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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC5088

Sampling Date: 04/07/23



Report to:

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Total number of pages in report: 919



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

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Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Summary of Hits	5
Section 4: Sample Results	6
4.1: FC5088-1: AF-RHMW17S-WGN01LF-2304W1	7
4.2: FC5088-2: AF-RHMW17S-WQEB01-2304W1	10
4.3: FC5088-3: AF-RHMW17D-WGN01LF-2304W1	13
4.4: FC5088-4: AF-RHMW17D-WQFB01-2304W1	16
4.5: FC5088-5: AF-RHMW17-WGN01LF-2304W1	19
Section 5: Misc. Forms	22
5.1: Chain of Custody	23
5.2: QC Evaluation: DOD QSM5.x Limits	27
Section 6: MS Semi-volatiles - QC Data Summaries	28
6.1: Method Blank Summary	29
6.2: Blank Spike Summary	41
6.3: Matrix Spike Summary	45
6.4: Duplicate Summary	47
6.5: Injection Standard Area Summaries	49
6.6: TDCA Retention Time Checks	57
6.7: Ion Ratio Summaries	64
6.8: Isotope Dilution Standard Recovery Summaries	66
6.9: Initial and Continuing Calibration Summaries	69
6.10: Run Sequence Reports	97
Section 7: MS Semi-volatiles - Raw Data	103
7.1: Samples	104
7.2: Method Blanks	192
7.3: Blank Spikes	269
7.4: Matrix Spikes	313
7.5: Duplicates	335
7.6: Retention Time Markers	348
7.7: Initial and Continuing Calibrations	426
7.8: Instrument Run Logs	868
7.9: Standard Prep Logs	875
7.10: Sample Prep Logs	919



Sample Summary

AECOM, INC.

Job No: FC5088

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC5088-1	04/07/23	09:50 TM	04/08/23	AQ	Ground Water	AF-RHMW17S-WGN01LF-2304W1
FC5088-2	04/07/23	10:20 TM	04/08/23	AQ	Equipment Blank	AF-RHMW17S-WQEB01-2304W1
FC5088-3	04/07/23	11:15 TM	04/08/23	AQ	Ground Water	AF-RHMW17D-WGN01LF-2304W1
FC5088-4	04/07/23	10:35 TM	04/08/23	AQ	Field Blank Water	AF-RHMW17D-WQFB01-2304W1
FC5088-5	04/07/23	12:25 TM	04/08/23	AQ	Ground Water	AF-RHMW17-WGN01LF-2304W1

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC5088

Site: N6274223F0104 RH Fire Suppression System

Report Date: 4/19/2023 6:34:01 PM

On 04/08/2023, 4 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3.7 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC5088 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA DRAFT 1633

Matrix: AQ

Batch ID: OP96368

Sample(s) FC5088-3MS, FC5088-5DUP were used as the QC samples indicated.

Matrix Spike Recovery(s) for PFMBA, PFMPA are outside control limits. Probable cause is due to matrix interference.

RPD(s) for Duplicate for Perfluoroheptanoic acid are outside control limits for sample OP96368-DUP. Probable cause is due to sample non-homogeneity.

Sample(s) FC5088-1, FC5088-3 have surrogates outside control limits.

FC5088-1 for 13C2-4:2FTS: Outside control limits.

FC5088-1 for 4:2 Fluorotelomer sulfonate: Associated ID Standard outside control limits.

FC5088-1: Dilution required (ID recovery standard failure). Confirmation run.

FC5088-3 for 13C4-PFBA: Outside control limits.

FC5088-3 for Perfluorobutanoic acid: Associated ID Standard outside control limits, Confirmed by batch QC.

FC5088-3: Confirmation run.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

Kim Benham, Client Services (*Signature on File*)

Summary of Hits

Job Number: FC5088
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/07/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC5088-1 AF-RHMW17S-WGN01LF-2304W1

Perfluorobutanoic acid	4.7 J	19	3.7	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	3.1 J	4.6	0.93	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	1.6 J	4.6	0.93	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	1.0 J	4.6	0.93	ng/l	EPA DRAFT 1633
Perfluorononanoic acid	0.74 J	4.6	1.9	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	0.76 J	4.6	0.93	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	1.3 J	4.6	1.9	ng/l	EPA DRAFT 1633

FC5088-2 AF-RHMW17S-WQEB01-2304W1

No hits reported in this sample.

FC5088-3 AF-RHMW17D-WGN01LF-2304W1

No hits reported in this sample.

FC5088-4 AF-RHMW17D-WQFB01-2304W1

No hits reported in this sample.

FC5088-5 AF-RHMW17-WGN01LF-2304W1

Perfluorobutanoic acid	4.7 J	19	3.7	ng/l	EPA DRAFT 1633
Perfluoropentanoic acid	7.9 J	9.3	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	4.1 J	4.6	0.93	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.92 J	4.6	0.93	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	19.2	19	7.4	ng/l	EPA DRAFT 1633

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW17S-WGN01LF-2304W1		
Lab Sample ID:	FC5088-1	Date Sampled:	04/07/23
Matrix:	AQ - Ground Water	Date Received:	04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q43068.D	1	04/15/23 19:18	MV	04/12/23 11:00	OP96368	S4Q622
Run #2 ^a	4Q43153.D	5	04/18/23 12:22	MV	04/12/23 11:00	OP96368	S4Q624

Run #	Initial Volume	Final Volume
Run #1	540 ml	5.0 ml
Run #2	540 ml	5.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	4.7	19	3.7	1.8	ng/l	J
2706-90-3	Perfluoropentanoic acid	1.9 U	9.3	1.9	0.87	ng/l	
307-24-4	Perfluorohexanoic acid	3.1	4.6	0.93	0.46	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.6	4.6	0.93	0.46	ng/l	J
335-67-1	Perfluorooctanoic acid	1.0	4.6	0.93	0.46	ng/l	J
375-95-1	Perfluorononanoic acid	0.74	4.6	1.9	0.56	ng/l	J
335-76-2	Perfluorodecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.6	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.76	4.6	0.93	0.46	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.6	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.6	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.93 U	4.6	0.93	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.3	4.6	1.9	0.50	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.6	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.6	1.9	0.59	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.6	3.7	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate ^b	7.4 U	19	7.4	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.8	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.6	1.9	0.62	ng/l	
31506-32-8	MeFOSA	1.9 U	4.6	1.9	0.93	ng/l	
4151-50-2	EtFOSA	1.9 U	4.6	1.9	0.93	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17S-WGN01LF-2304W1		
Lab Sample ID:	FC5088-1	Date Sampled:	04/07/23
Matrix:	AQ - Ground Water	Date Received:	04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No. Compound Result LOQ LOD DL Units Q

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.7 U	4.6	3.7	0.93	ng/l
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.3 U	46	9.3	4.1	ng/l
1691-99-2	EtFOSE	19 U	46	19	6.9	ng/l

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.7 U	19	3.7	0.93	ng/l
919005-14-4	ADONA	3.7 U	19	3.7	1.7	ng/l
377-73-1	PFMPA	1.9 U	9.3	1.9	0.93	ng/l
863090-89-5	PFMBA	3.7 U	9.3	3.7	1.1	ng/l
151772-58-6	NFDHA	3.7 U	9.3	3.7	1.1	ng/l

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	19	3.7	1.3	ng/l
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	19	3.7	1.6	ng/l
113507-82-7	PFEESA	1.9 U	9.3	1.9	0.72	ng/l

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	23	9.3	4.2	ng/l
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.1	ng/l
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.3	ng/l

CAS No. ID Standard Recoveries Run# 1 Run# 2 Limits

13C4-PFBA	72%	70%	20-150%
13C5-PFPeA	106%	100%	20-150%
13C5-PFHxA	109%	104%	20-150%
13C4-PFHpA	110%	105%	20-150%
13C8-PFOA	105%	107%	20-150%
13C9-PFNA	100%	110%	20-150%
13C6-PFDA	107%	115%	20-150%
13C7-PFUnDA	99%	91%	20-150%
13C2-PFDoDA	77%	88%	20-150%
13C2-PFTeDA	56%	65%	20-150%
13C3-PFBS	110%	119%	20-150%
13C3-PFHxS	110%	122%	20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
 4

Report of Analysis

Client Sample ID:	AF-RHMW17S-WGN01LF-2304W1		Date Sampled:	04/07/23
Lab Sample ID:	FC5088-1		Date Received:	04/08/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	100%	87%	20-150%
	13C8-FOSA	84%	73%	20-150%
	d3-MeFOSA	77%	69%	20-150%
	d5-EtFOSA	77%	68%	20-150%
	d3-MeFOSAA	97%	81%	20-150%
	d5-EtFOSAA	88%	89%	20-150%
	d7-MeFOSE	63%	60%	20-150%
	d9-EtFOSE	60%	54%	20-150%
	13C2-4:2FTS	155% ^c	105%	20-150%
	13C2-6:2FTS	102%	107%	20-150%
	13C2-8:2FTS	98%	120%	20-150%
	13C3-HFPO-DA	102%	107%	20-150%

(a) Dilution required (ID recovery standard failure). Confirmation run.

(b) Associated ID Standard outside control limits.

(c) Outside control limits.

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW17S-WQEB01-2304W1		
Lab Sample ID:	FC5088-2	Date Sampled:	04/07/23
Matrix:	AQ - Equipment Blank	Date Received:	04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q43069.D	1	04/15/23 19:32	MV	04/12/23 11:00	OP96368	S4Q622
Run #2							

Run #	Initial Volume	Final Volume
Run #1	520 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.6	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	0.96 U	4.8	0.96	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.96 U	4.8	0.96	0.48	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.96 U	4.8	0.96	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.96 U	4.8	0.96	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.7 U	19	7.7	4.0	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	1.9 U	4.8	1.9	0.96	ng/l	
4151-50-2	EtFOSA	1.9 U	4.8	1.9	0.96	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17S-WQEB01-2304W1	
Lab Sample ID:	FC5088-2	Date Sampled: 04/07/23
Matrix:	AQ - Equipment Blank	Date Received: 04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.6 U	48	9.6	4.2	ng/l	
1691-99-2	EtFOSE	19 U	48	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.96	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.6	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	9.6	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.6	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.6	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	24	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	113%		20-150%
	13C5-PFPeA	118%		20-150%
	13C5-PFHxA	114%		20-150%
	13C4-PFHpA	117%		20-150%
	13C8-PFOA	113%		20-150%
	13C9-PFNA	107%		20-150%
	13C6-PFDA	113%		20-150%
	13C7-PFUnDA	102%		20-150%
	13C2-PFDoDA	100%		20-150%
	13C2-PFTeDA	83%		20-150%
	13C3-PFBS	112%		20-150%
	13C3-PFHxS	114%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID:	AF-RHMW17S-WQEB01-2304W1		Date Sampled:	04/07/23
Lab Sample ID:	FC5088-2		Date Received:	04/08/23
Matrix:	AQ - Equipment Blank		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	108%		20-150%
	13C8-FOSA	94%		20-150%
	d3-MeFOSA	100%		20-150%
	d5-EtFOSA	109%		20-150%
	d3-MeFOSAA	111%		20-150%
	d5-EtFOSAA	116%		20-150%
	d7-MeFOSE	87%		20-150%
	d9-EtFOSE	86%		20-150%
	13C2-4:2FTS	129%		20-150%
	13C2-6:2FTS	121%		20-150%
	13C2-8:2FTS	113%		20-150%
	13C3-HFPO-DA	109%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW17D-WGN01LF-2304W1		
Lab Sample ID:	FC5088-3	Date Sampled:	04/07/23
Matrix:	AQ - Ground Water	Date Received:	04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q43070.D	1	04/15/23 19:46	MV	04/12/23 11:00	OP96368	S4Q622
Run #2 ^a	4Q43166.D	1	04/18/23 15:39	MV	04/12/23 11:00	OP96368	S4Q624

Run #	Initial Volume	Final Volume
Run #1	570 ml	5.0 ml
Run #2	570 ml	5.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid ^b	3.5 U	18	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	8.8	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.4	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.4	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.88 U	4.4	0.88	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.4	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.88 U	4.4	0.88	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.4	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.4	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.4	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic acid	3.5 U	4.4	3.5	1.0	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	4.4	1.8	0.59	ng/l	
31506-32-8	MeFOSA	1.8 U	4.4	1.8	0.88	ng/l	
4151-50-2	EtFOSA	1.8 U	4.4	1.8	0.88	ng/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17D-WGN01LF-2304W1		Date Sampled:	04/07/23
Lab Sample ID:	FC5088-3	Date Received:	04/08/23	
Matrix:	AQ - Ground Water	Percent Solids:	n/a	
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	8.8 U	44	8.8	3.8	ng/l	
1691-99-2	EtFOSE	18 U	44	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.5 U	18	3.5	0.88	ng/l	
919005-14-4	ADONA	3.5 U	18	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	8.8	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	8.8	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	8.8	3.5	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	18	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	18	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	8.8	1.8	0.68	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.8 U	22	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		2% ^c	2% ^c	20-150%
13C5-PFPeA		43%	43%	20-150%
13C5-PFHxA		111%	112%	20-150%
13C4-PFHpA		112%	119%	20-150%
13C8-PFOA		109%	110%	20-150%
13C9-PFNA		108%	107%	20-150%
13C6-PFDA		109%	113%	20-150%
13C7-PFUnDA		105%	109%	20-150%
13C2-PFDoDA		92%	96%	20-150%
13C2-PFTeDA		69%	73%	20-150%
13C3-PFBS		102%	103%	20-150%
13C3-PFHxS		101%	102%	20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17D-WGN01LF-2304W1		
Lab Sample ID:	FC5088-3	Date Sampled:	04/07/23
Matrix:	AQ - Ground Water	Date Received:	04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	117%	116%	20-150%
	13C8-FOSA	111%	116%	20-150%
	d3-MeFOSA	127%	131%	20-150%
	d5-EtFOSA	128%	132%	20-150%
	d3-MeFOSAA	136%	145%	20-150%
	d5-EtFOSAA	142%	151% ^c	20-150%
	d7-MeFOSE	93%	98%	20-150%
	d9-EtFOSE	93%	96%	20-150%
	13C2-4:2FTS	139%	135%	20-150%
	13C2-6:2FTS	107%	96%	20-150%
	13C2-8:2FTS	111%	110%	20-150%
	13C3-HFPO-DA	104%	108%	20-150%

- (a) Confirmation run.
- (b) Associated ID Standard outside control limits, Confirmed by batch QC.
- (c) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW17D-WQFB01-2304W1		
Lab Sample ID:	FC5088-4	Date Sampled:	04/07/23
Matrix:	AQ - Field Blank Water	Date Received:	04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q43072.D	1	04/15/23 20:14	MV	04/12/23 11:00	OP96368	S4Q622
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	9.4	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.94	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17D-WQFB01-2304W1		
Lab Sample ID:	FC5088-4	Date Sampled:	04/07/23
Matrix:	AQ - Field Blank Water	Date Received:	04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	113%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	111%		20-150%
	13C4-PFHpA	115%		20-150%
	13C8-PFOA	107%		20-150%
	13C9-PFNA	101%		20-150%
	13C6-PFDA	104%		20-150%
	13C7-PFUnDA	105%		20-150%
	13C2-PFDoDA	98%		20-150%
	13C2-PFTeDA	90%		20-150%
	13C3-PFBS	109%		20-150%
	13C3-PFHxS	106%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	AF-RHMW17D-WQFB01-2304W1		Date Sampled:	04/07/23
Lab Sample ID:	FC5088-4		Date Received:	04/08/23
Matrix:	AQ - Field Blank Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	97%		20-150%
	13C8-FOSA	82%		20-150%
	d3-MeFOSA	88%		20-150%
	d5-EtFOSA	90%		20-150%
	d3-MeFOSAA	105%		20-150%
	d5-EtFOSAA	102%		20-150%
	d7-MeFOSE	74%		20-150%
	d9-EtFOSE	74%		20-150%
	13C2-4:2FTS	124%		20-150%
	13C2-6:2FTS	129%		20-150%
	13C2-8:2FTS	118%		20-150%
	13C3-HFPO-DA	107%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW17-WGN01LF-2304W1		
Lab Sample ID:	FC5088-5	Date Sampled:	04/07/23
Matrix:	AQ - Ground Water	Date Received:	04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q43075.D	1	04/15/23 20:56	MV	04/12/23 11:00	OP96368	S4Q622
Run #2							

Run #	Initial Volume	Final Volume
Run #1	540 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	4.7	19	3.7	1.8	ng/l	J
2706-90-3	Perfluoropentanoic acid	7.9	9.3	1.9	0.87	ng/l	J
307-24-4	Perfluorohexanoic acid	4.1	4.6	0.93	0.46	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.92	4.6	0.93	0.46	ng/l	J
335-67-1	Perfluorooctanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.6	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.6	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.93 U	4.6	0.93	0.46	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.93 U	4.6	0.93	0.46	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.6	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.6	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.93 U	4.6	0.93	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.6	1.9	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.6	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.6	1.9	0.59	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.6	3.7	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	19.2	19	7.4	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.8	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.9 U	4.6	1.9	0.62	ng/l	
31506-32-8	MeFOSA	1.9 U	4.6	1.9	0.93	ng/l	
4151-50-2	EtFOSA	1.9 U	4.6	1.9	0.93	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW17-WGN01LF-2304W1		
Lab Sample ID:	FC5088-5	Date Sampled:	04/07/23
Matrix:	AQ - Ground Water	Date Received:	04/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	3.7 U	4.6	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	9.3 U	46	9.3	4.1	ng/l	
1691-99-2	EtFOSE	19 U	46	19	6.9	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.7 U	19	3.7	0.93	ng/l	
919005-14-4	ADONA	3.7 U	19	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	9.3	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	9.3	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	9.3	3.7	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	19	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	19	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	9.3	1.9	0.72	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	23	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.1	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	120	19	7.3	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
---------	------------------------	--------	--------	--------

	13C4-PFBA	114%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	112%		20-150%
	13C4-PFHpA	113%		20-150%
	13C8-PFOA	110%		20-150%
	13C9-PFNA	100%		20-150%
	13C6-PFDA	103%		20-150%
	13C7-PFUnDA	83%		20-150%
	13C2-PFDoDA	68%		20-150%
	13C2-PFTeDA	48%		20-150%
	13C3-PFBS	109%		20-150%
	13C3-PFHxS	109%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID:	AF-RHMW17-WGN01LF-2304W1		Date Sampled:	04/07/23
Lab Sample ID:	FC5088-5		Date Received:	04/08/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	94%		20-150%
	13C8-FOSA	85%		20-150%
	d3-MeFOSA	84%		20-150%
	d5-EtFOSA	80%		20-150%
	d3-MeFOSAA	101%		20-150%
	d5-EtFOSAA	102%		20-150%
	d7-MeFOSE	67%		20-150%
	d9-EtFOSE	66%		20-150%
	13C2-4:2FTS	123%		20-150%
	13C2-6:2FTS	114%		20-150%
	13C2-8:2FTS	93%		20-150%
	13C3-HFPO-DA	108%		20-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



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Chain of Custody

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FC5088
SGS - ORLANDO JOB # :

COC #: 2304W1AFSG03
PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #		SKIFF #											
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System															
Address: 1001 Bishop St. ste 1600		Street															
City: Honolulu	State: HI	Zip: 96813	City: Honolulu	State: Hawaii													
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #															
Sampler(s) Name(s) (Printed) Sampler 1: TUSA RUSH Sampler 2: MATY TAM																	
SGS Orlando Sample	COLLECTION		CONTAINER INFORMATION										PFAS EPA Draft 1633	Matrix Codes DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NH ₄ OH	HNO ₃	H ₂ SO ₄			NH ₄ OH/NaOH	DI/WATER	MESH
1	AF-RHMMW17S-WGN01LF-2304W1	4/7/23	0950	TM	GW	3		X									
2	AF-RHMMW17S-WQEB01-2304W1	4/7/23	1020	TM	GW	3		X									
Turnaround Time (Business days)		Approved By: / Date:		Data Deliverable Information		Comments / Remarks											
10 Day (Business)					<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY)		EDMS upload database: JBPHE										
7 Day					<input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC)		EDMS Coverage: AFFF Assessment Sampling GW										
5 Day					<input type="checkbox"/> REDT1 (EPA LEVEL 3)		United AWB 016-76408522										
3 Day RUSH					<input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4)												
2 Day RUSH					<input checked="" type="checkbox"/> EDD'S												
1 Day RUSH																	
Other																	
Rush T/A Data Available VIA Email or Lablink																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler/Affiliation 1 <i>Tanji</i> TUSA RUSH/AECOM	Date Time: 4/7/23 1335	Received By/Affiliation 2 <i>Katie Abbott</i> AECOM	Relinquished By/Affiliation 3 <i>Watson Tanji</i> AECOM	Date Time: 4/7/23	Received By/Affiliation 4 <i>Watson Tanji</i> AECOM	Date Time: 4/8/23 1530	Received By/Affiliation 5 <i>Watson Tanji</i> AECOM										
Relinquished by/Affiliation 5	Date Time:	Received By/Affiliation 6	Relinquished By/Affiliation 7	Date Time:	Received By/Affiliation 8	Date Time:	Received By/Affiliation										

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FC5088: Chain of Custody

Page 1 of 4



5.1
5



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Chain of Custody

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FC5088

COC #: 2304W1AFSG02

SGS - ORLANDO JOB # :

PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #										SKIFF #		
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		Analytical Information										Matrix Codes		
Address: 1001 Bishop St. ste 1600		Street		<div style="border: 1px solid black; padding: 5px;"> DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe </div>										LAB USE ONLY		
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii														
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810														
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #														
Phone #: 303-796-4624 / 809-954-4512		Client Purchase Order #		PFAS EPA Draft 1633												
Sampler(s) Name(s) (Printed)		Sampler 1: TESSA MURPHY Sampler 2: MATT YIM		COLLECTION		CONTAINER INFORMATION										
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONHE	HCl	NICK	HNDS	HSO4	HNDS-ZNAC	DI WATER	MEDI	
3	AF-RHWW17D-WGN01LF-2304W1	4/7/27	1115	TM	GW	3			X							X
4	AF-RHWW17D-WQFB01-2304W1	4/7/23	1035	TM	GW	3			X							X
Turnaround Time (Business days)		Data Deliverable Information				Comments / Remarks										
10 Day (Business) Approved By: / Date: 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other Rush T/A Data Available VIA Email or Lablink		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United Ave 016-72408522										
Relinquished by Sampler/Affiliation		Date Time:	Received By/Affiliation		Relinquished By/Affiliation		Date Time:	Received By/Affiliation		Sample Custody must be documented below each time samples change possession, including courier delivery.						
1 Tessa Murphy/AECOM		4/7/27 1335	Katie Abbott/AECOM		3 Katie Abbott/AECOM		4/7/23 1500	4 Tessa Murphy/AECOM								
5 Relinquished by/Affiliation		Date Time:	Received By/Affiliation		Relinquished By/Affiliation		Date Time:	Received By/Affiliation								

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

<http://www.sgs.com/en/terms-and-conditions>

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5.1
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FC5088
SGS - ORLANDO JOB #

COC #: 2304W1AFSG01
PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #		SKIFF #											
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System															
Address: 1001 Bishop St. ste 1600		Street															
City: Honolulu State: HI Zip: 96813		City: Honolulu State: Hawaii															
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #															
Sampler(s) Name(s) (Printed) Sampler 1: TESSA MURPHY Sampler 2: MARTI YIM																	
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION		CONTAINER INFORMATION											Matrix Codes		
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NH3	HNO3	H2SO4	NH4OH/2NAC	DI WATER		MESH	PFAS EPA Draft 1633
5	AF-RHMW17-WGN01LF-2304W1	4/19/23	1225	TM	GW	3		X									
Turnaround Time (Business days)		Data Deliverable Information		Comments / Remarks													
10 Day (Business) Approved By: / Date:		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S		EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW													
7 Day																	
5 Day																	
3 Day RUSH																	
2 Day RUSH																	
1 Day RUSH																	
Other																	
Rush T/A Data Available VIA Email or Lablink																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation												
1 TESSA MURPHY/AECOM	4/19/23 1335	IC YIM/AECOM	IC YIM/AECOM	4/19/23 1500	IC YIM/AECOM	4/18/23											
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation												
5		6	7		8	1530											

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5.1
5

SGS Sample Receipt Summary

Job Number: FC5088

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 4/8/2023 3:30:00 PM

Delivery Method: United Cargo/Airspace

Airbill #s: United Cargo AWB #: 016-76408522

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (3.7);

Cooler Information

Y or N

- 1. Custody Seals Present
- 2. Custody Seals Intact
- 3. Temp criteria achieved
- 4. Cooler temp verification IR Gun
- 5. Cooler media Ice (Bag)

Trip Blank Information

Y or N

N/A

- 1. Trip Blank present / cooler
 - 2. Trip Blank listed on COC
- W or S N/A
- 3. Type Of TB Received

Sample Information

Y or N

N/A

- 1. Sample labels present on bottles
- 2. Samples preserved properly
- 3. Sufficient volume/containers recvd for analysis:
- 4. Condition of sample Intact
- 5. Sample recvd within HT
- 6. Dates/Times/IDs on COC match Sample Label
- 7. VOCs have headspace
- 8. Bottles received for unspecified tests
- 9. Compositing instructions clear
- 10. Voa Soil Kits/Jars received past 48hrs?
- 11. % Solids Jar received?
- 12. Residual Chlorine Present?

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____

Number of 5035 Field Kits: _____

Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230320

pH 10-12 25BDH07

Other: (Specify) pH 1.0 - 12.0 222221

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: NATHANS

Date: 4/8/2023 3:30:00 PM

Reviewer: CD

Date: 4/13/2023

FC5088: Chain of Custody

Page 4 of 4

5.1
5

QC Evaluation: DOD QSM5.x Limits

Job Number: FC5088
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/07/23

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
--------------	------	---------	--------------------	-------------	-------	--------

No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC5088

5.2
5

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection Standard Area Summaries
- TDCA Retention Time Checks
- Ion Ratio Summaries
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Instrument Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q622-IBLK	4Q43009.D	1	04/15/23	MV	n/a	n/a	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Instrument Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q622-IBLK	4Q43009.D	1	04/15/23	MV	n/a	n/a	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	104% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	103% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	98% 20-150%
	13C9-PFNA	92% 20-150%
	13C6-PFDA	97% 20-150%
	13C7-PFUnDA	95% 20-150%
	13C2-PFDoDA	92% 20-150%
	13C2-PFTeDA	86% 20-150%
	13C3-PFBS	104% 20-150%
	13C3-PFHxS	107% 20-150%
	13C8-PFOS	101% 20-150%
	13C8-FOSA	84% 20-150%
	d3-MeFOSA	100% 20-150%
	d5-EtFOSA	102% 20-150%
	d3-MeFOSAA	106% 20-150%
	d5-EtFOSAA	107% 20-150%
	d7-MeFOSE	81% 20-150%
	d9-EtFOSE	81% 20-150%
	13C2-4:2FTS	112% 20-150%
	13C2-6:2FTS	110% 20-150%
	13C2-8:2FTS	116% 20-150%
	13C3-HFPO-DA	104% 20-150%

6.1.1
6

Instrument Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-IBLK	4Q43148.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-3

CAS No.	Compound	Result	RL	MDL	Units	Q
---------	----------	--------	----	-----	-------	---

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	103% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	102% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	98% 20-150%
	13C6-PFDA	103% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	91% 20-150%
	13C3-PFBS	104% 20-150%
	13C3-PFHxS	110% 20-150%
	13C8-PFOS	96% 20-150%
	13C8-FOSA	85% 20-150%
	d3-MeFOSA	97% 20-150%
	d5-EtFOSA	102% 20-150%
	d3-MeFOSAA	107% 20-150%
	d5-EtFOSAA	108% 20-150%
	d7-MeFOSE	80% 20-150%
	d9-EtFOSE	81% 20-150%
	13C2-4:2FTS	122% 20-150%
	13C2-6:2FTS	119% 20-150%
	13C2-8:2FTS	119% 20-150%
	13C3-HFPO-DA	103% 20-150%

Continuing Calibration Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q622-ICCB	4Q43064.D	1	04/15/23	MV	n/a	n/a	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q622-ICCB	4Q43064.D	1	04/15/23	MV	n/a	n/a	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	103% 20-150%
	13C5-PFPeA	105% 20-150%
	13C5-PFHxA	102% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	96% 20-150%
	13C9-PFNA	102% 20-150%
	13C6-PFDA	93% 20-150%
	13C7-PFUnDA	97% 20-150%
	13C2-PFDoDA	92% 20-150%
	13C2-PFTeDA	87% 20-150%
	13C3-PFBS	105% 20-150%
	13C3-PFHxS	107% 20-150%
	13C8-PFOS	97% 20-150%
	13C8-FOSA	83% 20-150%
	d3-MeFOSA	89% 20-150%
	d5-EtFOSA	92% 20-150%
	d3-MeFOSAA	102% 20-150%
	d5-EtFOSAA	105% 20-150%
	d7-MeFOSE	73% 20-150%
	d9-EtFOSE	75% 20-150%
	13C2-4:2FTS	108% 20-150%
	13C2-6:2FTS	121% 20-150%
	13C2-8:2FTS	108% 20-150%
	13C3-HFPO-DA	101% 20-150%

Continuing Calibration Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q622-ICCB	4Q43074.D	1	04/15/23	MV	n/a	n/a	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q622-ICCB	4Q43074.D	1	04/15/23	MV	n/a	n/a	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	105% 20-150%
	13C5-PFPeA	100% 20-150%
	13C5-PFHxA	99% 20-150%
	13C4-PFHpA	100% 20-150%
	13C8-PFOA	98% 20-150%
	13C9-PFNA	90% 20-150%
	13C6-PFDA	103% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	92% 20-150%
	13C3-PFBS	100% 20-150%
	13C3-PFHxS	96% 20-150%
	13C8-PFOS	102% 20-150%
	13C8-FOSA	86% 20-150%
	d3-MeFOSA	95% 20-150%
	d5-EtFOSA	100% 20-150%
	d3-MeFOSAA	108% 20-150%
	d5-EtFOSAA	113% 20-150%
	d7-MeFOSE	79% 20-150%
	d9-EtFOSE	80% 20-150%
	13C2-4:2FTS	116% 20-150%
	13C2-6:2FTS	117% 20-150%
	13C2-8:2FTS	110% 20-150%
	13C3-HFPO-DA	99% 20-150%

Continuing Calibration Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q622-ICCB	4Q43078.D	1	04/15/23	MV	n/a	n/a	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q622-ICCB	4Q43078.D	1	04/15/23	MV	n/a	n/a	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	103% 20-150%
	13C5-PFPeA	102% 20-150%
	13C5-PFHxA	102% 20-150%
	13C4-PFHpA	106% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	99% 20-150%
	13C6-PFDA	99% 20-150%
	13C7-PFUnDA	97% 20-150%
	13C2-PFDoDA	96% 20-150%
	13C2-PFTeDA	86% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	97% 20-150%
	13C8-PFOS	100% 20-150%
	13C8-FOSA	85% 20-150%
	d3-MeFOSA	93% 20-150%
	d5-EtFOSA	98% 20-150%
	d3-MeFOSAA	106% 20-150%
	d5-EtFOSAA	110% 20-150%
	d7-MeFOSE	77% 20-150%
	d9-EtFOSE	77% 20-150%
	13C2-4:2FTS	121% 20-150%
	13C2-6:2FTS	116% 20-150%
	13C2-8:2FTS	104% 20-150%
	13C3-HFPO-DA	101% 20-150%

Continuing Calibration Blank

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q624-ICCB	4Q43162.D	1	04/18/23	MV	n/a	n/a	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-3

CAS No.	Compound	Result	RL	MDL	Units	Q
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CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	103% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	101% 20-150%
	13C4-PFHpA	106% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	101% 20-150%
	13C6-PFDA	102% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	88% 20-150%
	13C3-PFBS	103% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	100% 20-150%
	13C8-FOSA	86% 20-150%
	d3-MeFOSAA	111% 20-150%
	d5-EtFOSAA	111% 20-150%
	13C2-4:2FTS	123% 20-150%
	13C2-6:2FTS	116% 20-150%
	13C2-8:2FTS	117% 20-150%

6.1.6

6

Method Blank Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-MB	4Q43067.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	0.00064	0.0050	0.00050	ug/l	J
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

Method Blank Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-MB	4Q43067.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	114% 20-150%
	13C5-PFPeA	113% 20-150%
	13C5-PFHxA	113% 20-150%
	13C4-PFHpA	115% 20-150%
	13C8-PFOA	111% 20-150%
	13C9-PFNA	100% 20-150%
	13C6-PFDA	120% 20-150%
	13C7-PFUnDA	111% 20-150%
	13C2-PFDoDA	101% 20-150%
	13C2-PFTeDA	80% 20-150%
	13C3-PFBS	111% 20-150%
	13C3-PFHxS	107% 20-150%
	13C8-PFOS	106% 20-150%
	13C8-FOSA	90% 20-150%
	d3-MeFOSA	89% 20-150%
	d5-EtFOSA	86% 20-150%
	d3-MeFOSAA	110% 20-150%
	d5-EtFOSAA	109% 20-150%
	d7-MeFOSE	76% 20-150%
	d9-EtFOSE	74% 20-150%
	13C2-4:2FTS	130% 20-150%
	13C2-6:2FTS	126% 20-150%
	13C2-8:2FTS	118% 20-150%
	13C3-HFPO-DA	109% 20-150%

6.1.7
6

Blank Spike Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-LLBS	4Q43066.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0329	110	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0170	113	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0086	115	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0087	116	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0080	107	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0075	100	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0084	112	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0080	107	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0080	107	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0076	101	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0082	109	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0073	110	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0090	128	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0074	108	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0087	122	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0081	116	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0079	109	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0078	108	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0068	93	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0307	109	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0352	124	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0350	122	40-150
754-91-6	PFOSA	0.0075	0.0088	117	40-150
31506-32-8	MeFOSA	0.015	0.0154	103	40-150
4151-50-2	EtFOSA	0.015	0.0164	109	40-150
2355-31-9	MeFOSAA	0.0075	0.0075	100	40-150
2991-50-6	EtFOSAA	0.0075	0.0077	103	40-150
24448-09-7	MeFOSE	0.0375	0.0416	111	40-150
1691-99-2	EtFOSE	0.0375	0.0409	109	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0168	112	40-150
919005-14-4	ADONA	0.0142	0.0164	116	40-150
377-73-1	PFMPA	0.015	0.0169	113	40-150
863090-89-5	PFMBA	0.015	0.0166	111	40-150
151772-58-6	NFDHA	0.015	0.0188	125	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0153	109	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0156	110	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-LLBS	4Q43066.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0149	112	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0387	103	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.218	116	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.216	115	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	113%	20-150%
	13C5-PFPeA	114%	20-150%
	13C5-PFHxA	113%	20-150%
	13C4-PFHpA	115%	20-150%
	13C8-PFOA	109%	20-150%
	13C9-PFNA	113%	20-150%
	13C6-PFDA	111%	20-150%
	13C7-PFUnDA	109%	20-150%
	13C2-PFDoDA	95%	20-150%
	13C2-PFTeDA	77%	20-150%
	13C3-PFBS	119%	20-150%
	13C3-PFHxS	116%	20-150%
	13C8-PFOS	114%	20-150%
	13C8-FOSA	89%	20-150%
	d3-MeFOSA	91%	20-150%
	d5-EtFOSA	91%	20-150%
	d3-MeFOSAA	112%	20-150%
	d5-EtFOSAA	115%	20-150%
	d7-MeFOSE	78%	20-150%
	d9-EtFOSE	78%	20-150%
	13C2-4:2FTS	138%	20-150%
	13C2-6:2FTS	132%	20-150%
	13C2-8:2FTS	127%	20-150%
	13C3-HFPO-DA	109%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-BS	4Q43065.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.107	107	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0562	112	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0274	110	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0285	114	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0261	104	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0284	114	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0283	113	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0257	103	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0280	112	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0259	104	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0275	110	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0238	107	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0277	118	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0248	109	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0276	116	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0244	105	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0259	108	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0246	102	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0230	95	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.102	109	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.105	111	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.102	106	40-150
754-91-6	PFOSA	0.025	0.0275	110	40-150
31506-32-8	MeFOSA	0.05	0.0547	109	40-150
4151-50-2	EtFOSA	0.05	0.0546	109	40-150
2355-31-9	MeFOSAA	0.025	0.0268	107	40-150
2991-50-6	EtFOSAA	0.025	0.0292	117	40-150
24448-09-7	MeFOSE	0.125	0.134	107	40-150
1691-99-2	EtFOSE	0.125	0.140	112	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0549	110	40-150
919005-14-4	ADONA	0.0473	0.0547	116	40-150
377-73-1	PFMPA	0.05	0.0559	112	40-150
863090-89-5	PFMBA	0.05	0.0565	113	40-150
151772-58-6	NFDHA	0.05	0.0588	118	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0501	107	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0507	107	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-BS	4Q43065.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0492	111	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.130	104	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.717	115	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.719	115	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	120%	20-150%
	13C5-PFPeA	119%	20-150%
	13C5-PFHxA	119%	20-150%
	13C4-PFHpA	118%	20-150%
	13C8-PFOA	119%	20-150%
	13C9-PFNA	108%	20-150%
	13C6-PFDA	112%	20-150%
	13C7-PFUnDA	107%	20-150%
	13C2-PFDoDA	96%	20-150%
	13C2-PFTeDA	81%	20-150%
	13C3-PFBS	121%	20-150%
	13C3-PFHxS	120%	20-150%
	13C8-PFOS	104%	20-150%
	13C8-FOSA	82%	20-150%
	d3-MeFOSA	81%	20-150%
	d5-EtFOSA	83%	20-150%
	d3-MeFOSAA	100%	20-150%
	d5-EtFOSAA	101%	20-150%
	d7-MeFOSE	74%	20-150%
	d9-EtFOSE	72%	20-150%
	13C2-4:2FTS	128%	20-150%
	13C2-6:2FTS	137%	20-150%
	13C2-8:2FTS	133%	20-150%
	13C3-HFPO-DA	116%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-MS	4Q43071.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622
FC5088-3	4Q43070.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622
FC5088-3 ^a	4Q43166.D	1	04/18/23	MV	04/12/23	OP96368	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	FC5088-3 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.018 U	0.0926	0.0869	94	40-150
2706-90-3	Perfluoropentanoic acid	0.0088 U	0.0463	0.0575	124	40-150
307-24-4	Perfluorohexanoic acid	0.0044 U	0.0231	0.0282	122	40-150
375-85-9	Perfluoroheptanoic acid	0.0044 U	0.0231	0.0289	125	40-150
335-67-1	Perfluorooctanoic acid	0.0044 U	0.0231	0.0287	124	40-150
375-95-1	Perfluorononanoic acid	0.0044 U	0.0231	0.0285	123	40-150
335-76-2	Perfluorodecanoic acid	0.0044 U	0.0231	0.0272	118	40-150
2058-94-8	Perfluoroundecanoic acid	0.0044 U	0.0231	0.0270	117	40-150
307-55-1	Perfluorododecanoic acid	0.0044 U	0.0231	0.0299	129	40-150
72629-94-8	Perfluorotridecanoic acid	0.0044 U	0.0231	0.0236	102	40-150
376-06-7	Perfluorotetradecanoic acid	0.0044 U	0.0231	0.0297	128	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0044 U	0.0205	0.0263	128	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0044 U	0.0218	0.0286	131	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0044 U	0.0212	0.0277	131	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0044 U	0.0221	0.0263	119	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0044 U	0.0215	0.0267	124	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0044 U	0.0223	0.0273	123	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0044 U	0.0223	0.0313	140	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0044 U	0.0225	0.0175	78	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0868	0.109	126	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.088	0.107	122	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0889	0.119	134	40-150
754-91-6	PFOSA	0.0044 U	0.0231	0.0274	118	40-150
31506-32-8	MeFOSA	0.0044 U	0.0463	0.0532	115	40-150
4151-50-2	EtFOSA	0.0044 U	0.0463	0.0578	125	40-150
2355-31-9	MeFOSAA	0.0044 U	0.0231	0.0268	116	40-150
2991-50-6	EtFOSAA	0.0044 U	0.0231	0.0287	124	40-150
24448-09-7	MeFOSE	0.044 U	0.116	0.137	118	40-150
1691-99-2	EtFOSE	0.044 U	0.116	0.146	126	40-150
13252-13-6	HFPO-DA (GenX)	0.018 U	0.0463	0.0550	119	40-150
919005-14-4	ADONA	0.018 U	0.0438	0.0589	135	40-150
377-73-1	PFMPA	0.0088 U	0.0463	0.0078	17*	40-150
863090-89-5	PFMBA	0.0088 U	0.0463	0.102	220*	40-150
151772-58-6	NFDHA	0.0088 U	0.0463	0.0524	113	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018 U	0.0433	0.0548	127	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018 U	0.0438	0.0496	113	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-MS	4Q43071.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622
FC5088-3	4Q43070.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622
FC5088-3 ^a	4Q43166.D	1	04/18/23	MV	04/12/23	OP96368	S4Q624

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	FC5088-3 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0088 U	0.0412	0.0515	125	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.022 U	0.116	0.0734	63	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.11 U	0.579	0.869	150	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.11 U	0.579	0.768	133	40-150

CAS No.	ID Standard Recoveries	MS	FC5088-3	FC5088-3	Limits
	13C4-PFBA	2%*	2%* b	2%* b	20-150%
	13C5-PFPeA	41%	43%	43%	20-150%
	13C5-PFHxA	101%	111%	112%	20-150%
	13C4-PFHpA	104%	112%	119%	20-150%
	13C8-PFOA	103%	109%	110%	20-150%
	13C9-PFNA	99%	108%	107%	20-150%
	13C6-PFDA	104%	109%	113%	20-150%
	13C7-PFUnDA	101%	105%	109%	20-150%
	13C2-PFDoDA	87%	92%	96%	20-150%
	13C2-PFTeDA	55%	69%	73%	20-150%
	13C3-PFBS	104%	102%	103%	20-150%
	13C3-PFHxS	103%	101%	102%	20-150%
	13C8-PFOS	106%	117%	116%	20-150%
	13C8-FOSA	101%	111%	116%	20-150%
	d3-MeFOSA	111%	127%	131%	20-150%
	d5-EtFOSA	107%	128%	132%	20-150%
	d3-MeFOSAA	126%	136%	145%	20-150%
	d5-EtFOSAA	125%	142%	151%* b	20-150%
	d7-MeFOSE	74%	93%	98%	20-150%
	d9-EtFOSE	72%	93%	96%	20-150%
	13C2-4:2FTS	134%	139%	135%	20-150%
	13C2-6:2FTS	109%	107%	96%	20-150%
	13C2-8:2FTS	107%	111%	110%	20-150%
	13C3-HFPO-DA	97%	104%	108%	20-150%

(a) Confirmation run.

(b) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-DUP	4Q43076.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622
FC5088-5	4Q43075.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	FC5088-5		DUP		Q	RPD	Limits
		ug/l	Q	ug/l	Q			
375-22-4	Perfluorobutanoic acid	0.0047	J	0.0050	J	6	30	
2706-90-3	Perfluoropentanoic acid	0.0079	J	0.0083	J	5	30	
307-24-4	Perfluorohexanoic acid	0.0041	J	0.0045	J	9	30	
375-85-9	Perfluoroheptanoic acid	0.00092	J	0.0013	J	34*	30	
335-67-1	Perfluorooctanoic acid	0.0046	U	ND		nc	30	
375-95-1	Perfluorononanoic acid	0.0046	U	ND		nc	30	
335-76-2	Perfluorodecanoic acid	0.0046	U	ND		nc	30	
2058-94-8	Perfluoroundecanoic acid	0.0046	U	ND		nc	30	
307-55-1	Perfluorododecanoic acid	0.0046	U	ND		nc	30	
72629-94-8	Perfluorotridecanoic acid	0.0046	U	ND		nc	30	
376-06-7	Perfluorotetradecanoic acid	0.0046	U	ND		nc	30	
375-73-5	Perfluorobutanesulfonic acid	0.0046	U	ND		nc	30	
2706-91-4	Perfluoropentanesulfonic acid	0.0046	U	ND		nc	30	
355-46-4	Perfluorohexanesulfonic acid	0.0046	U	ND		nc	30	
375-92-8	Perfluoroheptanesulfonic acid	0.0046	U	ND		nc	30	
1763-23-1	Perfluorooctanesulfonic acid	0.0046	U	ND		nc	30	
68259-12-1	Perfluorononanesulfonic acid	0.0046	U	ND		nc	30	
335-77-3	Perfluorodecanesulfonic acid	0.0046	U	ND		nc	30	
79780-39-5	Perfluorododecanesulfonic aci	0.0046	U	ND		nc	30	
757124-72-44:2	Fluorotelomer sulfonate	0.019	U	ND		nc	30	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0192		0.0187		3	30	
39108-34-4	8:2 Fluorotelomer sulfonate	0.019	U	ND		nc	30	
754-91-6	PFOSA	0.0046	U	ND		nc	30	
31506-32-8	MeFOSA	0.0046	U	ND		nc	30	
4151-50-2	EtFOSA	0.0046	U	ND		nc	30	
2355-31-9	MeFOSAA	0.0046	U	ND		nc	30	
2991-50-6	EtFOSAA	0.0046	U	ND		nc	30	
24448-09-7	MeFOSE	0.046	U	ND		nc	30	
1691-99-2	EtFOSE	0.046	U	ND		nc	30	
13252-13-6	HFPO-DA (GenX)	0.019	U	ND		nc	30	
919005-14-4	ADONA	0.019	U	ND		nc	30	
377-73-1	PFMPA	0.0093	U	ND		nc	30	
863090-89-5	PFMBA	0.0093	U	ND		nc	30	
151772-58-6	NFDHA	0.0093	U	ND		nc	30	
756426-58-19	Cl-PF3ONS (F-53B Major)	0.019	U	ND		nc	30	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.019	U	ND		nc	30	

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96368-DUP	4Q43076.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622
FC5088-5	4Q43075.D	1	04/15/23	MV	04/12/23	OP96368	S4Q622

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5088-1, FC5088-2, FC5088-3, FC5088-4, FC5088-5

CAS No.	Compound	FC5088-5 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0093	U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.023	U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.12	U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.12	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC5088-5	Limits
	13C4-PFBA	111%	114%	20-150%
	13C5-PFPeA	107%	110%	20-150%
	13C5-PFHxA	109%	112%	20-150%
	13C4-PFHpA	110%	113%	20-150%
	13C8-PFOA	107%	110%	20-150%
	13C9-PFNA	98%	100%	20-150%
	13C6-PFDA	101%	103%	20-150%
	13C7-PFUnDA	78%	83%	20-150%
	13C2-PFDoDA	53%	68%	20-150%
	13C2-PFTeDA	43%	48%	20-150%
	13C3-PFBS	108%	109%	20-150%
	13C3-PFHxS	116%	109%	20-150%
	13C8-PFOS	97%	94%	20-150%
	13C8-FOSA	85%	85%	20-150%
	d3-MeFOSA	73%	84%	20-150%
	d5-EtFOSA	70%	80%	20-150%
	d3-MeFOSAA	94%	101%	20-150%
	d5-EtFOSAA	88%	102%	20-150%
	d7-MeFOSE	59%	67%	20-150%
	d9-EtFOSE	60%	66%	20-150%
	13C2-4:2FTS	121%	123%	20-150%
	13C2-6:2FTS	128%	114%	20-150%
	13C2-8:2FTS	96%	93%	20-150%
	13C3-HFPO-DA	105%	108%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q622-CC621	Injection Date:	04/15/23
Lab File ID:	4Q43062.D	Injection Time:	17:54
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	67344	3.02	52056	5.66	44133	7.25	22333	7.81	17813	8.32
Check Std ^c	77615	2.99	54866	5.65	48448	7.23	23962	7.78	18642	8.29
Upper Limit ^d	134688	3.39	104112	6.05	88266	7.63	44666	8.18	35626	8.69
Lower Limit ^e	20203	2.59	15617	5.25	13240	6.83	6700	7.38	5344	7.89

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S4Q622-ICCB	76132	2.99	52539	5.65	48663	7.23	23351	7.77	18777	8.29	1
OP96368-BS	54075	3.00	36686	5.65	32654	7.23	16799	7.77	12833	8.29	1
OP96368-LLBS	58892	3.02	38852	5.65	35126	7.23	16865	7.77	13446	8.29	1
OP96368-MB	56157	3.00	37370	5.65	33201	7.23	18091	7.77	12414	8.29	1
FC5088-1	42979	3.00	39679	5.65	34398	7.23	16802	7.78	13577	8.29	1
FC5088-2	57252	3.00	37625	5.65	34684	7.23	17190	7.78	13441	8.29	1
FC5088-3	55575	3.00	39569	5.65	34435	7.23	17733	7.78	14436	8.28	1
OP96368-MS	57008	3.00	40312	5.65	34137	7.23	17640	7.77	13868	8.28	1
FC5088-4	59772	3.00	40019	5.65	36318	7.23	18975	7.78	13019	8.29	1

- IS 1 = 13C3-PFBA
- IS 2 = 13C2-PFHxA
- IS 3 = 13C4-PFOA
- IS 4 = 13C5-PFNA
- IS 5 = 13C2-PFDA

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q622-CC621	Injection Date:	04/15/23
Lab File ID:	4Q43062.D	Injection Time:	17:54
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5630	7.35	11686	8.47
Check Std ^c	5953	7.33	12651	8.44
Upper Limit ^d	11260	7.73	23372	8.84
Lower Limit ^e	1689	6.93	3506	8.04

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S4Q622-ICCB	5700	7.33	12666	8.44	1
OP96368-BS	3983	7.33	9145	8.44	1
OP96368-LLBS	4076	7.33	8552	8.44	1
OP96368-MB	4166	7.33	8702	8.44	1
FC5088-1	4178	7.33	9285	8.44	1
FC5088-2	4256	7.33	8527	8.44	1
FC5088-3	4463	7.33	7480	8.43	1
OP96368-MS	4182	7.33	7991	8.43	1
FC5088-4	4385	7.33	9455	8.44	1

IS 6 = 18O2-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q622-CC621	Injection Date:	04/15/23
Lab File ID:	4Q43073.D	Injection Time:	20:28
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	67344	3.02	52056	5.66	44133	7.25	22333	7.81	17813	8.32
Check Std ^c	78984	2.99	54446	5.65	47246	7.23	24492	7.78	18422	8.29
Upper Limit ^d	134688	3.39	104112	6.05	88266	7.63	44666	8.18	35626	8.69
Lower Limit ^e	20203	2.59	15617	5.25	13240	6.83	6700	7.38	5344	7.89

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S4Q622-ICCB	78754	2.99	54798	5.65	49444	7.23	25361	7.77	18206	8.29	1
FC5088-5	60057	3.00	40597	5.65	34148	7.23	18189	7.77	13969	8.29	1
OP96368-DUP	57730	3.02	38286	5.65	32452	7.23	17360	7.78	13172	8.29	1
S4Q622-ECC621	79459	2.99	53510	5.63	46803	7.23	23863	7.78	19161	8.28	1

- IS 1 = 13C3-PFBA
- IS 2 = 13C2-PFHxA
- IS 3 = 13C4-PFOA
- IS 4 = 13C5-PFNA
- IS 5 = 13C2-PFDA

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2
6

Injection Standard Area Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q622-CC621	Injection Date:	04/15/23
Lab File ID:	4Q43073.D	Injection Time:	20:28
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5630	7.35	11686	8.47
Check Std ^c	5819	7.33	12501	8.44
Upper Limit ^d	11260	7.73	23372	8.84
Lower Limit ^e	1689	6.93	3506	8.04

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S4Q622-ICCB	6001	7.33	12150	8.44	1
FC5088-5	4472	7.33	9248	8.44	1
OP96368-DUP	4077	7.33	8542	8.44	1
S4Q622-ECC621	5756	7.33	12216	8.44	1

IS 6 = 18O2-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICCB 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2
6

Injection Standard Area Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43149.D	Injection Time:	11:26
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	67344	3.02	52056	5.66	44133	7.25	22333	7.81	17813	8.32
Check Std ^c	73315	2.97	51832	5.62	45562	7.21	23741	7.76	18679	8.27
Upper Limit ^d	134688	3.37	104112	6.02	88266	7.61	44666	8.16	35626	8.67
Lower Limit ^e	20203	2.57	15617	5.22	13240	6.81	6700	7.36	5344	7.87

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
ZZZZZZ	29429	2.93	43784	5.62	37726	7.21	17223	7.76	15225	8.25	1
ZZZZZZ	61680	2.99	48980	5.62	41040	7.21	16350	7.76	15620	8.27	10
FC5088-1 ^f	54370	2.99	38475	5.62	33335	7.21	15400	7.76	11225	8.27	5
OP96403-BS	60071	3.00	41068	5.63	36330	7.21	17955	7.76	14000	8.27	1
OP96403-LLBS	57388	3.08	36717	5.65	33259	7.23	16782	7.77	13310	8.27	1
OP96403-MB	61368	3.00	40808	5.62	36064	7.21	17607	7.76	14626	8.27	1
ZZZZZZ	58851	3.00	39279	5.62	34778	7.21	17289	7.76	12876	8.27	1
ZZZZZZ	57655	3.00	37678	5.62	33874	7.21	17154	7.76	12995	8.27	1
FC5194-1	58532	3.00	37514	5.62	33909	7.21	17093	7.76	13396	8.27	1
OP96403-MS	56698	3.00	37805	5.62	33659	7.21	17409	7.76	12396	8.25	1

IS 1 = 13C3-PFBA
 IS 2 = 13C2-PFHxA
 IS 3 = 13C4-PFOA
 IS 4 = 13C5-PFNA
 IS 5 = 13C2-PFDA

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Dilution required (ID recovery standard failure). Confirmation run.

6.5.3
6

Injection Standard Area Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43149.D	Injection Time:	11:26
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5630	7.35	11686	8.47
Check Std ^c	5988	7.32	12080	8.42
Upper Limit ^d	11260	7.72	23372	8.82
Lower Limit ^e	1689	6.92	3506	8.02

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
ZZZZZZ	4743	7.32	9204	8.41	1
ZZZZZZ	4360	7.30	10320	8.43	10
FC5088-1 ^f	3660	7.32	9965	8.42	5
OP96403-BS	4584	7.32	9488	8.42	1
OP96403-LLBS	4273	7.33	8468	8.43	1
OP96403-MB	4392	7.32	9384	8.42	1
ZZZZZZ	4297	7.32	9159	8.42	1
ZZZZZZ	4190	7.32	8820	8.42	1
FC5194-1	4166	7.32	9411	8.43	1
OP96403-MS	4095	7.32	8664	8.40	1

IS 6 = 18O2-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Dilution required (ID recovery standard failure). Confirmation run.

6.5.3
6

Injection Standard Area Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43161.D	Injection Time:	14:29
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	67344	3.02	52056	5.66	44133	7.25	22333	7.81	17813	8.32
Check Std ^c	79564	3.07	53192	5.65	46011	7.21	23837	7.77	17318	8.27
Upper Limit ^d	134688	3.47	104112	6.05	88266	7.61	44666	8.17	35626	8.67
Lower Limit ^e	20203	2.67	15617	5.25	13240	6.81	6700	7.37	5344	7.87

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S4Q624-ICCB	85940	2.97	59268	5.62	52922	7.21	27538	7.76	20294	8.27	1
FC5194-2	36316	2.99	36225	5.62	31137	7.21	15314	7.76	11882	8.27	1
OP96403-DUP	37761	2.99	37445	5.62	33249	7.21	16882	7.76	13541	8.27	1
ZZZZZZ	55756	2.99	37963	5.63	34325	7.21	17758	7.76	13843	8.27	1
FC5088-3 ^f	58365	3.00	39022	5.63	34300	7.21	17578	7.76	13865	8.27	1
OP96427-BS	54970	2.99	37325	5.63	33625	7.21	16477	7.77	13102	8.27	1
OP96427-LLBS	59288	2.99	38118	5.63	35752	7.21	17857	7.77	14225	8.28	1
OP96427-MB	54181	2.99	35889	5.63	32066	7.21	16470	7.77	12627	8.28	1
ZZZZZZ	54671	3.00	34992	5.63	32577	7.21	15911	7.77	12497	8.28	1
FC5252-2	55919	3.00	36999	5.63	33529	7.21	16520	7.77	12499	8.28	1
OP96427-MS	53038	3.00	34835	5.63	31292	7.21	15481	7.77	12270	8.28	1

- IS 1 = 13C3-PFBA
- IS 2 = 13C2-PFHxA
- IS 3 = 13C4-PFOA
- IS 4 = 13C5-PFNA
- IS 5 = 13C2-PFDA

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Confirmation run.

6.5.4
6

Injection Standard Area Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q624-CC621	Injection Date:	04/18/23
Lab File ID:	4Q43161.D	Injection Time:	14:29
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5630	7.35	11686	8.47
Check Std ^c	5651	7.33	12210	8.43
Upper Limit ^d	11260	7.73	23372	8.83
Lower Limit ^e	1689	6.93	3506	8.03

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S4Q624-ICCB	6417	7.32	13327	8.42	1
FC5194-2	3991	7.32	8072	8.43	1
OP96403-DUP	4033	7.32	8733	8.42	1
ZZZZZZ	4244	7.32	9087	8.43	1
FC5088-3 ^f	4476	7.32	7256	8.40	1
OP96427-BS	4401	7.32	8308	8.43	1
OP96427-LLBS	4376	7.32	8997	8.43	1
OP96427-MB	3878	7.32	8658	8.43	1
ZZZZZZ	4122	7.32	8548	8.43	1
FC5252-2	3994	7.32	8877	8.43	1
OP96427-MS	3800	7.32	7841	8.43	1

IS 6 = 18O2-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q621-ICC621 4Q42939.D 04/14/23 12:41. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to + 100% of initial cal area.
- (d) Upper Limit = + 100% of initial standard area; Retention time + 0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.
- (f) Confirmation run.

