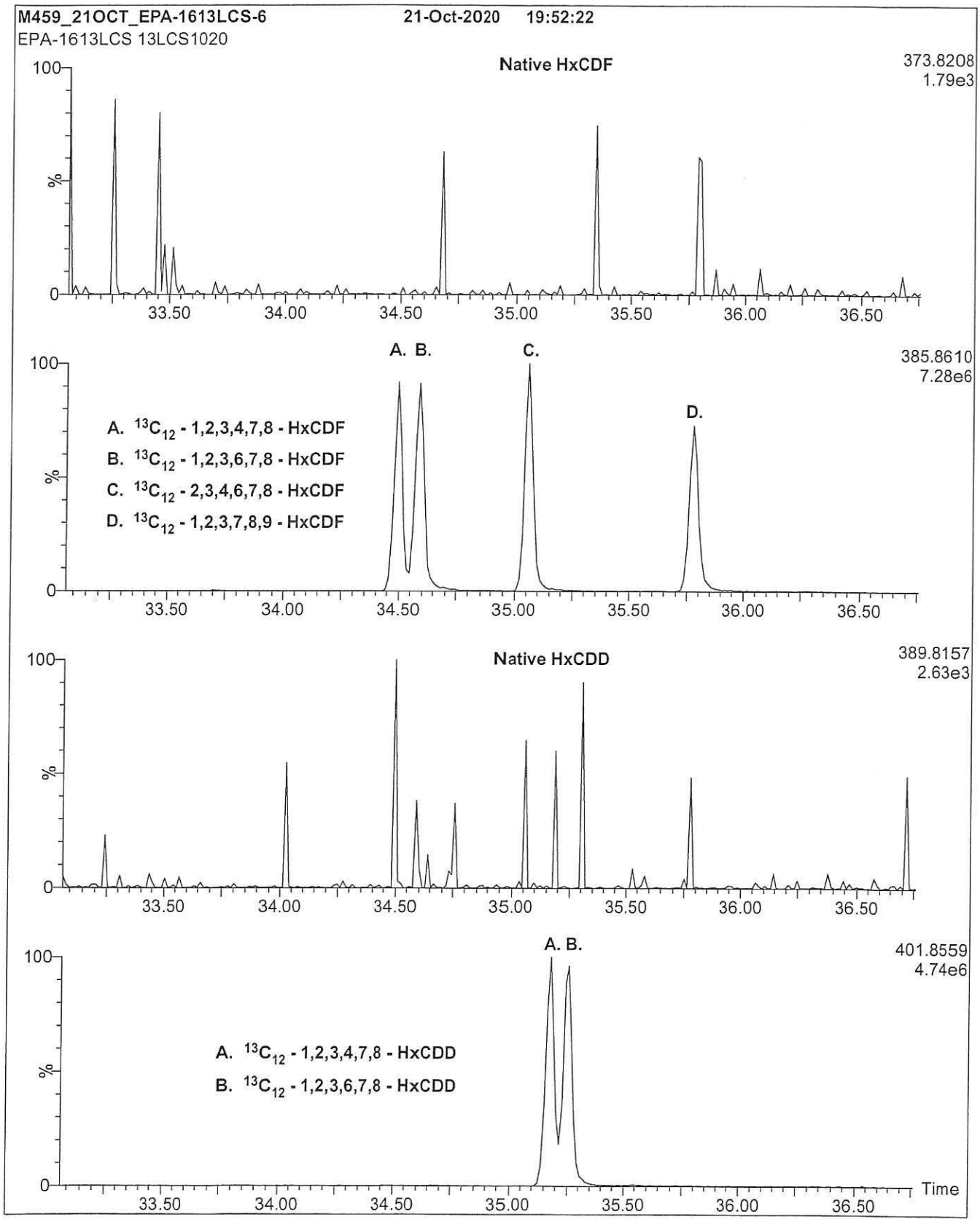


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

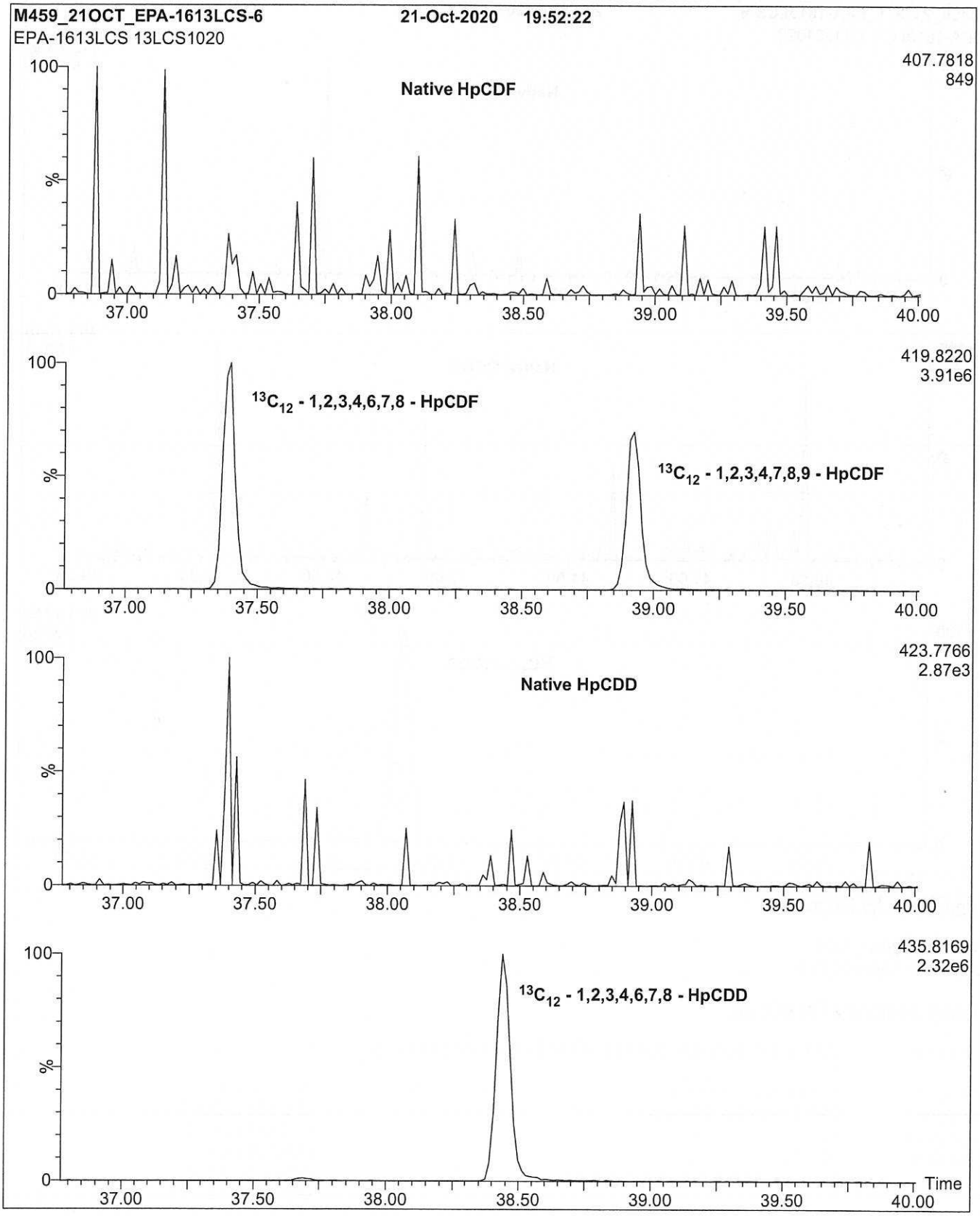
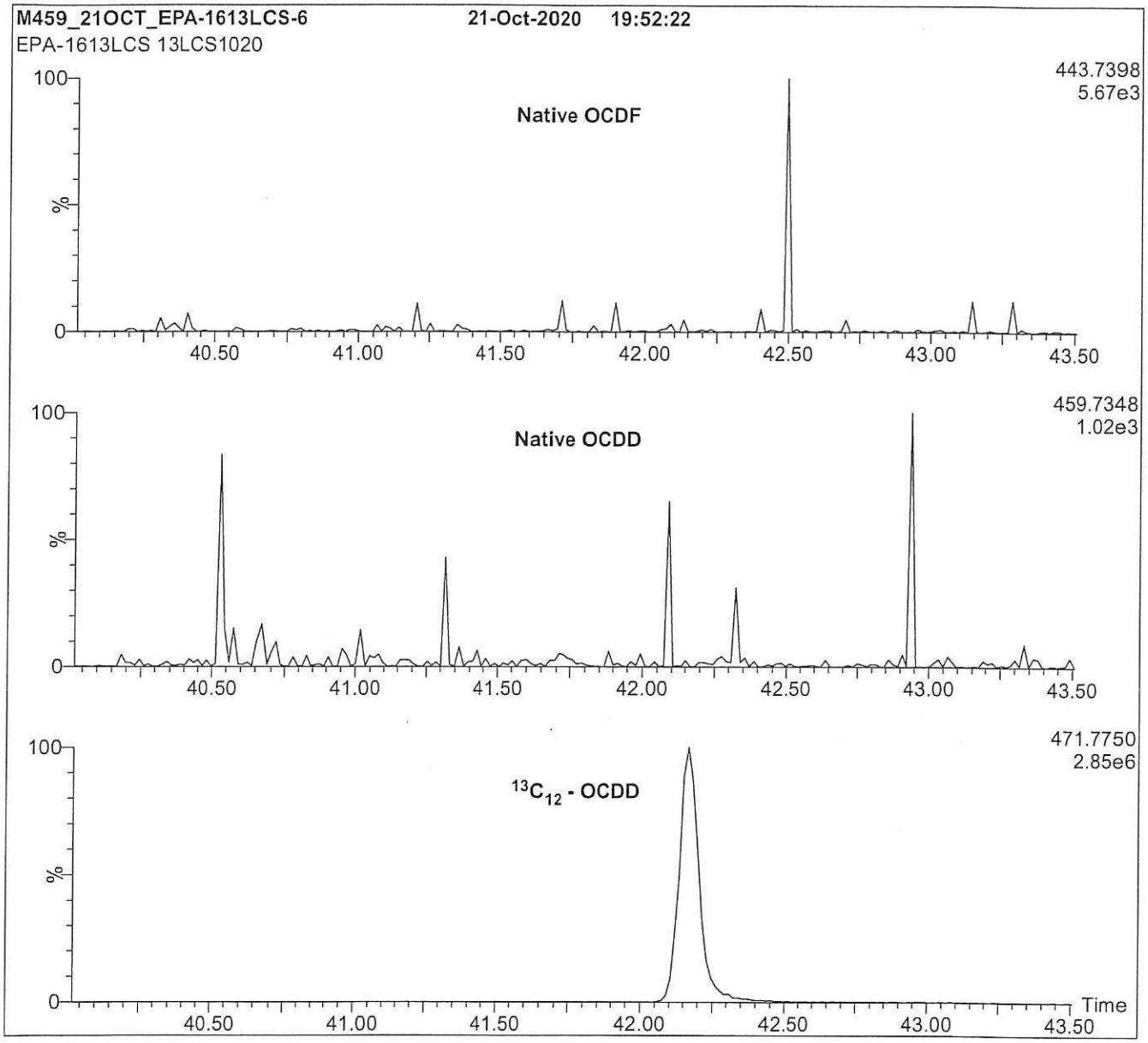


Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	300°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1020
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	12/02/2020
LAST TESTED: (mm/dd/yyyy)	12/10/2020
EXPIRY DATE: (mm/dd/yyyy)	12/10/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J001522

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

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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)

