SDG COVER PAGE

Lab Analytical Resources, Inc. **Contract No.:** EPW16004

Lab Code: ARI **Case No.:** 46488 **MA No.:** **SDG No:** PH1A01

SOW No: HRSM01.2

EPA Sample No.	Lab Sample ID	Analysis Method CDD/CDF	Analysis Method CBC
PH1A01	16K0015-01	X	
PH1A02	16K0015-02	X	
PH1A03	16K0015-03	X	
PH1A04	16K0015-04	X	
PH1A05	16K0015-05	X	
PH1A06	16K0015-06	X	

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 SDG Narrative. Release of the data contained in this hardcopy Complete SDG File and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: **Name:** Matthew Bates

Date: 11/18/2016 **Title** Project Manager

EPW:16004
SDG: PH1A01
Case: 46488

TECHLAW
COC #: 2016_SEP_Water & Sed_CLP
Lab Contact: Susan Dunnihoo
Lab Phone: 206-695-6211

CHAIN OF CUSTODY RECORD
Site #: A8M5
Lab: Analytical Resources, Inc.
Lab Address: 4611 S. 134th Place

No: 2016_SEP_Water & Sed_CLP
Cooler #:
Lab_Address2: Suite 100
Tukwila, WA 98168

Lab #	Sample #	Tag	Matrix	Sample Type	Analyses	Container	Collected	Sample Time	Sampler	Numb Cont
	H1A01	1001	Water	Field Sample	Dioxins/Furans	16 oz Jar	9/27/2016	11:05	MM	6
	H1A02	1002	Sediment	Field Sample	Dioxins/Furans	8 oz Jar	9/27/2016	11:44	KB	2
	H1A03	1003	Water	Field Sample	Dioxins/Furans	16 oz Jar	9/28/2016	09:57	IB	2
	H1A04	1004	Sediment	Field Sample	Dioxins/Furans	8 oz Jar	9/28/2016	10:07	IB	1
	H1A05	1005	Water	Field Sample	Dioxins/Furans	16 oz Jar	9/29/2016	08:49	IB	2
	H1A06	1006	Sediment	Field Sample	Dioxins/Furans	8 oz Jar	9/29/2016	09:11	NT	1

Special Instructions: 2016_SEP_Water & Sed_CLP

MS/MSD Water - H1A01
MS/MSD Sed - H1A02

Case #46488

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		10/31/16 1430		11-1-16 10:45	Good

FORM DC-1
SAMPLE LOG-IN SHEET

Lab Name **Analytical Resources, Inc.**	Page **1** of **2**
Received By (Print Name) **Justin Meyer**	Log-in Date **11/01/2016**
Received By (Signature) Justin Meyer	
Case Number **46488** SDG No. **PH1A01**	MA No.

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal Nos.	
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	777600579081 8832 AND JM
6. Sample Tags Sample Tag Numbers	Present/Absent* Listed/Not Listed on Chain of Custody Record
7. Sample Condition	Intact/Broken*/ Leaking
8. Shipping Container Temperature Bottle Indicator	Present/Absent
9. Shipping Container Temperature	**5.4 deg C**
10. Does information on Traffic Report/ Chain of Custody Records and Sample Tags agree?	Yes/No*
11. Date Received at Lab	**11/01/2016**
12. Time Received	**10:45**

	EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	PH1A01	Tag# 1001	16K0015-01A	Good
2	PH1A01	Tag# 1001	16K0015-01F	Good
3	PH1A01	Tag# 1001	16K0015-01E	Good
4	PH1A01	Tag# 1001	16K0015-01D	Good
5	PH1A01	Tag# 1001	16K0015-01C	Good
6	PH1A01	Tag# 1001	16K0015-01B	Good
7				
8				
9				
10				
11				
12				
13			JM	
14			11-1-16	
15				
16				
17				
18				
19				
20				
21				
22				

* Contact SMO and attach record of resolution.

Reviewed By	Logbook No.
Date	Logbook Page No.

FORM DC-1
SAMPLE LOG-IN SHEET

Lab Name **Analytical Resources, Inc.**	Page 2 of 2
Received By (Print Name) **Justin Meyer**	Log-in Date **11/01/2016**
Received By (Signature) Justin Meyer	
Case Number **46488** SDG No. **PH1A01**	MA No.

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal Nos.	
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	**777600579081** **AND**
6. Sample Tags Sample Tag Numbers	Present/Absent* Listed/Not Listed on Chain of Custody Record
7. Sample Condition	Intact/Broken*/ Leaking
8. Shipping Container Temperature Bottle Indicator	Present/Absent
9. Shipping Container Temperature	**2.9 deg C**
10. Does information on Traffic Report/ Chain of Custody Records and Sample Tags agree?	Yes/No*
11. Date Received at Lab	**11/01/2016**
12. Time Received	**10:45**

	EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	PH1A02	Tag# 1002	16K0015-02A	Good
2	PH1A02	Tag# 1002	16K0015-02B	Good
3	PH1A03	Tag# 1003	16K0015-03B	Good
4	PH1A03	Tag# 1003	16K0015-03A	Good
5	PH1A04	Tag# 1004	16K0015-04B	Good
6	PH1A04	Tag# 1004	16K0015-04A	Good
7	PH1A05	Tag# 1005	16K0015-05B	Good
8	PH1A05	Tag# 1005	16K0015-05A	Good
9	PH1A06	Tag# 1006	16K0015-06A	Good
10	PH1A06	Tag# 1006	16K0015-06B	Good
11				
12				
13				
14				
15			JM	
16			11-1-16	
17				
18				
19				
20				
21				
22				

* Contact SMO and attach record of resolution.

Reviewed By	Logbook No.
Date	Logbook Page No.

FORM DC-2
FULL HIGH RESOLUTION COMPLETE SDG FILE (CSF) INVENTORY SHEET

NAME Analytical Resources, Inc.

LAB CODE ARI

CONTRACT NO. EPW16004

CASE NO. 46488 SDG NO. PH1A01

MA NO. -

SOW NO. HRSM01.2

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.4)

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
1. SDG Cover Page	1	1	BC	
2. Traffic Report/Chain of Custody Record(s)	2	2	BC	
3. Sample Log-In Sheet (DC-1)	3	4	BC	
4. CSF Inventory Sheet (DC-2)	5	8	BC	
5. SDG Narrative	9	23	BC	
High Resolution Analysis				
CDD/CDF Data				
For Each Sample:				
Sample Data including Blank and LCS/LCSD				
6. High Resolution Analysis Data Sheet (Form 1A-HR)				
7. CDD/CDF Toxic Equivalent Summary (Form 1B-HR)				
8. Total Homologue Data Summary (Form 1D-HR)				
9. Labeled Compound Recovery (Form 2-HR)	24	395	BC	
10. Selected Ion Current Profile (SICP)				
11. Chromatogram				
12. Quantitation Reports and Area Summaries				
13. Forms and Data for Secondary or Confirmation Analysis (if required)				
Quality Control Data	NA	NA	BC	
14. Laboratory Control Sample Percent Recovery and Laboratory Control Sample/Laboratory Control Sample/Laboratory Control Sample Duplicate Relative Percent Difference Data Summary (Form 3A-HR and Form 3B-HR)	396	404	BC	
15. Method Blank Summary (Form 4-HR)	405	407	BC	
16. Instrument Performance Check Window Defining Mix (WDM) Summary (Form 5A-HR)	408	416	BC	

FORM DC-2
FULL HIGH RESOLUTION COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs. FROM	PAGE NOs. TO	CHECK LAB	CHECK REGION
17. Instrument Performance Check CDD/CDF Chromatographic Resolution Summary (Form 5B-HR)	417	425	BC	
Calibration Data				
18. Initial Calibration Data Summary (Form 6A-HR)				
19. Ion Abundance Ration Initial Calibration Data Summary (Form 6B-HR)	426	539	BC	
20. PFK Tune Data				
21. SICP and complete data system reports and area summaries				
22. Relative Response/Relative Response Factor Continuing Calibration Summary (Form 7A-HR)	540	720	BC	
23. Relative Retention Time Continuing Calibration Summary (Form 7B-HR)				
24. Raw Data for All Continuing Calibration Standards				
CBC Data				
For Each Sample:				
Sample Data including Blank and LCS/LCSD				
25. High Resolution Analysis Data Sheet (Form 1A-HR)				
26. CBC Toxic Equivalent Summary (Form 1C-HR)				
27. Total Homologue Data Summary (Form 1D-HR)				
28. Labeled Compound Recovery (Form 2-HR)				
29. Selected Ion Current Profile (SICP)				
30. Chromatogram				
31. Quantitation Reports and Area Summaries				
32. Forms and Data for Secondary or Confirmation Analysis (if required)				
Quality Control Data				
33. Laboratory Control Sample Percent Recovery and Laboratory Control Sample/Laboratory Control Sample Duplicate Relative Percent Difference Data Summary (Form 3A-HR and FORM 3B-HR)				MMB 11/18/16
34. Method Blank Summary (Form 4-HR)				
35. Instrument Performance Check Window Defining Mix (WDM) Summary (Form 5A-HR)				
36. Instrument Performance Check CBC Chromatographic Resolution Summary (Form 5C-HR)				

FORM DC-2
FULL HIGH RESOLUTION COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs. FROM	TO	CHECK LAB	REGION
Calibration Data				
37. Initial Calibration Data Summary (Form 6A-HR)				
38. Ion Abundance Ration Initial Calibration Data Summary (Form 6B-HR)				
39. Individual Congener Initial Calibration Data Summary (Form 6C-HR)				
40. PFK Tune Data				
41. SICP and complete data system reports and area summaries				
42. Relative Response/Relative Response Factor Continuing Calibration Summary (Form 7A-HR)				
43. Relative Retention Time Continuing Calibration Summary (Form 7B-HR)				
44. Raw Data for All Continuing Calibration Standards				
Miscellaneous Data				MDG 11/18/16
45. Sample preparation and analysis logbook pages screens, Mass lynx audit	721	778	BC	
46. Cleanup, Percent Solids Determinations Log, misc. information	779	790	BC	
Additional CERTS & STDS	791	846	BC	
47. EPA Shipping/Receiving Documents	862	862	BC	
Airbill (No. of Shipments 1)				
Sample Tags				
Sample Log-In Sheet (Lab)				
48. Misc. Shipping/Receiving Records (list all individual records)				
Communication Logs				
ISR, receipt records	847	950	BC	
49. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)	851	859	BC	
freezer log, ICOC				

FORM DC-2
FULL HIGH RESOLUTION COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs. FROM	TO	CHECK LAB	REGION
50. Other Records (describe or list)				
Communication Logs	860	861	BC	
email				
51. Comments:				

Completed by: (CLP Lab) [signature] (Signature) Matthew D Bates IT Mgr (Print Name & Title) Nov 18 2016 (Date)

Audited by: (EPA) _____ (Signature) _____ (Print Name & Title) _____ (Date)

SDG Narrative

Case: 46488
SDG: PH1A01
Contract EPW16004
ARI Workorder: 16K0015

Sample receipt

Three water and three solid samples were received November 1, 2016 under ARI Work order 16K0015, at cooler temperatures of 2.9 and 5.4ºC. For details of sample receipt, refer to the enclosed documentation Sample Log-In Sheets (Lab and DC-1).

No samples tags were received with the samples.

Samples were received starting with the letter "H" to designate Region VII. Following guidance from ASB, documented in attached communications, and to comply with the SOW, the letter "P" has been added to the front of each sample number. No modifications have been made to the TR/COC per ASB instructions.

Sample ID		ARI ID	Matrix
1	PH1A01	16K0015-01	Water
2	PH1A02	16K0015-02	Solid
3	PH1A03	16K0015-03	Water
4	PH1A04	16K0015-04	Solid
5	PH1A05	16K0015-05	Water
6	PH1A06	16K0015-06	Solid

Note the package has been arranged to best meet the order of the DC-2 form, and then bookmarked to match the hierarchical bookmark structure in Table 3 of HRSM01.2. The package is generated electronically, so any original documentation and sample tags have been submitted separately along with the package.

Per instructions from one of the Regions, this package has not been locked or certified.

Dioxin Sample Preparation

The three water samples and associated laboratory QC extracts were prepared in batch BEK0276 and BEK0277 starting November 10, 2016 following methods as detailed in

HRSM01.2 and ARI SOPs 3325S (waters), 3324S (solids) and 3326S (cleanups), using SPE, as samples were noted to contain particulates at greater than 1%. (Sep funnel < 1%)

The three solid samples and associated laboratory QC extracts were prepared in batch BEK0165 starting Nov 7, 2016 following methods as detailed in HRSM01.2 and ARI 3324S (solids) and 3326S (cleanups), using SDS. Samples PH1A02 and PH1A06 were noted to contain standing water.

Samples were noted to have no anomalies.

Dioxin Analysis

Sample extracts were analyzed in sequence SEK0153 analyzed November 9, 2016, sequence SEK0207 analyzed November 14, 2016, and sequence SEK0175 analyzed November 11, 2016.

Analysis was performed using an application specific column recently developed by Restek. The RTX-Dioxin2 column is 60 meters long, 0.25 mm ID, and 0.24 um thickness of a proprietary Crossbond® phase. The RTX-Dioxin2 column has a unique elution order and selectivity for the target compounds. The elution order for all 136 substituted dioxins and furans has been characterized by the vendor. Specific modification to the ion functions have been made to incorporate the use of this column.

Elution of 1289-TCDF occurs after 13468-PeCDF so there is some overlap between the tetra- and pentafuran ranges. Two ions have been added to the first acquisition function for the pentafurans and one ion for the heptachlorodiphenyl ether interferences. The function switch time has been set to occur about 0.3 minutes after the elution of 1289-TCDF. The column characterization literature supplied by Restek shows a separation of approximately 1 minute between 12468-PeCDF and 13678-PeCDF. The elution of 1289-TCDF is nearly identical to 12468-PeCDF, so the function switch has been set to occur between the 12468-PeCDF and 13678-PeCDF. Individual isomers of the 12468-PeCDF and 13678-PeCDF were purchased to check the windows. The data reduction method has been built with the pentafurans to be quantitated for both the first and second ion functions including the associated diphenyl ether interferences. This does not affect the dioxins as the first PeCDD (12468) elutes after the 13678-PeCDF.

The RTX-Dioxin2 column has unique isomer separation for the 2378-TCDF. A copy of the literature has been included here. A resolution test mixture was designed consisting of 2348-TCDF, 2378-TCDF and 3467-TCDF to evaluate the method required minimum valley between isomer of 25%.

The retention time windows specified by the method will not apply to this column; the column literature may be used as a guide to the elution order. ARI has compiled data establishing retention time windows which are included here.

PFK mass resolutions are included for both before and after the analytical run. The 'print' date and time indicate the date and time the mass resolution was generated. There is no run ID or sample ID or other identifying information associated with this data as the PFK is a constant bleed to the source.

Initial calibration data performed on May 10, 2016 was within requirements. ARI runs a sixth calibration standard named 'CSL' which is 5 times lower than the CS1 calibration standard, a modification from the SOW. TCDD and TCDF from the CSL are not included in the calibration due to variance of the compounds at that level.

The analyst noted all compounds met the <20% RSD.

In response to comment from one of the Regions, the "J" flag is applied to all hits below the low point of the curve (CSL) instead of below the CRQL, with the exception of TCDD and TCDF, which no longer include this standard in the curve. The TCDD and TCDF are flagged below the CS1 level.

Certifications for all standards and standard mixes are included in the 'Miscellaneous data'.

The opening and closing verification standards met all QC requirements. Closing standards per the modifications to the SOW include an ending CPS, mass resolution check and CCV.

The method blank DBLK07 showed positive response for 1234678-HpCDD below both the CRQL and the CSL and therefore "J" flagged. There was also positive response of OCDD, above the CSL and not "J"-flagged. Associated sample results have been flagged as required. The "B" flag has not been applied to total homologue groups.

The percent recoveries and RPD were within control limits for DLCS10 and DLCSD10, DLCS1A and DLCSD1A, DLCS07 and DLCSD07. Labeled surrogate and cleanup surrogate recoveries were within requirements of the SOW for all extracts.

Quantitation reports and EICPs are generated electronically directly to the LIMS system. In lieu of signing each EICP for which a manual integration has been performed, the analyst has included and signed the manual integration (Mass Lynx) audit trail which shows all manual integrations performed for this data set, to certify the work performed, and this page has been checked by the data reviewer. The "Last Altered" date on the quantitation reports and EICP should match the "Last Altered" date on the Mass Lynx audit trail to assure no further data manipulation has been performed.

On pages with sufficient resolution, the peak(s) manually integrated will show both the initial and final baseline, and hash marks, the hash marks indicating the RT window. The 'initial' baseline and hash marks will be dotted lines. An example and explanation is included in this narrative. All manual integrations for reported results are summarized here.

No manual integrations were performed for DLCS07 or DLCSD07.

For the method blank DBLK07 manual integration to correct baseline was performed for heptafurans, hexadioxins and pentadioxins. The SICP shows both the initial and corrected baselines when enough response is present.

For sample PHA102 manual integration to correct baseline was performed for tetrafurans, pentafurans, hexafurans. pentadioxins, and hexadioxins.

For sample PH1A04 manual integration to correct baseline was performed for hexafurans, pentadioxins, and hexadioxins.

For sample PH1A06 manual integration to correct baseline was performed for OCDF, tetrafurans, pentafurans, and hexadioxins.

No manual integrations were performed for DLCS1A or DCLSD1A.

For the method blank DBLK1A manual integration to correct baseline was performed for OCDD and Hpentadioxins. The SICP shows both the initial and corrected baselines when enough response is present.

For sample PH1A01 manual integration to correct baseline was performed for OCDD and hexafurans.

For sample PH1A03 manual integration to correct baseline was performed OCDD.

No manual integrations were performed for DLCS10 or DCLSD10.

For the method blank DBLK10 manual integration to correct baseline was performed for OCDD. The SICP shows both the initial and corrected baselines when enough response is present.

For sample PH1A05 manual integration to correct baseline was performed for OCDD and OCDF.

The MassLynx quantitation routine has an ion ratio adjustment for EMPC values, adjusting areas to the optimum peak ratio of the target compound. This adjustment has been disabled.

Example calculations are included in the following pages. These calculations include an example RR calculation for a native compound from a calibration standard, an example RRF calculation for a labeled compound from a calibration standard, a calculation of extract concentration, a final concentration in the matrix, an EMPC calculation, and an EDL calculation. The EMPC and EDL will not be reported if less than the current MDL.

Additional data qualifiers “X”, “Y” and “Z”, as well as the modified “J”, have been defined on the following page.

Internal Lab Sample Transfer Records and Tracking Sheets include the Dioxin Freezer Log and the electronic Internal Custody Record.

The Glassware Tracking summary records each item of glassware used for a given sample extraction and cleanup.

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 above. 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.

Matthew D Bates

Matthew Bates, Data Service, IT Manager

November 18 2016

Date

Case: 46488 **SDG:** PH1A01 **Contract:** EPW16004
ARI Job: 16K0015 **TO/Mod:** NA

EQ.2
RR calculation (native)

$$RR = \frac{(A_{1n} + A_{2n})(C_L)}{(A_{1L} + A_{2L})(C_n)}$$

Standard		CS3AA (CAL2-10-May-2016)	
Compound		2378-TCDD	
$A1_n + A2_n$	11129	$A1_l + A2_l$	1995566
C_n	0.5 ng/ml	C_l	100.0 ng/ml

Calculated RR	1.1154

Note that ARI is using six points for calibration *Response values show EDD sigfigs*

EQ.3
RR calculation (labeled)

$$RR = \frac{(A_{1s} + A_{2s})(C_{IS})}{(A_{1IS} + A_{2IS})(C_s)}$$

Standard		CS3AA (CAL2-10-May-2016)	
Compound		13C-2378-TCDD	
$A1_s + A2_s$	1995566	$A1_{IS} + A2_{IS}$	2279871
C_s	100.0 ng/ml	C_{IS}	100.0 ng/ml

Calculated RR	0.87530

EQ.10
C_{ex} concentration extract (ng/ml)

$$Cex = \frac{(A_{1s} + A_{2s})(CL)}{(A_{1L} + A_{2L})(\overline{RR})}$$

Sample		PH1A01	
Compound		123789-HxCDF	
$A1_s + A2_s$	503.153	$A1_l + A2_l$	785295.2
RR	1.101	C_l	100.0 ng/ml

Concentration (C_{ex})	0.058 ng/ml

EQ.13
aqueous concentration (pg/L)

$$Conc = \frac{C_{ex} \times V_{ex}}{V_s} \times 1000$$

Sample		PH1A01	
Compound		123789-HxCDF	
Cex	0.058 ng/ml	V_{ex}	0.020 mL
Volume	1000 ml	Vs	0.900 L

(may be a slight rounding difference)

Concentration in water	1.29 pg/L

Case: 46488 **SDG:** PH1A01 **Contract:** EPW16004
ARI Job: 16K0015 **TO/Mod:** NA

EMPC using EQ.10 and EQ.13

$$C_{ex} = \frac{(A1_s + A2_s)(CL)}{(A1_L + A2_L)(\overline{RR})}$$

Sample		PH1A01	
Compound		1234789-HpCDF	
$A1_s + A2_s$	503.153	$A1_l + A2_l$	785295.2
RR	1.101	C_l	100.0 ng/ml

Concentration (C_{ex})	0.058 ng/ml

Note: EQ 13 used for EMPC as
EQ 17 does not include the conversion factor

$$Conc = \frac{C_x \times V_{ex}}{W_s}$$

Sample		PH1A01	
Compound		1234789-HpCDF	
Cex	0.0580 ng/ml	V_{ex}	0.020 mL
Volume	1000 ml	Vs	0.900 L

(may be a slight rounding difference)

EMPC in Water	1.29 ng/ml

NOT Reported < MDL

EQ.14 Water EDL calculation

$$= \frac{3 \times Q_L \times (H_{x1} + H_{x2}) \times (D)}{V \times (H_{L1} + H_{L2}) \times (\overline{RR})}$$

Sample		DBLK1A	
Compound		123789-HxCDD	
QL	2000 pg	H_{X1}	4470
D	1.0	H_{X2}	3140
V	1.00 L	H_{L1}	7830000
RR	0.947	H_{L2}	6300000

(Hx1 = noise1)
(Hx2 = noise2)

EDL in water	3.412 pg/L

(may be a slight rounding difference)

EDL not reported - less than MDL

Case: 46488 **SDG:** PH1A01 **Contract:** EPW16004
ARI Job: 16K0015 **TO/Mod:** NA

EQ.2
RR calculation (native)

$$RR = \frac{(A_{1n} + A_{2n})(C_L)}{(A_{1L} + A_{2L})(C_n)}$$

Standard		CS3AA (CAL2-10-May-2016)	
Compound		2378-TCDD	
$A1_n + A2_n$	11129	$A1_l + A2_l$	1995566
C_n	0.5 ng/ml	C_l	100.0 ng/ml

Calculated RR	1.1154

Note that ARI is using six points for calibration *Response values show EDD sigfigs*

EQ.3
RR calculation (labeled)

$$RR = \frac{(A_{1s} + A_{2s})(C_{IS})}{(A_{1IS} + A_{2IS})(C_s)}$$

Standard		CS3AA (CAL2-10-May-2016)	
Compound		13C-2378-TCDD	
$A1_s + A2_s$	1995566	$A1_{IS} + A2_{IS}$	2279871
C_s	100.0 ng/ml	C_{IS}	100.0 ng/ml

Calculated RR	0.87530

EQ.10
C_{ex} concentration extract (ng/ml)

$$C_{ex} = \frac{(A_{1s} + A_{2s})(CL)}{(A_{1L} + A_{2L})(\overline{RR})}$$

Sample		PH1A02	
Compound		12378-PeCDD	
$A1_s + A2_s$	1625.385	$A1_l + A2_l$	1542576
RR	0.975	C_l	100.0 ng/ml

Concentration (C_{ex})	0.11 ng/kg

EQ.12
concentration in solid (ng/kg)

$$Conc = \frac{C_x \times V_{ex}}{W_s}$$

Sample		PH1A02	
Compound		12378-PeCDD	
Cex	0.11 ng/ml	V_{ex}	0.020 mL
Weight	10.00 g	Ws	0.01000 kg

(may be a slight rounding difference)

Concentration in solid	0.22 ng/kg

Case: 46488 **SDG:** PH1A01 **Contract:** EPW16004
ARI Job: 16K0015 **TO/Mod:** NA

EMPC using EQ.10 and EQ.12

$$C_{ex} = \frac{(A_{1s} + A_{2s})(CL)}{(A_{1L} + A_{2L})(\overline{RR})}$$

Sample		PH1A02	
Compound		123478-HxCDD	
$A1_s + A2_s$	2075.856	$A1_l + A2_l$	1370570
RR	1.031	C_l	100.0 ng/ml

Note: EQ 12 used for EMPC as
EQ 16 does not include extract volume

Concentration (C_{ex})	0.147 ng/ml

Value matched 'pg' column in raw data

(may be a slight rounding difference)

Sample		PH1A02	
Compound		123478-HxCDD	
Cex	0.1470 ng/ml	V_{ex}	0.020 mL
Weight	10.00 g	Ws	0.01000 kg

NOT Reported - < MDL

EMPC in solid	0.29 ng/kg

EQ.15 Soil EDL calculation

$$= \frac{3 \times Q_L \times (H_{x1} + H_{x2}) \times (D)}{W \times (H_{L1} + H_{L2}) \times (\overline{RR})}$$

H_{x1} = noise1
H_{x2} = noise2

Sample		DBLK07	
Compound		123789-HxCDF	
QL	2000 pg	H_{X1}	4730
D	1.0	H_{X2}	6990
W	10.00 g	H_{L1}	4750000
RR	1.101	H_{L2}	9060000

Converting pg/g to ng/kg

EDL in Solid	0.462 ng/kg

EDL not reported => less than MDL

ARI – Additional Data Qualifiers (HRSM01.2)

Y	NA
X	Analyte signal includes interference from polychlorinated diphenyl ethers.
Z	A modification from the standard ARI usage: Analyte signal includes interference from the sample matrix or perfluorokerosene ions.
J	Indicates an estimated value for analyte below the low point of the curve or CS1 (Calibration Standard – Low also called CSL). *A modification from the SOW where "J" is applied below the CRQL.*

The six calibration standards CS1-CS6 are analyzed and a minimum of five curve points are used to calibrate each analyte as follows:

Concentrations of calibration points used for initial concentration in ng/ml

Analyte	CS1	CS2	CS3	CS4	CS5	CS6
2378-TCDD		0.5	2	10	40	200
2378-TCDF		0.5	2	10	40	200
12378-PeCDD	0.5	2.5	10	50	200	1000
12378-PeCDF	0.5	2.5	10	50	200	1000
23478-PeCDF	0.5	2.5	10	50	200	1000
123478-HxCDD	0.5	2.5	10	50	200	1000
123678-HxCDD	0.5	2.5	10	50	200	1000
123789-HxCDD	0.5	2.5	10	50	200	1000
123478-HxCDF	0.5	2.5	10	50	200	1000
123678-HxCDF	0.5	2.5	10	50	200	1000
123789-HxCDF	0.5	2.5	10	50	200	1000
234678-HxCDF	0.5	2.5	10	50	200	1000
1234678-HpCDD	0.5	2.5	10	50	200	1000
1234678-HpCDF	0.5	2.5	10	50	200	1000
1234789-HpCDF	0.5	2.5	10	50	200	1000
OCDD	1.0	5	20	100	400	2000
OCDF	1.0	5	20	100	400	2000
^{13}C-2378-TCDD (ES)	100	100	100	100	100	100
^{13}C-2378-TCDF (ES)	100	100	100	100	100	100
^{13}C-12378-PeCDD (ES)	100	100	100	100	100	100
^{13}C-12378-PeCDF (ES)	100	100	100	100	100	100
^{13}C-23478-PeCDF (ES)	100	100	100	100	100	100
^{13}C-123478-HxCDD (ES)	100	100	100	100	100	100
^{13}C-123678-HxCDD (ES)	100	100	100	100	100	100
^{13}C-123478-HxCDF (ES)	100	100	100	100	100	100
^{13}C-123678-HxCDF (ES)	100	100	100	100	100	100
^{13}C-123789-HxCDF (ES)	100	100	100	100	100	100
^{13}C-234678-HxCDF (ES)	100	100	100	100	100	100
^{13}C-1234678-HpCDD (ES)	100	100	100	100	100	100
^{13}C-1234678-HpCDF (ES)	100	100	100	100	100	100
^{13}C-1234789-HpCDF (ES)	100	100	100	100	100	100
^{13}C-OCDD (ES)	200	200	200	200	200	200
^{37}CL-2378-TCDD (CS)	0.1	0.5	2	10	40	200
^{13}C-1234-TCDD (IS)	100	100	100	100	100	100
^{13}C-123789-HxCDD (IS)	100	100	100	100	100	100
ES = Extraction Standard, CS = Clean-up Standard, IS = Injection Standard						

Appendix 20.3: Retention Time References, Quantitation References, Relative Retention Times, and Minimum Levels for CDDS & CDFS

CDD/CDF	Retention time and quantitation reference	Relative retention time	Minimum Level		
			Water pg/L;ppq	Solid ng/kg;ppt	Extract pg/µL; ppb
COMPOUNDS USING $^{13}C_{12}$-1,2,3,4-TCDD AS THE INJECTION STANDARD					
2,3,7,8-TCDF	$^{13}C_{12}$-1,3,7,8-TCDF	0.999-1.003	10	1	0.5
2,3,7,8-TCDD	$^{13}C_{12}$-2,3,7,8-TCDD	0.999-1.002	10	1	0.5
1,2,3,7,8-PeCDF[3]	$^{13}C_{12}$-1,2,3,7,8-PeCDF	0.999-1.002	50	5	2.5
2,3,4,7,8-PeCDF	$^{13}C_{12}$-2,3,4,7,8-PeCDF	0.999-1.002	50	5	2.5
1,2,3,7,8-PeCDD	$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.999-1.002	50	5	2.5
$^{13}C_{12}$-2,3,7,8-TCDF	$^{13}C_{12}$-1,2,3,4-TCDD	0.923-1.103			
$^{13}C_{12}$-2,3,7,8-TCDD	$^{13}C_{12}$-1,2,3,4-TCDD	0.976-1.043			
$^{13}C_{12}$-2,3,7,8-TCDD	$^{13}C_{12}$-1,2,3,4-TCDD	0.989-1.052			
$^{13}C_{12}$-1,2,3,7,8-PeCDF	$^{13}C_{12}$-1,2,3,4-TCDD	1.000-1.425			
$^{13}C_{12}$-2,3,4,7,8-PeCDF	$^{13}C_{12}$-1,2,3,4-TCDD	1.011-1.526			
$^{13}C_{12}$-1,2,3,7,8-PeCDD	$^{13}C_{12}$-1,2,3,4-TCDD	1.000-1.567			
COMPOUNDS USING $^{13}C_{12}$-1,2,3,7,8,9-HxCDD AS THE INJECTION INTERNAL STANDARD					
1,2,3,4,7,8-HxCDF	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	0.999-1.001	50	5	2.5
1,2,3,6,7,8-HxCDF	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	0.997-1.005	50	5	2.5
1,2,3,7,8,9-HxCDF	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	0.999-1.001	50	5	2.5
2,3,4,6,7,8-HxCDF	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	0.999-1.001	50	5	2.5
1,2,3,4,7,8-HxCDD	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.999-1.001	50	5	2.5
1,2,3,6,7,8-HxCDD	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	0.998-1.004	50	5	2.5
1,2,3,7,8,9-HxCDD	–[2]	1.000-1.019	50	5	2.5
1,2,3,4,6,7,8-HpCDF	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	0.999-1.001	50	5	2.5
1,2,3,4,7,8,9-HpCDF	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	0.999-1.001	50	5	2.5
1,2,3,4,6,7,8-HpCDD	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.999-1.001	50	5	2.5
OCDF	$^{13}C_{12}$-OCDD	0.999-1.008	100	10	5
OCDD	$^{13}C_{12}$-OCDD	0.999-1.001	100	10	5
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	0.944-0.970			
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	0.949-0.975			
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	0.977-1.047			
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	0.959-1.021			
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	0.977-1.000			
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	0.981-1.003			
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.043-1.085			
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.057-1.151			
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.086-1.110			
$^{13}C_{12}$-OCDD	$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.032-1.311			

[2] The retention time reference for 1,2,3,7,8,9-HxCDD is $^{13}C_{12}$-1,2,3,6,7,8-HxCDD and 1,2,3,7,8,9-HxCDD is quantified using the averaged responses for $^{13}C_{12}$-1,2,3,4,7,8-HxCDD and $^{13}C_{12}$-1,2,3,6,7,8-HxCDD.
[3] The last eluting TCDF (1289) elutes after the first PeCDF (13468) congener on the RTX-DIOXIN2 column. The window is set from the last eluting TCDF (1289) marker. Additional PeCDFs (12468 and 13678) are also used to ensure the windows have been set correctly.

Characterizing all 136 Tetra- to Octachlorinated Dioxins and Furans

Using the Rtx®-Dioxin2 Column

By Jack Cochran, Director of New Business and Technology

- Known elution orders for all tetra- through octachlorinated dioxin and furan congeners.
- Resolve 14 of 17 tetra- through octachlorine 2,3,7,8-substituted dioxins and furans.
- TCDD and TCDF specificity, with a column stable up to 340°C.

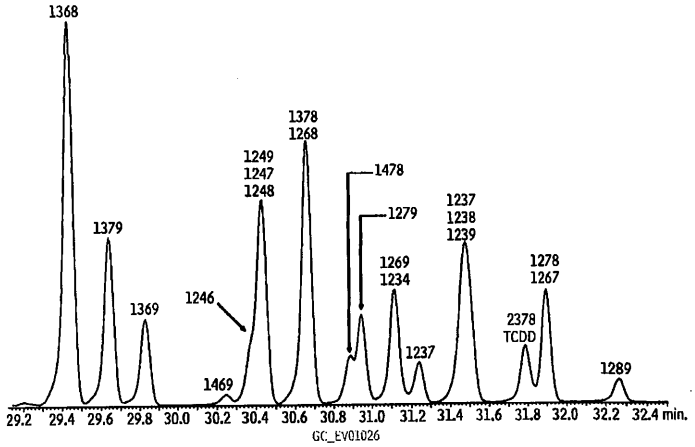
Successful analyses of dioxins and furans are critical because of the extremely toxic nature of these compounds. However, confidently resolving the most toxic congeners, 2,3,7,8-substituted tetrachlorinated dibenzodioxin (TCDD) and tetrachlorinated dibenzofuran (TCDF), is often complicated by the presence of the many other possible congeners. Even with high resolution GC/high resolution MS methods, the proper choice of chromatographic column is essential for separating 2,3,7,8-substituted dioxins and furans from the less toxic congeners and matrix-related compounds.

Complete Column Characterization

It is rare that a column's performance is characterized against all possible 136 tetra- through octachlorinated dioxins and furans. These standards are difficult to obtain, and testing can be time consuming. However, here the Rtx®-Dioxin2 column is characterized against all 136 compounds using standards from Cambridge Isotope Laboratories, Inc. When compared to industry standard stationary phases, a unique selectivity is observed for the Rtx®-Dioxin2 column, and specific resolutions and coelutions are noted. Very few coelutions involving the toxic 2,3,7,8-substituted congeners are observed, making the Rtx®-Dioxin2 column an excellent choice for single column analyses of dioxins and furans (Tables I and II.)

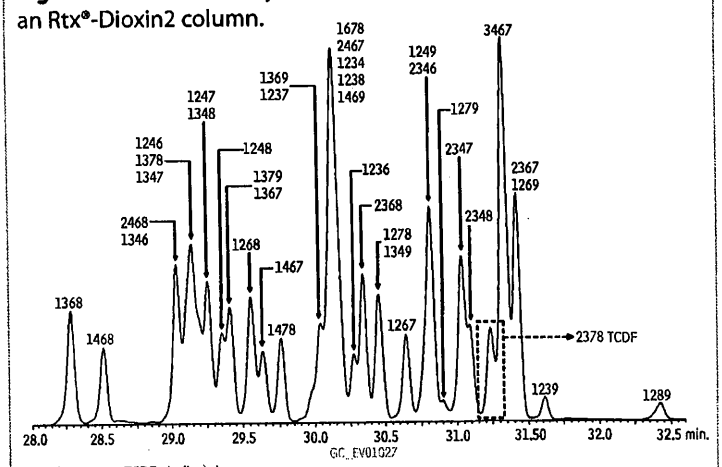
Figure 1 shows fly ash samples, run under the same chromatographic conditions used to characterize the column. 2,3,7,8-tetrachlorodibenzofuran is not resolved under these conditions. However, the characterization study used simple linear temperature programming, and additional work exploring nonlinear oven programs and different flow parameters yielded better resolution between some congeners, especially 2,3,7,8-TCDF (data available upon request). The value in this work is not necessarily to show complete separation of all the congeners on a single column, but to show where all of the 136 compounds of interest elute, making all possible coelutions known.

Figure 1 GC/HR-MS analysis of tetrachlorinated dioxins in fly ash on an Rtx®-Dioxin2 column.



Column:	Rtx®-Dioxin2, 40m, 0.18mm ID, 0.18µm (cat.# 10759)
Sample:	TCDDs in fly ash
Inj.:	1µL splitless
Inj. temp.:	280°C
Carrier gas:	helium, constant flow
Flow rate:	1mL/min.
Oven temp.:	120°C (hold 1 min.) to 160°C @ 10°C/min. to 320°C @ 4°C/min. (hold 4 min.)
Det.:	Waters AutoSpec Ultima HRMS
Ionization:	EI
Mode:	SIM
Peak List:	TCDDs as labeled

Figure 2 GC/HR-MS analysis of tetrachlorinated furans in fly ash on an Rtx®-Dioxin2 column.



Sample: TCDFs in fly ash
Peak List: TCDFs as labeled
See Figure 1 for conditions

The Rtx®-Dioxin2 column is an excellent column for the analysis of dioxin and furan congeners. It has a unique selectivity for the toxic congeners, including specificity for 2,3,7,8-TCDD and 2,3,7,8-TCDF. Here we characterized all 136 tetra- through octachlorine dioxins and furans and defined all possible coeutions. While commonly used cyanopropyl columns are limited by a low maximum operating temperature of 240°C, the Rtx®-Dioxin2 column is stable up to 340°C, extending column lifetime and improving analyses of dioxins and furans.

Rtx®-Dioxin2 Columns (fused silica)

ID	df (µm)	temp. limits	length	cat. #
0.18mm	0.18	20°C to 340°C	40-Meter	10759
0.25mm	0.25	20°C to 340°C	60-Meter	10758

Stable up to 340° for extended column lifetime!

Table I Retention times (RT) and relative retention times (RRT) for all tetra- through octachlorinated dioxins on an Rtx®-Dioxin2 column.

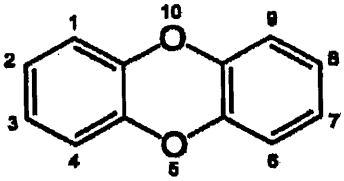
tetrachlorinated			pentachlorinated			hexachlorinated			heptachlorinated			octachlorinated		
Congener	RT (min)	RRT (min)	Congener	RT (min)	RRT (min)	Congener	RT (min)	RRT (min)	Congener	RT (min)	RRT (min)	Congener	RT (min)	RRT (min)
1368	29.43	0.8198	12468	33.75	0.9401	124679	37.89	1.0554	1234679	42.44	1.1822	12346789	46.93	1.3069
1379	29.64	0.8256	12479	33.80	0.9415	124689	37.89	1.0554	1234678	43.34	1.2072			
1369	29.84	0.8312	12469	34.17	0.9515	123468	38.53	1.0730						
1469	30.25	0.8424	12368	34.67	0.9657	123679	38.79	1.0805						
1246	30.38	0.8462	12478	34.83	0.9702	123689	38.82	1.0813						
1249	30.42	0.8474	12379	34.92	0.9727	123469	38.90	1.0833						
1247	30.43	0.8476	12467	35.02	0.9755	123478	39.56	1.1017						
1248	30.44	0.8479	12369	35.08	0.9769	123678	39.66	1.1047						
1376	30.64	0.8535	12489	35.08	0.9772	123467	39.78	1.1081						
1268	30.68	0.8546	12346	35.36	0.9850	123789	39.98	1.1136						
1478	30.88	0.8599	12347	35.40	0.9858									
1279	30.95	0.8621	12367	35.89	0.9997									
1269	31.12	0.8669	12378	35.91	1.0003									
1234	31.15	0.8677	12389	36.21	1.0086									
1236	31.25	0.8705												
1237	31.47	0.8766												
1238	31.50	0.8774												
1239	31.51	0.8777												
2378	31.79	0.8855												
1278	31.90	0.8883												
1267	31.90	0.8886												
1289	32.27	0.8989												

Blue boxes represent coelutions

Red boxes represent coelutions with 2378-substituted congeners

Bold red text indicates congeners with 2378 substitution

Number Sequence for Polychlorinated Dibenzo Dioxins



RRTs were calculated versus 12378 ^{13}C-labeled dioxin.

Table II Retention times (RT) and relative retention times (RRT) for all tetra- through octachlorinated furans on an Rtx®-Dioxin2 column.

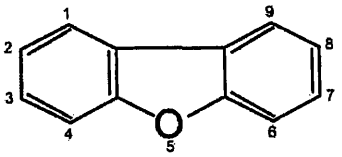
tetrachlorinated			pentachlorinated			hexachlorinated			heptachlorinated			octachlorinated		
Congener	RT (min)	RRT (min)	Congener	RT (min)	RRT (min)	Congener	RT (min)	RRT (min)	Congener	RT (min)	RRT (min)	Congener	RT (min)	RRT (min)
1368	28.29	0.8181	13468	32.38	0.9364	123468	37.23	1.0766	1234678	41.99	1.2143	12346789	47.07	1.3604
1468	28.52	0.8243	12468	32.44	0.9378	134678	37.38	1.0807	1234679	42.36	1.2243			
2468	29.03	0.8393	13678	33.53	0.9694	124678	37.40	1.0812	1234689	42.60	1.2319			
1346	29.03	0.8393	13467	33.58	0.9705	134679	37.62	1.0873	1234789	43.92	1.2697			
1246	29.11	0.8413	12467	33.61	0.9717	124679	37.83	1.0876						
1378	29.15	0.8427	14678	33.70	0.9717	124689	38.08	1.1009						
1347	29.19	0.8441	13478	33.69	0.9743	123467	38.45	1.1116						
1247	29.26	0.8459	12368	33.71	0.9746	123478	38.58	1.1154						
1348	29.27	0.8459	12478	33.76	0.9760	123678	38.70	1.1191						
1248	29.35	0.8485	13479	33.85	0.9783	123479	38.86	1.1234						
1379	29.40	0.8497	13469	34.00	0.9829	123469	38.96	1.1263						
1367	29.42	0.8503	12479	34.09	0.9858	123679	39.14	1.1315						
1268	29.56	0.8546	12346	34.14	0.9870	123689	39.40	1.1387						
1467	29.64	0.8569	12469	34.25	0.9902	234678	39.42	1.1400						
1478	29.76	0.8604	23468	34.35	0.9928	123489	40.29	1.1651						
1369	29.97	0.8664	12347	34.36	0.9931	123789	40.31	1.1654						
1237	30.03	0.8684	12348	34.39	0.9945									
1678	30.10	0.8702	12378	34.61	1.0006									
2467	30.14	0.8714	12678	34.85	1.0075									
1234	30.16	0.8719	12367	34.86	1.0075									
1238	30.18	0.8725	12379	34.99	1.0116									
1469	30.19	0.8725	12679	35.27	1.0197									
1236	30.27	0.8754	23467	35.48	1.0257									
2368	30.35	0.8772	12369	35.51	1.0266									
1278	30.45	0.8803	12489	35.56	1.0277									
1349	30.48	0.8812	23478	35.68	1.0318									
1267	30.68	0.8864	12349	35.74	1.0335									
1249	30.78	0.8864	12389	36.47	1.0544									
2346	30.83	0.8910												
1279	30.89	0.8930												
2347	31.03	0.8966												
2348	31.10	0.8991												
2378	31.22	0.9028												
3467	31.33	0.9058												
2367	31.41	0.9081												
1269	31.44	0.9089												
1239	31.61	0.9141												
1289*	32.43	0.9376												

Blue boxes represent coelutions

Red boxes represent coelutions with 2378-substituted congeners

Bold red text indicates congeners with 2378 substitution

Number Sequence for Polychlorinated Dibenzo Furans



RRTs were calculated versus 12378 ^{13}C-labeled furan.

*Note that the 1289 tetra chlorinated congener elutes after the 13468 penta chlorinated congener.

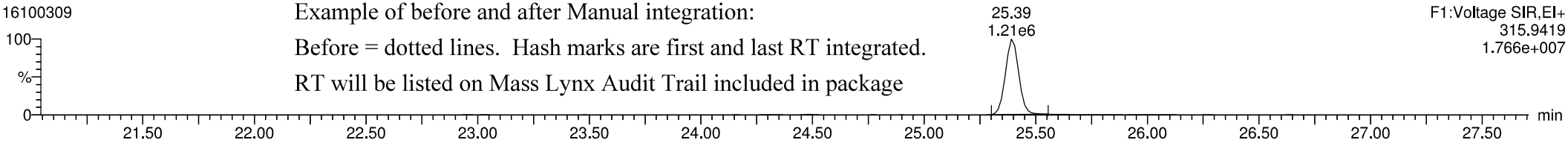
Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161003DATA1.qld
Last Altered: Tuesday, October 04, 2016 10:27:21 Pacific Daylight Time
Printed: Tuesday, October 04, 2016 14:04:01 Pacific Daylight Time

EXAMPLE Manual Integration

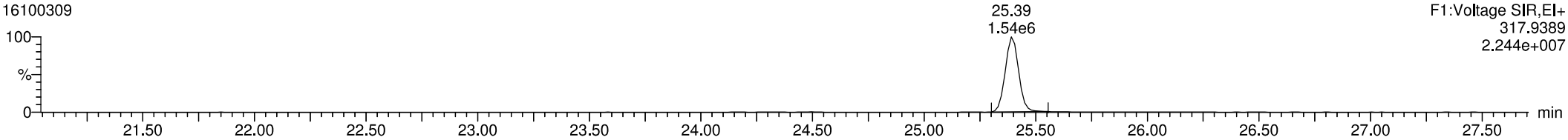
Last Altered date must match audit trail

ID:

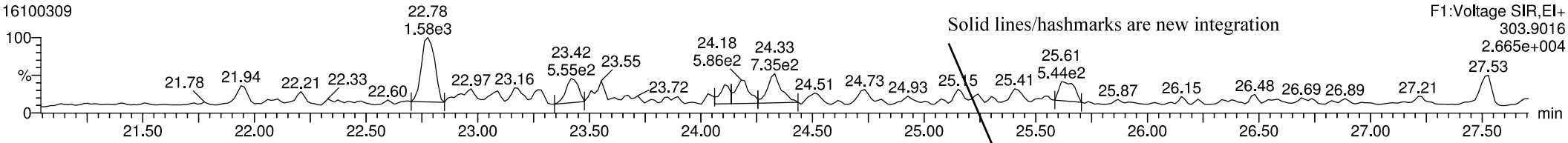
13C-2378-TCDF



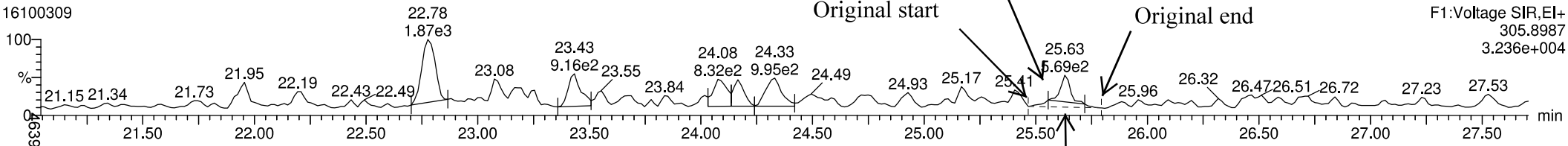
13C-2378-TCDF



Total-tetrafurans

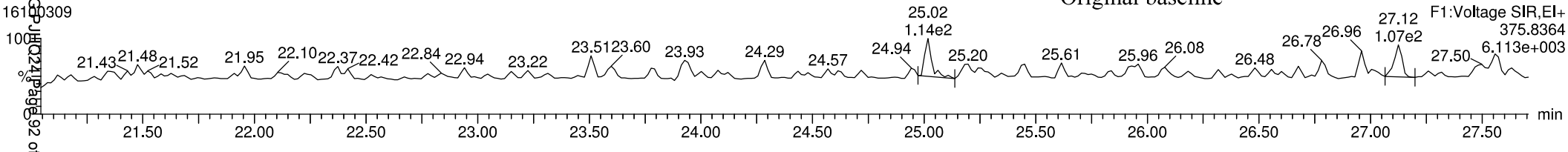


Total-tetrafurans



Original baseline

FUNCTION1 HXCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

PH1A01

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-01

Sample wt/vol: 900 (g/ml) mL

Lab File ID: 16111108

Decanted (Y/N): N Extraction Method: SEPF

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2,3,7,8-TCDD		U	1.2		
5	1,2,3,7,8-PeCDD		U	3.2		
6	1,2,3,4,7,8-HxCDD		U	2.7		
6	1,2,3,6,7,8-HxCDD		U	4.1		
6	1,2,3,7,8,9-HxCDD		U	3.6		
7	1,2,3,4,6,7,8-HpCDD		U	2.8		
8	OCDD		U	48		
4	2,3,7,8-TCDF		U	0.85		
5	1,2,3,7,8-PeCDF		U	4.0		
5	2,3,4,7,8-PeCDF		U	5.6		
6	1,2,3,4,7,8-HxCDF		U	3.3		
6	1,2,3,6,7,8-HxCDF		U	3.4		
6	1,2,3,7,8,9-HxCDF		EMPC, U	3.3		
6	2,3,4,6,7,8-HxCDF		U	4.0		
7	1,2,3,4,6,7,8-HpCDF		EMPC, U	4.1		
7	1,2,3,4,7,8,9-HpCDF		U	3.2		
8	OCDF		U	10		

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

PH1A01

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: 16K0015-01

Sample wt/vol: 900 (g/ml) mL Lab File ID: 16111108

Decanted (Y/N): N Extraction Method: SEPF Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2,3,7,8-TCDD		x 1.0		x 1.0		x 1.0	
1,2,3,7,8-PeCDD		x 1.0		x 1.0		x 1.0	
1,2,3,4,7,8-HxCDD		x 0.1		x 0.5		x 0.05	
1,2,3,6,7,8-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,7,8,9-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,4,6,7,8-HpCDD		x 0.01		x 0.001		x 0.001	
OCDD		x 0.0003		x 0.0001		x 0.0001	
2,3,7,8-TCDF		x 0.1		x 0.05		x 0.1	
1,2,3,7,8-PeCDF		x 0.03		x 0.05		x 0.1	
2,3,4,7,8-PeCDF		x 0.3		x 0.5		x 1.0	
1,2,3,4,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,7,8,9-HxCDF		x 0.1		x 0.1		x 0.1	
2,3,4,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,4,6,7,8-HpCDF		x 0.01		x 0.01		x 0.01	
1,2,3,4,7,8,9-HpCDF		x 0.01		x 0.01		x 0.01	
OCDF		x 0.0003		x 0.0001		x 0.0001	
		Total TEQ =	0.0000	Total TEQ =	0.0000	Total TEQ =	0.0000

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 1D-HR

TOTAL HOMOLOGUE DATA SUMMARY

EPA SAMPLE NO.

PH1A01

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-01

Sample wt/vol: 900 (g/ml) mL

Lab File ID: 16111108

Decanted (Y/N): N Extraction Method: SEPF

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

Homologue	Peaks	Concentration	Q
Total TCDD			U
Total PeCDD			U
Total HxCDD			U
Total HpCDD			U
Total TCDF			U
Total PeCDF			U
Total HxCDF	1	1.3	
Total HpCDF	1	0.48	
OCDD			U
OCDF			U
Total		1.78	

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

PH1A01

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: 16K0015-01

Sample wt/vol: 900 (g/ml) mL Lab File ID: 16111108

Decanted (Y/N): N Extraction Method: SEPF Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2,3,7,8-TCDD	2222	1900	84.9	0.79	26.1677
4	13C12-2,3,7,8-TCDF	2222	1800	82.8	0.78	25.5402
5	13C12-1,2,3,7,8-PeCDD	2222	1800	80.6	1.60	31.264
5	13C12-1,2,3,7,8-PeCDF	2222	1800	79.3	1.59	29.6747
5	13C12-2,3,4,7,8-PeCDF	2222	1800	80.7	1.59	31.012
6	13C12-1,2,3,4,7,8-HxCDD	2222	1900	87.1	1.27	35.9225
6	13C12-1,2,3,6,7,8-HxCDD	2222	1900	83.8	1.28	36.054
6	13C12-1,2,3,4,7,8-HxCDF	2222	1900	84.0	0.51	34.6838
6	13C12-1,2,3,6,7,8-HxCDF	2222	1800	82.7	0.54	34.8372
6	13C12-1,2,3,7,8,9-HxCDF	2222	1800	81.3	0.52	36.9308
6	13C12-2,3,4,6,7,8-HxCDF	2222	1800	81.2	0.53	35.7798
7	13C12-1,2,3,4,6,7,8-HpCDI	2222	1800	79.6	1.03	40.7563
7	13C12-1,2,3,4,6,7,8-HpCDF	2222	1600	73.7	0.45	38.9915
7	13C12-1,2,3,4,7,8,9-HpCDF	2222	1700	76.5	0.45	41.6112
8	13C12-OCDD	4444	3000	67.2	0.89	46.452
Labeled Cleanup Standard 37C14-2,3,7,8-TCDD						
4	37C14-2,3,7,8-TCDD	888.89	800	90.2		26.1975

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF					0.935		0.770	587	1678					
12378-PeCDF					0.952		1.550	965	1778					
23478-PeCDF					0.963		1.550	965	1778					
123478-HxCDF					1.137		1.240	729	767					
234678-HxCDF					1.164		1.240	729	767					
123678-HxCDF					1.099		1.240	729	767					
123789-HxCDF	36.964	1.001	2.58e2	2.46e2	1.101	1.049	1.240	729	767	4.36e3	4.99e3	6.0	YES	0.058
1234678-HpCDF	38.992	1.000	7.97e1	1.21e2	1.303	0.661	1.050	531	321	2.35e3	3.81e3	4.4	YES	0.022
1234789-HpCDF					1.317		1.050	531	321					
OCDF					1.166		0.890	746	1043					
2378-TCDD					1.134		0.770	1705	738					
12378-PeCDD					0.975		1.550	1231	998					
123478-HxCDD					1.031		1.240	969	858					
123678-HxCDD					0.971		1.240	969	858					
123789-HxCDD					0.947		1.240	969	858					
1234678-HpCDD					1.028		1.050	996	1200					
OCDD	46.488	1.001	6.80e2	6.92e2	1.107	0.983	0.890	501	581	6.79e3	7.39e3	13.5	NO	0.275
13C-2378-TCDF	25.540	1.007	7.86e5	1.01e6	1.567	0.778	0.770	8787	4343	1.14e7	1.46e7	1302.6	NO	82.780
13C-12378-PeCDF	29.675	1.170	8.59e5	5.41e5	1.274	1.587	1.550	5994	3393	1.22e7	7.59e6	2033.3	NO	79.327
13C-23478-PeCDF	31.012	1.223	8.48e5	5.32e5	1.235	1.593	1.550	5994	3393	1.21e7	7.70e6	2023.3	NO	80.738
13C-123478-HxCDF	34.684	0.951	3.22e5	6.26e5	1.381	0.515	0.510	4909	4941	4.72e6	9.17e6	960.5	NO	84.027
13C-123678-HxCDF	34.837	0.955	3.74e5	6.86e5	1.569	0.544	0.510	4909	4941	5.05e6	9.74e6	1029.1	NO	82.707
13C-234678-HxCDF	35.780	0.981	3.09e5	5.82e5	1.345	0.531	0.510	4909	4941	4.40e6	8.42e6	895.4	NO	81.164
13C-123789-HxCDF	36.931	1.013	2.70e5	5.15e5	1.183	0.525	0.510	4909	4941	3.72e6	7.10e6	758.7	NO	81.310
13C-1234678-HpCDF	38.992	1.069	2.20e5	4.89e5	1.178	0.449	0.440	1856	3209	3.22e6	7.17e6	1736.7	NO	73.694
13C-1234789-HpCDF	41.611	1.141	1.70e5	3.78e5	0.878	0.451	0.440	1856	3209	2.13e6	4.53e6	1145.0	NO	76.499
13C-1234-TCDD	25.361	0.000	6.11e5	7.74e5	1.000	0.789	0.770	3321	2438	9.23e6	1.16e7	2778.0	NO	100.000
13C-2378-TCDD	26.168	1.032	4.70e5	5.97e5	0.908	0.787	0.770	3321	2438	6.69e6	8.45e6	2014.5	NO	84.907
13C-12378-PeCDD	31.264	1.233	5.19e5	3.24e5	0.756	1.602	1.550	2095	1634	7.39e6	4.70e6	3526.9	NO	80.613
13C-123478-HxCDD	35.923	0.985	4.21e5	3.30e5	1.056	1.274	1.240	1982	1513	6.21e6	4.87e6	3135.6	NO	87.096
13C-123678-HxCDD	36.054	0.989	4.46e5	3.49e5	1.163	1.278	1.240	1982	1513	6.21e6	4.89e6	3135.4	NO	83.807
13C-1234678-HpCDD	40.756	1.117	3.00e5	2.91e5	0.909	1.031	1.050	2050	2116	3.91e6	3.77e6	1909.3	NO	79.568
13C-OCDD	46.452	1.274	4.24e5	4.76e5	0.820	0.891	0.890	2255	2137	4.18e6	4.53e6	1854.5	NO	134.486
13C-123789-HxCDD	36.470	0.000	4.55e5	3.61e5	1.000	1.259	1.240	1982	1513	6.38e6	4.98e6	3217.6	NO	100.000
Total-tetrafurans			0.00e0		0.935			587		0.00e0				

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Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:02:12 Pacific Standard Time

ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					696		0.00e0				
Total-pentafurans			0.00e0		0.957			965		0.00e0				
Total-hexafurans			2.58e2		1.125			729		4.36e3				0.058
Total-heptafurans			7.97e1		1.310			531		2.35e3				0.022
Total-Furans			3.37e2		1.114			587		6.71e3				0.080
Total-tetradioxins			0.00e0		1.134			1705		0.00e0				
Total-pentadioxins			0.00e0		0.975			1231		0.00e0				
Total-hexadioxins			0.00e0		0.983			969		0.00e0				
Total-heptadioxins			0.00e0		1.028			996		0.00e0				
Total-Dioxins			6.80e2		1.028			1705		6.79e3				0.275
Total-TEQ			1.02e3					1705		1.35e4				0.355
37CL-2378-TCDD	26.198	1.033	5.33e5		1.067			1638		7.63e6		4656.9		36.064
FUNCTION1 PFK			1.08e6					623908		2.49e7				
FUNCTION2 PFK			2.21e5					181869		7.46e6				0.000
FUNCTION3 PFK			4.79e7					553608		4.20e8				0.000
FUNCTION4 PFK			0.00e0					416604		0.00e0				
FUNCTION5 PFK			5.54e4					273970		2.03e6				
FUNCTION1 HXCD...			8.12e1					490		1.48e3				0.000
FUNCTION1 HPCD...			1.08e3					1223		1.98e4				0.000
FUNCTION2 HPCD...			8.76e2					1187		2.27e4				0.000
FUNCTION3 OCDPE			0.00e0					464		0.00e0				
FUNCTION4 NCDPE			8.32e1					859		2.05e3				0.000
FUNCTION5 DCDPE			0.00e0					457		0.00e0				

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:02:12 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

TF

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1											

PP

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1											

PF

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1											

HF

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	7 123789-HxCDF	373.8208	36.96	503.153	1.101	0.058	0.054	1.05	1.24	YES	6.0

HPF

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	8 1234678-HpCDF	407.7818	38.99	200.220	1.303	0.022	0.017	0.66	1.05	YES	4.4

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

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	7 123789-HxCDF	373.8208	36.96	503.153	1.101	0.058	0.054	1.05	1.24	YES	6.0
2	8 1234678-HpCDF	407.7818	38.99	200.220	1.303	0.022	0.017	0.66	1.05	YES	4.4

TD

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1											

PD

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1											

HD

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1											

HPD

	# Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1											

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	17	OCDD	457.7377	46.49	1372.065	1.107	0.275	0.275	0.98	0.89	NO	13.5

TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	7	123789-HxCDF	373.8208	36.96	503.153	1.101	0.058	0.054	1.05	1.24	YES	6.0
2	8	1234678-HpCDF	407.7818	38.99	200.220	1.303	0.022	0.017	0.66	1.05	YES	4.4
3	17	OCDD	457.7377	46.49	1372.065	1.107	0.275	0.275	0.98	0.89	NO	13.5

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ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	21.28	0.000							1.3
2	48	FUNCTION1 PFK	330.9792	21.24	0.000							0.9
3	48	FUNCTION1 PFK	330.9792	21.15	0.000							1.3
4	48	FUNCTION1 PFK	330.9792	24.06	0.000							1.4
5	48	FUNCTION1 PFK	330.9792	23.99	0.000							0.5
6	48	FUNCTION1 PFK	330.9792	23.76	0.000							0.6
7	48	FUNCTION1 PFK	330.9792	23.03	0.000							0.6
8	48	FUNCTION1 PFK	330.9792	22.94	0.000							0.5
9	48	FUNCTION1 PFK	330.9792	22.73	0.000							1.4
10	48	FUNCTION1 PFK	330.9792	22.43	0.000							0.8
11	48	FUNCTION1 PFK	330.9792	22.33	0.000							1.1
12	48	FUNCTION1 PFK	330.9792	22.27	0.000							1.0
13	48	FUNCTION1 PFK	330.9792	22.10	0.000							1.4
14	48	FUNCTION1 PFK	330.9792	22.01	0.000							1.0
15	48	FUNCTION1 PFK	330.9792	21.95	0.000							0.3
16	48	FUNCTION1 PFK	330.9792	21.73	0.000							1.1
17	48	FUNCTION1 PFK	330.9792	21.66	0.000							1.3
18	48	FUNCTION1 PFK	330.9792	21.57	0.000							0.8
19	48	FUNCTION1 PFK	330.9792	21.37	0.000							1.1
20	48	FUNCTION1 PFK	330.9792	26.30	0.000							0.6
21	48	FUNCTION1 PFK	330.9792	26.24	0.000							0.6
22	48	FUNCTION1 PFK	330.9792	26.12	0.000							0.8
23	48	FUNCTION1 PFK	330.9792	25.91	0.000							0.4
24	48	FUNCTION1 PFK	330.9792	25.84	0.000							0.7
25	48	FUNCTION1 PFK	330.9792	25.70	0.000							0.3
26	48	FUNCTION1 PFK	330.9792	25.54	0.000							0.8
27	48	FUNCTION1 PFK	330.9792	25.47	0.000							0.7
28	48	FUNCTION1 PFK	330.9792	25.36	0.000							0.9
29	48	FUNCTION1 PFK	330.9792	25.02	0.000							0.6
30	48	FUNCTION1 PFK	330.9792	24.93	0.000							1.5
31	48	FUNCTION1 PFK	330.9792	24.84	0.000							1.3
32	48	FUNCTION1 PFK	330.9792	24.79	0.000							1.2
33	48	FUNCTION1 PFK	330.9792	24.70	0.000							1.9
34	48	FUNCTION1 PFK	330.9792	24.27	0.000							1.8
35	48	FUNCTION1 PFK	330.9792	24.17	0.000							1.2
36	48	FUNCTION1 PFK	330.9792	27.63	0.000							0.7
37	48	FUNCTION1 PFK	330.9792	27.56	0.000							1.1
38	48	FUNCTION1 PFK	330.9792	27.42	0.000							0.5
39	48	FUNCTION1 PFK	330.9792	27.26	0.000							0.7
40	48	FUNCTION1 PFK	330.9792	26.96	0.000							0.7
41	48	FUNCTION1 PFK	330.9792	26.83	0.000							1.7
42	48	FUNCTION1 PFK	330.9792	26.56	0.000							1.0

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	28.84	0.000		0.000					0.5
2	49	FUNCTION2 PFK	366.9792	28.57	0.000		0.000					0.9
3	49	FUNCTION2 PFK	366.9792	28.53	0.000		0.000					0.7
4	49	FUNCTION2 PFK	366.9792	28.40	0.000		0.000					0.5
5	49	FUNCTION2 PFK	366.9792	28.25	0.000		0.000					1.4
6	49	FUNCTION2 PFK	366.9792	28.04	0.000		0.000					1.3
7	49	FUNCTION2 PFK	366.9792	27.93	0.000		0.000					1.1
8	49	FUNCTION2 PFK	366.9792	27.89	0.000		0.000					1.1
9	49	FUNCTION2 PFK	366.9792	30.27	0.000		0.000					1.2
10	49	FUNCTION2 PFK	366.9792	30.21	0.000		0.000					1.1
11	49	FUNCTION2 PFK	366.9792	30.12	0.000		0.000					1.7
12	49	FUNCTION2 PFK	366.9792	30.06	0.000		0.000					0.3
13	49	FUNCTION2 PFK	366.9792	29.95	0.000		0.000					1.0
14	49	FUNCTION2 PFK	366.9792	29.89	0.000		0.000					0.7
15	49	FUNCTION2 PFK	366.9792	29.81	0.000		0.000					0.9
16	49	FUNCTION2 PFK	366.9792	29.72	0.000		0.000					1.3
17	49	FUNCTION2 PFK	366.9792	29.65	0.000		0.000					0.4
18	49	FUNCTION2 PFK	366.9792	29.61	0.000		0.000					0.9
19	49	FUNCTION2 PFK	366.9792	29.46	0.000		0.000					1.0
20	49	FUNCTION2 PFK	366.9792	29.40	0.000		0.000					0.8
21	49	FUNCTION2 PFK	366.9792	29.26	0.000		0.000					0.8
22	49	FUNCTION2 PFK	366.9792	29.12	0.000		0.000					1.8
23	49	FUNCTION2 PFK	366.9792	29.08	0.000		0.000					1.5
24	49	FUNCTION2 PFK	366.9792	29.02	0.000		0.000					2.3
25	49	FUNCTION2 PFK	366.9792	32.04	0.000		0.000					0.4
26	49	FUNCTION2 PFK	366.9792	31.95	0.000		0.000					1.1
27	49	FUNCTION2 PFK	366.9792	31.80	0.000		0.000					0.9
28	49	FUNCTION2 PFK	366.9792	31.76	0.000		0.000					0.4
29	49	FUNCTION2 PFK	366.9792	31.72	0.000		0.000					0.5
30	49	FUNCTION2 PFK	366.9792	31.47	0.000		0.000					1.0
31	49	FUNCTION2 PFK	366.9792	31.34	0.000		0.000					0.6
32	49	FUNCTION2 PFK	366.9792	30.98	0.000		0.000					1.7
33	49	FUNCTION2 PFK	366.9792	30.79	0.000		0.000					1.4
34	49	FUNCTION2 PFK	366.9792	30.73	0.000		0.000					1.7
35	49	FUNCTION2 PFK	366.9792	30.68	0.000		0.000					1.1
36	49	FUNCTION2 PFK	366.9792	30.64	0.000		0.000					0.3
37	49	FUNCTION2 PFK	366.9792	30.53	0.000		0.000					0.8
38	49	FUNCTION2 PFK	366.9792	30.50	0.000		0.000					0.6
39	49	FUNCTION2 PFK	366.9792	30.43	0.000		0.000					0.7
40	49	FUNCTION2 PFK	366.9792	30.39	0.000		0.000					0.4
41	49	FUNCTION2 PFK	366.9792	32.39	0.000		0.000					2.1
42	49	FUNCTION2 PFK	366.9792	32.22	0.000		0.000					0.4

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	34.14	0.000		0.000					16.9
2	50	FUNCTION3 PFK	380.9760	33.95	0.000		0.000					25.8
3	50	FUNCTION3 PFK	380.9760	33.76	0.000		0.000					35.1
4	50	FUNCTION3 PFK	380.9760	33.60	0.000		0.000					42.8
5	50	FUNCTION3 PFK	380.9760	33.51	0.000		0.000					47.3
6	50	FUNCTION3 PFK	380.9760	33.41	0.000		0.000					51.3
7	50	FUNCTION3 PFK	380.9760	33.34	0.000		0.000					56.0
8	50	FUNCTION3 PFK	380.9760	33.32	0.000		0.000					56.0
9	50	FUNCTION3 PFK	380.9760	33.19	0.000		0.000					62.1
10	50	FUNCTION3 PFK	380.9760	32.95	0.000		0.000					73.2
11	50	FUNCTION3 PFK	380.9760	32.79	0.000		0.000					81.5
12	50	FUNCTION3 PFK	380.9760	32.69	0.000		0.000					86.0
13	50	FUNCTION3 PFK	380.9760	32.65	0.000		0.000					87.8
14	50	FUNCTION3 PFK	380.9760	37.45	0.000		0.000					0.6
15	50	FUNCTION3 PFK	380.9760	36.80	0.000		0.000					1.4
16	50	FUNCTION3 PFK	380.9760	36.65	0.000		0.000					0.7
17	50	FUNCTION3 PFK	380.9760	36.54	0.000		0.000					1.1
18	50	FUNCTION3 PFK	380.9760	36.40	0.000		0.000					1.5
19	50	FUNCTION3 PFK	380.9760	36.37	0.000		0.000					1.2
20	50	FUNCTION3 PFK	380.9760	36.32	0.000		0.000					1.8
21	50	FUNCTION3 PFK	380.9760	36.20	0.000		0.000					1.3
22	50	FUNCTION3 PFK	380.9760	36.00	0.000		0.000					0.8
23	50	FUNCTION3 PFK	380.9760	35.64	0.000		0.000					1.1
24	50	FUNCTION3 PFK	380.9760	35.18	0.000		0.000					1.0
25	50	FUNCTION3 PFK	380.9760	35.03	0.000		0.000					1.4
26	50	FUNCTION3 PFK	380.9760	34.68	0.000		0.000					1.1
27	50	FUNCTION3 PFK	380.9760	34.33	0.000		0.000					7.8
28	50	FUNCTION3 PFK	380.9760	34.19	0.000		0.000					14.7

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	48.10	0.000							1.7
2	52	FUNCTION5 PFK	480.9696	47.61	0.000							2.1
3	52	FUNCTION5 PFK	480.9696	47.38	0.000							1.5
4	52	FUNCTION5 PFK	480.9696	46.23	0.000							2.2

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	21.19	0.000		0.000					3.0

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ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	27.68	0.000		0.000					3.1
2	54	FUNCTION1 HPCD...	409.7974	27.02	0.000		0.000					1.9
3	54	FUNCTION1 HPCD...	409.7974	26.62	0.000		0.000					1.3
4	54	FUNCTION1 HPCD...	409.7974	24.55	0.000		0.000					1.7
5	54	FUNCTION1 HPCD...	409.7974	24.46	0.000		0.000					1.8
6	54	FUNCTION1 HPCD...	409.7974	23.55	0.000		0.000					2.3
7	54	FUNCTION1 HPCD...	409.7974	23.12	0.000		0.000					1.4
8	54	FUNCTION1 HPCD...	409.7974	21.85	0.000		0.000					2.9

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	32.45	0.000		0.000					1.5
2	55	FUNCTION2 HPCD...	409.7974	31.45	0.000		0.000					1.5
3	55	FUNCTION2 HPCD...	409.7974	30.54	0.000		0.000					2.3
4	55	FUNCTION2 HPCD...	409.7974	30.22	0.000		0.000					2.6
5	55	FUNCTION2 HPCD...	409.7974	30.04	0.000		0.000					2.2
6	55	FUNCTION2 HPCD...	409.7974	29.90	0.000		0.000					2.5
7	55	FUNCTION2 HPCD...	409.7974	29.37	0.000		0.000					1.6
8	55	FUNCTION2 HPCD...	409.7974	29.05	0.000		0.000					2.3
9	55	FUNCTION2 HPCD...	409.7974	28.76	0.000		0.000					2.5

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	43.12	0.000		0.000					2.4

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

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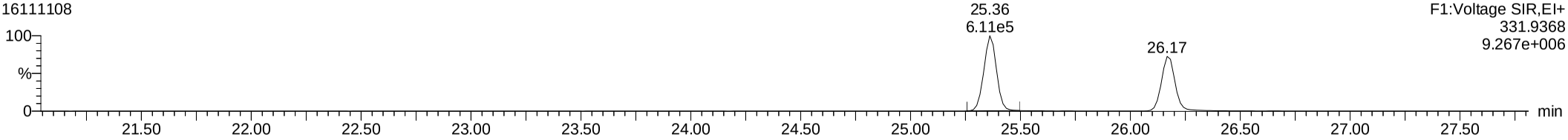

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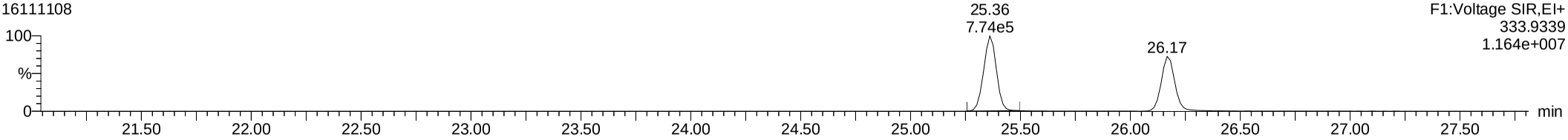

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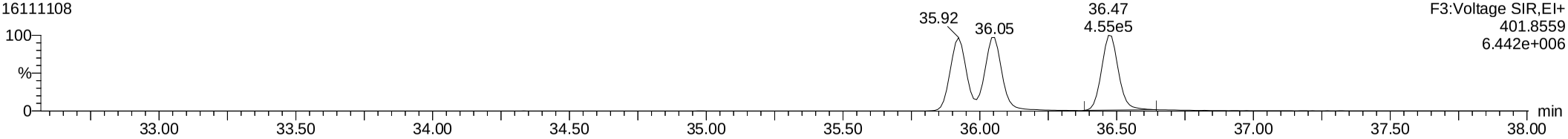

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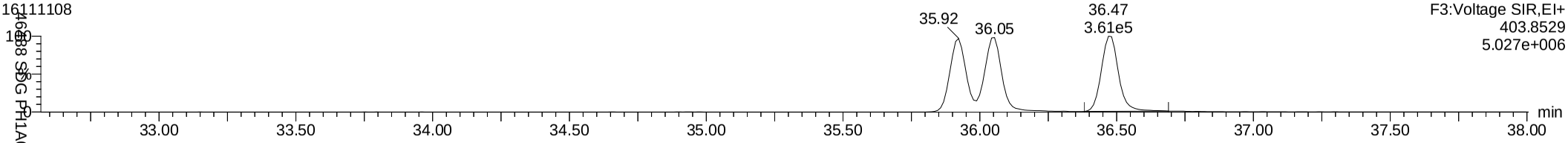

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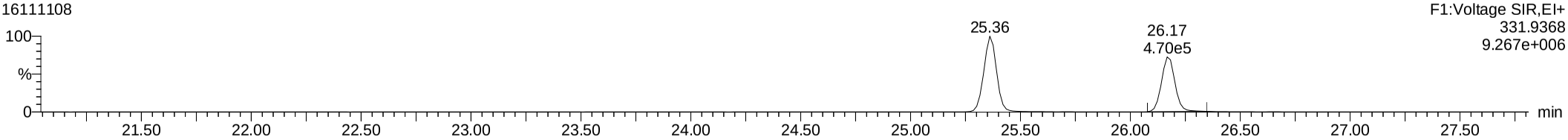

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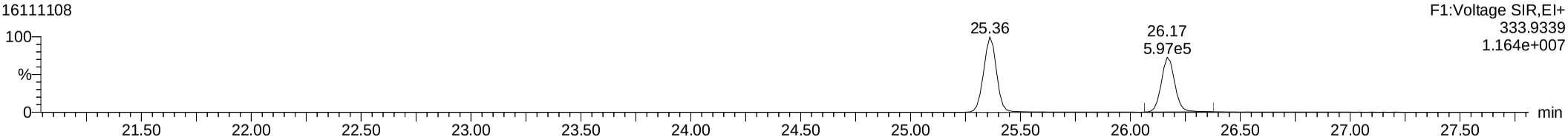

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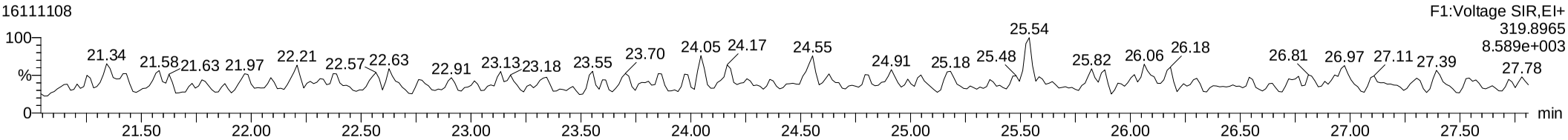

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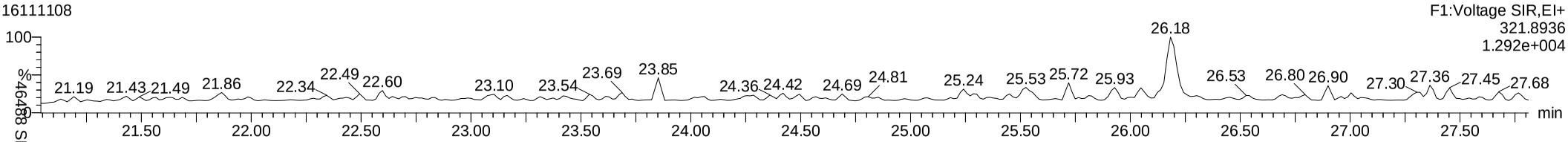
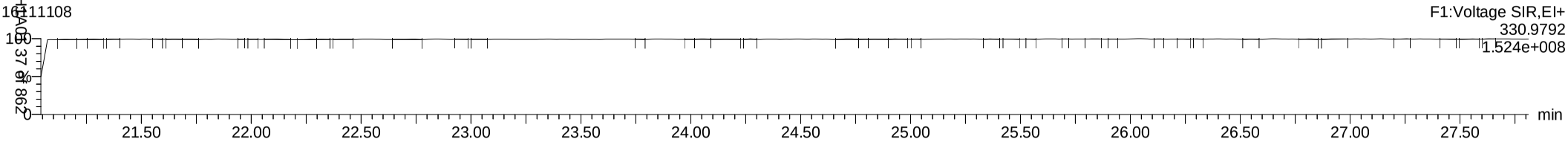


FUNCTION1 PFK



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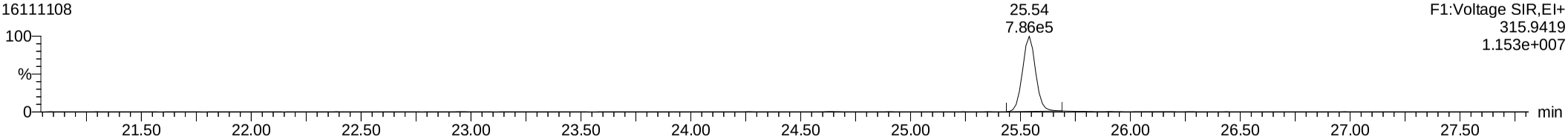
13C-2378-TCDF



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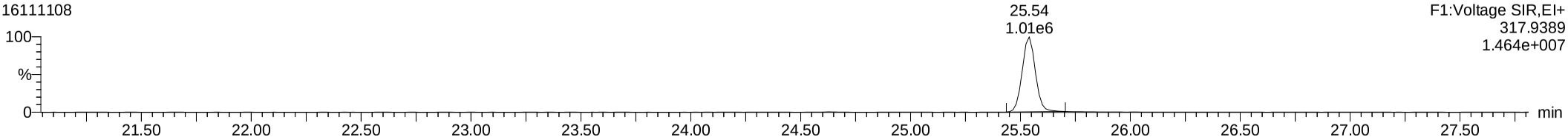

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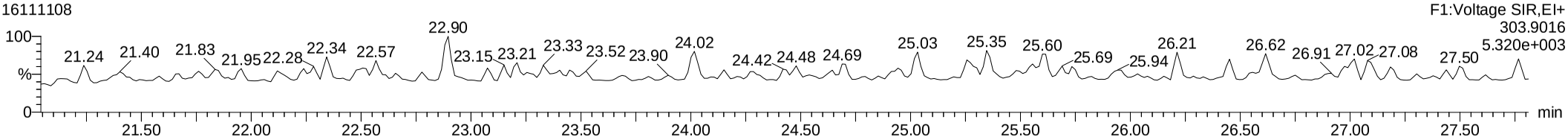

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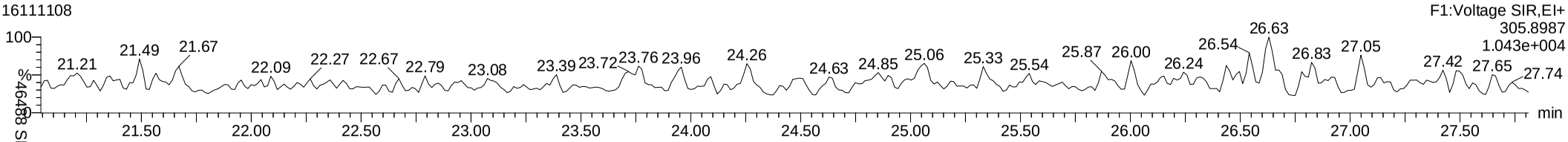
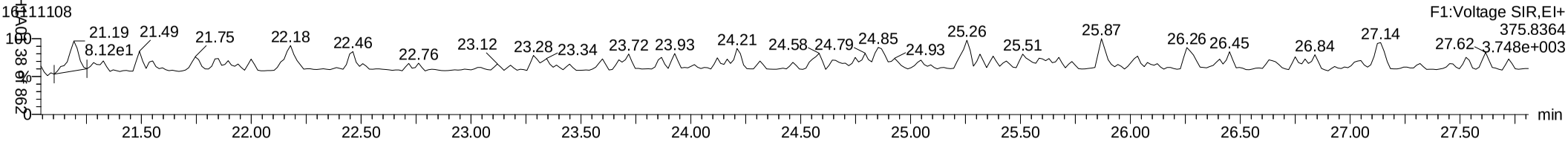


FUNCTION1 HXCDPE



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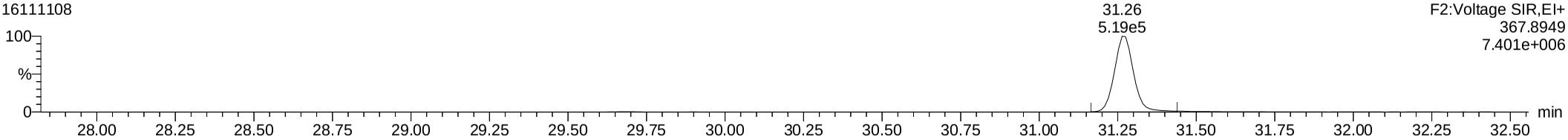
ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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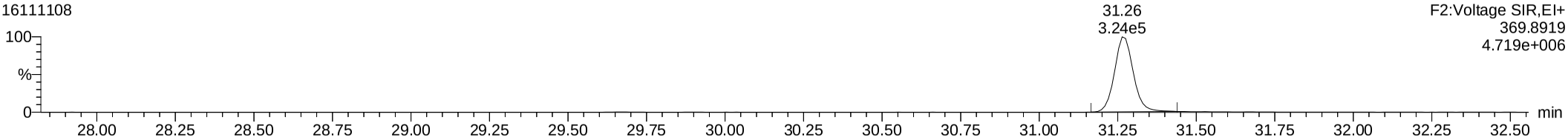

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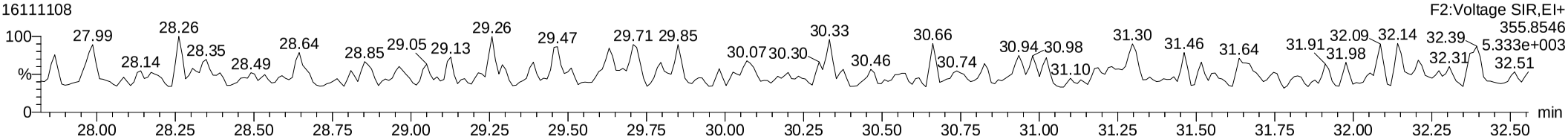

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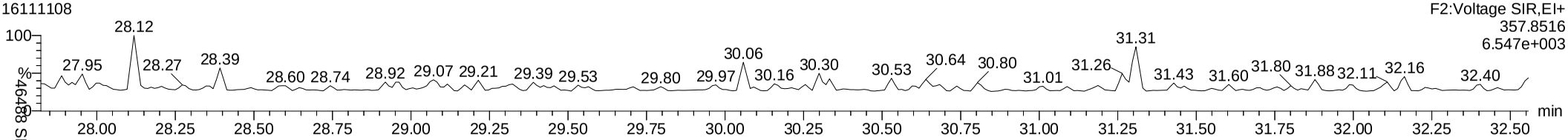
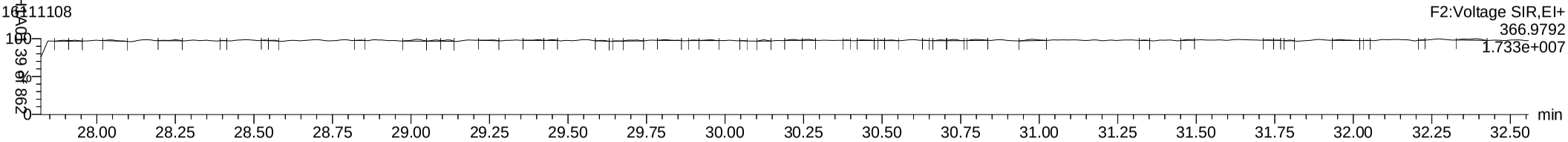


FUNCTION2 PFK



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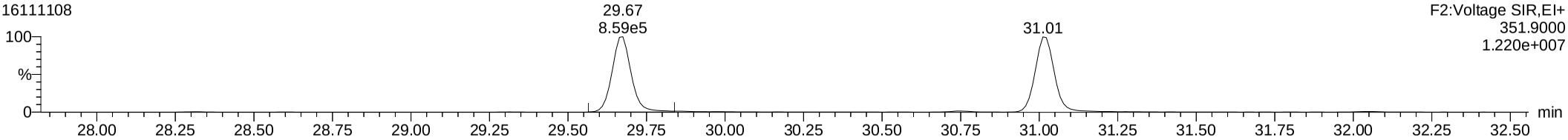
13C-12378-PeCDF



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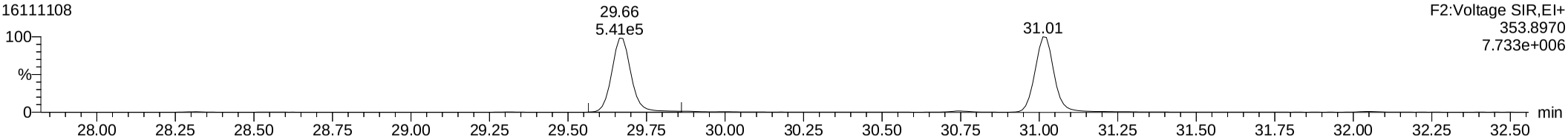

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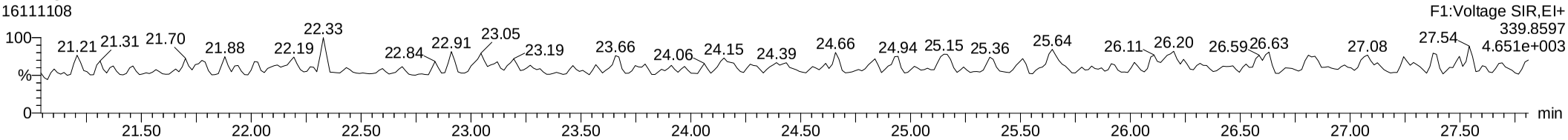
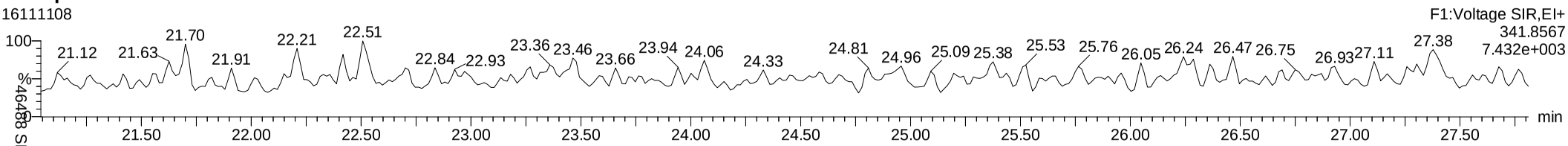


Total-penta1



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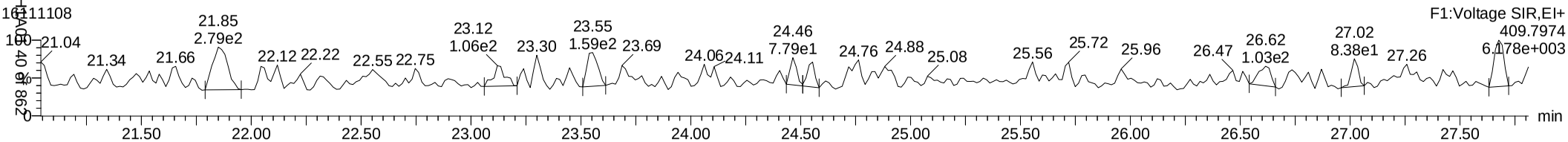

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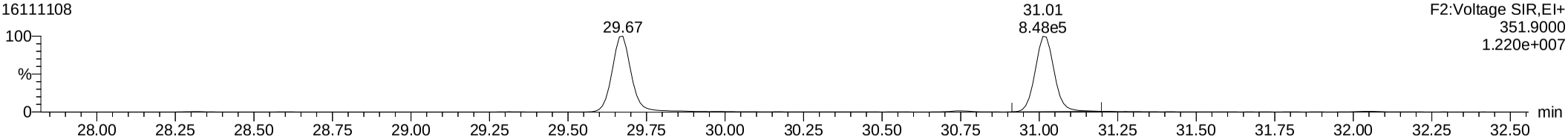
13C-23478-PeCDF



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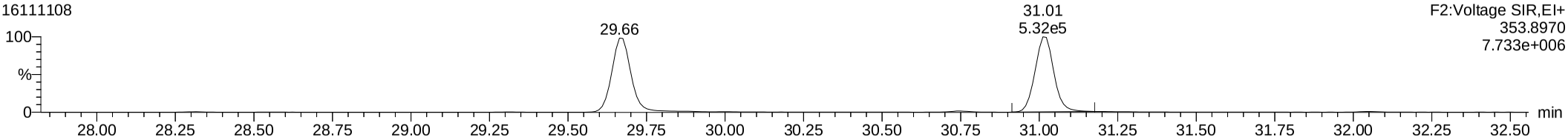

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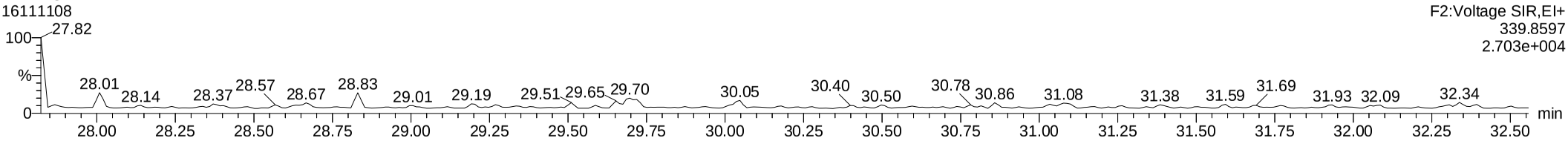
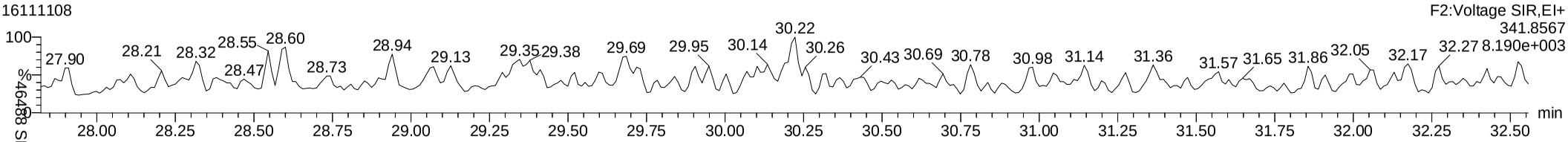
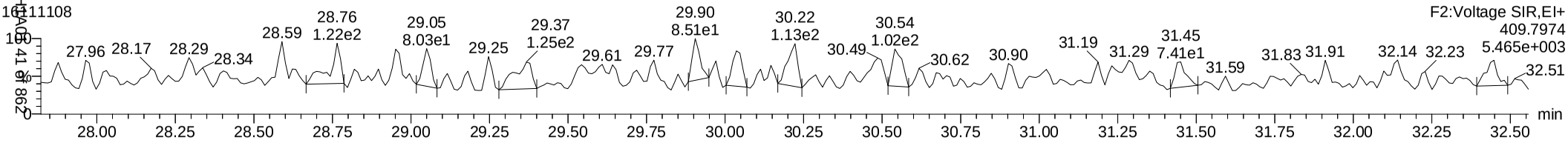


Total-pentafurans

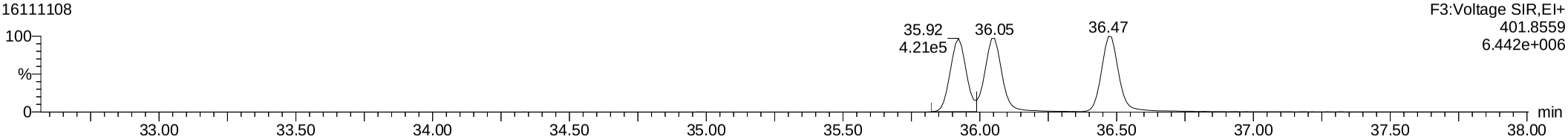


FUNCTION2 HPCDPE



ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



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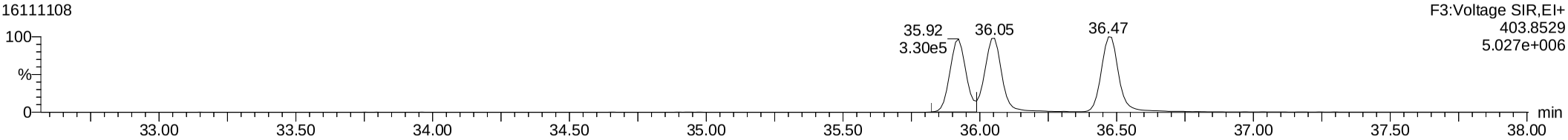

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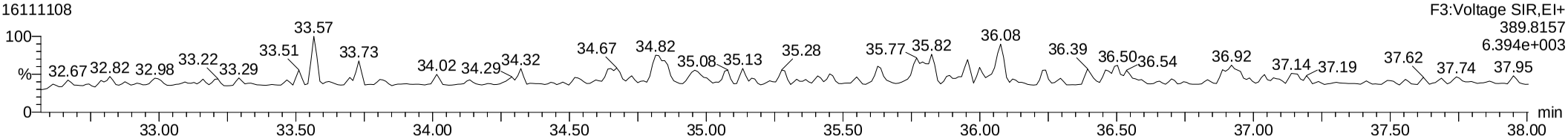
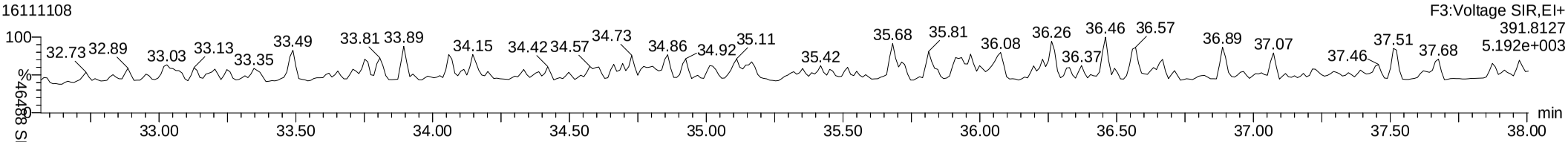
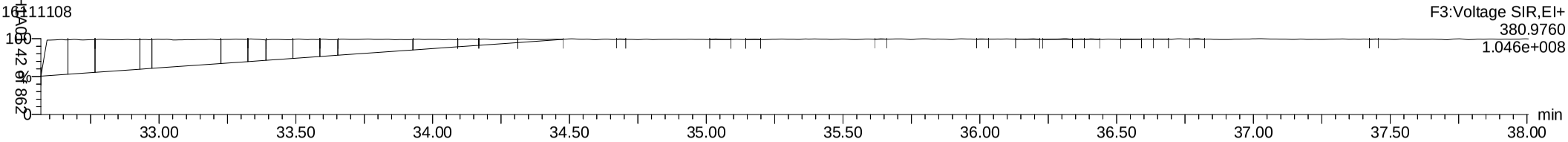


Total-hexadioxins



FUNCTION3 PFK



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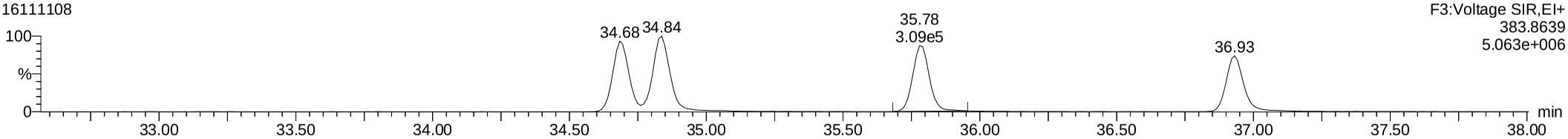
ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

13C-234678-HxCDF



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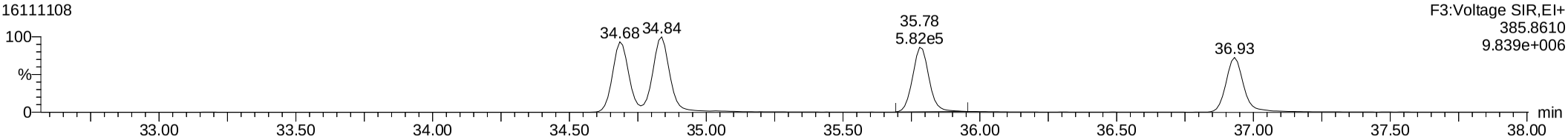

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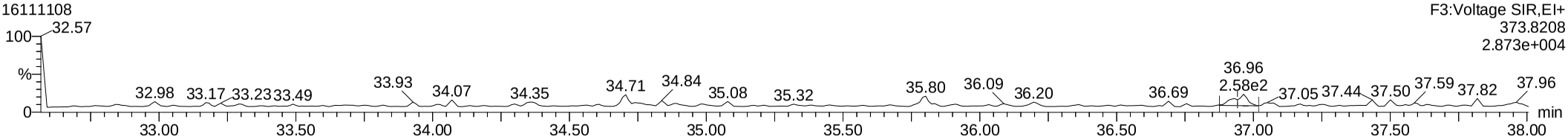
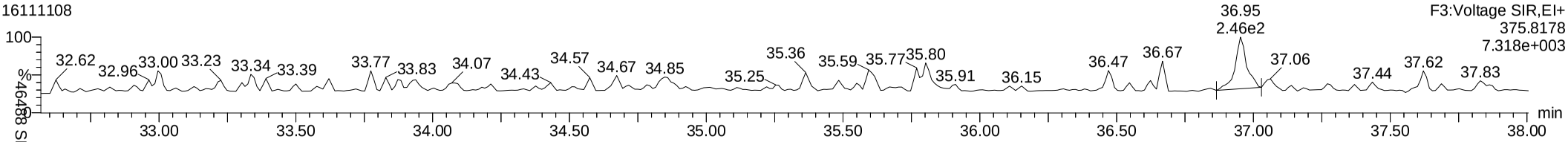
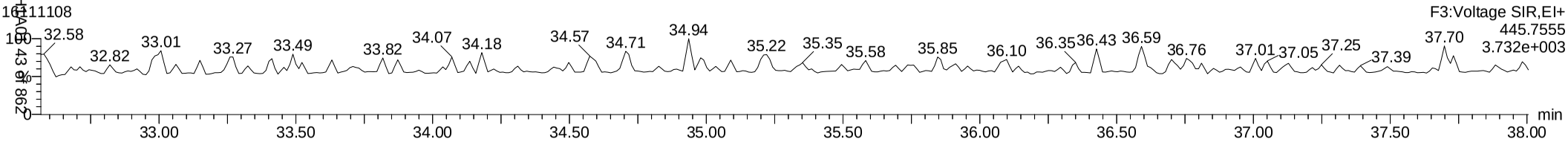


Total-hexafurans



FUNCTION3 OCDPE

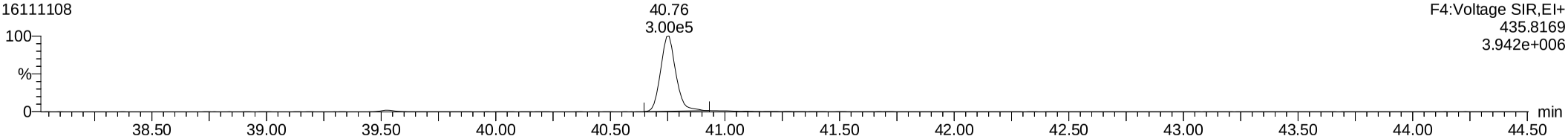


46488 SDG PH1A01 43 of 862

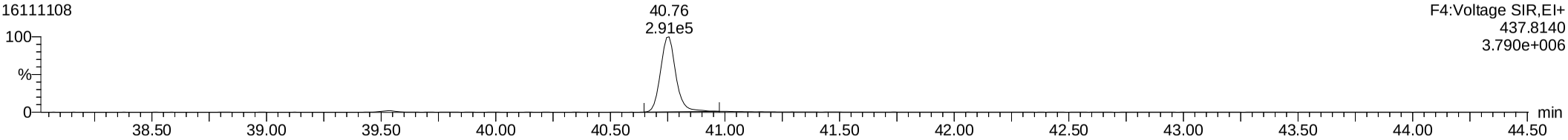
Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:02:12 Pacific Standard Time

ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



13C-1234678-HpCDD



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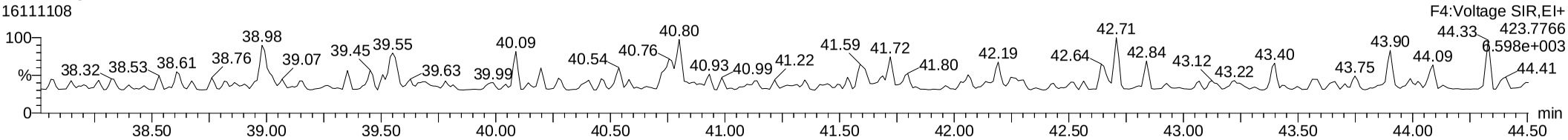
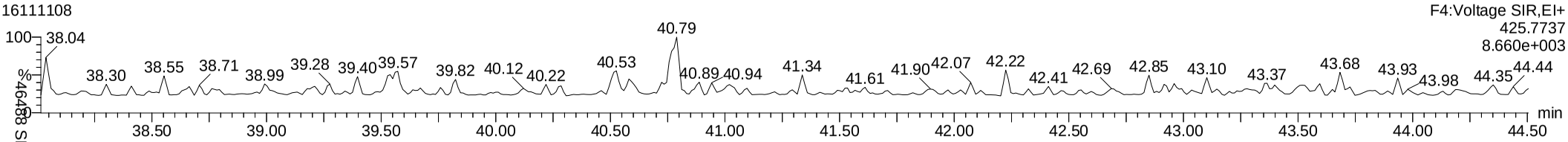
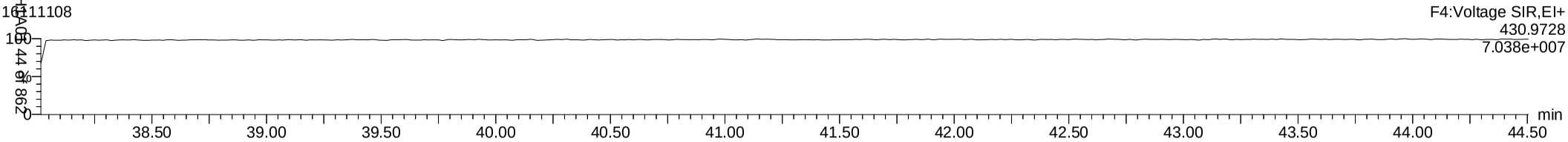


Total-heptadioxins



FUNCTION4 PFK



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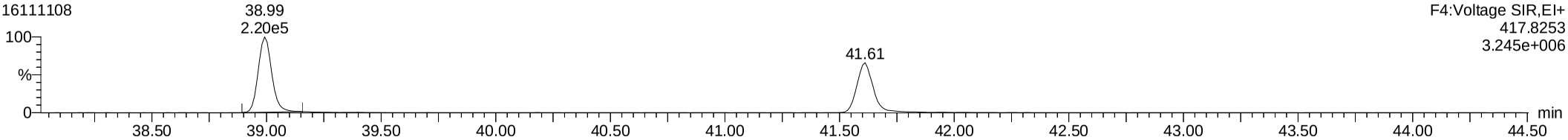
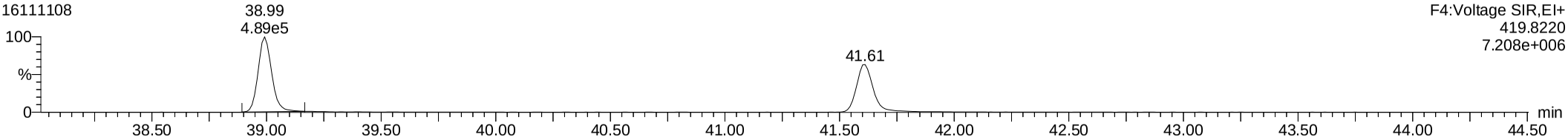
ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

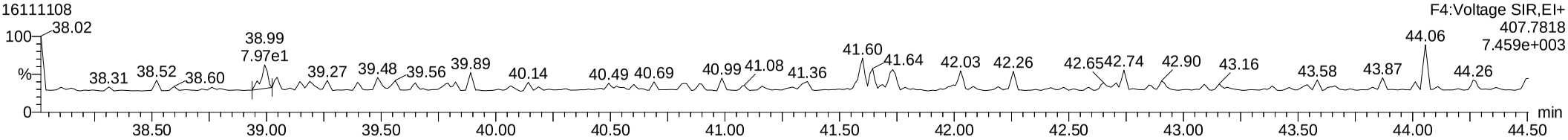
13C-1234678-HpCDF



13C-1234678-HpCDF



Total-heptafurans



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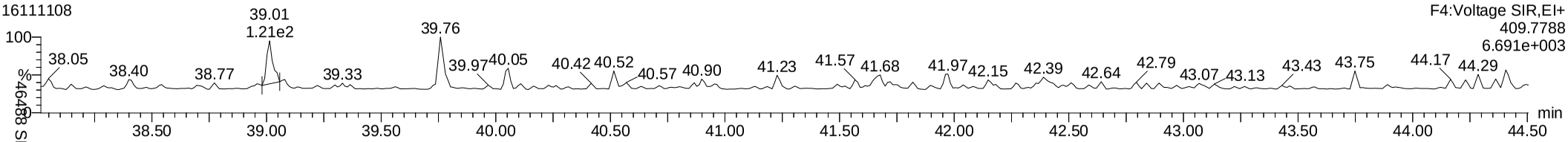
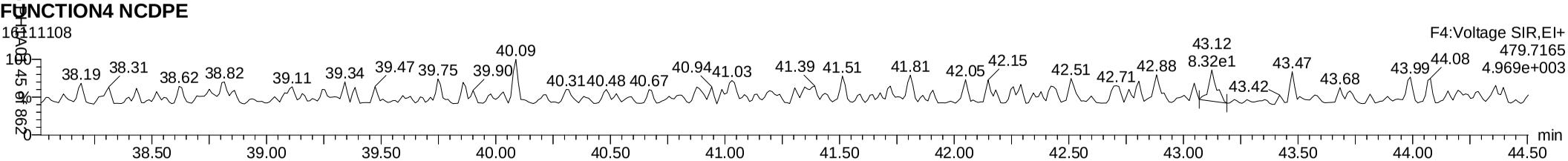


FUNCTION4 NCDPE

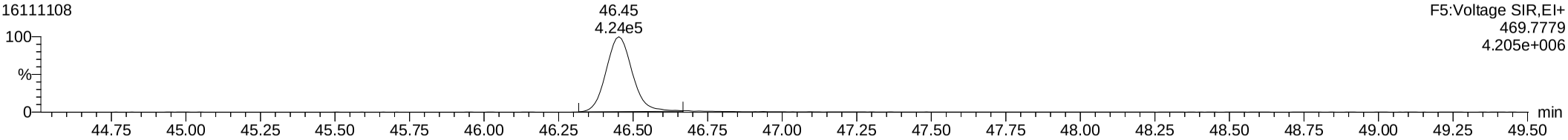


46488 SDG PH1A01 45 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:02:12 Pacific Standard Time

ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

13C-OCDD



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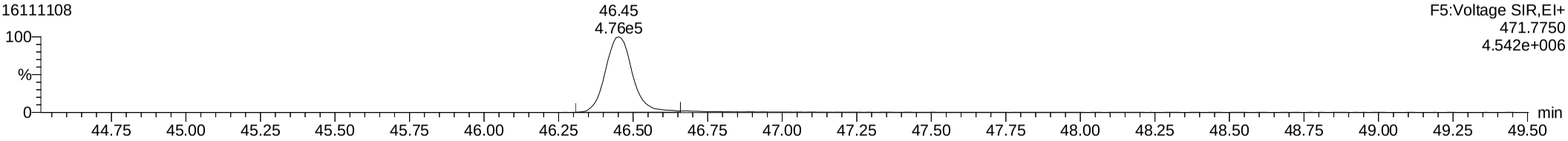

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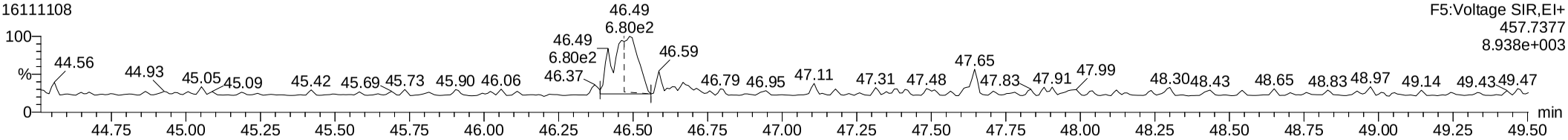

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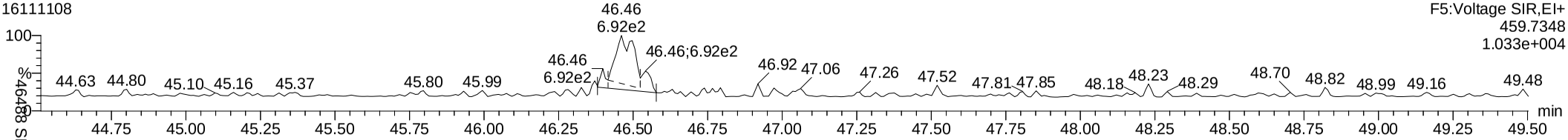
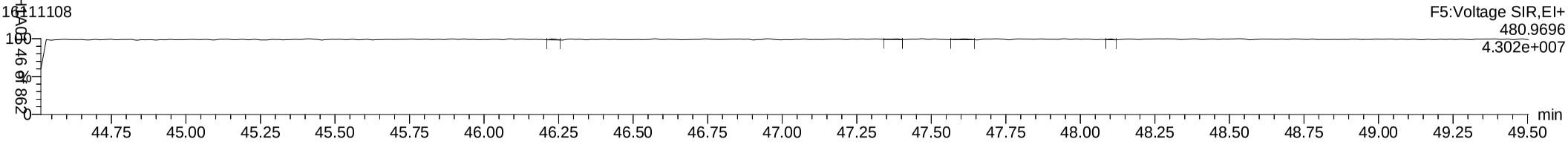


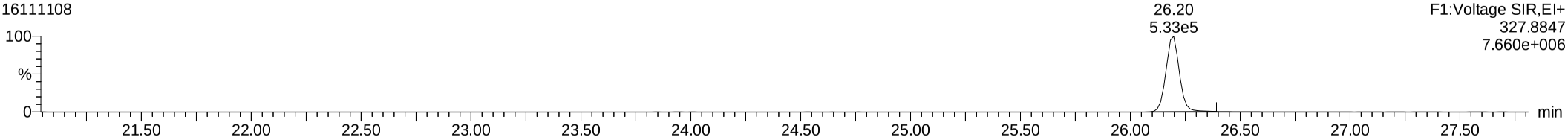
FUNCTION5 PFK



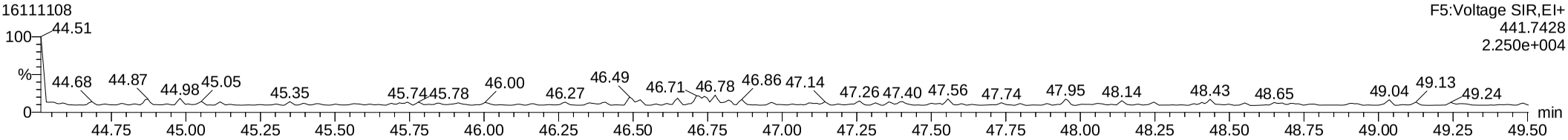
Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:02:12 Pacific Standard Time

ID: PH1A01, Name: 16111108, Date: 11-Nov-2016, Time: 17:52:09, Conditions: AUTOSPEC01, User: PK

37CL-2378-TCDD



OCDF



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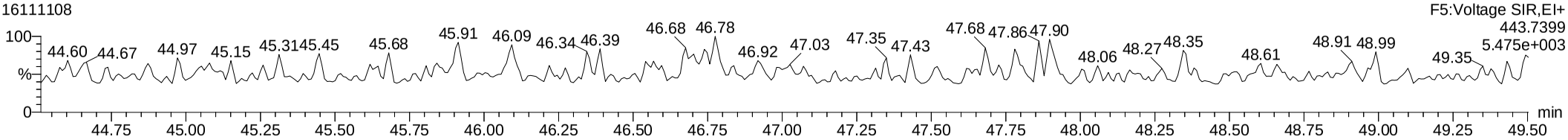
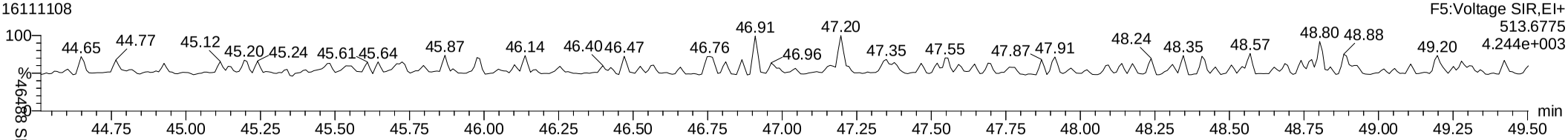


FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

PH1A02

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-02

Sample wt/vol: 31.4 (g/ml) g

Lab File ID: 16110922

Decanted (Y/N): N Extraction Method: SDS

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids: 31.9

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2,3,7,8-TCDD		U	0.28		
5	1,2,3,7,8-PeCDD		U	0.75		
6	1,2,3,4,7,8-HxCDD		EMPC, U	0.81		
6	1,2,3,6,7,8-HxCDD		U	0.88		
6	1,2,3,7,8,9-HxCDD		U	0.88		
7	1,2,3,4,6,7,8-HpCDD	9.0	B		1.078	40.7677
8	OCDD	64	B		0.909	46.4703
4	2,3,7,8-TCDF		U	0.20		
5	1,2,3,7,8-PeCDF		U	0.77		
5	2,3,4,7,8-PeCDF		EMPC, U	0.91		
6	1,2,3,4,7,8-HxCDF		EMPC, U	0.75		
6	1,2,3,6,7,8-HxCDF		EMPC, U	0.82		
6	1,2,3,7,8,9-HxCDF		U	0.74		
6	2,3,4,6,7,8-HxCDF		U	0.84		
7	1,2,3,4,6,7,8-HpCDF	0.58	J		1.189	39.0138
7	1,2,3,4,7,8,9-HpCDF		U	0.63		
8	OCDF		EMPC, U	1.7		

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

PH1A02

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF Lab Sample ID: 16K0015-02

Sample wt/vol: 31.4 (g/ml) g Lab File ID: 16110922

Decanted (Y/N): N Extraction Method: SDS Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids: 31.9

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2,3,7,8-TCDD		x 1.0		x 1.0		x 1.0	
1,2,3,7,8-PeCDD		x 1.0		x 1.0		x 1.0	
1,2,3,4,7,8-HxCDD		x 0.1		x 0.5		x 0.05	
1,2,3,6,7,8-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,7,8,9-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,4,6,7,8-HpCDD	9.0	x 0.01	0.0900	x 0.001	0.0090	x 0.001	0.0090
OCDD	64	x 0.0003	0.0192	x 0.0001	0.0064	x 0.0001	0.0064
2,3,7,8-TCDF		x 0.1		x 0.05		x 0.1	
1,2,3,7,8-PeCDF		x 0.03		x 0.05		x 0.1	
2,3,4,7,8-PeCDF		x 0.3		x 0.5		x 1.0	
1,2,3,4,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,7,8,9-HxCDF		x 0.1		x 0.1		x 0.1	
2,3,4,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,4,6,7,8-HpCDF	0.58	x 0.01	0.0058	x 0.01	0.0058	x 0.01	0.0058
1,2,3,4,7,8,9-HpCDF		x 0.01		x 0.01		x 0.01	
OCDF		x 0.0003		x 0.0001		x 0.0001	
		Total TEQ =	0.12	Total TEQ =	0.021	Total TEQ =	0.021

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 1D-HR

TOTAL HOMOLOGUE DATA SUMMARY

EPA SAMPLE NO.

PH1A02

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-02

Sample wt/vol: 31.4 (g/ml) g

Lab File ID: 16110922

Decanted (Y/N): N Extraction Method: SDS

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids: 31.9

Homologue	Peaks	Concentration	Q
Total TCDD	4	2.5	
Total PeCDD	7	1.5	
Total HxCDD	8	8.3	
Total HpCDD	3	22	
Total TCDF	3	0.25	
Total PeCDF	5	0.34	
Total HxCDF	5	0.77	
Total HpCDF	3	1.1	
OCDD	1	64	B
OCDF			U
Total		100.76	

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

PH1A02

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-02

Sample wt/vol: 31.4 (g/ml) g

Lab File ID: 16110922

Decanted (Y/N): N Extraction Method: SDS

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids: 31.9

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2,3,7,8-TCDD	200	170	85.0	0.77	26.1828
4	13C12-2,3,7,8-TCDF	200	170	85.6	0.78	25.5403
5	13C12-1,2,3,7,8-PeCDD	200	170	87.3	1.57	31.2752
5	13C12-1,2,3,7,8-PeCDF	200	170	84.1	1.57	29.6748
5	13C12-2,3,4,7,8-PeCDF	200	170	87.5	1.55	31.023
6	13C12-1,2,3,4,7,8-HxCDD	200	160	79.9	1.29	35.9337
6	13C12-1,2,3,6,7,8-HxCDD	200	150	75.1	1.25	36.0543
6	13C12-1,2,3,4,7,8-HxCDF	200	160	77.7	0.51	34.6952
6	13C12-1,2,3,6,7,8-HxCDF	200	150	74.3	0.51	34.8377
6	13C12-1,2,3,7,8,9-HxCDF	200	160	79.4	0.52	36.9312
6	13C12-2,3,4,6,7,8-HxCDF	200	150	76.3	0.52	35.7912
7	13C12-1,2,3,4,6,7,8-HpCDI	200	150	75.7	1.06	40.7567
7	13C12-1,2,3,4,6,7,8-HpCDF	200	140	67.9	0.45	38.9918
7	13C12-1,2,3,4,7,8,9-HpCDF	200	150	74.8	0.46	41.6115
8	13C12-OCDD	400	250	62.7	0.90	46.4433
Labeled Cleanup Standard 37C14-2,3,7,8-TCDD						
4	37C14-2,3,7,8-TCDD	79.97	81	101		26.1978

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:25:57 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A02, Name: 16110922, Date: 10-Nov-2016, Time: 06:28:24, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF					0.935		0.770	1135	1742					
12378-PeCDF					0.952		1.550	1236	1659					
23478-PeCDF	31.023	1.000	2.16e2	1.90e2	0.963	1.136	1.550	1236	1659	3.86e3	5.88e3	3.1	YES	0.017
123478-HxCDF	34.717	1.001	4.36e2	2.93e2	1.137	1.488	1.240	1561	604	6.07e3	5.30e3	3.9	YES	0.037
234678-HxCDF					1.164		1.240	1561	604					
123678-HxCDF	34.860	1.001	5.11e2	2.68e2	1.099	1.910	1.240	1561	604	7.77e3	7.28e3	5.0	YES	0.037
123789-HxCDF					1.101		1.240	1561	604					
1234678-HpCDF	39.014	1.001	2.68e3	2.25e3	1.303	1.189	1.050	974	776	4.10e4	3.30e4	42.1	NO	0.291
1234789-HpCDF					1.317		1.050	974	776					
OCDF	46.730	1.006	2.32e3	2.14e3	1.166	1.083	0.890	584	681	3.14e4	2.41e4	53.7	YES	0.459
2378-TCDD					1.134		0.770	1349	1163					
12378-PeCDD	31.264	1.000	9.39e2	6.86e2	0.975	1.369	1.550	1169	1253	1.05e4	1.07e4	9.0	NO	0.108
123478-HxCDD	35.934	1.000	1.04e3	1.03e3	1.031	1.014	1.240	1016	1828	1.78e4	1.48e4	17.6	YES	0.147
123678-HxCDD	36.065	1.000	1.52e3	1.26e3	0.971	1.209	1.240	1016	1828	2.13e4	1.77e4	21.0	NO	0.202
123789-HxCDD	36.493	1.012	2.97e3	2.37e3	0.947	1.249	1.240	1016	1828	4.20e4	3.53e4	41.3	NO	0.404
1234678-HpCDD	40.768	1.000	2.68e4	2.49e4	1.028	1.078	1.050	1563	1566	3.59e5	3.37e5	229.6	NO	4.498
OCDD	46.470	1.001	1.42e5	1.56e5	1.107	0.909	0.890	990	1147	1.42e6	1.61e6	1436.4	NO	32.185
13C-2378-TCDF	25.540	1.007	1.38e6	1.76e6	1.567	0.782	0.770	6387	2753	1.92e7	2.47e7	3004.7	NO	85.586
13C-12378-PeCDF	29.675	1.169	1.53e6	9.76e5	1.274	1.566	1.550	4554	3292	2.28e7	1.45e7	5014.5	NO	84.120
13C-23478-PeCDF	31.023	1.222	1.54e6	9.90e5	1.235	1.552	1.550	4554	3292	2.29e7	1.48e7	5023.0	NO	87.500
13C-123478-HxCDF	34.695	0.951	5.92e5	1.15e6	1.381	0.514	0.510	4512	4215	8.71e6	1.70e7	1929.5	NO	77.665
13C-123678-HxCDF	34.838	0.955	6.39e5	1.26e6	1.569	0.509	0.510	4512	4215	9.39e6	1.83e7	2080.3	NO	74.325
13C-234678-HxCDF	35.791	0.981	5.71e5	1.10e6	1.345	0.521	0.510	4512	4215	8.46e6	1.59e7	1875.7	NO	76.270
13C-123789-HxCDF	36.931	1.012	5.24e5	1.00e6	1.183	0.522	0.510	4512	4215	7.61e6	1.46e7	1686.8	NO	79.425
13C-1234678-HpCDF	38.992	1.069	4.05e5	8.95e5	1.178	0.452	0.440	1899	2217	6.02e6	1.33e7	3172.3	NO	67.888
13C-1234789-HpCDF	41.611	1.141	3.36e5	7.31e5	0.878	0.460	0.440	1899	2217	4.34e6	9.53e6	2286.6	NO	74.809
13C-1234-TCDD	25.376	0.000	1.03e6	1.31e6	1.000	0.785	0.770	2714	2217	1.47e7	1.86e7	5403.1	NO	100.000
13C-2378-TCDD	26.183	1.032	7.86e5	1.02e6	0.908	0.772	0.770	2714	2217	1.13e7	1.44e7	4161.3	NO	85.030
13C-12378-PeCDD	31.275	1.232	9.43e5	5.99e5	0.756	1.573	1.550	1574	1290	1.39e7	8.78e6	8800.9	NO	87.306
13C-123478-HxCDD	35.934	0.985	7.71e5	6.00e5	1.056	1.285	1.240	2119	1954	1.14e7	8.81e6	5372.1	NO	79.897
13C-123678-HxCDD	36.054	0.988	7.90e5	6.30e5	1.163	1.254	1.240	2119	1954	1.17e7	9.30e6	5517.6	NO	75.135
13C-1234678-HpCDD	40.757	1.117	5.74e5	5.44e5	0.909	1.056	1.050	2684	1902	7.62e6	7.25e6	2838.0	NO	75.697
13C-OCDD	46.443	1.273	7.91e5	8.78e5	0.820	0.901	0.890	1751	1587	8.20e6	9.20e6	4686.2	NO	125.381
13C-123789-HxCDD	36.482	0.000	9.07e5	7.17e5	1.000	1.265	1.240	2119	1954	1.36e7	1.08e7	6413.7	NO	100.000
Total-tetrafurans			1.69e3		0.935			1135		2.50e4				0.125

16088SDG PK 11/10/16 22:18:82

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:25:57 Pacific Standard Time

ID: PH1A02, Name: 16110922, Date: 10-Nov-2016, Time: 06:28:24, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			1.42e3					520		2.25e4				0.105
Total-pentafurans			9.96e2		0.957			1236		1.99e4				0.066
Total-hexafurans			4.24e3		1.125			1561		5.98e4				0.383
Total-heptafurans			4.70e3		1.310			974		7.36e4				0.547
Total-Furans			1.54e4		1.114			1135		2.32e5				1.686
Total-tetradioxins			1.12e4		1.134			1349		1.52e5				1.228
Total-pentadioxins			6.51e3		0.975			1169		9.83e4				0.760
Total-hexadioxins			3.13e4		0.983			1016		4.39e5				4.164
Total-heptadioxins			6.57e4		1.028			1563		9.51e5				11.185
Total-Dioxins			2.56e5		1.028			1349		3.06e6				49.521
Total-TEQ			2.72e5					1349		3.29e6				51.207
37CL-2378-TCDD	26.198	1.032	1.01e6		1.067			1206		1.46e7		12133.3		40.402
FUNCTION1 PFK			8.18e6					300261		3.98e7				
FUNCTION2 PFK			8.03e4					84042		2.40e6				0.000
FUNCTION3 PFK			1.64e5					212203		4.41e6				0.000
FUNCTION4 PFK			2.24e5					167900		6.83e6				
FUNCTION5 PFK			0.00e0					118423		0.00e0				
FUNCTION1 HXCD...			0.00e0					306		0.00e0				
FUNCTION1 HPCD...			3.64e2					426		6.34e3				0.000
FUNCTION2 HPCD...			0.00e0					502		0.00e0				
FUNCTION3 OCDPE			7.77e1					525		2.36e3				0.000
FUNCTION4 NCDPE			1.73e3					777		2.91e4				0.000
FUNCTION5 DCDPE			0.00e0					778		0.00e0				

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A02, Name: 16110922, Date: 10-Nov-2016, Time: 06:28:24, Conditions: AUTOSPEC01, User: PK

TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	23.42	787.250	0.935	0.027		0.70	0.77	NO	4.4
2	35	Total-tetrafurans	303.9016	22.91	1857.488	0.935	0.063		1.02	0.77	YES	12.2
3	35	Total-tetrafurans	303.9016	26.60	1033.477	0.935	0.035		0.72	0.77	NO	5.4

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	36	Total-penta1	339.8597	26.97	1920.158		0.083		1.35	1.55	NO	30.8
2	36	Total-penta1	339.8597	26.90	496.982		0.022		1.73	1.55	NO	12.4

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	37	Total-pentafurans	339.8597	28.60	621.029	0.957	0.026		2.20	1.55	YES	5.6
2	37	Total-pentafurans	339.8597	28.55	570.361	0.957	0.024		1.62	1.55	NO	7.3
3	3	23478-PeCDF	339.8597	31.02	406.793	0.963	0.017	0.015	1.14	1.55	YES	3.1

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	6	123678-HxCDF	373.8208	34.86	778.557	1.099	0.037	0.029	1.91	1.24	YES	5.0
2	4	123478-HxCDF	373.8208	34.72	728.356	1.137	0.037	0.033	1.49	1.24	YES	3.9
3	38	Total-hexafurans	373.8208	34.06	1225.850	1.125	0.064		1.01	1.24	YES	6.6
4	38	Total-hexafurans	373.8208	33.20	3584.191	1.125	0.187		1.52	1.24	YES	15.8
5	38	Total-hexafurans	373.8208	32.99	1126.842	1.125	0.059		0.85	1.24	YES	7.0

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	39	Total-heptafurans	407.7818	41.03	186.733	1.310	0.012		0.70	1.05	YES	3.3
2	39	Total-heptafurans	407.7818	39.78	3780.229	1.310	0.244		1.06	1.05	NO	30.2
3	8	1234678-HpCDF	407.7818	39.01	4928.992	1.303	0.291	0.291	1.19	1.05	NO	42.1

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
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ID: PH1A02, Name: 16110922, Date: 10-Nov-2016, Time: 06:28:24, Conditions: AUTOSPEC01, User: PK

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	23.42	787.250	0.935	0.027		0.70	0.77	NO	4.4
2	35	Total-tetrafurans	303.9016	22.91	1857.488	0.935	0.063		1.02	0.77	YES	12.2
3	35	Total-tetrafurans	303.9016	26.60	1033.477	0.935	0.035		0.72	0.77	NO	5.4
4	37	Total-pentafurans	339.8597	28.60	621.029	0.957	0.026		2.20	1.55	YES	5.6
5	37	Total-pentafurans	339.8597	28.55	570.361	0.957	0.024		1.62	1.55	NO	7.3
6	3	23478-PeCDF	339.8597	31.02	406.793	0.963	0.017	0.015	1.14	1.55	YES	3.1
7	6	123678-HxCDF	373.8208	34.86	778.557	1.099	0.037	0.029	1.91	1.24	YES	5.0
8	4	123478-HxCDF	373.8208	34.72	728.356	1.137	0.037	0.033	1.49	1.24	YES	3.9
9	38	Total-hexafurans	373.8208	34.06	1225.850	1.125	0.064		1.01	1.24	YES	6.6
10	38	Total-hexafurans	373.8208	33.20	3584.191	1.125	0.187		1.52	1.24	YES	15.8
11	38	Total-hexafurans	373.8208	32.99	1126.842	1.125	0.059		0.85	1.24	YES	7.0
12	39	Total-heptafurans	407.7818	41.03	186.733	1.310	0.012		0.70	1.05	YES	3.3
13	39	Total-heptafurans	407.7818	39.78	3780.229	1.310	0.244		1.06	1.05	NO	30.2
14	8	1234678-HpCDF	407.7818	39.01	4928.992	1.303	0.291	0.291	1.19	1.05	NO	42.1
15	10	OCDF	441.7428	46.73	4467.206	1.166	0.459	0.416	1.08	0.89	YES	53.7
16	36	Total-penta1	339.8597	26.97	1920.158		0.083		1.35	1.55	NO	30.8
17	36	Total-penta1	339.8597	26.90	496.982		0.022		1.73	1.55	NO	12.4

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	24.35	22752.157	1.134	1.112		0.79	0.77	NO	98.5
2	41	Total-tetradioxins	319.8965	23.63	621.182	1.134	0.030		1.02	0.77	YES	4.2
3	41	Total-tetradioxins	319.8965	23.37	995.642	1.134	0.049		0.70	0.77	NO	4.6
4	41	Total-tetradioxins	319.8965	25.36	755.326	1.134	0.037		1.70	0.77	YES	5.7

PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	42	Total-pentadioxins	355.8546	31.67	737.043	0.975	0.049		1.15	1.55	YES	5.0
2	12	12378-PeCDD	355.8546	31.26	1625.385	0.975	0.108	0.108	1.37	1.55	NO	9.0
3	42	Total-pentadioxins	355.8546	30.58	619.706	0.975	0.041		1.30	1.55	YES	5.0
4	42	Total-pentadioxins	355.8546	30.23	1394.553	0.975	0.093		1.08	1.55	YES	12.1
5	42	Total-pentadioxins	355.8546	29.89	1246.626	0.975	0.083		1.30	1.55	YES	9.1
6	42	Total-pentadioxins	355.8546	29.08	4122.278	0.975	0.274		1.24	1.55	YES	32.3
7	42	Total-pentadioxins	355.8546	28.62	1692.440	0.975	0.112		1.94	1.55	YES	11.6

HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	15	123789-HxCDD	389.8157	36.49	5341.349	0.947	0.404	0.404	1.25	1.24	NO	41.3
2	43	Total-hexadioxins	389.8157	36.25	1917.518	0.983	0.140		1.67	1.24	YES	14.7
3	14	123678-HxCDD	389.8157	36.07	2786.789	0.971	0.202	0.202	1.21	1.24	NO	21.0
4	13	123478-HxCDD	389.8157	35.93	2075.856	1.031	0.147	0.134	1.01	1.24	YES	17.6
5	43	Total-hexadioxins	389.8157	35.11	1192.641	0.983	0.087		1.22	1.24	NO	15.2
6	43	Total-hexadioxins	389.8157	34.98	14751.330	0.983	1.076		1.29	1.24	NO	80.0
7	43	Total-hexadioxins	389.8157	34.59	1732.894	0.983	0.126		1.05	1.24	YES	15.2
8	43	Total-hexadioxins	389.8157	33.79	27186.246	0.983	1.982		1.18	1.24	NO	227.0

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ID: PH1A02, Name: 16110922, Date: 10-Nov-2016, Time: 06:28:24, Conditions: AUTOSPEC01, User: PK

HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	44	Total-heptadioxins	423.7766	39.55	76322.805	1.028	6.641		1.02	1.05	NO	373.4
2	16	1234678-HpCDD	423.7766	40.77	51700.252	1.028	4.498	4.498	1.08	1.05	NO	229.6
3	44	Total-heptadioxins	423.7766	39.67	524.142	1.028	0.046		1.25	1.05	YES	5.4

Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	24.35	22752.157	1.134	1.112		0.79	0.77	NO	98.5
2	41	Total-tetradioxins	319.8965	23.63	621.182	1.134	0.030		1.02	0.77	YES	4.2
3	41	Total-tetradioxins	319.8965	23.37	995.642	1.134	0.049		0.70	0.77	NO	4.6
4	41	Total-tetradioxins	319.8965	25.36	755.326	1.134	0.037		1.70	0.77	YES	5.7
5	42	Total-pentadioxins	355.8546	31.67	737.043	0.975	0.049		1.15	1.55	YES	5.0
6	12	12378-PeCDD	355.8546	31.26	1625.385	0.975	0.108	0.108	1.37	1.55	NO	9.0
7	42	Total-pentadioxins	355.8546	30.58	619.706	0.975	0.041		1.30	1.55	YES	5.0
8	42	Total-pentadioxins	355.8546	30.23	1394.553	0.975	0.093		1.08	1.55	YES	12.1
9	42	Total-pentadioxins	355.8546	29.89	1246.626	0.975	0.083		1.30	1.55	YES	9.1
10	42	Total-pentadioxins	355.8546	29.08	4122.278	0.975	0.274		1.24	1.55	YES	32.3
11	42	Total-pentadioxins	355.8546	28.62	1692.440	0.975	0.112		1.94	1.55	YES	11.6
12	15	123789-HxCDD	389.8157	36.49	5341.349	0.947	0.404	0.404	1.25	1.24	NO	41.3
13	43	Total-hexadioxins	389.8157	36.25	1917.518	0.983	0.140		1.67	1.24	YES	14.7
14	14	123678-HxCDD	389.8157	36.07	2786.789	0.971	0.202	0.202	1.21	1.24	NO	21.0
15	13	123478-HxCDD	389.8157	35.93	2075.856	1.031	0.147	0.134	1.01	1.24	YES	17.6
16	43	Total-hexadioxins	389.8157	35.11	1192.641	0.983	0.087		1.22	1.24	NO	15.2
17	43	Total-hexadioxins	389.8157	34.98	14751.330	0.983	1.076		1.29	1.24	NO	80.0
18	43	Total-hexadioxins	389.8157	34.59	1732.894	0.983	0.126		1.05	1.24	YES	15.2
19	43	Total-hexadioxins	389.8157	33.79	27186.246	0.983	1.982		1.18	1.24	NO	227.0
20	44	Total-heptadioxins	423.7766	39.55	76322.805	1.028	6.641		1.02	1.05	NO	373.4
21	16	1234678-HpCDD	423.7766	40.77	51700.252	1.028	4.498	4.498	1.08	1.05	NO	229.6
22	44	Total-heptadioxins	423.7766	39.67	524.142	1.028	0.046		1.25	1.05	YES	5.4
23	17	OCDD	457.7377	46.47	297400.297	1.107	32.185	32.185	0.91	0.89	NO	1436.4

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TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	23.42	787.250	0.935	0.027		0.70	0.77	NO	4.4
2	35	Total-tetrafurans	303.9016	22.91	1857.488	0.935	0.063		1.02	0.77	YES	12.2
3	35	Total-tetrafurans	303.9016	26.60	1033.477	0.935	0.035		0.72	0.77	NO	5.4
4	37	Total-pentafurans	339.8597	28.60	621.029	0.957	0.026		2.20	1.55	YES	5.6
5	37	Total-pentafurans	339.8597	28.55	570.361	0.957	0.024		1.62	1.55	NO	7.3
6	3	23478-PeCDF	339.8597	31.02	406.793	0.963	0.017	0.015	1.14	1.55	YES	3.1
7	6	123678-HxCDF	373.8208	34.86	778.557	1.099	0.037	0.029	1.91	1.24	YES	5.0
8	4	123478-HxCDF	373.8208	34.72	728.356	1.137	0.037	0.033	1.49	1.24	YES	3.9
9	38	Total-hexafurans	373.8208	34.06	1225.850	1.125	0.064		1.01	1.24	YES	6.6
10	38	Total-hexafurans	373.8208	33.20	3584.191	1.125	0.187		1.52	1.24	YES	15.8
11	38	Total-hexafurans	373.8208	32.99	1126.842	1.125	0.059		0.85	1.24	YES	7.0
12	39	Total-heptafurans	407.7818	41.03	186.733	1.310	0.012		0.70	1.05	YES	3.3
13	39	Total-heptafurans	407.7818	39.78	3780.229	1.310	0.244		1.06	1.05	NO	30.2
14	8	1234678-HpCDF	407.7818	39.01	4928.992	1.303	0.291	0.291	1.19	1.05	NO	42.1
15	10	OCDF	441.7428	46.73	4467.206	1.166	0.459	0.416	1.08	0.89	YES	53.7
16	36	Total-penta1	339.8597	26.97	1920.158		0.083		1.35	1.55	NO	30.8
17	36	Total-penta1	339.8597	26.90	496.982		0.022		1.73	1.55	NO	12.4
18	41	Total-tetradioxins	319.8965	24.35	22752.157	1.134	1.112		0.79	0.77	NO	98.5
19	41	Total-tetradioxins	319.8965	23.63	621.182	1.134	0.030		1.02	0.77	YES	4.2
20	41	Total-tetradioxins	319.8965	23.37	995.642	1.134	0.049		0.70	0.77	NO	4.6
21	41	Total-tetradioxins	319.8965	25.36	755.326	1.134	0.037		1.70	0.77	YES	5.7
22	42	Total-pentadioxins	355.8546	31.67	737.043	0.975	0.049		1.15	1.55	YES	5.0
23	12	12378-PeCDD	355.8546	31.26	1625.385	0.975	0.108	0.108	1.37	1.55	NO	9.0
24	42	Total-pentadioxins	355.8546	30.58	619.706	0.975	0.041		1.30	1.55	YES	5.0
25	42	Total-pentadioxins	355.8546	30.23	1394.553	0.975	0.093		1.08	1.55	YES	12.1
26	42	Total-pentadioxins	355.8546	29.89	1246.626	0.975	0.083		1.30	1.55	YES	9.1
27	42	Total-pentadioxins	355.8546	29.08	4122.278	0.975	0.274		1.24	1.55	YES	32.3
28	42	Total-pentadioxins	355.8546	28.62	1692.440	0.975	0.112		1.94	1.55	YES	11.6
29	15	123789-HxCDD	389.8157	36.49	5341.349	0.947	0.404	0.404	1.25	1.24	NO	41.3
30	43	Total-hexadioxins	389.8157	36.25	1917.518	0.983	0.140		1.67	1.24	YES	14.7
31	14	123678-HxCDD	389.8157	36.07	2786.789	0.971	0.202	0.202	1.21	1.24	NO	21.0
32	13	123478-HxCDD	389.8157	35.93	2075.856	1.031	0.147	0.134	1.01	1.24	YES	17.6
33	43	Total-hexadioxins	389.8157	35.11	1192.641	0.983	0.087		1.22	1.24	NO	15.2
34	43	Total-hexadioxins	389.8157	34.98	14751.330	0.983	1.076		1.29	1.24	NO	80.0
35	43	Total-hexadioxins	389.8157	34.59	1732.894	0.983	0.126		1.05	1.24	YES	15.2
36	43	Total-hexadioxins	389.8157	33.79	27186.246	0.983	1.982		1.18	1.24	NO	227.0
37	44	Total-heptadioxins	423.7766	39.55	76322.805	1.028	6.641		1.02	1.05	NO	373.4
38	16	1234678-HpCDD	423.7766	40.77	51700.252	1.028	4.498	4.498	1.08	1.05	NO	229.6
39	44	Total-heptadioxins	423.7766	39.67	524.142	1.028	0.046		1.25	1.05	YES	5.4
40	17	OCDD	457.7377	46.47	297400.297	1.107	32.185	32.185	0.91	0.89	NO	1436.4

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PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	24.08	0.000							7.6
2	48	FUNCTION1 PFK	330.9792	23.14	0.000							13.9
3	48	FUNCTION1 PFK	330.9792	22.90	0.000							14.6
4	48	FUNCTION1 PFK	330.9792	22.70	0.000							13.2
5	48	FUNCTION1 PFK	330.9792	22.10	0.000							10.5
6	48	FUNCTION1 PFK	330.9792	21.82	0.000							5.1
7	48	FUNCTION1 PFK	330.9792	21.45	0.000							15.2
8	48	FUNCTION1 PFK	330.9792	21.09	0.000							32.2
9	48	FUNCTION1 PFK	330.9792	25.65	0.000							3.7
10	48	FUNCTION1 PFK	330.9792	25.39	0.000							6.7
11	48	FUNCTION1 PFK	330.9792	25.09	0.000							4.2
12	48	FUNCTION1 PFK	330.9792	24.39	0.000							5.6

PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	28.96	0.000		0.000					0.9
2	49	FUNCTION2 PFK	366.9792	28.81	0.000		0.000					1.0
3	49	FUNCTION2 PFK	366.9792	28.75	0.000		0.000					1.0
4	49	FUNCTION2 PFK	366.9792	28.60	0.000		0.000					0.9
5	49	FUNCTION2 PFK	366.9792	28.55	0.000		0.000					0.5
6	49	FUNCTION2 PFK	366.9792	28.50	0.000		0.000					0.3
7	49	FUNCTION2 PFK	366.9792	28.35	0.000		0.000					0.4
8	49	FUNCTION2 PFK	366.9792	28.28	0.000		0.000					1.9
9	49	FUNCTION2 PFK	366.9792	28.19	0.000		0.000					0.9
10	49	FUNCTION2 PFK	366.9792	28.10	0.000		0.000					0.5
11	49	FUNCTION2 PFK	366.9792	27.90	0.000		0.000					0.9
12	49	FUNCTION2 PFK	366.9792	31.85	0.000		0.000					0.4
13	49	FUNCTION2 PFK	366.9792	31.72	0.000		0.000					1.1
14	49	FUNCTION2 PFK	366.9792	31.63	0.000		0.000					1.6
15	49	FUNCTION2 PFK	366.9792	31.53	0.000		0.000					1.2
16	49	FUNCTION2 PFK	366.9792	31.47	0.000		0.000					0.5
17	49	FUNCTION2 PFK	366.9792	31.20	0.000		0.000					0.8
18	49	FUNCTION2 PFK	366.9792	31.13	0.000		0.000					1.5
19	49	FUNCTION2 PFK	366.9792	30.77	0.000		0.000					1.1
20	49	FUNCTION2 PFK	366.9792	30.66	0.000		0.000					0.8
21	49	FUNCTION2 PFK	366.9792	30.61	0.000		0.000					0.9
22	49	FUNCTION2 PFK	366.9792	30.54	0.000		0.000					0.9
23	49	FUNCTION2 PFK	366.9792	30.40	0.000		0.000					1.1
24	49	FUNCTION2 PFK	366.9792	30.20	0.000		0.000					0.7
25	49	FUNCTION2 PFK	366.9792	30.09	0.000		0.000					0.8
26	49	FUNCTION2 PFK	366.9792	29.77	0.000		0.000					1.4
27	49	FUNCTION2 PFK	366.9792	29.26	0.000		0.000					0.8
28	49	FUNCTION2 PFK	366.9792	32.42	0.000		0.000					1.9
29	49	FUNCTION2 PFK	366.9792	32.24	0.000		0.000					1.3
30	49	FUNCTION2 PFK	366.9792	32.02	0.000		0.000					0.5

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	35.88	0.000		0.000					0.7
2	50	FUNCTION3 PFK	380.9760	35.78	0.000		0.000					2.5
3	50	FUNCTION3 PFK	380.9760	35.41	0.000		0.000					1.6
4	50	FUNCTION3 PFK	380.9760	35.16	0.000		0.000					0.6
5	50	FUNCTION3 PFK	380.9760	35.07	0.000		0.000					0.7
6	50	FUNCTION3 PFK	380.9760	34.77	0.000		0.000					1.0
7	50	FUNCTION3 PFK	380.9760	34.74	0.000		0.000					0.9
8	50	FUNCTION3 PFK	380.9760	34.65	0.000		0.000					1.9
9	50	FUNCTION3 PFK	380.9760	34.49	0.000		0.000					0.7
10	50	FUNCTION3 PFK	380.9760	34.38	0.000		0.000					1.2
11	50	FUNCTION3 PFK	380.9760	34.20	0.000		0.000					1.1
12	50	FUNCTION3 PFK	380.9760	33.74	0.000		0.000					1.8
13	50	FUNCTION3 PFK	380.9760	37.44	0.000		0.000					0.8
14	50	FUNCTION3 PFK	380.9760	37.35	0.000		0.000					1.6
15	50	FUNCTION3 PFK	380.9760	36.94	0.000		0.000					1.1
16	50	FUNCTION3 PFK	380.9760	36.38	0.000		0.000					1.7
17	50	FUNCTION3 PFK	380.9760	36.22	0.000		0.000					1.0

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PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	39.72	0.000							1.5
2	51	FUNCTION4 PFK	430.9728	39.56	0.000							1.2
3	51	FUNCTION4 PFK	430.9728	38.88	0.000							1.0
4	51	FUNCTION4 PFK	430.9728	38.81	0.000							0.7
5	51	FUNCTION4 PFK	430.9728	38.67	0.000							0.8
6	51	FUNCTION4 PFK	430.9728	38.53	0.000							1.7
7	51	FUNCTION4 PFK	430.9728	38.26	0.000							1.8
8	51	FUNCTION4 PFK	430.9728	38.21	0.000							0.8
9	51	FUNCTION4 PFK	430.9728	38.17	0.000							1.5
10	51	FUNCTION4 PFK	430.9728	38.12	0.000							0.7
11	51	FUNCTION4 PFK	430.9728	41.92	0.000							0.6
12	51	FUNCTION4 PFK	430.9728	41.79	0.000							1.2
13	51	FUNCTION4 PFK	430.9728	41.74	0.000							1.3
14	51	FUNCTION4 PFK	430.9728	41.67	0.000							1.2
15	51	FUNCTION4 PFK	430.9728	41.43	0.000							0.9
16	51	FUNCTION4 PFK	430.9728	41.35	0.000							0.5
17	51	FUNCTION4 PFK	430.9728	41.30	0.000							0.5
18	51	FUNCTION4 PFK	430.9728	41.22	0.000							0.8
19	51	FUNCTION4 PFK	430.9728	41.09	0.000							0.5
20	51	FUNCTION4 PFK	430.9728	41.01	0.000							1.4
21	51	FUNCTION4 PFK	430.9728	40.91	0.000							0.7
22	51	FUNCTION4 PFK	430.9728	40.67	0.000							0.8
23	51	FUNCTION4 PFK	430.9728	40.43	0.000							0.9
24	51	FUNCTION4 PFK	430.9728	40.15	0.000							2.1
25	51	FUNCTION4 PFK	430.9728	40.06	0.000							1.1
26	51	FUNCTION4 PFK	430.9728	39.76	0.000							1.3
27	51	FUNCTION4 PFK	430.9728	44.45	0.000							1.0
28	51	FUNCTION4 PFK	430.9728	44.12	0.000							2.2
29	51	FUNCTION4 PFK	430.9728	43.86	0.000							1.8
30	51	FUNCTION4 PFK	430.9728	43.75	0.000							2.2
31	51	FUNCTION4 PFK	430.9728	43.71	0.000							1.5
32	51	FUNCTION4 PFK	430.9728	43.66	0.000							1.6
33	51	FUNCTION4 PFK	430.9728	43.51	0.000							0.5
34	51	FUNCTION4 PFK	430.9728	43.31	0.000							1.1
35	51	FUNCTION4 PFK	430.9728	43.21	0.000							0.7
36	51	FUNCTION4 PFK	430.9728	43.05	0.000							0.7

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

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ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	25.93	0.000		0.000					3.8
2	54	FUNCTION1 HPCD...	409.7974	21.88	0.000		0.000					11.0

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	56	FUNCTION3 OCDPE	445.7555	33.38	0.000		0.000					4.5

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	42.86	0.000		0.000					4.0
2	57	FUNCTION4 NCDPE	479.7165	41.52	0.000		0.000					3.3
3	57	FUNCTION4 NCDPE	479.7165	38.62	0.000		0.000					30.3

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

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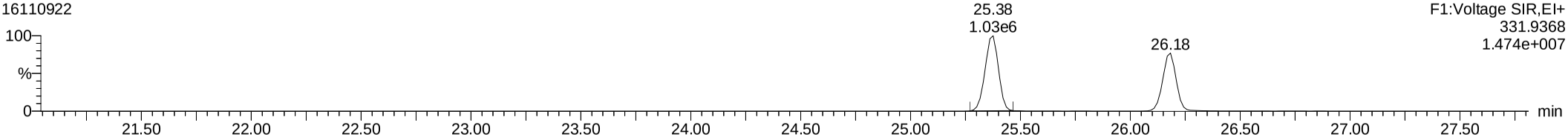
13C-1234-TCDD



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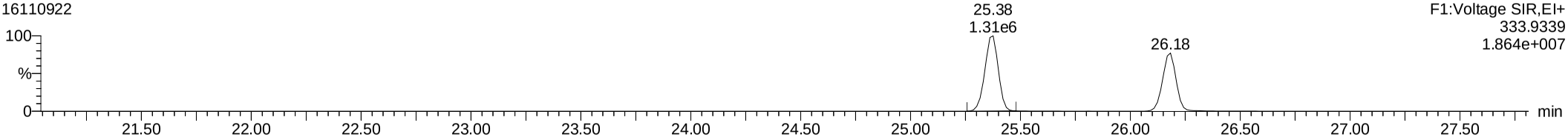

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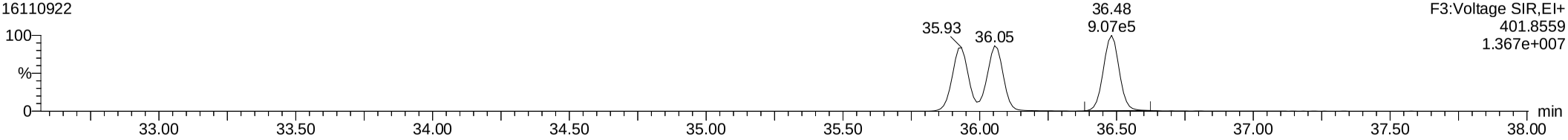

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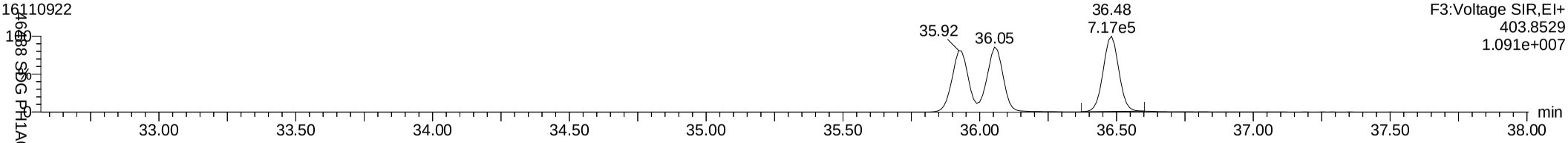

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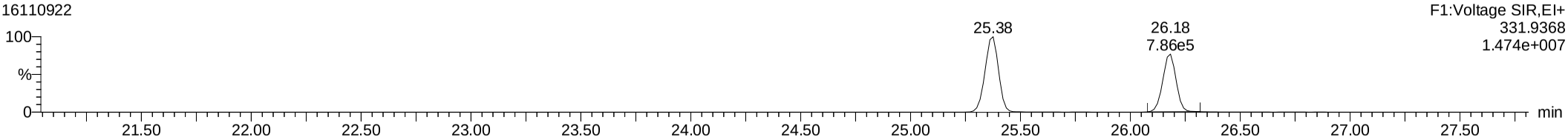
13C-2378-TCDD



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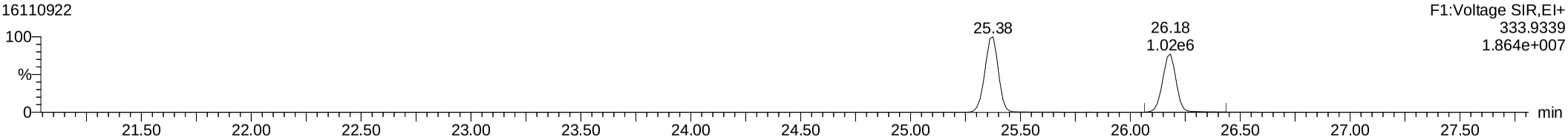

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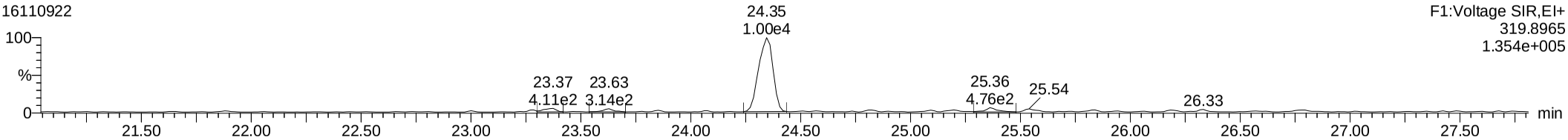
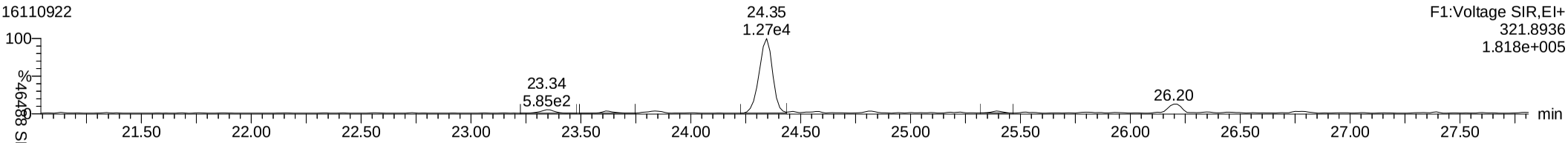
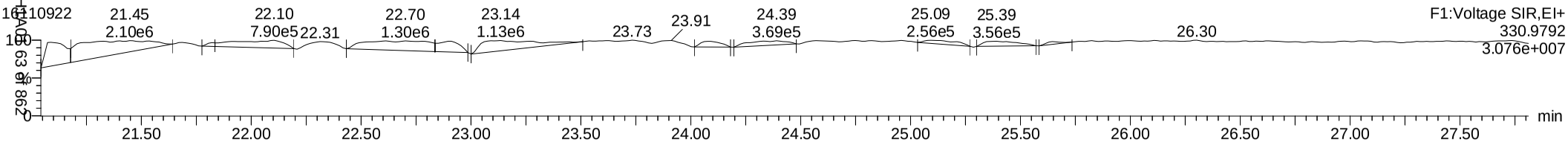


Total-tetradioxins



FUNCTION1 PFK



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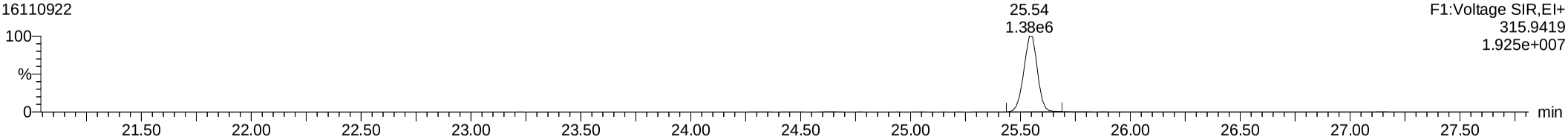
ID: PH1A02, Name: 16110922, Date: 10-Nov-2016, Time: 06:28:24, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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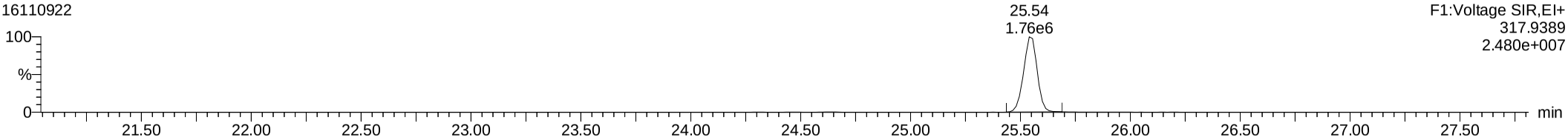

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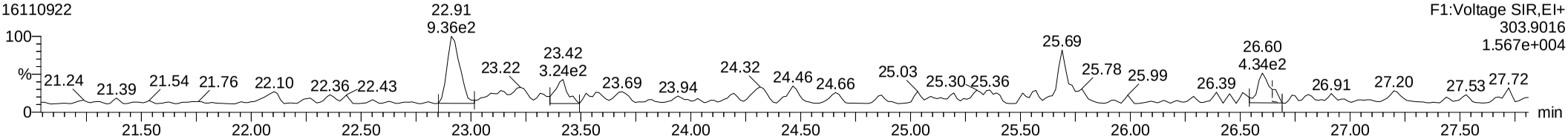

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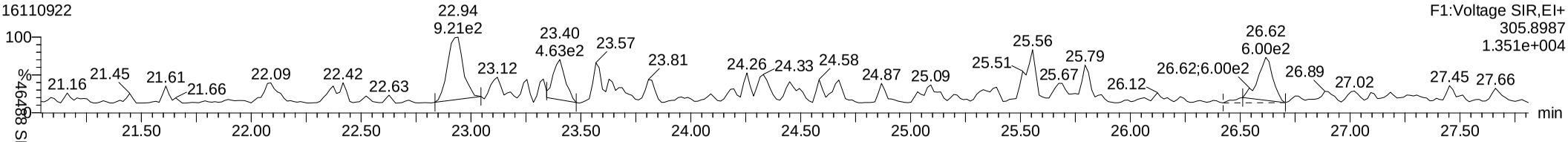
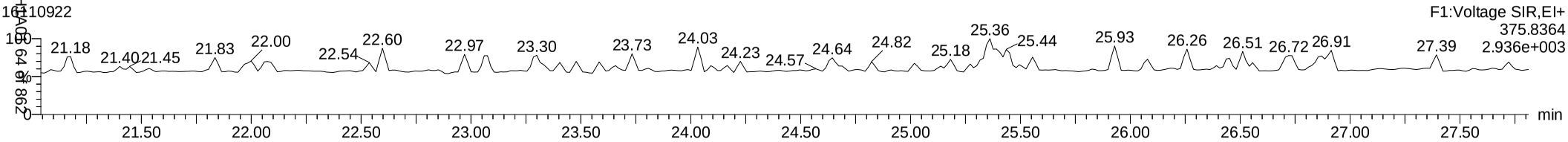


FUNCTION1 HXCDPE



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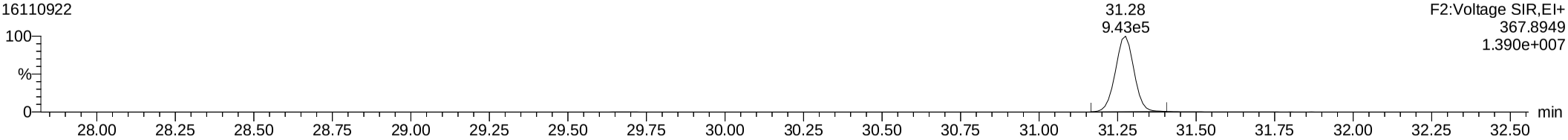

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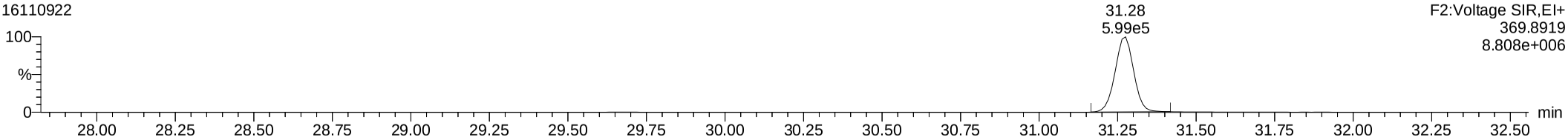

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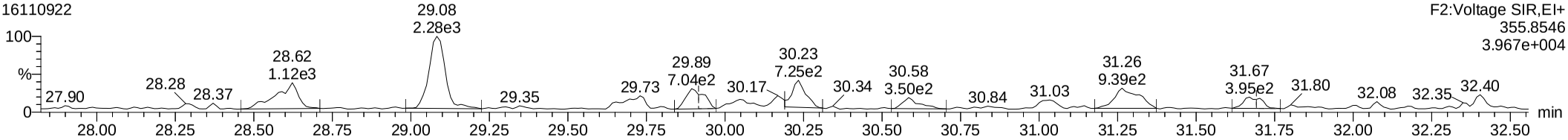

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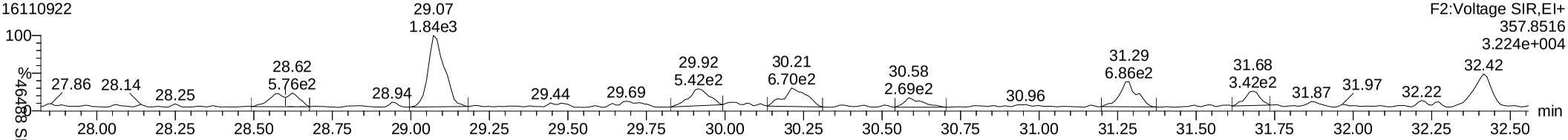

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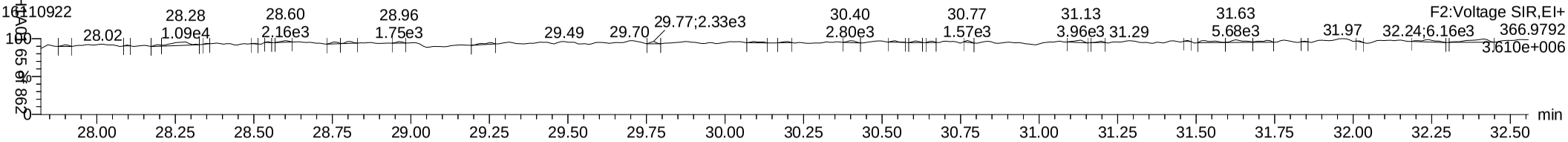

46488 SDG DH1A02 65 of 862

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Printed: Friday, November 11, 2016 11:25:57 Pacific Standard Time

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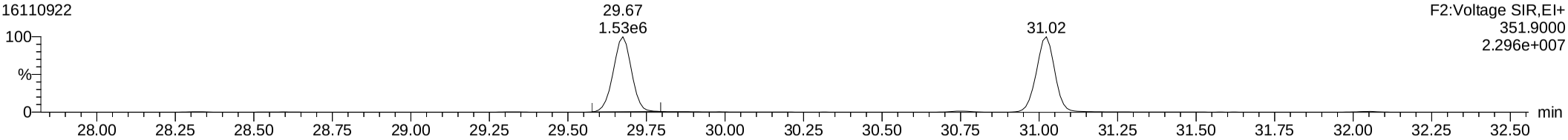

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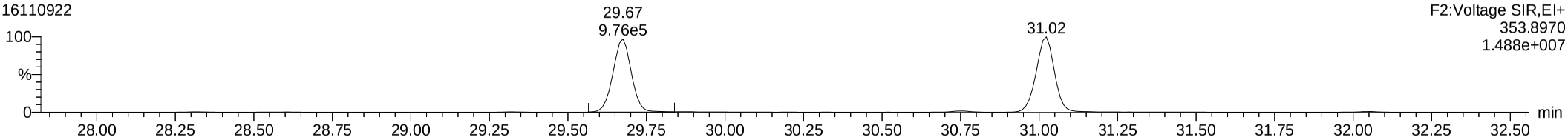

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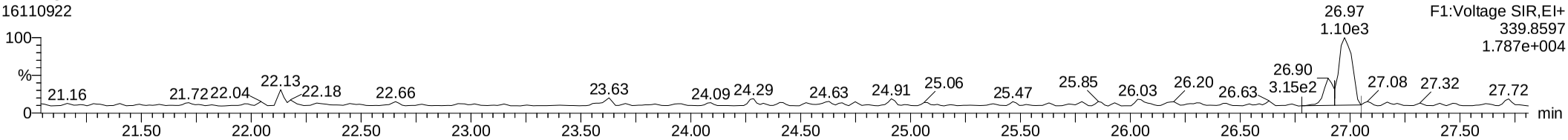

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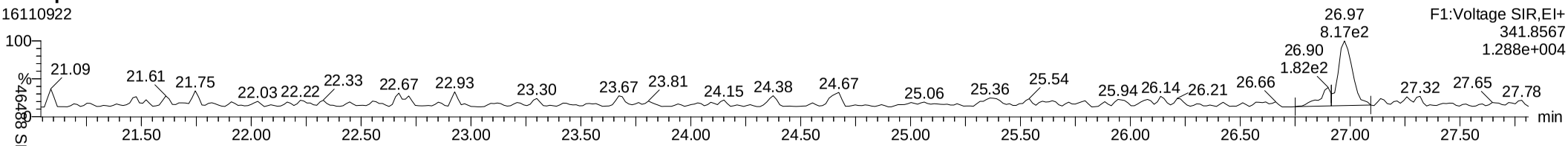

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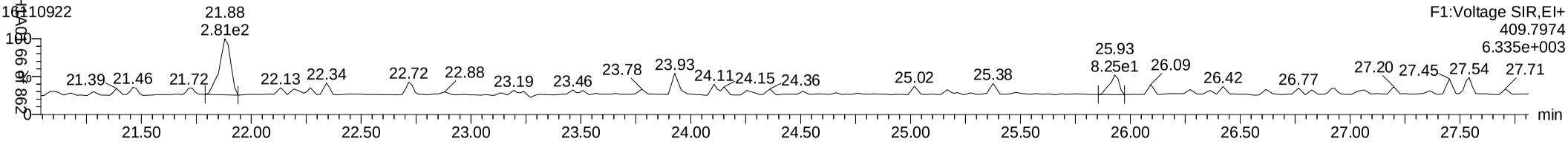

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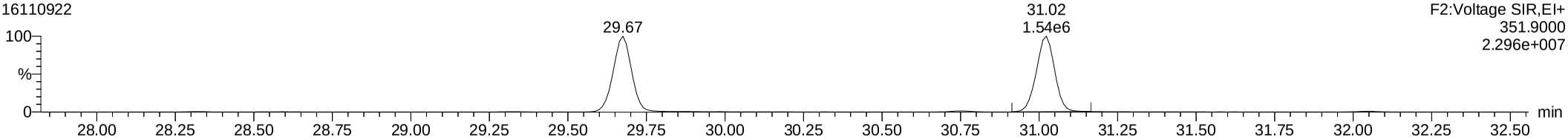
ID: PH1A02, Name: 16110922, Date: 10-Nov-2016, Time: 06:28:24, Conditions: AUTOSPEC01, User: PK

13C-23478-PeCDF



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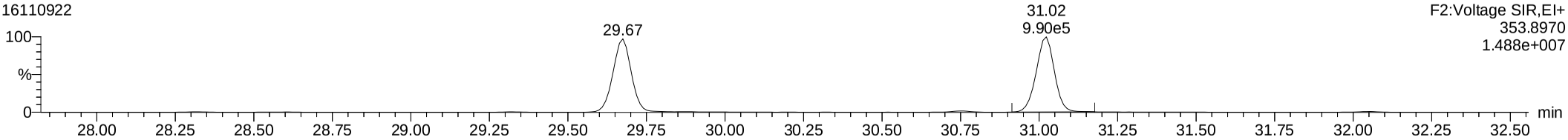

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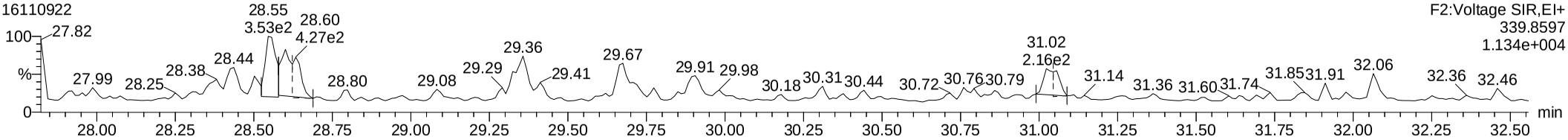

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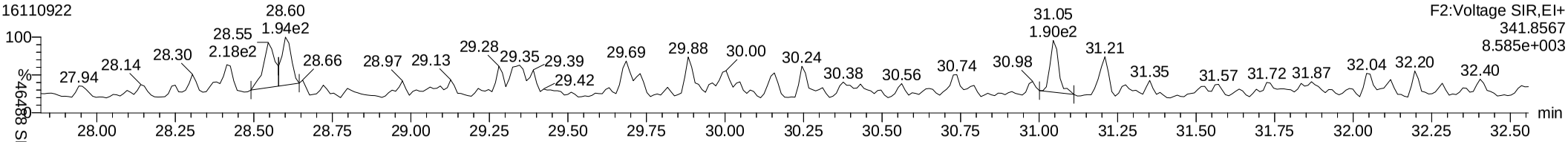
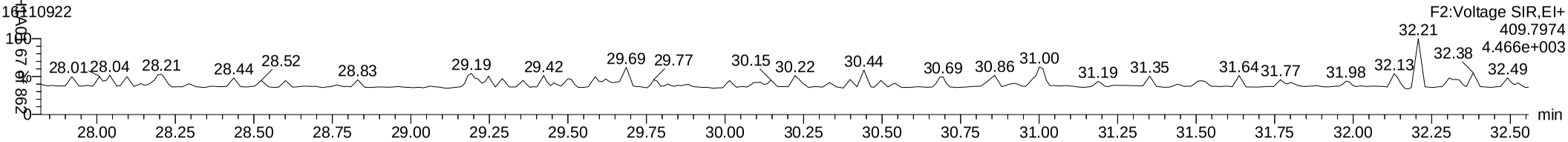


FUNCTION2 HPCDPE



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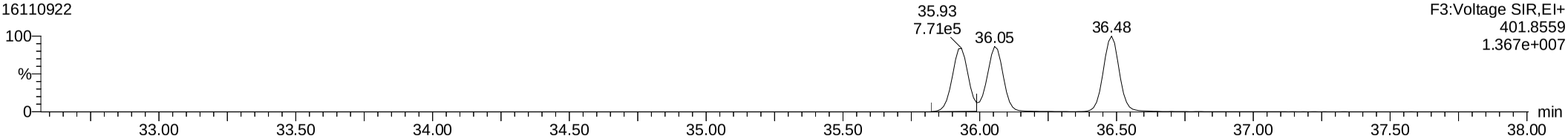
13C-123478-HxCDD



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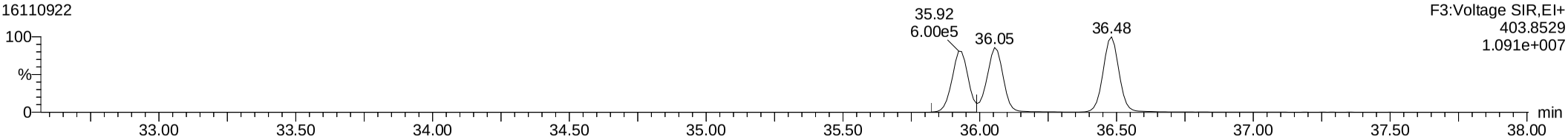

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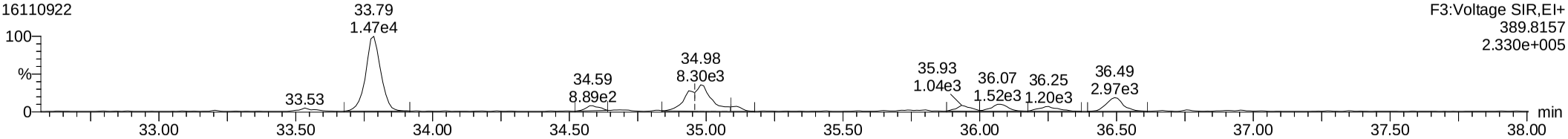

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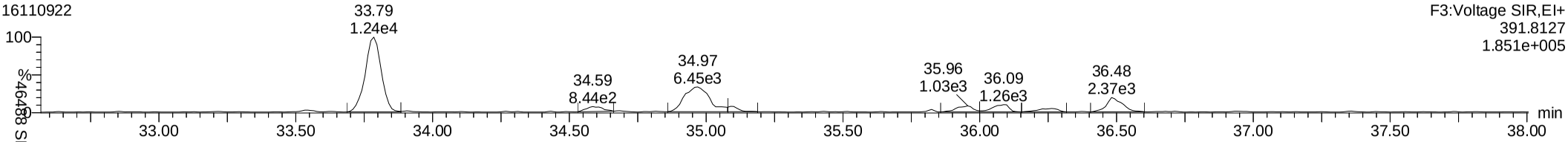
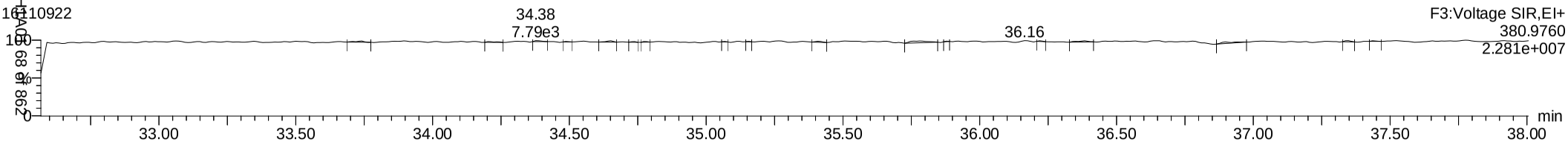


FUNCTION3 PFK



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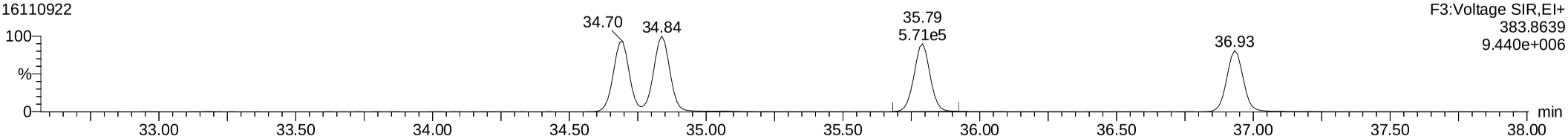
13C-234678-HxCDF



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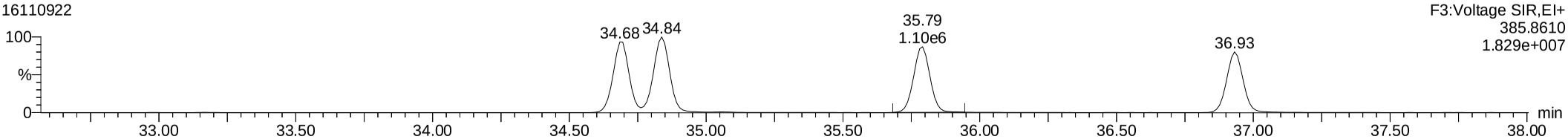

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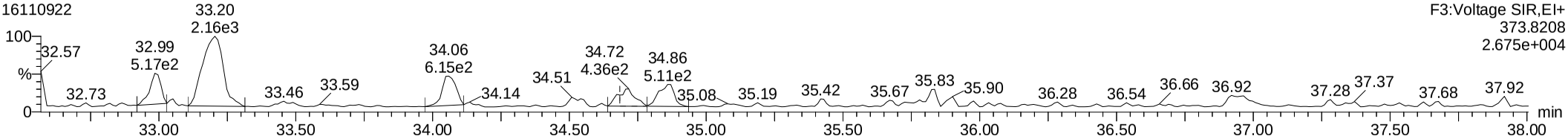

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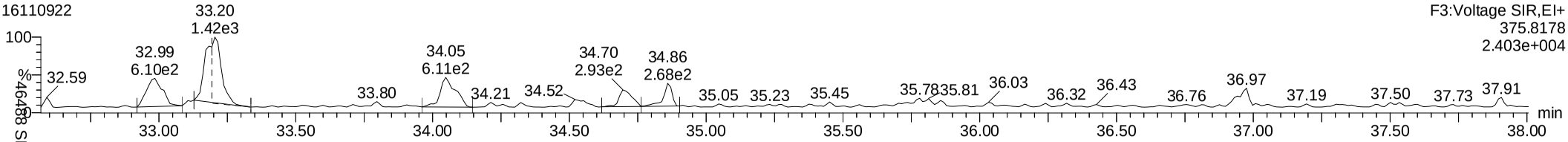
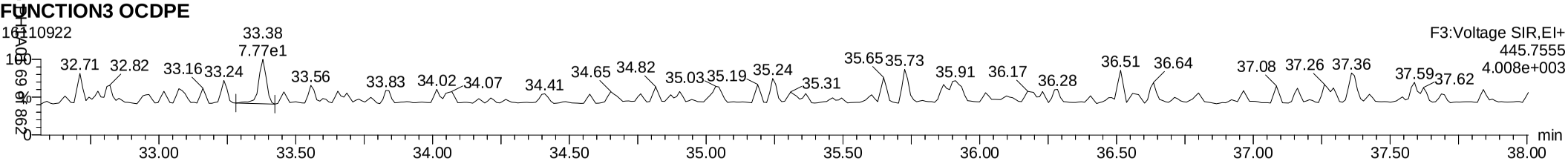


FUNCTION3 OCDPE



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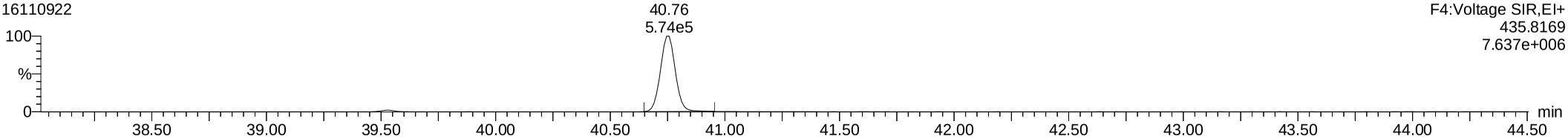
13C-1234678-HpCDD



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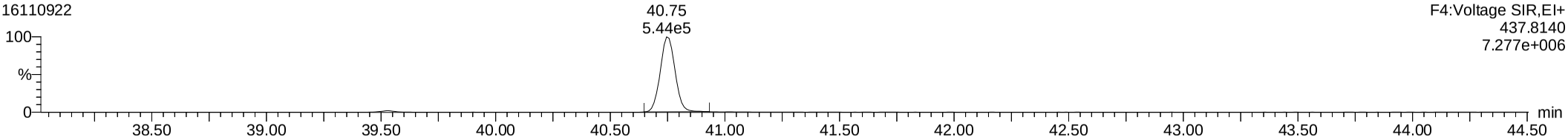

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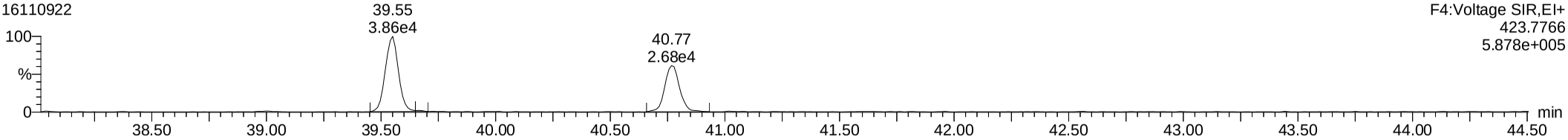

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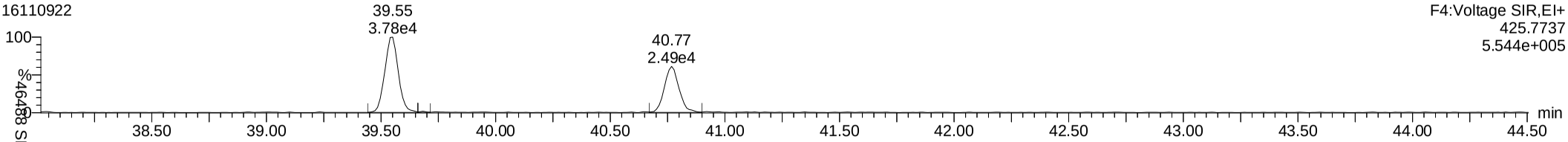

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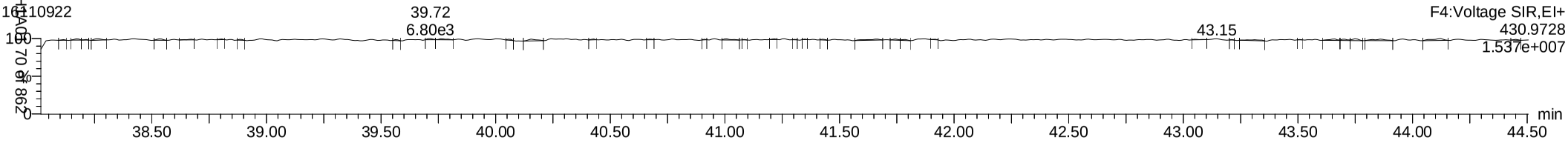

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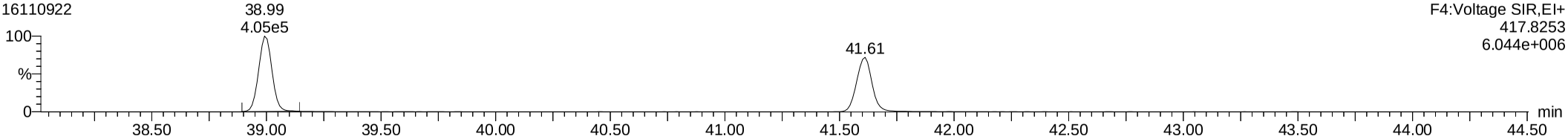
ID: PH1A02, Name: 16110922, Date: 10-Nov-2016, Time: 06:28:24, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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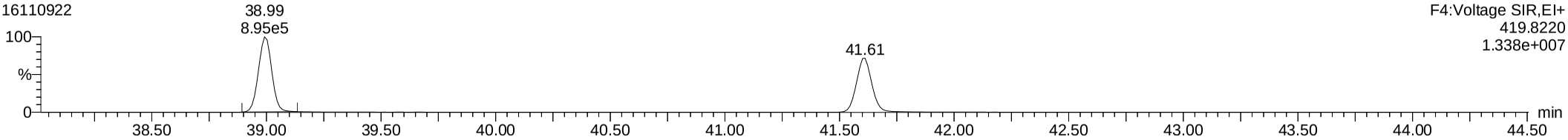
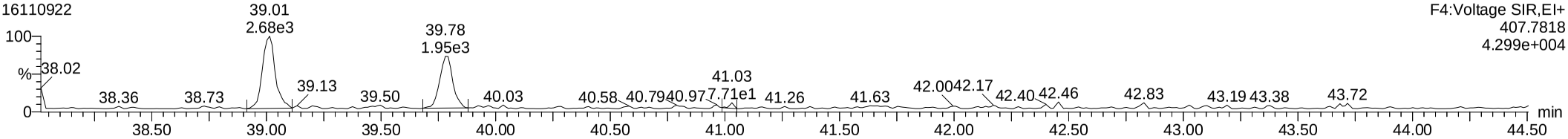
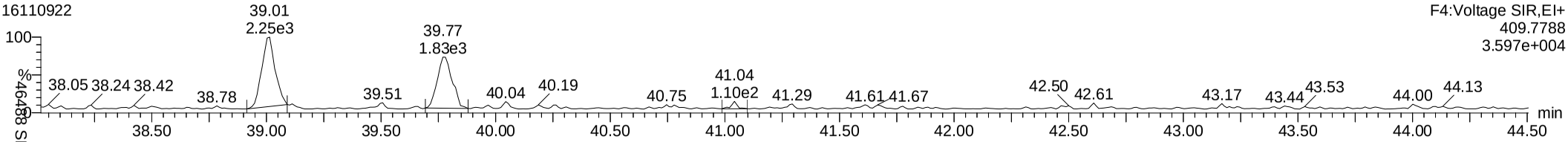


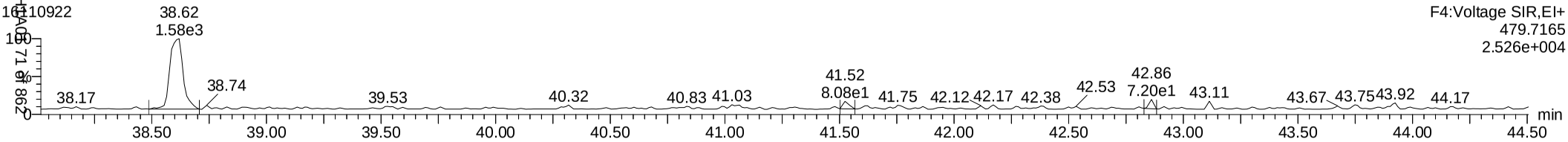
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE



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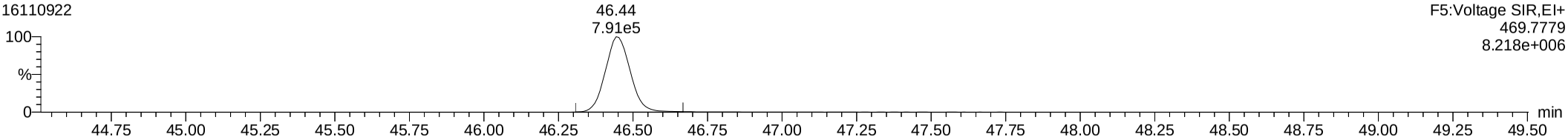
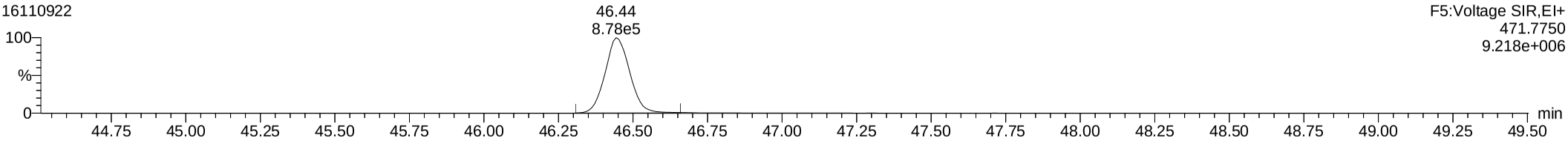
ID: PH1A02, Name: 16110922, Date: 10-Nov-2016, Time: 06:28:24, Conditions: AUTOSPEC01, User: PK

13C-OCDD



13C-OCDD



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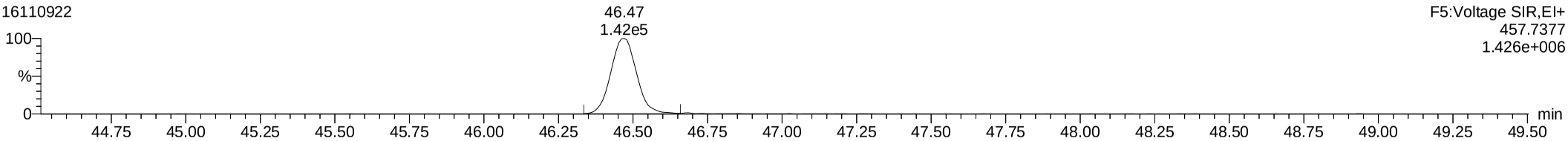

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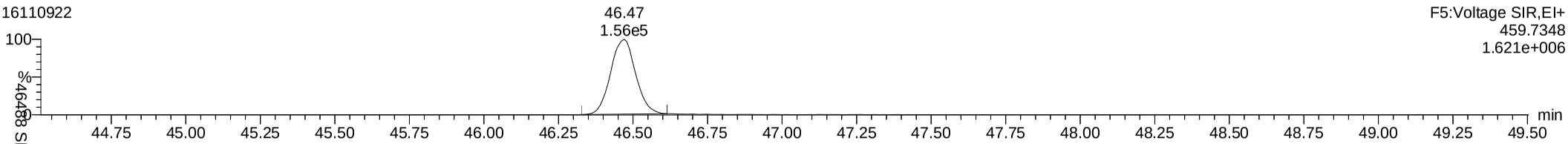

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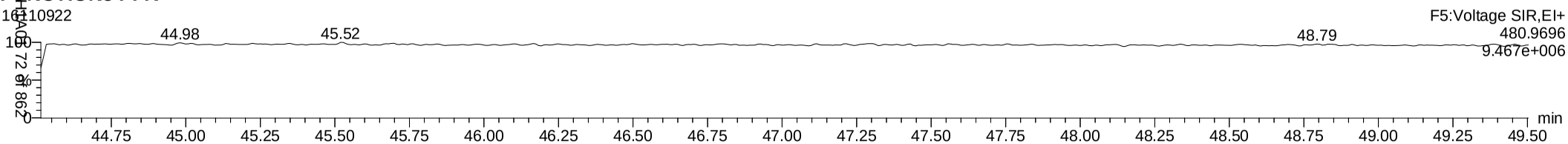

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Printed: Friday, November 11, 2016 11:25:57 Pacific Standard Time

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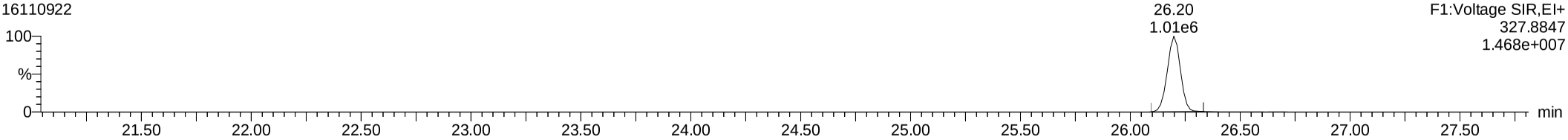
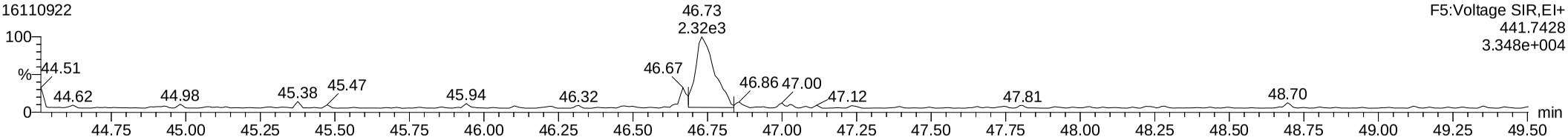
37CL-2378-TCDD



OCDF



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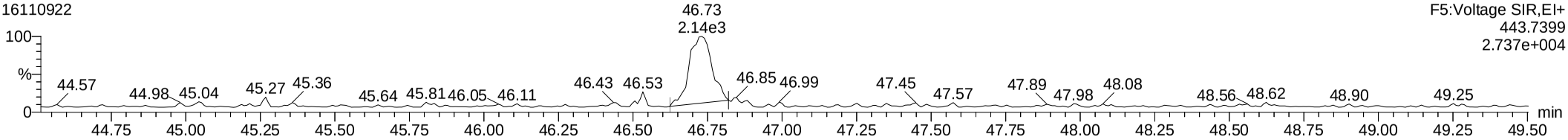
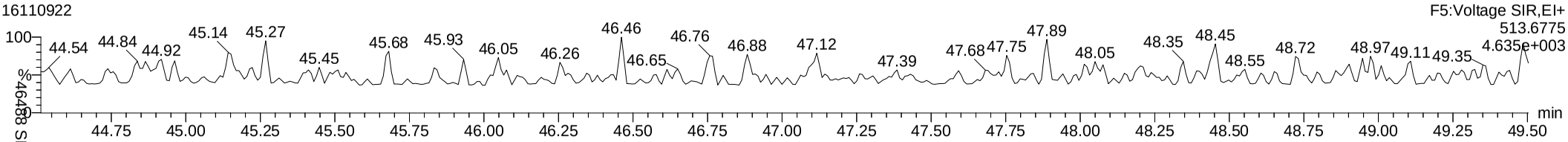


FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

PH1A03

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-03

Sample wt/vol: 910 (g/ml) mL

Lab File ID: 16111109

Decanted (Y/N): N Extraction Method: SEPF

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2,3,7,8-TCDD		UM	1.2		
5	1,2,3,7,8-PeCDD		UM	3.2		
6	1,2,3,4,7,8-HxCDD		UM	2.7		
6	1,2,3,6,7,8-HxCDD		UM	4.1		
6	1,2,3,7,8,9-HxCDD		UM	3.6		
7	1,2,3,4,6,7,8-HpCDD		UM	2.8		
8	OCDD		UM	48		
4	2,3,7,8-TCDF		UM	0.84		
5	1,2,3,7,8-PeCDF		UM	3.9		
5	2,3,4,7,8-PeCDF		UM	5.5		
6	1,2,3,4,7,8-HxCDF		UM	3.3		
6	1,2,3,6,7,8-HxCDF		UM	3.3		
6	1,2,3,7,8,9-HxCDF		UM	3.2		
6	2,3,4,6,7,8-HxCDF		UM	4.0		
7	1,2,3,4,6,7,8-HpCDF		UM	4.1		
7	1,2,3,4,7,8,9-HpCDF		UM	3.2		
8	OCDF		UM	9.9		

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

PH1A03

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: 16K0015-03

Sample wt/vol: 910 (g/ml) mL Lab File ID: 16111109

Decanted (Y/N): N Extraction Method: SEPF Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2,3,7,8-TCDD		x 1.0		x 1.0		x 1.0	
1,2,3,7,8-PeCDD		x 1.0		x 1.0		x 1.0	
1,2,3,4,7,8-HxCDD		x 0.1		x 0.5		x 0.05	
1,2,3,6,7,8-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,7,8,9-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,4,6,7,8-HpCDD		x 0.01		x 0.001		x 0.001	
OCDD		x 0.0003		x 0.0001		x 0.0001	
2,3,7,8-TCDF		x 0.1		x 0.05		x 0.1	
1,2,3,7,8-PeCDF		x 0.03		x 0.05		x 0.1	
2,3,4,7,8-PeCDF		x 0.3		x 0.5		x 1.0	
1,2,3,4,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,7,8,9-HxCDF		x 0.1		x 0.1		x 0.1	
2,3,4,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,4,6,7,8-HpCDF		x 0.01		x 0.01		x 0.01	
1,2,3,4,7,8,9-HpCDF		x 0.01		x 0.01		x 0.01	
OCDF		x 0.0003		x 0.0001		x 0.0001	
		Total TEQ =	0.0000	Total TEQ =	0.0000	Total TEQ =	0.0000

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 1D-HR

TOTAL HOMOLOGUE DATA SUMMARY

EPA SAMPLE NO.

PH1A03

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-03

Sample wt/vol: 910 (g/ml) mL

Lab File ID: 16111109

Decanted (Y/N): N Extraction Method: SEPF

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

Homologue	Peaks	Concentration	Q
Total TCDD			U
Total PeCDD			U
Total HxCDD			U
Total HpCDD			U
Total TCDF			U
Total PeCDF			U
Total HxCDF			U
Total HpCDF			U
OCDD			U
OCDF			U
Total			

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

PH1A03

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: 16K0015-03

Sample wt/vol: 910 (g/ml) mL Lab File ID: 16111109

Decanted (Y/N): N Extraction Method: SEPF Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2,3,7,8-TCDD	2198	2000	90.7	0.78	26.1827
4	13C12-2,3,7,8-TCDF	2198	1900	88.4	0.78	25.5552
5	13C12-1,2,3,7,8-PeCDD	2198	1800	82.0	1.60	31.275
5	13C12-1,2,3,7,8-PeCDF	2198	1800	80.5	1.62	29.6855
5	13C12-2,3,4,7,8-PeCDF	2198	1800	83.9	1.59	31.0337
6	13C12-1,2,3,4,7,8-HxCDD	2198	2000	89.0	1.25	35.9337
6	13C12-1,2,3,6,7,8-HxCDD	2198	1900	86.0	1.26	36.065
6	13C12-1,2,3,4,7,8-HxCDF	2198	1900	87.4	0.52	34.6948
6	13C12-1,2,3,6,7,8-HxCDF	2198	1900	85.4	0.52	34.8483
6	13C12-1,2,3,7,8,9-HxCDF	2198	1900	84.5	0.53	36.942
6	13C12-2,3,4,6,7,8-HxCDF	2198	1900	85.4	0.52	35.791
7	13C12-1,2,3,4,6,7,8-HpCDI	2198	1800	82.7	1.09	40.7677
7	13C12-1,2,3,4,6,7,8-HpCDF	2198	1700	78.2	0.45	39.0028
7	13C12-1,2,3,4,7,8,9-HpCDF	2198	1800	80.5	0.46	41.6228
8	13C12-OCDD	4396	3100	69.6	0.94	46.4618
Labeled Cleanup Standard 37C14-2,3,7,8-TCDD						
4	37C14-2,3,7,8-TCDD	879.12	830	95.0		26.1975

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF					0.935		0.770	638	1567					
12378-PeCDF					0.952		1.550	818	1381					
23478-PeCDF					0.963		1.550	818	1381					
123478-HxCDF					1.137		1.240	766	542					
234678-HxCDF					1.164		1.240	766	542					
123678-HxCDF					1.099		1.240	766	542					
123789-HxCDF					1.101		1.240	766	542					
1234678-HpCDF					1.303		1.050	510	408					
1234789-HpCDF					1.317		1.050	510	408					
OCDF					1.166		0.890	552	1046					
2378-TCDD					1.134		0.770	1294	614					
12378-PeCDD					0.975		1.550	1113	328					
123478-HxCDD					1.031		1.240	1093	660					
123678-HxCDD					0.971		1.240	1093	660					
123789-HxCDD					0.947		1.240	1093	660					
1234678-HpCDD					1.028		1.050	740	733					
OCDD	46.525	1.001	4.22e2	5.73e2	1.107	0.737	0.890	711	545	4.78e3	6.98e3	6.7	YES	0.204
13C-2378-TCDF	25.555	1.007	8.14e5	1.05e6	1.567	0.776	0.770	8892	5097	1.15e7	1.47e7	1287.9	NO	88.368
13C-12378-PeCDF	29.685	1.170	8.53e5	5.25e5	1.274	1.623	1.550	4582	3918	1.19e7	7.41e6	2599.5	NO	80.456
13C-23478-PeCDF	31.034	1.223	8.55e5	5.37e5	1.235	1.592	1.550	4582	3918	1.21e7	7.70e6	2648.9	NO	83.870
13C-123478-HxCDF	34.695	0.951	3.19e5	6.15e5	1.381	0.519	0.510	2783	4123	4.67e6	8.81e6	1678.1	NO	87.372
13C-123678-HxCDF	34.848	0.955	3.57e5	6.80e5	1.569	0.525	0.510	2783	4123	5.07e6	9.55e6	1820.5	NO	85.363
13C-234678-HxCDF	35.791	0.981	3.04e5	5.85e5	1.345	0.520	0.510	2783	4123	4.32e6	8.31e6	1552.4	NO	85.435
13C-123789-HxCDF	36.942	1.013	2.67e5	5.06e5	1.183	0.528	0.510	2783	4123	3.65e6	7.08e6	1313.0	NO	84.525
13C-1234678-HpCDF	39.003	1.069	2.21e5	4.92e5	1.178	0.449	0.440	2832	2310	3.06e6	6.78e6	1081.0	NO	78.174
13C-1234789-HpCDF	41.623	1.141	1.73e5	3.74e5	0.878	0.463	0.440	2832	2310	2.10e6	4.67e6	742.3	NO	80.536
13C-1234-TCDD	25.376	0.000	5.90e5	7.55e5	1.000	0.782	0.770	3422	2380	8.76e6	1.11e7	2559.2	NO	100.000
13C-2378-TCDD	26.183	1.032	4.86e5	6.21e5	0.908	0.781	0.770	3422	2380	6.87e6	8.80e6	2008.1	NO	90.698
13C-12378-PeCDD	31.275	1.232	5.13e5	3.20e5	0.756	1.605	1.550	1845	1750	7.15e6	4.40e6	3873.7	NO	81.996
13C-123478-HxCDD	35.934	0.985	4.05e5	3.22e5	1.056	1.255	1.240	2811	2887	5.86e6	4.75e6	2086.0	NO	88.957
13C-123678-HxCDD	36.065	0.989	4.31e5	3.43e5	1.163	1.259	1.240	2811	2887	6.07e6	4.77e6	2157.5	NO	85.994
13C-1234678-HpCDD	40.768	1.117	3.03e5	2.79e5	0.909	1.087	1.050	1383	2059	3.84e6	3.61e6	2773.1	NO	82.685
13C-OCDD	46.462	1.274	4.27e5	4.55e5	0.820	0.938	0.890	1999	2425	4.07e6	4.57e6	2037.4	NO	139.165
13C-123789-HxCDD	36.482	0.000	4.27e5	3.47e5	1.000	1.229	1.240	2811	2887	5.84e6	4.69e6	2078.8	NO	100.000
Total-tetrafurans			0.00e0		0.935			638		0.00e0				

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Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:02:16 Pacific Standard Time

ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					763		0.00e0				
Total-pentafurans			0.00e0		0.957			818		0.00e0				
Total-hexafurans			0.00e0		1.125			766		0.00e0				
Total-heptafurans			0.00e0		1.310			510		0.00e0				
Total-Furans			0.00e0		1.114			638		0.00e0				
Total-tetradioxins			0.00e0		1.134			1294		0.00e0				
Total-pentadioxins			0.00e0		0.975			1113		0.00e0				
Total-hexadioxins			0.00e0		0.983			1093		0.00e0				
Total-heptadioxins			0.00e0		1.028			740		0.00e0				
Total-Dioxins			5.02e2		1.028			1294		6.50e3				0.218
Total-TEQ			5.02e2					1294		6.50e3				0.218
37CL-2378-TCDD	26.198	1.032	5.45e5		1.067			1573		7.52e6		4780.4		37.984
FUNCTION1 PFK			8.65e7					542568		7.36e7				
FUNCTION2 PFK			5.95e5					170929		4.70e6				0.000
FUNCTION3 PFK			2.15e5					557047		7.04e6				0.000
FUNCTION4 PFK			1.78e5					417882		6.56e6				
FUNCTION5 PFK			1.05e5					300864		4.59e6				
FUNCTION1 HXCD...			1.05e2					645		2.48e3				0.000
FUNCTION1 HPCD...			1.77e3					1096		3.80e4				0.000
FUNCTION2 HPCD...			7.26e2					1171		2.18e4				0.000
FUNCTION3 OCDPE			0.00e0					532		0.00e0				
FUNCTION4 NCDPE			2.01e2					650		6.56e3				0.000
FUNCTION5 DCDPE			0.00e0					569		0.00e0				

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

TF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PP

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

HF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

HPF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

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

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

TD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

HD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

HPD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	45	Total-Dioxins	319.8965	27.20	162.313	1.028	0.014		0.96	0.77	YES	1.3
2	17	OCDD	457.7377	46.52	995.750	1.107	0.204	0.184	0.74	0.89	YES	6.7

TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	24.36	0.000							1.4
2	48	FUNCTION1 PFK	330.9792	23.78	0.000							1.5
3	48	FUNCTION1 PFK	330.9792	23.46	0.000							5.3
4	48	FUNCTION1 PFK	330.9792	21.15	0.000							123.7
5	48	FUNCTION1 PFK	330.9792	25.90	0.000							1.4
6	48	FUNCTION1 PFK	330.9792	25.30	0.000							1.5
7	48	FUNCTION1 PFK	330.9792	24.43	0.000							0.8

PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	31.24	0.000		0.000					1.5
2	49	FUNCTION2 PFK	366.9792	30.65	0.000		0.000					1.3
3	49	FUNCTION2 PFK	366.9792	30.52	0.000		0.000					0.8
4	49	FUNCTION2 PFK	366.9792	30.44	0.000		0.000					1.0
5	49	FUNCTION2 PFK	366.9792	29.97	0.000		0.000					1.5
6	49	FUNCTION2 PFK	366.9792	29.02	0.000		0.000					1.3
7	49	FUNCTION2 PFK	366.9792	28.32	0.000		0.000					2.6
8	49	FUNCTION2 PFK	366.9792	27.88	0.000		0.000					17.4

PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	33.50	0.000		0.000					1.1
2	50	FUNCTION3 PFK	380.9760	33.27	0.000		0.000					1.3
3	50	FUNCTION3 PFK	380.9760	33.08	0.000		0.000					0.8
4	50	FUNCTION3 PFK	380.9760	37.91	0.000		0.000					1.2
5	50	FUNCTION3 PFK	380.9760	37.78	0.000		0.000					0.5
6	50	FUNCTION3 PFK	380.9760	37.33	0.000		0.000					1.0
7	50	FUNCTION3 PFK	380.9760	36.38	0.000		0.000					0.7
8	50	FUNCTION3 PFK	380.9760	35.98	0.000		0.000					1.2
9	50	FUNCTION3 PFK	380.9760	35.25	0.000		0.000					1.7
10	50	FUNCTION3 PFK	380.9760	34.49	0.000		0.000					0.7
11	50	FUNCTION3 PFK	380.9760	33.99	0.000		0.000					1.6
12	50	FUNCTION3 PFK	380.9760	33.66	0.000		0.000					0.8

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ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	41.22	0.000							1.2
2	51	FUNCTION4 PFK	430.9728	39.10	0.000							1.2
3	51	FUNCTION4 PFK	430.9728	38.88	0.000							1.0
4	51	FUNCTION4 PFK	430.9728	38.53	0.000							1.1
5	51	FUNCTION4 PFK	430.9728	38.50	0.000							1.0
6	51	FUNCTION4 PFK	430.9728	38.44	0.000							0.8
7	51	FUNCTION4 PFK	430.9728	44.10	0.000							1.1
8	51	FUNCTION4 PFK	430.9728	43.44	0.000							0.6
9	51	FUNCTION4 PFK	430.9728	42.94	0.000							1.1
10	51	FUNCTION4 PFK	430.9728	42.57	0.000							0.9
11	51	FUNCTION4 PFK	430.9728	42.00	0.000							1.8
12	51	FUNCTION4 PFK	430.9728	41.81	0.000							1.1
13	51	FUNCTION4 PFK	430.9728	41.50	0.000							1.6
14	51	FUNCTION4 PFK	430.9728	41.46	0.000							1.1

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	47.42	0.000							1.9
2	52	FUNCTION5 PFK	480.9696	46.58	0.000							1.4
3	52	FUNCTION5 PFK	480.9696	46.47	0.000							1.5
4	52	FUNCTION5 PFK	480.9696	46.44	0.000							0.7
5	52	FUNCTION5 PFK	480.9696	46.27	0.000							0.5
6	52	FUNCTION5 PFK	480.9696	44.92	0.000							1.0
7	52	FUNCTION5 PFK	480.9696	44.59	0.000							1.3
8	52	FUNCTION5 PFK	480.9696	49.44	0.000							1.2
9	52	FUNCTION5 PFK	480.9696	48.97	0.000							0.7
10	52	FUNCTION5 PFK	480.9696	48.56	0.000							1.1
11	52	FUNCTION5 PFK	480.9696	48.47	0.000							0.8
12	52	FUNCTION5 PFK	480.9696	47.78	0.000							1.5
13	52	FUNCTION5 PFK	480.9696	47.53	0.000							1.6

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	26.02	0.000		0.000					3.8

ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	23.49	0.000		0.000					1.7
2	54	FUNCTION1 HPCD...	409.7974	23.42	0.000		0.000					1.8
3	54	FUNCTION1 HPCD...	409.7974	22.28	0.000		0.000					0.9
4	54	FUNCTION1 HPCD...	409.7974	21.86	0.000		0.000					2.0
5	54	FUNCTION1 HPCD...	409.7974	21.70	0.000		0.000					2.1
6	54	FUNCTION1 HPCD...	409.7974	21.61	0.000		0.000					1.2
7	54	FUNCTION1 HPCD...	409.7974	21.21	0.000		0.000					2.5
8	54	FUNCTION1 HPCD...	409.7974	27.29	0.000		0.000					3.3
9	54	FUNCTION1 HPCD...	409.7974	27.20	0.000		0.000					1.8
10	54	FUNCTION1 HPCD...	409.7974	27.11	0.000		0.000					3.6
11	54	FUNCTION1 HPCD...	409.7974	26.24	0.000		0.000					2.5
12	54	FUNCTION1 HPCD...	409.7974	25.90	0.000		0.000					1.5
13	54	FUNCTION1 HPCD...	409.7974	25.64	0.000		0.000					2.1
14	54	FUNCTION1 HPCD...	409.7974	25.54	0.000		0.000					2.6
15	54	FUNCTION1 HPCD...	409.7974	24.66	0.000		0.000					2.1
16	54	FUNCTION1 HPCD...	409.7974	24.15	0.000		0.000					1.7
17	54	FUNCTION1 HPCD...	409.7974	23.55	0.000		0.000					1.3

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	30.37	0.000		0.000					1.9
2	55	FUNCTION2 HPCD...	409.7974	30.30	0.000		0.000					2.2
3	55	FUNCTION2 HPCD...	409.7974	30.23	0.000		0.000					2.9
4	55	FUNCTION2 HPCD...	409.7974	29.27	0.000		0.000					2.1
5	55	FUNCTION2 HPCD...	409.7974	28.86	0.000		0.000					2.9
6	55	FUNCTION2 HPCD...	409.7974	31.53	0.000		0.000					2.1
7	55	FUNCTION2 HPCD...	409.7974	31.26	0.000		0.000					2.8
8	55	FUNCTION2 HPCD...	409.7974	30.70	0.000		0.000					1.8

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	41.36	0.000		0.000					6.4
2	57	FUNCTION4 NCDPE	479.7165	40.49	0.000		0.000					3.7

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:02:16 Pacific Standard Time

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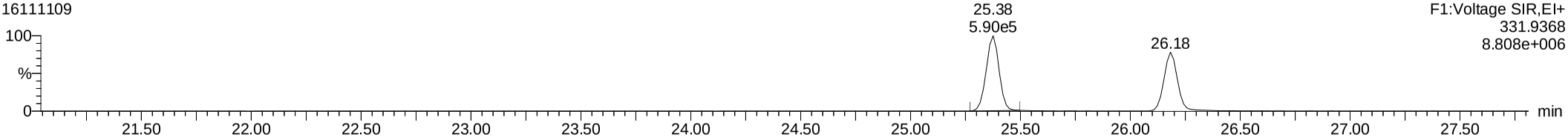
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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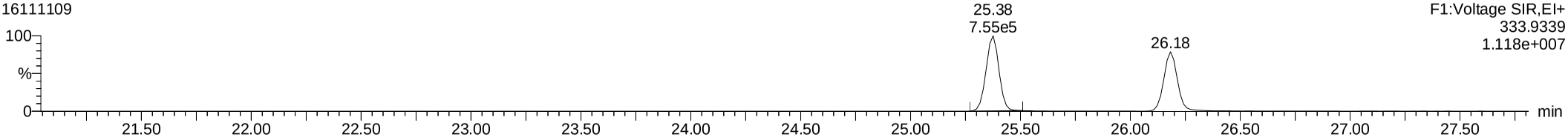
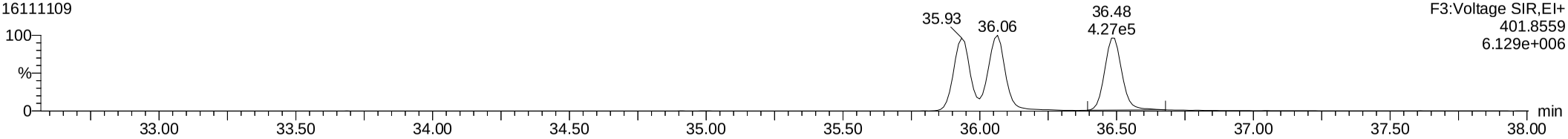


13C-123789-HxCDD



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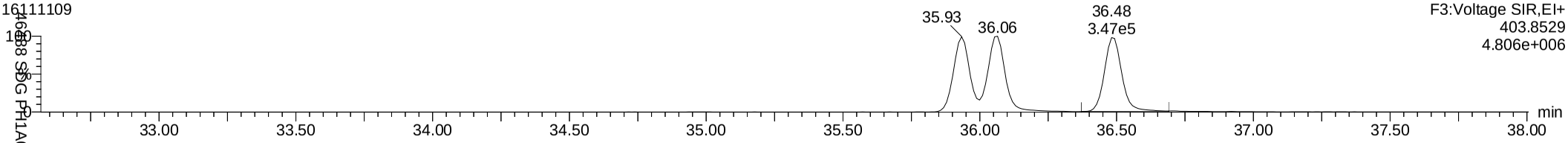

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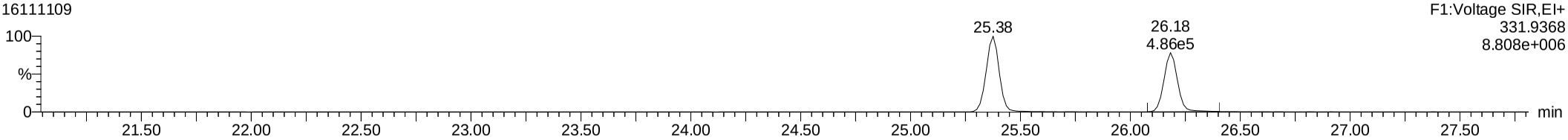
ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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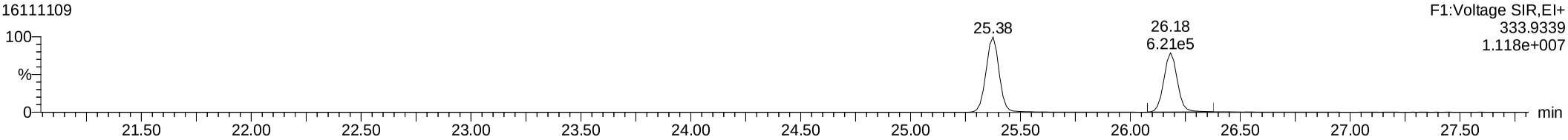

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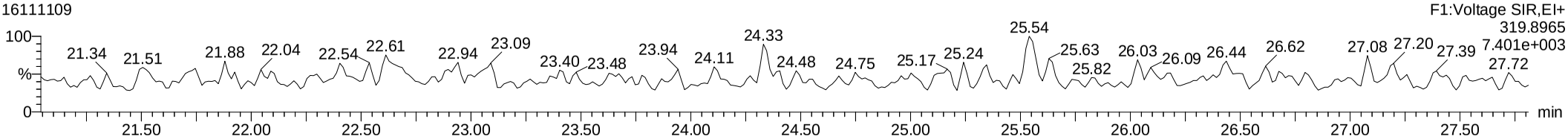
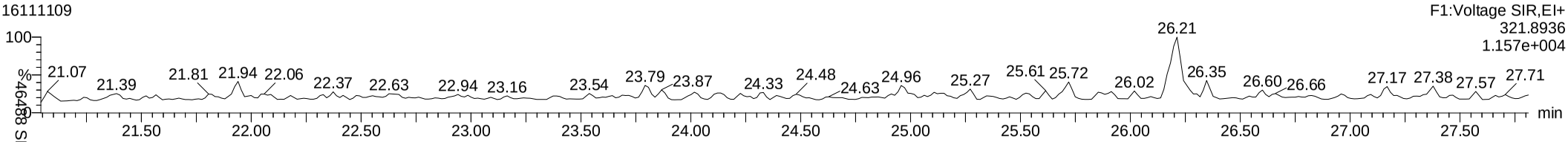


Total-tetradioxins



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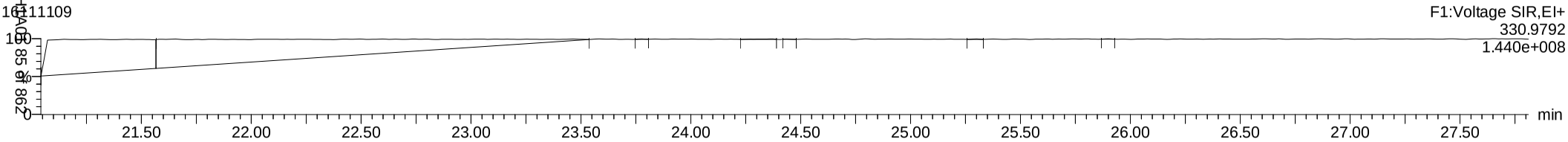

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Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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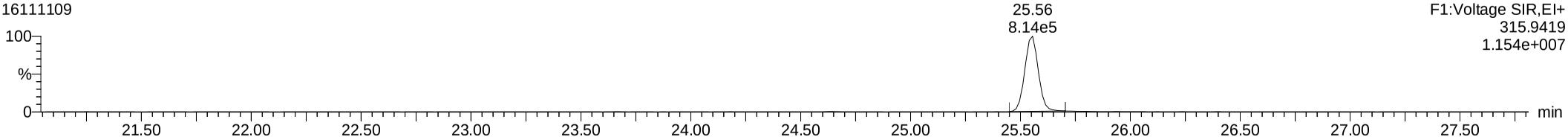
ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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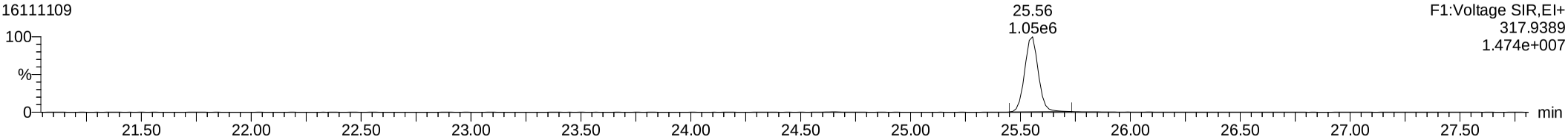

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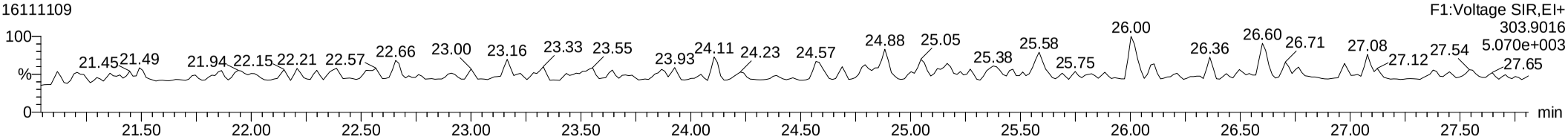

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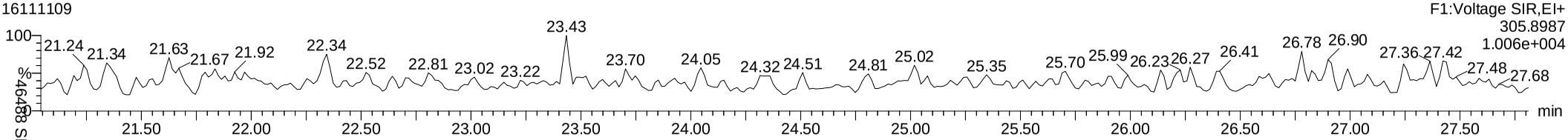
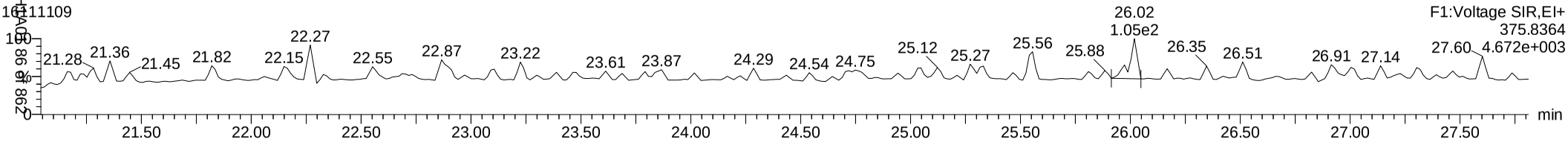


FUNCTION1 HXCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

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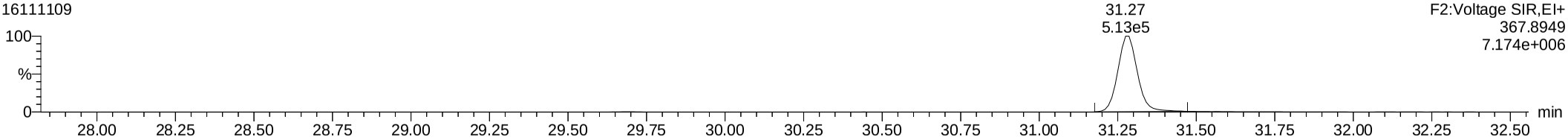

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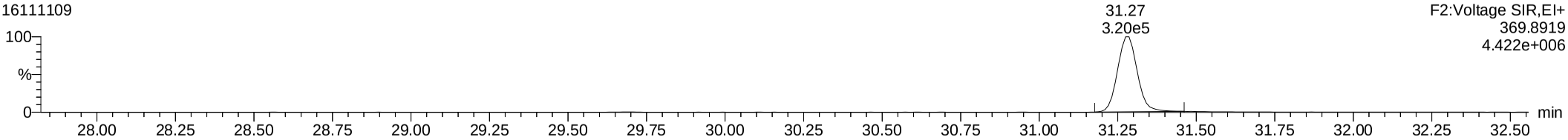

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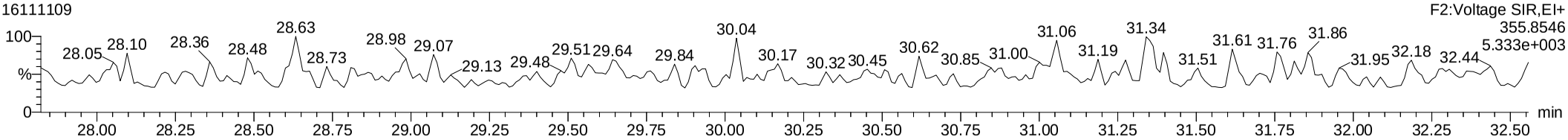
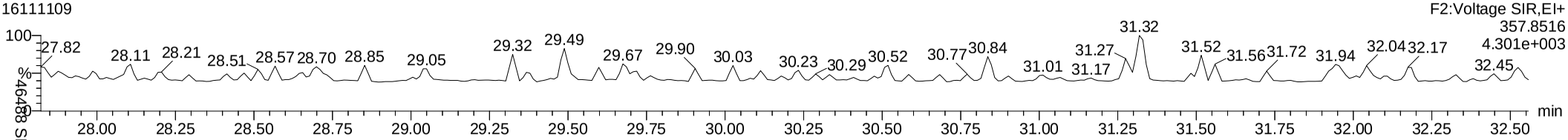
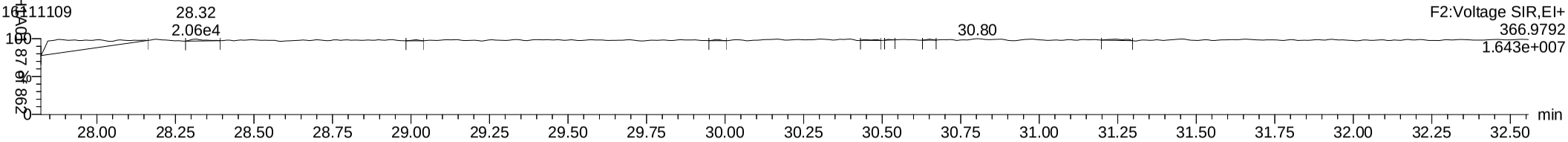


Total-pentadioxins



FUNCTION2 PFK



464708 SDG 16 Nov 87 at 862

ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

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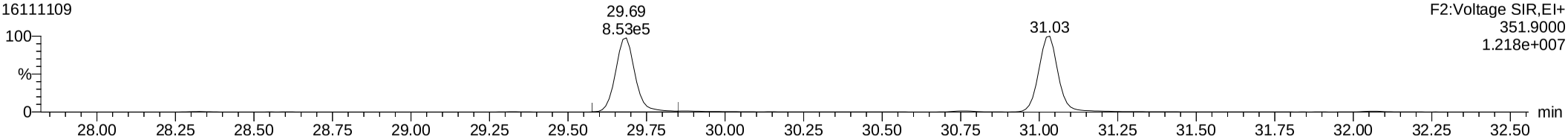

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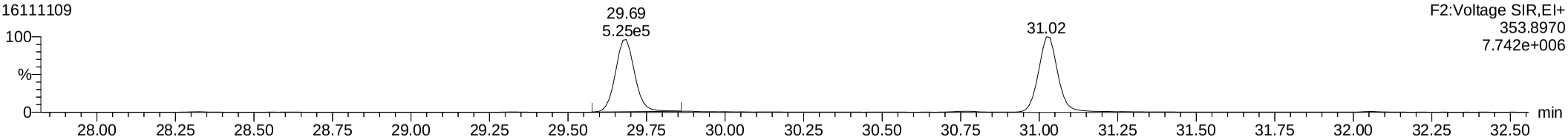

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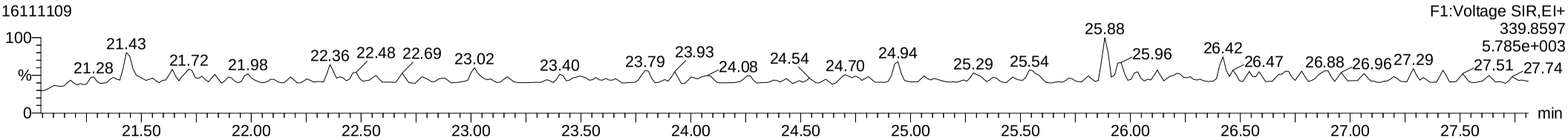

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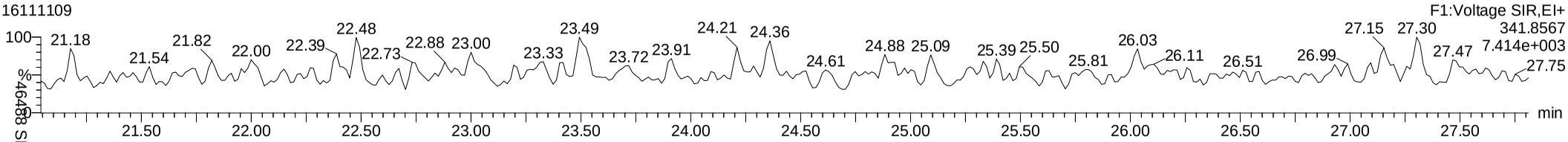

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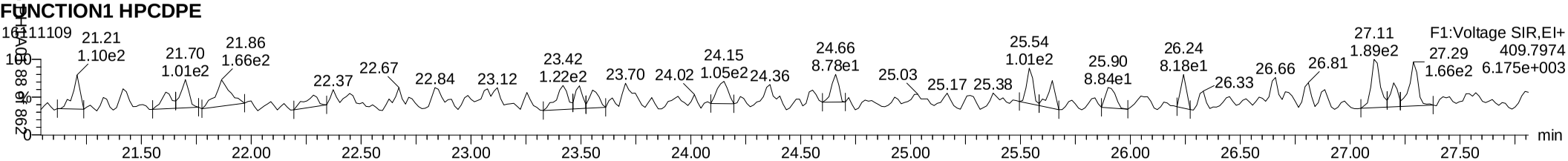

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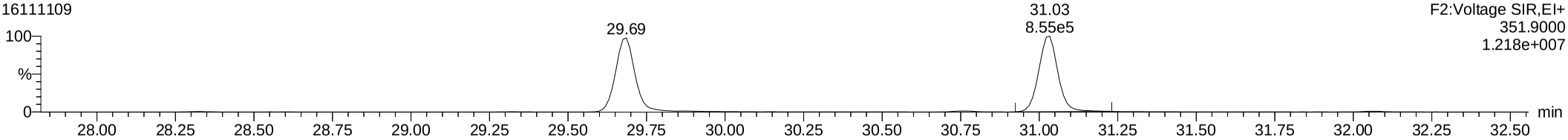
ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

13C-23478-PeCDF



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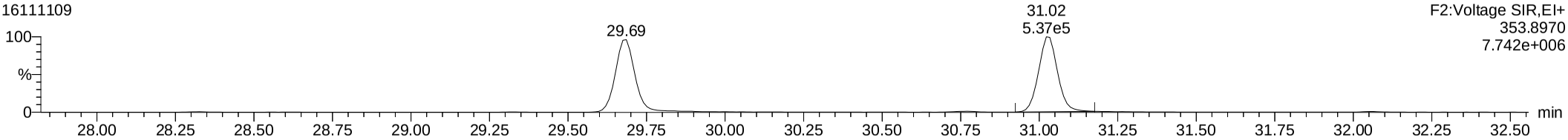

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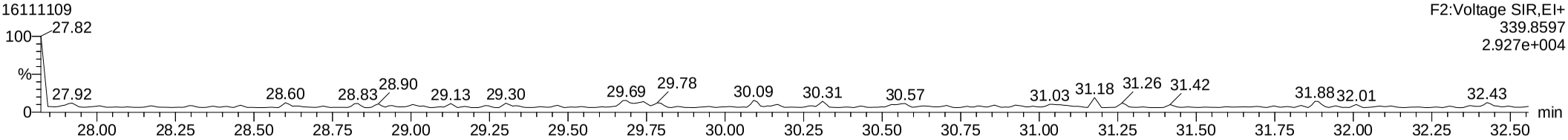

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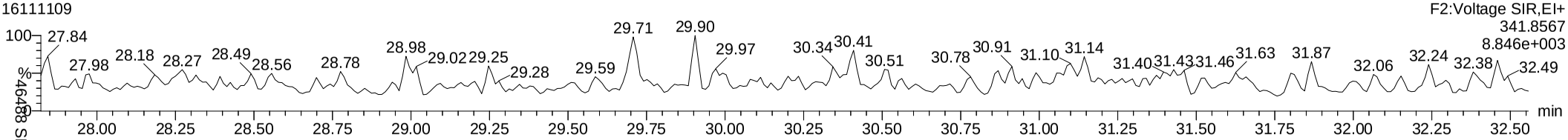

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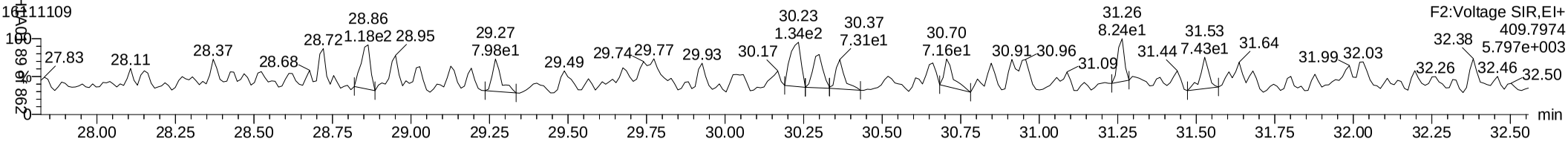

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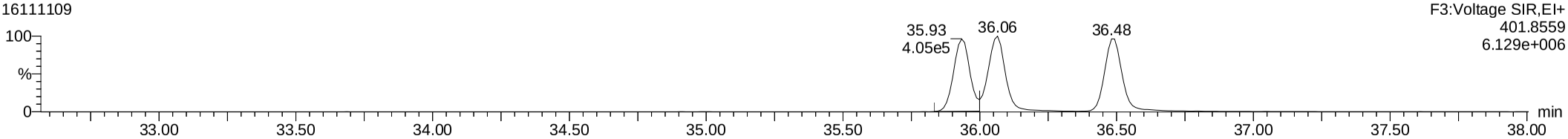
13C-123478-HxCDD



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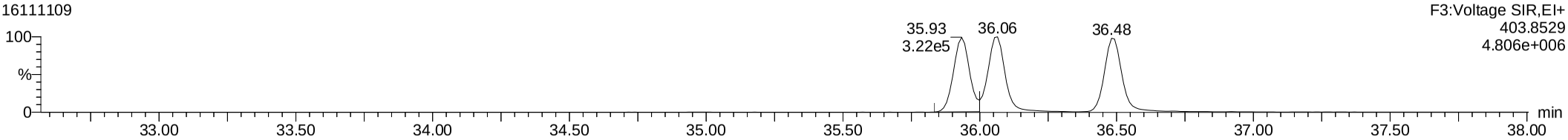

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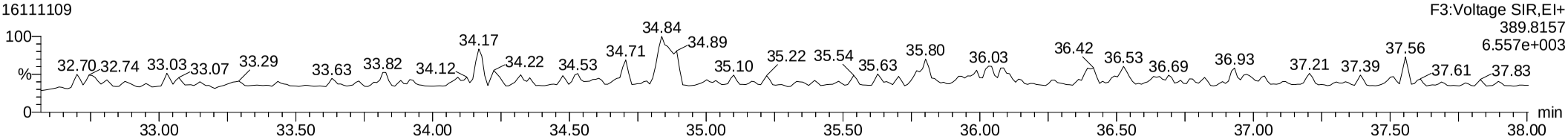

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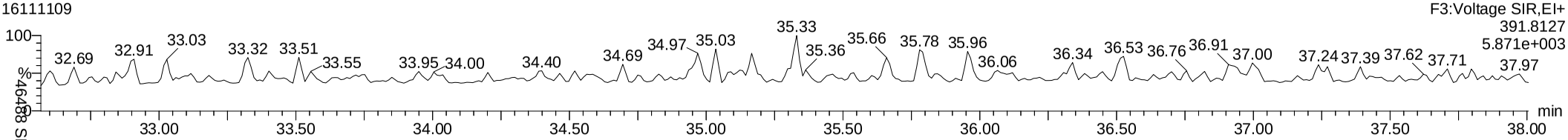

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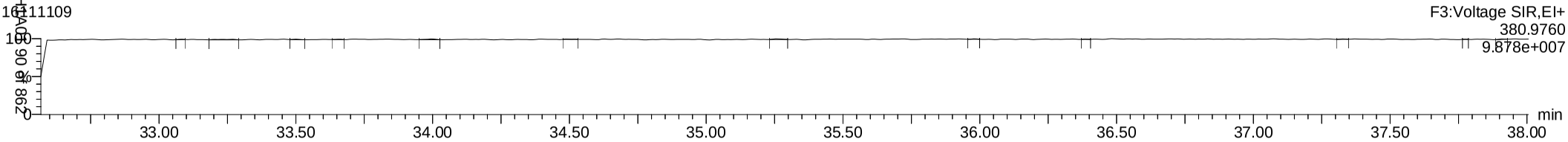

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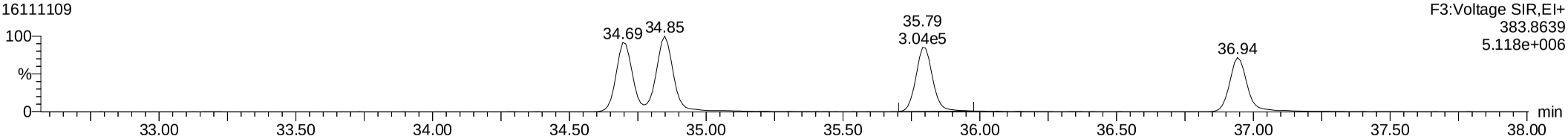
ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

13C-234678-HxCDF



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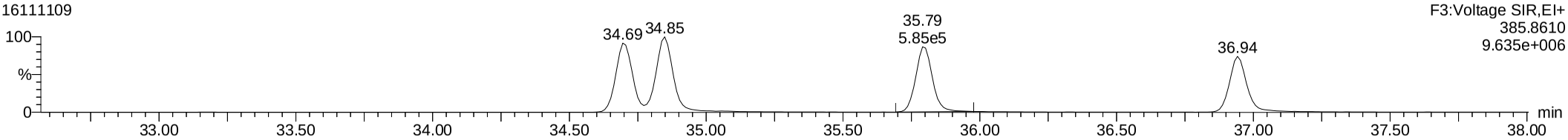
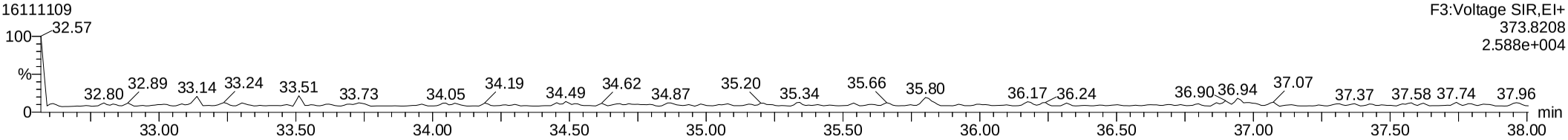
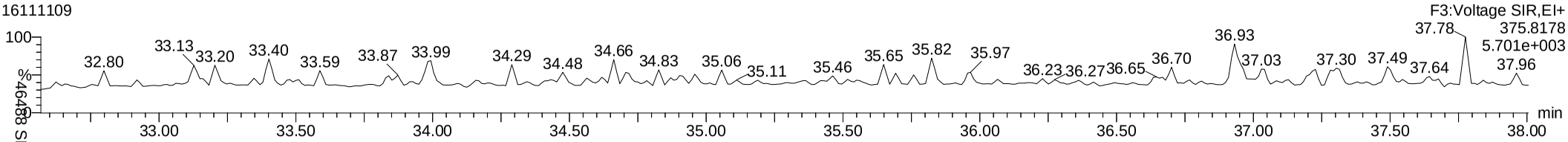


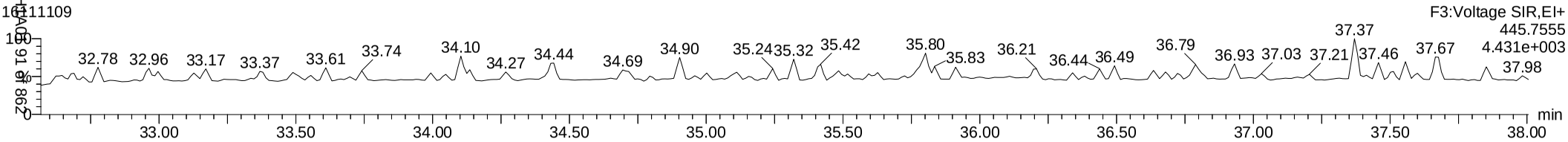
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



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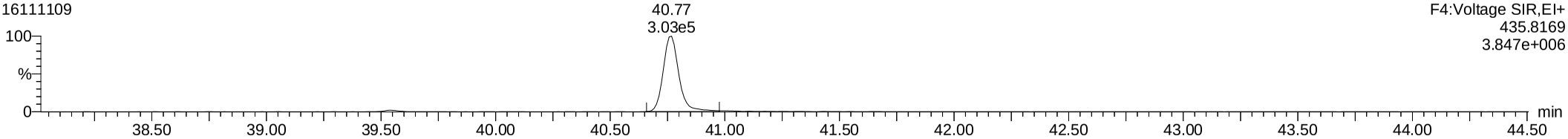
13C-1234678-HpCDD



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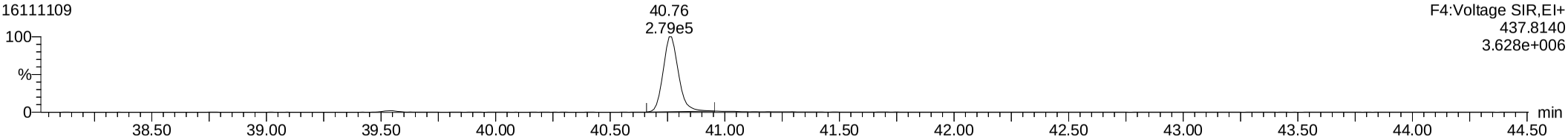
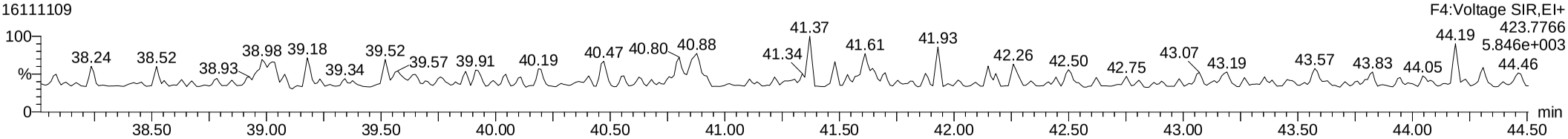
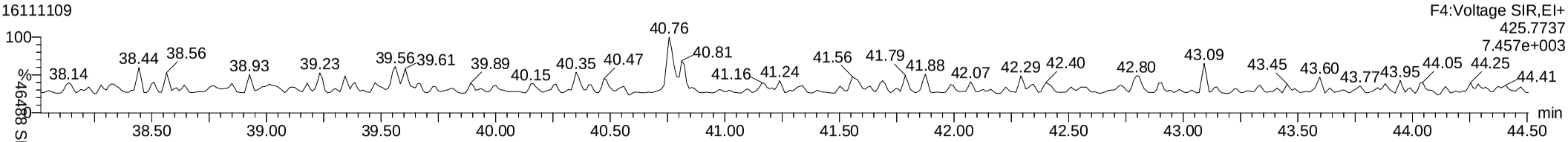


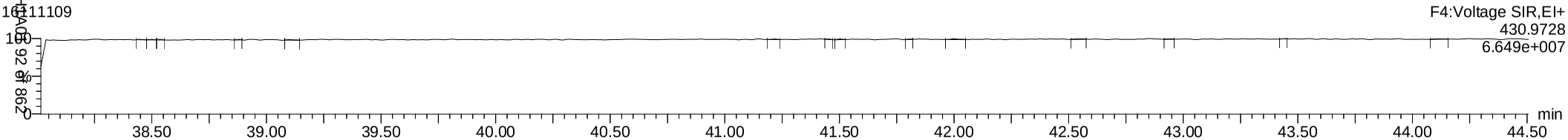
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



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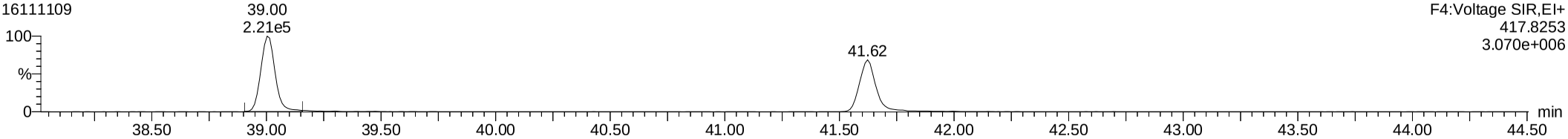
ID: PH1A03, Name: 16111109, Date: 11-Nov-2016, Time: 18:45:27, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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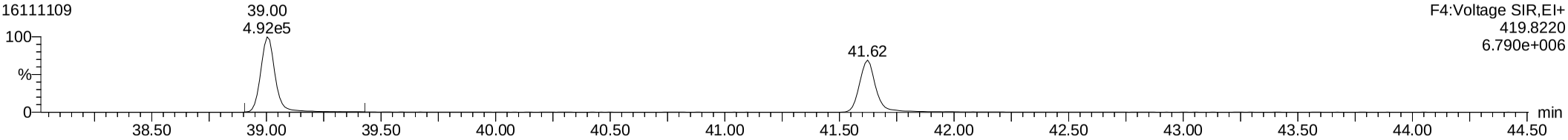

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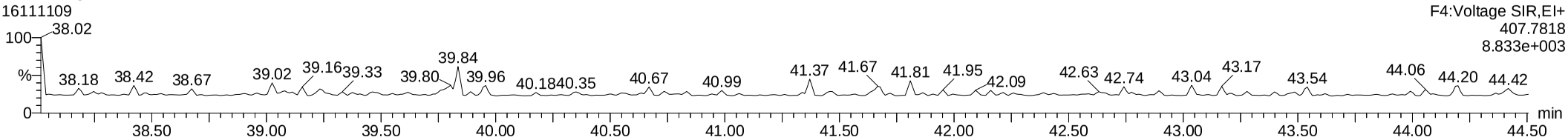

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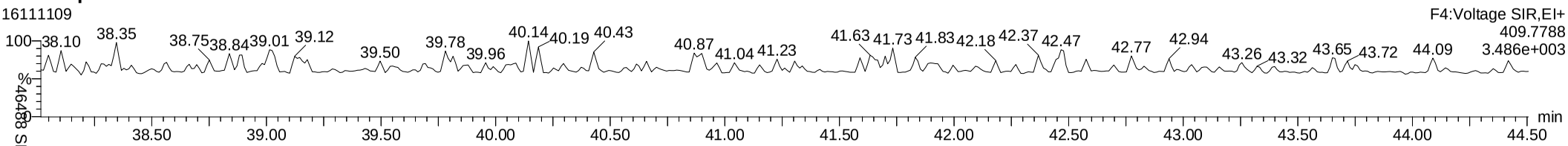

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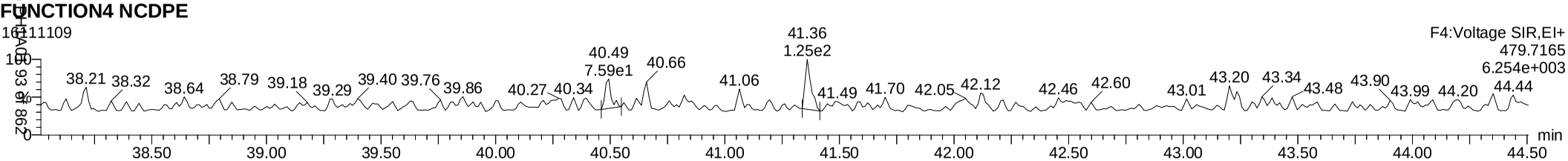

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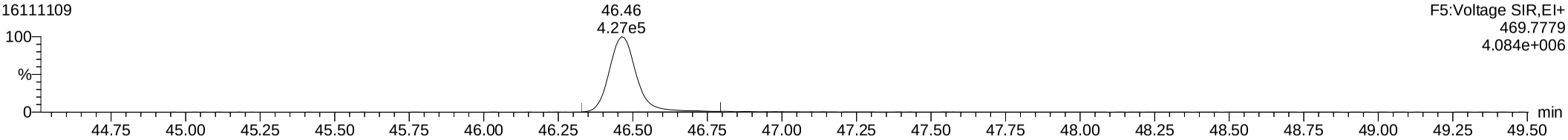
13C-OCDD



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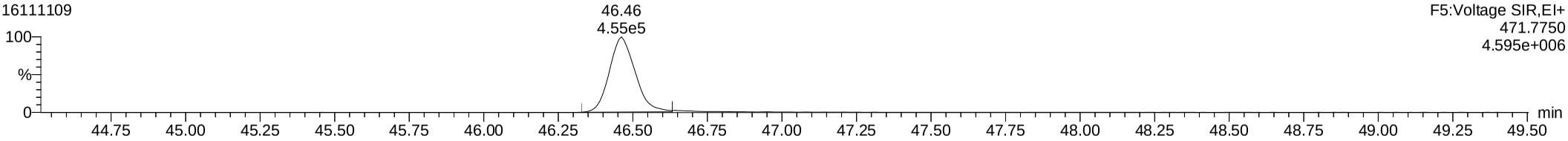

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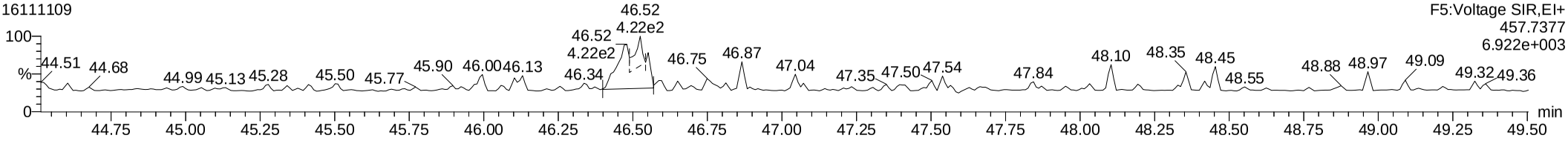

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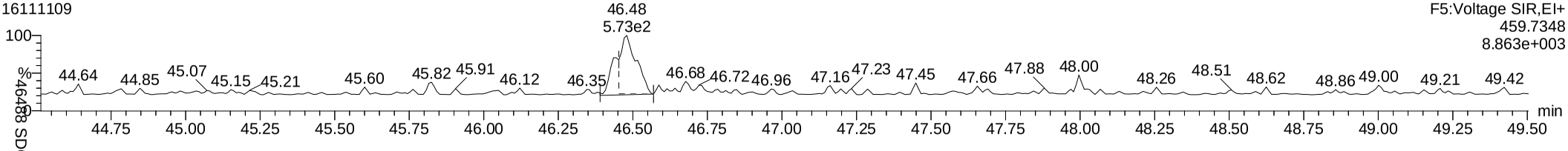
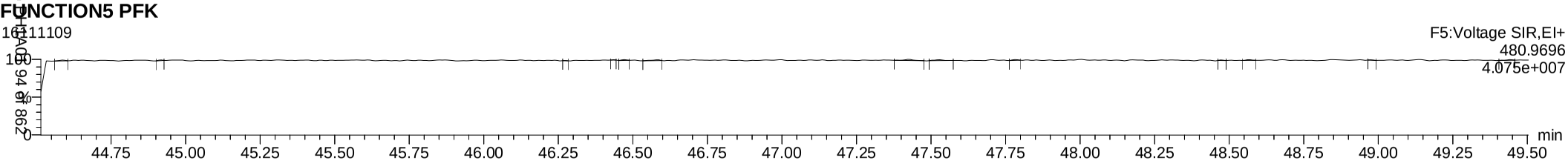


FUNCTION5 PFK



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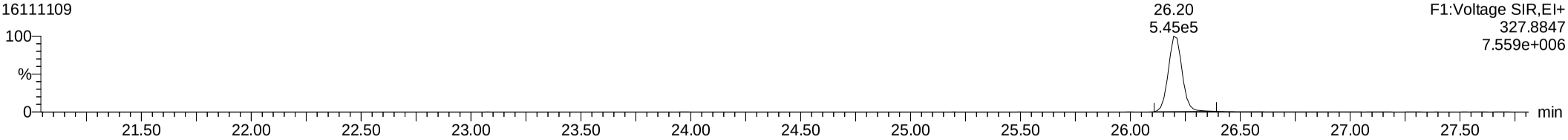
37CL-2378-TCDD



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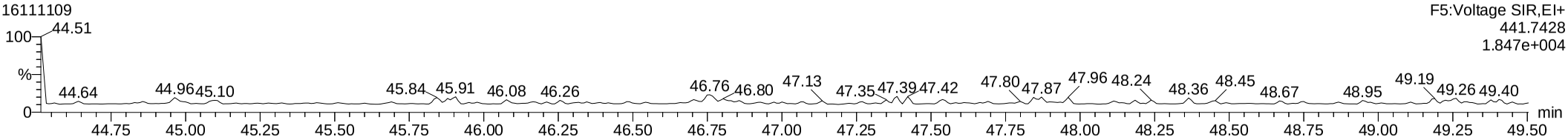

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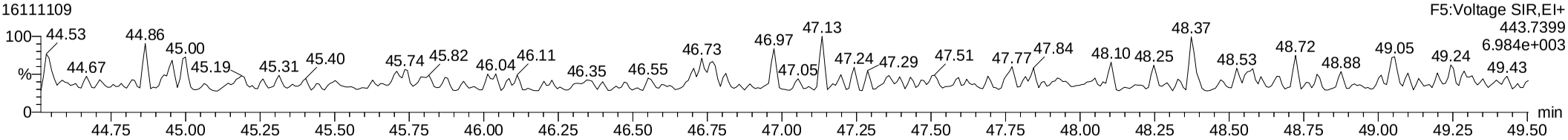

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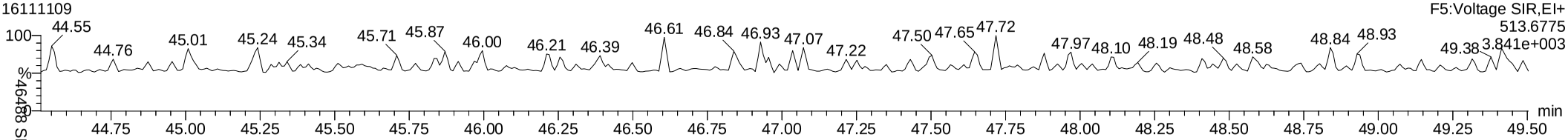

FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

PH1A04

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-04

Sample wt/vol: 60.96 (g/ml) g

Lab File ID: 16110923

Decanted (Y/N): N Extraction Method: SDS

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids: 16.4

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2,3,7,8-TCDD		UM	0.28		
5	1,2,3,7,8-PeCDD		UM	0.75		
6	1,2,3,4,7,8-HxCDD		UM	0.81		
6	1,2,3,6,7,8-HxCDD		UM	0.88		
6	1,2,3,7,8,9-HxCDD		UM	0.87		
7	1,2,3,4,6,7,8-HpCDD	11	B		1.034	40.767
8	OCDD	90	B		0.886	46.4697
4	2,3,7,8-TCDF		UM	0.20		
5	1,2,3,7,8-PeCDF		UM	0.77		
5	2,3,4,7,8-PeCDF		UM	0.91		
6	1,2,3,4,7,8-HxCDF		UM	0.75		
6	1,2,3,6,7,8-HxCDF		UM	0.82		
6	1,2,3,7,8,9-HxCDF		UM	0.74		
6	2,3,4,6,7,8-HxCDF		UM	0.84		
7	1,2,3,4,6,7,8-HpCDF		UM	0.53		
7	1,2,3,4,7,8,9-HpCDF		UM	0.63		
8	OCDF		UM	1.7		

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

PH1A04

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF Lab Sample ID: 16K0015-04

Sample wt/vol: 60.96 (g/ml) g Lab File ID: 16110923

Decanted (Y/N): N Extraction Method: SDS Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids: 16.4

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2,3,7,8-TCDD		x 1.0		x 1.0		x 1.0	
1,2,3,7,8-PeCDD		x 1.0		x 1.0		x 1.0	
1,2,3,4,7,8-HxCDD		x 0.1		x 0.5		x 0.05	
1,2,3,6,7,8-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,7,8,9-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,4,6,7,8-HpCDD	11	x 0.01	0.1100	x 0.001	0.0110	x 0.001	0.0110
OCDD	90	x 0.0003	0.0270	x 0.0001	0.0090	x 0.0001	0.0090
2,3,7,8-TCDF		x 0.1		x 0.05		x 0.1	
1,2,3,7,8-PeCDF		x 0.03		x 0.05		x 0.1	
2,3,4,7,8-PeCDF		x 0.3		x 0.5		x 1.0	
1,2,3,4,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,7,8,9-HxCDF		x 0.1		x 0.1		x 0.1	
2,3,4,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,4,6,7,8-HpCDF		x 0.01		x 0.01		x 0.01	
1,2,3,4,7,8,9-HpCDF		x 0.01		x 0.01		x 0.01	
OCDF		x 0.0003		x 0.0001		x 0.0001	
		Total TEQ =	0.14	Total TEQ =	0.020	Total TEQ =	0.020

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 1D-HR

TOTAL HOMOLOGUE DATA SUMMARY

EPA SAMPLE NO.

PH1A04

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-04

Sample wt/vol: 60.96 (g/ml) g

Lab File ID: 16110923

Decanted (Y/N): N Extraction Method: SDS

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids: 16.4

Homologue	Peaks	Concentration	Q
Total TCDD	4	2.1	
Total PeCDD	3	0.88	
Total HxCDD	7	8.0	
Total HpCDD	2	27	
Total TCDF	1	0.06	
Total PeCDF	2	0.12	
Total HxCDF	4	0.33	
Total HpCDF	3	1.3	
OCDD	1	90	B
OCDF			U
Total		129.79	

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

PH1A04

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-04

Sample wt/vol: 60.96 (g/ml) g

Lab File ID: 16110923

Decanted (Y/N): N Extraction Method: SDS

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids: 16.4

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2,3,7,8-TCDD	200	130	67.1	0.79	26.168
4	13C12-2,3,7,8-TCDF	200	130	66.6	0.78	25.5403
5	13C12-1,2,3,7,8-PeCDD	200	130	65.6	1.60	31.264
5	13C12-1,2,3,7,8-PeCDF	200	130	63.3	1.58	29.6637
5	13C12-2,3,4,7,8-PeCDF	200	130	67.1	1.58	31.0228
6	13C12-1,2,3,4,7,8-HxCDD	200	120	62.6	1.27	35.9223
6	13C12-1,2,3,6,7,8-HxCDD	200	120	57.9	1.25	36.054
6	13C12-1,2,3,4,7,8-HxCDF	200	120	58.4	0.52	34.6838
6	13C12-1,2,3,6,7,8-HxCDF	200	110	57.3	0.53	34.8373
6	13C12-1,2,3,7,8,9-HxCDF	200	120	60.6	0.51	36.9307
6	13C12-2,3,4,6,7,8-HxCDF	200	120	59.4	0.52	35.7798
7	13C12-1,2,3,4,6,7,8-HpCDI	200	120	58.2	1.06	40.756
7	13C12-1,2,3,4,6,7,8-HpCDF	200	100	52.4	0.46	38.9913
7	13C12-1,2,3,4,7,8,9-HpCDF	200	110	56.9	0.45	41.611
8	13C12-OCDD	400	190	48.2	0.88	46.4517
Labeled Cleanup Standard 37C14-2,3,7,8-TCDD						
4	37C14-2,3,7,8-TCDD	79.92	75	94.3		26.1978

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Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:26:02 Pacific Standard Time

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Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF					0.935		0.770	694	1067					
12378-PeCDF	29.708	1.002	2.56e2	2.52e2	0.952	1.015	1.550	1006	1369	4.87e3	4.57e3	4.8	YES	0.037
23478-PeCDF					0.963		1.550	1006	1369					
123478-HxCDF	34.706	1.001	1.35e2	9.05e1	1.137	1.493	1.240	853	793	3.93e3	2.79e3	4.6	YES	0.020
234678-HxCDF					1.164		1.240	853	793					
123678-HxCDF					1.099		1.240	853	793					
123789-HxCDF	36.953	1.001	1.10e2	1.61e2	1.101	0.682	1.240	853	793	3.60e3	3.47e3	4.2	YES	0.028
1234678-HpCDF	39.002	1.000	1.20e3	8.69e2	1.303	1.382	1.050	614	857	2.16e4	1.54e4	35.2	YES	0.213
1234789-HpCDF	41.644	1.001	7.66e1	1.42e2	1.317	0.539	1.050	614	857	2.09e3	4.21e3	3.4	YES	0.027
OCDF	46.748	1.006	2.18e3	2.48e3	1.166	0.877	0.890	647	829	2.11e4	2.80e4	32.6	NO	0.834
2378-TCDD					1.134		0.770	823	645					
12378-PeCDD					0.975		1.550	2338	1137					
123478-HxCDD	35.955	1.001	5.74e2	5.03e2	1.031	1.140	1.240	1565	1479	7.87e3	9.07e3	5.0	NO	0.131
123678-HxCDD	36.076	1.001	1.04e3	5.52e2	0.971	1.877	1.240	1565	1479	1.34e4	1.29e4	8.5	YES	0.200
123789-HxCDD	36.492	1.012	1.55e3	1.07e3	0.947	1.450	1.240	1565	1479	2.17e4	2.01e4	13.9	YES	0.343
1234678-HpCDD	40.767	1.000	1.81e4	1.75e4	1.028	1.034	1.050	1632	1807	2.39e5	2.41e5	146.7	NO	5.413
OCDD	46.470	1.000	1.13e5	1.27e5	1.107	0.886	0.890	1204	989	1.17e6	1.28e6	969.0	NO	45.230
13C-2378-TCDF	25.540	1.007	8.12e5	1.04e6	1.567	0.781	0.770	3571	2929	1.19e7	1.53e7	3336.3	NO	66.571
13C-12378-PeCDF	29.664	1.170	8.76e5	5.55e5	1.274	1.577	1.550	5127	5018	1.31e7	8.29e6	2547.6	NO	63.250
13C-23478-PeCDF	31.023	1.223	9.00e5	5.71e5	1.235	1.576	1.550	5127	5018	1.34e7	8.45e6	2618.5	NO	67.111
13C-123478-HxCDF	34.684	0.951	3.33e5	6.44e5	1.381	0.518	0.510	2840	3235	4.97e6	9.47e6	1749.1	NO	58.400
13C-123678-HxCDF	34.837	0.955	3.76e5	7.12e5	1.569	0.529	0.510	2840	3235	5.46e6	1.04e7	1920.9	NO	57.267
13C-234678-HxCDF	35.780	0.981	3.32e5	6.36e5	1.345	0.521	0.510	2840	3235	4.80e6	9.49e6	1691.2	NO	59.407
13C-123789-HxCDF	36.931	1.013	2.95e5	5.73e5	1.183	0.515	0.510	2840	3235	4.29e6	8.17e6	1510.1	NO	60.576
13C-1234678-HpCDF	38.991	1.069	2.37e5	5.11e5	1.178	0.464	0.440	1464	2208	3.54e6	7.71e6	2416.3	NO	52.385
13C-1234789-HpCDF	41.611	1.141	1.88e5	4.17e5	0.878	0.450	0.440	1464	2208	2.43e6	5.30e6	1657.5	NO	56.870
13C-1234-TCDD	25.361	0.000	7.85e5	9.90e5	1.000	0.793	0.770	1943	1148	1.18e7	1.50e7	6084.7	NO	100.000
13C-2378-TCDD	26.168	1.032	4.79e5	6.03e5	0.908	0.794	0.770	1943	1148	7.07e6	8.85e6	3638.3	NO	67.123
13C-12378-PeCDD	31.264	1.233	5.41e5	3.39e5	0.756	1.595	1.550	1380	1360	7.79e6	4.99e6	5646.3	NO	65.578
13C-123478-HxCDD	35.922	0.985	4.48e5	3.52e5	1.056	1.273	1.240	1970	2434	6.67e6	5.38e6	3386.8	NO	62.551
13C-123678-HxCDD	36.054	0.989	4.54e5	3.62e5	1.163	1.253	1.240	1970	2434	6.68e6	5.35e6	3392.7	NO	57.947
13C-1234678-HpCDD	40.756	1.117	3.30e5	3.11e5	0.909	1.059	1.050	1969	1406	4.41e6	4.14e6	2239.4	NO	58.222
13C-OCDD	46.452	1.274	4.49e5	5.09e5	0.820	0.881	0.890	1022	1912	4.60e6	5.20e6	4502.2	NO	96.476
13C-123789-HxCDD	36.470	0.000	6.74e5	5.37e5	1.000	1.257	1.240	1970	2434	9.95e6	7.94e6	5051.6	NO	100.000
Total-tetrafurans			2.58e2		0.935			694		3.61e3				0.031

9748 SOP/A01 100f 82

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:26:02 Pacific Standard Time

ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					448		0.00e0				
Total-pentafurans			3.93e2		0.957			1006		8.93e3				0.059
Total-hexafurans			9.49e2		1.125			853		1.94e4				0.163
Total-heptafurans			3.00e3		1.310			614		5.04e4				0.646
Total-Furans			6.78e3		1.114			694		1.03e5				1.734
Total-tetradioxins			5.62e3		1.134			823		9.01e4				1.066
Total-pentadioxins			2.18e3		0.975			2338		3.53e4				0.441
Total-hexadioxins			1.87e4		0.983			1565		2.55e5				4.014
Total-heptadioxins			4.61e4		1.028			1632		6.41e5				13.638
Total-Dioxins			1.85e5		1.028			823		2.19e6				64.389
Total-TEQ			1.92e5					823		2.29e6				66.123
37CL-2378-TCDD	26.198	1.033	7.14e5		1.067			1094		1.03e7		9394.4		37.720
FUNCTION1 PFK			7.61e6					184352		2.12e7				
FUNCTION2 PFK			1.03e5					71978		3.06e6				0.000
FUNCTION3 PFK			2.05e5					207733		7.38e6				0.000
FUNCTION4 PFK			2.83e5					180993		8.76e6				
FUNCTION5 PFK			7.03e4					116800		2.90e6				
FUNCTION1 HXCD...			0.00e0					380		0.00e0				
FUNCTION1 HPCD...			0.00e0					379		0.00e0				
FUNCTION2 HPCD...			0.00e0					224		0.00e0				
FUNCTION3 OCDPE			0.00e0					368		0.00e0				
FUNCTION4 NCDPE			5.78e2					543		7.90e3				0.000
FUNCTION5 DCDPE			8.75e1					741		2.69e3				0.000

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

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TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.60	537.301	0.935	0.031		0.93	0.77	YES	5.2

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	37	Total-pentafurans	339.8597	28.53	308.069	0.957	0.022		0.81	1.55	YES	4.0
2	2	12378-PeCDF	339.8597	29.71	507.608	0.952	0.037	0.031	1.01	1.55	YES	4.8

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	38	Total-hexafurans	373.8208	33.19	840.012	1.125	0.077		1.05	1.24	YES	7.6
2	7	123789-HxCDF	373.8208	36.95	271.350	1.101	0.028	0.021	0.68	1.24	YES	4.2
3	4	123478-HxCDF	373.8208	34.71	225.559	1.137	0.020	0.018	1.49	1.24	YES	4.6
4	38	Total-hexafurans	373.8208	34.06	410.920	1.125	0.037		1.99	1.24	YES	6.3

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	9	1234789-HpCDF	407.7818	41.64	218.718	1.317	0.027	0.019	0.54	1.05	YES	3.4
2	39	Total-heptafurans	407.7818	39.79	3597.011	1.310	0.406		0.92	1.05	NO	43.5
3	8	1234678-HpCDF	407.7818	39.00	2070.462	1.303	0.213	0.183	1.38	1.05	YES	35.2

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.60	537.301	0.935	0.031		0.93	0.77	YES	5.2
2	37	Total-pentafurans	339.8597	28.53	308.069	0.957	0.022		0.81	1.55	YES	4.0
3	38	Total-hexafurans	373.8208	33.19	840.012	1.125	0.077		1.05	1.24	YES	7.6
4	2	12378-PeCDF	339.8597	29.71	507.608	0.952	0.037	0.031	1.01	1.55	YES	4.8
5	7	123789-HxCDF	373.8208	36.95	271.350	1.101	0.028	0.021	0.68	1.24	YES	4.2
6	4	123478-HxCDF	373.8208	34.71	225.559	1.137	0.020	0.018	1.49	1.24	YES	4.6
7	38	Total-hexafurans	373.8208	34.06	410.920	1.125	0.037		1.99	1.24	YES	6.3
8	9	1234789-HpCDF	407.7818	41.64	218.718	1.317	0.027	0.019	0.54	1.05	YES	3.4
9	39	Total-heptafurans	407.7818	39.79	3597.011	1.310	0.406		0.92	1.05	NO	43.5
10	8	1234678-HpCDF	407.7818	39.00	2070.462	1.303	0.213	0.183	1.38	1.05	YES	35.2
11	10	OCDF	441.7428	46.75	4657.814	1.166	0.834	0.834	0.88	0.89	NO	32.6

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	23.34	653.043	1.134	0.053		0.47	0.77	YES	5.6
2	41	Total-tetradioxins	319.8965	26.32	340.171	1.134	0.028		0.41	0.77	YES	3.0
3	41	Total-tetradioxins	319.8965	24.81	381.851	1.134	0.031		0.84	0.77	NO	3.5
4	41	Total-tetradioxins	319.8965	24.33	11703.289	1.134	0.954		0.78	0.77	NO	97.4

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PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	42	Total-pentadioxins	355.8546	29.07	1900.813	0.975	0.221		1.93	1.55	YES	7.6
2	42	Total-pentadioxins	355.8546	28.61	849.939	0.975	0.099		1.19	1.55	YES	4.1
3	42	Total-pentadioxins	355.8546	30.21	1031.176	0.975	0.120		0.83	1.55	YES	3.4

HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	43	Total-hexadioxins	389.8157	34.97	7603.668	0.983	0.957		1.62	1.24	YES	24.8
2	43	Total-hexadioxins	389.8157	34.59	1338.196	0.983	0.168		1.40	1.24	NO	7.8
3	43	Total-hexadioxins	389.8157	33.78	16383.133	0.983	2.062		1.32	1.24	NO	94.1
4	15	123789-HxCDD	389.8157	36.49	2620.532	0.947	0.343	0.313	1.45	1.24	YES	13.9
5	43	Total-hexadioxins	389.8157	36.25	1209.107	0.983	0.152		1.55	1.24	YES	9.0
6	14	123678-HxCDD	389.8157	36.08	1588.253	0.971	0.200	0.156	1.88	1.24	YES	8.5
7	13	123478-HxCDD	389.8157	35.96	1076.876	1.031	0.131	0.131	1.14	1.24	NO	5.0

HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.77	35671.203	1.028	5.413	5.413	1.03	1.05	NO	146.7
2	44	Total-heptadioxins	423.7766	39.54	54200.530	1.028	8.225		1.07	1.05	NO	246.2

Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	23.34	653.043	1.134	0.053		0.47	0.77	YES	5.6
2	41	Total-tetradioxins	319.8965	26.32	340.171	1.134	0.028		0.41	0.77	YES	3.0
3	41	Total-tetradioxins	319.8965	24.81	381.851	1.134	0.031		0.84	0.77	NO	3.5
4	41	Total-tetradioxins	319.8965	24.33	11703.289	1.134	0.954		0.78	0.77	NO	97.4
5	42	Total-pentadioxins	355.8546	29.07	1900.813	0.975	0.221		1.93	1.55	YES	7.6
6	42	Total-pentadioxins	355.8546	28.61	849.939	0.975	0.099		1.19	1.55	YES	4.1
7	42	Total-pentadioxins	355.8546	30.21	1031.176	0.975	0.120		0.83	1.55	YES	3.4
8	43	Total-hexadioxins	389.8157	34.97	7603.668	0.983	0.957		1.62	1.24	YES	24.8
9	43	Total-hexadioxins	389.8157	34.59	1338.196	0.983	0.168		1.40	1.24	NO	7.8
10	43	Total-hexadioxins	389.8157	33.78	16383.133	0.983	2.062		1.32	1.24	NO	94.1
11	15	123789-HxCDD	389.8157	36.49	2620.532	0.947	0.343	0.313	1.45	1.24	YES	13.9
12	43	Total-hexadioxins	389.8157	36.25	1209.107	0.983	0.152		1.55	1.24	YES	9.0
13	14	123678-HxCDD	389.8157	36.08	1588.253	0.971	0.200	0.156	1.88	1.24	YES	8.5
14	13	123478-HxCDD	389.8157	35.96	1076.876	1.031	0.131	0.131	1.14	1.24	NO	5.0
15	16	1234678-HpCDD	423.7766	40.77	35671.203	1.028	5.413	5.413	1.03	1.05	NO	146.7
16	44	Total-heptadioxins	423.7766	39.54	54200.530	1.028	8.225		1.07	1.05	NO	246.2
17	17	OCDD	457.7377	46.47	239725.250	1.107	45.230	45.230	0.89	0.89	NO	969.0

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TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.60	537.301	0.935	0.031		0.93	0.77	YES	5.2
2	37	Total-pentafurans	339.8597	28.53	308.069	0.957	0.022		0.81	1.55	YES	4.0
3	38	Total-hexafurans	373.8208	33.19	840.012	1.125	0.077		1.05	1.24	YES	7.6
4	2	12378-PeCDF	339.8597	29.71	507.608	0.952	0.037	0.031	1.01	1.55	YES	4.8
5	7	123789-HxCDF	373.8208	36.95	271.350	1.101	0.028	0.021	0.68	1.24	YES	4.2
6	4	123478-HxCDF	373.8208	34.71	225.559	1.137	0.020	0.018	1.49	1.24	YES	4.6
7	38	Total-hexafurans	373.8208	34.06	410.920	1.125	0.037		1.99	1.24	YES	6.3
8	9	1234789-HpCDF	407.7818	41.64	218.718	1.317	0.027	0.019	0.54	1.05	YES	3.4
9	39	Total-heptafurans	407.7818	39.79	3597.011	1.310	0.406		0.92	1.05	NO	43.5
10	8	1234678-HpCDF	407.7818	39.00	2070.462	1.303	0.213	0.183	1.38	1.05	YES	35.2
11	10	OCDF	441.7428	46.75	4657.814	1.166	0.834	0.834	0.88	0.89	NO	32.6
12	41	Total-tetradioxins	319.8965	23.34	653.043	1.134	0.053		0.47	0.77	YES	5.6
13	41	Total-tetradioxins	319.8965	26.32	340.171	1.134	0.028		0.41	0.77	YES	3.0
14	41	Total-tetradioxins	319.8965	24.81	381.851	1.134	0.031		0.84	0.77	NO	3.5
15	41	Total-tetradioxins	319.8965	24.33	11703.289	1.134	0.954		0.78	0.77	NO	97.4
16	42	Total-pentadioxins	355.8546	29.07	1900.813	0.975	0.221		1.93	1.55	YES	7.6
17	42	Total-pentadioxins	355.8546	28.61	849.939	0.975	0.099		1.19	1.55	YES	4.1
18	42	Total-pentadioxins	355.8546	30.21	1031.176	0.975	0.120		0.83	1.55	YES	3.4
19	43	Total-hexadioxins	389.8157	34.97	7603.668	0.983	0.957		1.62	1.24	YES	24.8
20	43	Total-hexadioxins	389.8157	34.59	1338.196	0.983	0.168		1.40	1.24	NO	7.8
21	43	Total-hexadioxins	389.8157	33.78	16383.133	0.983	2.062		1.32	1.24	NO	94.1
22	15	123789-HxCDD	389.8157	36.49	2620.532	0.947	0.343	0.313	1.45	1.24	YES	13.9
23	43	Total-hexadioxins	389.8157	36.25	1209.107	0.983	0.152		1.55	1.24	YES	9.0
24	14	123678-HxCDD	389.8157	36.08	1588.253	0.971	0.200	0.156	1.88	1.24	YES	8.5
25	13	123478-HxCDD	389.8157	35.96	1076.876	1.031	0.131	0.131	1.14	1.24	NO	5.0
26	16	1234678-HpCDD	423.7766	40.77	35671.203	1.028	5.413	5.413	1.03	1.05	NO	146.7
27	44	Total-heptadioxins	423.7766	39.54	54200.530	1.028	8.225		1.07	1.05	NO	246.2
28	17	OCDD	457.7377	46.47	239725.250	1.107	45.230	45.230	0.89	0.89	NO	969.0

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	21.91	0.000							24.5
2	48	FUNCTION1 PFK	330.9792	21.07	0.000							65.7
3	48	FUNCTION1 PFK	330.9792	24.17	0.000							1.8
4	48	FUNCTION1 PFK	330.9792	24.12	0.000							1.1
5	48	FUNCTION1 PFK	330.9792	23.27	0.000							1.2
6	48	FUNCTION1 PFK	330.9792	23.08	0.000							2.3
7	48	FUNCTION1 PFK	330.9792	22.51	0.000							1.2
8	48	FUNCTION1 PFK	330.9792	22.04	0.000							17.4

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	29.31	0.000		0.000					1.1
2	49	FUNCTION2 PFK	366.9792	29.24	0.000		0.000					1.9
3	49	FUNCTION2 PFK	366.9792	28.86	0.000		0.000					1.1
4	49	FUNCTION2 PFK	366.9792	28.63	0.000		0.000					1.3
5	49	FUNCTION2 PFK	366.9792	28.34	0.000		0.000					0.7
6	49	FUNCTION2 PFK	366.9792	28.25	0.000		0.000					1.2
7	49	FUNCTION2 PFK	366.9792	28.19	0.000		0.000					2.3
8	49	FUNCTION2 PFK	366.9792	28.16	0.000		0.000					2.3
9	49	FUNCTION2 PFK	366.9792	28.06	0.000		0.000					1.7
10	49	FUNCTION2 PFK	366.9792	31.49	0.000		0.000					0.6
11	49	FUNCTION2 PFK	366.9792	31.33	0.000		0.000					1.4
12	49	FUNCTION2 PFK	366.9792	31.25	0.000		0.000					1.0
13	49	FUNCTION2 PFK	366.9792	31.02	0.000		0.000					0.7
14	49	FUNCTION2 PFK	366.9792	30.90	0.000		0.000					0.7
15	49	FUNCTION2 PFK	366.9792	30.70	0.000		0.000					1.1
16	49	FUNCTION2 PFK	366.9792	30.58	0.000		0.000					2.0
17	49	FUNCTION2 PFK	366.9792	30.47	0.000		0.000					1.2
18	49	FUNCTION2 PFK	366.9792	30.30	0.000		0.000					1.7
19	49	FUNCTION2 PFK	366.9792	30.24	0.000		0.000					1.4
20	49	FUNCTION2 PFK	366.9792	29.93	0.000		0.000					2.1
21	49	FUNCTION2 PFK	366.9792	29.87	0.000		0.000					1.4
22	49	FUNCTION2 PFK	366.9792	29.72	0.000		0.000					1.0
23	49	FUNCTION2 PFK	366.9792	29.58	0.000		0.000					1.9
24	49	FUNCTION2 PFK	366.9792	29.47	0.000		0.000					2.5
25	49	FUNCTION2 PFK	366.9792	29.42	0.000		0.000					1.7
26	49	FUNCTION2 PFK	366.9792	32.33	0.000		0.000					1.0
27	49	FUNCTION2 PFK	366.9792	32.23	0.000		0.000					1.8
28	49	FUNCTION2 PFK	366.9792	32.09	0.000		0.000					1.2
29	49	FUNCTION2 PFK	366.9792	32.01	0.000		0.000					1.2
30	49	FUNCTION2 PFK	366.9792	31.95	0.000		0.000					0.8
31	49	FUNCTION2 PFK	366.9792	31.63	0.000		0.000					0.4

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	33.49	0.000		0.000					1.4
2	50	FUNCTION3 PFK	380.9760	33.35	0.000		0.000					0.9
3	50	FUNCTION3 PFK	380.9760	33.28	0.000		0.000					0.7
4	50	FUNCTION3 PFK	380.9760	33.24	0.000		0.000					0.6
5	50	FUNCTION3 PFK	380.9760	33.06	0.000		0.000					0.7
6	50	FUNCTION3 PFK	380.9760	32.95	0.000		0.000					0.9
7	50	FUNCTION3 PFK	380.9760	32.92	0.000		0.000					1.0
8	50	FUNCTION3 PFK	380.9760	32.79	0.000		0.000					0.6
9	50	FUNCTION3 PFK	380.9760	32.67	0.000		0.000					1.0
10	50	FUNCTION3 PFK	380.9760	36.33	0.000		0.000					1.2
11	50	FUNCTION3 PFK	380.9760	36.10	0.000		0.000					1.1
12	50	FUNCTION3 PFK	380.9760	35.99	0.000		0.000					1.0
13	50	FUNCTION3 PFK	380.9760	35.88	0.000		0.000					0.8
14	50	FUNCTION3 PFK	380.9760	35.64	0.000		0.000					0.6
15	50	FUNCTION3 PFK	380.9760	35.58	0.000		0.000					2.0
16	50	FUNCTION3 PFK	380.9760	35.47	0.000		0.000					1.4
17	50	FUNCTION3 PFK	380.9760	35.21	0.000		0.000					1.7
18	50	FUNCTION3 PFK	380.9760	35.08	0.000		0.000					0.8
19	50	FUNCTION3 PFK	380.9760	34.85	0.000		0.000					1.6
20	50	FUNCTION3 PFK	380.9760	34.61	0.000		0.000					0.7
21	50	FUNCTION3 PFK	380.9760	34.50	0.000		0.000					1.3
22	50	FUNCTION3 PFK	380.9760	34.42	0.000		0.000					1.4
23	50	FUNCTION3 PFK	380.9760	34.18	0.000		0.000					0.8
24	50	FUNCTION3 PFK	380.9760	34.00	0.000		0.000					1.4
25	50	FUNCTION3 PFK	380.9760	33.96	0.000		0.000					1.7
26	50	FUNCTION3 PFK	380.9760	37.73	0.000		0.000					0.8
27	50	FUNCTION3 PFK	380.9760	37.68	0.000		0.000					1.1
28	50	FUNCTION3 PFK	380.9760	37.53	0.000		0.000					1.7
29	50	FUNCTION3 PFK	380.9760	37.15	0.000		0.000					1.0
30	50	FUNCTION3 PFK	380.9760	36.72	0.000		0.000					1.8
31	50	FUNCTION3 PFK	380.9760	36.49	0.000		0.000					0.7
32	50	FUNCTION3 PFK	380.9760	36.45	0.000		0.000					1.2

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:26:02 Pacific Standard Time

ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	39.55	0.000							0.7
2	51	FUNCTION4 PFK	430.9728	39.44	0.000							1.0
3	51	FUNCTION4 PFK	430.9728	39.28	0.000							0.4
4	51	FUNCTION4 PFK	430.9728	39.12	0.000							1.8
5	51	FUNCTION4 PFK	430.9728	38.84	0.000							1.7
6	51	FUNCTION4 PFK	430.9728	38.76	0.000							1.3
7	51	FUNCTION4 PFK	430.9728	38.39	0.000							0.6
8	51	FUNCTION4 PFK	430.9728	38.13	0.000							0.4
9	51	FUNCTION4 PFK	430.9728	41.39	0.000							0.8
10	51	FUNCTION4 PFK	430.9728	41.31	0.000							1.6
11	51	FUNCTION4 PFK	430.9728	41.23	0.000							1.4
12	51	FUNCTION4 PFK	430.9728	41.16	0.000							0.8
13	51	FUNCTION4 PFK	430.9728	41.02	0.000							0.7
14	51	FUNCTION4 PFK	430.9728	40.90	0.000							0.9
15	51	FUNCTION4 PFK	430.9728	40.85	0.000							1.8
16	51	FUNCTION4 PFK	430.9728	40.68	0.000							1.5
17	51	FUNCTION4 PFK	430.9728	40.64	0.000							0.6
18	51	FUNCTION4 PFK	430.9728	40.37	0.000							1.2
19	51	FUNCTION4 PFK	430.9728	40.17	0.000							1.2
20	51	FUNCTION4 PFK	430.9728	40.11	0.000							1.7
21	51	FUNCTION4 PFK	430.9728	39.96	0.000							1.4
22	51	FUNCTION4 PFK	430.9728	39.89	0.000							1.8
23	51	FUNCTION4 PFK	430.9728	39.78	0.000							1.8
24	51	FUNCTION4 PFK	430.9728	39.64	0.000							1.4
25	51	FUNCTION4 PFK	430.9728	43.89	0.000							1.3
26	51	FUNCTION4 PFK	430.9728	43.63	0.000							0.4
27	51	FUNCTION4 PFK	430.9728	43.58	0.000							1.1
28	51	FUNCTION4 PFK	430.9728	43.43	0.000							1.7
29	51	FUNCTION4 PFK	430.9728	43.27	0.000							1.7
30	51	FUNCTION4 PFK	430.9728	43.20	0.000							0.9
31	51	FUNCTION4 PFK	430.9728	42.93	0.000							0.7
32	51	FUNCTION4 PFK	430.9728	42.88	0.000							0.5
33	51	FUNCTION4 PFK	430.9728	42.85	0.000							0.9
34	51	FUNCTION4 PFK	430.9728	42.61	0.000							1.2
35	51	FUNCTION4 PFK	430.9728	42.56	0.000							0.7
36	51	FUNCTION4 PFK	430.9728	42.04	0.000							0.6
37	51	FUNCTION4 PFK	430.9728	41.99	0.000							1.0
38	51	FUNCTION4 PFK	430.9728	41.96	0.000							0.8
39	51	FUNCTION4 PFK	430.9728	41.60	0.000							0.4
40	51	FUNCTION4 PFK	430.9728	41.44	0.000							0.6
41	51	FUNCTION4 PFK	430.9728	44.47	0.000							2.2
42	51	FUNCTION4 PFK	430.9728	44.33	0.000							2.1
43	51	FUNCTION4 PFK	430.9728	44.23	0.000							0.6
44	51	FUNCTION4 PFK	430.9728	44.11	0.000							0.7

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:26:02 Pacific Standard Time

ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	47.46	0.000								0.6
2	52	FUNCTION5 PFK	480.9696	47.43	0.000								0.8
3	52	FUNCTION5 PFK	480.9696	47.20	0.000								1.7
4	52	FUNCTION5 PFK	480.9696	46.66	0.000								0.5
5	52	FUNCTION5 PFK	480.9696	46.40	0.000								1.6
6	52	FUNCTION5 PFK	480.9696	46.23	0.000								1.7
7	52	FUNCTION5 PFK	480.9696	45.88	0.000								0.5
8	52	FUNCTION5 PFK	480.9696	45.55	0.000								1.1
9	52	FUNCTION5 PFK	480.9696	45.45	0.000								0.9
10	52	FUNCTION5 PFK	480.9696	45.27	0.000								1.4
11	52	FUNCTION5 PFK	480.9696	45.22	0.000								1.0
12	52	FUNCTION5 PFK	480.9696	49.48	0.000								1.1
13	52	FUNCTION5 PFK	480.9696	49.31	0.000								2.1
14	52	FUNCTION5 PFK	480.9696	48.70	0.000								1.4
15	52	FUNCTION5 PFK	480.9696	48.62	0.000								1.2
16	52	FUNCTION5 PFK	480.9696	48.56	0.000								0.5
17	52	FUNCTION5 PFK	480.9696	48.40	0.000								1.1
18	52	FUNCTION5 PFK	480.9696	48.20	0.000								0.8
19	52	FUNCTION5 PFK	480.9696	48.01	0.000								0.8
20	52	FUNCTION5 PFK	480.9696	47.96	0.000								1.4
21	52	FUNCTION5 PFK	480.9696	47.73	0.000								1.6
22	52	FUNCTION5 PFK	480.9696	47.68	0.000								1.2

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	38.60	0.000			0.000					14.5

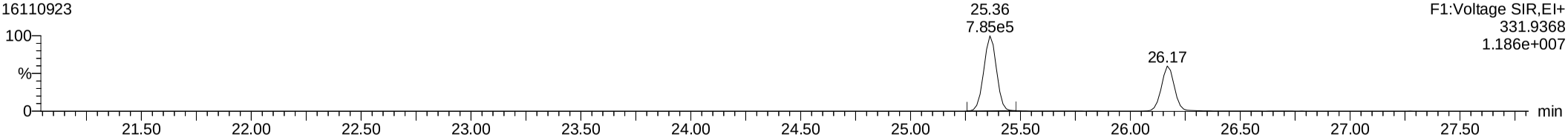
ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	58	FUNCTION5 DCDPE	513.6775	48.78	0.000			0.000					3.6

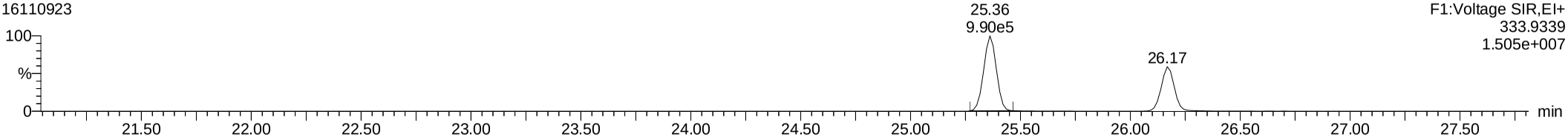
Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

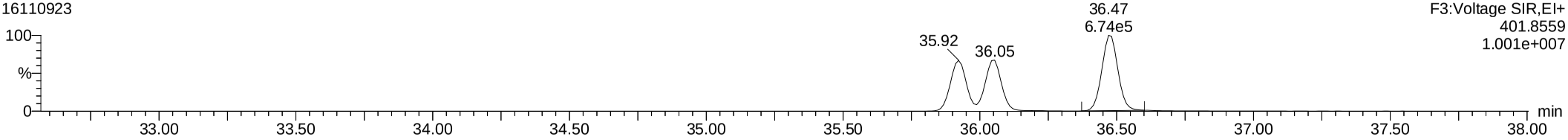
13C-1234-TCDD



13C-1234-TCDD



13C-123789-HxCDD



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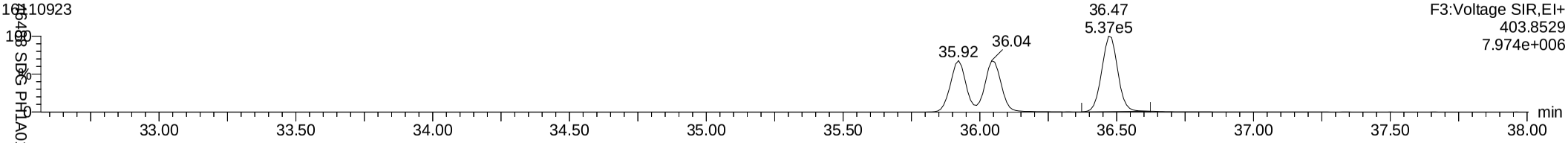

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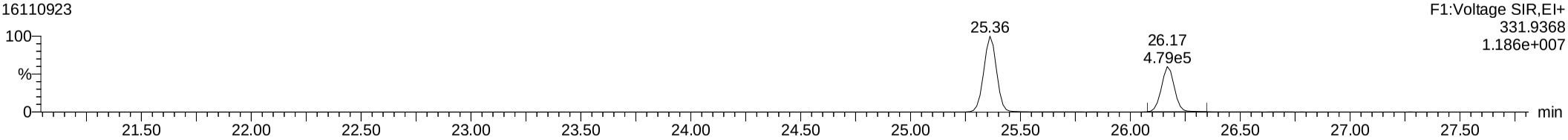
ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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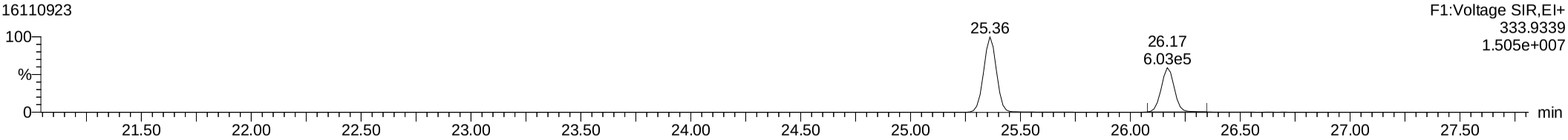
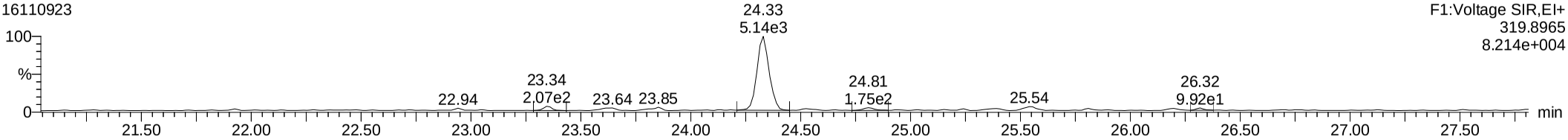
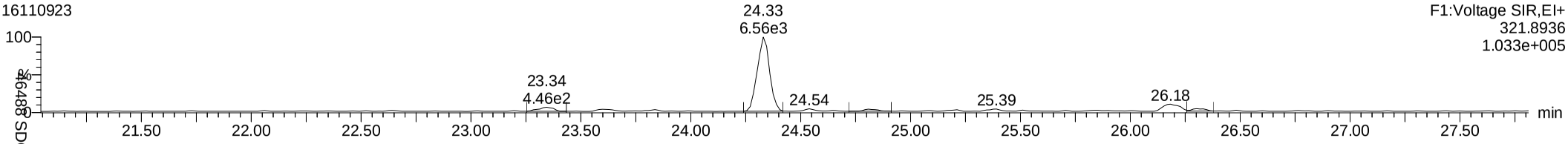


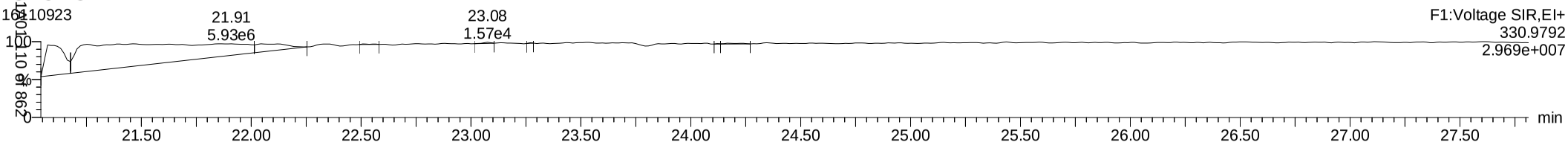
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



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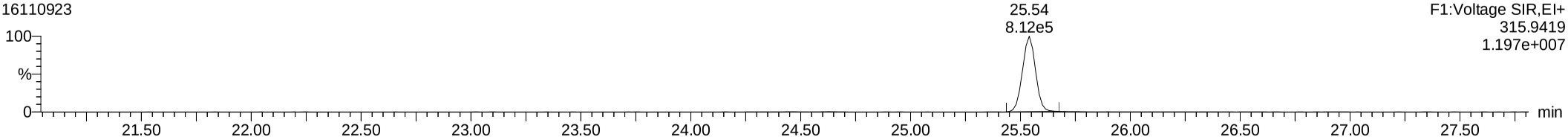
ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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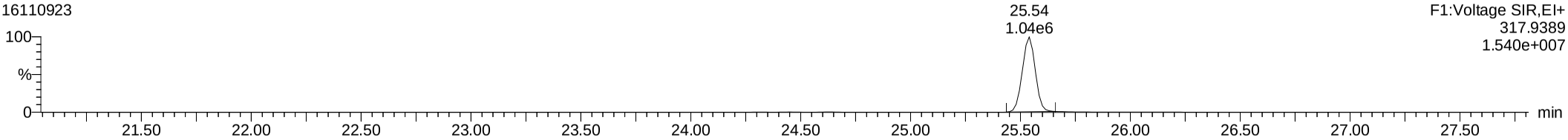
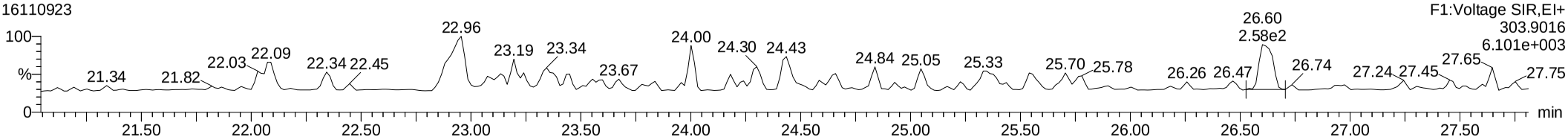
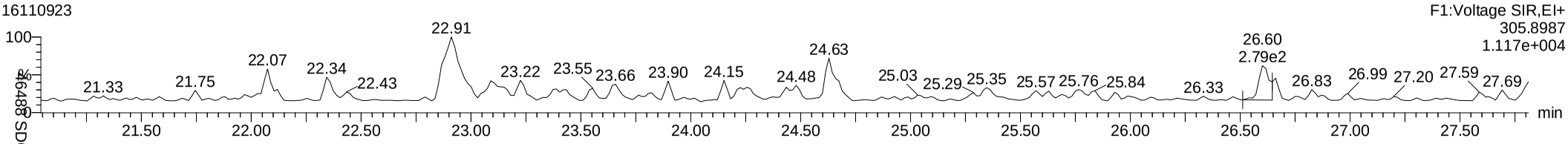


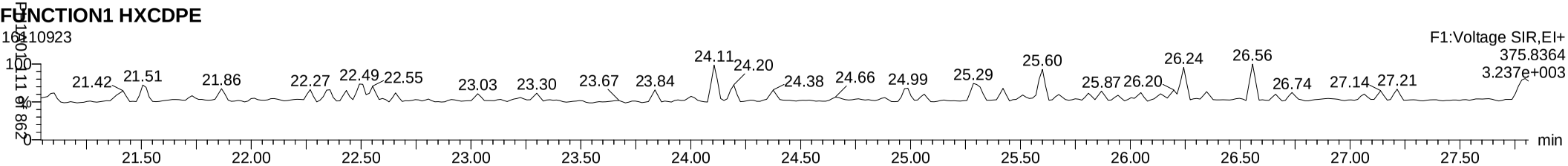
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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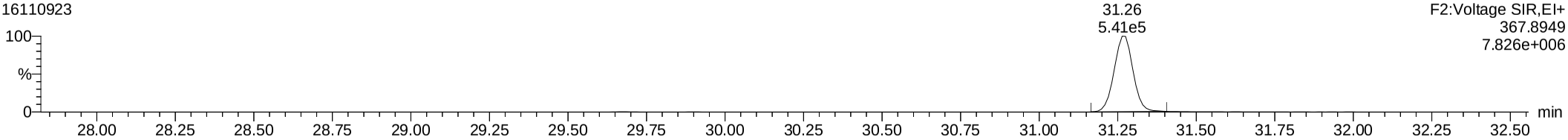
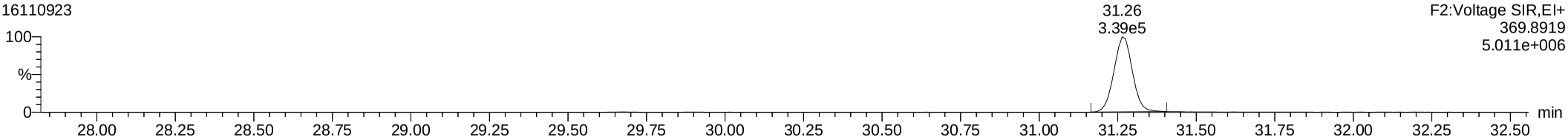
ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

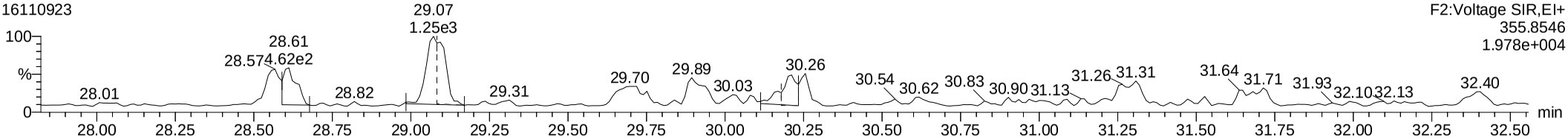
13C-12378-PeCDD



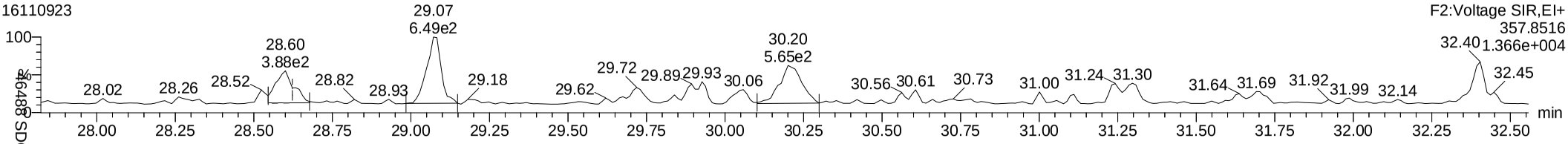
13C-12378-PeCDD



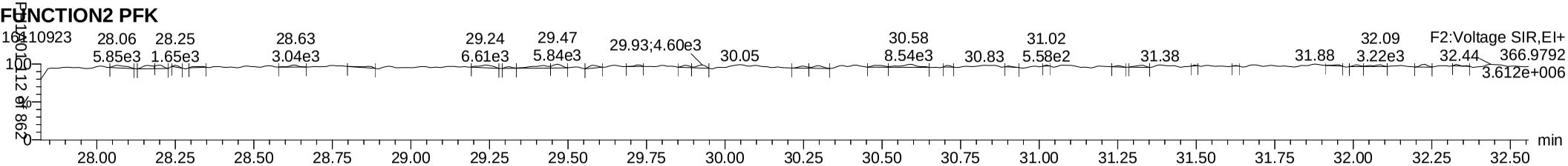
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
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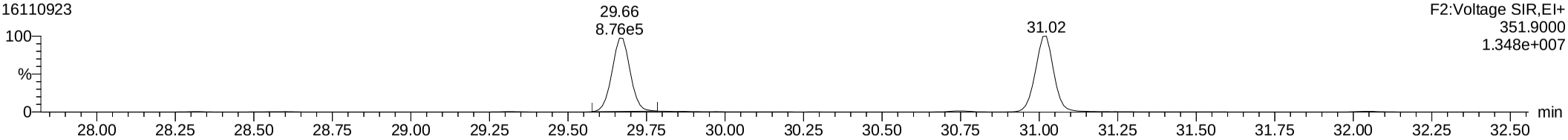
ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDF



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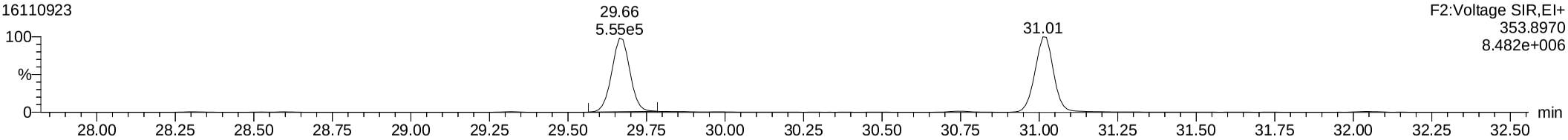
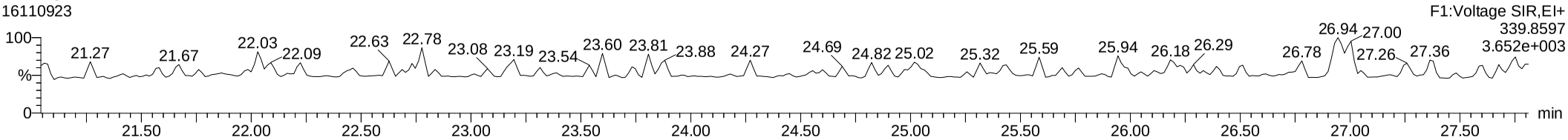
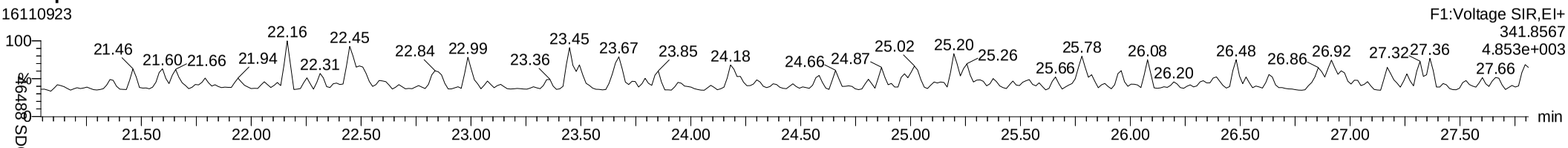


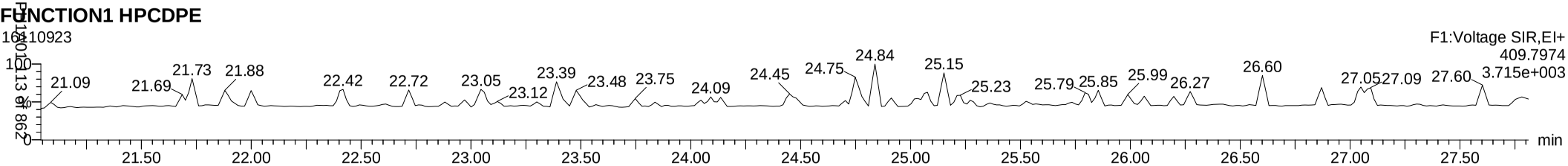
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



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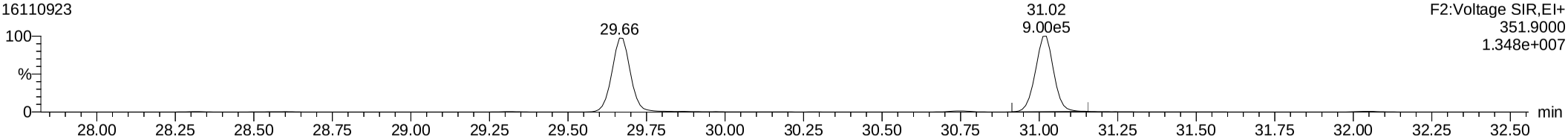
ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

13C-23478-PeCDF



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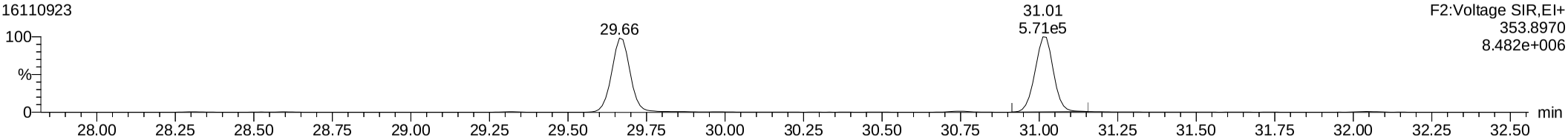
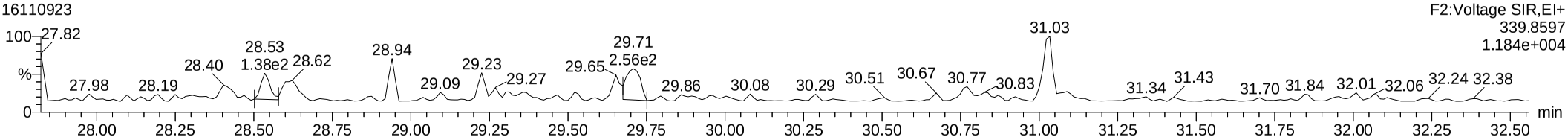
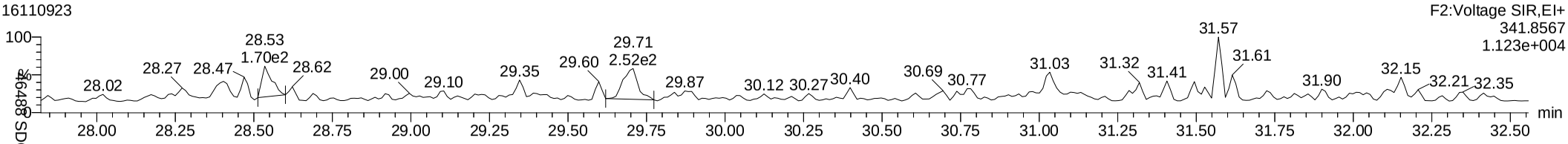


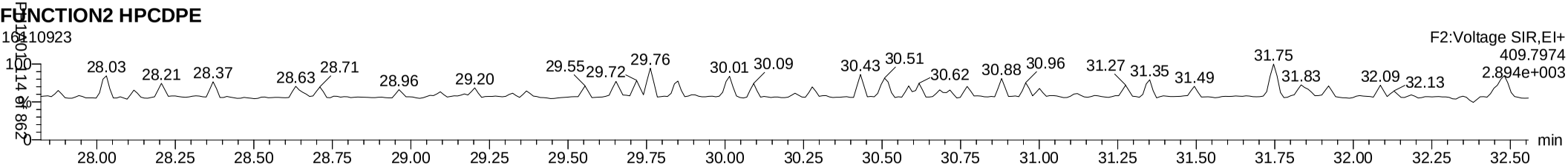
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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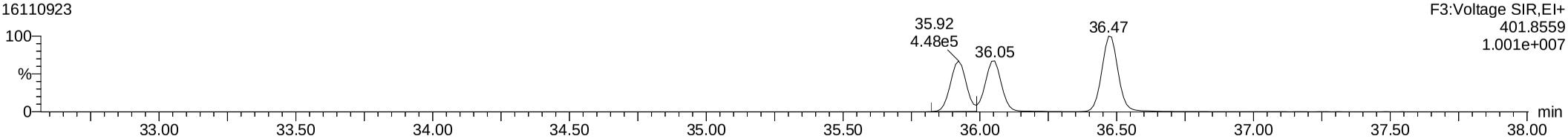
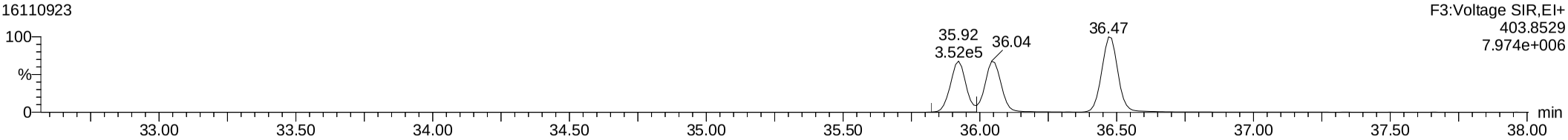
ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

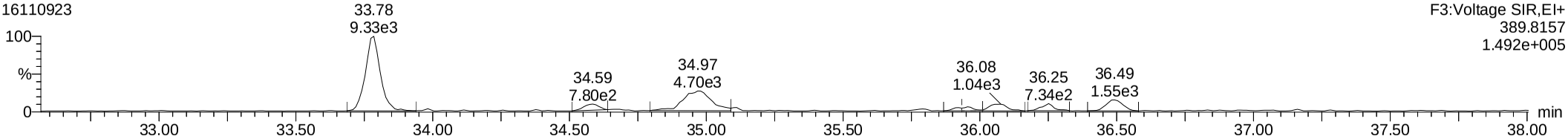
13C-123478-HxCDD



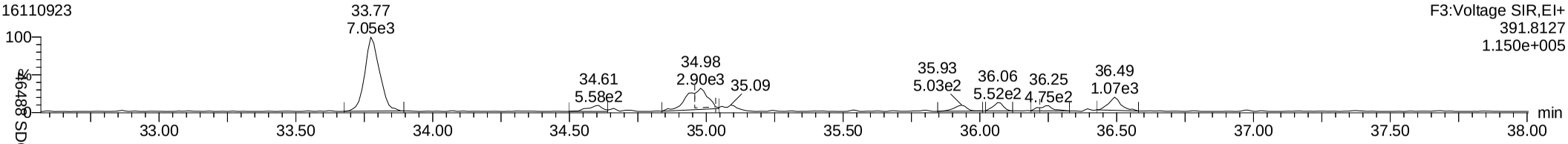
13C-123478-HxCDD



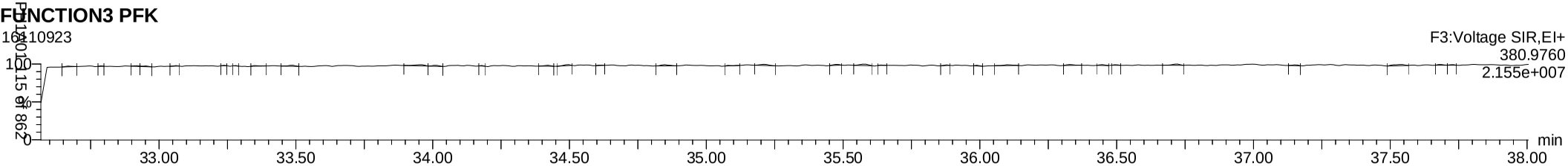
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



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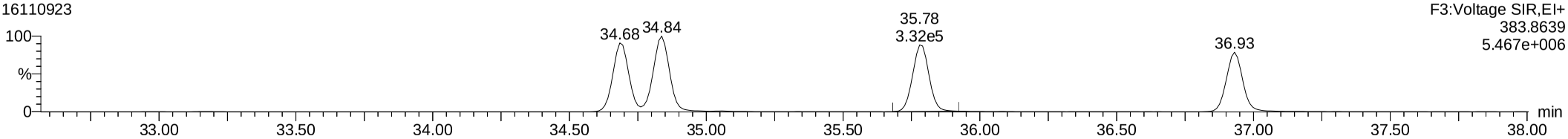
ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

13C-234678-HxCDF



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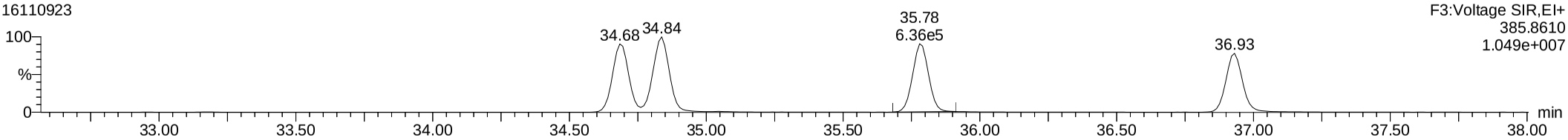

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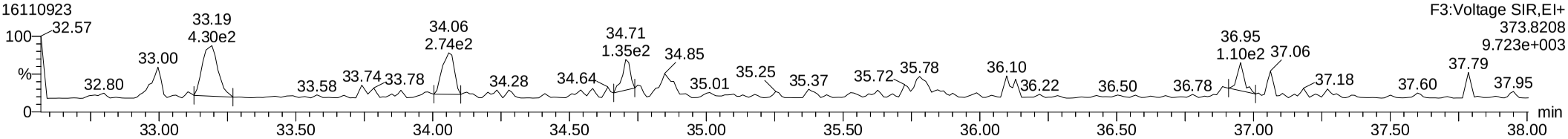

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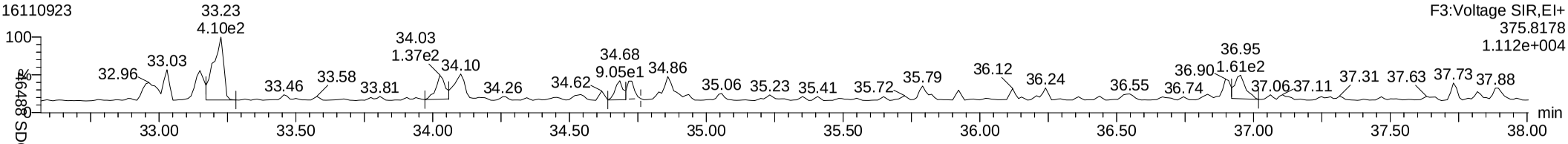
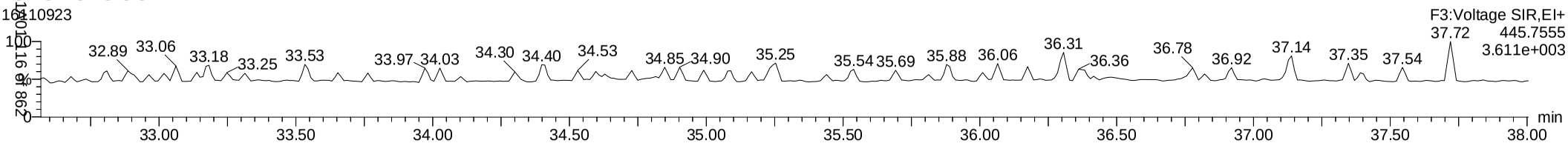


FUNCTION3 OCDPE



46488 SDG PH1A01_16 of 862

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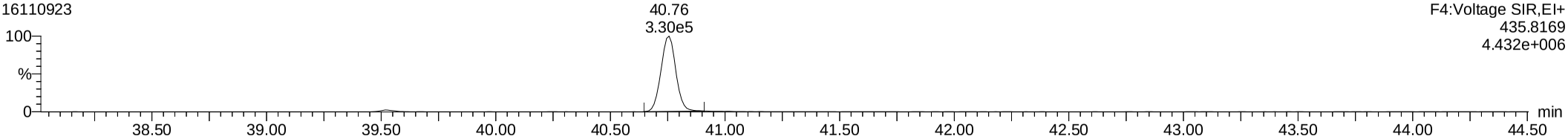
Printed: Friday, November 11, 2016 11:26:02 Pacific Standard Time

ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



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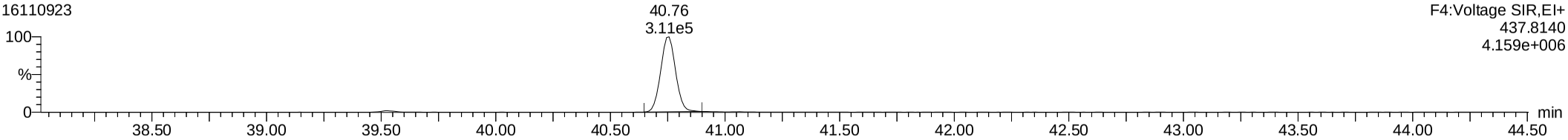

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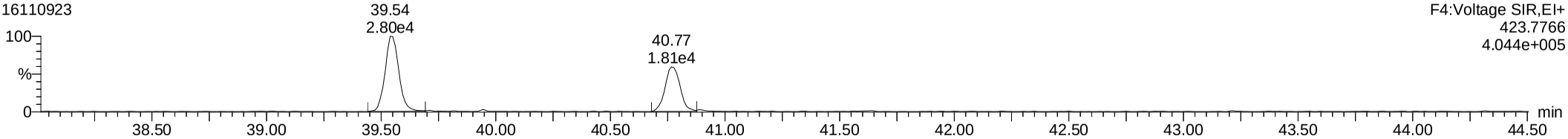

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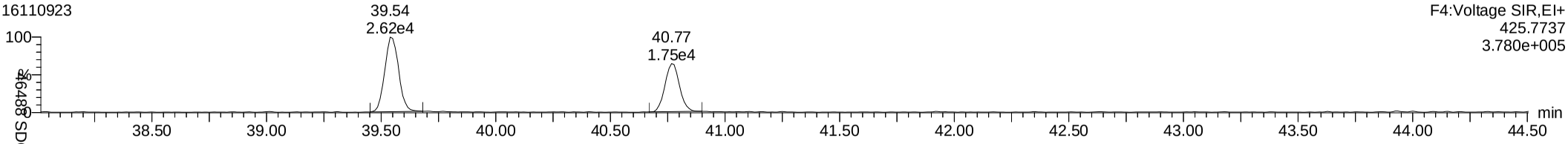
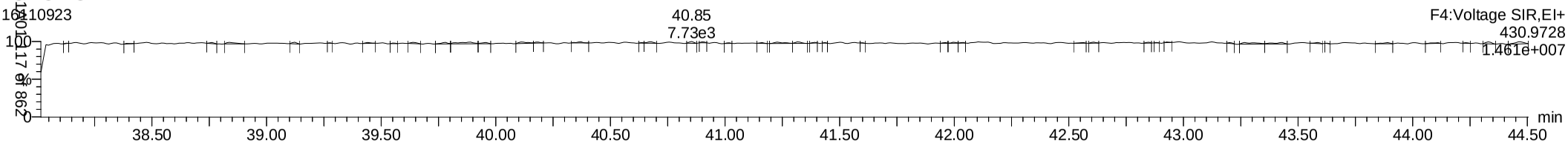


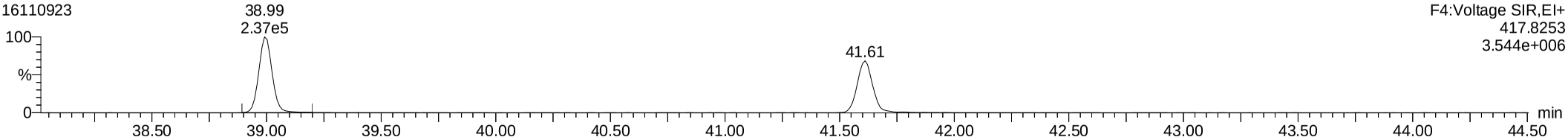
FUNCTION4 PFK



46488 SDG PH1A01 117 of 862

ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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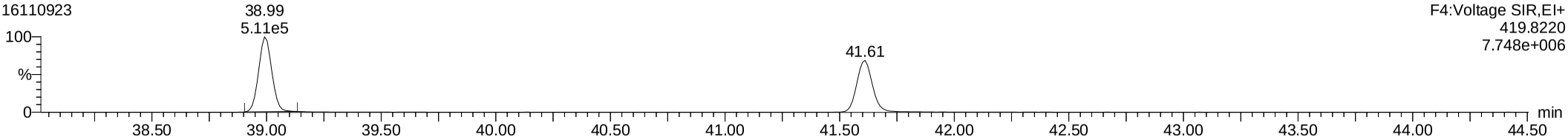

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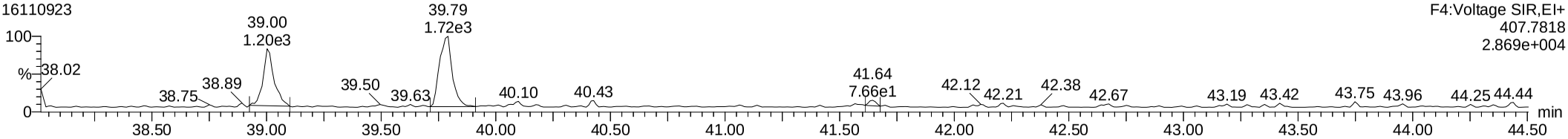

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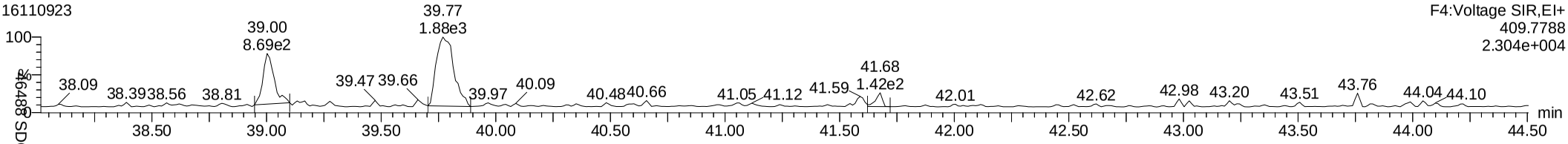
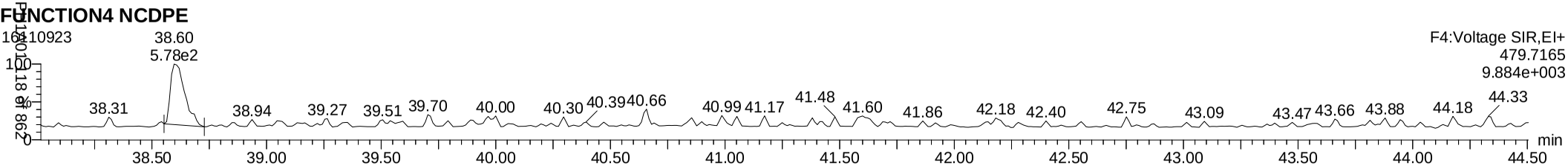


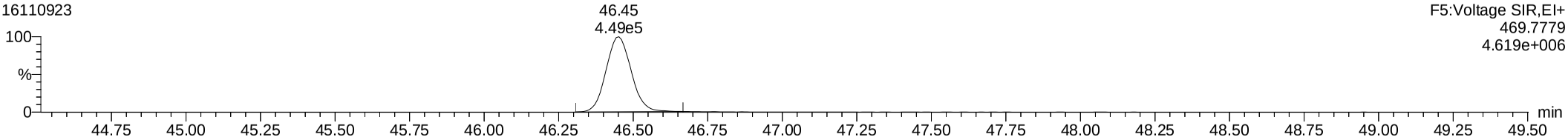
FUNCTION4 NCDPE



46488 SDG PH1A01 18 of 862

ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

13C-OCDD



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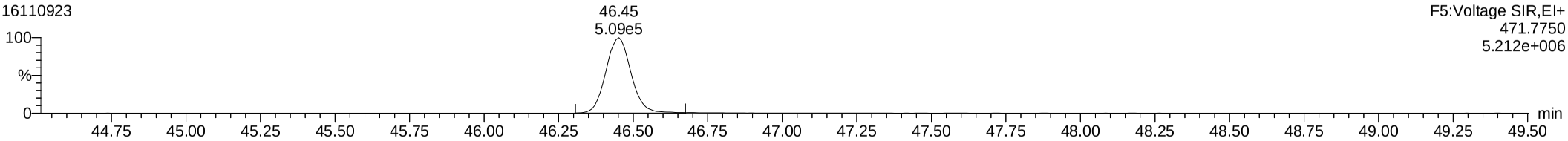
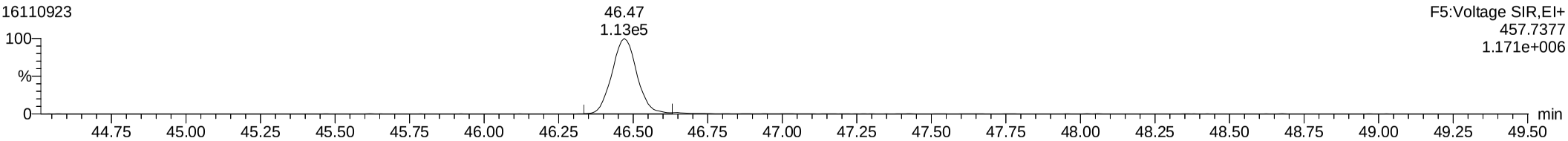


OCDD



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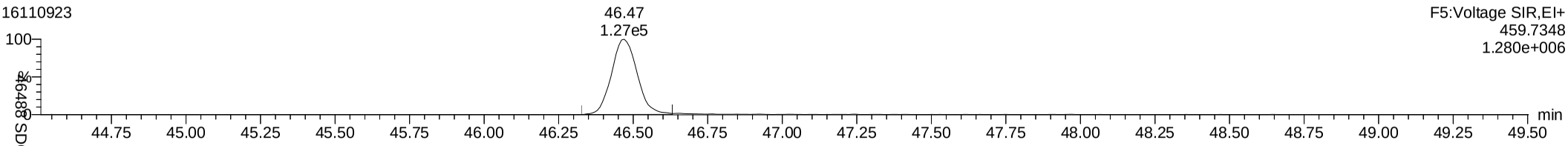
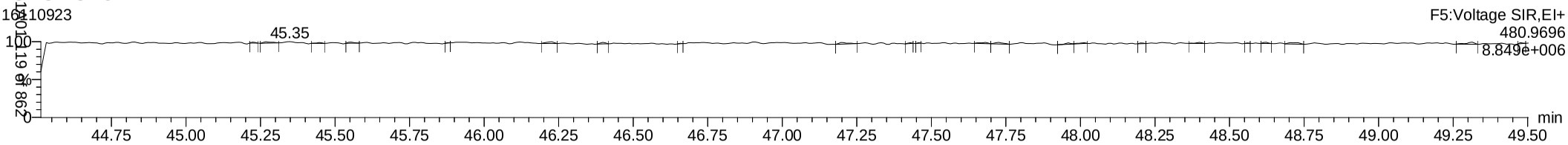


FUNCTION5 PFK



46488 SDG PH1A01 19 of 862

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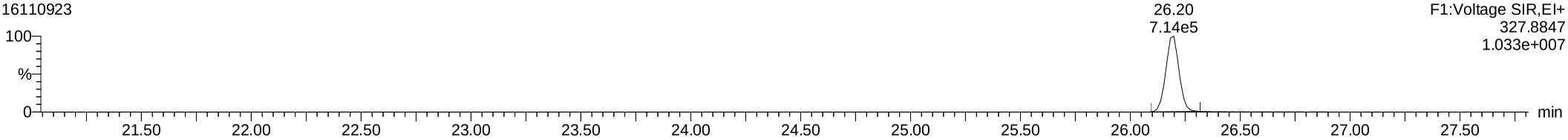
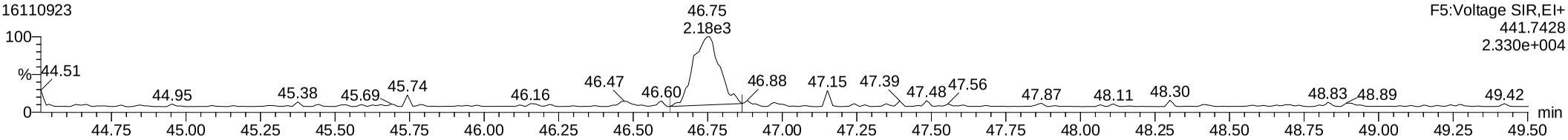
Printed: Friday, November 11, 2016 11:26:02 Pacific Standard Time

ID: PH1A04, Name: 16110923, Date: 10-Nov-2016, Time: 07:21:35, Conditions: AUTOSPEC01, User: PK

37CL-2378-TCDD



OCDF



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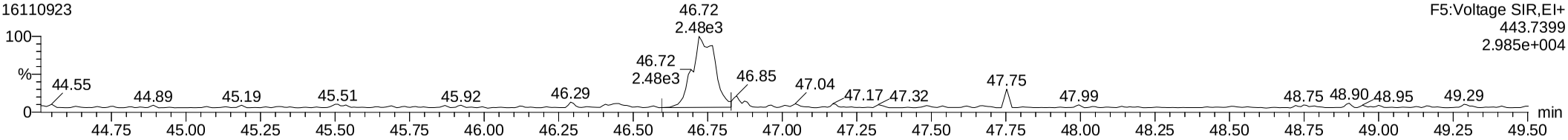

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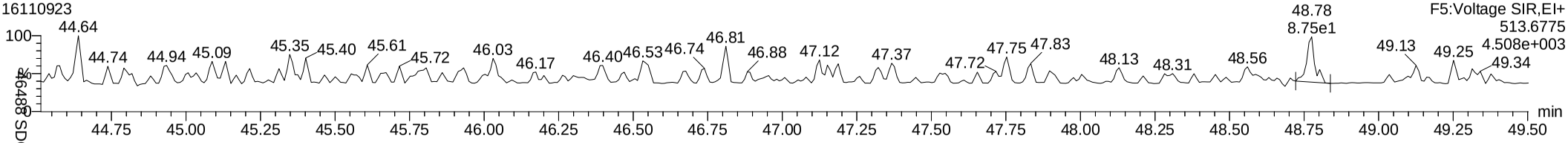

FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

PH1A05

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-05

Sample wt/vol: 970 (g/ml) mL

Lab File ID: 16111407

Decanted (Y/N): N Extraction Method: SPE

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2,3,7,8-TCDD		UM	1.1		
5	1,2,3,7,8-PeCDD		UM	3.0		
6	1,2,3,4,7,8-HxCDD		UM	2.5		
6	1,2,3,6,7,8-HxCDD		UM	3.8		
6	1,2,3,7,8,9-HxCDD		UM	3.3		
7	1,2,3,4,6,7,8-HpCDD		UM	2.6		
8	OCDD		UM	45		
4	2,3,7,8-TCDF		UM	0.79		
5	1,2,3,7,8-PeCDF		UM	3.7		
5	2,3,4,7,8-PeCDF		UM	5.2		
6	1,2,3,4,7,8-HxCDF		UM	3.1		
6	1,2,3,6,7,8-HxCDF		UM	3.1		
6	1,2,3,7,8,9-HxCDF		UM	3.0		
6	2,3,4,6,7,8-HxCDF		UM	3.7		
7	1,2,3,4,6,7,8-HpCDF		UM	3.8		
7	1,2,3,4,7,8,9-HpCDF		UM	3.0		
8	OCDF		UM	9.3		

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

PH1A05

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: 16K0015-05

Sample wt/vol: 970 (g/ml) mL Lab File ID: 16111407

Decanted (Y/N): N Extraction Method: SPE Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2,3,7,8-TCDD		x 1.0		x 1.0		x 1.0	
1,2,3,7,8-PeCDD		x 1.0		x 1.0		x 1.0	
1,2,3,4,7,8-HxCDD		x 0.1		x 0.5		x 0.05	
1,2,3,6,7,8-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,7,8,9-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,4,6,7,8-HpCDD		x 0.01		x 0.001		x 0.001	
OCDD		x 0.0003		x 0.0001		x 0.0001	
2,3,7,8-TCDF		x 0.1		x 0.05		x 0.1	
1,2,3,7,8-PeCDF		x 0.03		x 0.05		x 0.1	
2,3,4,7,8-PeCDF		x 0.3		x 0.5		x 1.0	
1,2,3,4,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,7,8,9-HxCDF		x 0.1		x 0.1		x 0.1	
2,3,4,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,4,6,7,8-HpCDF		x 0.01		x 0.01		x 0.01	
1,2,3,4,7,8,9-HpCDF		x 0.01		x 0.01		x 0.01	
OCDF		x 0.0003		x 0.0001		x 0.0001	
		Total TEQ =	0.0000	Total TEQ =	0.0000	Total TEQ =	0.0000

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 1D-HR

TOTAL HOMOLOGUE DATA SUMMARY

EPA SAMPLE NO.