6.5.4
6

TDCA Retention Time Check

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q621-RT	Injection Date:	04/14/23
Lab File ID:	4Q42933.D	Injection Time:	11:07
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.456	--	--
TDCA	6.947	1.509	1.000
TCDCA	6.798	1.658	1.000
TUDCA	5.966	2.490	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q621-IC621	4Q42935.D	04/14/23	11:35	00:28	Mass Calibration Verification
S4Q621-IC621	4Q42936.D	04/14/23	11:49	00:42	Initial cal 1
S4Q621-IC621	4Q42937.D	04/14/23	12:04	00:57	Initial cal 2
S4Q621-IC621	4Q42938.D	04/14/23	12:27	01:20	Initial cal 3
S4Q621-ICC621	4Q42939.D	04/14/23	12:41	01:34	Initial cal 4
S4Q621-IC621	4Q42940.D	04/14/23	12:55	01:48	Initial cal 5
S4Q621-IC621	4Q42941.D	04/14/23	13:09	02:02	Initial cal 6
S4Q621-IC621	4Q42942.D	04/14/23	13:23	02:16	Initial cal 7
S4Q621-IC621	4Q42943.D	04/14/23	13:37	02:30	Initial cal 8
S4Q621-IBLK	4Q42944.D	04/14/23	13:51	02:44	Instrument Blank
S4Q621-IBLK	4Q42944.D	04/14/23	13:51	02:44	Instrument Blank
S4Q621-ICV621	4Q42945.D	04/14/23	14:05	02:58	Initial cal verification 4
S4Q621-ICV621	4Q42946.D	04/14/23	14:19	03:12	Initial cal verification 20
S4Q621-CC621	4Q42947.D	04/14/23	14:57	03:50	Continuing cal 4
S4Q621-CC621	4Q42948.D	04/14/23	15:11	04:04	Continuing cal 1.0LL
S4Q621-CC621	4Q42954.D	04/14/23	16:36	05:29	Continuing cal 4
S4Q621-ICCB	4Q42955.D	04/14/23	16:50	05:43	Continuing Calibration Blank
S4Q621-CC621	4Q42966.D	04/14/23	19:24	08:17	Continuing cal 4
S4Q621-ICCB	4Q42967.D	04/14/23	19:38	08:31	Continuing Calibration Blank
S4Q621-CC621	4Q42978.D	04/14/23	22:13	11:06	Continuing cal 4
S4Q621-CC621	4Q42979.D	04/14/23	22:27	11:20	Continuing cal 1.0LL
S4Q621-ICCB	4Q42980.D	04/14/23	22:41	11:34	Continuing Calibration Blank
OP96297-BS	4Q42984.D	04/14/23	23:37	12:30	Blank Spike
OP96297-LLBS	4Q42985.D	04/14/23	23:52	12:45	Blank Spike
OP96297-MB	4Q42986.D	04/15/23	00:06	12:59	Method Blank
ZZZZZZ	4Q42987.D	04/15/23	00:20	13:13	(unrelated sample)
ZZZZZZ	4Q42988.D	04/15/23	00:34	13:27	(unrelated sample)
ZZZZZZ	4Q42989.D	04/15/23	00:48	13:41	(unrelated sample)
ZZZZZZ	4Q42990.D	04/15/23	01:02	13:55	(unrelated sample)
S4Q621-CC621	4Q42991.D	04/15/23	01:16	14:09	Continuing cal 4
S4Q621-ICCB	4Q42992.D	04/15/23	01:30	14:23	Continuing Calibration Blank
FC3790-5	4Q42993.D	04/15/23	01:44	14:37	(used for QC only; not part of job FC5088)
OP96297-MS	4Q42994.D	04/15/23	01:58	14:51	Matrix Spike
OP96297-MSD	4Q42995.D	04/15/23	02:12	15:05	Matrix Spike Duplicate

TDCA Retention Time Check

Job Number: FC5088
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-RT	Injection Date: 04/14/23
Lab File ID: 4Q42933.D	Injection Time: 11:07
Instrument ID: GCMS4Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
FC3757-19	4Q42998.D	04/15/23	02:54	15:47	(used for QC only; not part of job FC5088)
OP96301-DUP	4Q42999.D	04/15/23	03:08	16:01	Duplicate
ZZZZZZ	4Q43000.D	04/15/23	03:22	16:15	(unrelated sample)
ZZZZZZ	4Q43001.D	04/15/23	03:36	16:29	(unrelated sample)
S4Q621-ECC621	4Q43002.D	04/15/23	03:50	16:43	Ending cal 4
S4Q621-ICCB	4Q43003.D	04/15/23	04:04	16:57	Continuing Calibration Blank

6.6.1

6

TDCA Retention Time Check

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q622-RT	Injection Date:	04/15/23
Lab File ID:	4Q43006.D	Injection Time:	04:47
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.443	--	--
TDCA	6.947	1.496	1.000
TCDCA	6.786	1.657	1.000
TUDCA	5.954	2.489	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q622-IBLK	4Q43009.D	04/15/23	05:29	00:42	Instrument Blank
S4Q622-IBLK	4Q43009.D	04/15/23	05:29	00:42	Instrument Blank
S4Q622-CC621	4Q43010.D	04/15/23	05:43	00:56	Continuing cal 4
S4Q622-CC621	4Q43011.D	04/15/23	05:57	01:10	Continuing cal 1.0LL
OP96322-BS	4Q43012.D	04/15/23	06:11	01:24	Blank Spike
OP96322-LLBS	4Q43013.D	04/15/23	06:25	01:38	Blank Spike
OP96322-MB	4Q43014.D	04/15/23	06:39	01:52	Method Blank
ZZZZZZ	4Q43015.D	04/15/23	06:53	02:06	(unrelated sample)
ZZZZZZ	4Q43016.D	04/15/23	07:07	02:20	(unrelated sample)
ZZZZZZ	4Q43017.D	04/15/23	07:21	02:34	(unrelated sample)
ZZZZZZ	4Q43018.D	04/15/23	07:35	02:48	(unrelated sample)
ZZZZZZ	4Q43019.D	04/15/23	07:49	03:02	(unrelated sample)
ZZZZZZ	4Q43020.D	04/15/23	08:03	03:16	(unrelated sample)
ZZZZZZ	4Q43021.D	04/15/23	08:17	03:30	(unrelated sample)
S4Q622-CC621	4Q43022.D	04/15/23	08:32	03:45	Continuing cal 4
S4Q622-ICCB	4Q43023.D	04/15/23	08:46	03:59	Continuing Calibration Blank
ZZZZZZ	4Q43024.D	04/15/23	09:00	04:13	(unrelated sample)
ZZZZZZ	4Q43025.D	04/15/23	09:14	04:27	(unrelated sample)
ZZZZZZ	4Q43026.D	04/15/23	09:28	04:41	(unrelated sample)
ZZZZZZ	4Q43027.D	04/15/23	09:42	04:55	(unrelated sample)
S4Q622-CC621	4Q43034.D	04/15/23	11:20	06:33	Continuing cal 4
S4Q622-ICCB	4Q43035.D	04/15/23	11:34	06:47	Continuing Calibration Blank
ZZZZZZ	4Q43036.D	04/15/23	11:48	07:01	(unrelated sample)
ZZZZZZ	4Q43037.D	04/15/23	12:02	07:15	(unrelated sample)
S4Q622-CC621	4Q43038.D	04/15/23	12:16	07:29	Continuing cal 4
S4Q622-ICCB	4Q43039.D	04/15/23	12:30	07:43	Continuing Calibration Blank
OP96371-BS	4Q43040.D	04/15/23	12:45	07:58	Blank Spike
OP96371-LLBS	4Q43041.D	04/15/23	12:59	08:12	Blank Spike
OP96371-MB	4Q43042.D	04/15/23	13:13	08:26	Method Blank
ZZZZZZ	4Q43043.D	04/15/23	13:27	08:40	(unrelated sample)
ZZZZZZ	4Q43044.D	04/15/23	13:41	08:54	(unrelated sample)
ZZZZZZ	4Q43045.D	04/15/23	13:55	09:08	(unrelated sample)
ZZZZZZ	4Q43046.D	04/15/23	14:09	09:22	(unrelated sample)
ZZZZZZ	4Q43047.D	04/15/23	14:23	09:36	(unrelated sample)

TDCA Retention Time Check

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q622-RT	Injection Date:	04/15/23
Lab File ID:	4Q43006.D	Injection Time:	04:47
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q43048.D	04/15/23	14:37	09:50	(unrelated sample)
S4Q622-CC621	4Q43050.D	04/15/23	15:05	10:18	Continuing cal 4
S4Q622-ICCB	4Q43051.D	04/15/23	15:19	10:32	Continuing Calibration Blank
JD63141-9A	4Q43052.D	04/15/23	15:33	10:46	(used for QC only; not part of job FC5088)
OP96371-MS	4Q43053.D	04/15/23	15:47	11:00	Matrix Spike
JD63141-10A	4Q43054.D	04/15/23	16:01	11:14	(used for QC only; not part of job FC5088)
ZZZZZZ	4Q43057.D	04/15/23	16:44	11:57	(unrelated sample)
ZZZZZZ	4Q43058.D	04/15/23	16:58	12:11	(unrelated sample)
ZZZZZZ	4Q43059.D	04/15/23	17:12	12:25	(unrelated sample)
ZZZZZZ	4Q43060.D	04/15/23	17:26	12:39	(unrelated sample)
ZZZZZZ	4Q43061.D	04/15/23	17:40	12:53	(unrelated sample)
S4Q622-CC621	4Q43062.D	04/15/23	17:54	13:07	Continuing cal 4
S4Q622-CC621	4Q43063.D	04/15/23	18:08	13:21	Continuing cal 1.0LL
S4Q622-ICCB	4Q43064.D	04/15/23	18:22	13:35	Continuing Calibration Blank
OP96368-BS	4Q43065.D	04/15/23	18:36	13:49	Blank Spike
OP96368-LLBS	4Q43066.D	04/15/23	18:50	14:03	Blank Spike
OP96368-MB	4Q43067.D	04/15/23	19:04	14:17	Method Blank
FC5088-1	4Q43068.D	04/15/23	19:18	14:31	AF-RHMW17S-WGN01LF-2304W1
FC5088-2	4Q43069.D	04/15/23	19:32	14:45	AF-RHMW17S-WQEB01-2304W1
FC5088-3	4Q43070.D	04/15/23	19:46	14:59	AF-RHMW17D-WGN01LF-2304W1
OP96368-MS	4Q43071.D	04/15/23	20:00	15:13	Matrix Spike
FC5088-4	4Q43072.D	04/15/23	20:14	15:27	AF-RHMW17D-WQFB01-2304W1
S4Q622-CC621	4Q43073.D	04/15/23	20:28	15:41	Continuing cal 4
S4Q622-ICCB	4Q43074.D	04/15/23	20:42	15:55	Continuing Calibration Blank
FC5088-5	4Q43075.D	04/15/23	20:56	16:09	AF-RHMW17-WGN01LF-2304W1
OP96368-DUP	4Q43076.D	04/15/23	21:11	16:24	Duplicate
S4Q622-ECC621	4Q43077.D	04/15/23	21:25	16:38	Ending cal 4
S4Q622-ICCB	4Q43078.D	04/15/23	21:39	16:52	Continuing Calibration Blank

6.6.2
6

TDCA Retention Time Check

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q624-RT	Injection Date:	04/18/23
Lab File ID:	4Q43145.D	Injection Time:	10:28
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.431	--	--
TDCA	6.935	1.496	1.000
TCDCA	6.786	1.645	1.000
TUDCA	5.954	2.477	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q624-IBLK	4Q43148.D	04/18/23	11:12	00:44	Instrument Blank
S4Q624-IBLK	4Q43148.D	04/18/23	11:12	00:44	Instrument Blank
S4Q624-CC621	4Q43149.D	04/18/23	11:26	00:58	Continuing cal 4
S4Q624-CC621	4Q43150.D	04/18/23	11:40	01:12	Continuing cal 1.0LL
ZZZZZ	4Q43151.D	04/18/23	11:54	01:26	(unrelated sample)
ZZZZZ	4Q43152.D	04/18/23	12:08	01:40	(unrelated sample)
FC5088-1	4Q43153.D	04/18/23	12:22	01:54	AF-RHMW17S-WGN01LF-2304W1
OP96403-BS	4Q43154.D	04/18/23	12:36	02:08	Blank Spike
OP96403-LLBS	4Q43155.D	04/18/23	12:54	02:26	Blank Spike
OP96403-MB	4Q43156.D	04/18/23	13:08	02:40	Method Blank
ZZZZZ	4Q43157.D	04/18/23	13:22	02:54	(unrelated sample)
ZZZZZ	4Q43158.D	04/18/23	13:36	03:08	(unrelated sample)
FC5194-1	4Q43159.D	04/18/23	13:50	03:22	(used for QC only; not part of job FC5088)
OP96403-MS	4Q43160.D	04/18/23	14:04	03:36	Matrix Spike
S4Q624-CC621	4Q43161.D	04/18/23	14:29	04:01	Continuing cal 4
S4Q624-ICCB	4Q43162.D	04/18/23	14:43	04:15	Continuing Calibration Blank
FC5194-2	4Q43163.D	04/18/23	14:57	04:29	(used for QC only; not part of job FC5088)
OP96403-DUP	4Q43164.D	04/18/23	15:11	04:43	Duplicate
ZZZZZ	4Q43165.D	04/18/23	15:25	04:57	(unrelated sample)
FC5088-3	4Q43166.D	04/18/23	15:39	05:11	AF-RHMW17D-WGN01LF-2304W1
OP96427-BS	4Q43167.D	04/18/23	15:53	05:25	Blank Spike
OP96427-LLBS	4Q43168.D	04/18/23	16:07	05:39	Blank Spike
OP96427-MB	4Q43169.D	04/18/23	16:21	05:53	Method Blank
ZZZZZ	4Q43170.D	04/18/23	16:35	06:07	(unrelated sample)
FC5252-2	4Q43171.D	04/18/23	16:49	06:21	(used for QC only; not part of job FC5088)
OP96427-MS	4Q43172.D	04/18/23	17:03	06:35	Matrix Spike
S4Q624-CC621	4Q43173.D	04/18/23	17:17	06:49	Continuing cal 4
S4Q624-ICCB	4Q43174.D	04/18/23	17:32	07:04	Continuing Calibration Blank
FC5252-3	4Q43175.D	04/18/23	17:46	07:18	(used for QC only; not part of job FC5088)
OP96427-DUP	4Q43176.D	04/18/23	18:00	07:32	Duplicate
ZZZZZ	4Q43177.D	04/18/23	18:14	07:46	(unrelated sample)
ZZZZZ	4Q43178.D	04/18/23	18:28	08:00	(unrelated sample)
OP96386-BS	4Q43179.D	04/18/23	18:42	08:14	Blank Spike
OP96386-LLBS	4Q43180.D	04/18/23	18:56	08:28	Blank Spike

TDCA Retention Time Check

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q624-RT	Injection Date:	04/18/23
Lab File ID:	4Q43145.D	Injection Time:	10:28
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP96386-MB	4Q43181.D	04/18/23	19:10	08:42	Method Blank
ZZZZZZ	4Q43182.D	04/18/23	19:24	08:56	(unrelated sample)
ZZZZZZ	4Q43183.D	04/18/23	19:38	09:10	(unrelated sample)
S4Q624-CC621	4Q43184.D	04/18/23	19:52	09:24	Continuing cal 4
S4Q624-CC621	4Q43185.D	04/18/23	20:06	09:38	Continuing cal 1.0LL
S4Q624-ICCB	4Q43186.D	04/18/23	20:20	09:52	Continuing Calibration Blank
JD63151-3	4Q43187.D	04/18/23	20:34	10:06	(used for QC only; not part of job FC5088)
OP96386-MS	4Q43188.D	04/18/23	20:48	10:20	Matrix Spike
JD63151-4	4Q43189.D	04/18/23	21:02	10:34	(used for QC only; not part of job FC5088)
OP96386-DUP	4Q43190.D	04/18/23	21:17	10:49	Duplicate
ZZZZZZ	4Q43191.D	04/18/23	21:31	11:03	(unrelated sample)
ZZZZZZ	4Q43192.D	04/18/23	21:45	11:17	(unrelated sample)
ZZZZZZ	4Q43193.D	04/18/23	21:59	11:31	(unrelated sample)
ZZZZZZ	4Q43194.D	04/18/23	22:13	11:45	(unrelated sample)
ZZZZZZ	4Q43195.D	04/18/23	22:27	11:59	(unrelated sample)
S4Q624-CC621	4Q43196.D	04/18/23	22:41	12:13	Continuing cal 4
S4Q624-ICCB	4Q43197.D	04/18/23	22:55	12:27	Continuing Calibration Blank
ZZZZZZ	4Q43198.D	04/18/23	23:09	12:41	(unrelated sample)
ZZZZZZ	4Q43199.D	04/18/23	23:23	12:55	(unrelated sample)
ZZZZZZ	4Q43200.D	04/18/23	23:37	13:09	(unrelated sample)
ZZZZZZ	4Q43201.D	04/18/23	23:51	13:23	(unrelated sample)
ZZZZZZ	4Q43202.D	04/19/23	00:05	13:37	(unrelated sample)
ZZZZZZ	4Q43203.D	04/19/23	00:19	13:51	(unrelated sample)
S4Q624-CC621	4Q43204.D	04/19/23	00:33	14:05	Continuing cal 4
S4Q624-ICCB	4Q43205.D	04/19/23	00:47	14:19	Continuing Calibration Blank
S4Q624-ICCB	4Q43205.D	04/19/23	00:47	14:19	Continuing Calibration Blank
OP96364-BS	4Q43206.D	04/19/23	01:01	14:33	Blank Spike
OP96364-LLBS	4Q43207.D	04/19/23	01:16	14:48	Blank Spike
OP96364-MB	4Q43208.D	04/19/23	01:30	15:02	Method Blank
JD62946-1	4Q43209.D	04/19/23	01:44	15:16	(used for QC only; not part of job FC5088)
OP96364-MS	4Q43210.D	04/19/23	01:58	15:30	Matrix Spike
JD62924-1B	4Q43211.D	04/19/23	02:12	15:44	(used for QC only; not part of job FC5088)
OP96364-DUP	4Q43212.D	04/19/23	02:26	15:58	Duplicate
ZZZZZZ	4Q43213.D	04/19/23	02:40	16:12	(unrelated sample)
ZZZZZZ	4Q43214.D	04/19/23	02:54	16:26	(unrelated sample)
ZZZZZZ	4Q43215.D	04/19/23	03:08	16:40	(unrelated sample)
S4Q624-CC621	4Q43216.D	04/19/23	03:22	16:54	Continuing cal 4
S4Q624-ICCB	4Q43217.D	04/19/23	03:36	17:08	Continuing Calibration Blank
ZZZZZZ	4Q43218.D	04/19/23	03:50	17:22	(unrelated sample)
ZZZZZZ	4Q43219.D	04/19/23	04:04	17:36	(unrelated sample)
ZZZZZZ	4Q43220.D	04/19/23	04:18	17:50	(unrelated sample)
ZZZZZZ	4Q43221.D	04/19/23	04:32	18:04	(unrelated sample)
ZZZZZZ	4Q43222.D	04/19/23	04:46	18:18	(unrelated sample)
ZZZZZZ	4Q43223.D	04/19/23	05:00	18:32	(unrelated sample)

6.6.3

6

TDCA Retention Time Check

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q624-RT	Injection Date:	04/18/23
Lab File ID:	4Q43145.D	Injection Time:	10:28
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q43224.D	04/19/23	05:15	18:47	(unrelated sample)
ZZZZZZ	4Q43225.D	04/19/23	05:29	19:01	(unrelated sample)
ZZZZZZ	4Q43226.D	04/19/23	05:43	19:15	(unrelated sample)
ZZZZZZ	4Q43227.D	04/19/23	05:57	19:29	(unrelated sample)
S4Q624-CC621	4Q43228.D	04/19/23	06:11	19:43	Continuing cal 4
S4Q624-CC621	4Q43229.D	04/19/23	06:25	19:57	Continuing cal 1.0LL
S4Q624-ICCB	4Q43230.D	04/19/23	06:39	20:11	Continuing Calibration Blank
ZZZZZZ	4Q43231.D	04/19/23	06:53	20:25	(unrelated sample)
ZZZZZZ	4Q43232.D	04/19/23	07:07	20:39	(unrelated sample)
ZZZZZZ	4Q43233.D	04/19/23	07:21	20:53	(unrelated sample)
ZZZZZZ	4Q43234.D	04/19/23	07:35	21:07	(unrelated sample)
S4Q624-ECC621	4Q43235.D	04/19/23	07:49	21:21	Ending cal 4
S4Q624-ICCB	4Q43236.D	04/19/23	08:03	21:35	Continuing Calibration Blank

6.6.3

6

Ion Ratio Summary

Job Number: FC5088
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q622	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios (Set 1)		PFHxA	PFHpA	PFOA	PFNA	PFBS
		PFBA	PFPeA					
S4Q621-ICC621	4Q42939.D	0	0	3.2	17.6	20.8	25.5	40.3
FC5088-1	4Q43068.D	0		3.4	19.2	28.4	15.5	41.1
FC5088-2	4Q43069.D							
FC5088-3	4Q43070.D							
FC5088-4	4Q43072.D							
FC5088-5	4Q43075.D	0	0	2.4	24.2			

6.7.1

6

Ion Ratio Summary

Job Number: FC5088
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q622	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios (Set 2)	
		PFOS	6:2FTS
S4Q621-ICC621	4Q42939.D	50.8	44.5
FC5088-1	4Q43068.D	27.4	
FC5088-2	4Q43069.D		
FC5088-3	4Q43070.D		
FC5088-4	4Q43072.D		
FC5088-5	4Q43075.D		39.6

6.7.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC5088-1	4Q43153.D	70	100	104	105	107	110	115	91
FC5088-1	4Q43068.D	72	106	109	110	105	100	107	99
FC5088-2	4Q43069.D	113	118	114	117	113	107	113	102
FC5088-3	4Q43166.D	2* a	43	112	119	110	107	113	109
FC5088-3	4Q43070.D	2* a	43	111	112	109	108	109	105
FC5088-4	4Q43072.D	113	110	111	115	107	101	104	105
FC5088-5	4Q43075.D	114	110	112	113	110	100	103	83
OP96368-BS	4Q43065.D	120	119	119	118	119	108	112	107
OP96368-DUP	4Q43076.D	111	107	109	110	107	98	101	78
OP96368-LLBS	4Q43066.D	113	114	113	115	109	113	111	109
OP96368-MB	4Q43067.D	114	113	113	115	111	100	120	111
OP96368-MS	4Q43071.D	2*	41	101	104	103	99	104	101
S4Q622-IBLK	4Q43009.D	104	103	103	104	98	92	97	95
S4Q622-ICCB	4Q43064.D	103	105	102	104	96	102	93	97
S4Q622-ICCB	4Q43074.D	105	100	99	100	98	90	103	101
S4Q622-ICCB	4Q43078.D	103	102	102	106	100	99	99	97
S4Q624-IBLK	4Q43148.D	103	98	102	104	101	98	103	101
S4Q624-ICCB	4Q43162.D	103	103	101	106	99	101	102	101

Isotope Dilution Standards

Recovery Limits

S1 = 13C4-PFBA	20-150%
S2 = 13C5-PFPeA	20-150%
S3 = 13C5-PFHxA	20-150%
S4 = 13C4-PFHpA	20-150%
S5 = 13C8-PFOA	20-150%
S6 = 13C9-PFNA	20-150%
S7 = 13C6-PFDA	20-150%
S8 = 13C7-PFUnDA	20-150%

(a) Outside control limits.

6.8.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC5088-1	4Q43153.D	88	65	119	122	87	73	69	68
FC5088-1	4Q43068.D	77	56	110	110	100	84	77	77
FC5088-2	4Q43069.D	100	83	112	114	108	94	100	109
FC5088-3	4Q43166.D	96	73	103	102	116	116	131	132
FC5088-3	4Q43070.D	92	69	102	101	117	111	127	128
FC5088-4	4Q43072.D	98	90	109	106	97	82	88	90
FC5088-5	4Q43075.D	68	48	109	109	94	85	84	80
OP96368-BS	4Q43065.D	96	81	121	120	104	82	81	83
OP96368-DUP	4Q43076.D	53	43	108	116	97	85	73	70
OP96368-LLBS	4Q43066.D	95	77	119	116	114	89	91	91
OP96368-MB	4Q43067.D	101	80	111	107	106	90	89	86
OP96368-MS	4Q43071.D	87	55	104	103	106	101	111	107
S4Q622-IBLK	4Q43009.D	92	86	104	107	101	84	100	102
S4Q622-ICCB	4Q43064.D	92	87	105	107	97	83	89	92
S4Q622-ICCB	4Q43074.D	99	92	100	96	102	86	95	100
S4Q622-ICCB	4Q43078.D	96	86	98	97	100	85	93	98
S4Q624-IBLK	4Q43148.D	98	91	104	110	96	85	97	102
S4Q624-ICCB	4Q43162.D	98	88	103	103	100	86		

Isotope Dilution Standards

Recovery Limits

S9 = 13C2-PFDoDA	20-150%
S10 = 13C2-PFTeDA	20-150%
S11 = 13C3-PFBS	20-150%
S12 = 13C3-PFHxS	20-150%
S13 = 13C8-PFOS	20-150%
S14 = 13C8-FOSA	20-150%
S15 = d3-MeFOSA	20-150%
S16 = d5-EtFOSA	20-150%

6.8.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S17	S18	S19	S20	S21	S22	S23	S24
FC5088-1	4Q43153.D	81	89	60	54	105	107	120	107
FC5088-1	4Q43068.D	97	88	63	60	155* a	102	98	102
FC5088-2	4Q43069.D	111	116	87	86	129	121	113	109
FC5088-3	4Q43166.D	145	151* a	98	96	135	96	110	108
FC5088-3	4Q43070.D	136	142	93	93	139	107	111	104
FC5088-4	4Q43072.D	105	102	74	74	124	129	118	107
FC5088-5	4Q43075.D	101	102	67	66	123	114	93	108
OP96368-BS	4Q43065.D	100	101	74	72	128	137	133	116
OP96368-DUP	4Q43076.D	94	88	59	60	121	128	96	105
OP96368-LLBS	4Q43066.D	112	115	78	78	138	132	127	109
OP96368-MB	4Q43067.D	110	109	76	74	130	126	118	109
OP96368-MS	4Q43071.D	126	125	74	72	134	109	107	97
S4Q622-IBLK	4Q43009.D	106	107	81	81	112	110	116	104
S4Q622-ICCB	4Q43064.D	102	105	73	75	108	121	108	101
S4Q622-ICCB	4Q43074.D	108	113	79	80	116	117	110	99
S4Q622-ICCB	4Q43078.D	106	110	77	77	121	116	104	101
S4Q624-IBLK	4Q43148.D	107	108	80	81	122	119	119	103
S4Q624-ICCB	4Q43162.D	111	111			123	116	117	

Isotope Dilution Standards

Recovery Limits

S17 = d3-MeFOSAA	20-150%
S18 = d5-EtFOSAA	20-150%
S19 = d7-MeFOSE	20-150%
S20 = d9-EtFOSE	20-150%
S21 = 13C2-4:2FTS	20-150%
S22 = 13C2-6:2FTS	20-150%
S23 = 13C2-8:2FTS	20-150%
S24 = 13C3-HFPO-DA	20-150%

(a) Outside control limits.

6.8.1
6

Initial Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621
 Lab FileID: 4Q42939.D

Initial Calibration Report

Method Path	D:\MassHunter\methods												
Method File	1633_041423_S4Q621.quantmethod.xml												
Batch Name	D:\MassHunter\Data\041423_1633_S4Q621\QuantResults\S4Q621.batch.bin												
Last Calib Update	4/16/2023 3:46:16 PM												
Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d	4/14/2023 11:49:59 AM	4/16/2023 3:46:16 PM										
2	D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d	4/14/2023 12:04:03 PM	4/16/2023 3:46:16 PM										
3	D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d	4/14/2023 12:27:15 PM	4/16/2023 3:46:16 PM										
4	D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d	4/14/2023 12:41:22 PM	4/16/2023 3:46:16 PM										
5	D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d	4/14/2023 12:55:26 PM	4/16/2023 3:46:16 PM										
6	D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d	4/14/2023 1:09:29 PM	4/16/2023 3:46:16 PM										
7	D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d	4/14/2023 1:23:33 PM	4/16/2023 3:46:16 PM										
8	D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d	4/14/2023 1:37:37 PM	4/16/2023 3:46:16 PM										
Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD		
I M4-PFBA	Avg RF	0.2427	0.2070	0.2162	0.2239	0.2248	0.2239	0.2489	0.2396	0.2284	6.215		
T PFBA						ISTD							
I M5-PFPeA	Avg RF	0.4786	0.4346	0.4450	0.4524	0.4620	0.4746	0.5213	0.5179	0.4733	6.773		
T PFMPA	Avg RF	0.0415	0.0405	0.0416	0.0414	0.0428	0.0441	0.0496	0.0513	0.0441	9.285		
T 3:3FTCA	Avg RF	0.9811	0.8647	0.8930	0.9169	0.9349	0.9396	1.0399	1.0016	0.9465	6.131		
T PFPeA	Avg RF	0.5500	0.4937	0.5214	0.5197	0.5302	0.5404	0.5964	0.5776	0.5412	6.120		
T PFMBa						ISTD							
I M5-PFHxA	Avg RF	0.0499	0.0474	0.0514	0.0516	0.0517	0.0503	0.0518	0.0439	0.0497	5.601		
T NFDHA	Avg RF	0.7914	0.7041	0.7043	0.7146	0.7293	0.7284	0.7836	0.7648	0.7401	4.741		
T PFHxA	Avg RF	0.6337	0.5711	0.5970	0.6005	0.6199	0.6261	0.6697	0.6530	0.6214	5.114		
T PFEEsA	Avg RF	0.1041	0.0955	0.1005	0.1030	0.1050	0.1061	0.1120	0.1100	0.1045	4.974		
T 5:3FTCA	Avg RF	0.0431	0.0403	0.0420	0.0424	0.0440	0.0426	0.0451	0.0432	0.0428	3.292		
T 7:3FTCA						ISTD							
I M4-PFHpA	Avg RF	1.2331	1.1038	1.2217	1.1928	1.2406	1.2501	1.4179	1.3171	1.2471	7.327		
T PFHpA						ISTD							
I M8-PFOA	Avg RF	1.4659	1.0136	1.0891	1.0547	1.0821	1.1604	1.2604	1.2181	1.1680	12.537		
T PFOA						ISTD							
I M9-PFNA	Avg RF	0.7786	0.6522	0.6176	0.6101	0.6504	0.6327	0.7335	0.6704	0.6682	8.805		
T PFNA						ISTD							
I M6-PFDA	Avg RF	0.7587	0.6068	0.6721	0.7006	0.7164	0.6982	0.8097	0.7558	0.7148	8.624		
T PFDA						ISTD							
I M7-PFUnDA	Avg RF	0.8588	0.6928	0.6919	0.6409	0.6770	0.6611	0.7345	0.6991	0.7070	9.511		
T PFUnDA						ISTD							
I M2-PFDaDA						ISTD							

Initial Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621
 Lab FileID: 4Q42939.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.8121	0.6982	0.7659	0.7910	0.7988	0.7871	0.8582	0.7944	0.7882	5.718
T PFTfDA	Avg RF	1.2104	0.9816	0.9927	1.0146	1.0134	0.9720	1.0363	0.9043	1.0157	8.675
I M2-PFTeDA	Avg RF	1.0733	0.9483	0.9814	0.9491	0.9831	0.9628	1.0262	0.9493	0.9842	4.529
T PFTeDA	Avg RF	0.8245	0.7537	0.7869	0.7941	0.8017	0.7739	0.8702	0.8348	0.8050	4.595
I M8-FOSA	Avg RF	0.8245	0.7537	0.7869	0.7941	0.8017	0.7739	0.8702	0.8348	0.8050	4.595
T FOSA	Avg RF	0.8245	0.7537	0.7869	0.7941	0.8017	0.7739	0.8702	0.8348	0.8050	4.595
I M3-PFBS	Avg RF	0.8776	0.9261	0.8830	0.9299	0.9206	0.9224	1.0417	0.9629	0.9330	5.525
T PFBS	Avg RF	0.8776	0.9261	0.8830	0.9299	0.9206	0.9224	1.0417	0.9629	0.9330	5.525
I M3-PFHxS	Avg RF	0.6671	0.6350	0.7010	0.7583	0.7488	0.7440	0.8143	0.7642	0.7291	7.936
T PFPeS	Avg RF	0.6671	0.6350	0.7010	0.7583	0.7488	0.7440	0.8143	0.7642	0.7291	7.936
T PFHxS	Avg RF	0.8976	0.8131	0.8230	0.8565	0.7667	0.8285	0.9423	0.9245	0.8565	7.053
I M8-PFOS	Avg RF	0.6863	0.5576	0.6391	0.5940	0.6382	0.6422	0.7150	0.7337	0.6508	9.097
T PFHpS	Avg RF	1.1227	0.8514	0.9697	0.9407	0.9379	0.9368	1.0115	1.0142	0.9731	8.144
T PFOs	Avg RF	0.3207	0.3617	0.3617	0.3744	0.3889	0.3834	0.4417	0.4647	0.3847	12.501
T PFNS	Avg RF	0.5445	0.5600	0.5479	0.5465	0.5513	0.5360	0.5936	0.5926	0.5590	3.950
T PFDS	Avg RF	0.4983	0.4559	0.4751	0.4650	0.4653	0.4671	0.5149	0.5248	0.4833	5.353
T PFDoDS	Avg RF	5.8406	6.0705	6.4792	6.0146	5.9261	6.3370	6.5003	6.6978	6.2333	5.005
I M2-4:2FTS	Avg RF	3.5584	3.0964	3.4480	3.5368	3.3618	3.2511	3.9534	3.3094	3.4144	7.437
T 4:2FTS	Avg RF	3.5584	3.0964	3.4480	3.5368	3.3618	3.2511	3.9534	3.3094	3.4144	7.437
I M2-6:2FTS	Avg RF	2.5302	2.2547	2.0644	2.3465	2.1716	2.1983	2.2282	2.1408	2.2418	6.375
T 6:2FTS	Avg RF	2.5302	2.2547	2.0644	2.3465	2.1716	2.1983	2.2282	2.1408	2.2418	6.375
I M2-8:2FTS	Avg RF	0.8899	0.5923	0.6266	0.7083	0.6772	0.6010	0.6984	0.7184	0.6890	13.746
T 8:2FTS	Avg RF	0.8899	0.5923	0.6266	0.7083	0.6772	0.6010	0.6984	0.7184	0.6890	13.746
I M3-MeFOSAA	Avg RF	0.8196	0.7572	0.7893	0.7826	0.7649	0.7709	0.8429	0.8128	0.7925	3.777
T MeFOSAA	Avg RF	0.8196	0.7572	0.7893	0.7826	0.7649	0.7709	0.8429	0.8128	0.7925	3.777
I M3-HFO-DA	Avg RF	5.9451	5.5029	5.9635	6.2030	5.9413	6.0043	6.3632	6.1322	6.0069	4.198
T HFO-DA	Avg RF	5.9451	5.5029	5.9635	6.2030	5.9413	6.0043	6.3632	6.1322	6.0069	4.198
T ADONA	Avg RF	2.7559	2.7047	2.8906	2.9217	2.9059	2.9631	3.2293	2.9547	2.9157	5.390
T 9CI-PF3ONS	Avg RF	2.4661	2.4876	2.6028	2.7946	2.7007	2.6427	2.7043	2.4816	2.6101	4.681
T 11CI-PF3OUds	Avg RF	0.6858	0.7438	0.7701	0.7035	0.7350	0.7097	0.8026	0.8249	0.7469	6.574
I M5-EFOSAA	Avg RF	0.6858	0.7438	0.7701	0.7035	0.7350	0.7097	0.8026	0.8249	0.7469	6.574
T EFOSAA	Avg RF	0.6858	0.7438	0.7701	0.7035	0.7350	0.7097	0.8026	0.8249	0.7469	6.574
I M7-MeFOSE	Avg RF	0.9431	0.8564	0.8572	0.8388	0.8563	0.8414	0.9227	0.9131	0.8786	4.654
T MeFOSE	Avg RF	0.9431	0.8564	0.8572	0.8388	0.8563	0.8414	0.9227	0.9131	0.8786	4.654
I M9-EFOSE	Avg RF	0.8558	0.7172	0.7472	0.7421	0.7448	0.7425	0.8350	0.7797	0.7705	6.424
T EFOSE	Avg RF	0.8558	0.7172	0.7472	0.7421	0.7448	0.7425	0.8350	0.7797	0.7705	6.424

Generated at 3:46 PM on 4/16/2023

Page 2 of 4

Initial Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621
 Lab FileID: 4Q42939.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EFOSA	Avg RF	0.8690	0.8589	0.8838	0.8346	0.8899	0.8912	0.9612	0.9380	0.8908	4.624
I M3-MeFOSA											
T MeFOSA	Avg RF	0.8676	0.7437	0.8189	0.8369	0.7724	0.7539	0.8636	0.8094	0.8083	5.901
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.7656	0.7552	0.8058	0.7481	0.6961	0.7058	0.7165	0.6975	0.7363	5.292
S 13C8-PFOS	Linear	0.9665	0.9710	1.0122	0.9463	0.9320	0.9528	0.9944	0.9787	0.9692	2.690
S d5-EFOSAA	Linear	0.6362	0.6101	0.6518	0.6515	0.5843	0.5543	0.5617	0.5384	0.5985	7.557
S 13C8-FOSA	Linear	1.5924	1.6717	1.9209	1.8649	1.6795	1.3840	1.4267	1.5403	1.6351	11.675
S d7-MeFOSE	Linear	0.6985	0.7316	0.7658	0.7577	0.6791	0.4960	0.5203	0.5092	0.6448	18.070
S d3-MeFOSA	Linear	0.8056	0.7664	0.7846	0.6930	0.7937	0.7565	0.7774	0.8145	0.7740	4.903
S d9-EFOSE	Linear	0.8600	0.8810	0.9400	0.8959	0.8211	0.6330	0.6253	0.6554	0.7890	16.441
S d5-EFOSA	Linear	0.8784	0.8130	0.8254	0.7902	0.8406	0.8016	0.8602	0.8806	0.8362	4.120
I 13C3-PFBA											
S 13C4-PFBA	Linear	0.8547	0.8631	0.8991	0.8708	0.8709	0.8702	0.8665	0.8704	0.8707	1.465
I 18O2-PFHxS											
S 13C2-4:2FTS	Linear	0.1665	0.1473	0.1509	0.1505	0.1436	0.1198	0.1178	0.0960	0.1365	16.929
S 13C3-PBBS	Linear	2.3414	2.1575	2.4161	2.3817	2.3603	2.3278	2.2517	2.1462	2.2978	4.429
S 13C2-6:2FTS	Linear	0.2519	0.2237	0.2069	0.1990	0.2052	0.1844	0.1524	0.1441	0.1960	18.129
S 13C3-PFHxS	Linear	1.4162	1.3623	1.3611	1.3717	1.4423	1.3866	1.3665	1.3866	1.3836	2.180
S 13C2-8:2FTS	Linear	0.3798	0.3419	0.3497	0.3347	0.3432	0.2910	0.2930	0.2468	0.3225	13.143
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8136	0.8339	0.8231	0.8276	0.8522	0.8054	0.8174	0.8125	0.8232	1.795
I 13C2-PFDA											
S 13C6-PFDA	Linear	1.0424	1.1469	1.1292	1.0956	1.0668	1.1154	1.1150	1.0824	1.0992	3.126
S 13C7-PFUnDA	Linear	1.1992	1.2715	1.1954	1.2111	1.1941	1.1407	1.2168	1.1258	1.1943	3.788
S 13C2-PFDODA	Linear	1.5091	1.6410	1.5664	1.5468	1.5338	1.4540	1.5268	1.5352	1.5391	3.432
S 13C2-PFTeDA	Linear	1.1608	1.2839	1.2478	1.2605	1.2026	1.0896	1.1708	1.1672	1.1979	5.337
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.9403	0.9513	0.9559	0.9014	0.8600	0.8799	0.8538	0.9434	0.9107	4.638
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.7463	0.7459	0.7392	0.7625	0.7447	0.7411	0.7093	0.7033	0.7365	2.713
S 13C5-PFHxA	Linear	1.1490	1.1564	1.1430	1.1831	1.1535	1.1507	1.1582	1.1472	1.1551	1.067
S 13C3-HPOD-A	Linear	0.1789	0.1776	0.1669	0.1722	0.1761	0.1763	0.1776	0.1780	0.1755	2.284
S 13C4-PFHpA	Linear	0.5807	0.5853	0.5196	0.5926	0.5789	0.5762	0.5449	0.5636	0.5677	4.289

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICC621
 Lab FileID: 4Q42939.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	y = 0.870732 * x	
S 13C5-PFPeA	Linear	y = 0.736539 * x	
S 13C2-4:2FTS	Linear	y = 0.136547 * x	
S 13C3-PFBS	Linear	y = 2.297832 * x	
S 13C5-PFHxA	Linear	y = 1.155140 * x	
S 13C3-HFPO-DA	Linear	y = 0.175458 * x	
S 13C4-PFHpA	Linear	y = 0.567714 * x	
S 13C8-PFOA	Linear	y = 0.195959 * x	
S 13C3-PFHxS	Linear	y = 0.823219 * x	
S 13C9-PFNA	Linear	y = 1.383618 * x	
S 13C2-8:2FTS	Linear	y = 0.910745 * x	
S 13C6-PEDA	Linear	y = 0.322508 * x	
S d3-MeFOSAA	Linear	y = 1.099204 * x	
S 13C8-PFOS	Linear	y = 0.736329 * x	
S d5-EFOSAA	Linear	y = 0.969247 * x	
S 13C7-PFUInDA	Linear	y = 0.598531 * x	
S 13C2-PFDODA	Linear	y = 1.194332 * x	
S 13C8-FOSA	Linear	y = 1.539126 * x	
S 13C2-PFTeDA	Linear	y = 1.635055 * x	
S d7-MeFOSE	Linear	y = 1.197901 * x	
S d3-MeFOSA	Linear	y = 0.644769 * x	
S d9-EFOSE	Linear	y = 0.773967 * x	
S d5-EFOSA	Linear	y = 0.788968 * x	
S d5-EFOSA	Linear	y = 0.836240 * x	

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Verification

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621
 Lab FileID: 4Q42945.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q621.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q42945
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.602	-8.0	92.0
13C2-6:2FTS	5.000	4.830	-3.4	96.6
13C2-8:2FTS	5.000	4.651	-7.0	93.0
13C2-PFDoDA	1.250	1.134	-9.3	90.7
13C2-PFTeDA	1.250	1.096	-12.3	87.7
13C3-PFBS	2.500	2.645	5.8	105.8
13C3-PFHxS	2.500	2.634	5.4	105.4
13C4-PFBA	10.000	9.833	-1.7	98.3
13C4-PFHpA	2.500	2.485	-0.6	99.4
13C5-PFHxA	2.500	2.469	-1.2	98.8
13C5-PFPeA	5.000	4.983	-0.3	99.7
13C6-PFDA	1.250	1.213	-3.0	97.0
13C7-PFUnDA	1.250	1.188	-4.9	95.1
13C8-FOSA	2.500	2.084	-16.6	83.4
13C8-PFOA	2.500	2.510	0.4	100.4
13C8-PFOS	2.500	2.487	-0.5	99.5
13C9-PFNA	1.250	1.152	-7.8	92.2
4:2FTS	9.375	8.936	-4.7	95.3
6:2FTS	9.500	9.258	-2.5	97.5
8:2FTS	9.600	9.602	0.0	100.0
d3-MeFOSAA	5.000	4.659	-6.8	93.2
EtFOSAA	2.500	2.357	-5.7	94.3
FOSA	2.500	2.349	-6.1	93.9
MeFOSAA	2.500	2.297	-8.1	91.9
PFBA	10.000	9.441	-5.6	94.4
PFBS	2.218	2.110	-4.9	95.1
PFDA	2.500	2.342	-6.3	93.7
PFDoDA	2.500	2.423	-3.1	96.9
PFDS	2.413	2.279	-5.6	94.4
PFHpA	2.500	2.401	-4.0	96.0
PFHpS	2.383	2.262	-5.1	94.9
PFHxA	2.500	2.357	-5.7	94.3
PFHxS	2.285	2.016	-11.8	88.2
PFNA	2.500	2.435	-2.6	97.4
PFNS	2.405	2.240	-6.9	93.1
PFOA	2.500	2.201	-12.0	88.0
PFOS	2.320	2.225	-4.1	95.9

Initial Calibration Verification

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621
 Lab FileID: 4Q42945.D

PFPeA	5.000	4.734	-5.3	94.7
PFPeS	2.353	2.167	-7.9	92.1
PFTeDA	2.500	2.349	-6.0	94.0
PFTTrDA	2.500	2.365	-5.4	94.6
PFUnDA	2.500	2.168	-13.3	86.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.566	-3.4	96.6
13C3-HFPO-DA	10.000	10.258	2.6	102.6
9C1-PF3ONS	4.675	4.410	-5.7	94.3
ADONA	4.725	4.526	-4.2	95.8
HFPO-DA	5.000	4.604	-7.9	92.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.803	-5.4	94.6
5:3FTCA	62.400	60.149	-3.6	96.4
7:3FTCA	62.400	59.415	-4.8	95.2
d3-MeFOSA	2.500	2.349	-6.1	93.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.631	-7.4	92.6
EtFOSE	12.500	12.176	-2.6	97.4
MeFOSA	5.000	4.830	-3.4	96.6
MeFOSE	12.500	11.691	-6.5	93.5
PFDoDS	2.425	2.238	-7.7	92.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.435	-11.3	88.7
d7-MeFOSE	25.000	19.102	-23.6	76.4
d9-EtFOSE	25.000	19.723	-21.1	78.9
d5-EtFOSA	2.500	2.494	-0.2	99.8
NFDHA	5.000	4.658	-6.8	93.2
PFMBA	5.000	4.684	-6.3	93.7
PFMPA	5.000	4.657	-6.9	93.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.184	-6.0	94.0

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621
 Lab FileID: 4Q42946.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q621.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q42946
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.265	-14.7	85.3
13C2-6:2FTS	5.000	4.360	-12.8	87.2
13C2-8:2FTS	5.000	4.491	-10.2	89.8
13C2-PFDoDA	1.250	1.189	-4.9	95.1
13C2-PFTeDA	1.250	1.133	-9.3	90.7
13C3-PFBS	2.500	2.438	-2.5	97.5
13C3-PFHxS	2.500	2.423	-3.1	96.9
13C4-PFBA	10.000	9.899	-1.0	99.0
13C4-PFHpA	2.500	2.421	-3.2	96.8
13C5-PFHxA	2.500	2.513	0.5	100.5
13C5-PFPeA	5.000	5.044	0.9	100.9
13C6-PFDA	1.250	1.200	-4.0	96.0
13C7-PFUnDA	1.250	1.139	-8.9	91.1
13C8-FOSA	2.500	2.204	-11.9	88.1
13C8-PFOA	2.500	2.480	-0.8	99.2
13C8-PFOS	2.500	2.502	0.1	100.1
13C9-PFNA	1.250	1.177	-5.9	94.1
4:2FTS	20.000	24.072	20.4	120.4
6:2FTS	20.000	25.021	25.1	125.1
8:2FTS	20.000	23.430	17.2	117.2
d3-MeFOSAA	5.000	4.590	-8.2	91.8
EtFOSAA	20.000	22.420	12.1	112.1
FOSA	20.000	23.743	18.7	118.7
MeFOSAA	20.000	23.232	16.2	116.2
PFBA	20.000	21.795	9.0	109.0
PFBS	20.000	24.889	24.4	124.4
PFDA	20.000	24.397	22.0	122.0
PFDoDA	20.000	20.461	2.3	102.3
PFDS	20.000	23.268	16.3	116.3
PFHpA	20.000	23.841	19.2	119.2
PFHpS	20.000	23.617	18.1	118.1
PFHxA	20.000	23.396	17.0	117.0
PFHxS	20.000	24.686	23.4	123.4
PFNA	20.000	25.839	29.2	129.2
PFNS	20.000	24.907	24.5	124.5
PFOA	20.000	21.983	9.9	109.9
PFOS	20.000	20.139	0.7	100.7

Initial Calibration Verification

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q621-ICV621
 Lab FileID: 4Q42946.D

PFPeA	20.000	24.428	22.1	122.1
PFPeS	20.000	25.622	28.1	128.1
PFTeDA	20.000	23.790	19.0	119.0
PFTTrDA	20.000	19.059	-4.7	95.3
PFUnDA	20.000	22.357	11.8	111.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	23.484	17.4	117.4
13C3-HFPO-DA	10.000	10.101	1.0	101.0
9C1-PF3ONS	20.000	23.198	16.0	116.0
ADONA	20.000	22.550	12.8	112.8
HFPO-DA	20.000	21.684	8.4	108.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	22.292	11.5	111.5
5:3FTCA	20.000	23.885	19.4	119.4
7:3FTCA	20.000	21.005	5.0	105.0
d3-MeFOSA	2.500	2.423	-3.1	96.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	22.070	10.3	110.3
EtFOSE	100.000	120.820	20.8	120.8
MeFOSA	20.000	22.722	13.6	113.6
MeFOSE	100.000	113.926	13.9	113.9
PFDODS	20.000	22.709	13.5	113.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.694	-6.1	93.9
d7-MeFOSE	25.000	19.924	-20.3	79.7
d9-EtFOSE	25.000	19.832	-20.7	79.3
d5-EtFOSA	2.500	2.639	5.6	105.6
NFDHA	20.000	22.891	14.5	114.5
PFMBA	20.000	23.563	17.8	117.8
PFMPA	20.000	23.282	16.4	116.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	20.704	3.5	103.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43011.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q622.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43011
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.994	-0.1	99.9
13C2-6:2FTS	5.000	5.557	11.1	111.1
13C2-8:2FTS	5.000	5.484	9.7	109.7
13C2-PFDoDA	1.250	1.167	-6.7	93.3
13C2-PFTeDA	1.250	1.088	-13.0	87.0
13C3-PFBS	2.500	2.413	-3.5	96.5
13C3-PFHxS	2.500	2.488	-0.5	99.5
13C4-PFBA	10.000	10.311	3.1	103.1
13C4-PFHpA	2.500	2.565	2.6	102.6
13C5-PFHxA	2.500	2.516	0.6	100.6
13C5-PFPeA	5.000	5.139	2.8	102.8
13C6-PFDA	1.250	1.304	4.4	104.4
13C7-PFUnDA	1.250	1.224	-2.1	97.9
13C8-FOSA	2.500	2.184	-12.6	87.4
13C8-PFOA	2.500	2.553	2.1	102.1
13C8-PFOS	2.500	2.590	3.6	103.6
13C9-PFNA	1.250	1.258	0.6	100.6
4:2FTS	0.750	0.785	4.6	104.6
6:2FTS	0.760	0.877	15.3	115.3
8:2FTS	0.768	0.775	0.9	100.9
d3-MeFOSAA	5.000	5.337	6.7	106.7
EtFOSAA	0.200	0.175	-12.3	87.7
FOSA	0.200	0.206	2.9	102.9
MeFOSAA	0.200	0.165	-17.6	82.4
PFBA	0.800	0.801	0.1	100.1
PFBS	0.177	0.205	15.8	115.8
PFDA	0.200	0.184	-7.9	92.1
PFDoDA	0.200	0.230	14.8	114.8
PFDS	0.193	0.181	-6.0	94.0
PFHpA	0.200	0.202	1.1	101.1
PFHpS	0.191	0.186	-2.4	97.6
PFHxA	0.200	0.189	-5.3	94.7
PFHxS	0.183	0.202	10.5	110.5
PFNA	0.200	0.221	10.4	110.4
PFNS	0.192	0.167	-13.1	86.9
PFOA	0.200	0.227	13.6	113.6
PFOS	0.186	0.173	-6.9	93.1

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43011.D

PFPeA	0.400	0.403	0.7	100.7
PFPeS	0.188	0.233	24.1	124.1
PFTeDA	0.200	0.180	-9.9	90.1
PFTTrDA	0.200	0.183	-8.6	91.4
PFUnDA	0.200	0.233	16.7	116.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.403	6.6	106.6
13C3-HFPO-DA	10.000	10.311	3.1	103.1
9C1-PF3ONS	0.367	0.370	0.7	100.7
ADONA	0.378	0.387	2.3	102.3
HFPO-DA	0.400	0.403	0.7	100.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.050	5.2	105.2
5:3FTCA	4.992	5.360	7.4	107.4
7:3FTCA	4.992	5.096	2.1	102.1
d3-MeFOSA	2.500	2.481	-0.8	99.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.453	13.3	113.3
EtFOSE	1.000	1.151	15.1	115.1
MeFOSA	0.400	0.445	11.2	111.2
MeFOSE	1.000	1.215	21.5	121.5
PFDoDS	0.194	0.224	15.7	115.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.629	12.6	112.6
d7-MeFOSE	25.000	20.346	-18.6	81.4
d9-EtFOSE	25.000	20.639	-17.4	82.6
d5-EtFOSA	2.500	2.576	3.0	103.0
NFDHA	0.400	0.393	-1.8	98.2
PFMBA	0.400	0.409	2.2	102.2
PFMPA	0.400	0.411	2.8	102.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.350	-1.7	98.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43022.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q622.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43022
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.080	1.6	101.6
13C2-6:2FTS	5.000	5.402	8.0	108.0
13C2-8:2FTS	5.000	5.727	14.5	114.5
13C2-PFDoDA	1.250	1.235	-1.2	98.8
13C2-PFTeDA	1.250	1.107	-11.5	88.5
13C3-PFBS	2.500	2.473	-1.1	98.9
13C3-PFHxS	2.500	2.504	0.1	100.1
13C4-PFBA	10.000	10.322	3.2	103.2
13C4-PFHpA	2.500	2.646	5.9	105.9
13C5-PFHxA	2.500	2.560	2.4	102.4
13C5-PFPeA	5.000	5.104	2.1	102.1
13C6-PFDA	1.250	1.332	6.6	106.6
13C7-PFUnDA	1.250	1.303	4.2	104.2
13C8-FOSA	2.500	2.104	-15.9	84.1
13C8-PFOA	2.500	2.509	0.3	100.3
13C8-PFOS	2.500	2.614	4.6	104.6
13C9-PFNA	1.250	1.229	-1.6	98.4
4:2FTS	9.375	9.768	4.2	104.2
6:2FTS	9.500	9.975	5.0	105.0
8:2FTS	9.600	9.628	0.3	100.3
d3-MeFOSAA	5.000	5.112	2.2	102.2
EtFOSAA	2.500	2.258	-9.7	90.3
FOSA	2.500	2.492	-0.3	99.7
MeFOSAA	2.500	2.415	-3.4	96.6
PFBA	10.000	9.407	-5.9	94.1
PFBS	2.218	2.168	-2.3	97.7
PFDA	2.500	2.506	0.2	100.2
PFDoDA	2.500	2.428	-2.9	97.1
PFDS	2.413	2.234	-7.4	92.6
PFHpA	2.500	2.431	-2.8	97.2
PFHpS	2.383	2.316	-2.8	97.2
PFHxA	2.500	2.402	-3.9	96.1
PFHxS	2.285	2.161	-5.4	94.6
PFNA	2.500	2.268	-9.3	90.7
PFNS	2.405	2.303	-4.2	95.8
PFOA	2.500	2.345	-6.2	93.8
PFOS	2.320	2.106	-9.2	90.8

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43022.D

PFPeA	5.000	4.985	-0.3	99.7
PFPeS	2.353	2.344	-0.4	99.6
PFTeDA	2.500	2.481	-0.8	99.2
PFTTrDA	2.500	2.320	-7.2	92.8
PFUnDA	2.500	2.292	-8.3	91.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.803	1.7	101.7
13C3-HFPO-DA	10.000	10.481	4.8	104.8
9C1-PF3ONS	4.675	4.303	-8.0	92.0
ADONA	4.725	4.609	-2.4	97.6
HFPO-DA	5.000	4.856	-2.9	97.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.651	1.4	101.4
5:3FTCA	62.400	63.300	1.4	101.4
7:3FTCA	62.400	62.731	0.5	100.5
d3-MeFOSA	2.500	2.384	-4.6	95.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.920	-1.6	98.4
EtFOSE	12.500	12.486	-0.1	99.9
MeFOSA	5.000	5.034	0.7	100.7
MeFOSE	12.500	11.861	-5.1	94.9
PFDoDS	2.425	2.263	-6.7	93.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.506	10.1	110.1
d7-MeFOSE	25.000	19.359	-22.6	77.4
d9-EtFOSE	25.000	19.537	-21.9	78.1
d5-EtFOSA	2.500	2.406	-3.8	96.2
NFDHA	5.000	5.373	7.5	107.5
PFMBA	5.000	4.906	-1.9	98.1
PFMPA	5.000	4.946	-1.1	98.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.392	-1.3	98.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43062.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q622.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43062
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.108	2.2	102.2
13C2-6:2FTS	5.000	5.426	8.5	108.5
13C2-8:2FTS	5.000	5.062	1.2	101.2
13C2-PFDoDA	1.250	1.191	-4.7	95.3
13C2-PFTeDA	1.250	1.121	-10.3	89.7
13C3-PFBS	2.500	2.504	0.2	100.2
13C3-PFHxS	2.500	2.620	4.8	104.8
13C4-PFBA	10.000	10.305	3.0	103.0
13C4-PFHpA	2.500	2.583	3.3	103.3
13C5-PFHxA	2.500	2.507	0.3	100.3
13C5-PFPeA	5.000	5.060	1.2	101.2
13C6-PFDA	1.250	1.238	-1.0	99.0
13C7-PFUnDA	1.250	1.229	-1.7	98.3
13C8-FOSA	2.500	2.095	-16.2	83.8
13C8-PFOA	2.500	2.512	0.5	100.5
13C8-PFOS	2.500	2.565	2.6	102.6
13C9-PFNA	1.250	1.207	-3.4	96.6
4:2FTS	9.375	9.031	-3.7	96.3
6:2FTS	9.500	9.077	-4.5	95.5
8:2FTS	9.600	9.999	4.2	104.2
d3-MeFOSAA	5.000	4.909	-1.8	98.2
EtFOSAA	2.500	2.328	-6.9	93.1
FOSA	2.500	2.430	-2.8	97.2
MeFOSAA	2.500	2.381	-4.7	95.3
PFBA	10.000	9.362	-6.4	93.6
PFBS	2.218	2.160	-2.6	97.4
PFDA	2.500	2.554	2.2	102.2
PFDoDA	2.500	2.498	-0.1	99.9
PFDS	2.413	2.142	-11.2	88.8
PFHpA	2.500	2.464	-1.5	98.5
PFHpS	2.383	2.317	-2.8	97.2
PFHxA	2.500	2.346	-6.2	93.8
PFHxS	2.285	2.083	-8.8	91.2
PFNA	2.500	2.358	-5.7	94.3
PFNS	2.405	2.142	-10.9	89.1
PFOA	2.500	2.286	-8.5	91.5
PFOS	2.320	2.053	-11.5	88.5

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43062.D

PFPeA	5.000	4.974	-0.5	99.5
PFPeS	2.353	2.178	-7.5	92.5
PFTeDA	2.500	2.296	-8.2	91.8
PFTTrDA	2.500	2.429	-2.8	97.2
PFUnDA	2.500	2.315	-7.4	92.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.827	2.2	102.2
13C3-HFPO-DA	10.000	9.998	0.0	100.0
9C1-PF3ONS	4.675	4.405	-5.8	94.2
ADONA	4.725	4.758	0.7	100.7
HFPO-DA	5.000	4.674	-6.5	93.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.904	3.4	103.4
5:3FTCA	62.400	65.106	4.3	104.3
7:3FTCA	62.400	66.367	6.4	106.4
d3-MeFOSA	2.500	2.367	-5.3	94.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.737	-5.3	94.7
EtFOSE	12.500	12.416	-0.7	99.3
MeFOSA	5.000	4.602	-8.0	92.0
MeFOSE	12.500	12.191	-2.5	97.5
PFDoDS	2.425	2.273	-6.3	93.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.207	4.1	104.1
d7-MeFOSE	25.000	18.731	-25.1	74.9
d9-EtFOSE	25.000	18.889	-24.4	75.6
d5-EtFOSA	2.500	2.381	-4.7	95.3
NFDHA	5.000	5.176	3.5	103.5
PFMBA	5.000	4.970	-0.6	99.4
PFMPA	5.000	4.959	-0.8	99.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.440	-0.2	99.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43063.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q622.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43063
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.704	14.1	114.1
13C2-6:2FTS	5.000	5.682	13.6	113.6
13C2-8:2FTS	5.000	5.361	7.2	107.2
13C2-PFDoDA	1.250	1.181	-5.5	94.5
13C2-PFTeDA	1.250	1.081	-13.5	86.5
13C3-PFBS	2.500	2.516	0.6	100.6
13C3-PFHxS	2.500	2.562	2.5	102.5
13C4-PFBA	10.000	10.337	3.4	103.4
13C4-PFHpA	2.500	2.597	3.9	103.9
13C5-PFHxA	2.500	2.516	0.6	100.6
13C5-PFPeA	5.000	5.150	3.0	103.0
13C6-PFDA	1.250	1.272	1.8	101.8
13C7-PFUnDA	1.250	1.214	-2.9	97.1
13C8-FOSA	2.500	2.150	-14.0	86.0
13C8-PFOA	2.500	2.439	-2.4	97.6
13C8-PFOS	2.500	2.572	2.9	102.9
13C9-PFNA	1.250	1.221	-2.3	97.7
4:2FTS	0.750	0.742	-1.1	98.9
6:2FTS	0.760	0.822	8.1	108.1
8:2FTS	0.768	0.763	-0.7	99.3
d3-MeFOSAA	5.000	5.285	5.7	105.7
EtFOSAA	0.200	0.238	19.2	119.2
FOSA	0.200	0.250	25.2	125.2
MeFOSAA	0.200	0.203	1.6	101.6
PFBA	0.800	0.797	-0.3	99.7
PFBS	0.177	0.201	13.5	113.5
PFDA	0.200	0.240	20.2	120.2
PFDoDA	0.200	0.210	5.0	105.0
PFDS	0.193	0.206	6.5	106.5
PFHpA	0.200	0.219	9.7	109.7
PFHpS	0.191	0.239	25.0	125.0
PFHxA	0.200	0.220	10.1	110.1
PFHxS	0.183	0.217	18.3	118.3
PFNA	0.200	0.232	16.2	116.2
PFNS	0.192	0.172	-10.2	89.8
PFOA	0.200	0.171	-14.4	85.6
PFOS	0.186	0.206	10.5	110.5