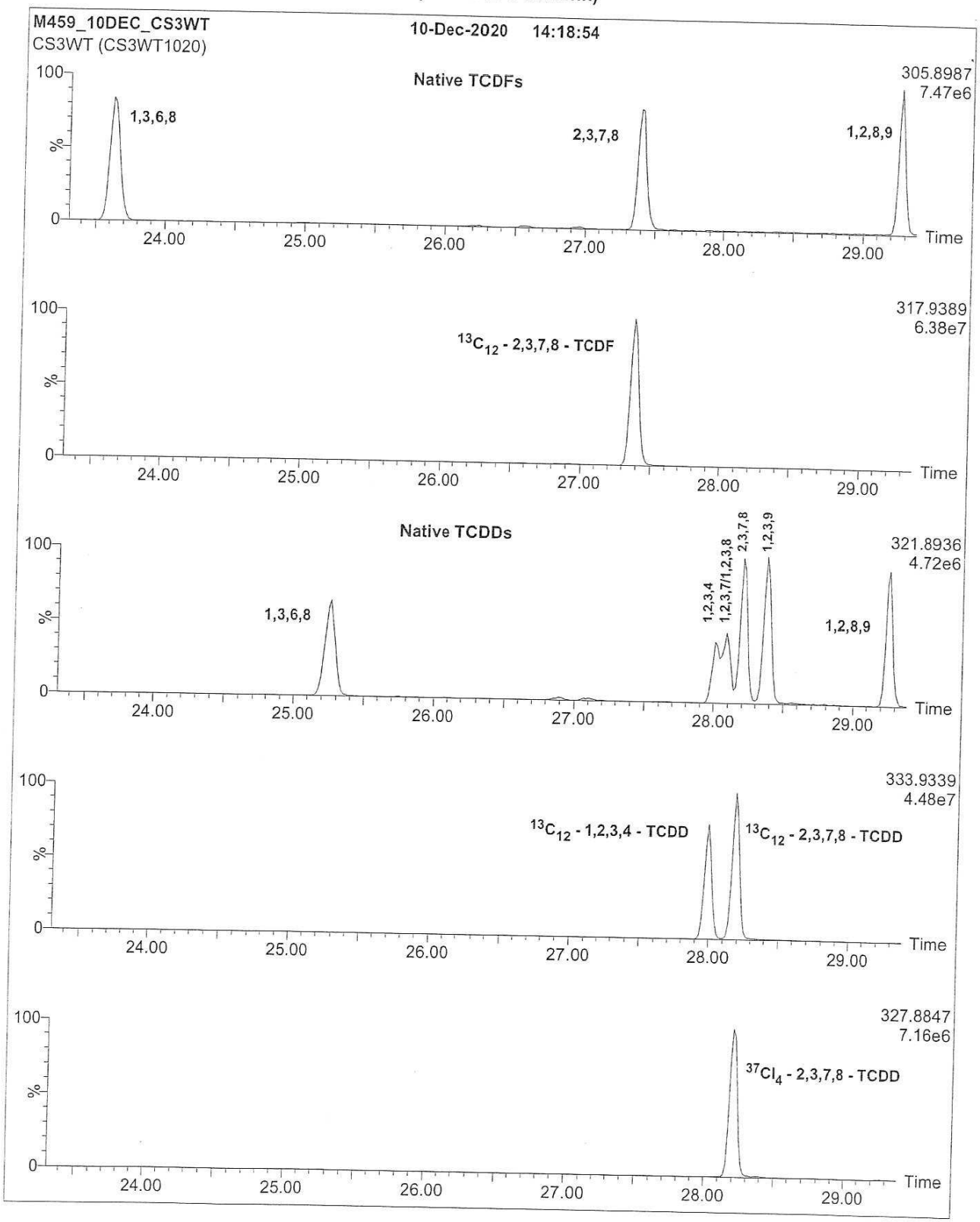


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

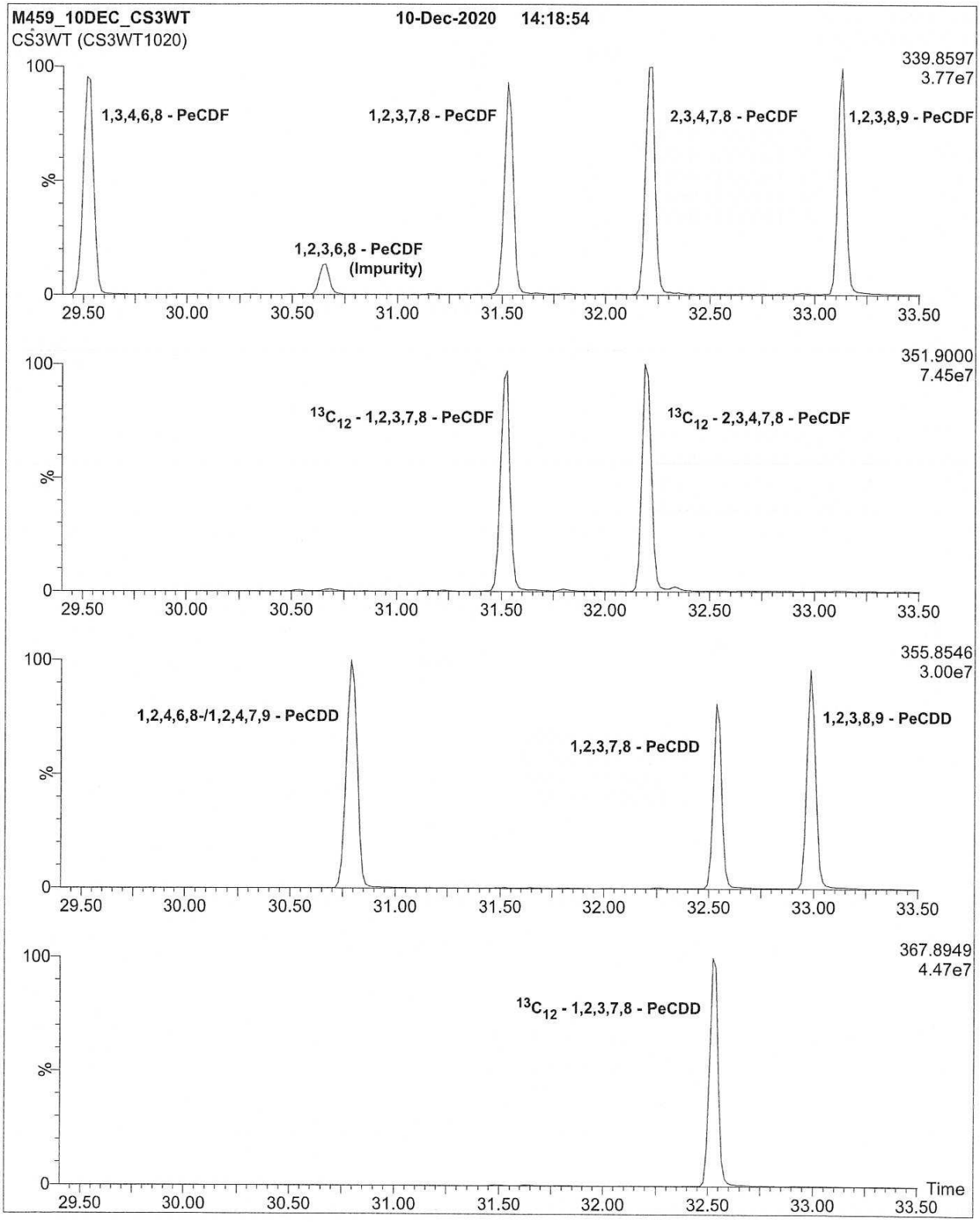


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)