PH1A05

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-05

Sample wt/vol: 970 (g/ml) mL

Lab File ID: 16111407

Decanted (Y/N): N Extraction Method: SPE

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

Homologue	Peaks	Concentration	Q
Total TCDD			U
Total PeCDD	1	0.86	
Total HxCDD			U
Total HpCDD	1	1.2	
Total TCDF	1	1.1	
Total PeCDF	1	1.5	
Total HxCDF	1	0.60	
Total HpCDF	1	0.50	
OCDD			U
OCDF			U
Total		5.76	

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

PH1A05

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: 16K0015-05

Sample wt/vol: 970 (g/ml) mL Lab File ID: 16111407

Decanted (Y/N): N Extraction Method: SPE Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2,3,7,8-TCDD	2062	1900	92.1	0.80	26.1677
4	13C12-2,3,7,8-TCDF	2062	1800	89.7	0.78	25.5403
5	13C12-1,2,3,7,8-PeCDD	2062	1800	85.7	1.60	31.2638
5	13C12-1,2,3,7,8-PeCDF	2062	1800	85.7	1.55	29.6635
5	13C12-2,3,4,7,8-PeCDF	2062	1700	83.9	1.60	31.0117
6	13C12-1,2,3,4,7,8-HxCDD	2062	1900	91.4	1.29	35.9112
6	13C12-1,2,3,6,7,8-HxCDD	2062	1800	88.8	1.24	36.0427
6	13C12-1,2,3,4,7,8-HxCDF	2062	1800	86.6	0.52	34.6835
6	13C12-1,2,3,6,7,8-HxCDF	2062	1800	86.6	0.53	34.826
6	13C12-1,2,3,7,8,9-HxCDF	2062	1700	84.1	0.51	36.9197
6	13C12-2,3,4,6,7,8-HxCDF	2062	1700	83.9	0.53	35.7797
7	13C12-1,2,3,4,6,7,8-HpCDI	2062	1800	86.3	1.08	40.734
7	13C12-1,2,3,4,6,7,8-HpCDF	2062	1600	77.2	0.45	38.9803
7	13C12-1,2,3,4,7,8,9-HpCDF	2062	1600	79.5	0.44	41.5998
8	13C12-OCDD	4124	3000	73.2	0.90	46.4248
Labeled Cleanup Standard 37C14-2,3,7,8-TCDD						
4	37C14-2,3,7,8-TCDD	824.74	830	101		26.1827

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 14:28:33 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF					0.935		0.770	1089	2258					
12378-PeCDF	29.674	1.000	5.22e2	5.46e2	0.952	0.956	1.550	1053	1907	9.54e3	9.81e3	9.1	YES	0.072
23478-PeCDF					0.963		1.550	1053	1907					
123478-HxCDF					1.137		1.240	1235	887					
234678-HxCDF					1.164		1.240	1235	887					
123678-HxCDF	34.859	1.001	2.05e2	1.67e2	1.099	1.232	1.240	1235	887	4.58e3	4.39e3	3.7	NO	0.029
123789-HxCDF					1.101		1.240	1235	887					
1234678-HpCDF	38.969	1.000	1.46e2	9.97e1	1.303	1.462	1.050	958	738	6.64e3	2.29e3	6.9	YES	0.024
1234789-HpCDF					1.317		1.050	958	738					
OCDF	46.721	1.006	2.94e2	4.53e2	1.166	0.648	0.890	702	1551	4.47e3	7.72e3	6.4	YES	0.126
2378-TCDD					1.134		0.770	2052	1096					
12378-PeCDD	31.286	1.001	1.42e2	2.35e2	0.975	0.602	1.550	1200	530	4.24e3	4.08e3	3.5	YES	0.042
123478-HxCDD					1.031		1.240	1075	1079					
123678-HxCDD					0.971		1.240	1075	1079					
123789-HxCDD					0.947		1.240	1075	1079					
1234678-HpCDD	40.723	1.000	1.09e2	2.82e2	1.028	0.386	1.050	1062	1111	3.25e3	5.30e3	3.1	YES	0.057
OCDD	46.452	1.001	7.31e2	1.00e3	1.107	0.727	0.890	750	823	8.37e3	1.25e4	11.2	YES	0.308
13C-2378-TCDF	25.540	1.007	8.82e5	1.13e6	1.567	0.780	0.770	13330	7791	1.26e7	1.59e7	942.3	NO	89.700
13C-12378-PeCDF	29.663	1.170	9.50e5	6.13e5	1.274	1.550	1.550	3288	3913	1.40e7	8.84e6	4243.3	NO	85.739
13C-23478-PeCDF	31.012	1.223	9.13e5	5.71e5	1.235	1.599	1.550	3288	3913	1.33e7	8.39e6	4039.4	NO	83.948
13C-123478-HxCDF	34.683	0.951	3.48e5	6.68e5	1.381	0.521	0.510	4395	5969	5.11e6	9.78e6	1162.3	NO	86.618
13C-123678-HxCDF	34.826	0.955	4.02e5	7.52e5	1.569	0.534	0.510	4395	5969	5.68e6	1.07e7	1293.1	NO	86.619
13C-234678-HxCDF	35.780	0.981	3.31e5	6.27e5	1.345	0.528	0.510	4395	5969	4.93e6	9.15e6	1120.9	NO	83.879
13C-123789-HxCDF	36.920	1.012	2.86e5	5.59e5	1.183	0.512	0.510	4395	5969	3.92e6	7.68e6	891.4	NO	84.067
13C-1234678-HpCDF	38.980	1.069	2.39e5	5.33e5	1.178	0.448	0.440	2547	2268	3.39e6	7.73e6	1332.3	NO	77.184
13C-1234789-HpCDF	41.600	1.141	1.82e5	4.11e5	0.878	0.442	0.440	2547	2268	2.27e6	5.08e6	893.2	NO	79.516
13C-1234-TCDD	25.361	0.000	6.32e5	8.00e5	1.000	0.790	0.770	4548	1978	9.35e6	1.18e7	2056.2	NO	100.000
13C-2378-TCDD	26.168	1.032	5.31e5	6.66e5	0.908	0.798	0.770	4548	1978	7.65e6	9.54e6	1683.1	NO	92.115
13C-12378-PeCDD	31.264	1.233	5.70e5	3.57e5	0.756	1.598	1.550	2344	2109	8.39e6	5.18e6	3579.1	NO	85.744
13C-123478-HxCDD	35.911	0.985	4.61e5	3.59e5	1.056	1.287	1.240	1805	1955	6.85e6	5.26e6	3792.5	NO	91.442
13C-123678-HxCDD	36.043	0.988	4.86e5	3.91e5	1.163	1.243	1.240	1805	1955	7.07e6	5.72e6	3918.1	NO	88.762
13C-1234678-HpCDD	40.734	1.117	3.46e5	3.20e5	0.909	1.080	1.050	3366	2360	4.48e6	4.21e6	1331.0	NO	86.300
13C-OCDD	46.425	1.273	4.83e5	5.36e5	0.820	0.902	0.890	2496	1955	4.72e6	5.23e6	1890.5	NO	146.483
13C-123789-HxCDD	36.470	0.000	4.75e5	3.74e5	1.000	1.268	1.240	1805	1955	6.71e6	5.29e6	3718.2	NO	100.000
Total-tetrafurans			4.20e2		0.935			1089		8.86e3				0.053

948 SOP PH/A01 1355 8 92

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Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					858		0.00e0				
Total-pentafurans			5.22e2		0.957			1053		9.54e3				0.072
Total-hexafurans			2.05e2		1.125			1235		4.58e3				0.029
Total-heptafurans			1.46e2		1.310			958		6.64e3				0.024
Total-Furans			1.79e3		1.114			1089		3.73e4				0.317
Total-tetradioxins			0.00e0		1.134			2052		0.00e0				
Total-pentadioxins			1.42e2		0.975			1200		4.24e3				0.042
Total-hexadioxins			0.00e0		0.983			1075		0.00e0				
Total-heptadioxins			1.09e2		1.028			1062		3.25e3				0.057
Total-Dioxins			1.39e3		1.028			2052		2.61e4				0.470
Total-TEQ			3.18e3					2052		6.34e4				0.787
37CL-2378-TCDD	26.183	1.032	6.15e5		1.067			2706		8.69e6		3212.3		40.277
FUNCTION1 PFK			1.13e8					1556527		9.45e8				
FUNCTION2 PFK			2.86e5					250006		8.85e6				0.000
FUNCTION3 PFK			1.11e6					788718		3.13e7				0.000
FUNCTION4 PFK			5.52e5					574423		1.61e7				
FUNCTION5 PFK			1.82e6					412777		3.07e7				
FUNCTION1 HXCD...			4.81e2					880		9.72e3				0.000
FUNCTION1 HPCD...			1.45e3					1141		3.40e4				0.000
FUNCTION2 HPCD...			1.11e3					1195		2.78e4				0.000
FUNCTION3 OCDPE			0.00e0					548		0.00e0				
FUNCTION4 NCDPE			4.32e2					983		1.13e4				0.000
FUNCTION5 DCDPE			7.37e1					701		1.36e3				0.000

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

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TF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.62	988.532	0.935		0.053		0.74	0.77	NO	8.1

PP

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	2	12378-PeCDF	339.8597	29.67	1068.552	0.952		0.072	0.058	0.96	1.55	YES	9.1

HF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	6	123678-HxCDF	373.8208	34.86	371.672	1.099		0.029	0.029	1.23	1.24	NO	3.7

HPF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	8	1234678-HpCDF	407.7818	38.97	245.500	1.303		0.024	0.020	1.46	1.05	YES	6.9

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

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	40	Total-Furans	303.9016	27.71	306.978	1.114		0.014		1.85	0.77	YES	3.0
2	35	Total-tetrafurans	303.9016	26.62	988.532	0.935		0.053		0.74	0.77	NO	8.1
3	2	12378-PeCDF	339.8597	29.67	1068.552	0.952		0.072	0.058	0.96	1.55	YES	9.1
4	6	123678-HxCDF	373.8208	34.86	371.672	1.099		0.029	0.029	1.23	1.24	NO	3.7
5	8	1234678-HpCDF	407.7818	38.97	245.500	1.303		0.024	0.020	1.46	1.05	YES	6.9
6	10	OCDF	441.7428	46.72	746.768	1.166		0.126	0.105	0.65	0.89	YES	6.4

TD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	12	12378-PeCDD	355.8546	31.29	377.158	0.975		0.042	0.026	0.60	1.55	YES	3.5

HD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

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HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.72	390.211	1.028	0.057	0.031	0.39	1.05	YES	3.1

Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	45	Total-Dioxins	319.8965	22.31	266.237	1.028	0.022		0.87	0.77	NO	1.7
2	45	Total-Dioxins	319.8965	22.24	215.941	1.028	0.018		1.55	0.77	YES	1.3
3	45	Total-Dioxins	319.8965	21.61	296.741	1.028	0.024		1.15	0.77	YES	1.9
4	12	12378-PeCDD	355.8546	31.29	377.158	0.975	0.042	0.026	0.60	1.55	YES	3.5
5	16	1234678-HpCDD	423.7766	40.72	390.211	1.028	0.057	0.031	0.39	1.05	YES	3.1
6	17	OCDD	457.7377	46.45	1735.284	1.107	0.308	0.275	0.73	0.89	YES	11.2

TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	40	Total-Furans	303.9016	27.71	306.978	1.114	0.014		1.85	0.77	YES	3.0
2	35	Total-tetrafurans	303.9016	26.62	988.532	0.935	0.053		0.74	0.77	NO	8.1
3	2	12378-PeCDF	339.8597	29.67	1068.552	0.952	0.072	0.058	0.96	1.55	YES	9.1
4	6	123678-HxCDF	373.8208	34.86	371.672	1.099	0.029	0.029	1.23	1.24	NO	3.7
5	8	1234678-HpCDF	407.7818	38.97	245.500	1.303	0.024	0.020	1.46	1.05	YES	6.9
6	10	OCDF	441.7428	46.72	746.768	1.166	0.126	0.105	0.65	0.89	YES	6.4
7	45	Total-Dioxins	319.8965	22.31	266.237	1.028	0.022		0.87	0.77	NO	1.7
8	45	Total-Dioxins	319.8965	22.24	215.941	1.028	0.018		1.55	0.77	YES	1.3
9	45	Total-Dioxins	319.8965	21.61	296.741	1.028	0.024		1.15	0.77	YES	1.9
10	12	12378-PeCDD	355.8546	31.29	377.158	0.975	0.042	0.026	0.60	1.55	YES	3.5
11	16	1234678-HpCDD	423.7766	40.72	390.211	1.028	0.057	0.031	0.39	1.05	YES	3.1
12	17	OCDD	457.7377	46.45	1735.284	1.107	0.308	0.275	0.73	0.89	YES	11.2

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PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	21.10	0.000							40.9
2	48	FUNCTION1 PFK	330.9792	23.30	0.000							15.4
3	48	FUNCTION1 PFK	330.9792	23.05	0.000							17.9
4	48	FUNCTION1 PFK	330.9792	22.88	0.000							20.4
5	48	FUNCTION1 PFK	330.9792	22.70	0.000							22.8
6	48	FUNCTION1 PFK	330.9792	22.52	0.000							25.4
7	48	FUNCTION1 PFK	330.9792	22.33	0.000							26.5
8	48	FUNCTION1 PFK	330.9792	22.10	0.000							29.8
9	48	FUNCTION1 PFK	330.9792	21.95	0.000							31.9
10	48	FUNCTION1 PFK	330.9792	21.88	0.000							33.1
11	48	FUNCTION1 PFK	330.9792	21.78	0.000							33.4
12	48	FUNCTION1 PFK	330.9792	21.63	0.000							36.0
13	48	FUNCTION1 PFK	330.9792	21.48	0.000							38.1
14	48	FUNCTION1 PFK	330.9792	21.39	0.000							39.3
15	48	FUNCTION1 PFK	330.9792	21.31	0.000							39.3
16	48	FUNCTION1 PFK	330.9792	21.30	0.000							38.9
17	48	FUNCTION1 PFK	330.9792	21.22	0.000							38.4
18	48	FUNCTION1 PFK	330.9792	25.61	0.000							1.0
19	48	FUNCTION1 PFK	330.9792	25.42	0.000							1.5
20	48	FUNCTION1 PFK	330.9792	25.38	0.000							1.0
21	48	FUNCTION1 PFK	330.9792	25.11	0.000							0.9
22	48	FUNCTION1 PFK	330.9792	25.03	0.000							2.2
23	48	FUNCTION1 PFK	330.9792	24.84	0.000							2.0
24	48	FUNCTION1 PFK	330.9792	24.70	0.000							0.7
25	48	FUNCTION1 PFK	330.9792	24.61	0.000							1.8
26	48	FUNCTION1 PFK	330.9792	24.32	0.000							2.3
27	48	FUNCTION1 PFK	330.9792	24.23	0.000							2.9
28	48	FUNCTION1 PFK	330.9792	24.12	0.000							4.5
29	48	FUNCTION1 PFK	330.9792	24.02	0.000							6.5
30	48	FUNCTION1 PFK	330.9792	23.96	0.000							6.0
31	48	FUNCTION1 PFK	330.9792	23.87	0.000							7.4
32	48	FUNCTION1 PFK	330.9792	23.69	0.000							10.7
33	48	FUNCTION1 PFK	330.9792	23.31	0.000							15.5
34	48	FUNCTION1 PFK	330.9792	27.65	0.000							1.1
35	48	FUNCTION1 PFK	330.9792	27.53	0.000							0.6
36	48	FUNCTION1 PFK	330.9792	27.48	0.000							1.0
37	48	FUNCTION1 PFK	330.9792	27.35	0.000							1.8
38	48	FUNCTION1 PFK	330.9792	27.29	0.000							1.3
39	48	FUNCTION1 PFK	330.9792	26.87	0.000							1.7
40	48	FUNCTION1 PFK	330.9792	26.77	0.000							1.0
41	48	FUNCTION1 PFK	330.9792	26.32	0.000							0.8
42	48	FUNCTION1 PFK	330.9792	26.24	0.000							0.8
43	48	FUNCTION1 PFK	330.9792	26.09	0.000							0.5
44	48	FUNCTION1 PFK	330.9792	25.90	0.000							1.0
45	48	FUNCTION1 PFK	330.9792	25.85	0.000							1.1

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	28.07	0.000		0.000					0.6
2	49	FUNCTION2 PFK	366.9792	28.04	0.000		0.000					1.1
3	49	FUNCTION2 PFK	366.9792	27.99	0.000		0.000					1.7
4	49	FUNCTION2 PFK	366.9792	30.74	0.000		0.000					2.0
5	49	FUNCTION2 PFK	366.9792	30.68	0.000		0.000					2.2
6	49	FUNCTION2 PFK	366.9792	30.54	0.000		0.000					1.8
7	49	FUNCTION2 PFK	366.9792	30.49	0.000		0.000					1.5
8	49	FUNCTION2 PFK	366.9792	30.42	0.000		0.000					2.0
9	49	FUNCTION2 PFK	366.9792	30.38	0.000		0.000					0.8
10	49	FUNCTION2 PFK	366.9792	30.31	0.000		0.000					1.1
11	49	FUNCTION2 PFK	366.9792	30.26	0.000		0.000					0.8
12	49	FUNCTION2 PFK	366.9792	30.08	0.000		0.000					1.0
13	49	FUNCTION2 PFK	366.9792	29.81	0.000		0.000					1.7
14	49	FUNCTION2 PFK	366.9792	29.49	0.000		0.000					0.7
15	49	FUNCTION2 PFK	366.9792	29.27	0.000		0.000					0.9
16	49	FUNCTION2 PFK	366.9792	29.01	0.000		0.000					0.6
17	49	FUNCTION2 PFK	366.9792	28.61	0.000		0.000					1.9
18	49	FUNCTION2 PFK	366.9792	28.45	0.000		0.000					0.9
19	49	FUNCTION2 PFK	366.9792	28.41	0.000		0.000					0.9
20	49	FUNCTION2 PFK	366.9792	32.38	0.000		0.000					1.7
21	49	FUNCTION2 PFK	366.9792	32.32	0.000		0.000					1.3
22	49	FUNCTION2 PFK	366.9792	31.93	0.000		0.000					1.3
23	49	FUNCTION2 PFK	366.9792	31.88	0.000		0.000					1.5
24	49	FUNCTION2 PFK	366.9792	31.57	0.000		0.000					0.6
25	49	FUNCTION2 PFK	366.9792	31.23	0.000		0.000					0.7
26	49	FUNCTION2 PFK	366.9792	31.20	0.000		0.000					1.5
27	49	FUNCTION2 PFK	366.9792	31.04	0.000		0.000					1.0
28	49	FUNCTION2 PFK	366.9792	30.83	0.000		0.000					1.4

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	33.60	0.000		0.000					1.3
2	50	FUNCTION3 PFK	380.9760	33.36	0.000		0.000					0.6
3	50	FUNCTION3 PFK	380.9760	33.26	0.000		0.000					1.7
4	50	FUNCTION3 PFK	380.9760	33.17	0.000		0.000					0.8
5	50	FUNCTION3 PFK	380.9760	33.13	0.000		0.000					0.7
6	50	FUNCTION3 PFK	380.9760	32.85	0.000		0.000					2.2
7	50	FUNCTION3 PFK	380.9760	35.69	0.000		0.000					1.4
8	50	FUNCTION3 PFK	380.9760	35.60	0.000		0.000					1.5
9	50	FUNCTION3 PFK	380.9760	35.37	0.000		0.000					0.9
10	50	FUNCTION3 PFK	380.9760	35.29	0.000		0.000					1.1
11	50	FUNCTION3 PFK	380.9760	34.91	0.000		0.000					1.5
12	50	FUNCTION3 PFK	380.9760	34.87	0.000		0.000					0.7
13	50	FUNCTION3 PFK	380.9760	34.84	0.000		0.000					1.3
14	50	FUNCTION3 PFK	380.9760	34.79	0.000		0.000					0.7
15	50	FUNCTION3 PFK	380.9760	34.63	0.000		0.000					1.0
16	50	FUNCTION3 PFK	380.9760	34.53	0.000		0.000					1.1
17	50	FUNCTION3 PFK	380.9760	34.48	0.000		0.000					1.6
18	50	FUNCTION3 PFK	380.9760	34.41	0.000		0.000					1.0
19	50	FUNCTION3 PFK	380.9760	34.27	0.000		0.000					1.0
20	50	FUNCTION3 PFK	380.9760	34.08	0.000		0.000					0.9
21	50	FUNCTION3 PFK	380.9760	33.84	0.000		0.000					1.6
22	50	FUNCTION3 PFK	380.9760	33.78	0.000		0.000					1.1
23	50	FUNCTION3 PFK	380.9760	37.91	0.000		0.000					1.3
24	50	FUNCTION3 PFK	380.9760	37.63	0.000		0.000					1.5
25	50	FUNCTION3 PFK	380.9760	37.40	0.000		0.000					0.4
26	50	FUNCTION3 PFK	380.9760	37.30	0.000		0.000					1.0
27	50	FUNCTION3 PFK	380.9760	37.27	0.000		0.000					1.2
28	50	FUNCTION3 PFK	380.9760	36.92	0.000		0.000					0.6
29	50	FUNCTION3 PFK	380.9760	36.70	0.000		0.000					1.4
30	50	FUNCTION3 PFK	380.9760	36.57	0.000		0.000					1.2
31	50	FUNCTION3 PFK	380.9760	36.31	0.000		0.000					1.6
32	50	FUNCTION3 PFK	380.9760	36.19	0.000		0.000					1.8
33	50	FUNCTION3 PFK	380.9760	35.76	0.000		0.000					1.9

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PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	39.14	0.000							1.6
2	51	FUNCTION4 PFK	430.9728	39.06	0.000							1.7
3	51	FUNCTION4 PFK	430.9728	38.56	0.000							1.7
4	51	FUNCTION4 PFK	430.9728	38.34	0.000							0.6
5	51	FUNCTION4 PFK	430.9728	43.24	0.000							1.9
6	51	FUNCTION4 PFK	430.9728	42.93	0.000							1.3
7	51	FUNCTION4 PFK	430.9728	42.58	0.000							0.5
8	51	FUNCTION4 PFK	430.9728	42.28	0.000							1.5
9	51	FUNCTION4 PFK	430.9728	42.13	0.000							1.5
10	51	FUNCTION4 PFK	430.9728	41.76	0.000							1.9
11	51	FUNCTION4 PFK	430.9728	41.71	0.000							2.1
12	51	FUNCTION4 PFK	430.9728	41.34	0.000							1.8
13	51	FUNCTION4 PFK	430.9728	40.92	0.000							0.9
14	51	FUNCTION4 PFK	430.9728	40.35	0.000							0.9
15	51	FUNCTION4 PFK	430.9728	40.02	0.000							0.7
16	51	FUNCTION4 PFK	430.9728	39.98	0.000							0.6
17	51	FUNCTION4 PFK	430.9728	39.82	0.000							1.4
18	51	FUNCTION4 PFK	430.9728	39.53	0.000							1.7
19	51	FUNCTION4 PFK	430.9728	39.32	0.000							1.4
20	51	FUNCTION4 PFK	430.9728	39.29	0.000							1.4
21	51	FUNCTION4 PFK	430.9728	44.47	0.000							0.8

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 14:28:33 Pacific Standard Time

ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	46.46	0.000							1.1
2	52	FUNCTION5 PFK	480.9696	46.33	0.000							0.8
3	52	FUNCTION5 PFK	480.9696	46.19	0.000							1.7
4	52	FUNCTION5 PFK	480.9696	46.14	0.000							0.8
5	52	FUNCTION5 PFK	480.9696	46.08	0.000							0.4
6	52	FUNCTION5 PFK	480.9696	46.05	0.000							0.6
7	52	FUNCTION5 PFK	480.9696	45.93	0.000							0.7
8	52	FUNCTION5 PFK	480.9696	45.72	0.000							1.1
9	52	FUNCTION5 PFK	480.9696	45.38	0.000							0.9
10	52	FUNCTION5 PFK	480.9696	45.29	0.000							1.3
11	52	FUNCTION5 PFK	480.9696	45.22	0.000							0.5
12	52	FUNCTION5 PFK	480.9696	44.75	0.000							8.2
13	52	FUNCTION5 PFK	480.9696	44.71	0.000							8.6
14	52	FUNCTION5 PFK	480.9696	44.59	0.000							13.9
15	52	FUNCTION5 PFK	480.9696	48.20	0.000							1.7
16	52	FUNCTION5 PFK	480.9696	48.14	0.000							1.0
17	52	FUNCTION5 PFK	480.9696	47.93	0.000							0.6
18	52	FUNCTION5 PFK	480.9696	47.90	0.000							0.9
19	52	FUNCTION5 PFK	480.9696	47.73	0.000							1.6
20	52	FUNCTION5 PFK	480.9696	47.62	0.000							1.1
21	52	FUNCTION5 PFK	480.9696	47.52	0.000							2.0
22	52	FUNCTION5 PFK	480.9696	47.48	0.000							1.8
23	52	FUNCTION5 PFK	480.9696	47.35	0.000							0.6
24	52	FUNCTION5 PFK	480.9696	47.24	0.000							1.1
25	52	FUNCTION5 PFK	480.9696	46.95	0.000							0.8
26	52	FUNCTION5 PFK	480.9696	46.91	0.000							1.7
27	52	FUNCTION5 PFK	480.9696	46.86	0.000							1.0
28	52	FUNCTION5 PFK	480.9696	46.79	0.000							0.6
29	52	FUNCTION5 PFK	480.9696	46.70	0.000							0.7
30	52	FUNCTION5 PFK	480.9696	46.54	0.000							1.4
31	52	FUNCTION5 PFK	480.9696	49.41	0.000							1.0
32	52	FUNCTION5 PFK	480.9696	49.16	0.000							2.0
33	52	FUNCTION5 PFK	480.9696	49.13	0.000							1.6
34	52	FUNCTION5 PFK	480.9696	49.08	0.000							1.0
35	52	FUNCTION5 PFK	480.9696	49.04	0.000							1.0
36	52	FUNCTION5 PFK	480.9696	48.93	0.000							0.8
37	52	FUNCTION5 PFK	480.9696	48.89	0.000							0.7
38	52	FUNCTION5 PFK	480.9696	48.85	0.000							0.7
39	52	FUNCTION5 PFK	480.9696	48.66	0.000							0.4
40	52	FUNCTION5 PFK	480.9696	48.50	0.000							1.0
41	52	FUNCTION5 PFK	480.9696	48.45	0.000							1.3
42	52	FUNCTION5 PFK	480.9696	48.33	0.000							1.7
43	52	FUNCTION5 PFK	480.9696	48.26	0.000							2.2

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
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ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	24.93	0.000		0.000					2.3
2	53	FUNCTION1 HXCD...	375.8364	22.91	0.000		0.000					1.5
3	53	FUNCTION1 HXCD...	375.8364	26.66	0.000		0.000					2.5
4	53	FUNCTION1 HXCD...	375.8364	26.14	0.000		0.000					3.5
5	53	FUNCTION1 HXCD...	375.8364	25.79	0.000		0.000					1.4

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	25.39	0.000		0.000					2.4
2	54	FUNCTION1 HPCD...	409.7974	24.88	0.000		0.000					1.5
3	54	FUNCTION1 HPCD...	409.7974	24.02	0.000		0.000					1.2
4	54	FUNCTION1 HPCD...	409.7974	23.69	0.000		0.000					1.6
5	54	FUNCTION1 HPCD...	409.7974	23.43	0.000		0.000					2.6
6	54	FUNCTION1 HPCD...	409.7974	23.31	0.000		0.000					1.5
7	54	FUNCTION1 HPCD...	409.7974	23.22	0.000		0.000					2.6
8	54	FUNCTION1 HPCD...	409.7974	22.96	0.000		0.000					2.2
9	54	FUNCTION1 HPCD...	409.7974	22.46	0.000		0.000					1.6
10	54	FUNCTION1 HPCD...	409.7974	22.37	0.000		0.000					1.1
11	54	FUNCTION1 HPCD...	409.7974	21.73	0.000		0.000					1.1
12	54	FUNCTION1 HPCD...	409.7974	21.55	0.000		0.000					1.3
13	54	FUNCTION1 HPCD...	409.7974	26.88	0.000		0.000					1.9
14	54	FUNCTION1 HPCD...	409.7974	26.72	0.000		0.000					1.6
15	54	FUNCTION1 HPCD...	409.7974	26.62	0.000		0.000					2.2
16	54	FUNCTION1 HPCD...	409.7974	26.30	0.000		0.000					1.9
17	54	FUNCTION1 HPCD...	409.7974	26.08	0.000		0.000					1.4

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	32.06	0.000		0.000					2.6
2	55	FUNCTION2 HPCD...	409.7974	31.95	0.000		0.000					1.8
3	55	FUNCTION2 HPCD...	409.7974	31.66	0.000		0.000					4.1
4	55	FUNCTION2 HPCD...	409.7974	31.32	0.000		0.000					1.7
5	55	FUNCTION2 HPCD...	409.7974	31.19	0.000		0.000					1.7
6	55	FUNCTION2 HPCD...	409.7974	31.04	0.000		0.000					4.3
7	55	FUNCTION2 HPCD...	409.7974	29.78	0.000		0.000					3.2
8	55	FUNCTION2 HPCD...	409.7974	29.63	0.000		0.000					2.2
9	55	FUNCTION2 HPCD...	409.7974	28.03	0.000		0.000					1.7

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

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ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	44.35	0.000		0.000					2.7
2	57	FUNCTION4 NCDPE	479.7165	43.24	0.000		0.000					1.9
3	57	FUNCTION4 NCDPE	479.7165	43.06	0.000		0.000					2.4
4	57	FUNCTION4 NCDPE	479.7165	41.08	0.000		0.000					2.7
5	57	FUNCTION4 NCDPE	479.7165	38.43	0.000		0.000					1.8

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	58	FUNCTION5 DCDPE	513.6775	45.25	0.000		0.000					1.9

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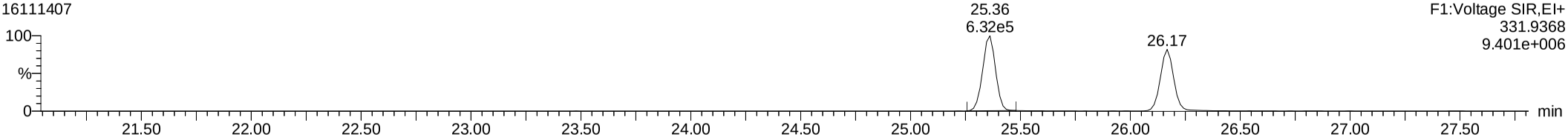
ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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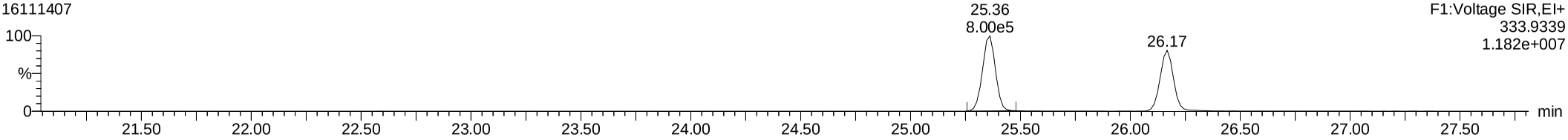

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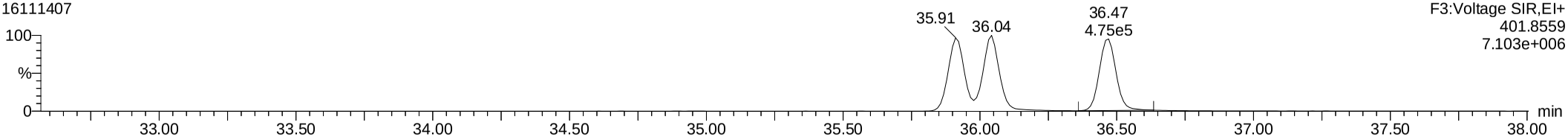

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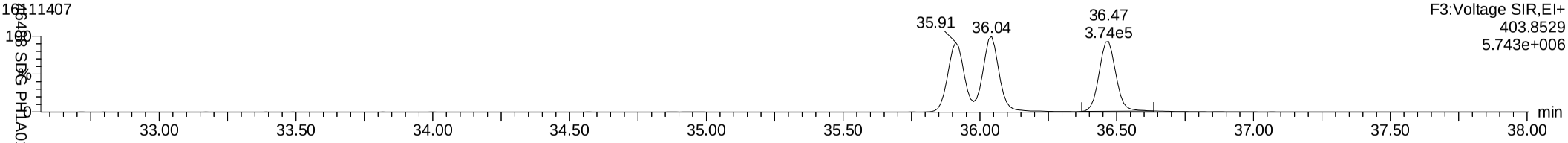

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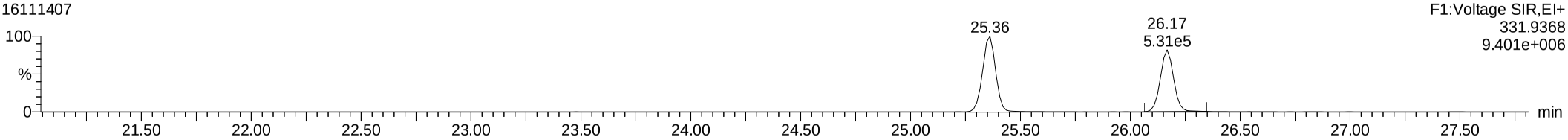

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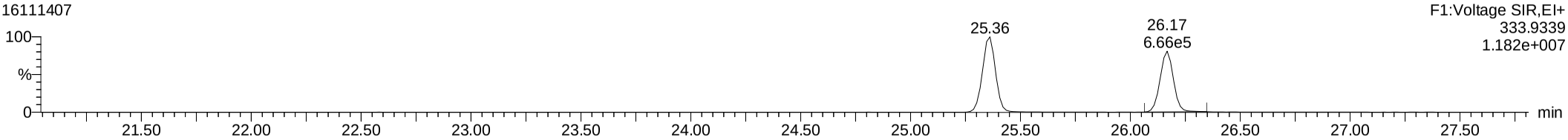

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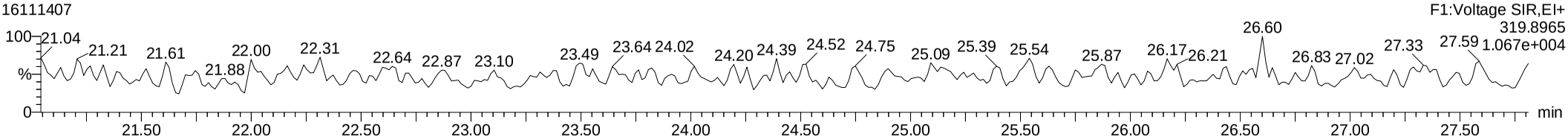
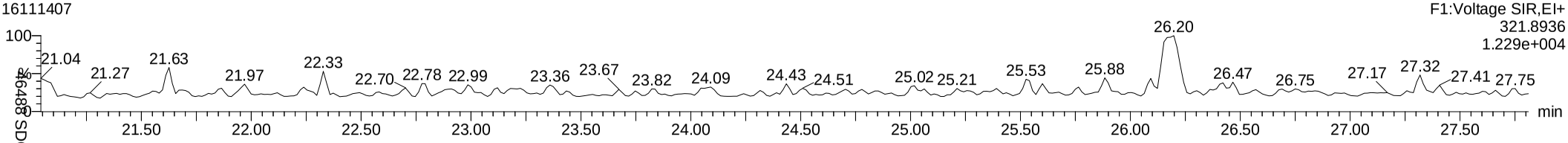
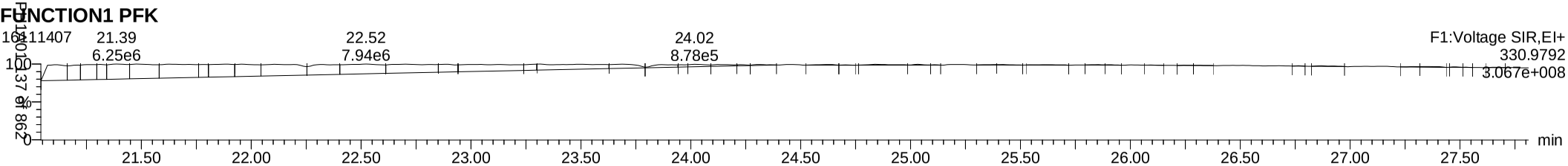


Total-tetradioxins



FUNCTION1 PFK



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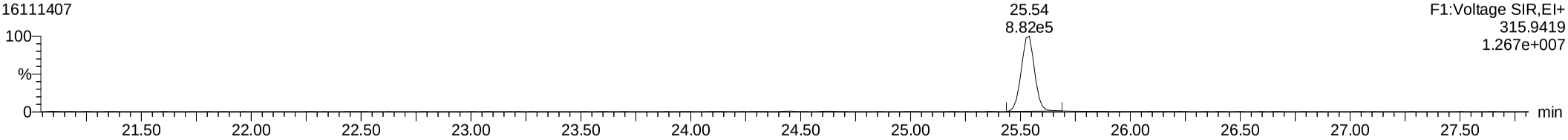
13C-2378-TCDF



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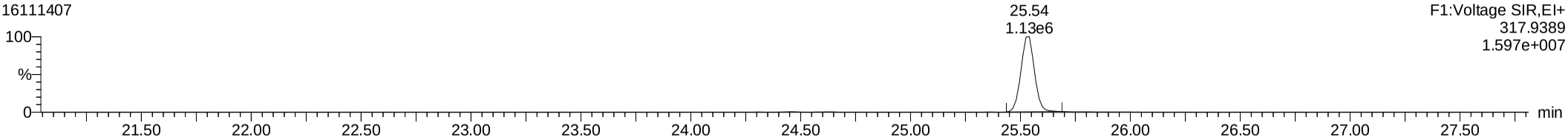
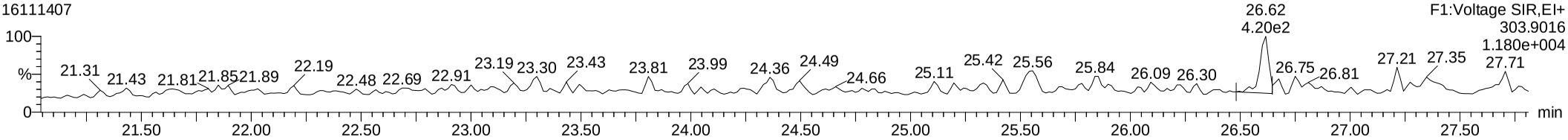
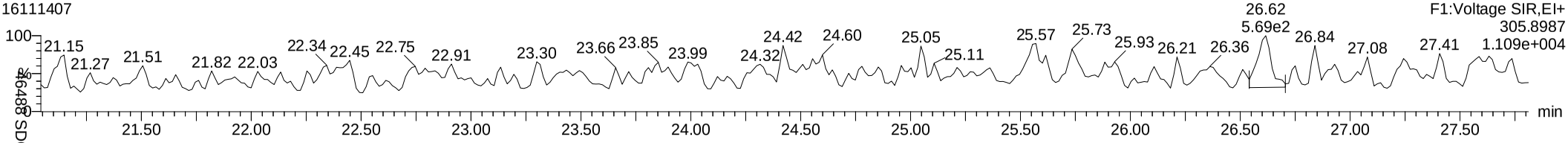


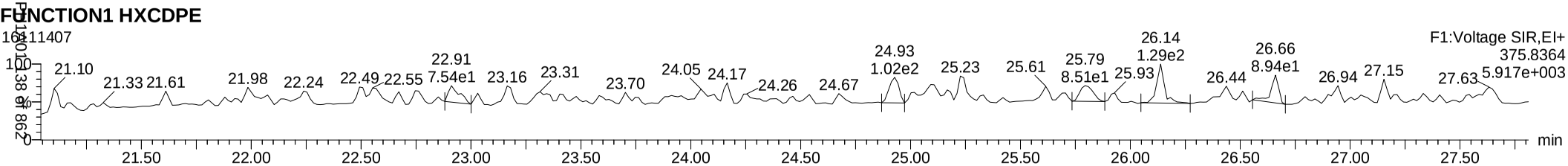
Total-tetrafurans



Total-tetrafurans

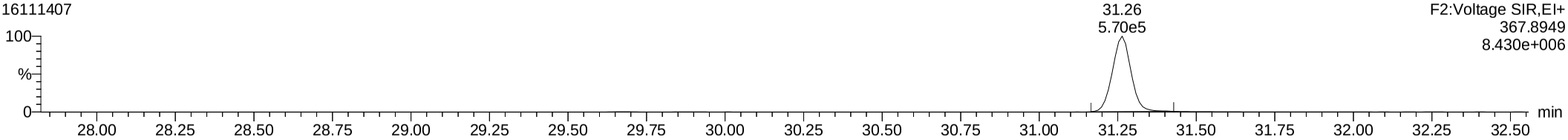


FUNCTION1 HXCDPE



ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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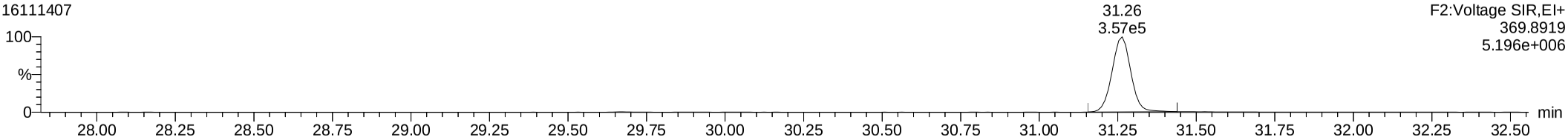

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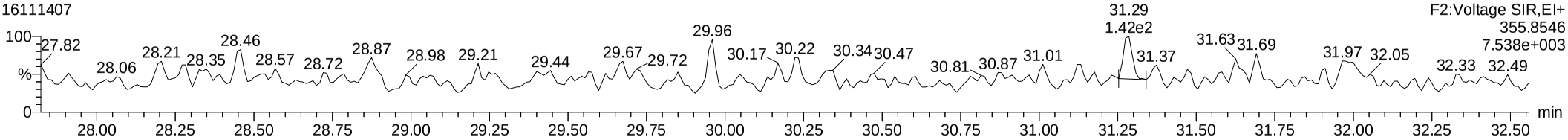

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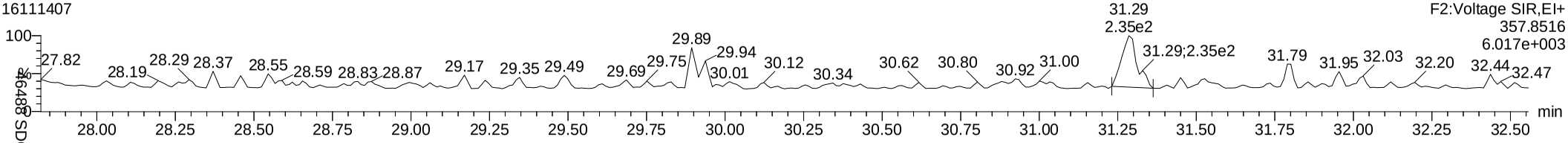
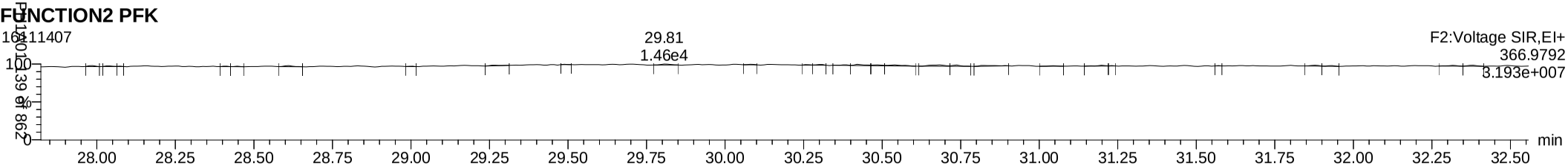


FUNCTION2 PFK



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Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
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ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

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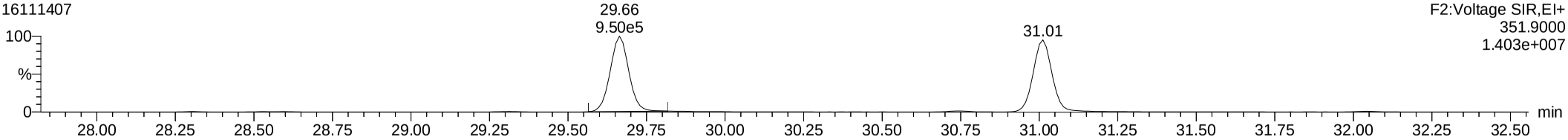

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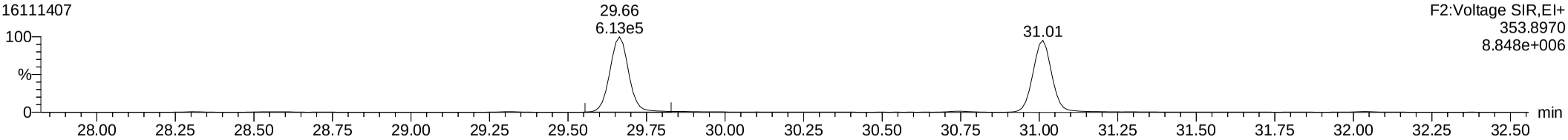
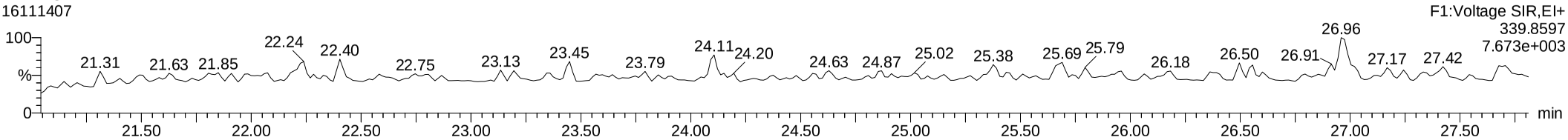
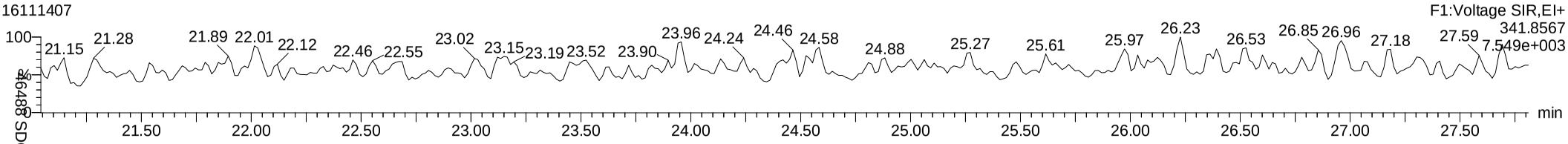


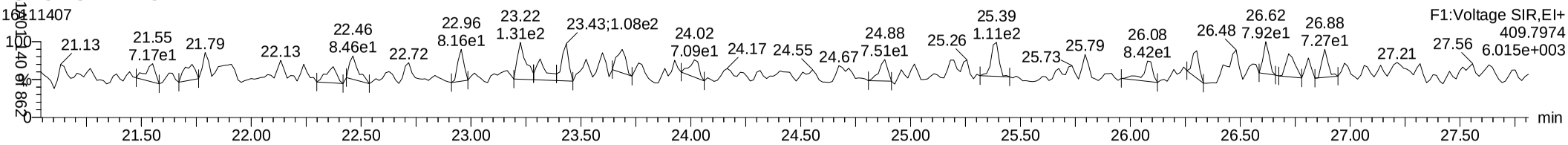
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



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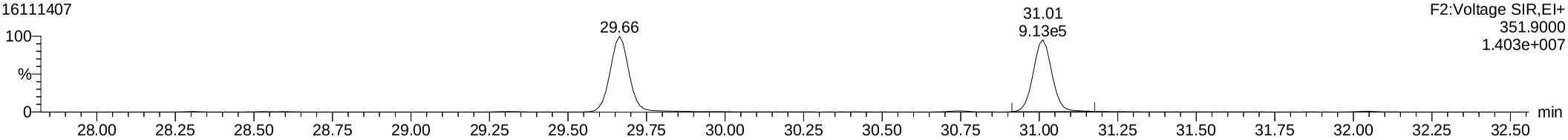
13C-23478-PeCDF



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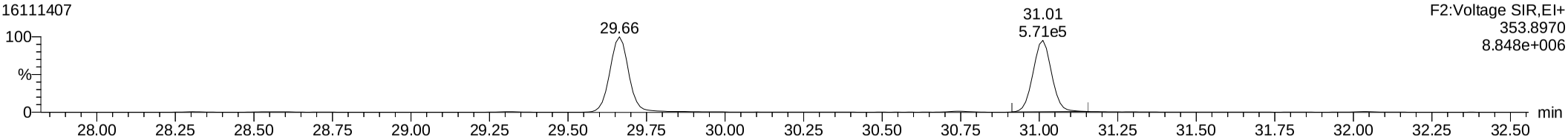
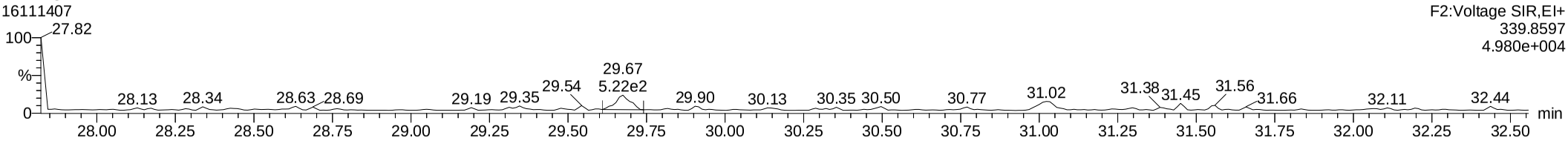
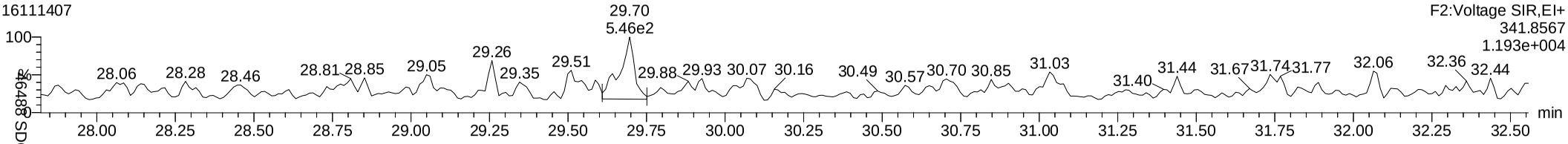


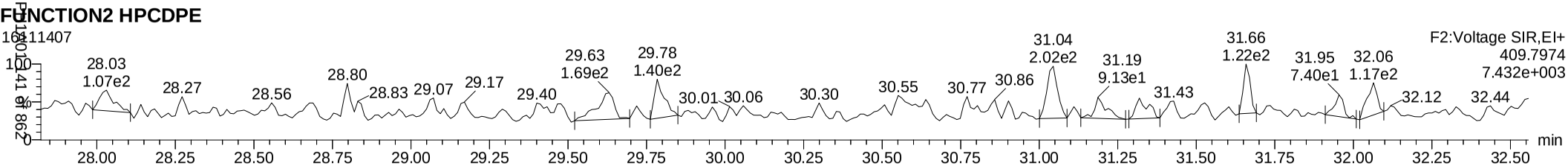
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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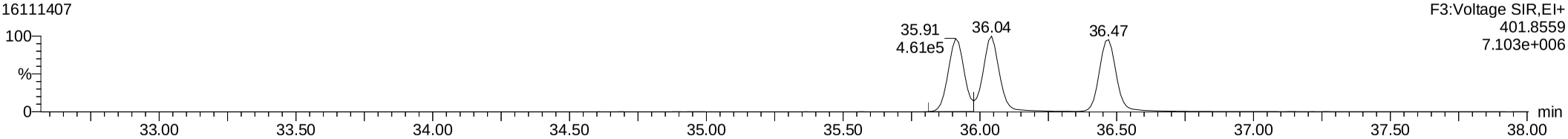
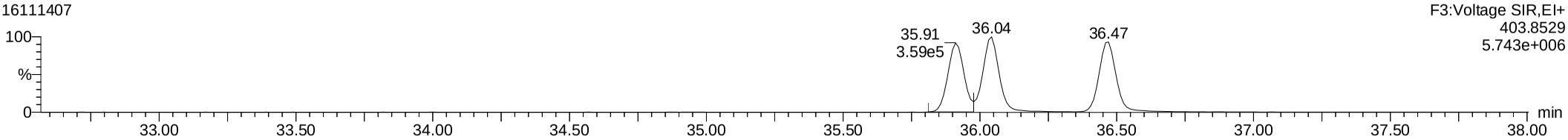
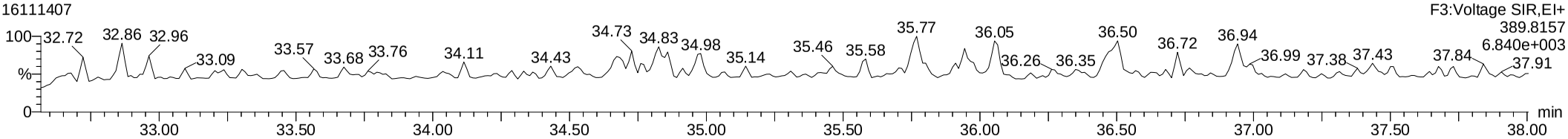
13C-123478-HxCDD



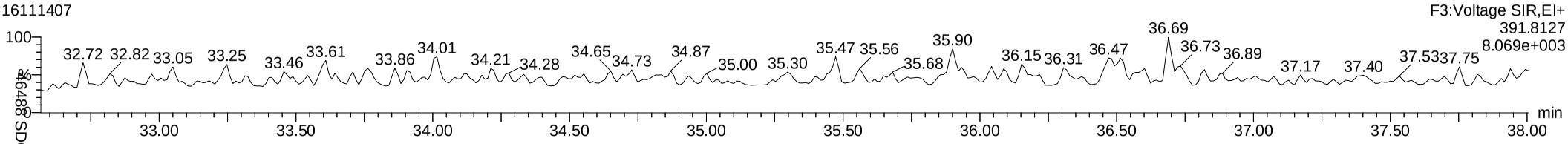
13C-123478-HxCDD



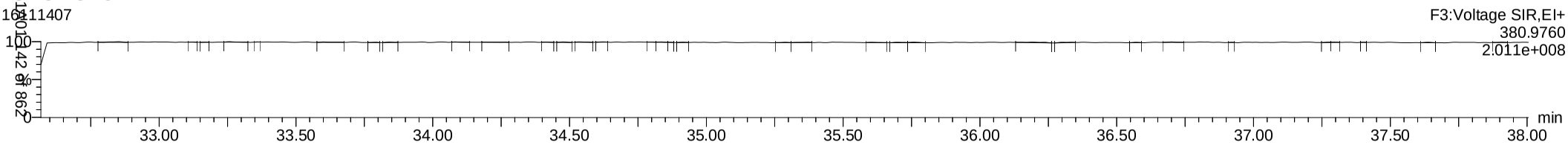
Total-hexadioxins



Total-hexadioxins



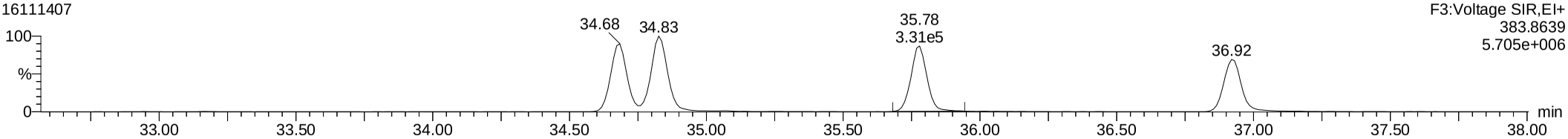
FUNCTION3 PFK



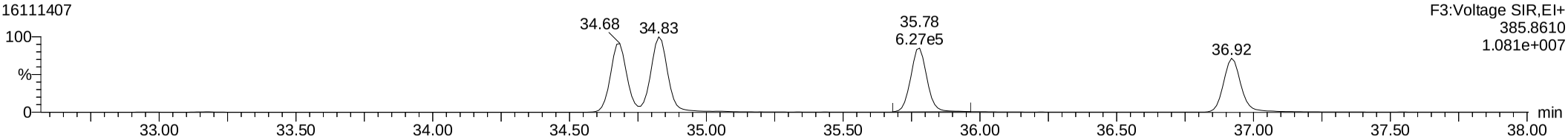
46488 SDG PH1A01 42 of 862

ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

13C-234678-HxCDF



13C-234678-HxCDF



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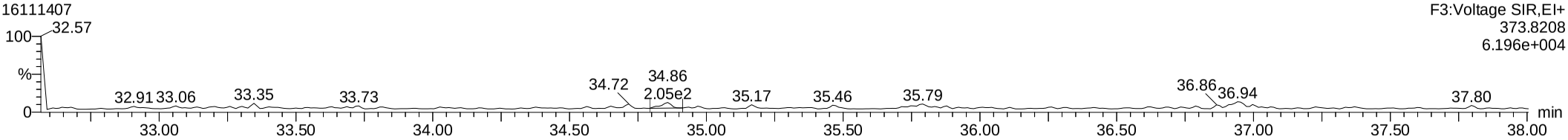

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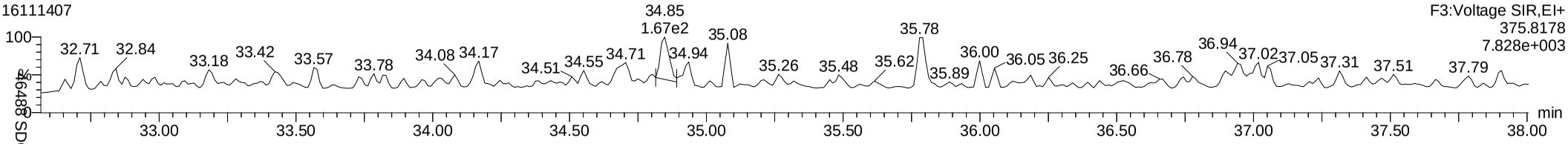
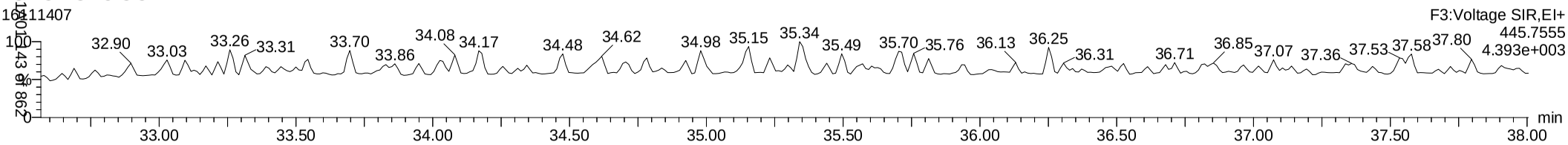


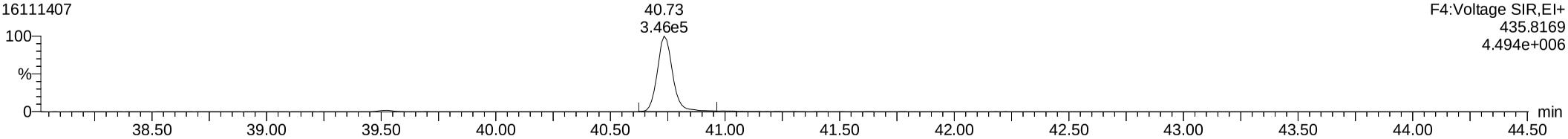
FUNCTION3 OCDPE



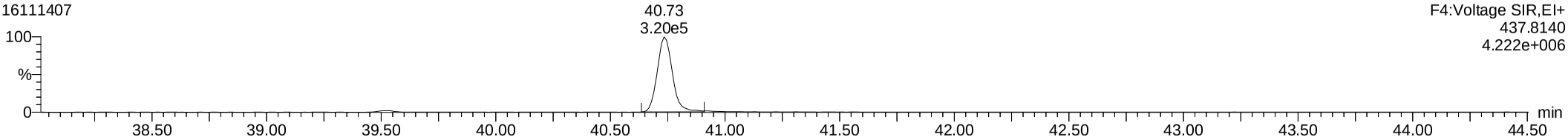
46488 SDG PH1A01 43 of 862

ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



13C-1234678-HpCDD



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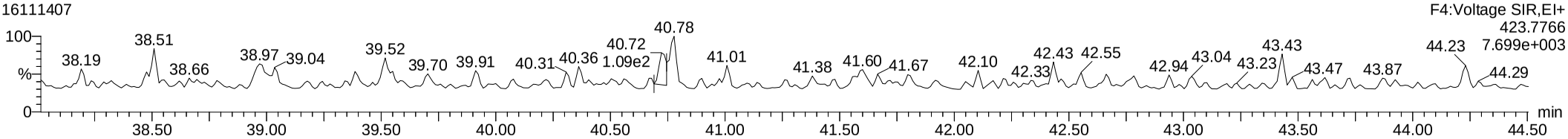

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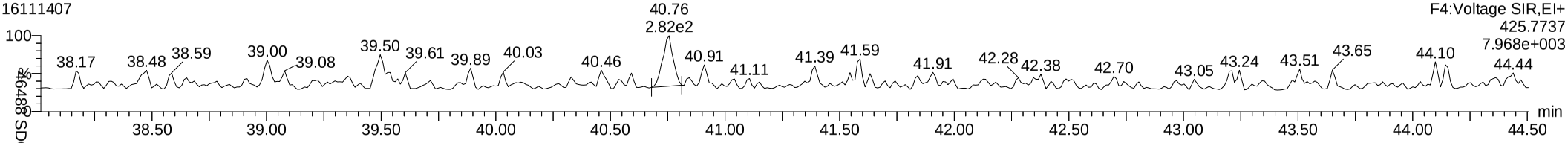
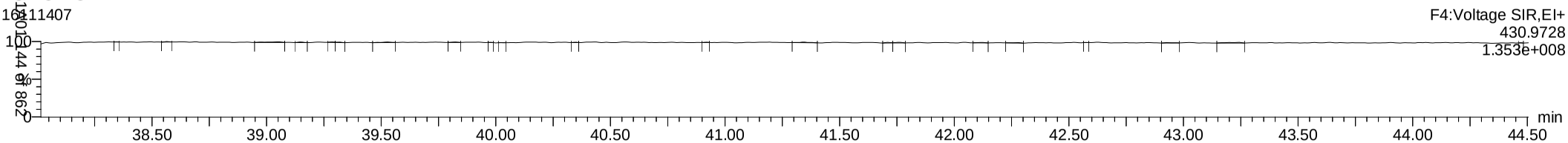


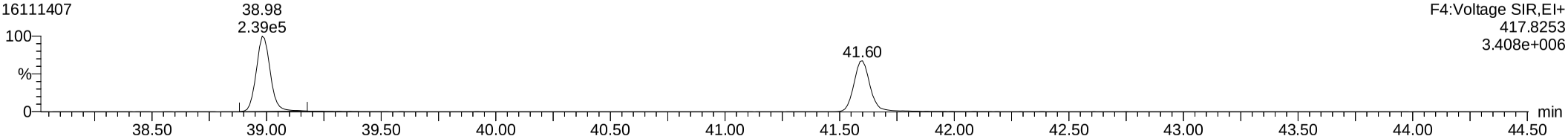
FUNCTION4 PFK



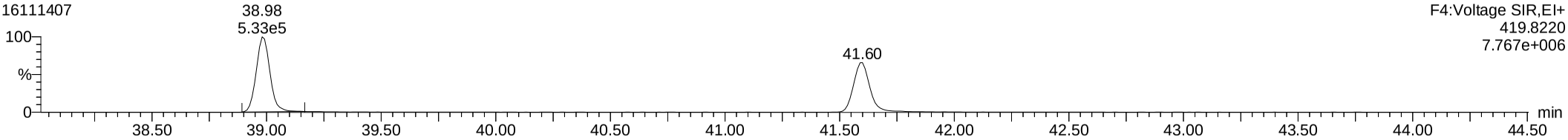
46488 SDG PH1A01 44 of 862

ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

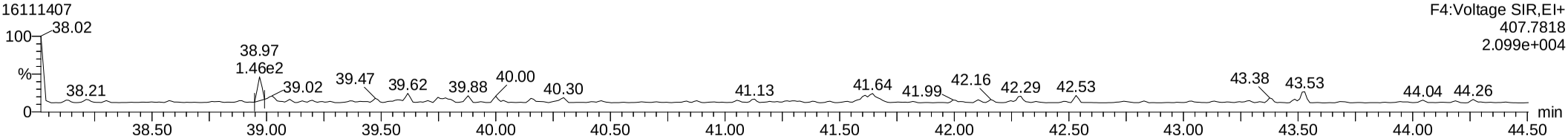
13C-1234678-HpCDF



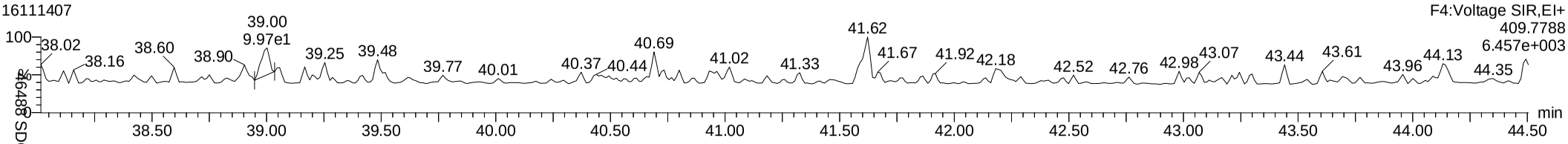
13C-1234678-HpCDF



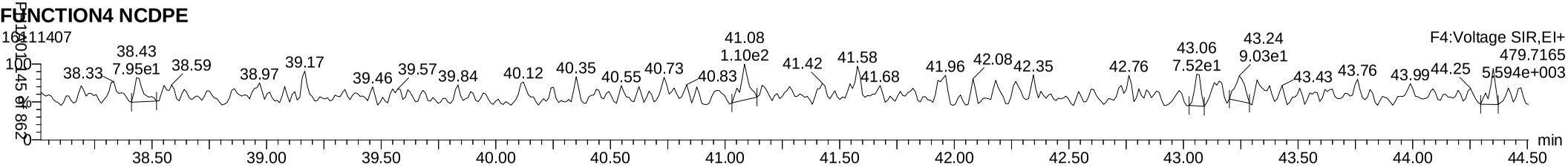
Total-heptafurans



Total-heptafurans



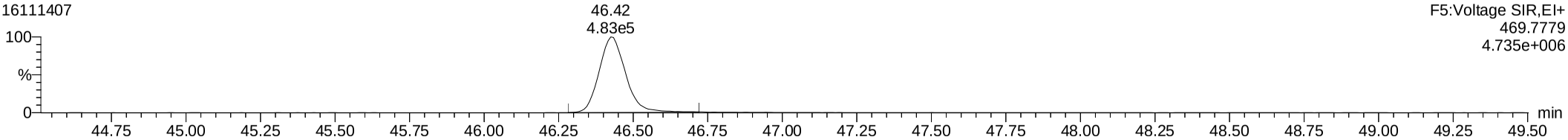
FUNCTION4 NCDPE



46488 SDG PH1A01 45 of 862

ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

13C-OCDD



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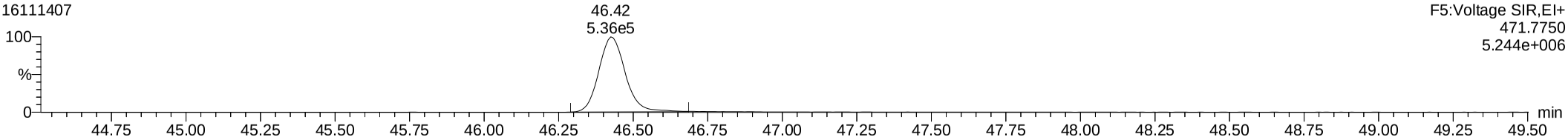
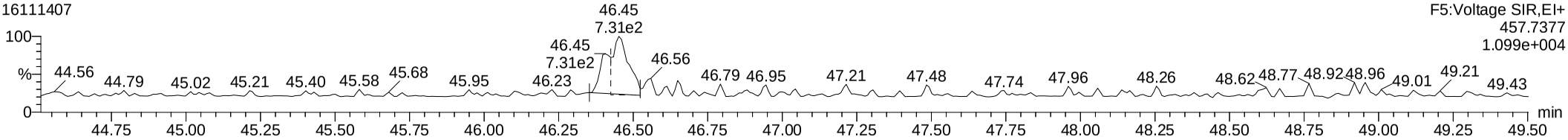
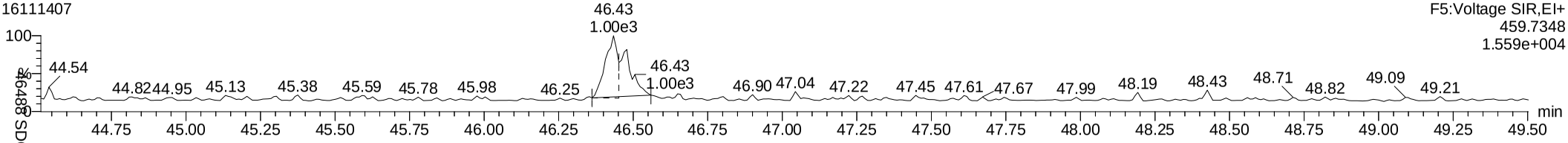


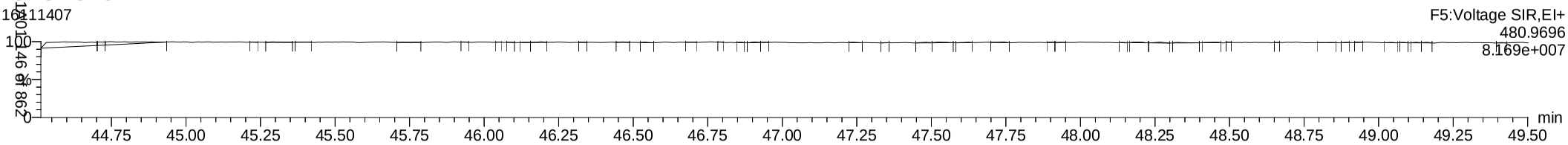
OCDD



OCDD



FUNCTION5 PFK



46488 SDG PH1A01 46 of 862

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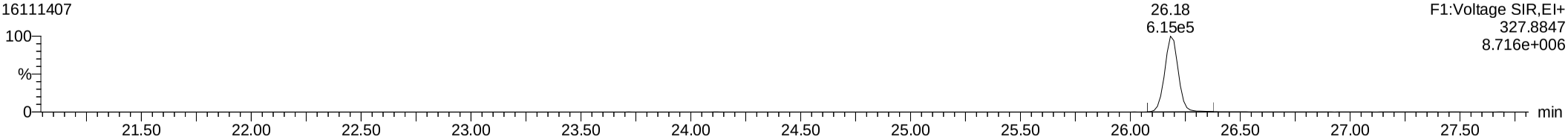
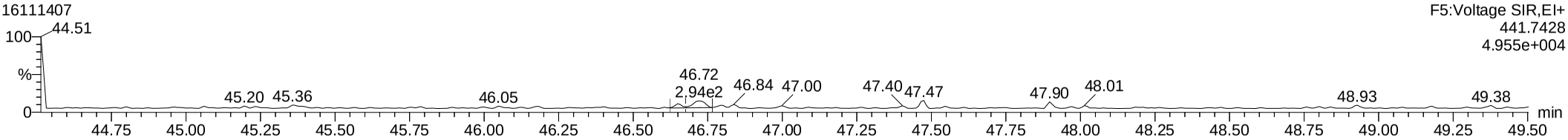
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 14:28:33 Pacific Standard Time

ID: PH1A05, Name: 16111407, Date: 14-Nov-2016, Time: 15:25:26, Conditions: AUTOSPEC01, User: PK

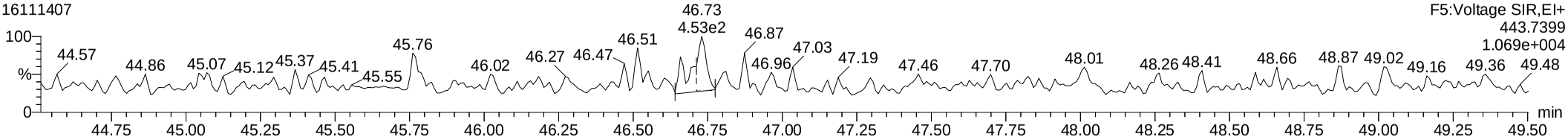
37CL-2378-TCDD



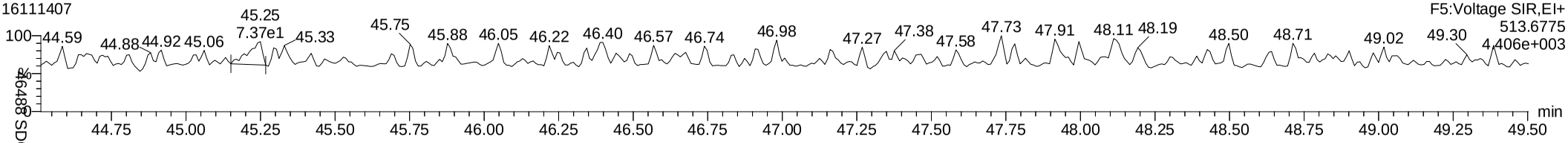
OCDF



OCDF



FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

PH1A06

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-06

Sample wt/vol: 14.74 (g/ml) g

Lab File ID: 16110924

Decanted (Y/N): N Extraction Method: SDS

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids: 68.4

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2,3,7,8-TCDD		UM	0.28		
5	1,2,3,7,8-PeCDD		UM	0.74		
6	1,2,3,4,7,8-HxCDD		UM	0.81		
6	1,2,3,6,7,8-HxCDD		UM	0.87		
6	1,2,3,7,8,9-HxCDD		UM	0.87		
7	1,2,3,4,6,7,8-HpCDD	4.6	JB		1.006	40.7567
8	OCDD	32	B		0.882	46.4703
4	2,3,7,8-TCDF		UM	0.20		
5	1,2,3,7,8-PeCDF		UM	0.76		
5	2,3,4,7,8-PeCDF		UM	0.90		
6	1,2,3,4,7,8-HxCDF		UM	0.75		
6	1,2,3,6,7,8-HxCDF		UM	0.82		
6	1,2,3,7,8,9-HxCDF		UM	0.74		
6	2,3,4,6,7,8-HxCDF		UM	0.83		
7	1,2,3,4,6,7,8-HpCDF		UM	0.52		
7	1,2,3,4,7,8,9-HpCDF		UM	0.62		
8	OCDF		UM	1.6		

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

PH1A06

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF Lab Sample ID: 16K0015-06

Sample wt/vol: 14.74 (g/ml) g Lab File ID: 16110924

Decanted (Y/N): N Extraction Method: SDS Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids: 68.4

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2,3,7,8-TCDD		x 1.0		x 1.0		x 1.0	
1,2,3,7,8-PeCDD		x 1.0		x 1.0		x 1.0	
1,2,3,4,7,8-HxCDD		x 0.1		x 0.5		x 0.05	
1,2,3,6,7,8-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,7,8,9-HxCDD		x 0.1		x 0.01		x 0.1	
1,2,3,4,6,7,8-HpCDD	4.6	x 0.01	0.0460	x 0.001	0.0046	x 0.001	0.0046
OCDD	32	x 0.0003	0.0096	x 0.0001	0.0032	x 0.0001	0.0032
2,3,7,8-TCDF		x 0.1		x 0.05		x 0.1	
1,2,3,7,8-PeCDF		x 0.03		x 0.05		x 0.1	
2,3,4,7,8-PeCDF		x 0.3		x 0.5		x 1.0	
1,2,3,4,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,7,8,9-HxCDF		x 0.1		x 0.1		x 0.1	
2,3,4,6,7,8-HxCDF		x 0.1		x 0.1		x 0.1	
1,2,3,4,6,7,8-HpCDF		x 0.01		x 0.01		x 0.01	
1,2,3,4,7,8,9-HpCDF		x 0.01		x 0.01		x 0.01	
OCDF		x 0.0003		x 0.0001		x 0.0001	
		Total TEQ =	0.056	Total TEQ =	0.0078	Total TEQ =	0.0078

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 1D-HR

TOTAL HOMOLOGUE DATA SUMMARY

EPA SAMPLE NO.

PH1A06

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF

Lab Sample ID: 16K0015-06

Sample wt/vol: 14.74 (g/ml) g

Lab File ID: 16110924

Decanted (Y/N): N Extraction Method: SDS

Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids: 68.4

Homologue	Peaks	Concentration	Q
Total TCDD	2	0.80	
Total PeCDD	7	0.62	
Total HxCDD	7	3.0	
Total HpCDD	2	10	
Total TCDF	22	9.9	
Total PeCDF	8	7.6	
Total HxCDF	7	3.2	
Total HpCDF	2	0.67	
OCDD	1	32	B
OCDF			U
Total		67.79	

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

PH1A06

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Sediment Analytical Method: CDD/CDF Lab Sample ID: 16K0015-06

Sample wt/vol: 14.74 (g/ml) g Lab File ID: 16110924

Decanted (Y/N): N Extraction Method: SDS Date Received: 11/01/2016

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/10/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids: 68.4

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2,3,7,8-TCDD	198	170	87.5	0.80	26.1678
4	13C12-2,3,7,8-TCDF	198	170	88.0	0.79	25.5253
5	13C12-1,2,3,7,8-PeCDD	198	170	87.2	1.60	31.264
5	13C12-1,2,3,7,8-PeCDF	198	170	85.4	1.56	29.6638
5	13C12-2,3,4,7,8-PeCDF	198	170	87.0	1.59	31.012
6	13C12-1,2,3,4,7,8-HxCDD	198	170	85.3	1.27	35.9117
6	13C12-1,2,3,6,7,8-HxCDD	198	160	80.2	1.26	36.0432
6	13C12-1,2,3,4,7,8-HxCDF	198	160	80.5	0.51	34.684
6	13C12-1,2,3,6,7,8-HxCDF	198	160	78.5	0.53	34.8265
6	13C12-1,2,3,7,8,9-HxCDF	198	160	80.4	0.52	36.9202
6	13C12-2,3,4,6,7,8-HxCDF	198	160	80.2	0.52	35.78
7	13C12-1,2,3,4,6,7,8-HpCDI	198	170	85.1	1.04	40.7457
7	13C12-1,2,3,4,6,7,8-HpCDF	198	150	75.0	0.45	38.981
7	13C12-1,2,3,4,7,8,9-HpCDF	198	160	82.0	0.44	41.6007
8	13C12-OCDD	397	300	74.9	0.90	46.4435
Labeled Cleanup Standard 37C14-2,3,7,8-TCDD						
4	37C14-2,3,7,8-TCDD	79.38	75	94.8		26.1827

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:26:06 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF					0.935		0.770	3363	1489					
12378-PeCDF					0.952		1.550	1639	2292					
23478-PeCDF	31.023	1.000	1.02e3	8.90e2	0.963	1.143	1.550	1639	2292	1.61e4	1.37e4	9.8	YES	0.111
123478-HxCDF					1.137		1.240	1549	750					
234678-HxCDF	35.791	1.000	5.66e2	6.41e2	1.164	0.883	1.240	1549	750	1.12e4	1.13e4	7.2	YES	0.085
123678-HxCDF	34.848	1.001	6.07e2	1.97e2	1.099	3.088	1.240	1549	750	8.85e3	4.41e3	5.7	YES	0.052
123789-HxCDF	36.887	0.999	1.47e2	1.72e2	1.101	0.853	1.240	1549	750	5.96e3	4.97e3	3.8	YES	0.027
1234678-HpCDF	39.003	1.001	9.80e2	1.02e3	1.303	0.959	1.050	690	547	1.56e4	2.19e4	22.5	NO	0.153
1234789-HpCDF					1.317		1.050	690	547					
OCDF	46.730	1.006	9.05e2	8.79e2	1.166	1.030	0.890	418	544	1.07e4	9.79e3	25.5	YES	0.220
2378-TCDD					1.134		0.770	730	914					
12378-PeCDD	31.253	1.000	2.87e2	1.96e2	0.975	1.469	1.550	1048	762	5.24e3	2.97e3	5.0	NO	0.045
123478-HxCDD	35.933	1.001	2.89e2	2.52e2	1.031	1.149	1.240	1015	630	5.28e3	6.09e3	5.2	NO	0.051
123678-HxCDD	36.054	1.000	3.84e2	3.78e2	0.971	1.016	1.240	1015	630	6.71e3	5.63e3	6.6	YES	0.074
123789-HxCDD	36.493	1.013	6.77e2	6.81e2	0.947	0.995	1.240	1015	630	1.13e4	1.11e4	11.1	YES	0.138
1234678-HpCDD	40.757	1.000	1.05e4	1.05e4	1.028	1.006	1.050	890	1104	1.53e5	1.41e5	171.7	NO	2.329
OCDD	46.470	1.001	5.83e4	6.60e4	1.107	0.882	0.890	1139	823	6.02e5	6.86e5	528.0	NO	16.134
13C-2378-TCDF	25.525	1.007	1.01e6	1.28e6	1.567	0.787	0.770	3123	2232	1.46e7	1.87e7	4682.6	NO	88.018
13C-12378-PeCDF	29.664	1.170	1.10e6	7.04e5	1.274	1.557	1.550	4472	3623	1.63e7	1.05e7	3643.6	NO	85.364
13C-23478-PeCDF	31.012	1.223	1.09e6	6.85e5	1.235	1.594	1.550	4472	3623	1.65e7	1.03e7	3692.2	NO	87.021
13C-123478-HxCDF	34.684	0.951	4.28e5	8.34e5	1.381	0.514	0.510	2717	3045	6.22e6	1.22e7	2290.4	NO	80.548
13C-123678-HxCDF	34.826	0.955	4.85e5	9.13e5	1.569	0.531	0.510	2717	3045	7.16e6	1.36e7	2635.8	NO	78.477
13C-234678-HxCDF	35.780	0.981	4.18e5	8.07e5	1.345	0.518	0.510	2717	3045	6.20e6	1.18e7	2283.0	NO	80.248
13C-123789-HxCDF	36.920	1.012	3.70e5	7.10e5	1.183	0.520	0.510	2717	3045	5.45e6	1.05e7	2004.5	NO	80.450
13C-1234678-HpCDF	38.981	1.069	3.12e5	6.91e5	1.178	0.452	0.440	1545	2118	4.75e6	1.07e7	3076.2	NO	75.002
13C-1234789-HpCDF	41.601	1.141	2.50e5	5.67e5	0.878	0.442	0.440	1545	2118	3.27e6	7.20e6	2114.5	NO	82.023
13C-1234-TCDD	25.361	0.000	7.31e5	9.24e5	1.000	0.791	0.770	2401	1721	1.10e7	1.37e7	4573.5	NO	100.000
13C-2378-TCDD	26.168	1.032	5.83e5	7.32e5	0.908	0.796	0.770	2401	1721	8.56e6	1.07e7	3565.8	NO	87.508
13C-12378-PeCDD	31.264	1.233	6.72e5	4.19e5	0.756	1.603	1.550	1599	1377	1.02e7	6.27e6	6356.5	NO	87.227
13C-123478-HxCDD	35.912	0.985	5.73e5	4.50e5	1.056	1.273	1.240	1992	1448	8.79e6	6.96e6	4411.3	NO	85.340
13C-123678-HxCDD	36.043	0.988	5.89e5	4.69e5	1.163	1.258	1.240	1992	1448	8.67e6	6.83e6	4353.4	NO	80.166
13C-1234678-HpCDD	40.746	1.117	4.49e5	4.29e5	0.909	1.045	1.050	1840	1815	6.10e6	6.00e6	3318.1	NO	85.116
13C-OCDD	46.444	1.273	6.60e5	7.32e5	0.820	0.901	0.890	2362	1835	6.81e6	7.63e6	2882.3	NO	149.701
13C-123789-HxCDD	36.471	0.000	6.31e5	5.04e5	1.000	1.253	1.240	1992	1448	9.07e6	7.45e6	4552.1	NO	100.000
Total-tetrafurans			4.66e4		0.935			3363		6.07e5				4.985

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Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
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ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			2.14e4					831		3.10e5				2.229
Total-pentafurans			1.57e4		0.957			1639		2.51e5				1.591
Total-hexafurans			1.28e4		1.125			1549		1.85e5				1.601
Total-heptafurans			1.99e3		1.310			690		2.89e4				0.340
Total-Furans			1.10e5		1.114			3363		1.56e6				11.899
Total-tetradioxins			2.81e3		1.134			730		3.66e4				0.401
Total-pentadioxins			1.81e3		0.975			1048		4.05e4				0.314
Total-hexadioxins			8.57e3		0.983			1015		1.37e5				1.494
Total-heptadioxins			2.38e4		1.028			890		3.50e5				5.207
Total-Dioxins			9.54e4		1.028			730		1.17e6				23.565
Total-TEQ			2.05e5					730		2.72e6				35.464
37CL-2378-TCDD	26.183	1.032	6.69e5		1.067			1518		9.93e6		6542.3		37.915
FUNCTION1 PFK			8.58e5					214081		1.02e7				
FUNCTION2 PFK			1.16e4					79854		5.17e5				0.000
FUNCTION3 PFK			1.96e5					206782		6.17e6				0.000
FUNCTION4 PFK			1.32e5					167442		3.99e6				
FUNCTION5 PFK			9.43e4					122009		3.89e6				
FUNCTION1 HXCD...			1.42e2					365		2.16e3				0.000
FUNCTION1 HPCD...			1.23e2					413		3.63e3				0.000
FUNCTION2 HPCD...			1.77e2					434		6.56e3				0.000
FUNCTION3 OCDPE			0.00e0					338		0.00e0				
FUNCTION4 NCDPE			3.08e2					573		5.63e3				0.000
FUNCTION5 DCDPE			0.00e0					521		0.00e0				

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	23.81	5711.311	0.935	0.268		0.96	0.77	YES	11.8
2	35	Total-tetrafurans	303.9016	23.72	3865.423	0.935	0.181		0.71	0.77	NO	5.2
3	35	Total-tetrafurans	303.9016	23.55	9110.973	0.935	0.427		0.84	0.77	NO	18.7
4	35	Total-tetrafurans	303.9016	23.37	2119.966	0.935	0.099		0.64	0.77	YES	4.7
5	35	Total-tetrafurans	303.9016	23.31	4771.031	0.935	0.224		0.71	0.77	NO	7.3
6	35	Total-tetrafurans	303.9016	23.21	2255.841	0.935	0.106		0.94	0.77	YES	3.7
7	35	Total-tetrafurans	303.9016	23.09	1915.877	0.935	0.090		0.58	0.77	YES	3.3
8	35	Total-tetrafurans	303.9016	22.93	10607.312	0.935	0.497		0.74	0.77	NO	17.4
9	35	Total-tetrafurans	303.9016	22.31	2438.480	0.935	0.114		0.67	0.77	NO	3.7
10	35	Total-tetrafurans	303.9016	26.84	2370.013	0.935	0.111		0.52	0.77	YES	3.8
11	35	Total-tetrafurans	303.9016	25.78	7429.483	0.935	0.348		0.77	0.77	NO	14.1
12	35	Total-tetrafurans	303.9016	25.69	1379.804	0.935	0.065		1.47	0.77	YES	3.6
13	35	Total-tetrafurans	303.9016	25.57	5078.139	0.935	0.238		0.87	0.77	NO	9.2
14	35	Total-tetrafurans	303.9016	25.38	932.276	0.935	0.044		1.08	0.77	YES	2.8
15	35	Total-tetrafurans	303.9016	25.29	6982.225	0.935	0.327		0.80	0.77	NO	11.0
16	35	Total-tetrafurans	303.9016	25.12	4515.263	0.935	0.212		1.24	0.77	YES	7.8
17	35	Total-tetrafurans	303.9016	24.87	2415.393	0.935	0.113		0.68	0.77	NO	3.2
18	35	Total-tetrafurans	303.9016	24.64	3060.656	0.935	0.143		0.68	0.77	NO	5.6
19	35	Total-tetrafurans	303.9016	24.46	8004.084	0.935	0.375		0.80	0.77	NO	13.2
20	35	Total-tetrafurans	303.9016	24.32	14599.082	0.935	0.684		0.70	0.77	NO	15.8
21	35	Total-tetrafurans	303.9016	23.99	4700.178	0.935	0.220		0.79	0.77	NO	9.9
22	35	Total-tetrafurans	303.9016	23.93	2124.170	0.935	0.100		0.61	0.77	YES	4.6

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	36	Total-penta1	339.8597	26.96	36565.137		2.229		1.40	1.55	NO	372.7

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	37	Total-pentafurans	339.8597	28.61	12707.113	0.957	0.742		1.20	1.55	YES	63.4
2	37	Total-pentafurans	339.8597	28.28	1406.880	0.957	0.082		1.71	1.55	NO	10.4
3	3	23478-PeCDF	339.8597	31.02	1908.275	0.963	0.111	0.098	1.14	1.55	YES	9.8
4	37	Total-pentafurans	339.8597	30.87	4577.440	0.957	0.267		1.21	1.55	YES	28.9
5	37	Total-pentafurans	339.8597	29.96	1717.099	0.957	0.100		1.98	1.55	YES	11.2
6	37	Total-pentafurans	339.8597	29.92	2019.380	0.957	0.118		2.07	1.55	YES	10.1
7	37	Total-pentafurans	339.8597	29.33	2911.846	0.957	0.170		1.67	1.55	NO	19.3

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	6	123678-HxCDF	373.8208	34.85	803.817	1.099	0.052	0.029	3.09	1.24	YES	5.7
2	38	Total-hexafurans	373.8208	34.05	7713.848	1.125	0.553		1.18	1.24	NO	37.8
3	38	Total-hexafurans	373.8208	33.18	9730.339	1.125	0.697		1.36	1.24	NO	48.0
4	38	Total-hexafurans	373.8208	32.96	1791.191	1.125	0.128		1.36	1.24	NO	8.8
5	7	123789-HxCDF	373.8208	36.89	319.449	1.101	0.027	0.022	0.85	1.24	YES	3.8
6	5	234678-HxCDF	373.8208	35.79	1207.153	1.164	0.085	0.072	0.88	1.24	YES	7.2
7	38	Total-hexafurans	373.8208	35.75	833.654	1.125	0.060		3.39	1.24	YES	8.3

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
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ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	39	Total-heptafurans	407.7818	39.78	2226.443	1.310	0.187		0.84	1.05	YES	19.3
2	8	1234678-HpCDF	407.7818	39.00	2003.138	1.303	0.153	0.153	0.96	1.05	NO	22.5

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	23.81	5711.311	0.935	0.268		0.96	0.77	YES	11.8
2	35	Total-tetrafurans	303.9016	23.72	3865.423	0.935	0.181		0.71	0.77	NO	5.2
3	35	Total-tetrafurans	303.9016	23.55	9110.973	0.935	0.427		0.84	0.77	NO	18.7
4	35	Total-tetrafurans	303.9016	23.37	2119.966	0.935	0.099		0.64	0.77	YES	4.7
5	35	Total-tetrafurans	303.9016	23.31	4771.031	0.935	0.224		0.71	0.77	NO	7.3
6	35	Total-tetrafurans	303.9016	23.21	2255.841	0.935	0.106		0.94	0.77	YES	3.7
7	35	Total-tetrafurans	303.9016	23.09	1915.877	0.935	0.090		0.58	0.77	YES	3.3
8	35	Total-tetrafurans	303.9016	22.93	10607.312	0.935	0.497		0.74	0.77	NO	17.4
9	35	Total-tetrafurans	303.9016	22.31	2438.480	0.935	0.114		0.67	0.77	NO	3.7
10	40	Total-Furans	303.9016	21.79	192.792	1.114	0.008		0.76	0.77	NO	0.8
11	40	Total-Furans	303.9016	21.66	2517.591	1.114	0.099		1.02	0.77	YES	6.5
12	40	Total-Furans	303.9016	21.19	797.389	1.114	0.031		0.96	0.77	YES	1.8
13	35	Total-tetrafurans	303.9016	26.84	2370.013	0.935	0.111		0.52	0.77	YES	3.8
14	35	Total-tetrafurans	303.9016	25.78	7429.483	0.935	0.348		0.77	0.77	NO	14.1
15	35	Total-tetrafurans	303.9016	25.69	1379.804	0.935	0.065		1.47	0.77	YES	3.6
16	35	Total-tetrafurans	303.9016	25.57	5078.139	0.935	0.238		0.87	0.77	NO	9.2
17	35	Total-tetrafurans	303.9016	25.38	932.276	0.935	0.044		1.08	0.77	YES	2.8
18	35	Total-tetrafurans	303.9016	25.29	6982.225	0.935	0.327		0.80	0.77	NO	11.0
19	35	Total-tetrafurans	303.9016	25.12	4515.263	0.935	0.212		1.24	0.77	YES	7.8
20	35	Total-tetrafurans	303.9016	24.87	2415.393	0.935	0.113		0.68	0.77	NO	3.2
21	35	Total-tetrafurans	303.9016	24.64	3060.656	0.935	0.143		0.68	0.77	NO	5.6
22	35	Total-tetrafurans	303.9016	24.46	8004.084	0.935	0.375		0.80	0.77	NO	13.2
23	35	Total-tetrafurans	303.9016	24.32	14599.082	0.935	0.684		0.70	0.77	NO	15.8
24	35	Total-tetrafurans	303.9016	23.99	4700.178	0.935	0.220		0.79	0.77	NO	9.9
25	35	Total-tetrafurans	303.9016	23.93	2124.170	0.935	0.100		0.61	0.77	YES	4.6
26	40	Total-Furans	303.9016	27.66	19518.271	1.114	0.768		0.75	0.77	NO	38.1
27	40	Total-Furans	303.9016	27.50	661.291	1.114	0.026		0.78	0.77	NO	1.4
28	37	Total-pentafurans	339.8597	28.61	12707.113	0.957	0.742		1.20	1.55	YES	63.4
29	37	Total-pentafurans	339.8597	28.28	1406.880	0.957	0.082		1.71	1.55	NO	10.4
30	3	23478-PeCDF	339.8597	31.02	1908.275	0.963	0.111	0.098	1.14	1.55	YES	9.8
31	37	Total-pentafurans	339.8597	30.87	4577.440	0.957	0.267		1.21	1.55	YES	28.9
32	37	Total-pentafurans	339.8597	29.96	1717.099	0.957	0.100		1.98	1.55	YES	11.2
33	37	Total-pentafurans	339.8597	29.92	2019.380	0.957	0.118		2.07	1.55	YES	10.1
34	37	Total-pentafurans	339.8597	29.33	2911.846	0.957	0.170		1.67	1.55	NO	19.3
35	6	123678-HxCDF	373.8208	34.85	803.817	1.099	0.052	0.029	3.09	1.24	YES	5.7
36	38	Total-hexafurans	373.8208	34.05	7713.848	1.125	0.553		1.18	1.24	NO	37.8
37	38	Total-hexafurans	373.8208	33.18	9730.339	1.125	0.697		1.36	1.24	NO	48.0
38	38	Total-hexafurans	373.8208	32.96	1791.191	1.125	0.128		1.36	1.24	NO	8.8
39	7	123789-HxCDF	373.8208	36.89	319.449	1.101	0.027	0.022	0.85	1.24	YES	3.8
40	5	234678-HxCDF	373.8208	35.79	1207.153	1.164	0.085	0.072	0.88	1.24	YES	7.2
41	38	Total-hexafurans	373.8208	35.75	833.654	1.125	0.060		3.39	1.24	YES	8.3
42	39	Total-heptafurans	407.7818	39.78	2226.443	1.310	0.187		0.84	1.05	YES	19.3
43	8	1234678-HpCDF	407.7818	39.00	2003.138	1.303	0.153	0.153	0.96	1.05	NO	22.5
44	10	OCDF	441.7428	46.73	1784.303	1.166	0.220	0.205	1.03	0.89	YES	25.5
45	36	Total-penta1	339.8597	26.96	36565.137		2.229		1.40	1.55	NO	372.7

ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	24.33	5530.149	1.134	0.371		0.94	0.77	YES	46.9
2	41	Total-tetradioxins	319.8965	23.33	445.976	1.134	0.030		0.40	0.77	YES	3.3

PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	42	Total-pentadioxins	355.8546	29.88	206.388	0.975	0.019		0.64	1.55	YES	3.2
2	42	Total-pentadioxins	355.8546	29.69	529.918	0.975	0.050		0.70	1.55	YES	5.2
3	42	Total-pentadioxins	355.8546	29.07	736.679	0.975	0.069		2.08	1.55	YES	7.8
4	42	Total-pentadioxins	355.8546	28.62	542.416	0.975	0.051		1.54	1.55	NO	7.4
5	42	Total-pentadioxins	355.8546	28.57	543.502	0.975	0.051		1.08	1.55	YES	6.7
6	12	12378-PeCDD	355.8546	31.25	482.843	0.975	0.045	0.045	1.47	1.55	NO	5.0
7	42	Total-pentadioxins	355.8546	30.17	301.415	0.975	0.028		0.58	1.55	YES	3.3

HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	15	123789-HxCDD	389.8157	36.49	1358.387	0.947	0.138	0.124	0.99	1.24	YES	11.1
2	14	123678-HxCDD	389.8157	36.05	761.640	0.971	0.074	0.067	1.02	1.24	YES	6.6
3	13	123478-HxCDD	389.8157	35.93	540.997	1.031	0.051	0.051	1.15	1.24	NO	5.2
4	43	Total-hexadioxins	389.8157	35.08	644.836	0.983	0.063		1.08	1.24	NO	6.8
5	43	Total-hexadioxins	389.8157	34.97	4861.456	0.983	0.475		1.17	1.24	NO	26.6
6	43	Total-hexadioxins	389.8157	34.59	463.852	0.983	0.045		0.84	1.24	YES	5.3
7	43	Total-hexadioxins	389.8157	33.77	6618.725	0.983	0.647		1.58	1.24	YES	73.2

HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.76	21018.671	1.028	2.329	2.329	1.01	1.05	NO	171.7
2	44	Total-heptadioxins	423.7766	39.54	25978.075	1.028	2.878		1.04	1.05	NO	222.3

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Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	45	Total-Dioxins	319.8965	27.23	188.172	1.028	0.014		1.04	0.77	YES	2.4
2	41	Total-tetradioxins	319.8965	24.33	5530.149	1.134	0.371		0.94	0.77	YES	46.9
3	41	Total-tetradioxins	319.8965	23.33	445.976	1.134	0.030		0.40	0.77	YES	3.3
4	42	Total-pentadioxins	355.8546	29.88	206.388	0.975	0.019		0.64	1.55	YES	3.2
5	42	Total-pentadioxins	355.8546	29.69	529.918	0.975	0.050		0.70	1.55	YES	5.2
6	42	Total-pentadioxins	355.8546	29.07	736.679	0.975	0.069		2.08	1.55	YES	7.8
7	42	Total-pentadioxins	355.8546	28.62	542.416	0.975	0.051		1.54	1.55	NO	7.4
8	42	Total-pentadioxins	355.8546	28.57	543.502	0.975	0.051		1.08	1.55	YES	6.7
9	12	12378-PeCDD	355.8546	31.25	482.843	0.975	0.045	0.045	1.47	1.55	NO	5.0
10	42	Total-pentadioxins	355.8546	30.17	301.415	0.975	0.028		0.58	1.55	YES	3.3
11	15	123789-HxCDD	389.8157	36.49	1358.387	0.947	0.138	0.124	0.99	1.24	YES	11.1
12	14	123678-HxCDD	389.8157	36.05	761.640	0.971	0.074	0.067	1.02	1.24	YES	6.6
13	13	123478-HxCDD	389.8157	35.93	540.997	1.031	0.051	0.051	1.15	1.24	NO	5.2
14	43	Total-hexadioxins	389.8157	35.08	644.836	0.983	0.063		1.08	1.24	NO	6.8
15	43	Total-hexadioxins	389.8157	34.97	4861.456	0.983	0.475		1.17	1.24	NO	26.6
16	43	Total-hexadioxins	389.8157	34.59	463.852	0.983	0.045		0.84	1.24	YES	5.3
17	43	Total-hexadioxins	389.8157	33.77	6618.725	0.983	0.647		1.58	1.24	YES	73.2
18	17	OCDD	457.7377	46.47	124320.648	1.107	16.134	16.134	0.88	0.89	NO	528.0
19	16	1234678-HpCDD	423.7766	40.76	21018.671	1.028	2.329	2.329	1.01	1.05	NO	171.7
20	44	Total-heptadioxins	423.7766	39.54	25978.075	1.028	2.878		1.04	1.05	NO	222.3

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TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	23.81	5711.311	0.935	0.268		0.96	0.77	YES	11.8
2	35	Total-tetrafurans	303.9016	23.72	3865.423	0.935	0.181		0.71	0.77	NO	5.2
3	35	Total-tetrafurans	303.9016	23.55	9110.973	0.935	0.427		0.84	0.77	NO	18.7
4	35	Total-tetrafurans	303.9016	23.37	2119.966	0.935	0.099		0.64	0.77	YES	4.7
5	35	Total-tetrafurans	303.9016	23.31	4771.031	0.935	0.224		0.71	0.77	NO	7.3
6	35	Total-tetrafurans	303.9016	23.21	2255.841	0.935	0.106		0.94	0.77	YES	3.7
7	35	Total-tetrafurans	303.9016	23.09	1915.877	0.935	0.090		0.58	0.77	YES	3.3
8	35	Total-tetrafurans	303.9016	22.93	10607.312	0.935	0.497		0.74	0.77	NO	17.4
9	35	Total-tetrafurans	303.9016	22.31	2438.480	0.935	0.114		0.67	0.77	NO	3.7
10	40	Total-Furans	303.9016	21.79	192.792	1.114	0.008		0.76	0.77	NO	0.8
11	40	Total-Furans	303.9016	21.66	2517.591	1.114	0.099		1.02	0.77	YES	6.5
12	40	Total-Furans	303.9016	21.19	797.389	1.114	0.031		0.96	0.77	YES	1.8
13	35	Total-tetrafurans	303.9016	26.84	2370.013	0.935	0.111		0.52	0.77	YES	3.8
14	35	Total-tetrafurans	303.9016	25.78	7429.483	0.935	0.348		0.77	0.77	NO	14.1
15	35	Total-tetrafurans	303.9016	25.69	1379.804	0.935	0.065		1.47	0.77	YES	3.6
16	35	Total-tetrafurans	303.9016	25.57	5078.139	0.935	0.238		0.87	0.77	NO	9.2
17	35	Total-tetrafurans	303.9016	25.38	932.276	0.935	0.044		1.08	0.77	YES	2.8
18	35	Total-tetrafurans	303.9016	25.29	6982.225	0.935	0.327		0.80	0.77	NO	11.0
19	35	Total-tetrafurans	303.9016	25.12	4515.263	0.935	0.212		1.24	0.77	YES	7.8
20	35	Total-tetrafurans	303.9016	24.87	2415.393	0.935	0.113		0.68	0.77	NO	3.2
21	35	Total-tetrafurans	303.9016	24.64	3060.656	0.935	0.143		0.68	0.77	NO	5.6
22	35	Total-tetrafurans	303.9016	24.46	8004.084	0.935	0.375		0.80	0.77	NO	13.2
23	35	Total-tetrafurans	303.9016	24.32	14599.082	0.935	0.684		0.70	0.77	NO	15.8
24	35	Total-tetrafurans	303.9016	23.99	4700.178	0.935	0.220		0.79	0.77	NO	9.9
25	35	Total-tetrafurans	303.9016	23.93	2124.170	0.935	0.100		0.61	0.77	YES	4.6
26	40	Total-Furans	303.9016	27.66	19518.271	1.114	0.768		0.75	0.77	NO	38.1
27	40	Total-Furans	303.9016	27.50	661.291	1.114	0.026		0.78	0.77	NO	1.4
28	37	Total-pentafurans	339.8597	28.61	12707.113	0.957	0.742		1.20	1.55	YES	63.4
29	37	Total-pentafurans	339.8597	28.28	1406.880	0.957	0.082		1.71	1.55	NO	10.4
30	3	23478-PeCDF	339.8597	31.02	1908.275	0.963	0.111	0.098	1.14	1.55	YES	9.8
31	37	Total-pentafurans	339.8597	30.87	4577.440	0.957	0.267		1.21	1.55	YES	28.9
32	37	Total-pentafurans	339.8597	29.96	1717.099	0.957	0.100		1.98	1.55	YES	11.2
33	37	Total-pentafurans	339.8597	29.92	2019.380	0.957	0.118		2.07	1.55	YES	10.1
34	37	Total-pentafurans	339.8597	29.33	2911.846	0.957	0.170		1.67	1.55	NO	19.3
35	6	123678-HxCDF	373.8208	34.85	803.817	1.099	0.052	0.029	3.09	1.24	YES	5.7
36	38	Total-hexafurans	373.8208	34.05	7713.848	1.125	0.553		1.18	1.24	NO	37.8
37	38	Total-hexafurans	373.8208	33.18	9730.339	1.125	0.697		1.36	1.24	NO	48.0
38	38	Total-hexafurans	373.8208	32.96	1791.191	1.125	0.128		1.36	1.24	NO	8.8
39	7	123789-HxCDF	373.8208	36.89	319.449	1.101	0.027	0.022	0.85	1.24	YES	3.8
40	5	234678-HxCDF	373.8208	35.79	1207.153	1.164	0.085	0.072	0.88	1.24	YES	7.2
41	38	Total-hexafurans	373.8208	35.75	833.654	1.125	0.060		3.39	1.24	YES	8.3
42	39	Total-heptafurans	407.7818	39.78	2226.443	1.310	0.187		0.84	1.05	YES	19.3
43	8	1234678-HpCDF	407.7818	39.00	2003.138	1.303	0.153	0.153	0.96	1.05	NO	22.5
44	10	OCDF	441.7428	46.73	1784.303	1.166	0.220	0.205	1.03	0.89	YES	25.5
45	36	Total-penta1	339.8597	26.96	36565.137		2.229		1.40	1.55	NO	372.7
46	45	Total-Dioxins	319.8965	27.23	188.172	1.028	0.014		1.04	0.77	YES	2.4
47	41	Total-tetradioxins	319.8965	24.33	5530.149	1.134	0.371		0.94	0.77	YES	46.9
48	41	Total-tetradioxins	319.8965	23.33	445.976	1.134	0.030		0.40	0.77	YES	3.3
49	42	Total-pentadioxins	355.8546	29.88	206.388	0.975	0.019		0.64	1.55	YES	3.2
50	42	Total-pentadioxins	355.8546	29.69	529.918	0.975	0.050		0.70	1.55	YES	5.2
51	42	Total-pentadioxins	355.8546	29.07	736.679	0.975	0.069		2.08	1.55	YES	7.8

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TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
52	42	Total-pentadioxins	355.8546	28.62	542.416	0.975	0.051		1.54	1.55	NO	7.4
53	42	Total-pentadioxins	355.8546	28.57	543.502	0.975	0.051		1.08	1.55	YES	6.7
54	12	12378-PeCDD	355.8546	31.25	482.843	0.975	0.045	0.045	1.47	1.55	NO	5.0
55	42	Total-pentadioxins	355.8546	30.17	301.415	0.975	0.028		0.58	1.55	YES	3.3
56	15	123789-HxCDD	389.8157	36.49	1358.387	0.947	0.138	0.124	0.99	1.24	YES	11.1
57	14	123678-HxCDD	389.8157	36.05	761.640	0.971	0.074	0.067	1.02	1.24	YES	6.6
58	13	123478-HxCDD	389.8157	35.93	540.997	1.031	0.051	0.051	1.15	1.24	NO	5.2
59	43	Total-hexadioxins	389.8157	35.08	644.836	0.983	0.063		1.08	1.24	NO	6.8
60	43	Total-hexadioxins	389.8157	34.97	4861.456	0.983	0.475		1.17	1.24	NO	26.6
61	43	Total-hexadioxins	389.8157	34.59	463.852	0.983	0.045		0.84	1.24	YES	5.3
62	43	Total-hexadioxins	389.8157	33.77	6618.725	0.983	0.647		1.58	1.24	YES	73.2
63	17	OCDD	457.7377	46.47	124320.648	1.107	16.134	16.134	0.88	0.89	NO	528.0
64	16	1234678-HpCDD	423.7766	40.76	21018.671	1.028	2.329	2.329	1.01	1.05	NO	171.7
65	44	Total-heptadioxins	423.7766	39.54	25978.075	1.028	2.878		1.04	1.05	NO	222.3

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	24.55	0.000							1.0
2	48	FUNCTION1 PFK	330.9792	24.40	0.000							0.9
3	48	FUNCTION1 PFK	330.9792	23.99	0.000							3.1
4	48	FUNCTION1 PFK	330.9792	23.88	0.000							5.0
5	48	FUNCTION1 PFK	330.9792	23.72	0.000							6.6
6	48	FUNCTION1 PFK	330.9792	23.33	0.000							2.4
7	48	FUNCTION1 PFK	330.9792	22.94	0.000							1.2
8	48	FUNCTION1 PFK	330.9792	22.88	0.000							0.5
9	48	FUNCTION1 PFK	330.9792	22.82	0.000							0.9
10	48	FUNCTION1 PFK	330.9792	22.75	0.000							1.7
11	48	FUNCTION1 PFK	330.9792	22.13	0.000							2.9
12	48	FUNCTION1 PFK	330.9792	22.01	0.000							1.7
13	48	FUNCTION1 PFK	330.9792	21.31	0.000							2.6
14	48	FUNCTION1 PFK	330.9792	21.25	0.000							1.9
15	48	FUNCTION1 PFK	330.9792	21.18	0.000							1.1
16	48	FUNCTION1 PFK	330.9792	27.44	0.000							1.5
17	48	FUNCTION1 PFK	330.9792	27.15	0.000							1.6
18	48	FUNCTION1 PFK	330.9792	26.97	0.000							1.3
19	48	FUNCTION1 PFK	330.9792	26.56	0.000							0.7
20	48	FUNCTION1 PFK	330.9792	26.27	0.000							1.8
21	48	FUNCTION1 PFK	330.9792	26.12	0.000							2.5
22	48	FUNCTION1 PFK	330.9792	25.78	0.000							0.7
23	48	FUNCTION1 PFK	330.9792	25.35	0.000							1.8
24	48	FUNCTION1 PFK	330.9792	25.29	0.000							0.9
25	48	FUNCTION1 PFK	330.9792	24.97	0.000							1.2

PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	32.15	0.000		0.000					0.9
2	49	FUNCTION2 PFK	366.9792	31.52	0.000		0.000					1.5
3	49	FUNCTION2 PFK	366.9792	30.62	0.000		0.000					2.3
4	49	FUNCTION2 PFK	366.9792	28.28	0.000		0.000					1.9

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	35.09	0.000		0.000					1.4
2	50	FUNCTION3 PFK	380.9760	34.99	0.000		0.000					1.8
3	50	FUNCTION3 PFK	380.9760	34.84	0.000		0.000					0.7
4	50	FUNCTION3 PFK	380.9760	34.75	0.000		0.000					0.8
5	50	FUNCTION3 PFK	380.9760	34.59	0.000		0.000					0.7
6	50	FUNCTION3 PFK	380.9760	34.50	0.000		0.000					1.7
7	50	FUNCTION3 PFK	380.9760	34.25	0.000		0.000					1.4
8	50	FUNCTION3 PFK	380.9760	34.16	0.000		0.000					1.3
9	50	FUNCTION3 PFK	380.9760	34.06	0.000		0.000					1.1
10	50	FUNCTION3 PFK	380.9760	33.91	0.000		0.000					0.6
11	50	FUNCTION3 PFK	380.9760	33.36	0.000		0.000					0.6
12	50	FUNCTION3 PFK	380.9760	33.24	0.000		0.000					1.0
13	50	FUNCTION3 PFK	380.9760	33.11	0.000		0.000					2.2
14	50	FUNCTION3 PFK	380.9760	32.73	0.000		0.000					0.5
15	50	FUNCTION3 PFK	380.9760	32.69	0.000		0.000					0.6
16	50	FUNCTION3 PFK	380.9760	32.65	0.000		0.000					1.0
17	50	FUNCTION3 PFK	380.9760	37.87	0.000		0.000					1.0
18	50	FUNCTION3 PFK	380.9760	37.72	0.000		0.000					0.6
19	50	FUNCTION3 PFK	380.9760	37.51	0.000		0.000					0.7
20	50	FUNCTION3 PFK	380.9760	37.13	0.000		0.000					0.8
21	50	FUNCTION3 PFK	380.9760	36.96	0.000		0.000					1.9
22	50	FUNCTION3 PFK	380.9760	36.73	0.000		0.000					1.1
23	50	FUNCTION3 PFK	380.9760	36.70	0.000		0.000					0.9
24	50	FUNCTION3 PFK	380.9760	36.54	0.000		0.000					0.5
25	50	FUNCTION3 PFK	380.9760	36.49	0.000		0.000					1.7
26	50	FUNCTION3 PFK	380.9760	36.14	0.000		0.000					0.9
27	50	FUNCTION3 PFK	380.9760	36.10	0.000		0.000					1.2
28	50	FUNCTION3 PFK	380.9760	35.59	0.000		0.000					0.6
29	50	FUNCTION3 PFK	380.9760	35.56	0.000		0.000					0.4

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	39.23	0.000							2.1
2	51	FUNCTION4 PFK	430.9728	38.27	0.000							1.4
3	51	FUNCTION4 PFK	430.9728	44.47	0.000							0.8
4	51	FUNCTION4 PFK	430.9728	44.33	0.000							1.7
5	51	FUNCTION4 PFK	430.9728	43.98	0.000							1.5
6	51	FUNCTION4 PFK	430.9728	43.74	0.000							0.5
7	51	FUNCTION4 PFK	430.9728	42.76	0.000							1.6
8	51	FUNCTION4 PFK	430.9728	42.72	0.000							1.1
9	51	FUNCTION4 PFK	430.9728	42.21	0.000							2.4
10	51	FUNCTION4 PFK	430.9728	41.96	0.000							2.1
11	51	FUNCTION4 PFK	430.9728	41.80	0.000							1.4
12	51	FUNCTION4 PFK	430.9728	41.26	0.000							1.3
13	51	FUNCTION4 PFK	430.9728	40.43	0.000							0.7
14	51	FUNCTION4 PFK	430.9728	40.24	0.000							1.0
15	51	FUNCTION4 PFK	430.9728	40.20	0.000							0.5
16	51	FUNCTION4 PFK	430.9728	40.04	0.000							1.6
17	51	FUNCTION4 PFK	430.9728	39.90	0.000							0.7
18	51	FUNCTION4 PFK	430.9728	39.84	0.000							1.4

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PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	47.29	0.000							1.4
2	52	FUNCTION5 PFK	480.9696	46.60	0.000							1.4
3	52	FUNCTION5 PFK	480.9696	46.19	0.000							1.5
4	52	FUNCTION5 PFK	480.9696	46.00	0.000							1.0
5	52	FUNCTION5 PFK	480.9696	45.92	0.000							1.0
6	52	FUNCTION5 PFK	480.9696	45.72	0.000							0.9
7	52	FUNCTION5 PFK	480.9696	45.69	0.000							0.6
8	52	FUNCTION5 PFK	480.9696	45.48	0.000							1.4
9	52	FUNCTION5 PFK	480.9696	45.29	0.000							0.9
10	52	FUNCTION5 PFK	480.9696	45.25	0.000							1.8
11	52	FUNCTION5 PFK	480.9696	45.21	0.000							1.5
12	52	FUNCTION5 PFK	480.9696	45.12	0.000							0.6
13	52	FUNCTION5 PFK	480.9696	44.95	0.000							1.3
14	52	FUNCTION5 PFK	480.9696	44.69	0.000							0.8
15	52	FUNCTION5 PFK	480.9696	44.66	0.000							0.8
16	52	FUNCTION5 PFK	480.9696	49.43	0.000							0.7
17	52	FUNCTION5 PFK	480.9696	49.40	0.000							0.5
18	52	FUNCTION5 PFK	480.9696	49.16	0.000							1.2
19	52	FUNCTION5 PFK	480.9696	49.13	0.000							0.5
20	52	FUNCTION5 PFK	480.9696	48.86	0.000							0.7
21	52	FUNCTION5 PFK	480.9696	48.66	0.000							0.7
22	52	FUNCTION5 PFK	480.9696	48.62	0.000							1.0
23	52	FUNCTION5 PFK	480.9696	48.58	0.000							3.3
24	52	FUNCTION5 PFK	480.9696	48.11	0.000							1.5
25	52	FUNCTION5 PFK	480.9696	47.83	0.000							1.7
26	52	FUNCTION5 PFK	480.9696	47.75	0.000							2.3
27	52	FUNCTION5 PFK	480.9696	47.60	0.000							0.6

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	23.60	0.000		0.000					5.9

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	26.86	0.000		0.000					8.8

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	31.92	0.000		0.000					8.6
2	55	FUNCTION2 HPCD...	409.7974	30.81	0.000		0.000					6.5

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:26:06 Pacific Standard Time

ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	39.62	0.000		0.000					3.5
2	57	FUNCTION4 NCDPE	479.7165	38.61	0.000		0.000					6.4

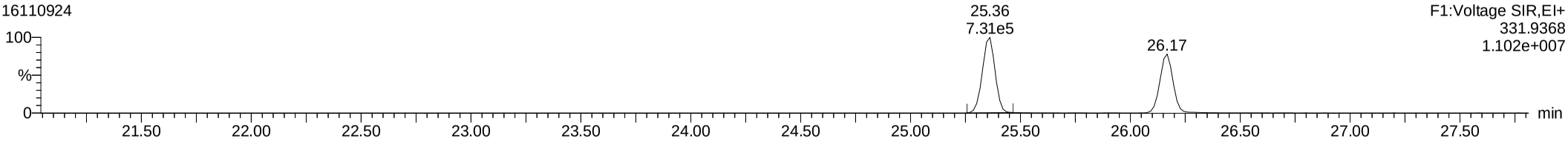
ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

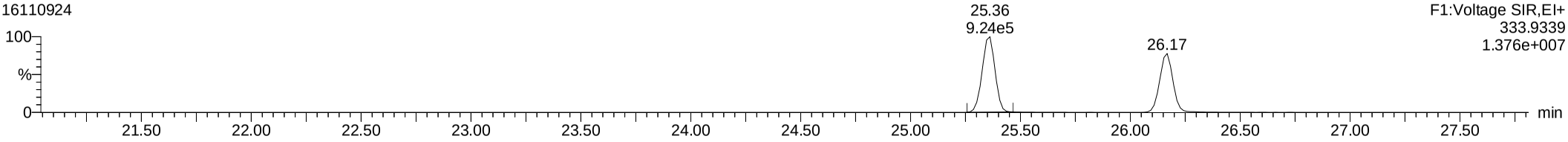
Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

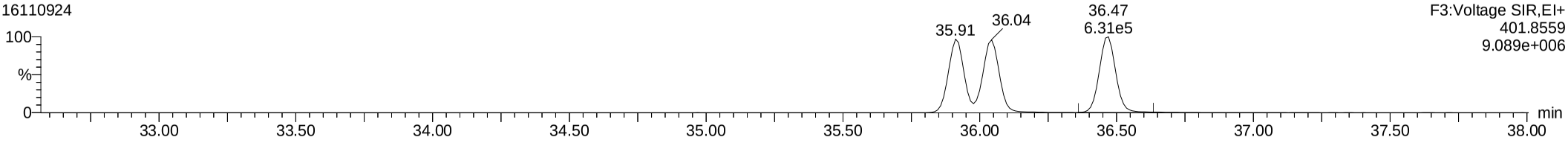
13C-1234-TCDD



13C-1234-TCDD



13C-123789-HxCDD



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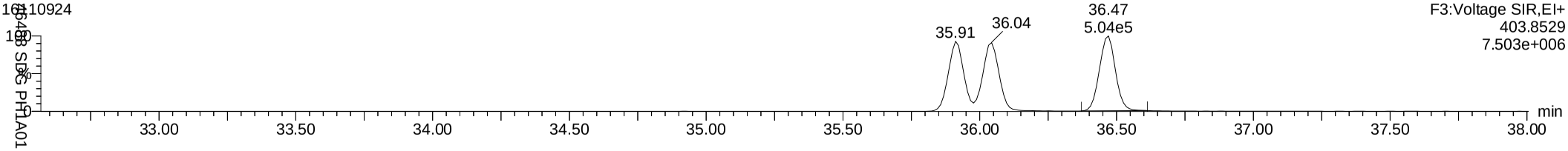

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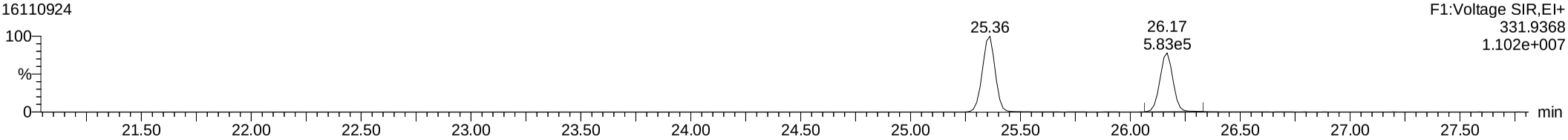
Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:26:06 Pacific Standard Time

ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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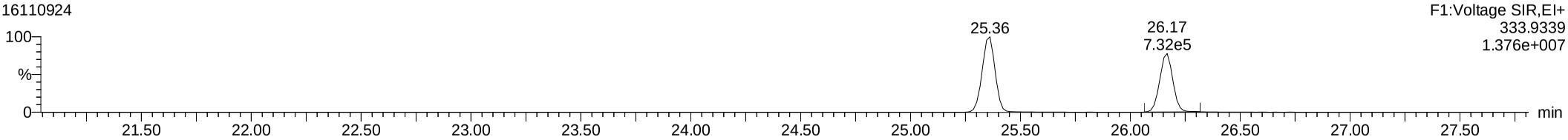
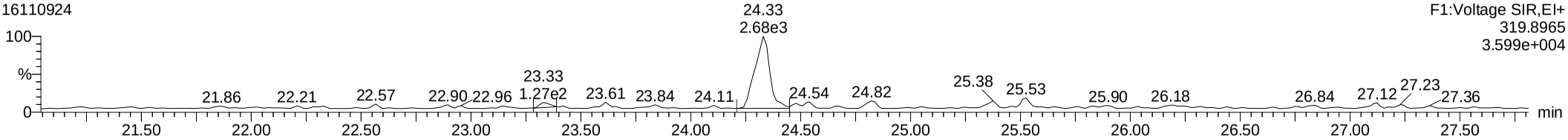
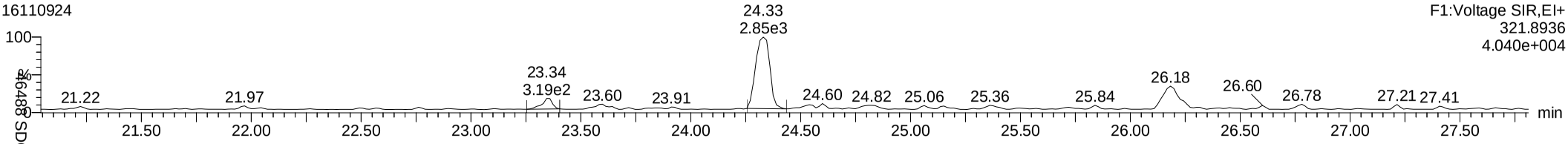


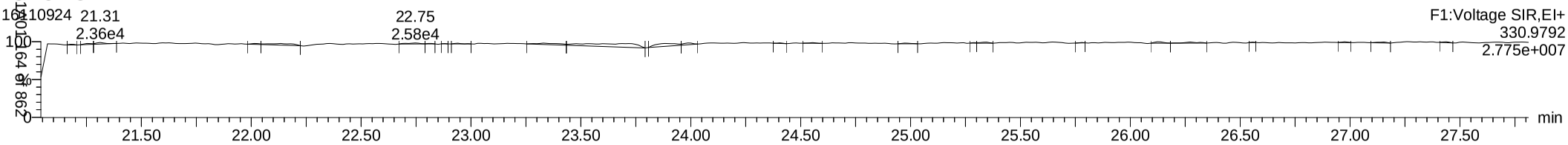
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
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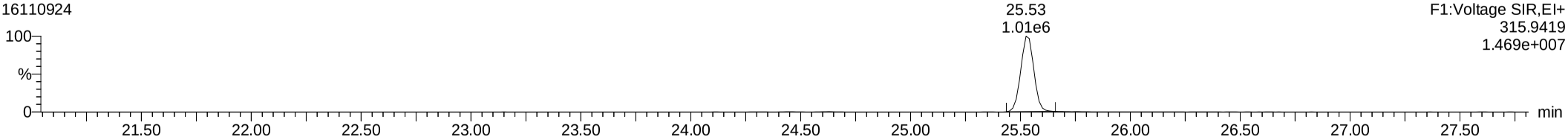
ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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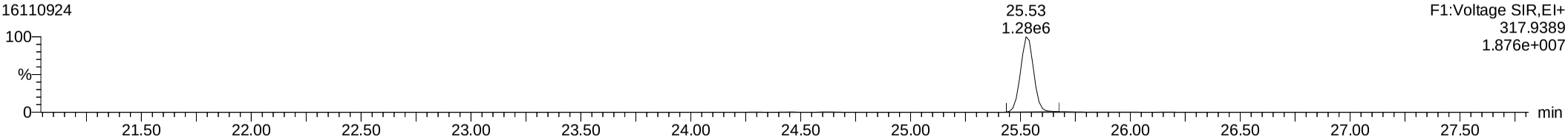
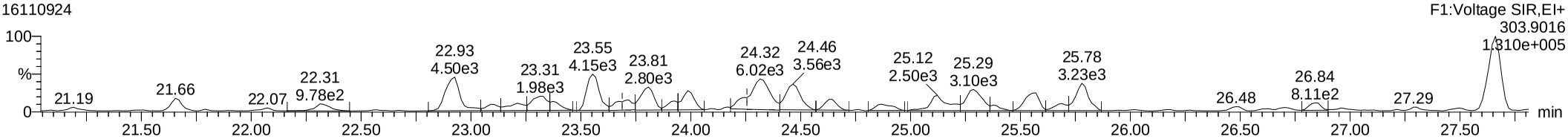
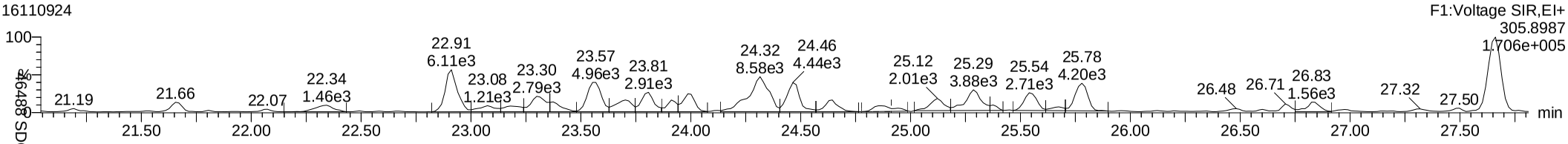


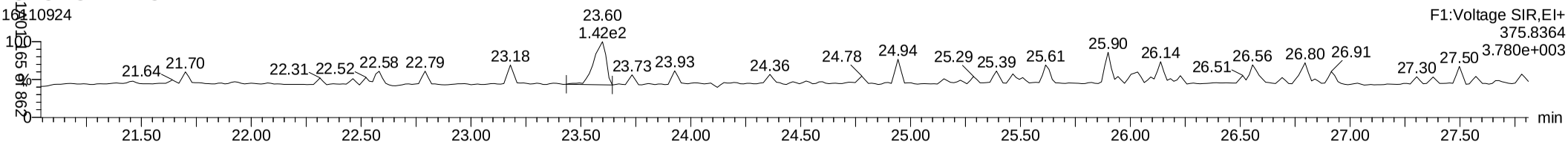
Total-tetrafurans



Total-tetrafurans

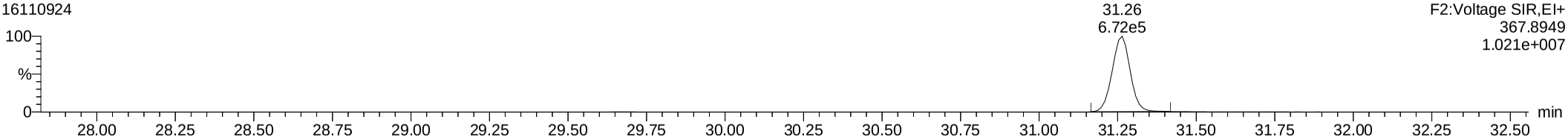


FUNCTION1 HXCDPE



ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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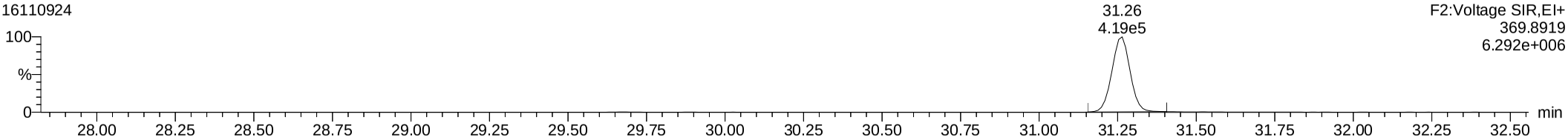
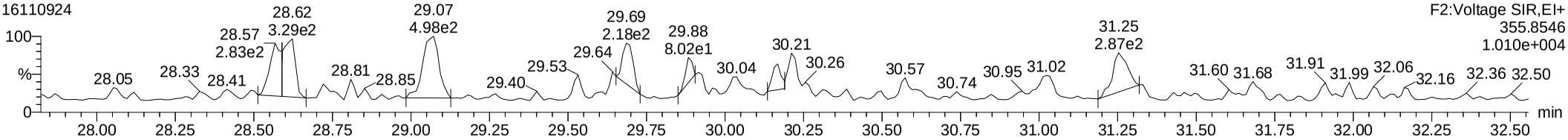
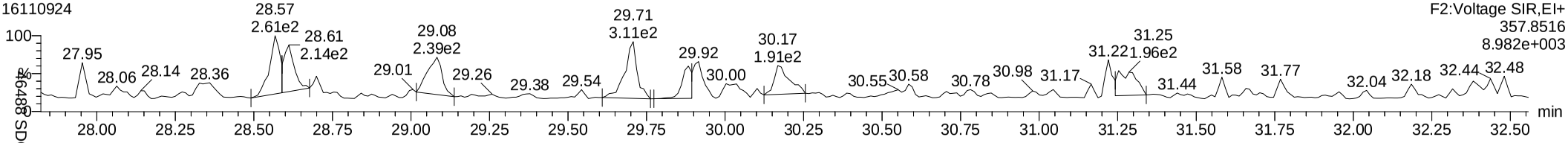


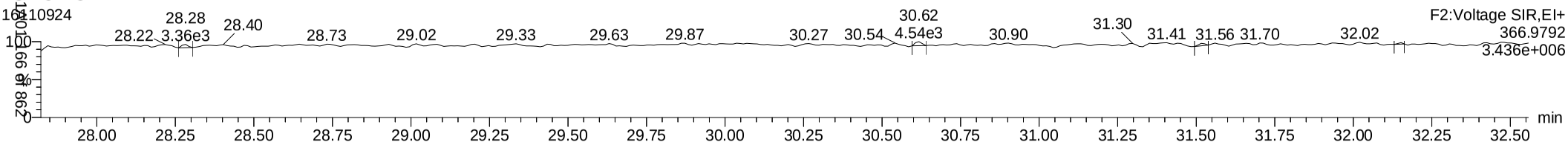
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



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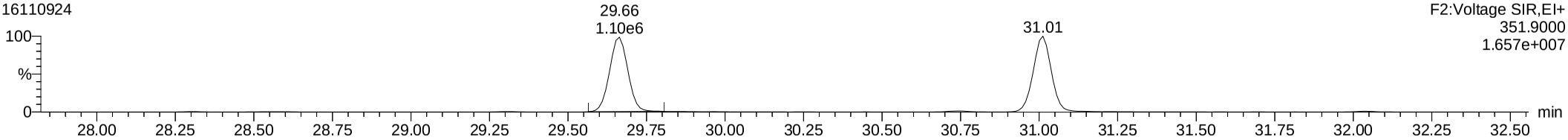
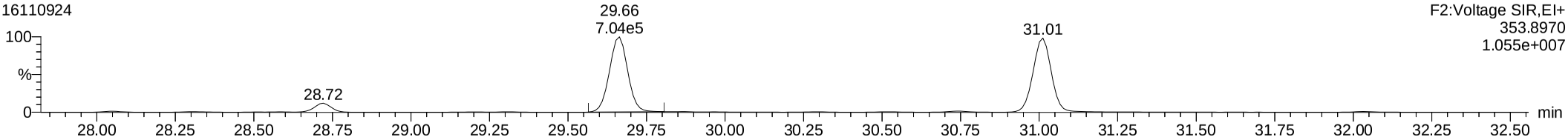
ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

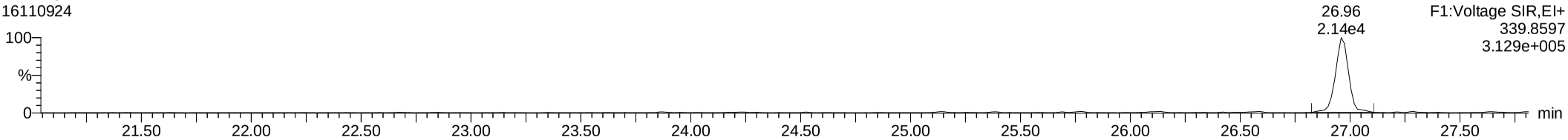
13C-12378-PeCDF



13C-12378-PeCDF



Total-penta1



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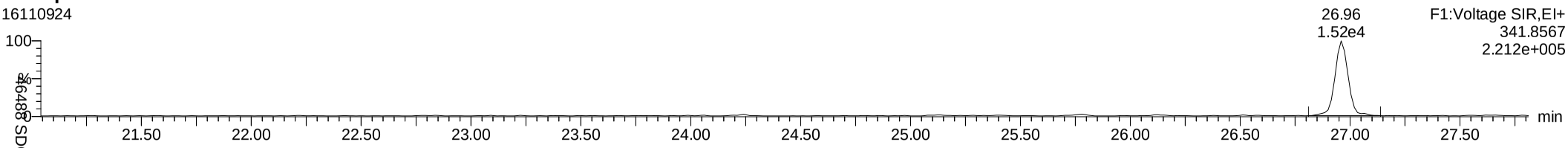
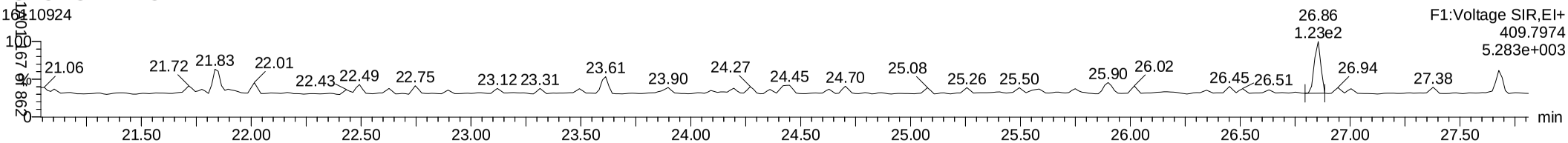


FUNCTION1 HPCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
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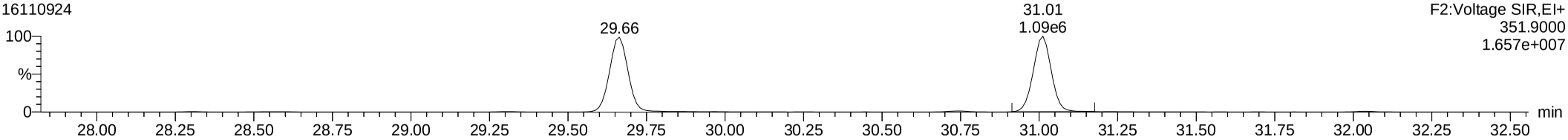
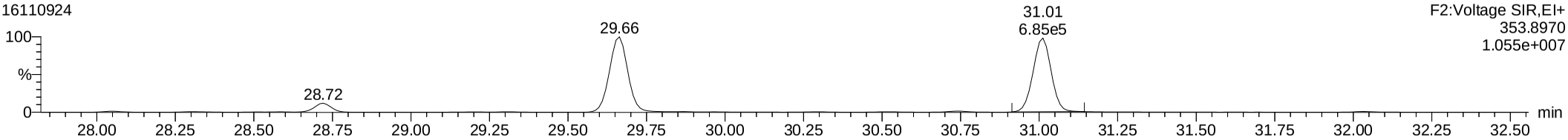
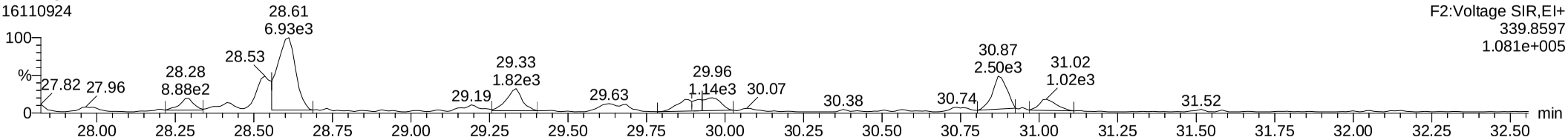
13C-23478-PeCDF



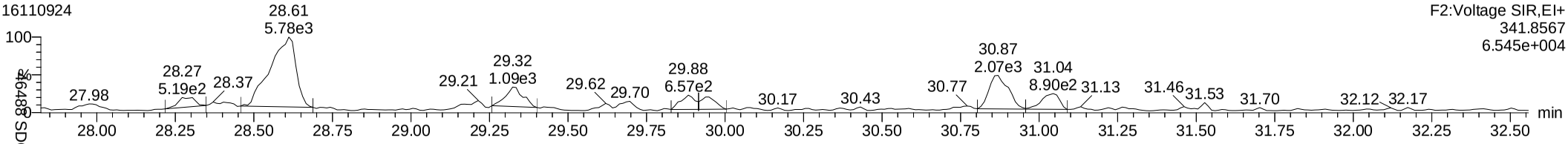
13C-23478-PeCDF



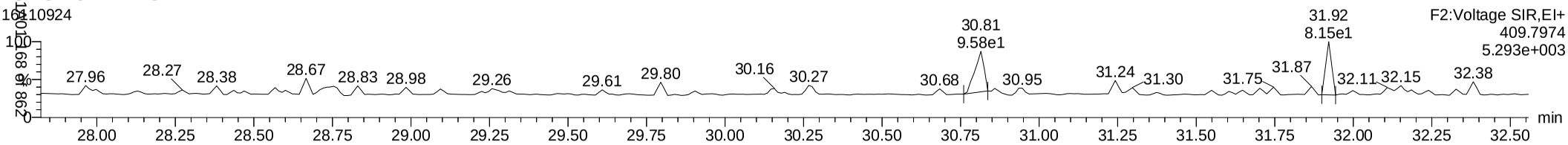
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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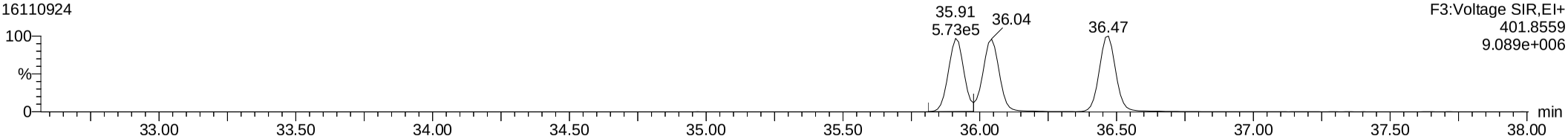
ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



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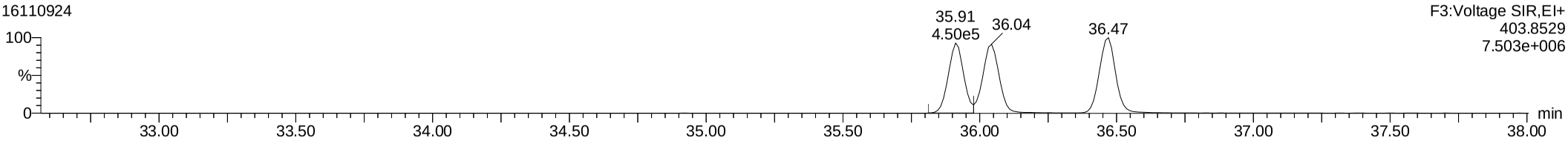
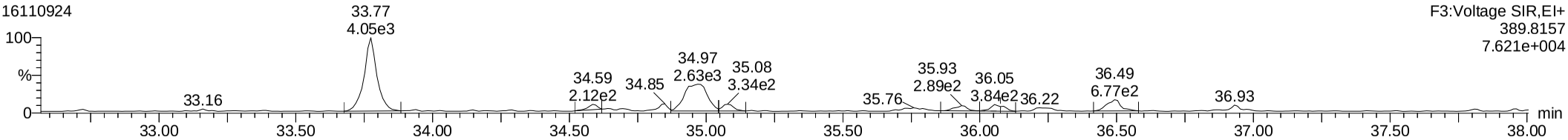
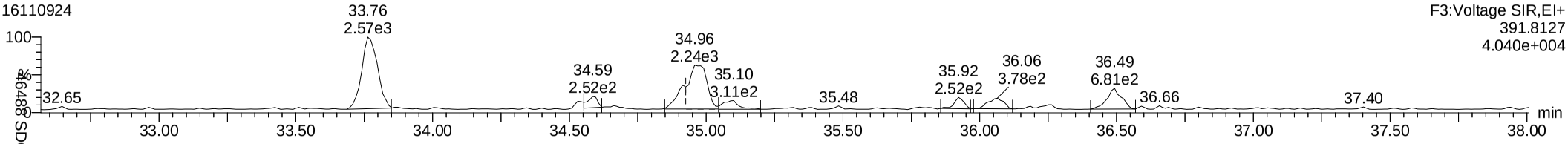


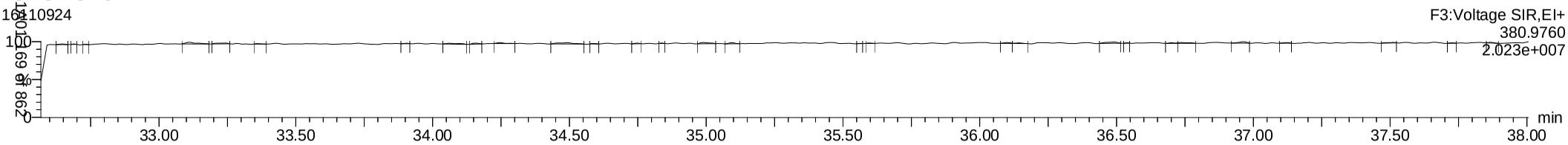
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



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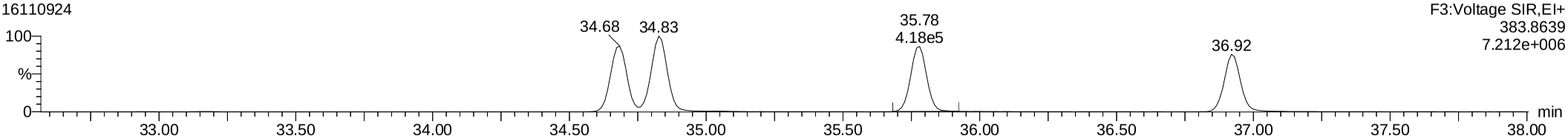
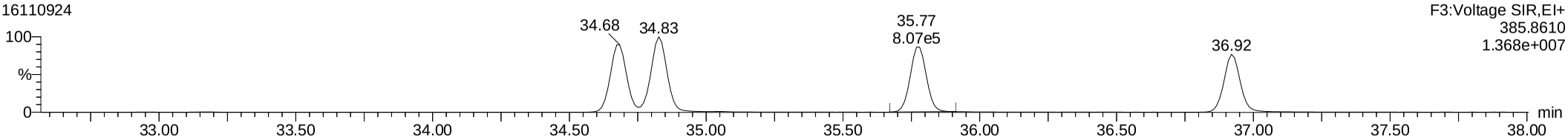
ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

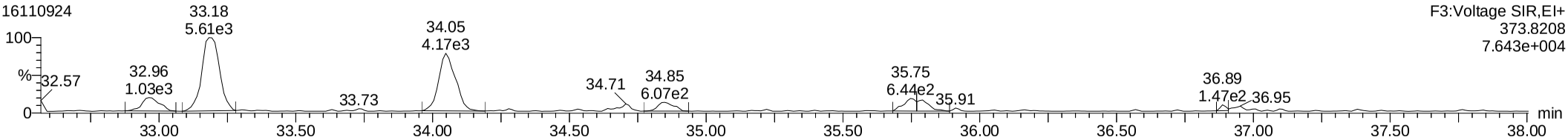
13C-234678-HxCDF



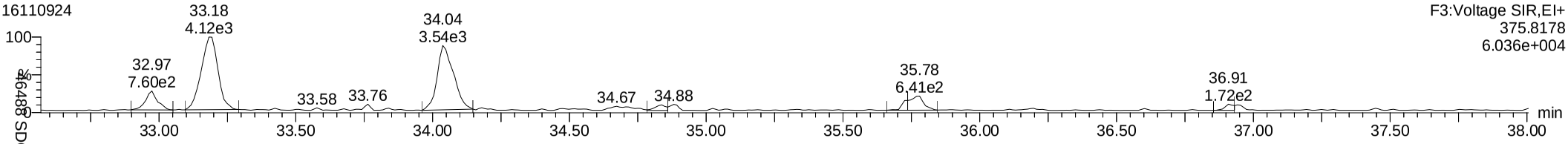
13C-234678-HxCDF



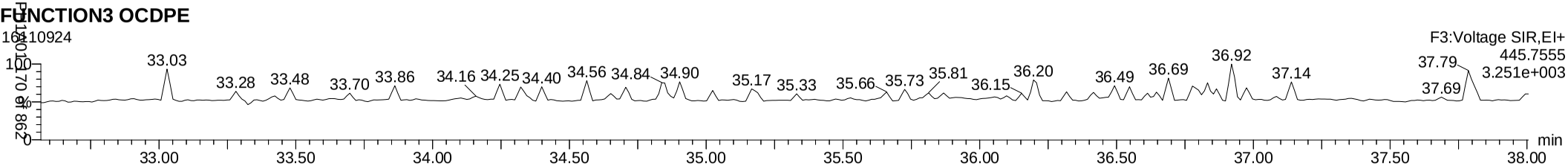
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
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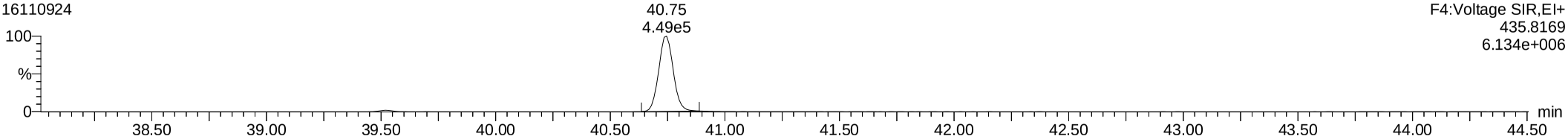
ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



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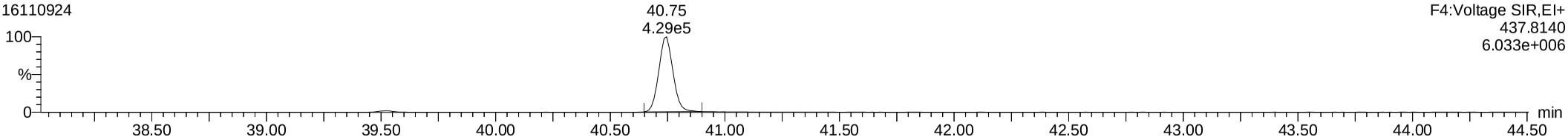
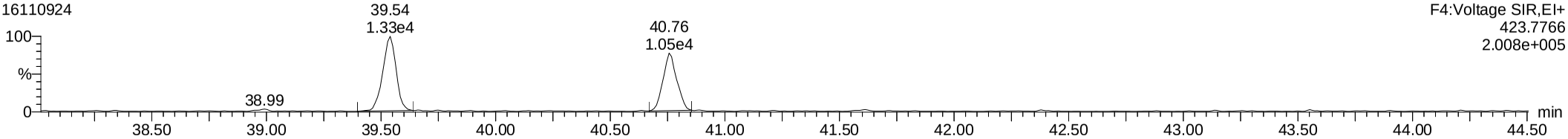
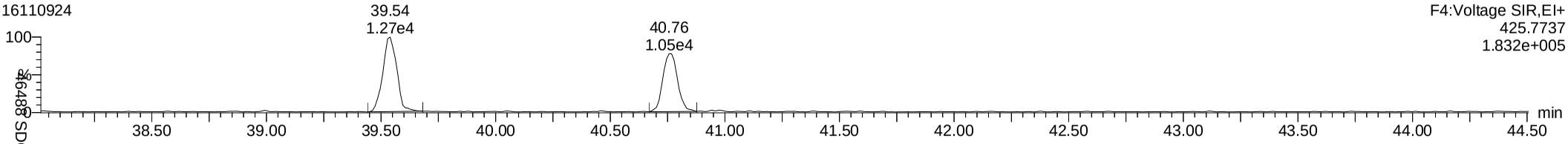


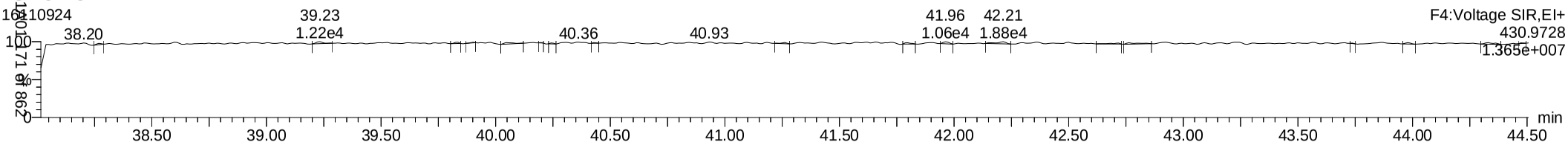
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



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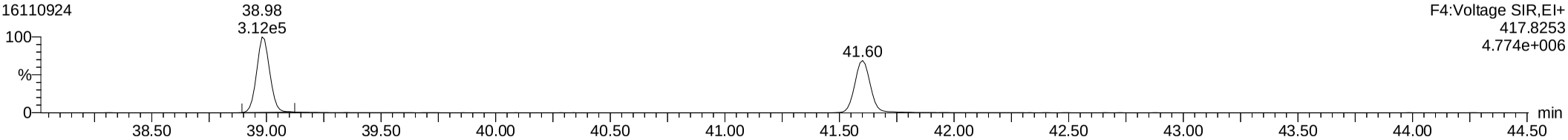
ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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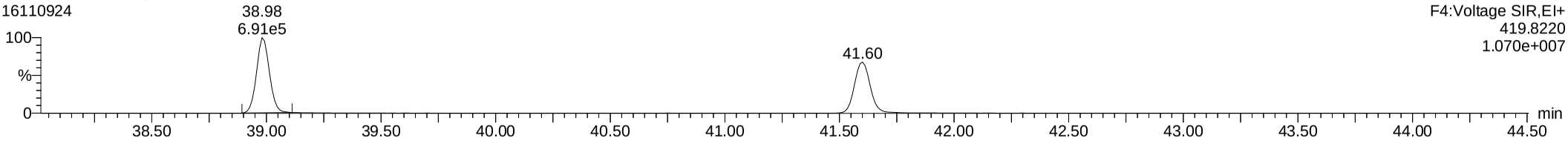

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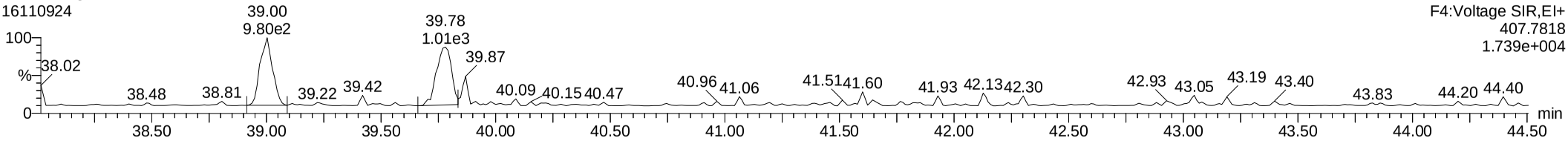

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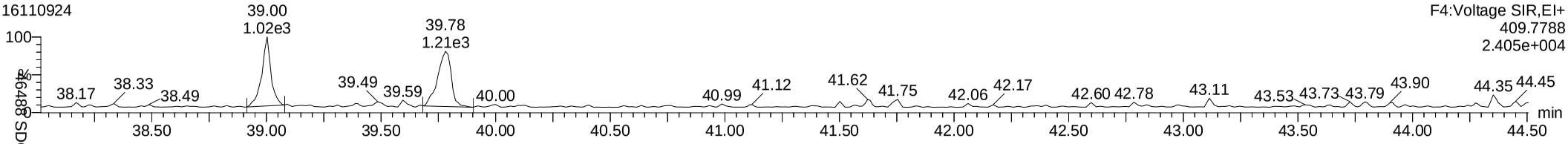
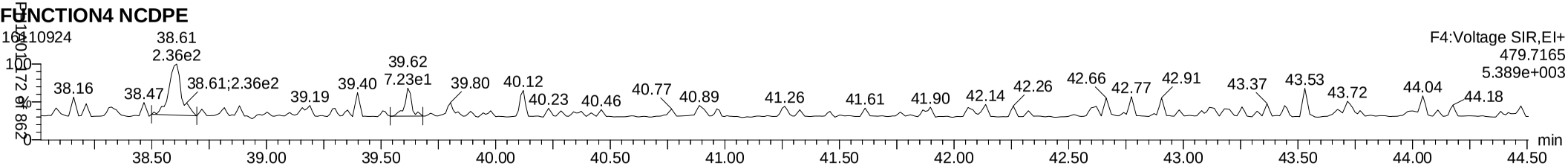


FUNCTION4 NCDPE

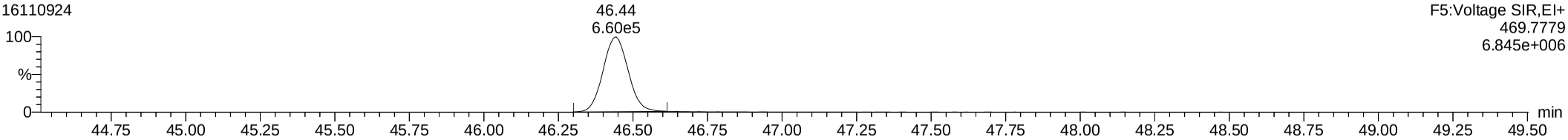


46488 SDG PH1A01 72 of 862

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:26:06 Pacific Standard Time

ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

13C-OCDD



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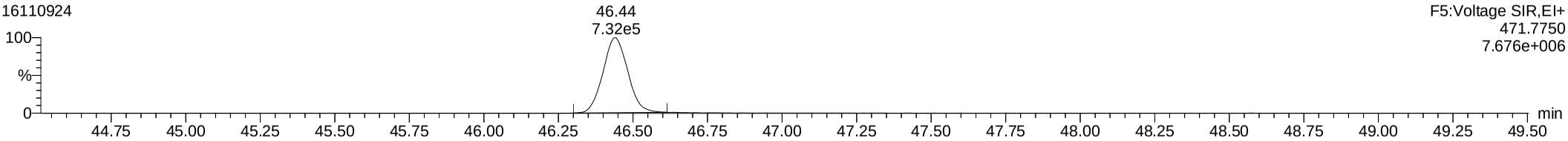

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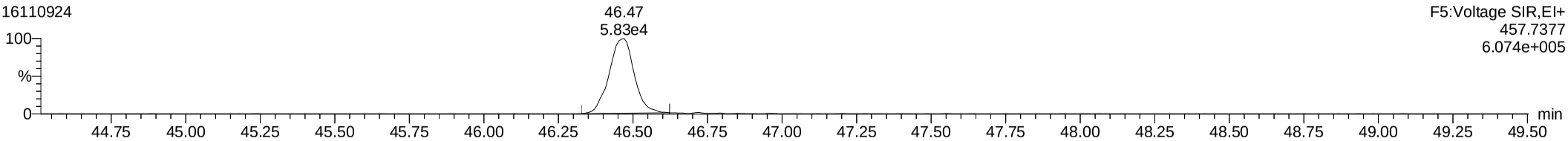

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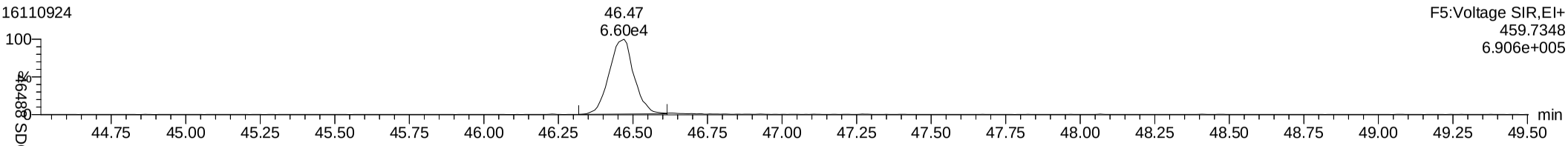
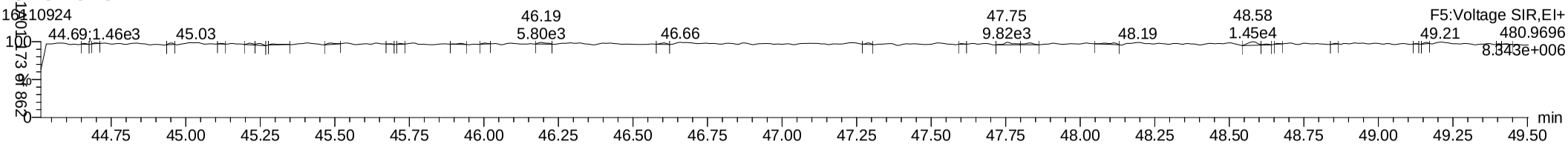


FUNCTION5 PFK



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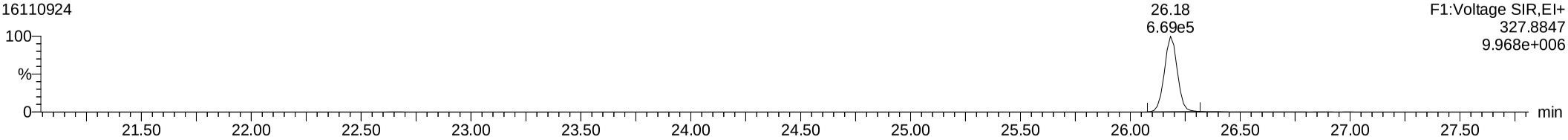
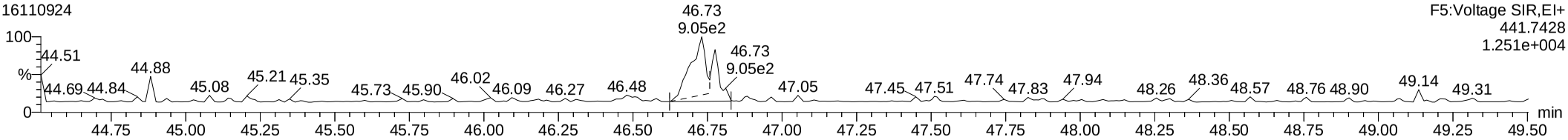
Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 15:24:55 Pacific Standard Time
Printed: Friday, November 11, 2016 11:26:06 Pacific Standard Time

ID: PH1A06, Name: 16110924, Date: 10-Nov-2016, Time: 08:14:56, Conditions: AUTOSPEC01, User: PK

37CL-2378-TCDD



OCDF



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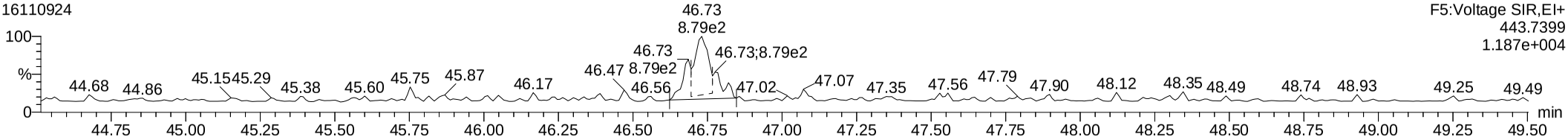
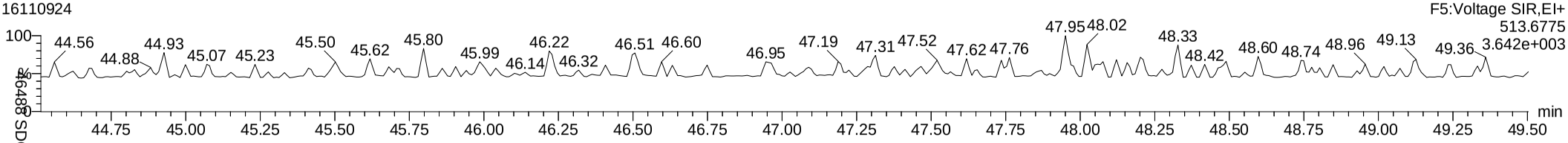


FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

DBLK07

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF

Lab Sample ID: BEK0165-BLK1

Sample wt/vol: 10 (g/ml) g

Lab File ID: 16110904

Decanted (Y/N): N Extraction Method: SDS

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2378-TCDD		UM	0.28		
5	12378-PeCDD		UM	0.75		
6	123478-HxCDD		UM	0.81		
6	123678-HxCDD		UM	0.88		
6	123789-HxCDD		UM	0.88		
7	1234678-HpCDD	4.1	J		1.071	40.7448
8	OCDD	33			0.877	46.4425
4	2378-TCDF		UM	0.20		
5	12378-PeCDF		UM	0.77		
5	23478-PeCDF		UM	0.91		
6	123478-HxCDF		UM	0.75		
6	123678-HxCDF		UM	0.82		
6	123789-HxCDF		UM	0.75		
6	234678-HxCDF		UM	0.84		
7	1234678-HpCDF		UM	0.53		
7	1234789-HpCDF		UM	0.63		
8	OCDF		UM	1.7		

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

DBLK07

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF Lab Sample ID: BEK0165-BLK1

Sample wt/vol: 10 (g/ml) g Lab File ID: 16110904

Decanted (Y/N): N Extraction Method: SDS Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2378-TCDD		x 1.0		x 1.0		x 1.0	
12378-PeCDD		x 1.0		x 1.0		x 1.0	
123478-HxCDD		x 0.1		x 0.5		0.05	
123678-HxCDD		x 0.1		x 0.01		x 0.01	
123789-HxCDD		x 0.1		x 0.01		x 0.1	
1234678-HpCDD	4.1	x 0.01	0.0410	x 0.001	0.0041	x 0.001	0.0041
OCDD	33	x 0.0003	0.0099	x 0.0001	0.0033	x 0.0001	0.0033
2378-TCDF		x 0.1		x 0.05		x 1.0	
12378-PeCDF		x 0.03		x 0.05		x 0.1	
23478-PeCDF		x 0.3		x 0.5		x 1.0	
123478-HxCDF		x 0.1		x 0.1		x 0.1	
123678-HxCDF		x 0.1		x 0.1		x 0.1	
123789-HxCDF		x 0.1		x 0.1		x 0.1	
234678-HxCDF		x 0.1		x 0.1		x 0.1	
1234678-HpCDF		x 0.01		x 0.01		x 0.01	
1234789-HpCDF		x 0.01		x 0.01		x 0.01	
OCDF		x 0.0003		x 0.0001		x 0.0001	
		Total TEQ =	0.051	Total TEQ =	0.0074	Total TEQ =	0.0074

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 1D-HR

TOTAL HOMOLOGUE DATA SUMMARY

EPA SAMPLE NO.

DBLK07

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF

Lab Sample ID: BEK0165-BLK1

Sample wt/vol: 10 (g/ml) g

Lab File ID: 16110904

Decanted (Y/N): N Extraction Method: SDS

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids:

Homologue	Peaks	Concentration	Q
Total TCDD	3	1.3	
Total PeCDD	1	0.23	
Total HxCDD	9	3.4	
Total HpCDD	2	10	
Total TCDF	1	0.03	
Total PeCDF	1	0.09	
Total HxCDF	2	0.21	
Total HpCDF	3	0.89	
OCDD	1	33	
OCDF			U
Total		49.1500	

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

DBLK07

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF Lab Sample ID: BEK0165-BLK1

Sample wt/vol: 10 (g/ml) g Lab File ID: 16110904

Decanted (Y/N): N Extraction Method: SDS Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2378-TCDD	200	180	92.2	0.78	26.1528
4	13C12-2378-TCDF	200	180	91.0	0.77	25.5255
5	13C12-12378-PeCDD	200	170	87.5	1.62	31.253
5	13C12-12378-PeCDF	200	180	87.6	1.63	29.6527
5	13C12-23478-PeCDF	200	170	87.1	1.57	31.0008
6	13C12-123478-HxCDD	200	180	91.9	1.28	35.9
6	13C12-123678-HxCDD	200	170	87.2	1.24	36.0315
6	13C12-123478-HxCDF	200	170	86.5	0.53	34.6725
6	13C12-123678-HxCDF	200	170	84.7	0.53	34.815
6	13C12-123789-HxCDF	200	170	86.2	0.53	36.9083
6	13C12-234678-HxCDF	200	170	84.5	0.52	35.7685
7	13C12-1234678-HpCDD	200	180	89.6	1.04	40.7338
7	13C12-1234678-HpCDF	200	160	79.9	0.45	38.9802
7	13C12-1234789-HpCDF	200	170	84.5	0.46	41.5888
8	13C12-OCDD	400	310	77.8	0.91	46.4247
Labeled Cleanup Standard 37C14-2378-TCDD						
4	37C14-2378-TCDD	80	80	99.9		26.1828

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:24 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: BEK0165-BLK1, Name: 16110904, Date: 09-Nov-2016, Time: 14:15:02, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF					0.935		0.770	796	1100					
12378-PeCDF	29.674	1.001	5.24e2	2.09e2	0.952	2.512	1.550	1020	1200	1.15e4	4.80e3	11.3	YES	0.045
23478-PeCDF					0.963		1.550	1020	1200					
123478-HxCDF					1.137		1.240	684	969					
234678-HxCDF	35.779	1.000	2.35e2	2.27e2	1.164	1.035	1.240	684	969	5.88e3	3.48e3	8.6	YES	0.037
123678-HxCDF					1.099		1.240	684	969					
123789-HxCDF	36.941	1.001	3.05e2	4.17e2	1.101	0.730	1.240	684	969	4.73e3	6.99e3	6.9	YES	0.068
1234678-HpCDF	38.991	1.000	9.53e2	8.72e2	1.303	1.093	1.050	771	1171	1.41e4	1.28e4	18.3	NO	0.157
1234789-HpCDF	41.611	1.000	2.56e2	2.72e2	1.317	0.939	1.050	771	1171	4.20e3	6.68e3	5.4	NO	0.057
OCDF	46.703	1.006	2.15e3	2.68e3	1.166	0.801	0.890	882	1246	2.54e4	2.84e4	28.8	NO	0.686
2378-TCDD	26.168	1.001	2.72e2	9.43e2	1.134	0.289	0.770	1313	942	5.01e3	1.35e4	3.8	YES	0.083
12378-PeCDD					0.975		1.550	1366	1043					
123478-HxCDD	35.922	1.001	4.72e2	2.94e2	1.031	1.605	1.240	1228	1231	8.54e3	4.69e3	7.0	YES	0.081
123678-HxCDD	36.064	1.001	3.66e2	4.25e2	0.971	0.860	1.240	1228	1231	5.57e3	8.11e3	4.5	YES	0.085
123789-HxCDD	36.470	1.012	1.09e3	6.70e2	0.947	1.627	1.240	1228	1231	1.78e4	1.16e4	14.5	YES	0.198
1234678-HpCDD	40.745	1.000	8.37e3	7.82e3	1.028	1.071	1.050	956	1024	1.13e5	1.02e5	118.3	NO	2.039
OCDD	46.443	1.000	5.18e4	5.91e4	1.107	0.877	0.890	824	1192	5.03e5	5.99e5	610.6	NO	16.571
13C-2378-TCDF	25.525	1.007	9.58e5	1.24e6	1.567	0.772	0.770	5386	3527	1.44e7	1.87e7	2670.3	NO	91.020
13C-12378-PeCDF	29.653	1.170	1.07e6	6.56e5	1.274	1.625	1.550	3486	2895	1.59e7	9.79e6	4557.3	NO	87.633
13C-23478-PeCDF	31.001	1.223	1.01e6	6.46e5	1.235	1.567	1.550	3486	2895	1.52e7	9.63e6	4365.6	NO	87.122
13C-123478-HxCDF	34.673	0.951	3.92e5	7.41e5	1.381	0.530	0.510	3162	3930	5.89e6	1.11e7	1862.2	NO	86.519
13C-123678-HxCDF	34.815	0.955	4.37e5	8.23e5	1.569	0.531	0.510	3162	3930	6.19e6	1.19e7	1957.6	NO	84.666
13C-234678-HxCDF	35.769	0.981	3.67e5	7.11e5	1.345	0.516	0.510	3162	3930	5.38e6	1.04e7	1702.0	NO	84.472
13C-123789-HxCDF	36.908	1.012	3.35e5	6.32e5	1.183	0.530	0.510	3162	3930	4.75e6	9.06e6	1501.6	NO	86.191
13C-1234678-HpCDF	38.980	1.069	2.76e5	6.17e5	1.178	0.448	0.440	3080	2825	4.01e6	9.01e6	1301.0	NO	79.913
13C-1234789-HpCDF	41.589	1.141	2.21e5	4.82e5	0.878	0.460	0.440	3080	2825	2.78e6	6.19e6	902.0	NO	84.472
13C-1234-TCDD	25.346	0.000	6.78e5	8.64e5	1.000	0.785	0.770	2804	2883	1.03e7	1.30e7	3681.2	NO	100.000
13C-2378-TCDD	26.153	1.032	5.66e5	7.25e5	0.908	0.780	0.770	2804	2883	8.36e6	1.08e7	2982.3	NO	92.220
13C-12378-PeCDD	31.253	1.233	6.30e5	3.89e5	0.756	1.621	1.550	1283	1097	9.50e6	5.85e6	7404.8	NO	87.474
13C-123478-HxCDD	35.900	0.985	5.16e5	4.04e5	1.056	1.278	1.240	2198	1336	7.67e6	6.07e6	3492.2	NO	91.867
13C-123678-HxCDD	36.032	0.988	5.32e5	4.30e5	1.163	1.238	1.240	2198	1336	7.79e6	6.25e6	3544.1	NO	87.229
13C-1234678-HpCDD	40.734	1.117	3.94e5	3.79e5	0.909	1.040	1.050	2967	1691	5.35e6	5.11e6	1804.0	NO	89.622
13C-OCDD	46.425	1.273	5.76e5	6.33e5	0.820	0.910	0.890	2137	3829	5.84e6	6.36e6	2731.5	NO	155.530
13C-123789-HxCDD	36.459	0.000	5.28e5	4.20e5	1.000	1.258	1.240	2198	1336	7.73e6	6.13e6	3516.9	NO	100.000
Total-tetrafurans			1.44e2		0.935			796		2.89e3				0.015

9448 OCPDA01 1792

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:24 Pacific Standard Time

ID: BEK0165-BLK1, Name: 16110904, Date: 09-Nov-2016, Time: 14:15:02, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					440		0.00e0				
Total-pentafurans			5.24e2		0.957			1020		1.15e4				0.045
Total-hexafurans			5.39e2		1.125			684		1.06e4				0.105
Total-heptafurans			2.70e3		1.310			771		3.79e4				0.448
Total-Furans			6.06e3		1.114			796		8.84e4				1.299
Total-tetradioxins			4.04e3		1.134			1313		5.87e4				0.657
Total-pentadioxins			3.75e2		0.975			1366		8.85e3				0.077
Total-hexadioxins			9.26e3		0.983			1228		1.35e5				1.747
Total-heptadioxins			2.06e4		1.028			956		2.93e5				5.004
Total-Dioxins			8.61e4		1.028			1313		9.99e5				24.056
Total-TEQ			9.21e4					1313		1.09e6				25.354
37CL-2378-TCDD	26.183	1.033	6.57e5		1.067			1163		9.54e6		8203.3		39.959
FUNCTION1 PFK			8.44e7					430643		1.17e8				
FUNCTION2 PFK			1.51e5					123808		4.38e6				0.000
FUNCTION3 PFK			3.00e5					306982		8.74e6				0.000
FUNCTION4 PFK			2.62e5					287773		8.37e6				
FUNCTION5 PFK			1.08e4					204953		4.66e5				
FUNCTION1 HXCD...			1.29e2					363		3.78e3				0.000
FUNCTION1 HPCD...			1.48e2					567		2.89e3				0.000
FUNCTION2 HPCD...			7.51e1					545		1.84e3				0.000
FUNCTION3 OCDPE			0.00e0					727		0.00e0				
FUNCTION4 NCDPE			8.21e1					638		2.77e3				0.000
FUNCTION5 DCDPE			1.21e2					1279		5.89e3				0.000

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: BEK0165-BLK1, Name: 16110904, Date: 09-Nov-2016, Time: 14:15:02, Conditions: AUTOSPEC01, User: PK

TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	22.90	310.179	0.935	0.015		0.87	0.77	NO	3.6

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	2	12378-PeCDF	339.8597	29.67	732.274	0.952	0.045	0.032	2.51	1.55	YES	11.3

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	7	123789-HxCDF	373.8208	36.94	722.050	1.101	0.068	0.052	0.73	1.24	YES	6.9
2	5	234678-HxCDF	373.8208	35.78	461.509	1.164	0.037	0.034	1.04	1.24	YES	8.6

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	9	1234789-HpCDF	407.7818	41.61	528.389	1.317	0.057	0.057	0.94	1.05	NO	5.4
2	39	Total-heptafurans	407.7818	39.76	2451.089	1.310	0.234		1.55	1.05	YES	25.4
3	8	1234678-HpCDF	407.7818	38.99	1825.349	1.303	0.157	0.157	1.09	1.05	NO	18.3

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	22.90	310.179	0.935	0.015		0.87	0.77	NO	3.6
2	2	12378-PeCDF	339.8597	29.67	732.274	0.952	0.045	0.032	2.51	1.55	YES	11.3
3	7	123789-HxCDF	373.8208	36.94	722.050	1.101	0.068	0.052	0.73	1.24	YES	6.9
4	5	234678-HxCDF	373.8208	35.78	461.509	1.164	0.037	0.034	1.04	1.24	YES	8.6
5	9	1234789-HpCDF	407.7818	41.61	528.389	1.317	0.057	0.057	0.94	1.05	NO	5.4
6	39	Total-heptafurans	407.7818	39.76	2451.089	1.310	0.234		1.55	1.05	YES	25.4
7	8	1234678-HpCDF	407.7818	38.99	1825.349	1.303	0.157	0.157	1.09	1.05	NO	18.3
8	10	OCDF	441.7428	46.70	4830.306	1.166	0.686	0.686	0.80	0.89	NO	28.8

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	24.33	7924.823	1.134	0.541		0.78	0.77	NO	36.7
2	41	Total-tetradioxins	319.8965	23.61	470.139	1.134	0.032		1.59	0.77	YES	4.2
3	11	2378-TCDD	319.8965	26.17	1214.790	1.134	0.083	0.043	0.29	0.77	YES	3.8

PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	42	Total-pentadioxins	355.8546	29.08	762.602	0.975	0.077		0.97	1.55	YES	6.5

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HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	43	Total-hexadioxins	389.8157	36.56	231.890	0.983	0.025		0.76	1.24	YES	3.2
2	15	123789-HxCDD	389.8157	36.47	1760.993	0.947	0.198	0.169	1.63	1.24	YES	14.5
3	43	Total-hexadioxins	389.8157	36.22	339.953	0.983	0.037		2.33	1.24	YES	4.8
4	14	123678-HxCDD	389.8157	36.06	790.792	0.971	0.085	0.071	0.86	1.24	YES	4.5
5	13	123478-HxCDD	389.8157	35.92	766.909	1.031	0.081	0.070	1.60	1.24	YES	7.0
6	43	Total-hexadioxins	389.8157	35.06	617.670	0.983	0.067		2.53	1.24	YES	7.8
7	43	Total-hexadioxins	389.8157	34.95	3368.982	0.983	0.364		1.90	1.24	YES	19.1
8	43	Total-hexadioxins	389.8157	34.56	841.136	0.983	0.091		1.45	1.24	YES	7.1
9	43	Total-hexadioxins	389.8157	33.76	7401.345	0.983	0.800		1.08	1.24	NO	42.1

HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.74	16191.128	1.028	2.039	2.039	1.07	1.05	NO	118.3
2	44	Total-heptadioxins	423.7766	39.53	23547.442	1.028	2.965		1.08	1.05	NO	188.2

Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	24.33	7924.823	1.134	0.541		0.78	0.77	NO	36.7
2	41	Total-tetradioxins	319.8965	23.61	470.139	1.134	0.032		1.59	0.77	YES	4.2
3	11	2378-TCDD	319.8965	26.17	1214.790	1.134	0.083	0.043	0.29	0.77	YES	3.8
4	42	Total-pentadioxins	355.8546	29.08	762.602	0.975	0.077		0.97	1.55	YES	6.5
5	43	Total-hexadioxins	389.8157	36.56	231.890	0.983	0.025		0.76	1.24	YES	3.2
6	15	123789-HxCDD	389.8157	36.47	1760.993	0.947	0.198	0.169	1.63	1.24	YES	14.5
7	43	Total-hexadioxins	389.8157	36.22	339.953	0.983	0.037		2.33	1.24	YES	4.8
8	14	123678-HxCDD	389.8157	36.06	790.792	0.971	0.085	0.071	0.86	1.24	YES	4.5
9	13	123478-HxCDD	389.8157	35.92	766.909	1.031	0.081	0.070	1.60	1.24	YES	7.0
10	43	Total-hexadioxins	389.8157	35.06	617.670	0.983	0.067		2.53	1.24	YES	7.8
11	43	Total-hexadioxins	389.8157	34.95	3368.982	0.983	0.364		1.90	1.24	YES	19.1
12	43	Total-hexadioxins	389.8157	34.56	841.136	0.983	0.091		1.45	1.24	YES	7.1
13	43	Total-hexadioxins	389.8157	33.76	7401.345	0.983	0.800		1.08	1.24	NO	42.1
14	16	1234678-HpCDD	423.7766	40.74	16191.128	1.028	2.039	2.039	1.07	1.05	NO	118.3
15	44	Total-heptadioxins	423.7766	39.53	23547.442	1.028	2.965		1.08	1.05	NO	188.2
16	17	OCDD	457.7377	46.44	110854.196	1.107	16.571	16.571	0.88	0.89	NO	610.6

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TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	22.90	310.179	0.935	0.015		0.87	0.77	NO	3.6
2	2	12378-PeCDF	339.8597	29.67	732.274	0.952	0.045	0.032	2.51	1.55	YES	11.3
3	7	123789-HxCDF	373.8208	36.94	722.050	1.101	0.068	0.052	0.73	1.24	YES	6.9
4	5	234678-HxCDF	373.8208	35.78	461.509	1.164	0.037	0.034	1.04	1.24	YES	8.6
5	9	1234789-HpCDF	407.7818	41.61	528.389	1.317	0.057	0.057	0.94	1.05	NO	5.4
6	39	Total-heptafurans	407.7818	39.76	2451.089	1.310	0.234		1.55	1.05	YES	25.4
7	8	1234678-HpCDF	407.7818	38.99	1825.349	1.303	0.157	0.157	1.09	1.05	NO	18.3
8	10	OCDF	441.7428	46.70	4830.306	1.166	0.686	0.686	0.80	0.89	NO	28.8
9	41	Total-tetradioxins	319.8965	24.33	7924.823	1.134	0.541		0.78	0.77	NO	36.7
10	41	Total-tetradioxins	319.8965	23.61	470.139	1.134	0.032		1.59	0.77	YES	4.2
11	11	2378-TCDD	319.8965	26.17	1214.790	1.134	0.083	0.043	0.29	0.77	YES	3.8
12	42	Total-pentadioxins	355.8546	29.08	762.602	0.975	0.077		0.97	1.55	YES	6.5
13	43	Total-hexadioxins	389.8157	36.56	231.890	0.983	0.025		0.76	1.24	YES	3.2
14	15	123789-HxCDD	389.8157	36.47	1760.993	0.947	0.198	0.169	1.63	1.24	YES	14.5
15	43	Total-hexadioxins	389.8157	36.22	339.953	0.983	0.037		2.33	1.24	YES	4.8
16	14	123678-HxCDD	389.8157	36.06	790.792	0.971	0.085	0.071	0.86	1.24	YES	4.5
17	13	123478-HxCDD	389.8157	35.92	766.909	1.031	0.081	0.070	1.60	1.24	YES	7.0
18	43	Total-hexadioxins	389.8157	35.06	617.670	0.983	0.067		2.53	1.24	YES	7.8
19	43	Total-hexadioxins	389.8157	34.95	3368.982	0.983	0.364		1.90	1.24	YES	19.1
20	43	Total-hexadioxins	389.8157	34.56	841.136	0.983	0.091		1.45	1.24	YES	7.1
21	43	Total-hexadioxins	389.8157	33.76	7401.345	0.983	0.800		1.08	1.24	NO	42.1
22	16	1234678-HpCDD	423.7766	40.74	16191.128	1.028	2.039	2.039	1.07	1.05	NO	118.3
23	44	Total-heptadioxins	423.7766	39.53	23547.442	1.028	2.965		1.08	1.05	NO	188.2
24	17	OCDD	457.7377	46.44	110854.196	1.107	16.571	16.571	0.88	0.89	NO	610.6

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	24.32	0.000							7.3
2	48	FUNCTION1 PFK	330.9792	23.63	0.000							34.5
3	48	FUNCTION1 PFK	330.9792	23.55	0.000							38.2
4	48	FUNCTION1 PFK	330.9792	22.12	0.000							89.3
5	48	FUNCTION1 PFK	330.9792	21.79	0.000							102.6

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	28.25	0.000		0.000					1.2
2	49	FUNCTION2 PFK	366.9792	28.17	0.000		0.000					0.5
3	49	FUNCTION2 PFK	366.9792	28.06	0.000		0.000					0.9
4	49	FUNCTION2 PFK	366.9792	27.88	0.000		0.000					2.5
5	49	FUNCTION2 PFK	366.9792	31.04	0.000		0.000					0.7
6	49	FUNCTION2 PFK	366.9792	30.74	0.000		0.000					1.1
7	49	FUNCTION2 PFK	366.9792	30.45	0.000		0.000					1.7
8	49	FUNCTION2 PFK	366.9792	30.29	0.000		0.000					0.4
9	49	FUNCTION2 PFK	366.9792	30.23	0.000		0.000					0.9
10	49	FUNCTION2 PFK	366.9792	30.18	0.000		0.000					0.9
11	49	FUNCTION2 PFK	366.9792	29.87	0.000		0.000					1.1
12	49	FUNCTION2 PFK	366.9792	29.82	0.000		0.000					0.5
13	49	FUNCTION2 PFK	366.9792	29.49	0.000		0.000					2.1
14	49	FUNCTION2 PFK	366.9792	29.42	0.000		0.000					2.1
15	49	FUNCTION2 PFK	366.9792	29.36	0.000		0.000					2.1
16	49	FUNCTION2 PFK	366.9792	29.31	0.000		0.000					0.9
17	49	FUNCTION2 PFK	366.9792	29.27	0.000		0.000					1.2
18	49	FUNCTION2 PFK	366.9792	28.97	0.000		0.000					1.1
19	49	FUNCTION2 PFK	366.9792	28.79	0.000		0.000					1.3
20	49	FUNCTION2 PFK	366.9792	28.71	0.000		0.000					1.6
21	49	FUNCTION2 PFK	366.9792	32.24	0.000		0.000					0.5
22	49	FUNCTION2 PFK	366.9792	32.18	0.000		0.000					0.8
23	49	FUNCTION2 PFK	366.9792	32.14	0.000		0.000					1.9
24	49	FUNCTION2 PFK	366.9792	32.02	0.000		0.000					0.4
25	49	FUNCTION2 PFK	366.9792	31.98	0.000		0.000					0.5
26	49	FUNCTION2 PFK	366.9792	31.80	0.000		0.000					1.2
27	49	FUNCTION2 PFK	366.9792	31.76	0.000		0.000					1.7
28	49	FUNCTION2 PFK	366.9792	31.53	0.000		0.000					0.8
29	49	FUNCTION2 PFK	366.9792	31.40	0.000		0.000					1.5
30	49	FUNCTION2 PFK	366.9792	31.33	0.000		0.000					1.2

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	33.07	0.000		0.000					2.4
2	50	FUNCTION3 PFK	380.9760	33.02	0.000		0.000					1.4
3	50	FUNCTION3 PFK	380.9760	32.93	0.000		0.000					1.9
4	50	FUNCTION3 PFK	380.9760	32.79	0.000		0.000					0.7
5	50	FUNCTION3 PFK	380.9760	32.68	0.000		0.000					1.7
6	50	FUNCTION3 PFK	380.9760	37.41	0.000		0.000					2.2
7	50	FUNCTION3 PFK	380.9760	37.34	0.000		0.000					1.8
8	50	FUNCTION3 PFK	380.9760	37.22	0.000		0.000					1.7
9	50	FUNCTION3 PFK	380.9760	36.88	0.000		0.000					1.4
10	50	FUNCTION3 PFK	380.9760	36.59	0.000		0.000					2.4
11	50	FUNCTION3 PFK	380.9760	36.20	0.000		0.000					0.6
12	50	FUNCTION3 PFK	380.9760	36.15	0.000		0.000					0.8
13	50	FUNCTION3 PFK	380.9760	35.44	0.000		0.000					1.3
14	50	FUNCTION3 PFK	380.9760	35.00	0.000		0.000					0.5
15	50	FUNCTION3 PFK	380.9760	34.64	0.000		0.000					1.2
16	50	FUNCTION3 PFK	380.9760	34.31	0.000		0.000					1.0
17	50	FUNCTION3 PFK	380.9760	34.03	0.000		0.000					2.1
18	50	FUNCTION3 PFK	380.9760	33.81	0.000		0.000					1.4
19	50	FUNCTION3 PFK	380.9760	33.51	0.000		0.000					0.6
20	50	FUNCTION3 PFK	380.9760	33.48	0.000		0.000					1.4

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	42.58	0.000							0.7
2	51	FUNCTION4 PFK	430.9728	42.42	0.000							1.1
3	51	FUNCTION4 PFK	430.9728	41.57	0.000							1.2
4	51	FUNCTION4 PFK	430.9728	41.40	0.000							1.4
5	51	FUNCTION4 PFK	430.9728	41.35	0.000							2.2
6	51	FUNCTION4 PFK	430.9728	41.23	0.000							0.8
7	51	FUNCTION4 PFK	430.9728	41.06	0.000							1.3
8	51	FUNCTION4 PFK	430.9728	40.71	0.000							1.3
9	51	FUNCTION4 PFK	430.9728	40.64	0.000							1.2
10	51	FUNCTION4 PFK	430.9728	40.39	0.000							2.5
11	51	FUNCTION4 PFK	430.9728	40.19	0.000							0.7
12	51	FUNCTION4 PFK	430.9728	39.70	0.000							2.7
13	51	FUNCTION4 PFK	430.9728	39.52	0.000							0.9
14	51	FUNCTION4 PFK	430.9728	39.07	0.000							0.6
15	51	FUNCTION4 PFK	430.9728	38.50	0.000							2.4
16	51	FUNCTION4 PFK	430.9728	38.41	0.000							2.2
17	51	FUNCTION4 PFK	430.9728	43.62	0.000							1.5
18	51	FUNCTION4 PFK	430.9728	43.51	0.000							0.5
19	51	FUNCTION4 PFK	430.9728	43.36	0.000							1.1
20	51	FUNCTION4 PFK	430.9728	43.09	0.000							0.8
21	51	FUNCTION4 PFK	430.9728	42.77	0.000							0.7
22	51	FUNCTION4 PFK	430.9728	42.72	0.000							1.2

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	45.87	0.000							2.3

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ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	21.91	0.000		0.000					10.4

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	26.48	0.000		0.000					3.0
2	54	FUNCTION1 HPCD...	409.7974	23.08	0.000		0.000					2.1

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	31.47	0.000		0.000					3.4

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	38.63	0.000		0.000					4.3

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
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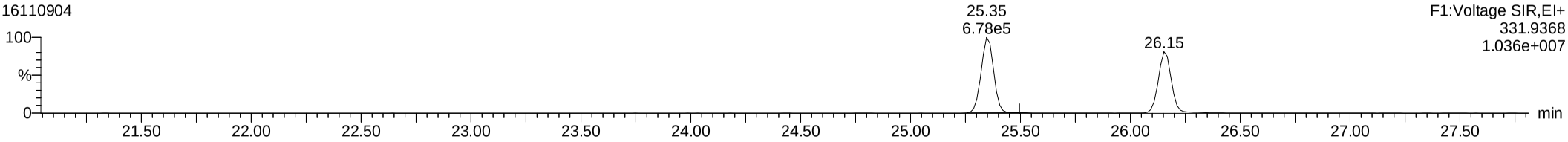
Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:24 Pacific Standard Time

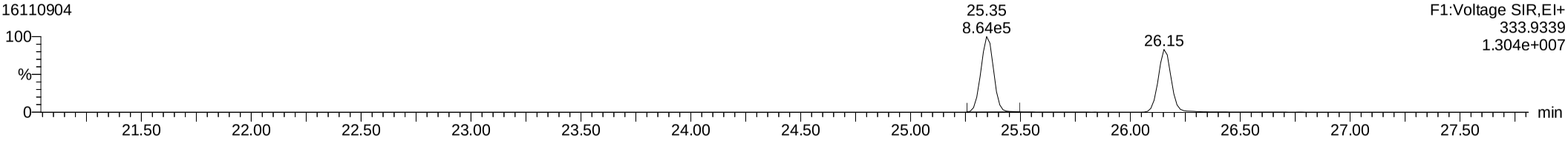
Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: BEK0165-BLK1, Name: 16110904, Date: 09-Nov-2016, Time: 14:15:02, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



13C-1234-TCDD



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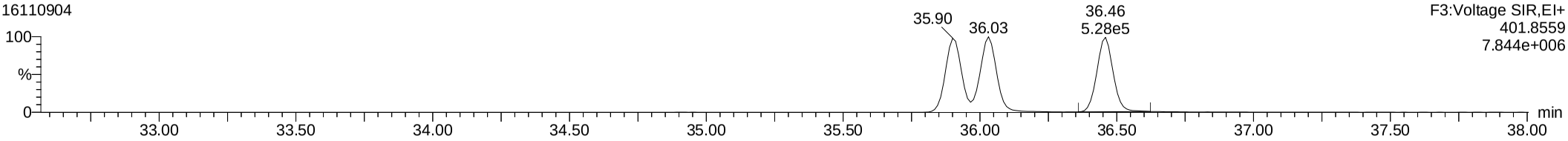

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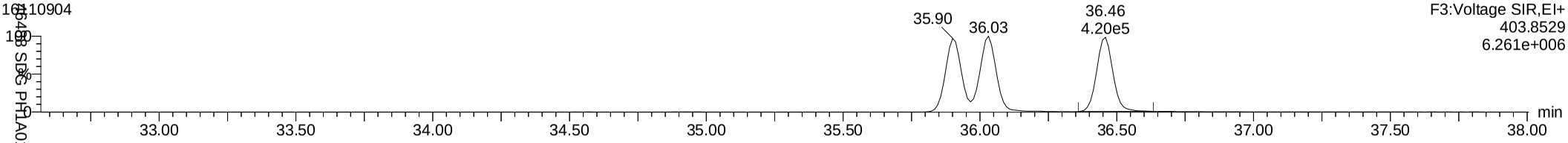

16458 SDG PH1A01 187 of 862

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
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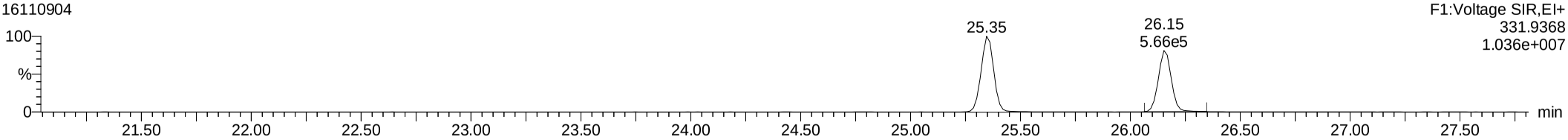
ID: BEK0165-BLK1, Name: 16110904, Date: 09-Nov-2016, Time: 14:15:02, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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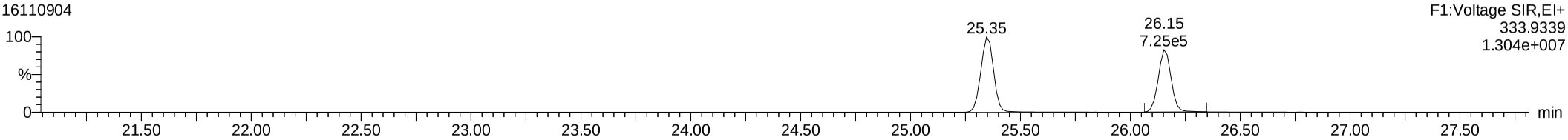

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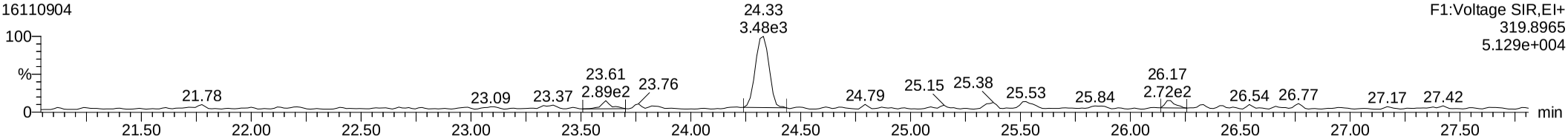

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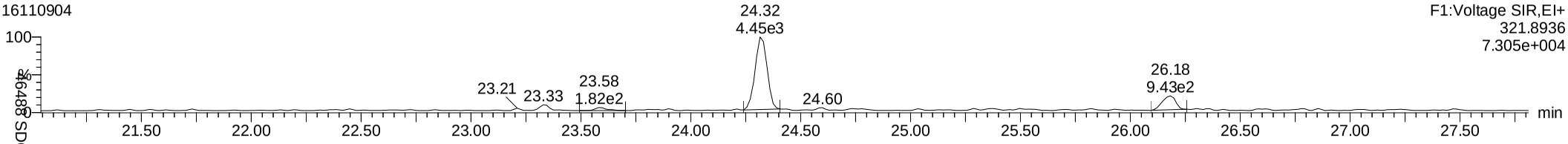

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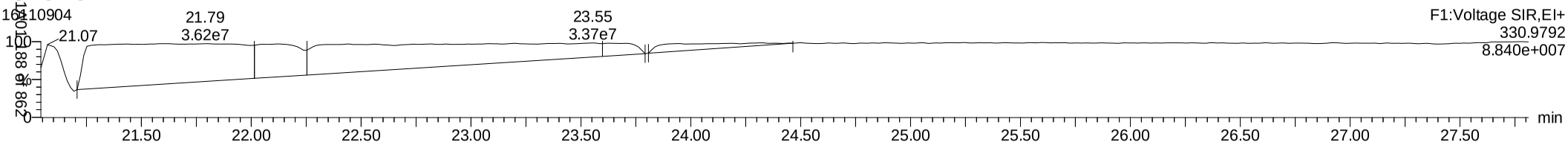

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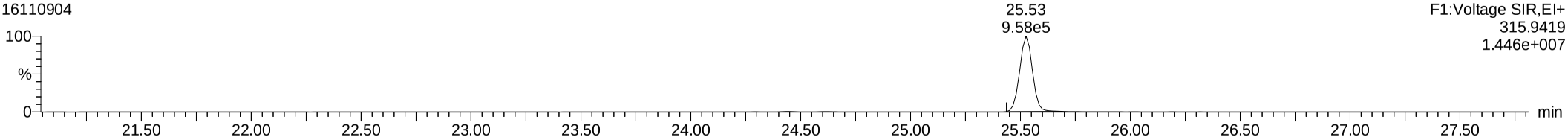

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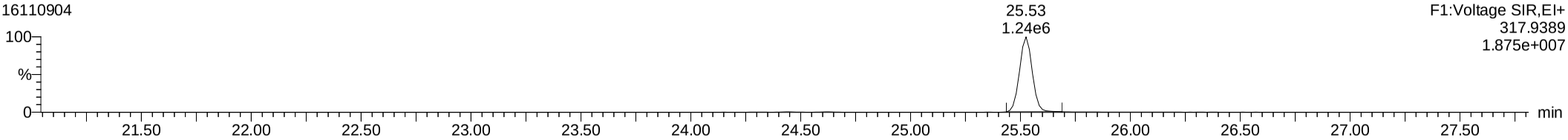

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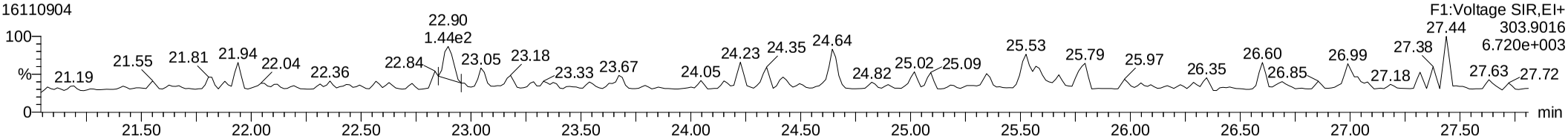

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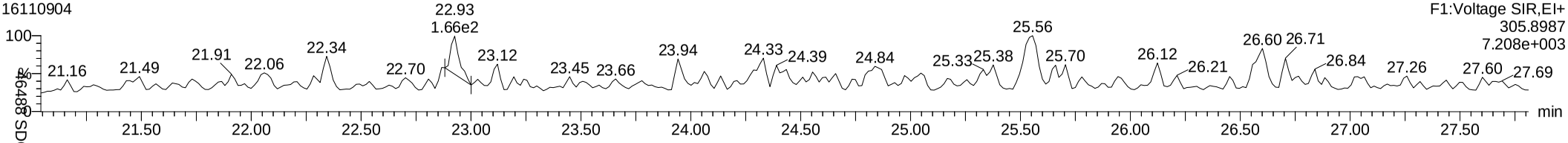

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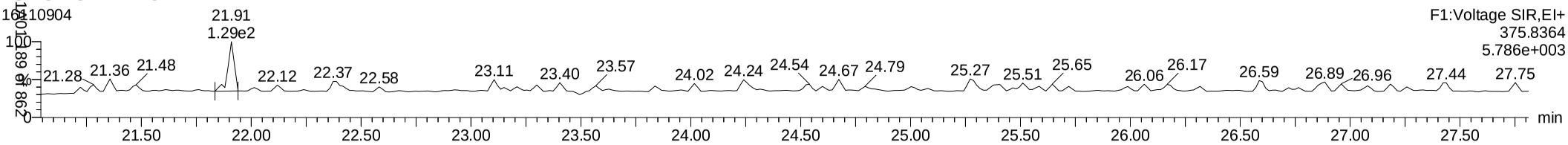

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:24 Pacific Standard Time

ID: BEK0165-BLK1, Name: 16110904, Date: 09-Nov-2016, Time: 14:15:02, Conditions: AUTOSPEC01, User: PK

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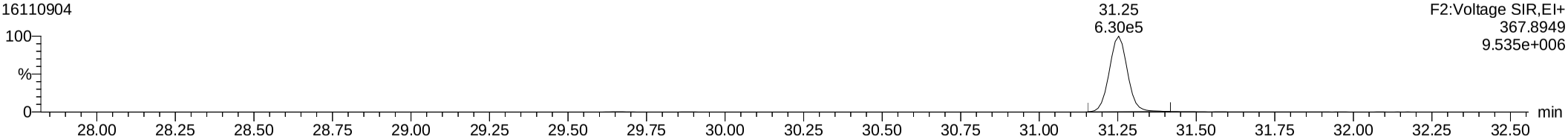

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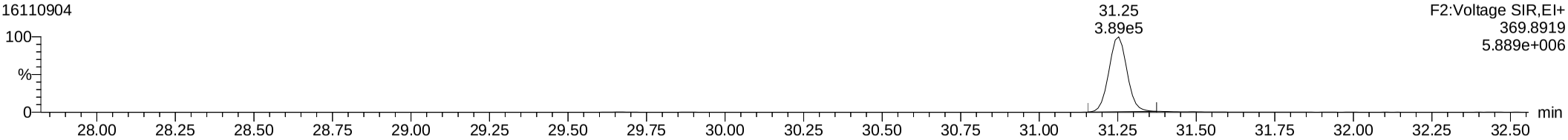

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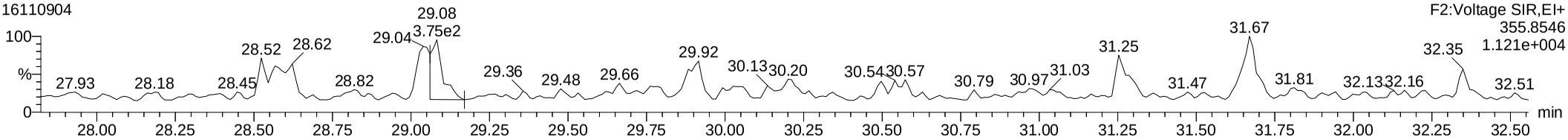

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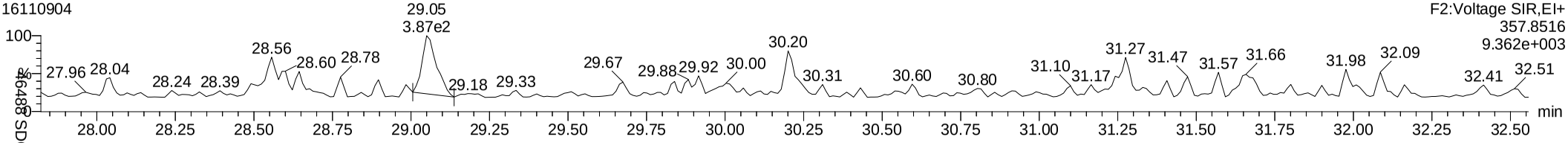

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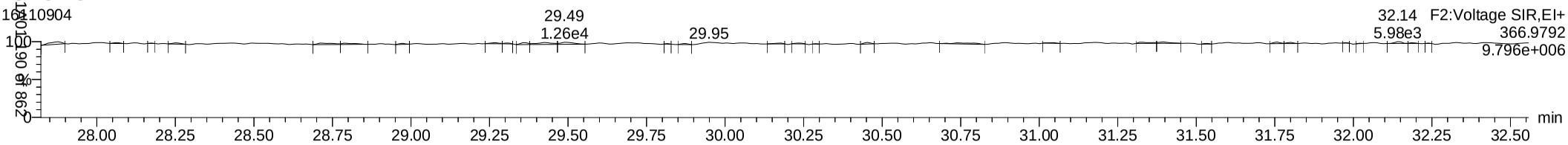

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Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
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ID: BEK0165-BLK1, Name: 16110904, Date: 09-Nov-2016, Time: 14:15:02, Conditions: AUTOSPEC01, User: PK

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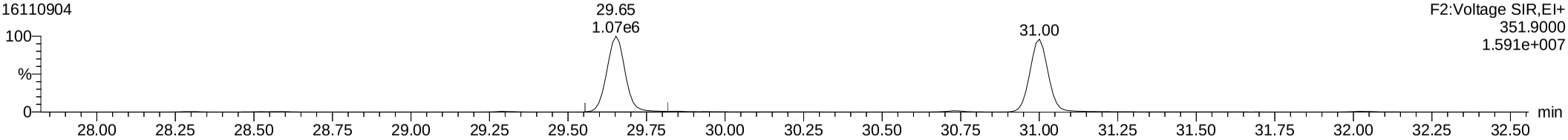

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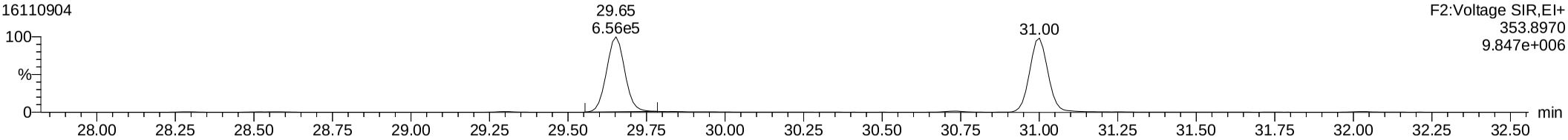

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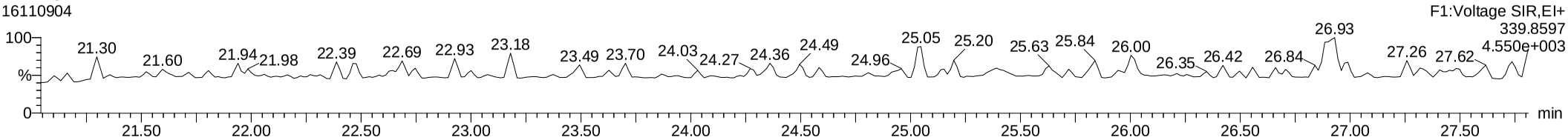

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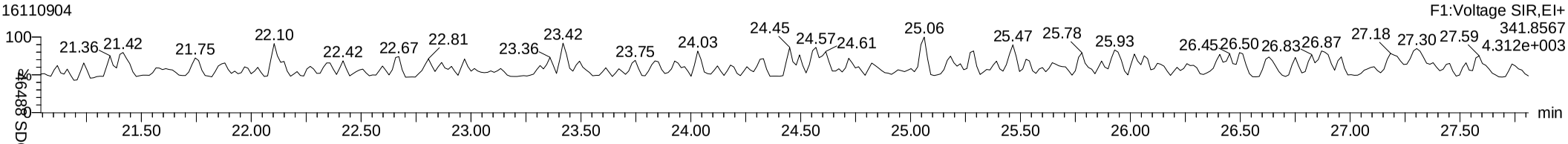

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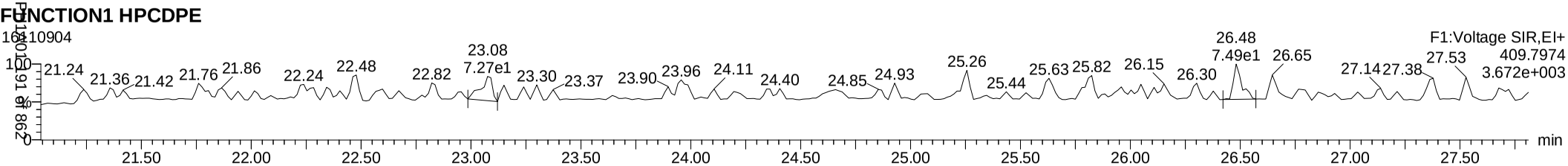

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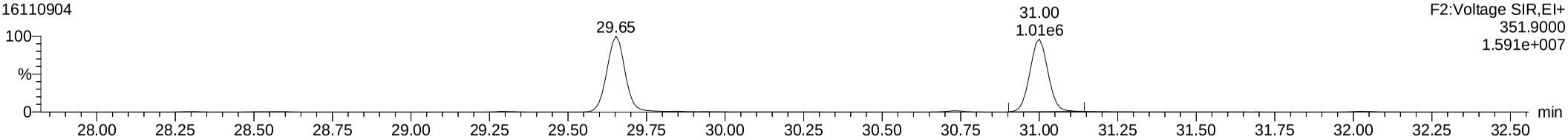
ID: BEK0165-BLK1, Name: 16110904, Date: 09-Nov-2016, Time: 14:15:02, Conditions: AUTOSPEC01, User: PK

13C-23478-PeCDF



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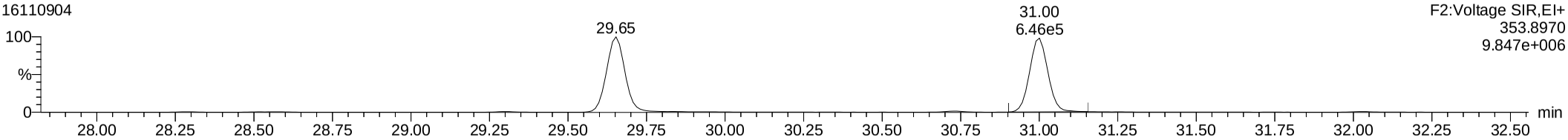
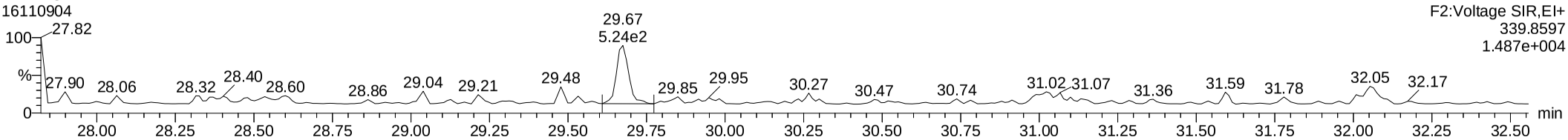


Total-pentafurans



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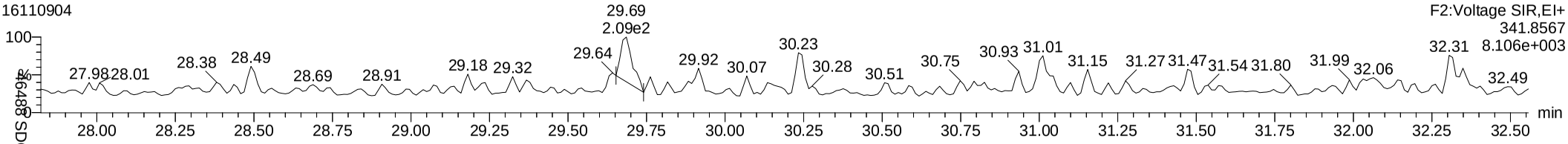

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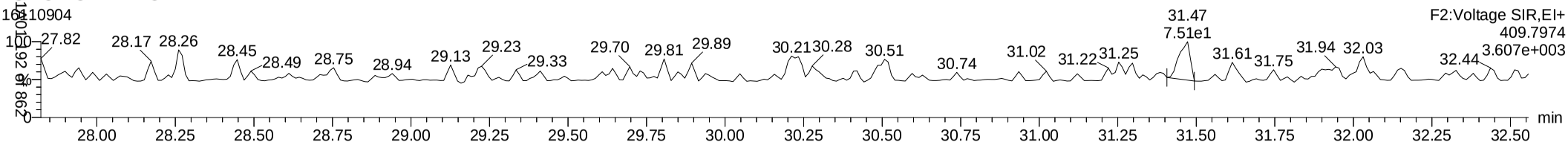

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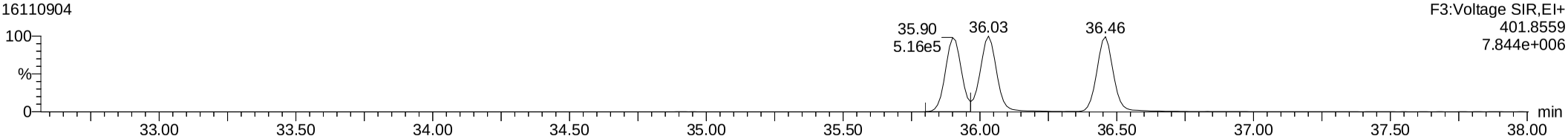

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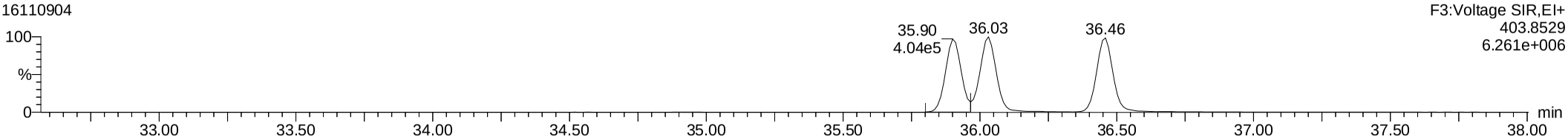

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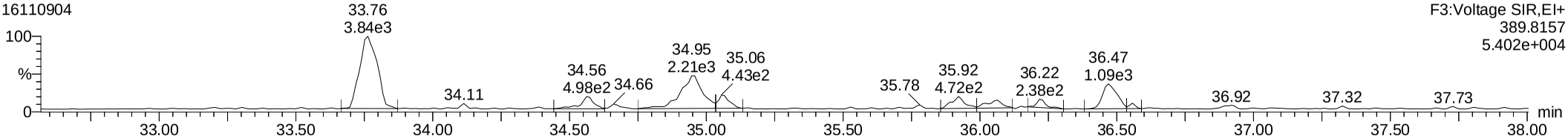

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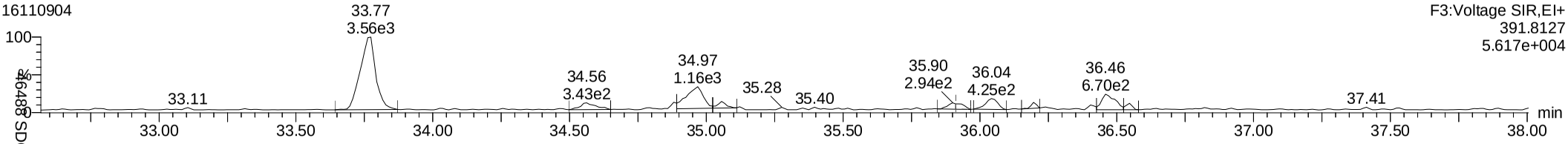

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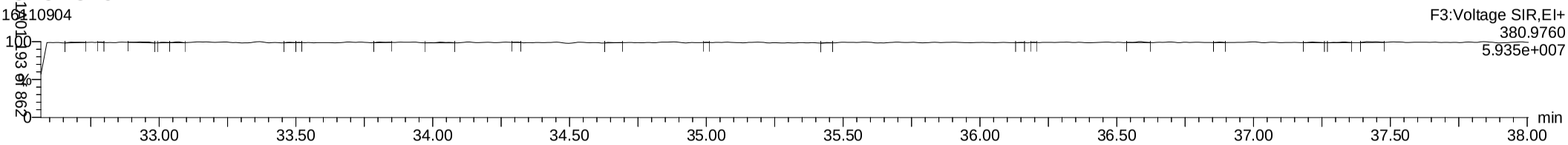

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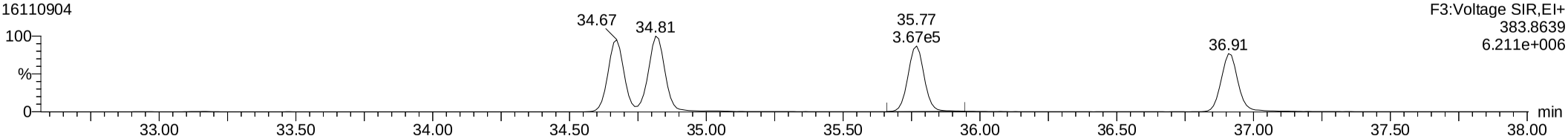

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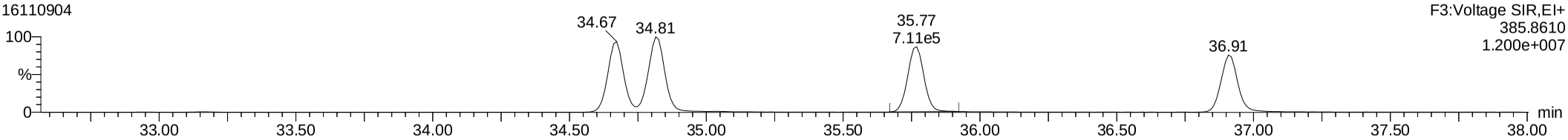
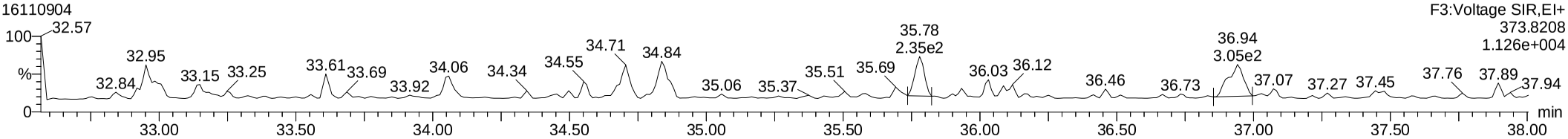


Total-hexafurans



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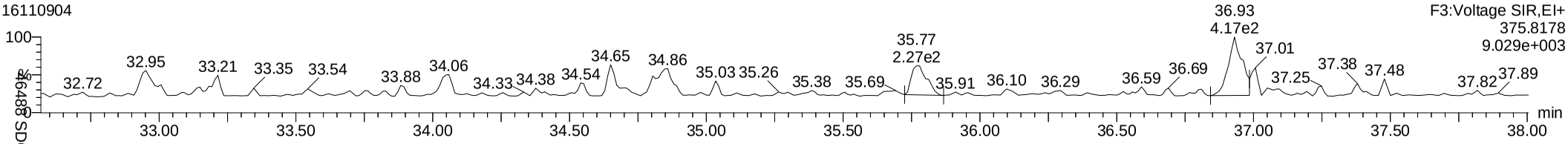
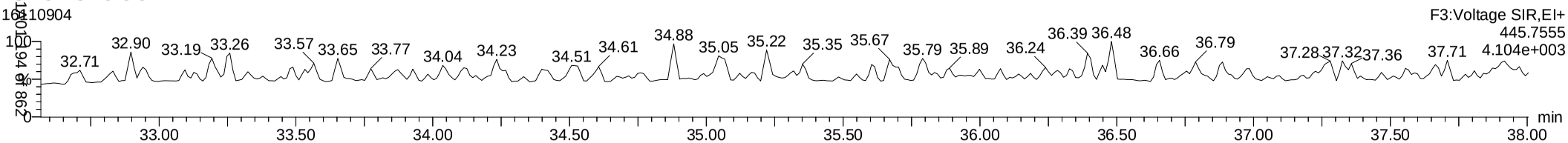


FUNCTION3 OCDPE



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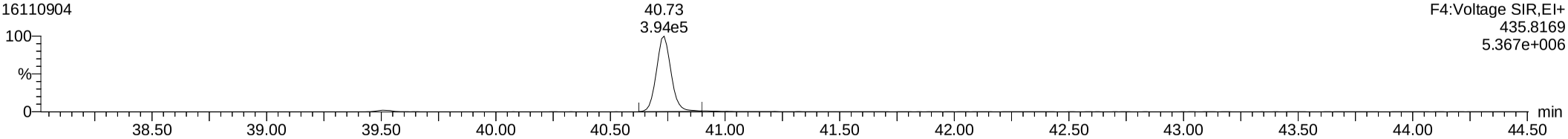
13C-1234678-HpCDD



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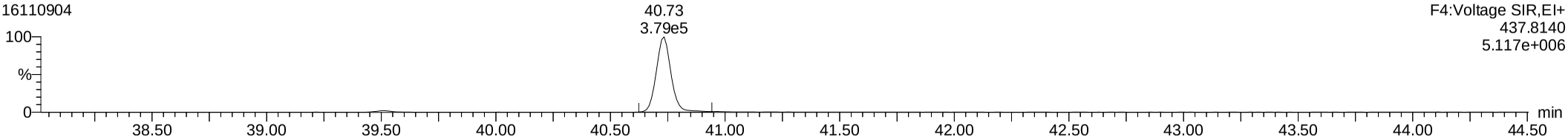
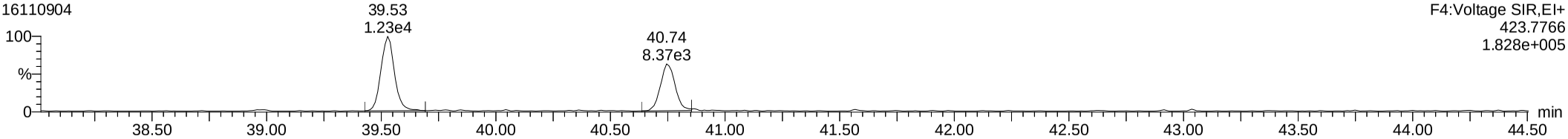


Total-heptadioxins



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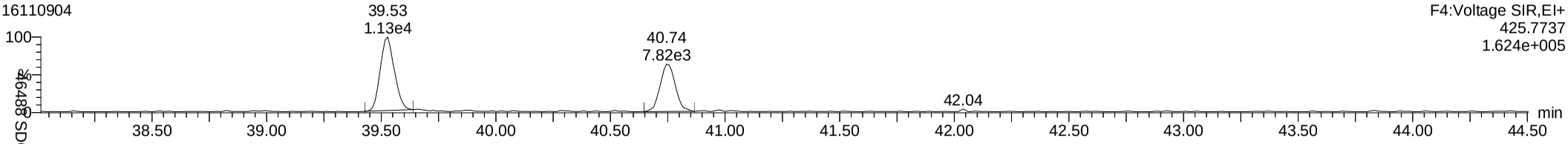
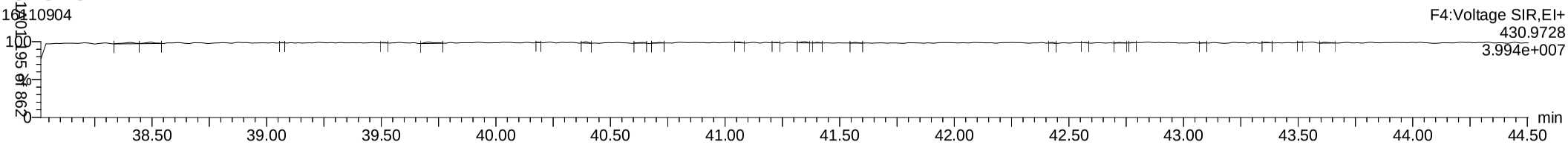


FUNCTION4 PFK



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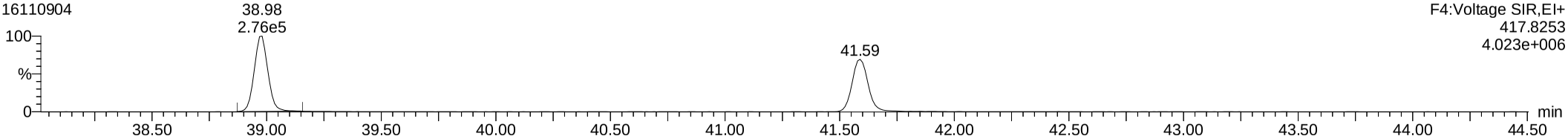

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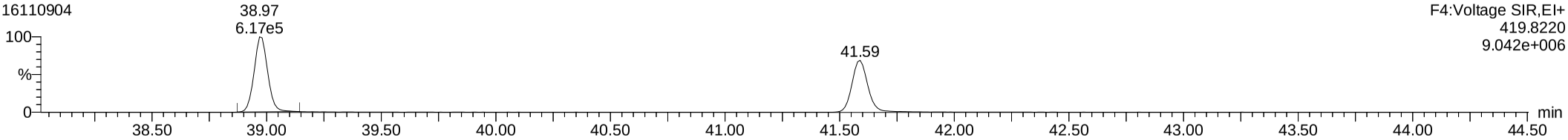
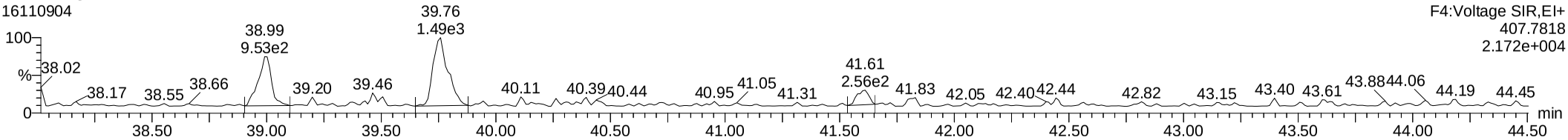


Total-heptafurans



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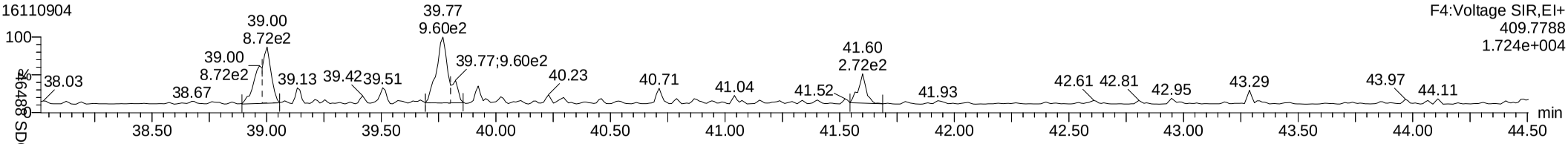
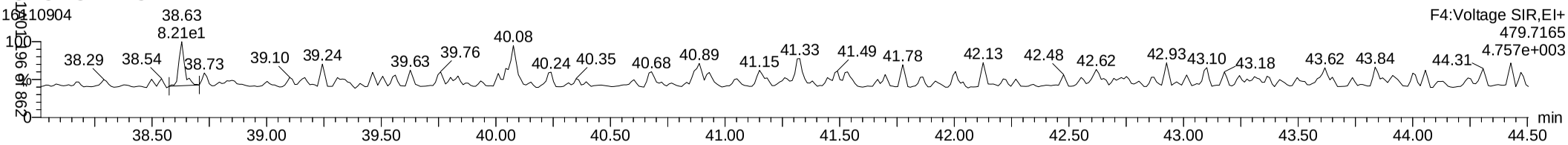


FUNCTION4 NCDPE



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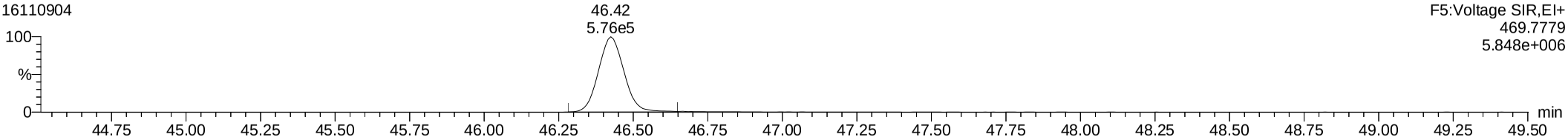
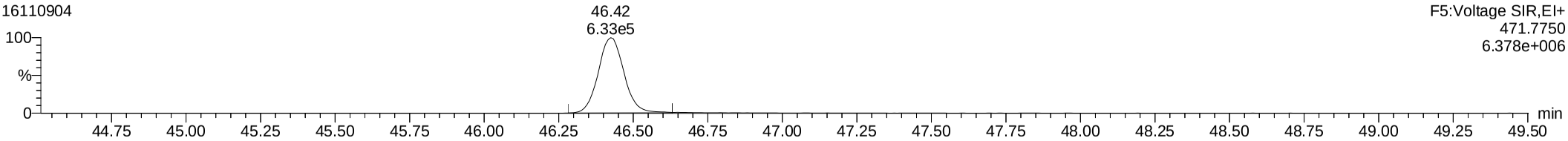
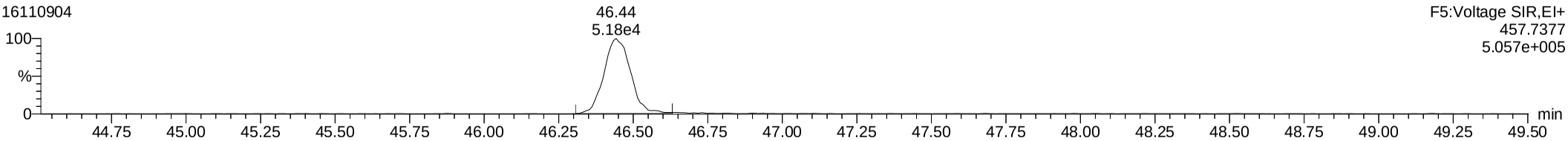
13C-OCDD



13C-OCDD



OCDD



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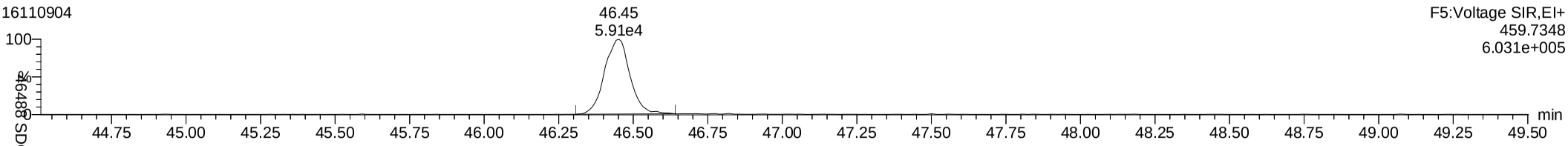
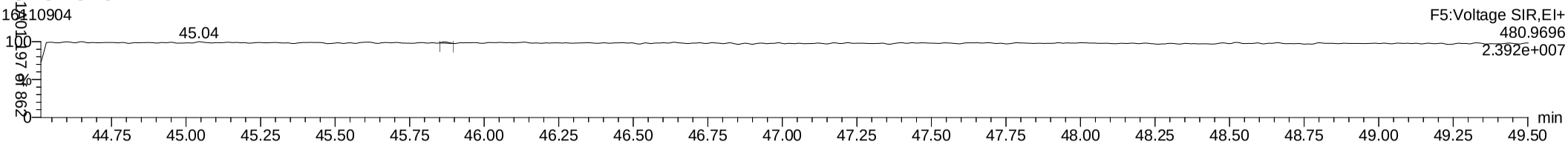


FUNCTION5 PFK

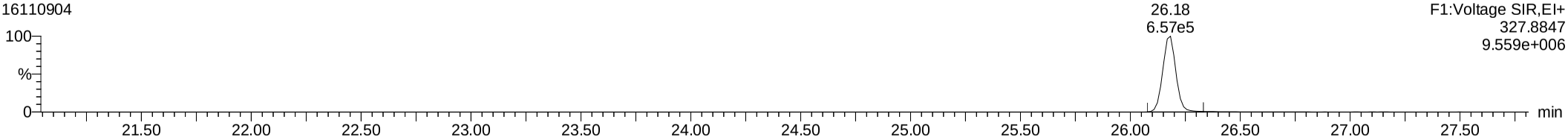


46488 SDG PH1001 97 of 862

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:24 Pacific Standard Time

ID: BEK0165-BLK1, Name: 16110904, Date: 09-Nov-2016, Time: 14:15:02, Conditions: AUTOSPEC01, User: PK

37CL-2378-TCDD



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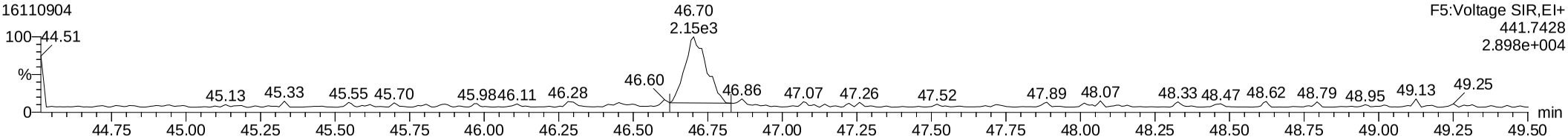

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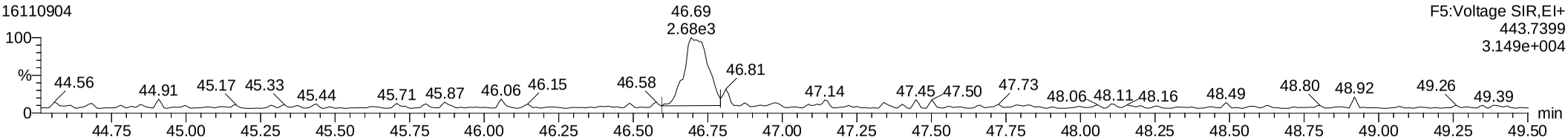
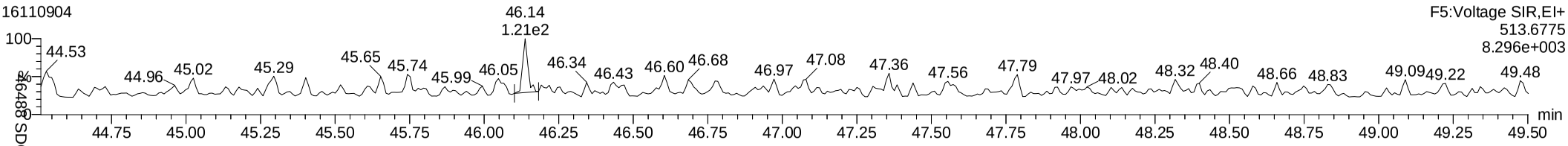


FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

DLCS07

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF

Lab Sample ID: BEK0165-BS1

Sample wt/vol: 10 (g/ml) g

Lab File ID: 16110905

Decanted (Y/N): N Extraction Method: SDS

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2378-TCDD	21			0.775	26.1828
5	12378-PeCDD	110			1.559	31.275
6	123478-HxCDD	100			1.265	35.9227
6	123678-HxCDD	110			1.215	36.0543
6	123789-HxCDD	110			1.240	36.4817
7	1234678-HpCDD	110	B		1.064	40.7568
8	OCDD	220	B		0.859	46.4528
4	2378-TCDF	21			0.755	25.5553
5	12378-PeCDF	100			1.569	29.6747
5	23478-PeCDF	100			1.556	31.0228
6	123478-HxCDF	100			1.220	34.695
6	123678-HxCDF	100			1.231	34.8485
6	123789-HxCDF	100			1.277	36.9312
6	234678-HxCDF	110			1.231	35.7912
7	1234678-HpCDF	110			1.016	38.992
7	1234789-HpCDF	100			1.060	41.6118
8	OCDF	210			0.914	46.722

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

DLCS07

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF Lab Sample ID: BEK0165-BS1

Sample wt/vol: 10 (g/ml) g Lab File ID: 16110905

Decanted (Y/N): N Extraction Method: SDS Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2378-TCDD	21	x 1.0	21.0000	x 1.0	21.0000	x 1.0	21.0000
12378-PeCDD	110	x 1.0	110.0000	x 1.0	110.0000	x 1.0	110.0000
123478-HxCDD	100	x 0.1	10.0000	x 0.5	50.0000	0.05	5.0000
123678-HxCDD	110	x 0.1	11.0000	x 0.01	1.1000	x 0.01	11.0000
123789-HxCDD	110	x 0.1	11.0000	x 0.01	1.1000	x 0.1	11.0000
1234678-HpCDD	110	x 0.01	1.1000	x 0.001	0.1100	x 0.001	0.1100
OCDD	220	x 0.0003	0.0660	x 0.0001	0.0220	x 0.0001	0.0220
2378-TCDF	21	x 0.1	2.1000	x 0.05	1.0500	x 1.0	2.1000
12378-PeCDF	100	x 0.03	3.0000	x 0.05	5.0000	x 0.1	10.0000
23478-PeCDF	100	x 0.3	30.0000	x 0.5	50.0000	x 1.0	100.0000
123478-HxCDF	100	x 0.1	10.0000	x 0.1	10.0000	x 0.1	10.0000
123678-HxCDF	100	x 0.1	10.0000	x 0.1	10.0000	x 0.1	10.0000
123789-HxCDF	100	x 0.1	10.0000	x 0.1	10.0000	x 0.1	10.0000
234678-HxCDF	110	x 0.1	11.0000	x 0.1	11.0000	x 0.1	11.0000
1234678-HpCDF	110	x 0.01	1.1000	x 0.01	1.1000	x 0.01	1.1000
1234789-HpCDF	100	x 0.01	1.0000	x 0.01	1.0000	x 0.01	1.0000
OCDF	210	x 0.0003	0.0630	x 0.0001	0.0210	x 0.0001	0.0210
		Total TEQ =	240	Total TEQ =	280	Total TEQ =	310

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

DLCS07

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF Lab Sample ID: BEK0165-BS1

Sample wt/vol: 10 (g/ml) g Lab File ID: 16110905

Decanted (Y/N): N Extraction Method: SDS Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2378-TCDD	200	180	90.2	0.79	26.1678
4	13C12-2378-TCDF	200	170	87.4	0.79	25.5253
5	13C12-12378-PeCDD	200	180	89.0	1.56	31.264
5	13C12-12378-PeCDF	200	180	88.8	1.57	29.6637
5	13C12-23478-PeCDF	200	180	88.4	1.59	31.0008
6	13C12-123478-HxCDD	200	180	89.8	1.26	35.9118
6	13C12-123678-HxCDD	200	160	82.4	1.27	36.0433
6	13C12-123478-HxCDF	200	170	85.0	0.52	34.6732
6	13C12-123678-HxCDF	200	170	82.8	0.54	34.8267
6	13C12-123789-HxCDF	200	170	84.6	0.52	36.9202
6	13C12-234678-HxCDF	200	170	82.6	0.52	35.7693
7	13C12-1234678-HpCDD	200	170	86.4	1.04	40.735
7	13C12-1234678-HpCDF	200	160	77.8	0.46	38.9812
7	13C12-1234789-HpCDF	200	170	84.2	0.45	41.5898
8	13C12-OCDD	400	310	76.5	0.89	46.435
Labeled Cleanup Standard 37C14-2378-TCDD						
4	37C14-2378-TCDD	80	77	96.6		26.1828

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:28 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.555	1.001	9.36e4	1.24e5	0.935	0.755	0.770	2358	1548	1.35e6	1.75e6	573.4	NO	10.655
12378-PeCDF	29.675	1.000	5.43e5	3.46e5	0.952	1.569	1.550	2370	2314	7.95e6	5.08e6	3352.6	NO	51.737
23478-PeCDF	31.023	1.001	5.18e5	3.33e5	0.963	1.556	1.550	2370	2314	7.68e6	4.86e6	3241.4	NO	50.724
123478-HxCDF	34.695	1.001	3.99e5	3.27e5	1.137	1.220	1.240	4029	2147	6.00e6	4.81e6	1490.3	NO	51.321
234678-HxCDF	35.791	1.001	3.99e5	3.24e5	1.164	1.231	1.240	4029	2147	5.85e6	4.68e6	1451.7	NO	52.829
123678-HxCDF	34.848	1.001	4.25e5	3.45e5	1.099	1.231	1.240	4029	2147	6.18e6	5.11e6	1533.2	NO	50.963
123789-HxCDF	36.931	1.000	3.41e5	2.67e5	1.101	1.277	1.240	4029	2147	4.73e6	3.82e6	1172.8	NO	52.017
1234678-HpCDF	38.992	1.000	3.43e5	3.38e5	1.303	1.016	1.050	2457	2233	5.06e6	4.97e6	2061.2	NO	53.798
1234789-HpCDF	41.612	1.000	2.72e5	2.56e5	1.317	1.060	1.050	2457	2233	3.43e6	3.30e6	1395.6	NO	51.121
OCDF	46.722	1.006	3.87e5	4.23e5	1.166	0.914	0.890	1714	1367	3.86e6	4.23e6	2251.1	NO	104.666
2378-TCDD	26.183	1.001	6.82e4	8.81e4	1.134	0.775	0.770	1157	890	1.01e6	1.30e6	872.4	NO	10.552
12378-PeCDD	31.275	1.000	3.41e5	2.19e5	0.975	1.559	1.550	2034	2234	4.98e6	3.20e6	2448.0	NO	53.450
123478-HxCDD	35.923	1.000	2.94e5	2.32e5	1.031	1.265	1.240	2494	1783	4.49e6	3.47e6	1800.9	NO	50.814
123678-HxCDD	36.054	1.000	2.89e5	2.38e5	0.971	1.215	1.240	2494	1783	4.27e6	3.50e6	1710.3	NO	53.400
123789-HxCDD	36.482	1.012	2.88e5	2.32e5	0.947	1.240	1.240	2494	1783	4.17e6	3.38e6	1671.0	NO	54.402
1234678-HpCDD	40.757	1.000	2.36e5	2.22e5	1.028	1.064	1.050	1907	1955	3.24e6	3.01e6	1699.5	NO	53.581
OCDD	46.453	1.000	3.70e5	4.31e5	1.107	0.859	0.890	1727	1566	3.89e6	4.44e6	2252.6	NO	108.985
13C-2378-TCDF	25.525	1.007	9.62e5	1.22e6	1.567	0.788	0.770	5028	3197	1.39e7	1.76e7	2756.9	NO	87.359
13C-12378-PeCDF	29.664	1.170	1.10e6	7.03e5	1.274	1.567	1.550	8469	3504	1.58e7	1.01e7	1866.1	NO	88.822
13C-23478-PeCDF	31.001	1.222	1.07e6	6.73e5	1.235	1.586	1.550	8469	3504	1.55e7	9.89e6	1825.4	NO	88.415
13C-123478-HxCDF	34.673	0.951	4.25e5	8.19e5	1.381	0.520	0.510	2985	5051	6.33e6	1.20e7	2121.9	NO	84.995
13C-123678-HxCDF	34.827	0.955	4.80e5	8.97e5	1.569	0.535	0.510	2985	5051	6.92e6	1.30e7	2318.2	NO	82.769
13C-234678-HxCDF	35.769	0.981	4.04e5	7.73e5	1.345	0.523	0.510	2985	5051	5.91e6	1.14e7	1980.9	NO	82.562
13C-123789-HxCDF	36.920	1.013	3.63e5	6.98e5	1.183	0.520	0.510	2985	5051	5.25e6	1.01e7	1758.8	NO	84.647
13C-1234678-HpCDF	38.981	1.069	3.07e5	6.65e5	1.178	0.462	0.440	2272	3079	4.59e6	9.98e6	2018.8	NO	77.809
13C-1234789-HpCDF	41.590	1.141	2.44e5	5.40e5	0.878	0.452	0.440	2272	3079	3.10e6	6.80e6	1366.2	NO	84.241
13C-1234-TCDD	25.361	0.000	7.08e5	8.87e5	1.000	0.799	0.770	2495	1750	1.03e7	1.29e7	4108.8	NO	100.000
13C-2378-TCDD	26.168	1.032	5.75e5	7.31e5	0.908	0.785	0.770	2495	1750	8.38e6	1.06e7	3356.7	NO	90.182
13C-12378-PeCDD	31.264	1.233	6.55e5	4.19e5	0.756	1.564	1.550	1775	1768	9.47e6	6.13e6	5335.8	NO	89.022
13C-123478-HxCDD	35.912	0.985	5.61e5	4.44e5	1.056	1.264	1.240	2188	1700	8.46e6	6.70e6	3864.4	NO	89.788
13C-123678-HxCDD	36.043	0.989	5.68e5	4.48e5	1.163	1.270	1.240	2188	1700	8.37e6	6.66e6	3823.7	NO	82.422
13C-1234678-HpCDD	40.735	1.117	4.24e5	4.09e5	0.909	1.038	1.050	2142	2080	5.76e6	5.49e6	2688.0	NO	86.444
13C-OCDD	46.435	1.274	6.24e5	7.04e5	0.820	0.886	0.890	2333	2175	6.43e6	7.19e6	2755.0	NO	152.949
13C-123789-HxCDD	36.460	0.000	5.90e5	4.70e5	1.000	1.257	1.240	2188	1700	8.71e6	6.85e6	3978.5	NO	100.000
Total-tetrafurans			9.73e4		0.935			2358		1.40e6				11.126

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:28 Pacific Standard Time

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					638		0.00e0				
Total-pentafurans			1.09e6		0.957			2370		1.60e7				105.385
Total-hexafurans			1.57e6		1.125			4029		2.28e7				207.371
Total-heptafurans			6.17e5		1.310			2457		8.53e6				105.342
Total-Furans			3.76e6		1.114			2358		5.26e7				533.891
Total-tetradioxins			7.39e4		1.134			1157		1.09e6				11.423
Total-pentadioxins			3.44e5		0.975			2034		5.04e6				53.940
Total-hexadioxins			8.77e5		0.983			2494		1.30e7				159.606
Total-heptadioxins			2.50e5		1.028			1907		3.44e6				56.744
Total-Dioxins			1.91e6		1.028			1157		2.65e7				390.697
Total-TEQ			5.67e6					1157		7.91e7				924.588
37CL-2378-TCDD	26.183	1.032	6.58e5		1.067			1252		9.75e6		7785.0		38.655
FUNCTION1 PFK			8.77e6					377073		4.67e6				
FUNCTION2 PFK			1.28e5					143587		3.77e6				0.000
FUNCTION3 PFK			3.33e5					350213		9.72e6				0.000
FUNCTION4 PFK			3.48e5					239485		1.03e7				
FUNCTION5 PFK			2.34e4					175189		7.79e5				
FUNCTION1 HXCD...			1.48e2					468		3.06e3				0.000
FUNCTION1 HPCD...			8.86e1					565		2.06e3				0.000
FUNCTION2 HPCD...			1.56e2					895		6.56e3				0.000
FUNCTION3 OCDPE			0.00e0					574		0.00e0				
FUNCTION4 NCDPE			0.00e0					534		0.00e0				
FUNCTION5 DCDPE			0.00e0					716		0.00e0				

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:28 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.56	217566.109	0.935	10.655	10.655	0.75	0.77	NO	573.4
2	35	Total-tetrafurans	303.9016	24.63	2008.802	0.935	0.098		0.47	0.77	YES	4.1
3	35	Total-tetrafurans	303.9016	24.45	5073.233	0.935	0.248		0.75	0.77	NO	12.9
4	35	Total-tetrafurans	303.9016	24.32	2542.026	0.935	0.124		0.52	0.77	YES	4.4

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	37	Total-pentafurans	339.8597	32.04	5510.948	0.957	0.325		1.23	1.55	YES	20.6
2	3	23478-PeCDF	339.8597	31.02	850538.219	0.963	50.724	50.724	1.56	1.55	NO	3241.4
3	37	Total-pentafurans	339.8597	30.74	1545.816	0.957	0.091		1.62	1.55	NO	5.7
4	37	Total-pentafurans	339.8597	30.07	516.019	0.957	0.030		1.71	1.55	NO	4.0
5	37	Total-pentafurans	339.8597	29.98	2638.945	0.957	0.155		1.89	1.55	YES	14.2
6	37	Total-pentafurans	339.8597	29.87	27933.305	0.957	1.645		1.32	1.55	NO	91.2
7	2	12378-PeCDF	339.8597	29.67	889090.469	0.952	51.737	51.737	1.57	1.55	NO	3352.6
8	37	Total-pentafurans	339.8597	29.32	3717.090	0.957	0.219		1.93	1.55	YES	17.1
9	37	Total-pentafurans	339.8597	28.61	7784.245	0.957	0.458		2.39	1.55	YES	24.7

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	4	123478-HxCDF	373.8208	34.69	725515.782	1.137	51.321	51.321	1.22	1.24	NO	1490.3
2	38	Total-hexafurans	373.8208	33.19	3291.292	1.125	0.241		1.37	1.24	NO	8.7
3	7	123789-HxCDF	373.8208	36.93	607600.406	1.101	52.017	52.017	1.28	1.24	NO	1172.8
4	5	234678-HxCDF	373.8208	35.79	723522.531	1.164	52.829	52.829	1.23	1.24	NO	1451.7
5	6	123678-HxCDF	373.8208	34.85	770852.469	1.099	50.963	50.963	1.23	1.24	NO	1533.2

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	9	1234789-HpCDF	407.7818	41.61	527744.469	1.317	51.121	51.121	1.06	1.05	NO	1395.6
2	39	Total-heptafurans	407.7818	39.76	2064.834	1.310	0.180		0.60	1.05	YES	5.9
3	39	Total-heptafurans	407.7818	39.27	897.959	1.310	0.078		0.38	1.05	YES	3.1
4	39	Total-heptafurans	407.7818	39.20	1901.429	1.310	0.165		1.02	1.05	NO	7.4
5	8	1234678-HpCDF	407.7818	38.99	681008.844	1.303	53.798	53.798	1.02	1.05	NO	2061.2

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.56	217566.109	0.935	10.655	10.655	0.75	0.77	NO	573.4
2	35	Total-tetrafurans	303.9016	24.63	2008.802	0.935	0.098		0.47	0.77	YES	4.1
3	35	Total-tetrafurans	303.9016	24.45	5073.233	0.935	0.248		0.75	0.77	NO	12.9
4	35	Total-tetrafurans	303.9016	24.32	2542.026	0.935	0.124		0.52	0.77	YES	4.4
5	37	Total-pentafurans	339.8597	32.04	5510.948	0.957	0.325		1.23	1.55	YES	20.6
6	3	23478-PeCDF	339.8597	31.02	850538.219	0.963	50.724	50.724	1.56	1.55	NO	3241.4
7	37	Total-pentafurans	339.8597	30.74	1545.816	0.957	0.091		1.62	1.55	NO	5.7
8	37	Total-pentafurans	339.8597	30.07	516.019	0.957	0.030		1.71	1.55	NO	4.0
9	37	Total-pentafurans	339.8597	29.98	2638.945	0.957	0.155		1.89	1.55	YES	14.2
10	37	Total-pentafurans	339.8597	29.87	27933.305	0.957	1.645		1.32	1.55	NO	91.2
11	2	12378-PeCDF	339.8597	29.67	889090.469	0.952	51.737	51.737	1.57	1.55	NO	3352.6
12	37	Total-pentafurans	339.8597	29.32	3717.090	0.957	0.219		1.93	1.55	YES	17.1
13	37	Total-pentafurans	339.8597	28.61	7784.245	0.957	0.458		2.39	1.55	YES	24.7
14	4	123478-HxCDF	373.8208	34.69	725515.782	1.137	51.321	51.321	1.22	1.24	NO	1490.3
15	38	Total-hexafurans	373.8208	33.19	3291.292	1.125	0.241		1.37	1.24	NO	8.7
16	7	123789-HxCDF	373.8208	36.93	607600.406	1.101	52.017	52.017	1.28	1.24	NO	1172.8
17	5	234678-HxCDF	373.8208	35.79	723522.531	1.164	52.829	52.829	1.23	1.24	NO	1451.7
18	6	123678-HxCDF	373.8208	34.85	770852.469	1.099	50.963	50.963	1.23	1.24	NO	1533.2
19	9	1234789-HpCDF	407.7818	41.61	527744.469	1.317	51.121	51.121	1.06	1.05	NO	1395.6
20	39	Total-heptafurans	407.7818	39.76	2064.834	1.310	0.180		0.60	1.05	YES	5.9
21	39	Total-heptafurans	407.7818	39.27	897.959	1.310	0.078		0.38	1.05	YES	3.1
22	39	Total-heptafurans	407.7818	39.20	1901.429	1.310	0.165		1.02	1.05	NO	7.4
23	8	1234678-HpCDF	407.7818	38.99	681008.844	1.303	53.798	53.798	1.02	1.05	NO	2061.2
24	10	OCDF	441.7428	46.72	810478.594	1.166	104.666	104....	0.91	0.89	NO	2251.1

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	11	2378-TCDD	319.8965	26.18	156258.985	1.134	10.552	10.552	0.77	0.77	NO	872.4
2	41	Total-tetradioxins	319.8965	25.81	4565.862	1.134	0.308		0.61	0.77	YES	20.1
3	41	Total-tetradioxins	319.8965	25.08	386.611	1.134	0.026		1.07	0.77	YES	3.2
4	41	Total-tetradioxins	319.8965	24.33	7945.782	1.134	0.537		0.89	0.77	YES	48.8

PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	12	12378-PeCDD	355.8546	31.27	559546.203	0.975	53.450	53.450	1.56	1.55	NO	2448.0
2	42	Total-pentadioxins	355.8546	29.09	608.481	0.975	0.058		1.56	1.55	NO	5.5
3	42	Total-pentadioxins	355.8546	31.65	607.344	0.975	0.058		2.76	1.55	YES	5.4
4	42	Total-pentadioxins	355.8546	31.53	1229.690	0.975	0.117		1.76	1.55	NO	6.1
5	42	Total-pentadioxins	355.8546	31.46	2674.892	0.975	0.256		0.94	1.55	YES	13.1

HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	15	123789-HxCDD	389.8157	36.48	520348.453	0.947	54.402	54.402	1.24	1.24	NO	1671.0
2	14	123678-HxCDD	389.8157	36.05	526981.625	0.971	53.400	53.400	1.22	1.24	NO	1710.3
3	13	123478-HxCDD	389.8157	35.92	526453.578	1.031	50.814	50.814	1.27	1.24	NO	1800.9
4	43	Total-hexadioxins	389.8157	34.98	2613.013	0.983	0.263		1.69	1.24	YES	7.0
5	43	Total-hexadioxins	389.8157	33.77	7210.923	0.983	0.726		1.23	1.24	NO	24.8

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HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.76	458730.890	1.028	53.581	53.581	1.06	1.05	NO	1699.5
2	44	Total-heptadioxins	423.7766	39.53	27081.250	1.028	3.163		1.03	1.05	NO	105.0

Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	11	2378-TCDD	319.8965	26.18	156258.985	1.134	10.552	10.552	0.77	0.77	NO	872.4
2	41	Total-tetradioxins	319.8965	25.81	4565.862	1.134	0.308		0.61	0.77	YES	20.1
3	41	Total-tetradioxins	319.8965	25.08	386.611	1.134	0.026		1.07	0.77	YES	3.2
4	41	Total-tetradioxins	319.8965	24.33	7945.782	1.134	0.537		0.89	0.77	YES	48.8
5	12	12378-PeCDD	355.8546	31.27	559546.203	0.975	53.450	53.450	1.56	1.55	NO	2448.0
6	42	Total-pentadioxins	355.8546	29.09	608.481	0.975	0.058		1.56	1.55	NO	5.5
7	42	Total-pentadioxins	355.8546	31.65	607.344	0.975	0.058		2.76	1.55	YES	5.4
8	42	Total-pentadioxins	355.8546	31.53	1229.690	0.975	0.117		1.76	1.55	NO	6.1
9	42	Total-pentadioxins	355.8546	31.46	2674.892	0.975	0.256		0.94	1.55	YES	13.1
10	15	123789-HxCDD	389.8157	36.48	520348.453	0.947	54.402	54.402	1.24	1.24	NO	1671.0
11	14	123678-HxCDD	389.8157	36.05	526981.625	0.971	53.400	53.400	1.22	1.24	NO	1710.3
12	13	123478-HxCDD	389.8157	35.92	526453.578	1.031	50.814	50.814	1.27	1.24	NO	1800.9
13	43	Total-hexadioxins	389.8157	34.98	2613.013	0.983	0.263		1.69	1.24	YES	7.0
14	43	Total-hexadioxins	389.8157	33.77	7210.923	0.983	0.726		1.23	1.24	NO	24.8
15	16	1234678-HpCDD	423.7766	40.76	458730.890	1.028	53.581	53.581	1.06	1.05	NO	1699.5
16	44	Total-heptadioxins	423.7766	39.53	27081.250	1.028	3.163		1.03	1.05	NO	105.0
17	17	OCDD	457.7377	46.45	801364.625	1.107	108.985	108....	0.86	0.89	NO	2252.6

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TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.56	217566.109	0.935	10.655	10.655	0.75	0.77	NO	573.4
2	35	Total-tetrafurans	303.9016	24.63	2008.802	0.935	0.098		0.47	0.77	YES	4.1
3	35	Total-tetrafurans	303.9016	24.45	5073.233	0.935	0.248		0.75	0.77	NO	12.9
4	35	Total-tetrafurans	303.9016	24.32	2542.026	0.935	0.124		0.52	0.77	YES	4.4
5	37	Total-pentafurans	339.8597	32.04	5510.948	0.957	0.325		1.23	1.55	YES	20.6
6	3	23478-PeCDF	339.8597	31.02	850538.219	0.963	50.724	50.724	1.56	1.55	NO	3241.4
7	37	Total-pentafurans	339.8597	30.74	1545.816	0.957	0.091		1.62	1.55	NO	5.7
8	37	Total-pentafurans	339.8597	30.07	516.019	0.957	0.030		1.71	1.55	NO	4.0
9	37	Total-pentafurans	339.8597	29.98	2638.945	0.957	0.155		1.89	1.55	YES	14.2
10	37	Total-pentafurans	339.8597	29.87	27933.305	0.957	1.645		1.32	1.55	NO	91.2
11	2	12378-PeCDF	339.8597	29.67	889090.469	0.952	51.737	51.737	1.57	1.55	NO	3352.6
12	37	Total-pentafurans	339.8597	29.32	3717.090	0.957	0.219		1.93	1.55	YES	17.1
13	37	Total-pentafurans	339.8597	28.61	7784.245	0.957	0.458		2.39	1.55	YES	24.7
14	4	123478-HxCDF	373.8208	34.69	725515.782	1.137	51.321	51.321	1.22	1.24	NO	1490.3
15	38	Total-hexafurans	373.8208	33.19	3291.292	1.125	0.241		1.37	1.24	NO	8.7
16	7	123789-HxCDF	373.8208	36.93	607600.406	1.101	52.017	52.017	1.28	1.24	NO	1172.8
17	5	234678-HxCDF	373.8208	35.79	723522.531	1.164	52.829	52.829	1.23	1.24	NO	1451.7
18	6	123678-HxCDF	373.8208	34.85	770852.469	1.099	50.963	50.963	1.23	1.24	NO	1533.2
19	9	1234789-HpCDF	407.7818	41.61	527744.469	1.317	51.121	51.121	1.06	1.05	NO	1395.6
20	39	Total-heptafurans	407.7818	39.76	2064.834	1.310	0.180		0.60	1.05	YES	5.9
21	39	Total-heptafurans	407.7818	39.27	897.959	1.310	0.078		0.38	1.05	YES	3.1
22	39	Total-heptafurans	407.7818	39.20	1901.429	1.310	0.165		1.02	1.05	NO	7.4
23	8	1234678-HpCDF	407.7818	38.99	681008.844	1.303	53.798	53.798	1.02	1.05	NO	2061.2
24	10	OCDF	441.7428	46.72	810478.594	1.166	104.666	104....	0.91	0.89	NO	2251.1
25	11	2378-TCDD	319.8965	26.18	156258.985	1.134	10.552	10.552	0.77	0.77	NO	872.4
26	41	Total-tetradioxins	319.8965	25.81	4565.862	1.134	0.308		0.61	0.77	YES	20.1
27	41	Total-tetradioxins	319.8965	25.08	386.611	1.134	0.026		1.07	0.77	YES	3.2
28	41	Total-tetradioxins	319.8965	24.33	7945.782	1.134	0.537		0.89	0.77	YES	48.8
29	12	12378-PeCDD	355.8546	31.27	559546.203	0.975	53.450	53.450	1.56	1.55	NO	2448.0
30	42	Total-pentadioxins	355.8546	29.09	608.481	0.975	0.058		1.56	1.55	NO	5.5
31	42	Total-pentadioxins	355.8546	31.65	607.344	0.975	0.058		2.76	1.55	YES	5.4
32	42	Total-pentadioxins	355.8546	31.53	1229.690	0.975	0.117		1.76	1.55	NO	6.1
33	42	Total-pentadioxins	355.8546	31.46	2674.892	0.975	0.256		0.94	1.55	YES	13.1
34	15	123789-HxCDD	389.8157	36.48	520348.453	0.947	54.402	54.402	1.24	1.24	NO	1671.0
35	14	123678-HxCDD	389.8157	36.05	526981.625	0.971	53.400	53.400	1.22	1.24	NO	1710.3
36	13	123478-HxCDD	389.8157	35.92	526453.578	1.031	50.814	50.814	1.27	1.24	NO	1800.9
37	43	Total-hexadioxins	389.8157	34.98	2613.013	0.983	0.263		1.69	1.24	YES	7.0
38	43	Total-hexadioxins	389.8157	33.77	7210.923	0.983	0.726		1.23	1.24	NO	24.8
39	16	1234678-HpCDD	423.7766	40.76	458730.890	1.028	53.581	53.581	1.06	1.05	NO	1699.5
40	44	Total-heptadioxins	423.7766	39.53	27081.250	1.028	3.163		1.03	1.05	NO	105.0
41	17	OCDD	457.7377	46.45	801364.625	1.107	108.985	108....	0.86	0.89	NO	2252.6

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	21.91	0.000							12.4

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	30.69	0.000		0.000					0.5
2	49	FUNCTION2 PFK	366.9792	30.66	0.000		0.000					0.6
3	49	FUNCTION2 PFK	366.9792	30.44	0.000		0.000					0.6
4	49	FUNCTION2 PFK	366.9792	30.33	0.000		0.000					1.5
5	49	FUNCTION2 PFK	366.9792	29.71	0.000		0.000					0.8
6	49	FUNCTION2 PFK	366.9792	29.30	0.000		0.000					1.3
7	49	FUNCTION2 PFK	366.9792	29.25	0.000		0.000					0.9
8	49	FUNCTION2 PFK	366.9792	29.18	0.000		0.000					1.2
9	49	FUNCTION2 PFK	366.9792	29.12	0.000		0.000					0.7
10	49	FUNCTION2 PFK	366.9792	28.91	0.000		0.000					1.2
11	49	FUNCTION2 PFK	366.9792	28.57	0.000		0.000					0.6
12	49	FUNCTION2 PFK	366.9792	28.33	0.000		0.000					0.7
13	49	FUNCTION2 PFK	366.9792	28.21	0.000		0.000					0.7
14	49	FUNCTION2 PFK	366.9792	28.15	0.000		0.000					0.7
15	49	FUNCTION2 PFK	366.9792	32.38	0.000		0.000					0.7
16	49	FUNCTION2 PFK	366.9792	32.25	0.000		0.000					0.6
17	49	FUNCTION2 PFK	366.9792	32.20	0.000		0.000					1.0
18	49	FUNCTION2 PFK	366.9792	32.10	0.000		0.000					1.3
19	49	FUNCTION2 PFK	366.9792	32.05	0.000		0.000					0.9
20	49	FUNCTION2 PFK	366.9792	32.00	0.000		0.000					1.0
21	49	FUNCTION2 PFK	366.9792	31.97	0.000		0.000					0.6
22	49	FUNCTION2 PFK	366.9792	31.81	0.000		0.000					1.4
23	49	FUNCTION2 PFK	366.9792	31.71	0.000		0.000					1.5
24	49	FUNCTION2 PFK	366.9792	31.66	0.000		0.000					1.1
25	49	FUNCTION2 PFK	366.9792	31.48	0.000		0.000					0.6
26	49	FUNCTION2 PFK	366.9792	31.44	0.000		0.000					0.7
27	49	FUNCTION2 PFK	366.9792	31.38	0.000		0.000					0.6
28	49	FUNCTION2 PFK	366.9792	31.35	0.000		0.000					0.3
29	49	FUNCTION2 PFK	366.9792	30.87	0.000		0.000					0.6
30	49	FUNCTION2 PFK	366.9792	30.83	0.000		0.000					1.2

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	36.33	0.000		0.000					1.9
2	50	FUNCTION3 PFK	380.9760	36.26	0.000		0.000					0.8
3	50	FUNCTION3 PFK	380.9760	36.22	0.000		0.000					2.2
4	50	FUNCTION3 PFK	380.9760	35.80	0.000		0.000					1.0
5	50	FUNCTION3 PFK	380.9760	35.10	0.000		0.000					1.6
6	50	FUNCTION3 PFK	380.9760	35.06	0.000		0.000					0.8
7	50	FUNCTION3 PFK	380.9760	34.97	0.000		0.000					1.1
8	50	FUNCTION3 PFK	380.9760	34.54	0.000		0.000					1.6
9	50	FUNCTION3 PFK	380.9760	34.49	0.000		0.000					1.0
10	50	FUNCTION3 PFK	380.9760	34.40	0.000		0.000					0.9
11	50	FUNCTION3 PFK	380.9760	34.29	0.000		0.000					0.5
12	50	FUNCTION3 PFK	380.9760	34.17	0.000		0.000					0.9
13	50	FUNCTION3 PFK	380.9760	34.04	0.000		0.000					1.3
14	50	FUNCTION3 PFK	380.9760	33.98	0.000		0.000					1.0
15	50	FUNCTION3 PFK	380.9760	33.94	0.000		0.000					0.7
16	50	FUNCTION3 PFK	380.9760	37.93	0.000		0.000					2.4
17	50	FUNCTION3 PFK	380.9760	37.87	0.000		0.000					1.3
18	50	FUNCTION3 PFK	380.9760	37.60	0.000		0.000					1.6
19	50	FUNCTION3 PFK	380.9760	37.54	0.000		0.000					1.5
20	50	FUNCTION3 PFK	380.9760	37.50	0.000		0.000					1.2
21	50	FUNCTION3 PFK	380.9760	37.17	0.000		0.000					0.8
22	50	FUNCTION3 PFK	380.9760	36.81	0.000		0.000					1.5

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:28 Pacific Standard Time

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	40.34	0.000							2.0
2	51	FUNCTION4 PFK	430.9728	40.12	0.000							1.0
3	51	FUNCTION4 PFK	430.9728	39.95	0.000							1.0
4	51	FUNCTION4 PFK	430.9728	39.22	0.000							1.9
5	51	FUNCTION4 PFK	430.9728	39.16	0.000							1.8
6	51	FUNCTION4 PFK	430.9728	39.03	0.000							0.6
7	51	FUNCTION4 PFK	430.9728	38.77	0.000							1.6
8	51	FUNCTION4 PFK	430.9728	38.60	0.000							0.7
9	51	FUNCTION4 PFK	430.9728	42.84	0.000							1.9
10	51	FUNCTION4 PFK	430.9728	42.75	0.000							0.6
11	51	FUNCTION4 PFK	430.9728	42.65	0.000							0.8
12	51	FUNCTION4 PFK	430.9728	42.60	0.000							1.4
13	51	FUNCTION4 PFK	430.9728	42.29	0.000							1.9
14	51	FUNCTION4 PFK	430.9728	42.21	0.000							2.2
15	51	FUNCTION4 PFK	430.9728	42.17	0.000							2.0
16	51	FUNCTION4 PFK	430.9728	42.11	0.000							2.0
17	51	FUNCTION4 PFK	430.9728	41.98	0.000							1.2
18	51	FUNCTION4 PFK	430.9728	40.99	0.000							1.6
19	51	FUNCTION4 PFK	430.9728	40.92	0.000							2.4
20	51	FUNCTION4 PFK	430.9728	40.89	0.000							1.7
21	51	FUNCTION4 PFK	430.9728	40.75	0.000							0.7
22	51	FUNCTION4 PFK	430.9728	40.70	0.000							1.0
23	51	FUNCTION4 PFK	430.9728	40.55	0.000							1.5
24	51	FUNCTION4 PFK	430.9728	40.43	0.000							1.5
25	51	FUNCTION4 PFK	430.9728	44.42	0.000							0.7
26	51	FUNCTION4 PFK	430.9728	44.02	0.000							0.9
27	51	FUNCTION4 PFK	430.9728	43.99	0.000							0.9
28	51	FUNCTION4 PFK	430.9728	43.51	0.000							0.5
29	51	FUNCTION4 PFK	430.9728	43.23	0.000							0.5
30	51	FUNCTION4 PFK	430.9728	43.10	0.000							1.6
31	51	FUNCTION4 PFK	430.9728	43.07	0.000							1.3
32	51	FUNCTION4 PFK	430.9728	42.95	0.000							1.8

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	49.14	0.000							2.1
2	52	FUNCTION5 PFK	480.9696	47.08	0.000							2.4

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	23.28	0.000		0.000					3.8
2	53	FUNCTION1 HXCD...	375.8364	23.10	0.000		0.000					2.7

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	22.30	0.000		0.000					3.6

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	31.64	0.000		0.000					3.2
2	55	FUNCTION2 HPCD...	409.7974	30.30	0.000		0.000					4.2

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

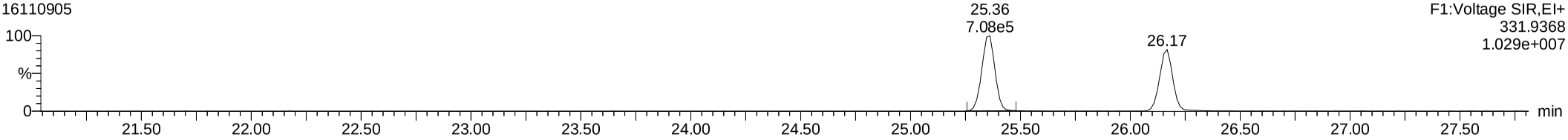
ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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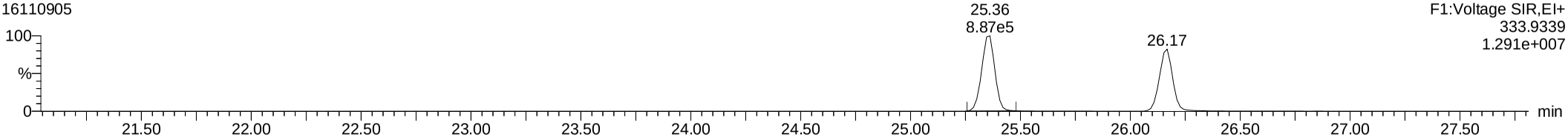
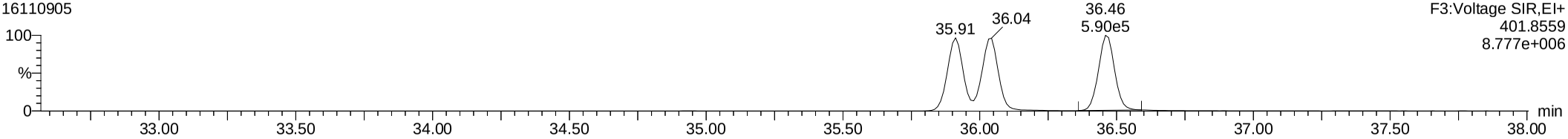


13C-123789-HxCDD



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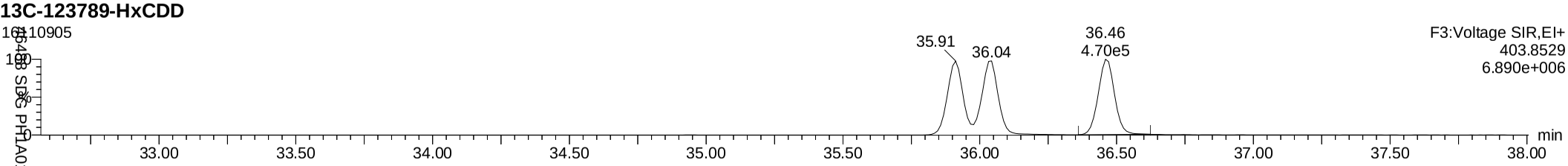

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Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
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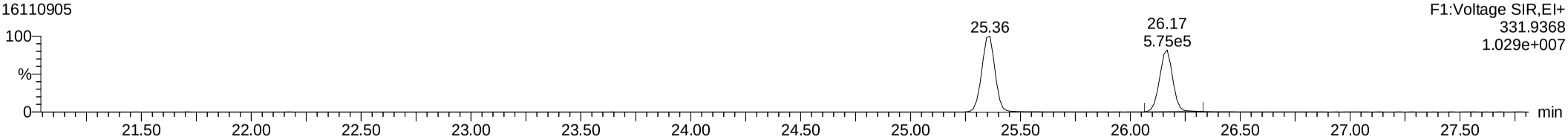
ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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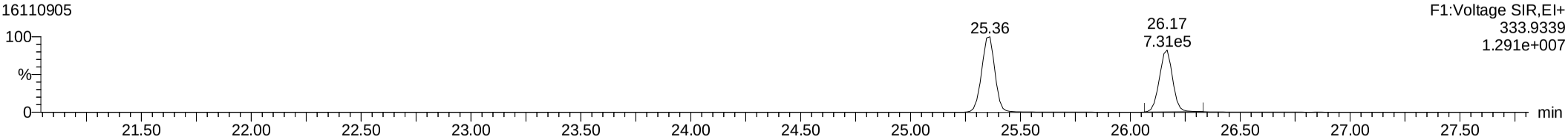
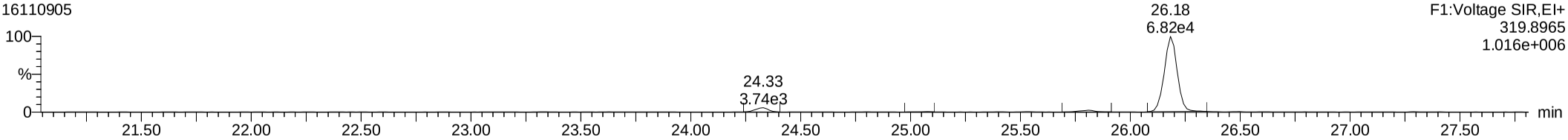
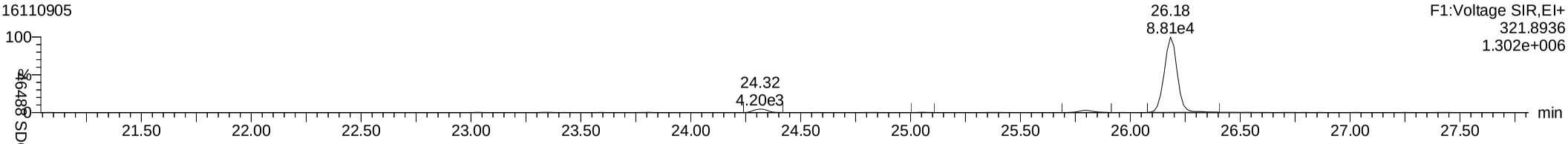


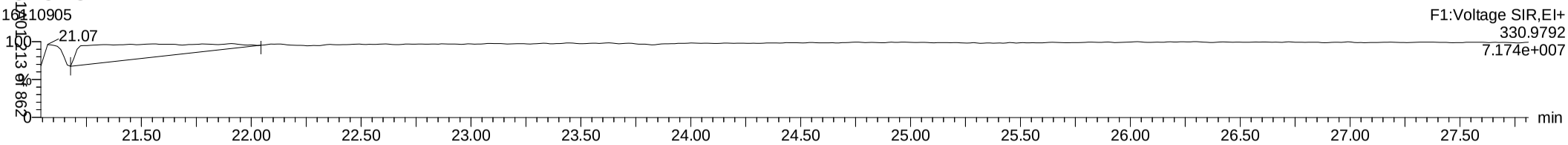
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



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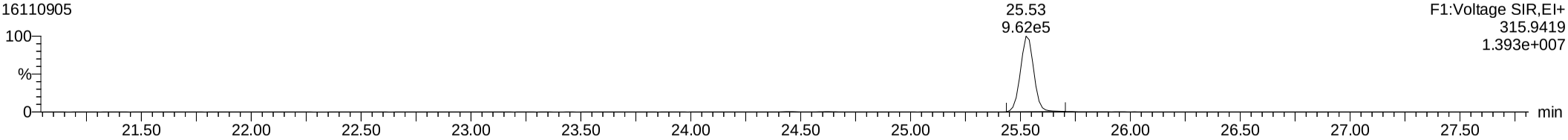
ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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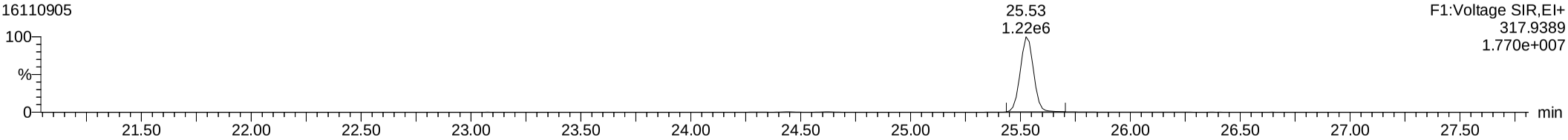
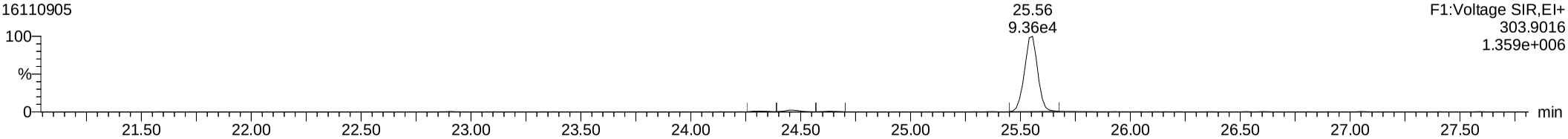
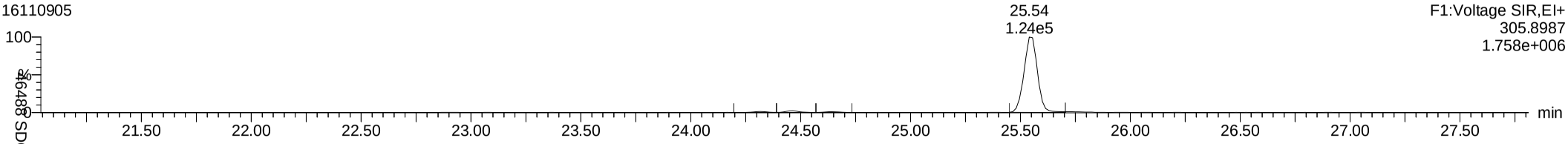


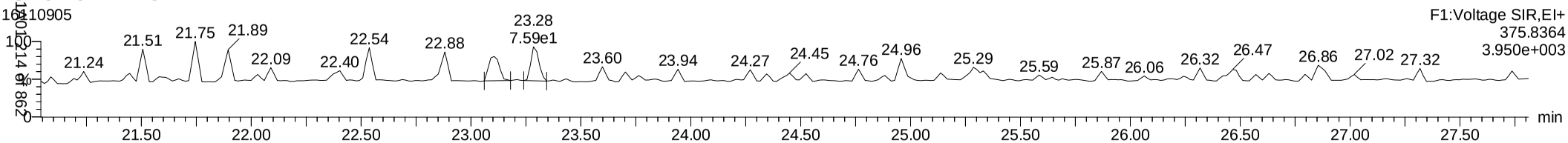
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
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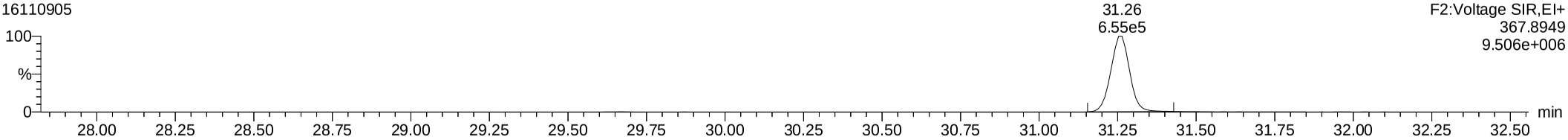
ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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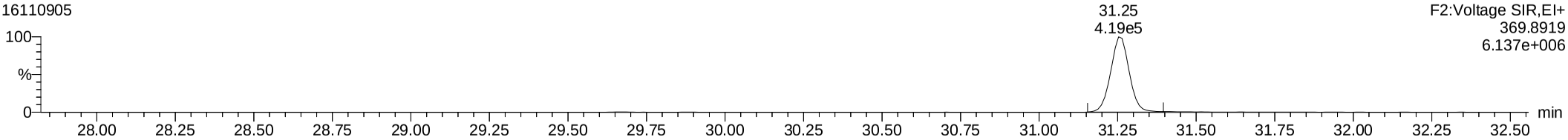
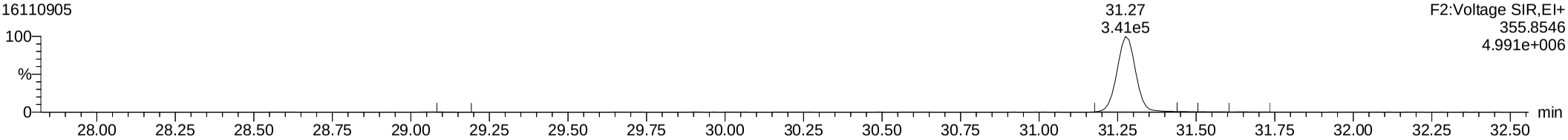
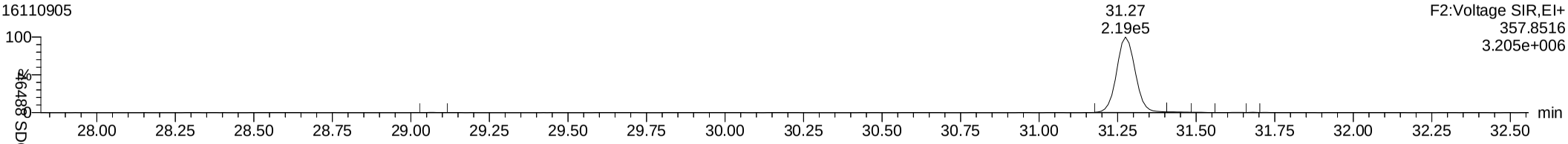


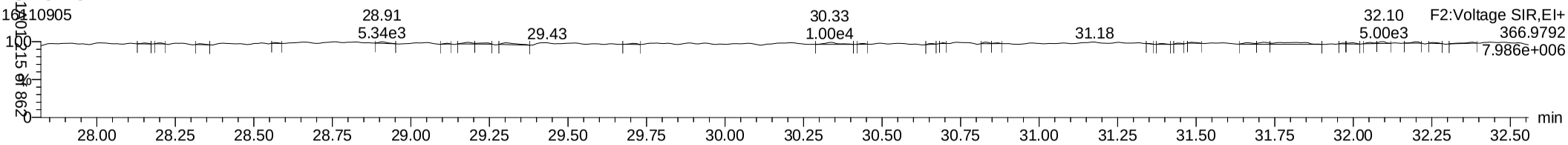
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



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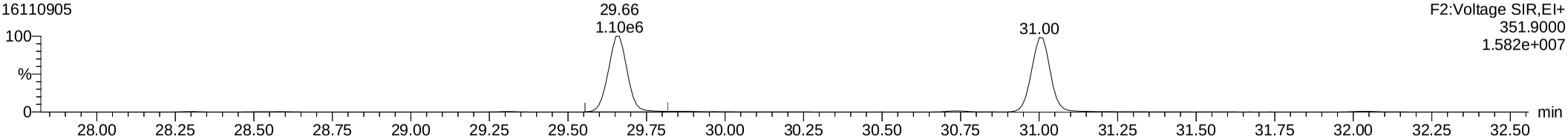
Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:28 Pacific Standard Time

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDF



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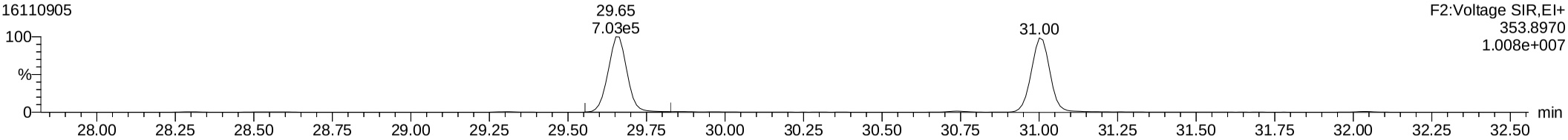
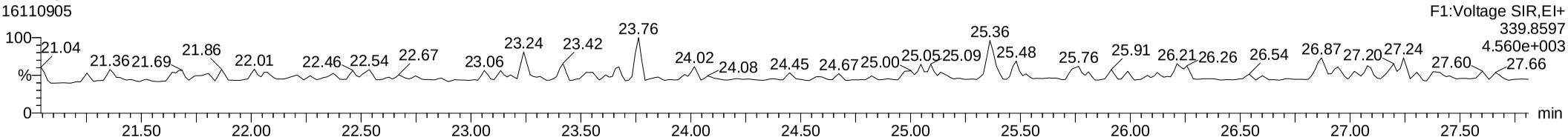


Total-penta1



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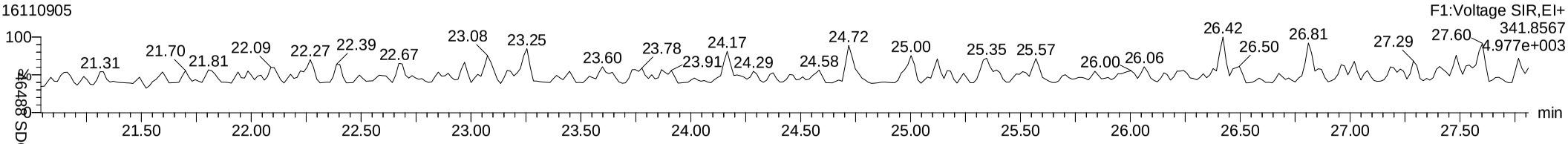
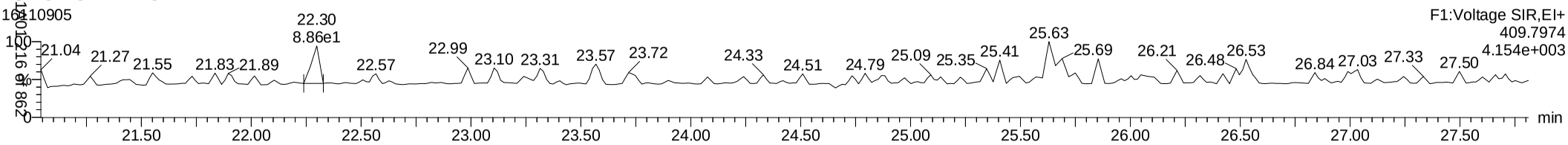


FUNCTION1 HPCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
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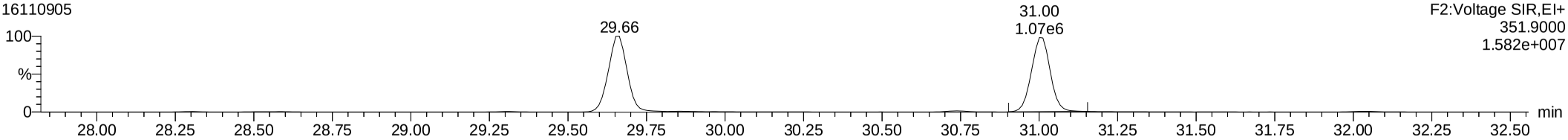
ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

13C-23478-PeCDF



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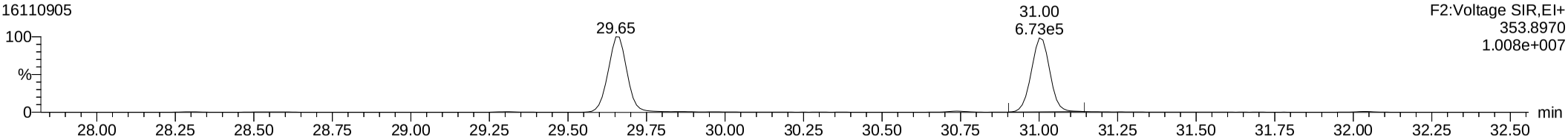
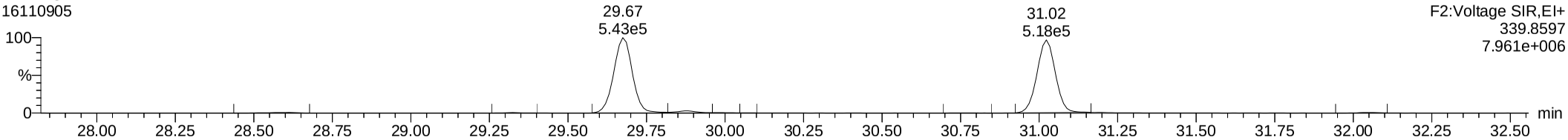
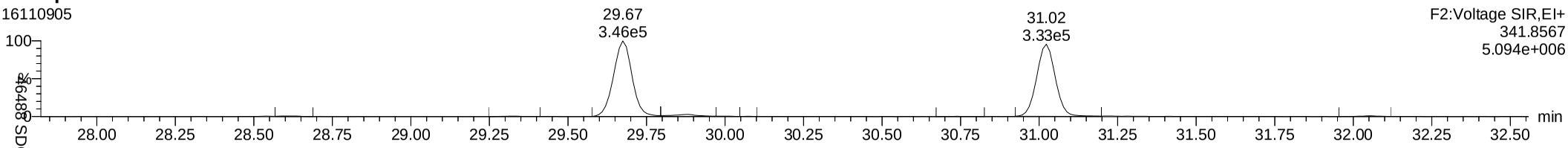


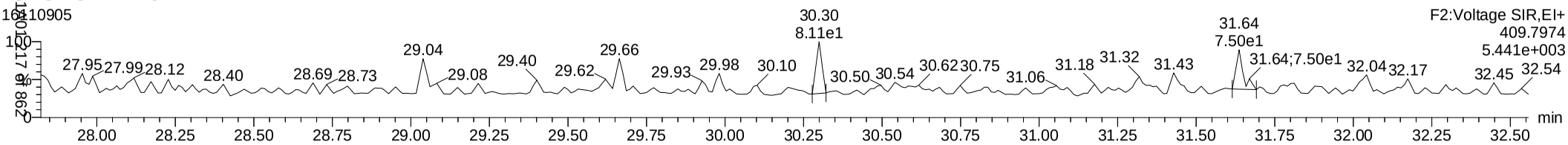
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



46488 SDG 161017 8 862

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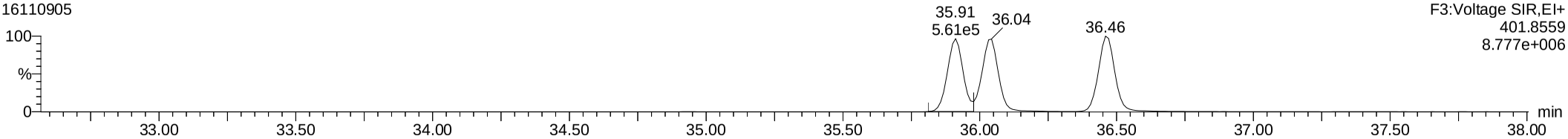
13C-123478-HxCDD



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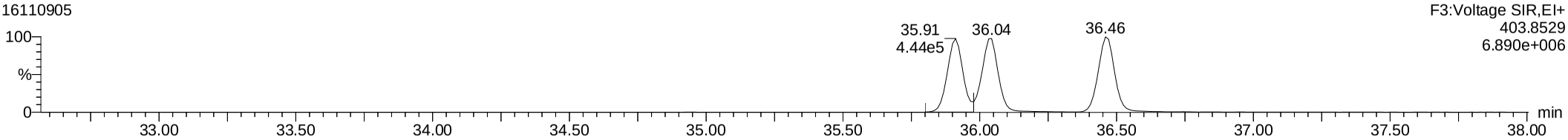
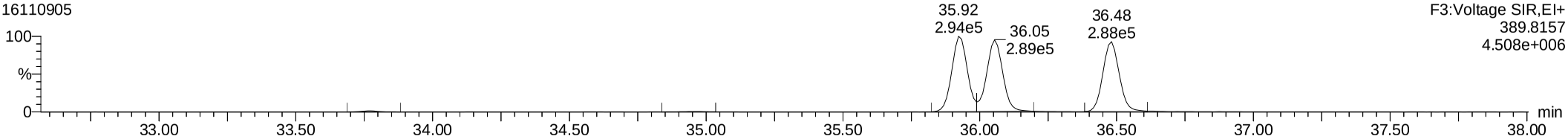
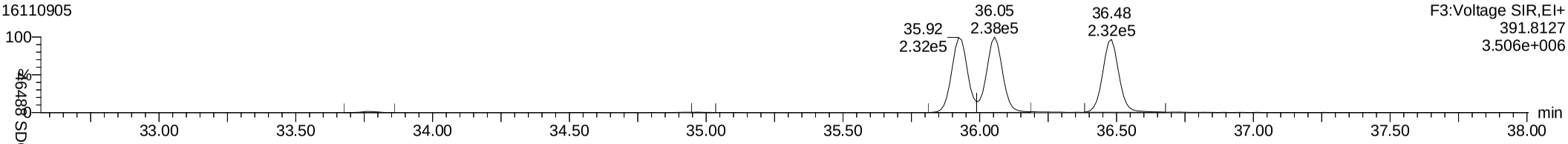


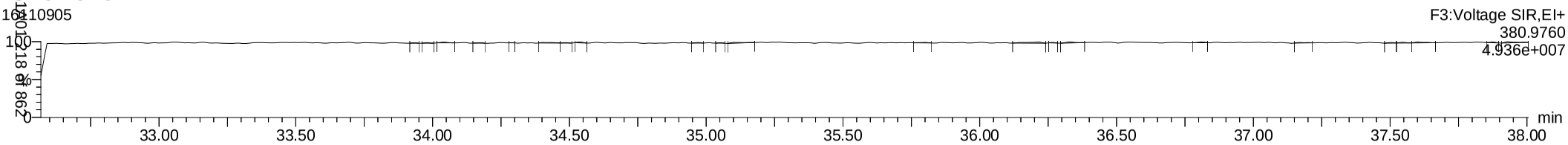
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



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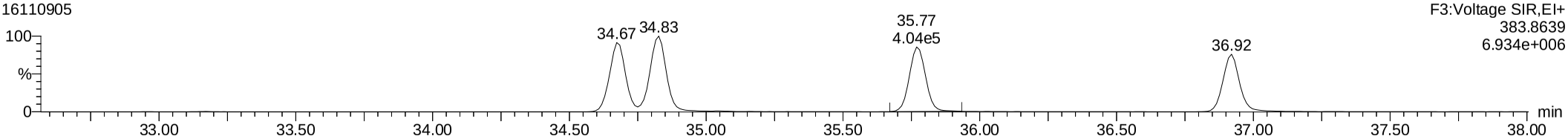
13C-234678-HxCDF



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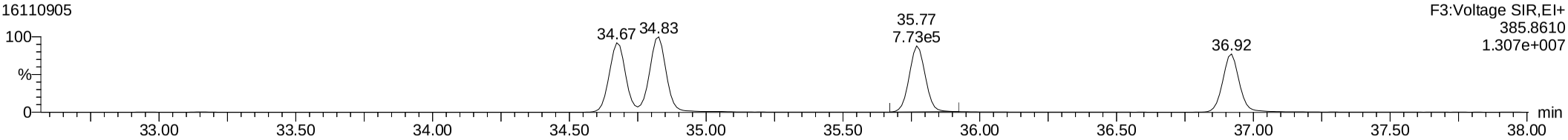
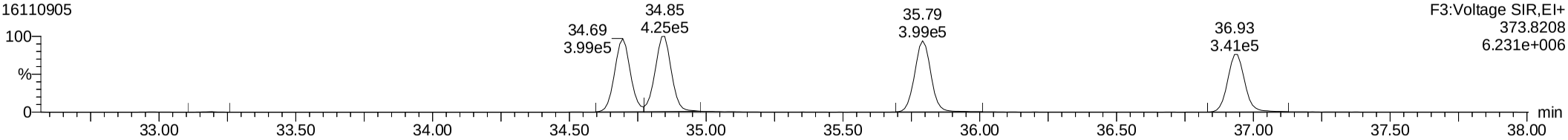
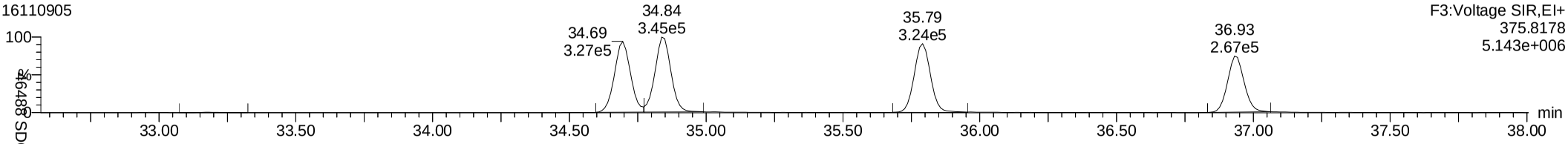


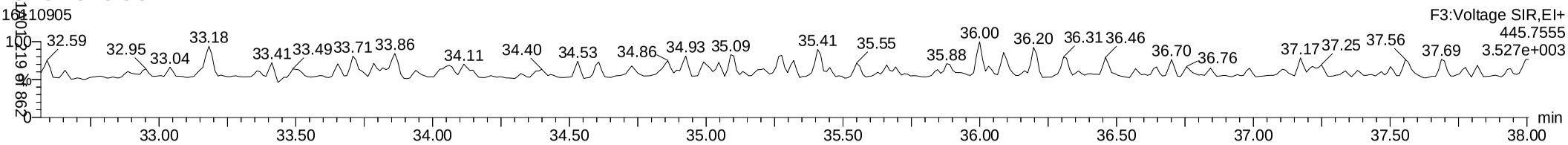
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE

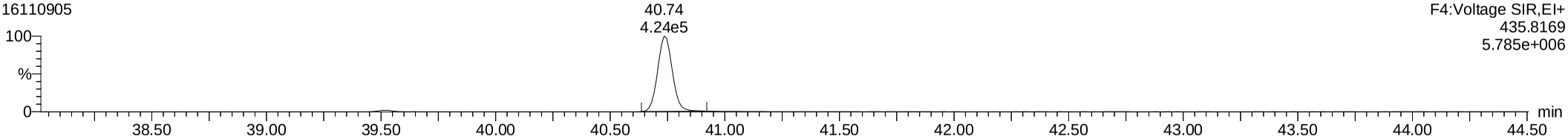


46488 SDG PH1101219 of 862

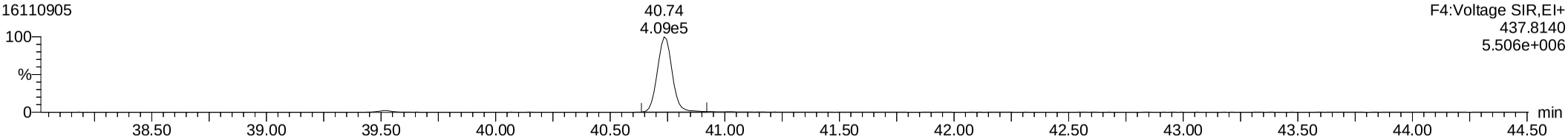
Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:28 Pacific Standard Time

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



13C-1234678-HpCDD



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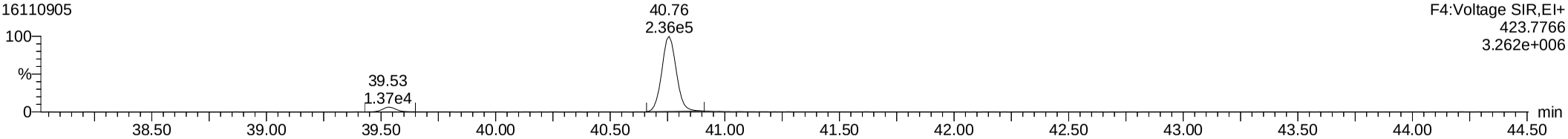
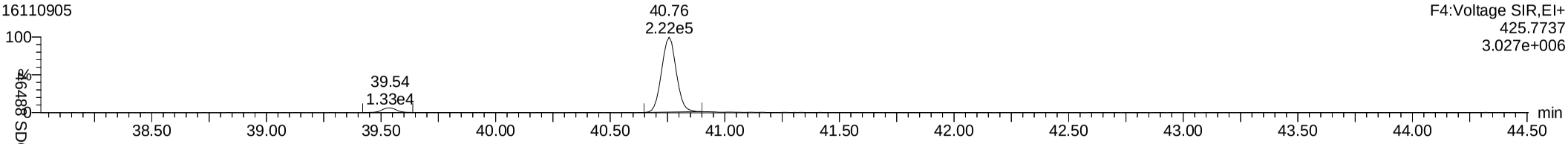
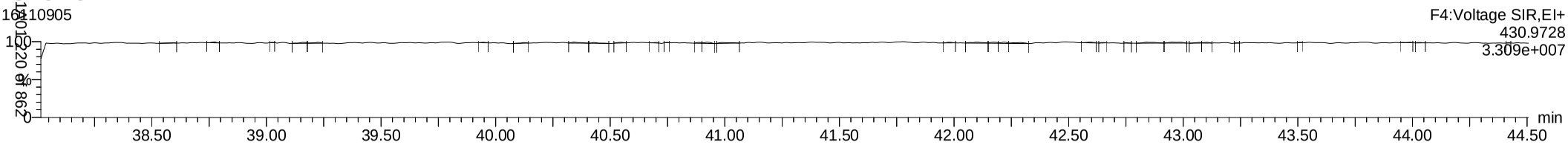


Total-heptadioxins



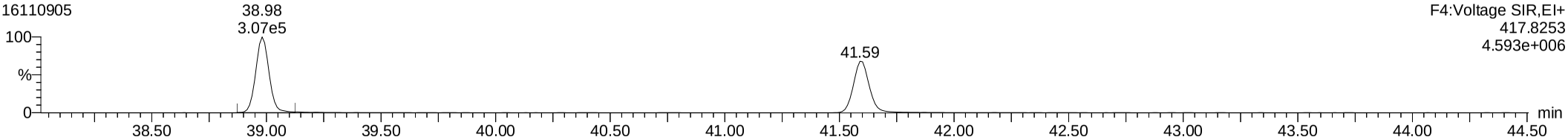
FUNCTION4 PFK



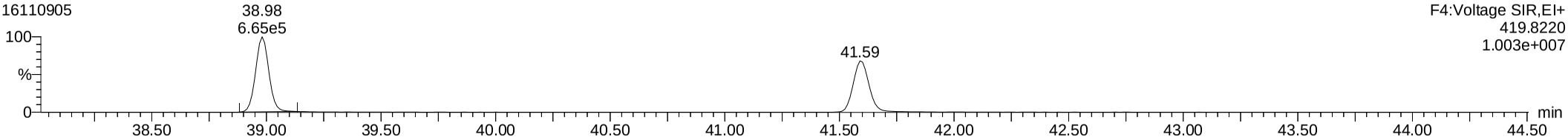
SDG 161109220 of 862 #648

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

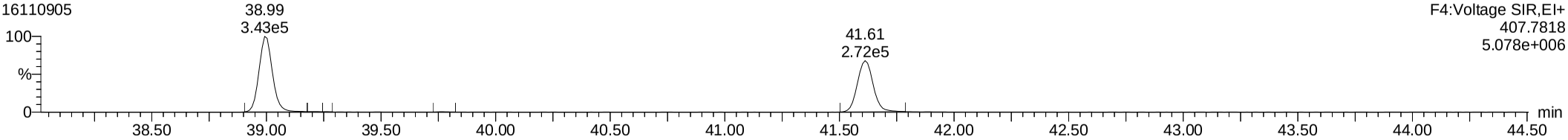
13C-1234678-HpCDF



13C-1234678-HpCDF



Total-heptafurans



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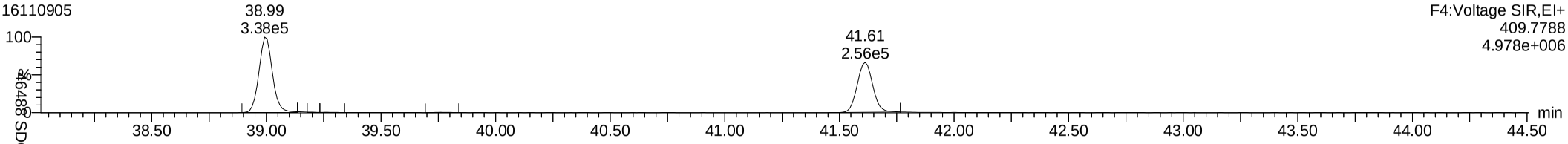
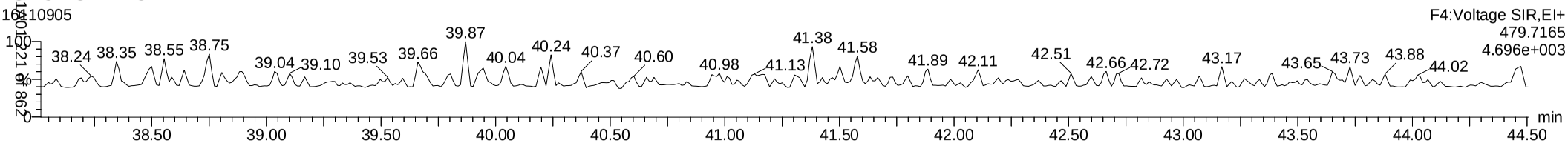


FUNCTION4 NCDPE

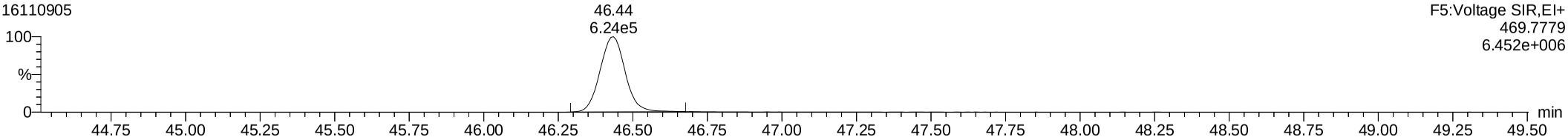


46488 SDG PH1401221 of 862

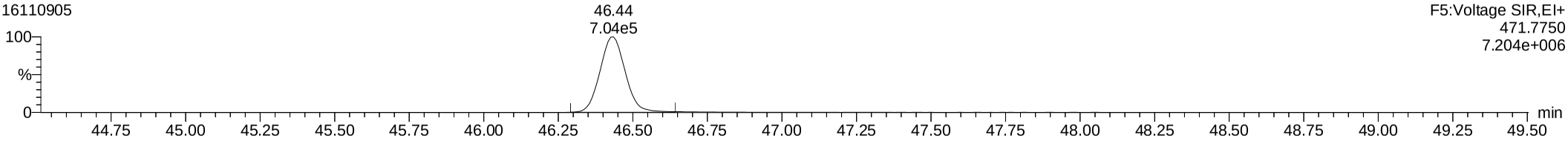
Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:28 Pacific Standard Time

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

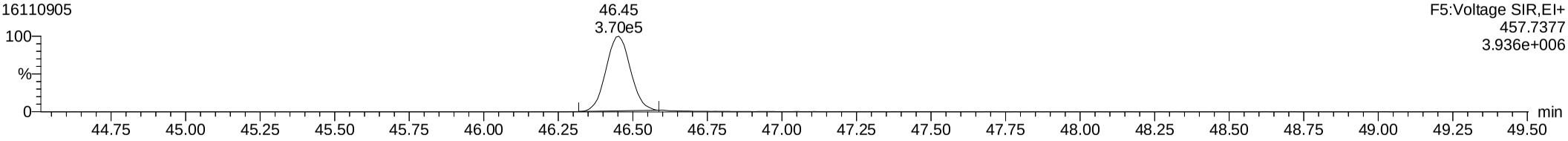
13C-OCDD



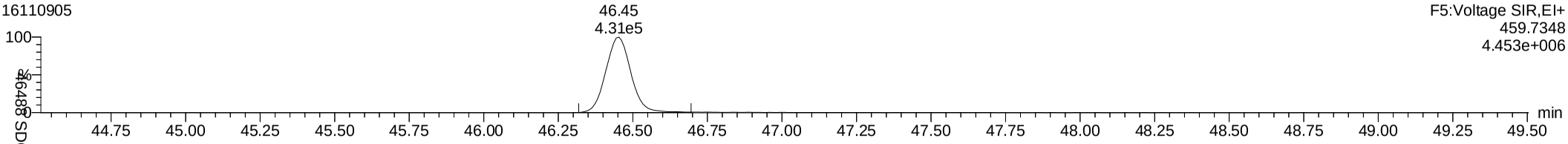
13C-OCDD



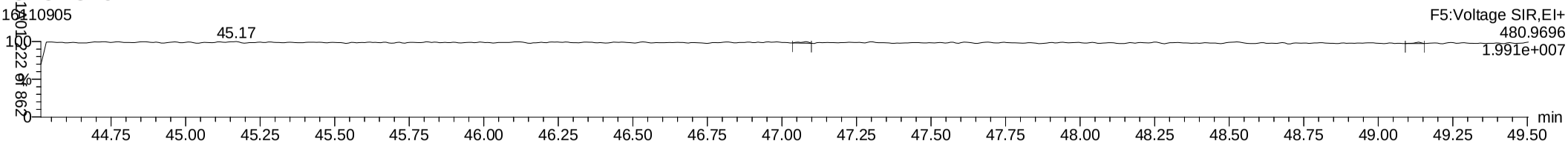
OCDD



OCDD



FUNCTION5 PFK

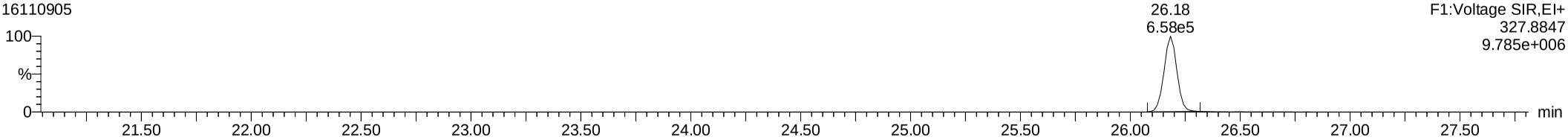


SDG 161010222 of 862
#648

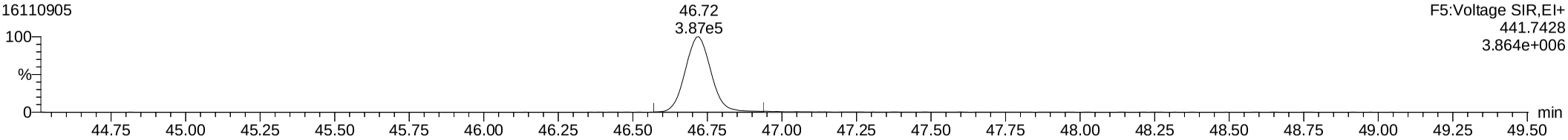
Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:28 Pacific Standard Time

ID: BEK0165-BS1, Name: 16110905, Date: 09-Nov-2016, Time: 15:06:33, Conditions: AUTOSPEC01, User: PK

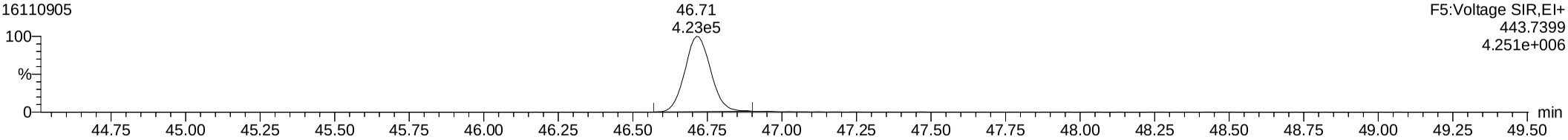
37CL-2378-TCDD



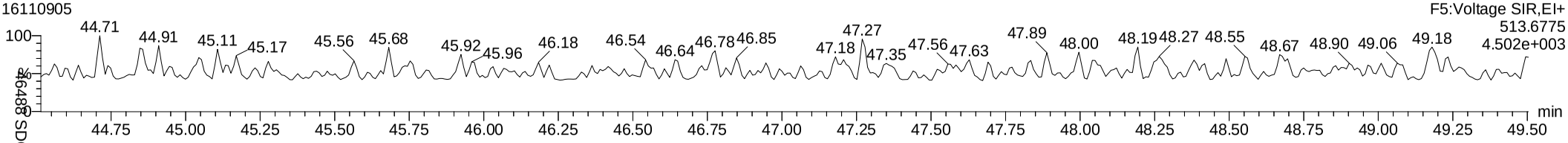
OCDF



OCDF



FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

DLCSD07

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF

Lab Sample ID: BEK0165-BSD1

Sample wt/vol: 10 (g/ml) g

Lab File ID: 16110906

Decanted (Y/N): N Extraction Method: SDS

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2378-TCDD	21			0.795	26.1827
5	12378-PeCDD	110			1.570	31.2748
6	123478-HxCDD	100			1.246	35.9222
6	123678-HxCDD	100			1.255	36.0538
6	123789-HxCDD	110			1.259	36.4812
7	1234678-HpCDD	110	B		1.045	40.7562
8	OCDD	210	B		0.862	46.4518
4	2378-TCDF	21			0.771	25.5552
5	12378-PeCDF	100			1.561	29.6747
5	23478-PeCDF	100			1.574	31.0228
6	123478-HxCDF	100			1.256	34.6947
6	123678-HxCDF	100			1.186	34.8372
6	123789-HxCDF	100			1.244	36.9307
6	234678-HxCDF	100			1.235	35.7907
7	1234678-HpCDF	110			1.062	38.9913
7	1234789-HpCDF	100			1.056	41.6002
8	OCDF	210			0.901	46.712

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

DLCSD07

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF Lab Sample ID: BEK0165-BSD1

Sample wt/vol: 10 (g/ml) g Lab File ID: 16110906

Decanted (Y/N): N Extraction Method: SDS Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2378-TCDD	21	x 1.0	21.0000	x 1.0	21.0000	x 1.0	21.0000
12378-PeCDD	110	x 1.0	110.0000	x 1.0	110.0000	x 1.0	110.0000
123478-HxCDD	100	x 0.1	10.0000	x 0.5	50.0000	0.05	5.0000
123678-HxCDD	100	x 0.1	10.0000	x 0.01	1.0000	x 0.01	10.0000
123789-HxCDD	110	x 0.1	11.0000	x 0.01	1.1000	x 0.1	11.0000
1234678-HpCDD	110	x 0.01	1.1000	x 0.001	0.1100	x 0.001	0.1100
OCDD	210	x 0.0003	0.0630	x 0.0001	0.0210	x 0.0001	0.0210
2378-TCDF	21	x 0.1	2.1000	x 0.05	1.0500	x 1.0	2.1000
12378-PeCDF	100	x 0.03	3.0000	x 0.05	5.0000	x 0.1	10.0000
23478-PeCDF	100	x 0.3	30.0000	x 0.5	50.0000	x 1.0	100.0000
123478-HxCDF	100	x 0.1	10.0000	x 0.1	10.0000	x 0.1	10.0000
123678-HxCDF	100	x 0.1	10.0000	x 0.1	10.0000	x 0.1	10.0000
123789-HxCDF	100	x 0.1	10.0000	x 0.1	10.0000	x 0.1	10.0000
234678-HxCDF	100	x 0.1	10.0000	x 0.1	10.0000	x 0.1	10.0000
1234678-HpCDF	110	x 0.01	1.1000	x 0.01	1.1000	x 0.01	1.1000
1234789-HpCDF	100	x 0.01	1.0000	x 0.01	1.0000	x 0.01	1.0000
OCDF	210	x 0.0003	0.0630	x 0.0001	0.0210	x 0.0001	0.0210
		Total TEQ =	240	Total TEQ =	280	Total TEQ =	310

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

DLCSD07

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Solid Analytical Method: CDD/CDF Lab Sample ID: BEK0165-BSD1

Sample wt/vol: 10 (g/ml) g Lab File ID: 16110906

Decanted (Y/N): N Extraction Method: SDS Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/09/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2378-TCDD	200	190	93.6	0.78	26.1677
4	13C12-2378-TCDF	200	180	92.2	0.78	25.5402
5	13C12-12378-PeCDD	200	180	88.5	1.56	31.253
5	13C12-12378-PeCDF	200	180	90.5	1.58	29.6637
5	13C12-23478-PeCDF	200	170	86.7	1.58	31.0008
6	13C12-123478-HxCDD	200	190	95.0	1.29	35.9003
6	13C12-123678-HxCDD	200	180	91.5	1.27	36.0318
6	13C12-123478-HxCDF	200	180	92.3	0.52	34.6728
6	13C12-123678-HxCDF	200	180	92.1	0.51	34.8152
6	13C12-123789-HxCDF	200	180	89.3	0.51	36.9197
6	13C12-234678-HxCDF	200	180	88.7	0.52	35.7688
7	13C12-1234678-HpCDD	200	180	91.6	1.01	40.7343
7	13C12-1234678-HpCDF	200	170	83.1	0.45	38.9805
7	13C12-1234789-HpCDF	200	180	87.9	0.46	41.5892
8	13C12-OCDD	400	320	80.0	0.89	46.425
Labeled Cleanup Standard 37C14-2378-TCDD						
4	37C14-2378-TCDD	80	81	102		26.1827

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:32 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: BEK0165-BSD1, Name: 16110906, Date: 09-Nov-2016, Time: 16:06:34, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.555	1.001	9.02e4	1.17e5	0.935	0.771	0.770	1497	1154	1.34e6	1.70e6	896.2	NO	10.715
12378-PeCDF	29.675	1.000	4.93e5	3.16e5	0.952	1.561	1.550	2050	2767	7.38e6	4.68e6	3598.7	NO	51.431
23478-PeCDF	31.023	1.001	4.59e5	2.91e5	0.963	1.574	1.550	2050	2767	6.91e6	4.36e6	3369.5	NO	50.821
123478-HxCDF	34.695	1.001	3.55e5	2.83e5	1.137	1.256	1.240	3192	3240	5.20e6	4.21e6	1628.0	NO	51.125
234678-HxCDF	35.791	1.001	3.42e5	2.77e5	1.164	1.235	1.240	3192	3240	5.03e6	3.96e6	1574.7	NO	51.733
123678-HxCDF	34.837	1.001	3.78e5	3.18e5	1.099	1.186	1.240	3192	3240	5.39e6	4.33e6	1687.2	NO	50.890
123789-HxCDF	36.931	1.000	2.89e5	2.32e5	1.101	1.244	1.240	3192	3240	4.14e6	3.26e6	1297.4	NO	52.042
1234678-HpCDF	38.991	1.000	3.08e5	2.90e5	1.303	1.062	1.050	2912	2836	4.52e6	4.32e6	1553.7	NO	54.335
1234789-HpCDF	41.600	1.000	2.26e5	2.14e5	1.317	1.056	1.050	2912	2836	2.84e6	2.67e6	976.8	NO	50.215
OCDF	46.712	1.006	3.24e5	3.59e5	1.166	0.901	0.890	2231	2053	3.17e6	3.58e6	1422.2	NO	103.774
2378-TCDD	26.183	1.001	6.49e4	8.16e4	1.134	0.795	0.770	1808	996	9.58e5	1.19e6	529.9	NO	10.616
12378-PeCDD	31.275	1.001	3.02e5	1.92e5	0.975	1.570	1.550	2813	1507	4.61e6	2.92e6	1638.8	NO	52.818
123478-HxCDD	35.922	1.001	2.55e5	2.05e5	1.031	1.246	1.240	1997	1699	3.81e6	3.07e6	1906.1	NO	51.691
123678-HxCDD	36.054	1.001	2.60e5	2.07e5	0.971	1.255	1.240	1997	1699	3.87e6	3.03e6	1937.1	NO	52.411
123789-HxCDD	36.481	1.013	2.54e5	2.02e5	0.947	1.259	1.240	1997	1699	3.56e6	2.91e6	1781.5	NO	54.023
1234678-HpCDD	40.756	1.000	2.01e5	1.93e5	1.028	1.045	1.050	1593	1945	2.68e6	2.61e6	1680.9	NO	53.459
OCDD	46.452	1.001	2.97e5	3.45e5	1.107	0.862	0.890	1409	2146	3.05e6	3.44e6	2162.5	NO	102.848
13C-2378-TCDF	25.540	1.007	9.04e5	1.17e6	1.567	0.776	0.770	8771	6356	1.29e7	1.67e7	1472.7	NO	92.206
13C-12378-PeCDF	29.664	1.170	1.01e6	6.40e5	1.274	1.582	1.550	3920	3280	1.49e7	9.27e6	3805.2	NO	90.518
13C-23478-PeCDF	31.001	1.222	9.39e5	5.94e5	1.235	1.581	1.550	3920	3280	1.40e7	8.86e6	3567.3	NO	86.687
13C-123478-HxCDF	34.673	0.951	3.75e5	7.22e5	1.381	0.520	0.510	2854	4352	5.62e6	1.07e7	1970.5	NO	92.251
13C-123678-HxCDF	34.815	0.955	4.19e5	8.27e5	1.569	0.506	0.510	2854	4352	5.99e6	1.15e7	2100.1	NO	92.130
13C-234678-HxCDF	35.769	0.981	3.51e5	6.77e5	1.345	0.519	0.510	2854	4352	5.21e6	1.02e7	1825.3	NO	88.739
13C-123789-HxCDF	36.920	1.013	3.08e5	6.02e5	1.183	0.512	0.510	2854	4352	4.27e6	8.41e6	1495.5	NO	89.314
13C-1234678-HpCDF	38.980	1.069	2.60e5	5.83e5	1.178	0.446	0.440	1827	2412	3.83e6	8.49e6	2095.4	NO	83.129
13C-1234789-HpCDF	41.589	1.141	2.08e5	4.56e5	0.878	0.456	0.440	1827	2412	2.67e6	5.74e6	1459.5	NO	87.895
13C-1234-TCDD	25.361	0.000	6.41e5	7.91e5	1.000	0.810	0.770	3752	2331	9.76e6	1.21e7	2600.8	NO	100.000
13C-2378-TCDD	26.168	1.032	5.32e5	6.85e5	0.908	0.777	0.770	3752	2331	7.77e6	1.00e7	2071.8	NO	93.635
13C-12378-PeCDD	31.253	1.232	5.84e5	3.74e5	0.756	1.564	1.550	2228	1426	8.68e6	5.53e6	3894.8	NO	88.534
13C-123478-HxCDD	35.900	0.985	4.86e5	3.77e5	1.056	1.288	1.240	2269	1687	7.35e6	5.72e6	3239.9	NO	94.976
13C-123678-HxCDD	36.032	0.988	5.13e5	4.04e5	1.163	1.268	1.240	2269	1687	7.57e6	5.97e6	3335.8	NO	91.542
13C-1234678-HpCDD	40.734	1.117	3.60e5	3.57e5	0.909	1.006	1.050	1802	2111	4.87e6	4.77e6	2699.6	NO	91.587
13C-OCDD	46.425	1.273	5.31e5	5.98e5	0.820	0.889	0.890	1907	2290	5.35e6	5.98e6	2804.2	NO	159.956
13C-123789-HxCDD	36.459	0.000	4.84e5	3.78e5	1.000	1.281	1.240	2269	1687	7.27e6	5.64e6	3205.8	NO	100.000
Total-tetrafurans			9.54e4		0.935			1497		1.42e6				11.314

9448 OCPDA01 1277 1 8 92

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
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Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					607		0.00e0				
Total-pentafurans			9.83e5		0.957			2050		1.47e7				105.618
Total-hexafurans			1.37e6		1.125			3192		1.98e7				206.182
Total-heptafurans			5.34e5		1.310			2912		7.38e6				104.733
Total-Furans			3.30e6		1.114			1497		4.65e7				531.632
Total-tetradioxins			7.00e4		1.134			1808		1.02e6				11.466
Total-pentadioxins			3.02e5		0.975			2813		4.61e6				52.818
Total-hexadioxins			7.72e5		0.983			1997		1.13e7				158.687
Total-heptadioxins			2.07e5		1.028			1593		2.76e6				55.225
Total-Dioxins			1.65e6		1.028			1808		2.27e7				381.045
Total-TEQ			4.95e6					1808		6.92e7				912.676
37CL-2378-TCDD	26.183	1.032	6.22e5		1.067			1924		9.14e6		4752.2		40.742
FUNCTION1 PFK			2.68e8					813664		1.20e9				
FUNCTION2 PFK			1.84e6					181568		1.45e7				0.000
FUNCTION3 PFK			5.94e7					558492		1.89e8				0.000
FUNCTION4 PFK			1.34e5					506673		4.73e6				
FUNCTION5 PFK			2.54e5					320298		9.87e6				
FUNCTION1 HXCD...			1.79e2					596		3.91e3				0.000
FUNCTION1 HPCD...			1.08e3					826		1.96e4				0.000
FUNCTION2 HPCD...			3.54e2					1122		1.14e4				0.000
FUNCTION3 OCDPE			1.65e2					900		5.46e3				0.000
FUNCTION4 NCDPE			3.40e2					1062		1.02e4				0.000
FUNCTION5 DCDPE			3.84e2					811		1.16e4				0.000

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: BEK0165-BSD1, Name: 16110906, Date: 09-Nov-2016, Time: 16:06:34, Conditions: AUTOSPEC01, User: PK

TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.56	207256.445	0.935	10.715	10.715	0.77	0.77	NO	896.2
2	35	Total-tetrafurans	303.9016	24.64	2743.925	0.935	0.142		0.75	0.77	NO	12.4
3	35	Total-tetrafurans	303.9016	24.46	6798.790	0.935	0.351		0.73	0.77	NO	29.9
4	35	Total-tetrafurans	303.9016	24.32	2039.211	0.935	0.105		1.37	0.77	YES	11.1

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	3	23478-PeCDF	339.8597	31.02	749849.031	0.963	50.821	50.821	1.57	1.55	NO	3369.5
2	37	Total-pentafurans	339.8597	29.98	2650.187	0.957	0.174		1.28	1.55	YES	12.7
3	37	Total-pentafurans	339.8597	29.87	24366.216	0.957	1.599		1.56	1.55	NO	93.1
4	2	12378-PeCDF	339.8597	29.67	808382.125	0.952	51.431	51.431	1.56	1.55	NO	3598.7
5	37	Total-pentafurans	339.8597	29.32	5638.906	0.957	0.370		1.91	1.55	YES	24.1
6	37	Total-pentafurans	339.8597	28.60	12020.523	0.957	0.789		1.49	1.55	NO	35.4
7	37	Total-pentafurans	339.8597	32.05	5193.691	0.957	0.341		1.69	1.55	NO	19.7
8	37	Total-pentafurans	339.8597	31.27	1427.228	0.957	0.094		5.29	1.55	YES	9.2

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	7	123789-HxCDF	373.8208	36.93	521174.797	1.101	52.042	52.042	1.24	1.24	NO	1297.4
2	38	Total-hexafurans	373.8208	36.57	191.903	1.125	0.016		1.09	1.24	NO	1.2
3	5	234678-HxCDF	373.8208	35.79	618773.282	1.164	51.733	51.733	1.23	1.24	NO	1574.7
4	6	123678-HxCDF	373.8208	34.84	696186.937	1.099	50.890	50.890	1.19	1.24	NO	1687.2
5	4	123478-HxCDF	373.8208	34.69	637393.656	1.137	51.125	51.125	1.26	1.24	NO	1628.0
6	38	Total-hexafurans	373.8208	33.18	4524.229	1.125	0.376		1.19	1.24	NO	11.3

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	9	1234789-HpCDF	407.7818	41.60	439490.468	1.317	50.215	50.215	1.06	1.05	NO	976.8
2	39	Total-heptafurans	407.7818	39.76	1802.683	1.310	0.183		1.06	1.05	NO	5.8
3	8	1234678-HpCDF	407.7818	38.99	597081.813	1.303	54.335	54.335	1.06	1.05	NO	1553.7

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.56	207256.445	0.935	10.715	10.715	0.77	0.77	NO	896.2
2	35	Total-tetrafurans	303.9016	24.64	2743.925	0.935	0.142		0.75	0.77	NO	12.4
3	35	Total-tetrafurans	303.9016	24.46	6798.790	0.935	0.351		0.73	0.77	NO	29.9
4	35	Total-tetrafurans	303.9016	24.32	2039.211	0.935	0.105		1.37	0.77	YES	11.1
5	40	Total-Furans	303.9016	27.51	255.708	1.114	0.011		0.73	0.77	NO	2.1
6	3	23478-PeCDF	339.8597	31.02	749849.031	0.963	50.821	50.821	1.57	1.55	NO	3369.5
7	37	Total-pentafurans	339.8597	29.98	2650.187	0.957	0.174		1.28	1.55	YES	12.7
8	37	Total-pentafurans	339.8597	29.87	24366.216	0.957	1.599		1.56	1.55	NO	93.1
9	2	12378-PeCDF	339.8597	29.67	808382.125	0.952	51.431	51.431	1.56	1.55	NO	3598.7
10	37	Total-pentafurans	339.8597	29.32	5638.906	0.957	0.370		1.91	1.55	YES	24.1
11	37	Total-pentafurans	339.8597	28.60	12020.523	0.957	0.789		1.49	1.55	NO	35.4
12	37	Total-pentafurans	339.8597	32.05	5193.691	0.957	0.341		1.69	1.55	NO	19.7
13	37	Total-pentafurans	339.8597	31.27	1427.228	0.957	0.094		5.29	1.55	YES	9.2
14	7	123789-HxCDF	373.8208	36.93	521174.797	1.101	52.042	52.042	1.24	1.24	NO	1297.4
15	38	Total-hexafurans	373.8208	36.57	191.903	1.125	0.016		1.09	1.24	NO	1.2
16	5	234678-HxCDF	373.8208	35.79	618773.282	1.164	51.733	51.733	1.23	1.24	NO	1574.7
17	6	123678-HxCDF	373.8208	34.84	696186.937	1.099	50.890	50.890	1.19	1.24	NO	1687.2
18	4	123478-HxCDF	373.8208	34.69	637393.656	1.137	51.125	51.125	1.26	1.24	NO	1628.0
19	38	Total-hexafurans	373.8208	33.18	4524.229	1.125	0.376		1.19	1.24	NO	11.3
20	9	1234789-HpCDF	407.7818	41.60	439490.468	1.317	50.215	50.215	1.06	1.05	NO	976.8
21	39	Total-heptafurans	407.7818	39.76	1802.683	1.310	0.183		1.06	1.05	NO	5.8
22	8	1234678-HpCDF	407.7818	38.99	597081.813	1.303	54.335	54.335	1.06	1.05	NO	1553.7
23	10	OCDF	441.7428	46.71	682844.156	1.166	103.774	103....	0.90	0.89	NO	1422.2

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	24.33	6946.980	1.134	0.503		0.77	0.77	NO	24.0
2	11	2378-TCDD	319.8965	26.18	146489.832	1.134	10.616	10.616	0.80	0.77	NO	529.9
3	41	Total-tetradioxins	319.8965	25.79	4792.420	1.134	0.347		0.75	0.77	NO	12.7

PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	12	12378-PeCDD	355.8546	31.27	493522.984	0.975	52.818	52.818	1.57	1.55	NO	1638.8

HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	13	123478-HxCDD	389.8157	35.92	460287.360	1.031	51.691	51.691	1.25	1.24	NO	1906.1
2	43	Total-hexadioxins	389.8157	33.77	4917.145	0.983	0.562		1.53	1.24	YES	22.2
3	15	123789-HxCDD	389.8157	36.48	455280.328	0.947	54.023	54.023	1.26	1.24	NO	1781.5
4	14	123678-HxCDD	389.8157	36.05	466765.594	0.971	52.411	52.411	1.25	1.24	NO	1937.1

HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.76	394014.531	1.028	53.459	53.459	1.05	1.05	NO	1680.9
2	44	Total-heptadioxins	423.7766	39.54	13022.860	1.028	1.767		0.89	1.05	YES	52.9

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Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	24.33	6946.980	1.134	0.503		0.77	0.77	NO	24.0
2	11	2378-TCDD	319.8965	26.18	146489.832	1.134	10.616	10.616	0.80	0.77	NO	529.9
3	41	Total-tetradioxins	319.8965	25.79	4792.420	1.134	0.347		0.75	0.77	NO	12.7
4	12	12378-PeCDD	355.8546	31.27	493522.984	0.975	52.818	52.818	1.57	1.55	NO	1638.8
5	13	123478-HxCDD	389.8157	35.92	460287.360	1.031	51.691	51.691	1.25	1.24	NO	1906.1
6	43	Total-hexadioxins	389.8157	33.77	4917.145	0.983	0.562		1.53	1.24	YES	22.2
7	15	123789-HxCDD	389.8157	36.48	455280.328	0.947	54.023	54.023	1.26	1.24	NO	1781.5
8	14	123678-HxCDD	389.8157	36.05	466765.594	0.971	52.411	52.411	1.25	1.24	NO	1937.1
9	16	1234678-HpCDD	423.7766	40.76	394014.531	1.028	53.459	53.459	1.05	1.05	NO	1680.9
10	44	Total-heptadioxins	423.7766	39.54	13022.860	1.028	1.767		0.89	1.05	YES	52.9
11	17	OCDD	457.7377	46.45	642625.344	1.107	102.848	102....	0.86	0.89	NO	2162.5

TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.56	207256.445	0.935	10.715	10.715	0.77	0.77	NO	896.2
2	35	Total-tetrafurans	303.9016	24.64	2743.925	0.935	0.142		0.75	0.77	NO	12.4
3	35	Total-tetrafurans	303.9016	24.46	6798.790	0.935	0.351		0.73	0.77	NO	29.9
4	35	Total-tetrafurans	303.9016	24.32	2039.211	0.935	0.105		1.37	0.77	YES	11.1
5	40	Total-Furans	303.9016	27.51	255.708	1.114	0.011		0.73	0.77	NO	2.1
6	3	23478-PeCDF	339.8597	31.02	749849.031	0.963	50.821	50.821	1.57	1.55	NO	3369.5
7	37	Total-pentafurans	339.8597	29.98	2650.187	0.957	0.174		1.28	1.55	YES	12.7
8	37	Total-pentafurans	339.8597	29.87	24366.216	0.957	1.599		1.56	1.55	NO	93.1
9	2	12378-PeCDF	339.8597	29.67	808382.125	0.952	51.431	51.431	1.56	1.55	NO	3598.7
10	37	Total-pentafurans	339.8597	29.32	5638.906	0.957	0.370		1.91	1.55	YES	24.1
11	37	Total-pentafurans	339.8597	28.60	12020.523	0.957	0.789		1.49	1.55	NO	35.4
12	37	Total-pentafurans	339.8597	32.05	5193.691	0.957	0.341		1.69	1.55	NO	19.7
13	37	Total-pentafurans	339.8597	31.27	1427.228	0.957	0.094		5.29	1.55	YES	9.2
14	7	123789-HxCDF	373.8208	36.93	521174.797	1.101	52.042	52.042	1.24	1.24	NO	1297.4
15	38	Total-hexafurans	373.8208	36.57	191.903	1.125	0.016		1.09	1.24	NO	1.2
16	5	234678-HxCDF	373.8208	35.79	618773.282	1.164	51.733	51.733	1.23	1.24	NO	1574.7
17	6	123678-HxCDF	373.8208	34.84	696186.937	1.099	50.890	50.890	1.19	1.24	NO	1687.2
18	4	123478-HxCDF	373.8208	34.69	637393.656	1.137	51.125	51.125	1.26	1.24	NO	1628.0
19	38	Total-hexafurans	373.8208	33.18	4524.229	1.125	0.376		1.19	1.24	NO	11.3
20	9	1234789-HpCDF	407.7818	41.60	439490.468	1.317	50.215	50.215	1.06	1.05	NO	976.8
21	39	Total-heptafurans	407.7818	39.76	1802.683	1.310	0.183		1.06	1.05	NO	5.8
22	8	1234678-HpCDF	407.7818	38.99	597081.813	1.303	54.335	54.335	1.06	1.05	NO	1553.7
23	10	OCDF	441.7428	46.71	682844.156	1.166	103.774	103....	0.90	0.89	NO	1422.2
24	41	Total-tetradioxins	319.8965	24.33	6946.980	1.134	0.503		0.77	0.77	NO	24.0
25	11	2378-TCDD	319.8965	26.18	146489.832	1.134	10.616	10.616	0.80	0.77	NO	529.9
26	41	Total-tetradioxins	319.8965	25.79	4792.420	1.134	0.347		0.75	0.77	NO	12.7
27	12	12378-PeCDD	355.8546	31.27	493522.984	0.975	52.818	52.818	1.57	1.55	NO	1638.8
28	13	123478-HxCDD	389.8157	35.92	460287.360	1.031	51.691	51.691	1.25	1.24	NO	1906.1
29	43	Total-hexadioxins	389.8157	33.77	4917.145	0.983	0.562		1.53	1.24	YES	22.2
30	15	123789-HxCDD	389.8157	36.48	455280.328	0.947	54.023	54.023	1.26	1.24	NO	1781.5
31	14	123678-HxCDD	389.8157	36.05	466765.594	0.971	52.411	52.411	1.25	1.24	NO	1937.1
32	16	1234678-HpCDD	423.7766	40.76	394014.531	1.028	53.459	53.459	1.05	1.05	NO	1680.9
33	44	Total-heptadioxins	423.7766	39.54	13022.860	1.028	1.767		0.89	1.05	YES	52.9
34	17	OCDD	457.7377	46.45	642625.344	1.107	102.848	102....	0.86	0.89	NO	2162.5

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PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	23.96	0.000							56.1
2	48	FUNCTION1 PFK	330.9792	23.51	0.000							71.7
3	48	FUNCTION1 PFK	330.9792	23.27	0.000							78.7
4	48	FUNCTION1 PFK	330.9792	23.03	0.000							85.1
5	48	FUNCTION1 PFK	330.9792	22.91	0.000							89.3
6	48	FUNCTION1 PFK	330.9792	22.49	0.000							101.2
7	48	FUNCTION1 PFK	330.9792	22.43	0.000							101.7
8	48	FUNCTION1 PFK	330.9792	22.19	0.000							109.7
9	48	FUNCTION1 PFK	330.9792	21.94	0.000							117.6
10	48	FUNCTION1 PFK	330.9792	21.72	0.000							123.4
11	48	FUNCTION1 PFK	330.9792	21.54	0.000							129.1
12	48	FUNCTION1 PFK	330.9792	21.07	0.000							108.1
13	48	FUNCTION1 PFK	330.9792	27.17	0.000							2.1
14	48	FUNCTION1 PFK	330.9792	27.11	0.000							1.4
15	48	FUNCTION1 PFK	330.9792	27.05	0.000							2.1
16	48	FUNCTION1 PFK	330.9792	26.91	0.000							2.9
17	48	FUNCTION1 PFK	330.9792	26.71	0.000							0.6
18	48	FUNCTION1 PFK	330.9792	26.51	0.000							1.4
19	48	FUNCTION1 PFK	330.9792	26.38	0.000							1.0
20	48	FUNCTION1 PFK	330.9792	25.78	0.000							7.1
21	48	FUNCTION1 PFK	330.9792	25.67	0.000							9.4
22	48	FUNCTION1 PFK	330.9792	25.09	0.000							26.0
23	48	FUNCTION1 PFK	330.9792	24.93	0.000							30.7
24	48	FUNCTION1 PFK	330.9792	24.81	0.000							34.1
25	48	FUNCTION1 PFK	330.9792	24.55	0.000							41.7
26	48	FUNCTION1 PFK	330.9792	24.45	0.000							44.0
27	48	FUNCTION1 PFK	330.9792	24.30	0.000							48.3
28	48	FUNCTION1 PFK	330.9792	24.17	0.000							51.8

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ID: BEK0165-BSD1, Name: 16110906, Date: 09-Nov-2016, Time: 16:06:34, Conditions: AUTOSPEC01, User: PK

PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	31.56	0.000		0.000					2.1
2	49	FUNCTION2 PFK	366.9792	31.02	0.000		0.000					0.5
3	49	FUNCTION2 PFK	366.9792	30.84	0.000		0.000					1.0
4	49	FUNCTION2 PFK	366.9792	30.45	0.000		0.000					0.9
5	49	FUNCTION2 PFK	366.9792	30.24	0.000		0.000					0.9
6	49	FUNCTION2 PFK	366.9792	30.03	0.000		0.000					1.9
7	49	FUNCTION2 PFK	366.9792	29.97	0.000		0.000					2.5
8	49	FUNCTION2 PFK	366.9792	29.02	0.000		0.000					0.8
9	49	FUNCTION2 PFK	366.9792	28.92	0.000		0.000					0.8
10	49	FUNCTION2 PFK	366.9792	28.81	0.000		0.000					1.9
11	49	FUNCTION2 PFK	366.9792	28.53	0.000		0.000					2.8
12	49	FUNCTION2 PFK	366.9792	28.34	0.000		0.000					9.4
13	49	FUNCTION2 PFK	366.9792	28.33	0.000		0.000					9.4
14	49	FUNCTION2 PFK	366.9792	28.24	0.000		0.000					12.5
15	49	FUNCTION2 PFK	366.9792	28.01	0.000		0.000					19.5
16	49	FUNCTION2 PFK	366.9792	32.49	0.000		0.000					1.5
17	49	FUNCTION2 PFK	366.9792	32.44	0.000		0.000					0.5
18	49	FUNCTION2 PFK	366.9792	32.21	0.000		0.000					0.9
19	49	FUNCTION2 PFK	366.9792	32.11	0.000		0.000					1.6
20	49	FUNCTION2 PFK	366.9792	32.05	0.000		0.000					0.9
21	49	FUNCTION2 PFK	366.9792	31.99	0.000		0.000					1.4
22	49	FUNCTION2 PFK	366.9792	31.93	0.000		0.000					2.0
23	49	FUNCTION2 PFK	366.9792	31.78	0.000		0.000					1.5
24	49	FUNCTION2 PFK	366.9792	31.64	0.000		0.000					2.2

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	34.63	0.000		0.000					1.4
2	50	FUNCTION3 PFK	380.9760	34.18	0.000		0.000					13.7
3	50	FUNCTION3 PFK	380.9760	33.88	0.000		0.000					32.4
4	50	FUNCTION3 PFK	380.9760	33.13	0.000		0.000					83.6
5	50	FUNCTION3 PFK	380.9760	33.08	0.000		0.000					85.9
6	50	FUNCTION3 PFK	380.9760	33.03	0.000		0.000					90.0
7	50	FUNCTION3 PFK	380.9760	36.88	0.000		0.000					0.9
8	50	FUNCTION3 PFK	380.9760	36.78	0.000		0.000					0.9
9	50	FUNCTION3 PFK	380.9760	36.29	0.000		0.000					0.5
10	50	FUNCTION3 PFK	380.9760	36.12	0.000		0.000					2.5
11	50	FUNCTION3 PFK	380.9760	35.99	0.000		0.000					1.7
12	50	FUNCTION3 PFK	380.9760	35.85	0.000		0.000					1.3
13	50	FUNCTION3 PFK	380.9760	35.79	0.000		0.000					0.6
14	50	FUNCTION3 PFK	380.9760	35.63	0.000		0.000					1.2
15	50	FUNCTION3 PFK	380.9760	35.42	0.000		0.000					2.2
16	50	FUNCTION3 PFK	380.9760	35.34	0.000		0.000					2.6
17	50	FUNCTION3 PFK	380.9760	35.26	0.000		0.000					0.7
18	50	FUNCTION3 PFK	380.9760	35.14	0.000		0.000					0.5
19	50	FUNCTION3 PFK	380.9760	35.07	0.000		0.000					0.6
20	50	FUNCTION3 PFK	380.9760	34.95	0.000		0.000					0.6
21	50	FUNCTION3 PFK	380.9760	34.80	0.000		0.000					0.5
22	50	FUNCTION3 PFK	380.9760	34.68	0.000		0.000					1.5
23	50	FUNCTION3 PFK	380.9760	37.91	0.000		0.000					1.4
24	50	FUNCTION3 PFK	380.9760	37.76	0.000		0.000					1.9
25	50	FUNCTION3 PFK	380.9760	37.68	0.000		0.000					2.4
26	50	FUNCTION3 PFK	380.9760	37.48	0.000		0.000					1.4
27	50	FUNCTION3 PFK	380.9760	37.22	0.000		0.000					1.9
28	50	FUNCTION3 PFK	380.9760	37.13	0.000		0.000					1.5
29	50	FUNCTION3 PFK	380.9760	36.94	0.000		0.000					1.9

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	44.15	0.000							0.5
2	51	FUNCTION4 PFK	430.9728	42.98	0.000							1.6
3	51	FUNCTION4 PFK	430.9728	42.83	0.000							0.5
4	51	FUNCTION4 PFK	430.9728	41.90	0.000							1.2
5	51	FUNCTION4 PFK	430.9728	41.24	0.000							1.6
6	51	FUNCTION4 PFK	430.9728	39.70	0.000							1.3
7	51	FUNCTION4 PFK	430.9728	39.19	0.000							1.6
8	51	FUNCTION4 PFK	430.9728	39.14	0.000							1.0

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PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	47.20	0.000							0.7
2	52	FUNCTION5 PFK	480.9696	46.90	0.000							1.2
3	52	FUNCTION5 PFK	480.9696	46.83	0.000							0.9
4	52	FUNCTION5 PFK	480.9696	46.58	0.000							0.7
5	52	FUNCTION5 PFK	480.9696	46.54	0.000							1.0
6	52	FUNCTION5 PFK	480.9696	46.38	0.000							0.6
7	52	FUNCTION5 PFK	480.9696	46.00	0.000							1.2
8	52	FUNCTION5 PFK	480.9696	45.90	0.000							0.9
9	52	FUNCTION5 PFK	480.9696	45.73	0.000							2.2
10	52	FUNCTION5 PFK	480.9696	45.63	0.000							0.4
11	52	FUNCTION5 PFK	480.9696	45.59	0.000							0.7
12	52	FUNCTION5 PFK	480.9696	45.41	0.000							1.7
13	52	FUNCTION5 PFK	480.9696	45.01	0.000							1.2
14	52	FUNCTION5 PFK	480.9696	44.88	0.000							1.2
15	52	FUNCTION5 PFK	480.9696	44.79	0.000							1.1
16	52	FUNCTION5 PFK	480.9696	48.92	0.000							0.8
17	52	FUNCTION5 PFK	480.9696	48.87	0.000							1.7
18	52	FUNCTION5 PFK	480.9696	48.41	0.000							1.7
19	52	FUNCTION5 PFK	480.9696	48.19	0.000							0.8
20	52	FUNCTION5 PFK	480.9696	48.08	0.000							1.0
21	52	FUNCTION5 PFK	480.9696	47.82	0.000							1.3
22	52	FUNCTION5 PFK	480.9696	47.76	0.000							0.9
23	52	FUNCTION5 PFK	480.9696	47.52	0.000							1.4
24	52	FUNCTION5 PFK	480.9696	47.39	0.000							1.5
25	52	FUNCTION5 PFK	480.9696	47.31	0.000							2.1
26	52	FUNCTION5 PFK	480.9696	47.23	0.000							2.0

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	22.70	0.000		0.000					2.3
2	53	FUNCTION1 HXCD...	375.8364	22.27	0.000		0.000					4.3

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	22.37	0.000		0.000					2.3
2	54	FUNCTION1 HPCD...	409.7974	27.69	0.000		0.000					3.2
3	54	FUNCTION1 HPCD...	409.7974	27.32	0.000		0.000					1.7
4	54	FUNCTION1 HPCD...	409.7974	26.87	0.000		0.000					1.6
5	54	FUNCTION1 HPCD...	409.7974	25.79	0.000		0.000					4.1
6	54	FUNCTION1 HPCD...	409.7974	25.50	0.000		0.000					2.6
7	54	FUNCTION1 HPCD...	409.7974	25.35	0.000		0.000					2.3
8	54	FUNCTION1 HPCD...	409.7974	23.33	0.000		0.000					2.8
9	54	FUNCTION1 HPCD...	409.7974	23.09	0.000		0.000					1.9
10	54	FUNCTION1 HPCD...	409.7974	22.99	0.000		0.000					1.0

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ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	30.62	0.000		0.000					2.2
2	55	FUNCTION2 HPCD...	409.7974	29.31	0.000		0.000					4.5
3	55	FUNCTION2 HPCD...	409.7974	29.27	0.000		0.000					1.6
4	55	FUNCTION2 HPCD...	409.7974	28.12	0.000		0.000					1.8

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	56	FUNCTION3 OCDPE	445.7555	33.94	0.000		0.000					2.2
2	56	FUNCTION3 OCDPE	445.7555	36.66	0.000		0.000					3.9

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	43.06	0.000		0.000					3.8
2	57	FUNCTION4 NCDPE	479.7165	42.39	0.000		0.000					3.8
3	57	FUNCTION4 NCDPE	479.7165	39.45	0.000		0.000					2.0

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	58	FUNCTION5 DCDPE	513.6775	47.68	0.000		0.000					2.0
2	58	FUNCTION5 DCDPE	513.6775	47.56	0.000		0.000					1.6
3	58	FUNCTION5 DCDPE	513.6775	47.14	0.000		0.000					2.1
4	58	FUNCTION5 DCDPE	513.6775	45.56	0.000		0.000					4.5
5	58	FUNCTION5 DCDPE	513.6775	45.14	0.000		0.000					4.1

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

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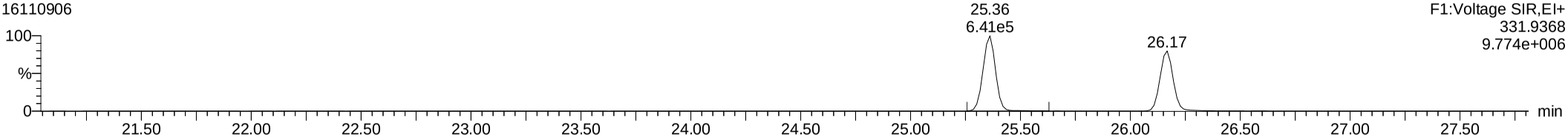
13C-1234-TCDD



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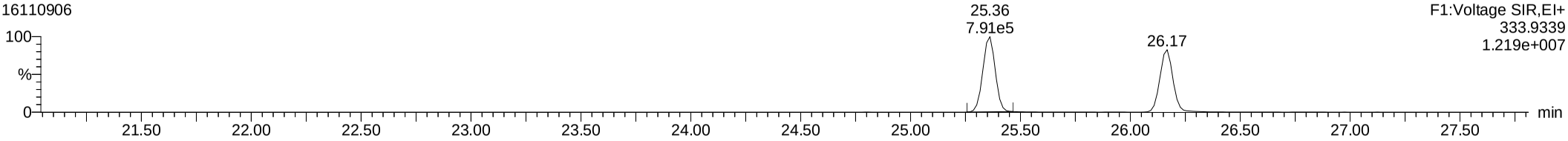

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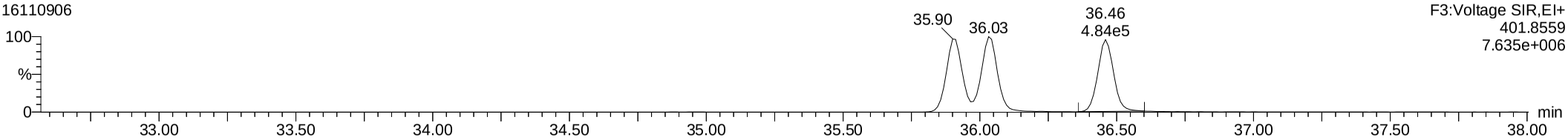

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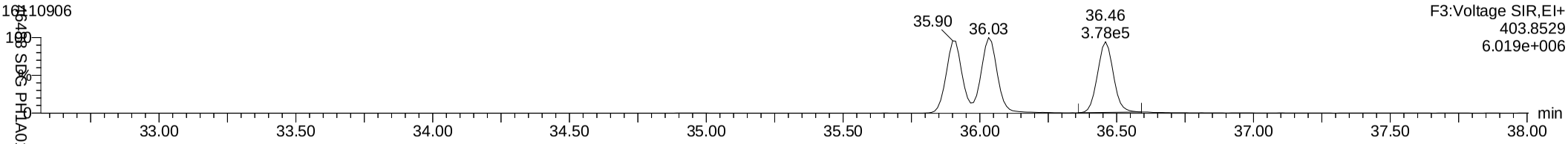

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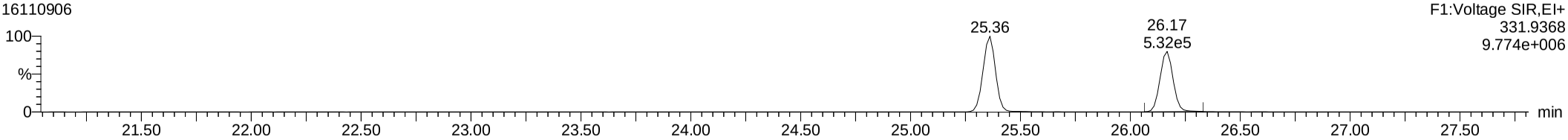
13C-2378-TCDD



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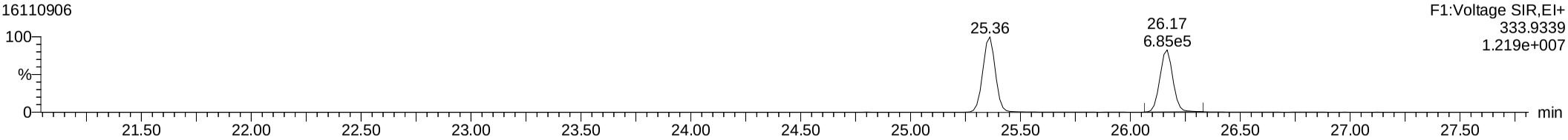

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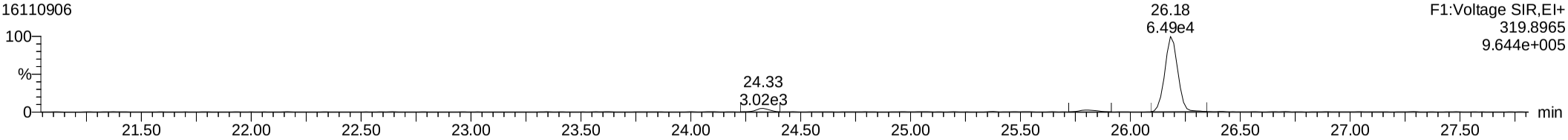

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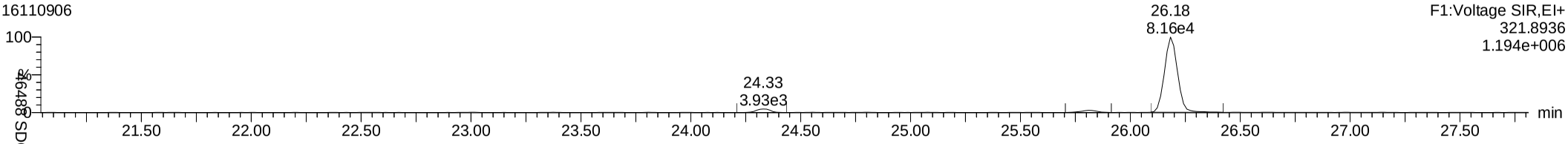
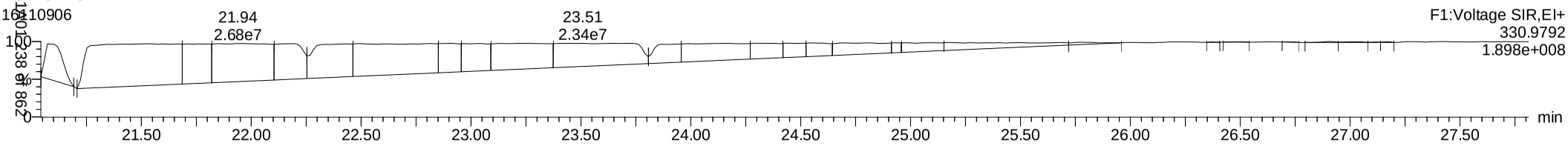


FUNCTION1 PFK



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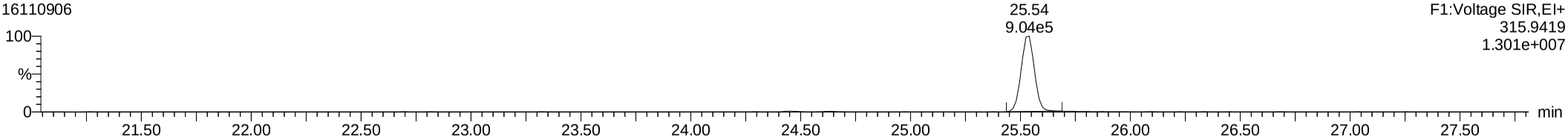
13C-2378-TCDF



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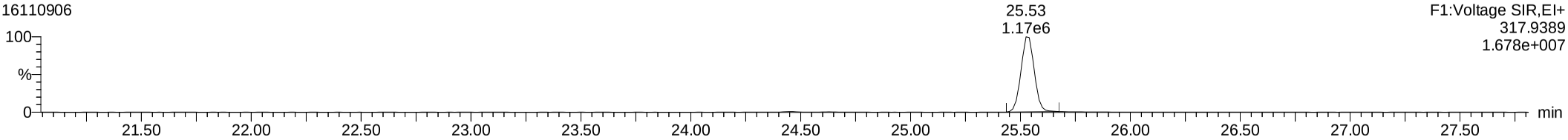

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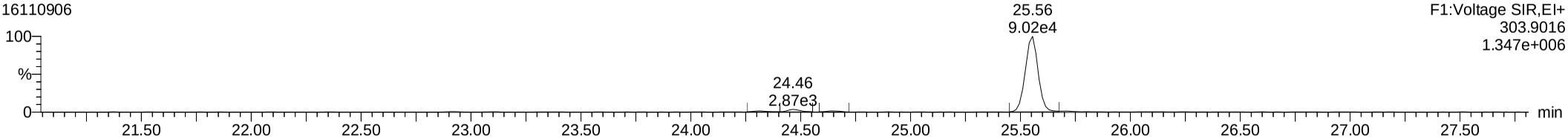
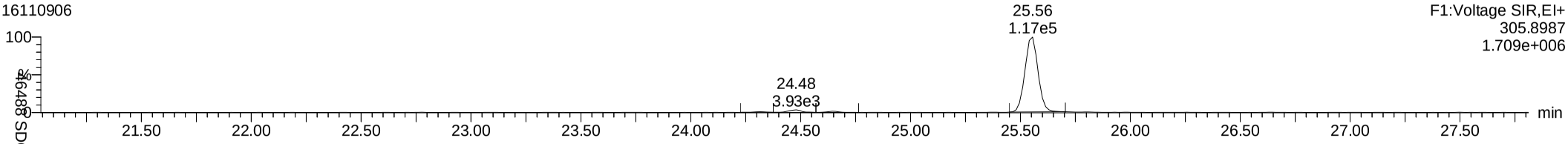


Total-tetrafurans



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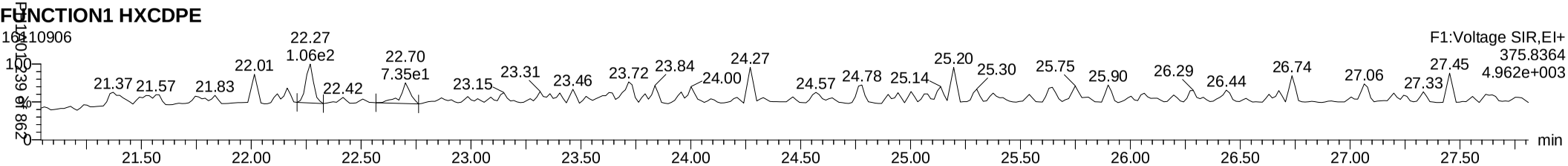

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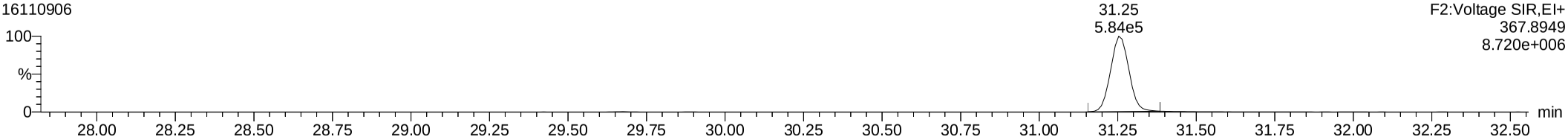
13C-12378-PeCDD



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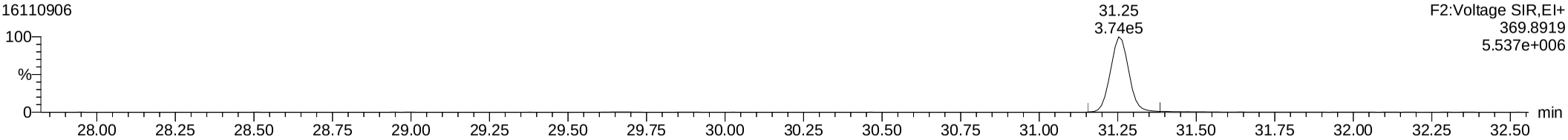
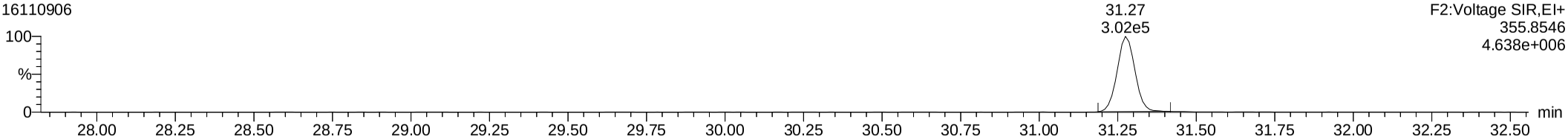
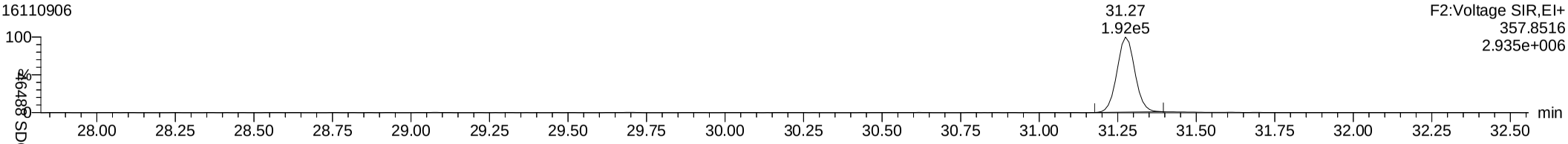


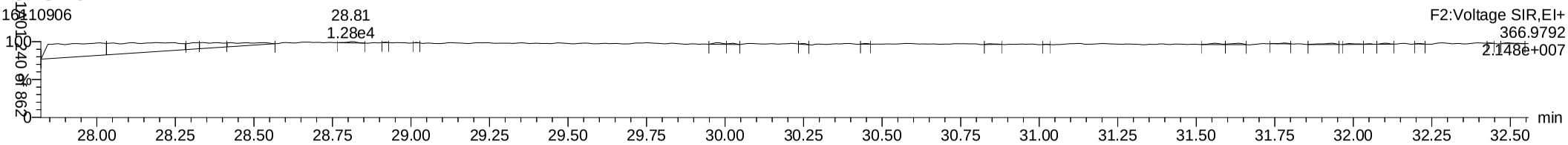
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



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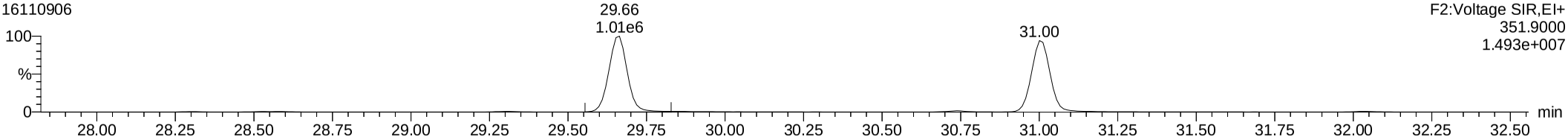
13C-12378-PeCDF



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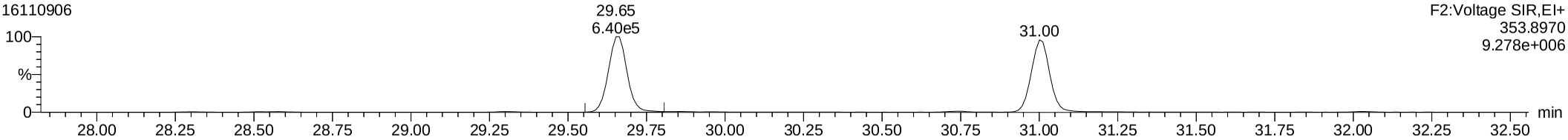

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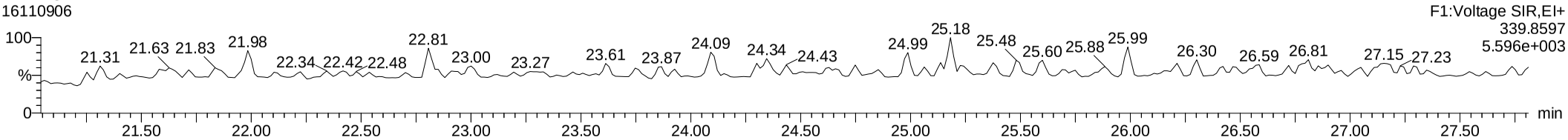

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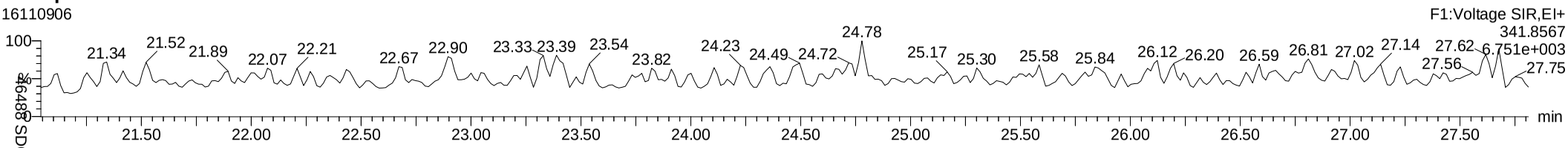
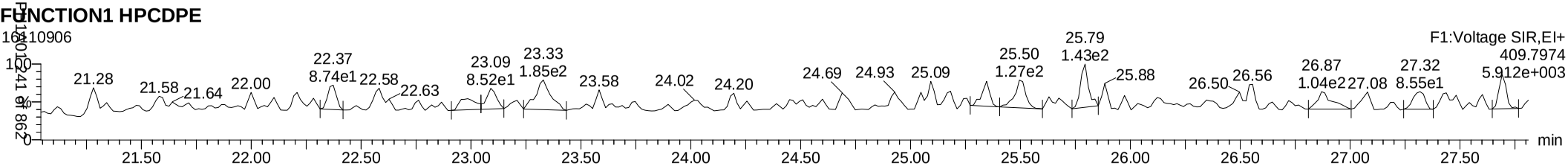


FUNCTION1 HPCDPE



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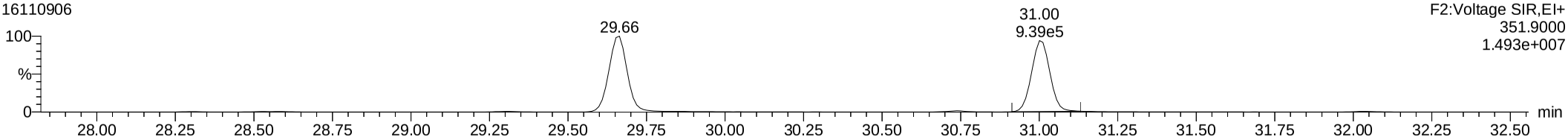
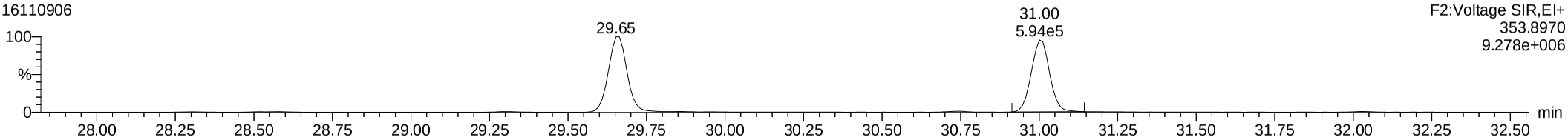
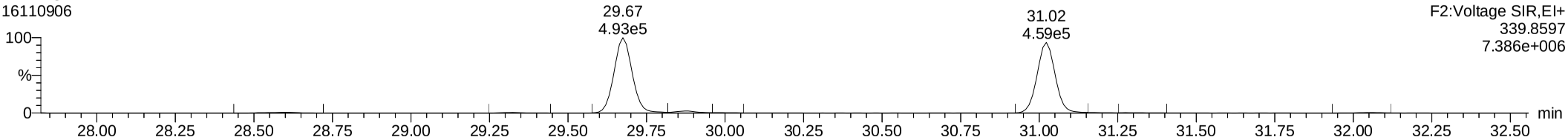
13C-23478-PeCDF



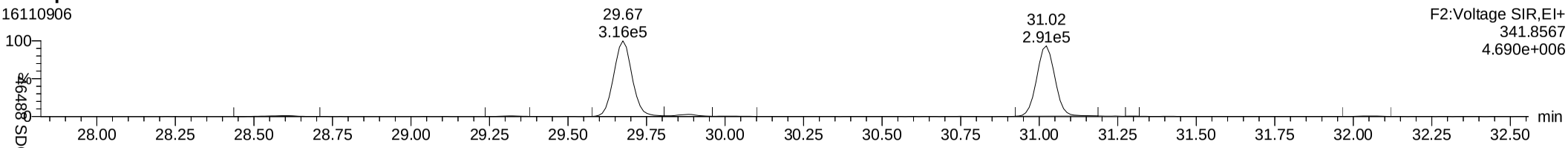
13C-23478-PeCDF



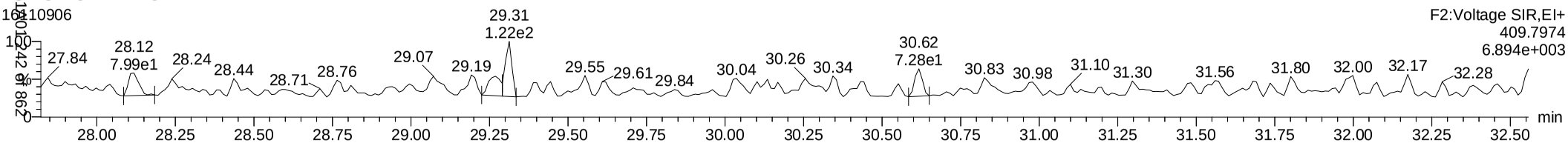
Total-pentafurans



Total-pentafurans



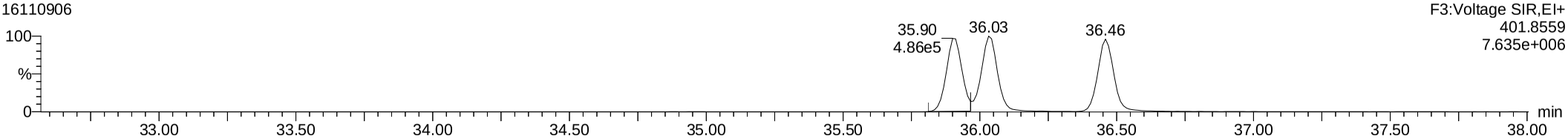
FUNCTION2 HPCDPE



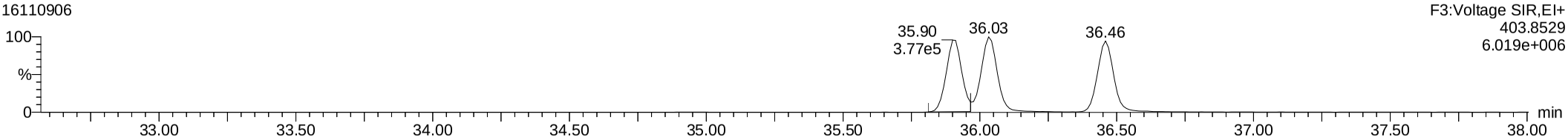
46488 SDG PH1101242 of 862

ID: BEK0165-BSD1, Name: 16110906, Date: 09-Nov-2016, Time: 16:06:34, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



13C-123478-HxCDD



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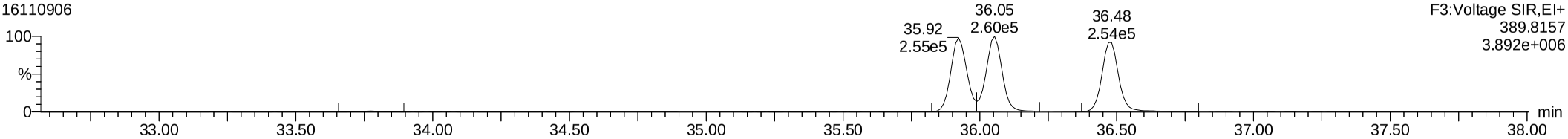
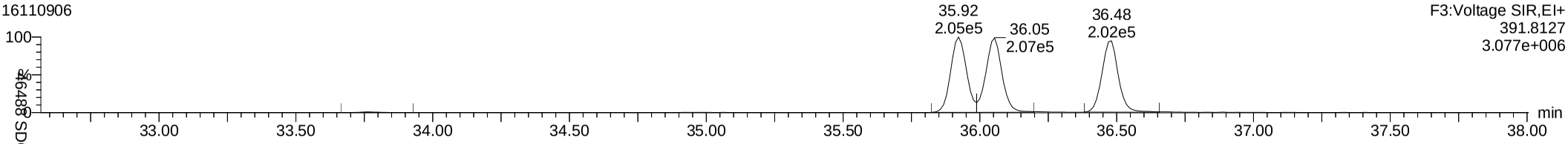
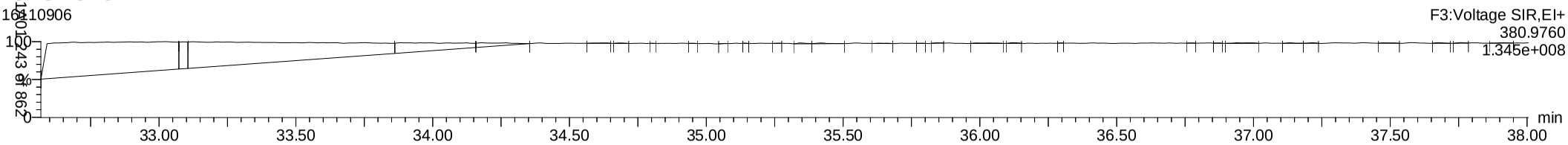


Total-hexadioxins



FUNCTION3 PFK



46488 SDG PH1101243 of 862

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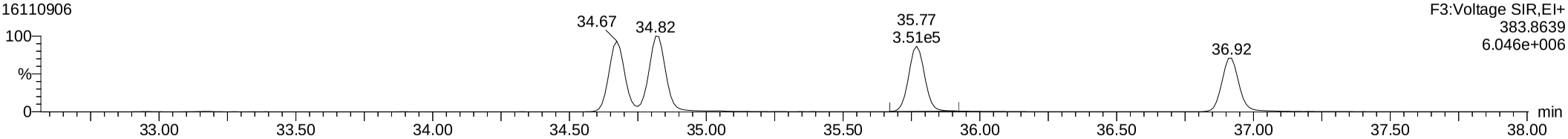
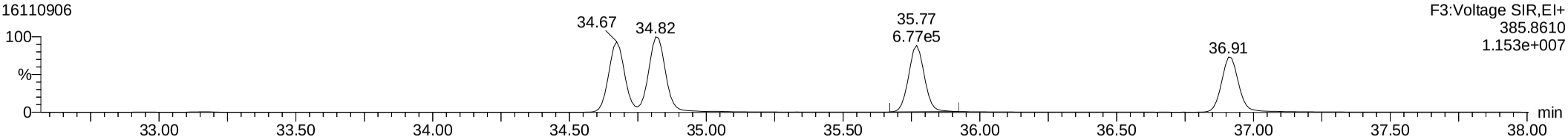
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Friday, November 11, 2016 11:21:32 Pacific Standard Time

ID: BEK0165-BSD1, Name: 16110906, Date: 09-Nov-2016, Time: 16:06:34, Conditions: AUTOSPEC01, User: PK

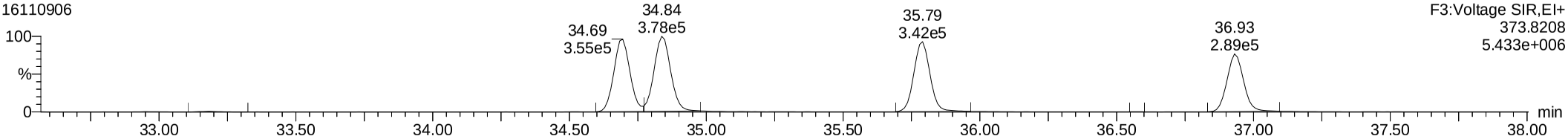
13C-234678-HxCDF



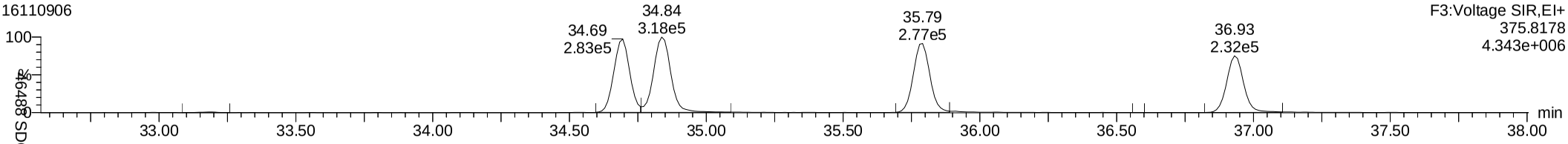
13C-234678-HxCDF



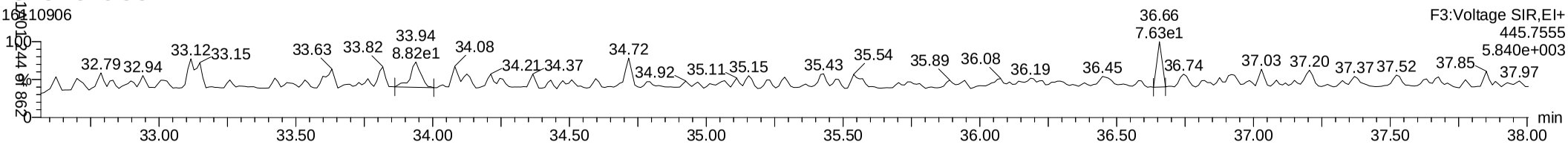
Total-hexafurans



Total-hexafurans

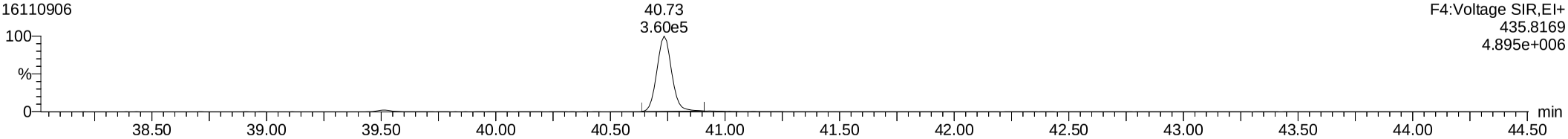


FUNCTION3 OCDPE

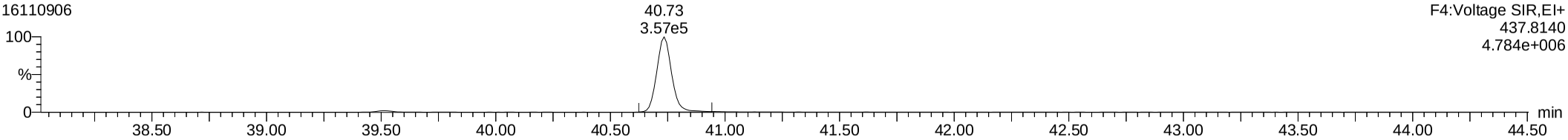


ID: BEK0165-BSD1, Name: 16110906, Date: 09-Nov-2016, Time: 16:06:34, Conditions: AUTOSPEC01, User: PK

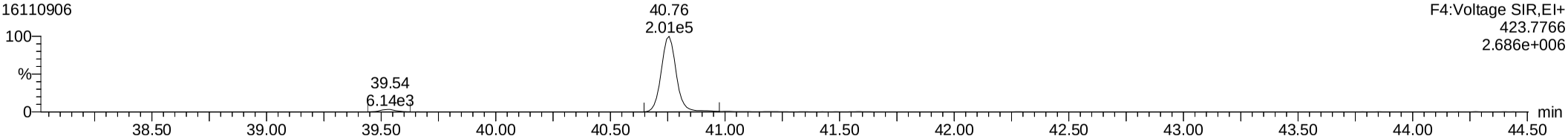
13C-1234678-HpCDD



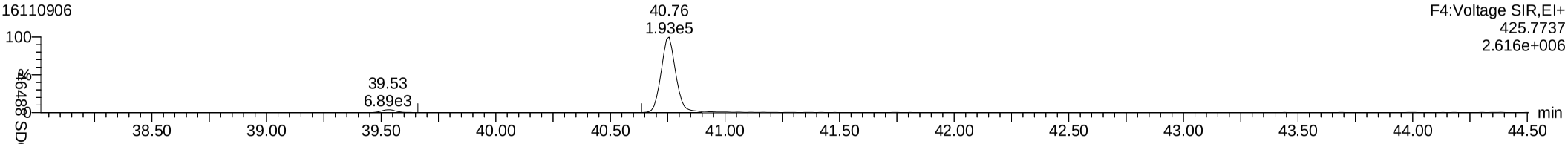
13C-1234678-HpCDD



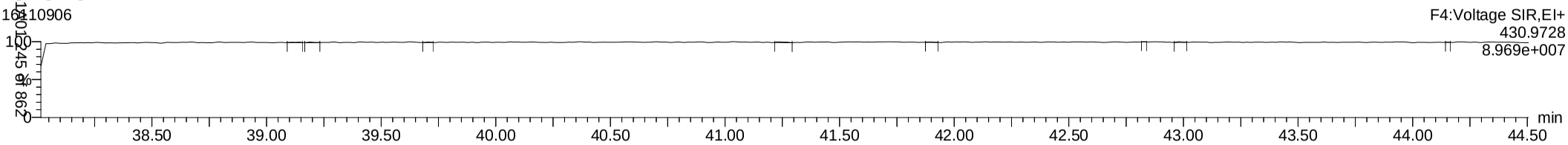
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



46488 SDG PH1001245 of 862

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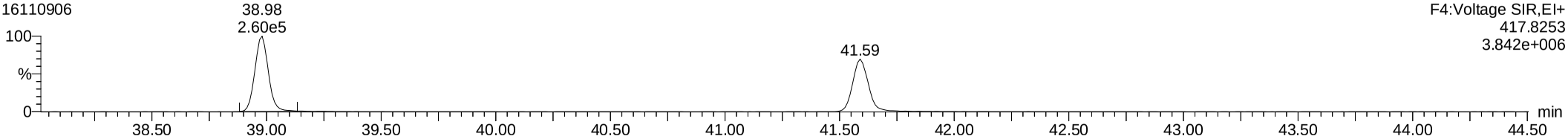
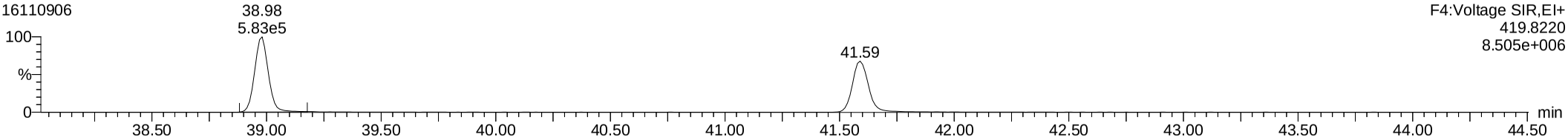
Printed: Friday, November 11, 2016 11:21:32 Pacific Standard Time

ID: BEK0165-BSD1, Name: 16110906, Date: 09-Nov-2016, Time: 16:06:34, Conditions: AUTOSPEC01, User: PK

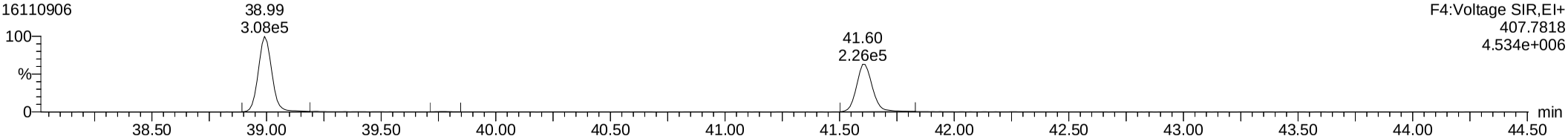
13C-1234678-HpCDF



13C-1234678-HpCDF



Total-heptafurans



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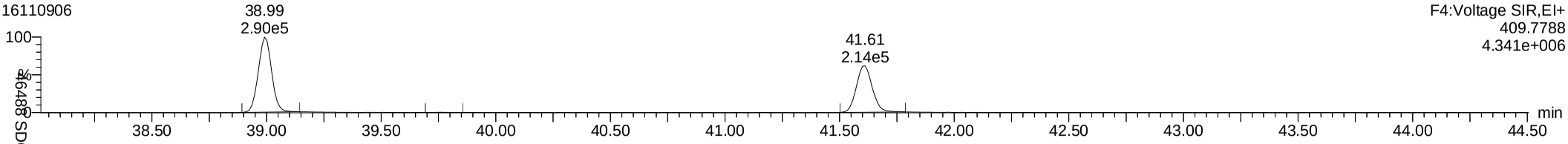
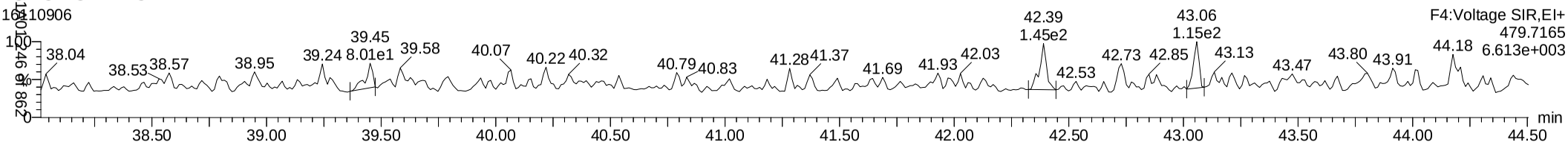


FUNCTION4 NCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
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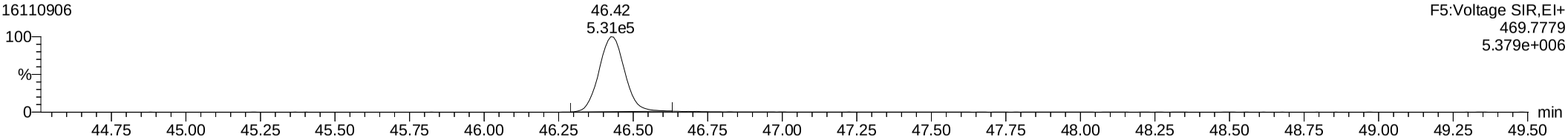
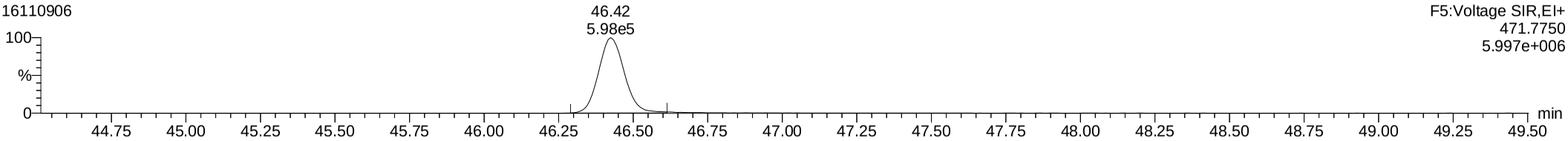
ID: BEK0165-BSD1, Name: 16110906, Date: 09-Nov-2016, Time: 16:06:34, Conditions: AUTOSPEC01, User: PK

13C-OCDD



13C-OCDD



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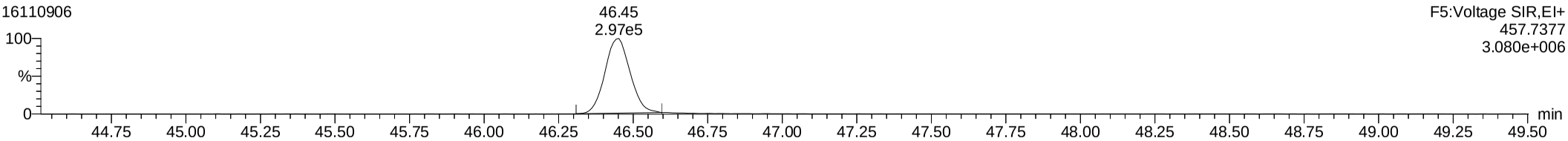
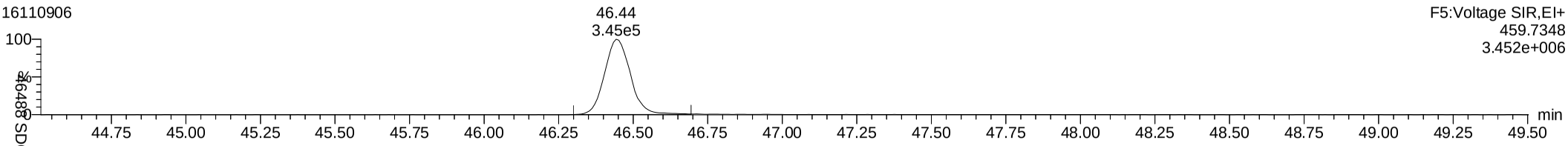
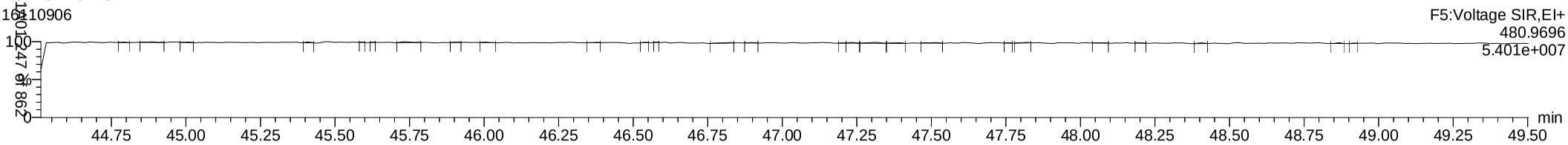


OCDD



FUNCTION5 PFK



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
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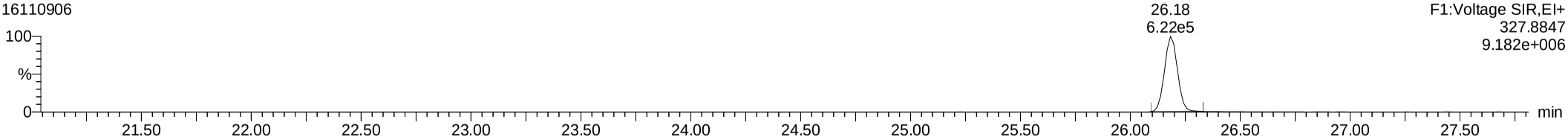
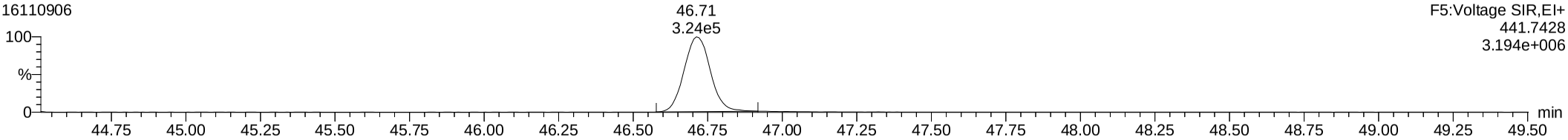
ID: BEK0165-BSD1, Name: 16110906, Date: 09-Nov-2016, Time: 16:06:34, Conditions: AUTOSPEC01, User: PK

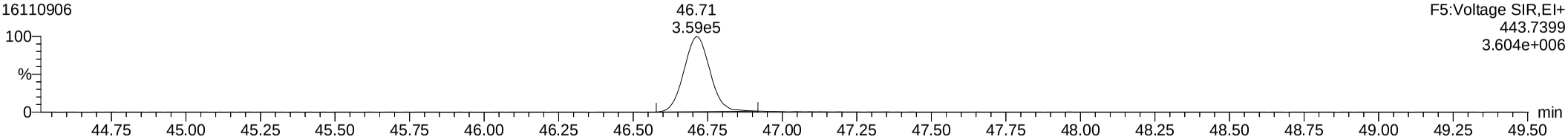
37CL-2378-TCDD



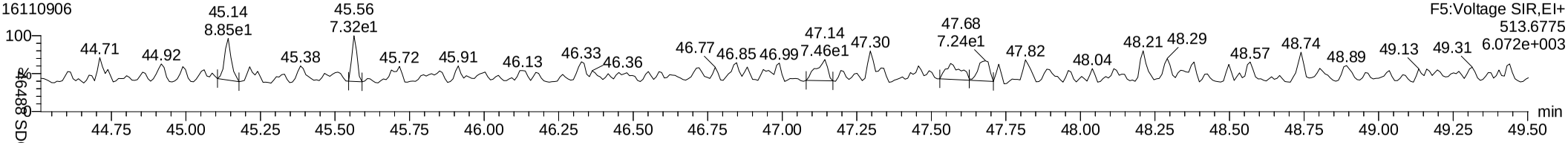
OCDF



OCDF



FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

DBLK10

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0276-BLK1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111404

Decanted (Y/N): N Extraction Method: SPE

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2378-TCDD		UM	1.1		
5	12378-PeCDD		UM	2.9		
6	123478-HxCDD		UM	2.4		
6	123678-HxCDD		UM	3.7		
6	123789-HxCDD		UM	3.2		
7	1234678-HpCDD		UM	2.6		
8	OCDD		UM	43		
4	2378-TCDF		UM	0.77		
5	12378-PeCDF		UM	3.6		
5	23478-PeCDF		UM	5.0		
6	123478-HxCDF		UM	3.0		
6	123678-HxCDF		UM	3.0		
6	123789-HxCDF		UM	2.9		
6	234678-HxCDF		UM	3.6		
7	1234678-HpCDF		UM	3.7		
7	1234789-HpCDF		UM	2.9		
8	OCDF		UM	9.0		

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

DBLK10

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0276-BLK1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111404

Decanted (Y/N): N Extraction Method: SPE Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2378-TCDD		x 1.0		x 1.0		x 1.0	
12378-PeCDD		x 1.0		x 1.0		x 1.0	
123478-HxCDD		x 0.1		x 0.5		0.05	
123678-HxCDD		x 0.1		x 0.01		x 0.01	
123789-HxCDD		x 0.1		x 0.01		x 0.1	
1234678-HpCDD		x 0.01		x 0.001		x 0.001	
OCDD		x 0.0003		x 0.0001		x 0.0001	
2378-TCDF		x 0.1		x 0.05		x 1.0	
12378-PeCDF		x 0.03		x 0.05		x 0.1	
23478-PeCDF		x 0.3		x 0.5		x 1.0	
123478-HxCDF		x 0.1		x 0.1		x 0.1	
123678-HxCDF		x 0.1		x 0.1		x 0.1	
123789-HxCDF		x 0.1		x 0.1		x 0.1	
234678-HxCDF		x 0.1		x 0.1		x 0.1	
1234678-HpCDF		x 0.01		x 0.01		x 0.01	
1234789-HpCDF		x 0.01		x 0.01		x 0.01	
OCDF		x 0.0003		x 0.0001		x 0.0001	
		Total TEQ =	0.0000	Total TEQ =	0.0000	Total TEQ =	0.0000

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 1D-HR

TOTAL HOMOLOGUE DATA SUMMARY

EPA SAMPLE NO.