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43063.D

PFPeA	0.400	0.405	1.3	101.3
PFPeS	0.188	0.217	15.5	115.5
PFTeDA	0.200	0.190	-5.0	95.0
PFTTrDA	0.200	0.235	17.5	117.5
PFUnDA	0.200	0.225	12.3	112.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	0.378	0.409	8.2	108.2
13C3-HFPO-DA	10.000	9.974	-0.3	99.7
9C1-PF3ONS	0.367	0.405	10.1	110.1
ADONA	0.378	0.381	0.9	100.9
HFPO-DA	0.400	0.410	2.6	102.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.100	10.2	110.2
5:3FTCA	4.992	5.550	11.2	111.2
7:3FTCA	4.992	5.446	9.1	109.1
d3-MeFOSA	2.500	2.508	0.3	100.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.444	11.0	111.0
EtFOSE	1.000	1.253	25.3	125.3
MeFOSA	0.400	0.409	2.3	102.3
MeFOSE	1.000	1.094	9.4	109.4
PFDoDS	0.194	0.201	3.4	103.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.317	6.3	106.3
d7-MeFOSE	25.000	20.189	-19.2	80.8
d9-EtFOSE	25.000	19.999	-20.0	80.0
d5-EtFOSA	2.500	2.491	-0.4	99.6
NFDHA	0.400	0.411	2.8	102.8
PFMBA	0.400	0.421	5.2	105.2
PFMPA	0.400	0.410	2.4	102.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.352	-1.0	99.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43073.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q622.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43073
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.712	14.2	114.2
13C2-6:2FTS	5.000	5.816	16.3	116.3
13C2-8:2FTS	5.000	5.582	11.6	111.6
13C2-PFDoDA	1.250	1.215	-2.8	97.2
13C2-PFTeDA	1.250	1.116	-10.7	89.3
13C3-PFBS	2.500	2.548	1.9	101.9
13C3-PFHxS	2.500	2.569	2.7	102.7
13C4-PFBA	10.000	10.327	3.3	103.3
13C4-PFHpA	2.500	2.552	2.1	102.1
13C5-PFHxA	2.500	2.492	-0.3	99.7
13C5-PFPeA	5.000	5.012	0.2	100.2
13C6-PFDA	1.250	1.303	4.2	104.2
13C7-PFUnDA	1.250	1.228	-1.8	98.2
13C8-FOSA	2.500	2.113	-15.5	84.5
13C8-PFOA	2.500	2.511	0.5	100.5
13C8-PFOS	2.500	2.525	1.0	101.0
13C9-PFNA	1.250	1.231	-1.5	98.5
4:2FTS	9.375	9.108	-2.8	97.2
6:2FTS	9.500	9.770	2.8	102.8
8:2FTS	9.600	10.120	5.4	105.4
d3-MeFOSAA	5.000	5.248	5.0	105.0
EtFOSAA	2.500	2.316	-7.4	92.6
FOSA	2.500	2.379	-4.8	95.2
MeFOSAA	2.500	2.413	-3.5	96.5
PFBA	10.000	9.357	-6.4	93.6
PFBS	2.218	2.231	0.6	100.6
PFDA	2.500	2.483	-0.7	99.3
PFDoDA	2.500	2.423	-3.1	96.9
PFDS	2.413	2.246	-6.9	93.1
PFHpA	2.500	2.415	-3.4	96.6
PFHpS	2.383	2.474	3.8	103.8
PFHxA	2.500	2.411	-3.6	96.4
PFHxS	2.285	2.108	-7.8	92.2
PFNA	2.500	2.409	-3.6	96.4
PFNS	2.405	2.159	-10.2	89.8
PFOA	2.500	2.262	-9.5	90.5
PFOS	2.320	2.199	-5.2	94.8

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-CC621
 Lab FileID: 4Q43073.D

PFPeA	5.000	4.998	0.0	100.0
PFPeS	2.353	2.378	1.0	101.0
PFTeDA	2.500	2.344	-6.2	93.8
PFTTrDA	2.500	2.362	-5.5	94.5
PFUnDA	2.500	2.358	-5.7	94.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.888	3.5	103.5
13C3-HFPO-DA	10.000	10.136	1.4	101.4
9C1-PF3ONS	4.675	4.413	-5.6	94.4
ADONA	4.725	4.693	-0.7	99.3
HFPO-DA	5.000	4.618	-7.6	92.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.773	2.4	102.4
5:3FTCA	62.400	65.682	5.3	105.3
7:3FTCA	62.400	66.432	6.5	106.5
d3-MeFOSA	2.500	2.420	-3.2	96.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.658	-6.8	93.2
EtFOSE	12.500	12.486	-0.1	99.9
MeFOSA	5.000	4.759	-4.8	95.2
MeFOSE	12.500	11.964	-4.3	95.7
PFDoDS	2.425	2.290	-5.6	94.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.502	10.0	110.0
d7-MeFOSE	25.000	19.128	-23.5	76.5
d9-EtFOSE	25.000	19.392	-22.4	77.6
d5-EtFOSA	2.500	2.445	-2.2	97.8
NFDHA	5.000	5.111	2.2	102.2
PFMBA	5.000	5.036	0.7	100.7
PFMPA	5.000	5.074	1.5	101.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.472	0.5	100.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-ECC621
 Lab FileID: 4Q43077.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041423_1633_S4Q621\s4q622.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43077
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.987	19.7	119.7
13C2-6:2FTS	5.000	5.750	15.0	115.0
13C2-8:2FTS	5.000	5.587	11.7	111.7
13C2-PFDoDA	1.250	1.177	-5.9	94.1
13C2-PFTeDA	1.250	1.093	-12.5	87.5
13C3-PFBS	2.500	2.531	1.2	101.2
13C3-PFHxS	2.500	2.673	6.9	106.9
13C4-PFBA	10.000	10.367	3.7	103.7
13C4-PFHpA	2.500	2.563	2.5	102.5
13C5-PFHxA	2.500	2.547	1.9	101.9
13C5-PFPeA	5.000	5.194	3.9	103.9
13C6-PFDA	1.250	1.216	-2.7	97.3
13C7-PFUnDA	1.250	1.224	-2.0	98.0
13C8-FOSA	2.500	2.132	-14.7	85.3
13C8-PFOA	2.500	2.566	2.6	102.6
13C8-PFOS	2.500	2.568	2.7	102.7
13C9-PFNA	1.250	1.245	-0.4	99.6
4:2FTS	9.375	8.844	-5.7	94.3
6:2FTS	9.500	10.328	8.7	108.7
8:2FTS	9.600	10.214	6.4	106.4
d3-MeFOSAA	5.000	5.569	11.4	111.4
EtFOSAA	2.500	2.474	-1.0	99.0
FOSA	2.500	2.530	1.2	101.2
MeFOSAA	2.500	2.277	-8.9	91.1
PFBA	10.000	9.355	-6.4	93.6
PFBS	2.218	2.309	4.1	104.1
PFDA	2.500	2.604	4.2	104.2
PFDoDA	2.500	2.472	-1.1	98.9
PFDS	2.413	2.256	-6.5	93.5
PFHpA	2.500	2.466	-1.3	98.7
PFHpS	2.383	2.345	-1.6	98.4
PFHxA	2.500	2.465	-1.4	98.6
PFHxS	2.285	2.115	-7.5	92.5
PFNA	2.500	2.411	-3.6	96.4
PFNS	2.405	2.254	-6.3	93.7
PFOA	2.500	2.417	-3.3	96.7
PFOS	2.320	2.247	-3.2	96.8

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q622-ECC621
 Lab FileID: 4Q43077.D

PFPeA	5.000	5.007	0.1	100.1
PFPeS	2.353	2.405	2.2	102.2
PFTeDA	2.500	2.292	-8.3	91.7
PFTTrDA	2.500	2.349	-6.0	94.0
PFUnDA	2.500	2.246	-10.2	89.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.897	3.6	103.6
13C3-HFPO-DA	10.000	10.253	2.5	102.5
9C1-PF3ONS	4.675	4.447	-4.9	95.1
ADONA	4.725	4.770	1.0	101.0
HFPO-DA	5.000	4.875	-2.5	97.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.596	0.9	100.9
5:3FTCA	62.400	65.311	4.7	104.7
7:3FTCA	62.400	64.562	3.5	103.5
d3-MeFOSA	2.500	2.445	-2.2	97.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.642	-7.2	92.8
EtFOSE	12.500	12.785	2.3	102.3
MeFOSA	5.000	4.821	-3.6	96.4
MeFOSE	12.500	11.947	-4.4	95.6
PFDoDS	2.425	2.366	-2.4	97.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.386	7.7	107.7
d7-MeFOSE	25.000	19.740	-21.0	79.0
d9-EtFOSE	25.000	20.211	-19.2	80.8
d5-EtFOSA	2.500	2.554	2.2	102.2
NFDHA	5.000	5.224	4.5	104.5
PFMBA	5.000	4.911	-1.8	98.2
PFMPA	5.000	4.951	-1.0	99.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.411	-0.9	99.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43149.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041823_1633_S4Q624\s4q624.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43149
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.028	0.6	100.6
13C2-6:2FTS	5.000	5.872	17.4	117.4
13C2-8:2FTS	5.000	5.353	7.1	107.1
13C2-PFDoDA	1.250	1.185	-5.2	94.8
13C2-PFTeDA	1.250	1.079	-13.7	86.3
13C3-PFBS	2.500	2.468	-1.3	98.7
13C3-PFHxS	2.500	2.502	0.1	100.1
13C4-PFBA	10.000	10.294	2.9	102.9
13C4-PFHpA	2.500	2.722	8.9	108.9
13C5-PFHxA	2.500	2.574	2.9	102.9
13C5-PFPeA	5.000	5.043	0.9	100.9
13C6-PFDA	1.250	1.221	-2.3	97.7
13C7-PFUnDA	1.250	1.256	0.4	100.4
13C8-FOSA	2.500	2.086	-16.5	83.5
13C8-PFOA	2.500	2.513	0.5	100.5
13C8-PFOS	2.500	2.526	1.0	101.0
13C9-PFNA	1.250	1.241	-0.7	99.3
4:2FTS	9.375	8.366	-10.8	89.2
6:2FTS	9.500	7.660	-19.4	80.6
8:2FTS	9.600	8.811	-8.2	91.8
d3-MeFOSAA	5.000	5.339	6.8	106.8
EtFOSAA	2.500	2.168	-13.3	86.7
FOSA	2.500	2.084	-16.6	83.4
MeFOSAA	2.500	1.946	-22.2	77.8
PFBA	10.000	7.769	-22.3	77.7
PFBS	2.218	1.864	-16.0	84.0
PFDA	2.500	2.266	-9.4	90.6
PFDoDA	2.500	2.047	-18.1	81.9
PFDS	2.413	1.868	-22.6	77.4
PFHpA	2.500	2.049	-18.0	82.0
PFHpS	2.383	2.052	-13.9	86.1
PFHxA	2.500	2.061	-17.6	82.4
PFHxS	2.285	1.887	-17.4	82.6
PFNA	2.500	2.030	-18.8	81.2
PFNS	2.405	2.009	-16.5	83.5
PFOA	2.500	2.033	-18.7	81.3
PFOS	2.320	1.930	-16.8	83.2

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43149.D

PFPeA	5.000	4.347	-13.1	86.9
PFPeS	2.353	1.965	-16.5	83.5
PFTeDA	2.500	2.055	-17.8	82.2
PFTTrDA	2.500	1.943	-22.3	77.7
PFUnDA	2.500	1.908	-23.7	76.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.920	4.1	104.1
13C3-HFPO-DA	10.000	10.470	4.7	104.7
9C1-PF3ONS	4.675	4.539	-2.9	97.1
ADONA	4.725	4.928	4.3	104.3
HFPO-DA	5.000	4.981	-0.4	99.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.944	3.7	103.7
5:3FTCA	62.400	65.408	4.8	104.8
7:3FTCA	62.400	63.944	2.5	102.5
d3-MeFOSA	2.500	2.544	1.8	101.8
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.227	4.5	104.5
EtFOSE	12.500	12.863	2.9	102.9
MeFOSA	5.000	4.906	-1.9	98.1
MeFOSE	12.500	12.279	-1.8	98.2
PFDODS	2.425	1.862	-23.2	76.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.094	1.9	101.9
d7-MeFOSE	25.000	19.456	-22.2	77.8
d9-EtFOSE	25.000	19.914	-20.3	79.7
d5-EtFOSA	2.500	2.457	-1.7	98.3
NFDHA	5.000	5.627	12.5	112.5
PFMBA	5.000	5.149	3.0	103.0
PFMPA	5.000	5.229	4.6	104.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.482	0.7	100.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43150.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041823_1633_S4Q624\s4q624.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43150
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.853	17.1	117.1
13C2-6:2FTS	5.000	5.988	19.8	119.8
13C2-8:2FTS	5.000	5.377	7.5	107.5
13C2-PFDoDA	1.250	1.173	-6.2	93.8
13C2-PFTeDA	1.250	1.117	-10.6	89.4
13C3-PFBS	2.500	2.424	-3.0	97.0
13C3-PFHxS	2.500	2.483	-0.7	99.3
13C4-PFBA	10.000	10.345	3.4	103.4
13C4-PFHpA	2.500	2.615	4.6	104.6
13C5-PFHxA	2.500	2.552	2.1	102.1
13C5-PFPeA	5.000	4.956	-0.9	99.1
13C6-PFDA	1.250	1.277	2.2	102.2
13C7-PFUnDA	1.250	1.269	1.6	101.6
13C8-FOSA	2.500	2.106	-15.8	84.2
13C8-PFOA	2.500	2.501	0.0	100.0
13C8-PFOS	2.500	2.656	6.2	106.2
13C9-PFNA	1.250	1.257	0.6	100.6
4:2FTS	0.750	0.761	1.5	101.5
6:2FTS	0.760	0.877	15.4	115.4
8:2FTS	0.768	0.749	-2.5	97.5
d3-MeFOSAA	5.000	5.238	4.8	104.8
EtFOSAA	0.200	0.193	-3.4	96.6
FOSA	0.200	0.234	16.8	116.8
MeFOSAA	0.200	0.141	-29.3	70.7
PFBA	0.800	0.769	-3.9	96.1
PFBS	0.177	0.188	6.2	106.2
PFDA	0.200	0.230	15.0	115.0
PFDoDA	0.200	0.192	-3.9	96.1
PFDS	0.193	0.170	-12.2	87.8
PFHpA	0.200	0.186	-6.9	93.1
PFHpS	0.191	0.192	0.6	100.6
PFHxA	0.200	0.212	6.0	106.0
PFHxS	0.183	0.180	-1.5	98.5
PFNA	0.200	0.242	21.1	121.1
PFNS	0.192	0.198	3.0	103.0
PFOA	0.200	0.240	20.1	120.1
PFOS	0.186	0.184	-1.2	98.8

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43150.D

PFPeA	0.400	0.419	4.8	104.8
PFPeS	0.188	0.236	25.5	125.5
PFTeDA	0.200	0.159	-20.6	79.4
PFTTrDA	0.200	0.183	-8.6	91.4
PFUnDA	0.200	0.157	-21.5	78.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.414	9.5	109.5
13C3-HFPO-DA	10.000	10.277	2.8	102.8
9C1-PF3ONS	0.367	0.360	-2.0	98.0
ADONA	0.378	0.393	3.9	103.9
HFPO-DA	0.400	0.399	-0.3	99.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.182	18.4	118.4
5:3FTCA	4.992	5.315	6.5	106.5
7:3FTCA	4.992	4.935	-1.1	98.9
d3-MeFOSA	2.500	2.499	0.0	100.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.424	6.1	106.1
EtFOSE	1.000	0.944	-5.6	94.4
MeFOSA	0.400	0.422	5.5	105.5
MeFOSE	1.000	1.161	16.1	116.1
PFDoDS	0.194	0.221	13.8	113.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.520	10.4	110.4
d7-MeFOSE	25.000	19.476	-22.1	77.9
d9-EtFOSE	25.000	20.088	-19.6	80.4
d5-EtFOSA	2.500	2.554	2.2	102.2
NFDHA	0.400	0.397	-0.7	99.3
PFMBA	0.400	0.438	9.6	109.6
PFMPA	0.400	0.430	7.5	107.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.364	2.2	102.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43161.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041823_1633_S4Q624\s4q624.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43161
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.654	13.1	113.1
13C2-6:2FTS	5.000	5.006	0.1	100.1
13C2-8:2FTS	5.000	4.947	-1.1	98.9
13C2-PFDoDA	1.250	1.233	-1.4	98.6
13C2-PFTeDA	1.250	1.120	-10.4	89.6
13C3-PFBS	2.500	2.568	2.7	102.7
13C3-PFHxS	2.500	2.673	6.9	106.9
13C4-PFBA	10.000	10.605	6.1	106.1
13C4-PFHpA	2.500	2.386	-4.6	95.4
13C5-PFHxA	2.500	2.523	0.9	100.9
13C5-PFPeA	5.000	5.055	1.1	101.1
13C6-PFDA	1.250	1.315	5.2	105.2
13C7-PFUnDA	1.250	1.270	1.6	101.6
13C8-FOSA	2.500	2.133	-14.7	85.3
13C8-PFOA	2.500	2.506	0.2	100.2
13C8-PFOS	2.500	2.536	1.4	101.4
13C9-PFNA	1.250	1.212	-3.0	97.0
4:2FTS	9.375	7.918	-15.5	84.5
6:2FTS	9.500	8.799	-7.4	92.6
8:2FTS	9.600	8.806	-8.3	91.7
d3-MeFOSAA	5.000	4.663	-6.7	93.3
EtFOSAA	2.500	2.006	-19.8	80.2
FOSA	2.500	2.073	-17.1	82.9
MeFOSAA	2.500	2.274	-9.0	91.0
PFBA	10.000	7.766	-22.3	77.7
PFBS	2.218	1.824	-17.8	82.2
PFDA	2.500	2.187	-12.5	87.5
PFDoDA	2.500	2.044	-18.2	81.8
PFDS	2.413	1.858	-23.0	77.0
PFHpA	2.500	2.117	-15.3	84.7
PFHpS	2.383	1.920	-19.4	80.6
PFHxA	2.500	2.054	-17.9	82.1
PFHxS	2.285	1.785	-21.9	78.1
PFNA	2.500	2.011	-19.6	80.4
PFNS	2.405	1.914	-20.4	79.6
PFOA	2.500	1.988	-20.5	79.5
PFOS	2.320	1.864	-19.6	80.4

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43161.D

PFPeA	5.000	4.240	-15.2	84.8
PFPeS	2.353	1.773	-24.7	75.3
PFTeDA	2.500	2.046	-18.2	81.8
PFTTrDA	2.500	2.011	-19.6	80.4
PFUnDA	2.500	2.061	-17.6	82.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.995	5.7	105.7
13C3-HFPO-DA	10.000	9.804	-2.0	98.0
9C1-PF3ONS	4.675	4.666	-0.2	99.8
ADONA	4.725	4.808	1.8	101.8
HFPO-DA	5.000	4.658	-6.8	93.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.990	4.1	104.1
5:3FTCA	62.400	65.065	4.3	104.3
7:3FTCA	62.400	63.529	1.8	101.8
d3-MeFOSA	2.500	2.300	-8.0	92.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.122	2.4	102.4
EtFOSE	12.500	12.729	1.8	101.8
MeFOSA	5.000	5.084	1.7	101.7
MeFOSE	12.500	12.769	2.2	102.2
PFDODS	2.425	1.831	-24.5	75.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.923	-1.5	98.5
d7-MeFOSE	25.000	18.483	-26.1	73.9
d9-EtFOSE	25.000	18.424	-26.3	73.7
d5-EtFOSA	2.500	2.379	-4.8	95.2
NFDHA	5.000	4.990	-0.2	99.8
PFMBA	5.000	5.072	1.4	101.4
PFMPA	5.000	5.132	2.6	102.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.420	-0.7	99.3

CC Criteria: +/- 30%

6.9.12
6

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43173.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\041823_1633_S4Q624\s4q624.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\041423_1633_S4Q621\4Q42936.d
 2:D:\MassHunter\Data\041423_1633_S4Q621\4Q42937.d
 3:D:\MassHunter\Data\041423_1633_S4Q621\4Q42938.d
 4:D:\MassHunter\Data\041423_1633_S4Q621\4Q42939.d
 5:D:\MassHunter\Data\041423_1633_S4Q621\4Q42940.d
 6:D:\MassHunter\Data\041423_1633_S4Q621\4Q42941.d
 7:D:\MassHunter\Data\041423_1633_S4Q621\4Q42942.d
 8:D:\MassHunter\Data\041423_1633_S4Q621\4Q42943.d

Data File: 4Q43173
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.867	17.3	117.3
13C2-6:2FTS	5.000	5.682	13.6	113.6
13C2-8:2FTS	5.000	5.388	7.8	107.8
13C2-PFDoDA	1.250	1.209	-3.3	96.7
13C2-PFTeDA	1.250	1.090	-12.8	87.2
13C3-PFBS	2.500	2.673	6.9	106.9
13C3-PFHxS	2.500	2.653	6.1	106.1
13C4-PFBA	10.000	10.511	5.1	105.1
13C4-PFHpA	2.500	2.607	4.3	104.3
13C5-PFHxA	2.500	2.532	1.3	101.3
13C5-PFPeA	5.000	4.914	-1.7	98.3
13C6-PFDA	1.250	1.241	-0.7	99.3
13C7-PFUnDA	1.250	1.191	-4.7	95.3
13C8-FOSA	2.500	2.054	-17.8	82.2
13C8-PFOA	2.500	2.406	-3.8	96.2
13C8-PFOS	2.500	2.408	-3.7	96.3
13C9-PFNA	1.250	1.227	-1.8	98.2
4:2FTS	9.375	7.568	-19.3	80.7
6:2FTS	9.500	8.228	-13.4	86.6
8:2FTS	9.600	8.932	-7.0	93.0
d3-MeFOSAA	5.000	4.964	-0.7	99.3
EtFOSAA	2.500	2.094	-16.2	83.8
FOSA	2.500	2.111	-15.6	84.4
MeFOSAA	2.500	2.017	-19.3	80.7
PFBA	10.000	7.754	-22.5	77.5
PFBS	2.218	1.836	-17.2	82.8
PFDA	2.500	2.253	-9.9	90.1
PFDoDA	2.500	2.069	-17.2	82.8
PFDS	2.413	1.932	-19.9	80.1
PFHpA	2.500	2.085	-16.6	83.4
PFHpS	2.383	2.191	-8.1	91.9
PFHxA	2.500	2.001	-19.9	80.1
PFHxS	2.285	1.940	-15.1	84.9
PFNA	2.500	2.043	-18.3	81.7
PFNS	2.405	2.056	-14.5	85.5
PFOA	2.500	2.044	-18.2	81.8
PFOS	2.320	1.825	-21.3	78.7

Continuing Calibration Summary

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q624-CC621
 Lab FileID: 4Q43173.D

PFPeA	5.000	4.311	-13.8	86.2
PFPeS	2.353	2.094	-11.0	89.0
PFTeDA	2.500	2.004	-19.9	80.1
PFTTrDA	2.500	1.996	-20.1	79.9
PFUnDA	2.500	1.972	-21.1	78.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.252	11.1	111.1
13C3-HFPO-DA	10.000	9.827	-1.7	98.3
9C1-PF3ONS	4.675	4.734	1.3	101.3
ADONA	4.725	5.056	7.0	107.0
HFPO-DA	5.000	4.827	-3.5	96.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	13.472	8.0	108.0
5:3FTCA	62.400	66.087	5.9	105.9
7:3FTCA	62.400	64.503	3.4	103.4
d3-MeFOSA	2.500	2.350	-6.0	94.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.018	0.4	100.4
EtFOSE	12.500	13.028	4.2	104.2
MeFOSA	5.000	5.141	2.8	102.8
MeFOSE	12.500	12.391	-0.9	99.1
PFDODS	2.425	1.939	-20.0	80.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.213	4.3	104.3
d7-MeFOSE	25.000	18.630	-25.5	74.5
d9-EtFOSE	25.000	18.878	-24.5	75.5
d5-EtFOSA	2.500	2.408	-3.7	96.3
NFDHA	5.000	5.419	8.4	108.4
PFMBA	5.000	5.253	5.1	105.1
PFMPA	5.000	5.367	7.3	107.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.462	0.3	100.3

CC Criteria: +/- 30%

6.9.13

6

Run Sequence Report

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q621	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q621-RT	4Q42933.D	04/14/23 11:07	n/a	Retention Time Marker
S4Q621-RT	4Q42934.D	04/14/23 11:21	n/a	Retention Time Marker
S4Q621-IC621	4Q42935.D	04/14/23 11:35	n/a	Mass Calibration Verification
S4Q621-IC621	4Q42936.D	04/14/23 11:49	n/a	Initial cal 1
S4Q621-IC621	4Q42937.D	04/14/23 12:04	n/a	Initial cal 2
S4Q621-IC621	4Q42938.D	04/14/23 12:27	n/a	Initial cal 3
S4Q621-ICC621	4Q42939.D	04/14/23 12:41	n/a	Initial cal 4
S4Q621-IC621	4Q42940.D	04/14/23 12:55	n/a	Initial cal 5
S4Q621-IC621	4Q42941.D	04/14/23 13:09	n/a	Initial cal 6
S4Q621-IC621	4Q42942.D	04/14/23 13:23	n/a	Initial cal 7
S4Q621-IC621	4Q42943.D	04/14/23 13:37	n/a	Initial cal 8
S4Q621-IBLK	4Q42944.D	04/14/23 13:51	n/a	Instrument Blank
S4Q621-IBLK	4Q42944.D	04/14/23 13:51	n/a	Instrument Blank
S4Q621-ICV621	4Q42945.D	04/14/23 14:05	n/a	Initial cal verification 4
S4Q621-ICV621	4Q42946.D	04/14/23 14:19	n/a	Initial cal verification 20
S4Q621-CC621	4Q42947.D	04/14/23 14:57	n/a	Continuing cal 4
S4Q621-CC621	4Q42948.D	04/14/23 15:11	n/a	Continuing cal 1.0LL
S4Q621-CC621	4Q42954.D	04/14/23 16:36	n/a	Continuing cal 4
S4Q621-ICCB	4Q42955.D	04/14/23 16:50	n/a	Continuing Calibration Blank
S4Q621-CC621	4Q42966.D	04/14/23 19:24	n/a	Continuing cal 4
S4Q621-ICCB	4Q42967.D	04/14/23 19:38	n/a	Continuing Calibration Blank
S4Q621-CC621	4Q42978.D	04/14/23 22:13	n/a	Continuing cal 4
S4Q621-CC621	4Q42979.D	04/14/23 22:27	n/a	Continuing cal 1.0LL
S4Q621-ICCB	4Q42980.D	04/14/23 22:41	n/a	Continuing Calibration Blank
OP96297-BS	4Q42984.D	04/14/23 23:37	OP96297	Blank Spike
OP96297-LLBS	4Q42985.D	04/14/23 23:52	OP96297	Blank Spike
OP96297-MB	4Q42986.D	04/15/23 00:06	OP96297	Method Blank
ZZZZZZ	4Q42987.D	04/15/23 00:20	OP96297	(unrelated sample)
ZZZZZZ	4Q42988.D	04/15/23 00:34	OP96297	(unrelated sample)
ZZZZZZ	4Q42989.D	04/15/23 00:48	OP96297	(unrelated sample)
ZZZZZZ	4Q42990.D	04/15/23 01:02	OP96297	(unrelated sample)
S4Q621-CC621	4Q42991.D	04/15/23 01:16	n/a	Continuing cal 4
S4Q621-ICCB	4Q42992.D	04/15/23 01:30	n/a	Continuing Calibration Blank
FC3790-5	4Q42993.D	04/15/23 01:44	OP96297	(used for QC only; not part of job FC5088)
OP96297-MS	4Q42994.D	04/15/23 01:58	OP96297	Matrix Spike
OP96297-MSD	4Q42995.D	04/15/23 02:12	OP96297	Matrix Spike Duplicate
FC3757-19	4Q42998.D	04/15/23 02:54	OP96301	(used for QC only; not part of job FC5088)
OP96301-DUP	4Q42999.D	04/15/23 03:08	OP96301	Duplicate
ZZZZZZ	4Q43000.D	04/15/23 03:22	OP96323	(unrelated sample)
ZZZZZZ	4Q43001.D	04/15/23 03:36	OP96323	(unrelated sample)
S4Q621-ECC621	4Q43002.D	04/15/23 03:50	n/a	Ending cal 4
S4Q621-ICCB	4Q43003.D	04/15/23 04:04	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q622	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q622-RT	4Q43006.D	04/15/23 04:47	n/a	Retention Time Marker
S4Q622-RT	4Q43007.D	04/15/23 05:01	n/a	Retention Time Marker
S4Q622-IBLK	4Q43009.D	04/15/23 05:29	n/a	Instrument Blank
S4Q622-IBLK	4Q43009.D	04/15/23 05:29	n/a	Instrument Blank
S4Q622-CC621	4Q43010.D	04/15/23 05:43	n/a	Continuing cal 4
S4Q622-CC621	4Q43011.D	04/15/23 05:57	n/a	Continuing cal 1.0LL
OP96322-BS	4Q43012.D	04/15/23 06:11	OP96322	Blank Spike
OP96322-LLBS	4Q43013.D	04/15/23 06:25	OP96322	Blank Spike
OP96322-MB	4Q43014.D	04/15/23 06:39	OP96322	Method Blank
ZZZZZZ	4Q43015.D	04/15/23 06:53	OP96322	(unrelated sample)
ZZZZZZ	4Q43016.D	04/15/23 07:07	OP96322	(unrelated sample)
ZZZZZZ	4Q43017.D	04/15/23 07:21	OP96322	(unrelated sample)
ZZZZZZ	4Q43018.D	04/15/23 07:35	OP96322	(unrelated sample)
ZZZZZZ	4Q43019.D	04/15/23 07:49	OP96322	(unrelated sample)
ZZZZZZ	4Q43020.D	04/15/23 08:03	OP96322	(unrelated sample)
ZZZZZZ	4Q43021.D	04/15/23 08:17	OP96322	(unrelated sample)
S4Q622-CC621	4Q43022.D	04/15/23 08:32	n/a	Continuing cal 4
S4Q622-ICCB	4Q43023.D	04/15/23 08:46	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43024.D	04/15/23 09:00	OP96322	(unrelated sample)
ZZZZZZ	4Q43025.D	04/15/23 09:14	OP96322	(unrelated sample)
ZZZZZZ	4Q43026.D	04/15/23 09:28	OP96322	(unrelated sample)
ZZZZZZ	4Q43027.D	04/15/23 09:42	OP96322	(unrelated sample)
S4Q622-CC621	4Q43034.D	04/15/23 11:20	n/a	Continuing cal 4
S4Q622-ICCB	4Q43035.D	04/15/23 11:34	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43036.D	04/15/23 11:48	OP96322	(unrelated sample)
ZZZZZZ	4Q43037.D	04/15/23 12:02	OP96322	(unrelated sample)
S4Q622-CC621	4Q43038.D	04/15/23 12:16	n/a	Continuing cal 4
S4Q622-ICCB	4Q43039.D	04/15/23 12:30	n/a	Continuing Calibration Blank
OP96371-BS	4Q43040.D	04/15/23 12:45	OP96371	Blank Spike
OP96371-LLBS	4Q43041.D	04/15/23 12:59	OP96371	Blank Spike
OP96371-MB	4Q43042.D	04/15/23 13:13	OP96371	Method Blank
ZZZZZZ	4Q43043.D	04/15/23 13:27	OP96371	(unrelated sample)
ZZZZZZ	4Q43044.D	04/15/23 13:41	OP96371	(unrelated sample)
ZZZZZZ	4Q43045.D	04/15/23 13:55	OP96371	(unrelated sample)
ZZZZZZ	4Q43046.D	04/15/23 14:09	OP96371	(unrelated sample)
ZZZZZZ	4Q43047.D	04/15/23 14:23	OP96371	(unrelated sample)
ZZZZZZ	4Q43048.D	04/15/23 14:37	OP96371	(unrelated sample)
S4Q622-CC621	4Q43050.D	04/15/23 15:05	n/a	Continuing cal 4
S4Q622-ICCB	4Q43051.D	04/15/23 15:19	n/a	Continuing Calibration Blank
JD63141-9A	4Q43052.D	04/15/23 15:33	OP96371	(used for QC only; not part of job FC5088)
OP96371-MS	4Q43053.D	04/15/23 15:47	OP96371	Matrix Spike
JD63141-10A	4Q43054.D	04/15/23 16:01	OP96371	(used for QC only; not part of job FC5088)
ZZZZZZ	4Q43057.D	04/15/23 16:44	OP96371	(unrelated sample)
ZZZZZZ	4Q43058.D	04/15/23 16:58	OP96371	(unrelated sample)
ZZZZZZ	4Q43059.D	04/15/23 17:12	OP96371	(unrelated sample)
ZZZZZZ	4Q43060.D	04/15/23 17:26	OP96371	(unrelated sample)

Run Sequence Report

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q622	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	4Q43061.D	04/15/23 17:40	OP96371	(unrelated sample)
S4Q622-CC621	4Q43062.D	04/15/23 17:54	n/a	Continuing cal 4
S4Q622-CC621	4Q43063.D	04/15/23 18:08	n/a	Continuing cal 1.0LL
S4Q622-ICCB	4Q43064.D	04/15/23 18:22	n/a	Continuing Calibration Blank
OP96368-BS	4Q43065.D	04/15/23 18:36	OP96368	Blank Spike
OP96368-LLBS	4Q43066.D	04/15/23 18:50	OP96368	Blank Spike
OP96368-MB	4Q43067.D	04/15/23 19:04	OP96368	Method Blank
FC5088-1	4Q43068.D	04/15/23 19:18	OP96368	AF-RHMW17S-WGN01LF-2304W1
FC5088-2	4Q43069.D	04/15/23 19:32	OP96368	AF-RHMW17S-WQEB01-2304W1
FC5088-3	4Q43070.D	04/15/23 19:46	OP96368	AF-RHMW17D-WGN01LF-2304W1
OP96368-MS	4Q43071.D	04/15/23 20:00	OP96368	Matrix Spike
FC5088-4	4Q43072.D	04/15/23 20:14	OP96368	AF-RHMW17D-WQFB01-2304W1
S4Q622-CC621	4Q43073.D	04/15/23 20:28	n/a	Continuing cal 4
S4Q622-ICCB	4Q43074.D	04/15/23 20:42	n/a	Continuing Calibration Blank
FC5088-5	4Q43075.D	04/15/23 20:56	OP96368	AF-RHMW17-WGN01LF-2304W1
OP96368-DUP	4Q43076.D	04/15/23 21:11	OP96368	Duplicate
S4Q622-ECC621	4Q43077.D	04/15/23 21:25	n/a	Ending cal 4
S4Q622-ICCB	4Q43078.D	04/15/23 21:39	n/a	Continuing Calibration Blank

6.10.2
6

Run Sequence Report

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q624	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q624-RT	4Q43145.D	04/18/23 10:28	n/a	Retention Time Marker
S4Q624-RT	4Q43146.D	04/18/23 10:44	n/a	Retention Time Marker
S4Q624-IBLK	4Q43148.D	04/18/23 11:12	n/a	Instrument Blank
S4Q624-IBLK	4Q43148.D	04/18/23 11:12	n/a	Instrument Blank
S4Q624-CC621	4Q43149.D	04/18/23 11:26	n/a	Continuing cal 4
S4Q624-CC621	4Q43150.D	04/18/23 11:40	n/a	Continuing cal 1.0LL
ZZZZZZ	4Q43151.D	04/18/23 11:54	OP96371	(unrelated sample)
ZZZZZZ	4Q43152.D	04/18/23 12:08	OP96371	(unrelated sample)
FC5088-1	4Q43153.D	04/18/23 12:22	OP96368	AF-RHMW17S-WGN01LF-2304W1
OP96403-BS	4Q43154.D	04/18/23 12:36	OP96403	Blank Spike
OP96403-LLBS	4Q43155.D	04/18/23 12:54	OP96403	Blank Spike
OP96403-MB	4Q43156.D	04/18/23 13:08	OP96403	Method Blank
ZZZZZZ	4Q43157.D	04/18/23 13:22	OP96403	(unrelated sample)
ZZZZZZ	4Q43158.D	04/18/23 13:36	OP96403	(unrelated sample)
FC5194-1	4Q43159.D	04/18/23 13:50	OP96403	(used for QC only; not part of job FC5088)
OP96403-MS	4Q43160.D	04/18/23 14:04	OP96403	Matrix Spike
S4Q624-CC621	4Q43161.D	04/18/23 14:29	n/a	Continuing cal 4
S4Q624-ICCB	4Q43162.D	04/18/23 14:43	n/a	Continuing Calibration Blank
FC5194-2	4Q43163.D	04/18/23 14:57	OP96403	(used for QC only; not part of job FC5088)
OP96403-DUP	4Q43164.D	04/18/23 15:11	OP96403	Duplicate
ZZZZZZ	4Q43165.D	04/18/23 15:25	OP96403	(unrelated sample)
FC5088-3	4Q43166.D	04/18/23 15:39	OP96368	AF-RHMW17D-WGN01LF-2304W1
OP96427-BS	4Q43167.D	04/18/23 15:53	OP96427	Blank Spike
OP96427-LLBS	4Q43168.D	04/18/23 16:07	OP96427	Blank Spike
OP96427-MB	4Q43169.D	04/18/23 16:21	OP96427	Method Blank
ZZZZZZ	4Q43170.D	04/18/23 16:35	OP96427	(unrelated sample)
FC5252-2	4Q43171.D	04/18/23 16:49	OP96427	(used for QC only; not part of job FC5088)
OP96427-MS	4Q43172.D	04/18/23 17:03	OP96427	Matrix Spike
S4Q624-CC621	4Q43173.D	04/18/23 17:17	n/a	Continuing cal 4
S4Q624-ICCB	4Q43174.D	04/18/23 17:32	n/a	Continuing Calibration Blank
FC5252-3	4Q43175.D	04/18/23 17:46	OP96427	(used for QC only; not part of job FC5088)
OP96427-DUP	4Q43176.D	04/18/23 18:00	OP96427	Duplicate
ZZZZZZ	4Q43177.D	04/18/23 18:14	OP96427	(unrelated sample)
ZZZZZZ	4Q43178.D	04/18/23 18:28	OP96427	(unrelated sample)
OP96386-BS	4Q43179.D	04/18/23 18:42	OP96386	Blank Spike
OP96386-LLBS	4Q43180.D	04/18/23 18:56	OP96386	Blank Spike
OP96386-MB	4Q43181.D	04/18/23 19:10	OP96386	Method Blank
ZZZZZZ	4Q43182.D	04/18/23 19:24	OP96386	(unrelated sample)
ZZZZZZ	4Q43183.D	04/18/23 19:38	OP96386	(unrelated sample)
S4Q624-CC621	4Q43184.D	04/18/23 19:52	n/a	Continuing cal 4
S4Q624-CC621	4Q43185.D	04/18/23 20:06	n/a	Continuing cal 1.0LL
S4Q624-ICCB	4Q43186.D	04/18/23 20:20	n/a	Continuing Calibration Blank
JD63151-3	4Q43187.D	04/18/23 20:34	OP96386	(used for QC only; not part of job FC5088)
OP96386-MS	4Q43188.D	04/18/23 20:48	OP96386	Matrix Spike
JD63151-4	4Q43189.D	04/18/23 21:02	OP96386	(used for QC only; not part of job FC5088)
OP96386-DUP	4Q43190.D	04/18/23 21:17	OP96386	Duplicate

Run Sequence Report

Job Number: FC5088
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q624	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	4Q43191.D	04/18/23 21:31	OP96386	(unrelated sample)
ZZZZZZ	4Q43192.D	04/18/23 21:45	OP96386	(unrelated sample)
ZZZZZZ	4Q43193.D	04/18/23 21:59	OP96386	(unrelated sample)
ZZZZZZ	4Q43194.D	04/18/23 22:13	OP96386	(unrelated sample)
ZZZZZZ	4Q43195.D	04/18/23 22:27	OP96386	(unrelated sample)
S4Q624-CC621	4Q43196.D	04/18/23 22:41	n/a	Continuing cal 4
S4Q624-ICCB	4Q43197.D	04/18/23 22:55	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43198.D	04/18/23 23:09	OP96386	(unrelated sample)
ZZZZZZ	4Q43199.D	04/18/23 23:23	OP96386	(unrelated sample)
ZZZZZZ	4Q43200.D	04/18/23 23:37	OP96386	(unrelated sample)
ZZZZZZ	4Q43201.D	04/18/23 23:51	OP96386	(unrelated sample)
ZZZZZZ	4Q43202.D	04/19/23 00:05	OP96386	(unrelated sample)
ZZZZZZ	4Q43203.D	04/19/23 00:19	OP96386	(unrelated sample)
S4Q624-CC621	4Q43204.D	04/19/23 00:33	n/a	Continuing cal 4
S4Q624-ICCB	4Q43205.D	04/19/23 00:47	n/a	Continuing Calibration Blank
S4Q624-ICCB	4Q43205.D	04/19/23 00:47	n/a	Continuing Calibration Blank
OP96364-BS	4Q43206.D	04/19/23 01:01	OP96364	Blank Spike
OP96364-LLBS	4Q43207.D	04/19/23 01:16	OP96364	Blank Spike
OP96364-MB	4Q43208.D	04/19/23 01:30	OP96364	Method Blank
JD62946-1	4Q43209.D	04/19/23 01:44	OP96364	(used for QC only; not part of job FC5088)
OP96364-MS	4Q43210.D	04/19/23 01:58	OP96364	Matrix Spike
JD62924-1B	4Q43211.D	04/19/23 02:12	OP96364	(used for QC only; not part of job FC5088)
OP96364-DUP	4Q43212.D	04/19/23 02:26	OP96364	Duplicate
ZZZZZZ	4Q43213.D	04/19/23 02:40	OP96364	(unrelated sample)
ZZZZZZ	4Q43214.D	04/19/23 02:54	OP96364	(unrelated sample)
ZZZZZZ	4Q43215.D	04/19/23 03:08	OP96364	(unrelated sample)
S4Q624-CC621	4Q43216.D	04/19/23 03:22	n/a	Continuing cal 4
S4Q624-ICCB	4Q43217.D	04/19/23 03:36	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43218.D	04/19/23 03:50	OP96364	(unrelated sample)
ZZZZZZ	4Q43219.D	04/19/23 04:04	OP96364	(unrelated sample)
ZZZZZZ	4Q43220.D	04/19/23 04:18	OP96364	(unrelated sample)
ZZZZZZ	4Q43221.D	04/19/23 04:32	OP96364	(unrelated sample)
ZZZZZZ	4Q43222.D	04/19/23 04:46	OP96364	(unrelated sample)
ZZZZZZ	4Q43223.D	04/19/23 05:00	OP96364	(unrelated sample)
ZZZZZZ	4Q43224.D	04/19/23 05:15	OP96364	(unrelated sample)
ZZZZZZ	4Q43225.D	04/19/23 05:29	OP96364	(unrelated sample)
ZZZZZZ	4Q43226.D	04/19/23 05:43	OP96364	(unrelated sample)
ZZZZZZ	4Q43227.D	04/19/23 05:57	OP96364	(unrelated sample)
S4Q624-CC621	4Q43228.D	04/19/23 06:11	n/a	Continuing cal 4
S4Q624-CC621	4Q43229.D	04/19/23 06:25	n/a	Continuing cal 1.0LL
S4Q624-ICCB	4Q43230.D	04/19/23 06:39	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43231.D	04/19/23 06:53	OP96364	(unrelated sample)
ZZZZZZ	4Q43232.D	04/19/23 07:07	OP96364	(unrelated sample)
ZZZZZZ	4Q43233.D	04/19/23 07:21	OP96364	(unrelated sample)
ZZZZZZ	4Q43234.D	04/19/23 07:35	OP96364	(unrelated sample)
S4Q624-ECC621	4Q43235.D	04/19/23 07:49	n/a	Ending cal 4

Run Sequence Report

Job Number: FC5088
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q624	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q624-ICCB	4Q43236.D	04/19/23 08:03	n/a	Continuing Calibration Blank

6.10.3

6

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43068.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 7:18:42 PM
 Sample Name : FC5088-1
 Vial : P4-C9
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96368,S4q622,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	53619	10.00 µg/L	0.000
M5-PFPeA	4.462	268.3 -> 223.0	62079	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	50017	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	24866	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	29757	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	15360	1.25 µg/L	-0.012
M6-PFDA	8.291	519.1 -> 474.1	15919	1.25 µg/L	-0.012
M7-PFUnDA	8.760	570.0 -> 525.1	16133	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	16116	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	9173	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	12680	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	10577	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	6379	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	8957	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1772	5.00 µg/L	0.000
M2-6:2FTS	6.986	429.1 -> 80.9	1669	5.00 µg/L	-0.012
M2-8:2FTS	8.066	529.1 -> 80.9	2634	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	13314	5.00 µg/L	-0.012
M3-HFPO-DA	6.002	286.9 -> 168.9	28513	10.00 µg/L	-0.012
M5-EtFOSAA	8.558	589.2 -> 419.0	9758	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	37963	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	44144	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	5973	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	5520	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	9285	2.50 µg/L	-0.024
13C3-PFBA	3.003	216.0 -> 172.0	42979	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	4178	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	34398	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	13577	1.25 µg/L	-0.012
13C5-PFNA	7.784	468.0 -> 423.0	16802	1.25 µg/L	-0.012
13C2-PFHxA	5.648	315.1 -> 270.0	39679	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1772	7.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 155.3%		
13C2-6:2FTS	6.986	429.1 -> 80.9	1669	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-8:2FTS	8.066	529.1 -> 80.9	2634	4.89 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFDoDA	9.219	615.1 -> 570.0	16116	0.96 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.1%		
13C2-PFTeDA	10.012	715.2 -> 670.0	9173	0.71 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 56.4%		
13C3-PFBS	5.552	302.1 -> 79.9	10577	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C3-PFHxS	7.329	402.1 -> 79.9	6379	2.76 µg/L	-0.012

7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.4%		
13C4-PFBA	2.999	216.8 -> 171.9	53619	7.16 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 71.6%		
13C4-PFHpA	6.567	367.1 -> 322.0	24866	2.76 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.4%		
13C5-PFHxA	5.647	318.0 -> 273.0	50017	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C5-PFPeA	4.462	268.3 -> 223.0	62079	5.31 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C6-PFDA	8.291	519.1 -> 474.1	15919	1.33 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C7-PFUnDA	8.760	570.0 -> 525.1	16133	1.24 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C8-FOSA	9.858	506.1 -> 77.8	12680	2.09 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 83.5%		
13C8-PFOA	7.227	421.1 -> 376.0	29757	2.63 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C8-PFOS	8.442	507.1 -> 79.9	8957	2.49 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C9-PFNA	7.784	472.1 -> 427.0	15360	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
d3-MeFOSAA	8.349	573.2 -> 419.0	13314	4.87 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-HFPO-DA	6.002	286.9 -> 168.9	28513	10.24 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.4%		
d3-MeFOSA	11.103	515.0 -> 219.0	5520	1.92 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 76.8%		
d5-EtFOSAA	8.558	589.2 -> 419.0	9758	4.39 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.8%		
d7-MeFOSE	10.986	623.2 -> 58.9	37963	15.85 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 63.4%		
d9-EtFOSE	11.295	639.2 -> 58.9	44144	15.07 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 60.3%		
d5-EtFOSA	11.386	531.1 -> 219.0	5973	1.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 76.9%		

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	3.046	212.8 -> 168.9	616	0.50 µg/L	100
PFBS	5.553	298.7 -> 79.9	323	0.08 µg/L	96
		298.7 -> 98.8	133		
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.555	599.0 -> 98.8				
		363.1 -> 319.0	2173	0.18	µg/L	96
PFHpS	-	363.1 -> 169.0	418			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.650	449.0 -> 98.9				
		313.0 -> 269.0	4957	0.33	µg/L	99
PFHxS	-	313.0 -> 118.9	169			
		398.7 -> 79.9	-	N.D.		
PFNA	7.785	398.7 -> 98.9				
		463.0 -> 419.0	655	0.08	µg/L	85
PFNS	-	463.0 -> 219.0	102			
		548.8 -> 79.9	-	N.D.		
PFOA	7.228	548.8 -> 98.9				
		413.0 -> 369.0	1500	0.11	µg/L	83
PFOS	8.443	413.0 -> 169.0	425			
		498.9 -> 79.9	488	0.14	µg/L	#m 56
PFPeA	4.654	498.9 -> 98.8	134			
		263.0 -> 219.0	0		µg/L	m 1
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	4.344	241.0 -> 177.0	0		µg/L	m 1
		241.0 -> 117.0	0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.695	630.0 -> 58.9	0		µg/L	m 1
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

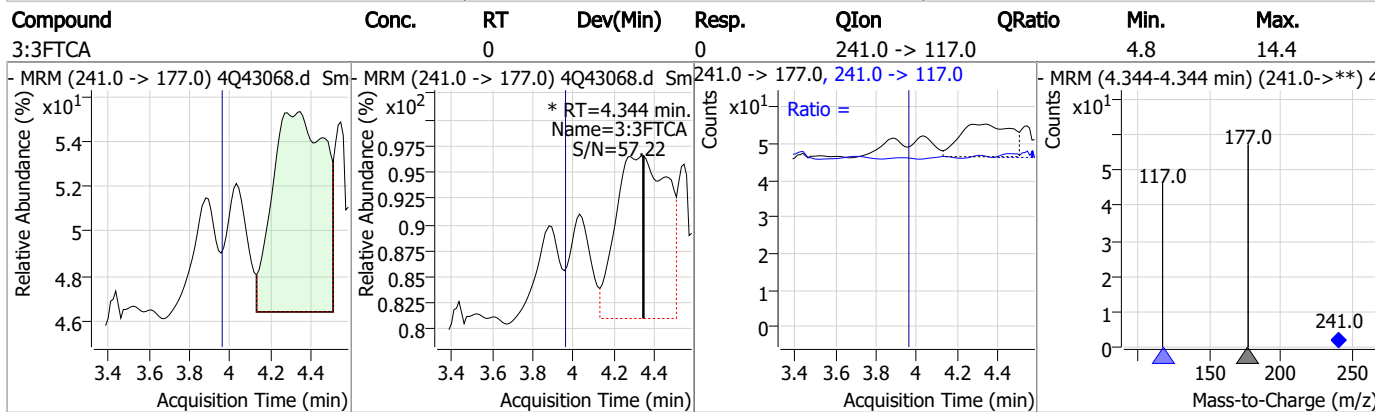
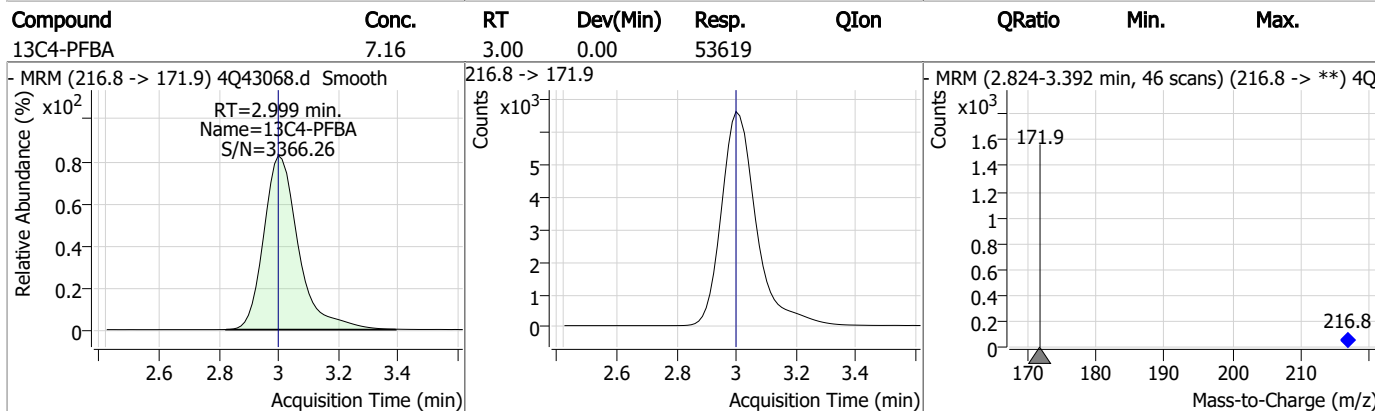
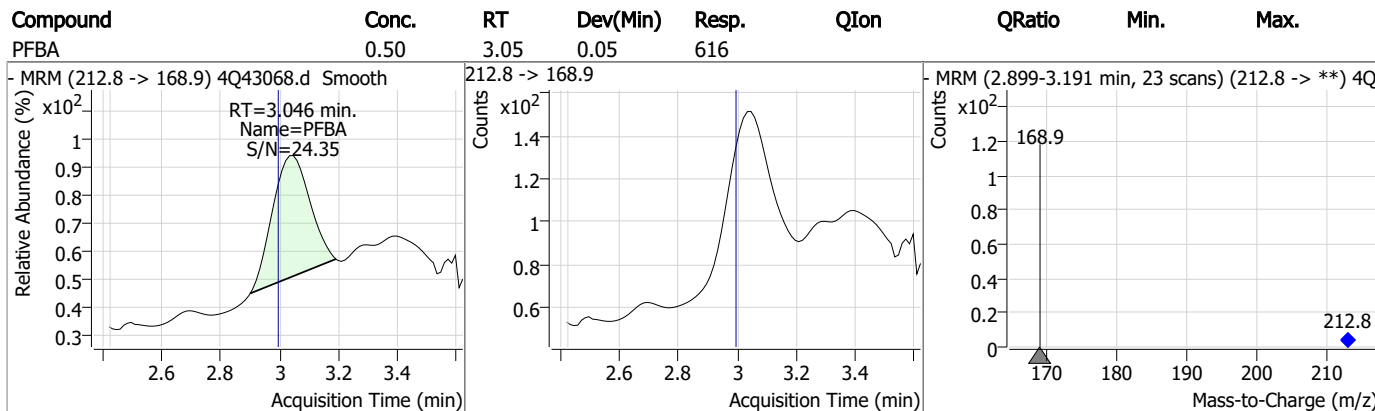
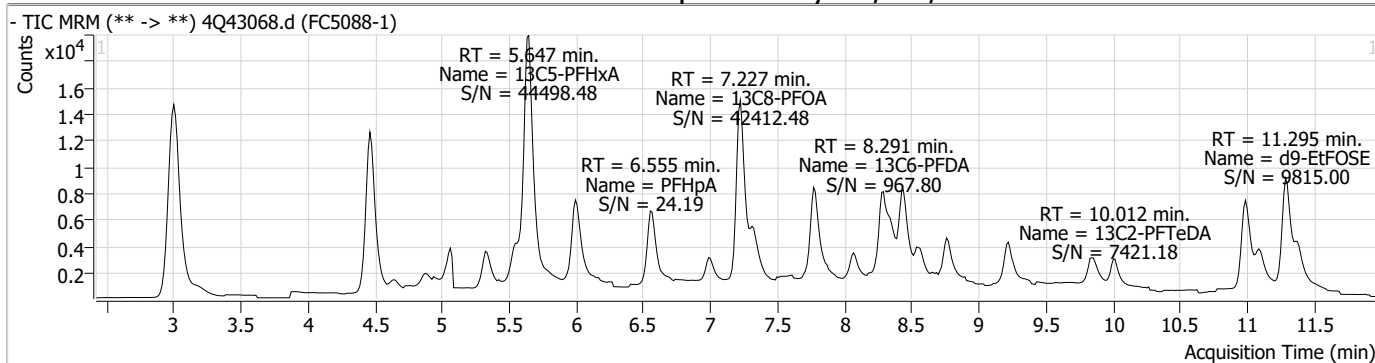
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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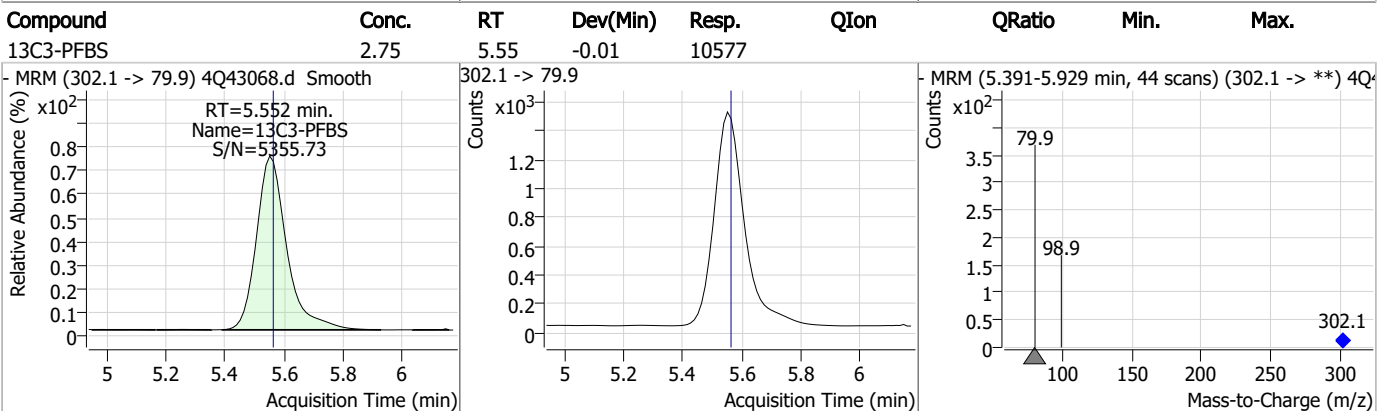
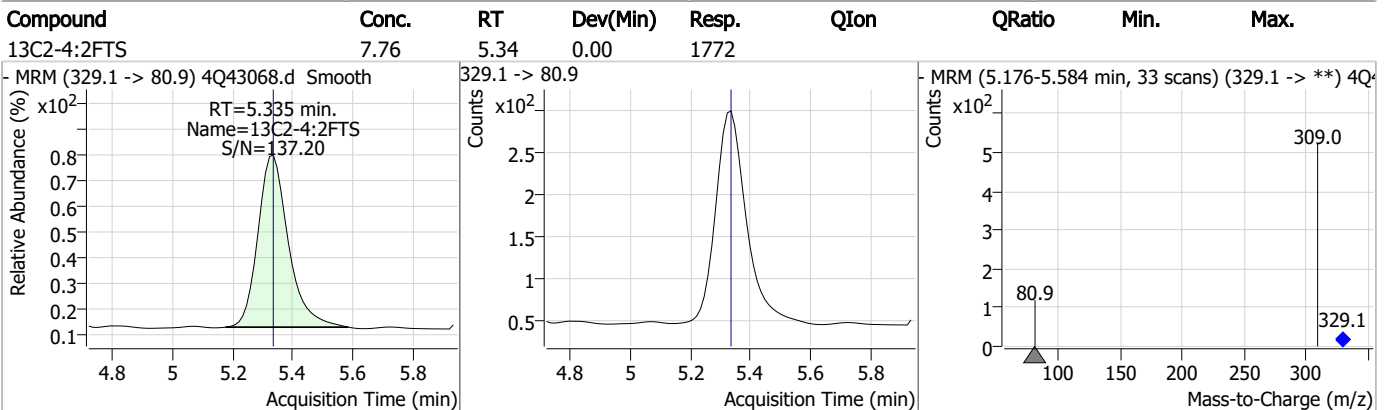
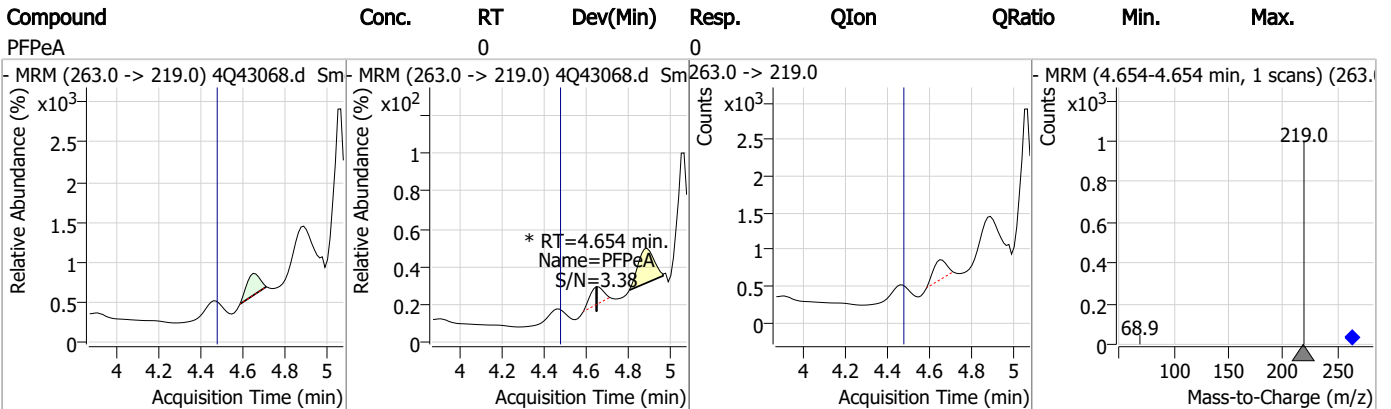
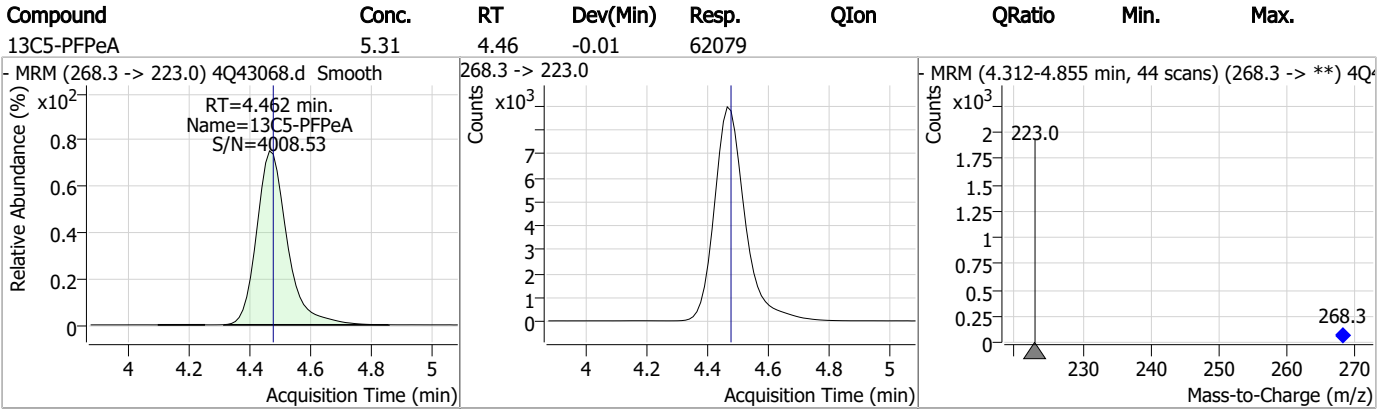
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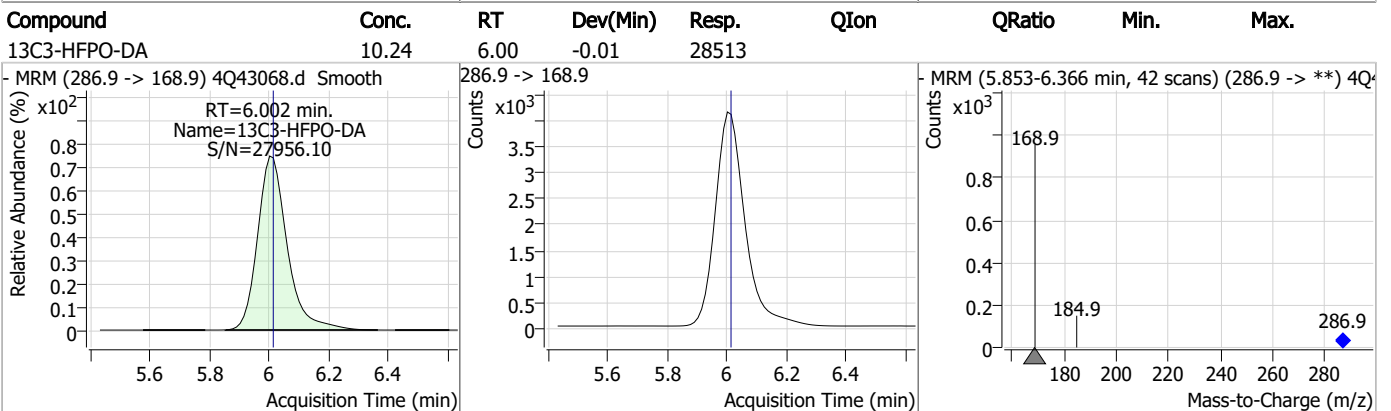
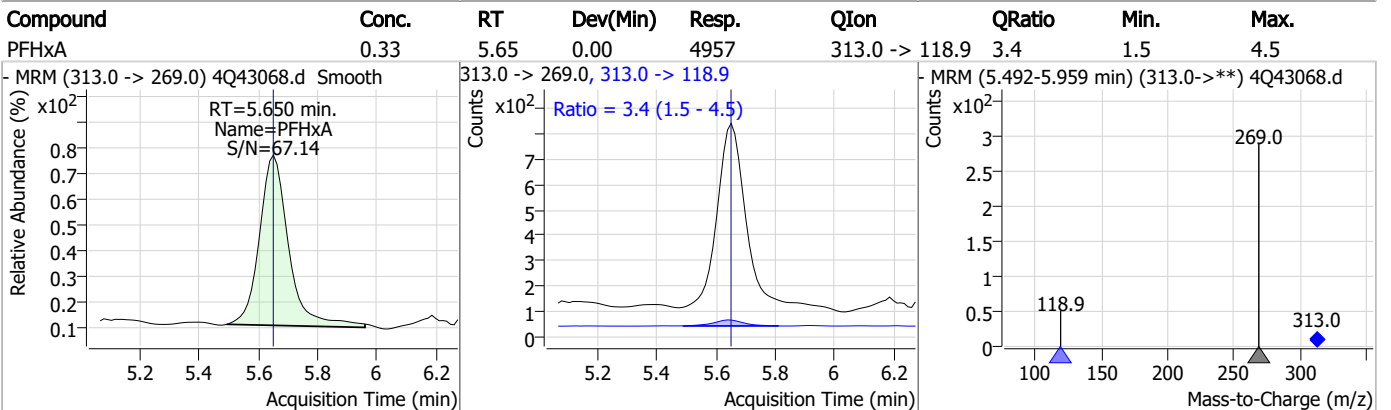
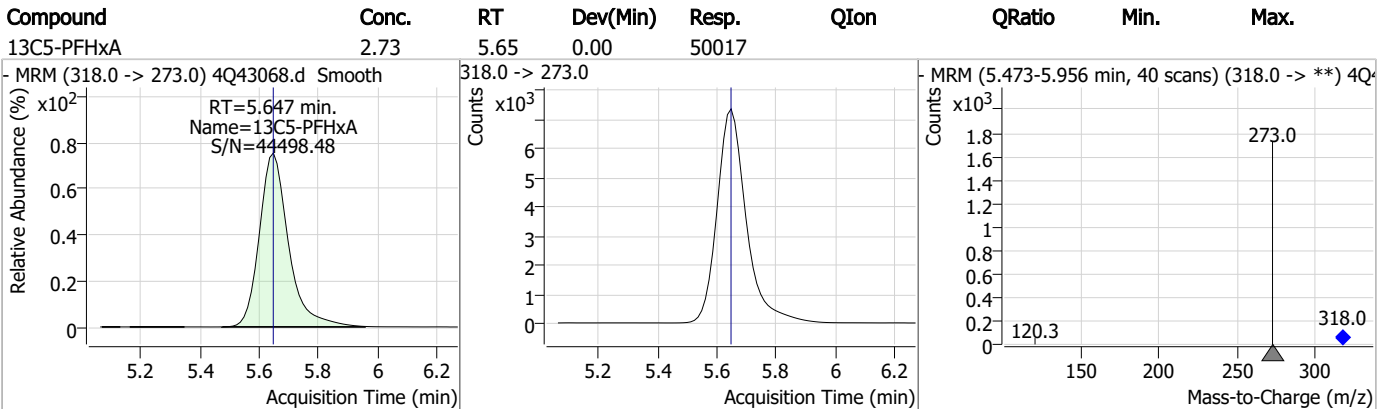
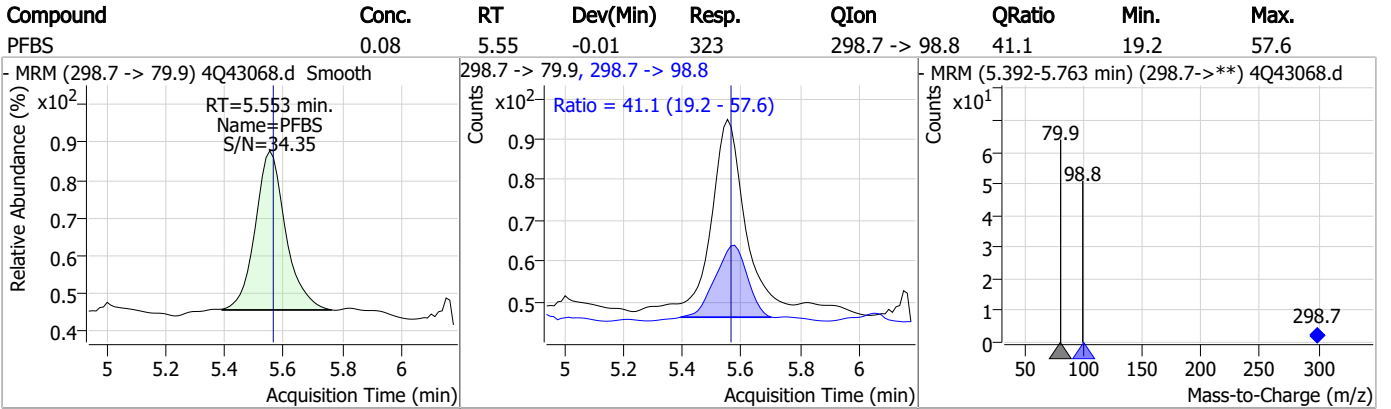
Perfluorinated Compounds by LC/MS/MS