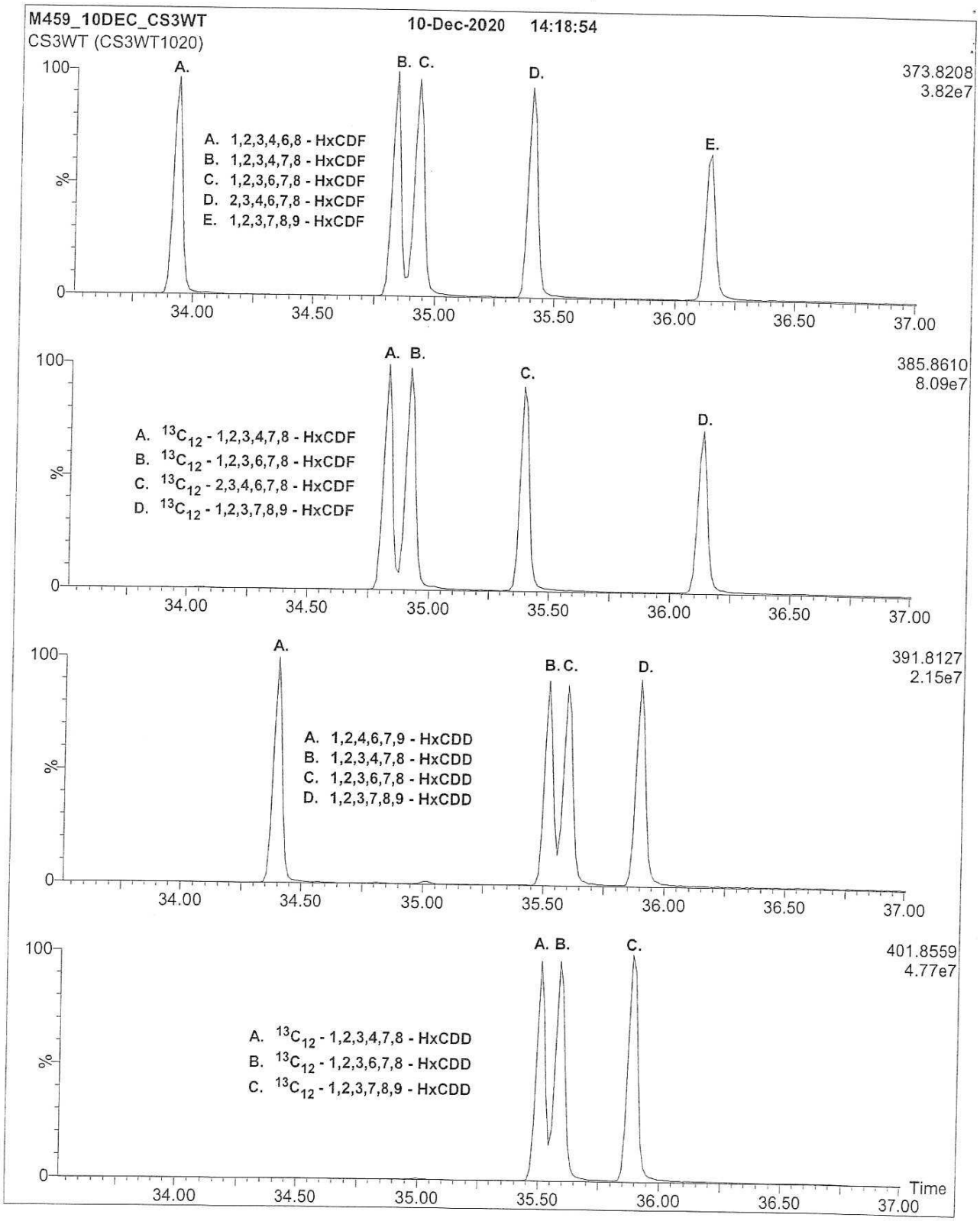


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

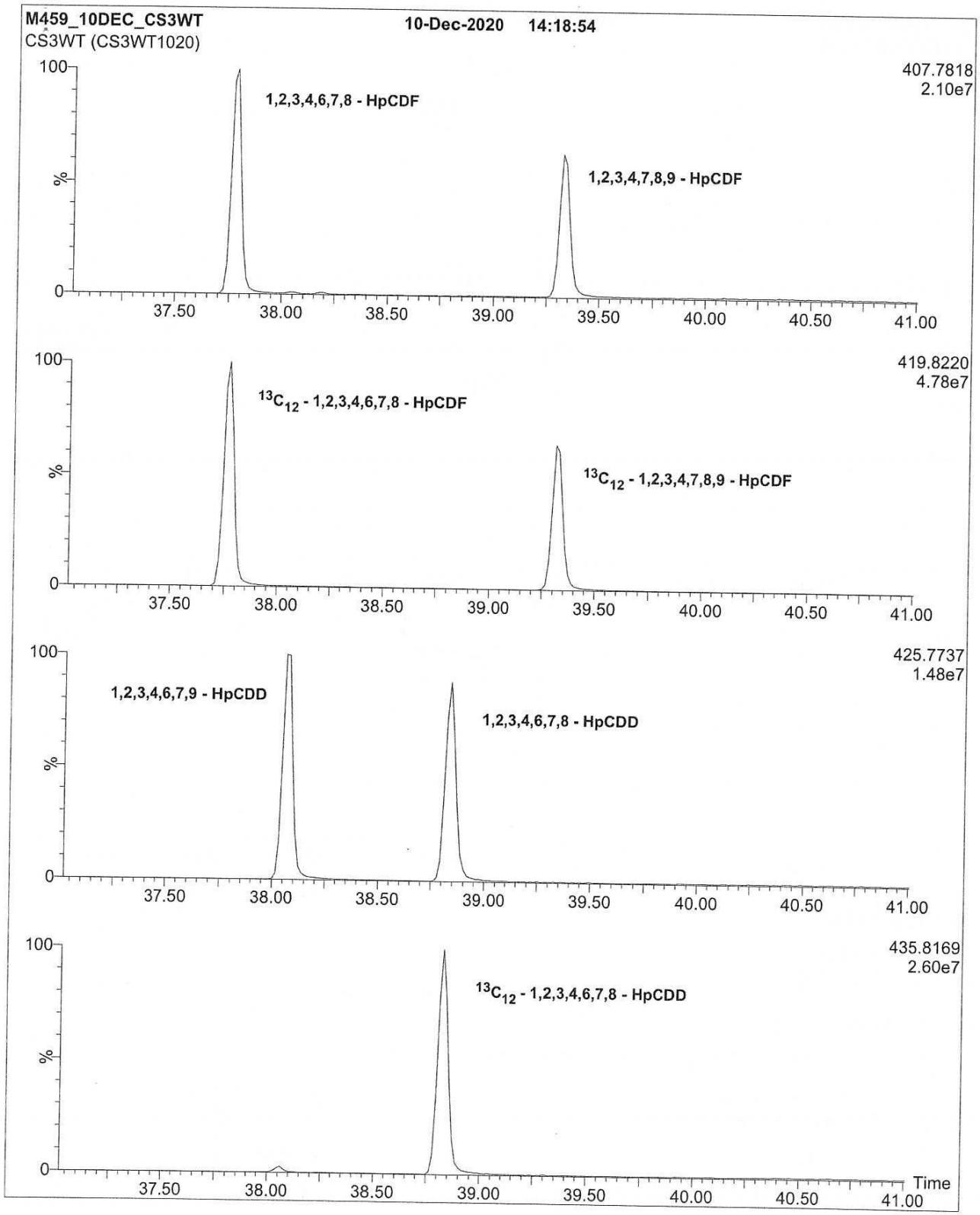
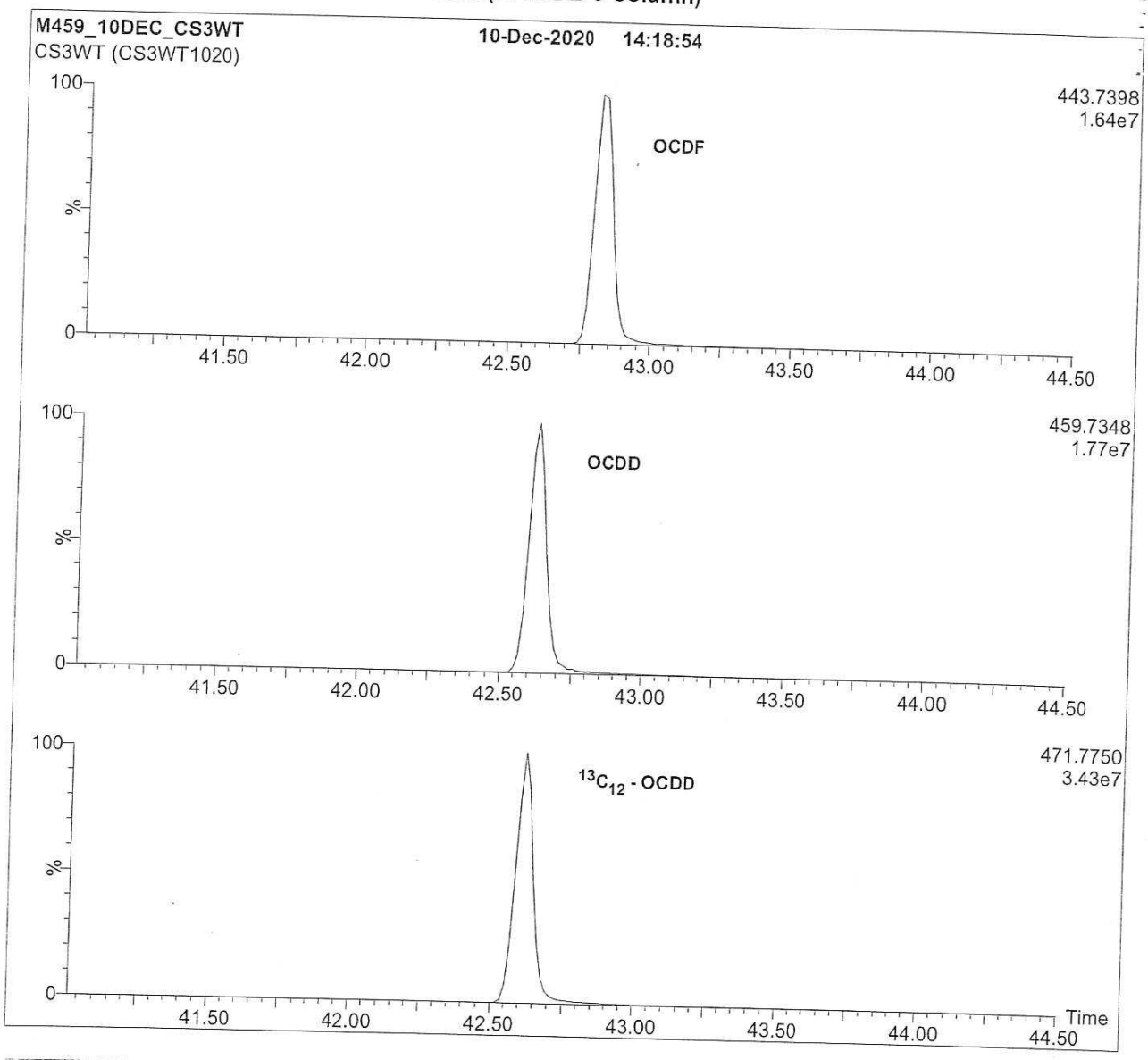


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)