DBLK10

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0276-BLK1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111404

Decanted (Y/N): N Extraction Method: SPE

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

Homologue	Peaks	Concentration	Q
Total TCDD			U
Total PeCDD			U
Total HxCDD	1	0.36	
Total HpCDD	2	2.2	
Total TCDF	0	2.0	
Total PeCDF			U
Total HxCDF	1	0.84	
Total HpCDF			U
OCDD			U
OCDF			U
Total		5.4000	

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

DBLK10

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0276-BLK1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111404

Decanted (Y/N): N Extraction Method: SPE Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2378-TCDD	2000	1900	94.7	0.79	26.1827
4	13C12-2378-TCDF	2000	1900	94.0	0.78	25.5552
5	13C12-12378-PeCDD	2000	1800	91.4	1.60	31.275
5	13C12-12378-PeCDF	2000	1800	88.1	1.59	29.6747
5	13C12-23478-PeCDF	2000	1800	89.8	1.58	31.0228
6	13C12-123478-HxCDD	2000	1900	94.5	1.31	35.9225
6	13C12-123678-HxCDD	2000	1800	88.5	1.27	36.054
6	13C12-123478-HxCDF	2000	1800	87.7	0.52	34.695
6	13C12-123678-HxCDF	2000	1700	85.1	0.51	34.8373
6	13C12-123789-HxCDF	2000	1700	87.4	0.52	36.9308
6	13C12-234678-HxCDF	2000	1700	85.8	0.51	35.791
7	13C12-1234678-HpCDD	2000	1800	91.9	1.07	40.7455
7	13C12-1234678-HpCDF	2000	1600	81.7	0.45	38.9917
7	13C12-1234789-HpCDF	2000	1700	85.1	0.44	41.6003
8	13C12-OCDD	4000	3100	78.4	0.89	46.4342
Labeled Cleanup Standard 37C14-2378-TCDD						
4	37C14-2378-TCDD	800	830	104		26.1977

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Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF					0.935		0.770	494	849					
12378-PeCDF					0.952		1.550	809	1232					
23478-PeCDF					0.963		1.550	809	1232					
123478-HxCDF					1.137		1.240	372	707					
234678-HxCDF					1.164		1.240	372	707					
123678-HxCDF					1.099		1.240	372	707					
123789-HxCDF	36.942	1.000	1.15e2	3.45e2	1.101	0.333	1.240	372	707	2.69e3	6.13e3	7.2	YES	0.042
1234678-HpCDF					1.303		1.050	298	407					
1234789-HpCDF					1.317		1.050	298	407					
OCDF					1.166		0.890	588	621					
2378-TCDD					1.134		0.770	981	634					
12378-PeCDD					0.975		1.550	916	345					
123478-HxCDD	35.923	1.000	9.75e1	8.15e1	1.031	1.197	1.240	839	532	3.59e3	2.09e3	4.3	NO	0.018
123678-HxCDD					0.971		1.240	839	532					
123789-HxCDD					0.947		1.240	839	532					
1234678-HpCDD	40.745	1.000	1.27e2	1.98e2	1.028	0.641	1.050	435	514	3.47e3	5.56e3	8.0	YES	0.039
OCDD	46.425	1.000	1.27e3	1.45e3	1.107	0.875	0.890	811	651	1.39e4	1.40e4	17.2	NO	0.398
13C-2378-TCDF	25.555	1.007	9.61e5	1.23e6	1.567	0.779	0.770	4321	3519	1.40e7	1.80e7	3250.9	NO	93.962
13C-12378-PeCDF	29.675	1.169	1.03e6	6.45e5	1.274	1.594	1.550	3769	2253	1.52e7	9.58e6	4043.7	NO	88.083
13C-23478-PeCDF	31.023	1.222	1.01e6	6.42e5	1.235	1.576	1.550	3769	2253	1.50e7	9.52e6	3989.9	NO	89.841
13C-123478-HxCDF	34.695	0.951	3.98e5	7.65e5	1.381	0.520	0.510	3457	5356	5.87e6	1.13e7	1697.9	NO	87.742
13C-123678-HxCDF	34.837	0.955	4.34e5	8.48e5	1.569	0.511	0.510	3457	5356	6.30e6	1.23e7	1821.2	NO	85.107
13C-234678-HxCDF	35.791	0.981	3.75e5	7.32e5	1.345	0.512	0.510	3457	5356	5.53e6	1.07e7	1598.2	NO	85.765
13C-123789-HxCDF	36.931	1.013	3.41e5	6.51e5	1.183	0.525	0.510	3457	5356	4.93e6	9.33e6	1425.4	NO	87.389
13C-1234678-HpCDF	38.992	1.069	2.86e5	6.38e5	1.178	0.448	0.440	2253	3133	4.25e6	9.39e6	1885.9	NO	81.658
13C-1234789-HpCDF	41.600	1.141	2.19e5	4.97e5	0.878	0.441	0.440	2253	3133	2.82e6	6.43e6	1251.0	NO	85.057
13C-1234-TCDD	25.376	0.000	6.57e5	8.34e5	1.000	0.789	0.770	2483	1700	9.88e6	1.26e7	3978.0	NO	100.000
13C-2378-TCDD	26.183	1.032	5.65e5	7.17e5	0.908	0.788	0.770	2483	1700	8.39e6	1.07e7	3376.8	NO	94.696
13C-12378-PeCDD	31.275	1.232	6.33e5	3.97e5	0.756	1.596	1.550	1724	1337	9.41e6	5.97e6	5456.6	NO	91.420
13C-123478-HxCDD	35.923	0.985	5.43e5	4.15e5	1.056	1.309	1.240	2698	2127	8.25e6	6.26e6	3057.5	NO	94.524
13C-123678-HxCDD	36.054	0.989	5.52e5	4.35e5	1.163	1.269	1.240	2698	2127	8.14e6	6.47e6	3018.8	NO	88.532
13C-1234678-HpCDD	40.745	1.117	4.14e5	3.87e5	0.909	1.071	1.050	1879	2259	5.55e6	5.22e6	2952.9	NO	91.866
13C-OCDD	46.434	1.273	5.79e5	6.54e5	0.820	0.886	0.890	2168	1921	6.10e6	6.81e6	2811.4	NO	156.829
13C-123789-HxCDD	36.471	0.000	5.34e5	4.25e5	1.000	1.257	1.240	2698	2127	7.72e6	6.12e6	2861.0	NO	100.000
Total-tetrafurans			6.34e2		0.935			494		1.13e4				0.099

9448 OCPDA01 2334 1 8 2

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Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					396		0.00e0				
Total-pentafurans			0.00e0		0.957			809		0.00e0				
Total-hexafurans			1.15e2		1.125			372		2.69e3				0.042
Total-heptafurans			0.00e0		1.310			298		0.00e0				
Total-Furans			7.49e2		1.114			494		1.40e4				0.141
Total-tetradioxins			0.00e0		1.134			981		0.00e0				
Total-pentadioxins			0.00e0		0.975			916		0.00e0				
Total-hexadioxins			9.75e1		0.983			839		3.59e3				0.018
Total-heptadioxins			3.53e2		1.028			435		6.87e3				0.112
Total-Dioxins			1.79e3		1.028			981		2.62e4				0.539
Total-TEQ			2.54e3					981		4.02e4				0.680
37CL-2378-TCDD	26.198	1.032	6.61e5		1.067			1810		9.51e6		5256.4		41.560
FUNCTION1 PFK			3.97e6					410211		2.73e7				
FUNCTION2 PFK			5.38e4					130830		1.83e6				0.000
FUNCTION3 PFK			4.05e5					391755		1.27e7				0.000
FUNCTION4 PFK			7.17e5					214620		1.86e7				
FUNCTION5 PFK			8.31e4					182483		3.55e6				
FUNCTION1 HXCD...			1.01e2					404		3.25e3				0.000
FUNCTION1 HPCD...			1.05e2					631		3.49e3				0.000
FUNCTION2 HPCD...			0.00e0					523		0.00e0				
FUNCTION3 OCDPE			0.00e0					285		0.00e0				
FUNCTION4 NCDPE			0.00e0					401		0.00e0				
FUNCTION5 DCDPE			0.00e0					227		0.00e0				

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Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

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TF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.63	2031.827	0.935		0.099		0.45	0.77	YES	22.9

PP

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

HF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	7	123789-HxCDF	373.8208	36.94	460.393	1.101		0.042	0.019	0.33	1.24	YES	7.2

HPF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

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

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.63	2031.827	0.935		0.099		0.45	0.77	YES	22.9
2	7	123789-HxCDF	373.8208	36.94	460.393	1.101		0.042	0.019	0.33	1.24	YES	7.2

TD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

HD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	13	123478-HxCDD	389.8157	35.92	178.992	1.031		0.018	0.018	1.20	1.24	NO	4.3

HPD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.75	324.853	1.028		0.039	0.030	0.64	1.05	YES	8.0
2	44	Total-heptadioxins	423.7766	39.53	595.529	1.028		0.072		0.61	1.05	YES	7.8

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Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	45	Total-Dioxins	319.8965	22.66	150.195	1.028	0.011		0.93	0.77	YES	1.9
2	13	123478-HxCDD	389.8157	35.92	178.992	1.031	0.018	0.018	1.20	1.24	NO	4.3
3	17	OCDD	457.7377	46.43	2716.799	1.107	0.398	0.398	0.87	0.89	NO	17.2
4	16	1234678-HpCDD	423.7766	40.75	324.853	1.028	0.039	0.030	0.64	1.05	YES	8.0
5	44	Total-heptadioxins	423.7766	39.53	595.529	1.028	0.072		0.61	1.05	YES	7.8

TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.63	2031.827	0.935	0.099		0.45	0.77	YES	22.9
2	7	123789-HxCDF	373.8208	36.94	460.393	1.101	0.042	0.019	0.33	1.24	YES	7.2
3	45	Total-Dioxins	319.8965	22.66	150.195	1.028	0.011		0.93	0.77	YES	1.9
4	13	123478-HxCDD	389.8157	35.92	178.992	1.031	0.018	0.018	1.20	1.24	NO	4.3
5	17	OCDD	457.7377	46.43	2716.799	1.107	0.398	0.398	0.87	0.89	NO	17.2
6	16	1234678-HpCDD	423.7766	40.75	324.853	1.028	0.039	0.030	0.64	1.05	YES	8.0
7	44	Total-heptadioxins	423.7766	39.53	595.529	1.028	0.072		0.61	1.05	YES	7.8

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	22.37	0.000							6.4
2	48	FUNCTION1 PFK	330.9792	22.19	0.000							6.4
3	48	FUNCTION1 PFK	330.9792	22.16	0.000							7.4
4	48	FUNCTION1 PFK	330.9792	22.10	0.000							6.9
5	48	FUNCTION1 PFK	330.9792	21.97	0.000							4.4
6	48	FUNCTION1 PFK	330.9792	21.12	0.000							0.9
7	48	FUNCTION1 PFK	330.9792	26.48	0.000							1.1
8	48	FUNCTION1 PFK	330.9792	26.27	0.000							0.5
9	48	FUNCTION1 PFK	330.9792	26.11	0.000							1.2
10	48	FUNCTION1 PFK	330.9792	25.94	0.000							1.4
11	48	FUNCTION1 PFK	330.9792	25.78	0.000							0.5
12	48	FUNCTION1 PFK	330.9792	25.60	0.000							0.6
13	48	FUNCTION1 PFK	330.9792	25.56	0.000							0.3
14	48	FUNCTION1 PFK	330.9792	25.50	0.000							0.4
15	48	FUNCTION1 PFK	330.9792	25.15	0.000							1.5
16	48	FUNCTION1 PFK	330.9792	24.79	0.000							0.4
17	48	FUNCTION1 PFK	330.9792	24.51	0.000							1.0
18	48	FUNCTION1 PFK	330.9792	24.43	0.000							3.0
19	48	FUNCTION1 PFK	330.9792	24.36	0.000							4.1
20	48	FUNCTION1 PFK	330.9792	23.61	0.000							5.5
21	48	FUNCTION1 PFK	330.9792	22.87	0.000							0.7
22	48	FUNCTION1 PFK	330.9792	22.42	0.000							7.0
23	48	FUNCTION1 PFK	330.9792	27.68	0.000							0.7
24	48	FUNCTION1 PFK	330.9792	27.62	0.000							0.7
25	48	FUNCTION1 PFK	330.9792	27.56	0.000							1.2
26	48	FUNCTION1 PFK	330.9792	27.47	0.000							0.5
27	48	FUNCTION1 PFK	330.9792	26.84	0.000							0.6
28	48	FUNCTION1 PFK	330.9792	26.77	0.000							0.5
29	48	FUNCTION1 PFK	330.9792	26.56	0.000							0.6

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	29.39	0.000		0.000					0.8
2	49	FUNCTION2 PFK	366.9792	29.32	0.000		0.000					1.2
3	49	FUNCTION2 PFK	366.9792	29.12	0.000		0.000					1.2
4	49	FUNCTION2 PFK	366.9792	28.87	0.000		0.000					1.2
5	49	FUNCTION2 PFK	366.9792	28.71	0.000		0.000					1.3
6	49	FUNCTION2 PFK	366.9792	28.56	0.000		0.000					0.9
7	49	FUNCTION2 PFK	366.9792	28.51	0.000		0.000					1.4
8	49	FUNCTION2 PFK	366.9792	28.30	0.000		0.000					0.6
9	49	FUNCTION2 PFK	366.9792	31.49	0.000		0.000					1.5
10	49	FUNCTION2 PFK	366.9792	31.29	0.000		0.000					0.7
11	49	FUNCTION2 PFK	366.9792	31.00	0.000		0.000					0.9
12	49	FUNCTION2 PFK	366.9792	30.39	0.000		0.000					1.2
13	49	FUNCTION2 PFK	366.9792	29.47	0.000		0.000					1.1

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	33.84	0.000		0.000					1.1
2	50	FUNCTION3 PFK	380.9760	33.76	0.000		0.000					0.5
3	50	FUNCTION3 PFK	380.9760	33.72	0.000		0.000					0.4
4	50	FUNCTION3 PFK	380.9760	33.49	0.000		0.000					0.5
5	50	FUNCTION3 PFK	380.9760	33.43	0.000		0.000					0.8
6	50	FUNCTION3 PFK	380.9760	33.03	0.000		0.000					0.6
7	50	FUNCTION3 PFK	380.9760	32.90	0.000		0.000					1.6
8	50	FUNCTION3 PFK	380.9760	32.85	0.000		0.000					1.0
9	50	FUNCTION3 PFK	380.9760	32.77	0.000		0.000					1.6
10	50	FUNCTION3 PFK	380.9760	32.72	0.000		0.000					0.6
11	50	FUNCTION3 PFK	380.9760	35.73	0.000		0.000					0.4
12	50	FUNCTION3 PFK	380.9760	35.54	0.000		0.000					0.5
13	50	FUNCTION3 PFK	380.9760	35.44	0.000		0.000					0.8
14	50	FUNCTION3 PFK	380.9760	35.21	0.000		0.000					0.8
15	50	FUNCTION3 PFK	380.9760	35.14	0.000		0.000					0.5
16	50	FUNCTION3 PFK	380.9760	35.10	0.000		0.000					0.5
17	50	FUNCTION3 PFK	380.9760	34.95	0.000		0.000					0.9
18	50	FUNCTION3 PFK	380.9760	34.82	0.000		0.000					0.3
19	50	FUNCTION3 PFK	380.9760	34.72	0.000		0.000					0.9
20	50	FUNCTION3 PFK	380.9760	34.65	0.000		0.000					1.1
21	50	FUNCTION3 PFK	380.9760	34.57	0.000		0.000					1.3
22	50	FUNCTION3 PFK	380.9760	34.53	0.000		0.000					1.0
23	50	FUNCTION3 PFK	380.9760	34.50	0.000		0.000					0.8
24	50	FUNCTION3 PFK	380.9760	34.44	0.000		0.000					1.7
25	50	FUNCTION3 PFK	380.9760	34.17	0.000		0.000					1.0
26	50	FUNCTION3 PFK	380.9760	34.13	0.000		0.000					1.2
27	50	FUNCTION3 PFK	380.9760	37.88	0.000		0.000					0.3
28	50	FUNCTION3 PFK	380.9760	37.81	0.000		0.000					1.1
29	50	FUNCTION3 PFK	380.9760	36.99	0.000		0.000					0.5
30	50	FUNCTION3 PFK	380.9760	36.87	0.000		0.000					1.3
31	50	FUNCTION3 PFK	380.9760	36.82	0.000		0.000					0.9
32	50	FUNCTION3 PFK	380.9760	36.78	0.000		0.000					1.2
33	50	FUNCTION3 PFK	380.9760	36.51	0.000		0.000					1.0
34	50	FUNCTION3 PFK	380.9760	36.35	0.000		0.000					1.3
35	50	FUNCTION3 PFK	380.9760	35.97	0.000		0.000					1.2
36	50	FUNCTION3 PFK	380.9760	35.86	0.000		0.000					1.4

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 14:28:20 Pacific Standard Time

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	38.39	0.000							1.0
2	51	FUNCTION4 PFK	430.9728	38.32	0.000							1.4
3	51	FUNCTION4 PFK	430.9728	38.25	0.000							2.1
4	51	FUNCTION4 PFK	430.9728	38.18	0.000							2.5
5	51	FUNCTION4 PFK	430.9728	38.05	0.000							2.0
6	51	FUNCTION4 PFK	430.9728	39.67	0.000							1.5
7	51	FUNCTION4 PFK	430.9728	39.58	0.000							0.6
8	51	FUNCTION4 PFK	430.9728	39.54	0.000							0.8
9	51	FUNCTION4 PFK	430.9728	39.43	0.000							0.5
10	51	FUNCTION4 PFK	430.9728	39.33	0.000							0.7
11	51	FUNCTION4 PFK	430.9728	39.22	0.000							0.5
12	51	FUNCTION4 PFK	430.9728	39.12	0.000							0.4
13	51	FUNCTION4 PFK	430.9728	39.06	0.000							2.5
14	51	FUNCTION4 PFK	430.9728	38.99	0.000							1.7
15	51	FUNCTION4 PFK	430.9728	38.92	0.000							1.8
16	51	FUNCTION4 PFK	430.9728	38.84	0.000							0.9
17	51	FUNCTION4 PFK	430.9728	38.77	0.000							1.5
18	51	FUNCTION4 PFK	430.9728	38.72	0.000							1.3
19	51	FUNCTION4 PFK	430.9728	38.59	0.000							1.3
20	51	FUNCTION4 PFK	430.9728	38.52	0.000							2.0
21	51	FUNCTION4 PFK	430.9728	38.45	0.000							1.6
22	51	FUNCTION4 PFK	430.9728	41.33	0.000							0.5
23	51	FUNCTION4 PFK	430.9728	41.21	0.000							0.9
24	51	FUNCTION4 PFK	430.9728	41.14	0.000							1.4
25	51	FUNCTION4 PFK	430.9728	40.99	0.000							1.3
26	51	FUNCTION4 PFK	430.9728	40.93	0.000							1.1
27	51	FUNCTION4 PFK	430.9728	40.79	0.000							2.3
28	51	FUNCTION4 PFK	430.9728	40.70	0.000							1.8
29	51	FUNCTION4 PFK	430.9728	40.64	0.000							1.7
30	51	FUNCTION4 PFK	430.9728	40.41	0.000							1.4
31	51	FUNCTION4 PFK	430.9728	40.30	0.000							1.0
32	51	FUNCTION4 PFK	430.9728	40.24	0.000							2.2
33	51	FUNCTION4 PFK	430.9728	40.04	0.000							2.2
34	51	FUNCTION4 PFK	430.9728	39.98	0.000							2.6
35	51	FUNCTION4 PFK	430.9728	39.89	0.000							1.3
36	51	FUNCTION4 PFK	430.9728	39.82	0.000							2.3
37	51	FUNCTION4 PFK	430.9728	39.76	0.000							0.6
38	51	FUNCTION4 PFK	430.9728	43.12	0.000							1.1
39	51	FUNCTION4 PFK	430.9728	43.07	0.000							1.4
40	51	FUNCTION4 PFK	430.9728	43.00	0.000							1.5
41	51	FUNCTION4 PFK	430.9728	42.90	0.000							1.5
42	51	FUNCTION4 PFK	430.9728	42.83	0.000							1.3
43	51	FUNCTION4 PFK	430.9728	42.55	0.000							1.5
44	51	FUNCTION4 PFK	430.9728	42.44	0.000							1.5
45	51	FUNCTION4 PFK	430.9728	42.40	0.000							1.6
46	51	FUNCTION4 PFK	430.9728	42.26	0.000							1.3
47	51	FUNCTION4 PFK	430.9728	42.17	0.000							1.2
48	51	FUNCTION4 PFK	430.9728	41.90	0.000							1.5
49	51	FUNCTION4 PFK	430.9728	41.81	0.000							1.0
50	51	FUNCTION4 PFK	430.9728	41.74	0.000							1.7
51	51	FUNCTION4 PFK	430.9728	41.52	0.000							0.7

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
52	51	FUNCTION4 PFK	430.9728	41.47	0.000							0.6
53	51	FUNCTION4 PFK	430.9728	41.42	0.000							1.1
54	51	FUNCTION4 PFK	430.9728	44.30	0.000							1.3
55	51	FUNCTION4 PFK	430.9728	44.26	0.000							1.3
56	51	FUNCTION4 PFK	430.9728	44.22	0.000							0.8
57	51	FUNCTION4 PFK	430.9728	44.15	0.000							0.8
58	51	FUNCTION4 PFK	430.9728	44.12	0.000							0.7
59	51	FUNCTION4 PFK	430.9728	44.08	0.000							1.3
60	51	FUNCTION4 PFK	430.9728	44.02	0.000							1.4
61	51	FUNCTION4 PFK	430.9728	43.78	0.000							1.0
62	51	FUNCTION4 PFK	430.9728	43.60	0.000							1.5
63	51	FUNCTION4 PFK	430.9728	43.47	0.000							1.1
64	51	FUNCTION4 PFK	430.9728	43.46	0.000							1.1
65	51	FUNCTION4 PFK	430.9728	43.19	0.000							0.8

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	45.03	0.000							1.7
2	52	FUNCTION5 PFK	480.9696	44.72	0.000							0.4
3	52	FUNCTION5 PFK	480.9696	44.63	0.000							1.4
4	52	FUNCTION5 PFK	480.9696	49.30	0.000							0.9
5	52	FUNCTION5 PFK	480.9696	49.00	0.000							1.2
6	52	FUNCTION5 PFK	480.9696	47.70	0.000							1.4
7	52	FUNCTION5 PFK	480.9696	47.58	0.000							1.5
8	52	FUNCTION5 PFK	480.9696	47.48	0.000							1.0
9	52	FUNCTION5 PFK	480.9696	47.45	0.000							0.9
10	52	FUNCTION5 PFK	480.9696	47.39	0.000							1.0
11	52	FUNCTION5 PFK	480.9696	47.31	0.000							0.8
12	52	FUNCTION5 PFK	480.9696	46.90	0.000							0.7
13	52	FUNCTION5 PFK	480.9696	46.86	0.000							1.2
14	52	FUNCTION5 PFK	480.9696	46.61	0.000							0.6
15	52	FUNCTION5 PFK	480.9696	46.25	0.000							1.4
16	52	FUNCTION5 PFK	480.9696	46.19	0.000							1.2
17	52	FUNCTION5 PFK	480.9696	45.79	0.000							1.0
18	52	FUNCTION5 PFK	480.9696	45.42	0.000							1.3

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	24.02	0.000		0.000					8.1

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	25.12	0.000		0.000					5.5

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

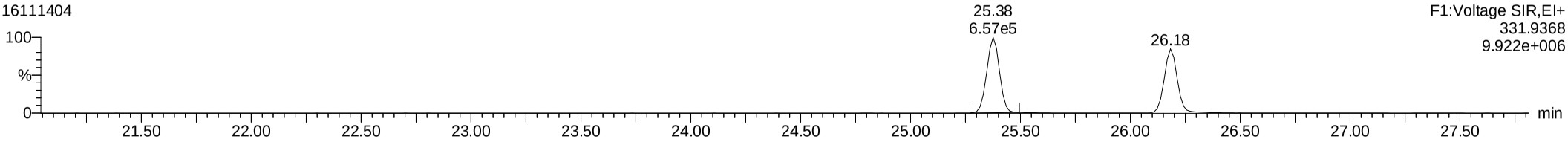
ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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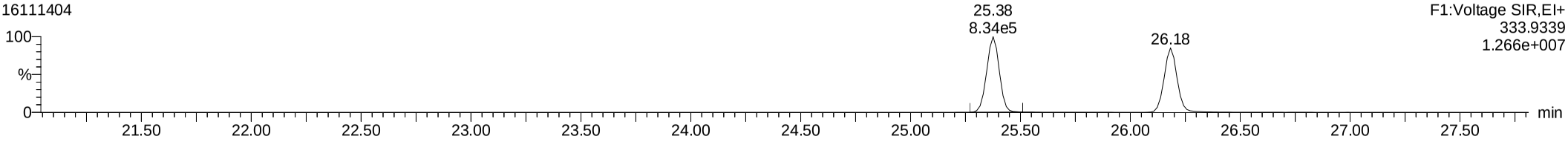

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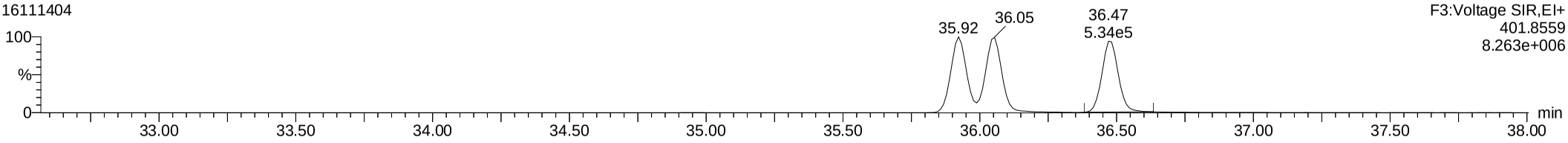

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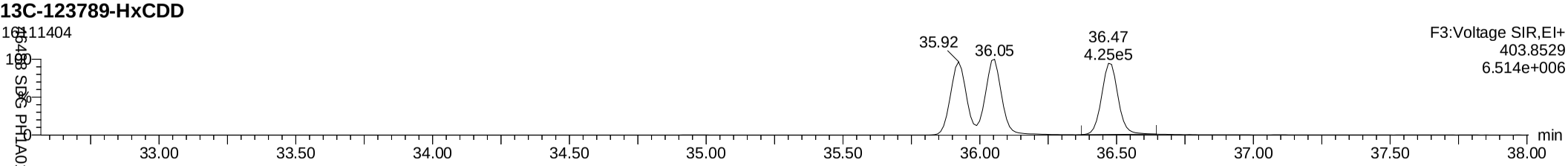

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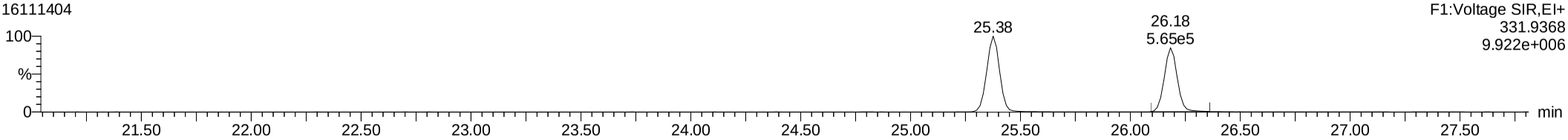
Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 14:28:20 Pacific Standard Time

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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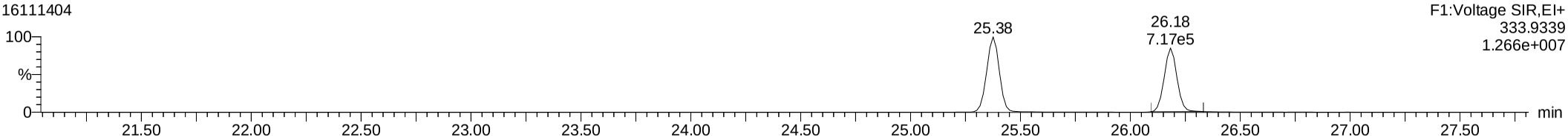

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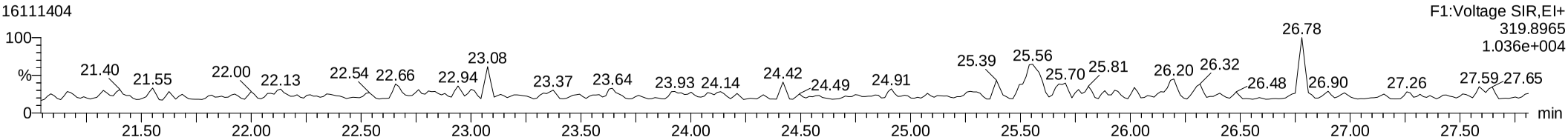
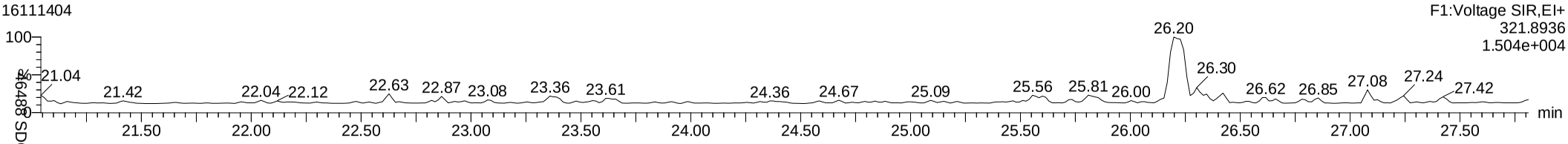
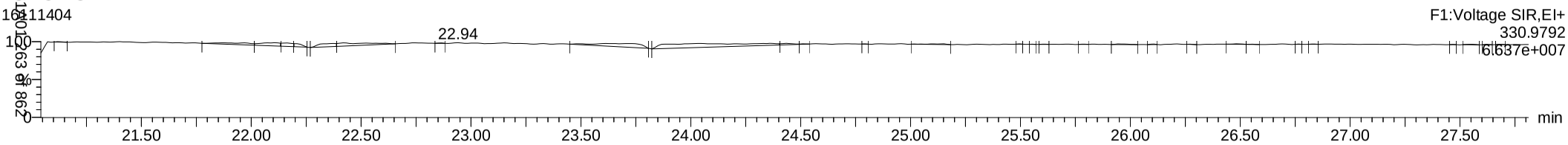


Total-tetradioxins



FUNCTION1 PFK



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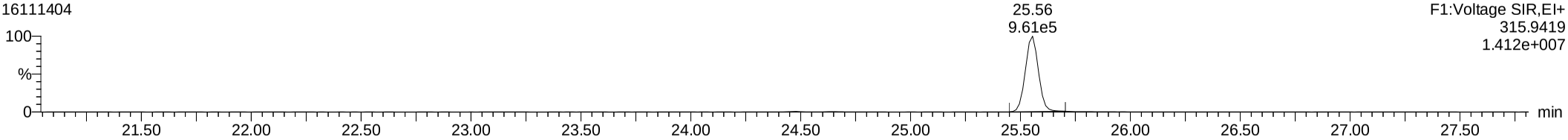
ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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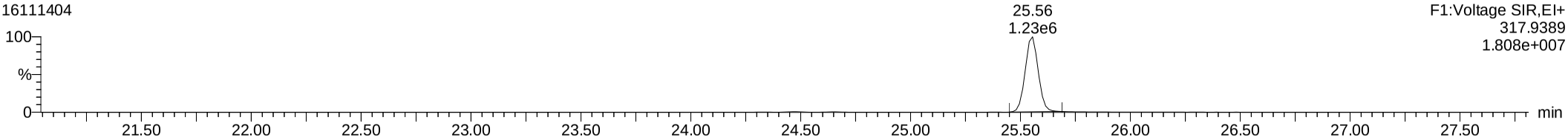
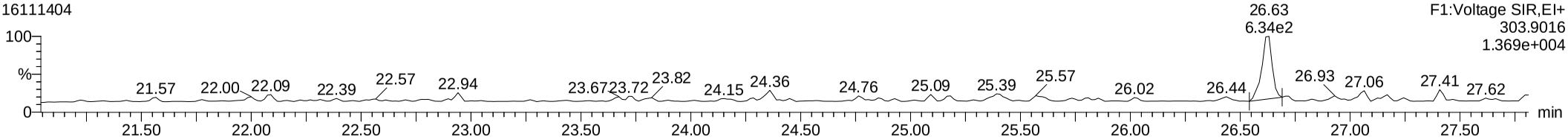
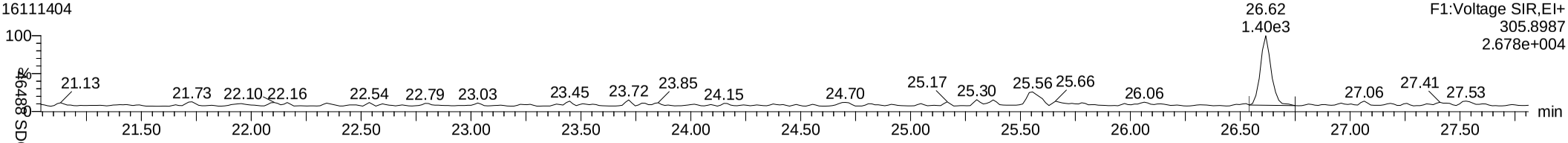


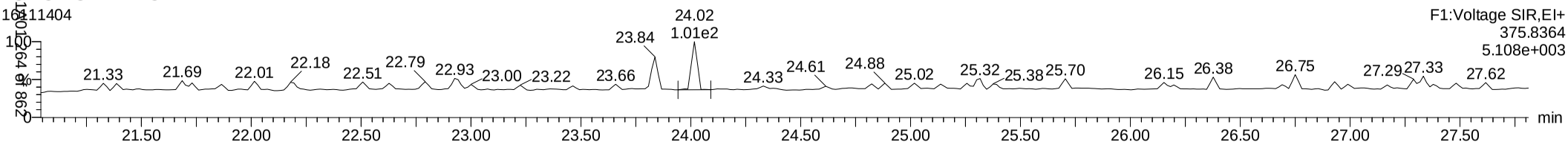
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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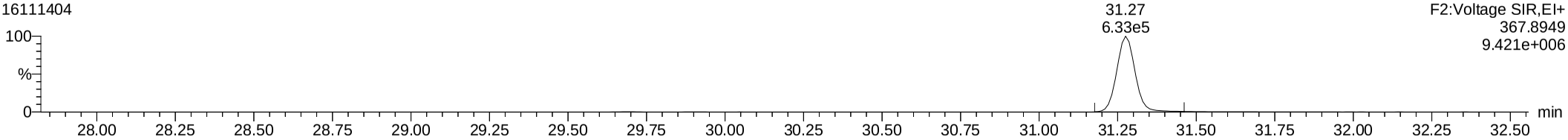
ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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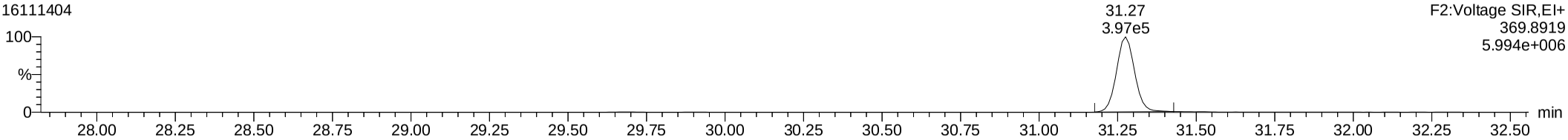
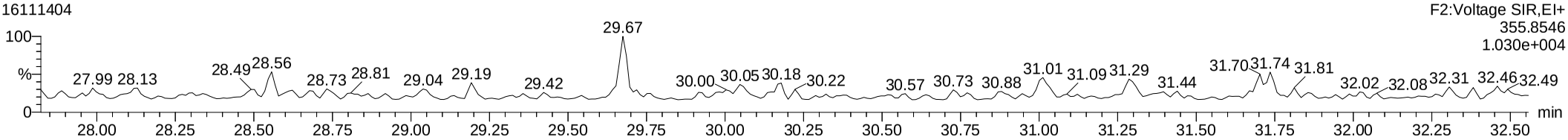
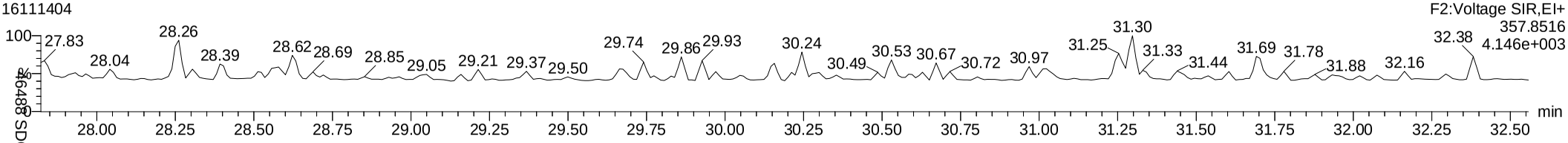


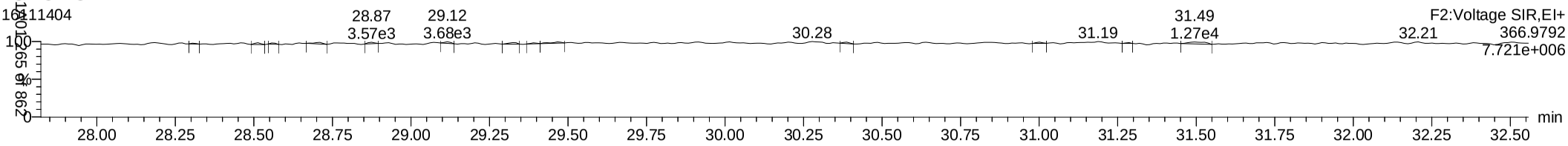
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



46488 SDG PH1601265 of 862

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ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

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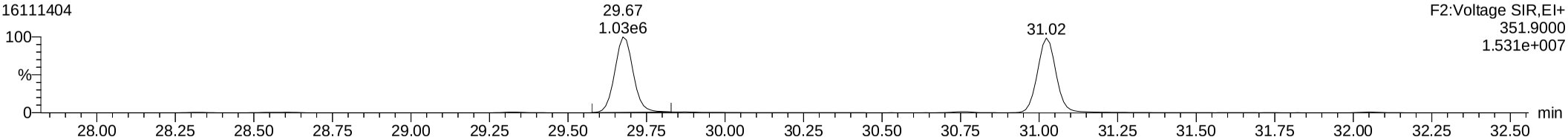

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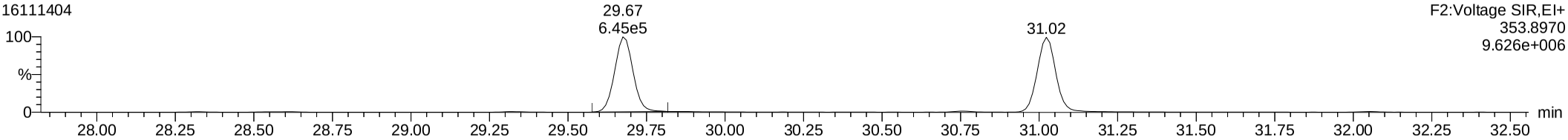
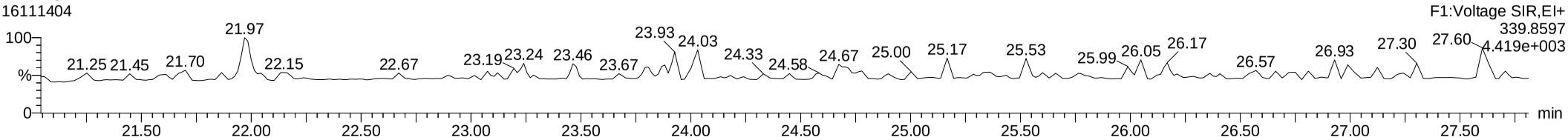
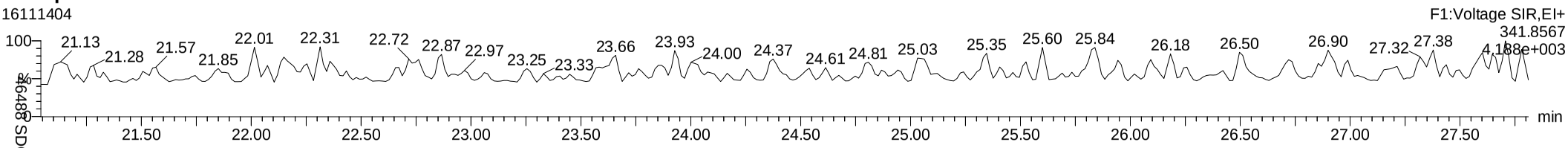


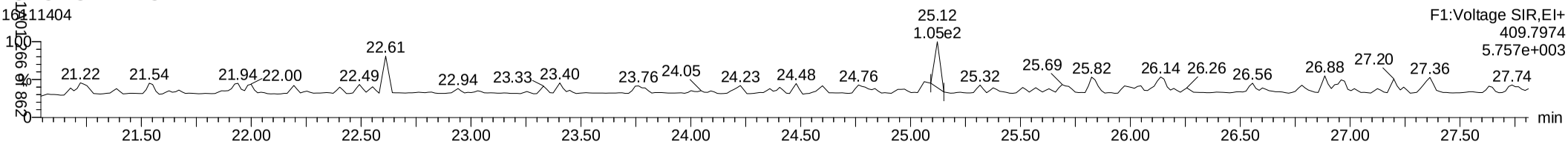
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



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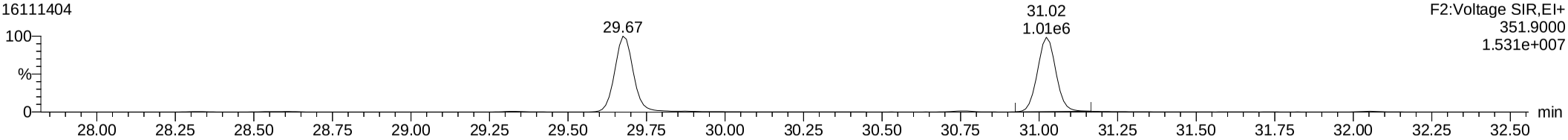

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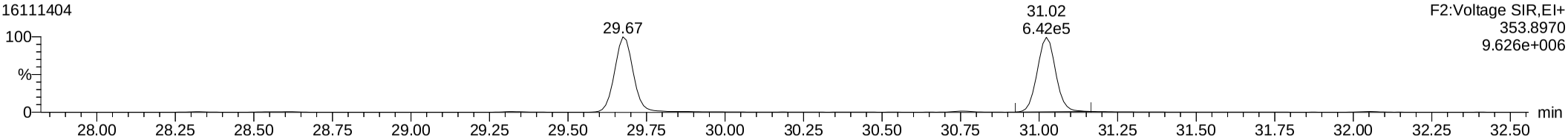
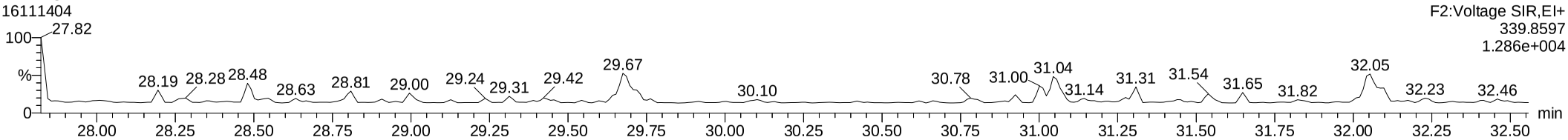
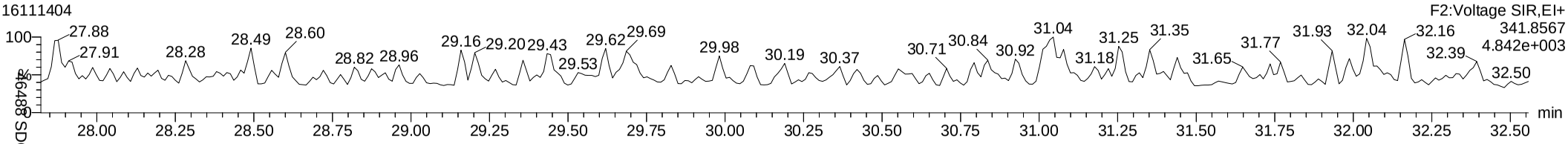


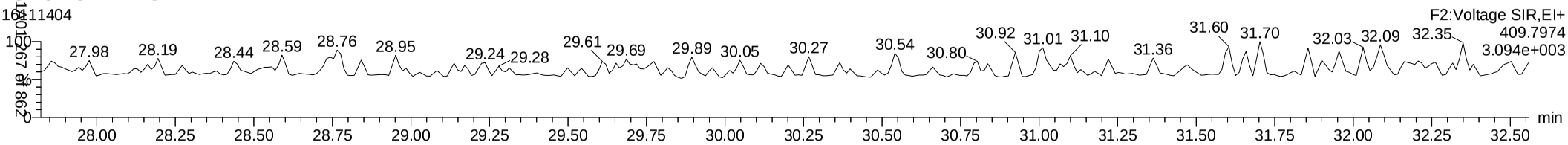
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



46488 SDG PH1001267 of 862

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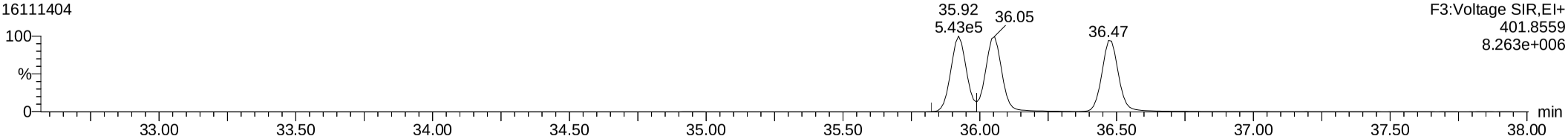
13C-123478-HxCDD



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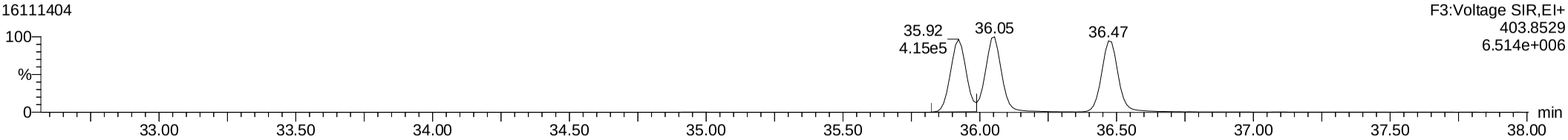
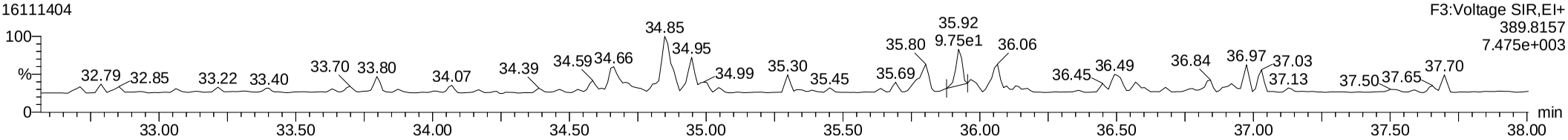
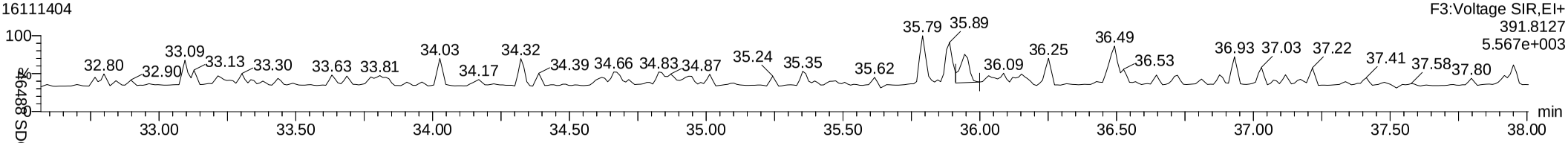


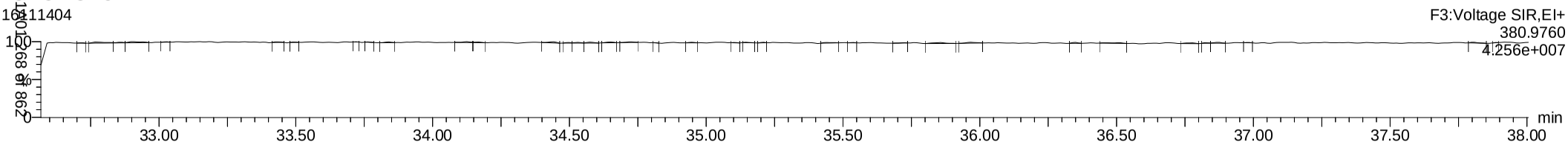
Total-hexadioxins



Total-hexadioxins



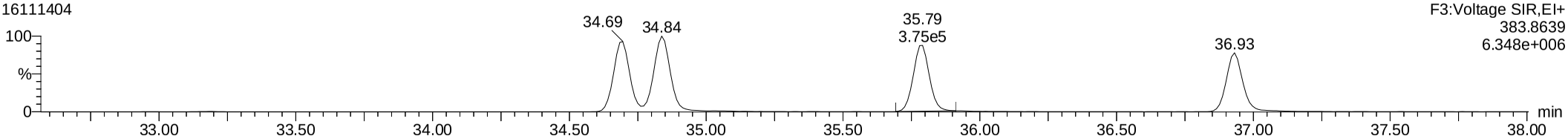
FUNCTION3 PFK



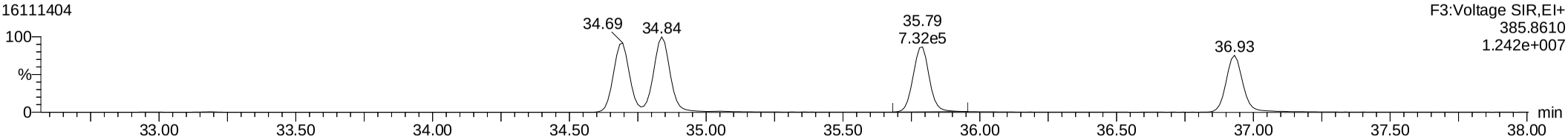
46488 SDG PH1601268 of 862

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

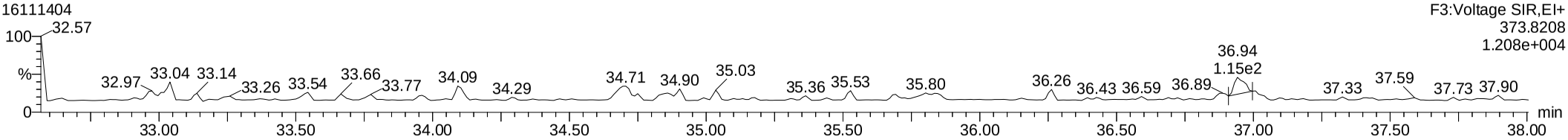
13C-234678-HxCDF



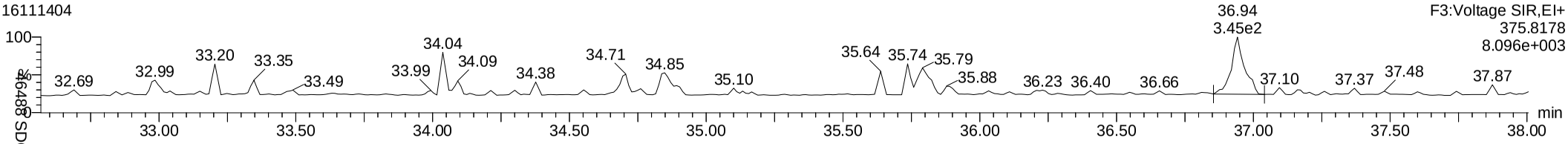
13C-234678-HxCDF



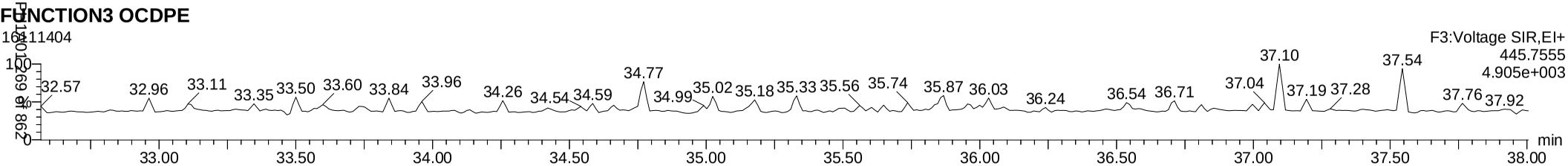
Total-hexafurans



Total-hexafurans



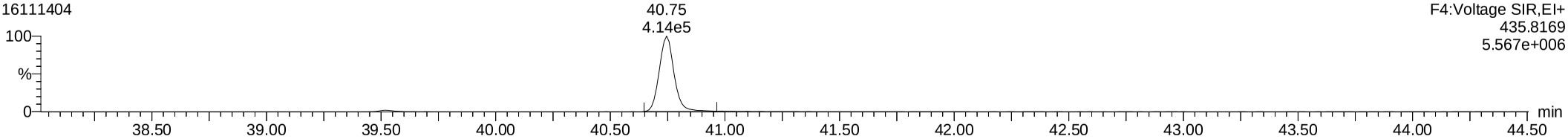
FUNCTION3 OCDPE



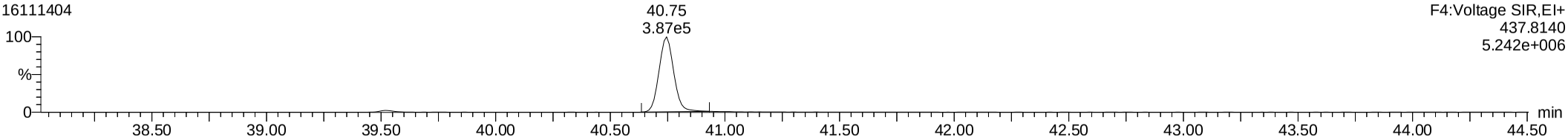
46488 SDG PD1401269 of 862

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

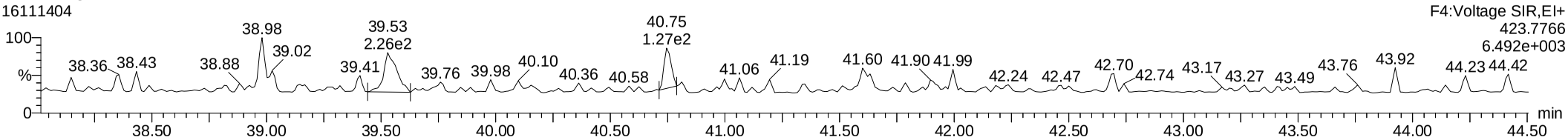
13C-1234678-HpCDD



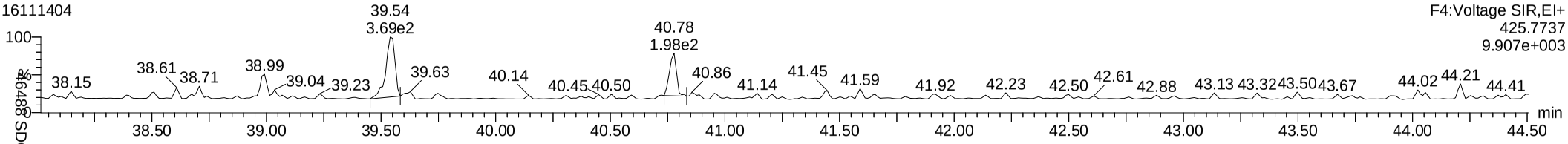
13C-1234678-HpCDD



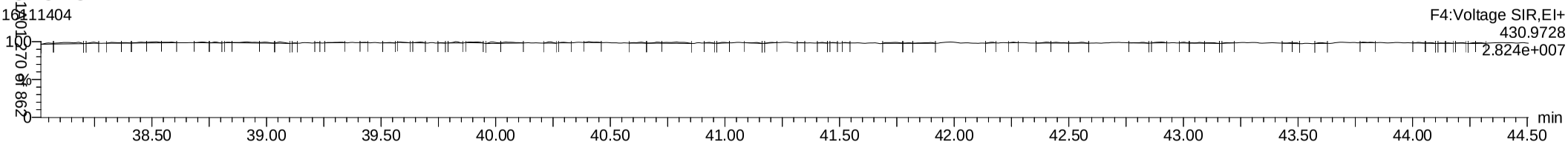
Total-heptadioxins



Total-heptadioxins



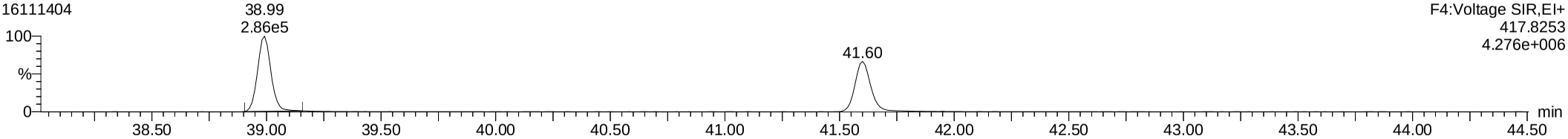
FUNCTION4 PFK



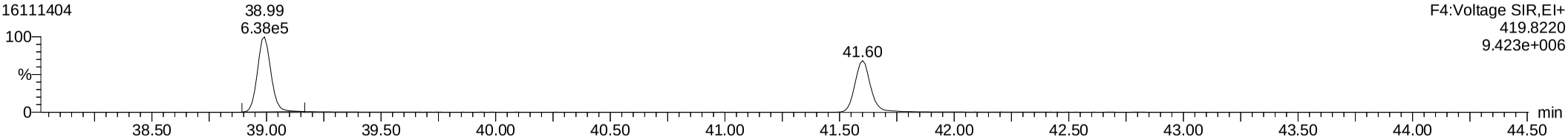
46488 SDG PH1401270 of 862

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

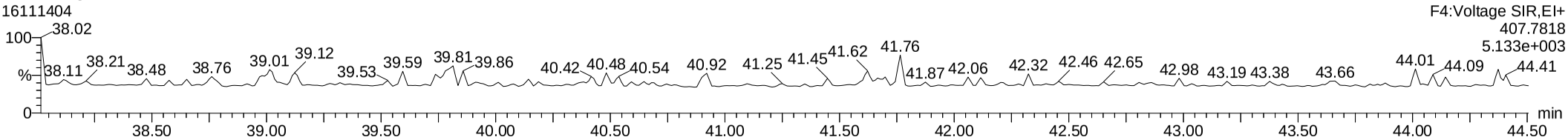
13C-1234678-HpCDF



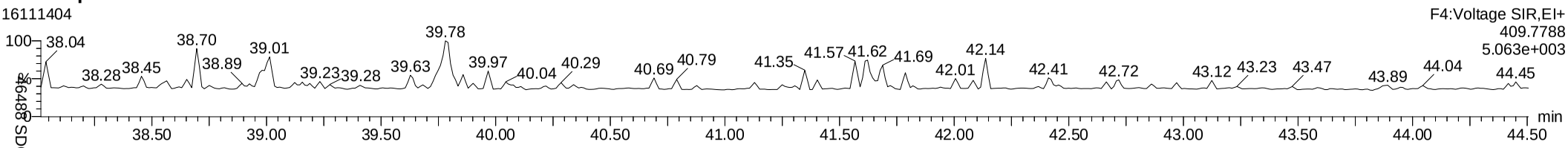
13C-1234678-HpCDF



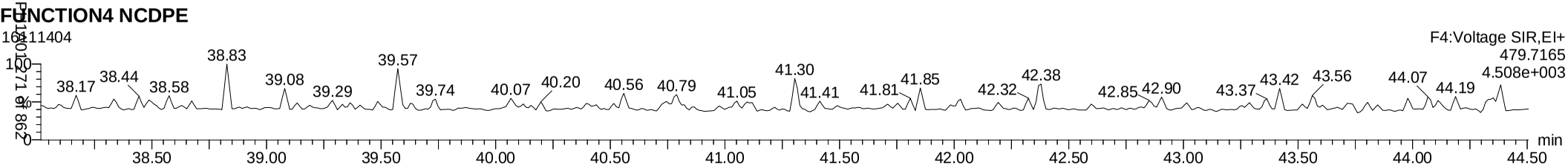
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE

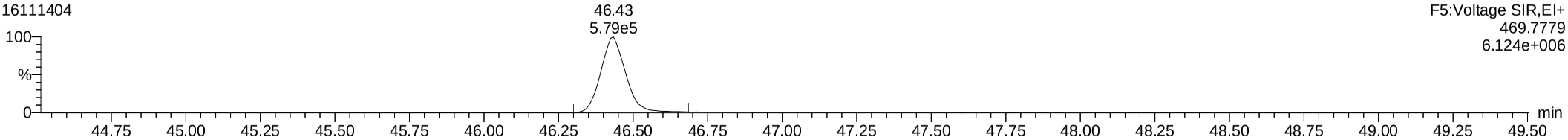


46488 SDG PH1001271 of 862

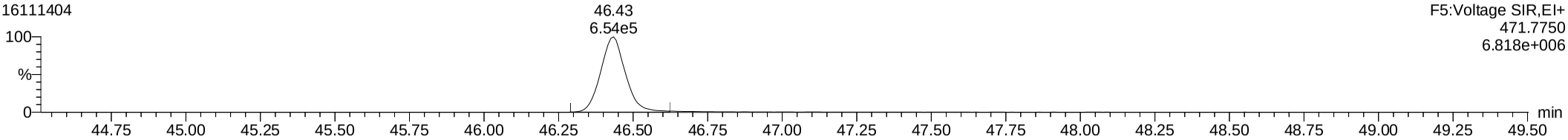
Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 14:28:20 Pacific Standard Time

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

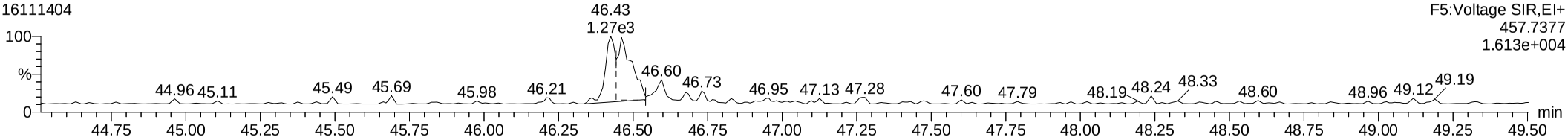
13C-OCDD



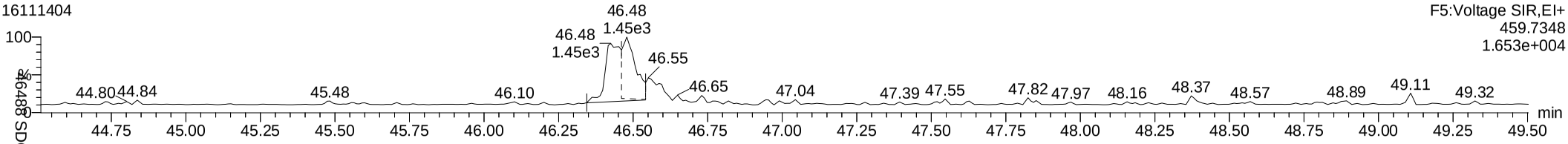
13C-OCDD



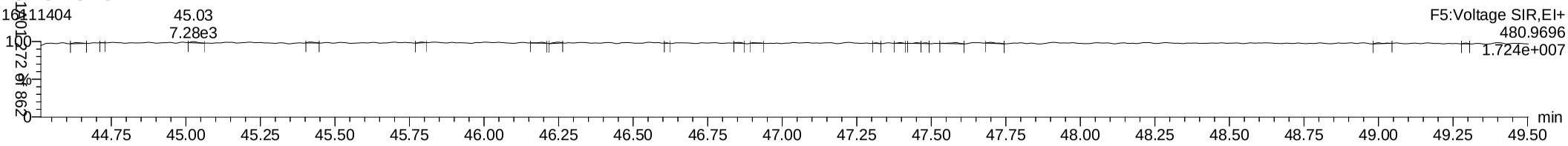
OCDD



OCDD



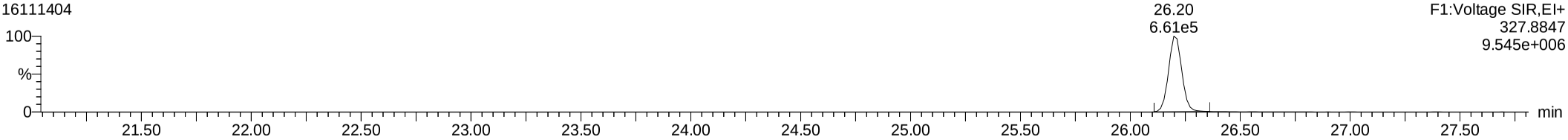
FUNCTION5 PFK



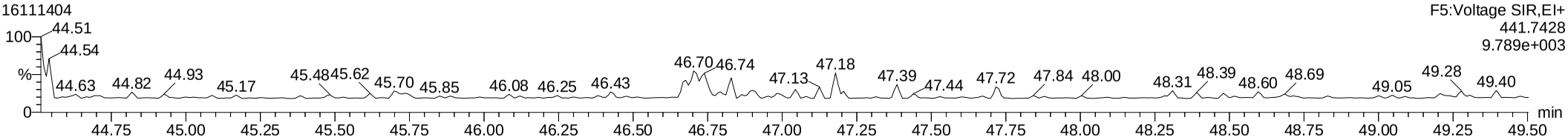
Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 14:28:20 Pacific Standard Time

ID: DBLK10, Name: 16111404, Date: 14-Nov-2016, Time: 12:47:33, Conditions: AUTOSPEC01, User: PK

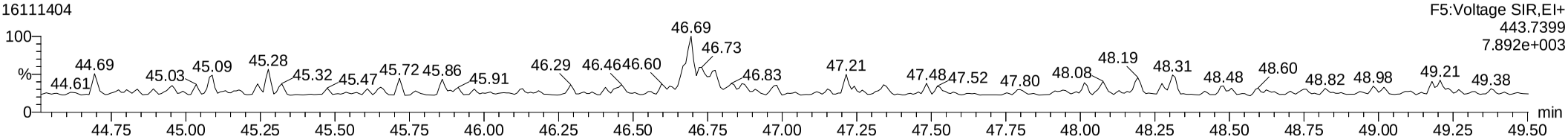
37CL-2378-TCDD



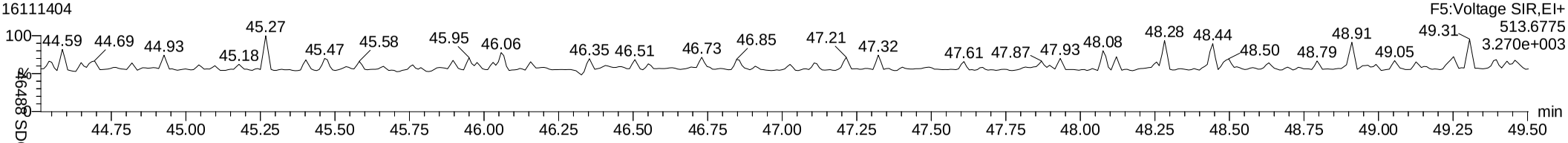
OCDF



OCDF



FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

DLCS10

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0276-BS1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111405

Decanted (Y/N): N Extraction Method: SPE

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2378-TCDD	210			0.766	26.1827
5	12378-PeCDD	1000			1.536	31.275
6	123478-HxCDD	970			1.248	35.9223
6	123678-HxCDD	1000			1.276	36.043
6	123789-HxCDD	1000			1.242	36.4705
7	1234678-HpCDD	1000			1.018	40.7453
8	OCDD	1800			0.891	46.4343
4	2378-TCDF	210			0.783	25.5402
5	12378-PeCDF	990			1.593	29.6635
5	23478-PeCDF	970			1.549	31.0118
6	123478-HxCDF	1000			1.230	34.6838
6	123678-HxCDF	1000			1.252	34.8373
6	123789-HxCDF	1000			1.240	36.9308
6	234678-HxCDF	1000			1.244	35.78
7	1234678-HpCDF	1000			1.003	38.9805
7	1234789-HpCDF	980			1.042	41.6005
8	OCDF	2000			0.898	46.6945

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

DLCS10

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0276-BS1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111405

Decanted (Y/N): N Extraction Method: SPE Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2378-TCDD	210	x 1.0	210.0000	x 1.0	210.0000	x 1.0	210.0000
12378-PeCDD	1000	x 1.0	1,000.0000	x 1.0	1,000.0000	x 1.0	1,000.0000
123478-HxCDD	970	x 0.1	97.0000	x 0.5	485.0000	0.05	48.5000
123678-HxCDD	1000	x 0.1	100.0000	x 0.01	10.0000	x 0.01	100.0000
123789-HxCDD	1000	x 0.1	100.0000	x 0.01	10.0000	x 0.1	100.0000
1234678-HpCDD	1000	x 0.01	10.0000	x 0.001	1.0000	x 0.001	1.0000
OCDD	1800	x 0.0003	0.5400	x 0.0001	0.1800	x 0.0001	0.1800
2378-TCDF	210	x 0.1	21.0000	x 0.05	10.5000	x 1.0	21.0000
12378-PeCDF	990	x 0.03	29.7000	x 0.05	49.5000	x 0.1	99.0000
23478-PeCDF	970	x 0.3	291.0000	x 0.5	485.0000	x 1.0	970.0000
123478-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
123678-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
123789-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
234678-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
1234678-HpCDF	1000	x 0.01	10.0000	x 0.01	10.0000	x 0.01	10.0000
1234789-HpCDF	980	x 0.01	9.8000	x 0.01	9.8000	x 0.01	9.8000
OCDF	2000	x 0.0003	0.6000	x 0.0001	0.2000	x 0.0001	0.2000
		Total TEQ =	2,300	Total TEQ =	2,700	Total TEQ =	3,000

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

DLCS10

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0276-BS1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111405

Decanted (Y/N): N Extraction Method: SPE Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2378-TCDD	2000	2000	97.7	0.79	26.1528
4	13C12-2378-TCDF	2000	1900	97.0	0.79	25.5252
5	13C12-12378-PeCDD	2000	1800	88.2	1.57	31.253
5	13C12-12378-PeCDF	2000	1800	88.2	1.56	29.6527
5	13C12-23478-PeCDF	2000	1800	90.6	1.59	31.0008
6	13C12-123478-HxCDD	2000	2000	98.4	1.26	35.9005
6	13C12-123678-HxCDD	2000	1800	92.4	1.27	36.032
6	13C12-123478-HxCDF	2000	1800	91.9	0.51	34.6728
6	13C12-123678-HxCDF	2000	1800	90.8	0.52	34.8153
6	13C12-123789-HxCDF	2000	1800	89.9	0.53	36.9088
6	13C12-234678-HxCDF	2000	1800	89.9	0.52	35.769
7	13C12-1234678-HpCDD	2000	1800	88.7	1.04	40.7235
7	13C12-1234678-HpCDF	2000	1600	81.4	0.44	38.9697
7	13C12-1234789-HpCDF	2000	1700	84.6	0.46	41.5785
8	13C12-OCDD	4000	3000	73.8	0.90	46.4073
Labeled Cleanup Standard 37C14-2378-TCDD						
4	37C14-2378-TCDD	800	850	106		26.1827

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 14:28:24 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DLCS10, Name: 16111405, Date: 14-Nov-2016, Time: 13:38:58, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.540	1.001	8.95e4	1.14e5	0.935	0.783	0.770	1311	1492	1.27e6	1.65e6	969.8	NO	10.284
12378-PeCDF	29.663	1.000	4.55e5	2.86e5	0.952	1.593	1.550	2857	2857	6.53e6	4.22e6	2287.3	NO	49.642
23478-PeCDF	31.012	1.000	4.41e5	2.85e5	0.963	1.549	1.550	2857	2857	6.61e6	4.32e6	2312.8	NO	48.287
123478-HxCDF	34.684	1.000	3.14e5	2.55e5	1.137	1.230	1.240	3847	2341	4.68e6	3.71e6	1216.2	NO	50.032
234678-HxCDF	35.780	1.000	3.08e5	2.48e5	1.164	1.244	1.240	3847	2341	4.48e6	3.67e6	1165.2	NO	50.130
123678-HxCDF	34.837	1.001	3.48e5	2.78e5	1.099	1.252	1.240	3847	2341	4.97e6	3.96e6	1293.0	NO	50.721
123789-HxCDF	36.931	1.001	2.55e5	2.05e5	1.101	1.240	1.240	3847	2341	3.64e6	2.86e6	946.4	NO	49.854
1234678-HpCDF	38.980	1.000	2.56e5	2.55e5	1.303	1.003	1.050	1900	2188	3.61e6	3.67e6	1901.6	NO	51.860
1234789-HpCDF	41.600	1.000	1.93e5	1.85e5	1.317	1.042	1.050	1900	2188	2.40e6	2.41e6	1260.9	NO	49.004
OCDF	46.694	1.006	2.63e5	2.93e5	1.166	0.898	0.890	1780	1989	2.57e6	2.98e6	1446.9	NO	99.906
2378-TCDD	26.183	1.001	6.44e4	8.41e4	1.134	0.766	0.770	1370	872	9.31e5	1.18e6	680.1	NO	10.586
12378-PeCDD	31.275	1.001	2.81e5	1.83e5	0.975	1.536	1.550	1660	1472	4.08e6	2.65e6	2460.8	NO	51.139
123478-HxCDD	35.922	1.001	2.28e5	1.83e5	1.031	1.248	1.240	1512	1256	3.37e6	2.73e6	2232.0	NO	48.667
123678-HxCDD	36.043	1.000	2.35e5	1.85e5	0.971	1.276	1.240	1512	1256	3.44e6	2.65e6	2277.9	NO	51.040
123789-HxCDD	36.471	1.012	2.21e5	1.78e5	0.947	1.242	1.240	1512	1256	3.21e6	2.58e6	2120.1	NO	50.599
1234678-HpCDD	40.745	1.000	1.69e5	1.66e5	1.028	1.018	1.050	1463	1717	2.27e6	2.17e6	1552.4	NO	51.254
OCDD	46.434	1.001	2.27e5	2.55e5	1.107	0.891	0.890	1340	1608	2.37e6	2.52e6	1769.1	NO	91.233
13C-2378-TCDF	25.525	1.007	9.33e5	1.19e6	1.567	0.785	0.770	4361	2142	1.37e7	1.73e7	3149.7	NO	96.974
13C-12378-PeCDF	29.653	1.170	9.57e5	6.12e5	1.274	1.564	1.550	1636	2314	1.40e7	8.85e6	8551.8	NO	88.239
13C-23478-PeCDF	31.001	1.223	9.58e5	6.03e5	1.235	1.588	1.550	1636	2314	1.42e7	8.99e6	8700.9	NO	90.632
13C-123478-HxCDF	34.673	0.951	3.38e5	6.63e5	1.381	0.510	0.510	2755	3558	5.00e6	9.83e6	1812.9	NO	91.862
13C-123678-HxCDF	34.815	0.955	3.82e5	7.41e5	1.569	0.516	0.510	2755	3558	5.64e6	1.07e7	2047.5	NO	90.776
13C-234678-HxCDF	35.769	0.981	3.28e5	6.26e5	1.345	0.524	0.510	2755	3558	4.79e6	9.06e6	1736.9	NO	89.921
13C-123789-HxCDF	36.909	1.012	2.90e5	5.48e5	1.183	0.528	0.510	2755	3558	4.14e6	7.93e6	1504.3	NO	89.855
13C-1234678-HpCDF	38.970	1.069	2.29e5	5.27e5	1.178	0.435	0.440	1604	2635	3.37e6	7.74e6	2102.5	NO	81.387
13C-1234789-HpCDF	41.578	1.140	1.84e5	4.01e5	0.878	0.459	0.440	1604	2635	2.29e6	5.10e6	1429.1	NO	84.594
13C-1234-TCDD	25.346	0.000	6.21e5	7.75e5	1.000	0.801	0.770	2676	1750	9.38e6	1.17e7	3506.4	NO	100.000
13C-2378-TCDD	26.153	1.032	5.46e5	6.91e5	0.908	0.790	0.770	2676	1750	7.90e6	1.02e7	2951.5	NO	97.697
13C-12378-PeCDD	31.253	1.233	5.68e5	3.63e5	0.756	1.566	1.550	1287	1346	8.29e6	5.35e6	6443.6	NO	88.233
13C-123478-HxCDD	35.901	0.985	4.56e5	3.63e5	1.056	1.256	1.240	1820	1880	6.84e6	5.54e6	3758.6	NO	98.355
13C-123678-HxCDD	36.032	0.988	4.73e5	3.74e5	1.163	1.266	1.240	1820	1880	6.94e6	5.50e6	3813.4	NO	92.380
13C-1234678-HpCDD	40.723	1.117	3.24e5	3.12e5	0.909	1.038	1.050	1914	1268	4.37e6	4.27e6	2283.4	NO	88.654
13C-OCDD	46.407	1.273	4.52e5	5.02e5	0.820	0.899	0.890	2577	2081	4.56e6	5.13e6	1769.8	NO	147.618
13C-123789-HxCDD	36.459	0.000	4.45e5	3.43e5	1.000	1.297	1.240	1820	1880	6.38e6	4.94e6	3506.8	NO	100.000
Total-tetrafurans			9.52e4		0.935			1311		1.36e6				10.922

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Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					249		0.00e0				
Total-pentafurans			9.23e5		0.957			2857		1.35e7				100.526
Total-hexafurans			1.23e6		1.125			3847		1.79e7				201.322
Total-heptafurans			4.49e5		1.310			1900		6.03e6				101.037
Total-Furans			2.96e6		1.114			1311		4.13e7				513.713
Total-tetradioxins			6.61e4		1.134			1370		9.54e5				10.862
Total-pentadioxins			2.81e5		0.975			1660		4.09e6				51.229
Total-hexadioxins			6.85e5		0.983			1512		1.00e7				150.501
Total-heptadioxins			1.69e5		1.028			1463		2.28e6				51.462
Total-Dioxins			1.43e6		1.028			1370		1.97e7				355.286
Total-TEQ			4.39e6					1370		6.10e7				868.999
37CL-2378-TCDD	26.183	1.033	6.30e5		1.067			929		8.83e6		9503.0		42.336
FUNCTION1 PFK			3.18e6					339897		1.88e7				
FUNCTION2 PFK			2.80e4					105975		9.09e5				0.000
FUNCTION3 PFK			4.54e5					286973		1.16e7				0.000
FUNCTION4 PFK			9.72e3					232319		4.04e5				
FUNCTION5 PFK			1.06e4					163962		7.96e5				
FUNCTION1 HXCD...			0.00e0					231		0.00e0				
FUNCTION1 HPCD...			1.09e2					473		2.23e3				0.000
FUNCTION2 HPCD...			0.00e0					503		0.00e0				
FUNCTION3 OCDPE			0.00e0					274		0.00e0				
FUNCTION4 NCDPE			0.00e0					365		0.00e0				
FUNCTION5 DCDPE			0.00e0					259		0.00e0				

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

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TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.60	1828.000	0.935	0.092		0.67	0.77	NO	7.8
2	35	Total-tetrafurans	303.9016	25.79	355.343	0.935	0.018		1.13	0.77	YES	3.5
3	1	2378-TCDF	303.9016	25.54	203895.922	0.935	10.284	10.284	0.78	0.77	NO	969.8
4	35	Total-tetrafurans	303.9016	25.35	609.769	0.935	0.031		1.01	0.77	YES	4.7
5	35	Total-tetrafurans	303.9016	24.63	2163.509	0.935	0.109		1.01	0.77	YES	10.8
6	35	Total-tetrafurans	303.9016	24.45	5579.634	0.935	0.281		0.83	0.77	NO	29.8
7	35	Total-tetrafurans	303.9016	24.32	2109.521	0.935	0.106		0.65	0.77	NO	10.8

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	37	Total-pentafurans	339.8597	28.55	3004.991	0.957	0.201		1.94	1.55	YES	14.3
2	37	Total-pentafurans	339.8597	32.04	5392.993	0.957	0.360		1.41	1.55	NO	17.0
3	3	23478-PeCDF	339.8597	31.01	725964.094	0.963	48.287	48.287	1.55	1.55	NO	2312.8
4	37	Total-pentafurans	339.8597	29.87	19500.974	0.957	1.301		3.05	1.55	YES	56.1
5	2	12378-PeCDF	339.8597	29.66	741305.375	0.952	49.642	49.642	1.59	1.55	NO	2287.3
6	37	Total-pentafurans	339.8597	29.32	4319.632	0.957	0.288		2.11	1.55	YES	11.6
7	37	Total-pentafurans	339.8597	28.60	6702.615	0.957	0.447		1.55	1.55	NO	21.4

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	38	Total-hexafurans	373.8208	35.01	1283.939	1.125	0.117		1.84	1.24	YES	7.6
2	6	123678-HxCDF	373.8208	34.84	625941.563	1.099	50.721	50.721	1.25	1.24	NO	1293.0
3	4	123478-HxCDF	373.8208	34.68	568689.406	1.137	50.032	50.032	1.23	1.24	NO	1216.2
4	38	Total-hexafurans	373.8208	33.18	3208.894	1.125	0.291		1.55	1.24	YES	8.0
5	38	Total-hexafurans	373.8208	32.95	1139.365	1.125	0.103		1.11	1.24	NO	2.5
6	7	123789-HxCDF	373.8208	36.93	459868.641	1.101	49.854	49.854	1.24	1.24	NO	946.4
7	38	Total-hexafurans	373.8208	36.09	807.588	1.125	0.073		1.08	1.24	NO	3.1
8	5	234678-HxCDF	373.8208	35.78	556276.063	1.164	50.130	50.130	1.24	1.24	NO	1165.2

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	9	1234789-HpCDF	407.7818	41.60	377922.688	1.317	49.004	49.004	1.04	1.05	NO	1260.9
2	39	Total-heptafurans	407.7818	39.76	1527.543	1.310	0.174		1.49	1.05	YES	9.8
3	8	1234678-HpCDF	407.7818	38.98	510824.781	1.303	51.860	51.860	1.00	1.05	NO	1901.6

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.60	1828.000	0.935	0.092		0.67	0.77	NO	7.8
2	35	Total-tetrafurans	303.9016	25.79	355.343	0.935	0.018		1.13	0.77	YES	3.5
3	1	2378-TCDF	303.9016	25.54	203895.922	0.935	10.284	10.284	0.78	0.77	NO	969.8
4	35	Total-tetrafurans	303.9016	25.35	609.769	0.935	0.031		1.01	0.77	YES	4.7
5	35	Total-tetrafurans	303.9016	24.63	2163.509	0.935	0.109		1.01	0.77	YES	10.8
6	35	Total-tetrafurans	303.9016	24.45	5579.634	0.935	0.281		0.83	0.77	NO	29.8
7	35	Total-tetrafurans	303.9016	24.32	2109.521	0.935	0.106		0.65	0.77	NO	10.8
8	37	Total-pentafurans	339.8597	28.55	3004.991	0.957	0.201		1.94	1.55	YES	14.3
9	37	Total-pentafurans	339.8597	32.04	5392.993	0.957	0.360		1.41	1.55	NO	17.0
10	3	23478-PeCDF	339.8597	31.01	725964.094	0.963	48.287	48.287	1.55	1.55	NO	2312.8
11	37	Total-pentafurans	339.8597	29.87	19500.974	0.957	1.301		3.05	1.55	YES	56.1
12	2	12378-PeCDF	339.8597	29.66	741305.375	0.952	49.642	49.642	1.59	1.55	NO	2287.3
13	37	Total-pentafurans	339.8597	29.32	4319.632	0.957	0.288		2.11	1.55	YES	11.6
14	37	Total-pentafurans	339.8597	28.60	6702.615	0.957	0.447		1.55	1.55	NO	21.4
15	38	Total-hexafurans	373.8208	35.01	1283.939	1.125	0.117		1.84	1.24	YES	7.6
16	6	123678-HxCDF	373.8208	34.84	625941.563	1.099	50.721	50.721	1.25	1.24	NO	1293.0
17	4	123478-HxCDF	373.8208	34.68	568689.406	1.137	50.032	50.032	1.23	1.24	NO	1216.2
18	38	Total-hexafurans	373.8208	33.18	3208.894	1.125	0.291		1.55	1.24	YES	8.0
19	38	Total-hexafurans	373.8208	32.95	1139.365	1.125	0.103		1.11	1.24	NO	2.5
20	7	123789-HxCDF	373.8208	36.93	459868.641	1.101	49.854	49.854	1.24	1.24	NO	946.4
21	38	Total-hexafurans	373.8208	36.09	807.588	1.125	0.073		1.08	1.24	NO	3.1
22	5	234678-HxCDF	373.8208	35.78	556276.063	1.164	50.130	50.130	1.24	1.24	NO	1165.2
23	9	1234789-HpCDF	407.7818	41.60	377922.688	1.317	49.004	49.004	1.04	1.05	NO	1260.9
24	39	Total-heptafurans	407.7818	39.76	1527.543	1.310	0.174		1.49	1.05	YES	9.8
25	8	1234678-HpCDF	407.7818	38.98	510824.781	1.303	51.860	51.860	1.00	1.05	NO	1901.6
26	10	OCDF	441.7428	46.69	555457.469	1.166	99.906	99.906	0.90	0.89	NO	1446.9

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	25.79	3872.802	1.134	0.276		0.80	0.77	NO	16.6
2	11	2378-TCDD	319.8965	26.18	148545.340	1.134	10.586	10.586	0.77	0.77	NO	680.1

PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	12	12378-PeCDD	355.8546	31.27	464117.625	0.975	51.139	51.139	1.54	1.55	NO	2460.8
2	42	Total-pentadioxins	355.8546	30.60	816.611	0.975	0.090		0.88	1.55	YES	5.4

HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	15	123789-HxCDD	389.8157	36.47	398989.406	0.947	50.599	50.599	1.24	1.24	NO	2120.1
2	43	Total-hexadioxins	389.8157	36.29	619.586	0.983	0.076		1.06	1.24	NO	5.0
3	43	Total-hexadioxins	389.8157	36.25	975.748	0.983	0.119		0.74	1.24	YES	8.2
4	14	123678-HxCDD	389.8157	36.04	419987.157	0.971	51.040	51.040	1.28	1.24	NO	2277.9
5	13	123478-HxCDD	389.8157	35.92	410880.047	1.031	48.667	48.667	1.25	1.24	NO	2232.0

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HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	44	Total-heptadioxins	423.7766	39.48	1361.912	1.028	0.208		0.19	1.05	YES	6.1
2	16	1234678-HpCDD	423.7766	40.75	334791.156	1.028	51.254	51.254	1.02	1.05	NO	1552.4

Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	41	Total-tetradioxins	319.8965	25.79	3872.802	1.134	0.276		0.80	0.77	NO	16.6
2	11	2378-TCDD	319.8965	26.18	148545.340	1.134	10.586	10.586	0.77	0.77	NO	680.1
3	12	12378-PeCDD	355.8546	31.27	464117.625	0.975	51.139	51.139	1.54	1.55	NO	2460.8
4	42	Total-pentadioxins	355.8546	30.60	816.611	0.975	0.090		0.88	1.55	YES	5.4
5	15	123789-HxCDD	389.8157	36.47	398989.406	0.947	50.599	50.599	1.24	1.24	NO	2120.1
6	43	Total-hexadioxins	389.8157	36.29	619.586	0.983	0.076		1.06	1.24	NO	5.0
7	43	Total-hexadioxins	389.8157	36.25	975.748	0.983	0.119		0.74	1.24	YES	8.2
8	14	123678-HxCDD	389.8157	36.04	419987.157	0.971	51.040	51.040	1.28	1.24	NO	2277.9
9	13	123478-HxCDD	389.8157	35.92	410880.047	1.031	48.667	48.667	1.25	1.24	NO	2232.0
10	44	Total-heptadioxins	423.7766	39.48	1361.912	1.028	0.208		0.19	1.05	YES	6.1
11	16	1234678-HpCDD	423.7766	40.75	334791.156	1.028	51.254	51.254	1.02	1.05	NO	1552.4
12	17	OCDD	457.7377	46.43	481658.516	1.107	91.233	91.233	0.89	0.89	NO	1769.1

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TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.60	1828.000	0.935	0.092		0.67	0.77	NO	7.8
2	35	Total-tetrafurans	303.9016	25.79	355.343	0.935	0.018		1.13	0.77	YES	3.5
3	1	2378-TCDF	303.9016	25.54	203895.922	0.935	10.284	10.284	0.78	0.77	NO	969.8
4	35	Total-tetrafurans	303.9016	25.35	609.769	0.935	0.031		1.01	0.77	YES	4.7
5	35	Total-tetrafurans	303.9016	24.63	2163.509	0.935	0.109		1.01	0.77	YES	10.8
6	35	Total-tetrafurans	303.9016	24.45	5579.634	0.935	0.281		0.83	0.77	NO	29.8
7	35	Total-tetrafurans	303.9016	24.32	2109.521	0.935	0.106		0.65	0.77	NO	10.8
8	37	Total-pentafurans	339.8597	28.55	3004.991	0.957	0.201		1.94	1.55	YES	14.3
9	37	Total-pentafurans	339.8597	32.04	5392.993	0.957	0.360		1.41	1.55	NO	17.0
10	3	23478-PeCDF	339.8597	31.01	725964.094	0.963	48.287	48.287	1.55	1.55	NO	2312.8
11	37	Total-pentafurans	339.8597	29.87	19500.974	0.957	1.301		3.05	1.55	YES	56.1
12	2	12378-PeCDF	339.8597	29.66	741305.375	0.952	49.642	49.642	1.59	1.55	NO	2287.3
13	37	Total-pentafurans	339.8597	29.32	4319.632	0.957	0.288		2.11	1.55	YES	11.6
14	37	Total-pentafurans	339.8597	28.60	6702.615	0.957	0.447		1.55	1.55	NO	21.4
15	38	Total-hexafurans	373.8208	35.01	1283.939	1.125	0.117		1.84	1.24	YES	7.6
16	6	123678-HxCDF	373.8208	34.84	625941.563	1.099	50.721	50.721	1.25	1.24	NO	1293.0
17	4	123478-HxCDF	373.8208	34.68	568689.406	1.137	50.032	50.032	1.23	1.24	NO	1216.2
18	38	Total-hexafurans	373.8208	33.18	3208.894	1.125	0.291		1.55	1.24	YES	8.0
19	38	Total-hexafurans	373.8208	32.95	1139.365	1.125	0.103		1.11	1.24	NO	2.5
20	7	123789-HxCDF	373.8208	36.93	459868.641	1.101	49.854	49.854	1.24	1.24	NO	946.4
21	38	Total-hexafurans	373.8208	36.09	807.588	1.125	0.073		1.08	1.24	NO	3.1
22	5	234678-HxCDF	373.8208	35.78	556276.063	1.164	50.130	50.130	1.24	1.24	NO	1165.2
23	9	1234789-HpCDF	407.7818	41.60	377922.688	1.317	49.004	49.004	1.04	1.05	NO	1260.9
24	39	Total-heptafurans	407.7818	39.76	1527.543	1.310	0.174		1.49	1.05	YES	9.8
25	8	1234678-HpCDF	407.7818	38.98	510824.781	1.303	51.860	51.860	1.00	1.05	NO	1901.6
26	10	OCDF	441.7428	46.69	555457.469	1.166	99.906	99.906	0.90	0.89	NO	1446.9
27	41	Total-tetradioxins	319.8965	25.79	3872.802	1.134	0.276		0.80	0.77	NO	16.6
28	11	2378-TCDD	319.8965	26.18	148545.340	1.134	10.586	10.586	0.77	0.77	NO	680.1
29	12	12378-PeCDD	355.8546	31.27	464117.625	0.975	51.139	51.139	1.54	1.55	NO	2460.8
30	42	Total-pentadioxins	355.8546	30.60	816.611	0.975	0.090		0.88	1.55	YES	5.4
31	15	123789-HxCDD	389.8157	36.47	398989.406	0.947	50.599	50.599	1.24	1.24	NO	2120.1
32	43	Total-hexadioxins	389.8157	36.29	619.586	0.983	0.076		1.06	1.24	NO	5.0
33	43	Total-hexadioxins	389.8157	36.25	975.748	0.983	0.119		0.74	1.24	YES	8.2
34	14	123678-HxCDD	389.8157	36.04	419987.157	0.971	51.040	51.040	1.28	1.24	NO	2277.9
35	13	123478-HxCDD	389.8157	35.92	410880.047	1.031	48.667	48.667	1.25	1.24	NO	2232.0
36	44	Total-heptadioxins	423.7766	39.48	1361.912	1.028	0.208		0.19	1.05	YES	6.1
37	16	1234678-HpCDD	423.7766	40.75	334791.156	1.028	51.254	51.254	1.02	1.05	NO	1552.4
38	17	OCDD	457.7377	46.43	481658.516	1.107	91.233	91.233	0.89	0.89	NO	1769.1

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	21.69	0.000							4.0
2	48	FUNCTION1 PFK	330.9792	24.20	0.000							2.0
3	48	FUNCTION1 PFK	330.9792	23.88	0.000							6.1
4	48	FUNCTION1 PFK	330.9792	23.70	0.000							9.7
5	48	FUNCTION1 PFK	330.9792	22.69	0.000							3.1
6	48	FUNCTION1 PFK	330.9792	22.34	0.000							10.6
7	48	FUNCTION1 PFK	330.9792	22.09	0.000							11.0
8	48	FUNCTION1 PFK	330.9792	21.89	0.000							8.7

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	30.87	0.000		0.000					1.2
2	49	FUNCTION2 PFK	366.9792	30.12	0.000		0.000					1.6
3	49	FUNCTION2 PFK	366.9792	29.70	0.000		0.000					1.1
4	49	FUNCTION2 PFK	366.9792	29.20	0.000		0.000					0.7
5	49	FUNCTION2 PFK	366.9792	29.06	0.000		0.000					1.5
6	49	FUNCTION2 PFK	366.9792	28.34	0.000		0.000					0.9
7	49	FUNCTION2 PFK	366.9792	28.00	0.000		0.000					1.7

PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	34.90	0.000		0.000					1.4
2	50	FUNCTION3 PFK	380.9760	34.75	0.000		0.000					0.6
3	50	FUNCTION3 PFK	380.9760	34.56	0.000		0.000					0.9
4	50	FUNCTION3 PFK	380.9760	34.23	0.000		0.000					1.4
5	50	FUNCTION3 PFK	380.9760	34.14	0.000		0.000					0.6
6	50	FUNCTION3 PFK	380.9760	33.97	0.000		0.000					1.7
7	50	FUNCTION3 PFK	380.9760	33.89	0.000		0.000					2.3
8	50	FUNCTION3 PFK	380.9760	33.83	0.000		0.000					1.6
9	50	FUNCTION3 PFK	380.9760	33.41	0.000		0.000					0.7
10	50	FUNCTION3 PFK	380.9760	33.36	0.000		0.000					1.0
11	50	FUNCTION3 PFK	380.9760	33.29	0.000		0.000					0.7
12	50	FUNCTION3 PFK	380.9760	33.17	0.000		0.000					2.3
13	50	FUNCTION3 PFK	380.9760	33.04	0.000		0.000					1.5
14	50	FUNCTION3 PFK	380.9760	32.94	0.000		0.000					0.5
15	50	FUNCTION3 PFK	380.9760	32.77	0.000		0.000					1.3
16	50	FUNCTION3 PFK	380.9760	32.69	0.000		0.000					1.0
17	50	FUNCTION3 PFK	380.9760	37.54	0.000		0.000					0.5
18	50	FUNCTION3 PFK	380.9760	37.30	0.000		0.000					1.6
19	50	FUNCTION3 PFK	380.9760	37.24	0.000		0.000					1.1
20	50	FUNCTION3 PFK	380.9760	37.18	0.000		0.000					0.4
21	50	FUNCTION3 PFK	380.9760	36.93	0.000		0.000					1.4
22	50	FUNCTION3 PFK	380.9760	36.71	0.000		0.000					0.8
23	50	FUNCTION3 PFK	380.9760	36.55	0.000		0.000					1.5
24	50	FUNCTION3 PFK	380.9760	36.48	0.000		0.000					1.1
25	50	FUNCTION3 PFK	380.9760	36.09	0.000		0.000					2.0
26	50	FUNCTION3 PFK	380.9760	36.00	0.000		0.000					0.7
27	50	FUNCTION3 PFK	380.9760	35.85	0.000		0.000					2.2
28	50	FUNCTION3 PFK	380.9760	35.55	0.000		0.000					1.4
29	50	FUNCTION3 PFK	380.9760	35.33	0.000		0.000					1.7
30	50	FUNCTION3 PFK	380.9760	35.23	0.000		0.000					1.5
31	50	FUNCTION3 PFK	380.9760	35.01	0.000		0.000					1.4
32	50	FUNCTION3 PFK	380.9760	34.95	0.000		0.000					1.5

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	40.52	0.000							1.7

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
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PFK5

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	48.50	0.000								0.9
2	52	FUNCTION5 PFK	480.9696	47.46	0.000								1.5
3	52	FUNCTION5 PFK	480.9696	46.09	0.000								1.0
4	52	FUNCTION5 PFK	480.9696	45.85	0.000								0.8
5	52	FUNCTION5 PFK	480.9696	45.01	0.000								0.7

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	21.83	0.000			0.000					4.7

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
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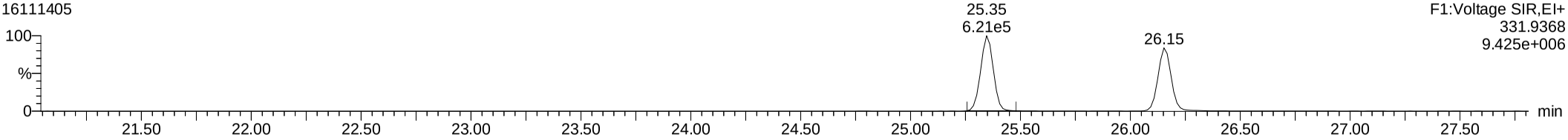
Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DLCS10, Name: 16111405, Date: 14-Nov-2016, Time: 13:38:58, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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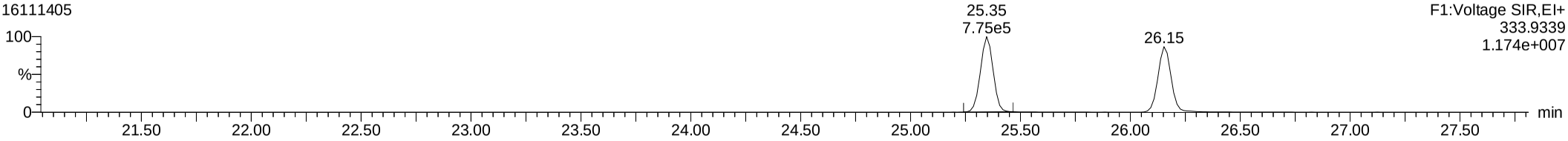

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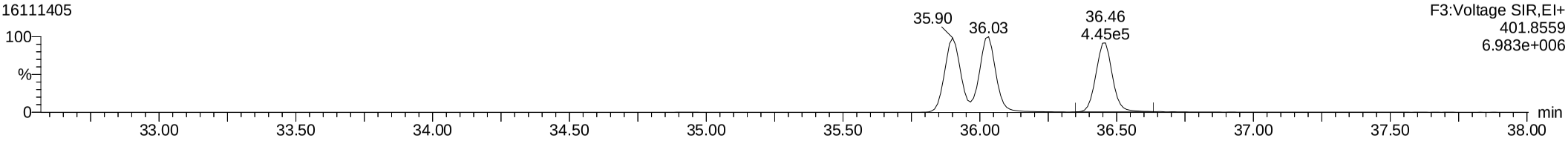

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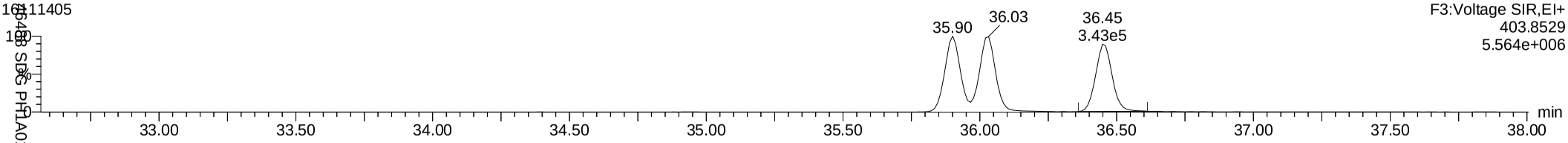

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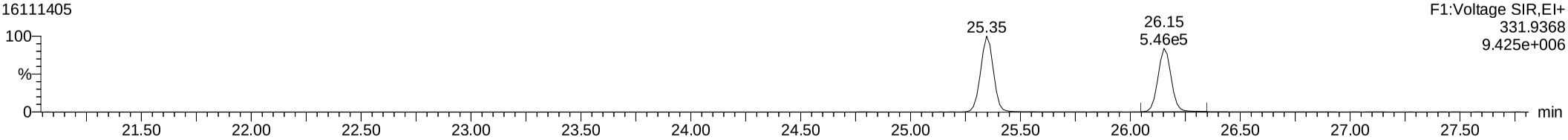
13C-2378-TCDD



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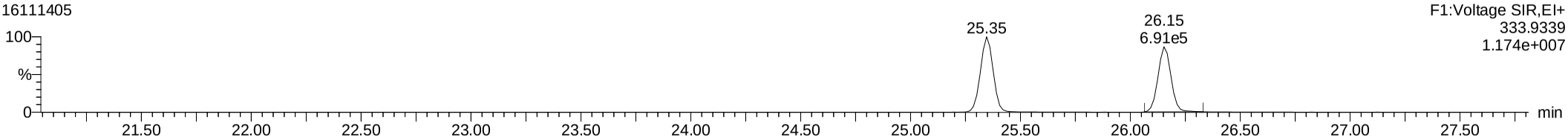
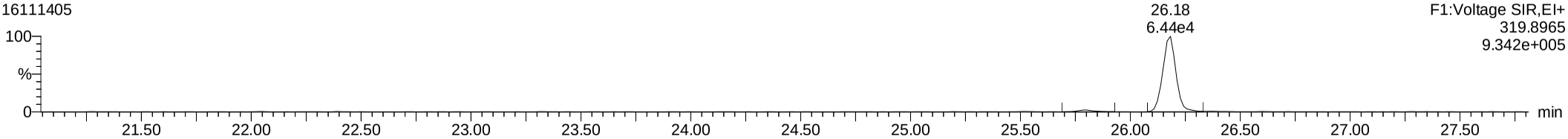
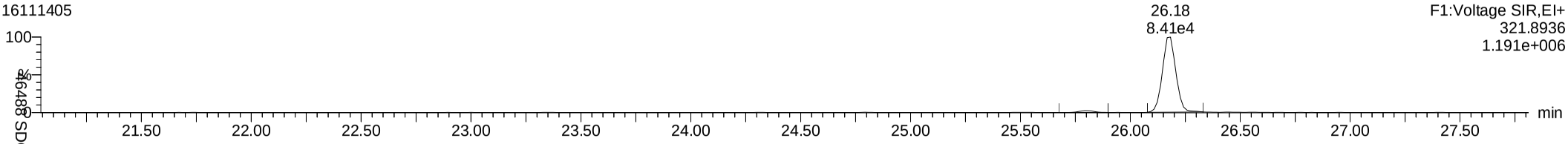


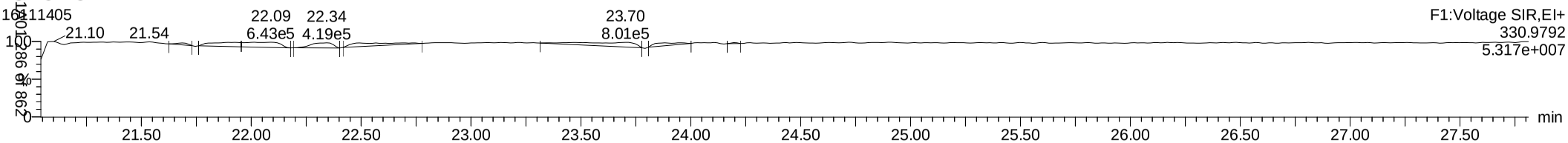
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



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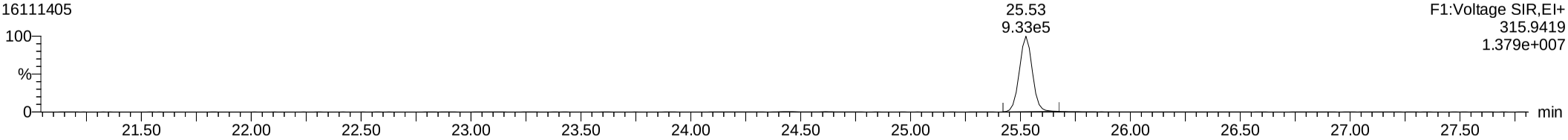
13C-2378-TCDF



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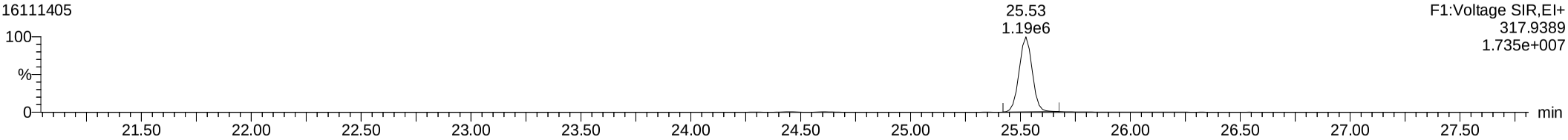
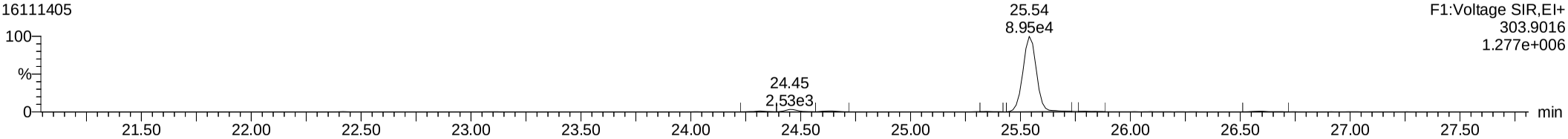
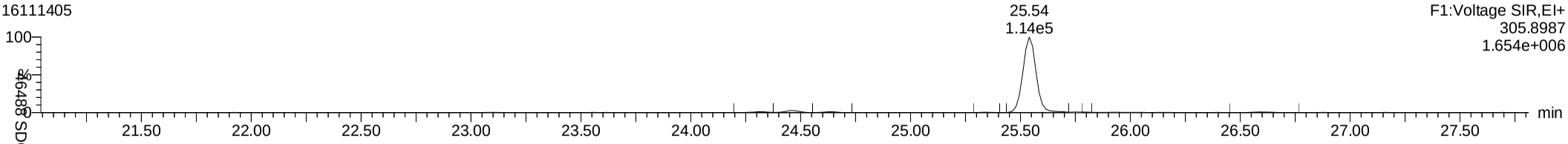


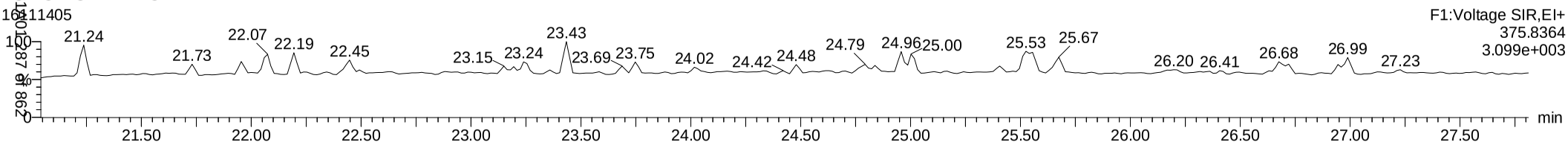
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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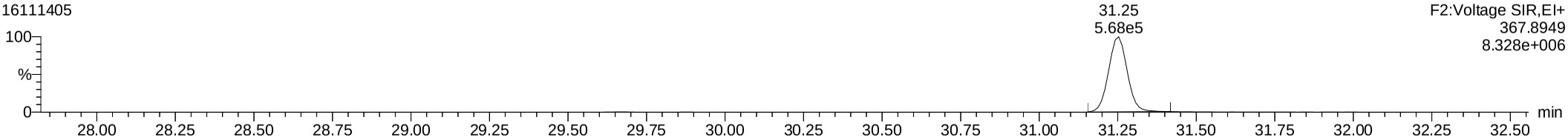
13C-12378-PeCDD



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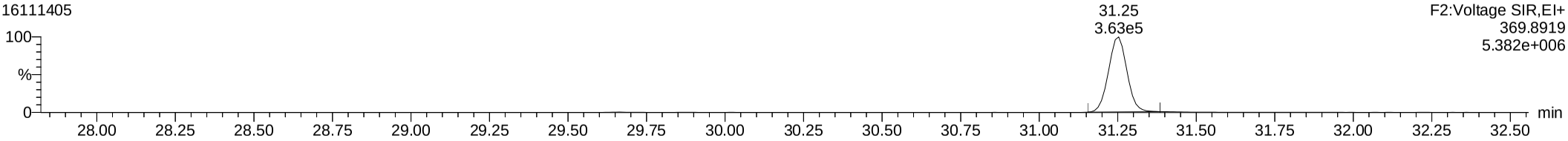
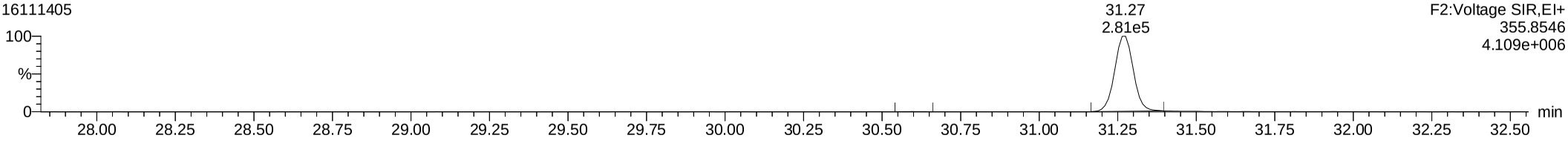
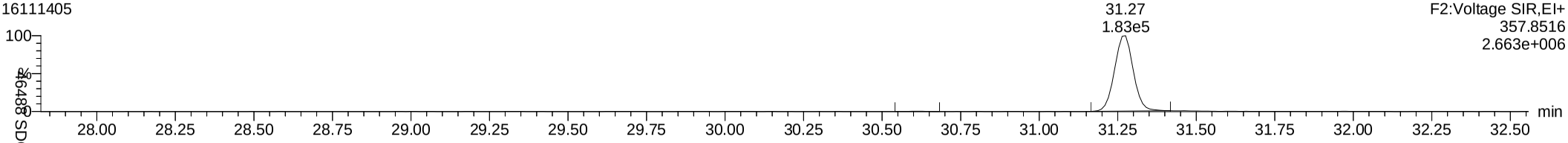


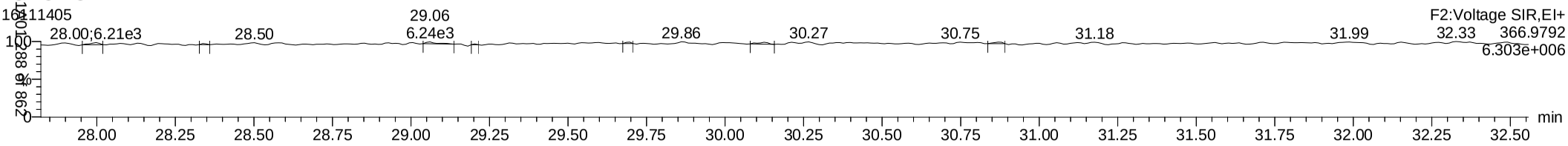
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



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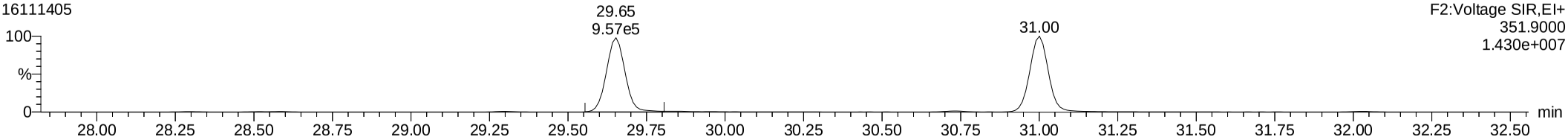
13C-12378-PeCDF



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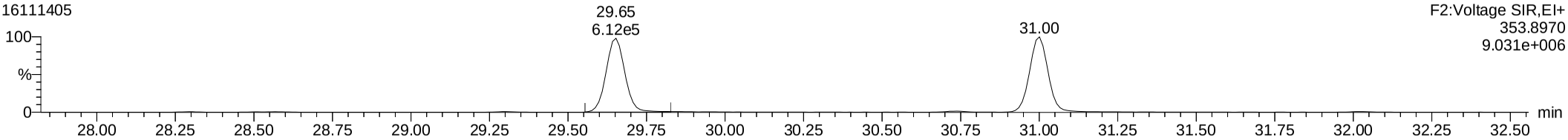
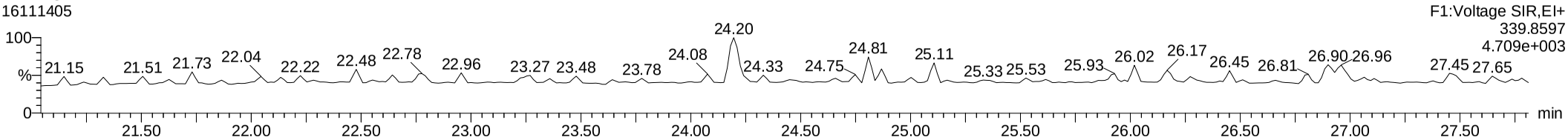
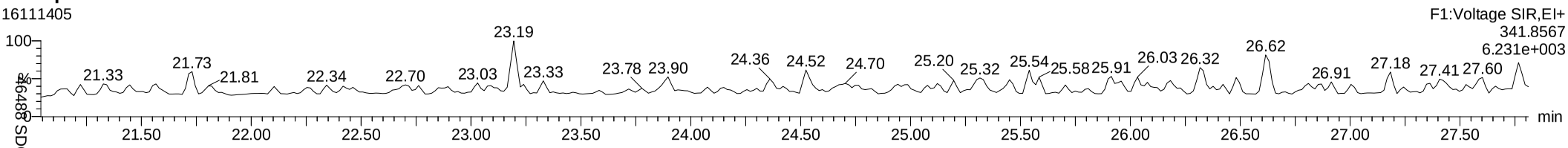


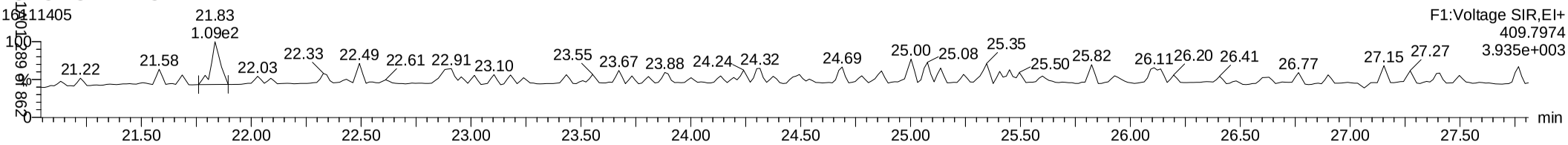
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



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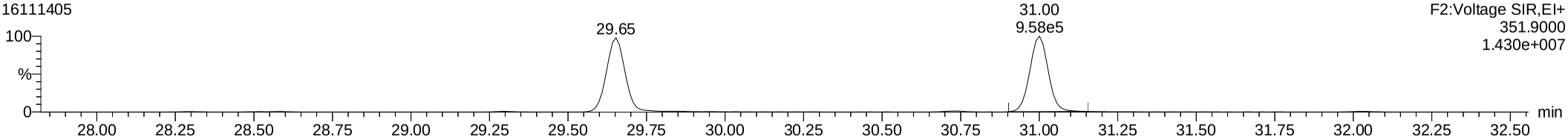
13C-23478-PeCDF



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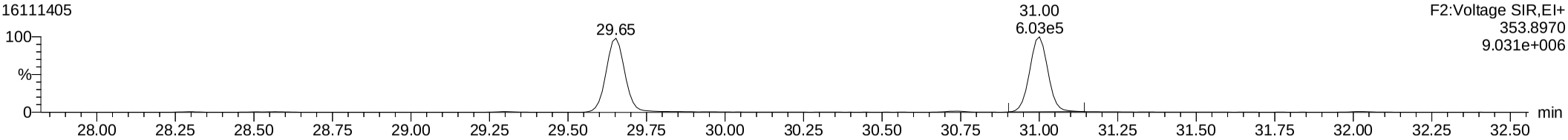
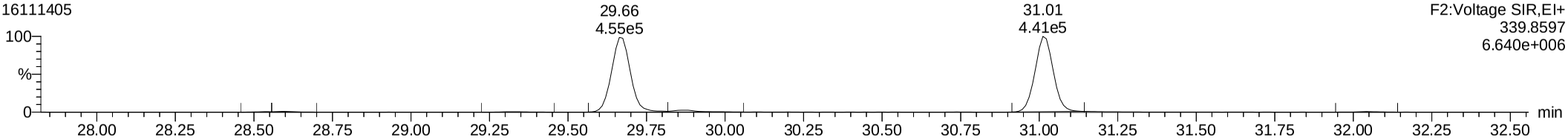
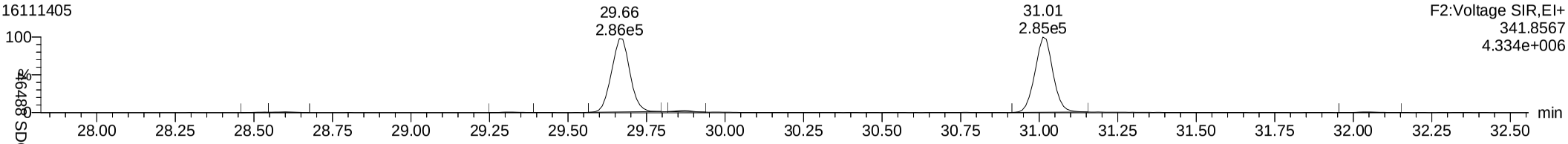


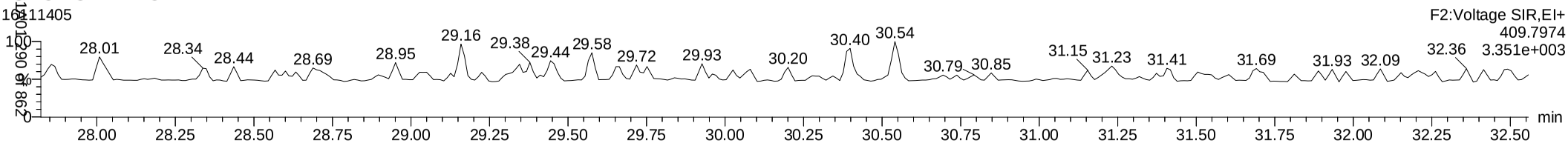
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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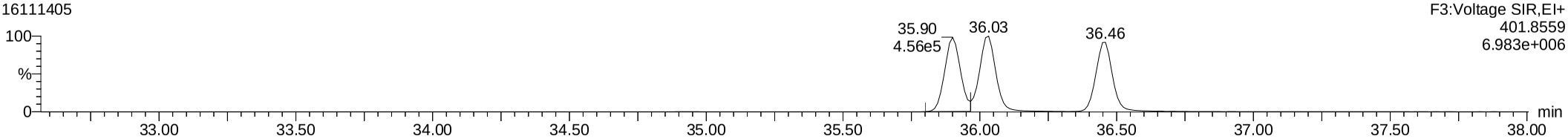
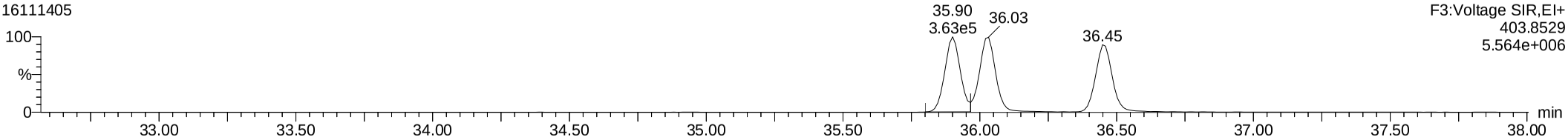
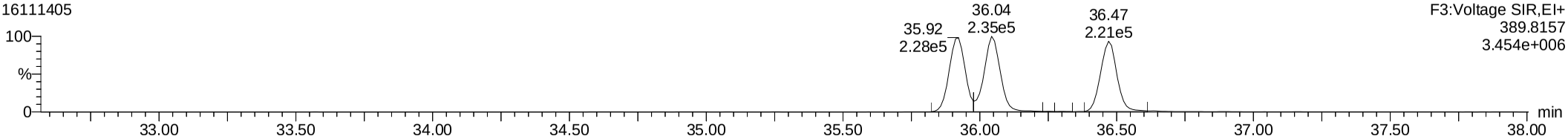
13C-123478-HxCDD



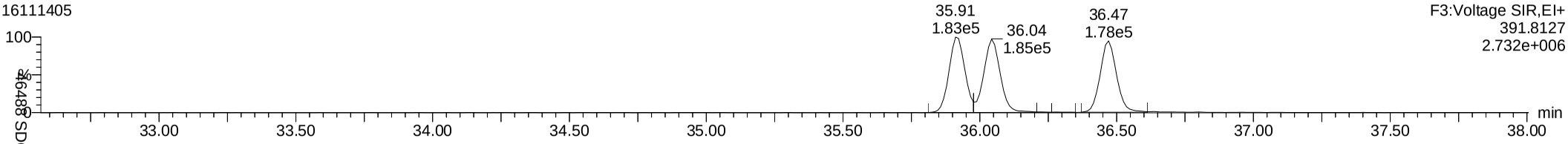
13C-123478-HxCDD



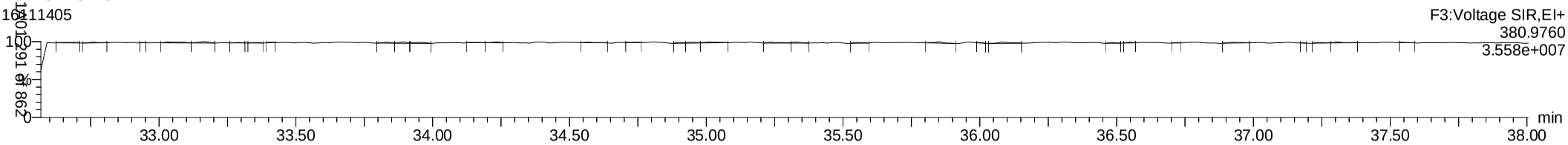
Total-hexadioxins



Total-hexadioxins



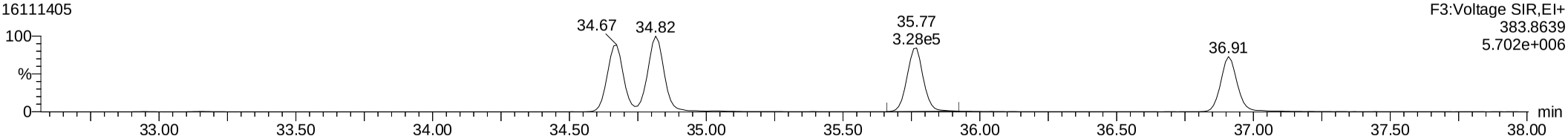
FUNCTION3 PFK



46488 SDG PH 1701291 of 862

ID: DLCS10, Name: 16111405, Date: 14-Nov-2016, Time: 13:38:58, Conditions: AUTOSPEC01, User: PK

13C-234678-HxCDF



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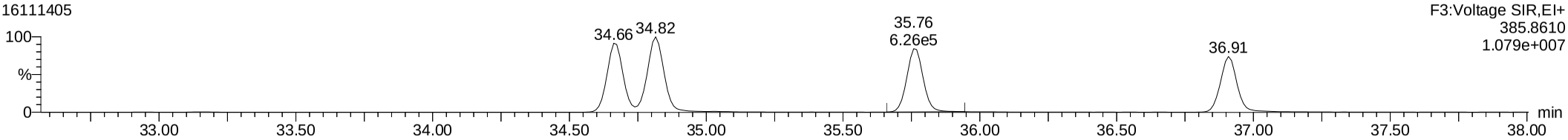
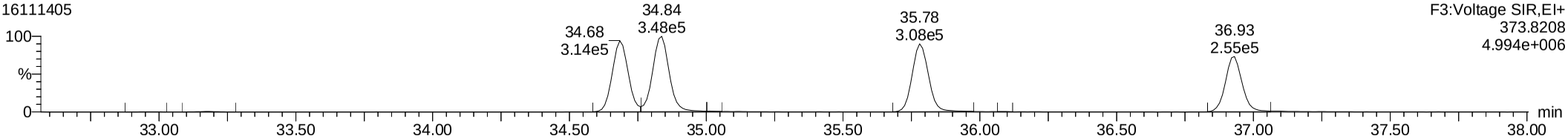
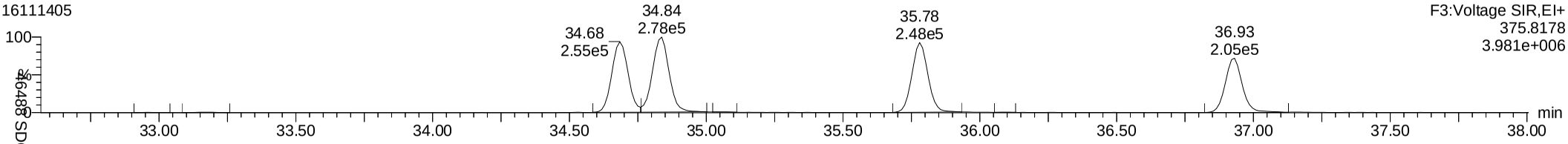


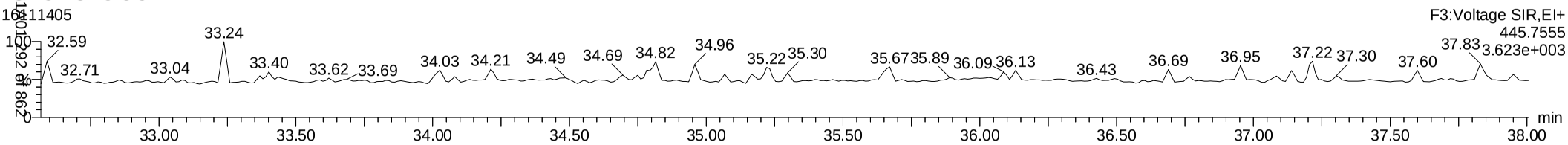
Total-hexafurans



Total-hexafurans



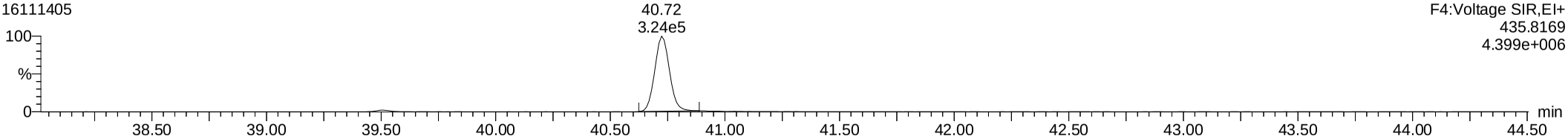
FUNCTION3 OCDPE



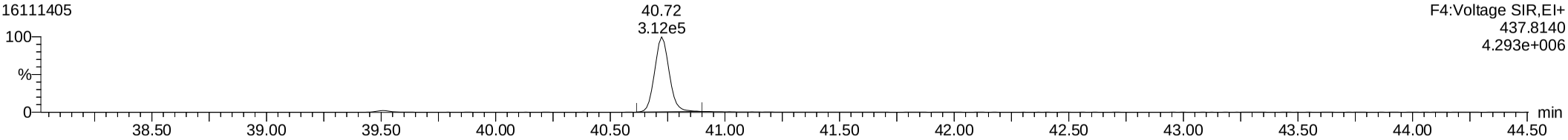
46488 SDG PH1101292 of 862

ID: DLCS10, Name: 16111405, Date: 14-Nov-2016, Time: 13:38:58, Conditions: AUTOSPEC01, User: PK

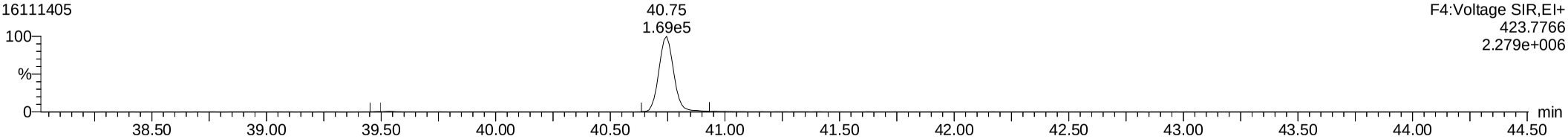
13C-1234678-HpCDD



13C-1234678-HpCDD



Total-heptadioxins



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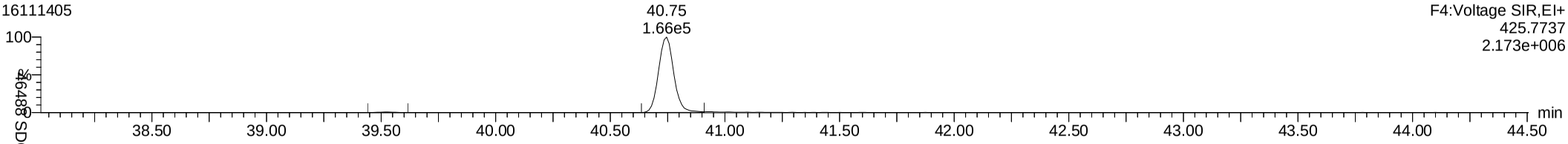
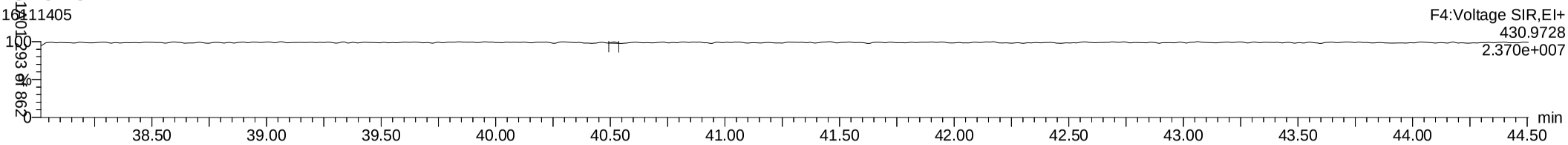


FUNCTION4 PFK



46488 SDG PH1201293 of 862

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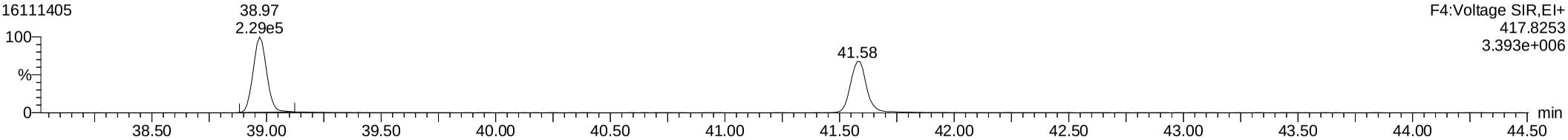
Printed: Tuesday, November 15, 2016 14:28:24 Pacific Standard Time

ID: DLCS10, Name: 16111405, Date: 14-Nov-2016, Time: 13:38:58, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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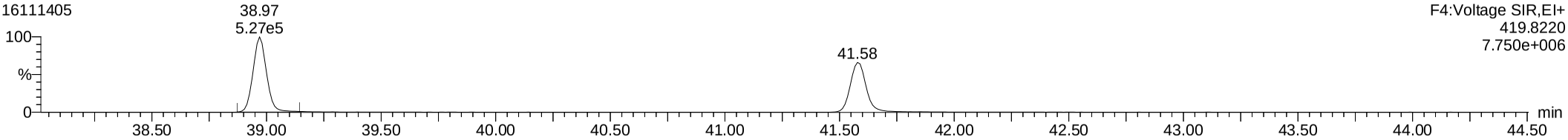
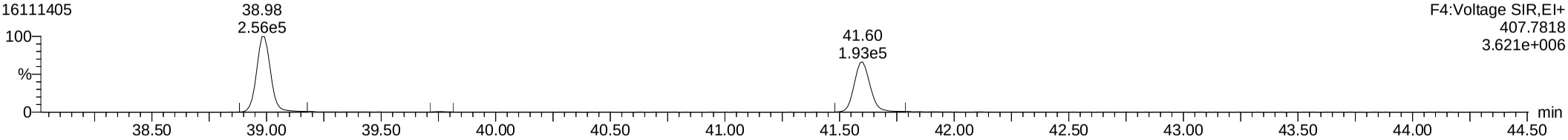


Total-heptafurans



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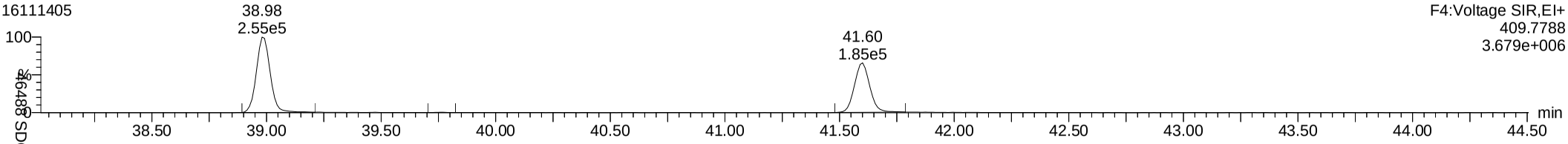
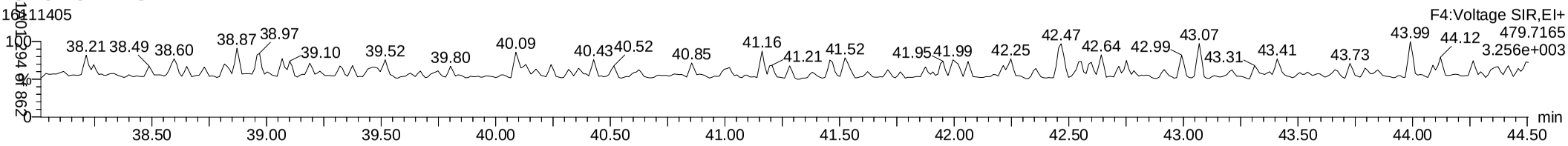


FUNCTION4 NCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
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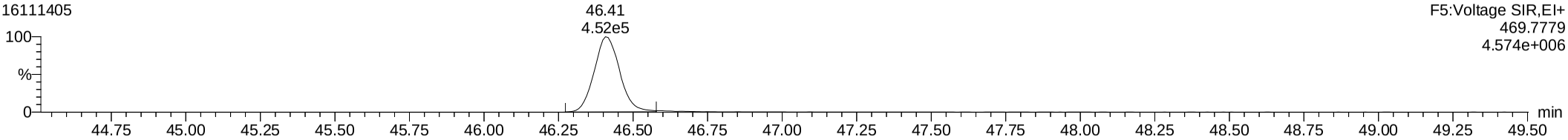
ID: DLCS10, Name: 16111405, Date: 14-Nov-2016, Time: 13:38:58, Conditions: AUTOSPEC01, User: PK

13C-OCDD



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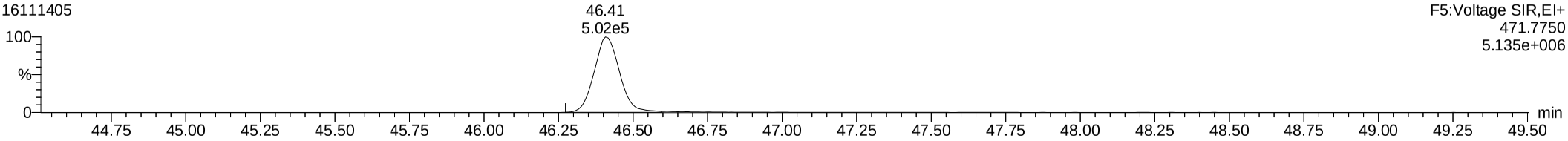
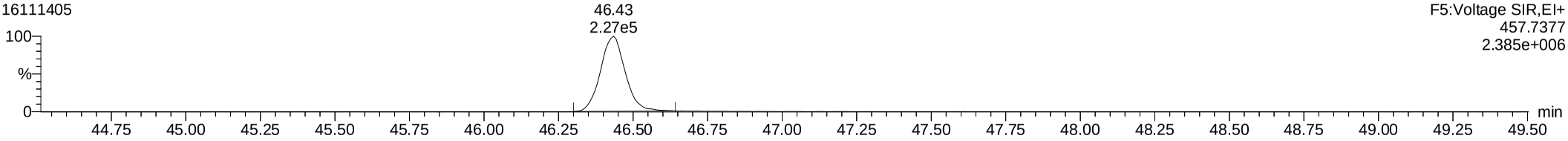
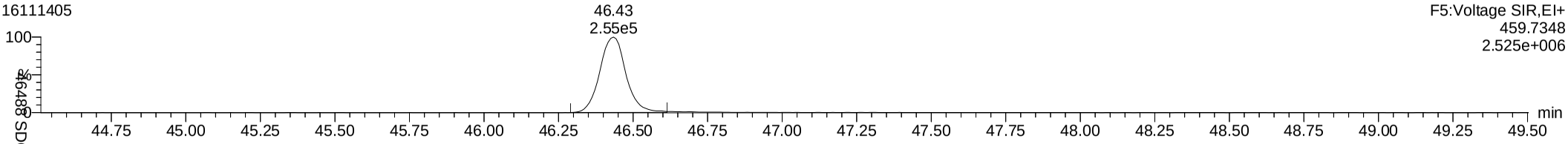


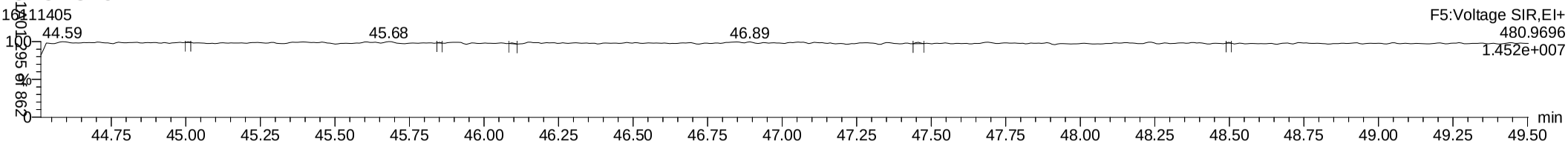
OCDD



OCDD



FUNCTION5 PFK



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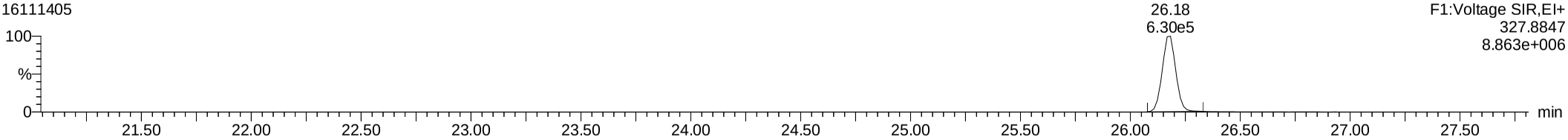
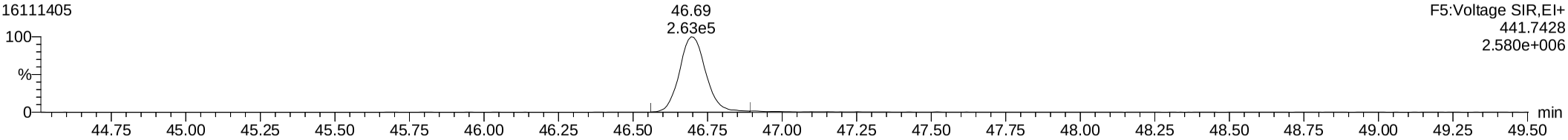
ID: DLCS10, Name: 16111405, Date: 14-Nov-2016, Time: 13:38:58, Conditions: AUTOSPEC01, User: PK

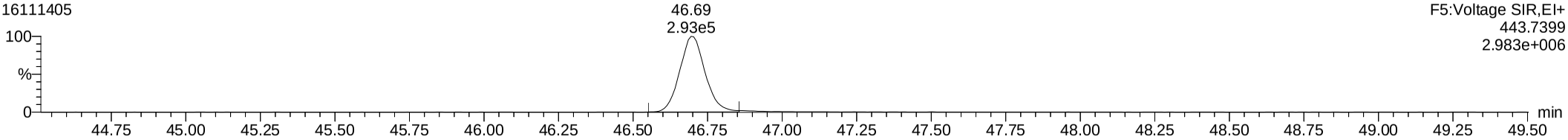
37CL-2378-TCDD



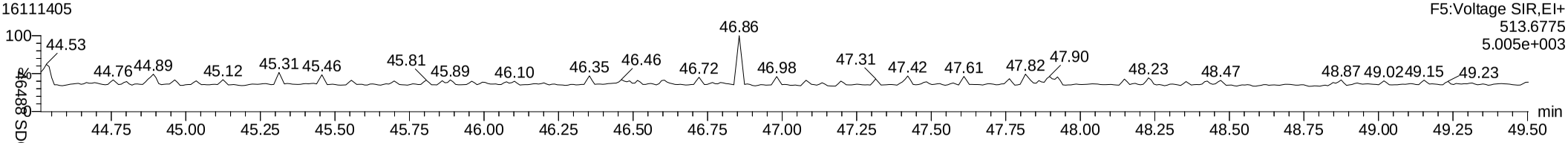
OCDF



OCDF



FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

DLCSD10

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0276-BSD1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111406

Decanted (Y/N): N Extraction Method: SPE

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2378-TCDD	200			0.770	26.1827
5	12378-PeCDD	1000			1.530	31.275
6	123478-HxCDD	1000			1.264	35.9225
6	123678-HxCDD	990			1.256	36.054
6	123789-HxCDD	1000			1.238	36.4705
7	1234678-HpCDD	1000			1.046	40.7453
8	OCDD	1900			0.891	46.4343
4	2378-TCDF	210			0.759	25.5552
5	12378-PeCDF	1000			1.566	29.6745
5	23478-PeCDF	990			1.526	31.0228
6	123478-HxCDF	1000			1.241	34.6948
6	123678-HxCDF	1000			1.212	34.8373
6	123789-HxCDF	1000			1.225	36.9308
6	234678-HxCDF	1000			1.237	35.7908
7	1234678-HpCDF	1100			1.032	38.9917
7	1234789-HpCDF	1000			1.044	41.6005
8	OCDF	2000			0.893	46.7035

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

DLCSD10

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0276-BSD1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111406

Decanted (Y/N): N Extraction Method: SPE Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2378-TCDD	200	x 1.0	200.0000	x 1.0	200.0000	x 1.0	200.0000
12378-PeCDD	1000	x 1.0	1,000.0000	x 1.0	1,000.0000	x 1.0	1,000.0000
123478-HxCDD	1000	x 0.1	100.0000	x 0.5	500.0000	0.05	50.0000
123678-HxCDD	990	x 0.1	99.0000	x 0.01	9.9000	x 0.01	99.0000
123789-HxCDD	1000	x 0.1	100.0000	x 0.01	10.0000	x 0.1	100.0000
1234678-HpCDD	1000	x 0.01	10.0000	x 0.001	1.0000	x 0.001	1.0000
OCDD	1900	x 0.0003	0.5700	x 0.0001	0.1900	x 0.0001	0.1900
2378-TCDF	210	x 0.1	21.0000	x 0.05	10.5000	x 1.0	21.0000
12378-PeCDF	1000	x 0.03	30.0000	x 0.05	50.0000	x 0.1	100.0000
23478-PeCDF	990	x 0.3	297.0000	x 0.5	495.0000	x 1.0	990.0000
123478-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
123678-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
123789-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
234678-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
1234678-HpCDF	1100	x 0.01	11.0000	x 0.01	11.0000	x 0.01	11.0000
1234789-HpCDF	1000	x 0.01	10.0000	x 0.01	10.0000	x 0.01	10.0000
OCDF	2000	x 0.0003	0.6000	x 0.0001	0.2000	x 0.0001	0.2000
		Total TEQ =	2,300	Total TEQ =	2,700	Total TEQ =	3,000

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

DLCSD10

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0276-BSD1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111406

Decanted (Y/N): N Extraction Method: SPE Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/14/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2378-TCDD	2000	1900	96.5	0.79	26.1677
4	13C12-2378-TCDF	2000	1900	94.0	0.78	25.5252
5	13C12-12378-PeCDD	2000	1800	92.0	1.58	31.253
5	13C12-12378-PeCDF	2000	1800	89.7	1.58	29.6635
5	13C12-23478-PeCDF	2000	1800	90.4	1.57	31.0008
6	13C12-123478-HxCDD	2000	1900	95.1	1.29	35.9005
6	13C12-123678-HxCDD	2000	1800	90.8	1.26	36.032
6	13C12-123478-HxCDF	2000	1900	93.0	0.52	34.6728
6	13C12-123678-HxCDF	2000	1800	89.2	0.52	34.8263
6	13C12-123789-HxCDF	2000	1700	87.3	0.52	36.909
6	13C12-234678-HxCDF	2000	1700	87.5	0.52	35.769
7	13C12-1234678-HpCDD	2000	1800	88.2	1.06	40.7345
7	13C12-1234678-HpCDF	2000	1600	78.8	0.45	38.9807
7	13C12-1234789-HpCDF	2000	1600	80.7	0.46	41.5895
8	13C12-OCDD	4000	3000	73.8	0.87	46.4165
Labeled Cleanup Standard 37C14-2378-TCDD						
4	37C14-2378-TCDD	800	840	105		26.1827

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 14:28:28 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DLCSD10, Name: 16111406, Date: 14-Nov-2016, Time: 14:32:09, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.555	1.001	9.60e4	1.27e5	0.935	0.759	0.770	828	1290	1.39e6	1.81e6	1684.6	NO	10.341
12378-PeCDF	29.674	1.000	5.32e5	3.40e5	0.952	1.566	1.550	2513	2082	7.93e6	5.05e6	3156.1	NO	51.312
23478-PeCDF	31.023	1.001	5.02e5	3.29e5	0.963	1.526	1.550	2513	2082	7.68e6	5.08e6	3056.6	NO	49.532
123478-HxCDF	34.695	1.001	3.81e5	3.07e5	1.137	1.241	1.240	1725	2494	5.61e6	4.52e6	3252.4	NO	50.114
234678-HxCDF	35.791	1.001	3.64e5	2.94e5	1.164	1.237	1.240	1725	2494	5.38e6	4.33e6	3117.9	NO	51.181
123678-HxCDF	34.837	1.000	4.08e5	3.37e5	1.099	1.212	1.240	1725	2494	5.88e6	5.02e6	3409.9	NO	51.575
123789-HxCDF	36.931	1.001	2.96e5	2.42e5	1.101	1.225	1.240	1725	2494	4.26e6	3.40e6	2473.0	NO	50.384
1234678-HpCDF	38.992	1.000	3.04e5	2.95e5	1.303	1.032	1.050	1741	2069	4.57e6	4.38e6	2623.1	NO	52.701
1234789-HpCDF	41.600	1.000	2.26e5	2.16e5	1.317	1.044	1.050	1741	2069	2.93e6	2.67e6	1683.1	NO	50.393
OCDF	46.703	1.006	3.15e5	3.52e5	1.166	0.893	0.890	1346	1277	3.08e6	3.49e6	2289.2	NO	100.620
2378-TCDD	26.183	1.001	6.91e4	8.98e4	1.134	0.770	0.770	1238	629	1.02e6	1.32e6	823.2	NO	10.241
12378-PeCDD	31.275	1.001	3.26e5	2.13e5	0.975	1.530	1.550	1317	1124	4.96e6	3.22e6	3762.6	NO	50.909
123478-HxCDD	35.923	1.001	2.71e5	2.14e5	1.031	1.264	1.240	1536	1375	4.13e6	3.23e6	2685.5	NO	49.827
123678-HxCDD	36.054	1.001	2.67e5	2.12e5	0.971	1.256	1.240	1536	1375	3.95e6	3.07e6	2572.4	NO	49.701
123789-HxCDD	36.471	1.012	2.55e5	2.06e5	0.947	1.238	1.240	1536	1375	3.73e6	3.09e6	2429.3	NO	50.370
1234678-HpCDD	40.745	1.000	2.01e5	1.92e5	1.028	1.046	1.050	1807	1033	2.78e6	2.57e6	1538.8	NO	50.628
OCDD	46.434	1.000	2.78e5	3.12e5	1.107	0.891	0.890	970	1404	2.82e6	3.22e6	2904.9	NO	93.886
13C-2378-TCDF	25.525	1.007	1.01e6	1.29e6	1.567	0.784	0.770	3833	2571	1.49e7	1.90e7	3879.1	NO	93.965
13C-12378-PeCDF	29.663	1.170	1.09e6	6.93e5	1.274	1.578	1.550	4712	2722	1.62e7	1.03e7	3431.9	NO	89.679
13C-23478-PeCDF	31.001	1.222	1.07e6	6.78e5	1.235	1.571	1.550	4712	2722	1.59e7	1.02e7	3376.1	NO	90.363
13C-123478-HxCDF	34.673	0.951	4.11e5	7.96e5	1.381	0.516	0.510	3374	4393	6.18e6	1.19e7	1830.2	NO	93.004
13C-123678-HxCDF	34.826	0.955	4.50e5	8.65e5	1.569	0.520	0.510	3374	4393	6.50e6	1.26e7	1926.6	NO	89.207
13C-234678-HxCDF	35.769	0.981	3.81e5	7.26e5	1.345	0.525	0.510	3374	4393	5.71e6	1.09e7	1690.7	NO	87.500
13C-123789-HxCDF	36.909	1.012	3.33e5	6.38e5	1.183	0.522	0.510	3374	4393	4.65e6	8.96e6	1377.6	NO	87.282
13C-1234678-HpCDF	38.981	1.069	2.70e5	6.03e5	1.178	0.447	0.440	1613	1982	3.98e6	8.90e6	2465.0	NO	78.822
13C-1234789-HpCDF	41.590	1.141	2.10e5	4.56e5	0.878	0.460	0.440	1613	1982	2.66e6	5.82e6	1651.0	NO	80.680
13C-1234-TCDD	25.361	0.000	6.94e5	8.69e5	1.000	0.799	0.770	1961	1931	1.03e7	1.29e7	5238.5	NO	100.000
13C-2378-TCDD	26.168	1.032	6.03e5	7.66e5	0.908	0.788	0.770	1961	1931	8.77e6	1.10e7	4470.6	NO	96.454
13C-12378-PeCDD	31.253	1.232	6.65e5	4.22e5	0.756	1.576	1.550	2013	895	9.99e6	6.26e6	4964.8	NO	92.034
13C-123478-HxCDD	35.901	0.985	5.31e5	4.12e5	1.056	1.289	1.240	1357	2010	7.91e6	6.29e6	5824.9	NO	95.089
13C-123678-HxCDD	36.032	0.988	5.52e5	4.40e5	1.163	1.256	1.240	1357	2010	8.15e6	6.55e6	6004.6	NO	90.765
13C-1234678-HpCDD	40.735	1.117	3.89e5	3.65e5	0.909	1.064	1.050	1494	1368	5.28e6	4.92e6	3536.8	NO	88.223
13C-OCDD	46.417	1.273	5.30e5	6.07e5	0.820	0.874	0.890	1578	1458	5.43e6	6.19e6	3444.5	NO	147.593
13C-123789-HxCDD	36.459	0.000	5.23e5	4.17e5	1.000	1.254	1.240	1357	2010	7.84e6	6.32e6	5773.2	NO	100.000
Total-tetrafurans			1.02e5		0.935			828		1.49e6				11.010

948 SW PARK AVE, PORTLAND, OR 97205

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
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Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					495		0.00e0				
Total-pentafurans			1.07e6		0.957			2513		1.61e7				103.908
Total-hexafurans			1.45e6		1.125			1725		2.12e7				203.893
Total-heptafurans			5.31e5		1.310			1741		7.52e6				103.316
Total-Furans			3.47e6		1.114			828		4.94e7				522.747
Total-tetradioxins			7.06e4		1.134			1238		1.04e6				10.422
Total-pentadioxins			3.27e5		0.975			1317		4.98e6				51.038
Total-hexadioxins			7.93e5		0.983			1536		1.18e7				149.898
Total-heptadioxins			2.02e5		1.028			1807		2.80e6				50.979
Total-Dioxins			1.67e6		1.028			1238		2.34e7				356.223
Total-TEQ			5.14e6					1238		7.28e7				878.970
37CL-2378-TCDD	26.183	1.032	7.00e5		1.067			1376		1.05e7		7629.1		41.979
FUNCTION1 PFK			4.17e5					291781		2.31e6				
FUNCTION2 PFK			8.73e4					93363		3.02e6				0.000
FUNCTION3 PFK			0.00e0					244948		0.00e0				
FUNCTION4 PFK			4.24e5					192592		1.16e7				
FUNCTION5 PFK			1.91e5					127375		7.30e6				
FUNCTION1 HXCD...			0.00e0					219		0.00e0				
FUNCTION1 HPCD...			1.94e2					711		3.92e3				0.000
FUNCTION2 HPCD...			0.00e0					361		0.00e0				
FUNCTION3 OCDPE			0.00e0					216		0.00e0				
FUNCTION4 NCDPE			0.00e0					409		0.00e0				
FUNCTION5 DCDPE			0.00e0					329		0.00e0				

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

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TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.60	1383.857	0.935	0.064		0.78	0.77	NO	10.4
2	1	2378-TCDF	303.9016	25.56	222530.320	0.935	10.341	10.341	0.76	0.77	NO	1684.6
3	35	Total-tetrafurans	303.9016	25.38	368.003	0.935	0.017		1.04	0.77	YES	3.5
4	35	Total-tetrafurans	303.9016	24.64	2514.112	0.935	0.117		0.86	0.77	NO	22.1
5	35	Total-tetrafurans	303.9016	24.46	7742.789	0.935	0.360		0.72	0.77	NO	64.8
6	35	Total-tetrafurans	303.9016	24.33	2391.878	0.935	0.111		0.64	0.77	YES	18.4

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	3	23478-PeCDF	339.8597	31.02	831696.250	0.963	49.532	49.532	1.53	1.55	NO	3056.6
2	37	Total-pentafurans	339.8597	29.87	24965.040	0.957	1.477		1.55	1.55	NO	74.2
3	2	12378-PeCDF	339.8597	29.67	872312.876	0.952	51.312	51.312	1.57	1.55	NO	3156.1
4	37	Total-pentafurans	339.8597	29.32	7656.058	0.957	0.453		1.48	1.55	NO	25.5
5	37	Total-pentafurans	339.8597	28.60	8556.115	0.957	0.506		1.65	1.55	NO	35.4
6	37	Total-pentafurans	339.8597	28.55	4755.119	0.957	0.281		1.60	1.55	NO	20.8
7	37	Total-pentafurans	339.8597	32.05	5843.774	0.957	0.346		1.85	1.55	YES	21.6

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	7	123789-HxCDF	373.8208	36.93	538146.047	1.101	50.384	50.384	1.22	1.24	NO	2473.0
2	5	234678-HxCDF	373.8208	35.79	658767.501	1.164	51.181	51.181	1.24	1.24	NO	3117.9
3	6	123678-HxCDF	373.8208	34.84	745591.813	1.099	51.575	51.575	1.21	1.24	NO	3409.9
4	4	123478-HxCDF	373.8208	34.69	687448.469	1.137	50.114	50.114	1.24	1.24	NO	3252.4
5	38	Total-hexafurans	373.8208	34.52	1254.006	1.125	0.097		0.86	1.24	YES	6.0
6	38	Total-hexafurans	373.8208	33.18	4999.311	1.125	0.387		1.14	1.24	NO	23.2
7	38	Total-hexafurans	373.8208	32.96	2000.658	1.125	0.155		1.14	1.24	NO	9.1

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	8	1234678-HpCDF	407.7818	38.99	599292.344	1.303	52.701	52.701	1.03	1.05	NO	2623.1
2	9	1234789-HpCDF	407.7818	41.60	441831.844	1.317	50.393	50.393	1.04	1.05	NO	1683.1
3	39	Total-heptafurans	407.7818	39.81	735.970	1.310	0.073		1.12	1.05	NO	5.3
4	39	Total-heptafurans	407.7818	39.76	1495.909	1.310	0.148		1.73	1.05	YES	8.4

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.60	1383.857	0.935	0.064		0.78	0.77	NO	10.4
2	1	2378-TCDF	303.9016	25.56	222530.320	0.935	10.341	10.341	0.76	0.77	NO	1684.6
3	35	Total-tetrafurans	303.9016	25.38	368.003	0.935	0.017		1.04	0.77	YES	3.5
4	35	Total-tetrafurans	303.9016	24.64	2514.112	0.935	0.117		0.86	0.77	NO	22.1
5	35	Total-tetrafurans	303.9016	24.46	7742.789	0.935	0.360		0.72	0.77	NO	64.8
6	35	Total-tetrafurans	303.9016	24.33	2391.878	0.935	0.111		0.64	0.77	YES	18.4
7	3	23478-PeCDF	339.8597	31.02	831696.250	0.963	49.532	49.532	1.53	1.55	NO	3056.6
8	37	Total-pentafurans	339.8597	29.87	24965.040	0.957	1.477		1.55	1.55	NO	74.2
9	2	12378-PeCDF	339.8597	29.67	872312.876	0.952	51.312	51.312	1.57	1.55	NO	3156.1
10	37	Total-pentafurans	339.8597	29.32	7656.058	0.957	0.453		1.48	1.55	NO	25.5
11	37	Total-pentafurans	339.8597	28.60	8556.115	0.957	0.506		1.65	1.55	NO	35.4
12	37	Total-pentafurans	339.8597	28.55	4755.119	0.957	0.281		1.60	1.55	NO	20.8
13	37	Total-pentafurans	339.8597	32.05	5843.774	0.957	0.346		1.85	1.55	YES	21.6
14	7	123789-HxCDF	373.8208	36.93	538146.047	1.101	50.384	50.384	1.22	1.24	NO	2473.0
15	5	234678-HxCDF	373.8208	35.79	658767.501	1.164	51.181	51.181	1.24	1.24	NO	3117.9
16	6	123678-HxCDF	373.8208	34.84	745591.813	1.099	51.575	51.575	1.21	1.24	NO	3409.9
17	4	123478-HxCDF	373.8208	34.69	687448.469	1.137	50.114	50.114	1.24	1.24	NO	3252.4
18	38	Total-hexafurans	373.8208	34.52	1254.006	1.125	0.097		0.86	1.24	YES	6.0
19	38	Total-hexafurans	373.8208	33.18	4999.311	1.125	0.387		1.14	1.24	NO	23.2
20	38	Total-hexafurans	373.8208	32.96	2000.658	1.125	0.155		1.14	1.24	NO	9.1
21	8	1234678-HpCDF	407.7818	38.99	599292.344	1.303	52.701	52.701	1.03	1.05	NO	2623.1
22	9	1234789-HpCDF	407.7818	41.60	441831.844	1.317	50.393	50.393	1.04	1.05	NO	1683.1
23	39	Total-heptafurans	407.7818	39.81	735.970	1.310	0.073		1.12	1.05	NO	5.3
24	39	Total-heptafurans	407.7818	39.76	1495.909	1.310	0.148		1.73	1.05	YES	8.4
25	10	OCDF	441.7428	46.70	666738.063	1.166	100.620	100....	0.89	0.89	NO	2289.2

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	11	2378-TCDD	319.8965	26.18	158920.594	1.134	10.241	10.241	0.77	0.77	NO	823.2
2	41	Total-tetradioxins	319.8965	25.79	2818.487	1.134	0.182		1.04	0.77	YES	14.5

PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	42	Total-pentadioxins	355.8546	30.05	304.919	0.975	0.029		1.29	1.55	YES	3.6
2	42	Total-pentadioxins	355.8546	31.67	383.907	0.975	0.036		0.88	1.55	YES	3.5
3	12	12378-PeCDD	355.8546	31.27	539847.876	0.975	50.909	50.909	1.53	1.55	NO	3762.6
4	42	Total-pentadioxins	355.8546	30.63	678.419	0.975	0.064		1.27	1.55	YES	8.0

HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	15	123789-HxCDD	389.8157	36.47	461517.454	0.947	50.370	50.370	1.24	1.24	NO	2429.3
2	14	123678-HxCDD	389.8157	36.05	478970.407	0.971	49.701	49.701	1.26	1.24	NO	2572.4
3	13	123478-HxCDD	389.8157	35.92	484802.516	1.031	49.827	49.827	1.26	1.24	NO	2685.5

HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.75	392285.266	1.028	50.628	50.628	1.05	1.05	NO	1538.8
2	44	Total-heptadioxins	423.7766	39.52	2725.612	1.028	0.352		0.96	1.05	NO	11.3

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Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	11	2378-TCDD	319.8965	26.18	158920.594	1.134	10.241	10.241	0.77	0.77	NO	823.2
2	41	Total-tetradioxins	319.8965	25.79	2818.487	1.134	0.182		1.04	0.77	YES	14.5
3	42	Total-pentadioxins	355.8546	30.05	304.919	0.975	0.029		1.29	1.55	YES	3.6
4	42	Total-pentadioxins	355.8546	31.67	383.907	0.975	0.036		0.88	1.55	YES	3.5
5	12	12378-PeCDD	355.8546	31.27	539847.876	0.975	50.909	50.909	1.53	1.55	NO	3762.6
6	42	Total-pentadioxins	355.8546	30.63	678.419	0.975	0.064		1.27	1.55	YES	8.0
7	15	123789-HxCDD	389.8157	36.47	461517.454	0.947	50.370	50.370	1.24	1.24	NO	2429.3
8	14	123678-HxCDD	389.8157	36.05	478970.407	0.971	49.701	49.701	1.26	1.24	NO	2572.4
9	13	123478-HxCDD	389.8157	35.92	484802.516	1.031	49.827	49.827	1.26	1.24	NO	2685.5
10	16	1234678-HpCDD	423.7766	40.75	392285.266	1.028	50.628	50.628	1.05	1.05	NO	1538.8
11	44	Total-heptadioxins	423.7766	39.52	2725.612	1.028	0.352		0.96	1.05	NO	11.3
12	17	OCDD	457.7377	46.43	590741.438	1.107	93.886	93.886	0.89	0.89	NO	2904.9

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TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	35	Total-tetrafurans	303.9016	26.60	1383.857	0.935	0.064		0.78	0.77	NO	10.4
2	1	2378-TCDF	303.9016	25.56	222530.320	0.935	10.341	10.341	0.76	0.77	NO	1684.6
3	35	Total-tetrafurans	303.9016	25.38	368.003	0.935	0.017		1.04	0.77	YES	3.5
4	35	Total-tetrafurans	303.9016	24.64	2514.112	0.935	0.117		0.86	0.77	NO	22.1
5	35	Total-tetrafurans	303.9016	24.46	7742.789	0.935	0.360		0.72	0.77	NO	64.8
6	35	Total-tetrafurans	303.9016	24.33	2391.878	0.935	0.111		0.64	0.77	YES	18.4
7	3	23478-PeCDF	339.8597	31.02	831696.250	0.963	49.532	49.532	1.53	1.55	NO	3056.6
8	37	Total-pentafurans	339.8597	29.87	24965.040	0.957	1.477		1.55	1.55	NO	74.2
9	2	12378-PeCDF	339.8597	29.67	872312.876	0.952	51.312	51.312	1.57	1.55	NO	3156.1
10	37	Total-pentafurans	339.8597	29.32	7656.058	0.957	0.453		1.48	1.55	NO	25.5
11	37	Total-pentafurans	339.8597	28.60	8556.115	0.957	0.506		1.65	1.55	NO	35.4
12	37	Total-pentafurans	339.8597	28.55	4755.119	0.957	0.281		1.60	1.55	NO	20.8
13	37	Total-pentafurans	339.8597	32.05	5843.774	0.957	0.346		1.85	1.55	YES	21.6
14	7	123789-HxCDF	373.8208	36.93	538146.047	1.101	50.384	50.384	1.22	1.24	NO	2473.0
15	5	234678-HxCDF	373.8208	35.79	658767.501	1.164	51.181	51.181	1.24	1.24	NO	3117.9
16	6	123678-HxCDF	373.8208	34.84	745591.813	1.099	51.575	51.575	1.21	1.24	NO	3409.9
17	4	123478-HxCDF	373.8208	34.69	687448.469	1.137	50.114	50.114	1.24	1.24	NO	3252.4
18	38	Total-hexafurans	373.8208	34.52	1254.006	1.125	0.097		0.86	1.24	YES	6.0
19	38	Total-hexafurans	373.8208	33.18	4999.311	1.125	0.387		1.14	1.24	NO	23.2
20	38	Total-hexafurans	373.8208	32.96	2000.658	1.125	0.155		1.14	1.24	NO	9.1
21	8	1234678-HpCDF	407.7818	38.99	599292.344	1.303	52.701	52.701	1.03	1.05	NO	2623.1
22	9	1234789-HpCDF	407.7818	41.60	441831.844	1.317	50.393	50.393	1.04	1.05	NO	1683.1
23	39	Total-heptafurans	407.7818	39.81	735.970	1.310	0.073		1.12	1.05	NO	5.3
24	39	Total-heptafurans	407.7818	39.76	1495.909	1.310	0.148		1.73	1.05	YES	8.4
25	10	OCDF	441.7428	46.70	666738.063	1.166	100.620	100....	0.89	0.89	NO	2289.2
26	11	2378-TCDD	319.8965	26.18	158920.594	1.134	10.241	10.241	0.77	0.77	NO	823.2
27	41	Total-tetradioxins	319.8965	25.79	2818.487	1.134	0.182		1.04	0.77	YES	14.5
28	42	Total-pentadioxins	355.8546	30.05	304.919	0.975	0.029		1.29	1.55	YES	3.6
29	42	Total-pentadioxins	355.8546	31.67	383.907	0.975	0.036		0.88	1.55	YES	3.5
30	12	12378-PeCDD	355.8546	31.27	539847.876	0.975	50.909	50.909	1.53	1.55	NO	3762.6
31	42	Total-pentadioxins	355.8546	30.63	678.419	0.975	0.064		1.27	1.55	YES	8.0
32	15	123789-HxCDD	389.8157	36.47	461517.454	0.947	50.370	50.370	1.24	1.24	NO	2429.3
33	14	123678-HxCDD	389.8157	36.05	478970.407	0.971	49.701	49.701	1.26	1.24	NO	2572.4
34	13	123478-HxCDD	389.8157	35.92	484802.516	1.031	49.827	49.827	1.26	1.24	NO	2685.5
35	16	1234678-HpCDD	423.7766	40.75	392285.266	1.028	50.628	50.628	1.05	1.05	NO	1538.8
36	44	Total-heptadioxins	423.7766	39.52	2725.612	1.028	0.352		0.96	1.05	NO	11.3
37	17	OCDD	457.7377	46.43	590741.438	1.107	93.886	93.886	0.89	0.89	NO	2904.9

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	23.60	0.000							3.3
2	48	FUNCTION1 PFK	330.9792	22.31	0.000							4.6

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	28.96	0.000		0.000					1.2
2	49	FUNCTION2 PFK	366.9792	28.93	0.000		0.000					1.2
3	49	FUNCTION2 PFK	366.9792	28.85	0.000		0.000					1.3
4	49	FUNCTION2 PFK	366.9792	28.81	0.000		0.000					0.7
5	49	FUNCTION2 PFK	366.9792	28.59	0.000		0.000					1.0
6	49	FUNCTION2 PFK	366.9792	28.57	0.000		0.000					0.9
7	49	FUNCTION2 PFK	366.9792	28.49	0.000		0.000					2.6
8	49	FUNCTION2 PFK	366.9792	28.40	0.000		0.000					1.9
9	49	FUNCTION2 PFK	366.9792	28.22	0.000		0.000					0.6
10	49	FUNCTION2 PFK	366.9792	28.18	0.000		0.000					0.5
11	49	FUNCTION2 PFK	366.9792	28.14	0.000		0.000					0.7
12	49	FUNCTION2 PFK	366.9792	28.04	0.000		0.000					1.3
13	49	FUNCTION2 PFK	366.9792	32.12	0.000		0.000					0.9
14	49	FUNCTION2 PFK	366.9792	32.06	0.000		0.000					0.4
15	49	FUNCTION2 PFK	366.9792	31.97	0.000		0.000					0.5
16	49	FUNCTION2 PFK	366.9792	31.82	0.000		0.000					1.3
17	49	FUNCTION2 PFK	366.9792	31.67	0.000		0.000					0.7
18	49	FUNCTION2 PFK	366.9792	31.63	0.000		0.000					0.9
19	49	FUNCTION2 PFK	366.9792	31.38	0.000		0.000					1.2
20	49	FUNCTION2 PFK	366.9792	31.04	0.000		0.000					0.7
21	49	FUNCTION2 PFK	366.9792	30.90	0.000		0.000					1.7
22	49	FUNCTION2 PFK	366.9792	30.85	0.000		0.000					0.5
23	49	FUNCTION2 PFK	366.9792	30.22	0.000		0.000					0.8
24	49	FUNCTION2 PFK	366.9792	30.17	0.000		0.000					1.2
25	49	FUNCTION2 PFK	366.9792	30.05	0.000		0.000					1.3
26	49	FUNCTION2 PFK	366.9792	29.77	0.000		0.000					1.7
27	49	FUNCTION2 PFK	366.9792	29.62	0.000		0.000					1.3
28	49	FUNCTION2 PFK	366.9792	29.37	0.000		0.000					0.9
29	49	FUNCTION2 PFK	366.9792	32.33	0.000		0.000					0.4
30	49	FUNCTION2 PFK	366.9792	32.26	0.000		0.000					2.0

PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

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PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	39.72	0.000							0.9
2	51	FUNCTION4 PFK	430.9728	39.33	0.000							1.3
3	51	FUNCTION4 PFK	430.9728	39.20	0.000							1.6
4	51	FUNCTION4 PFK	430.9728	39.02	0.000							0.9
5	51	FUNCTION4 PFK	430.9728	38.95	0.000							1.9
6	51	FUNCTION4 PFK	430.9728	38.70	0.000							1.9
7	51	FUNCTION4 PFK	430.9728	38.63	0.000							0.6
8	51	FUNCTION4 PFK	430.9728	38.51	0.000							1.6
9	51	FUNCTION4 PFK	430.9728	38.45	0.000							1.3
10	51	FUNCTION4 PFK	430.9728	38.38	0.000							1.1
11	51	FUNCTION4 PFK	430.9728	38.33	0.000							0.5
12	51	FUNCTION4 PFK	430.9728	38.08	0.000							3.4
13	51	FUNCTION4 PFK	430.9728	41.68	0.000							0.8
14	51	FUNCTION4 PFK	430.9728	41.62	0.000							1.4
15	51	FUNCTION4 PFK	430.9728	41.44	0.000							1.1
16	51	FUNCTION4 PFK	430.9728	41.27	0.000							1.2
17	51	FUNCTION4 PFK	430.9728	41.15	0.000							1.6
18	51	FUNCTION4 PFK	430.9728	41.10	0.000							1.0
19	51	FUNCTION4 PFK	430.9728	41.01	0.000							2.0
20	51	FUNCTION4 PFK	430.9728	40.90	0.000							0.9
21	51	FUNCTION4 PFK	430.9728	40.77	0.000							0.8
22	51	FUNCTION4 PFK	430.9728	40.66	0.000							0.7
23	51	FUNCTION4 PFK	430.9728	40.61	0.000							0.5
24	51	FUNCTION4 PFK	430.9728	40.37	0.000							0.7
25	51	FUNCTION4 PFK	430.9728	40.32	0.000							0.8
26	51	FUNCTION4 PFK	430.9728	40.19	0.000							1.7
27	51	FUNCTION4 PFK	430.9728	40.11	0.000							2.2
28	51	FUNCTION4 PFK	430.9728	39.88	0.000							0.3
29	51	FUNCTION4 PFK	430.9728	43.83	0.000							1.4
30	51	FUNCTION4 PFK	430.9728	43.76	0.000							1.2
31	51	FUNCTION4 PFK	430.9728	43.66	0.000							1.2
32	51	FUNCTION4 PFK	430.9728	43.55	0.000							1.5
33	51	FUNCTION4 PFK	430.9728	43.51	0.000							1.6
34	51	FUNCTION4 PFK	430.9728	43.45	0.000							0.4
35	51	FUNCTION4 PFK	430.9728	43.05	0.000							1.2
36	51	FUNCTION4 PFK	430.9728	42.97	0.000							0.9
37	51	FUNCTION4 PFK	430.9728	42.93	0.000							0.9
38	51	FUNCTION4 PFK	430.9728	42.89	0.000							0.8
39	51	FUNCTION4 PFK	430.9728	42.85	0.000							0.7
40	51	FUNCTION4 PFK	430.9728	42.66	0.000							0.7
41	51	FUNCTION4 PFK	430.9728	42.50	0.000							0.7
42	51	FUNCTION4 PFK	430.9728	41.98	0.000							0.8
43	51	FUNCTION4 PFK	430.9728	41.95	0.000							0.7
44	51	FUNCTION4 PFK	430.9728	41.90	0.000							1.5
45	51	FUNCTION4 PFK	430.9728	44.41	0.000							1.6
46	51	FUNCTION4 PFK	430.9728	44.11	0.000							1.9
47	51	FUNCTION4 PFK	430.9728	44.07	0.000							1.7
48	51	FUNCTION4 PFK	430.9728	44.01	0.000							0.8
49	51	FUNCTION4 PFK	430.9728	43.91	0.000							2.2
50	51	FUNCTION4 PFK	430.9728	43.86	0.000							1.1

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PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	45.68	0.000							1.2
2	52	FUNCTION5 PFK	480.9696	45.48	0.000							0.6
3	52	FUNCTION5 PFK	480.9696	45.39	0.000							0.9
4	52	FUNCTION5 PFK	480.9696	45.35	0.000							2.3
5	52	FUNCTION5 PFK	480.9696	45.17	0.000							0.9
6	52	FUNCTION5 PFK	480.9696	45.02	0.000							0.6
7	52	FUNCTION5 PFK	480.9696	44.96	0.000							1.4
8	52	FUNCTION5 PFK	480.9696	44.62	0.000							1.4
9	52	FUNCTION5 PFK	480.9696	44.60	0.000							1.3
10	52	FUNCTION5 PFK	480.9696	47.80	0.000							1.2
11	52	FUNCTION5 PFK	480.9696	47.65	0.000							1.7
12	52	FUNCTION5 PFK	480.9696	47.16	0.000							1.5
13	52	FUNCTION5 PFK	480.9696	47.07	0.000							0.9
14	52	FUNCTION5 PFK	480.9696	46.99	0.000							1.1
15	52	FUNCTION5 PFK	480.9696	46.95	0.000							2.1
16	52	FUNCTION5 PFK	480.9696	46.92	0.000							0.9
17	52	FUNCTION5 PFK	480.9696	46.88	0.000							1.2
18	52	FUNCTION5 PFK	480.9696	46.61	0.000							0.4
19	52	FUNCTION5 PFK	480.9696	46.47	0.000							1.8
20	52	FUNCTION5 PFK	480.9696	46.30	0.000							1.4
21	52	FUNCTION5 PFK	480.9696	46.08	0.000							1.1
22	52	FUNCTION5 PFK	480.9696	46.02	0.000							0.9
23	52	FUNCTION5 PFK	480.9696	45.93	0.000							0.8
24	52	FUNCTION5 PFK	480.9696	45.78	0.000							1.5
25	52	FUNCTION5 PFK	480.9696	45.73	0.000							1.0
26	52	FUNCTION5 PFK	480.9696	49.22	0.000							1.1
27	52	FUNCTION5 PFK	480.9696	49.14	0.000							0.9
28	52	FUNCTION5 PFK	480.9696	49.06	0.000							2.4
29	52	FUNCTION5 PFK	480.9696	49.03	0.000							1.1
30	52	FUNCTION5 PFK	480.9696	49.00	0.000							1.6
31	52	FUNCTION5 PFK	480.9696	48.70	0.000							1.7
32	52	FUNCTION5 PFK	480.9696	48.62	0.000							1.2
33	52	FUNCTION5 PFK	480.9696	48.54	0.000							0.5
34	52	FUNCTION5 PFK	480.9696	48.48	0.000							2.5
35	52	FUNCTION5 PFK	480.9696	48.37	0.000							0.9
36	52	FUNCTION5 PFK	480.9696	48.35	0.000							1.0
37	52	FUNCTION5 PFK	480.9696	48.13	0.000							1.7
38	52	FUNCTION5 PFK	480.9696	48.08	0.000							1.6
39	52	FUNCTION5 PFK	480.9696	47.99	0.000							1.5
40	52	FUNCTION5 PFK	480.9696	47.91	0.000							1.2
41	52	FUNCTION5 PFK	480.9696	47.87	0.000							1.2
42	52	FUNCTION5 PFK	480.9696	49.48	0.000							1.4
43	52	FUNCTION5 PFK	480.9696	49.44	0.000							1.3
44	52	FUNCTION5 PFK	480.9696	49.33	0.000							0.6
45	52	FUNCTION5 PFK	480.9696	49.29	0.000							1.7

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

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ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	21.86	0.000		0.000					5.5

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

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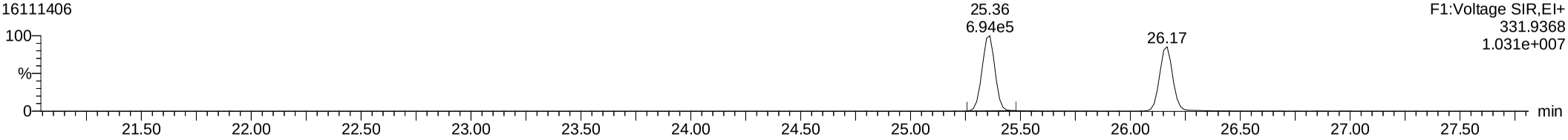

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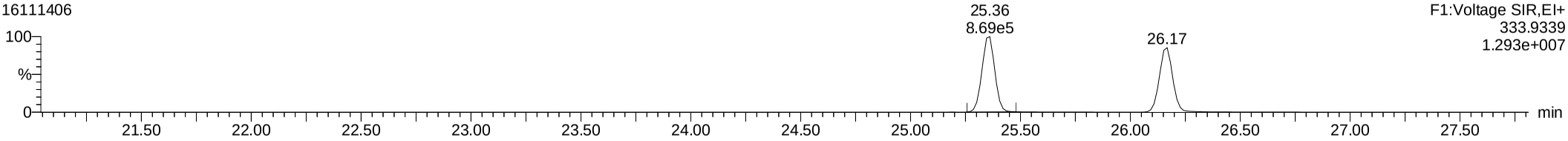

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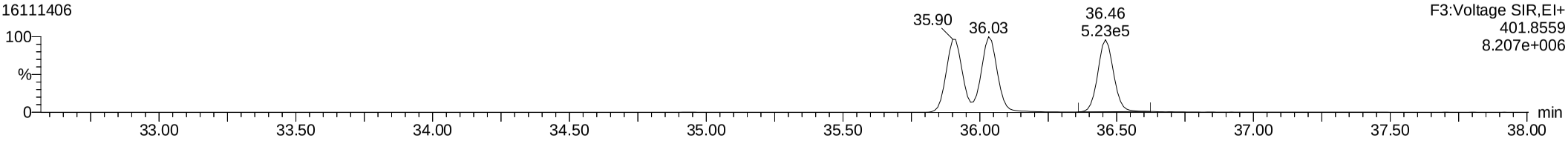

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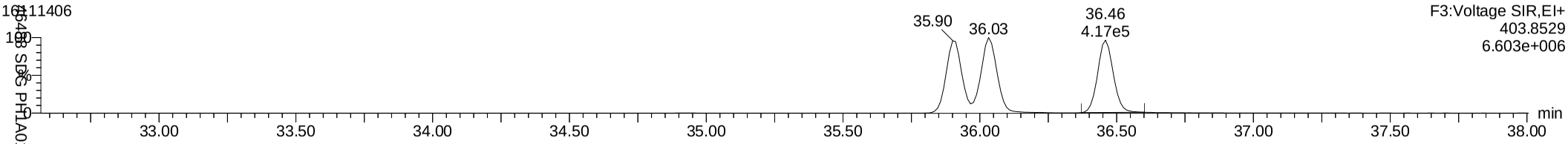

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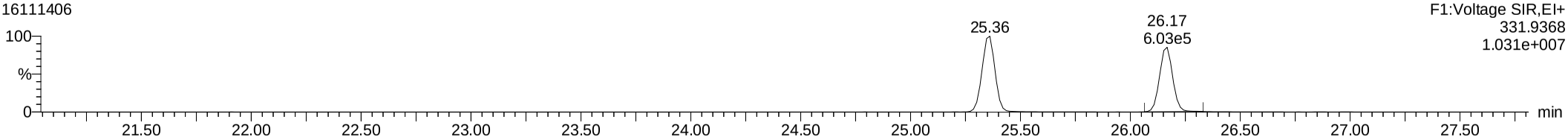
13C-2378-TCDD



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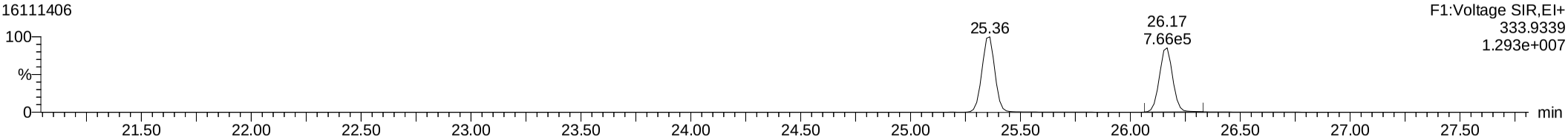
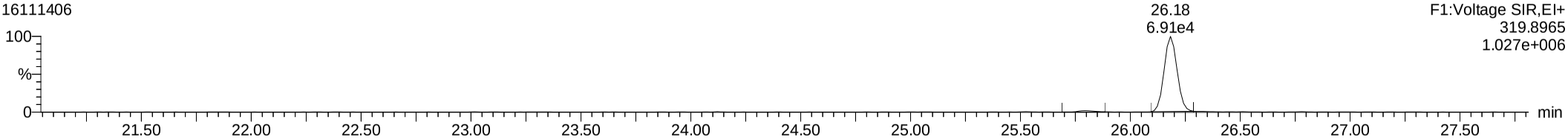


Total-tetradioxins



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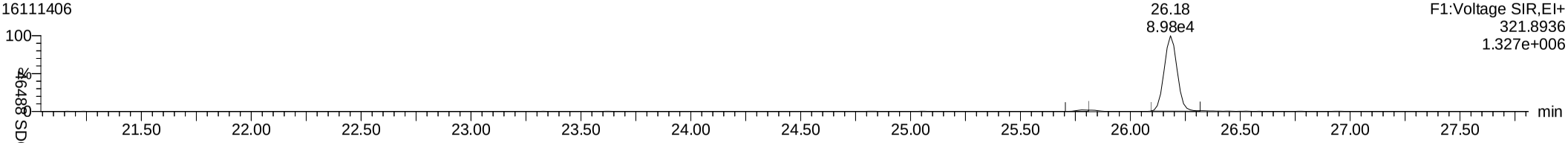
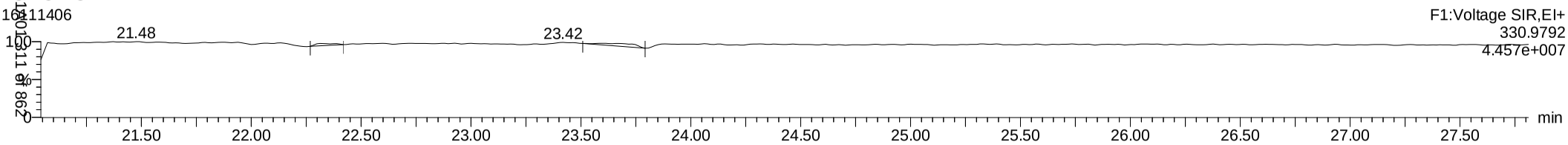


FUNCTION1 PFK



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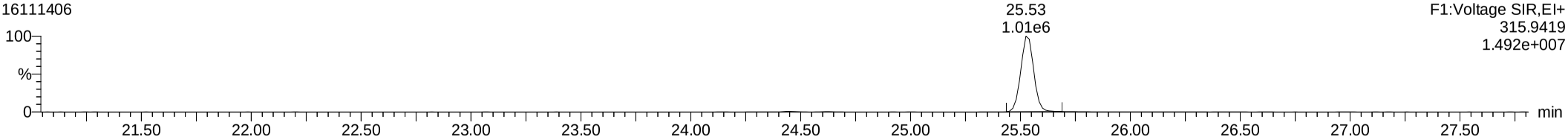
13C-2378-TCDF



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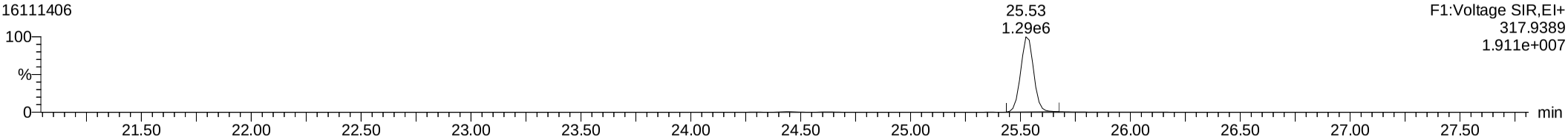
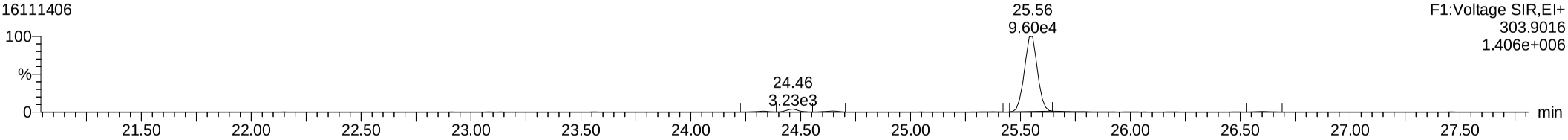


Total-tetrafurans



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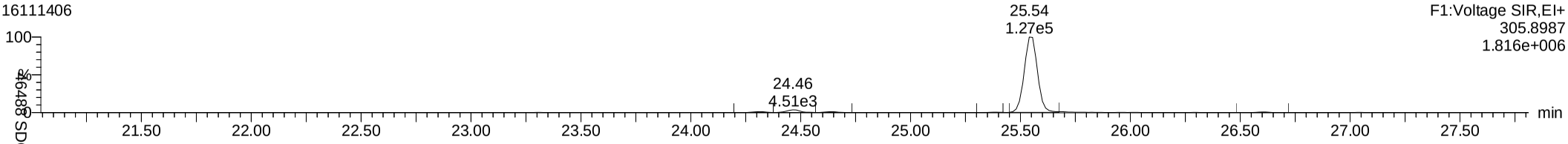
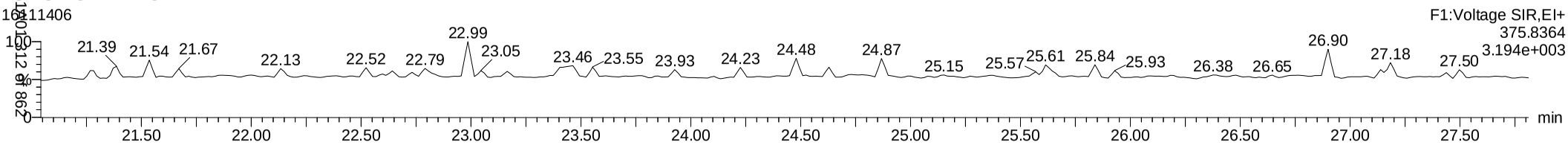


FUNCTION1 HXCDPE



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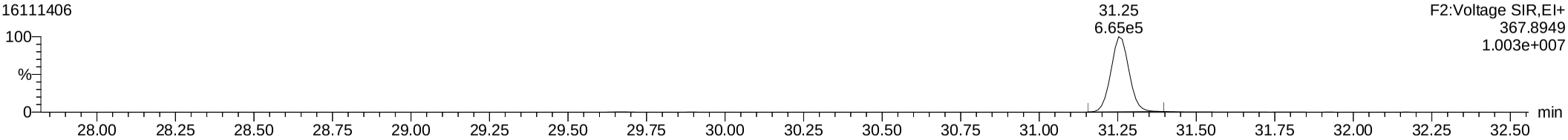
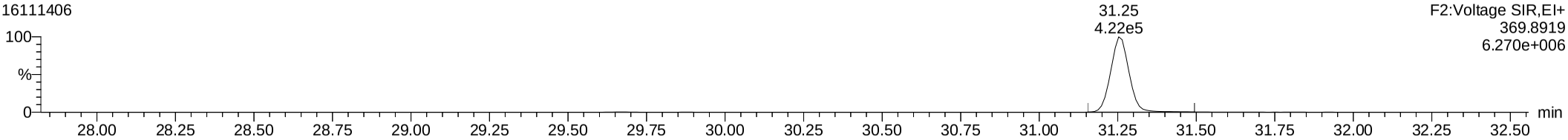
ID: DLCSD10, Name: 16111406, Date: 14-Nov-2016, Time: 14:32:09, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



13C-12378-PeCDD



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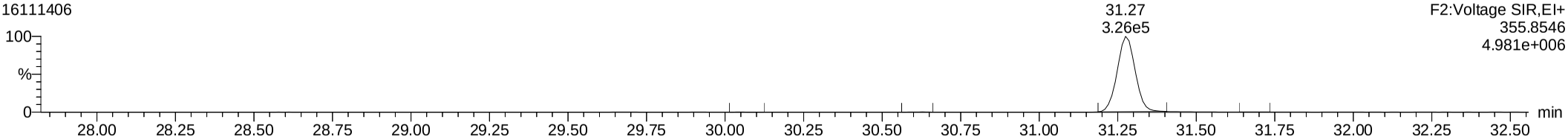

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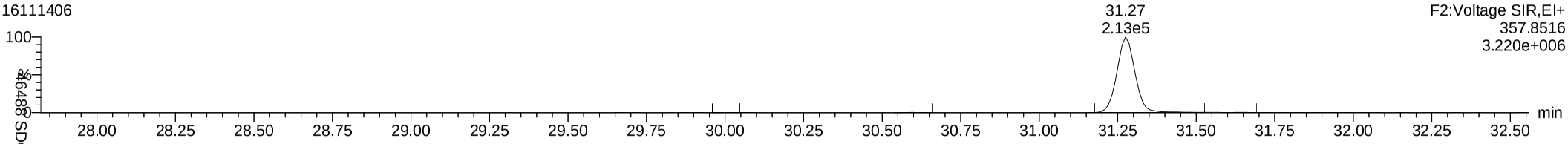

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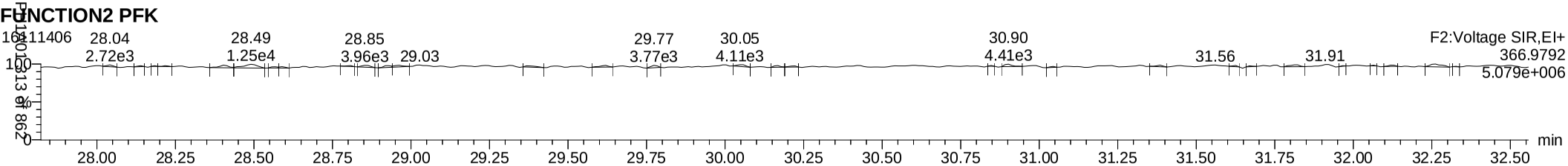

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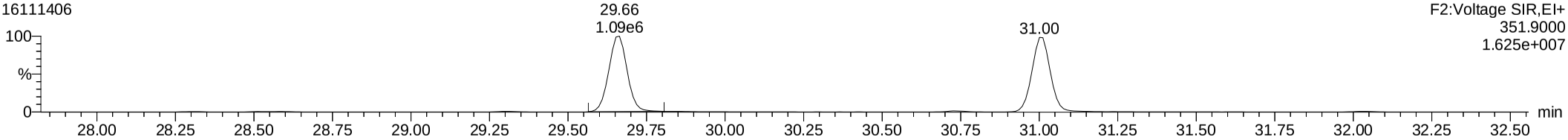

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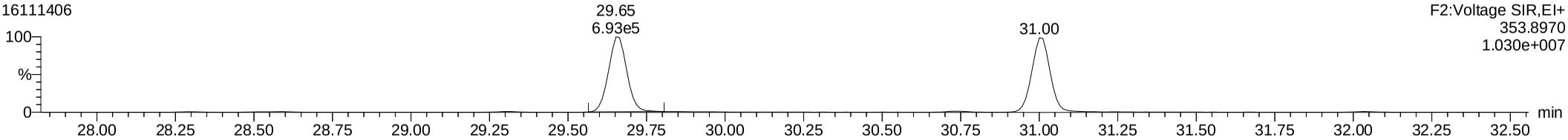

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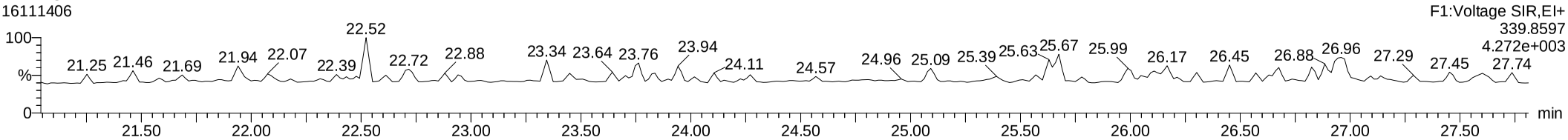

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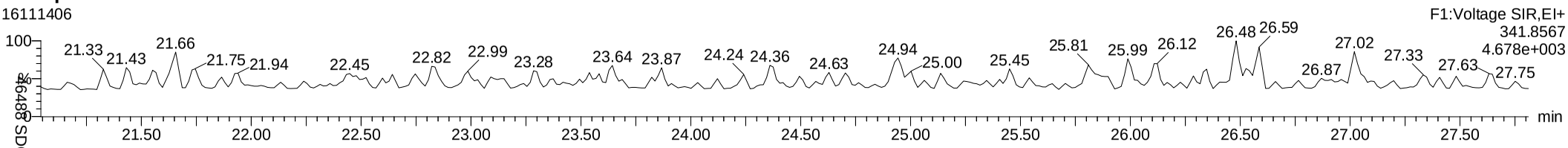

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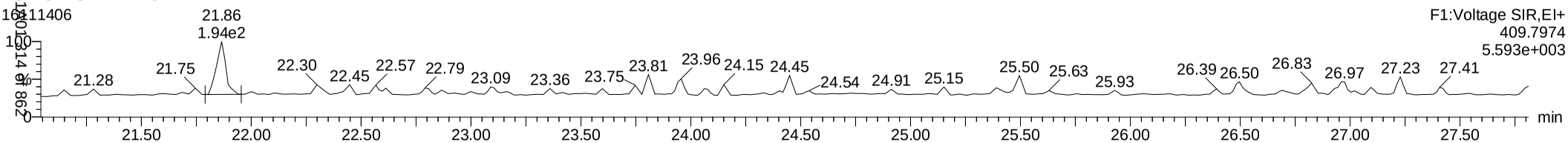

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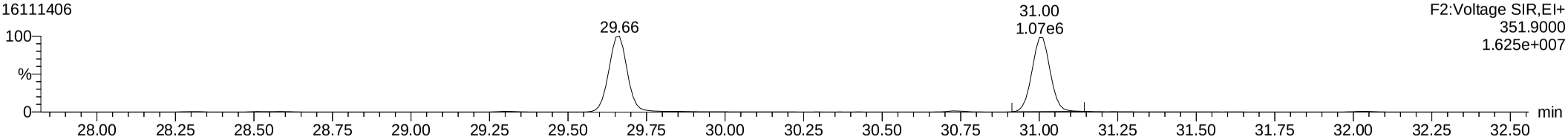

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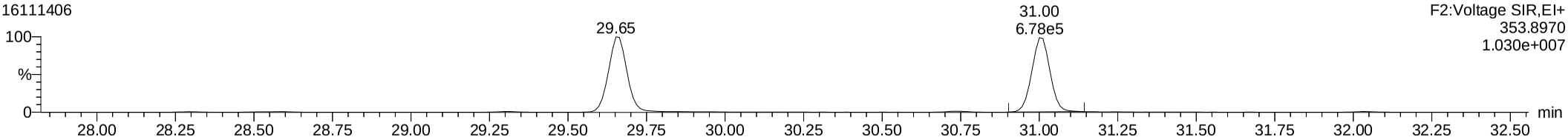

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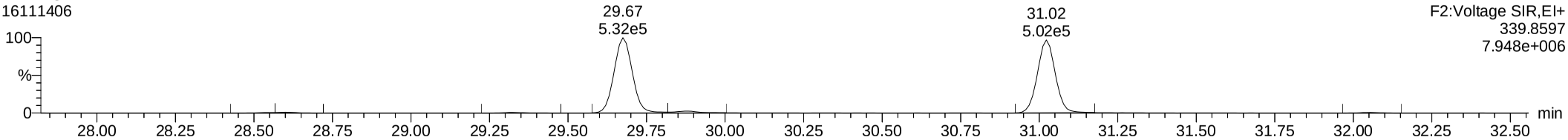
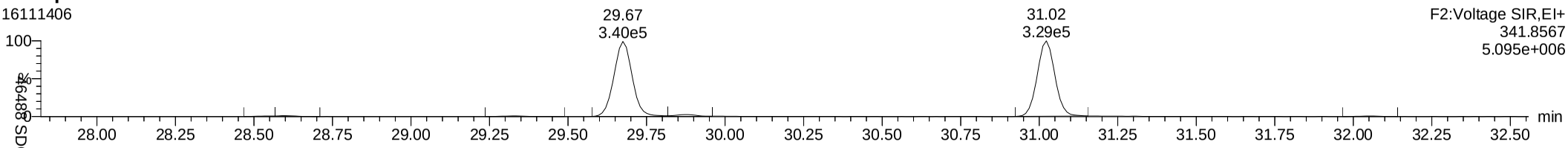


Total-pentafurans



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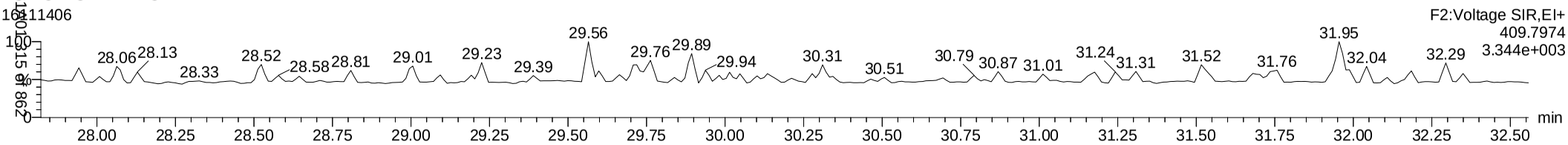

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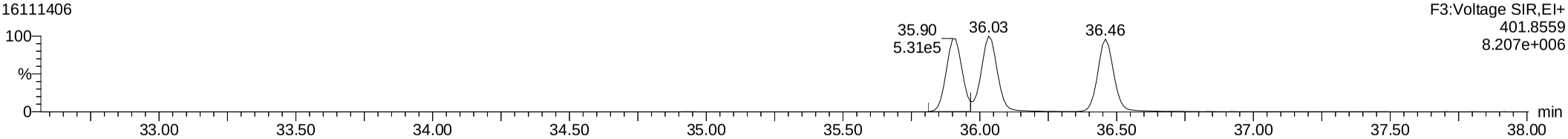
ID: DLCSD10, Name: 16111406, Date: 14-Nov-2016, Time: 14:32:09, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



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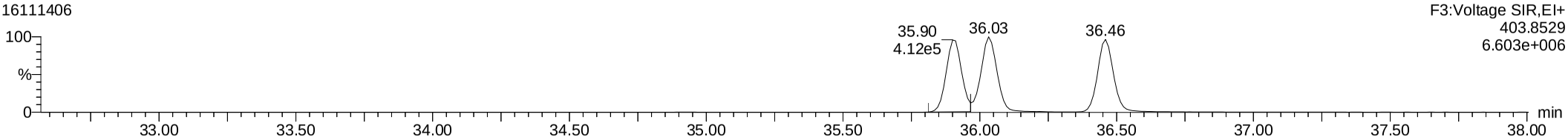

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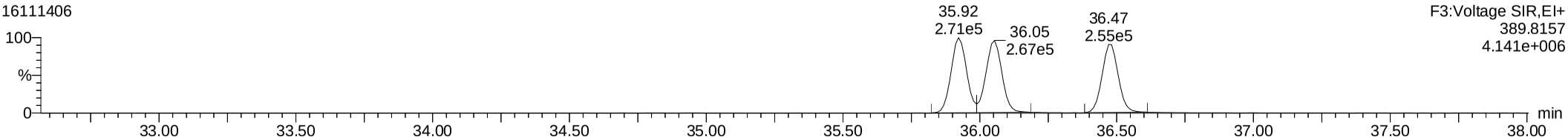
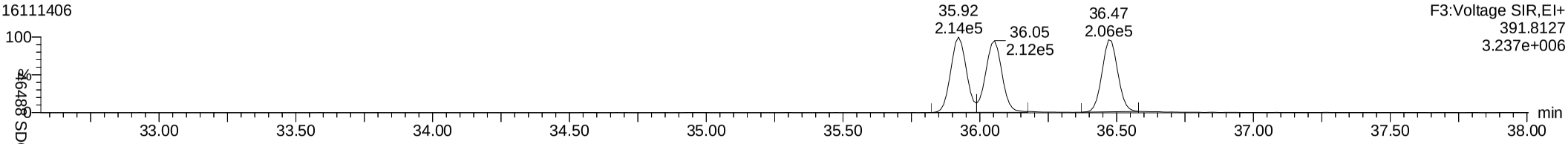
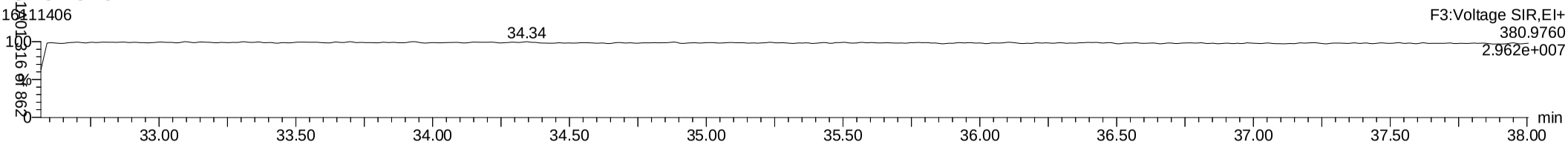


Total-hexadioxins



FUNCTION3 PFK



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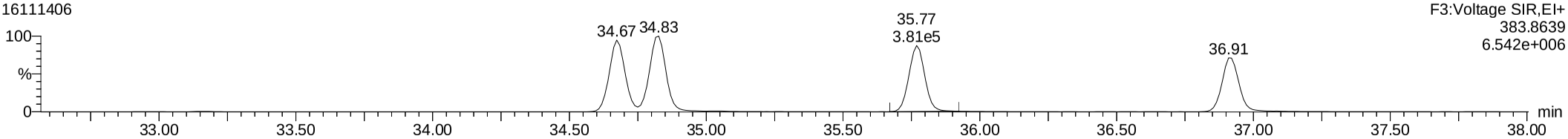
ID: DLCSD10, Name: 16111406, Date: 14-Nov-2016, Time: 14:32:09, Conditions: AUTOSPEC01, User: PK

13C-234678-HxCDF



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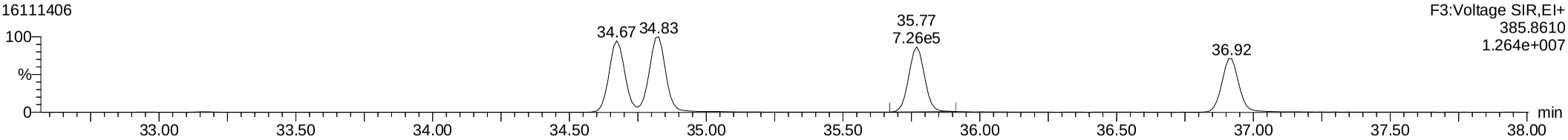

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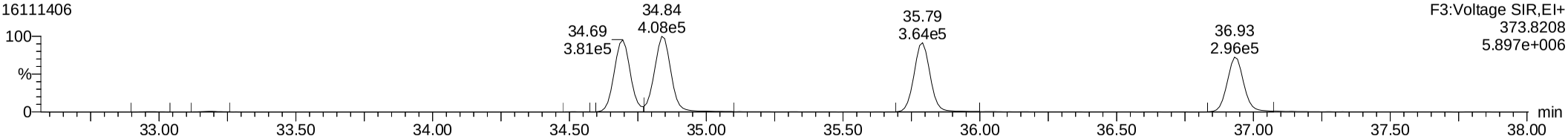
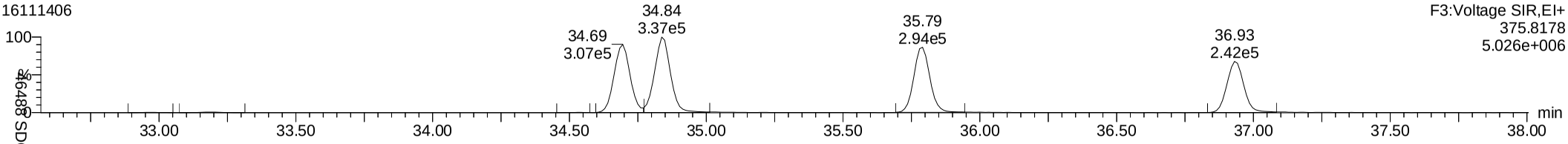
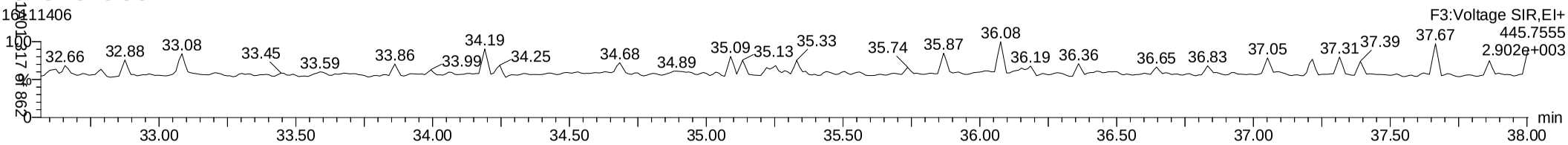


Total-hexafurans



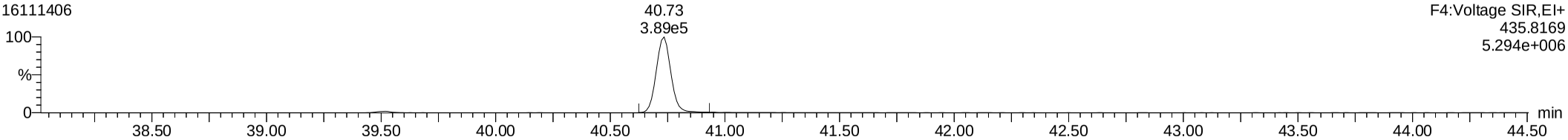
FUNCTION3 OCDPE



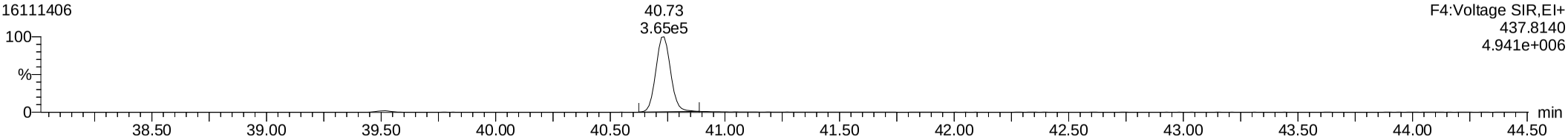
46488 SDG PH1001 317 of 862

ID: DLCSD10, Name: 16111406, Date: 14-Nov-2016, Time: 14:32:09, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



13C-1234678-HpCDD



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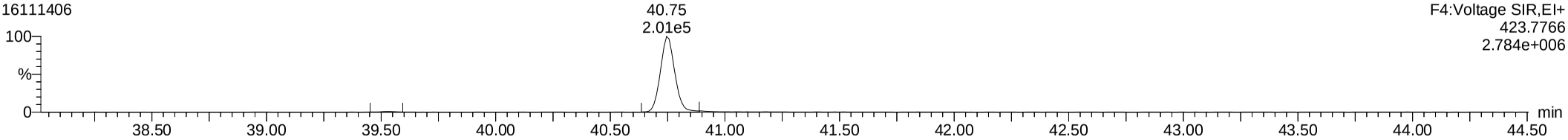
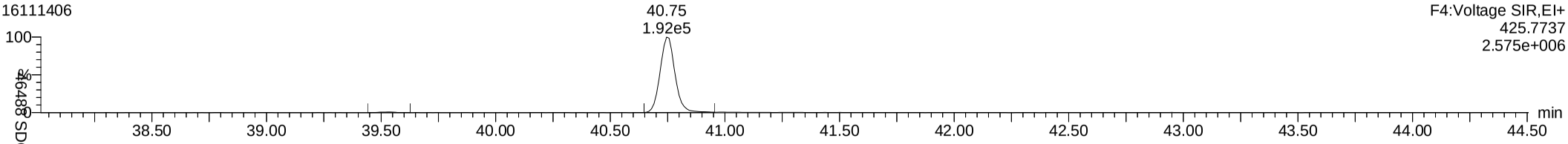
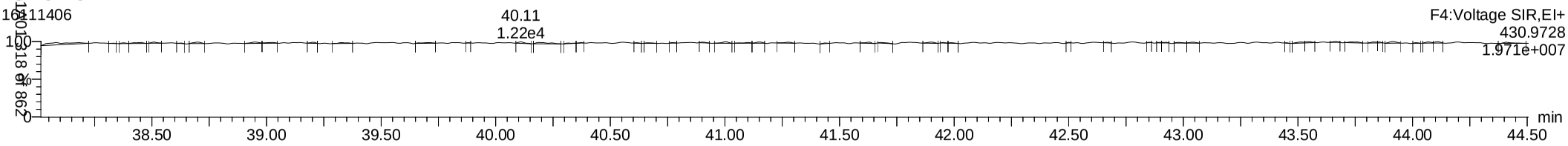


Total-heptadioxins



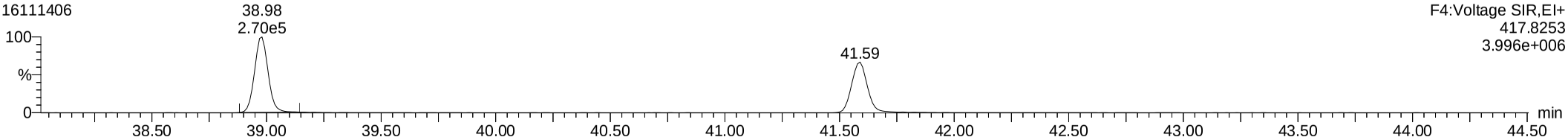
FUNCTION4 PFK



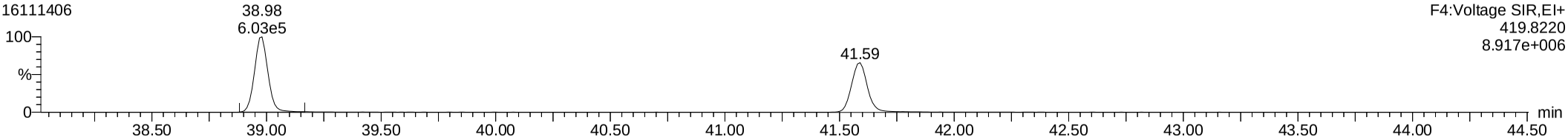
46488 SDG PH1201318 of 862

ID: DLCSD10, Name: 16111406, Date: 14-Nov-2016, Time: 14:32:09, Conditions: AUTOSPEC01, User: PK

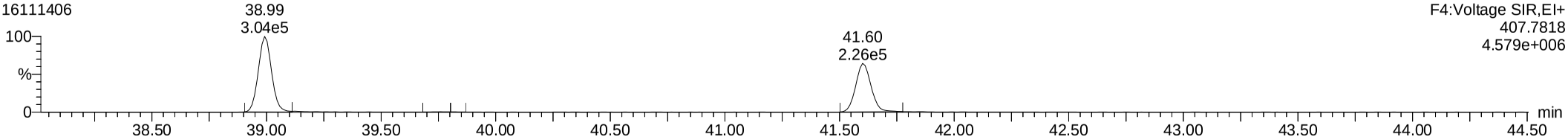
13C-1234678-HpCDF



13C-1234678-HpCDF



Total-heptafurans



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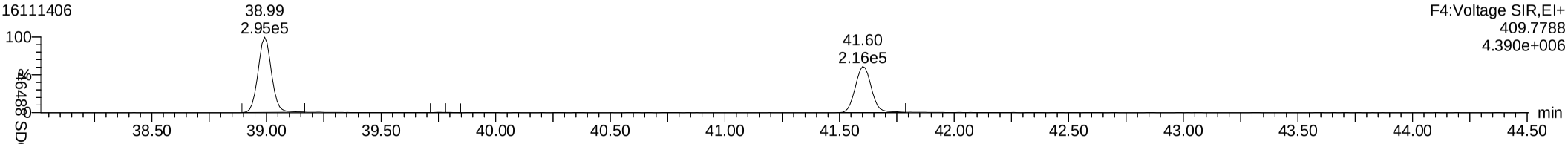
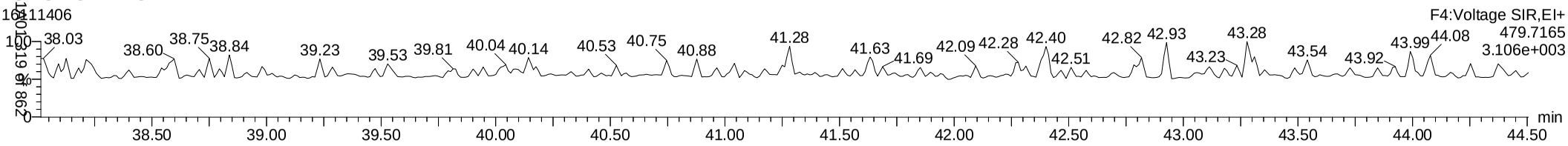


FUNCTION4 NCDPE



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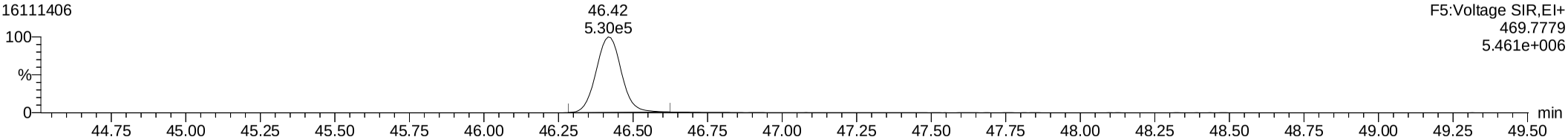
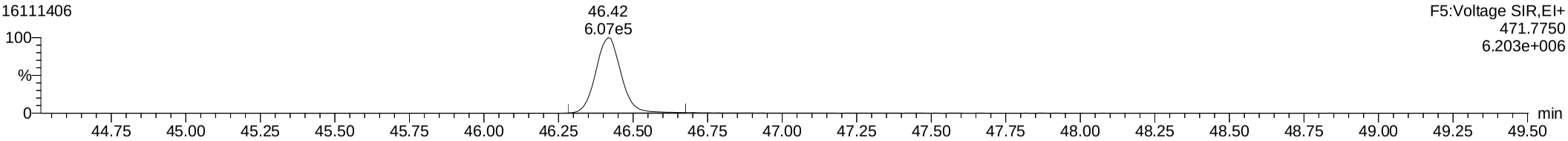
ID: DLCSD10, Name: 16111406, Date: 14-Nov-2016, Time: 14:32:09, Conditions: AUTOSPEC01, User: PK

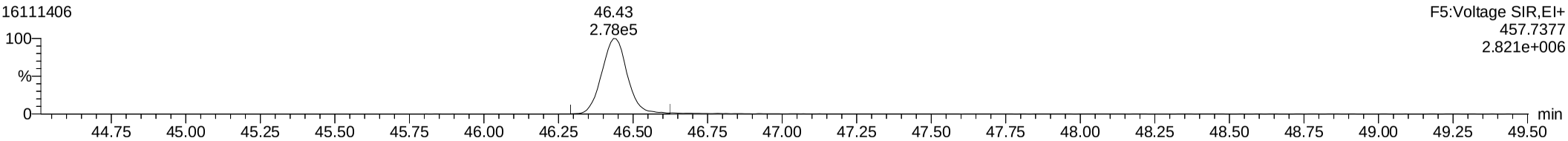
13C-OCDD



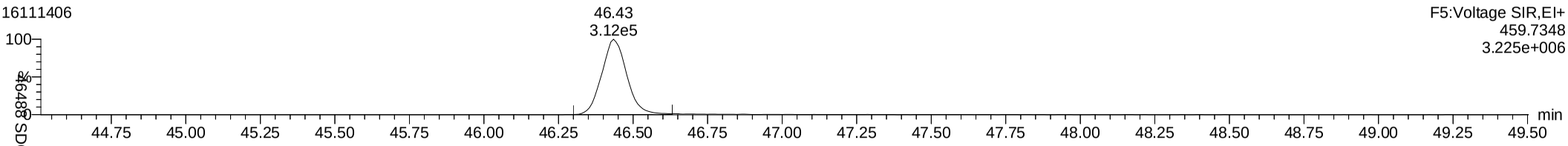
13C-OCDD



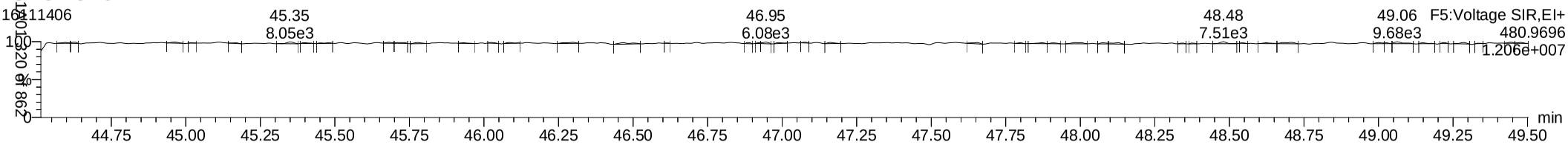
OCDD



OCDD



FUNCTION5 PFK



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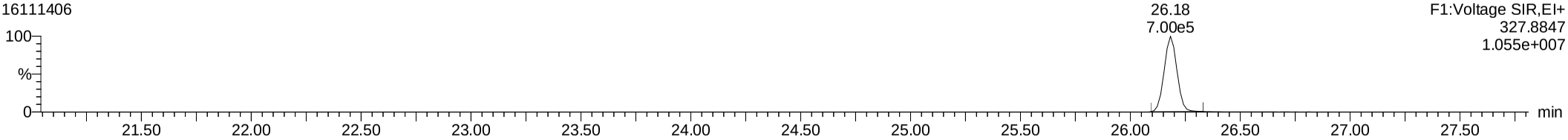
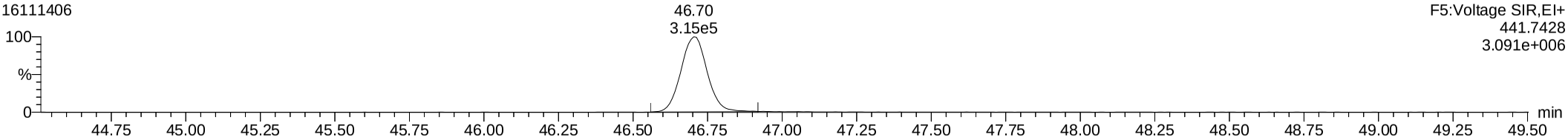
37CL-2378-TCDD



OCDF



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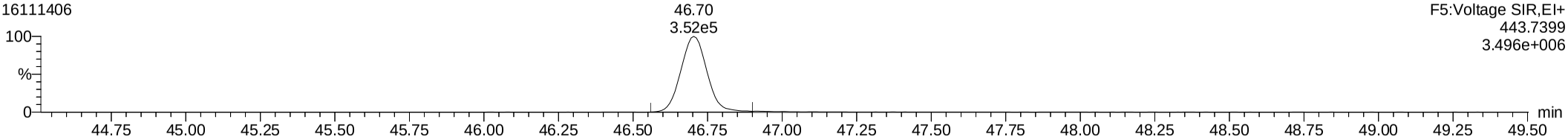
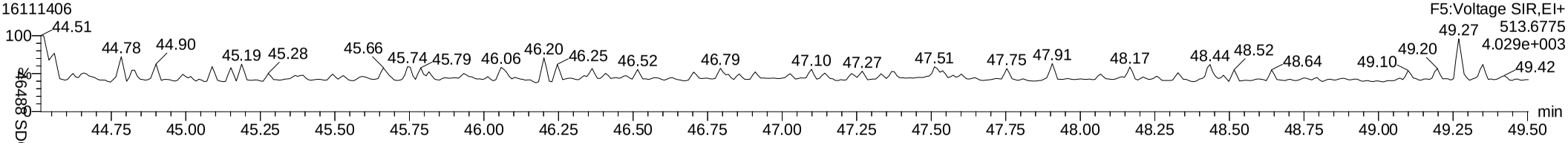


FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

DBLK1A

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0277-BLK1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111104

Decanted (Y/N): N Extraction Method: SEPF

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2378-TCDD		UM	1.1		
5	12378-PeCDD		UM	2.9		
6	123478-HxCDD		UM	2.4		
6	123678-HxCDD		UM	3.7		
6	123789-HxCDD		UM	3.2		
7	1234678-HpCDD		UM	2.6		
8	OCDD		UM	43		
4	2378-TCDF		UM	0.77		
5	12378-PeCDF		UM	3.6		
5	23478-PeCDF		UM	5.0		
6	123478-HxCDF		UM	3.0		
6	123678-HxCDF		UM	3.0		
6	123789-HxCDF		UM	2.9		
6	234678-HxCDF		UM	3.6		
7	1234678-HpCDF		UM	3.7		
7	1234789-HpCDF		UM	2.9		
8	OCDF		UM	9.0		

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

DBLK1A

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0277-BLK1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111104

Decanted (Y/N): N Extraction Method: SEPF Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2378-TCDD		x 1.0		x 1.0		x 1.0	
12378-PeCDD		x 1.0		x 1.0		x 1.0	
123478-HxCDD		x 0.1		x 0.5		0.05	
123678-HxCDD		x 0.1		x 0.01		x 0.01	
123789-HxCDD		x 0.1		x 0.01		x 0.1	
1234678-HpCDD		x 0.01		x 0.001		x 0.001	
OCDD		x 0.0003		x 0.0001		x 0.0001	
2378-TCDF		x 0.1		x 0.05		x 1.0	
12378-PeCDF		x 0.03		x 0.05		x 0.1	
23478-PeCDF		x 0.3		x 0.5		x 1.0	
123478-HxCDF		x 0.1		x 0.1		x 0.1	
123678-HxCDF		x 0.1		x 0.1		x 0.1	
123789-HxCDF		x 0.1		x 0.1		x 0.1	
234678-HxCDF		x 0.1		x 0.1		x 0.1	
1234678-HpCDF		x 0.01		x 0.01		x 0.01	
1234789-HpCDF		x 0.01		x 0.01		x 0.01	
OCDF		x 0.0003		x 0.0001		x 0.0001	
		Total TEQ =	0.0000	Total TEQ =	0.0000	Total TEQ =	0.0000

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 1D-HR

TOTAL HOMOLOGUE DATA SUMMARY

EPA SAMPLE NO.

DBLK1A

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0277-BLK1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111104

Decanted (Y/N): N Extraction Method: SEPF

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

Homologue	Peaks	Concentration	Q
Total TCDD			U
Total PeCDD			U
Total HxCDD	1	0.63	
Total HpCDD	1	0.81	
Total TCDF			U
Total PeCDF	0	0.32	
Total HxCDF			U
Total HpCDF			U
OCDD			U
OCDF			U
Total		1.7600	

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

DBLK1A

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0277-BLK1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111104

Decanted (Y/N): N Extraction Method: SEPF Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2378-TCDD	2000	1600	79.9	0.78	26.1975
4	13C12-2378-TCDF	2000	1600	79.6	0.77	25.5702
5	13C12-12378-PeCDD	2000	1600	79.3	1.61	31.2965
5	13C12-12378-PeCDF	2000	1600	77.9	1.57	29.6963
5	13C12-23478-PeCDF	2000	1600	79.3	1.57	31.0443
6	13C12-123478-HxCDD	2000	1600	80.1	1.29	35.9442
6	13C12-123678-HxCDD	2000	1600	77.6	1.28	36.0757
6	13C12-123478-HxCDF	2000	1500	77.4	0.51	34.7165
6	13C12-123678-HxCDF	2000	1500	76.0	0.50	34.859
6	13C12-123789-HxCDF	2000	1500	76.8	0.51	36.9527
6	13C12-234678-HxCDF	2000	1500	74.8	0.53	35.8017
7	13C12-1234678-HpCDD	2000	1500	74.5	1.04	40.767
7	13C12-1234678-HpCDF	2000	1400	70.4	0.46	39.0133
7	13C12-1234789-HpCDF	2000	1400	71.9	0.44	41.633
8	13C12-OCDD	4000	2600	64.8	0.90	46.479
Labeled Cleanup Standard 37C14-2378-TCDD						
4	37C14-2378-TCDD	800	690	85.8		26.2275

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF					0.935		0.770	836	1554					
12378-PeCDF					0.952		1.550	721	1767					
23478-PeCDF					0.963		1.550	721	1767					
123478-HxCDF					1.137		1.240	1081	616					
234678-HxCDF					1.164		1.240	1081	616					
123678-HxCDF					1.099		1.240	1081	616					
123789-HxCDF					1.101		1.240	1081	616					
1234678-HpCDF					1.303		1.050	703	929					
1234789-HpCDF					1.317		1.050	703	929					
OCDF					1.166		0.890	646	1175					
2378-TCDD					1.134		0.770	1849	923					
12378-PeCDD					0.975		1.550	1276	508					
123478-HxCDD					1.031		1.240	1009	896					
123678-HxCDD					0.971		1.240	1009	896					
123789-HxCDD	36.470	1.011	1.30e2	1.35e2	0.947	0.965	1.240	1009	896	4.47e3	3.14e3	4.4	YES	0.032
1234678-HpCDD	40.778	1.000	1.57e2	1.26e2	1.028	1.244	1.050	1114	1389	4.56e3	4.18e3	4.1	YES	0.040
OCDD	46.470	1.000	7.63e2	7.30e2	1.107	1.045	0.890	683	932	9.74e3	1.03e4	14.3	YES	0.251
13C-2378-TCDF	25.570	1.007	8.50e5	1.10e6	1.567	0.772	0.770	10407	5516	1.20e7	1.56e7	1152.5	NO	79.565
13C-12378-PeCDF	29.696	1.170	9.49e5	6.05e5	1.274	1.569	1.550	3835	3610	1.34e7	8.49e6	3506.1	NO	77.898
13C-23478-PeCDF	31.044	1.223	9.37e5	5.96e5	1.235	1.574	1.550	3835	3610	1.38e7	8.78e6	3589.2	NO	79.322
13C-123478-HxCDF	34.716	0.951	3.64e5	7.18e5	1.381	0.508	0.510	4504	3841	5.26e6	1.05e7	1167.3	NO	77.411
13C-123678-HxCDF	34.859	0.955	4.03e5	8.04e5	1.569	0.501	0.510	4504	3841	5.62e6	1.10e7	1247.0	NO	76.001
13C-234678-HxCDF	35.802	0.981	3.54e5	6.65e5	1.345	0.532	0.510	4504	3841	5.02e6	9.63e6	1115.2	NO	74.844
13C-123789-HxCDF	36.953	1.012	3.12e5	6.07e5	1.183	0.515	0.510	4504	3841	4.31e6	8.33e6	956.7	NO	76.781
13C-1234678-HpCDF	39.013	1.069	2.66e5	5.73e5	1.178	0.465	0.440	1931	2566	3.73e6	8.18e6	1929.9	NO	70.377
13C-1234789-HpCDF	41.633	1.140	1.94e5	4.44e5	0.878	0.437	0.440	1931	2566	2.42e6	5.55e6	1255.0	NO	71.850
13C-1234-TCDD	25.391	0.000	7.02e5	8.63e5	1.000	0.813	0.770	3976	2245	9.86e6	1.24e7	2480.5	NO	100.000
13C-2378-TCDD	26.198	1.032	4.99e5	6.37e5	0.908	0.784	0.770	3976	2245	6.87e6	8.81e6	1726.9	NO	79.942
13C-12378-PeCDD	31.296	1.233	5.78e5	3.60e5	0.756	1.605	1.550	1662	1805	8.41e6	5.30e6	5057.8	NO	79.330
13C-123478-HxCDD	35.944	0.985	4.81e5	3.75e5	1.056	1.285	1.240	2413	1716	7.13e6	5.53e6	2954.9	NO	80.087
13C-123678-HxCDD	36.076	0.988	5.14e5	4.00e5	1.163	1.285	1.240	2413	1716	7.26e6	5.66e6	3009.1	NO	77.591
13C-1234678-HpCDD	40.767	1.117	3.49e5	3.36e5	0.909	1.040	1.050	1932	2163	4.62e6	4.43e6	2388.9	NO	74.462
13C-OCDD	46.479	1.273	5.10e5	5.65e5	0.820	0.903	0.890	1931	2130	5.00e6	5.48e6	2588.0	NO	129.525
13C-123789-HxCDD	36.503	0.000	5.62e5	4.50e5	1.000	1.250	1.240	2413	1716	7.83e6	6.30e6	3245.7	NO	100.000
Total-tetrafurans			0.00e0		0.935			836		0.00e0				

9448 OCPI/A01 12/06/16 82

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					438		0.00e0				
Total-pentafurans			7.78e1		0.957			721		2.63e3				0.016
Total-hexafurans			0.00e0		1.125			1081		0.00e0				
Total-heptafurans			0.00e0		1.310			703		0.00e0				
Total-Furans			1.58e2		1.114			836		4.80e3				0.024
Total-tetradioxins			0.00e0		1.134			1849		0.00e0				
Total-pentadioxins			0.00e0		0.975			1276		0.00e0				
Total-hexadioxins			1.30e2		0.983			1009		4.47e3				0.032
Total-heptadioxins			1.57e2		1.028			1114		4.56e3				0.040
Total-Dioxins			1.18e3		1.028			1849		2.20e4				0.340
Total-TEQ			1.34e3					1849		2.68e4				0.364
37CL-2378-TCDD	26.228	1.033	5.73e5		1.067			1594		8.12e6		5093.2		34.319
FUNCTION1 PFK			7.17e7					666229		3.20e8				
FUNCTION2 PFK			7.15e4					205196		3.22e6				0.000
FUNCTION3 PFK			5.07e5					510905		1.62e7				0.000
FUNCTION4 PFK			4.04e4					451004		1.20e6				
FUNCTION5 PFK			6.83e5					318064		2.37e7				
FUNCTION1 HXCD...			0.00e0					589		0.00e0				
FUNCTION1 HPCD...			1.31e3					1001		2.63e4				0.000
FUNCTION2 HPCD...			2.07e2					1065		5.70e3				0.000
FUNCTION3 OCDPE			1.81e2					482		5.33e3				0.000
FUNCTION4 NCDPE			3.13e2					1164		8.05e3				0.000
FUNCTION5 DCDPE			0.00e0					447		0.00e0				

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

TF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PP

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	37	Total-pentafurans	339.8597	28.82	232.857	0.957		0.016		0.50	1.55	YES	3.7

HF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

HPF

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

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

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	40	Total-Furans	303.9016	21.81	175.383	1.114		0.008		0.84	0.77	NO	2.6
2	37	Total-pentafurans	339.8597	28.82	232.857	0.957		0.016		0.50	1.55	YES	3.7

TD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

PD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1													

HD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	15	123789-HxCDD	389.8157	36.47	265.076	0.947		0.032	0.028	0.96	1.24	YES	4.4

HPD

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.78	283.808	1.028		0.040	0.037	1.24	1.05	YES	4.1

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ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	45	Total-Dioxins	319.8965	22.97	205.082	1.028	0.018		1.77	0.77	YES	1.8
2	15	123789-HxCDD	389.8157	36.47	265.076	0.947	0.032	0.028	0.96	1.24	YES	4.4
3	16	1234678-HpCDD	423.7766	40.78	283.808	1.028	0.040	0.037	1.24	1.05	YES	4.1
4	17	OCDD	457.7377	46.47	1492.575	1.107	0.251	0.232	1.05	0.89	YES	14.3

TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	40	Total-Furans	303.9016	21.81	175.383	1.114	0.008		0.84	0.77	NO	2.6
2	37	Total-pentafurans	339.8597	28.82	232.857	0.957	0.016		0.50	1.55	YES	3.7
3	45	Total-Dioxins	319.8965	22.97	205.082	1.028	0.018		1.77	0.77	YES	1.8
4	15	123789-HxCDD	389.8157	36.47	265.076	0.947	0.032	0.028	0.96	1.24	YES	4.4
5	16	1234678-HpCDD	423.7766	40.78	283.808	1.028	0.040	0.037	1.24	1.05	YES	4.1
6	17	OCDD	457.7377	46.47	1492.575	1.107	0.251	0.232	1.05	0.89	YES	14.3

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	22.36	0.000							42.4
2	48	FUNCTION1 PFK	330.9792	22.04	0.000							53.0
3	48	FUNCTION1 PFK	330.9792	21.98	0.000							55.1
4	48	FUNCTION1 PFK	330.9792	21.89	0.000							58.4
5	48	FUNCTION1 PFK	330.9792	21.79	0.000							61.5
6	48	FUNCTION1 PFK	330.9792	21.64	0.000							67.4
7	48	FUNCTION1 PFK	330.9792	21.10	0.000							84.8
8	48	FUNCTION1 PFK	330.9792	26.97	0.000							1.0
9	48	FUNCTION1 PFK	330.9792	26.88	0.000							0.9
10	48	FUNCTION1 PFK	330.9792	26.62	0.000							0.8
11	48	FUNCTION1 PFK	330.9792	26.29	0.000							0.5
12	48	FUNCTION1 PFK	330.9792	26.24	0.000							0.9
13	48	FUNCTION1 PFK	330.9792	26.06	0.000							0.6
14	48	FUNCTION1 PFK	330.9792	25.48	0.000							1.1
15	48	FUNCTION1 PFK	330.9792	25.42	0.000							1.0
16	48	FUNCTION1 PFK	330.9792	25.26	0.000							0.8
17	48	FUNCTION1 PFK	330.9792	24.51	0.000							1.4
18	48	FUNCTION1 PFK	330.9792	24.34	0.000							1.2
19	48	FUNCTION1 PFK	330.9792	24.17	0.000							1.2
20	48	FUNCTION1 PFK	330.9792	24.09	0.000							0.6
21	48	FUNCTION1 PFK	330.9792	23.64	0.000							1.8
22	48	FUNCTION1 PFK	330.9792	23.12	0.000							15.0
23	48	FUNCTION1 PFK	330.9792	22.75	0.000							27.8
24	48	FUNCTION1 PFK	330.9792	27.41	0.000							0.9
25	48	FUNCTION1 PFK	330.9792	27.24	0.000							1.0

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	32.03	0.000		0.000					1.2
2	49	FUNCTION2 PFK	366.9792	31.83	0.000		0.000					1.1
3	49	FUNCTION2 PFK	366.9792	31.66	0.000		0.000					1.0
4	49	FUNCTION2 PFK	366.9792	31.43	0.000		0.000					1.3
5	49	FUNCTION2 PFK	366.9792	31.31	0.000		0.000					0.6
6	49	FUNCTION2 PFK	366.9792	31.26	0.000		0.000					1.2
7	49	FUNCTION2 PFK	366.9792	31.19	0.000		0.000					1.1
8	49	FUNCTION2 PFK	366.9792	31.03	0.000		0.000					0.8
9	49	FUNCTION2 PFK	366.9792	30.99	0.000		0.000					1.2
10	49	FUNCTION2 PFK	366.9792	29.03	0.000		0.000					1.0
11	49	FUNCTION2 PFK	366.9792	28.93	0.000		0.000					0.6
12	49	FUNCTION2 PFK	366.9792	28.78	0.000		0.000					0.8
13	49	FUNCTION2 PFK	366.9792	28.37	0.000		0.000					0.6
14	49	FUNCTION2 PFK	366.9792	32.52	0.000		0.000					1.0
15	49	FUNCTION2 PFK	366.9792	32.48	0.000		0.000					1.3
16	49	FUNCTION2 PFK	366.9792	32.25	0.000		0.000					0.9

PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	34.16	0.000		0.000					0.9
2	50	FUNCTION3 PFK	380.9760	34.11	0.000		0.000					1.2
3	50	FUNCTION3 PFK	380.9760	33.86	0.000		0.000					1.1
4	50	FUNCTION3 PFK	380.9760	33.61	0.000		0.000					0.7
5	50	FUNCTION3 PFK	380.9760	33.41	0.000		0.000					0.7
6	50	FUNCTION3 PFK	380.9760	33.35	0.000		0.000					1.2
7	50	FUNCTION3 PFK	380.9760	33.17	0.000		0.000					1.8
8	50	FUNCTION3 PFK	380.9760	33.09	0.000		0.000					1.7
9	50	FUNCTION3 PFK	380.9760	32.98	0.000		0.000					1.6
10	50	FUNCTION3 PFK	380.9760	32.93	0.000		0.000					1.2
11	50	FUNCTION3 PFK	380.9760	32.88	0.000		0.000					1.9
12	50	FUNCTION3 PFK	380.9760	32.63	0.000		0.000					1.0
13	50	FUNCTION3 PFK	380.9760	37.93	0.000		0.000					1.1
14	50	FUNCTION3 PFK	380.9760	37.61	0.000		0.000					0.6
15	50	FUNCTION3 PFK	380.9760	37.45	0.000		0.000					0.5
16	50	FUNCTION3 PFK	380.9760	37.24	0.000		0.000					1.0
17	50	FUNCTION3 PFK	380.9760	37.10	0.000		0.000					1.5
18	50	FUNCTION3 PFK	380.9760	37.00	0.000		0.000					1.2
19	50	FUNCTION3 PFK	380.9760	36.73	0.000		0.000					1.3
20	50	FUNCTION3 PFK	380.9760	36.05	0.000		0.000					0.6
21	50	FUNCTION3 PFK	380.9760	35.86	0.000		0.000					1.1
22	50	FUNCTION3 PFK	380.9760	35.71	0.000		0.000					1.1
23	50	FUNCTION3 PFK	380.9760	35.66	0.000		0.000					1.5
24	50	FUNCTION3 PFK	380.9760	35.58	0.000		0.000					0.6
25	50	FUNCTION3 PFK	380.9760	35.15	0.000		0.000					1.4
26	50	FUNCTION3 PFK	380.9760	35.05	0.000		0.000					2.1
27	50	FUNCTION3 PFK	380.9760	34.67	0.000		0.000					0.0
28	50	FUNCTION3 PFK	380.9760	34.40	0.000		0.000					0.7
29	50	FUNCTION3 PFK	380.9760	37.98	0.000		0.000					0.8

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:01:53 Pacific Standard Time

ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	43.67	0.000							2.7

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	45.87	0.000							1.2
2	52	FUNCTION5 PFK	480.9696	45.56	0.000							1.6
3	52	FUNCTION5 PFK	480.9696	45.54	0.000							0.7
4	52	FUNCTION5 PFK	480.9696	45.29	0.000							1.7
5	52	FUNCTION5 PFK	480.9696	45.02	0.000							1.7
6	52	FUNCTION5 PFK	480.9696	44.89	0.000							1.7
7	52	FUNCTION5 PFK	480.9696	44.85	0.000							1.6
8	52	FUNCTION5 PFK	480.9696	44.79	0.000							1.2
9	52	FUNCTION5 PFK	480.9696	44.76	0.000							2.0
10	52	FUNCTION5 PFK	480.9696	44.73	0.000							1.3
11	52	FUNCTION5 PFK	480.9696	44.68	0.000							0.8
12	52	FUNCTION5 PFK	480.9696	44.65	0.000							2.0
13	52	FUNCTION5 PFK	480.9696	47.29	0.000							1.7
14	52	FUNCTION5 PFK	480.9696	47.15	0.000							0.4
15	52	FUNCTION5 PFK	480.9696	47.13	0.000							0.4
16	52	FUNCTION5 PFK	480.9696	46.93	0.000							1.3
17	52	FUNCTION5 PFK	480.9696	46.79	0.000							1.4
18	52	FUNCTION5 PFK	480.9696	46.73	0.000							1.2
19	52	FUNCTION5 PFK	480.9696	46.51	0.000							1.0
20	52	FUNCTION5 PFK	480.9696	46.43	0.000							1.4
21	52	FUNCTION5 PFK	480.9696	46.32	0.000							1.1
22	52	FUNCTION5 PFK	480.9696	46.21	0.000							0.6
23	52	FUNCTION5 PFK	480.9696	46.17	0.000							0.8
24	52	FUNCTION5 PFK	480.9696	46.13	0.000							0.9
25	52	FUNCTION5 PFK	480.9696	46.09	0.000							2.1
26	52	FUNCTION5 PFK	480.9696	46.05	0.000							0.8
27	52	FUNCTION5 PFK	480.9696	45.99	0.000							1.1
28	52	FUNCTION5 PFK	480.9696	45.92	0.000							1.1
29	52	FUNCTION5 PFK	480.9696	48.78	0.000							1.4
30	52	FUNCTION5 PFK	480.9696	48.74	0.000							2.9
31	52	FUNCTION5 PFK	480.9696	48.65	0.000							2.2
32	52	FUNCTION5 PFK	480.9696	48.61	0.000							2.3
33	52	FUNCTION5 PFK	480.9696	48.57	0.000							2.6
34	52	FUNCTION5 PFK	480.9696	48.52	0.000							2.1
35	52	FUNCTION5 PFK	480.9696	48.41	0.000							0.5
36	52	FUNCTION5 PFK	480.9696	48.18	0.000							1.0
37	52	FUNCTION5 PFK	480.9696	48.04	0.000							0.8
38	52	FUNCTION5 PFK	480.9696	47.82	0.000							1.0
39	52	FUNCTION5 PFK	480.9696	47.78	0.000							1.0
40	52	FUNCTION5 PFK	480.9696	47.74	0.000							1.5
41	52	FUNCTION5 PFK	480.9696	47.67	0.000							2.4
42	52	FUNCTION5 PFK	480.9696	47.63	0.000							1.6
43	52	FUNCTION5 PFK	480.9696	47.50	0.000							1.3
44	52	FUNCTION5 PFK	480.9696	47.36	0.000							1.3
45	52	FUNCTION5 PFK	480.9696	49.47	0.000							0.4
46	52	FUNCTION5 PFK	480.9696	49.40	0.000							0.7
47	52	FUNCTION5 PFK	480.9696	49.36	0.000							1.0
48	52	FUNCTION5 PFK	480.9696	49.26	0.000							0.6
49	52	FUNCTION5 PFK	480.9696	49.14	0.000							0.5
50	52	FUNCTION5 PFK	480.9696	49.07	0.000							1.5
51	52	FUNCTION5 PFK	480.9696	49.04	0.000							2.1

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
52	52	FUNCTION5 PFK	480.9696	48.97	0.000							1.4
53	52	FUNCTION5 PFK	480.9696	48.91	0.000							2.3
54	52	FUNCTION5 PFK	480.9696	48.86	0.000							1.7
55	52	FUNCTION5 PFK	480.9696	48.83	0.000							1.7

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	23.79	0.000		0.000					1.9
2	54	FUNCTION1 HPCD...	409.7974	23.67	0.000		0.000					2.1
3	54	FUNCTION1 HPCD...	409.7974	22.13	0.000		0.000					1.9
4	54	FUNCTION1 HPCD...	409.7974	27.00	0.000		0.000					1.6
5	54	FUNCTION1 HPCD...	409.7974	26.90	0.000		0.000					1.4
6	54	FUNCTION1 HPCD...	409.7974	26.48	0.000		0.000					1.5
7	54	FUNCTION1 HPCD...	409.7974	26.36	0.000		0.000					1.7
8	54	FUNCTION1 HPCD...	409.7974	26.27	0.000		0.000					2.1
9	54	FUNCTION1 HPCD...	409.7974	25.75	0.000		0.000					2.2
10	54	FUNCTION1 HPCD...	409.7974	25.53	0.000		0.000					1.8
11	54	FUNCTION1 HPCD...	409.7974	25.21	0.000		0.000					1.7
12	54	FUNCTION1 HPCD...	409.7974	25.03	0.000		0.000					1.7
13	54	FUNCTION1 HPCD...	409.7974	24.87	0.000		0.000					1.4
14	54	FUNCTION1 HPCD...	409.7974	24.27	0.000		0.000					3.2

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	30.81	0.000		0.000					3.1
2	55	FUNCTION2 HPCD...	409.7974	29.27	0.000		0.000					2.2

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	56	FUNCTION3 OCDPE	445.7555	36.89	0.000		0.000					5.4
2	56	FUNCTION3 OCDPE	445.7555	37.62	0.000		0.000					5.7

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	43.96	0.000		0.000					4.7
2	57	FUNCTION4 NCDPE	479.7165	41.99	0.000		0.000					1.2
3	57	FUNCTION4 NCDPE	479.7165	39.36	0.000		0.000					1.1

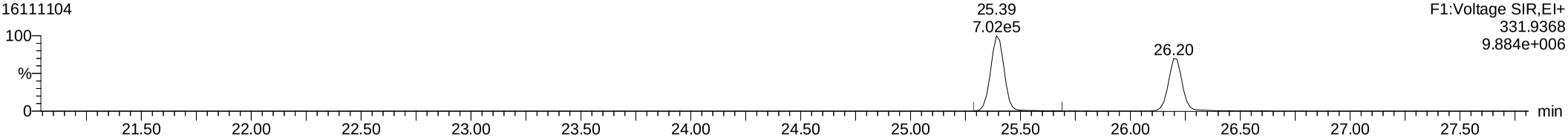
ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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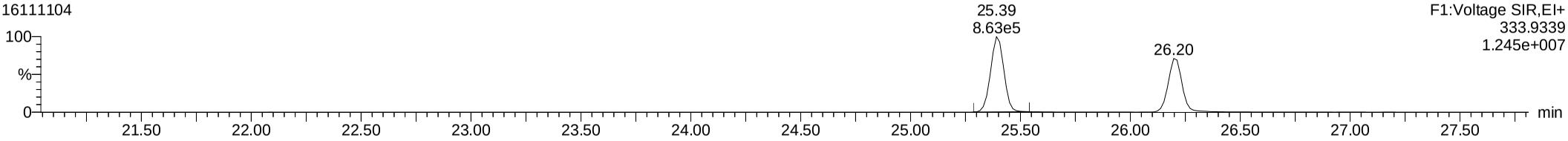

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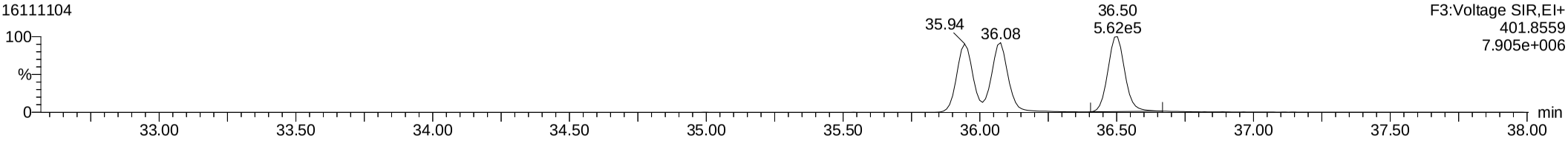

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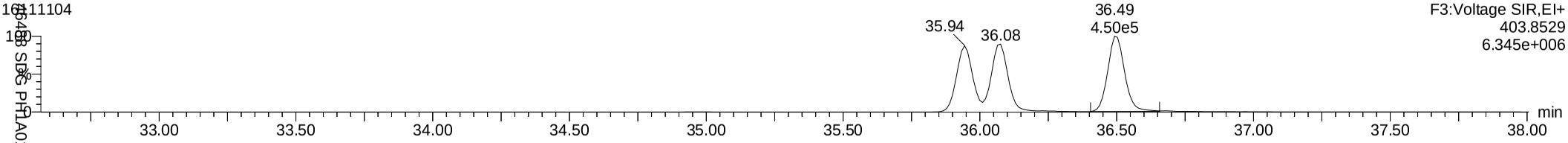

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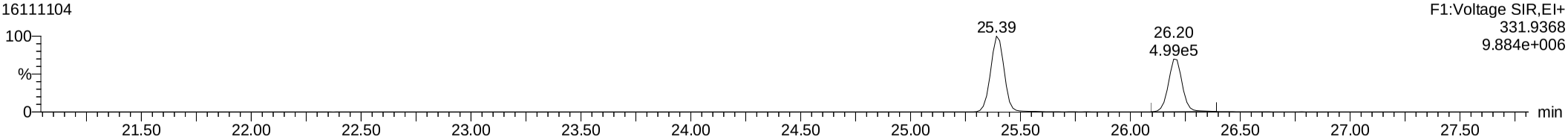
ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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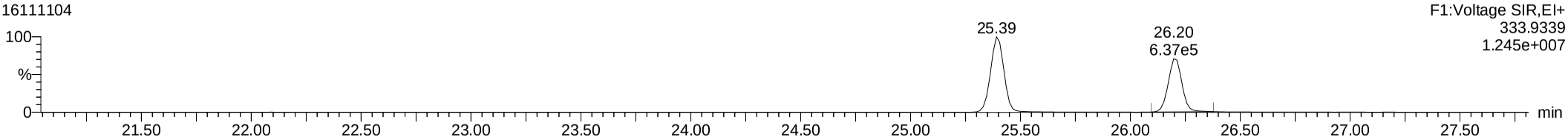
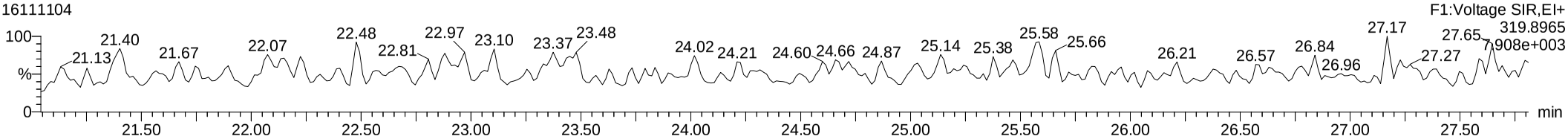
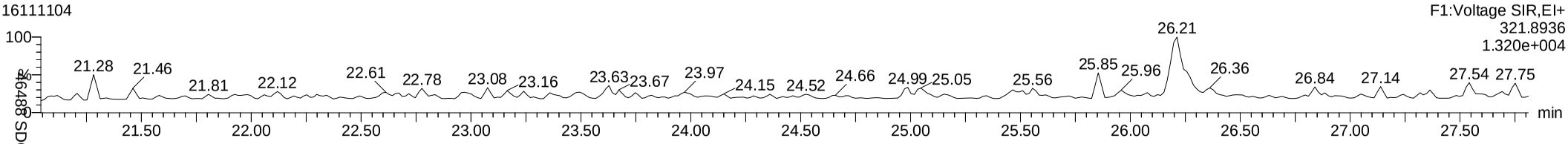


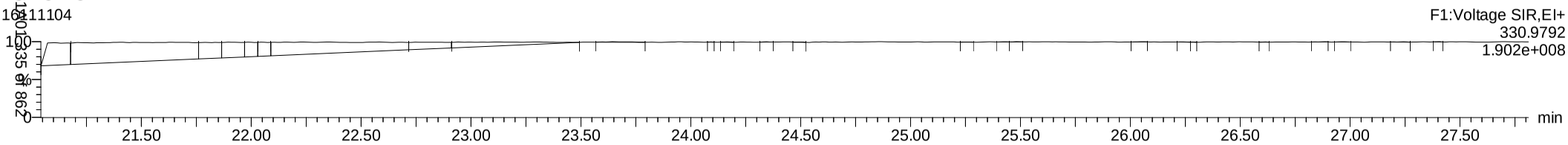
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



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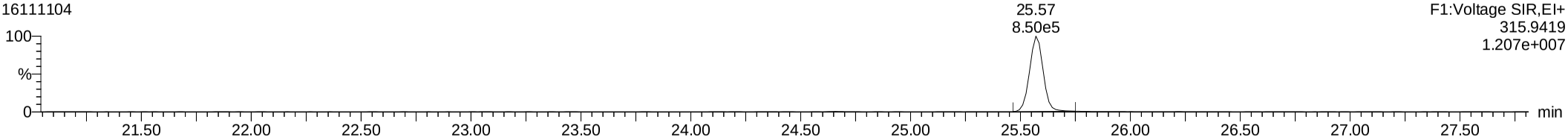
ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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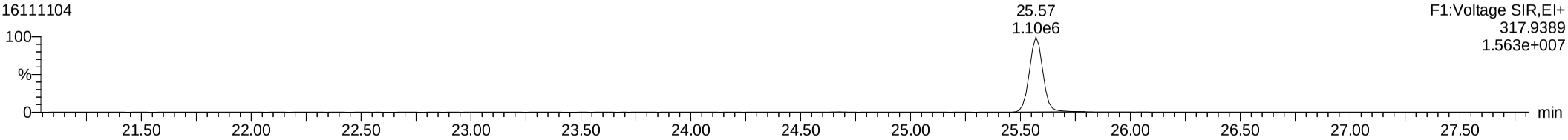
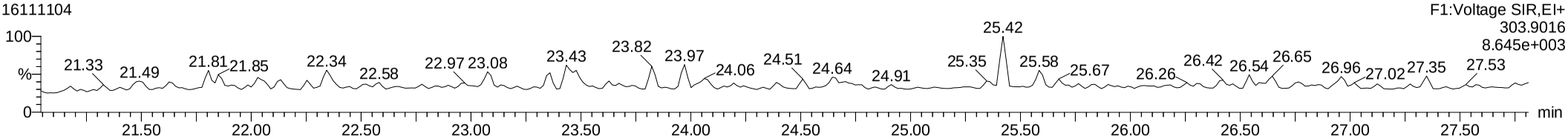
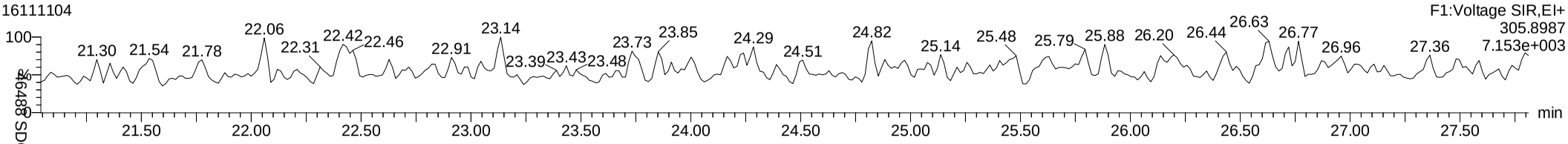


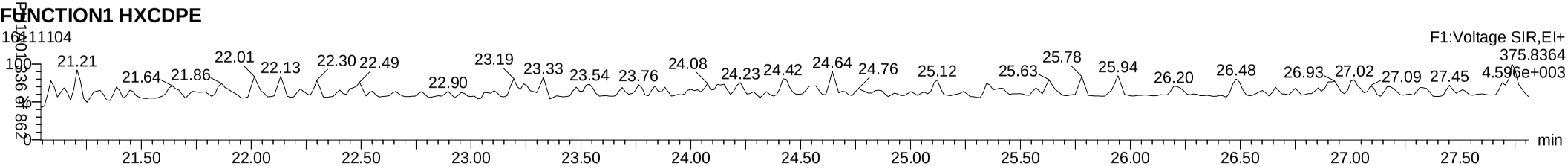
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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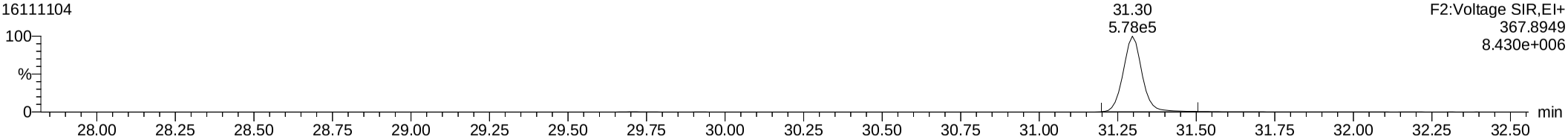
ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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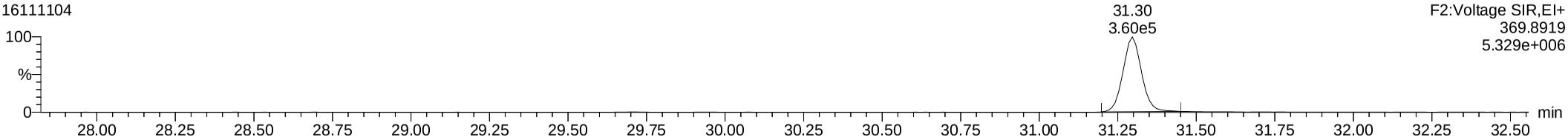
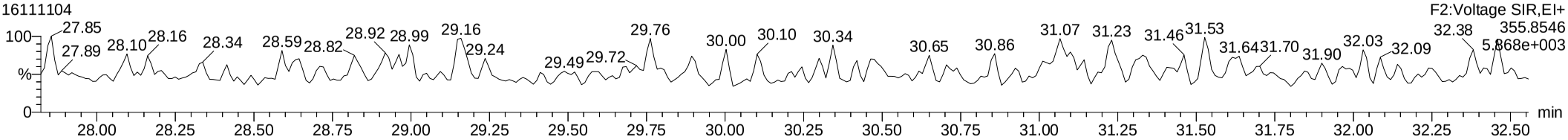
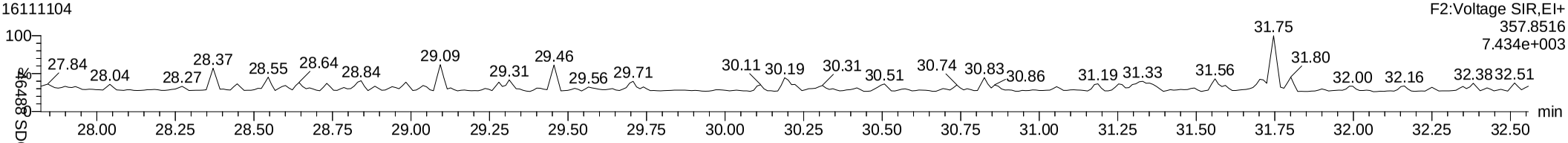


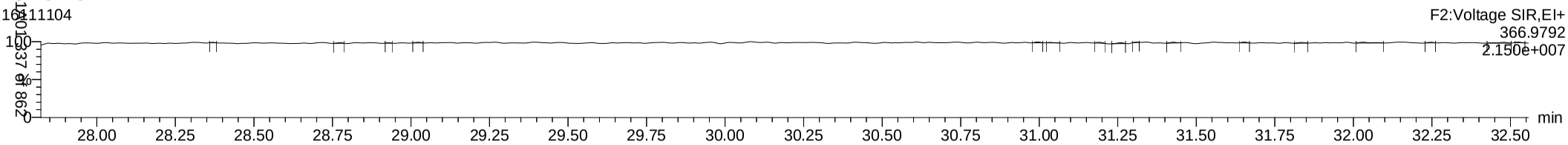
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



46488 SDG PD1401337 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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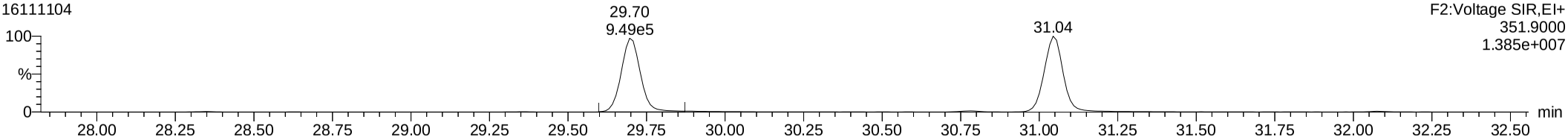
ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDF



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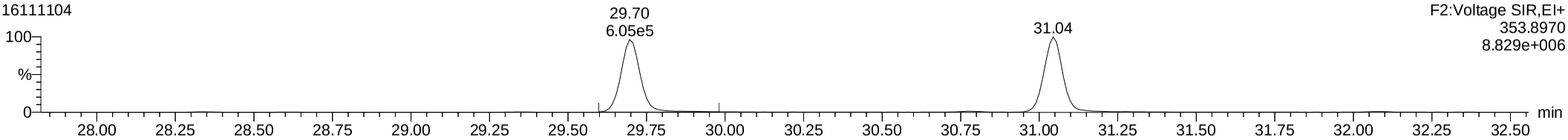
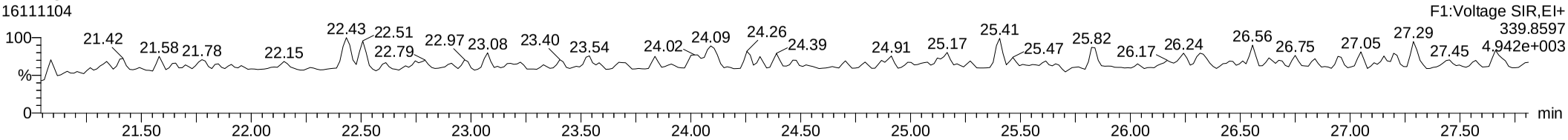
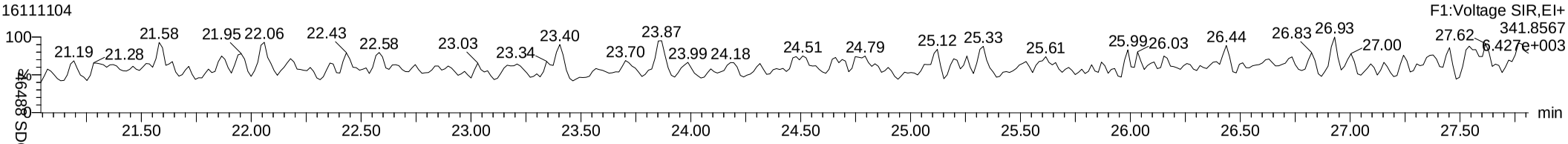


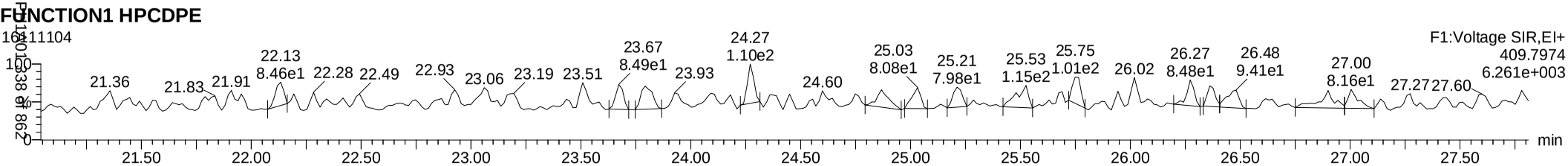
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

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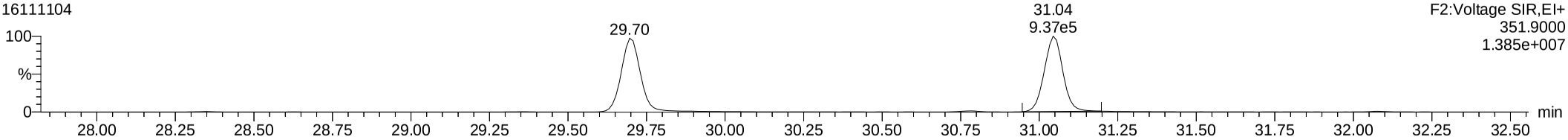

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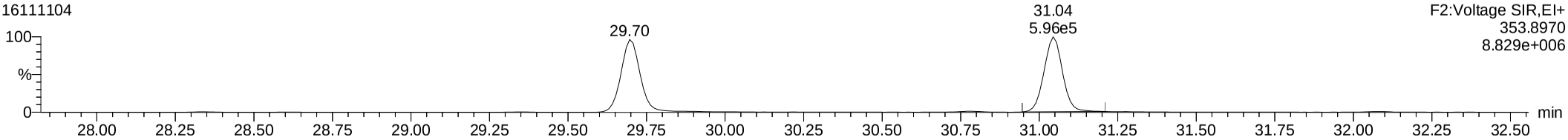
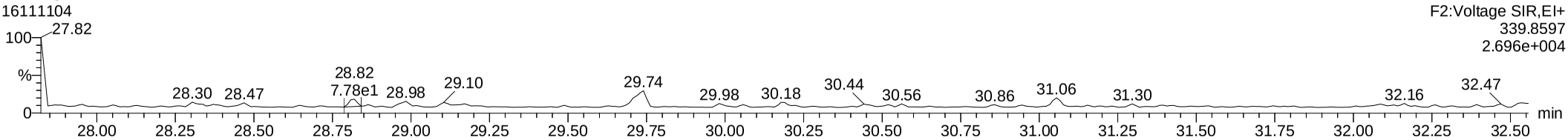
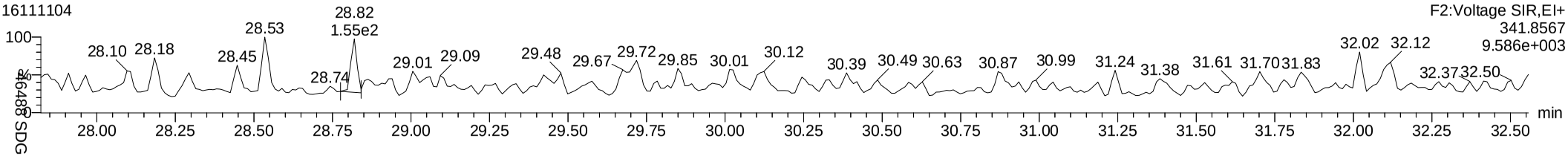


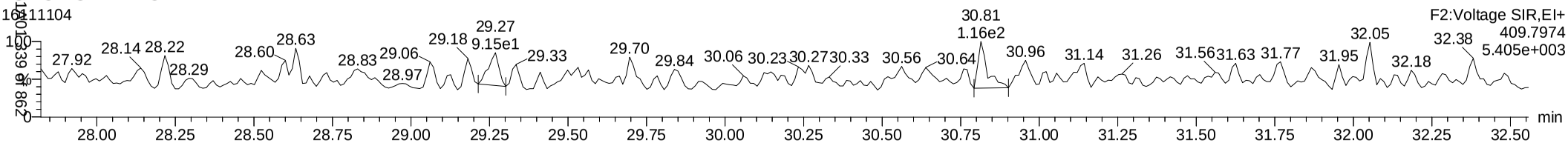
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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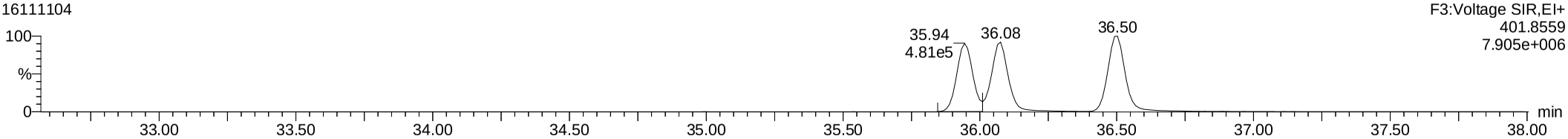
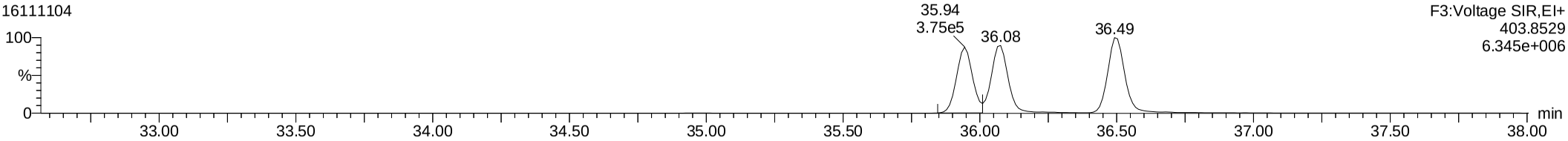
13C-123478-HxCDD



13C-123478-HxCDD



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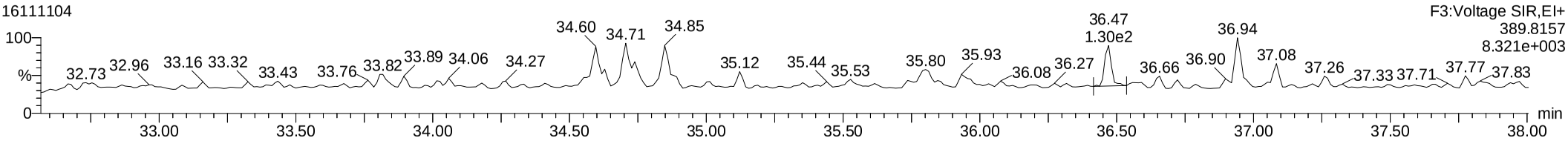
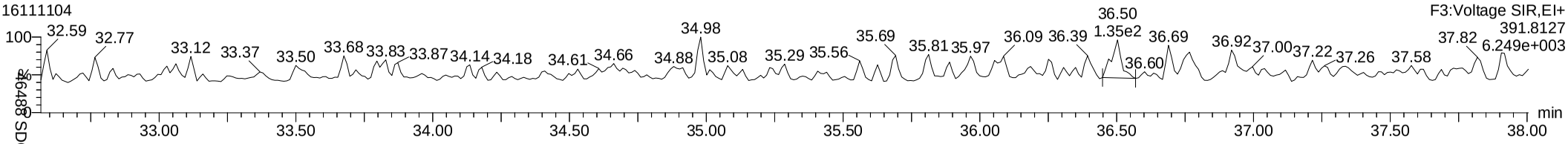
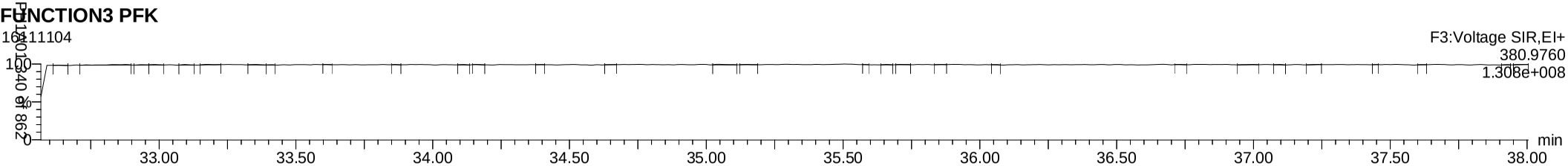


Total-hexadioxins



FUNCTION3 PFK



46488 SDG PH1101340 of 862

ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

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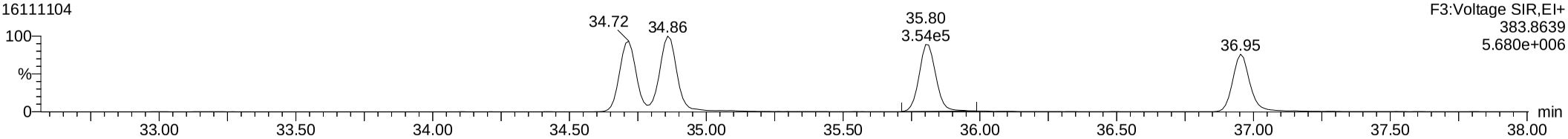

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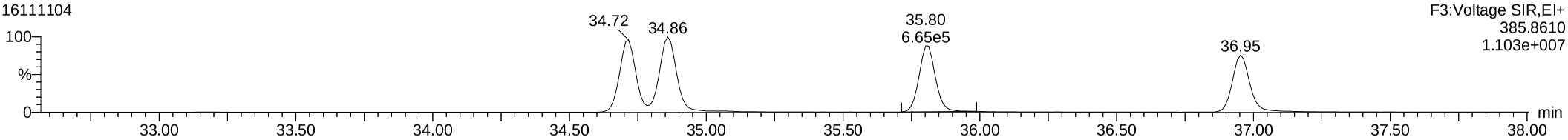

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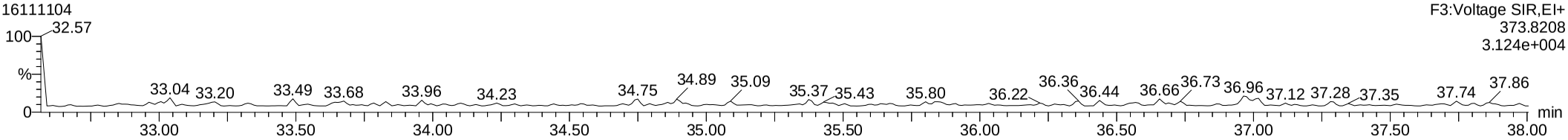

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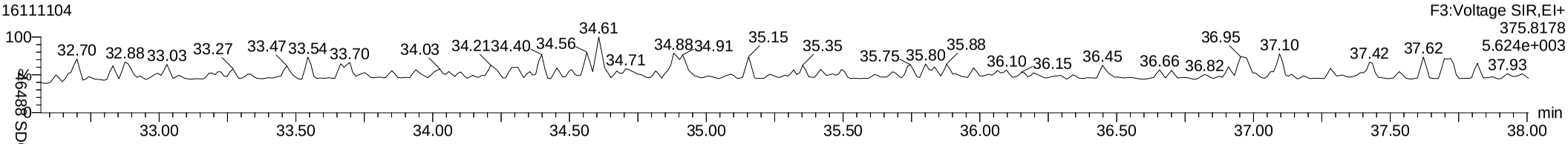
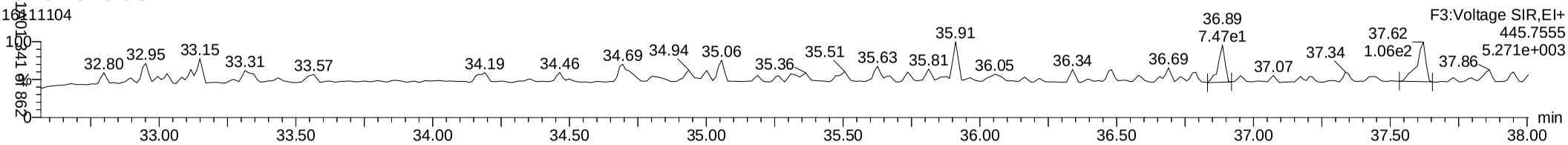


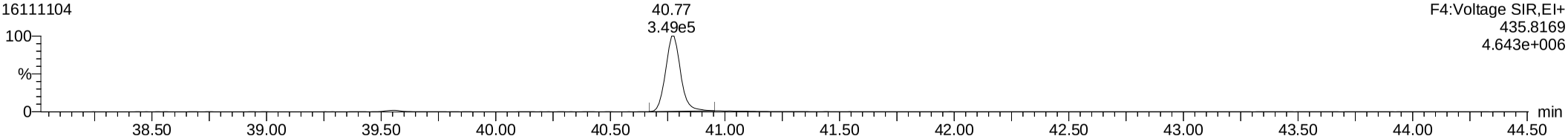
FUNCTION3 OCDPE



46488 SDG PD 1401 341 of 862

ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



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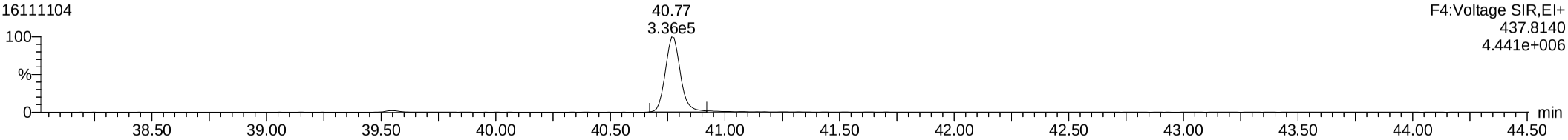

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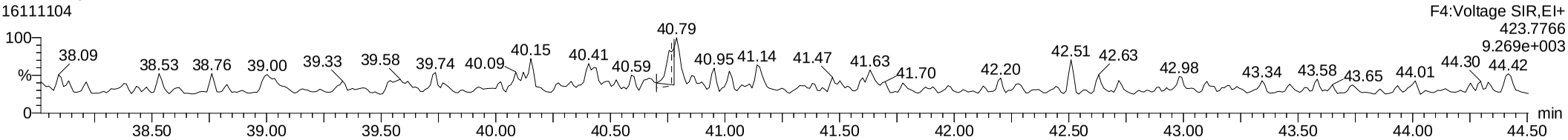
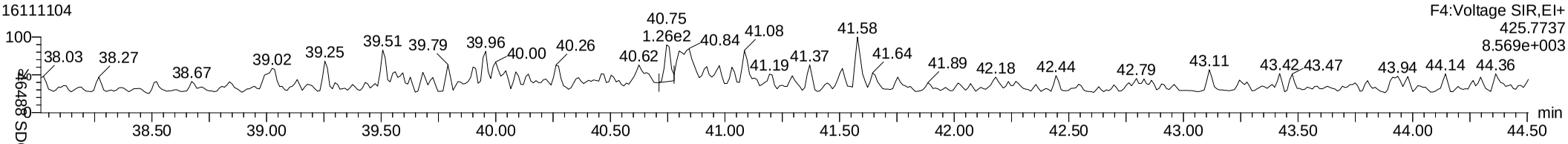
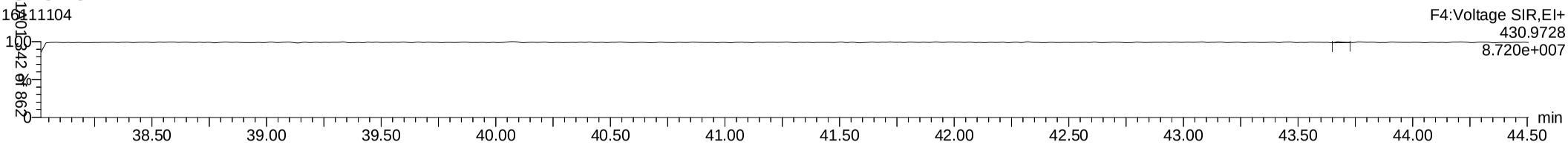


Total-heptadioxins



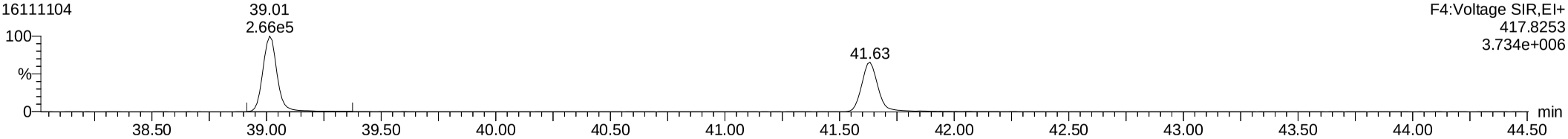
FUNCTION4 PFK



46488 SDG PD1401342 of 862

ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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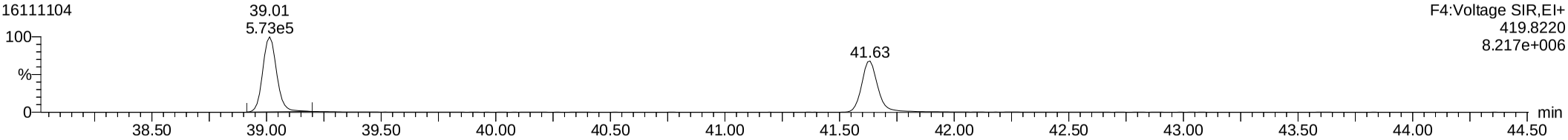

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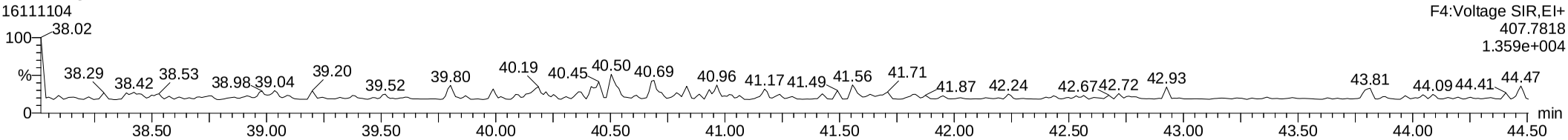

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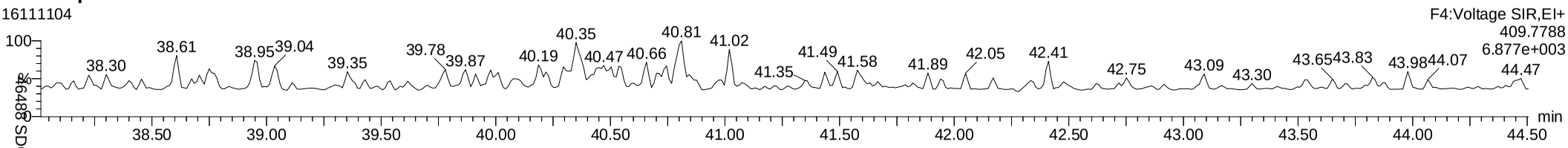
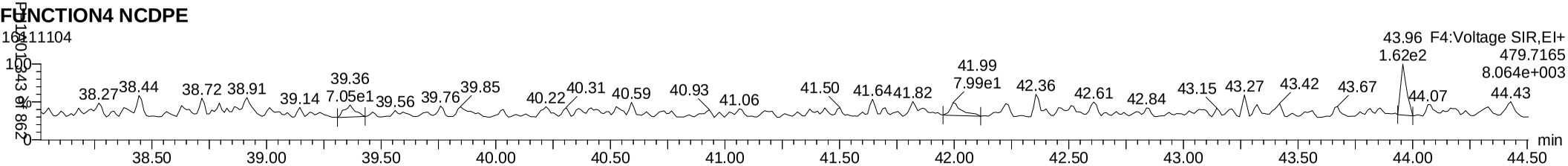


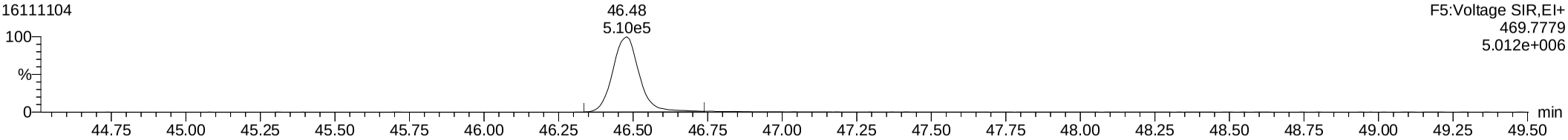
FUNCTION4 NCDPE



46488 SDG PH1001343 of 862

ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

13C-OCDD



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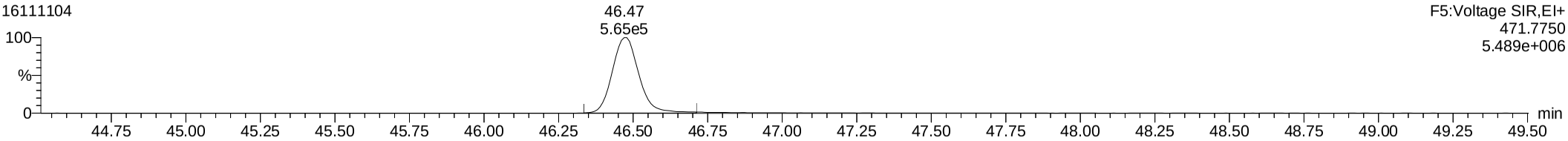
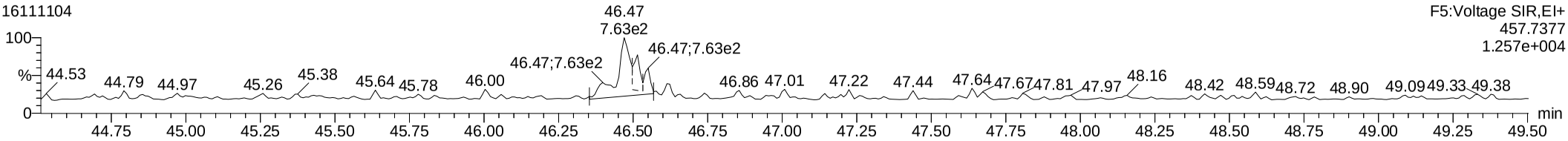
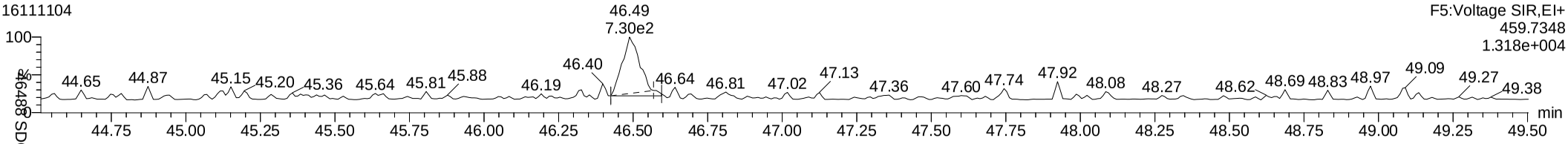


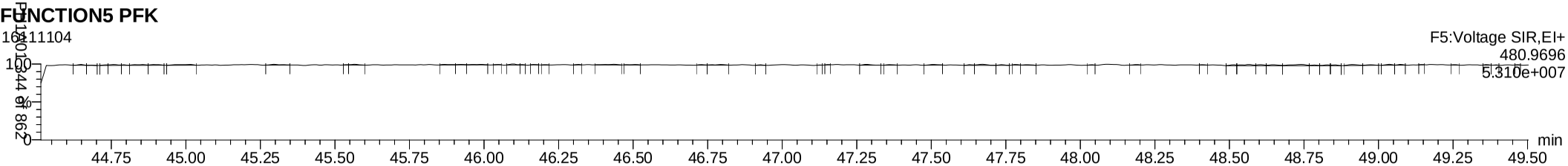
OCDD



OCDD



FUNCTION5 PFK



46488 SDG PH1401 344 of 862

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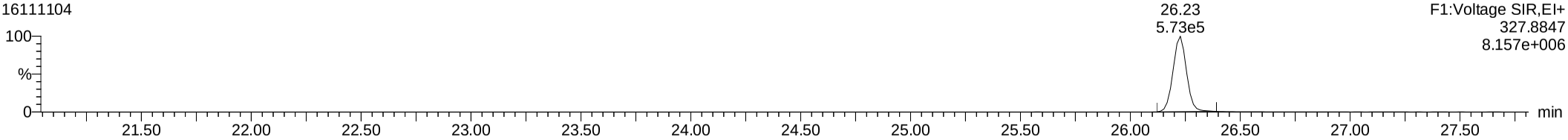
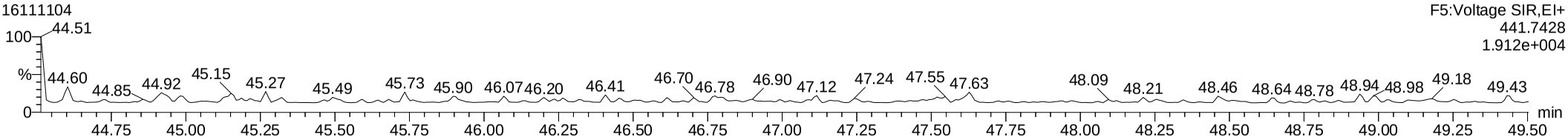
Printed: Monday, November 14, 2016 14:01:53 Pacific Standard Time

ID: DBLK1A, Name: 16111104, Date: 11-Nov-2016, Time: 14:21:10, Conditions: AUTOSPEC01, User: PK

37CL-2378-TCDD



OCDF



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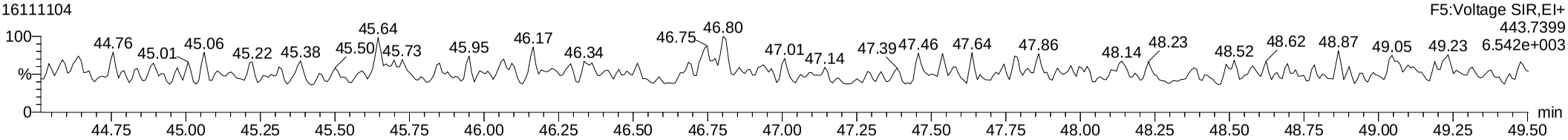
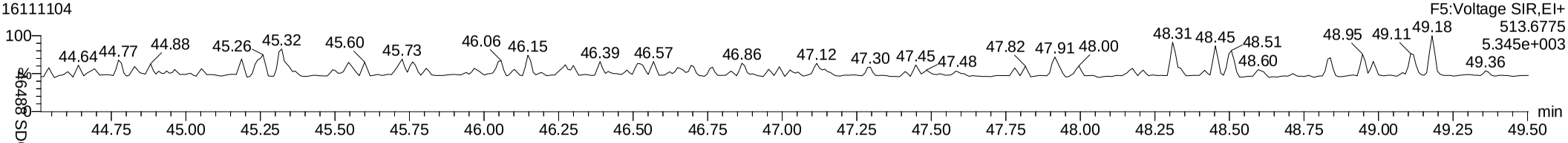


FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

DLCS1A

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0277-BS1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111105

Decanted (Y/N): N Extraction Method: SEPF

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2378-TCDD	210			0.799	26.2123
5	12378-PeCDD	1100			1.551	31.2965
6	123478-HxCDD	1000			1.240	35.9548
6	123678-HxCDD	1000			1.225	36.0753
6	123789-HxCDD	1000			1.228	36.5028
7	1234678-HpCDD	1000			1.087	40.7777
8	OCDD	2000			0.890	46.4783
4	2378-TCDF	210			0.752	25.57
5	12378-PeCDF	1100			1.576	29.6963
5	23478-PeCDF	1000			1.509	31.0445
6	123478-HxCDF	1000			1.253	34.7163
6	123678-HxCDF	1000			1.248	34.8697
6	123789-HxCDF	1000			1.232	36.9632
6	234678-HxCDF	1000			1.236	35.8123
7	1234678-HpCDF	1000			1.040	39.0238
7	1234789-HpCDF	1000			1.039	41.6325
8	OCDF	2200			0.901	46.7475

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

DLCS1A

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0277-BS1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111105

Decanted (Y/N): N Extraction Method: SEPF Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2378-TCDD	210	x 1.0	210.0000	x 1.0	210.0000	x 1.0	210.0000
12378-PeCDD	1100	x 1.0	1,100.0000	x 1.0	1,100.0000	x 1.0	1,100.0000
123478-HxCDD	1000	x 0.1	100.0000	x 0.5	500.0000	0.05	50.0000
123678-HxCDD	1000	x 0.1	100.0000	x 0.01	10.0000	x 0.01	100.0000
123789-HxCDD	1000	x 0.1	100.0000	x 0.01	10.0000	x 0.1	100.0000
1234678-HpCDD	1000	x 0.01	10.0000	x 0.001	1.0000	x 0.001	1.0000
OCDD	2000	x 0.0003	0.6000	x 0.0001	0.2000	x 0.0001	0.2000
2378-TCDF	210	x 0.1	21.0000	x 0.05	10.5000	x 1.0	21.0000
12378-PeCDF	1100	x 0.03	33.0000	x 0.05	55.0000	x 0.1	110.0000
23478-PeCDF	1000	x 0.3	300.0000	x 0.5	500.0000	x 1.0	1,000.0000
123478-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
123678-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
123789-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
234678-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
1234678-HpCDF	1000	x 0.01	10.0000	x 0.01	10.0000	x 0.01	10.0000
1234789-HpCDF	1000	x 0.01	10.0000	x 0.01	10.0000	x 0.01	10.0000
OCDF	2200	x 0.0003	0.6600	x 0.0001	0.2200	x 0.0001	0.2200
		Total TEQ =	2,400	Total TEQ =	2,800	Total TEQ =	3,100

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

DLCS1A

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0277-BS1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111105

Decanted (Y/N): N Extraction Method: SEPF Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2378-TCDD	2000	2000	99.7	0.79	26.1825
4	13C12-2378-TCDF	2000	1900	96.5	0.78	25.555
5	13C12-12378-PeCDD	2000	2000	98.2	1.58	31.2855
5	13C12-12378-PeCDF	2000	1900	95.1	1.61	29.6853
5	13C12-23478-PeCDF	2000	2000	100	1.56	31.0335
6	13C12-123478-HxCDD	2000	1900	96.2	1.29	35.9328
6	13C12-123678-HxCDD	2000	1900	92.9	1.28	36.0645
6	13C12-123478-HxCDF	2000	1800	91.6	0.51	34.6943
6	13C12-123678-HxCDF	2000	1800	90.3	0.51	34.8477
6	13C12-123789-HxCDF	2000	1900	92.5	0.52	36.9412
6	13C12-234678-HxCDF	2000	1800	90.3	0.52	35.8013
7	13C12-1234678-HpCDD	2000	1800	92.0	1.08	40.7667
7	13C12-1234678-HpCDF	2000	1700	85.8	0.44	39.0018
7	13C12-1234789-HpCDF	2000	1800	92.0	0.45	41.6215
8	13C12-OCDD	4000	3200	80.4	0.90	46.4603
Labeled Cleanup Standard 37C14-2378-TCDD						
4	37C14-2378-TCDD	800	820	102		26.2123

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Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:01:57 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DLCS1A, Name: 16111105, Date: 11-Nov-2016, Time: 15:12:34, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.570	1.001	1.11e5	1.47e5	0.935	0.752	0.770	1137	2338	1.58e6	2.15e6	1391.8	NO	10.522
12378-PeCDF	29.696	1.000	6.45e5	4.09e5	0.952	1.576	1.550	2844	2785	9.35e6	5.94e6	3286.5	NO	52.693
23478-PeCDF	31.045	1.000	6.19e5	4.10e5	0.963	1.509	1.550	2844	2785	9.18e6	6.02e6	3228.7	NO	49.961
123478-HxCDF	34.716	1.001	4.86e5	3.88e5	1.137	1.253	1.240	3799	4204	7.17e6	5.75e6	1887.6	NO	50.775
234678-HxCDF	35.812	1.000	4.84e5	3.91e5	1.164	1.236	1.240	3799	4204	7.11e6	5.68e6	1872.5	NO	51.675
123678-HxCDF	34.870	1.001	5.18e5	4.15e5	1.099	1.248	1.240	3799	4204	7.40e6	6.04e6	1947.7	NO	50.018
123789-HxCDF	36.963	1.001	4.13e5	3.35e5	1.101	1.232	1.240	3799	4204	5.74e6	4.59e6	1510.8	NO	51.856
1234678-HpCDF	39.024	1.001	4.10e5	3.95e5	1.303	1.040	1.050	2258	2027	5.91e6	5.65e6	2618.3	NO	51.023
1234789-HpCDF	41.632	1.000	3.25e5	3.13e5	1.317	1.039	1.050	2258	2027	3.96e6	3.89e6	1755.8	NO	50.116
OCDF	46.748	1.006	4.69e5	5.20e5	1.166	0.901	0.890	3135	2173	4.74e6	5.17e6	1510.5	NO	107.526
2378-TCDD	26.212	1.001	8.31e4	1.04e5	1.134	0.799	0.770	1657	1086	1.16e6	1.47e6	698.8	NO	10.518
12378-PeCDD	31.296	1.000	4.04e5	2.61e5	0.975	1.551	1.550	1641	1473	5.89e6	3.81e6	3587.7	NO	52.993
123478-HxCDD	35.955	1.001	3.54e5	2.86e5	1.031	1.240	1.240	1855	2066	5.32e6	4.26e6	2869.2	NO	50.963
123678-HxCDD	36.075	1.000	3.61e5	2.94e5	0.971	1.225	1.240	1855	2066	5.20e6	4.14e6	2803.6	NO	52.130
123789-HxCDD	36.503	1.012	3.43e5	2.79e5	0.947	1.228	1.240	1855	2066	4.95e6	4.05e6	2670.4	NO	52.353
1234678-HpCDD	40.778	1.000	2.77e5	2.54e5	1.028	1.087	1.050	2042	1964	3.63e6	3.50e6	1778.4	NO	51.604
OCDD	46.478	1.000	4.10e5	4.61e5	1.107	0.890	0.890	1901	2084	4.11e6	4.53e6	2162.7	NO	99.750
13C-2378-TCDF	25.555	1.007	1.15e6	1.48e6	1.567	0.777	0.770	9196	5180	1.65e7	2.12e7	1794.2	NO	96.501
13C-12378-PeCDF	29.685	1.170	1.30e6	8.05e5	1.274	1.610	1.550	3252	2577	1.87e7	1.16e7	5741.6	NO	95.116
13C-23478-PeCDF	31.034	1.223	1.30e6	8.37e5	1.235	1.555	1.550	3252	2577	1.90e7	1.23e7	5854.1	NO	99.976
13C-123478-HxCDF	34.694	0.951	5.12e5	1.00e6	1.381	0.511	0.510	3333	3958	7.49e6	1.46e7	2248.0	NO	91.551
13C-123678-HxCDF	34.848	0.955	5.72e5	1.12e6	1.569	0.509	0.510	3333	3958	8.28e6	1.57e7	2484.3	NO	90.315
13C-234678-HxCDF	35.801	0.981	4.95e5	9.60e5	1.345	0.516	0.510	3333	3958	7.19e6	1.37e7	2159.0	NO	90.348
13C-123789-HxCDF	36.941	1.012	4.48e5	8.62e5	1.183	0.520	0.510	3333	3958	6.24e6	1.19e7	1873.3	NO	92.505
13C-1234678-HpCDF	39.002	1.069	3.68e5	8.43e5	1.178	0.436	0.440	2445	2931	5.36e6	1.21e7	2192.3	NO	85.799
13C-1234789-HpCDF	41.621	1.141	3.00e5	6.67e5	0.878	0.450	0.440	2445	2931	3.76e6	8.47e6	1538.0	NO	92.048
13C-1234-TCDD	25.376	0.000	7.69e5	9.64e5	1.000	0.798	0.770	5061	3077	1.12e7	1.41e7	2215.8	NO	100.000
13C-2378-TCDD	26.183	1.032	6.90e5	8.79e5	0.908	0.785	0.770	5061	3077	9.84e6	1.25e7	1943.6	NO	99.733
13C-12378-PeCDD	31.285	1.233	7.89e5	4.98e5	0.756	1.584	1.550	1668	1445	1.14e7	7.31e6	6845.6	NO	98.201
13C-123478-HxCDD	35.933	0.985	6.85e5	5.32e5	1.056	1.288	1.240	2247	1929	1.02e7	8.02e6	4540.0	NO	96.234
13C-123678-HxCDD	36.064	0.988	7.25e5	5.68e5	1.163	1.275	1.240	2247	1929	1.02e7	8.01e6	4550.4	NO	92.861
13C-1234678-HpCDD	40.767	1.117	5.20e5	4.81e5	0.909	1.082	1.050	2657	2462	6.86e6	6.38e6	2582.9	NO	91.956
13C-OCDD	46.460	1.273	7.47e5	8.31e5	0.820	0.899	0.890	2527	2231	7.40e6	8.13e6	2929.2	NO	160.826
13C-123789-HxCDD	36.492	0.000	6.72e5	5.25e5	1.000	1.280	1.240	2247	1929	9.52e6	7.46e6	4237.2	NO	100.000
Total-tetrafurans			1.13e5		0.935			1137		1.61e6				10.692

9448 NW Ocean Blvd, Portland, OR 97229-8192

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Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					810		0.00e0				
Total-pentafurans			1.29e6		0.957			2844		1.89e7				105.001
Total-hexafurans			1.90e6		1.125			3799		2.74e7				204.324
Total-heptafurans			7.41e5		1.310			2258		9.95e6				101.900
Total-Furans			4.51e6		1.114			1137		6.26e7				529.443
Total-tetradioxins			8.52e4		1.134			1657		1.19e6				10.791
Total-pentadioxins			4.06e5		0.975			1641		5.91e6				53.141
Total-hexadioxins			1.06e6		0.983			1855		1.55e7				155.446
Total-heptadioxins			2.81e5		1.028			2042		3.69e6				52.373
Total-Dioxins			2.24e6		1.028			1657		3.04e7				371.501
Total-TEQ			6.75e6					1657		9.30e7				900.944
37CL-2378-TCDD	26.212	1.033	7.54e5		1.067			2069		1.05e7		5090.6		40.801
FUNCTION1 PFK			0.00e0					602195		0.00e0				
FUNCTION2 PFK			1.37e6					175210		4.96e6				0.000
FUNCTION3 PFK			9.72e5					625015		2.99e7				0.000
FUNCTION4 PFK			0.00e0					382683		0.00e0				
FUNCTION5 PFK			1.80e5					315470		8.70e6				
FUNCTION1 HXCD...			4.53e2					832		1.17e4				0.000
FUNCTION1 HPCD...			1.00e3					1103		1.88e4				0.000
FUNCTION2 HPCD...			7.95e2					1187		2.36e4				0.000
FUNCTION3 OCDPE			7.53e1					611		1.19e3				0.000
FUNCTION4 NCDPE			3.06e2					846		9.89e3				0.000
FUNCTION5 DCDPE			1.07e2					541		4.08e3				0.000

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

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TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.57	257903.024	0.935	10.522	10.522	0.75	0.77	NO	1391.8
2	35	Total-tetrafurans	303.9016	24.66	1602.777	0.935	0.065		0.75	0.77	NO	8.5
3	35	Total-tetrafurans	303.9016	24.34	2569.277	0.935	0.105		0.81	0.77	NO	14.2

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	37	Total-pentafurans	339.8597	29.90	34908.794	0.957	1.720		1.46	1.55	NO	91.7
2	2	12378-PeCDF	339.8597	29.70	1053774.000	0.952	52.693	52.693	1.58	1.55	NO	3286.5
3	37	Total-pentafurans	339.8597	28.61	5117.214	0.957	0.252		1.46	1.55	NO	12.2
4	37	Total-pentafurans	339.8597	32.09	7604.465	0.957	0.375		1.49	1.55	NO	23.9
5	3	23478-PeCDF	339.8597	31.04	1029414.094	0.963	49.961	49.961	1.51	1.55	NO	3228.7

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	5	234678-HxCDF	373.8208	35.81	875073.032	1.164	51.675	51.675	1.24	1.24	NO	1872.5
2	6	123678-HxCDF	373.8208	34.87	932784.375	1.099	50.018	50.018	1.25	1.24	NO	1947.7
3	4	123478-HxCDF	373.8208	34.72	873614.407	1.137	50.775	50.775	1.25	1.24	NO	1887.6
4	7	123789-HxCDF	373.8208	36.96	747951.281	1.101	51.856	51.856	1.23	1.24	NO	1510.8

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	39	Total-heptafurans	407.7818	39.29	2760.832	1.310	0.194		1.05	1.05	NO	10.1
2	8	1234678-HpCDF	407.7818	39.02	804733.657	1.303	51.023	51.023	1.04	1.05	NO	2618.3
3	9	1234789-HpCDF	407.7818	41.63	638770.313	1.317	50.116	50.116	1.04	1.05	NO	1755.8
4	39	Total-heptafurans	407.7818	39.79	8094.621	1.310	0.567		0.88	1.05	YES	22.7

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.57	257903.024	0.935	10.522	10.522	0.75	0.77	NO	1391.8
2	35	Total-tetrafurans	303.9016	24.66	1602.777	0.935	0.065		0.75	0.77	NO	8.5
3	35	Total-tetrafurans	303.9016	24.34	2569.277	0.935	0.105		0.81	0.77	NO	14.2
4	37	Total-pentafurans	339.8597	29.90	34908.794	0.957	1.720		1.46	1.55	NO	91.7
5	2	12378-PeCDF	339.8597	29.70	1053774.000	0.952	52.693	52.693	1.58	1.55	NO	3286.5
6	37	Total-pentafurans	339.8597	28.61	5117.214	0.957	0.252		1.46	1.55	NO	12.2
7	37	Total-pentafurans	339.8597	32.09	7604.465	0.957	0.375		1.49	1.55	NO	23.9
8	3	23478-PeCDF	339.8597	31.04	1029414.094	0.963	49.961	49.961	1.51	1.55	NO	3228.7
9	5	234678-HxCDF	373.8208	35.81	875073.032	1.164	51.675	51.675	1.24	1.24	NO	1872.5
10	6	123678-HxCDF	373.8208	34.87	932784.375	1.099	50.018	50.018	1.25	1.24	NO	1947.7
11	4	123478-HxCDF	373.8208	34.72	873614.407	1.137	50.775	50.775	1.25	1.24	NO	1887.6
12	7	123789-HxCDF	373.8208	36.96	747951.281	1.101	51.856	51.856	1.23	1.24	NO	1510.8
13	39	Total-heptafurans	407.7818	39.29	2760.832	1.310	0.194		1.05	1.05	NO	10.1
14	8	1234678-HpCDF	407.7818	39.02	804733.657	1.303	51.023	51.023	1.04	1.05	NO	2618.3
15	9	1234789-HpCDF	407.7818	41.63	638770.313	1.317	50.116	50.116	1.04	1.05	NO	1755.8
16	39	Total-heptafurans	407.7818	39.79	8094.621	1.310	0.567		0.88	1.05	YES	22.7
17	10	OCDF	441.7428	46.75	989250.813	1.166	107.526	107....	0.90	0.89	NO	1510.5

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	11	2378-TCDD	319.8965	26.21	187192.969	1.134	10.518	10.518	0.80	0.77	NO	698.8
2	41	Total-tetradioxins	319.8965	25.82	4845.722	1.134	0.272		0.77	0.77	NO	16.9

PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	12	12378-PeCDD	355.8546	31.30	665022.859	0.975	52.993	52.993	1.55	1.55	NO	3587.7
2	42	Total-pentadioxins	355.8546	30.64	880.042	0.975	0.070		2.39	1.55	YES	6.7
3	42	Total-pentadioxins	355.8546	29.71	972.536	0.975	0.077		1.23	1.55	YES	5.2

HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	15	123789-HxCDD	389.8157	36.50	622025.906	0.947	52.353	52.353	1.23	1.24	NO	2670.4
2	14	123678-HxCDD	389.8157	36.08	654900.063	0.971	52.130	52.130	1.23	1.24	NO	2803.6
3	13	123478-HxCDD	389.8157	35.95	639420.376	1.031	50.963	50.963	1.24	1.24	NO	2869.2

HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.78	531038.860	1.028	51.604	51.604	1.09	1.05	NO	1778.4
2	44	Total-heptadioxins	423.7766	39.56	7914.101	1.028	0.769		1.02	1.05	NO	30.1

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Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	11	2378-TCDD	319.8965	26.21	187192.969	1.134	10.518	10.518	0.80	0.77	NO	698.8
2	41	Total-tetradioxins	319.8965	25.82	4845.722	1.134	0.272		0.77	0.77	NO	16.9
3	12	12378-PeCDD	355.8546	31.30	665022.859	0.975	52.993	52.993	1.55	1.55	NO	3587.7
4	42	Total-pentadioxins	355.8546	30.64	880.042	0.975	0.070		2.39	1.55	YES	6.7
5	42	Total-pentadioxins	355.8546	29.71	972.536	0.975	0.077		1.23	1.55	YES	5.2
6	15	123789-HxCDD	389.8157	36.50	622025.906	0.947	52.353	52.353	1.23	1.24	NO	2670.4
7	14	123678-HxCDD	389.8157	36.08	654900.063	0.971	52.130	52.130	1.23	1.24	NO	2803.6
8	13	123478-HxCDD	389.8157	35.95	639420.376	1.031	50.963	50.963	1.24	1.24	NO	2869.2
9	16	1234678-HpCDD	423.7766	40.78	531038.860	1.028	51.604	51.604	1.09	1.05	NO	1778.4
10	44	Total-heptadioxins	423.7766	39.56	7914.101	1.028	0.769		1.02	1.05	NO	30.1
11	17	OCDD	457.7377	46.48	871432.282	1.107	99.750	99.750	0.89	0.89	NO	2162.7

TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.57	257903.024	0.935	10.522	10.522	0.75	0.77	NO	1391.8
2	35	Total-tetrafurans	303.9016	24.66	1602.777	0.935	0.065		0.75	0.77	NO	8.5
3	35	Total-tetrafurans	303.9016	24.34	2569.277	0.935	0.105		0.81	0.77	NO	14.2
4	37	Total-pentafurans	339.8597	29.90	34908.794	0.957	1.720		1.46	1.55	NO	91.7
5	2	12378-PeCDF	339.8597	29.70	1053774.000	0.952	52.693	52.693	1.58	1.55	NO	3286.5
6	37	Total-pentafurans	339.8597	28.61	5117.214	0.957	0.252		1.46	1.55	NO	12.2
7	37	Total-pentafurans	339.8597	32.09	7604.465	0.957	0.375		1.49	1.55	NO	23.9
8	3	23478-PeCDF	339.8597	31.04	1029414.094	0.963	49.961	49.961	1.51	1.55	NO	3228.7
9	5	234678-HxCDF	373.8208	35.81	875073.032	1.164	51.675	51.675	1.24	1.24	NO	1872.5
10	6	123678-HxCDF	373.8208	34.87	932784.375	1.099	50.018	50.018	1.25	1.24	NO	1947.7
11	4	123478-HxCDF	373.8208	34.72	873614.407	1.137	50.775	50.775	1.25	1.24	NO	1887.6
12	7	123789-HxCDF	373.8208	36.96	747951.281	1.101	51.856	51.856	1.23	1.24	NO	1510.8
13	39	Total-heptafurans	407.7818	39.29	2760.832	1.310	0.194		1.05	1.05	NO	10.1
14	8	1234678-HpCDF	407.7818	39.02	804733.657	1.303	51.023	51.023	1.04	1.05	NO	2618.3
15	9	1234789-HpCDF	407.7818	41.63	638770.313	1.317	50.116	50.116	1.04	1.05	NO	1755.8
16	39	Total-heptafurans	407.7818	39.79	8094.621	1.310	0.567		0.88	1.05	YES	22.7
17	10	OCDF	441.7428	46.75	989250.813	1.166	107.526	107....	0.90	0.89	NO	1510.5
18	11	2378-TCDD	319.8965	26.21	187192.969	1.134	10.518	10.518	0.80	0.77	NO	698.8
19	41	Total-tetradioxins	319.8965	25.82	4845.722	1.134	0.272		0.77	0.77	NO	16.9
20	12	12378-PeCDD	355.8546	31.30	665022.859	0.975	52.993	52.993	1.55	1.55	NO	3587.7
21	42	Total-pentadioxins	355.8546	30.64	880.042	0.975	0.070		2.39	1.55	YES	6.7
22	42	Total-pentadioxins	355.8546	29.71	972.536	0.975	0.077		1.23	1.55	YES	5.2
23	15	123789-HxCDD	389.8157	36.50	622025.906	0.947	52.353	52.353	1.23	1.24	NO	2670.4
24	14	123678-HxCDD	389.8157	36.08	654900.063	0.971	52.130	52.130	1.23	1.24	NO	2803.6
25	13	123478-HxCDD	389.8157	35.95	639420.376	1.031	50.963	50.963	1.24	1.24	NO	2869.2
26	16	1234678-HpCDD	423.7766	40.78	531038.860	1.028	51.604	51.604	1.09	1.05	NO	1778.4
27	44	Total-heptadioxins	423.7766	39.56	7914.101	1.028	0.769		1.02	1.05	NO	30.1
28	17	OCDD	457.7377	46.48	871432.282	1.107	99.750	99.750	0.89	0.89	NO	2162.7

PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	32.39	0.000		0.000					1.0
2	49	FUNCTION2 PFK	366.9792	31.86	0.000		0.000					0.9
3	49	FUNCTION2 PFK	366.9792	31.81	0.000		0.000					1.0
4	49	FUNCTION2 PFK	366.9792	31.35	0.000		0.000					1.0
5	49	FUNCTION2 PFK	366.9792	31.00	0.000		0.000					1.6
6	49	FUNCTION2 PFK	366.9792	29.99	0.000		0.000					1.5
7	49	FUNCTION2 PFK	366.9792	29.83	0.000		0.000					1.4
8	49	FUNCTION2 PFK	366.9792	28.48	0.000		0.000					1.8
9	49	FUNCTION2 PFK	366.9792	28.04	0.000		0.000					18.2

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Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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ID: DLCS1A, Name: 16111105, Date: 11-Nov-2016, Time: 15:12:34, Conditions: AUTOSPEC01, User: PK

PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	32.71	0.000		0.000					0.5
2	50	FUNCTION3 PFK	380.9760	34.48	0.000		0.000					1.4
3	50	FUNCTION3 PFK	380.9760	34.27	0.000		0.000					0.8
4	50	FUNCTION3 PFK	380.9760	34.09	0.000		0.000					0.9
5	50	FUNCTION3 PFK	380.9760	34.05	0.000		0.000					0.4
6	50	FUNCTION3 PFK	380.9760	33.95	0.000		0.000					1.0
7	50	FUNCTION3 PFK	380.9760	33.88	0.000		0.000					1.1
8	50	FUNCTION3 PFK	380.9760	33.77	0.000		0.000					0.9
9	50	FUNCTION3 PFK	380.9760	33.74	0.000		0.000					1.4
10	50	FUNCTION3 PFK	380.9760	33.47	0.000		0.000					0.9
11	50	FUNCTION3 PFK	380.9760	33.43	0.000		0.000					1.8
12	50	FUNCTION3 PFK	380.9760	33.32	0.000		0.000					1.9
13	50	FUNCTION3 PFK	380.9760	33.21	0.000		0.000					1.3
14	50	FUNCTION3 PFK	380.9760	33.07	0.000		0.000					1.2
15	50	FUNCTION3 PFK	380.9760	33.03	0.000		0.000					0.8
16	50	FUNCTION3 PFK	380.9760	32.92	0.000		0.000					0.8
17	50	FUNCTION3 PFK	380.9760	32.86	0.000		0.000					0.9
18	50	FUNCTION3 PFK	380.9760	36.17	0.000		0.000					1.4
19	50	FUNCTION3 PFK	380.9760	36.08	0.000		0.000					0.9
20	50	FUNCTION3 PFK	380.9760	35.77	0.000		0.000					0.8
21	50	FUNCTION3 PFK	380.9760	35.72	0.000		0.000					0.6
22	50	FUNCTION3 PFK	380.9760	35.55	0.000		0.000					0.9
23	50	FUNCTION3 PFK	380.9760	35.52	0.000		0.000					0.9
24	50	FUNCTION3 PFK	380.9760	35.46	0.000		0.000					1.3
25	50	FUNCTION3 PFK	380.9760	35.43	0.000		0.000					1.0
26	50	FUNCTION3 PFK	380.9760	35.38	0.000		0.000					1.3
27	50	FUNCTION3 PFK	380.9760	35.31	0.000		0.000					1.9
28	50	FUNCTION3 PFK	380.9760	35.21	0.000		0.000					0.9
29	50	FUNCTION3 PFK	380.9760	35.15	0.000		0.000					0.8
30	50	FUNCTION3 PFK	380.9760	35.12	0.000		0.000					0.7
31	50	FUNCTION3 PFK	380.9760	35.07	0.000		0.000					1.5
32	50	FUNCTION3 PFK	380.9760	34.97	0.000		0.000					1.3
33	50	FUNCTION3 PFK	380.9760	34.77	0.000		0.000					0.5
34	50	FUNCTION3 PFK	380.9760	37.94	0.000		0.000					1.6
35	50	FUNCTION3 PFK	380.9760	37.87	0.000		0.000					0.5
36	50	FUNCTION3 PFK	380.9760	37.82	0.000		0.000					0.8
37	50	FUNCTION3 PFK	380.9760	37.61	0.000		0.000					0.3
38	50	FUNCTION3 PFK	380.9760	37.51	0.000		0.000					1.3
39	50	FUNCTION3 PFK	380.9760	37.29	0.000		0.000					0.6
40	50	FUNCTION3 PFK	380.9760	37.19	0.000		0.000					1.0
41	50	FUNCTION3 PFK	380.9760	37.15	0.000		0.000					0.6
42	50	FUNCTION3 PFK	380.9760	37.01	0.000		0.000					1.1
43	50	FUNCTION3 PFK	380.9760	36.79	0.000		0.000					0.8
44	50	FUNCTION3 PFK	380.9760	36.69	0.000		0.000					0.4
45	50	FUNCTION3 PFK	380.9760	36.65	0.000		0.000					1.4
46	50	FUNCTION3 PFK	380.9760	36.59	0.000		0.000					0.5
47	50	FUNCTION3 PFK	380.9760	36.42	0.000		0.000					0.8
48	50	FUNCTION3 PFK	380.9760	36.35	0.000		0.000					0.7
49	50	FUNCTION3 PFK	380.9760	36.29	0.000		0.000					0.5

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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PFK4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	47.35	0.000							1.2
2	52	FUNCTION5 PFK	480.9696	46.94	0.000							1.4
3	52	FUNCTION5 PFK	480.9696	46.87	0.000							0.8
4	52	FUNCTION5 PFK	480.9696	46.74	0.000							0.9
5	52	FUNCTION5 PFK	480.9696	46.68	0.000							1.2
6	52	FUNCTION5 PFK	480.9696	46.45	0.000							0.9
7	52	FUNCTION5 PFK	480.9696	46.32	0.000							0.9
8	52	FUNCTION5 PFK	480.9696	46.07	0.000							0.7
9	52	FUNCTION5 PFK	480.9696	46.04	0.000							0.8
10	52	FUNCTION5 PFK	480.9696	45.46	0.000							0.9
11	52	FUNCTION5 PFK	480.9696	45.39	0.000							1.2
12	52	FUNCTION5 PFK	480.9696	45.19	0.000							0.5
13	52	FUNCTION5 PFK	480.9696	44.72	0.000							1.8
14	52	FUNCTION5 PFK	480.9696	44.63	0.000							0.7
15	52	FUNCTION5 PFK	480.9696	49.17	0.000							1.8
16	52	FUNCTION5 PFK	480.9696	49.13	0.000							1.4
17	52	FUNCTION5 PFK	480.9696	49.06	0.000							1.1
18	52	FUNCTION5 PFK	480.9696	48.81	0.000							0.6
19	52	FUNCTION5 PFK	480.9696	48.60	0.000							1.6
20	52	FUNCTION5 PFK	480.9696	48.54	0.000							1.2
21	52	FUNCTION5 PFK	480.9696	48.16	0.000							0.6
22	52	FUNCTION5 PFK	480.9696	48.09	0.000							0.8
23	52	FUNCTION5 PFK	480.9696	47.90	0.000							0.9
24	52	FUNCTION5 PFK	480.9696	47.73	0.000							1.5
25	52	FUNCTION5 PFK	480.9696	47.68	0.000							1.3
26	52	FUNCTION5 PFK	480.9696	47.59	0.000							0.7

ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	23.58	0.000		0.000					4.0
2	53	FUNCTION1 HXCD...	375.8364	21.48	0.000		0.000					1.9
3	53	FUNCTION1 HXCD...	375.8364	21.13	0.000		0.000					2.3
4	53	FUNCTION1 HXCD...	375.8364	25.24	0.000		0.000					4.5
5	53	FUNCTION1 HXCD...	375.8364	24.48	0.000		0.000					1.3

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ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	27.29	0.000		0.000					1.8
2	54	FUNCTION1 HPCD...	409.7974	27.20	0.000		0.000					2.6
3	54	FUNCTION1 HPCD...	409.7974	26.75	0.000		0.000					1.9
4	54	FUNCTION1 HPCD...	409.7974	25.21	0.000		0.000					1.4
5	54	FUNCTION1 HPCD...	409.7974	24.36	0.000		0.000					2.1
6	54	FUNCTION1 HPCD...	409.7974	24.08	0.000		0.000					1.5
7	54	FUNCTION1 HPCD...	409.7974	23.08	0.000		0.000					1.3
8	54	FUNCTION1 HPCD...	409.7974	22.66	0.000		0.000					1.5
9	54	FUNCTION1 HPCD...	409.7974	21.91	0.000		0.000					2.9

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	30.00	0.000		0.000					3.7
2	55	FUNCTION2 HPCD...	409.7974	29.32	0.000		0.000					3.7
3	55	FUNCTION2 HPCD...	409.7974	28.66	0.000		0.000					2.6
4	55	FUNCTION2 HPCD...	409.7974	31.90	0.000		0.000					1.9
5	55	FUNCTION2 HPCD...	409.7974	31.10	0.000		0.000					3.7
6	55	FUNCTION2 HPCD...	409.7974	30.77	0.000		0.000					2.0
7	55	FUNCTION2 HPCD...	409.7974	30.64	0.000		0.000					2.2

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	56	FUNCTION3 OCDPE	445.7555	34.38	0.000		0.000					1.9

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	44.38	0.000		0.000					3.1
2	57	FUNCTION4 NCDPE	479.7165	43.73	0.000		0.000					2.1
3	57	FUNCTION4 NCDPE	479.7165	40.87	0.000		0.000					2.2
4	57	FUNCTION4 NCDPE	479.7165	38.99	0.000		0.000					4.3

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	58	FUNCTION5 DCDPE	513.6775	45.65	0.000		0.000					7.5

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Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DLCS1A, Name: 16111105, Date: 11-Nov-2016, Time: 15:12:34, Conditions: AUTOSPEC01, User: PK

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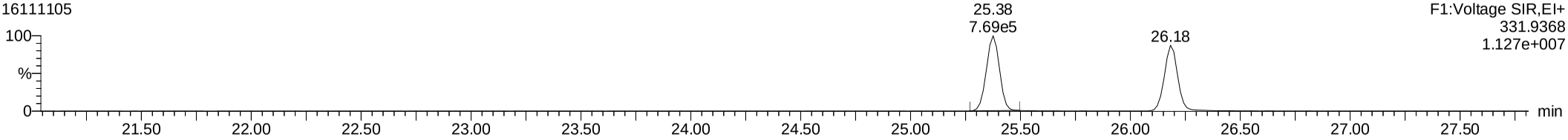

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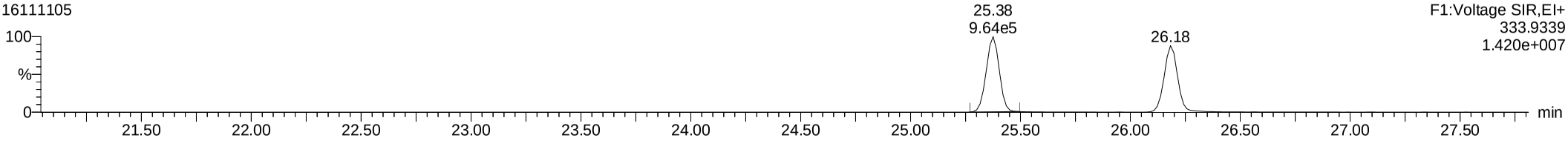

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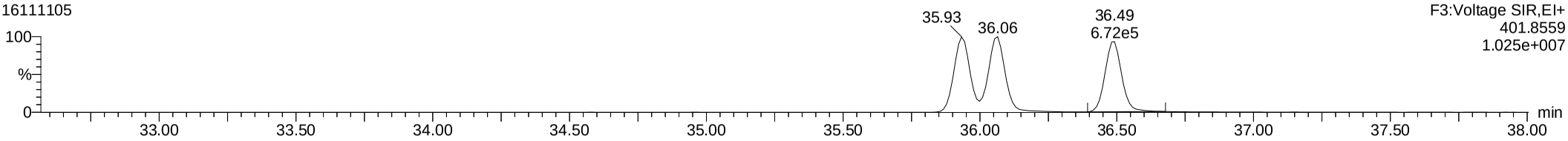

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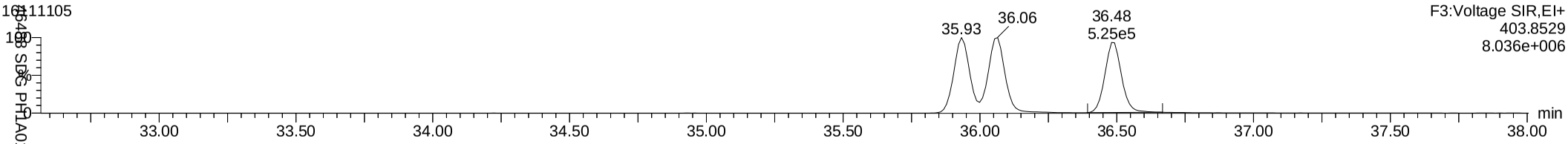

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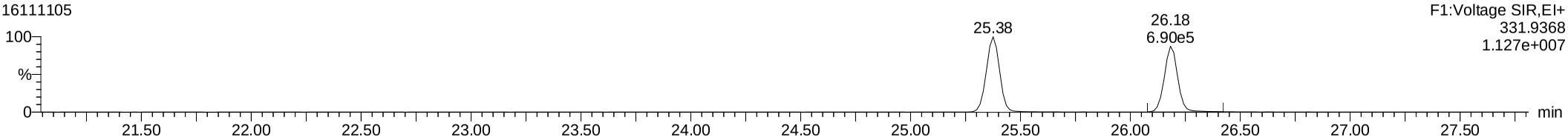

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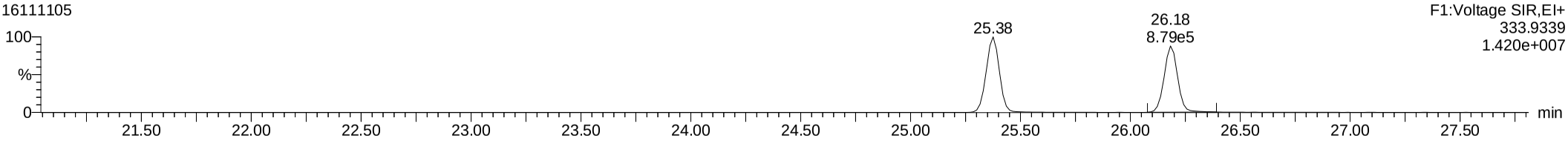

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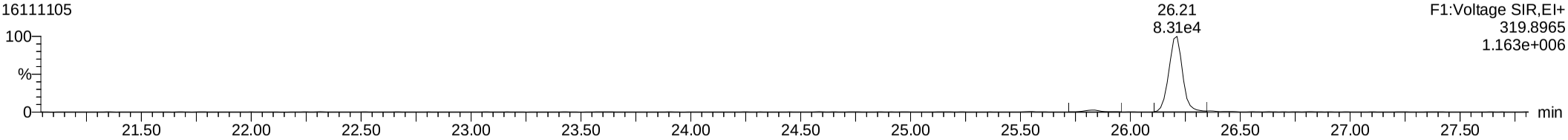

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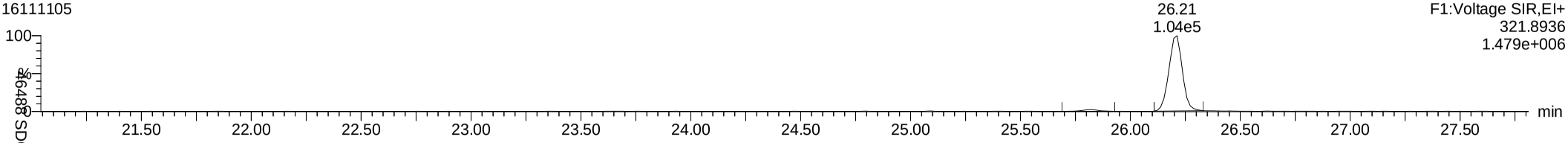

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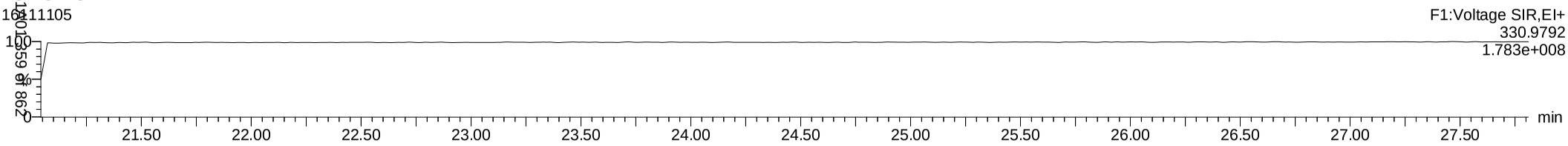

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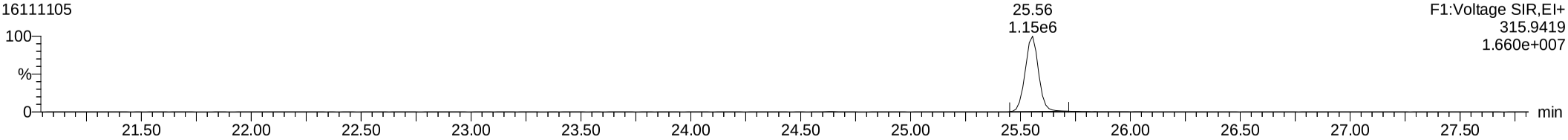
13C-2378-TCDF



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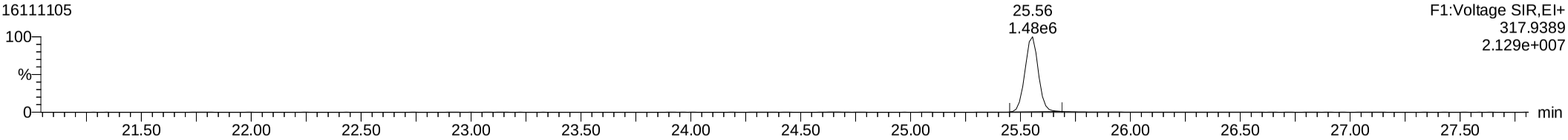

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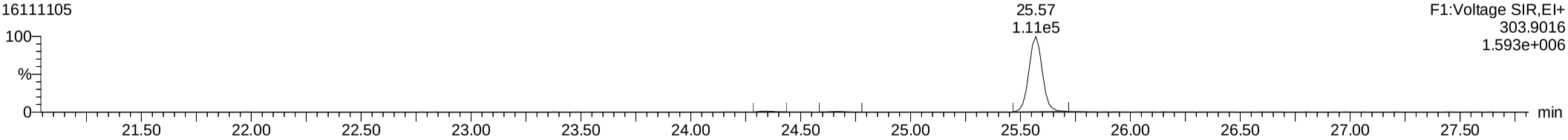

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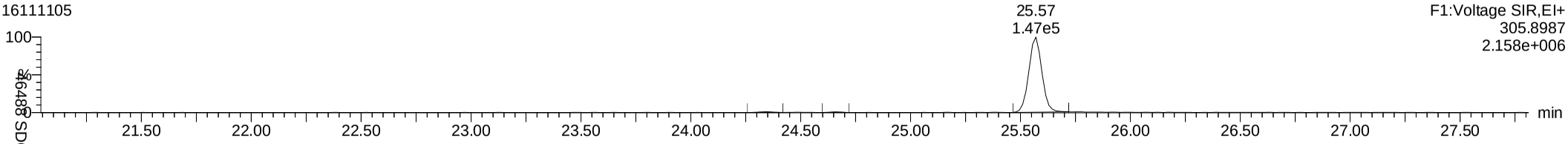

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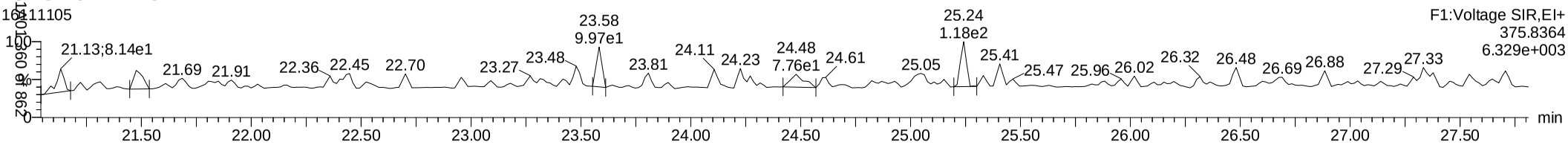

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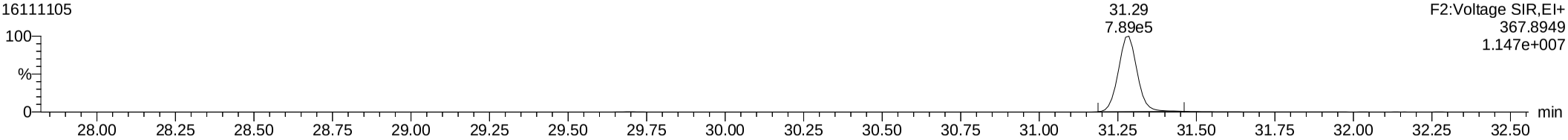

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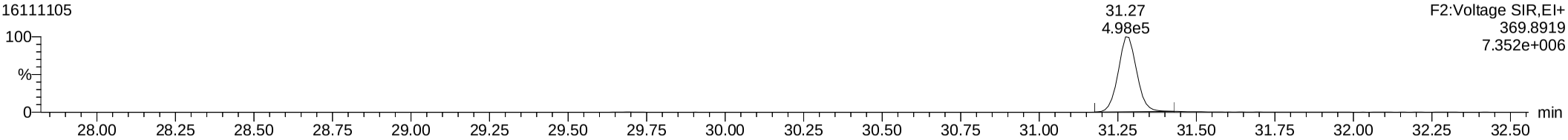

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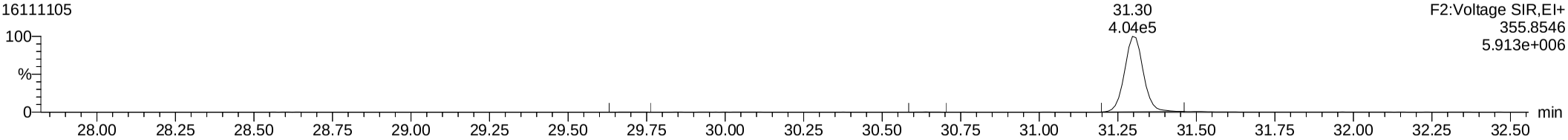

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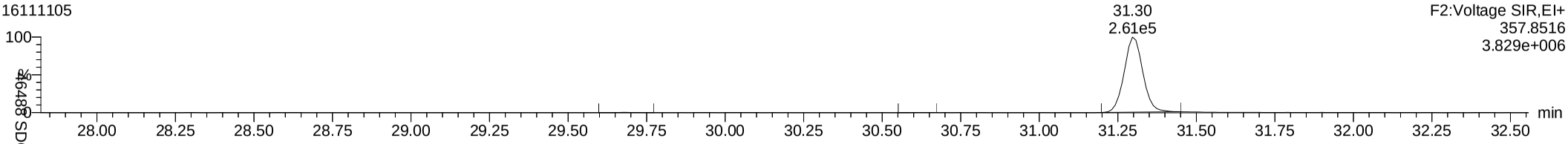
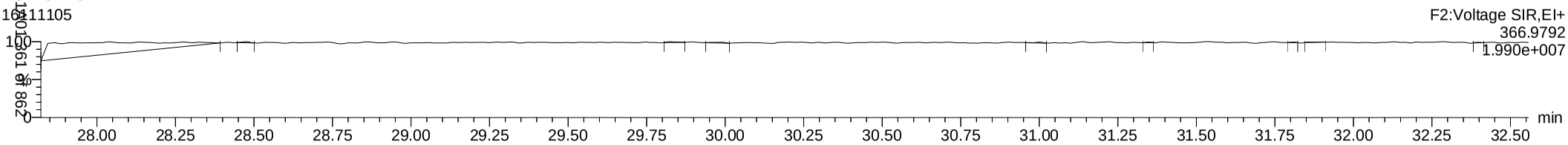


FUNCTION2 PFK



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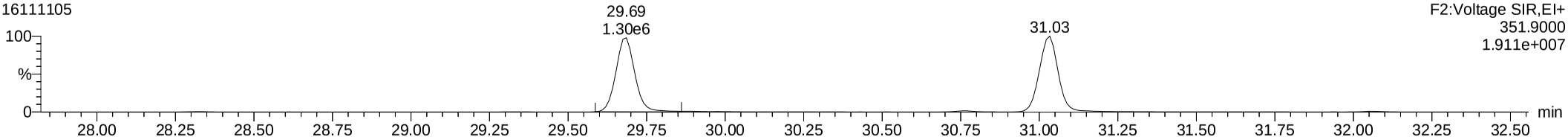

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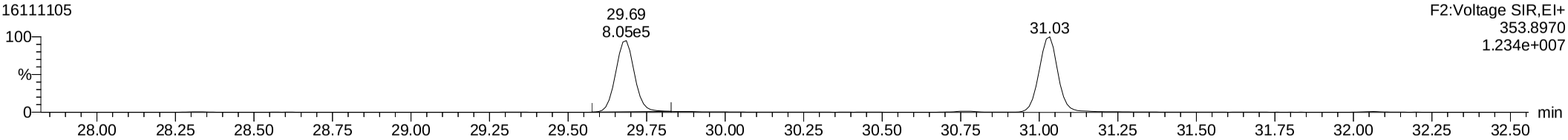

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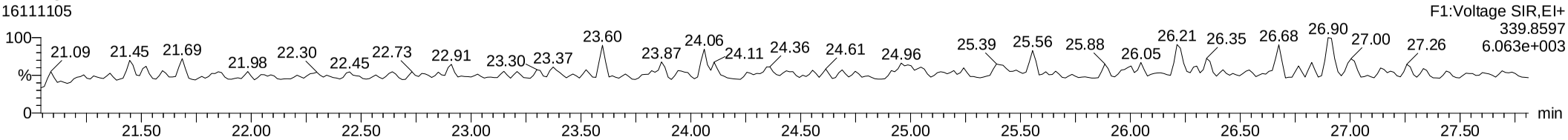

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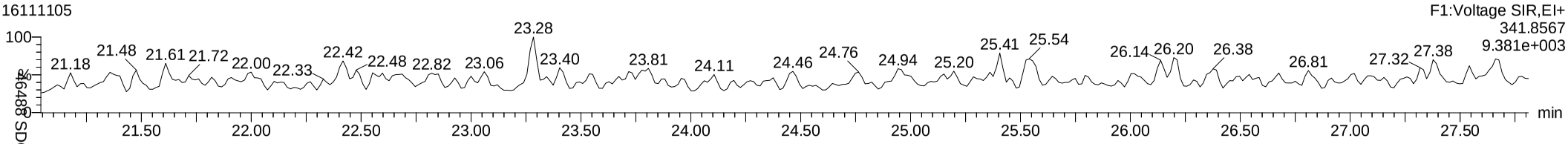

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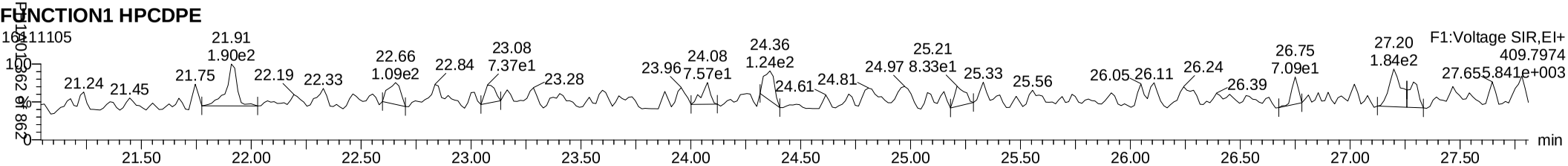

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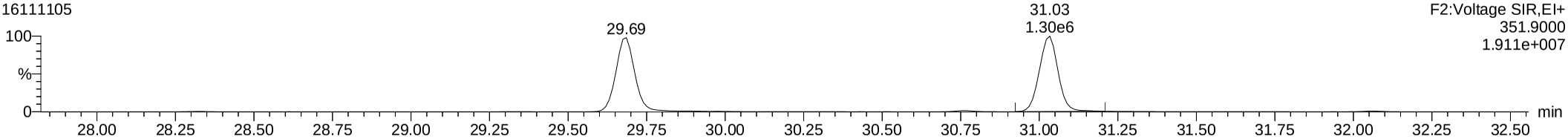

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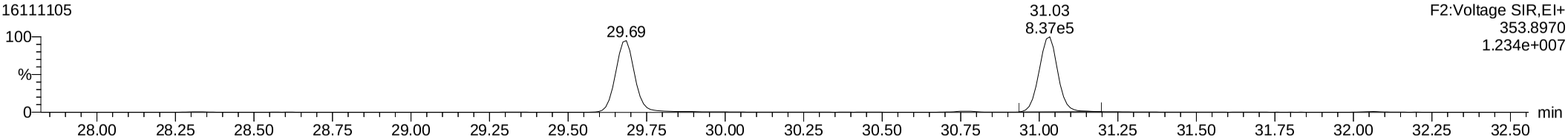
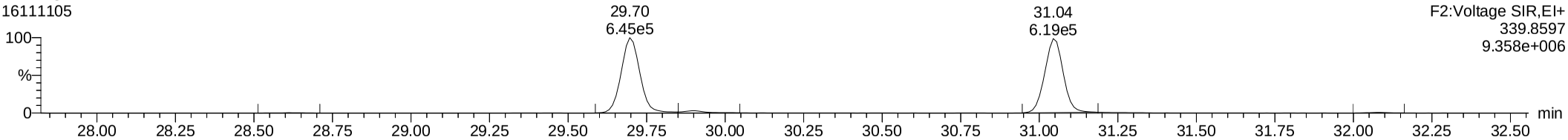
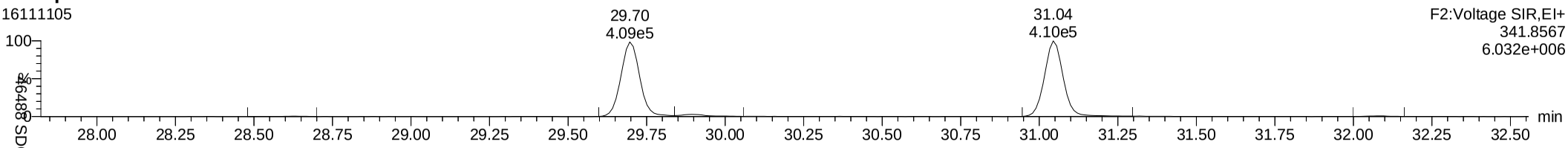


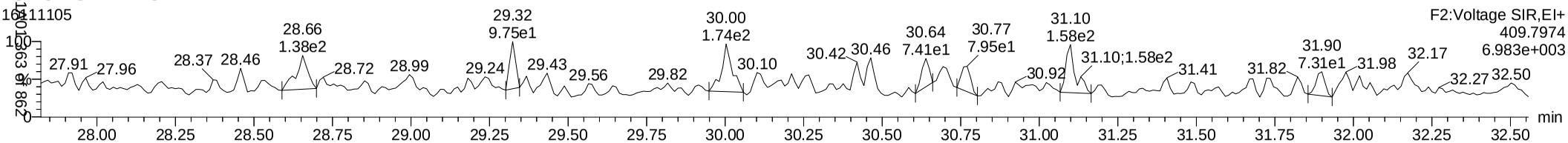
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



46488 SDG 161101663 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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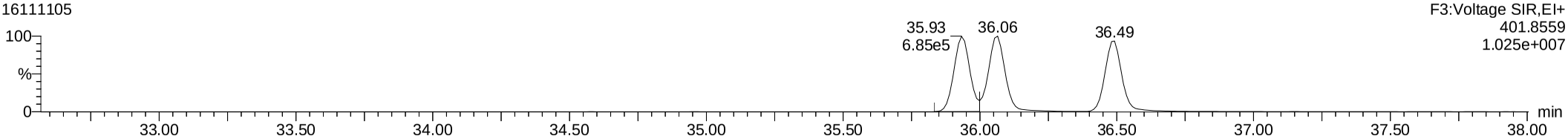
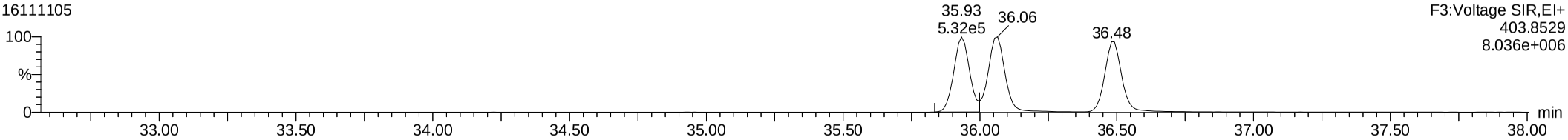
Printed: Monday, November 14, 2016 14:01:57 Pacific Standard Time

ID: DLCS1A, Name: 16111105, Date: 11-Nov-2016, Time: 15:12:34, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



13C-123478-HxCDD



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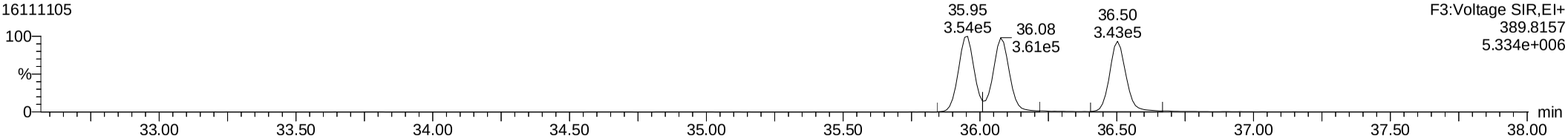
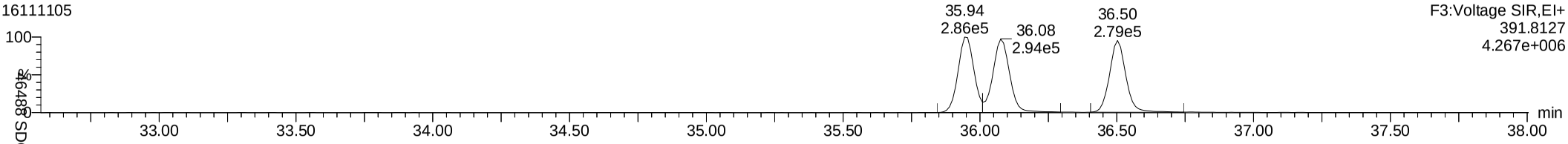
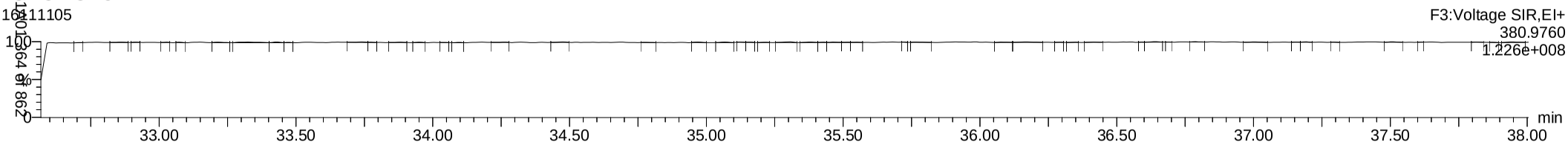


Total-hexadioxins



FUNCTION3 PFK



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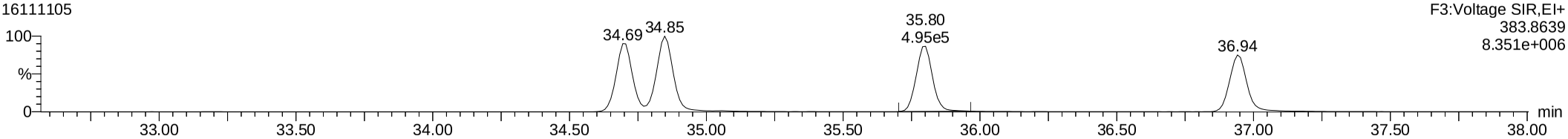
13C-234678-HxCDF



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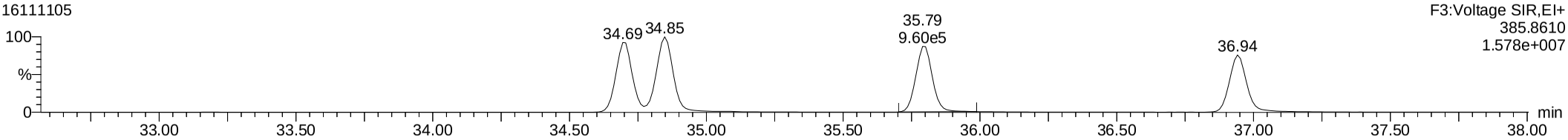

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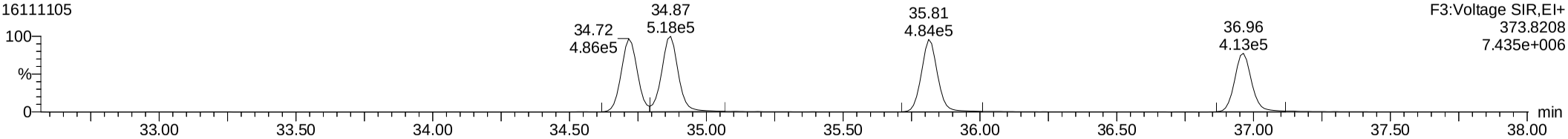

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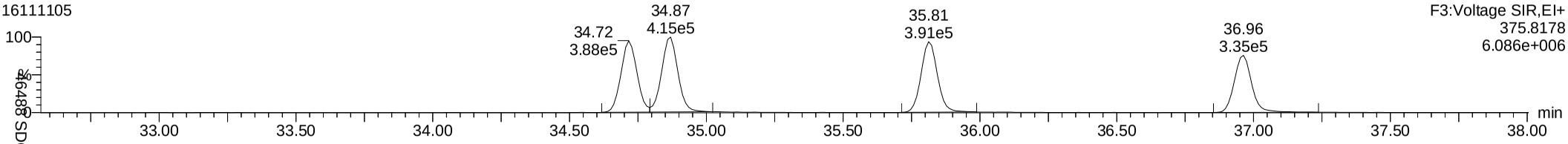
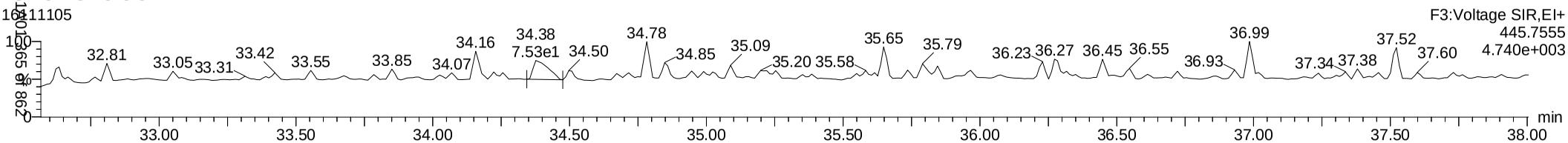


FUNCTION3 OCDPE



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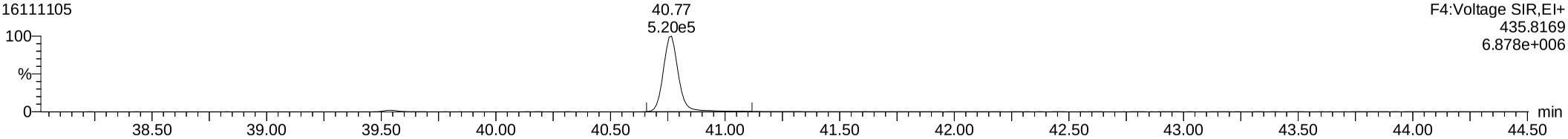
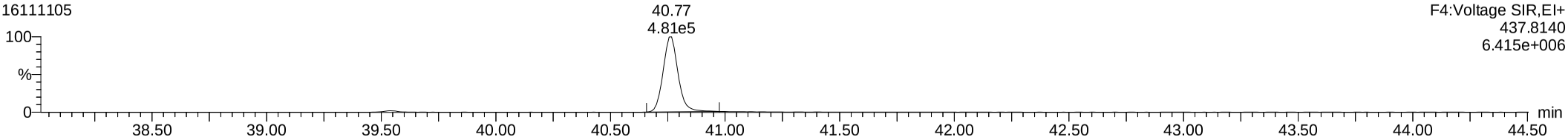
ID: DLCS1A, Name: 16111105, Date: 11-Nov-2016, Time: 15:12:34, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



13C-1234678-HpCDD



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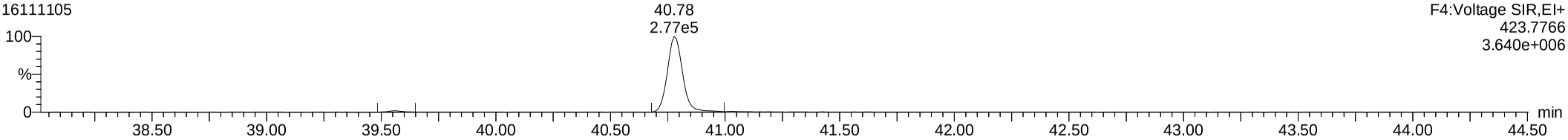

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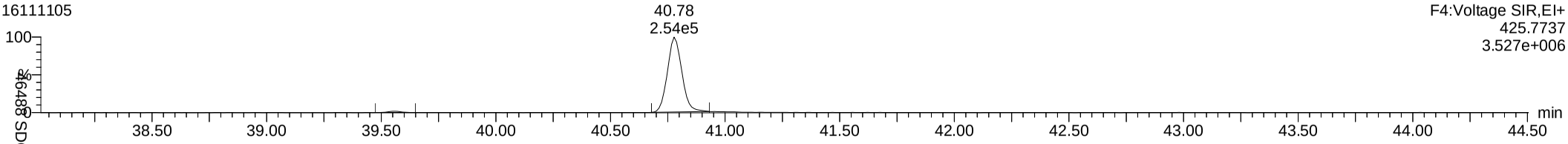
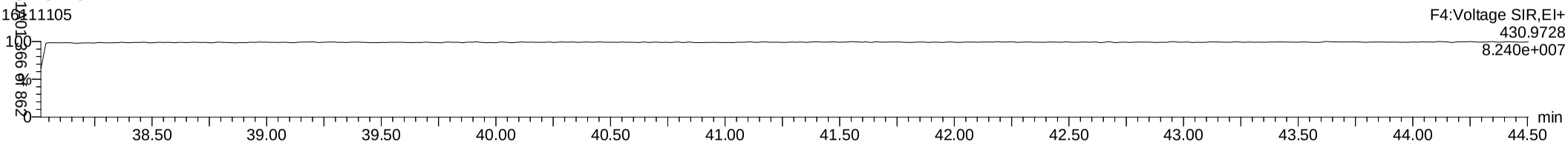


FUNCTION4 PFK



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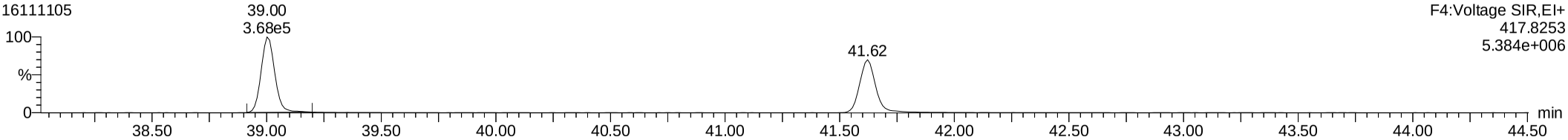
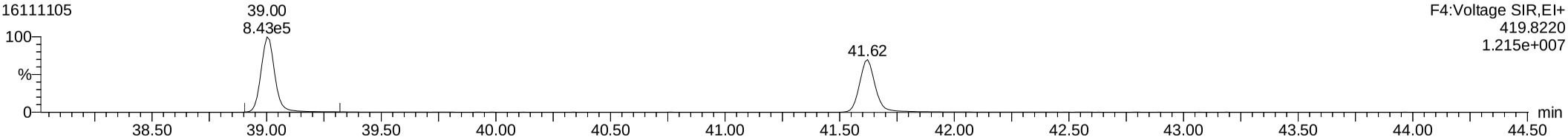
ID: DLCS1A, Name: 16111105, Date: 11-Nov-2016, Time: 15:12:34, Conditions: AUTOSPEC01, User: PK

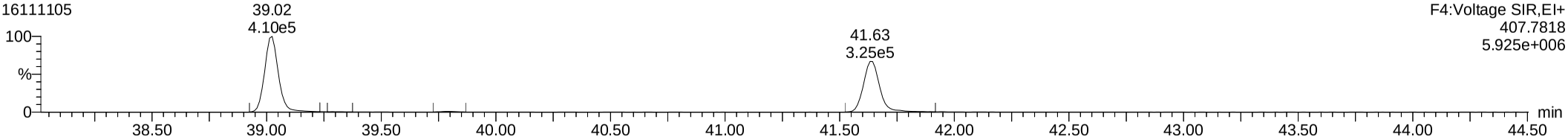
13C-1234678-HpCDF



13C-1234678-HpCDF



Total-heptafurans



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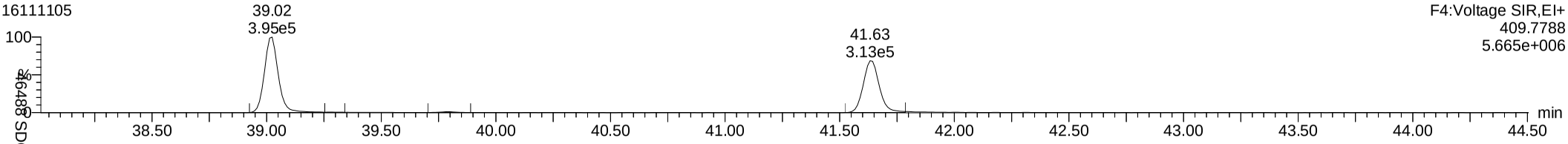
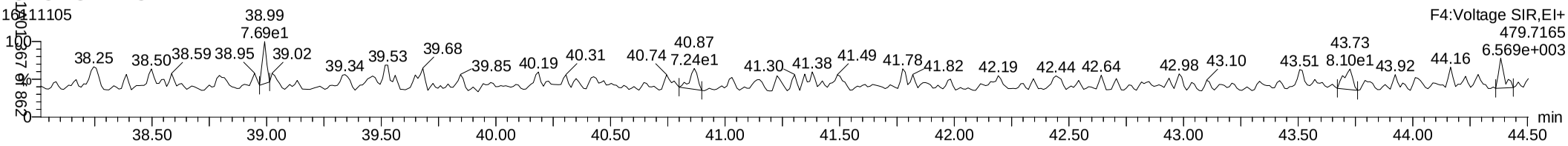


FUNCTION4 NCDPE



46488 SDG PH1001367 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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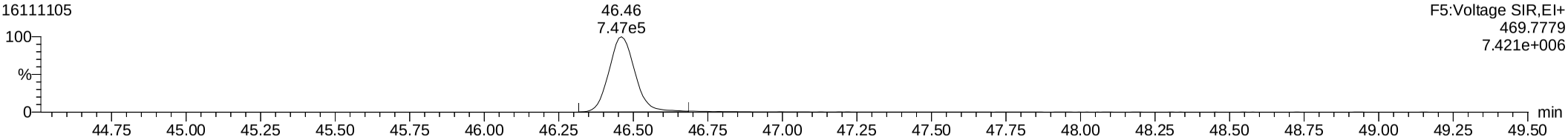
ID: DLCS1A, Name: 16111105, Date: 11-Nov-2016, Time: 15:12:34, Conditions: AUTOSPEC01, User: PK

13C-OCDD



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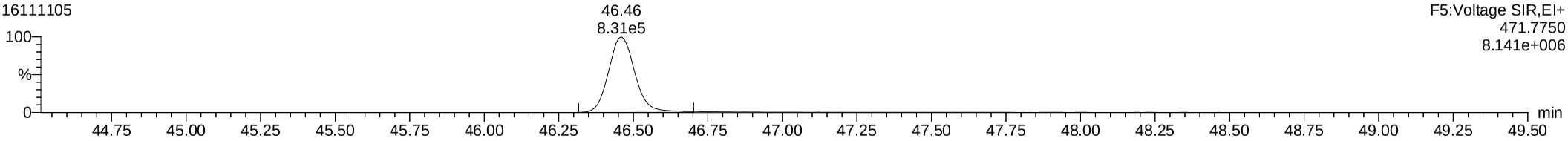
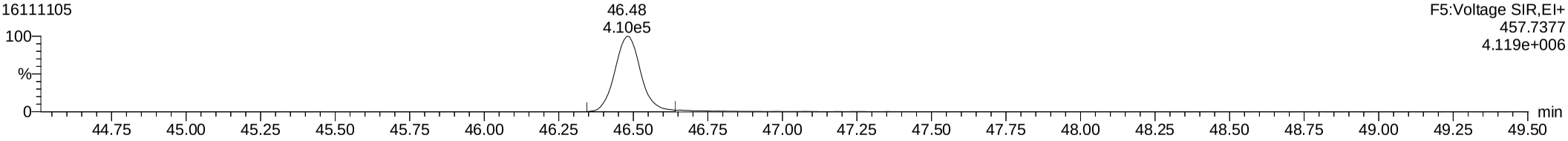


OCDD



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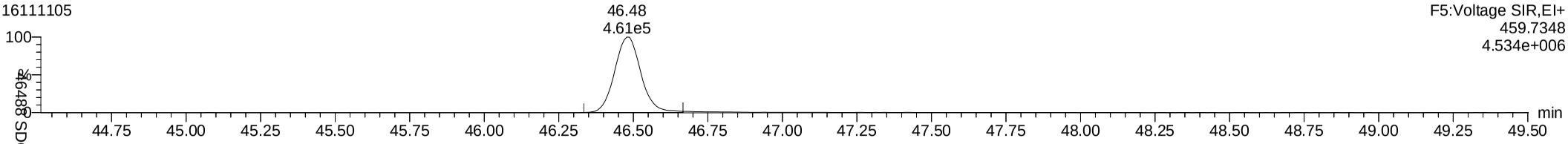
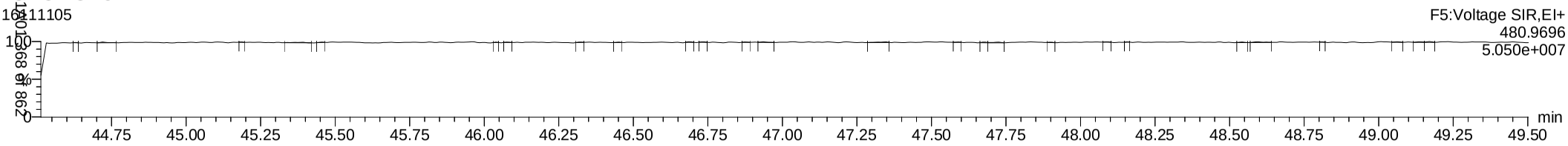


FUNCTION5 PFK



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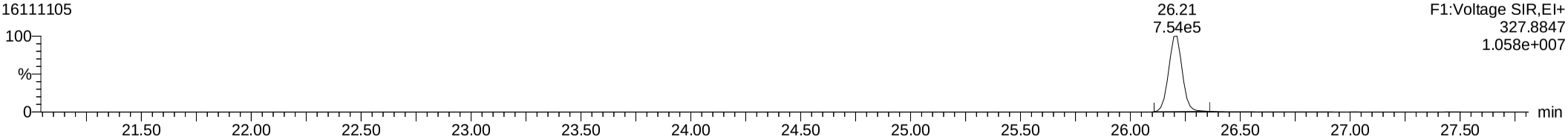
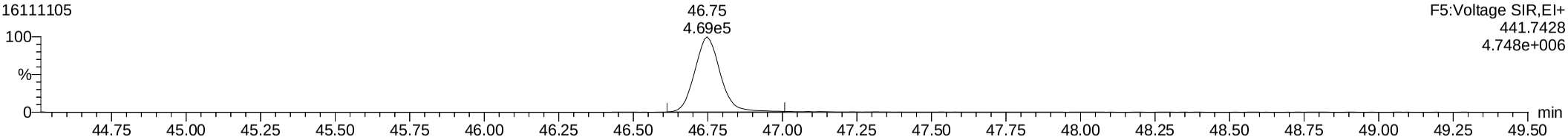
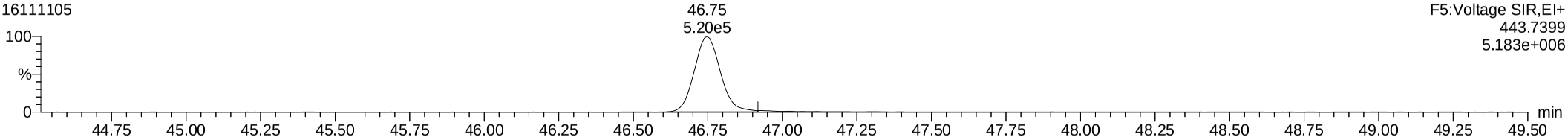
37CL-2378-TCDD



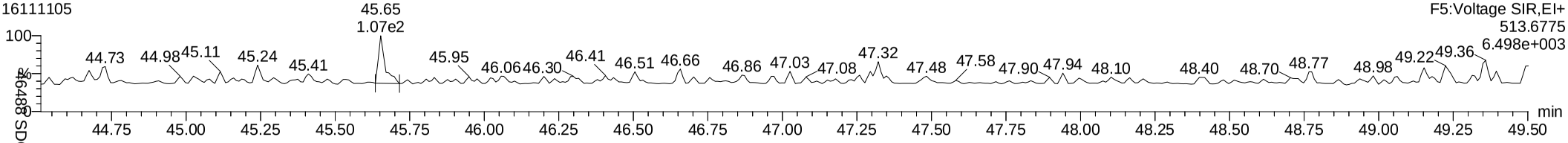
OCDF



OCDF



FUNCTION5 DCDPE



FORM 1A-HR

HIGH RESOLUTION ANALYSIS DATA SHEET

EPA SAMPLE NO.