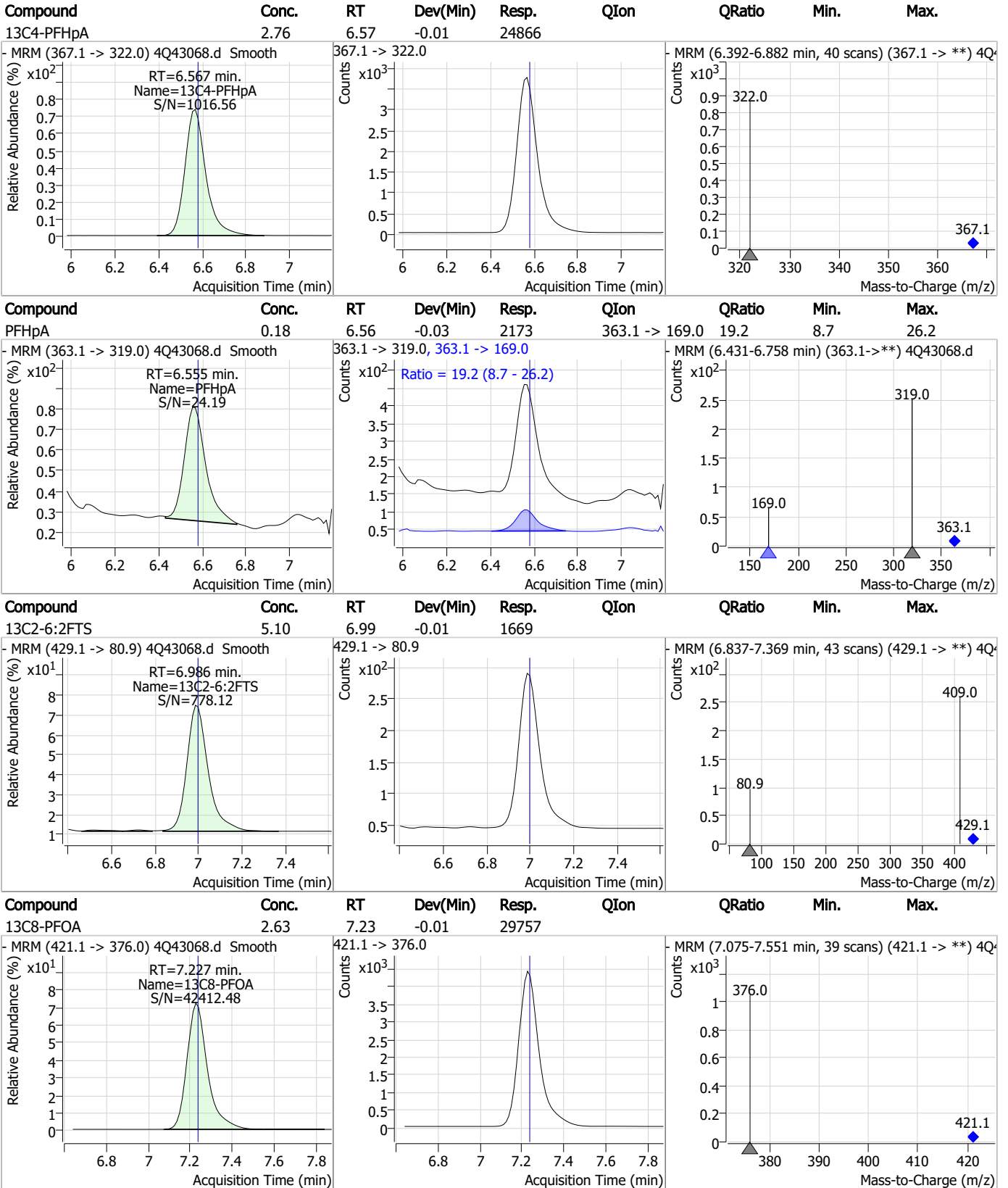
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

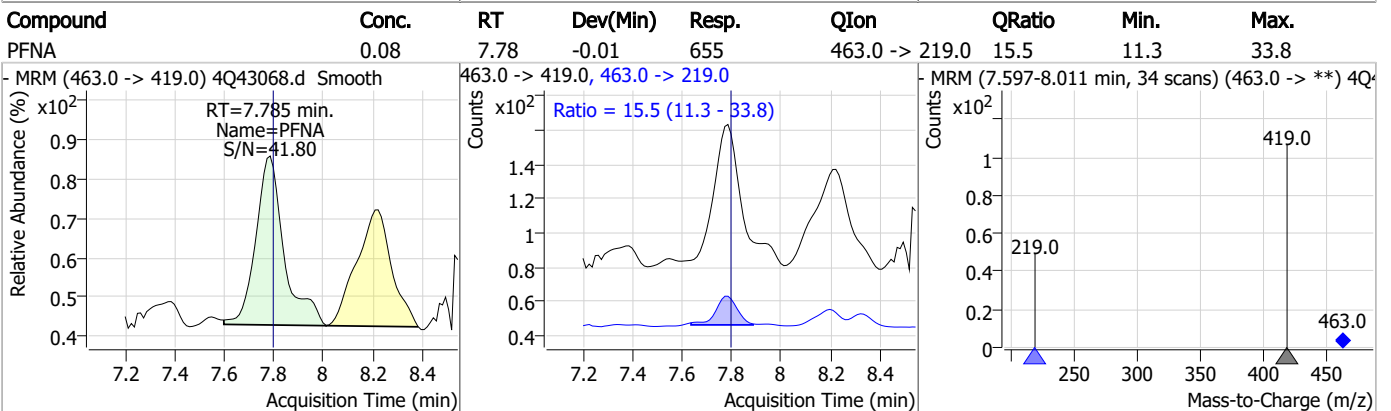
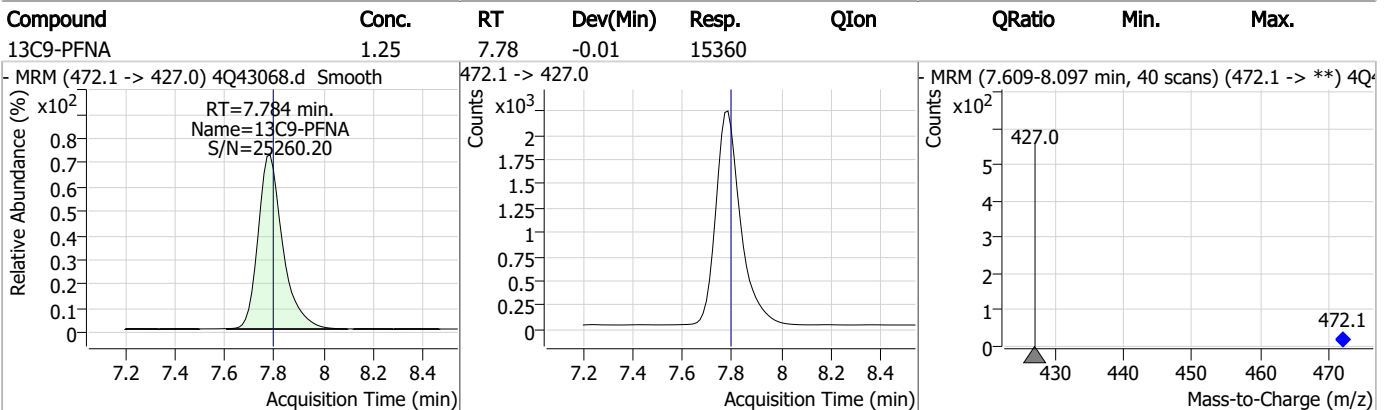
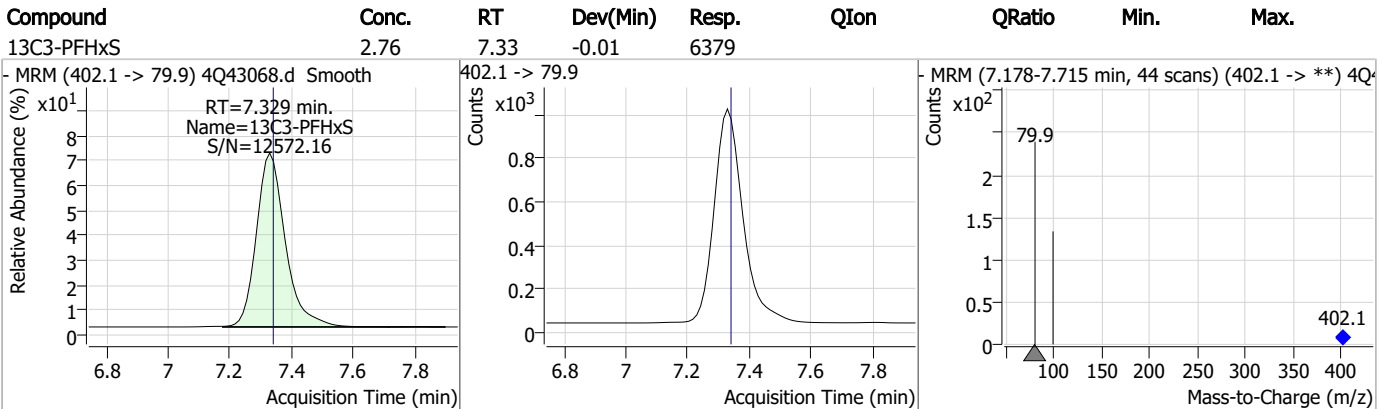
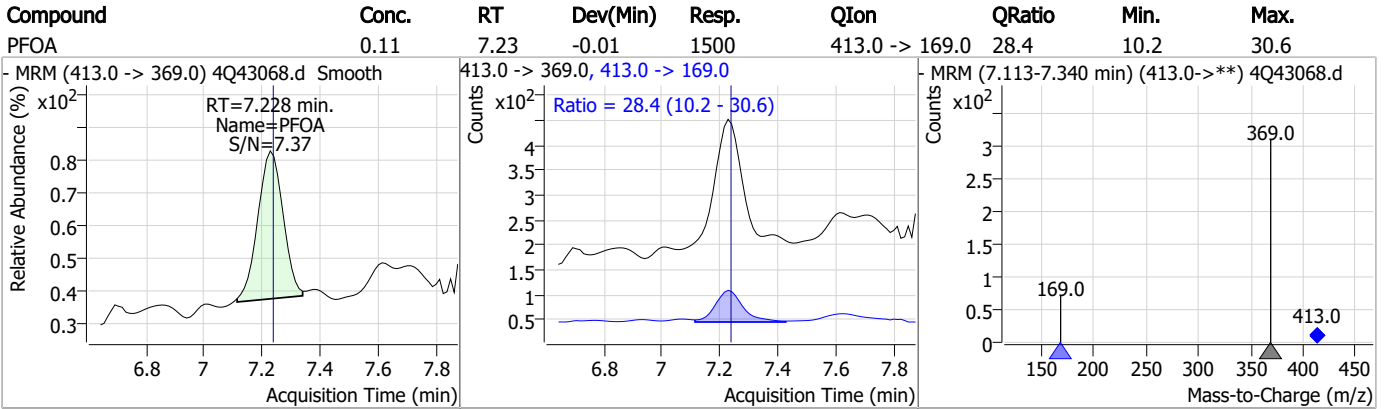


Perfluorinated Compounds by LC/MS/MS

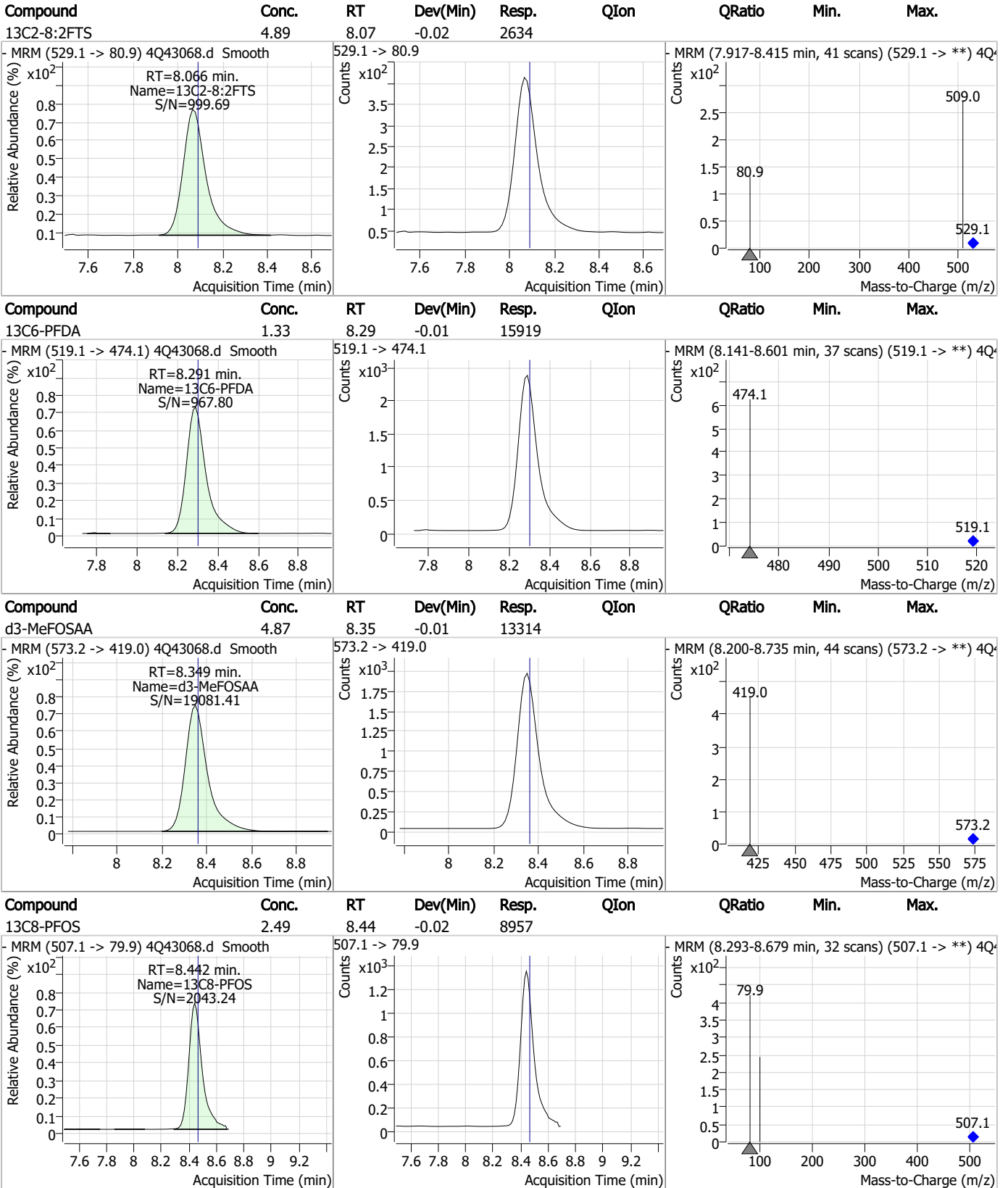


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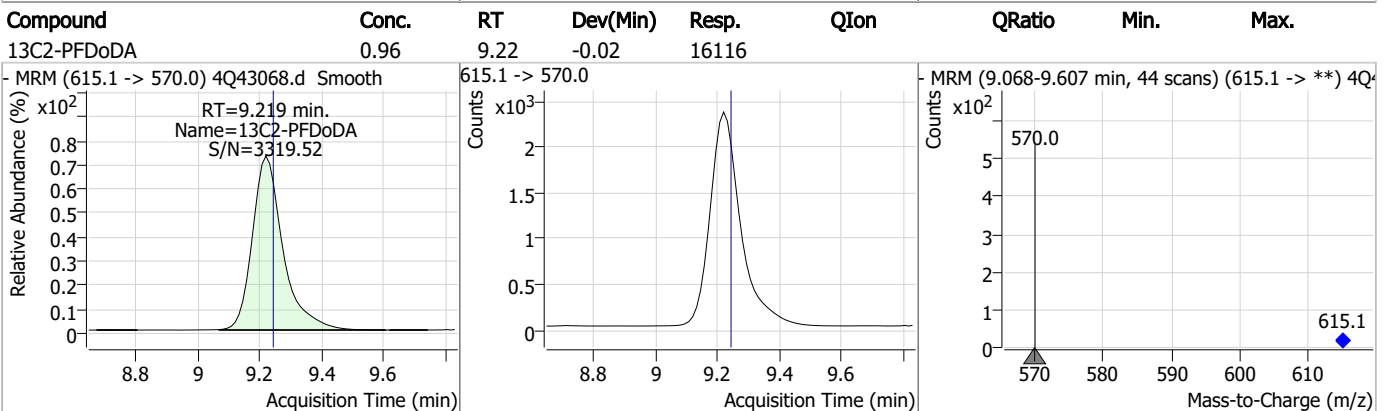
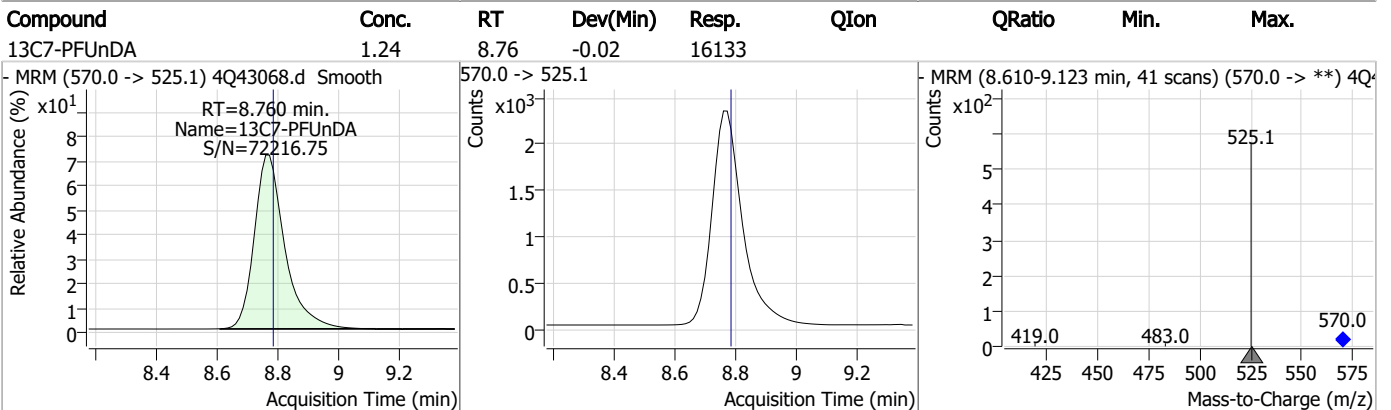
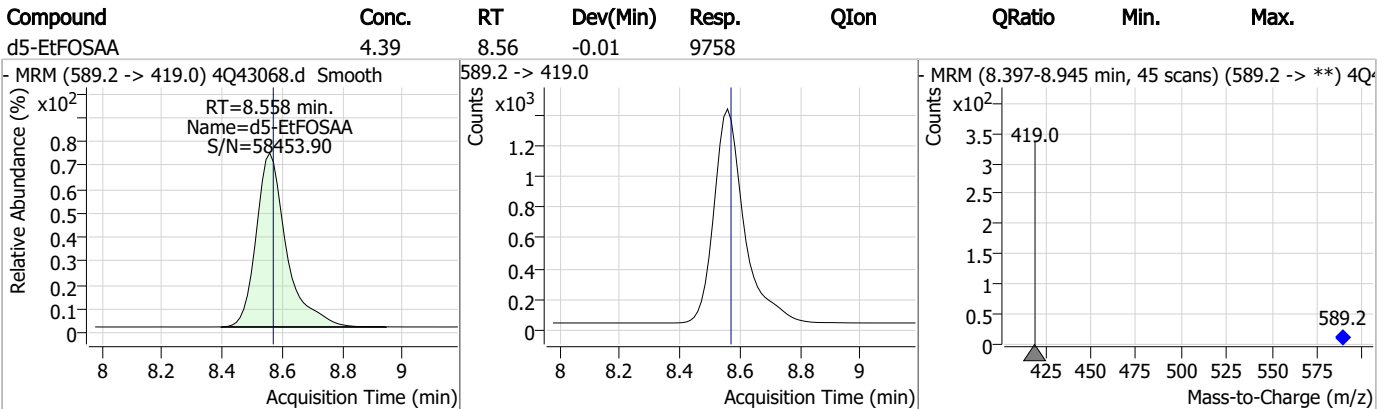
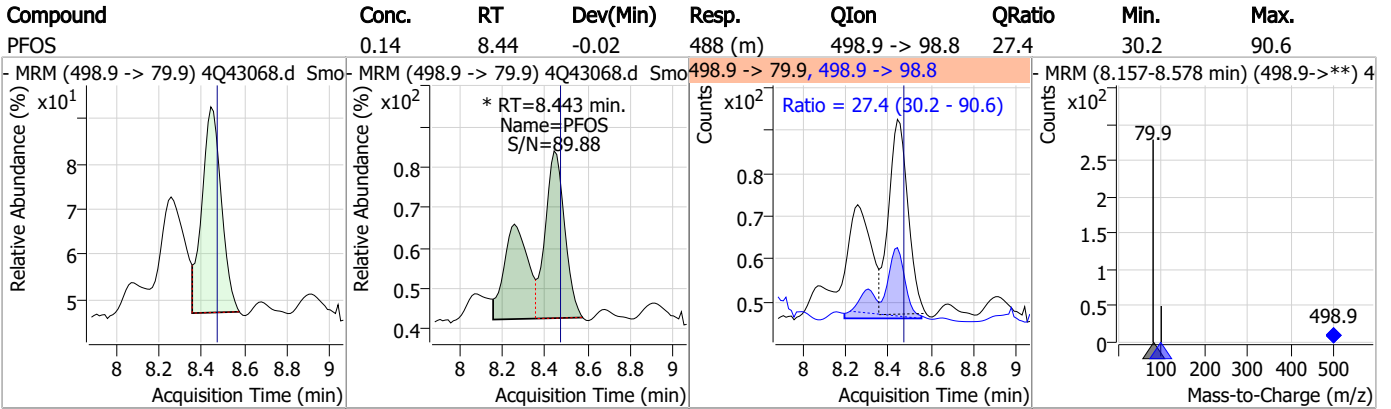
Perfluorinated Compounds by LC/MS/MS



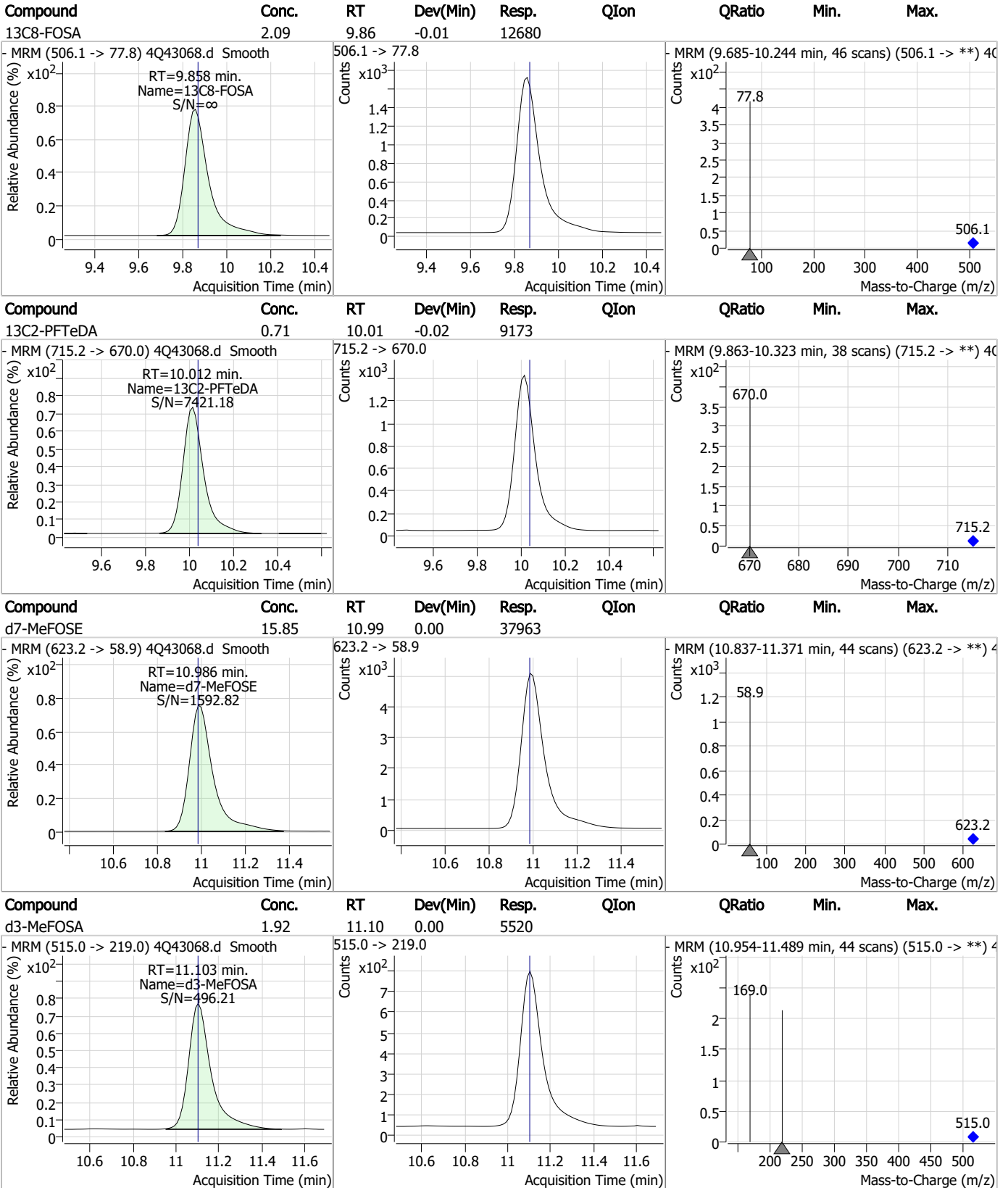
Perfluorinated Compounds by LC/MS/MS



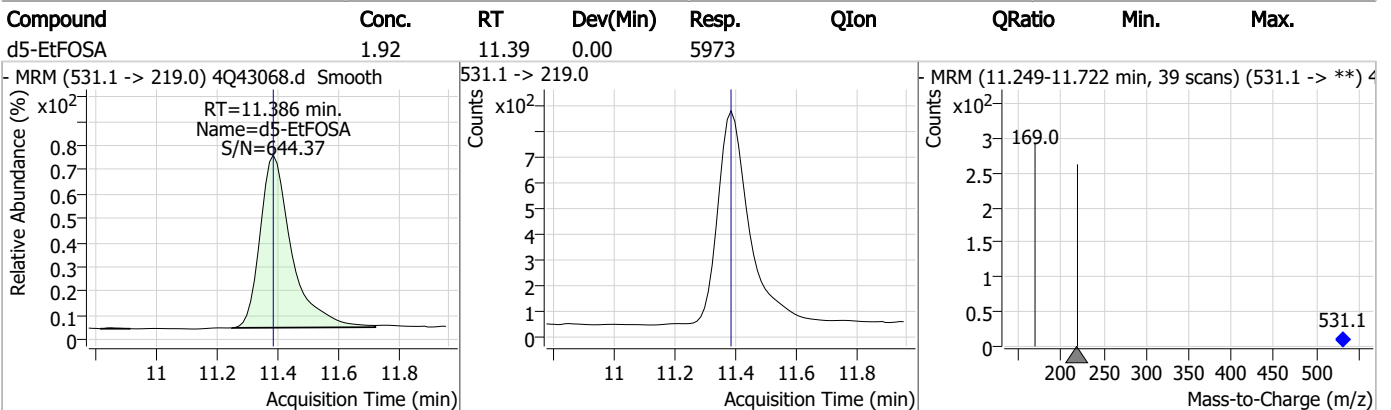
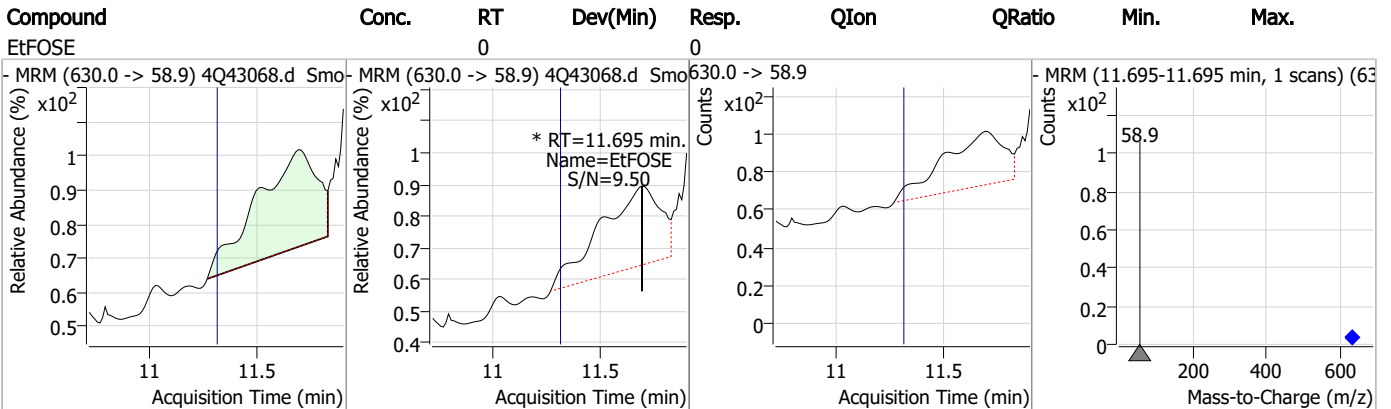
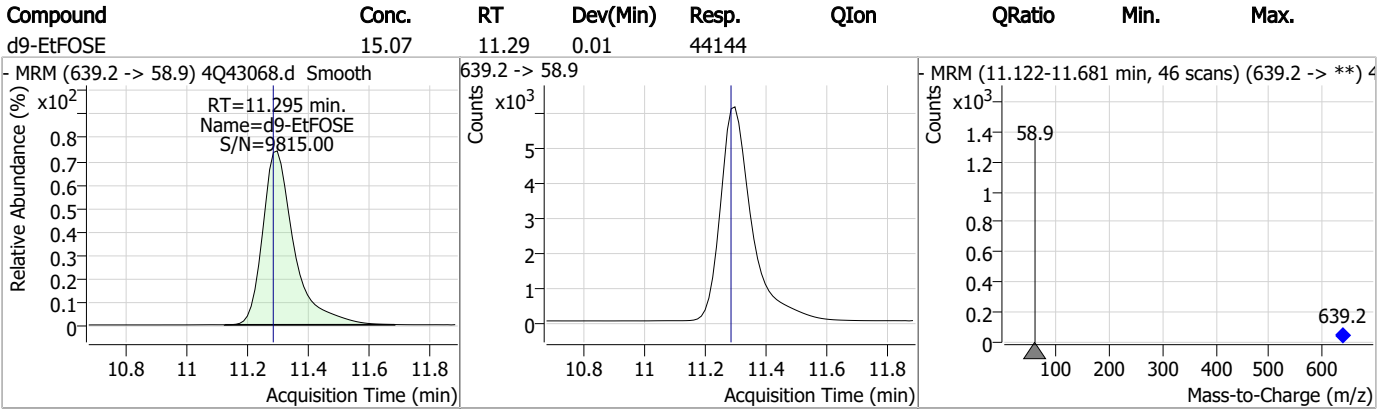
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.1

7

Manual Integration Approval Summary

Sample Number: FC5088-1 Method: EPA DRAFT 1633
Lab FileID: 4Q43068.D Analyst approved: 04/19/23 13:55 Martha Valls
Injection Time: 04/15/23 19:18 Supervisor approved: 04/19/23 16:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.44	Split peak

7.1.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43153.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 12:22:42 PM
 Sample Name : FC5088-1
 Vial : P4-B9
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96368,S4q624,540,,,,5.0,5,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	13301	2.00 µg/L	0.038
M5-PFPeA	4.450	268.3 -> 223.0	11348	1.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	9252	0.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	4568	0.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	5876	0.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	3096	0.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	2847	0.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	2441	0.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	3032	0.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	1736	0.25 µg/L	0.012
M8-FOSA	9.834	506.1 -> 77.8	2373	0.50 µg/L	0.000
M3-PFBS	5.539	302.1 -> 79.9	2006	0.50 µg/L	0.012
M3-PFHxS	7.317	402.1 -> 79.9	1236	0.50 µg/L	0.000
M8-PFOS	8.417	507.1 -> 79.9	1677	0.50 µg/L	0.000
M2-4:2FTS	5.309	329.1 -> 80.9	210	1.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	306	1.00 µg/L	0.000
M2-8:2FTS	8.054	529.1 -> 80.9	569	1.00 µg/L	0.000
M3-MeFOSAA	8.324	573.2 -> 419.0	2375	1.00 µg/L	0.000
M3-HFPO-DA	5.989	286.9 -> 168.9	5765	2.00 µg/L	0.000
M5-EtFOSAA	8.533	589.2 -> 419.0	2116	1.00 µg/L	0.000
M7-MeFOSE	10.974	623.2 -> 58.9	7682	5.00 µg/L	0.000
M9-EtFOSE	11.270	639.2 -> 58.9	8483	5.00 µg/L	-0.012
M5-EtFOSA	11.373	531.1 -> 219.0	1138	0.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	1058	0.50 µg/L	0.000
13C4-PFOS	8.418	502.8 -> 79.9	1993	0.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	10874	1.00 µg/L	0.025
18O2-PFHxS	7.316	403.0 -> 83.9	732	0.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	6667	0.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	2245	0.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	3080	0.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	7695	0.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.309	329.1 -> 80.9	210	1.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 21.0%		
13C2-6:2FTS	6.974	429.1 -> 80.9	306	1.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 21.4%		
13C2-8:2FTS	8.054	529.1 -> 80.9	569	1.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 24.1%		
13C2-PFDoDA	9.194	615.1 -> 570.0	3032	0.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 17.6%		
13C2-PFTeDA	10.000	715.2 -> 670.0	1736	0.16 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 12.9%		
13C3-PFBS	5.539	302.1 -> 79.9	2006	0.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 23.9%		
13C3-PFHxS	7.317	402.1 -> 79.9	1236	0.61 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 24.4%	
13C4-PFBA	2.999	216.8 -> 171.9	13301	1.40 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 14.0%	
13C4-PFHpA	6.555	367.1 -> 322.0	4568	0.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 20.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	9252	0.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 20.8%	
13C5-PFPeA	4.450	268.3 -> 223.0	11348	1.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 20.0%	
13C6-PFDA	8.266	519.1 -> 474.1	2847	0.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 23.1%	
13C7-PFUnDA	8.748	570.0 -> 525.1	2441	0.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 18.2%	
13C8-FOSA	9.834	506.1 -> 77.8	2373	0.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 14.6%	
13C8-PFOA	7.214	421.1 -> 376.0	5876	0.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 21.4%	
13C8-PFOS	8.417	507.1 -> 79.9	1677	0.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 17.4%	
13C9-PFNA	7.759	472.1 -> 427.0	3096	0.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 22.1%	
d3-MeFOSAA	8.324	573.2 -> 419.0	2375	0.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 16.2%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	5765	2.14 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 21.4%	
d3-MeFOSA	11.090	515.0 -> 219.0	1058	0.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 13.7%	
d5-EtFOSAA	8.533	589.2 -> 419.0	2116	0.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 17.7%	
d7-MeFOSE	10.974	623.2 -> 58.9	7682	2.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 12.0%	
d9-EtFOSE	11.270	639.2 -> 58.9	8483	2.70 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 10.8%	
d5-EtFOSA	11.373	531.1 -> 219.0	1138	0.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 13.7%	

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.625	449.0 -> 98.9	1382	0.10 µg/L	#	95
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	20	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	11.375	526.0 -> 219.0	162	0.08 µg/L		84
		526.0 -> 169.0				
EtFOSE	11.308	630.0 -> 58.9	535	0.41 µg/L		100
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

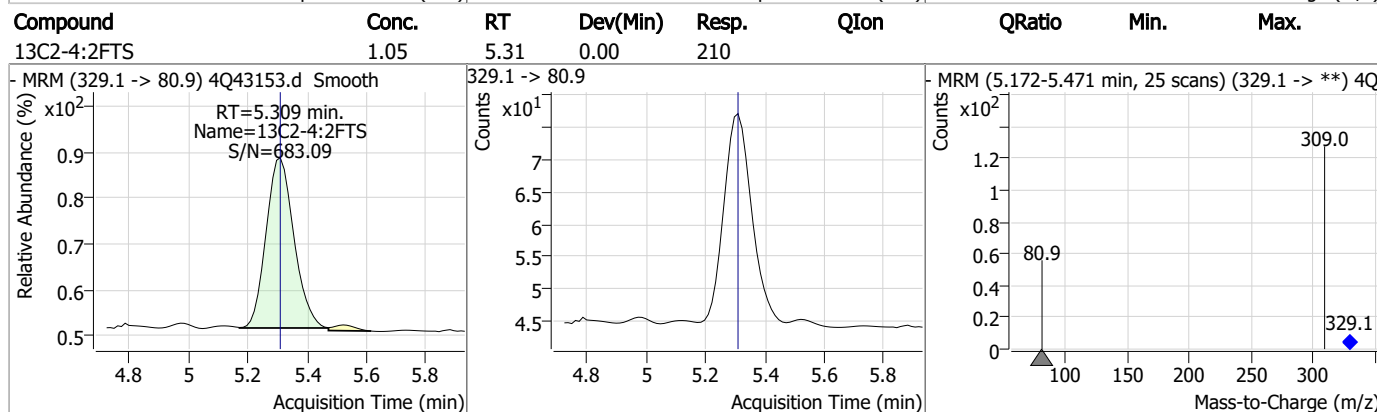
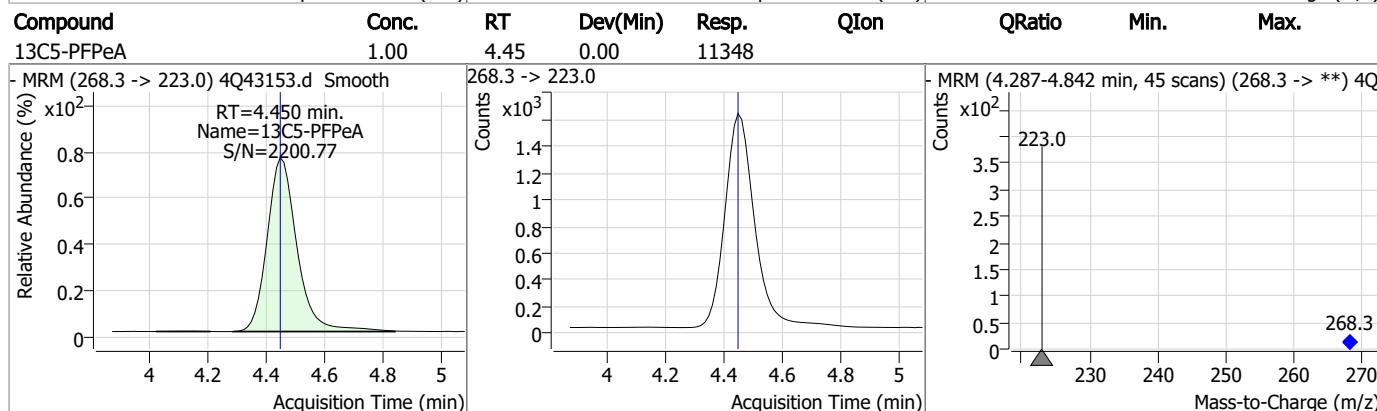
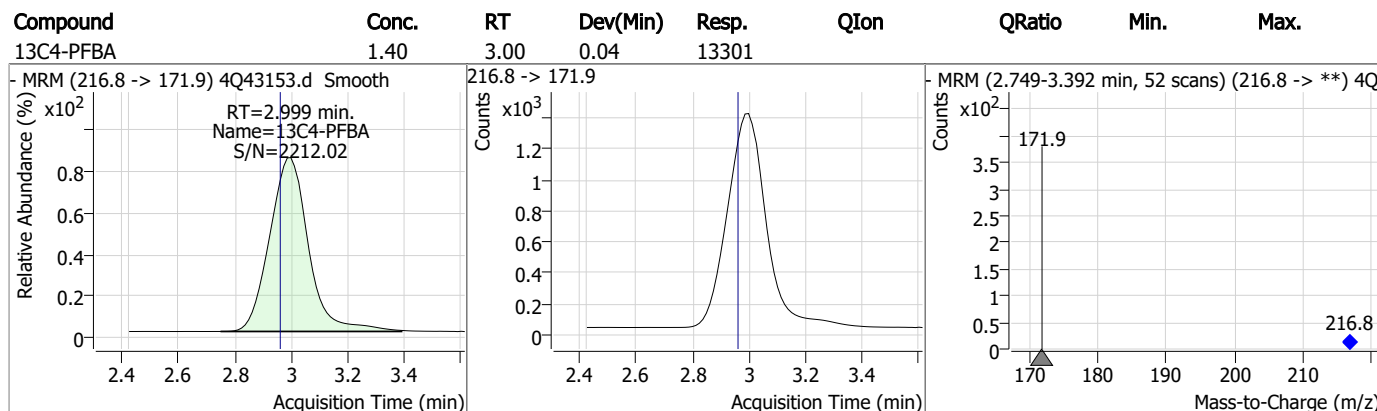
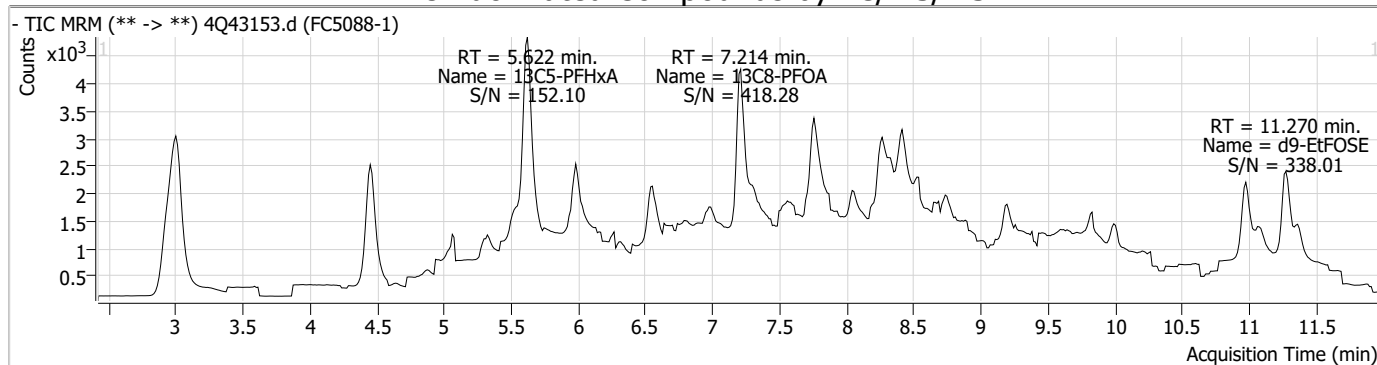
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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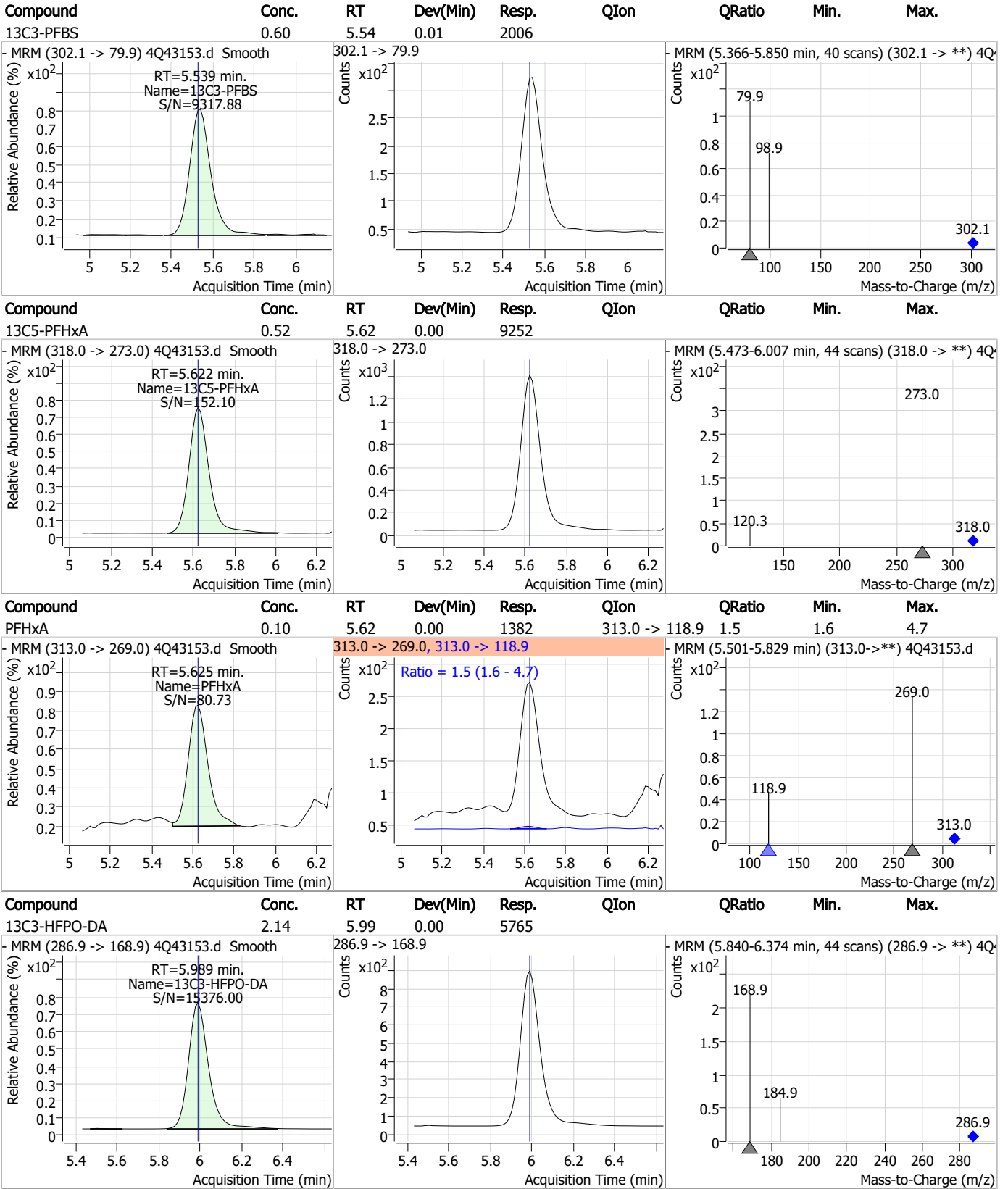
7.1.2
7



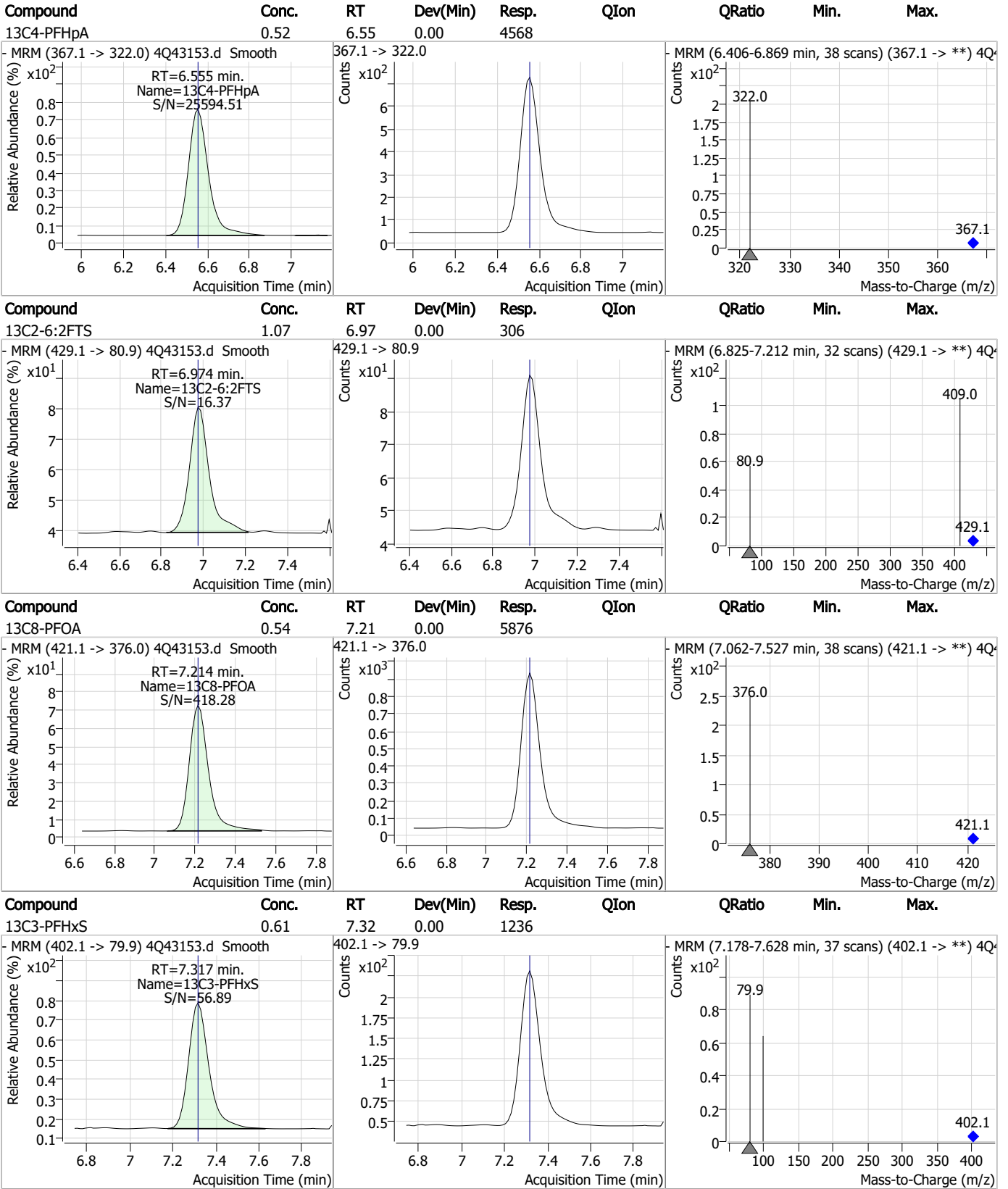
Perfluorinated Compounds by LC/MS/MS



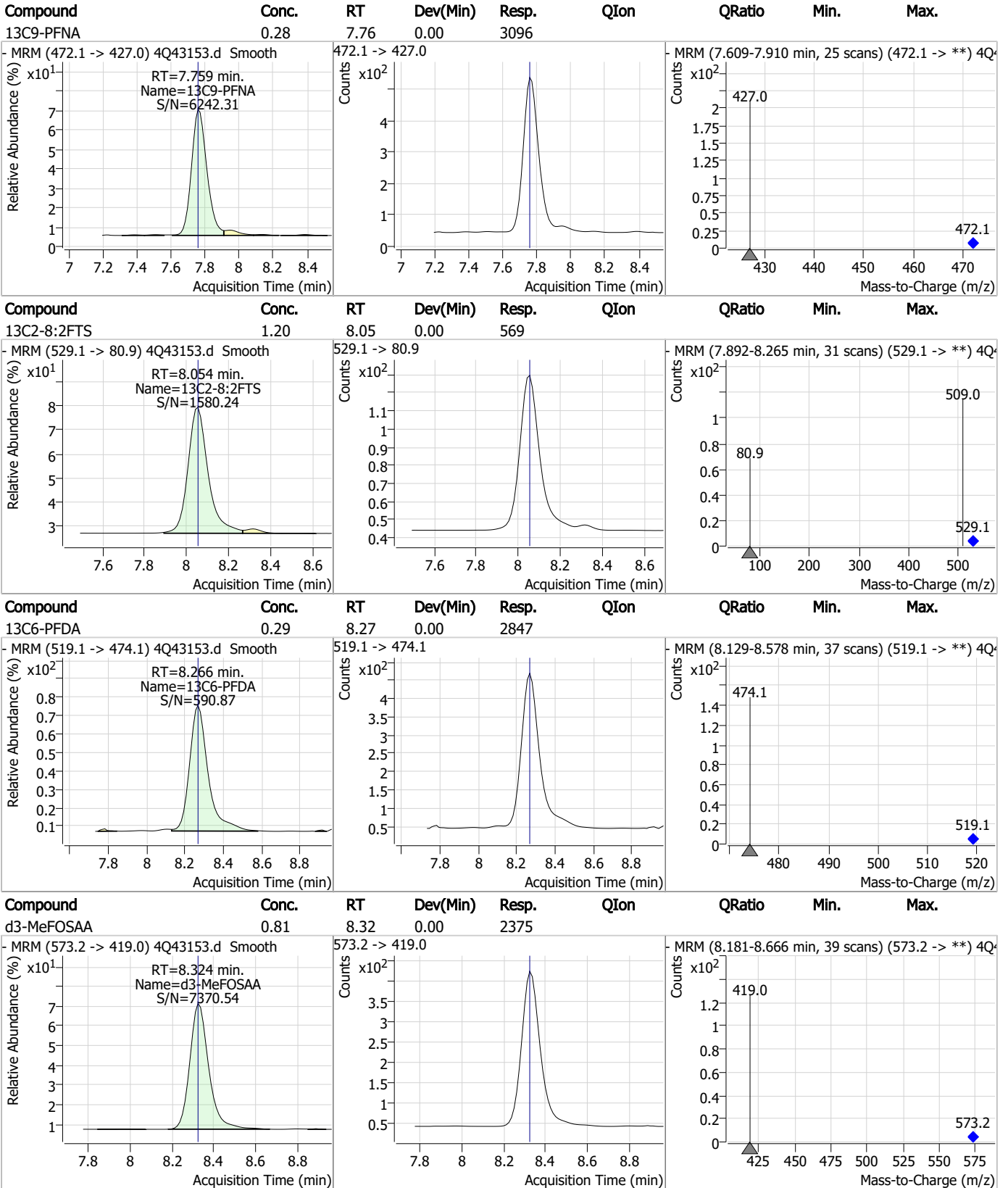
Perfluorinated Compounds by LC/MS/MS



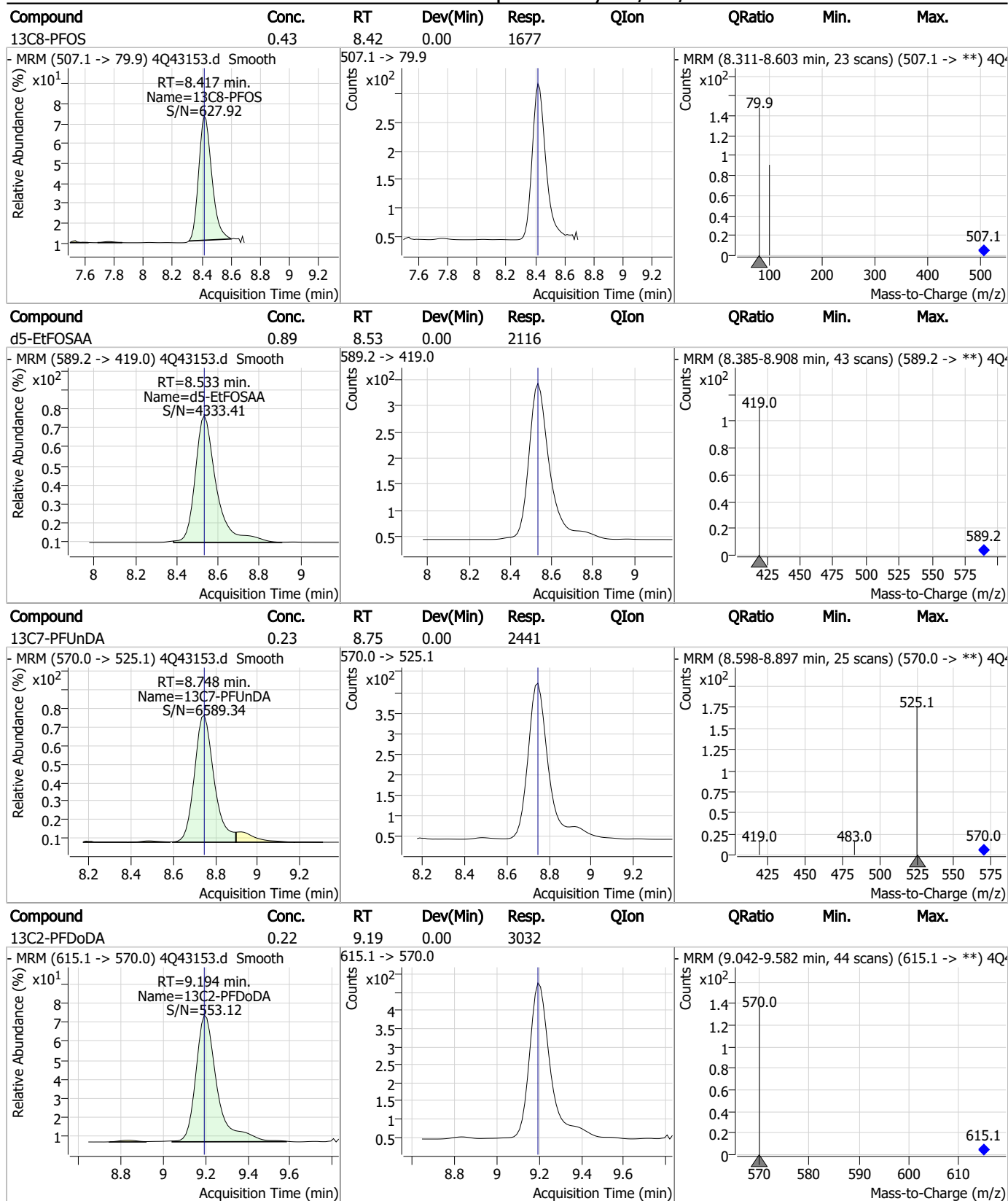
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