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:

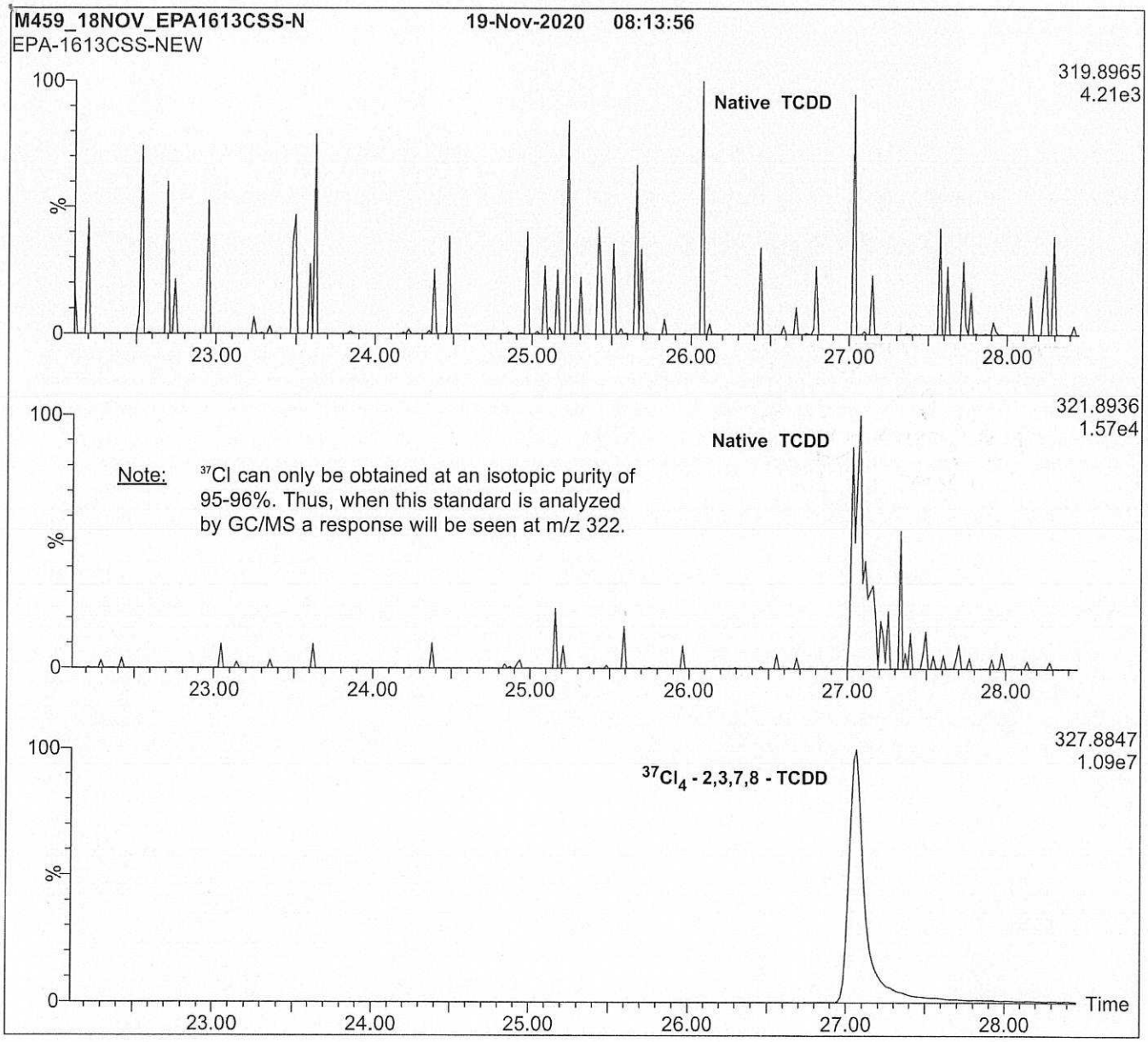
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

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.