DLCSD1A

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0277-BSD1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111106

Decanted (Y/N): N Extraction Method: SEPF

Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1

Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L

% Solids/Lipids:

CL No.	Analyte Name	Concentration	Q	EMPC/EDL/MDL	IAR #	Peak RT
4	2378-TCDD	210			0.754	26.1975
5	12378-PeCDD	1000			1.556	31.2858
6	123478-HxCDD	1000			1.239	35.9335
6	123678-HxCDD	1000			1.204	36.0652
6	123789-HxCDD	1000			1.250	36.4927
7	1234678-HpCDD	1000			1.022	40.7677
8	OCDD	2000			0.917	46.4705
4	2378-TCDF	220			0.775	25.555
5	12378-PeCDF	1000			1.613	29.6855
5	23478-PeCDF	1000			1.548	31.0338
6	123478-HxCDF	1000			1.249	34.7058
6	123678-HxCDF	1000			1.276	34.8483
6	123789-HxCDF	1000			1.255	36.953
6	234678-HxCDF	1100			1.261	35.802
7	1234678-HpCDF	1000			1.016	39.0138
7	1234789-HpCDF	1000			1.040	41.6227
8	OCDF	2200			0.910	46.7398

FORM 1B-HR

CDD/CDF TOXIC EQUIVALENT SUMMARY

EPA SAMPLE NO.

DLCSD1A

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0277-BSD1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111106

Decanted (Y/N): N Extraction Method: SEPF Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

Analyte Name	Concentration	TEF Mammal	TEF-Adj. Conc.	TEF Fish	TEF-Adj. Conc.	TEF Bird	TEF-Adj. Conc.
2378-TCDD	210	x 1.0	210.0000	x 1.0	210.0000	x 1.0	210.0000
12378-PeCDD	1000	x 1.0	1,000.0000	x 1.0	1,000.0000	x 1.0	1,000.0000
123478-HxCDD	1000	x 0.1	100.0000	x 0.5	500.0000	0.05	50.0000
123678-HxCDD	1000	x 0.1	100.0000	x 0.01	10.0000	x 0.01	100.0000
123789-HxCDD	1000	x 0.1	100.0000	x 0.01	10.0000	x 0.1	100.0000
1234678-HpCDD	1000	x 0.01	10.0000	x 0.001	1.0000	x 0.001	1.0000
OCDD	2000	x 0.0003	0.6000	x 0.0001	0.2000	x 0.0001	0.2000
2378-TCDF	220	x 0.1	22.0000	x 0.05	11.0000	x 1.0	22.0000
12378-PeCDF	1000	x 0.03	30.0000	x 0.05	50.0000	x 0.1	100.0000
23478-PeCDF	1000	x 0.3	300.0000	x 0.5	500.0000	x 1.0	1,000.0000
123478-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
123678-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
123789-HxCDF	1000	x 0.1	100.0000	x 0.1	100.0000	x 0.1	100.0000
234678-HxCDF	1100	x 0.1	110.0000	x 0.1	110.0000	x 0.1	110.0000
1234678-HpCDF	1000	x 0.01	10.0000	x 0.01	10.0000	x 0.01	10.0000
1234789-HpCDF	1000	x 0.01	10.0000	x 0.01	10.0000	x 0.01	10.0000
OCDF	2200	x 0.0003	0.6600	x 0.0001	0.2200	x 0.0001	0.2200
		Total TEQ =	2,300	Total TEQ =	2,700	Total TEQ =	3,000

TEF - Toxicity Equivalent Factors from the World Health Organization (WHO), (Mammal 2005, Fish and Bird 1998)

TEQ - Toxic Equivalent

FORM 2-HR

LABELED COMPOUND RECOVERY

EPA SAMPLE NO.

DLCSD1A

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0277-BSD1

Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111106

Decanted (Y/N): N Extraction Method: SEPF Date Received:

Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/2016

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/2016

GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Labeled Compound	Spike Added	Amount Recovered	% REC #	IAR #	RT #
4	13C12-2378-TCDD	2000	1800	90.8	0.79	26.1677
4	13C12-2378-TCDF	2000	1800	88.4	0.79	25.5402
5	13C12-12378-PeCDD	2000	1800	89.2	1.61	31.2748
5	13C12-12378-PeCDF	2000	1700	85.7	1.57	29.6745
5	13C12-23478-PeCDF	2000	1800	88.6	1.58	31.0228
6	13C12-123478-HxCDD	2000	1800	89.2	1.28	35.9227
6	13C12-123678-HxCDD	2000	1700	86.9	1.27	36.0542
6	13C12-123478-HxCDF	2000	1700	85.0	0.51	34.684
6	13C12-123678-HxCDF	2000	1700	83.3	0.53	34.8375
6	13C12-123789-HxCDF	2000	1700	85.2	0.52	36.9312
6	13C12-234678-HxCDF	2000	1600	82.5	0.52	35.7802
7	13C12-1234678-HpCDD	2000	1700	83.7	1.03	40.7458
7	13C12-1234678-HpCDF	2000	1500	76.9	0.45	38.9918
7	13C12-1234789-HpCDF	2000	1600	80.0	0.45	41.6117
8	13C12-OCDD	4000	2800	69.0	0.88	46.4527
Labeled Cleanup Standard 37C14-2378-TCDD						
4	37C14-2378-TCDD	800	770	96.4		26.1975

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:02:02 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.555	1.001	9.15e4	1.18e5	0.935	0.775	0.770	1528	2345	1.30e6	1.68e6	848.6	NO	10.762
12378-PeCDF	29.685	1.000	4.88e5	3.02e5	0.952	1.613	1.550	3026	2710	7.04e6	4.51e6	2327.2	NO	50.555
23478-PeCDF	31.034	1.000	4.84e5	3.13e5	0.963	1.548	1.550	3026	2710	7.16e6	4.67e6	2367.2	NO	50.366
123478-HxCDF	34.706	1.001	3.72e5	2.98e5	1.137	1.249	1.240	3368	3012	5.43e6	4.36e6	1610.8	NO	52.047
234678-HxCDF	35.802	1.001	3.70e5	2.93e5	1.164	1.261	1.240	3368	3012	5.33e6	4.29e6	1583.8	NO	53.174
123678-HxCDF	34.848	1.000	4.04e5	3.16e5	1.099	1.276	1.240	3368	3012	5.64e6	4.44e6	1675.5	NO	51.889
123789-HxCDF	36.953	1.001	3.04e5	2.42e5	1.101	1.255	1.240	3368	3012	4.24e6	3.39e6	1259.6	NO	51.033
1234678-HpCDF	39.014	1.001	2.96e5	2.92e5	1.303	1.016	1.050	2296	1951	4.33e6	4.21e6	1886.9	NO	51.623
1234789-HpCDF	41.623	1.000	2.34e5	2.25e5	1.317	1.040	1.050	2296	1951	2.90e6	2.73e6	1263.0	NO	51.415
OCDF	46.740	1.006	3.28e5	3.61e5	1.166	0.910	0.890	1978	2581	3.26e6	3.61e6	1650.5	NO	108.279
2378-TCDD	26.198	1.001	6.30e4	8.36e4	1.134	0.754	0.770	1833	767	9.06e5	1.21e6	494.6	NO	10.431
12378-PeCDD	31.286	1.000	3.15e5	2.03e5	0.975	1.556	1.550	1395	1391	4.65e6	2.94e6	3333.1	NO	52.338
123478-HxCDD	35.933	1.000	2.61e5	2.11e5	1.031	1.239	1.240	1817	1958	3.88e6	3.15e6	2137.6	NO	50.334
123678-HxCDD	36.065	1.000	2.66e5	2.21e5	0.971	1.204	1.240	1817	1958	3.78e6	3.15e6	2079.1	NO	51.331
123789-HxCDD	36.493	1.012	2.58e5	2.06e5	0.947	1.250	1.240	1817	1958	3.71e6	2.94e6	2042.1	NO	51.952
1234678-HpCDD	40.768	1.000	1.96e5	1.92e5	1.028	1.022	1.050	2344	1880	2.68e6	2.59e6	1144.9	NO	51.306
OCDD	46.471	1.000	2.82e5	3.08e5	1.107	0.917	0.890	1907	2490	2.83e6	3.12e6	1484.3	NO	97.616
13C-2378-TCDF	25.540	1.007	9.22e5	1.16e6	1.567	0.794	0.770	9526	5512	1.32e7	1.68e7	1389.1	NO	88.368
13C-12378-PeCDF	29.674	1.170	1.00e6	6.39e5	1.274	1.570	1.550	3442	3519	1.43e7	9.05e6	4141.6	NO	85.714
13C-23478-PeCDF	31.023	1.223	1.01e6	6.38e5	1.235	1.578	1.550	3442	3519	1.46e7	9.31e6	4251.8	NO	88.556
13C-123478-HxCDF	34.684	0.951	3.85e5	7.49e5	1.381	0.513	0.510	3404	4098	5.66e6	1.10e7	1661.5	NO	85.036
13C-123678-HxCDF	34.838	0.955	4.36e5	8.26e5	1.569	0.528	0.510	3404	4098	6.30e6	1.19e7	1850.2	NO	83.336
13C-234678-HxCDF	35.780	0.981	3.66e5	7.05e5	1.345	0.520	0.510	3404	4098	5.29e6	1.02e7	1555.2	NO	82.465
13C-123789-HxCDF	36.931	1.013	3.35e5	6.38e5	1.183	0.524	0.510	3404	4098	4.69e6	9.03e6	1377.4	NO	85.209
13C-1234678-HpCDF	38.992	1.069	2.73e5	6.02e5	1.178	0.454	0.440	1999	3275	3.95e6	8.84e6	1976.6	NO	76.889
13C-1234789-HpCDF	41.612	1.141	2.10e5	4.68e5	0.878	0.447	0.440	1999	3275	2.55e6	5.87e6	1274.9	NO	80.016
13C-1234-TCDD	25.361	0.000	6.59e5	8.45e5	1.000	0.780	0.770	4027	2070	9.88e6	1.26e7	2453.0	NO	100.000
13C-2378-TCDD	26.168	1.032	5.48e5	6.92e5	0.908	0.792	0.770	4027	2070	7.81e6	1.00e7	1939.0	NO	90.800
13C-12378-PeCDD	31.275	1.233	6.25e5	3.89e5	0.756	1.610	1.550	1733	1512	8.88e6	5.58e6	5126.3	NO	89.229
13C-123478-HxCDD	35.923	0.985	5.10e5	3.99e5	1.056	1.278	1.240	2595	2352	7.50e6	5.93e6	2890.8	NO	89.246
13C-123678-HxCDD	36.054	0.989	5.45e5	4.30e5	1.163	1.266	1.240	2595	2352	7.62e6	6.10e6	2937.8	NO	86.866
13C-1234678-HpCDD	40.746	1.117	3.73e5	3.62e5	0.909	1.031	1.050	2465	2150	4.88e6	4.80e6	1981.4	NO	83.717
13C-OCDD	46.453	1.274	5.12e5	5.80e5	0.820	0.883	0.890	3084	3046	5.16e6	5.65e6	1673.8	NO	138.007
13C-123789-HxCDD	36.471	0.000	5.35e5	4.30e5	1.000	1.243	1.240	2595	2352	7.43e6	6.12e6	2864.0	NO	100.000
Total-tetrafurans			9.26e4		0.935			1528		1.31e6				10.919

9448 OCPDA01 1733 1 8 92

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
Total-penta1			0.00e0					770		0.00e0				
Total-pentafurans			9.92e5		0.957			3026		1.45e7				102.643
Total-hexafurans			1.45e6		1.125			3368		2.07e7				208.333
Total-heptafurans			5.32e5		1.310			2296		7.27e6				103.425
Total-Furans			3.40e6		1.114			1528		4.70e7				533.599
Total-tetradioxins			6.48e4		1.134			1833		9.26e5				10.710
Total-pentadioxins			3.16e5		0.975			1395		4.66e6				52.431
Total-hexadioxins			7.85e5		0.983			1817		1.14e7				153.896
Total-heptadioxins			1.97e5		1.028			2344		2.71e6				51.746
Total-Dioxins			1.65e6		1.028			1833		2.25e7				366.398
Total-TEQ			5.04e6					1833		6.95e7				899.997
37CL-2378-TCDD	26.198	1.033	6.19e5		1.067			1879		9.00e6		4787.4		38.575
FUNCTION1 PFK			2.36e6					688201		4.07e7				
FUNCTION2 PFK			1.92e5					192178		6.76e6				0.000
FUNCTION3 PFK			2.80e5					538814		1.06e7				0.000
FUNCTION4 PFK			9.14e5					433166		2.51e7				
FUNCTION5 PFK			2.08e7					295124		2.79e8				
FUNCTION1 HXCD...			3.19e2					814		9.47e3				0.000
FUNCTION1 HPCD...			1.09e3					1240		2.33e4				0.000
FUNCTION2 HPCD...			3.73e2					1193		1.06e4				0.000
FUNCTION3 OCDPE			0.00e0					510		0.00e0				
FUNCTION4 NCDPE			7.02e2					1039		2.44e4				0.000
FUNCTION5 DCDPE			0.00e0					474		0.00e0				

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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

TF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.56	209540.618	0.935	10.762	10.762	0.78	0.77	NO	848.6
2	35	Total-tetrafurans	303.9016	24.67	1455.622	0.935	0.075		0.54	0.77	YES	4.5
3	35	Total-tetrafurans	303.9016	24.32	1599.273	0.935	0.082		0.55	0.77	YES	6.9

PP

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

PF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	37	Total-pentafurans	339.8597	32.06	5846.186	0.957	0.372		2.02	1.55	YES	16.2
2	3	23478-PeCDF	339.8597	31.03	797361.657	0.963	50.366	50.366	1.55	1.55	NO	2367.2
3	37	Total-pentafurans	339.8597	29.88	17211.994	0.957	1.094		3.44	1.55	YES	68.1
4	2	12378-PeCDF	339.8597	29.69	790318.406	0.952	50.555	50.555	1.61	1.55	NO	2327.2
5	37	Total-pentafurans	339.8597	28.63	4042.680	0.957	0.257		1.78	1.55	NO	10.9

HF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	6	123678-HxCDF	373.8208	34.85	719860.875	1.099	51.889	51.889	1.28	1.24	NO	1675.5
2	4	123478-HxCDF	373.8208	34.71	670581.657	1.137	52.047	52.047	1.25	1.24	NO	1610.8
3	38	Total-hexafurans	373.8208	34.55	1114.975	1.125	0.089		1.45	1.24	YES	4.5
4	38	Total-hexafurans	373.8208	33.20	1259.482	1.125	0.101		1.38	1.24	NO	3.1
5	7	123789-HxCDF	373.8208	36.95	546631.219	1.101	51.033	51.033	1.26	1.24	NO	1259.6
6	5	234678-HxCDF	373.8208	35.80	662602.000	1.164	53.174	53.174	1.26	1.24	NO	1583.8

HPF

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	8	1234678-HpCDF	407.7818	39.01	588233.094	1.303	51.623	51.623	1.02	1.05	NO	1886.9
2	9	1234789-HpCDF	407.7818	41.62	459260.375	1.317	51.415	51.415	1.04	1.05	NO	1263.0
3	39	Total-heptafurans	407.7818	39.79	3342.961	1.310	0.329		0.79	1.05	YES	13.2
4	39	Total-heptafurans	407.7818	39.49	597.826	1.310	0.059		2.54	1.05	YES	3.5

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

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.56	209540.618	0.935	10.762	10.762	0.78	0.77	NO	848.6
2	35	Total-tetrafurans	303.9016	24.67	1455.622	0.935	0.075		0.54	0.77	YES	4.5
3	35	Total-tetrafurans	303.9016	24.32	1599.273	0.935	0.082		0.55	0.77	YES	6.9
4	37	Total-pentafurans	339.8597	32.06	5846.186	0.957	0.372		2.02	1.55	YES	16.2
5	3	23478-PeCDF	339.8597	31.03	797361.657	0.963	50.366	50.366	1.55	1.55	NO	2367.2
6	37	Total-pentafurans	339.8597	29.88	17211.994	0.957	1.094		3.44	1.55	YES	68.1
7	2	12378-PeCDF	339.8597	29.69	790318.406	0.952	50.555	50.555	1.61	1.55	NO	2327.2
8	37	Total-pentafurans	339.8597	28.63	4042.680	0.957	0.257		1.78	1.55	NO	10.9
9	6	123678-HxCDF	373.8208	34.85	719860.875	1.099	51.889	51.889	1.28	1.24	NO	1675.5
10	4	123478-HxCDF	373.8208	34.71	670581.657	1.137	52.047	52.047	1.25	1.24	NO	1610.8
11	38	Total-hexafurans	373.8208	34.55	1114.975	1.125	0.089		1.45	1.24	YES	4.5
12	38	Total-hexafurans	373.8208	33.20	1259.482	1.125	0.101		1.38	1.24	NO	3.1
13	7	123789-HxCDF	373.8208	36.95	546631.219	1.101	51.033	51.033	1.26	1.24	NO	1259.6
14	5	234678-HxCDF	373.8208	35.80	662602.000	1.164	53.174	53.174	1.26	1.24	NO	1583.8
15	8	1234678-HpCDF	407.7818	39.01	588233.094	1.303	51.623	51.623	1.02	1.05	NO	1886.9
16	9	1234789-HpCDF	407.7818	41.62	459260.375	1.317	51.415	51.415	1.04	1.05	NO	1263.0
17	39	Total-heptafurans	407.7818	39.79	3342.961	1.310	0.329		0.79	1.05	YES	13.2
18	39	Total-heptafurans	407.7818	39.49	597.826	1.310	0.059		2.54	1.05	YES	3.5
19	10	OCDF	441.7428	46.74	689162.906	1.166	108.279	108....	0.91	0.89	NO	1650.5

TD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	11	2378-TCDD	319.8965	26.20	146614.613	1.134	10.431	10.431	0.75	0.77	NO	494.6
2	41	Total-tetradioxins	319.8965	25.82	3918.326	1.134	0.279		0.81	0.77	NO	10.9

PD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	12	12378-PeCDD	355.8546	31.29	517689.251	0.975	52.338	52.338	1.56	1.55	NO	3333.1
2	42	Total-pentadioxins	355.8546	30.64	912.988	0.975	0.092		1.72	1.55	NO	5.2

HD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	15	123789-HxCDD	389.8157	36.49	463572.563	0.947	51.952	51.952	1.25	1.24	NO	2042.1
2	43	Total-hexadioxins	389.8157	36.35	1274.779	0.983	0.138		0.15	1.24	YES	4.0
3	43	Total-hexadioxins	389.8157	36.30	1301.611	0.983	0.140		0.15	1.24	YES	3.8
4	14	123678-HxCDD	389.8157	36.07	486329.094	0.971	51.331	51.331	1.20	1.24	NO	2079.1
5	13	123478-HxCDD	389.8157	35.93	472171.203	1.031	50.334	50.334	1.24	1.24	NO	2137.6

HPD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	16	1234678-HpCDD	423.7766	40.77	387518.984	1.028	51.306	51.306	1.02	1.05	NO	1144.9
2	44	Total-heptadioxins	423.7766	39.54	3319.767	1.028	0.440		0.98	1.05	NO	9.0

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Dioxins,TD,PD,HD,HPD,OD

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	11	2378-TCDD	319.8965	26.20	146614.613	1.134	10.431	10.431	0.75	0.77	NO	494.6
2	41	Total-tetradioxins	319.8965	25.82	3918.326	1.134	0.279		0.81	0.77	NO	10.9
3	12	12378-PeCDD	355.8546	31.29	517689.251	0.975	52.338	52.338	1.56	1.55	NO	3333.1
4	42	Total-pentadioxins	355.8546	30.64	912.988	0.975	0.092		1.72	1.55	NO	5.2
5	15	123789-HxCDD	389.8157	36.49	463572.563	0.947	51.952	51.952	1.25	1.24	NO	2042.1
6	43	Total-hexadioxins	389.8157	36.35	1274.779	0.983	0.138		0.15	1.24	YES	4.0
7	43	Total-hexadioxins	389.8157	36.30	1301.611	0.983	0.140		0.15	1.24	YES	3.8
8	14	123678-HxCDD	389.8157	36.07	486329.094	0.971	51.331	51.331	1.20	1.24	NO	2079.1
9	13	123478-HxCDD	389.8157	35.93	472171.203	1.031	50.334	50.334	1.24	1.24	NO	2137.6
10	16	1234678-HpCDD	423.7766	40.77	387518.984	1.028	51.306	51.306	1.02	1.05	NO	1144.9
11	44	Total-heptadioxins	423.7766	39.54	3319.767	1.028	0.440		0.98	1.05	NO	9.0
12	17	OCDD	457.7377	46.47	589966.844	1.107	97.616	97.616	0.92	0.89	NO	1484.3

TotalTEQ,Furans,Dioxins

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	1	2378-TCDF	303.9016	25.56	209540.618	0.935	10.762	10.762	0.78	0.77	NO	848.6
2	35	Total-tetrafurans	303.9016	24.67	1455.622	0.935	0.075		0.54	0.77	YES	4.5
3	35	Total-tetrafurans	303.9016	24.32	1599.273	0.935	0.082		0.55	0.77	YES	6.9
4	37	Total-pentafurans	339.8597	32.06	5846.186	0.957	0.372		2.02	1.55	YES	16.2
5	3	23478-PeCDF	339.8597	31.03	797361.657	0.963	50.366	50.366	1.55	1.55	NO	2367.2
6	37	Total-pentafurans	339.8597	29.88	17211.994	0.957	1.094		3.44	1.55	YES	68.1
7	2	12378-PeCDF	339.8597	29.69	790318.406	0.952	50.555	50.555	1.61	1.55	NO	2327.2
8	37	Total-pentafurans	339.8597	28.63	4042.680	0.957	0.257		1.78	1.55	NO	10.9
9	6	123678-HxCDF	373.8208	34.85	719860.875	1.099	51.889	51.889	1.28	1.24	NO	1675.5
10	4	123478-HxCDF	373.8208	34.71	670581.657	1.137	52.047	52.047	1.25	1.24	NO	1610.8
11	38	Total-hexafurans	373.8208	34.55	1114.975	1.125	0.089		1.45	1.24	YES	4.5
12	38	Total-hexafurans	373.8208	33.20	1259.482	1.125	0.101		1.38	1.24	NO	3.1
13	7	123789-HxCDF	373.8208	36.95	546631.219	1.101	51.033	51.033	1.26	1.24	NO	1259.6
14	5	234678-HxCDF	373.8208	35.80	662602.000	1.164	53.174	53.174	1.26	1.24	NO	1583.8
15	8	1234678-HpCDF	407.7818	39.01	588233.094	1.303	51.623	51.623	1.02	1.05	NO	1886.9
16	9	1234789-HpCDF	407.7818	41.62	459260.375	1.317	51.415	51.415	1.04	1.05	NO	1263.0
17	39	Total-heptafurans	407.7818	39.79	3342.961	1.310	0.329		0.79	1.05	YES	13.2
18	39	Total-heptafurans	407.7818	39.49	597.826	1.310	0.059		2.54	1.05	YES	3.5
19	10	OCDF	441.7428	46.74	689162.906	1.166	108.279	108....	0.91	0.89	NO	1650.5
20	11	2378-TCDD	319.8965	26.20	146614.613	1.134	10.431	10.431	0.75	0.77	NO	494.6
21	41	Total-tetradioxins	319.8965	25.82	3918.326	1.134	0.279		0.81	0.77	NO	10.9
22	12	12378-PeCDD	355.8546	31.29	517689.251	0.975	52.338	52.338	1.56	1.55	NO	3333.1
23	42	Total-pentadioxins	355.8546	30.64	912.988	0.975	0.092		1.72	1.55	NO	5.2
24	15	123789-HxCDD	389.8157	36.49	463572.563	0.947	51.952	51.952	1.25	1.24	NO	2042.1
25	43	Total-hexadioxins	389.8157	36.35	1274.779	0.983	0.138		0.15	1.24	YES	4.0
26	43	Total-hexadioxins	389.8157	36.30	1301.611	0.983	0.140		0.15	1.24	YES	3.8
27	14	123678-HxCDD	389.8157	36.07	486329.094	0.971	51.331	51.331	1.20	1.24	NO	2079.1
28	13	123478-HxCDD	389.8157	35.93	472171.203	1.031	50.334	50.334	1.24	1.24	NO	2137.6
29	16	1234678-HpCDD	423.7766	40.77	387518.984	1.028	51.306	51.306	1.02	1.05	NO	1144.9
30	44	Total-heptadioxins	423.7766	39.54	3319.767	1.028	0.440		0.98	1.05	NO	9.0
31	17	OCDD	457.7377	46.47	589966.844	1.107	97.616	97.616	0.92	0.89	NO	1484.3

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PFK1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	48	FUNCTION1 PFK	330.9792	22.22	0.000							1.6
2	48	FUNCTION1 PFK	330.9792	22.16	0.000							0.3
3	48	FUNCTION1 PFK	330.9792	22.09	0.000							1.3
4	48	FUNCTION1 PFK	330.9792	21.98	0.000							0.8
5	48	FUNCTION1 PFK	330.9792	21.88	0.000							2.3
6	48	FUNCTION1 PFK	330.9792	21.81	0.000							1.6
7	48	FUNCTION1 PFK	330.9792	21.60	0.000							0.5
8	48	FUNCTION1 PFK	330.9792	21.49	0.000							0.6
9	48	FUNCTION1 PFK	330.9792	21.43	0.000							0.7
10	48	FUNCTION1 PFK	330.9792	21.33	0.000							2.4
11	48	FUNCTION1 PFK	330.9792	21.25	0.000							1.6
12	48	FUNCTION1 PFK	330.9792	21.19	0.000							1.8
13	48	FUNCTION1 PFK	330.9792	21.12	0.000							0.7
14	48	FUNCTION1 PFK	330.9792	24.78	0.000							1.4
15	48	FUNCTION1 PFK	330.9792	24.69	0.000							1.3
16	48	FUNCTION1 PFK	330.9792	24.60	0.000							1.4
17	48	FUNCTION1 PFK	330.9792	24.45	0.000							2.2
18	48	FUNCTION1 PFK	330.9792	24.26	0.000							1.2
19	48	FUNCTION1 PFK	330.9792	24.11	0.000							1.4
20	48	FUNCTION1 PFK	330.9792	23.75	0.000							0.7
21	48	FUNCTION1 PFK	330.9792	23.46	0.000							1.3
22	48	FUNCTION1 PFK	330.9792	23.25	0.000							1.5
23	48	FUNCTION1 PFK	330.9792	23.10	0.000							2.0
24	48	FUNCTION1 PFK	330.9792	22.91	0.000							1.7
25	48	FUNCTION1 PFK	330.9792	22.82	0.000							1.3
26	48	FUNCTION1 PFK	330.9792	22.64	0.000							1.5
27	48	FUNCTION1 PFK	330.9792	22.55	0.000							0.7
28	48	FUNCTION1 PFK	330.9792	22.37	0.000							1.1
29	48	FUNCTION1 PFK	330.9792	22.30	0.000							0.5
30	48	FUNCTION1 PFK	330.9792	27.59	0.000							0.9
31	48	FUNCTION1 PFK	330.9792	27.50	0.000							1.8
32	48	FUNCTION1 PFK	330.9792	27.36	0.000							1.4
33	48	FUNCTION1 PFK	330.9792	26.87	0.000							1.3
34	48	FUNCTION1 PFK	330.9792	26.53	0.000							0.5
35	48	FUNCTION1 PFK	330.9792	26.47	0.000							1.5
36	48	FUNCTION1 PFK	330.9792	26.32	0.000							0.7
37	48	FUNCTION1 PFK	330.9792	26.11	0.000							1.8
38	48	FUNCTION1 PFK	330.9792	26.06	0.000							1.4
39	48	FUNCTION1 PFK	330.9792	25.99	0.000							1.1
40	48	FUNCTION1 PFK	330.9792	25.79	0.000							1.2
41	48	FUNCTION1 PFK	330.9792	25.70	0.000							0.9
42	48	FUNCTION1 PFK	330.9792	25.61	0.000							1.2
43	48	FUNCTION1 PFK	330.9792	25.57	0.000							1.7
44	48	FUNCTION1 PFK	330.9792	25.02	0.000							1.1
45	48	FUNCTION1 PFK	330.9792	24.94	0.000							1.3
46	48	FUNCTION1 PFK	330.9792	27.75	0.000							0.9
47	48	FUNCTION1 PFK	330.9792	27.69	0.000							1.3

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PFK2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	49	FUNCTION2 PFK	366.9792	30.01	0.000		0.000					0.7
2	49	FUNCTION2 PFK	366.9792	29.64	0.000		0.000					1.9
3	49	FUNCTION2 PFK	366.9792	29.61	0.000		0.000					1.2
4	49	FUNCTION2 PFK	366.9792	29.49	0.000		0.000					0.7
5	49	FUNCTION2 PFK	366.9792	29.44	0.000		0.000					1.3
6	49	FUNCTION2 PFK	366.9792	29.40	0.000		0.000					0.7
7	49	FUNCTION2 PFK	366.9792	29.36	0.000		0.000					0.8
8	49	FUNCTION2 PFK	366.9792	29.27	0.000		0.000					0.6
9	49	FUNCTION2 PFK	366.9792	29.12	0.000		0.000					0.4
10	49	FUNCTION2 PFK	366.9792	28.87	0.000		0.000					1.4
11	49	FUNCTION2 PFK	366.9792	28.45	0.000		0.000					0.6
12	49	FUNCTION2 PFK	366.9792	28.39	0.000		0.000					1.2
13	49	FUNCTION2 PFK	366.9792	28.24	0.000		0.000					1.4
14	49	FUNCTION2 PFK	366.9792	32.39	0.000		0.000					1.6
15	49	FUNCTION2 PFK	366.9792	32.36	0.000		0.000					1.3
16	49	FUNCTION2 PFK	366.9792	32.32	0.000		0.000					1.6
17	49	FUNCTION2 PFK	366.9792	32.27	0.000		0.000					0.9
18	49	FUNCTION2 PFK	366.9792	32.09	0.000		0.000					1.9
19	49	FUNCTION2 PFK	366.9792	32.03	0.000		0.000					1.8
20	49	FUNCTION2 PFK	366.9792	31.99	0.000		0.000					1.2
21	49	FUNCTION2 PFK	366.9792	31.77	0.000		0.000					1.1
22	49	FUNCTION2 PFK	366.9792	31.57	0.000		0.000					0.9
23	49	FUNCTION2 PFK	366.9792	31.45	0.000		0.000					1.3
24	49	FUNCTION2 PFK	366.9792	31.29	0.000		0.000					0.9
25	49	FUNCTION2 PFK	366.9792	30.67	0.000		0.000					0.8
26	49	FUNCTION2 PFK	366.9792	30.52	0.000		0.000					0.7
27	49	FUNCTION2 PFK	366.9792	30.34	0.000		0.000					1.1
28	49	FUNCTION2 PFK	366.9792	30.11	0.000		0.000					1.2
29	49	FUNCTION2 PFK	366.9792	30.06	0.000		0.000					1.2
30	49	FUNCTION2 PFK	366.9792	32.48	0.000		0.000					1.5
31	49	FUNCTION2 PFK	366.9792	32.43	0.000		0.000					1.3

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PFK3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	50	FUNCTION3 PFK	380.9760	37.02	0.000		0.000					0.4
2	50	FUNCTION3 PFK	380.9760	36.37	0.000		0.000					1.3
3	50	FUNCTION3 PFK	380.9760	36.10	0.000		0.000					1.0
4	50	FUNCTION3 PFK	380.9760	35.67	0.000		0.000					0.5
5	50	FUNCTION3 PFK	380.9760	34.72	0.000		0.000					1.4
6	50	FUNCTION3 PFK	380.9760	33.94	0.000		0.000					1.7
7	50	FUNCTION3 PFK	380.9760	33.86	0.000		0.000					0.6
8	50	FUNCTION3 PFK	380.9760	33.69	0.000		0.000					0.4
9	50	FUNCTION3 PFK	380.9760	33.37	0.000		0.000					1.5
10	50	FUNCTION3 PFK	380.9760	33.31	0.000		0.000					1.6
11	50	FUNCTION3 PFK	380.9760	33.22	0.000		0.000					0.9
12	50	FUNCTION3 PFK	380.9760	32.94	0.000		0.000					2.0
13	50	FUNCTION3 PFK	380.9760	32.66	0.000		0.000					1.1
14	50	FUNCTION3 PFK	380.9760	37.93	0.000		0.000					0.4
15	50	FUNCTION3 PFK	380.9760	37.76	0.000		0.000					1.8
16	50	FUNCTION3 PFK	380.9760	37.64	0.000		0.000					1.8
17	50	FUNCTION3 PFK	380.9760	37.28	0.000		0.000					0.9
18	50	FUNCTION3 PFK	380.9760	37.13	0.000		0.000					0.4

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PFK4

	#	Name	Trace	RT	Abs.Resp	RRF	M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	51	FUNCTION4 PFK	430.9728	39.47	0.000								1.2
2	51	FUNCTION4 PFK	430.9728	39.34	0.000								1.0
3	51	FUNCTION4 PFK	430.9728	39.31	0.000								1.2
4	51	FUNCTION4 PFK	430.9728	39.20	0.000								1.3
5	51	FUNCTION4 PFK	430.9728	38.88	0.000								0.8
6	51	FUNCTION4 PFK	430.9728	38.84	0.000								1.4
7	51	FUNCTION4 PFK	430.9728	38.54	0.000								1.0
8	51	FUNCTION4 PFK	430.9728	38.49	0.000								1.3
9	51	FUNCTION4 PFK	430.9728	38.40	0.000								1.5
10	51	FUNCTION4 PFK	430.9728	38.18	0.000								0.3
11	51	FUNCTION4 PFK	430.9728	41.60	0.000								1.6
12	51	FUNCTION4 PFK	430.9728	41.35	0.000								1.0
13	51	FUNCTION4 PFK	430.9728	41.27	0.000								0.6
14	51	FUNCTION4 PFK	430.9728	41.23	0.000								2.2
15	51	FUNCTION4 PFK	430.9728	41.16	0.000								1.1
16	51	FUNCTION4 PFK	430.9728	41.03	0.000								1.1
17	51	FUNCTION4 PFK	430.9728	40.92	0.000								0.8
18	51	FUNCTION4 PFK	430.9728	40.64	0.000								0.8
19	51	FUNCTION4 PFK	430.9728	40.57	0.000								0.6
20	51	FUNCTION4 PFK	430.9728	40.45	0.000								1.0
21	51	FUNCTION4 PFK	430.9728	40.23	0.000								1.3
22	51	FUNCTION4 PFK	430.9728	40.13	0.000								1.1
23	51	FUNCTION4 PFK	430.9728	40.10	0.000								1.6
24	51	FUNCTION4 PFK	430.9728	39.96	0.000								1.2
25	51	FUNCTION4 PFK	430.9728	39.88	0.000								1.2
26	51	FUNCTION4 PFK	430.9728	39.76	0.000								1.5
27	51	FUNCTION4 PFK	430.9728	43.99	0.000								1.5
28	51	FUNCTION4 PFK	430.9728	43.49	0.000								0.8
29	51	FUNCTION4 PFK	430.9728	43.44	0.000								1.9
30	51	FUNCTION4 PFK	430.9728	43.35	0.000								1.3
31	51	FUNCTION4 PFK	430.9728	43.19	0.000								1.1
32	51	FUNCTION4 PFK	430.9728	42.93	0.000								0.3
33	51	FUNCTION4 PFK	430.9728	42.85	0.000								0.7
34	51	FUNCTION4 PFK	430.9728	42.67	0.000								0.9
35	51	FUNCTION4 PFK	430.9728	42.63	0.000								1.5
36	51	FUNCTION4 PFK	430.9728	42.54	0.000								0.4
37	51	FUNCTION4 PFK	430.9728	42.48	0.000								0.5
38	51	FUNCTION4 PFK	430.9728	42.12	0.000								2.3
39	51	FUNCTION4 PFK	430.9728	42.05	0.000								2.1
40	51	FUNCTION4 PFK	430.9728	41.93	0.000								0.9
41	51	FUNCTION4 PFK	430.9728	41.87	0.000								1.5
42	51	FUNCTION4 PFK	430.9728	41.74	0.000								0.9
43	51	FUNCTION4 PFK	430.9728	44.47	0.000								1.0
44	51	FUNCTION4 PFK	430.9728	44.41	0.000								1.6
45	51	FUNCTION4 PFK	430.9728	44.32	0.000								1.9
46	51	FUNCTION4 PFK	430.9728	44.25	0.000								1.1
47	51	FUNCTION4 PFK	430.9728	44.21	0.000								1.3
48	51	FUNCTION4 PFK	430.9728	44.11	0.000								1.1
49	51	FUNCTION4 PFK	430.9728	44.05	0.000								1.7

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PFK5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	52	FUNCTION5 PFK	480.9696	45.11	0.000							52.0
2	52	FUNCTION5 PFK	480.9696	45.08	0.000							52.9
3	52	FUNCTION5 PFK	480.9696	45.04	0.000							54.8
4	52	FUNCTION5 PFK	480.9696	44.87	0.000							62.3
5	52	FUNCTION5 PFK	480.9696	44.84	0.000							63.5
6	52	FUNCTION5 PFK	480.9696	44.72	0.000							68.1
7	52	FUNCTION5 PFK	480.9696	44.67	0.000							69.6
8	52	FUNCTION5 PFK	480.9696	44.57	0.000							73.5
9	52	FUNCTION5 PFK	480.9696	46.20	0.000							8.2
10	52	FUNCTION5 PFK	480.9696	46.17	0.000							9.3
11	52	FUNCTION5 PFK	480.9696	46.09	0.000							12.4
12	52	FUNCTION5 PFK	480.9696	46.08	0.000							13.0
13	52	FUNCTION5 PFK	480.9696	46.00	0.000							15.5
14	52	FUNCTION5 PFK	480.9696	45.92	0.000							19.3
15	52	FUNCTION5 PFK	480.9696	45.88	0.000							20.6
16	52	FUNCTION5 PFK	480.9696	45.83	0.000							22.5
17	52	FUNCTION5 PFK	480.9696	45.78	0.000							25.5
18	52	FUNCTION5 PFK	480.9696	45.70	0.000							27.7
19	52	FUNCTION5 PFK	480.9696	45.64	0.000							30.5
20	52	FUNCTION5 PFK	480.9696	45.42	0.000							39.5
21	52	FUNCTION5 PFK	480.9696	45.39	0.000							40.5
22	52	FUNCTION5 PFK	480.9696	45.36	0.000							41.9
23	52	FUNCTION5 PFK	480.9696	45.32	0.000							43.4
24	52	FUNCTION5 PFK	480.9696	45.20	0.000							48.7
25	52	FUNCTION5 PFK	480.9696	48.01	0.000							1.0
26	52	FUNCTION5 PFK	480.9696	47.99	0.000							1.1
27	52	FUNCTION5 PFK	480.9696	47.87	0.000							1.5
28	52	FUNCTION5 PFK	480.9696	47.83	0.000							0.9
29	52	FUNCTION5 PFK	480.9696	47.79	0.000							0.9
30	52	FUNCTION5 PFK	480.9696	47.42	0.000							1.7
31	52	FUNCTION5 PFK	480.9696	47.39	0.000							1.5
32	52	FUNCTION5 PFK	480.9696	47.36	0.000							0.8
33	52	FUNCTION5 PFK	480.9696	46.93	0.000							1.3
34	52	FUNCTION5 PFK	480.9696	46.88	0.000							1.5
35	52	FUNCTION5 PFK	480.9696	46.78	0.000							1.0
36	52	FUNCTION5 PFK	480.9696	46.72	0.000							1.1
37	52	FUNCTION5 PFK	480.9696	46.62	0.000							1.1
38	52	FUNCTION5 PFK	480.9696	46.59	0.000							1.2
39	52	FUNCTION5 PFK	480.9696	46.52	0.000							1.5
40	52	FUNCTION5 PFK	480.9696	46.35	0.000							1.5
41	52	FUNCTION5 PFK	480.9696	49.44	0.000							1.1
42	52	FUNCTION5 PFK	480.9696	49.34	0.000							1.3
43	52	FUNCTION5 PFK	480.9696	49.21	0.000							1.2
44	52	FUNCTION5 PFK	480.9696	49.17	0.000							1.9
45	52	FUNCTION5 PFK	480.9696	48.93	0.000							1.0
46	52	FUNCTION5 PFK	480.9696	48.41	0.000							1.2
47	52	FUNCTION5 PFK	480.9696	48.35	0.000							0.7
48	52	FUNCTION5 PFK	480.9696	48.16	0.000							0.8
49	52	FUNCTION5 PFK	480.9696	48.12	0.000							1.1
50	52	FUNCTION5 PFK	480.9696	48.07	0.000							0.9

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ETHERS1

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	53	FUNCTION1 HXCD...	375.8364	26.68	0.000		0.000					3.4
2	53	FUNCTION1 HXCD...	375.8364	24.87	0.000		0.000					3.0
3	53	FUNCTION1 HXCD...	375.8364	23.70	0.000		0.000					2.9
4	53	FUNCTION1 HXCD...	375.8364	22.91	0.000		0.000					2.4

ETHERS2

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	54	FUNCTION1 HPCD...	409.7974	27.71	0.000		0.000					1.5
2	54	FUNCTION1 HPCD...	409.7974	27.57	0.000		0.000					1.8
3	54	FUNCTION1 HPCD...	409.7974	25.85	0.000		0.000					3.7
4	54	FUNCTION1 HPCD...	409.7974	25.69	0.000		0.000					2.1
5	54	FUNCTION1 HPCD...	409.7974	25.00	0.000		0.000					1.2
6	54	FUNCTION1 HPCD...	409.7974	24.66	0.000		0.000					1.4
7	54	FUNCTION1 HPCD...	409.7974	24.03	0.000		0.000					1.4
8	54	FUNCTION1 HPCD...	409.7974	23.97	0.000		0.000					2.0
9	54	FUNCTION1 HPCD...	409.7974	22.85	0.000		0.000					1.9
10	54	FUNCTION1 HPCD...	409.7974	21.82	0.000		0.000					1.7

ETHERS3

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	55	FUNCTION2 HPCD...	409.7974	31.23	0.000		0.000					2.0
2	55	FUNCTION2 HPCD...	409.7974	31.11	0.000		0.000					2.5
3	55	FUNCTION2 HPCD...	409.7974	31.06	0.000		0.000					2.5
4	55	FUNCTION2 HPCD...	409.7974	28.14	0.000		0.000					1.9

ETHERS4

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

ETHERS5

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1	57	FUNCTION4 NCDPE	479.7165	44.19	0.000		0.000					3.9
2	57	FUNCTION4 NCDPE	479.7165	43.94	0.000		0.000					3.0
3	57	FUNCTION4 NCDPE	479.7165	43.54	0.000		0.000					1.8
4	57	FUNCTION4 NCDPE	479.7165	43.21	0.000		0.000					3.7
5	57	FUNCTION4 NCDPE	479.7165	42.93	0.000		0.000					3.3
6	57	FUNCTION4 NCDPE	479.7165	42.31	0.000		0.000					3.1
7	57	FUNCTION4 NCDPE	479.7165	41.60	0.000		0.000					2.5
8	57	FUNCTION4 NCDPE	479.7165	40.89	0.000		0.000					2.3

ETHERS6

	#	Name	Trace	RT	Abs.Resp	RRF M...	pg	EMPC	1º Rati...	1º Rati...	1º R...	S/N
1												

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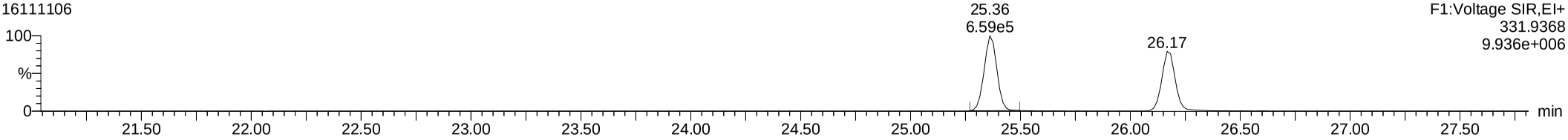
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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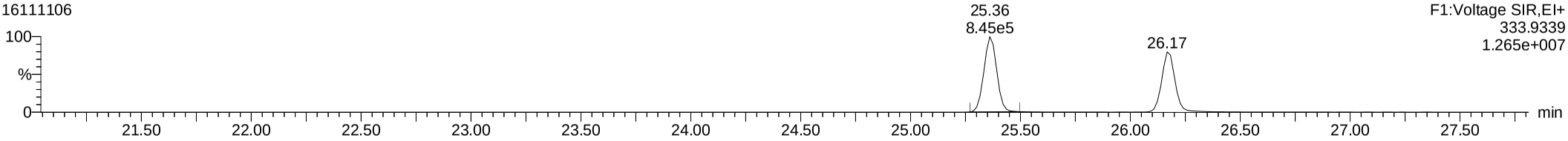

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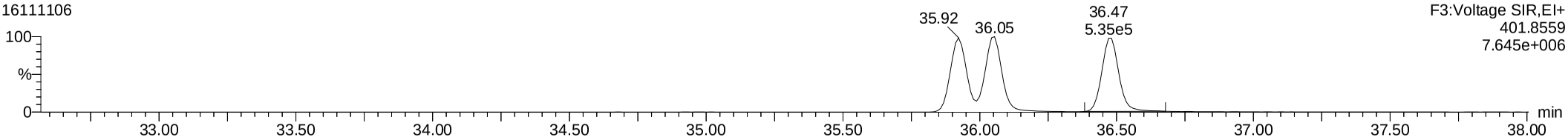

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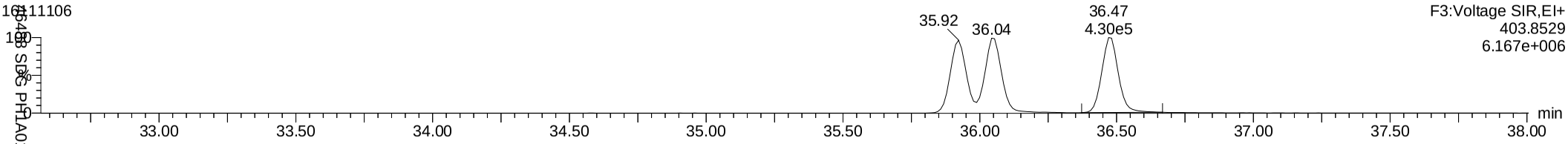

16458 SDG PH1A01 384 of 862

ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

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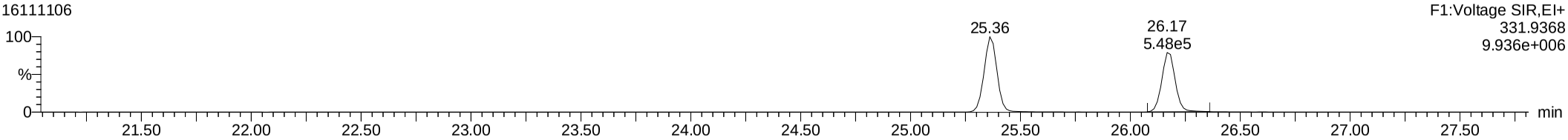

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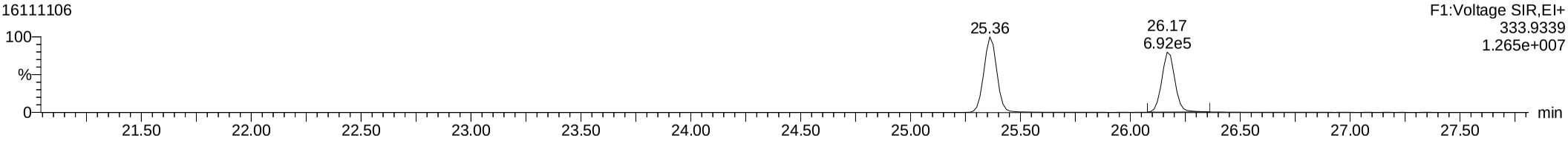

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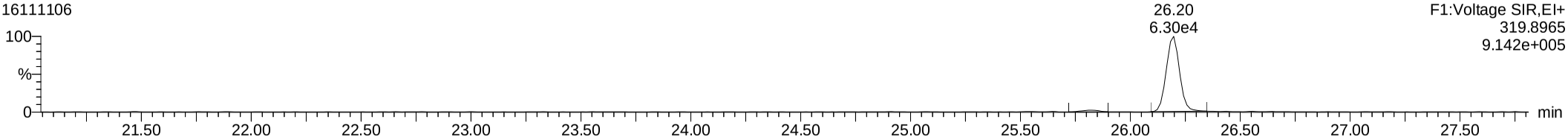
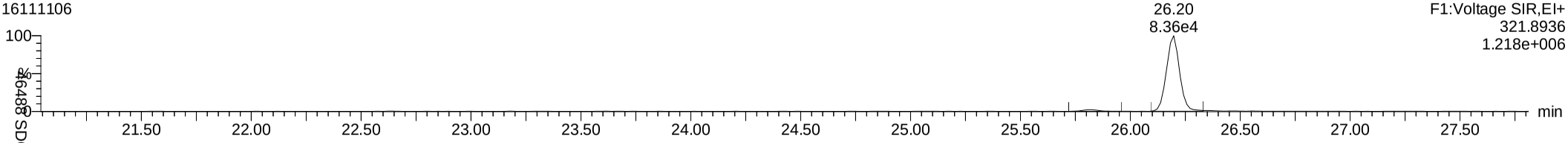


Total-tetradioxins



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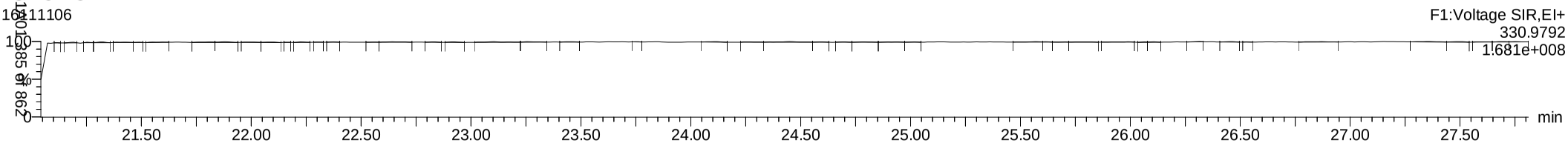

46488 SDG PH1401385 of 862

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Printed: Monday, November 14, 2016 14:02:02 Pacific Standard Time

ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

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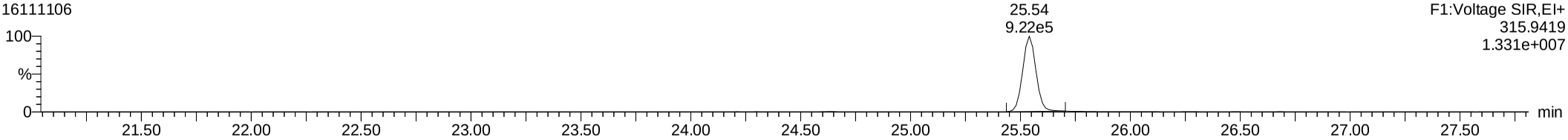

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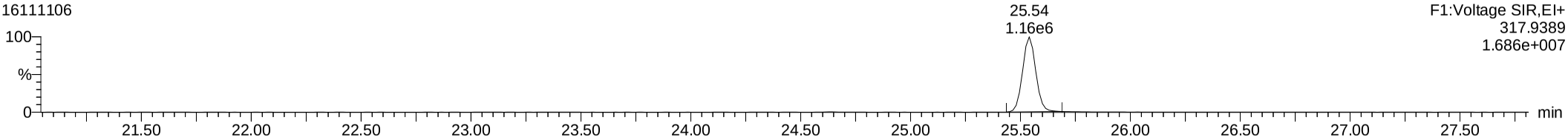

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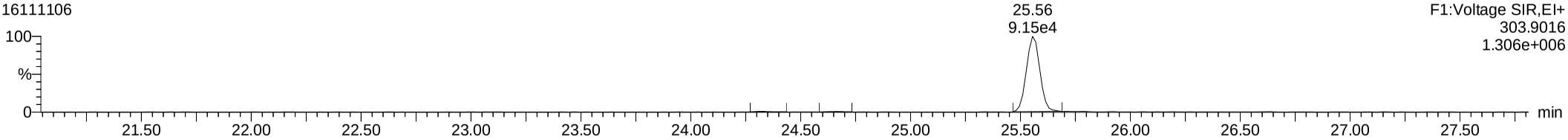
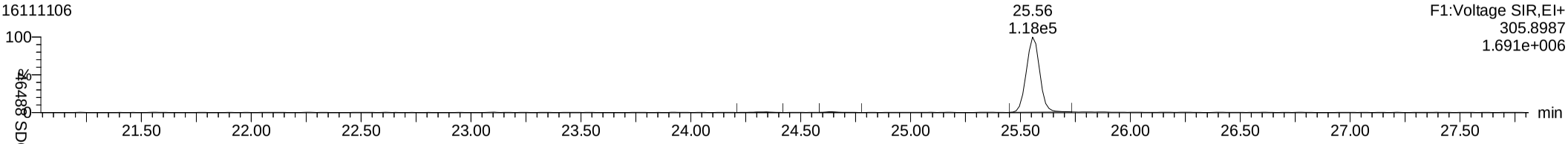
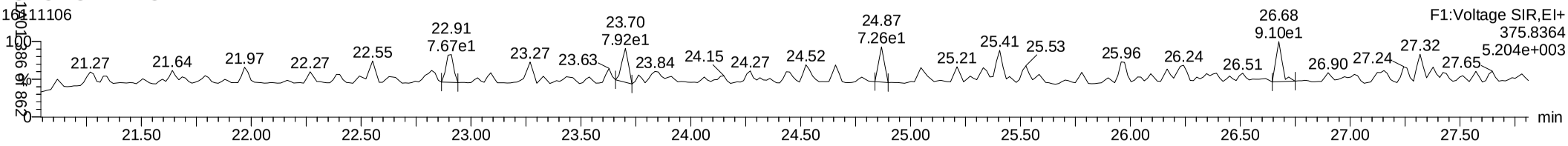


Total-tetrafurans

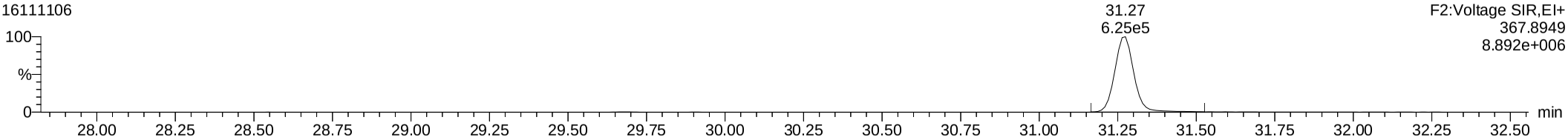


FUNCTION1 HXCDPE



ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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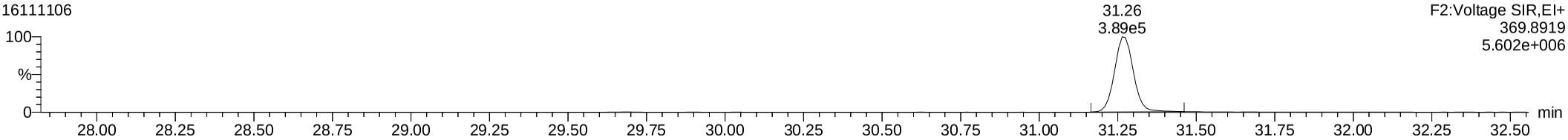
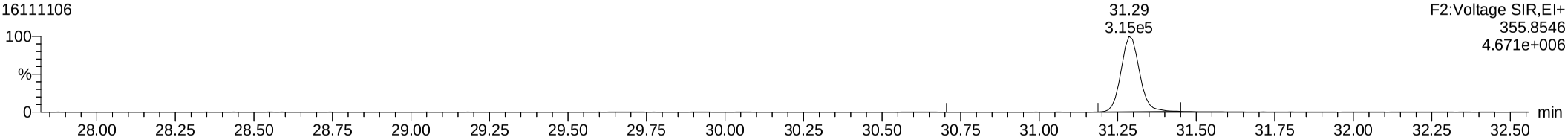
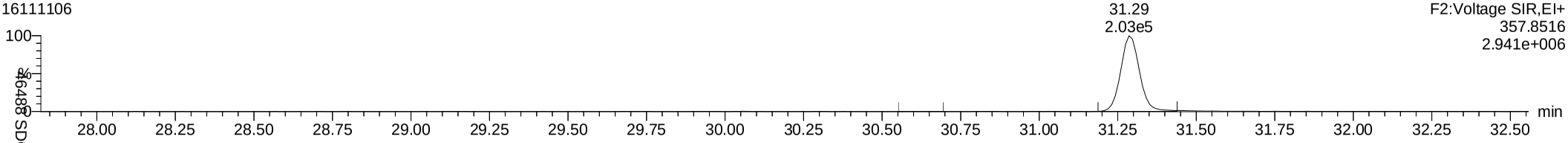


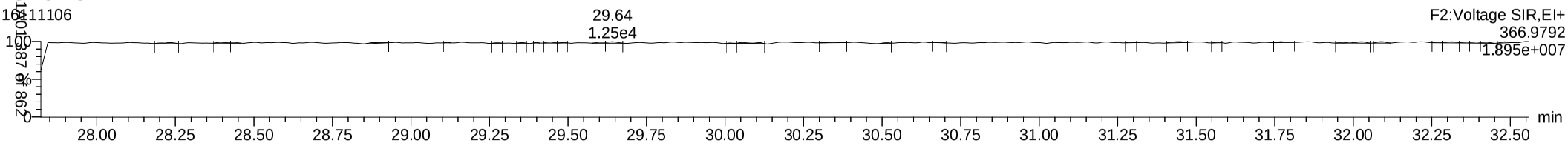
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



46488 SDG PD1001 387 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

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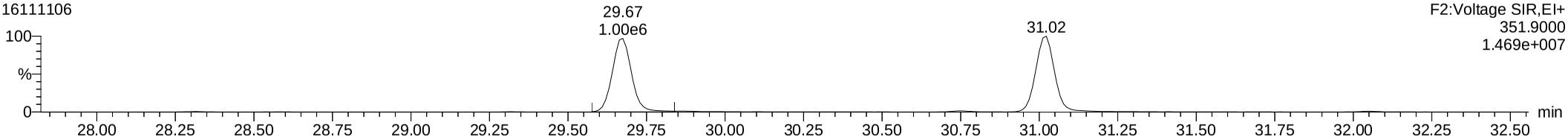

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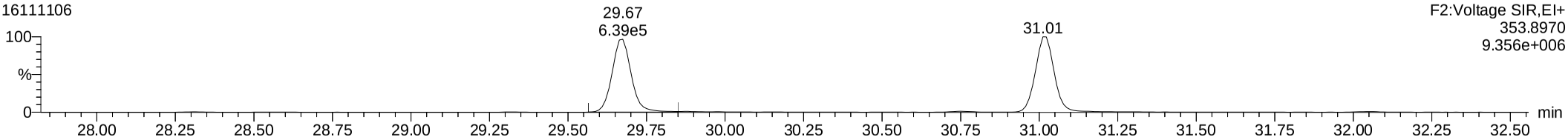

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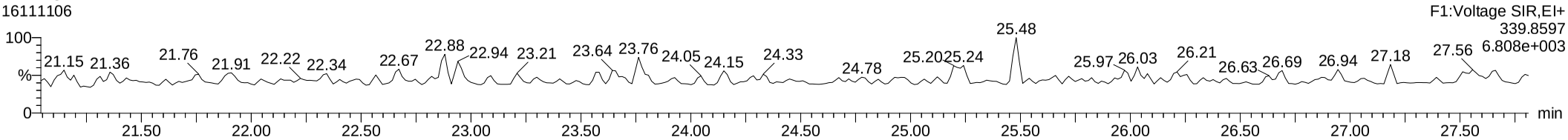
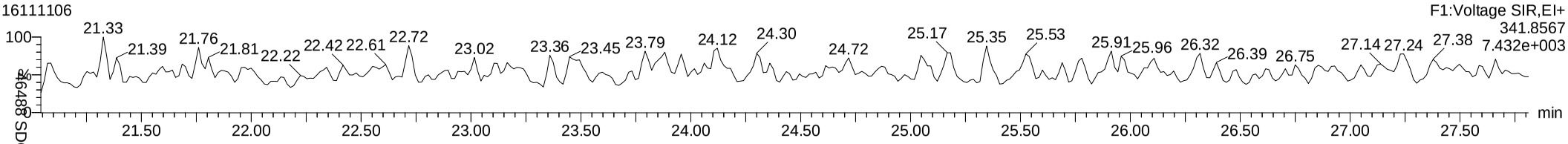
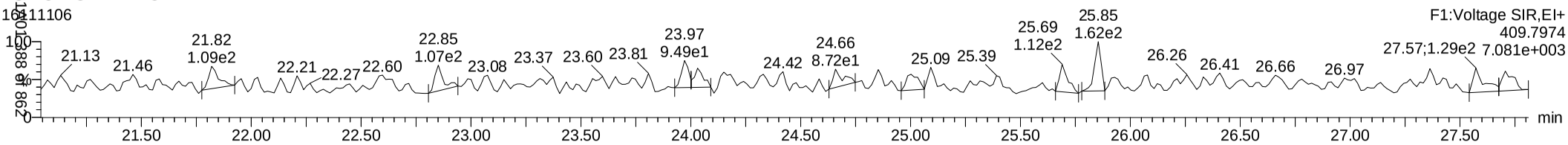


Total-penta1



FUNCTION1 HPCDPE



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ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

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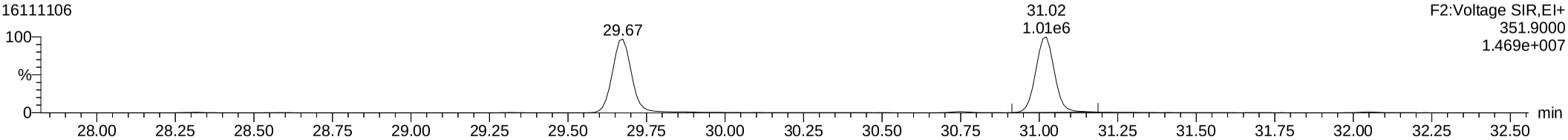

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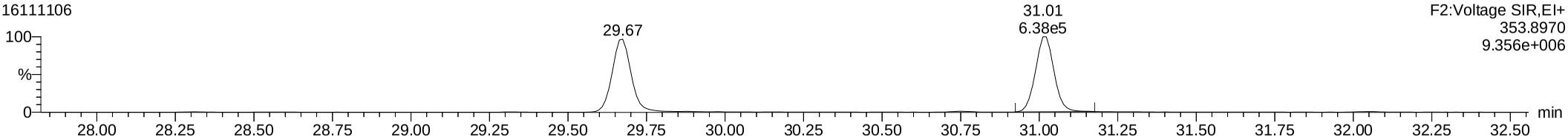
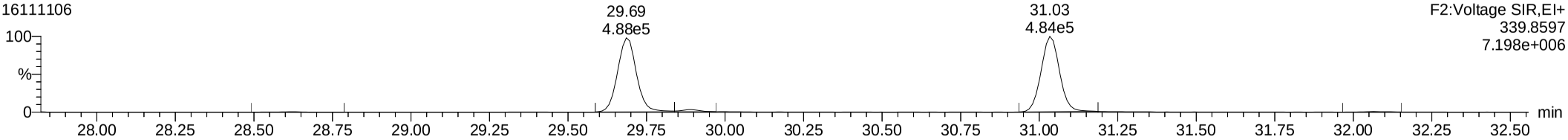
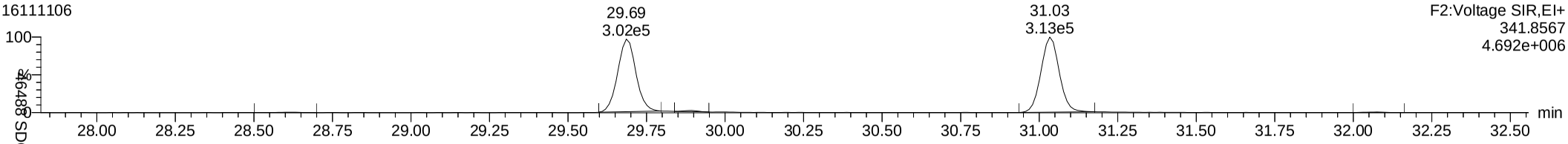


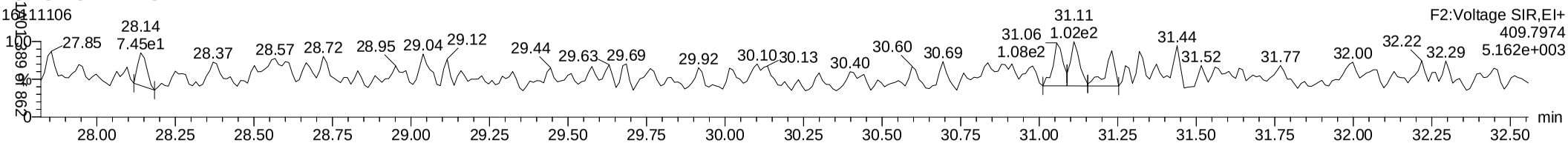
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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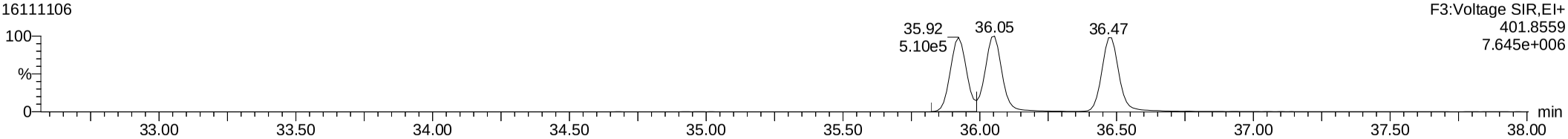
13C-123478-HxCDD



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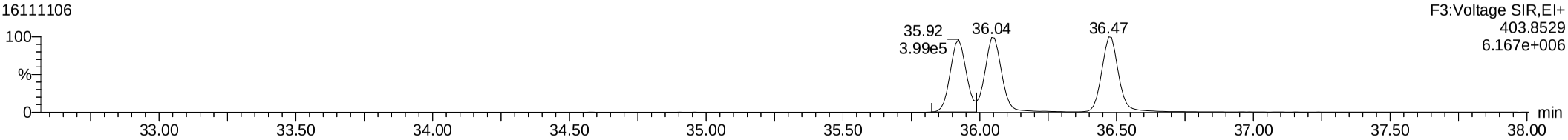
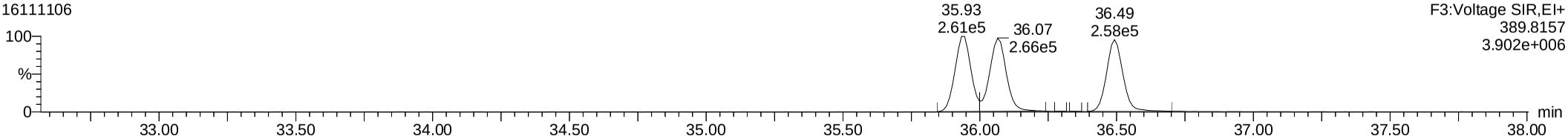
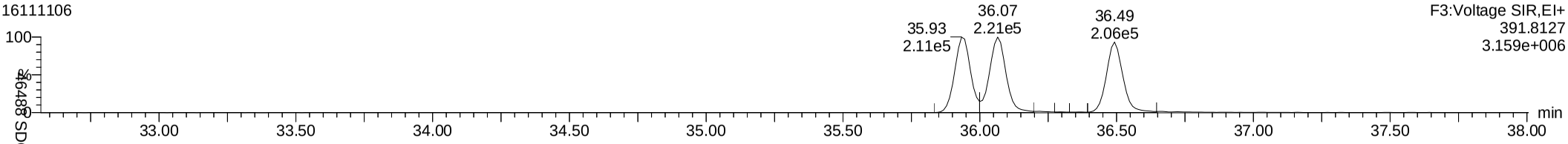


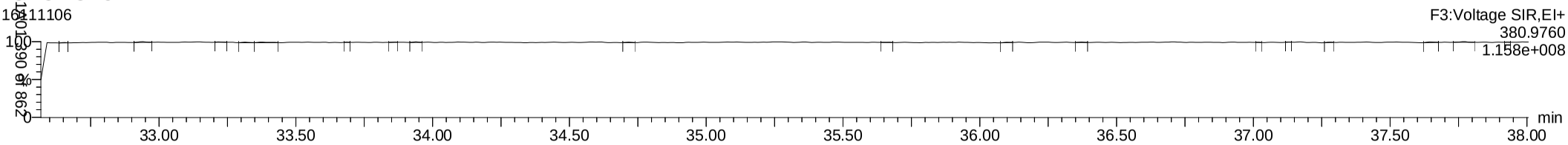
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



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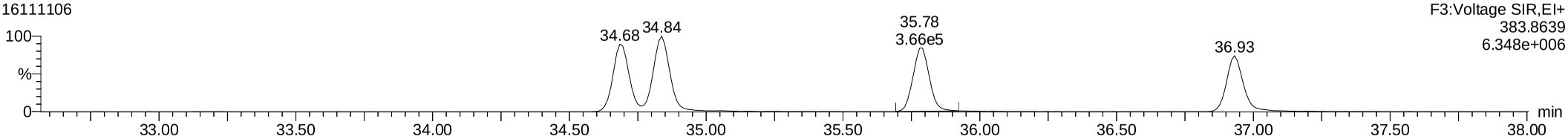
13C-234678-HxCDF



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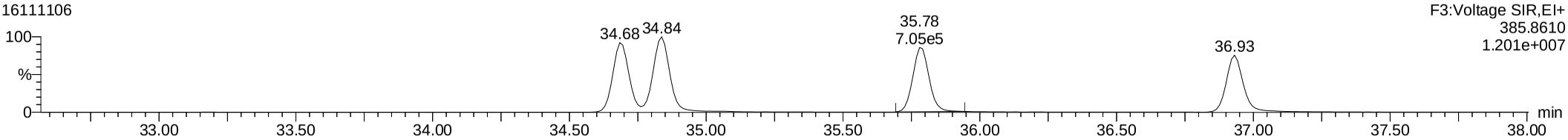
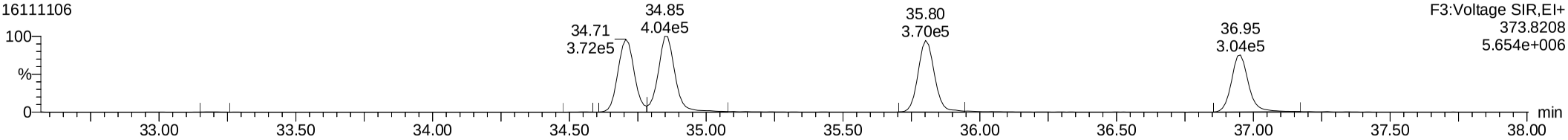
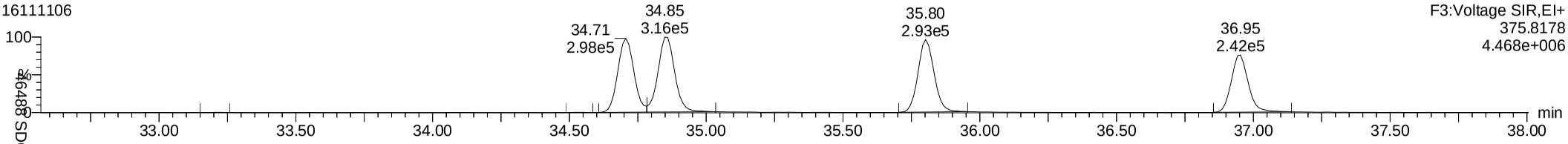


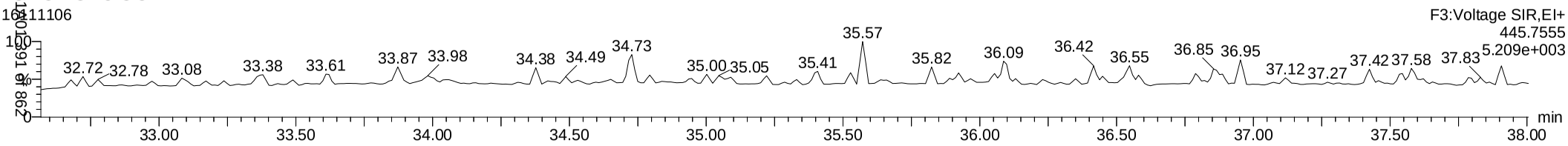
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



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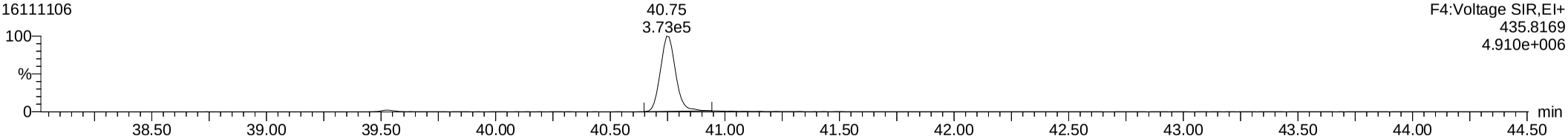

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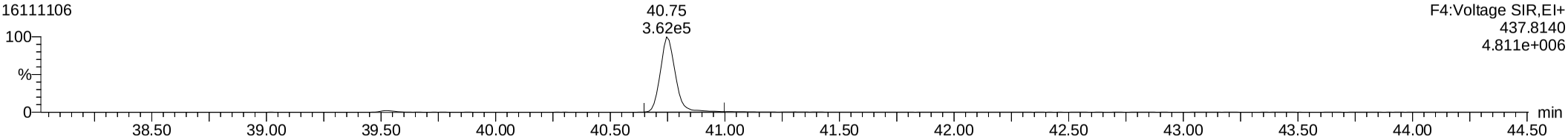
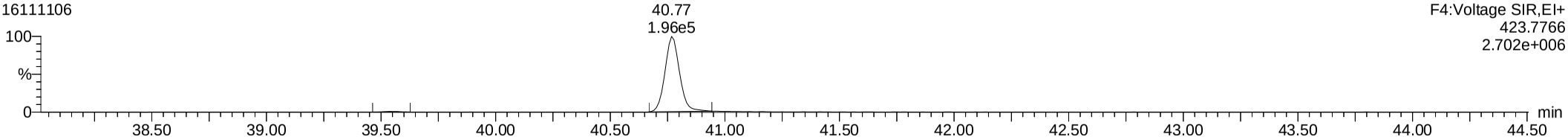
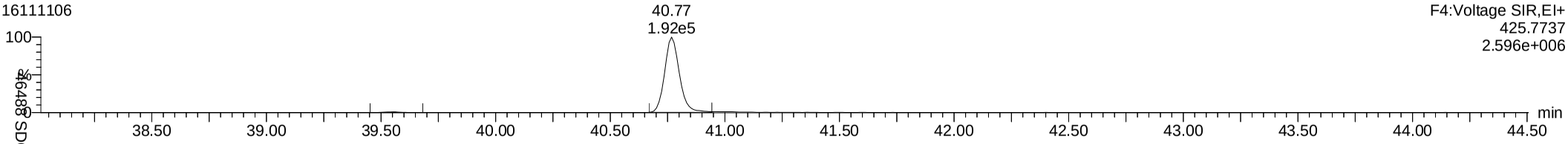


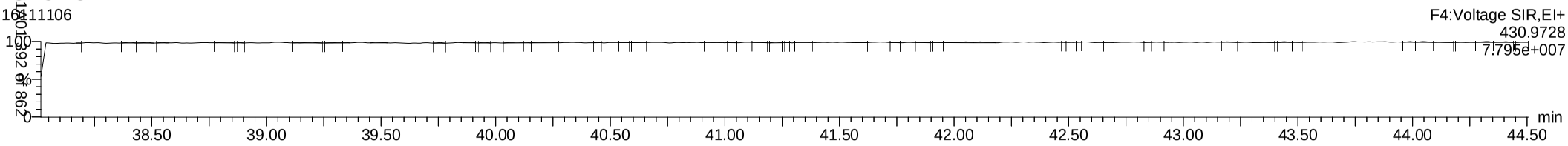
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



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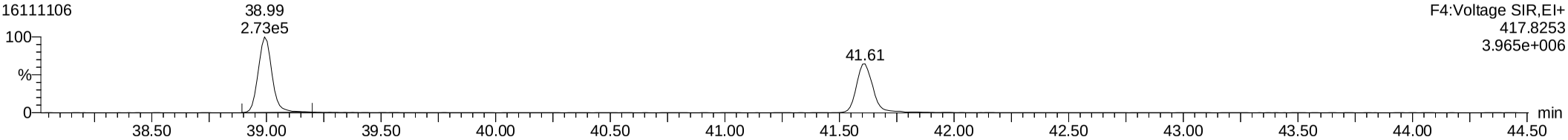
ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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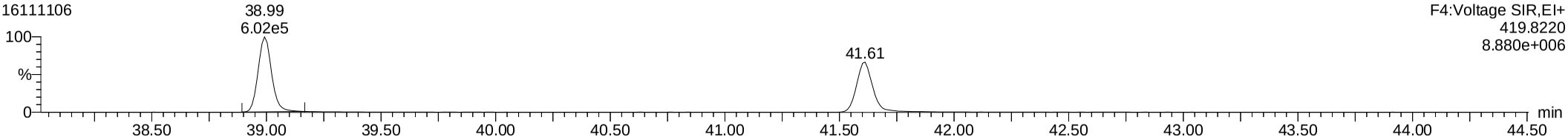
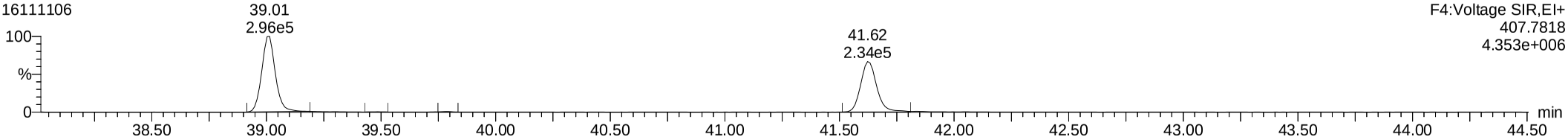
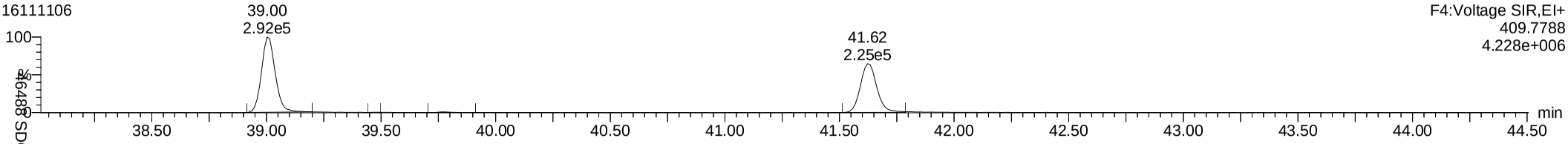


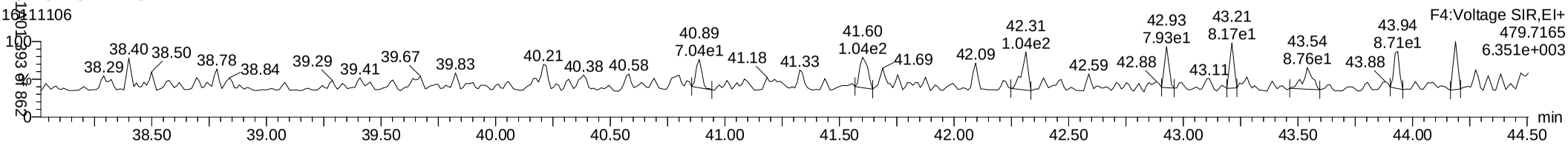
Total-heptafurans



Total-heptafurans



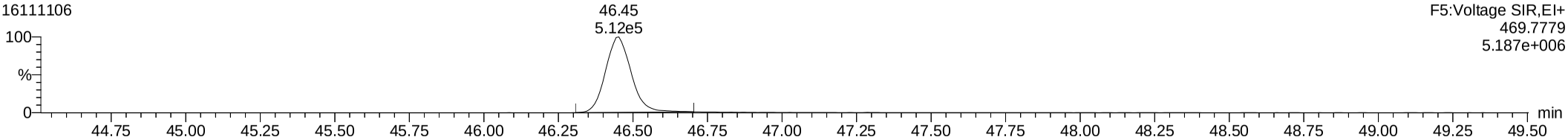
FUNCTION4 NCDPE



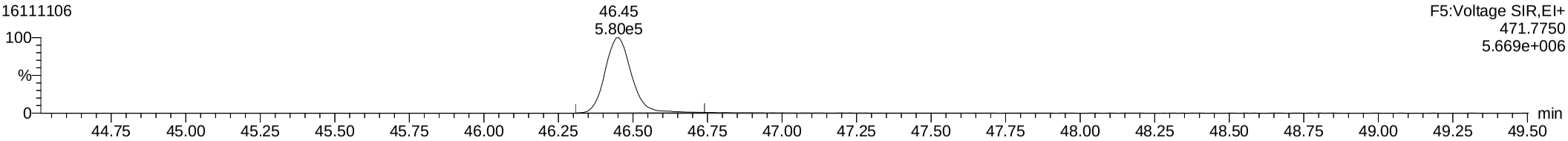
46488 SDG PH1001393 of 862

ID: DLCSD1A, Name: 16111106, Date: 11-Nov-2016, Time: 16:05:44, Conditions: AUTOSPEC01, User: PK

13C-OCDD



13C-OCDD



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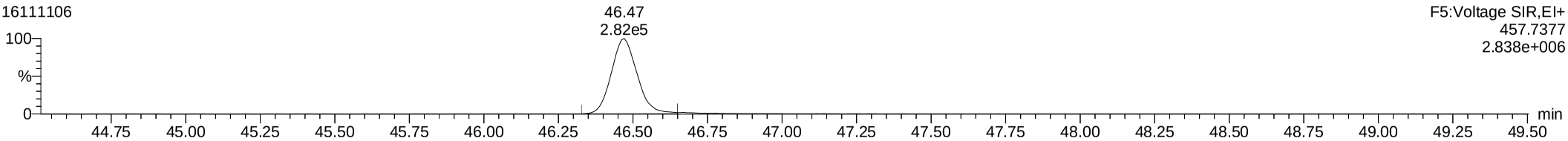

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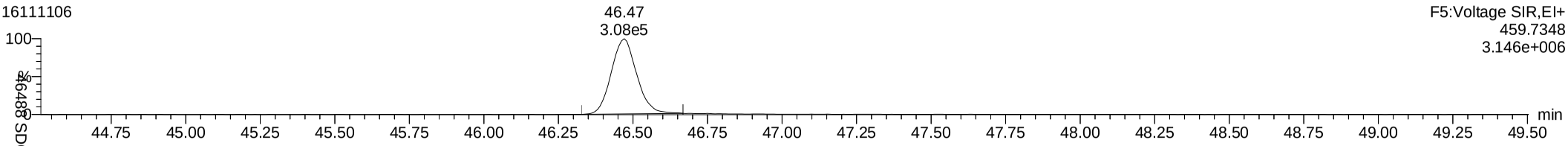
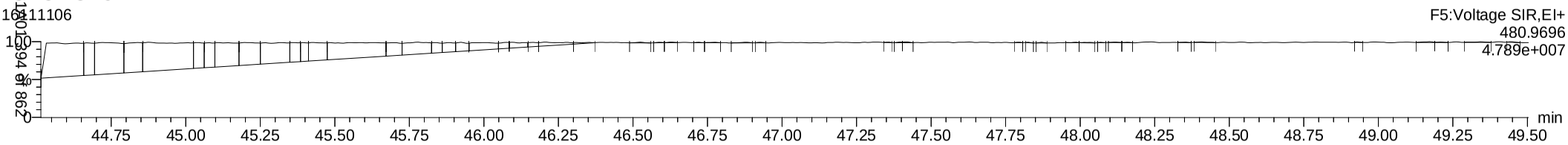


FUNCTION5 PFK



46488 SDG PH1401394 of 862

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Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 14:02:02 Pacific Standard Time

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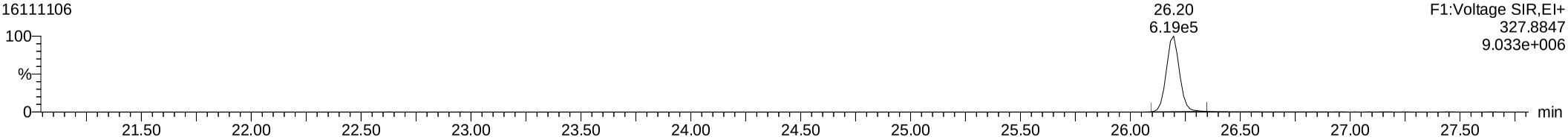
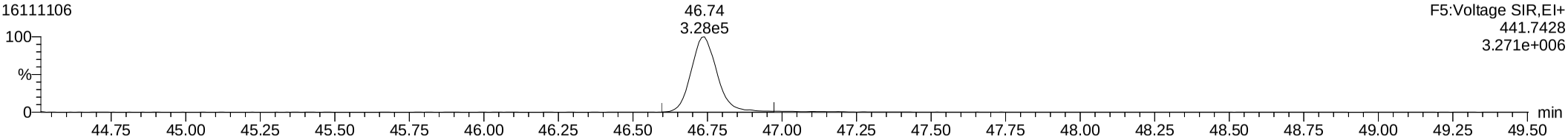
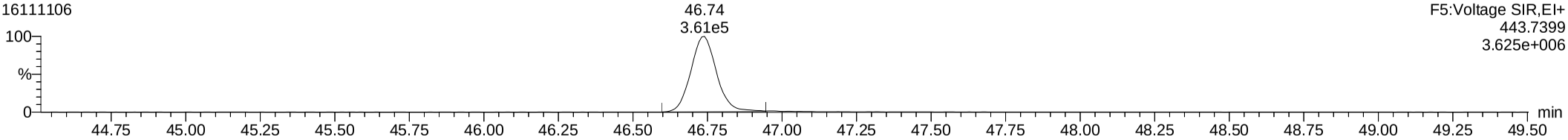
37CL-2378-TCDD



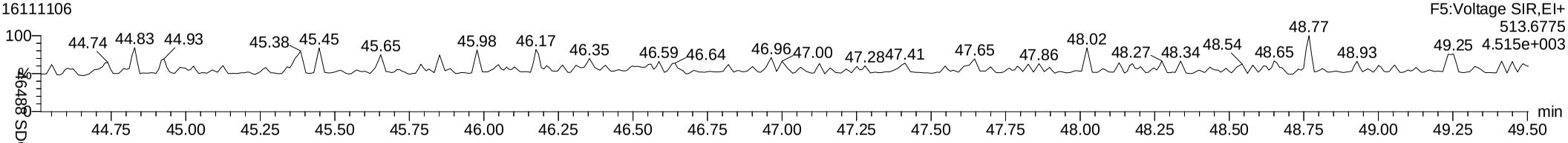
OCDF



OCDF



FUNCTION5 DCDPE



FORM 3A-HR
LABORATORY CONTROL SAMPLE PERCENT RECOVERY
DATA SUMMARY

EPA SAMPLE NO.
DLCS07

Lab Name: Analytical Resources, Inc. Contract: EPW16004
Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01
Matrix: Soil Analytical Method: CDD/CDF Lab Sample ID: BEK0165-BS1
Sample wt/vol: 10 (g/ml) g Lab File ID: 16110905
Decanted (Y/N): N Extraction Method: EPA 1613 Date Received:
Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/16 12:40
Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/09/16 15:06
GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid
Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids:

CL No.	Spike Analytes	Spike Added	Amount Recovered	%R #	QC Limits
4	2,3,7,8-TCDD	20.000	21	106	67 - 158
5	1,2,3,7,8-PeCDD	100.00	110	107	70 - 142
6	1,2,3,4,7,8-HxCDD	100.00	100	102	70 - 164
6	1,2,3,6,7,8-HxCDD	100.00	110	107	76 - 134
6	1,2,3,7,8,9-HxCDD	100.00	110	109	64 - 162
7	1,2,3,4,6,7,8-HpCDD	100.00	110	107	70 - 140
8	OCDD	200.00	220	109	78 - 144
4	2,3,7,8-TCDF	20.000	21	107	75 - 158
5	1,2,3,7,8-PeCDF	100.00	100	103	80 - 134
5	2,3,4,7,8-PeCDF	100.00	100	101	68 - 160
6	1,2,3,4,7,8-HxCDF	100.00	100	103	72 - 134
6	1,2,3,6,7,8-HxCDF	100.00	100	102	84 - 130
6	1,2,3,7,8,9-HxCDF	100.00	100	104	78 - 130
6	2,3,4,6,7,8-HxCDF	100.00	110	106	70 - 156
7	1,2,3,4,6,7,8-HpCDF	100.00	110	108	82 - 132
7	1,2,3,4,7,8,9-HpCDF	100.00	100	102	78 - 138
8	OCDF	200.00	210	105	63 - 170

FORM 3A-HR
LABORATORY CONTROL SAMPLE PERCENT RECOVERY
DATA SUMMARY

EPA SAMPLE NO.
DLCSD07

Lab Name: Analytical Resources, Inc. Contract: EPW16004
Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01
Matrix: Soil Analytical Method: CDD/CDF Lab Sample ID: BEK0165-BSD1
Sample wt/vol: 10 (g/ml) g Lab File ID: 16110906
Decanted (Y/N): N Extraction Method: EPA 1613 Date Received:
Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/07/16 12:40
Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/09/16 16:06
GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid
Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids:

CL No.	Spike Analytes	Spike Added	Amount Recovered	%R #	QC Limits
4	2,3,7,8-TCDD	20.000	21	106	67 - 158
5	1,2,3,7,8-PeCDD	100.00	110	106	70 - 142
6	1,2,3,4,7,8-HxCDD	100.00	100	103	70 - 164
6	1,2,3,6,7,8-HxCDD	100.00	100	105	76 - 134
6	1,2,3,7,8,9-HxCDD	100.00	110	108	64 - 162
7	1,2,3,4,6,7,8-HpCDD	100.00	110	107	70 - 140
8	OCDD	200.00	210	103	78 - 144
4	2,3,7,8-TCDF	20.000	21	107	75 - 158
5	1,2,3,7,8-PeCDF	100.00	100	103	80 - 134
5	2,3,4,7,8-PeCDF	100.00	100	102	68 - 160
6	1,2,3,4,7,8-HxCDF	100.00	100	102	72 - 134
6	1,2,3,6,7,8-HxCDF	100.00	100	102	84 - 130
6	1,2,3,7,8,9-HxCDF	100.00	100	104	78 - 130
6	2,3,4,6,7,8-HxCDF	100.00	100	103	70 - 156
7	1,2,3,4,6,7,8-HpCDF	100.00	110	109	82 - 132
7	1,2,3,4,7,8,9-HpCDF	100.00	100	100	78 - 138
8	OCDF	200.00	210	104	63 - 170

FORM 3B-HR

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE

RELATIVE PERCENT DIFFERENCE DATA SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Soil Analytical Method: CDD/CDF LCS EPA Sample No.: DLCS07

Sample wt/vol: 10 (g/ml) g LCSD EPA Sample No.: DLCSD07

Decanted (Y/N): N Extraction Method: EPA 1613 Fin. Ext. Volume: 20 (uL)

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Concentration Units: (pg/L or ng/kg) ng/kg % Solids/Lipids:

CL No.	Spike Analytes	LCS %R #	LCSD %R #	RPD #
4	2,3,7,8-TCDD	106	106	0.6
5	1,2,3,7,8-PeCDD	107	106	1.2
6	1,2,3,4,7,8-HxCDD	102	103	1.7
6	1,2,3,6,7,8-HxCDD	107	105	1.9
6	1,2,3,7,8,9-HxCDD	109	108	0.7
7	1,2,3,4,6,7,8-HpCDD	107	107	0.2
8	OCDD	109	103	5.8
4	2,3,7,8-TCDF	107	107	0.6
5	1,2,3,7,8-PeCDF	103	103	0.6
5	2,3,4,7,8-PeCDF	101	102	0.2
6	1,2,3,4,7,8-HxCDF	103	102	0.4
6	1,2,3,6,7,8-HxCDF	102	102	0.1
6	1,2,3,7,8,9-HxCDF	104	104	0.0
6	2,3,4,6,7,8-HxCDF	106	103	2.1
7	1,2,3,4,6,7,8-HpCDF	108	109	1.0
7	1,2,3,4,7,8,9-HpCDF	102	100	1.8
8	OCDF	105	104	0.9

FORM 3A-HR
LABORATORY CONTROL SAMPLE PERCENT RECOVERY
DATA SUMMARY

EPA SAMPLE NO.
DLCS10

Lab Name: Analytical Resources, Inc. Contract: EPW16004
Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01
Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0276-BS1
Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111405
Decanted (Y/N): N Extraction Method: EPA 1613 Date Received:
Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/16 06:00
Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/14/16 13:38
GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili, Acid
Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Spike Analytes	Spike Added	Amount Recovered	%R #	QC Limits
4	2,3,7,8-TCDD	200.00	210	106	67 - 158
5	1,2,3,7,8-PeCDD	1000.0	1000	102	70 - 142
6	1,2,3,4,7,8-HxCDD	1000.0	970	97	70 - 164
6	1,2,3,6,7,8-HxCDD	1000.0	1000	102	76 - 134
6	1,2,3,7,8,9-HxCDD	1000.0	1000	101	64 - 162
7	1,2,3,4,6,7,8-HpCDD	1000.0	1000	103	70 - 140
8	OCDD	2000.0	1800	91	78 - 144
4	2,3,7,8-TCDF	200.00	210	103	75 - 158
5	1,2,3,7,8-PeCDF	1000.0	990	99	80 - 134
5	2,3,4,7,8-PeCDF	1000.0	970	97	68 - 160
6	1,2,3,4,7,8-HxCDF	1000.0	1000	100	72 - 134
6	1,2,3,6,7,8-HxCDF	1000.0	1000	101	84 - 130
6	1,2,3,7,8,9-HxCDF	1000.0	1000	100	78 - 130
6	2,3,4,6,7,8-HxCDF	1000.0	1000	100	70 - 156
7	1,2,3,4,6,7,8-HpCDF	1000.0	1000	104	82 - 132
7	1,2,3,4,7,8,9-HpCDF	1000.0	980	98	78 - 138
8	OCDF	2000.0	2000	100	63 - 170

FORM 3A-HR
LABORATORY CONTROL SAMPLE PERCENT RECOVERY
DATA SUMMARY

EPA SAMPLE NO.
DLCSD10

Lab Name: Analytical Resources, Inc.
Contract: EPW16004
Lab Code: ARI Case No.: 46488
MA No.: SDG No: PH1A01
Matrix: Water Analytical Method: CDD/CDF
Lab Sample ID: BEK0276-BSD1
Sample wt/vol: 1000 (g/ml) mL
Lab File ID: 16111406
Decanted (Y/N): N Extraction Method: EPA 1613
Date Received:
Fin. Ext. Volume: 20 (uL) Dil. Factor: 1
Date Extracted: 11/10/16 06:00
Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01
Date Analyzed: 11/14/16 14:32
GC Column: RTX-Dioxin2 ID: 0.25 (mm)
Cleanup Types: Flor, Sili, Acid
Concentration Units: (pg/L or ng/kg) pg/L
% Solids/Lipids:

CL No.	Spike Analytes	Spike Added	Amount Recovered	%R #	QC Limits
4	2,3,7,8-TCDD	200.00	200	102	67 - 158
5	1,2,3,7,8-PeCDD	1000.0	1000	102	70 - 142
6	1,2,3,4,7,8-HxCDD	1000.0	1000	100	70 - 164
6	1,2,3,6,7,8-HxCDD	1000.0	990	99	76 - 134
6	1,2,3,7,8,9-HxCDD	1000.0	1000	101	64 - 162
7	1,2,3,4,6,7,8-HpCDD	1000.0	1000	101	70 - 140
8	OCDD	2000.0	1900	94	78 - 144
4	2,3,7,8-TCDF	200.00	210	103	75 - 158
5	1,2,3,7,8-PeCDF	1000.0	1000	103	80 - 134
5	2,3,4,7,8-PeCDF	1000.0	990	99	68 - 160
6	1,2,3,4,7,8-HxCDF	1000.0	1000	100	72 - 134
6	1,2,3,6,7,8-HxCDF	1000.0	1000	103	84 - 130
6	1,2,3,7,8,9-HxCDF	1000.0	1000	101	78 - 130
6	2,3,4,6,7,8-HxCDF	1000.0	1000	102	70 - 156
7	1,2,3,4,6,7,8-HpCDF	1000.0	1100	105	82 - 132
7	1,2,3,4,7,8,9-HpCDF	1000.0	1000	101	78 - 138
8	OCDF	2000.0	2000	101	63 - 170

FORM 3B-HR

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE

RELATIVE PERCENT DIFFERENCE DATA SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF LCS EPA Sample No.: DLCS10

Sample wt/vol: 1000 (g/ml) mL LCSD EPA Sample No.: DLCSD10

Decanted (Y/N): N Extraction Method: EPA 1613 Fin. Ext. Volume: 20 (uL)

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Spike Analytes	LCS %R #	LCSD %R #	RPD #
4	2,3,7,8-TCDD	106	102	3.3
5	1,2,3,7,8-PeCDD	102	102	0.4
6	1,2,3,4,7,8-HxCDD	97	100	2.4
6	1,2,3,6,7,8-HxCDD	102	99	2.7
6	1,2,3,7,8,9-HxCDD	101	101	0.5
7	1,2,3,4,6,7,8-HpCDD	103	101	1.2
8	OCDD	91	94	2.9
4	2,3,7,8-TCDF	103	103	0.6
5	1,2,3,7,8-PeCDF	99	103	3.3
5	2,3,4,7,8-PeCDF	97	99	2.5
6	1,2,3,4,7,8-HxCDF	100	100	0.2
6	1,2,3,6,7,8-HxCDF	101	103	1.7
6	1,2,3,7,8,9-HxCDF	100	101	1.1
6	2,3,4,6,7,8-HxCDF	100	102	2.1
7	1,2,3,4,6,7,8-HpCDF	104	105	1.6
7	1,2,3,4,7,8,9-HpCDF	98	101	2.8
8	OCDF	100	101	0.7

FORM 3A-HR
LABORATORY CONTROL SAMPLE PERCENT RECOVERY
DATA SUMMARY

EPA SAMPLE NO.
DLCS1A

Lab Name: Analytical Resources, Inc. Contract: EPW16004
Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01
Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0277-BS1
Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111105
Decanted (Y/N): N Extraction Method: EPA 1613 Date Received:
Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/16 07:45
Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/16 15:12
GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili
Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Spike Analytes	Spike Added	Amount Recovered	%R #	QC Limits
4	2,3,7,8-TCDD	200.00	210	105	67 - 158
5	1,2,3,7,8-PeCDD	1000.0	1100	106	70 - 142
6	1,2,3,4,7,8-HxCDD	1000.0	1000	102	70 - 164
6	1,2,3,6,7,8-HxCDD	1000.0	1000	104	76 - 134
6	1,2,3,7,8,9-HxCDD	1000.0	1000	105	64 - 162
7	1,2,3,4,6,7,8-HpCDD	1000.0	1000	103	70 - 140
8	OCDD	2000.0	2000	100	78 - 144
4	2,3,7,8-TCDF	200.00	210	105	75 - 158
5	1,2,3,7,8-PeCDF	1000.0	1100	105	80 - 134
5	2,3,4,7,8-PeCDF	1000.0	1000	100	68 - 160
6	1,2,3,4,7,8-HxCDF	1000.0	1000	102	72 - 134
6	1,2,3,6,7,8-HxCDF	1000.0	1000	100	84 - 130
6	1,2,3,7,8,9-HxCDF	1000.0	1000	104	78 - 130
6	2,3,4,6,7,8-HxCDF	1000.0	1000	103	70 - 156
7	1,2,3,4,6,7,8-HpCDF	1000.0	1000	102	82 - 132
7	1,2,3,4,7,8,9-HpCDF	1000.0	1000	100	78 - 138
8	OCDF	2000.0	2200	108	63 - 170

FORM 3A-HR
LABORATORY CONTROL SAMPLE PERCENT RECOVERY
DATA SUMMARY

EPA SAMPLE NO.
DLCSD1A

Lab Name: Analytical Resources, Inc. Contract: EPW16004
Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01
Matrix: Water Analytical Method: CDD/CDF Lab Sample ID: BEK0277-BSD1
Sample wt/vol: 1000 (g/ml) mL Lab File ID: 16111106
Decanted (Y/N): N Extraction Method: EPA 1613 Date Received:
Fin. Ext. Volume: 20 (uL) Dil. Factor: 1 Date Extracted: 11/10/16 07:45
Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/11/16 16:05
GC Column: RTX-Dioxin2 ID: 0.25 (mm) Cleanup Types: Flor, Sili
Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Spike Analytes	Spike Added	Amount Recovered	%R #	QC Limits
4	2,3,7,8-TCDD	200.00	210	104	67 - 158
5	1,2,3,7,8-PeCDD	1000.0	1000	105	70 - 142
6	1,2,3,4,7,8-HxCDD	1000.0	1000	101	70 - 164
6	1,2,3,6,7,8-HxCDD	1000.0	1000	103	76 - 134
6	1,2,3,7,8,9-HxCDD	1000.0	1000	104	64 - 162
7	1,2,3,4,6,7,8-HpCDD	1000.0	1000	103	70 - 140
8	OCDD	2000.0	2000	98	78 - 144
4	2,3,7,8-TCDF	200.00	220	108	75 - 158
5	1,2,3,7,8-PeCDF	1000.0	1000	101	80 - 134
5	2,3,4,7,8-PeCDF	1000.0	1000	101	68 - 160
6	1,2,3,4,7,8-HxCDF	1000.0	1000	104	72 - 134
6	1,2,3,6,7,8-HxCDF	1000.0	1000	104	84 - 130
6	1,2,3,7,8,9-HxCDF	1000.0	1000	102	78 - 130
6	2,3,4,6,7,8-HxCDF	1000.0	1100	106	70 - 156
7	1,2,3,4,6,7,8-HpCDF	1000.0	1000	103	82 - 132
7	1,2,3,4,7,8,9-HpCDF	1000.0	1000	103	78 - 138
8	OCDF	2000.0	2200	108	63 - 170

FORM 3B-HR

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE

RELATIVE PERCENT DIFFERENCE DATA SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF LCS EPA Sample No.: DLCS1A

Sample wt/vol: 1000 (g/ml) mL LCSD EPA Sample No.: DLCSD1A

Decanted (Y/N): N Extraction Method: EPA 1613 Fin. Ext. Volume: 20 (uL)

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm)

Concentration Units: (pg/L or ng/kg) pg/L % Solids/Lipids:

CL No.	Spike Analytes	LCS %R #	LCSD %R #	RPD #
4	2,3,7,8-TCDD	105	104	0.8
5	1,2,3,7,8-PeCDD	106	105	1.2
6	1,2,3,4,7,8-HxCDD	102	101	1.2
6	1,2,3,6,7,8-HxCDD	104	103	1.5
6	1,2,3,7,8,9-HxCDD	105	104	0.8
7	1,2,3,4,6,7,8-HpCDD	103	103	0.6
8	OCDD	100	98	2.2
4	2,3,7,8-TCDF	105	108	2.3
5	1,2,3,7,8-PeCDF	105	101	4.1
5	2,3,4,7,8-PeCDF	100	101	0.8
6	1,2,3,4,7,8-HxCDF	102	104	2.5
6	1,2,3,6,7,8-HxCDF	100	104	3.7
6	1,2,3,7,8,9-HxCDF	104	102	1.6
6	2,3,4,6,7,8-HxCDF	103	106	2.9
7	1,2,3,4,6,7,8-HpCDF	102	103	1.2
7	1,2,3,4,7,8,9-HpCDF	100	103	2.6
8	OCDF	108	108	0.7

EPA SAMPLE NO.

DBLK07

FORM 4-HR

METHOD BLANK SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Matrix: Soil Analytical Method: CDD/CDF Lab Sample ID: BEK0165-BLK1

Sample wt/vol: 10 (g/ml) g Lab File ID: 16110904

Decanted (Y/N): N Extraction Method: EPA 1613 Date Received:

Fin. Ext. Volume: 20 (uL) Date Extracted: 11/07/16 12:40

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01 Date Analyzed: 11/09/16 14:15

GC Column: RTX-Dioxin2 ID: 0.25 (mm) PreparationBatch ID: BEK0165

Cleanup Types: Flor, Sili, Acid

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed
01	PH1A02	16K0015-02	16110922	11/10/2016
02	PH1A04	16K0015-04	16110923	11/10/2016
03	PH1A06	16K0015-06	16110924	11/10/2016
04	DLCS07	BEK0165-BS1	16110905	11/09/2016
05	DLCSD07	BEK0165-BSD1	16110906	11/09/2016
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EPA SAMPLE NO.

DBLK10

FORM 4-HR

METHOD BLANK SUMMARY

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0276-BLK1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111404

Decanted (Y/N): N Extraction Method: EPA 1613

Date Received:

Fin. Ext. Volume: 20 (uL)

Date Extracted: 11/10/16 06:00

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/14/16 12:47

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

PreparationBatch ID: BEK0276

Cleanup Types: Flor, Sili, Acid

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed
01	PH1A05	16K0015-05	16111407	11/14/2016
02	DLCS10	BEK0276-BS1	16111405	11/14/2016
03	DLCSD10	BEK0276-BSD1	16111406	11/14/2016
04				
05				
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EPA SAMPLE NO.

DBLK1A

FORM 4-HR

METHOD BLANK SUMMARY

Lab Name: Analytical Resources, Inc.

Contract: EPW16004

Lab Code: ARI Case No.: 46488

MA No.: SDG No: PH1A01

Matrix: Water Analytical Method: CDD/CDF

Lab Sample ID: BEK0277-BLK1

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: 16111104

Decanted (Y/N): N Extraction Method: EPA 1613

Date Received:

Fin. Ext. Volume: 20 (uL)

Date Extracted: 11/10/16 07:45

Injection Volume: 1.0 (uL) Inst.ID: AUTOSPEC01

Date Analyzed: 11/11/16 14:21

GC Column: RTX-Dioxin2 ID: 0.25 (mm)

PreparationBatch ID: BEK0277

Cleanup Types: Flor, Sili

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed
01	PH1A01	16K0015-01	16111108	11/11/2016
02	PH1A03	16K0015-03	16111109	11/11/2016
03	DLCS1A	BEK0277-BS1	16111105	11/11/2016
04	DLCSD1A	BEK0277-BSD1	16111106	11/11/2016
05				
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EPA SAMPLE NO.

CS3AA

FORM 5A-HR
INSTRUMENT PERFORMANCE CHECK
WINDOW DEFINING MIX (WDM) SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) Lab File ID: 160510ICAL

Date Analyzed: 05/10/16 Time Analyzed: 15:30

Analytical Method: CDD/CDF

CL No.	CDD/CDF	RT First Eluting	RT Last Eluting
4	TCDD	24.05	27.50
4	TCDF	22.76	27.77
5	PeCDD	29.29	32.42
5	PeCDF	27.62	32.79
6	HxCDD	34.51	37.23
6	HxCDF	33.72	37.67
7	HpCDD	40.30	41.57
7	HpCDF	39.74	42.48
8	OCDD	47.57	47.57
8	OCDF	47.85	47.85

EPA SAMPLE NO.

CS3C1

FORM 5A-HR
INSTRUMENT PERFORMANCE CHECK
WINDOW DEFINING MIX (WDM) SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) Lab File ID: 16110902

Date Analyzed: 11/09/16 Time Analyzed: 12:28

Analytical Method: CDD/CDF

CL No.	CDD/CDF	RT First Eluting	RT Last Eluting
4	TCDD	23.36	26.8
4	TCDF	22.09	27.05
5	PeCDD	28.58	31.68
5	PeCDF	26.9	32.06
6	HxCDD	33.79	36.49
6	HxCDF	32.97	36.94
7	HpCDD	39.54	40.77
7	HpCDF	39	41.62
8	OCDD	46.46	46.46
8	OCDF	46.73	46.73

EPA SAMPLE NO.

CS3C2

FORM 5A-HR
INSTRUMENT PERFORMANCE CHECK
WINDOW DEFINING MIX (WDM) SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) Lab File ID: 16110914

Date Analyzed: 11/09/16 Time Analyzed: 23:10

Analytical Method: CDD/CDF

CL No.	CDD/CDF	RT First Eluting	RT Last Eluting
4	TCDD	23.33	26.77
4	TCDF	22.06	27.02
5	PeCDD	28.56	31.66
5	PeCDF	26.87	32.04
6	HxCDD	33.76	36.47
6	HxCDF	32.96	36.92
7	HpCDD	39.52	40.74
7	HpCDF	38.98	41.6
8	OCDD	46.44	46.44
8	OCDF	46.71	46.71

EPA SAMPLE NO.

CS3C3

FORM 5A-HR
INSTRUMENT PERFORMANCE CHECK
WINDOW DEFINING MIX (WDM) SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) Lab File ID: 16110925

Date Analyzed: 11/10/16 Time Analyzed: 09:08

Analytical Method: CDD/CDF

CL No.	CDD/CDF	RT First Eluting	RT Last Eluting
4	TCDD	23.34	26.78
4	TCDF	22.07	27.03
5	PeCDD	28.57	31.68
5	PeCDF	26.9	32.05
6	HxCDD	33.77	36.49
6	HxCDF	32.98	36.95
7	HpCDD	39.55	40.77
7	HpCDF	39.01	41.62
8	OCDD	46.47	46.47
8	OCDF	46.73	46.73

EPA SAMPLE NO.

CS3C4

FORM 5A-HR
INSTRUMENT PERFORMANCE CHECK
WINDOW DEFINING MIX (WDM) SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) Lab File ID: 16110929

Date Analyzed: 11/10/16 Time Analyzed: 12:55

Analytical Method: CDD/CDF

CL No.	CDD/CDF	RT First Eluting	RT Last Eluting
4	TCDD	23.34	26.77
4	TCDF	22.06	27.03
5	PeCDD	28.57	31.67
5	PeCDF	26.88	32.05
6	HxCDD	33.76	36.48
6	HxCDF	32.97	36.93
7	HpCDD	39.54	40.76
7	HpCDF	39	41.61
8	OCDD	46.46	46.46
8	OCDF	46.73	46.73

EPA SAMPLE NO.

CS3D1

FORM 5A-HR
INSTRUMENT PERFORMANCE CHECK
WINDOW DEFINING MIX (WDM) SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) Lab File ID: 16111102

Date Analyzed: 11/11/16 Time Analyzed: 12:01

Analytical Method: CDD/CDF

CL No.	CDD/CDF	RT First Eluting	RT Last Eluting
4	TCDD	23.39	26.83
4	TCDF	22.12	27.08
5	PeCDD	28.61	31.71
5	PeCDF	26.94	32.10
6	HxCDD	33.81	36.53
6	HxCDF	33.02	36.99
7	HpCDD	39.57	40.8
7	HpCDF	39.05	41.66
8	OCDD	46.51	46.51
8	OCDF	46.77	46.77

EPA SAMPLE NO.

CS3D2

FORM 5A-HR
INSTRUMENT PERFORMANCE CHECK
WINDOW DEFINING MIX (WDM) SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) Lab File ID: 16111113

Date Analyzed: 11/11/16 Time Analyzed: 22:18

Analytical Method: CDD/CDF

CL No.	CDD/CDF	RT First Eluting	RT Last Eluting
4	TCDD	23.36	26.8
4	TCDF	22.09	27.05
5	PeCDD	28.58	31.69
5	PeCDF	26.91	32.06
6	HxCDD	33.78	36.5
6	HxCDF	32.98	36.96
7	HpCDD	39.55	40.78
7	HpCDF	39.01	41.63
8	OCDD	46.48	46.48
8	OCDF	46.75	46.75

EPA SAMPLE NO.

CS3E1

FORM 5A-HR
INSTRUMENT PERFORMANCE CHECK
WINDOW DEFINING MIX (WDM) SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) Lab File ID: 16111402

Date Analyzed: 11/14/16 Time Analyzed: 10:49

Analytical Method: CDD/CDF

CL No.	CDD/CDF	RT First Eluting	RT Last Eluting
4	TCDD	23.36	26.81
4	TCDF	22.1	27.05
5	PeCDD	28.59	31.69
5	PeCDF	26.91	32.07
6	HxCDD	33.78	36.49
6	HxCDF	32.98	36.95
7	HpCDD	39.55	40.77
7	HpCDF	39	41.62
8	OCDD	46.46	46.46
8	OCDF	46.72	46.72

EPA SAMPLE NO.

CS3E2

FORM 5A-HR
INSTRUMENT PERFORMANCE CHECK
WINDOW DEFINING MIX (WDM) SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) Lab File ID: 16111408

Date Analyzed: 11/14/16 Time Analyzed: 16:20

Analytical Method: CDD/CDF

CL No.	CDD/CDF	RT First Eluting	RT Last Eluting
4	TCDD	23.33	26.77
4	TCDF	22.06	27.03
5	PeCDD	28.56	31.67
5	PeCDF	26.88	32.04
6	HxCDD	33.76	36.47
6	HxCDF	32.96	36.93
7	HpCDD	39.53	40.76
7	HpCDF	38.99	41.61
8	OCDD	46.44	46.44
8	OCDF	46.71	46.71

EPA SAMPLE NO.

ISC01A

FORM 5B-HR

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

HIGH RESOLUTION

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 Lab File ID: 16051003

Date Analyzed: 05/10/16 Time Analyzed: 11:43

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

For the column Performance Solution beginning the 12-hour period:

1278-TCDD/2378-TCDD: 8.9

3467-TCDF/2378-TCDF: 7.1

Quality Control (QC) Limits: ≤ 25%

Percent Valley Determination for Confirmation Column: ID: (mm)

For the column Performance Solution beginning the 12-hour period:

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed	Time Analyzed
1	ISC01A	SEE0076-RES1	16051003	05/10/2016	11:43
2	CS1AA	SEE0076-CAL1	160510ICAL	05/10/2016	13:36
3	CS2AA	SEE0076-CAL2	160510ICAL	05/10/2016	14:27
4	CS3AA	SEE0076-CAL3	160510ICAL	05/10/2016	15:30
5	CS4AA	SEE0076-CAL4	160510ICAL	05/10/2016	16:22
6	CS5AA	SEE0076-CAL5	160510ICAL	05/10/2016	17:15
7	CS6AA	SEE0076-CAL6	160510ICAL	05/10/2016	18:09
8					
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EPA SAMPLE NO.

ISCC1

FORM 5B-HR

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

HIGH RESOLUTION

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 Lab File ID: 16110903

Date Analyzed: 11/09/16 Time Analyzed: 13:20

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

For the column Performance Solution beginning the 12-hour period:

1278-TCDD/2378-TCDD: 16.7

3467-TCDF/2378-TCDF: 16.2

Quality Control (QC) Limits: ≤ 25%

Percent Valley Determination for Confirmation Column: ID: (mm)

For the column Performance Solution beginning the 12-hour period:

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed	Time Analyzed
1	CS3C1	SEK0153-ICV1	16110902	11/09/2016	12:28
2	ISCC1	SEK0153-RES1	16110903	11/09/2016	13:20
3	DBLK07	BEK0165-BLK1	16110904	11/09/2016	14:15
4	DLCS07	BEK0165-BS1	16110905	11/09/2016	15:06
5	DLCSD07	BEK0165-BSD1	16110906	11/09/2016	16:06
6	CS3C2	SEK0153-CCV1	16110914	11/09/2016	23:10
7	ISCC2	SEK0153-RES2	16110915	11/10/2016	00:08
8	PH1A02	16K0015-02	16110922	11/10/2016	06:28
9	PH1A04	16K0015-04	16110923	11/10/2016	07:21
10	PH1A06	16K0015-06	16110924	11/10/2016	08:14
11	CS3C3	SEK0153-CCV2	16110925	11/10/2016	09:08
12	ISCC3	SEK0153-RES3	16110926	11/10/2016	10:06
13	CS3C4	SEK0153-CCV3	16110929	11/10/2016	12:55
14	ISCC4	SEK0153-RES4	16110930	11/10/2016	13:53
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EPA SAMPLE NO.

ISCC2

FORM 5B-HR

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

HIGH RESOLUTION

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 Lab File ID: 16110915

Date Analyzed: 11/10/16 Time Analyzed: 00:08

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

For the column Performance Solution beginning the 12-hour period:

1278-TCDD/2378-TCDD: 18.9

3467-TCDF/2378-TCDF: 16.7

Quality Control (QC) Limits: ≤ 25%

Percent Valley Determination for Confirmation Column: ID: (mm)

For the column Performance Solution beginning the 12-hour period:

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed	Time Analyzed
1	CS3C1	SEK0153-ICV1	16110902	11/09/2016	12:28
2	ISCC1	SEK0153-RES1	16110903	11/09/2016	13:20
3	DBLK07	BEK0165-BLK1	16110904	11/09/2016	14:15
4	DLCS07	BEK0165-BS1	16110905	11/09/2016	15:06
5	DLCSD07	BEK0165-BSD1	16110906	11/09/2016	16:06
6	CS3C2	SEK0153-CCV1	16110914	11/09/2016	23:10
7	ISCC2	SEK0153-RES2	16110915	11/10/2016	00:08
8	PH1A02	16K0015-02	16110922	11/10/2016	06:28
9	PH1A04	16K0015-04	16110923	11/10/2016	07:21
10	PH1A06	16K0015-06	16110924	11/10/2016	08:14
11	CS3C3	SEK0153-CCV2	16110925	11/10/2016	09:08
12	ISCC3	SEK0153-RES3	16110926	11/10/2016	10:06
13	CS3C4	SEK0153-CCV3	16110929	11/10/2016	12:55
14	ISCC4	SEK0153-RES4	16110930	11/10/2016	13:53
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EPA SAMPLE NO.

ISCC3

FORM 5B-HR

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

HIGH RESOLUTION

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 Lab File ID: 16110926

Date Analyzed: 11/10/16 Time Analyzed: 10:06

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

For the column Performance Solution beginning the 12-hour period:

1278-TCDD/2378-TCDD: 13.5

3467-TCDF/2378-TCDF: 16.5

Quality Control (QC) Limits: ≤ 25%

Percent Valley Determination for Confirmation Column: ID: (mm)

For the column Performance Solution beginning the 12-hour period:

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed	Time Analyzed
1	CS3C1	SEK0153-ICV1	16110902	11/09/2016	12:28
2	ISCC1	SEK0153-RES1	16110903	11/09/2016	13:20
3	DBLK07	BEK0165-BLK1	16110904	11/09/2016	14:15
4	DLCS07	BEK0165-BS1	16110905	11/09/2016	15:06
5	DLCSD07	BEK0165-BSD1	16110906	11/09/2016	16:06
6	CS3C2	SEK0153-CCV1	16110914	11/09/2016	23:10
7	ISCC2	SEK0153-RES2	16110915	11/10/2016	00:08
8	PH1A02	16K0015-02	16110922	11/10/2016	06:28
9	PH1A04	16K0015-04	16110923	11/10/2016	07:21
10	PH1A06	16K0015-06	16110924	11/10/2016	08:14
11	CS3C3	SEK0153-CCV2	16110925	11/10/2016	09:08
12	ISCC3	SEK0153-RES3	16110926	11/10/2016	10:06
13	CS3C4	SEK0153-CCV3	16110929	11/10/2016	12:55
14	ISCC4	SEK0153-RES4	16110930	11/10/2016	13:53
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EPA SAMPLE NO.

ISCC4

FORM 5B-HR

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

HIGH RESOLUTION

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 Lab File ID: 16110930

Date Analyzed: 11/10/16 Time Analyzed: 13:53

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

For the column Performance Solution beginning the 12-hour period:

1278-TCDD/2378-TCDD: 20.5

3467-TCDF/2378-TCDF: 20.8

Quality Control (QC) Limits: ≤ 25%

Percent Valley Determination for Confirmation Column: ID: (mm)

For the column Performance Solution beginning the 12-hour period:

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed	Time Analyzed
1	CS3C1	SEK0153-ICV1	16110902	11/09/2016	12:28
2	ISCC1	SEK0153-RES1	16110903	11/09/2016	13:20
3	DBLK07	BEK0165-BLK1	16110904	11/09/2016	14:15
4	DLCS07	BEK0165-BS1	16110905	11/09/2016	15:06
5	DLCSD07	BEK0165-BSD1	16110906	11/09/2016	16:06
6	CS3C2	SEK0153-CCV1	16110914	11/09/2016	23:10
7	ISCC2	SEK0153-RES2	16110915	11/10/2016	00:08
8	PH1A02	16K0015-02	16110922	11/10/2016	06:28
9	PH1A04	16K0015-04	16110923	11/10/2016	07:21
10	PH1A06	16K0015-06	16110924	11/10/2016	08:14
11	CS3C3	SEK0153-CCV2	16110925	11/10/2016	09:08
12	ISCC3	SEK0153-RES3	16110926	11/10/2016	10:06
13	CS3C4	SEK0153-CCV3	16110929	11/10/2016	12:55
14	ISCC4	SEK0153-RES4	16110930	11/10/2016	13:53
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EPA SAMPLE NO.

ISCD1

FORM 5B-HR

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

HIGH RESOLUTION

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 Lab File ID: 16111103

Date Analyzed: 11/11/16 Time Analyzed: 12:53

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

For the column Performance Solution beginning the 12-hour period:

1278-TCDD/2378-TCDD: 17.2

3467-TCDF/2378-TCDF: 17.5

Quality Control (QC) Limits: ≤ 25%

Percent Valley Determination for Confirmation Column: ID: (mm)

For the column Performance Solution beginning the 12-hour period:

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed	Time Analyzed
1	CS3D1	SEK0175-ICV1	16111102	11/11/2016	12:01
2	ISCD1	SEK0175-RES1	16111103	11/11/2016	12:53
3	DBLK1A	BEK0277-BLK1	16111104	11/11/2016	14:21
4	DLCS1A	BEK0277-BS1	16111105	11/11/2016	15:12
5	DLCSD1A	BEK0277-BSD1	16111106	11/11/2016	16:05
6	PH1A01	16K0015-01	16111108	11/11/2016	17:52
7	PH1A03	16K0015-03	16111109	11/11/2016	18:45
8	CS3D2	SEK0175-CCV1	16111113	11/11/2016	22:18
9	ISCD2	SEK0175-RES2	16111114	11/11/2016	23:16
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EPA SAMPLE NO.

ISCD2

FORM 5B-HR

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

HIGH RESOLUTION

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 Lab File ID: 16111114

Date Analyzed: 11/11/16 Time Analyzed: 23:16

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

For the column Performance Solution beginning the 12-hour period:

1278-TCDD/2378-TCDD: 19

3467-TCDF/2378-TCDF: 19.1

Quality Control (QC) Limits: ≤ 25%

Percent Valley Determination for Confirmation Column: ID: (mm)

For the column Performance Solution beginning the 12-hour period:

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed	Time Analyzed
1	CS3D1	SEK0175-ICV1	16111102	11/11/2016	12:01
2	ISCD1	SEK0175-RES1	16111103	11/11/2016	12:53
3	DBLK1A	BEK0277-BLK1	16111104	11/11/2016	14:21
4	DLCS1A	BEK0277-BS1	16111105	11/11/2016	15:12
5	DLCSD1A	BEK0277-BSD1	16111106	11/11/2016	16:05
6	PH1A01	16K0015-01	16111108	11/11/2016	17:52
7	PH1A03	16K0015-03	16111109	11/11/2016	18:45
8	CS3D2	SEK0175-CCV1	16111113	11/11/2016	22:18
9	ISCD2	SEK0175-RES2	16111114	11/11/2016	23:16
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EPA SAMPLE NO.

ISCE1

FORM 5B-HR

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

HIGH RESOLUTION

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 Lab File ID: 16111403

Date Analyzed: 11/14/16 Time Analyzed: 11:40

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

For the column Performance Solution beginning the 12-hour period:

1278-TCDD/2378-TCDD: 15.2

3467-TCDF/2378-TCDF: 19.4

Quality Control (QC) Limits: ≤ 25%

Percent Valley Determination for Confirmation Column: ID: (mm)

For the column Performance Solution beginning the 12-hour period:

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed	Time Analyzed
1	CS3E1	SEK0207-ICV1	16111402	11/14/2016	10:49
2	ISCE1	SEK0207-RES1	16111403	11/14/2016	11:40
3	DBLK10	BEK0276-BLK1	16111404	11/14/2016	12:47
4	DLCS10	BEK0276-BS1	16111405	11/14/2016	13:38
5	DLCSD10	BEK0276-BSD1	16111406	11/14/2016	14:32
6	PH1A05	16K0015-05	16111407	11/14/2016	15:25
7	CS3E2	SEK0207-CCV1	16111408	11/14/2016	16:20
8	ISCE2	SEK0207-RES2	16111409	11/14/2016	17:16
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EPA SAMPLE NO.

ISCE2

FORM 5B-HR

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

HIGH RESOLUTION

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 Lab File ID: 16111409

Date Analyzed: 11/14/16 Time Analyzed: 17:16

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

For the column Performance Solution beginning the 12-hour period:

1278-TCDD/2378-TCDD: 20.5

3467-TCDF/2378-TCDF: 18.6

Quality Control (QC) Limits: ≤ 25%

Percent Valley Determination for Confirmation Column: ID: (mm)

For the column Performance Solution beginning the 12-hour period:

	EPA Sample No.	Lab Sample ID	Lab File ID	Data Analyzed	Time Analyzed
1	CS3E1	SEK0207-ICV1	16111402	11/14/2016	10:49
2	ISCE1	SEK0207-RES1	16111403	11/14/2016	11:40
3	DBLK10	BEK0276-BLK1	16111404	11/14/2016	12:47
4	DLCS10	BEK0276-BS1	16111405	11/14/2016	13:38
5	DLCSD10	BEK0276-BSD1	16111406	11/14/2016	14:32
6	PH1A05	16K0015-05	16111407	11/14/2016	15:25
7	CS3E2	SEK0207-CCV1	16111408	11/14/2016	16:20
8	ISCE2	SEK0207-RES2	16111409	11/14/2016	17:16
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FORM 6A-HR
INITIAL CALIBRATION DATA SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS1:CS1AA

Init. Calib. Date(s): 05/10/2016 05/10/2016 CS2:CS2AA CS3:CS3AA CS4:CS4AA

Init. Calib. Time(s): 13:36 18:09 CS5:CS5AA CS6:CS6AA

Analytical Method: CDD/CDF

CL No.	Analyte Name	CS1	CS2	CS3	CS4	CS5	Mean RRF	% RSD	QC Limits
4	2,3,7,8-TCDD	0	1.115377	1.100376	1.144028	1.150807			
5	1,2,3,7,8-PeCDD	0.9219366	0.9579214	0.9628834	1.001705	0.9893907			
6	1,2,3,4,7,8-HxCDD	1.042764	0.9810013	1.023544	1.046335	1.040786			
6	1,2,3,6,7,8-HxCDD	0.9324052	0.9744786	0.9634003	0.994897	0.9876577			
6	1,2,3,7,8,9-HxCDD	0.9678897	0.9321987	1.003559	1.024956	1.023361			
7	1,2,3,4,6,7,8-HpCDD	0.9974608	1.037504	1.0097	1.027278	1.046087			
8	OCDD	1.036043	1.527806	1.00888	1.025001	1.021189			
4	2,3,7,8-TCDF	0	0.8797361	0.9295275	0.9408094	0.9588917			
5	1,2,3,7,8-PeCDF	0.9485384	0.9209936	0.9056015	0.9633152	0.9840803			
5	2,3,4,7,8-PeCDF	0.9035144	0.9573729	0.9682878	0.9666401	0.9842584			
6	1,2,3,4,7,8-HxCDF	1.117198	1.125003	1.135882	1.142157	1.152665			
6	1,2,3,6,7,8-HxCDF	1.063648	1.068909	1.111893	1.110729	1.121041			
6	1,2,3,7,8,9-HxCDF	1.124362	1.074397	1.083361	1.064959	1.119352			
6	2,3,4,6,7,8-HxCDF	1.141715	1.111651	1.170072	1.160348	1.184913			
7	1,2,3,4,6,7,8-HpCDF	1.261865	1.296787	1.278741	1.309499	1.322647			
7	1,2,3,4,7,8,9-HpCDF	1.289233	1.281743	1.260792	1.327622	1.390769			
8	OCDF	1.095681	1.108285	1.164797	1.193316	1.212513			
4	13C12-2,3,7,8-TCDF	1.607858	1.521281	1.573203	1.537499	1.533082			
4	13C12-2,3,7,8-TCDD	0.9113414	0.8752978	0.8999234	0.8865017	0.8990285			
5	13C12-1,2,3,7,8-PeCDF	1.280661	1.202905	1.305372	1.201456	1.230573			
5	13C12-2,3,4,7,8-PeCDF	1.255482	1.156504	1.239325	1.15794	1.196512			
5	13C12-1,2,3,7,8-PeCDD	0.761023	0.696864	0.7455399	0.7153564	0.7491543			
6	13C12-1,2,3,4,7,8-HxCDF	1.363325	1.425428	1.364018	1.403098	1.387652			
6	13C12-1,2,3,6,7,8-HxCDF	1.579465	1.630177	1.521422	1.561368	1.612163			
6	13C12-2,3,4,6,7,8-HxCDF	1.373044	1.358714	1.329189	1.345315	1.338407			
6	13C12-1,2,3,7,8,9-HxCDF	1.19712	1.175693	1.214533	1.176563	1.160159			
6	13C12-1,2,3,4,7,8-HxCDD	1.049685	1.086559	1.029446	1.051021	1.067662			
6	13C12-1,2,3,6,7,8-HxCDD	1.145326	1.160403	1.165643	1.182579	1.176768			
7	13C12-1,2,3,4,6,7,8-HpCDF	1.211895	1.193588	1.209738	1.136599	1.17457			
7	13C12-1,2,3,4,7,8,9-HpCDF	0.9378329	0.8452636	0.925997	0.8231026	0.8386923			
7	13C12-1,2,3,4,6,7,8-HpCDD	0.947533	0.8996206	0.9450735	0.8753452	0.8754593			
8	13C12-OCDD	0.8746874	0.7572516	0.8550614	0.7641581	0.7718349			
4	37C14-2,3,7,8-TCDD	1.085129	0.9696672	1.037502	1.033134	1.080686			

More than five calibration levels are present. See next page for CS6 thru CS10, Mean RRF, %RSD and QC Limits

FORM 6A-HR
INITIAL CALIBRATION DATA SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS1:CS1AA

Init. Calib. Date(s): 05/10/2016 05/10/2016 CS2:CS2AA CS3:CS3AA CS4:CS4AA

Init. Calib. Time(s): 13:36 18:09 CS5:CS5AA CS6:CS6AA

Analytical Method: CDD/CDF

CL No.	Analyte Name	CS6	CS7	CS8	CS9	CS10	Mean RRF	% RSD	QC Limits
4	2,3,7,8-TCDD	1.159235					1.133965	2.2	+/- 20%
5	1,2,3,7,8-PeCDD	1.018547					0.9753974	3.6	+/- 20%
6	1,2,3,4,7,8-HxCDD	1.052574					1.031167	2.6	+/- 20%
6	1,2,3,6,7,8-HxCDD	0.9757835					0.9714371	2.3	+/- 20%
6	1,2,3,7,8,9-HxCDD	1.018307					0.9950452	3.8	+/- 20%
7	1,2,3,4,6,7,8-HpCDD	1.050065					1.028016	2.0	+/- 20%
8	OCDD	1.023204					1.107021	18.6	+/- 20%
4	2,3,7,8-TCDF	0.9649929					0.9347915	3.6	+/- 20%
5	1,2,3,7,8-PeCDF	0.9889675					0.9519161	3.5	+/- 20%
5	2,3,4,7,8-PeCDF	0.9973965					0.9629117	3.4	+/- 20%
6	1,2,3,4,7,8-HxCDF	1.14638					1.136547	1.2	+/- 20%
6	1,2,3,6,7,8-HxCDF	1.116234					1.098742	2.3	+/- 20%
6	1,2,3,7,8,9-HxCDF	1.138494					1.100821	2.8	+/- 20%
6	2,3,4,6,7,8-HxCDF	1.212323					1.163504	3.0	+/- 20%
7	1,2,3,4,6,7,8-HpCDF	1.347196					1.302789	2.4	+/- 20%
7	1,2,3,4,7,8,9-HpCDF	1.354006					1.317361	3.7	+/- 20%
8	OCDF	1.220252					1.165807	4.6	+/- 20%
4	13C12-2,3,7,8-TCDF	1.631594					1.567419	2.9	+/- 35%
4	13C12-2,3,7,8-TCDD	0.9743955					0.9077481	3.8	+/- 35%
5	13C12-1,2,3,7,8-PeCDF	1.423612					1.274097	6.6	+/- 35%
5	13C12-2,3,4,7,8-PeCDF	1.401994					1.234626	7.4	+/- 35%
5	13C12-1,2,3,7,8-PeCDD	0.8665947					0.7557554	7.8	+/- 35%
6	13C12-1,2,3,4,7,8-HxCDF	1.341996					1.380919	2.2	+/- 35%
6	13C12-1,2,3,6,7,8-HxCDF	1.512125					1.569453	3.0	+/- 35%
6	13C12-2,3,4,6,7,8-HxCDF	1.327312					1.34533	1.3	+/- 35%
6	13C12-1,2,3,7,8,9-HxCDF	1.173301					1.182895	1.6	+/- 35%
6	13C12-1,2,3,4,7,8-HxCDD	1.051048					1.055904	1.8	+/- 35%
6	13C12-1,2,3,6,7,8-HxCDD	1.147499					1.163036	1.3	+/- 35%
7	13C12-1,2,3,4,6,7,8-HpCDF	1.143782					1.178362	2.8	+/- 35%
7	13C12-1,2,3,4,7,8,9-HpCDF	0.8959065					0.8777992	5.5	+/- 35%
7	13C12-1,2,3,4,6,7,8-HpCDD	0.9116048					0.9091061	3.5	+/- 35%
8	13C12-OCDD	0.8944582					0.8195753	7.5	+/- 35%
4	37C14-2,3,7,8-TCDD	1.193229					1.066558	7.0	+/- 35%

FORM 6B-HR

ION ABUNDANCE RATIO INITIAL CALIBRATION DATA SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS1:CS1AA

Init. Calib. Date(s): 05/10/2016 05/10/2016 CS2:CS2AA CS3:CS3AA CS4:CS4AA

Init. Calib. Time(s): 13:36 18:09 CS5:CS5AA CS6:CS6AA

Analytical Method: CDD/CDF

CL No.	Analyte Name	Ion Abundance Ratio					Ion Ratio QC Limits
		CS1	CS2	CS3	CS4	CS5	
4	2,3,7,8-TCDD		0.861	0.765	0.821	0.784	0.655-0.886
5	1,2,3,7,8-PeCDD	1.445	1.545	1.562	1.580	1.550	1.318-1.783
6	1,2,3,4,7,8-HxCDD	1.318	1.209	1.268	1.245	1.270	1.054-1.426
6	1,2,3,6,7,8-HxCDD	1.334	1.180	1.234	1.296	1.200	1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.421	1.233	1.221	1.300	1.229	1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.023	0.984	1.061	1.042	1.039	0.893-1.208
8	OCDD	0.922	0.895	0.881	0.868	0.851	0.757-1.024
4	2,3,7,8-TCDF		0.780	0.815	0.770	0.796	0.655-0.886
5	1,2,3,7,8-PeCDF	1.554	1.747	1.587	1.584	1.573	1.318-1.783
5	2,3,4,7,8-PeCDF	1.433	1.603	1.561	1.571	1.569	1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.175	1.258	1.242	1.241	1.261	1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.363	1.320	1.222	1.238	1.303	1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.297	1.168	1.357	1.257	1.255	1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.241	1.235	1.289	1.245	1.249	1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	0.924	1.033	1.051	0.973	0.994	0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.031	1.036	1.077	1.051	1.041	0.893-1.208
8	OCDF	0.842	0.869	0.898	0.892	0.905	0.757-1.024
4	13C12-2,3,7,8-TCDF	0.783	0.781	0.782	0.777	0.787	0.655-0.886
4	13C12-2,3,7,8-TCDD	0.783	0.786	0.773	0.789	0.787	0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1.584	1.519	1.579	1.563	1.590	1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1.582	1.575	1.549	1.581	1.575	1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1.579	1.580	1.566	1.575	1.634	1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	0.521	0.515	0.514	0.516	0.527	0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	0.489	0.526	0.525	0.546	0.514	0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	0.530	0.524	0.530	0.541	0.518	0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	0.522	0.523	0.539	0.511	0.515	0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1.313	1.279	1.273	1.270	1.280	1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1.241	1.244	1.265	1.263	1.258	1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	0.448	0.452	0.457	0.465	0.435	0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	0.438	0.445	0.467	0.456	0.450	0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1.100	1.103	1.088	1.043	1.044	0.893-1.208
8	13C12-OCDD	0.906	0.888	0.882	0.913	0.929	0.757-1.024
4	37C14-2,3,7,8-TCDD	328.000	328.000	328.000	328.000	328.000	
4	13C12-1,2,3,4-TCDD	0.791	0.764	0.792	0.790	0.788	0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	1.259	1.261	1.271	1.270	1.248	1.05-1.43

FORM 6B-HR

ION ABUNDANCE RATIO INITIAL CALIBRATION DATA SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS1:CS1AA

Init. Calib. Date(s): 05/10/2016 05/10/2016 CS2:CS2AA CS3:CS3AA CS4:CS4AA

Init. Calib. Time(s): 13:36 18:09 CS5:CS5AA CS6:CS6AA

Analytical Method: CDD/CDF

CL No.	Analyte Name	Ion Abundance Ratio					Ion Ratio QC Limits
		CS1	CS2	CS3	CS4	CS5	
4	2,3,7,8-TCDD	0.783					0.655-0.886
5	1,2,3,7,8-PeCDD	1.561					1.318-1.783
6	1,2,3,4,7,8-HxCDD	1.249					1.054-1.426
6	1,2,3,6,7,8-HxCDD	1.256					1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.250					1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.044					0.893-1.208
8	OCDD	0.890					0.757-1.024
4	2,3,7,8-TCDF	0.781					0.655-0.886
5	1,2,3,7,8-PeCDF	1.576					1.318-1.783
5	2,3,4,7,8-PeCDF	1.570					1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.242					1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.252					1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.248					1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.243					1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	1.041					0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.035					0.893-1.208
8	OCDF	0.906					0.757-1.024
4	13C12-2,3,7,8-TCDF	0.783					0.655-0.886
4	13C12-2,3,7,8-TCDD	0.771					0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1.581					1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1.586					1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1.587					1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	0.517					0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	0.510					0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	0.518					0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	0.525					0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1.275					1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1.267					1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	0.456					0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	0.455					0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1.052					0.893-1.208
8	13C12-OCDD	0.894					0.757-1.024
4	37C14-2,3,7,8-TCDD	328.000					
4	13C12-1,2,3,4-TCDD	0.773					0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	1.246					1.05-1.43

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Curve 5/10/16

HR-GC/MS Analyst Notes / Data Review Checklist

ELEMENT/NWA: _____ Client ID: _____

Element Calibration Code: ZE00016 METHOD: **1613B** (Dioxins) **8290A** (Dioxins)

Instrument: **AutoSpec01** Analysis Start Date: HRSM01.2 5/10/16

	REVIEW 1/REVIEW 2		REVIEW 1/REVIEW 2
Resolution Check > 10,000ppm	Y / N / _____	Signal / Noise ≥ 3.0?	Y / N / _____
TCDD /TCDF Resolution ≤ 25%	Y / N / _____	Extraction STD Limits Met?	Y / N / _____
PCDF Windows Verified	Y / N / _____	Cleanup STD Limits Met?	Y / N / _____
ICV/CCV %D limits met?	Y / N / _____	Method Blank in Control?	Y / N / _____
ICV/CCV Ratios limits met?	Y / N / _____	OPR Recovery Limits Met?	Y / N / _____
ICV/CCV RRT limits met?	Y / N / _____	Values Exceeding Curve Range?	Y / N / _____
Manual Integrations?	Y / N / _____	Samples Diluted?	Y / N / _____
VDP Completed?	NA / Y / N / _____	Duplicate Sample RPD ≤ 25%?	NA / _____
EPA Case #	NA/_____	Technical Review?	_____/_____

Detail problems, corrective actions and/or other pertinent information below:

- TCDD/TCDF are 5 point curves: CS1 - CS5
  All others are 6 points - CS1 - CS5
- All cpds < 20% RSD. All avg.
- Seq. SEQ0076

(Review 1)Analyst: PKeplin **Date:** 5/12/16

(Review 2)Peer: _____ **Date:** _____

(Final Review)Reviewer: _____ **Date:** _____

Analytical Resources Inc.: Organics Instrument Log

AutoSpec01 Serial No.:GC=CN10921030, MS=P764

Date: 5/10/16 Analysis: Dioxins Analyst: [illegible]

GC Program: 8290D Column No: E764 Column Type: RTX Dioxin2

Inj Vol: 1 ul Instrument Tune (IPR): May0416 1-5 Detector Voltage: 340

Resolution Check Files: 10:38, 20:54 Curve Date: 5/10/16

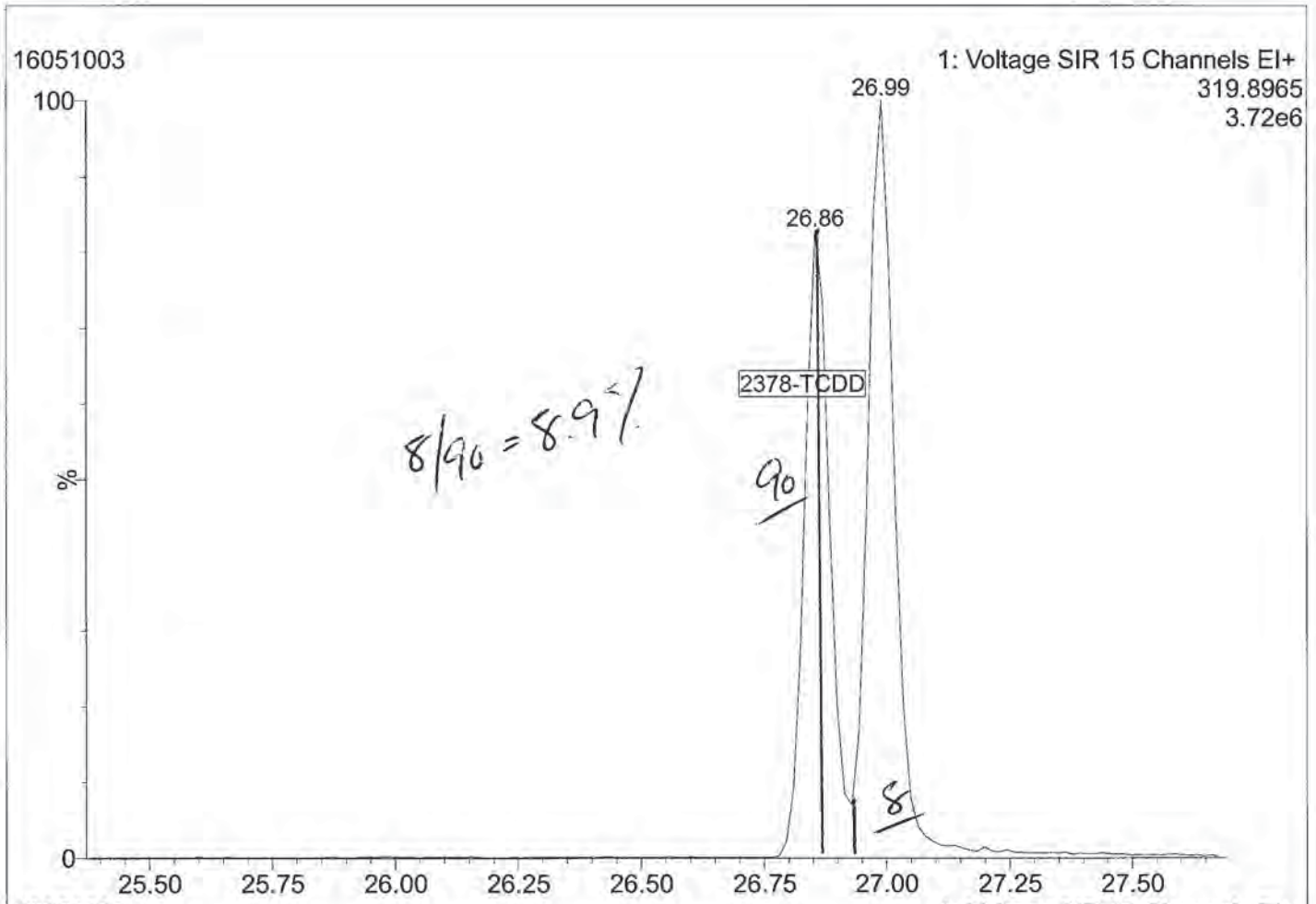
IS/SS	Ical/Ccal		LCS/ICV
	D623	E001	
	D621	E002	C2712
	D620	~~C4214~~ [illegible] 5/12/16	
	D622	E1146	

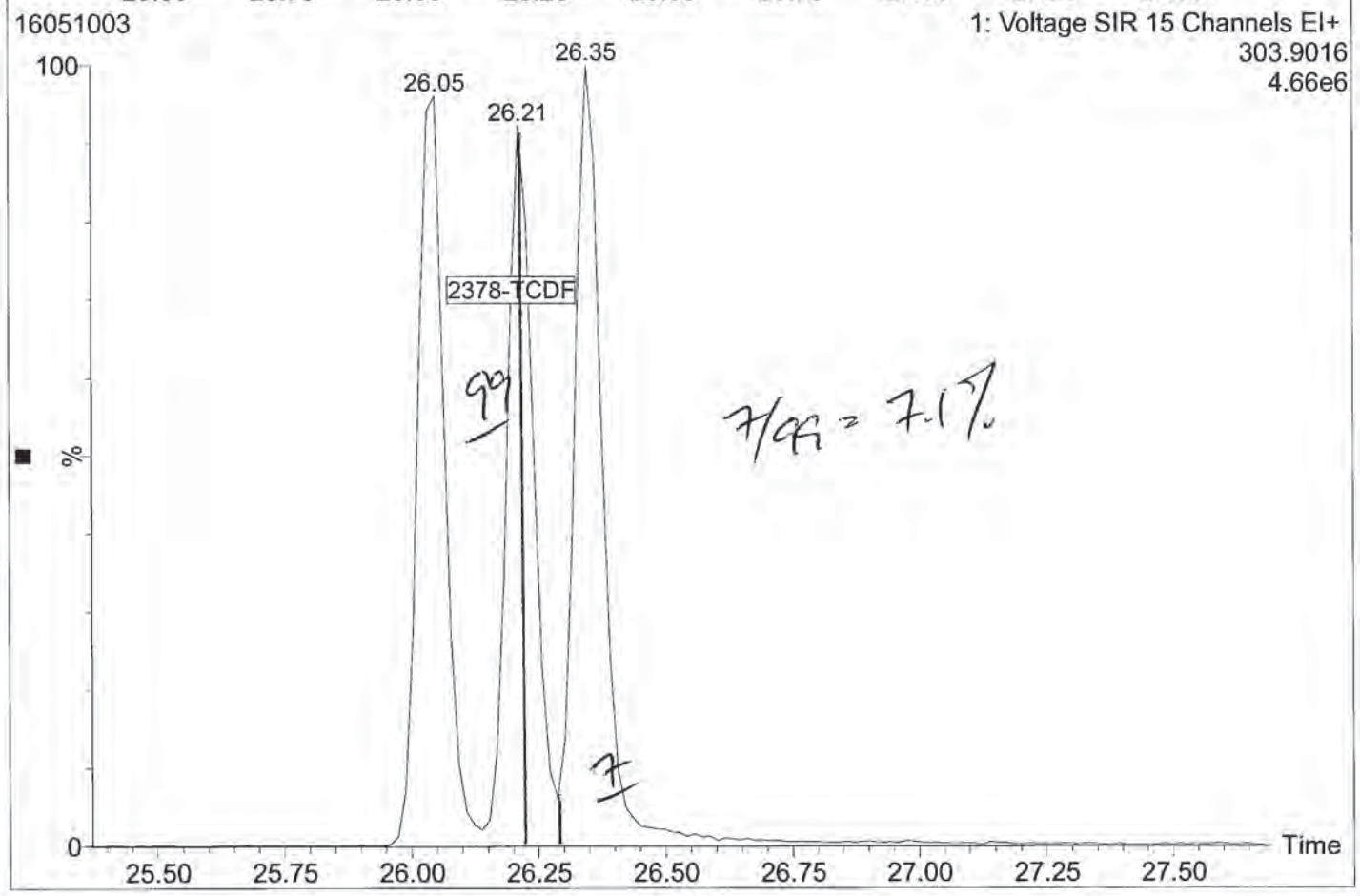
#	Acq.Date	Acq.Time	File	ID	Comments
1	10-May-16	10:52:12	16051002	CS3WD	
2	10-May-16	11:43:55	16051003	ISC01 A	
3	10-May-16	13:36:21	16051004	~~CSL~~ CS1AA	
4	10-May-16	14:27:42	16051005	~~CS1~~ CS2AA	
5	10-May-16	15:30:50	16051006	CS2 CS3AA	
6	10-May-16	16:22:15	16051007	~~CS3~~ CS4AA	
7	10-May-16	17:15:41	16051008	CS4 CS5AA	
8	10-May-16	18:09:09	16051009	CS5 CS6AA	
9	10-May-16	19:02:32	16051010	ICV	
10	10-May-16	19:56:06	16051011	ISC02	06/30/16 [illegible]

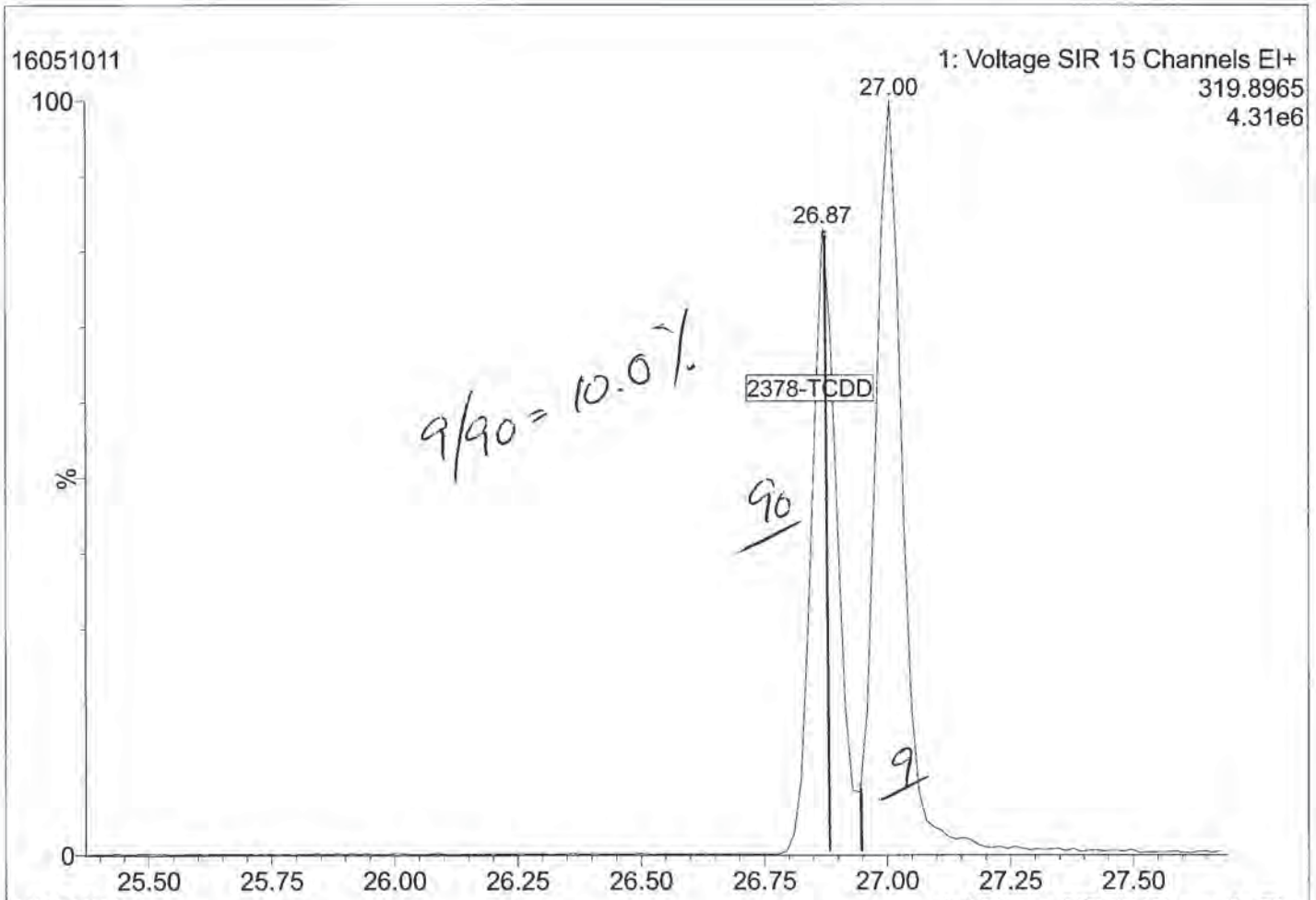
[illegible] 5/12/16

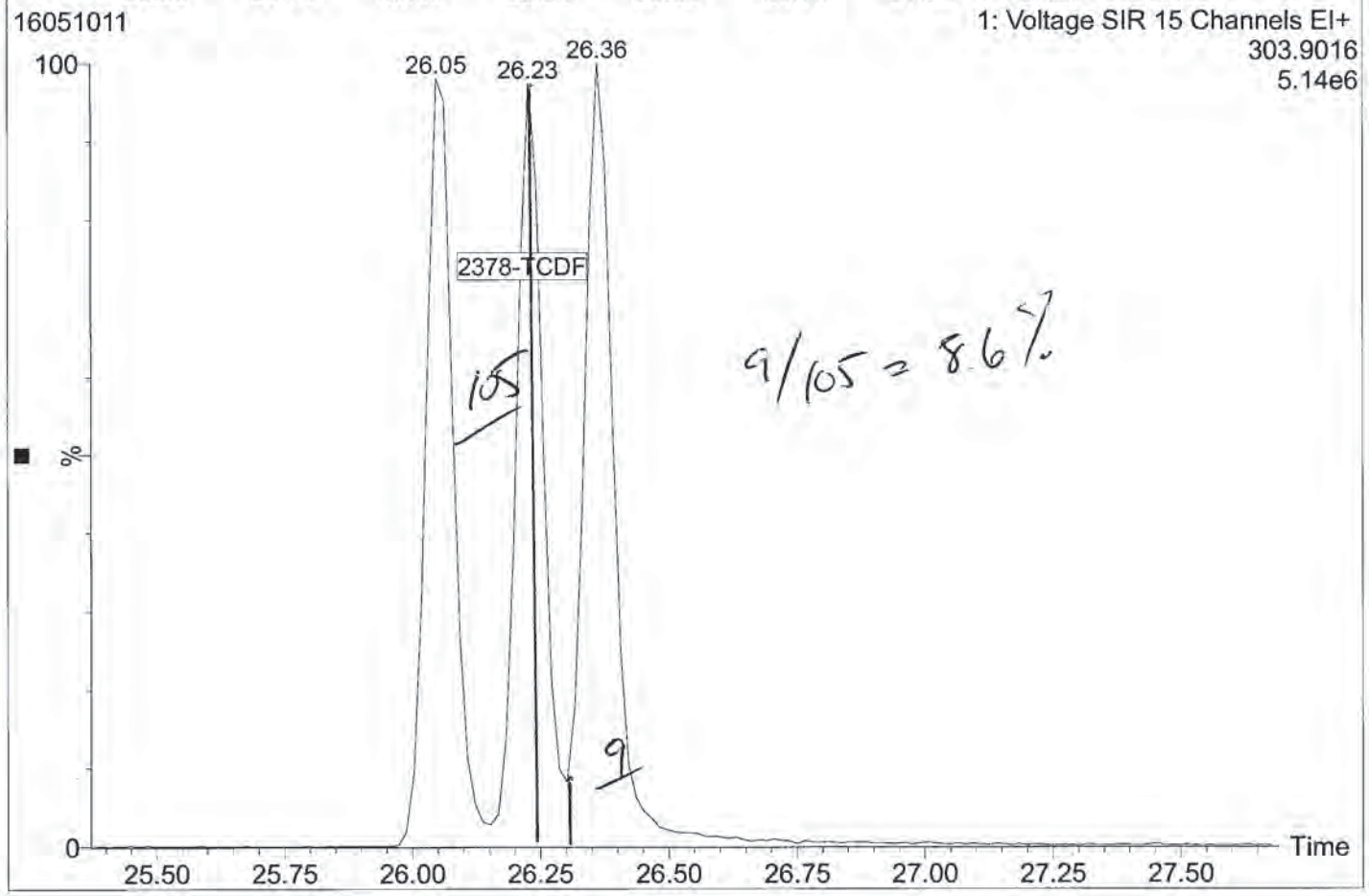
Every line must contain information or be lined out. Make all entries legible.
Start a new page for each QC period. Document All Maintenance Tasks In Element LIMS

ISC01A


16051003
1: Voltage SIR 15 Channels EI+
319.8965
3.72e6
26.99
26.86
2378-TCDD
8/90 = 8.9%
90
8
100
%
0
25.50
25.75
26.00
26.25
26.50
26.75
27.00
27.25
27.50


16051003
1: Voltage SIR 15 Channels EI+
303.9016
4.66e6
26.05
26.21
26.35
2378-TCDF
99
7/99 = 7.1%
7
100
%
0
Time
25.50
25.75
26.00
26.25
26.50
26.75
27.00
27.25
27.50


16051011
1: Voltage SIR 15 Channels EI+
319.8965
4.31e6
100
%
0
27.00
26.87
2378-TCDD
9/90 = 10.0%
90
9
25.50
25.75
26.00
26.25
26.50
26.75
27.00
27.25
27.50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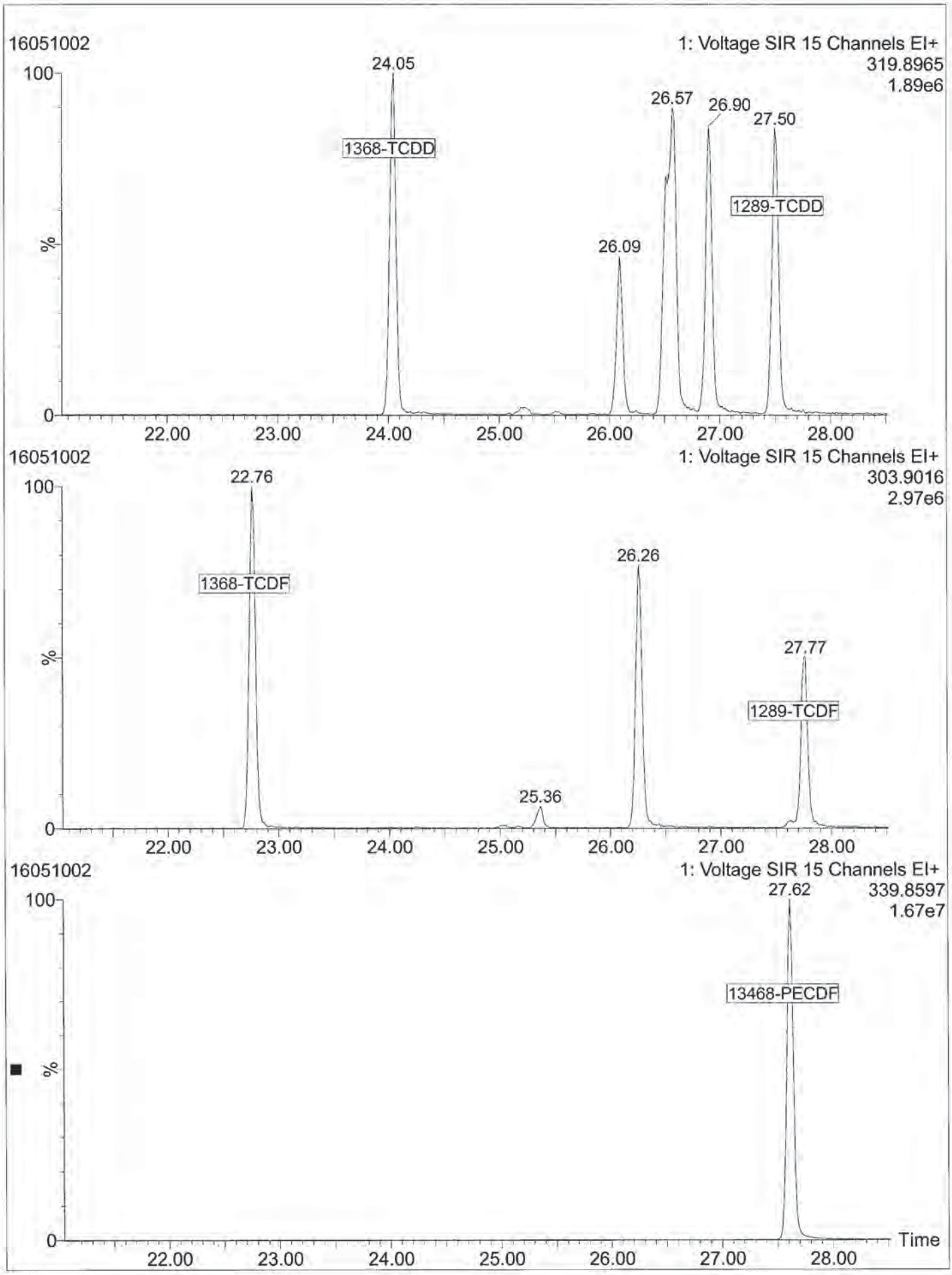
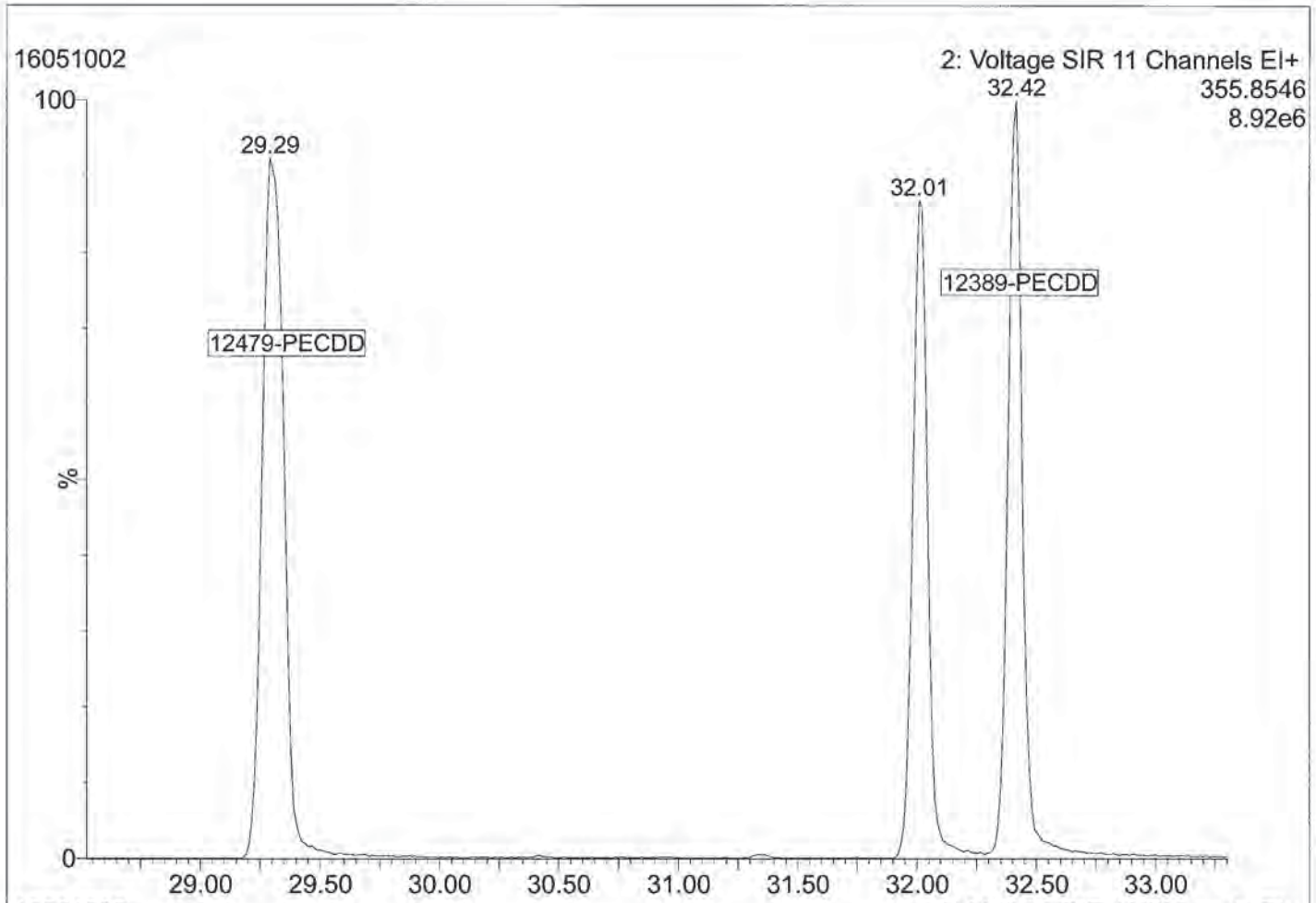
1: Voltage SIR 15 Channels EI+
303.9016
5.14e6
100
%
0
26.05
26.23
26.36
2378-TCDF
105
9/105 = 8.6%
9
Time
25.50
25.75
26.00
26.25
26.50
26.75
27.00
27.25
27.50


16051002
1: Voltage SIR 15 Channels EI+
319.8965
1.89e6
24.05
1368-TCDD
26.09
26.57
26.90
27.50
1289-TCDD
16051002
1: Voltage SIR 15 Channels EI+
303.9016
2.97e6
22.76
1368-TCDF
25.36
26.26
27.77
1289-TCDF
16051002
1: Voltage SIR 15 Channels EI+
339.8597
1.67e7
27.62
13468-PECDF
100
%
0
22.00
23.00
24.00
25.00
26.00
27.00
28.00
Time

CS3WD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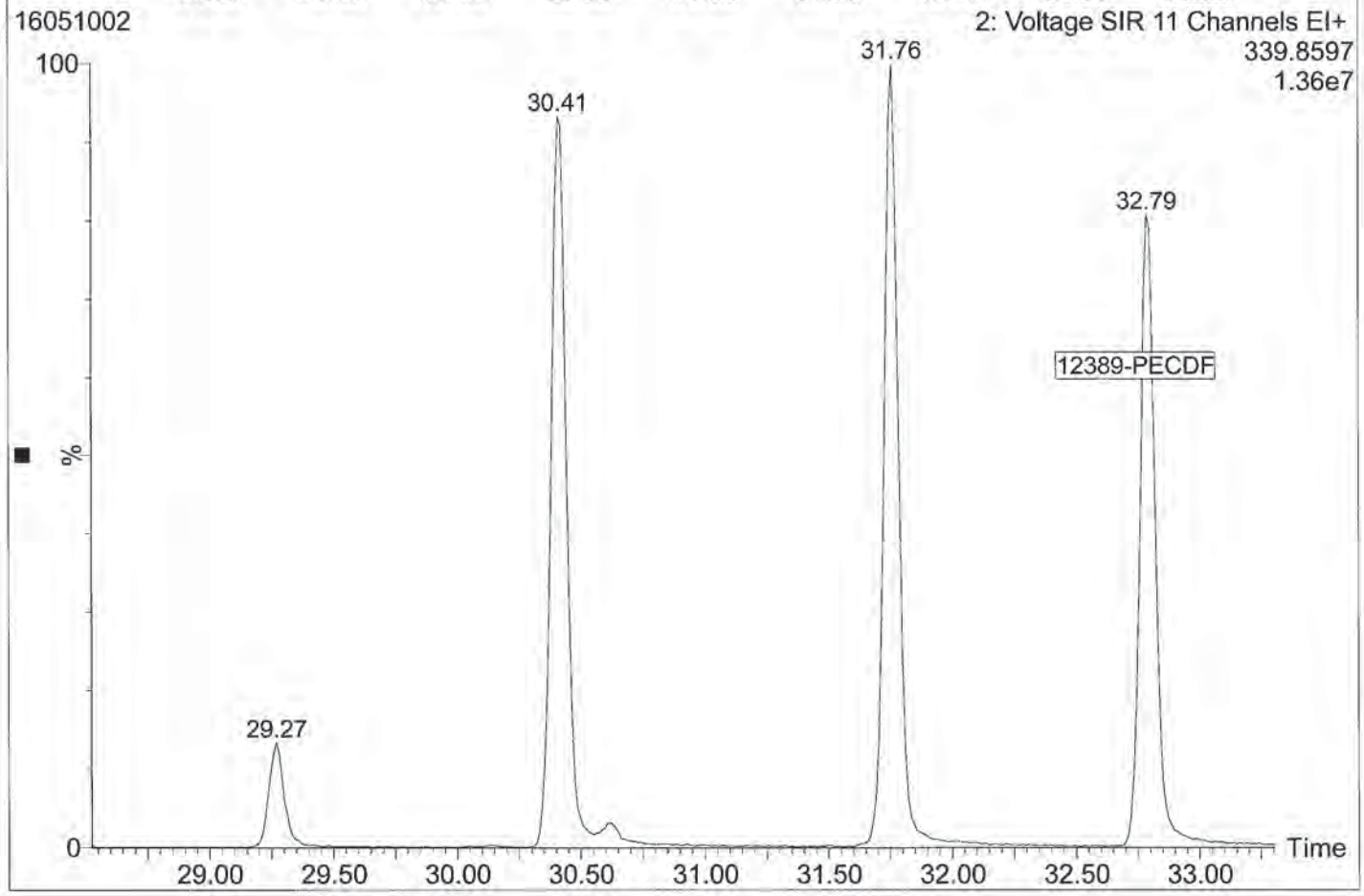
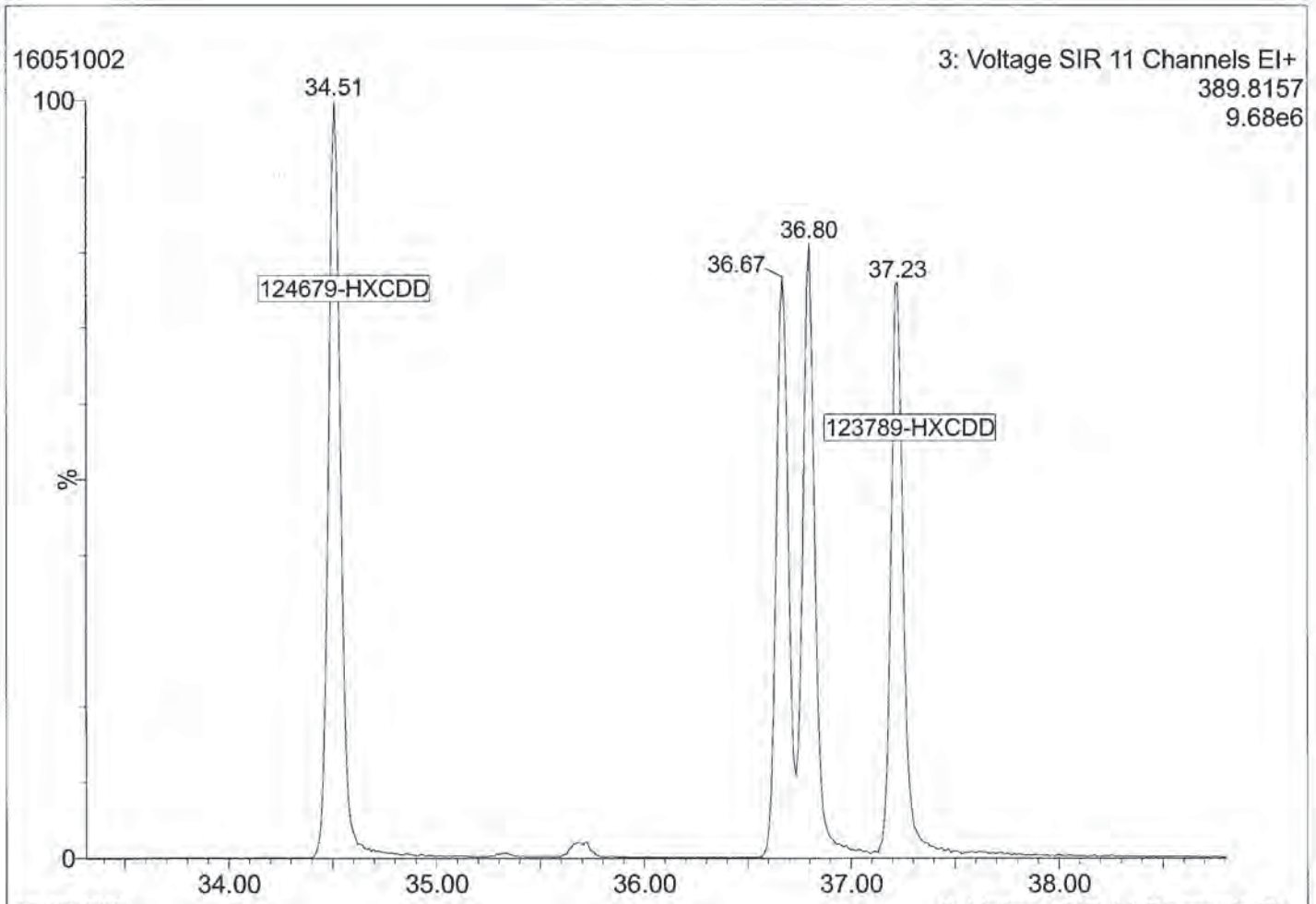
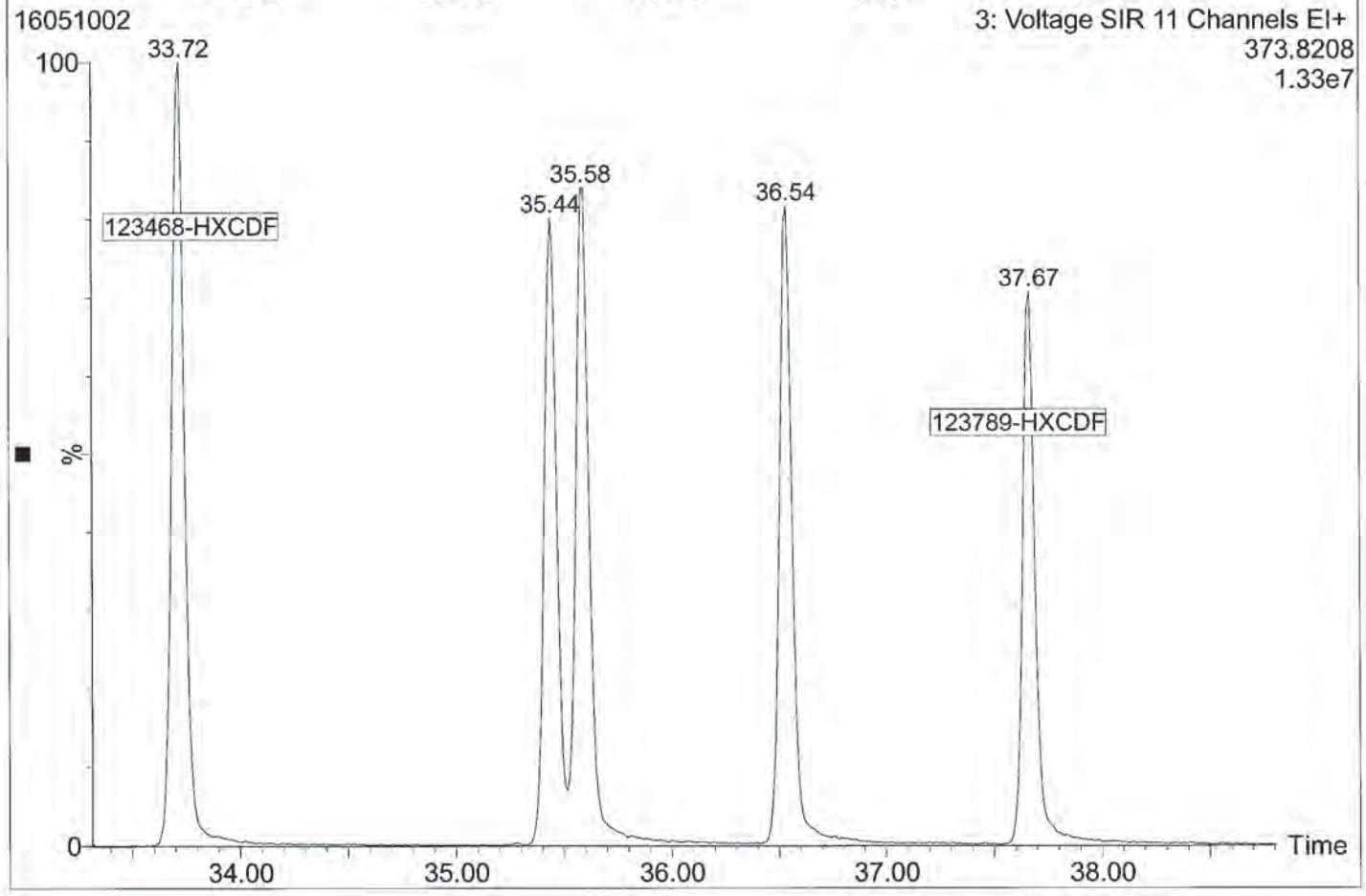
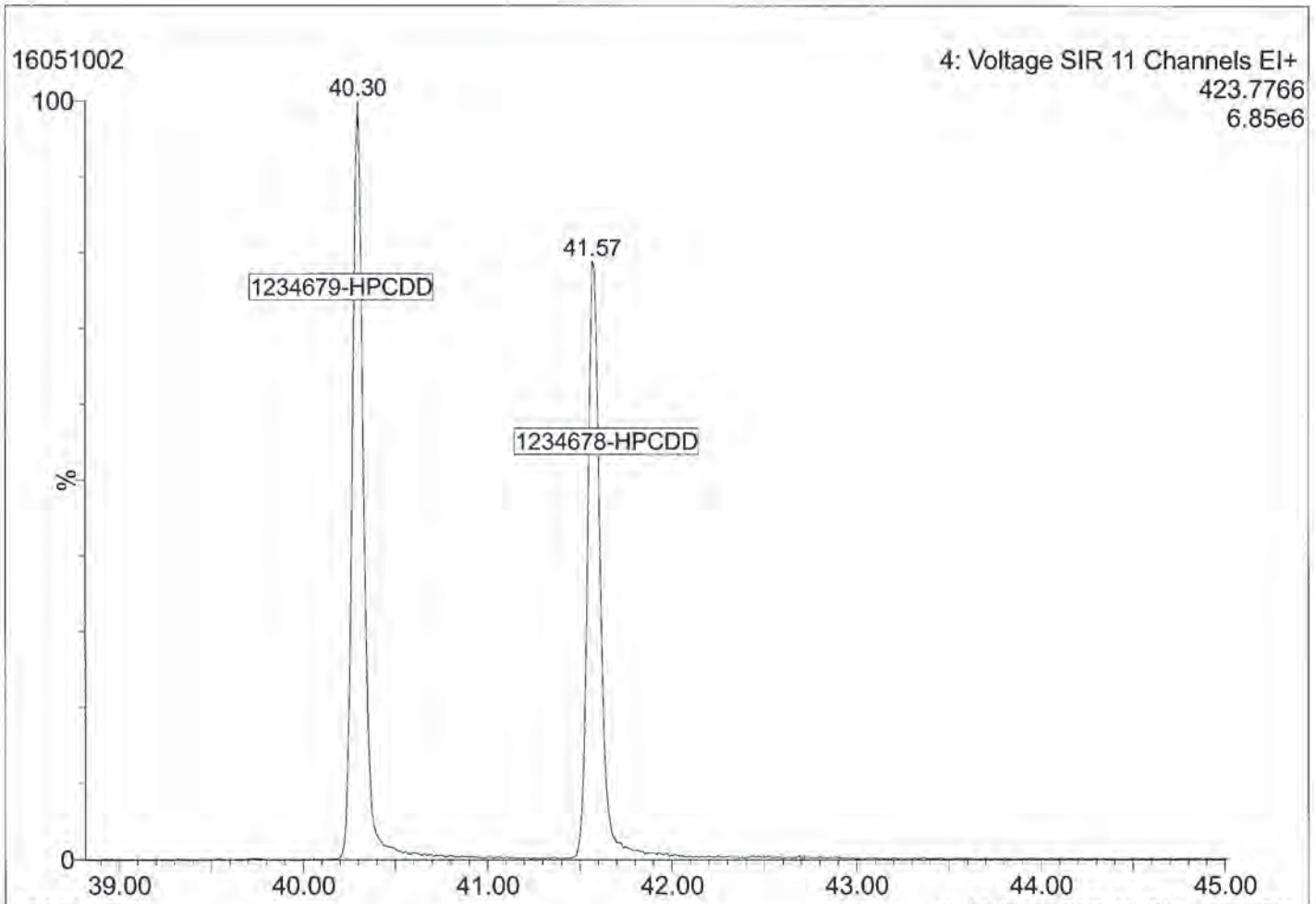
2: Voltage SIR 11 Channels EI+
355.8546
8.92e6
100
%
0
29.29
32.01
32.42
12479-PECDD
12389-PECDD
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50
33.00

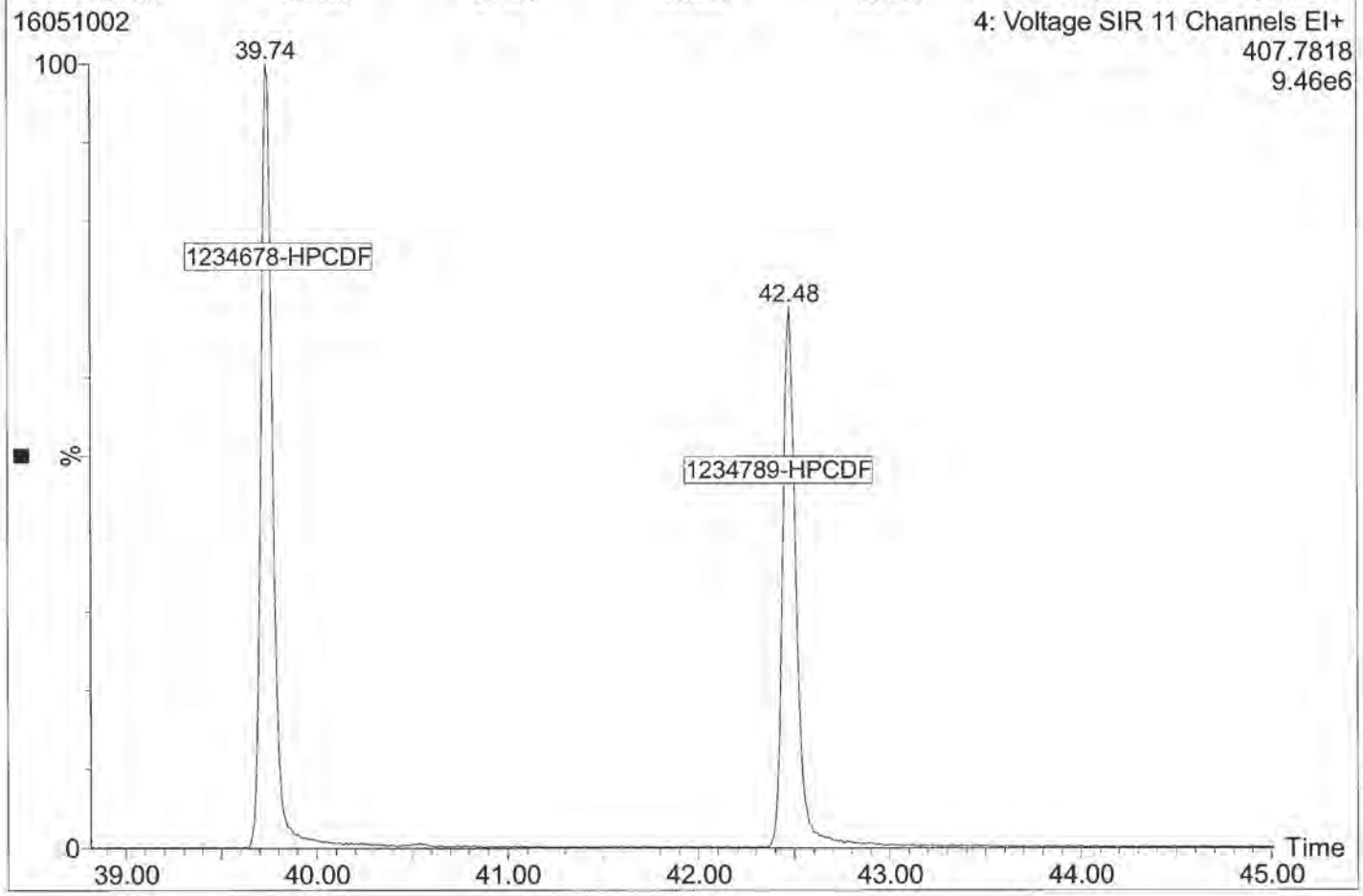

16051002
2: Voltage SIR 11 Channels EI+
339.8597
1.36e7
100
%
0
29.27
30.41
31.76
32.79
12389-PECDF
Time
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50
33.00

CS3WD


16051002
3: Voltage SIR 11 Channels EI+
389.8157
9.68e6
100
%
0
34.51
124679-HXCDD
36.67
36.80
37.23
123789-HXCDD
34.00
35.00
36.00
37.00
38.00


16051002
3: Voltage SIR 11 Channels EI+
373.8208
1.33e7
100
%
0
33.72
123468-HXCDF
35.44
35.58
36.54
37.67
123789-HXCDF
Time
34.00
35.00
36.00
37.00
38.00


16051002
4: Voltage SIR 11 Channels EI+
423.7766
6.85e6
100
%
0
40.30
41.57
1234679-HPCDD
1234678-HPCDD
39.00
40.00
41.00
42.00
43.00
44.00
45.00


16051002
4: Voltage SIR 11 Channels EI+
407.7818
9.46e6
100
%
0
39.74
42.48
1234678-HPCDF
1234789-HPCDF
Time
39.00
40.00
41.00
42.00
43.00
44.00
45.00

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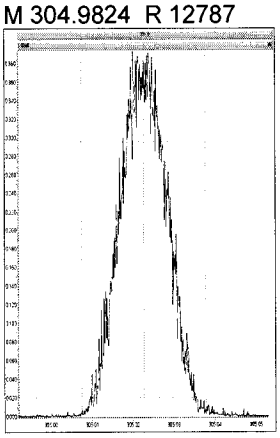
M 304.9824 R 12787



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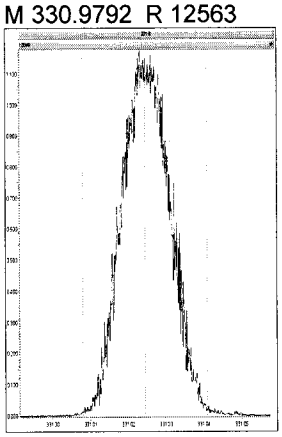

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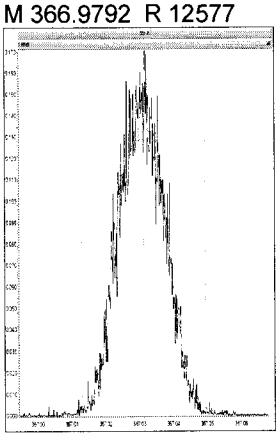

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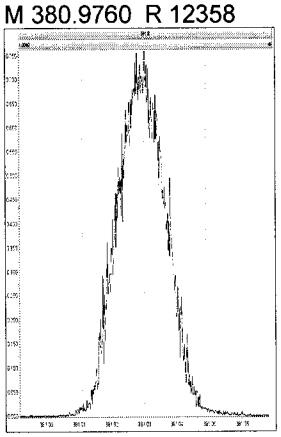

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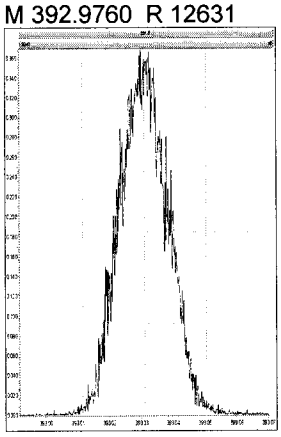

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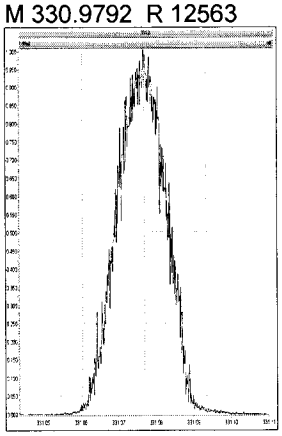

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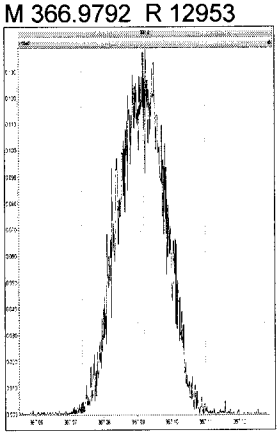

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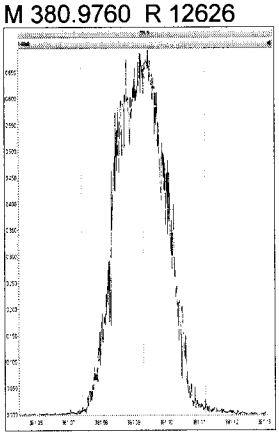

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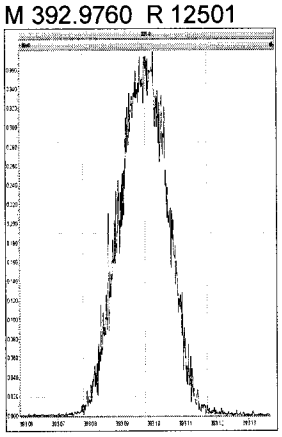

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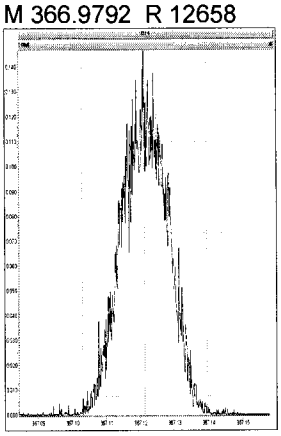

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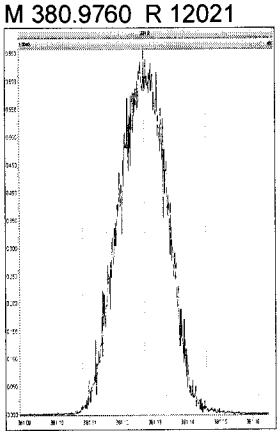

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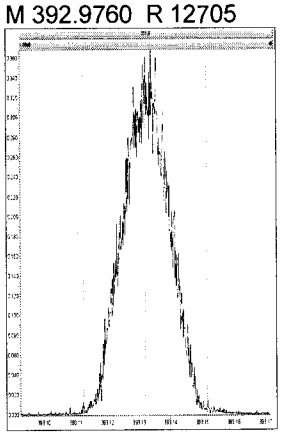

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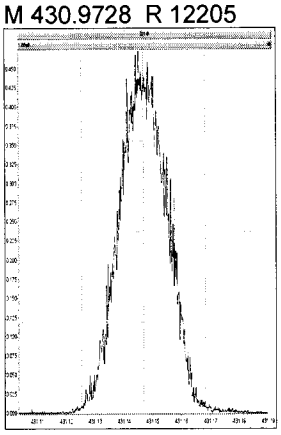

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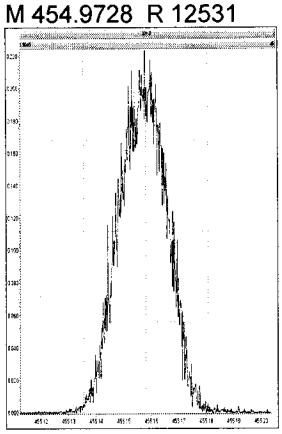

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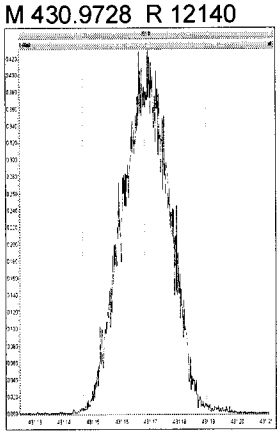

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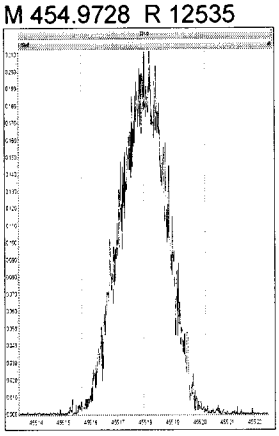
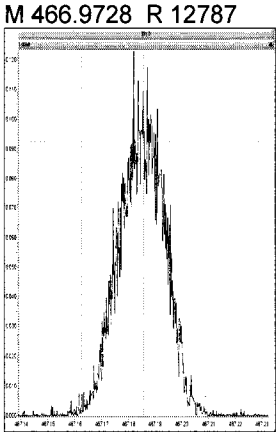


Printed: Tuesday, May 10, 2016 10:38:35 Pacific Daylight Time

M 466.9728 R 12787



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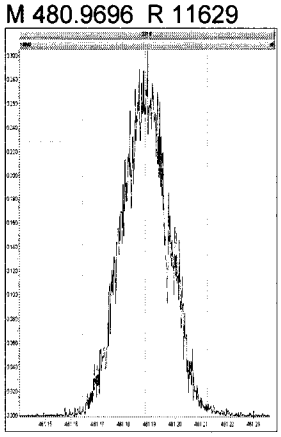

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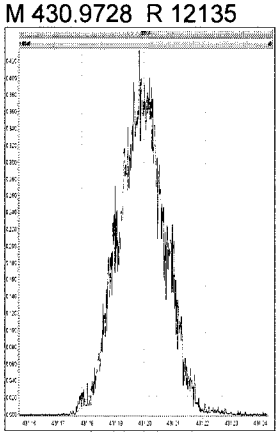

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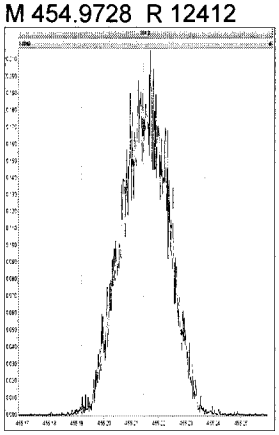

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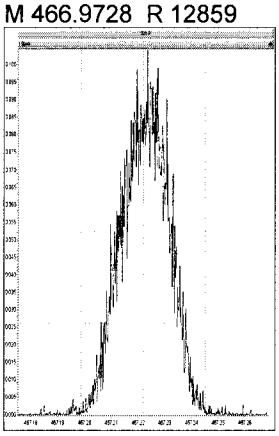
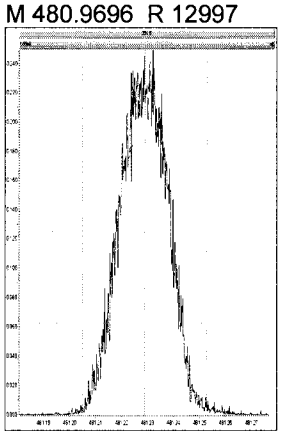
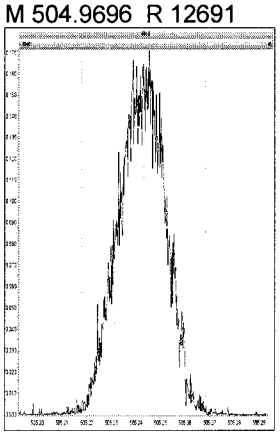


M 480.9696 R 12997



M 504.9696 R 12691



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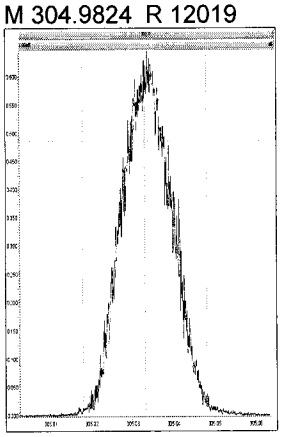
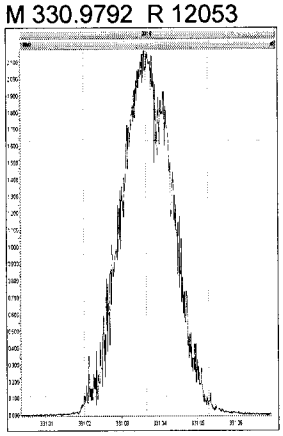
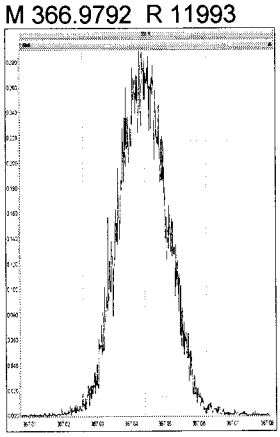
M 304.9824 R 12019



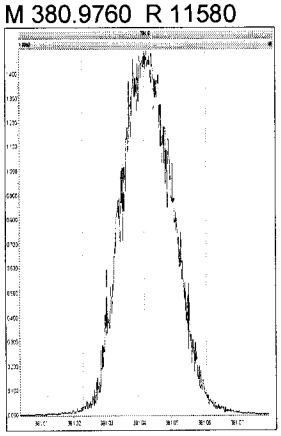
M 330.9792 R 12053



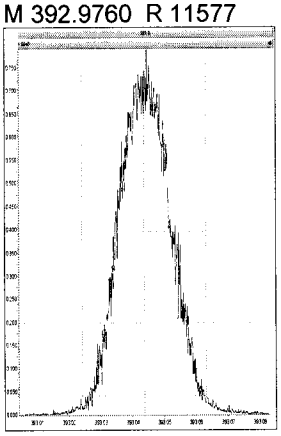
M 366.9792 R 11993



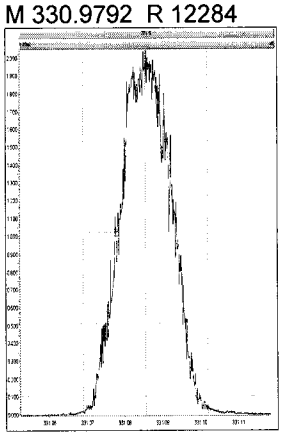
M 380.9760 R 11580



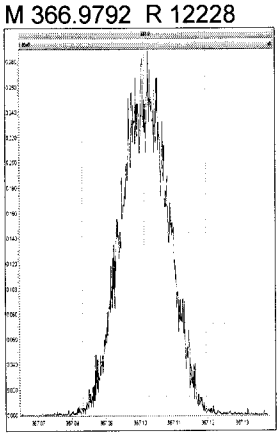
M 392.9760 R 11577



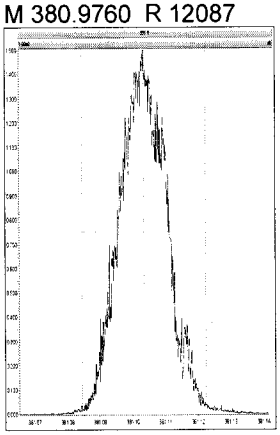
M 330.9792 R 12284



M 366.9792 R 12228



M 380.9760 R 12087



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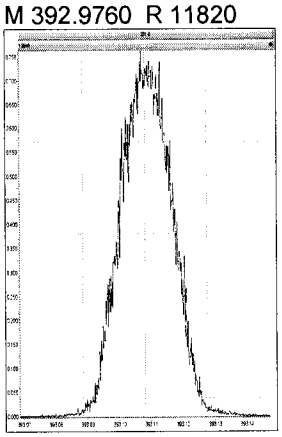

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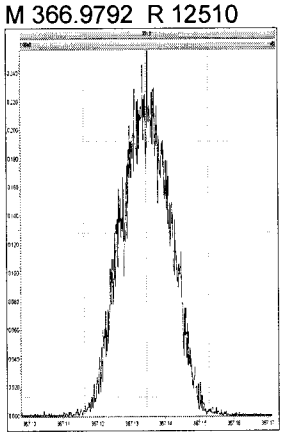
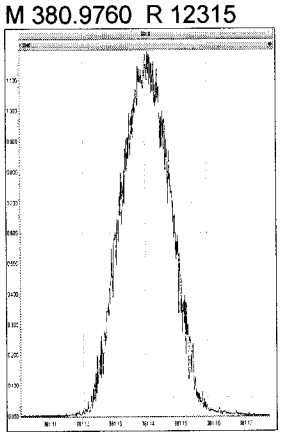
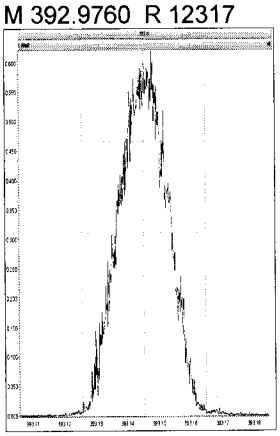


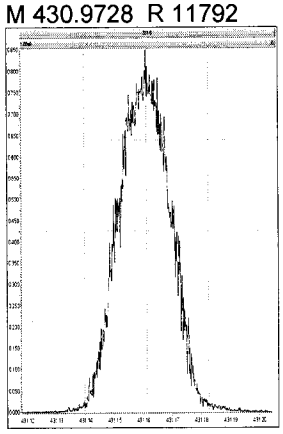
M 380.9760 R 12315



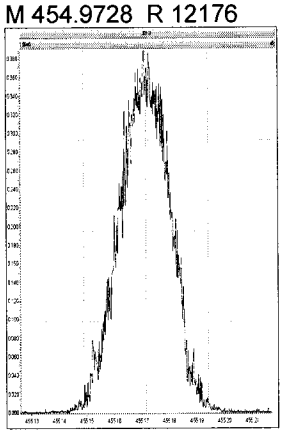
M 392.9760 R 12317



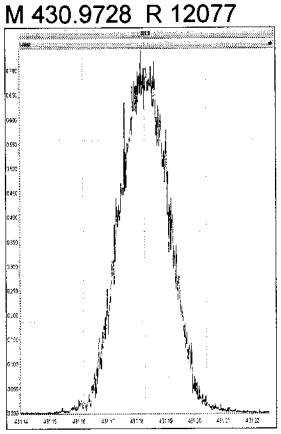
M 430.9728 R 11792



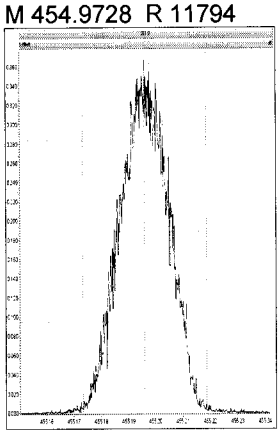
M 454.9728 R 12176



M 430.9728 R 12077



M 454.9728 R 11794



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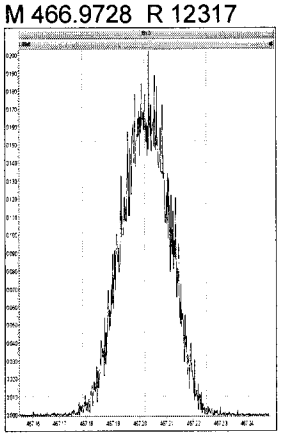
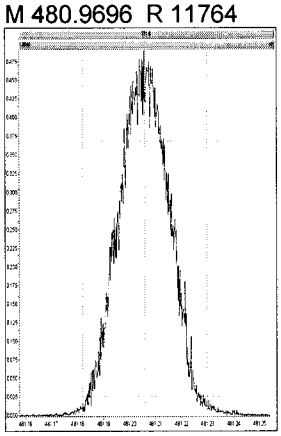
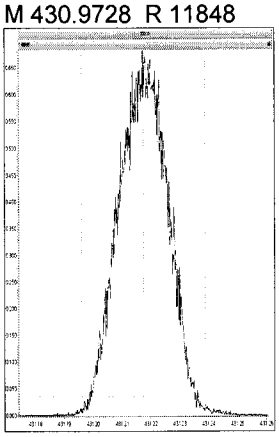
M 466.9728 R 12317



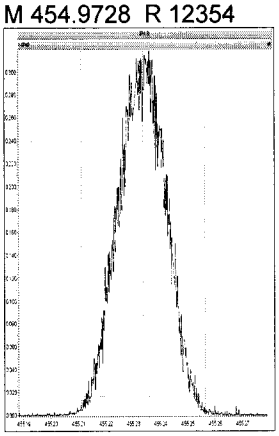
M 480.9696 R 11764



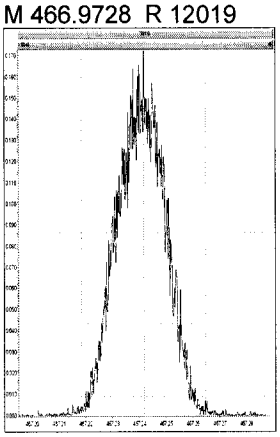
M 430.9728 R 11848



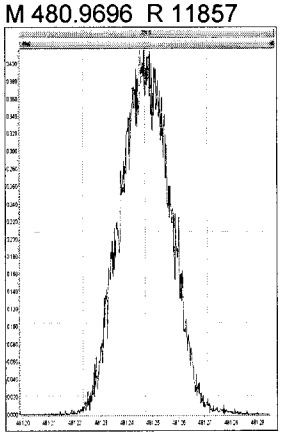
M 454.9728 R 12354



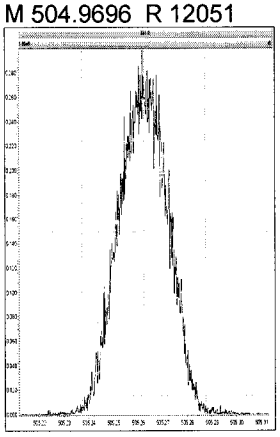
M 466.9728 R 12019



M 480.9696 R 11857



M 504.9696 R 12051



Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:55 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS1AA 6/3/16
ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
2378-TCDF					0.935		0.770	1158	1257						
12378-PeCDF	30.377	1.000	9.40e3	6.05e3	0.952	1.554	1.550	1150	1400	1.36e5	8.43e4	118.5	NO	0.498	0.498
23478-PeCDF	31.725	1.001	8.50e3	5.93e3	0.963	1.433	1.550	1150	1400	1.29e5	8.06e4	111.8	NO	0.469	0.469
123478-HxCDF	35.408	1.000	7.47e3	6.36e3	1.137	1.175	1.240	1179	964	1.17e5	9.25e4	99.2	NO	0.491	0.491
234678-HxCDF	36.504	1.001	7.88e3	6.35e3	1.164	1.241	1.240	1179	964	1.16e5	8.25e4	98.0	NO	0.491	0.491
123678-HxCDF	35.550	1.000	8.80e3	6.46e3	1.099	1.363	1.240	1179	964	1.22e5	8.29e4	103.4	NO	0.484	0.484
123789-HxCDF	37.633	1.000	6.90e3	5.32e3	1.101	1.297	1.240	1179	964	1.01e5	8.85e4	85.9	NO	0.511	0.511
1234678-HpCDF	39.715	1.000	6.67e3	7.22e3	1.303	0.924	1.050	665	709	9.07e4	9.69e4	136.3	NO	0.484	0.484
1234789-HpCDF	42.445	1.000	5.57e3	5.41e3	1.317	1.031	1.050	665	709	6.54e4	6.71e4	98.2	NO	0.489	0.489
OCDF	47.818	1.006	7.95e3	9.45e3	1.166	0.842	0.890	827	869	8.30e4	9.35e4	100.3	NO	0.940	0.940
2378-TCDD					1.134		0.770	801	851						
12378-PeCDD	31.966	1.000	5.27e3	3.65e3	0.975	1.445	1.550	992	530	6.70e4	4.68e4	67.5	NO	0.473	0.473
123478-HxCDD	36.636	1.000	5.65e3	4.29e3	1.031	1.318	1.240	1131	992	8.35e4	6.23e4	73.8	NO	0.506	0.506
123678-HxCDD	36.767	1.001	5.54e3	4.15e3	0.971	1.334	1.240	1131	992	7.63e4	6.16e4	67.5	NO	0.480	0.480
123789-HxCDD	37.194	1.012	5.41e3	3.81e3	0.947	1.421	1.240	1131	992	8.16e4	5.76e4	72.2	NO	0.489	0.489
1234678-HpCDD	41.557	1.000	4.34e3	4.24e3	1.028	1.023	1.050	668	1442	5.65e4	5.13e4	84.6	NO	0.485	0.485
OCDD	47.549	1.000	7.89e3	8.56e3	1.107	0.922	0.890	708	454	8.02e4	7.96e4	113.3	NO	0.936	0.936
13C-2378-TCDF	26.198	1.006	1.80e6	2.29e6	1.567	0.783	0.770	7362	4176	2.43e7	3.10e7	3307.1	NO		102.580
13C-12378-PeCDF	30.366	1.166	2.00e6	1.26e6	1.274	1.584	1.550	6743	4292	2.70e7	1.71e7	3999.1	NO		100.515
13C-23478-PeCDF	31.703	1.218	1.96e6	1.24e6	1.235	1.582	1.550	6743	4292	2.69e7	1.72e7	3987.2	NO		101.689
13C-123478-HxCDF	35.397	0.952	8.48e5	1.63e6	1.381	0.521	0.510	6454	7352	1.18e7	2.28e7	1831.1	NO		98.726
13C-123678-HxCDF	35.540	0.956	9.42e5	1.93e6	1.569	0.489	0.510	6454	7352	1.29e7	2.49e7	1996.1	NO		100.638
13C-234678-HxCDF	36.482	0.981	8.63e5	1.63e6	1.345	0.530	0.510	6454	7352	1.17e7	2.25e7	1813.3	NO		102.060
13C-123789-HxCDF	37.622	1.012	7.45e5	1.43e6	1.183	0.522	0.510	6454	7352	1.08e7	2.08e7	1678.3	NO		101.203
13C-1234678-HpCDF	39.704	1.068	6.81e5	1.52e6	1.178	0.448	0.440	4413	6414	9.34e6	2.07e7	2115.7	NO		102.846
13C-1234789-HpCDF	42.434	1.141	5.19e5	1.18e6	0.878	0.438	0.440	4413	6414	6.27e6	1.40e7	1420.1	NO		106.839
13C-1234-TCDD	26.033	0.000	1.12e6	1.42e6	1.000	0.791	0.770	3612	2200	1.53e7	1.93e7	4234.7	NO		100.000
13C-2378-TCDD	26.840	1.031	1.02e6	1.30e6	0.908	0.783	0.770	3612	2200	1.36e7	1.74e7	3754.2	NO		100.396
13C-12378-PeCDD	31.955	1.227	1.19e6	7.50e5	0.756	1.579	1.550	3912	2865	1.64e7	1.04e7	4180.8	NO		100.697
13C-123478-HxCDD	36.625	0.985	1.08e6	8.24e5	1.056	1.313	1.240	2885	3824	1.54e7	1.20e7	5329.2	NO		99.411
13C-123678-HxCDD	36.745	0.988	1.15e6	9.28e5	1.163	1.241	1.240	2885	3824	1.56e7	1.23e7	5405.2	NO		98.477
13C-1234678-HpCDD	41.535	1.117	9.01e5	8.19e5	0.909	1.100	1.050	3510	2889	1.08e7	1.02e7	3069.6	NO		104.227
13C-OCDD	47.531	1.278	1.51e6	1.67e6	0.820	0.906	0.890	3005	4316	1.44e7	1.60e7	4783.3	NO		213.449

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
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Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:55 Pacific Daylight Time

CSHA 06/30/16

ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
13C-123789-HxCDD	37.183	0.000	1.01e6	8.04e5	1.000	1.259	1.240	2885	3824	1.41e7	1.12e7	4884.2	NO		100.000
Total-tetrafurans			0.00e0		0.935			1158		0.00e0					
Total-penta1			0.00e0					703		0.00e0					
Total-pentafurans			1.79e4		0.957			1150		2.65e5					0.967
Total-hexafurans			3.12e4		1.125			1179		4.62e5					1.987
Total-heptafurans			1.22e4		1.310			665		1.56e5					0.974
Total-Furans			6.93e4		1.114			1158		9.66e5					4.868
Total-tetradioxins			1.33e2		1.134			801		2.99e3					0.010
Total-pentadioxins			5.27e3		0.975			992		6.70e4					0.473
Total-hexadioxins			1.66e4		0.983			1131		2.41e5					1.474
Total-heptadioxins			4.34e3		1.028			668		5.65e4					0.485
Total-Dioxins			3.42e4		1.028			801		4.48e5					3.378
Total-TEQ			1.04e5					801		1.41e6					8.246
37CL-2378-TCDD	26.855	1.032	2.76e3		1.067			1034		3.88e4		37.5			0.102
FUNCTION1 PFK			1.17e7					906583		1.33e8					
FUNCTION2 PFK			2.60e5					203778		7.31e6					0.000
FUNCTION3 PFK			0.00e0					647647		0.00e0					
FUNCTION4 PFK			3.60e5					383565		1.10e7					
FUNCTION5 PFK			2.56e5					330213		1.04e7					
FUNCTION1 HXCDPE			3.54e2					448		6.74e3					0.000
FUNCTION1 HPCDPE			6.67e2					768		1.35e4					0.000
FUNCTION2 HPCDPE			7.30e1					786		2.39e3					0.000
FUNCTION3 OCDPE			0.00e0					482		0.00e0					
FUNCTION4 NCDPE			1.83e2					519		5.82e3					0.000
FUNCTION5 DCDPE			0.00e0					433		0.00e0					

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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Printed: Thursday, May 12, 2016 14:36:55 Pacific Daylight Time

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Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CSIAA 06/30/16
ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD
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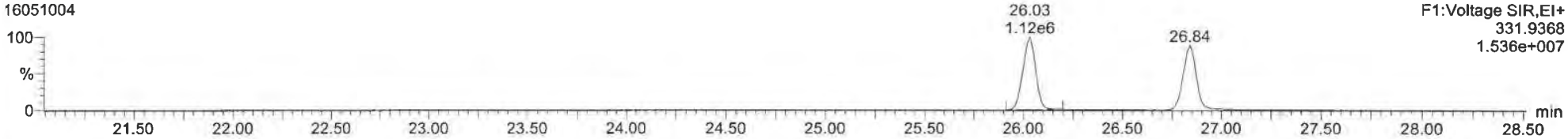

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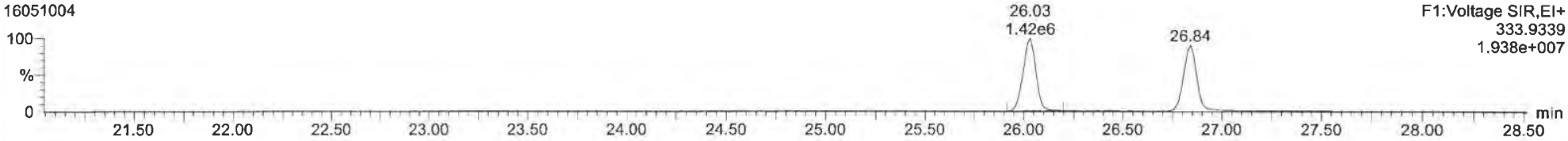

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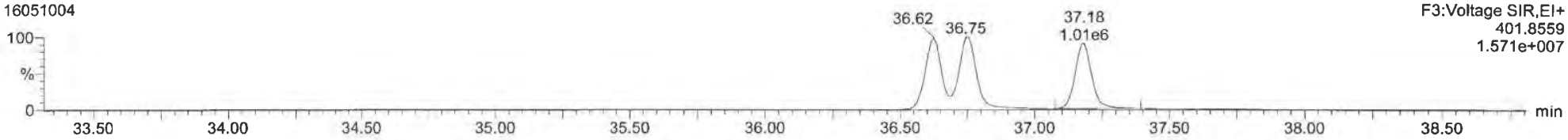

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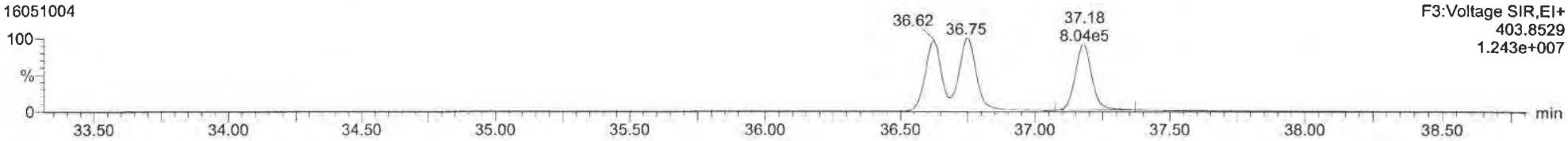
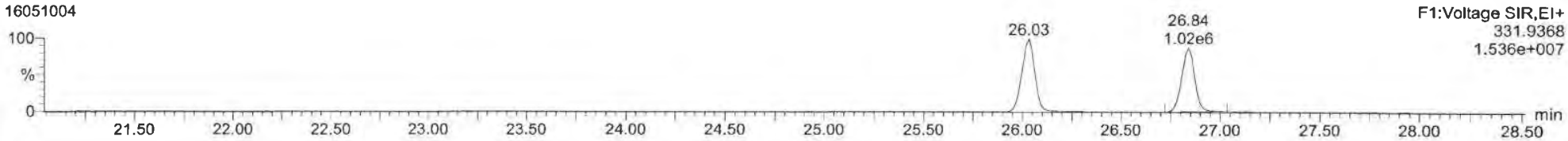


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:55 Pacific Daylight Time

CSIAA 06/30/16

ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

13C-2378-TCDD



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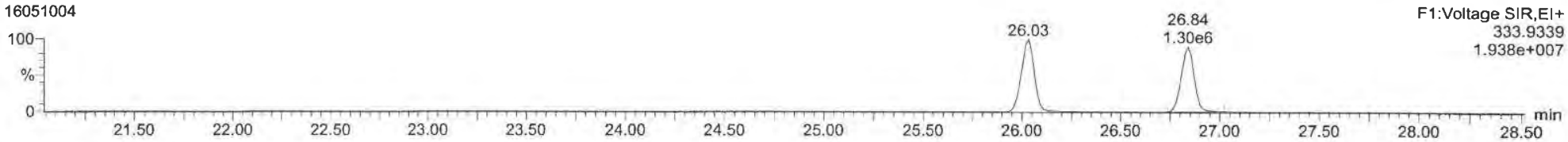
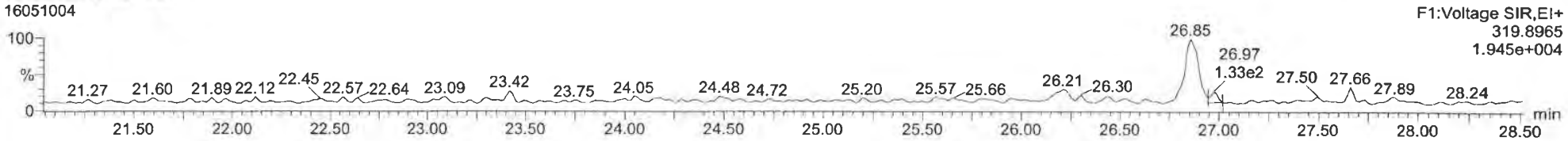
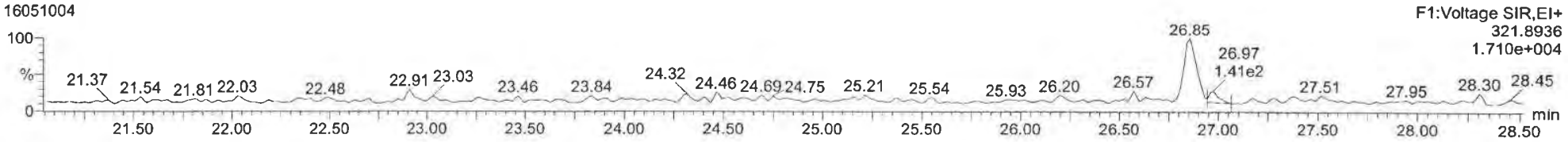


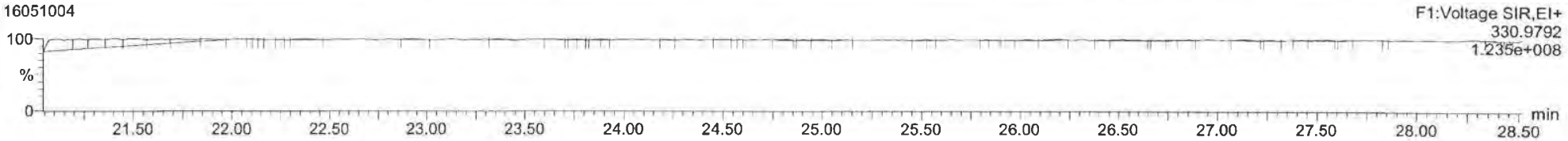
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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CSAA 06/30/16

ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

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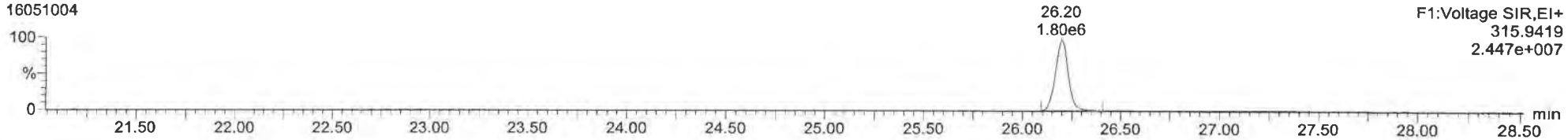

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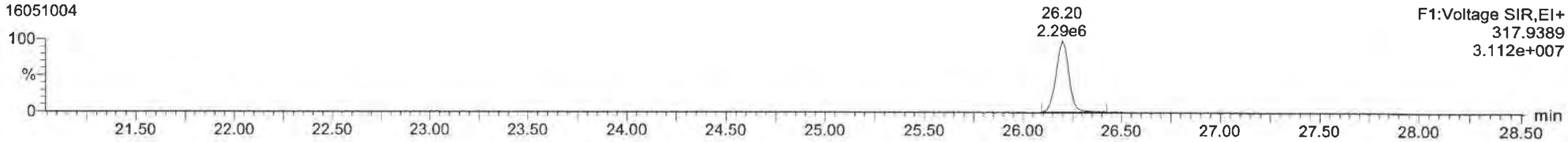

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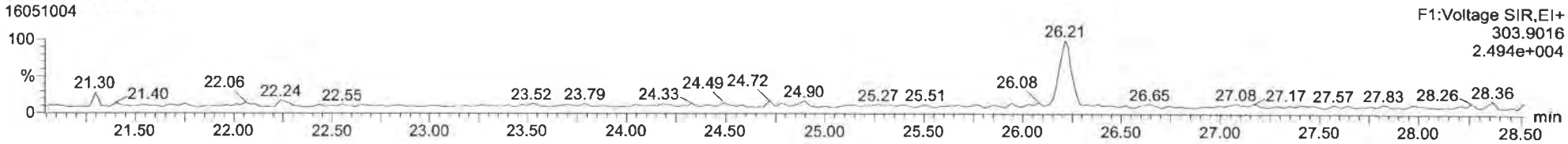

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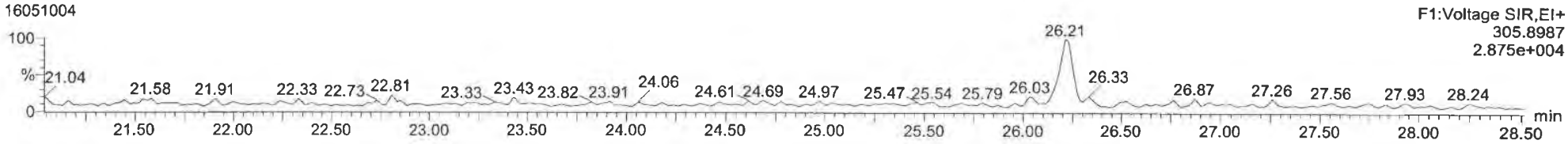
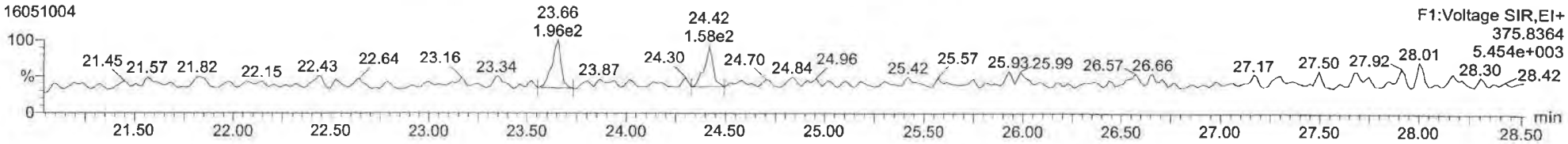


FUNCTION1 HXCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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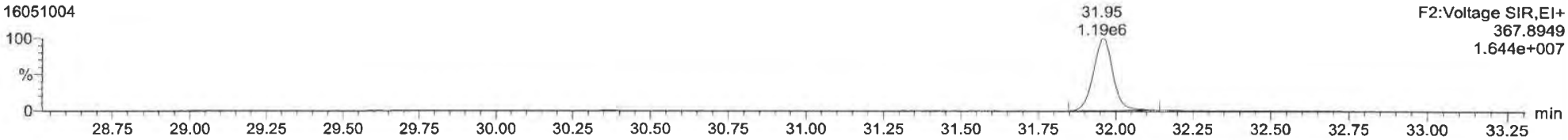
CSI AA 06/30/16

ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDD



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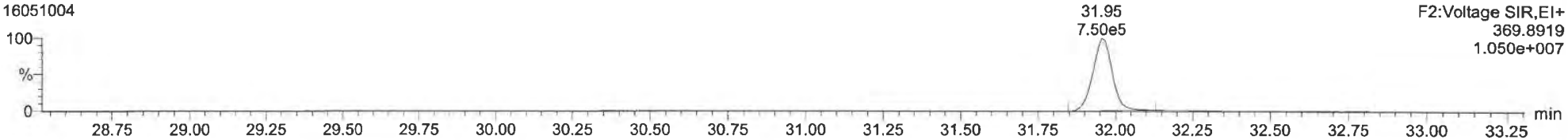

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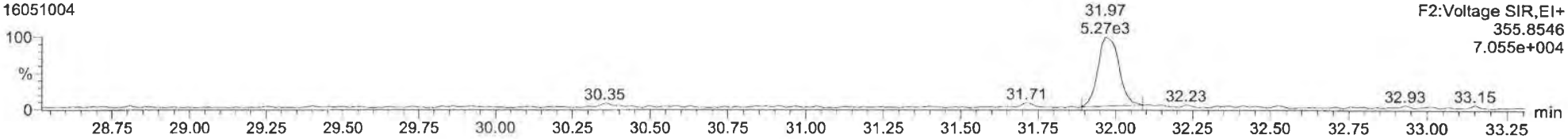
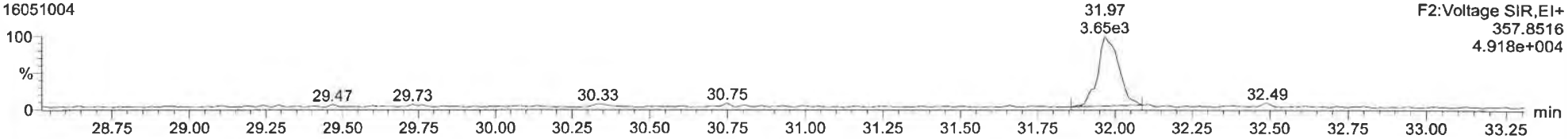


Total-pentadioxins



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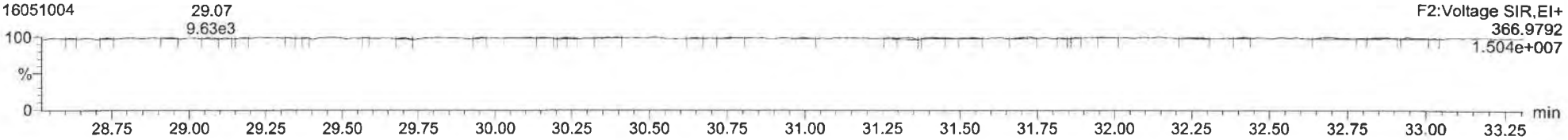

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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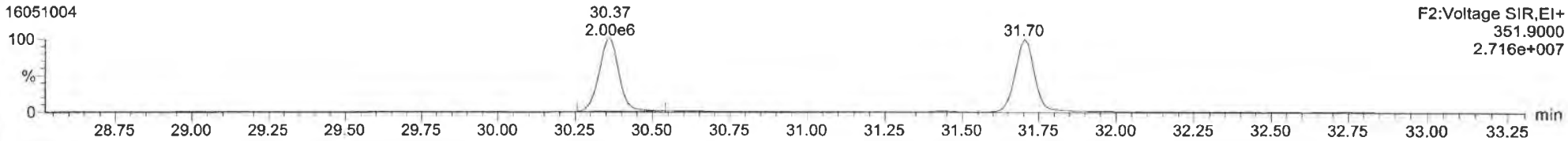
CSI AA 06/30/16

ID: ~~CSL~~; Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDF



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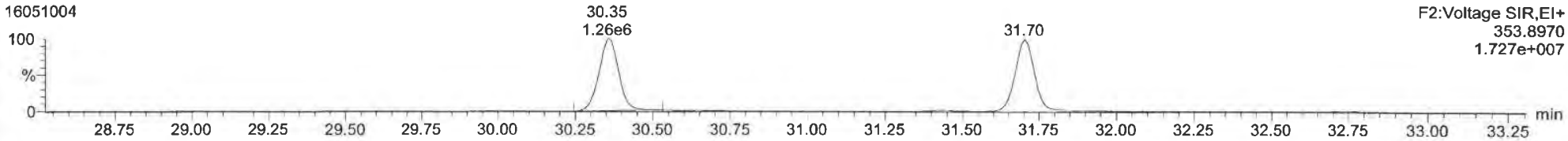

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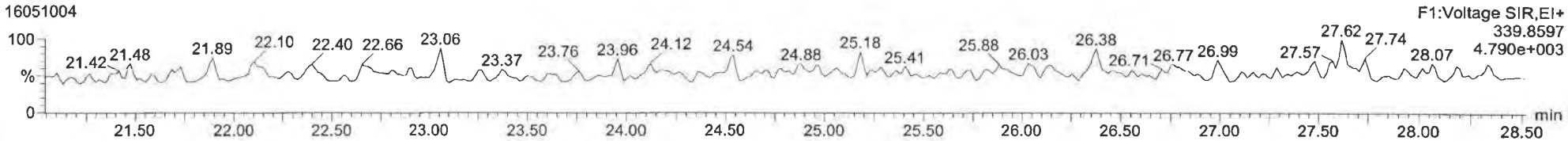

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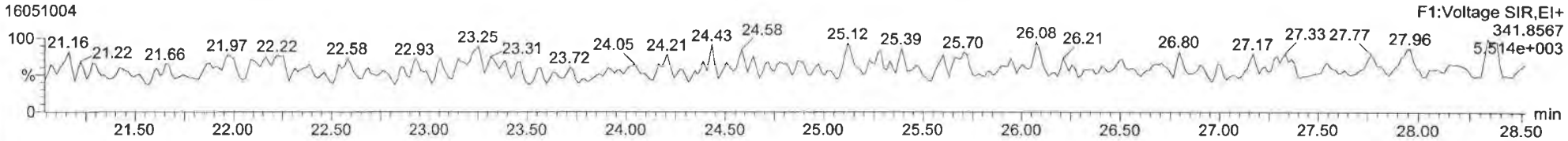

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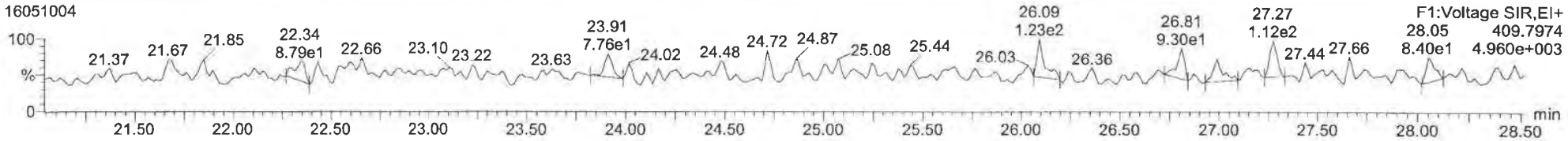

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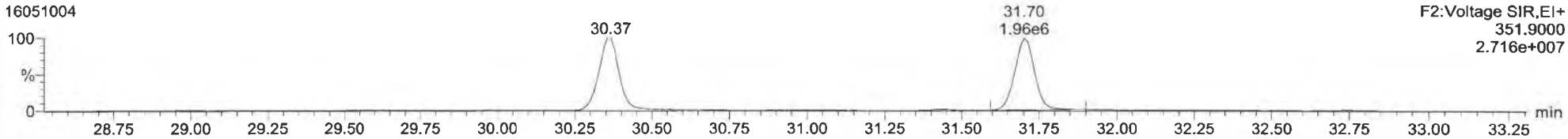
CSIAA 06/30/16

ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

13C-23478-PeCDF



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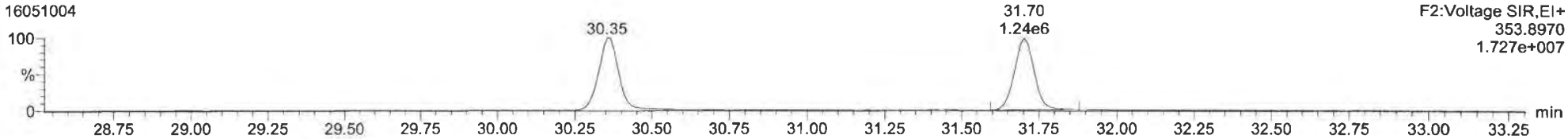

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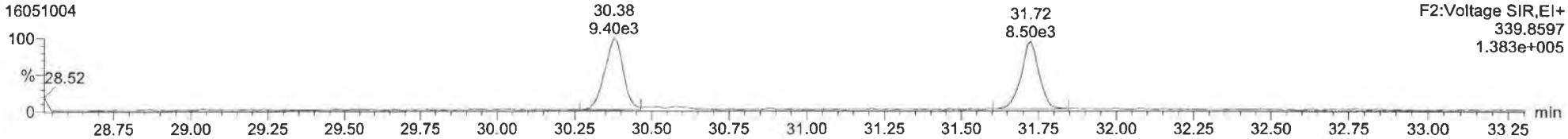

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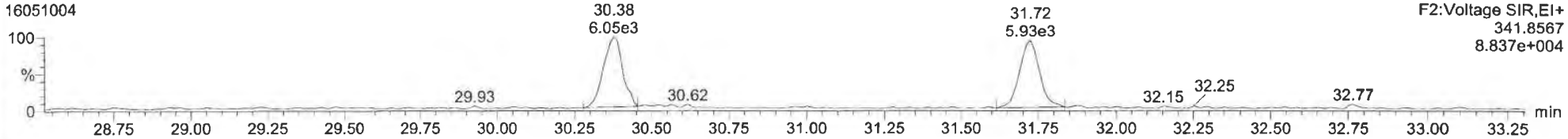

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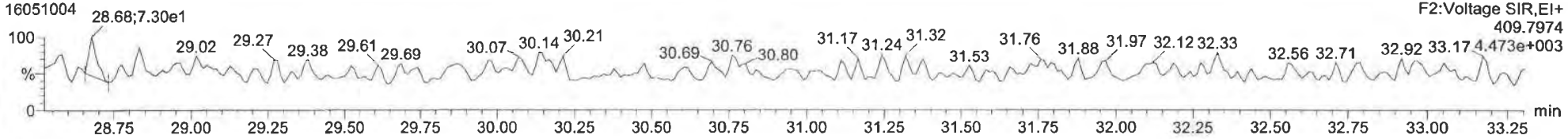

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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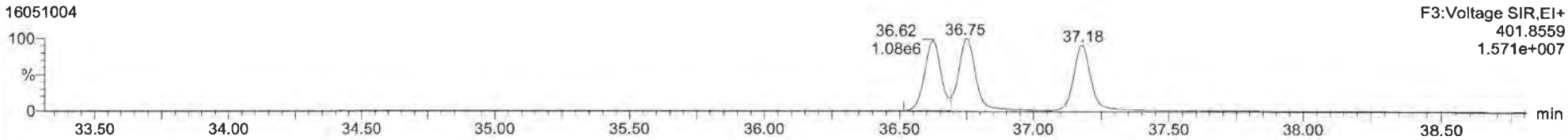
CSI-AA 06/30/16

ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

13C-123478-HxCDD



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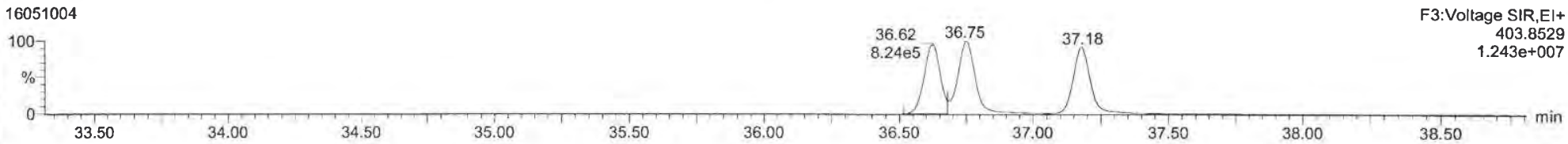
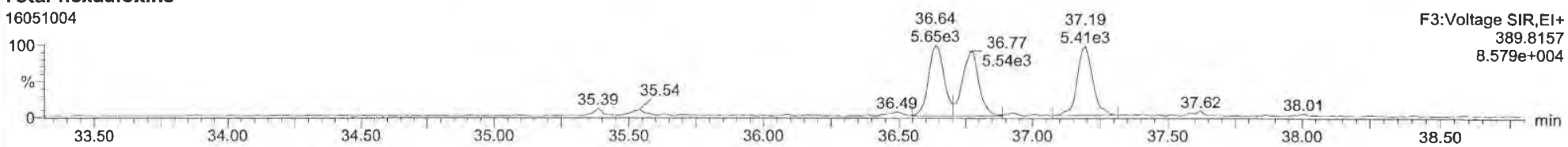
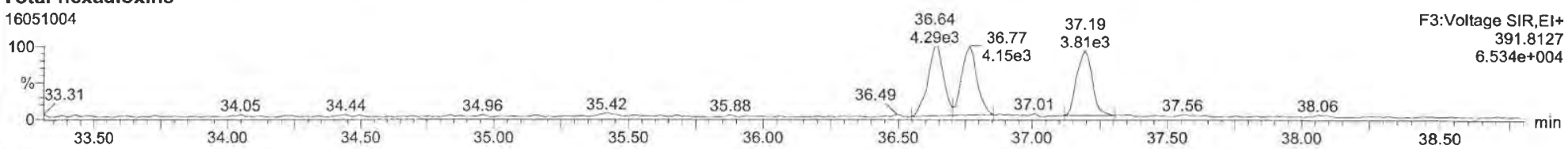


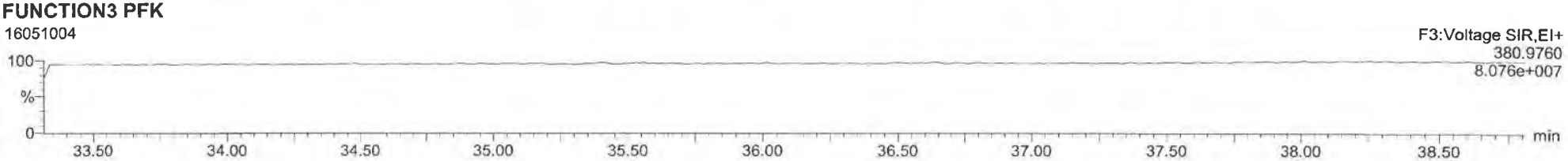
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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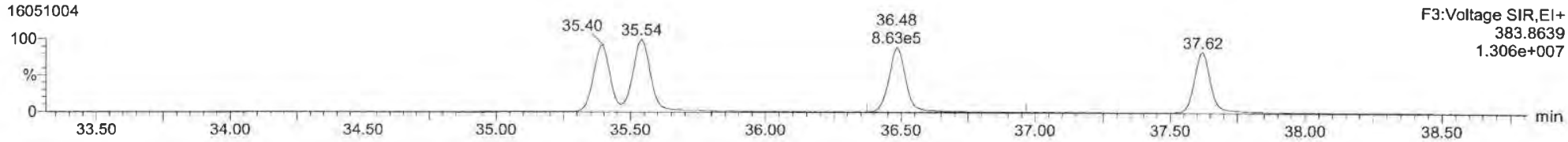
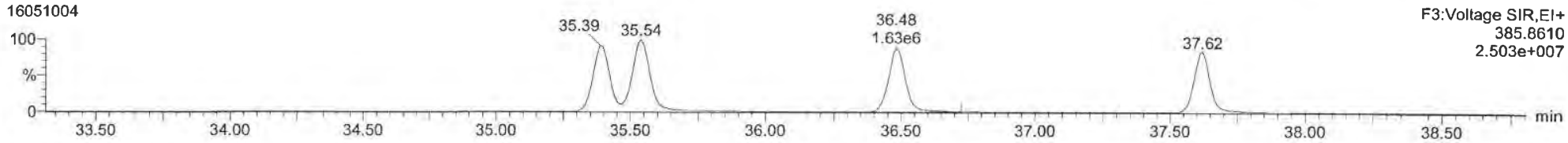
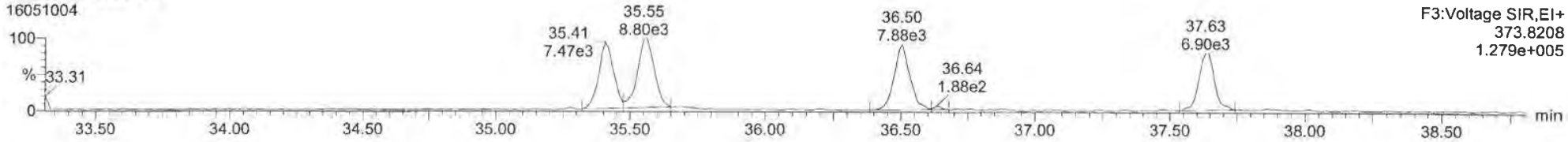
13C-234678-HxCDF



13C-234678-HxCDF



Total-hexafurans



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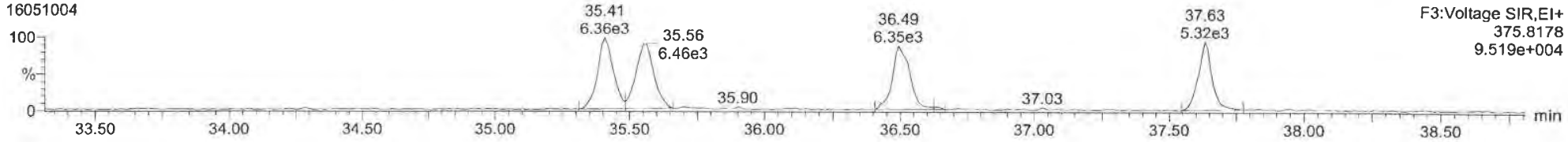
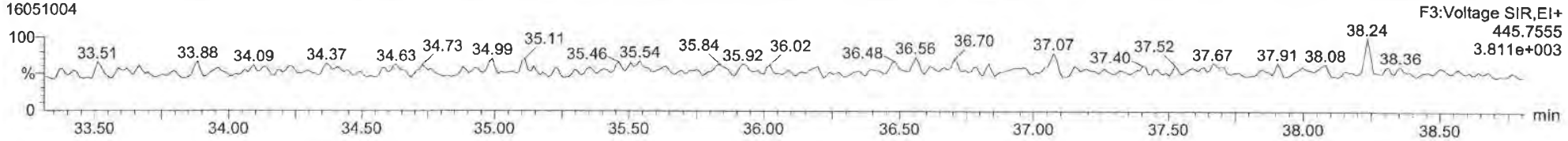


FUNCTION3 OCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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CS1AA 05/30/16

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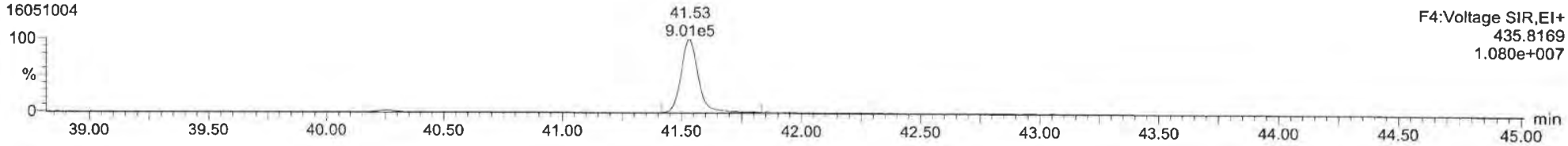
13C-1234678-HpCDD



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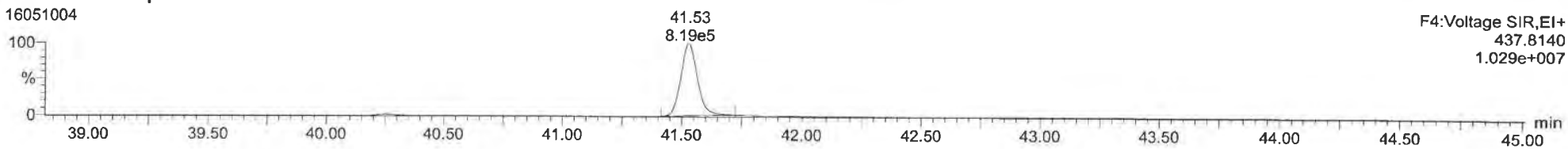
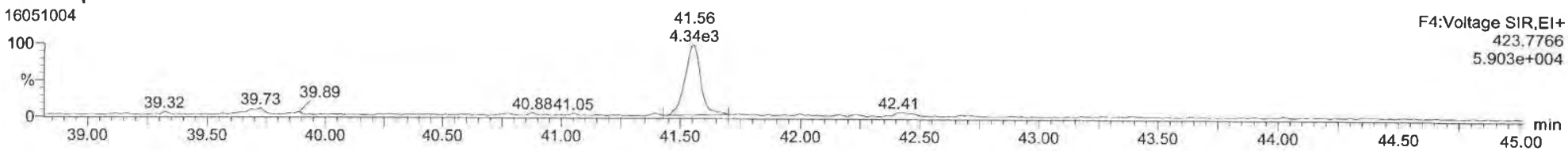
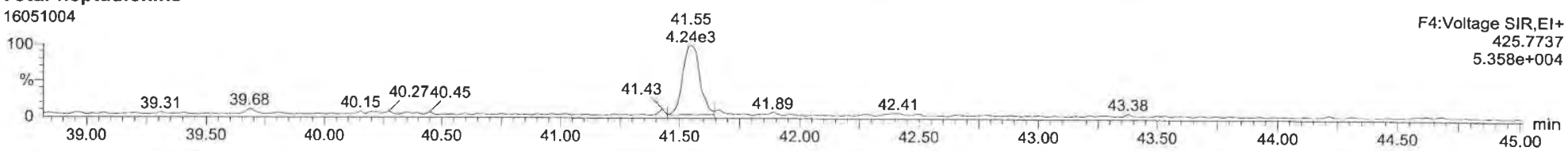


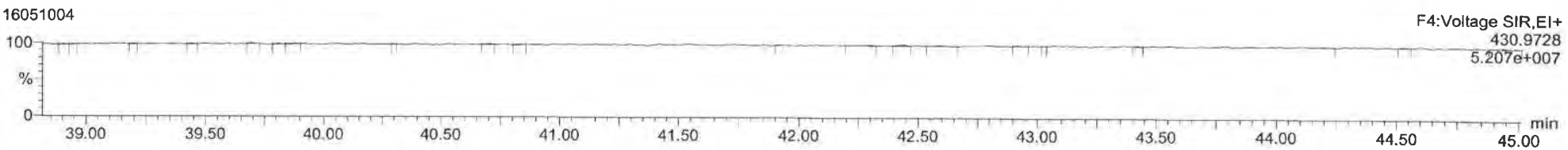
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



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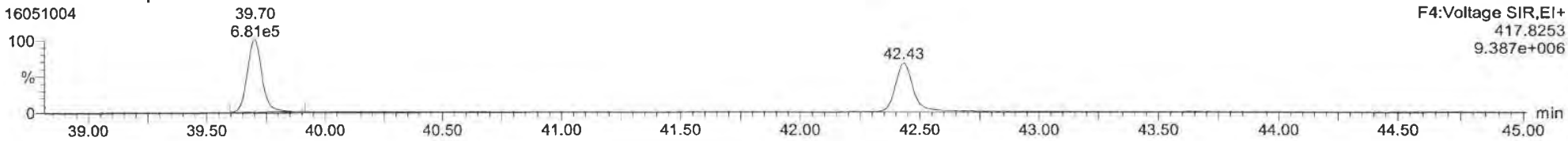

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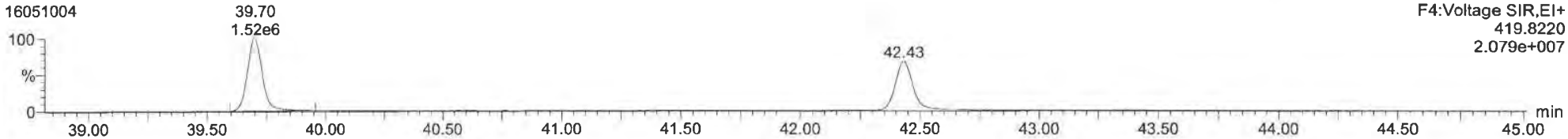
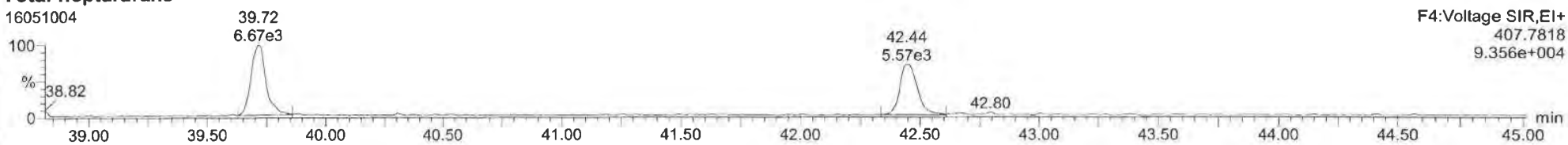


Total-heptafurans



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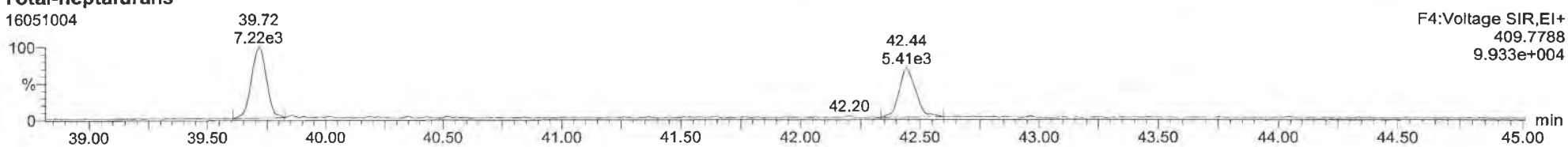
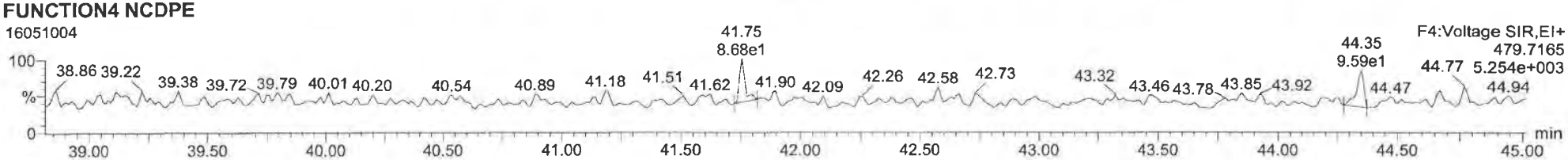


FUNCTION4 NCDPE



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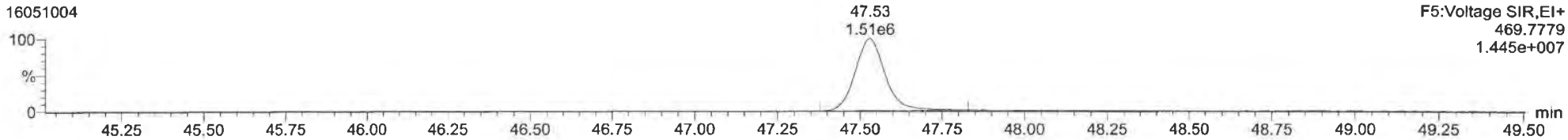
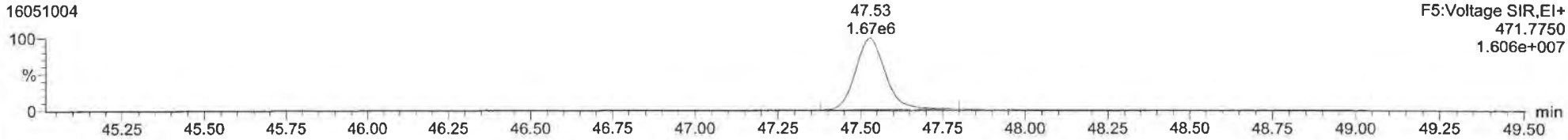
CS1AA 05/30/16

ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

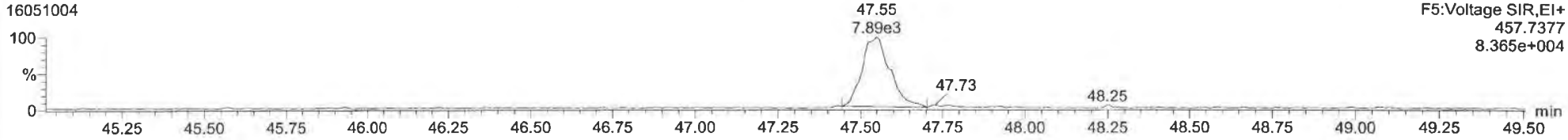
13C-OCDD



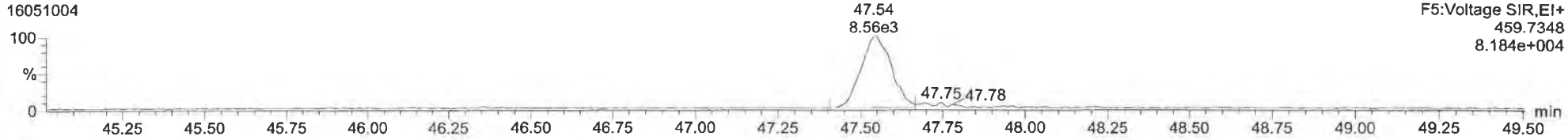
13C-OCDD



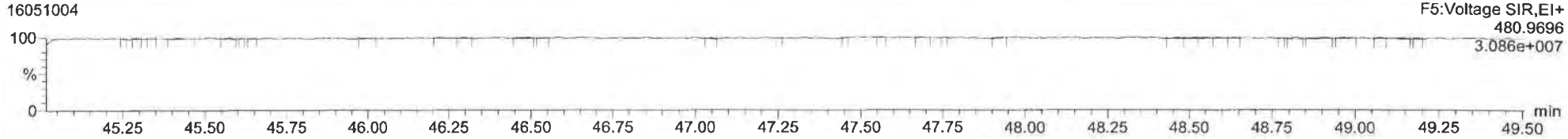
OCDD



OCDD



FUNCTION5 PFK

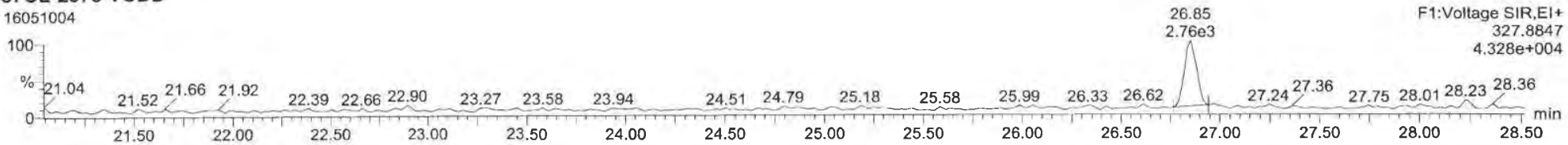


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:55 Pacific Daylight Time

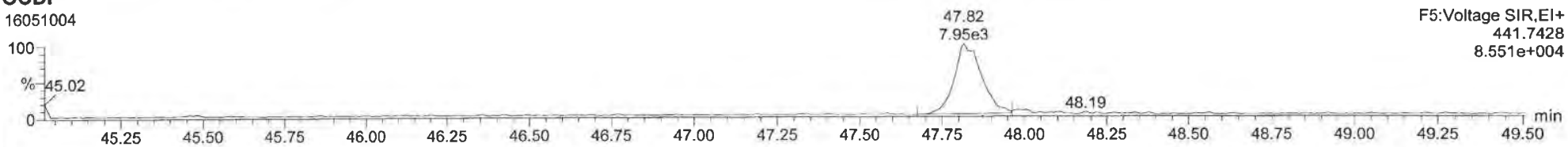
CSIAA 06/30/16

ID: ~~CSL~~, Name: 16051004, Date: 10-May-2016, Time: 13:36:21, Conditions: AUTOSPEC01, User: pk

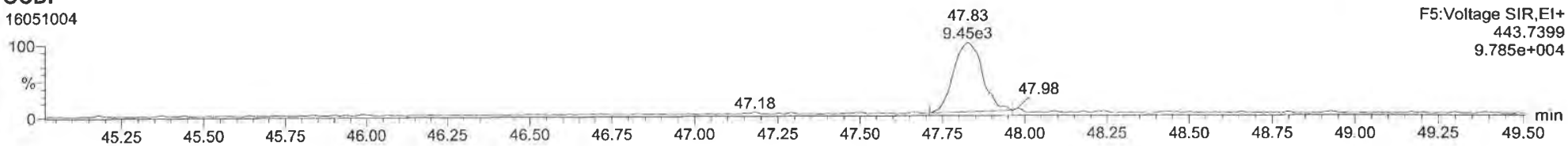
37CL-2378-TCDD



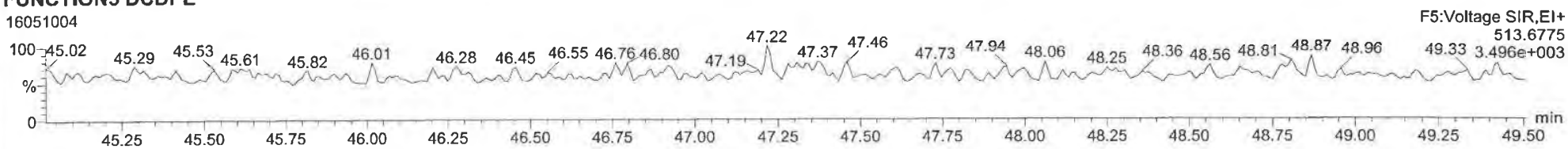
OCDF



OCDF



FUNCTION5 DCDPE



Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS2AA 05/30/16
ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
2378-TCDF	26.213	1.001	6.68e3	8.57e3	0.935	0.780	0.770	624	1162	9.01e4	1.18e5	144.4	NO	0.471	0.471
12378-PeCDF	30.377	1.001	4.02e4	2.30e4	0.952	1.747	1.550	1915	1646	5.44e5	3.26e5	283.8	NO	2.419	2.419
23478-PeCDF	31.725	1.001	3.89e4	2.42e4	0.963	1.603	1.550	1915	1646	5.39e5	3.25e5	281.3	NO	2.486	2.486
123478-HxCDF	35.408	1.001	3.12e4	2.48e4	1.137	1.258	1.240	2315	1569	4.64e5	3.57e5	200.5	NO	2.475	2.475
234678-HxCDF	36.504	1.001	2.91e4	2.36e4	1.164	1.235	1.240	2315	1569	4.12e5	3.29e5	178.1	NO	2.389	2.389
123678-HxCDF	35.561	1.001	3.46e4	2.62e4	1.099	1.320	1.240	2315	1569	4.48e5	3.57e5	193.6	NO	2.432	2.432
123789-HxCDF	37.633	1.000	2.37e4	2.03e4	1.101	1.168	1.240	2315	1569	3.32e5	2.86e5	143.3	NO	2.440	2.440
1234678-HpCDF	39.715	1.000	2.74e4	2.65e4	1.303	1.033	1.050	937	1508	3.63e5	3.66e5	387.6	NO	2.488	2.488
1234789-HpCDF	42.456	1.000	1.92e4	1.86e4	1.317	1.036	1.050	937	1508	2.15e5	2.22e5	229.9	NO	2.432	2.432
OCDF	47.836	1.006	2.72e4	3.13e4	1.166	0.869	0.890	1813	1195	2.65e5	3.03e5	146.3	NO	4.753	4.753
2378-TCDD	26.855	1.001	5.15e3	5.98e3	1.134	0.861	0.770	873	738	6.94e4	7.89e4	79.5	NO	0.492	0.492
12378-PeCDD	31.977	1.001	2.31e4	1.49e4	0.975	1.545	1.550	1483	751	3.38e5	2.05e5	228.0	NO	2.455	2.455
123478-HxCDD	36.646	1.001	2.03e4	1.68e4	1.031	1.209	1.240	1210	1058	2.99e5	2.35e5	247.4	NO	2.378	2.378
123678-HxCDD	36.767	1.001	2.13e4	1.81e4	0.971	1.180	1.240	1210	1058	3.00e5	2.49e5	248.4	NO	2.508	2.508
123789-HxCDD	37.194	1.012	1.95e4	1.58e4	0.947	1.233	1.240	1210	1058	2.85e5	2.15e5	235.5	NO	2.381	2.381
1234678-HpCDD	41.557	1.000	1.61e4	1.64e4	1.028	0.984	1.050	880	817	2.07e5	2.05e5	234.6	NO	2.523	2.523
OCDD	47.549	1.000	3.81e4	4.26e4	1.107	0.895	0.890	912	966	3.66e5	4.09e5	401.3	NO	6.901	6.901
13C-2378-TCDF	26.198	1.006	1.52e6	1.95e6	1.567	0.781	0.770	7213	3636	2.06e7	2.61e7	2854.5	NO		97.056
13C-12378-PeCDF	30.355	1.166	1.65e6	1.09e6	1.274	1.519	1.550	4968	6965	2.31e7	1.47e7	4658.0	NO		94.412
13C-23478-PeCDF	31.703	1.218	1.61e6	1.02e6	1.235	1.575	1.550	4968	6965	2.26e7	1.44e7	4558.9	NO		93.672
13C-123478-HxCDF	35.386	0.952	6.75e5	1.31e6	1.381	0.515	0.510	5229	9078	9.42e6	1.84e7	1800.8	NO		103.223
13C-123678-HxCDF	35.539	0.956	7.84e5	1.49e6	1.569	0.526	0.510	5229	9078	1.04e7	1.98e7	1981.5	NO		103.869
13C-234678-HxCDF	36.482	0.981	6.51e5	1.24e6	1.345	0.524	0.510	5229	9078	9.09e6	1.73e7	1738.2	NO		100.995
13C-123789-HxCDF	37.622	1.012	5.63e5	1.08e6	1.183	0.523	0.510	5229	9078	7.97e6	1.53e7	1523.3	NO		99.391
13C-1234678-HpCDF	39.704	1.068	5.18e5	1.15e6	1.178	0.452	0.440	3357	3824	7.02e6	1.57e7	2089.7	NO		101.292
13C-1234789-HpCDF	42.434	1.141	3.63e5	8.15e5	0.878	0.445	0.440	3357	3824	4.24e6	9.62e6	1263.8	NO		96.293
13C-1234-TCDD	26.034	0.000	9.87e5	1.29e6	1.000	0.764	0.770	3203	3485	1.32e7	1.69e7	4111.4	NO		100.000
13C-2378-TCDD	26.840	1.031	8.78e5	1.12e6	0.908	0.786	0.770	3203	3485	1.17e7	1.47e7	3638.7	NO		96.425
13C-12378-PeCDD	31.955	1.227	9.73e5	6.16e5	0.756	1.580	1.550	2714	2965	1.32e7	8.37e6	4859.3	NO		92.208
13C-123478-HxCDD	36.625	0.985	8.50e5	6.65e5	1.056	1.279	1.240	4926	3042	1.20e7	9.45e6	2437.9	NO		102.903
13C-123678-HxCDD	36.745	0.988	8.97e5	7.21e5	1.163	1.244	1.240	4926	3042	1.23e7	9.91e6	2506.2	NO		99.774
13C-1234678-HpCDD	41.535	1.117	6.58e5	5.97e5	0.909	1.103	1.050	2482	3099	7.94e6	7.53e6	3199.3	NO		98.957
13C-OCDD	47.531	1.278	9.94e5	1.12e6	0.820	0.888	0.890	5478	3657	9.18e6	1.01e7	1676.4	NO		184.791

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

CSZAA 06/30/16

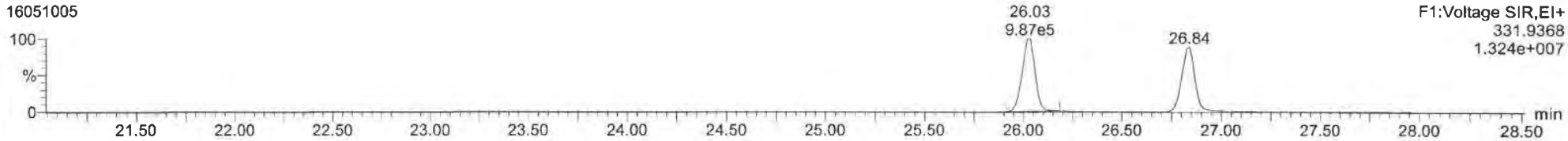
ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
13C-123789-HxCDD	37.183	0.000	7.78e5	6.17e5	1.000	1.261	1.240	4926	3042	1.07e7	8.38e6	2166.0	NO		100.000
Total-tetrafurans			6.89e3		0.935			624		9.48e4					0.480
Total-penta1			0.00e0					685		0.00e0					
Total-pentafurans			8.07e4		0.957			1915		1.11e6					4.986
Total-hexafurans			1.19e5		1.125			2315		1.68e6					9.815
Total-heptafurans			4.78e4		1.310			937		5.96e5					5.033
Total-Furans			2.82e5		1.114			624		3.74e6					25.066
Total-tetradioxins			5.15e3		1.134			873		6.94e4					0.492
Total-pentadioxins			2.33e4		0.975			1483		3.46e5					2.481
Total-hexadioxins			6.12e4		0.983			1210		8.85e5					7.267
Total-heptadioxins			1.74e4		1.028			880		2.29e5					2.716
Total-Dioxins			1.45e5		1.028			873		1.90e6					19.856
Total-TEQ			4.27e5					873		5.64e6					44.922
37CL-2378-TCDD	26.855	1.032	1.11e4		1.067			1295		1.59e5		122.7			0.455
FUNCTION1 PFK			1.86e6					839683		3.45e7					
FUNCTION2 PFK			1.48e5					170069		4.43e6					0.000
FUNCTION3 PFK			0.00e0					617332		0.00e0					
FUNCTION4 PFK			3.08e5					401956		9.69e6					
FUNCTION5 PFK			2.68e5					309329		1.04e7					
FUNCTION1 HXCDPE			3.06e2					522		6.37e3					0.000
FUNCTION1 HPCDPE			8.95e2					980		1.98e4					0.000
FUNCTION2 HPCDPE			1.50e2					689		5.22e3					0.000
FUNCTION3 OCDPE			0.00e0					469		0.00e0					
FUNCTION4 NCDPE			0.00e0					652		0.00e0					
FUNCTION5 DCDPE			0.00e0					485		0.00e0					

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS2AA 06/30/16
ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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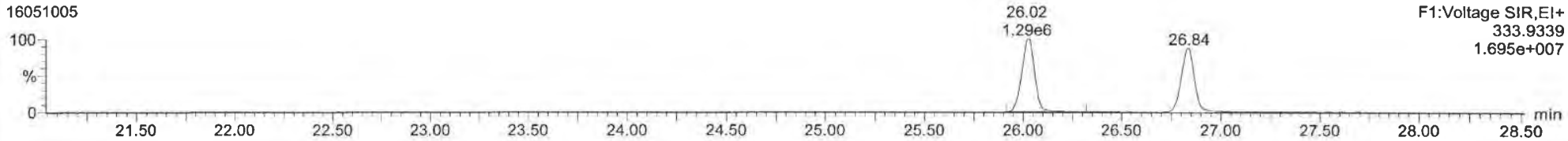
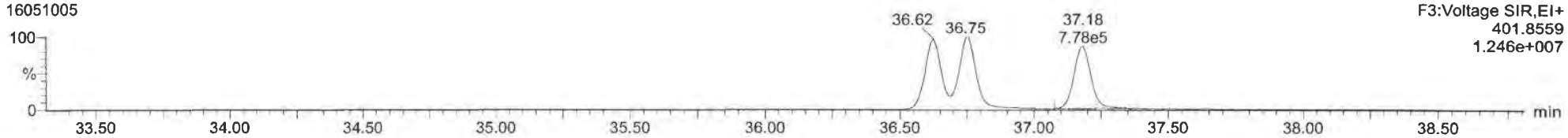


13C-123789-HxCDD



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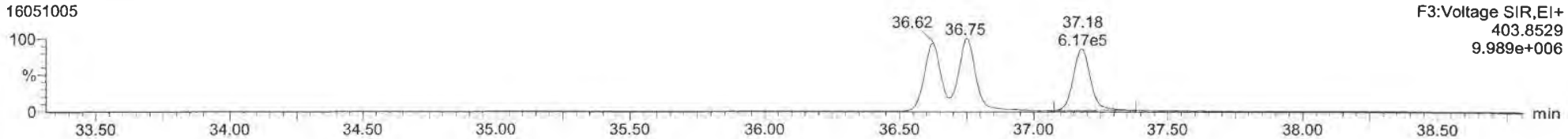

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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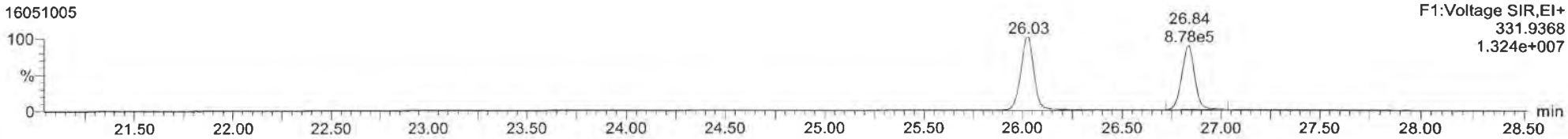
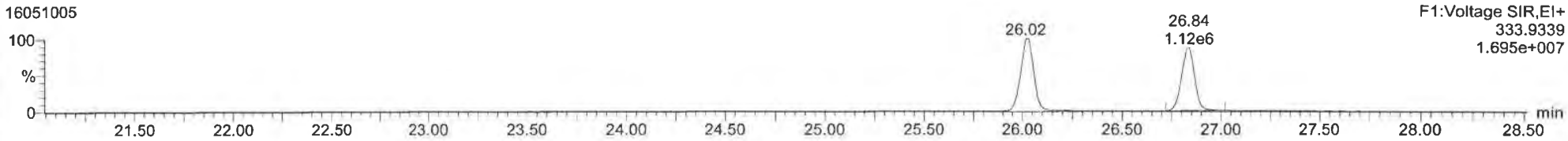
CS2AA 06/30/16

ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

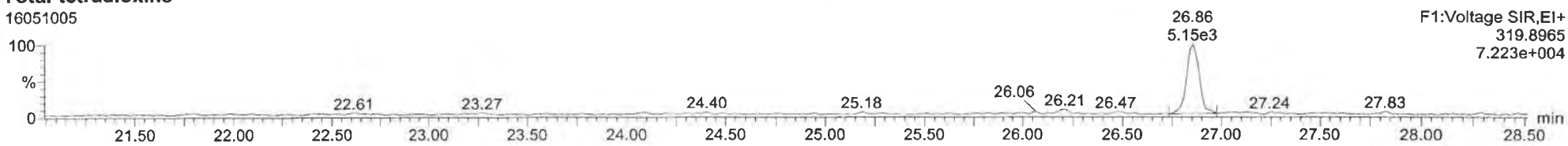
13C-2378-TCDD



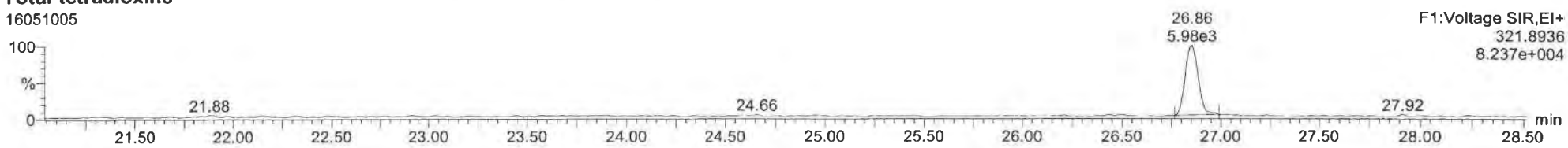
13C-2378-TCDD



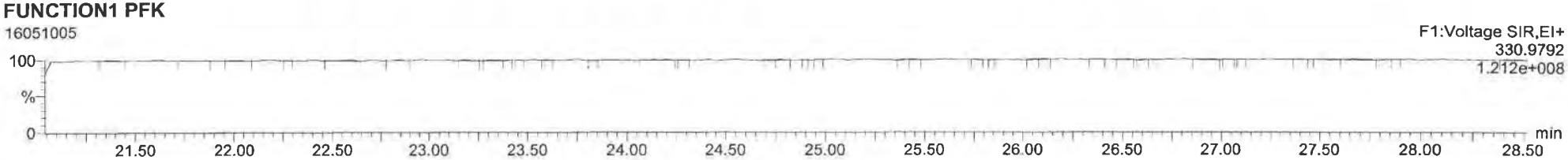
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK

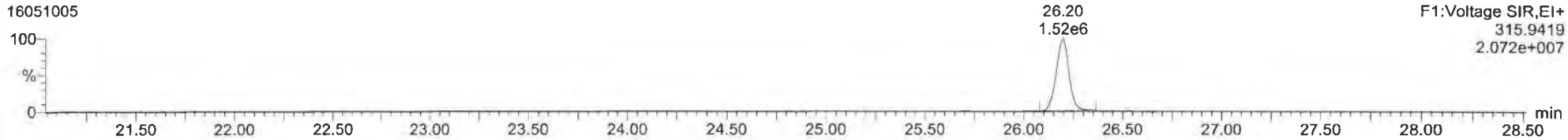


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

CS2AA 06/30/16

ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

13C-2378-TCDF



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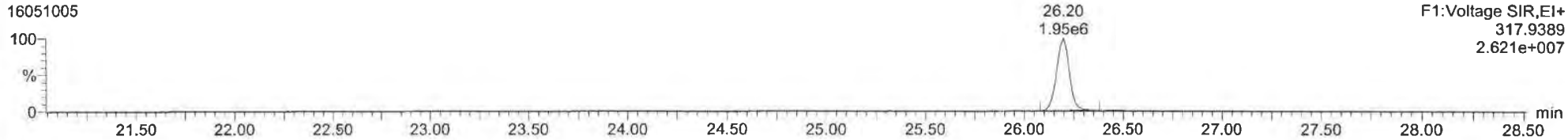
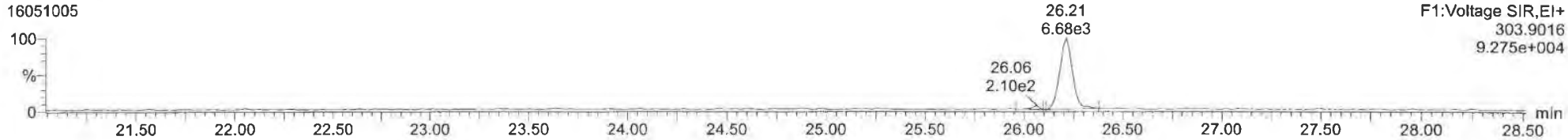
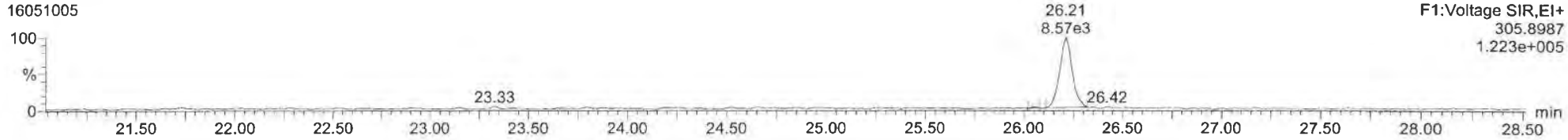


Total-tetrafurans



Total-tetrafurans



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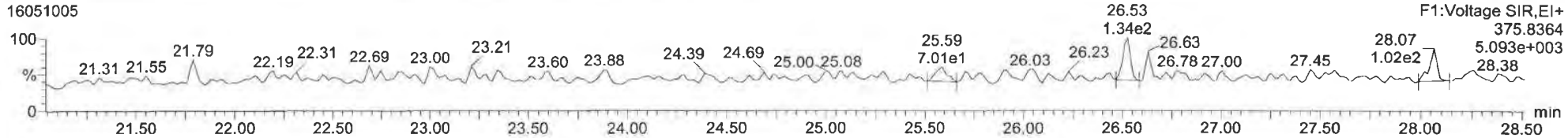

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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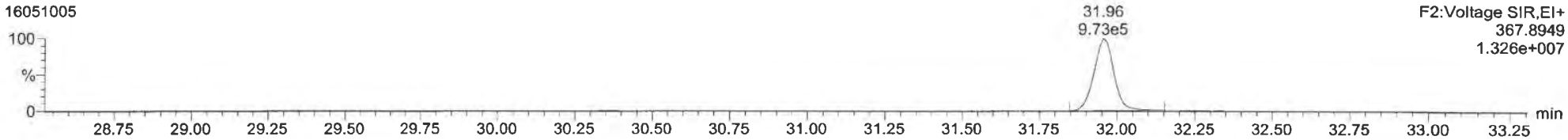
CS2AA 05/30/16

ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDD



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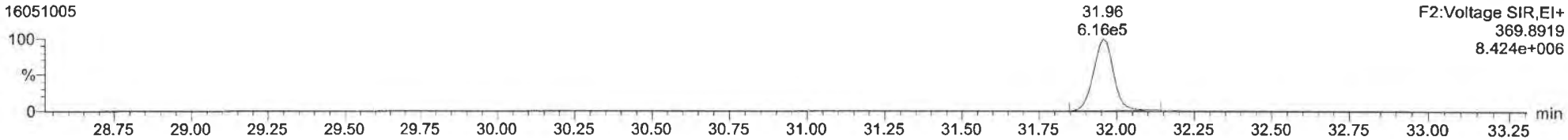
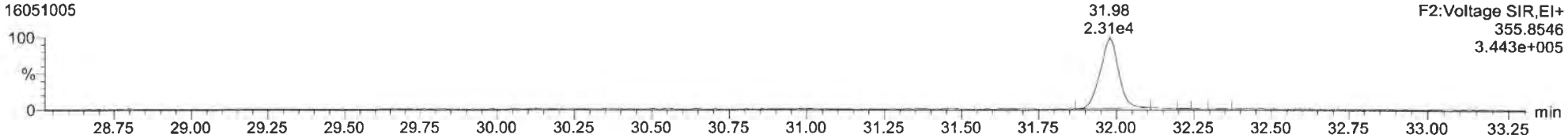
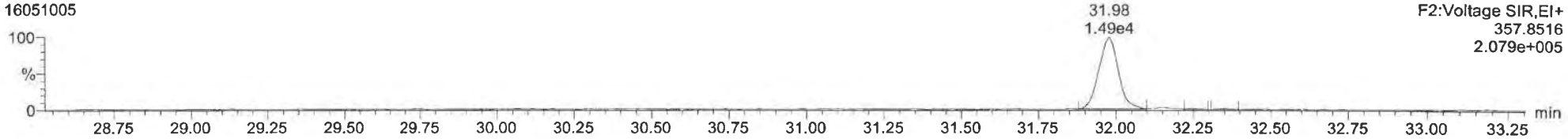


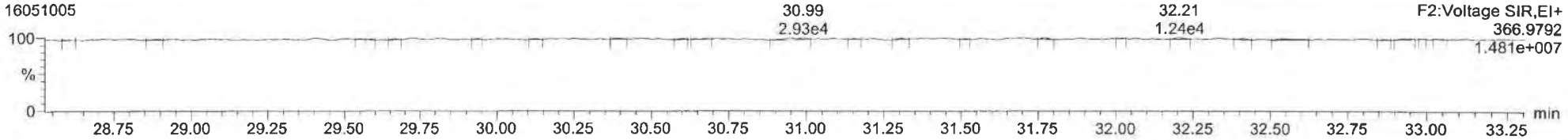
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK

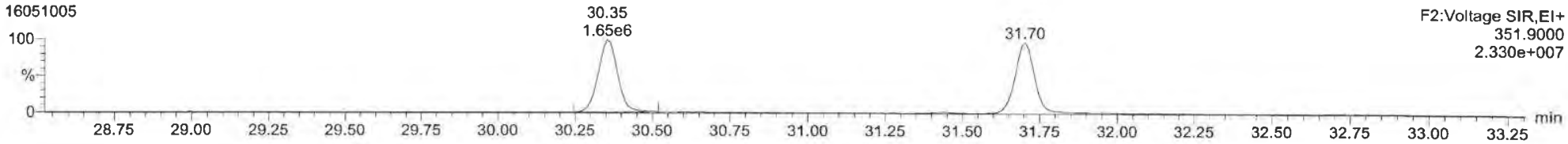


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

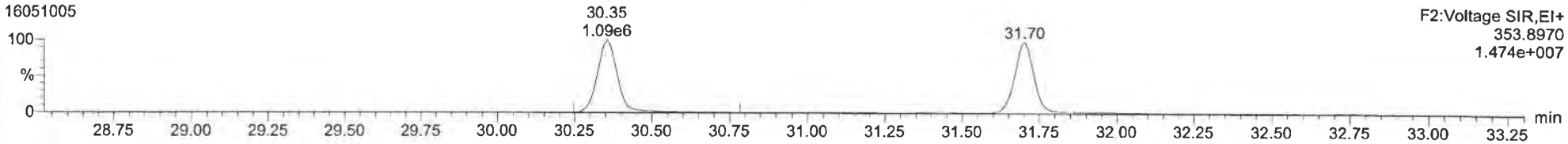
CS2AA 06/30/16

ID: ~~C31~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

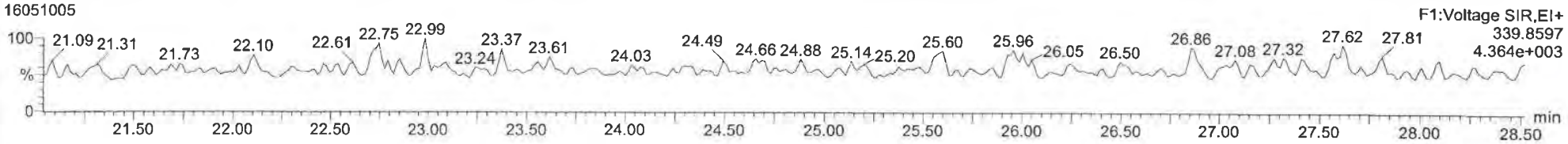
13C-12378-PeCDF



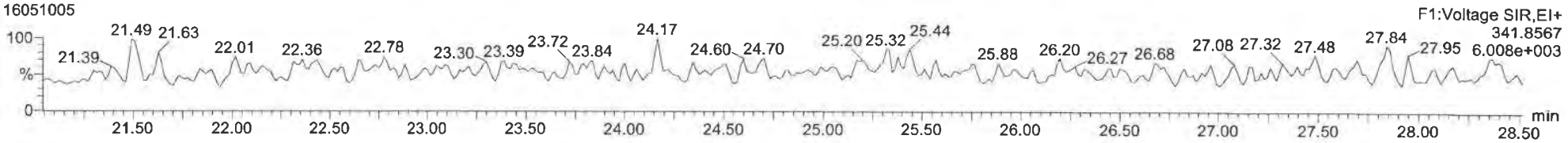
13C-12378-PeCDF



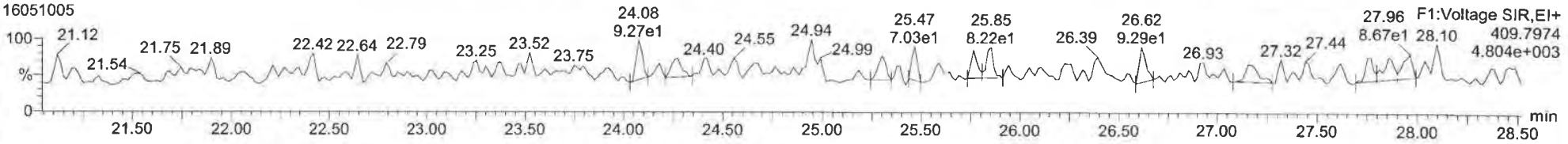
Total-penta1



Total-penta1



FUNCTION1 HPCDPE

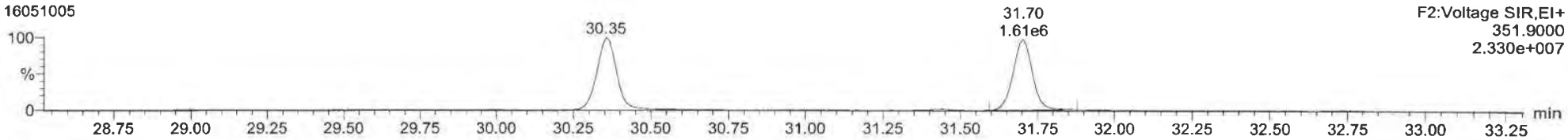


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

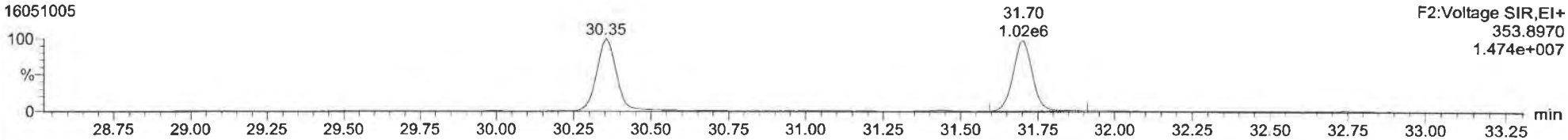
CS2AA 06/30/16

ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

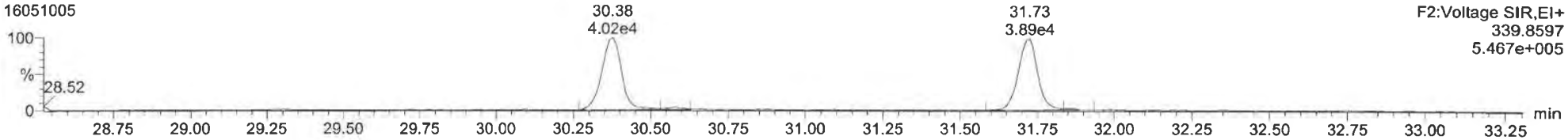
13C-23478-PeCDF



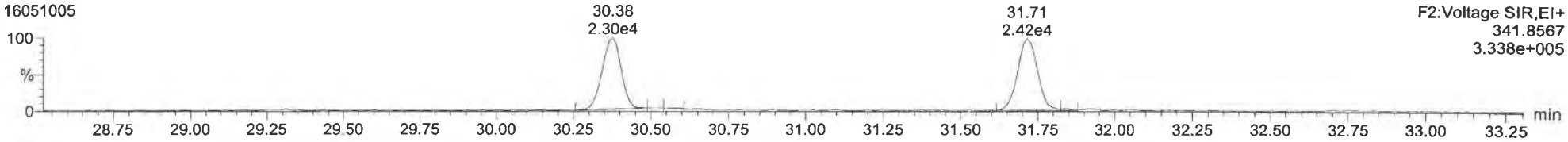
13C-23478-PeCDF



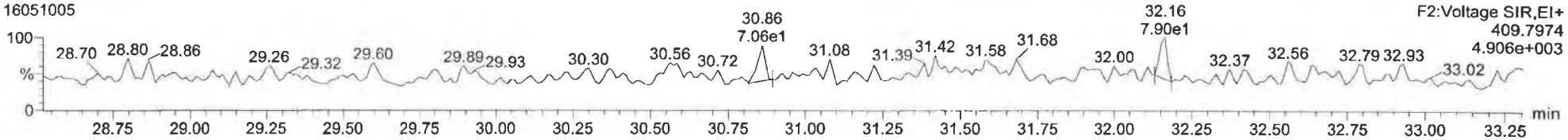
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE

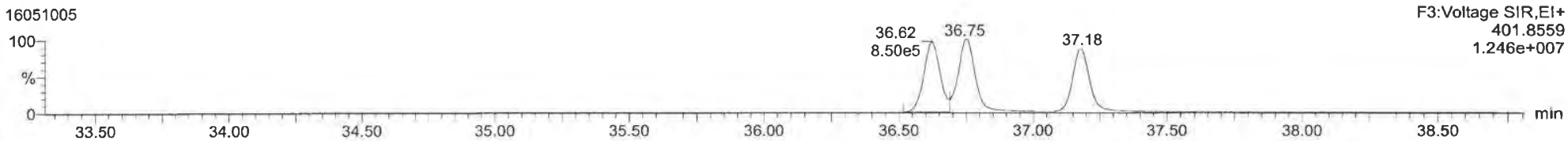


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

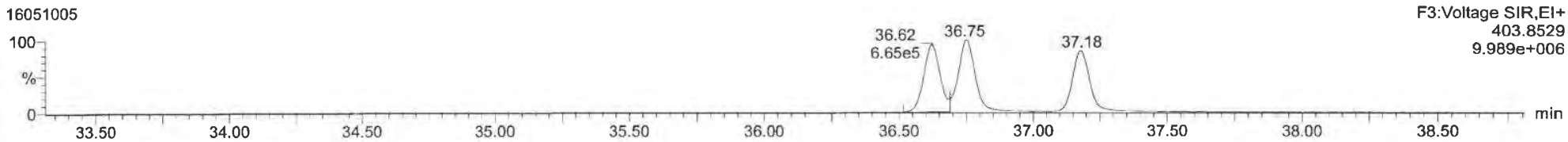
CS2AA 06/30/16

ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

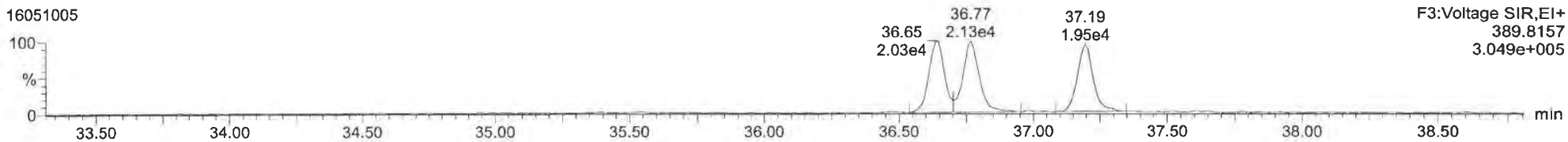
13C-123478-HxCDD



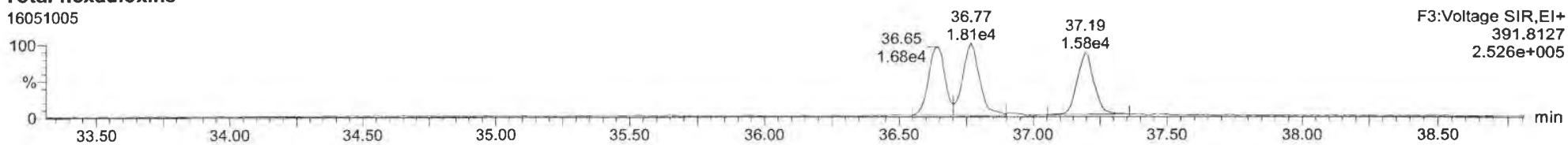
13C-123478-HxCDD



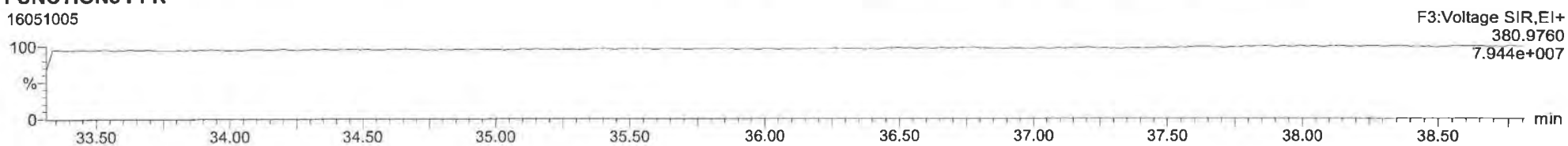
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK

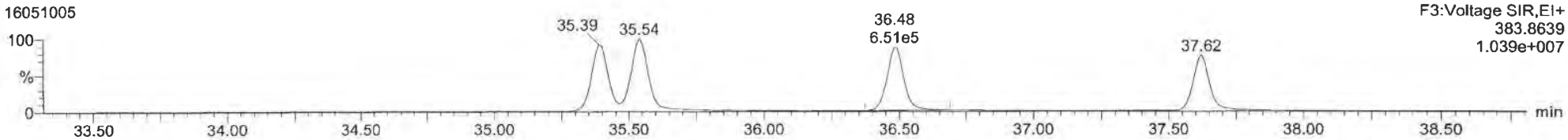


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

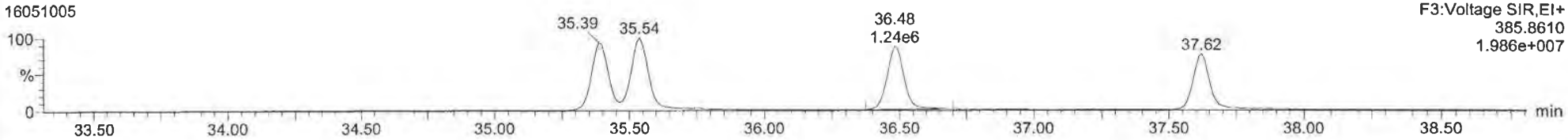
CS2AA 06/30/16

ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

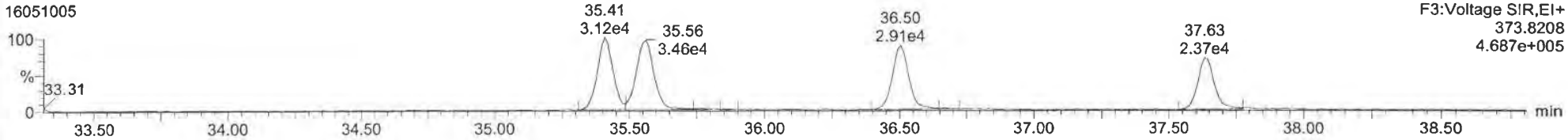
13C-234678-HxCDF



13C-234678-HxCDF

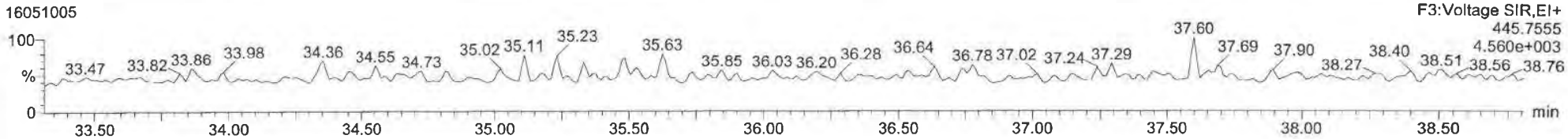


Total-hexafurans



Total-hexafurans

FUNCTION3 OCDPE

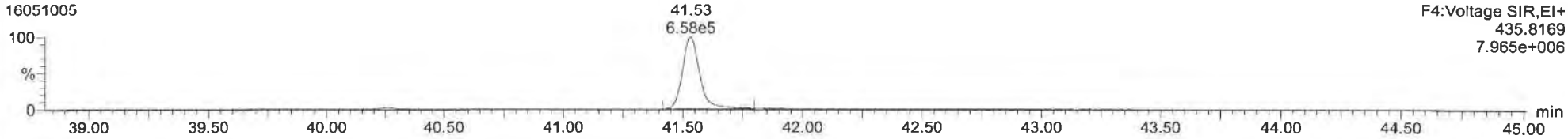


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

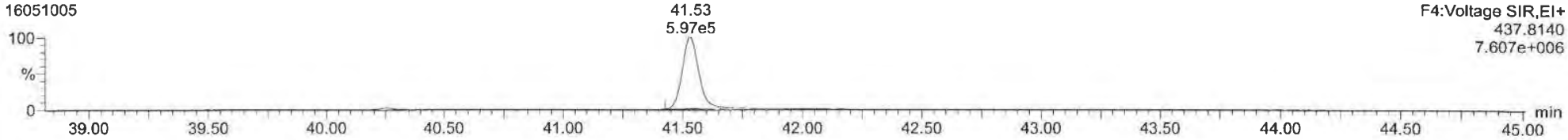
CS2AA 06/30/16

ID: ~~CS4~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

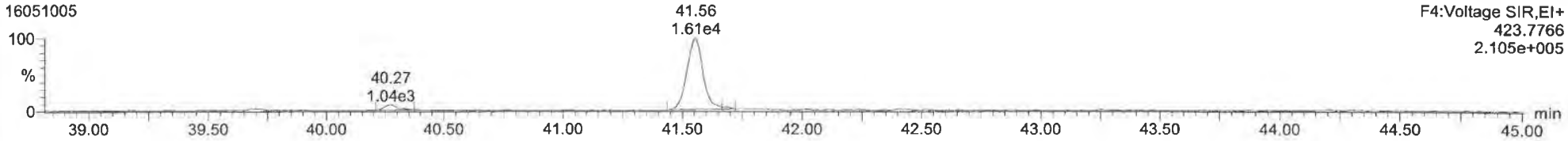
13C-1234678-HpCDD



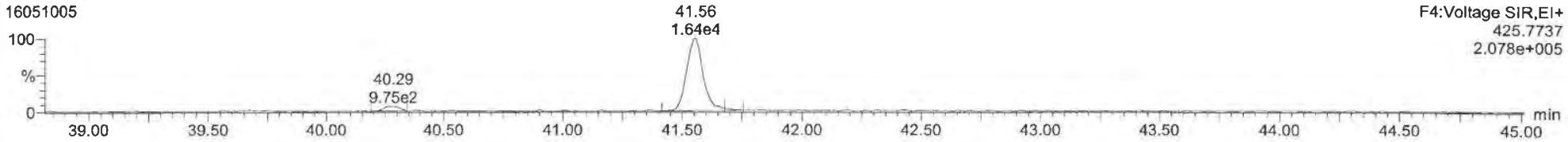
13C-1234678-HpCDD



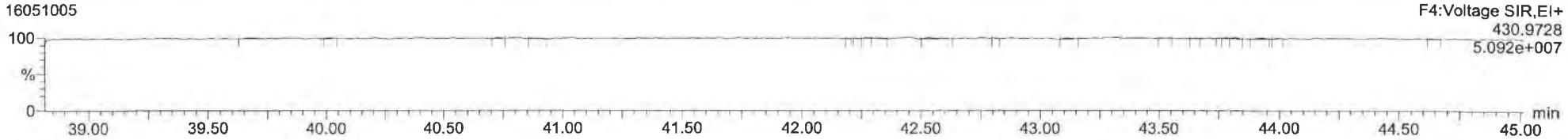
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK

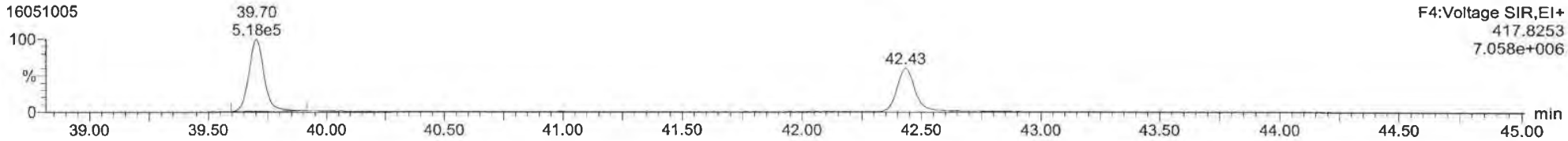


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

C52AA 06/30/16

ID: ~~CS4~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

13C-1234678-HpCDF



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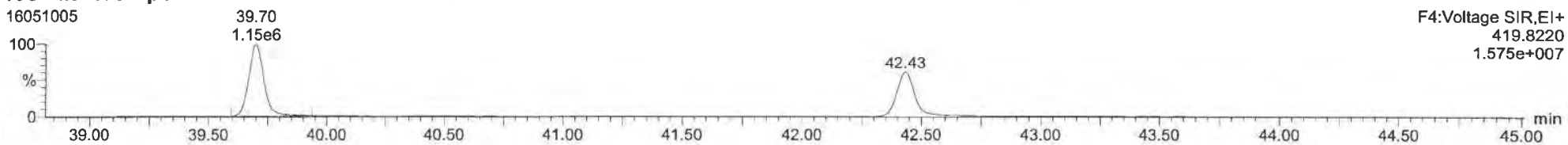
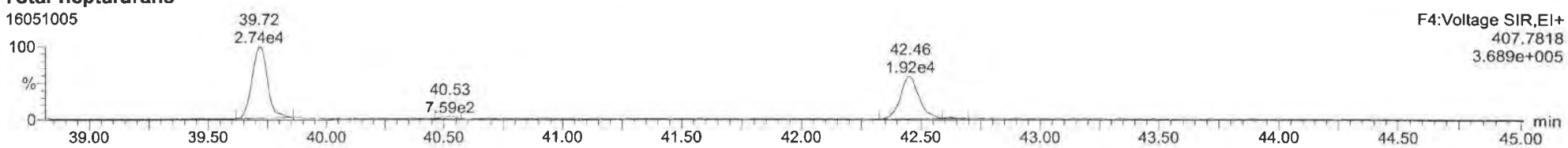
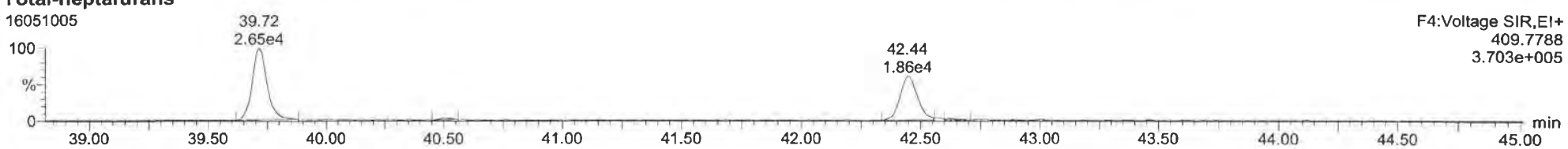


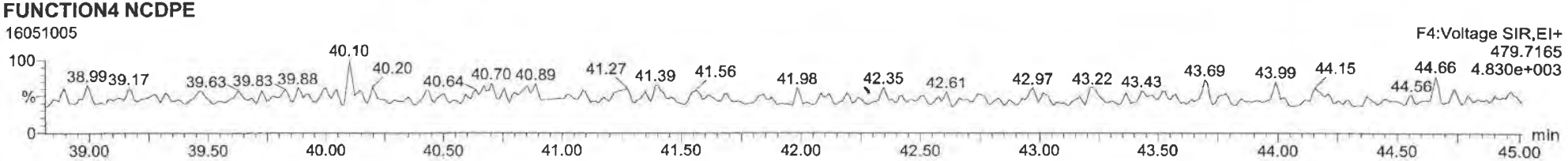
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE

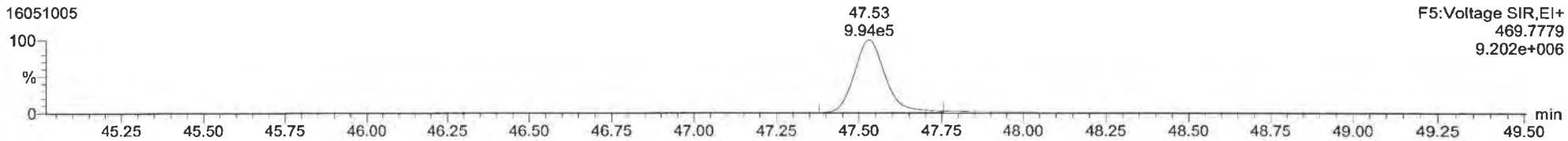


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

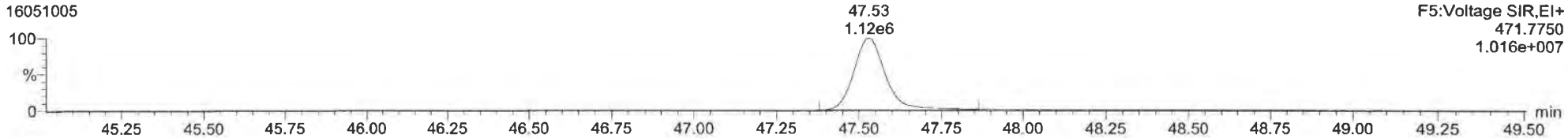
CS2AA 04/30/16

ID: ~~CS1~~, Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

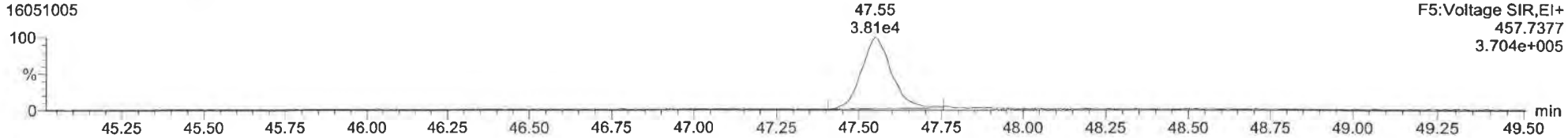
13C-OCDD



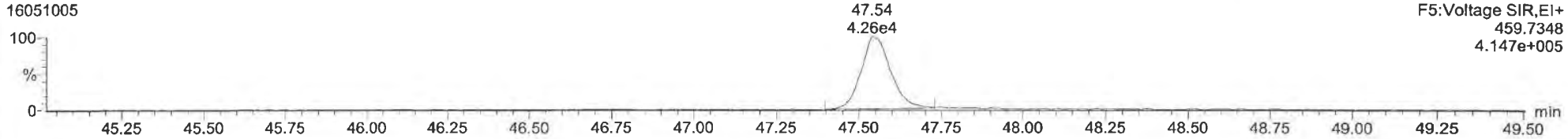
13C-OCDD



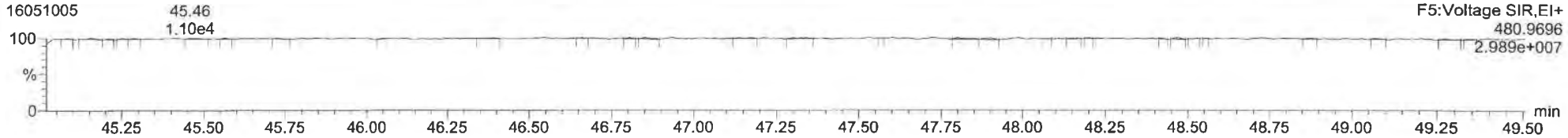
OCDD



OCDD



FUNCTION5 PFK

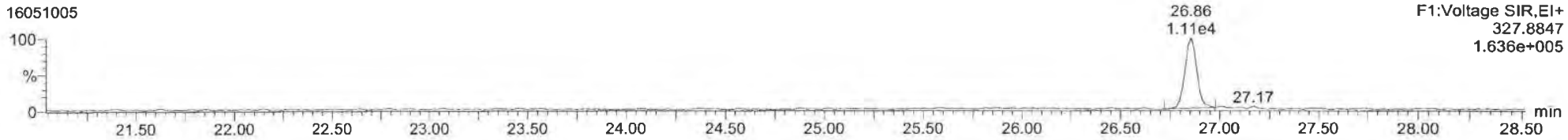


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:56 Pacific Daylight Time

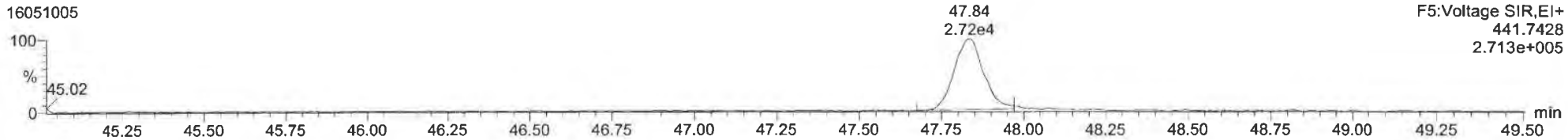
CS2AA 06/30/16

ID: ~~CS1,~~ Name: 16051005, Date: 10-May-2016, Time: 14:27:42, Conditions: AUTOSPEC01, User: pk

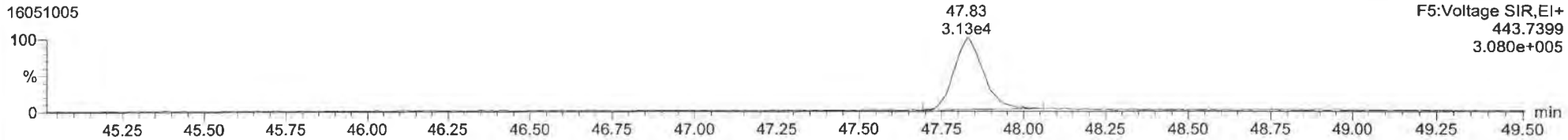
37CL-2378-TCDD



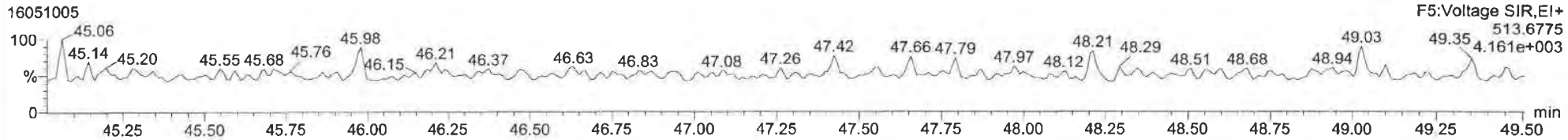
OCDF



OCDF



FUNCTION5 DCDPE



Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:58 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS3AA 06/30/16
ID: CS2, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
2378-TCDF	26.228	1.001	3.07e4	3.77e4	0.935	0.815	0.770	712	1111	4.18e5	5.13e5	587.6	NO	1.989	1.989
12378-PeCDF	30.388	1.001	1.70e5	1.07e5	0.952	1.587	1.550	2318	2111	2.30e6	1.48e6	994.0	NO	9.513	9.513
23478-PeCDF	31.736	1.001	1.71e5	1.10e5	0.963	1.561	1.550	2318	2111	2.39e6	1.51e6	1030.0	NO	10.056	10.056
123478-HxCDF	35.419	1.000	1.40e5	1.13e5	1.137	1.242	1.240	3320	2835	2.00e6	1.63e6	602.7	NO	9.994	9.994
234678-HxCDF	36.515	1.001	1.43e5	1.11e5	1.164	1.289	1.240	3320	2835	1.95e6	1.53e6	586.9	NO	10.056	10.056
123678-HxCDF	35.572	1.001	1.52e5	1.24e5	1.099	1.222	1.240	3320	2835	2.04e6	1.64e6	614.5	NO	10.120	10.120
123789-HxCDF	37.644	1.001	1.24e5	9.11e4	1.101	1.357	1.240	3320	2835	1.71e6	1.29e6	513.7	NO	9.841	9.841
1234678-HpCDF	39.727	1.001	1.29e5	1.23e5	1.303	1.051	1.050	1943	2140	1.79e6	1.68e6	918.8	NO	9.815	9.815
1234789-HpCDF	42.456	1.000	9.87e4	9.17e4	1.317	1.077	1.050	1943	2140	1.11e6	1.08e6	573.3	NO	9.571	9.571
OCDF	47.845	1.006	1.54e5	1.71e5	1.166	0.898	0.890	1587	2180	1.40e6	1.54e6	883.0	NO	19.983	19.983
2378-TCDD	26.870	1.001	2.01e4	2.62e4	1.134	0.765	0.770	1285	889	2.72e5	3.48e5	211.6	NO	1.941	1.941
12378-PeCDD	31.988	1.000	1.02e5	6.55e4	0.975	1.562	1.550	1115	773	1.41e6	9.00e5	1267.9	NO	9.872	9.872
123478-HxCDD	36.647	1.000	9.61e4	7.58e4	1.031	1.268	1.240	1493	1507	1.37e6	1.09e6	919.3	NO	9.926	9.926
123678-HxCDD	36.778	1.001	1.01e5	8.20e4	0.971	1.234	1.240	1493	1507	1.34e6	1.10e6	900.3	NO	9.917	9.917
123789-HxCDD	37.206	1.012	9.26e4	7.59e4	0.947	1.221	1.240	1493	1507	1.27e6	1.08e6	848.8	NO	9.943	9.943
1234678-HpCDD	41.557	1.000	8.01e4	7.55e4	1.028	1.061	1.050	1296	1324	9.67e5	9.17e5	746.0	NO	9.822	9.822
OCDD	47.567	1.001	1.32e5	1.50e5	1.107	0.881	0.890	2421	2005	1.24e6	1.38e6	513.8	NO	18.227	18.227
13C-2378-TCDF	26.212	1.006	1.61e6	2.06e6	1.567	0.782	0.770	8042	3396	2.20e7	2.83e7	2733.6	NO		100.369
13C-12378-PeCDF	30.366	1.166	1.87e6	1.18e6	1.274	1.579	1.550	5347	3950	2.45e7	1.57e7	4586.8	NO		102.455
13C-23478-PeCDF	31.714	1.217	1.76e6	1.14e6	1.235	1.549	1.550	5347	3950	2.48e7	1.58e7	4639.2	NO		100.381
13C-123478-HxCDF	35.408	0.952	7.55e5	1.47e6	1.381	0.514	0.510	5314	6448	1.08e7	2.08e7	2027.5	NO		98.776
13C-123678-HxCDF	35.550	0.956	8.54e5	1.63e6	1.569	0.525	0.510	5314	6448	1.17e7	2.23e7	2200.7	NO		96.940
13C-234678-HxCDF	36.493	0.981	7.51e5	1.42e6	1.345	0.530	0.510	5314	6448	1.05e7	1.96e7	1971.4	NO		98.800
13C-123789-HxCDF	37.622	1.012	6.94e5	1.29e6	1.183	0.539	0.510	5314	6448	9.58e6	1.84e7	1802.2	NO		102.675
13C-1234678-HpCDF	39.705	1.068	6.19e5	1.35e6	1.178	0.457	0.440	3354	5015	8.20e6	1.81e7	2445.2	NO		102.663
13C-1234789-HpCDF	42.445	1.141	4.81e5	1.03e6	0.878	0.467	0.440	3354	5015	5.36e6	1.17e7	1598.2	NO		105.491
13C-1234-TCDD	26.048	0.000	1.03e6	1.30e6	1.000	0.792	0.770	3541	1647	1.43e7	1.79e7	4036.4	NO		100.000
13C-2378-TCDD	26.855	1.031	9.17e5	1.19e6	0.908	0.773	0.770	3541	1647	1.23e7	1.59e7	3471.7	NO		99.138
13C-12378-PeCDD	31.977	1.228	1.06e6	6.79e5	0.756	1.566	1.550	2253	2411	1.42e7	9.08e6	6306.3	NO		98.648
13C-123478-HxCDD	36.636	0.985	9.40e5	7.39e5	1.056	1.273	1.240	3866	2476	1.37e7	1.06e7	3541.5	NO		97.494
13C-123678-HxCDD	36.756	0.988	1.06e6	8.40e5	1.163	1.265	1.240	3866	2476	1.40e7	1.12e7	3610.8	NO		100.224
13C-1234678-HpCDD	41.535	1.117	8.03e5	7.38e5	0.909	1.088	1.050	3038	3332	9.57e6	9.18e6	3150.6	NO		103.956
13C-OCDD	47.540	1.278	1.31e6	1.48e6	0.820	0.882	0.890	4449	5697	1.20e7	1.35e7	2705.1	NO		208.660

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:58 Pacific Daylight Time

CS3AA 06/30/16

ID: ~~CS2,~~ Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
13C-123789-HxCDD	37.184	0.000	9.13e5	7.18e5	1.000	1.271	1.240	3866	2476	1.24e7	9.87e6	3203.6	NO		100.000
Total-tetrafurans			3.09e4		0.935			712		4.21e5					2.010
Total-penta1			0.00e0					586		0.00e0					
Total-pentafurans			3.48e5		0.957			2318		4.79e6					20.060
Total-hexafurans			5.62e5		1.125			3320		7.77e6					40.233
Total-heptafurans			2.30e5		1.310			1943		2.93e6					19.531
Total-Furans			1.32e6		1.114			712		1.73e7					101.817
Total-tetradioxins			2.04e4		1.134			1285		2.78e5					1.968
Total-pentadioxins			1.04e5		0.975			1115		1.44e6					9.994
Total-hexadioxins			2.92e5		0.983			1493		4.02e6					29.978
Total-heptadioxins			8.19e4		1.028			1296		9.88e5					9.986
Total-Dioxins			6.30e5		1.028			1285		7.97e6					70.152
Total-TEQ			1.95e6					1285		2.53e7					171.969
37CL-2378-TCDD	26.870	1.031	4.85e4		1.067			1406		6.58e5		468.0			1.946
FUNCTION1 PFK			9.43e5					932576		1.84e7					
FUNCTION2 PFK			3.05e5					159650		8.30e6					0.000
FUNCTION3 PFK			1.01e6					591214		2.87e7					0.000
FUNCTION4 PFK			3.50e5					397418		9.33e6					
FUNCTION5 PFK			4.56e5					308988		1.79e7					
FUNCTION1 HXCDPE			2.31e2					387		4.69e3					0.000
FUNCTION1 HPCDPE			4.73e2					695		9.42e3					0.000
FUNCTION2 HPCDPE			2.94e2					593		7.36e3					0.000
FUNCTION3 OCDPE			0.00e0					362		0.00e0					
FUNCTION4 NCDPE			2.19e2					620		7.32e3					0.000
FUNCTION5 DCDPE			0.00e0					383		0.00e0					

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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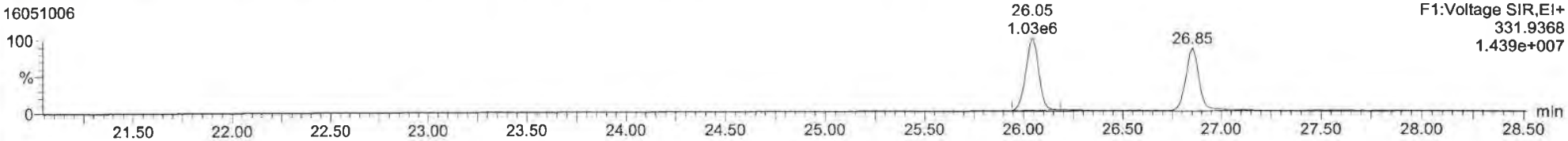
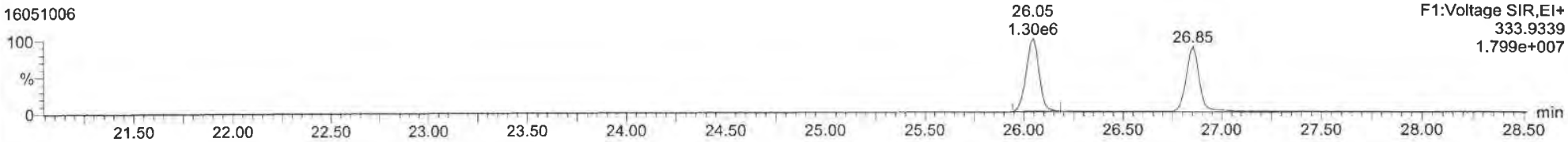
Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS3AA 06/30/16
ID: ~~CS2~~, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

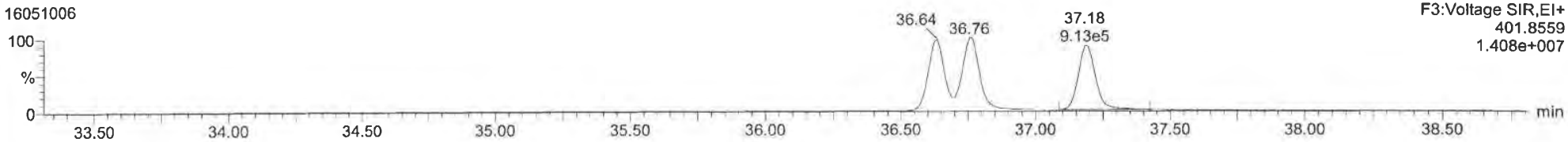
13C-1234-TCDD
16051006



13C-1234-TCDD
16051006



13C-123789-HxCDD
16051006



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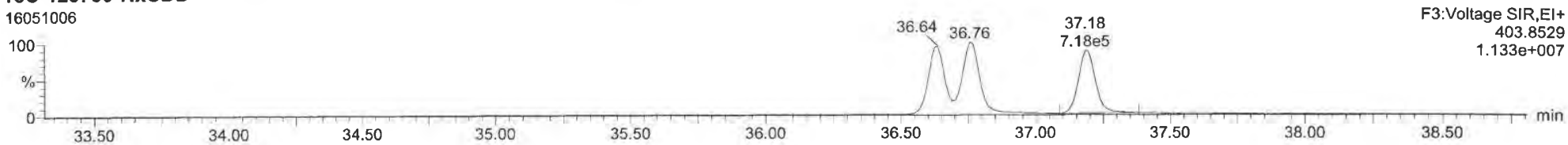
16051006



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
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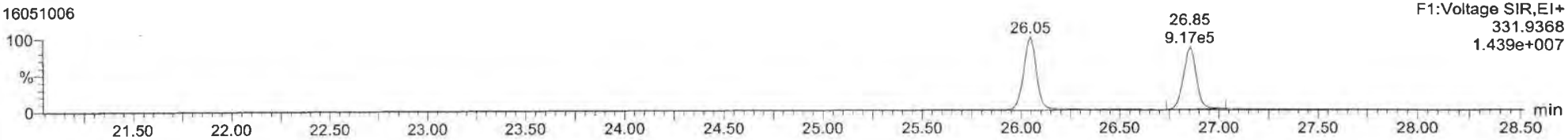
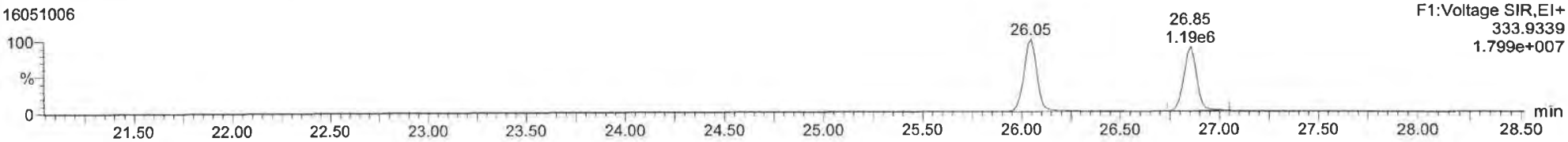
CS3AA 04/30/16

ID: ~~CS2~~, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

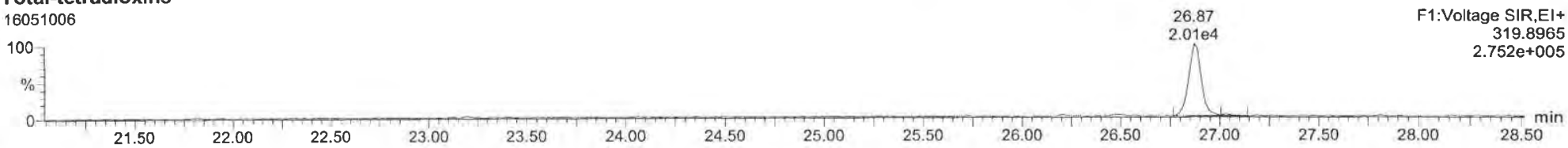
13C-2378-TCDD
16051006



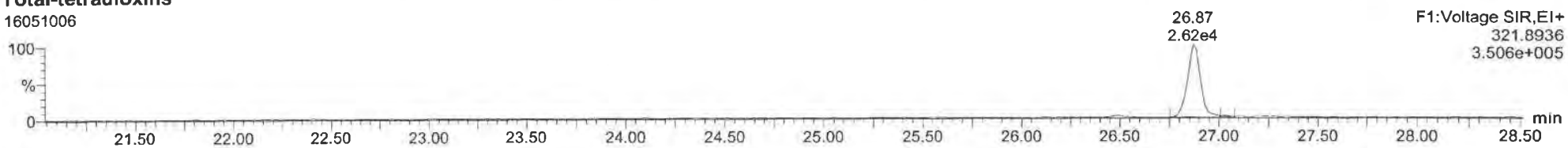
13C-2378-TCDD
16051006



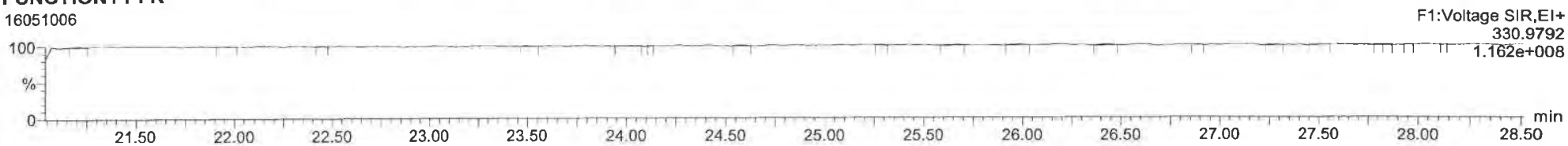
Total-tetradioxins
16051006



Total-tetradioxins
16051006



FUNCTION1 PFK
16051006



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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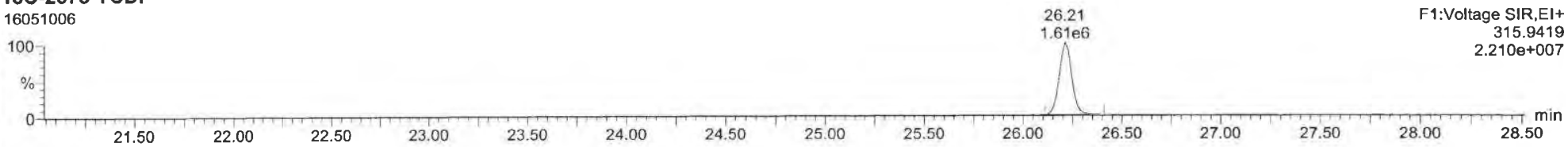
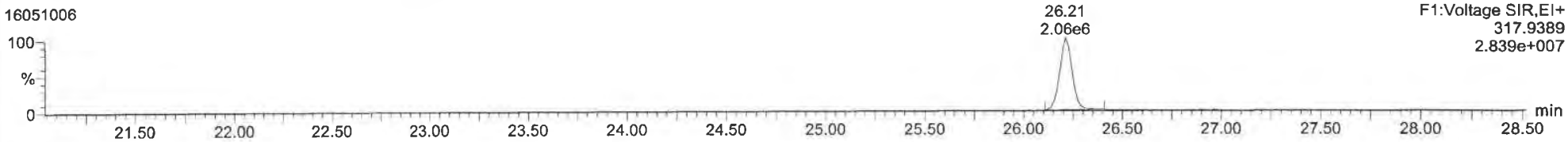
CS3AA 06/30/16