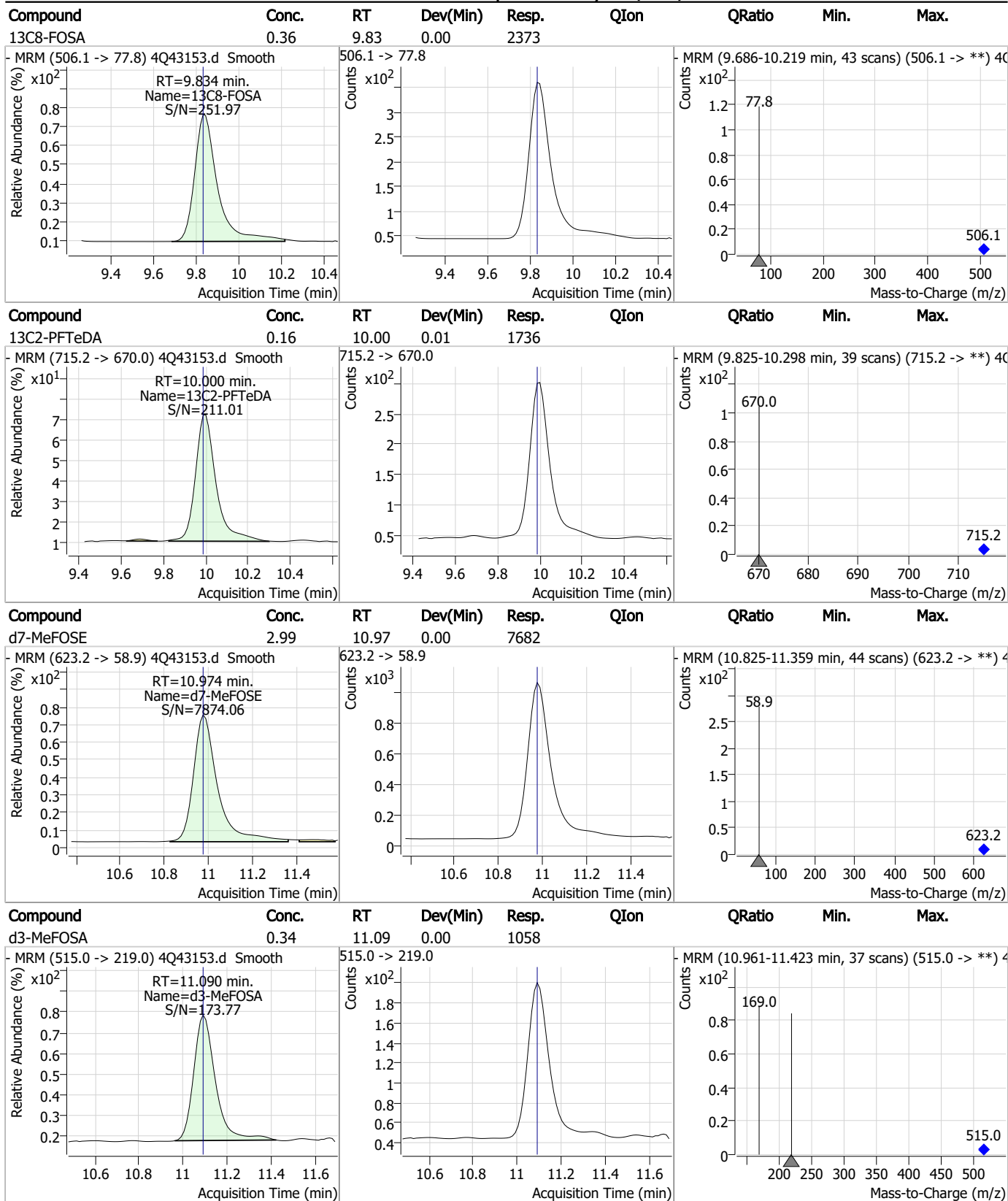


Perfluorinated Compounds by LC/MS/MS



7.1.2
7

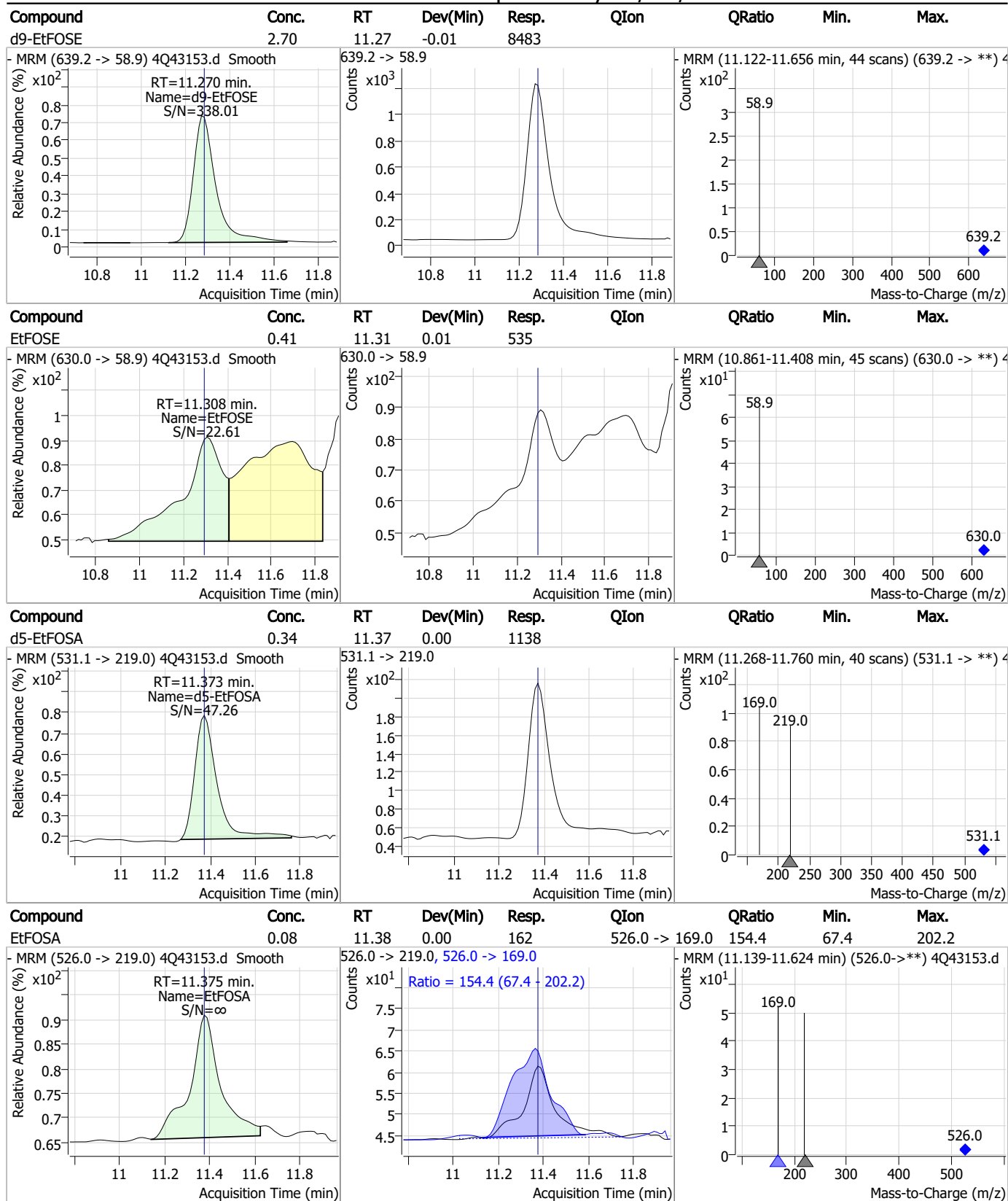
Perfluorinated Compounds by LC/MS/MS



7.1.2
7



Perfluorinated Compounds by LC/MS/MS



7.1.2
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43069.d
Operator : marthav
Acq. Method : 1633full_4Q.m
Acq. Date-Time : 4/15/2023 7:32:45 PM
Sample Name : FC5088-2
Vial : P4-D1
DA Method File : 1633_041423_S4Q621.quantmethod.xml
Batch Name : s4q622.batch.bin
Sample Information : OP96368,S4q622,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	112943	10.00 µg/L	0.000
M5-PFPeA	4.475	268.3 -> 223.0	65604	5.00 µg/L	0.000
M5-PFHxA	5.647	318.0 -> 273.0	49359	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	25014	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	32174	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	16722	1.25 µg/L	-0.012
M6-PFDA	8.291	519.1 -> 474.1	16731	1.25 µg/L	-0.012
M7-PFUnDA	8.760	570.0 -> 525.1	16328	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	20717	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	13303	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	13065	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	10956	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	6694	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	8944	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1500	5.00 µg/L	0.000
M2-6:2FTS	6.999	429.1 -> 80.9	2012	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	3112	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	13962	5.00 µg/L	-0.012
M3-HFPO-DA	6.002	286.9 -> 168.9	28743	10.00 µg/L	-0.012
M5-EtFOSAA	8.558	589.2 -> 419.0	11818	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	47905	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	57701	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	7804	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	6573	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	8527	2.50 µg/L	-0.024
13C3-PFBA	3.003	216.0 -> 172.0	57252	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	4256	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	34684	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	13441	1.25 µg/L	-0.012
13C5-PFNA	7.784	468.0 -> 423.0	17190	1.25 µg/L	-0.012
13C2-PFHxA	5.648	315.1 -> 270.0	37625	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.335	329.1 -> 80.9	1500	6.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.1%		
13C2-6:2FTS	6.999	429.1 -> 80.9	2012	6.03 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.6%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3112	5.67 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.4%		
13C2-PFDoDA	9.219	615.1 -> 570.0	20717	1.25 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	10.012	715.2 -> 670.0	13303	1.03 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.6%		
13C3-PFBS	5.552	302.1 -> 79.9	10956	2.80 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C3-PFHxS	7.329	402.1 -> 79.9	6694	2.84 µg/L	-0.012

7.1.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.7%	
13C4-PFBA	2.999	216.8 -> 171.9	112943	11.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C4-PFHpA	6.567	367.1 -> 322.0	25014	2.93 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.1%	
13C5-PFHxA	5.647	318.0 -> 273.0	49359	2.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C5-PFPeA	4.475	268.3 -> 223.0	65604	5.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.4%	
13C6-PFDA	8.291	519.1 -> 474.1	16731	1.42 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C7-PFUnDA	8.760	570.0 -> 525.1	16328	1.27 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-FOSA	9.858	506.1 -> 77.8	13065	2.34 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-PFOA	7.227	421.1 -> 376.0	32174	2.82 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.7%	
13C8-PFOS	8.442	507.1 -> 79.9	8944	2.71 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C9-PFNA	7.784	472.1 -> 427.0	16722	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.8%	
d3-MeFOSAA	8.349	573.2 -> 419.0	13962	5.56 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C3-HFPO-DA	6.002	286.9 -> 168.9	28743	10.88 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
d3-MeFOSA	11.103	515.0 -> 219.0	6573	2.49 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
d5-EtFOSAA	8.558	589.2 -> 419.0	11818	5.79 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.8%	
d7-MeFOSE	10.986	623.2 -> 58.9	47905	21.78 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.1%	
d9-EtFOSE	11.295	639.2 -> 58.9	57701	21.44 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 85.8%	
d5-EtFOSA	11.386	531.1 -> 219.0	7804	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.4%	

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	9.679	663.0 -> 619.0	264	0.02 µg/L	m	87
		663.0 -> 168.9	13			
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.1.3

7



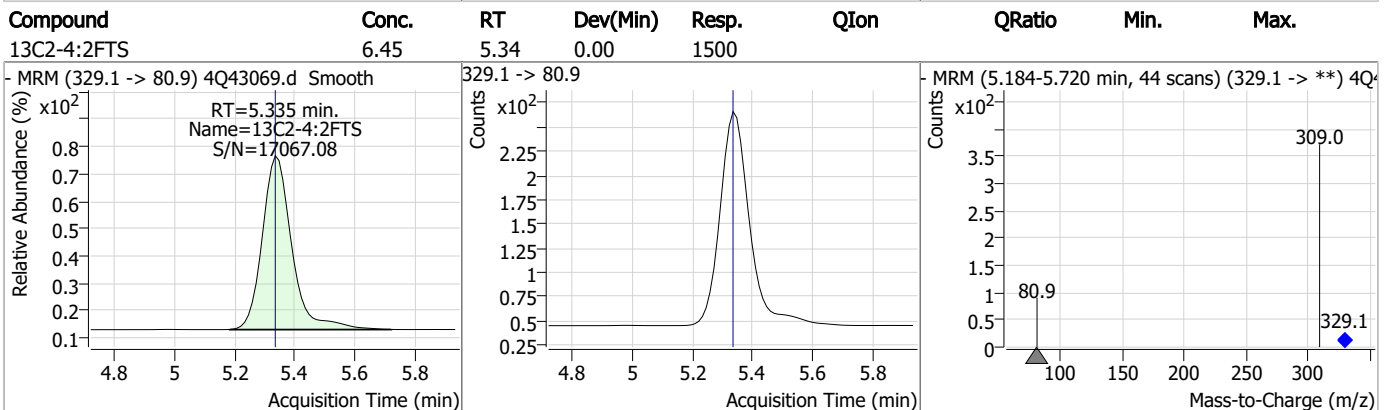
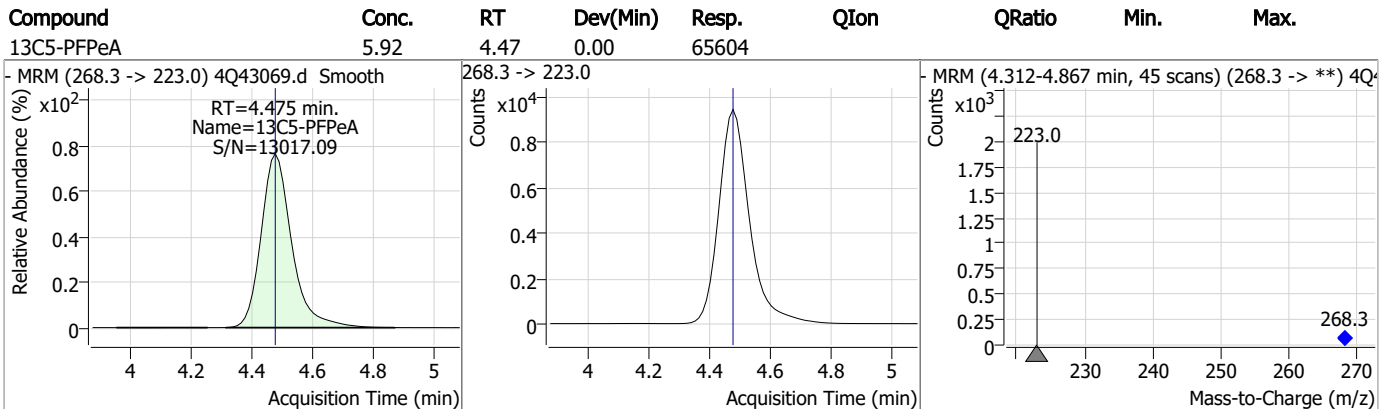
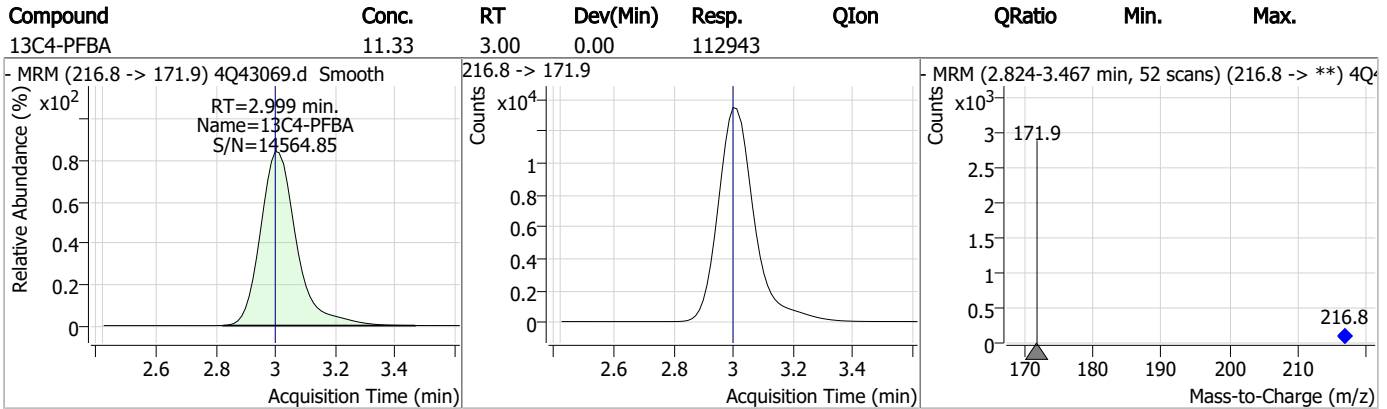
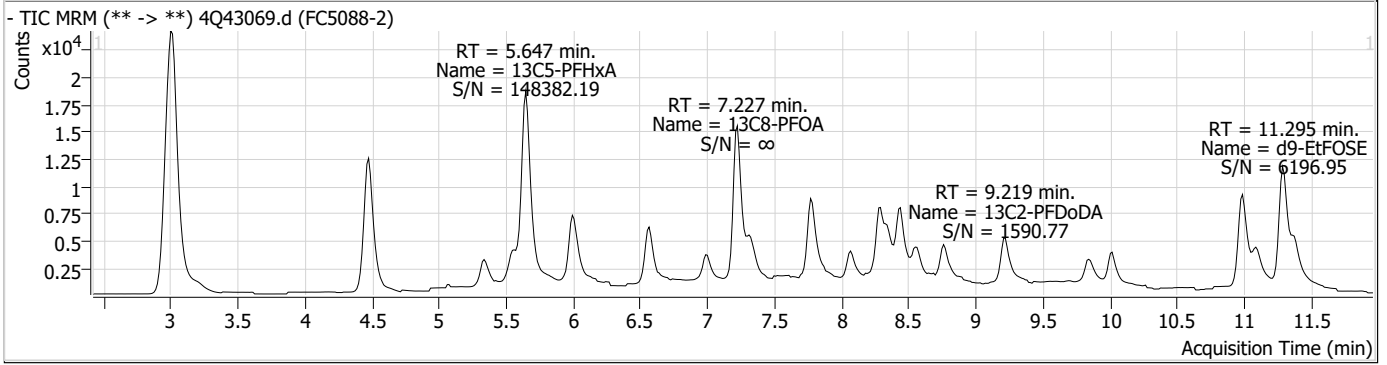
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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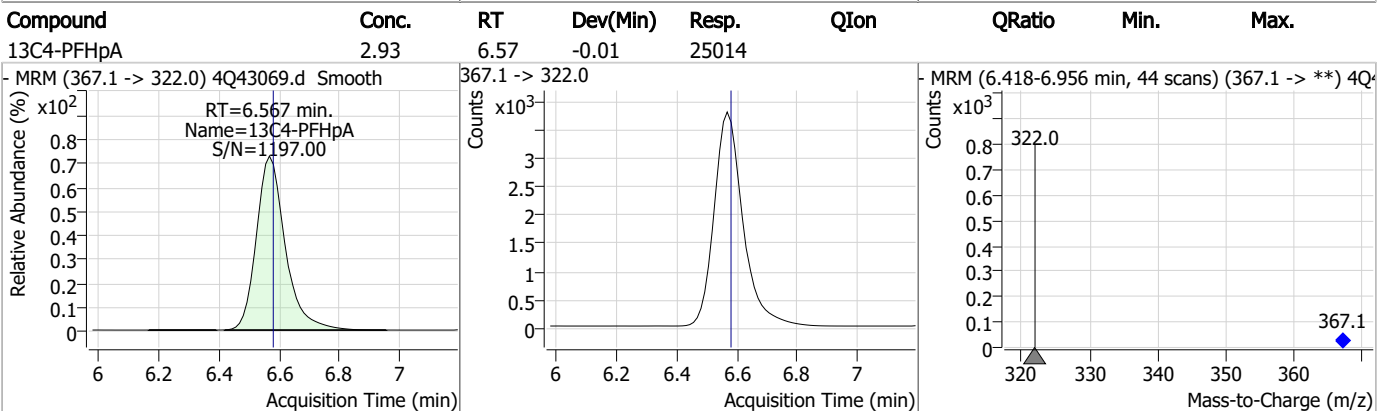
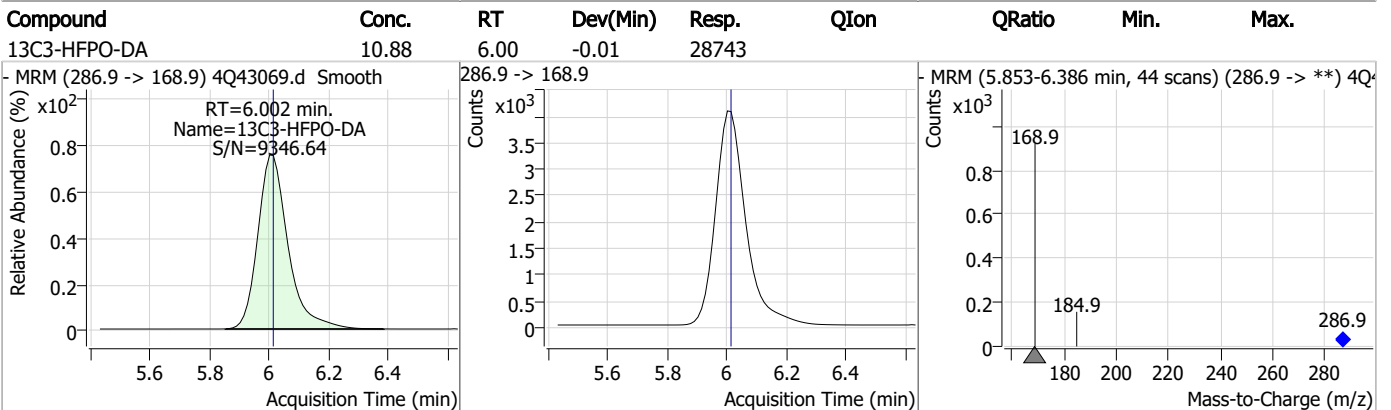
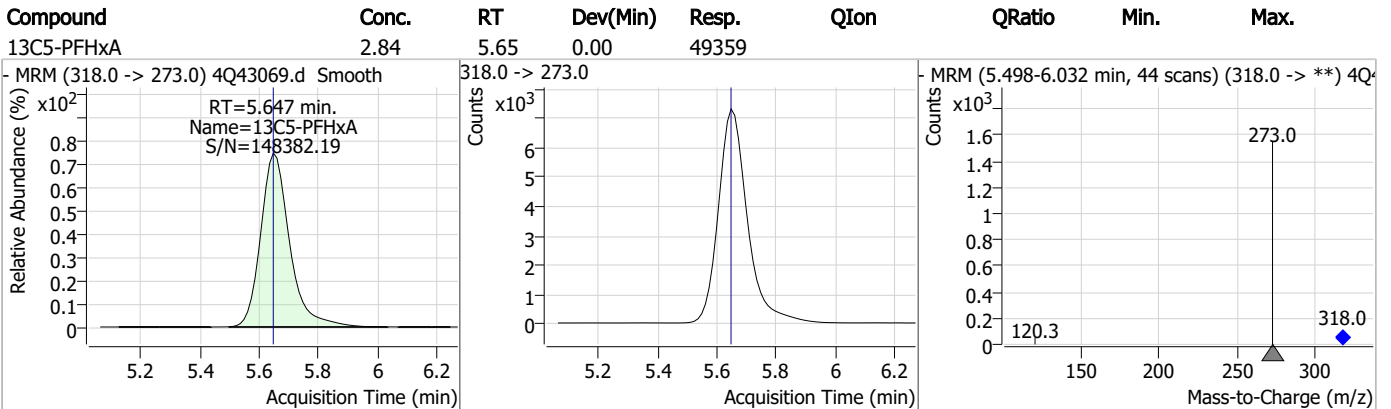
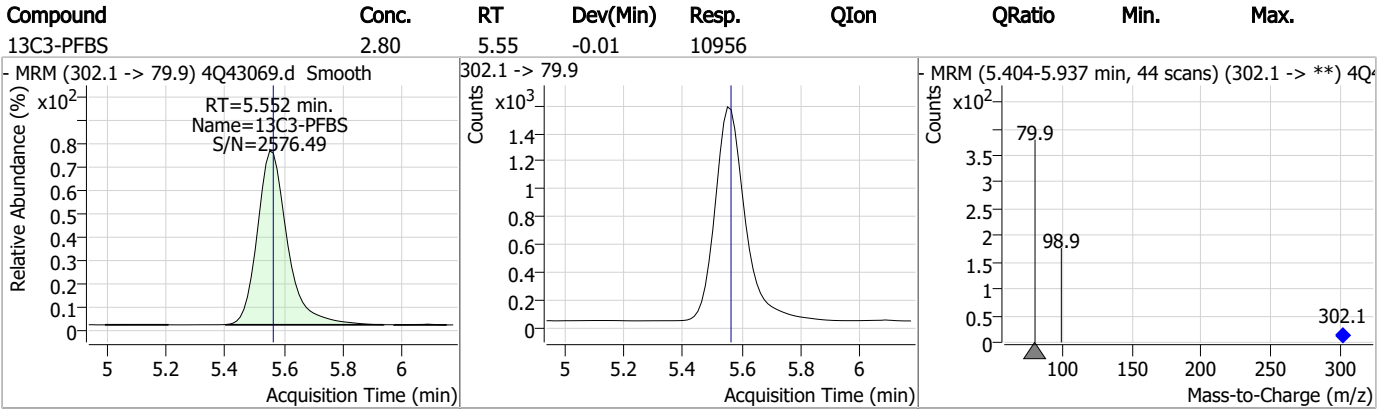
7.1.3
7



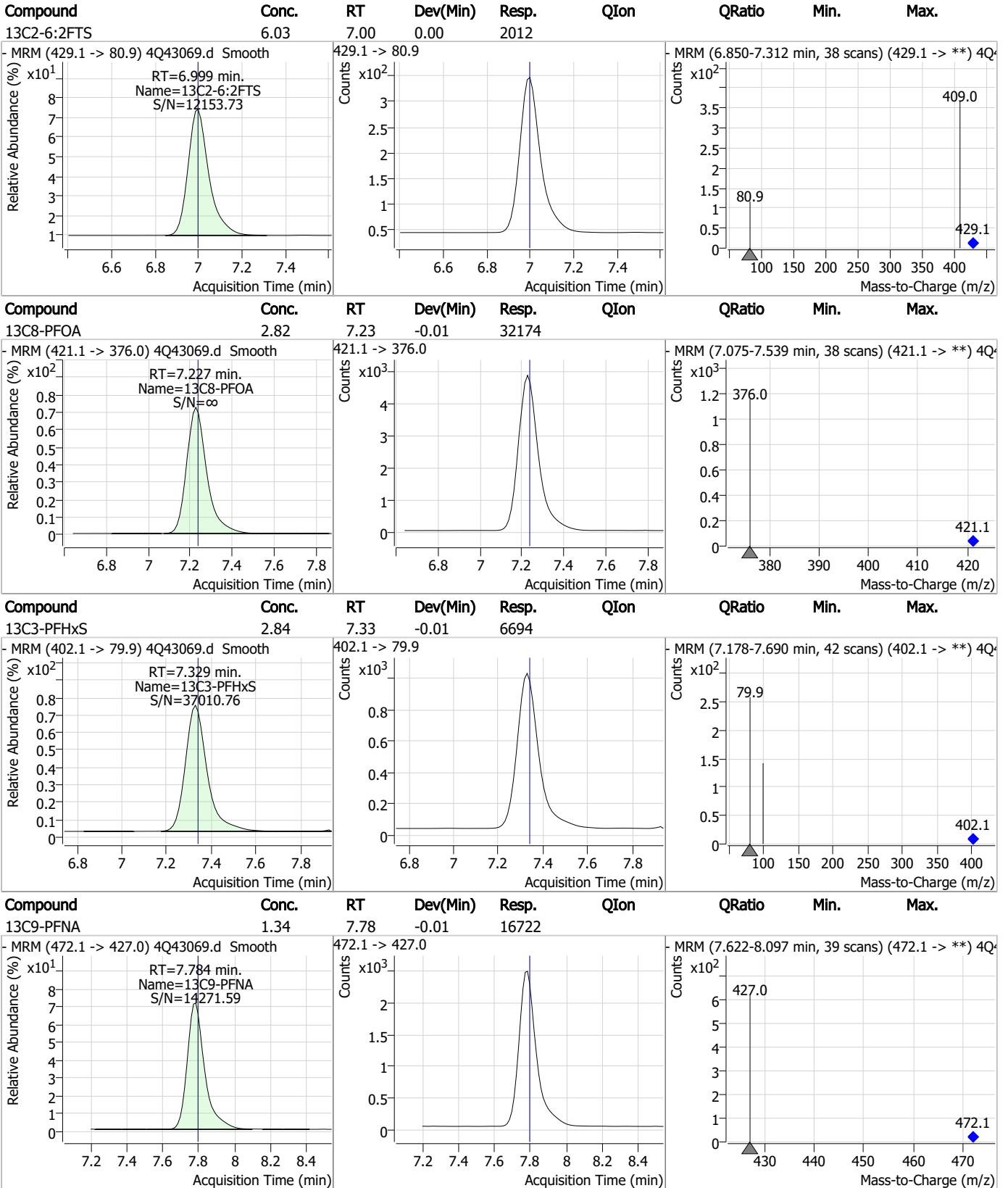
Perfluorinated Compounds by LC/MS/MS



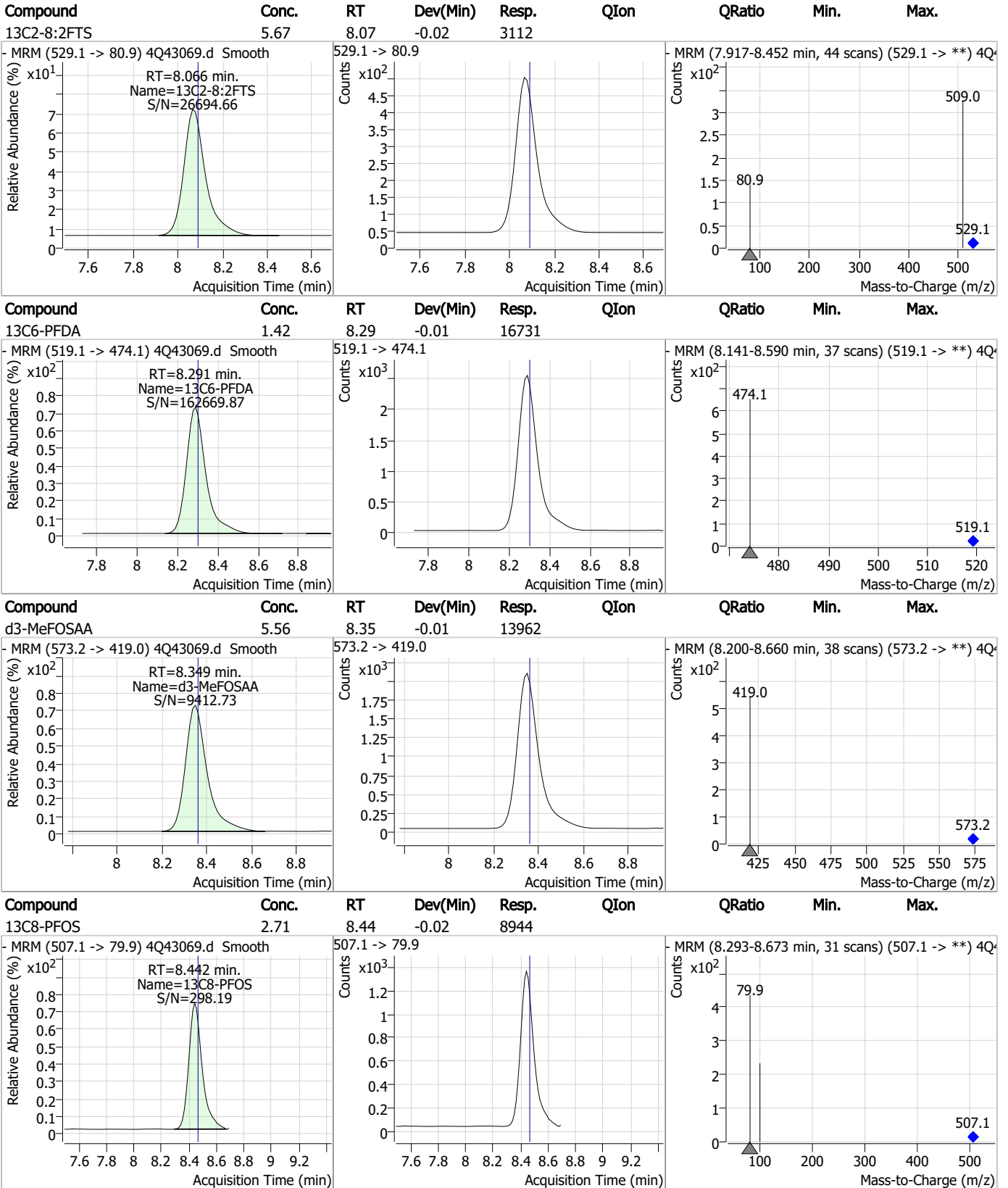
Perfluorinated Compounds by LC/MS/MS



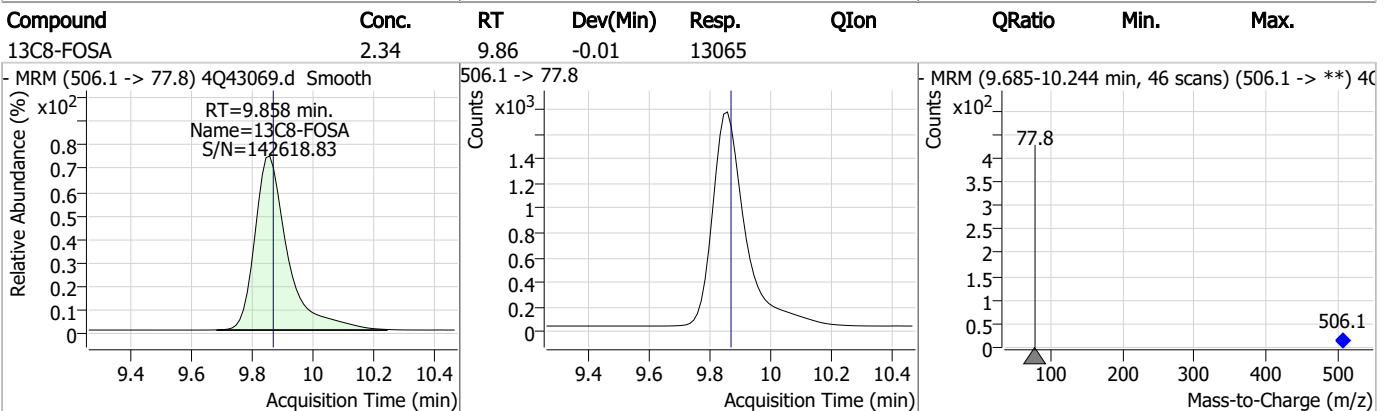
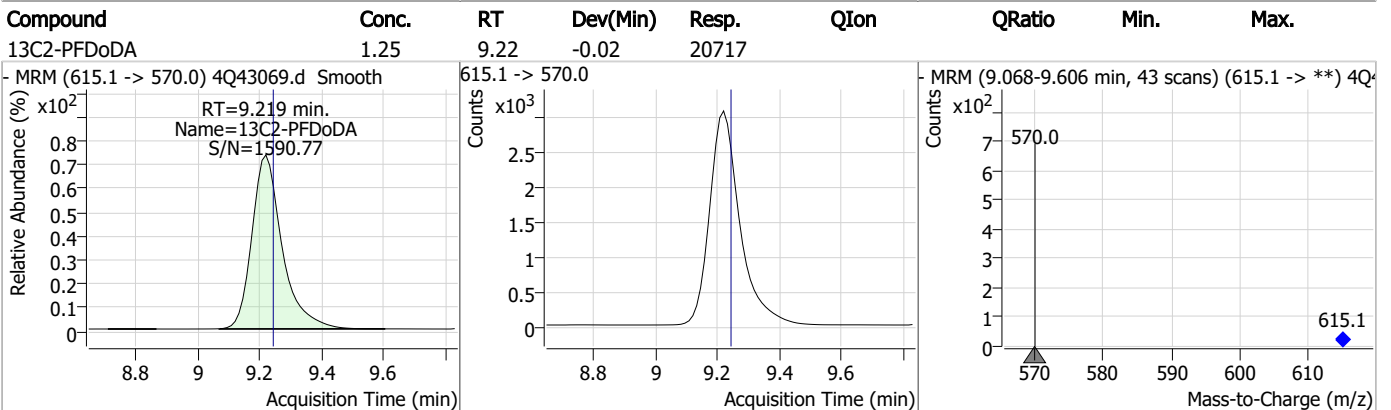
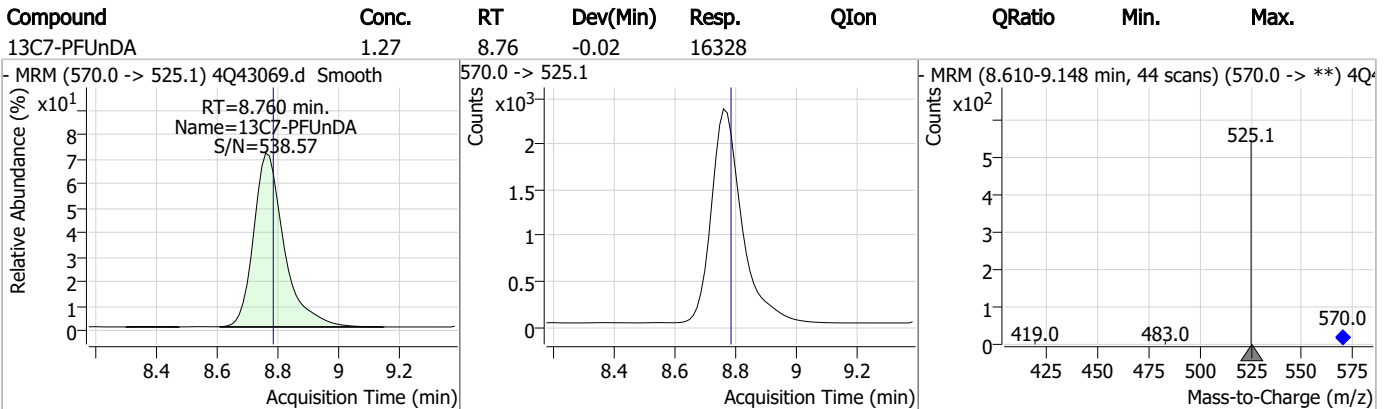
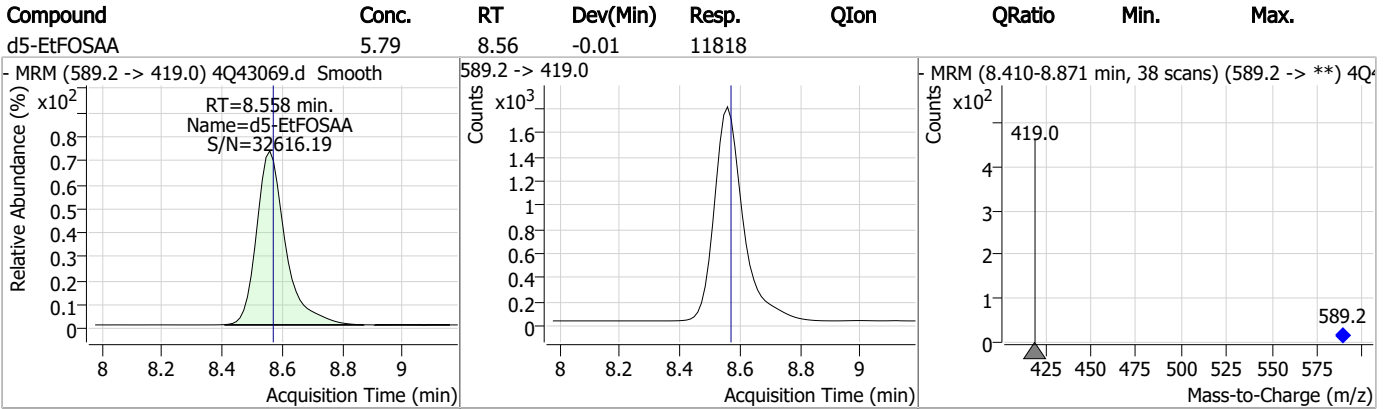
Perfluorinated Compounds by LC/MS/MS



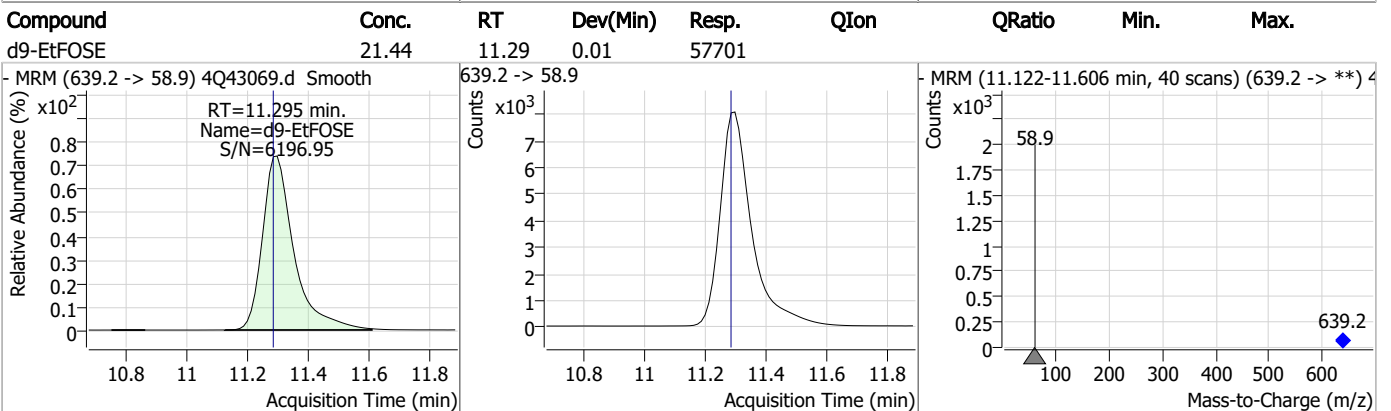
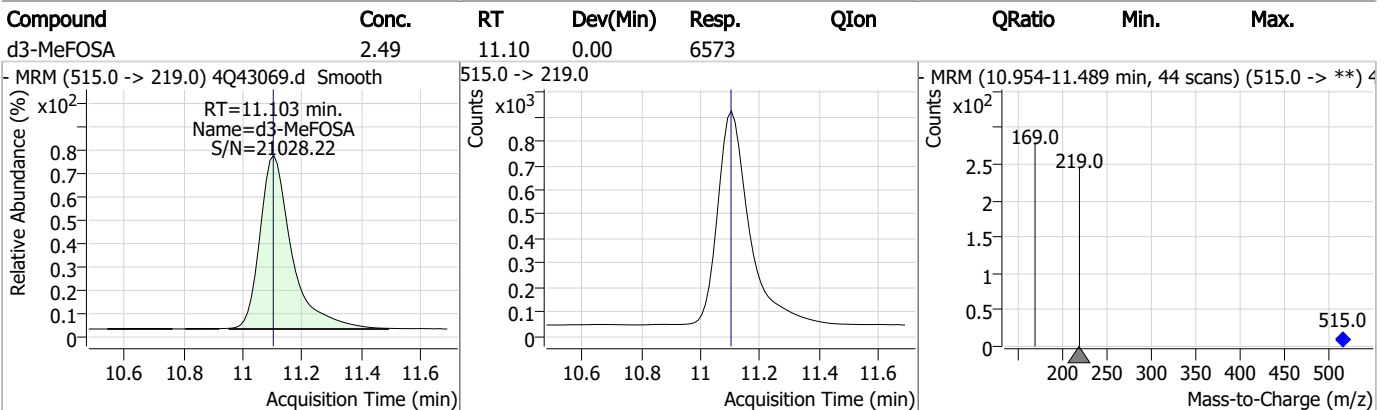
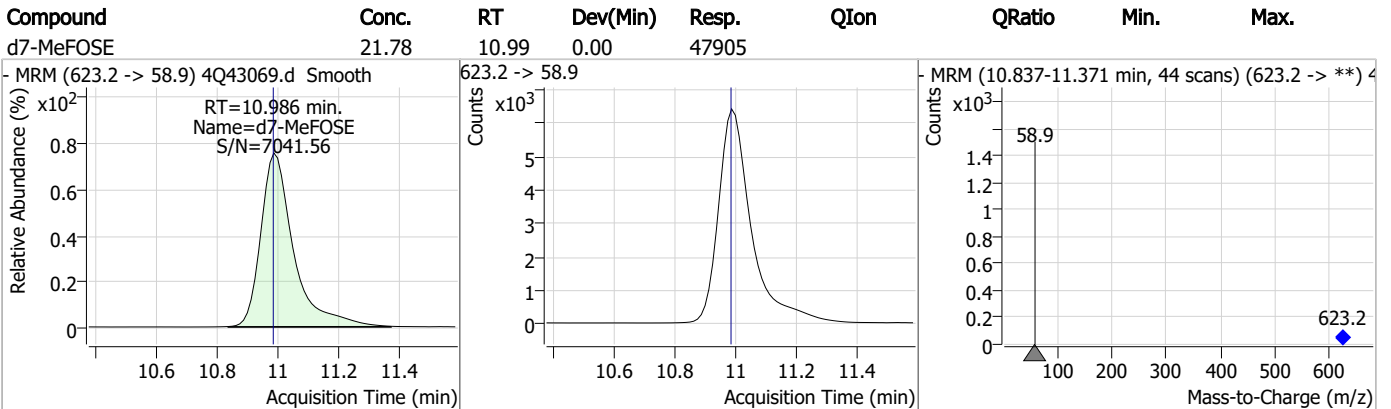
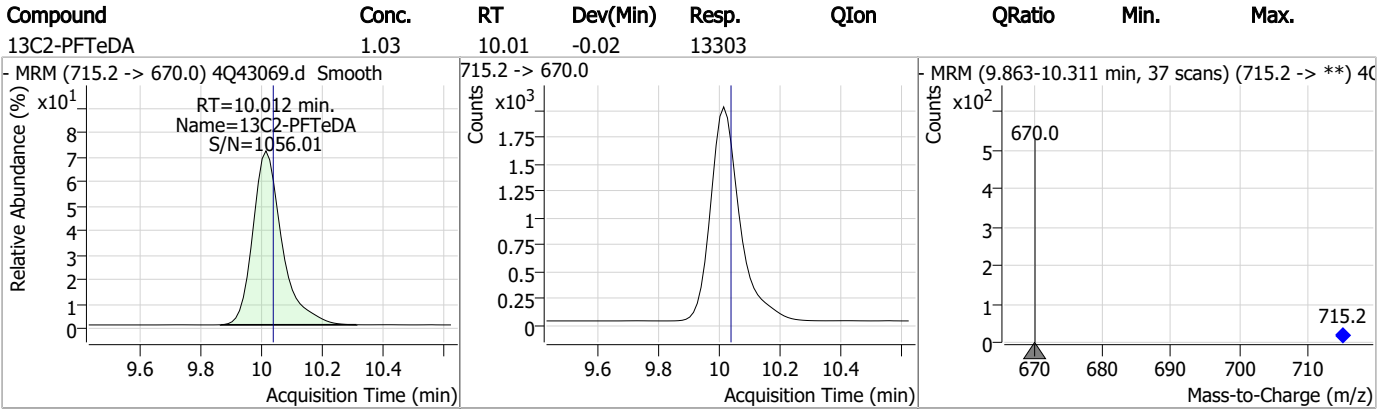
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

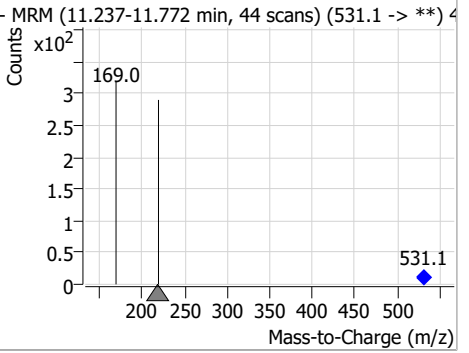
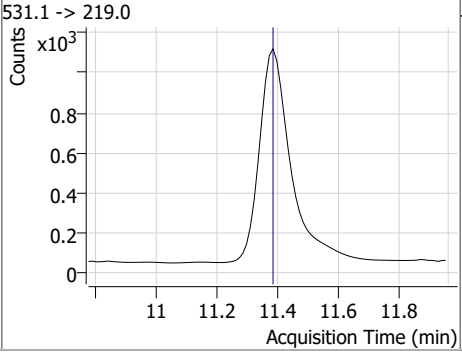
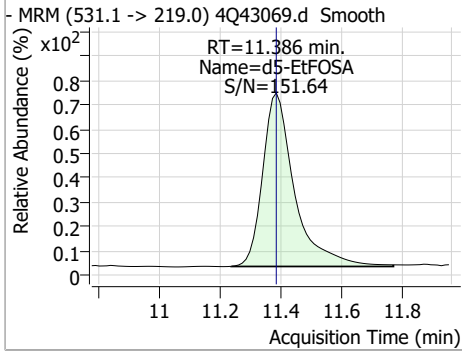


Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.74	11.39	0.00	7804				



7.1.3
7



Manual Integration Approval Summary

Sample Number: FC5088-2 Method: EPA DRAFT 1633
Lab FileID: 4Q43069.D Analyst approved: 04/17/23 15:22 Martha Valls
Injection Time: 04/15/23 19:32 Supervisor approved: 04/17/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorotridecanoic acid	72629-94-8		9.68	Split peak

7.1.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43070.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 7:46:46 PM
 Sample Name : FC5088-3
 Vial : P4-D2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96368,S4q622,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	2244	10.00 µg/L	0.000
M5-PFPeA	4.462	268.3 -> 223.0	24921	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	50658	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	25070	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	30829	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	17480	1.25 µg/L	-0.012
M6-PFDA	8.279	519.1 -> 474.1	17309	1.25 µg/L	-0.024
M7-PFUnDA	8.772	570.0 -> 525.1	18079	1.25 µg/L	-0.012
M2-PFDoDA	9.219	615.1 -> 570.0	20356	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	11924	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	13585	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	10482	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	6206	2.50 µg/L	-0.012
M8-PFOS	8.430	507.1 -> 79.9	8499	2.50 µg/L	-0.037
M2-4:2FTS	5.323	329.1 -> 80.9	1691	5.00 µg/L	-0.012
M2-6:2FTS	6.999	429.1 -> 80.9	1866	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	3194	5.00 µg/L	-0.024
M3-MeFOSAA	8.337	573.2 -> 419.0	14929	5.00 µg/L	-0.024
M3-HFPO-DA	6.002	286.9 -> 168.9	28847	10.00 µg/L	-0.012
M5-EtFOSAA	8.546	589.2 -> 419.0	12730	5.00 µg/L	-0.024
M7-MeFOSE	10.986	623.2 -> 58.9	45017	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	54849	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	7983	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	7355	2.50 µg/L	0.001
13C4-PFOS	8.430	502.8 -> 79.9	7480	2.50 µg/L	-0.037
13C3-PFBA	3.003	216.0 -> 172.0	55575	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	4463	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	34435	2.50 µg/L	-0.010
13C2-PFDA	8.279	515.1 -> 470.1	14436	1.25 µg/L	-0.024
13C5-PFNA	7.784	468.0 -> 423.0	17733	1.25 µg/L	-0.012
13C2-PFHxA	5.648	315.1 -> 270.0	39569	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1691	6.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 138.8%		
13C2-6:2FTS	6.999	429.1 -> 80.9	1866	5.34 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3194	5.55 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C2-PFDoDA	9.219	615.1 -> 570.0	20356	1.15 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C2-PFTeDA	10.012	715.2 -> 670.0	11924	0.86 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.0%		
13C3-PFBS	5.552	302.1 -> 79.9	10482	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFHxS	7.329	402.1 -> 79.9	6206	2.51 µg/L	-0.012

7.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%			
13C4-PFBA	2.999	216.8 -> 171.9	2244	0.23	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 2.3%			
13C4-PFHpA	6.567	367.1 -> 322.0	25070	2.79	µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.6%			
13C5-PFHxA	5.647	318.0 -> 273.0	50658	2.77	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.8%			
13C5-PFPeA	4.462	268.3 -> 223.0	24921	2.14	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 42.8%			
13C6-PFDA	8.279	519.1 -> 474.1	17309	1.36	µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.1%			
13C7-PFUnDA	8.772	570.0 -> 525.1	18079	1.31	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.9%			
13C8-FOSA	9.858	506.1 -> 77.8	13585	2.78	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%			
13C8-PFOA	7.227	421.1 -> 376.0	30829	2.72	µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.8%			
13C8-PFOS	8.430	507.1 -> 79.9	8499	2.93	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.2%			
13C9-PFNA	7.784	472.1 -> 427.0	17480	1.35	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%			
d3-MeFOSAA	8.337	573.2 -> 419.0	14929	6.78	µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.5%			
13C3-HFPO-DA	6.002	286.9 -> 168.9	28847	10.39	µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.9%			
d3-MeFOSA	11.103	515.0 -> 219.0	7355	3.18	µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 127.0%			
d5-EtFOSAA	8.546	589.2 -> 419.0	12730	7.11	µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 142.2%			
d7-MeFOSE	10.986	623.2 -> 58.9	45017	23.33	µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 93.3%			
d9-EtFOSE	11.295	639.2 -> 58.9	54849	23.23	µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 92.9%			
d5-EtFOSA	11.386	531.1 -> 219.0	7983	3.19	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 127.6%			

Target Compounds

Compound	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	9.507	613.1 -> 569.0	0		µg/L m	1
		613.1 -> 319.0	0			
PFDS	9.295	599.0 -> 79.9	0		µg/L m	1

7.14

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	0			
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	7.900	449.0 -> 79.9	0	µg/L	m	1
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	7.999	463.0 -> 419.0	0	µg/L	m	1
		463.0 -> 219.0				
PFNS	8.438	548.8 -> 79.9	0	µg/L	m	1
		548.8 -> 98.9	0			
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	7.959	498.9 -> 79.9	0	µg/L	m	1
		498.9 -> 98.8	6			
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	9.478	713.1 -> 669.0	0	µg/L	m	1
		713.1 -> 168.9	0			
PFTrDA	10.116	663.0 -> 619.0	0	µg/L	m	1
		663.0 -> 168.9	0			
PFUnDA	8.239	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.14
7