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QUALITY MANAGEMENT:

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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)

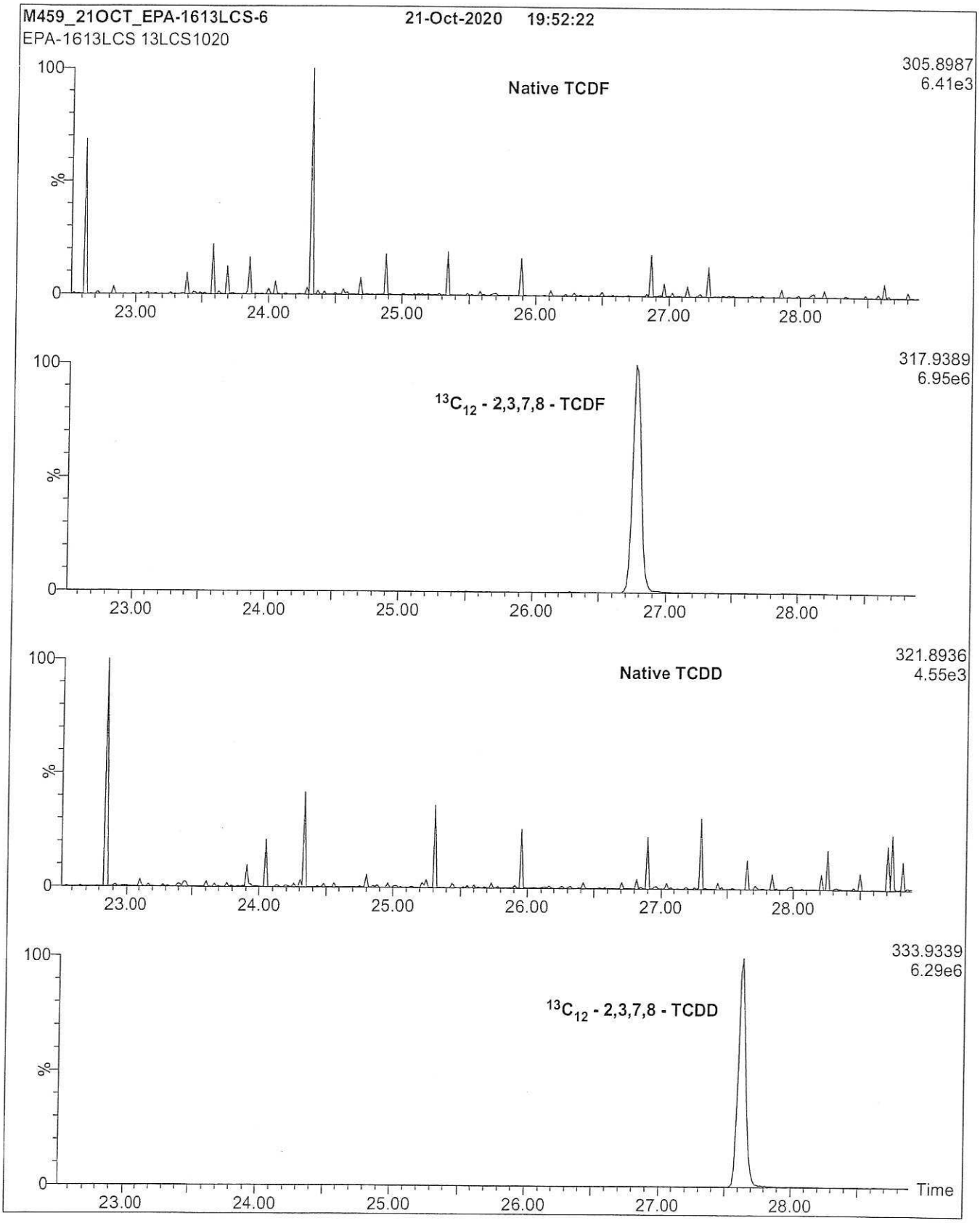


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

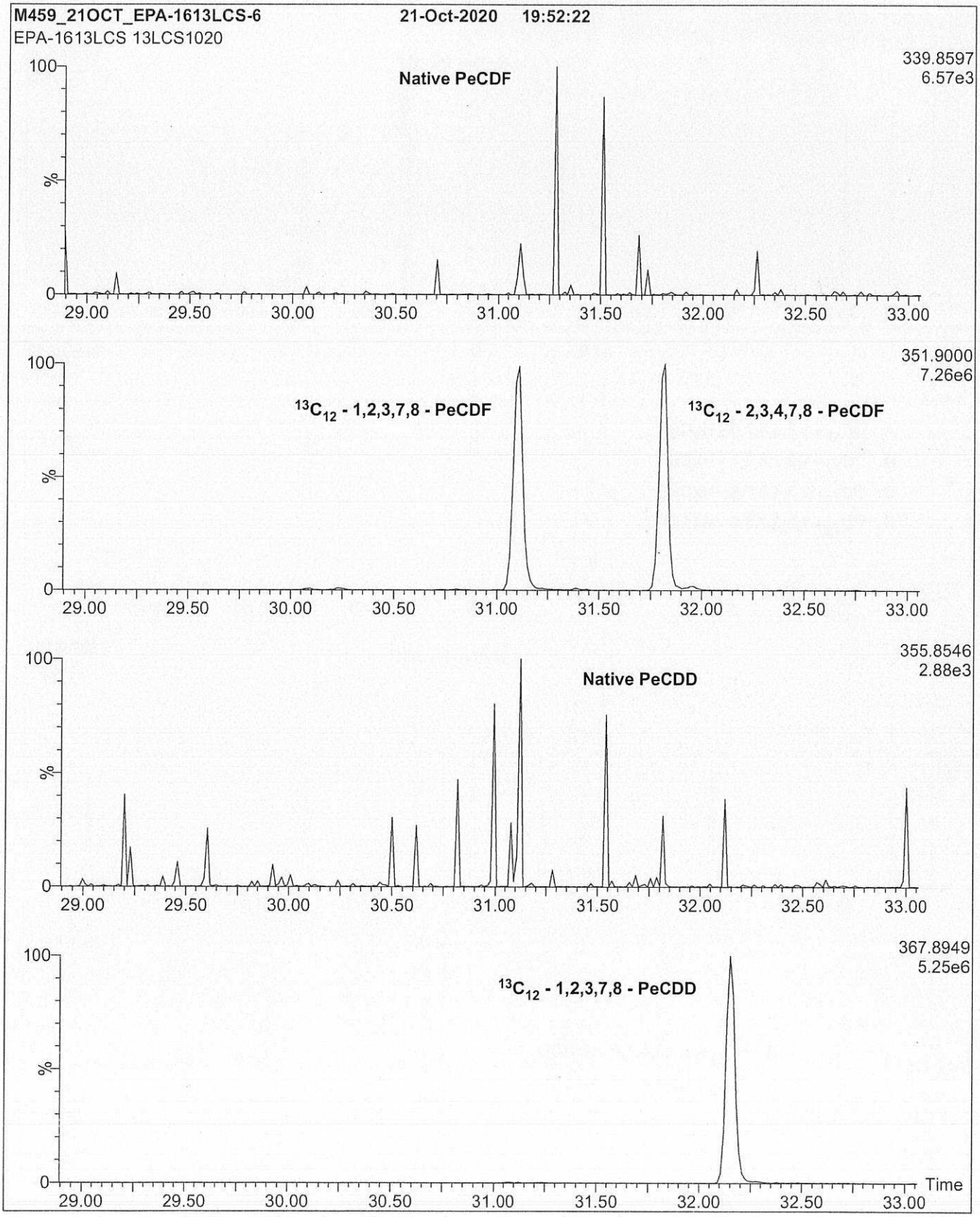


Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)