ID: ~~CS2~~, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

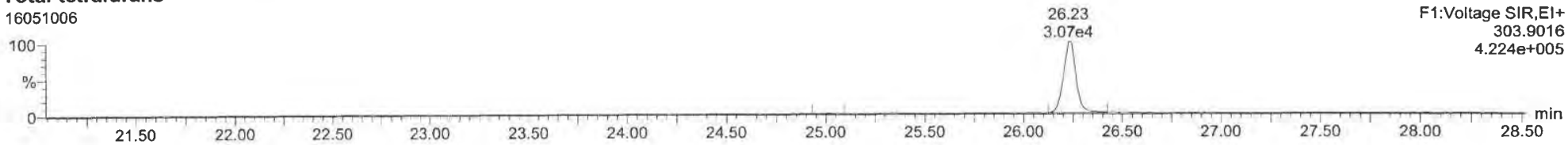
13C-2378-TCDF
16051006



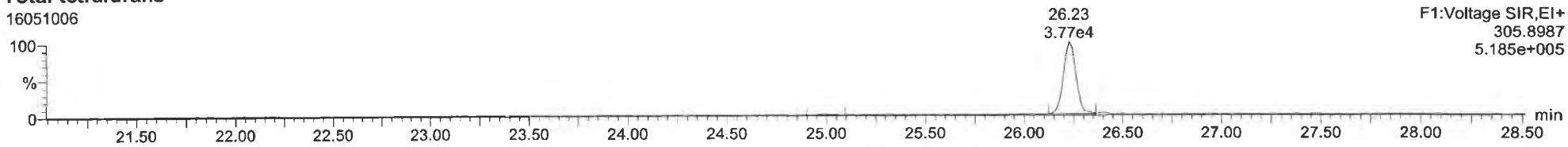
13C-2378-TCDF
16051006



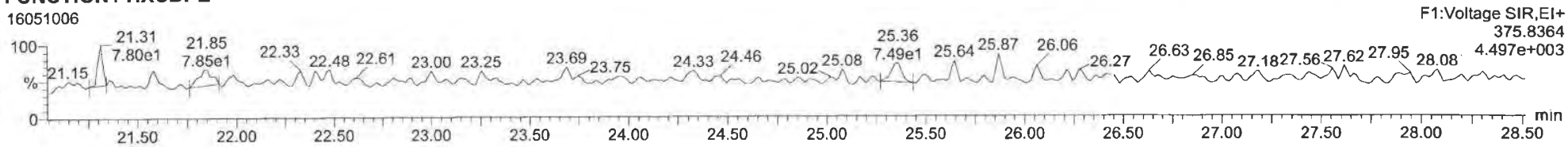
Total-tetrafurans
16051006



Total-tetrafurans
16051006



FUNCTION1 HXCDPE
16051006



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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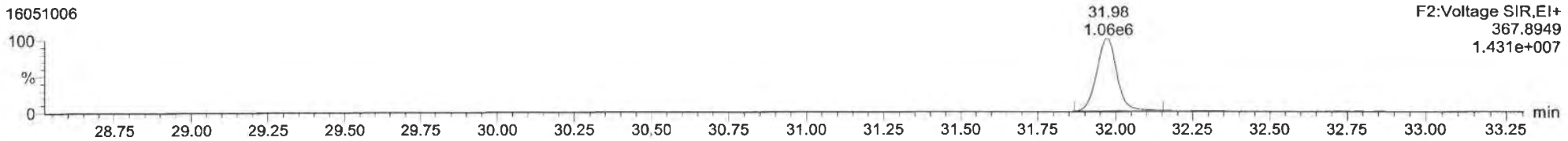
CS3AA 04/30/16

ID: ~~CS2~~, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDD



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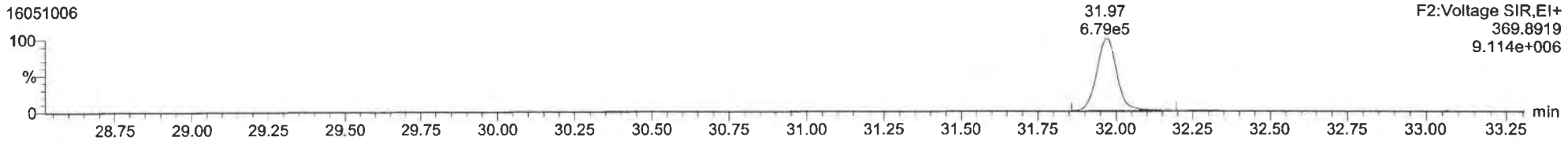
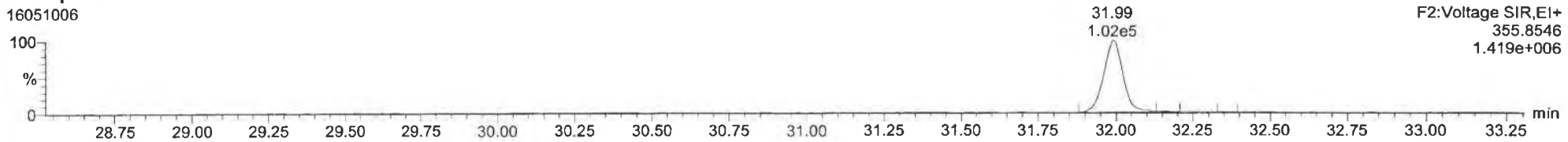
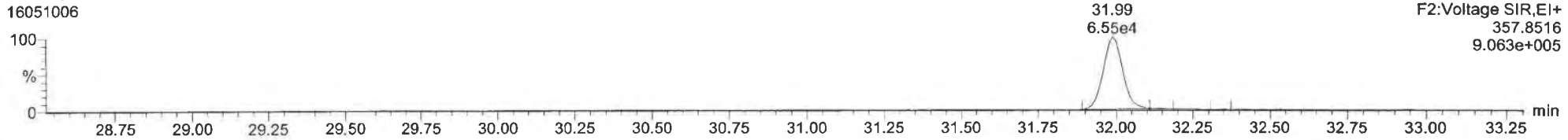


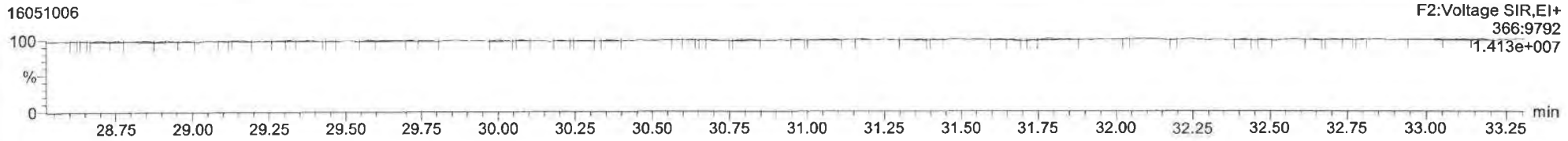
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
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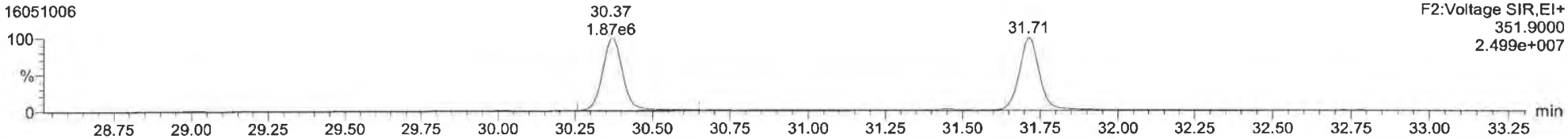
CS3AA 04/30/16

ID: ~~CS2~~, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDF



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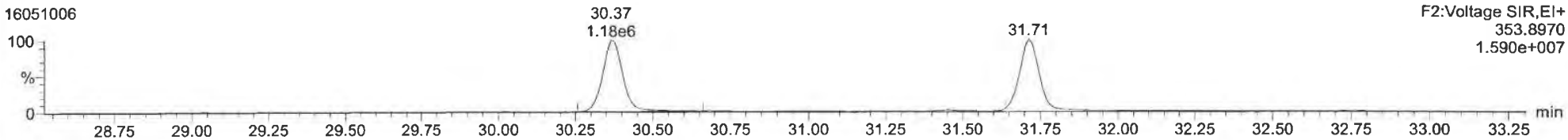
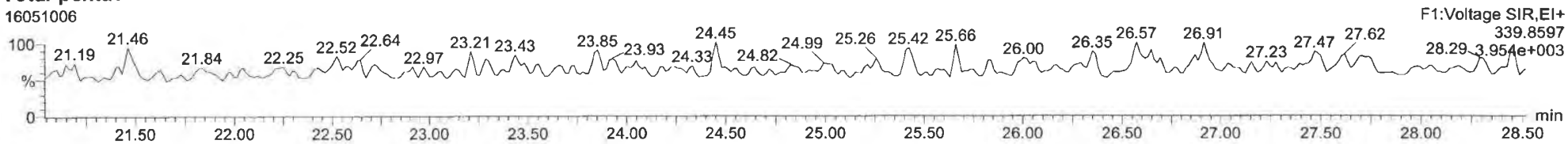
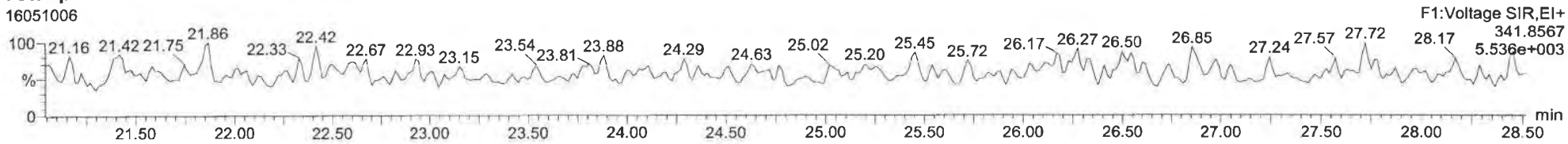


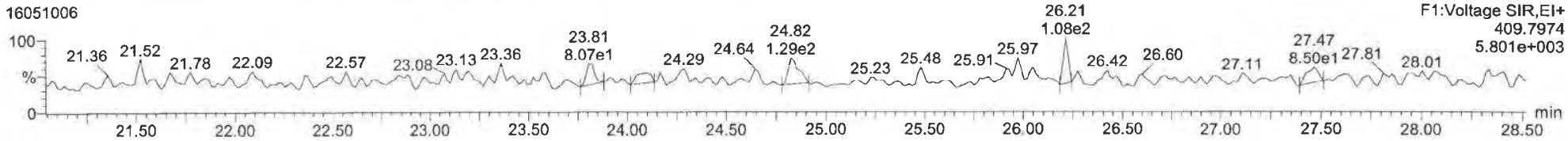
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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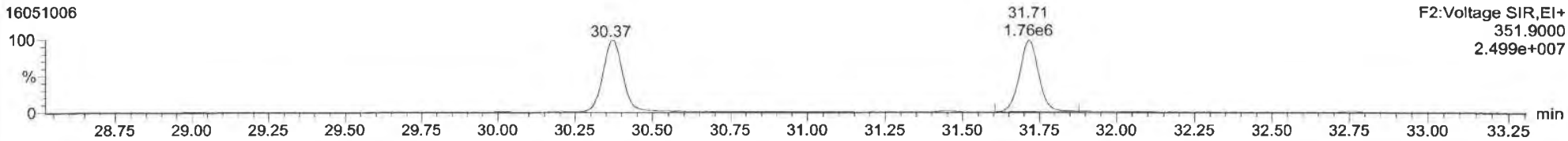
CS3AA 06/30/16

ID: CS2, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

13C-23478-PeCDF



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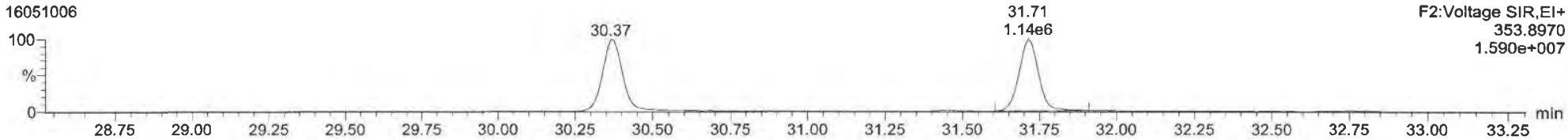
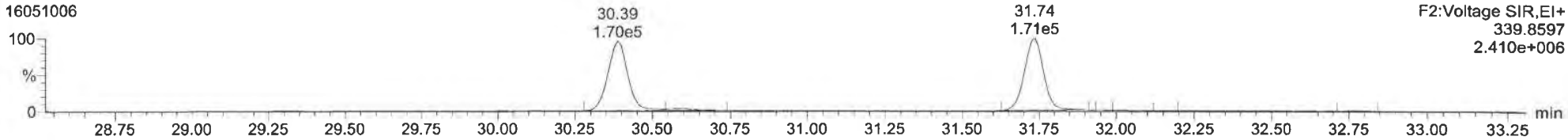
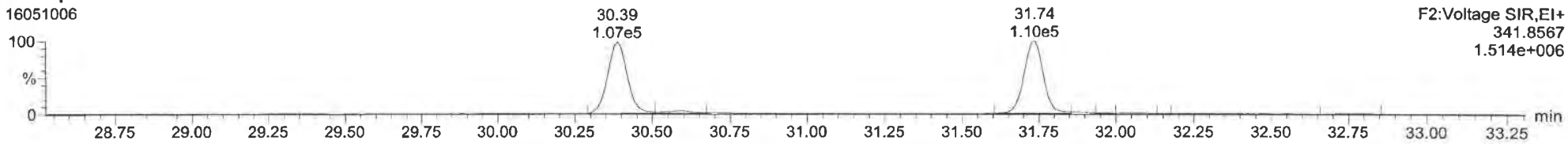


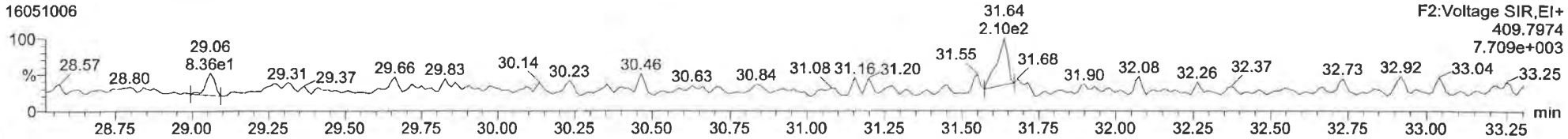
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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CS3AA 06/30/16

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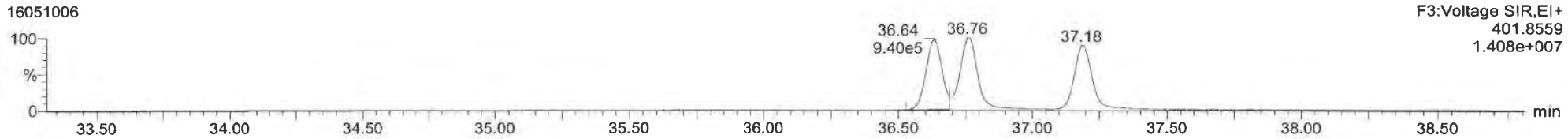
13C-123478-HxCDD



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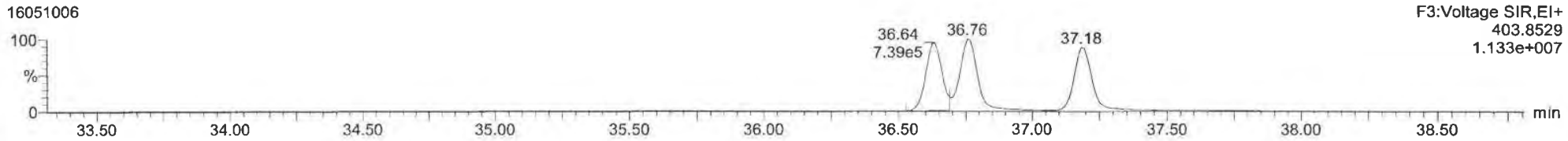
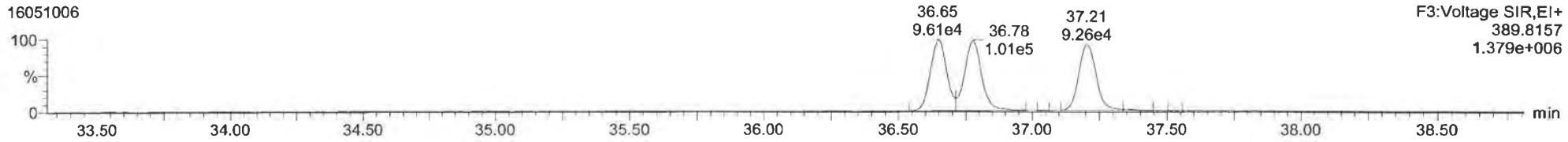
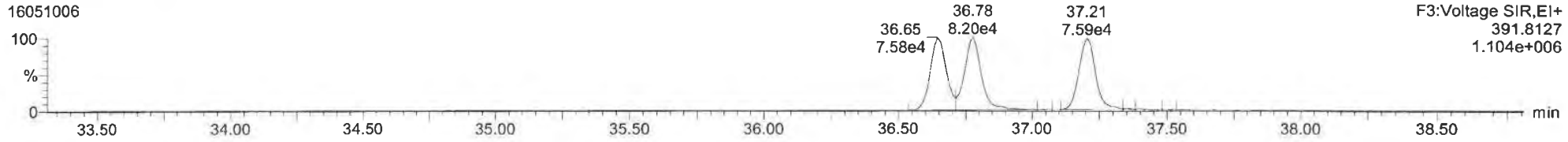


Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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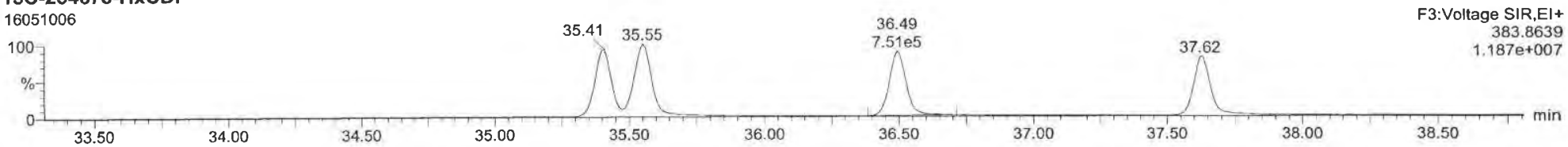
CS3AA 04/30/16

ID: ~~CS2~~; Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

13C-234678-HxCDF
16051006



13C-234678-HxCDF
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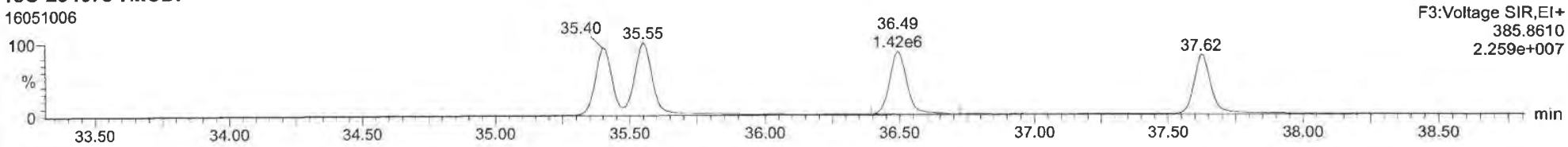
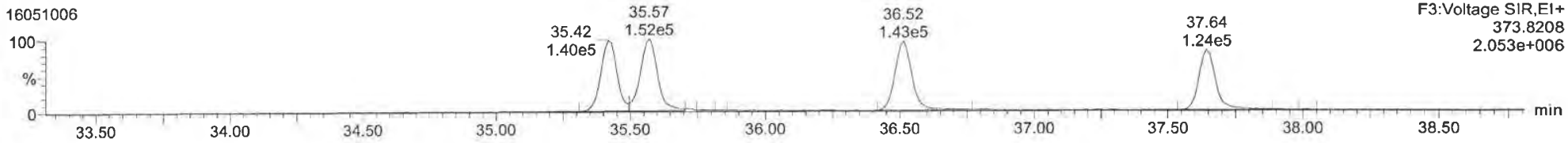


Total-hexafurans
16051006



Total-hexafurans
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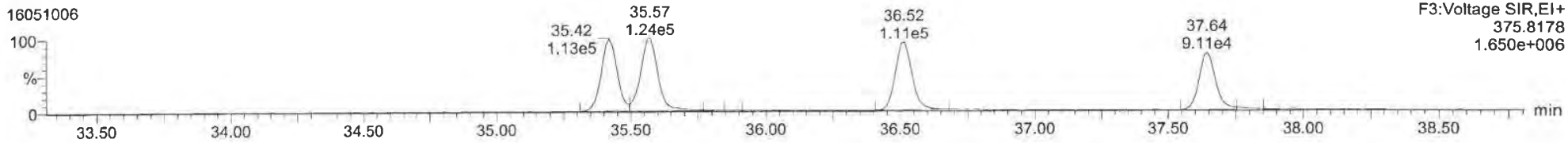
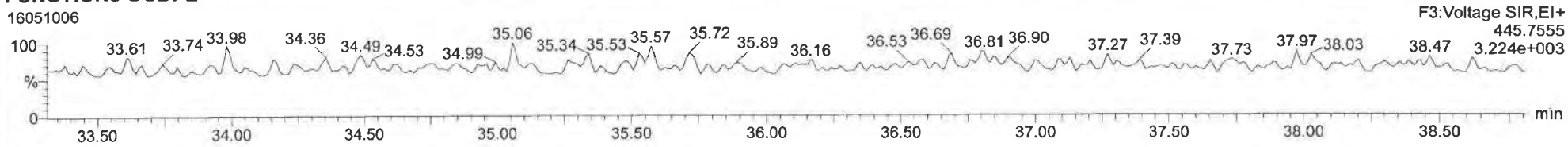


FUNCTION3 OCDPE
16051006

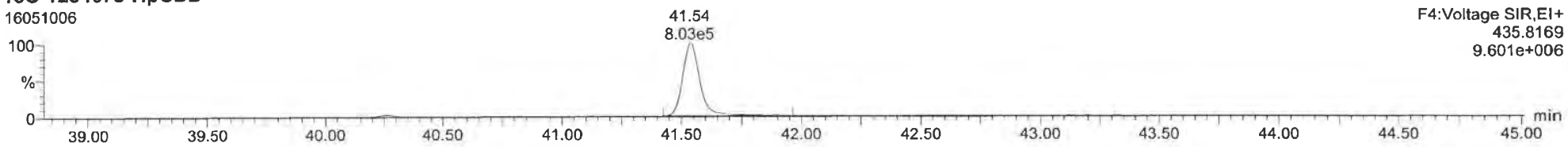


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:58 Pacific Daylight Time

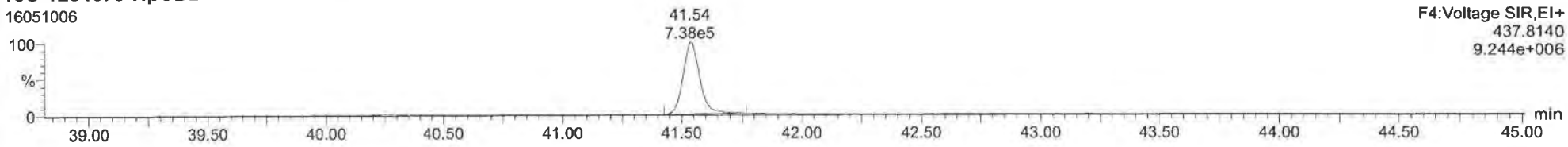
CS3AA 06/30/16

ID: ~~C32~~; Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

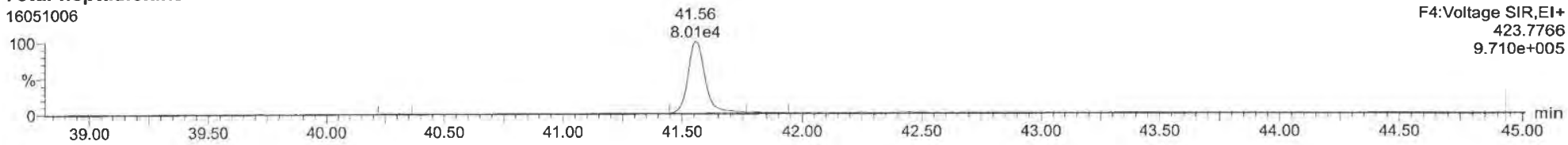
13C-1234678-HpCDD



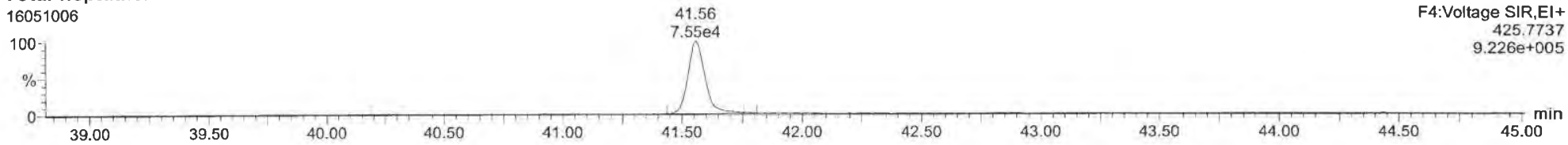
13C-1234678-HpCDD



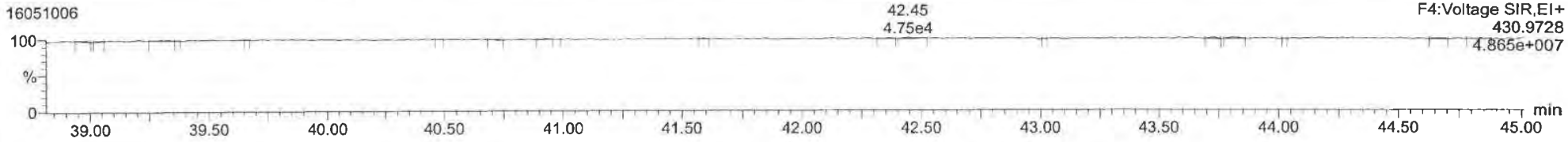
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK

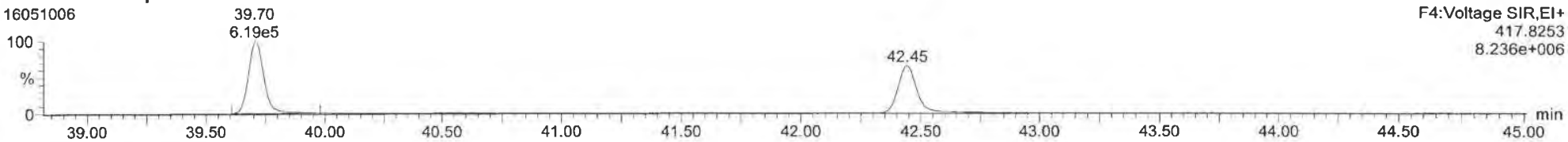


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:58 Pacific Daylight Time

CS3AA 04/30/16

ID: ~~CS2~~, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

13C-1234678-HpCDF



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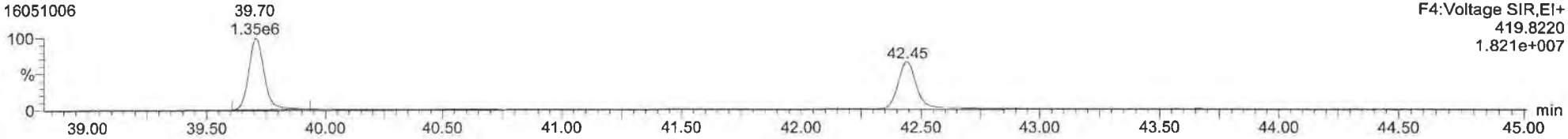

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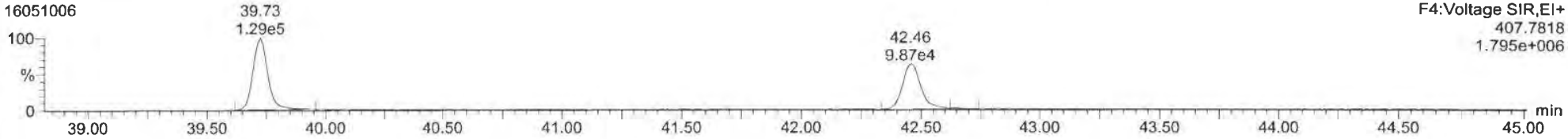
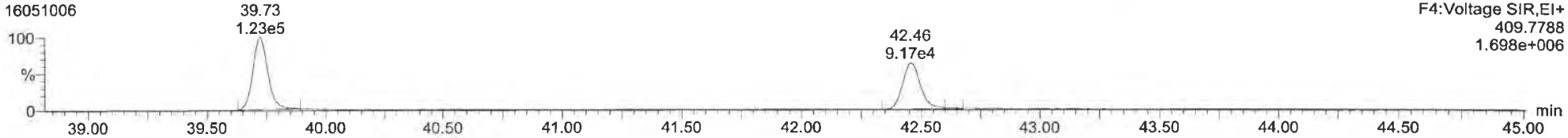
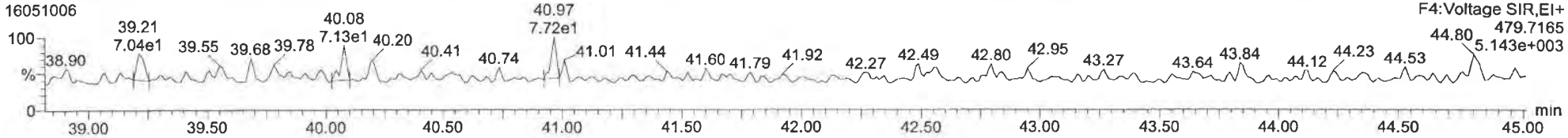


Total-heptafurans



FUNCTION4 NCDPE

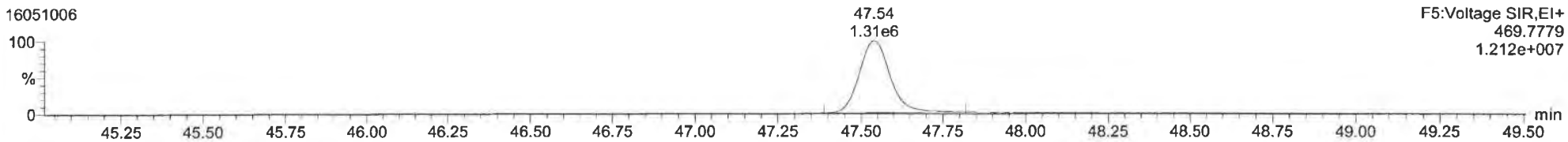


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:58 Pacific Daylight Time

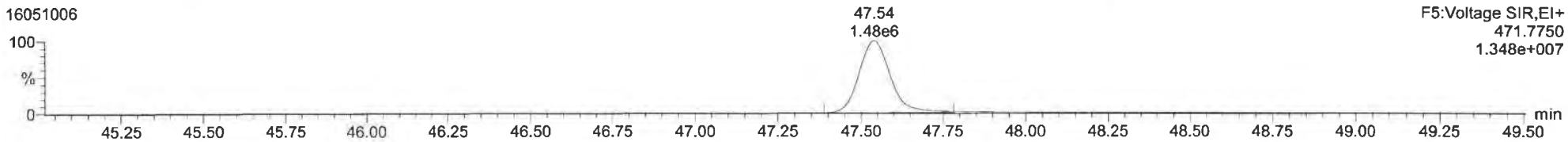
CS3A1 06/30/16

ID: ~~CS2~~, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

13C-OCDD



13C-OCDD



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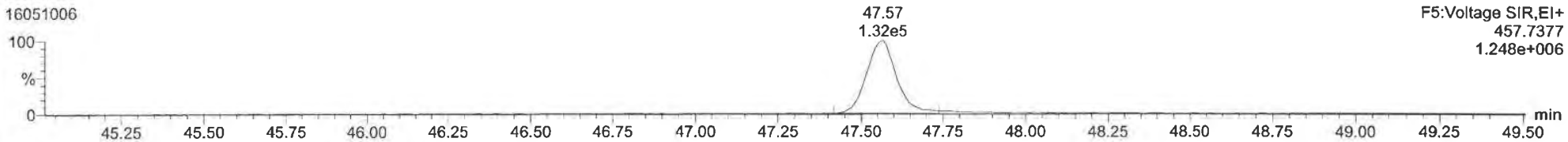

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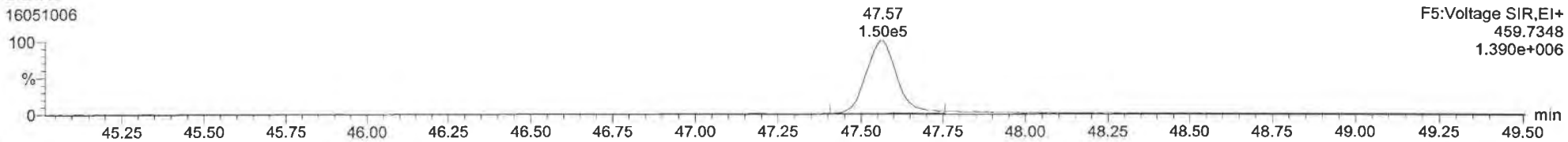
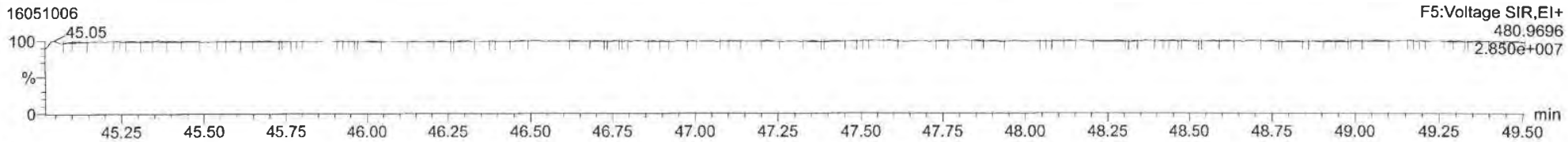


FUNCTION5 PFK

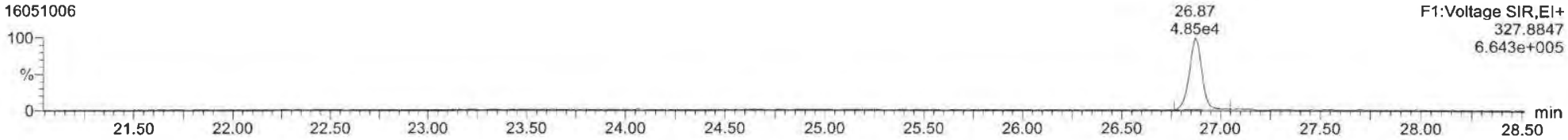


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:36:58 Pacific Daylight Time

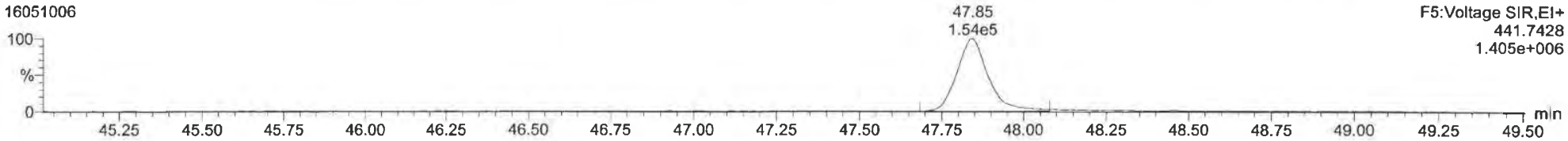
CS3AA 06/30/16

ID: ~~CS2~~, Name: 16051006, Date: 10-May-2016, Time: 15:30:50, Conditions: AUTOSPEC01, User: pk

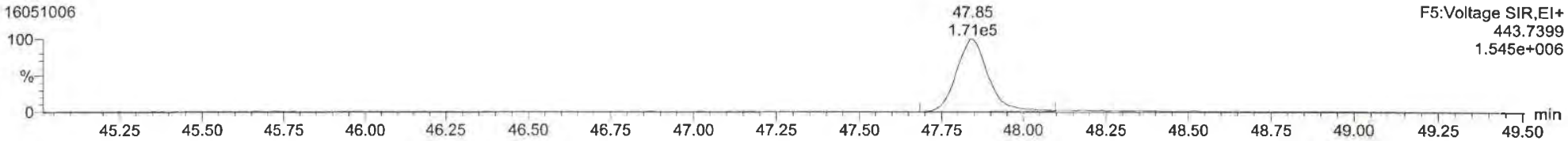
37CL-2378-TCDD



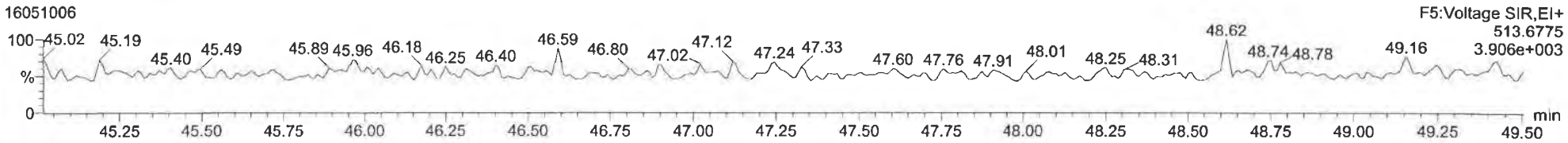
OCDF



OCDF



FUNCTION5 DCDPE



Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:00 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS4AA 06/30/16
ID: ~~CS3~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
2378-TCDF	26.213	1.001	1.78e5	2.30e5	0.935	0.770	0.770	2421	2881	2.34e6	3.03e6	965.7	NO	10.064	10.064
12378-PeCDF	30.377	1.000	1.00e6	6.32e5	0.952	1.584	1.550	5774	5259	1.37e7	8.68e6	2375.1	NO	50.599	50.599
23478-PeCDF	31.725	1.000	9.64e5	6.14e5	0.963	1.571	1.550	5774	5259	1.38e7	8.80e6	2389.5	NO	50.194	50.194
123478-HxCDF	35.419	1.001	7.74e5	6.24e5	1.137	1.241	1.240	8198	6551	1.11e7	9.02e6	1356.2	NO	50.247	50.247
234678-HxCDF	36.515	1.001	7.55e5	6.06e5	1.164	1.245	1.240	8198	6551	1.05e7	8.36e6	1283.4	NO	49.864	49.864
123678-HxCDF	35.573	1.001	8.37e5	6.76e5	1.099	1.238	1.240	8198	6551	1.14e7	9.02e6	1389.4	NO	50.545	50.545
123789-HxCDF	37.645	1.001	6.09e5	4.84e5	1.101	1.257	1.240	8198	6551	8.62e6	6.97e6	1051.3	NO	48.371	48.371
1234678-HpCDF	39.727	1.001	6.40e5	6.58e5	1.303	0.973	1.050	6203	5140	8.59e6	8.58e6	1385.6	NO	50.258	50.258
1234789-HpCDF	42.457	1.000	4.88e5	4.65e5	1.317	1.051	1.050	6203	5140	5.80e6	5.56e6	935.4	NO	50.389	50.389
OCDF	47.837	1.006	7.50e5	8.40e5	1.166	0.892	0.890	3246	3947	6.70e6	7.62e6	2063.8	NO	102.360	102.360
2378-TCDD	26.870	1.001	1.29e5	1.57e5	1.134	0.821	0.770	1985	1394	1.68e6	2.12e6	846.6	NO	10.089	10.089
12378-PeCDD	31.989	1.001	6.19e5	3.92e5	0.975	1.580	1.550	4664	3561	8.64e6	5.44e6	1852.9	NO	51.349	51.349
123478-HxCDD	36.647	1.000	5.32e5	4.27e5	1.031	1.245	1.240	4738	4830	7.84e6	6.25e6	1655.4	NO	50.735	50.735
123678-HxCDD	36.779	1.001	5.79e5	4.47e5	0.971	1.296	1.240	4738	4830	7.71e6	6.00e6	1626.3	NO	51.207	51.207
123789-HxCDD	37.206	1.012	5.31e5	4.08e5	0.947	1.300	1.240	4738	4830	7.22e6	5.69e6	1523.3	NO	50.943	50.943
1234678-HpCDD	41.558	1.000	4.00e5	3.84e5	1.028	1.042	1.050	3688	4172	4.95e6	4.66e6	1343.4	NO	49.964	49.964
OCDD	47.559	1.000	6.35e5	7.31e5	1.107	0.868	0.890	2846	3297	5.96e6	6.89e6	2094.7	NO	92.591	92.591
13C-2378-TCDF	26.198	1.006	1.90e6	2.44e6	1.567	0.777	0.770	10273	5323	2.55e7	3.28e7	2478.2	NO		98.091
13C-12378-PeCDF	30.366	1.166	2.07e6	1.32e6	1.274	1.563	1.550	5465	4417	2.88e7	1.82e7	5276.6	NO		94.299
13C-23478-PeCDF	31.715	1.218	2.00e6	1.27e6	1.235	1.581	1.550	5465	4417	2.81e7	1.76e7	5137.2	NO		93.789
13C-123478-HxCDF	35.397	0.952	8.33e5	1.61e6	1.381	0.516	0.510	5046	6079	1.19e7	2.30e7	2354.1	NO		101.606
13C-123678-HxCDF	35.551	0.956	9.61e5	1.76e6	1.569	0.546	0.510	5046	6079	1.27e7	2.37e7	2512.4	NO		99.485
13C-234678-HxCDF	36.493	0.981	8.24e5	1.52e6	1.345	0.541	0.510	5046	6079	1.10e7	2.08e7	2182.4	NO		99.999
13C-123789-HxCDF	37.623	1.012	6.94e5	1.36e6	1.183	0.511	0.510	5046	6079	9.59e6	1.84e7	1899.8	NO		99.465
13C-1234678-HpCDF	39.705	1.068	6.30e5	1.35e6	1.178	0.465	0.440	3924	5699	8.22e6	1.82e7	2094.3	NO		96.456
13C-1234789-HpCDF	42.446	1.141	4.50e5	9.86e5	0.878	0.456	0.440	3924	5699	5.36e6	1.15e7	1366.3	NO		93.769
13C-1234-TCDD	26.034	0.000	1.25e6	1.58e6	1.000	0.790	0.770	3668	2181	1.76e7	2.25e7	4800.2	NO		100.000
13C-2378-TCDD	26.840	1.031	1.10e6	1.40e6	0.908	0.789	0.770	3668	2181	1.50e7	1.91e7	4077.1	NO		97.659
13C-12378-PeCDD	31.966	1.228	1.23e6	7.84e5	0.756	1.575	1.550	2656	2320	1.73e7	1.10e7	6509.6	NO		94.655
13C-123478-HxCDD	36.636	0.985	1.03e6	8.08e5	1.056	1.270	1.240	4105	3134	1.50e7	1.17e7	3651.1	NO		99.538
13C-123678-HxCDD	36.757	0.988	1.15e6	9.11e5	1.163	1.263	1.240	4105	3134	1.54e7	1.24e7	3748.4	NO		101.680
13C-1234678-HpCDD	41.547	1.117	7.79e5	7.47e5	0.909	1.043	1.050	3359	3150	9.60e6	9.17e6	2856.6	NO		96.286
13C-OCDD	47.541	1.278	1.27e6	1.39e6	0.820	0.913	0.890	2890	5148	1.14e7	1.27e7	3958.4	NO		186.477

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:00 Pacific Daylight Time

CS4AA 04/30/16

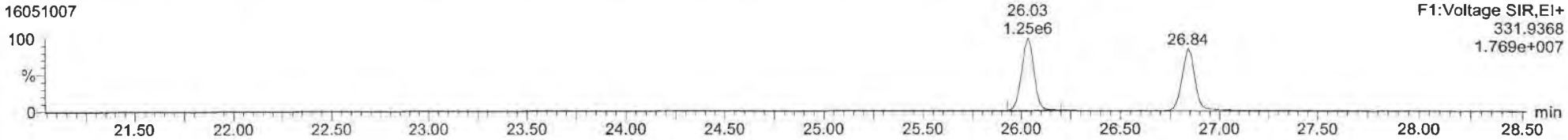
ID: ~~CS3~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
13C-123789-HxCDD	37.184	0.000	9.76e5	7.68e5	1.000	1.270	1.240	4105	3134	1.33e7	1.04e7	3233.4	NO		100.000
Total-tetrafurans			5.55e5		0.935			2421		7.52e6					31.166
Total-penta1			1.28e6					1529		1.75e7					69.412
Total-pentafurans			2.96e6		0.957			5774		4.13e7					152.122
Total-hexafurans			3.93e6		1.125			8198		5.52e7					263.103
Total-heptafurans			1.13e6		1.310			6203		1.45e7					100.979
Total-Furans			1.06e7		1.114			2421		1.43e8					719.141
Total-tetradioxins			7.09e5		1.134			1985		8.29e6					56.500
Total-pentadioxins			2.29e6		0.975			4664		2.70e7					189.364
Total-hexadioxins			2.40e6		0.983			4738		3.32e7					224.417
Total-heptadioxins			8.83e5		1.028			3688		1.14e7					111.222
Total-Dioxins			6.91e6		1.028			1985		8.58e7					674.113
Total-TEQ			1.75e7					1985		2.29e8					1393.254
37CL-2378-TCDD	26.855	1.032	2.91e5		1.067			1895		3.93e6		2073.8			9.687
FUNCTION1 PFK			1.13e6					1200435		2.46e7					
FUNCTION2 PFK			3.93e5					220776		1.09e7					0.000
FUNCTION3 PFK			2.71e6					770478		7.24e7					0.000
FUNCTION4 PFK			3.24e5					618458		8.97e6					
FUNCTION5 PFK			3.38e5					406410		1.22e7					
FUNCTION1 HXCDPE			7.89e2					744		1.64e4					0.000
FUNCTION1 HPCDPE			6.19e2					929		1.61e4					0.000
FUNCTION2 HPCDPE			1.48e3					1245		2.67e4					0.000
FUNCTION3 OCDPE			0.00e0					468		0.00e0					
FUNCTION4 NCDPE			3.15e2					785		6.77e3					0.000
FUNCTION5 DCDPE			0.00e0					470		0.00e0					

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:00 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS4AA 04/30/16
ID: ~~CS3~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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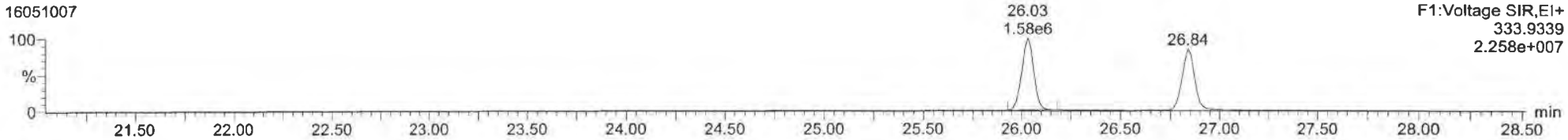
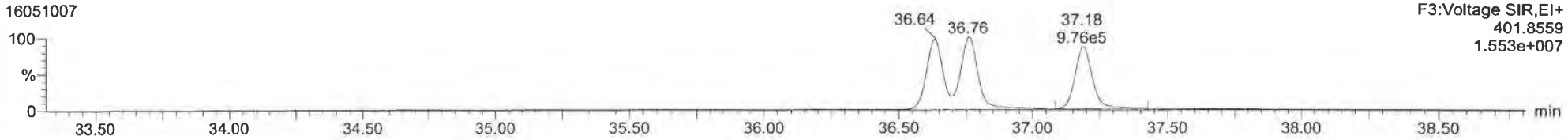


13C-123789-HxCDD



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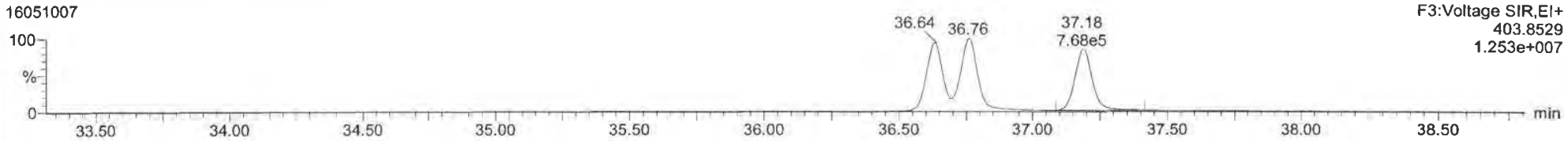

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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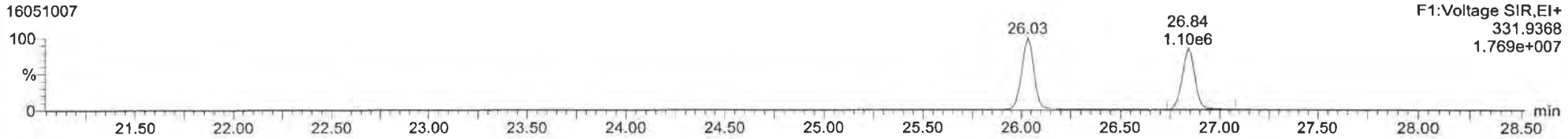
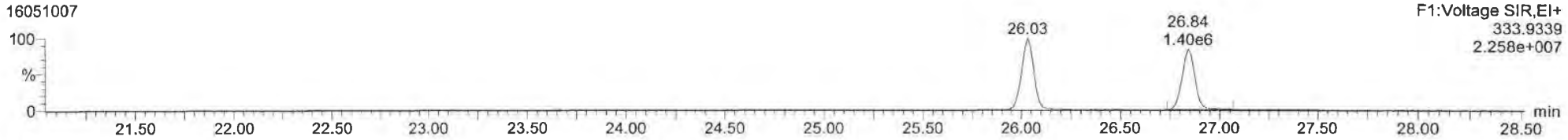
CS4AA 04/30/16

ID: ~~CS3~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

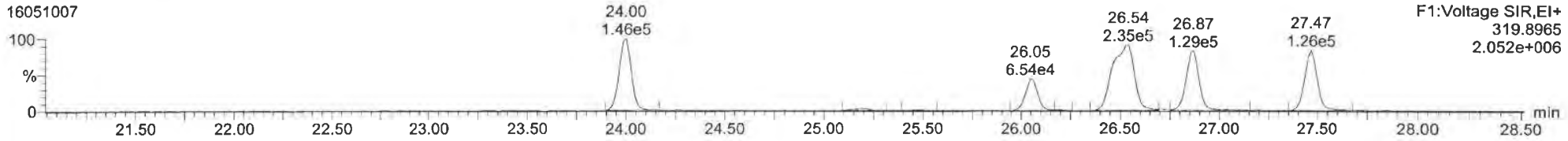
13C-2378-TCDD



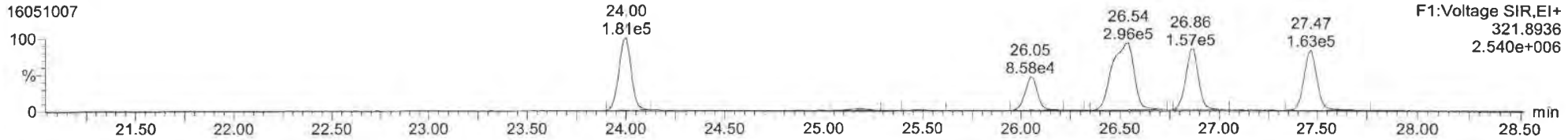
13C-2378-TCDD



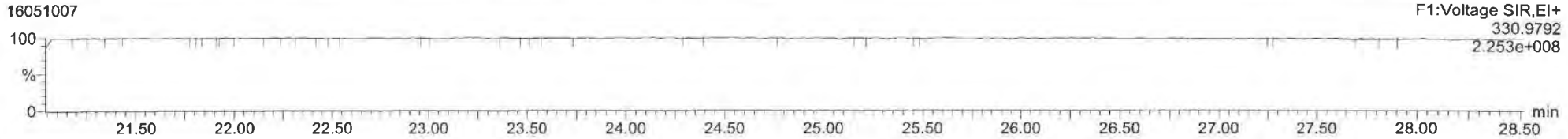
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK

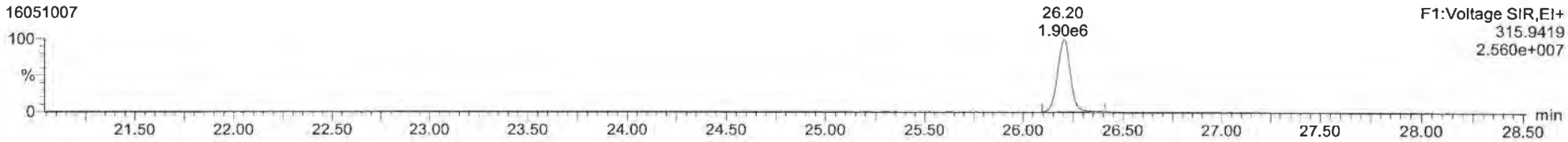


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:00 Pacific Daylight Time

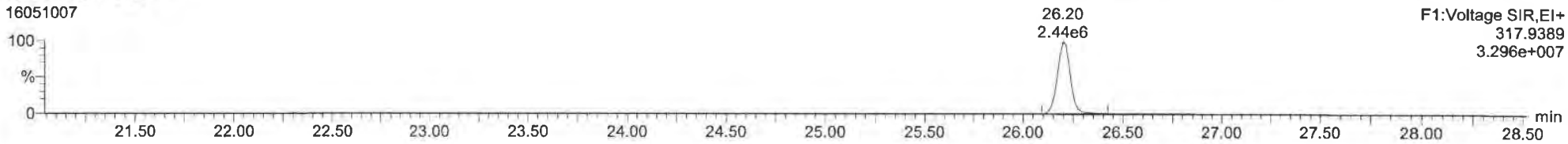
CS4AA 06/30/16

ID: ~~CS3~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

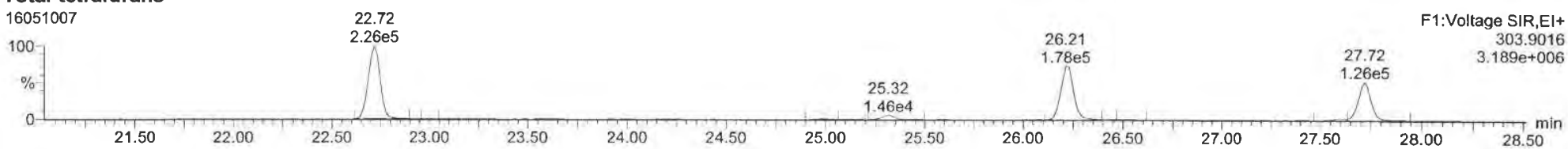
13C-2378-TCDF



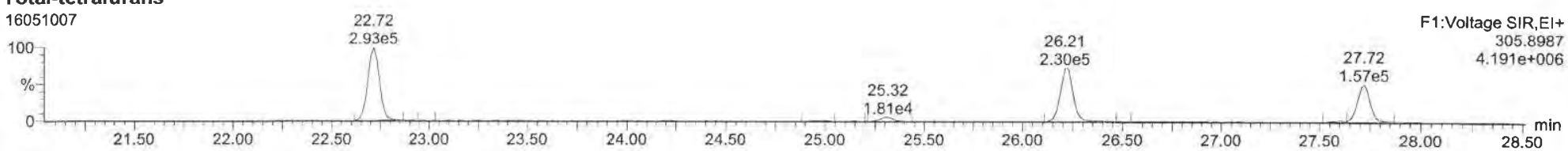
13C-2378-TCDF



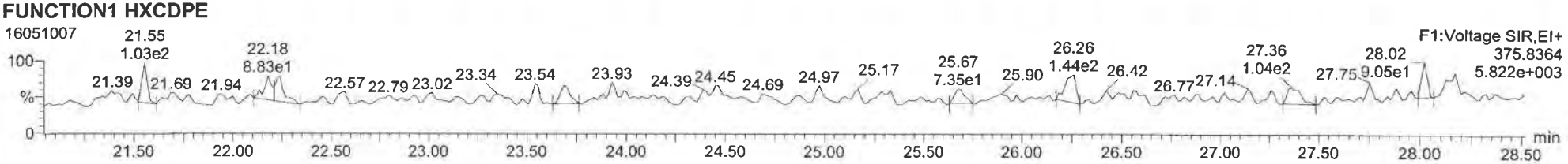
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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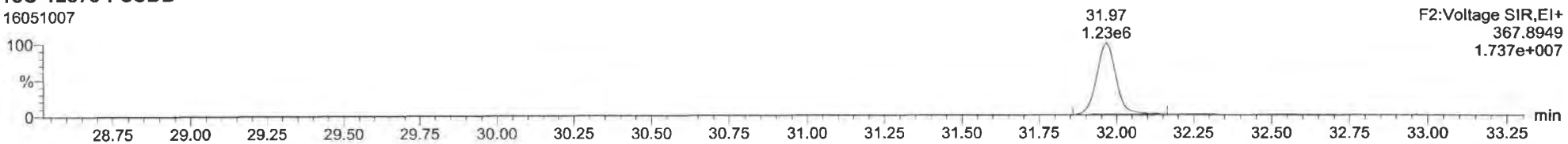
CS4AA 04/30/16

ID: ~~CS3~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDD



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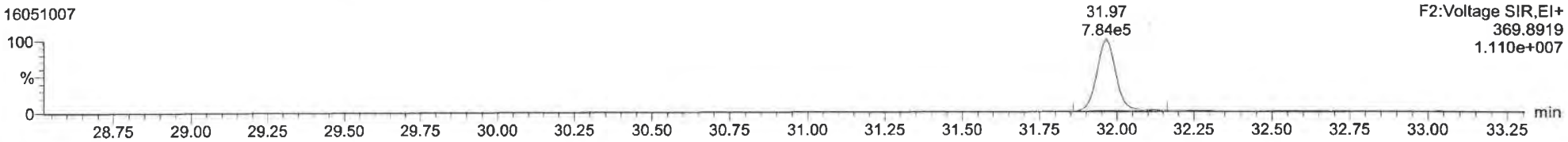
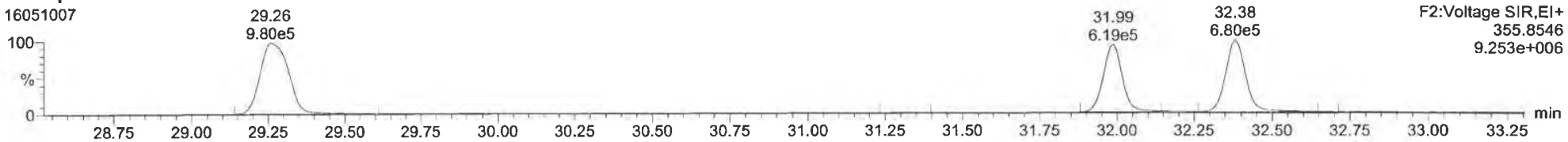
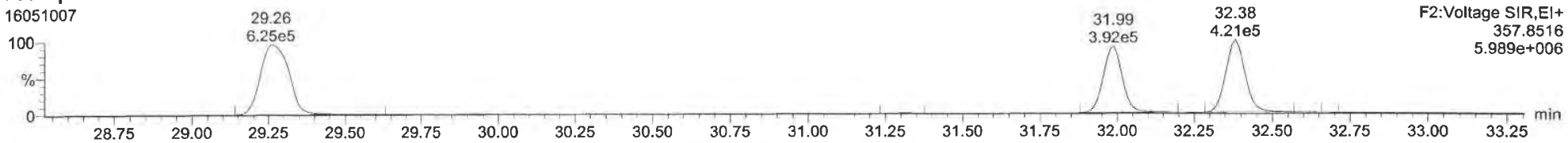


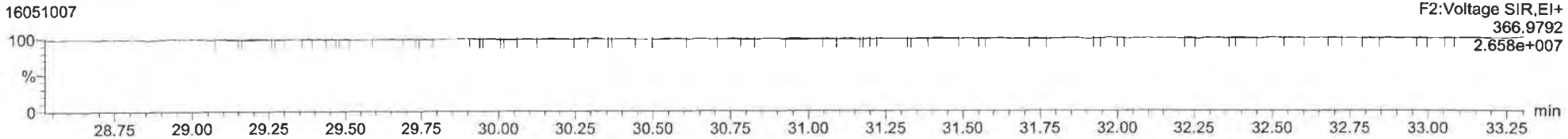
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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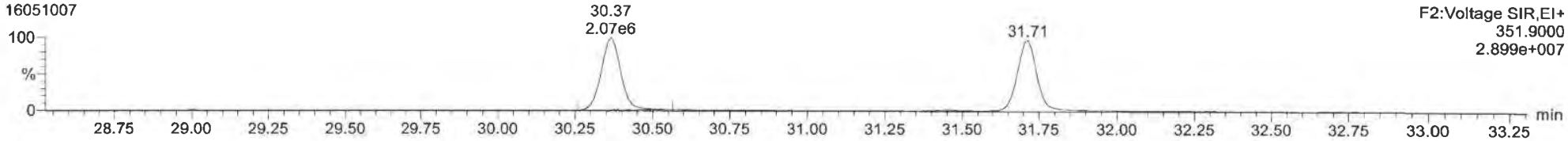
CSHAA 04/30/16

ID: CS3, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDF



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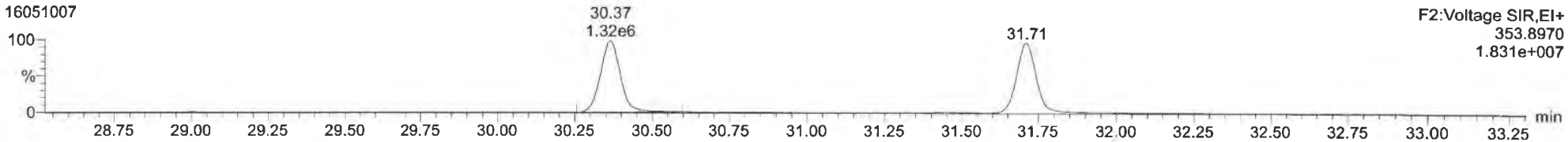
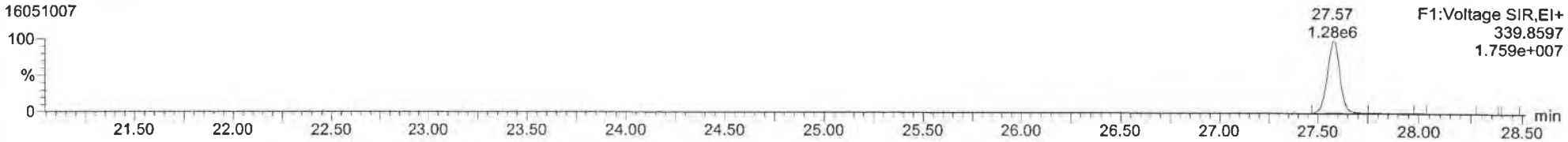


Total-penta1



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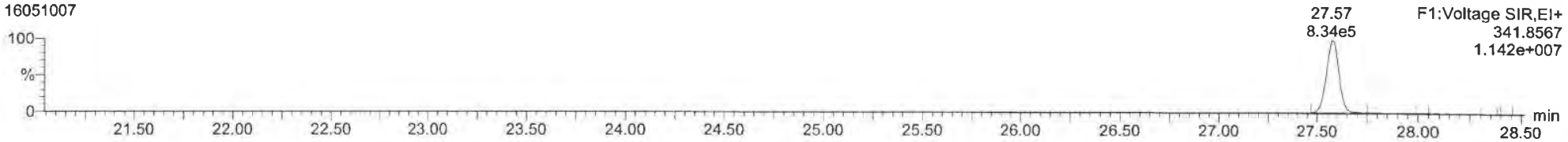
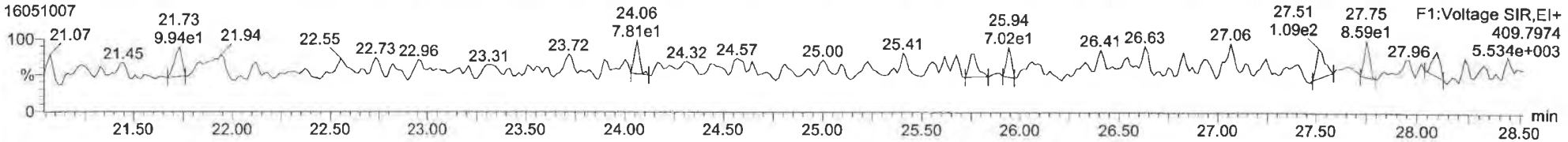


FUNCTION1 HPCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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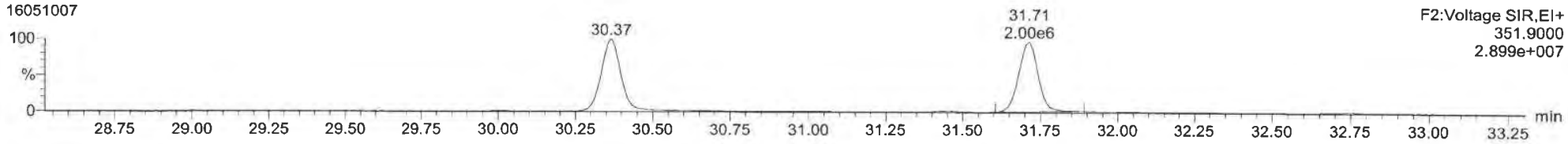
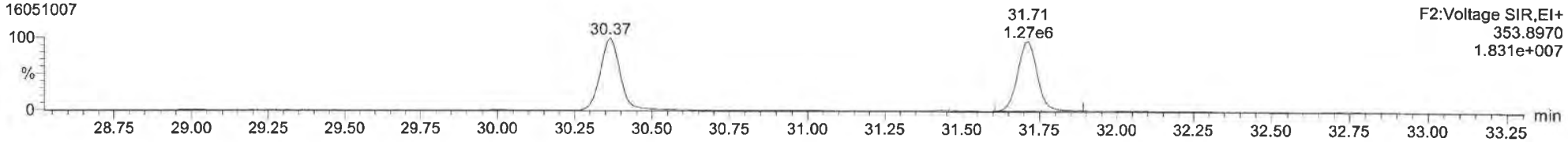
CS4AA 06/30/16

ID: ~~CS3~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

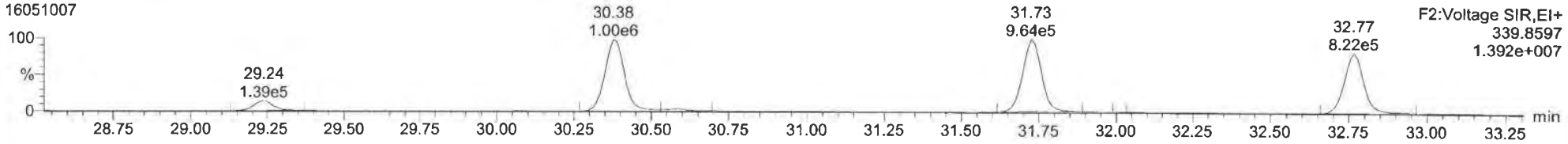
13C-23478-PeCDF



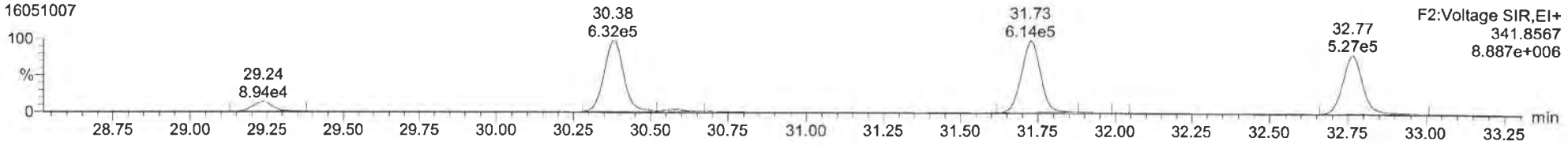
13C-23478-PeCDF



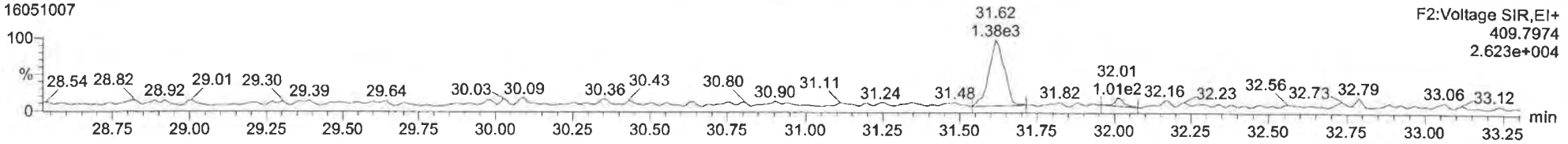
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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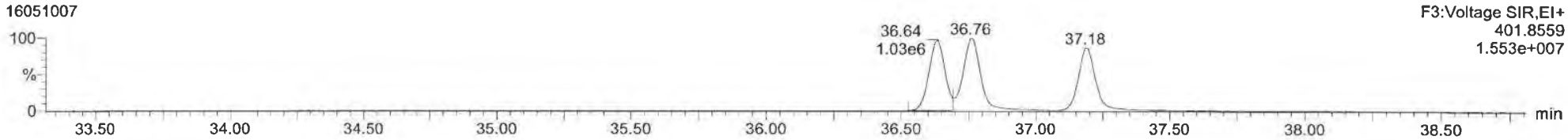
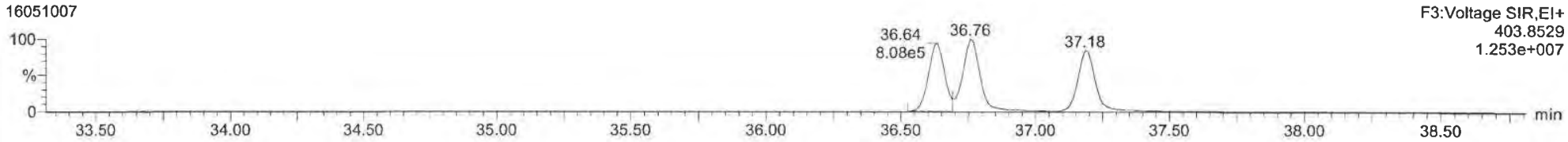
CS4AA 06/30/16

ID: ~~CS3~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

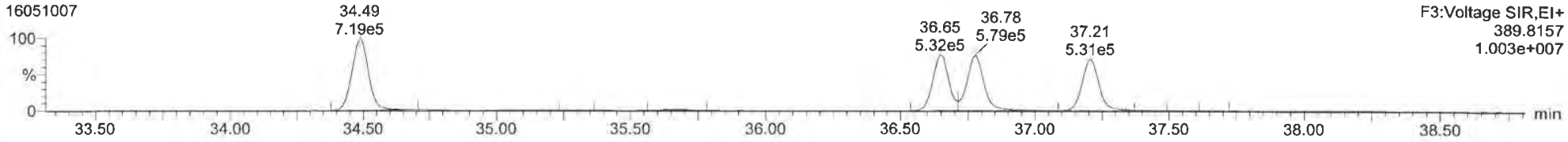
13C-123478-HxCDD



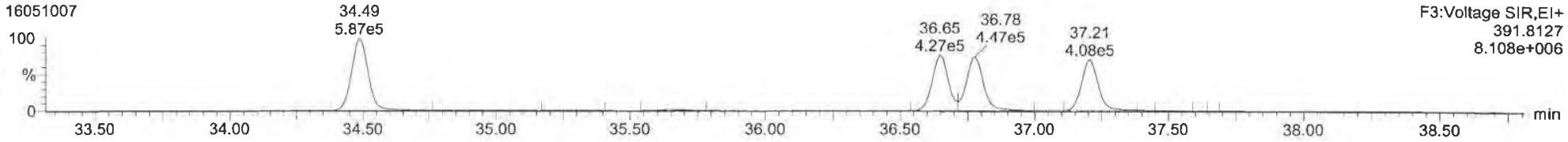
13C-123478-HxCDD



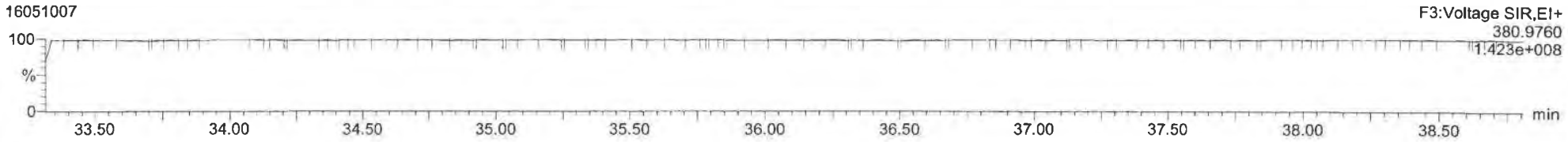
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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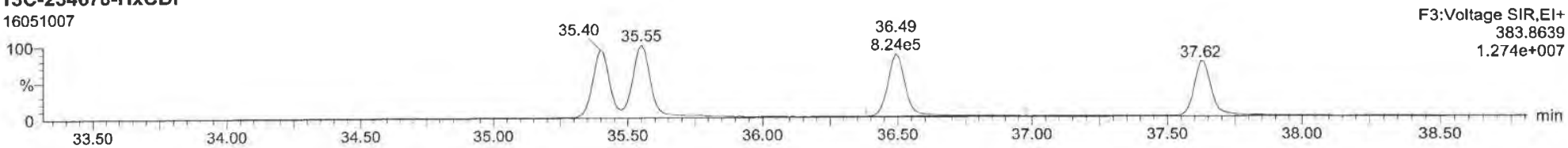
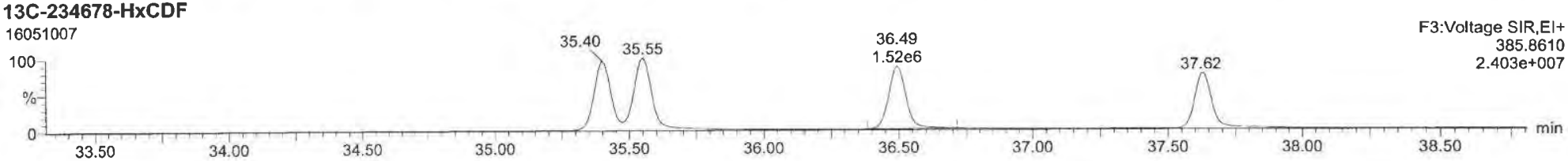
CS4AA 6/30/16

ID: ~~CS3,~~ Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

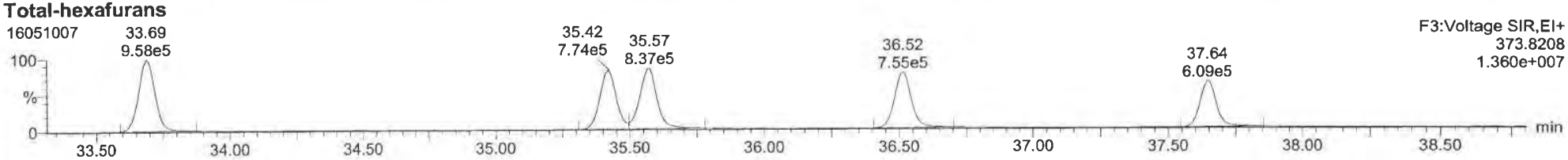
13C-234678-HxCDF



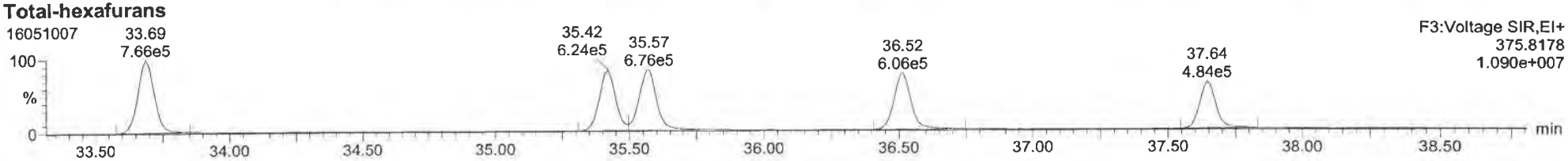
13C-234678-HxCDF



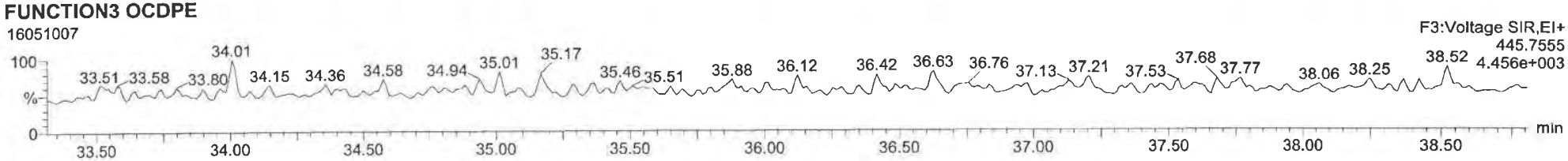
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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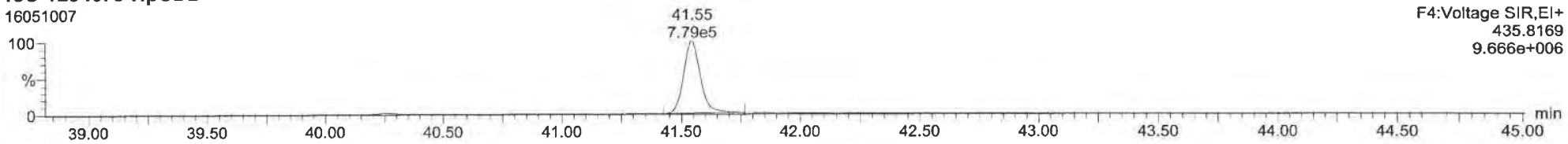
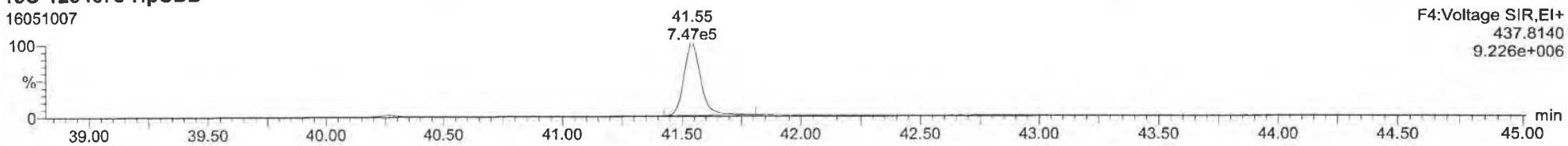
CS4AA 06/30/16

ID: ~~CS3~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

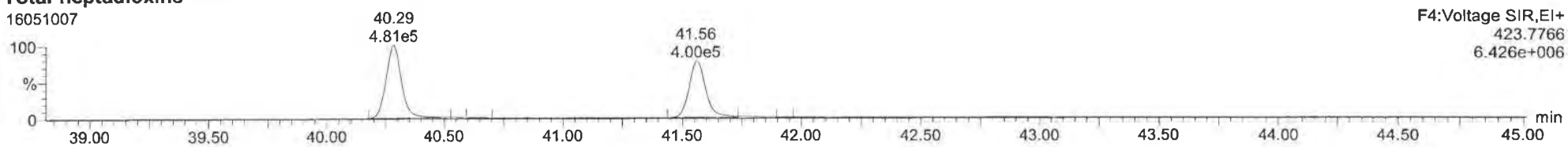
13C-1234678-HpCDD



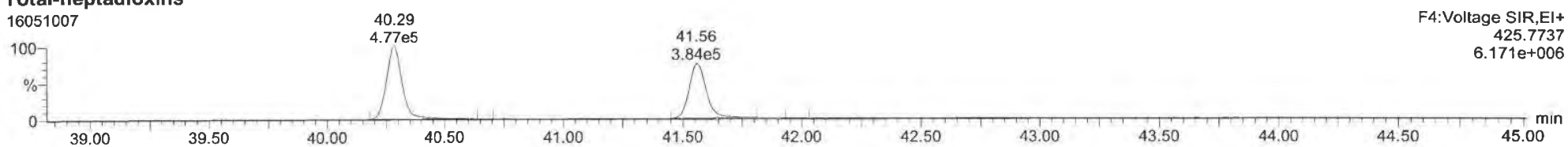
13C-1234678-HpCDD



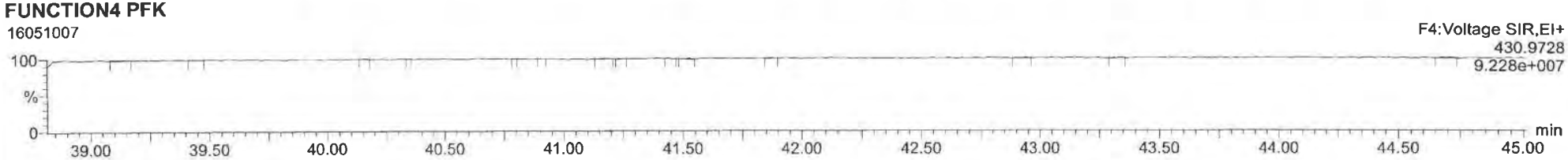
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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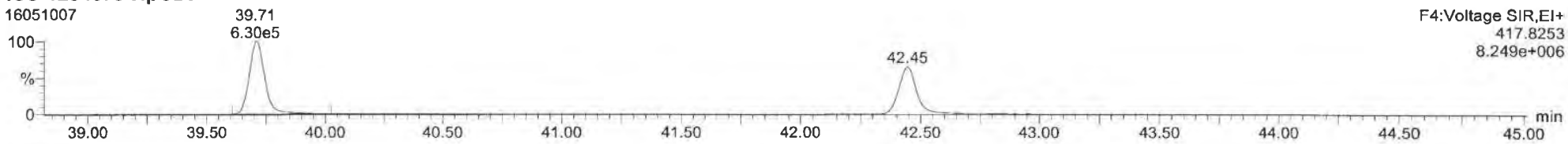
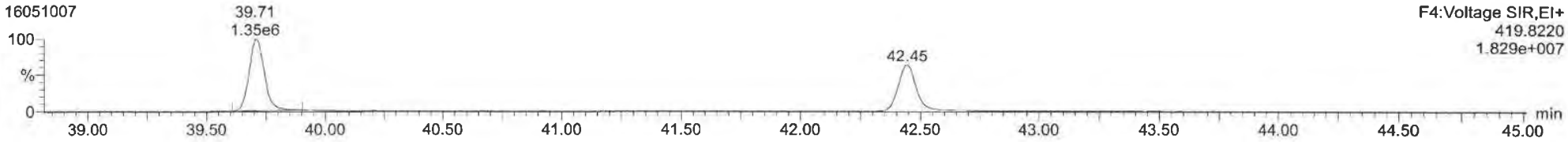
CS4AA 4/30/16

ID: ~~C93~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

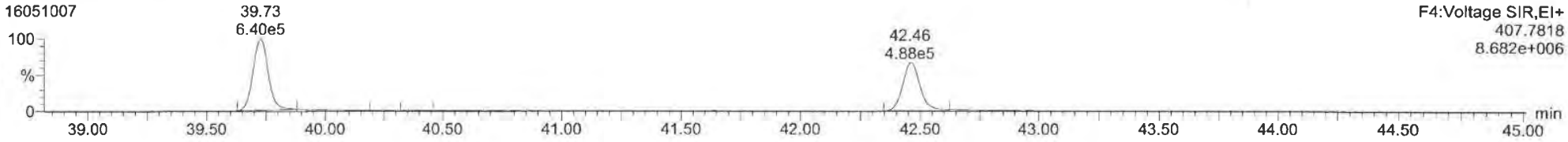
13C-1234678-HpCDF



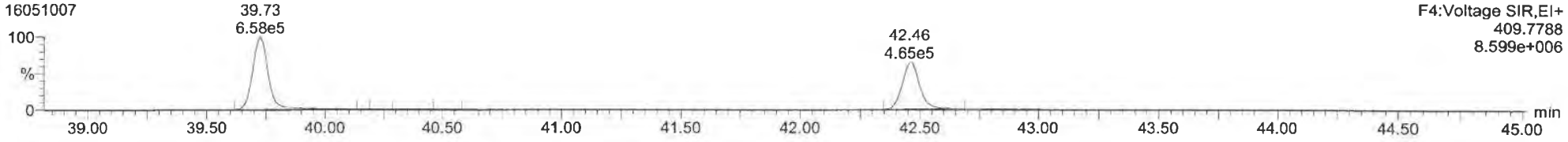
13C-1234678-HpCDF



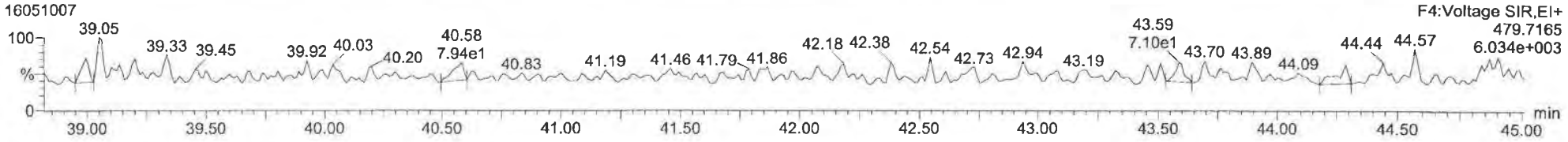
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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CS4AA 06/30/16

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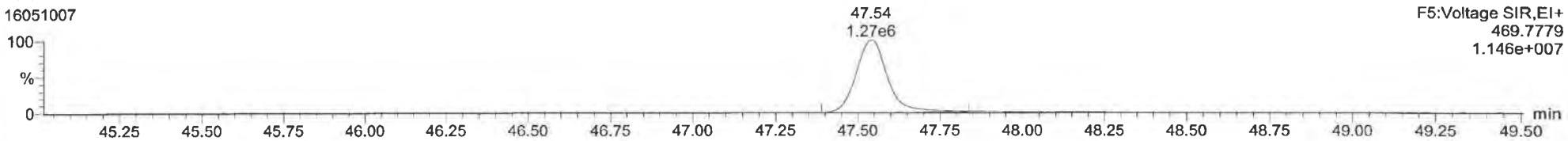
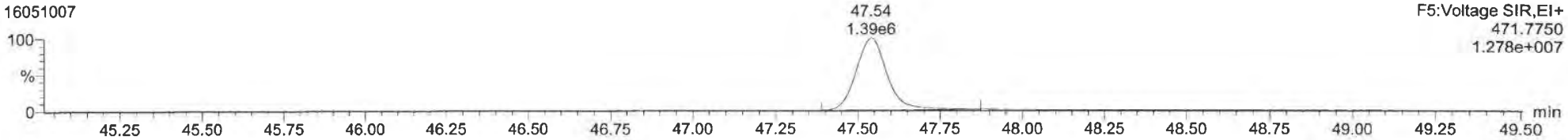
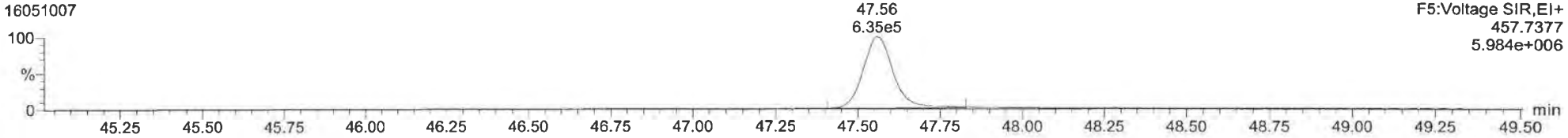
13C-OCDD
16051007



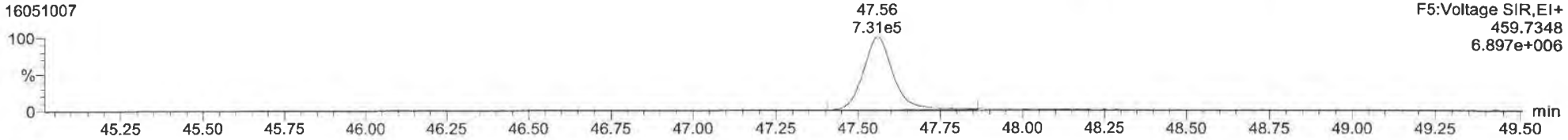
13C-OCDD
16051007



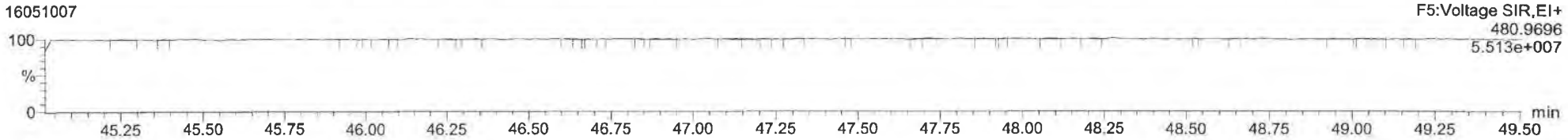
OCDD
16051007



OCDD
16051007



FUNCTION5 PFK
16051007

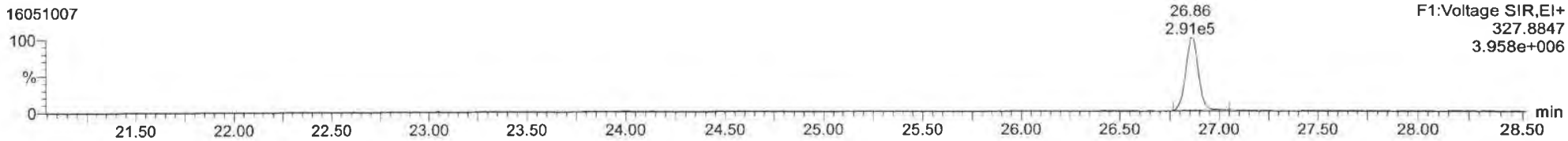


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:00 Pacific Daylight Time

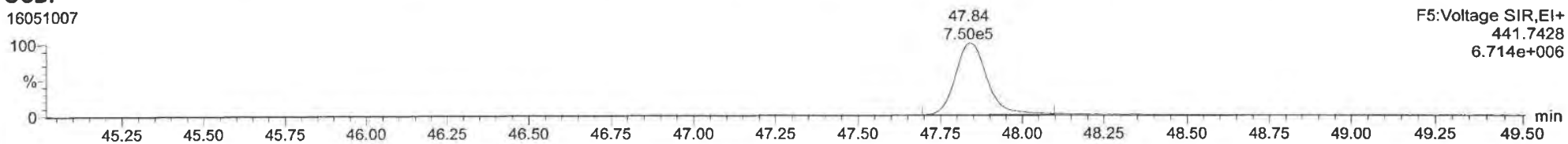
CS4AA 06/30/16

ID: ~~663~~, Name: 16051007, Date: 10-May-2016, Time: 16:22:15, Conditions: AUTOSPEC01, User: pk

37CL-2378-TCDD



OCDF



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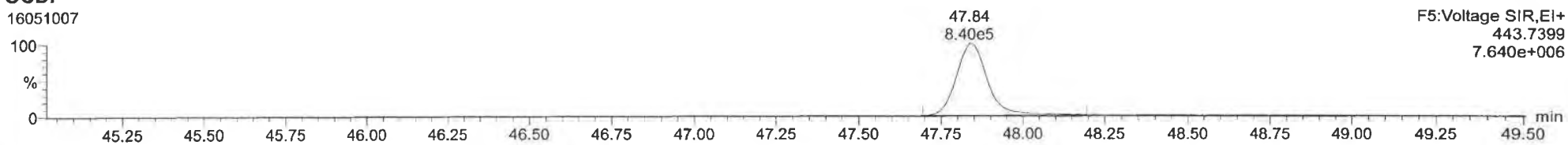
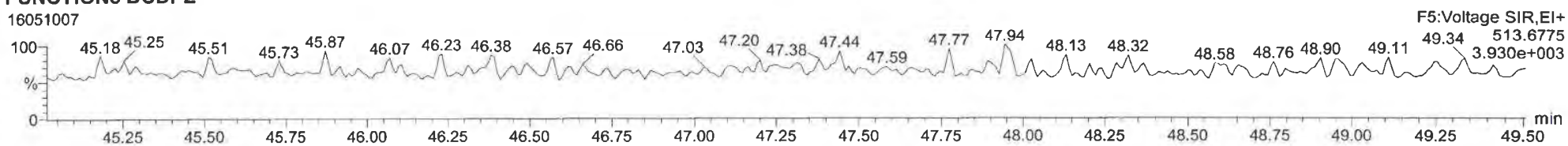


FUNCTION5 DCDPE



Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:02 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS5AA 06/30/16
ID: ~~CS4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
2378-TCDF	26.212	1.001	7.17e5	9.00e5	0.935	0.796	0.770	2295	7656	9.79e6	1.27e7	4263.6	NO	41.031	41.031
12378-PeCDF	30.377	1.000	4.07e6	2.59e6	0.952	1.573	1.550	6883	4240	5.75e7	3.65e7	8348.8	NO	206.758	206.758
23478-PeCDF	31.725	1.001	3.95e6	2.52e6	0.963	1.569	1.550	6883	4240	5.62e7	3.56e7	8161.8	NO	204.434	204.434
123478-HxCDF	35.419	1.001	3.15e6	2.50e6	1.137	1.261	1.240	13601	10755	4.46e7	3.58e7	3276.6	NO	202.836	202.836
234678-HxCDF	36.504	1.000	3.11e6	2.49e6	1.164	1.249	1.240	13601	10755	4.37e7	3.55e7	3210.0	NO	203.680	203.680
123678-HxCDF	35.561	1.001	3.61e6	2.77e6	1.099	1.303	1.240	13601	10755	4.77e7	3.84e7	3506.5	NO	204.059	204.059
123789-HxCDF	37.644	1.001	2.55e6	2.03e6	1.101	1.255	1.240	13601	10755	3.71e7	2.93e7	2726.3	NO	203.367	203.367
1234678-HpCDF	39.715	1.000	2.74e6	2.75e6	1.303	0.994	1.050	6885	7691	3.78e7	3.70e7	5494.3	NO	203.048	203.048
1234789-HpCDF	42.456	1.000	2.10e6	2.02e6	1.317	1.041	1.050	6885	7691	2.44e7	2.36e7	3539.4	NO	211.145	211.145
OCDF	47.836	1.006	3.14e6	3.47e6	1.166	0.905	0.890	4831	4858	3.01e7	3.32e7	6225.8	NO	416.025	416.025
2378-TCDD	26.855	1.001	5.00e5	6.38e5	1.134	0.784	0.770	1676	1626	6.80e6	8.68e6	4059.3	NO	40.594	40.594
12378-PeCDD	31.977	1.001	2.48e6	1.60e6	0.975	1.550	1.550	3667	1576	3.55e7	2.29e7	9674.9	NO	202.869	202.869
123478-HxCDD	36.646	1.001	2.20e6	1.73e6	1.031	1.270	1.240	4236	6491	3.19e7	2.56e7	7523.4	NO	201.866	201.866
123678-HxCDD	36.767	1.000	2.24e6	1.87e6	0.971	1.200	1.240	4236	6491	3.06e7	2.47e7	7220.4	NO	203.339	203.339
123789-HxCDD	37.194	1.012	2.13e6	1.73e6	0.947	1.229	1.240	4236	6491	2.93e7	2.38e7	6928.2	NO	205.678	205.678
1234678-HpCDD	41.557	1.000	1.65e6	1.59e6	1.028	1.039	1.050	4062	5246	2.08e7	1.98e7	5129.3	NO	203.516	203.516
OCDD	47.557	1.000	2.56e6	3.01e6	1.107	0.851	0.890	4823	4025	2.45e7	2.79e7	5087.1	NO	368.986	368.986
13C-2378-TCDF	26.198	1.006	1.86e6	2.36e6	1.567	0.787	0.770	9068	5281	2.59e7	3.31e7	2860.1	NO		97.809
13C-12378-PeCDF	30.366	1.166	2.08e6	1.31e6	1.274	1.590	1.550	3910	3905	2.93e7	1.85e7	7488.0	NO		96.584
13C-23478-PeCDF	31.703	1.218	2.01e6	1.28e6	1.235	1.575	1.550	3910	3905	2.90e7	1.83e7	7419.1	NO		96.913
13C-123478-HxCDF	35.397	0.952	8.47e5	1.61e6	1.381	0.527	0.510	3719	7297	1.21e7	2.31e7	3247.7	NO		100.488
13C-123678-HxCDF	35.539	0.956	9.67e5	1.88e6	1.569	0.514	0.510	3719	7297	1.28e7	2.49e7	3445.1	NO		102.721
13C-234678-HxCDF	36.493	0.981	8.07e5	1.56e6	1.345	0.518	0.510	3719	7297	1.12e7	2.15e7	3012.3	NO		99.485
13C-123789-HxCDF	37.622	1.012	6.97e5	1.35e6	1.183	0.515	0.510	3719	7297	1.04e7	1.97e7	2786.8	NO		98.078
13C-1234678-HpCDF	39.704	1.068	6.29e5	1.45e6	1.178	0.435	0.440	3678	4603	8.83e6	1.95e7	2402.0	NO		99.678
13C-1234789-HpCDF	42.434	1.141	4.60e5	1.02e6	0.878	0.450	0.440	3678	4603	5.41e6	1.19e7	1470.4	NO		95.545
13C-1234-TCDD	26.033	0.000	1.21e6	1.54e6	1.000	0.788	0.770	4360	2513	1.71e7	2.16e7	3929.7	NO		100.000
13C-2378-TCDD	26.840	1.031	1.09e6	1.38e6	0.908	0.787	0.770	4360	2513	1.50e7	1.90e7	3451.4	NO		99.039
13C-12378-PeCDD	31.955	1.227	1.28e6	7.82e5	0.756	1.634	1.550	2594	1749	1.74e7	1.10e7	6717.7	NO		99.127
13C-123478-HxCDD	36.624	0.985	1.06e6	8.27e5	1.056	1.280	1.240	3316	7010	1.55e7	1.22e7	4679.9	NO		101.114
13C-123678-HxCDD	36.756	0.988	1.16e6	9.21e5	1.163	1.258	1.240	3316	7010	1.57e7	1.27e7	4733.5	NO		101.181
13C-1234678-HpCDD	41.535	1.117	7.90e5	7.57e5	0.909	1.044	1.050	3750	2889	1.00e7	9.48e6	2676.9	NO		96.299
13C-OCDD	47.540	1.278	1.31e6	1.41e6	0.820	0.929	0.890	4418	5175	1.19e7	1.33e7	2699.0	NO		188.350

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:02 Pacific Daylight Time

C55AA 04/30/16

ID: ~~C94,~~ Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
13C-123789-HxCDD	37.183	0.000	9.81e5	7.86e5	1.000	1.248	1.240	3316	7010	1.40e7	1.10e7	4215.8	NO		100.000
Total-tetrafurans			7.32e5		0.935			2295		9.99e6					41.818
Total-penta1			3.02e2					1006		4.38e3					0.012
Total-pentafurans			8.28e6		0.957			6883		1.16e8					423.647
Total-hexafurans			1.24e7		1.125			13601		1.73e8					814.310
Total-heptafurans			4.84e6		1.310			6885		6.23e7					414.734
Total-Furans			2.94e7		1.114			2295		3.92e8					2110.546
Total-tetradioxins			5.13e5		1.134			1676		6.96e6					41.692
Total-pentadioxins			2.48e6		0.975			3667		3.56e7					203.361
Total-hexadioxins			6.57e6		0.983			4236		9.19e7					611.686
Total-heptadioxins			1.66e6		1.028			4062		2.09e7					204.605
Total-Dioxins			1.38e7		1.028			1676		1.80e8					1430.329
Total-TEQ			4.32e7					1676		5.72e8					3540.875
37CL-2378-TCDD	26.855	1.032	1.19e6		1.067			2351		1.63e7		6926.2			40.530
FUNCTION1 PFK			5.93e6					1292017		8.23e7					
FUNCTION2 PFK			1.97e5					231314		5.98e6					0.000
FUNCTION3 PFK			4.75e5					829123		1.56e7					0.000
FUNCTION4 PFK			5.13e5					609401		1.38e7					
FUNCTION5 PFK			1.90e5					404182		8.68e6					
FUNCTION1 HXCDPE			8.25e1					694		1.17e3					0.000
FUNCTION1 HPCDPE			1.77e3					1114		3.08e4					0.000
FUNCTION2 HPCDPE			5.48e3					1104		8.68e4					0.000
FUNCTION3 OCDPE			0.00e0					541		0.00e0					
FUNCTION4 NCDPE			3.38e2					700		8.15e3					0.000
FUNCTION5 DCDPE			1.08e2					501		3.99e3					0.000

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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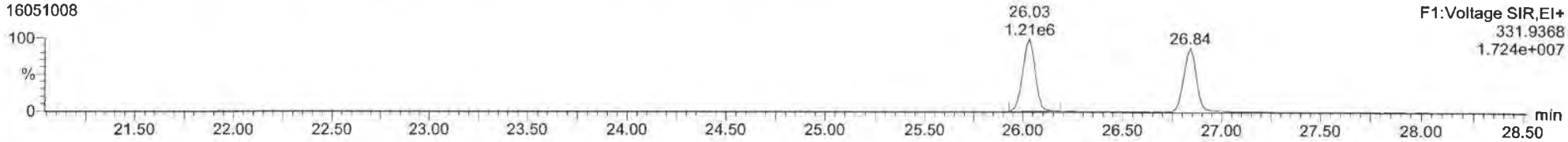
Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS5AA 06/30/16
ID: ~~CS4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD



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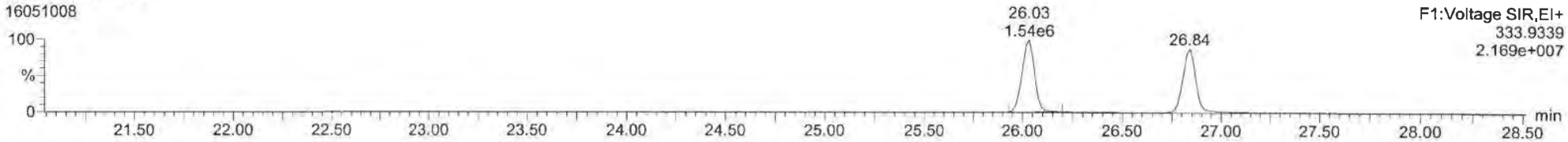

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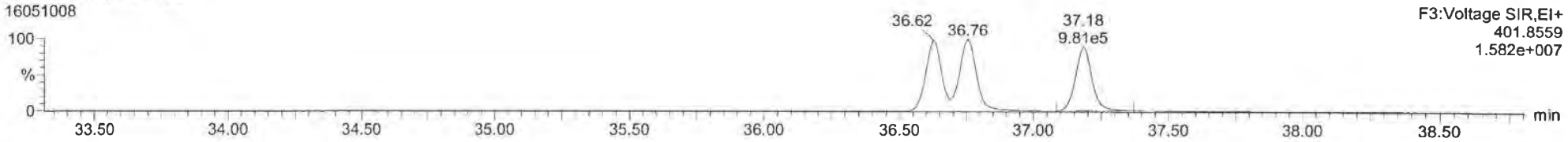

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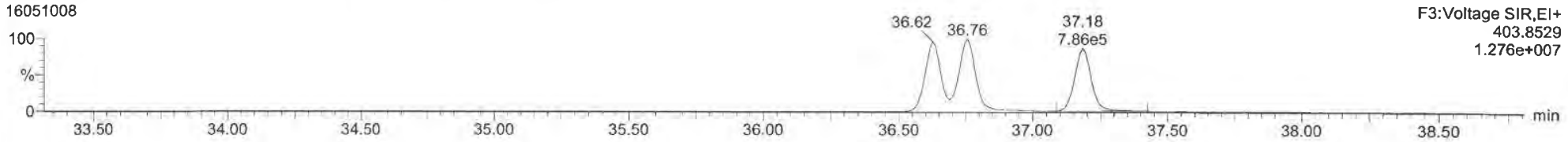

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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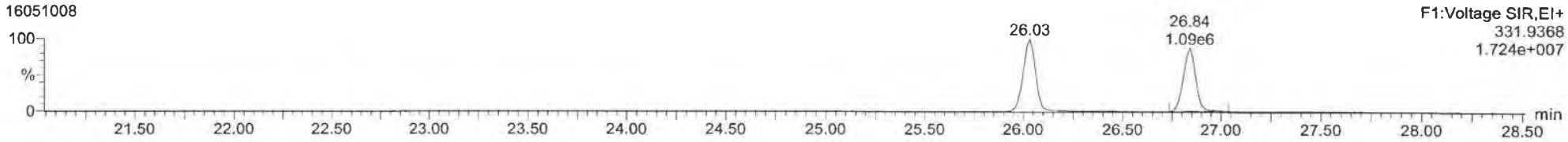
CS5 AA 04/30/16

ID: ~~CS4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

13C-2378-TCDD



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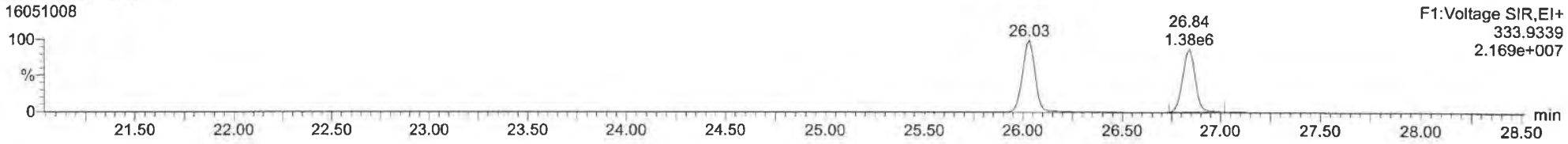
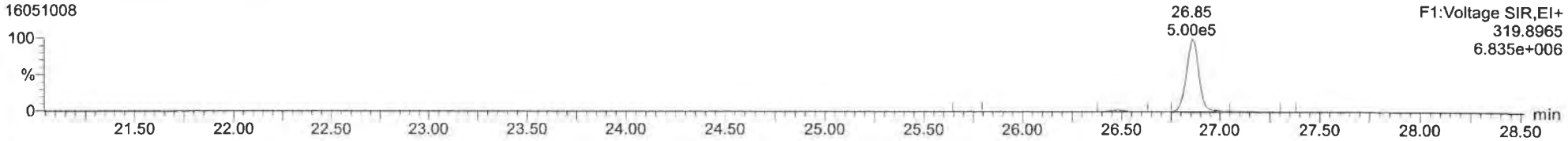
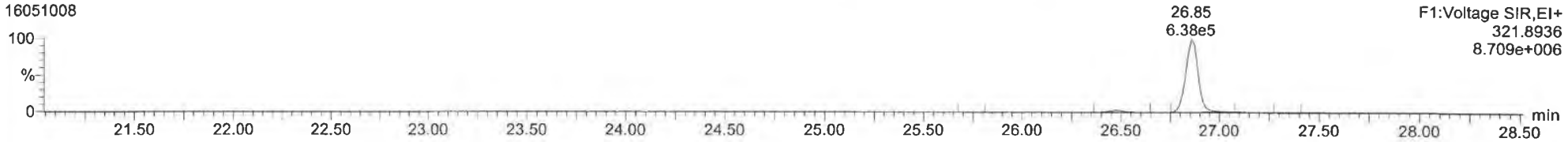


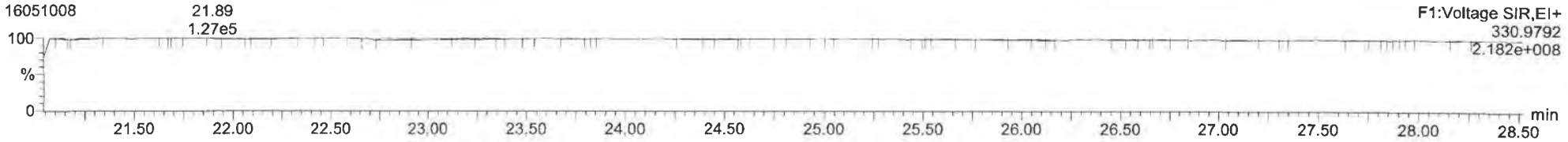
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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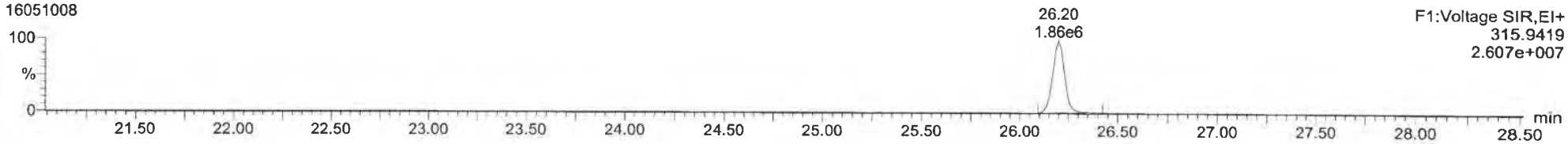
CSSAA 06/30/16

ID: ~~CS4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

13C-2378-TCDF
16051008



13C-2378-TCDF
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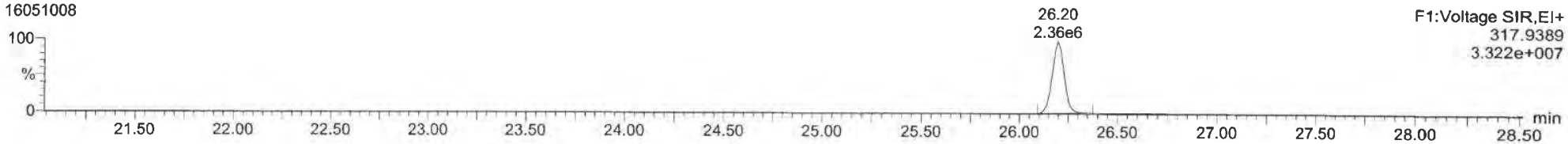
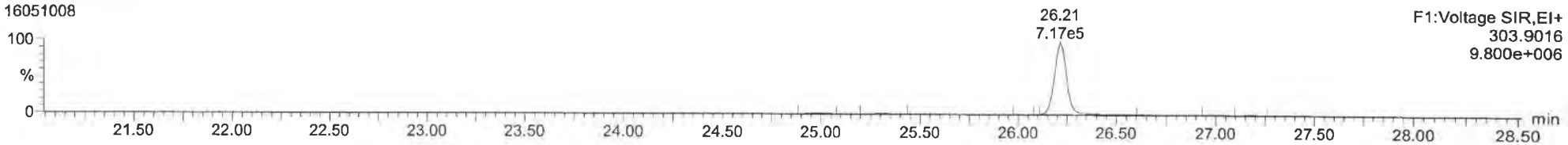


Total-tetrafurans
16051008



Total-tetrafurans
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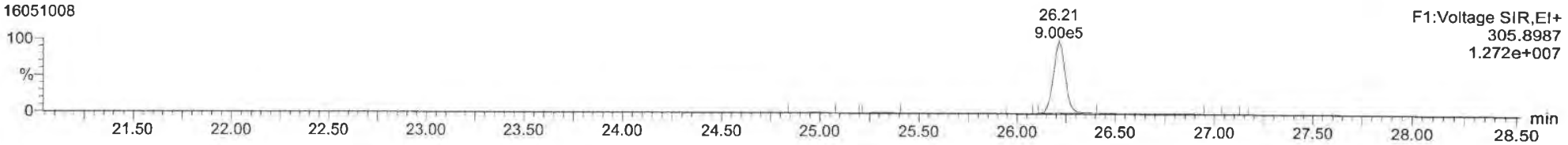

FUNCTION1 HXCDPE
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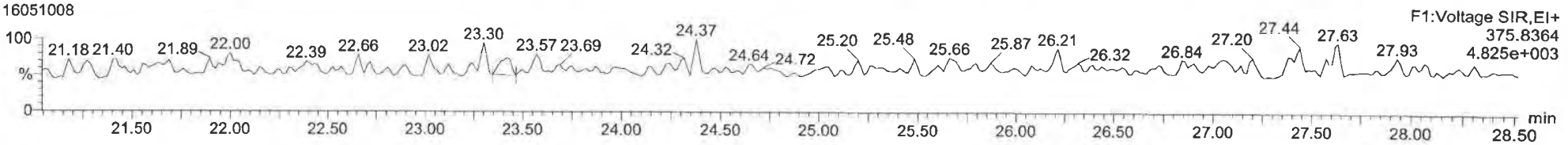

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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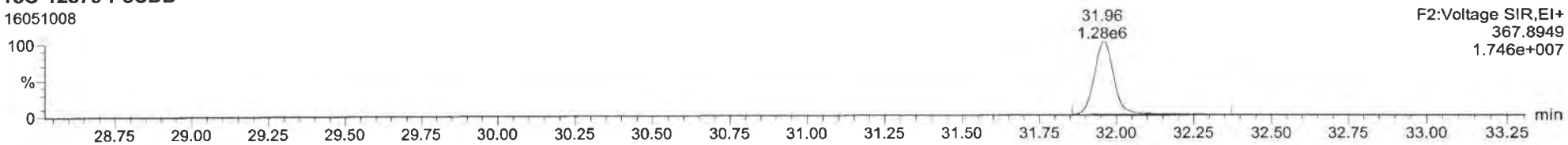
CS5AA 04/30/16

ID: ~~CS4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDD
16051008



13C-12378-PeCDD
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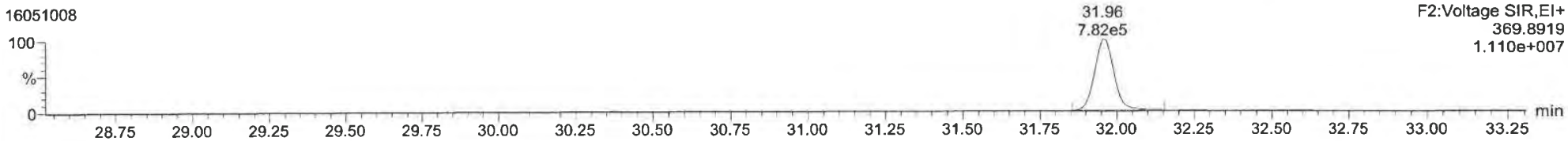
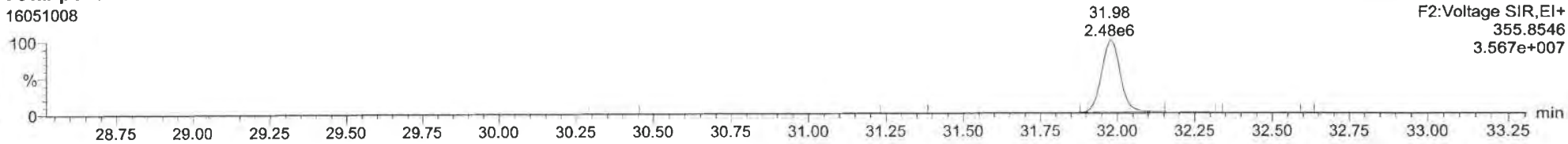
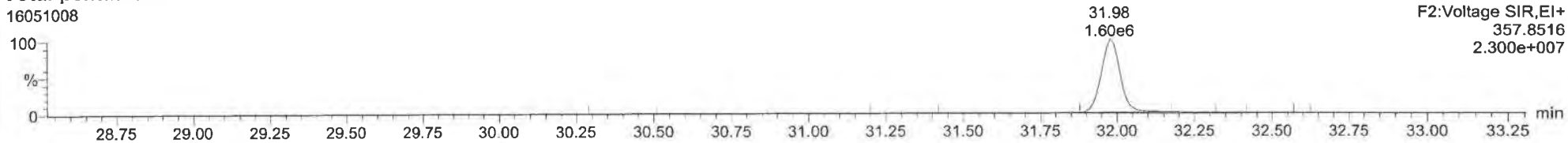


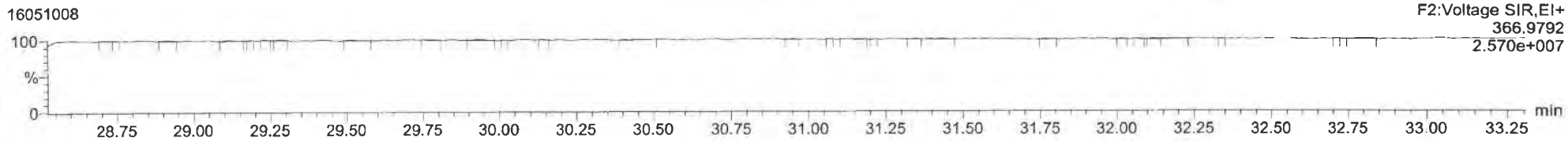
Total-pentadioxins
16051008



Total-pentadioxins
16051008



FUNCTION2 PFK
16051008



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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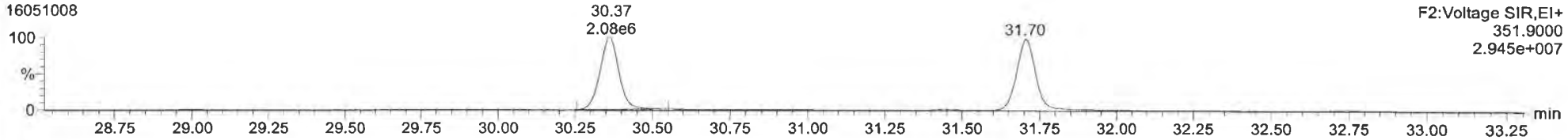
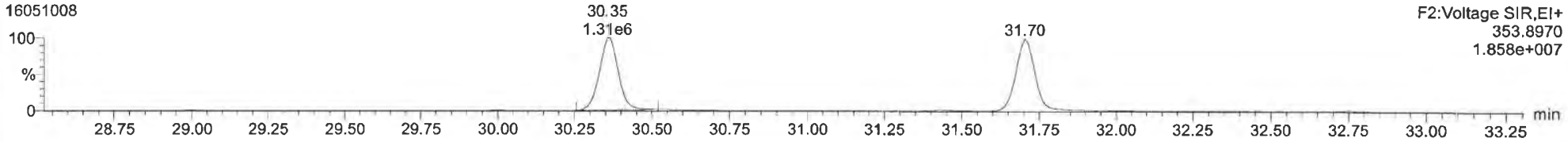
CS5AA 06/30/16

ID: ~~CS4~~; Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

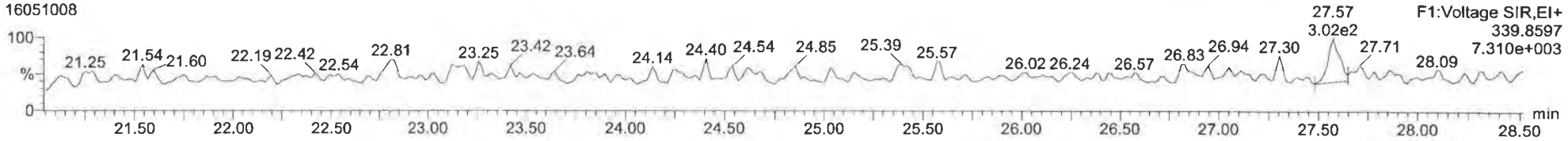
13C-12378-PeCDF



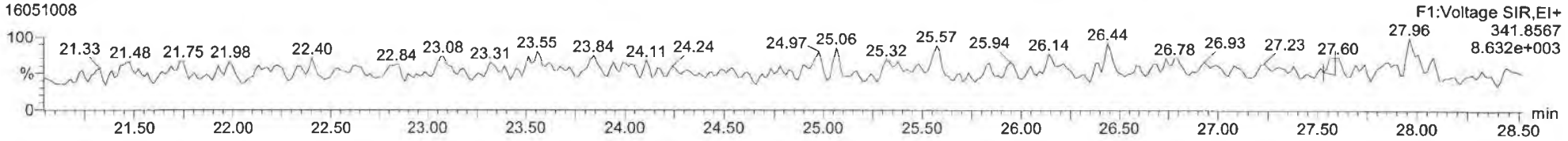
13C-12378-PeCDF



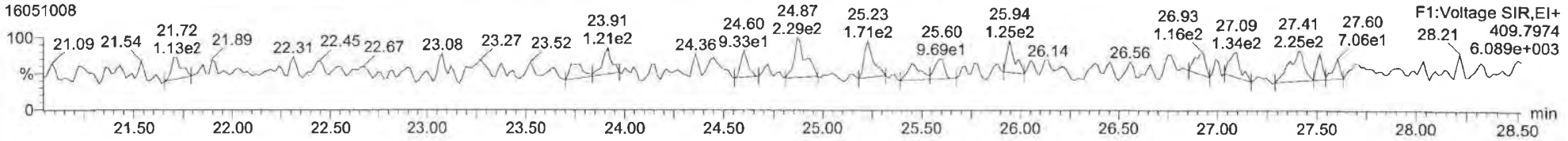
Total-penta1



Total-penta1



FUNCTION1 HPCDPE

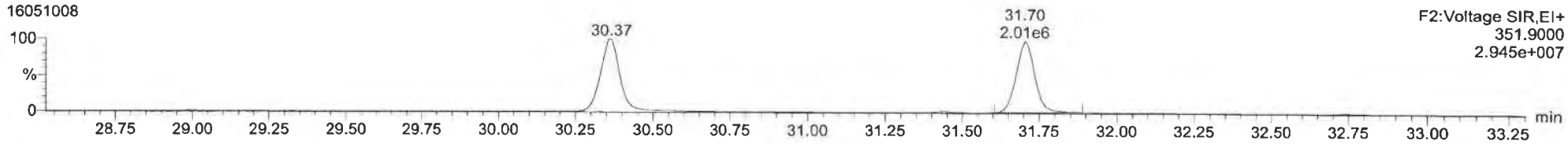


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:02 Pacific Daylight Time

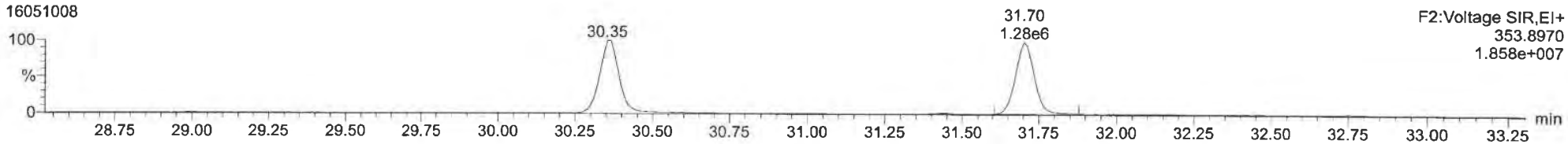
CS5AA 06/30/16

ID: ~~CS4,~~ Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

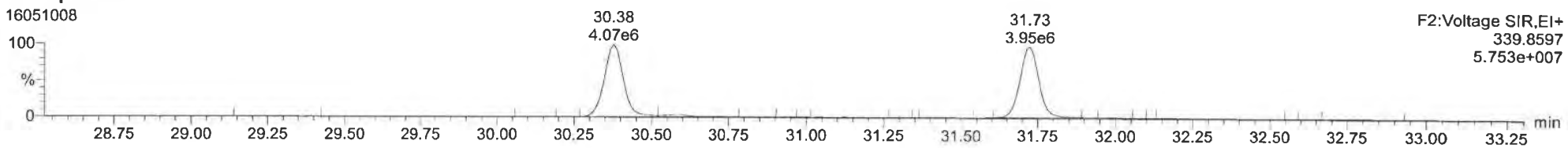
13C-23478-PeCDF



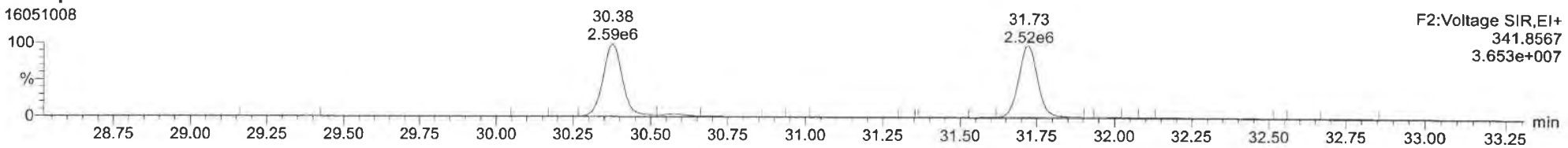
13C-23478-PeCDF



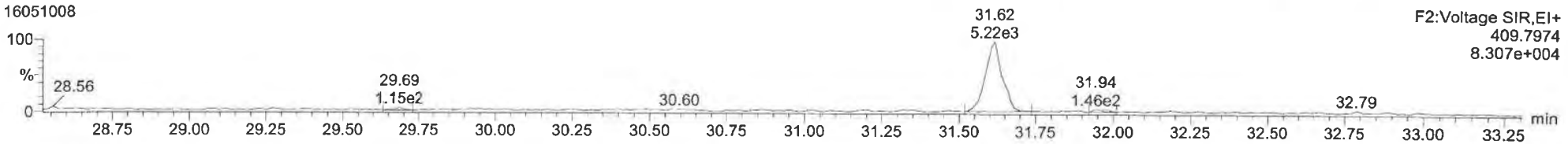
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE

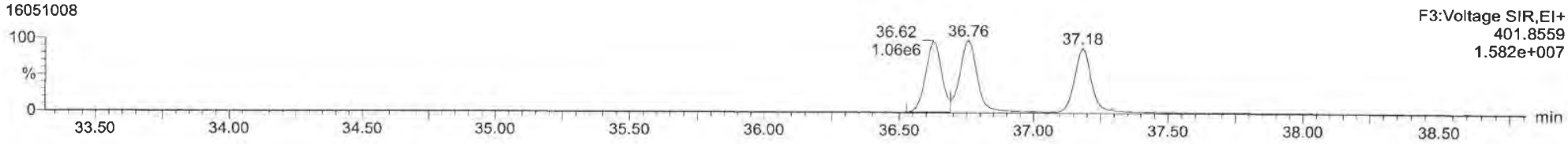


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:02 Pacific Daylight Time

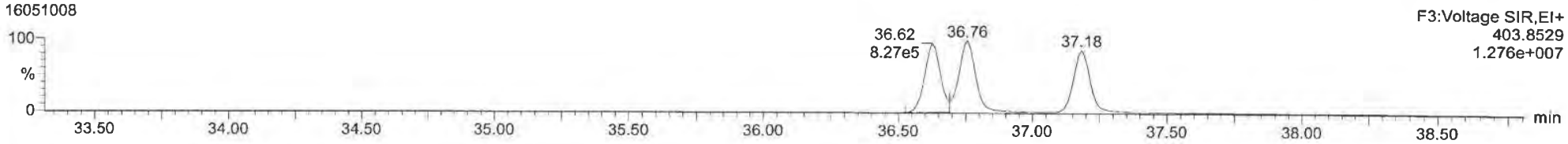
CS5AA 06/30/16 SR

ID: ~~664~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

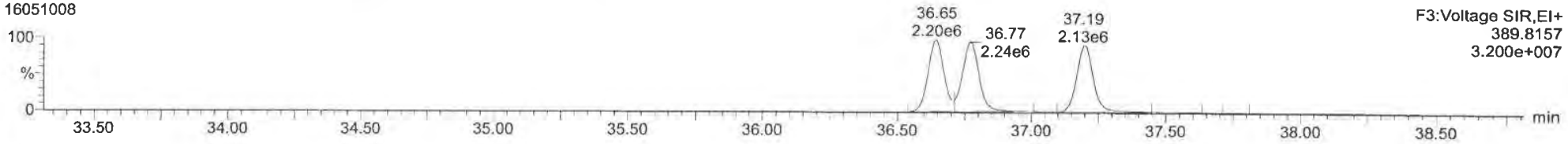
13C-123478-HxCDD
16051008



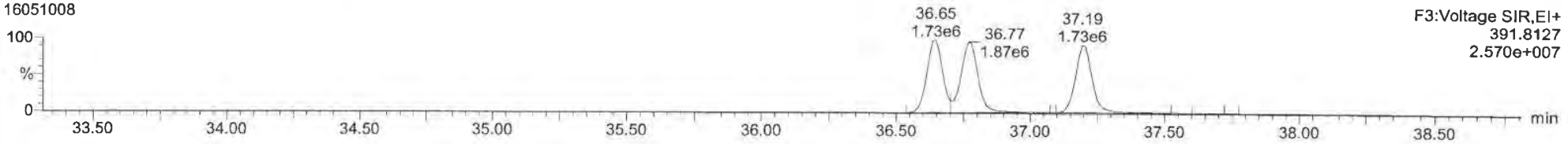
13C-123478-HxCDD
16051008



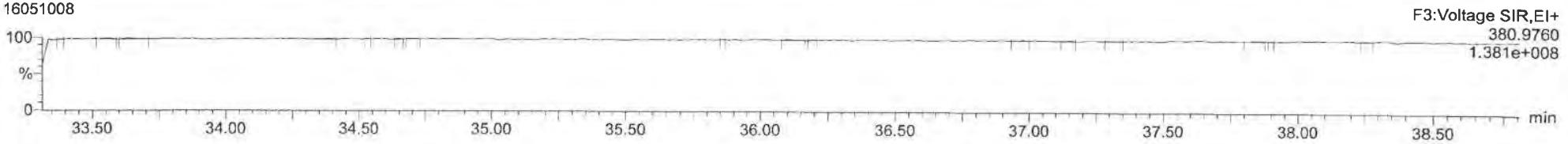
Total-hexadioxins
16051008



Total-hexadioxins
16051008



FUNCTION3 PFK
16051008

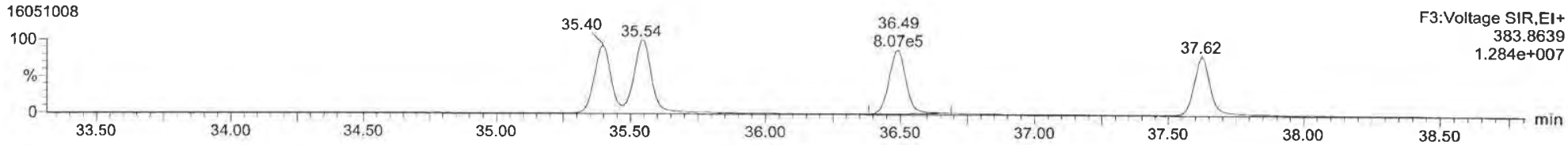


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:02 Pacific Daylight Time

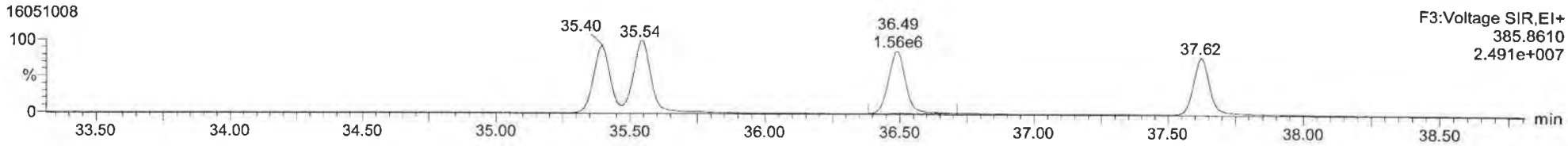
CSSAA 06/30/16

ID: ~~CS4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

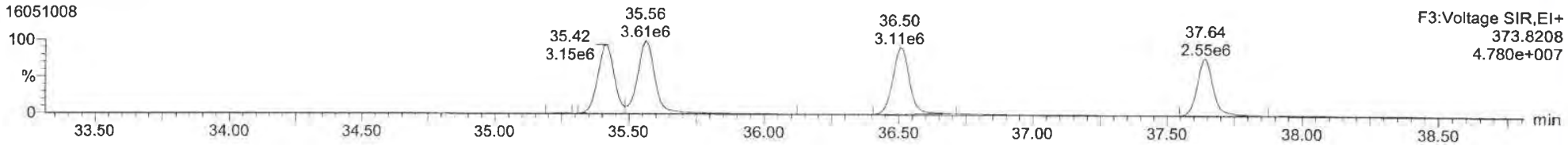
13C-234678-HxCDF



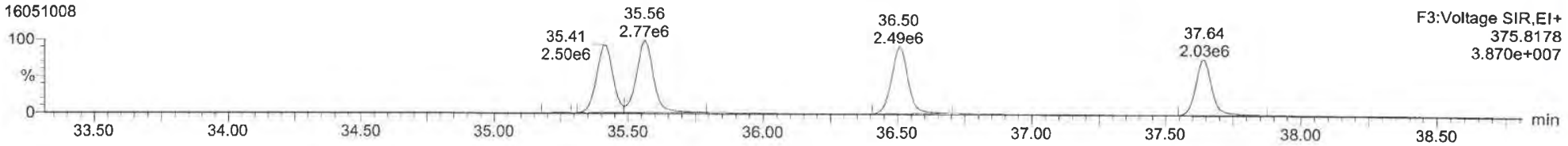
13C-234678-HxCDF



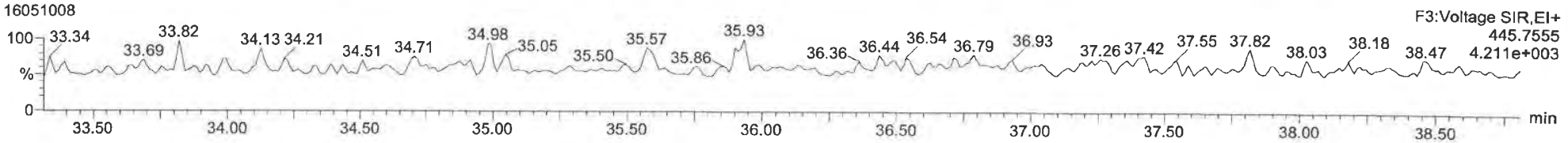
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



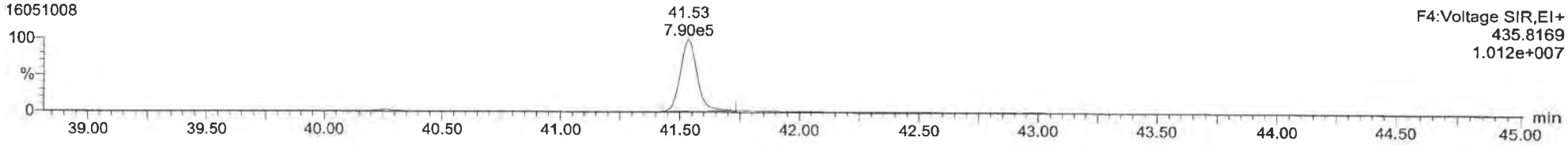
Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:02 Pacific Daylight Time

CS5AA 04/30/16

ID: ~~CS4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

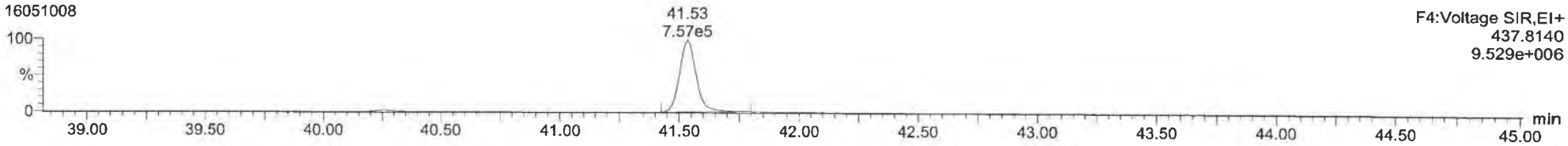
13C-1234678-HpCDD

16051008



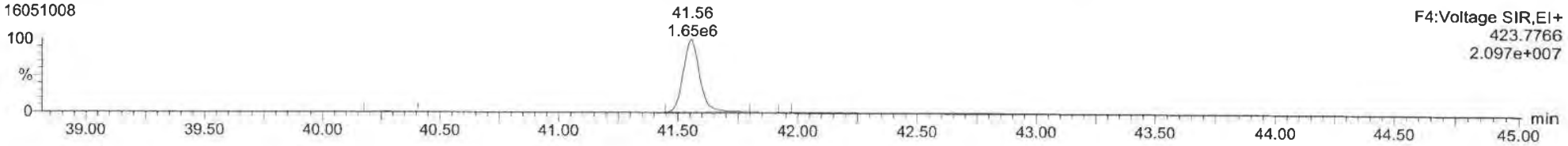
13C-1234678-HpCDD

16051008



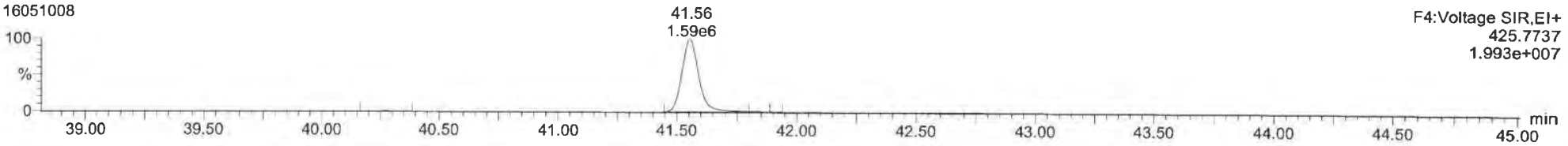
Total-heptadioxins

16051008



Total-heptadioxins

16051008



FUNCTION4 PFK

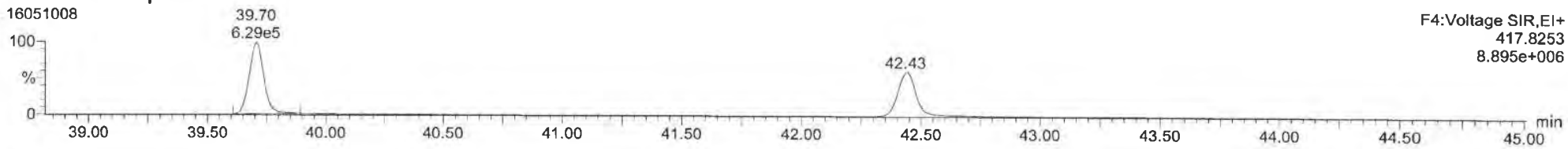
16051008

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:02 Pacific Daylight Time

CSSAA 06/30/16

ID: ~~CC4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

13C-1234678-HpCDF



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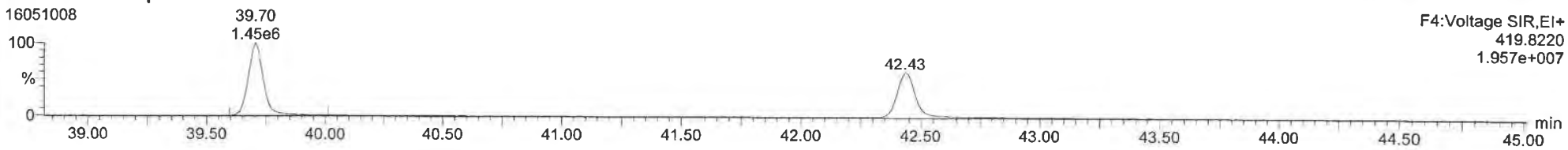
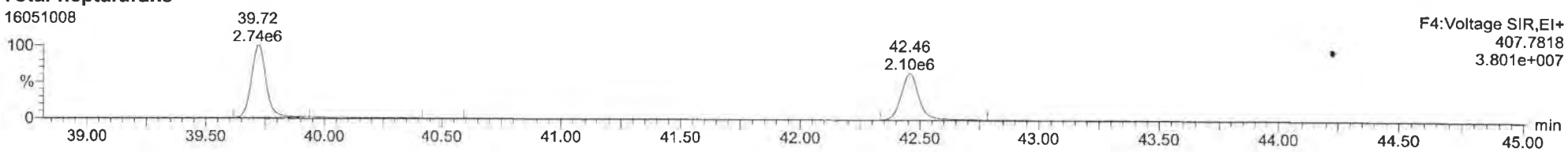
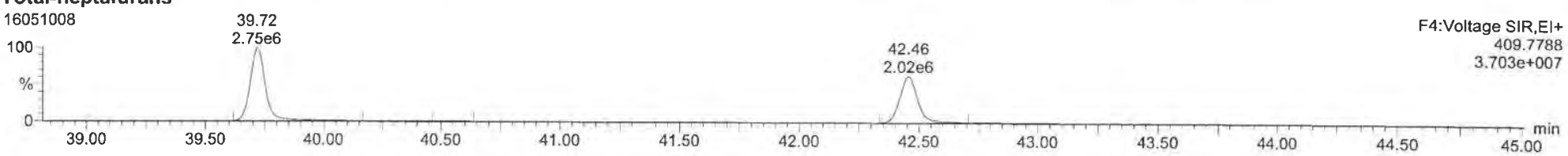


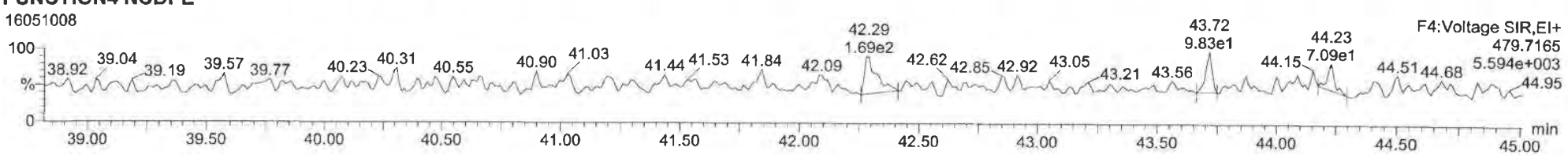
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE

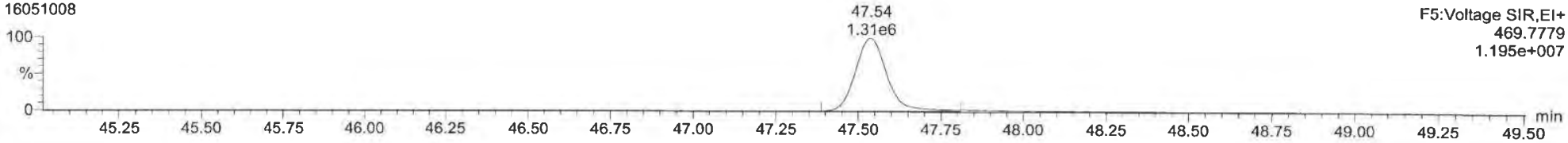


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:02 Pacific Daylight Time

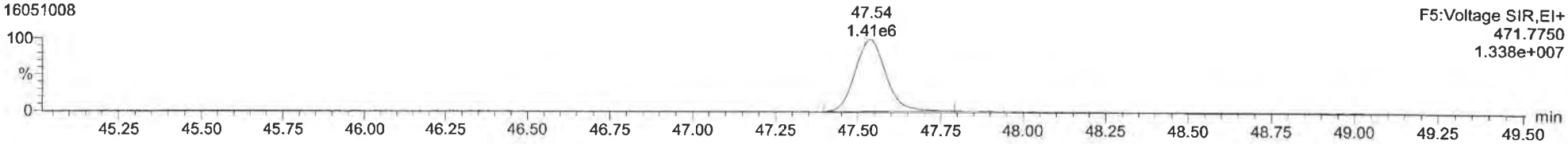
CS5AA 06/30/16

ID: ~~CS4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

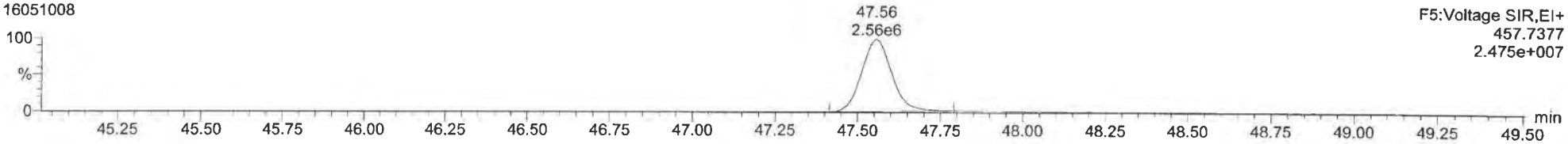
13C-OCDD
16051008



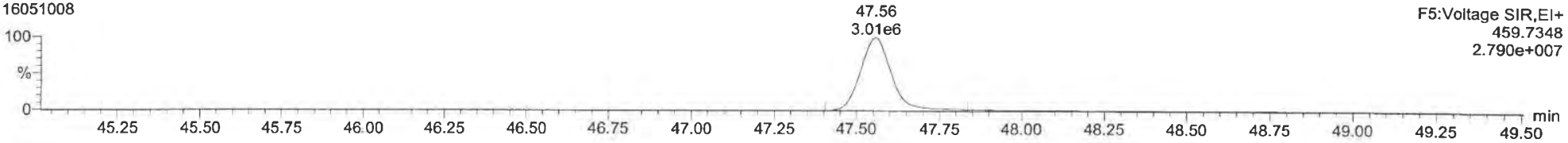
13C-OCDD
16051008



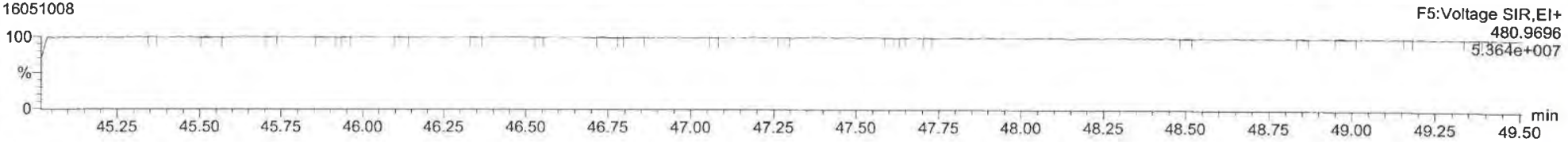
OCDD
16051008



OCDD
16051008



FUNCTION5 PFK
16051008

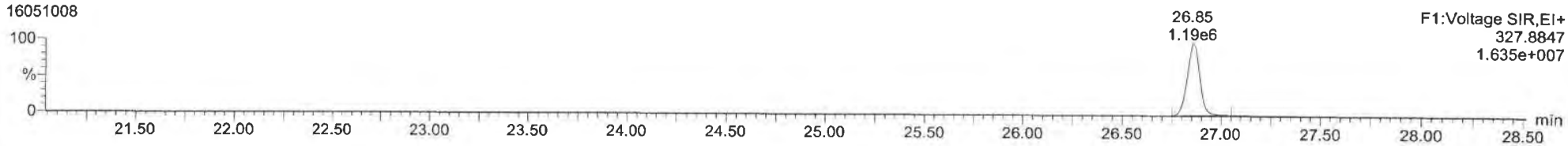


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:02 Pacific Daylight Time

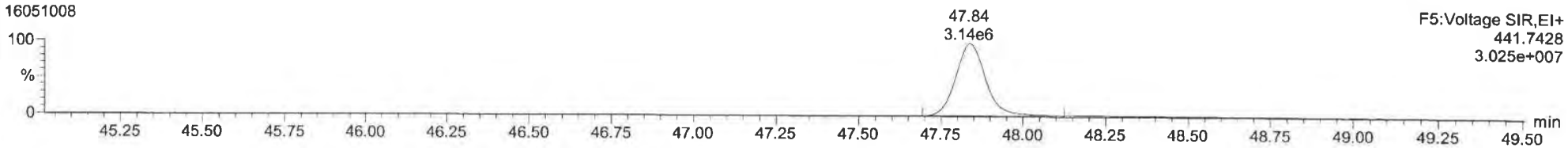
CSSAA 06/30/16

ID:-~~GC4~~, Name: 16051008, Date: 10-May-2016, Time: 17:15:41, Conditions: AUTOSPEC01, User: pk

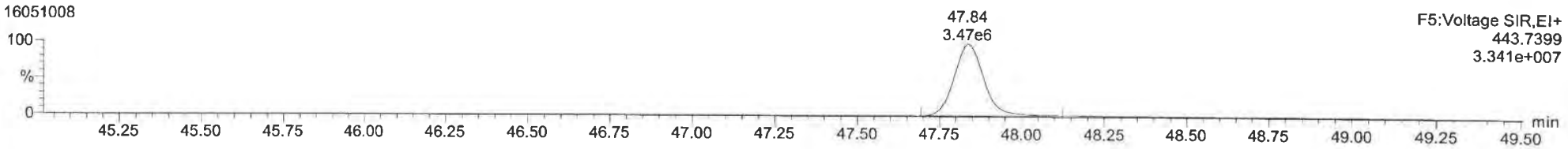
37CL-2378-TCDD



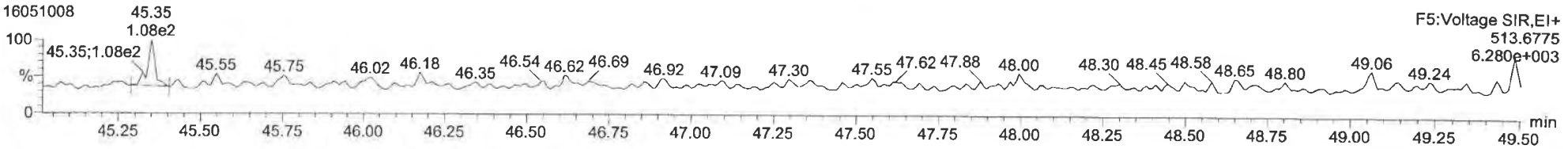
OCDF



OCDF



FUNCTION5 DCDPE



Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:04 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CS6AA 04/30/16
ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
2378-TCDF	26.212	1.001	4.35e6	5.57e6	0.935	0.781	0.770	3279	3680	6.11e7	7.84e7	18621.5	NO	206.462	206.462
12378-PeCDF	30.377	1.000	2.72e7	1.72e7	0.952	1.576	1.550	14139	10671	3.91e8	2.49e8	27634.8	NO	1038.923	1038.923
23478-PeCDF	31.725	1.001	2.69e7	1.72e7	0.963	1.570	1.550	14139	10671	3.91e8	2.50e8	27673.1	NO	1035.813	1035.813
123478-HxCDF	35.419	1.001	2.17e7	1.75e7	1.137	1.242	1.240	7978	9889	3.12e8	2.50e8	39150.1	NO	1008.651	1008.651
234678-HxCDF	36.505	1.000	2.27e7	1.82e7	1.164	1.243	1.240	7978	9889	3.15e8	2.54e8	39519.1	NO	1041.959	1041.959
123678-HxCDF	35.562	1.000	2.39e7	1.91e7	1.099	1.252	1.240	7978	9889	3.39e8	2.72e8	42475.3	NO	1015.919	1015.919
123789-HxCDF	37.645	1.001	1.89e7	1.51e7	1.101	1.248	1.240	7978	9889	2.90e8	2.31e8	36301.1	NO	1034.223	1034.223
1234678-HpCDF	39.727	1.001	2.00e7	1.92e7	1.303	1.041	1.050	13198	14124	2.82e8	2.69e8	21353.7	NO	1034.086	1034.086
1234789-HpCDF	42.457	1.000	1.57e7	1.52e7	1.317	1.035	1.050	13198	14124	1.92e8	1.85e8	14512.2	NO	1027.817	1027.817
OCDF	47.846	1.006	2.64e7	2.91e7	1.166	0.906	0.890	7357	6921	2.57e8	2.84e8	34912.8	NO	2093.402	2093.402
2378-TCDD	26.855	1.001	3.13e6	3.99e6	1.134	0.783	0.770	1887	2391	4.28e7	5.53e7	22681.5	NO	204.457	204.457
12378-PeCDD	31.978	1.000	1.70e7	1.09e7	0.975	1.561	1.550	4731	4226	2.43e8	1.57e8	51272.0	NO	1044.238	1044.238
123478-HxCDD	36.647	1.001	1.56e7	1.25e7	1.031	1.249	1.240	3956	4009	2.25e8	1.81e8	56938.3	NO	1020.760	1020.760
123678-HxCDD	36.779	1.001	1.59e7	1.26e7	0.971	1.256	1.240	3956	4009	2.24e8	1.79e8	56542.7	NO	1004.474	1004.474
123789-HxCDD	37.206	1.012	1.51e7	1.21e7	0.947	1.250	1.240	3956	4009	2.17e8	1.74e8	54856.0	NO	1028.413	1028.413
1234678-HpCDD	41.558	1.000	1.24e7	1.19e7	1.028	1.044	1.050	10198	7182	1.65e8	1.59e8	16208.2	NO	1021.448	1021.448
OCDD	47.568	1.000	2.19e7	2.46e7	1.107	0.890	0.890	6830	10054	2.13e8	2.39e8	31234.5	NO	1848.573	1848.573
13C-2378-TCDF	26.198	1.006	2.26e6	2.88e6	1.567	0.783	0.770	8687	4581	3.15e7	4.04e7	3628.1	NO		104.094
13C-12378-PeCDF	30.366	1.166	2.75e6	1.74e6	1.274	1.581	1.550	4421	4290	3.93e7	2.46e7	8890.8	NO		111.735
13C-23478-PeCDF	31.703	1.218	2.71e6	1.71e6	1.235	1.586	1.550	4421	4290	3.80e7	2.42e7	8604.3	NO		113.556
13C-123478-HxCDF	35.397	0.952	1.16e6	2.25e6	1.381	0.517	0.510	3724	6188	1.67e7	3.20e7	4489.5	NO		97.181
13C-123678-HxCDF	35.551	0.956	1.30e6	2.55e6	1.569	0.510	0.510	3724	6188	1.85e7	3.52e7	4967.8	NO		96.347
13C-234678-HxCDF	36.494	0.981	1.15e6	2.22e6	1.345	0.518	0.510	3724	6188	1.62e7	3.09e7	4341.6	NO		98.661
13C-123789-HxCDF	37.623	1.012	1.03e6	1.96e6	1.183	0.525	0.510	3724	6188	1.51e7	2.91e7	4064.1	NO		99.189
13C-1234678-HpCDF	39.705	1.068	9.11e5	2.00e6	1.178	0.456	0.440	3269	5437	1.25e7	2.77e7	3833.3	NO		97.065
13C-1234789-HpCDF	42.446	1.141	7.13e5	1.57e6	0.878	0.455	0.440	3269	5437	8.39e6	1.88e7	2565.2	NO		102.063
13C-1234-TCDD	26.033	0.000	1.37e6	1.78e6	1.000	0.773	0.770	4660	2816	1.91e7	2.45e7	4092.0	NO		100.000
13C-2378-TCDD	26.840	1.031	1.34e6	1.73e6	0.908	0.771	0.770	4660	2816	1.84e7	2.39e7	3939.9	NO		107.342
13C-12378-PeCDD	31.966	1.228	1.68e6	1.06e6	0.756	1.587	1.550	2144	2345	2.38e7	1.50e7	11115.6	NO		114.666
13C-123478-HxCDD	36.625	0.985	1.50e6	1.18e6	1.056	1.275	1.240	3814	2411	2.14e7	1.67e7	5613.2	NO		99.540
13C-123678-HxCDD	36.757	0.988	1.63e6	1.29e6	1.163	1.267	1.240	3814	2411	2.30e7	1.83e7	6041.3	NO		98.664
13C-1234678-HpCDD	41.547	1.117	1.19e6	1.13e6	0.909	1.052	1.050	2959	3067	1.52e7	1.46e7	5142.2	NO		100.275
13C-OCDD	47.550	1.279	2.15e6	2.40e6	0.820	0.894	0.890	4073	4326	2.09e7	2.34e7	5134.0	NO		218.274

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:04 Pacific Daylight Time

CSGAA 06/30/16

ID: ~~GC5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
13C-123789-HxCDD	37.184	0.000	1.41e6	1.13e6	1.000	1.246	1.240	3814	2411	2.01e7	1.62e7	5273.5	NO		100.000
Total-tetrafurans			4.43e6		0.935			3279		6.21e7					210.299
Total-penta1			0.00e0					1229		0.00e0					
Total-pentafurans			5.55e7		0.957			14139		7.98e8					2131.385
Total-hexafurans			8.74e7		1.125			7978		1.26e9					4115.379
Total-heptafurans			3.57e7		1.310			13198		4.74e8					2064.253
Total-Furans			2.09e8		1.114			3279		2.85e9					10614.734
Total-tetradioxins			3.21e6		1.134			1887		4.38e7					209.667
Total-pentadioxins			1.70e7		0.975			4731		2.43e8					1046.711
Total-hexadioxins			4.67e7		0.983			3956		6.67e8					3056.888
Total-heptadioxins			1.25e7		1.028			10198		1.66e8					1025.355
Total-Dioxins			1.01e8		1.028			1887		1.33e9					7187.267
Total-TEQ			3.11e8					1887		4.18e9					17802.000
37CL-2378-TCDD	26.855	1.032	7.52e6		1.067			2672		1.04e8		38914.4			223.753
FUNCTION1 PFK			4.07e6					1439234		6.56e7					
FUNCTION2 PFK			3.78e5					205260		8.03e6					0.000
FUNCTION3 PFK			1.07e6					838846		2.98e7					0.000
FUNCTION4 PFK			2.20e5					549429		8.04e6					
FUNCTION5 PFK			1.25e4					401130		6.64e5					
FUNCTION1 HXCDPE			3.82e2					587		7.05e3					0.000
FUNCTION1 HPCDPE			1.87e3					1160		3.77e4					0.000
FUNCTION2 HPCDPE			3.14e4					1324		4.91e5					0.000
FUNCTION3 OCDPE			1.69e2					533		2.76e3					0.000
FUNCTION4 NCDPE			7.52e1					759		2.16e3					0.000
FUNCTION5 DCDPE			0.00e0					410		0.00e0					

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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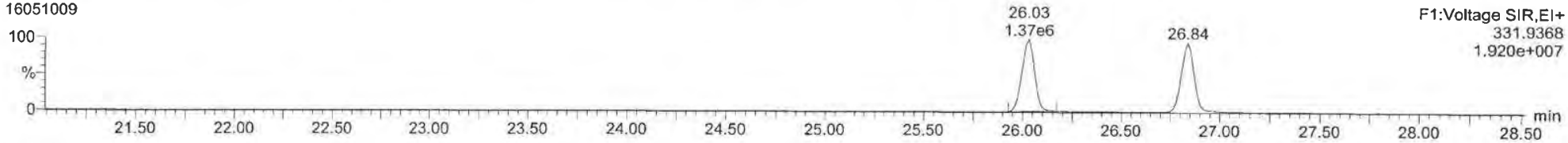
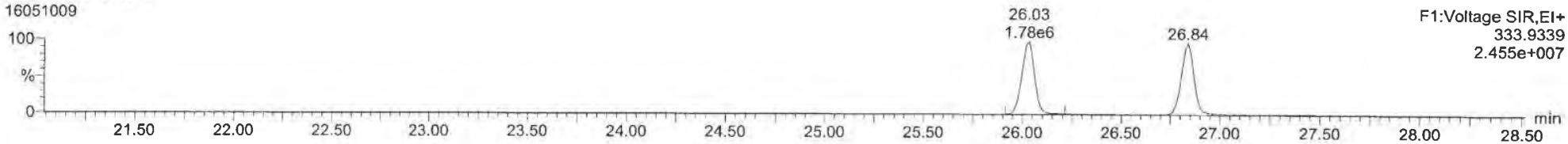
Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.PRO\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40
CSGAA 06/30/16
ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

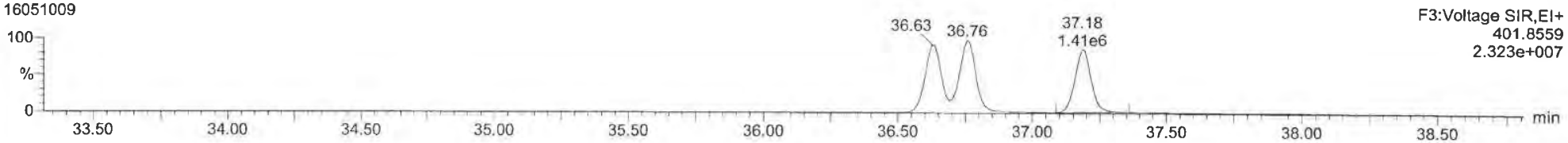
13C-1234-TCDD
16051009



13C-1234-TCDD
16051009



13C-123789-HxCDD
16051009



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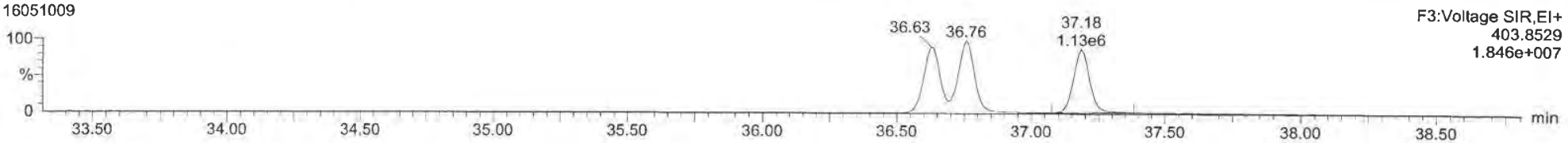

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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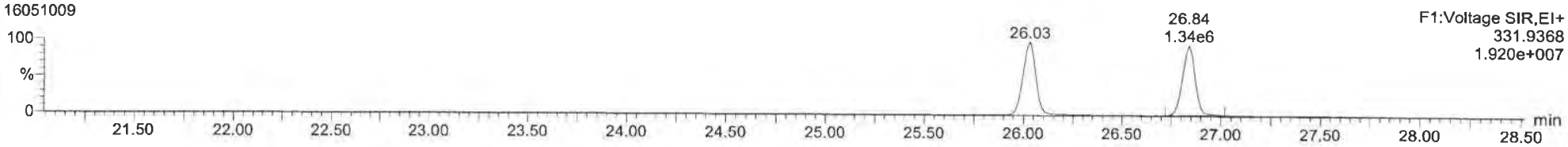
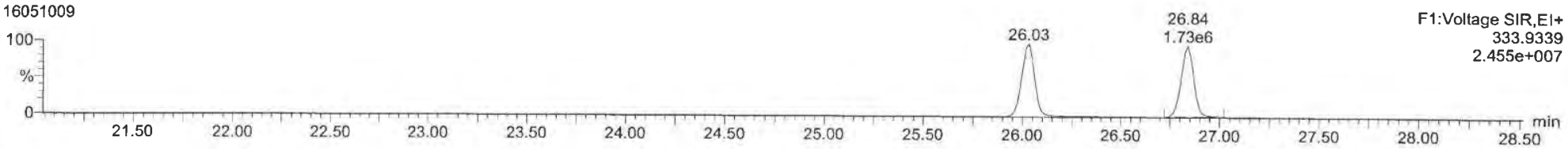
CSLAA 06/30/16

ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

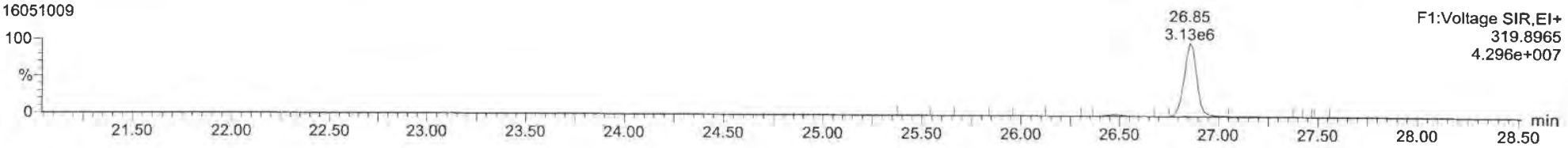
13C-2378-TCDD
16051009



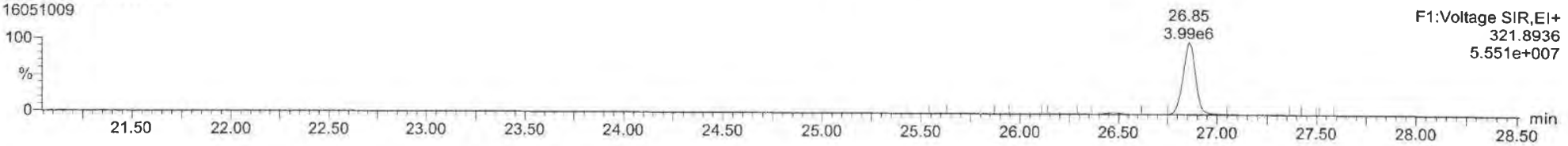
13C-2378-TCDD
16051009



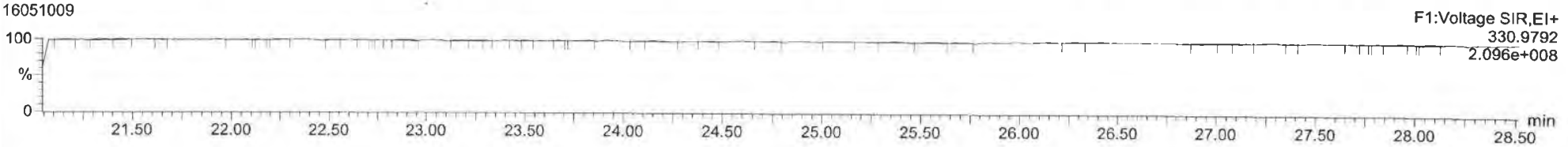
Total-tetradioxins
16051009



Total-tetradioxins
16051009



FUNCTION1 PFK
16051009



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
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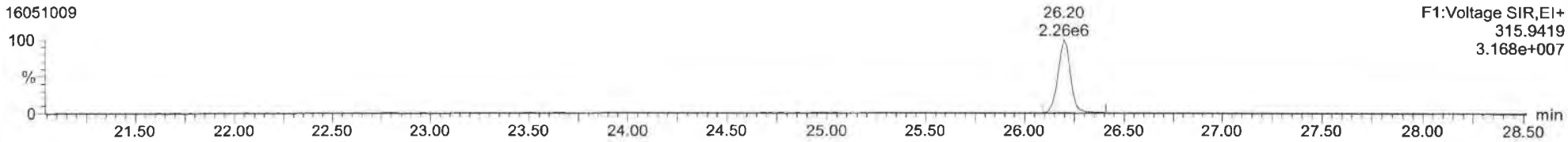
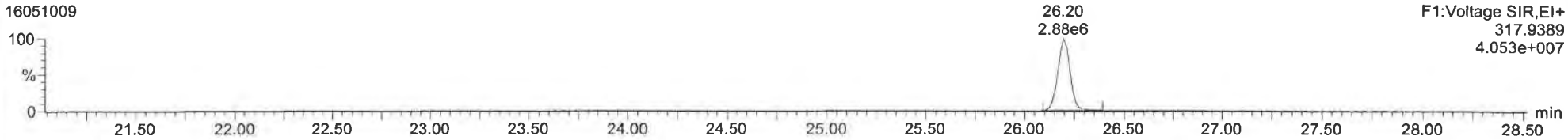
CSGAA 06/30/16

ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

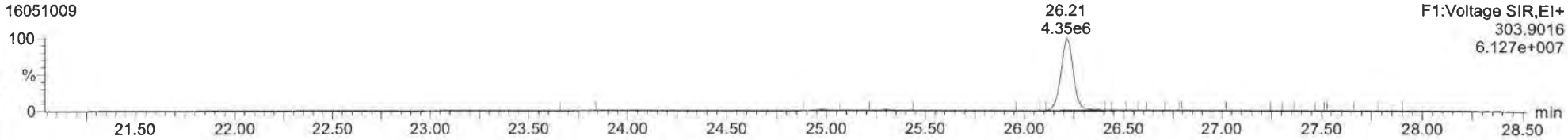
13C-2378-TCDF



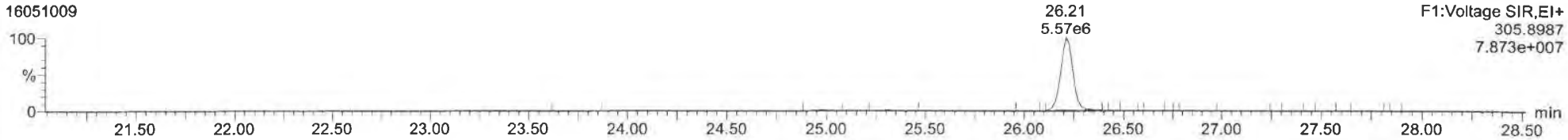
13C-2378-TCDF



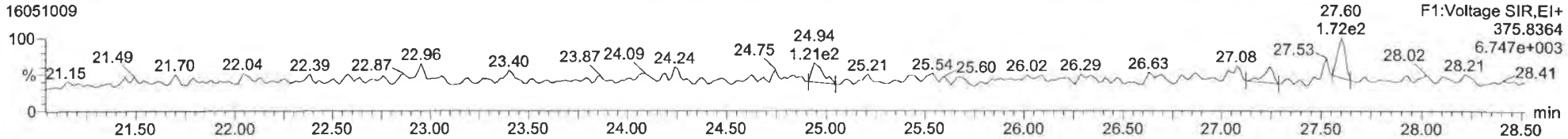
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
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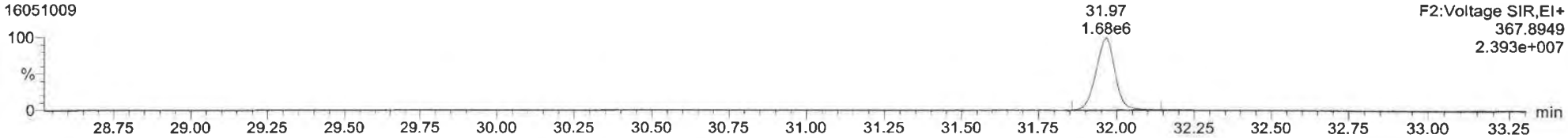
CSVAA 06/30/16

ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDD



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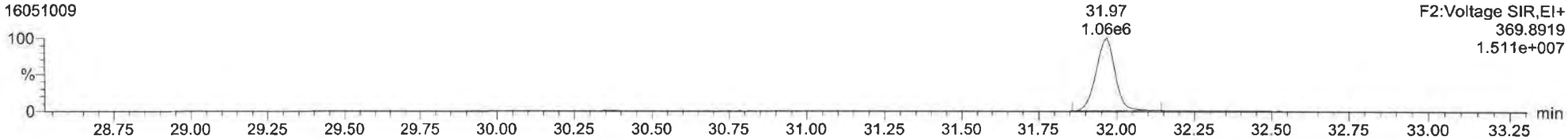
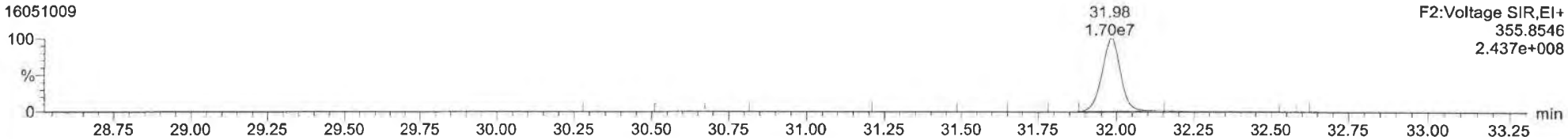
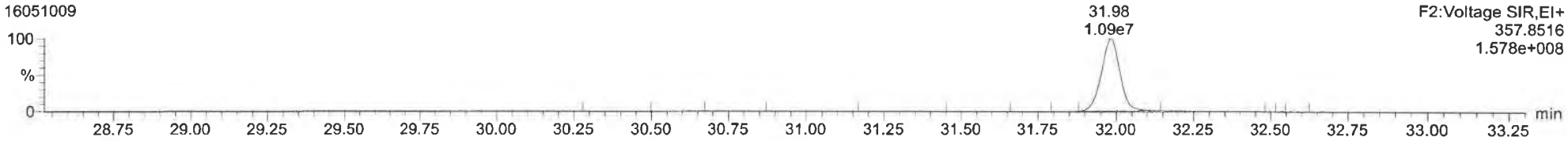


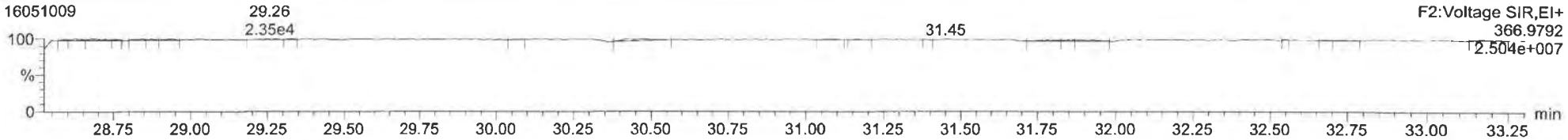
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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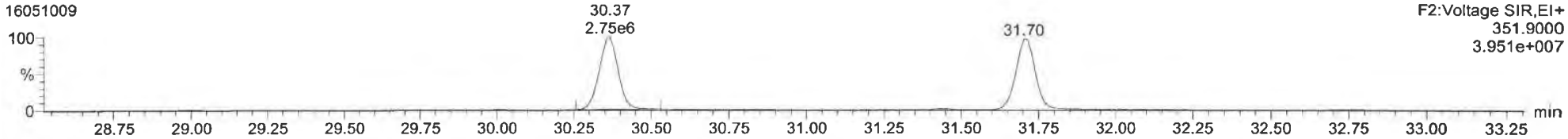
CSLAA 06/30/16

ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDF



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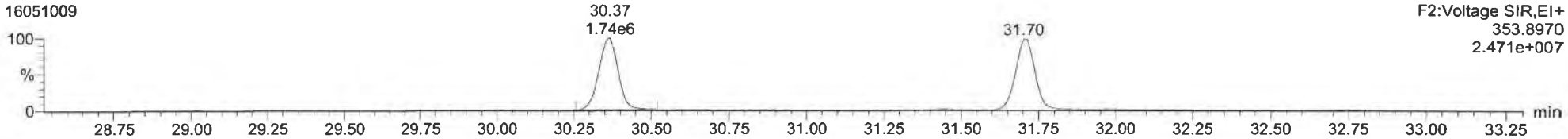
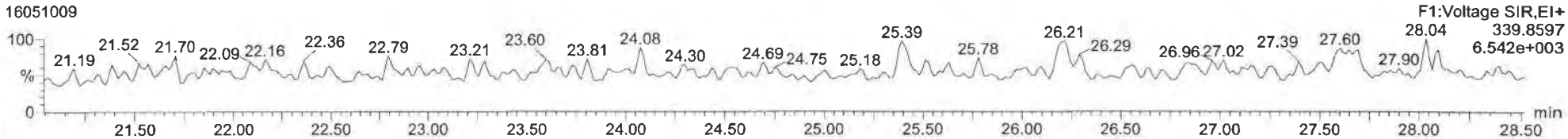
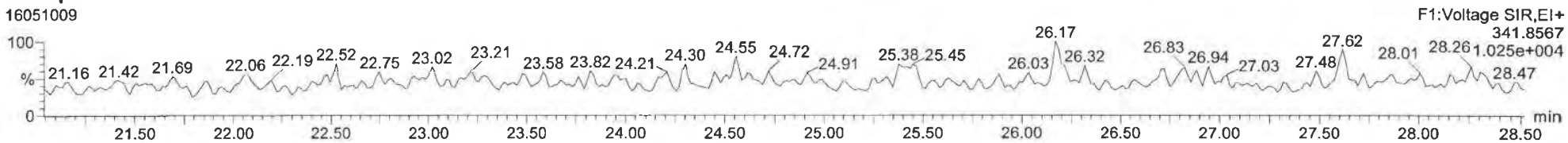


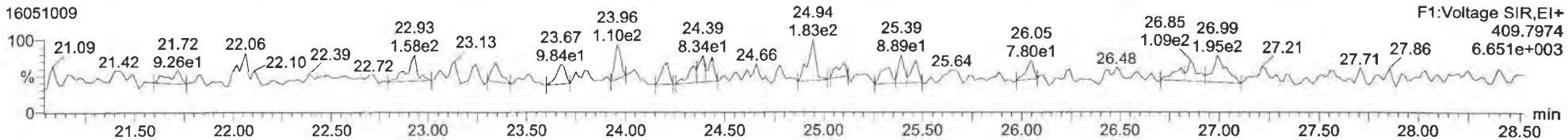
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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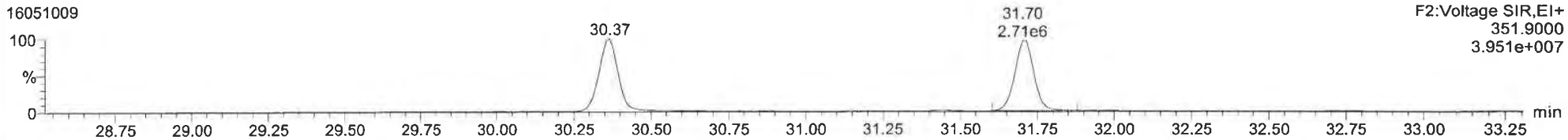
CS6AA 06/30/16

ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

13C-23478-PeCDF



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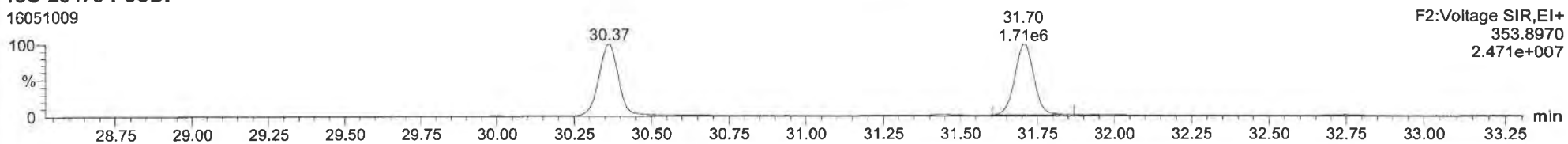
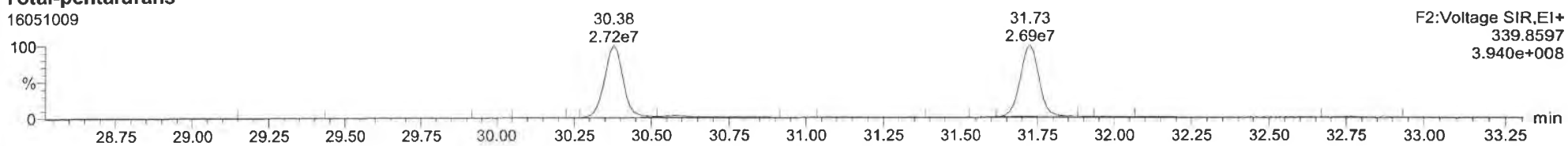
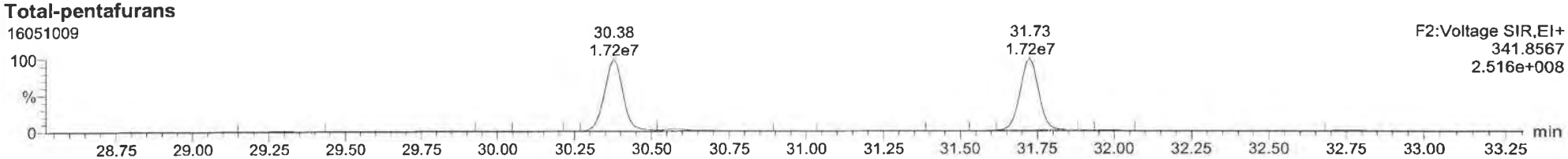


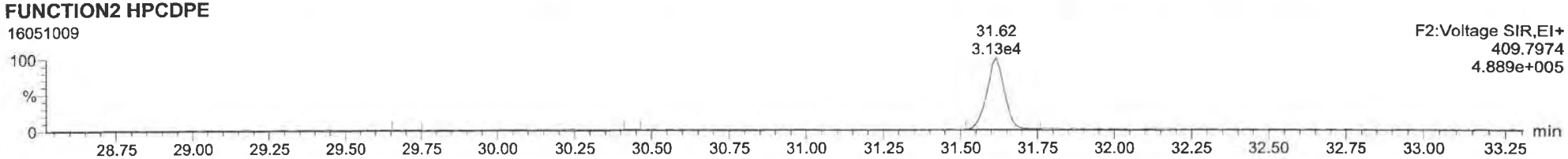
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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CS6AA 06/30/16

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13C-123478-HxCDD
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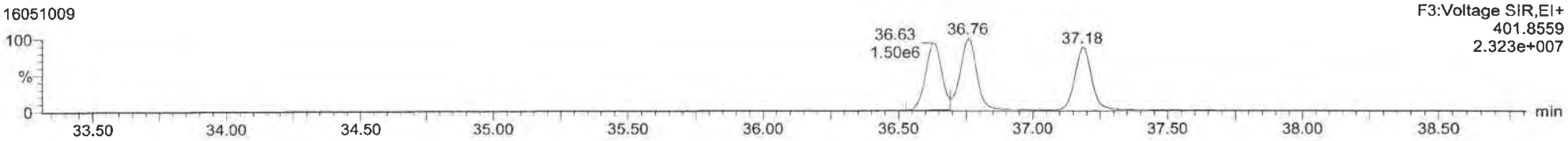
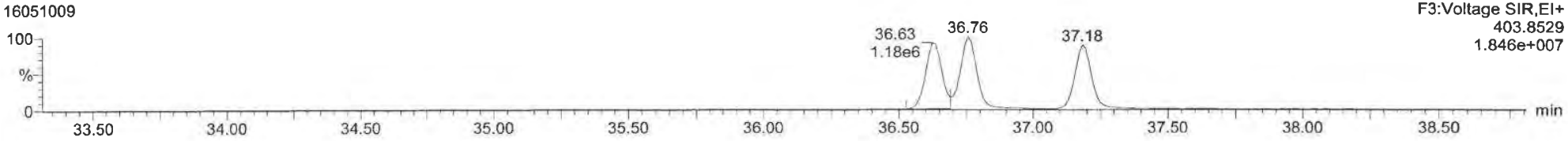


13C-123478-HxCDD
16051009



Total-hexadioxins
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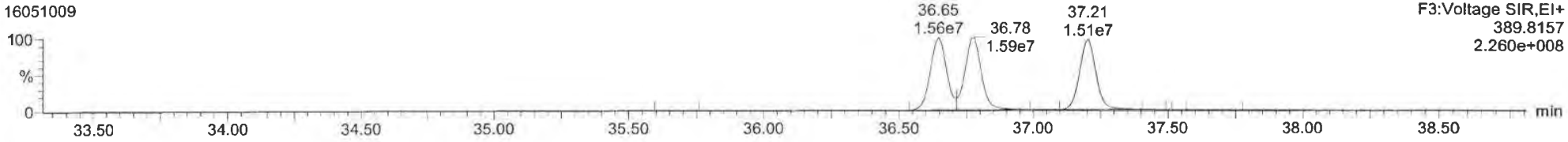
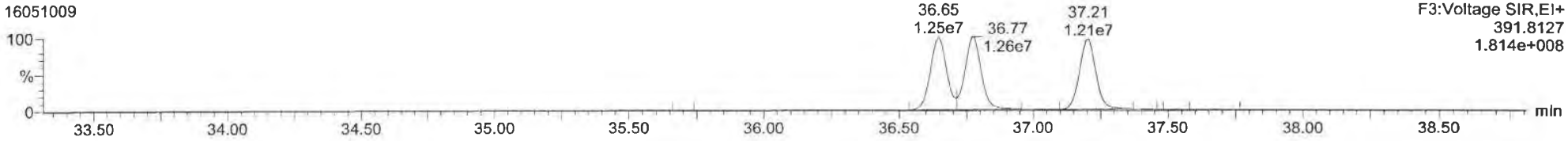
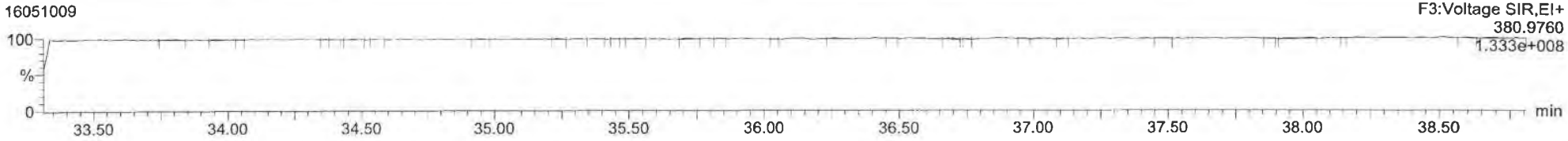


Total-hexadioxins
16051009



FUNCTION3 PFK
16051009



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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CSGAA 06/30/16

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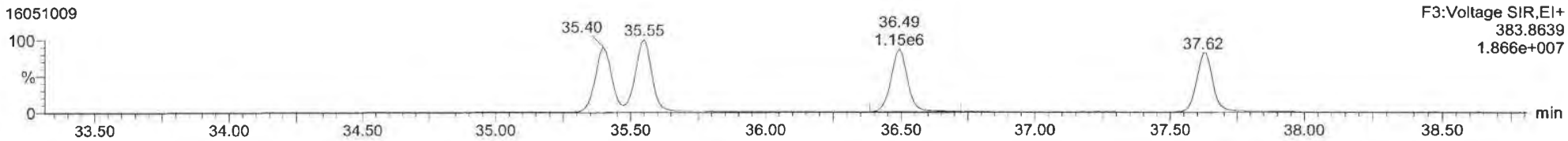
13C-234678-HxCDF



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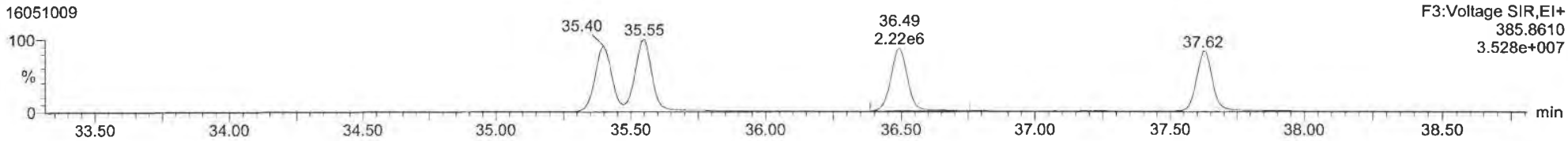
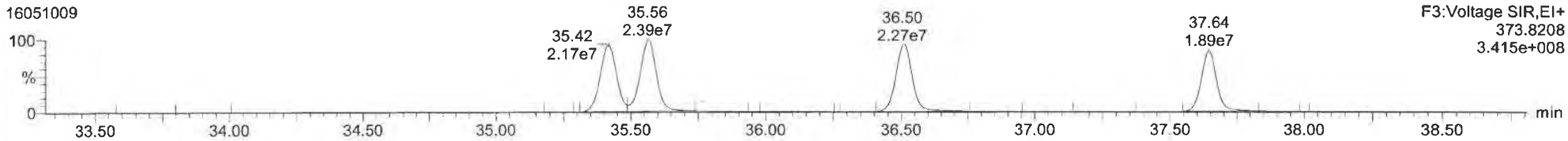
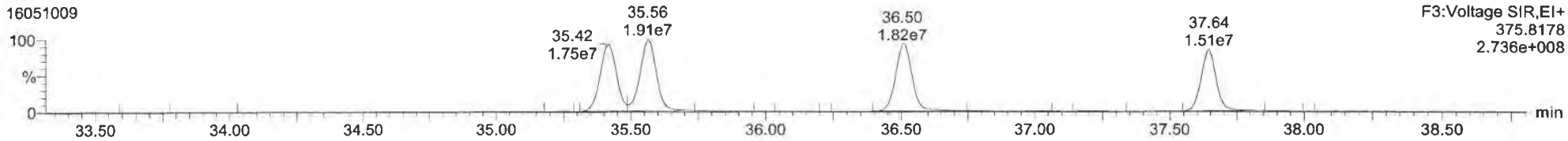


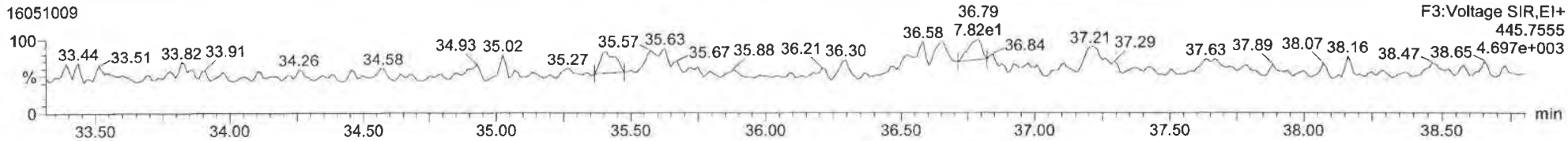
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE

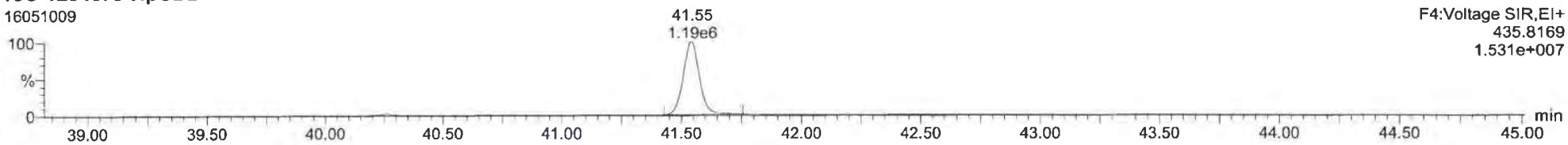


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:04 Pacific Daylight Time

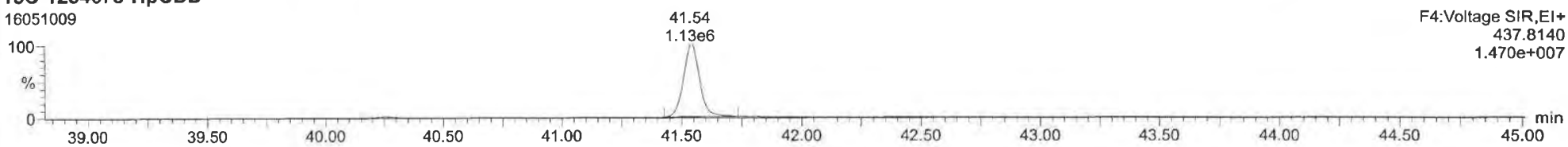
CS6AA 06/30/16

ID: ~~CS5,~~ Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

13C-1234678-HpCDD



13C-1234678-HpCDD



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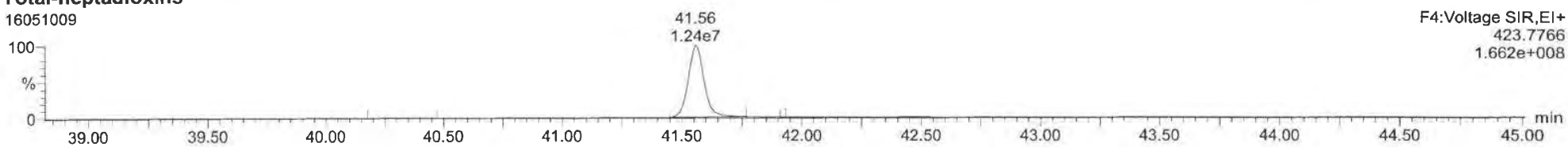
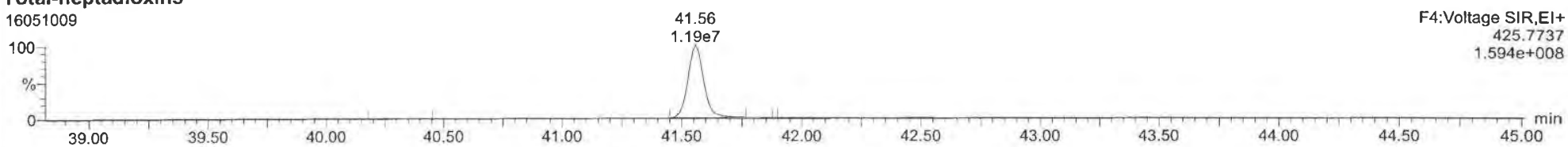
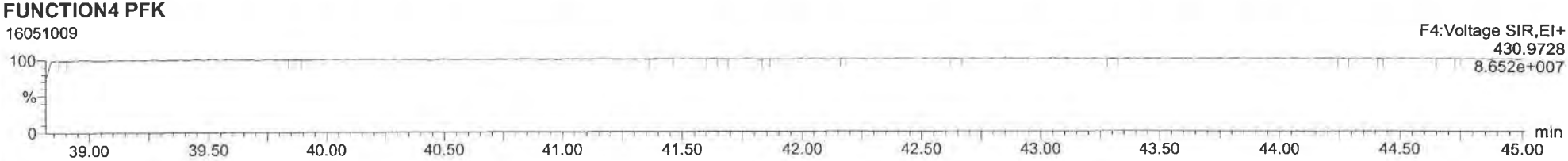


Total-heptadioxins



FUNCTION4 PFK

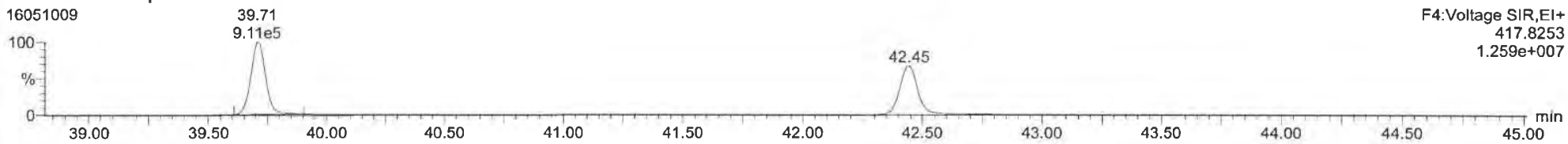


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:04 Pacific Daylight Time

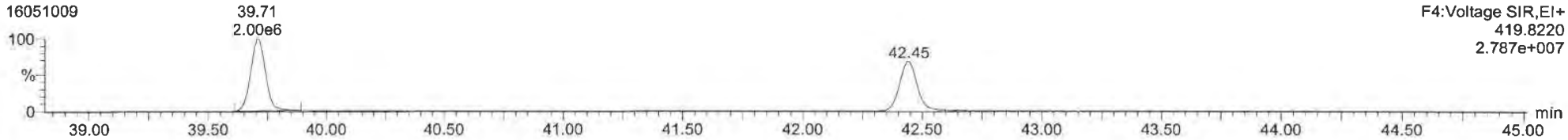
CS6AA 04/30/16

ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

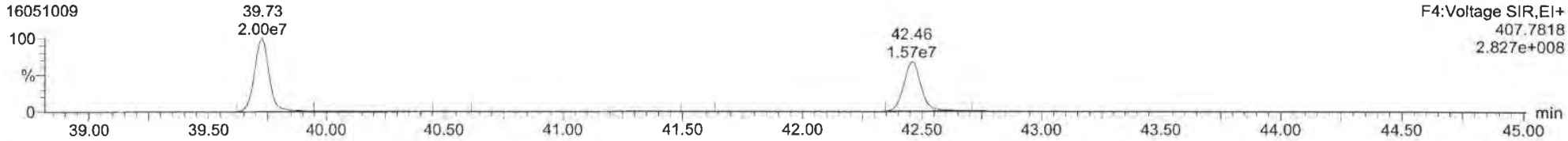
13C-1234678-HpCDF



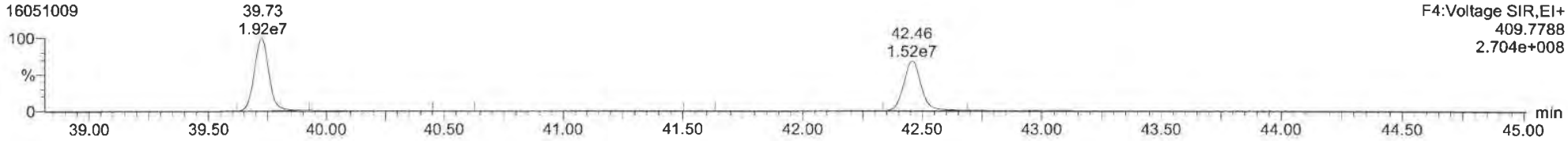
13C-1234678-HpCDF



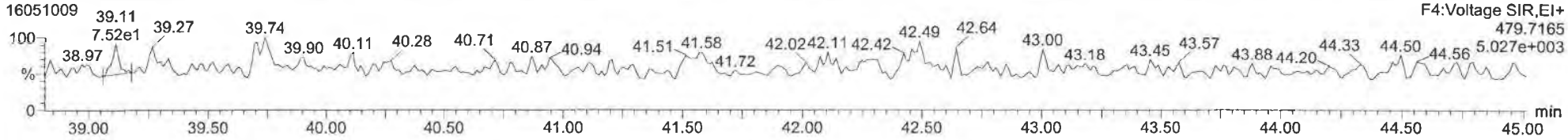
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE

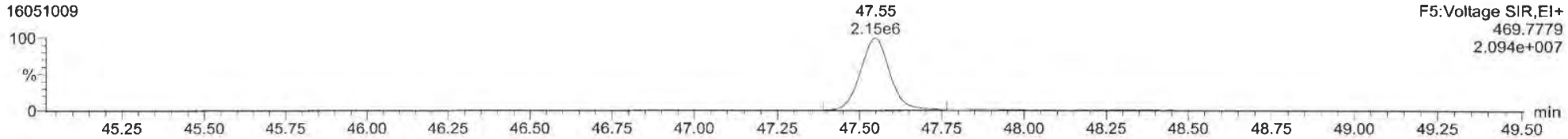


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:04 Pacific Daylight Time

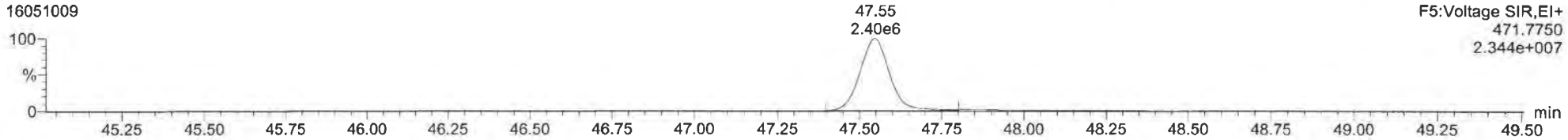
CS6A4 06/30/16

ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

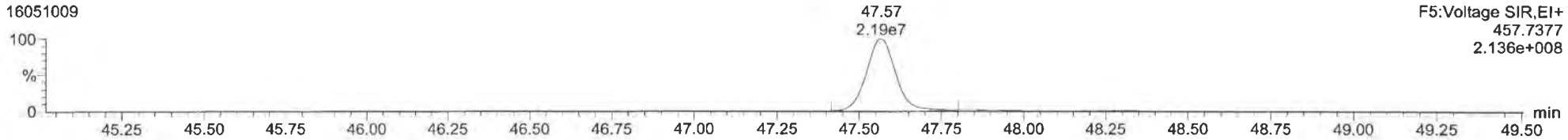
13C-OCDD
16051009



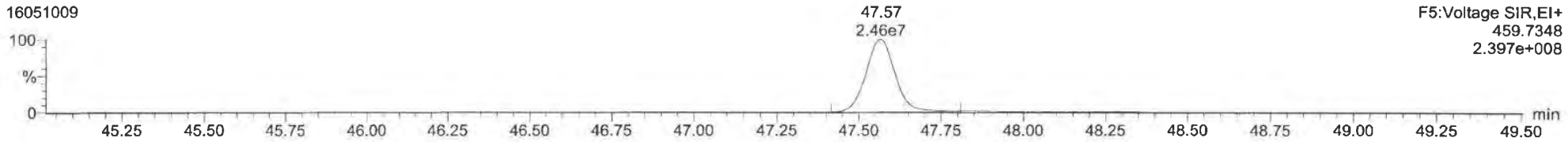
13C-OCDD
16051009



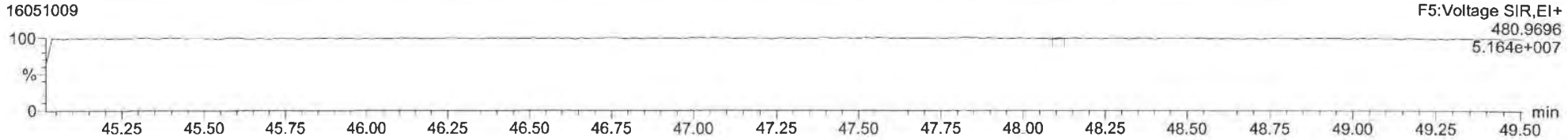
OCDD
16051009



OCDD
16051009



FUNCTION5 PFK
16051009

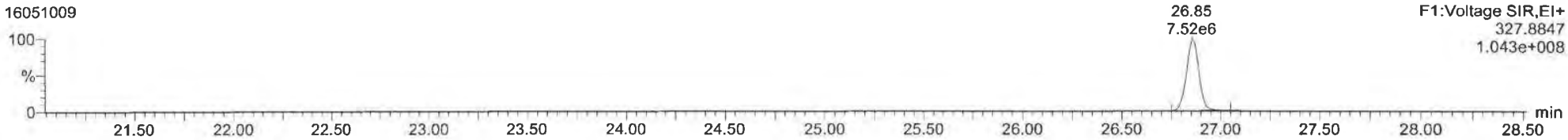


Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510IC.qld
Last Altered: Wednesday, May 11, 2016 09:28:40 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:37:04 Pacific Daylight Time

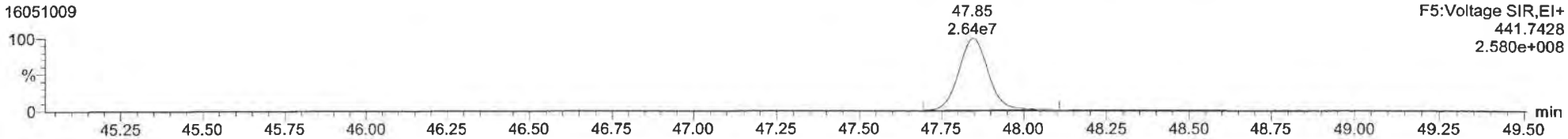
CS6AA 06/30/16

ID: ~~CS5~~, Name: 16051009, Date: 10-May-2016, Time: 18:09:09, Conditions: AUTOSPEC01, User: pk

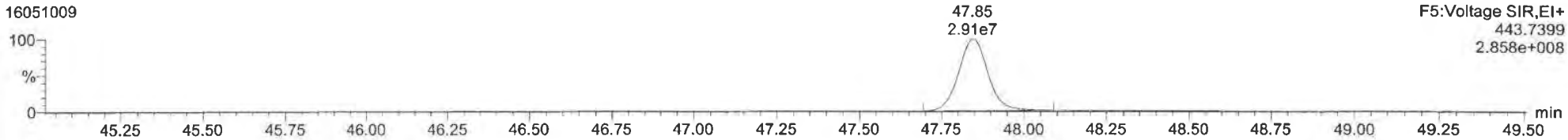
37CL-2378-TCDD



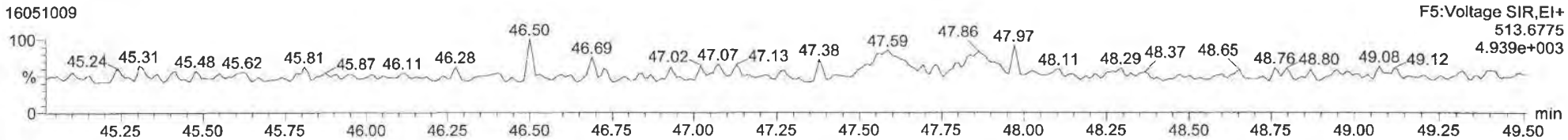
OCDF



OCDF



FUNCTION5 DCDPE



Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.pro\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
2378-TCDF	26.213	1.001	1.81e5	2.29e5	0.935	0.791	0.770	1350	2309	2.39e6	3.06e6	1769.5	NO	10.142	10.142
12378-PeCDF	30.378	1.000	1.10e6	6.88e5	0.952	1.596	1.550	4659	4072	1.44e7	9.09e6	3090.8	NO	54.644	54.644
23478-PeCDF	31.726	1.000	1.00e6	6.26e5	0.963	1.599	1.550	4659	4072	1.36e7	8.78e6	2910.7	NO	51.287	51.287
123478-HxCDF	35.419	1.001	8.23e5	6.55e5	1.137	1.257	1.240	6492	5936	1.18e7	9.28e6	1810.8	NO	54.450	54.450
234678-HxCDF	36.516	1.001	7.88e5	6.38e5	1.164	1.235	1.240	6492	5936	1.07e7	8.56e6	1649.6	NO	49.624	49.624
123678-HxCDF	35.562	1.000	9.41e5	7.32e5	1.099	1.286	1.240	6492	5936	1.20e7	9.73e6	1845.4	NO	54.220	54.220
123789-HxCDF	37.645	1.001	6.83e5	5.41e5	1.101	1.263	1.240	6492	5936	9.25e6	7.48e6	1424.6	NO	54.675	54.675
1234678-HpCDF	39.727	1.001	6.83e5	6.61e5	1.303	1.033	1.050	4432	5355	9.32e6	9.01e6	2103.2	NO	53.628	53.628
1234789-HpCDF	42.456	1.000	4.99e5	4.85e5	1.317	1.029	1.050	4432	5355	5.63e6	5.43e6	1269.8	NO	50.155	50.155
OCDF	47.837	1.006	8.03e5	8.66e5	1.166	0.928	0.890	2816	3708	7.21e6	7.81e6	2561.4	NO	115.799	115.799
2378-TCDD	26.855	1.001	1.35e5	1.72e5	1.134	0.782	0.770	1548	1493	1.76e6	2.23e6	1138.5	NO	9.199	9.199
12378-PeCDD	31.989	1.001	6.76e5	4.37e5	0.975	1.547	1.550	2037	1423	9.17e6	5.86e6	4502.9	NO	51.541	51.541
123478-HxCDD	36.647	1.000	5.48e5	4.34e5	1.031	1.262	1.240	2099	3603	7.81e6	6.25e6	3723.0	NO	52.204	52.204
123678-HxCDD	36.779	1.001	5.61e5	4.53e5	0.971	1.240	1.240	2099	3603	7.41e6	5.97e6	3530.7	NO	54.495	54.495
123789-HxCDD	37.206	1.012	5.73e5	4.53e5	0.947	1.265	1.240	2099	3603	7.53e6	6.02e6	3586.9	NO	57.915	57.915
1234678-HpCDD	41.558	1.000	4.39e5	4.25e5	1.028	1.035	1.050	3359	1973	5.28e6	5.13e6	1571.7	NO	51.725	51.725
OCDD	47.558	1.000	6.64e5	7.38e5	1.107	0.899	0.890	3202	2490	6.10e6	6.91e6	1904.9	NO	102.495	102.495
13C-2378-TCDF	26.198	1.006	1.91e6	2.42e6	1.567	0.791	0.770	9096	4889	2.55e7	3.23e7	2802.7	NO		88.412
13C-12378-PeCDF	30.367	1.166	2.11e6	1.33e6	1.274	1.585	1.550	4879	5540	2.76e7	1.74e7	5651.9	NO		86.248
13C-23478-PeCDF	31.715	1.218	2.01e6	1.28e6	1.235	1.572	1.550	4879	5540	2.71e7	1.72e7	5552.7	NO		85.315
13C-123478-HxCDF	35.398	0.952	8.19e5	1.57e6	1.381	0.522	0.510	5850	9212	1.15e7	2.22e7	1966.1	NO		90.722
13C-123678-HxCDF	35.551	0.956	9.62e5	1.85e6	1.569	0.521	0.510	5850	9212	1.28e7	2.45e7	2184.0	NO		93.830
13C-234678-HxCDF	36.494	0.981	8.61e5	1.61e6	1.345	0.535	0.510	5850	9212	1.18e7	2.17e7	2015.7	NO		96.270
13C-123789-HxCDF	37.623	1.012	7.06e5	1.33e6	1.183	0.531	0.510	5850	9212	9.64e6	1.83e7	1647.2	NO		90.193
13C-1234678-HpCDF	39.705	1.068	5.95e5	1.33e6	1.178	0.447	0.440	4153	5723	8.02e6	1.75e7	1930.0	NO		85.635
13C-1234789-HpCDF	42.445	1.141	4.57e5	1.03e6	0.878	0.443	0.440	4153	5723	5.21e6	1.17e7	1254.0	NO		88.974
13C-1234-TCDD	26.034	0.000	1.38e6	1.75e6	1.000	0.786	0.770	4051	3612	1.92e7	2.42e7	4727.7	NO		100.000
13C-2378-TCDD	26.840	1.031	1.31e6	1.64e6	0.908	0.796	0.770	4051	3612	1.74e7	2.22e7	4298.9	NO		103.822
13C-12378-PeCDD	31.967	1.228	1.35e6	8.62e5	0.756	1.569	1.550	2512	2723	1.86e7	1.18e7	7402.4	NO		93.738
13C-123478-HxCDD	36.636	0.985	1.02e6	8.06e5	1.056	1.264	1.240	5495	3465	1.43e7	1.12e7	2609.7	NO		90.649
13C-123678-HxCDD	36.757	0.989	1.07e6	8.47e5	1.163	1.261	1.240	5495	3465	1.39e7	1.11e7	2533.8	NO		86.349
13C-1234678-HpCDD	41.547	1.117	8.39e5	7.86e5	0.909	1.067	1.050	3089	3609	1.00e7	9.44e6	3241.4	NO		93.716
13C-OCDD	47.541	1.279	1.19e6	1.28e6	0.820	0.927	0.890	6012	3088	1.08e7	1.18e7	1789.8	NO		158.151

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

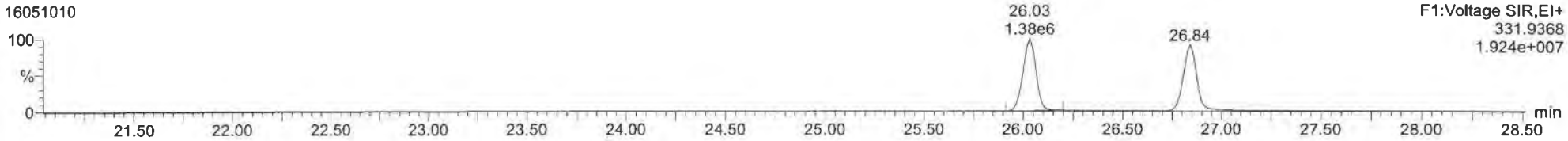
Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	EMPC	pg
13C-123789-HxCDD	37.184	0.000	1.06e6	8.48e5	1.000	1.249	1.240	5495	3465	1.45e7	1.14e7	2637.8	NO		100.000
Total-tetrafurans			1.83e5		0.935			1350		2.40e6					10.223
Total-penta1			0.00e0					1239		0.00e0					
Total-pentafurans			2.14e6		0.957			4659		2.85e7					107.913
Total-hexafurans			3.24e6		1.125			6492		4.38e7					213.320
Total-heptafurans			1.18e6		1.310			4432		1.50e7					103.878
Total-Furans			7.55e6		1.114			1350		9.69e7					551.134
Total-tetradioxins			1.35e5		1.134			1548		1.77e6					9.223
Total-pentadioxins			6.84e5		0.975			2037		9.31e6					52.165
Total-hexadioxins			1.69e6		0.983			2099		2.29e7					165.083
Total-heptadioxins			4.46e5		1.028			3359		5.36e6					52.733
Total-Dioxins			3.62e6		1.028			1548		4.54e7					381.699
Total-TEQ			1.12e7					1548		1.42e8					932.833
37CL-2378-TCDD	26.855	1.032	3.09e5		1.067			2113		4.07e6		1926.7			9.280
FUNCTION1 PFK			1.65e5					1523893		5.17e6					
FUNCTION2 PFK			1.81e5					185433		5.06e6					0.000
FUNCTION3 PFK			7.35e5					903414		1.51e7					0.000
FUNCTION4 PFK			2.04e5					510809		6.66e6					
FUNCTION5 PFK			3.02e5					385831		1.10e7					
FUNCTION1 HXCDPE			5.14e2					654		9.38e3					0.000
FUNCTION1 HPCDPE			1.65e3					1192		3.32e4					0.000
FUNCTION2 HPCDPE			7.56e2					954		1.91e4					0.000
FUNCTION3 OCDPE			0.00e0					722		0.00e0					
FUNCTION4 NCDPE			1.91e2					867		5.31e3					0.000
FUNCTION5 DCDPE			0.00e0					432		0.00e0					

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

Method: P:\DIOXIN8290.pro\MethDB\Dioxin1604143SN.mdb 14 Apr 2016 14:40:15
Calibration: P:\DIOXIN8290.pro\CurveDB\160510ICAL.cdb 11 May 2016 09:28:40

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

13C-1234-TCDD
16051010



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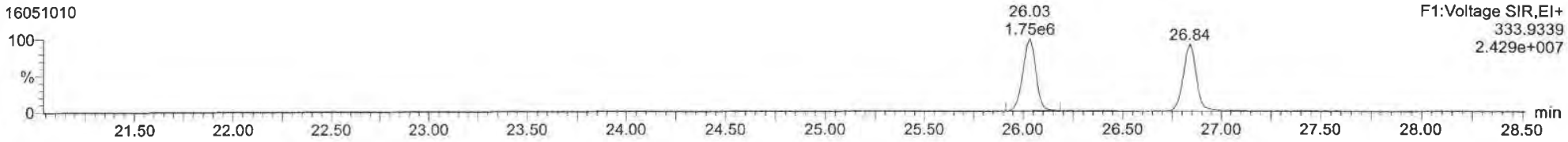
16051010



13C-123789-HxCDD
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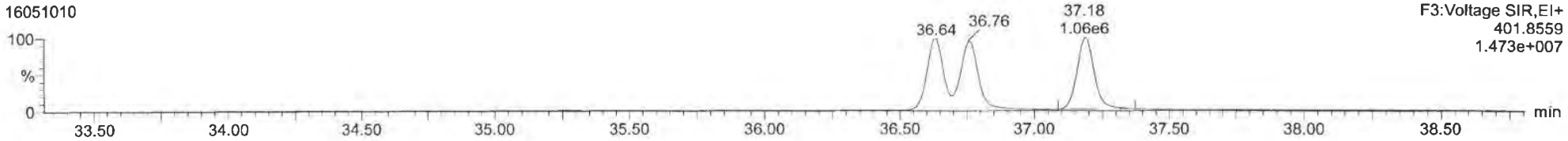
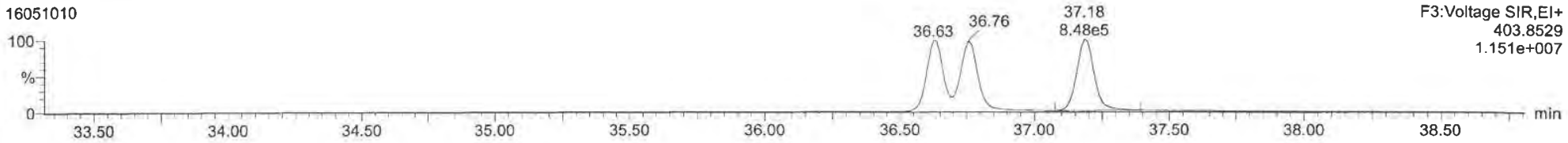


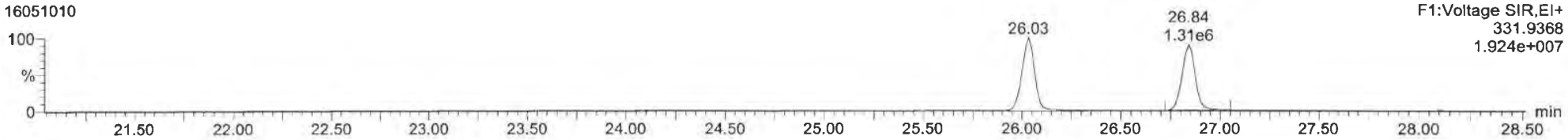
13C-123789-HxCDD
16051010



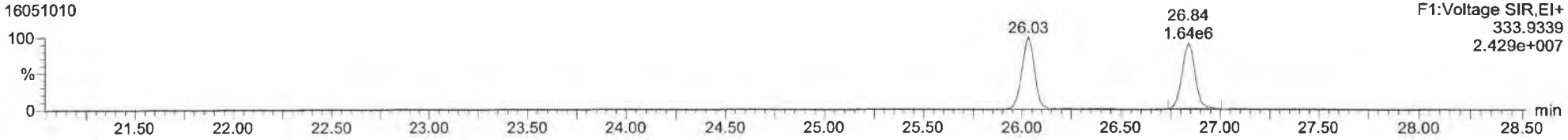
Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

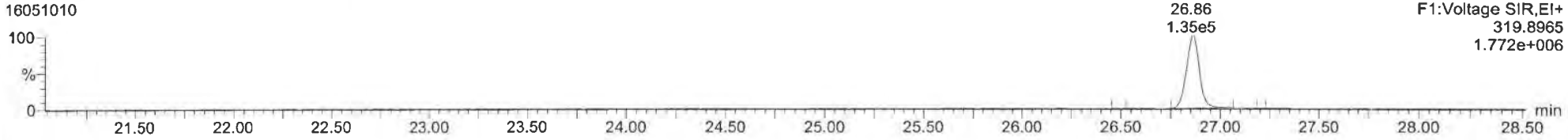
13C-2378-TCDD
16051010



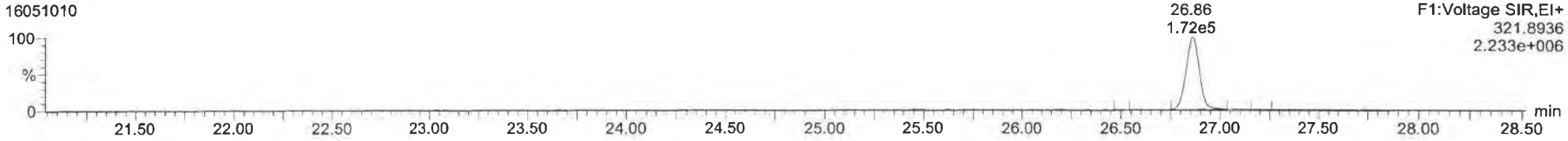
13C-2378-TCDD
16051010



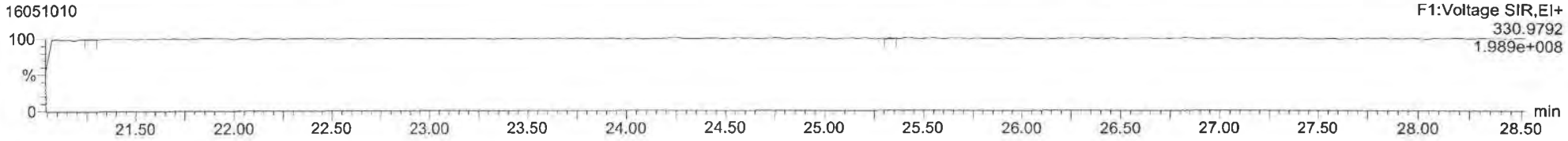
Total-tetradioxins
16051010



Total-tetradioxins
16051010



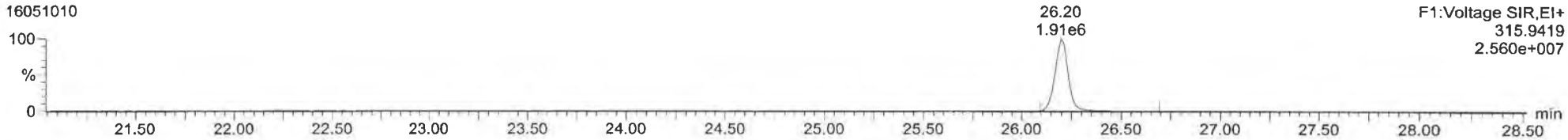
FUNCTION1 PFK
16051010



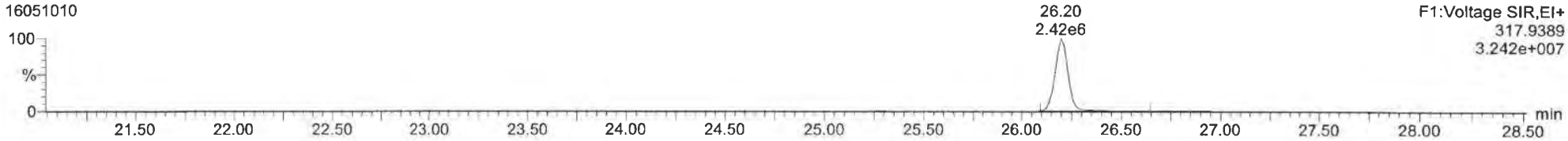
Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

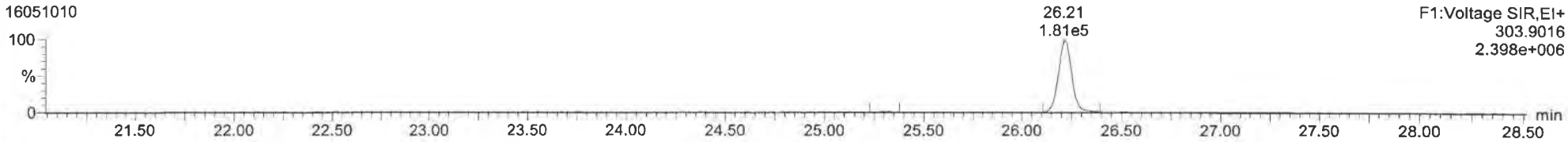
13C-2378-TCDF



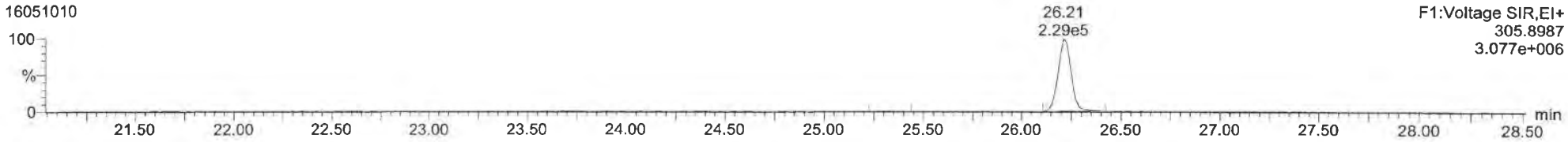
13C-2378-TCDF



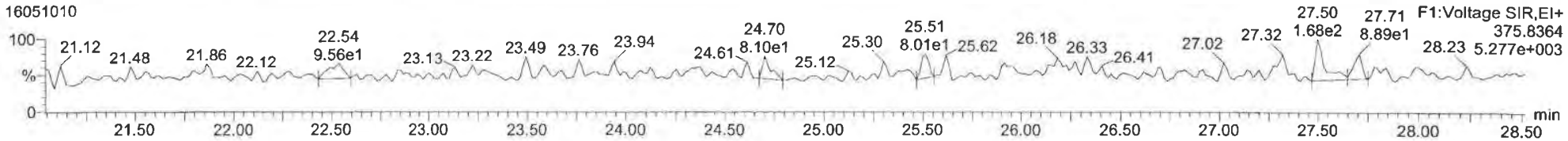
Total-tetrafurans



Total-tetrafurans



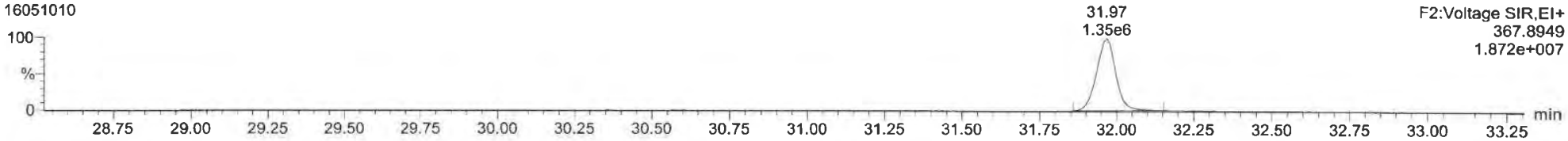
FUNCTION1 HXCDPE



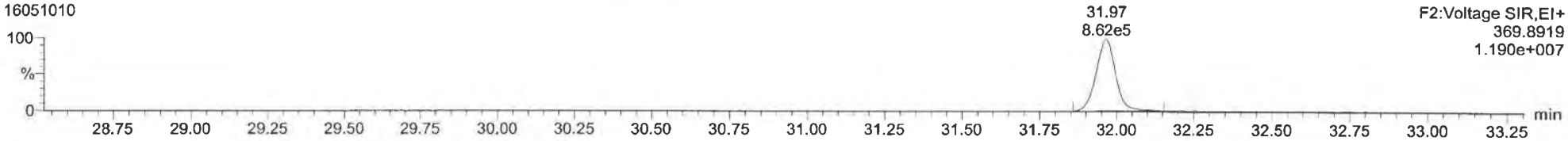
Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

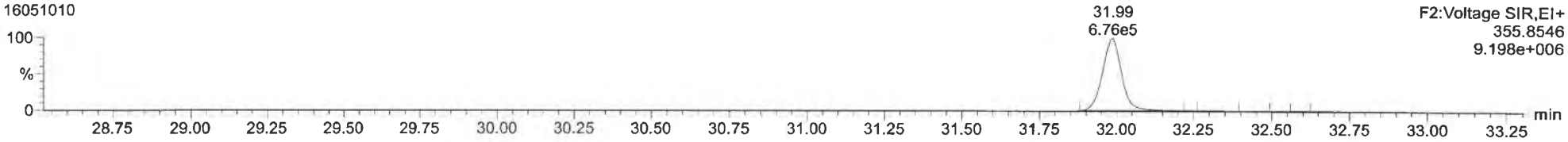
13C-12378-PeCDD



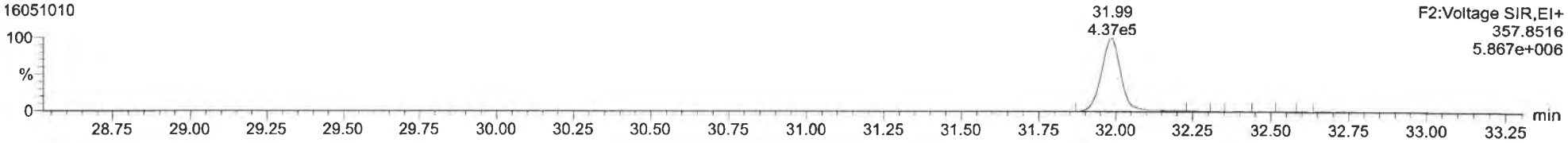
13C-12378-PeCDD



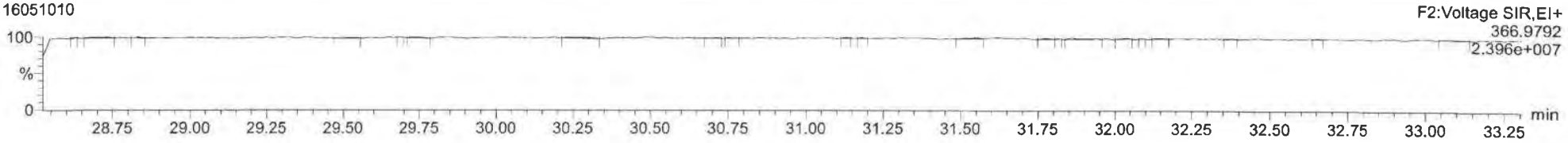
Total-pentadioxins



Total-pentadioxins



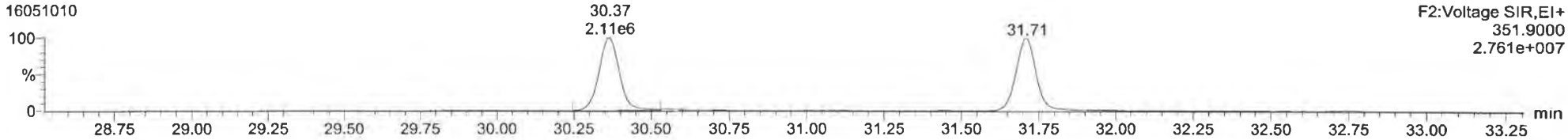
FUNCTION2 PFK



Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

13C-12378-PeCDF



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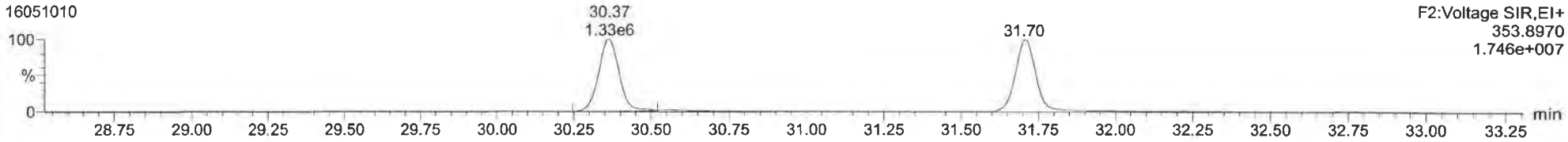
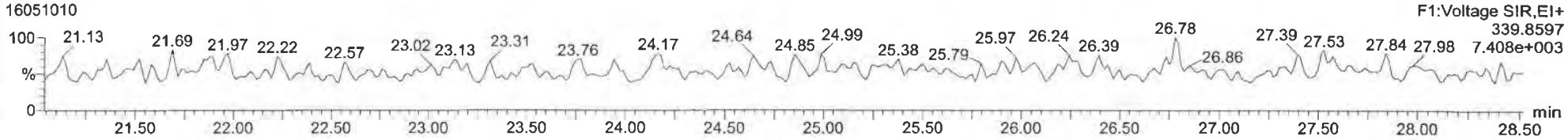
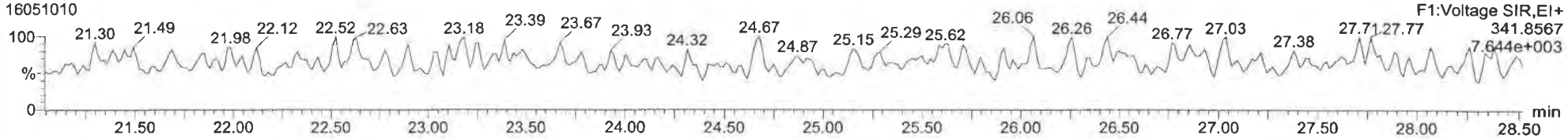


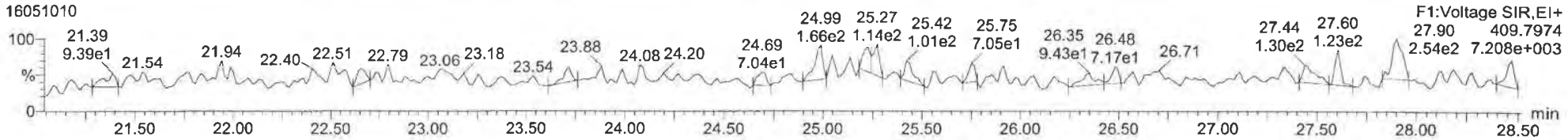
Total-penta1



Total-penta1



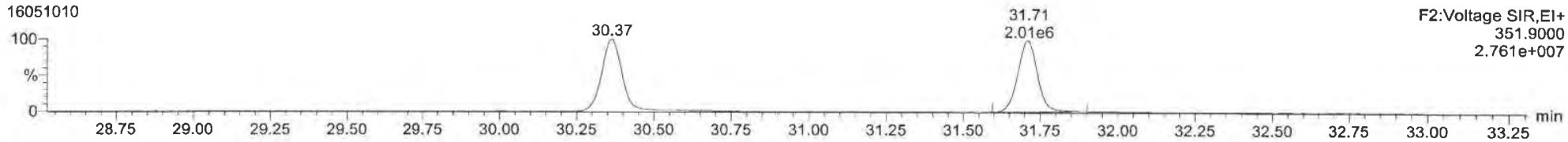
FUNCTION1 HPCDPE



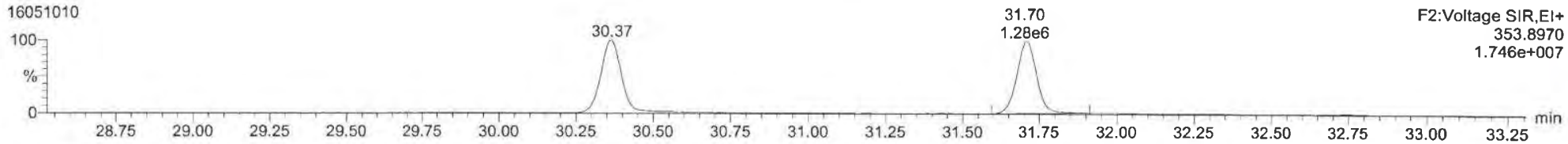
Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

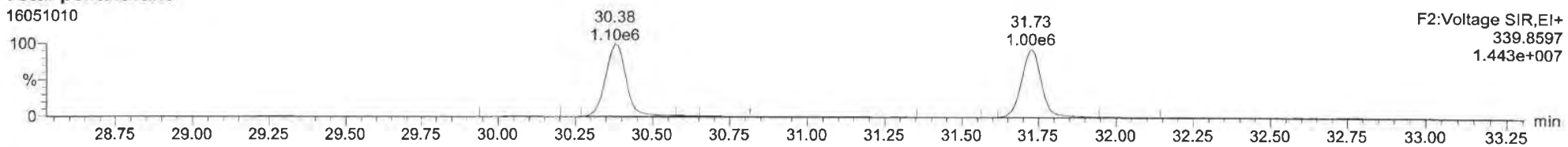
13C-23478-PeCDF



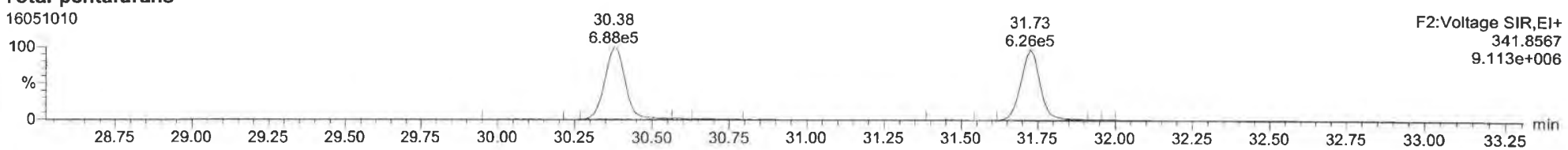
13C-23478-PeCDF



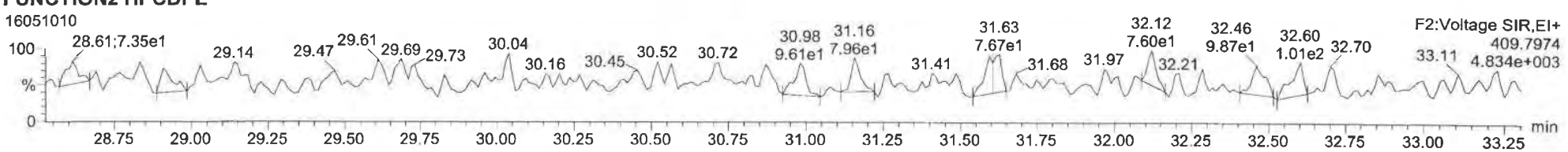
Total-pentafurans



Total-pentafurans



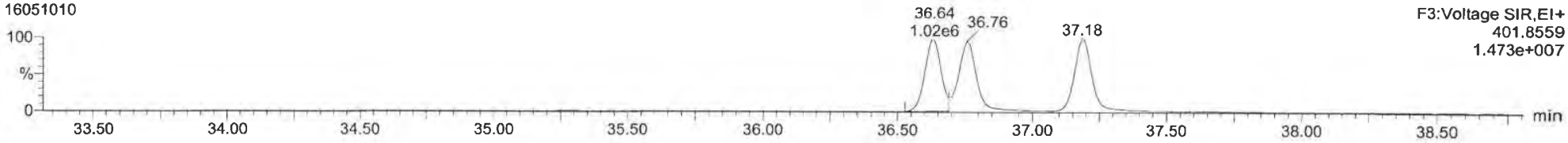
FUNCTION2 HPCDPE



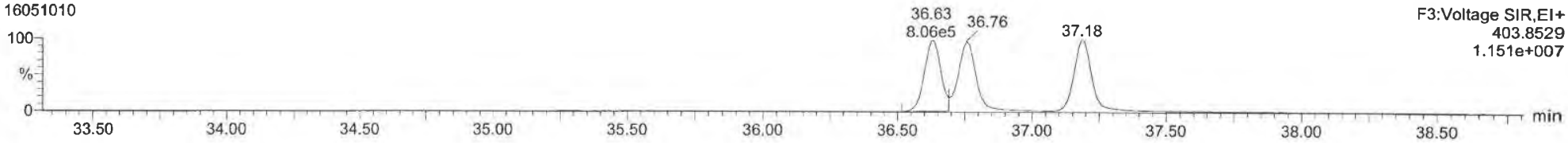
Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

13C-123478-HxCDD
16051010



13C-123478-HxCDD
16051010



Total-hexadioxins
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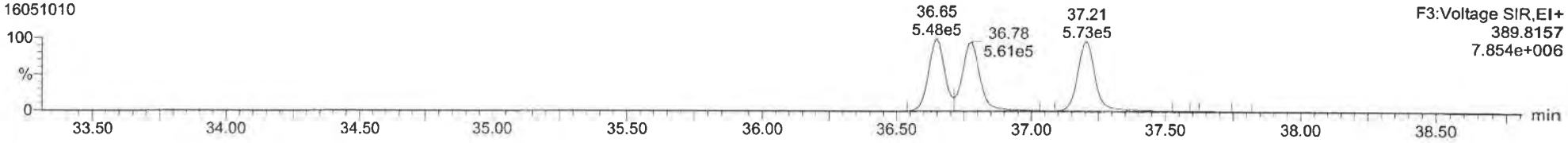
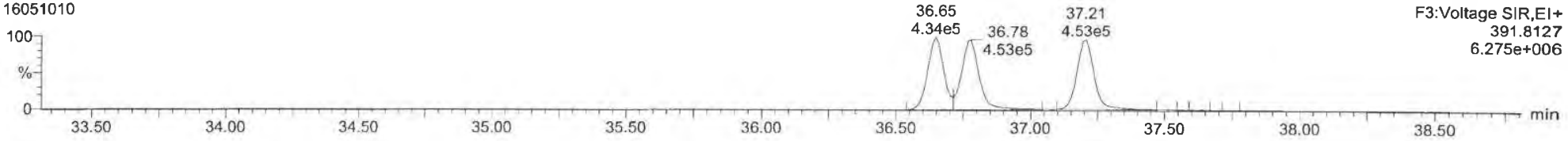
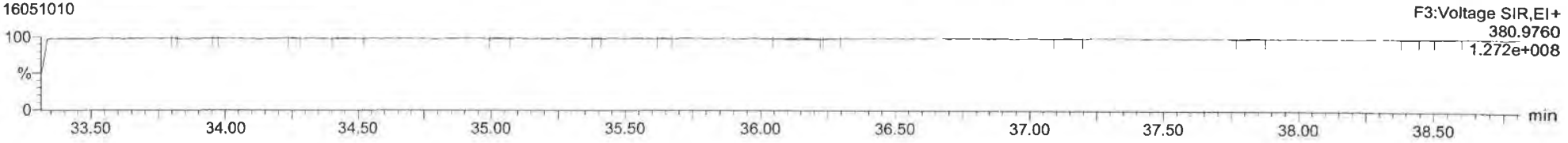


Total-hexadioxins
16051010



FUNCTION3 PFK
16051010



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
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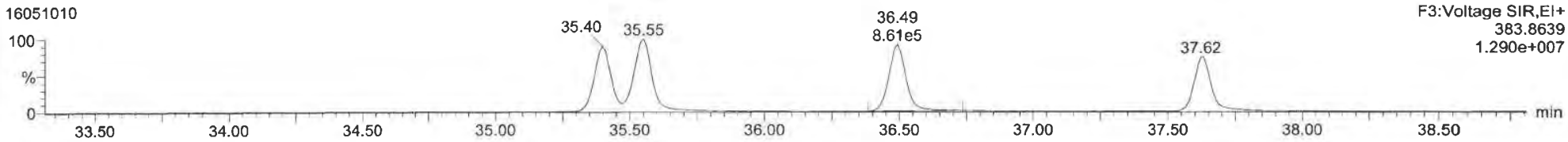
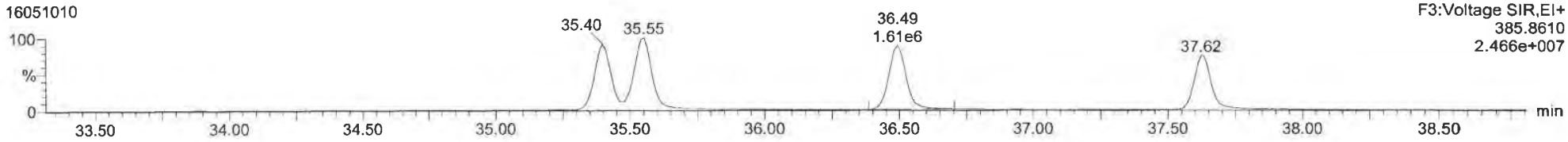
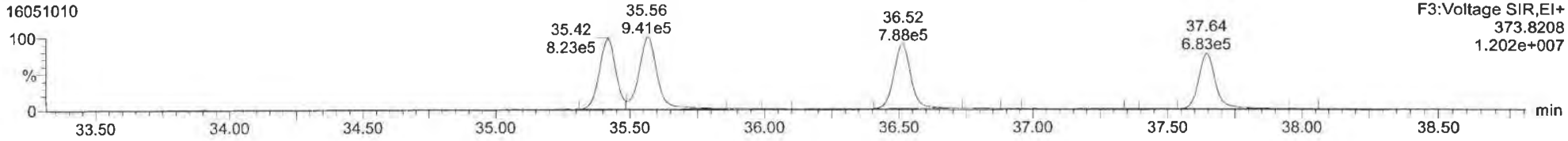
13C-234678-HxCDF



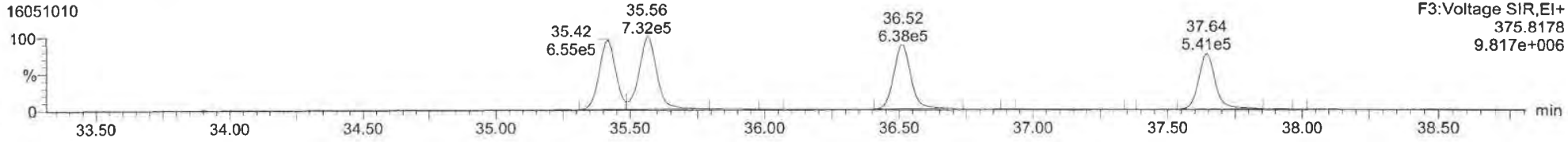
13C-234678-HxCDF



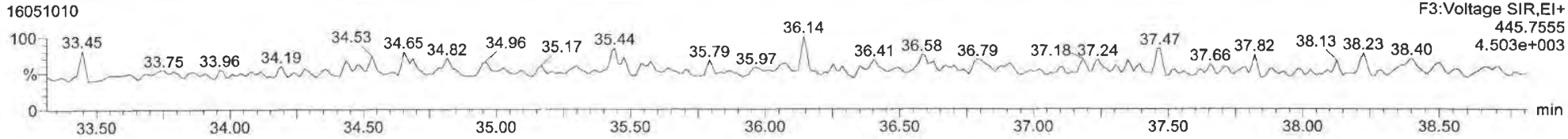
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
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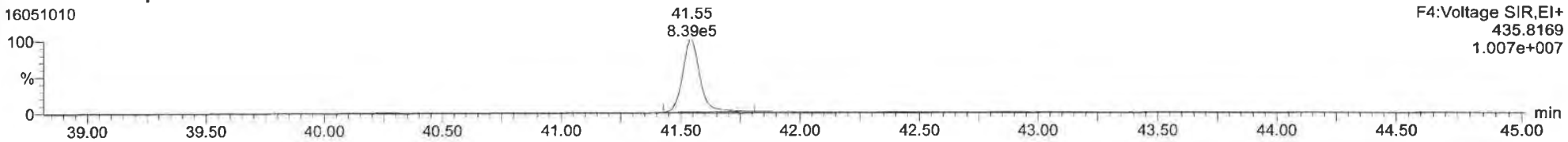
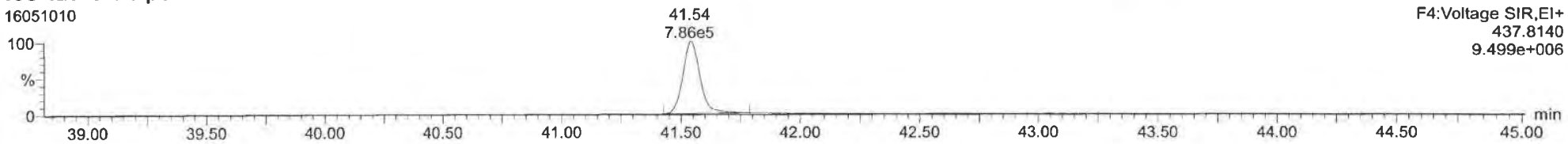
ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

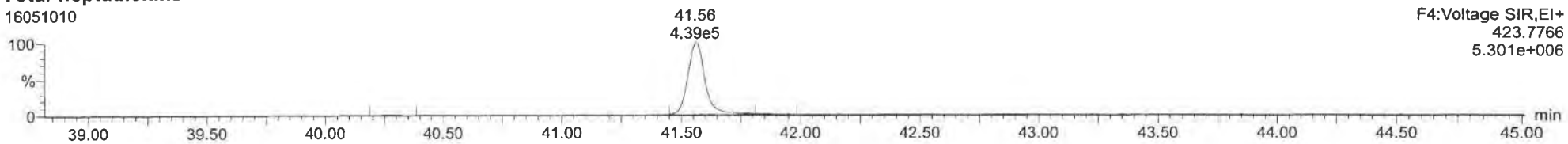
13C-1234678-HpCDD



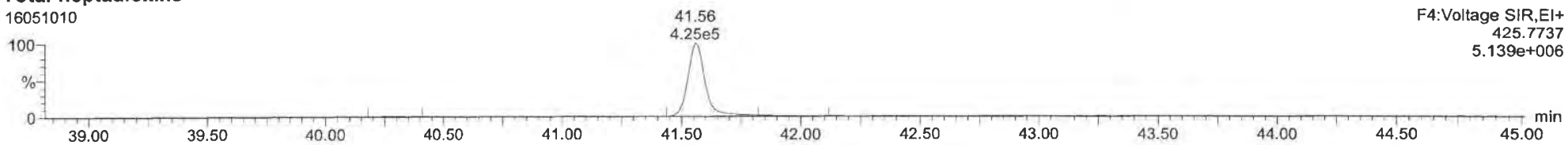
13C-1234678-HpCDD



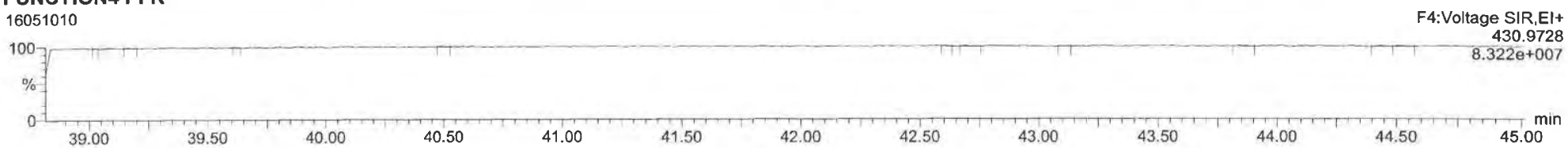
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
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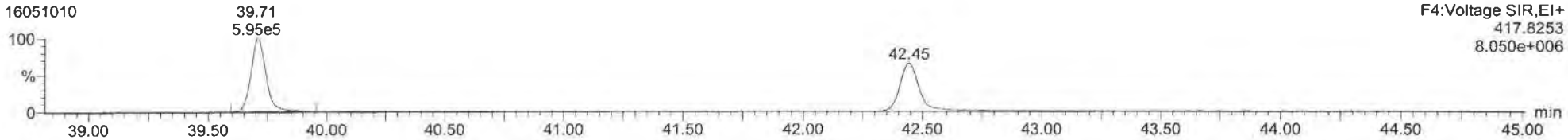
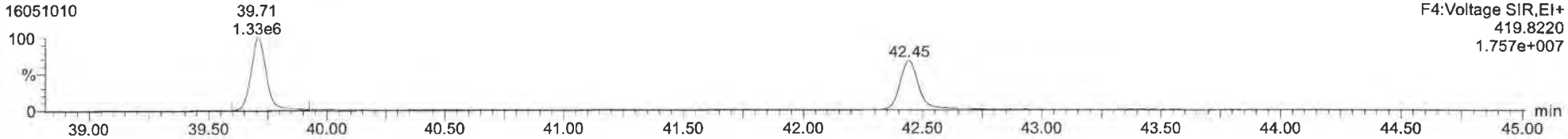
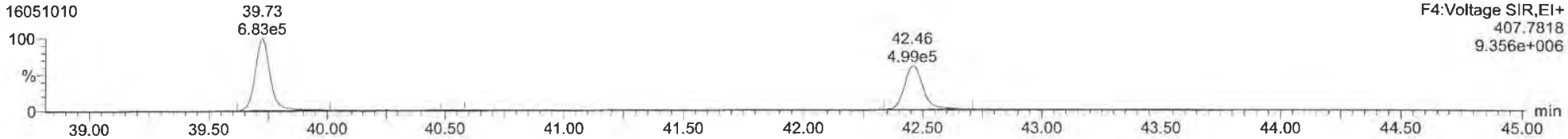
13C-1234678-HpCDF



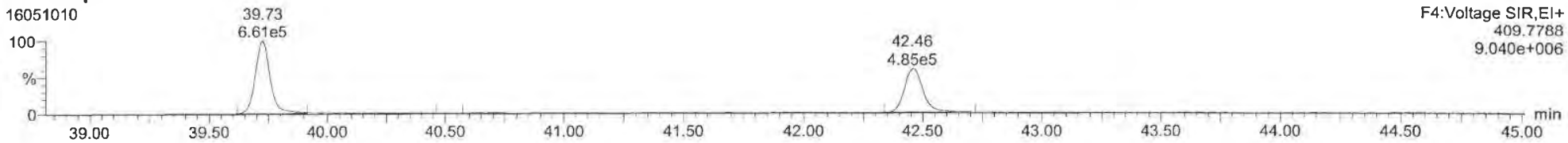
13C-1234678-HpCDF



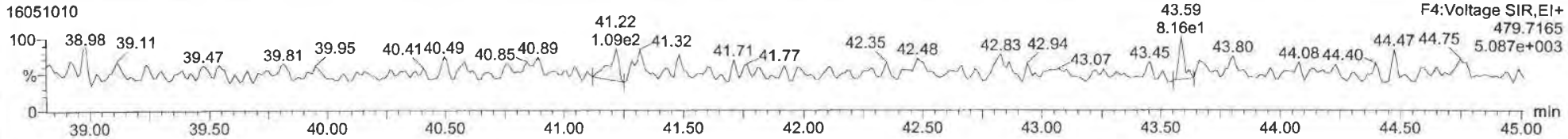
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: P:\DIOXIN8290.PRO\160510ICV.qld
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
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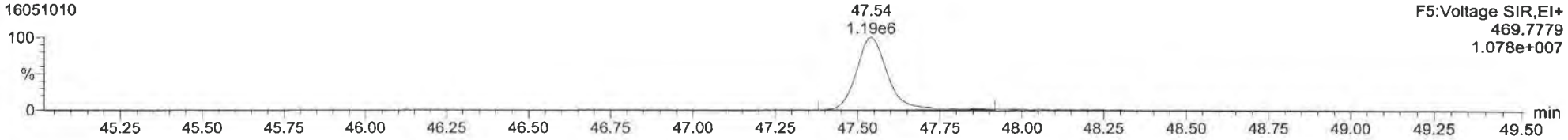
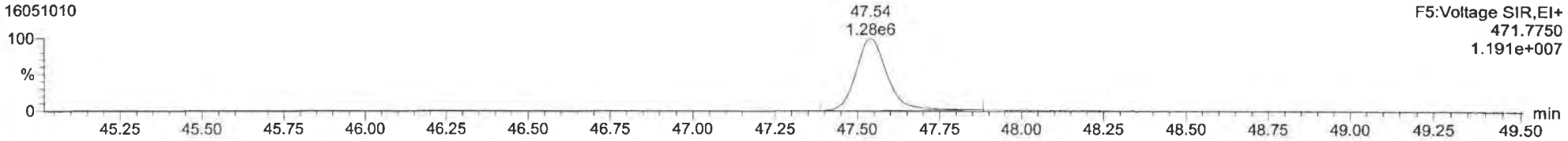
ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

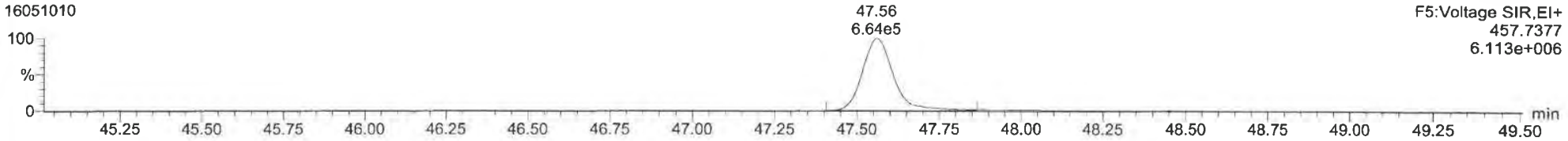
13C-OCDD
16051010



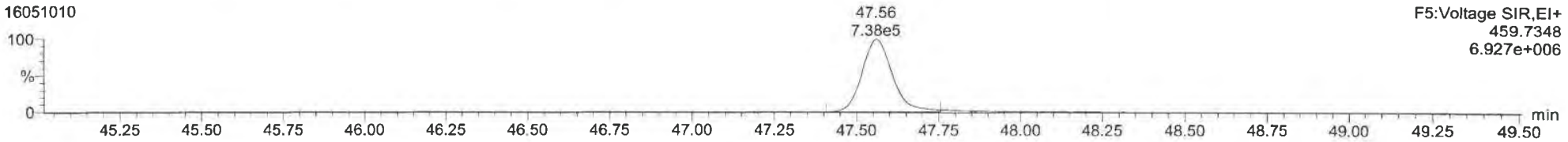
13C-OCDD
16051010



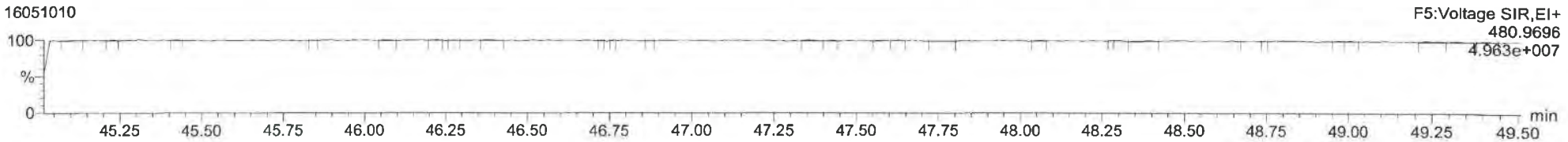
OCDD
16051010



OCDD
16051010



FUNCTION5 PFK
16051010



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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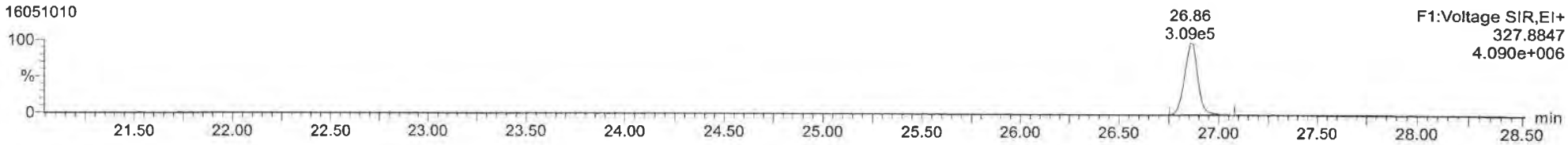
Last Altered: Thursday, May 12, 2016 14:38:04 Pacific Daylight Time
Printed: Thursday, May 12, 2016 14:39:05 Pacific Daylight Time

ID: ICV, Name: 16051010, Date: 10-May-2016, Time: 19:02:32, Conditions: AUTOSPEC01, User: pk

37CL-2378-TCDD



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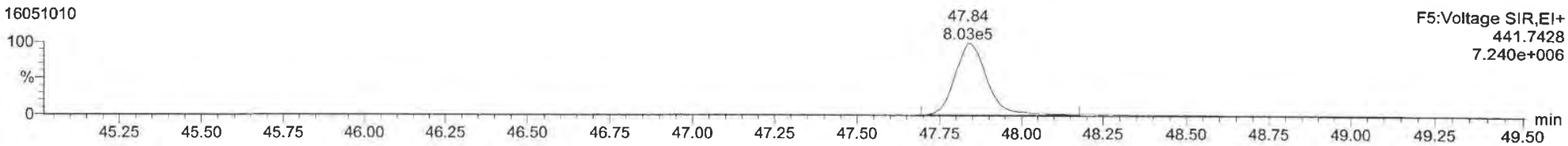

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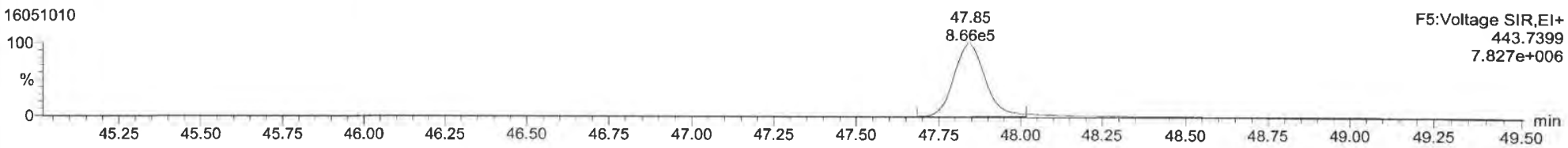
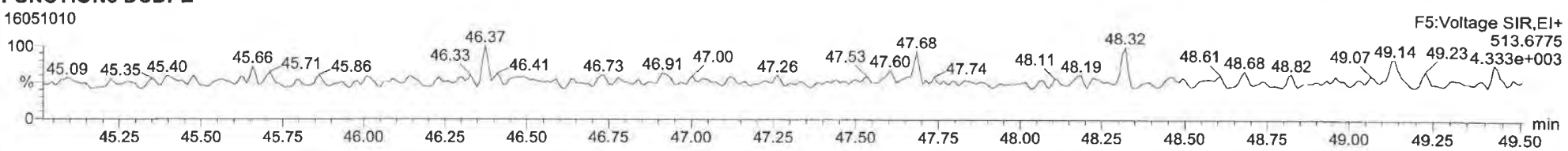


FUNCTION5 DCDPE



FORM 7A-HR

RELATIVE RESPONSE/RELATIVE RESPONSE FACTOR -CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3C1

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/09/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 12:28

Analytical Method: CDD/CDF

CL No.	Analyte Name	RR/RRF	Mean RR/RRF	% D	IAR	IAR QC Limits
4	2,3,7,8-TCDD	1.159562	1.133965	2.3	0.77	0.655-0.886
5	1,2,3,7,8-PeCDD	1.001957	0.9753974	2.7	1.51	1.318-1.783
6	1,2,3,4,7,8-HxCDD	1.025782	1.031167	-0.5	1.26	1.054-1.426
6	1,2,3,6,7,8-HxCDD	1.034549	0.9714371	6.5	1.24	1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.037485	0.9950452	4.3	1.19	1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.064644	1.028016	3.6	1.03	0.893-1.208
8	OCDD	1.054806	1.107021	-4.7	0.90	0.757-1.024
4	2,3,7,8-TCDF	0.969359	0.9347915	3.7	0.80	0.655-0.886
5	1,2,3,7,8-PeCDF	0.9338068	0.9519161	-1.9	1.54	1.318-1.783
5	2,3,4,7,8-PeCDF	0.989457	0.9629117	2.8	1.54	1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.164937	1.136547	2.5	1.24	1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.067707	1.098742	-2.8	1.24	1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.104741	1.100821	0.4	1.27	1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.180791	1.163504	1.5	1.23	1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	1.238564	1.302789	-4.9	1.02	0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.30608	1.317361	-0.9	1.03	0.893-1.208
8	OCDF	1.223137	1.165807	4.9	0.88	0.757-1.024
4	13C12-2,3,7,8-TCDF	1	1.567419	-36.2	0.78	0.655-0.886
4	13C12-2,3,7,8-TCDD	1	0.9077481	10.2	0.79	0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1	1.274097	-21.5	1.59	1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1	1.234626	-19.0	1.58	1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1	0.7557554	32.3	1.55	1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	1	1.380919	-27.6	0.52	0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	1	1.569453	-36.3	0.52	0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	1	1.34533	-25.7	0.53	0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	1	1.182895	-15.5	0.53	0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1	1.055904	-5.3	1.34	1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1	1.163036	-14.0	1.23	1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	1	1.178362	-15.1	0.46	0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	1	0.8777992	13.9	0.45	0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1	0.9091061	10.0	1.05	0.893-1.208
8	13C12-OCDD	1	0.8195753	22.0	0.92	0.757-1.024
4	37C14-2,3,7,8-TCDD	1.156516	1.066558	8.4		N/A
4	13C12-1,2,3,4-TCDD	24589.73	1	458,873	0.79	0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	20973.28	1	097,228	1.26	1.05-1.43

FORM 7B-HR
RELATIVE RETENTION TIME CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3C1

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/09/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 12:28

Analytical Method: CDD/CDF

CL No.	Analyte Name	Mean RRT	RRT	RRT QC Limits
4	2,3,7,8-TCDD	0.8331	1.0006	0.999-1.002
5	1,2,3,7,8-PeCDD	0.9997	1.0004	0.999-1.002
6	1,2,3,4,7,8-HxCDD	0.9999	1.0003	0.999-1.001
6	1,2,3,6,7,8-HxCDD	0.9999	1.0006	0.998-1.004
6	1,2,3,7,8,9-HxCDD	0.9999	1.0159	1.000-1.019
7	1,2,3,4,6,7,8-HpCDD	1.0000	1.0005	0.999-1.001
8	OCDD	0.9998	1.0004	0.999-1.001
4	2,3,7,8-TCDF	0.8330	1.0012	0.999-1.003
5	1,2,3,7,8-PeCDF	0.9997	1.0004	0.999-1.002
5	2,3,4,7,8-PeCDF	0.9997	1.0004	0.999-1.002
6	1,2,3,4,7,8-HxCDF	0.9999	1.0006	0.999-1.001
6	1,2,3,6,7,8-HxCDF	0.9997	1.0003	0.997-1.005
6	1,2,3,7,8,9-HxCDF	0.9999	1.0003	0.999-1.001
6	2,3,4,6,7,8-HxCDF	0.9998	1.0006	0.999-1.001
7	1,2,3,4,6,7,8-HpCDF	0.9999	1.0003	0.999-1.001
7	1,2,3,4,7,8,9-HpCDF	1.0000	1.0005	0.999-1.001
8	OCDF	0.9998	1.0062	0.999-1.008
4	13C12-2,3,7,8-TCDF	0.9995	1.0065	0.923-1.103
4	13C12-2,3,7,8-TCDD	0.9995	1.0318	0.976-1.043
5	13C12-1,2,3,7,8-PeCDF	0.9999	1.1694	1.000-1.425
5	13C12-2,3,4,7,8-PeCDF	0.9998	1.2225	1.011-1.526
5	13C12-1,2,3,7,8-PeCDD	0.9995	1.2325	1.000-1.567
6	13C12-1,2,3,4,7,8-HxCDF	0.9997	0.9510	0.944-0.970
6	13C12-1,2,3,6,7,8-HxCDF	0.9998	0.9552	0.949-0.975
6	13C12-2,3,4,6,7,8-HxCDF	0.9999	0.9811	0.959-1.021
6	13C12-1,2,3,7,8,9-HxCDF	1.0000	1.0126	0.977-1.047
6	13C12-1,2,3,4,7,8-HxCDD	0.9998	0.9850	0.977-1.000
6	13C12-1,2,3,6,7,8-HxCDD	0.9999	0.9883	0.981-1.003
7	13C12-1,2,3,4,6,7,8-HpCDF	1.0000	1.0691	1.043-1.085
7	13C12-1,2,3,4,7,8,9-HpCDF	0.9999	1.1407	1.057-1.151
7	13C12-1,2,3,4,6,7,8-HpCDD	1.0001	1.1172	1.086-1.110
8	13C12-OCDD	1.0000	1.2734	1.032-1.311
4	37C14-2,3,7,8-TCDD	0.9995	1.0324	0.989-1.052
4	13C12-1,2,3,4-TCDD	0.9995	1.0000	
6	13C12-1,2,3,7,8,9-HxCDD	1.0000	1.0000	

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161109OPEN.qld
Last Altered: Wednesday, November 09, 2016 14:17:13 Pacific Standard Time
Printed: Wednesday, November 09, 2016 14:18:41 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3C1, Name: 16110902, Date: 09-Nov-2016, Time: 12:28:50, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.570	1.001	1.77e5	2.20e5	0.935	0.804	0.770	2296	2866	2.44e6	3.07e6	1064.3	NO	10.370
12378-PeCDF	29.686	1.000	9.87e5	6.43e5	0.952	1.535	1.550	4763	2768	1.43e7	9.54e6	3008.9	NO	49.049
23478-PeCDF	31.034	1.000	1.08e6	6.97e5	0.963	1.545	1.550	4763	2768	1.62e7	1.05e7	3408.0	NO	51.378
123478-HxCDF	34.706	1.001	9.03e5	7.31e5	1.137	1.236	1.240	4556	4677	1.34e7	1.08e7	2937.0	NO	51.249
234678-HxCDF	35.802	1.001	8.99e5	7.31e5	1.164	1.231	1.240	4556	4677	1.32e7	1.06e7	2893.9	NO	50.743
123678-HxCDF	34.849	1.000	9.25e5	7.44e5	1.099	1.245	1.240	4556	4677	1.32e7	1.07e7	2899.9	NO	48.588
123789-HxCDF	36.942	1.000	7.96e5	6.26e5	1.101	1.271	1.240	4556	4677	1.14e7	9.09e6	2494.5	NO	50.178
1234678-HpCDF	39.003	1.000	7.78e5	7.63e5	1.303	1.020	1.050	3448	3069	1.17e7	1.15e7	3392.7	NO	47.535
1234789-HpCDF	41.623	1.001	6.87e5	6.65e5	1.317	1.033	1.050	3448	3069	8.64e6	8.37e6	2504.6	NO	49.572
OCDF	46.731	1.006	1.09e6	1.24e6	1.166	0.880	0.890	2904	3862	1.13e7	1.25e7	3878.4	NO	104.918
2378-TCDD	26.198	1.001	1.16e5	1.51e5	1.134	0.768	0.770	2323	1733	1.67e6	2.16e6	720.8	NO	10.226
12378-PeCDD	31.286	1.000	6.37e5	4.21e5	0.975	1.513	1.550	4128	2055	9.40e6	6.20e6	2278.3	NO	51.361
123478-HxCDD	35.934	1.000	6.27e5	4.97e5	1.031	1.262	1.240	3448	5033	9.55e6	7.59e6	2768.5	NO	49.739
123678-HxCDD	36.065	1.001	6.61e5	5.33e5	0.971	1.241	1.240	3448	5033	9.54e6	7.67e6	2767.5	NO	53.248
123789-HxCDD	36.493	1.012	6.18e5	5.19e5	0.947	1.191	1.240	3448	5033	8.92e6	7.38e6	2586.5	NO	53.392
1234678-HpCDD	40.768	1.001	5.57e5	5.40e5	1.028	1.030	1.050	4464	3135	7.45e6	7.21e6	1668.7	NO	51.781
OCDD	46.461	1.000	9.54e5	1.06e6	1.107	0.899	0.890	3161	3345	9.72e6	1.11e7	3075.2	NO	95.283
13C-2378-TCDF	25.541	1.006	1.79e6	2.30e6	1.567	0.779	0.770	7663	4755	2.56e7	3.27e7	3336.1	NO	106.033
13C-12378-PeCDF	29.675	1.169	2.14e6	1.35e6	1.274	1.588	1.550	3211	4262	3.15e7	1.98e7	9804.4	NO	111.454
13C-23478-PeCDF	31.023	1.223	2.19e6	1.39e6	1.235	1.581	1.550	3211	4262	3.27e7	2.09e7	10183.4	NO	118.034
13C-123478-HxCDF	34.684	0.951	9.54e5	1.85e6	1.381	0.516	0.510	3864	5383	1.41e7	2.73e7	3650.3	NO	96.828
13C-123678-HxCDF	34.838	0.955	1.07e6	2.05e6	1.569	0.524	0.510	3864	5383	1.50e7	2.84e7	3878.4	NO	94.979
13C-234678-HxCDF	35.780	0.981	9.57e5	1.80e6	1.345	0.531	0.510	3864	5383	1.40e7	2.67e7	3626.6	NO	97.821
13C-123789-HxCDF	36.931	1.013	8.87e5	1.69e6	1.183	0.526	0.510	3864	5383	1.27e7	2.39e7	3279.2	NO	103.760
13C-1234678-HpCDF	38.992	1.069	7.89e5	1.70e6	1.178	0.465	0.440	3141	4310	1.14e7	2.51e7	3639.7	NO	100.646
13C-1234789-HpCDF	41.600	1.141	6.43e5	1.43e6	0.878	0.451	0.440	3141	4310	8.18e6	1.80e7	2604.1	NO	112.395
13C-1234-TCDD	25.376	0.000	1.09e6	1.37e6	1.000	0.792	0.770	4184	1995	1.62e7	2.02e7	3860.2	NO	100.000
13C-2378-TCDD	26.183	1.032	1.01e6	1.29e6	0.908	0.786	0.770	4184	1995	1.47e7	1.83e7	3513.9	NO	103.287
13C-12378-PeCDD	31.275	1.232	1.28e6	8.28e5	0.756	1.550	1.550	2414	1295	1.87e7	1.18e7	7750.9	NO	113.611
13C-123478-HxCDD	35.923	0.985	1.25e6	9.38e5	1.056	1.336	1.240	3844	3375	1.88e7	1.43e7	4900.2	NO	98.969
13C-123678-HxCDD	36.043	0.988	1.27e6	1.03e6	1.163	1.229	1.240	3844	3375	1.86e7	1.50e7	4851.3	NO	94.568
13C-1234678-HpCDD	40.745	1.117	1.06e6	1.01e6	0.909	1.048	1.050	3325	2948	1.44e7	1.37e7	4330.8	NO	108.114
13C-OCDD	46.444	1.273	1.83e6	2.00e6	0.820	0.916	0.890	3177	3876	1.87e7	2.05e7	5883.0	NO	222.372

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161109OPEN.qld
Last Altered: Wednesday, November 09, 2016 14:17:13 Pacific Standard Time
Printed: Wednesday, November 09, 2016 14:18:41 Pacific Standard Time

ID: CS3C1, Name: 16110902, Date: 09-Nov-2016, Time: 12:28:50, Conditions: AUTOSPEC01, User: PK

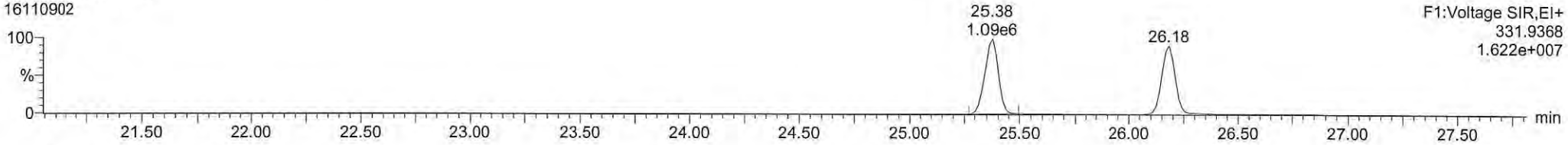
Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
13C-123789-HxCDD	36.471	0.000	1.17e6	9.28e5	1.000	1.260	1.240	3844	3375	1.69e7	1.34e7	4404.4	NO	100.000
Total-tetrafurans			5.60e5		0.935			2296		8.04e6				33.332
Total-penta1			1.26e6					1189		1.87e7				64.641
Total-pentafurans			3.26e6		0.957			4763		4.75e7				158.711
Total-hexafurans			4.43e6		1.125			4556		6.42e7				252.136
Total-heptafurans			1.47e6		1.310			3448		2.04e7				97.307
Total-Furans			1.21e7		1.114			2296		1.70e8				711.060
Total-tetradioxins			6.25e5		1.134			2323		8.31e6				54.500
Total-pentadioxins			2.47e6		0.975			4128		3.07e7				198.132
Total-hexadioxins			2.56e6		0.983			3448		3.78e7				210.179
Total-heptadioxins			1.16e6		1.028			4464		1.64e7				107.837
Total-Dioxins			7.78e6		1.028			2323		1.03e8				665.932
Total-TEQ			1.99e7					2323		2.73e8				1376.992
37CL-2378-TCDD	26.198	1.032	2.84e5		1.067			1303		4.02e6		3084.2		10.843
FUNCTION1 PFK			6.59e5					494839		1.35e7				
FUNCTION2 PFK			8.08e4					138945		2.29e6				0.000
FUNCTION3 PFK			2.93e7					458086		2.35e8				0.000
FUNCTION4 PFK			1.63e5					371924		4.85e6				
FUNCTION5 PFK			1.38e5					233124		5.42e6				
FUNCTION1 HXCDPE			3.91e2					385		8.31e3				0.000
FUNCTION1 HPCDPE			0.00e0					525		0.00e0				
FUNCTION2 HPCDPE			1.04e3					732		1.58e4				0.000
FUNCTION3 OCDPE			2.10e2					880		6.78e3				0.000
FUNCTION4 NCDPE			1.73e2					631		5.59e3				0.000
FUNCTION5 DCDPE			2.01e2					1339		7.15e3				0.000

Dataset: C:\MassLynx\Dioxin.pro\161109OPEN.qld
Last Altered: Wednesday, November 09, 2016 14:17:13 Pacific Standard Time
Printed: Wednesday, November 09, 2016 14:18:41 Pacific Standard Time

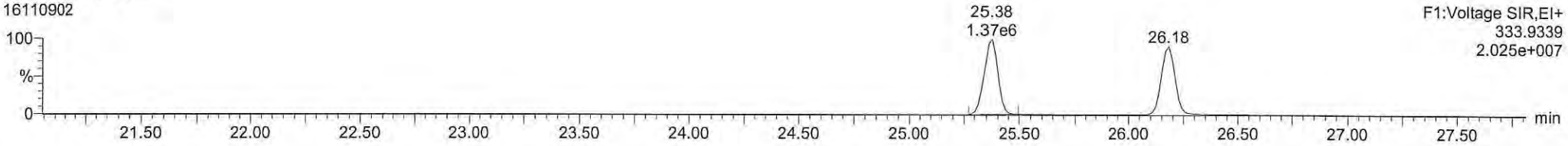
Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3C1, Name: 16110902, Date: 09-Nov-2016, Time: 12:28:50, Conditions: AUTOSPEC01, User: PK

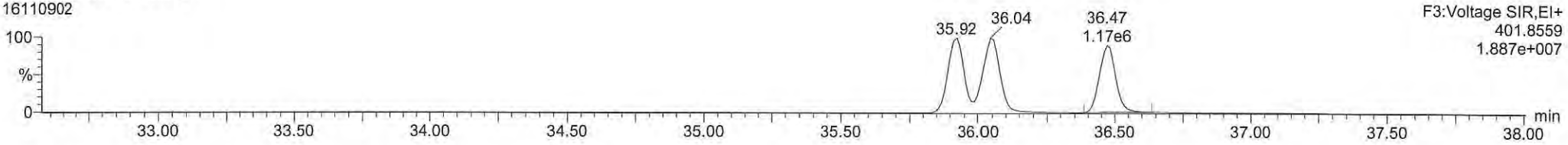
13C-1234-TCDD



13C-1234-TCDD



13C-123789-HxCDD



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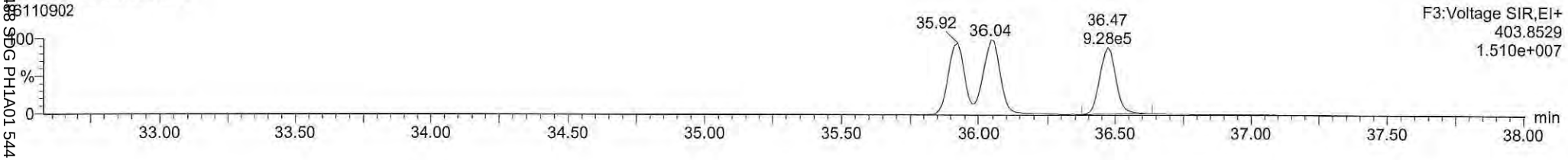

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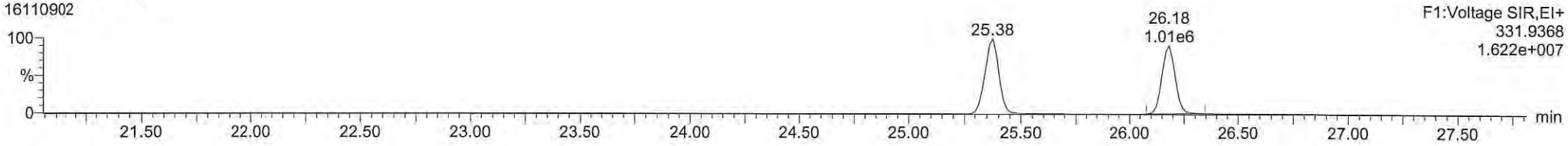
Printed: Wednesday, November 09, 2016 14:18:41 Pacific Standard Time

ID: CS3C1, Name: 16110902, Date: 09-Nov-2016, Time: 12:28:50, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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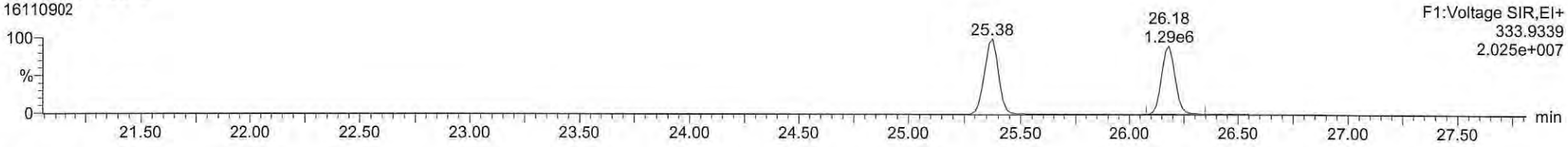
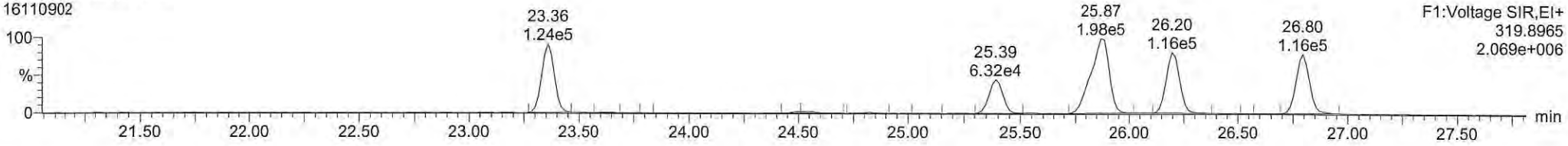
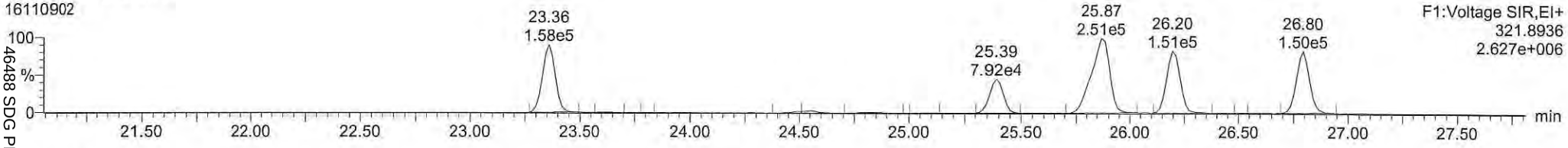


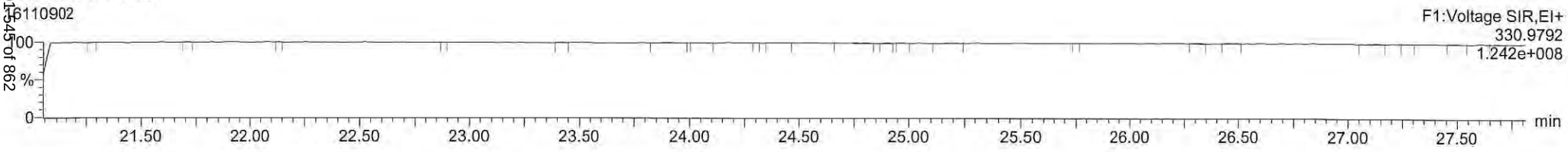
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



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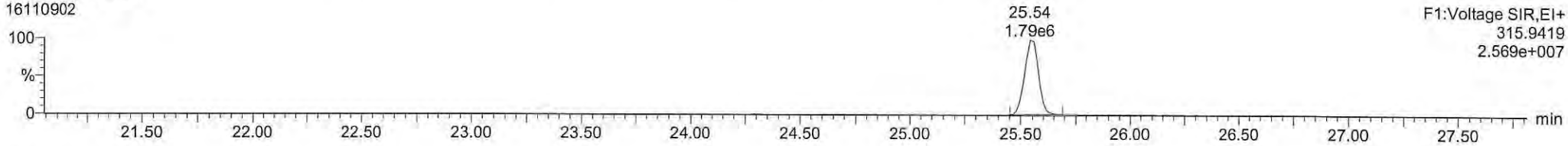
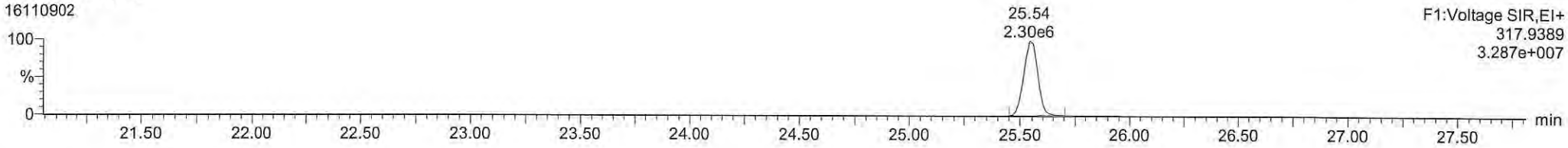
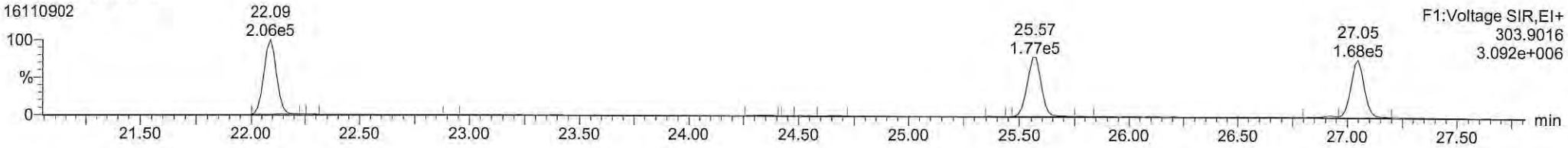
13C-2378-TCDF



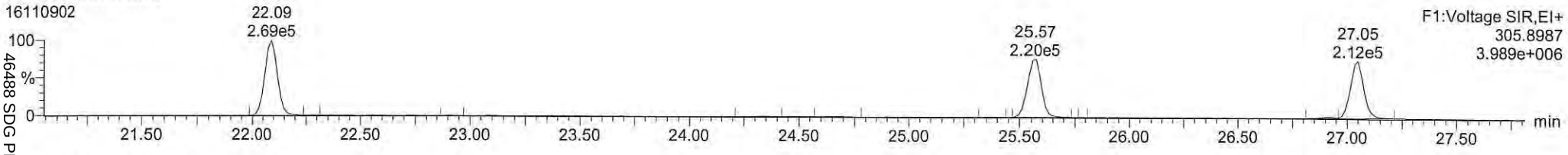
13C-2378-TCDF



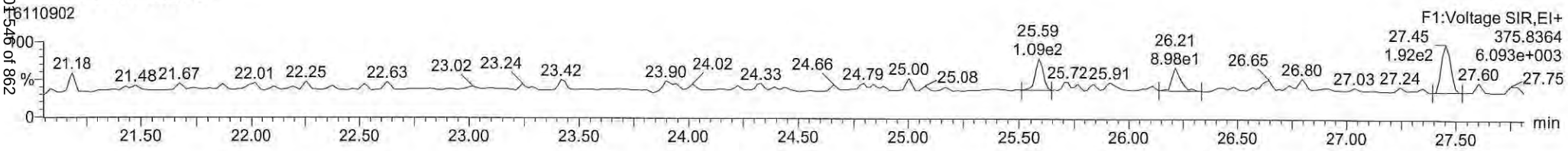
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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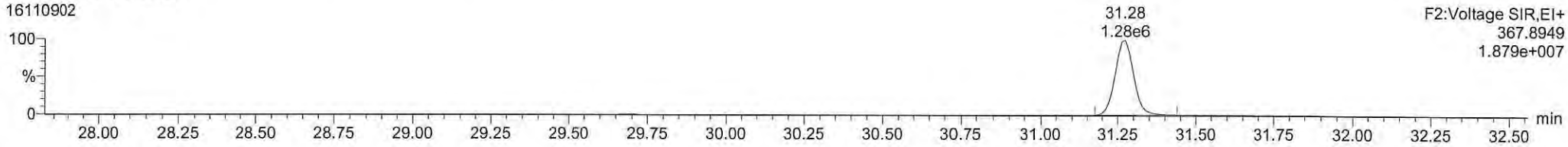
13C-12378-PeCDD



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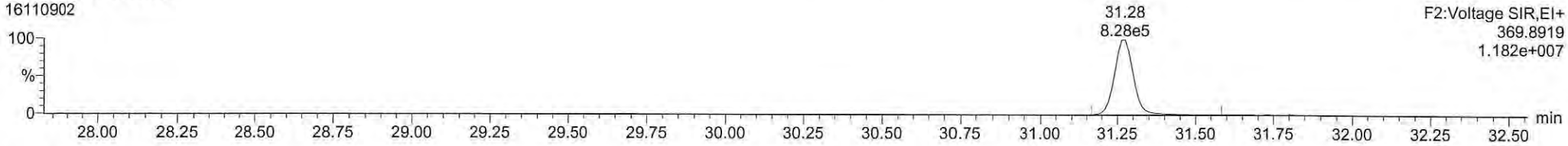

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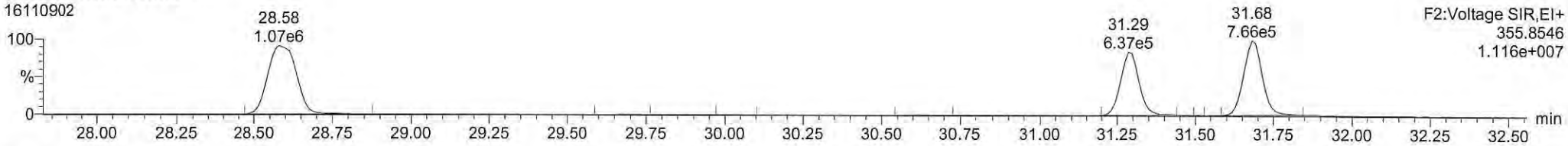
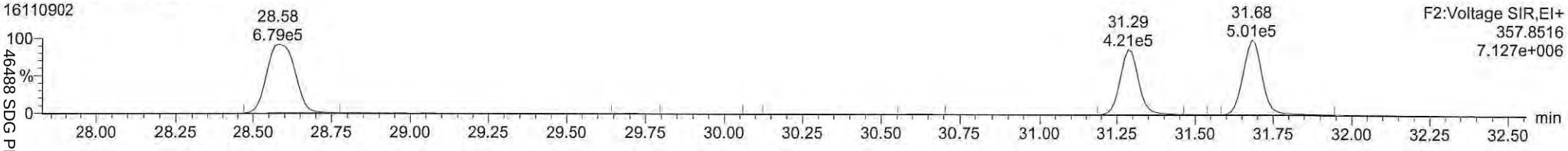
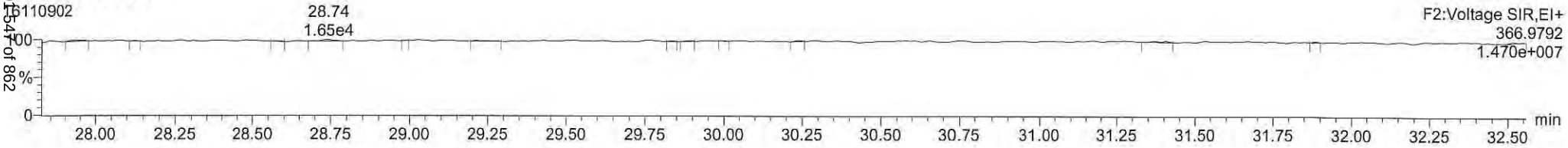


Total-pentadioxins



FUNCTION2 PFK



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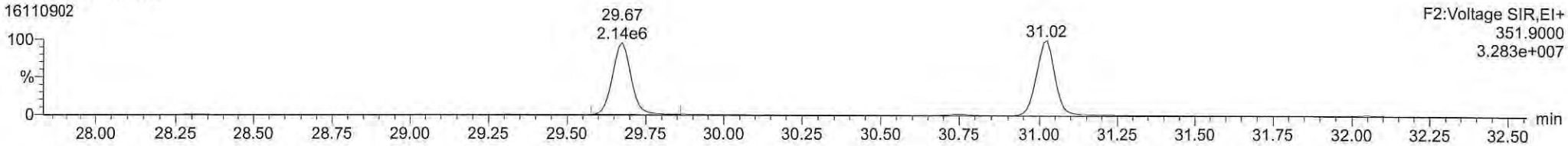
13C-12378-PeCDF



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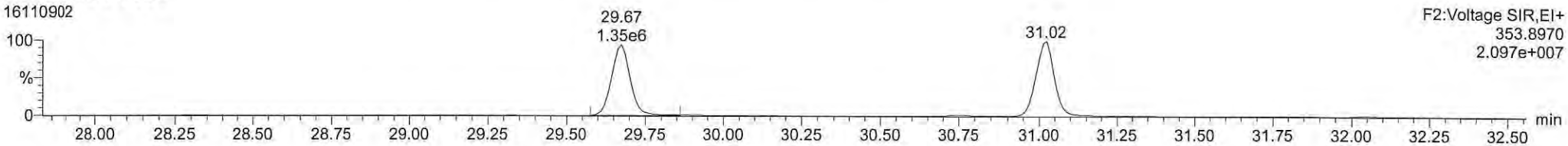
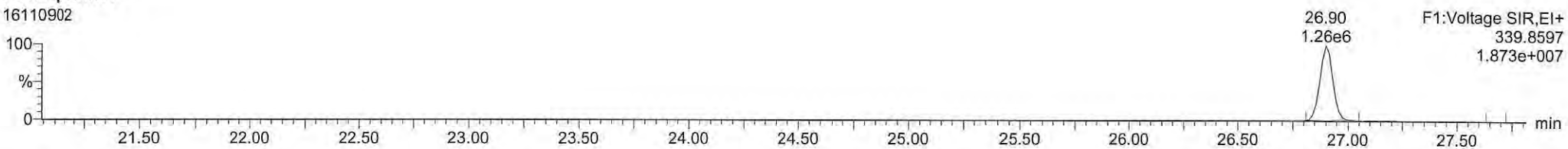
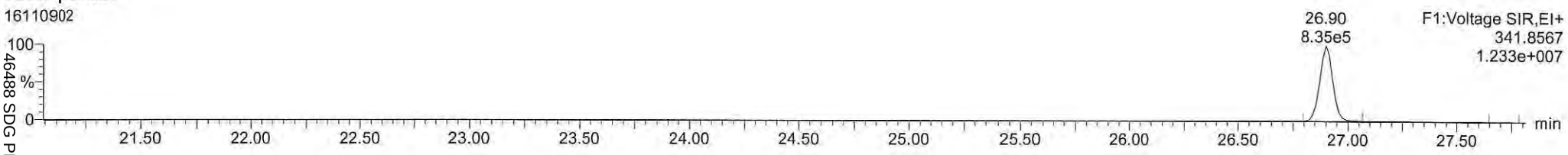


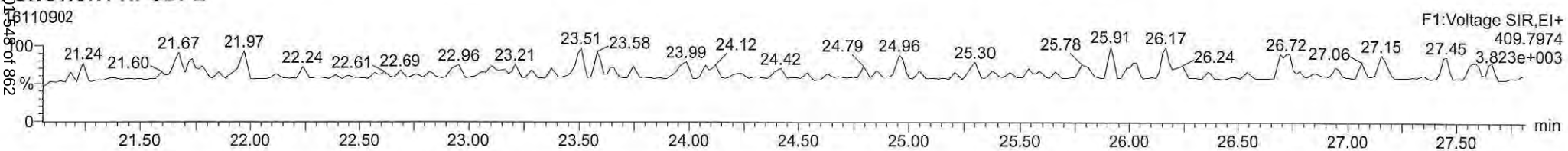
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



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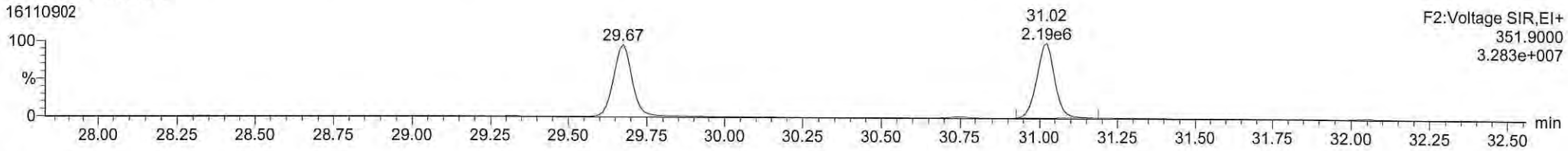
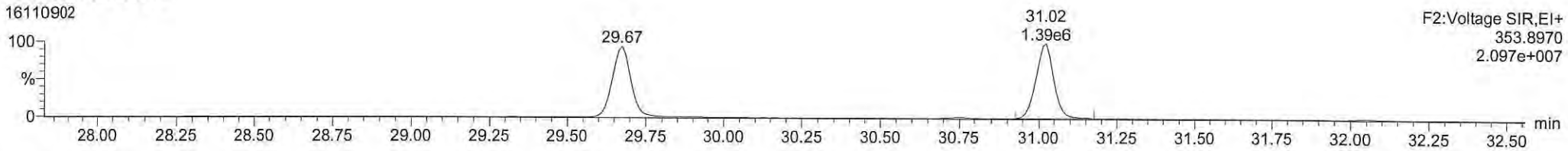
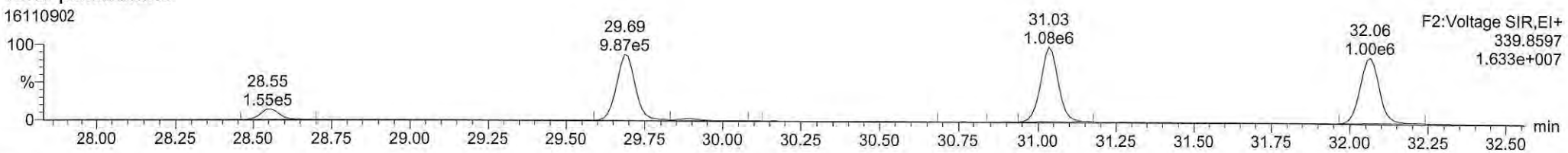
13C-23478-PeCDF



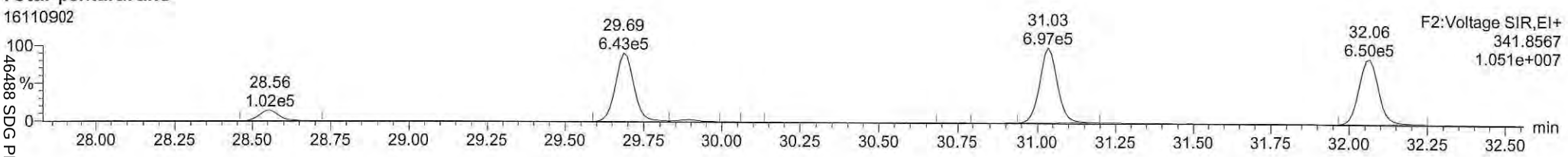
13C-23478-PeCDF



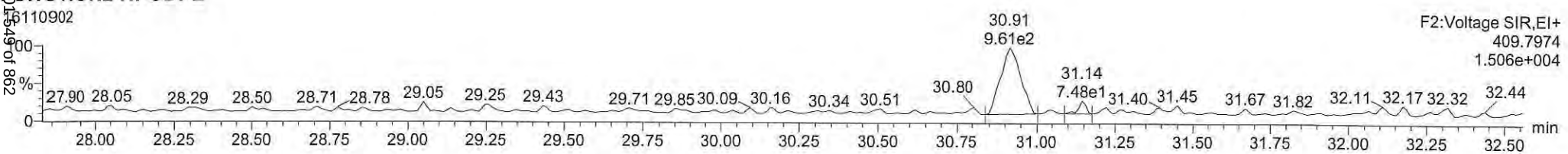
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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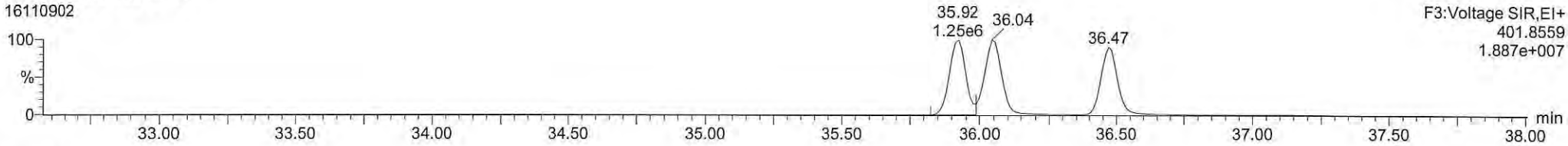
13C-123478-HxCDD



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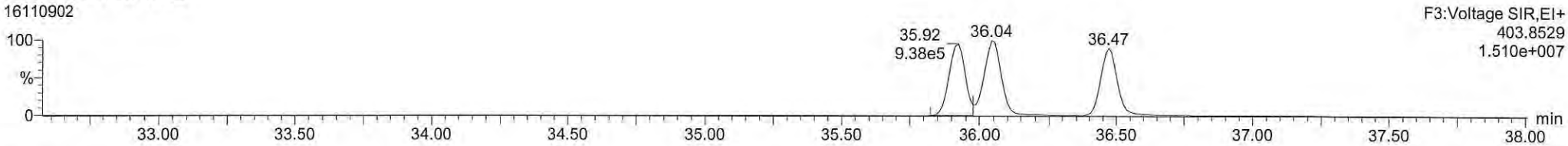
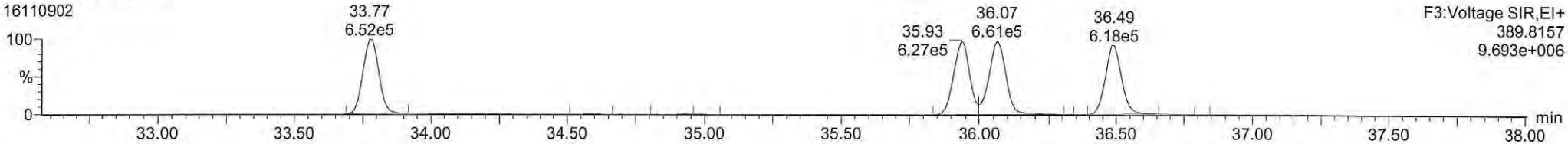
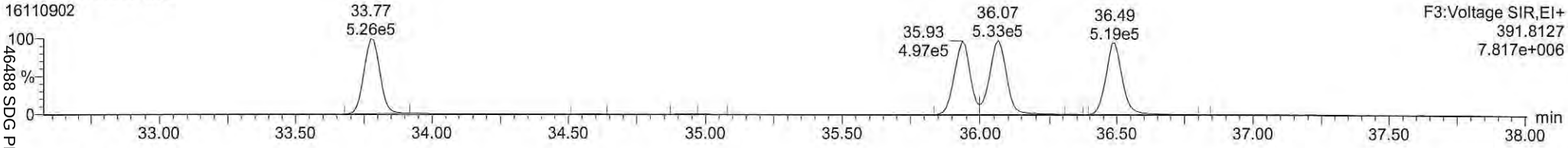


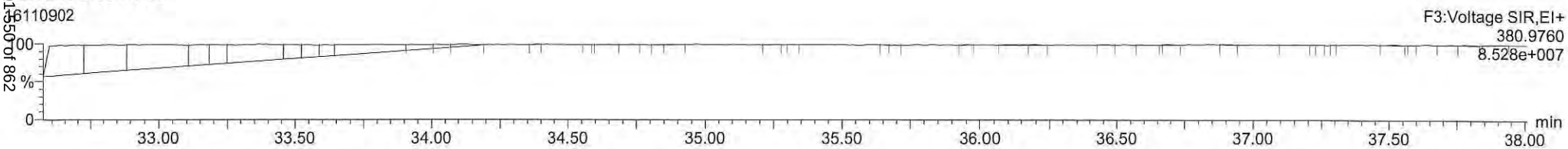
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



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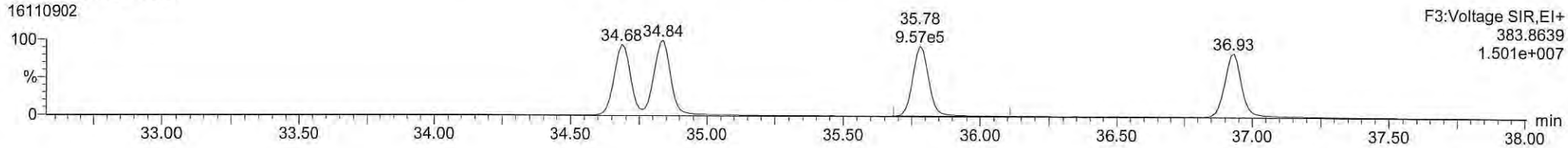
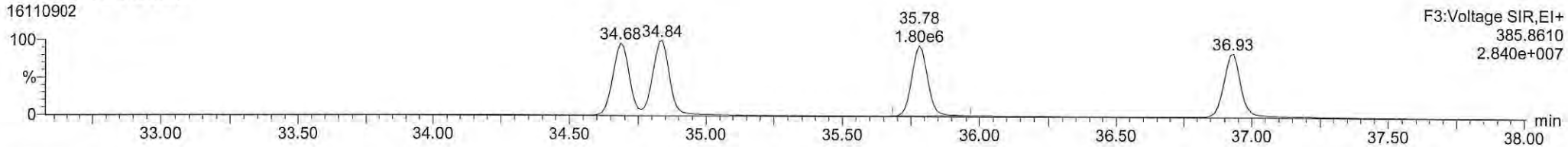
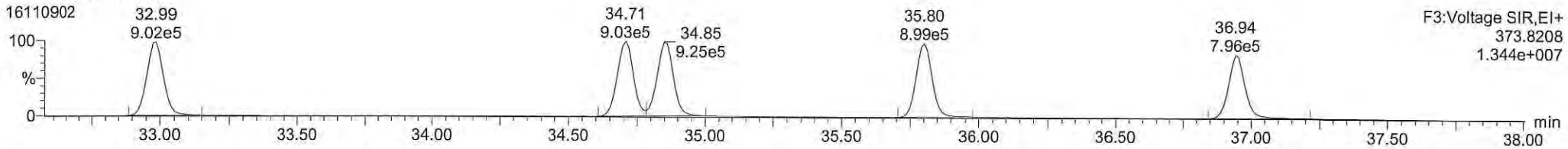
13C-234678-HxCDF



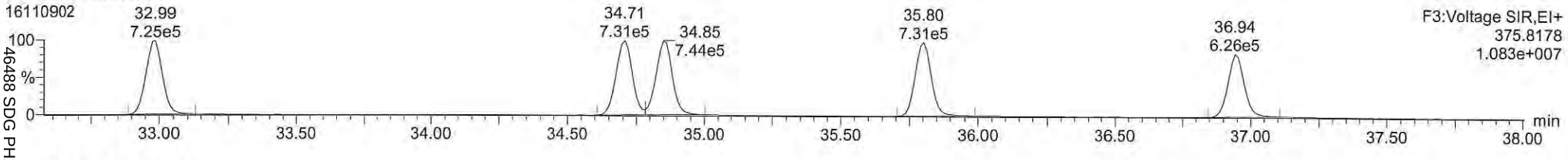
13C-234678-HxCDF



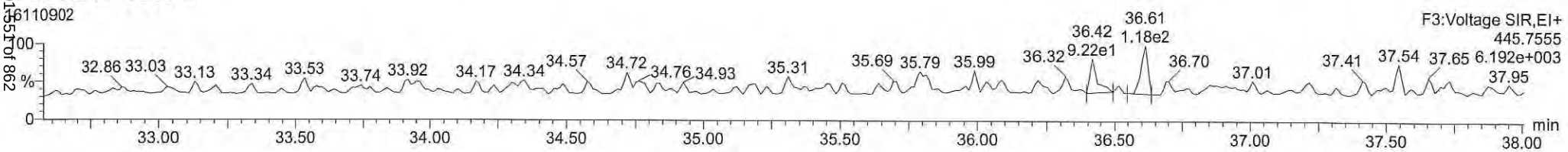
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



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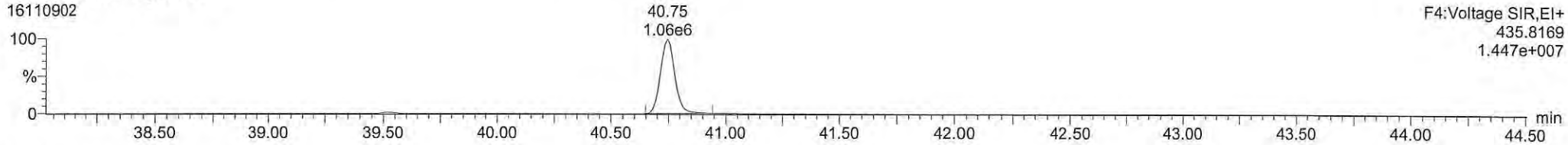
13C-1234678-HpCDD



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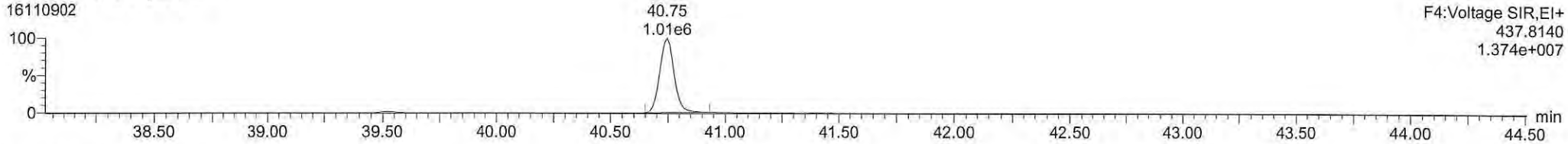
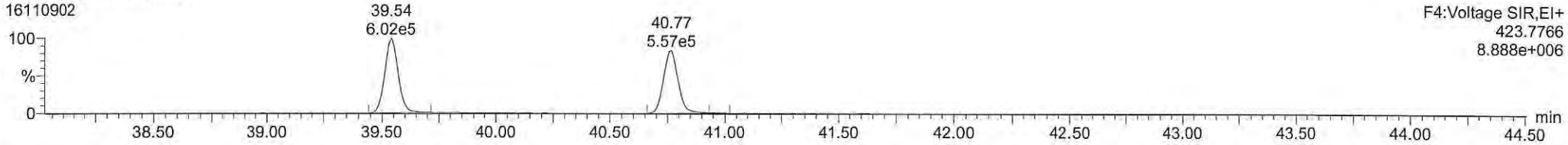
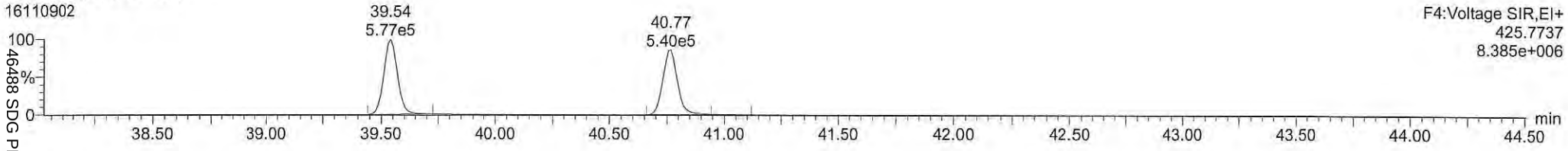


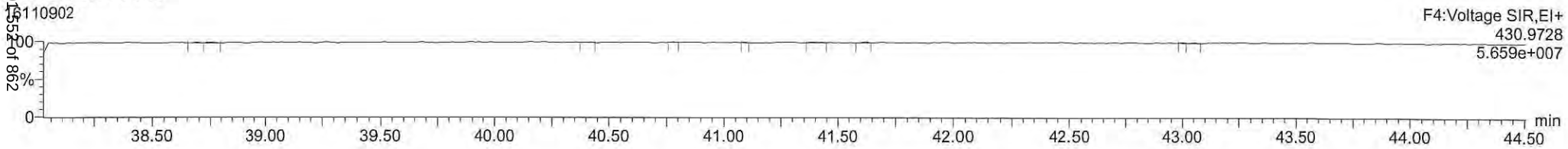
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



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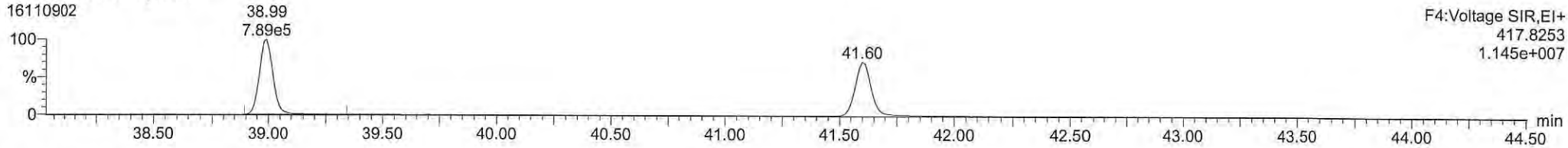
13C-1234678-HpCDF



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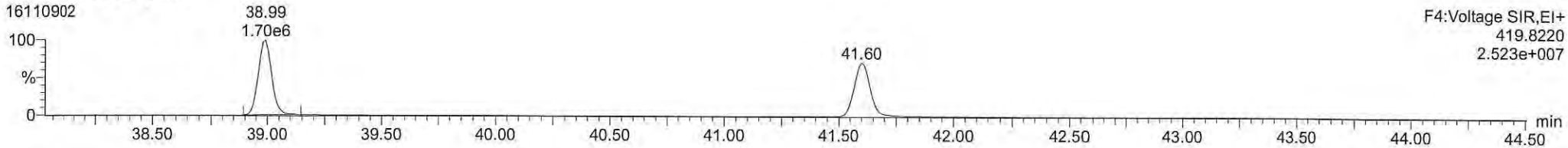
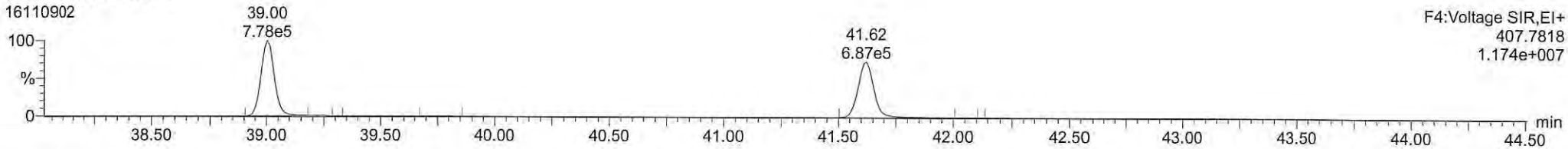
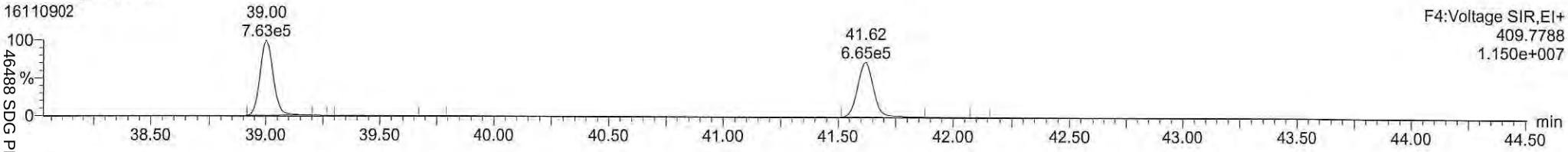


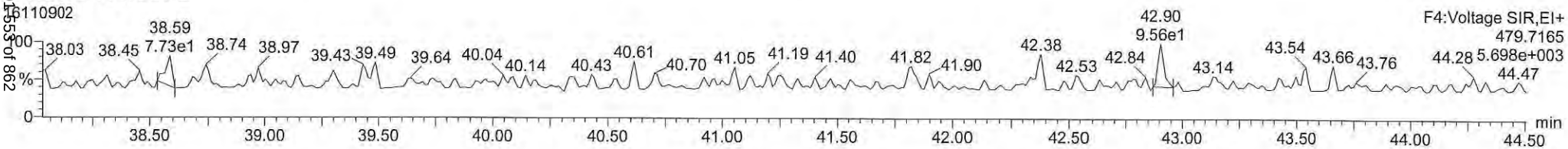
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE



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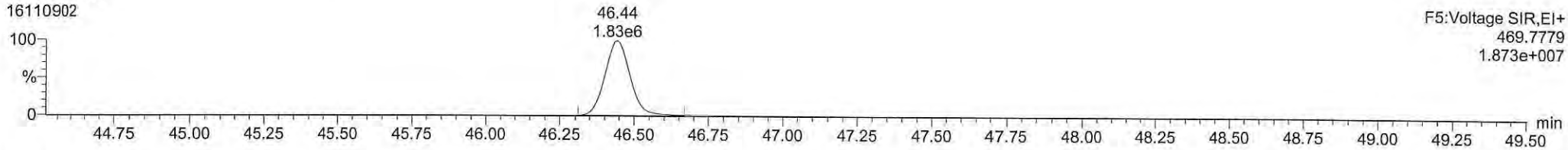
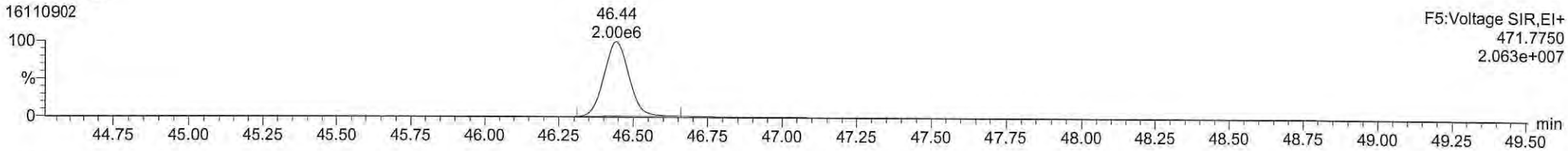
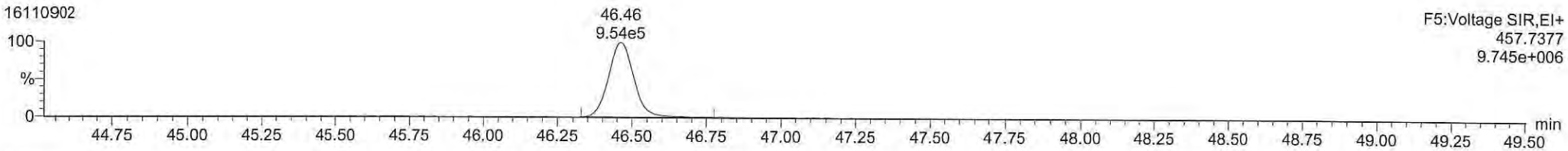
13C-OCDD



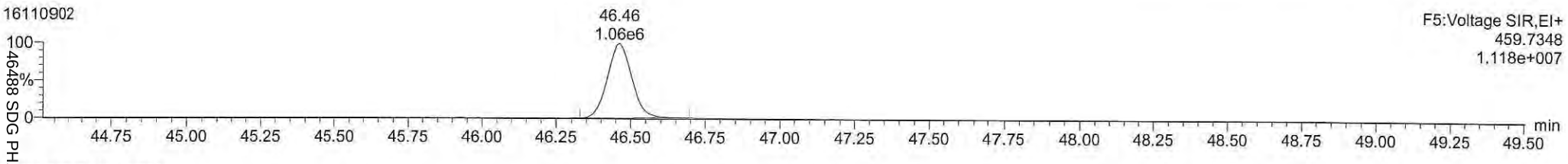
13C-OCDD



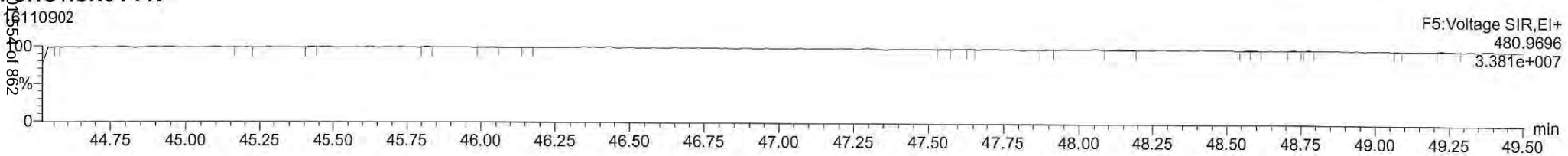
OCDD



OCDD



FUNCTION5 PFK



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Last Altered: Wednesday, November 09, 2016 14:17:13 Pacific Standard Time
Printed: Wednesday, November 09, 2016 14:18:41 Pacific Standard Time

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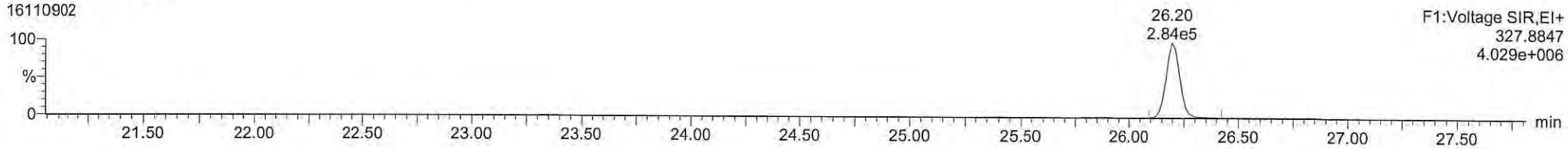
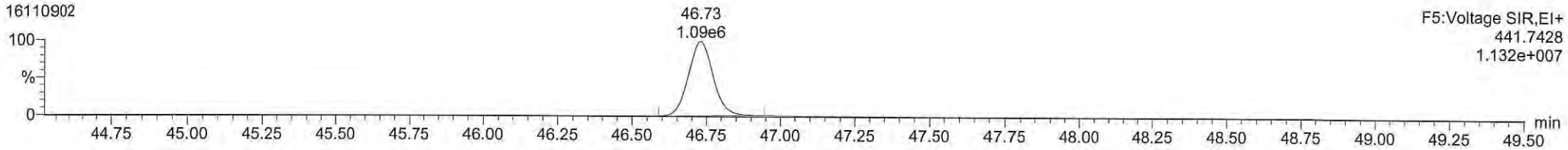
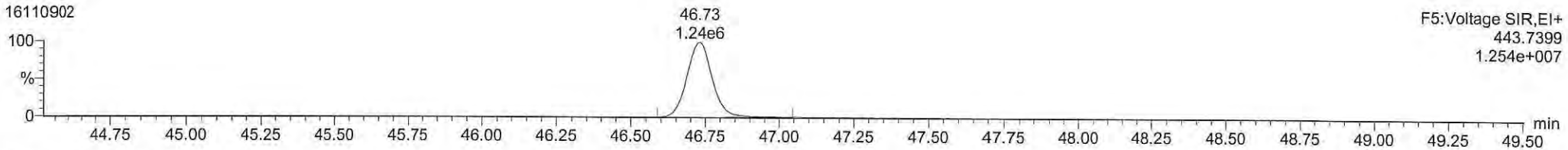
37CL-2378-TCDD



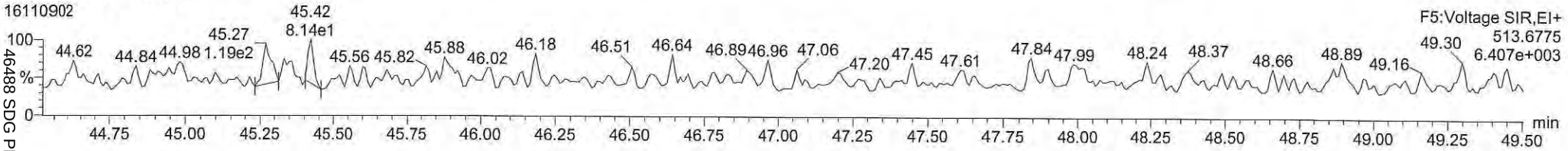
OCDF



OCDF



FUNCTION5 DCDPE



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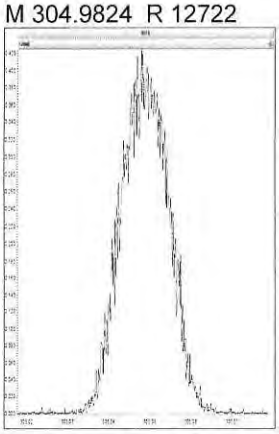
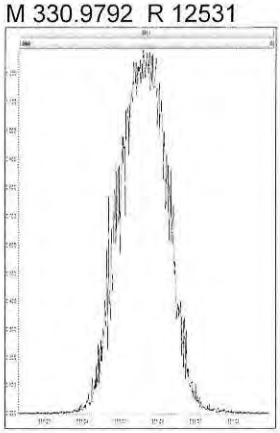
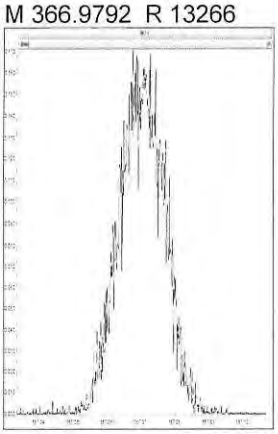
M 304.9824 R 12722



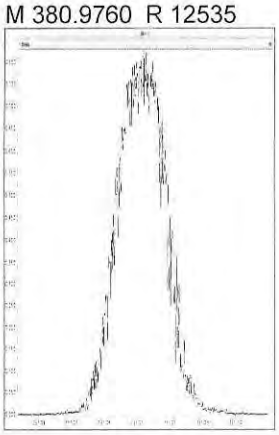
M 330.9792 R 12531



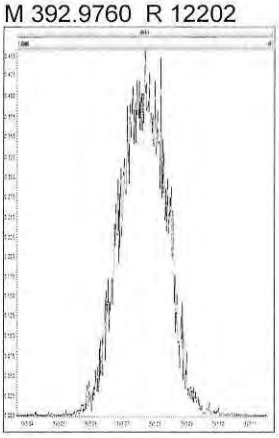
M 366.9792 R 13266



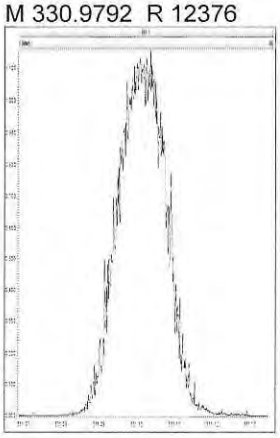
M 380.9760 R 12535



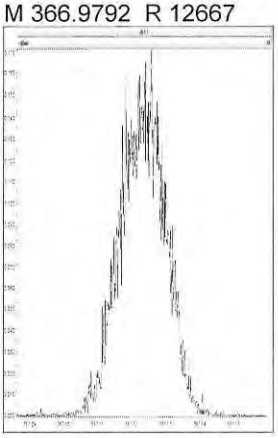
M 392.9760 R 12202



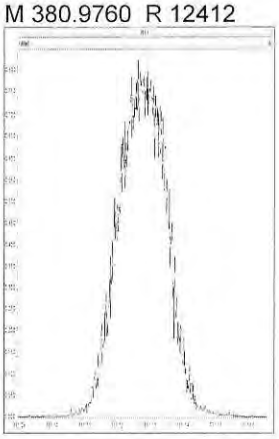
M 330.9792 R 12376



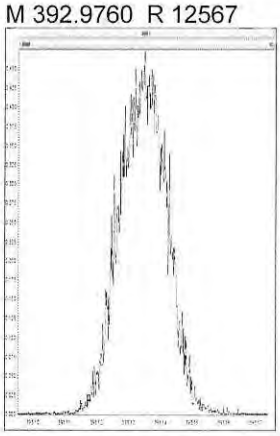
M 366.9792 R 12667



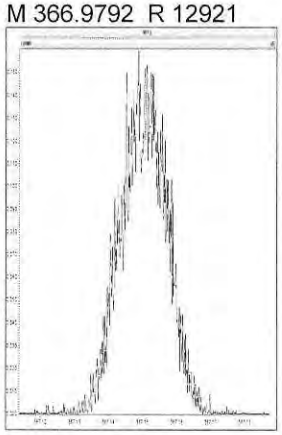
M 380.9760 R 12412



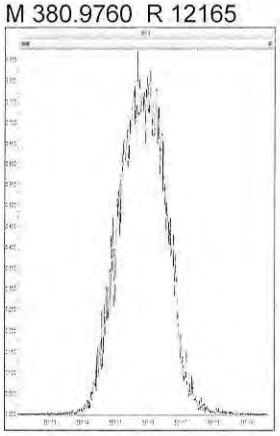
M 392.9760 R 12567



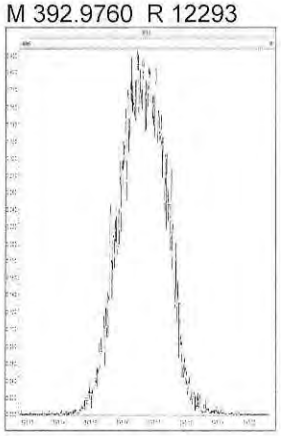
M 366.9792 R 12921



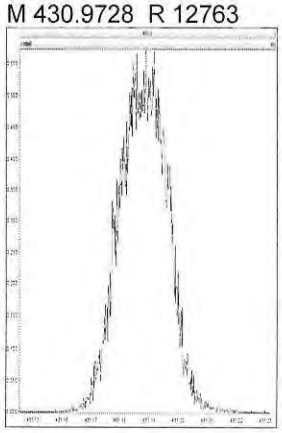
M 380.9760 R 12165



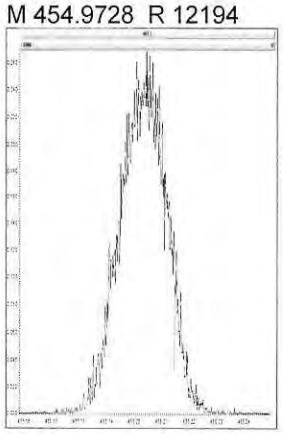
M 392.9760 R 12293



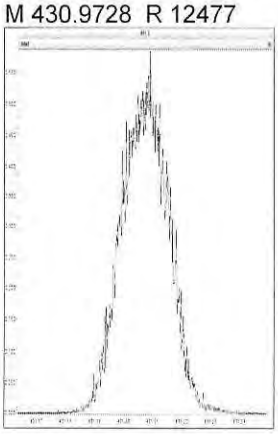
M 430.9728 R 12763



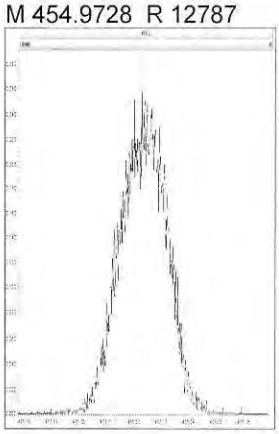
M 454.9728 R 12194

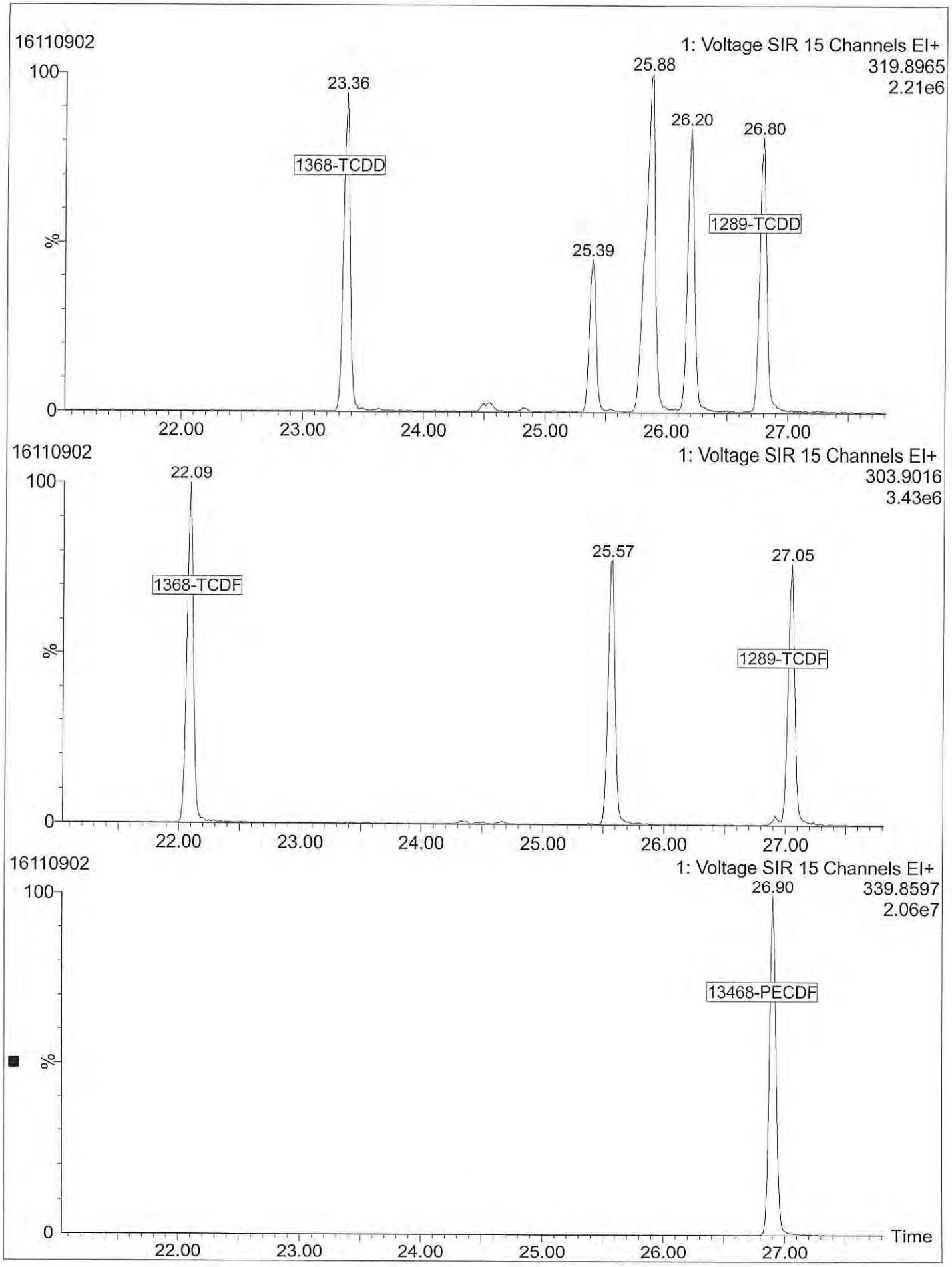


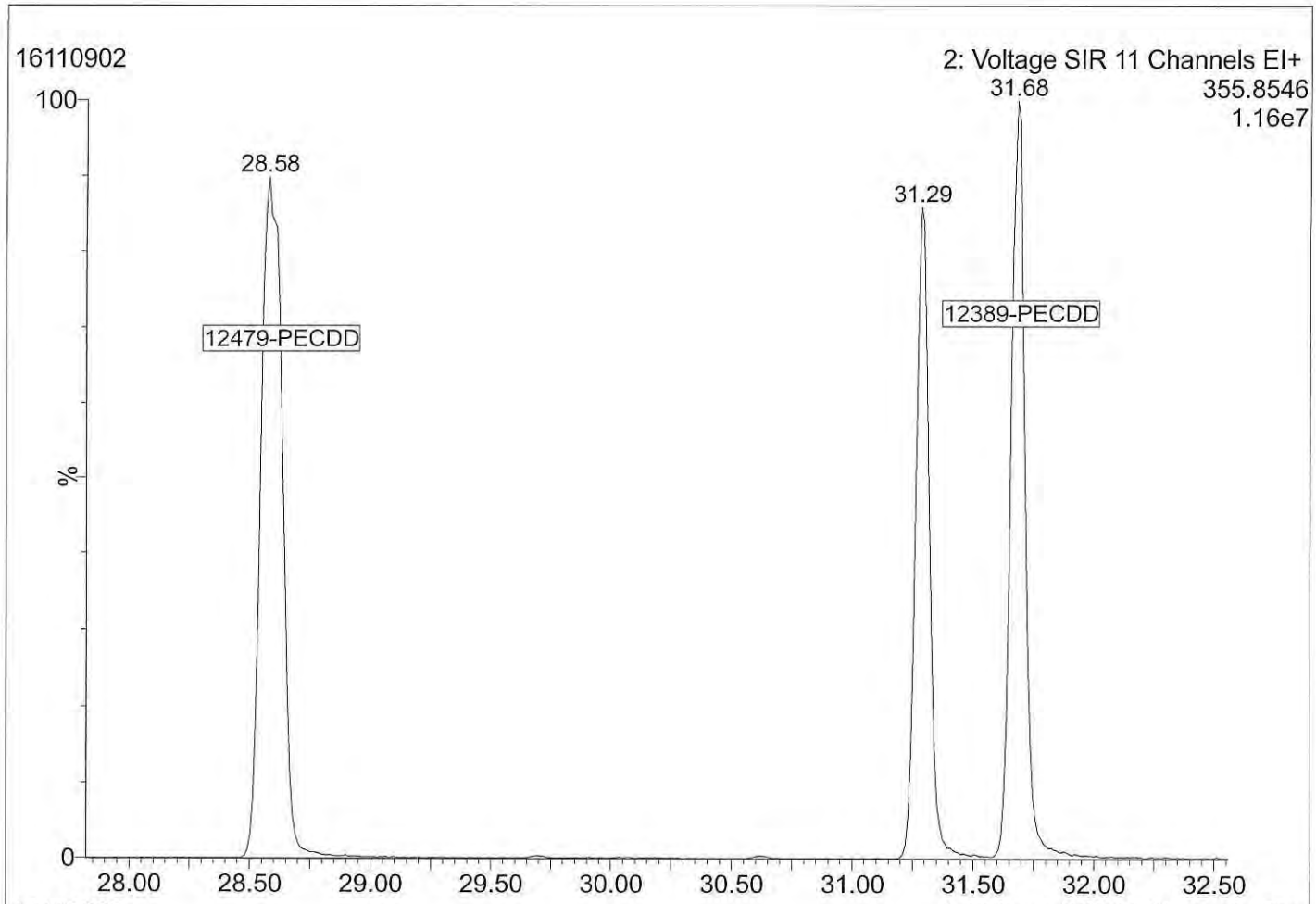
M 430.9728 R 12477

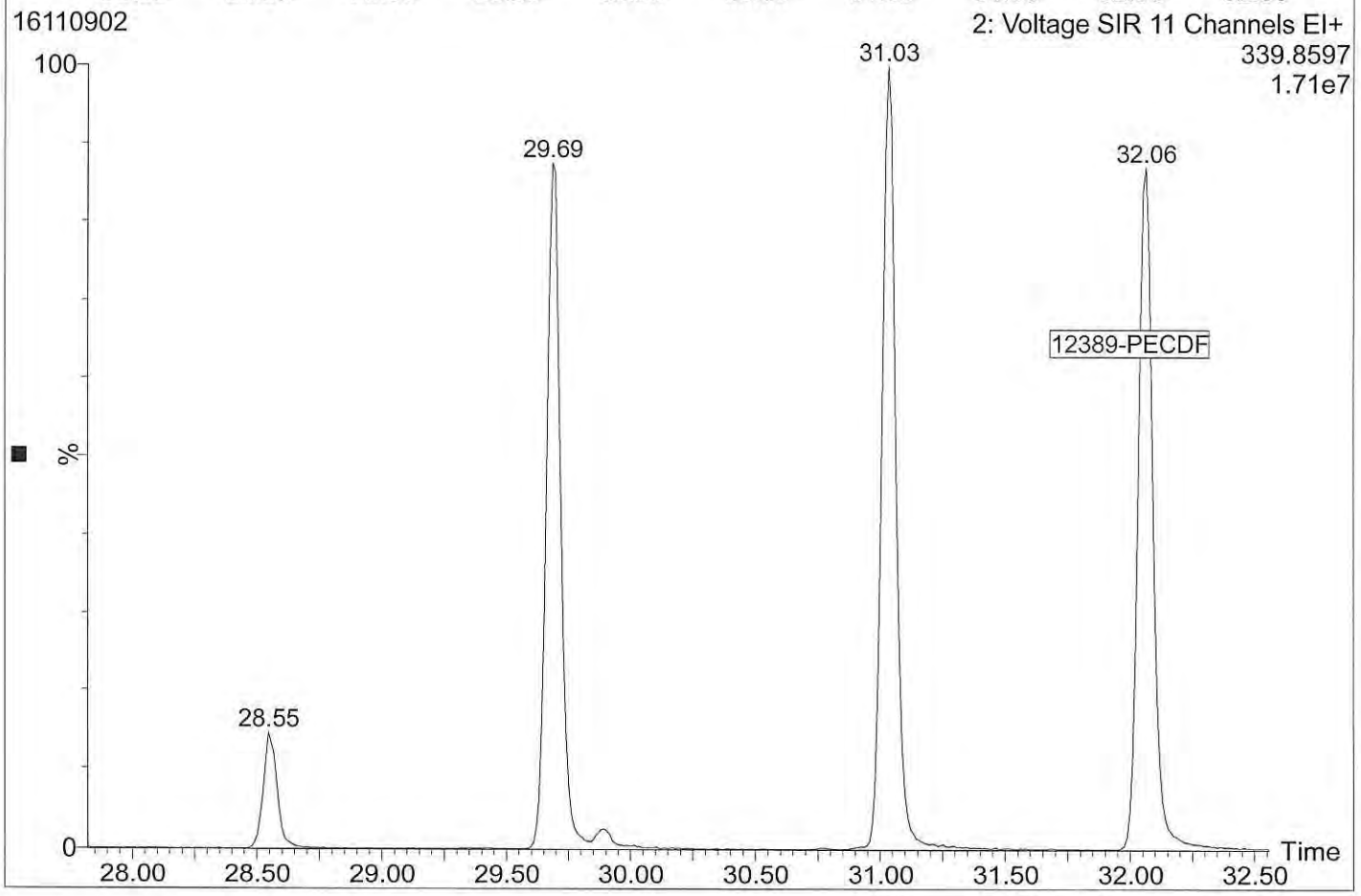


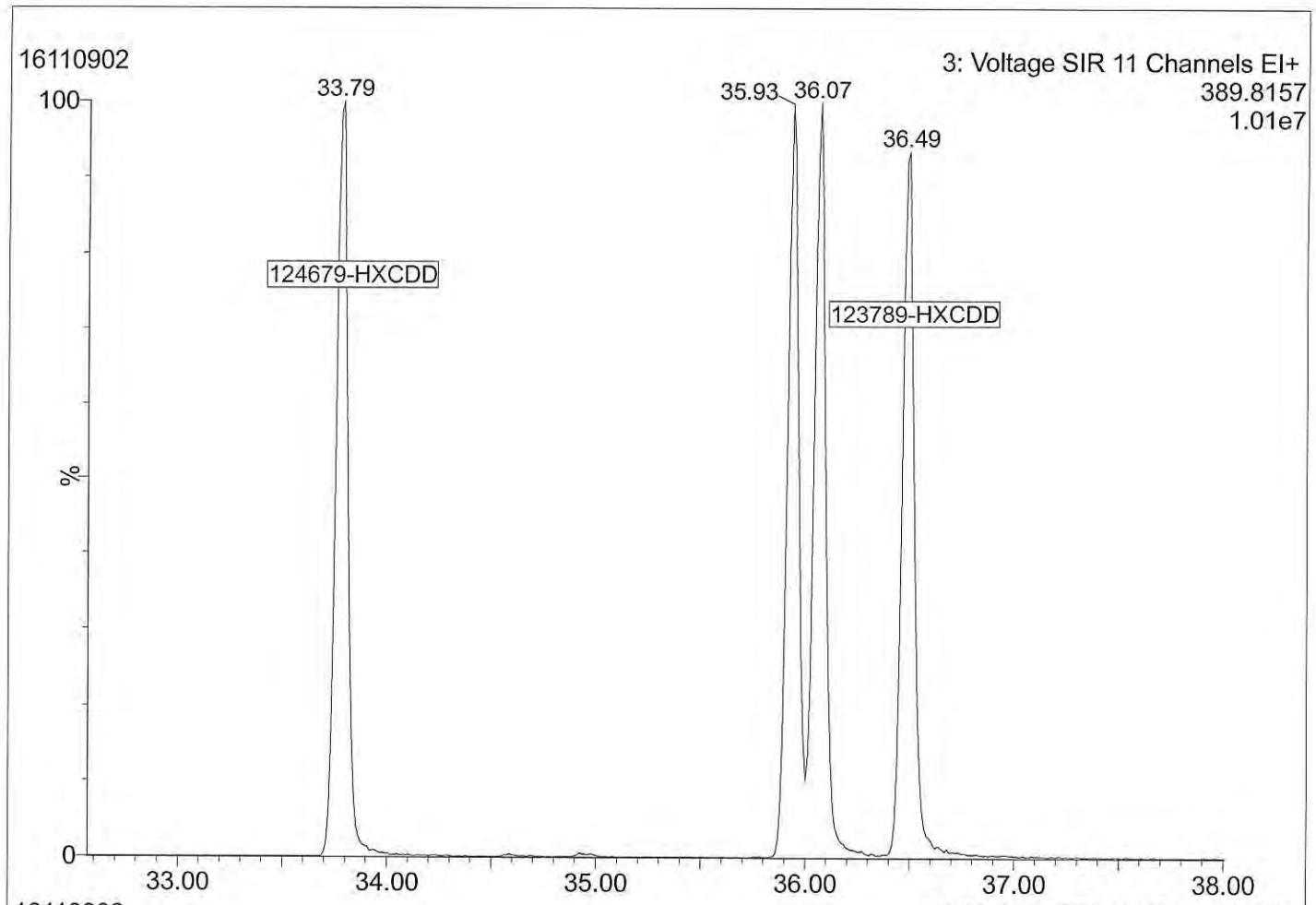
M 454.9728 R 12787

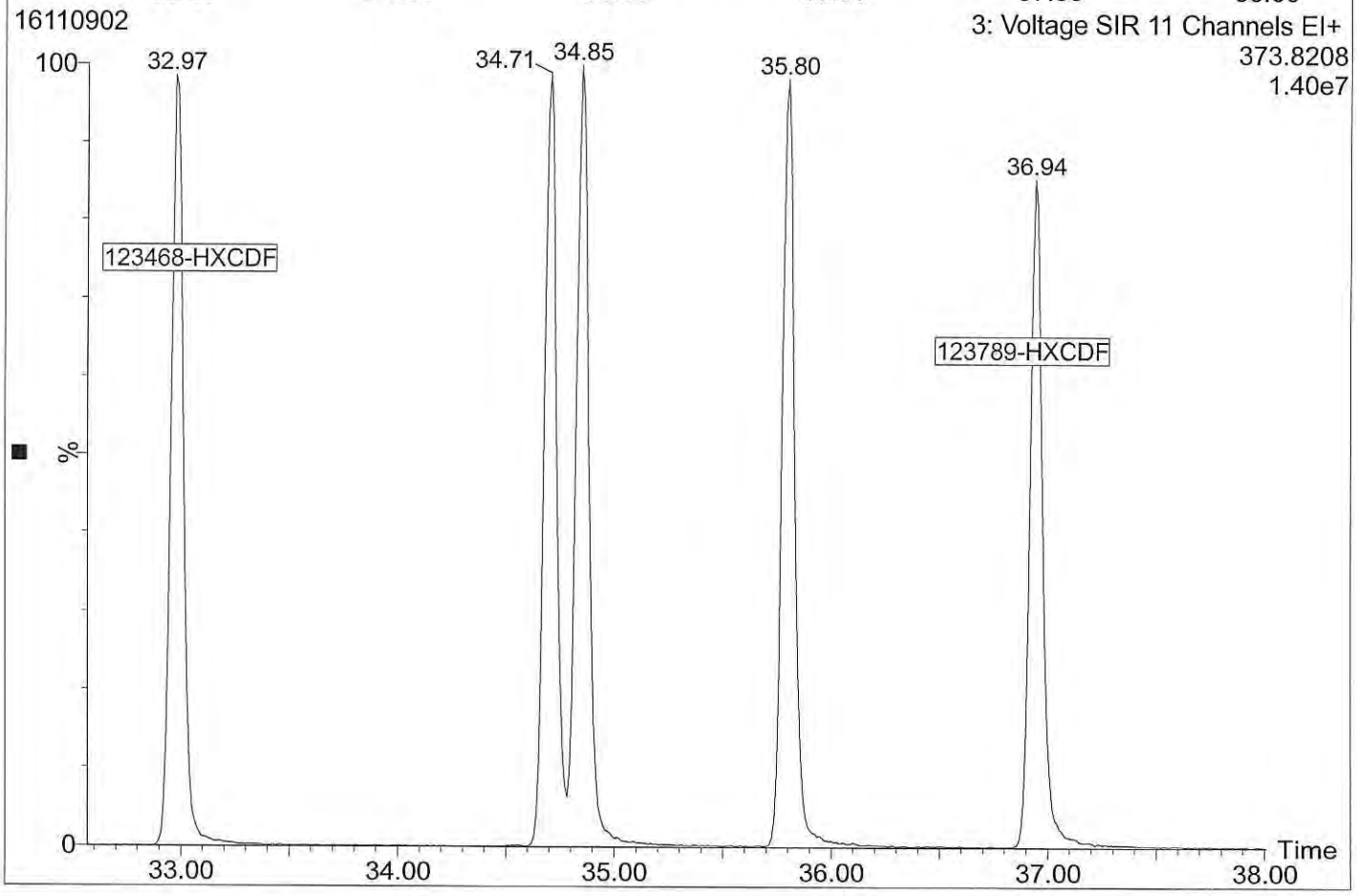


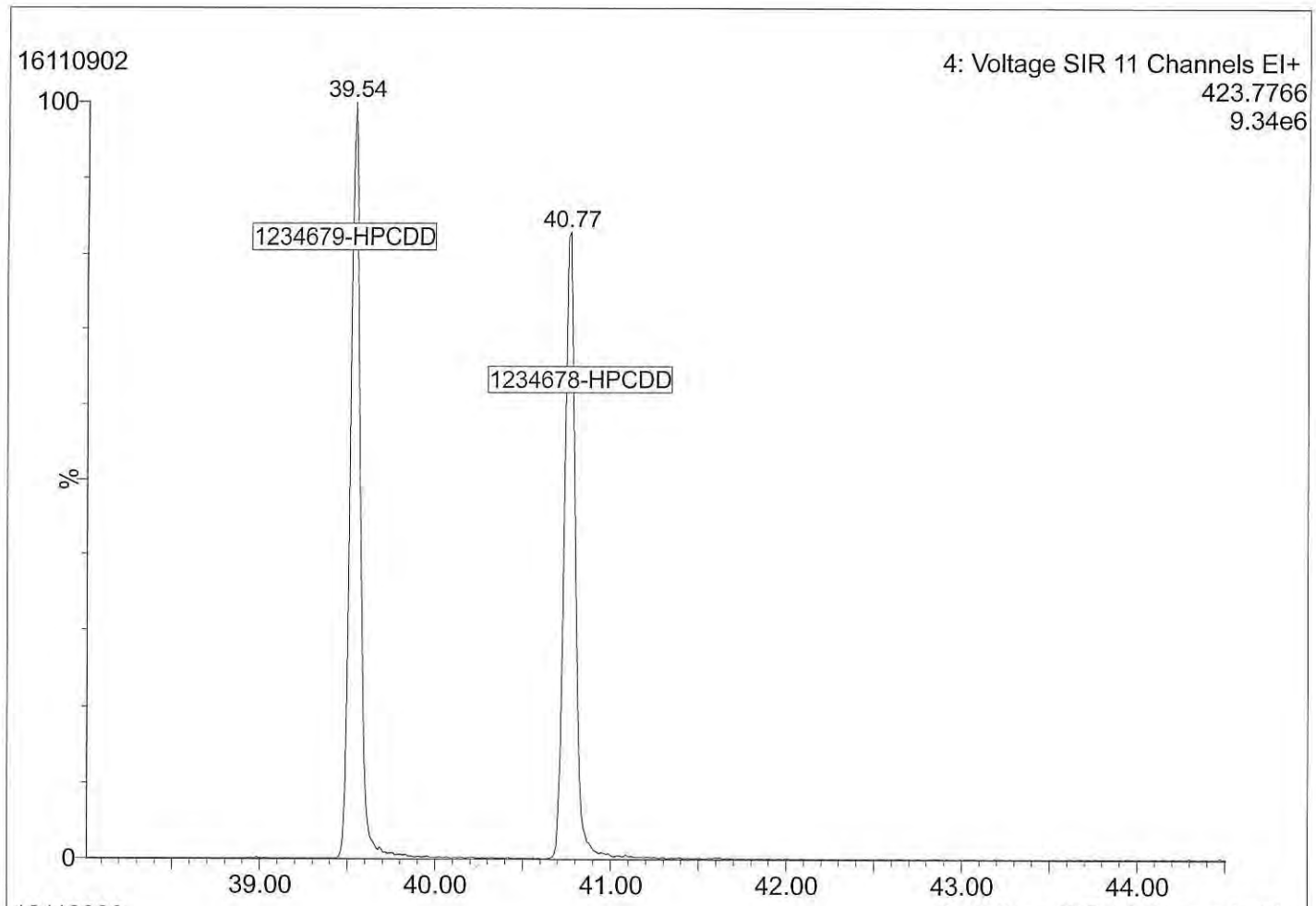

16110902
1: Voltage SIR 15 Channels EI+
319.8965
2.21e6
100
%
0
23.36
1368-TCDD
25.39
25.88
26.20
26.80
1289-TCDD
22.00
23.00
24.00
25.00
26.00
27.00
16110902
1: Voltage SIR 15 Channels EI+
303.9016
3.43e6
22.09
1368-TCDF
25.57
27.05
1289-TCDF
16110902
1: Voltage SIR 15 Channels EI+
339.8597
2.06e7
26.90
13468-PECDF
Time

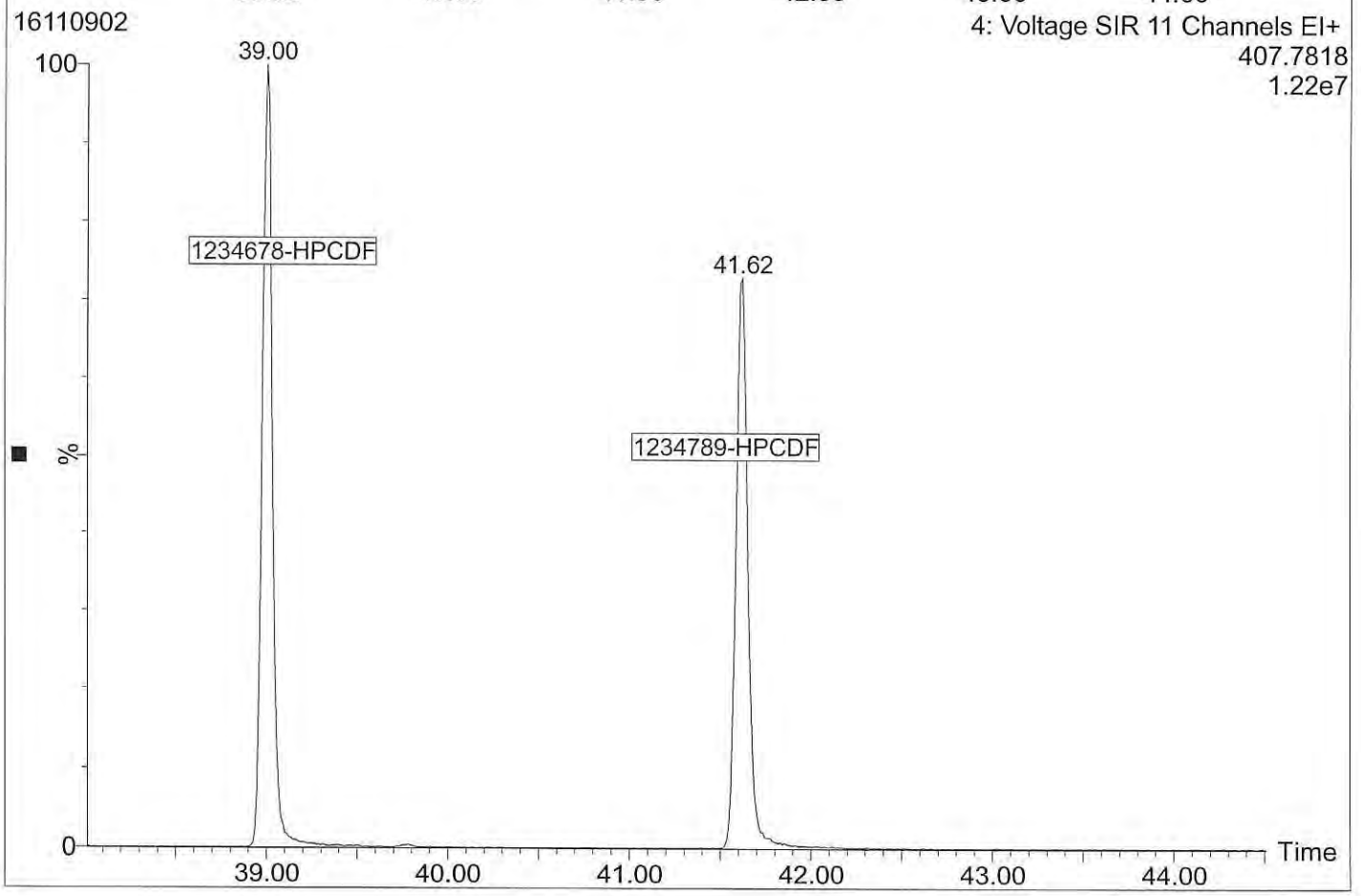

16110902
2: Voltage SIR 11 Channels EI+
355.8546
1.16e7
100
%
0
28.58
31.29
31.68
12479-PECDD
12389-PECDD
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