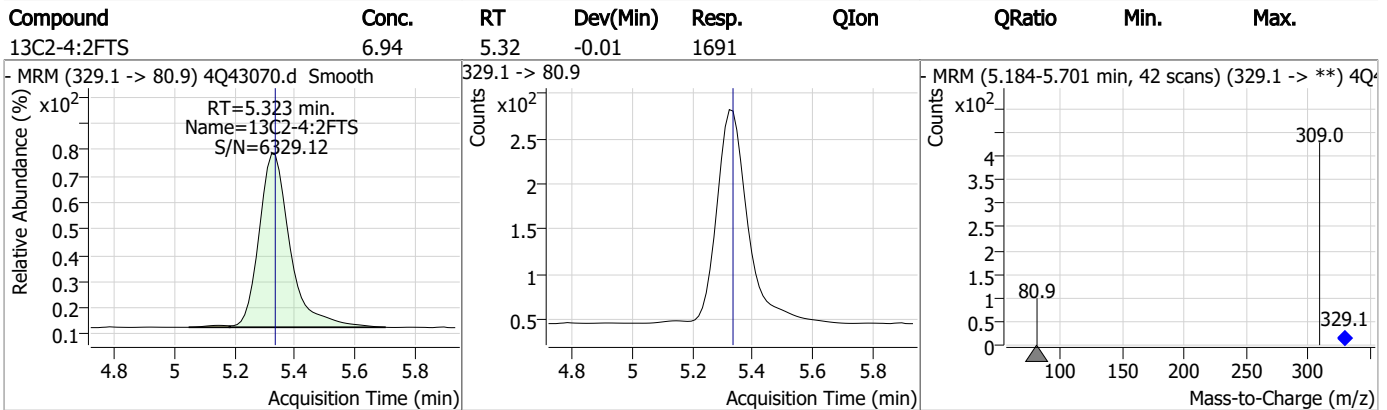
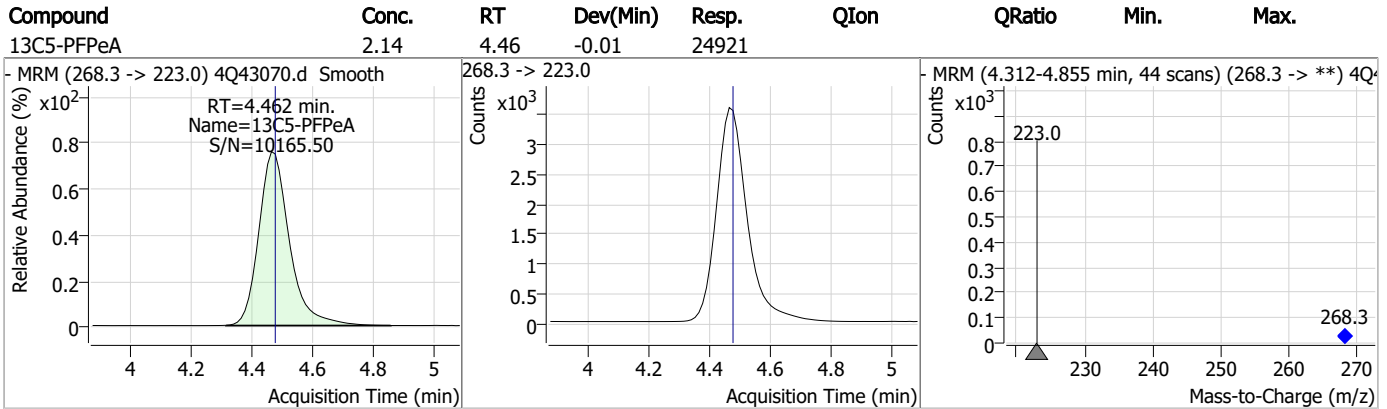
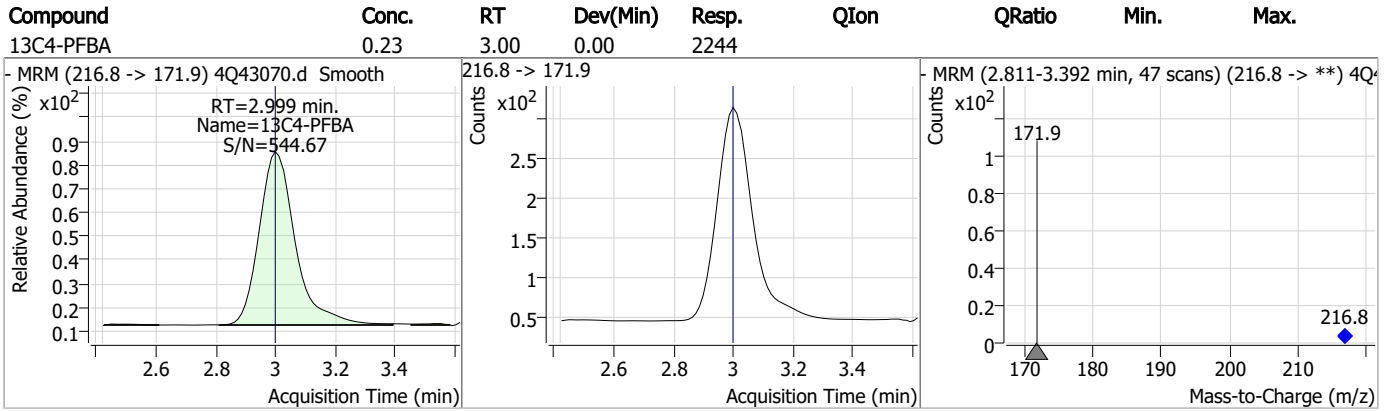
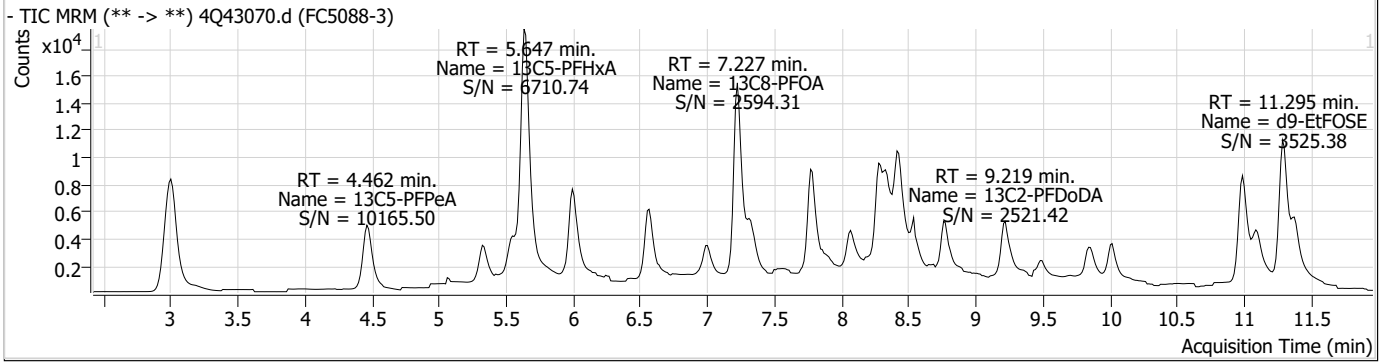
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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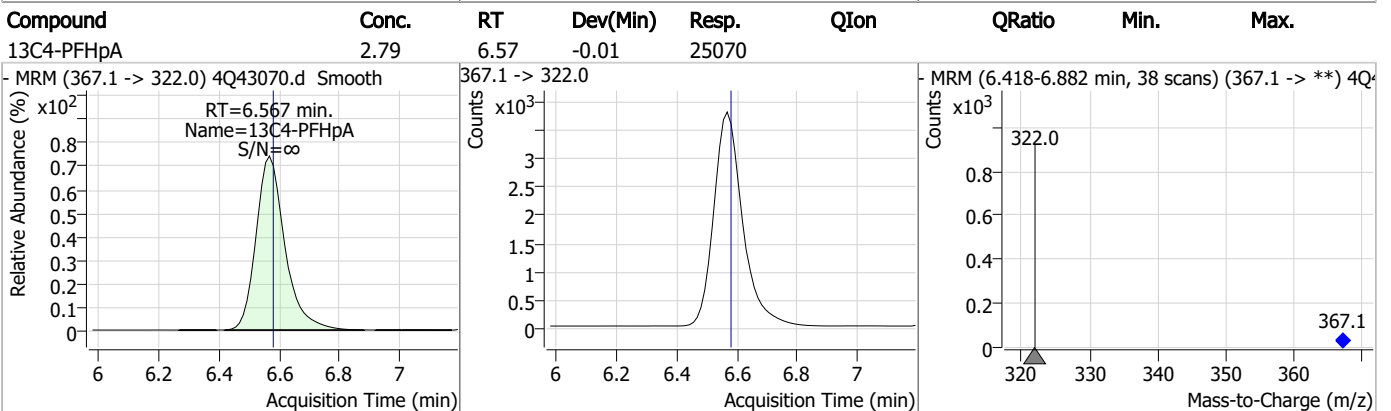
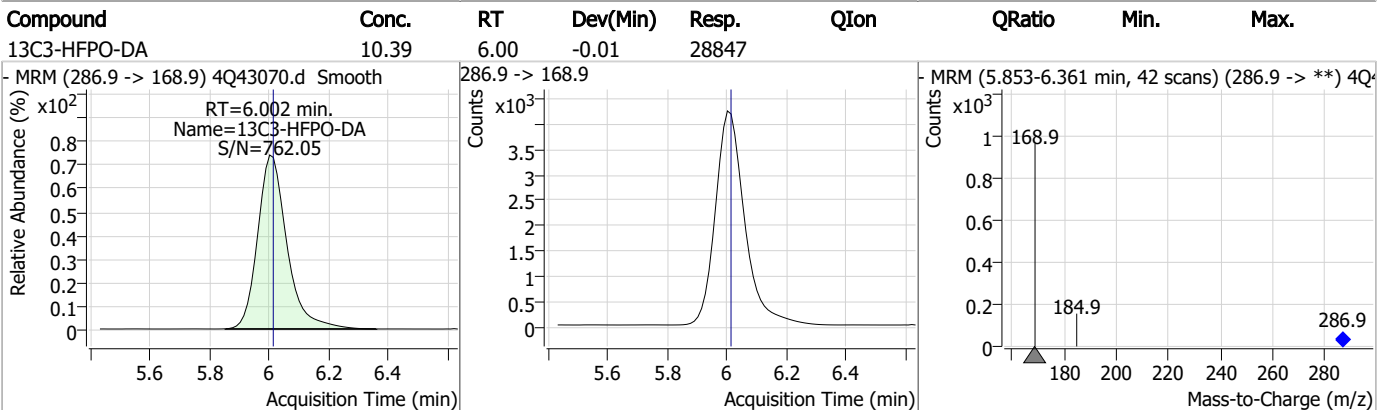
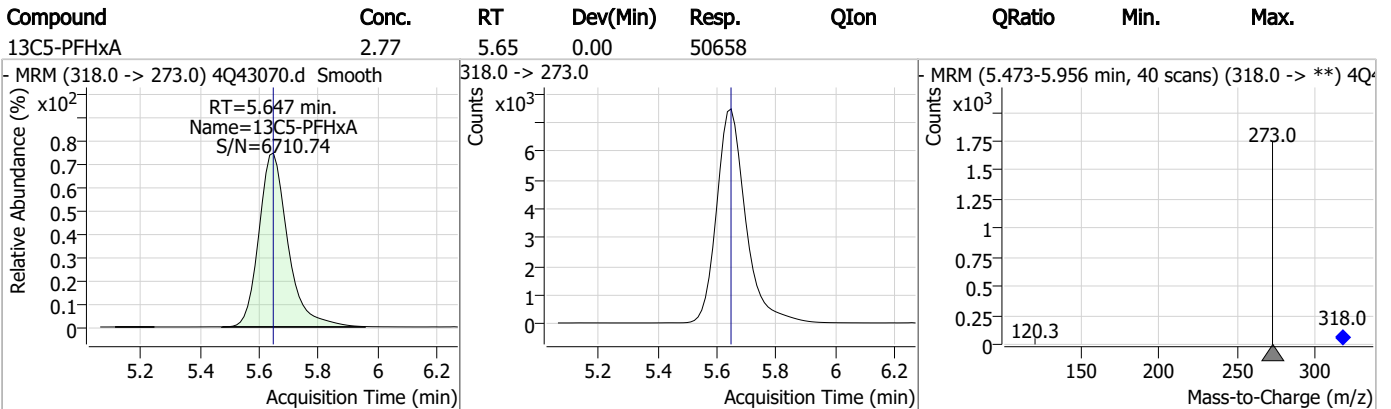
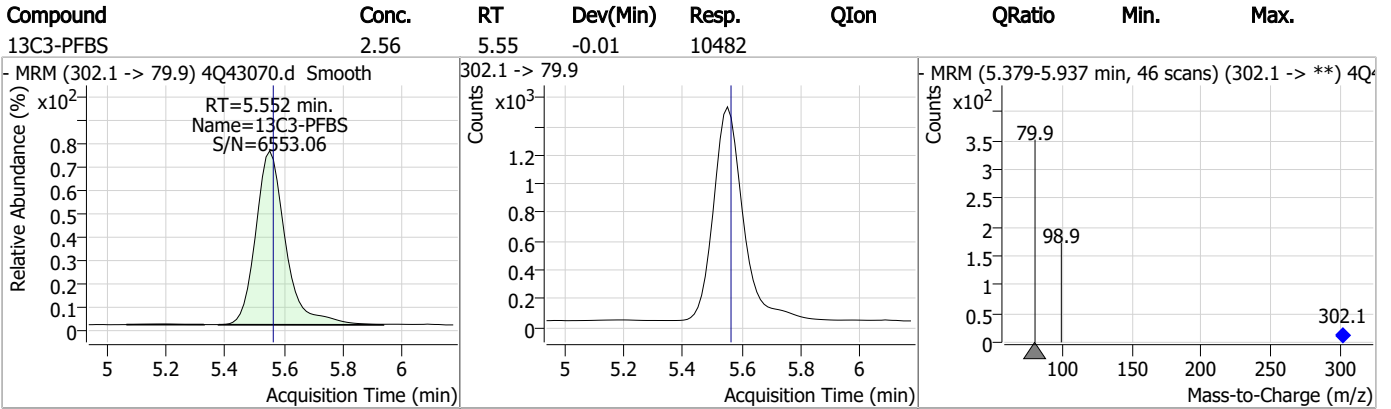
7.1.4
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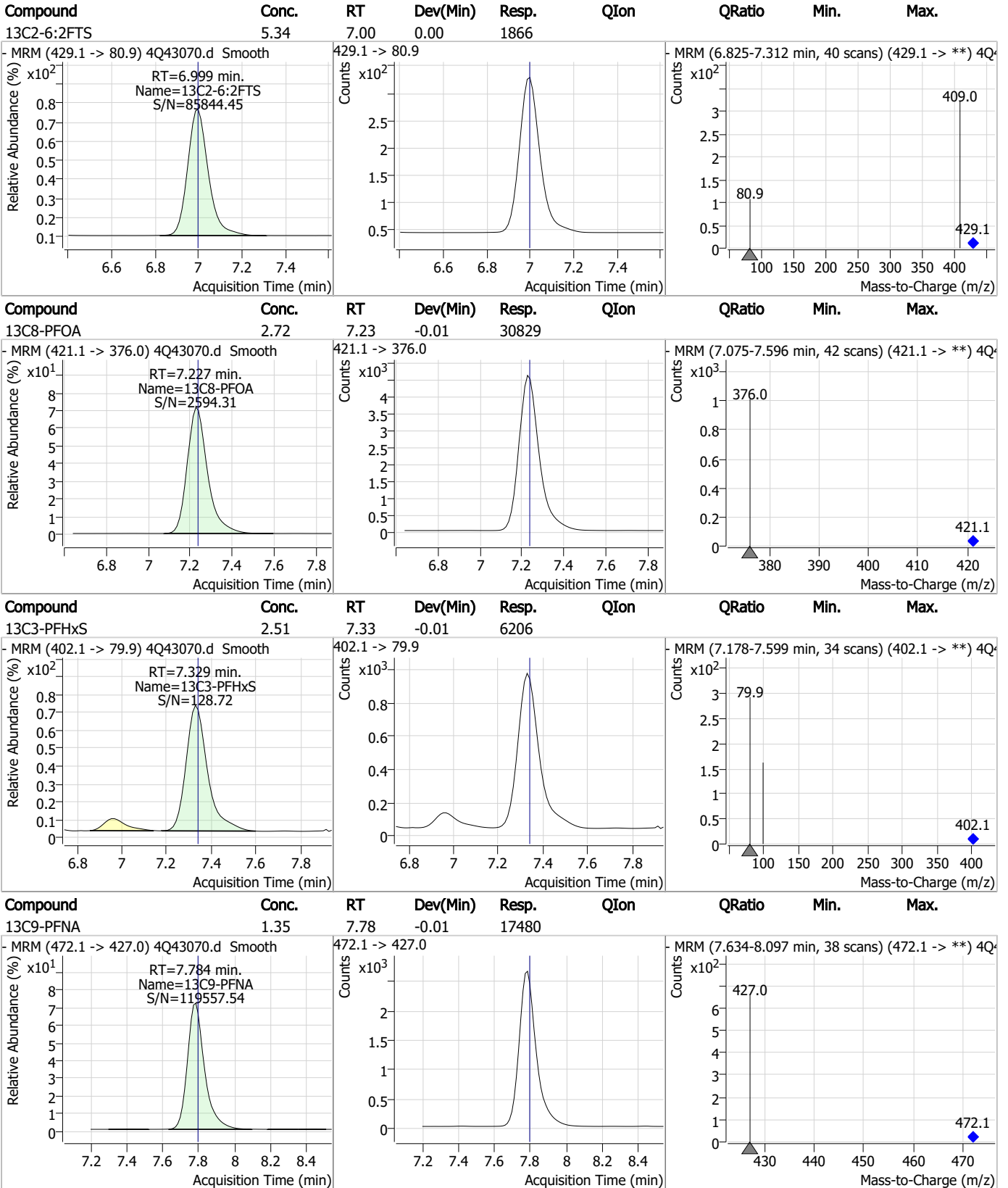
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



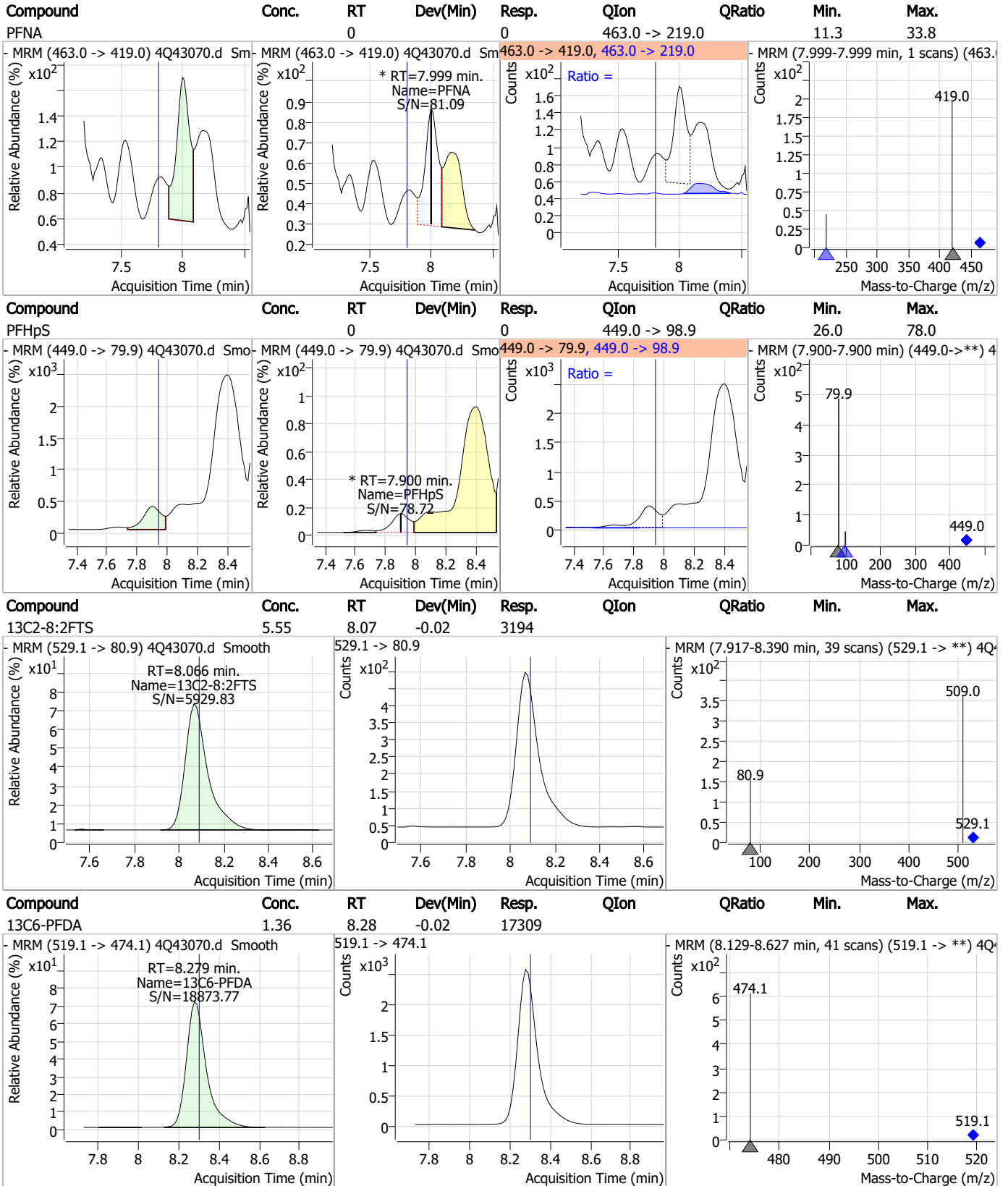
Perfluorinated Compounds by LC/MS/MS



7.1.4

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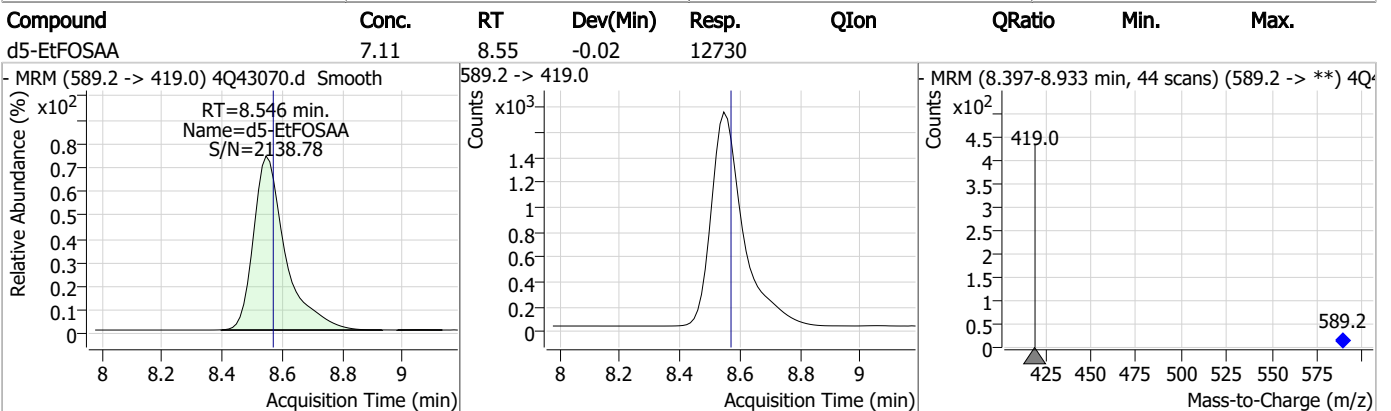
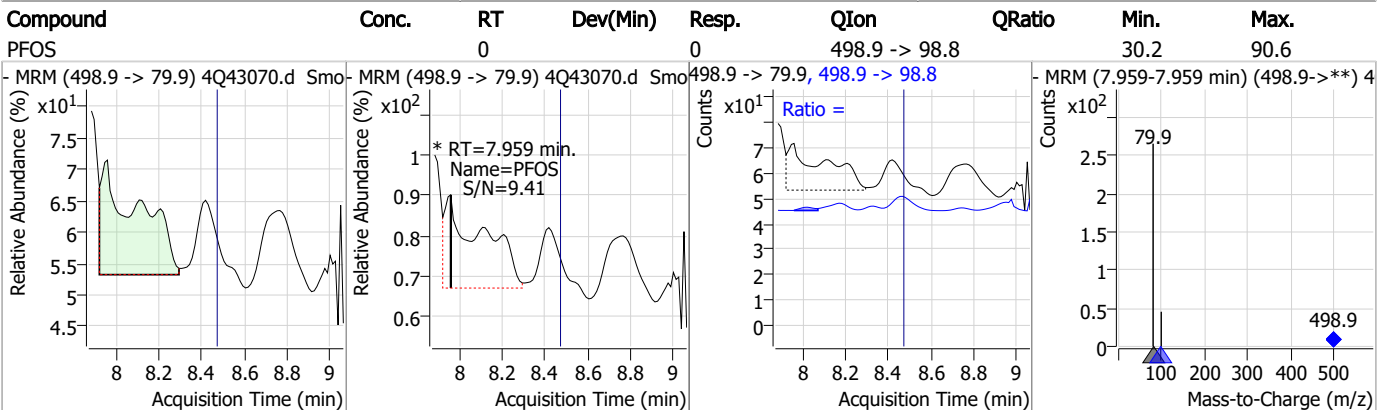
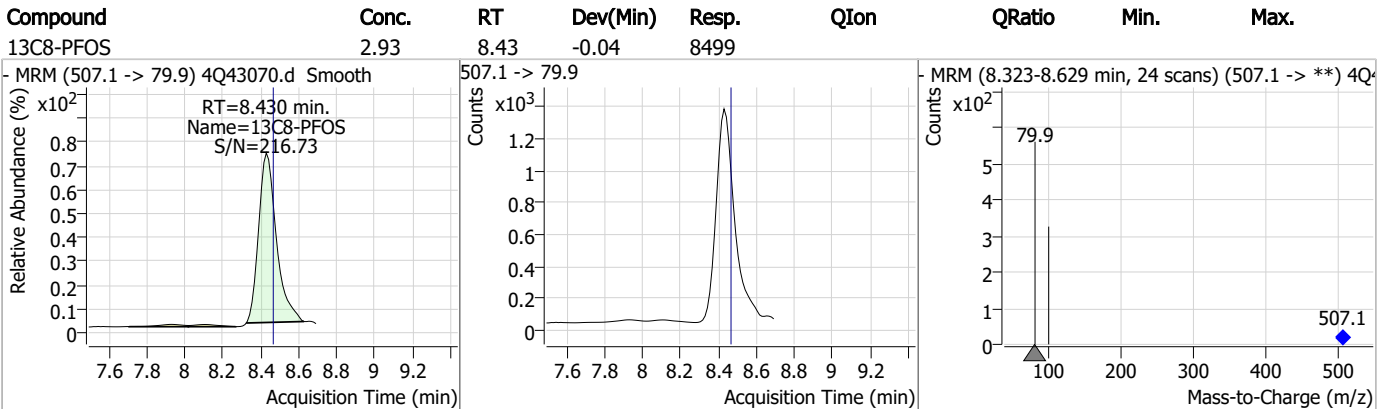
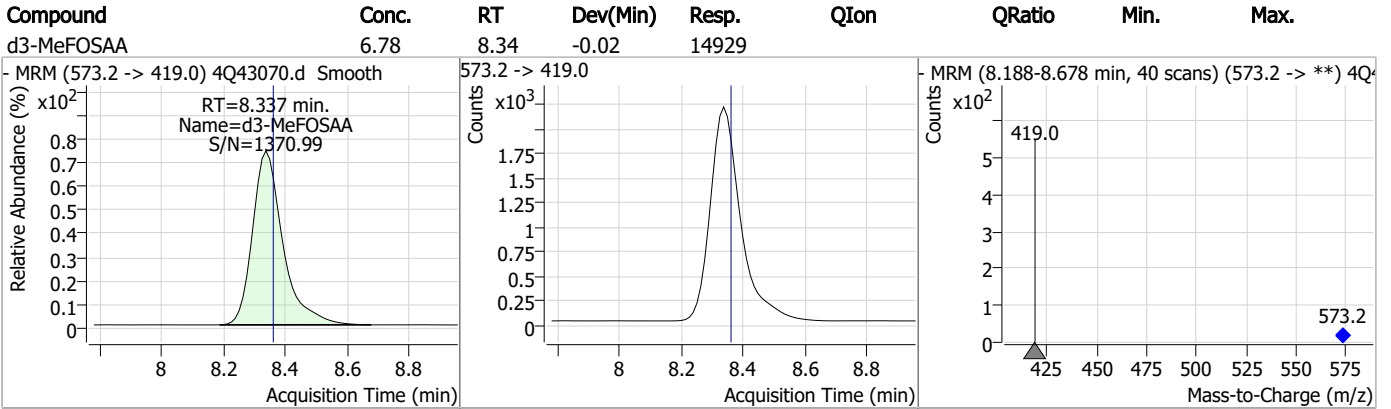
Perfluorinated Compounds by LC/MS/MS



7.1.4

7

Perfluorinated Compounds by LC/MS/MS

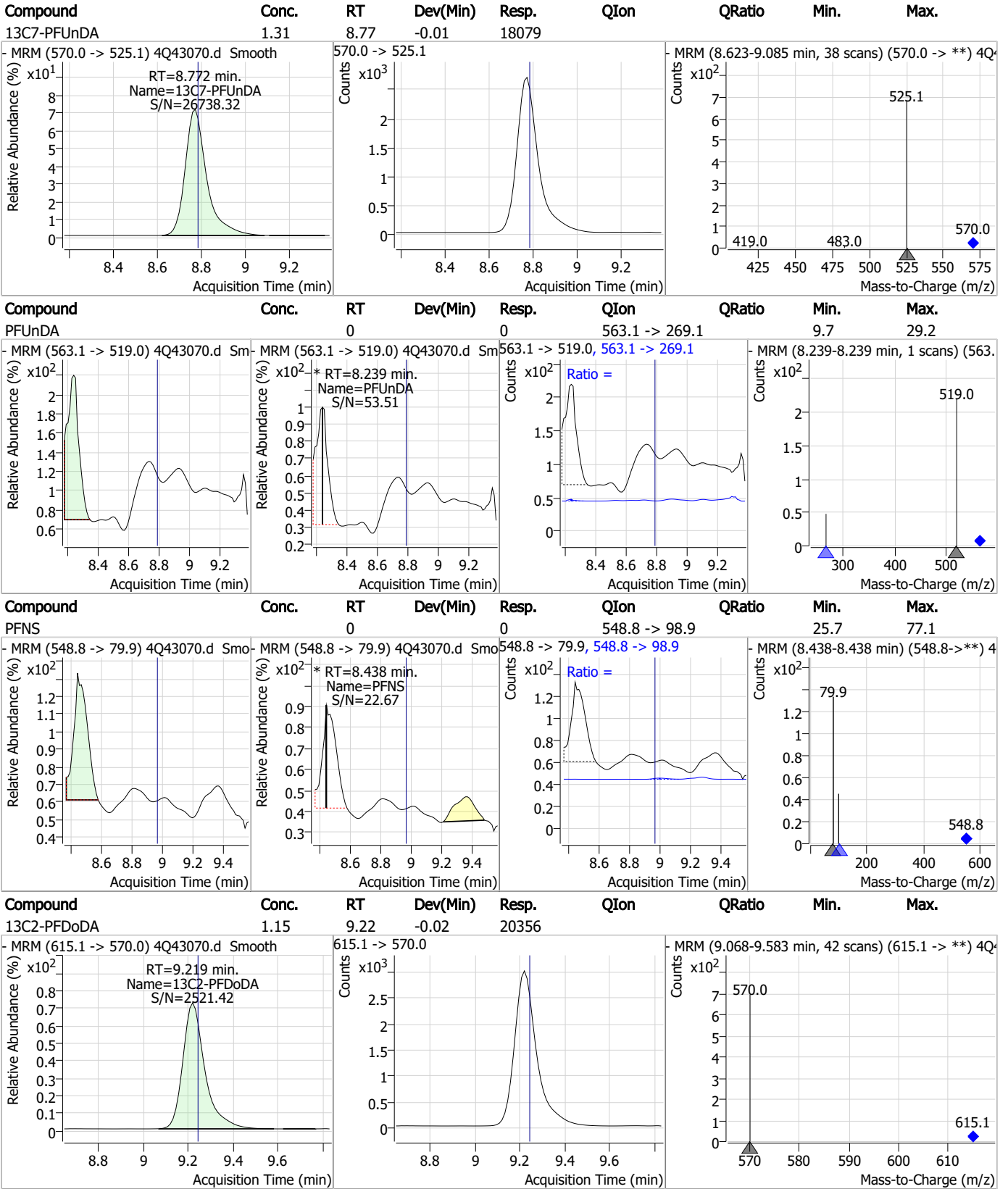


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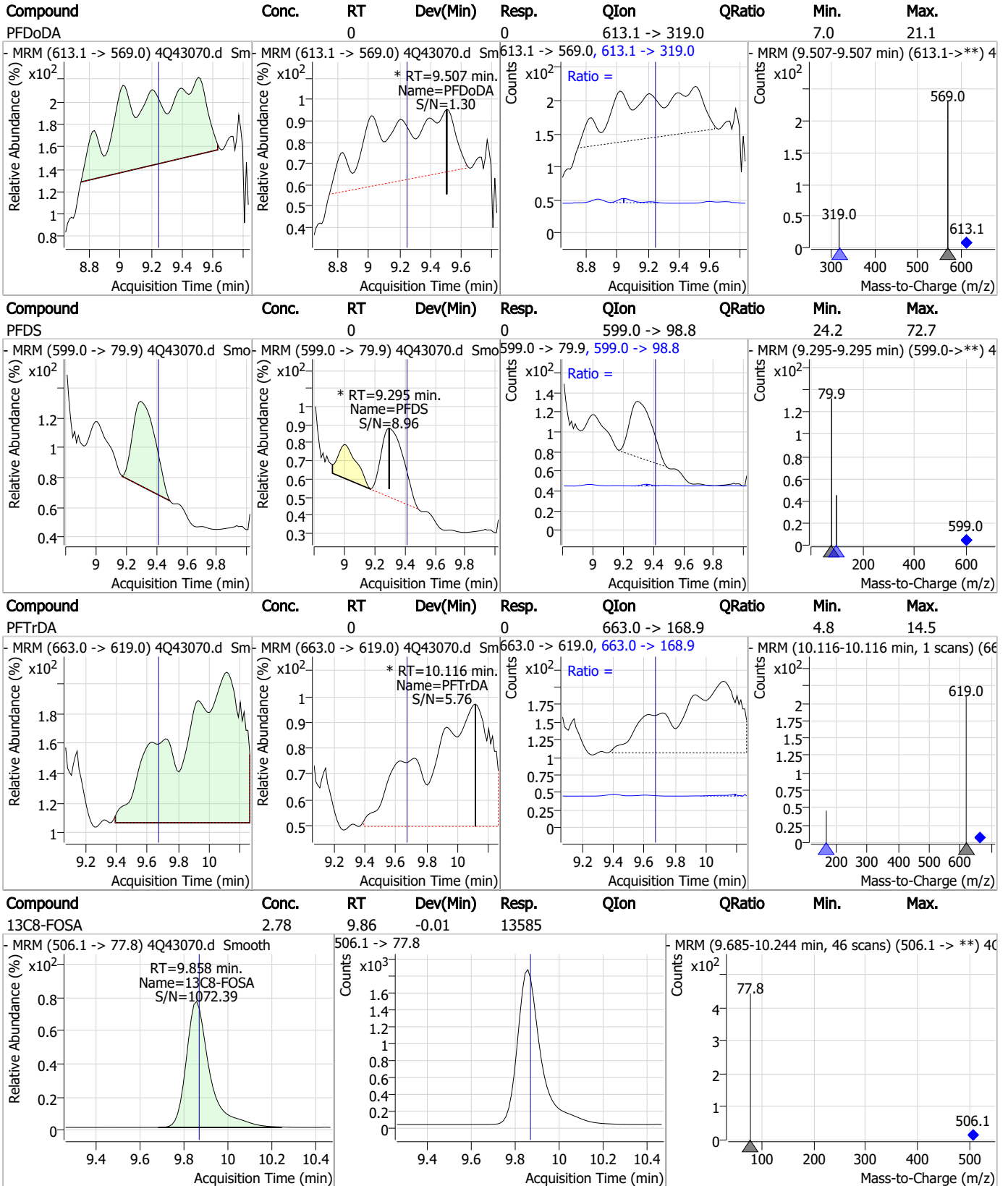
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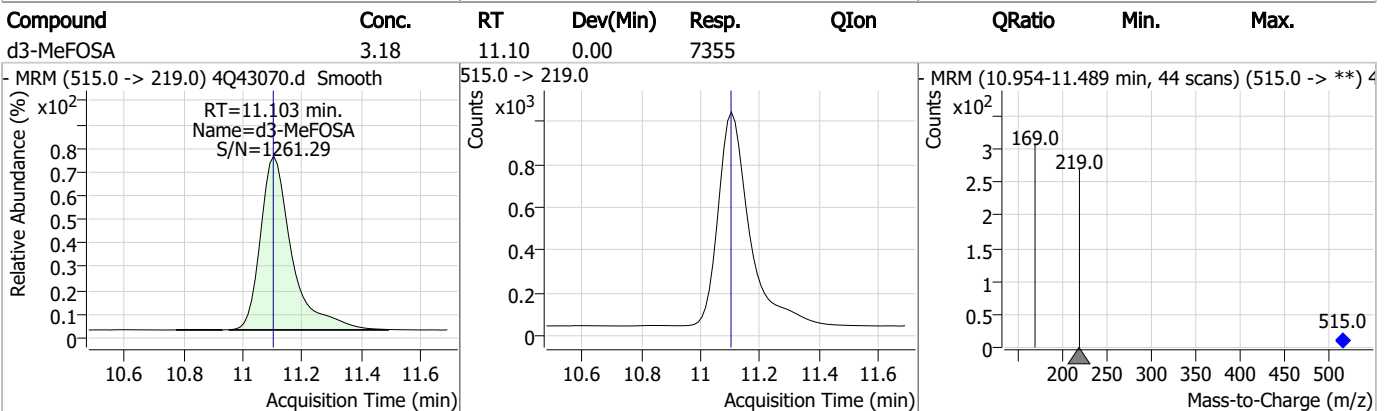
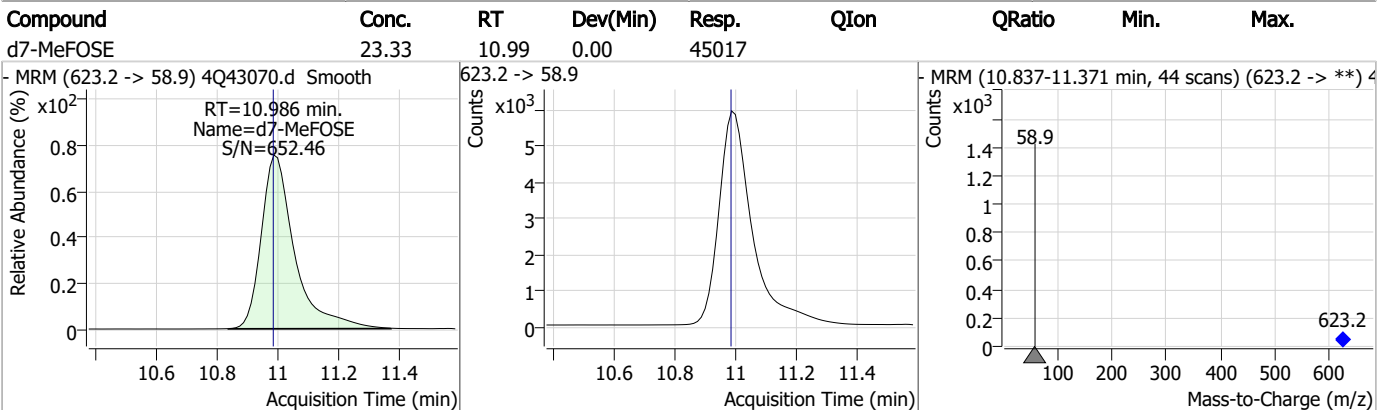
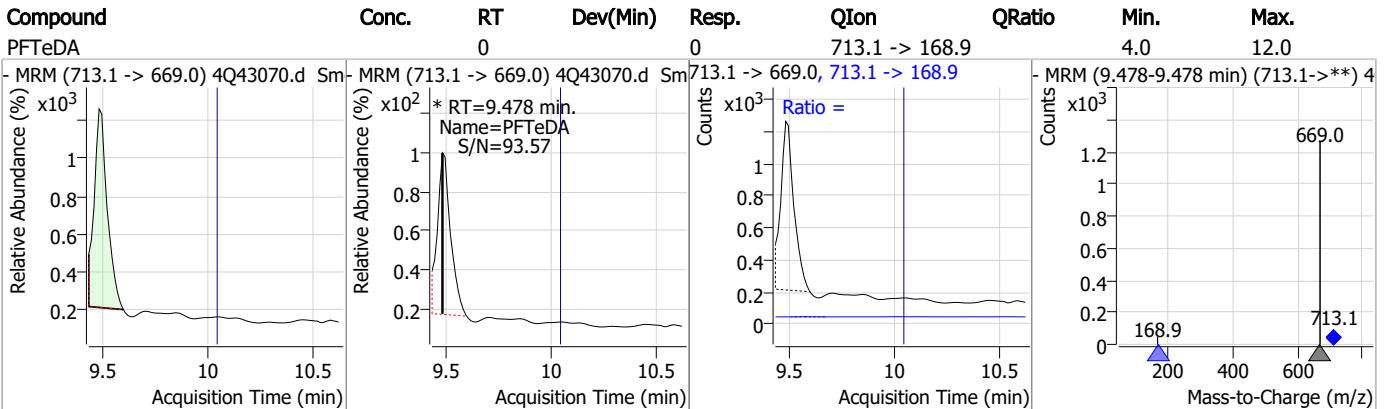
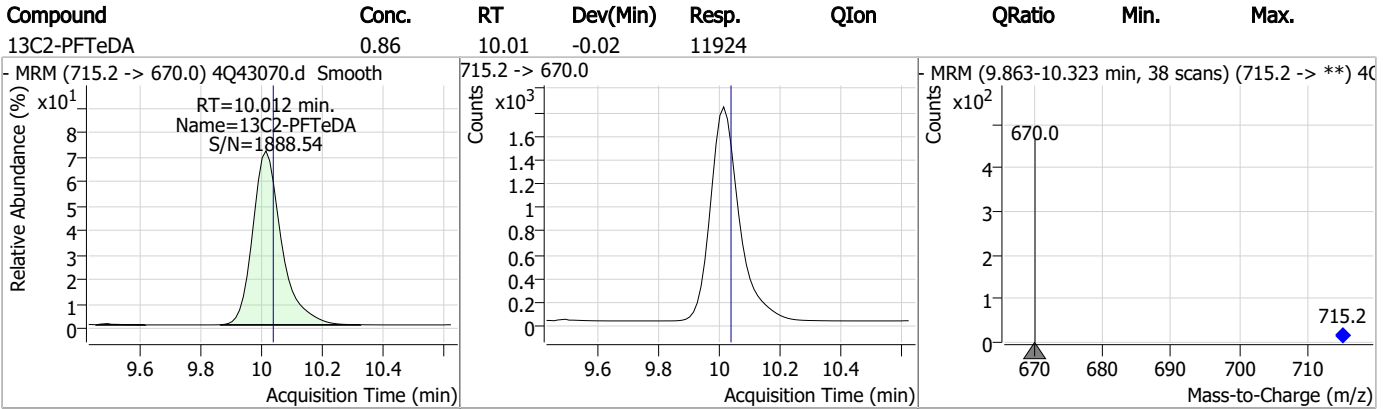
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

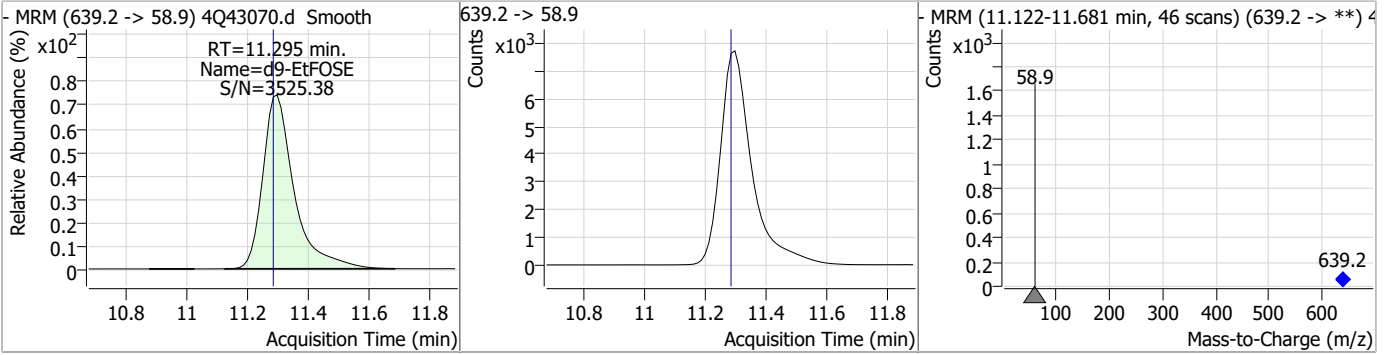


7.1.4

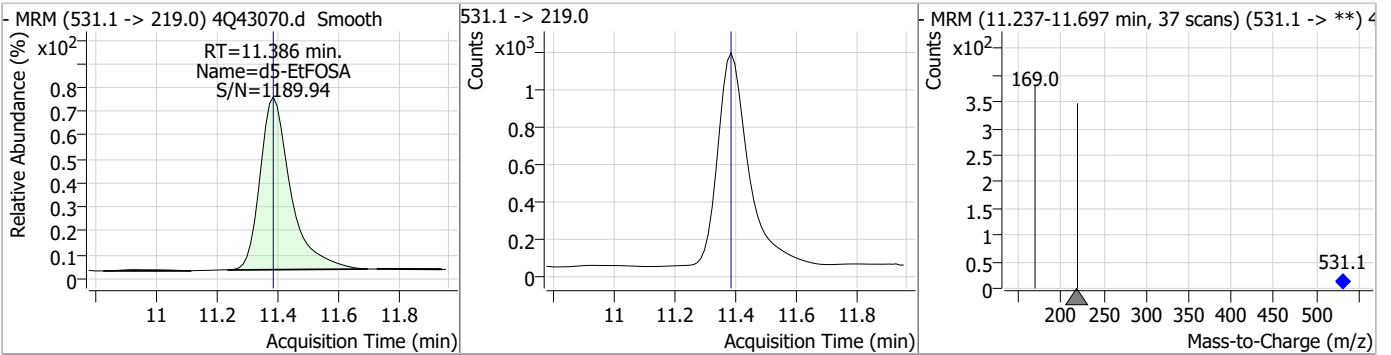
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.23	11.29	0.01	54849				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	3.19	11.39	0.00	7983				



7.1.4

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43166.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 3:39:31 PM
 Sample Name : FC5088-3
 Vial : P4-D2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96368,S4q624,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.002	216.8 -> 171.9	2385	10.00 µg/L	0.041
M5-PFPeA	4.449	268.3 -> 223.0	24823	5.00 µg/L	0.000
M5-PFHxA	5.634	318.0 -> 273.0	50592	2.50 µg/L	0.012
M4-PFHpA	6.555	367.1 -> 322.0	26422	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	30994	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	17186	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	17252	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	18017	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	20400	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	12045	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	13732	2.50 µg/L	0.011
M3-PFBS	5.539	302.1 -> 79.9	10575	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	6321	2.50 µg/L	-0.001
M8-PFOS	8.417	507.1 -> 79.9	8177	2.50 µg/L	0.000
M2-4:2FTS	5.322	329.1 -> 80.9	1650	5.00 µg/L	0.013
M2-6:2FTS	6.985	429.1 -> 80.9	1681	5.00 µg/L	0.012
M2-8:2FTS	8.052	529.1 -> 80.9	3164	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	15517	5.00 µg/L	-0.001
M3-HFPO-DA	5.989	286.9 -> 168.9	29704	10.00 µg/L	0.000
M5-EtFOSAA	8.520	589.2 -> 419.0	13130	5.00 µg/L	-0.014
M7-MeFOSE	10.972	623.2 -> 58.9	45975	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	54925	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	7997	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	7341	2.50 µg/L	-0.002
13C4-PFOS	8.405	502.8 -> 79.9	7256	2.50 µg/L	-0.013
13C3-PFBA	3.005	216.0 -> 172.0	58365	5.00 µg/L	0.040
18O2-PFHxS	7.315	403.0 -> 83.9	4476	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	34300	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	13865	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	17578	1.25 µg/L	-0.001
13C2-PFHxA	5.635	315.1 -> 270.0	39022	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.322	329.1 -> 80.9	1650	6.75 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 135.0%		
13C2-6:2FTS	6.985	429.1 -> 80.9	1681	4.79 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3164	5.48 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C2-PFDoDA	9.205	615.1 -> 570.0	20400	1.19 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-PFTeDA	9.998	715.2 -> 670.0	12045	0.91 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.5%		
13C3-PFBS	5.539	302.1 -> 79.9	10575	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C3-PFHxS	7.316	402.1 -> 79.9	6321	2.55 µg/L	-0.001

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFBA	3.002	216.8 -> 171.9	2385	0.23 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 2.3%	
13C4-PFHpA	6.555	367.1 -> 322.0	26422	2.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.3%	
13C5-PFHxA	5.634	318.0 -> 273.0	50592	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C5-PFPeA	4.449	268.3 -> 223.0	24823	2.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 43.2%	
13C6-PFDA	8.265	519.1 -> 474.1	17252	1.41 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.2%	
13C7-PFUnDA	8.747	570.0 -> 525.1	18017	1.36 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C8-FOSA	9.845	506.1 -> 77.8	13732	2.89 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.8%	
13C8-PFOA	7.213	421.1 -> 376.0	30994	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C8-PFOS	8.417	507.1 -> 79.9	8177	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.3%	
13C9-PFNA	7.758	472.1 -> 427.0	17186	1.34 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.3%	
d3-MeFOSAA	8.323	573.2 -> 419.0	15517	7.26 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 145.2%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	29704	10.85 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
d3-MeFOSA	11.089	515.0 -> 219.0	7341	3.27 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 130.7%	
d5-EtFOSAA	8.520	589.2 -> 419.0	13130	7.56 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 151.2%	
d7-MeFOSE	10.972	623.2 -> 58.9	45975	24.57 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d9-EtFOSE	11.281	639.2 -> 58.9	54925	23.99 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSA	11.373	531.1 -> 219.0	7997	3.29 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 131.8%	

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	9.307	599.0 -> 79.9	0	µg/L m	1

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	0			
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	7.885	449.0 -> 79.9	0	µg/L	m	1
		449.0 -> 98.9	0			
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	7.972	463.0 -> 419.0	0	µg/L	m	1
		463.0 -> 219.0	0			
PFNS	8.437	548.8 -> 79.9	0	µg/L	m	1
		548.8 -> 98.9	0			
PFOA	7.215	413.0 -> 369.0	0	µg/L	m	1
		413.0 -> 169.0	0			
PFOS	8.094	498.9 -> 79.9	0	µg/L	m	1
		498.9 -> 98.8	0			
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	9.464	713.1 -> 669.0	0	µg/L	m	1
		713.1 -> 168.9	0			
PFTrDA	10.127	663.0 -> 619.0	0	µg/L	m	1
		663.0 -> 168.9	0			
PFUnDA	8.934	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

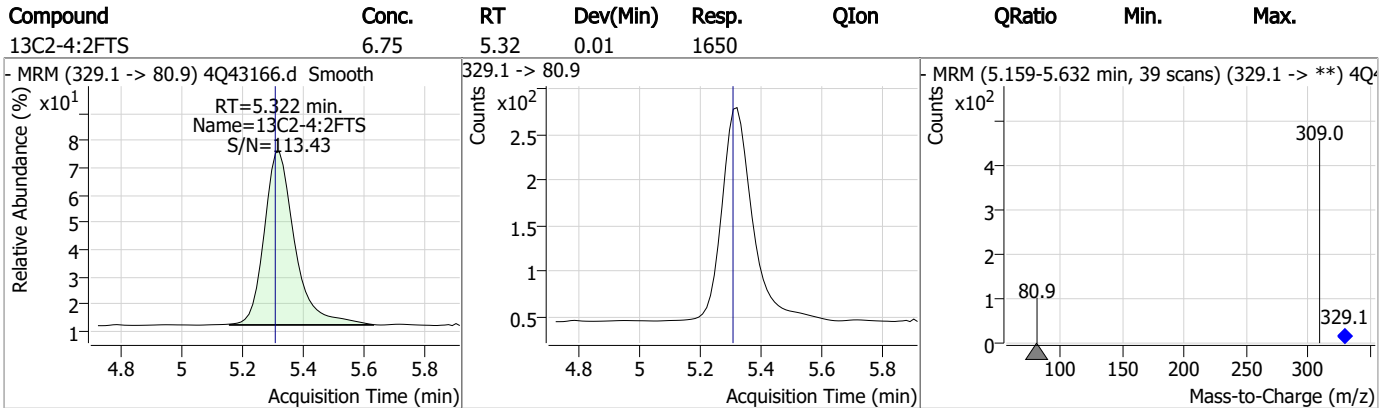
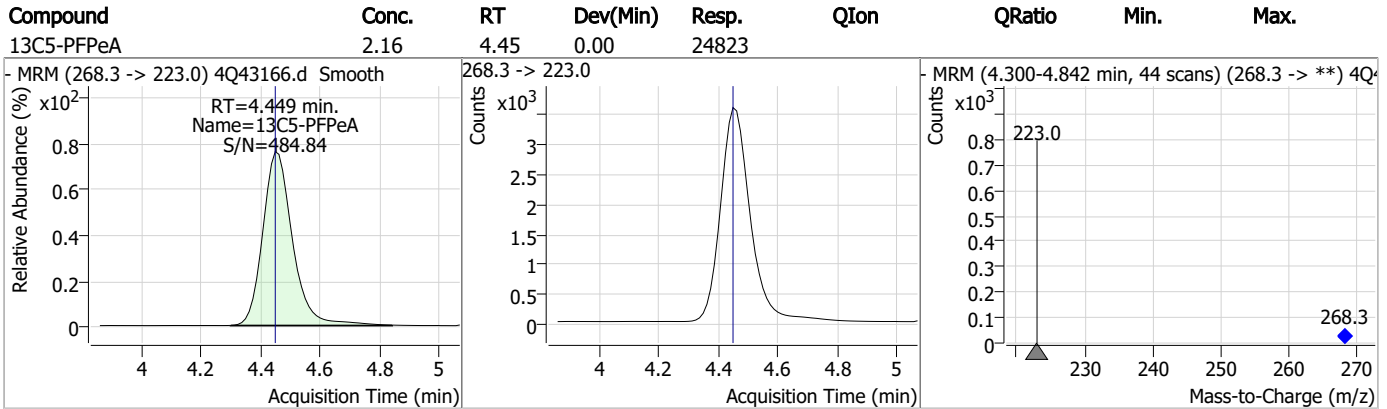
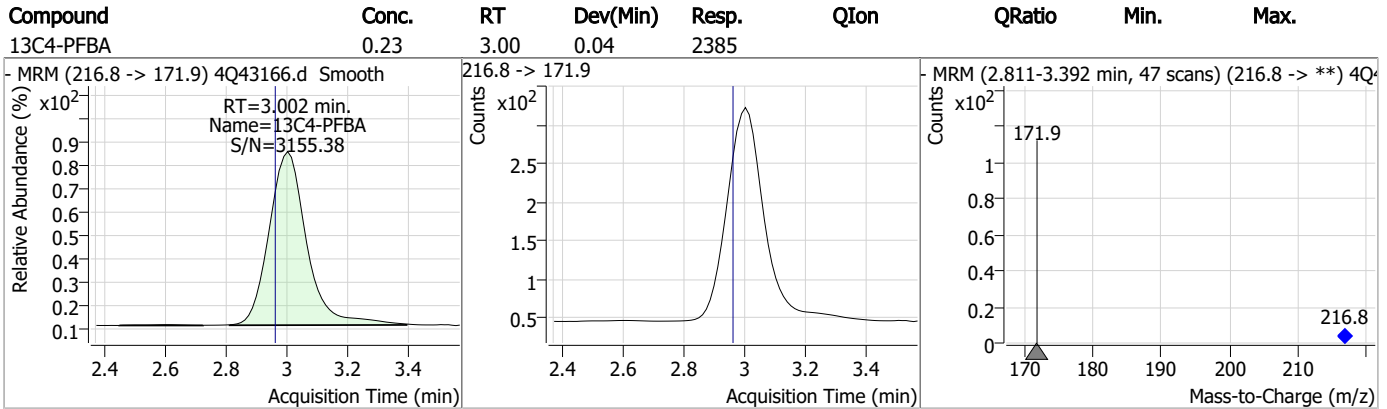
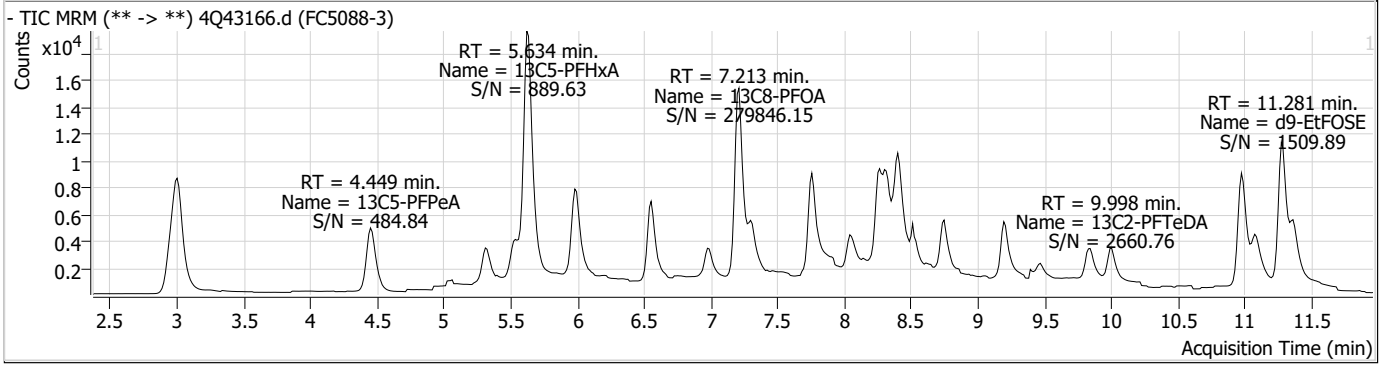
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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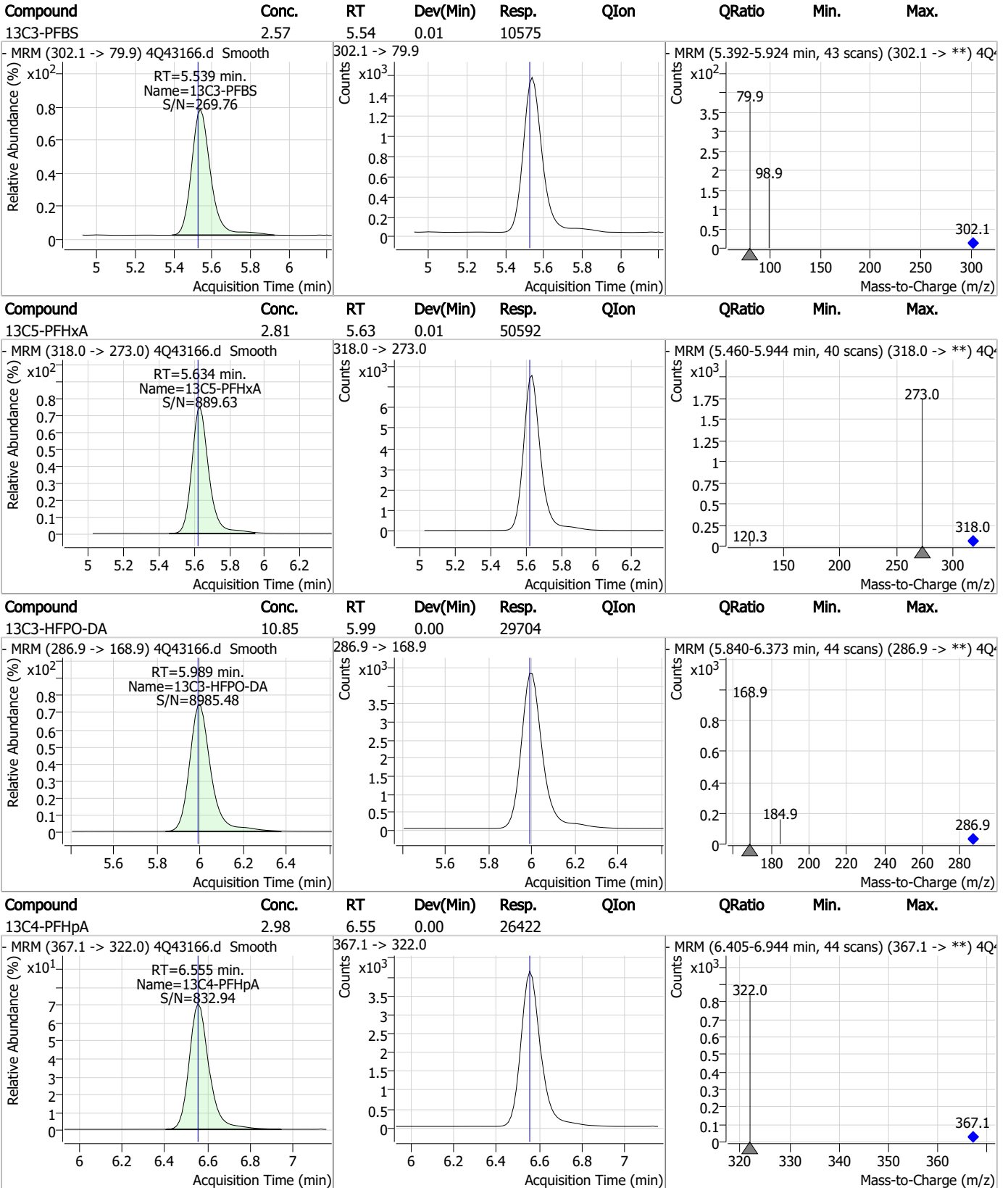
7.1.5
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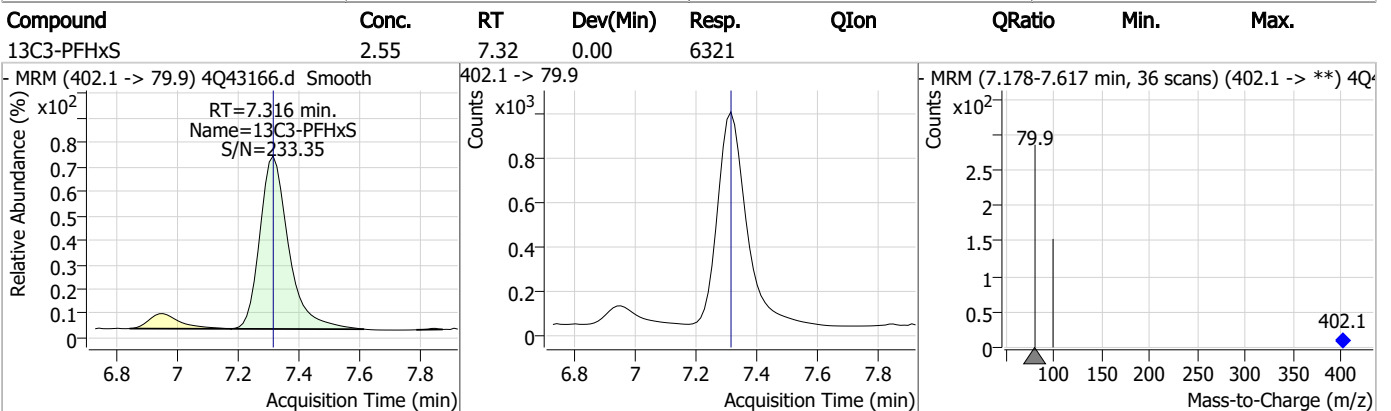
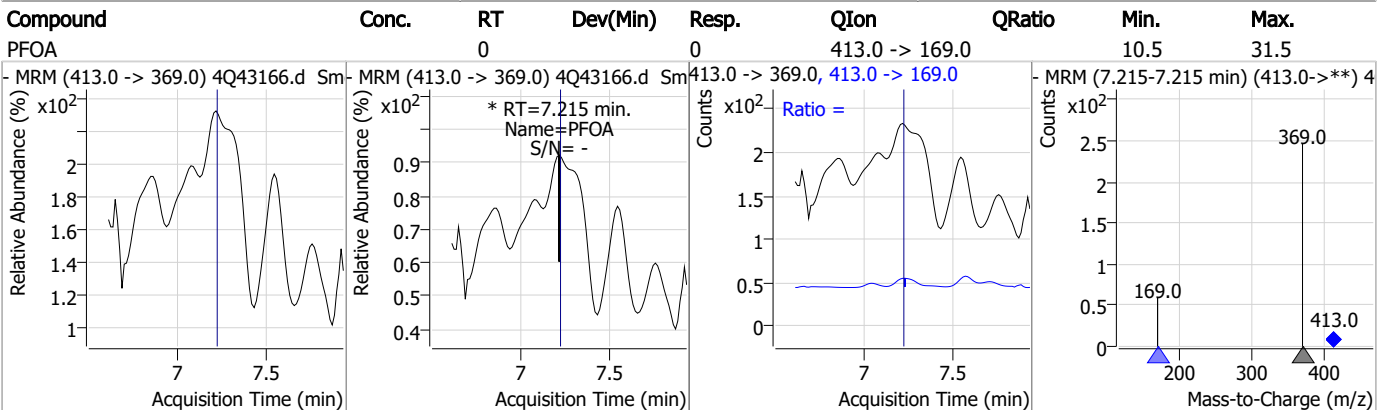
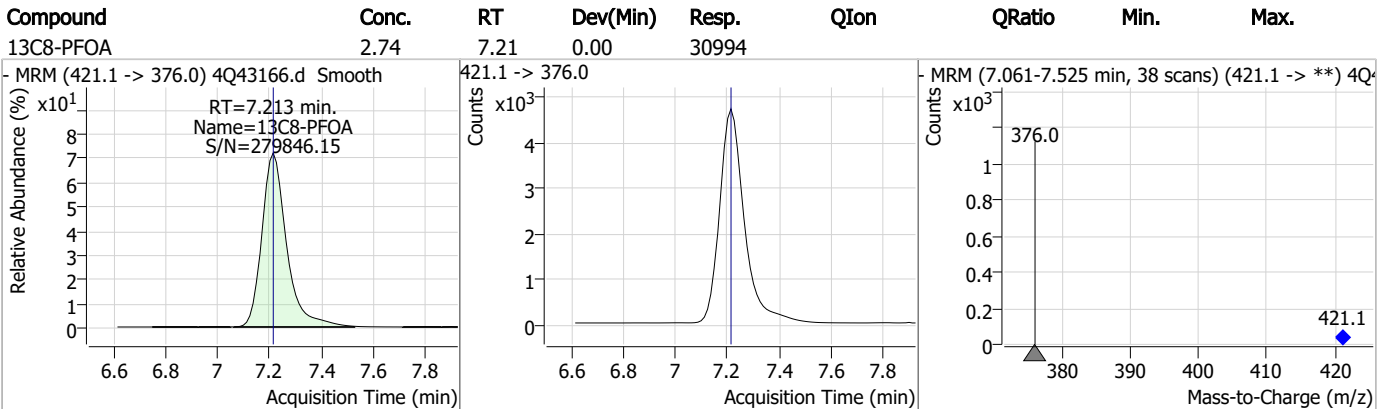
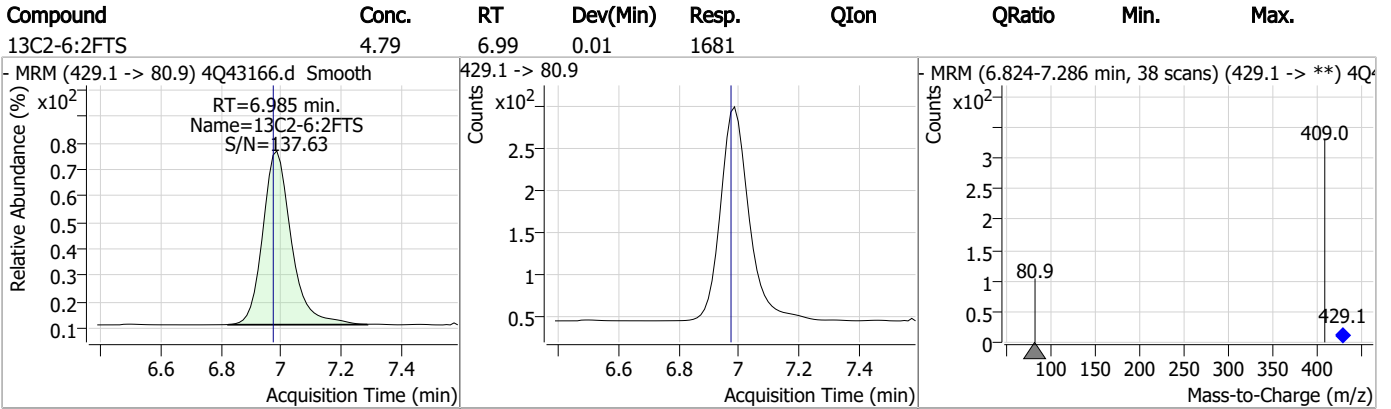
Perfluorinated Compounds by LC/MS/MS