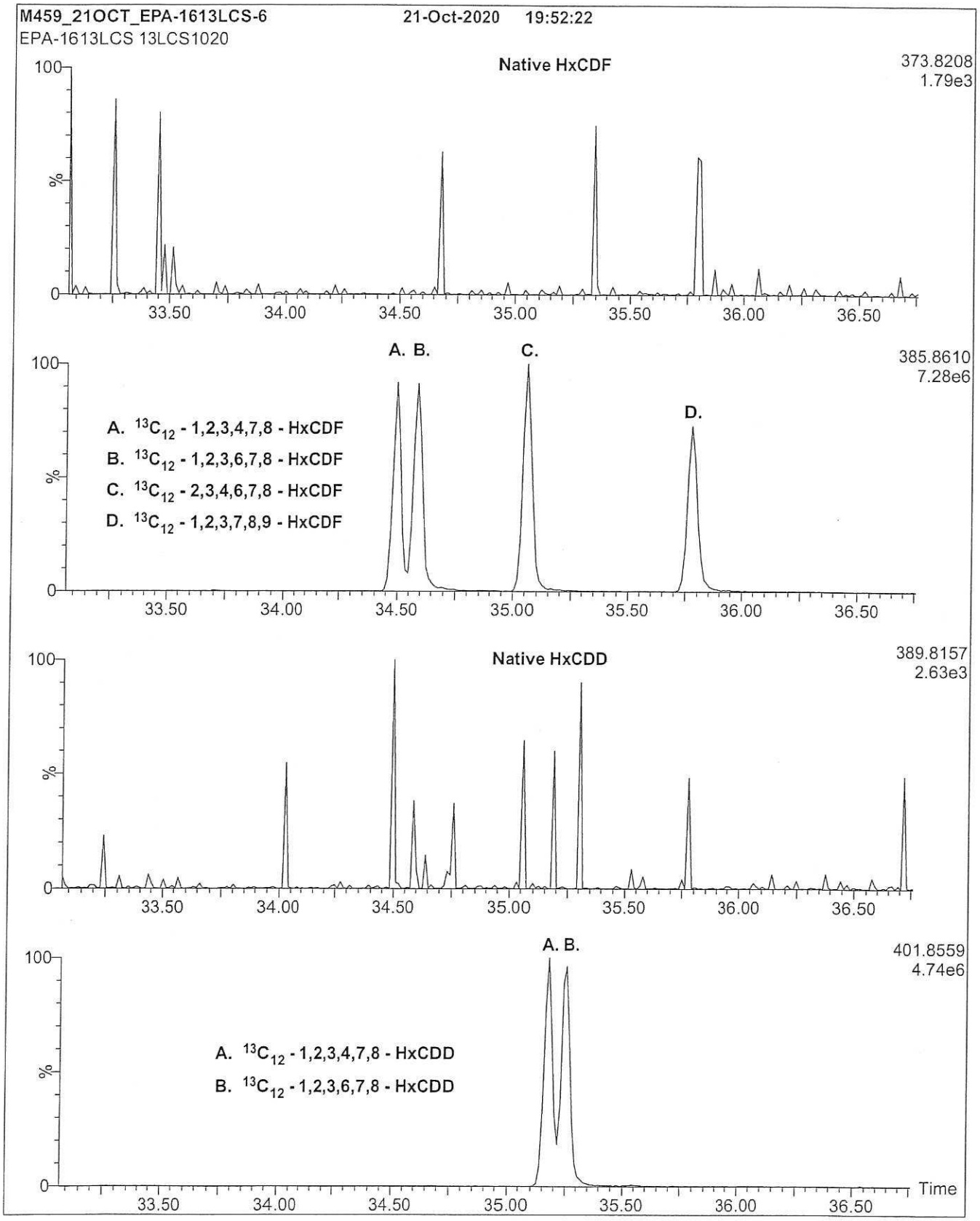


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

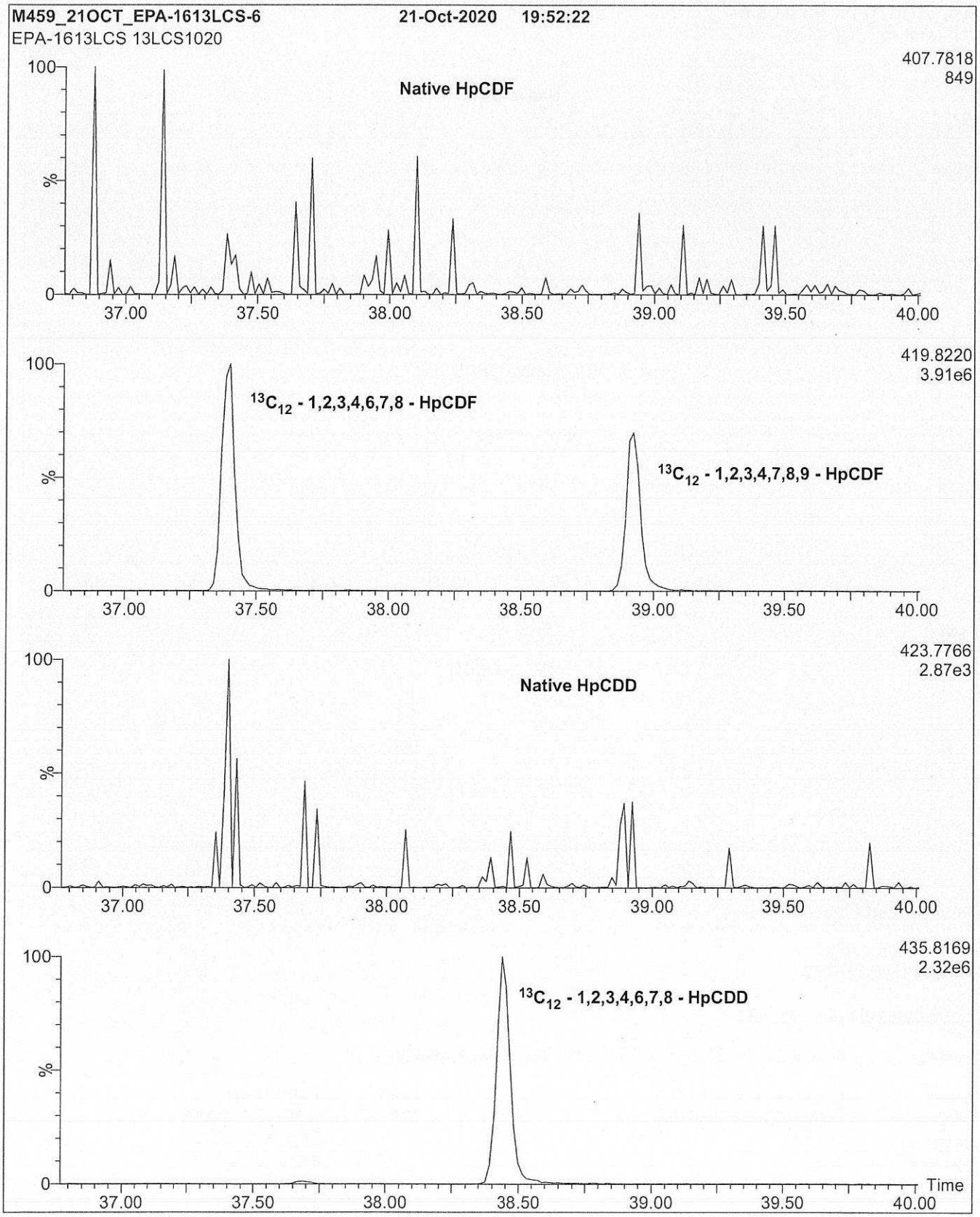
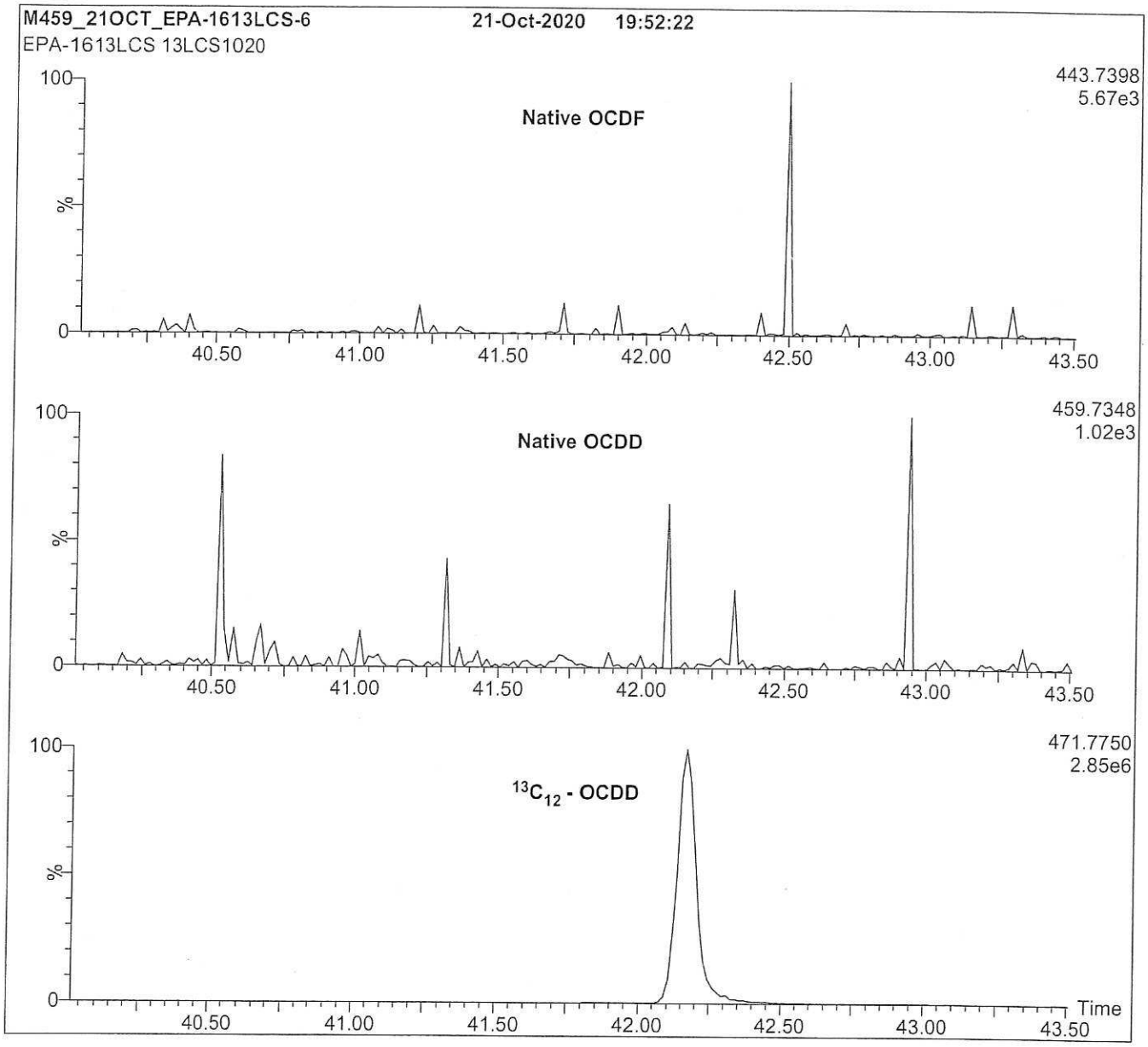


Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	300°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

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 Leite (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