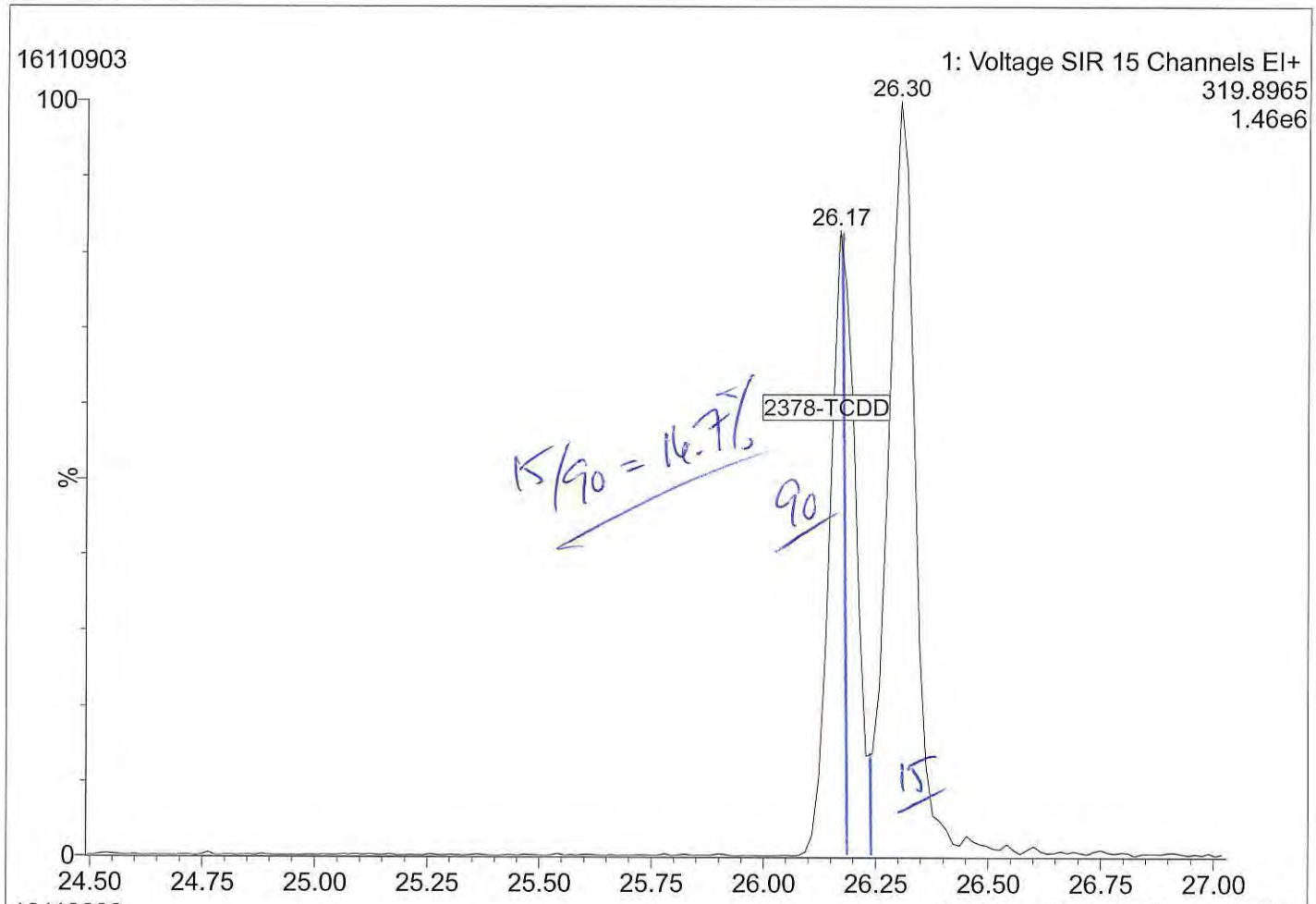

16110902
2: Voltage SIR 11 Channels EI+
339.8597
1.71e7
100
%
0
28.55
29.69
31.03
32.06
12389-PECDF
Time
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

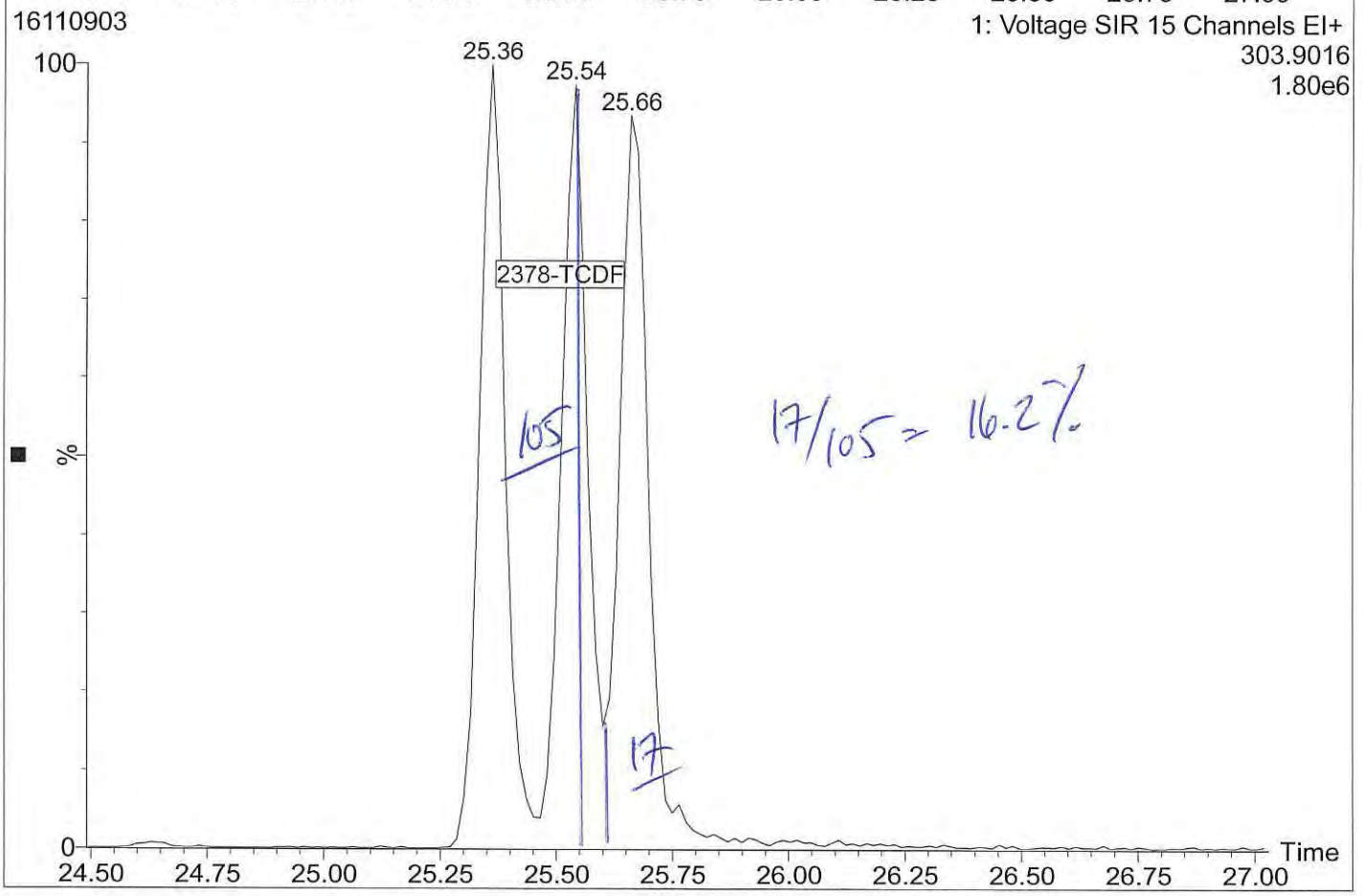

16110902
3: Voltage SIR 11 Channels EI+
389.8157
1.01e7
100
%
0
33.79
35.93
36.07
36.49
124679-HXCDD
123789-HXCDD
33.00
34.00
35.00
36.00
37.00
38.00


16110902
3: Voltage SIR 11 Channels EI+
373.8208
1.40e7
100
%
0
32.97
34.71
34.85
35.80
36.94
123468-HXCDF
123789-HXCDF
Time
33.00
34.00
35.00
36.00
37.00
38.00


16110902
4: Voltage SIR 11 Channels EI+
423.7766
9.34e6
100
%
0
39.54
1234679-HPCDD
40.77
1234678-HPCDD
39.00
40.00
41.00
42.00
43.00
44.00


16110902
4: Voltage SIR 11 Channels EI+
407.7818
1.22e7
100
%
0
39.00
1234678-HPCDF
41.62
1234789-HPCDF
Time
39.00
40.00
41.00
42.00
43.00
44.00


16110903
1: Voltage SIR 15 Channels EI+
319.8965
1.46e6
100
%
0
26.30
26.17
2378-TCDD
15/90 = 16.7%
90
15
24.50
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00


16110903
1: Voltage SIR 15 Channels EI+
303.9016
1.80e6
100
%
0
25.36
25.54
25.66
2378-TCDF
105
17
17/105 = 16.2%
Time
24.50
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00

FORM 7A-HR

RELATIVE RESPONSE/RELATIVE RESPONSE FACTOR -CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3C2

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/09/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 23:10

Analytical Method: CDD/CDF

CL No.	Analyte Name	RR/RRF	Mean RR/RRF	% D	IAR	IAR QC Limits
4	2,3,7,8-TCDD	1.153641	1.133965	1.7	0.81	0.655-0.886
5	1,2,3,7,8-PeCDD	1.007409	0.9753974	3.3	1.54	1.318-1.783
6	1,2,3,4,7,8-HxCDD	1.009893	1.031167	-2.1	1.25	1.054-1.426
6	1,2,3,6,7,8-HxCDD	1.016182	0.9714371	4.6	1.25	1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.033567	0.9950452	3.9	1.23	1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.046717	1.028016	1.8	1.06	0.893-1.208
8	OCDD	1.05924	1.107021	-4.3	0.90	0.757-1.024
4	2,3,7,8-TCDF	0.9550453	0.9347915	2.2	0.76	0.655-0.886
5	1,2,3,7,8-PeCDF	0.9360846	0.9519161	-1.7	1.58	1.318-1.783
5	2,3,4,7,8-PeCDF	1.001465	0.9629117	4.0	1.57	1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.178869	1.136547	3.7	1.25	1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.119072	1.098742	1.9	1.25	1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.115261	1.100821	1.3	1.23	1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.211158	1.163504	4.1	1.27	1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	1.239686	1.302789	-4.8	1.03	0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.295142	1.317361	-1.7	1.02	0.893-1.208
8	OCDF	1.240801	1.165807	6.4	0.90	0.757-1.024
4	13C12-2,3,7,8-TCDF	1	1.567419	-36.2	0.78	0.655-0.886
4	13C12-2,3,7,8-TCDD	1	0.9077481	10.2	0.79	0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1	1.274097	-21.5	1.57	1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1	1.234626	-19.0	1.58	1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1	0.7557554	32.3	1.60	1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	1	1.380919	-27.6	0.50	0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	1	1.569453	-36.3	0.52	0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	1	1.34533	-25.7	0.52	0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	1	1.182895	-15.5	0.52	0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1	1.055904	-5.3	1.27	1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1	1.163036	-14.0	1.27	1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	1	1.178362	-15.1	0.45	0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	1	0.8777992	13.9	0.45	0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1	0.9091061	10.0	1.06	0.893-1.208
8	13C12-OCDD	1	0.8195753	22.0	0.89	0.757-1.024
4	37C14-2,3,7,8-TCDD	1.118508	1.066558	4.9		N/A
4	13C12-1,2,3,4-TCDD	22082.30	1	208,130	0.80	0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	15896.77	1	589,577	1.26	1.05-1.43

FORM 7B-HR
RELATIVE RETENTION TIME CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3C2

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/09/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 23:10

Analytical Method: CDD/CDF

CL No.	Analyte Name	Mean RRT	RRT	RRT QC Limits
4	2,3,7,8-TCDD	0.8331	1.0006	0.999-1.002
5	1,2,3,7,8-PeCDD	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDD	0.9999	1.0003	0.999-1.001
6	1,2,3,6,7,8-HxCDD	0.9999	1.0003	0.998-1.004
6	1,2,3,7,8,9-HxCDD	0.9999	1.0159	1.000-1.019
7	1,2,3,4,6,7,8-HpCDD	1.0000	1.0005	0.999-1.001
8	OCDD	0.9998	1.0004	0.999-1.001
4	2,3,7,8-TCDF	0.8330	1.0012	0.999-1.003
5	1,2,3,7,8-PeCDF	0.9997	1.0007	0.999-1.002
5	2,3,4,7,8-PeCDF	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDF	0.9999	1.0006	0.999-1.001
6	1,2,3,6,7,8-HxCDF	0.9997	1.0006	0.997-1.005
6	1,2,3,7,8,9-HxCDF	0.9999	1.0006	0.999-1.001
6	2,3,4,6,7,8-HxCDF	0.9998	1.0006	0.999-1.001
7	1,2,3,4,6,7,8-HpCDF	0.9999	1.0003	0.999-1.001
7	1,2,3,4,7,8,9-HpCDF	1.0000	1.0003	0.999-1.001
8	OCDF	0.9998	1.0062	0.999-1.008
4	13C12-2,3,7,8-TCDF	0.9995	1.0065	0.923-1.103
4	13C12-2,3,7,8-TCDD	0.9995	1.0318	0.976-1.043
5	13C12-1,2,3,7,8-PeCDF	0.9999	1.1695	1.000-1.425
5	13C12-2,3,4,7,8-PeCDF	0.9998	1.2227	1.011-1.526
5	13C12-1,2,3,7,8-PeCDD	0.9995	1.2326	1.000-1.567
6	13C12-1,2,3,4,7,8-HxCDF	0.9997	0.9510	0.944-0.970
6	13C12-1,2,3,6,7,8-HxCDF	0.9998	0.9552	0.949-0.975
6	13C12-2,3,4,6,7,8-HxCDF	0.9999	0.9811	0.959-1.021
6	13C12-1,2,3,7,8,9-HxCDF	1.0000	1.0126	0.977-1.047
6	13C12-1,2,3,4,7,8-HxCDD	0.9998	0.9850	0.977-1.000
6	13C12-1,2,3,6,7,8-HxCDD	0.9999	0.9886	0.981-1.003
7	13C12-1,2,3,4,6,7,8-HpCDF	1.0000	1.0692	1.043-1.085
7	13C12-1,2,3,4,7,8,9-HpCDF	0.9999	1.1410	1.057-1.151
7	13C12-1,2,3,4,6,7,8-HpCDD	1.0001	1.1173	1.086-1.110
8	13C12-OCDD	1.0000	1.2737	1.032-1.311
4	37C14-2,3,7,8-TCDD	0.9995	1.0324	0.989-1.052
4	13C12-1,2,3,4-TCDD	0.9995	1.0000	
6	13C12-1,2,3,7,8,9-HxCDD	1.0000	1.0000	

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:19 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.541	1.001	1.45e5	1.92e5	0.935	0.756	0.770	1702	2261	2.09e6	2.77e6	1230.7	NO	10.217
12378-PeCDF	29.664	1.001	8.24e5	5.22e5	0.952	1.577	1.550	4940	3979	1.20e7	7.70e6	2436.9	NO	49.168
23478-PeCDF	31.012	1.001	8.95e5	5.70e5	0.963	1.570	1.550	4940	3979	1.35e7	8.54e6	2730.3	NO	52.002
123478-HxCDF	34.684	1.001	6.98e5	5.61e5	1.137	1.245	1.240	4594	3663	1.06e7	8.39e6	2300.9	NO	51.862
234678-HxCDF	35.780	1.001	6.97e5	5.50e5	1.164	1.267	1.240	4594	3663	1.03e7	8.16e6	2243.4	NO	52.048
123678-HxCDF	34.837	1.001	7.37e5	5.91e5	1.099	1.247	1.240	4594	3663	1.05e7	8.54e6	2294.6	NO	50.925
123789-HxCDF	36.931	1.001	5.79e5	4.69e5	1.101	1.234	1.240	4594	3663	8.07e6	6.64e6	1756.7	NO	50.656
1234678-HpCDF	38.980	1.000	5.67e5	5.48e5	1.303	1.035	1.050	3509	3035	8.42e6	8.04e6	2398.2	NO	47.578
1234789-HpCDF	41.600	1.000	4.59e5	4.50e5	1.317	1.021	1.050	3509	3035	5.84e6	5.77e6	1664.2	NO	49.157
OCDF	46.712	1.006	7.18e5	7.97e5	1.166	0.901	0.890	2661	2344	7.05e6	7.77e6	2651.0	NO	106.433
2378-TCDD	26.168	1.001	1.05e5	1.29e5	1.134	0.812	0.770	1876	2021	1.50e6	1.87e6	797.4	NO	10.174
12378-PeCDD	31.264	1.001	5.36e5	3.47e5	0.975	1.544	1.550	3912	2752	8.05e6	5.19e6	2057.0	NO	51.641
123478-HxCDD	35.911	1.000	4.72e5	3.76e5	1.031	1.254	1.240	3524	3024	7.10e6	5.70e6	2015.7	NO	48.968
123678-HxCDD	36.043	1.000	4.96e5	3.97e5	0.971	1.247	1.240	3524	3024	7.33e6	5.88e6	2080.5	NO	52.303
123789-HxCDD	36.470	1.012	4.78e5	3.90e5	0.947	1.227	1.240	3524	3024	6.90e6	5.54e6	1958.6	NO	53.352
1234678-HpCDD	40.745	1.000	3.94e5	3.71e5	1.028	1.063	1.050	3011	2773	5.22e6	4.94e6	1734.7	NO	50.910
OCDD	46.443	1.000	6.12e5	6.81e5	1.107	0.899	0.890	1874	2743	6.27e6	6.87e6	3345.6	NO	95.684
13C-2378-TCDF	25.510	1.007	1.55e6	1.99e6	1.567	0.779	0.770	5367	3884	2.20e7	2.84e7	4091.0	NO	102.071
13C-12378-PeCDF	29.642	1.169	1.76e6	1.12e6	1.274	1.572	1.550	5340	5302	2.57e7	1.65e7	4821.1	NO	102.251
13C-23478-PeCDF	30.990	1.223	1.79e6	1.13e6	1.235	1.580	1.550	5340	5302	2.69e7	1.71e7	5039.1	NO	107.265
13C-123478-HxCDF	34.662	0.951	7.16e5	1.42e6	1.381	0.505	0.510	4656	4261	1.07e7	2.12e7	2290.5	NO	97.307
13C-123678-HxCDF	34.815	0.955	8.10e5	1.56e6	1.569	0.518	0.510	4656	4261	1.18e7	2.26e7	2529.6	NO	95.173
13C-234678-HxCDF	35.758	0.981	7.04e5	1.36e6	1.345	0.519	0.510	4656	4261	1.03e7	2.00e7	2214.2	NO	96.325
13C-123789-HxCDF	36.909	1.013	6.42e5	1.24e6	1.183	0.518	0.510	4656	4261	9.20e6	1.75e7	1975.1	NO	99.976
13C-1234678-HpCDF	38.969	1.069	5.59e5	1.24e6	1.178	0.451	0.440	2879	3544	8.29e6	1.84e7	2880.9	NO	95.999
13C-1234789-HpCDF	41.589	1.141	4.39e5	9.64e5	0.878	0.455	0.440	2879	3544	5.66e6	1.23e7	1966.0	NO	100.547
13C-1234-TCDD	25.346	0.000	9.83e5	1.22e6	1.000	0.803	0.770	3005	1826	1.45e7	1.78e7	4819.7	NO	100.000
13C-2378-TCDD	26.153	1.032	8.94e5	1.13e6	0.908	0.790	0.770	3005	1826	1.30e7	1.62e7	4316.2	NO	101.072
13C-12378-PeCDD	31.242	1.233	1.08e6	6.74e5	0.756	1.598	1.550	2055	1075	1.61e7	1.01e7	7827.6	NO	104.980
13C-123478-HxCDD	35.900	0.985	9.40e5	7.40e5	1.056	1.270	1.240	1774	2973	1.40e7	1.11e7	7916.8	NO	100.060
13C-123678-HxCDD	36.032	0.989	9.82e5	7.75e5	1.163	1.266	1.240	1774	2973	1.43e7	1.13e7	8053.3	NO	95.045
13C-1234678-HpCDD	40.723	1.117	7.52e5	7.09e5	0.909	1.060	1.050	2366	2685	9.93e6	9.39e6	4197.9	NO	101.053
13C-OCDD	46.425	1.274	1.15e6	1.29e6	0.820	0.888	0.890	3311	2676	1.19e7	1.31e7	3581.9	NO	187.387

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:19 Pacific Standard Time

ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
13C-123789-HxCDD	36.448	0.000	8.88e5	7.02e5	1.000	1.265	1.240	1774	2973	1.29e7	1.02e7	7254.0	NO	100.000
Total-tetrafurans			4.92e5		0.935			1702		7.01e6				34.020
Total-penta1			1.08e6					1130		1.58e7				67.542
Total-pentafurans			2.70e6		0.957			4940		3.95e7				158.838
Total-hexafurans			3.43e6		1.125			4594		4.97e7				259.573
Total-heptafurans			1.03e6		1.310			3509		1.43e7				97.004
Total-Furans			9.45e6		1.114			1702		1.33e8				723.470
Total-tetradioxins			5.62e5		1.134			1876		7.40e6				55.216
Total-pentadioxins			2.09e6		0.975			3912		2.63e7				201.030
Total-hexadioxins			1.96e6		0.983			3524		2.88e7				209.106
Total-heptadioxins			8.29e5		1.028			3011		1.15e7				107.169
Total-Dioxins			6.05e6		1.028			1876		8.03e7				668.205
Total-TEQ			1.55e7					1876		2.14e8				1391.674
37CL-2378-TCDD	26.168	1.032	2.47e5		1.067			1254		3.51e6		2797.1		10.487
FUNCTION1 PFK			6.76e5					394645		1.42e7				
FUNCTION2 PFK			1.64e5					120398		5.22e6				0.000
FUNCTION3 PFK			1.41e5					349386		5.74e6				0.000
FUNCTION4 PFK			3.64e5					276204		1.14e7				
FUNCTION5 PFK			2.86e5					167553		9.51e6				
FUNCTION1 HXCDPE			7.48e1					398		2.20e3				0.000
FUNCTION1 HPCDPE			4.57e2					742		1.15e4				0.000
FUNCTION2 HPCDPE			1.01e3					1061		2.60e4				0.000
FUNCTION3 OCDPE			0.00e0					441		0.00e0				
FUNCTION4 NCDPE			0.00e0					424		0.00e0				
FUNCTION5 DCDPE			7.53e1					461		3.79e3				0.000

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
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Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

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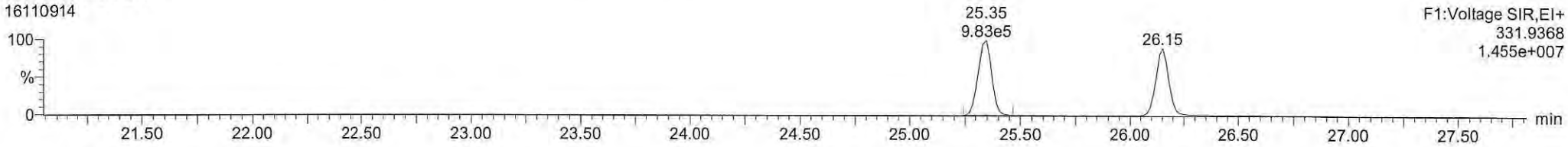

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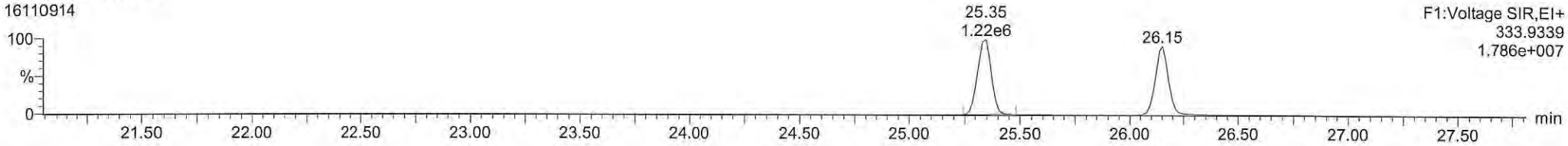

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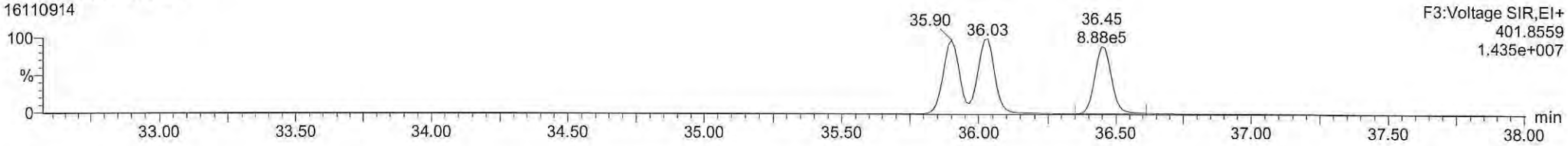

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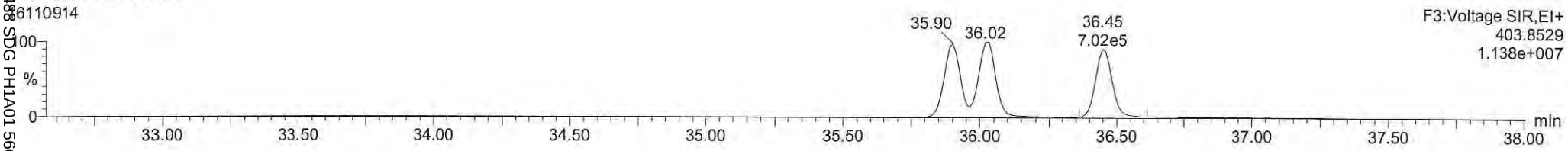

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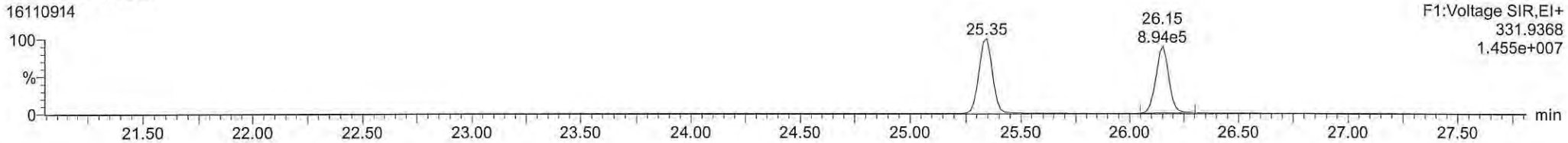
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:19 Pacific Standard Time

ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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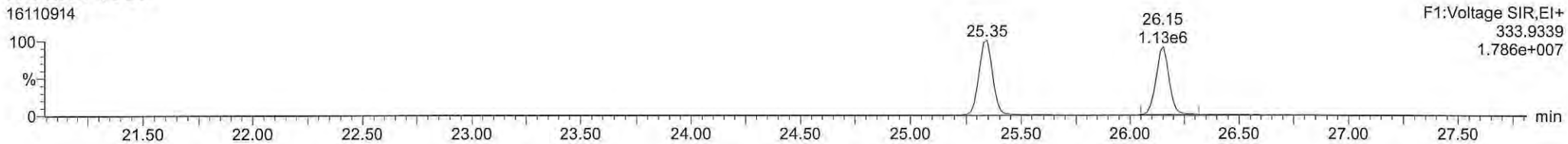

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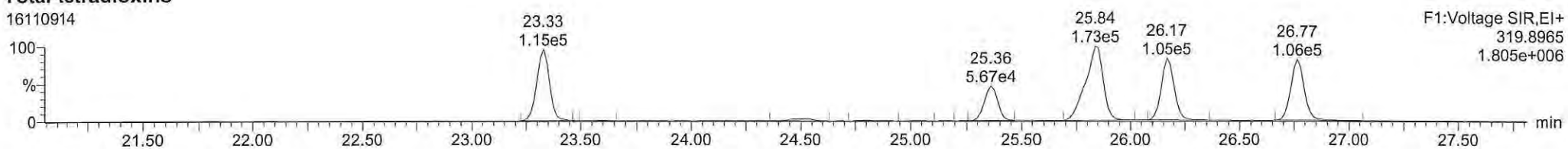

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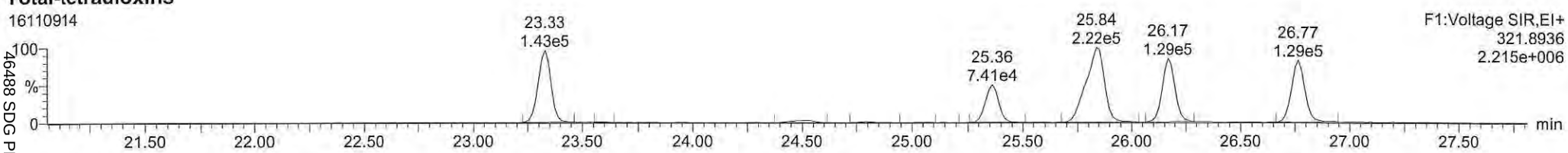
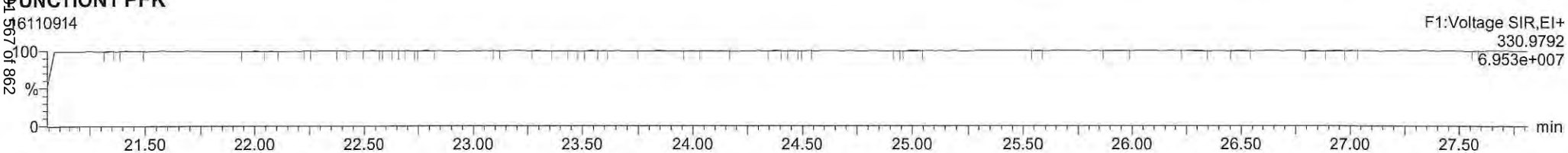


FUNCTION1 PFK



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Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
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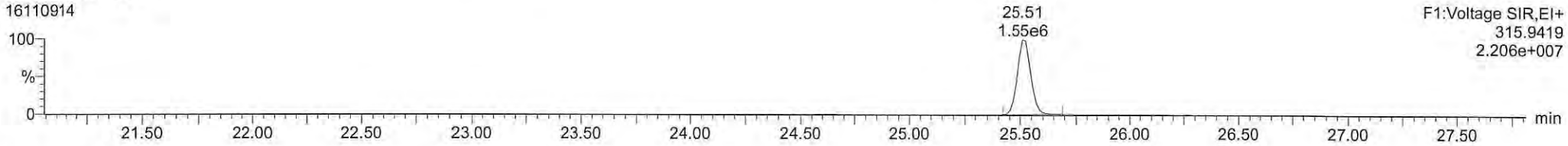
ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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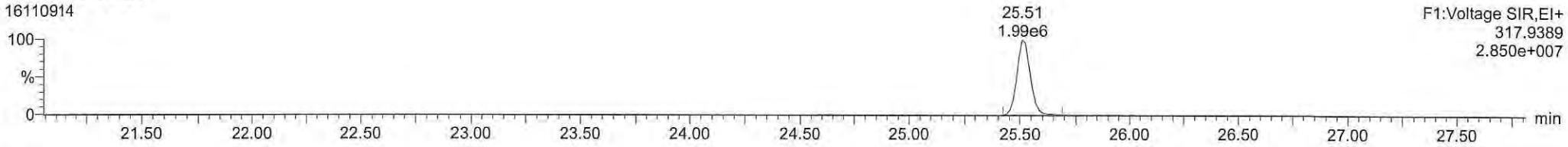
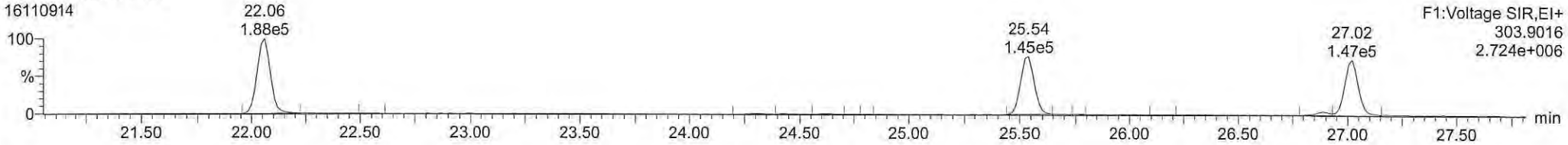


Total-tetrafurans



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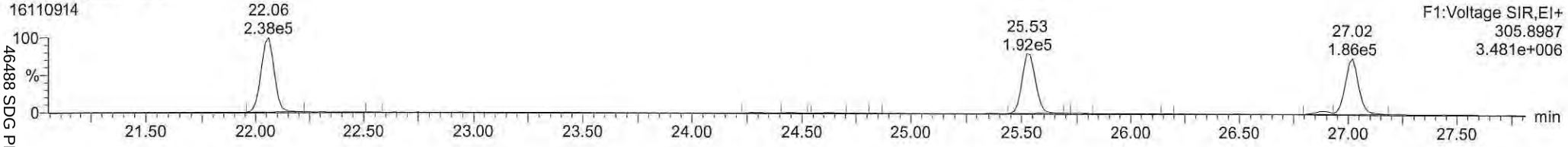

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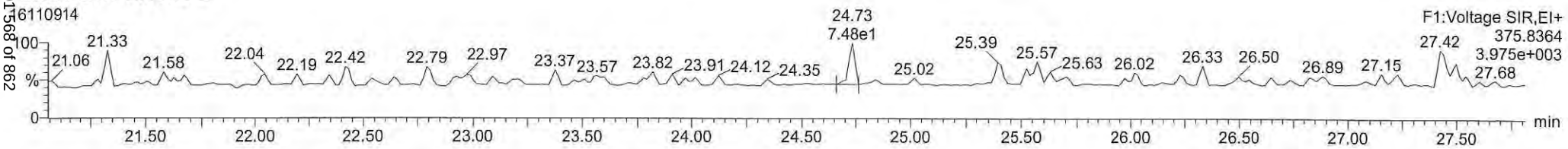
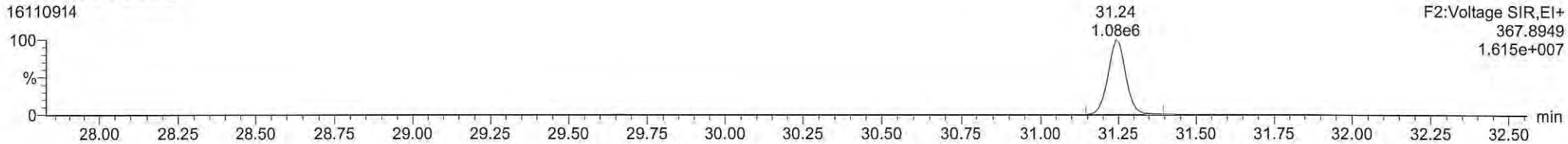


Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:19 Pacific Standard Time

ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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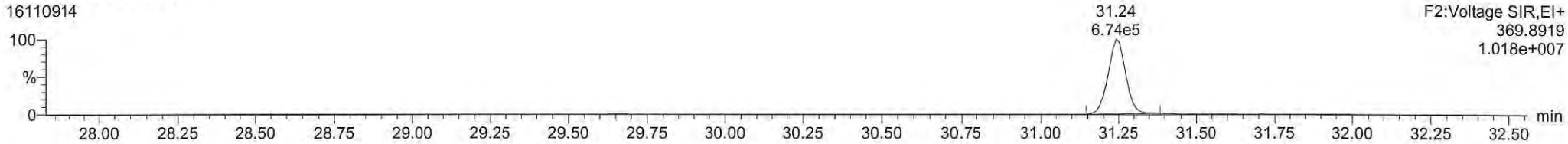

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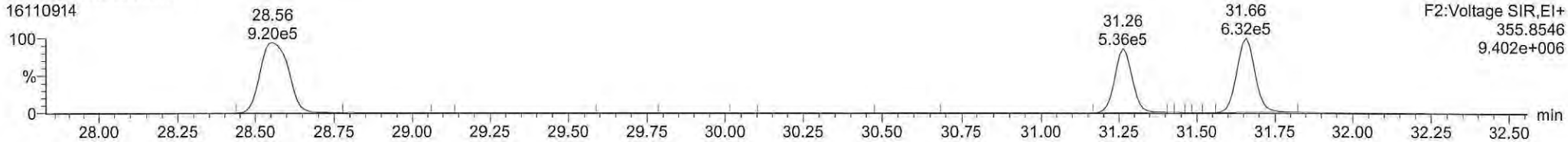

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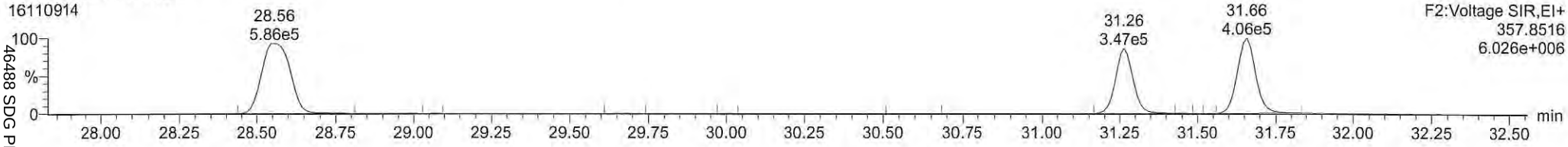
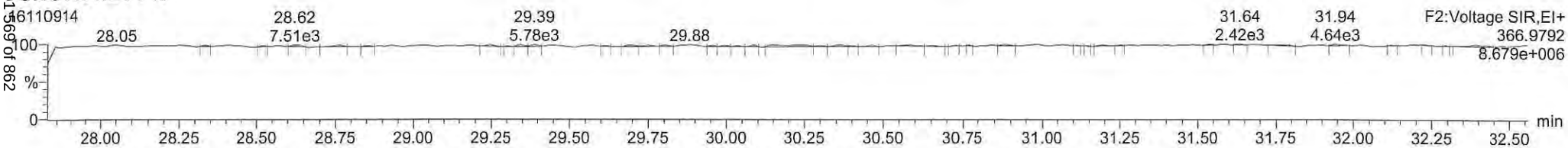


FUNCTION2 PFK



46488 SDG PH1611569 of 862

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:19 Pacific Standard Time

ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

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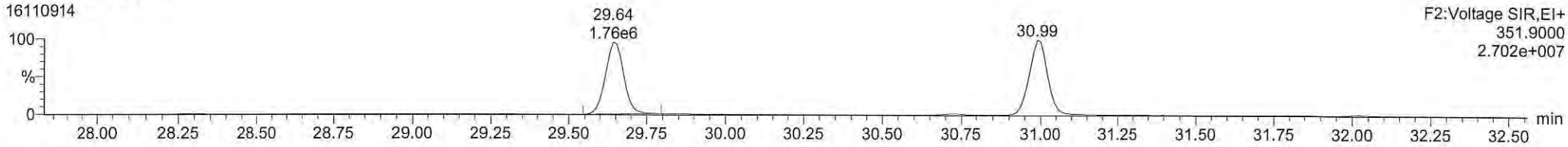

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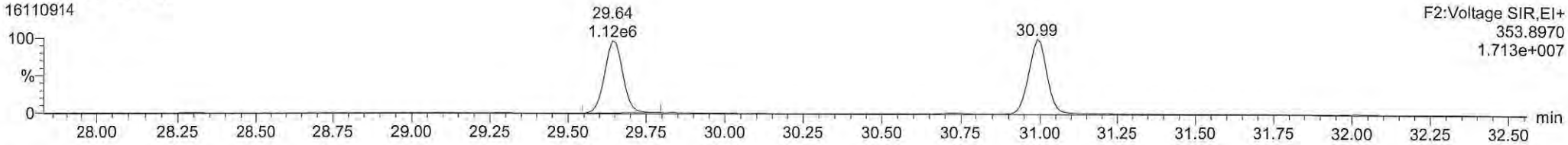
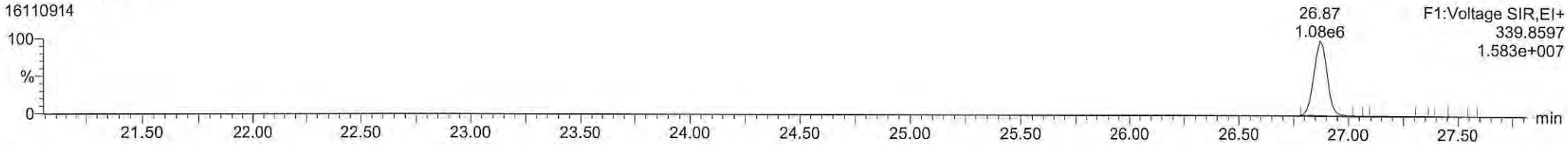
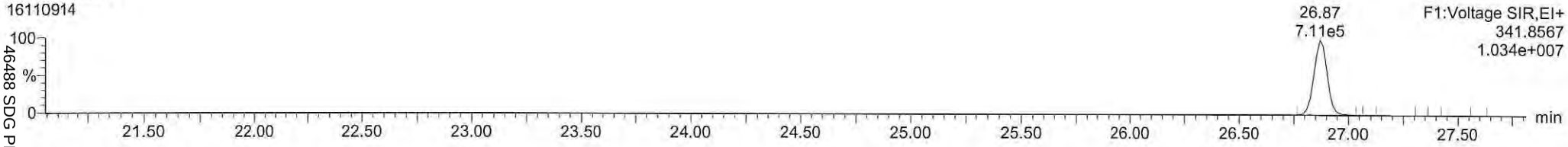


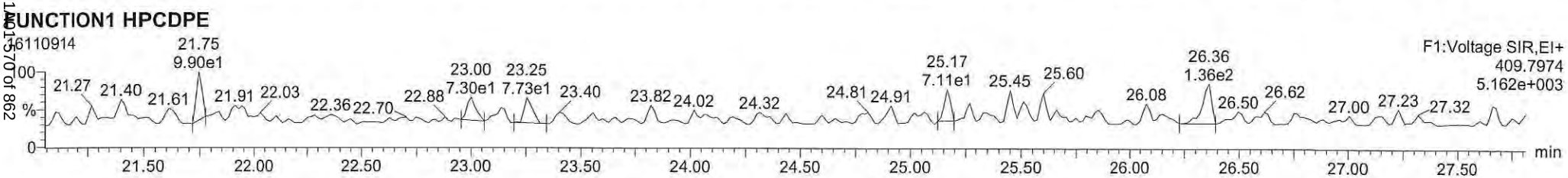
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



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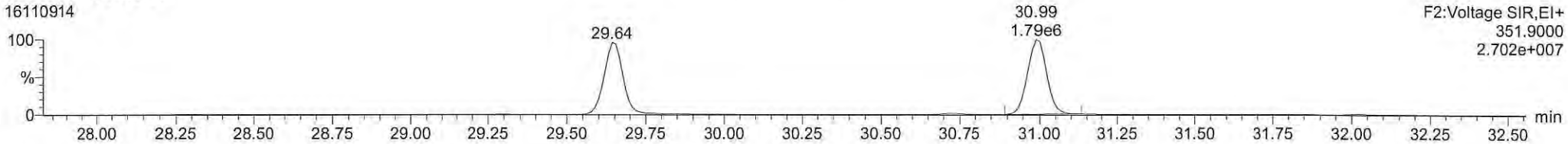
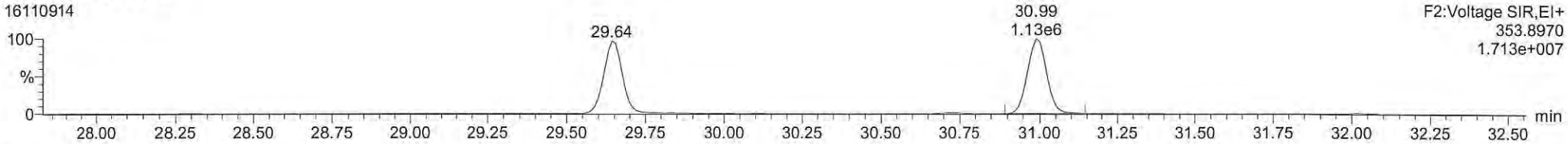
Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:19 Pacific Standard Time

ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

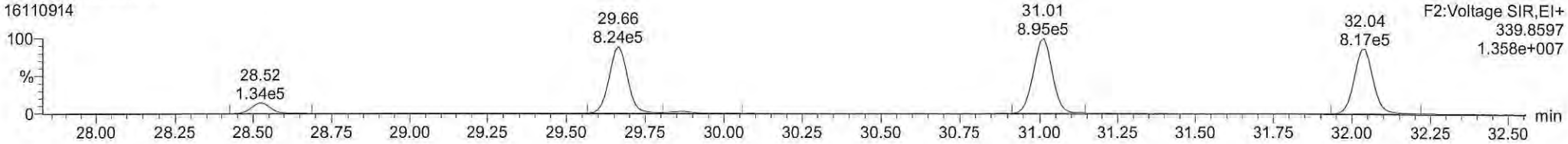
13C-23478-PeCDF



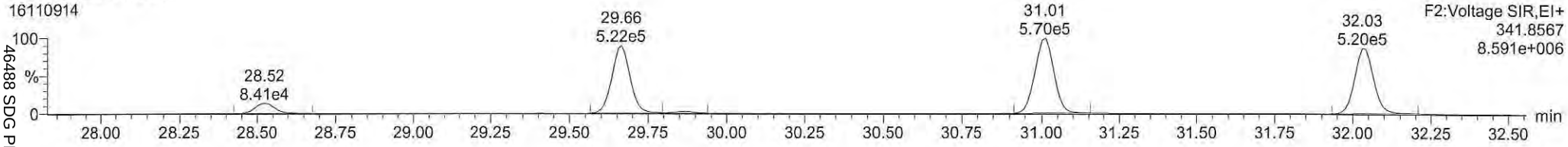
13C-23478-PeCDF



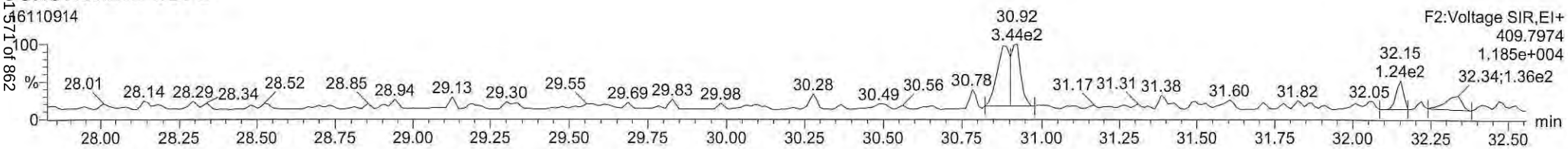
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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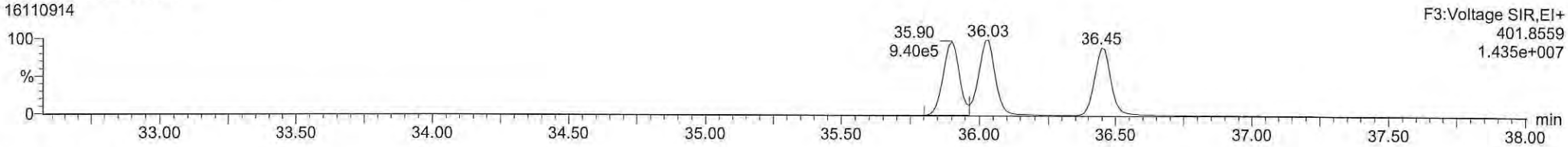
ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



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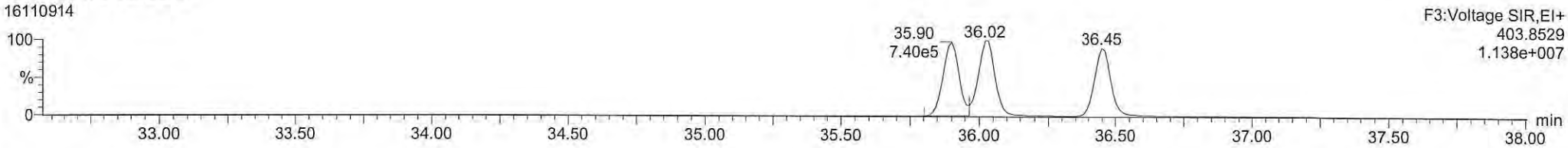

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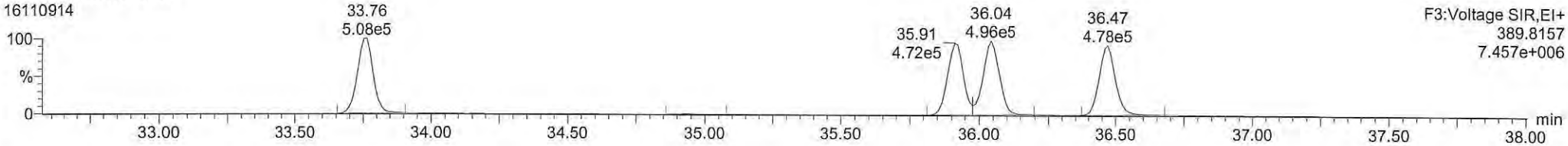
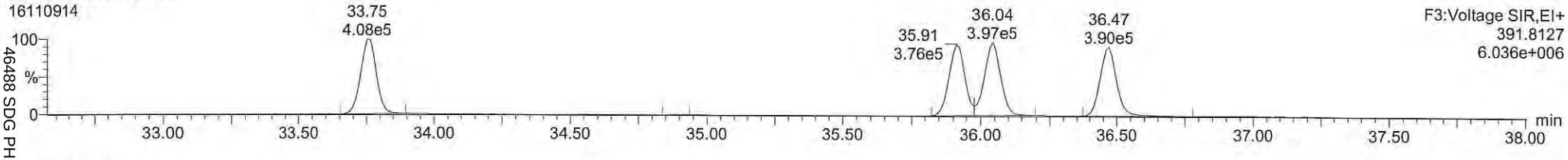
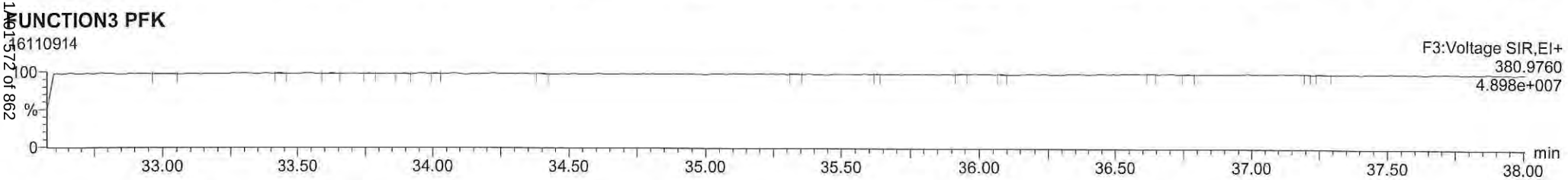


Total-hexadioxins



FUNCTION3 PFK



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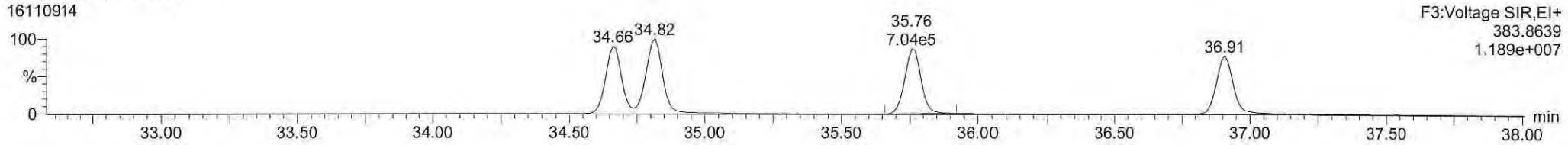
13C-234678-HxCDF



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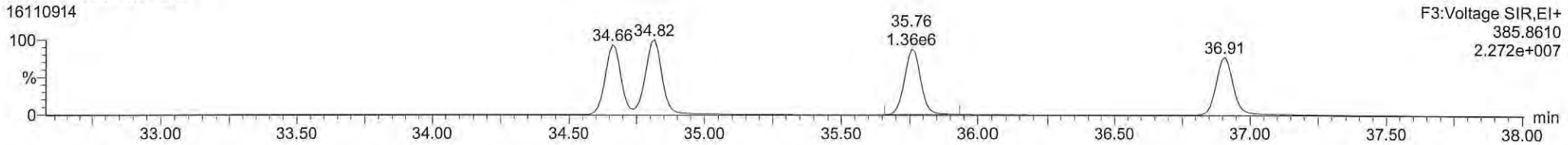
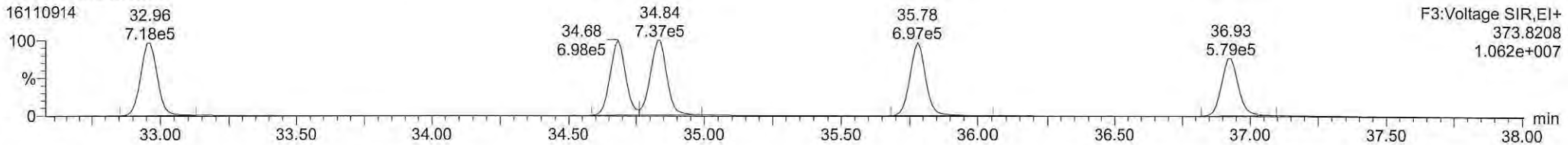
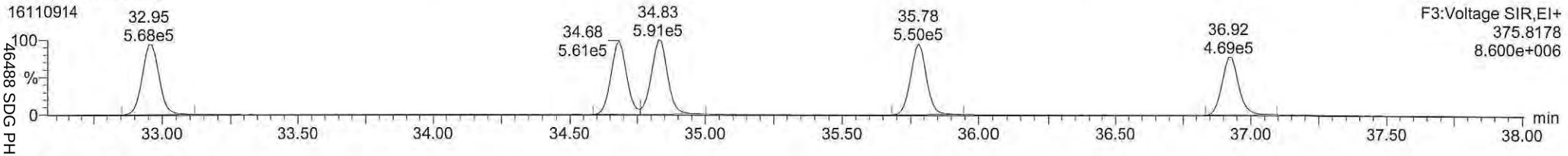


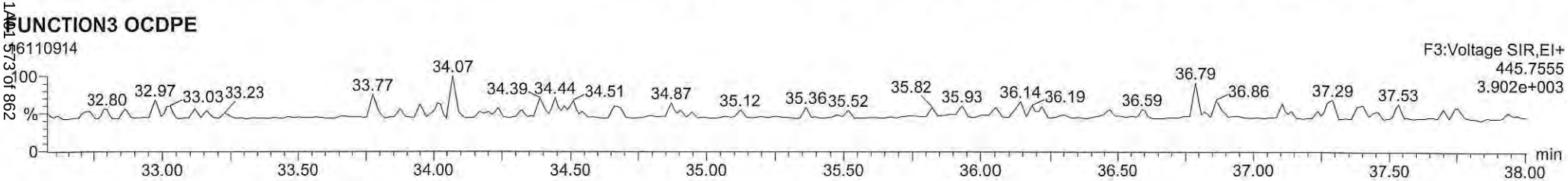
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
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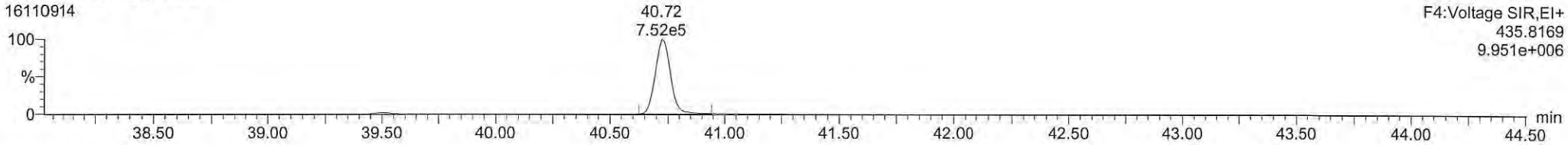
ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



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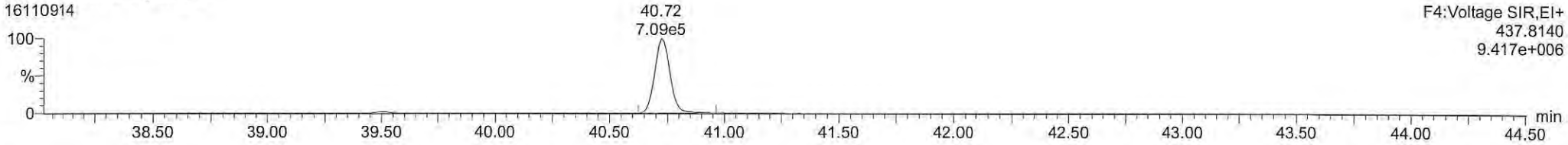
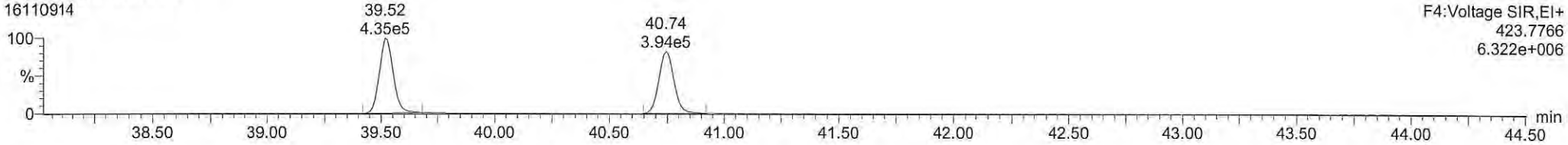
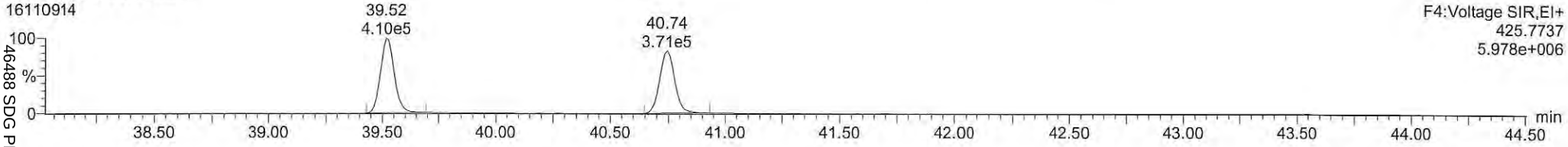


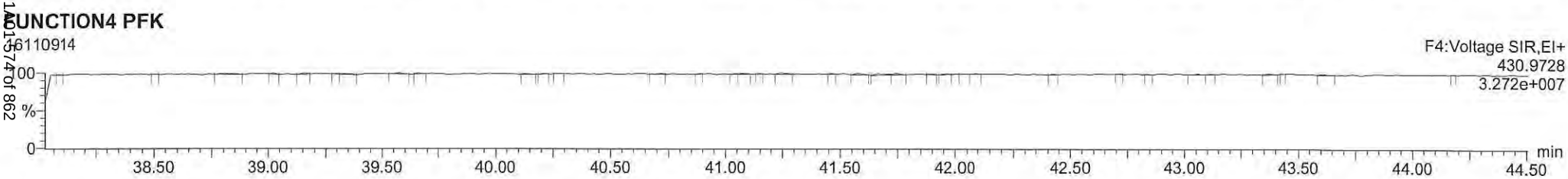
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



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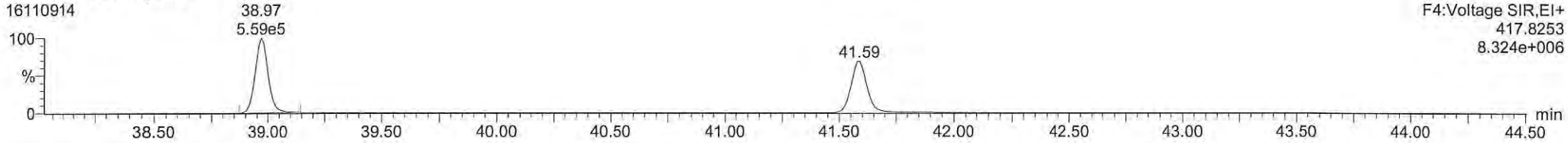
ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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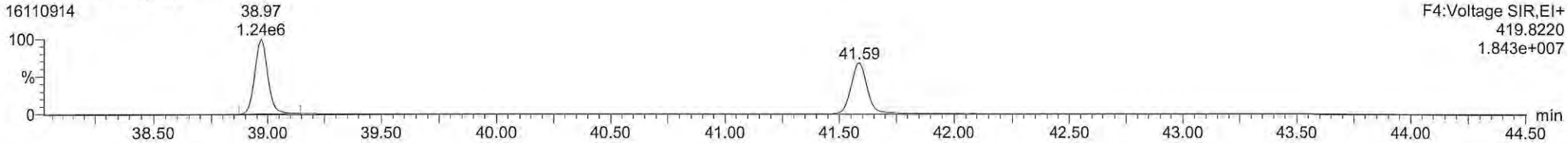
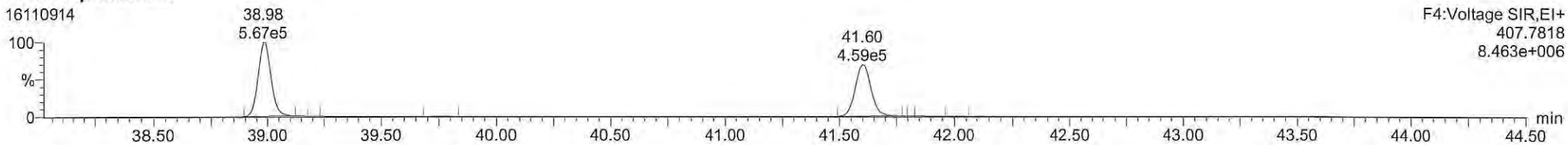


Total-heptafurans



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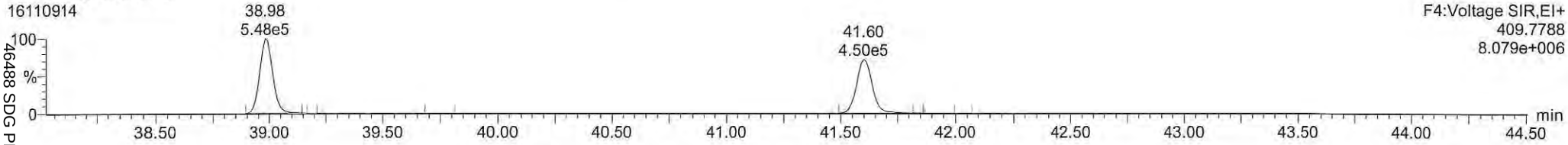
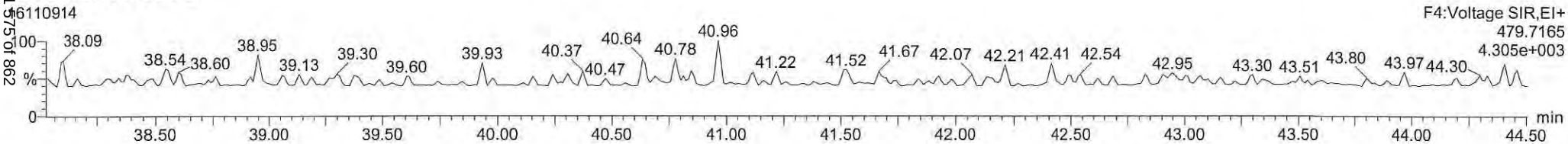


FUNCTION4 NCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
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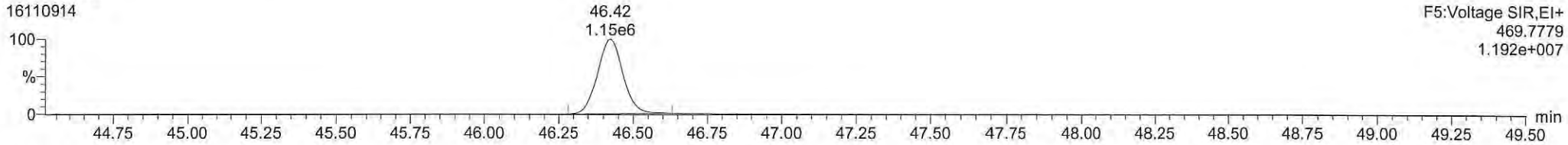
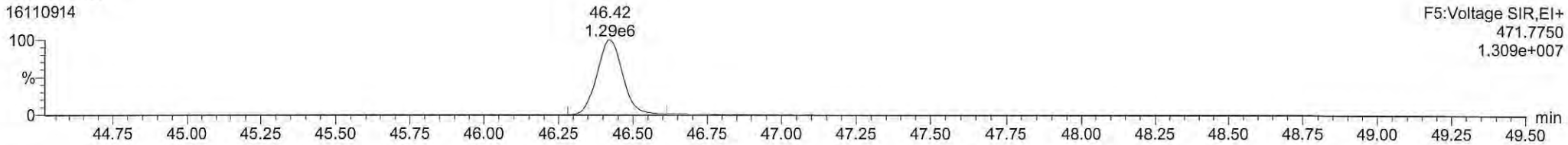
ID: CS3C2, Name: 16110914, Date: 09-Nov-2016, Time: 23:10:20, Conditions: AUTOSPEC01, User: PK

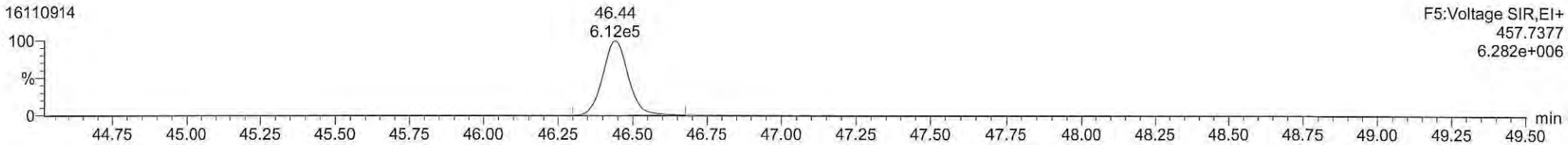
13C-OCDD



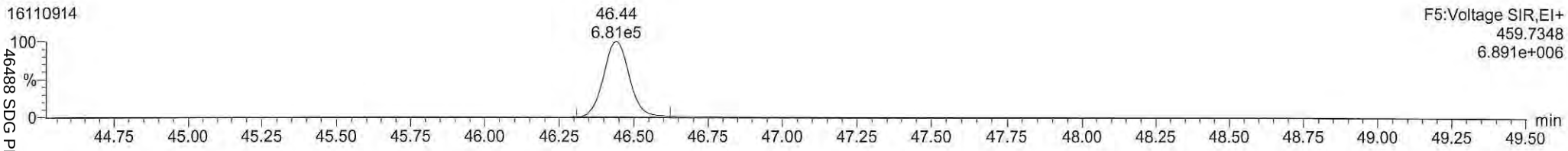
13C-OCDD



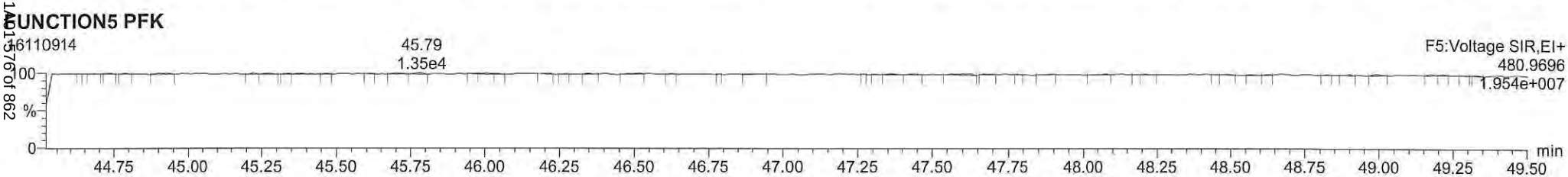
OCDD



OCDD



FUNCTION5 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
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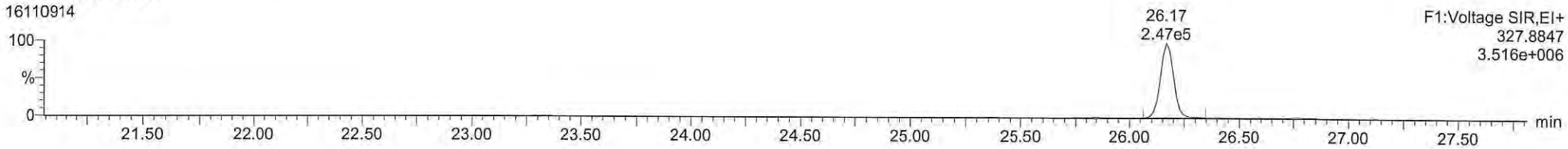
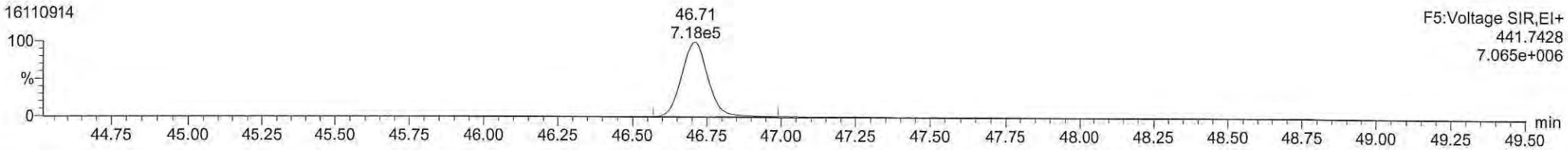
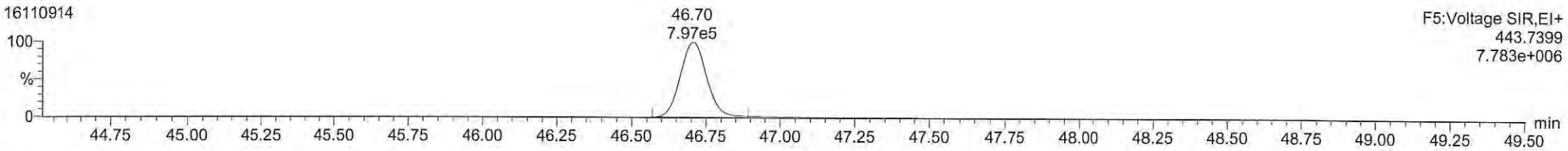
37CL-2378-TCDD



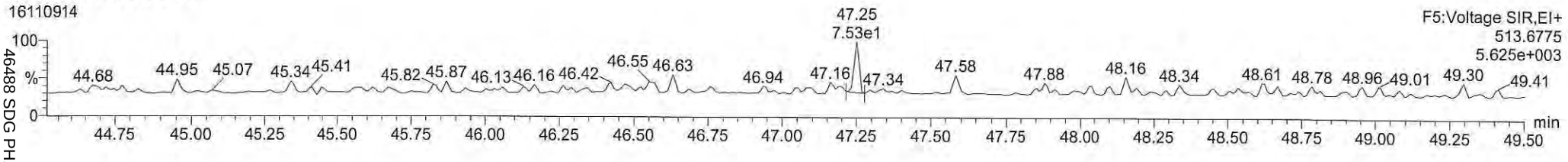
OCDF



OCDF



FUNCTION5 DCDPE



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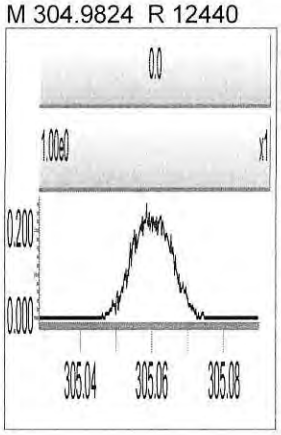
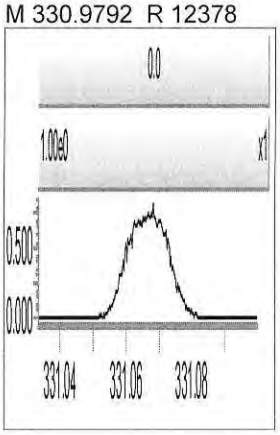
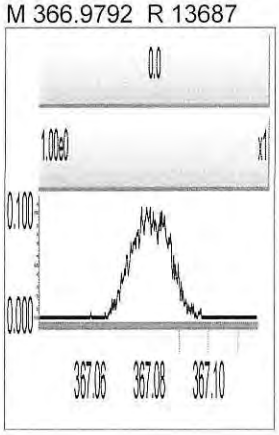
M 304.9824 R 12440



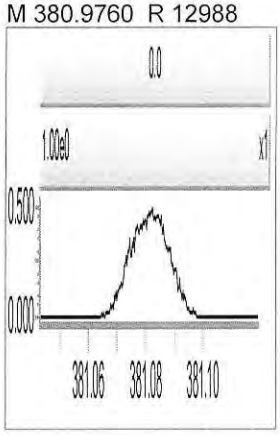
M 330.9792 R 12378



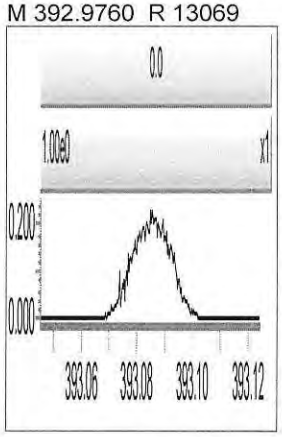
M 366.9792 R 13687



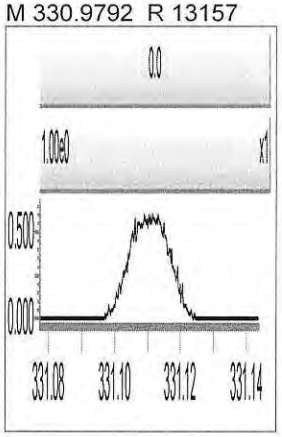
M 380.9760 R 12988



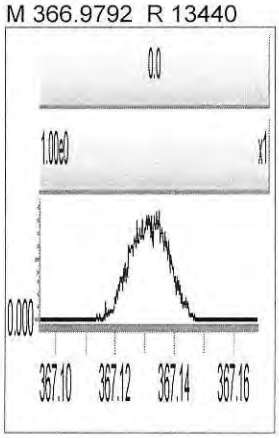
M 392.9760 R 13069



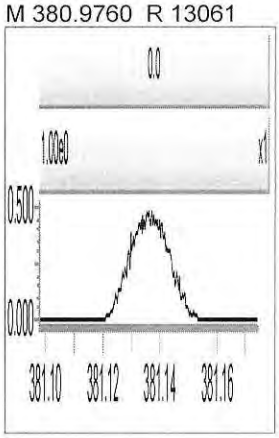
M 330.9792 R 13157



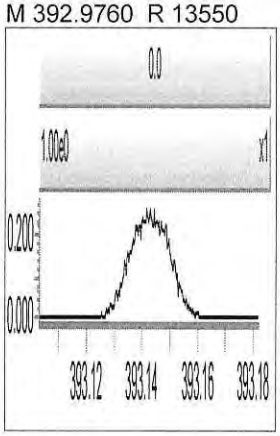
M 366.9792 R 13440



M 380.9760 R 13061



M 392.9760 R 13550



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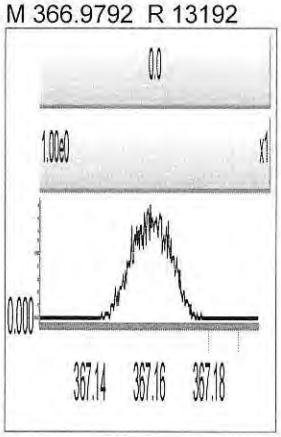
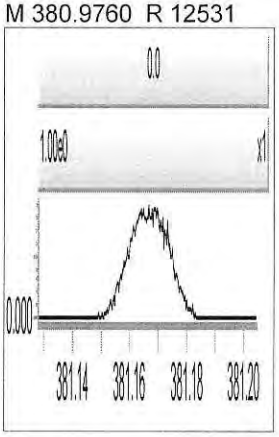
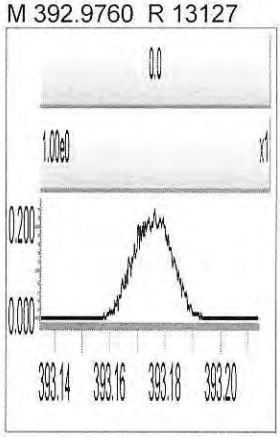


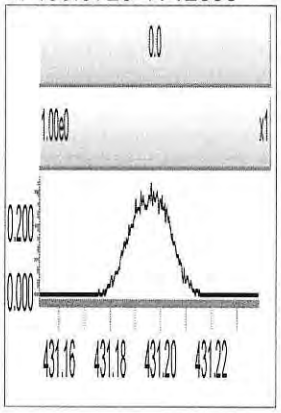
M 380.9760 R 12531



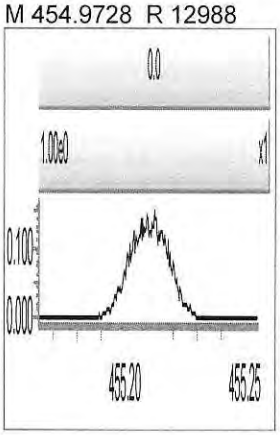
M 392.9760 R 13127



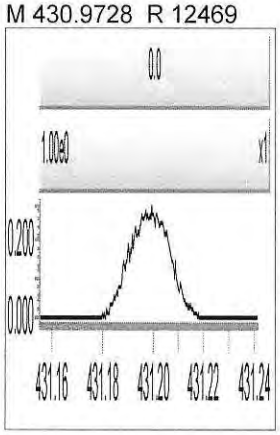
M 430.9728 R 12698



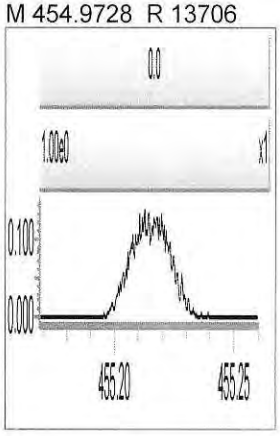
M 454.9728 R 12988



M 430.9728 R 12469



M 454.9728 R 13706



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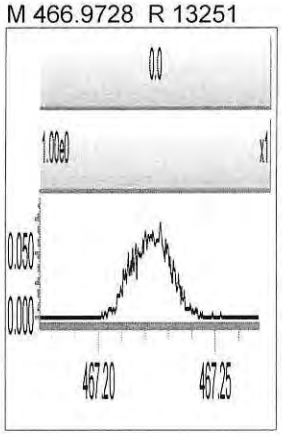
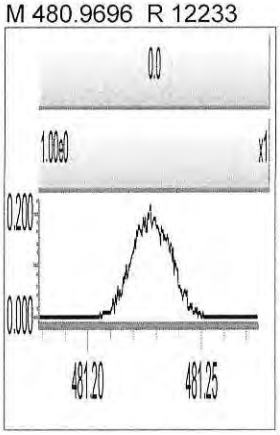
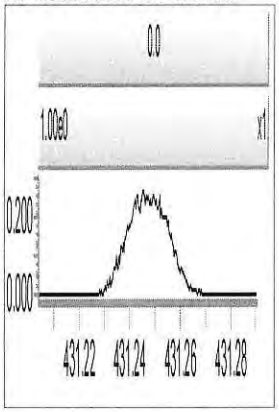
M 466.9728 R 13251



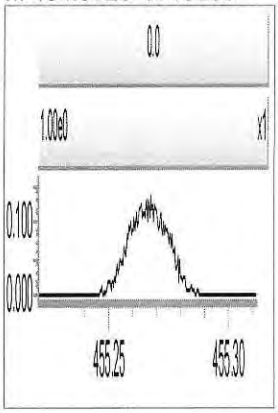
M 480.9696 R 12233



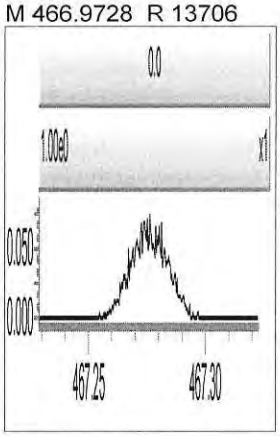
M 430.9728 R 12705



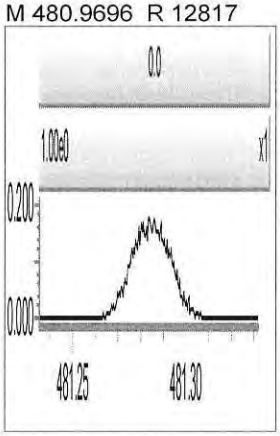
M 454.9728 R 13230



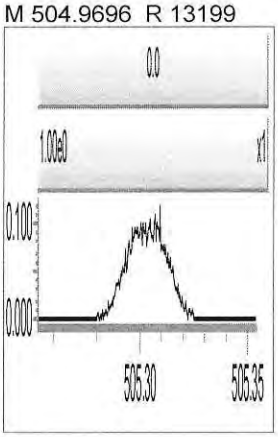
M 466.9728 R 13706

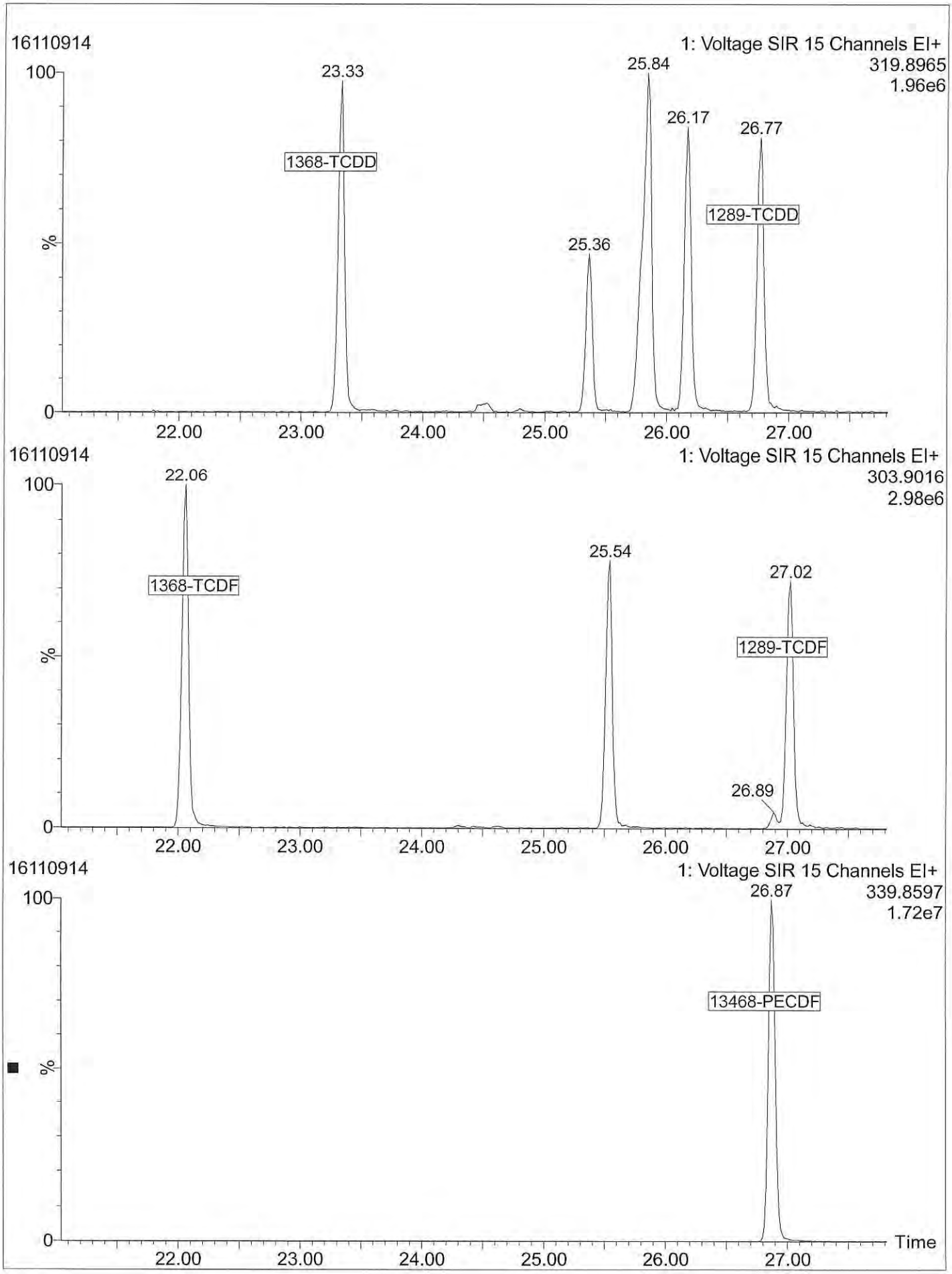


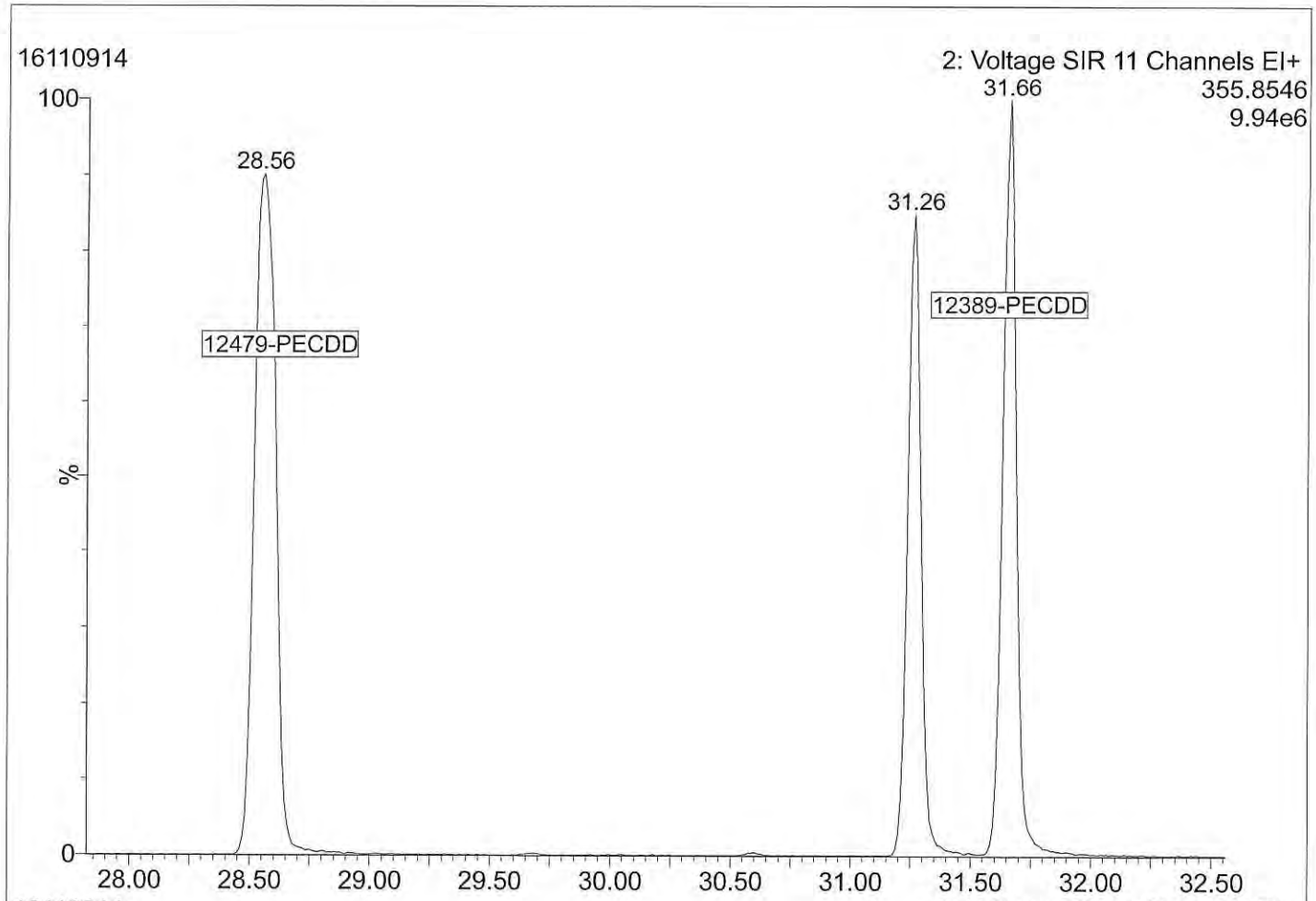
M 480.9696 R 12817

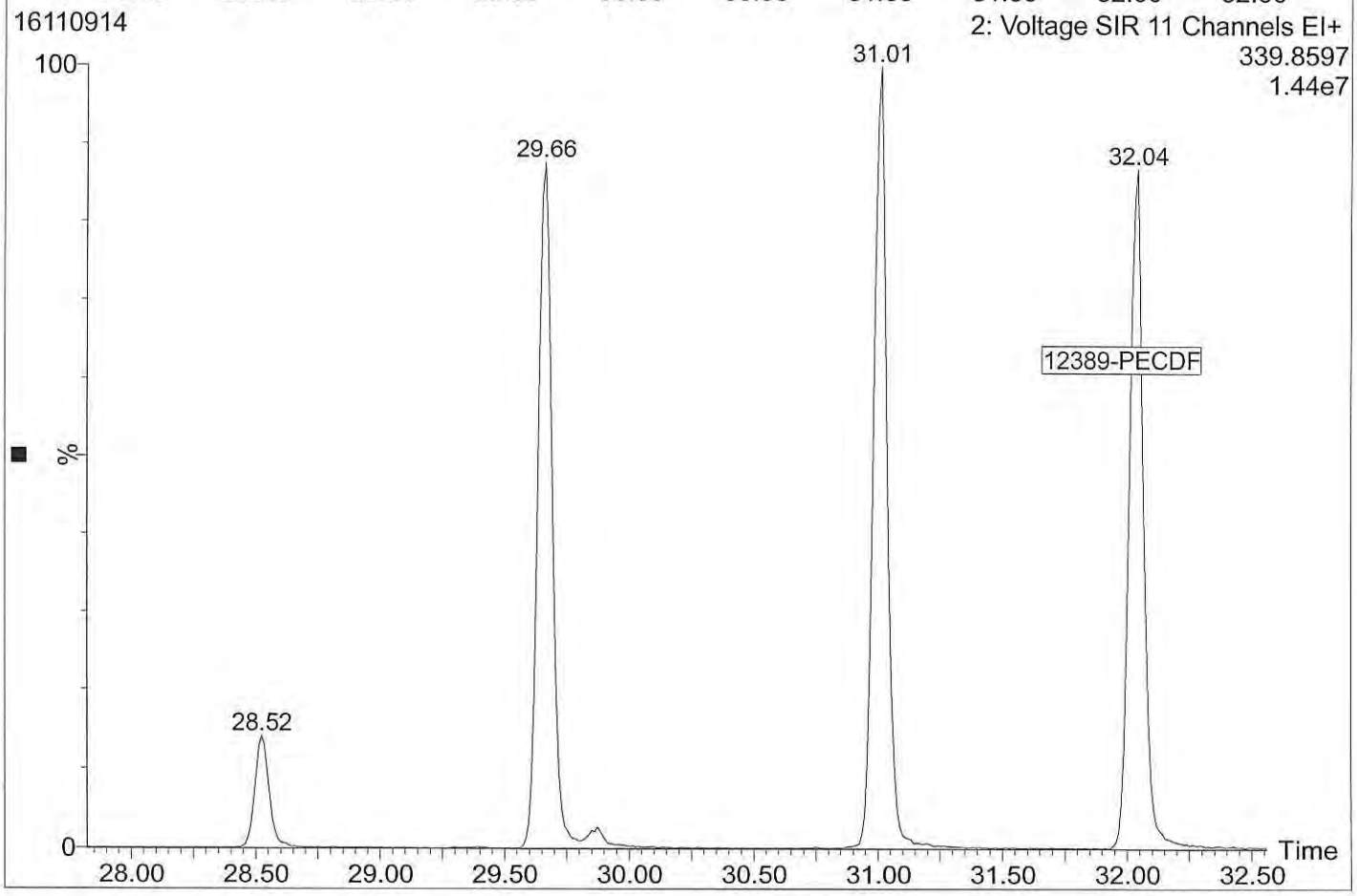


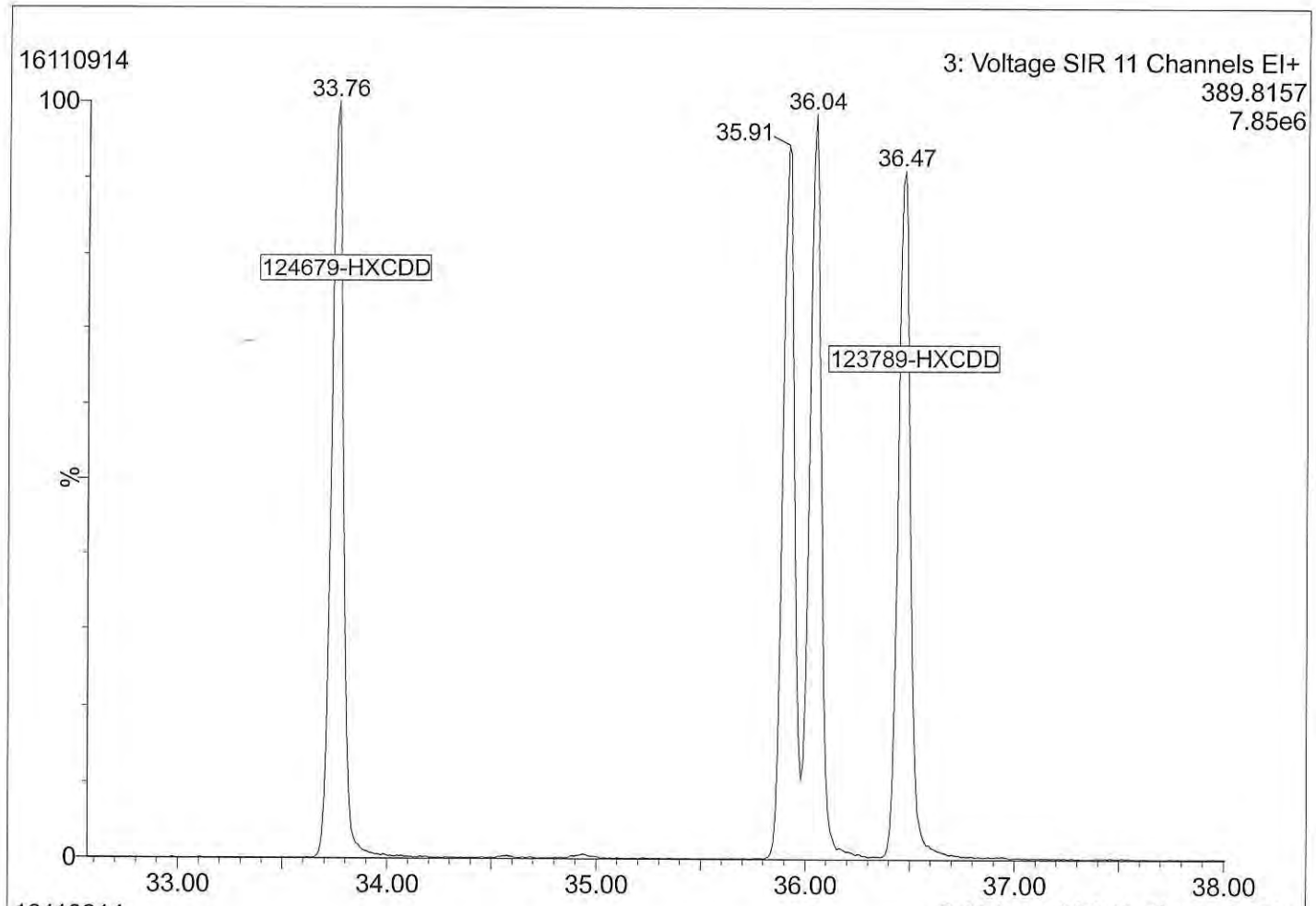
M 504.9696 R 13199

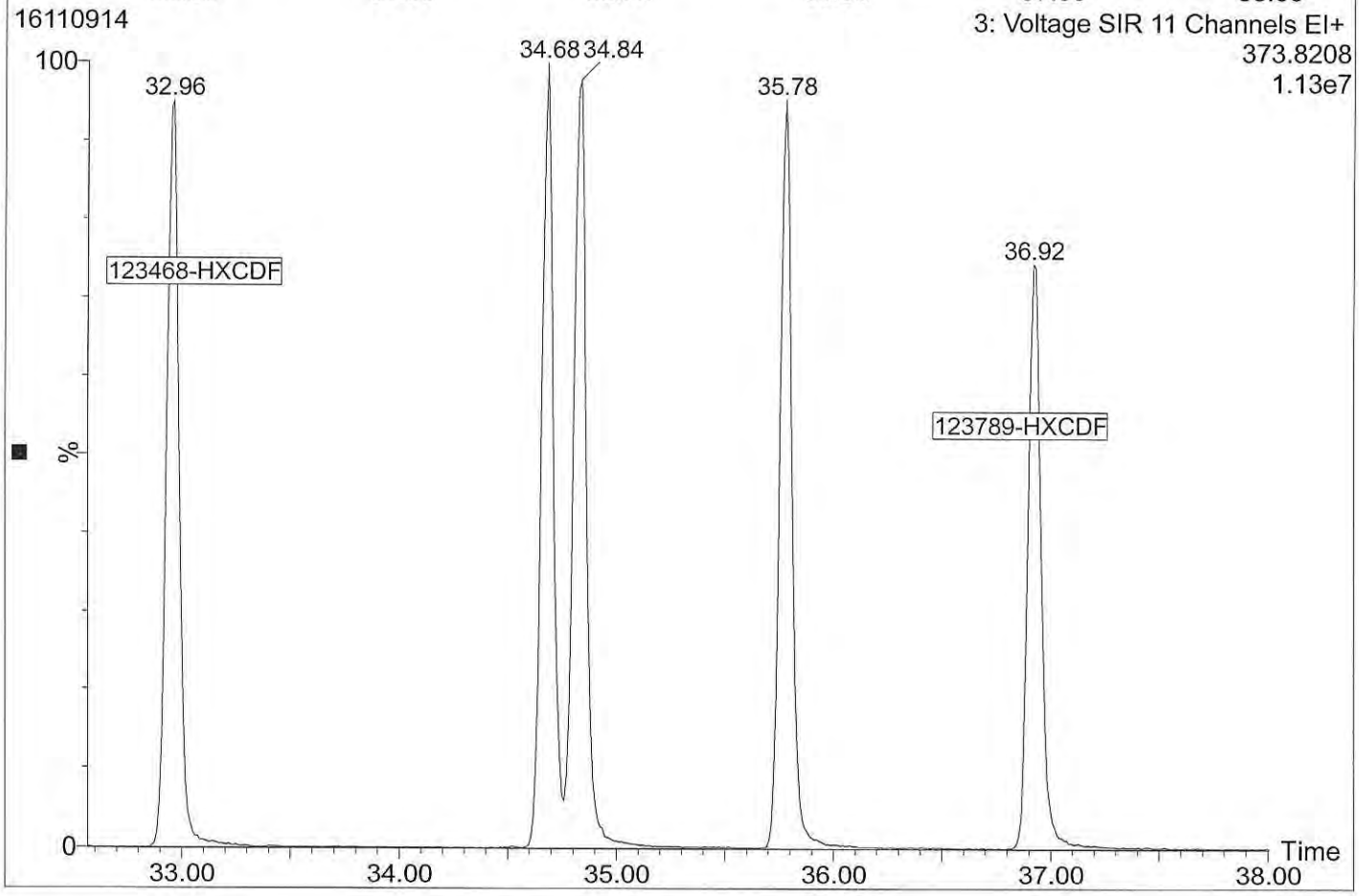


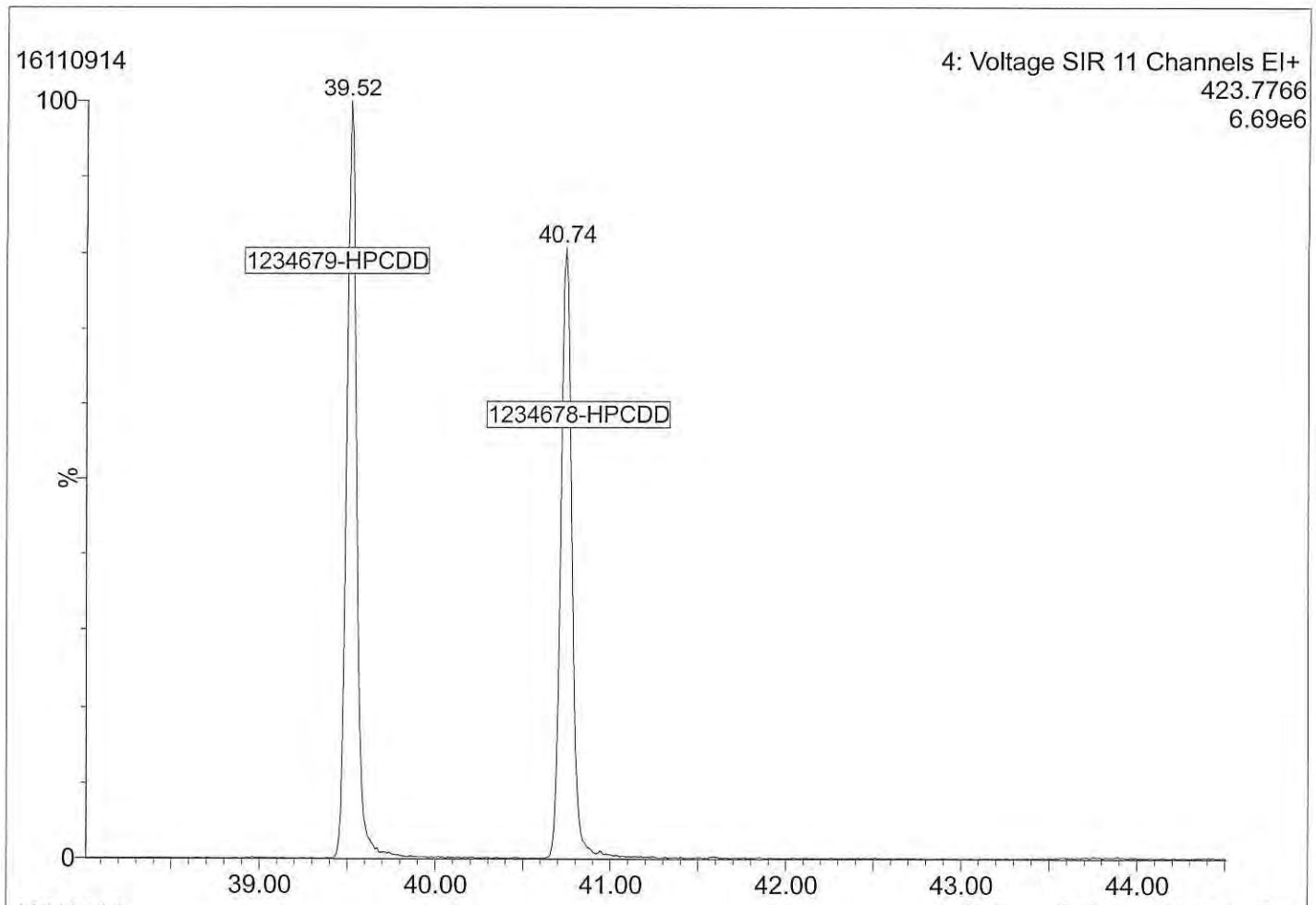

16110914
1: Voltage SIR 15 Channels EI+
319.8965
1.96e6
23.33
1368-TCDD
25.36
25.84
26.17
26.77
1289-TCDD
16110914
1: Voltage SIR 15 Channels EI+
303.9016
2.98e6
22.06
1368-TCDF
25.54
27.02
1289-TCDF
26.89
16110914
1: Voltage SIR 15 Channels EI+
339.8597
1.72e7
26.87
13468-PECDF
100
%
0
22.00
23.00
24.00
25.00
26.00
27.00
Time

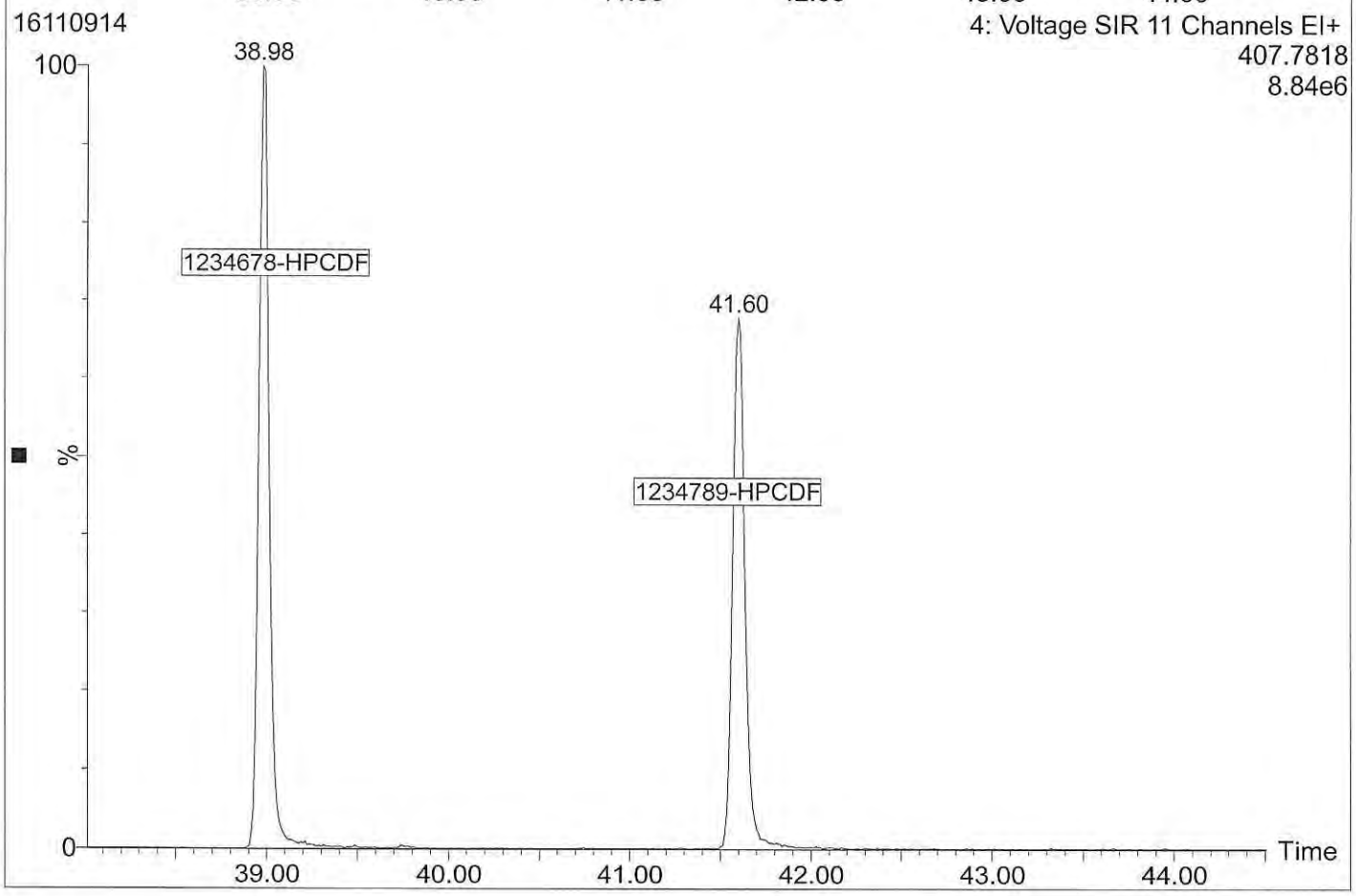

16110914
2: Voltage SIR 11 Channels EI+
355.8546
9.94e6
100
%
0
28.56
31.26
31.66
12479-PECDD
12389-PECDD
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

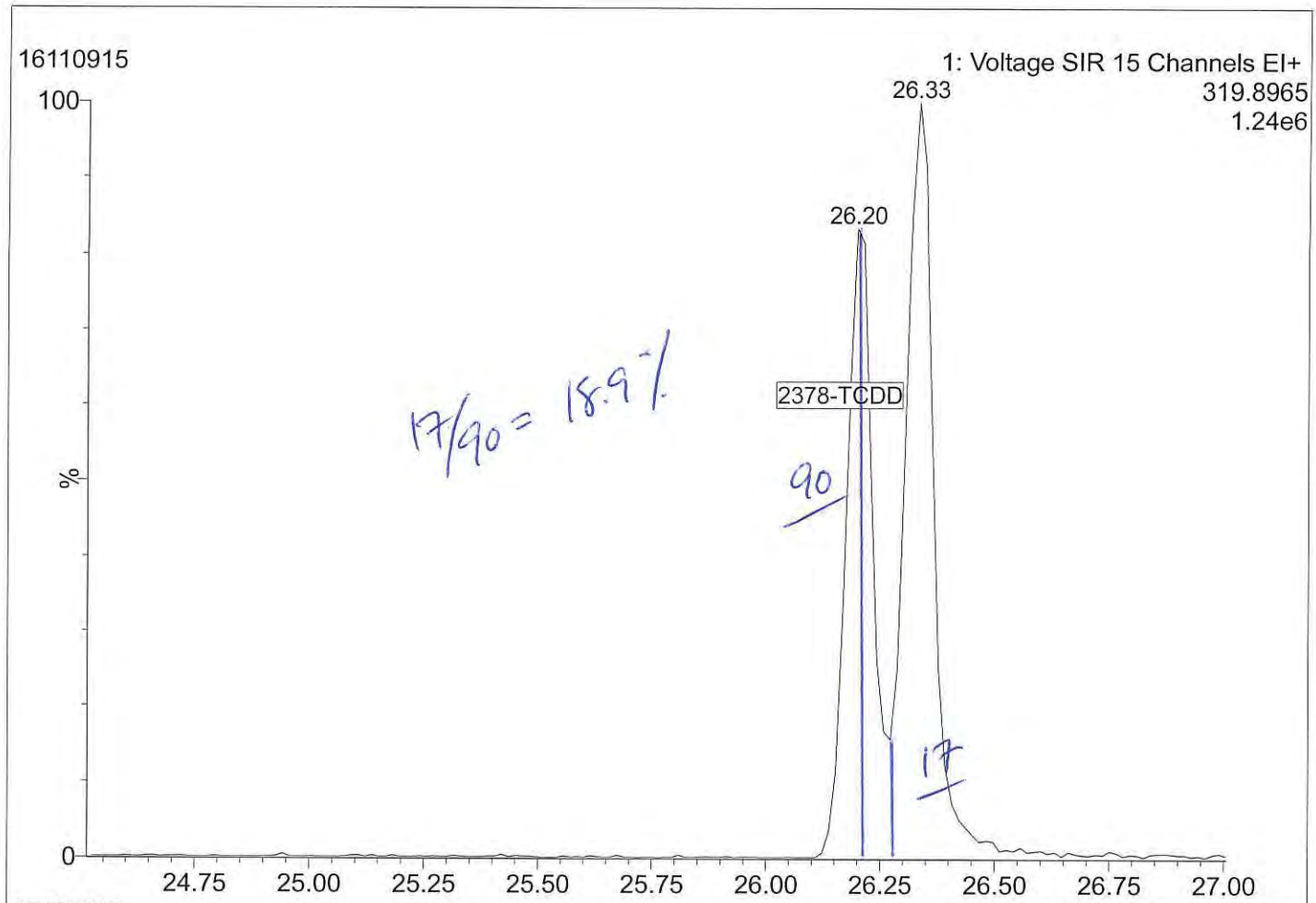

16110914
2: Voltage SIR 11 Channels EI+
339.8597
1.44e7
100
%
0
28.52
29.66
31.01
32.04
12389-PECDF
Time
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

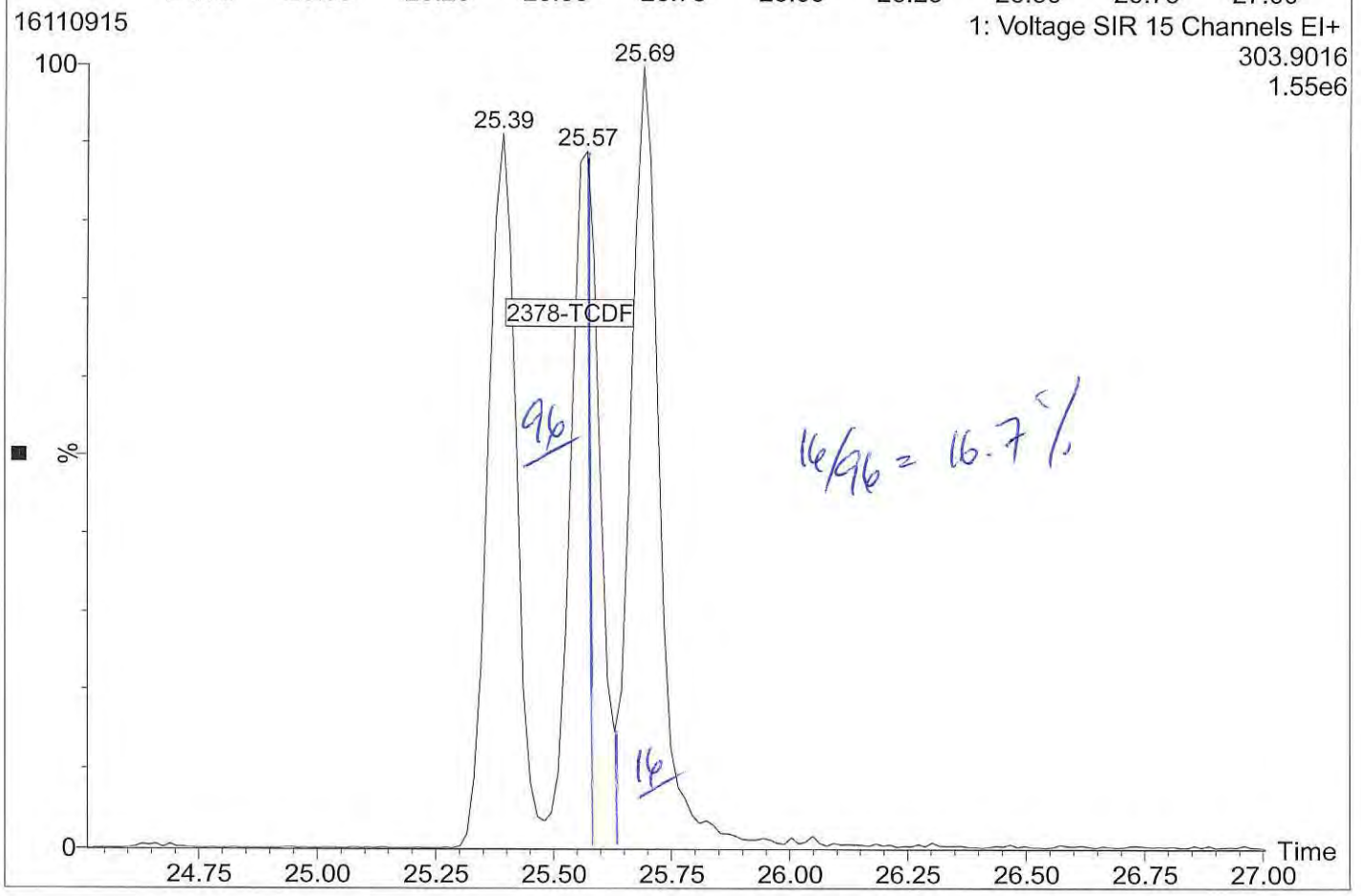

16110914
3: Voltage SIR 11 Channels EI+
389.8157
7.85e6
100
%
0
33.76
35.91
36.04
36.47
124679-HXCDD
123789-HXCDD
33.00
34.00
35.00
36.00
37.00
38.00


16110914
3: Voltage SIR 11 Channels EI+
373.8208
1.13e7
100
%
0
32.96
34.68
34.84
35.78
36.92
123468-HXCDF
123789-HXCDF
Time
33.00
34.00
35.00
36.00
37.00
38.00


16110914
4: Voltage SIR 11 Channels EI+
423.7766
6.69e6
100
%
0
39.52
1234679-HPCDD
40.74
1234678-HPCDD
39.00
40.00
41.00
42.00
43.00
44.00


16110914
4: Voltage SIR 11 Channels EI+
407.7818
8.84e6
100
%
0
38.98
1234678-HPCDF
41.60
1234789-HPCDF
Time
39.00
40.00
41.00
42.00
43.00
44.00


16110915
1: Voltage SIR 15 Channels EI+
319.8965
1.24e6
26.33
26.20
2378-TCDD
17/90 = 18.9%
90
17
100
%
0
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00


16110915
1: Voltage SIR 15 Channels EI+
303.9016
1.55e6
25.69
25.39
25.57
2378-TCDF
96
16
16/96 = 16.7%
100
%
0
Time
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00

FORM 7A-HR

RELATIVE RESPONSE/RELATIVE RESPONSE FACTOR -CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3C3

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/10/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 09:08

Analytical Method: CDD/CDF

CL No.	Analyte Name	RR/RRF	Mean RR/RRF	% D	IAR	IAR QC Limits
4	2,3,7,8-TCDD	1.17239	1.133965	3.4	0.79	0.655-0.886
5	1,2,3,7,8-PeCDD	1.007662	0.9753974	3.3	1.55	1.318-1.783
6	1,2,3,4,7,8-HxCDD	1.018105	1.031167	-1.3	1.24	1.054-1.426
6	1,2,3,6,7,8-HxCDD	1.042861	0.9714371	7.4	1.23	1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.031283	0.9950452	3.6	1.24	1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.049515	1.028016	2.1	1.06	0.893-1.208
8	OCDD	1.025862	1.107021	-7.3	0.88	0.757-1.024
4	2,3,7,8-TCDF	0.9807097	0.9347915	4.9	0.76	0.655-0.886
5	1,2,3,7,8-PeCDF	0.9531745	0.9519161	0.1	1.58	1.318-1.783
5	2,3,4,7,8-PeCDF	0.999408	0.9629117	3.8	1.57	1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.183338	1.136547	4.1	1.25	1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.109204	1.098742	1.0	1.24	1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.118692	1.100821	1.6	1.27	1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.20853	1.163504	3.9	1.23	1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	1.259773	1.302789	-3.3	1.04	0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.276902	1.317361	-3.1	1.03	0.893-1.208
8	OCDF	1.195366	1.165807	2.5	0.92	0.757-1.024
4	13C12-2,3,7,8-TCDF	1	1.567419	-36.2	0.79	0.655-0.886
4	13C12-2,3,7,8-TCDD	1	0.9077481	10.2	0.79	0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1	1.274097	-21.5	1.59	1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1	1.234626	-19.0	1.57	1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1	0.7557554	32.3	1.59	1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	1	1.380919	-27.6	0.52	0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	1	1.569453	-36.3	0.52	0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	1	1.34533	-25.7	0.53	0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	1	1.182895	-15.5	0.53	0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1	1.055904	-5.3	1.28	1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1	1.163036	-14.0	1.27	1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	1	1.178362	-15.1	0.45	0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	1	0.8777992	13.9	0.45	0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1	0.9091061	10.0	1.04	0.893-1.208
8	13C12-OCDD	1	0.8195753	22.0	0.90	0.757-1.024
4	37C14-2,3,7,8-TCDD	1.130803	1.066558	6.0		N/A
4	13C12-1,2,3,4-TCDD	25849.14	1	584,814	0.80	0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	20538.76	1	053,776	1.26	1.05-1.43

FORM 7B-HR
RELATIVE RETENTION TIME CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3C3

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/10/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 09:08

Analytical Method: CDD/CDF

CL No.	Analyte Name	Mean RRT	RRT	RRT QC Limits
4	2,3,7,8-TCDD	0.8331	1.0011	0.999-1.002
5	1,2,3,7,8-PeCDD	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDD	0.9999	1.0003	0.999-1.001
6	1,2,3,6,7,8-HxCDD	0.9999	1.0003	0.998-1.004
6	1,2,3,7,8,9-HxCDD	0.9999	1.0159	1.000-1.019
7	1,2,3,4,6,7,8-HpCDD	1.0000	1.0003	0.999-1.001
8	OCDD	0.9998	1.0004	0.999-1.001
4	2,3,7,8-TCDF	0.8330	1.0006	0.999-1.003
5	1,2,3,7,8-PeCDF	0.9997	1.0007	0.999-1.002
5	2,3,4,7,8-PeCDF	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDF	0.9999	1.0006	0.999-1.001
6	1,2,3,6,7,8-HxCDF	0.9997	1.0003	0.997-1.005
6	1,2,3,7,8,9-HxCDF	0.9999	1.0006	0.999-1.001
6	2,3,4,6,7,8-HxCDF	0.9998	1.0006	0.999-1.001
7	1,2,3,4,6,7,8-HpCDF	0.9999	1.0006	0.999-1.001
7	1,2,3,4,7,8,9-HpCDF	1.0000	1.0003	0.999-1.001
8	OCDF	0.9998	1.0060	0.999-1.008
4	13C12-2,3,7,8-TCDF	0.9995	1.0071	0.923-1.103
4	13C12-2,3,7,8-TCDD	0.9995	1.0318	0.976-1.043
5	13C12-1,2,3,7,8-PeCDF	0.9999	1.1697	1.000-1.425
5	13C12-2,3,4,7,8-PeCDF	0.9998	1.2228	1.011-1.526
5	13C12-1,2,3,7,8-PeCDD	0.9995	1.2328	1.000-1.567
6	13C12-1,2,3,4,7,8-HxCDF	0.9997	0.9510	0.944-0.970
6	13C12-1,2,3,6,7,8-HxCDF	0.9998	0.9552	0.949-0.975
6	13C12-2,3,4,6,7,8-HxCDF	0.9999	0.9811	0.959-1.021
6	13C12-1,2,3,7,8,9-HxCDF	1.0000	1.0126	0.977-1.047
6	13C12-1,2,3,4,7,8-HxCDD	0.9998	0.9850	0.977-1.000
6	13C12-1,2,3,6,7,8-HxCDD	0.9999	0.9886	0.981-1.003
7	13C12-1,2,3,4,6,7,8-HpCDF	1.0000	1.0691	1.043-1.085
7	13C12-1,2,3,4,7,8,9-HpCDF	0.9999	1.1410	1.057-1.151
7	13C12-1,2,3,4,6,7,8-HpCDD	1.0001	1.1175	1.086-1.110
8	13C12-OCDD	1.0000	1.2737	1.032-1.311
4	37C14-2,3,7,8-TCDD	0.9995	1.0330	0.989-1.052
4	13C12-1,2,3,4-TCDD	0.9995	1.0000	
6	13C12-1,2,3,7,8,9-HxCDD	1.0000	1.0000	

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 12:39:54 Pacific Standard Time
Printed: Thursday, November 10, 2016 12:41:19 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3C3, Name: 16110925, Date: 10-Nov-2016, Time: 09:08:06, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.555	1.001	1.73e5	2.26e5	0.935	0.763	0.770	1953	2501	2.52e6	3.34e6	1291.8	NO	10.491
12378-PeCDF	29.685	1.001	1.01e6	6.38e5	0.952	1.581	1.550	4323	3386	1.50e7	9.43e6	3464.0	NO	50.066
23478-PeCDF	31.034	1.001	1.09e6	6.98e5	0.963	1.566	1.550	4323	3386	1.67e7	1.06e7	3851.5	NO	51.895
123478-HxCDF	34.706	1.001	8.88e5	7.08e5	1.137	1.255	1.240	4503	5517	1.35e7	1.08e7	2987.9	NO	52.058
234678-HxCDF	35.801	1.001	8.69e5	7.09e5	1.164	1.226	1.240	4503	5517	1.28e7	1.04e7	2839.5	NO	51.935
123678-HxCDF	34.848	1.000	9.07e5	7.29e5	1.099	1.244	1.240	4503	5517	1.32e7	1.07e7	2937.2	NO	50.476
123789-HxCDF	36.952	1.001	7.58e5	5.96e5	1.101	1.273	1.240	4503	5517	1.06e7	8.49e6	2363.0	NO	50.812
1234678-HpCDF	39.013	1.001	7.37e5	7.09e5	1.303	1.041	1.050	2682	2816	1.08e7	1.04e7	4022.3	NO	48.349
1234789-HpCDF	41.622	1.000	6.08e5	5.90e5	1.317	1.032	1.050	2682	2816	7.73e6	7.50e6	2881.8	NO	48.464
OCDF	46.730	1.006	9.83e5	1.07e6	1.166	0.920	0.890	2416	2541	9.77e6	1.08e7	4043.5	NO	102.535
2378-TCDD	26.198	1.001	1.24e5	1.57e5	1.134	0.787	0.770	2628	1845	1.78e6	2.23e6	676.7	NO	10.339
12378-PeCDD	31.286	1.001	6.63e5	4.29e5	0.975	1.546	1.550	2469	3793	1.00e7	6.44e6	4067.9	NO	51.654
123478-HxCDD	35.933	1.000	6.07e5	4.90e5	1.031	1.238	1.240	3236	3134	9.15e6	7.42e6	2826.0	NO	49.367
123678-HxCDD	36.065	1.000	6.34e5	5.17e5	0.971	1.226	1.240	3236	3134	9.52e6	7.59e6	2941.1	NO	53.676
123789-HxCDD	36.492	1.012	6.16e5	4.96e5	0.947	1.242	1.240	3236	3134	9.22e6	7.44e6	2849.0	NO	53.804
1234678-HpCDD	40.767	1.000	5.17e5	4.89e5	1.028	1.059	1.050	3008	2590	7.17e6	6.92e6	2382.5	NO	51.046
OCDD	46.470	1.000	8.25e5	9.35e5	1.107	0.882	0.890	2225	2876	8.48e6	9.60e6	3808.9	NO	92.669
13C-2378-TCDF	25.540	1.007	1.79e6	2.28e6	1.567	0.786	0.770	9985	5374	2.60e7	3.32e7	2606.0	NO	100.349
13C-12378-PeCDF	29.663	1.170	2.12e6	1.33e6	1.274	1.591	1.550	5843	5589	3.12e7	1.96e7	5346.7	NO	104.901
13C-23478-PeCDF	31.012	1.223	2.19e6	1.39e6	1.235	1.568	1.550	5843	5589	3.29e7	2.11e7	5625.3	NO	112.257
13C-123478-HxCDF	34.684	0.951	9.25e5	1.77e6	1.381	0.522	0.510	4461	5433	1.38e7	2.66e7	3101.5	NO	95.063
13C-123678-HxCDF	34.837	0.955	1.01e6	1.94e6	1.569	0.521	0.510	4461	5433	1.49e7	2.82e7	3335.9	NO	91.522
13C-234678-HxCDF	35.780	0.981	8.99e5	1.71e6	1.345	0.526	0.510	4461	5433	1.33e7	2.55e7	2987.1	NO	94.460
13C-123789-HxCDF	36.931	1.013	8.40e5	1.58e6	1.183	0.531	0.510	4461	5433	1.22e7	2.30e7	2733.8	NO	99.647
13C-1234678-HpCDF	38.991	1.069	7.15e5	1.58e6	1.178	0.452	0.440	2488	4446	1.07e7	2.38e7	4283.5	NO	94.845
13C-1234789-HpCDF	41.611	1.141	5.79e5	1.30e6	0.878	0.447	0.440	2488	4446	7.60e6	1.66e7	3053.0	NO	104.082
13C-1234-TCDD	25.361	0.000	1.15e6	1.44e6	1.000	0.797	0.770	3671	2136	1.69e7	2.12e7	4596.9	NO	100.000
13C-2378-TCDD	26.167	1.032	1.05e6	1.34e6	0.908	0.787	0.770	3671	2136	1.52e7	1.95e7	4128.0	NO	102.064
13C-12378-PeCDD	31.264	1.233	1.33e6	8.36e5	0.756	1.592	1.550	1833	1396	2.00e7	1.25e7	10892.7	NO	110.904
13C-123478-HxCDD	35.922	0.985	1.21e6	9.46e5	1.056	1.279	1.240	2230	2872	1.83e7	1.43e7	8216.3	NO	99.397
13C-123678-HxCDD	36.054	0.989	1.23e6	9.74e5	1.163	1.268	1.240	2230	2872	1.84e7	1.46e7	8253.0	NO	92.458
13C-1234678-HpCDD	40.756	1.118	9.79e5	9.38e5	0.909	1.044	1.050	2758	2642	1.35e7	1.28e7	4891.0	NO	102.683
13C-OCDD	46.452	1.274	1.63e6	1.80e6	0.820	0.904	0.890	2733	2146	1.65e7	1.82e7	6031.2	NO	203.854

16488 SDG PHA01 SD7 01 862

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
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Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
13C-123789-HxCDD	36.470	0.000	1.15e6	9.08e5	1.000	1.262	1.240	2230	2872	1.69e7	1.33e7	7599.0	NO	100.000
Total-tetrafurans			5.62e5		0.935			1953		8.07e6				33.832
Total-penta1			1.25e6					738		1.81e7				64.050
Total-pentafurans			3.29e6		0.957			4323		4.86e7				160.092
Total-hexafurans			4.30e6		1.125			4503		6.30e7				257.888
Total-heptafurans			1.35e6		1.310			2682		1.85e7				96.880
Total-Furans			1.17e7		1.114			1953		1.66e8				715.296
Total-tetradioxins			6.49e5		1.134			2628		8.46e6				54.382
Total-pentadioxins			2.56e6		0.975			2469		3.25e7				199.135
Total-hexadioxins			2.51e6		0.983			3236		3.76e7				211.990
Total-heptadioxins			1.09e6		1.028			3008		1.52e7				107.148
Total-Dioxins			7.63e6		1.028			2628		1.02e8				665.324
Total-TEQ			1.94e7					2628		2.68e8				1380.620
37CL-2378-TCDD	26.198	1.033	2.92e5		1.067			1759		4.16e6		2362.5		10.602
FUNCTION1 PFK			4.25e4					684717		1.30e6				
FUNCTION2 PFK			8.89e4					215816		2.90e6				0.000
FUNCTION3 PFK			8.35e5					604599		2.45e7				0.000
FUNCTION4 PFK			6.81e5					437892		1.93e7				
FUNCTION5 PFK			4.40e5					355805		1.54e7				
FUNCTION1 HXCDPE			3.06e2					615		6.13e3				0.000
FUNCTION1 HPCDPE			5.45e2					821		1.17e4				0.000
FUNCTION2 HPCDPE			1.37e3					960		2.35e4				0.000
FUNCTION3 OCDPE			0.00e0					499		0.00e0				
FUNCTION4 NCDPE			2.85e2					1173		8.92e3				0.000
FUNCTION5 DCDPE			0.00e0					691		0.00e0				

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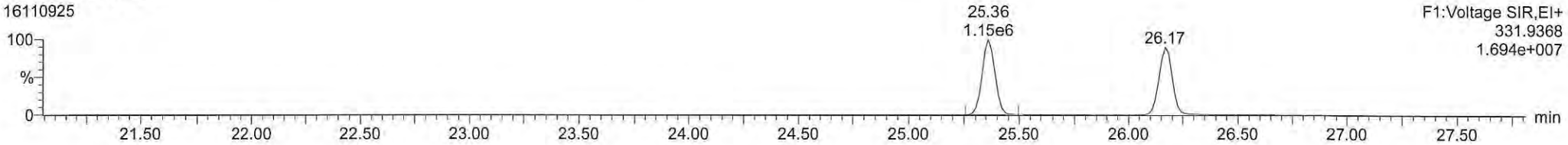
Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3C3, Name: 16110925, Date: 10-Nov-2016, Time: 09:08:06, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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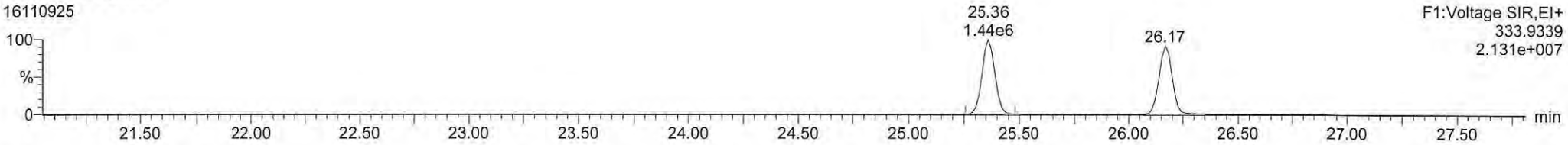

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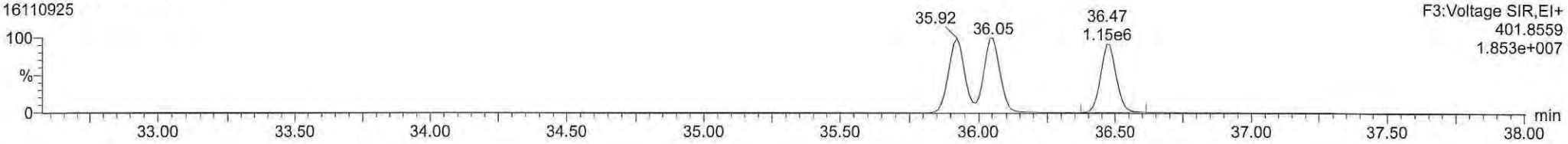

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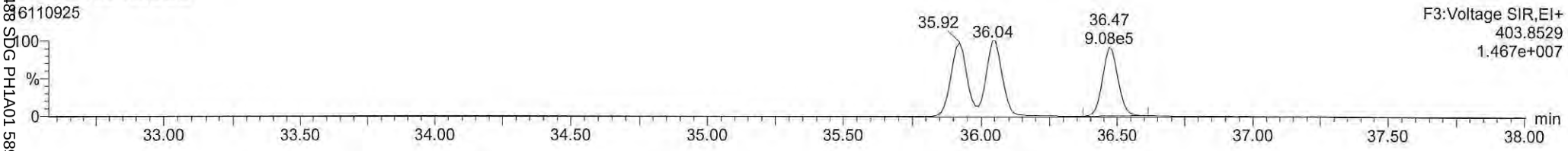

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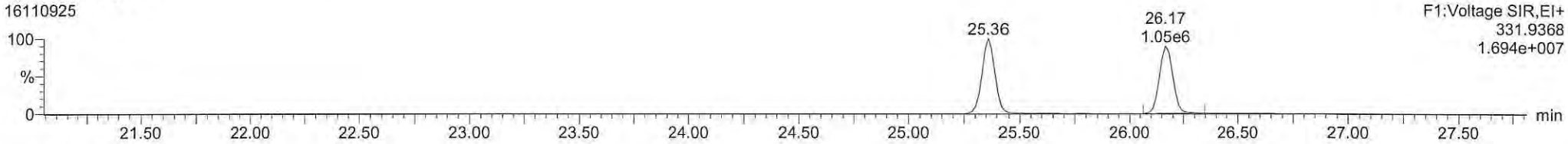

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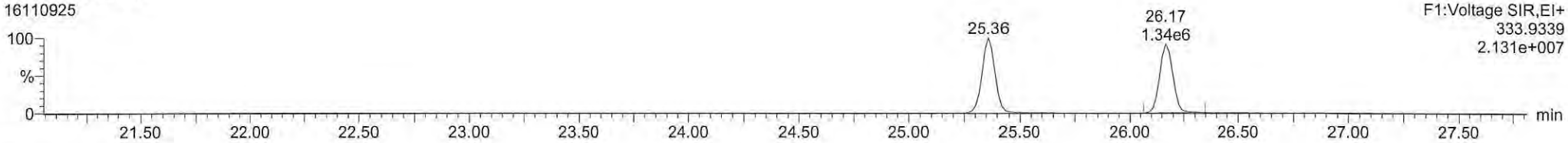
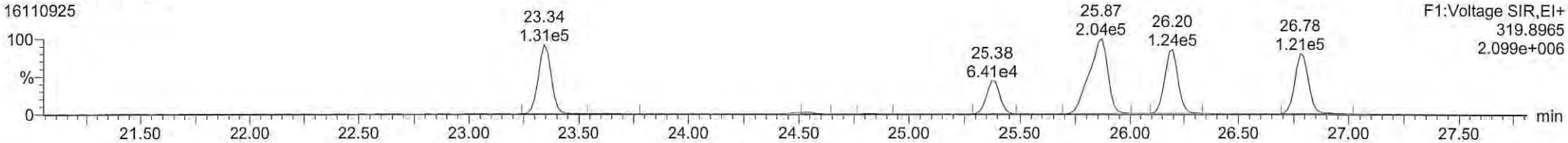
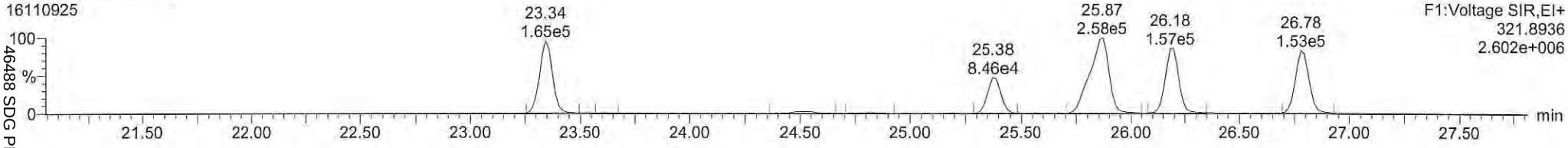


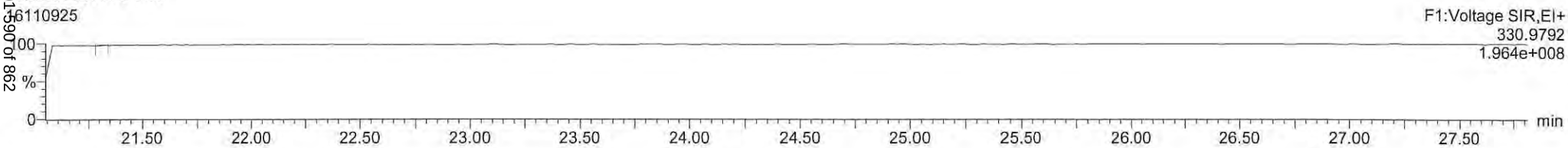
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



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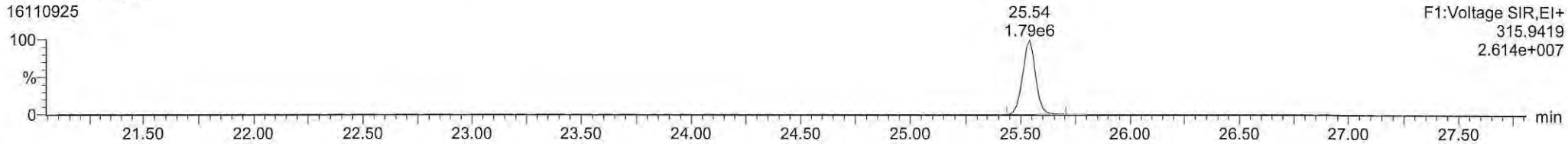
13C-2378-TCDF



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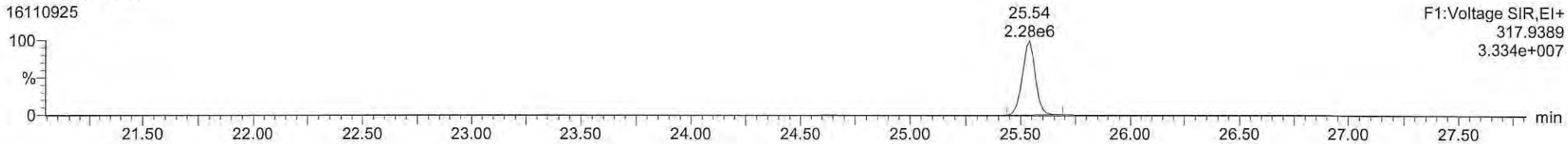
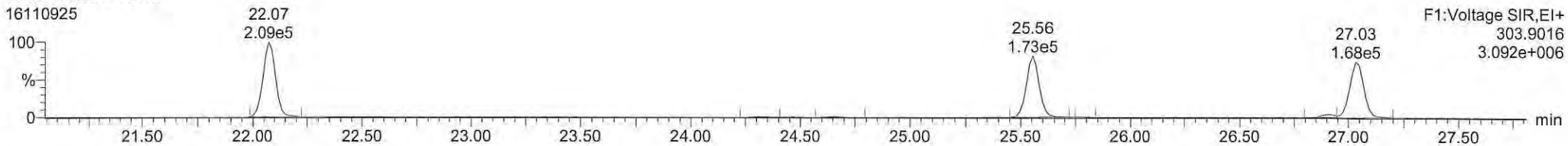
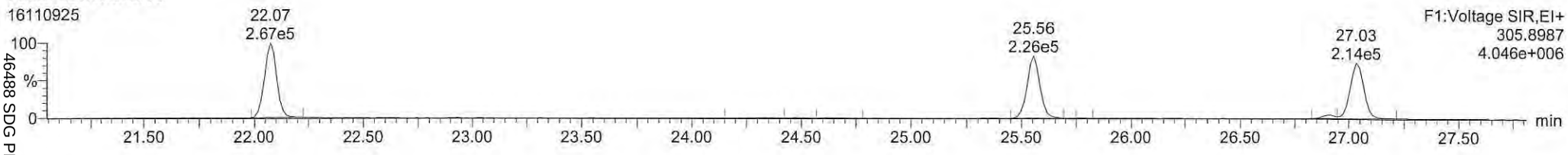


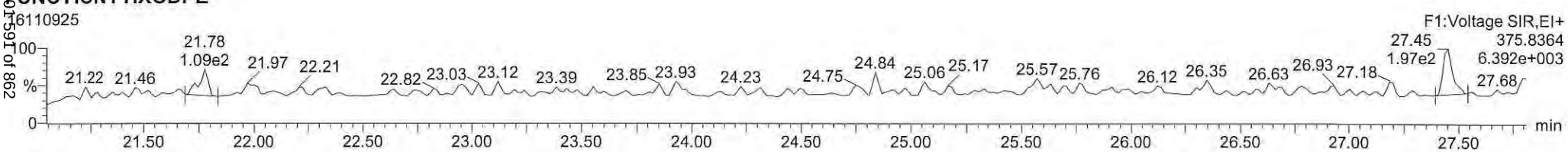
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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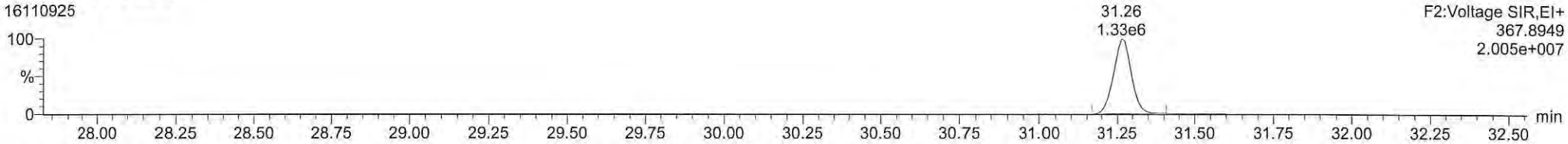
13C-12378-PeCDD



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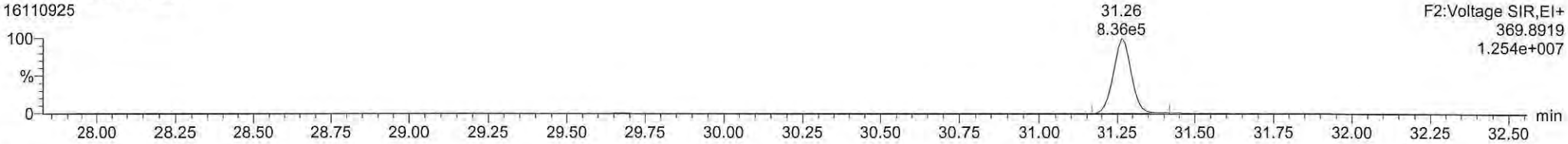
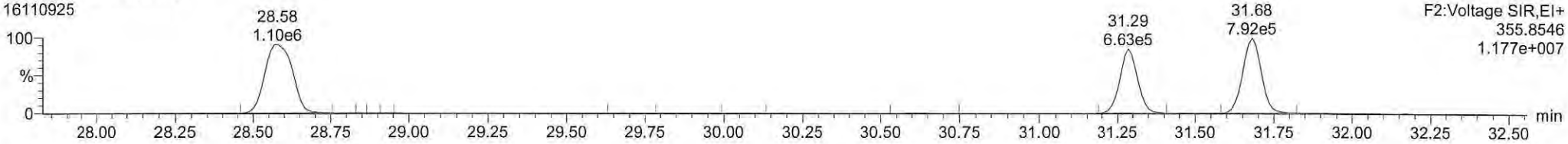
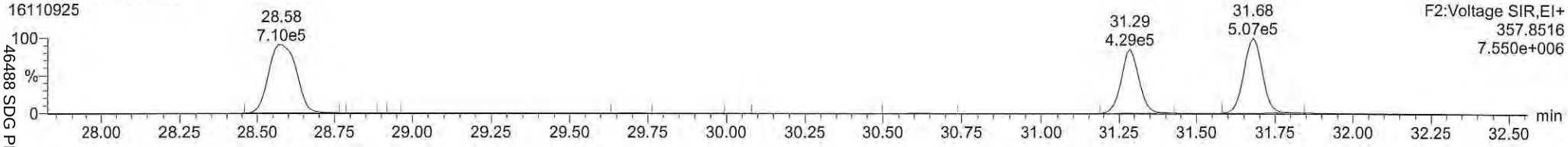


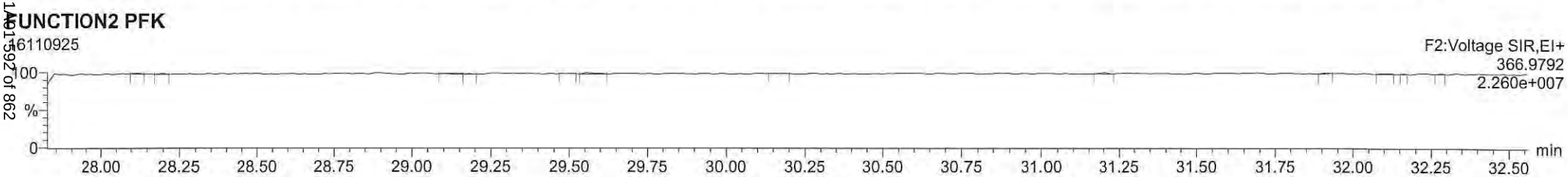
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



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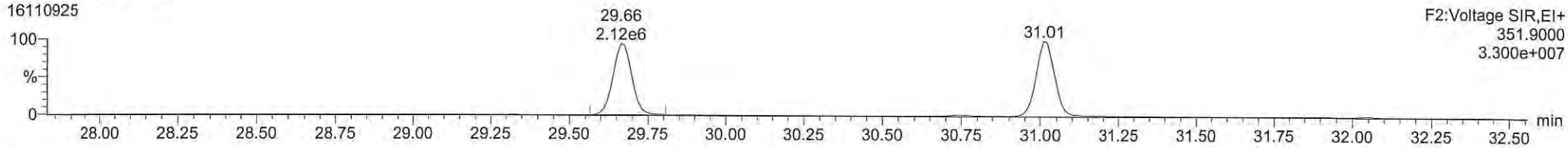
13C-12378-PeCDF



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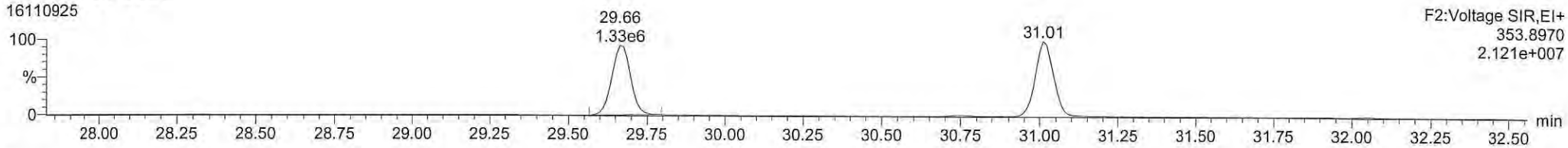
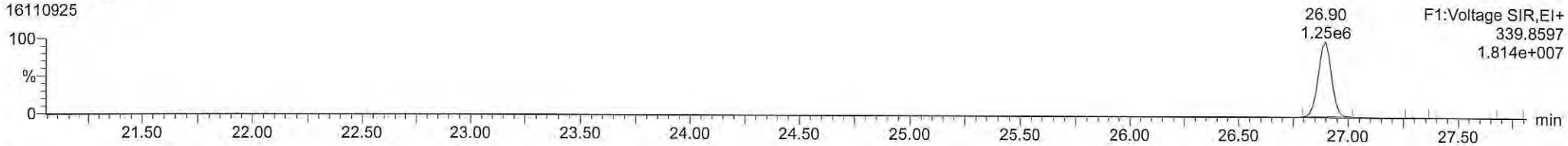


Total-penta1



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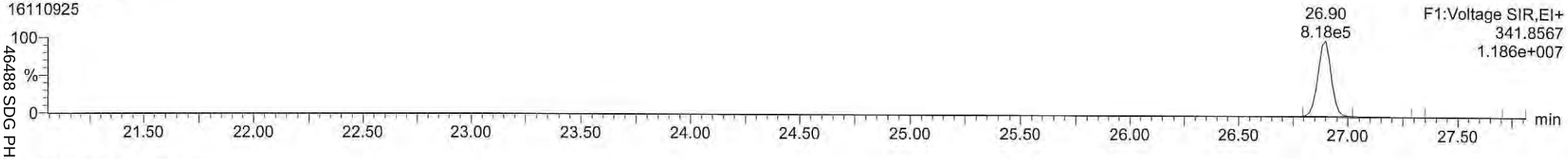
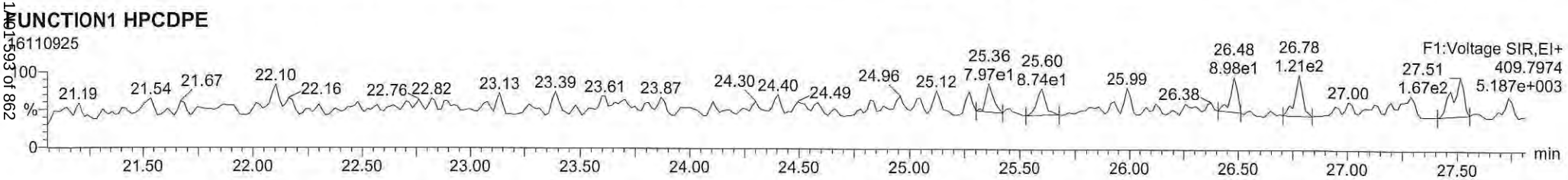


FUNCTION1 HPCDPE



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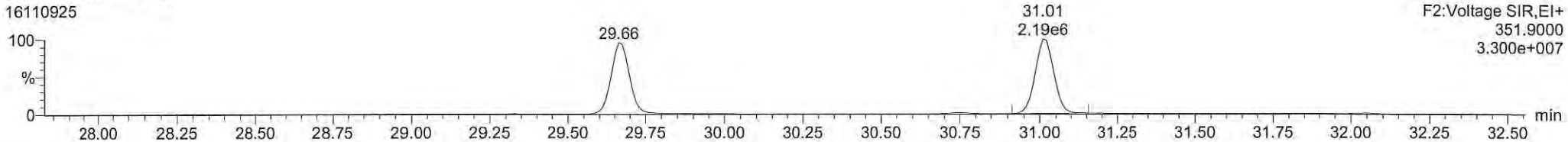

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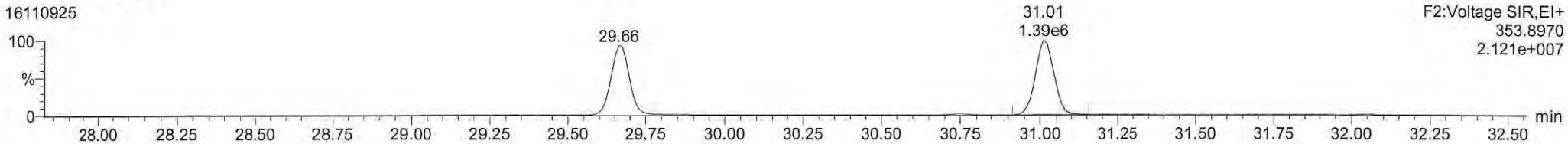
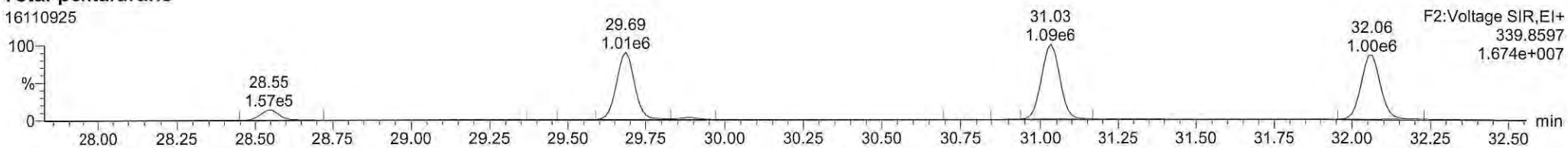


Total-pentafurans



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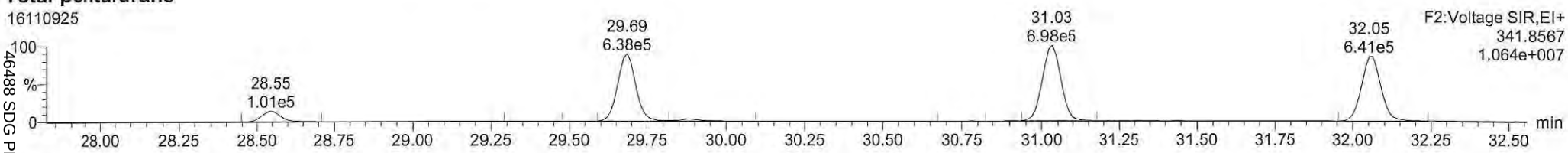
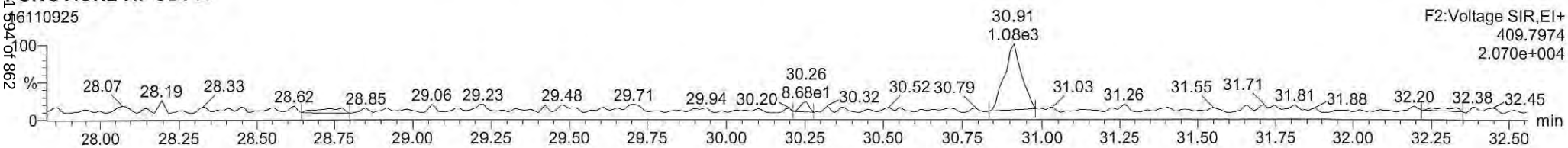


FUNCTION2 HPCDPE



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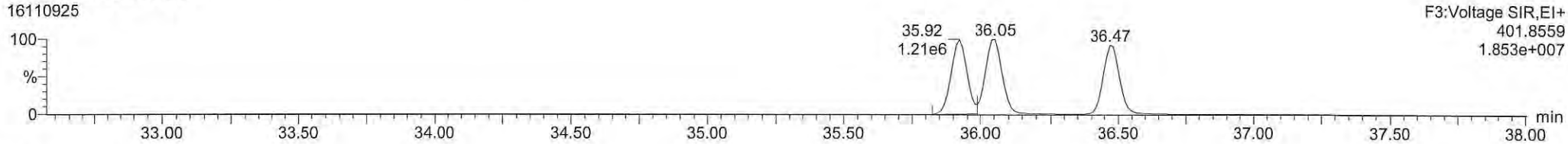
ID: CS3C3, Name: 16110925, Date: 10-Nov-2016, Time: 09:08:06, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



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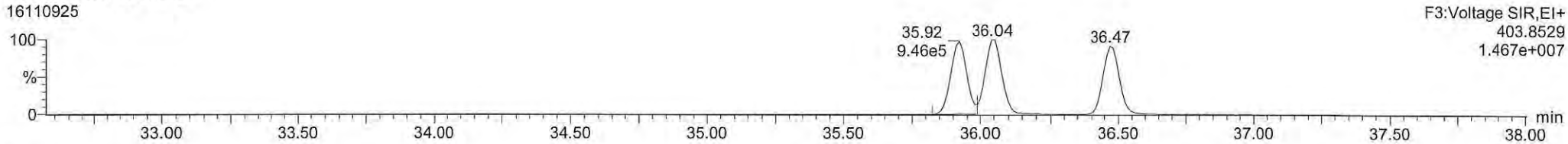
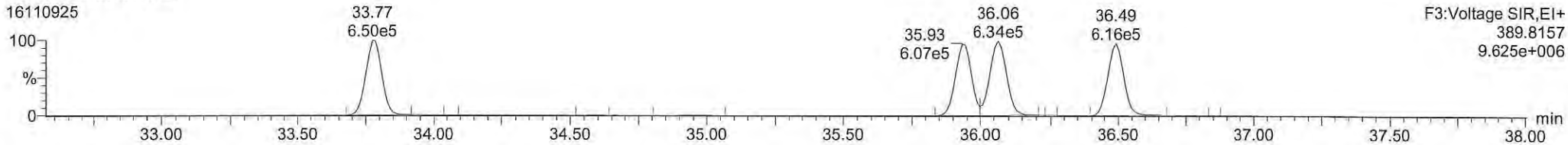
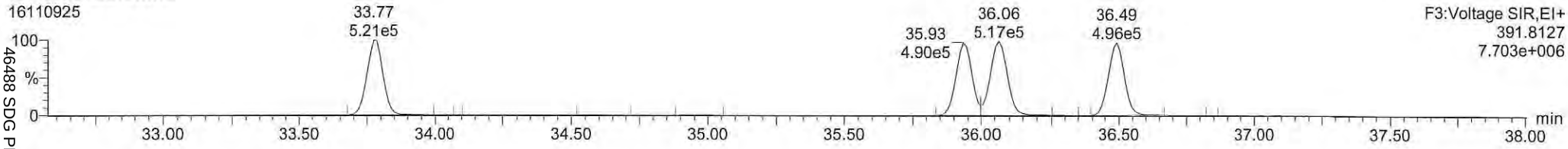


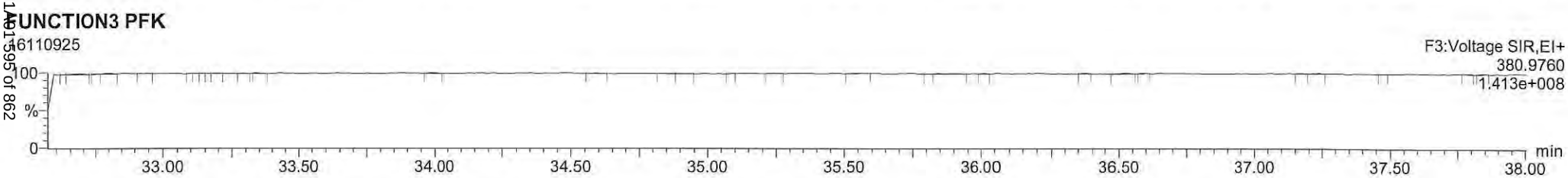
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



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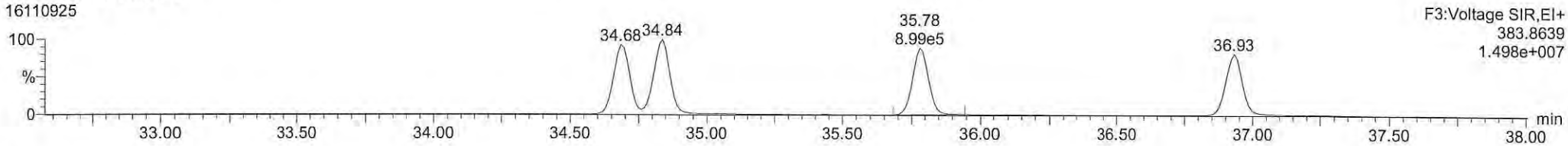
13C-234678-HxCDF



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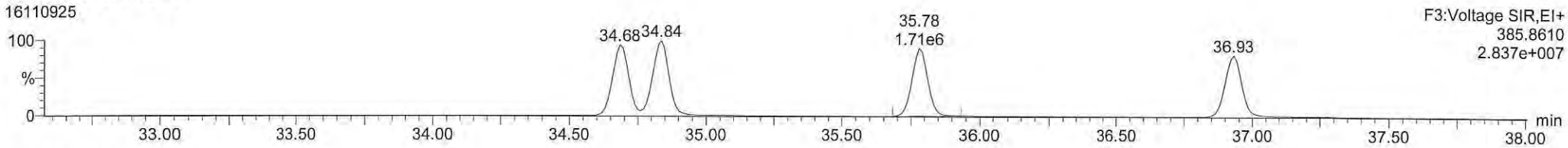
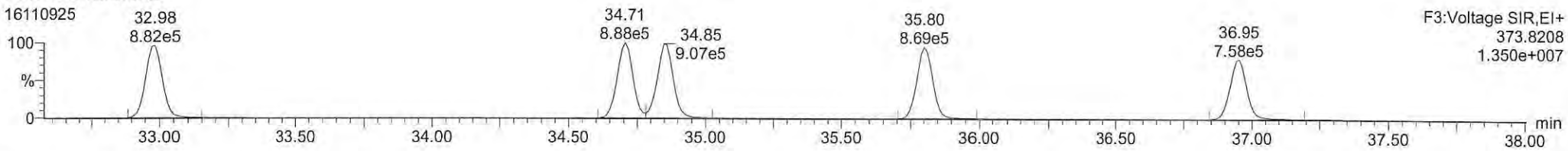


Total-hexafurans



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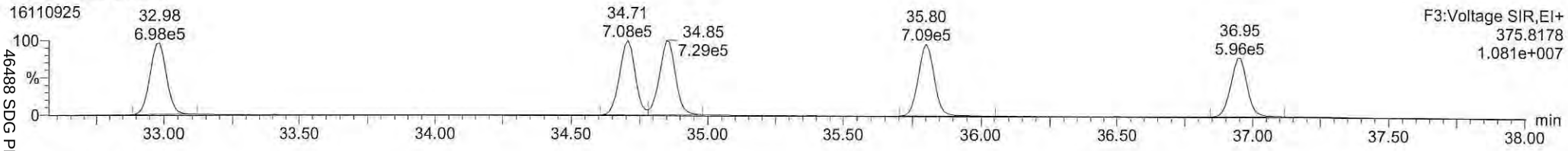
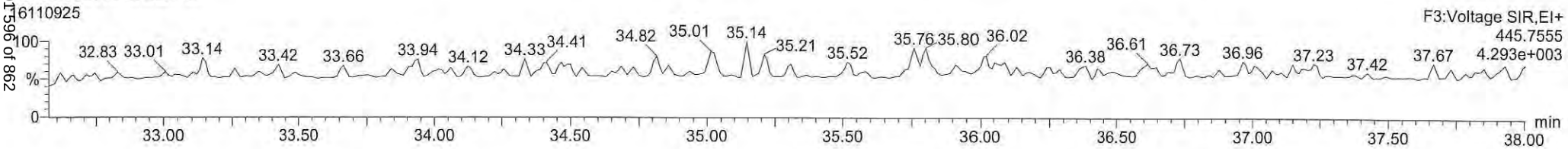


FUNCTION3 OCDPE



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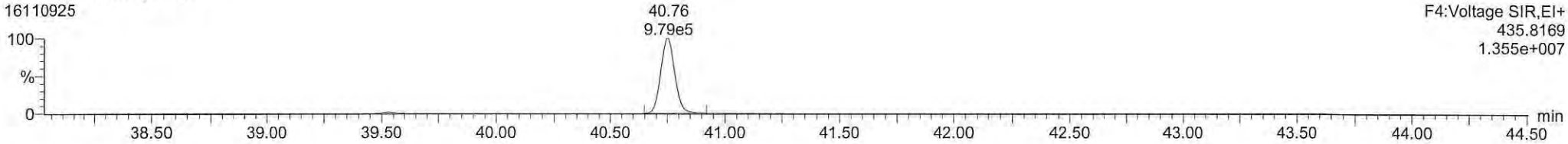
Printed: Thursday, November 10, 2016 12:41:19 Pacific Standard Time

ID: CS3C3, Name: 16110925, Date: 10-Nov-2016, Time: 09:08:06, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDD



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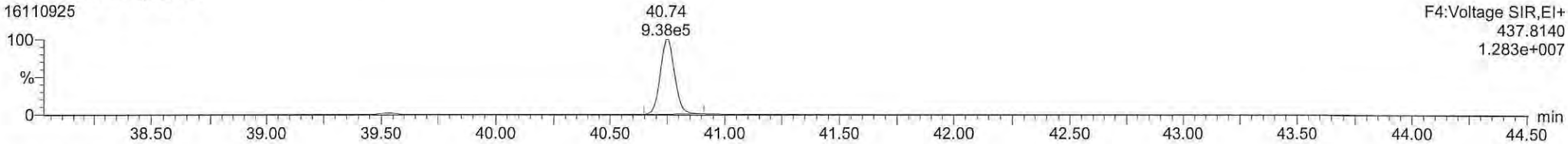

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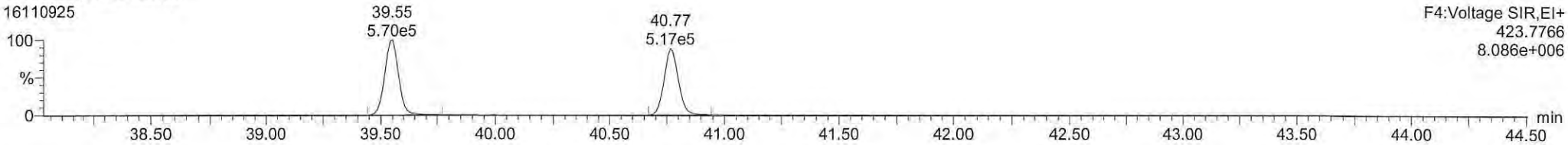

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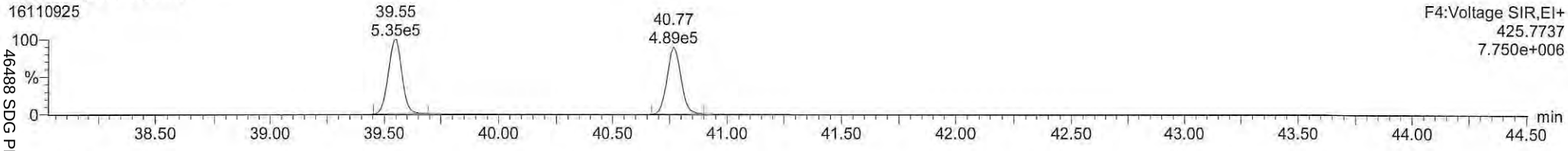
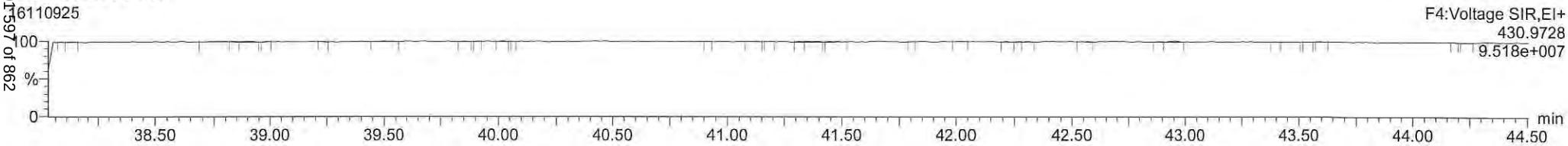


FUNCTION4 PFK



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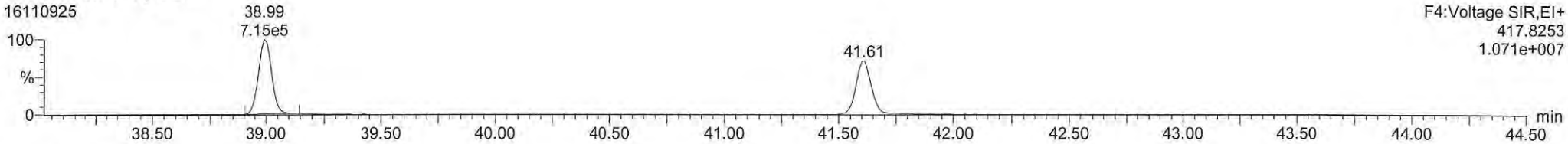
Printed: Thursday, November 10, 2016 12:41:19 Pacific Standard Time

ID: CS3C3, Name: 16110925, Date: 10-Nov-2016, Time: 09:08:06, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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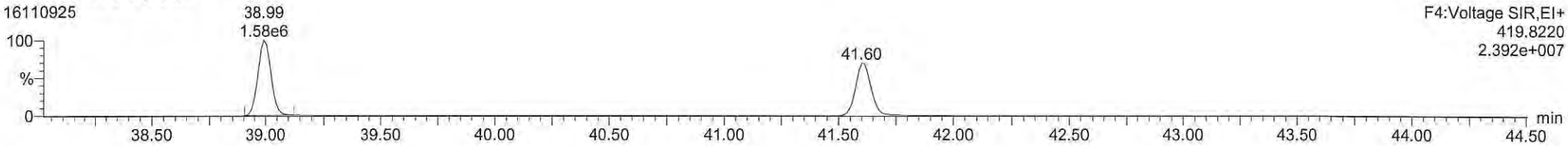

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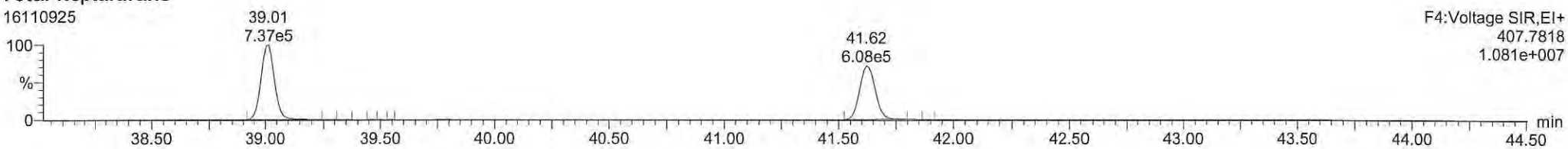

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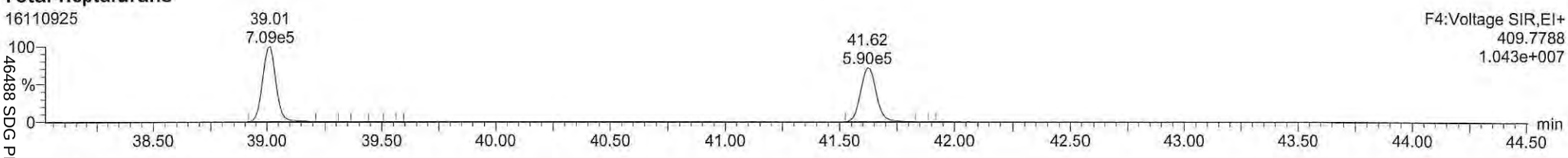
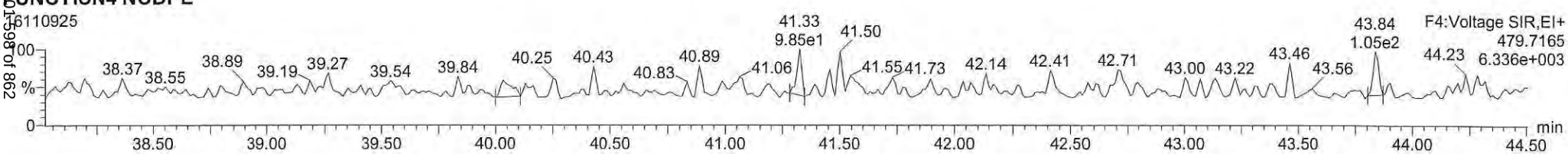


FUNCTION4 NCDPE



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Last Altered: Thursday, November 10, 2016 12:39:54 Pacific Standard Time
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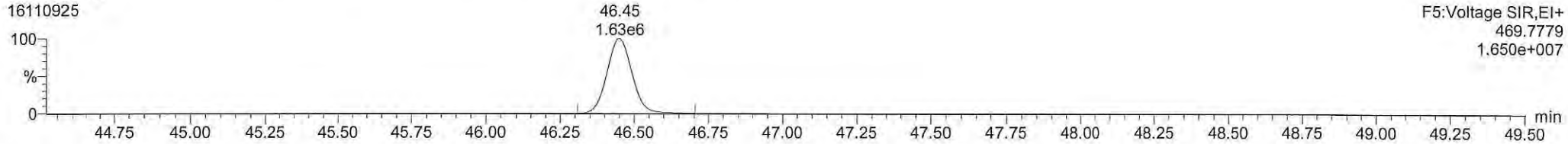
ID: CS3C3, Name: 16110925, Date: 10-Nov-2016, Time: 09:08:06, Conditions: AUTOSPEC01, User: PK

13C-OCDD



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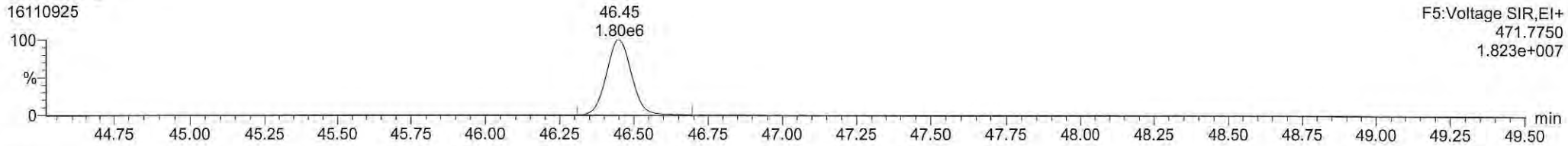

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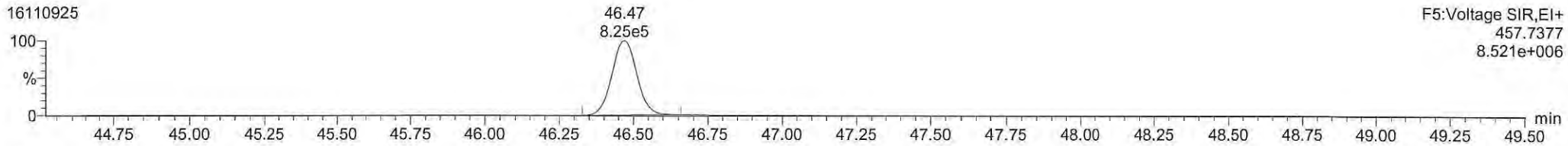

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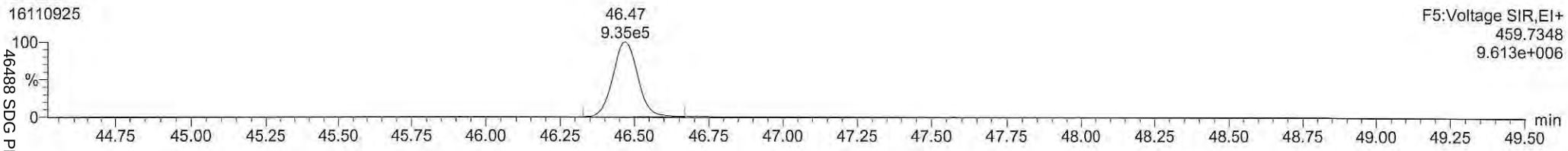
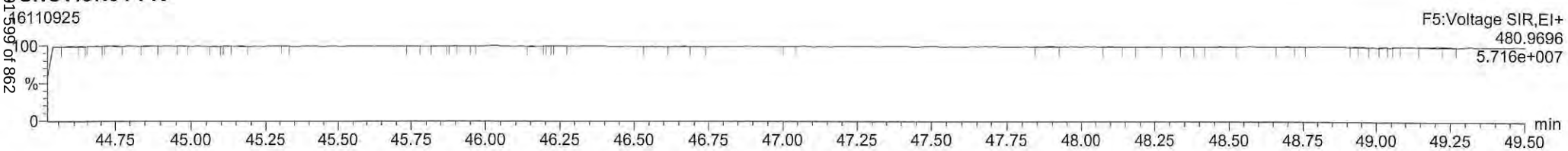


FUNCTION5 PFK



Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 12:39:54 Pacific Standard Time
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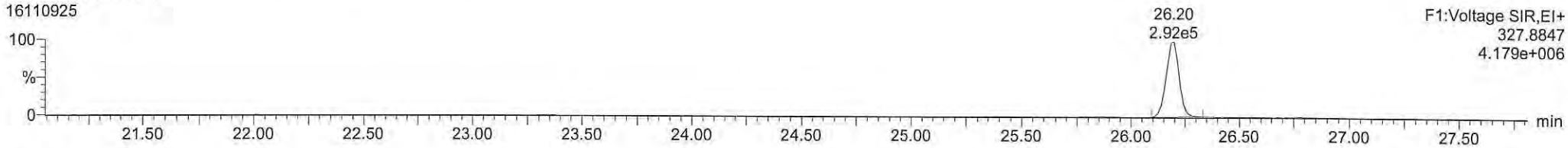
ID: CS3C3, Name: 16110925, Date: 10-Nov-2016, Time: 09:08:06, Conditions: AUTOSPEC01, User: PK

37CL-2378-TCDD



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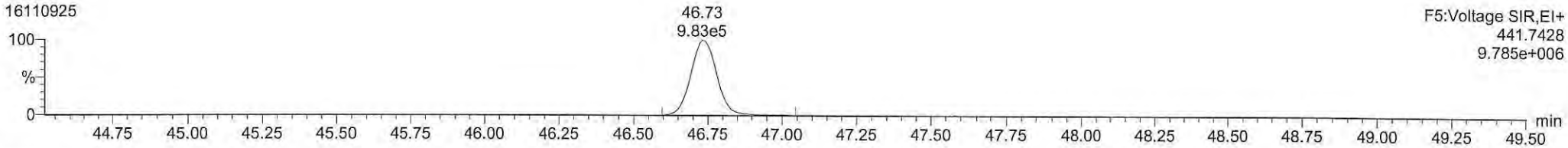

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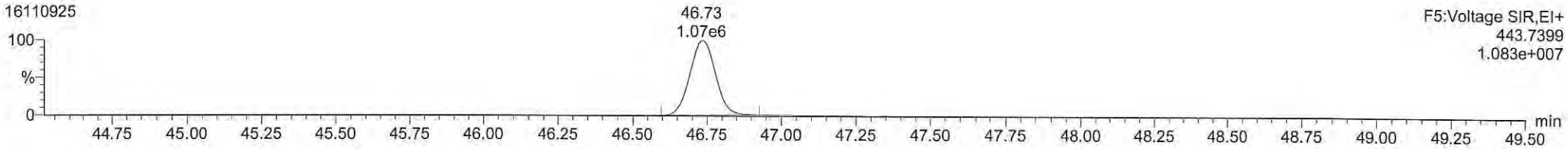
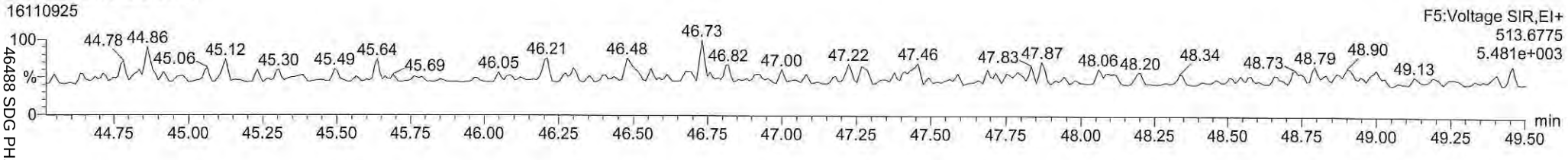


FUNCTION5 DCDPE



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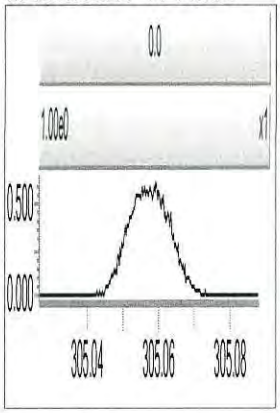
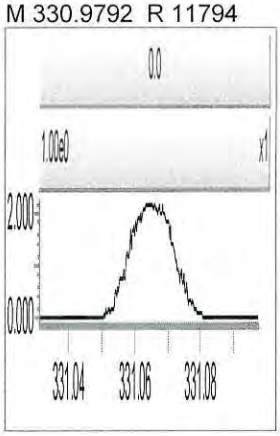
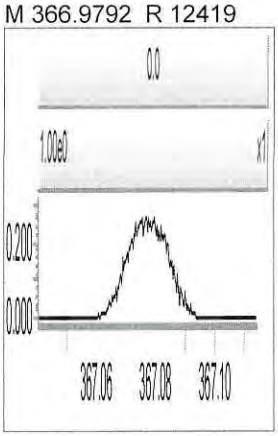


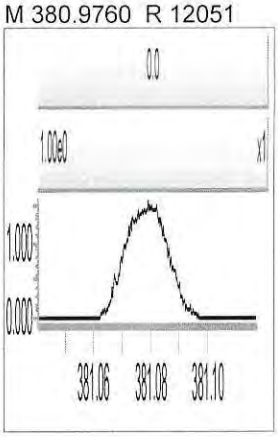
M 330.9792 R 11794



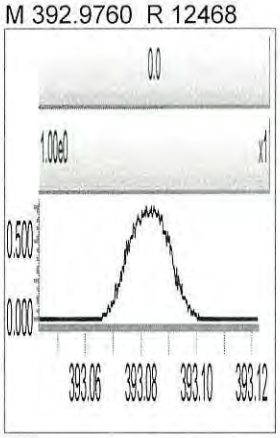
M 366.9792 R 12419



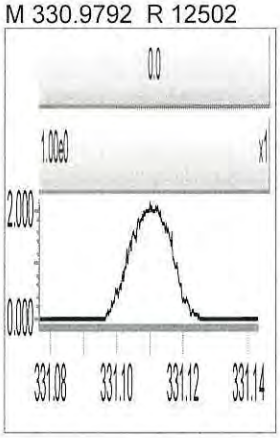
M 380.9760 R 12051



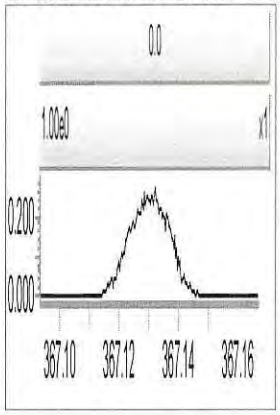
M 392.9760 R 12468



M 330.9792 R 12502



M 366.9792 R 12857



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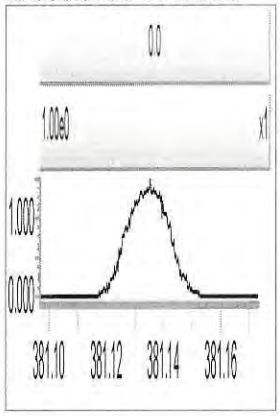
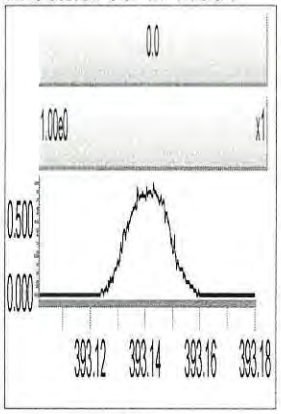


M 392.9760 R 11991



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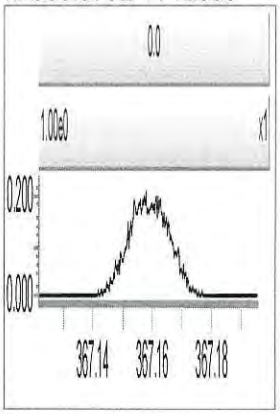

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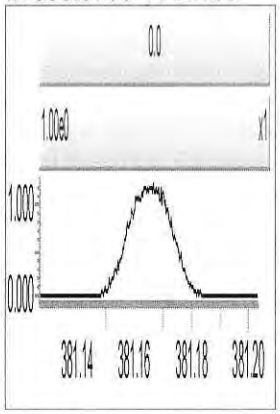
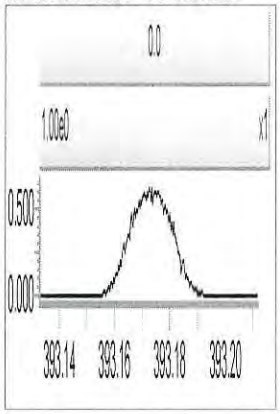
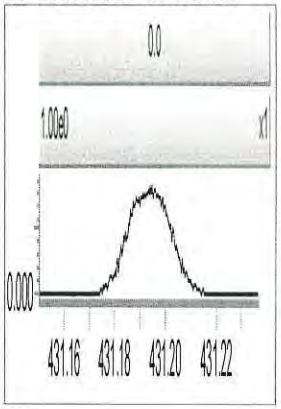


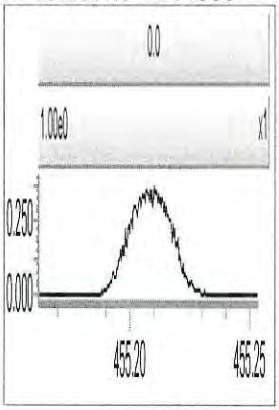
M 392.9760 R 12023



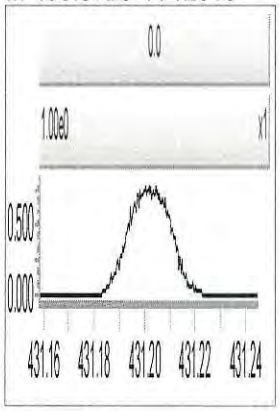
M 430.9728 R 12293



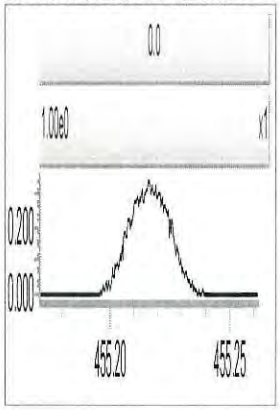
M 454.9728 R 11990



M 430.9728 R 12019



M 454.9728 R 12109



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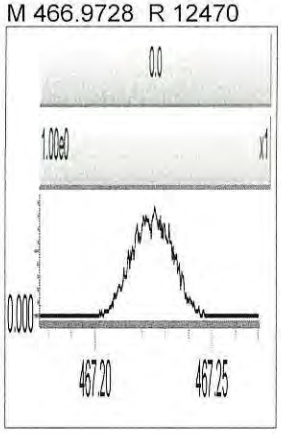
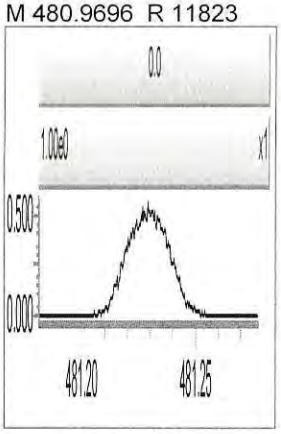
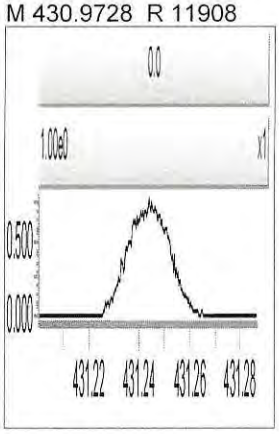
M 466.9728 R 12470



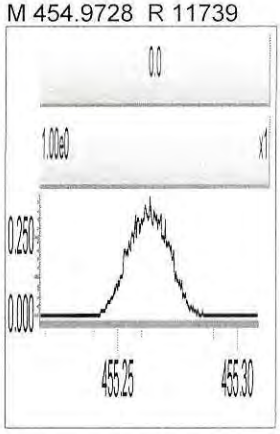
M 480.9696 R 11823



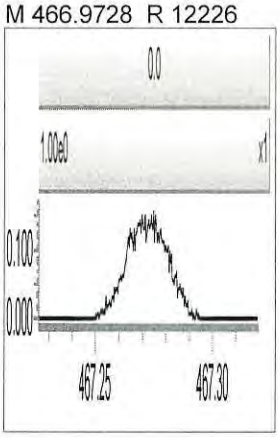
M 430.9728 R 11908



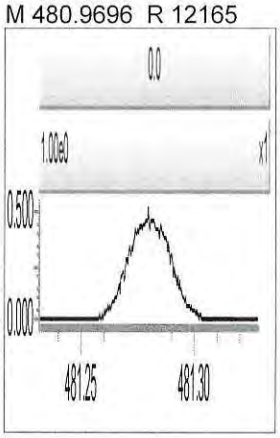
M 454.9728 R 11739



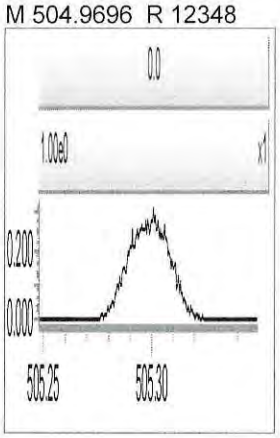
M 466.9728 R 12226

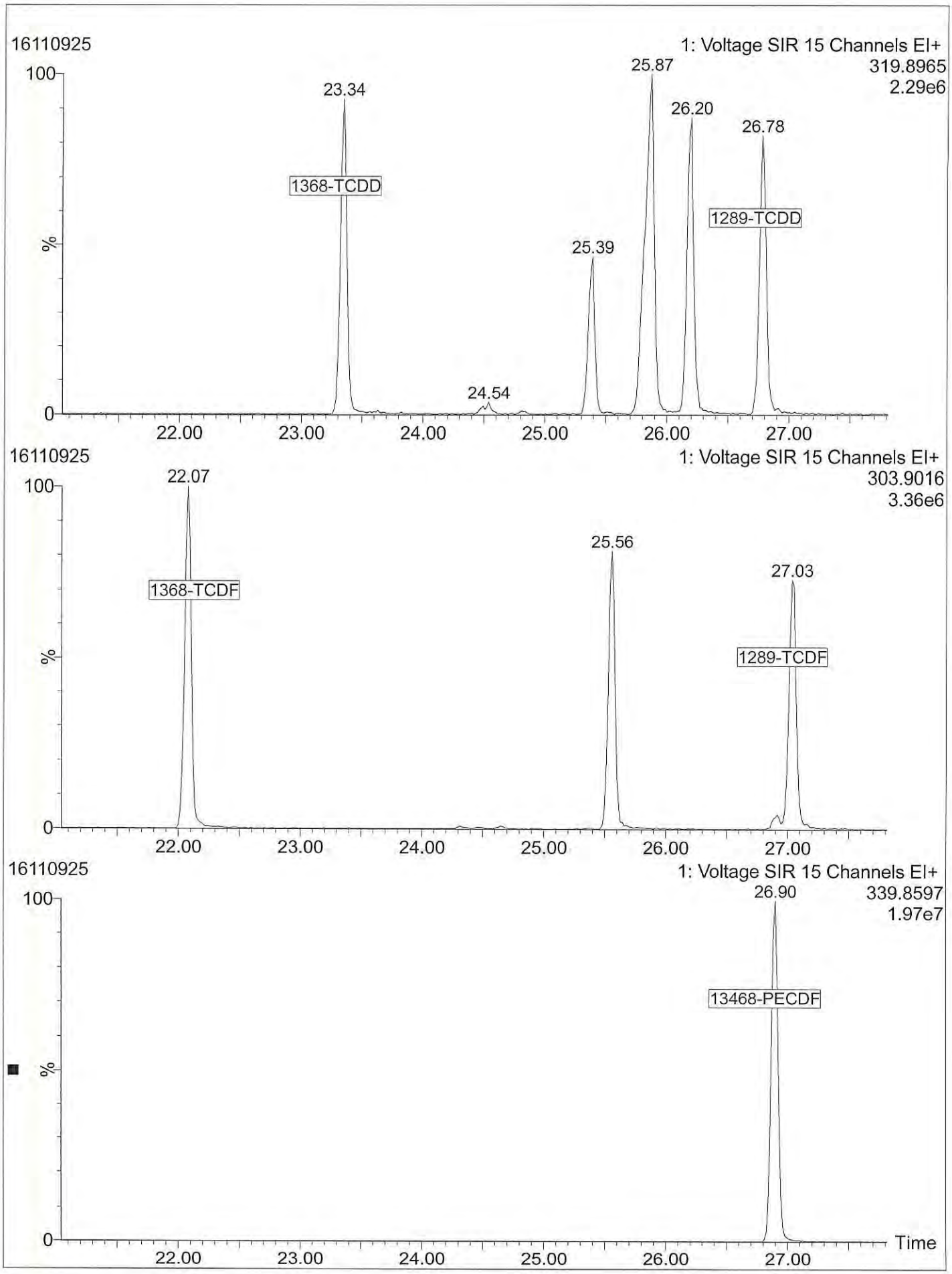


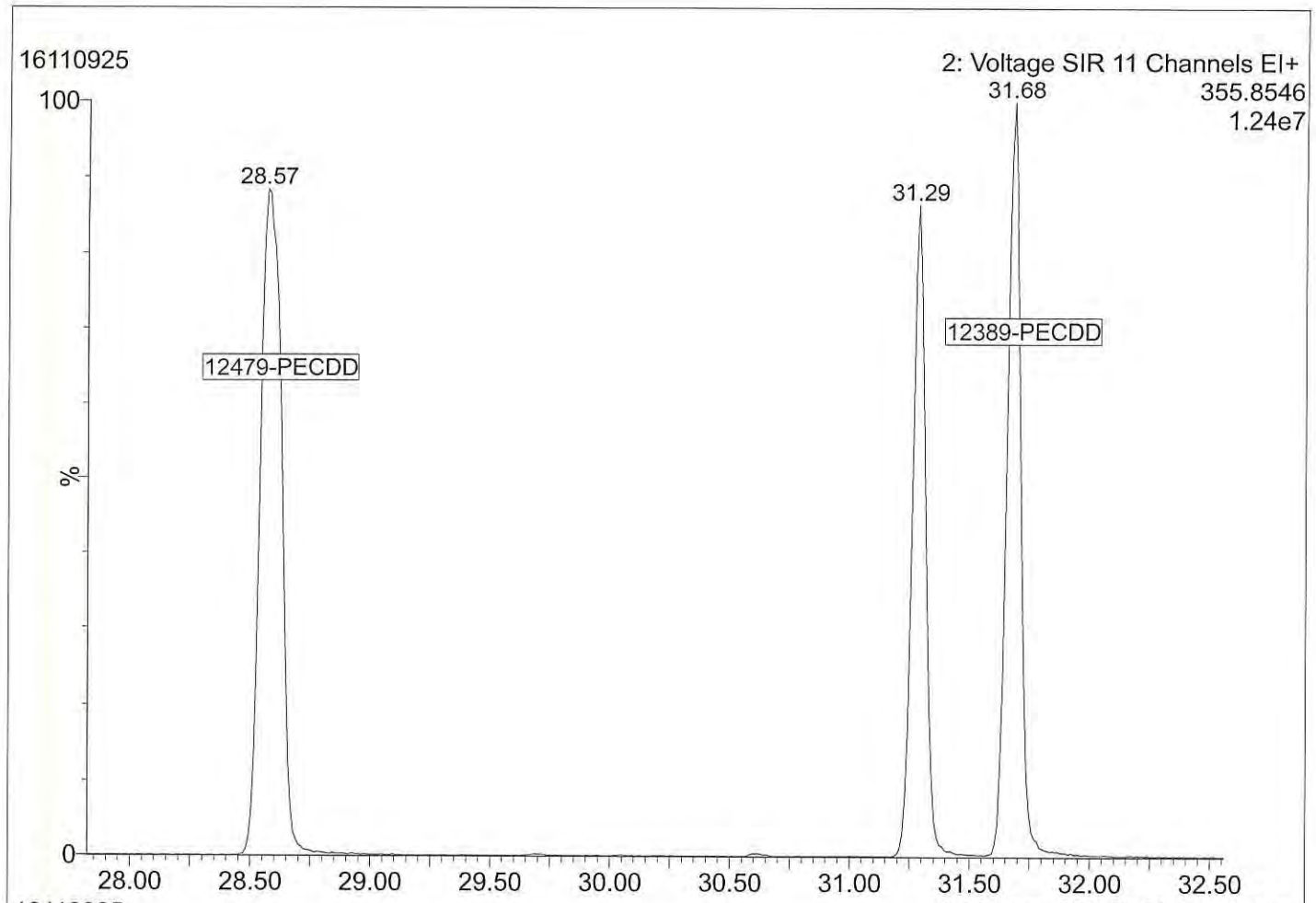
M 480.9696 R 12165



M 504.9696 R 12348




16110925
1: Voltage SIR 15 Channels EI+
319.8965
2.29e6
100
%
0
23.34
1368-TCDD
24.54
25.39
25.87
26.20
26.78
1289-TCDD
22.00
23.00
24.00
25.00
26.00
27.00
16110925
1: Voltage SIR 15 Channels EI+
303.9016
3.36e6
22.07
1368-TCDF
25.56
27.03
1289-TCDF
16110925
1: Voltage SIR 15 Channels EI+
339.8597
1.97e7
26.90
13468-PECDF
Time


16110925
2: Voltage SIR 11 Channels EI+
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1.24e7
100
%
0
28.57
31.29
31.68
12479-PECDD
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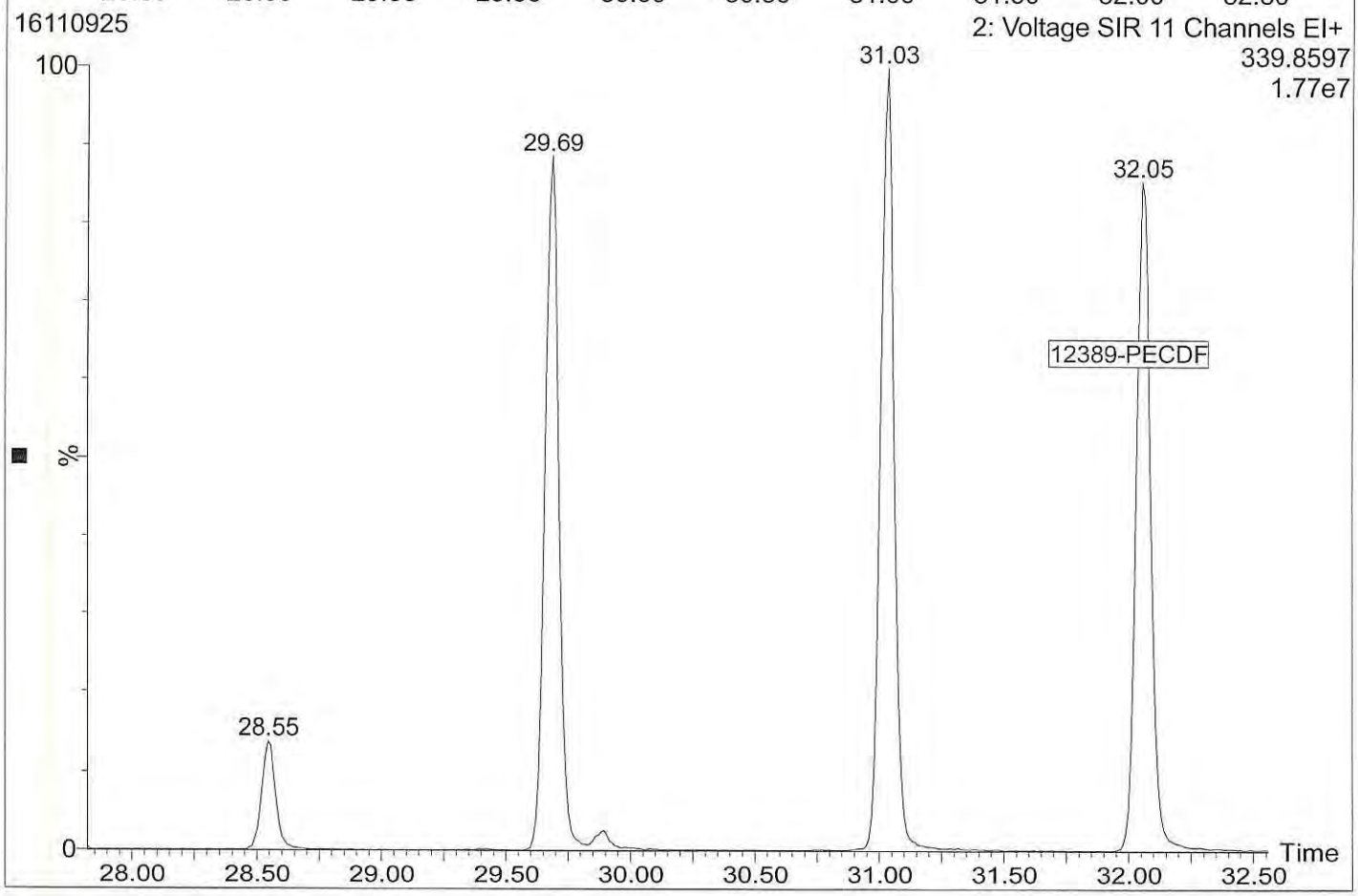
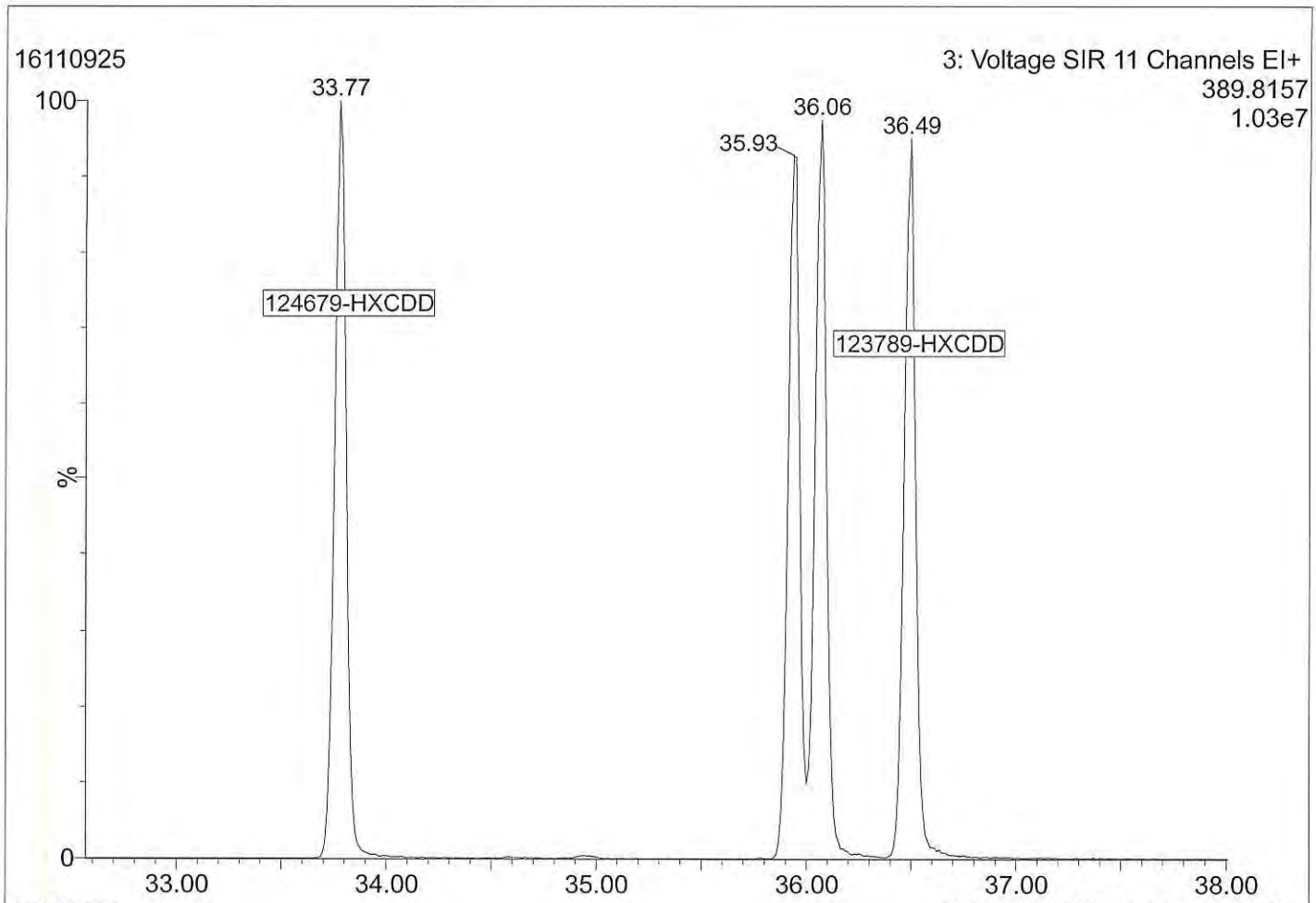
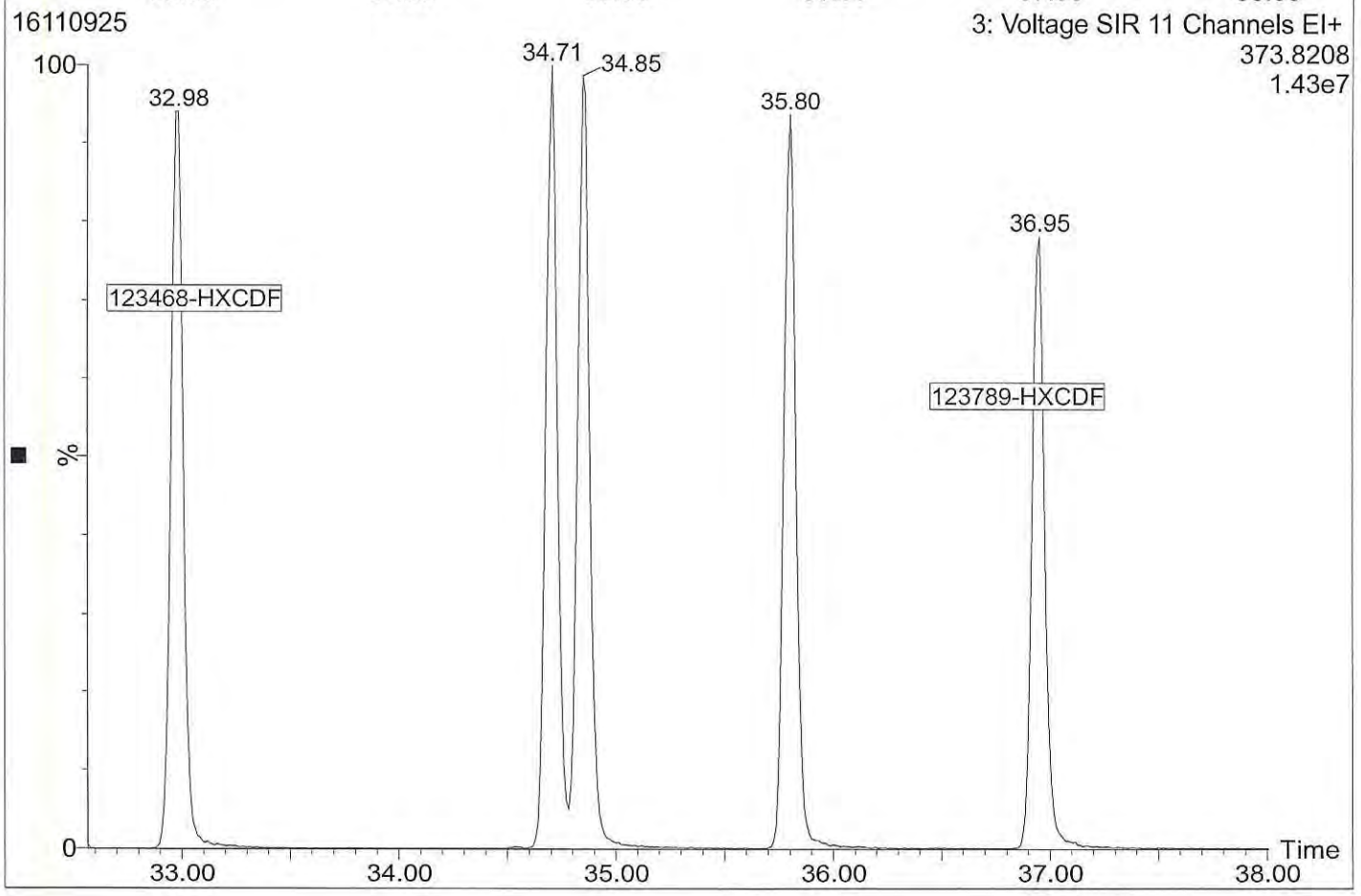
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50


16110925
2: Voltage SIR 11 Channels EI+
339.8597
1.77e7
100
%
0
28.55
29.69
31.03
32.05
12389-PECDF
Time
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50


16110925
3: Voltage SIR 11 Channels EI+
389.8157
1.03e7
100
%
0
33.77
35.93
36.06
36.49
124679-HXCDD
123789-HXCDD
33.00
34.00
35.00
36.00
37.00
38.00


16110925
3: Voltage SIR 11 Channels EI+
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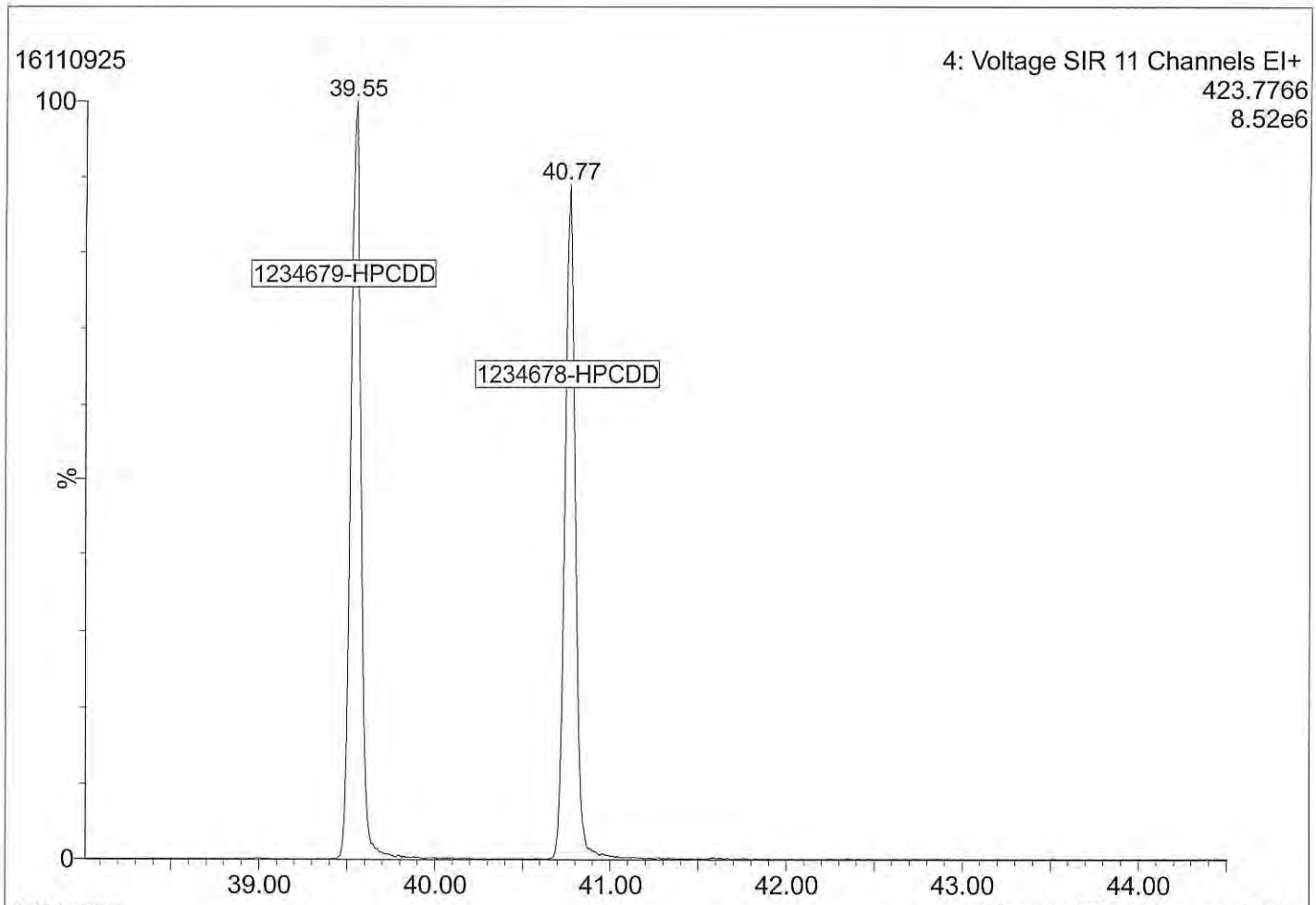
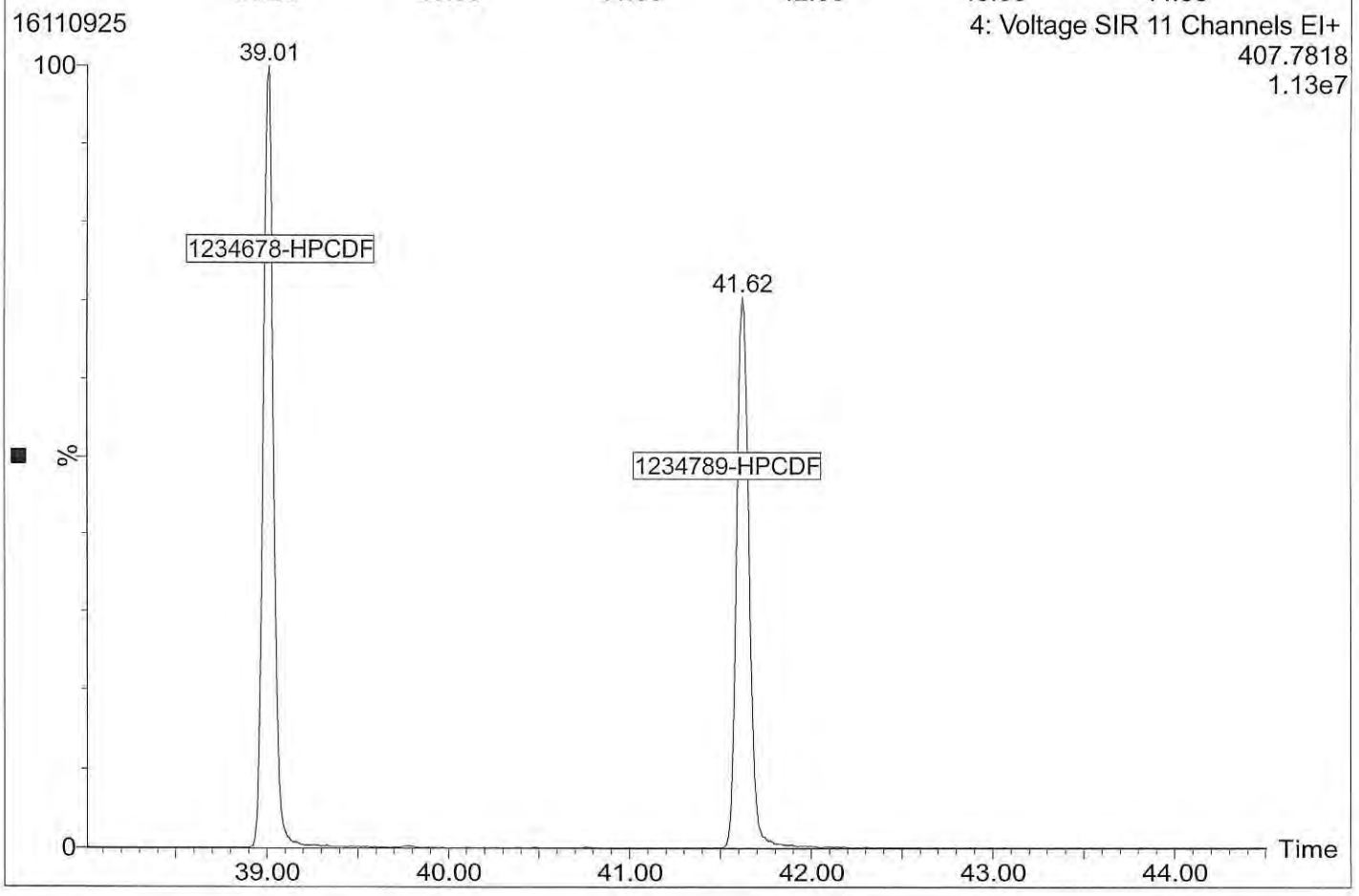
100
%
0
32.98
34.71
34.85
35.80
36.95
123468-HXCDF
123789-HXCDF
Time
33.00
34.00
35.00
36.00
37.00
38.00


16110925
4: Voltage SIR 11 Channels EI+
423.7766
8.52e6
100
%
0
39.55
40.77
1234679-HPCDD
1234678-HPCDD
39.00
40.00
41.00
42.00
43.00
44.00


16110925
4: Voltage SIR 11 Channels EI+
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%
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Time
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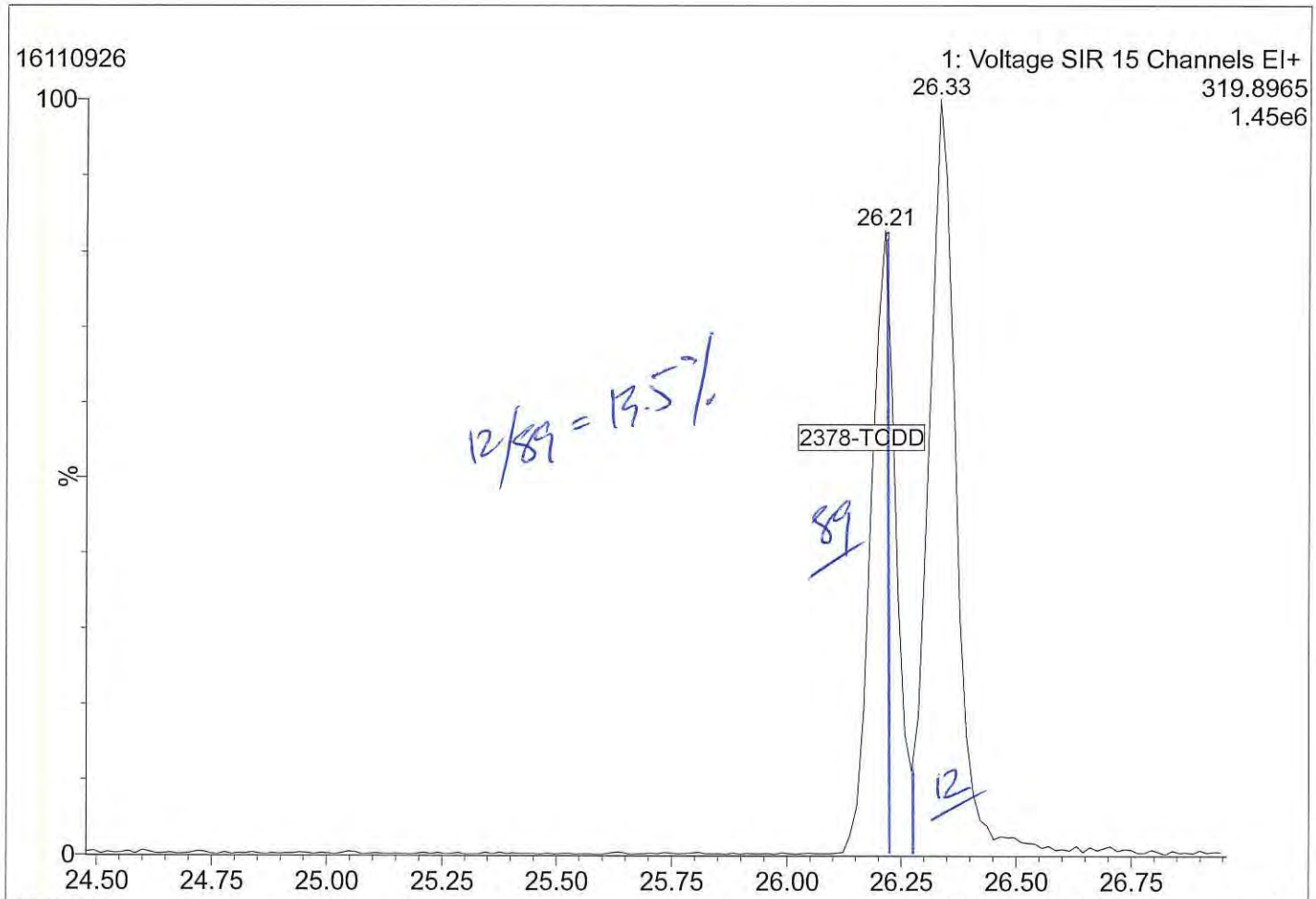
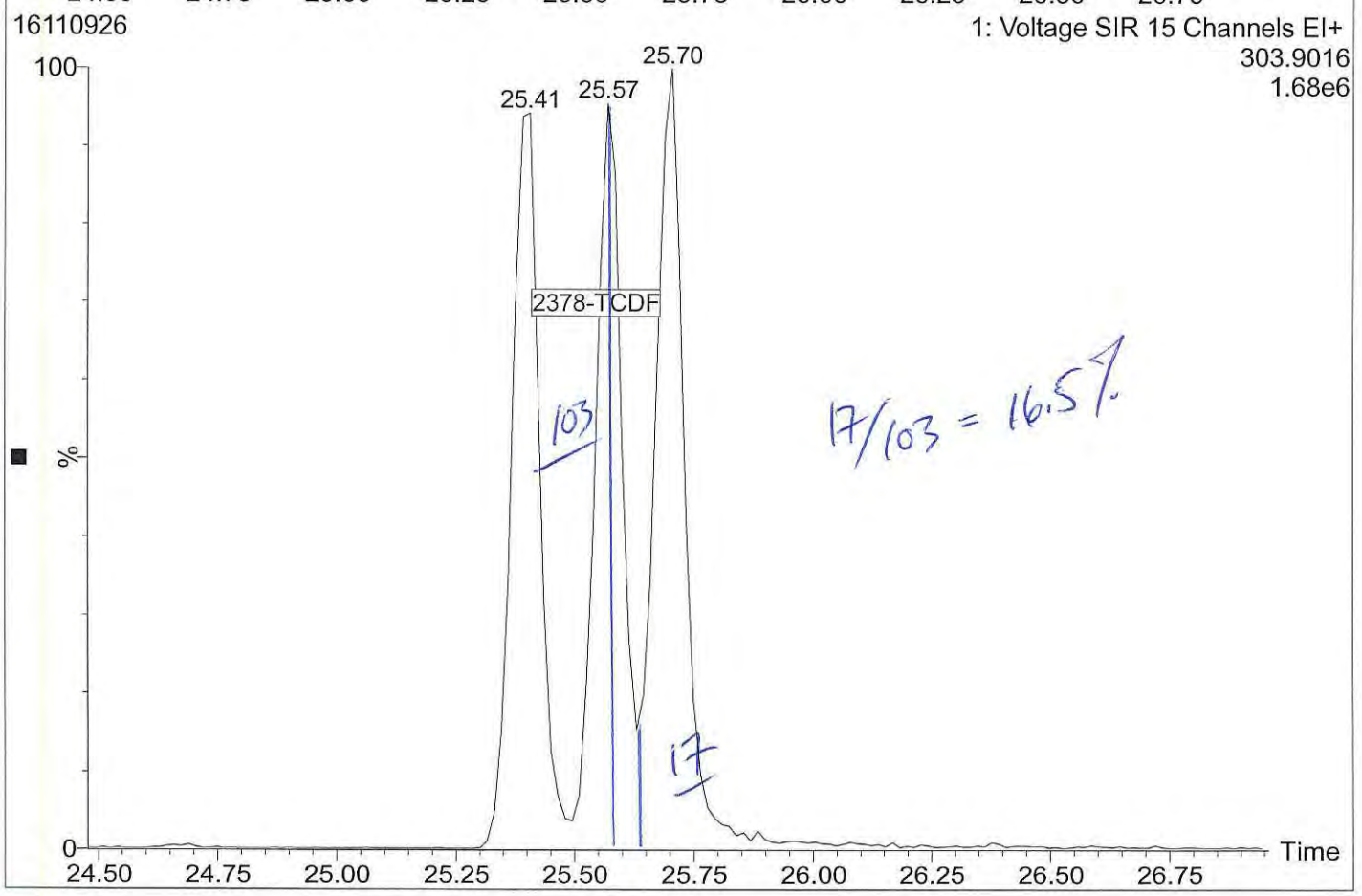
40.00
41.00
42.00
43.00
44.00


16110926
1: Voltage SIR 15 Channels EI+
319.8965
1.45e6
26.33
26.21
2378-TCDD
12/89 = 13.5%
89
12
100
%
0
24.50
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75


16110926
1: Voltage SIR 15 Channels EI+
303.9016
1.68e6
25.41
25.57
25.70
2378-TCDF
103
17
17/103 = 16.5%
100
%
0
Time
24.50
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75

FORM 7A-HR

RELATIVE RESPONSE/RELATIVE RESPONSE FACTOR -CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3C4

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/10/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 12:55

Analytical Method: CDD/CDF

CL No.	Analyte Name	RR/RRF	Mean RR/RRF	% D	IAR	IAR QC Limits
4	2,3,7,8-TCDD	1.166659	1.133965	2.9	0.77	0.655-0.886
5	1,2,3,7,8-PeCDD	1.01327	0.9753974	3.9	1.54	1.318-1.783
6	1,2,3,4,7,8-HxCDD	1.014209	1.031167	-1.6	1.26	1.054-1.426
6	1,2,3,6,7,8-HxCDD	1.027925	0.9714371	5.8	1.24	1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.007419	0.9950452	1.2	1.25	1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.065435	1.028016	3.6	1.05	0.893-1.208
8	OCDD	1.030131	1.107021	-6.9	0.87	0.757-1.024
4	2,3,7,8-TCDF	0.9830333	0.9347915	5.2	0.78	0.655-0.886
5	1,2,3,7,8-PeCDF	0.9147785	0.9519161	-3.9	1.58	1.318-1.783
5	2,3,4,7,8-PeCDF	0.9958629	0.9629117	3.4	1.55	1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.158968	1.136547	2.0	1.23	1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.119589	1.098742	1.9	1.24	1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.119711	1.100821	1.7	1.25	1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.19603	1.163504	2.8	1.24	1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	1.232189	1.302789	-5.4	1.04	0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.278048	1.317361	-3.0	1.06	0.893-1.208
8	OCDF	1.223509	1.165807	4.9	0.91	0.757-1.024
4	13C12-2,3,7,8-TCDF	1	1.567419	-36.2	0.80	0.655-0.886
4	13C12-2,3,7,8-TCDD	1	0.9077481	10.2	0.78	0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1	1.274097	-21.5	1.58	1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1	1.234626	-19.0	1.58	1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1	0.7557554	32.3	1.61	1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	1	1.380919	-27.6	0.52	0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	1	1.569453	-36.3	0.53	0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	1	1.34533	-25.7	0.52	0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	1	1.182895	-15.5	0.52	0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1	1.055904	-5.3	1.28	1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1	1.163036	-14.0	1.26	1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	1	1.178362	-15.1	0.44	0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	1	0.8777992	13.9	0.45	0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1	0.9091061	10.0	1.05	0.893-1.208
8	13C12-OCDD	1	0.8195753	22.0	0.89	0.757-1.024
4	37C14-2,3,7,8-TCDD	1.109206	1.066558	4.0		N/A
4	13C12-1,2,3,4-TCDD	23903.28	1	390,228	0.79	0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	17276.06	1	727,506	1.27	1.05-1.43

FORM 7B-HR
RELATIVE RETENTION TIME CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004
Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01
Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3C4
Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/10/16
Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 12:55
Analytical Method: CDD/CDF

CL No.	Analyte Name	Mean RRT	RRT	RRT QC Limits
4	2,3,7,8-TCDD	0.8331	1.0011	0.999-1.002
5	1,2,3,7,8-PeCDD	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDD	0.9999	1.0003	0.999-1.001
6	1,2,3,6,7,8-HxCDD	0.9999	1.0003	0.998-1.004
6	1,2,3,7,8,9-HxCDD	0.9999	1.0159	1.000-1.019
7	1,2,3,4,6,7,8-HpCDD	1.0000	1.0003	0.999-1.001
8	OCDD	0.9998	1.0004	0.999-1.001
4	2,3,7,8-TCDF	0.8330	1.0006	0.999-1.003
5	1,2,3,7,8-PeCDF	0.9997	1.0007	0.999-1.002
5	2,3,4,7,8-PeCDF	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDF	0.9999	1.0006	0.999-1.001
6	1,2,3,6,7,8-HxCDF	0.9997	1.0003	0.997-1.005
6	1,2,3,7,8,9-HxCDF	0.9999	1.0006	0.999-1.001
6	2,3,4,6,7,8-HxCDF	0.9998	1.0006	0.999-1.001
7	1,2,3,4,6,7,8-HpCDF	0.9999	1.0006	0.999-1.001
7	1,2,3,4,7,8,9-HpCDF	1.0000	1.0003	0.999-1.001
8	OCDF	0.9998	1.0062	0.999-1.008
4	13C12-2,3,7,8-TCDF	0.9995	1.0071	0.923-1.103
4	13C12-2,3,7,8-TCDD	0.9995	1.0318	0.976-1.043
5	13C12-1,2,3,7,8-PeCDF	0.9999	1.1699	1.000-1.425
5	13C12-2,3,4,7,8-PeCDF	0.9998	1.2231	1.011-1.526
5	13C12-1,2,3,7,8-PeCDD	0.9995	1.2331	1.000-1.567
6	13C12-1,2,3,4,7,8-HxCDF	0.9997	0.9510	0.944-0.970
6	13C12-1,2,3,6,7,8-HxCDF	0.9998	0.9552	0.949-0.975
6	13C12-2,3,4,6,7,8-HxCDF	0.9999	0.9811	0.959-1.021
6	13C12-1,2,3,7,8,9-HxCDF	1.0000	1.0126	0.977-1.047
6	13C12-1,2,3,4,7,8-HxCDD	0.9998	0.9850	0.977-1.000
6	13C12-1,2,3,6,7,8-HxCDD	0.9999	0.9886	0.981-1.003
7	13C12-1,2,3,4,6,7,8-HpCDF	1.0000	1.0691	1.043-1.085
7	13C12-1,2,3,4,7,8,9-HpCDF	0.9999	1.1410	1.057-1.151
7	13C12-1,2,3,4,6,7,8-HpCDD	1.0001	1.1175	1.086-1.110
8	13C12-OCDD	1.0000	1.2738	1.032-1.311
4	37C14-2,3,7,8-TCDD	0.9995	1.0330	0.989-1.052
4	13C12-1,2,3,4-TCDD	0.9995	1.0000	
6	13C12-1,2,3,7,8,9-HxCDD	1.0000	1.0000	

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161109DATA3.qld
Last Altered: Thursday, November 10, 2016 15:06:51 Pacific Standard Time
Printed: Thursday, November 10, 2016 15:08:29 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3C4, Name: 16110929, Date: 10-Nov-2016, Time: 12:55:05, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.540	1.001	1.63e5	2.09e5	0.935	0.778	0.770	1616	2309	2.27e6	2.97e6	1406.7	NO	10.516
12378-PeCDF	29.674	1.001	8.84e5	5.61e5	0.952	1.576	1.550	4067	3783	1.29e7	8.01e6	3167.3	NO	48.049
23478-PeCDF	31.023	1.001	9.46e5	6.10e5	0.963	1.552	1.550	4067	3783	1.40e7	8.94e6	3454.7	NO	51.711
123478-HxCDF	34.695	1.001	7.48e5	6.07e5	1.137	1.232	1.240	4832	4585	1.09e7	8.80e6	2265.2	NO	50.986
234678-HxCDF	35.791	1.001	7.39e5	5.96e5	1.164	1.239	1.240	4832	4585	1.08e7	8.64e6	2242.8	NO	51.398
123678-HxCDF	34.837	1.000	7.87e5	6.33e5	1.099	1.243	1.240	4832	4585	1.12e7	8.99e6	2314.2	NO	50.949
123789-HxCDF	36.942	1.001	6.37e5	5.10e5	1.101	1.250	1.240	4832	4585	8.73e6	6.89e6	1806.3	NO	50.858
1234678-HpCDF	39.002	1.001	6.21e5	5.98e5	1.303	1.039	1.050	2918	2794	8.85e6	8.68e6	3034.1	NO	47.290
1234789-HpCDF	41.611	1.000	5.14e5	4.85e5	1.317	1.061	1.050	2918	2794	6.28e6	6.08e6	2151.7	NO	48.508
OCDF	46.730	1.006	8.17e5	8.93e5	1.166	0.915	0.890	3038	2113	8.03e6	9.01e6	2642.7	NO	104.949
2378-TCDD	26.183	1.001	1.12e5	1.44e5	1.134	0.773	0.770	2086	1782	1.55e6	2.04e6	745.5	NO	10.288
12378-PeCDD	31.275	1.001	5.82e5	3.76e5	0.975	1.545	1.550	3485	2323	8.57e6	5.59e6	2458.3	NO	51.941
123478-HxCDD	35.923	1.000	5.20e5	4.13e5	1.031	1.259	1.240	3832	2288	7.70e6	6.10e6	2008.7	NO	49.178
123678-HxCDD	36.054	1.000	5.48e5	4.42e5	0.971	1.241	1.240	3832	2288	7.68e6	6.25e6	2003.7	NO	52.907
123789-HxCDD	36.481	1.012	5.14e5	4.13e5	0.947	1.245	1.240	3832	2288	7.34e6	5.88e6	1914.4	NO	51.982
1234678-HpCDD	40.756	1.000	4.31e5	4.10e5	1.028	1.052	1.050	3127	2900	5.68e6	5.39e6	1817.0	NO	51.820
OCDD	46.461	1.000	6.70e5	7.69e5	1.107	0.871	0.890	2438	2034	6.92e6	7.92e6	2837.1	NO	93.054
13C-2378-TCDF	25.525	1.007	1.68e6	2.11e6	1.567	0.795	0.770	9537	4798	2.43e7	3.03e7	2549.7	NO	100.978
13C-12378-PeCDF	29.653	1.170	1.94e6	1.22e6	1.274	1.584	1.550	4865	2972	2.76e7	1.75e7	5681.6	NO	103.703
13C-23478-PeCDF	31.001	1.223	1.91e6	1.21e6	1.235	1.584	1.550	4865	2972	2.79e7	1.76e7	5736.9	NO	105.846
13C-123478-HxCDF	34.673	0.951	7.98e5	1.54e6	1.381	0.518	0.510	4845	6002	1.17e7	2.27e7	2412.3	NO	97.990
13C-123678-HxCDF	34.826	0.955	8.74e5	1.66e6	1.569	0.525	0.510	4845	6002	1.26e7	2.38e7	2600.2	NO	93.579
13C-234678-HxCDF	35.769	0.981	7.63e5	1.47e6	1.345	0.520	0.510	4845	6002	1.09e7	2.11e7	2252.2	NO	96.012
13C-123789-HxCDF	36.920	1.013	7.03e5	1.34e6	1.183	0.523	0.510	4845	6002	9.62e6	1.86e7	1986.4	NO	100.211
13C-1234678-HpCDF	38.980	1.069	6.00e5	1.38e6	1.178	0.435	0.440	2591	3746	8.79e6	1.97e7	3393.9	NO	97.206
13C-1234789-HpCDF	41.600	1.141	4.82e5	1.08e6	0.878	0.446	0.440	2591	3746	6.00e6	1.34e7	2316.3	NO	103.095
13C-1234-TCDD	25.346	0.000	1.05e6	1.34e6	1.000	0.789	0.770	3580	2127	1.55e7	1.96e7	4342.5	NO	100.000
13C-2378-TCDD	26.153	1.032	9.62e5	1.23e6	0.908	0.780	0.770	3580	2127	1.34e7	1.71e7	3732.2	NO	101.149
13C-12378-PeCDD	31.253	1.233	1.17e6	7.25e5	0.756	1.608	1.550	2197	1314	1.70e7	1.07e7	7730.2	NO	104.686
13C-123478-HxCDD	35.912	0.985	1.03e6	8.07e5	1.056	1.278	1.240	2708	1988	1.54e7	1.18e7	5686.0	NO	100.813
13C-123678-HxCDD	36.043	0.989	1.07e6	8.54e5	1.163	1.256	1.240	2708	1988	1.51e7	1.20e7	5567.2	NO	95.835
13C-1234678-HpCDD	40.745	1.118	8.08e5	7.71e5	0.909	1.049	1.050	2958	3310	1.09e7	1.02e7	3668.1	NO	100.553
13C-OCDD	46.443	1.274	1.31e6	1.48e6	0.820	0.888	0.890	3251	2828	1.35e7	1.51e7	4158.2	NO	197.404

16480 SDG PHA01 610 of 802

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
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Last Altered: Thursday, November 10, 2016 15:06:51 Pacific Standard Time
Printed: Thursday, November 10, 2016 15:08:29 Pacific Standard Time

ID: CS3C4, Name: 16110929, Date: 10-Nov-2016, Time: 12:55:05, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
13C-123789-HxCDD	36.460	0.000	9.66e5	7.61e5	1.000	1.269	1.240	2708	1988	1.39e7	1.12e7	5141.9	NO	100.000
Total-tetrafurans			5.23e5		0.935			1616		7.17e6				33.904
Total-penta1			1.18e6					762		1.69e7				67.703
Total-pentafurans			2.88e6		0.957			4067		4.14e7				157.087
Total-hexafurans			3.68e6		1.125			4832		5.25e7				257.805
Total-heptafurans			1.14e6		1.310			2918		1.52e7				95.913
Total-Furans			1.02e7		1.114			1616		1.41e8				717.362
Total-tetradioxins			6.01e5		1.134			2086		7.66e6				54.651
Total-pentadioxins			2.26e6		0.975			3485		2.79e7				202.307
Total-hexadioxins			2.15e6		0.983			3832		3.10e7				208.767
Total-heptadioxins			8.98e5		1.028			3127		1.23e7				108.160
Total-Dioxins			6.58e6		1.028			2086		8.57e7				666.939
Total-TEQ			1.68e7					2086		2.27e8				1384.301
37CL-2378-TCDD	26.183	1.033	2.65e5		1.067			2145		3.74e6		1744.6		10.400
FUNCTION1 PFK			1.24e8					616768		2.12e8				
FUNCTION2 PFK			1.50e5					214272		4.94e6				0.000
FUNCTION3 PFK			4.40e5					525384		1.45e7				0.000
FUNCTION4 PFK			7.89e5					454668		2.40e7				
FUNCTION5 PFK			2.25e7					293102		2.31e8				
FUNCTION1 HXCDPE			4.29e2					656		9.82e3				0.000
FUNCTION1 HPCDPE			1.41e3					1224		2.80e4				0.000
FUNCTION2 HPCDPE			1.55e3					1425		3.37e4				0.000
FUNCTION3 OCDPE			7.11e1					586		2.24e3				0.000
FUNCTION4 NCDPE			0.00e0					744		0.00e0				
FUNCTION5 DCDPE			0.00e0					527		0.00e0				

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Last Altered: Thursday, November 10, 2016 15:06:51 Pacific Standard Time
Printed: Thursday, November 10, 2016 15:08:29 Pacific Standard Time

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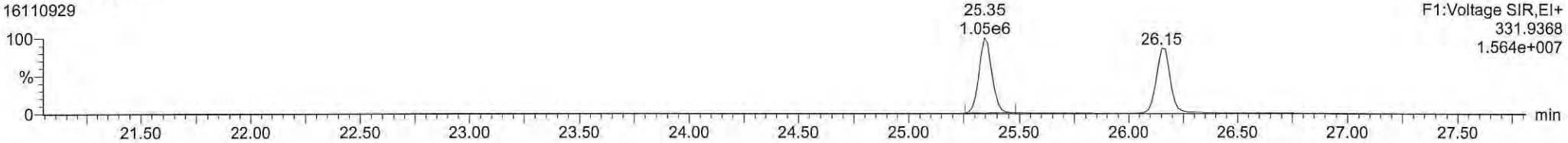
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3C4, Name: 16110929, Date: 10-Nov-2016, Time: 12:55:05, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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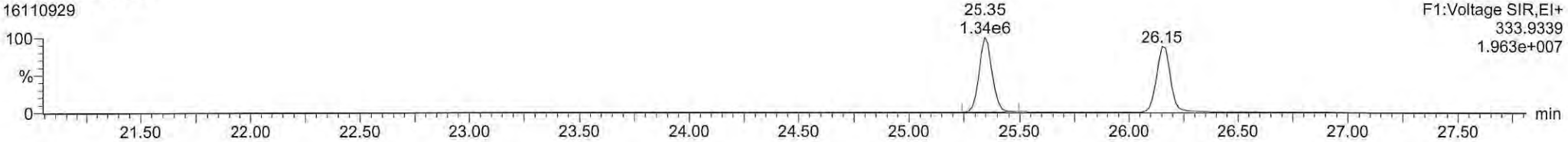

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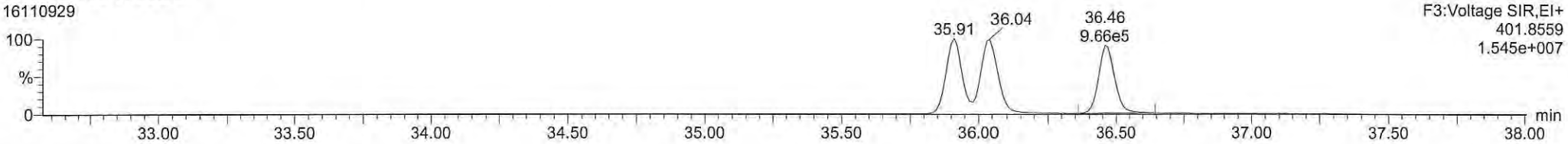

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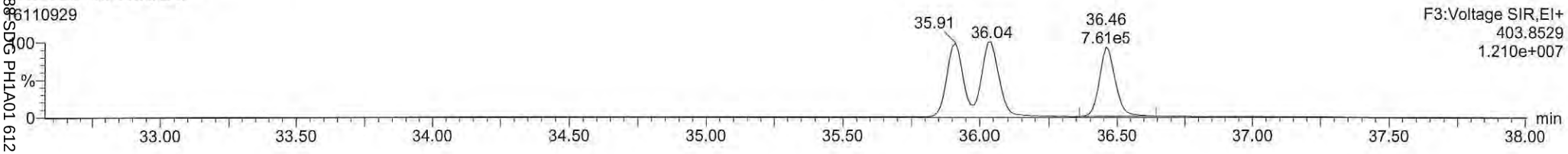

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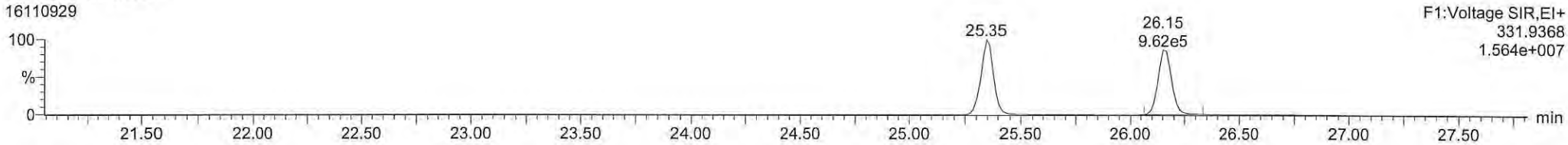
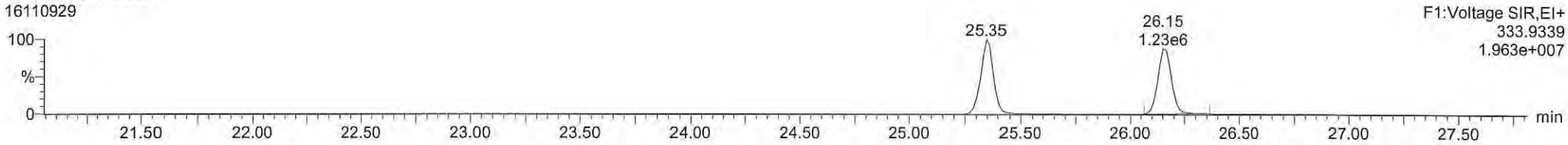
Last Altered: Thursday, November 10, 2016 15:06:51 Pacific Standard Time
Printed: Thursday, November 10, 2016 15:08:29 Pacific Standard Time

ID: CS3C4, Name: 16110929, Date: 10-Nov-2016, Time: 12:55:05, Conditions: AUTOSPEC01, User: PK

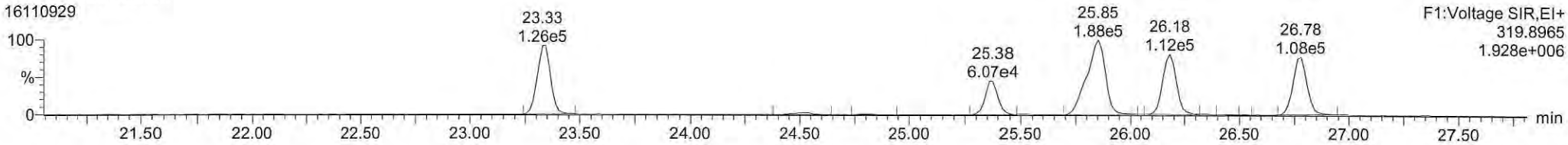
13C-2378-TCDD



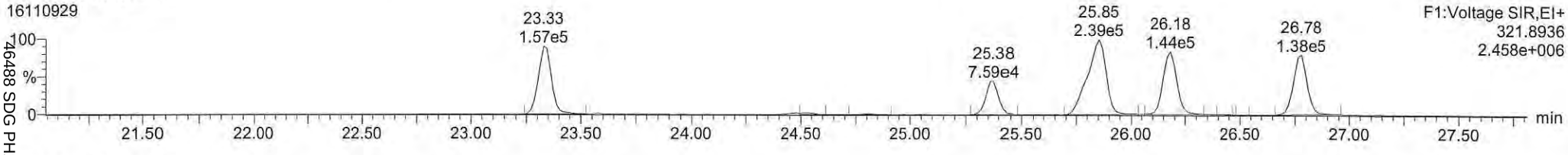
13C-2378-TCDD



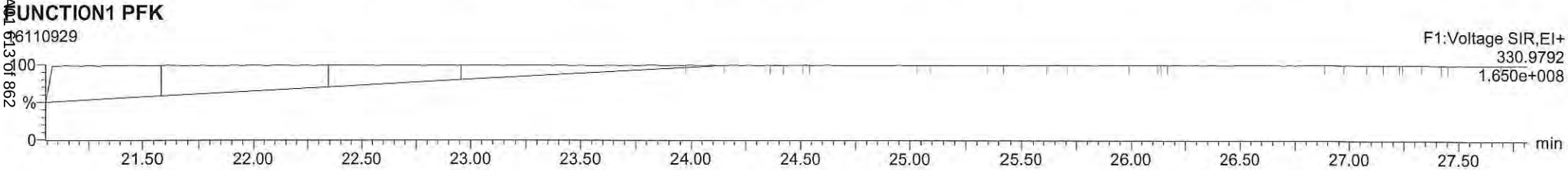
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



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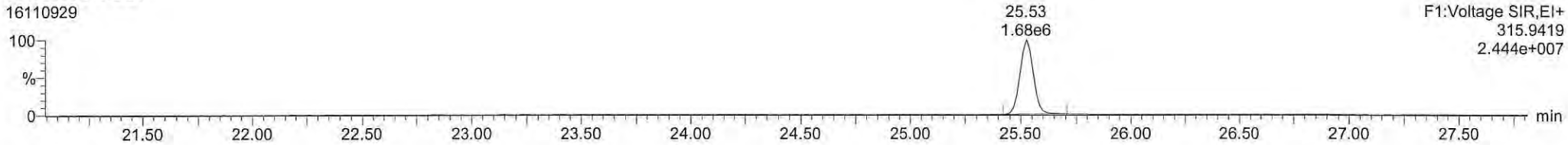
Dataset: C:\MassLynx\Dioxin.pro\161109DATA3.qld
Last Altered: Thursday, November 10, 2016 15:06:51 Pacific Standard Time
Printed: Thursday, November 10, 2016 15:08:29 Pacific Standard Time

ID: CS3C4, Name: 16110929, Date: 10-Nov-2016, Time: 12:55:05, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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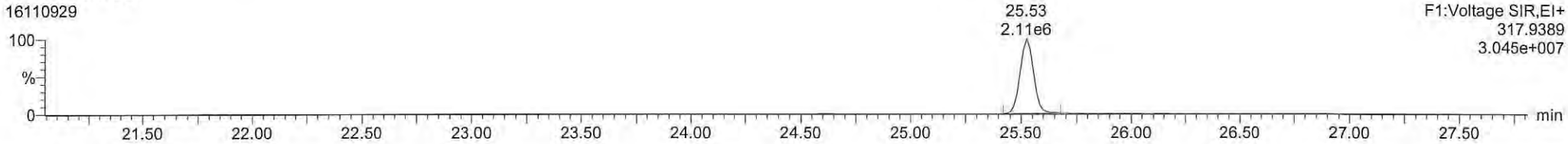
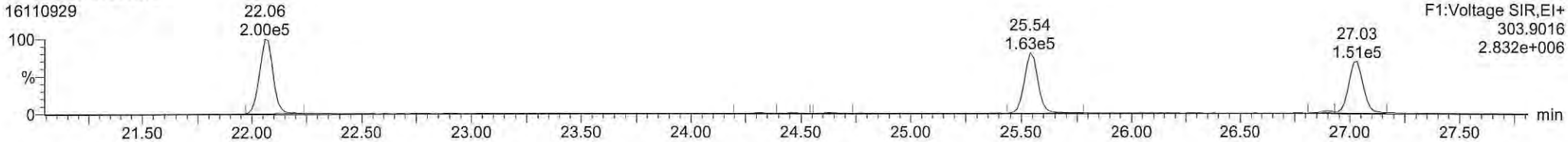


Total-tetrafurans



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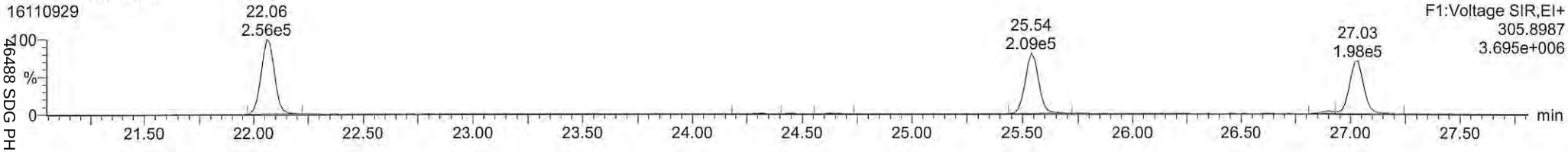
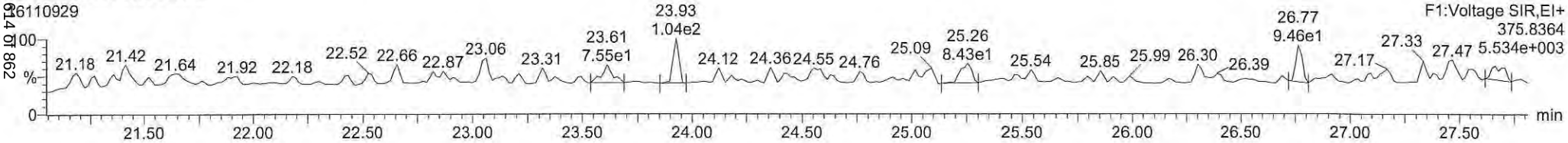


FUNCTION1 HXCDPE



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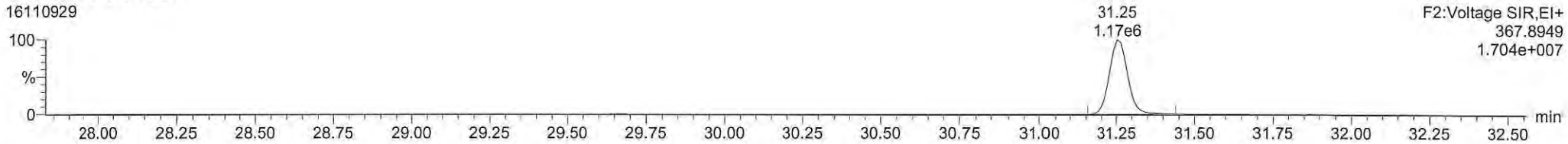
13C-12378-PeCDD



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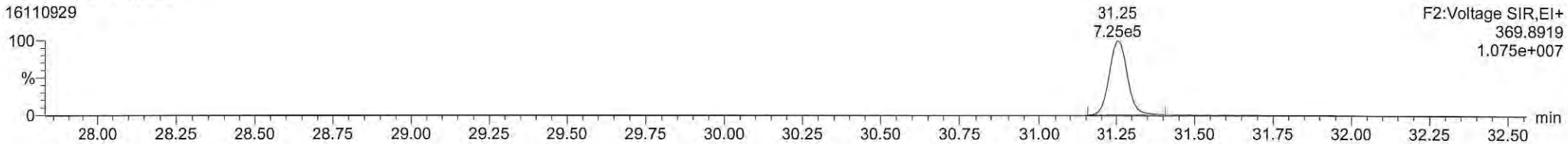
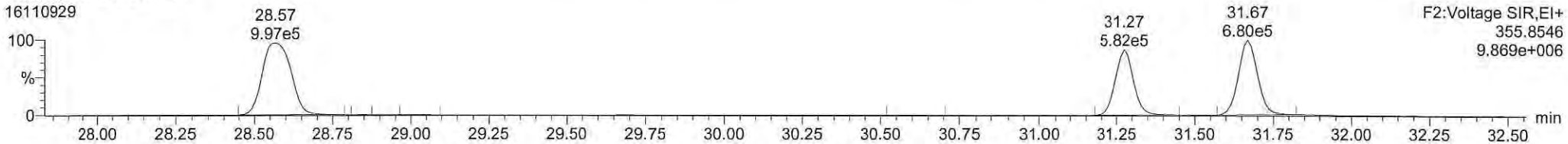
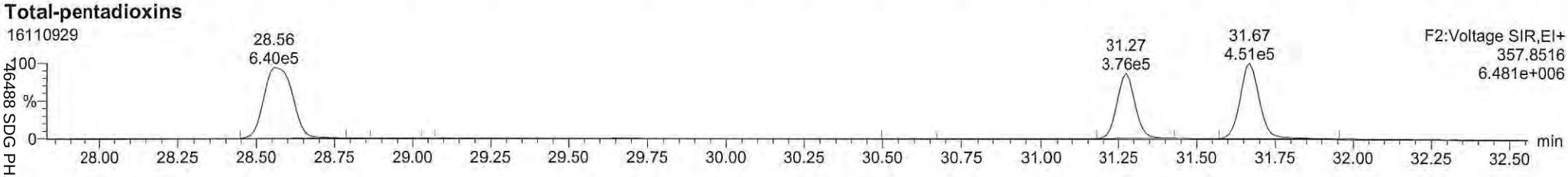


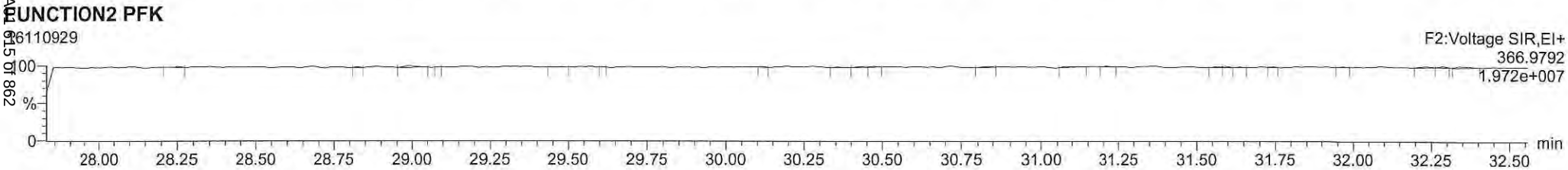
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



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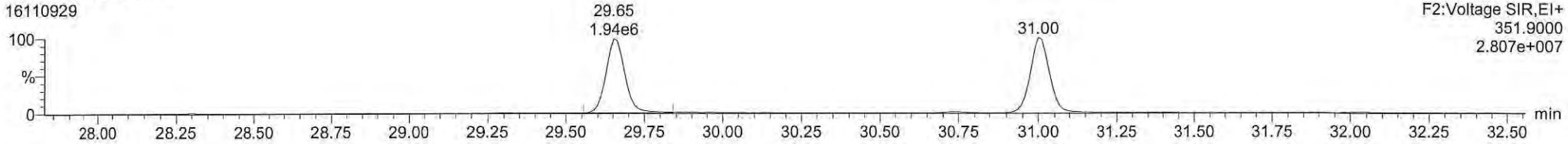
ID: CS3C4, Name: 16110929, Date: 10-Nov-2016, Time: 12:55:05, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDF



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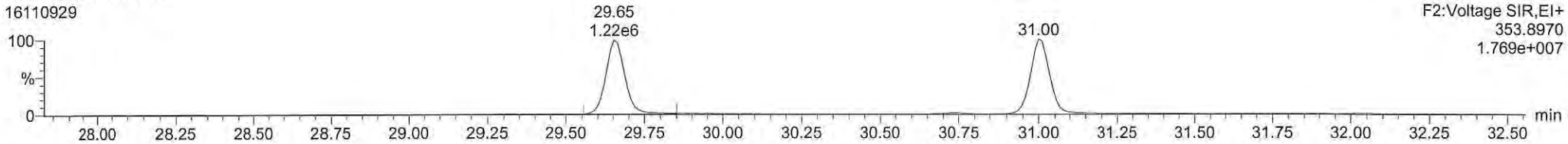
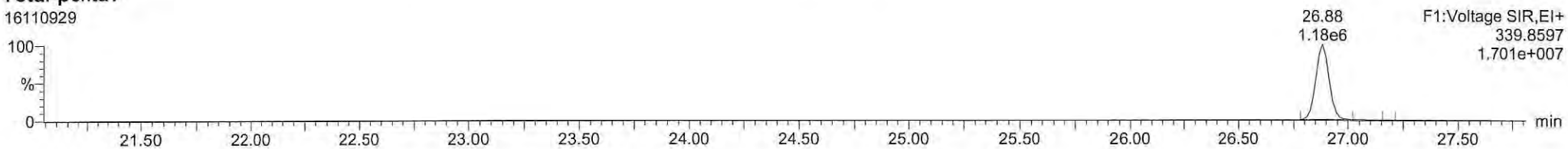
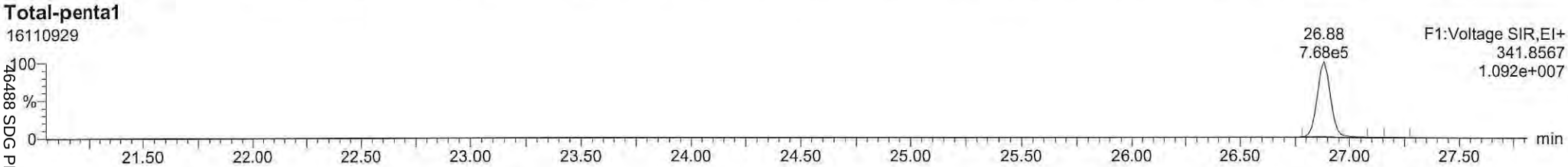


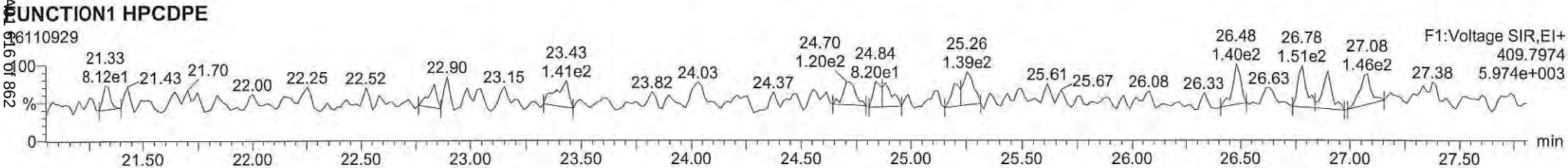
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



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Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161109DATA3.qld
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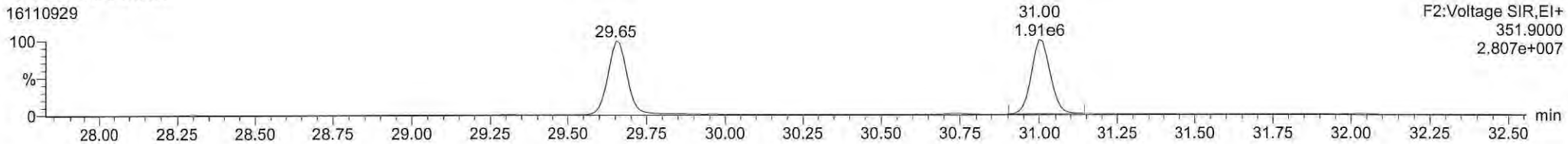
ID: CS3C4, Name: 16110929, Date: 10-Nov-2016, Time: 12:55:05, Conditions: AUTOSPEC01, User: PK

13C-23478-PeCDF



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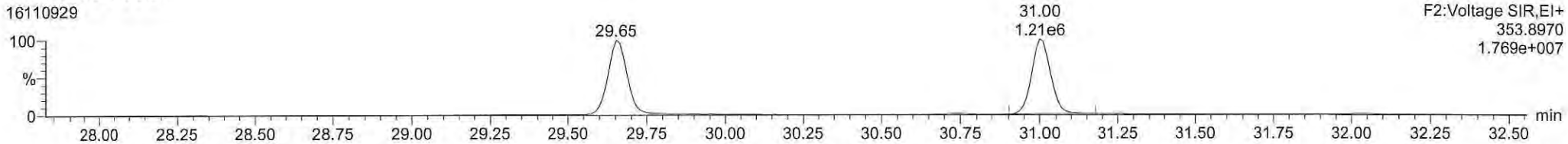
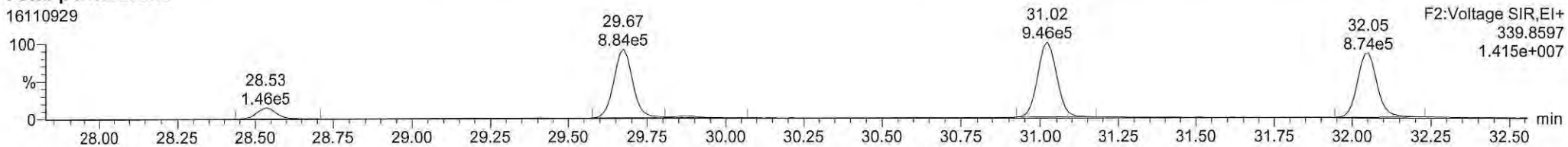
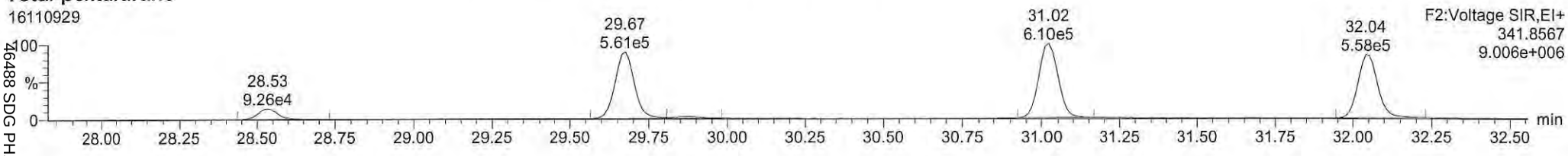


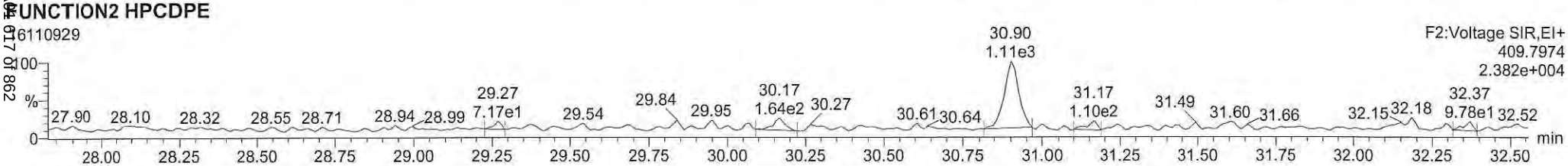
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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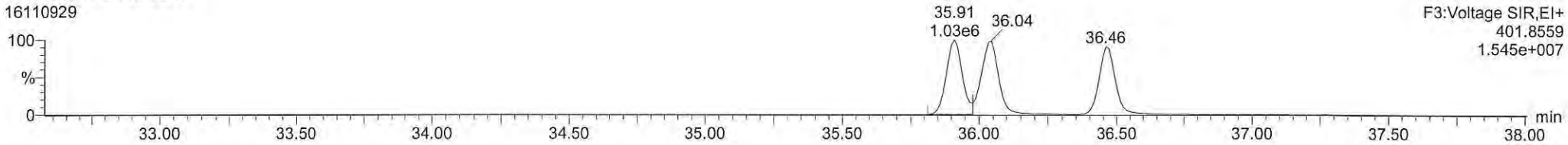
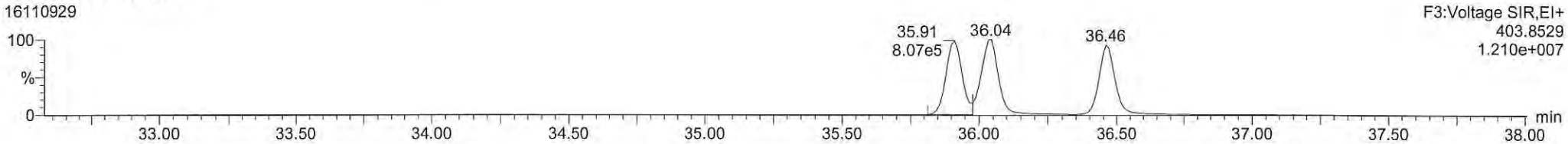
ID: CS3C4, Name: 16110929, Date: 10-Nov-2016, Time: 12:55:05, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



13C-123478-HxCDD



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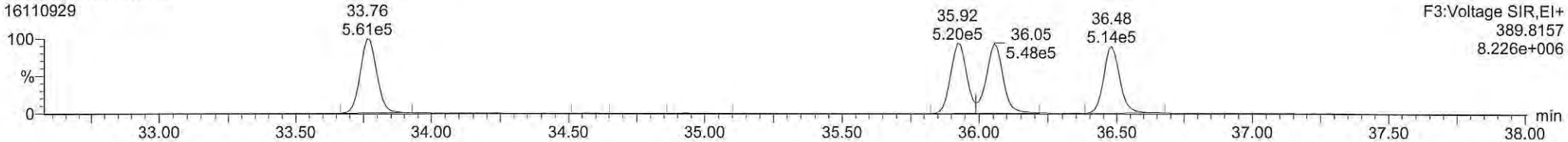
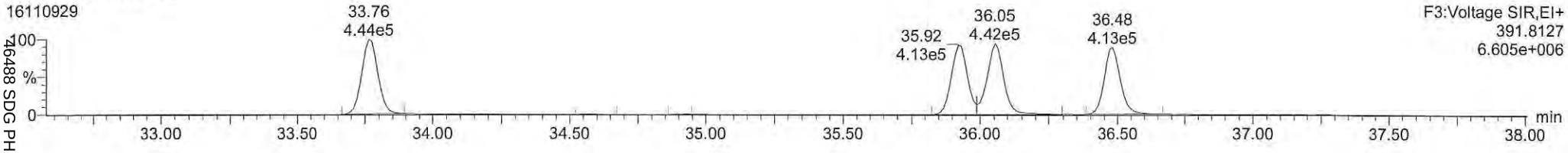
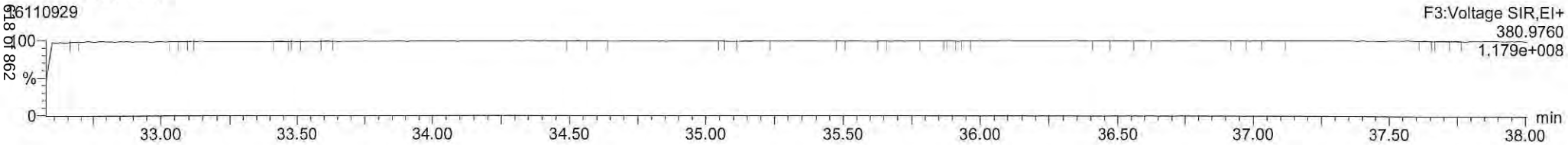


Total-hexadioxins



FUNCTION3 PFK



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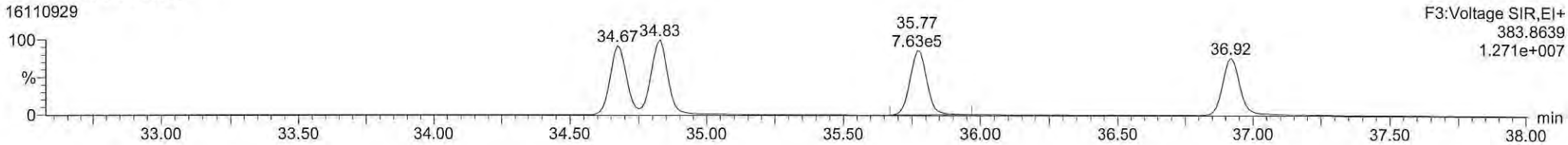
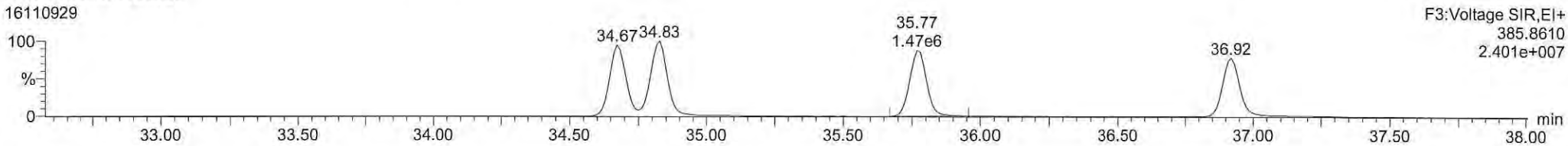
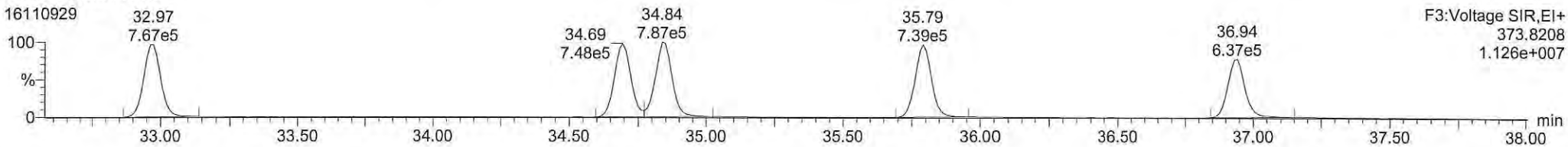
13C-234678-HxCDF



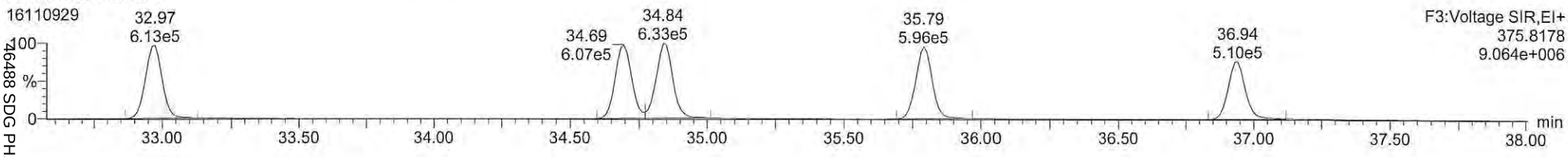
13C-234678-HxCDF



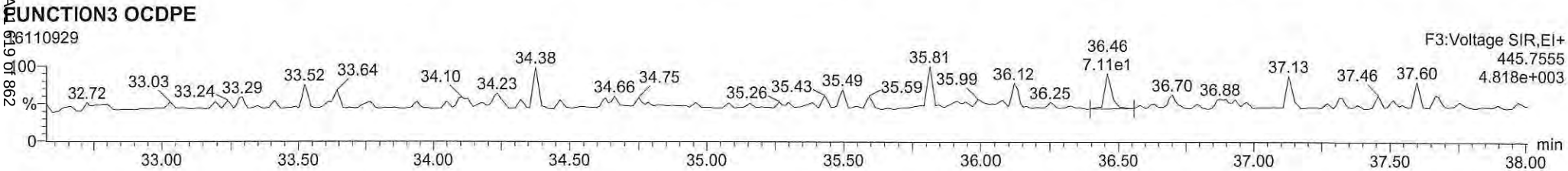
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



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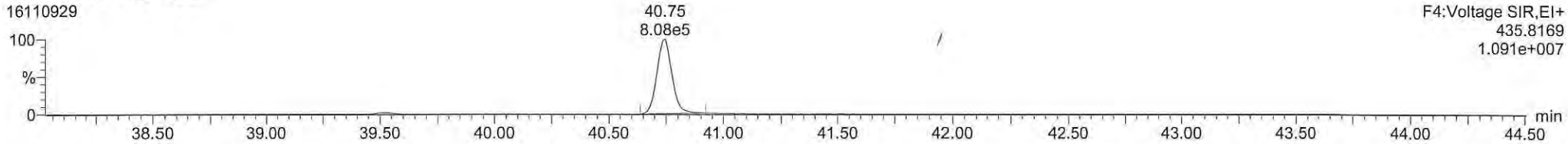
13C-1234678-HpCDD



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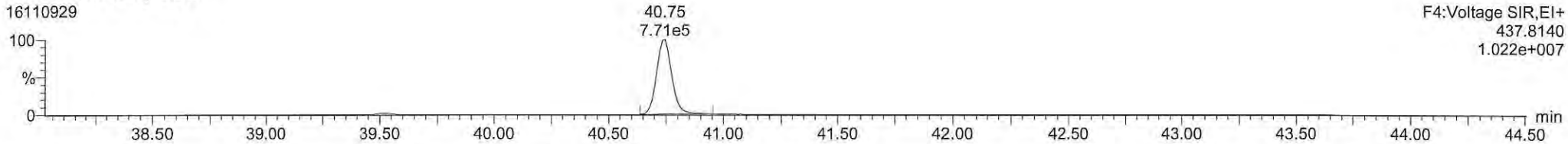
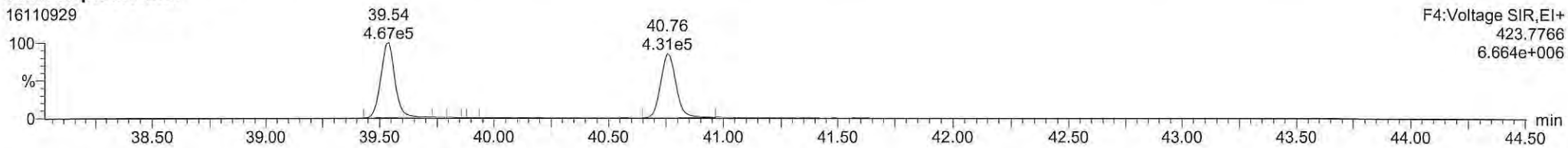


Total-heptadioxins



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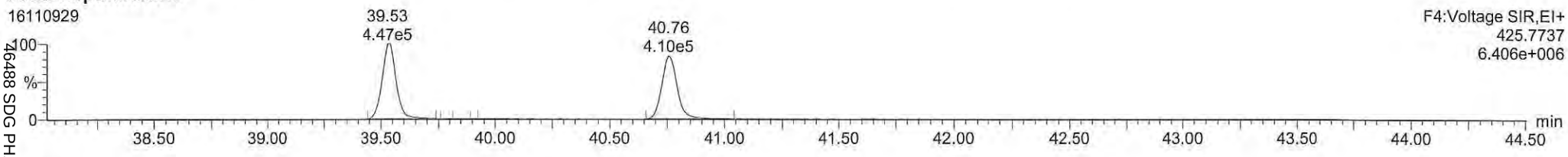
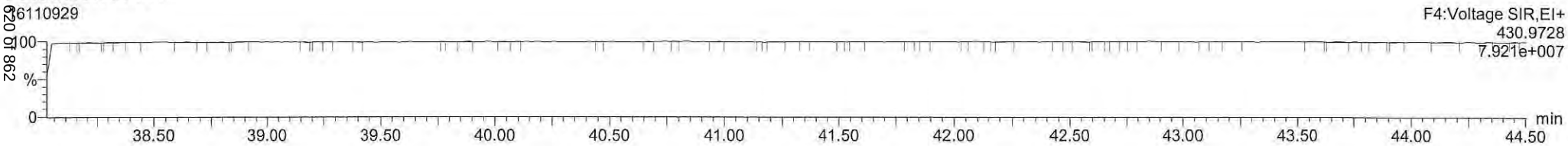


FUNCTION4 PFK



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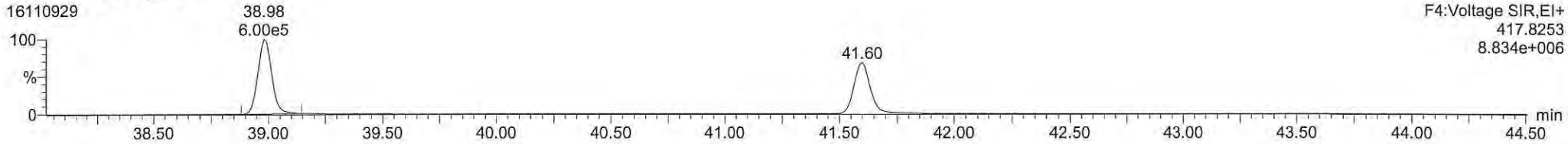
13C-1234678-HpCDF



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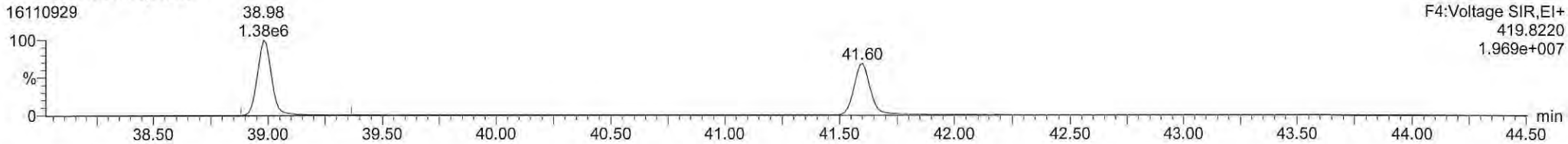
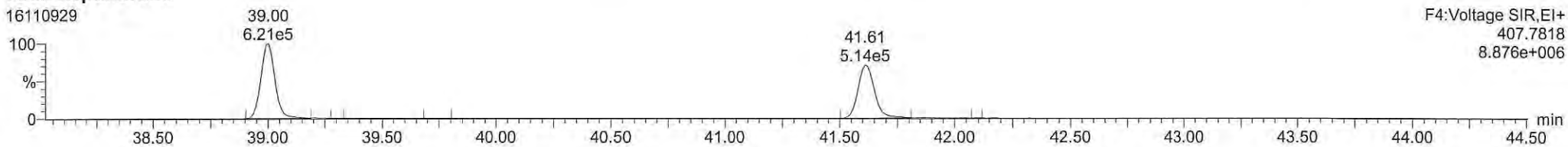
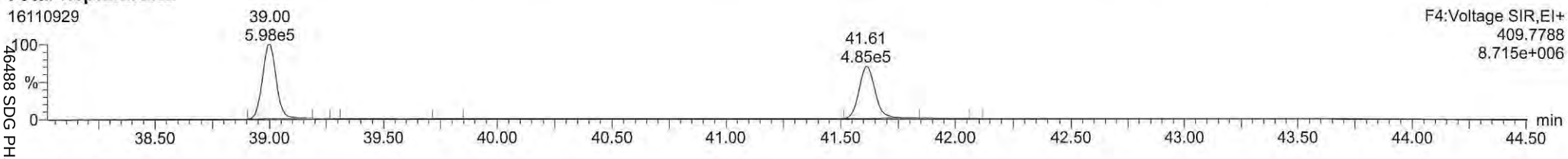


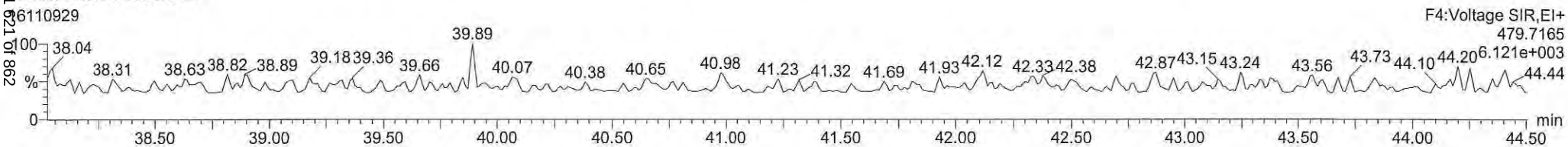
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE



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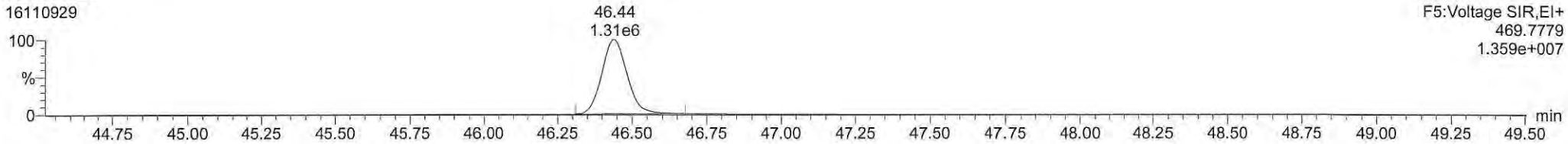
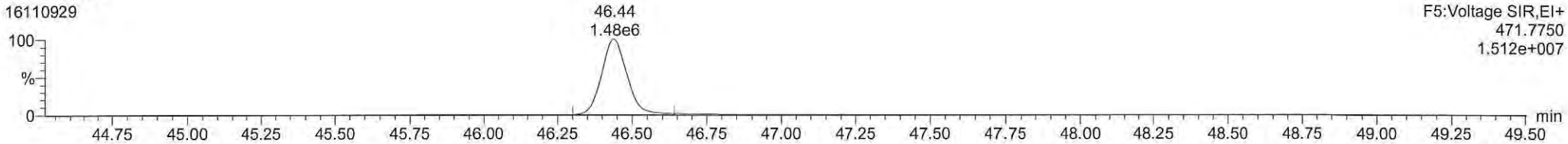
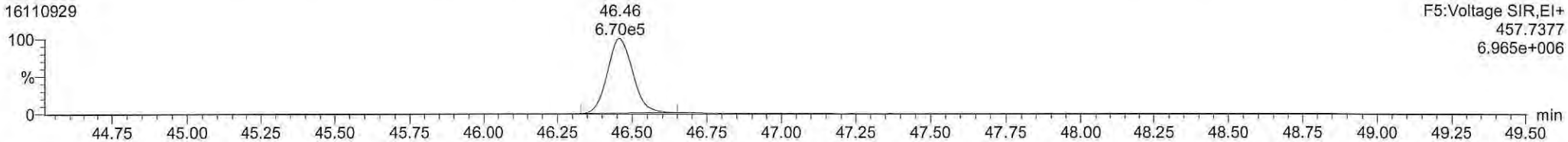
13C-OCDD



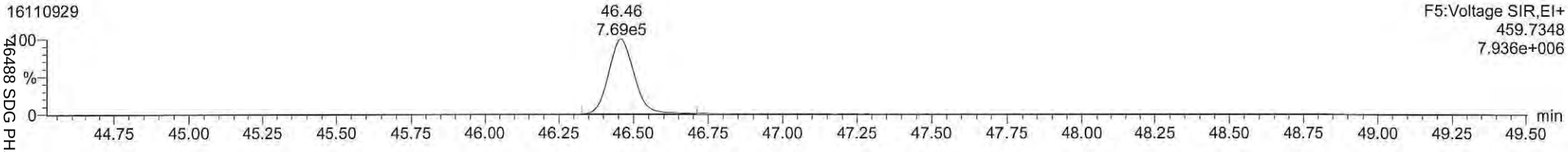
13C-OCDD



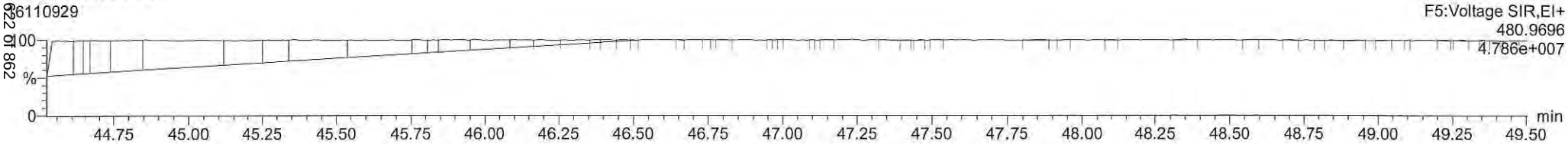
OCDD



OCDD



FUNCTION5 PFK



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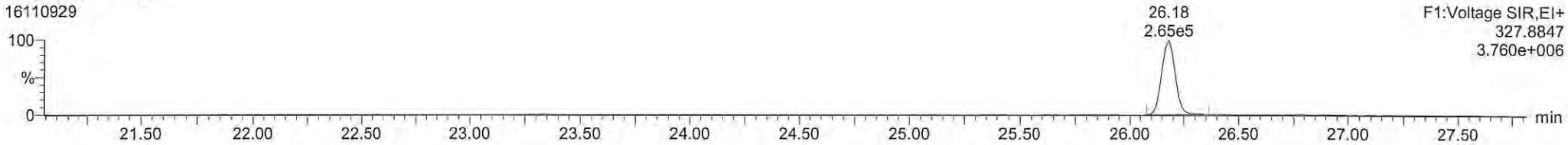
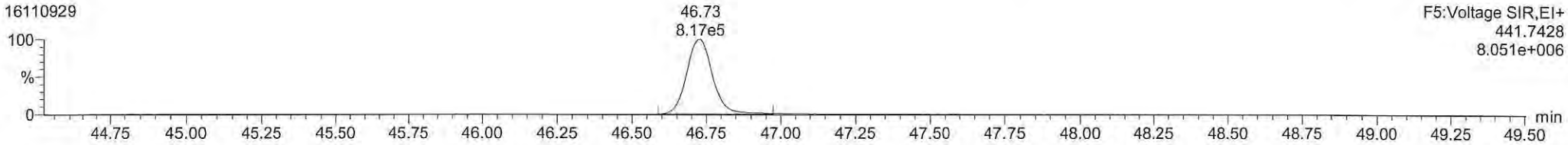
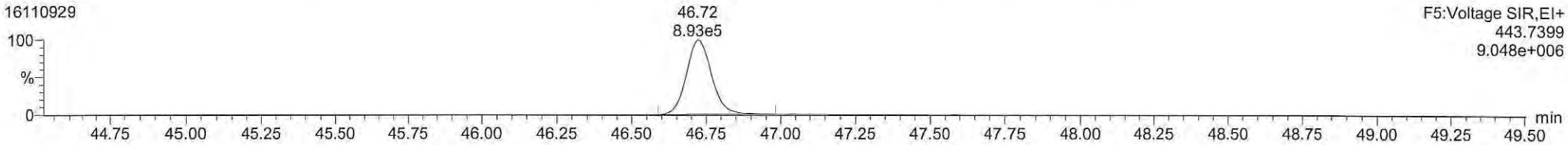
37CL-2378-TCDD



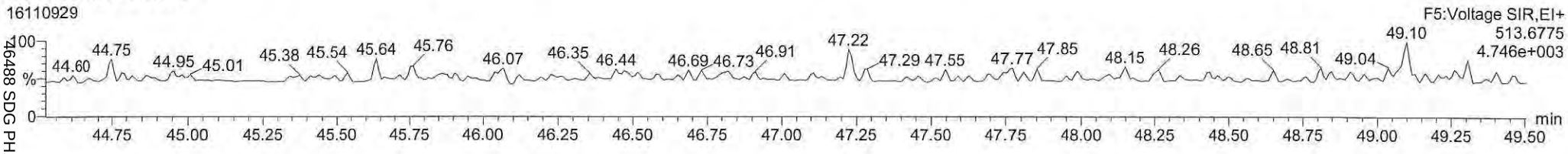
OCDF



OCDF

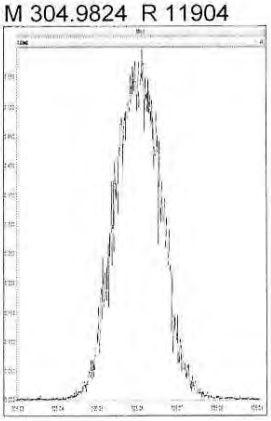


FUNCTION5 DCDPE

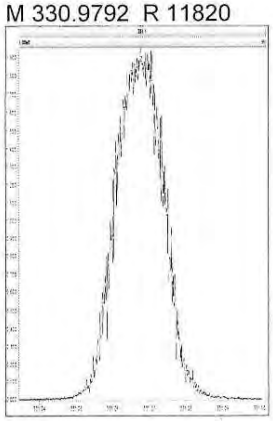


Printed: Thursday, November 10, 2016 13:53:05 Pacific Standard Time

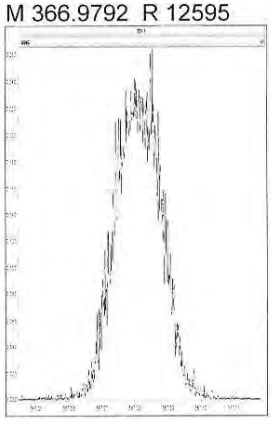
M 304.9824 R 11904



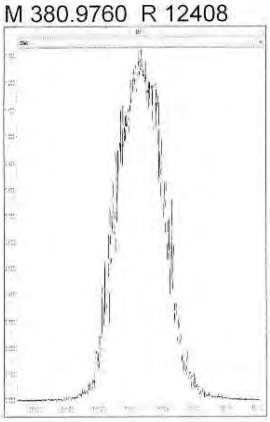
M 330.9792 R 11820



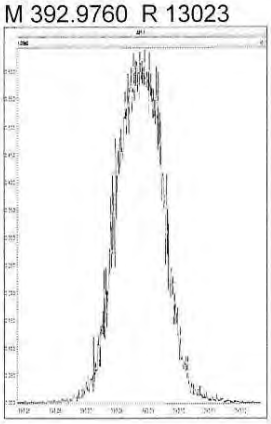
M 366.9792 R 12595



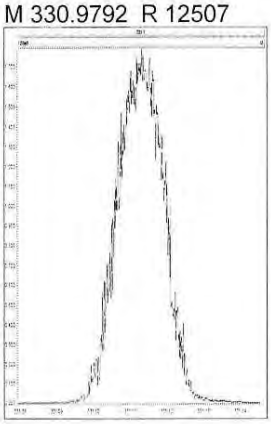
M 380.9760 R 12408



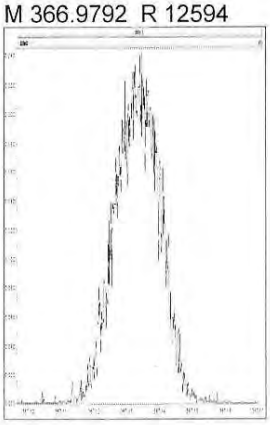
M 392.9760 R 13023



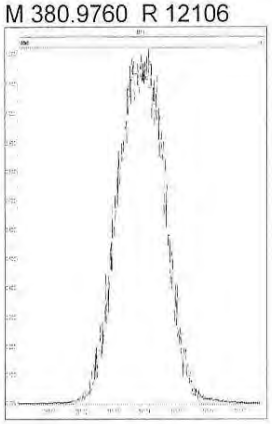
M 330.9792 R 12507



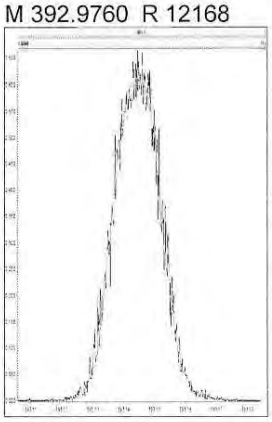
M 366.9792 R 12594



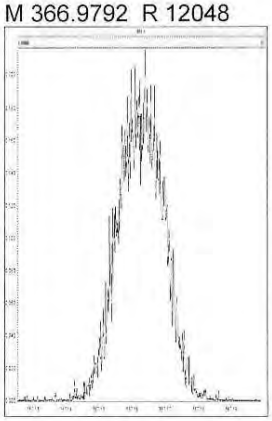
M 380.9760 R 12106



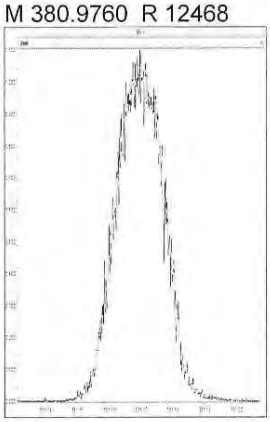
M 392.9760 R 12168



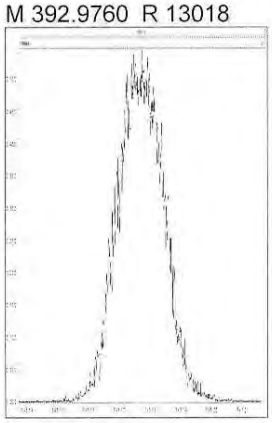
M 366.9792 R 12048



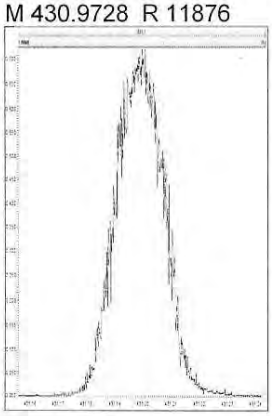
M 380.9760 R 12468



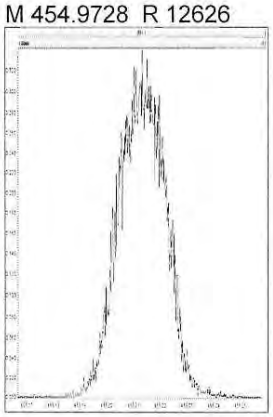
M 392.9760 R 13018



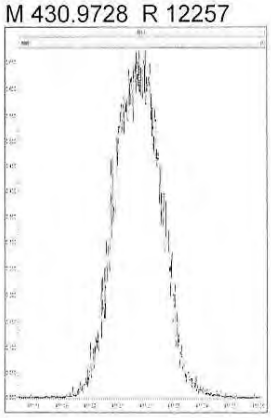
M 430.9728 R 11876



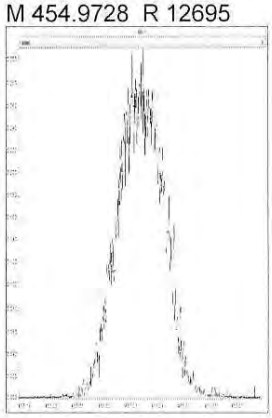
M 454.9728 R 12626

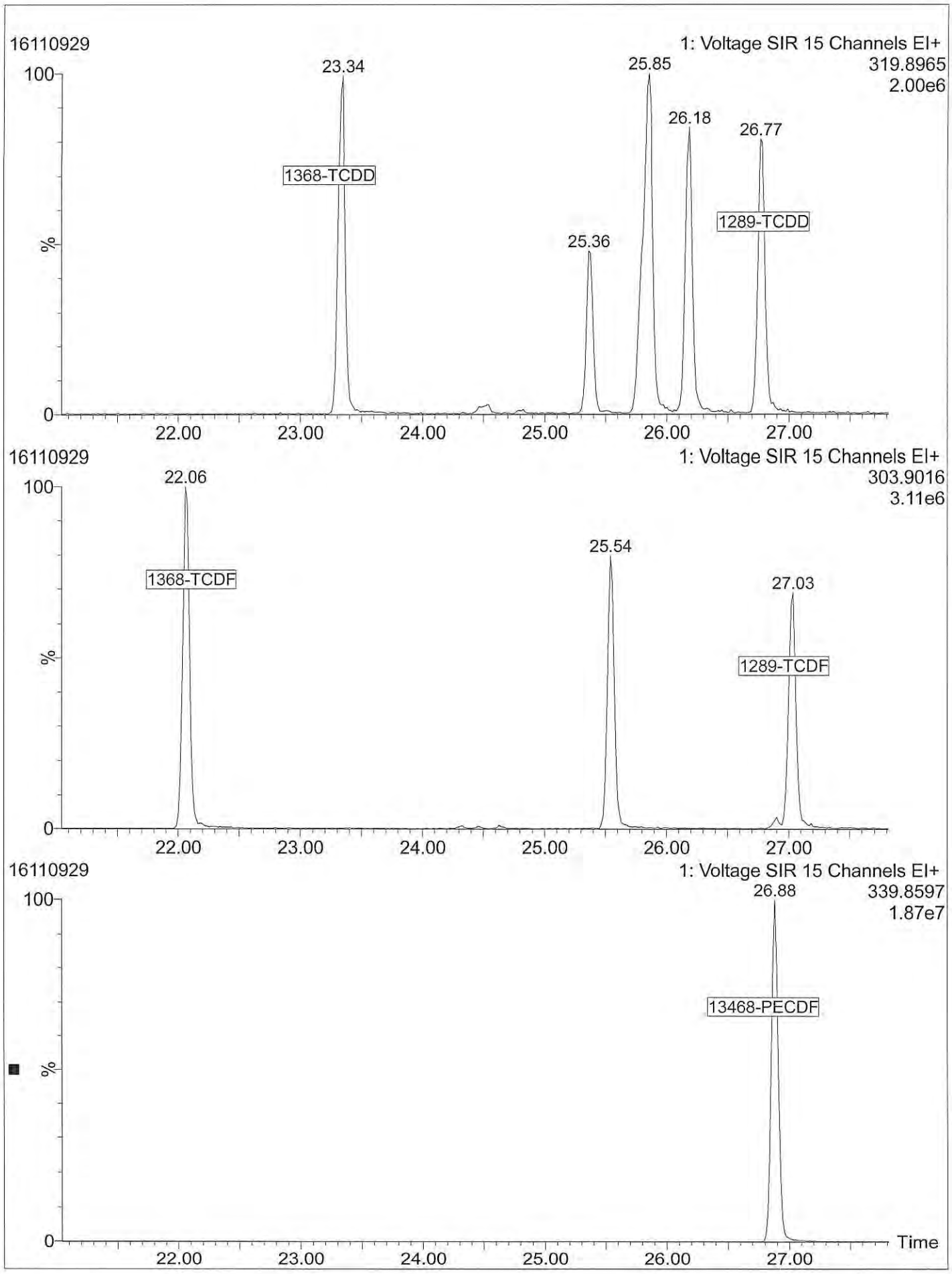


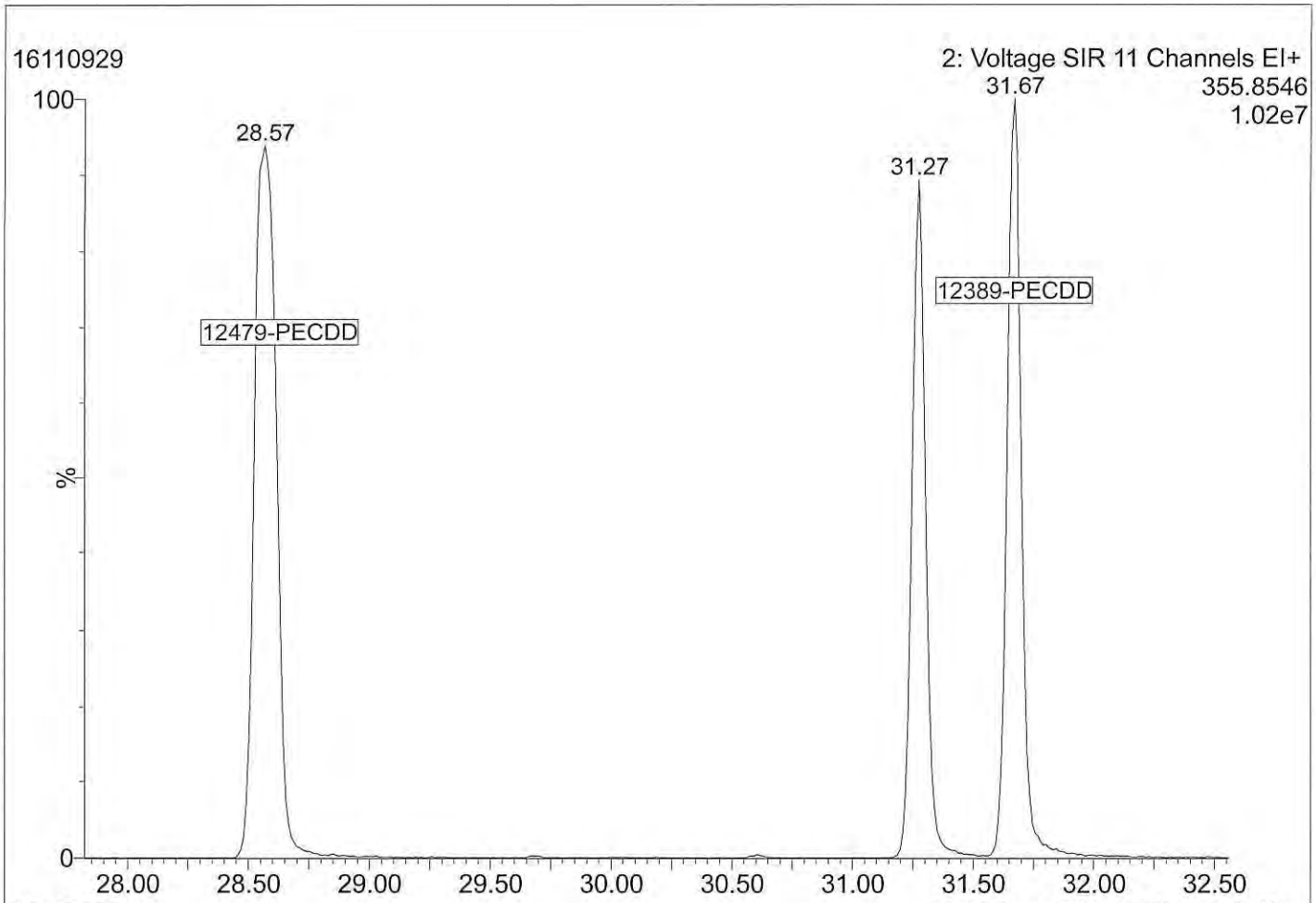
M 430.9728 R 12257

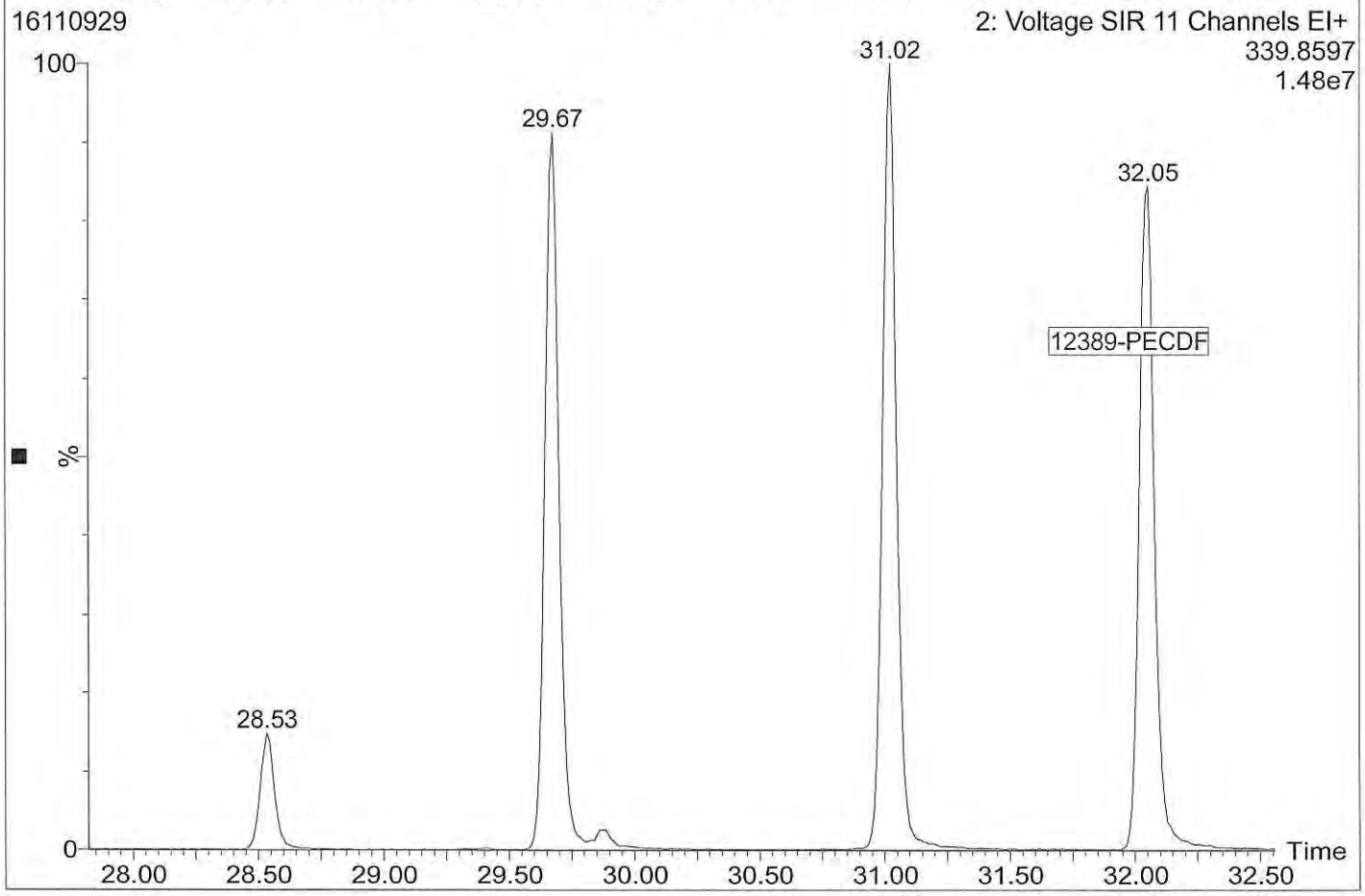


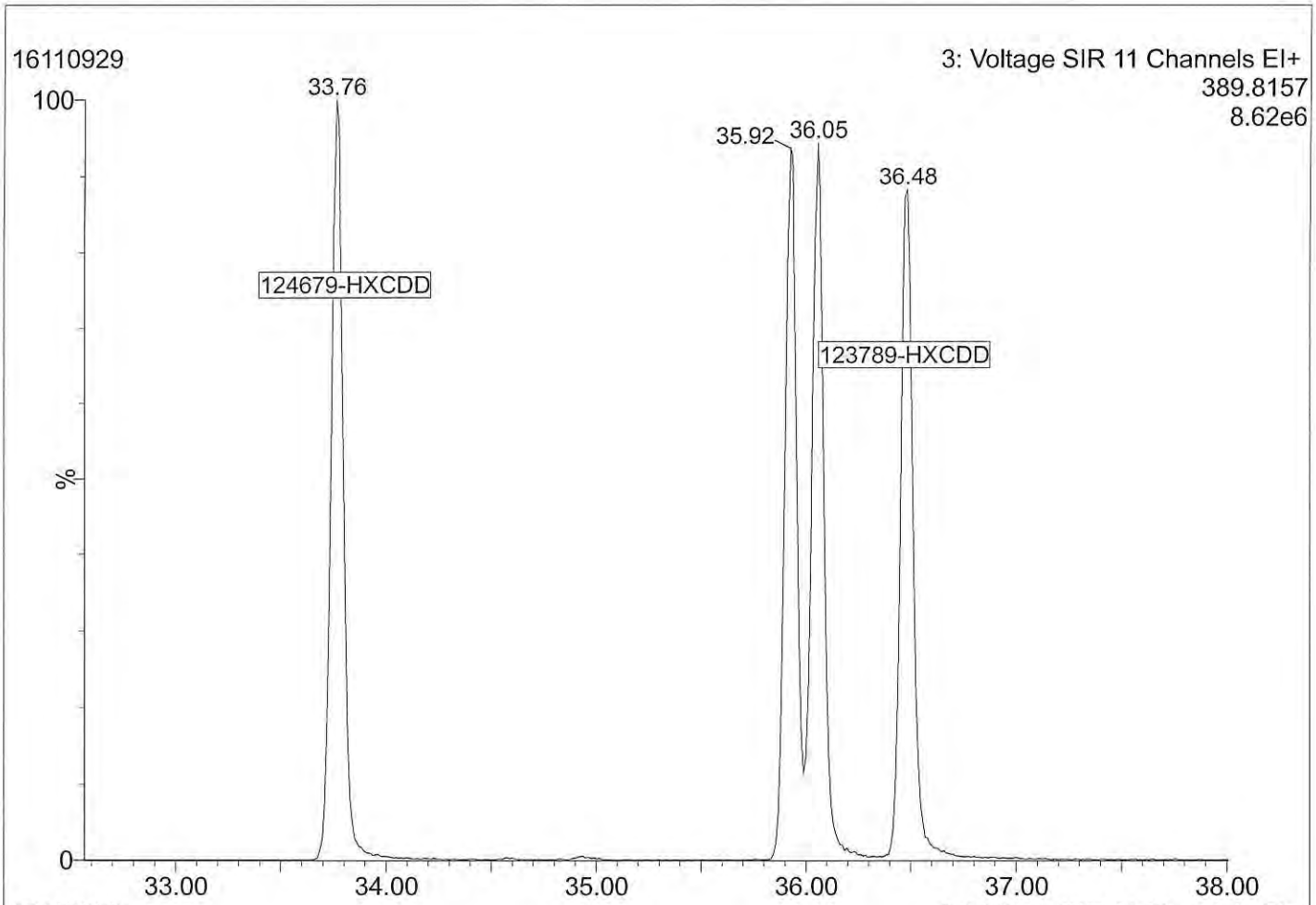
M 454.9728 R 12695

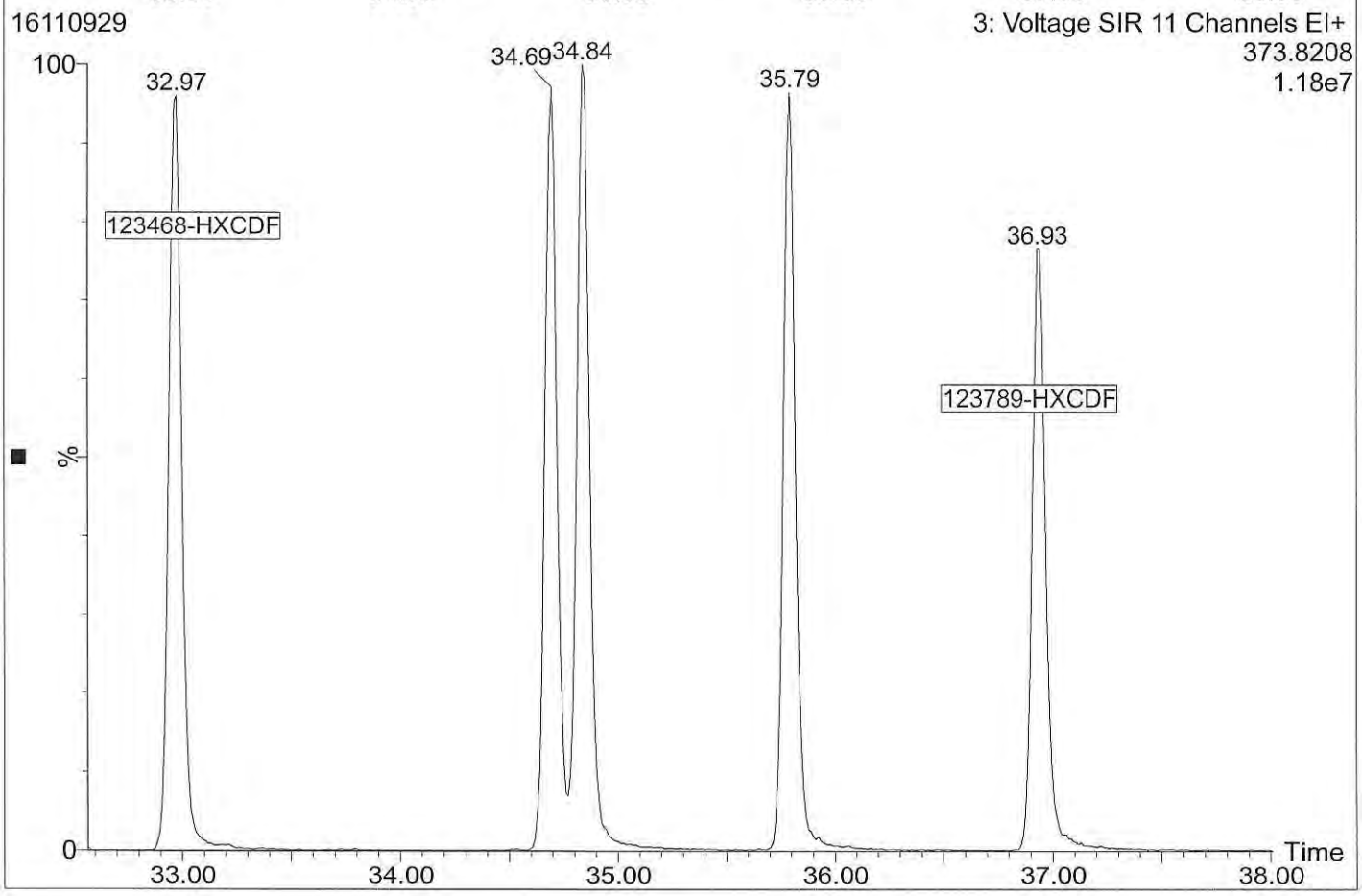


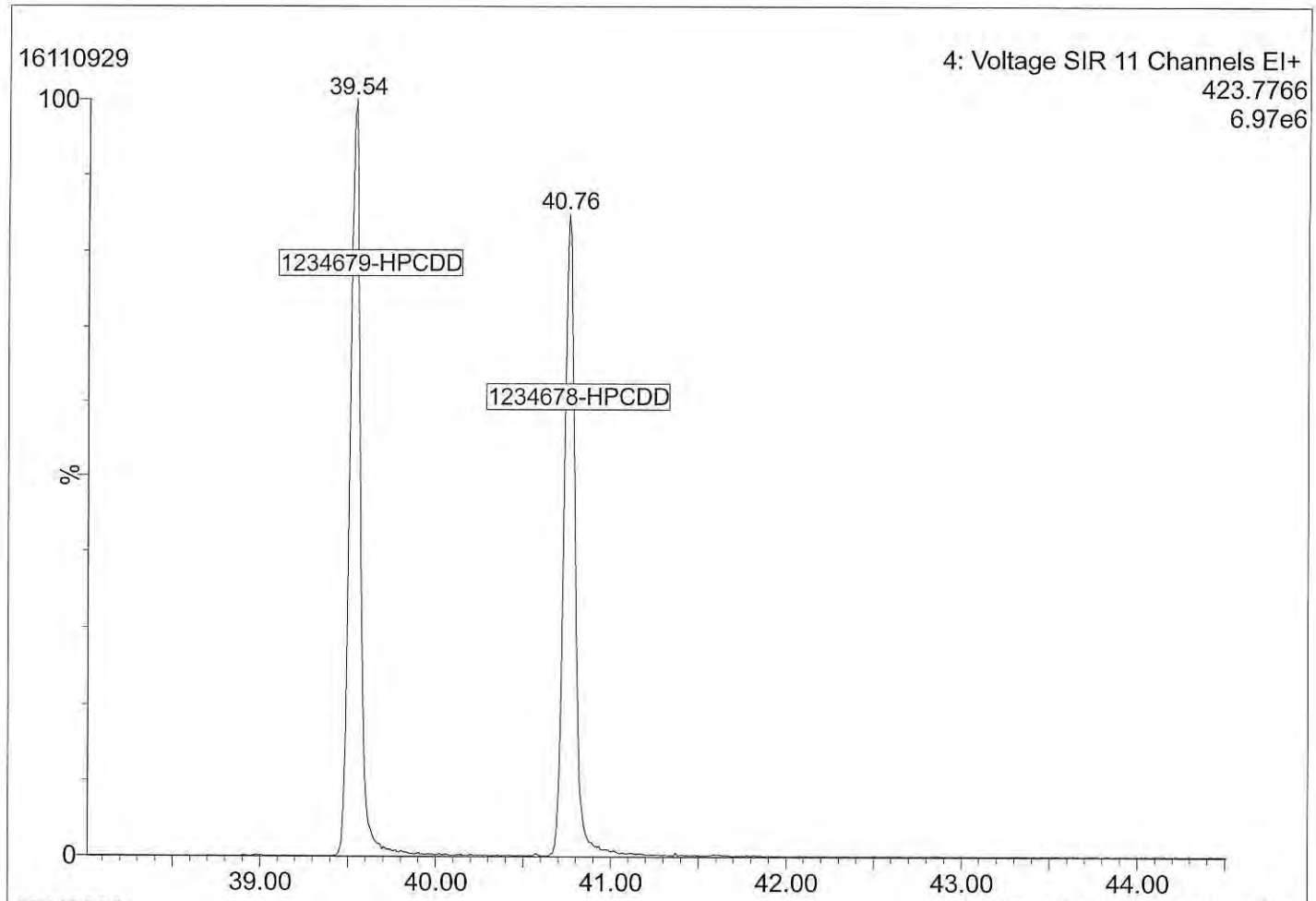

16110929
1: Voltage SIR 15 Channels EI+
319.8965
2.00e6
23.34
25.85
26.18
26.77
1368-TCDD
25.36
1289-TCDD
100
%
0
22.00
23.00
24.00
25.00
26.00
27.00
16110929
1: Voltage SIR 15 Channels EI+
303.9016
3.11e6
22.06
25.54
27.03
1368-TCDF
1289-TCDF
100
%
0
22.00
23.00
24.00
25.00
26.00
27.00
16110929
1: Voltage SIR 15 Channels EI+
339.8597
1.87e7
26.88
13468-PECDF
100
%
0
Time
22.00
23.00
24.00
25.00
26.00
27.00

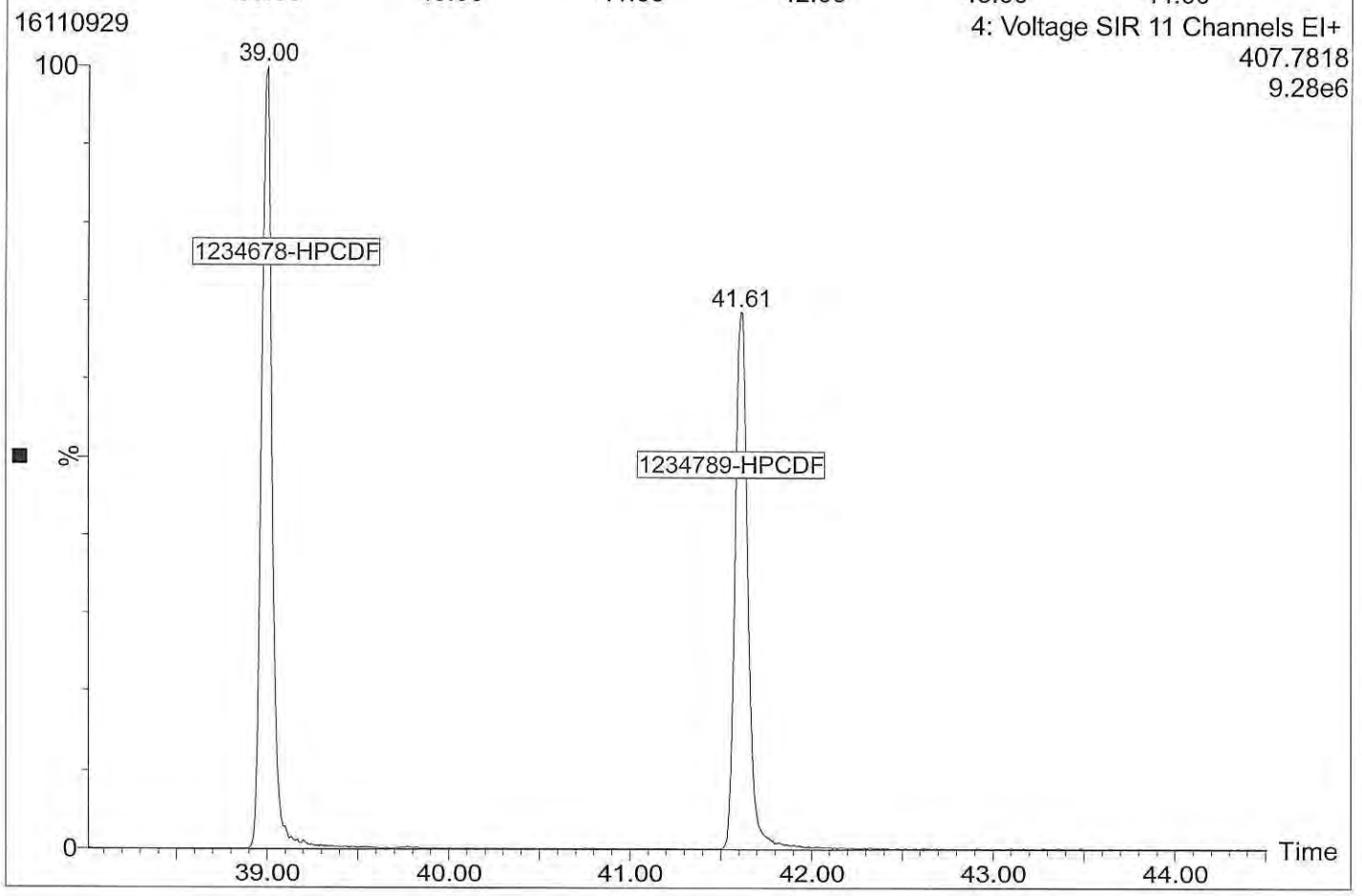

16110929
2: Voltage SIR 11 Channels EI+
355.8546
1.02e7
100
%
0
28.57
31.27
31.67
12479-PECDD
12389-PECDD
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

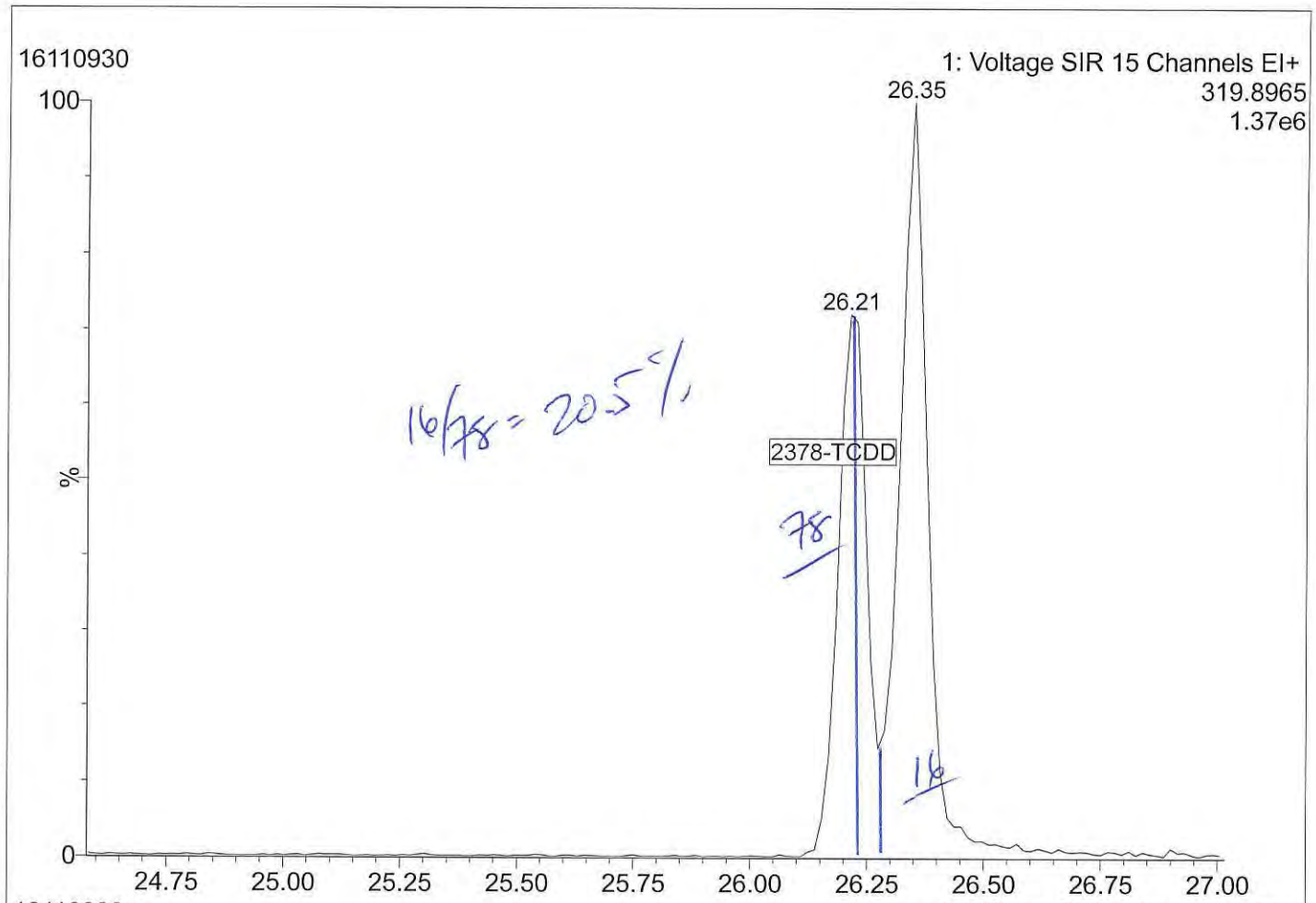

16110929
2: Voltage SIR 11 Channels EI+
339.8597
1.48e7
100
%
0
28.53
29.67
31.02
32.05
12389-PECDF
Time
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

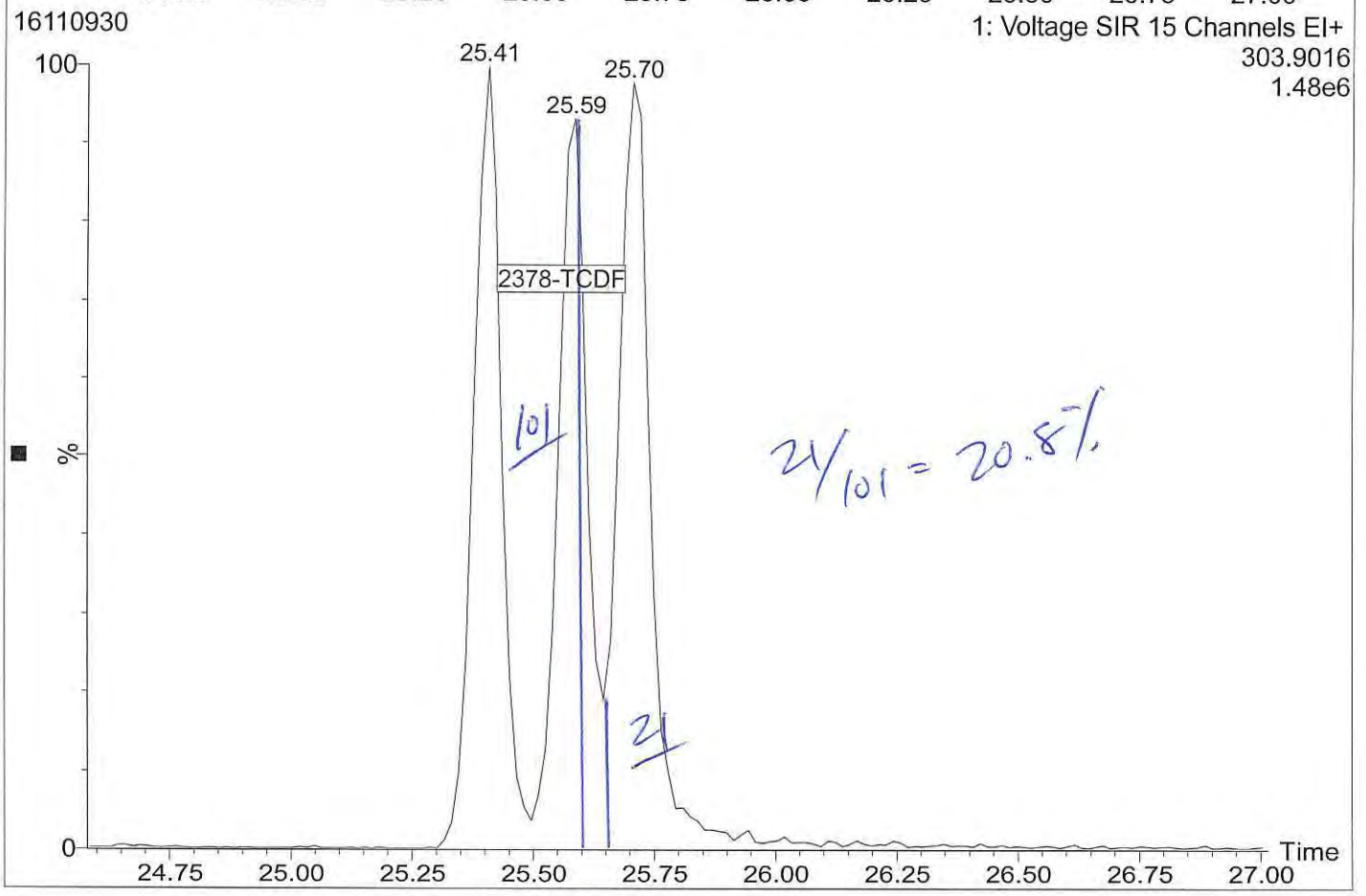

16110929
3: Voltage SIR 11 Channels EI+
389.8157
8.62e6
100
%
0
33.76
35.92
36.05
36.48
124679-HXCDD
123789-HXCDD
33.00
34.00
35.00
36.00
37.00
38.00


16110929
3: Voltage SIR 11 Channels EI+
373.8208
1.18e7
100
%
0
32.97
34.69
34.84
35.79
36.93
123468-HXCDF
123789-HXCDF
Time
33.00
34.00
35.00
36.00
37.00
38.00


16110929
4: Voltage SIR 11 Channels EI+
423.7766
6.97e6
100
%
0
39.54
40.76
1234679-HPCDD
1234678-HPCDD
39.00
40.00
41.00
42.00
43.00
44.00


16110929
4: Voltage SIR 11 Channels EI+
407.7818
9.28e6
100
%
0
39.00
41.61
1234678-HPCDF
1234789-HPCDF
Time
39.00
40.00
41.00
42.00
43.00
44.00


16110930
1: Voltage SIR 15 Channels EI+
319.8965
1.37e6
100
%
0
26.35
26.21
2378-TCDD
16/78 = 20.5%
78
16
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00


16110930
1: Voltage SIR 15 Channels EI+
303.9016
1.48e6
100
%
0
25.41
25.59
25.70
2378-TCDF
101
21
21/101 = 20.8%
Time
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00

FORM 7A-HR

RELATIVE RESPONSE/RELATIVE RESPONSE FACTOR -CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3D1

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/11/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 12:01

Analytical Method: CDD/CDF

CL No.	Analyte Name	RR/RRF	Mean RR/RRF	% D	IAR	IAR QC Limits
4	2,3,7,8-TCDD	1.166346	1.133965	2.9	0.77	0.655-0.886
5	1,2,3,7,8-PeCDD	0.9932496	0.9753974	1.8	1.56	1.318-1.783
6	1,2,3,4,7,8-HxCDD	0.9842291	1.031167	-4.6	1.25	1.054-1.426
6	1,2,3,6,7,8-HxCDD	1.021042	0.9714371	5.1	1.19	1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.013848	0.9950452	1.9	1.24	1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.063874	1.028016	3.5	1.04	0.893-1.208
8	OCDD	1.021995	1.107021	-7.7	0.89	0.757-1.024
4	2,3,7,8-TCDF	0.9486979	0.9347915	1.5	0.79	0.655-0.886
5	1,2,3,7,8-PeCDF	0.9251043	0.9519161	-2.8	1.57	1.318-1.783
5	2,3,4,7,8-PeCDF	0.9820476	0.9629117	2.0	1.55	1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.16191	1.136547	2.2	1.22	1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.109551	1.098742	1.0	1.23	1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.090087	1.100821	-1.0	1.25	1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.190724	1.163504	2.3	1.21	1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	1.226738	1.302789	-5.8	1.04	0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.294726	1.317361	-1.7	1.03	0.893-1.208
8	OCDF	1.178842	1.165807	1.1	0.90	0.757-1.024
4	13C12-2,3,7,8-TCDF	1	1.567419	-36.2	0.78	0.655-0.886
4	13C12-2,3,7,8-TCDD	1	0.9077481	10.2	0.78	0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1	1.274097	-21.5	1.59	1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1	1.234626	-19.0	1.58	1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1	0.7557554	32.3	1.60	1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	1	1.380919	-27.6	0.51	0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	1	1.569453	-36.3	0.51	0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	1	1.34533	-25.7	0.52	0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	1	1.182895	-15.5	0.53	0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1	1.055904	-5.3	1.28	1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1	1.163036	-14.0	1.26	1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	1	1.178362	-15.1	0.44	0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	1	0.8777992	13.9	0.46	0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1	0.9091061	10.0	1.03	0.893-1.208
8	13C12-OCDD	1	0.8195753	22.0	0.87	0.757-1.024
4	37C14-2,3,7,8-TCDD	1.100924	1.066558	3.2		N/A
4	13C12-1,2,3,4-TCDD	17645.84	1	764,484	0.80	0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	11799.96	1	179,896	1.30	1.05-1.43

FORM 7B-HR
RELATIVE RETENTION TIME CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3D1

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/11/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 12:01

Analytical Method: CDD/CDF

CL No.	Analyte Name	Mean RRT	RRT	RRT QC Limits
4	2,3,7,8-TCDD	0.8331	1.0006	0.999-1.002
5	1,2,3,7,8-PeCDD	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDD	0.9999	1.0003	0.999-1.001
6	1,2,3,6,7,8-HxCDD	0.9999	1.0003	0.998-1.004
6	1,2,3,7,8,9-HxCDD	0.9999	1.0159	1.000-1.019
7	1,2,3,4,6,7,8-HpCDD	1.0000	1.0005	0.999-1.001
8	OCDD	0.9998	1.0006	0.999-1.001
4	2,3,7,8-TCDF	0.8330	1.0006	0.999-1.003
5	1,2,3,7,8-PeCDF	0.9997	1.0004	0.999-1.002
5	2,3,4,7,8-PeCDF	0.9997	1.0004	0.999-1.002
6	1,2,3,4,7,8-HxCDF	0.9999	1.0006	0.999-1.001
6	1,2,3,6,7,8-HxCDF	0.9997	1.0006	0.997-1.005
6	1,2,3,7,8,9-HxCDF	0.9999	1.0006	0.999-1.001
6	2,3,4,6,7,8-HxCDF	0.9998	1.0006	0.999-1.001
7	1,2,3,4,6,7,8-HpCDF	0.9999	1.0003	0.999-1.001
7	1,2,3,4,7,8,9-HpCDF	1.0000	1.0003	0.999-1.001
8	OCDF	0.9998	1.0062	0.999-1.008
4	13C12-2,3,7,8-TCDF	0.9995	1.0071	0.923-1.103
4	13C12-2,3,7,8-TCDD	0.9995	1.0318	0.976-1.043
5	13C12-1,2,3,7,8-PeCDF	0.9999	1.1693	1.000-1.425
5	13C12-2,3,4,7,8-PeCDF	0.9998	1.2224	1.011-1.526
5	13C12-1,2,3,7,8-PeCDD	0.9995	1.2323	1.000-1.567
6	13C12-1,2,3,4,7,8-HxCDF	0.9997	0.9511	0.944-0.970
6	13C12-1,2,3,6,7,8-HxCDF	0.9998	0.9553	0.949-0.975
6	13C12-2,3,4,6,7,8-HxCDF	0.9999	0.9811	0.959-1.021
6	13C12-1,2,3,7,8,9-HxCDF	1.0000	1.0126	0.977-1.047
6	13C12-1,2,3,4,7,8-HxCDD	0.9998	0.9850	0.977-1.000
6	13C12-1,2,3,6,7,8-HxCDD	0.9999	0.9886	0.981-1.003
7	13C12-1,2,3,4,6,7,8-HpCDF	1.0000	1.0691	1.043-1.085
7	13C12-1,2,3,4,7,8,9-HpCDF	0.9999	1.1408	1.057-1.151
7	13C12-1,2,3,4,6,7,8-HpCDD	1.0001	1.1171	1.086-1.110
8	13C12-OCDD	1.0000	1.2733	1.032-1.311
4	37C14-2,3,7,8-TCDD	0.9995	1.0323	0.989-1.052
4	13C12-1,2,3,4-TCDD	0.9995	1.0000	
6	13C12-1,2,3,7,8,9-HxCDD	1.0000	1.0000	

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
Last Altered: Friday, November 11, 2016 14:25:00 Pacific Standard Time
Printed: Friday, November 11, 2016 14:25:46 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3D1, Name: 16111102, Date: 11-Nov-2016, Time: 12:01:32, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.600	1.001	1.15e5	1.46e5	0.935	0.789	0.770	1692	1933	1.67e6	2.11e6	986.6	NO	10.149
12378-PeCDF	29.719	1.000	6.16e5	3.93e5	0.952	1.565	1.550	3757	3351	8.82e6	5.60e6	2346.4	NO	48.592
23478-PeCDF	31.067	1.000	6.56e5	4.24e5	0.963	1.548	1.550	3757	3351	9.75e6	6.25e6	2595.6	NO	50.994
123478-HxCDF	34.739	1.001	5.05e5	4.13e5	1.137	1.224	1.240	3128	4822	7.48e6	5.97e6	2390.3	NO	51.116
234678-HxCDF	35.835	1.001	4.80e5	3.96e5	1.164	1.211	1.240	3128	4822	7.00e6	5.77e6	2238.5	NO	51.170
123678-HxCDF	34.892	1.001	5.30e5	4.30e5	1.099	1.232	1.240	3128	4822	7.47e6	6.07e6	2387.3	NO	50.492
123789-HxCDF	36.986	1.001	4.05e5	3.25e5	1.101	1.246	1.240	3128	4822	5.71e6	4.44e6	1826.8	NO	49.512
1234678-HpCDF	39.035	1.000	4.03e5	3.88e5	1.303	1.039	1.050	2631	2335	5.77e6	5.75e6	2191.6	NO	47.081
1234789-HpCDF	41.655	1.000	3.19e5	3.09e5	1.317	1.034	1.050	2631	2335	4.01e6	3.98e6	1524.5	NO	49.141
OCDF	46.766	1.006	5.01e5	5.56e5	1.166	0.901	0.890	2055	2412	4.83e6	5.30e6	2351.2	NO	101.118
2378-TCDD	26.228	1.001	8.20e4	1.06e5	1.134	0.770	0.770	1939	1261	1.15e6	1.43e6	593.4	NO	10.286
12378-PeCDD	31.330	1.001	4.05e5	2.59e5	0.975	1.563	1.550	2712	2514	5.88e6	3.73e6	2169.0	NO	50.915
123478-HxCDD	35.966	1.000	3.42e5	2.74e5	1.031	1.251	1.240	3459	1489	5.13e6	4.04e6	1482.6	NO	47.724
123678-HxCDD	36.098	1.000	3.58e5	3.00e5	0.971	1.192	1.240	3459	1489	5.23e6	4.35e6	1512.8	NO	52.553
123789-HxCDD	36.525	1.012	3.51e5	2.84e5	0.947	1.237	1.240	3459	1489	4.91e6	4.02e6	1420.9	NO	52.744
1234678-HpCDD	40.800	1.001	2.82e5	2.70e5	1.028	1.044	1.050	2714	2150	3.82e6	3.56e6	1407.1	NO	51.744
OCDD	46.506	1.001	4.31e5	4.85e5	1.107	0.888	0.890	1328	1567	4.31e6	4.89e6	3246.7	NO	92.319
13C-2378-TCDF	25.585	1.007	1.20e6	1.55e6	1.567	0.776	0.770	6896	3980	1.72e7	2.20e7	2498.7	NO	99.649
13C-12378-PeCDF	29.708	1.169	1.34e6	8.43e5	1.274	1.590	1.550	3727	3943	1.94e7	1.24e7	5214.1	NO	97.047
13C-23478-PeCDF	31.056	1.222	1.35e6	8.52e5	1.235	1.582	1.550	3727	3943	1.99e7	1.25e7	5337.0	NO	100.971
13C-123478-HxCDF	34.717	0.951	5.37e5	1.04e6	1.381	0.514	0.510	3362	4913	7.90e6	1.54e7	2348.3	NO	97.016
13C-123678-HxCDF	34.870	0.955	5.83e5	1.15e6	1.569	0.508	0.510	3362	4913	8.39e6	1.60e7	2495.6	NO	93.416
13C-234678-HxCDF	35.813	0.981	5.05e5	9.66e5	1.345	0.522	0.510	3362	4913	7.35e6	1.40e7	2185.1	NO	92.668
13C-123789-HxCDF	36.964	1.013	4.64e5	8.76e5	1.183	0.529	0.510	3362	4913	6.57e6	1.23e7	1955.2	NO	95.994
13C-1234678-HpCDF	39.025	1.069	3.91e5	8.97e5	1.178	0.436	0.440	2279	2815	5.68e6	1.28e7	2491.2	NO	92.659
13C-1234789-HpCDF	41.644	1.141	3.04e5	6.66e5	0.878	0.457	0.440	2279	2815	3.74e6	8.36e6	1643.2	NO	93.705
13C-1234-TCDD	25.406	0.000	7.83e5	9.82e5	1.000	0.798	0.770	2971	1978	1.14e7	1.42e7	3823.8	NO	100.000
13C-2378-TCDD	26.213	1.032	7.06e5	9.10e5	0.908	0.775	0.770	2971	1978	1.02e7	1.29e7	3428.3	NO	100.874
13C-12378-PeCDD	31.308	1.232	8.22e5	5.15e5	0.756	1.596	1.550	1824	1284	1.18e7	7.41e6	6452.6	NO	100.210
13C-123478-HxCDD	35.955	0.985	7.03e5	5.49e5	1.056	1.280	1.240	1780	2348	1.04e7	8.07e6	5844.0	NO	100.442
13C-123678-HxCDD	36.087	0.989	7.19e5	5.70e5	1.163	1.260	1.240	1780	2348	1.06e7	8.40e6	5930.3	NO	93.958
13C-1234678-HpCDD	40.778	1.117	5.27e5	5.13e5	0.909	1.027	1.050	1900	1987	7.21e6	6.76e6	3794.4	NO	96.875
13C-OCDD	46.479	1.273	8.36e5	9.57e5	0.820	0.874	0.890	2533	1908	8.59e6	9.43e6	3392.3	NO	185.411

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Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
Last Altered: Friday, November 11, 2016 14:25:00 Pacific Standard Time
Printed: Friday, November 11, 2016 14:25:46 Pacific Standard Time

ID: CS3D1, Name: 16111102, Date: 11-Nov-2016, Time: 12:01:32, Conditions: AUTOSPEC01, User: PK

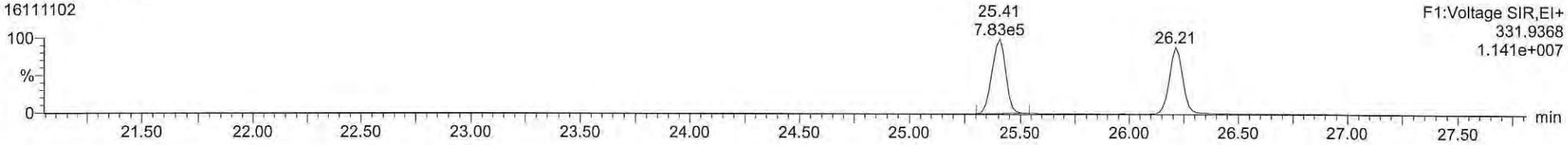
Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
13C-123789-HxCDD	36.503	0.000	6.67e5	5.13e5	1.000	1.302	1.240	1780	2348	9.46e6	7.32e6	5313.3	NO	100.000
Total-tetrafurans			3.73e5		0.935			1692		5.35e6				33.238
Total-penta1			8.54e5					1172		1.18e7				70.688
Total-pentafurans			1.99e6		0.957			3757		2.87e7				155.710
Total-hexafurans			2.46e6		1.125			3128		3.55e7				258.293
Total-heptafurans			7.26e5		1.310			2631		9.84e6				96.707
Total-Furans			6.90e6		1.114			1692		9.61e7				715.753
Total-tetradioxins			4.41e5		1.134			1939		5.64e6				54.982
Total-pentadioxins			1.61e6		0.975			2712		1.99e7				202.330
Total-hexadioxins			1.45e6		0.983			3459		2.11e7				210.294
Total-heptadioxins			5.99e5		1.028			2714		8.27e6				108.076
Total-Dioxins			4.53e6		1.028			1939		5.93e7				668.046
Total-TEQ			1.14e7					1939		1.55e8				1383.799
37CL-2378-TCDD	26.228	1.032	1.94e5		1.067			1407		2.71e6		1925.2		10.322
FUNCTION1 PFK			1.70e5					415656		3.68e6				
FUNCTION2 PFK			3.70e5					133926		9.97e6				0.000
FUNCTION3 PFK			4.00e5					425724		1.21e7				0.000
FUNCTION4 PFK			1.29e6					359864		3.46e7				
FUNCTION5 PFK			2.18e5					220207		7.38e6				
FUNCTION1 HXCDPE			1.42e2					512		2.60e3				0.000
FUNCTION1 HPCDPE			2.93e2					847		5.36e3				0.000
FUNCTION2 HPCDPE			7.67e2					830		1.18e4				0.000
FUNCTION3 OCDPE			0.00e0					216		0.00e0				
FUNCTION4 NCDPE			0.00e0					680		0.00e0				
FUNCTION5 DCDPE			9.82e1					401		4.47e3				0.000

Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
Last Altered: Friday, November 11, 2016 14:25:00 Pacific Standard Time
Printed: Friday, November 11, 2016 14:25:46 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3D1, Name: 16111102, Date: 11-Nov-2016, Time: 12:01:32, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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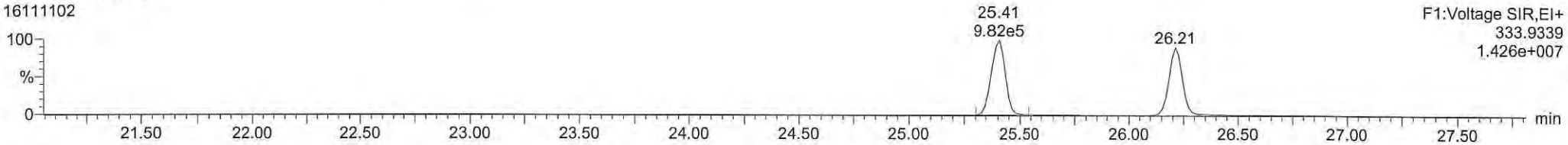

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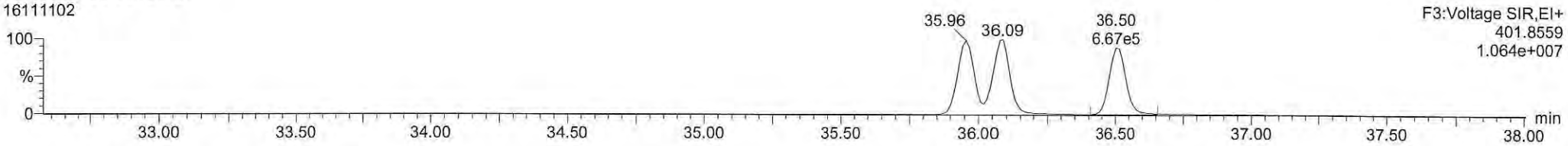

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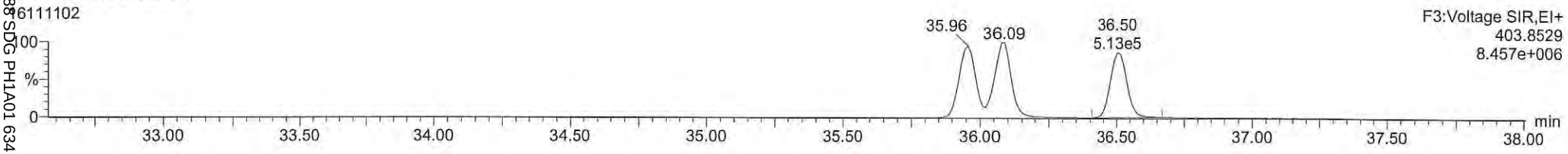

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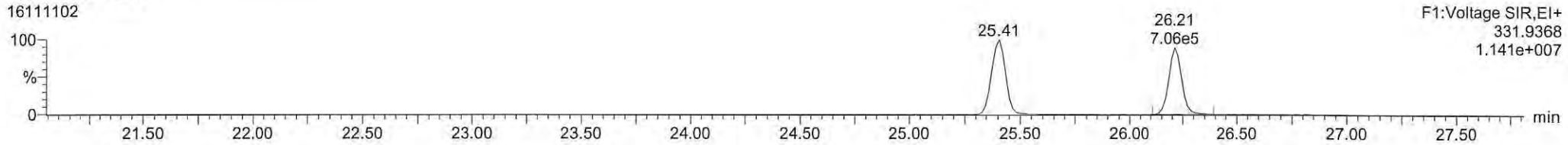
Last Altered: Friday, November 11, 2016 14:25:00 Pacific Standard Time
Printed: Friday, November 11, 2016 14:25:46 Pacific Standard Time

ID: CS3D1, Name: 16111102, Date: 11-Nov-2016, Time: 12:01:32, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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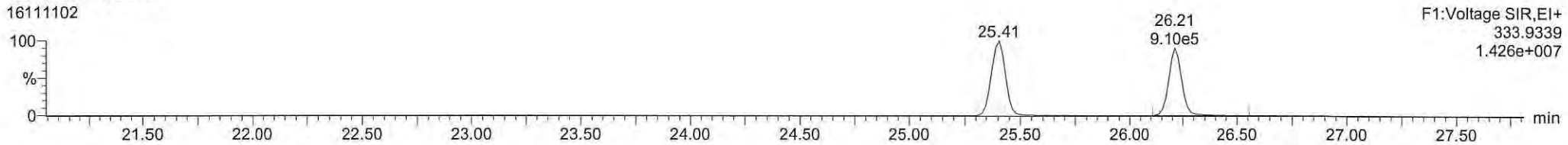

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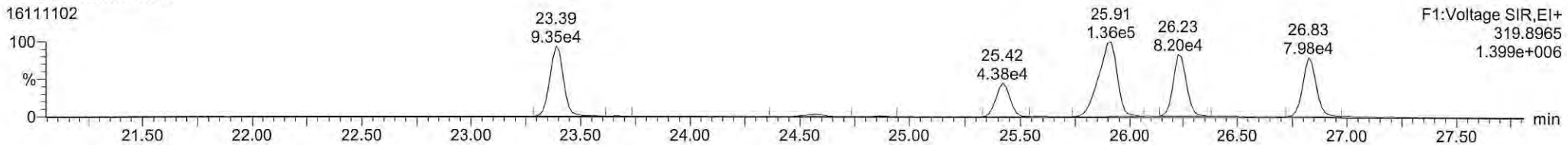
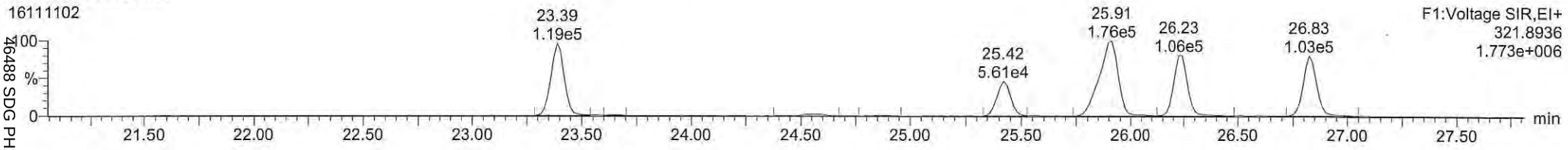
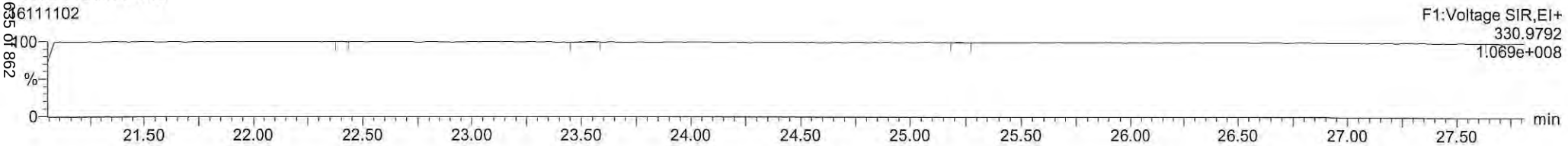


Total-tetradioxins



FUNCTION1 PFK



46488 SDG PH1A04 635 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
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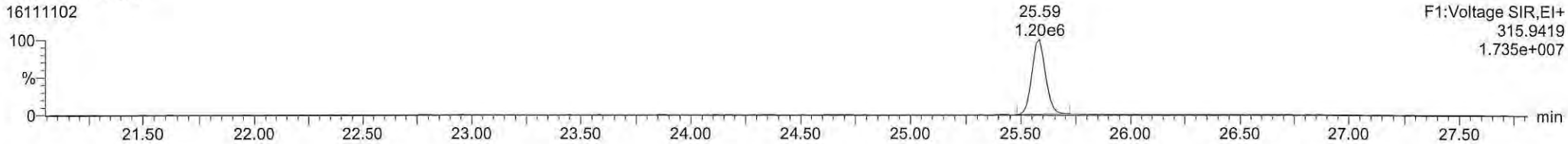
Printed: Friday, November 11, 2016 14:25:46 Pacific Standard Time

ID: CS3D1, Name: 16111102, Date: 11-Nov-2016, Time: 12:01:32, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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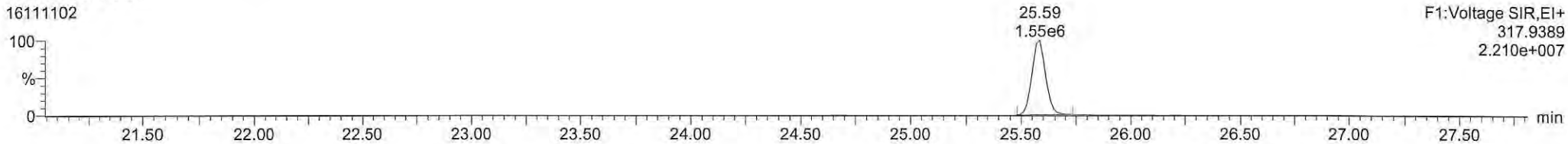
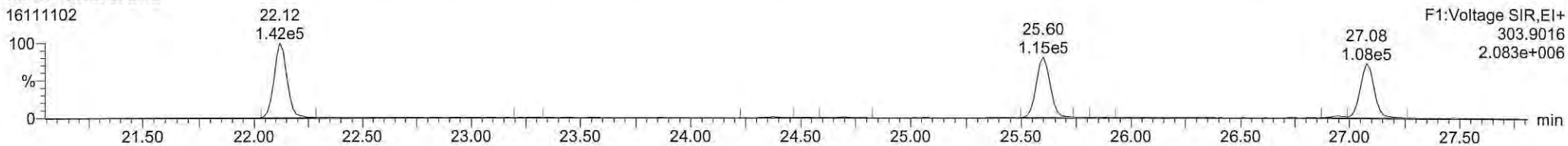
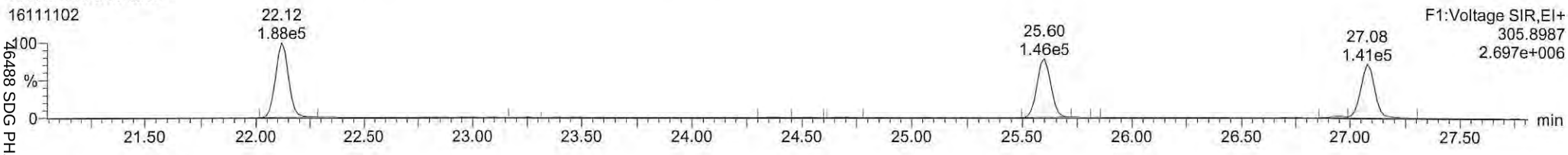