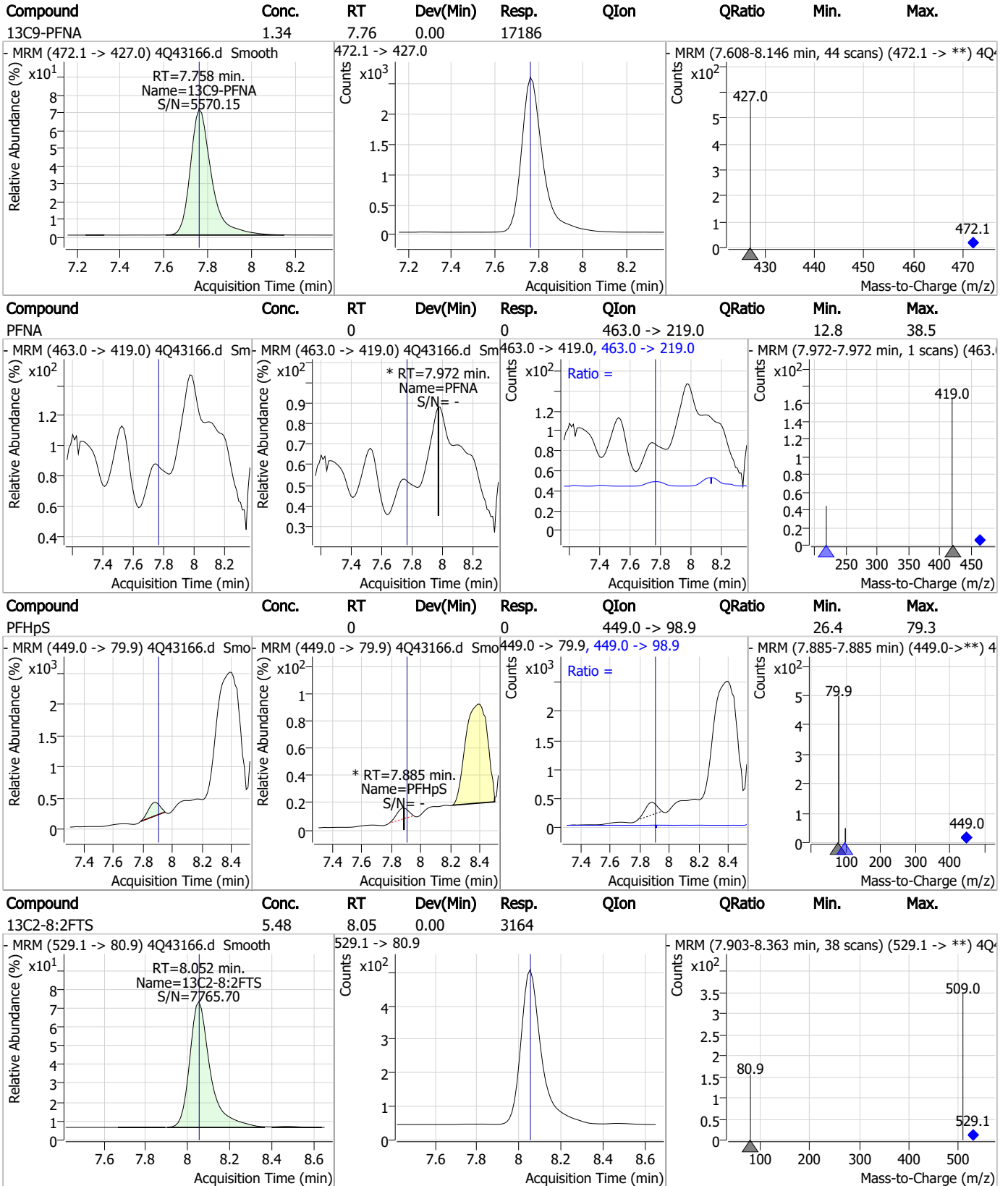
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



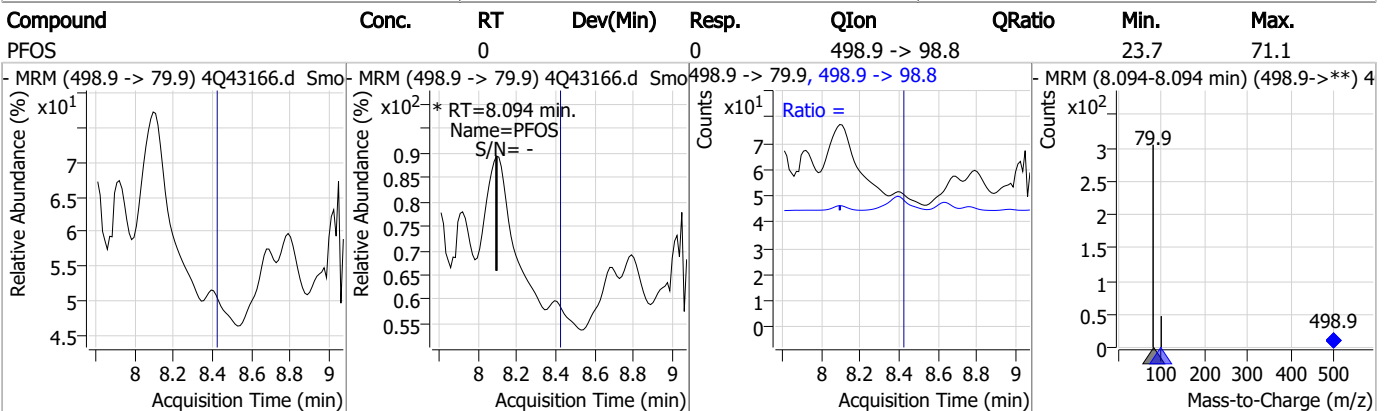
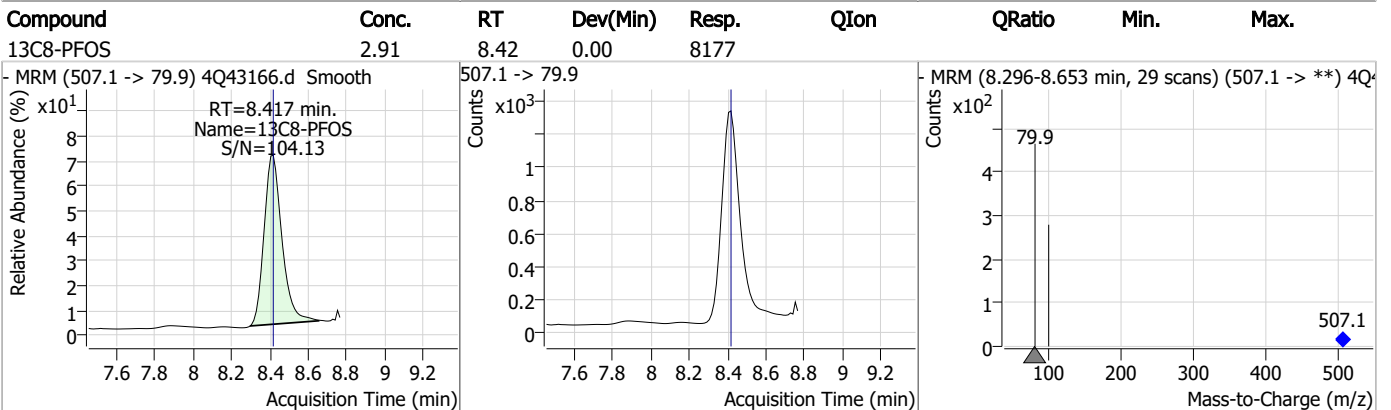
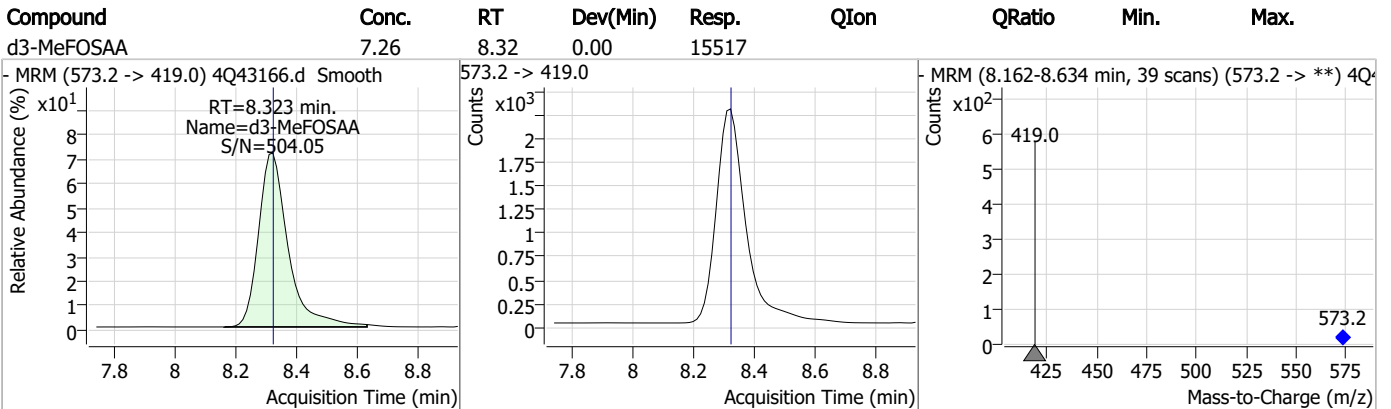
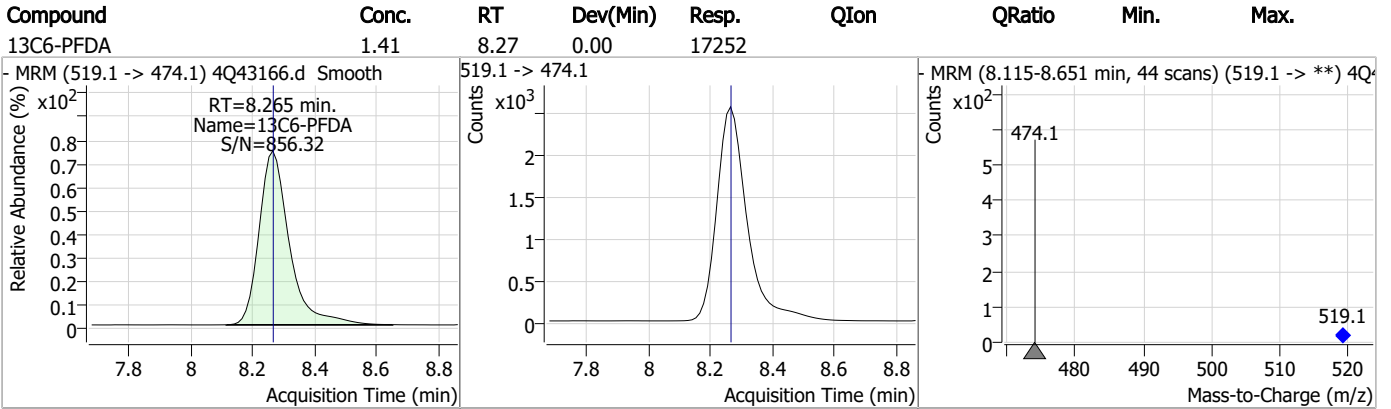
Perfluorinated Compounds by LC/MS/MS



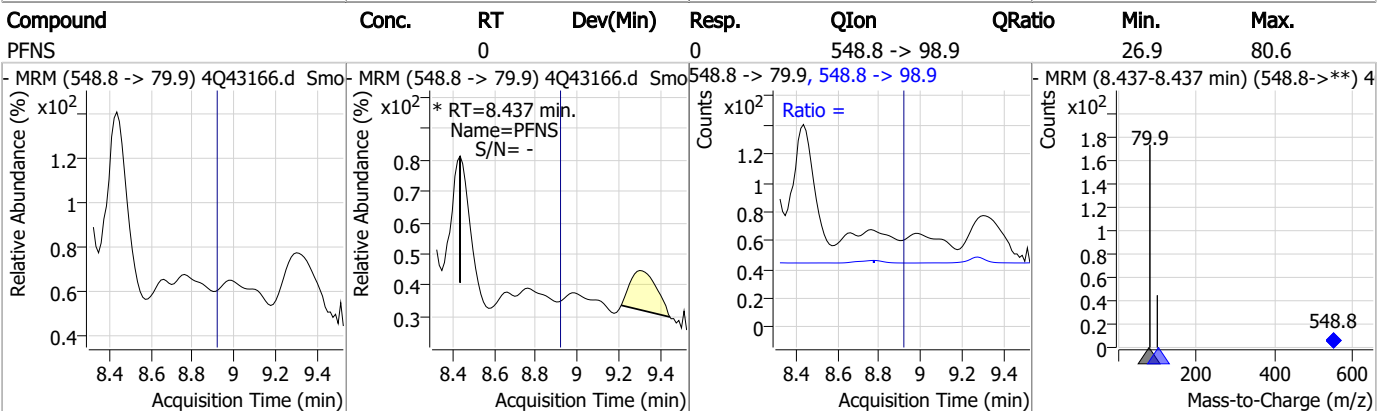
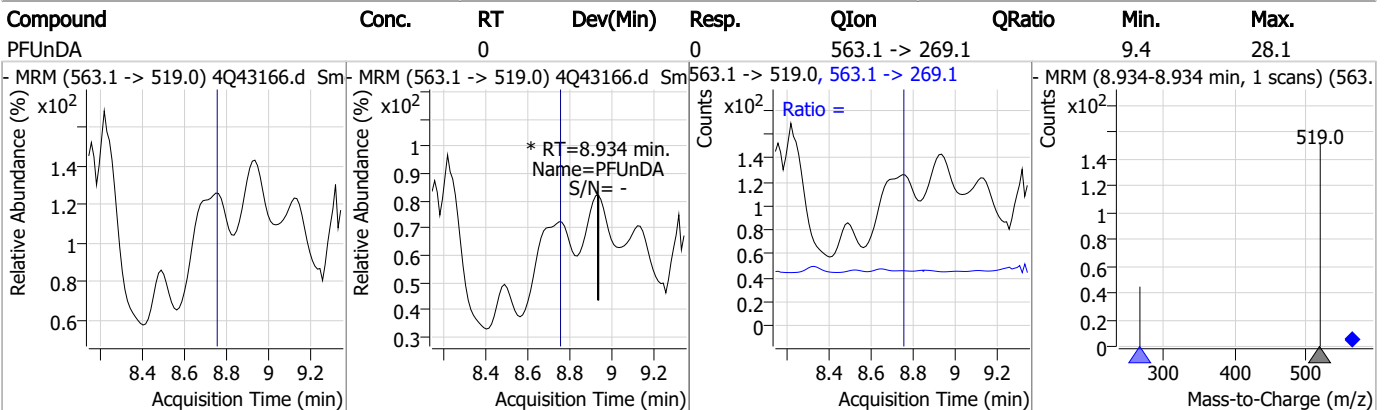
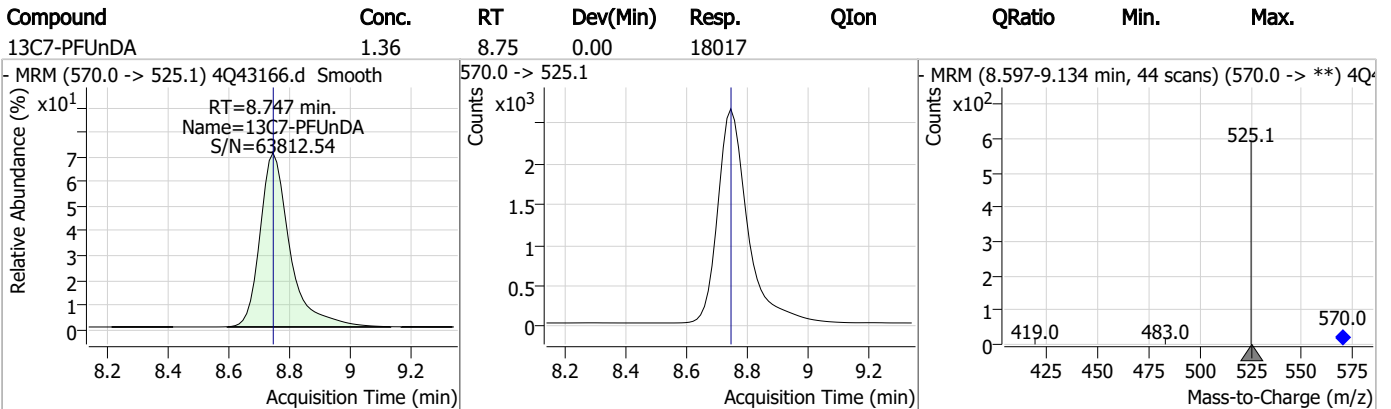
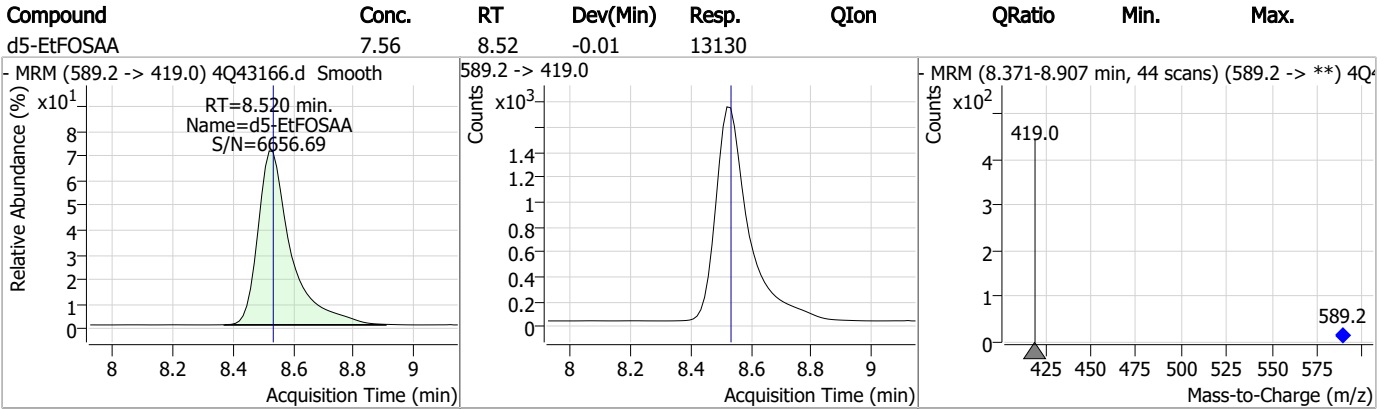
7.15

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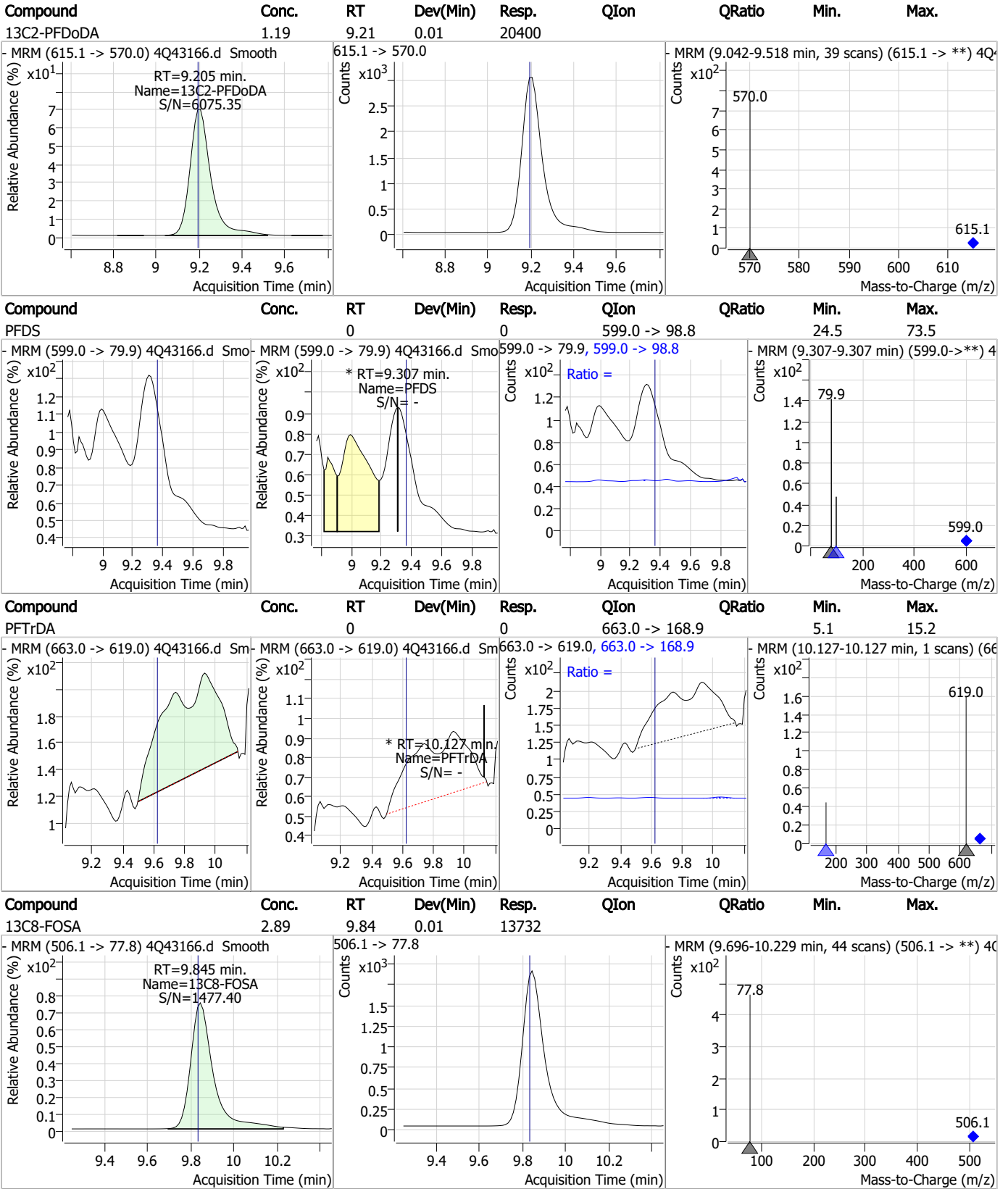
Perfluorinated Compounds by LC/MS/MS



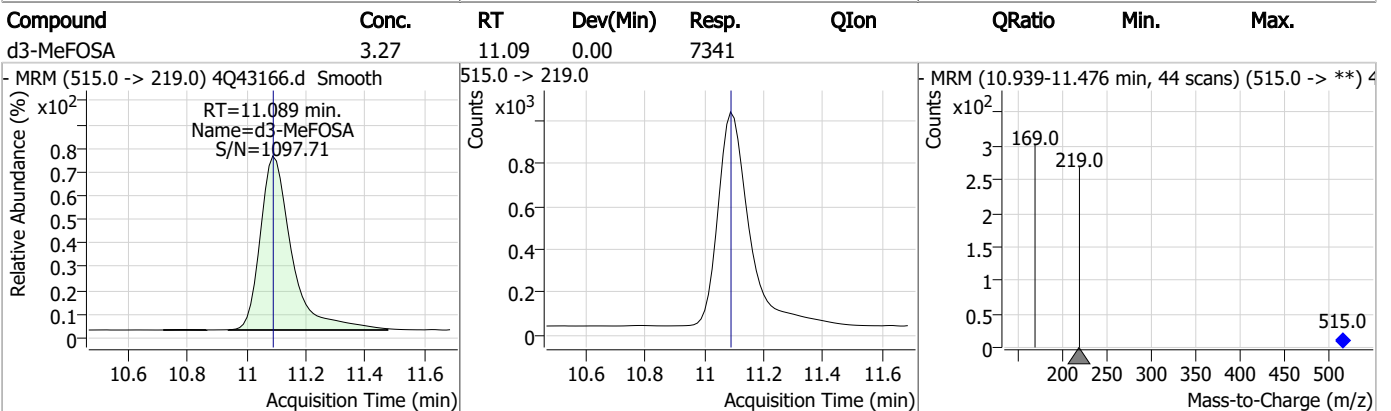
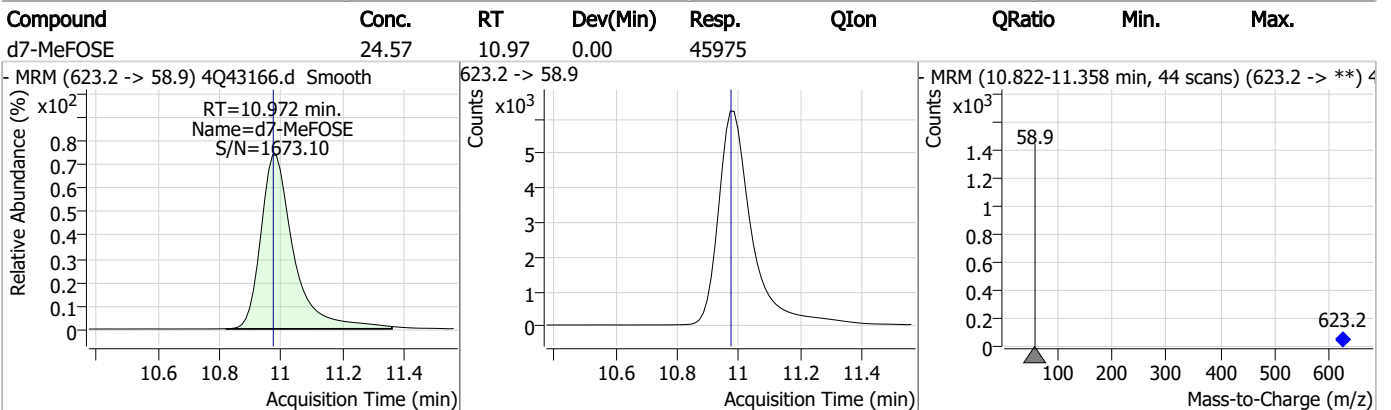
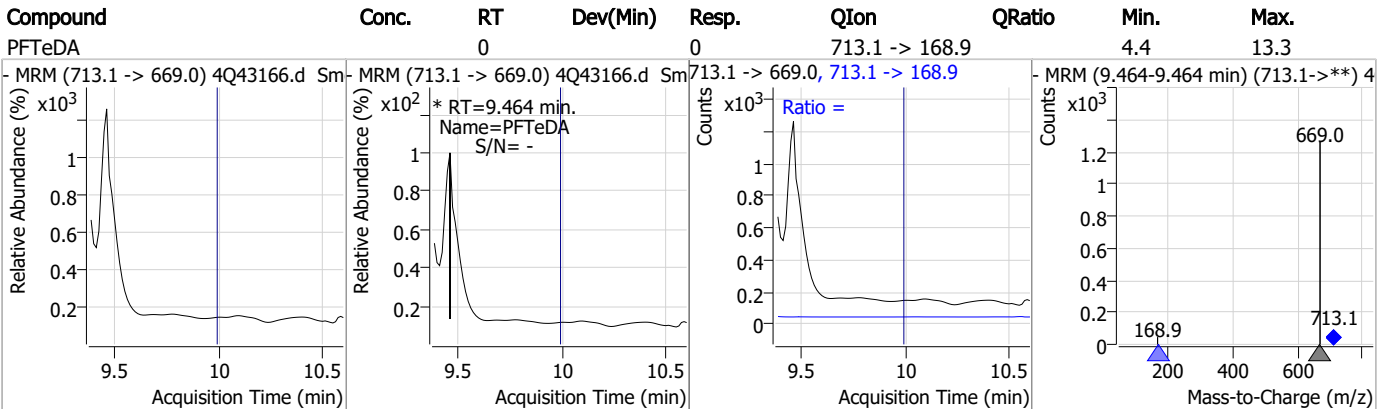
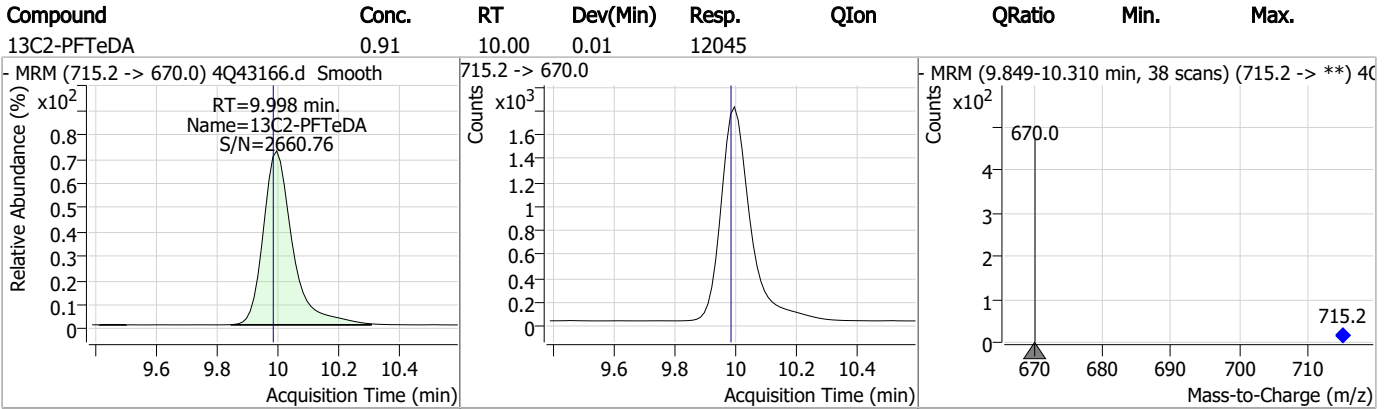
Perfluorinated Compounds by LC/MS/MS



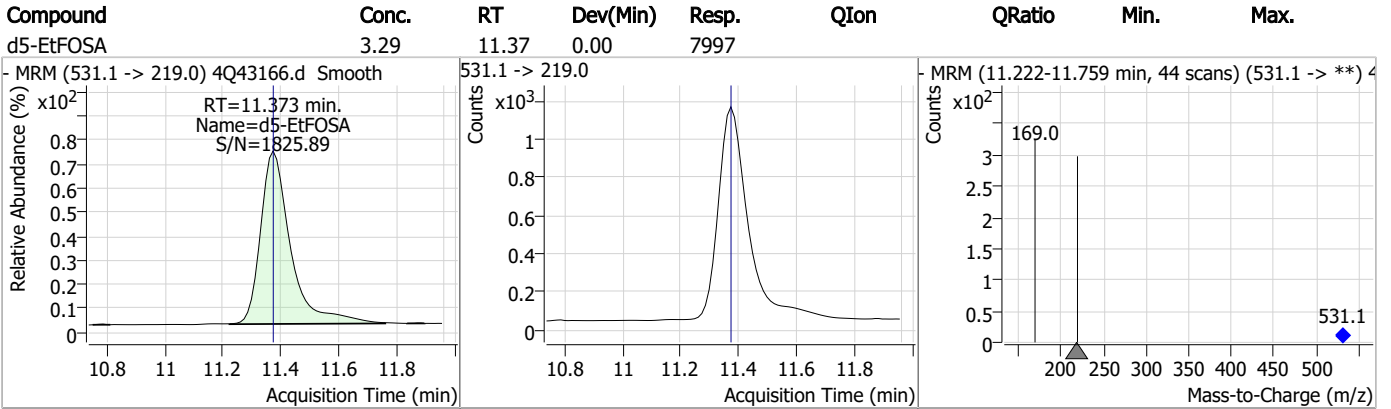
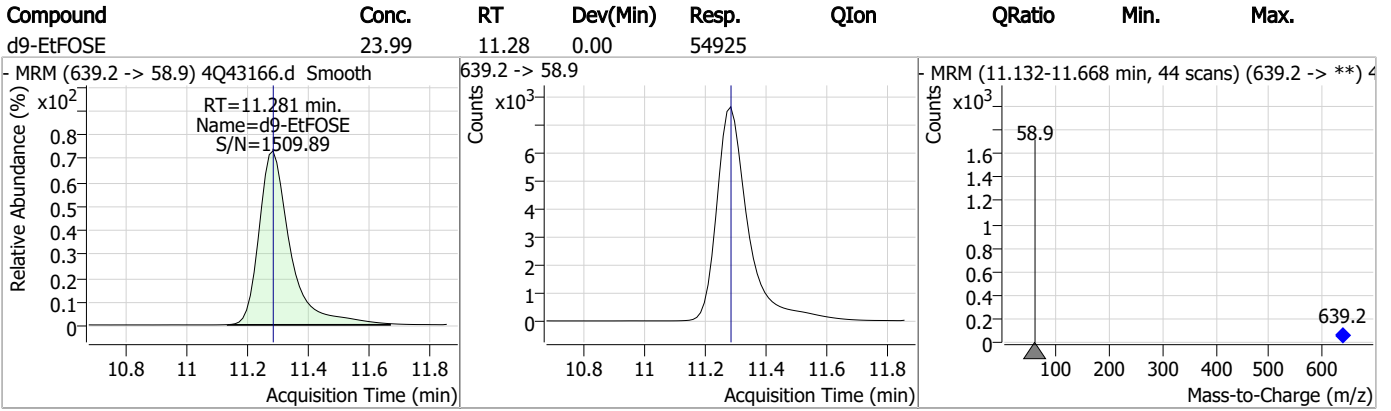
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43072.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 8:14:49 PM
 Sample Name : FC5088-4
 Vial : P4-D4
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96368,S4q622,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	118003	10.00 µg/L	0.000
M5-PFPeA	4.462	268.3 -> 223.0	64722	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	51472	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	26059	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	31979	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	17397	1.25 µg/L	-0.012
M6-PFDA	8.291	519.1 -> 474.1	14815	1.25 µg/L	-0.012
M7-PFUnDA	8.772	570.0 -> 525.1	16312	1.25 µg/L	-0.012
M2-PFDoDA	9.219	615.1 -> 570.0	19606	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	14059	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	12658	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	10960	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	6456	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	8899	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1485	5.00 µg/L	0.000
M2-6:2FTS	6.999	429.1 -> 80.9	2222	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	3327	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	14680	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	30079	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	11506	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	45057	25.00 µg/L	0.002
M9-EtFOSE	11.282	639.2 -> 58.9	55478	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	7150	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	6422	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	9455	2.50 µg/L	-0.024
13C3-PFBA	3.003	216.0 -> 172.0	59772	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	4385	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	36318	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	13019	1.25 µg/L	-0.012
13C5-PFNA	7.784	468.0 -> 423.0	18975	1.25 µg/L	-0.012
13C2-PFHxA	5.648	315.1 -> 270.0	40019	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1485	6.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.0%		
13C2-6:2FTS	6.999	429.1 -> 80.9	2222	6.46 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.3%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3327	5.88 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.6%		
13C2-PFDoDA	9.219	615.1 -> 570.0	19606	1.22 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFTeDA	10.012	715.2 -> 670.0	14059	1.13 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C3-PFBS	5.552	302.1 -> 79.9	10960	2.72 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C3-PFHxS	7.329	402.1 -> 79.9	6456	2.66 µg/L	-0.012

7.1.6
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C4-PFBA	2.999	216.8 -> 171.9	118003	11.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.4%	
13C4-PFHpA	6.567	367.1 -> 322.0	26059	2.87 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.7%	
13C5-PFHxA	5.647	318.0 -> 273.0	51472	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C5-PFPeA	4.462	268.3 -> 223.0	64722	5.49 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C6-PFDA	8.291	519.1 -> 474.1	14815	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C7-PFUnDA	8.772	570.0 -> 525.1	16312	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C8-FOSA	9.858	506.1 -> 77.8	12658	2.05 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.9%	
13C8-PFOA	7.227	421.1 -> 376.0	31979	2.67 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C8-PFOS	8.442	507.1 -> 79.9	8899	2.43 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C9-PFNA	7.784	472.1 -> 427.0	17397	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSAA	8.349	573.2 -> 419.0	14680	5.27 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	30079	10.71 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.1%	
d3-MeFOSA	11.103	515.0 -> 219.0	6422	2.19 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.8%	
d5-EtFOSAA	8.558	589.2 -> 419.0	11506	5.08 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d7-MeFOSE	10.986	623.2 -> 58.9	45057	18.48 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.9%	
d9-EtFOSE	11.282	639.2 -> 58.9	55478	18.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.4%	
d5-EtFOSA	11.386	531.1 -> 219.0	7150	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.4%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.16
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.185	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	9.826	713.1 -> 669.0	0	µg/L	m	1
PFTrDA	-	713.1 -> 168.9	-	N.D.		
		663.0 -> 619.0				
PFUnDA	8.935	663.0 -> 168.9	0	µg/L	m	1
		563.1 -> 519.0				
11Cl-PF3OUdS	-	563.1 -> 269.1	0	N.D.		
		630.9 -> 450.9				
9Cl-PF3ONS	-	632.9 -> 452.9	-	N.D.		
		530.8 -> 351.0				
ADONA	-	532.8 -> 353.0	-	N.D.		
		376.9 -> 250.9				
HFPO-DA	-	376.9 -> 84.8	-	N.D.		
		284.9 -> 168.9				
3:3FTCA	-	284.9 -> 184.9	-	N.D.		
		241.0 -> 177.0				
5:3FTCA	-	241.0 -> 117.0	-	N.D.		
		341.0 -> 237.1				
7:3FTCA	-	341.0 -> 217.0	-	N.D.		
		441.0 -> 316.9				
EtFOSA	-	441.0 -> 336.9	-	N.D.		
		526.0 -> 219.0				
EtFOSE	-	526.0 -> 169.0	-	N.D.		
		630.0 -> 58.9				
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
		699.1 -> 79.9				
PFDoDS	-	699.1 -> 98.8	-	N.D.		
		295.0 -> 201.0				
NFDHA	-	295.0 -> 84.9	-	N.D.		
		279.0 -> 85.1				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.1.6
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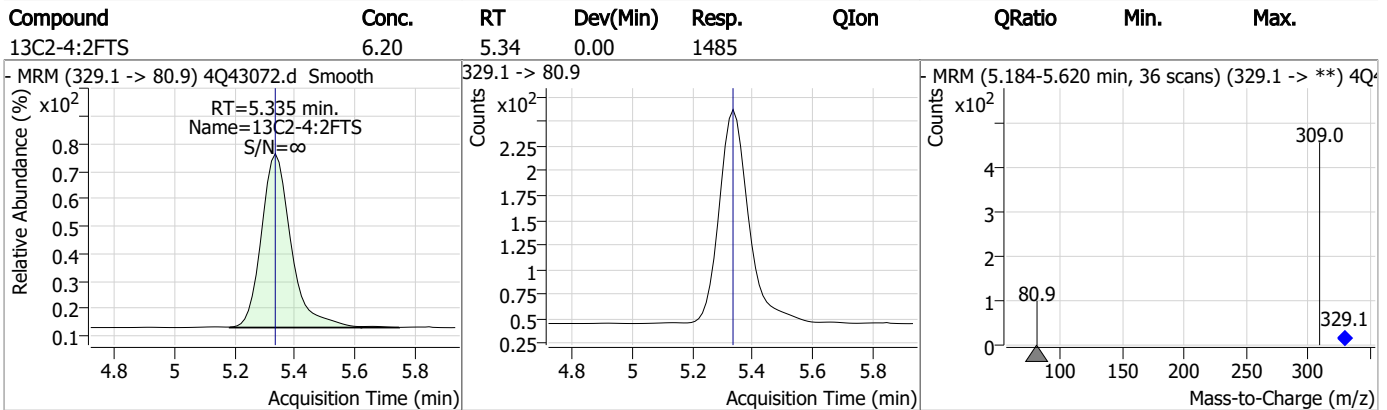
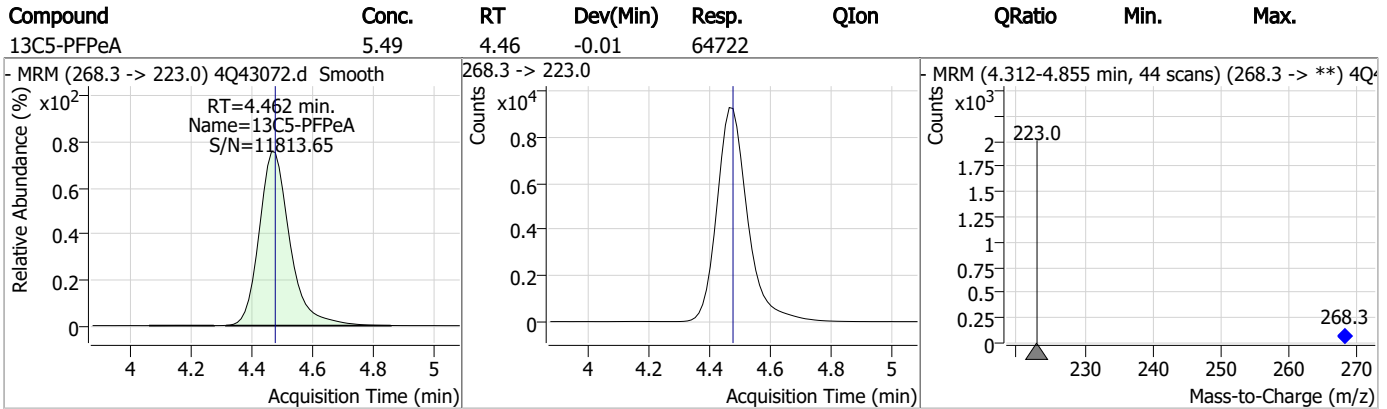
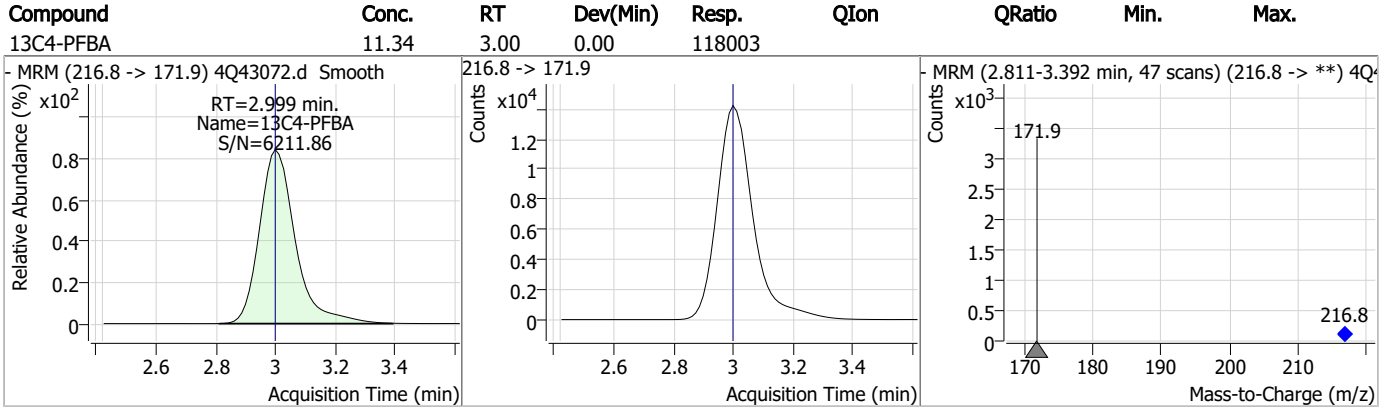
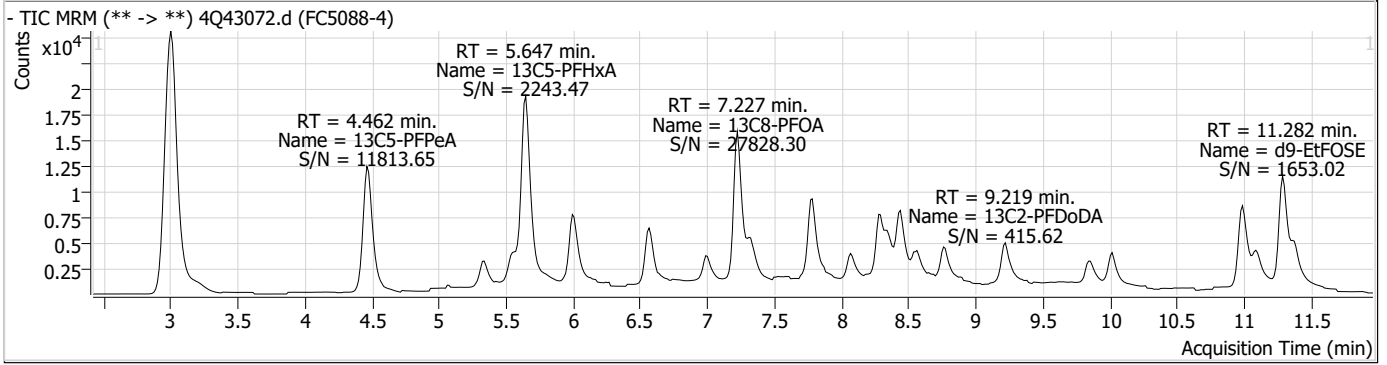
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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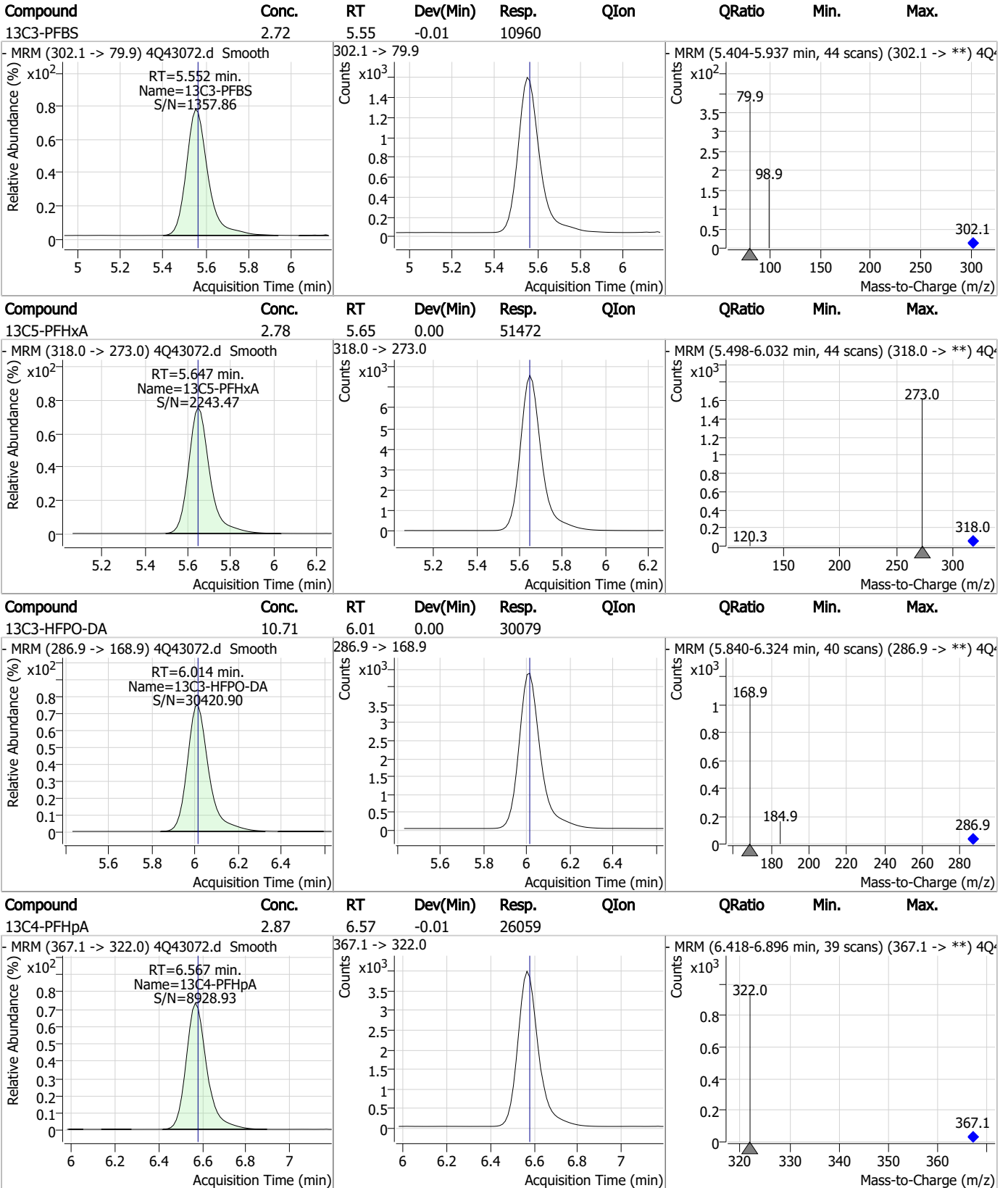
7.1.6
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

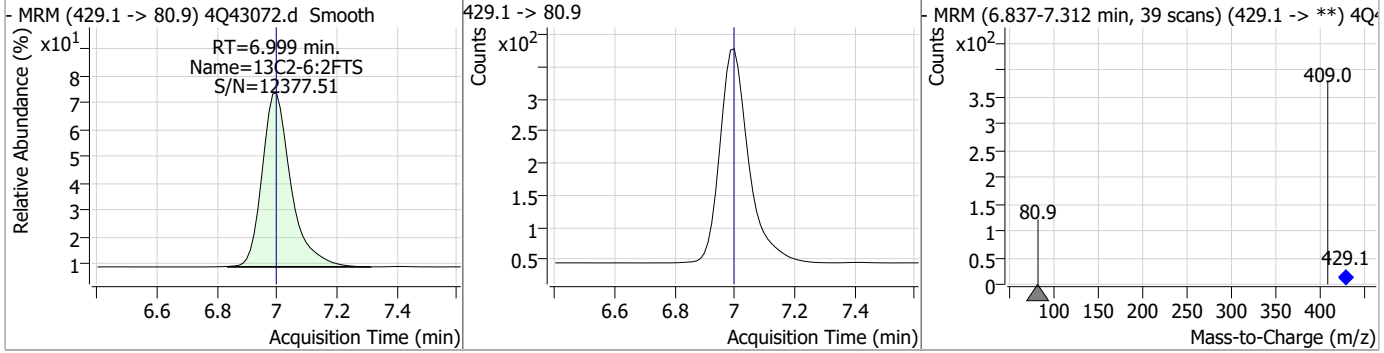


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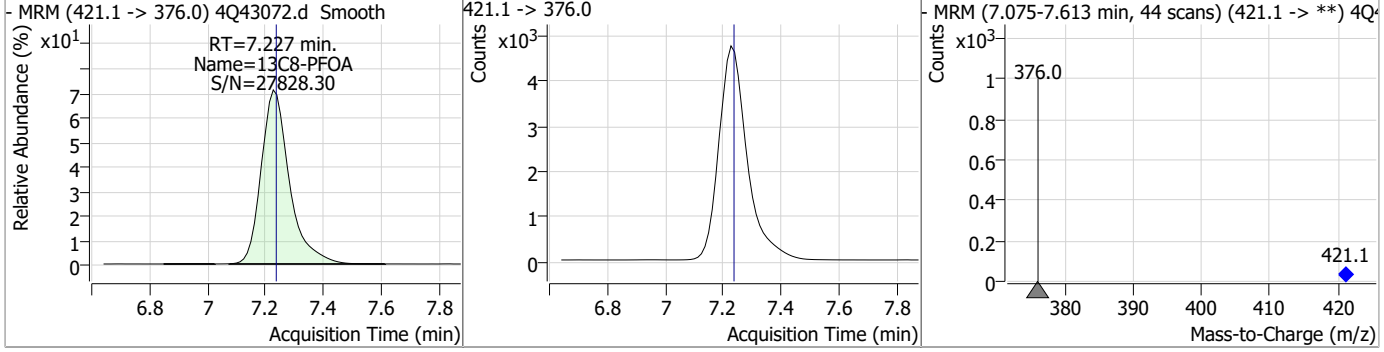
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Perfluorinated Compounds by LC/MS/MS