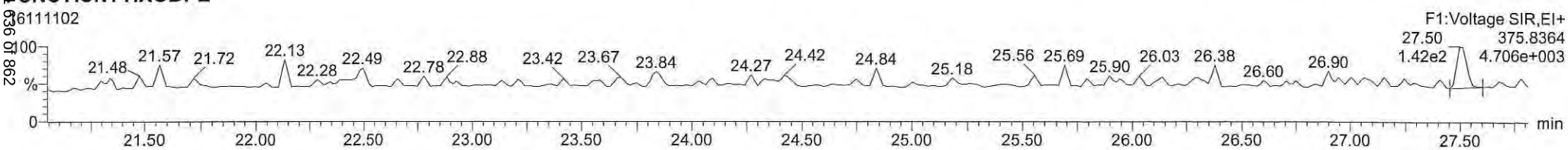
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
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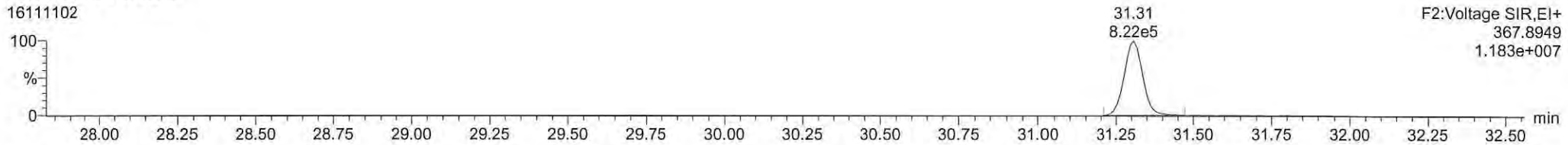
13C-12378-PeCDD



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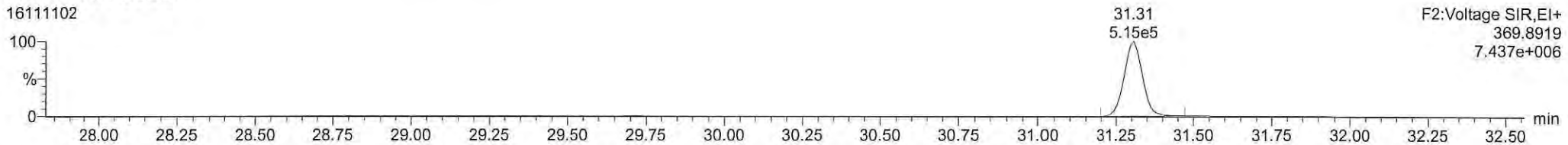
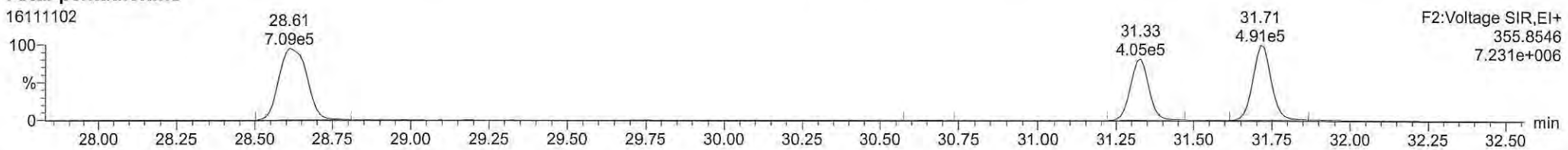


Total-pentadioxins



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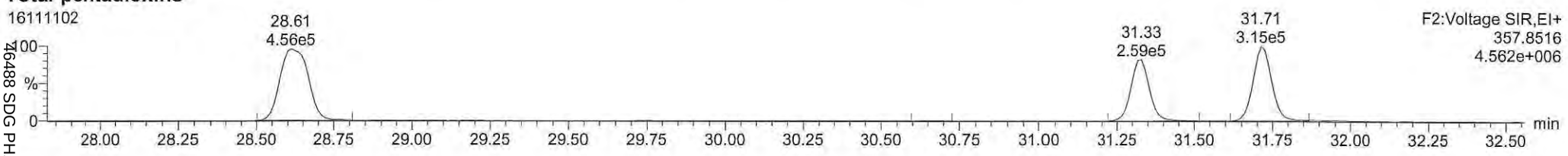
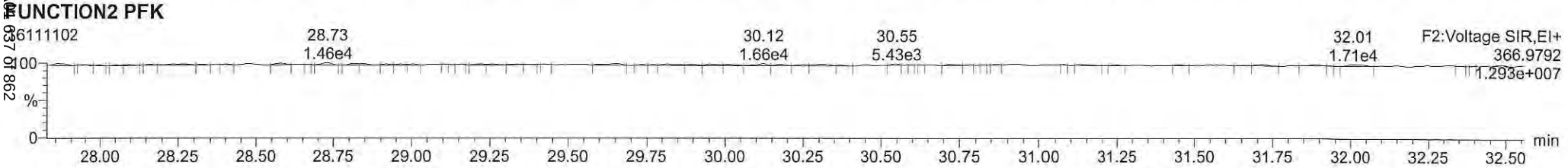


FUNCTION2 PFK



46488 SDG PH1A0 637 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
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Printed: Friday, November 11, 2016 14:25:46 Pacific Standard Time

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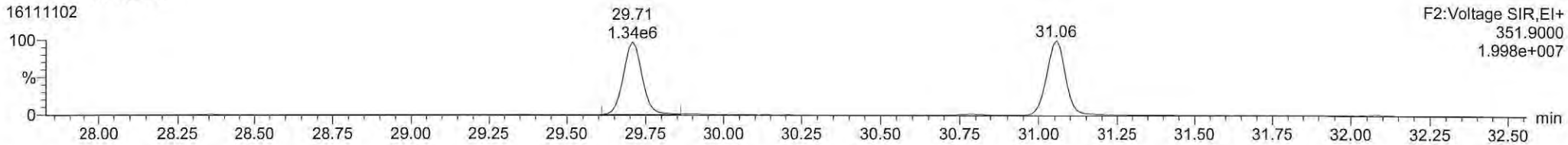
13C-12378-PeCDF



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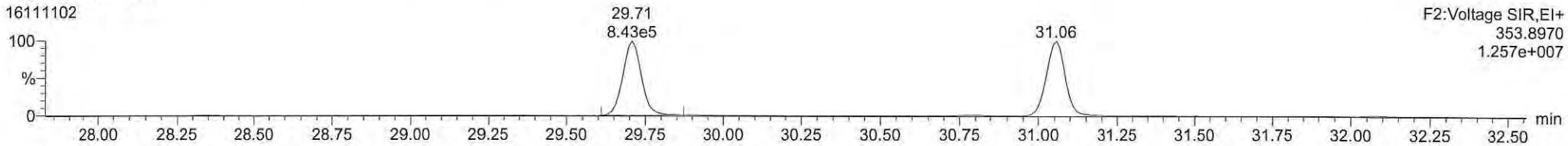
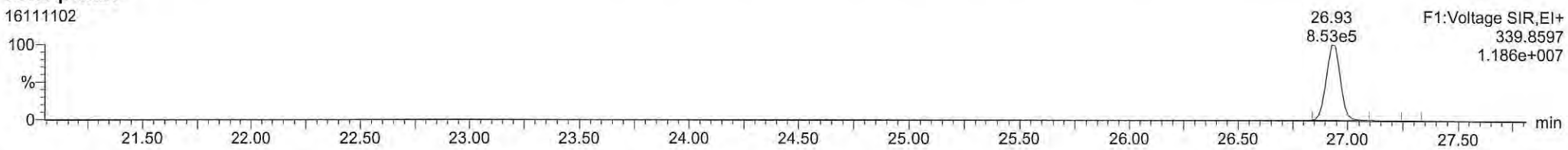
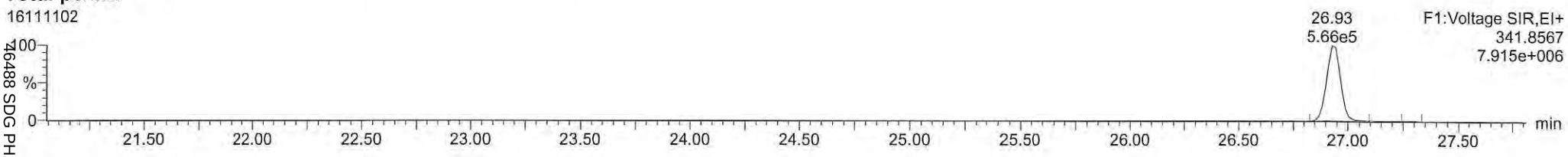


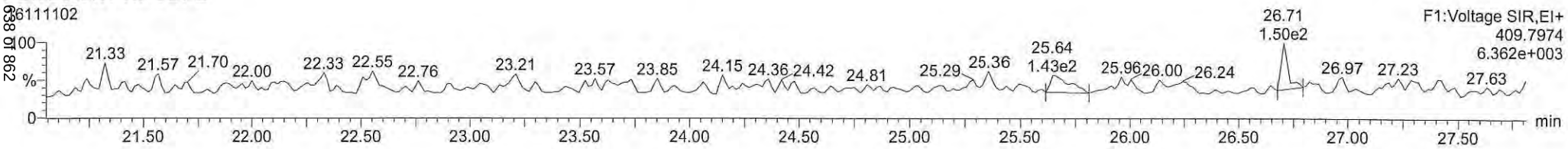
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



46488 SDG PH1A 638 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
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Printed: Friday, November 11, 2016 14:25:46 Pacific Standard Time

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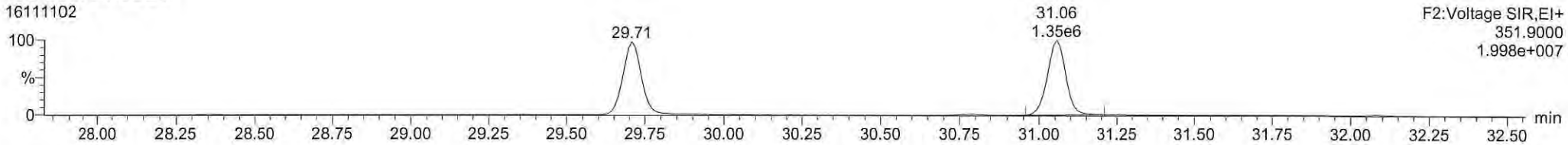
13C-23478-PeCDF



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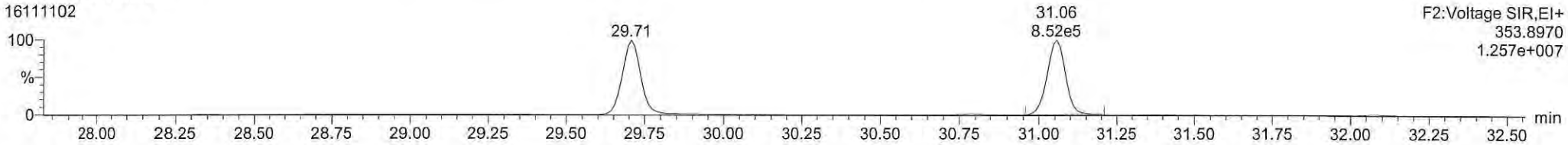

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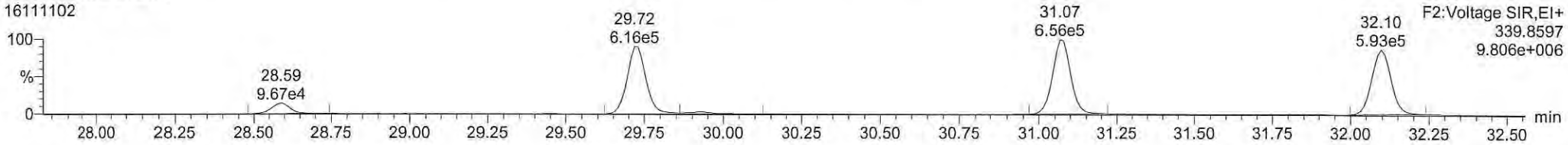
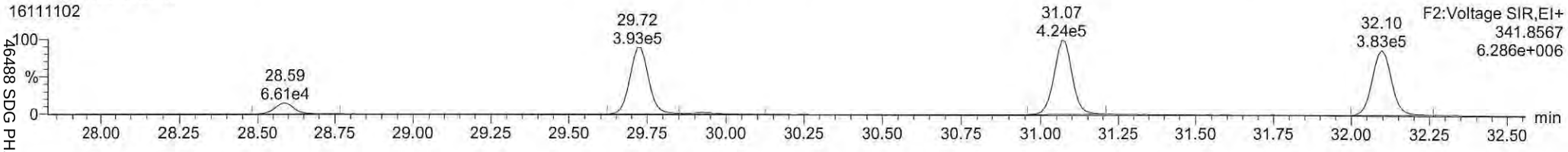
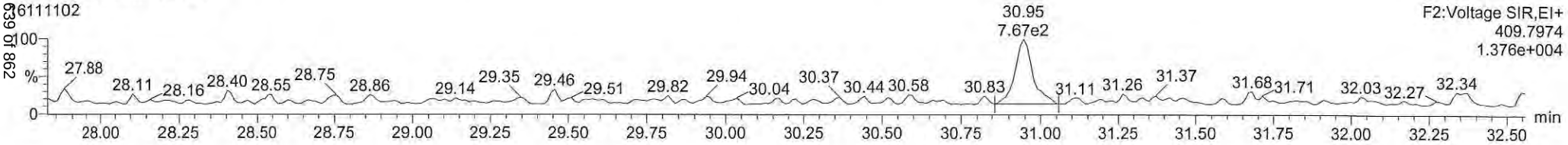


Total-pentafurans



FUNCTION2 HPCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
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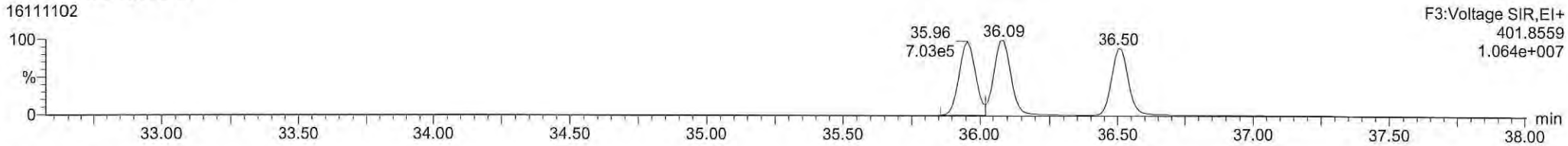
Printed: Friday, November 11, 2016 14:25:46 Pacific Standard Time

ID: CS3D1, Name: 16111102, Date: 11-Nov-2016, Time: 12:01:32, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



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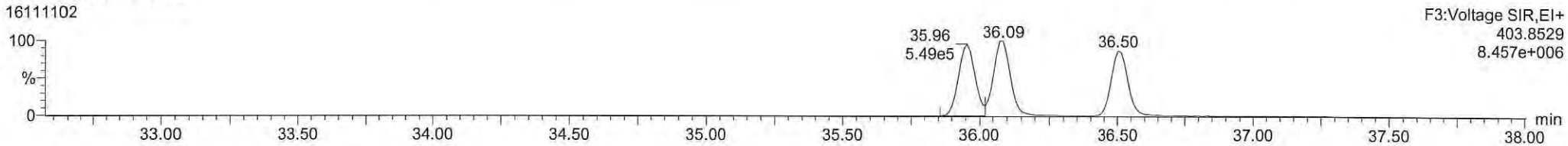

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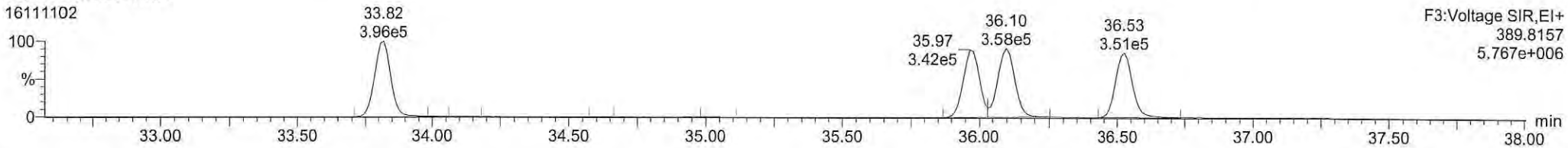
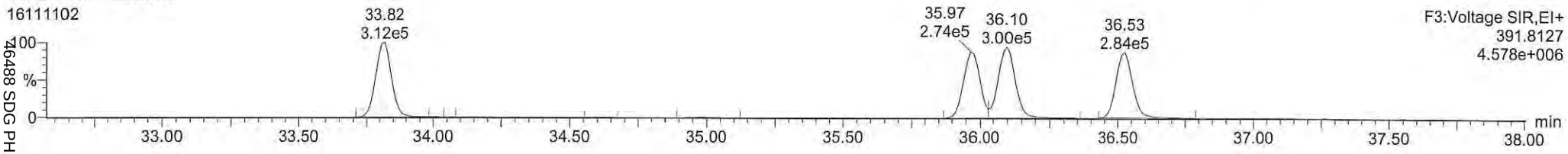
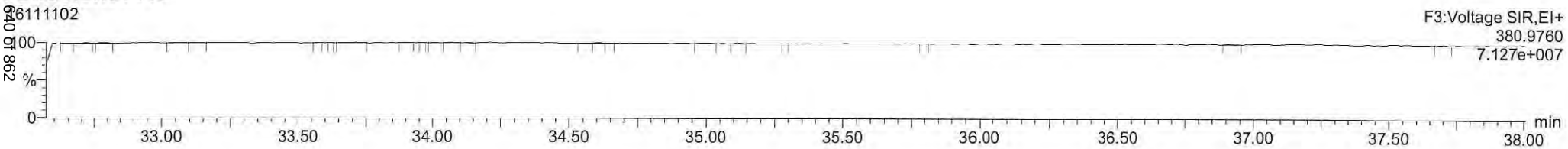


Total-hexadioxins



FUNCTION3 PFK



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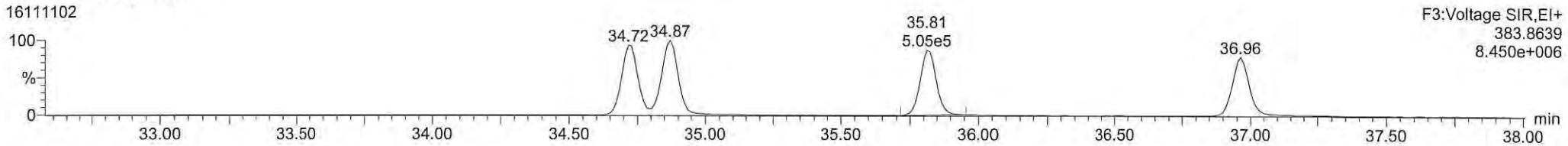
13C-234678-HxCDF



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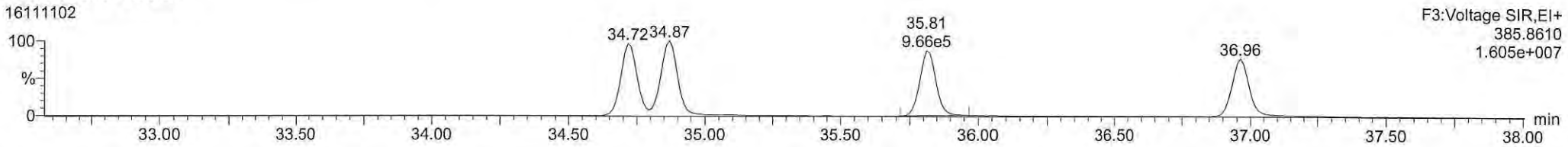

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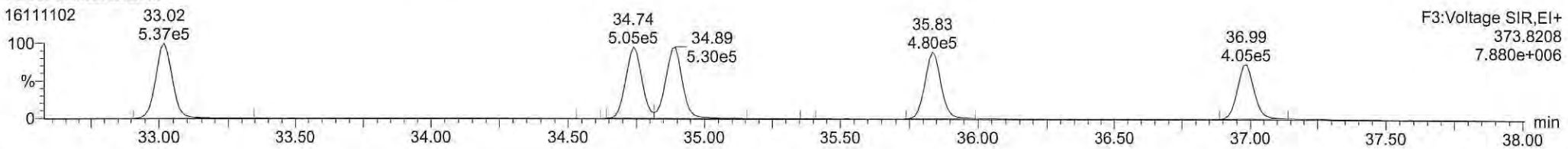

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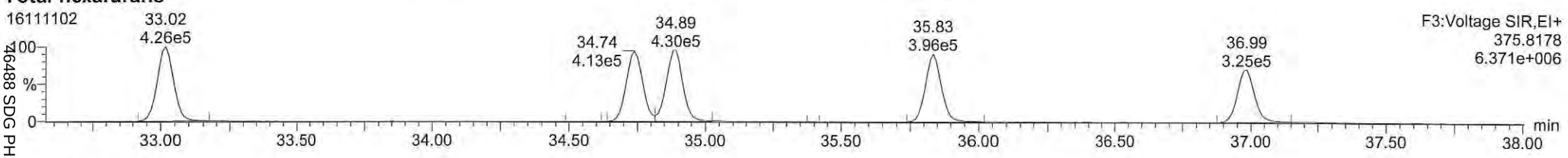
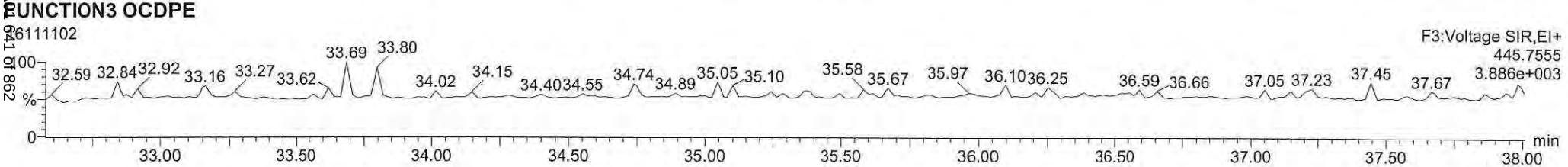


FUNCTION3 OCDPE



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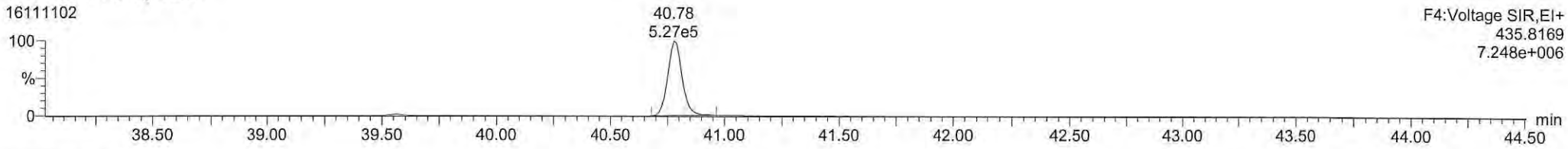
13C-1234678-HpCDD



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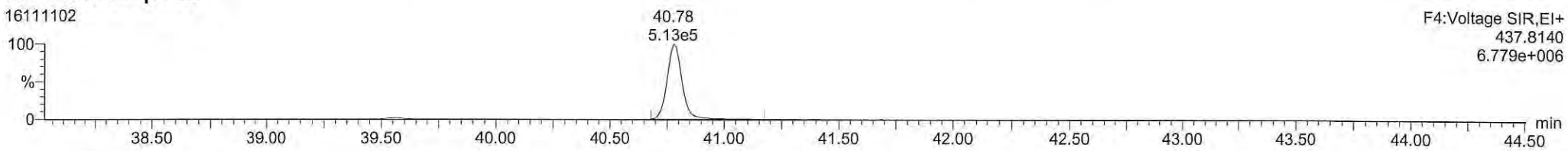

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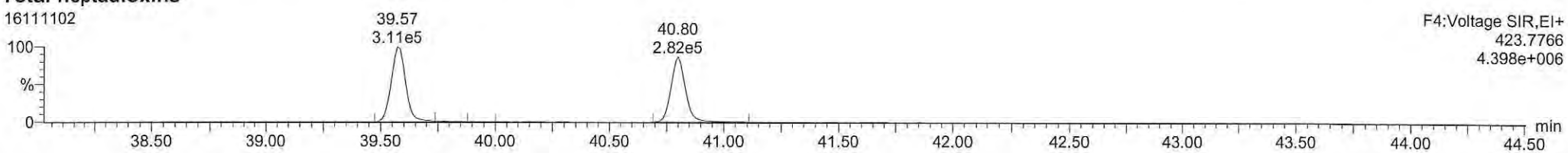

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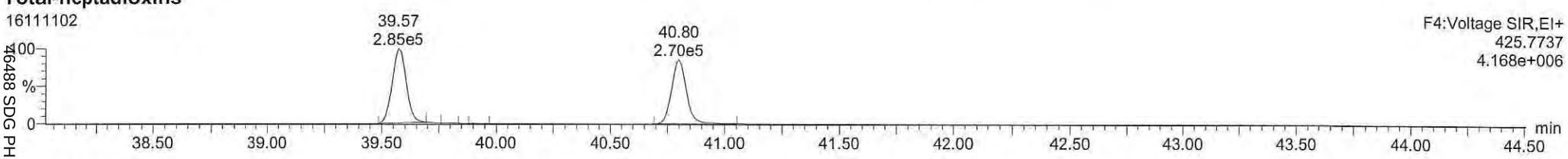
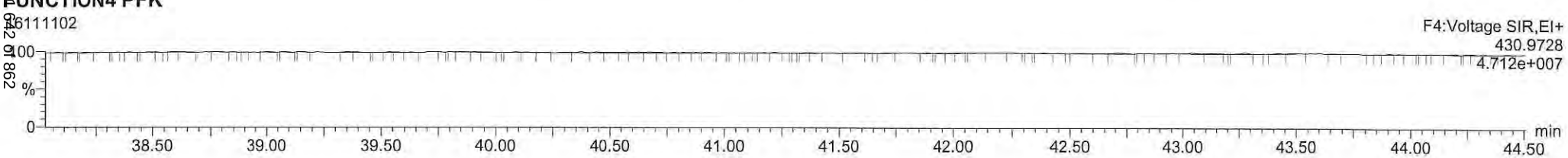


FUNCTION4 PFK



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Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
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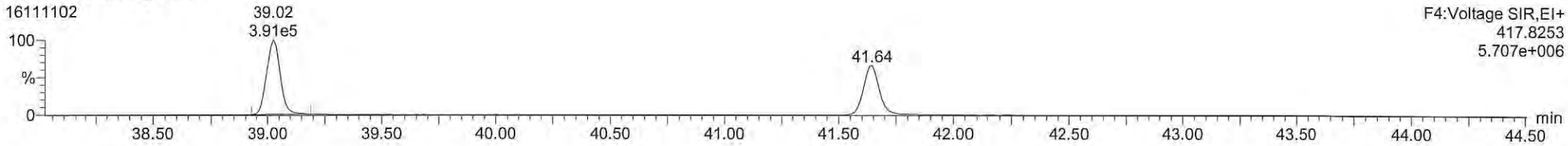
13C-1234678-HpCDF



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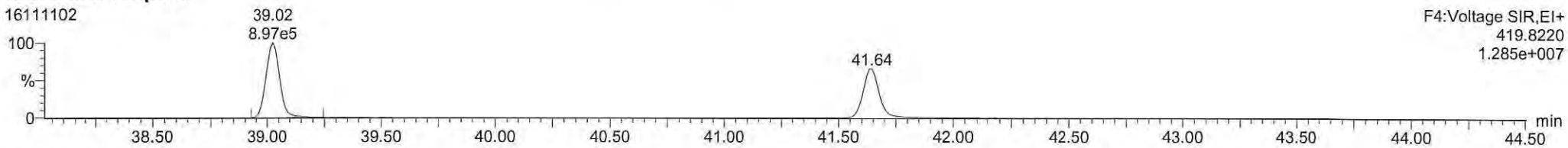
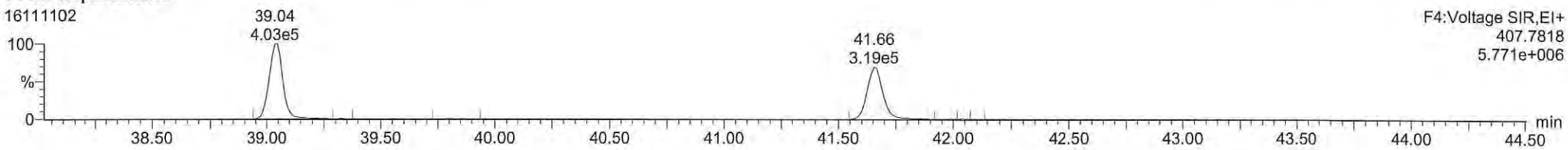


Total-heptafurans



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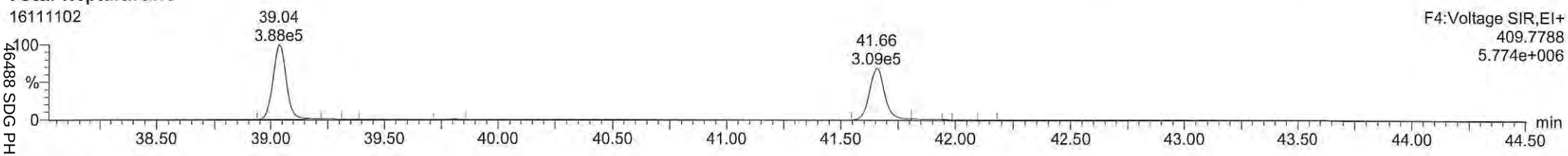
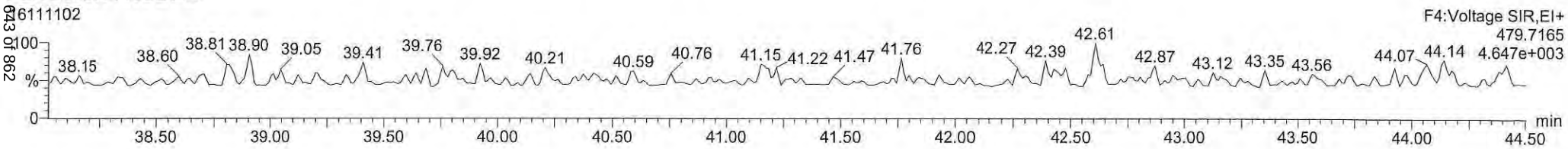


FUNCTION4 NCDPE



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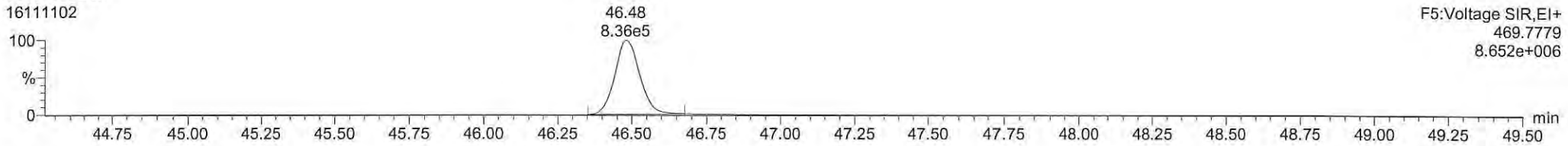
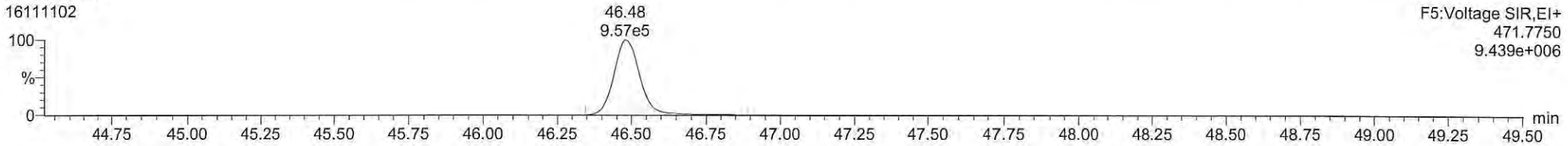
13C-OCDD



13C-OCDD



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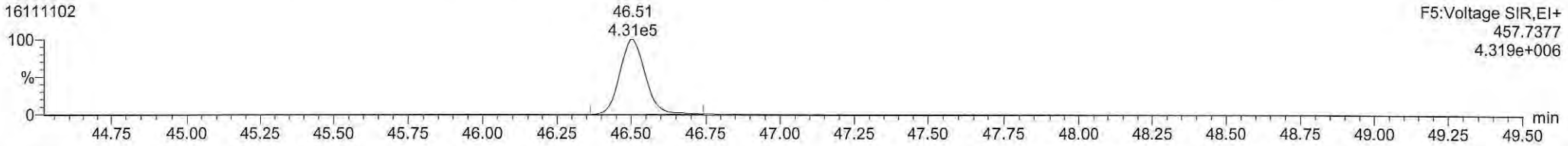

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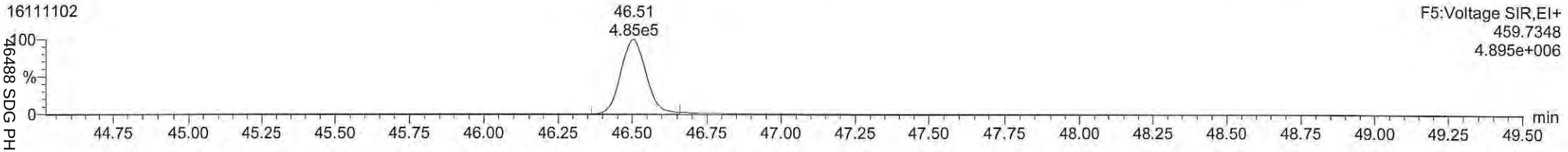
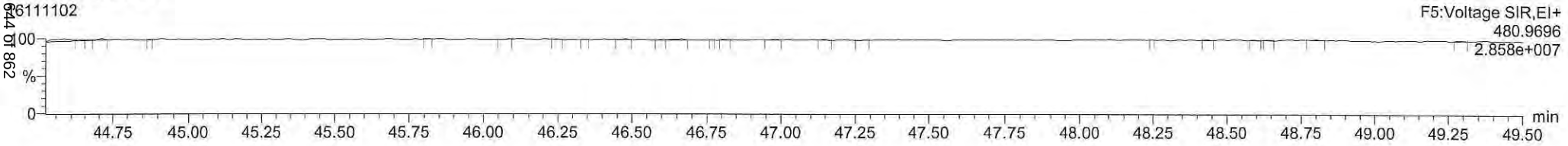


FUNCTION5 PFK



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Dataset: C:\MassLynx\Dioxin.pro\161111OPEN.qld
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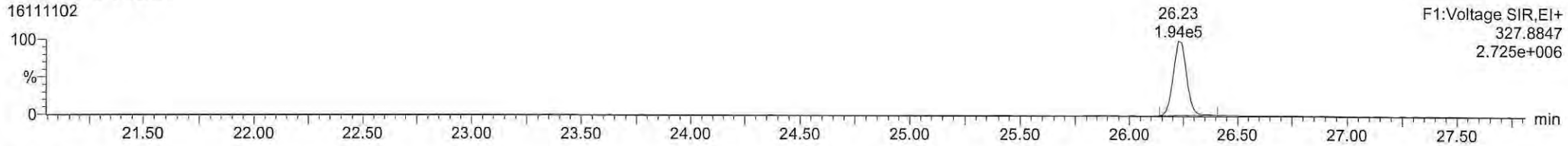
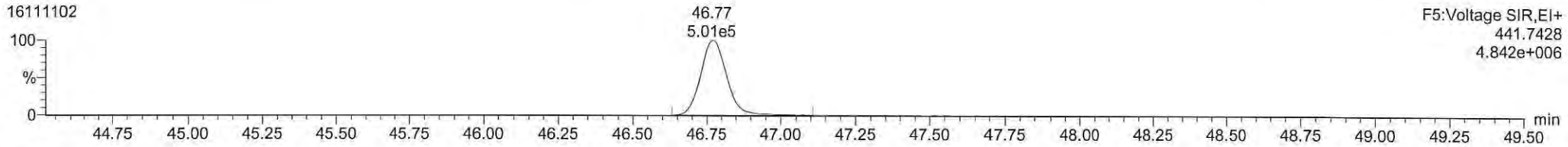
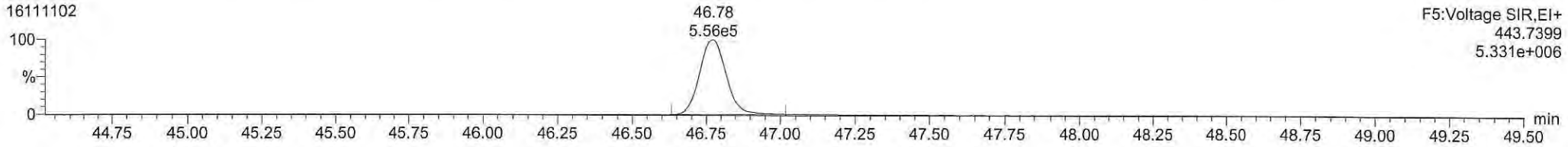
37CL-2378-TCDD



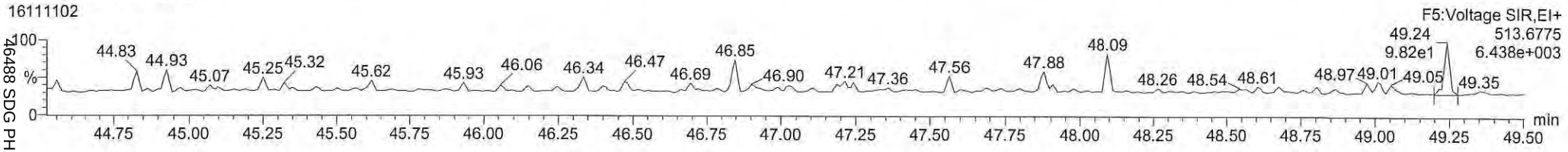
OCDF



OCDF



FUNCTION5 DCDPE



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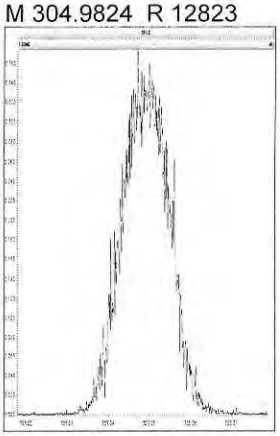
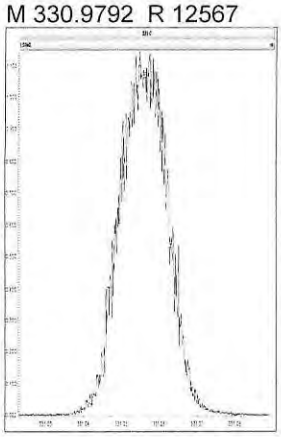
M 304.9824 R 12823



M 330.9792 R 12567



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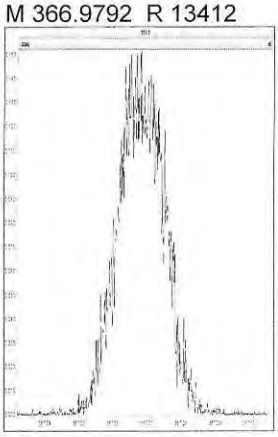
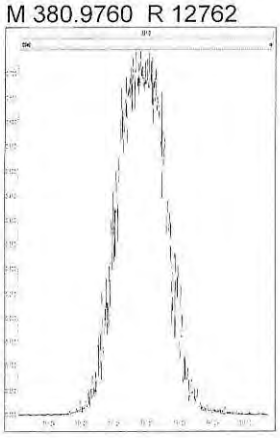
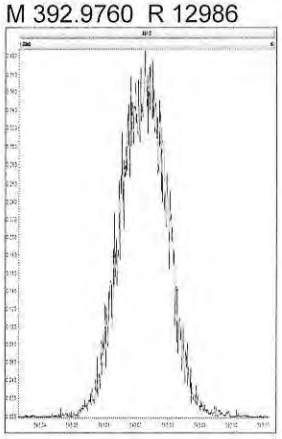


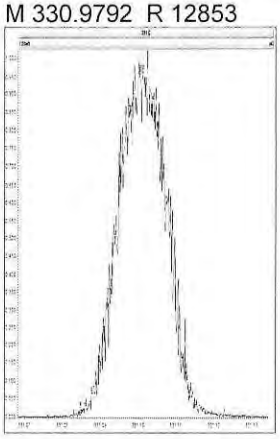
M 380.9760 R 12762



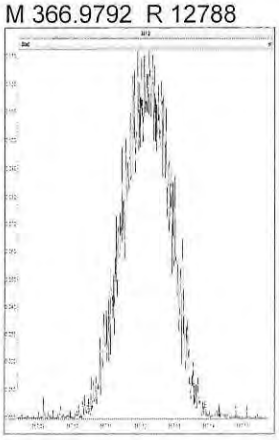
M 392.9760 R 12986



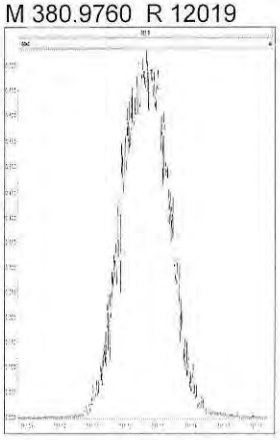
M 330.9792 R 12853



M 366.9792 R 12788



M 380.9760 R 12019



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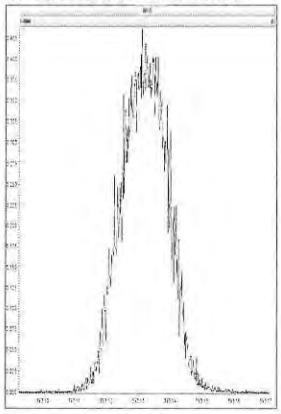
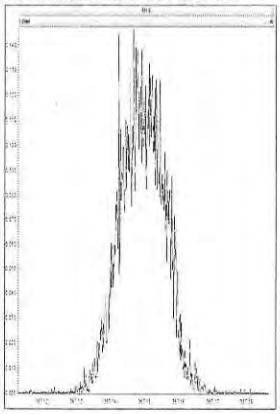
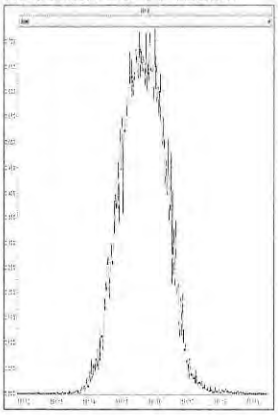


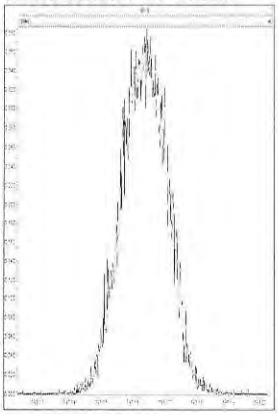
M 366.9792 R 13192



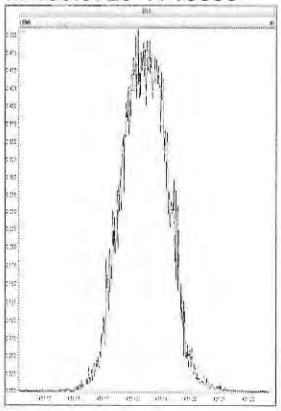
M 380.9760 R 12986



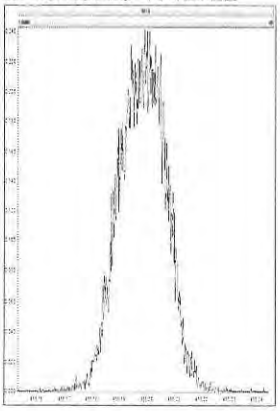
M 392.9760 R 13297



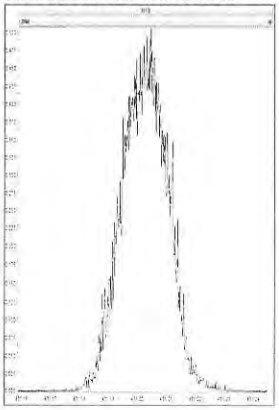
M 430.9728 R 13056



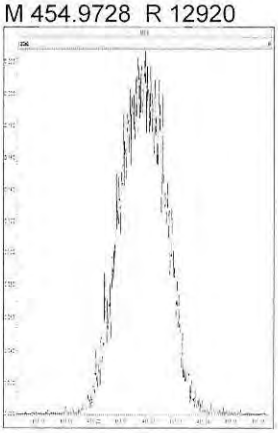
M 454.9728 R 12722



M 430.9728 R 12345



M 454.9728 R 12920



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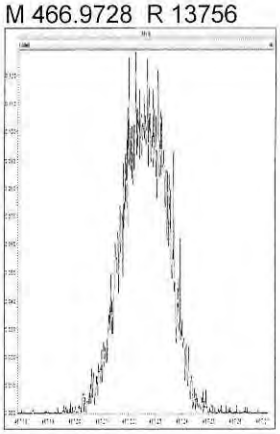
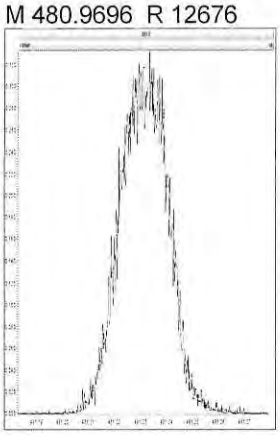
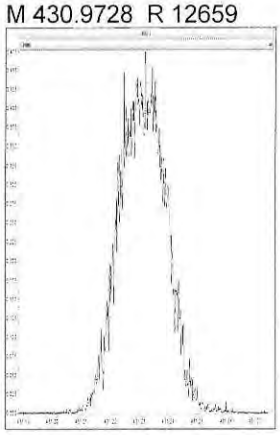
M 466.9728 R 13756



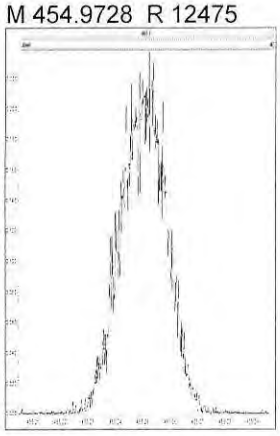
M 480.9696 R 12676



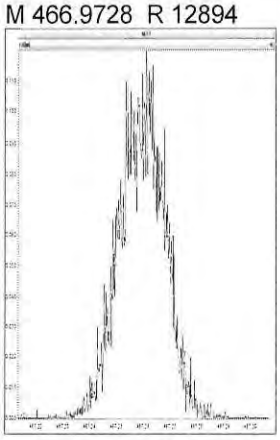
M 430.9728 R 12659



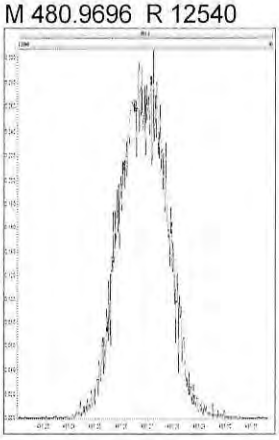
M 454.9728 R 12475



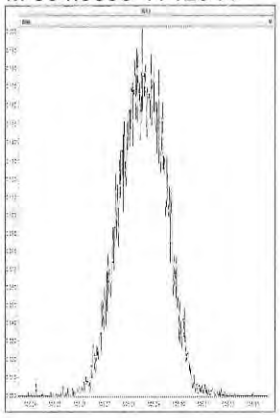
M 466.9728 R 12894

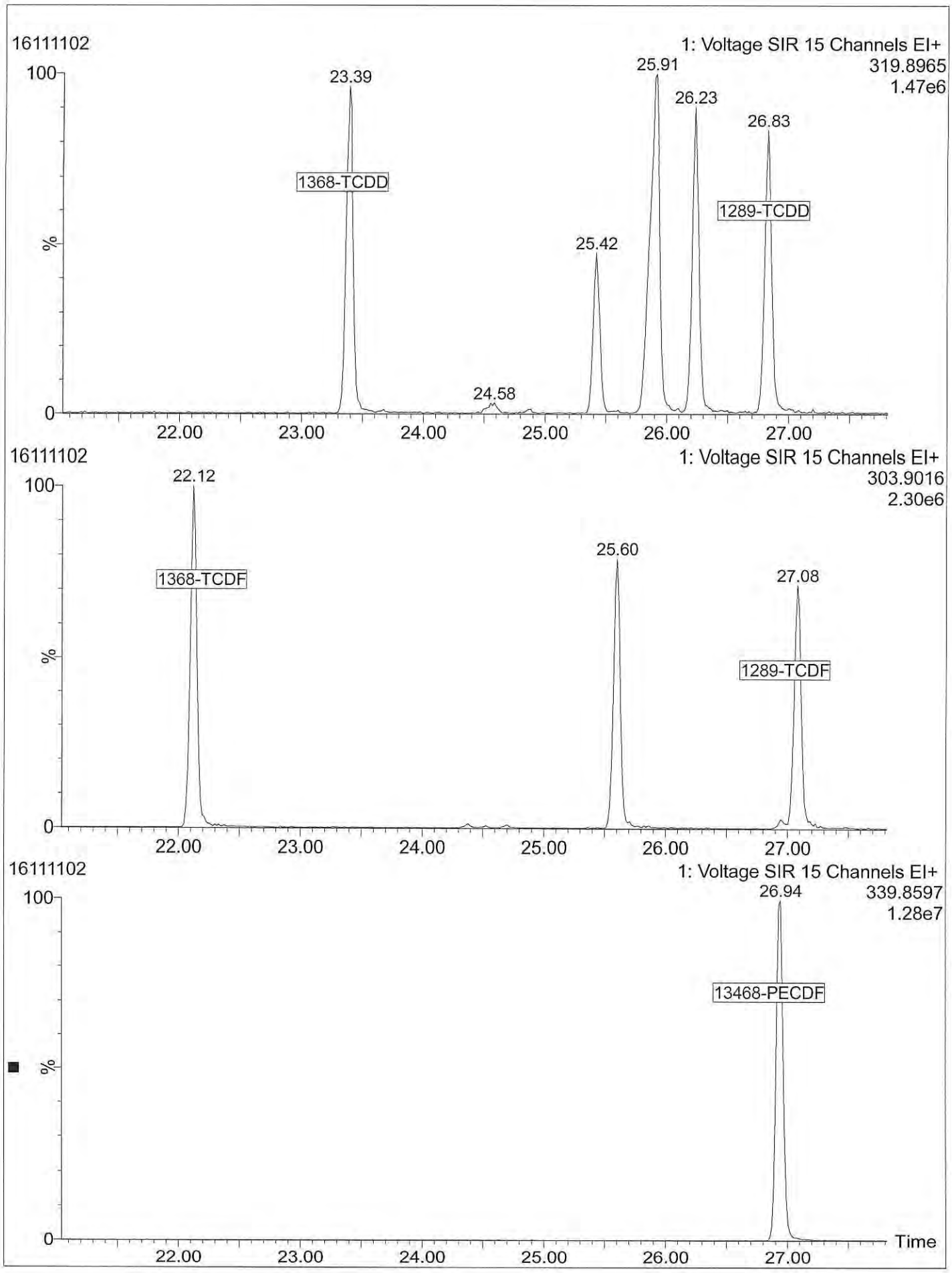


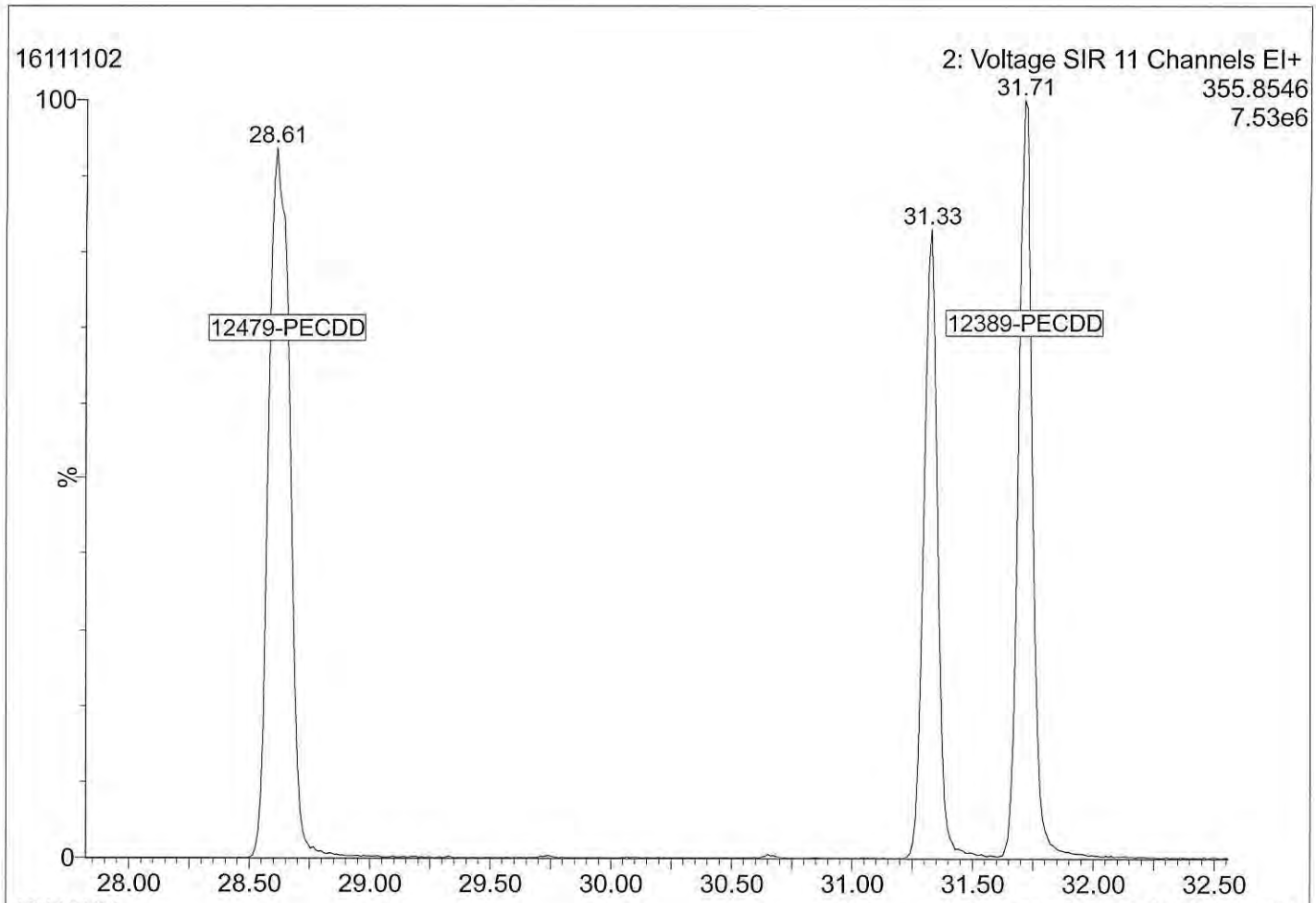
M 480.9696 R 12540

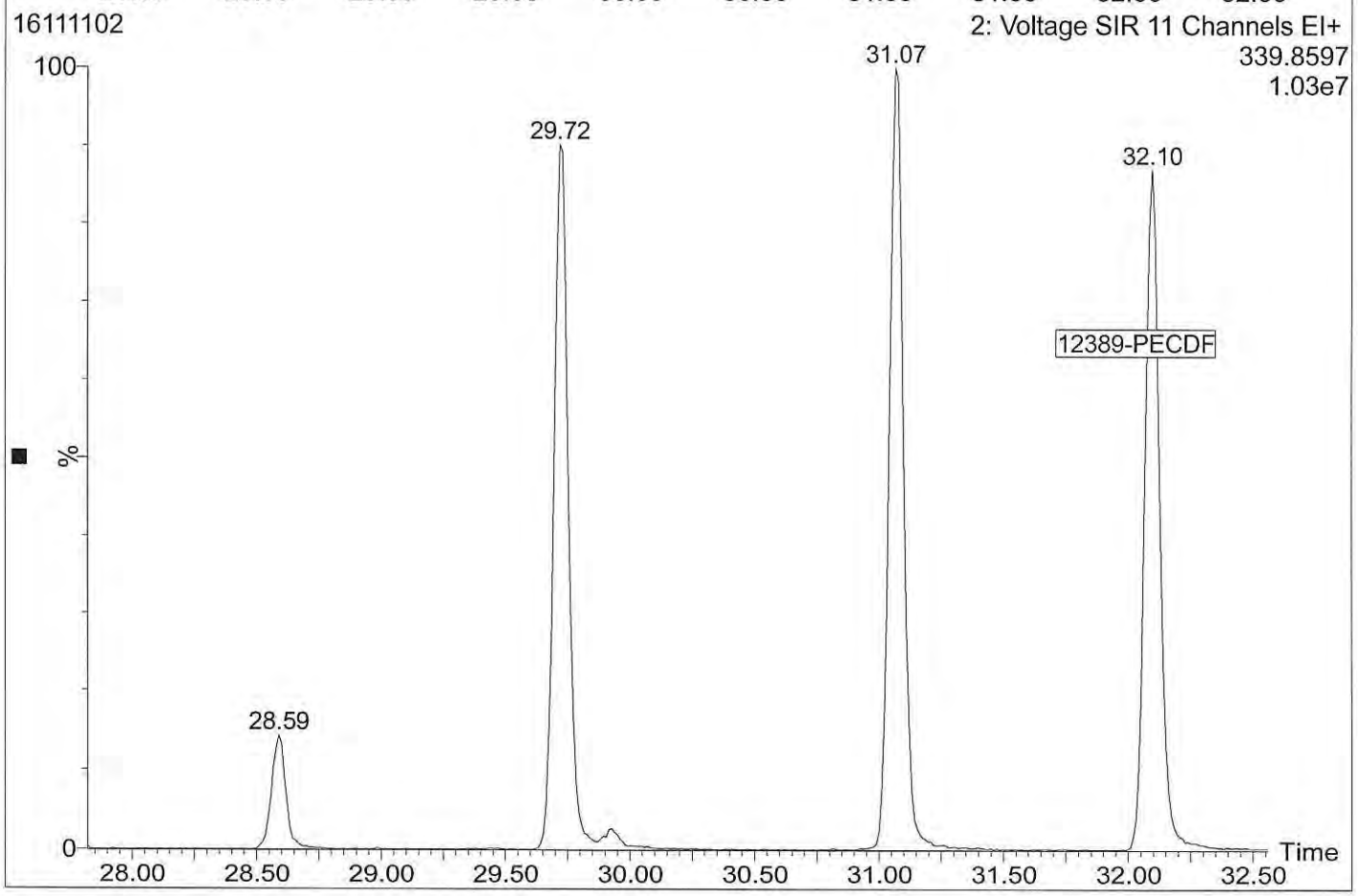


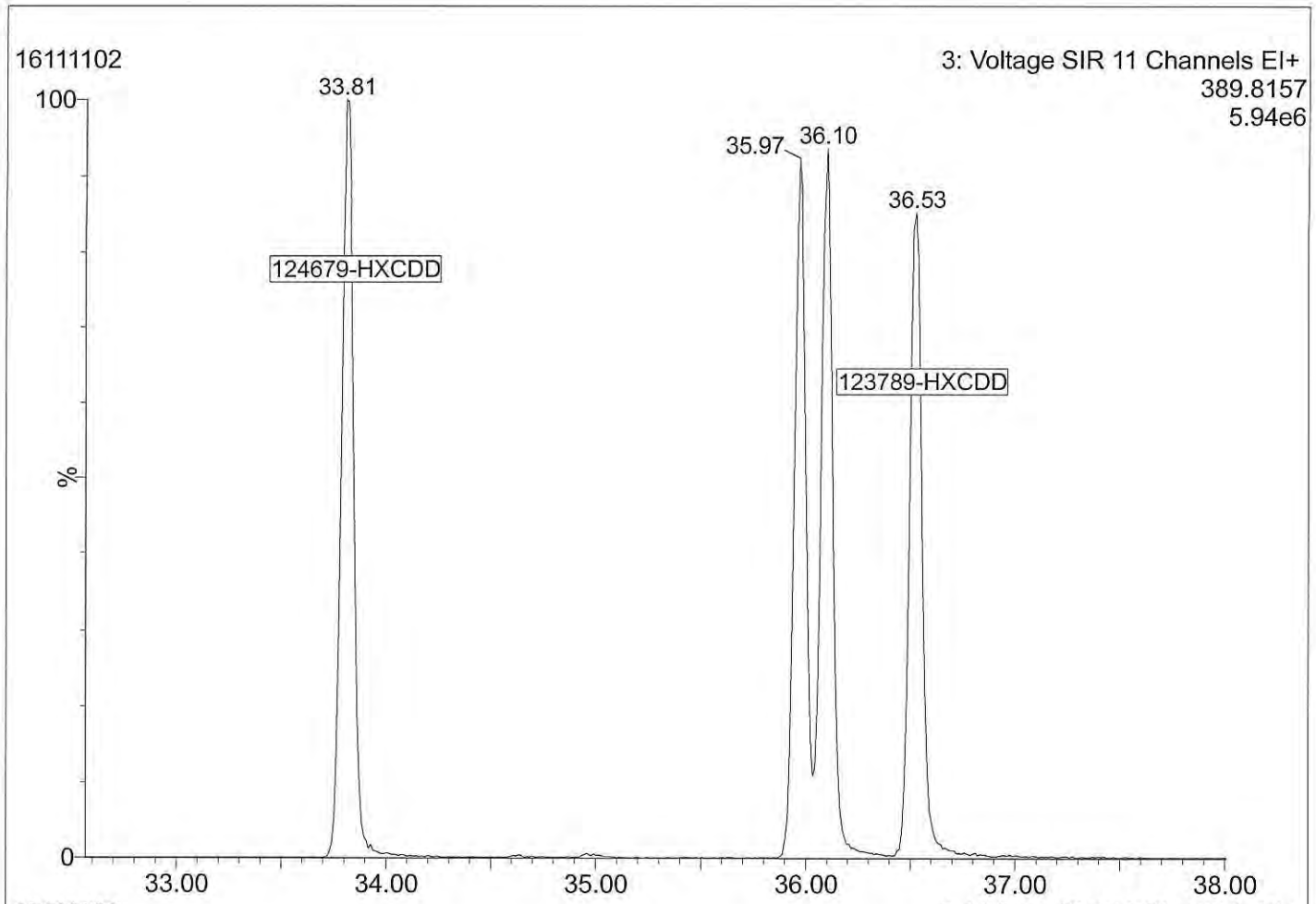
M 504.9696 R 12944

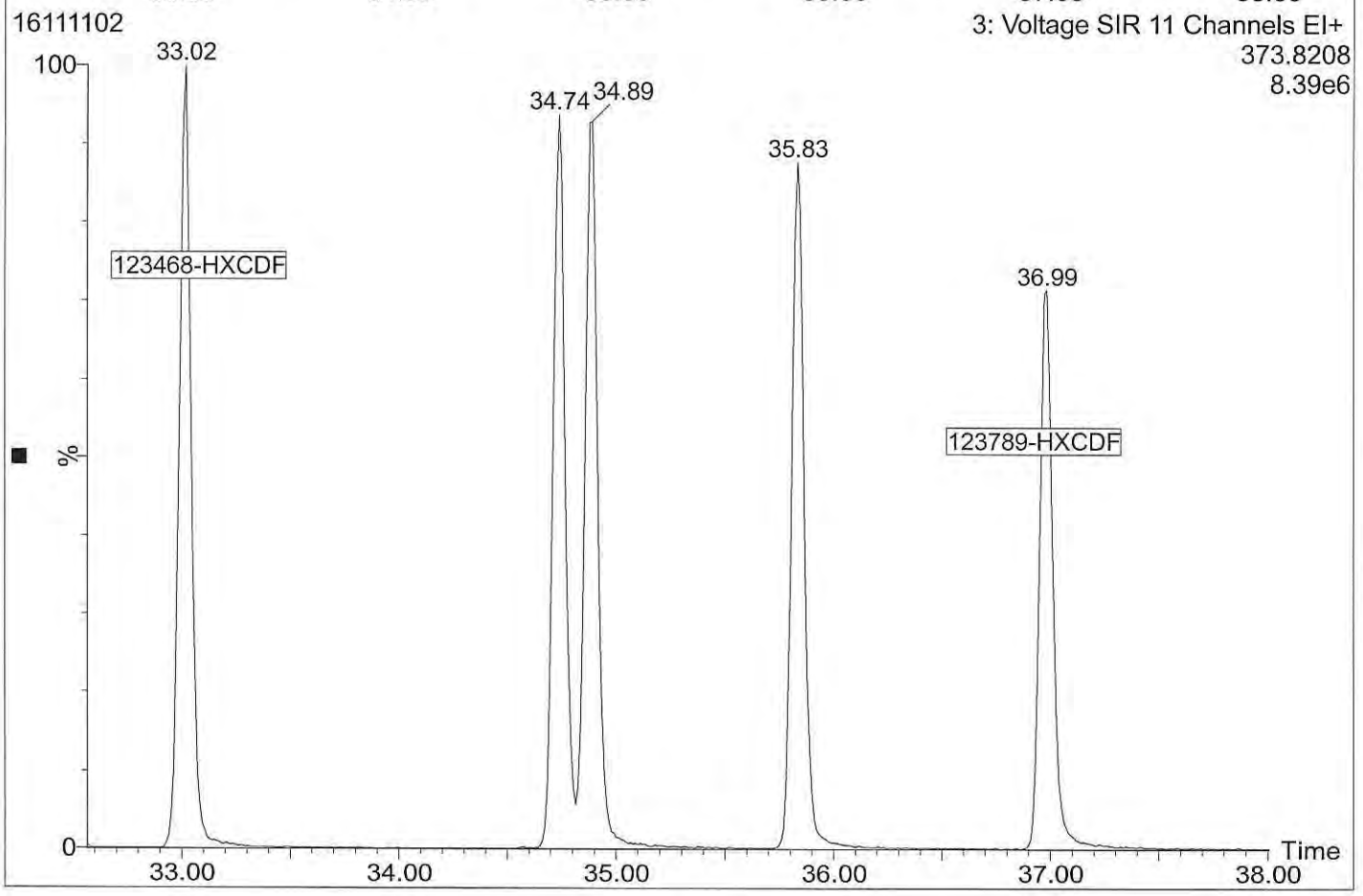


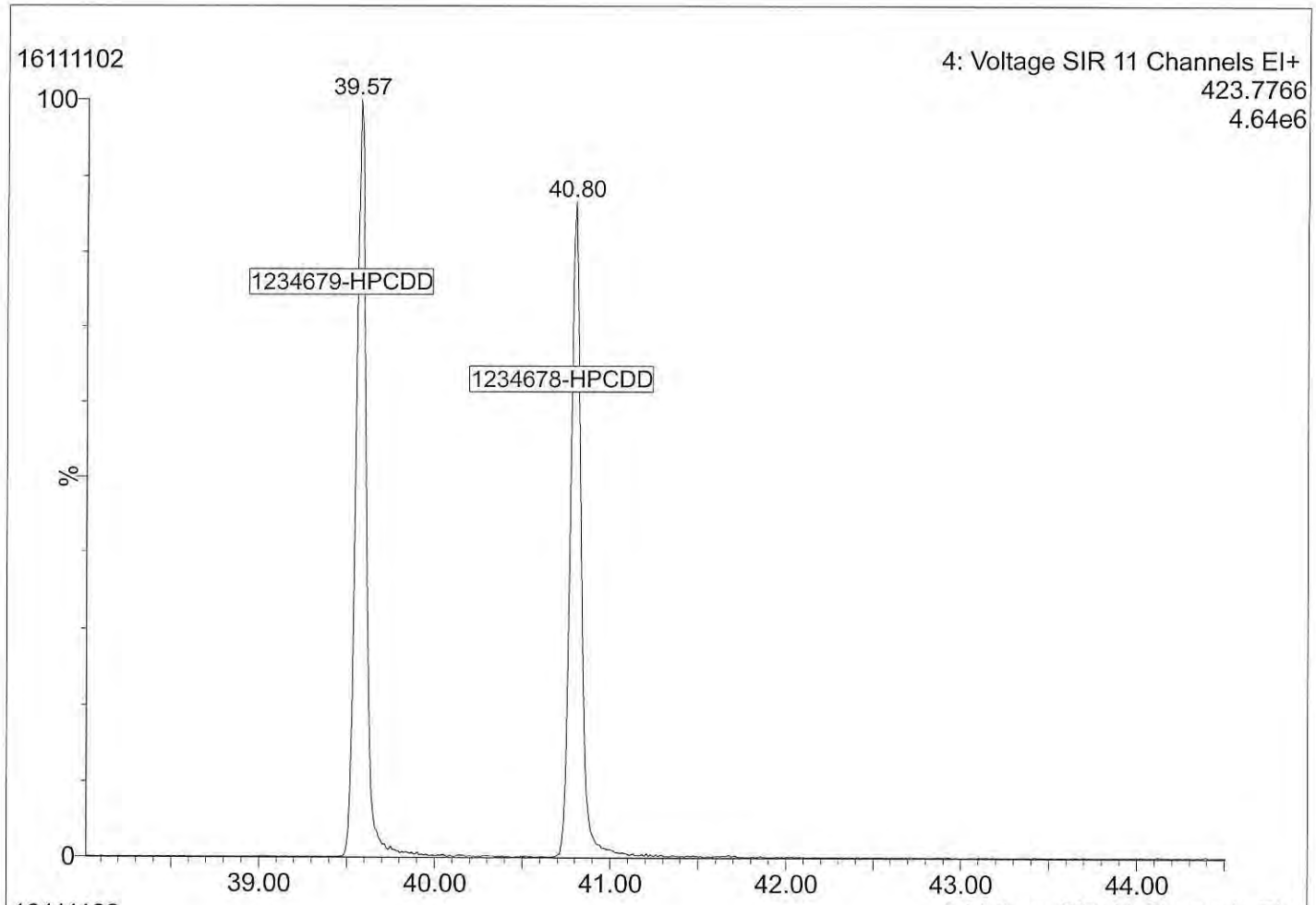

16111102
1: Voltage SIR 15 Channels EI+
319.8965
1.47e6
100
%
0
23.39
1368-TCDD
24.58
25.42
25.91
26.23
26.83
1289-TCDD
22.00
23.00
24.00
25.00
26.00
27.00
16111102
1: Voltage SIR 15 Channels EI+
303.9016
2.30e6
100
%
0
22.12
1368-TCDF
25.60
27.08
1289-TCDF
22.00
23.00
24.00
25.00
26.00
27.00
16111102
1: Voltage SIR 15 Channels EI+
339.8597
1.28e7
100
%
0
26.94
13468-PECDF
Time
22.00
23.00
24.00
25.00
26.00
27.00

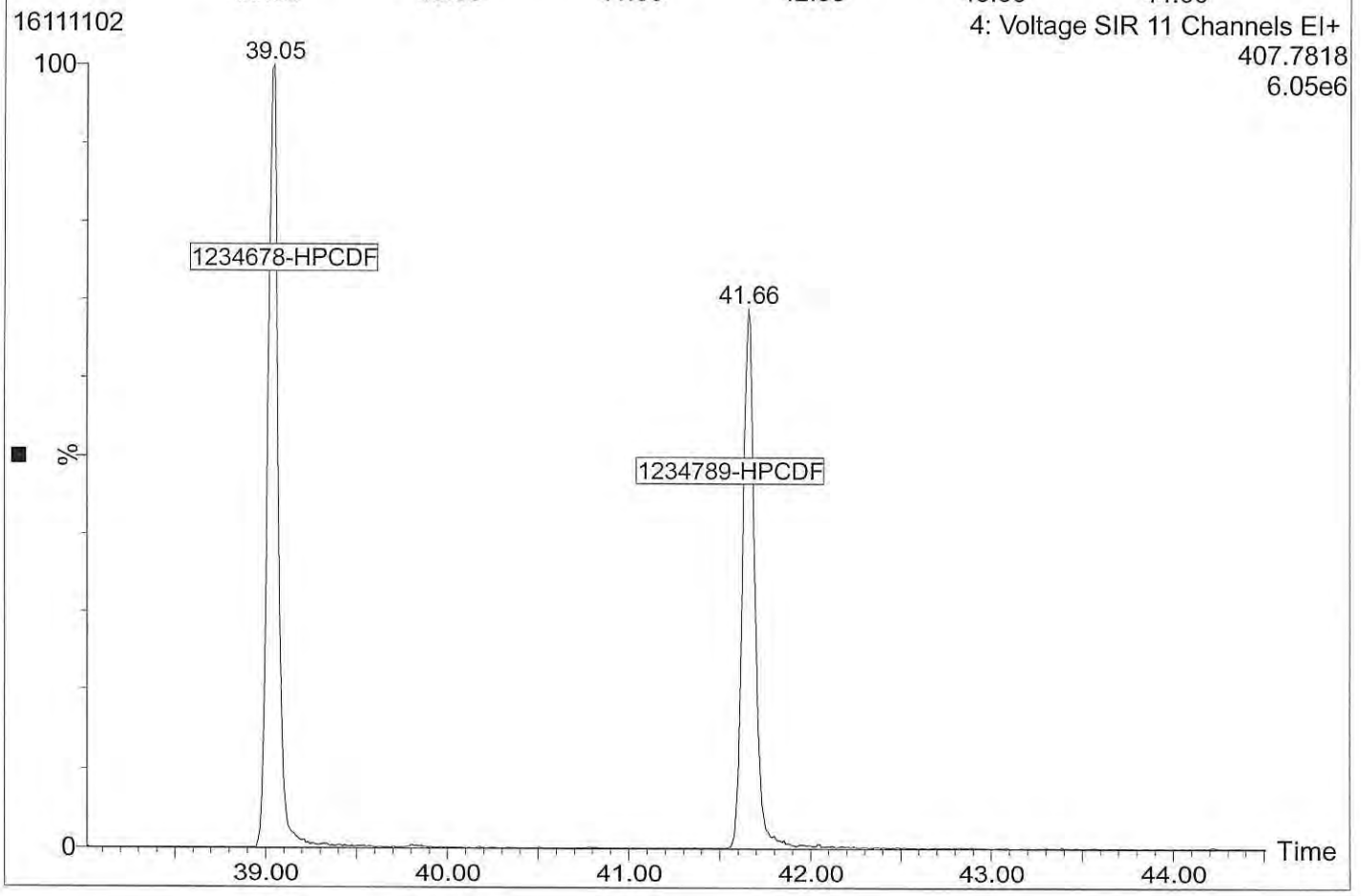

16111102
2: Voltage SIR 11 Channels EI+
355.8546
7.53e6
100
%
0
28.61
31.33
31.71
12479-PECDD
12389-PECDD
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

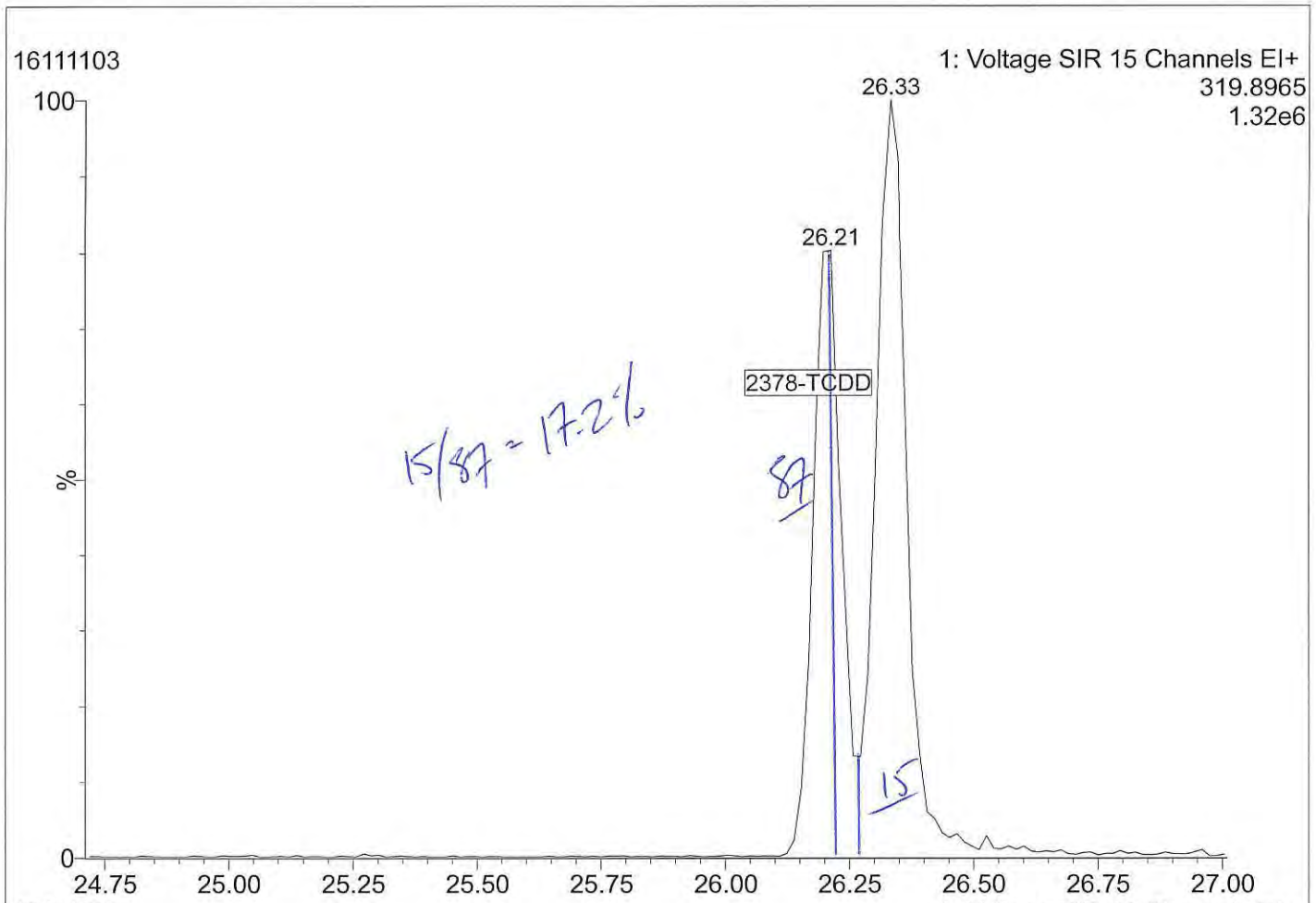

16111102
2: Voltage SIR 11 Channels EI+
339.8597
1.03e7
100
%
0
28.59
29.72
31.07
32.10
12389-PECDF
Time
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

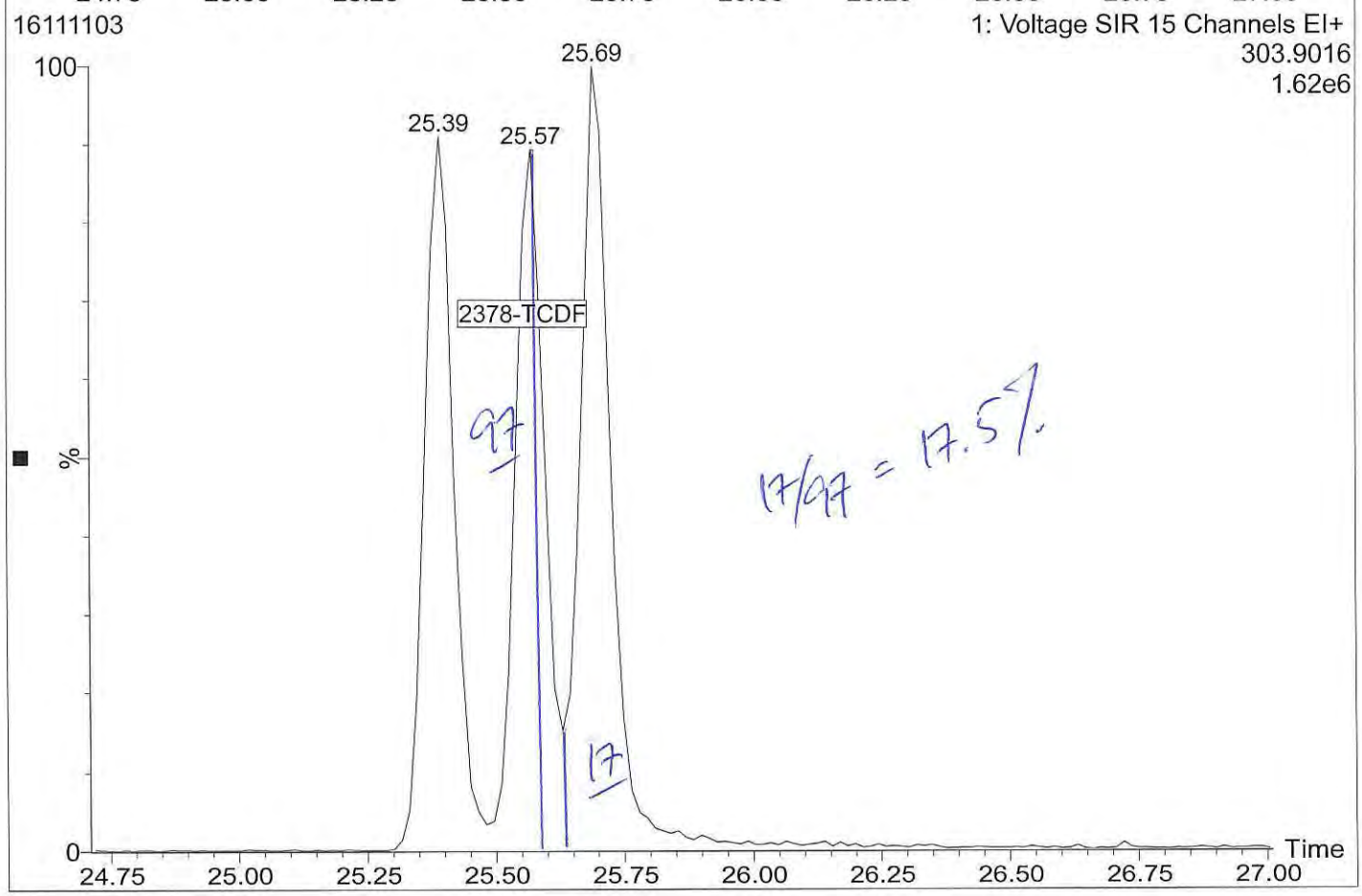

16111102
3: Voltage SIR 11 Channels EI+
389.8157
5.94e6
100
%
0
33.81
35.97
36.10
36.53
124679-HXCDD
123789-HXCDD
33.00
34.00
35.00
36.00
37.00
38.00


16111102
3: Voltage SIR 11 Channels EI+
373.8208
8.39e6
100
%
0
33.02
34.74
34.89
35.83
36.99
123468-HXCDF
123789-HXCDF
Time
33.00
34.00
35.00
36.00
37.00
38.00


16111102
4: Voltage SIR 11 Channels EI+
423.7766
4.64e6
100
%
0
39.57
40.80
1234679-HPCDD
1234678-HPCDD
39.00
40.00
41.00
42.00
43.00
44.00


16111102
4: Voltage SIR 11 Channels EI+
407.7818
6.05e6
100
%
0
39.05
41.66
1234678-HPCDF
1234789-HPCDF
Time
39.00
40.00
41.00
42.00
43.00
44.00


16111103
1: Voltage SIR 15 Channels EI+
319.8965
1.32e6
26.33
26.21
2378-TCDD
15/87 = 17.2%
87
15
100
%
0
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00


16111103
1: Voltage SIR 15 Channels EI+
303.9016
1.62e6
25.69
25.39
25.57
2378-TCDF
97
17/97 = 17.5%
17
100
%
0
Time
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00

FORM 7A-HR

RELATIVE RESPONSE/RELATIVE RESPONSE FACTOR -CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3D2

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/11/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 22:18

Analytical Method: CDD/CDF

CL No.	Analyte Name	RR/RRF	Mean RR/RRF	% D	IAR	IAR QC Limits
4	2,3,7,8-TCDD	1.172684	1.133965	3.4	0.80	0.655-0.886
5	1,2,3,7,8-PeCDD	0.9598474	0.9753974	-1.6	1.59	1.318-1.783
6	1,2,3,4,7,8-HxCDD	1.020556	1.031167	-1.0	1.26	1.054-1.426
6	1,2,3,6,7,8-HxCDD	1.007686	0.9714371	3.7	1.26	1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.027897	0.9950452	3.3	1.26	1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.06305	1.028016	3.4	0.99	0.893-1.208
8	OCDD	1.032507	1.107021	-6.7	0.90	0.757-1.024
4	2,3,7,8-TCDF	0.9514693	0.9347915	1.8	0.79	0.655-0.886
5	1,2,3,7,8-PeCDF	0.9296766	0.9519161	-2.3	1.57	1.318-1.783
5	2,3,4,7,8-PeCDF	0.9901375	0.9629117	2.8	1.54	1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.139461	1.136547	0.3	1.26	1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.097965	1.098742	-0.07	1.23	1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.092691	1.100821	-0.7	1.27	1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.193295	1.163504	2.6	1.23	1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	1.232247	1.302789	-5.4	1.05	0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.285386	1.317361	-2.4	1.06	0.893-1.208
8	OCDF	1.211852	1.165807	3.9	0.87	0.757-1.024
4	13C12-2,3,7,8-TCDF	1	1.567419	-36.2	0.78	0.655-0.886
4	13C12-2,3,7,8-TCDD	1	0.9077481	10.2	0.80	0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1	1.274097	-21.5	1.56	1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1	1.234626	-19.0	1.58	1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1	0.7557554	32.3	1.59	1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	1	1.380919	-27.6	0.51	0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	1	1.569453	-36.3	0.53	0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	1	1.34533	-25.7	0.53	0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	1	1.182895	-15.5	0.53	0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1	1.055904	-5.3	1.28	1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1	1.163036	-14.0	1.30	1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	1	1.178362	-15.1	0.45	0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	1	0.8777992	13.9	0.46	0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1	0.9091061	10.0	1.05	0.893-1.208
8	13C12-OCDD	1	0.8195753	22.0	0.88	0.757-1.024
4	37C14-2,3,7,8-TCDD	1.107033	1.066558	3.8		N/A
4	13C12-1,2,3,4-TCDD	18483.31	1	848,231	0.81	0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	12103.68	1	210,268	1.26	1.05-1.43

FORM 7B-HR
RELATIVE RETENTION TIME CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004
Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01
Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3D2
Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/11/16
Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 22:18
Analytical Method: CDD/CDF

CL No.	Analyte Name	Mean RRT	RRT	RRT QC Limits
4	2,3,7,8-TCDD	0.8331	1.0006	0.999-1.002
5	1,2,3,7,8-PeCDD	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDD	0.9999	1.0003	0.999-1.001
6	1,2,3,6,7,8-HxCDD	0.9999	1.0006	0.998-1.004
6	1,2,3,7,8,9-HxCDD	0.9999	1.0159	1.000-1.019
7	1,2,3,4,6,7,8-HpCDD	1.0000	1.0005	0.999-1.001
8	OCDD	0.9998	1.0004	0.999-1.001
4	2,3,7,8-TCDF	0.8330	1.0012	0.999-1.003
5	1,2,3,7,8-PeCDF	0.9997	1.0007	0.999-1.002
5	2,3,4,7,8-PeCDF	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDF	0.9999	1.0006	0.999-1.001
6	1,2,3,6,7,8-HxCDF	0.9997	1.0003	0.997-1.005
6	1,2,3,7,8,9-HxCDF	0.9999	1.0006	0.999-1.001
6	2,3,4,6,7,8-HxCDF	0.9998	1.0006	0.999-1.001
7	1,2,3,4,6,7,8-HpCDF	0.9999	1.0003	0.999-1.001
7	1,2,3,4,7,8,9-HpCDF	1.0000	1.0003	0.999-1.001
8	OCDF	0.9998	1.0062	0.999-1.008
4	13C12-2,3,7,8-TCDF	0.9995	1.0065	0.923-1.103
4	13C12-2,3,7,8-TCDD	0.9995	1.0318	0.976-1.043
5	13C12-1,2,3,7,8-PeCDF	0.9999	1.1694	1.000-1.425
5	13C12-2,3,4,7,8-PeCDF	0.9998	1.2225	1.011-1.526
5	13C12-1,2,3,7,8-PeCDD	0.9995	1.2325	1.000-1.567
6	13C12-1,2,3,4,7,8-HxCDF	0.9997	0.9510	0.944-0.970
6	13C12-1,2,3,6,7,8-HxCDF	0.9998	0.9552	0.949-0.975
6	13C12-2,3,4,6,7,8-HxCDF	0.9999	0.9811	0.959-1.021
6	13C12-1,2,3,7,8,9-HxCDF	1.0000	1.0126	0.977-1.047
6	13C12-1,2,3,4,7,8-HxCDD	0.9998	0.9850	0.977-1.000
6	13C12-1,2,3,6,7,8-HxCDD	0.9999	0.9883	0.981-1.003
7	13C12-1,2,3,4,6,7,8-HpCDF	1.0000	1.0691	1.043-1.085
7	13C12-1,2,3,4,7,8,9-HpCDF	0.9999	1.1409	1.057-1.151
7	13C12-1,2,3,4,6,7,8-HpCDD	1.0001	1.1172	1.086-1.110
8	13C12-OCDD	1.0000	1.2736	1.032-1.311
4	37C14-2,3,7,8-TCDD	0.9995	1.0324	0.989-1.052
4	13C12-1,2,3,4-TCDD	0.9995	1.0000	
6	13C12-1,2,3,7,8,9-HxCDD	1.0000	1.0000	

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 11:19:48 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.570	1.001	1.22e5	1.55e5	0.935	0.787	0.770	2378	2637	1.68e6	2.19e6	705.0	NO	10.178
12378-PeCDF	29.696	1.001	6.46e5	4.11e5	0.952	1.572	1.550	5352	3810	9.34e6	5.94e6	1745.6	NO	48.832
23478-PeCDF	31.045	1.001	6.92e5	4.49e5	0.963	1.539	1.550	5352	3810	1.00e7	6.49e6	1870.5	NO	51.414
123478-HxCDF	34.717	1.001	5.19e5	4.13e5	1.137	1.256	1.240	6642	3669	7.42e6	5.96e6	1116.8	NO	50.128
234678-HxCDF	35.813	1.001	5.10e5	4.16e5	1.164	1.227	1.240	6642	3669	7.20e6	5.82e6	1083.8	NO	51.280
123678-HxCDF	34.859	1.000	5.53e5	4.50e5	1.099	1.228	1.240	6642	3669	7.60e6	6.16e6	1143.7	NO	49.965
123789-HxCDF	36.964	1.001	4.26e5	3.36e5	1.101	1.270	1.240	6642	3669	5.63e6	4.44e6	847.0	NO	49.631
1234678-HpCDF	39.014	1.000	4.22e5	4.01e5	1.303	1.051	1.050	2313	2162	6.01e6	5.79e6	2598.1	NO	47.293
1234789-HpCDF	41.633	1.000	3.28e5	3.10e5	1.317	1.057	1.050	2313	2162	4.03e6	3.64e6	1743.7	NO	48.786
OCDF	46.748	1.006	5.07e5	5.81e5	1.166	0.872	0.890	2683	2064	4.87e6	5.50e6	1815.6	NO	103.950
2378-TCDD	26.198	1.001	8.67e4	1.09e5	1.134	0.799	0.770	1871	1409	1.19e6	1.50e6	638.5	NO	10.341
12378-PeCDD	31.297	1.001	4.17e5	2.63e5	0.975	1.585	1.550	3953	2460	6.10e6	3.84e6	1543.4	NO	49.203
123478-HxCDD	35.944	1.000	3.59e5	2.85e5	1.031	1.259	1.240	2003	2408	5.30e6	4.25e6	2645.4	NO	49.486
123678-HxCDD	36.076	1.001	3.91e5	3.10e5	0.971	1.259	1.240	2003	2408	5.45e6	4.30e6	2723.4	NO	51.866
123789-HxCDD	36.503	1.012	3.62e5	2.87e5	0.947	1.261	1.240	2003	2408	5.09e6	3.99e6	2541.5	NO	51.654
1234678-HpCDD	40.778	1.001	2.72e5	2.74e5	1.028	0.995	1.050	2833	2952	3.55e6	3.50e6	1254.8	NO	51.704
OCDD	46.479	1.000	4.39e5	4.88e5	1.107	0.899	0.890	2319	2336	4.29e6	4.87e6	1849.6	NO	93.269
13C-2378-TCDF	25.540	1.006	1.27e6	1.63e6	1.567	0.779	0.770	7413	4998	1.75e7	2.26e7	2357.2	NO	100.248
13C-12378-PeCDF	29.674	1.169	1.38e6	8.89e5	1.274	1.557	1.550	4843	2969	1.98e7	1.25e7	4084.7	NO	96.531
13C-23478-PeCDF	31.023	1.223	1.41e6	8.93e5	1.235	1.581	1.550	4843	2969	2.03e7	1.29e7	4182.1	NO	101.003
13C-123478-HxCDF	34.695	0.951	5.55e5	1.08e6	1.381	0.515	0.510	4868	4280	7.92e6	1.56e7	1626.2	NO	97.797
13C-123678-HxCDF	34.848	0.955	6.37e5	1.19e6	1.569	0.535	0.510	4868	4280	8.51e6	1.63e7	1748.5	NO	96.195
13C-234678-HxCDF	35.791	0.981	5.41e5	1.01e6	1.345	0.535	0.510	4868	4280	7.57e6	1.46e7	1554.6	NO	95.336
13C-123789-HxCDF	36.942	1.013	4.83e5	9.13e5	1.183	0.529	0.510	4868	4280	6.57e6	1.23e7	1350.2	NO	97.463
13C-1234678-HpCDF	39.003	1.069	4.16e5	9.19e5	1.178	0.452	0.440	2594	3694	5.95e6	1.32e7	2294.5	NO	93.624
13C-1234789-HpCDF	41.622	1.141	3.12e5	6.81e5	0.878	0.459	0.440	2594	3694	3.88e6	8.53e6	1494.4	NO	93.536
13C-1234-TCDD	25.376	0.000	8.24e5	1.02e6	1.000	0.805	0.770	3409	3110	1.17e7	1.46e7	3444.5	NO	100.000
13C-2378-TCDD	26.183	1.032	7.39e5	9.26e5	0.908	0.798	0.770	3409	3110	1.02e7	1.29e7	3005.8	NO	99.210
13C-12378-PeCDD	31.275	1.232	8.70e5	5.46e5	0.756	1.594	1.550	1748	1983	1.23e7	7.80e6	7048.7	NO	101.399
13C-123478-HxCDD	35.933	0.985	7.09e5	5.54e5	1.056	1.281	1.240	2422	4720	1.05e7	8.18e6	4353.4	NO	98.796
13C-123678-HxCDD	36.054	0.988	7.88e5	6.04e5	1.163	1.304	1.240	2422	4720	1.07e7	8.35e6	4425.5	NO	98.839
13C-1234678-HpCDD	40.756	1.117	5.27e5	5.01e5	0.909	1.053	1.050	2390	2869	7.01e6	6.65e6	2933.8	NO	93.392
13C-OCDD	46.461	1.274	8.40e5	9.57e5	0.820	0.878	0.890	2541	2836	8.37e6	9.29e6	3293.2	NO	181.067

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Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 11:19:48 Pacific Standard Time

ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

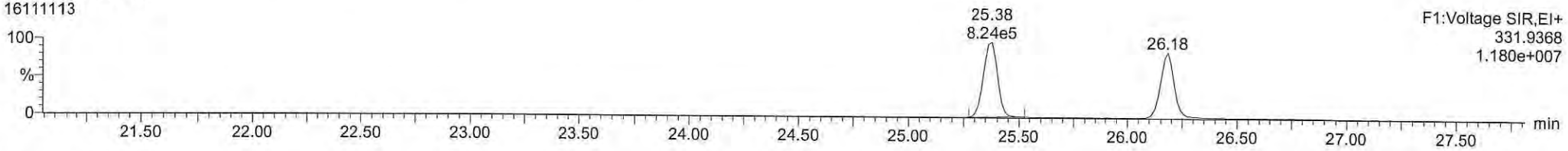
Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
13C-123789-HxCDD	36.481	0.000	6.74e5	5.37e5	1.000	1.255	1.240	2422	4720	9.51e6	7.54e6	3925.5	NO	100.000
Total-tetrafurans			3.97e5		0.935			2378		5.54e6				33.545
Total-penta1			9.12e5					1108		1.27e7				71.415
Total-pentafurans			2.10e6		0.957			5352		2.94e7				157.005
Total-hexafurans			2.56e6		1.125			6642		3.56e7				256.061
Total-heptafurans			7.59e5		1.310			2313		1.02e7				96.797
Total-Furans			7.23e6		1.114			2378		9.83e7				718.773
Total-tetradioxins			4.59e5		1.134			1871		5.85e6				55.270
Total-pentadioxins			1.66e6		0.975			3953		2.02e7				197.072
Total-hexadioxins			1.51e6		0.983			2003		2.18e7				208.778
Total-heptadioxins			5.95e5		1.028			2833		8.04e6				111.016
Total-Dioxins			4.66e6		1.028			1871		6.02e7				665.435
Total-TEQ			1.19e7					1871		1.58e8				1384.208
37CL-2378-TCDD	26.198	1.032	2.05e5		1.067			1717		2.83e6		1649.2		10.379
FUNCTION1 PFK			8.73e7					473784		3.66e8				
FUNCTION2 PFK			0.00e0					177479		0.00e0				
FUNCTION3 PFK			4.31e7					530629		2.75e8				0.000
FUNCTION4 PFK			4.45e5					364046		1.33e7				
FUNCTION5 PFK			1.77e5					228969		6.80e6				
FUNCTION1 HXCDPE			3.27e2					834		7.46e3				0.000
FUNCTION1 HPCDPE			1.05e3					1005		2.46e4				0.000
FUNCTION2 HPCDPE			1.01e3					1136		2.50e4				0.000
FUNCTION3 OCDPE			0.00e0					436		0.00e0				
FUNCTION4 NCDPE			1.86e2					661		5.56e3				0.000
FUNCTION5 DCDPE			0.00e0					455		0.00e0				

Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 11:19:48 Pacific Standard Time

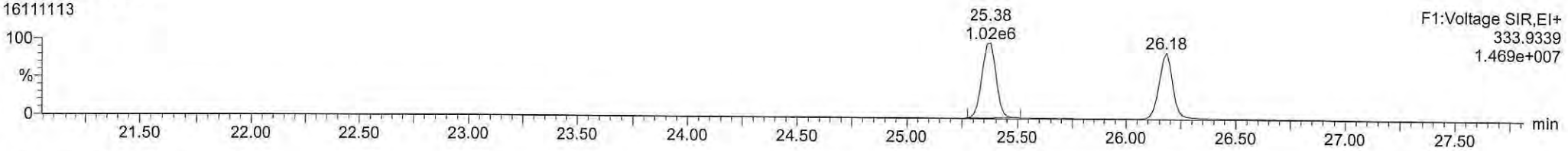
Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

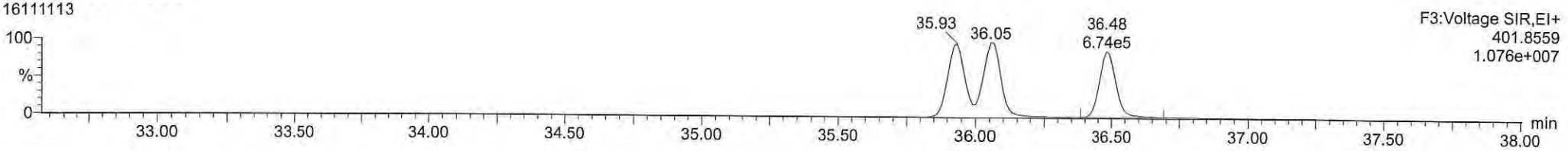
13C-1234-TCDD
16111113



13C-1234-TCDD
16111113



13C-123789-HxCDD
16111113



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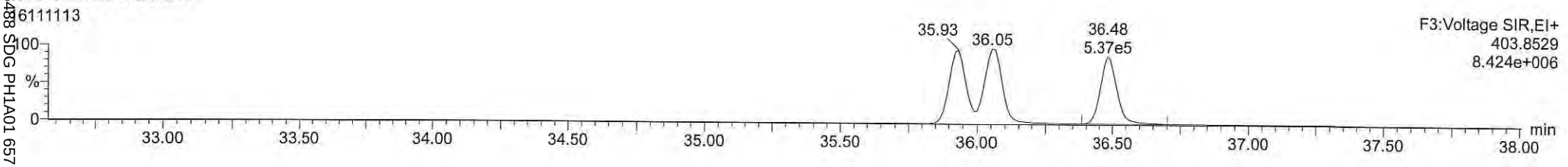
16111113



Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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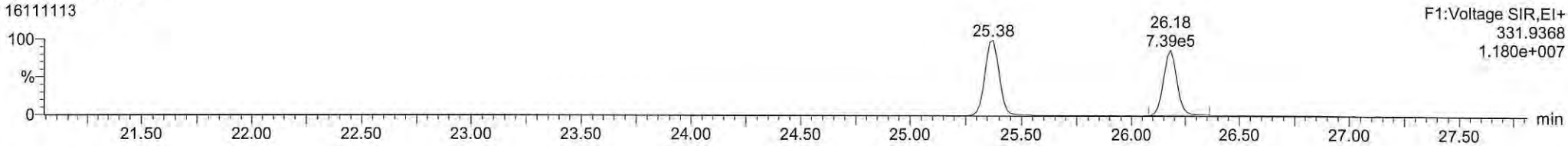
ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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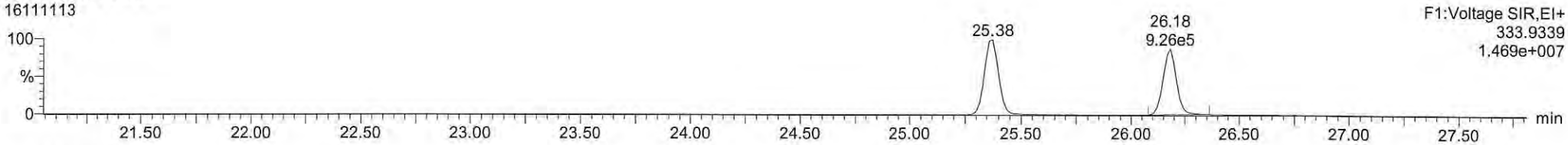
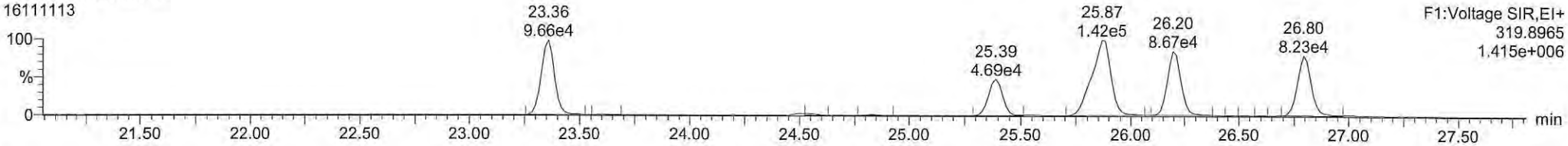
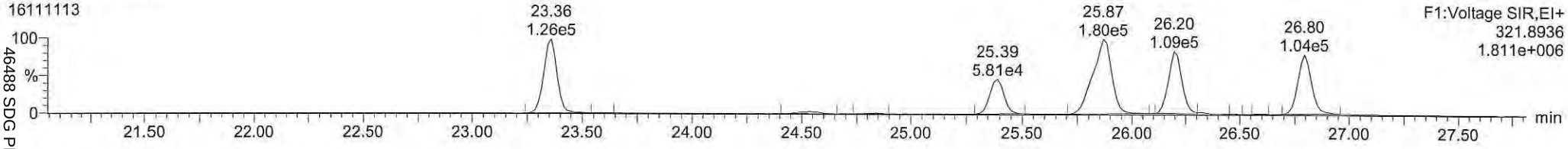


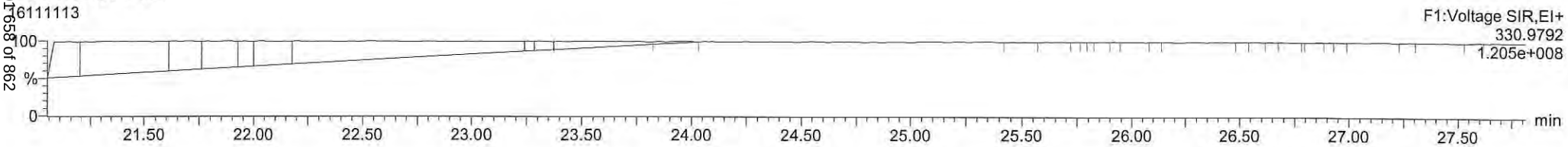
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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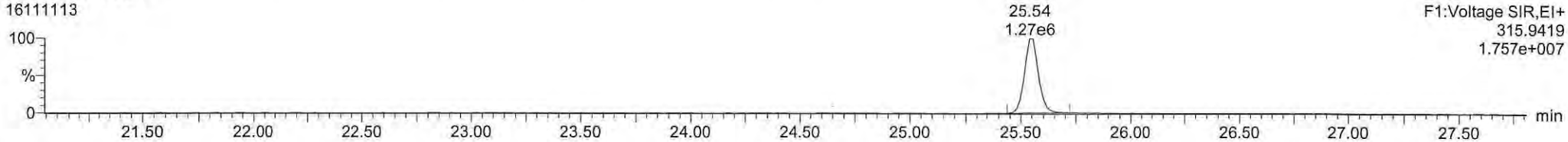
ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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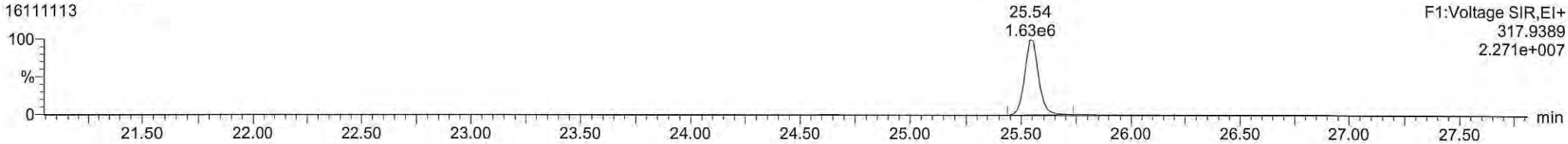
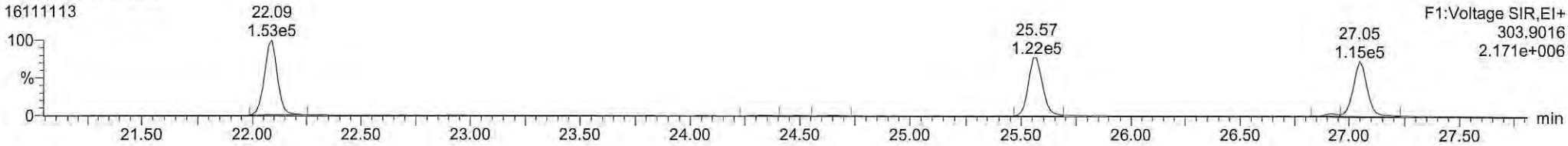
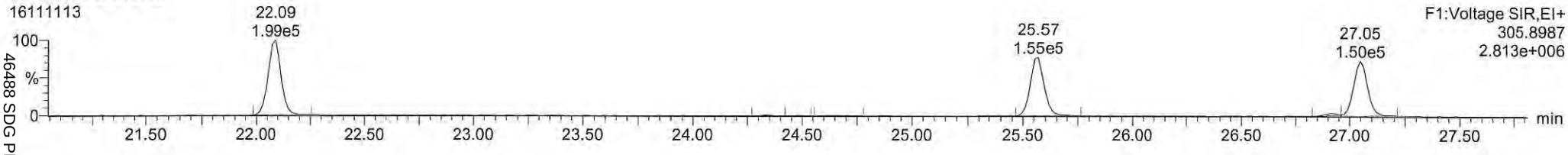


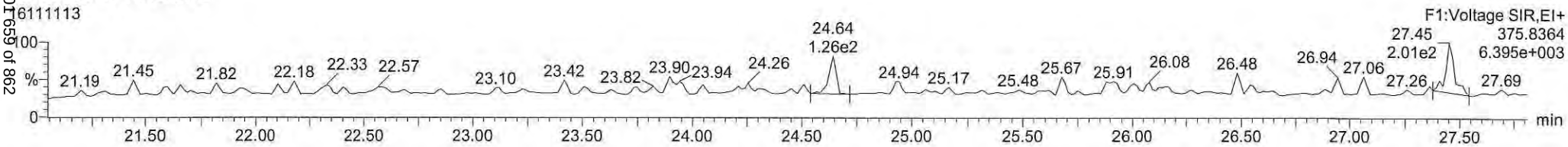
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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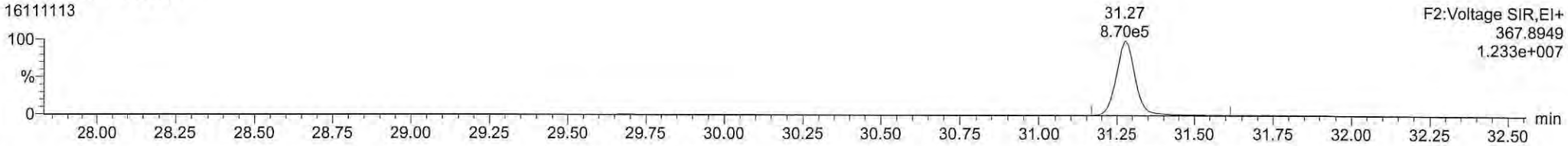
ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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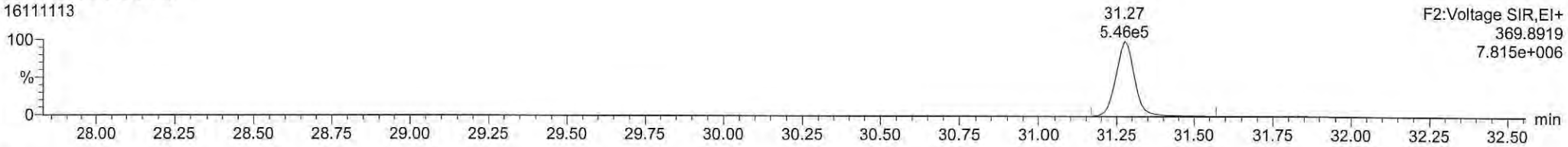
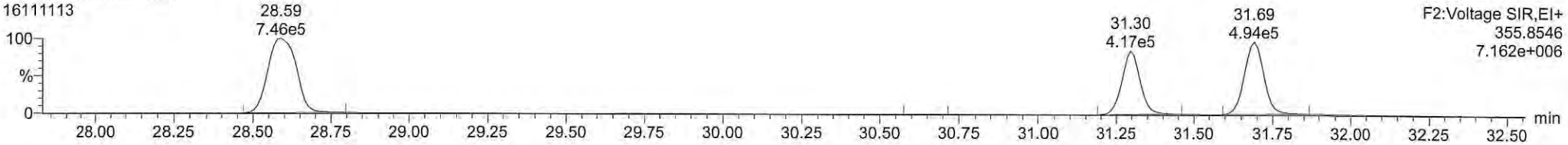
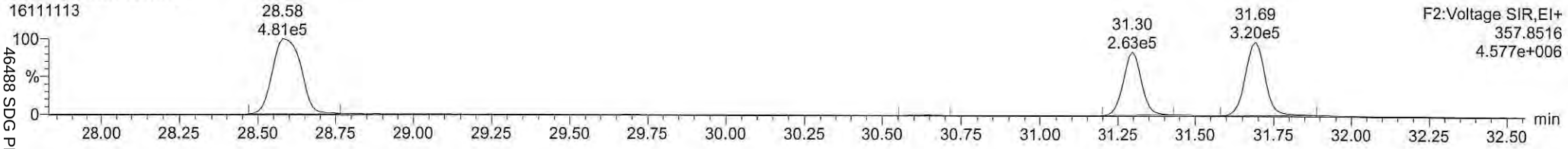


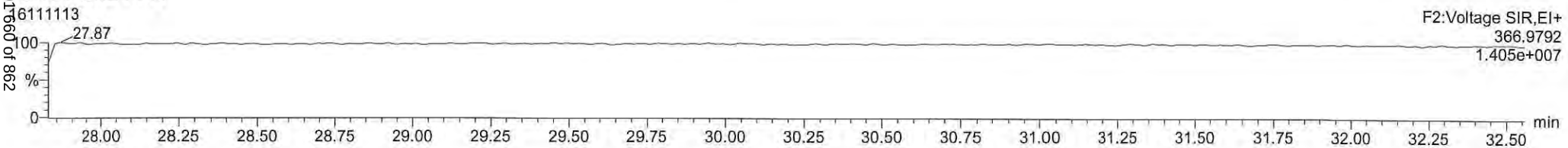
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
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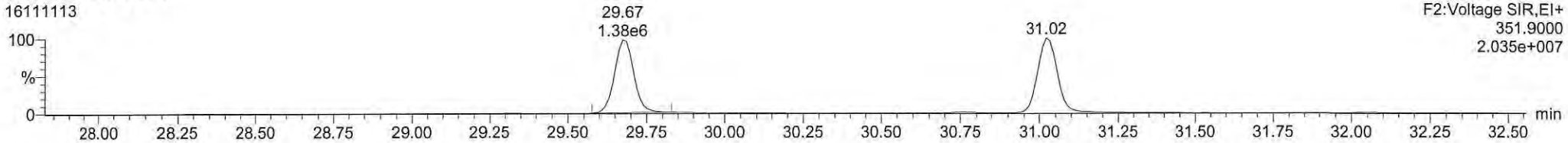
ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDF



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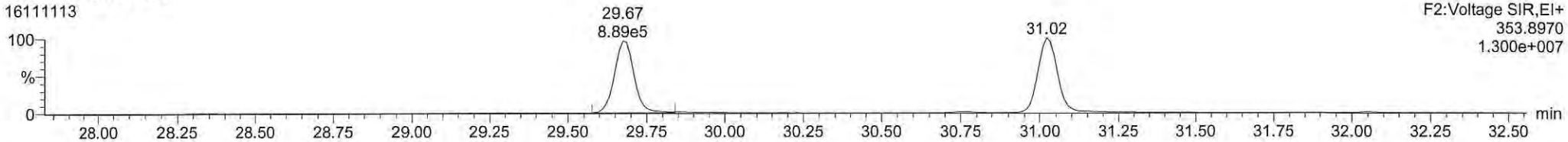
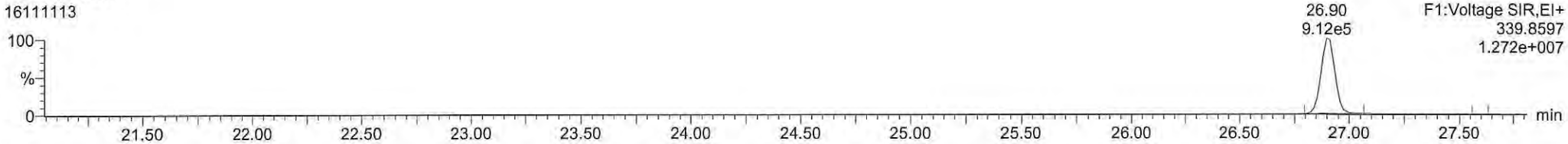
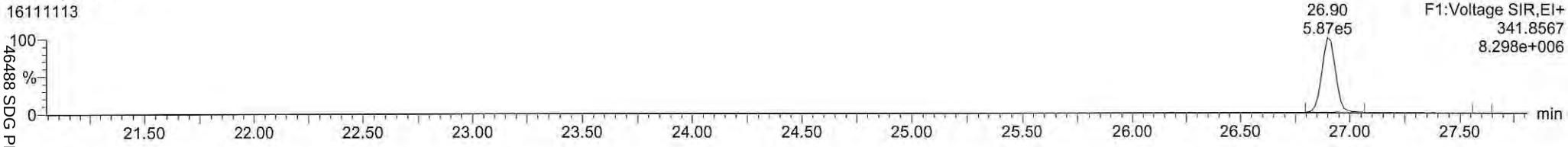


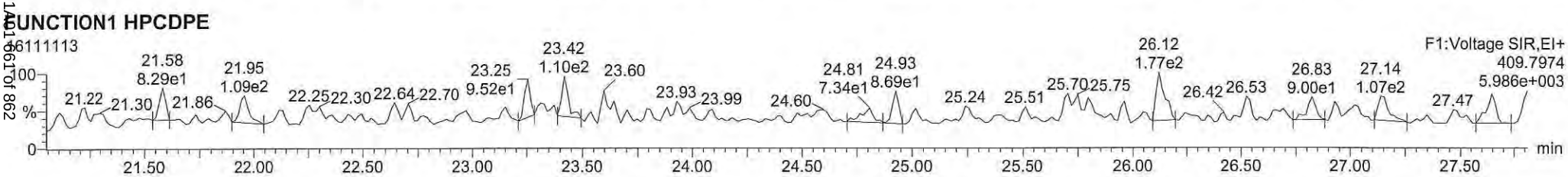
Total-penta1



Total-penta1



FUNCTION1 HPCDPE



46488 SDG PH1A01 661 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

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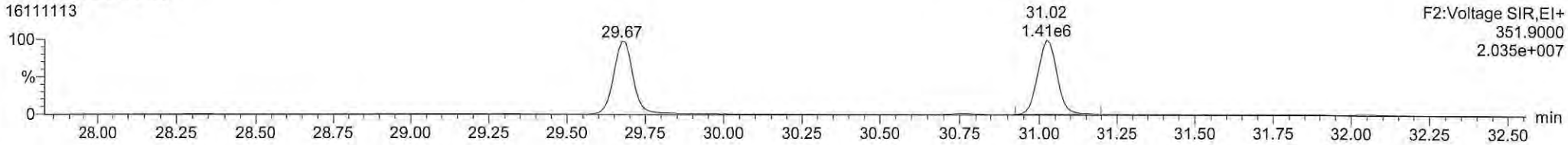

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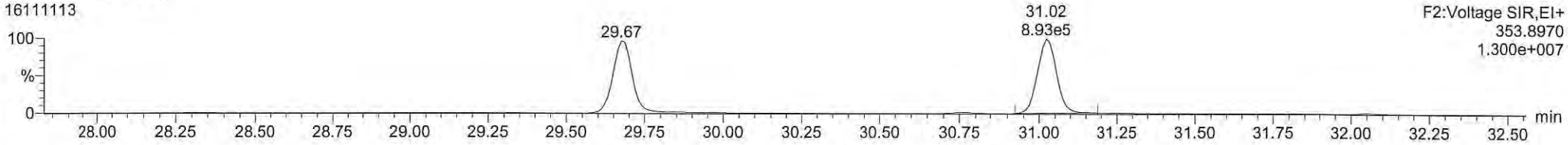
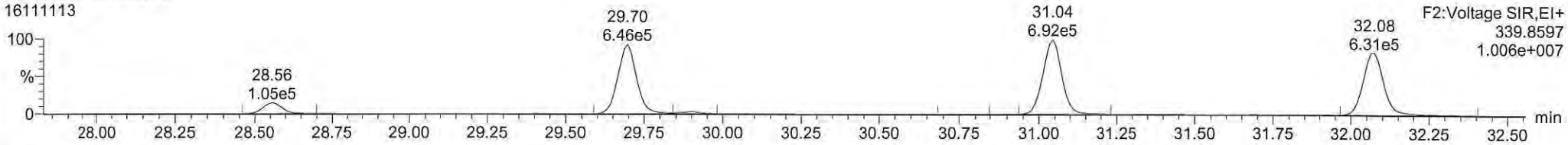


Total-pentafurans



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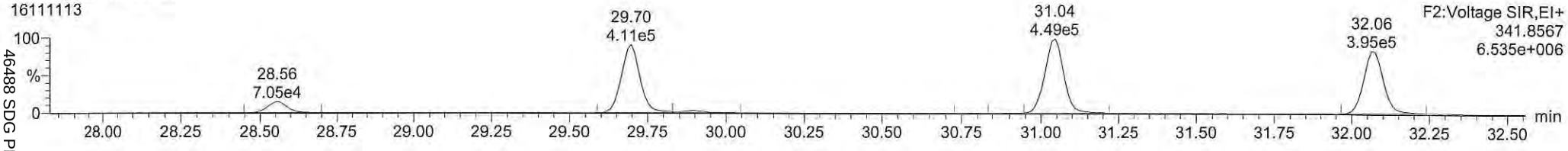
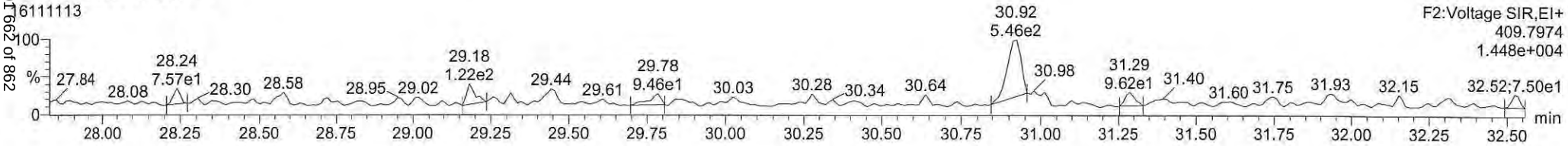


FUNCTION2 HPCDPE



46488 SDG PH1401662 of 862

Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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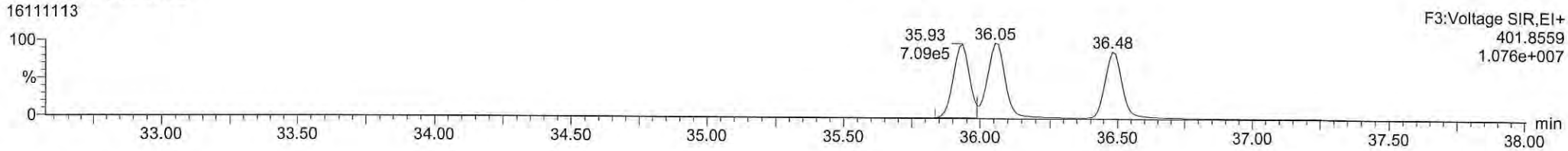
Printed: Monday, November 14, 2016 11:19:48 Pacific Standard Time

ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



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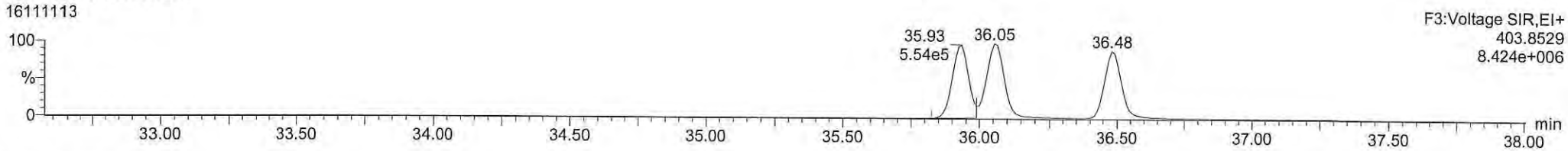
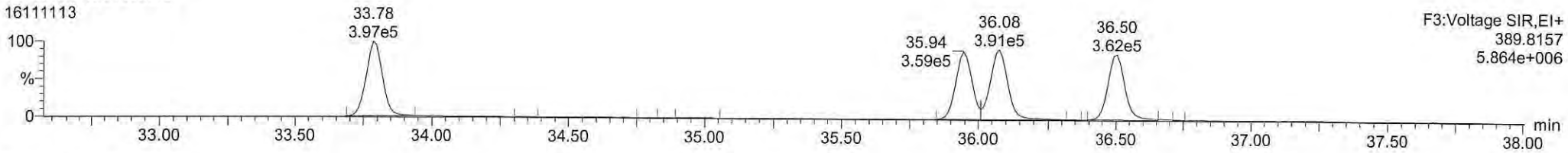
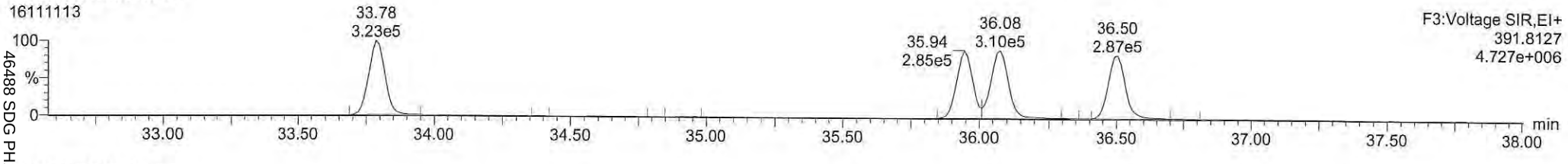


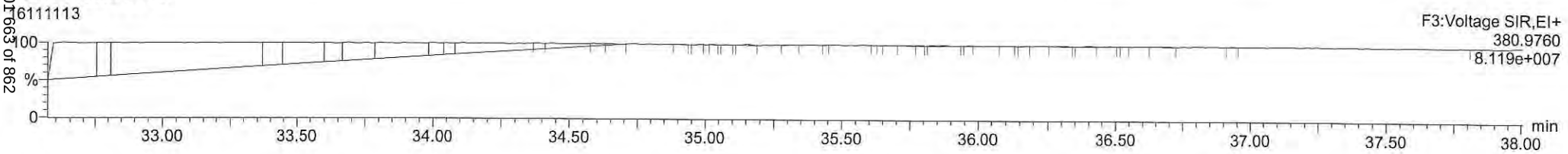
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
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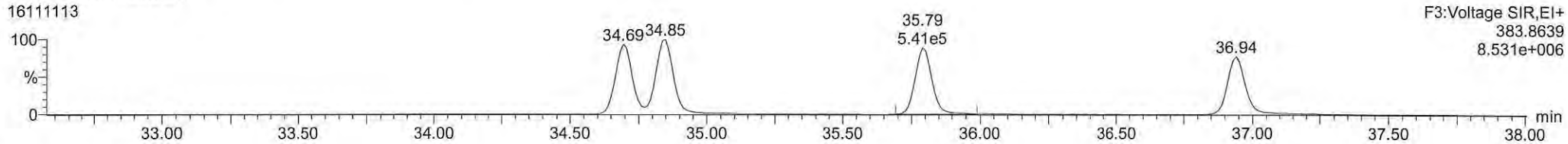
13C-234678-HxCDF



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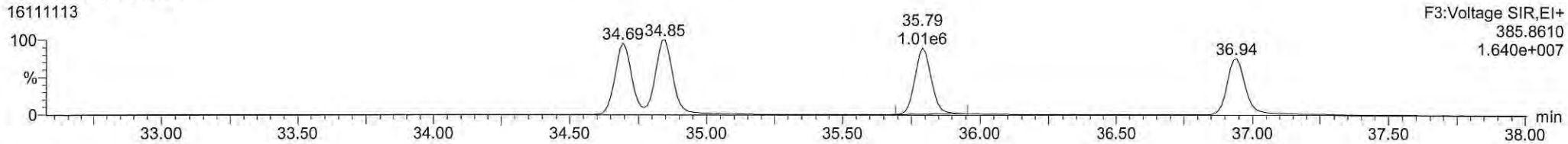
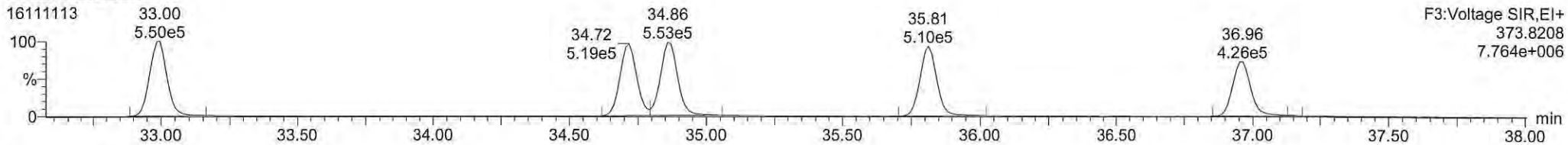
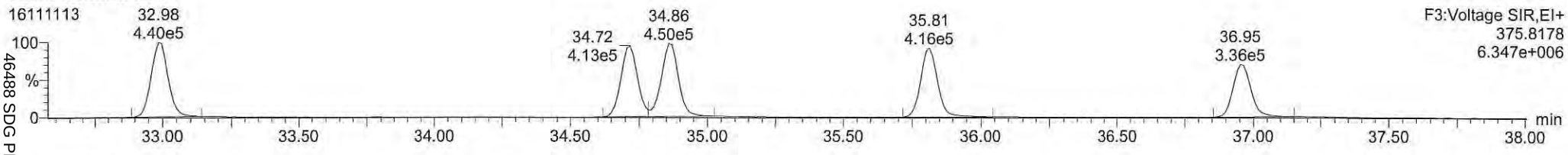


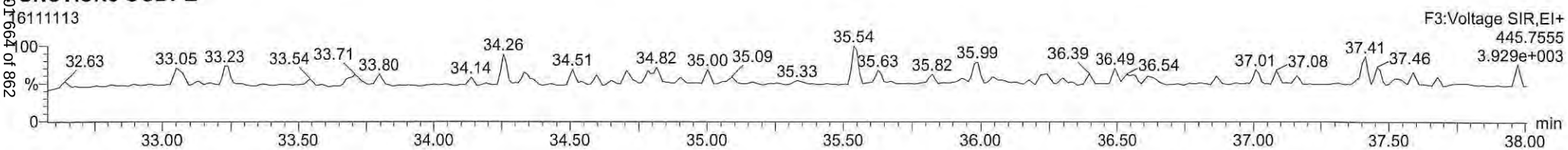
Total-hexafurans



Total-hexafurans



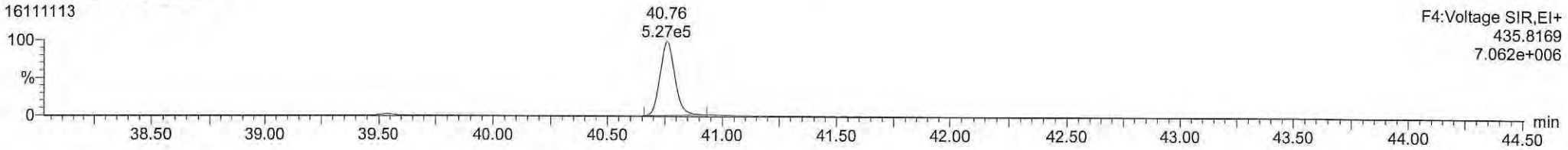
FUNCTION3 OCDPE



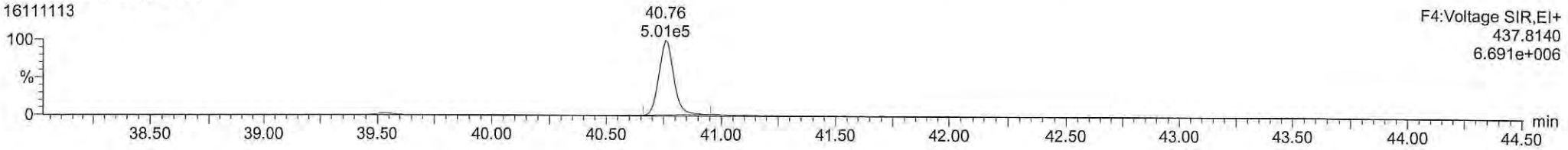
Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 11:19:48 Pacific Standard Time

ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

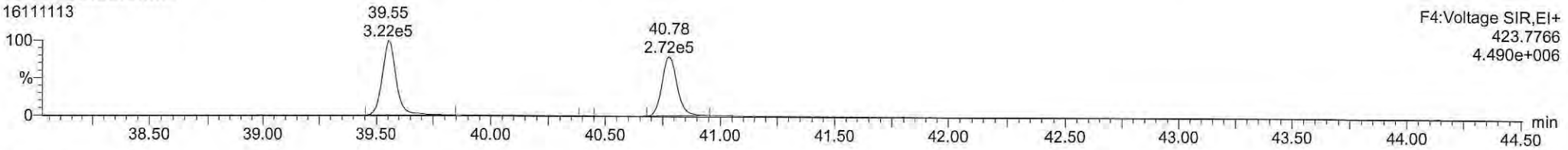
13C-1234678-HpCDD



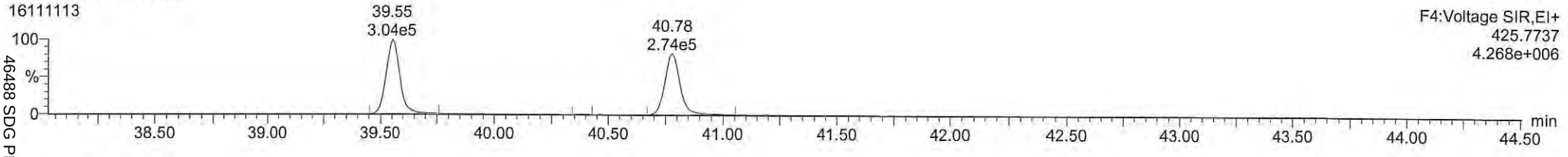
13C-1234678-HpCDD



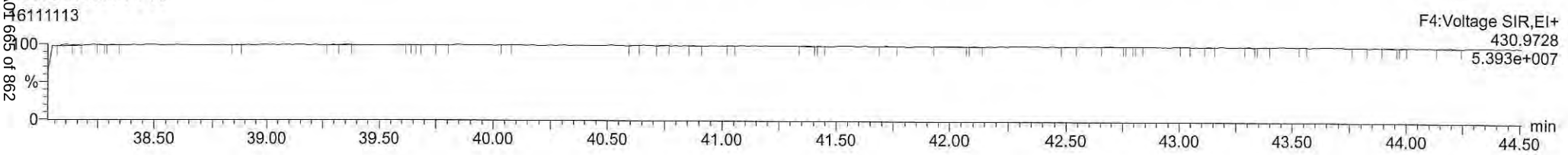
Total-heptadioxins



Total-heptadioxins



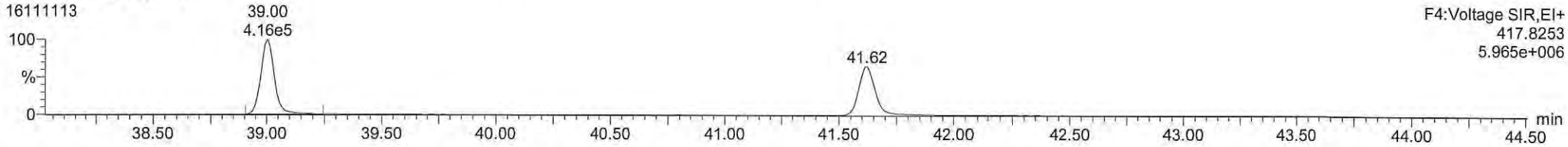
FUNCTION4 PFK



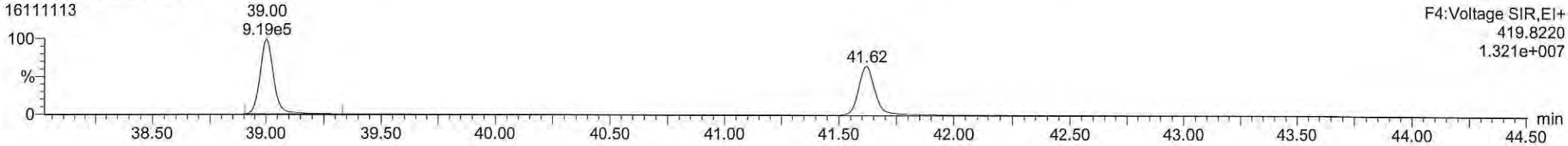
Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 11:19:48 Pacific Standard Time

ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

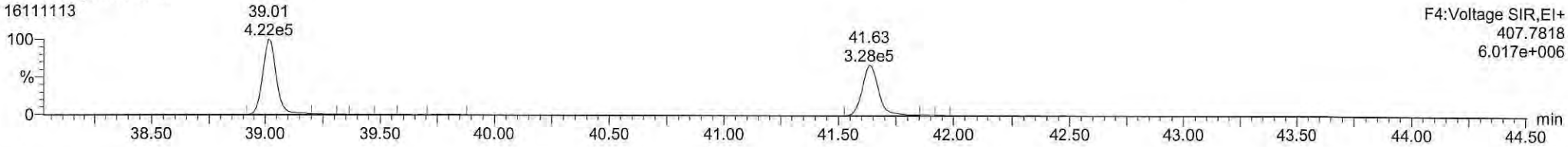
13C-1234678-HpCDF



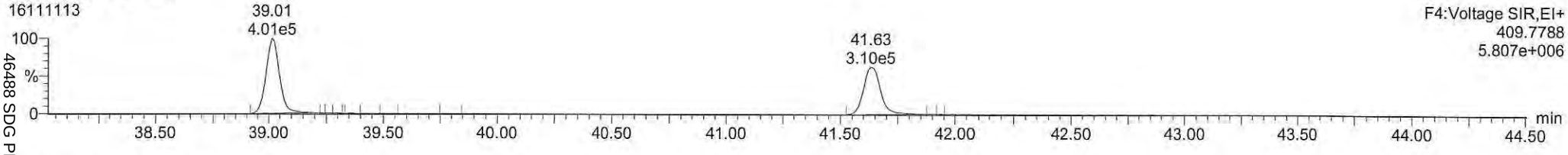
13C-1234678-HpCDF



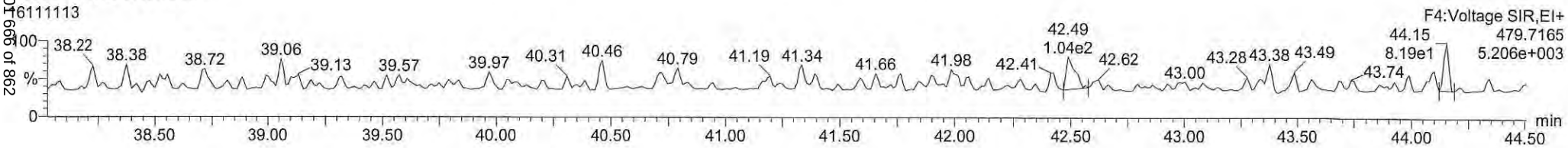
Total-heptafurans



Total-heptafurans

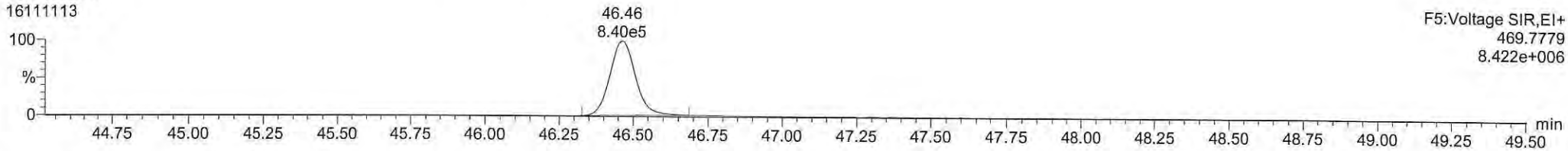


FUNCTION4 NCDPE

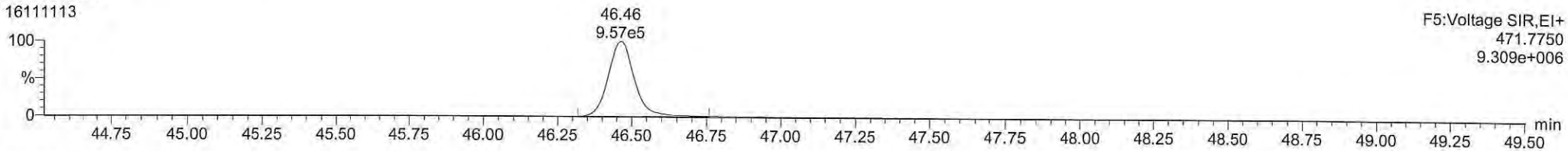


ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

13C-OCDD



13C-OCDD



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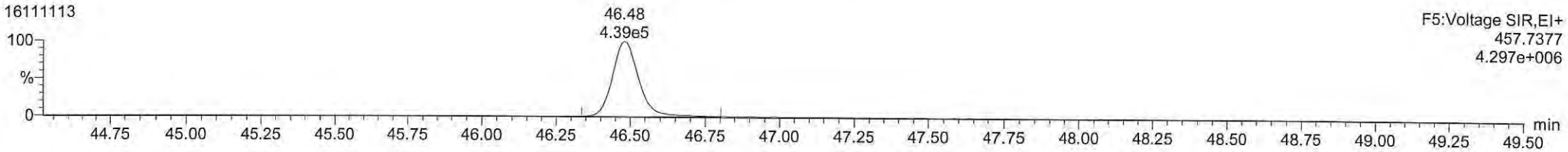
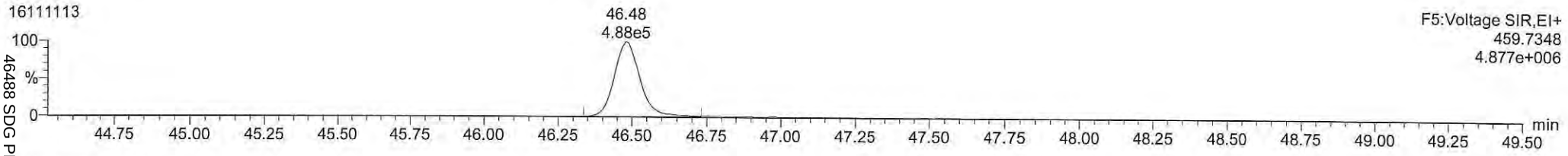
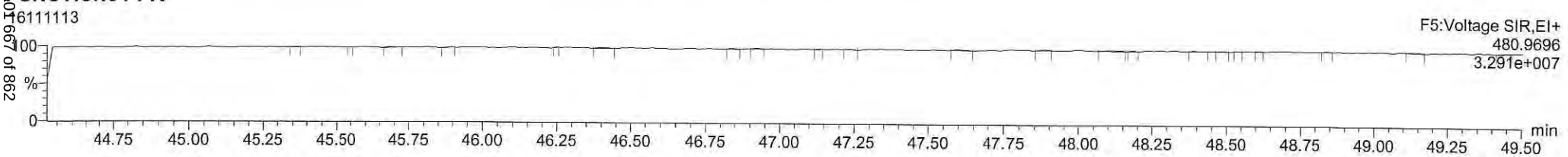


OCDD



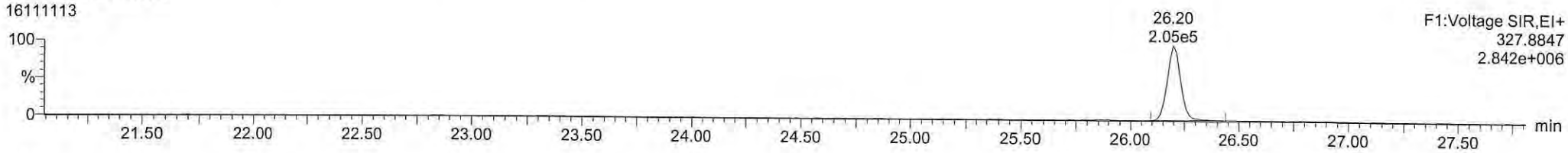
FUNCTION5 PFK



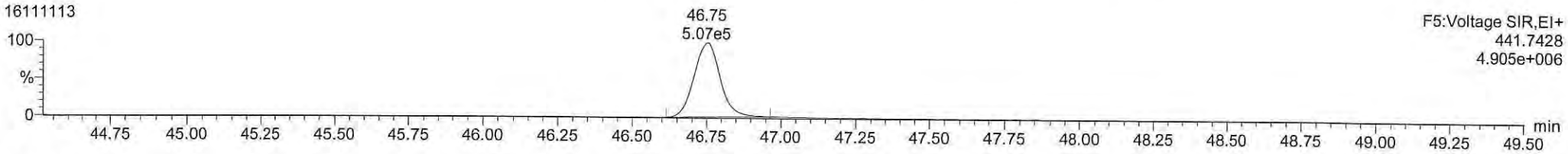
Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161111DATA.qld
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 11:19:48 Pacific Standard Time

ID: CS3D2, Name: 16111113, Date: 11-Nov-2016, Time: 22:18:29, Conditions: AUTOSPEC01, User: PK

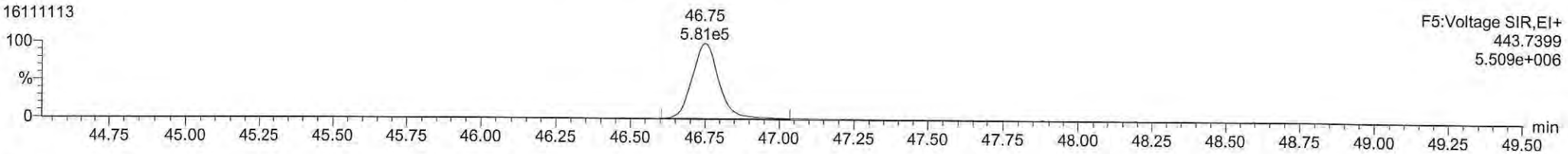
37CL-2378-TCDD



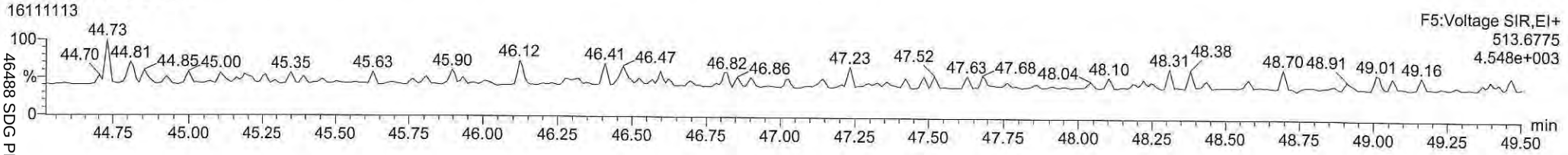
OCDF



OCDF

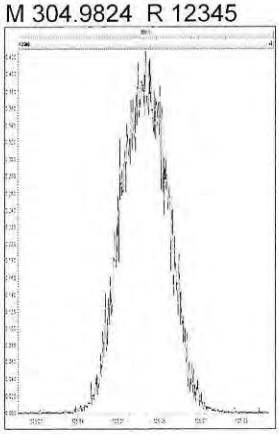


FUNCTION5 DCDPE

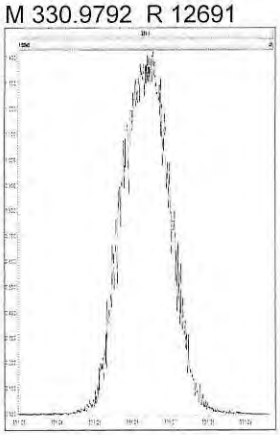


Printed: Friday, November 11, 2016 23:16:28 Pacific Standard Time

M 304.9824 R 12345



M 330.9792 R 12691



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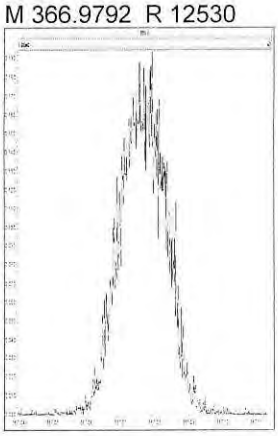
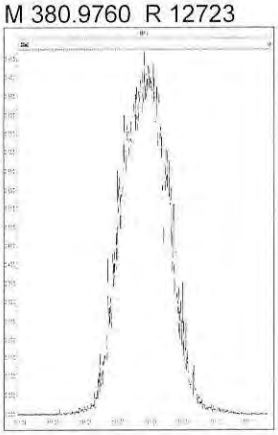
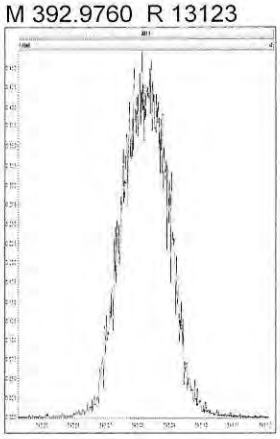


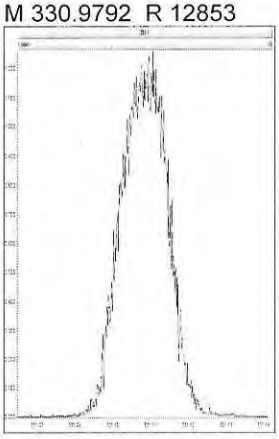
M 380.9760 R 12723



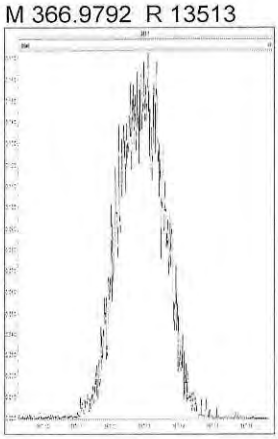
M 392.9760 R 13123



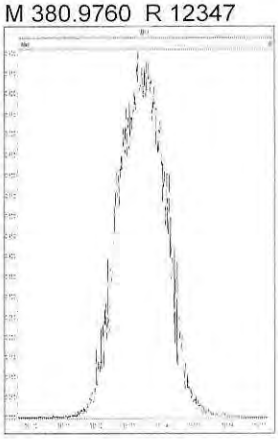
M 330.9792 R 12853



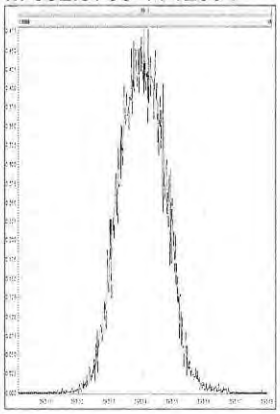
M 366.9792 R 13513



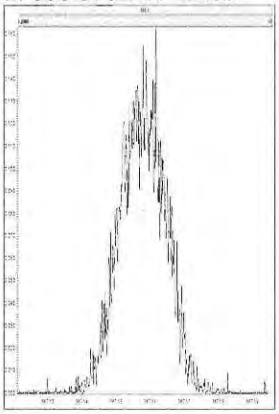
M 380.9760 R 12347



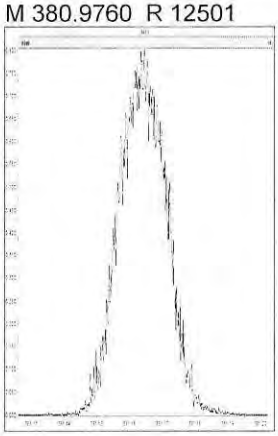
M 392.9760 R 12594



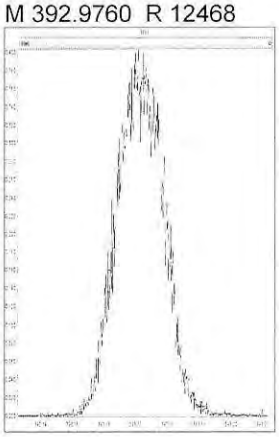
M 366.9792 R 13450



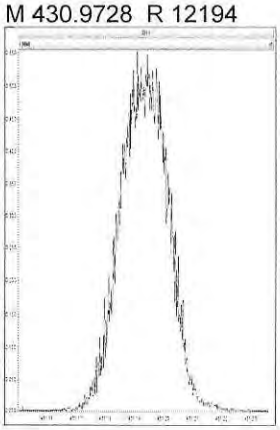
M 380.9760 R 12501



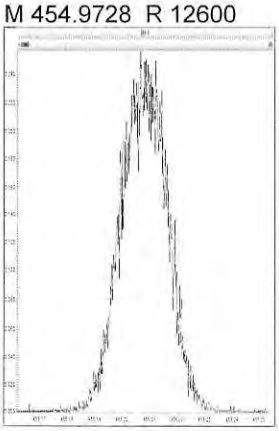
M 392.9760 R 12468



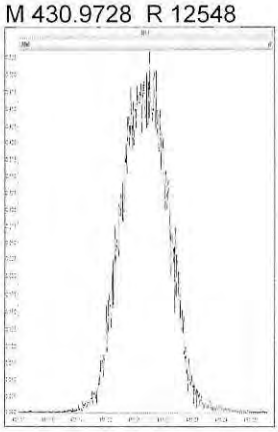
M 430.9728 R 12194



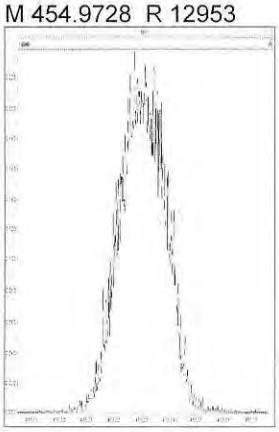
M 454.9728 R 12600

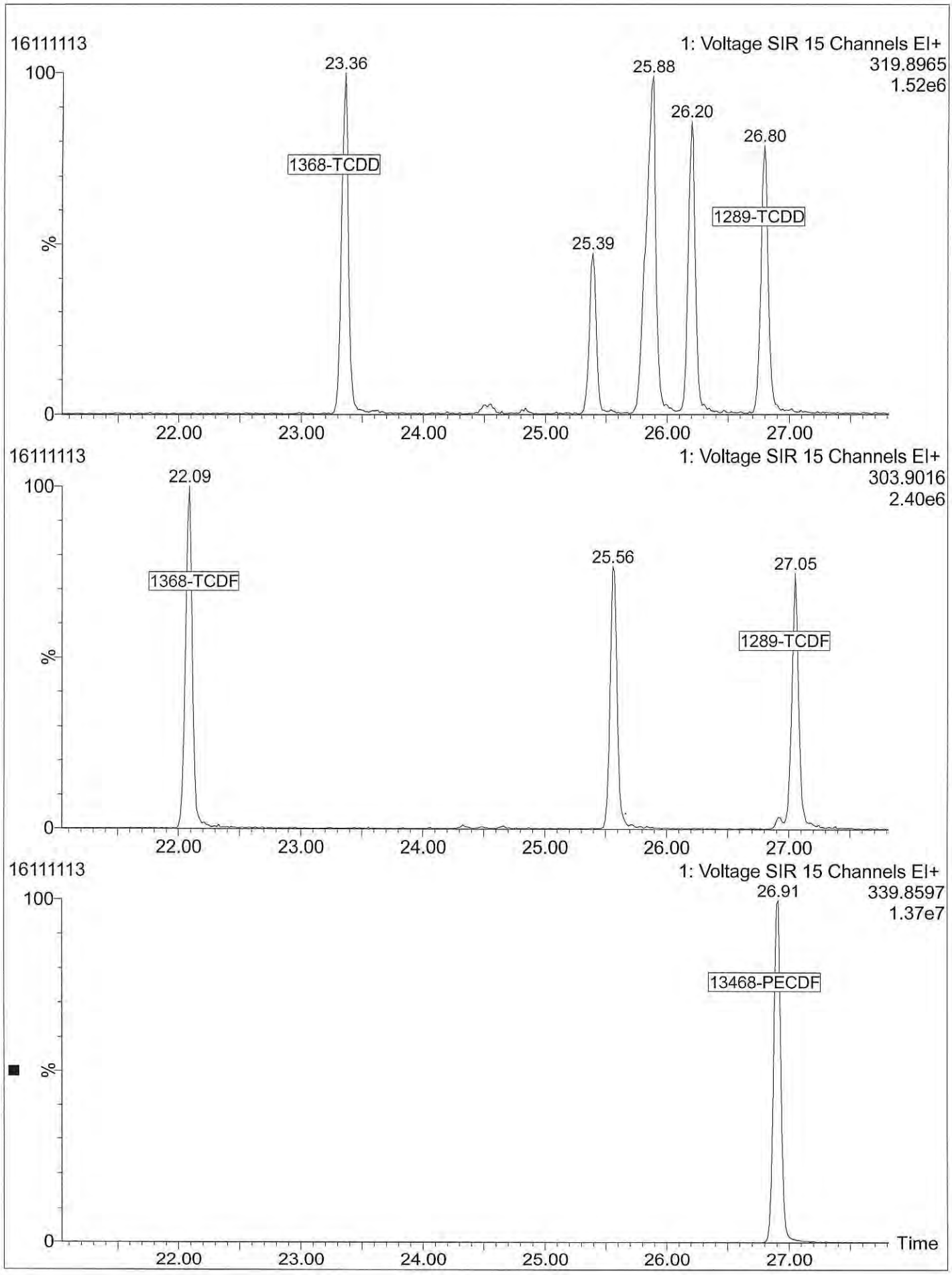


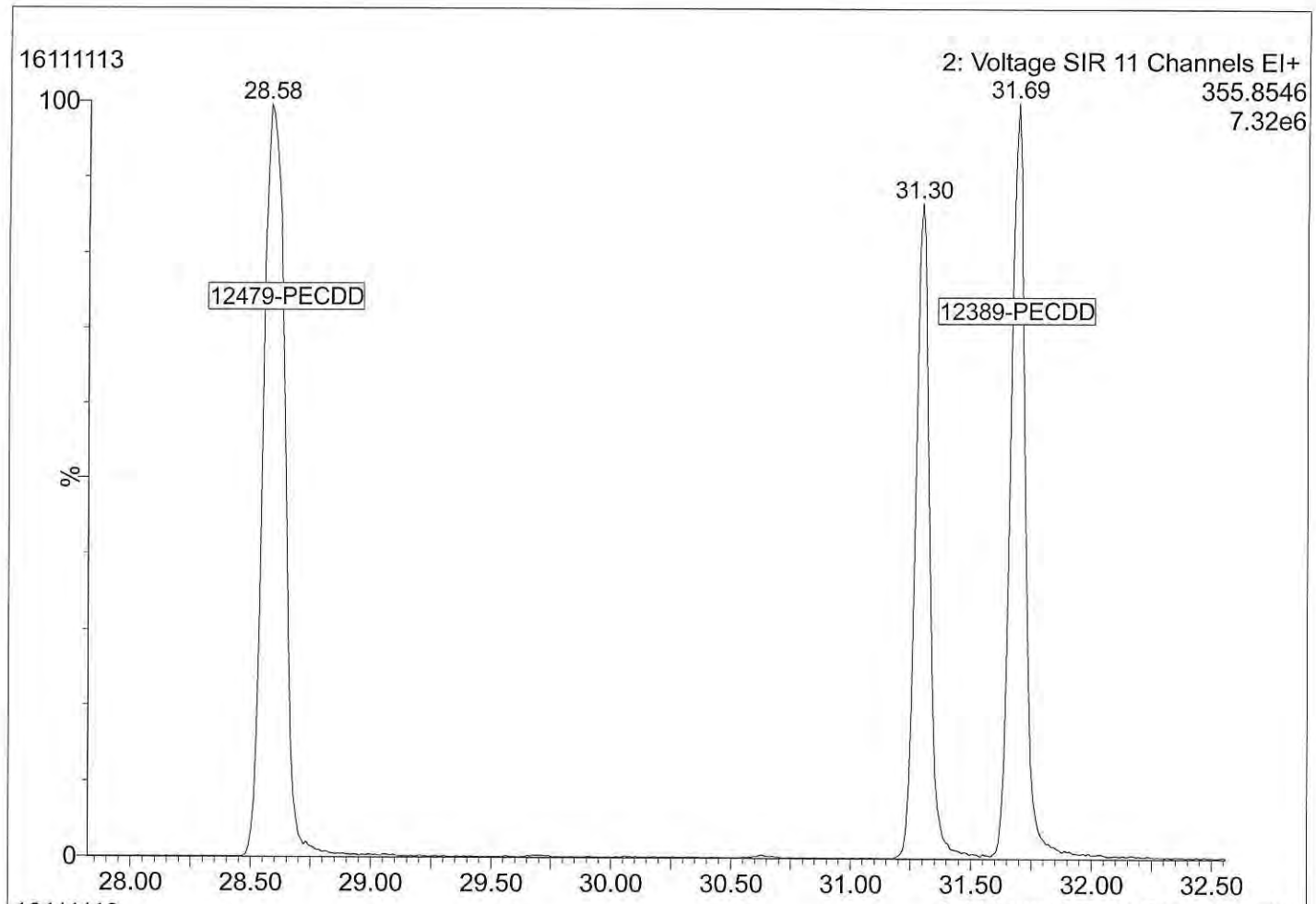
M 430.9728 R 12548

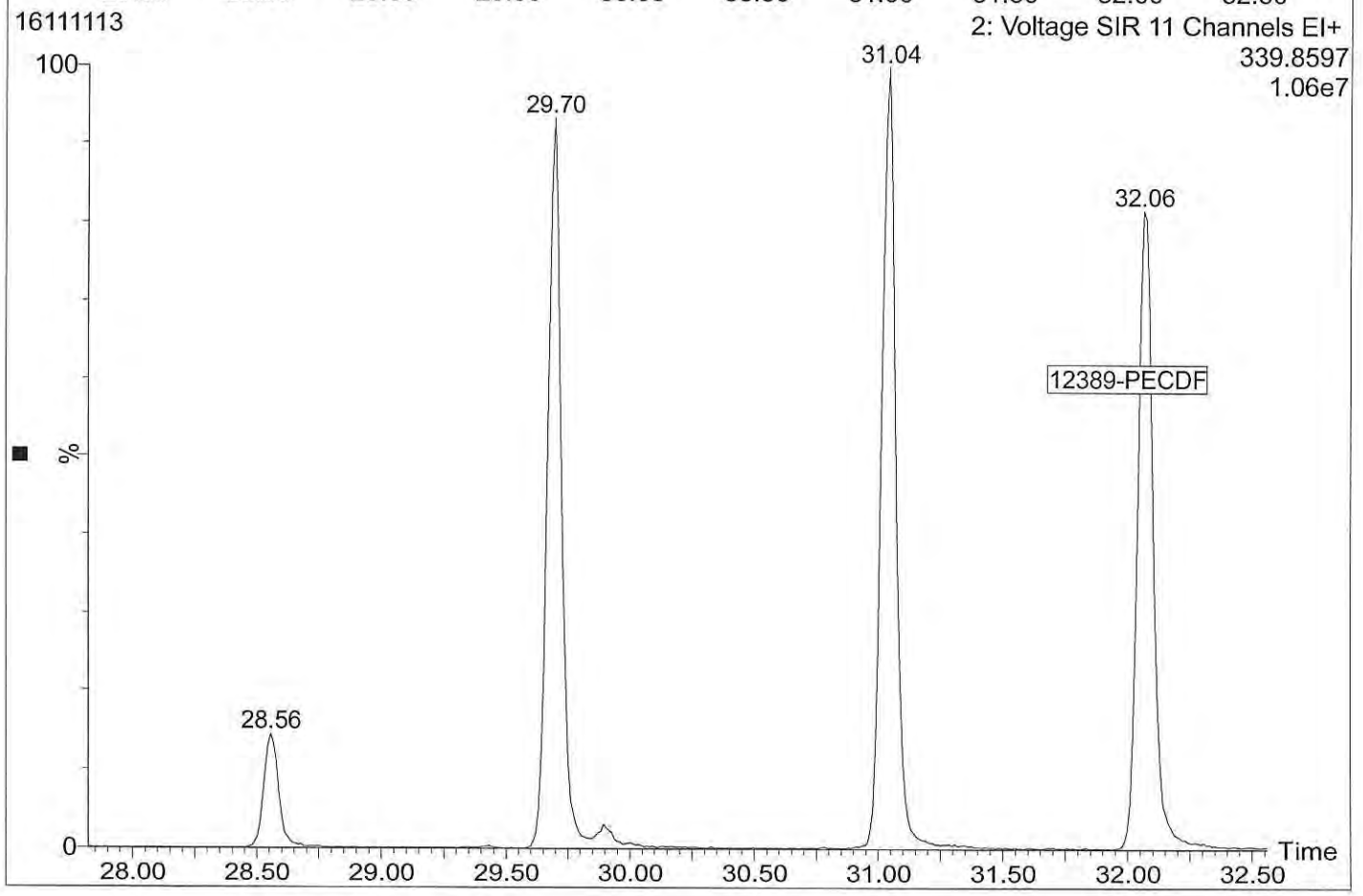


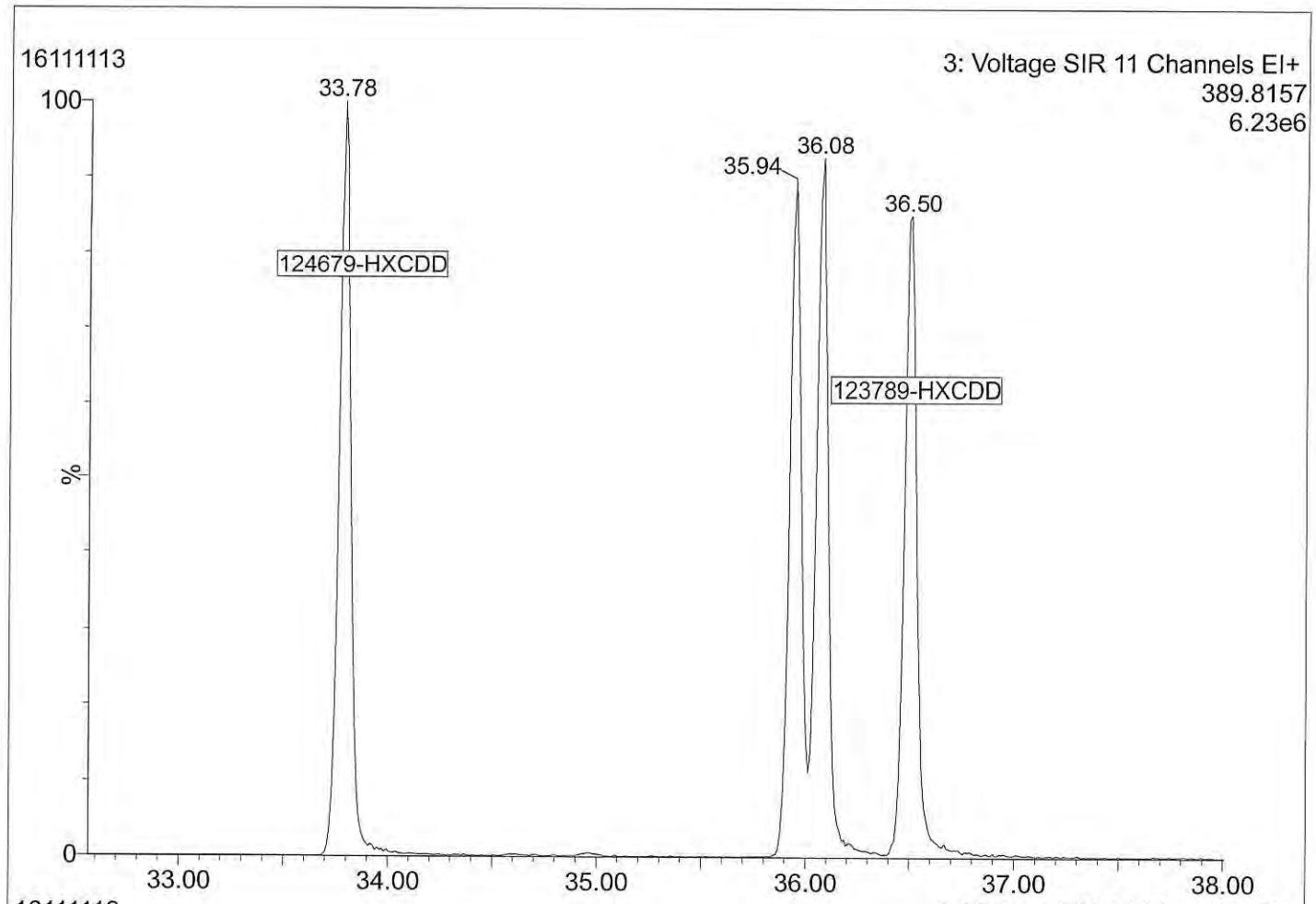
M 454.9728 R 12953

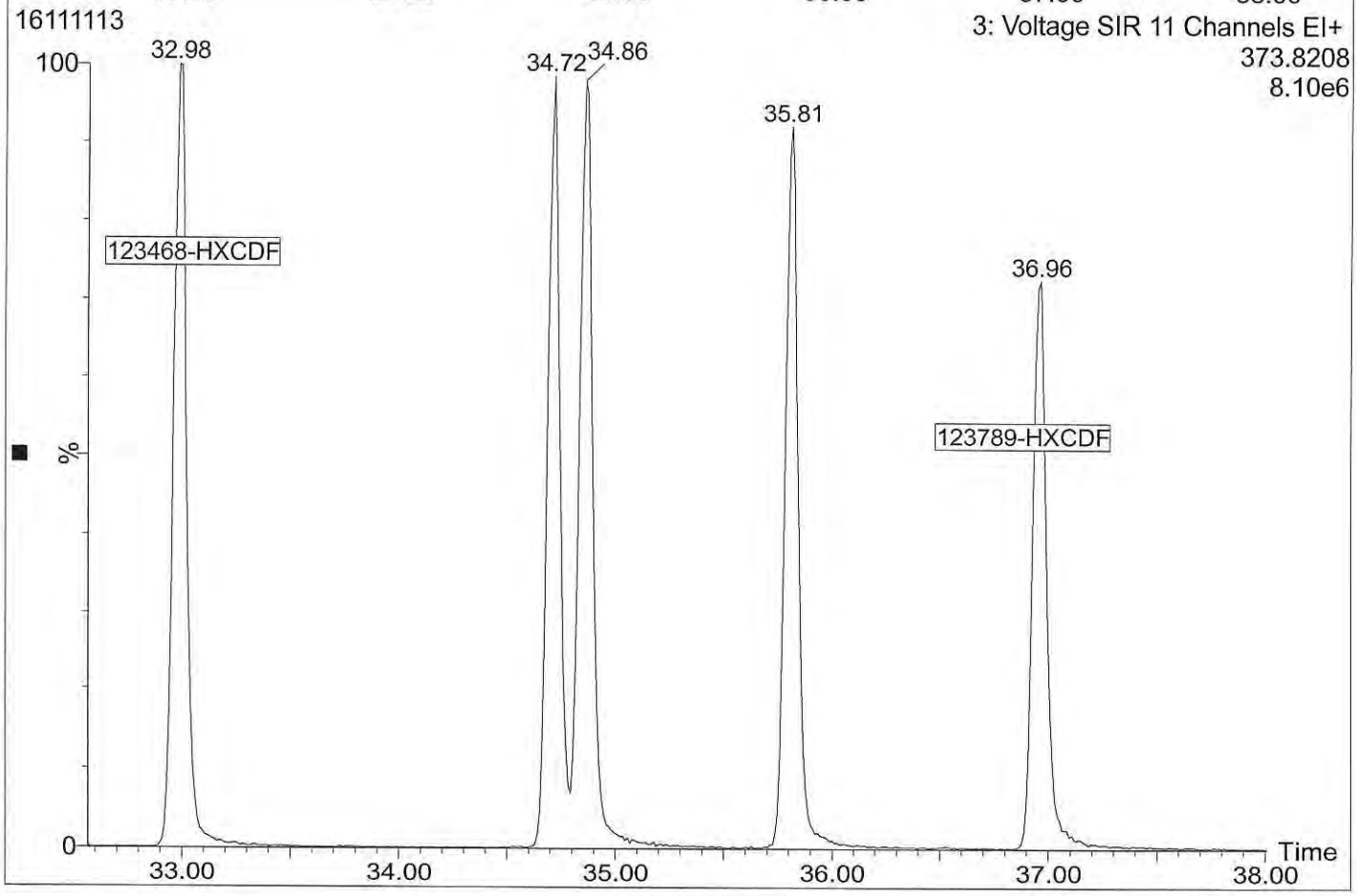


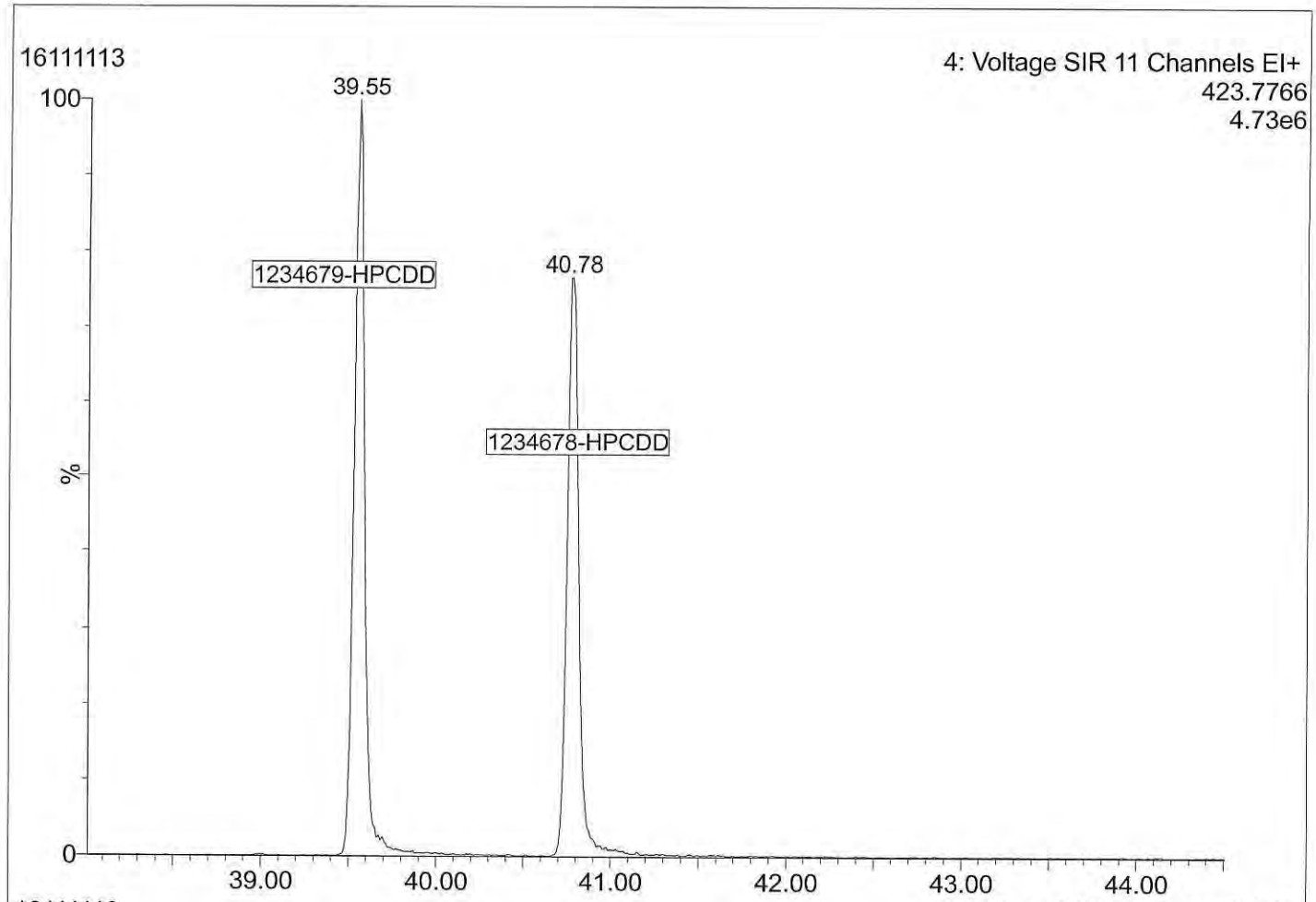

16111113
1: Voltage SIR 15 Channels EI+
319.8965
1.52e6
23.36
25.88
26.20
26.80
1368-TCDD
1289-TCDD
25.39
100
%
0
22.00
23.00
24.00
25.00
26.00
27.00
16111113
1: Voltage SIR 15 Channels EI+
303.9016
2.40e6
22.09
25.56
27.05
1368-TCDF
1289-TCDF
100
%
0
22.00
23.00
24.00
25.00
26.00
27.00
16111113
1: Voltage SIR 15 Channels EI+
339.8597
1.37e7
26.91
13468-PECDF
100
%
0
Time
22.00
23.00
24.00
25.00
26.00
27.00

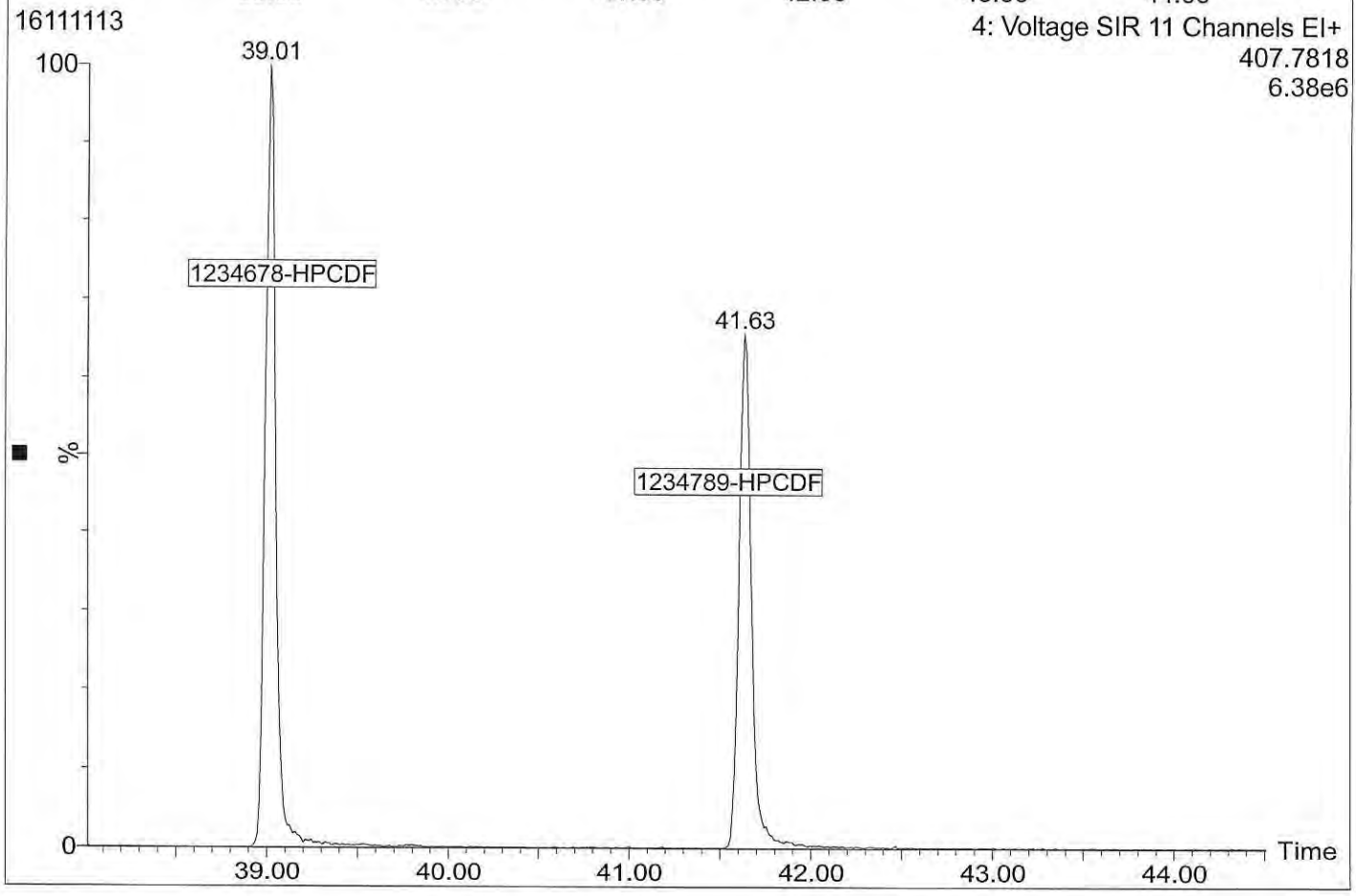

16111113
2: Voltage SIR 11 Channels EI+
355.8546
7.32e6
100
%
0
28.58
31.30
31.69
12479-PECDD
12389-PECDD
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

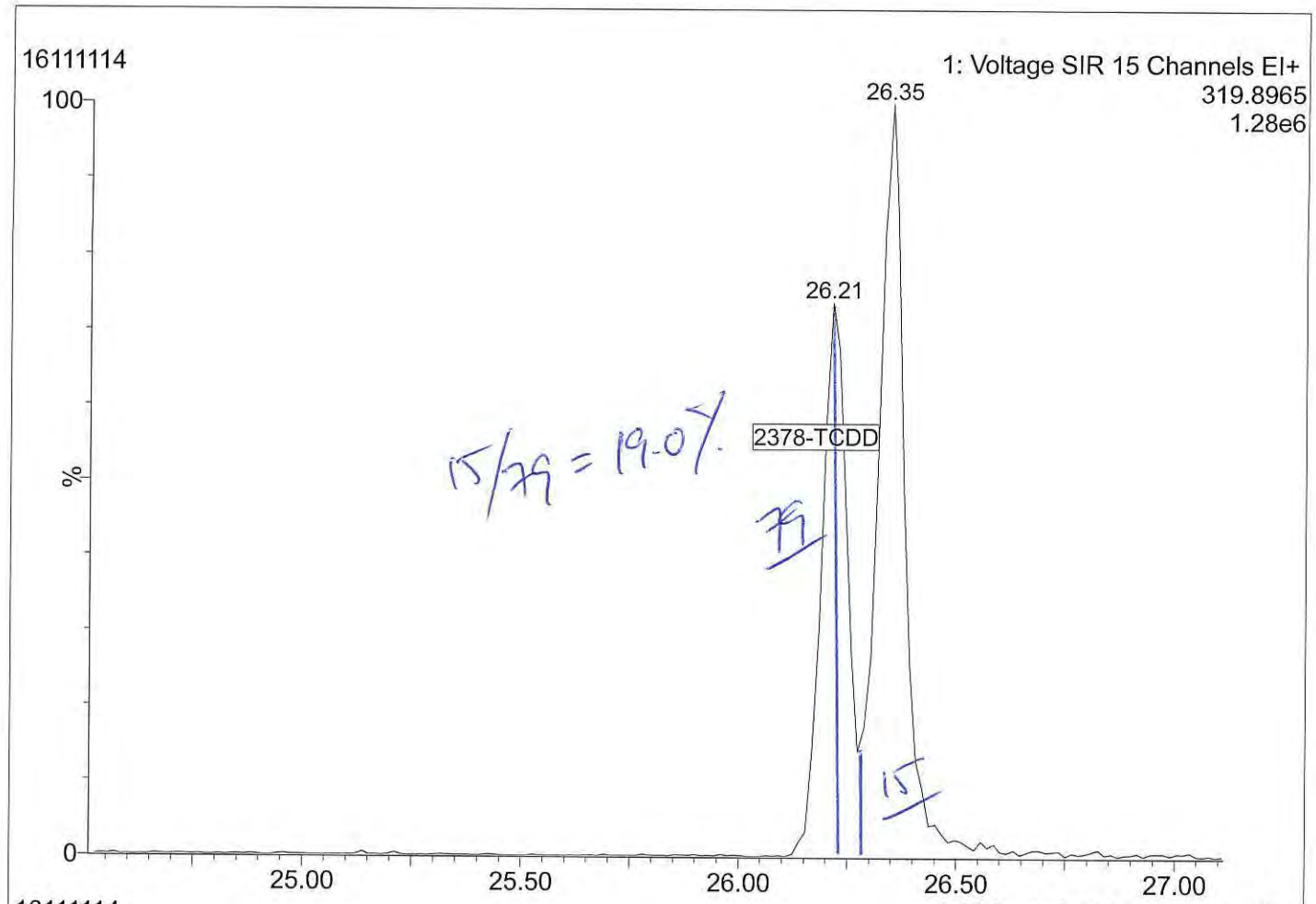

16111113
2: Voltage SIR 11 Channels EI+
339.8597
1.06e7
100
%
0
28.56
29.70
31.04
32.06
12389-PECDF
Time
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

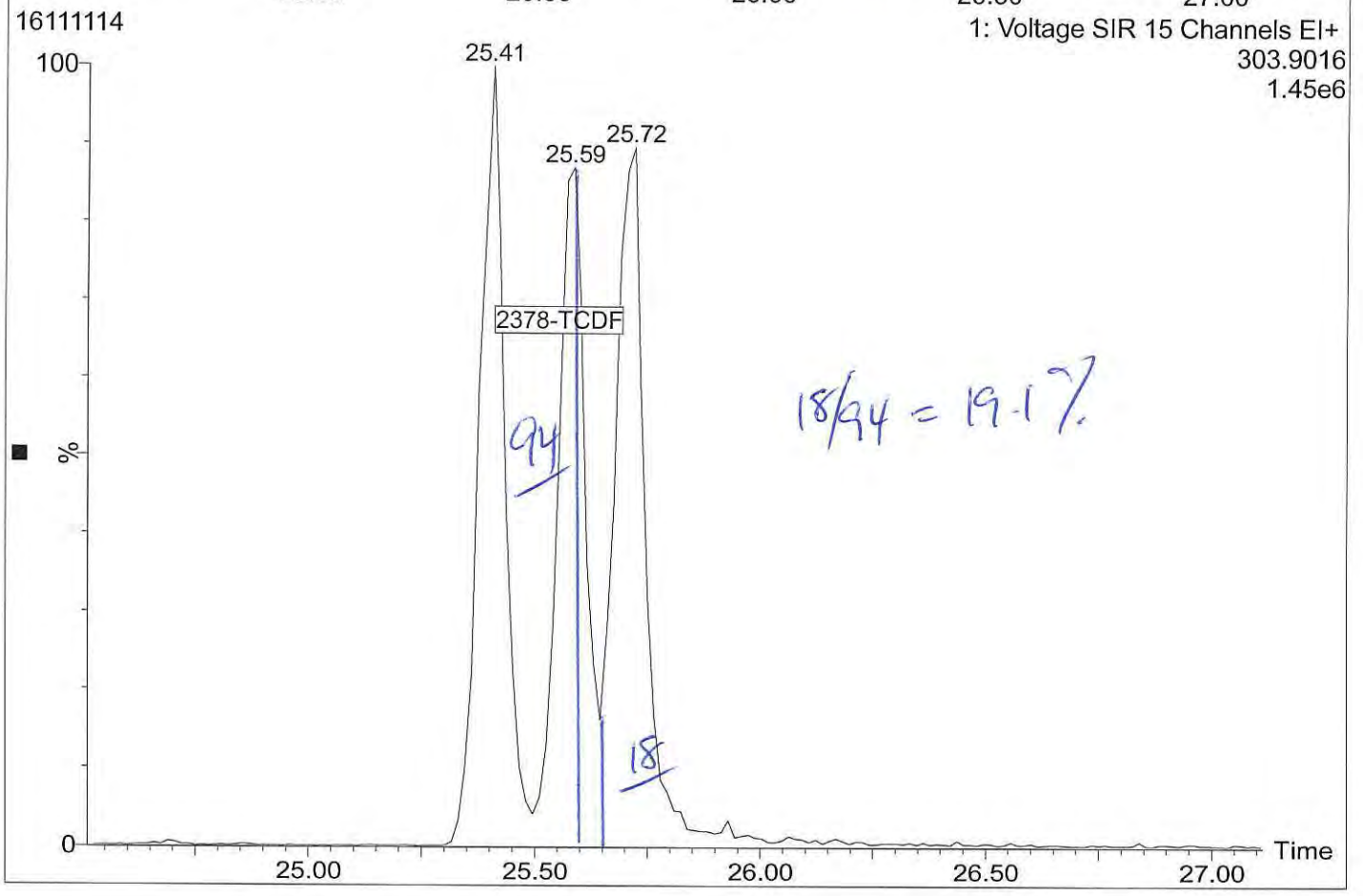

16111113
3: Voltage SIR 11 Channels EI+
389.8157
6.23e6
100
%
0
33.78
35.94
36.08
36.50
124679-HXCDD
123789-HXCDD
33.00
34.00
35.00
36.00
37.00
38.00


16111113
3: Voltage SIR 11 Channels EI+
373.8208
8.10e6
100
%
0
32.98
34.72
34.86
35.81
36.96
123468-HXCDF
123789-HXCDF
Time
33.00
34.00
35.00
36.00
37.00
38.00


16111113
4: Voltage SIR 11 Channels EI+
423.7766
4.73e6
100
%
0
39.55
1234679-HPCDD
40.78
1234678-HPCDD
39.00
40.00
41.00
42.00
43.00
44.00


16111113
4: Voltage SIR 11 Channels EI+
407.7818
6.38e6
100
%
0
39.01
1234678-HPCDF
41.63
1234789-HPCDF
Time
39.00
40.00
41.00
42.00
43.00
44.00


16111114
1: Voltage SIR 15 Channels EI+
319.8965
1.28e6
100
%
0
26.35
26.21
2378-TCDD
15/79 = 19.0%
79
15
25.00
25.50
26.00
26.50
27.00


16111114
1: Voltage SIR 15 Channels EI+
303.9016
1.45e6
100
%
0
25.41
25.59
25.72
2378-TCDF
94
18
18/94 = 19.1%
Time
25.00
25.50
26.00
26.50
27.00

FORM 7A-HR

RELATIVE RESPONSE/RELATIVE RESPONSE FACTOR -CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3E1

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/14/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 10:49

Analytical Method: CDD/CDF

CL No.	Analyte Name	RR/RRF	Mean RR/RRF	% D	IAR	IAR QC Limits
4	2,3,7,8-TCDD	1.144798	1.133965	1.0	0.76	0.655-0.886
5	1,2,3,7,8-PeCDD	0.9934363	0.9753974	1.8	1.55	1.318-1.783
6	1,2,3,4,7,8-HxCDD	1.026249	1.031167	-0.5	1.25	1.054-1.426
6	1,2,3,6,7,8-HxCDD	0.9827542	0.9714371	1.2	1.21	1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.007237	0.9950452	1.2	1.24	1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.05721	1.028016	2.8	1.06	0.893-1.208
8	OCDD	1.045992	1.107021	-5.5	0.91	0.757-1.024
4	2,3,7,8-TCDF	0.9762199	0.9347915	4.4	0.77	0.655-0.886
5	1,2,3,7,8-PeCDF	0.9207639	0.9519161	-3.3	1.55	1.318-1.783
5	2,3,4,7,8-PeCDF	0.9779393	0.9629117	1.6	1.53	1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.154893	1.136547	1.6	1.26	1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.137699	1.098742	3.5	1.26	1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.107114	1.100821	0.6	1.24	1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.182883	1.163504	1.7	1.24	1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	1.228488	1.302789	-5.7	1.04	0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.238187	1.317361	-6.0	1.01	0.893-1.208
8	OCDF	1.197053	1.165807	2.7	0.88	0.757-1.024
4	13C12-2,3,7,8-TCDF	1	1.567419	-36.2	0.79	0.655-0.886
4	13C12-2,3,7,8-TCDD	1	0.9077481	10.2	0.80	0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1	1.274097	-21.5	1.55	1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1	1.234626	-19.0	1.57	1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1	0.7557554	32.3	1.56	1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	1	1.380919	-27.6	0.51	0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	1	1.569453	-36.3	0.52	0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	1	1.34533	-25.7	0.52	0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	1	1.182895	-15.5	0.53	0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1	1.055904	-5.3	1.27	1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1	1.163036	-14.0	1.23	1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	1	1.178362	-15.1	0.45	0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	1	0.8777992	13.9	0.44	0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1	0.9091061	10.0	1.03	0.893-1.208
8	13C12-OCDD	1	0.8195753	22.0	0.91	0.757-1.024
4	37C14-2,3,7,8-TCDD	1.09475	1.066558	2.6		N/A
4	13C12-1,2,3,4-TCDD	19693.71	1	969,271	0.80	0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	14872.92	1	487,192	1.25	1.05-1.43

FORM 7B-HR
RELATIVE RETENTION TIME CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3E1

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/14/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 10:49

Analytical Method: CDD/CDF

CL No.	Analyte Name	Mean RRT	RRT	RRT QC Limits
4	2,3,7,8-TCDD	0.8331	1.0011	0.999-1.002
5	1,2,3,7,8-PeCDD	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDD	0.9999	1.0006	0.999-1.001
6	1,2,3,6,7,8-HxCDD	0.9999	1.0003	0.998-1.004
6	1,2,3,7,8,9-HxCDD	0.9999	1.0159	1.000-1.019
7	1,2,3,4,6,7,8-HpCDD	1.0000	1.0005	0.999-1.001
8	OCDD	0.9998	1.0006	0.999-1.001
4	2,3,7,8-TCDF	0.8330	1.0006	0.999-1.003
5	1,2,3,7,8-PeCDF	0.9997	1.0004	0.999-1.002
5	2,3,4,7,8-PeCDF	0.9997	1.0007	0.999-1.002
6	1,2,3,4,7,8-HxCDF	0.9999	1.0006	0.999-1.001
6	1,2,3,6,7,8-HxCDF	0.9997	1.0006	0.997-1.005
6	1,2,3,7,8,9-HxCDF	0.9999	1.0006	0.999-1.001
6	2,3,4,6,7,8-HxCDF	0.9998	1.0003	0.999-1.001
7	1,2,3,4,6,7,8-HpCDF	0.9999	1.0003	0.999-1.001
7	1,2,3,4,7,8,9-HpCDF	1.0000	1.0005	0.999-1.001
8	OCDF	0.9998	1.0062	0.999-1.008
4	13C12-2,3,7,8-TCDF	0.9995	1.0071	0.923-1.103
4	13C12-2,3,7,8-TCDD	0.9995	1.0318	0.976-1.043
5	13C12-1,2,3,7,8-PeCDF	0.9999	1.1698	1.000-1.425
5	13C12-2,3,4,7,8-PeCDF	0.9998	1.2225	1.011-1.526
5	13C12-1,2,3,7,8-PeCDD	0.9995	1.2325	1.000-1.567
6	13C12-1,2,3,4,7,8-HxCDF	0.9997	0.9510	0.944-0.970
6	13C12-1,2,3,6,7,8-HxCDF	0.9998	0.9549	0.949-0.975
6	13C12-2,3,4,6,7,8-HxCDF	0.9999	0.9811	0.959-1.021
6	13C12-1,2,3,7,8,9-HxCDF	1.0000	1.0123	0.977-1.047
6	13C12-1,2,3,4,7,8-HxCDD	0.9998	0.9847	0.977-1.000
6	13C12-1,2,3,6,7,8-HxCDD	0.9999	0.9883	0.981-1.003
7	13C12-1,2,3,4,6,7,8-HpCDF	1.0000	1.0688	1.043-1.085
7	13C12-1,2,3,4,7,8,9-HpCDF	0.9999	1.1403	1.057-1.151
7	13C12-1,2,3,4,6,7,8-HpCDD	1.0001	1.1169	1.086-1.110
8	13C12-OCDD	1.0000	1.2728	1.032-1.311
4	37C14-2,3,7,8-TCDD	0.9995	1.0330	0.989-1.052
4	13C12-1,2,3,4-TCDD	0.9995	1.0000	
6	13C12-1,2,3,7,8,9-HxCDD	1.0000	1.0000	

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
Last Altered: Monday, November 14, 2016 12:49:55 Pacific Standard Time
Printed: Monday, November 14, 2016 12:50:22 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.570	1.001	1.32e5	1.71e5	0.935	0.771	0.770	1799	2099	1.85e6	2.41e6	1026.1	NO	10.443
12378-PeCDF	29.696	1.000	7.06e5	4.54e5	0.952	1.554	1.550	2908	3208	9.97e6	6.54e6	3429.5	NO	48.364
23478-PeCDF	31.044	1.001	7.69e5	5.03e5	0.963	1.528	1.550	2908	3208	1.14e7	7.40e6	3904.7	NO	50.780
123478-HxCDF	34.716	1.001	6.34e5	5.03e5	1.137	1.259	1.240	5252	6298	9.09e6	7.20e6	1730.3	NO	50.807
234678-HxCDF	35.801	1.000	6.28e5	5.05e5	1.164	1.244	1.240	5252	6298	9.04e6	7.38e6	1721.4	NO	50.833
123678-HxCDF	34.859	1.001	6.64e5	5.27e5	1.099	1.260	1.240	5252	6298	8.86e6	7.32e6	1686.9	NO	51.773
123789-HxCDF	36.952	1.001	5.06e5	4.09e5	1.101	1.237	1.240	5252	6298	7.13e6	5.83e6	1358.2	NO	50.286
1234678-HpCDF	39.001	1.000	4.96e5	4.75e5	1.303	1.045	1.050	3511	3024	7.14e6	7.07e6	2033.3	NO	47.148
1234789-HpCDF	41.621	1.001	3.88e5	3.84e5	1.317	1.012	1.050	3511	3024	5.02e6	4.92e6	1429.7	NO	46.995
OCDF	46.720	1.006	6.22e5	7.04e5	1.166	0.883	0.890	1816	2825	6.15e6	6.91e6	3387.7	NO	102.680
2378-TCDD	26.212	1.001	9.01e4	1.18e5	1.134	0.761	0.770	1723	2224	1.28e6	1.66e6	740.7	NO	10.096
12378-PeCDD	31.296	1.001	4.69e5	3.03e5	0.975	1.547	1.550	4675	1801	6.73e6	4.45e6	1439.5	NO	50.925
123478-HxCDD	35.944	1.001	4.50e5	3.60e5	1.031	1.249	1.240	4414	3106	6.65e6	5.29e6	1507.6	NO	49.762
123678-HxCDD	36.064	1.000	4.49e5	3.70e5	0.971	1.215	1.240	4414	3106	6.61e6	5.42e6	1496.8	NO	50.582
123789-HxCDD	36.492	1.012	4.41e5	3.54e5	0.947	1.244	1.240	4414	3106	6.47e6	5.11e6	1466.4	NO	51.772
1234678-HpCDD	40.766	1.001	3.47e5	3.29e5	1.028	1.055	1.050	2688	2474	4.62e6	4.42e6	1717.8	NO	51.420
OCDD	46.460	1.001	5.52e5	6.06e5	1.107	0.910	0.890	1838	2613	5.69e6	6.26e6	3094.5	NO	94.487
13C-2378-TCDF	25.555	1.007	1.36e6	1.74e6	1.567	0.785	0.770	6064	3811	1.93e7	2.47e7	3184.8	NO	100.477
13C-12378-PeCDF	29.685	1.170	1.53e6	9.86e5	1.274	1.555	1.550	3107	4082	2.18e7	1.40e7	7020.9	NO	100.409
13C-23478-PeCDF	31.022	1.223	1.59e6	1.01e6	1.235	1.571	1.550	3107	4082	2.34e7	1.51e7	7529.4	NO	107.052
13C-123478-HxCDF	34.694	0.951	6.67e5	1.30e6	1.381	0.512	0.510	3429	6585	9.52e6	1.86e7	2777.7	NO	95.915
13C-123678-HxCDF	34.836	0.955	7.20e5	1.37e6	1.569	0.525	0.510	3429	6585	1.00e7	1.90e7	2922.7	NO	89.686
13C-234678-HxCDF	35.790	0.981	6.58e5	1.26e6	1.345	0.524	0.510	3429	6585	9.47e6	1.82e7	2761.4	NO	95.697
13C-123789-HxCDF	36.930	1.012	5.71e5	1.08e6	1.183	0.528	0.510	3429	6585	8.11e6	1.54e7	2365.5	NO	93.929
13C-1234678-HpCDF	38.991	1.069	4.89e5	1.09e6	1.178	0.448	0.440	2917	4507	7.24e6	1.61e7	2481.6	NO	90.212
13C-1234789-HpCDF	41.599	1.140	3.82e5	8.65e5	0.878	0.442	0.440	2917	4507	4.92e6	1.09e7	1687.5	NO	95.551
13C-1234-TCDD	25.376	0.000	8.75e5	1.09e6	1.000	0.800	0.770	3722	1817	1.26e7	1.59e7	3379.6	NO	100.000
13C-2378-TCDD	26.183	1.032	8.07e5	1.01e6	0.908	0.797	0.770	3722	1817	1.12e7	1.43e7	3014.9	NO	101.832
13C-12378-PeCDD	31.274	1.232	9.49e5	6.07e5	0.756	1.564	1.550	1986	1545	1.37e7	8.69e6	6920.7	NO	104.540
13C-123478-HxCDD	35.922	0.985	8.82e5	6.97e5	1.056	1.266	1.240	4124	2458	1.32e7	1.05e7	3199.8	NO	100.558
13C-123678-HxCDD	36.053	0.988	9.19e5	7.47e5	1.163	1.230	1.240	4124	2458	1.36e7	1.07e7	3295.5	NO	96.316
13C-1234678-HpCDD	40.744	1.117	6.48e5	6.30e5	0.909	1.028	1.050	2547	5763	8.92e6	8.58e6	3501.6	NO	94.525
13C-OCDD	46.433	1.273	1.06e6	1.16e6	0.820	0.913	0.890	2932	3343	1.07e7	1.18e7	3660.6	NO	181.730

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
Last Altered: Monday, November 14, 2016 12:49:55 Pacific Standard Time
Printed: Monday, November 14, 2016 12:50:22 Pacific Standard Time

ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

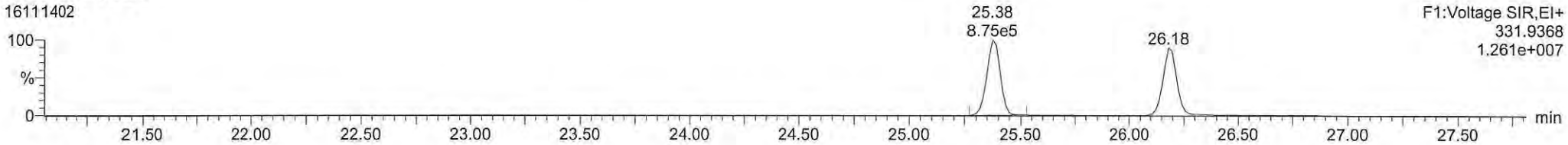
Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
13C-123789-HxCDD	36.481	0.000	8.26e5	6.61e5	1.000	1.249	1.240	4124	2458	1.20e7	9.56e6	2906.0	NO	100.000
Total-tetrafurans			4.25e5		0.935			1799		5.91e6				33.808
Total-penta1			9.68e5					735		1.36e7				68.267
Total-pentafurans			2.32e6		0.957			2908		3.33e7				155.739
Total-hexafurans			3.07e6		1.125			5252		4.34e7				257.049
Total-heptafurans			8.87e5		1.310			3511		1.22e7				94.405
Total-Furans			8.29e6		1.114			1799		1.15e8				711.948
Total-tetradioxins			4.87e5		1.134			1723		6.26e6				53.895
Total-pentadioxins			1.85e6		0.975			4675		2.28e7				200.651
Total-hexadioxins			1.82e6		0.983			4414		2.69e7				205.790
Total-heptadioxins			7.31e5		1.028			2688		1.01e7				109.024
Total-Dioxins			5.44e6		1.028			1723		7.18e7				663.848
Total-TEQ			1.37e7					1723		1.86e8				1375.795
37CL-2378-TCDD	26.212	1.033	2.16e5		1.067			1409		3.00e6		2128.3		10.264
FUNCTION1 PFK			6.48e5					421139		1.38e7				
FUNCTION2 PFK			1.45e5					145979		4.02e6				0.000
FUNCTION3 PFK			7.91e7					342220		4.39e7				0.000
FUNCTION4 PFK			4.37e5					295818		1.19e7				
FUNCTION5 PFK			2.90e5					209241		9.31e6				
FUNCTION1 HXCDPE			0.00e0					331		0.00e0				
FUNCTION1 HPCDPE			2.35e2					564		5.68e3				0.000
FUNCTION2 HPCDPE			1.06e3					888		2.12e4				0.000
FUNCTION3 OCDPE			0.00e0					421		0.00e0				
FUNCTION4 NCDPE			2.80e2					666		8.92e3				0.000
FUNCTION5 DCDPE			0.00e0					443		0.00e0				

Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
Last Altered: Monday, November 14, 2016 12:49:55 Pacific Standard Time
Printed: Monday, November 14, 2016 12:50:22 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 07 Oct 2016 13:10:52
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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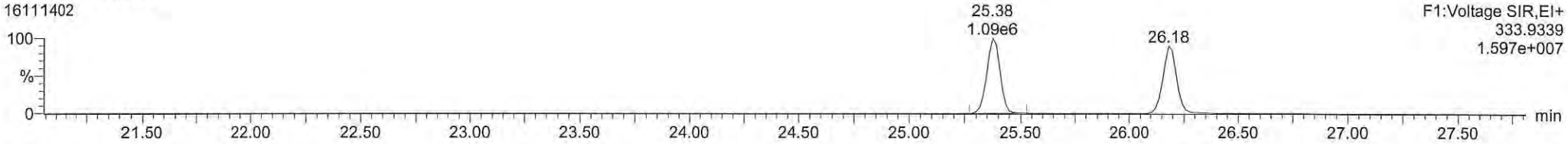

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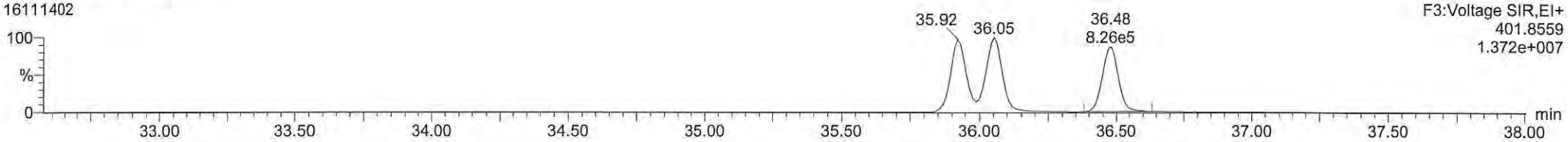

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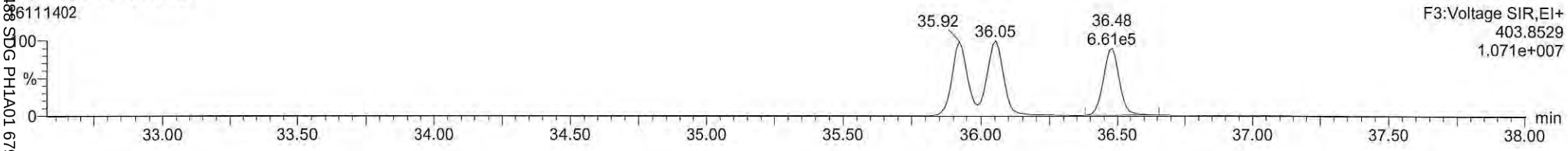

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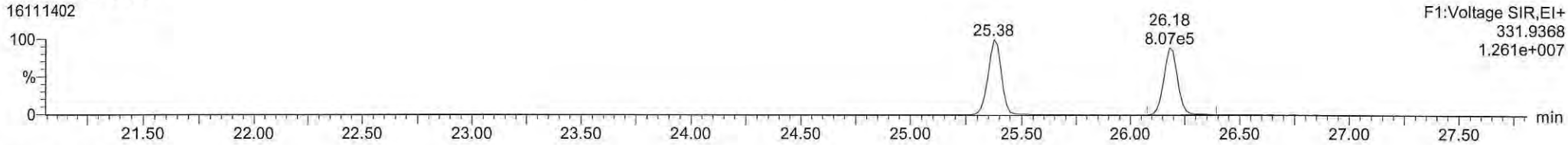
Last Altered: Monday, November 14, 2016 12:49:55 Pacific Standard Time
Printed: Monday, November 14, 2016 12:50:22 Pacific Standard Time

ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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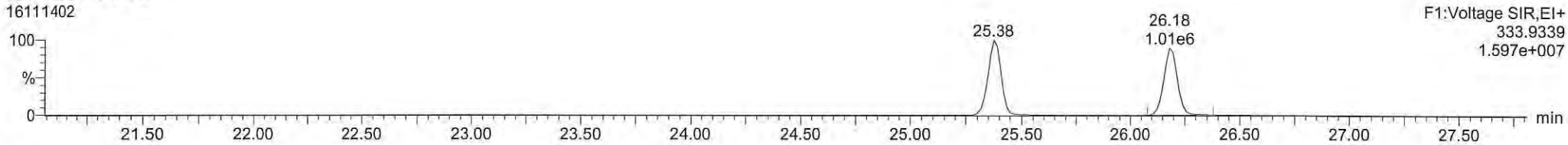
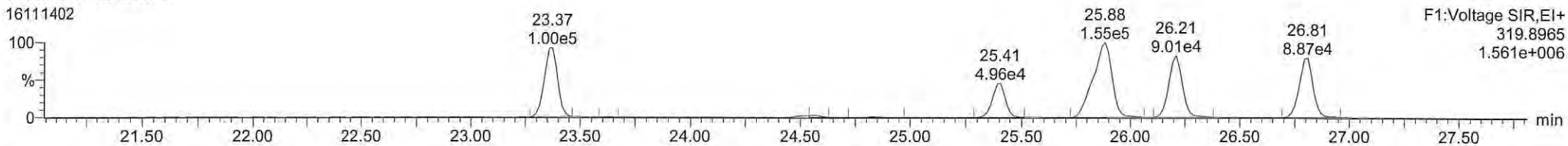
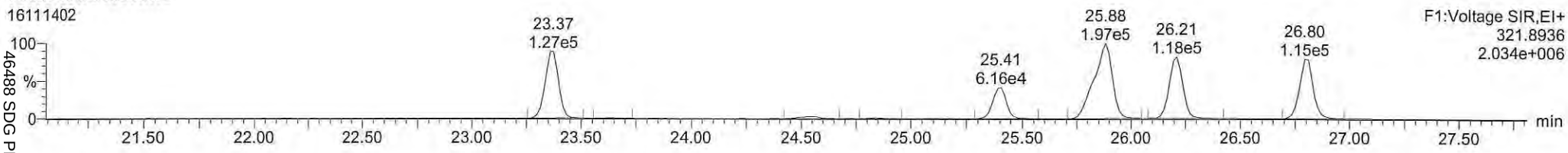


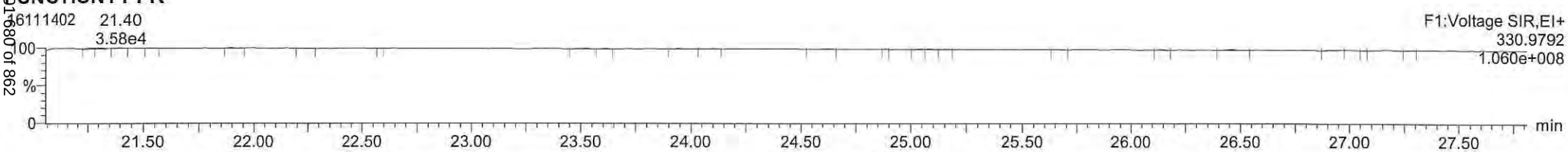
Total-tetradioxins



Total-tetradioxins



FUNCTION1 PFK



Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
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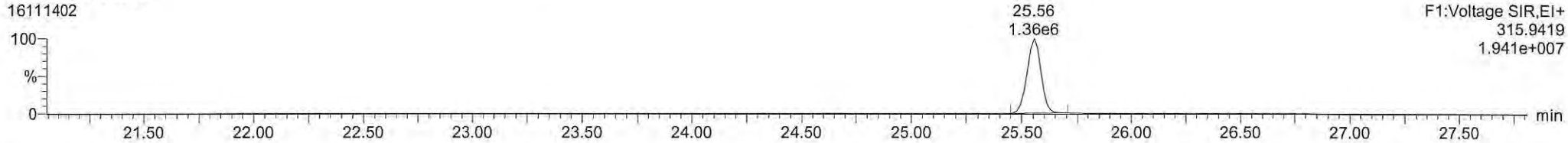
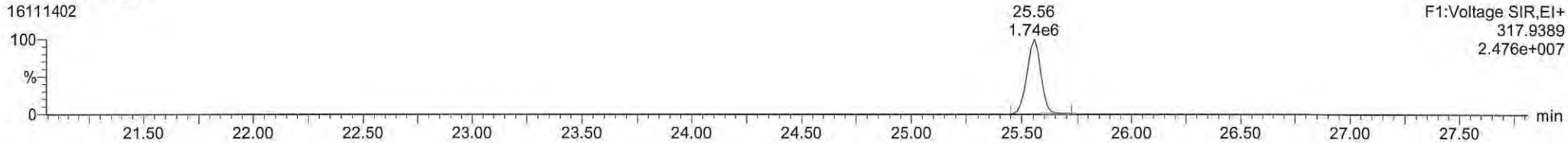
ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

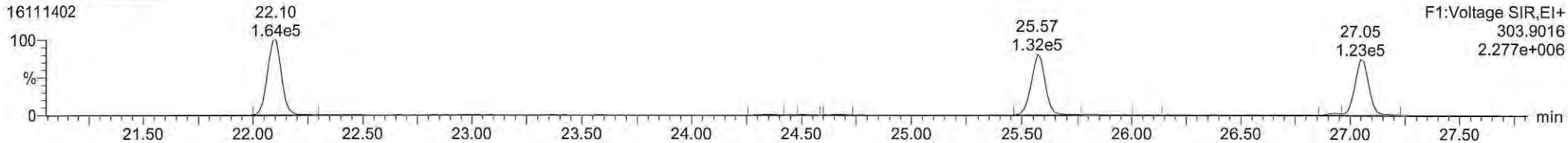
13C-2378-TCDF



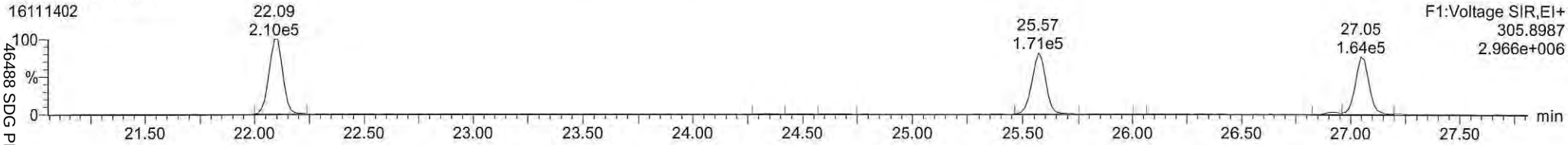
13C-2378-TCDF



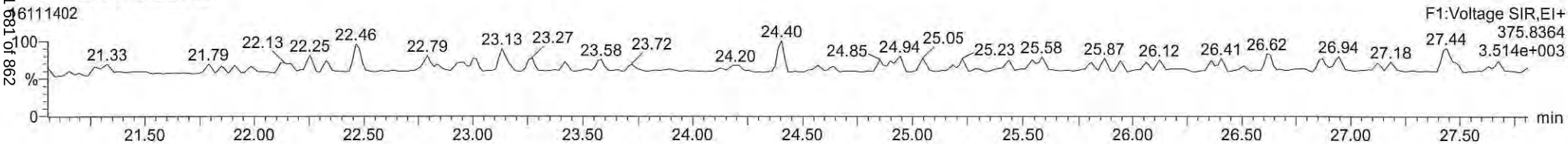
Total-tetrafurans



Total-tetrafurans



FUNCTION1 HXCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
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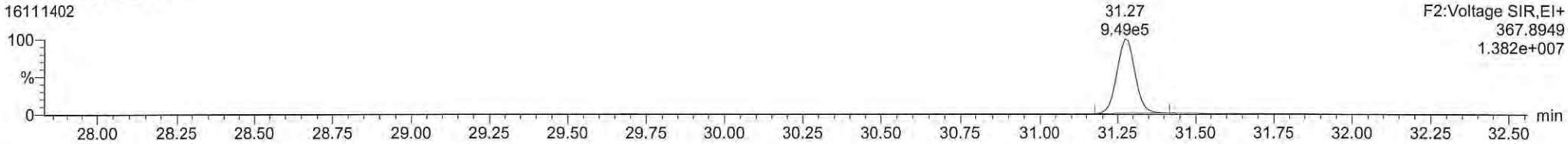
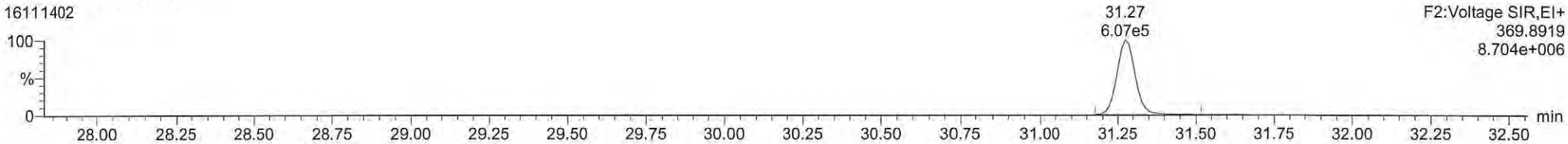
ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

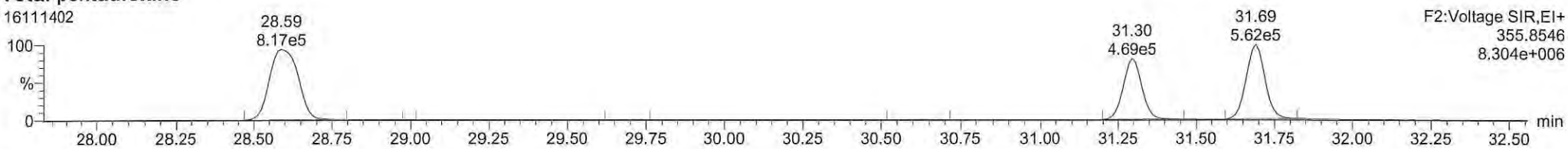
13C-12378-PeCDD



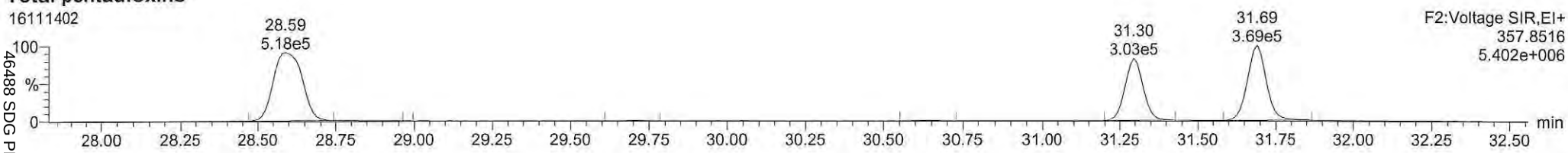
13C-12378-PeCDD



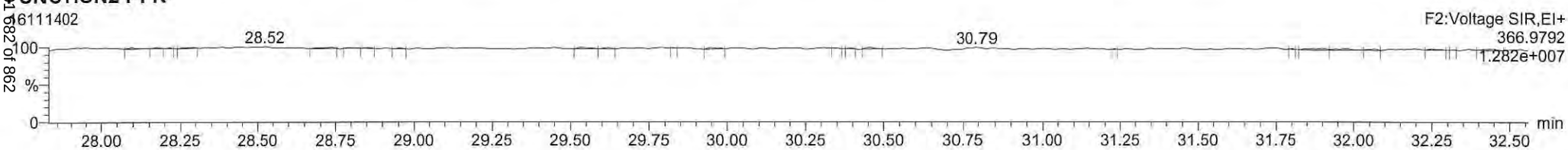
Total-pentadioxins



Total-pentadioxins



FUNCTION2 PFK



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Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
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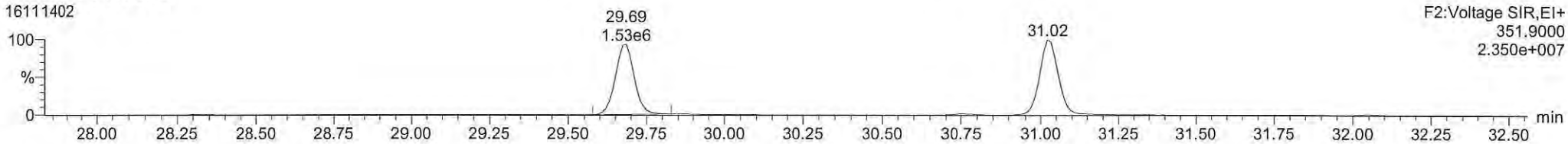
13C-12378-PeCDF



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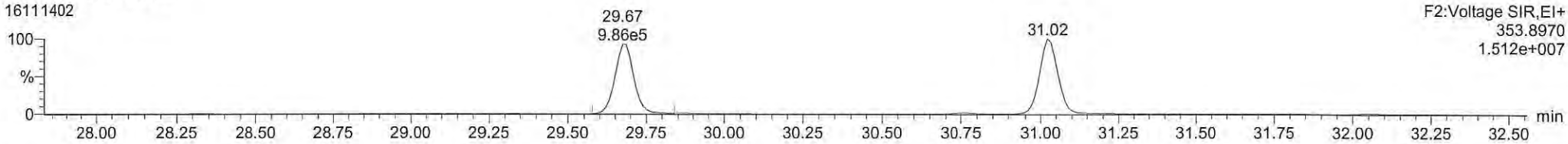

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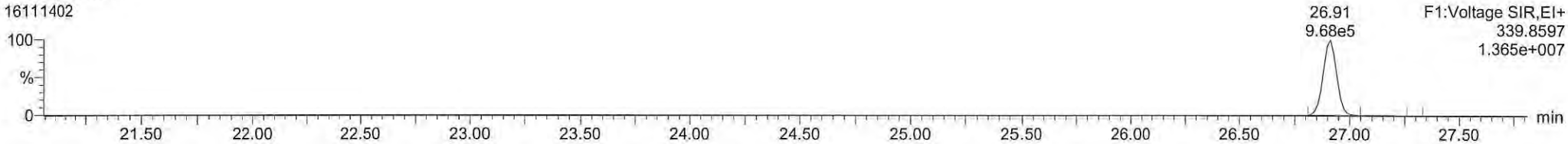
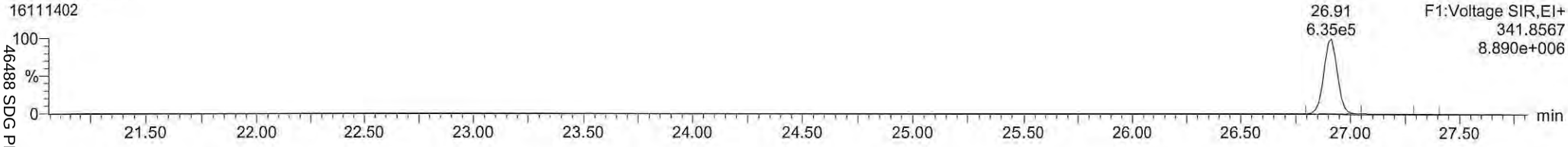
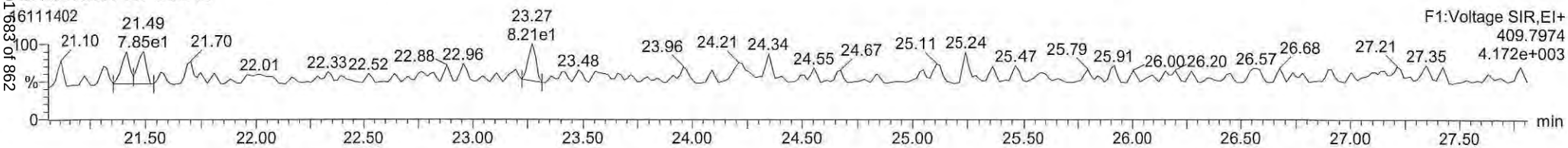


Total-penta1



FUNCTION1 HPCDPE



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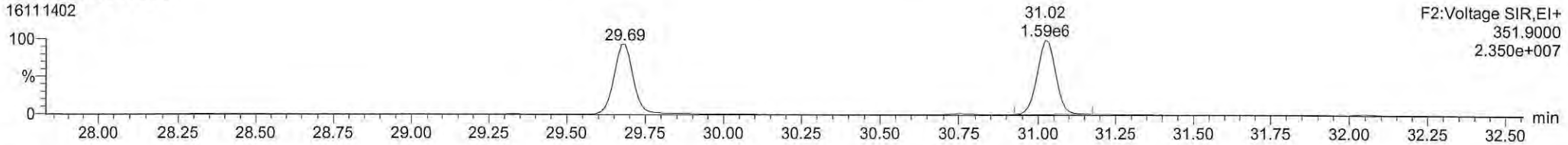
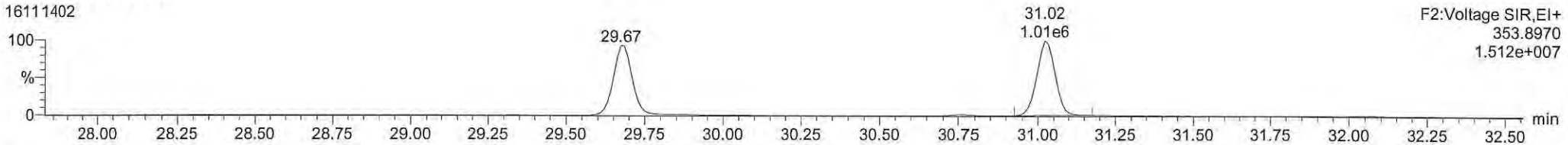
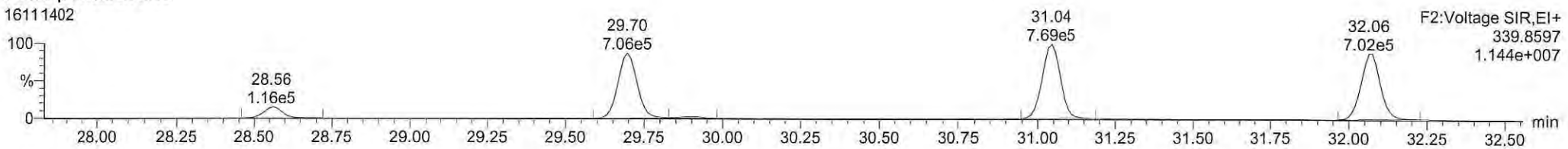
13C-23478-PeCDF



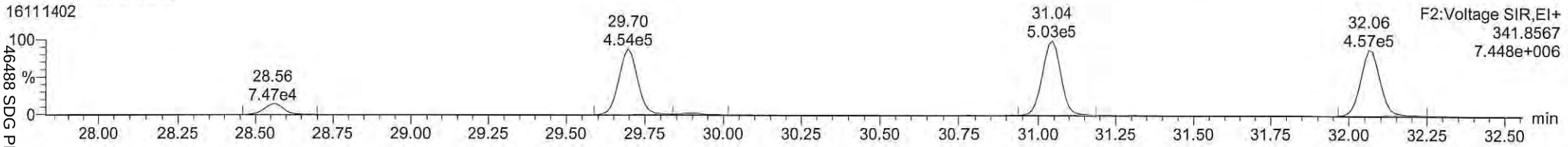
13C-23478-PeCDF



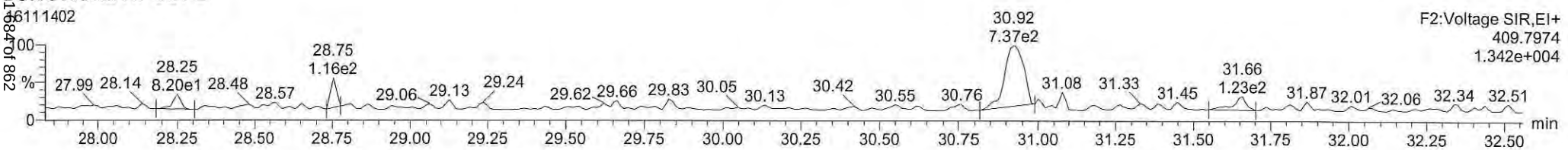
Total-pentafurans



Total-pentafurans



FUNCTION2 HPCDPE



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Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
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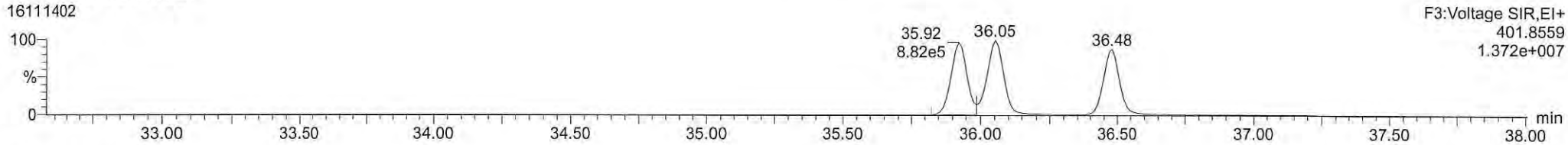
ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



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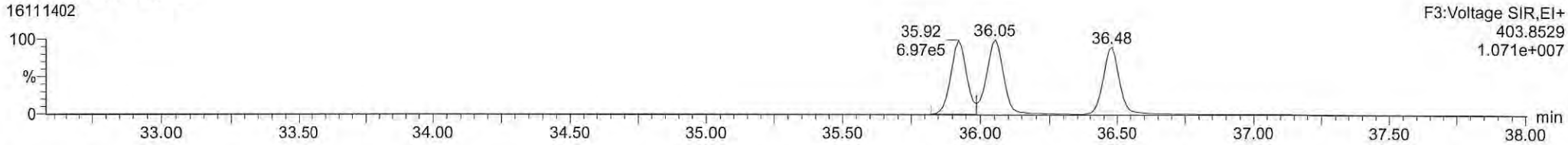
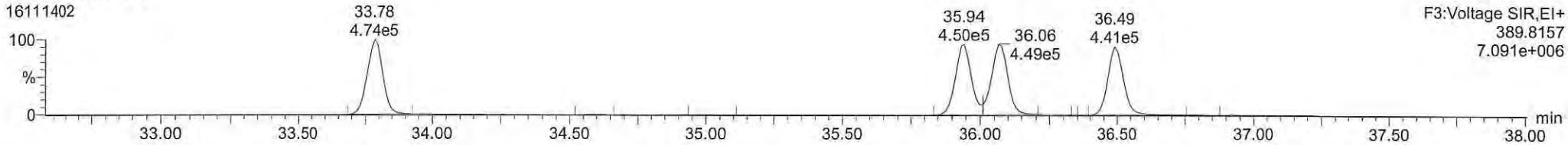
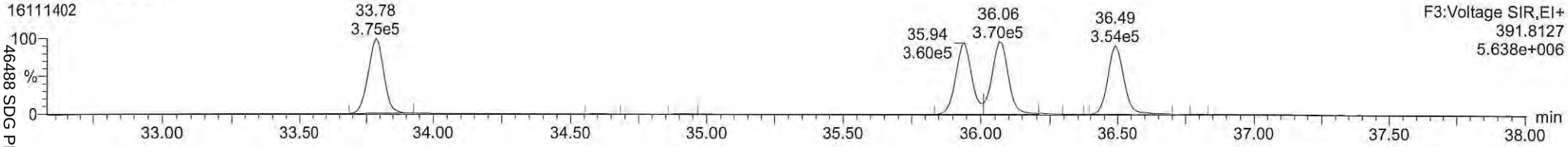


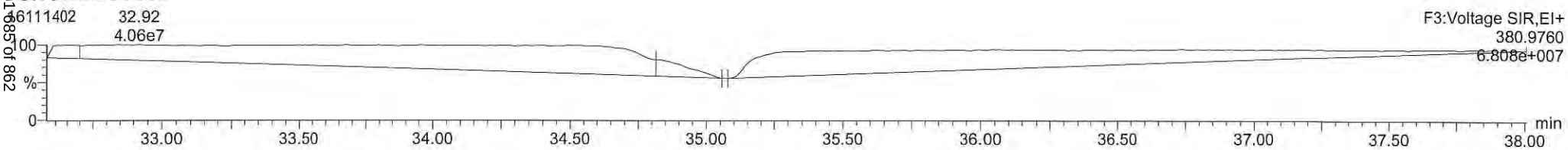
Total-hexadioxins



Total-hexadioxins



FUNCTION3 PFK



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Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
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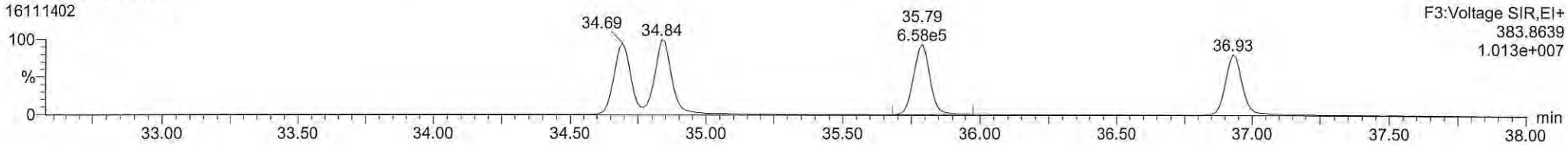
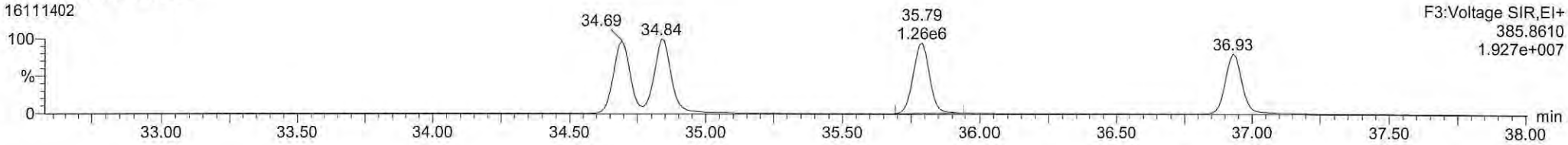
ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

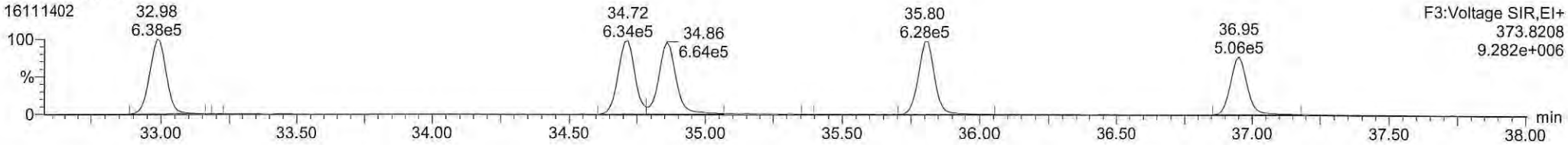
13C-234678-HxCDF



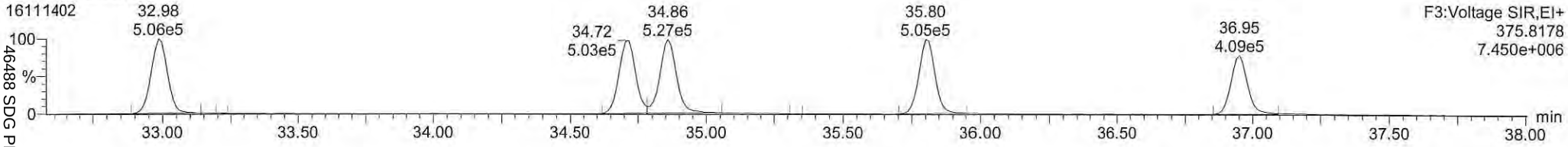
13C-234678-HxCDF



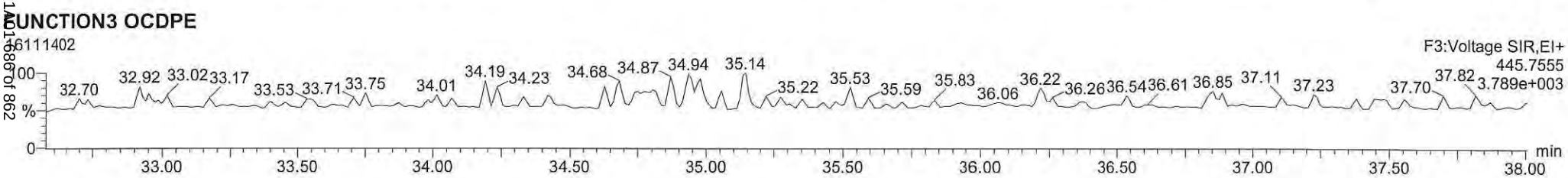
Total-hexafurans



Total-hexafurans



FUNCTION3 OCDPE



46488 SDG PH1A01-686 of 862

Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
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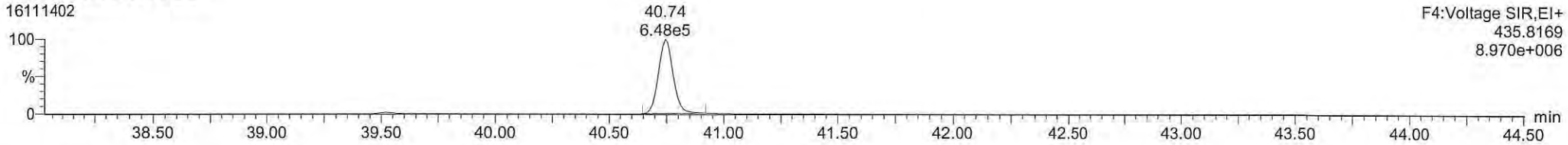
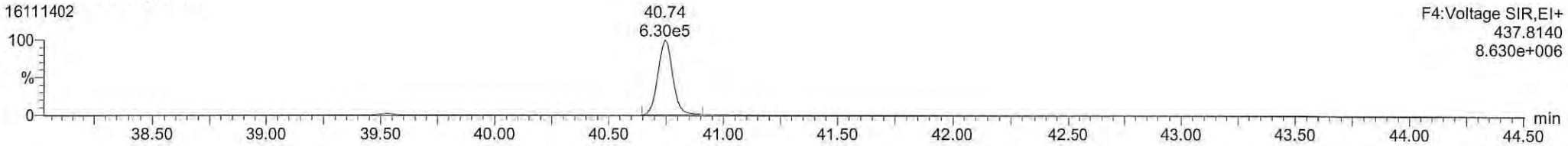
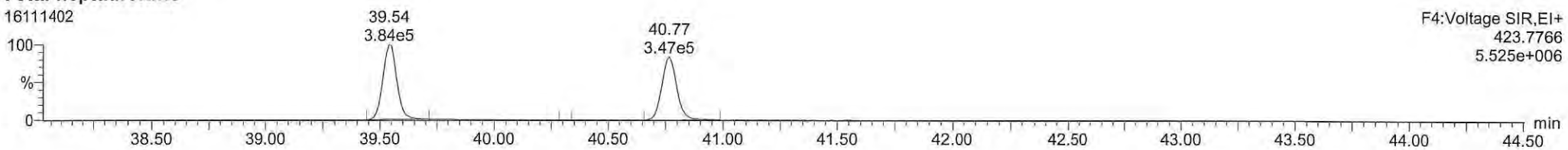
13C-1234678-HpCDD



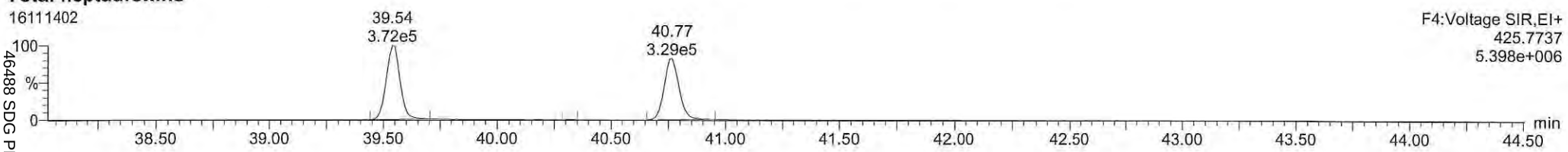
13C-1234678-HpCDD



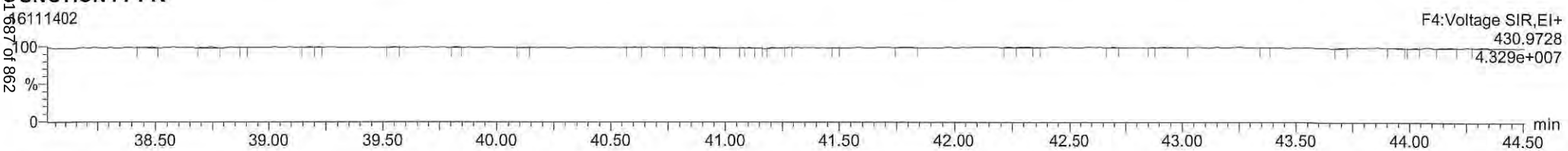
Total-heptadioxins



Total-heptadioxins



FUNCTION4 PFK



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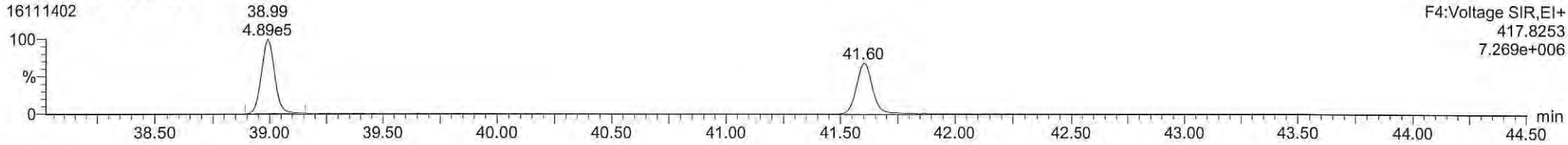
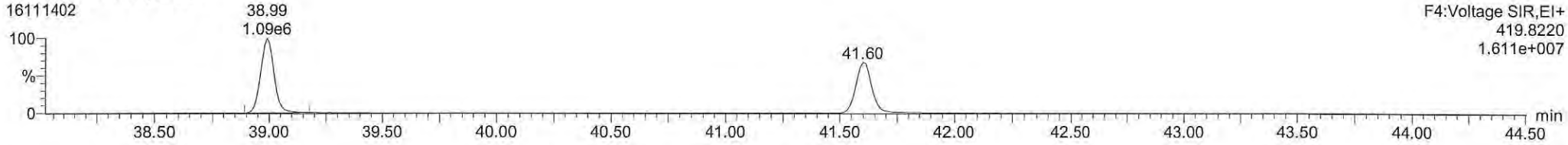
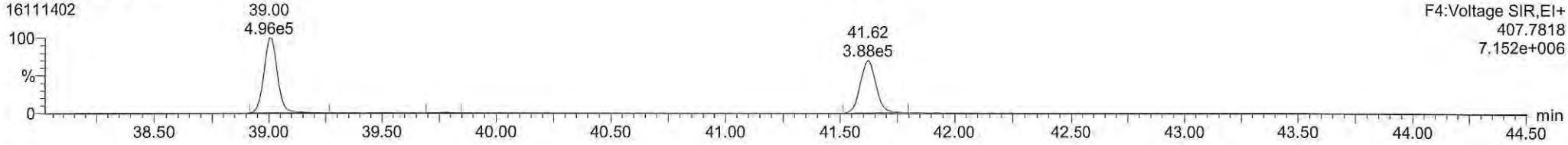
13C-1234678-HpCDF



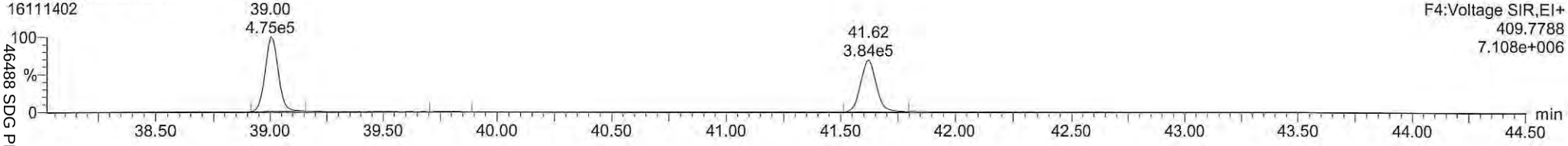
13C-1234678-HpCDF



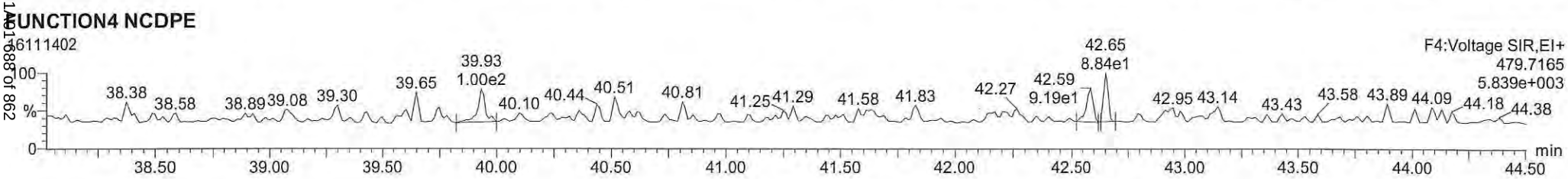
Total-heptafurans



Total-heptafurans



FUNCTION4 NCDPE



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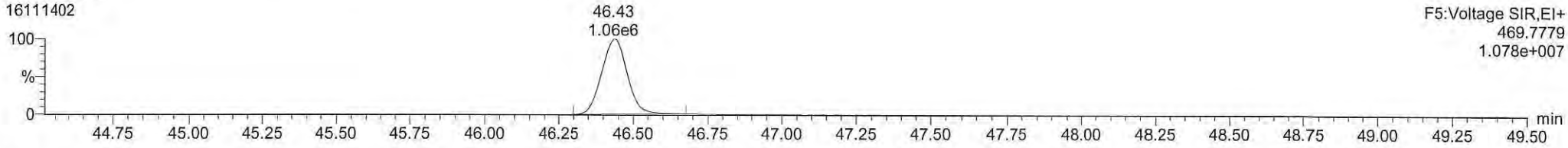
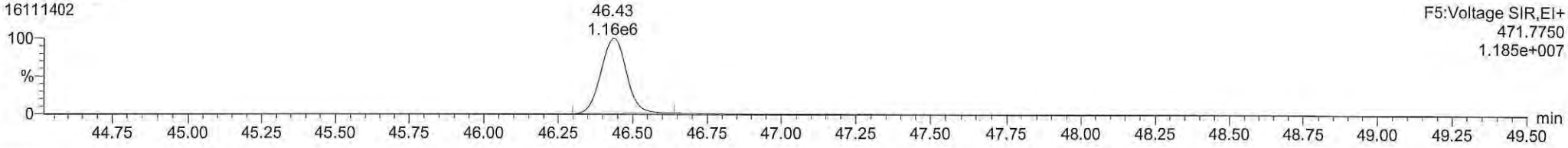
Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
Last Altered: Monday, November 14, 2016 12:49:55 Pacific Standard Time
Printed: Monday, November 14, 2016 12:50:22 Pacific Standard Time

ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

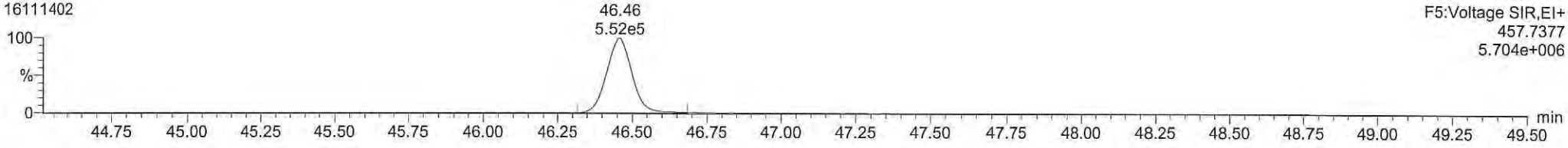
13C-OCDD



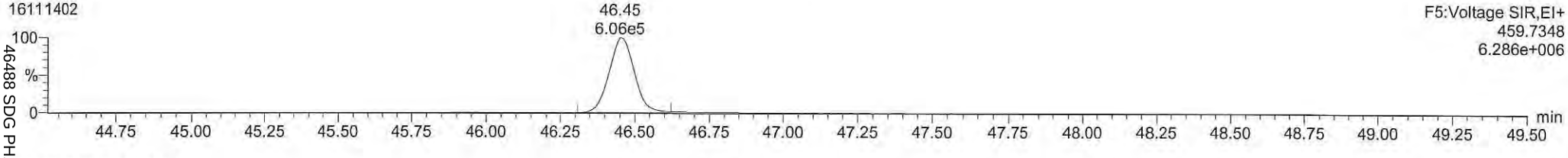
13C-OCDD



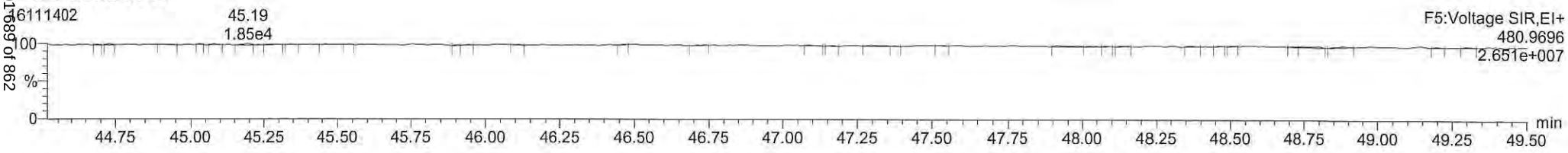
OCDD



OCDD



FUNCTION5 PFK



Quantify Sample Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161114OPEN.qld
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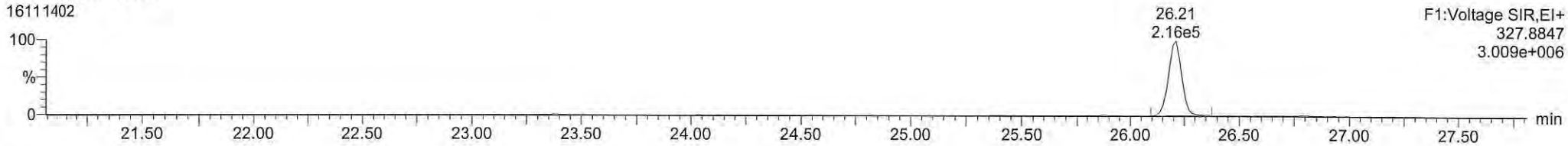
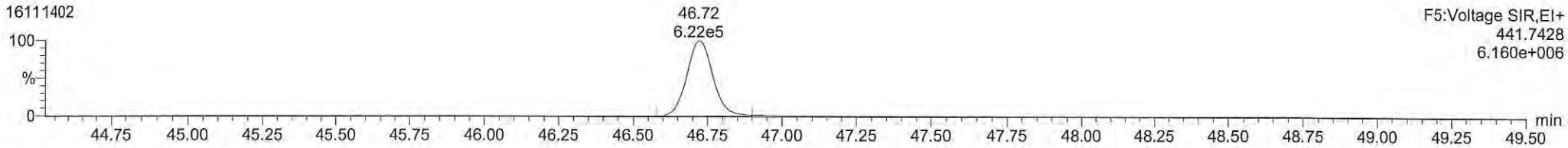
Printed: Monday, November 14, 2016 12:50:22 Pacific Standard Time

ID: CS3E1, Name: 16111402, Date: 14-Nov-2016, Time: 10:49:20, Conditions: AUTOSPEC01, User: PK

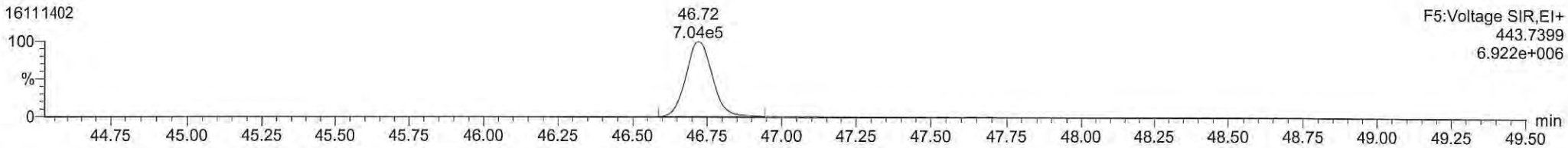
37CL-2378-TCDD



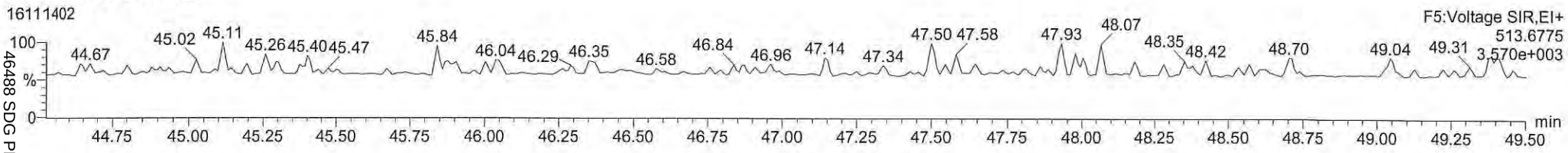
OCDF



OCDF

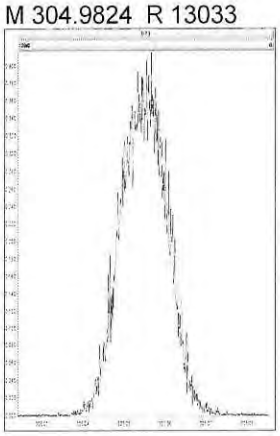


FUNCTION5 DCDPE

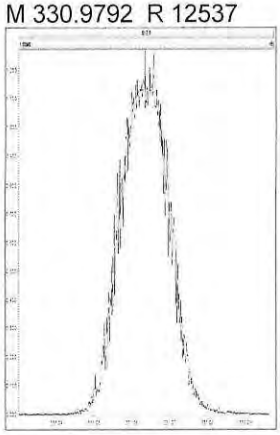


Printed: Monday, November 14, 2016 10:47:13 Pacific Standard Time

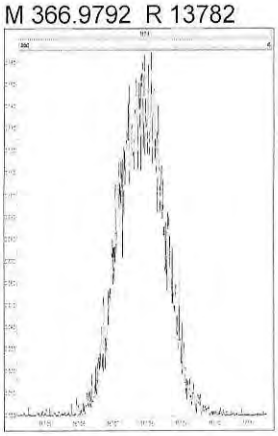
M 304.9824 R 13033



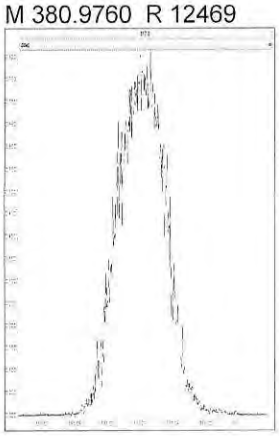
M 330.9792 R 12537



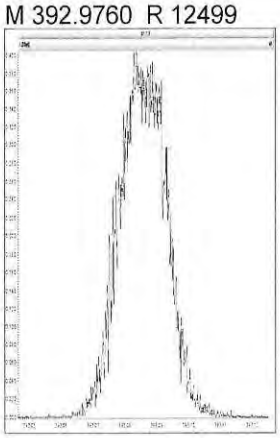
M 366.9792 R 13782



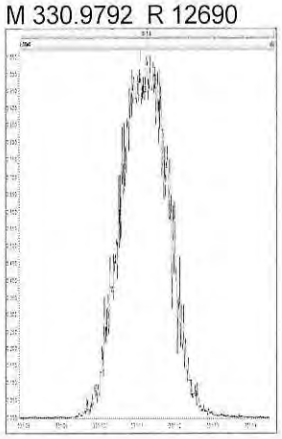
M 380.9760 R 12469



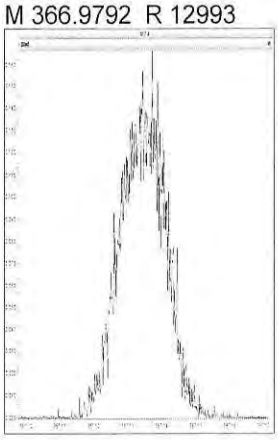
M 392.9760 R 12499



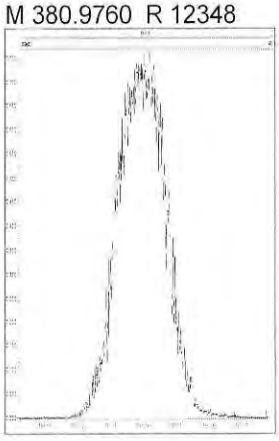
M 330.9792 R 12690



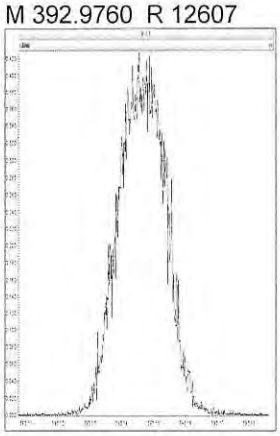
M 366.9792 R 12993



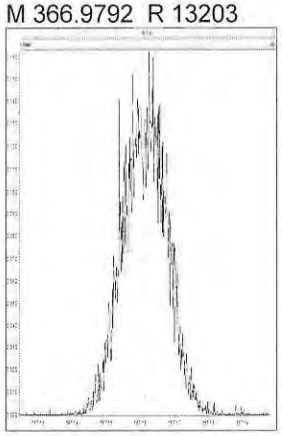
M 380.9760 R 12348



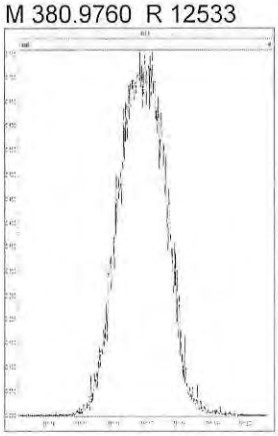
M 392.9760 R 12607



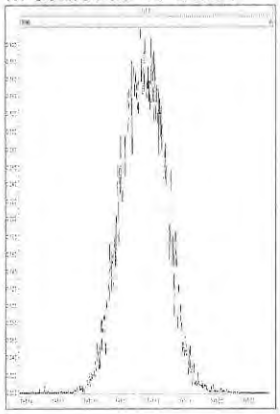
M 366.9792 R 13203



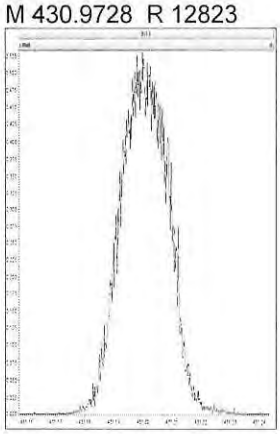
M 380.9760 R 12533



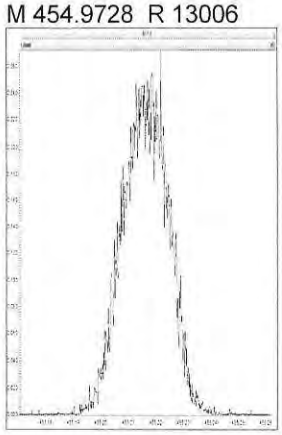
M 392.9760 R 12594



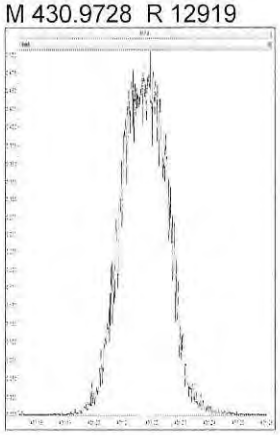
M 430.9728 R 12823



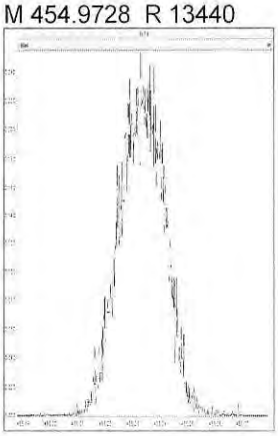
M 454.9728 R 13006



M 430.9728 R 12919



M 454.9728 R 13440



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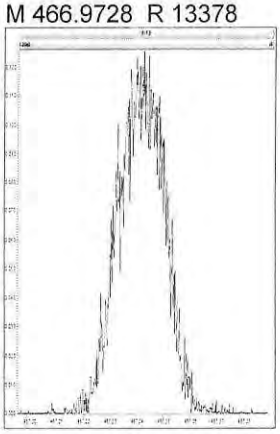
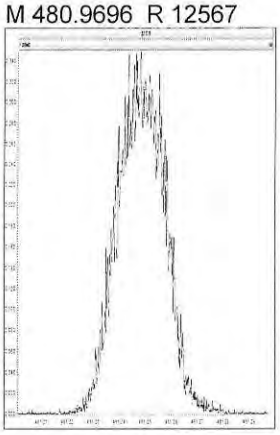
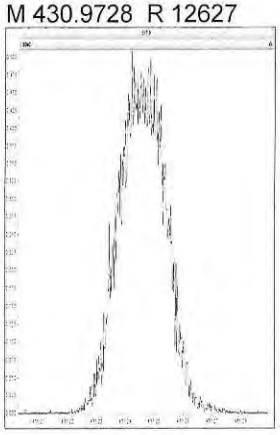
M 466.9728 R 13378



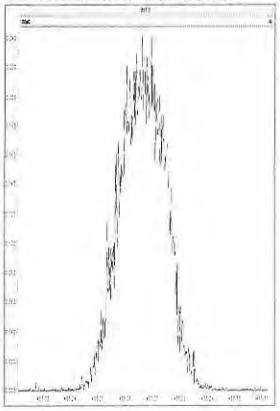
M 480.9696 R 12567



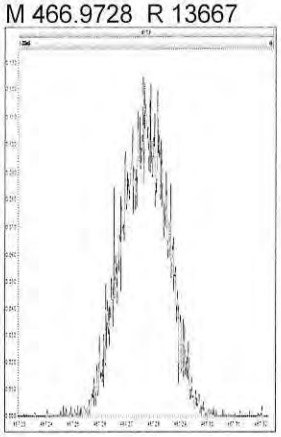
M 430.9728 R 12627



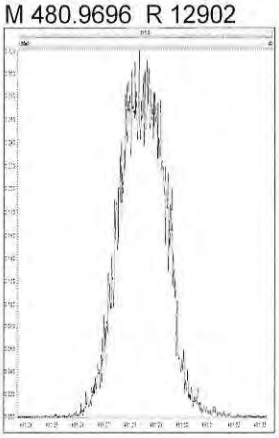
M 454.9728 R 12883



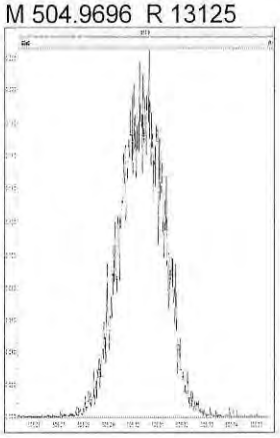
M 466.9728 R 13667

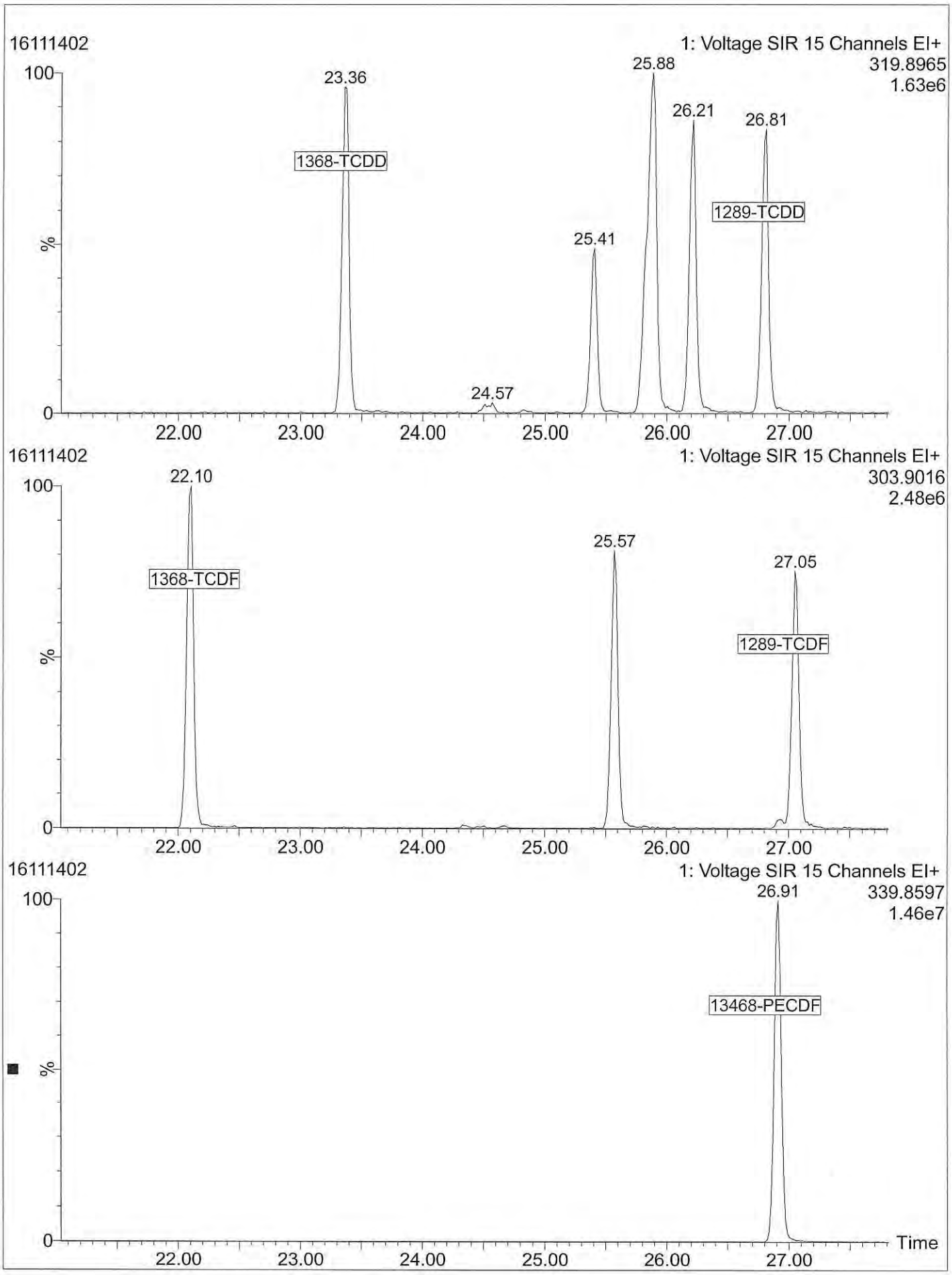


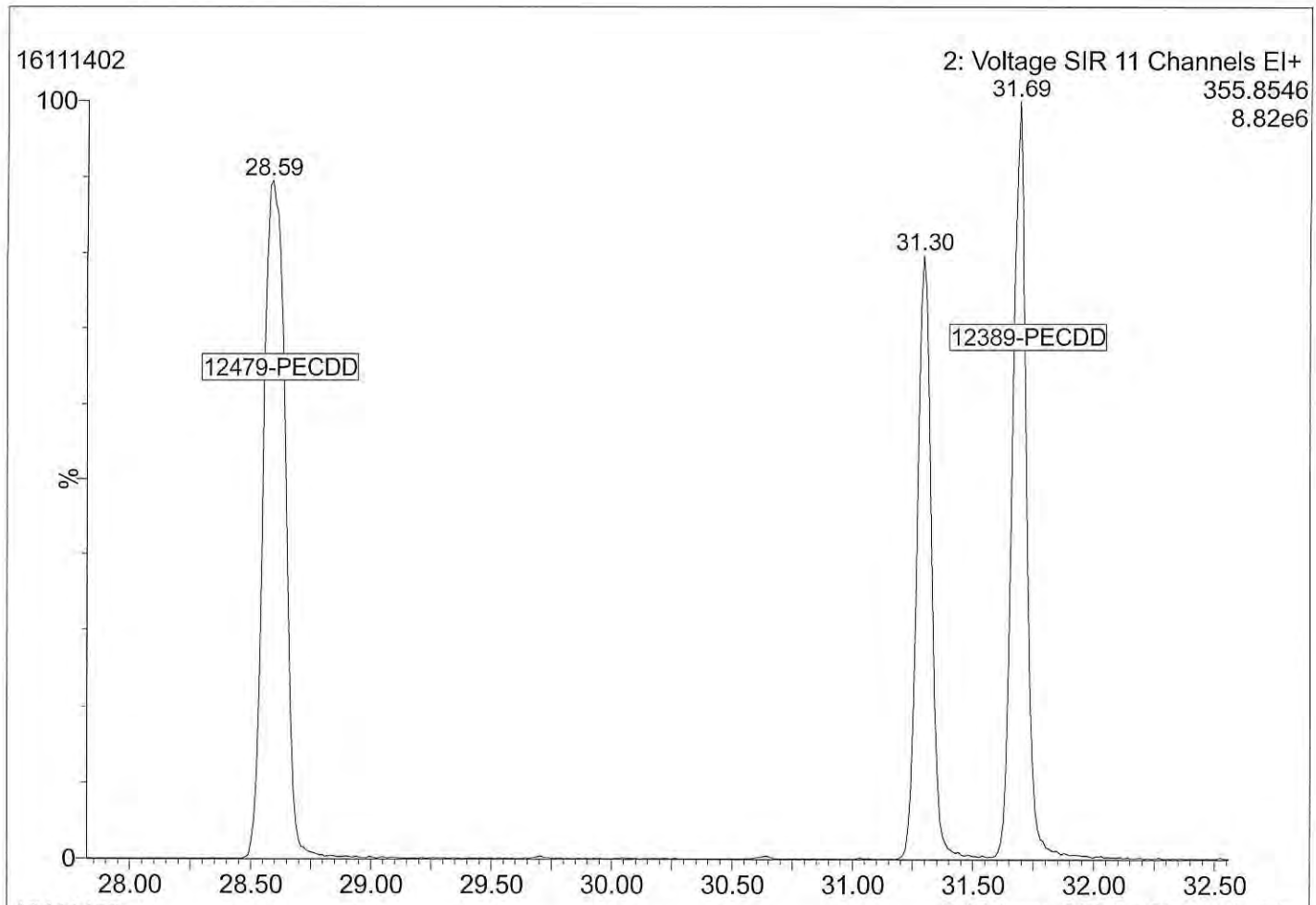
M 480.9696 R 12902

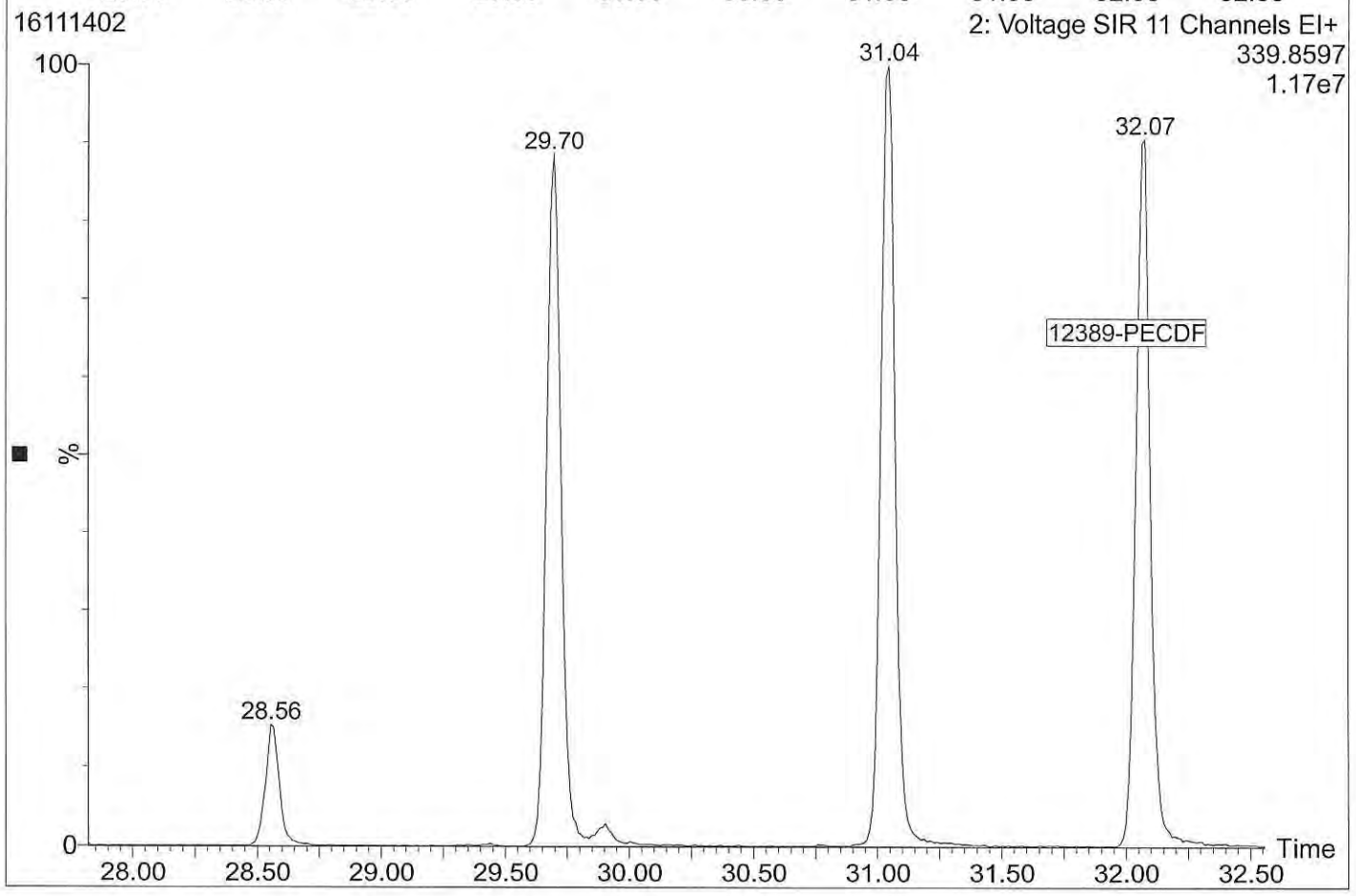


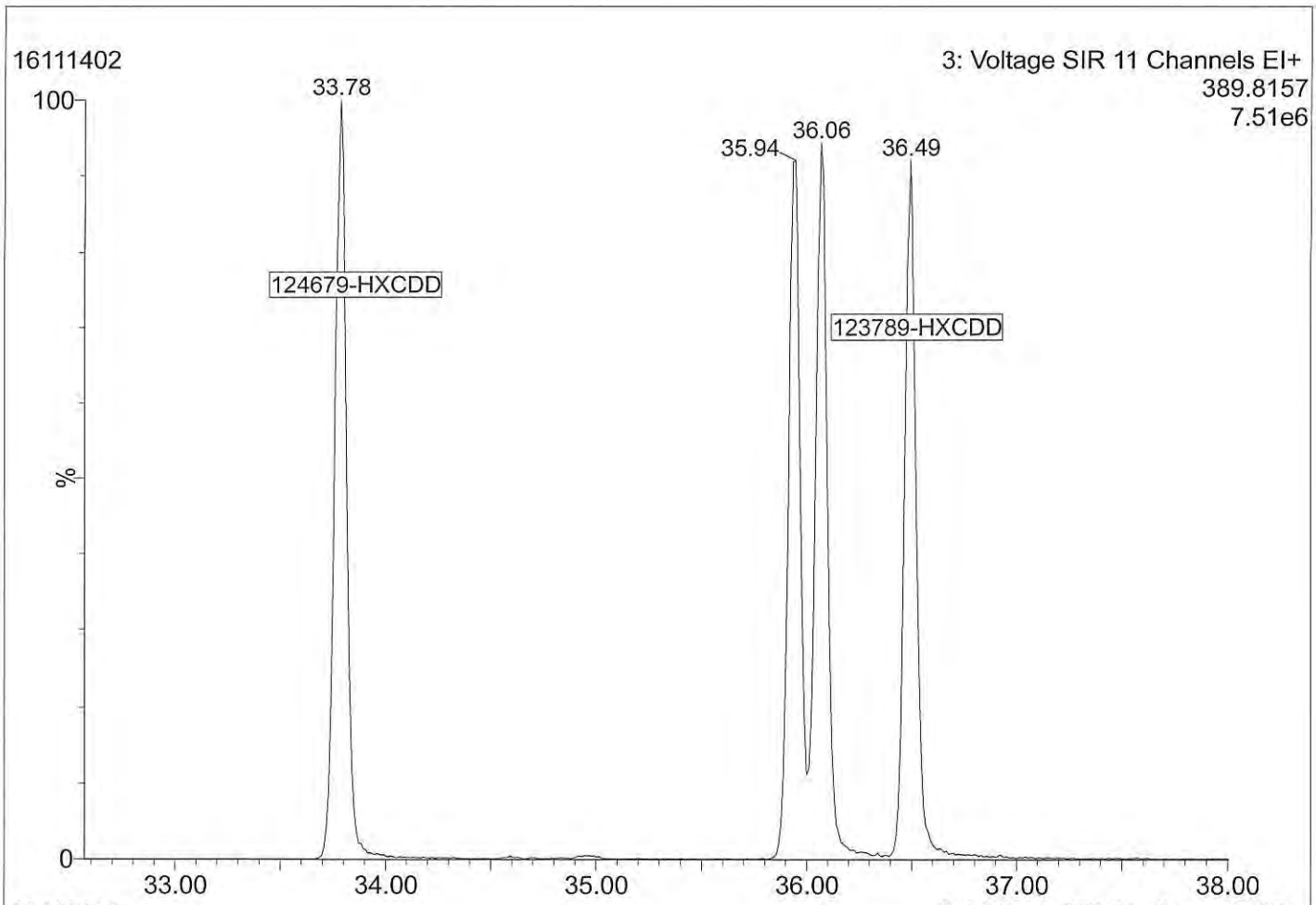
M 504.9696 R 13125

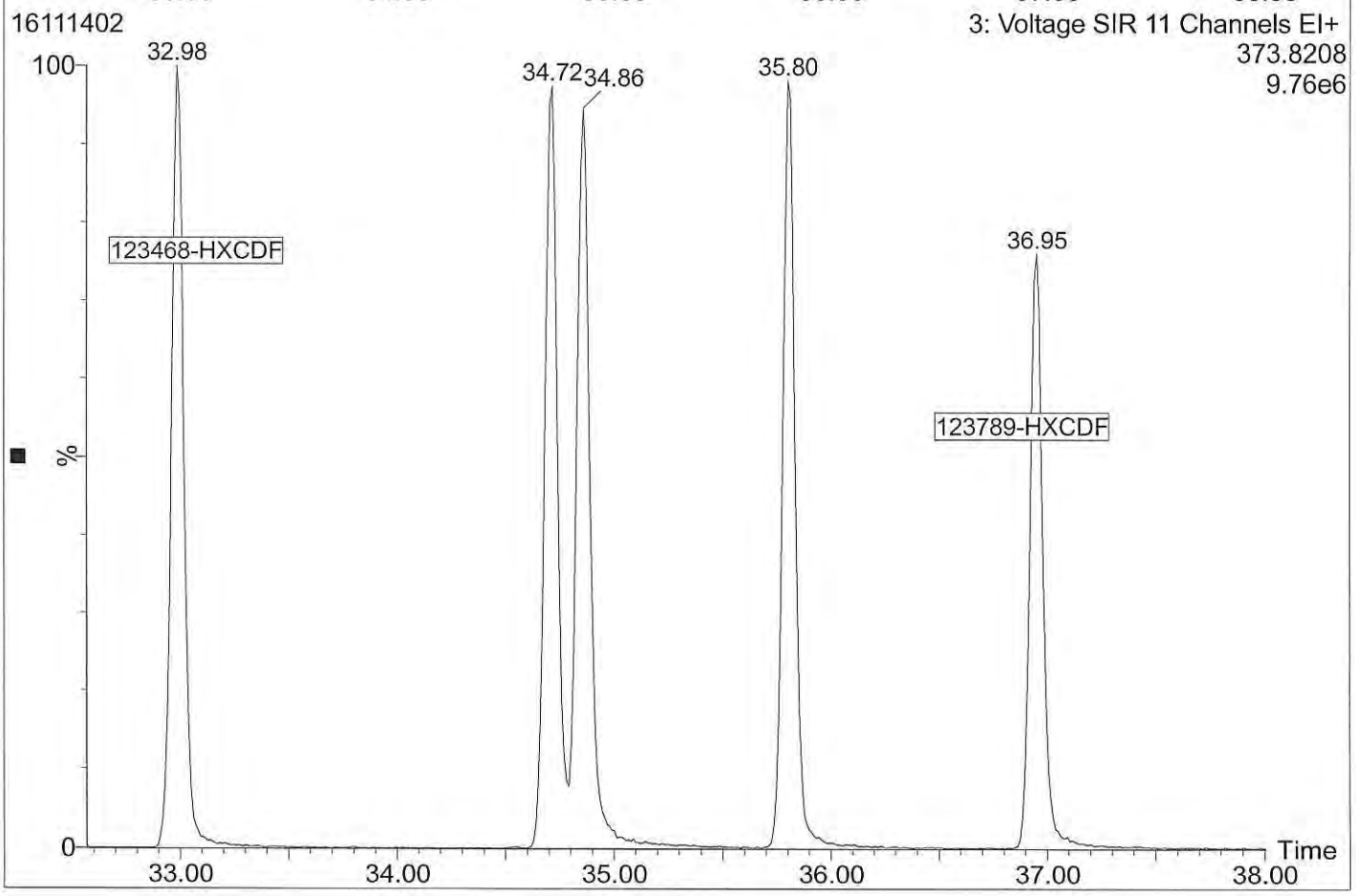


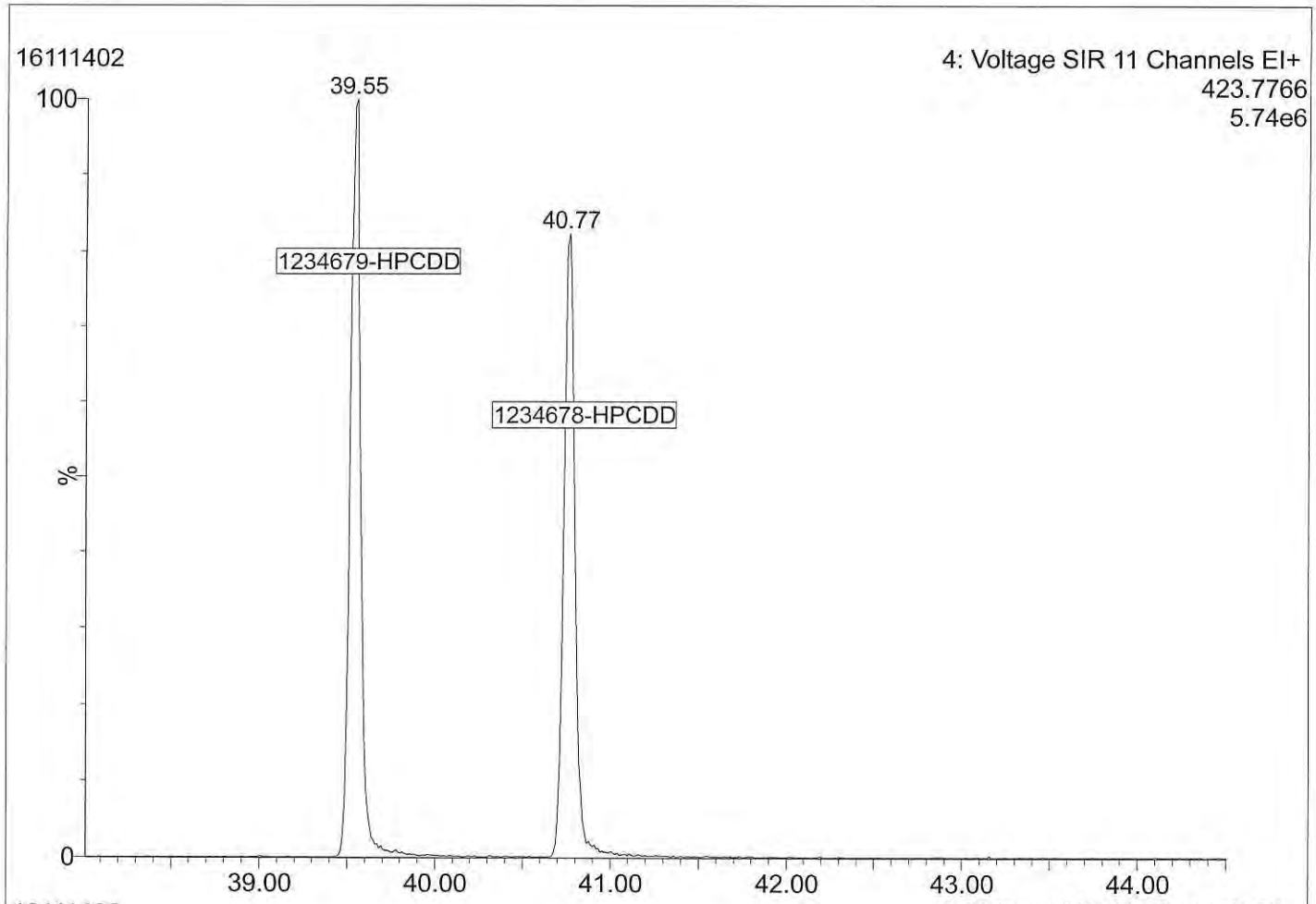

16111402
1: Voltage SIR 15 Channels EI+
319.8965
1.63e6
100
%
0
23.36
1368-TCDD
24.57
25.41
25.88
26.21
26.81
1289-TCDD
22.00
23.00
24.00
25.00
26.00
27.00
16111402
1: Voltage SIR 15 Channels EI+
303.9016
2.48e6
22.10
1368-TCDF
25.57
27.05
1289-TCDF
16111402
1: Voltage SIR 15 Channels EI+
339.8597
1.46e7
26.91
13468-PECDF
Time

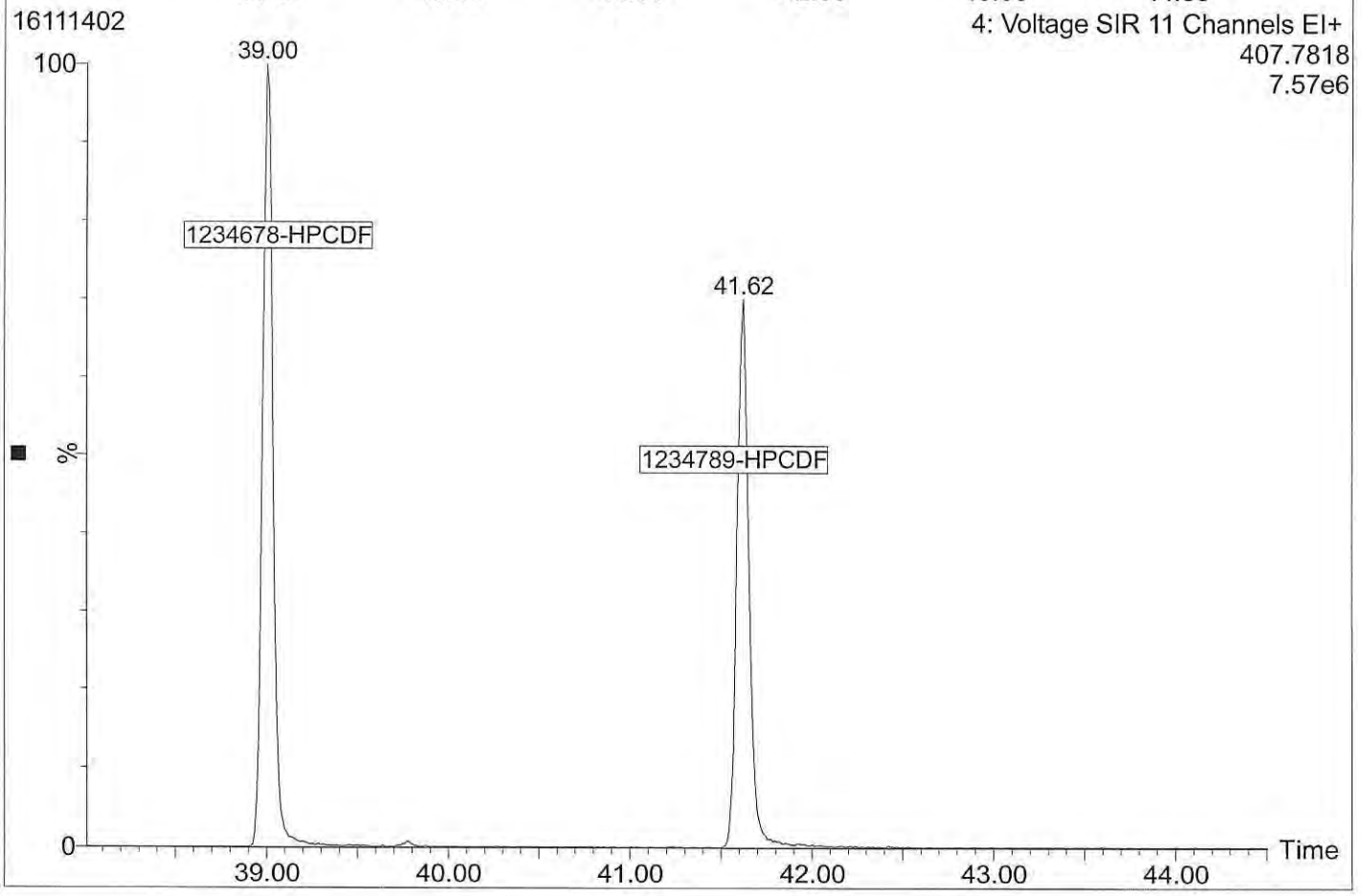

16111402
2: Voltage SIR 11 Channels EI+
355.8546
8.82e6
100
%
0
28.59
12479-PECDD
31.30
31.69
12389-PECDD
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

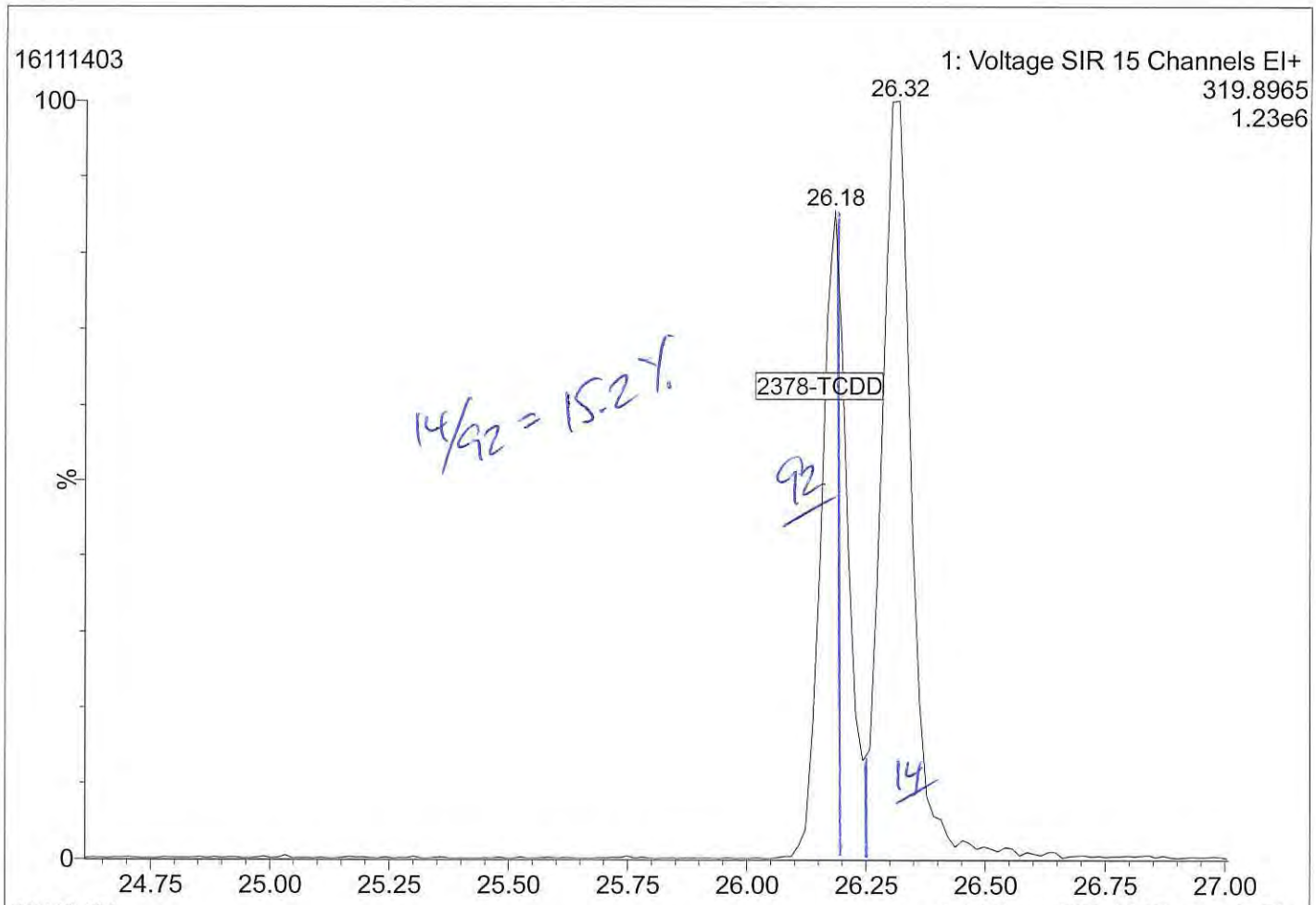

16111402
2: Voltage SIR 11 Channels EI+
339.8597
1.17e7
100
%
0
28.56
29.70
31.04
32.07
12389-PECDF
Time
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

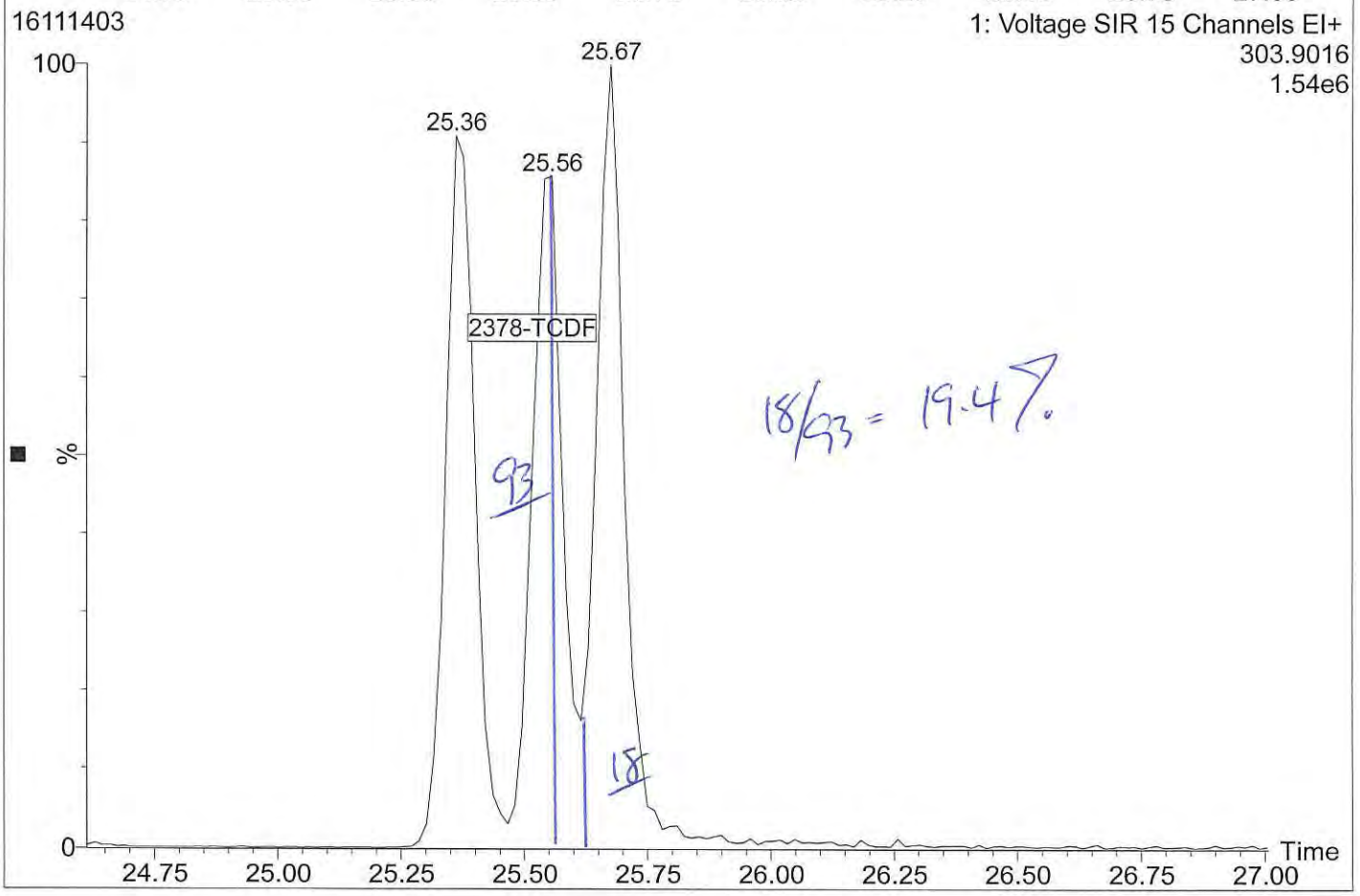

16111402
3: Voltage SIR 11 Channels EI+
389.8157
7.51e6
100
%
0
33.78
35.94
36.06
36.49
124679-HXCDD
123789-HXCDD
33.00
34.00
35.00
36.00
37.00
38.00


16111402
3: Voltage SIR 11 Channels EI+
373.8208
9.76e6
100
%
0
32.98
34.72
34.86
35.80
36.95
123468-HXCDF
123789-HXCDF
Time
33.00
34.00
35.00
36.00
37.00
38.00


16111402
4: Voltage SIR 11 Channels EI+
423.7766
5.74e6
100
39.55
40.77
1234679-HPCDD
1234678-HPCDD
%
0
39.00
40.00
41.00
42.00
43.00
44.00


16111402
4: Voltage SIR 11 Channels EI+
407.7818
7.57e6
100
39.00
1234678-HPCDF
41.62
1234789-HPCDF
%
0
Time
39.00
40.00
41.00
42.00
43.00
44.00


16111403
1: Voltage SIR 15 Channels EI+
319.8965
1.23e6
26.32
26.18
2378-TCDD
14/92 = 15.2%
92
14
100
%
0
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00


16111403
1: Voltage SIR 15 Channels EI+
303.9016
1.54e6
25.67
25.36
25.56
2378-TCDF
18/93 = 19.4%
93
18
100
%
0
Time
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00

FORM 7A-HR

RELATIVE RESPONSE/RELATIVE RESPONSE FACTOR -CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004

Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01

Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3E2

Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/14/16

Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 16:20

Analytical Method: CDD/CDF

CL No.	Analyte Name	RR/RRF	Mean RR/RRF	% D	IAR	IAR QC Limits
4	2,3,7,8-TCDD	1.119202	1.133965	-1.3	0.77	0.655-0.886
5	1,2,3,7,8-PeCDD	1.007029	0.9753974	3.2	1.57	1.318-1.783
6	1,2,3,4,7,8-HxCDD	0.9913322	1.031167	-3.9	1.26	1.054-1.426
6	1,2,3,6,7,8-HxCDD	0.9966446	0.9714371	2.6	1.27	1.054-1.426
6	1,2,3,7,8,9-HxCDD	1.000022	0.9950452	0.5	1.25	1.054-1.426
7	1,2,3,4,6,7,8-HpCDD	1.030869	1.028016	0.3	1.05	0.893-1.208
8	OCDD	1.021227	1.107021	-7.7	0.91	0.757-1.024
4	2,3,7,8-TCDF	0.9532477	0.9347915	2.0	0.76	0.655-0.886
5	1,2,3,7,8-PeCDF	0.9125301	0.9519161	-4.1	1.56	1.318-1.783
5	2,3,4,7,8-PeCDF	0.9832044	0.9629117	2.1	1.58	1.318-1.783
6	1,2,3,4,7,8-HxCDF	1.164804	1.136547	2.5	1.22	1.054-1.426
6	1,2,3,6,7,8-HxCDF	1.093594	1.098742	-0.5	1.25	1.054-1.426
6	1,2,3,7,8,9-HxCDF	1.095243	1.100821	-0.5	1.24	1.054-1.426
6	2,3,4,6,7,8-HxCDF	1.202839	1.163504	3.4	1.27	1.054-1.426
7	1,2,3,4,6,7,8-HpCDF	1.24301	1.302789	-4.6	1.00	0.893-1.208
7	1,2,3,4,7,8,9-HpCDF	1.28323	1.317361	-2.6	1.05	0.893-1.208
8	OCDF	1.193053	1.165807	2.3	0.90	0.757-1.024
4	13C12-2,3,7,8-TCDF	1	1.567419	-36.2	0.77	0.655-0.886
4	13C12-2,3,7,8-TCDD	1	0.9077481	10.2	0.79	0.655-0.886
5	13C12-1,2,3,7,8-PeCDF	1	1.274097	-21.5	1.61	1.318-1.783
5	13C12-2,3,4,7,8-PeCDF	1	1.234626	-19.0	1.57	1.318-1.783
5	13C12-1,2,3,7,8-PeCDD	1	0.7557554	32.3	1.58	1.318-1.783
6	13C12-1,2,3,4,7,8-HxCDF	1	1.380919	-27.6	0.51	0.434-0.587
6	13C12-1,2,3,6,7,8-HxCDF	1	1.569453	-36.3	0.51	0.434-0.587
6	13C12-2,3,4,6,7,8-HxCDF	1	1.34533	-25.7	0.52	0.434-0.587
6	13C12-1,2,3,7,8,9-HxCDF	1	1.182895	-15.5	0.52	0.434-0.587
6	13C12-1,2,3,4,7,8-HxCDD	1	1.055904	-5.3	1.27	1.054-1.426
6	13C12-1,2,3,6,7,8-HxCDD	1	1.163036	-14.0	1.27	1.054-1.426
7	13C12-1,2,3,4,6,7,8-HpCDF	1	1.178362	-15.1	0.45	0.374-0.506
7	13C12-1,2,3,4,7,8,9-HpCDF	1	0.8777992	13.9	0.43	0.374-0.506
7	13C12-1,2,3,4,6,7,8-HpCDD	1	0.9091061	10.0	1.02	0.893-1.208
8	13C12-OCDD	1	0.8195753	22.0	0.89	0.757-1.024
4	37C14-2,3,7,8-TCDD	1.076677	1.066558	0.9		N/A
4	13C12-1,2,3,4-TCDD	17720.13	1	771,913	0.79	0.65-0.89
6	13C12-1,2,3,7,8,9-HxCDD	11674.85	1	167,385	1.25	1.05-1.43

FORM 7B-HR
RELATIVE RETENTION TIME CONTINUING CALIBRATION SUMMARY

Lab Name: Analytical Resources, Inc. Contract: EPW16004
Lab Code: ARI Case No.: 46488 MA No.: SDG No: PH1A01
Inst.ID: AUTOSPEC01 GC Column: RTX-Dioxin2 ID: 0.25 (mm) EPA Sample No(s): CS3E2
Init. Calib. Date(s): 05/10/2016 05/10/2016 Date Analyzed: 11/14/16
Init. Calib. Time(s): 13:36 18:09 Time Analyzed: 16:20
Analytical Method: CDD/CDF

CL No.	Analyte Name	Mean RRT	RRT	RRT QC Limits
4	2,3,7,8-TCDD	0.8331	1.0011	0.999-1.002
5	1,2,3,7,8-PeCDD	0.9997	1.0003	0.999-1.002
6	1,2,3,4,7,8-HxCDD	0.9999	1.0006	0.999-1.001
6	1,2,3,6,7,8-HxCDD	0.9999	1.0003	0.998-1.004
6	1,2,3,7,8,9-HxCDD	0.9999	1.0159	1.000-1.019
7	1,2,3,4,6,7,8-HpCDD	1.0000	1.0003	0.999-1.001
8	OCDD	0.9998	1.0004	0.999-1.001
4	2,3,7,8-TCDF	0.8330	1.0006	0.999-1.003
5	1,2,3,7,8-PeCDF	0.9997	1.0004	0.999-1.002
5	2,3,4,7,8-PeCDF	0.9997	1.0004	0.999-1.002
6	1,2,3,4,7,8-HxCDF	0.9999	1.0003	0.999-1.001
6	1,2,3,6,7,8-HxCDF	0.9997	1.0006	0.997-1.005
6	1,2,3,7,8,9-HxCDF	0.9999	1.0006	0.999-1.001
6	2,3,4,6,7,8-HxCDF	0.9998	1.0006	0.999-1.001
7	1,2,3,4,6,7,8-HpCDF	0.9999	1.0006	0.999-1.001
7	1,2,3,4,7,8,9-HpCDF	1.0000	1.0003	0.999-1.001
8	OCDF	0.9998	1.0062	0.999-1.008
4	13C12-2,3,7,8-TCDF	0.9995	1.0071	0.923-1.103
4	13C12-2,3,7,8-TCDD	0.9995	1.0318	0.976-1.043
5	13C12-1,2,3,7,8-PeCDF	0.9999	1.1699	1.000-1.425
5	13C12-2,3,4,7,8-PeCDF	0.9998	1.2231	1.011-1.526
5	13C12-1,2,3,7,8-PeCDD	0.9995	1.2331	1.000-1.567
6	13C12-1,2,3,4,7,8-HxCDF	0.9997	0.9510	0.944-0.970
6	13C12-1,2,3,6,7,8-HxCDF	0.9998	0.9549	0.949-0.975
6	13C12-2,3,4,6,7,8-HxCDF	0.9999	0.9811	0.959-1.021
6	13C12-1,2,3,7,8,9-HxCDF	1.0000	1.0123	0.977-1.047
6	13C12-1,2,3,4,7,8-HxCDD	0.9998	0.9847	0.977-1.000
6	13C12-1,2,3,6,7,8-HxCDD	0.9999	0.9883	0.981-1.003
7	13C12-1,2,3,4,6,7,8-HpCDF	1.0000	1.0688	1.043-1.085
7	13C12-1,2,3,4,7,8,9-HpCDF	0.9999	1.1407	1.057-1.151
7	13C12-1,2,3,4,6,7,8-HpCDD	1.0001	1.1172	1.086-1.110
8	13C12-OCDD	1.0000	1.2733	1.032-1.311
4	37C14-2,3,7,8-TCDD	0.9995	1.0324	0.989-1.052
4	13C12-1,2,3,4-TCDD	0.9995	1.0000	
6	13C12-1,2,3,7,8,9-HxCDD	1.0000	1.0000	

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 11:56:22 Pacific Standard Time

Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
2378-TCDF	25.540	1.001	1.15e5	1.51e5	0.935	0.763	0.770	2093	1911	1.60e6	2.09e6	764.6	NO	10.197
12378-PeCDF	29.663	1.000	6.20e5	3.98e5	0.952	1.556	1.550	3823	4090	8.54e6	5.61e6	2233.6	NO	47.931
23478-PeCDF	31.012	1.000	6.65e5	4.19e5	0.963	1.584	1.550	3823	4090	9.57e6	6.16e6	2502.1	NO	51.054
123478-HxCDF	34.683	1.000	5.04e5	4.12e5	1.137	1.223	1.240	5122	3627	7.32e6	6.02e6	1428.6	NO	51.243
234678-HxCDF	35.791	1.001	5.04e5	3.97e5	1.164	1.271	1.240	5122	3627	7.13e6	5.70e6	1392.7	NO	51.690
123678-HxCDF	34.837	1.001	5.43e5	4.33e5	1.099	1.254	1.240	5122	3627	7.54e6	5.97e6	1472.8	NO	49.766
123789-HxCDF	36.931	1.001	4.08e5	3.29e5	1.101	1.240	1.240	5122	3627	5.68e6	4.60e6	1109.4	NO	49.747
1234678-HpCDF	38.991	1.001	4.01e5	4.00e5	1.303	1.002	1.050	2556	2301	5.88e6	5.78e6	2300.5	NO	47.706
1234789-HpCDF	41.600	1.000	3.33e5	3.18e5	1.317	1.048	1.050	2556	2301	3.98e6	4.01e6	1557.8	NO	48.705
OCDF	46.711	1.006	5.05e5	5.63e5	1.166	0.897	0.890	2781	1992	4.94e6	5.54e6	1776.1	NO	102.337
2378-TCDD	26.183	1.001	7.92e4	1.03e5	1.134	0.769	0.770	1085	1848	1.07e6	1.44e6	987.1	NO	9.870
12378-PeCDD	31.264	1.000	4.04e5	2.58e5	0.975	1.568	1.550	2663	3080	5.67e6	3.70e6	2128.5	NO	51.622
123478-HxCDD	35.922	1.001	3.45e5	2.73e5	1.031	1.263	1.240	2172	2863	5.25e6	4.05e6	2417.6	NO	48.068
123678-HxCDD	36.043	1.000	3.72e5	2.94e5	0.971	1.266	1.240	2172	2863	5.05e6	4.01e6	2323.7	NO	51.297
123789-HxCDD	36.470	1.012	3.46e5	2.78e5	0.947	1.247	1.240	2172	2863	4.86e6	3.86e6	2238.8	NO	50.993
1234678-HpCDD	40.745	1.000	2.74e5	2.62e5	1.028	1.046	1.050	2433	2350	3.53e6	3.40e6	1451.4	NO	50.139
OCDD	46.442	1.000	4.34e5	4.79e5	1.107	0.906	0.890	2237	2354	4.27e6	4.86e6	1907.2	NO	92.250
13C-2378-TCDF	25.525	1.007	1.22e6	1.58e6	1.567	0.774	0.770	4878	3261	1.71e7	2.19e7	3499.6	NO	100.666
13C-12378-PeCDF	29.653	1.170	1.38e6	8.54e5	1.274	1.613	1.550	3163	3015	1.89e7	1.18e7	5990.8	NO	98.824
13C-23478-PeCDF	31.001	1.223	1.35e6	8.57e5	1.235	1.573	1.550	3163	3015	1.95e7	1.23e7	6175.5	NO	100.784
13C-123478-HxCDF	34.673	0.951	5.31e5	1.04e6	1.381	0.510	0.510	4475	5097	7.76e6	1.51e7	1733.2	NO	97.503
13C-123678-HxCDF	34.815	0.955	6.04e5	1.18e6	1.569	0.511	0.510	4475	5097	8.45e6	1.63e7	1887.4	NO	97.402
13C-234678-HxCDF	35.769	0.981	5.10e5	9.87e5	1.345	0.517	0.510	4475	5097	7.39e6	1.41e7	1650.5	NO	95.345
13C-123789-HxCDF	36.909	1.012	4.60e5	8.87e5	1.183	0.518	0.510	4475	5097	6.50e6	1.23e7	1451.4	NO	97.571
13C-1234678-HpCDF	38.969	1.069	4.03e5	8.87e5	1.178	0.454	0.440	2819	2903	5.77e6	1.28e7	2045.0	NO	93.781
13C-1234789-HpCDF	41.589	1.141	3.07e5	7.09e5	0.878	0.433	0.440	2819	2903	3.87e6	8.60e6	1372.4	NO	99.100
13C-1234-TCDD	25.346	0.000	7.82e5	9.90e5	1.000	0.789	0.770	2586	1652	1.12e7	1.42e7	4345.1	NO	100.000
13C-2378-TCDD	26.153	1.032	7.17e5	9.11e5	0.908	0.788	0.770	2586	1652	1.00e7	1.27e7	3867.8	NO	101.205
13C-12378-PeCDD	31.253	1.233	8.05e5	5.09e5	0.756	1.582	1.550	1399	1879	1.16e7	7.30e6	8265.5	NO	98.141
13C-123478-HxCDD	35.900	0.985	6.98e5	5.50e5	1.056	1.270	1.240	2032	2297	1.02e7	8.03e6	5016.0	NO	101.244
13C-123678-HxCDD	36.032	0.988	7.49e5	5.88e5	1.163	1.274	1.240	2032	2297	1.04e7	8.22e6	5129.2	NO	98.486
13C-1234678-HpCDD	40.734	1.117	5.24e5	5.16e5	0.909	1.017	1.050	2703	2623	6.92e6	6.60e6	2561.2	NO	98.004
13C-OCDD	46.424	1.273	8.43e5	9.46e5	0.820	0.891	0.890	2443	2266	8.41e6	9.26e6	3442.8	NO	187.022

16488 SDG PHIAOI 700 of 802

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN909**
Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 11:56:22 Pacific Standard Time

ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

Name	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N	EMPC?	pg
13C-123789-HxCDD	36.459	0.000	6.49e5	5.18e5	1.000	1.252	1.240	2032	2297	9.09e6	7.19e6	4475.1	NO	100.000
Total-tetrafurans			3.87e5		0.935			2093		5.33e6				34.008
Total-penta1			8.80e5					1556		1.21e7				70.912
Total-pentafurans			2.01e6		0.957			3823		2.81e7				155.028
Total-hexafurans			2.48e6		1.125			5122		3.50e7				256.207
Total-heptafurans			7.38e5		1.310			2556		9.93e6				96.837
Total-Furans			7.00e6		1.114			2093		9.53e7				715.328
Total-tetradioxins			4.35e5		1.134			1085		5.52e6				53.769
Total-pentadioxins			1.59e6		0.975			2663		1.91e7				202.710
Total-hexadioxins			1.45e6		0.983			2172		2.08e7				205.193
Total-heptadioxins			5.86e5		1.028			2433		7.91e6				106.821
Total-Dioxins			4.49e6		1.028			1085		5.75e7				660.762
Total-TEQ			1.15e7					1085		1.53e8				1376.091
37CL-2378-TCDD	26.167	1.032	1.91e5		1.067			1087		2.62e6		2411.6		10.095
FUNCTION1 PFK			2.24e5					401569		5.24e6				
FUNCTION2 PFK			5.84e4					126123		1.26e6				0.000
FUNCTION3 PFK			1.49e7					346422		9.34e7				0.000
FUNCTION4 PFK			4.98e5					247422		1.47e7				
FUNCTION5 PFK			3.08e5					185571		1.10e7				
FUNCTION1 HXCDPE			0.00e0					292		0.00e0				
FUNCTION1 HPCDPE			1.03e3					773		2.07e4				0.000
FUNCTION2 HPCDPE			1.03e3					1047		2.26e4				0.000
FUNCTION3 OCDPE			0.00e0					255		0.00e0				
FUNCTION4 NCDPE			0.00e0					385		0.00e0				
FUNCTION5 DCDPE			0.00e0					152		0.00e0				

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
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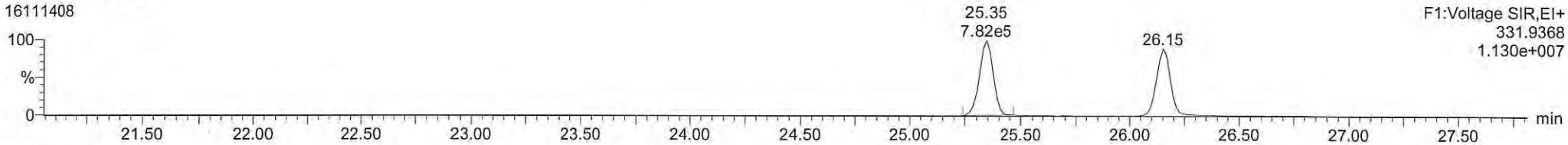
Method: C:\MassLynx\Dioxin.pro\MethDB\Dioxin161007.mdb 15 Nov 2016 11:37:26
Calibration: C:\MassLynx\Dioxin.pro\CurveDB\160510ICAL.cdb 11 May 2016 08:28:40

ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

13C-1234-TCDD



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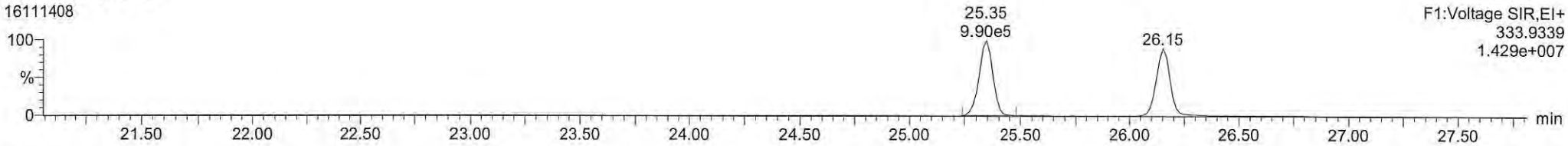

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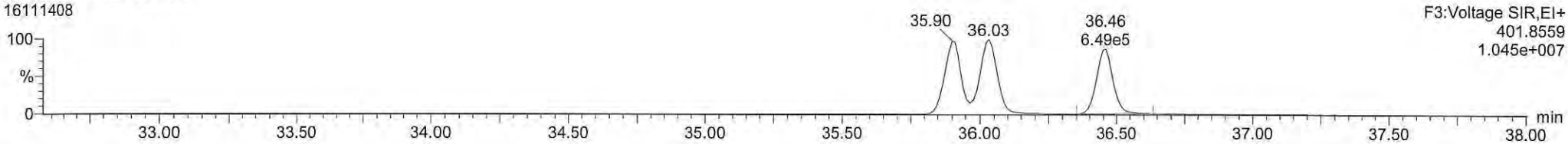

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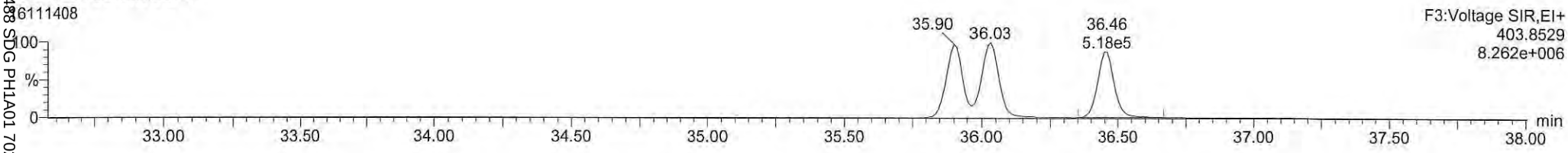

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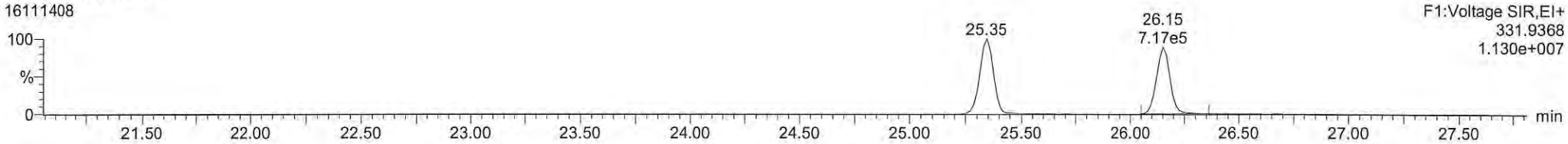
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 11:56:22 Pacific Standard Time

ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDD



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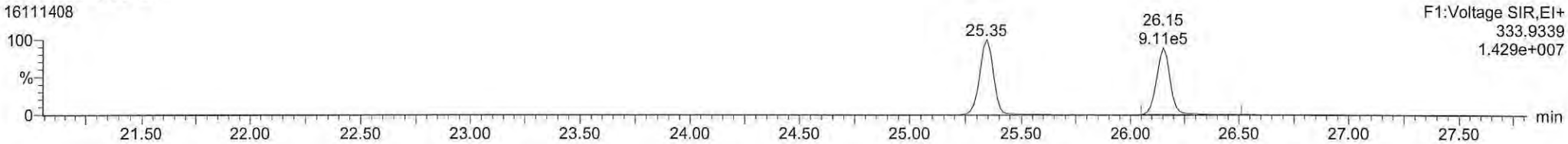

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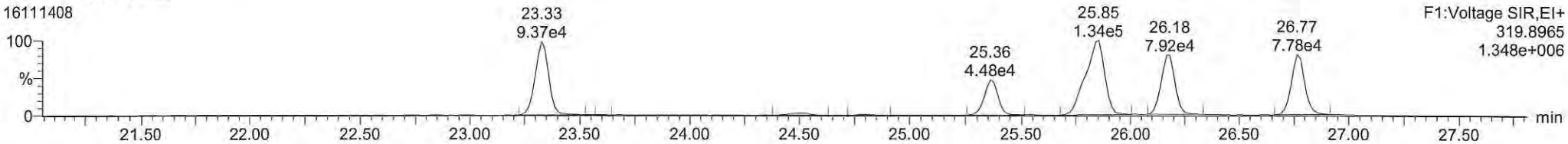
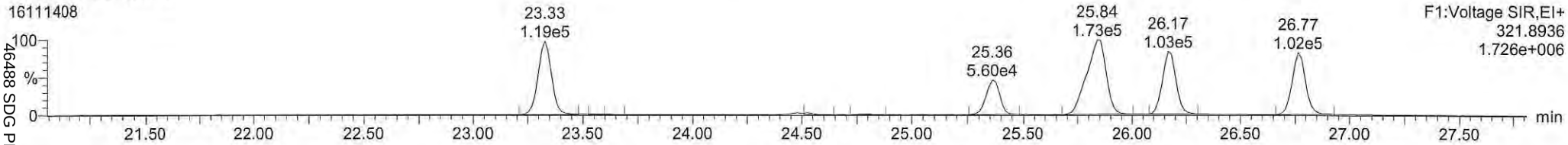
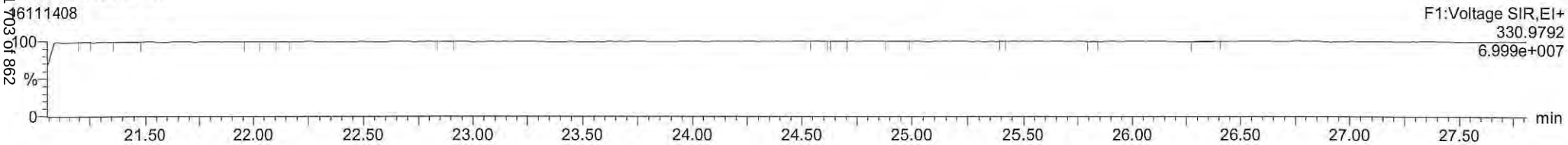


Total-tetradioxins



FUNCTION1 PFK

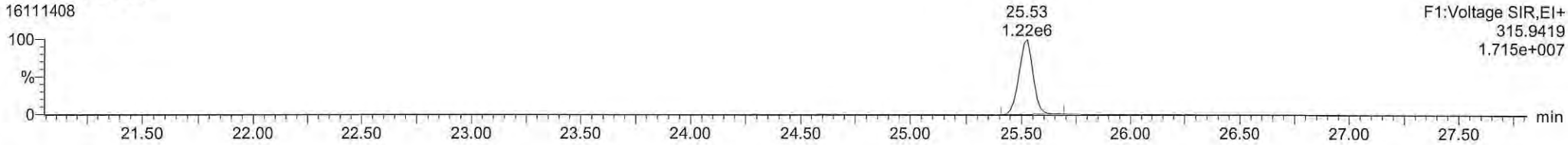


46488 SDG PH1A01 703 of 862

Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 11:56:22 Pacific Standard Time

ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

13C-2378-TCDF



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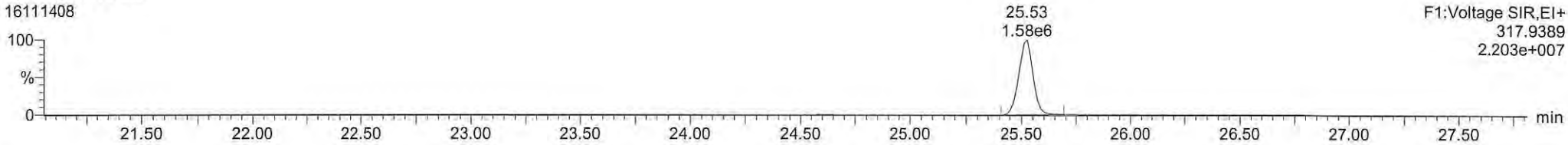

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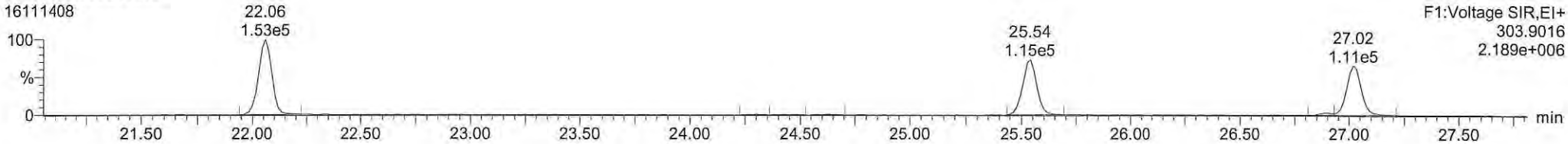

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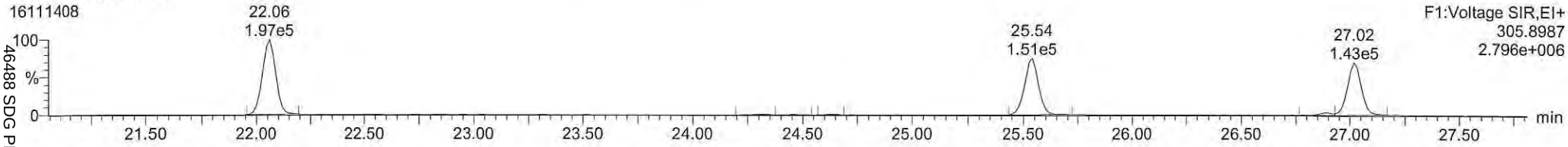

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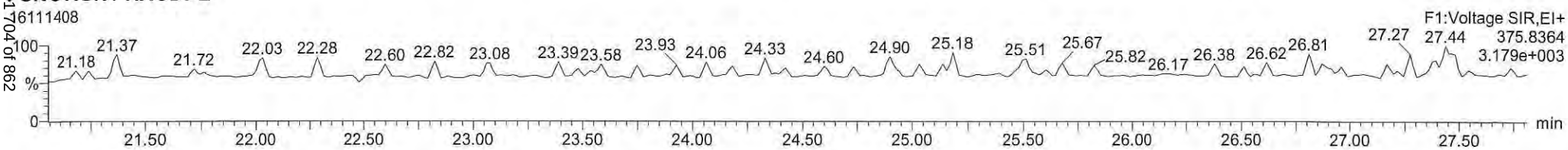

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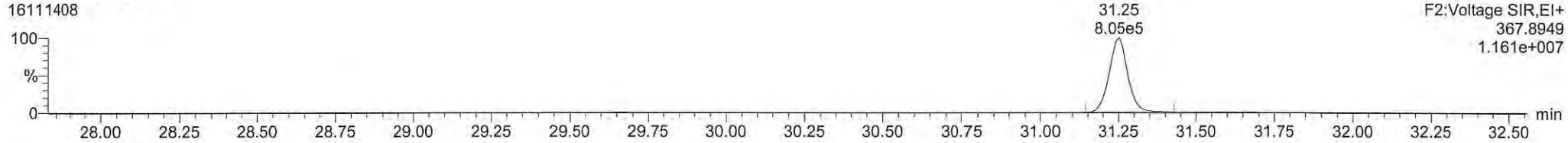
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 11:56:22 Pacific Standard Time

ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

13C-12378-PeCDD



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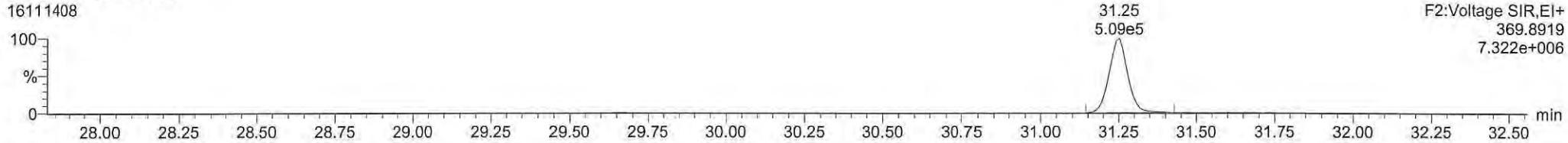

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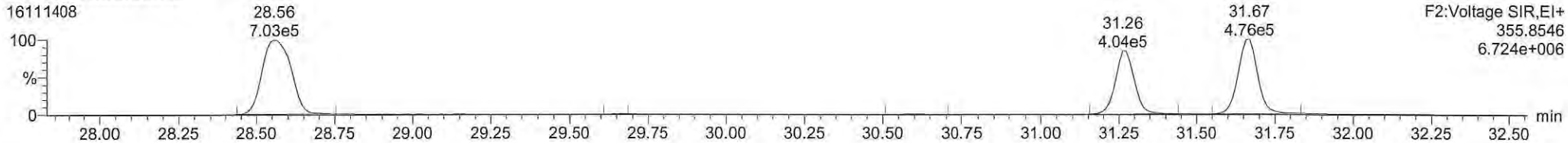

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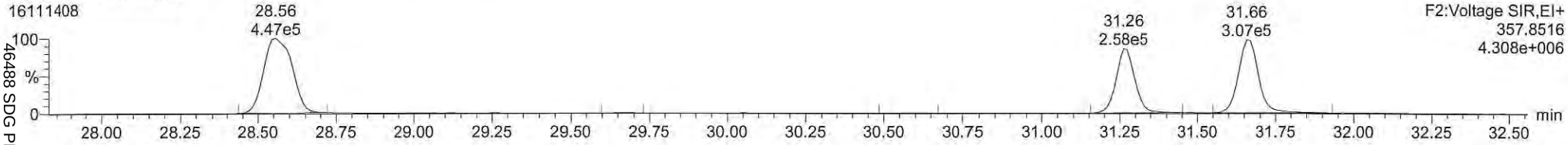
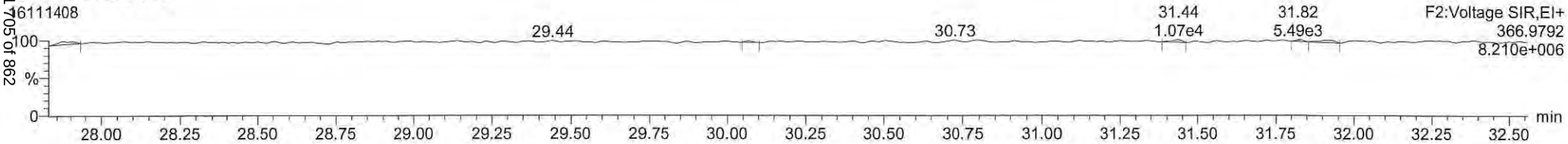


FUNCTION2 PFK



Dataset: C:\MassLynx\Dioxin.pro\161114DATA.qld
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 11:56:22 Pacific Standard Time

ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

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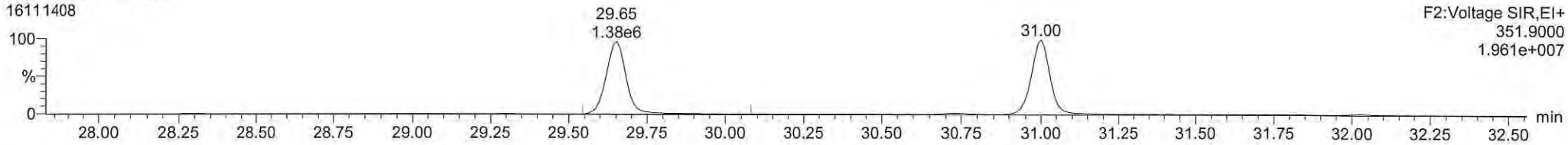

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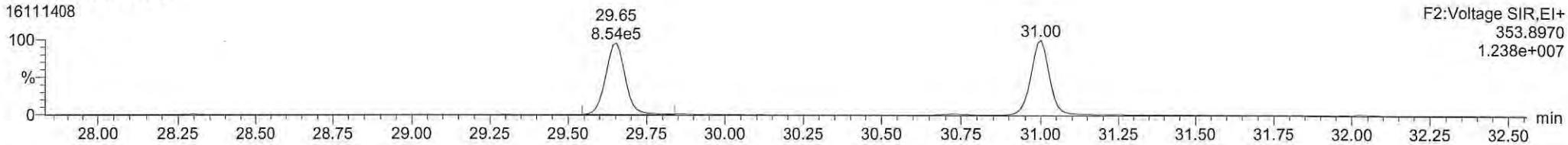
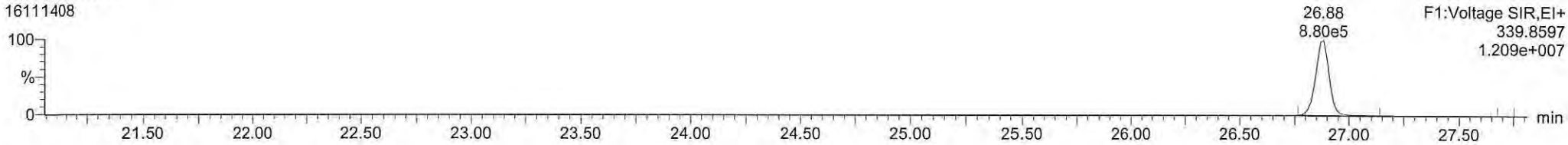


Total-penta1



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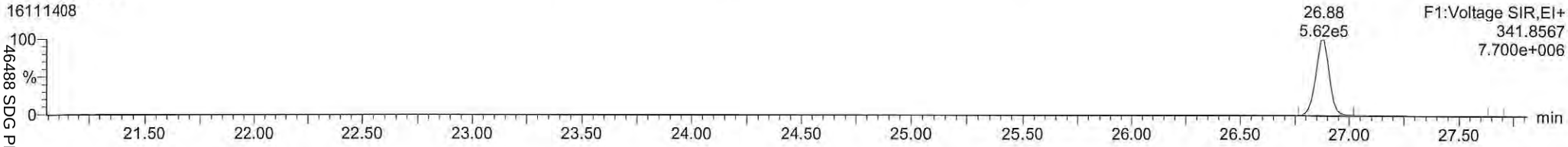
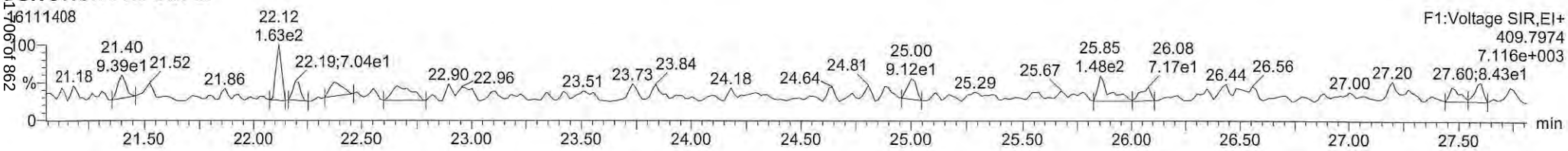


FUNCTION1 HPCDPE



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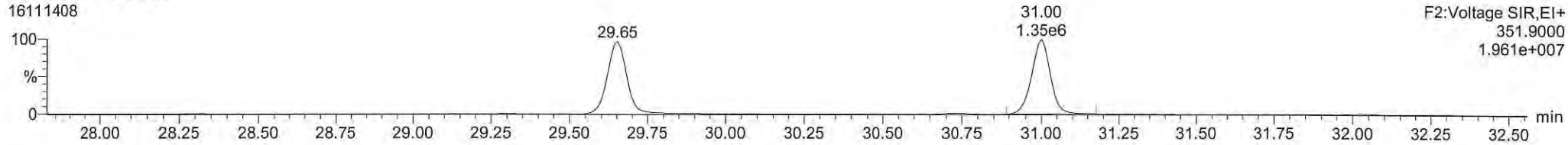
13C-23478-PeCDF



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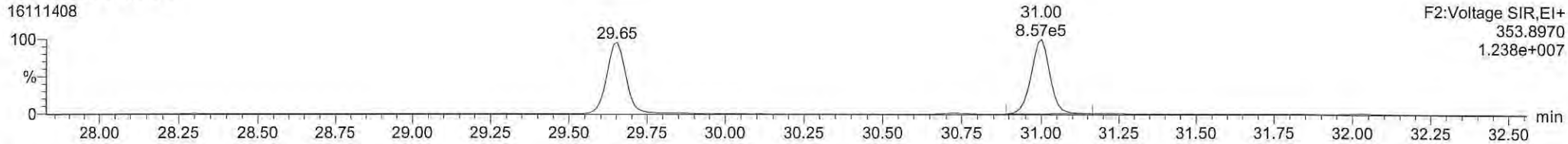

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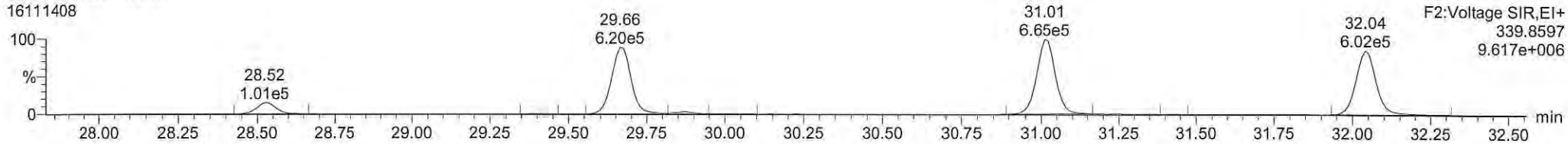
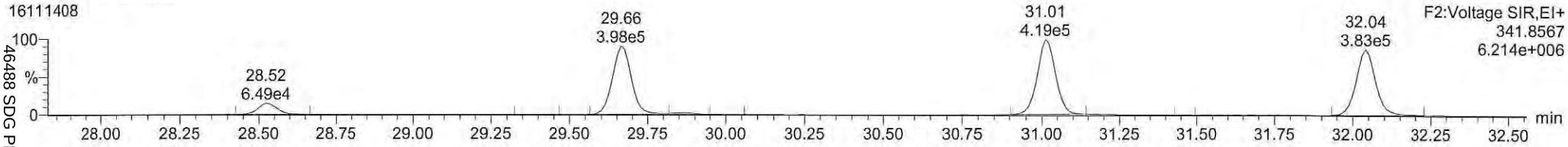
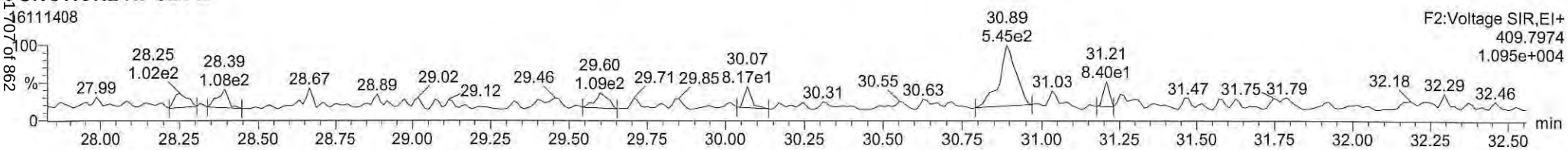


Total-pentafurans



FUNCTION2 HPCDPE



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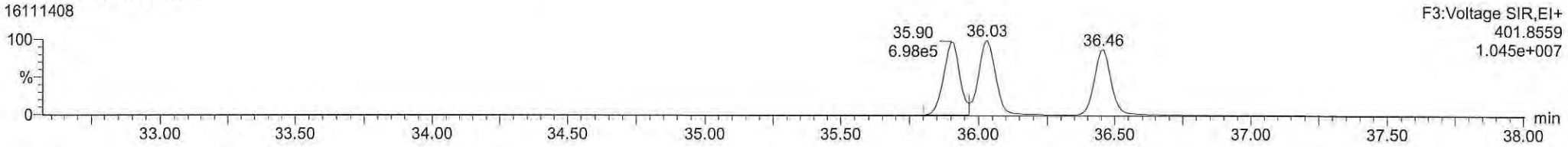
ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

13C-123478-HxCDD



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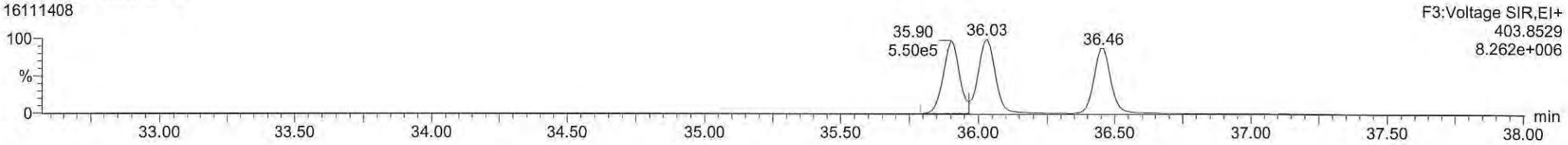

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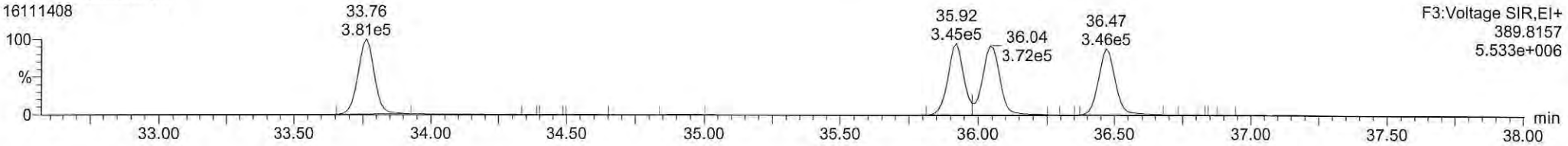
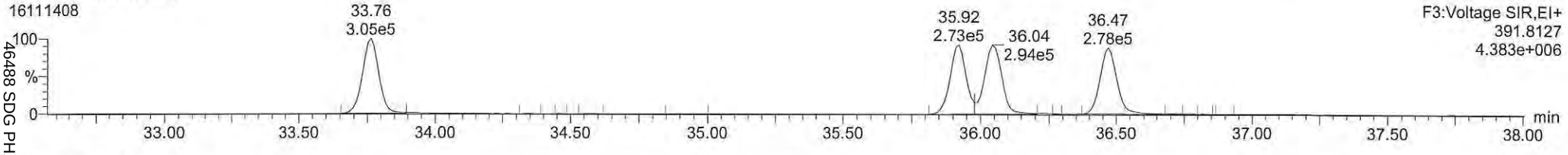
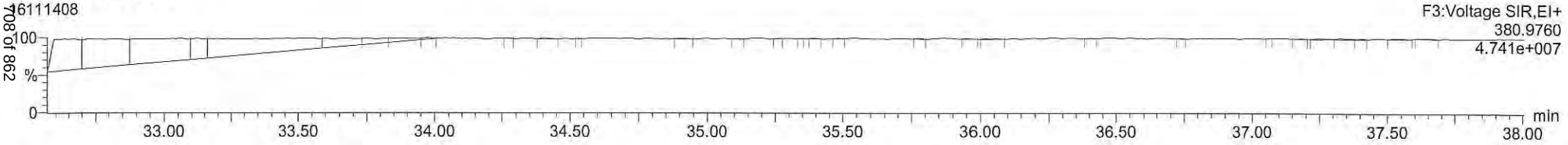


Total-hexadioxins



FUNCTION3 PFK



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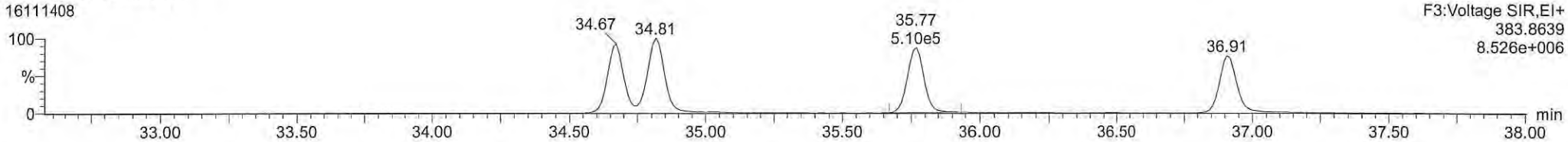
13C-234678-HxCDF



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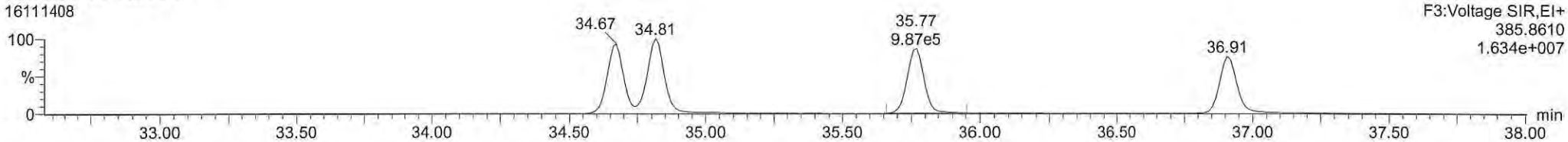

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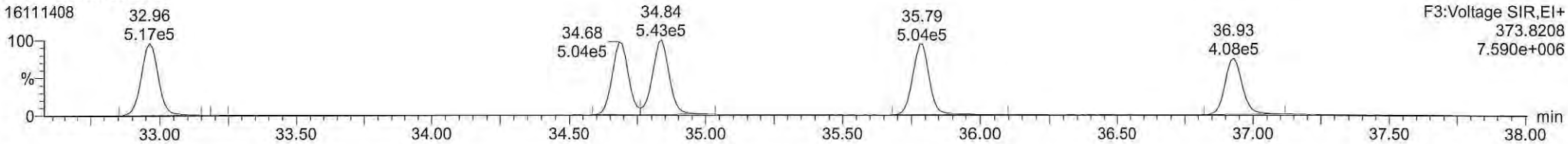
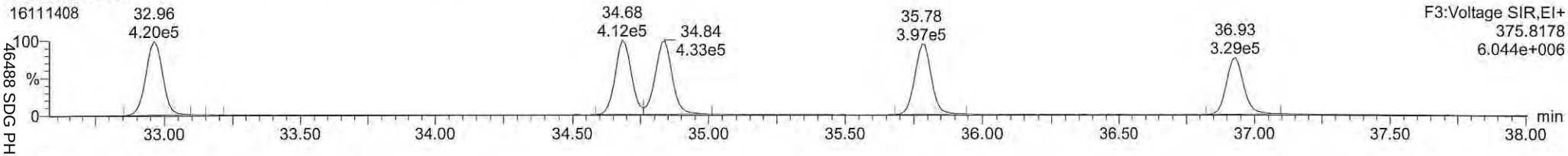
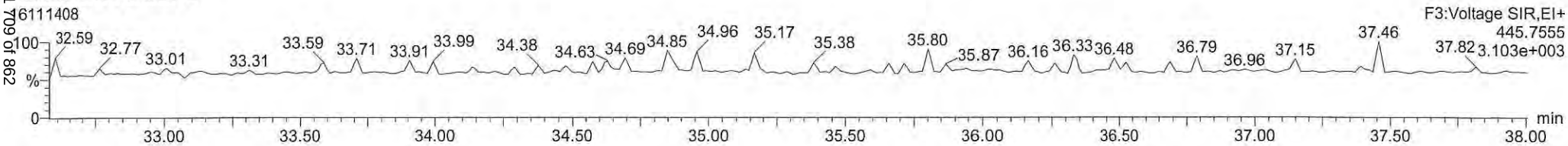


Total-hexafurans



FUNCTION3 OCDPE



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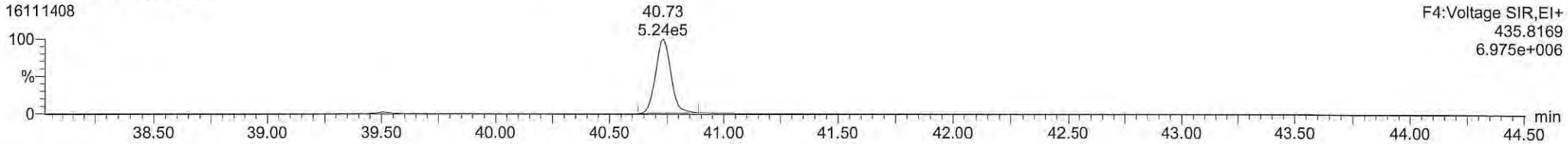
13C-1234678-HpCDD



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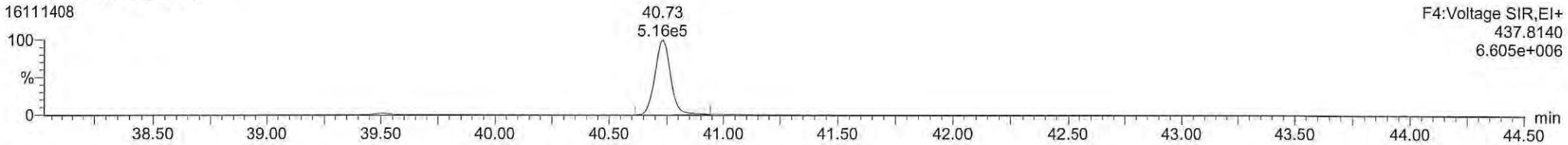

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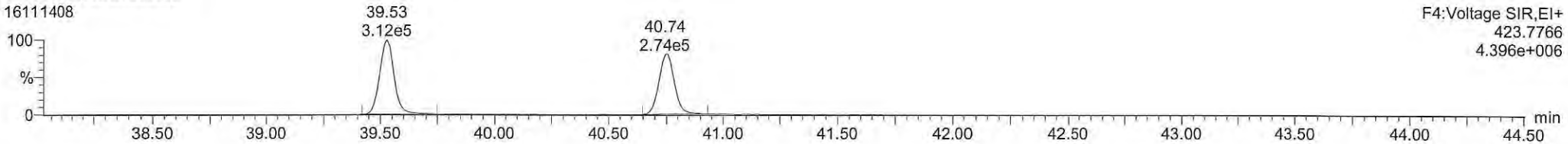

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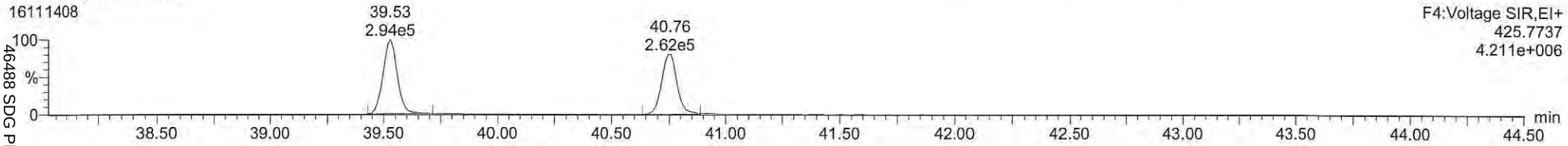
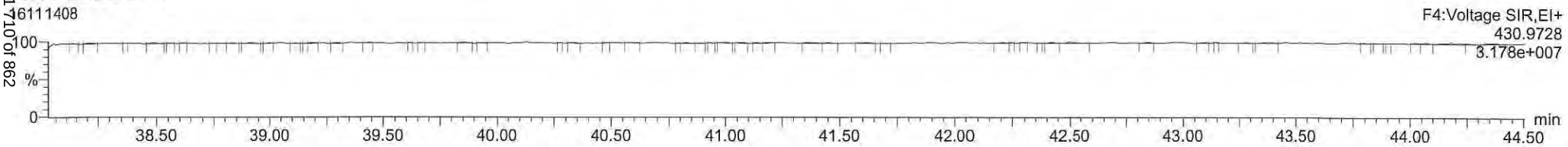


FUNCTION4 PFK



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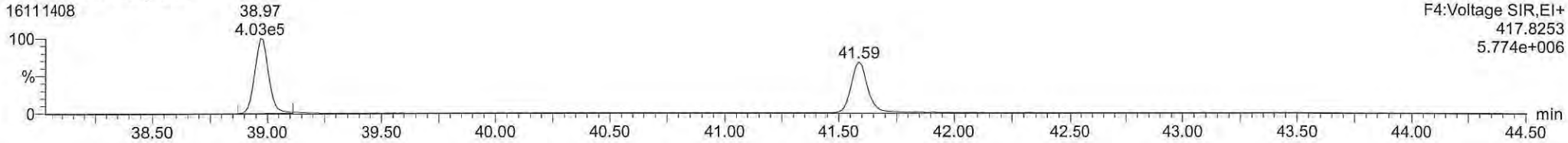
ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

13C-1234678-HpCDF



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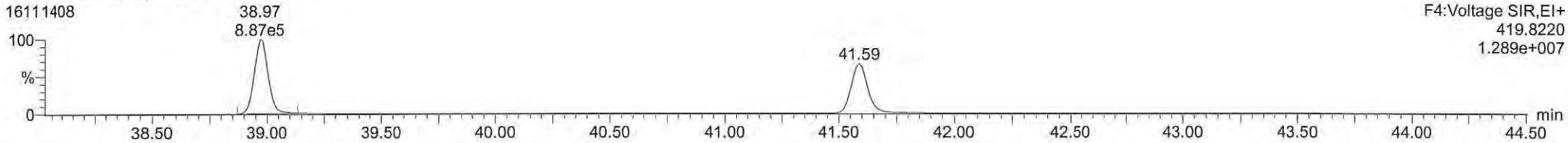
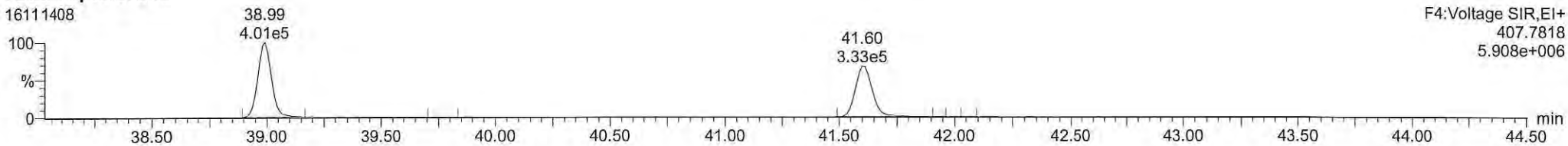


Total-heptafurans



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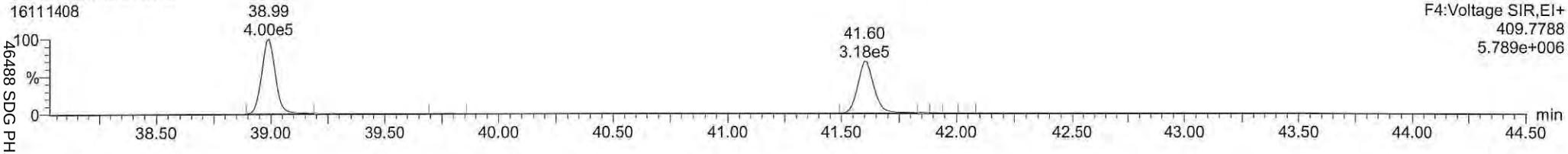
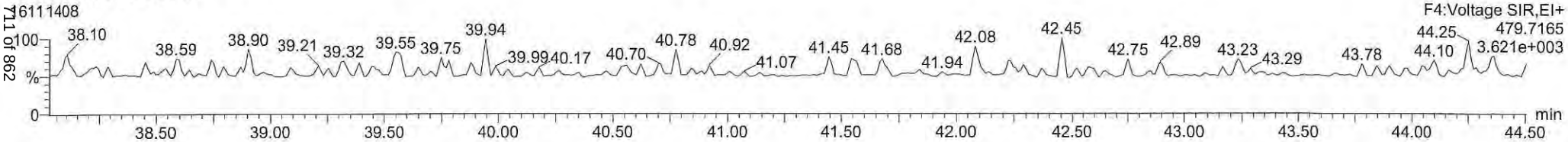


FUNCTION4 NCDPE



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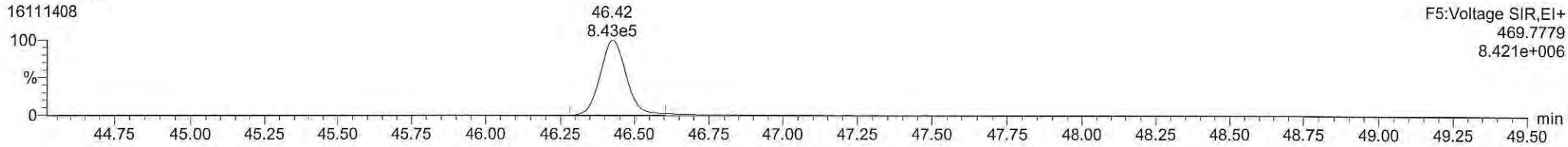
ID: CS3E2, Name: 16111408, Date: 14-Nov-2016, Time: 16:20:50, Conditions: AUTOSPEC01, User: PK

13C-OCDD



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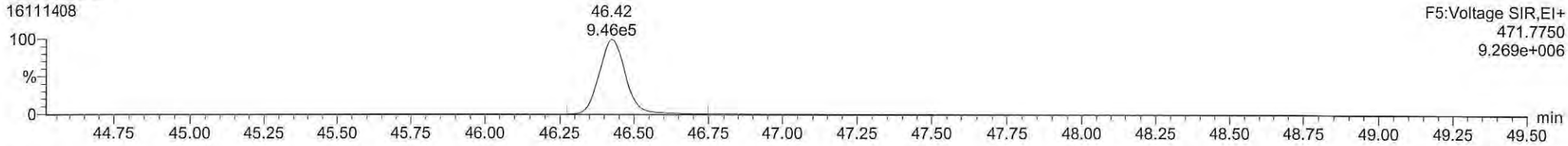
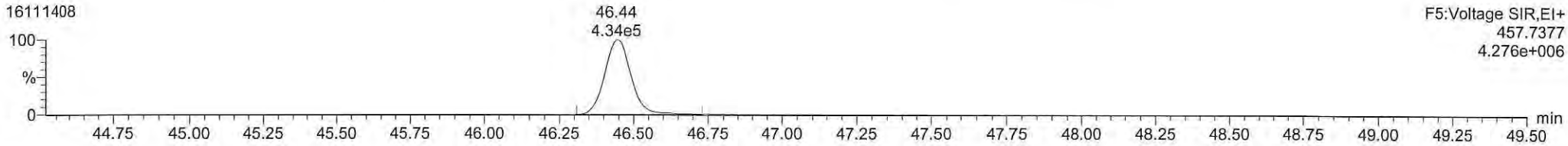


OCDD



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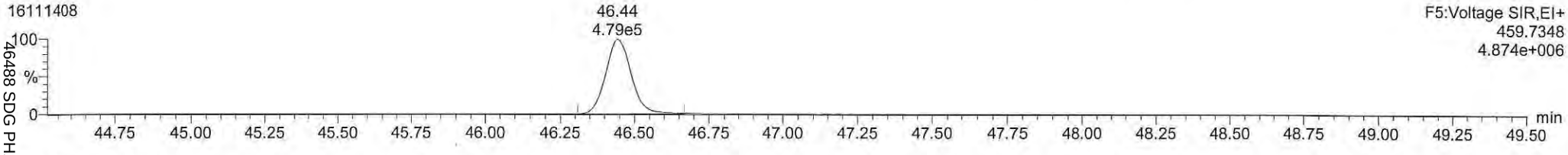
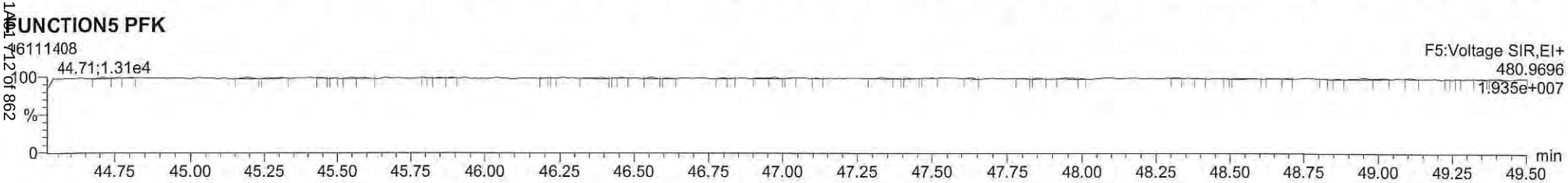


FUNCTION5 PFK



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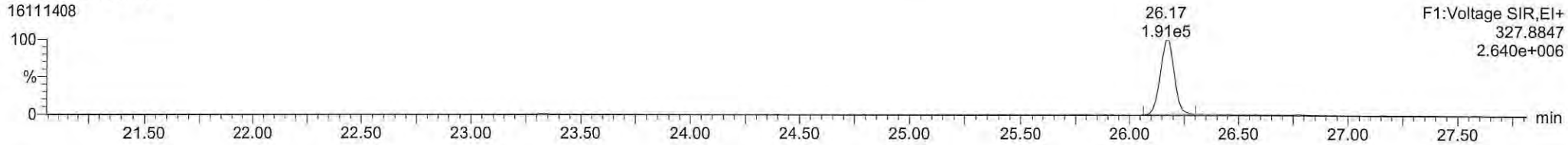
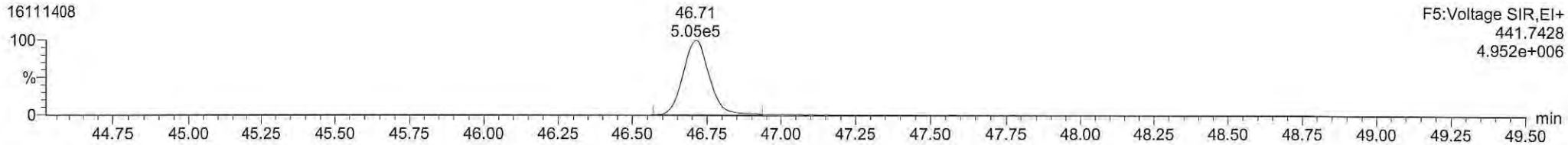
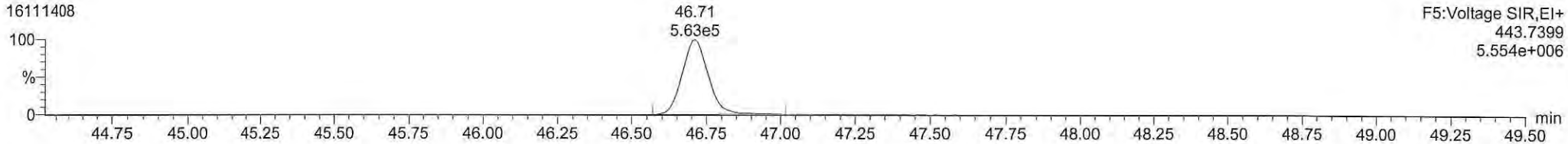
37CL-2378-TCDD



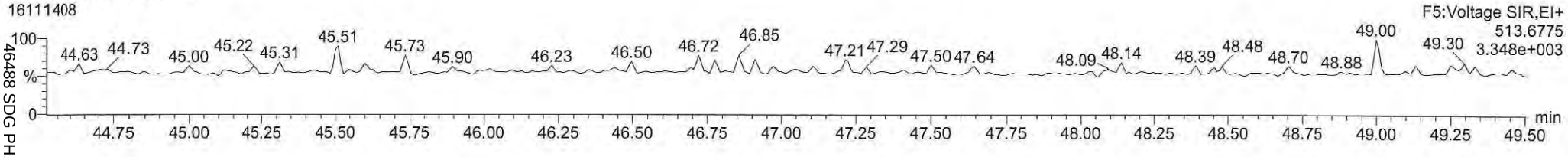
OCDF



OCDF



FUNCTION5 DCDPE



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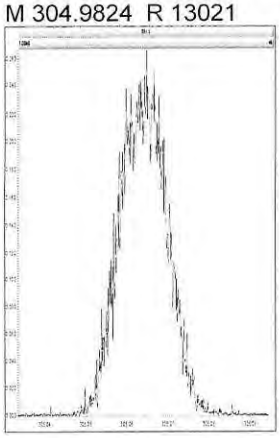
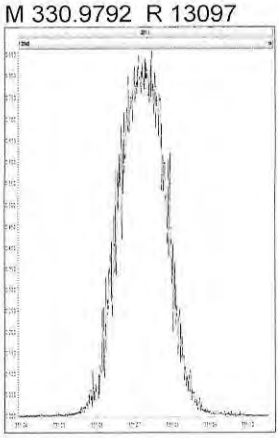
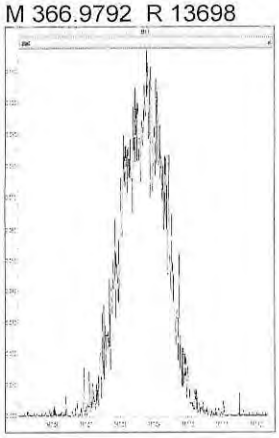
M 304.9824 R 13021



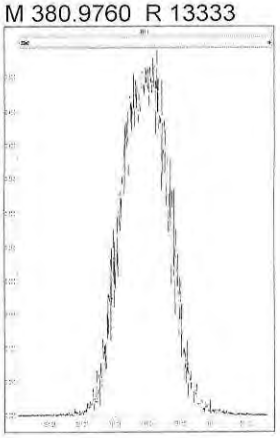
M 330.9792 R 13097



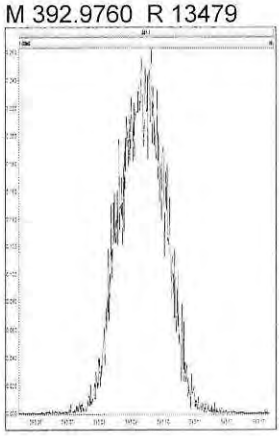
M 366.9792 R 13698



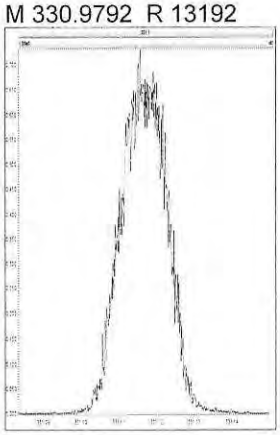
M 380.9760 R 13333



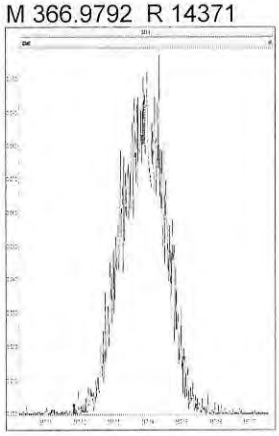
M 392.9760 R 13479



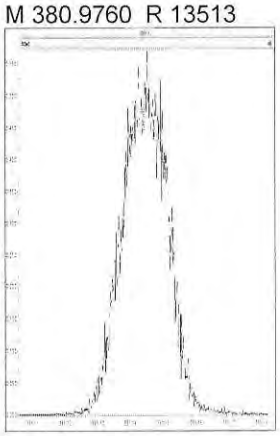
M 330.9792 R 13192



M 366.9792 R 14371



M 380.9760 R 13513



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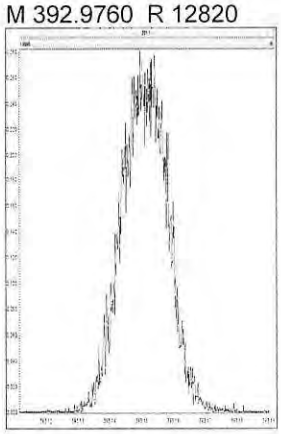

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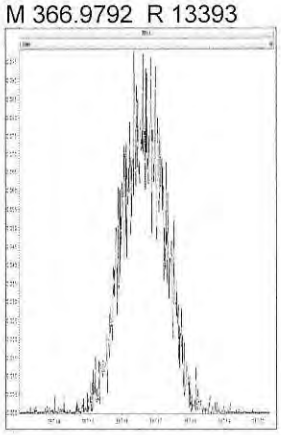
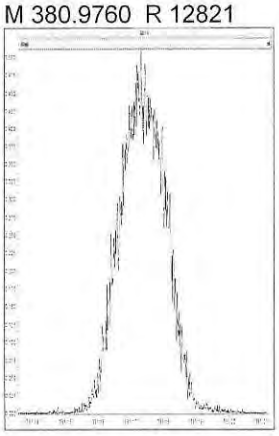
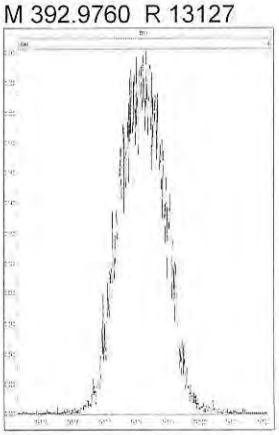


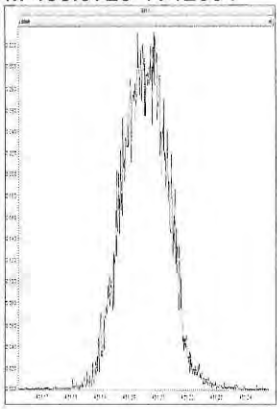
M 380.9760 R 12821



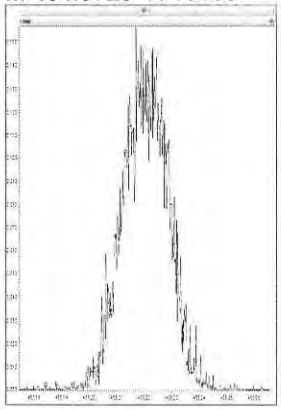
M 392.9760 R 13127



M 430.9728 R 12634



M 454.9728 R 13163



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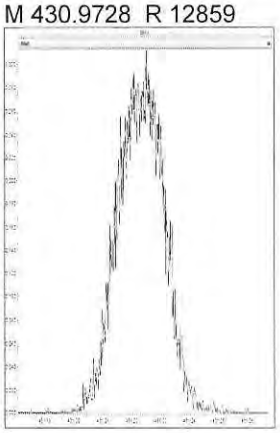
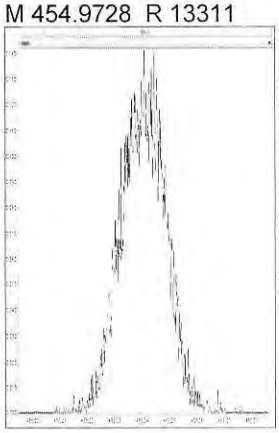


M 454.9728 R 13311



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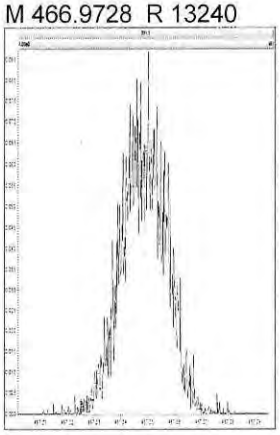
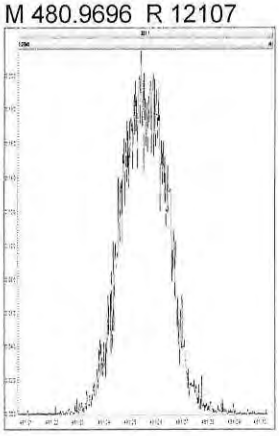
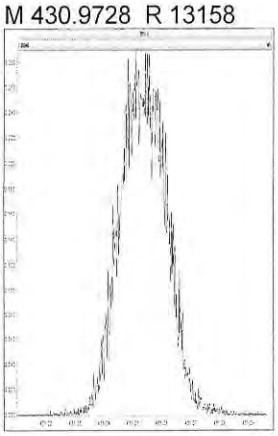
M 466.9728 R 13240



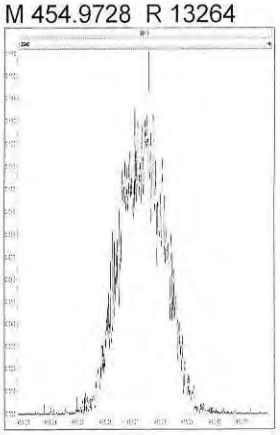
M 480.9696 R 12107



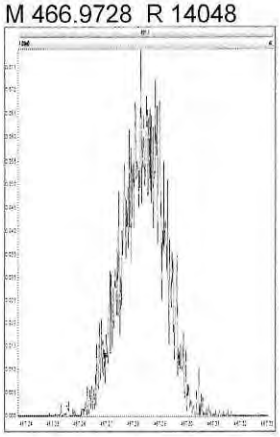
M 430.9728 R 13158



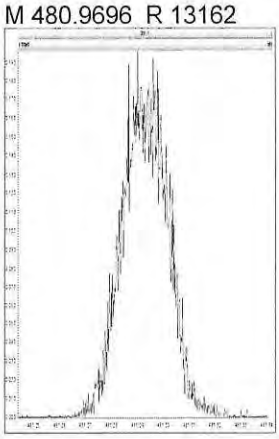
M 454.9728 R 13264



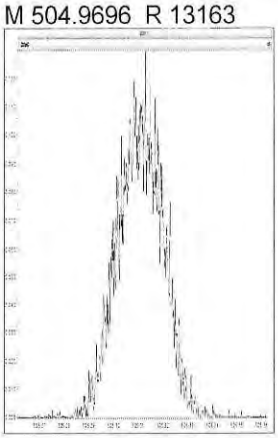
M 466.9728 R 14048

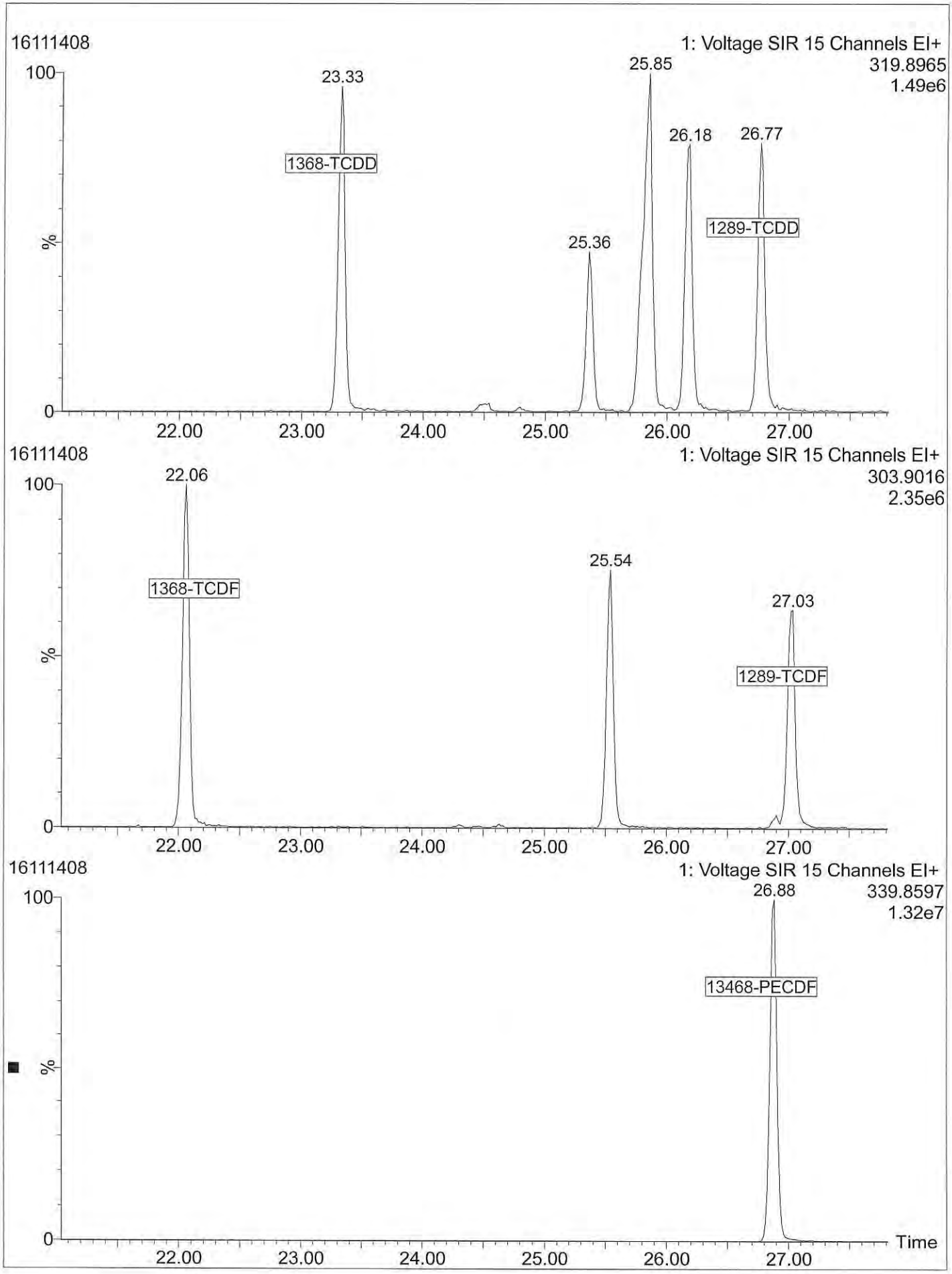


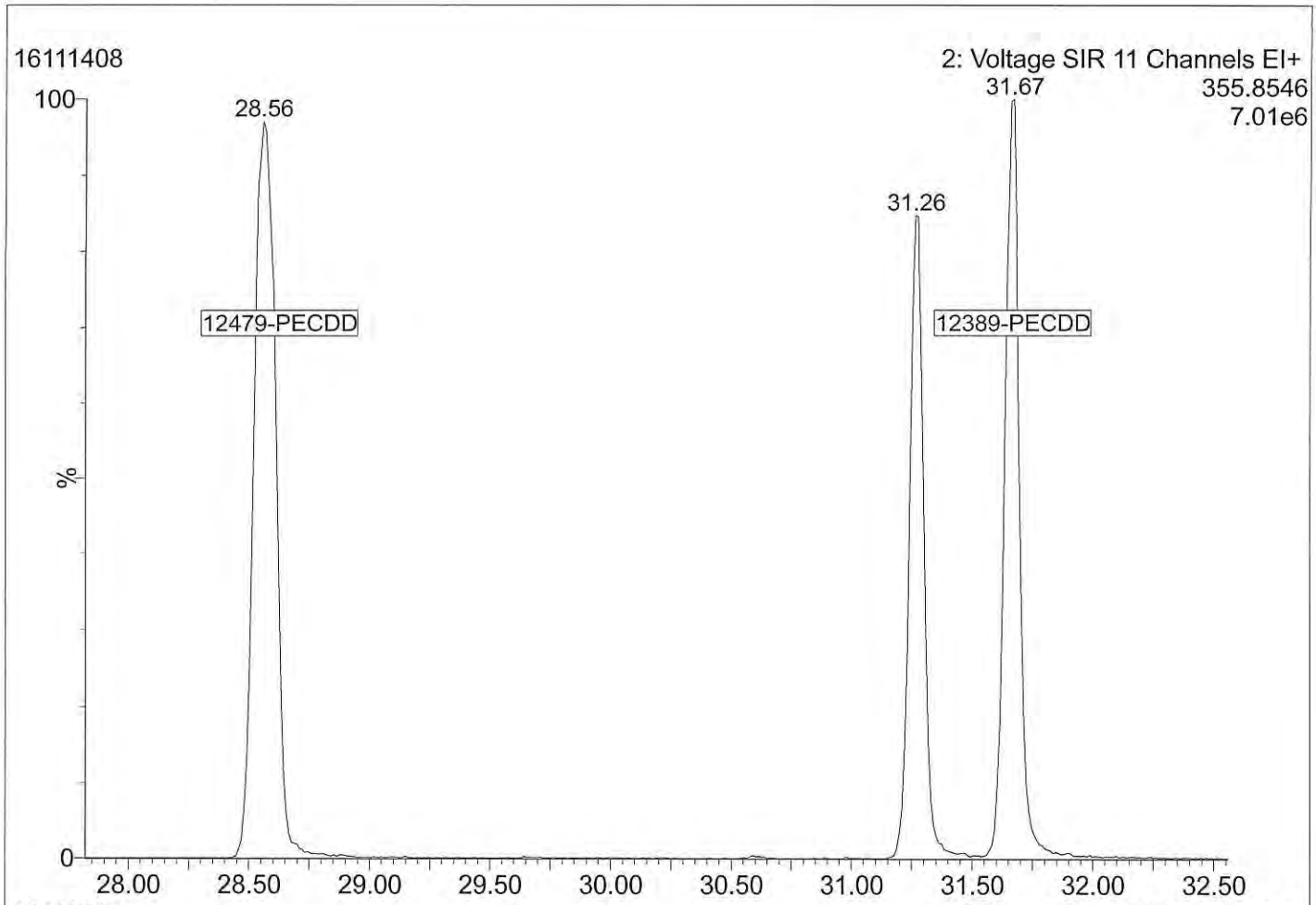
M 480.9696 R 13162

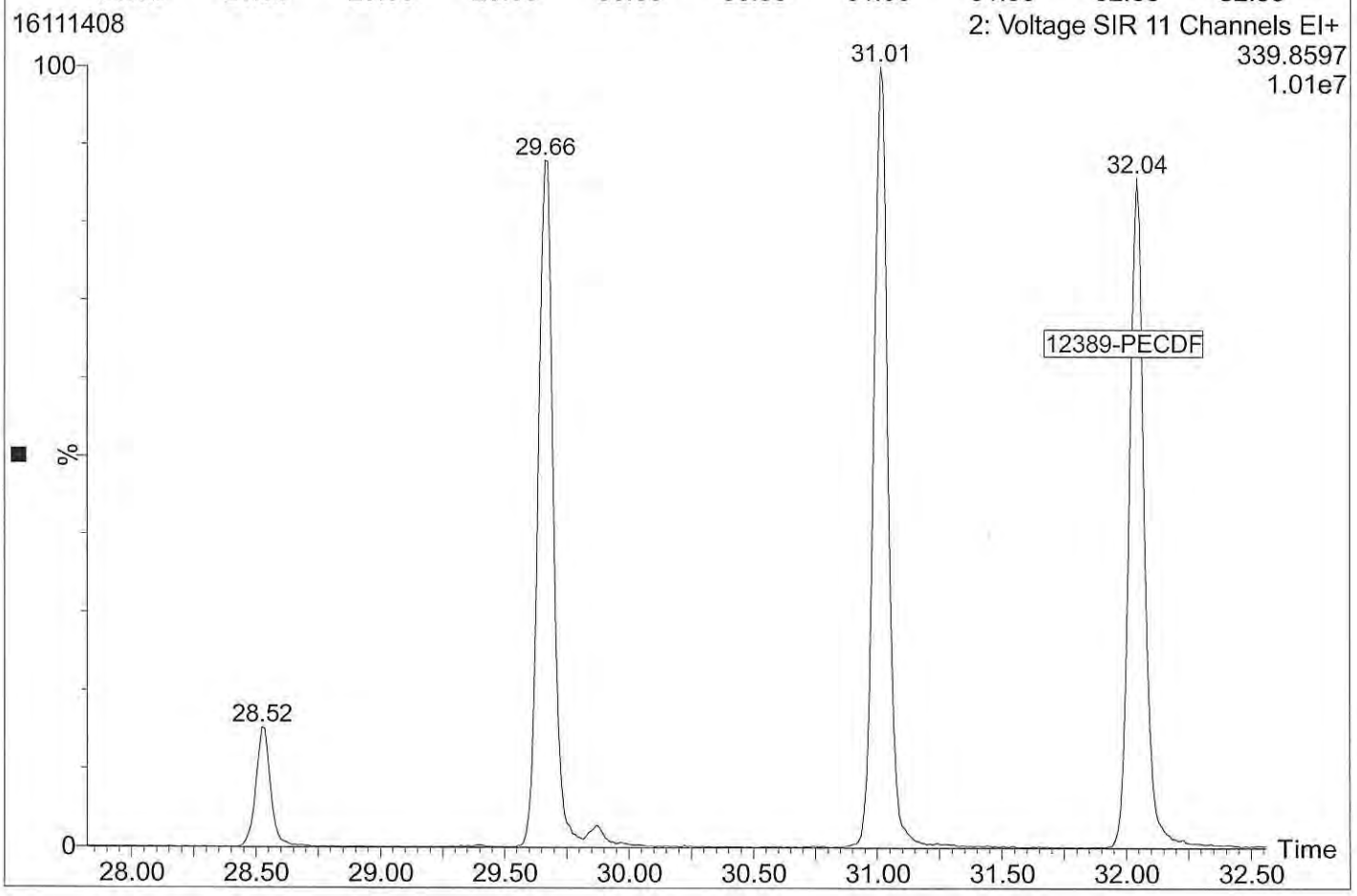


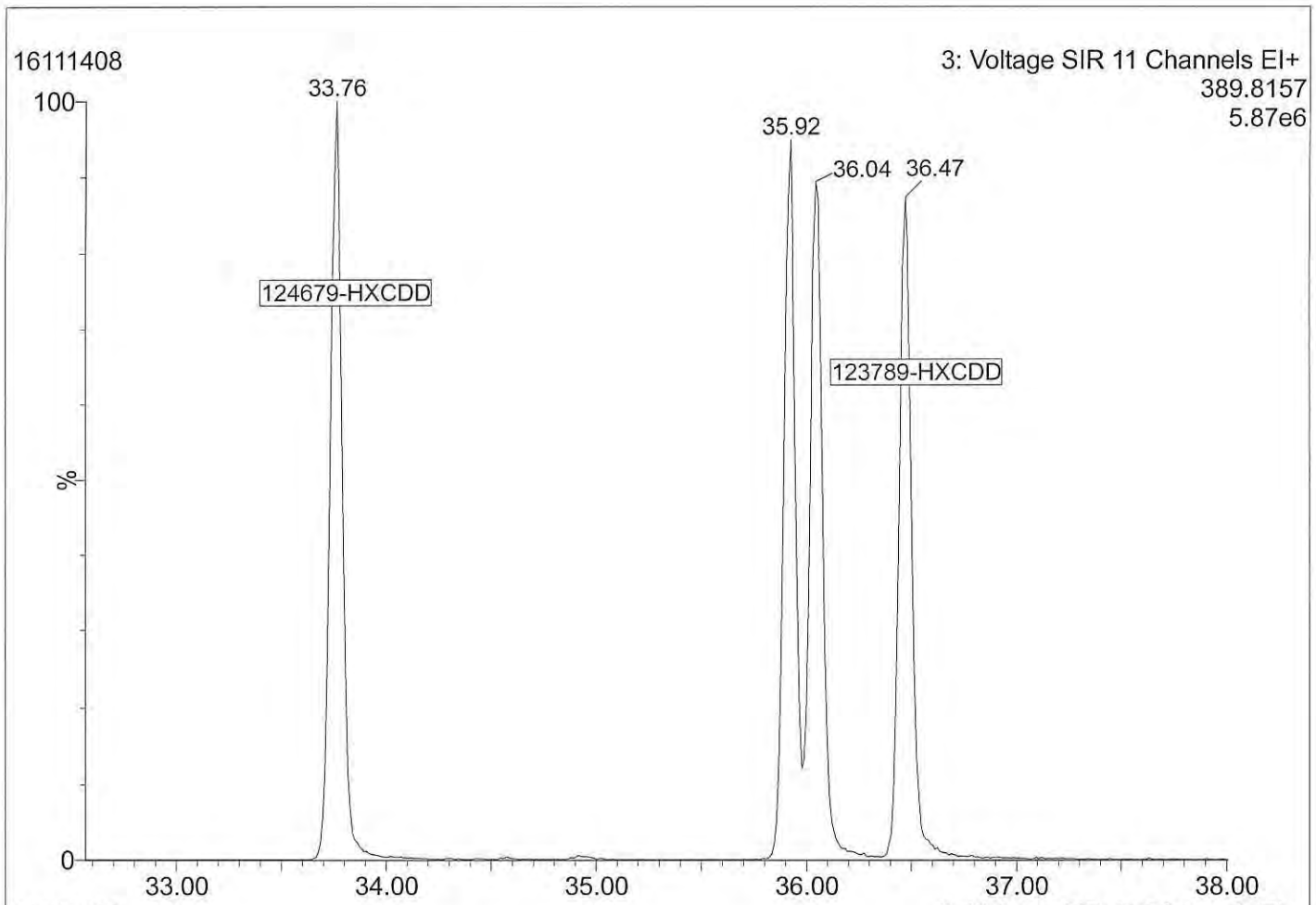
M 504.9696 R 13163

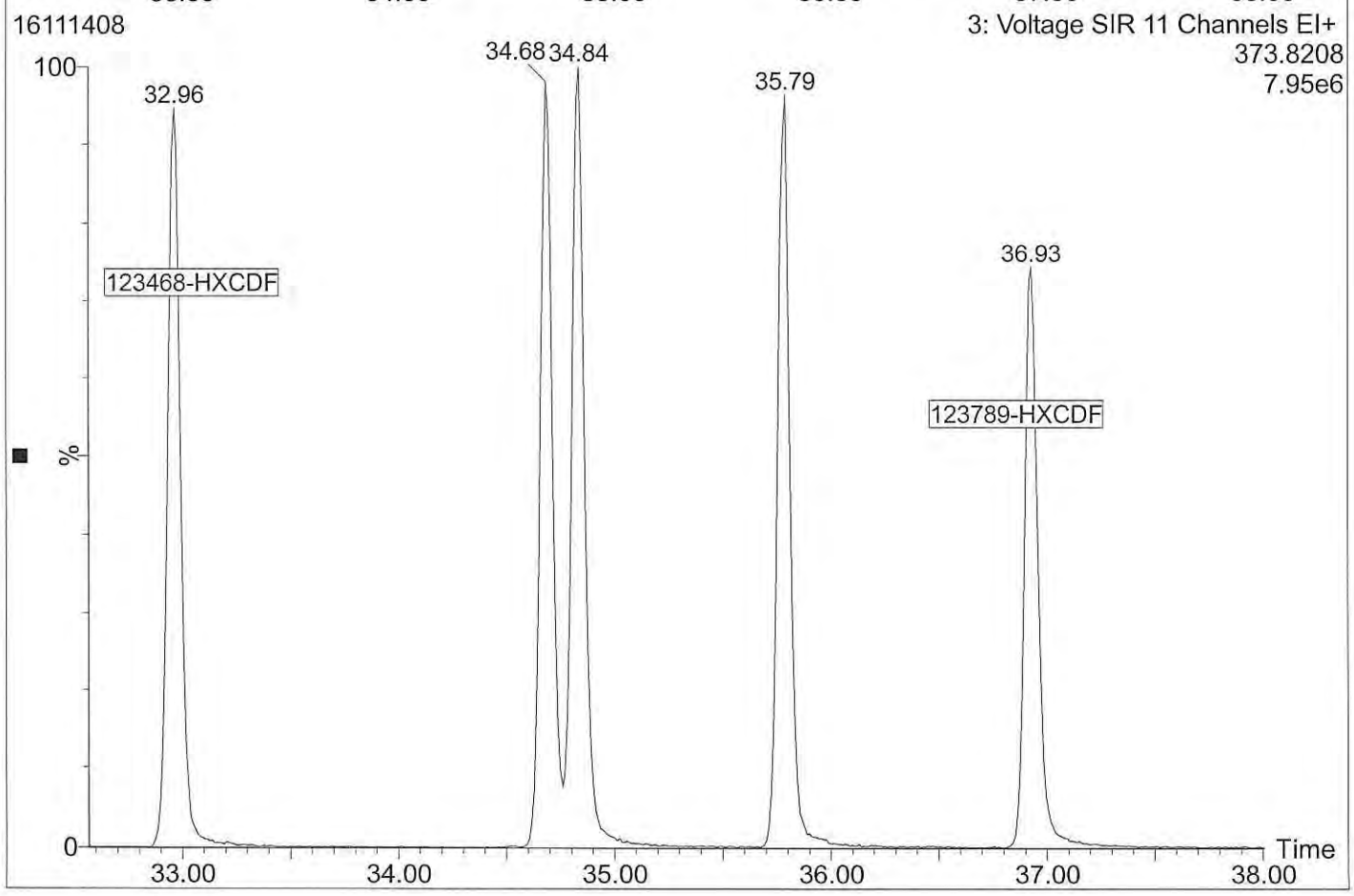


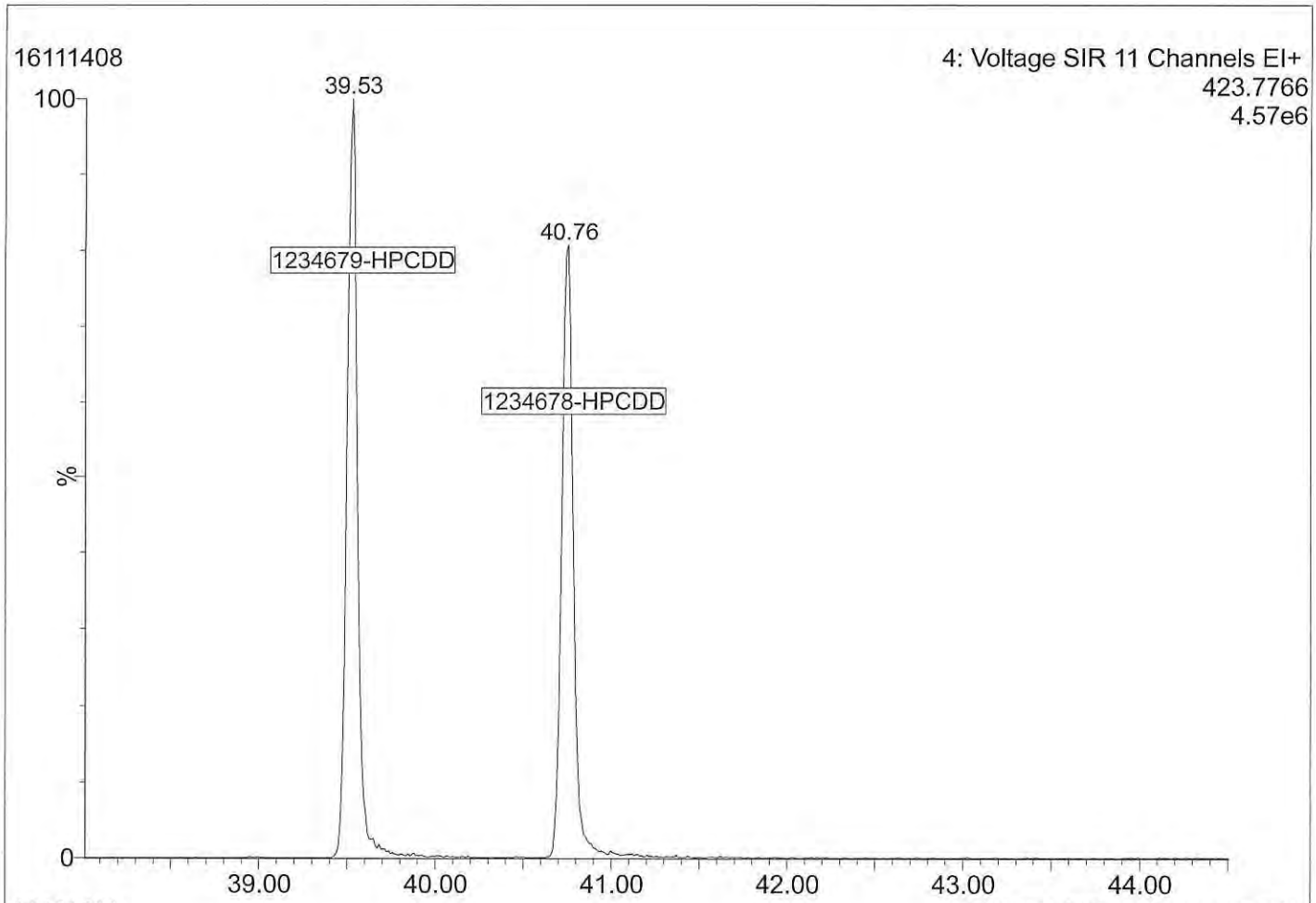

16111408
1: Voltage SIR 15 Channels EI+
319.8965
1.49e6
100
%
0
23.33
1368-TCDD
25.36
25.85
26.18
26.77
1289-TCDD
22.00
23.00
24.00
25.00
26.00
27.00
16111408
1: Voltage SIR 15 Channels EI+
303.9016
2.35e6
22.06
1368-TCDF
25.54
27.03
1289-TCDF
16111408
1: Voltage SIR 15 Channels EI+
339.8597
1.32e7
26.88
13468-PECDF
Time

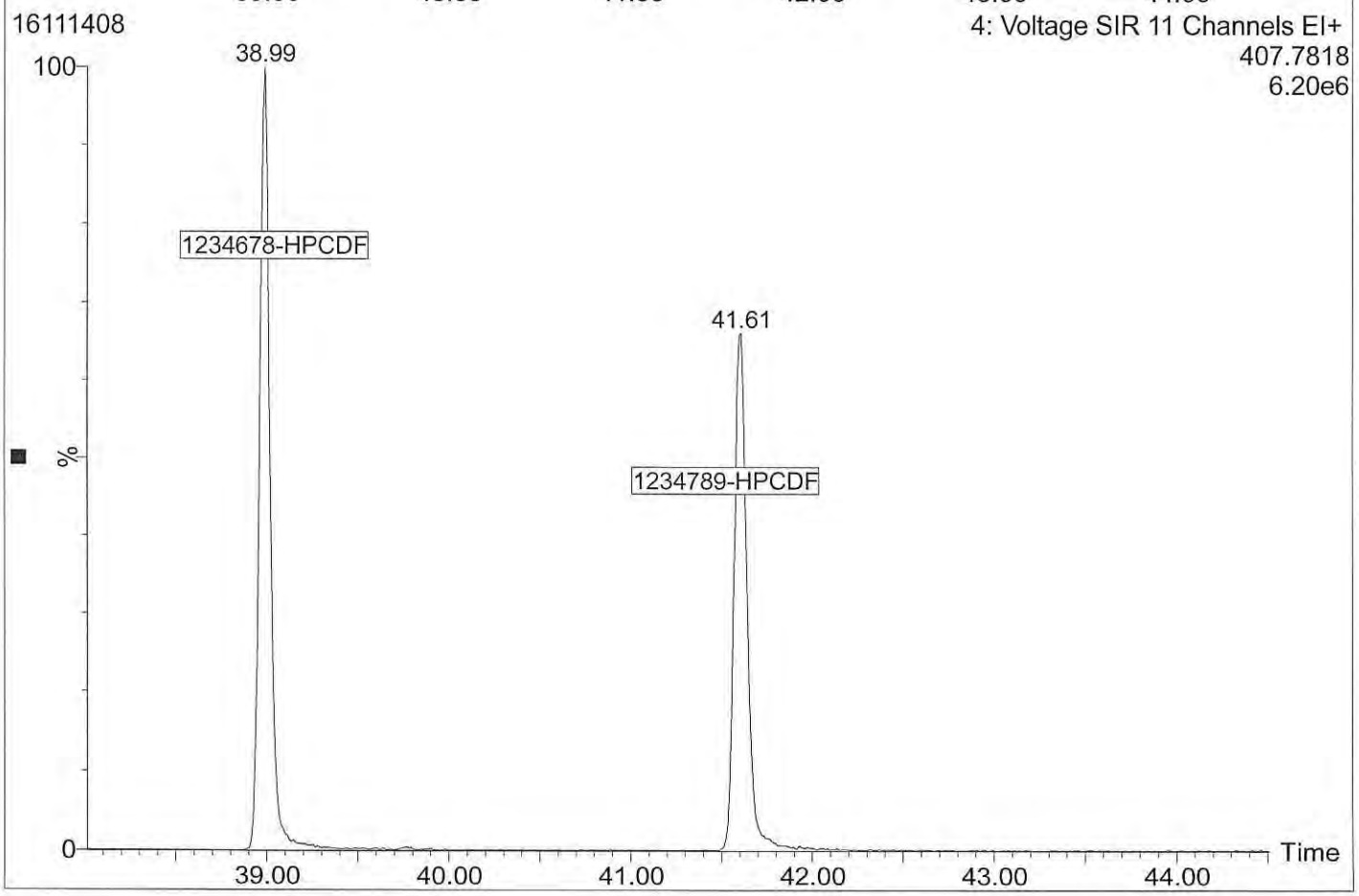

16111408
2: Voltage SIR 11 Channels EI+
355.8546
7.01e6
100
%
0
28.56
31.26
31.67
12479-PECDD
12389-PECDD
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

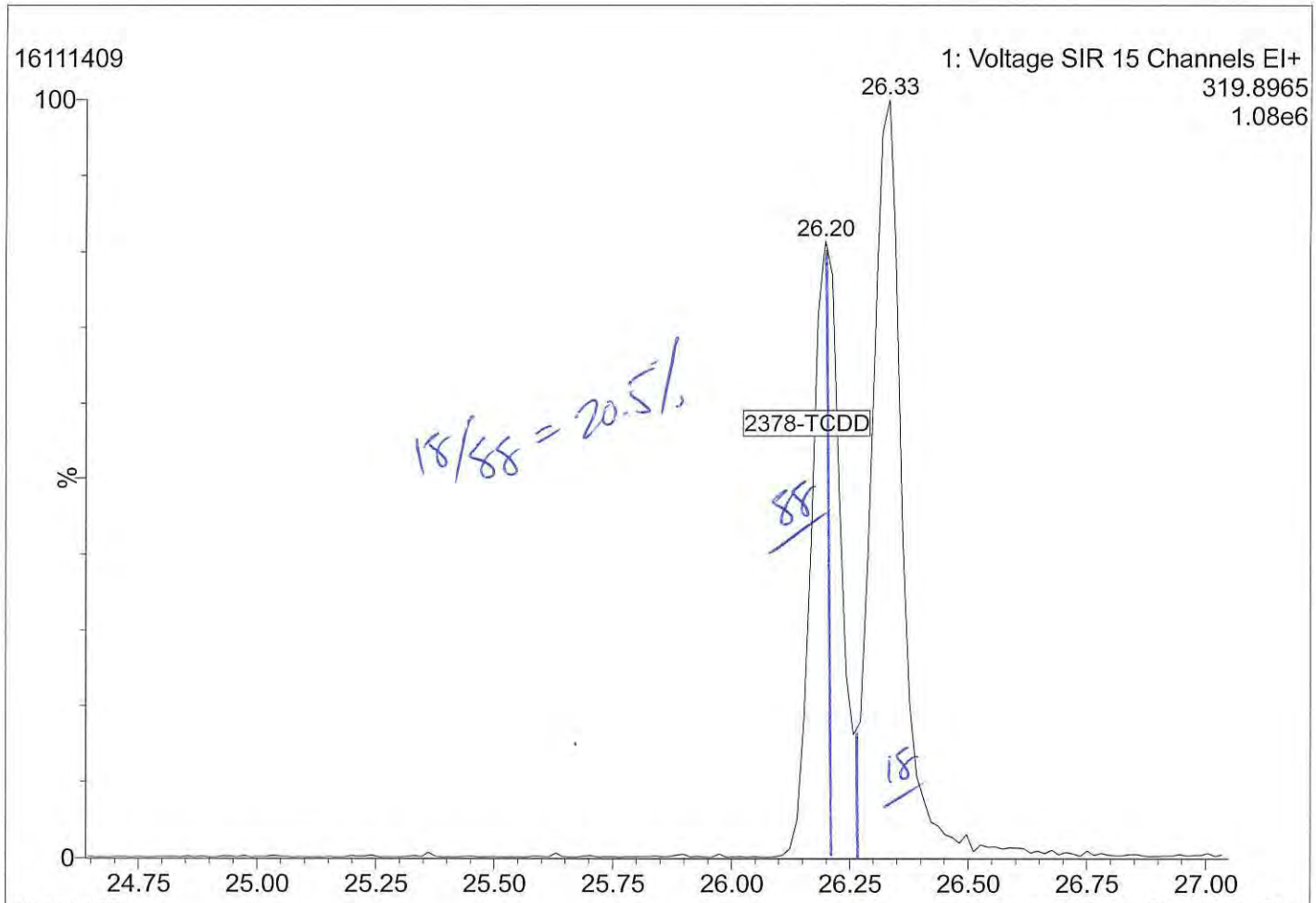

16111408
2: Voltage SIR 11 Channels EI+
339.8597
1.01e7
100
%
0
28.52
29.66
31.01
32.04
12389-PECDF
Time
28.00
28.50
29.00
29.50
30.00
30.50
31.00
31.50
32.00
32.50

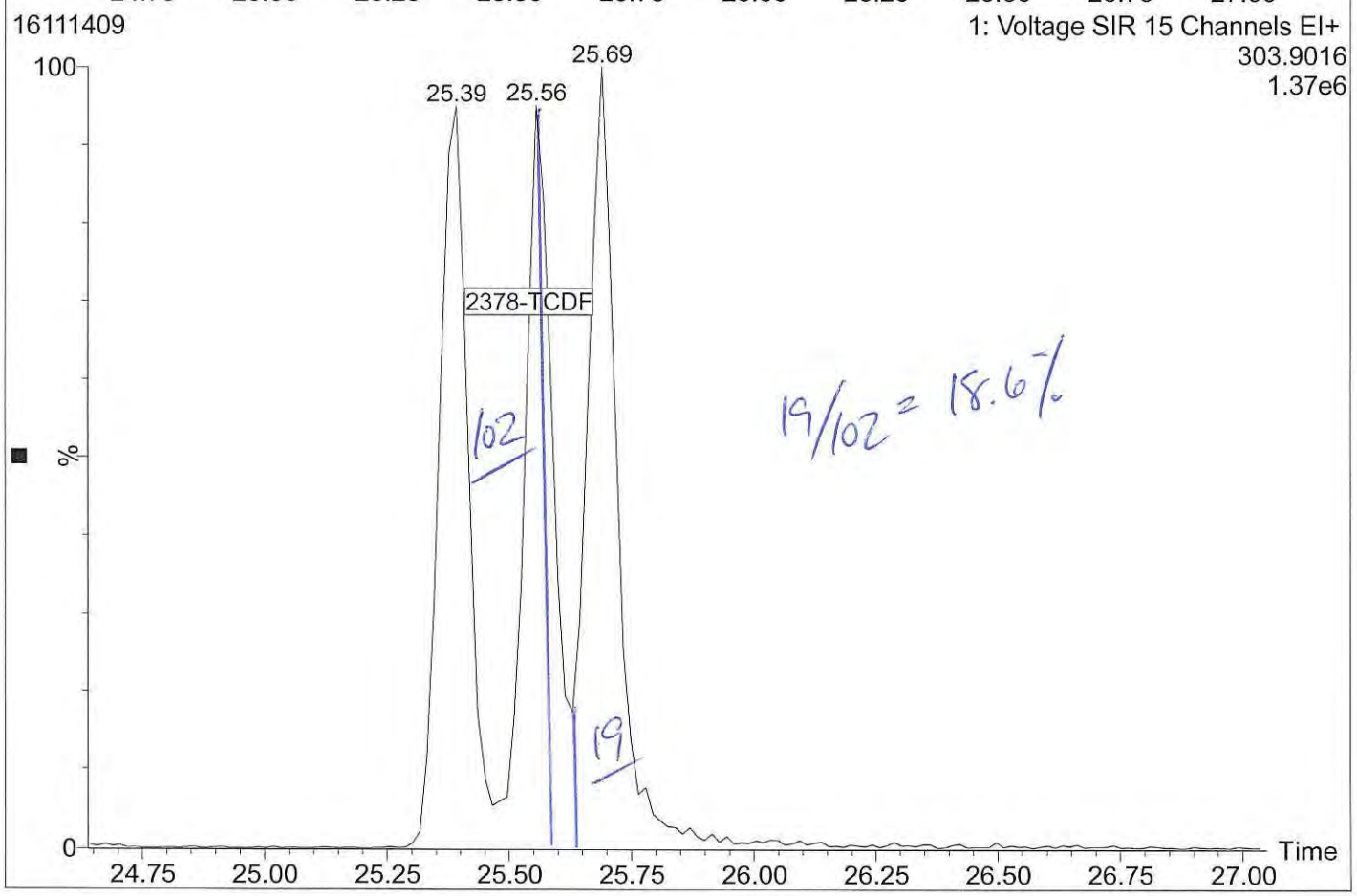

16111408
3: Voltage SIR 11 Channels EI+
389.8157
5.87e6
100
%
0
33.76
35.92
36.04
36.47
124679-HXCDD
123789-HXCDD
33.00
34.00
35.00
36.00
37.00
38.00


16111408
3: Voltage SIR 11 Channels EI+
373.8208
7.95e6
100
%
0
32.96
34.68
34.84
35.79
36.93
123468-HXCDF
123789-HXCDF
Time
33.00
34.00
35.00
36.00
37.00
38.00


16111408
4: Voltage SIR 11 Channels EI+
423.7766
4.57e6
100
%
0
39.53
1234679-HPCDD
40.76
1234678-HPCDD
39.00
40.00
41.00
42.00
43.00
44.00


16111408
4: Voltage SIR 11 Channels EI+
407.7818
6.20e6
100
%
0
38.99
1234678-HPCDF
41.61
1234789-HPCDF
Time
39.00
40.00
41.00
42.00
43.00
44.00


16111409
1: Voltage SIR 15 Channels EI+
319.8965
1.08e6
100
%
0
26.33
26.20
2378-TCDD
18/88 = 20.5%
88
18
24.75
25.00
25.25
25.50
25.75
26.00
26.25
26.50
26.75
27.00


16111409
1: Voltage SIR 15 Channels EI+
303.9016
1.37e6
100
%
0
25.69
25.39
25.56
2378-TCDF
102
19
19/102 = 18.6%
Time
24.75
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

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

Batch: BEK0165

Solid Samples

ARI Work Orders:	16J0442, 16J0502, 16J0506, 16K0015		
Matrix (circle one)	(Soil) Sediment	Oil	Tissue
Extraction Method	Start Date/Time	End Date/Time:	
Soxhlet SepF Shake out	11/7/16 1240	11/8/16 0600	

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Balance		24650344	NL	11/7/16
Purified Sand		E003665	NL	11/7/16
Toluene		E003118	NL	11/7/16
Hexane		E004837	NL	11/8/16 / 11/9/16
CH2Cl2		E004229	NL	11/9/16
H2SO4		E002416	M	11/8/16
Na2SO4		E005295 / E005874	M	11/9/16
Glasswool		E001046	M	11/9/16
(98 2) Hex/DCM		E005271	M	11/9/16
Basic Silica		E005283	M	11/9/16
Acid Silica		E005284	M	11/9/16
0% Silica		E003001	M	11/7/16 / 11/9/16
Activated Florisil		E001666	M	11/9/16
Nonane		E000869	M	11/9/16
Other ( )				

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)
16J0442-01 A	PBD454	88 75	(11 27)	11.51	1 (2)	1.6	20
16J0442-02 A	PBD455	89 51	(11 17)	11.31	(1)/2	1.2	20
16J0442-03 A	PBD456	90 53	(11 05)	11.11	1 (2)	1.1	20
16J0442-04 A	PBD457	82 26	(12 16)	12.18	(1)/2	2.0	20
16J0442-05 A	PBD458	83 95	(11 91)	12 04	1 (2)	1.9	20
16J0442-06 A	PBD459	89 22	(11 21)	11.34	(1)/2	1.2	20
16J0442-07 A	PBD463	93 3	(10 72)	10.80	1 (2)	0.8	20
16J0442-08 A	PBD4B2	88 27	(11 33)	11.53	(1)/2	1.6	20
16J0502-01 A	Dup A	77 66	(12 88)	12.95	1 (2)	2.7	20
16J0502-02 A	S14 0-1	81 23	(12 31)	12.45	(1)/2	2.1	20
16J0502-03 A	S15 0-1	79 14	(12 64)	12.69	1 (2)	2.0	20
16J0506-01 A	PBD4A8	82 69	(12 09)	12.15	(1)/2	2.4	20
16J0506-02 A	PBDQ7	87 73	(11 40)	11.45	1 (2)	1.5	20
16K0015-02 A	PH1A02	31 86	(31 39)	31.40	(1)/2	10.6	20
16K0015-04 A	PH1A04	16 42	(60 99)	60.96	1 (2)	22.0	20
16K0015-06 A	PH1A06	68 37	(14 63)	14.74	1/2	2.0	20
BEK0165-BLK1	DBLK07	100	(10 00)		(1)/2	0.7	20
BEK0165-BS1	DLCS07	100	(10 00)		1 (2)	1.0	20
BEK0165-BSD1	DLCSD07	100	(10 00)		(1)/2	0.8	20
Prep Analyst / Date:	NL 11/7/16				M 11/8/16	M 11/8/16	M 11/9/16

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1 0 mL	E006047	2/4 ng/mL	4/29/17	NL	JW	11/7/16
OPR	20 uL	E004560	10/50/100 ng/ml	3/20/17	NL	JW	11/7/16
QLS Standard	10 uL		0 5/2 5/5 ng/mL				
Cleanu-up Standard	1 0 mL	E005551	0 8 ng/mL	4/16/17	NL	JW	11/9/16

Verify Client ID

Analyst / Date: NL 11/7/16

Acid Clean

(Y)/N

Analyst / Date: M 11/8/16

Silica-Florisil Clean

(Y)/N

Analyst / Date: M 11/9/16

Supervisor Review By — Date 11/16/16

Printed 11/5 2016 9 13 54AM

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Page 1 of 1

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glassware

ARI Sample ID: BEK0165 Client Sample ID: Client Project ID: ARI Analyst NL

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 Mantle
BEK0165 - BLK1	76	75		206	16	47	151	9				4	4	A1
BS1	12	13		19	106	184	1	27				4	4	A2
BSD1	18	17		25	74	215	67	10				4	4	A3
16J0442 - C1A	73	70		189	71	175	81	13				4	4	A4
C2A	44	71		187	63	165	143	15				4	4	A5
C3A	60	73		27	29	196	99	4				4	4	A6
C4A	46	49		276	104	176	124	23				4	4	B1
C5A	2	55		6	78	11	115	42				4	4	B2
C6A	51	110		202	49	161	59	26				4	4	B3
C7A	17	16		188	27	139	138	17				4	4	B4
C8A	110	72		163	76	121	15	3				4	4	B5
16J0502 - C1A	82	67		4	20	~~22442~~	161	21				4	4	B6
C2A	63	59		191	45	125	101	2				4	4	C1
C3A	46	8		208	77	221	159	5				4	4	C2
16J0506 - C1A	52	47		190	37	142	22	6				4	4	C3
C2A	85	46		240	13	119	119	16				4	4	C4
16K0015 - C2A	27		65	201	13	169	108	2				4	4	C5
C4A	83		23	241	19	164	7	30				4	4	C6
C6A	10		67	232	15		121	31				4	4	D1
												4	4	
												4	4	
												4	4	
												4	4	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

ARI Job No.: 165442 Client ID: USEPA

Batch ID:

Parameter: Client Project: HRS001.2

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= 01-02, 04, 07	RMH 10/31
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☒ Rocks (%+size)? small- 03, 05, 06, 08 med- 03, 05, 08	10/31 RMH
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ 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).	
☒ Share Samples Y / N	RMH 10/31/16
☒ Multiple Jars Y / N	RMH 10/31/16
☐ 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

ARI Job No.: 16J05P2

Client ID: Stemen Environmental, Inc.

Batch ID:

Parameter:

Client Project: West Bay Marina

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☒ Rocks (%+size)? small · 10% Ø1, Ø3 med · 10% Ø2, Ø3	RMH 11/1
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ 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).	
☒ Share Samples Y / N	RMH 11/1
☒ Multiple Jars Y / N	RMH 11/1
☐ 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

ARI Job No.: 16J056-6

Client ID: USEPA

Batch ID:

Parameter:

Client Project: HRS401-R

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= 01-02	RMH 11/3
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ 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).	
☒ Share Samples Y / N	RMH 11/3
☒ Multiple Jars Y / N	RMH 11/3
☐ 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

ARI Job No.: 16K0015

Client ID: USEPA

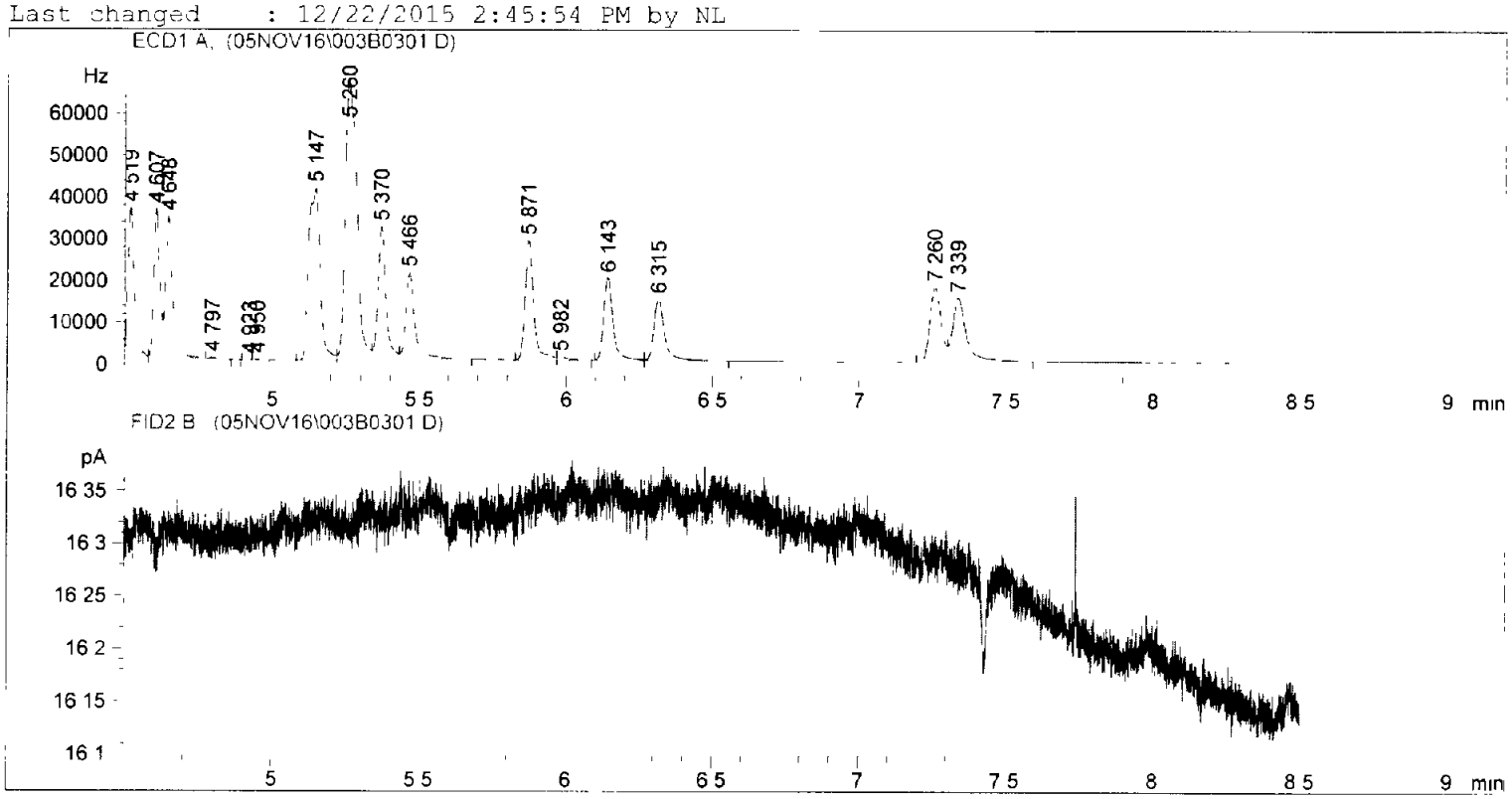
Batch ID:

Parameter:

Client Project: HRS Moi-2

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☒ Standing Water Decanted (Not shared)= 02-06	[illegible] 11/3/16
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ 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).	
☒ Share Samples Y / N	[illegible] 11/3/16
☒ Multiple Jars Y / N	[illegible] 11/3/16
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

```
==================================================================
Injection Date  : 11/5/2016 9:05:30 AM          Seq. Line :   3
Sample Name     : CS5 STD                        Location : Vial 3
Acq. Operator   : NL                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 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	4.519	BP S	0.0222	4.64417e4	3.34469e4	5.89527
2	4.607	PV S	0.0210	4.89782e4	3.53195e4	6.21726
3	4.648	VB S	0.0270	5.43901e4	3.35812e4	6.90424
4	4.797	BB T	0.0248	602.69824	373.69467	0.07651
5	4.923	PV	0.0175	113.96538	98.77317	0.01447
6	4.950	VP	0.0228	323.41608	214.18764	0.04105
7	5.147	PV S	0.0367	1.12518e5	4.11749e4	14.28294
8	5.260	VV S	0.0446	1.81068e5	6.73582e4	22.98469
9	5.370	VV S	0.0313	5.98081e4	3.18044e4	7.59199
10	5.466	VB S	0.0372	4.61944e4	2.06877e4	5.86389
11	5.871	PV S	0.0314	5.82108e4	2.84786e4	7.38924
12	5.982	vB S	0.0469	1911.31128	678.76172	0.24262
13	6.143	BV S	0.0323	4.37119e4	1.96613e4	5.54875
14	6.315	VB S	0.0380	3.70849e4	1.46054e4	4.70754
15	7.260	PV S	0.0400	4.65689e4	1.78454e4	5.91142
16	7.339	VB S	0.0549	4.98514e4	1.51255e4	6.32811

Totals : 7.87778e5 3.60455e5

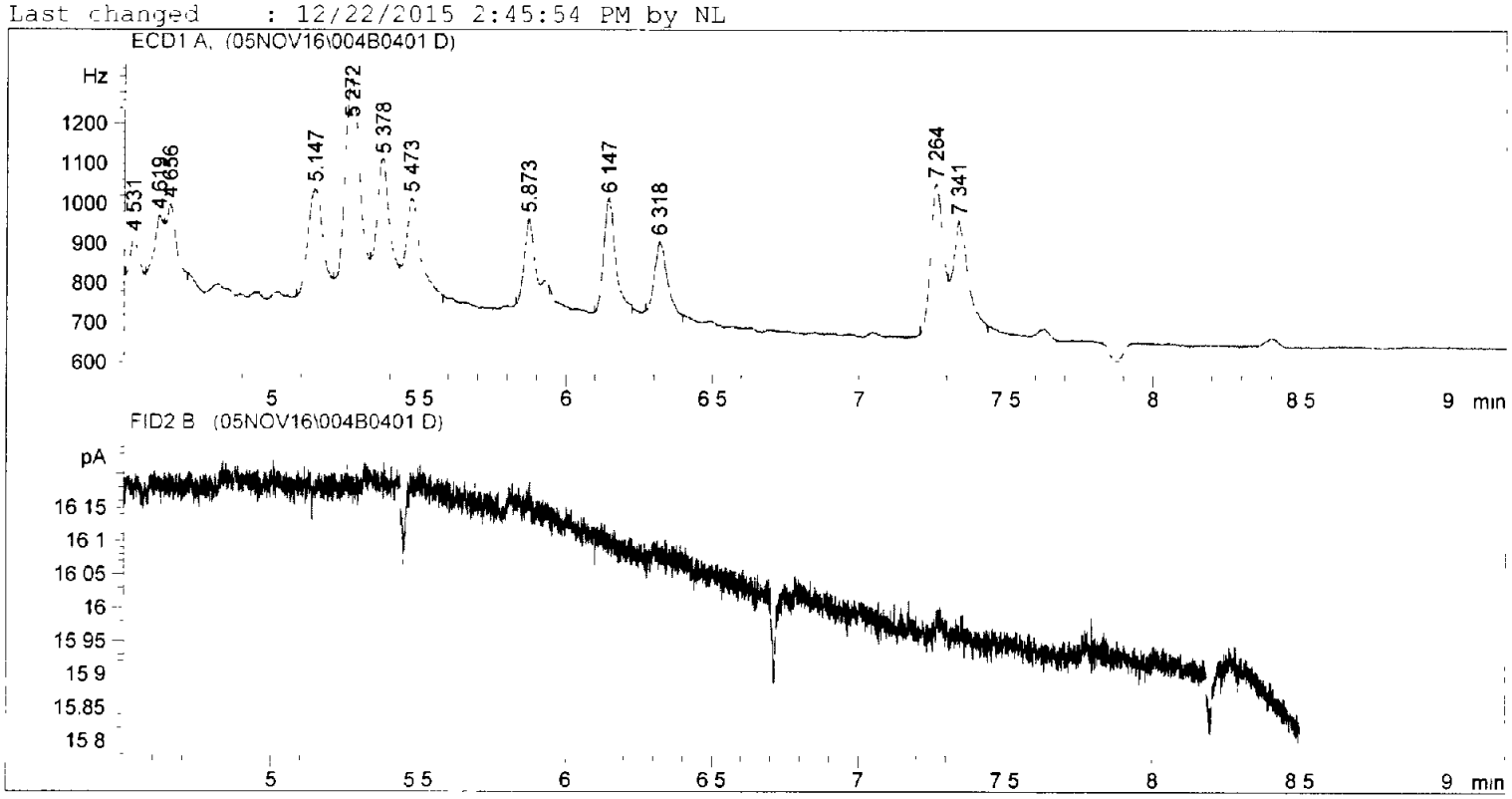
Results obtained with enhanced integrator!

Signal 2: FID2 B,

==========

*** End of Report ***

```
==========================================================================
Injection Date  : 11/5/2016 9:18:57 AM          Seq. Line :   4
Sample Name     : 16J0442-01A                    Location : Vial 4
Acq. Operator   : NL                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 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	4.531	BV	0.0241	165.78076	94.56400	1.69880
2	4.619	VV	0.0288	316.10760	148.91295	3.23925
3	4.656	VB	0.0284	390.04324	178.07982	3.99689
4	5.147	PV	0.0429	969.46747	271.24704	9.93442
5	5.272	VV	0.0439	1983.64978	546.66052	20.32705
6	5.378	VV	0.0442	1135.79431	343.67395	11.63882
7	5.473	VB	0.0426	852.81244	247.28613	8.73902
8	5.873	PB	0.0318	524.49017	205.47086	5.37461
9	6.147	PB	0.0379	780.36469	281.86105	7.99663
10	6.318	BB	0.0362	530.06122	180.93654	5.43169
11	7.264	BV	0.0383	1126.31995	374.57501	11.54173
12	7.341	VB	0.0447	983.78064	276.60126	10.08109
Totals :				9758.67227	3149.86913	

Results obtained with enhanced integrator!

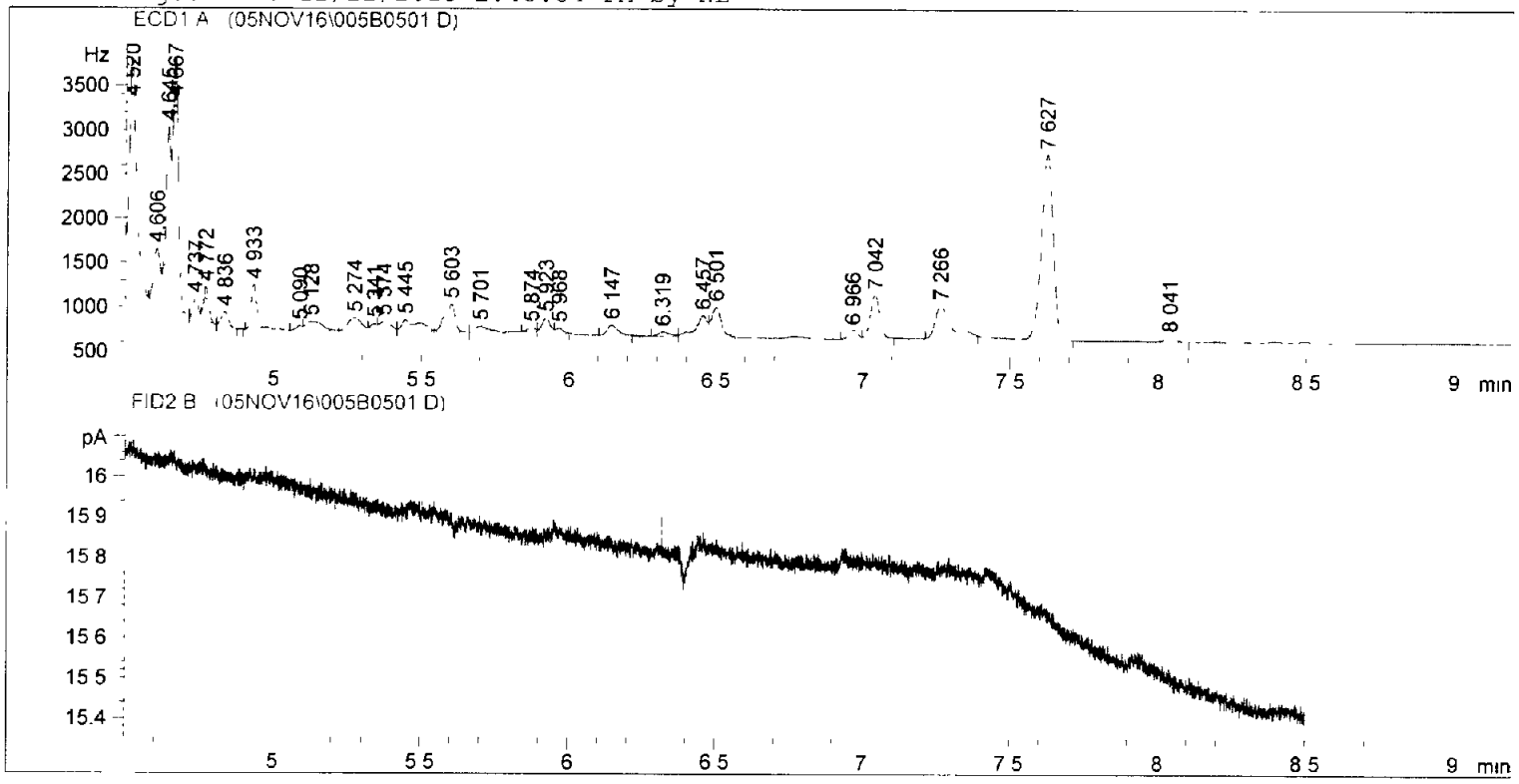
Signal 2: FID2 B,

==========

*** End of Report ***

Injection Date	: 11/5/2016 9:32:02 AM	Seq. Line :	5
Sample Name	: 16J0442-02A	Location :	Vial 5
Acq. Operator	: NL	Inj :	1
		Inj Volume :	1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 12/22/2015 2:45:54 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	4.520	BB S	0.0000	3848.44458	2017.97839	14.56029
2	4.606	BV T	0.0234	937.86603	602.84381	3.54834
3	4.645	PV T	0.0169	2320.26978	2041.49988	8.77856
4	4.667	VV T	0.0198	3747.98242	2844.91260	14.18019
5	4.737	PV T	0.0203	271.79349	215.53867	1.02831
6	4.772	PV T	0.0190	476.82458	381.90363	1.80403
7	4.836	PB T	0.0249	254.74031	164.51122	0.96379
8	4.933	PB	0.0209	667.15674	494.92966	2.52413
9	5.090	PV	0.0200	72.02054	51.12373	0.27248
10	5.128	VV	0.0480	394.13953	100.80513	1.49120
11	5.274	VV	0.0391	480.33170	147.89056	1.81730
12	5.341	VV	0.0193	131.97026	88.85169	0.49930
13	5.374	VV	0.0326	307.65250	114.25511	1.16398
14	5.445	VV	0.0554	579.83466	134.68713	2.19376
15	5.603	VP	0.0351	804.20502	313.53171	3.04265
16	5.701	VP	0.0393	214.25694	67.09724	0.81062
17	5.874	BV	0.0251	102.63594	51.02876	0.38831

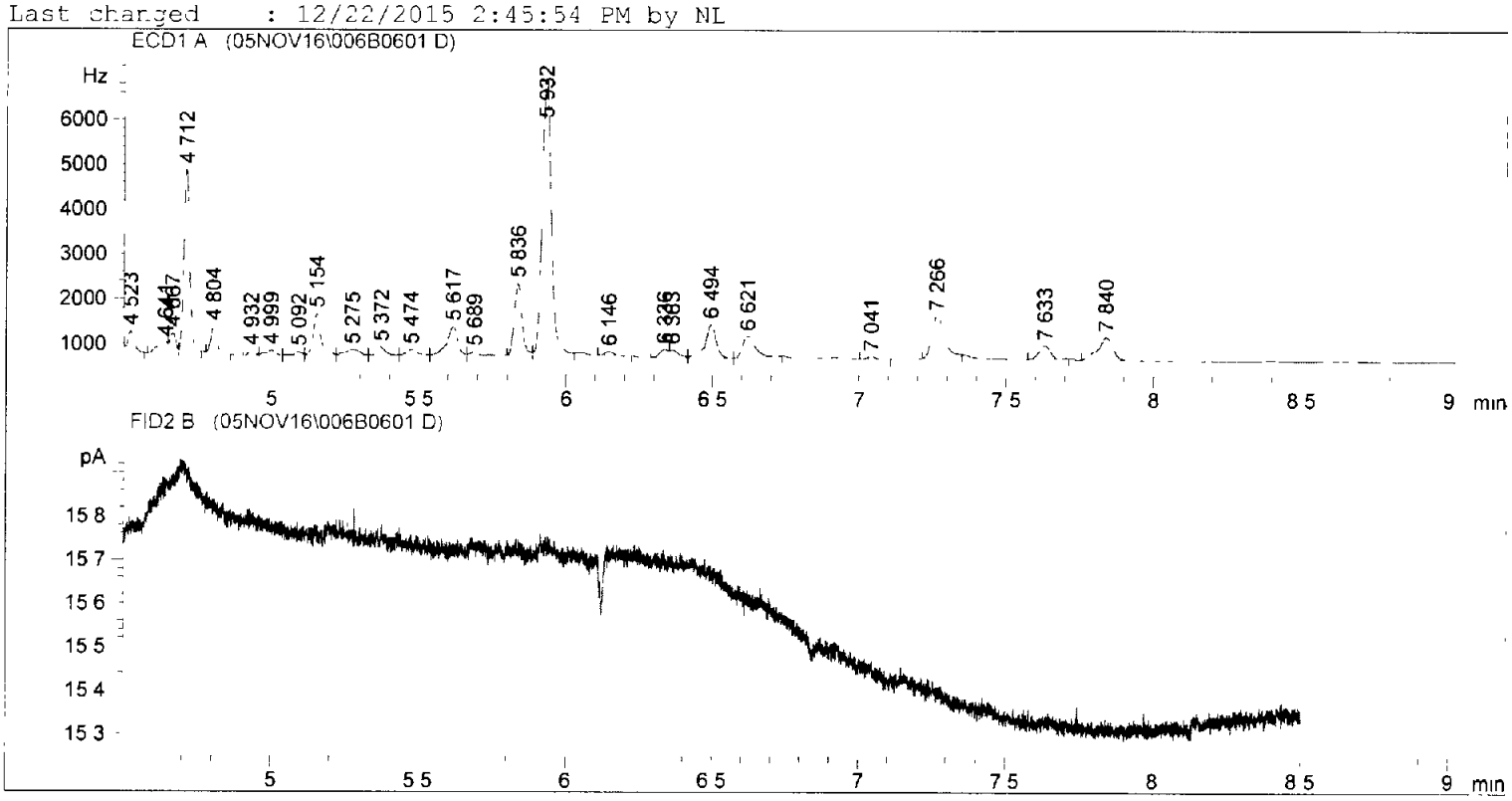
Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.923	VV	0.0268	327.14752	170.02464	1.23774
19	5.968	VB	0.0239	104.70875	58.89787	0.39616
20	6.147	BB	0.0333	286.36639	111.05994	1.08344
21	6.319	BV	0.0364	137.68309	46.67958	0.52091
22	6.457	VV	0.0362	631.25879	237.33347	2.38832
23	6.501	VB	0.0322	799.12439	335.60925	3.02342
24	6.966	PV	0.0262	205.38748	95.77534	0.77707
25	7.042	VB	0.0357	1079.14697	482.96701	4.08287
26	7.266	PB	0.0543	1325.38770	355.81140	5.01450
27	7.627	BB	0.0453	5808.34473	2088.06128	21.97541
28	8.041	BP	0.0351	114.42636	41.91173	0.43292
Totals :				2.64311e4	1.38575e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

Injection Date	: 11/5/2016 9:45:03 AM	Seq. Line :	6
Sample Name	: 16J0442-03A	Location :	Vial 6
Acq. Operator	: NL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\2\SEQUENCE\05NOV16.S		
Method	: C:\HPCHEM\2\METHODS\DIOXIN.M		
Last changed	: 12/22/2015 2:45:54 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	4.523	BP	0.0186	418.04895	362.92371	1.07661
2	4.641	PV	0.0304	534.16132	225.87680	1.37564
3	4.667	VV	0.0205	580.71527	430.88013	1.49553
4	4.712	VB S	0.0212	5447.11328	4066.82983	14.02805
5	4.804	BP	0.0197	766.96021	582.93738	1.97517
6	4.932	PV	0.0233	132.30115	89.17324	0.34072
7	4.999	VV	0.0305	234.41125	106.51408	0.60368
8	5.092	VV	0.0254	135.35249	76.79041	0.34858
9	5.154	VV	0.0270	1697.88733	925.87488	4.37260
10	5.275	VV	0.0450	442.95932	121.27763	1.14076
11	5.372	VV	0.0275	386.44061	179.74921	0.99521
12	5.474	VV	0.0350	350.58673	128.68271	0.90287
13	5.617	VV	0.0345	1668.07166	645.90186	4.29582
14	5.689	VP	0.0323	206.36938	85.06466	0.53147
15	5.836	BV	0.0272	2885.79077	1586.74268	7.43183
16	5.932	VB S	0.0328	1.30229e4	6128.56396	33.53804
17	6.146	FB	0.0256	141.37589	74.93674	0.36409

Peak #	RetTime [min]	Type	Width [min]	Area [Hz's]	Height [Hz]	Area %
18	6.336	PV	0.0281	370.46152	182.58090	0.95406
19	6.363	VV	0.0265	368.49356	172.66306	0.94899
20	6.494	VP	0.0404	2053.62573	749.70380	5.28874
21	6.621	VB	0.0434	1456.62280	480.64700	3.75127
22	7.041	PB	0.0340	119.28043	55.15213	0.30719
23	7.266	BB	0.0447	2793.72876	927.85284	7.19474
24	7.633	PB	0.0408	814.69543	297.07440	2.09810
25	7.840	PP	0.0502	1801.82019	507.71463	4.64026
Totals :				3.88301e4	1.91921e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

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==========================================================================
Injection Date  : 11/5/2016 9:58:29 AM          Seq. Line :   7
Sample Name     : 16J0442-04A                    Location : Vial 7
Acq. Operator   : NL                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 PM by NL
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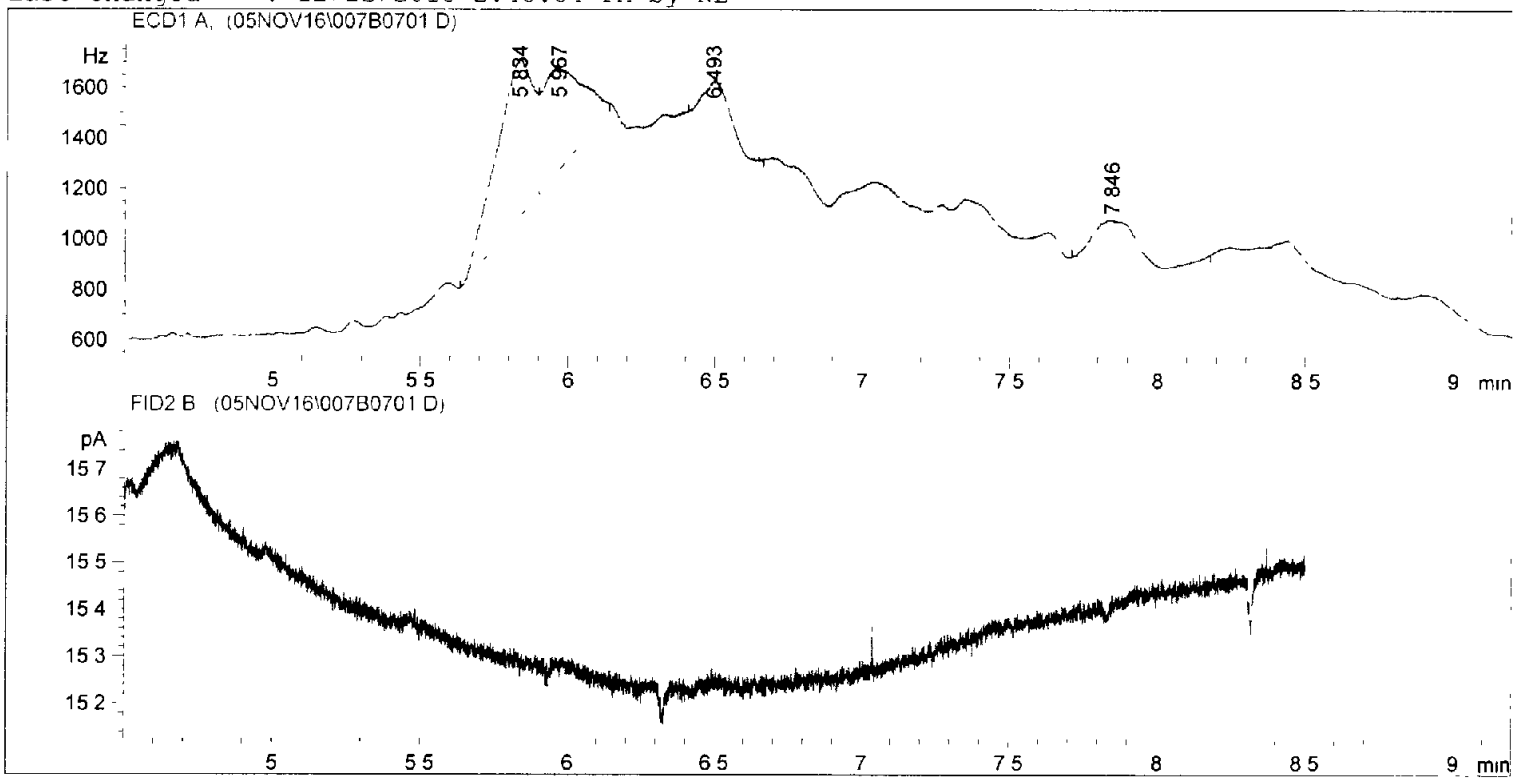


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==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000


Signal 1: ECD1 A,

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [Hz*s]      [Hz]        %
----|-------|----|-------|----------|----------|--------|
   1   5.834 PV    0.1058 5580.32520  624.99951 48.70520
   2   5.967 VB    0.1132 3877.90112  405.41434 33.84641
   3   6.493 BP    0.0704 1158.09814  196.37030 10.10791
   4   7.846 PP    0.0714  841.02502  142.24721  7.34049

Totals :                  1.14573e4  1369.03136

 Results obtained with enhanced integrator!

Signal 2: FID2 B,

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                        *** End of Report ***
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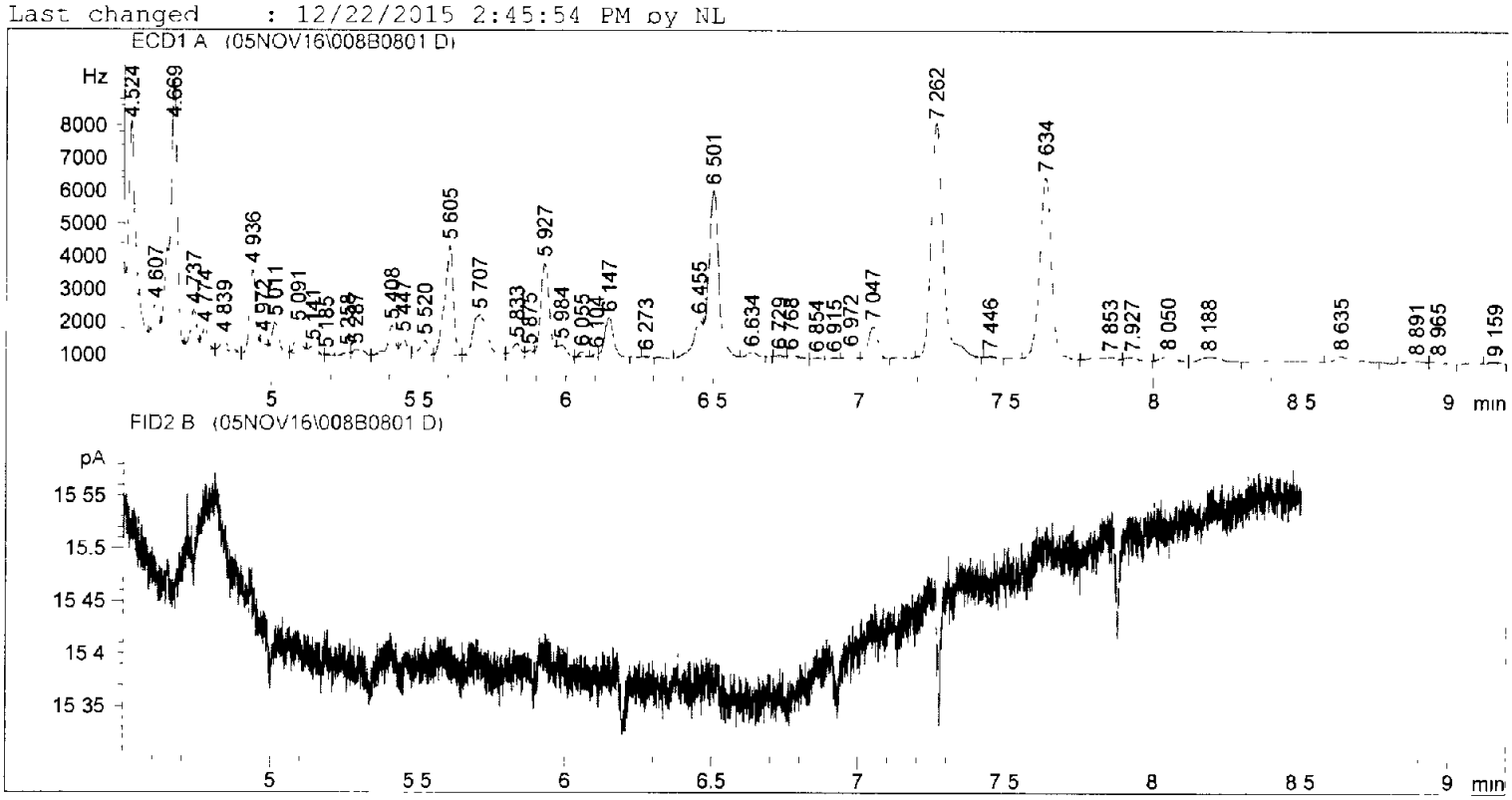
Injection Date : 11/5/2016 10:11:47 AM Seq. Line : 8
Sample Name : 16J044205A Location : Vial 8
Acq. Operator : NL Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 12/22/2015 2:45:54 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	4.524	PV S	0.0217	7131.56738	5054.50879	6.23405
2	4.607	PV T	0.0180	802.40704	710.01563	0.70142
3	4.669	PV S	0.0287	1.37527e4	7997.40283	12.02189
4	4.737	PV T	0.0199	1540.73206	1133.68298	1.34683
5	4.774	PP T	0.0209	843.40515	627.63177	0.73726
6	4.839	PP T	0.0241	674.37250	391.19781	0.58950
7	4.936	PP S	0.0174	2787.98657	2575.86157	2.43712
8	4.972	BV T	0.0137	175.82121	203.30341	0.15369
9	5.011	PV T	0.0219	1113.55005	796.22339	0.97341
10	5.091	PV T	0.0238	1282.91455	802.85724	1.12146
11	5.141	PV T	0.0293	522.49500	244.98618	0.45674
12	5.185	PV T	0.0117	18.68941	26.51125	0.01634
13	5.258	PV T	0.0222	198.74414	124.42348	0.17373
14	5.287	PV T	0.0354	514.17212	188.61646	0.44946
15	5.408	PV T	0.0272	1738.77966	939.55634	1.51995
16	5.447	PV T	0.0240	887.31122	562.55481	0.77564
17	5.520	PV T	0.0320	1026.35059	475.98792	0.89718

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.605	PV T	0.0307	7153.48877	3373.46680	6.25322
19	5.707	PV T	0.0436	4457.75293	1276.18372	3.89674
20	5.833	PV T	0.0308	885.38062	403.91397	0.77395
21	5.875	PV T	0.0239	312.77243	191.53601	0.27341
22	5.927	PV T	0.0316	5902.32471	2872.48511	5.15951
23	5.984	PV T	0.0298	782.57874	371.28317	0.68409
24	6.055	PV T	0.0237	238.85739	165.14180	0.20880
25	6.104	PV T	0.0144	112.84827	100.10184	0.09865
26	6.147	PB T	0.0309	2531.91284	1206.21643	2.21327
27	6.273	BP	0.0177	38.97714	33.10383	0.03407
28	6.455	PV	0.0307	2554.13452	1169.20862	2.23269
29	6.501	VB S	0.0316	1.20521e4	5092.13232	10.53531
30	6.634	BB T	0.0279	298.58041	136.43765	0.26100
31	6.729	BV	0.0259	109.41965	57.26609	0.09565
32	6.768	VP	0.0348	186.26019	64.66492	0.16282
33	6.834	VV	0.0207	50.71283	30.94031	0.04433
34	6.915	VV	0.0223	66.21518	38.01109	0.05788
35	6.972	VP	0.0257	394.00803	212.13989	0.34442
36	7.047	VP	0.0307	2101.52515	976.79242	1.83705
37	7.262	BB S	0.0419	2.03014e4	7148.95752	17.74642
38	7.446	BP	0.0220	63.22950	36.16391	0.05527
39	7.634	BB S	0.0393	1.53918e4	5523.28125	13.45475
40	7.853	BV	0.0724	476.75375	82.30682	0.41675
41	7.927	VB	0.0369	287.83740	95.24787	0.25161
42	8.050	BP	0.0422	528.80939	156.67070	0.46226
43	8.188	VB	0.0613	728.69574	145.23233	0.63699
44	8.635	PB	0.0494	760.53644	187.18910	0.66482
45	8.891	BV	0.0524	300.92331	73.17868	0.26305
46	8.965	VP	0.0380	219.71902	70.37560	0.19207
47	9.159	BPA	0.0291	95.46748	40.51502	0.08345
Totals :				1.14397e5	5.41855e4	

Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

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==================================================================
Injection Date  : 11/5/2016 10:25:08 AM          Seq. Line :   9
Sample Name     : 16J0442-06A                     Location : Vial 9
Acq. Operator   : NL                                  Inj :   1
                                                 Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 PM by NL
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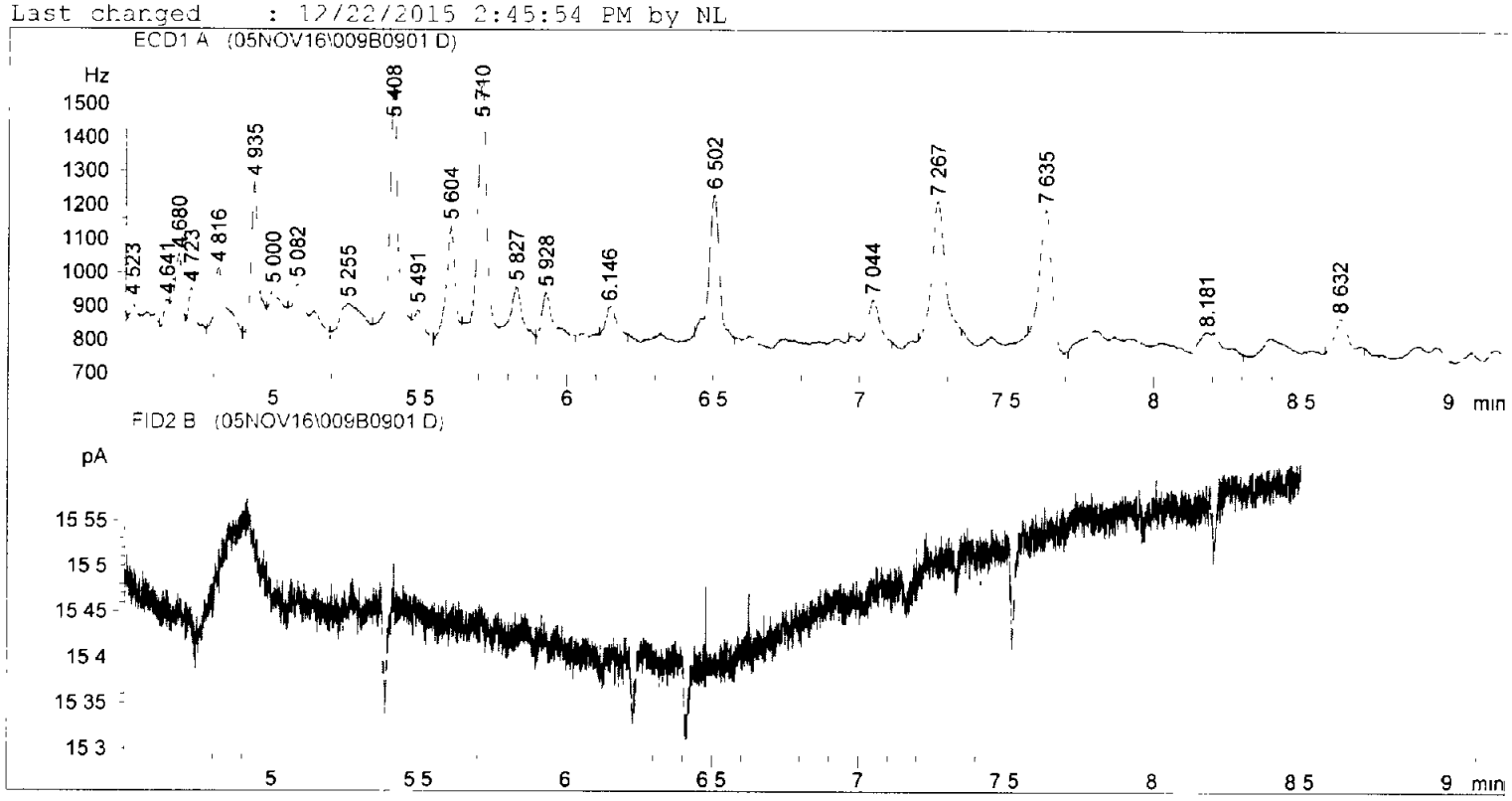


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==================================================================
                        Area Percent Report
==================================================================

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	4.523	BP	0.0178	61.39425	50.28823	0.46154
2	4.641	PV	0.0170	84.61610	78.28519	0.63611
3	4.680	VV	0.0257	395.39078	216.93048	2.97239
4	4.723	VB	0.0215	186.02921	120.94186	1.39849
5	4.816	BP	0.0352	494.88608	187.31419	3.72035
6	4.935	VV	0.0242	761.10364	448.35628	5.72167
7	5.000	VB	0.0422	423.52460	130.87653	3.18389
8	5.082	BV	0.0518	634.26508	150.94389	4.76815
9	5.255	VV	0.0635	528.82880	98.38266	3.97552
10	5.408	VV	0.0306	1579.68286	749.96216	11.87542
11	5.491	VB	0.0289	197.79968	88.51250	1.48698
12	5.604	VV	0.0298	712.88190	337.86243	5.35916
13	5.710	VV	0.0320	1714.34460	769.00293	12.88775
14	5.827	VB	0.0367	429.06796	149.40118	3.22556
15	5.928	VB	0.0303	311.36069	129.98090	2.34068
16	6.146	BB	0.0319	216.21654	86.82706	1.62543
17	6.502	BB	0.0373	1091.60095	429.03329	8.20622

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	7.044	BB	0.0396	398.51028	129.09004	2.99584
19	7.267	BB	0.0420	1280.45581	406.11673	9.62595
20	7.635	BP	0.0375	1181.10815	410.72552	8.87910
21	8.181	PB	0.0638	319.33798	61.50272	2.40065
22	8.632	PB	0.0370	299.71631	98.85602	2.25315

Totals : 1.33021e4 5329.19480

Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

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==========================================================================
Injection Date  : 11/5/2016 10:38:11 AM          Seq. Line :  10
Sample Name     : 16J0442-07A                     Location : Vial 10
Acq. Operator   : NL                                  Inj :   1
                                                 Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 PM by NL
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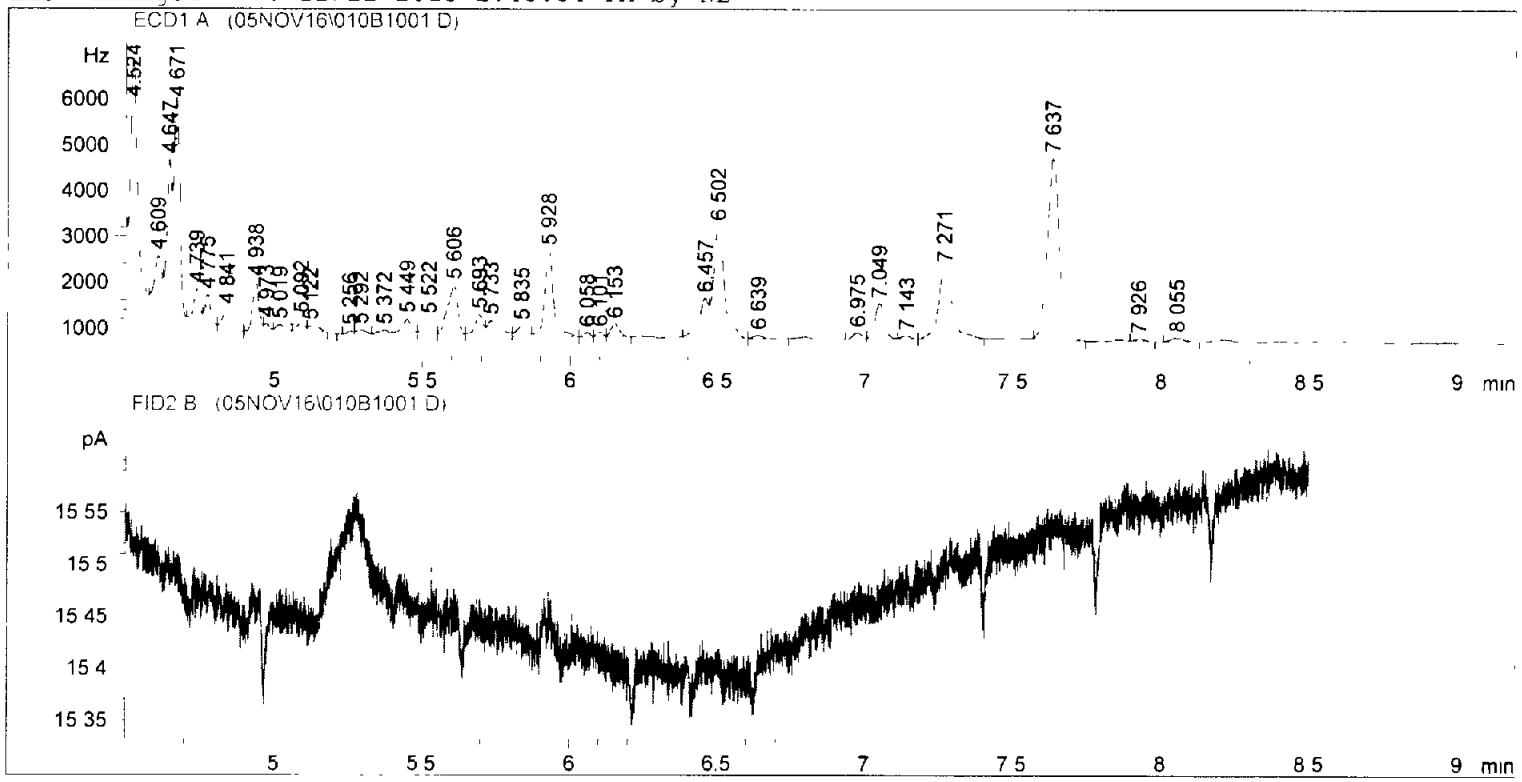


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==========================================================================
                          Area Percent Report
==========================================================================

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	4.524	PV S	0.0207	5659.55908	4062.74951	10.43205
2	4.609	PV T	0.0177	660.88458	596.35376	1.21818
3	4.647	PV S	0.0162	3314.09912	3062.85205	6.10876
4	4.671	VB S	0.0000	1211.18872	4435.58252	2.23254
5	4.739	BV T	0.0202	916.78204	678.60669	1.68987
6	4.775	PV T	0.0208	783.24139	602.95959	1.44372
7	4.841	PV T	0.0228	626.70392	373.27576	1.15518
8	4.938	PV T	0.0236	1587.46887	1075.78394	2.92612
9	4.973	PV T	0.0186	231.52148	175.31541	0.42675
10	5.019	PV T	0.0331	338.76987	147.99791	0.62444
11	5.092	PV T	0.0235	445.67722	278.63660	0.82150
12	5.122	PB T	0.0329	353.95340	130.29123	0.65243
13	5.256	BV	0.0204	100.28653	62.09323	0.18485
14	5.292	VV	0.0278	207.51521	91.07133	0.38251
15	5.372	VV	0.0340	234.27789	87.52982	0.43184
16	5.449	VV	0.0288	737.00385	335.25293	1.35849
17	5.522	VV	0.0304	689.37427	324.95648	1.27070

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area
18	5.606	VV	0.0340	2612.24194	1086.95386	4.81505
19	5.693	VV	0.0278	848.24585	446.43909	1.56354
20	5.733	VV	0.0352	812.61310	325.10440	1.49786
21	5.835	VV	0.0315	468.19858	218.04193	0.86301
22	5.928	VB	0.0312	3811.22607	1854.15320	7.02509
23	6.058	VV	0.0208	144.48787	95.80894	0.26633
24	6.101	VV	0.0230	156.70715	98.20105	0.28885
25	6.153	VB	0.0322	572.57501	275.76477	1.05541
26	6.457	BV	0.0308	1851.47046	856.34357	3.41275
27	6.502	VB	0.0354	6283.00684	2430.08130	11.58123
28	6.639	VB	0.0186	76.28994	57.61836	0.14062
29	6.975	BV	0.0314	304.03192	141.99352	0.56041
30	7.049	VB	0.0314	1804.35022	768.39185	3.32589
31	7.143	BP	0.0304	152.49135	67.32458	0.28108
32	7.271	VB	0.0444	4966.64795	1540.46448	9.15484
33	7.637	BB	0.0414	1.09104e4	3955.88257	20.11072
34	7.926	PP	0.0322	105.62968	42.43063	0.19470
35	8.055	BP	0.0405	272.71484	80.91239	0.50269
Totals :				5.42516e4	3.08632e4	

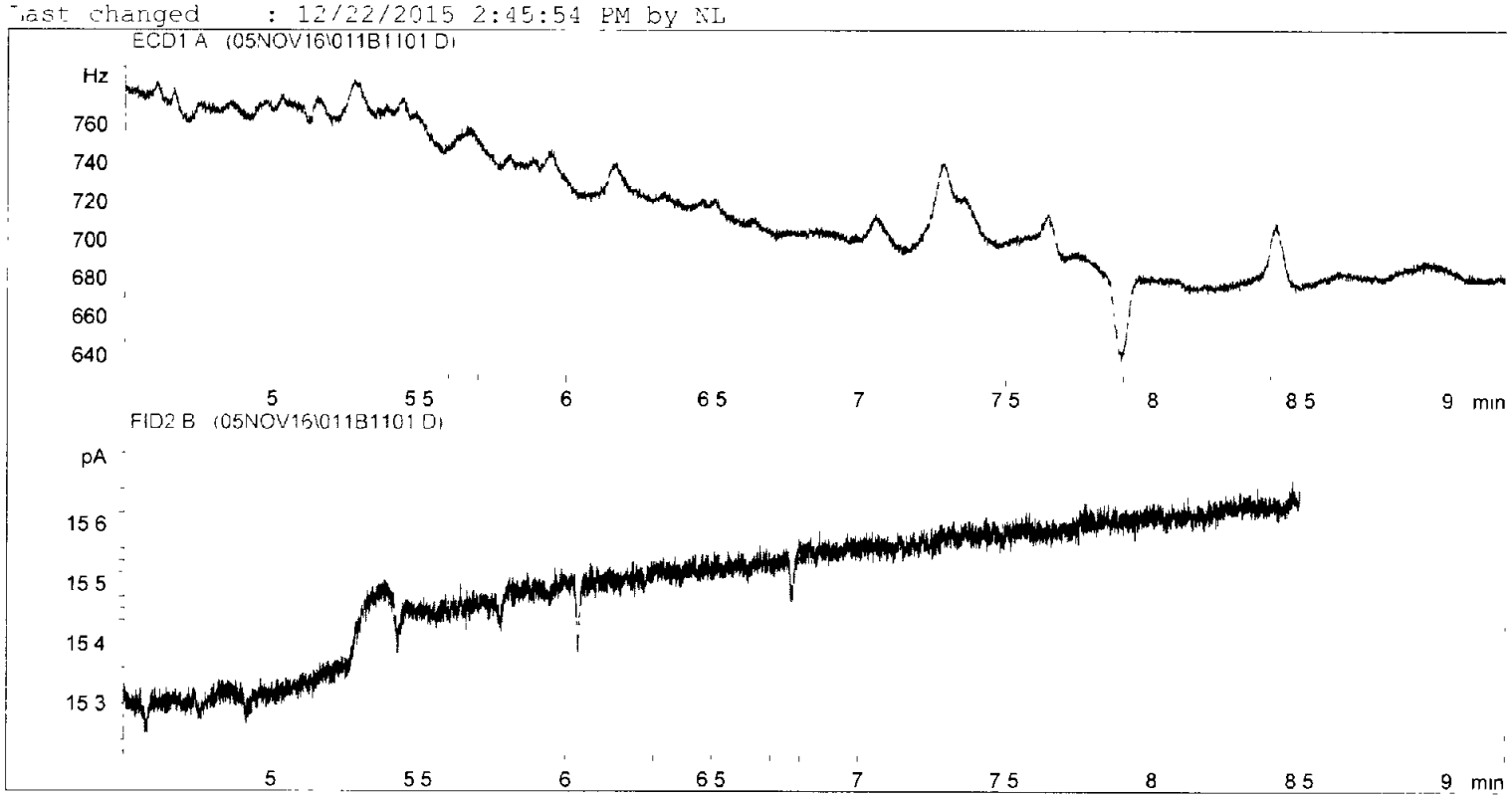
Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

Injection Date	: 11/5/2016 10:51:31 AM	Seq. Line :	11
Sample Name	: 16J0442-08A	Location :	Vial 11
Acq. Operator	: NL	Inj :	1
		Inj Volume :	1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 12/22/2015 2:45:54 PM by NL



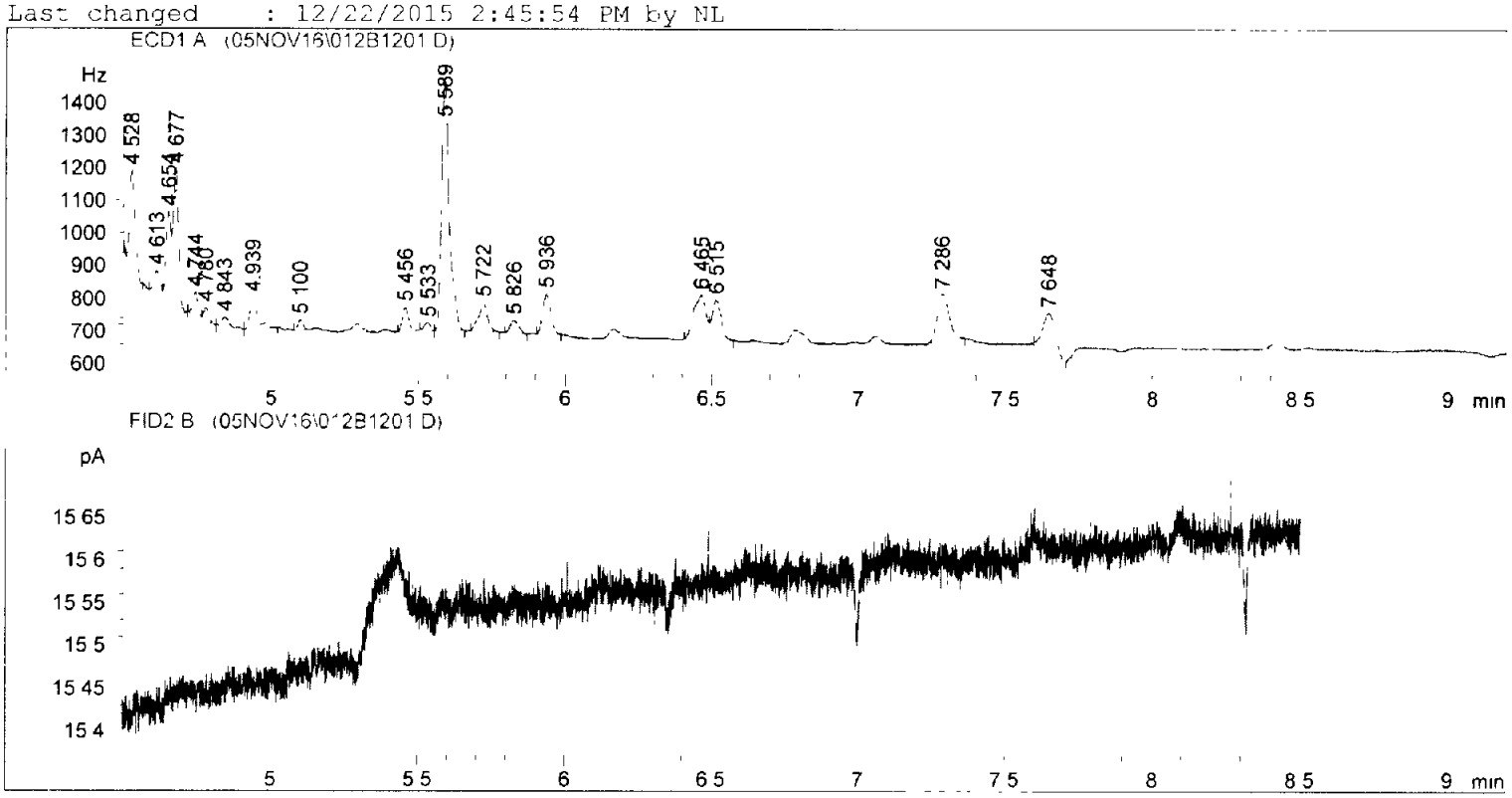
Area Percent Report

Sorted By	:	Signal
Multiplier	:	1.0000
Dilution	:	1.0000

No peaks found

*** End of Report ***

```
==========================================================================
Injection Date  : 11/5/2016 11:04:55 AM          Seq. Line :  12
Sample Name     : 16J0506-01A                     Location : Vial 12
Acq. Operator   : NL                                  Inj :   1
                                                 Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 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	4.528	PP	0.0193	350.10397	290.60684	6.77000
2	4.613	PV	0.0213	93.90177	69.77439	1.81579
3	4.654	VV	0.0174	303.20676	272.03027	5.86314
4	4.677	VB	0.0204	525.71283	414.54636	10.16576
5	4.744	PV	0.0190	84.66013	69.61398	1.63708
6	4.780	VP	0.0161	45.62214	41.24357	0.88220
7	4.843	VP	0.0203	50.08651	29.95252	0.96853
8	4.939	BB	0.0264	172.13173	94.68839	3.32853
9	5.100	PP	0.0161	36.29459	31.76786	0.70183
10	5.456	PP	0.0201	101.27702	73.30301	1.95840
11	5.533	PP	0.0197	34.09665	24.70835	0.65933
12	5.589	VB	0.0271	1429.04382	775.75983	27.63357
13	5.722	BB	0.0284	188.39035	87.19401	3.64292
14	5.826	PP	0.0238	80.66378	40.95534	1.55980
15	5.936	BB	0.0274	230.88802	123.78542	4.46471
16	6.465	BV	0.0358	398.89514	137.75226	7.71348
17	6.515	VB	0.0312	269.15253	124.62122	5.20463

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	7.286	PB	0.0357	410.65302	145.56798	7.94084
19	7.648	BP	0.0380	366.62488	123.03471	7.08946

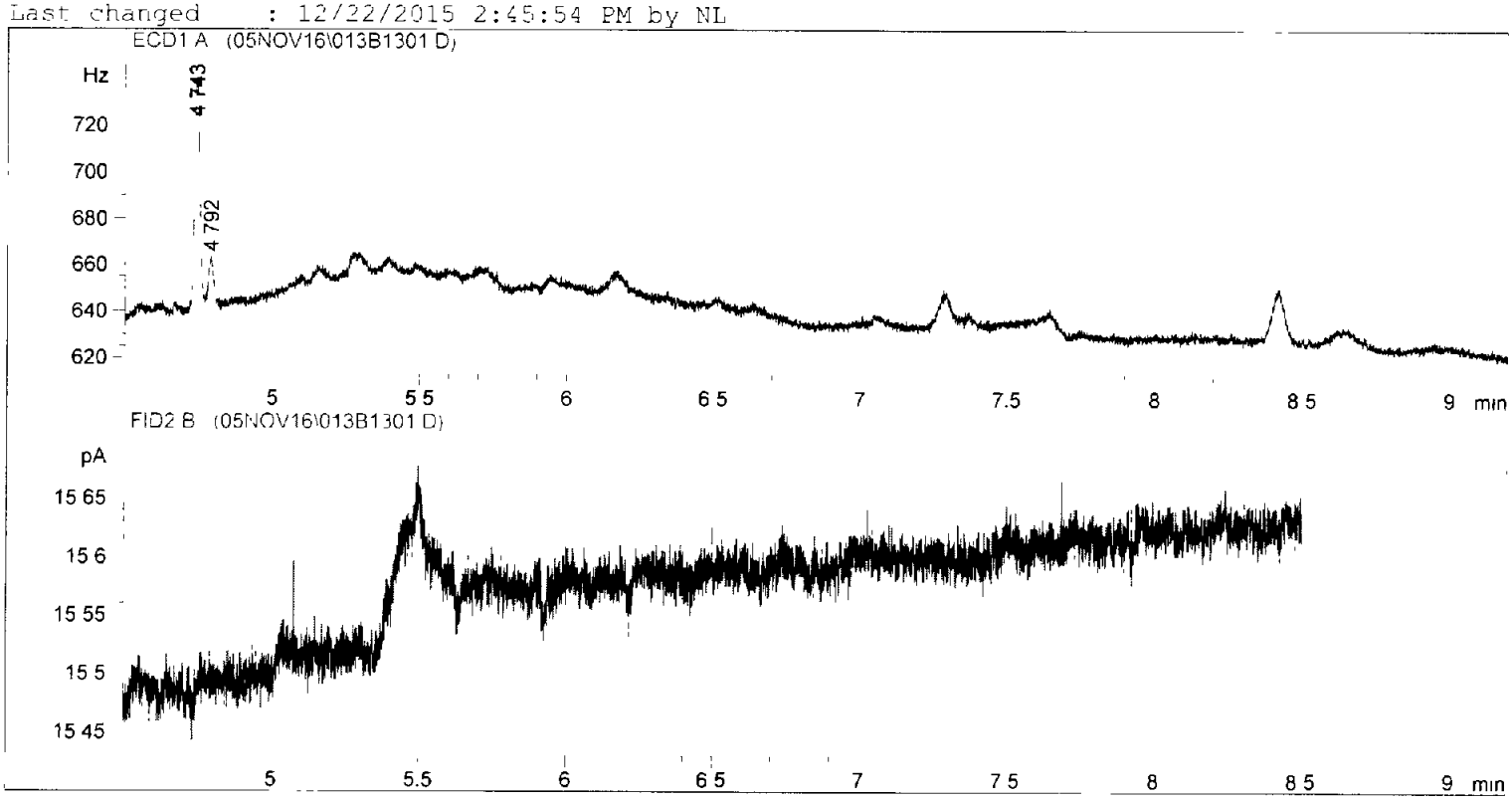
Totals : 5171.40563 2970.90629

Results obtained with enhanced integrator!

Signal 2: FID2 B,

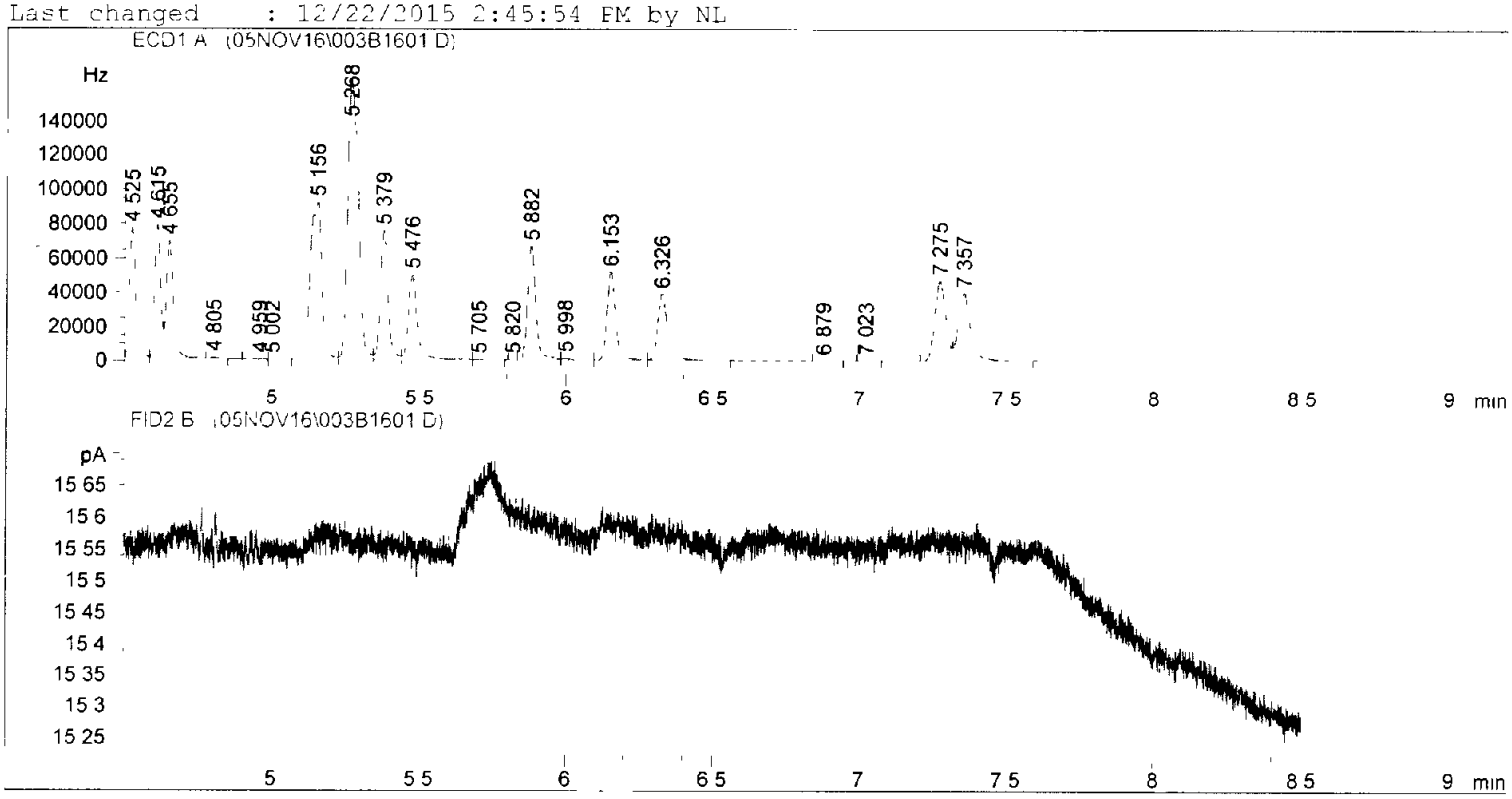
*** End of Report ***

```
==========================================================================
Injection Date  : 11/5/2016 11:18:16 AM          Seq. Line :  13
Sample Name     : 16J0506-02A                     Location : Vial 13
Acq. Operator   : NL                                  Inj :   1
                                                 Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 PM by NL
```




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

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000


Signal 1: ECD1 A,

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]    [Hz*s]     [Hz]
----|-------|----|-------|----------|----------|--------|
   1   4.743 BB    0.0193  122.92770   98.86204 83.20139
   2   4.792 BB    0.0150   24.81947   20.97801 16.79861

Totals :                   147.74718  119.84005

 Results obtained with enhanced integrator!

Signal 2: FID2 B,

==========================================================================
                        *** End of Report ***
```

```
==========================================================================
Injection Date  : 11/5/2016 11:58:18 AM          Seq. Line :  16
Sample Name     : CS5 STD                         Location : Vial 3
Acq. Operator   : NL                                   Inj :   1
                                                 Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 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	4.525	BV S	0.0229	1.11273e5	7.52368e4	6.25575
2	4.615	VV S	0.0230	1.06516e5	7.71758e4	5.98831
3	4.655	VB S	0.0268	1.09711e5	6.82195e4	6.16793
4	4.805	BB T	0.0265	1361.39917	790.85205	0.07654
5	4.959	BV T	0.0320	853.78192	376.82858	0.04800
6	5.002	PB T	0.0216	149.01405	85.30168	0.00838
7	5.156	BV S	0.0438	2.40332e5	9.13466e4	13.51145
8	5.268	VV S	0.0416	4.09962e5	1.64426e5	23.04803
9	5.379	VV S	0.0299	1.34634e5	7.49924e4	7.56915
10	5.476	VV S	0.0352	1.04402e5	4.94778e4	5.86947
11	5.705	VB S	0.0525	889.81018	282.23611	0.05003
12	5.820	BV	0.0139	12.69515	12.91952	0.00071
13	5.882	VV S	0.0290	1.27797e5	6.58698e4	7.18475
14	5.998	VB S	0.0426	2442.64136	955.64294	0.13733
15	6.153	VV S	0.0308	1.03700e5	5.13054e4	5.83002
16	6.326	VB S	0.0347	8.94820e4	3.85354e4	5.03068
17	6.879	PP	0.0337	138.69313	53.83866	0.00780

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area
18	7.023	PB	0.0284	75.24339	33.21647	0.00423
19	7.275	PV S	0.0368	1.18643e5	4.66982e4	6.67009
20	7.357	VB S	0.0495	1.16353e5	3.91685e4	6.54138

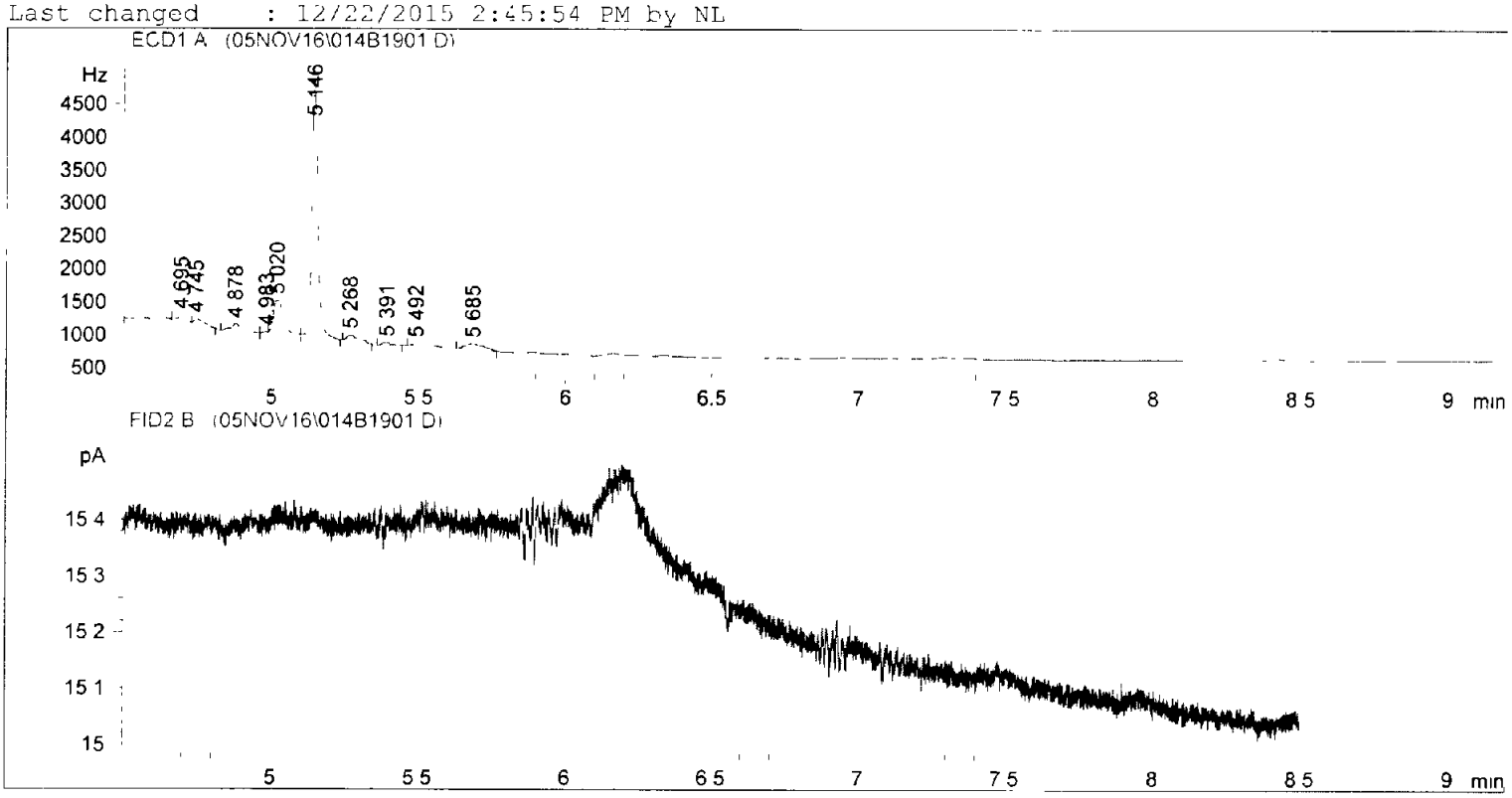
Totals : 1.77873e6 8.45043e5

Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

```
==================================================================
Injection Date  : 11/5/2016 12:38:08 PM          Seq. Line :  19
Sample Name     : 16K0015-02A                     Location : Vial 14
Acq. Operator   : NL                                   Inj :   1
                                                 Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 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	4.695	BV	0.0336	381.16116	148.39015	4.39937
2	4.745	VB	0.0330	329.37802	122.58651	3.80746
3	4.878	PV	0.0352	327.52185	114.94407	3.78026
4	4.983	VV	0.0139	40.78813	37.43862	0.47078
5	5.020	VV	0.0338	1324.73734	525.24219	15.29072
6	5.146	VB S	0.0210	5485.75635	3943.89344	63.31669
7	5.268	BB	0.0333	250.90295	92.41945	2.89593
8	5.391	PB	0.0206	64.89973	38.54493	0.74907
9	5.492	PB	0.0241	62.58936	32.98319	0.72241
10	5.685	BB	0.0545	395.71201	90.02634	4.56731

Totals : 8663.99741 5146.47389

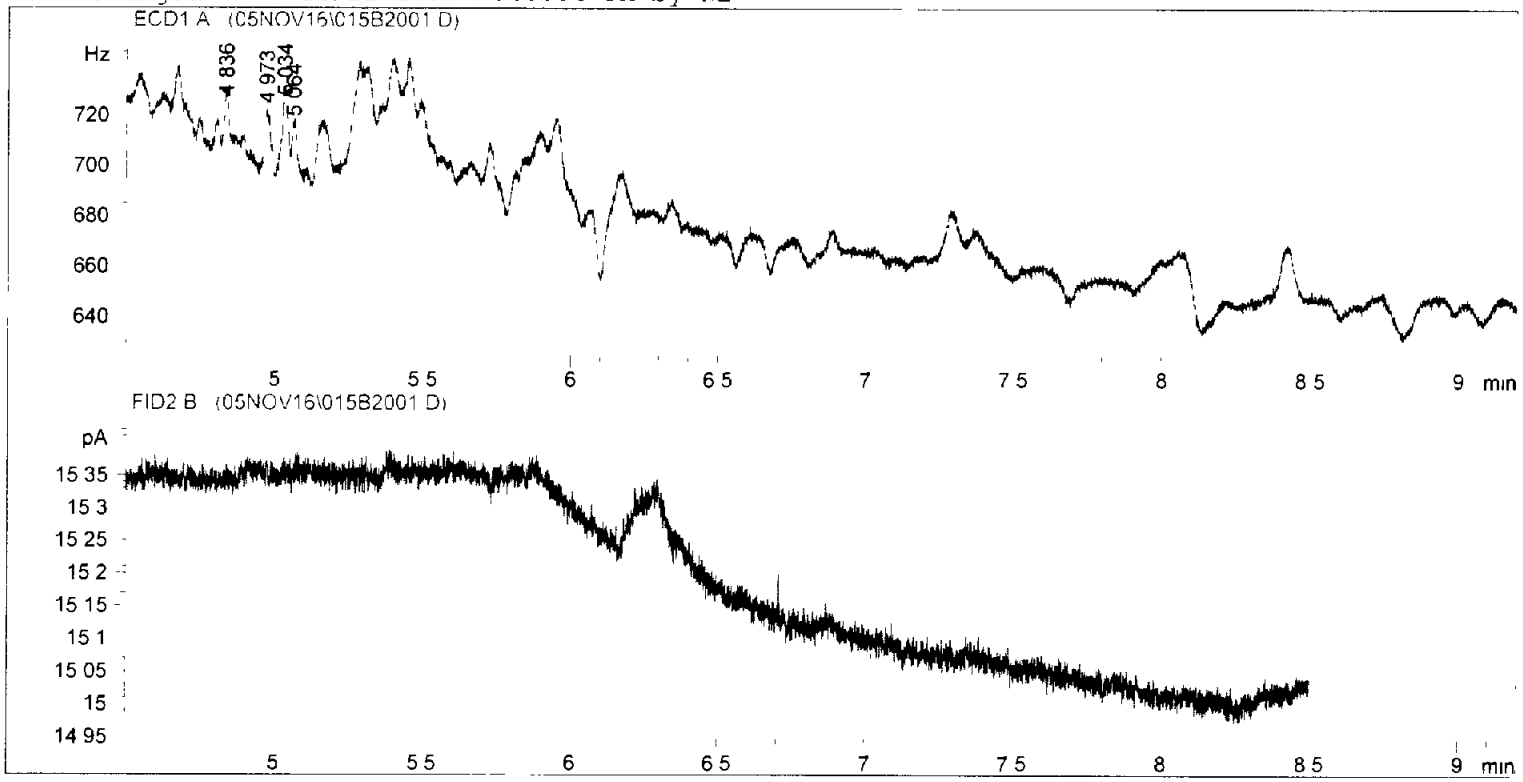
Results obtained with enhanced integrator!

Signal 2: FID2 B,

==========

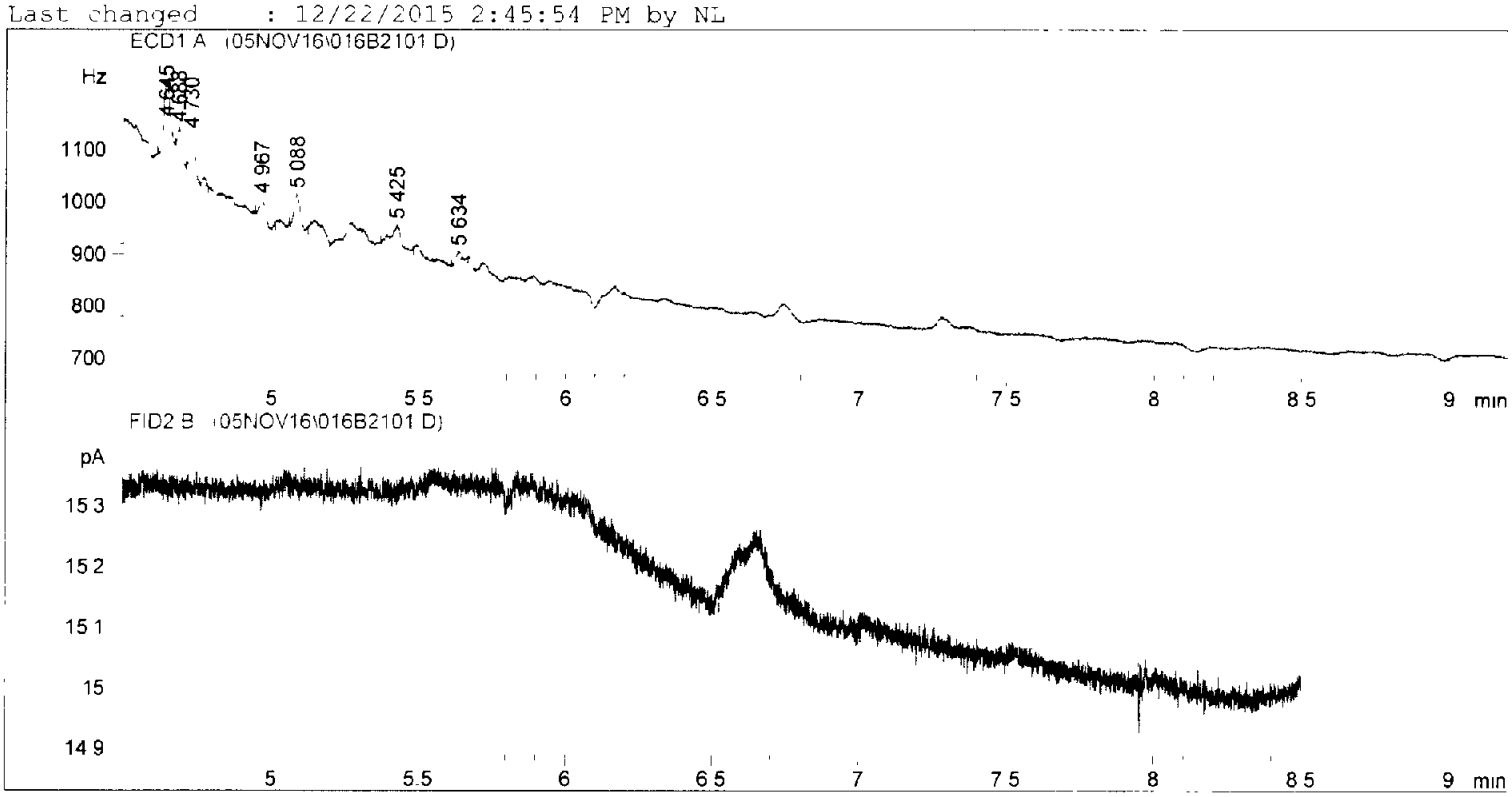
*** End of Report ***

```
==========================================================================
Injection Date  : 11/5/2016 12:51:28 PM          Seq. Line :  20
Sample Name     : 16K0015-04A                     Location : Vial 15
Acq. Operator   : NL                                   Inj :  1
                                                 Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 PM by NL
```




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

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000

Signal 1: ECD1 A,

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]    [Hz*s]     [Hz]
----|-------|----|-------|----------|----------|--------|
   1   4.836 PB   0.0128   19.01411   21.25820 14.95060
   2   4.973 PB   0.0193   36.98443   25.46153 29.08048
   3   5.034 BV   0.0186   46.05799   33.25048 36.21492
   4   5.064 VB   0.0152   25.12305   20.92616 19.75399

Totals :                   127.17958  100.89638

 Results obtained with enhanced integrator!

Signal 2: FID2 B,

==========================================================================
                        *** End of Report ***
```

```
==========================================================================
Injection Date  : 11/5/2016 1:04:33 PM          Seq. Line :  21
Sample Name     : 165K0015-06A                   Location : Vial 16
Acq. Operator   : NL                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 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	4.645	PV	0.0239	243.98318	152.23378	37.69298
2	4.688	VV	0.0181	99.30447	75.66505	15.34156
3	4.730	VB	0.0195	105.59057	79.47887	16.31269
4	4.967	BP	9.91e-3	25.17004	33.71904	3.88852
5	5.088	BP	0.0153	67.67370	59.26721	10.45491
6	5.425	PP	0.0216	65.54688	38.24841	10.12634
7	5.634	PB	0.0197	40.02194	24.70170	6.18299

Totals : 647.29079 463.31405

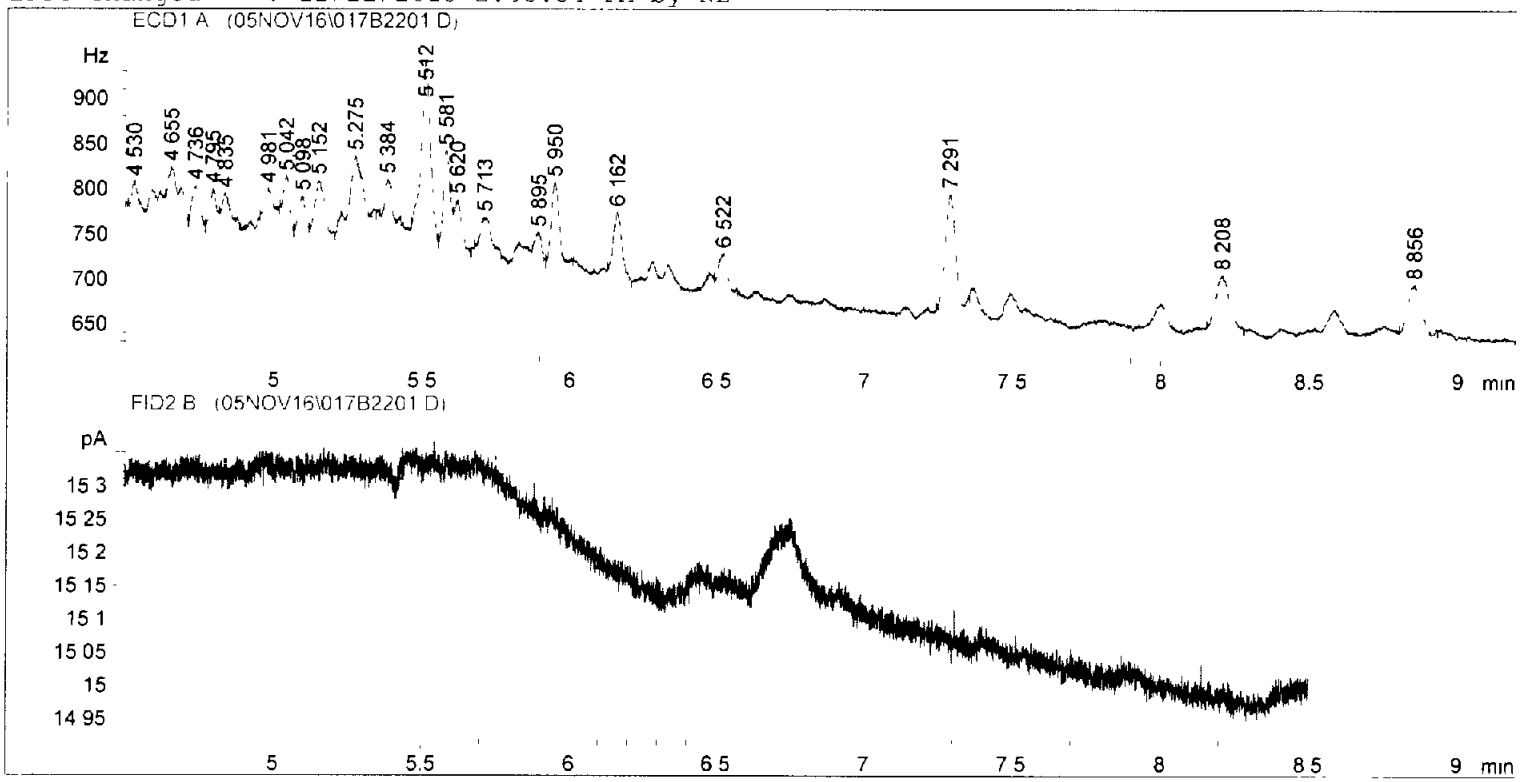
Results obtained with enhanced integrator!

Signal 2: FID2 B,

==========

*** End of Report ***

```
==========================================================================
Injection Date  : 11/5/2016 1:17:53 PM          Seq. Line :  22
Sample Name     : 16J0502-01A                    Location : Vial 17
Acq. Operator   : NL                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 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	4.530	BP	0.0166	34.54726	27.64679	1.22565
2	4.655	BV	0.0320	146.17578	55.37632	5.18596
3	4.736	VB	0.0226	70.79388	41.77762	2.51159
4	4.795	VV	0.0184	62.05603	41.23615	2.20160
5	4.835	VB	0.0284	77.92246	36.67176	2.76450
6	4.981	BB	0.0293	99.75557	42.07227	3.53909
7	5.042	BB	0.0219	89.32491	58.15141	3.16903
8	5.098	VV	0.0218	58.16991	38.04652	2.06373
9	5.152	VB	0.0271	117.93929	56.66967	4.18420
10	5.275	BB	0.0362	215.68416	74.45554	7.65195
11	5.384	BB	0.0211	70.16490	43.81472	2.48928
12	5.512	BB	0.0284	413.75690	194.82614	14.67909
13	5.581	VV	0.0244	163.86183	101.65299	5.81342
14	5.620	VB	0.0201	83.65828	51.60917	2.96799
15	5.713	BB	0.0323	93.27763	37.43868	3.30926
16	5.895	BB	0.0214	52.32060	30.78991	1.85621
17	5.950	VB	0.0240	148.23489	86.68562	5.25901

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area
18	6.162	BP	0.0255	144.28957	71.53342	5.11904
19	6.522	BB	0.0250	80.93932	39.64624	2.87153
20	7.291	PP	0.0286	260.98373	121.73235	9.25907
21	8.208	BB	0.0379	187.91579	59.78886	6.66680
22	8.856	PB	0.0374	146.90977	52.00466	5.21200

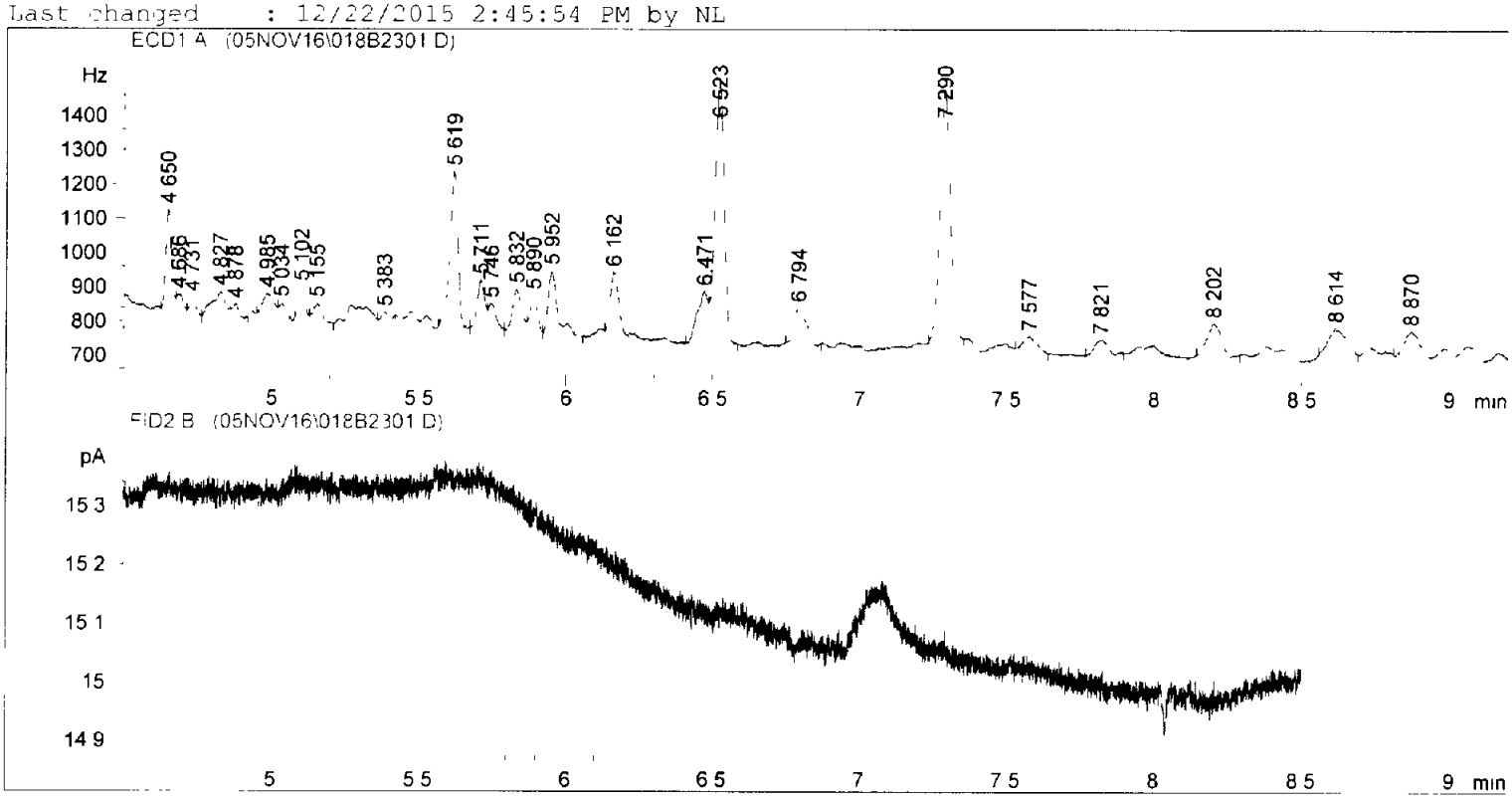
Totals : 2818.68247 1363.62683

Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

```
==========================================================================
Injection Date  : 11/5/2016 1:30:59 PM          Seq. Line :  23
Sample Name     : 16J0502-02A                    Location : Vial 18
Acq. Operator   : NL                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 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	4.650	BV	0.0204	401.44952	293.46054	4.44884
2	4.686	VV	0.0183	80.37820	54.77351	0.89075
3	4.731	VP	0.0215	75.14230	51.29070	0.83272
4	4.827	VV	0.0396	229.76776	72.12471	2.54627
5	4.878	VP	0.0177	41.12224	35.10564	0.45571
6	4.985	BV	0.0321	169.72653	65.02695	1.88090
7	5.034	VP	0.0205	70.19923	45.16974	0.77794
8	5.102	BV	0.0239	161.27290	98.63750	1.78722
9	5.155	VP	0.0235	106.73686	55.88150	1.18285
10	5.383	PB	0.0138	20.98399	19.48413	0.23254
11	5.619	PB	0.0285	855.87830	451.93600	9.48480
12	5.711	BV	0.0260	253.36124	142.12074	2.80774
13	5.746	VV	0.0238	137.16530	76.28432	1.52006
14	5.832	VV	0.0293	258.24127	122.87399	2.86182
15	5.890	VV	0.0246	188.55089	108.71093	2.08951
16	5.952	VP	0.0306	407.61676	184.28706	4.51719
17	6.162	BP	0.0268	352.31192	180.24586	3.90430

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area
18	6.471	PV	0.0328	376.00092	152.49348	4.16682
19	6.523	VB	0.0325	1703.03418	774.50702	18.87293
20	6.794	BB	0.0348	304.37180	108.31019	3.37303
21	7.290	BB	0.0356	1734.20886	733.15308	19.77250
22	7.577	PP	0.0365	122.75409	40.51975	1.36035
23	7.821	PB	0.0360	129.73288	42.94145	1.43769
24	8.202	BP	0.0404	297.41910	93.30810	3.29598
25	8.614	BB	0.0518	353.44330	82.80667	3.91684
26	8.870	PP	0.0292	142.81680	62.12712	1.58269

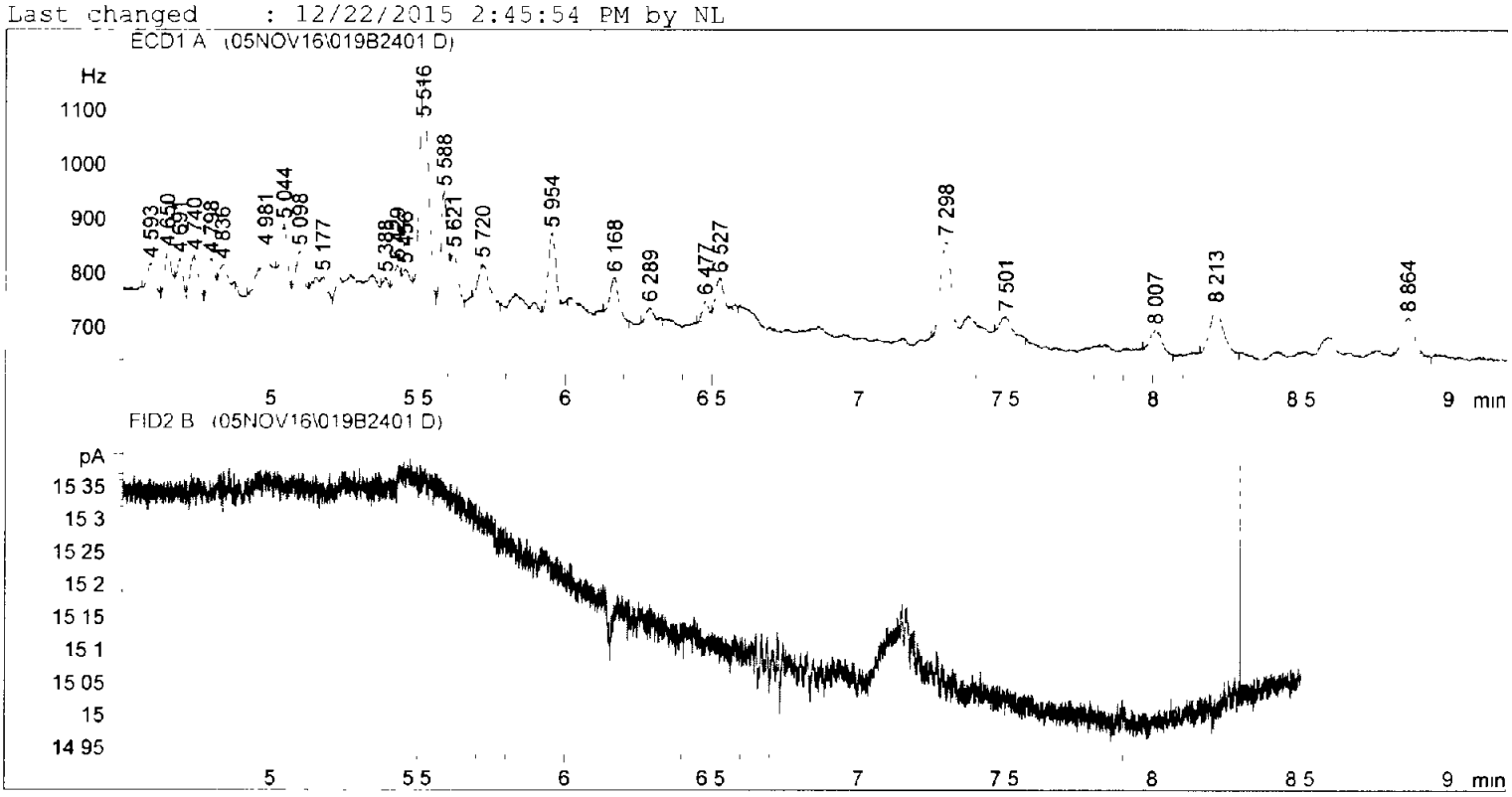
Totals : 9023.68714 4147.58070

Results obtained with enhanced integrator!

Signal 2: FID2 B,

*** End of Report ***

```
==========================================================================
Injection Date  : 11/5/2016 1:44:20 PM          Seq. Line :  24
Sample Name     : 16J0502-03A                    Location : Vial 19
Acq. Operator   : NL                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method          : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed    : 12/22/2015 2:45:54 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	4.593	BP	0.0218	83.11182	49.91605	1.79387
2	4.650	VV	0.0228	116.71426	75.62595	2.51914
3	4.691	VV	0.0181	87.41863	64.83251	1.88683
4	4.740	VP	0.0215	125.88878	72.25208	2.71716
5	4.798	VV	0.0224	101.66830	65.91041	2.19439
6	4.836	VB	0.0277	119.33330	52.49155	2.57567
7	4.981	PV	0.0414	258.03397	82.32178	5.56935
8	5.044	VV	0.0264	238.13785	130.94521	5.13992
9	5.098	VV	0.0284	163.47255	83.75166	3.52836
10	5.177	VP	0.0386	121.10390	38.13647	2.61388
11	5.388	PV	0.0141	15.90179	15.32956	0.34322
12	5.429	VV	0.0202	59.14685	42.71288	1.27661
13	5.456	VV	0.0234	70.57075	39.20942	1.52318
14	5.516	VP	0.0317	821.30725	397.18951	17.72692
15	5.588	VV	0.0231	299.28403	195.59195	6.45968
16	5.621	VP	0.0226	138.20110	84.99925	2.98290
17	5.720	BB	0.0317	168.44583	68.03065	3.63570

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area %
18	5.954	PB	0.0268	233.67160	136.58844	5.04352
19	6.168	BB	0.0272	151.01051	73.55688	3.25938
20	6.289	BB	0.0237	46.29249	25.81793	0.99917
21	6.477	PV	0.0179	49.94074	34.99041	1.07791
22	6.527	VB	0.0270	139.51585	66.23096	3.01128
23	7.298	PB	0.0293	359.64682	160.51622	7.76254
24	7.501	BB	0.0350	93.10030	32.88850	2.00946
25	8.007	BB	0.0339	111.24509	40.21802	2.40109
26	8.213	BB	0.0389	255.27293	82.39971	5.50976
27	8.864	PP	0.0384	205.66901	69.73741	4.43912
Totals :				4633.10630	2282.19133	

Results obtained with enhanced integrator!

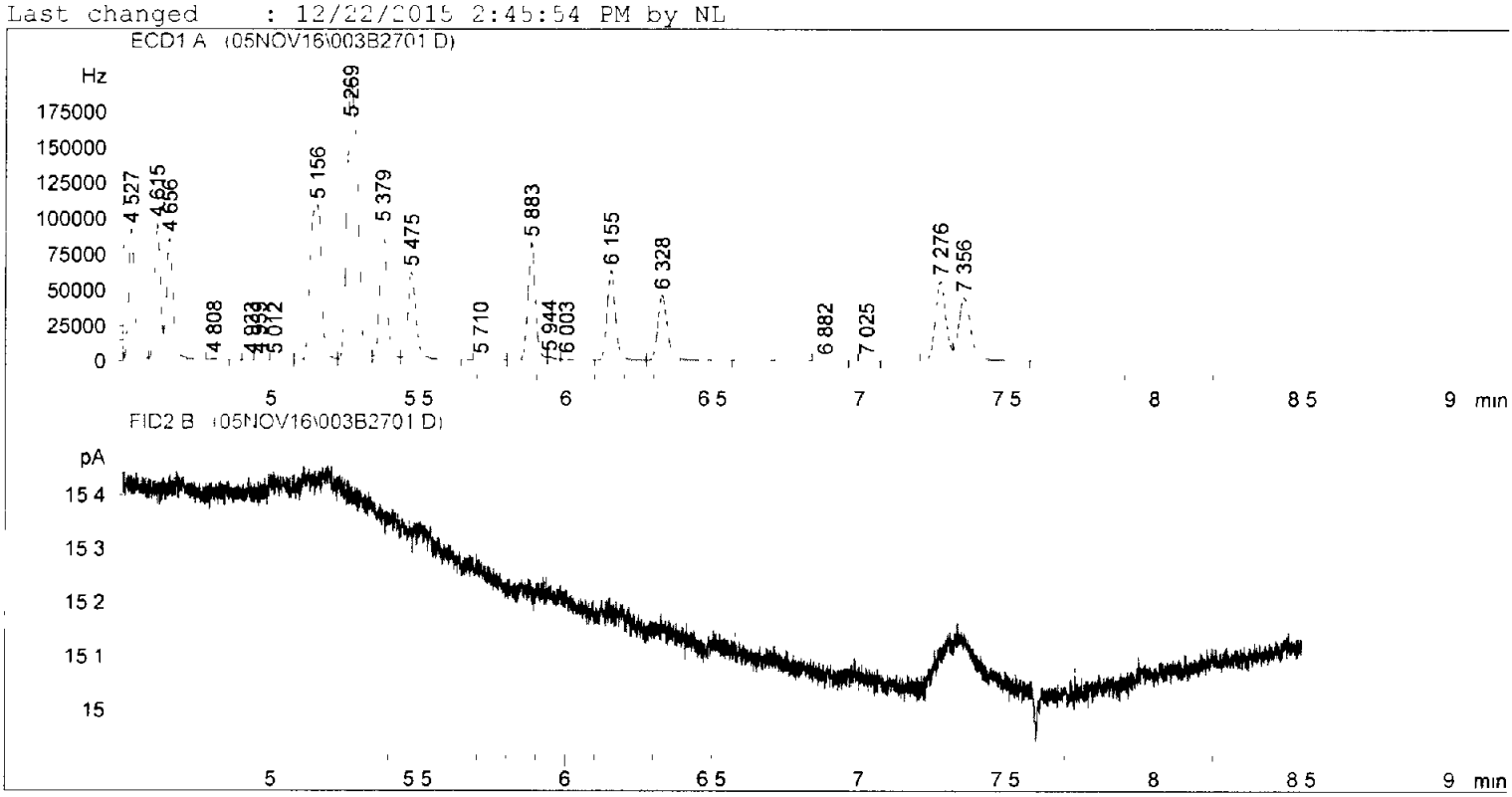
Signal 2: FID2 B,

*** End of Report ***

Injection Date : 11/5/2016 2:24:25 PM
Sample Name : CS5 STD
Acq. Operator : NL

Seq. Line : 27
Location : Vial 3
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\05NOV16.S
Method : C:\HPCHEM\2\METHODS\DIOXIN.M
Last changed : 12/22/2015 2:45:54 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	4.527	BV S	0.0220	1.31550e5	9.11950e4	6.20537
2	4.615	VV S	0.0223	1.27901e5	9.55399e4	6.03325
3	4.656	VB S	0.0262	1.34622e5	8.55283e4	6.35029
4	4.808	BB S	0.0259	1421.55115	834.63635	0.06706
5	4.933	BV	0.0183	275.53876	213.53261	0.01300
6	4.959	VV	0.0235	632.90924	403.27722	0.02986
7	5.012	VB	0.0182	69.47238	50.06691	0.00328
8	5.156	VV S	0.0355	2.86463e5	1.08871e5	13.51279
9	5.269	VV S	0.0422	5.00935e5	1.97627e5	23.62970
10	5.379	VV S	0.0293	1.63038e5	9.26584e4	7.69070
11	5.475	VB S	0.0325	1.20134e5	6.15356e4	5.66684
12	5.710	BP	0.0219	259.05723	177.25043	0.01222
13	5.883	BV S	0.0268	1.47179e5	8.26309e4	6.94260
14	5.944	VV S	0.0297	3613.53271	2028.67175	0.17045
15	6.003	VB S	0.0430	2320.23462	898.66138	0.10945
16	6.155	VV S	0.0302	1.24669e5	6.31969e4	5.88077
17	6.328	VB S	0.0353	1.06074e5	4.59414e4	5.00363

Peak #	RetTime [min]	Type	Width [min]	Area [Hz*s]	Height [Hz]	Area
18	6.882	BB	0.0359	178.56805	65.25185	0.00842
19	7.025	BB	0.0266	72.29272	36.64013	0.00341
20	7.276	BV S	0.0383	1.38261e5	5.62426e4	6.52192
21	7.356	VB S	0.0486	1.30270e5	4.46600e4	6.14500

Totals : 2.11994e6 1.03034e6

Results obtained with enhanced integrator!

Signal 2: FID2 B,

==========

*** End of Report ***

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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

Batch: BEK0276

Aqueous Samples

ARI Work Orders:	16K0015	
Method (circle one)	Solid Phase Extraction	Separatory Funnel
Extraction Method	Start Date/Time:	End Date/Time:
Soxhlet SepF Shake out	11/10/16 1208	11/11/16 0530
Tumble	11/10/16 0630	11/10/16 1040

Lab Number & Container	Sample Name	Sample Vol (mL) (Target)/Actual	pH >9 Adjust 7-9	Res Cl Check	RotoVap 45 °C	Final Vol (uL)
16K0015-05 A	PH1A05	(1,000.00) 970	7	(P)/F	1 (2)	20
BEK0276-BLK1	DBLK10	(1,000.00)	7	(P)/F	(1)/2	20
BEK0276-BS1	DLCS10	(1,000.00)	7	(P)/F	1 (2)	20
BEK0276-BSD1	DLCSD10	(1,000.00)	7	(P)/F	(1)/2	20
Prep Analyst / Date:	M 11/10/16		M 11/10/16	M 11/10/16	M 11/11/16	M 11/14/16

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Balance				
CH2Cl2		E004229	M	11/12/16
MeOH		B002345	M	11/10/16
Hexane		E004837	M	11/10/16 / 11/12/16
XAD-2		P0025820	M	11/10/16
H2SO4		E002416	M	11/11/16
Na2SO4		E005874	M	11/12/16
Glasswool		E001046	M	11/12/16
Basic Silica		E005288	M	11/12/16
Acid Silica		E005289	M	11/12/16
0% Silica		E003001	M	11/10/16 / 11/12/16
Activated Florisil		E001666	M	11/12/16
(98:2) Hex/DCM		E006286	M	11/12/16
Nonane		E000869	M	11/14/16
KI Strips		E001858	M	11/10/16
pH Paper		E001859	M	11/10/16
Other (Toluene)		E003118 / E006410	M	11/10/16

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	E005003	2/4 ng/mL	3/29/17	M	JW	11/10/16
OPR	20 uL	E004560	10/50/100 ng/mL	3/20/17	M	JW	11/10/16
~~**QLS Standard**~~	~~20 uL~~		~~0.5/2.5/5 ng/mL~~				
Clean-up Standard	1.0 mL	E004621	0.8 ng/mL	3/21/17	M	WW	11/12/16

Verify Client ID	
Analyst / Date:	M 11/10/16
Acid Clean	(Y)/N
Analyst / Date:	M 11/11/16
Silica-Florisil Clean	(Y)/N
Analyst / Date:	M 11/12/16

Supervisor Review By — Date: 11/14/16

Printed: 11/10/2016 6:03:02AM

3091F
Page 1 of 1

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glassware

ARI Sample ID: BEK0276 Client Sample ID: Client Project ID: ARI Analyst dc

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 Mantle
BEK0276 - BIK1	84		70		99	210	46	29				4	4	A1
BS1	22		69		94	147	18	34				4	4	A2
BSD1	74		68		88	13	149	36				4	4	A3
16K0015 - 05A	30		66		92	116	41	8				4	4	A4
												4	4	
												4	4	
												4	4	
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												4	4	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

ARI Job No.: 16K0015

Client ID:

Batch ID: BEK0276

Parameter:

Client Project:

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ 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).	
BEK0276-BSD: Seems to have ink in the extract after final blow down.	M 11/14/16
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

3056F

Revision 12
08/11/15

Analytical Resources Inc.: Organics Instrument Log

AutoSpec01 Serial No.:GC=CN10921030, MS=P764

Date: 11/9/16 Analysis: Dioxins Analyst: [illegible]

GC Program: 8290D Column No: C3519 Column Type: MTX Dioxin2

Inj Vol: 1ul Instrument Tune (IPR): Sep 2216 1-5 Detector Voltage: 350

Resolution Check Files: 12:28, 00:08, 10:06, 13:53 Curve Date: 5/10/16

IS/SS	Ical/Ccal	LCS/ICV
E710	E3891	
	E4948	

#	Acq.Date	Acq.Time	File	ID	Comments
1	09-Nov-16	12:28:50	16110902	CS3C1	
2	09-Nov-16	13:20:14	16110903	ISCC1	SEK0153
3	09-Nov-16	14:15:02	16110904	DBLK07	
4	09-Nov-16	15:06:33	16110905	DLCS07	
5	09-Nov-16	16:06:34	16110906	DLCSD07	
6	09-Nov-16	16:58:02	16110907	PBD454	
7	09-Nov-16	17:51:12	16110908	PBD455	
8	09-Nov-16	18:44:15	16110909	PBD456	
9	09-Nov-16	19:37:24	16110910	PBD457	
10	09-Nov-16	20:30:49	16110911	PBD458	
11	09-Nov-16	21:23:57	16110912	PBD459	
12	09-Nov-16	22:17:16	16110913	PBD463	
13	09-Nov-16	23:10:20	16110914	CS3C2	
14	10-Nov-16	00:08:45	16110915	ISCC2	
15	10-Nov-16	01:08:55	16110916	PBD4B2	
16	10-Nov-16	02:02:04	16110917	DUP A	
17	10-Nov-16	02:55:20	16110918	S14-0-1	
18	10-Nov-16	03:48:42	16110919	S15-0-1	
19	10-Nov-16	04:41:58	16110920	PBD4A8	
20	10-Nov-16	05:35:08	16110921	PBDQ7	
21	10-Nov-16	06:28:24	16110922	PH1A02	
22	10-Nov-16	07:21:35	16110923	PH1A04	
23	10-Nov-16	08:14:56	16110924	PH1A06	
24	10-Nov-16	09:08:06	16110925	CS3C3	
25	10-Nov-16	10:06:10	16110926	ISCC3	
26	10-Nov-16	11:10:44	16110927	PBD458DL 10X	
27	10-Nov-16	12:03:00	16110928	PBD463DL 10X	
28	10-Nov-16	12:55:05	16110929	CS3C4	
29	10-Nov-16	13:53:06	16110930	ISCC4	

[illegible] 11/11/16

Every line must contain information or be lined out. Make all entries legible.
Start a new page for each QC period. Document All Maintenance Tasks In Element LIMS

Quantify Audit Report MassLynx MassLynx V4.1 SCN909

Dataset: C:\MassLynx\Dioxin.pro\161109QC.qld
Last Altered: Thursday, November 10, 2016 15:39:11 Pacific Standard Time
Printed: Thursday, November 10, 2016 15:40:04 Pacific Standard Time

Brian N. Bobac BNB 11/17/16

Peter Kapler 11/10/16 pk

Event	Details	Sample ID
Dataset Created		
Dataset Saved	Saved to 'C:\MassLynx\Dioxin.pro\161109QC.qld'	
Peak deleted	Sample:16110904, Compound:TF, RT:26.601	1
Peak deleted	Sample:16110904, Compound:TF, RT:25.525	1
Peak deleted	Sample:16110904, Compound:TF, RT:25.555	1
Peak deleted	Sample:16110904, Compound:HF, RT:34.859	1
Peak deleted	Sample:16110904, Compound:HF, RT:34.059	1
Peak deleted	Sample:16110904, Compound:HF, RT:32.952	1
Peak deleted	Sample:16110904, Compound:TD, RT:25.496	1
Peak deleted	Sample:16110904, Compound:PD, RT:31.275	1
Peak deleted	Sample:16110904, Compound:PD, RT:30.201	1
Peak deleted	Sample:16110904, Compound:PD, RT:28.644	1
Peak deleted	Sample:16110904, Compound:PD, RT:28.556	1
Peak deleted	Sample:16110904, Compound:PD, RT:31.658	1
Peak deleted	Sample:16110904, Compound:HD, RT:36.547	1
Peak deleted	Sample:16110905, Compound:HF, RT:34.542	2
Peak deleted	Sample:16110905, Compound:HF, RT:35.408	2
Peak deleted	Sample:16110905, Compound:HF, RT:35.364	2
Peak deleted	Sample:16110905, Compound:HF, RT:35.111	2
Peak deleted	Sample:16110905, Compound:HF, RT:35.035	2
Peak deleted	Sample:16110905, Compound:HF, RT:36.142	2
Peak deleted	Sample:16110905, Compound:HF, RT:36.186	2
Peak deleted	Sample:16110905, Compound:PD, RT:30.628	2
Peak deleted	Sample:16110905, Compound:PD, RT:29.905	2
Peak deleted	Sample:16110905, Compound:HD, RT:34.575	2
Peak deleted	Sample:16110905, Compound:HD, RT:36.285	2
Peak deleted	Sample:16110905, Compound:HD, RT:36.241	2
Peak deleted	Sample:16110905, Compound:HD, RT:36.821	2
Peak deleted	Sample:16110905, Compound:HD, RT:36.723	2
Peak deleted	Sample:16110905, Compound:HD, RT:36.887	2
Peak deleted	Sample:16110905, Compound:HD, RT:36.931	2
Peak deleted	Sample:16110906, Compound:TF, RT:23.105	3
Peak deleted	Sample:16110906, Compound:TF, RT:25.809	3
Peak deleted	Sample:16110906, Compound:TF, RT:27.214	3
Peak deleted	Sample:16110906, Compound:TF, RT:26.631	3
Peak deleted	Sample:16110906, Compound:TF, RT:26.257	3
Peak deleted	Sample:16110906, Compound:HF, RT:36.580	3
Peak deleted	Sample:16110906, Compound:HF, RT:37.128	3
Peak deleted	Sample:16110906, Compound:HPF, RT:39.507	3
Peak deleted	Sample:16110906, Compound:PD, RT:29.697	3
Peak deleted	Sample:16110906, Compound:PD, RT:29.894	3
Peak deleted	Sample:16110906, Compound:PD, RT:29.061	3
Peak deleted	Sample:16110906, Compound:PD, RT:31.691	3
Peak deleted	Sample:16110906, Compound:PD, RT:31.604	3
Peak deleted	Sample:16110906, Compound:HD, RT:36.843	3
Peak deleted	Sample:16110906, Compound:HD, RT:36.887	3
Peak deleted	Sample:16110906, Compound:HD, RT:36.931	3
Peak modified	Sample:16110904, Compound:HPF, RT:39.002	1
Peak modified	Sample:16110904, Compound:HPF, RT:39.769	1
Peak modified	Sample:16110904, Compound:PD, RT:29.083	1
Peak modified	Sample:16110904, Compound:HD, RT:35.900	1
Pre modification peak	Sample:16110904, Compound:HPF, RT:39.002	1
Pre modification peak	Sample:16110904, Compound:HPF, RT:39.769	1

Quantify Audit Report MassLynx MassLynx V4.1 SCN909

Dataset: C:\MassLynx\Dioxin.pro\161109QC.qld
Last Altered: Thursday, November 10, 2016 15:39:11 Pacific Standard Time
Printed: Thursday, November 10, 2016 15:40:04 Pacific Standard Time

Event	Details	Sample ID
Pre modification peak	Sample:16110904, Compound:PD, RT:29.083	1
Pre modification peak	Sample:16110904, Compound:HD, RT:35.900	1
Process Extract		
Process Integrate		
Process Quantify		

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:52 Pacific Standard Time

Event	Details	Sample ID
Peak deleted	Sample:16110906, Compound:HD, RT:36.843	3
Peak deleted	Sample:16110906, Compound:HD, RT:36.887	3
Peak deleted	Sample:16110906, Compound:HD, RT:36.931	3
Peak deleted	Sample:16110907, Compound:TF, RT:25.361	4
Peak deleted	Sample:16110907, Compound:TF, RT:24.479	4
Peak deleted	Sample:16110907, Compound:TF, RT:24.315	4
Peak deleted	Sample:16110907, Compound:TF, RT:25.675	4
Peak deleted	Sample:16110907, Compound:TF, RT:26.959	4
Peak deleted	Sample:16110907, Compound:PF, RT:29.324	4
Peak deleted	Sample:16110907, Compound:PF, RT:28.556	4
Peak deleted	Sample:16110907, Compound:PF, RT:30.003	4
Pre modification peak	Sample:16110907, Compound:PF, RT:31.022	4
Peak modified	Sample:16110907, Compound:PF, RT:31.022	4
Pre modification peak	Sample:16110907, Compound:HF, RT:33.182	4
Peak modified	Sample:16110907, Compound:HF, RT:33.182	4
Pre modification peak	Sample:16110907, Compound:HF, RT:34.694	4
Peak modified	Sample:16110907, Compound:HF, RT:34.694	4
Pre modification peak	Sample:16110907, Compound:HF, RT:35.769	4
Peak modified	Sample:16110907, Compound:HF, RT:35.769	4
Peak deleted	Sample:16110907, Compound:HF, RT:36.865	4
Pre modification peak	Sample:16110907, Compound:HF, RT:36.919	4
Peak modified	Sample:16110907, Compound:HF, RT:36.919	4
Pre modification peak	Sample:16110907, Compound:HF, RT:36.942	4
Peak modified	Sample:16110907, Compound:HF, RT:36.942	4
Peak deleted	Sample:16110907, Compound:HPF, RT:40.197	4
Peak deleted	Sample:16110907, Compound:TD, RT:24.539	4
Pre modification peak	Sample:16110907, Compound:TD, RT:23.359	4
Peak modified	Sample:16110907, Compound:TD, RT:23.359	4
Peak deleted	Sample:16110907, Compound:TD, RT:26.183	4
Pre modification peak	Sample:16110907, Compound:PD, RT:29.061	4
Peak modified	Sample:16110907, Compound:PD, RT:29.061	4
Pre modification peak	Sample:16110907, Compound:PD, RT:28.600	4
Peak modified	Sample:16110907, Compound:PD, RT:28.600	4
Peak deleted	Sample:16110907, Compound:PD, RT:30.167	4
Pre modification peak	Sample:16110907, Compound:HD, RT:34.958	4
Peak modified	Sample:16110907, Compound:HD, RT:34.958	4
Peak deleted	Sample:16110907, Compound:HD, RT:36.218	4
Pre modification peak	Sample:16110907, Compound:HD, RT:36.459	4
Peak modified	Sample:16110907, Compound:HD, RT:36.459	4
Peak deleted	Sample:16110908, Compound:TF, RT:24.434	5
Pre modification peak	Sample:16110908, Compound:TF, RT:25.196	5
Peak modified	Sample:16110908, Compound:TF, RT:25.196	5
Peak deleted	Sample:16110908, Compound:TF, RT:24.883	5
Peak deleted	Sample:16110908, Compound:TF, RT:25.973	5
Peak deleted	Sample:16110908, Compound:PP, RT:27.512	5
Pre modification peak	Sample:16110908, Compound:PF, RT:29.477	5
Peak modified	Sample:16110908, Compound:PF, RT:29.477	5
Pre modification peak	Sample:16110908, Compound:PF, RT:29.652	5
Peak modified	Sample:16110908, Compound:PF, RT:29.652	5
Pre modification peak	Sample:16110908, Compound:PF, RT:29.378	5
Peak modified	Sample:16110908, Compound:PF, RT:29.378	5
Peak added	Sample:16110908, Compound:PF, RT:31.034	5
Peak added	Sample:16110908, Compound:PF, RT:31.012	5

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:52 Pacific Standard Time

Event	Details	Sample ID
Pre modification peak	Sample:16110908, Compound:PF, RT:32.097	5
Peak modified	Sample:16110908, Compound:PF, RT:32.097	5
Peak deleted	Sample:16110908, Compound:HF, RT:35.539	5
Peak deleted	Sample:16110908, Compound:HF, RT:37.029	5
Peak deleted	Sample:16110908, Compound:TD, RT:23.986	5
Peak deleted	Sample:16110908, Compound:TD, RT:23.792	5
Peak deleted	Sample:16110908, Compound:TD, RT:24.569	5
Peak deleted	Sample:16110908, Compound:TD, RT:24.808	5
Peak deleted	Sample:16110908, Compound:TD, RT:26.735	5
Peak deleted	Sample:16110908, Compound:PD, RT:30.201	5
Peak deleted	Sample:16110909, Compound:TF, RT:23.075	6
Peak deleted	Sample:16110909, Compound:TF, RT:22.911	6
Peak deleted	Sample:16110909, Compound:TF, RT:22.149	6
Peak deleted	Sample:16110909, Compound:TF, RT:23.419	6
Peak deleted	Sample:16110909, Compound:TF, RT:24.300	6
Peak deleted	Sample:16110909, Compound:TF, RT:24.196	6
Peak deleted	Sample:16110909, Compound:TF, RT:23.777	6
Peak deleted	Sample:16110909, Compound:TF, RT:25.750	6
Peak deleted	Sample:16110909, Compound:TF, RT:27.109	6
Peak deleted	Sample:16110909, Compound:TF, RT:26.915	6
Peak deleted	Sample:16110909, Compound:TF, RT:26.317	6
Peak deleted	Sample:16110909, Compound:TF, RT:27.288	6
Peak deleted	Sample:16110909, Compound:PF, RT:28.239	6
Pre modification peak	Sample:16110909, Compound:PF, RT:28.052	6
Peak modified	Sample:16110909, Compound:PF, RT:28.052	6
Pre modification peak	Sample:16110909, Compound:PF, RT:28.601	6
Peak modified	Sample:16110909, Compound:PF, RT:28.601	6
Pre modification peak	Sample:16110909, Compound:PF, RT:29.477	6
Peak modified	Sample:16110909, Compound:PF, RT:29.477	6
Peak deleted	Sample:16110909, Compound:HF, RT:32.974	6
Peak deleted	Sample:16110909, Compound:HF, RT:37.029	6
Peak deleted	Sample:16110909, Compound:HF, RT:36.756	6
Peak deleted	Sample:16110909, Compound:HPF, RT:39.978	6
Pre modification peak	Sample:16110909, Compound:HPF, RT:41.425	6
Peak modified	Sample:16110909, Compound:HPF, RT:41.425	6
Peak deleted	Sample:16110909, Compound:TD, RT:23.822	6
Peak deleted	Sample:16110909, Compound:TD, RT:25.167	6
Peak deleted	Sample:16110909, Compound:TD, RT:25.003	6
Peak deleted	Sample:16110909, Compound:TD, RT:26.467	6
Pre modification peak	Sample:16110909, Compound:PD, RT:30.617	6
Peak modified	Sample:16110909, Compound:PD, RT:30.617	6
Pre modification peak	Sample:16110909, Compound:PD, RT:30.212	6
Peak modified	Sample:16110909, Compound:PD, RT:30.212	6
Peak deleted	Sample:16110909, Compound:PD, RT:31.648	6
Peak deleted	Sample:16110909, Compound:PD, RT:31.691	6
Pre modification peak	Sample:16110909, Compound:HD, RT:34.969	6
Peak modified	Sample:16110909, Compound:HD, RT:34.969	6
Peak deleted	Sample:16110909, Compound:HD, RT:36.766	6
Peak deleted	Sample:16110910, Compound:TF, RT:22.313	7
Peak deleted	Sample:16110910, Compound:TF, RT:22.059	7
Peak deleted	Sample:16110910, Compound:TF, RT:24.465	7
Peak deleted	Sample:16110910, Compound:TF, RT:24.255	7
Peak deleted	Sample:16110910, Compound:TF, RT:23.927	7

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:52 Pacific Standard Time

Event	Details	Sample ID
Peak deleted	Sample:16110910, Compound:TF, RT:23.568	7
Peak deleted	Sample:16110910, Compound:TF, RT:25.899	7
Peak deleted	Sample:16110910, Compound:TF, RT:25.540	7
Peak deleted	Sample:16110910, Compound:TF, RT:25.346	7
Peak deleted	Sample:16110910, Compound:TF, RT:25.047	7
Peak deleted	Sample:16110910, Compound:TF, RT:24.853	7
Peak deleted	Sample:16110910, Compound:TF, RT:24.644	7
Peak deleted	Sample:16110910, Compound:TF, RT:26.586	7
Peak deleted	Sample:16110910, Compound:TF, RT:26.437	7
Peak deleted	Sample:16110910, Compound:PP, RT:27.333	7
Peak deleted	Sample:16110910, Compound:PF, RT:28.600	7
Peak deleted	Sample:16110910, Compound:PF, RT:31.111	7
Peak deleted	Sample:16110910, Compound:HF, RT:32.952	7
Pre modification peak	Sample:16110910, Compound:PD, RT:28.600	7
Peak modified	Sample:16110910, Compound:PD, RT:28.600	7
Peak deleted	Sample:16110910, Compound:PD, RT:28.524	7
Peak deleted	Sample:16110910, Compound:PD, RT:29.028	7
Peak deleted	Sample:16110910, Compound:PD, RT:29.642	7
Peak deleted	Sample:16110910, Compound:PD, RT:30.979	7
Pre modification peak	Sample:16110910, Compound:PD, RT:31.056	7
Peak modified	Sample:16110910, Compound:PD, RT:31.056	7
Peak deleted	Sample:16110910, Compound:PD, RT:31.078	7
Peak deleted	Sample:16110910, Compound:HD, RT:35.144	7
Pre modification peak	Sample:16110910, Compound:HD, RT:34.969	7
Peak modified	Sample:16110910, Compound:HD, RT:34.969	7
Peak deleted	Sample:16110910, Compound:HD, RT:35.539	7
Peak deleted	Sample:16110910, Compound:HD, RT:36.909	7
Peak deleted	Sample:16110911, Compound:TF, RT:22.074	8
Pre modification peak	Sample:16110911, Compound:TF, RT:23.927	8
Peak modified	Sample:16110911, Compound:TF, RT:23.927	8
Peak deleted	Sample:16110911, Compound:TF, RT:27.288	8
Pre modification peak	Sample:16110911, Compound:PF, RT:28.601	8
Peak modified	Sample:16110911, Compound:PF, RT:28.601	8
Pre modification peak	Sample:16110911, Compound:PF, RT:28.074	8
Peak modified	Sample:16110911, Compound:PF, RT:28.074	8
Pre modification peak	Sample:16110911, Compound:PF, RT:29.313	8
Peak modified	Sample:16110911, Compound:PF, RT:29.313	8
Pre modification peak	Sample:16110911, Compound:PF, RT:29.170	8
Peak modified	Sample:16110911, Compound:PF, RT:29.170	8
Peak deleted	Sample:16110911, Compound:PF, RT:30.606	8
Pre modification peak	Sample:16110911, Compound:PF, RT:31.012	8
Peak modified	Sample:16110911, Compound:PF, RT:31.012	8
Peak deleted	Sample:16110911, Compound:HF, RT:37.019	8
Pre modification peak	Sample:16110911, Compound:HPF, RT:41.381	8
Peak modified	Sample:16110911, Compound:HPF, RT:41.381	8
Peak deleted	Sample:16110911, Compound:HD, RT:36.920	8
Peak deleted	Sample:16110911, Compound:HD, RT:36.756	8
Peak deleted	Sample:16110912, Compound:TF, RT:23.972	9
Peak deleted	Sample:16110912, Compound:TF, RT:23.986	9
Peak deleted	Sample:16110912, Compound:TF, RT:25.346	9
Pre modification peak	Sample:16110912, Compound:PF, RT:29.313	9
Peak modified	Sample:16110912, Compound:PF, RT:29.313	9
Peak deleted	Sample:16110912, Compound:HF, RT:37.018	9

Dataset: C:\MassLynx\Dioxin.pro\161109DATA1.qld
Last Altered: Thursday, November 10, 2016 11:55:13 Pacific Standard Time
Printed: Thursday, November 10, 2016 11:56:52 Pacific Standard Time

Event	Details	Sample ID
Peak deleted	Sample:16110912, Compound:HPF, RT:39.199	9
Peak deleted	Sample:16110912, Compound:HPF, RT:41.435	9
Peak deleted	Sample:16110912, Compound:TD, RT:23.807	9
Peak deleted	Sample:16110912, Compound:TD, RT:26.302	9
Peak deleted	Sample:16110912, Compound:TD, RT:25.779	9
Peak deleted	Sample:16110912, Compound:TD, RT:25.809	9
Pre modification peak	Sample:16110913, Compound:TF, RT:25.734	10
Peak modified	Sample:16110913, Compound:TF, RT:25.734	10
Peak deleted	Sample:16110913, Compound:TF, RT:27.124	10
Pre modification peak	Sample:16110913, Compound:TF, RT:26.914	10
Peak modified	Sample:16110913, Compound:TF, RT:26.914	10
Peak deleted	Sample:16110913, Compound:PP, RT:27.617	10
Pre modification peak	Sample:16110913, Compound:PP, RT:27.527	10
Peak modified	Sample:16110913, Compound:PP, RT:27.527	10
Peak deleted	Sample:16110913, Compound:PF, RT:28.885	10
Pre modification peak	Sample:16110913, Compound:PF, RT:28.600	10
Peak modified	Sample:16110913, Compound:PF, RT:28.600	10
Peak deleted	Sample:16110913, Compound:PF, RT:29.192	10
Pre modification peak	Sample:16110913, Compound:PF, RT:32.108	10
Peak modified	Sample:16110913, Compound:PF, RT:32.108	10
Peak deleted	Sample:16110913, Compound:HF, RT:37.029	10
Peak deleted	Sample:16110913, Compound:HPF, RT:38.816	10
Peak deleted	Sample:16110913, Compound:TD, RT:26.033	10
Peak deleted	Sample:16110913, Compound:PD, RT:29.477	10
Pre modification peak	Sample:16110913, Compound:PD, RT:30.200	10
Peak modified	Sample:16110913, Compound:PD, RT:30.200	10
Peak deleted	Sample:16110913, Compound:HD, RT:36.909	10
Peak deleted	Sample:16110913, Compound:HD, RT:36.755	10
Dataset Saved	Saved to 'C:\MassLynx\Dioxin.pro\161109DATA1.qld'	

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 12:39:54 Pacific Standard Time
Printed: Thursday, November 10, 2016 12:41:43 Pacific Standard Time

Event	Details	Sample ID
Peak modified	Sample:16110921, Compound:TD, RT:26.258	6
Peak modified	Sample:16110921, Compound:TD, RT:26.258	6
Peak modified	Sample:16110921, Compound:TD, RT:26.258	6
Peak modified	Sample:16110921, Compound:PD, RT:29.916	6
Peak modified	Sample:16110921, Compound:PD, RT:30.256	6
Peak modified	Sample:16110922, Compound:TF, RT:26.601	7
Peak modified	Sample:16110922, Compound:TF, RT:26.616	7
Peak modified	Sample:16110922, Compound:PF, RT:28.601	7
Peak modified	Sample:16110922, Compound:PF, RT:31.023	7
Peak modified	Sample:16110922, Compound:HF, RT:33.204	7
Peak modified	Sample:16110922, Compound:HF, RT:34.717	7
Peak modified	Sample:16110922, Compound:PD, RT:28.622	7
Peak modified	Sample:16110922, Compound:PD, RT:29.894	7
Peak modified	Sample:16110922, Compound:PD, RT:31.670	7
Peak modified	Sample:16110922, Compound:HD, RT:34.980	7
Peak modified	Sample:16110923, Compound:HF, RT:34.684	8
Peak modified	Sample:16110923, Compound:PD, RT:28.601	8
Peak modified	Sample:16110923, Compound:PD, RT:29.072	8
Peak modified	Sample:16110923, Compound:PD, RT:29.927	8
Peak modified	Sample:16110923, Compound:PD, RT:30.212	8
Peak modified	Sample:16110923, Compound:HD, RT:34.980	8
Peak modified	Sample:16110923, Compound:HD, RT:36.251	8
Peak modified	Sample:16110923, Compound:HD, RT:35.955	8
Peak modified	Sample:16110924, Compound:OF, RT:46.730	9
Peak modified	Sample:16110924, Compound:OF, RT:46.730	9
Peak modified	Sample:16110924, Compound:TF, RT:23.718	9
Peak modified	Sample:16110924, Compound:TF, RT:24.868	9
Peak modified	Sample:16110924, Compound:TF, RT:24.315	9
Peak modified	Sample:16110924, Compound:PF, RT:29.916	9
Peak modified	Sample:16110924, Compound:HD, RT:34.958	9
Peak modified	Sample:16110924, Compound:HD, RT:36.054	9
Pre modification peak	Sample:16110916, Compound:TF, RT:22.926	1
Pre modification peak	Sample:16110916, Compound:PF, RT:28.546	1
Pre modification peak	Sample:16110916, Compound:PD, RT:28.557	1
Pre modification peak	Sample:16110916, Compound:PD, RT:29.083	1
Pre modification peak	Sample:16110916, Compound:PD, RT:28.579	1
Pre modification peak	Sample:16110916, Compound:PD, RT:29.905	1
Pre modification peak	Sample:16110917, Compound:TF, RT:25.376	2
Pre modification peak	Sample:16110917, Compound:TF, RT:26.049	2
Pre modification peak	Sample:16110917, Compound:PF, RT:28.634	2
Pre modification peak	Sample:16110917, Compound:PF, RT:29.357	2
Pre modification peak	Sample:16110917, Compound:PD, RT:29.927	2
Pre modification peak	Sample:16110917, Compound:PD, RT:30.234	2
Pre modification peak	Sample:16110918, Compound:TF, RT:27.034	3
Pre modification peak	Sample:16110918, Compound:PP, RT:26.975	3
Pre modification peak	Sample:16110918, Compound:HPF, RT:41.435	3
Pre modification peak	Sample:16110918, Compound:HPF, RT:41.424	3
Pre modification peak	Sample:16110918, Compound:PD, RT:28.611	3
Pre modification peak	Sample:16110919, Compound:TF, RT:26.989	4
Pre modification peak	Sample:16110919, Compound:PF, RT:29.367	4
Pre modification peak	Sample:16110919, Compound:TD, RT:26.780	4
Pre modification peak	Sample:16110919, Compound:PD, RT:30.266	4
Pre modification peak	Sample:16110920, Compound:HF, RT:32.985	5

Dataset: C:\MassLynx\Dioxin.pro\161109DATA2.qld
Last Altered: Thursday, November 10, 2016 12:39:54 Pacific Standard Time
Printed: Thursday, November 10, 2016 12:41:43 Pacific Standard Time

Event	Details	Sample ID
Pre modification peak	Sample:16110920, Compound:HF, RT:34.684	5
Pre modification peak	Sample:16110920, Compound:HF, RT:35.780	5
Pre modification peak	Sample:16110920, Compound:PD, RT:31.253	5
Pre modification peak	Sample:16110920, Compound:HD, RT:35.922	5
Pre modification peak	Sample:16110921, Compound:OF, RT:46.731	6
Pre modification peak	Sample:16110921, Compound:TD, RT:26.258	6
Pre modification peak	Sample:16110921, Compound:PD, RT:29.916	6
Pre modification peak	Sample:16110921, Compound:PD, RT:30.256	6
Pre modification peak	Sample:16110922, Compound:TF, RT:26.601	7
Pre modification peak	Sample:16110922, Compound:TF, RT:26.616	7
Pre modification peak	Sample:16110922, Compound:PF, RT:28.601	7
Pre modification peak	Sample:16110922, Compound:PF, RT:31.023	7
Pre modification peak	Sample:16110922, Compound:HF, RT:33.204	7
Pre modification peak	Sample:16110922, Compound:HF, RT:34.717	7
Pre modification peak	Sample:16110922, Compound:PD, RT:28.622	7
Pre modification peak	Sample:16110922, Compound:PD, RT:29.894	7
Pre modification peak	Sample:16110922, Compound:PD, RT:31.670	7
Pre modification peak	Sample:16110922, Compound:HD, RT:34.980	7
Pre modification peak	Sample:16110923, Compound:HF, RT:34.684	8
Pre modification peak	Sample:16110923, Compound:PD, RT:28.601	8
Pre modification peak	Sample:16110923, Compound:PD, RT:29.072	8
Pre modification peak	Sample:16110923, Compound:PD, RT:29.927	8
Pre modification peak	Sample:16110923, Compound:PD, RT:30.212	8
Pre modification peak	Sample:16110923, Compound:HD, RT:34.980	8
Pre modification peak	Sample:16110923, Compound:HD, RT:36.251	8
Pre modification peak	Sample:16110923, Compound:HD, RT:35.955	8
Pre modification peak	Sample:16110924, Compound:OF, RT:46.730	9
Pre modification peak	Sample:16110924, Compound:OF, RT:46.730	9
Pre modification peak	Sample:16110924, Compound:TF, RT:23.718	9
Pre modification peak	Sample:16110924, Compound:TF, RT:24.868	9
Pre modification peak	Sample:16110924, Compound:TF, RT:24.315	9
Pre modification peak	Sample:16110924, Compound:PF, RT:29.916	9
Pre modification peak	Sample:16110924, Compound:HD, RT:34.958	9
Pre modification peak	Sample:16110924, Compound:HD, RT:36.054	9
Process Extract		
Process Integrate		
Process Quantify		

Quantify Audit Report MassLynx MassLynx V4.1 SCN909

Dataset: C:\MassLynx\Dioxin.pro\161109DATA3.qld
Last Altered: Thursday, November 10, 2016 15:06:51 Pacific Standard Time
Printed: Thursday, November 10, 2016 15:08:02 Pacific Standard Time

Event	Details	Sample ID
Peak modified	Sample:16110928, Compound:PF, RT:28.601	2
Peak modified	Sample:16110928, Compound:PD, RT:29.675	2
Pre modification peak	Sample:16110927, Compound:PF, RT:29.400	1
Pre modification peak	Sample:16110927, Compound:PF, RT:29.477	1
Pre modification peak	Sample:16110927, Compound:PF, RT:29.894	1
Pre modification peak	Sample:16110927, Compound:PD, RT:30.212	1
Pre modification peak	Sample:16110927, Compound:PD, RT:30.201	1
Pre modification peak	Sample:16110927, Compound:PD, RT:30.047	1
Pre modification peak	Sample:16110928, Compound:TF, RT:25.600	2
Pre modification peak	Sample:16110928, Compound:PF, RT:28.239	2
Pre modification peak	Sample:16110928, Compound:PF, RT:28.601	2
Pre modification peak	Sample:16110928, Compound:PD, RT:29.675	2
Process Extract		
Process Integrate		
Process Quantify		

Analytical Resources Inc.: Organics Instrument Log

AutoSpec01 Serial No.:GC=CN10921030, MS=P764

Date: 11/11/16 Analysis: ~~B-00~~ Dioxins Analyst: [illegible]

GC Program: 8290 Column No: C3579 Column Type: VGXDioxin2

Inj Vol: 1ul Instrument Tune (IPR): Sep2216 1-5 Detector Voltage: 350

Resolution Check Files: 12:00, 23:16 Curve Date: 5/10/16

IS/SS	Ical/Ccal	LCS/ICV
B710	B3891	
	B4948	

#	Acq.Date	Acq.Time	File	ID	Comments
1	11-Nov-16	12:01:32	16111102	CS3D1	
2	11-Nov-16	12:53:10	16111103	ISCD1	
3	11-Nov-16	14:21:10	16111104	DBLK1A	SE\K0175
4	11-Nov-16	15:12:34	16111105	DLCS1A	
5	11-Nov-16	16:05:44	16111106	DLCSD1A	
6	11-Nov-16	16:59:00	16111107	PBD4B4	
7	11-Nov-16	17:52:09	16111108	PH1A01	
8	11-Nov-16	18:45:27	16111109	PH1A03	
9	11-Nov-16	19:38:38	16111110	PBD4B5	
10	11-Nov-16	20:31:54	16111111	PBD4B6	
11	11-Nov-16	21:25:06	16111112	PBD4B7	
12	11-Nov-16	22:18:29	16111113	CS3D2	
13	11-Nov-16	23:16:30	16111114	ISCD2	
14	12-Nov-16	00:16:52	16111115	TOL E6296	

[illegible] 11/14/16

Every line must contain information or be lined out. Make all entries legible.
Start a new page for each QC period. Document All Maintenance Tasks In Element LIMS

Quantify Audit Report MassLynx MassLynx V4.1 SCN909

Dataset: Untitled
Last Altered: Monday, November 14, 2016 11:17:46 Pacific Standard Time
Printed: Monday, November 14, 2016 11:18:44 Pacific Standard Time

Brian McBee BMB 11/17/1

PETER KAPLER 11/14/16 pk

Event	Details	Sample ID
Peak modified	Sample:16111112, Compound:OF, RT:46.749	9
Peak modified	Sample:16111112, Compound:HPD, RT:40.801	9
Peak modified	Sample:16111112, Compound:HPD, RT:40.801	9
Peak modified	Sample:16111112, Compound:OD, RT:46.498	9
Peak modified	Sample:16111112, Compound:OD, RT:46.479	9
Peak modified	Sample:16111112, Compound:HF, RT:34.838	9
Peak modified	Sample:16111112, Compound:HF, RT:36.943	9
Peak modified	Sample:16111112, Compound:HPD, RT:40.768	9
Peak modified	Sample:16111112, Compound:HPD, RT:40.768	9
Peak modified	Sample:16111112, Compound:HPD, RT:40.801	9
Pre modification peak	Sample:16111104, Compound:OD, RT:46.488	1
Pre modification peak	Sample:16111104, Compound:OD, RT:46.470	1
Pre modification peak	Sample:16111104, Compound:HPD, RT:40.778	1
Pre modification peak	Sample:16111107, Compound:OF, RT:46.731	4
Pre modification peak	Sample:16111107, Compound:PD, RT:31.297	4
Pre modification peak	Sample:16111107, Compound:HPD, RT:40.757	4
Pre modification peak	Sample:16111107, Compound:HF, RT:34.684	4
Pre modification peak	Sample:16111107, Compound:HF, RT:34.706	4
Pre modification peak	Sample:16111108, Compound:OD, RT:46.461	5
Pre modification peak	Sample:16111108, Compound:OD, RT:46.488	5
Pre modification peak	Sample:16111108, Compound:OD, RT:46.488	5
Pre modification peak	Sample:16111108, Compound:HF, RT:36.964	5
Pre modification peak	Sample:16111108, Compound:HF, RT:36.964	5
Pre modification peak	Sample:16111109, Compound:OD, RT:46.480	6
Pre modification peak	Sample:16111109, Compound:OD, RT:46.525	6
Pre modification peak	Sample:16111109, Compound:OD, RT:46.525	6
Pre modification peak	Sample:16111110, Compound:OD, RT:46.505	7
Pre modification peak	Sample:16111110, Compound:OD, RT:46.487	7
Pre modification peak	Sample:16111110, Compound:HPD, RT:40.756	7
Pre modification peak	Sample:16111111, Compound:OF, RT:46.739	8
Pre modification peak	Sample:16111111, Compound:OF, RT:46.730	8
Pre modification peak	Sample:16111111, Compound:HF, RT:34.727	8
Pre modification peak	Sample:16111111, Compound:HF, RT:34.727	8
Pre modification peak	Sample:16111111, Compound:HPF, RT:39.802	8
Pre modification peak	Sample:16111111, Compound:HPF, RT:41.611	8
Pre modification peak	Sample:16111111, Compound:HPD, RT:39.539	8
Pre modification peak	Sample:16111112, Compound:OF, RT:46.740	9
Pre modification peak	Sample:16111112, Compound:OF, RT:46.749	9
Pre modification peak	Sample:16111112, Compound:HPD, RT:40.801	9
Pre modification peak	Sample:16111112, Compound:HPD, RT:40.801	9
Pre modification peak	Sample:16111112, Compound:OD, RT:46.498	9
Pre modification peak	Sample:16111112, Compound:OD, RT:46.479	9
Pre modification peak	Sample:16111112, Compound:HF, RT:34.838	9
Pre modification peak	Sample:16111112, Compound:HF, RT:36.943	9
Pre modification peak	Sample:16111112, Compound:HPD, RT:40.768	9
Process Extract		
Process Integrate		
Process Quantify		

Analytical Resources Inc.: Organics Instrument Log

AutoSpec01 Serial No.:GC=CN10921030, MS=P764

Date: 11/14/16 Analysis: Dioxins Analyst: M

GC Program: 8290D Column No: C3519 Column Type: DB-XDioxin2

Inj Vol: 1ul Instrument Tune (IPR): Sep22/16 1-5 Detector Voltage: 350

Resolution Check Files: 10:47, 17:16 Curve Date: 5/10/16

IS/SS	Ical/Ccal	LCS/ICV
B710	E3891 B4948	

#	Acq.Date	Acq.Time	File	ID	Comments
1	14-Nov-16	10:49:20	16111402	CS3E1	
2	14-Nov-16	11:40:41	16111403	ISCE1	
3	14-Nov-16	12:47:33	16111404	DBLK10	SRL0207
4	14-Nov-16	13:38:58	16111405	DLCS10	
5	14-Nov-16	14:32:09	16111406	DLCSD10	
6	14-Nov-16	15:25:26	16111407	PH1A05	
7	14-Nov-16	16:20:50	16111408	CS3E2	
8	14-Nov-16	17:16:58	16111409	ISCE2	
9	14-Nov-16	18:17:20	16111410	CLEAN E6555	

M 11/15/16

Every line must contain information or be lined out. Make all entries legible.
Start a new page for each QC period. Document All Maintenance Tasks In Element LIMS

Quantify Audit Report MassLynx MassLynx V4.1 SCN909

Dataset: Untitled
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 11:55:16 Pacific Standard Time

Brian N. Bolze BNB 11/17/16

PETER KEPLER 11/17/16

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:16111404, Compound:HD, RT:35.791	1
Pre modification peak	Sample:16111404, Compound:OD, RT:46.425	1
Peak modified	Sample:16111404, Compound:OD, RT:46.425	1
Pre modification peak	Sample:16111404, Compound:OD, RT:46.479	1
Peak modified	Sample:16111404, Compound:OD, RT:46.479	1
Peak deleted	Sample:16111404, Compound:PF, RT:29.686	1
Peak deleted	Sample:16111404, Compound:PF, RT:31.045	1
Peak deleted	Sample:16111404, Compound:PF, RT:32.042	1
Peak deleted	Sample:16111404, Compound:TD, RT:25.555	1
Peak deleted	Sample:16111404, Compound:TD, RT:26.198	1
Peak deleted	Sample:16111404, Compound:TD, RT:26.302	1
Peak deleted	Sample:16111405, Compound:HD, RT:36.635	2
Peak deleted	Sample:16111405, Compound:HF, RT:35.122	2
Peak deleted	Sample:16111405, Compound:HF, RT:36.021	2
Peak deleted	Sample:16111405, Compound:HF, RT:37.150	2
Peak deleted	Sample:16111405, Compound:HPD, RT:40.932	2
Peak deleted	Sample:16111405, Compound:HPF, RT:39.474	2
Peak deleted	Sample:16111405, Compound:HPF, RT:41.853	2
Peak deleted	Sample:16111405, Compound:PD, RT:29.697	2
Peak deleted	Sample:16111405, Compound:PD, RT:29.916	2
Peak deleted	Sample:16111405, Compound:PD, RT:31.582	2
Peak deleted	Sample:16111405, Compound:PF, RT:31.264	2
Peak deleted	Sample:16111405, Compound:TD, RT:23.344	2
Peak deleted	Sample:16111405, Compound:TF, RT:26.885	2
Peak deleted	Sample:16111406, Compound:HD, RT:34.947	3
Peak deleted	Sample:16111406, Compound:HD, RT:36.273	3
Peak deleted	Sample:16111406, Compound:HD, RT:36.909	3
Peak deleted	Sample:16111406, Compound:HF, RT:37.106	3
Peak deleted	Sample:16111406, Compound:HPD, RT:40.987	3
Peak deleted	Sample:16111406, Compound:HPD, RT:41.052	3
Peak deleted	Sample:16111406, Compound:HPF, RT:39.233	3
Peak deleted	Sample:16111406, Compound:HPF, RT:39.353	3
Peak deleted	Sample:16111406, Compound:HPF, RT:39.441	3
Peak deleted	Sample:16111406, Compound:HPF, RT:39.496	3
Peak deleted	Sample:16111406, Compound:HPF, RT:41.863	3
Peak deleted	Sample:16111406, Compound:HPF, RT:42.028	3
Peak deleted	Sample:16111406, Compound:HPF, RT:42.072	3
Peak deleted	Sample:16111406, Compound:PD, RT:29.696	3
Peak deleted	Sample:16111406, Compound:PD, RT:31.549	3
Peak deleted	Sample:16111406, Compound:PF, RT:31.242	3
Peak deleted	Sample:16111406, Compound:PF, RT:31.396	3
Peak deleted	Sample:16111406, Compound:TD, RT:25.047	3
Peak deleted	Sample:16111406, Compound:TF, RT:26.018	3
Peak deleted	Sample:16111407, Compound:HD, RT:36.470	4
Peak deleted	Sample:16111407, Compound:HD, RT:36.514	4
Peak deleted	Sample:16111407, Compound:HF, RT:34.705	4
Peak deleted	Sample:16111407, Compound:HPF, RT:41.622	4
Pre modification peak	Sample:16111407, Compound:OD, RT:46.434	4
Peak modified	Sample:16111407, Compound:OD, RT:46.434	4

BNB

Quantify Audit Report MassLynx MassLynx V4.1 SCN909
Dataset: Untitled
Last Altered: Tuesday, November 15, 2016 11:53:32 Pacific Standard Time
Printed: Tuesday, November 15, 2016 11:55:16 Pacific Standard Time

Event	Details	Sample ID
Pre modification peak	Sample:16111407, Compound:OD, RT:46.452	4
Peak modified	Sample:16111407, Compound:OD, RT:46.452	4
Pre modification peak	Sample:16111407, Compound:OF, RT:46.721	4
Peak modified	Sample:16111407, Compound:OF, RT:46.721	4
Pre modification peak	Sample:16111407, Compound:OF, RT:46.730	4
Peak modified	Sample:16111407, Compound:OF, RT:46.730	4
Peak deleted	Sample:16111407, Compound:PF, RT:29.883	4
Peak deleted	Sample:16111407, Compound:PF, RT:29.927	4
Peak deleted	Sample:16111407, Compound:PF, RT:31.034	4
Peak deleted	Sample:16111407, Compound:PP, RT:26.959	4
Peak deleted	Sample:16111407, Compound:TD, RT:25.525	4
Peak deleted	Sample:16111407, Compound:TD, RT:25.884	4
Peak deleted	Sample:16111407, Compound:TD, RT:26.183	4
Peak deleted	Sample:16111407, Compound:TD, RT:26.198	4
Peak deleted	Sample:16111407, Compound:TF, RT:23.299	4
Peak deleted	Sample:16111407, Compound:TF, RT:25.570	4
Peak deleted	Sample:16111407, Compound:TF, RT:27.243	4

CLEANUP BENCH SHEET

CDH0039

Analytical Resources, Inc.

Matrix: Solid **Cleanup using: Organics - SOM Florisil** **Printed: 8/26/2015 12:57:49PM**

Lab Number	Analysis	Clean up	Cleaned By	Initial (uL)	Final (uL)	Client	Cleanup Comments
CDH0039-FLO1	-	26-Aug-2015 00:00	TMH	1	1		

Cleanup Reviewed By Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Benchsheet

Miscellaneous
Water/Soil/Sed/Tissue/Other
Separatory Funnel (3510C)/Liq-Liq (3520C)
Sonication (3550C)/Microwave (3546)
TissueMize (Modified 3550C)

Analysis CLP PEST

Preparation Test Misc # 1
ARI Job No(s) Florisil Check 8/26
Batch # _____

Batch set up by: TH

Bottle #	ARI Sample I.D.	Weight Or Volume Extracted	Sonic Horn ID + Chk	(REQ/ Opt) GPC Y/ N	(REQ/ Opt) Acid Clean Y / N	(REQ/ Opt) Sulfur Clean Y / N	(REQ/ Opt) SPE Clean Y / N	Final Effective Volume	Vol to Lab	Comments	Verify Client ID TH 8/26/15 Analyst/Date
	BLK										Pre-GPC KD 1 2 3 4 5 6 ___°C Exchange to Hex? Analyst/Date
	BS										
	BS Dup										
	MRL Check										TurboVap Pre-GPC 1 2 3 4 5 Analyst/Date
	Florisil Chk	1.0mL	✓	✓	✓	✓	1:1	1.0mL	1.0mL		
											Post GPC KD 1 2 3 4 5 6 ___°C Exchange to Hex? Analyst/Date
											TurboVap Post-GPC 1 2 3 4 5 Analyst/Date
											TurboVap Pre-Cleanups 1 2 3 4 5 TH 8/26/15 Analyst/Date
											TurboVap Post-Cleanups 1 2 3 4 5 TH 8/26/15 Analyst/Date
Analyst/Date		TH 8/26/15					TH 8/26/15	TH 8/26/15	TH 8/26/15	Reviewed by/Date TH 8/26/15	

Standard	Standard ID	Concentration	Volume	Expiration Date	Analyst	Witness
Surrogate	( )		µL			
Spike	(D003537)		10000 µL	10/2/2015	TH	
Spike	( )		µL			
Spike	( )		µL			
MRL Spike	( )		µL			
Extraction Time:	Liq/Liq Start:	Liq/Liq Stop:		Balance ID:		

SPECIAL INSTRUCTIONS:
3057F

Revision 07
06/23/15

CARTRIDGE # 5213059

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CEK0054

Matrix: Solid **Cleanup using: HRGCMS - EPA 3665A Sulfuric Acid Cleanup** **Printed: 11/9/2016 3:57:02PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
16K0015-06	A	PH1A06	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16K0015-04	A	PH1A04	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16K0015-02	A	PH1A02	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0506-02	A	PBDQ7	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0506-01	A	PBD4A8	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0502-03	A	S15:0-1	A 01	20	20	1613B Dioxin	11/8/2016	NPL	
16J0502-02	A	S14:0-1	A 01	20	20	1613B Dioxin	11/8/2016	NPL	
16J0502-01	A	Dup A	A 01	20	20	1613B Dioxin	11/8/2016	NPL	
16J0442-08	A	PBD4B2	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0442-07	A	PBD463	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0442-06	A	PBD459	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0442-05	A	PBD458	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0442-04	A	PBD457	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0442-03	A	PBD456	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0442-02	A	PBD455	A 01	20	20	HRSM01.2	11/8/2016	NPL	
16J0442-01	A	PBD454	A 01	20	20	HRSM01.2	11/8/2016	NPL	
BEK0165-BSD1	-	DLCSD07	-	20	20	-	11/9/2016	NPL	
BEK0165-BS1	-	DLCS07	-	20	20	-	11/9/2016	NPL	
BEK0165-BLK1	-	DBLK07	-	20	20	-	11/9/2016	NPL	

Cleanup Reviewed By Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CEK0055

Matrix: Solid **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup** **Printed: 11/9/2016 3:57:20PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
16K0015-06	A	PH1A06	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16K0015-04	A	PH1A04	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16K0015-02	A	PH1A02	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0506-02	A	PBDQ7	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0506-01	A	PBD4A8	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0502-03	A	S15:0-1	A 01	20	20	1613B Dioxin	11/9/2016	NPL	
16J0502-02	A	S14:0-1	A 01	20	20	1613B Dioxin	11/9/2016	NPL	
16J0502-01	A	Dup A	A 01	20	20	1613B Dioxin	11/9/2016	NPL	
16J0442-08	A	PBD4B2	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-07	A	PBD463	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-06	A	PBD459	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-05	A	PBD458	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-04	A	PBD457	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-03	A	PBD456	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-02	A	PBD455	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-01	A	PBD454	A 01	20	20	HRSM01.2	11/9/2016	NPL	
BEK0165-BSD1	-	DLCSD07	-	20	20	-	11/9/2016	NPL	
BEK0165-BS1	-	DLCS07	-	20	20	-	11/9/2016	NPL	
BEK0165-BLK1	-	DBLK07	-	20	20	-	11/9/2016	NPL	

Cleanup Reviewed By Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CEK0056

Matrix: Solid **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup** **Printed: 11/9/2016 3:57:32PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
16K0015-06	A	PH1A06	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16K0015-04	A	PH1A04	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16K0015-02	A	PH1A02	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0506-02	A	PBDQ7	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0506-01	A	PBD4A8	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0502-03	A	S15:0-1	A 01	20	20	1613B Dioxin	11/9/2016	NPL	
16J0502-02	A	S14:0-1	A 01	20	20	1613B Dioxin	11/9/2016	NPL	
16J0502-01	A	Dup A	A 01	20	20	1613B Dioxin	11/9/2016	NPL	
16J0442-08	A	PBD4B2	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-07	A	PBD463	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-06	A	PBD459	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-05	A	PBD458	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-04	A	PBD457	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-03	A	PBD456	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-02	A	PBD455	A 01	20	20	HRSM01.2	11/9/2016	NPL	
16J0442-01	A	PBD454	A 01	20	20	HRSM01.2	11/9/2016	NPL	
BEK0165-BSD1	-	DLCSD07	-	20	20	-	11/9/2016	NPL	
BEK0165-BS1	-	DLCS07	-	20	20	-	11/9/2016	NPL	
BEK0165-BLK1	-	DBLK07	-	20	20	-	11/9/2016	NPL	

Cleanup Reviewed By Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CEK0073

Matrix: Water **Cleanup using: HRGCMS - EPA 3630C Silica Gel Cleanup** **Printed: 11/11/2016 1:22:55PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
16J0442-09	A	PBD4B4	A 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0015-01	A	PH1A01	A 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0015-03	B	PH1A03	B 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0019-01	A	PBD4B5	A 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0021-03	A	PBD4B6	A 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0095-10	A	PBD4B7	A 01	20	20	HRSM01.2	11/11/2016	NPL	
BEK0277-BLK1	-	DBLK1A	-	20	20	-	11/11/2016	NPL	
BEK0277-BS1	-	DLCS1A	-	20	20	-	11/11/2016	NPL	
BEK0277-BSD1	-	DLCSD1A	-	20	20	-	11/11/2016	NPL	

Cleanup Reviewed By Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CEK0074

Matrix: Water **Cleanup using: HRGCMS - EPA 3620B Florisil Cleanup** **Printed: 11/11/2016 1:23:12PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
16J0442-09	A	PBD4B4	A 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0015-01	A	PH1A01	A 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0015-03	B	PH1A03	B 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0019-01	A	PBD4B5	A 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0021-03	A	PBD4B6	A 01	20	20	HRSM01.2	11/11/2016	NPL	
16K0095-10	A	PBD4B7	A 01	20	20	HRSM01.2	11/11/2016	NPL	
BEK0277-BLK1	-	DBLK1A	-	20	20	-	11/11/2016	NPL	
BEK0277-BS1	-	DLCS1A	-	20	20	-	11/11/2016	NPL	
BEK0277-BSD1	-	DLCSD1A	-	20	20	-	11/11/2016	NPL	

Cleanup Reviewed By Date

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CLEANUP BENCH SHEET

CEK0094

Matrix: Water **Cleanup using: Organics - EPA 3665A Sulfuric Acid Cleanup** **Printed: 11/14/2016 7:44:08AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
16K0015-05	A	PH1A05	A 01	20	20	HRSM01.2	11/12/2016	NPL	
BEK0276-BLK1	-	DBLK10	-	20	20	-	11/12/2016	NPL	
BEK0276-BS1	-	DLCS10	-	20	20	-	11/12/2016	NPL	
BEK0276-BSD1	-	DLCSD10	-	20	20	-	11/12/2016	NPL	

Cleanup Reviewed By Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CEK0095

Matrix: Water **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup** **Printed: 11/14/2016 7:44:23AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
16K0015-05	A	PH1A05	A 01	20	20	HRSM01.2	11/12/2016	NPL	
BEK0276-BLK1	-	DBLK10	-	20	20	-	11/12/2016	NPL	
BEK0276-BS1	-	DLCS10	-	20	20	-	11/12/2016	NPL	
BEK0276-BSD1	-	DLCSD10	-	20	20	-	11/12/2016	NPL	

Cleanup Reviewed By Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CEK0096

Matrix: Water **Cleanup using: Organics - EPA 3620B Florisil Cleanup** **Printed: 11/14/2016 7:44:34AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
16K0015-05	A	PH1A05	A 01	20	20	HRSM01.2	11/12/2016	NPL	
BEK0276-BLK1	-	DBLK10	-	20	20	-	11/12/2016	NPL	
BEK0276-BS1	-	DLCS10	-	20	20	-	11/12/2016	NPL	
BEK0276-BSD1	-	DLCSD10	-	20	20	-	11/12/2016	NPL	

Cleanup Reviewed By Date

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BEK0088
Date:	11/2/2016 16:35
Analyst:	RMH
Drying Oven:	15
Analytical Balance:	B146462614

Instrumentation

Batch drying time	
record times as mm/dd/yy hh:mm	
date/time in oven:	11/3/2016 17:05
date/time out:	11/4/2016 9:50
elapsed hrs:	16.7

TS (%) calculated as:

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

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

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
16K0015-02	1.1500	10.8800	4.2500	3.10	**31.86%**	No
16K0015-04	1.1500	10.4700	2.6800	1.53	**16.42%**	No
16K0015-06	1.1600	10.7400	7.7100	6.55	**68.37%**	No

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BEK0088
Date:	11/2/2016 16:35
Analyst:	ZMH
Drying Oven:	015
Analytical Balance:	B14644026 14

Instrumentation

Batch drying time		
record times as mm/dd/yy hh:mm		
date/time in oven:	11/3/16 1001	1705
date/time out:	11/04/16 0950	101
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)

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
16K0015-02	1.15	10.98	4.29			No
16K0015-04	1.15	10.47	2.68			No
16K0015-06	1.16	10.74	7.71			No

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

4 cal STDS
rec 2/5/15

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1 D000621		13CS10114
	EPA-1613CS2 D000620		13CS20114
	EPA-1613CS3		13CS30114
	EPA-1613CS4 D000622		13CS40114
	EPA-1613CS5		13CS50114

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.50114
EPA-1613CSL D000623	13CSL0114

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	01/23/2014
LAST TESTED: (mm/dd/yyyy)	01/30/2014
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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

4 cal STDS
rec 2/5/15

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1 D000621		13CS10114
	EPA-1613CS2 D000620		13CS20114
	EPA-1613CS3		13CS30114
	EPA-1613CS4 D000622		13CS40114
	EPA-1613CS5		13CS50114

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.50114
EPA-1613CSL D000623	13CSL0114

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	01/23/2014
LAST TESTED: (mm/dd/yyyy)	01/30/2014
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

4 cal STDS
rec 2/5/15

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1 D000621		13CS10114
	EPA-1613CS2 D000620		13CS20114
	EPA-1613CS3		13CS30114
	EPA-1613CS4 D000622		13CS40114
	EPA-1613CS5		13CS50114

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.50114
EPA-1613CSL D000623	13CSL0114

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	01/23/2014
LAST TESTED: (mm/dd/yyyy)	01/30/2014
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
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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CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

4 cal STDS
rec 2/5/15

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1 D000621		13CS10114
	EPA-1613CS2 D000620		13CS20114
	EPA-1613CS3		13CS30114
	EPA-1613CS4 D000622		13CS40114
	EPA-1613CS5		13CS50114

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.50114
EPA-1613CSL D000623	13CSL0114

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	01/23/2014
LAST TESTED: (mm/dd/yyyy)	01/30/2014
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
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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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Standard Record
Standard ID: D002771

Printed: 6/30/2015 1:21:52PM

Description:	1613B Stock OPR Std-40/200/400ng/mL	Expires:	01-Apr-2020
Standard Type:	Analyte Spike	Prepared:	30-Jun-2015
Solvent:	Nonane/Toluene	Prepared By:	Jonathon Walter
Final Volume (mls):	1	Department:	HRGCMS
Vials:	5	Last Edit:	30-Jun-2015 13:21 by JLW
Vendor:	Wellington Labs	Lot #:	13PAR0413
Vendor Catalog #:	EPA-1613PAR		

Comments

Prep Info

Neat Purity or SOM02.2 CAL LEVEL : 98 **Weight/Vol:** **Balance ID:**

Analyte	CAS Number	Concentration	Units
1,2,3,7,8-PeCDD	40321-76-4	0.2	ug/mL
1,2,3,4,6,7,8-HpCDF	67562-39-4	0.2	ug/mL
1,2,3,4,7,8,9-HpCDF	58200-70-7	0.2	ug/mL
1,2,3,4,7,8-HxCDD	39227-28-6	0.2	ug/mL
1,2,3,4,7,8-HxCDF	70648-26-9	0.2	ug/mL
1,2,3,6,7,8-HxCDD	57653-85-7	0.2	ug/mL
1,2,3,6,7,8-HxCDF	57117-44-9	0.2	ug/mL
1,2,3,4,6,7,8-HpCDD	35822-46-9	0.2	ug/mL
1,2,3,7,8,9-HxCDF	72918-21-9	0.2	ug/mL
OCDF	39001-02-0	0.4	ug/mL
1,2,3,7,8-PeCDF	57117-41-6	0.2	ug/mL
2,3,4,6,7,8-HxCDF	60851-34-5	0.2	ug/mL
2,3,4,7,8-PeCDF	57117-31-4	0.2	ug/mL
2,3,7,8-TCDD	1746-01-6	0.04	ug/mL
2,3,7,8-TCDF	51207-31-9	0.04	ug/mL
OCDD	3268-87-9	0.4	ug/mL
1,2,3,7,8,9-HxCDD	19408-74-3	0.2	ug/mL

Reviewed By Date

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CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF
Precision and Recovery Stock Solution

D002771
1613B Stock OPR Std-40/200/400ng/mL
Solvent / Lot: Nonane/Toluene
Prep: 6/30/2015 by JW
Exp: 4/1/2020
Location: Dioxin

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR0413
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	04/02/2013
LAST TESTED: (mm/dd/yyyy)	04/04/2013
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

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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INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

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. Material Safety Data Sheets (MSDSs) 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, 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 and/or LC/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 are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

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 our products.

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 17025:2005 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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 for the period of time specified by the 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 ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).

CALA Testing Accreditation No. A 1226

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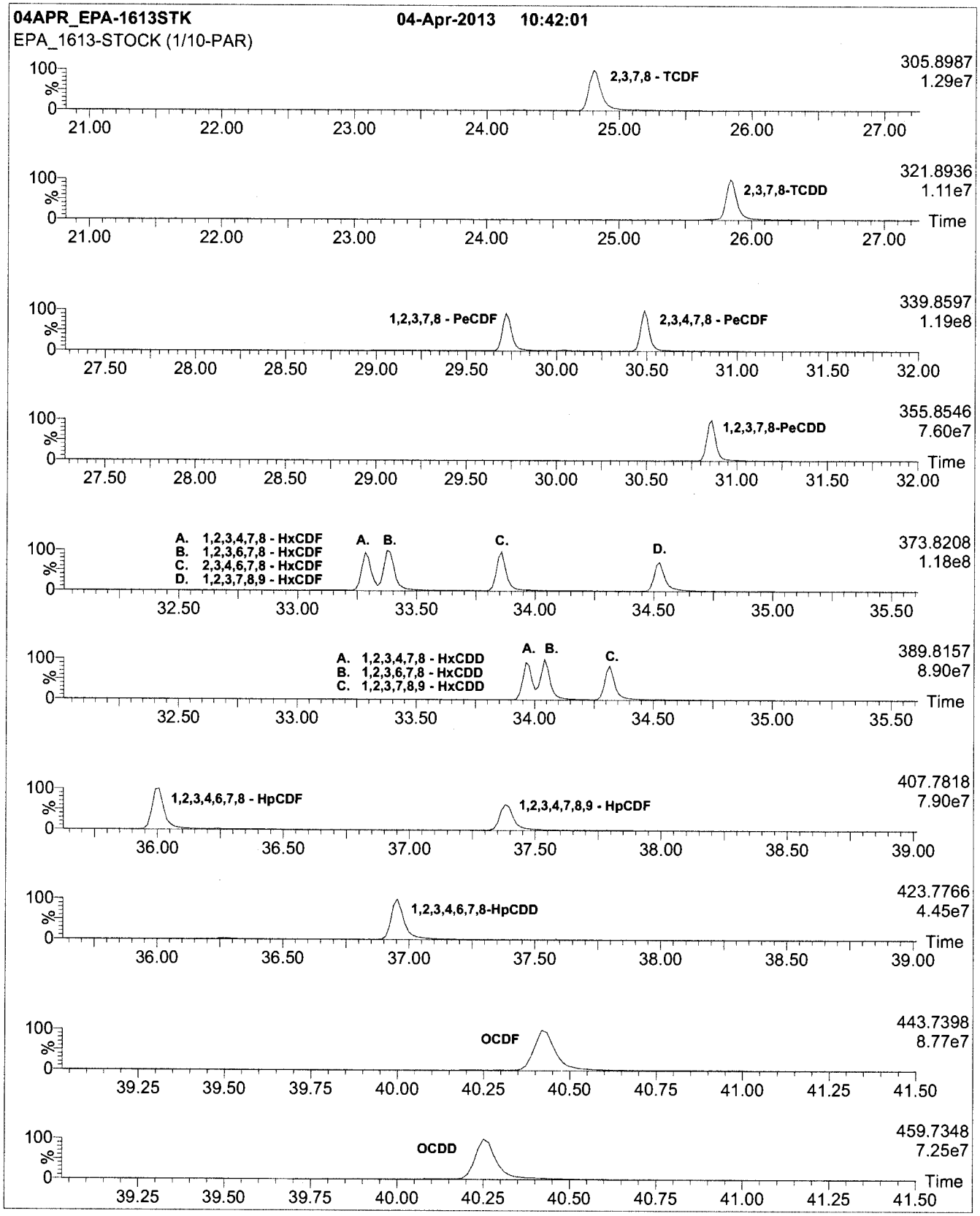
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

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

	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: B.G. Chittim **Date:** 04/24/2013 (mm/dd/yyyy)

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



E000031 Recd 01/04/16 JR

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		13CS10114
	EPA-1613CS2		13CS20114
	EPA-1613CS3		13CS30114
	EPA-1613CS4		13CS40114
	EPA-1613CS5		13CS50114

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.50114
EPA-1613CSL	13CSL0114

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	01/23/2014
LAST TESTED: (mm/dd/yyyy)	01/30/2014
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
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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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. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

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. Material Safety Data Sheets (MSDSs) 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, 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 and/or LC/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 are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

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 our products.

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 17025:2005 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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 for the period of time specified by the 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 ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).

CALA

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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: B.G. Chittim **Date:** 02/03/2014 (mm/dd/yyyy)

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 30jan_1613CVS-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	0.89	0.049	5.6	0.84	0.83	0.92	0.92	0.94
1,2,3,7,8-PeCDF	0.87	0.045	5.2	0.80	0.86	0.88	0.90	0.92
2,3,4,7,8-PeCDF	0.90	0.044	4.8	0.83	0.89	0.91	0.93	0.93
1,2,3,4,7,8-HxCDF	0.90	0.034	3.8	0.85	0.89	0.89	0.94	0.90
1,2,3,6,7,8-HxCDF	0.95	0.057	6.1	0.86	0.93	1.01	0.96	0.98
2,3,4,6,7,8-HxCDF	0.96	0.050	5.2	0.90	0.92	0.99	0.99	1.02
1,2,3,7,8,9-HxCDF	0.95	0.037	3.9	0.89	0.95	0.94	0.96	1.00
1,2,3,4,6,7,8-HpCDF	0.93	0.043	4.6	0.87	0.92	0.92	0.95	0.99
1,2,3,4,7,8,9-HpCDF	0.93	0.080	8.7	0.82	0.91	0.89	1.00	1.01
OCDF	1.15	0.068	5.9	1.10	1.10	1.13	1.18	1.26
2,3,7,8-TCDD	1.19	0.072	6.1	1.15	1.09	1.20	1.21	1.29
1,2,3,7,8-PeCDD	0.99	0.049	5.0	0.93	0.96	1.01	1.02	1.05
1,2,3,4,7,8-HxCDD	1.02	0.063	6.2	0.91	1.04	1.04	1.05	1.06
1,2,3,6,7,8-HxCDD	0.98	0.051	5.2	0.96	0.90	0.98	1.01	1.03
1,2,3,7,8,9-HxCDD	0.92	0.055	6.0	0.85	0.88	0.92	0.97	0.97
1,2,3,4,6,7,8-HpCDD	1.00	0.035	3.5	0.97	0.97	1.00	1.01	1.06
OCDD	0.99	0.033	3.3	0.96	0.96	1.01	1.00	1.04
$^{13}C_{12}$-2,3,7,8-TCDF	1.79	0.030	1.7	1.79	1.78	1.77	1.79	1.85
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.43	0.042	3.0	1.43	1.42	1.42	1.39	1.50
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.42	0.075	5.3	1.46	1.40	1.39	1.32	1.52
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.69	0.072	4.3	1.67	1.76	1.68	1.58	1.76
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.93	0.067	3.5	1.96	1.97	1.84	1.89	2.01
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.66	0.047	2.8	1.70	1.72	1.62	1.62	1.64
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.35	0.027	2.0	1.34	1.37	1.36	1.30	1.36
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.52	0.065	4.3	1.54	1.62	1.48	1.45	1.50
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.13	0.041	3.7	1.17	1.16	1.14	1.07	1.10
$^{13}C_{12}$-2,3,7,8-TCDD	0.94	0.018	1.9	0.96	0.95	0.92	0.92	0.92
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.83	0.036	4.4	0.82	0.82	0.83	0.79	0.89
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1.05	0.039	3.7	1.08	1.06	1.05	0.98	1.06
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.21	0.060	5.0	1.25	1.30	1.17	1.15	1.17
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.86	0.020	2.3	0.87	0.88	0.85	0.83	0.86
$^{13}C_{12}$-OCDD	0.71	0.020	2.7	0.71	0.74	0.72	0.68	0.73
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.0	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.0	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	1.01	0.055	5.4	0.91	1.05	1.01	1.04	1.03

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: 30jan_1613CVS-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	0.85	0.071	8.3	0.75	0.78	0.84	0.83	0.92	0.92	0.94
1,2,3,7,8-PeCDF	0.84	0.061	7.2	0.79	0.76	0.80	0.86	0.88	0.90	0.92
2,3,4,7,8-PeCDF	0.87	0.064	7.4	0.76	0.87	0.83	0.89	0.91	0.93	0.93
1,2,3,4,7,8-HxCDF	0.88	0.041	4.7	0.82	0.85	0.85	0.89	0.89	0.94	0.90
1,2,3,6,7,8-HxCDF	0.92	0.069	7.5	0.88	0.82	0.86	0.93	1.01	0.96	0.98
2,3,4,6,7,8-HxCDF	0.94	0.073	7.8	0.80	0.94	0.90	0.92	0.99	0.99	1.02
1,2,3,7,8,9-HxCDF	0.91	0.066	7.2	0.81	0.85	0.89	0.95	0.94	0.96	1.00
1,2,3,4,6,7,8-HpCDF	0.91	0.047	5.1	0.90	0.85	0.87	0.92	0.92	0.95	0.99
1,2,3,4,7,8,9-HpCDF	0.91	0.076	8.4	0.83	0.87	0.82	0.91	0.89	1.00	1.01
OCDF	1.12	0.087	7.8	0.98	1.07	1.10	1.10	1.13	1.18	1.26
2,3,7,8-TCDD	1.15	0.091	7.8	1.01	1.12	1.15	1.09	1.20	1.21	1.29
1,2,3,7,8-PeCDD	0.98	0.048	4.9	0.96	0.92	0.93	0.96	1.01	1.02	1.05
1,2,3,4,7,8-HxCDD	0.98	0.081	8.2	0.85	0.95	0.91	1.04	1.04	1.05	1.06
1,2,3,6,7,8-HxCDD	0.94	0.073	7.7	0.83	0.88	0.96	0.90	0.98	1.01	1.03
1,2,3,7,8,9-HxCDD	0.90	0.057	6.3	0.83	0.87	0.85	0.88	0.92	0.97	0.97
1,2,3,4,6,7,8-HpCDD	0.98	0.049	5.0	0.90	0.94	0.97	0.97	1.00	1.01	1.06
OCDD	0.98	0.045	4.6	0.98	0.90	0.96	0.96	1.01	1.00	1.04
$^{13}C_{12}$-2,3,7,8-TCDF	1.77	0.047	2.7	1.74	1.69	1.79	1.78	1.77	1.79	1.85
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.41	0.052	3.7	1.36	1.35	1.43	1.42	1.42	1.39	1.50
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.39	0.081	5.9	1.32	1.30	1.46	1.40	1.39	1.32	1.52
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.70	0.060	3.6	1.69	1.72	1.67	1.76	1.68	1.58	1.76
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.94	0.069	3.5	1.88	2.02	1.96	1.97	1.84	1.89	2.01
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.66	0.046	2.7	1.69	1.61	1.70	1.72	1.62	1.62	1.64
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.35	0.025	1.9	1.38	1.36	1.34	1.37	1.36	1.30	1.36
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.52	0.056	3.7	1.48	1.54	1.54	1.62	1.48	1.45	1.50
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.12	0.039	3.5	1.08	1.14	1.17	1.16	1.14	1.07	1.10
$^{13}C_{12}$-2,3,7,8-TCDD	0.93	0.020	2.1	0.94	0.90	0.96	0.95	0.92	0.92	0.92
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.81	0.041	5.1	0.79	0.76	0.82	0.82	0.83	0.79	0.89
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1.04	0.035	3.4	1.03	1.01	1.08	1.06	1.05	0.98	1.06
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.21	0.052	4.3	1.22	1.25	1.25	1.30	1.17	1.15	1.17
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.87	0.022	2.5	0.89	0.89	0.87	0.88	0.85	0.83	0.86
$^{13}C_{12}$-OCDD	0.71	0.017	2.4	0.71	0.70	0.71	0.74	0.72	0.68	0.73
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.0	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	0.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	1.01	0.046	4.5	1.00	1.03	0.91	1.05	1.01	1.04	1.03

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

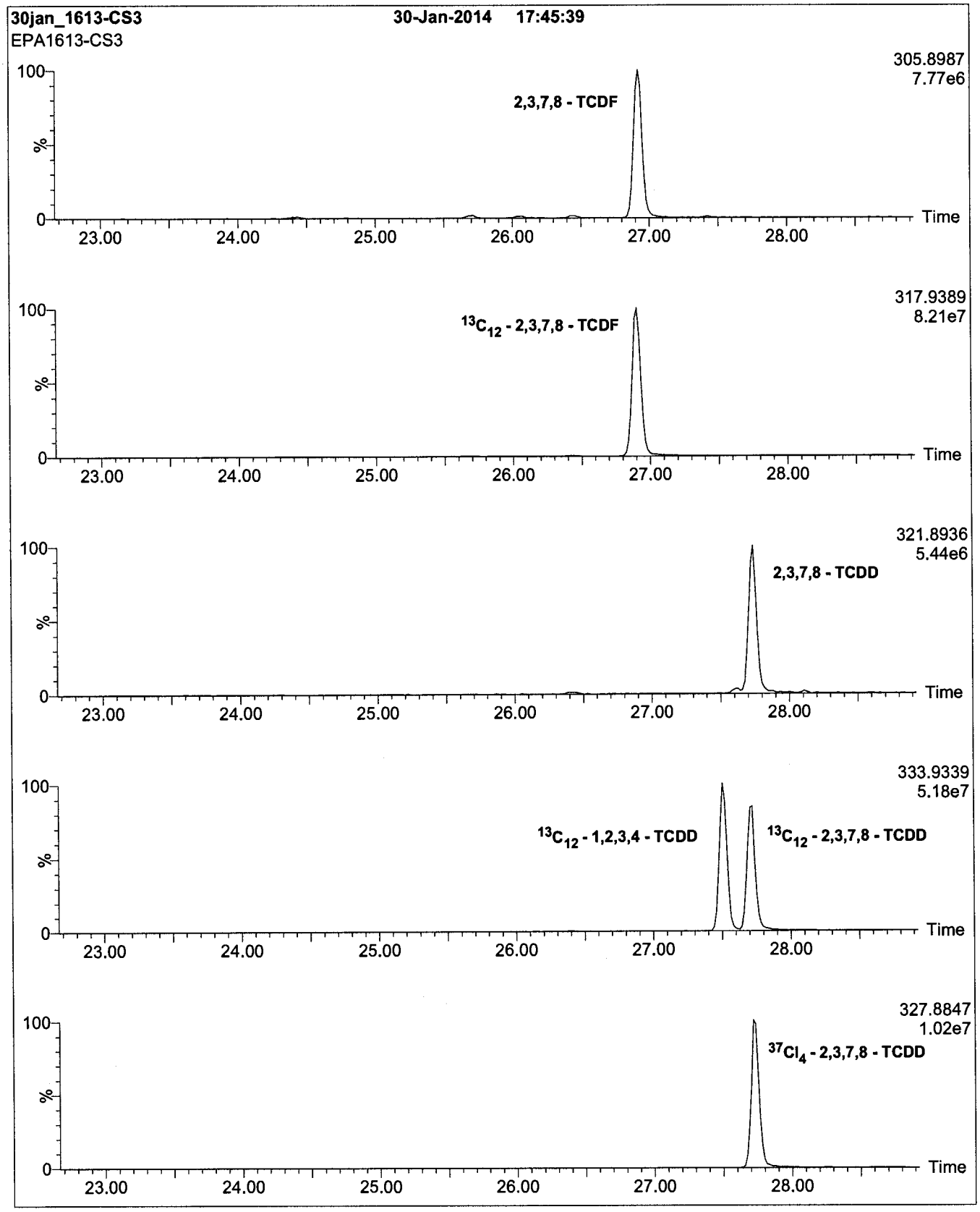


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

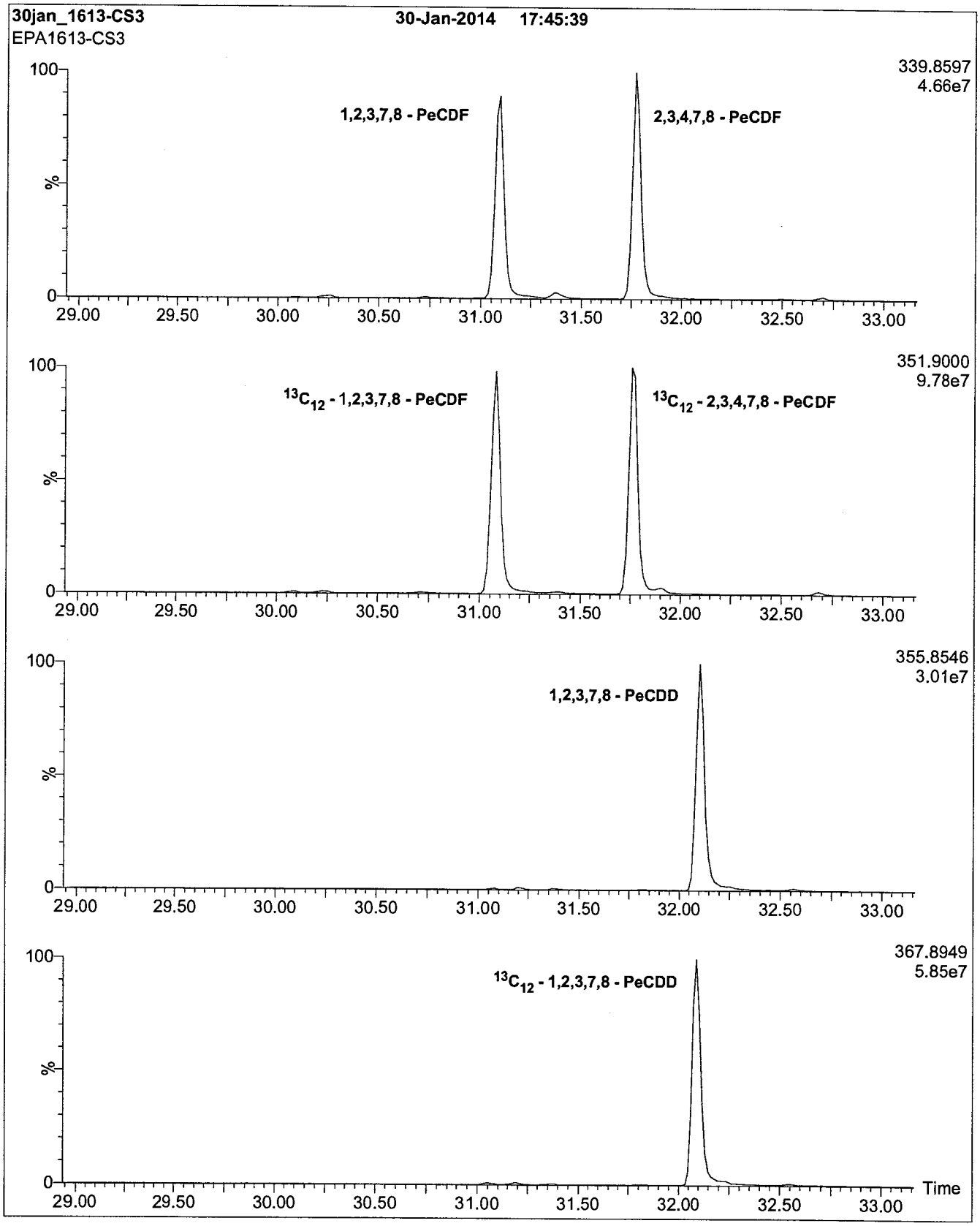


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

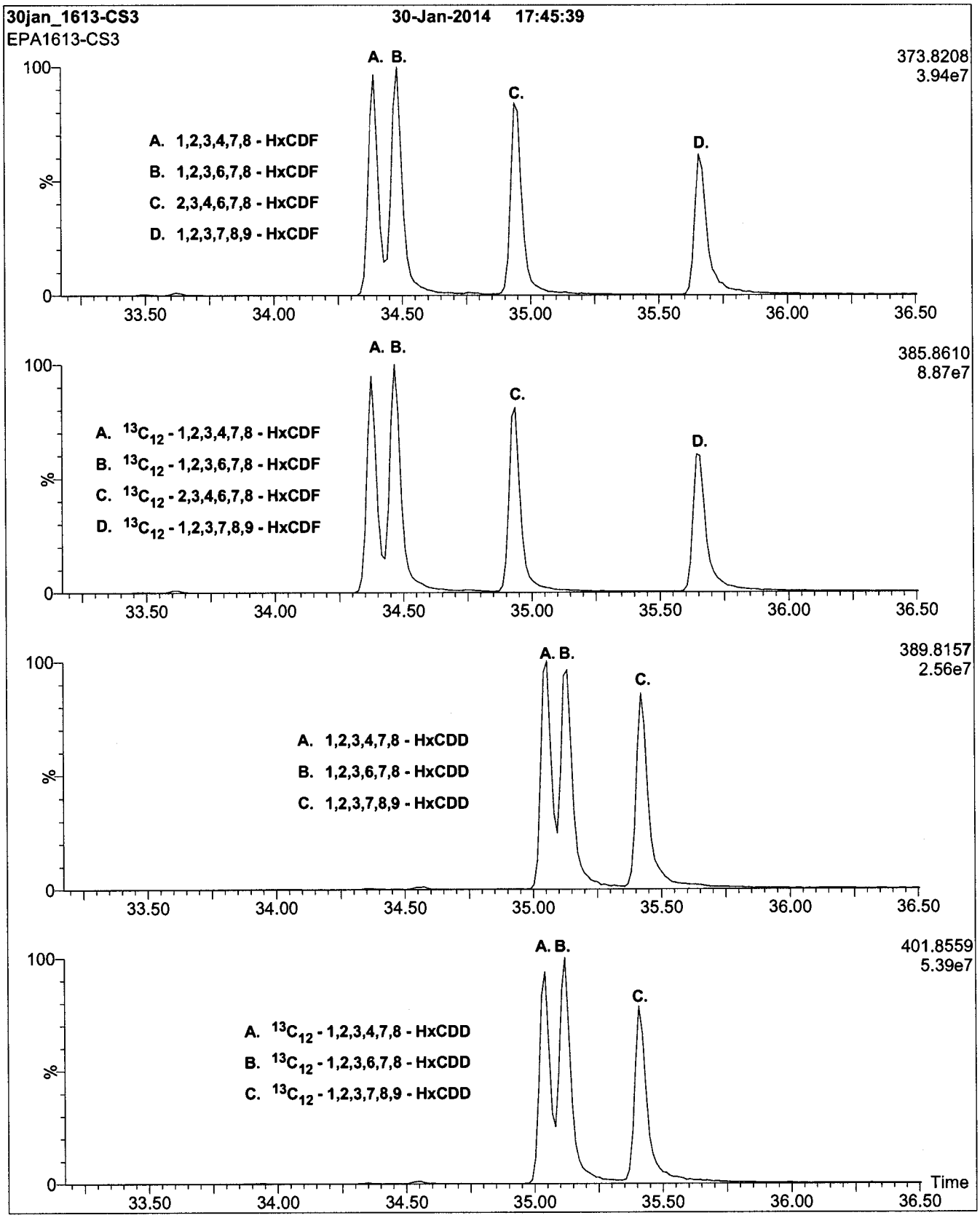


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

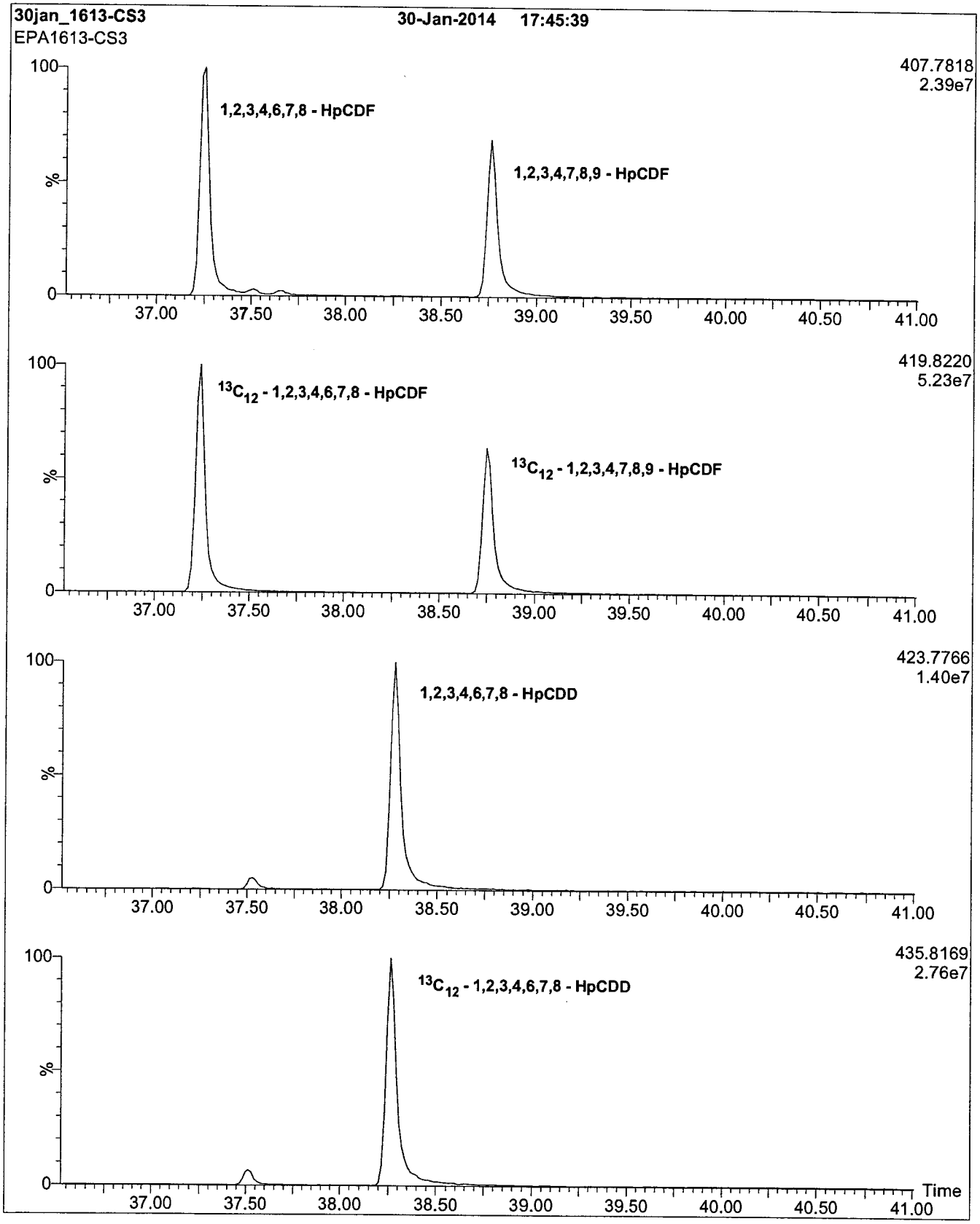
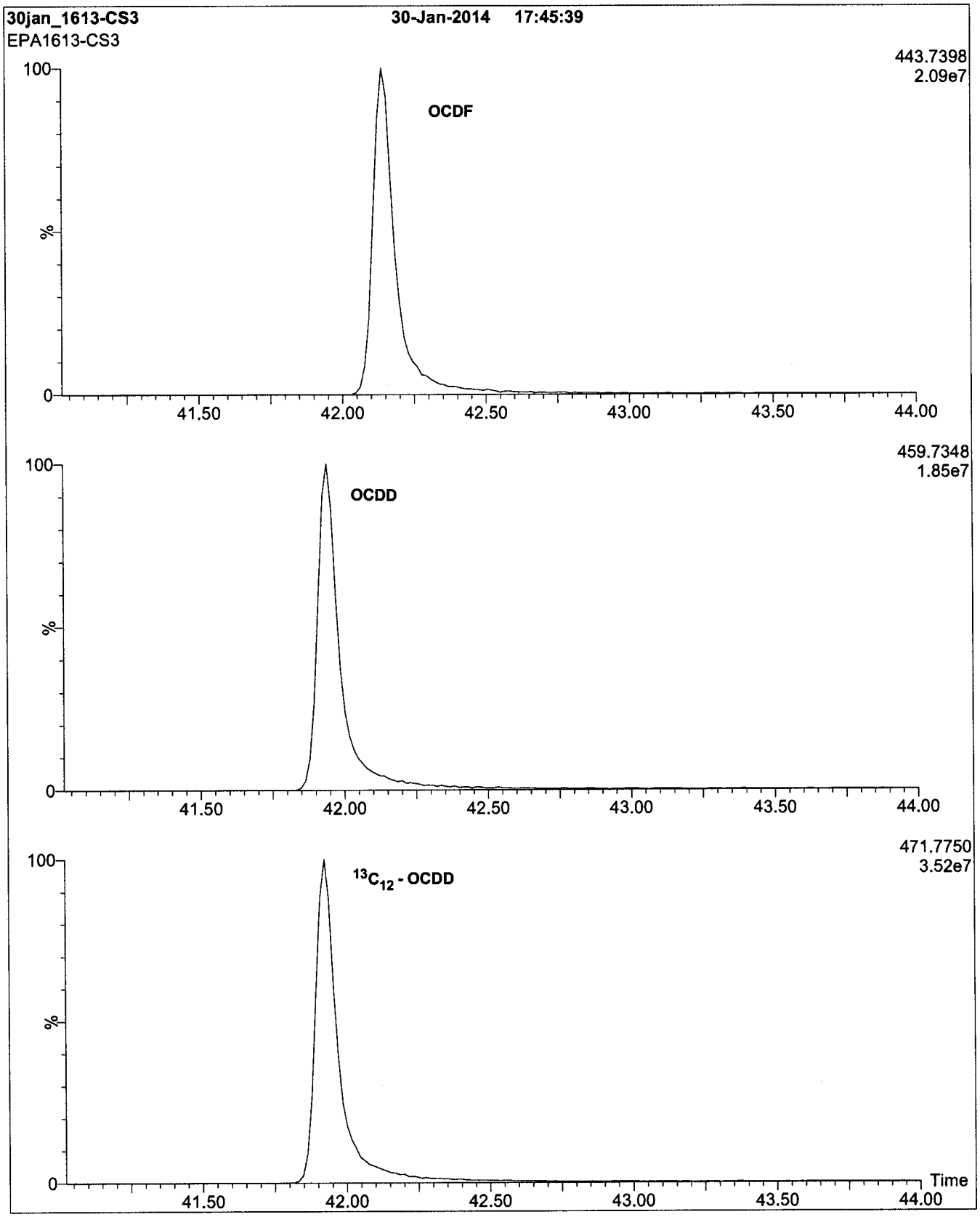


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



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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:	CS3WT1109
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	02/23/2010
LAST TESTED: (mm/dd/yyyy)	06/22/2013
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
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: 13CS31109). 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 (CS3WT1109) is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11109
EPA-1613CS2	13CS21109
EPA-1613CS3	13CS31109
EPA-1613CS4	13CS41109
EPA-1613CS5	13CS51109
EPA-1613CSL	13CSL1109
EPA-1613CS0.5	13CS0.51109

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2378-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

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. Material Safety Data Sheets (MSDSs) 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, 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 and/or LC/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 are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

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 our products.

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 17025:2005 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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 for the period of time specified by the 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 ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).

CALA Testing Accreditation No. A 1226

ACLASS ACCREDITED REFERENCE MATERIAL PRODUCER

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

Table A: **CS3WT; Components and Concentrations (ng/ml, in nonane)**

QUANTITATIVE ANALYTES (ng/ml, ±5%)

Native PCDDs & PCDFs:	
2,3,7,8-TCDD	10
2,3,7,8-TCDF	10
1,2,3,7,8-PeCDD	50
1,2,3,7,8-PeCDF	50
2,3,4,7,8-PeCDF	50
1,2,3,4,7,8-HxCDD	50
1,2,3,6,7,8-HxCDD	50
1,2,3,7,8,9-HxCDD	50
1,2,3,4,7,8-HxCDF	50
1,2,3,6,7,8-HxCDF	50
1,2,3,7,8,9-HxCDF	50
2,3,4,6,7,8-HxCDF	50
1,2,3,4,6,7,8-HpCDD *(WD)*	50
1,2,3,4,6,7,8-HpCDF *(WD)*	50
1,2,3,4,7,8,9-HpCDF *(WD)*	50
OCDD	100
OCDF	100
Labelled PCDDs & PCDFs:	
$^{13}C_{12}$-2,3,7,8-TCDD	100
$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100
$^{13}C_{12}$-OCDD	200
Cleanup Standard:	
$^{37}Cl_4$-2,3,7,8-TCDD	10
Internal Standards:	
$^{13}C_{12}$-1,2,3,4-TCDD	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100

WD – Window Definer

SEMI-QUANTITATIVE ANALYTES (ng/ml, ±20%)

Window Definers:*	
1,3,6,8-TCDD	10
1,2,8,9-TCDD	10
1,3,6,8-TCDF	10
1,2,8,9-TCDF	10
1,2,4,7,9-PeCDD	50
1,2,3,8,9-PeCDD	50
1,3,4,6,8-PeCDF	50
1,2,3,8,9-PeCDF	50
1,2,4,6,7,9-HxCDD	50
1,2,3,4,6,8-HxCDF	50
1,2,3,4,6,7,9-HpCDD	50
2378-TCDD Resolution Testing Isomers:	
1,2,3,4-TCDD	5
1,2,3,7/1,2,3,8-TCDD	5
1,2,3,9-TCDD	10

** 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD. Use 1,2,3,4,6,7,9-HpCDD to set window.*

** 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF. Use 1,2,3,4,6,7,8-HpCDF to set window.*

Certified By: B.G. Chittim **Date:** 08/23/2013 (mm/dd/yyyy)

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

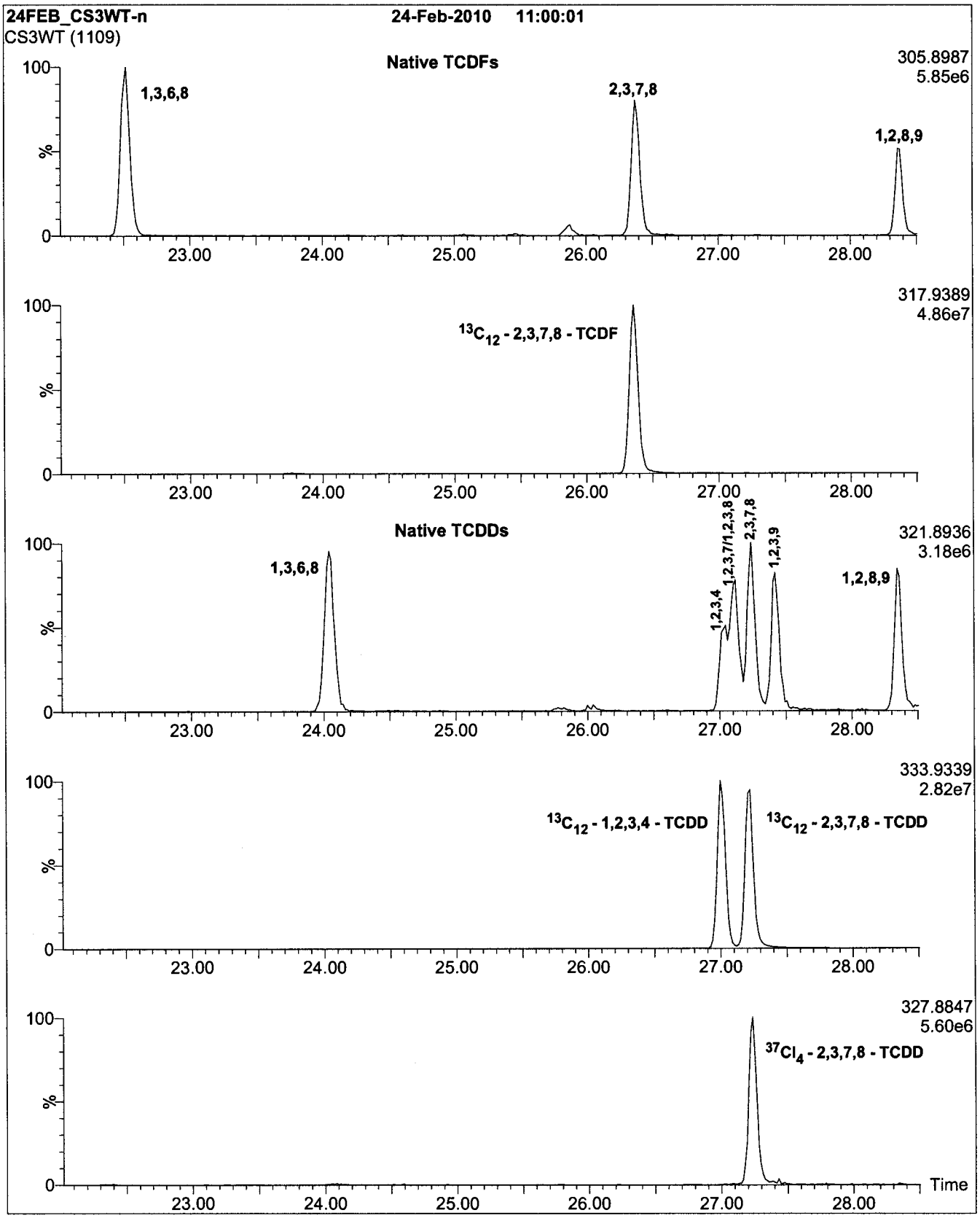


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

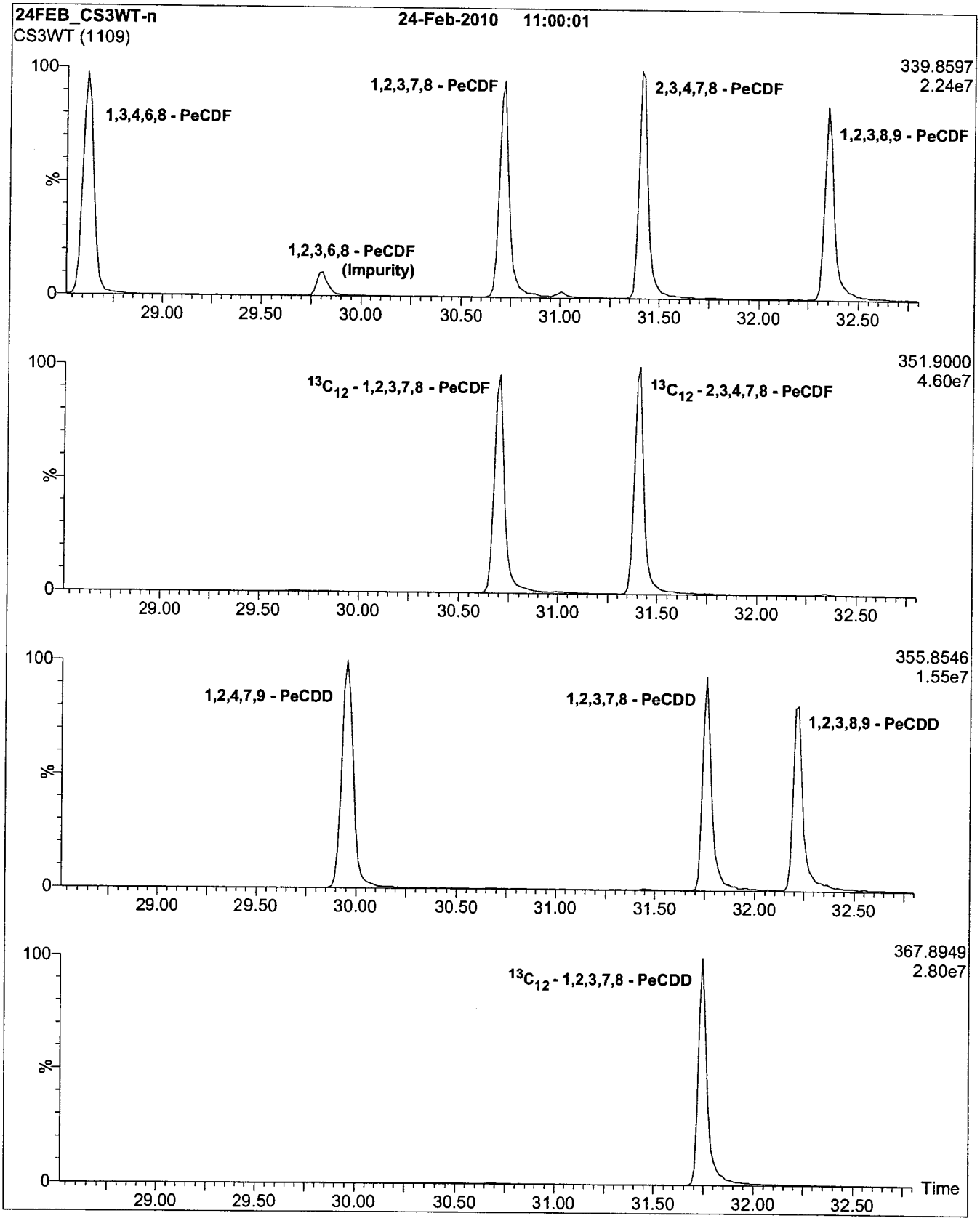


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

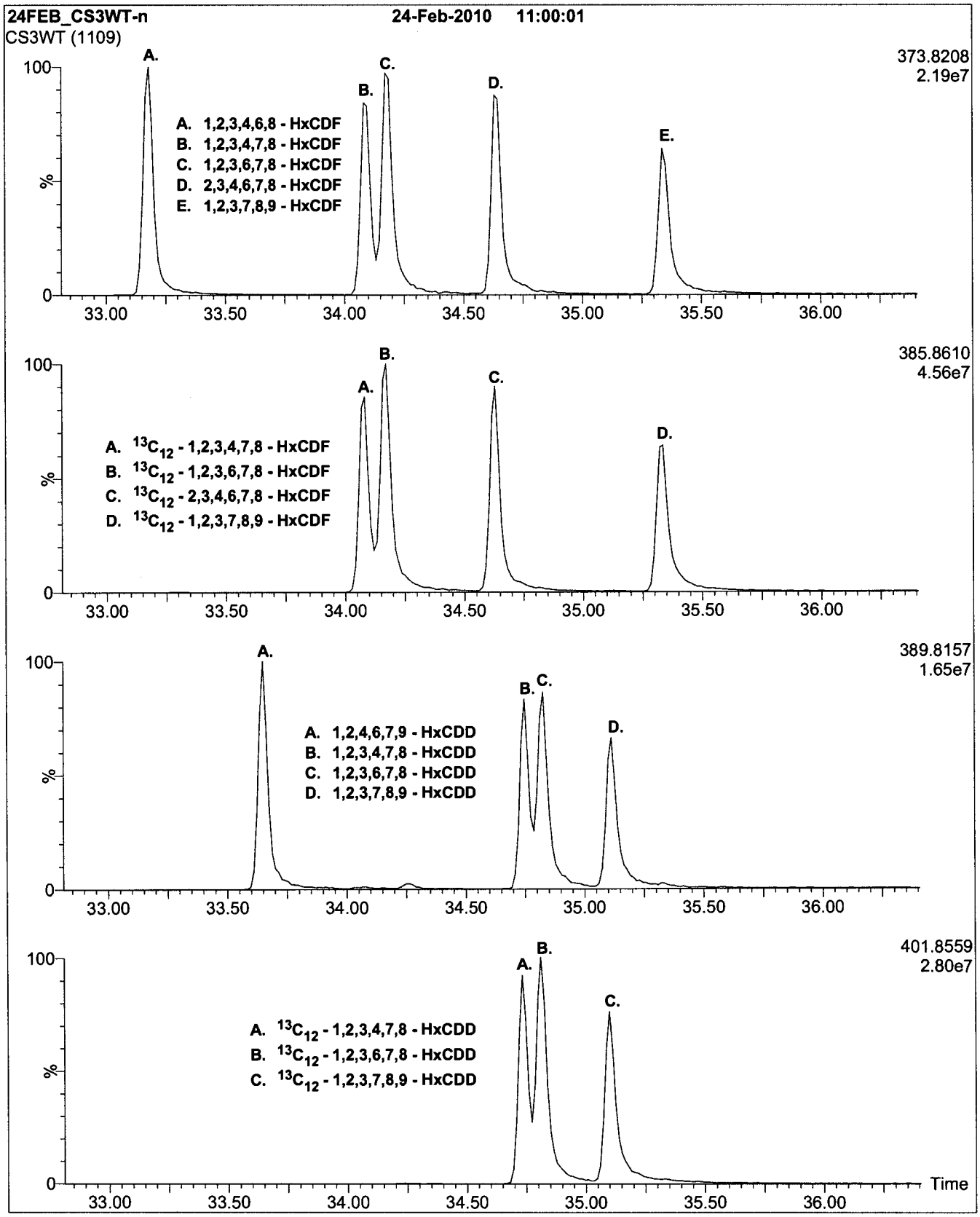


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

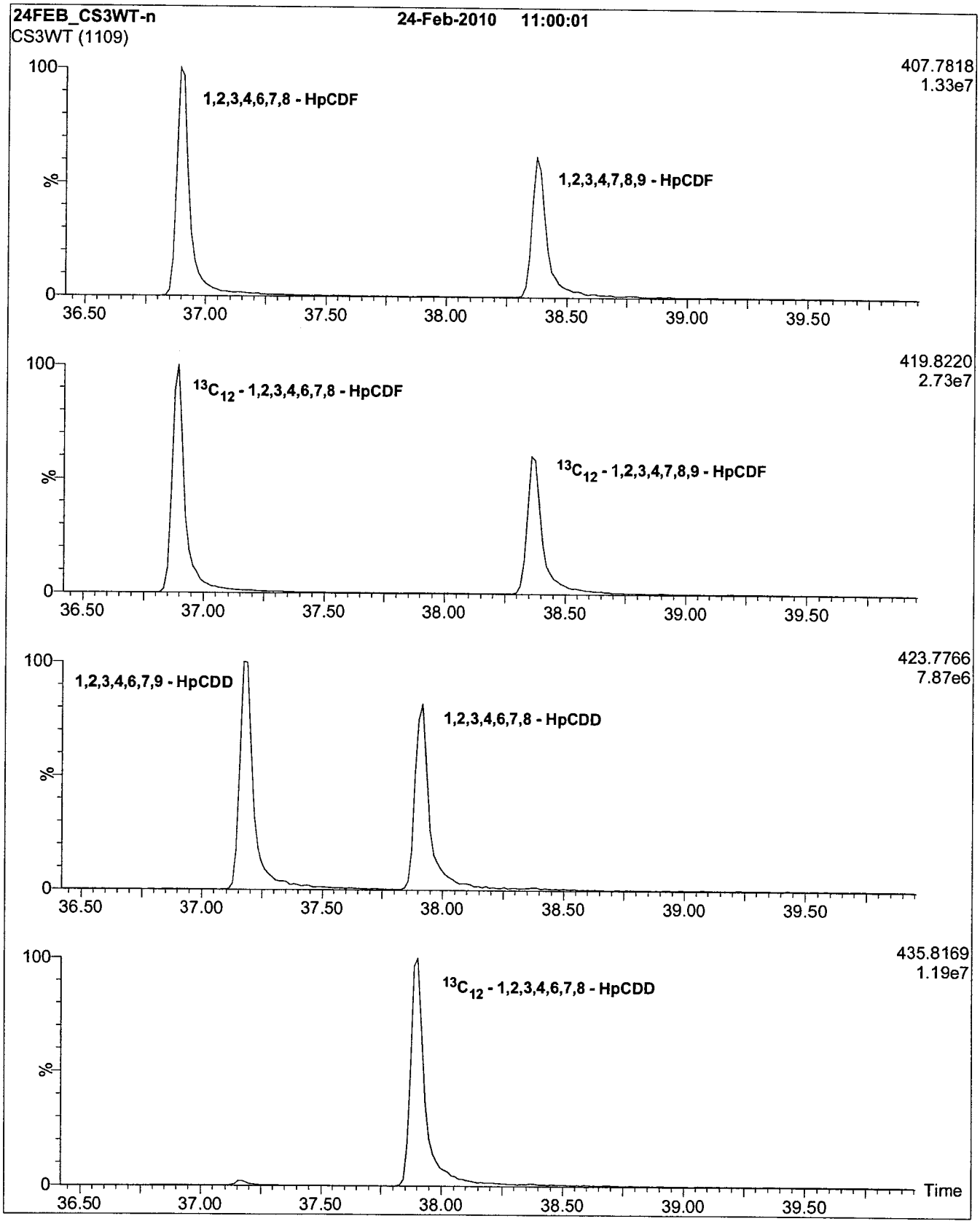
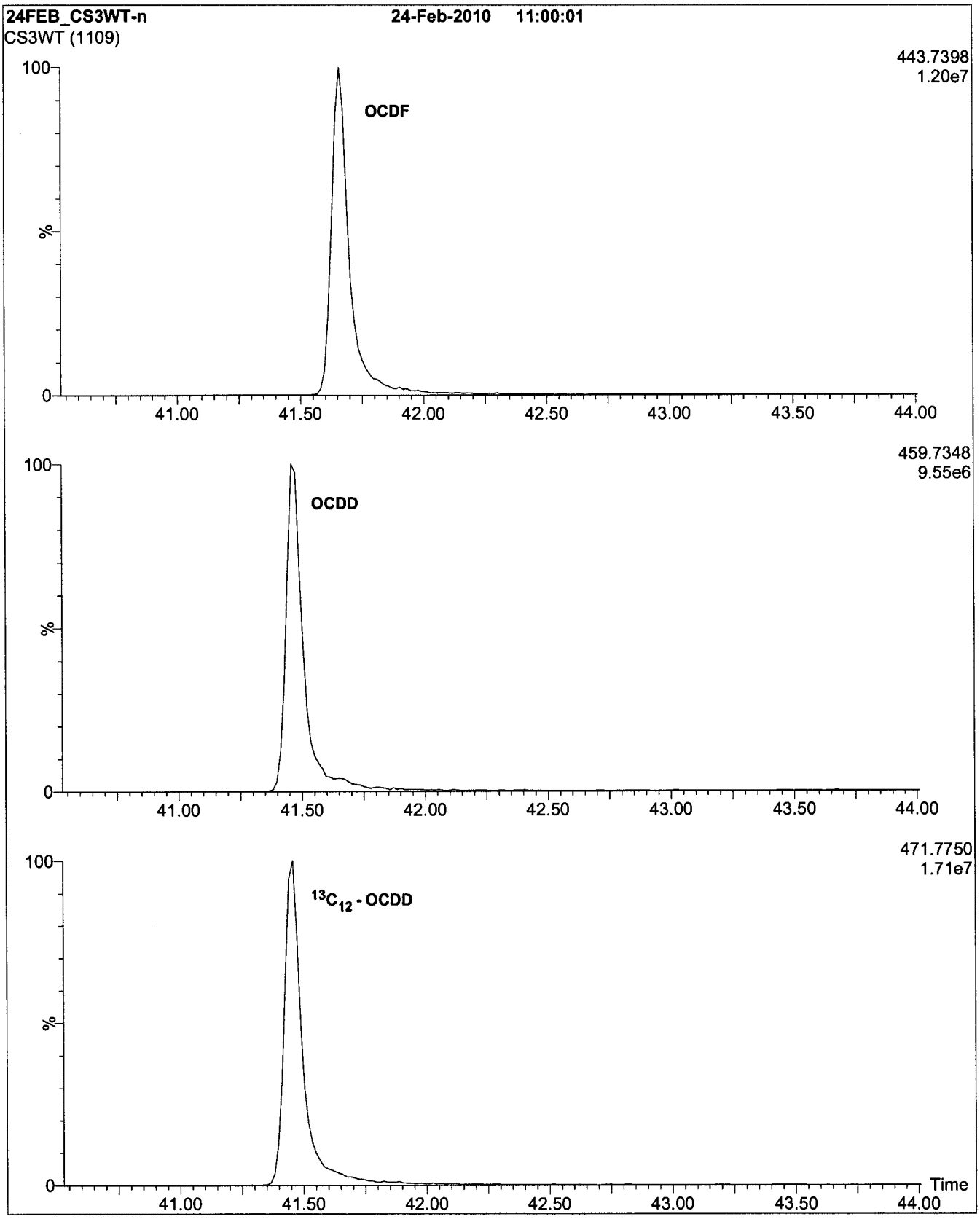


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613CSS

U.S. EPA Method 1613 Cleanup Standard Spiking Solution

E000303
Recd
01/28/16

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1115
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	12/03/2015
LAST TESTED: (mm/dd/yyyy)	12/05/2015
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

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 for, 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	Concentration (ng/ml)
2,3,7,8-[$^{37}Cl_4$]-Tetrachlorodibenzo-p-dioxin	40

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/16/2015 (mm/dd/yyyy)

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 are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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 GUIDE 34 REFERENCE MATERIAL PRODUCER

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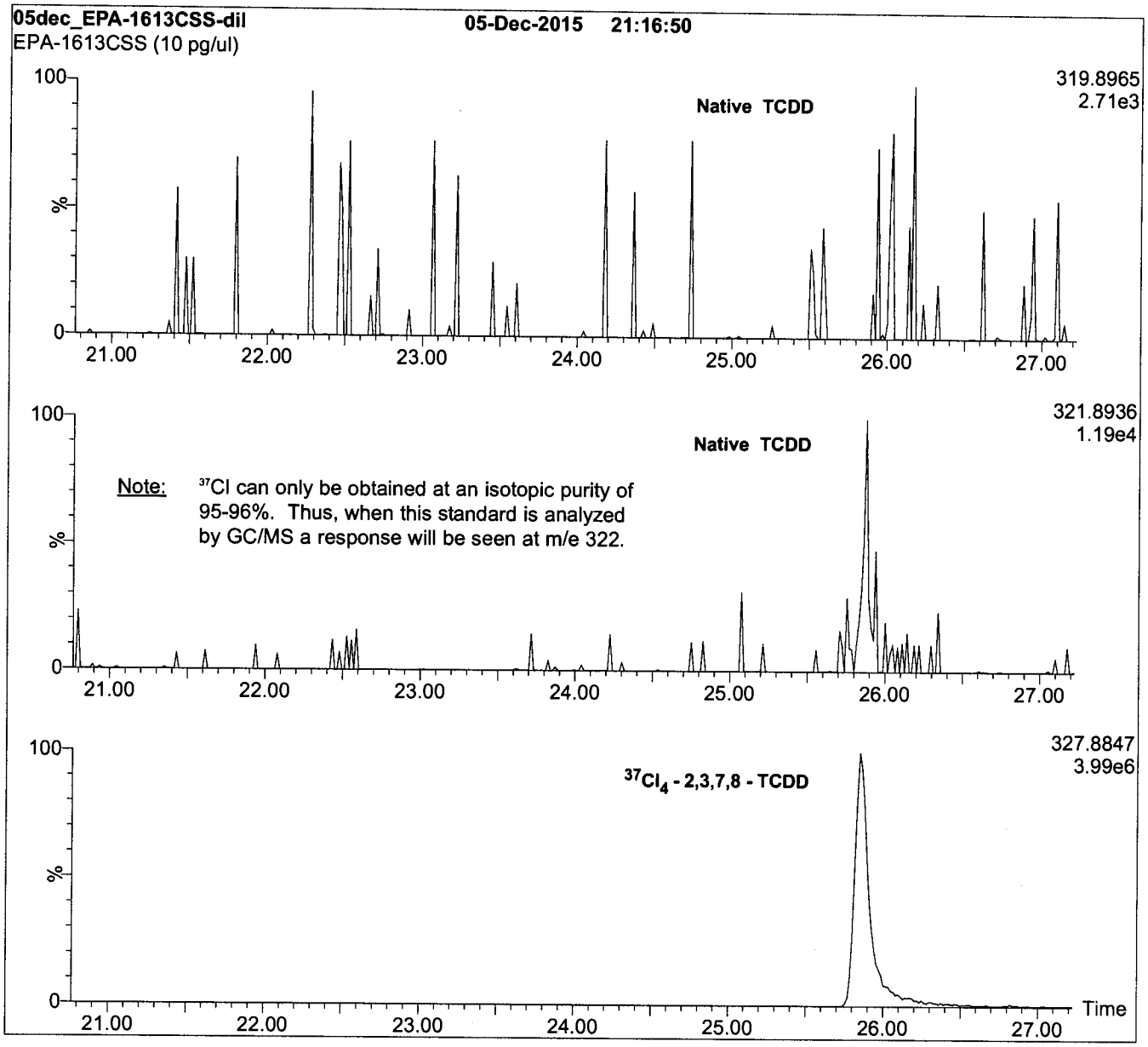
Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



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
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-1613ISS

U.S. EPA Method 1613 Internal Standard Spiking Solution

PRODUCT CODE:	EPA-1613ISS
LOT NUMBER:	13ISS1115
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	12/03/2015
LAST TESTED: (mm/dd/yyyy)	12/12/2015
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

E000710
Rec'd. JR
03/08/16

DESCRIPTION:

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

EPA-1613ISS was designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B).

The individual $^{13}C_{12}$-PCDDs all have chemical purities of >98% and isotopic purities of ≥99%.

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.

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

$^{13}C_{12}$-PCDD	Concentration (ng/ml)
1,2,3,4-Tetrachloro[$^{13}C_{12}$]dibenzo-p-dioxin	200
1,2,3,7,8,9-Hexachloro[$^{13}C_{12}$]dibenzo-p-dioxin	200

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/16/2015 (mm/dd/yyyy)

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 are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

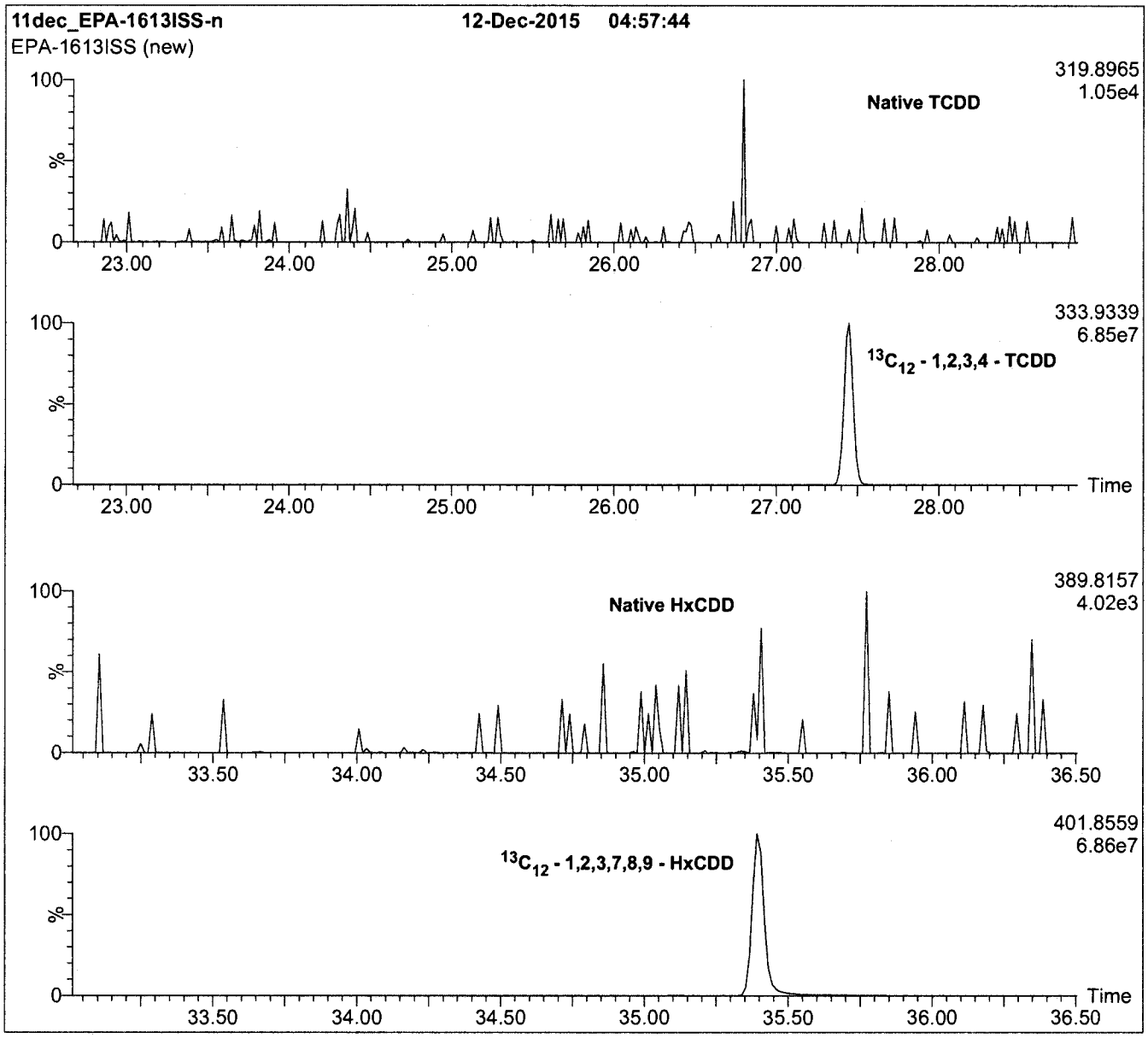
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 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-1613ISS; 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-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1115
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/11/2015
LAST TESTED: (mm/dd/yyyy)	11/17/2015
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

E002527
1613B Stock Surr Std
Solvent / Lot: Nonane
Prep: 6/24/2016 by JW
Exp: 4/1/2020
Location: Dioxin Lab

DESCRIPTION:

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

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

The individual $^{13}C_{12}$-PCDDs and $^{13}C_{12}$-PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

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 are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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 GUIDE 34 REFERENCE MATERIAL PRODUCER

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

$^{13}C_{12}$-PCDDs	Concentration (ng/ml)	$^{13}C_{12}$-PCDFs	Concentration (ng/ml)
$^{13}C_{12}$-2,3,7,8-TCDD	100	$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-OCDD	200	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100

Certified By: B.G. Chittim **Date:** 12/08/2015 (mm/dd/yyyy)

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

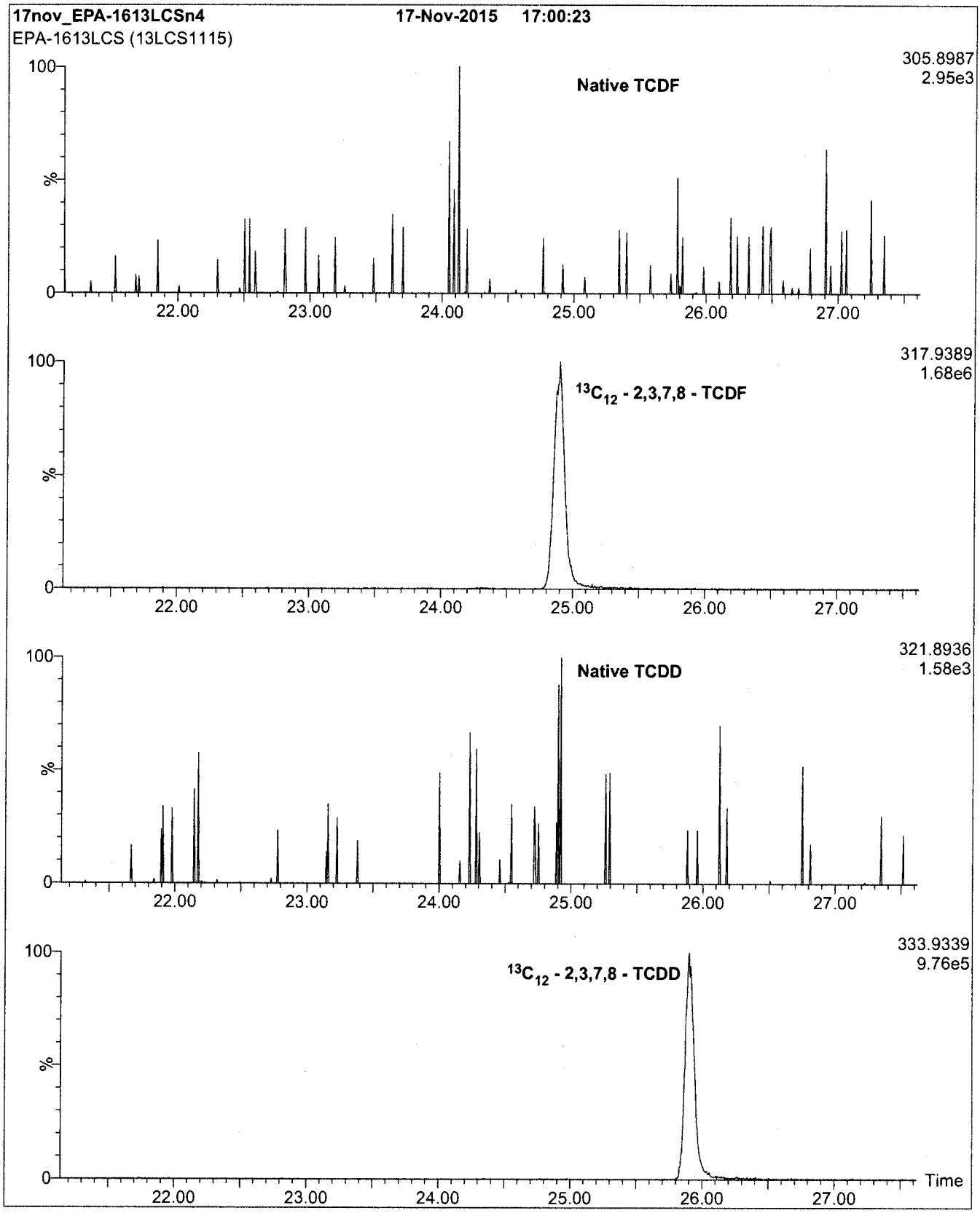


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

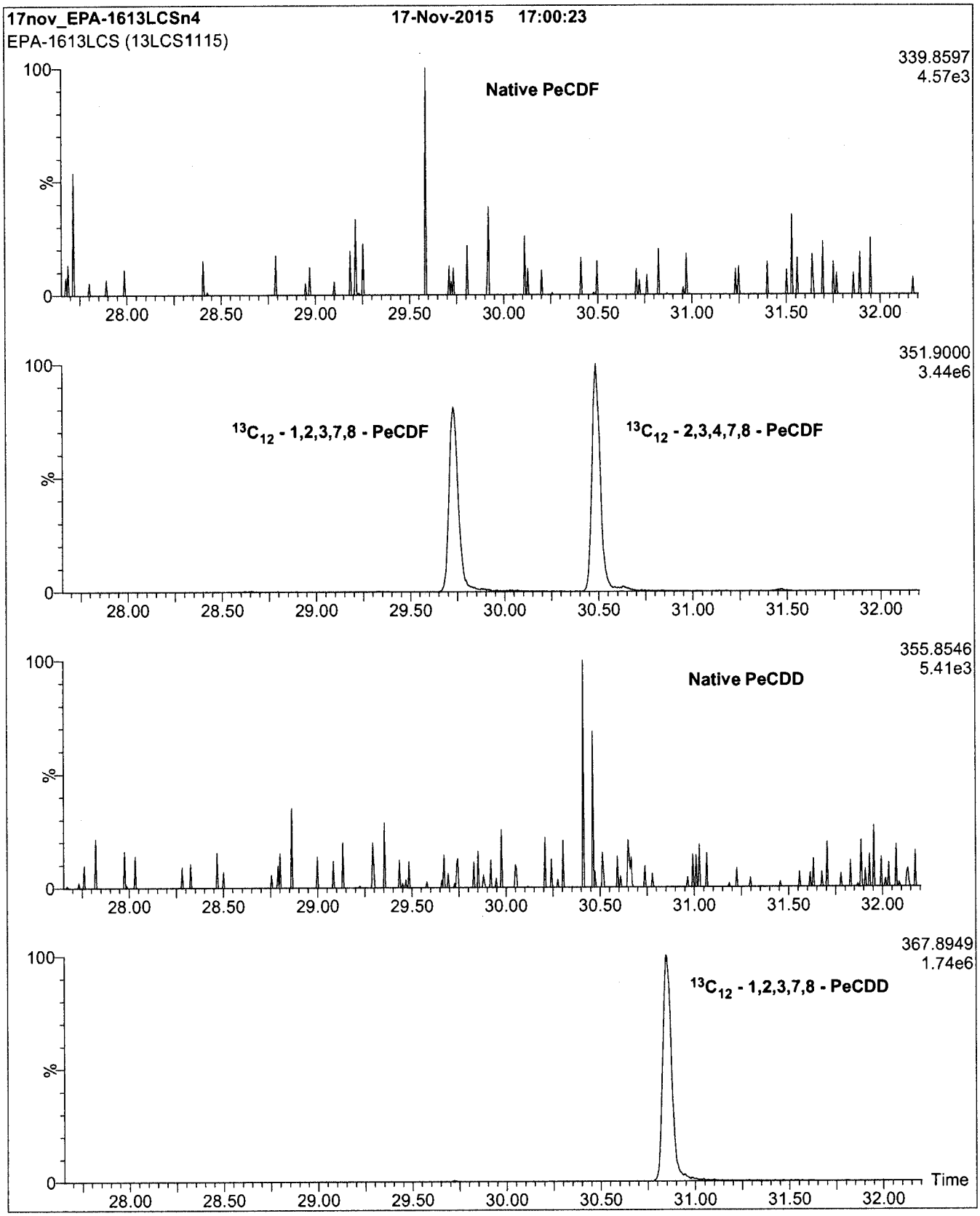


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

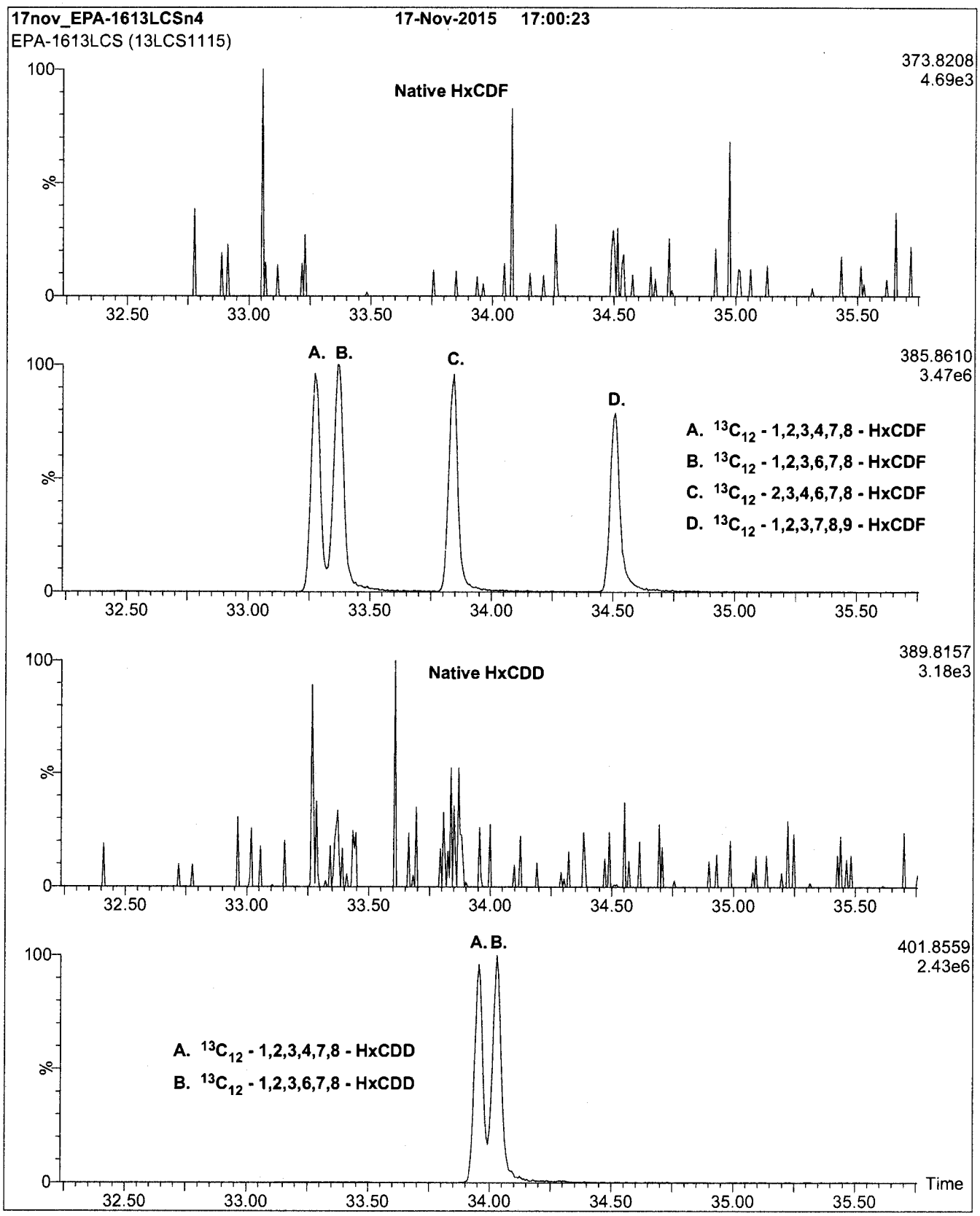


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

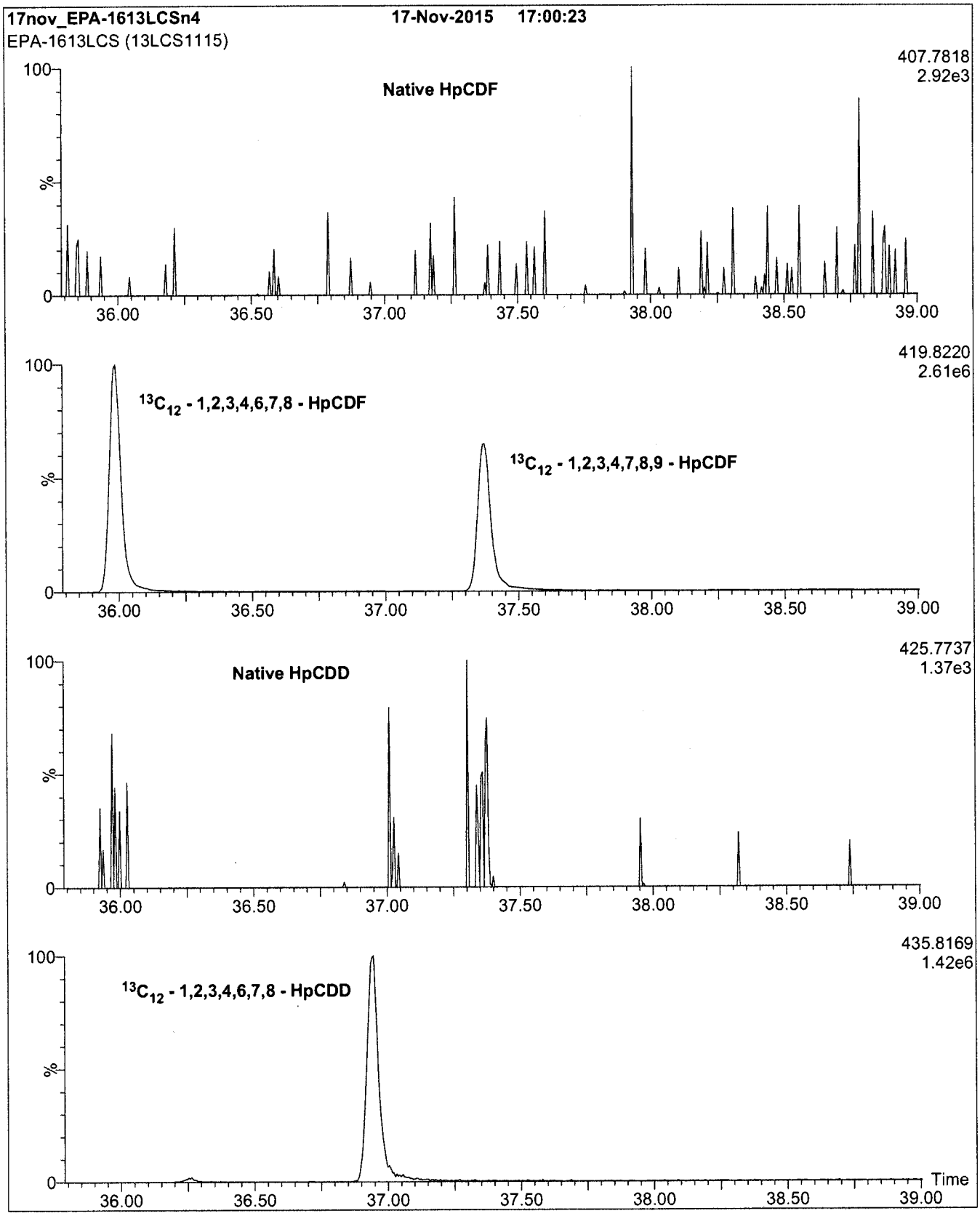
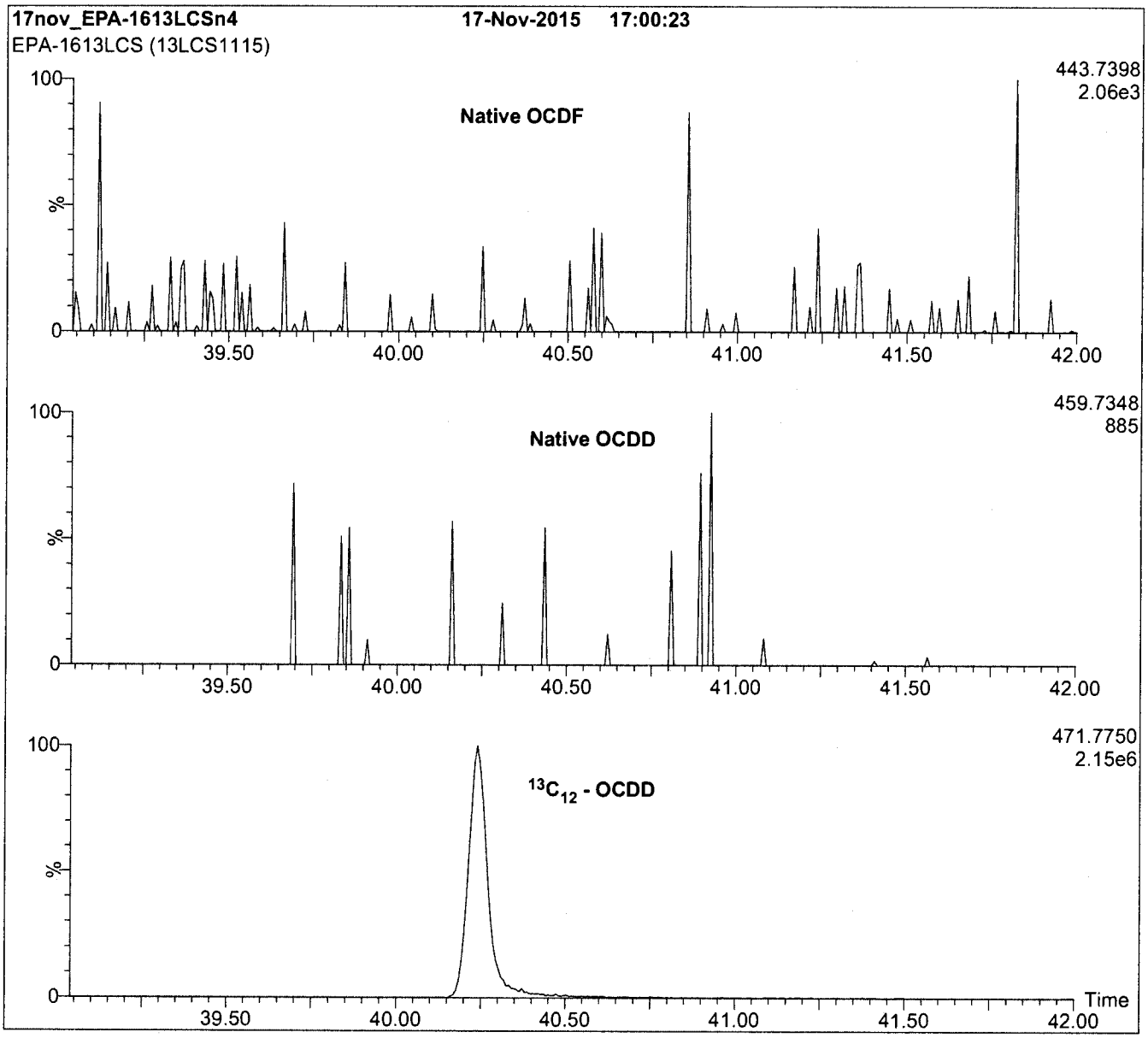


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



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

E002528
1613B Stock Cleanup Std
Solvent / Lot: Nonane
Prep: 6/24/2016 by JW
Exp: 4/1/2020
Location: Dioxin Lab

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1115
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	12/03/2015
LAST TESTED: (mm/dd/yyyy)	12/05/2015
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

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 for, 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	Concentration (ng/ml)
2,3,7,8-[$^{37}Cl_4$]-Tetrachlorodibenzo-p-dioxin	40

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/16/2015 (mm/dd/yyyy)

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 are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is 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:

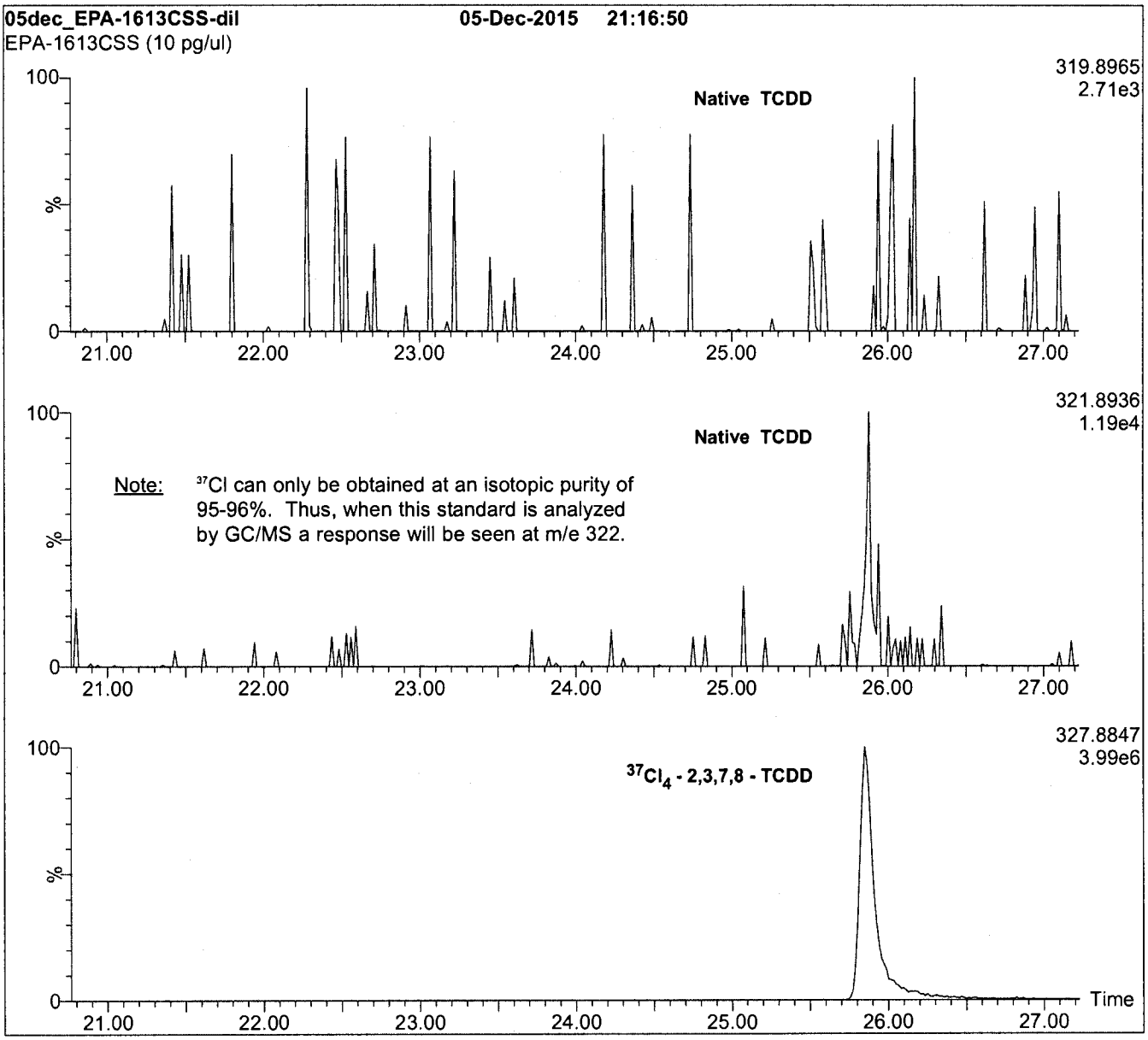
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

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

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



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

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

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

CS3WT

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

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1115
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	02/11/2016
LAST TESTED: (mm/dd/yyyy)	02/11/2016
EXPIRY DATE: (mm/dd/yyyy)	04/01/2020
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

E003891
Recd
08/25/16 JR

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: 13CS31115). 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 (CS3WT1115) is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11115
EPA-1613CS2	13CS21115
EPA-1613CS3	13CS31115
EPA-1613CS4	13CS41115
EPA-1613CS5	13CS51115
EPA-1613CSL	13CSL1115
EPA-1613CS0.5	13CS0.51115

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2378-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

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where x is expressed as a relative standard uncertainty of the individual parameter.

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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: **CS3WT; Components and Concentrations (ng/ml, in nonane/4.5% toluene)**

QUANTITATIVE ANALYTES (ng/ml, ±5%)

Native PCDDs & PCDFs:

2,3,7,8-TCDD	10
2,3,7,8-TCDF	10
1,2,3,7,8-PeCDD	50
1,2,3,7,8-PeCDF	50
2,3,4,7,8-PeCDF	50
1,2,3,4,7,8-HxCDD	50
1,2,3,6,7,8-HxCDD	50
1,2,3,7,8,9-HxCDD	50
1,2,3,4,7,8-HxCDF	50
1,2,3,6,7,8-HxCDF	50
1,2,3,7,8,9-HxCDF	50
2,3,4,6,7,8-HxCDF	50
1,2,3,4,6,7,8-HpCDD *(WD)*	50
1,2,3,4,6,7,8-HpCDF *(WD)*	50
1,2,3,4,7,8,9-HpCDF *(WD)*	50
OCDD	100
OCDF	100

Labelled PCDDs & PCDFs:

$^{13}C_{12}$-2,3,7,8-TCDD	100
$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100
$^{13}C_{12}$-OCDD	200

Cleanup Standard:

$^{37}Cl_4$-2,3,7,8-TCDD	10

Internal Standards:

$^{13}C_{12}$-1,2,3,4-TCDD	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100

WD – Window Definer

SEMI-QUANTITATIVE ANALYTES (ng/ml, ±20%)

Window Definers:*

1,3,6,8-TCDD	10
1,2,8,9-TCDD	10
1,3,6,8-TCDF	10
1,2,8,9-TCDF	10
1,2,4,6,8/1,2,4,7,9-PeCDD	50
1,2,3,8,9-PeCDD	50
1,3,4,6,8-PeCDF	50
1,2,3,8,9-PeCDF	50
1,2,4,6,7,9-HxCDD	50
1,2,3,4,6,8-HxCDF	50
1,2,3,4,6,7,9-HpCDD	50

2378-TCDD Resolution Testing Isomers:

1,2,3,4-TCDD	5
1,2,3,7/1,2,3,8-TCDD	5
1,2,3,9-TCDD	10

** 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD. Use 1,2,3,4,6,7,9-HpCDD to set window.*

** 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF. Use 1,2,3,4,6,7,8-HpCDF to set window.*

Certified By: B.G. Chittim **Date:** 02/16/2016 (mm/dd/yyyy)

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

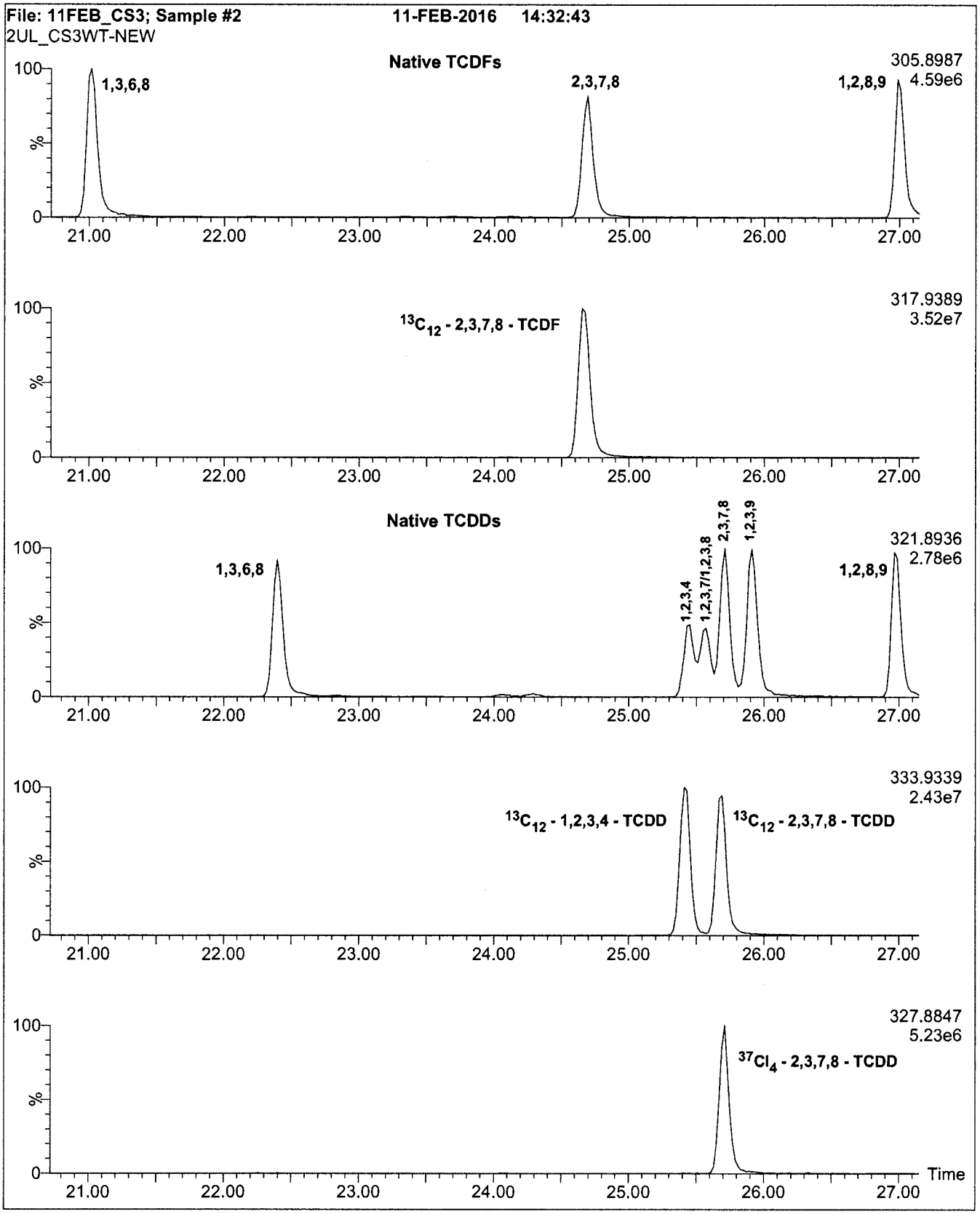
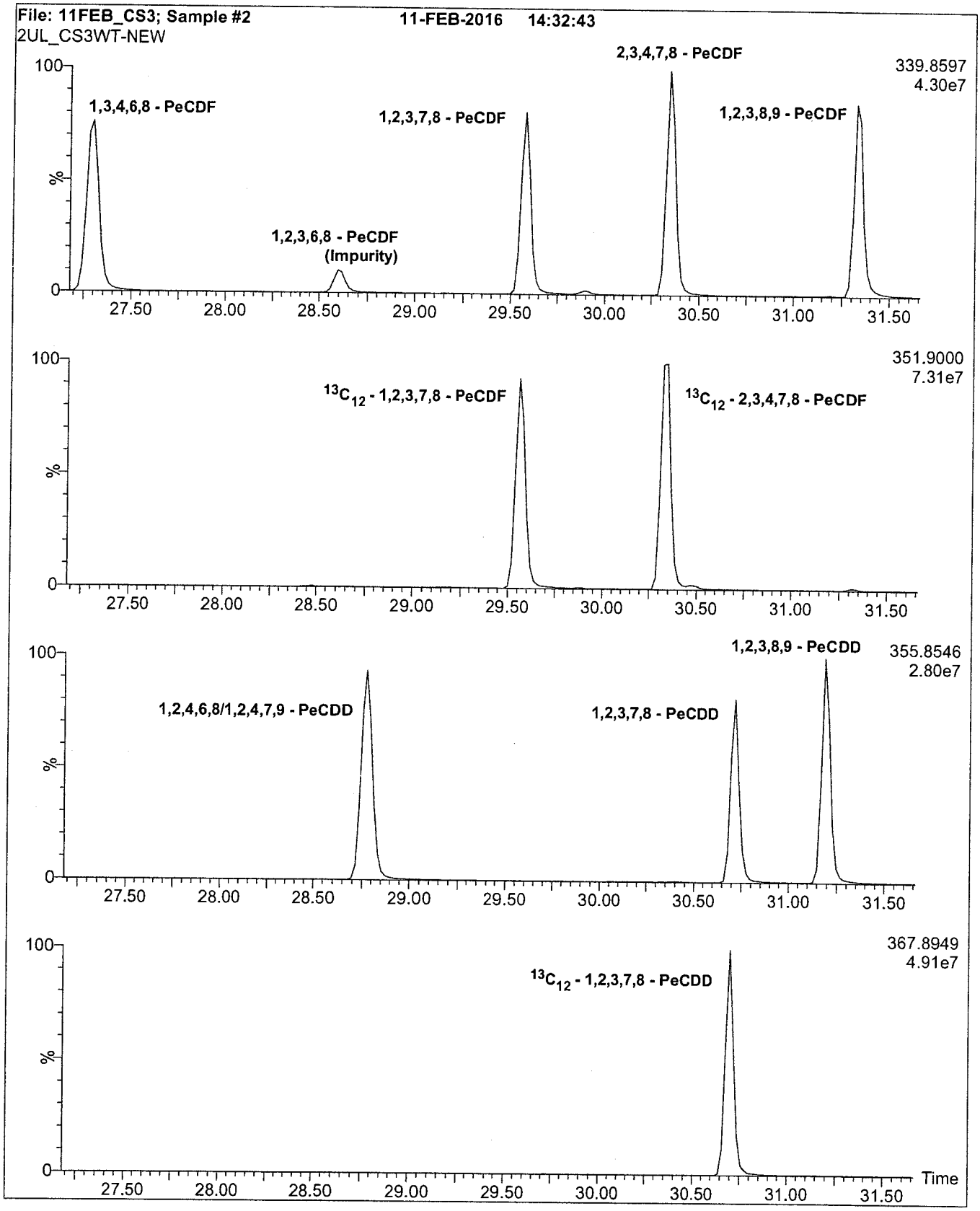


Figure 1: CS3WT; HRGC/HRMS Data (60 m DB-5 Column)



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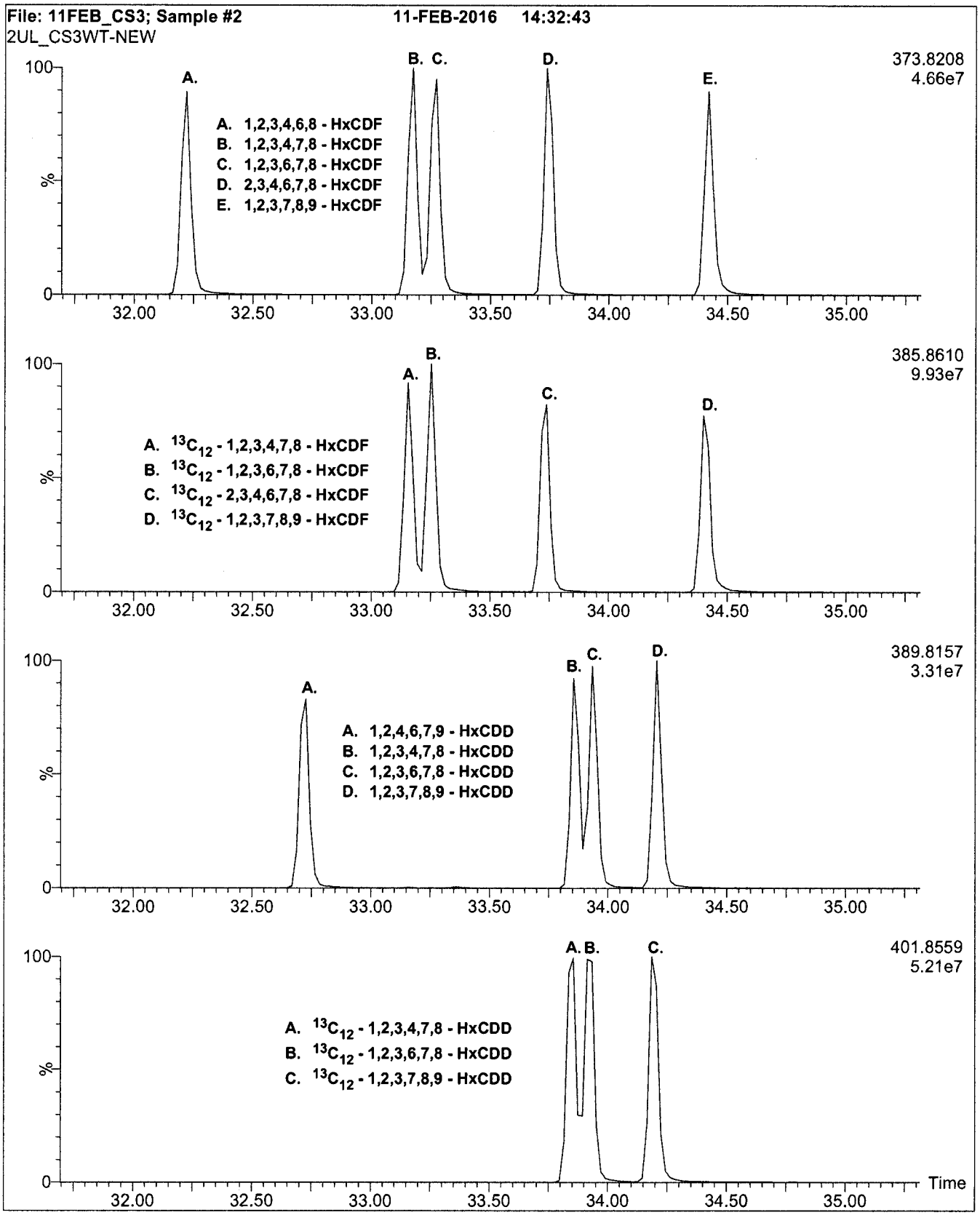

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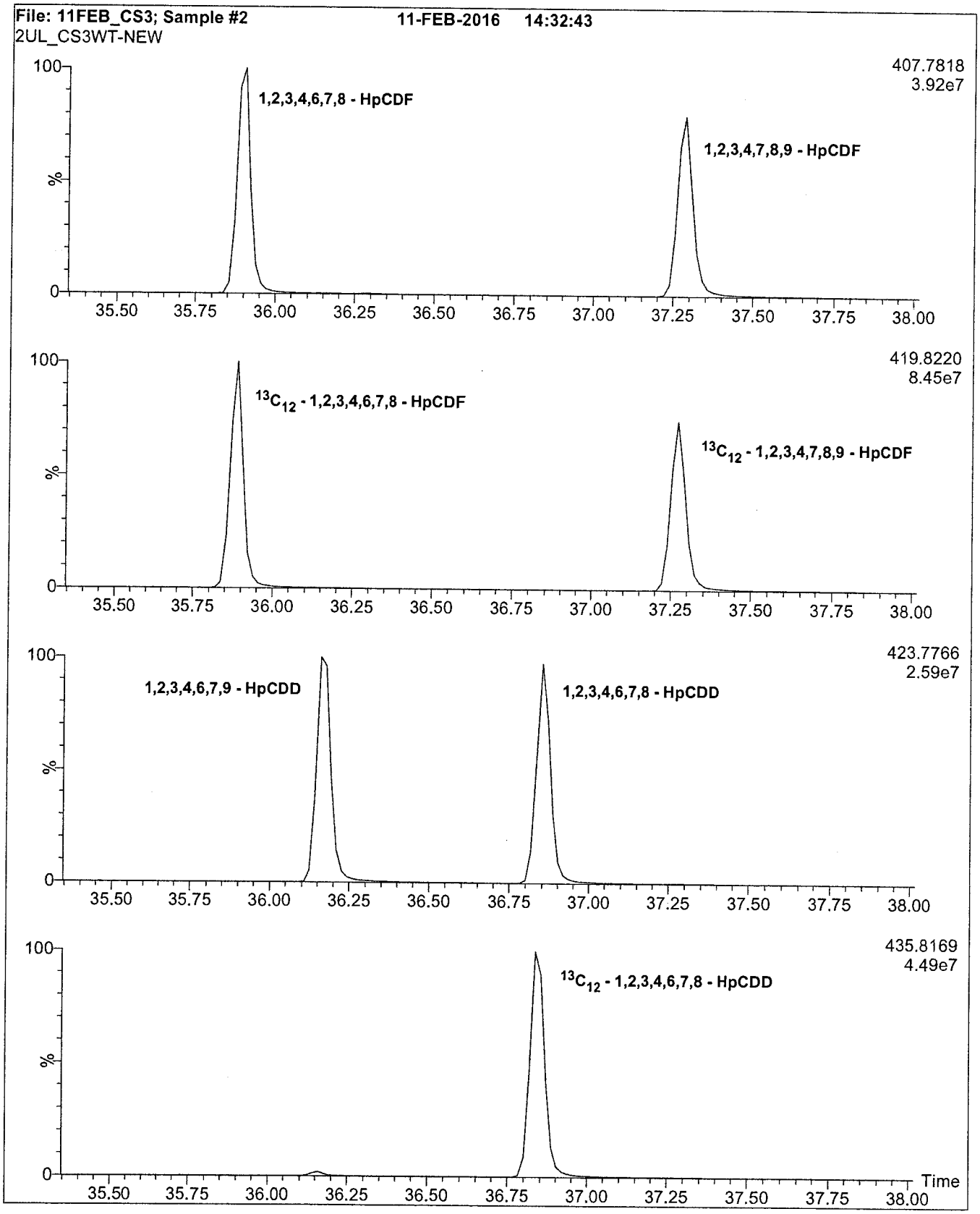
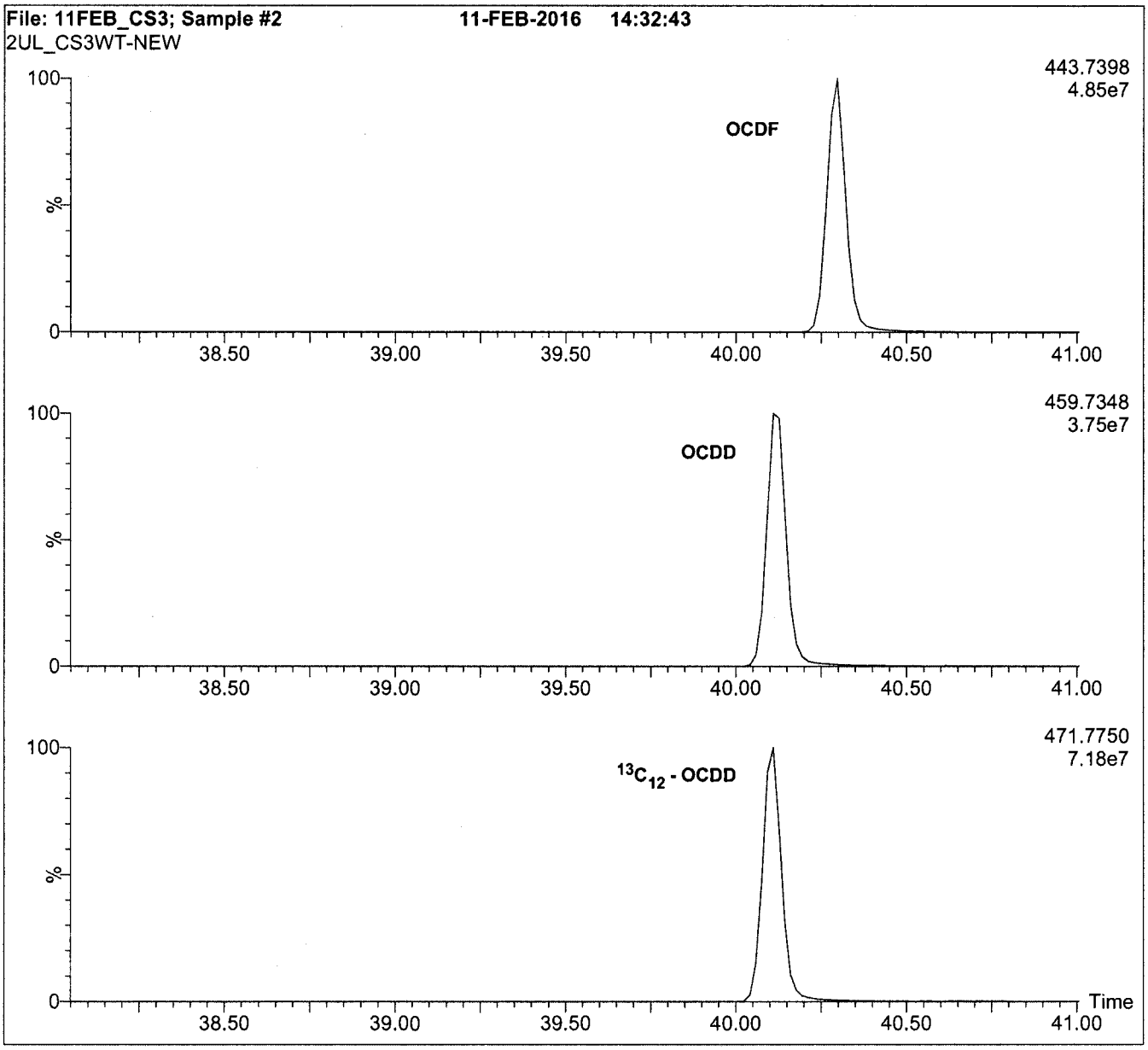


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



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)

SAMPLE DELIVERY GROUP (SDG)
DEFINITION SHEET

SDG Number: PH1A01

Laboratory Name: Analytical Resources, Inc.

Laboratory Code: ARI

Contract No.: EPW16004

Case No.: 46488

SDG Turnaround: 21 days

First Sample in SDG: PH1A01

Last Sample in SDG: PH1A06

First Sample Receipt Date: 11/01/2016

Last Sample Receipt Date: 11/01/2016

EPA Sample Numbers in SDG (Listed in Numerical Order)

Sample Number	Analysis	MA #
PH1A01	HRGCMS	
PH1A02	HRGCMS	
PH1A03	HRGCMS	
PH1A04	HRGCMS	
PH1A05	HRGCMS	
PH1A06	HRGCMS	

Note: There are a maximum of 20 samples (excluding PE Sample) in SDG. Attach TRs to this form in alphanumeric order (the order listed above on this form).

Signature

11/02/2016

Date

sdg_HRSM_SOM_Def.rpt

EPU:16004
SDG:PH1A01
Case:46488

TECHLAW
COC #: 2016_SEP_Water & Sed_CLP
Lab Contact: Susan Dunnihoo
Lab Phone: 206-695-6211

CHAIN OF CUSTODY RECORD
Site #: A8M5
Lab: Analytical Resources, Inc.
Lab Address: 4611 S. 134th Place

No: 2016_SEP_Water & Sed_CLP
Cooler #:
Lab_Address2: Suite 100
Tukwila, WA 98168

Lab #	Sample #	Tag	Matrix	Sample Type	Analyses	Container	Collected	Sample Time	Sampler	Numb Cont
	H1A01	1001	Water	Field Sample	Dioxins/Furans	16 oz Jar	9/27/2016	11:05	MM	6
	H1A02	1002	Sediment	Field Sample	Dioxins/Furans	8 oz Jar	9/27/2016	11:44	KB	2
	H1A03	1003	Water	Field Sample	Dioxins/Furans	16 oz Jar	9/28/2016	09:57	IB	2
	H1A04	1004	Sediment	Field Sample	Dioxins/Furans	8 oz Jar	9/28/2016	10:07	IB	1
	H1A05	1005	Water	Field Sample	Dioxins/Furans	16 oz Jar	9/29/2016	08:49	IB	2
	H1A06	1006	Sediment	Field Sample	Dioxins/Furans	8 oz Jar	9/29/2016	09:11	NT	1

Special Instructions: 2016_SEP_Water & Sed_CLP

MS/MSD Water - H1A01
MS/MSD Sed - H1A02

Case #46488

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		10/31/16 1430		11-1-16 10:45	Good

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name **Analytical Resources, Inc.**	Page 1 of 2
Received By (Print Name) **Justin Meyer**	Log-in Date **11/01/2016**
Received By (Signature) Justin Meyer	
Case Number **46488** SDG No. **PH1A01**	MA No.

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal Nos.	NA
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	777600579081 8832 AND JM
6. Sample Tags 11/2/16	Present/Absent*
Sample Tag Numbers	Listed/Not Listed on Chain of Custody Record
7. Sample Condition	Intact/Broken*/ Leaking
8. Shipping Container Temperature Bottle Indicator	Present/Absent
9. Shipping Container Temperature	5.4 deg C
10. Does information on Traffic Report/ Chain of Custody Records and Sample Tags agree?	Yes/No*
11. Date Received at Lab	11/01/2016
12. Time Received	10:45

	EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	PH1A01	Tag# 1001	16K0015-01A	Good
2	PH1A01	Tag# 1001	16K0015-01F	Good
3	PH1A01	Tag# 1001	16K0015-01E	Good
4	PH1A01	Tag# 1001	16K0015-01D	Good
5	PH1A01	Tag# 1001	16K0015-01C	Good
6	PH1A01	Tag# 1001	16K0015-01B	Good
7				
8				
9				
10				
11				
12				
13			JM	
14			11-1-16	
15				
16				
17				
18				
19				
20				
21				
22				

* Contact SMO and attach record of resolution.

Reviewed By Susan Dunlap	Logbook No. NA
Date 11/02/2016	Logbook Page No. NA

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name **Analytical Resources, Inc.**	Page 2 of 2
Received By (Print Name) **Justin Meyer**	Log-in Date **11/01/2016**
Received By (Signature) Justin Meyer	
Case Number **46488** SDG No. **PH1A01**	MA No.

Remarks:	
1. Custody Seal(s)	Present/Absent* Intact/Broken
2. Custody Seal Nos.	NA
3. Traffic Reports/Chain of Custody Records or Packing Lists	Present/Absent*
4. Airbill	Airbill/Sticker Present/Absent*
5. Airbill No.	**777600579081** ~~AND~~
6. Sample Tags Sample Tag Numbers	Present/Absent* Listed/Not Listed on Chain of Custody Record
7. Sample Condition	Intact/Broken*/ Leaking
8. Shipping Container Temperature Bottle Indicator	Present/Absent
9. Shipping Container Temperature	**2.9 deg C**
10. Does information on Traffic Report/ Chain of Custody Records and Sample Tags agree?	Yes/No*
11. Date Received at Lab	**11/01/2016**
12. Time Received	**10:45**

	EPA Sample #	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	PH1A02	Tag# 1002	16K0015-02A	Good
2	PH1A02	Tag# 1002	16K0015-02B	Good
3	PH1A03	Tag# 1003	16K0015-03B	Good
4	PH1A03	Tag# 1003	16K0015-03A	Good
5	PH1A04	Tag# 1004	16K0015-04B	Good
6	PH1A04	Tag# 1004	16K0015-04A	Good
7	PH1A05	Tag# 1005	16K0015-05B	Good
8	PH1A05	Tag# 1005	16K0015-05A	Good
9	PH1A06	Tag# 1006	16K0015-06A	Good
10	PH1A06	Tag# 1006	16K0015-06B	Good
11				
12				
13				
14				
15			JM	
16			11-1-16	
17				
18				
19				
20				
21				
22				

* Contact SMO and attach record of resolution.

Reviewed By	Logbook No.
Date 11/02/2016	Logbook Page No.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC-MS Laboratory Dioxin Extract Freezer Log

			Extractions		GC & GC-MS	
ARI Job Number	Analysis	No. of Extracts	Date In	Initials	Date Out	Initials
BEI0640	Dioxin 10ml	8	9/28/16	NL	9/28/16	[illegible]
BEI0743 & surrogate QC	Dioxin 10ml	19	10/1/16	M	10/3/16	[illegible]
BEI0768	Dioxin 10ml	22	10/6/16	M	10/6/16	[illegible]
BEJ0158 & Basic & Acid Silica QC	Dioxin 10ml	13	10/10/16	M	10/10/16	[illegible]
BEJ0258	Dioxin 10ml	4	10/11/16	M	10/12/16	[illegible]
BEJ0397	Dioxin 10ml	10	10/17/16	M	10/18/16	[illegible]
BEJ0491 & clean up STD	Dioxin 10ml	15	10/21/16	M	10/24/16	[illegible]
BEJ0661	Dioxin 10ml	5	10/24/16	M	↓	↓
BEJ0753	Dioxin 10ml	8	10/26/16	M	10/26/16	[illegible]
BEJ0775	Dioxin 10ml	10	10/29/16	M	10/31/16	[illegible]
E006047 surrogate QC	Dioxin 10ml	1	10/31/16	M	↓	↓
BEJ0909	Dioxin 10ml	20	11/3/16	M	11/3/16	[illegible]
BEK0042	Dioxin 10ml	14	11/4/16	M	11/4/16	[illegible]
Toluene QC	Dioxin 10ml	1	11/5/16	M	11/9/16	[illegible]
BEK0165 & 0% silica QC	Dioxin 10ml	20	11/9/16	M	11/9/16	[illegible]
BEK0277	Dioxin 10ml	9	11/11/16	M	11/11/16	[illegible]
BEK0276 & clean up STD	Dioxin 10ml	5	11/14/16	M	11/14/16	[illegible]
BEK0302	Dioxin 10ml	10	11/16/16	JW	to PK	11/16/16 [illegible]
BEK0302	Dioxin 10ml	13	11/17/16	M	11/17/16	[illegible]
Surrogate QC	Dioxin 10ml	1	11/17/16	M		

Supervisor Review:	Initials	Date:	Comment:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

16K0015

Internal Chain of Custody

Client:	USEPA	Received:	01-Nov-2016 10:45:00	
Project:	HRSM01.2	Received By:	Justin Meyer	
Number:	46488	Temp (°C):	5.4	**Printed: 11/18/2016 11:07:05AM**

16K0015-01 (PH1A01) Sampled 27-Sep-2016 11:05:00

Current Status	*Out*	*Location*	*In*
16K0015-01 A [Miscellaneous Container]			*Hazard Info:*
[Disposed]	10-Nov-2016 08:22:24		
16K0015-01 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	10-Nov-2016 06:47:40 by NPL	R-05 Dioxin 1	11-Nov-2016 13:17:23 by NPL
	11-Nov-2016 13:17:23 by NPL	F-06	--Out--
16K0015-01 B [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-01 C [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-01 D [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-01 E [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-01 F [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--

16K0015-02 (PH1A02) Sampled 27-Sep-2016 11:44:00

Current Status	*Out*	*Location*	*In*
16K0015-02 A [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:43:28 by JEM	***START***	01-Nov-2016 14:43:28 by JEM
	03-Nov-2016 15:59:15 by RMH2	R-05 Dioxin 1	03-Nov-2016 17:13:31 by RMH2
	04-Nov-2016 14:49:52 by NPL	Dioxin Lab	04-Nov-2016 15:47:55 by NPL
	07-Nov-2016 06:54:05 by NPL	Dioxin Lab	07-Nov-2016 07:52:12 by NPL
	07-Nov-2016 07:52:12 by NPL	F-05 07	--Out--

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Internal Chain of Custody

Client:	USEPA	Received:	01-Nov-2016 10:45:00	
Project:	HRSM01.2	Received By:	Justin Meyer	
Number:	46488	Temp (°C):	5.4	**Printed: 11/18/2016 11:07:05AM**

16K0015-02 (PH1A02) Sampled 27-Sep-2016 11:44:00

Current Status	*Out*	*Location*	*In*
16K0015-02 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	05-Nov-2016 09:16:10 by NPL	R-05 Dioxin 1	09-Nov-2016 16:05:56 by NPL
	09-Nov-2016 16:05:56 by NPL	F-06	--Out--
16K0015-02 B [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:43:28 by JEM	***START***	01-Nov-2016 14:43:28 by JEM
	07-Nov-2016 06:54:05 by NPL	Dioxin Lab	07-Nov-2016 07:52:12 by NPL
	07-Nov-2016 07:52:12 by NPL	F-05 07	--Out--

16K0015-03 (PH1A03) Sampled 28-Sep-2016 09:57:00

Current Status	*Out*	*Location*	*In*
16K0015-03 A [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:43:58 by JEM	***START***	01-Nov-2016 14:43:58 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-03 B [Miscellaneous Container]			*Hazard Info:*
[Disposed]	10-Nov-2016 08:22:24		
16K0015-03 B 01 [Micro vial, amber]			*Hazard Info:*
Extractions	10-Nov-2016 06:47:40 by NPL	R-05 Dioxin 1	11-Nov-2016 13:17:23 by NPL
	11-Nov-2016 13:17:23 by NPL	F-06	--Out--

16K0015-04 (PH1A04) Sampled 28-Sep-2016 10:07:00

Current Status	*Out*	*Location*	*In*
16K0015-04 A [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:44:32 by JEM	***START***	01-Nov-2016 14:44:32 by JEM
	03-Nov-2016 15:59:15 by RMH2	R-05 Dioxin 1	03-Nov-2016 17:13:31 by RMH2
	04-Nov-2016 14:49:52 by NPL	Dioxin Lab	04-Nov-2016 15:47:55 by NPL
	07-Nov-2016 06:54:05 by NPL	Dioxin Lab	07-Nov-2016 07:52:12 by NPL
	07-Nov-2016 07:52:12 by NPL	F-05 07	--Out--
16K0015-04 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	05-Nov-2016 09:16:10 by NPL	R-05 Dioxin 1	09-Nov-2016 16:05:56 by NPL
	09-Nov-2016 16:05:56 by NPL	F-06	--Out--

16K0015-05 (PH1A05) Sampled 28-Sep-2016 08:49:00

Current Status	*Out*	*Location*	*In*
16K0015-05 A [Miscellaneous Container]			*Hazard Info:*
[Disposed]	10-Nov-2016 14:04:31		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

16K0015

Internal Chain of Custody

Client:	USEPA	Received:	01-Nov-2016 10:45:00	
Project:	HRSM01.2	Received By:	Justin Meyer	
Number:	46488	Temp (°C):	5.4	**Printed: 11/18/2016 11:07:05AM**

16K0015-05 (PH1A05) Sampled 28-Sep-2016 08:49:00

Current Status	*Out*	*Location*	*In*
16K0015-05 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	10-Nov-2016 06:04:00 by NPL	R-05 Dioxin 1	14-Nov-2016 07:48:51 by NPL
	14-Nov-2016 07:48:51 by NPL	F-06	--Out--
16K0015-05 B [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:44:54 by JEM	***START***	01-Nov-2016 14:44:54 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--

16K0015-06 (PH1A06) Sampled 28-Sep-2016 09:11:00

Current Status	*Out*	*Location*	*In*
16K0015-06 A [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:46:05 by JEM	***START***	01-Nov-2016 14:46:05 by JEM
	03-Nov-2016 15:59:15 by RMH2	R-05 Dioxin 1	03-Nov-2016 17:13:31 by RMH2
	04-Nov-2016 14:49:52 by NPL	Dioxin Lab	04-Nov-2016 15:47:55 by NPL
	07-Nov-2016 06:54:05 by NPL	Dioxin Lab	07-Nov-2016 07:52:12 by NPL
	07-Nov-2016 07:52:12 by NPL	F-05 07	--Out--
16K0015-06 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	05-Nov-2016 09:16:10 by NPL	R-05 Dioxin 1	09-Nov-2016 16:05:56 by NPL
	09-Nov-2016 16:05:56 by NPL	F-06	--Out--

Analytical Resources, Incorporated
Analytical Chemists and Consultants

16K0015

Internal Chain of Custody

Client:	USEPA	Received:	01-Nov-2016 10:45:00	
Project:	HRSM01.2	Received By:	Justin Meyer	
Number:	46488	Temp (°C):	5.4	**Printed: 11/18/2016 11:07:05AM**

16K0015-01 (PH1A01) Sampled 27-Sep-2016 11:05:00

Current Status	*Out*	*Location*	*In*
16K0015-01 A [Miscellaneous Container]			*Hazard Info:*
[Disposed]	10-Nov-2016 08:22:24		
16K0015-01 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	10-Nov-2016 06:47:40 by NPL	R-05 Dioxin 1	11-Nov-2016 13:17:23 by NPL
	11-Nov-2016 13:17:23 by NPL	F-06	--Out--
16K0015-01 B [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-01 C [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-01 D [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-01 E [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-01 F [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:42:56 by JEM	***START***	01-Nov-2016 14:42:56 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--

16K0015-02 (PH1A02) Sampled 27-Sep-2016 11:44:00

Current Status	*Out*	*Location*	*In*
16K0015-02 A [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:43:28 by JEM	***START***	01-Nov-2016 14:43:28 by JEM
	03-Nov-2016 15:59:15 by RMH2	R-05 Dioxin 1	03-Nov-2016 17:13:31 by RMH2
	04-Nov-2016 14:49:52 by NPL	Dioxin Lab	04-Nov-2016 15:47:55 by NPL
	07-Nov-2016 06:54:05 by NPL	Dioxin Lab	07-Nov-2016 07:52:12 by NPL
	07-Nov-2016 07:52:12 by NPL	F-05 07	--Out--

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Internal Chain of Custody

Client:	USEPA	Received:	01-Nov-2016 10:45:00	
Project:	HRSM01.2	Received By:	Justin Meyer	
Number:	46488	Temp (°C):	5.4	**Printed: 11/18/2016 11:07:05AM**

16K0015-02 (PH1A02) Sampled 27-Sep-2016 11:44:00

Current Status	*Out*	*Location*	*In*
16K0015-02 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	05-Nov-2016 09:16:10 by NPL	R-05 Dioxin 1	09-Nov-2016 16:05:56 by NPL
	09-Nov-2016 16:05:56 by NPL	F-06	--Out--
16K0015-02 B [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:43:28 by JEM	***START***	01-Nov-2016 14:43:28 by JEM
	07-Nov-2016 06:54:05 by NPL	Dioxin Lab	07-Nov-2016 07:52:12 by NPL
	07-Nov-2016 07:52:12 by NPL	F-05 07	--Out--

16K0015-03 (PH1A03) Sampled 28-Sep-2016 09:57:00

Current Status	*Out*	*Location*	*In*
16K0015-03 A [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:43:58 by JEM	***START***	01-Nov-2016 14:43:58 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--
16K0015-03 B [Miscellaneous Container]			*Hazard Info:*
[Disposed]	10-Nov-2016 08:22:24		
16K0015-03 B 01 [Micro vial, amber]			*Hazard Info:*
Extractions	10-Nov-2016 06:47:40 by NPL	R-05 Dioxin 1	11-Nov-2016 13:17:23 by NPL
	11-Nov-2016 13:17:23 by NPL	F-06	--Out--

16K0015-04 (PH1A04) Sampled 28-Sep-2016 10:07:00

Current Status	*Out*	*Location*	*In*
16K0015-04 A [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:44:32 by JEM	***START***	01-Nov-2016 14:44:32 by JEM
	03-Nov-2016 15:59:15 by RMH2	R-05 Dioxin 1	03-Nov-2016 17:13:31 by RMH2
	04-Nov-2016 14:49:52 by NPL	Dioxin Lab	04-Nov-2016 15:47:55 by NPL
	07-Nov-2016 06:54:05 by NPL	Dioxin Lab	07-Nov-2016 07:52:12 by NPL
	07-Nov-2016 07:52:12 by NPL	F-05 07	--Out--
16K0015-04 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	05-Nov-2016 09:16:10 by NPL	R-05 Dioxin 1	09-Nov-2016 16:05:56 by NPL
	09-Nov-2016 16:05:56 by NPL	F-06	--Out--

16K0015-05 (PH1A05) Sampled 28-Sep-2016 08:49:00

Current Status	*Out*	*Location*	*In*
16K0015-05 A [Miscellaneous Container]			*Hazard Info:*
[Disposed]	10-Nov-2016 14:04:31		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

16K0015

Internal Chain of Custody

Client:	USEPA	Received:	01-Nov-2016 10:45:00	
Project:	HRSM01.2	Received By:	Justin Meyer	
Number:	46488	Temp (°C):	5.4	**Printed: 11/18/2016 11:07:05AM**

16K0015-05 (PH1A05) Sampled 28-Sep-2016 08:49:00

Current Status	*Out*	*Location*	*In*
16K0015-05 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	10-Nov-2016 06:04:00 by NPL	R-05 Dioxin 1	14-Nov-2016 07:48:51 by NPL
	14-Nov-2016 07:48:51 by NPL	F-06	--Out--
16K0015-05 B [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:44:54 by JEM	***START***	01-Nov-2016 14:44:54 by JEM
	14-Nov-2016 12:49:43 by NPL	R-01 41	14-Nov-2016 12:50:18 by NPL
	14-Nov-2016 12:50:18 by NPL	R-01 41	--Out--

16K0015-06 (PH1A06) Sampled 28-Sep-2016 09:11:00

Current Status	*Out*	*Location*	*In*
16K0015-06 A [Miscellaneous Container]			*Hazard Info:*
[Archived]	01-Nov-2016 14:46:05 by JEM	***START***	01-Nov-2016 14:46:05 by JEM
	03-Nov-2016 15:59:15 by RMH2	R-05 Dioxin 1	03-Nov-2016 17:13:31 by RMH2
	04-Nov-2016 14:49:52 by NPL	Dioxin Lab	04-Nov-2016 15:47:55 by NPL
	07-Nov-2016 06:54:05 by NPL	Dioxin Lab	07-Nov-2016 07:52:12 by NPL
	07-Nov-2016 07:52:12 by NPL	F-05 07	--Out--
16K0015-06 A 01 [Micro vial, amber]			*Hazard Info:*
Extractions	05-Nov-2016 09:16:10 by NPL	R-05 Dioxin 1	09-Nov-2016 16:05:56 by NPL
	09-Nov-2016 16:05:56 by NPL	F-06	--Out--

View Vendor Assignment Search Results Report

Listed below are the Vendor ISRs that have been filtered on:

Status: Unconfirmed

Case Information

Customer Org	Case	PR Email	Comments
EPA Region 8	46488		Do not return coolers

ISR Information

Contract	Order	TAT	# of Analyses	Matrix	Analysis	Substances	Method	MA #	Sol #	QC	PR	Del Type	Shipping Period	ISR Cost	Analysis Cost
EPW16004	0001	21	4	Water	Dioxins/ Furans		Dioxin (HRSM01.2)	N/A	N/A	Y	N	2a	09/27/2016-10/07/2016	$1,440.00	$360.00

View Vendor Assignment Search Results Report

Listed below are the Vendor ISRs that have been filtered on:

Status: Unconfirmed

Case Information

Customer Org	Case	PR Email	Comments
EPA Region 8	46488		Do not return coolers

ISR Information

Contract	Order	TAT	# of Analyses	Matrix	Analysis	Substances	Method	MA #	Sol #	QC	PR	Del Type	Shipping Period	ISR Cost	Analysis Cost
EPW16004	0001	21	4	Sediment	Dioxins/ Furans		Dioxin (HRSM01.2)	N/A	N/A	Y	N	2a	09/27/2016-10/07/2016	$1,440.00	$360.00

Page: (1 of 1)

Fw: Contract Compliance Screening Report for SDG: C0027 Case: 46377 Contract: EPW16004

Susan Dunnihoo

Wed 9/28/2016 10:01 AM

Sent Items

To:Vanaman, Alexandra <Alexandra.Vanaman@csra.com>;

Please find here.

From: Appleby, Charlie <Appleby.Charlie@epa.gov>
Sent: Wednesday, September 28, 2016 9:29 AM
To: Susan Dunnihoo; Eloise B Danganan
Cc: Matheny, Don; Duncan, Sara
Subject: RE: Contract Compliance Screening Report for SDG: C0027 Case: 46377 Contract: EPW16004

Sue,

The labs must report data using EPA Sample Numbers with the extra character "P" at the front. This pertains to any SDGs that have not yet been reported. We are still awaiting an answer regarding how or whether to fix SDGs that have been submitted. I apologize for the inconvenience I'm sure this will cause. I will Try to reach out to all EPA Regional offices in the next day or two to make sure they are aware of this requirement, which we discussed earlier this year, but time has passed and we forget. If the time required to make the changes to sample IDs in your systems causes data to be late, we will address it through the waiver process.

Charlie Appleby
Analytical Services Branch
OLEM/OSRTI/TIFSD
(703) 347-0266 (Potomac Yard)
(703) 405-0057 (Mobile)
(706) 355-8555 (Athens)

From: Susan Dunnihoo [mailto:limsadm@arilabs.com]
Sent: Tuesday, September 27, 2016 5:47 PM
To: Appleby, Charlie <Appleby.Charlie@epa.gov>; Eloise B Danganan <eloise.danganan@csra.com>
Subject: Fw: Contract Compliance Screening Report for SDG: C0027 Case: 46377 Contract: EPW16004

Hi Charlie;

We received this CCS report, and one of the "General Comments" on page 8 is that the EPA sample number does not conform to the SOW starting with a "P".

I currently have three more SDGs in-house, and NONE of the EPA sample numbers start with a "P".

Since this is a general comment, I realize I probably don't need to respond to this, but should I be saying anything to the Regions? (And I prefer my CCS reports with no comments).

- Sue

From: EXES_CDL@csra.com <EXES_CDL@csra.com>
Sent: Tuesday, September 27, 2016 1:43 PM
To: Matthew Bates; Kelly Bottem; Susan Dunnihoo; exes_cdl@csra.com
Subject: Contract Compliance Screening Report for SDG: C0027 Case: 46377 Contract: EPW16004

Attached is the Contract Compliance Screening Report for SDG: C0027 Case: 46377 Contract: EPW16004 Please do not respond to exes_cdl@csra.com If you have questions please address any inquires to DASSsupport@csra.com The attached reports have been generated by CSRA under the Data Assessment Support Services (DASS) work assignment of the Sample Management Office (SMO), contract No. EP-W-14-004.

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants
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If you have received this correspondence in error, please notify sender and delete this message from your computer immediately. Thank you.
[arilabs.com]ARI Labs, Inc.

ORIGIN ID:WHHA (303) 312-7726
SCOTT WALKER
TECHLAW
16194 WEST 45TH DRIVE

GOLDEN, CO 80403
UNITED STATES US

SHIP DATE: 31OCT16
ACTWGT: 40.00 LB
CAD: 102215893/INET3790
DIMS: 20x11x14 IN

BILL SENDER

TO SUSAN DUNNIHOO
ANALYTICAL RESOURCES INC.
4611 S. 134TH PLACE
SUITE 100
TUKWILA WA 98168
(206) 695-6211 REF: 0307240202B1AA8M500A129
INV:
PO: DEPT:

544J2/25C6/14EB

FedEx. Express

E

TUE - 01 NOV 3:00P
STANDARD OVERNIGHT

1 of 2
TRK# 0201 7776 0057 9081
MASTER

A6 BFIA

98168
WA-US SEA

ORIGIN ID:WHHA (303) 312-7726
SCOTT WALKER
TECHLAW
16194 WEST 45TH DRIVE

GOLDEN, CO 80403
UNITED STATES US

SHIP DATE: 31OCT16
ACTWGT: 20.00 LB
CAD: 102215893/INET3790
DIMS: 14x9x14 IN

BILL SENDER

TO SUSAN DUNNIHOO
ANALYTICAL RESOURCES INC.
4611 S. 134TH PLACE
SUITE 100
TUKWILA WA 98168
(206) 695-6211 REF: 0307240202B1AA8M500A129
INV:
PO: DEPT:

544J2/25C

FedEx. Express

E

TUE - 01 NOV 3:00P
STANDARD OVERNIGHT

2 of 2
MPS# 0263 7776 0057 8832
Mstr# 7776 0057 9081 0201

A6 BFIA

98168
WA-US SEA

RT394 93
1 16:00 A 8832 11.01

Ter printing this label