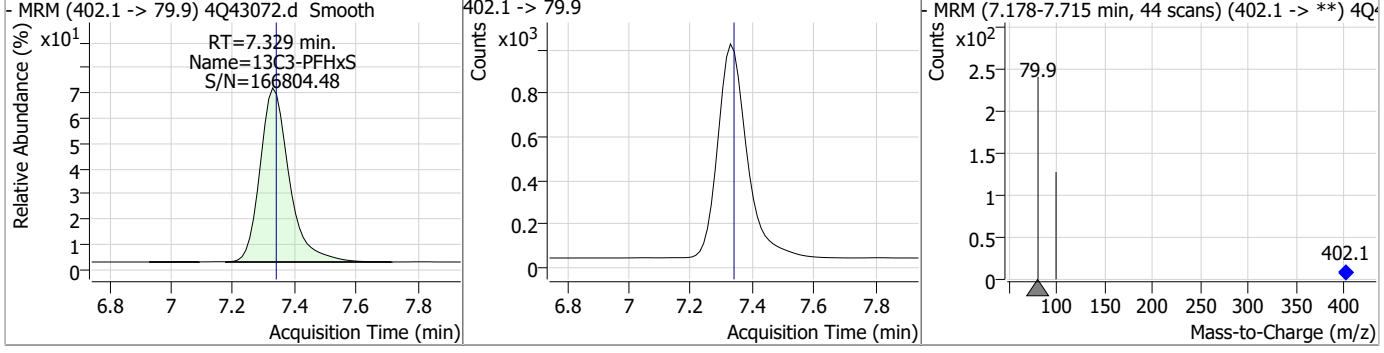
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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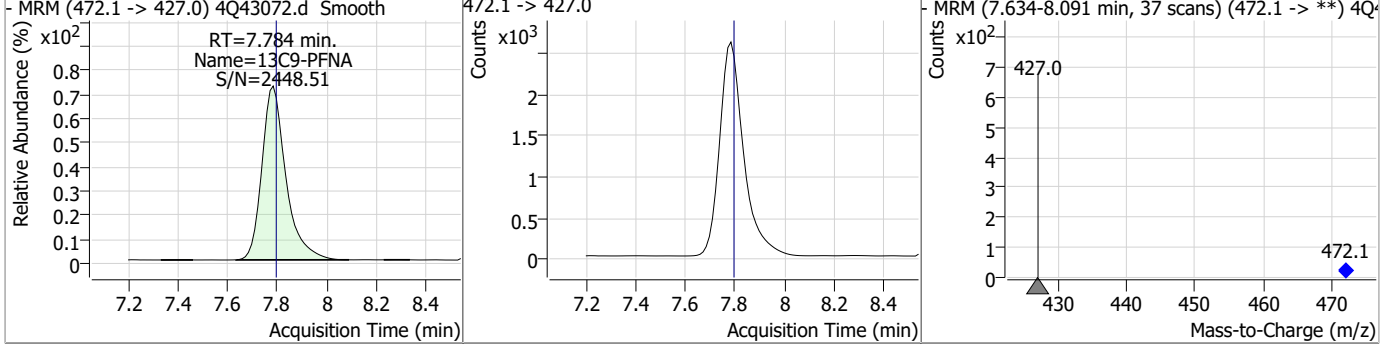
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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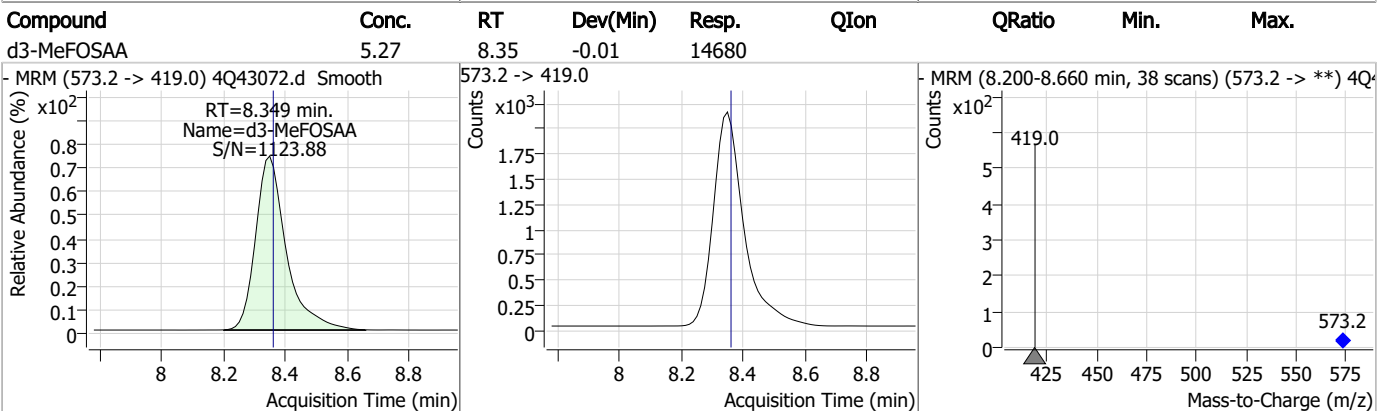
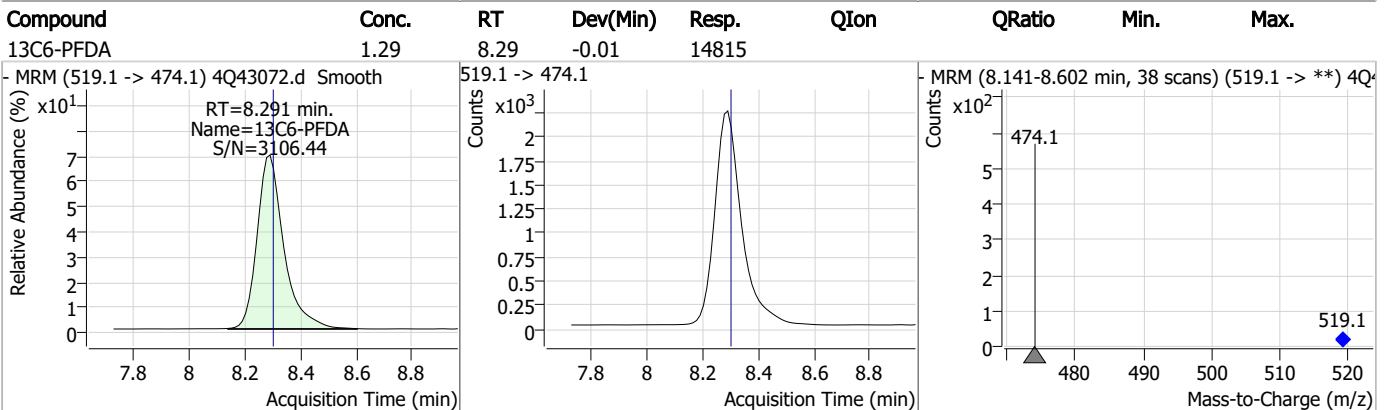
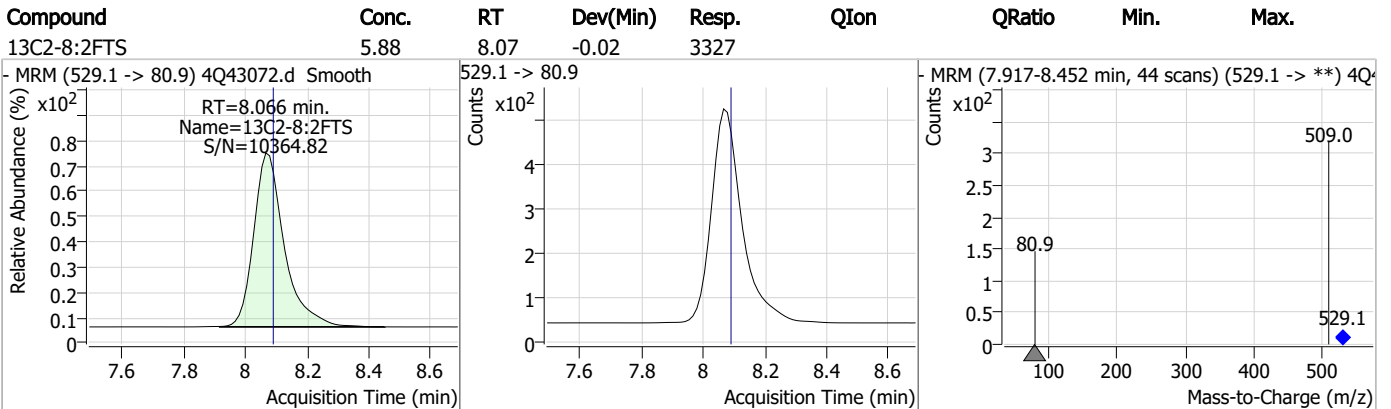
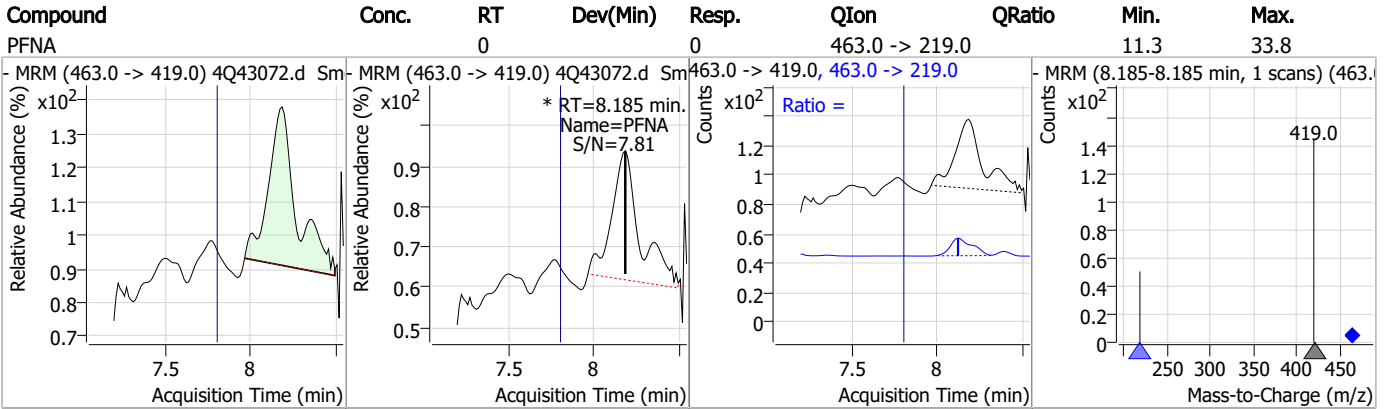


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.6
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Perfluorinated Compounds by LC/MS/MS

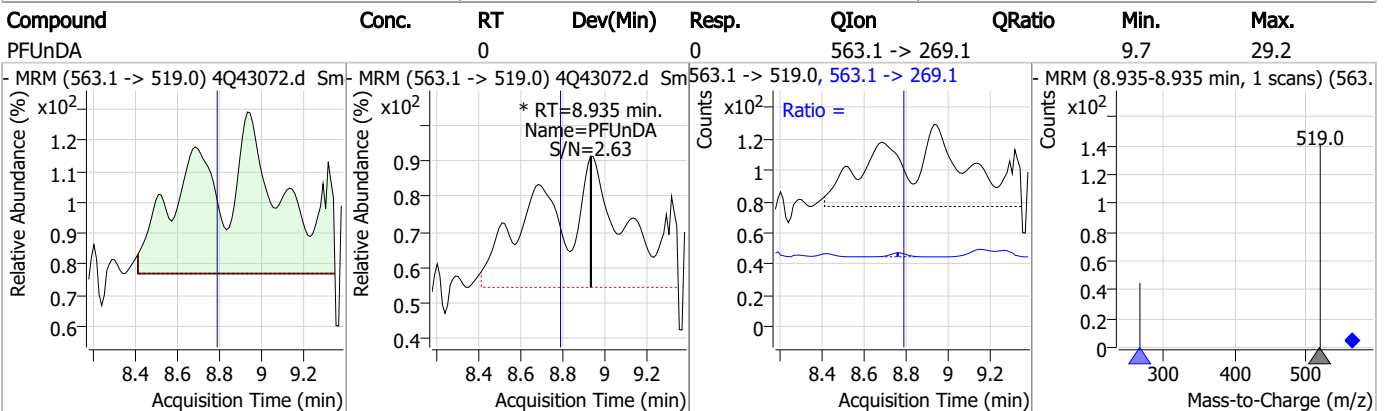
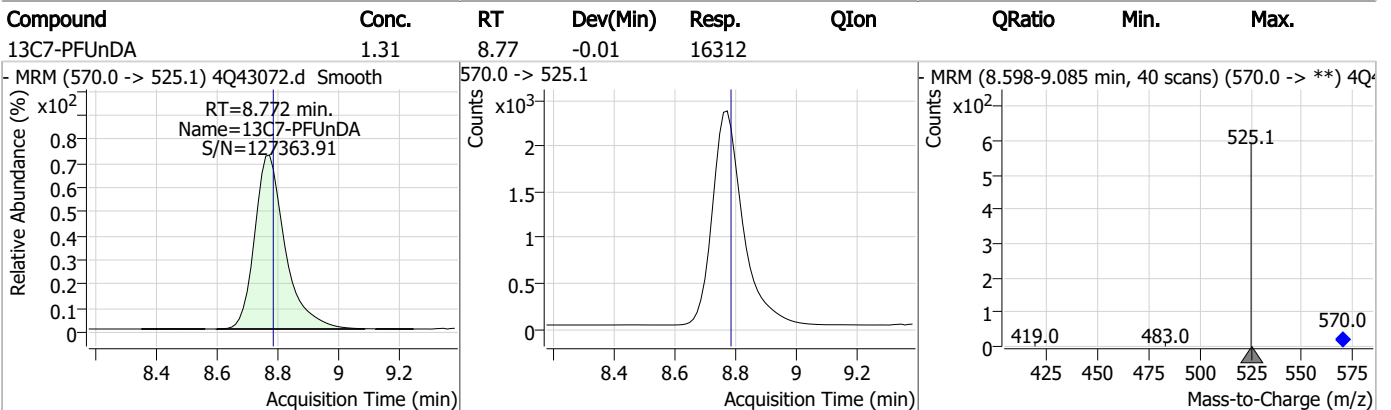
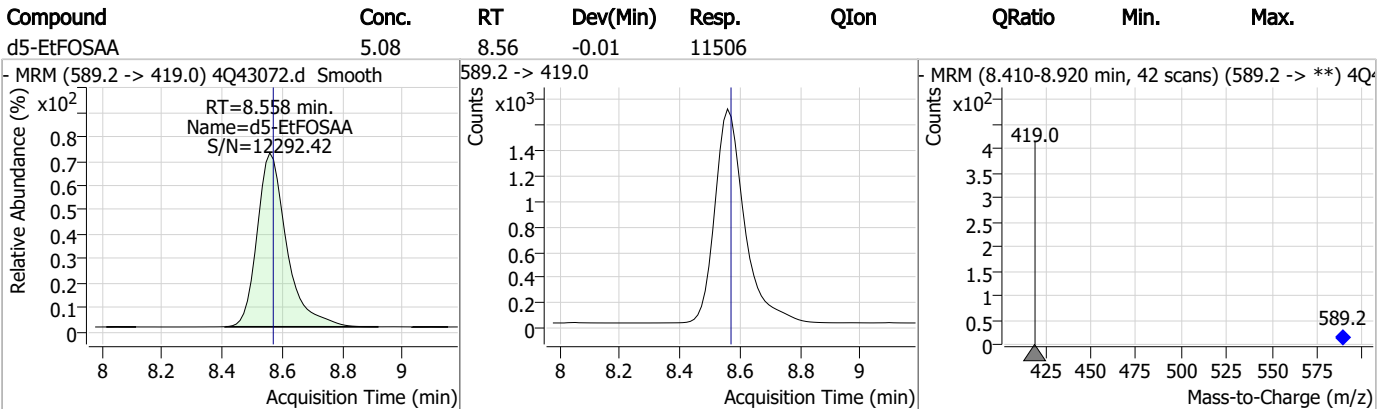
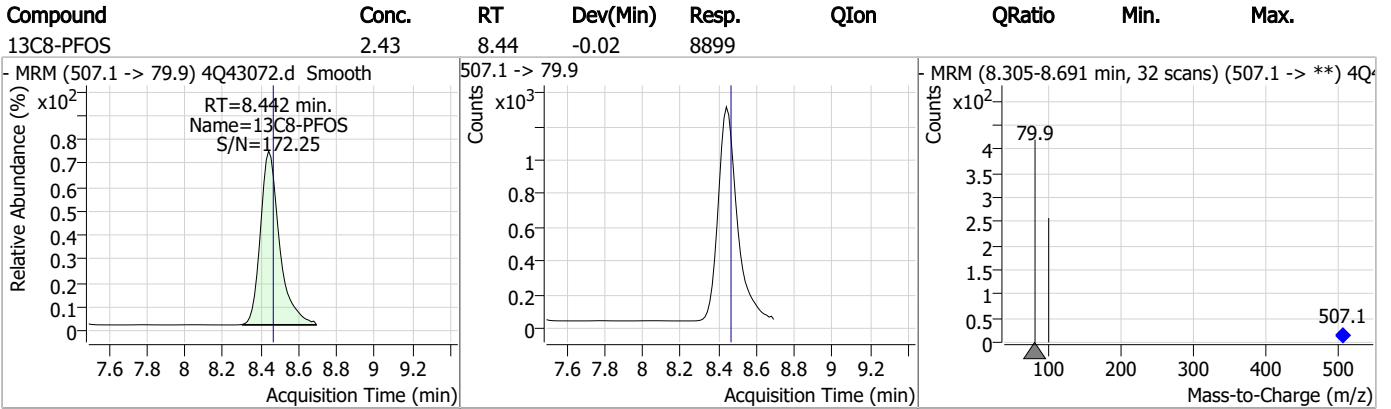


7.1.6

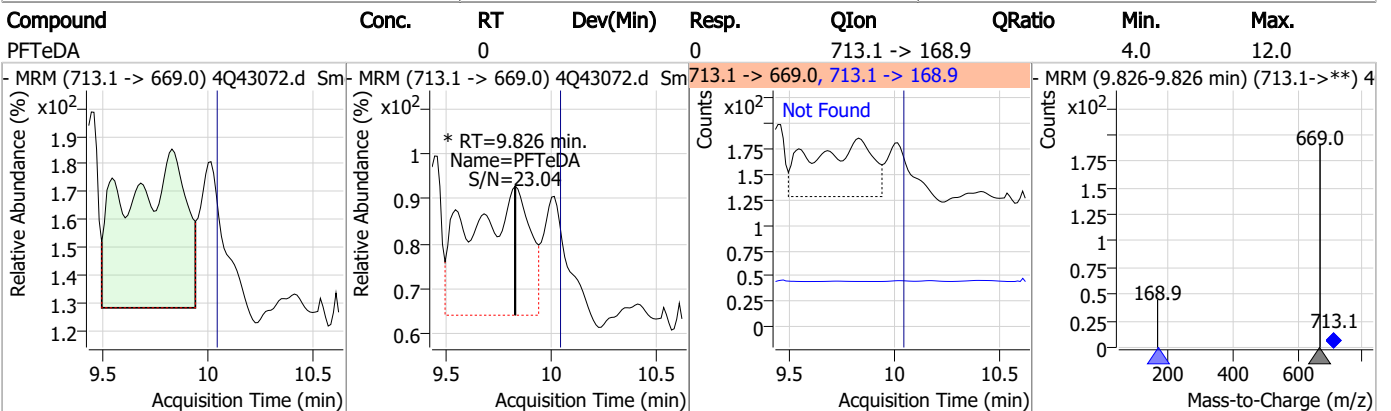
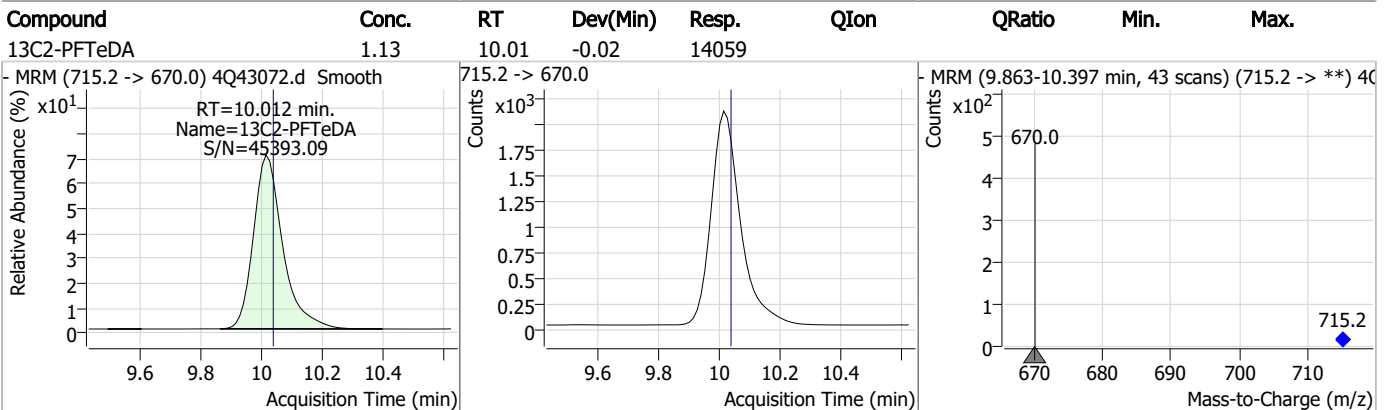
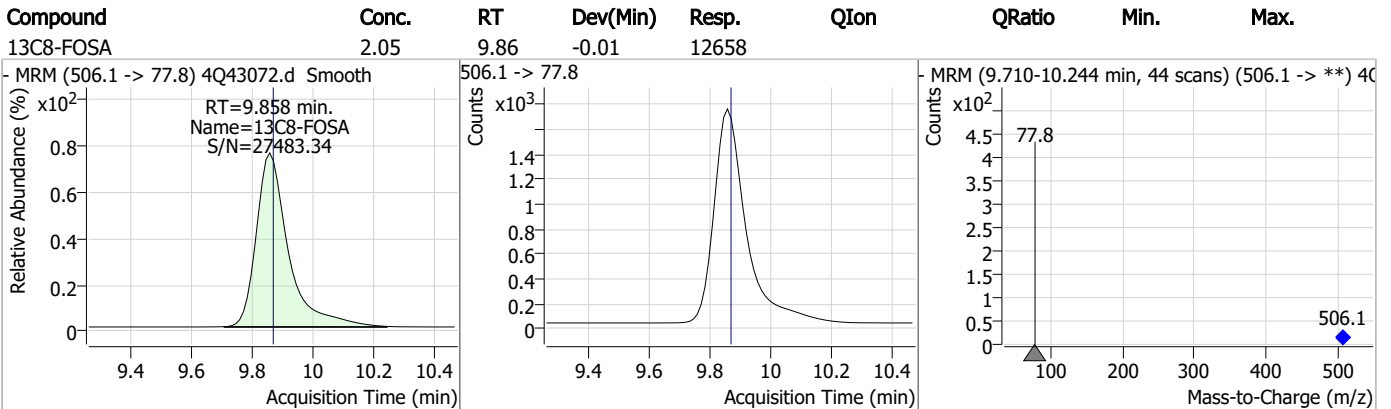
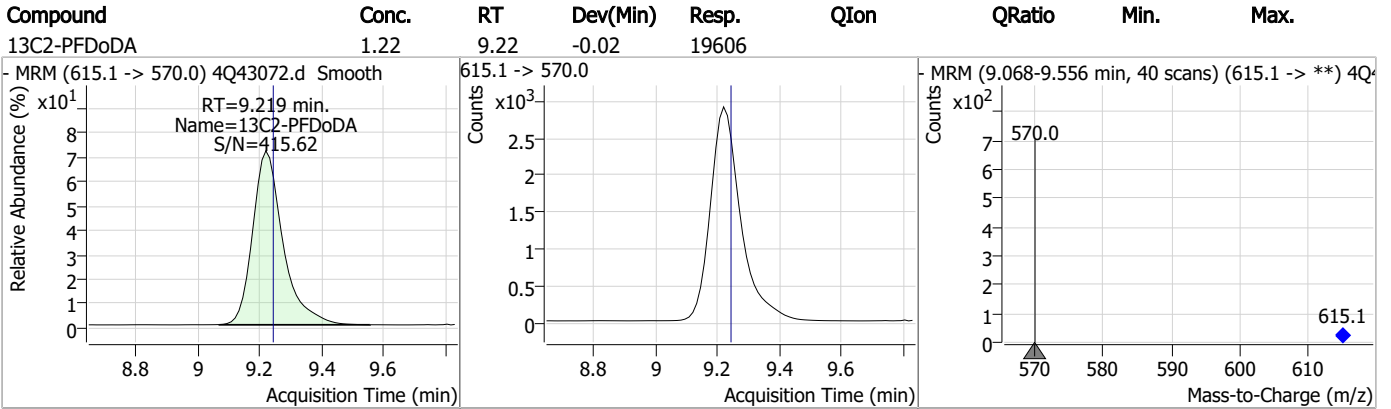
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Perfluorinated Compounds by LC/MS/MS



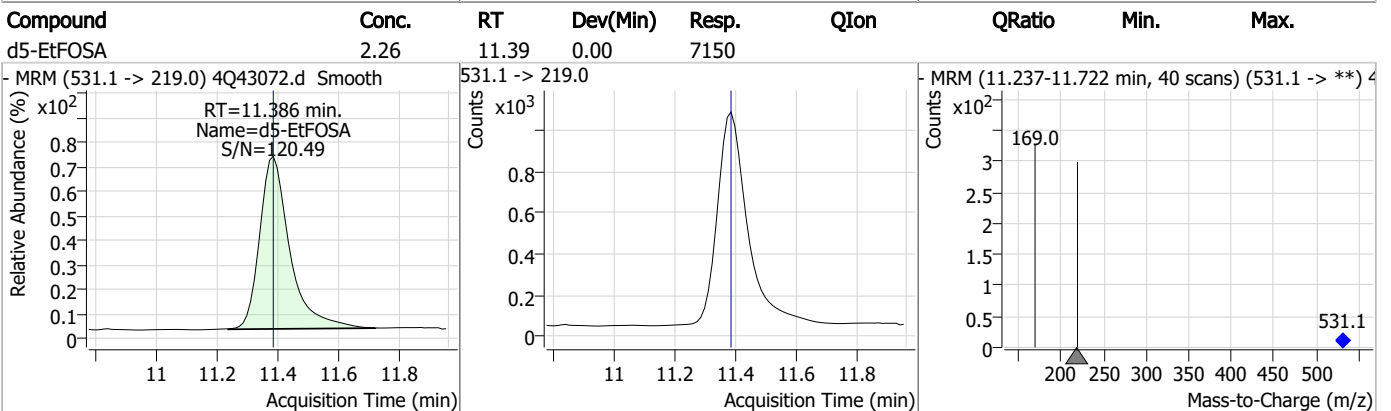
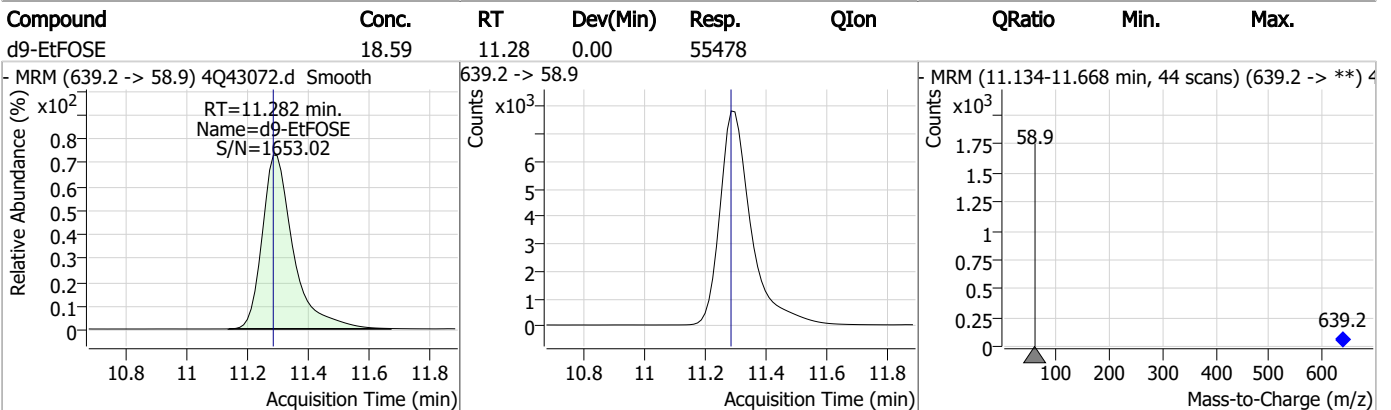
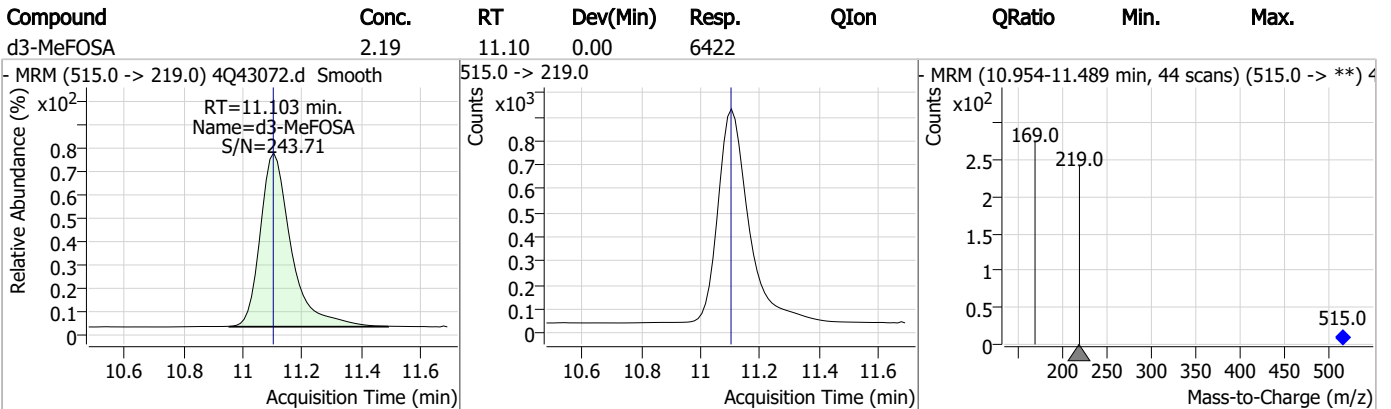
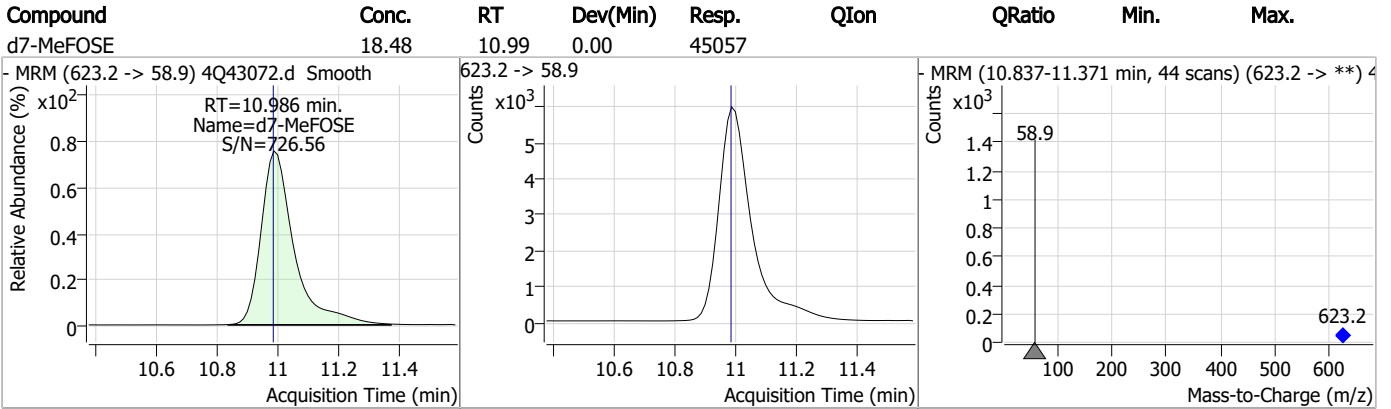
Perfluorinated Compounds by LC/MS/MS



7.1.6

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Perfluorinated Compounds by LC/MS/MS



7.1.6

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Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 04/17/23 17:09

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43075.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 8:56:56 PM
 Sample Name : FC5088-5
 Vial : P4-D5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96368,S4q622,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	119729	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	65633	5.00 µg/L	0.000
M5-PFHxA	5.647	318.0 -> 273.0	52372	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	26056	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	30963	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	16508	1.25 µg/L	-0.025
M6-PFDA	8.291	519.1 -> 474.1	15767	1.25 µg/L	-0.012
M7-PFUnDA	8.772	570.0 -> 525.1	13914	1.25 µg/L	-0.012
M2-PFDoDA	9.219	615.1 -> 570.0	14611	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	8077	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	12874	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	11210	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	6763	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	8383	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1502	5.00 µg/L	0.000
M2-6:2FTS	6.999	429.1 -> 80.9	2000	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	2685	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	13794	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	30909	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	11325	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	39658	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	48378	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	6174	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	5988	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	9248	2.50 µg/L	-0.024
13C3-PFBA	3.003	216.0 -> 172.0	60057	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	4472	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	34148	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	13969	1.25 µg/L	-0.012
13C5-PFNA	7.772	468.0 -> 423.0	18189	1.25 µg/L	-0.025
13C2-PFHxA	5.648	315.1 -> 270.0	40597	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1502	6.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 123.0%	
13C2-6:2FTS	6.999	429.1 -> 80.9	2000	5.71 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C2-8:2FTS	8.066	529.1 -> 80.9	2685	4.65 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C2-PFDoDA	9.219	615.1 -> 570.0	14611	0.85 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 68.0%	
13C2-PFTeDA	10.012	715.2 -> 670.0	8077	0.60 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 48.3%	
13C3-PFBS	5.552	302.1 -> 79.9	11210	2.73 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
13C3-PFHxS	7.329	402.1 -> 79.9	6763	2.73 µg/L	-0.012

7.17
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.3%	
13C4-PFBA	3.011	216.8 -> 171.9	119729	11.45 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C4-PFHpA	6.567	367.1 -> 322.0	26056	2.83 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.1%	
13C5-PFHxA	5.647	318.0 -> 273.0	52372	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C5-PFPeA	4.475	268.3 -> 223.0	65633	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C6-PFDA	8.291	519.1 -> 474.1	15767	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C7-PFUnDA	8.772	570.0 -> 525.1	13914	1.04 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.4%	
13C8-FOSA	9.858	506.1 -> 77.8	12874	2.13 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.1%	
13C8-PFOA	7.227	421.1 -> 376.0	30963	2.75 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C8-PFOS	8.442	507.1 -> 79.9	8383	2.34 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C9-PFNA	7.771	472.1 -> 427.0	16508	1.25 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSAA	8.349	573.2 -> 419.0	13794	5.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	30909	10.85 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
d3-MeFOSA	11.103	515.0 -> 219.0	5988	2.09 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.7%	
d5-EtFOSAA	8.558	589.2 -> 419.0	11325	5.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d7-MeFOSE	10.986	623.2 -> 58.9	39658	16.63 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.5%	
d9-EtFOSE	11.295	639.2 -> 58.9	48378	16.58 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.3%	
d5-EtFOSA	11.386	531.1 -> 219.0	6174	2.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.8%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.999	427.1 -> 407.0	2833	2.07 µg/L	96
		427.1 -> 80.9	1122		
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	3.033	212.8 -> 168.9	1391	0.51 µg/L	100
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.17
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	
PFHpA	6.568	599.0 -> 98.8					
		363.1 -> 319.0	1289	0.10	µg/L	85	
PFHpS	-	363.1 -> 169.0	312				
		449.0 -> 79.9	-	N.D.			
PFHxA	5.650	449.0 -> 98.9					
		313.0 -> 269.0	6905	0.45	µg/L	98	
PFHxS	-	313.0 -> 118.9	166				
		398.7 -> 79.9	-	N.D.			
PFNA	8.172	398.7 -> 98.9					
		463.0 -> 419.0	0		µg/L	m	1
PFNS	-	463.0 -> 219.0	0				
		548.8 -> 79.9	-	N.D.			
PFOA	-	548.8 -> 98.9					
		413.0 -> 369.0	-	N.D.			
PFOS	-	413.0 -> 169.0					
		498.9 -> 79.9	-	N.D.			
PFPeA	4.477	498.9 -> 98.8					
		263.0 -> 219.0	10590	0.85	µg/L	100	
PFPeS	-	349.1 -> 79.9	-	N.D.			
		349.1 -> 98.9					
PFTeDA	9.478	713.1 -> 669.0	0		µg/L	m	1
		713.1 -> 168.9	0				
PFTrDA	-	663.0 -> 619.0	-	N.D.			
		663.0 -> 168.9					
PFUnDA	-	563.1 -> 519.0	-	N.D.			
		563.1 -> 269.1					
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.			
		632.9 -> 452.9					
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.			
		532.8 -> 353.0					
ADONA	-	376.9 -> 250.9	-	N.D.			
		376.9 -> 84.8					
HFPO-DA	-	284.9 -> 168.9	-	N.D.			
		284.9 -> 184.9					
3:3FTCA	-	241.0 -> 177.0	-	N.D.			
		241.0 -> 117.0					
5:3FTCA	-	341.0 -> 237.1	-	N.D.			
		341.0 -> 217.0					
7:3FTCA	-	441.0 -> 316.9	-	N.D.			
		441.0 -> 336.9					
EtFOSA	-	526.0 -> 219.0	-	N.D.			
		526.0 -> 169.0					
EtFOSE	11.682	630.0 -> 58.9	0		µg/L	m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.			
		511.9 -> 169.0					
MeFOSE	-	616.1 -> 58.9	-	N.D.			
PFDoDS	-	699.1 -> 79.9	-	N.D.			
		699.1 -> 98.8					
NFDHA	-	295.0 -> 201.0	-	N.D.			
		295.0 -> 84.9					
PFMBA	-	279.0 -> 85.1	-	N.D.			
PFMPA	-	229.0 -> 84.9	-	N.D.			
PFEESA	-	314.8 -> 134.9	-	N.D.			
		314.8 -> 82.9					

= Qualifier out of range, m = manually integrated, + = Area summed

7.1.7
7

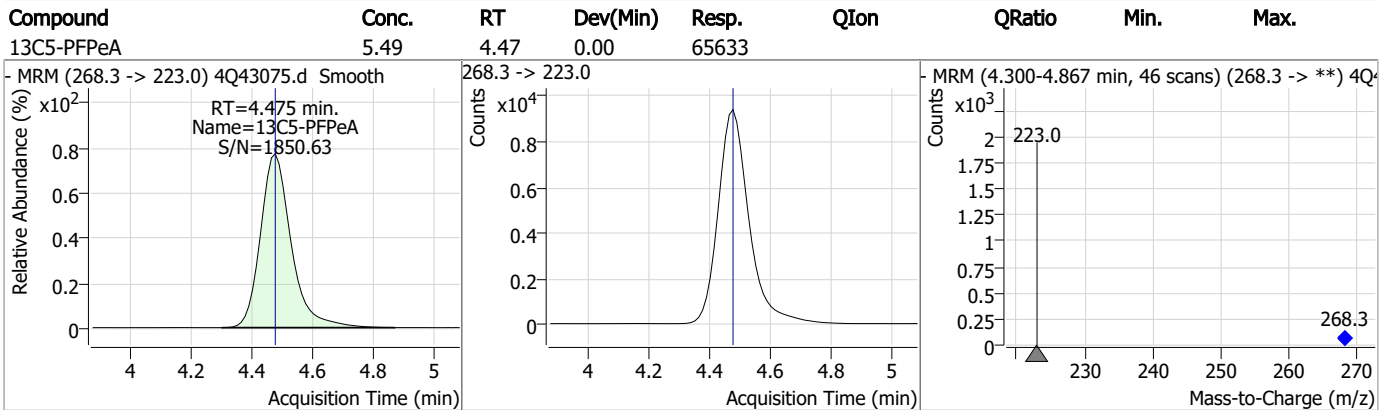
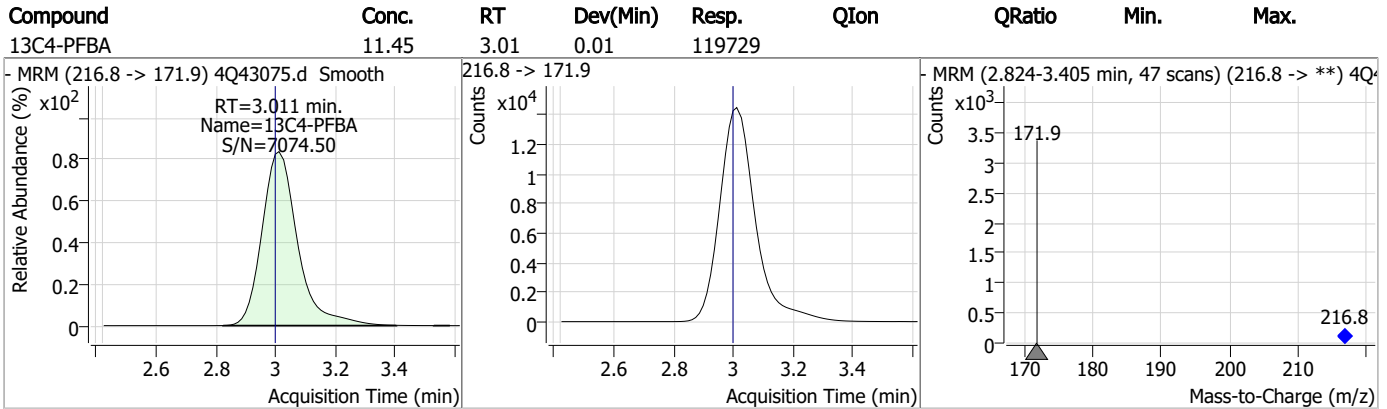
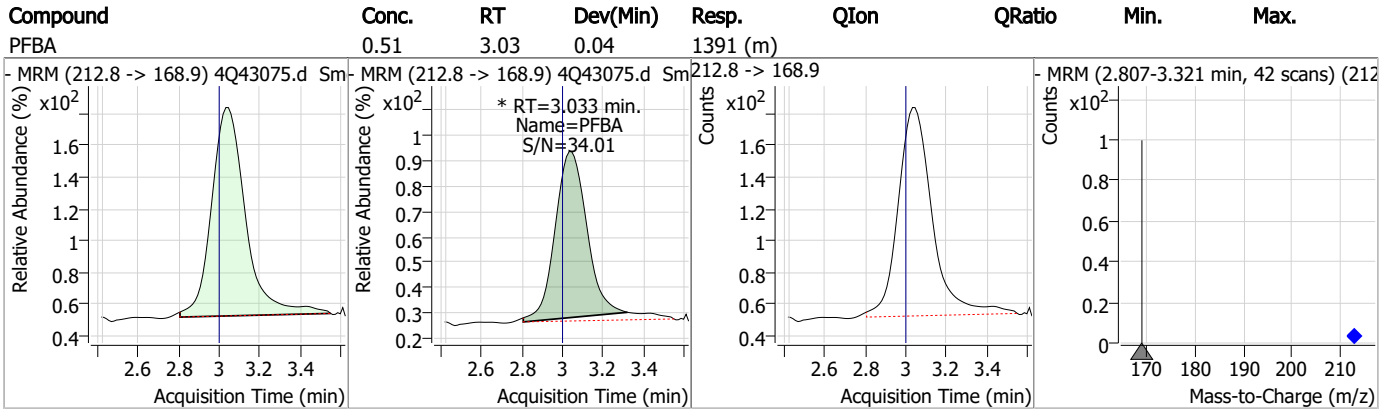
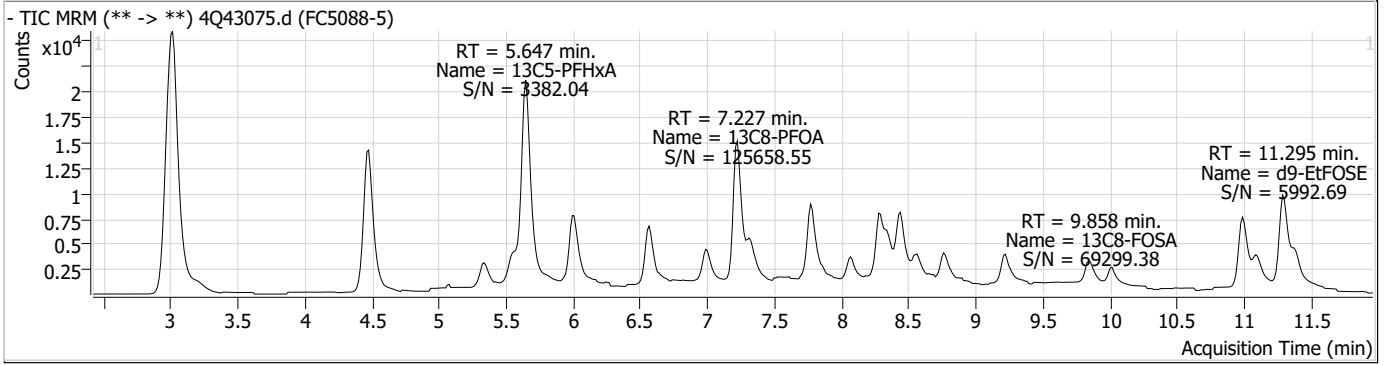
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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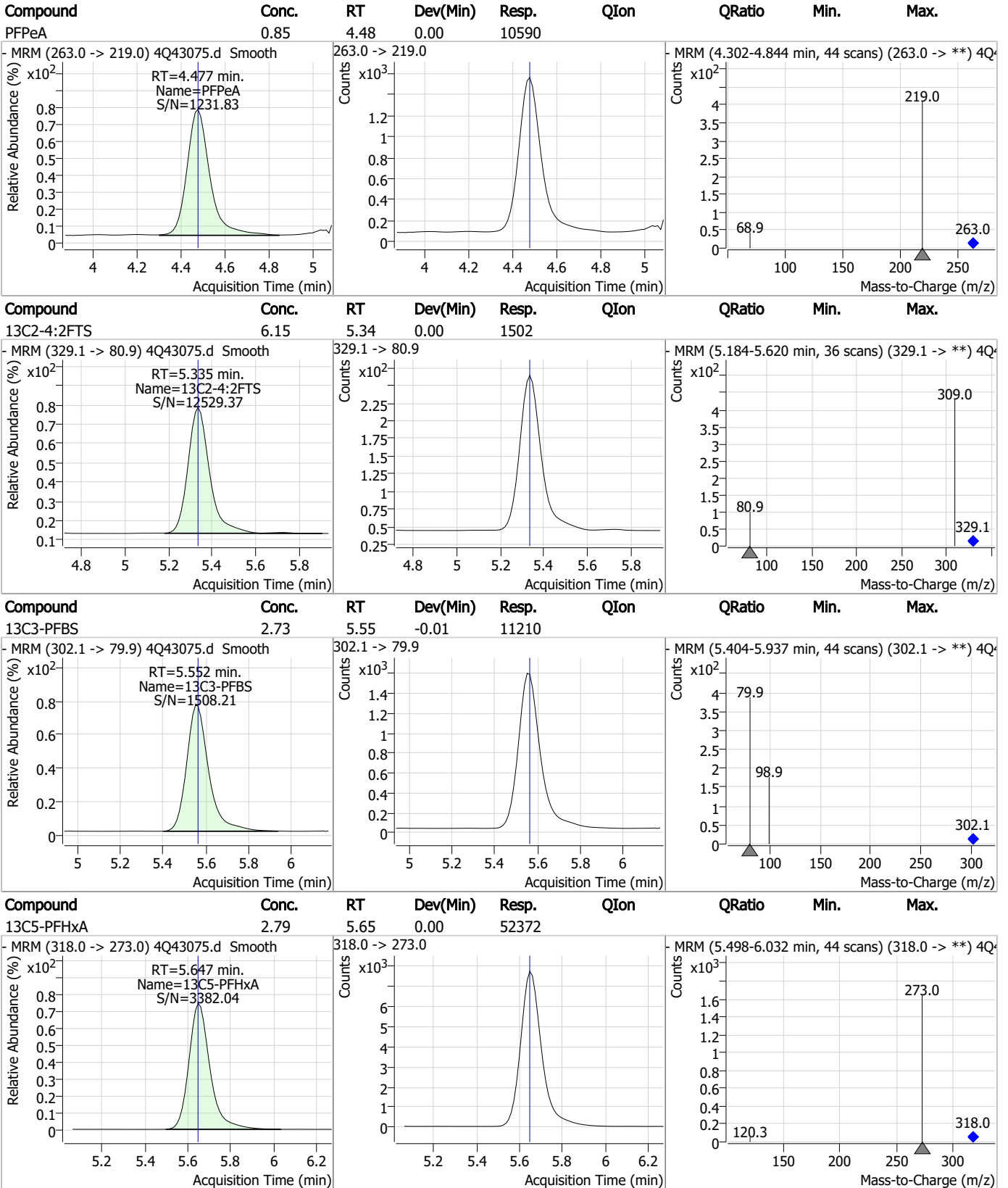
7.1.7
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

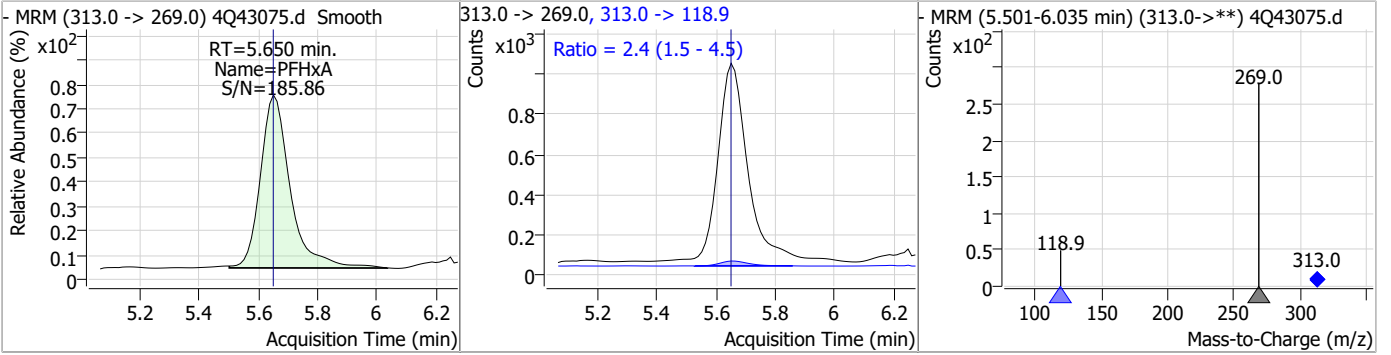


7.1.7

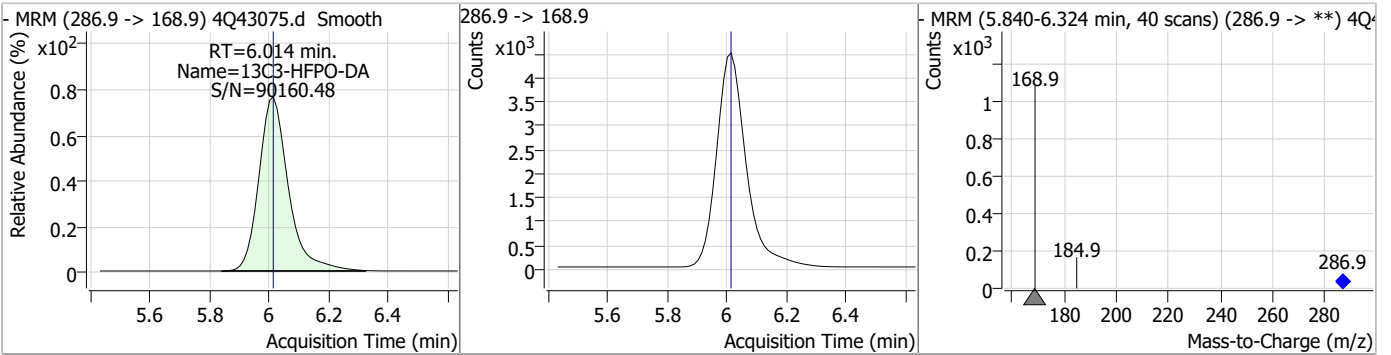
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Perfluorinated Compounds by LC/MS/MS

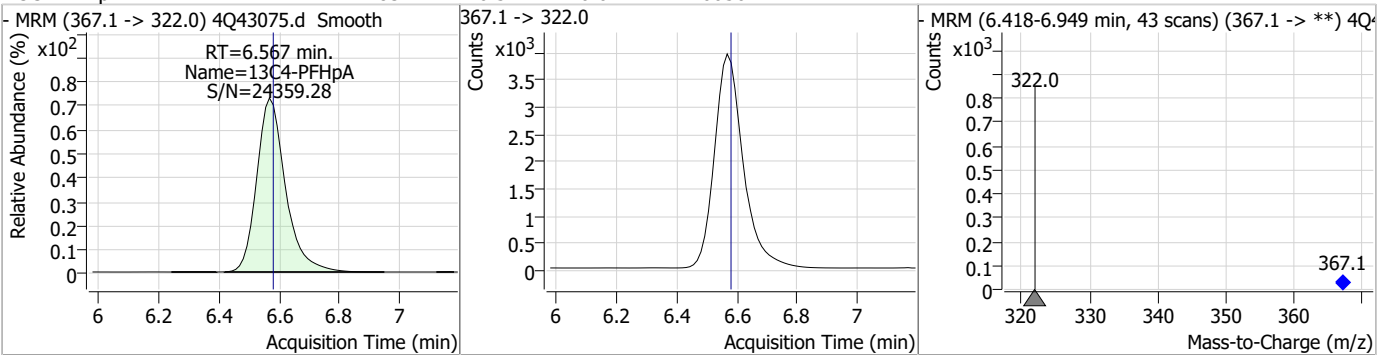
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.45	5.65	0.00	6905	313.0 -> 118.9	2.4	1.5	4.5



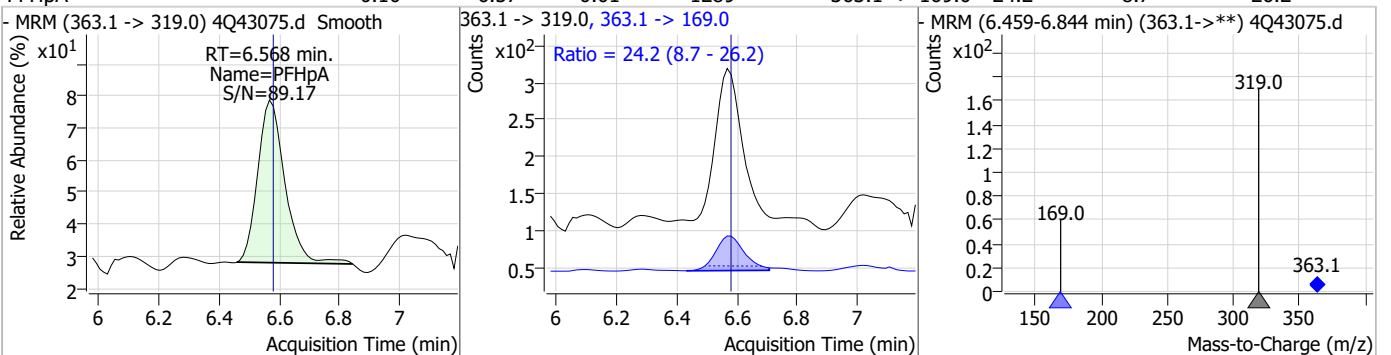
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.85	6.01	0.00	30909				



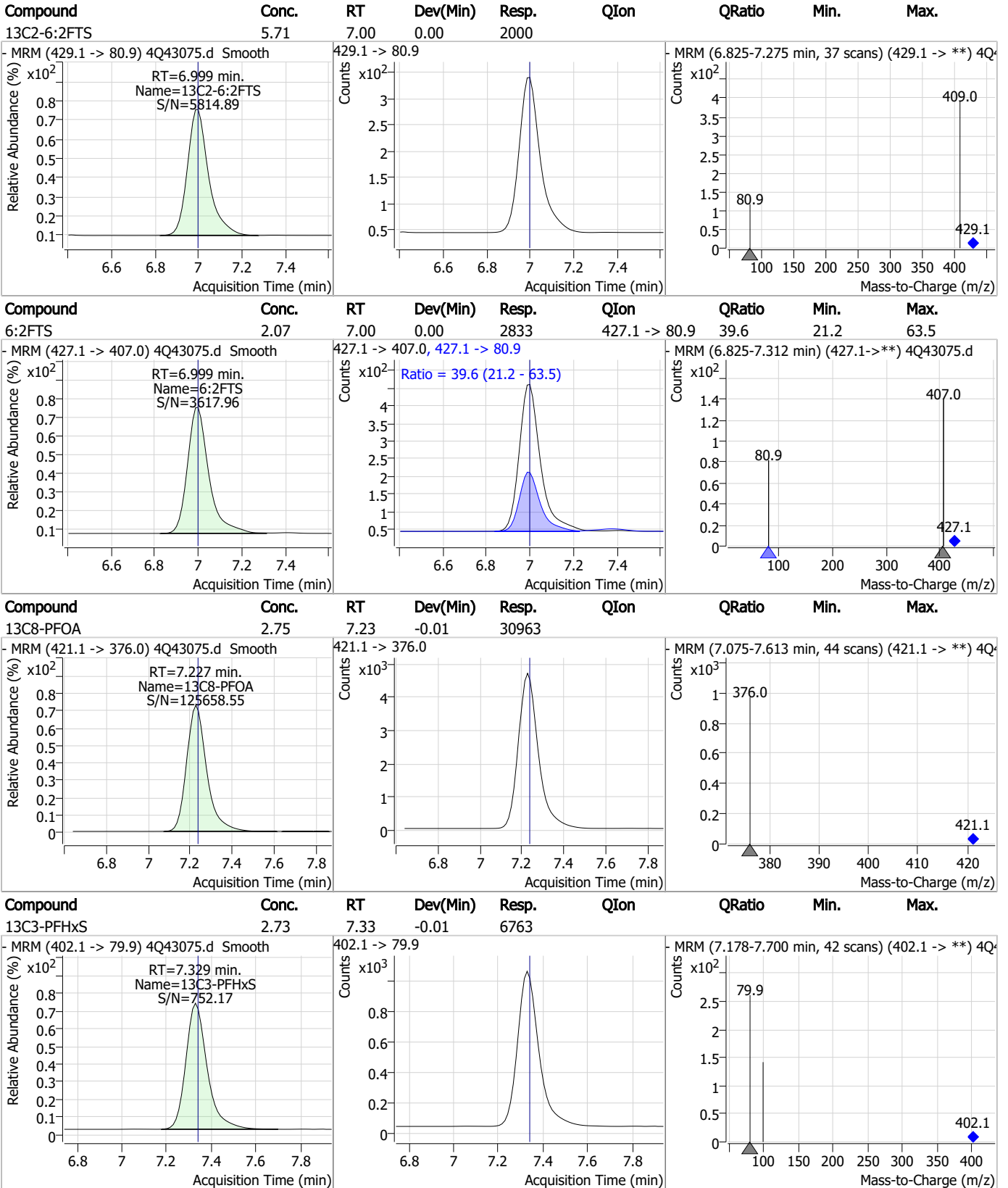
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.83	6.57	-0.01	26056				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.10	6.57	-0.01	1289	363.1 -> 169.0	24.2	8.7	26.2



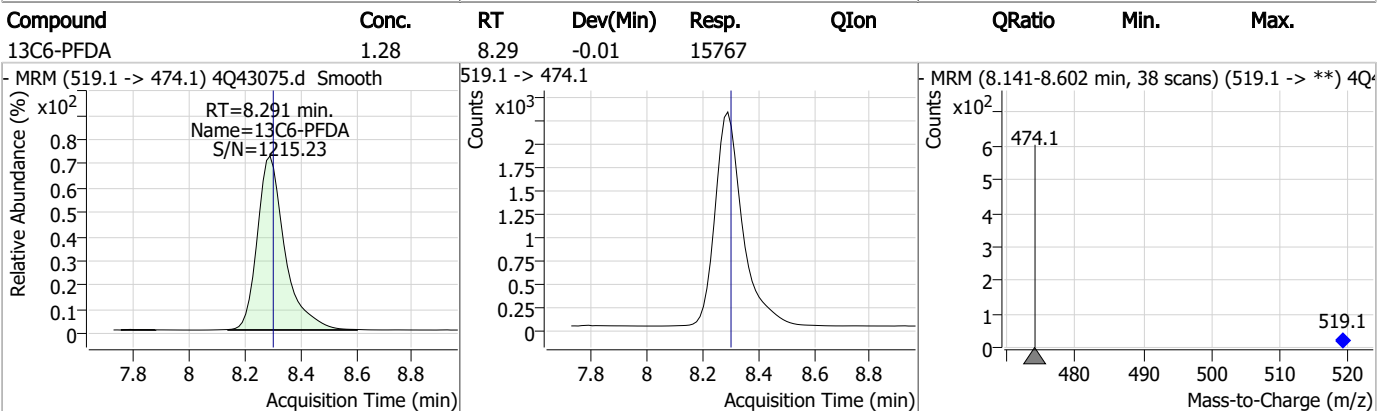
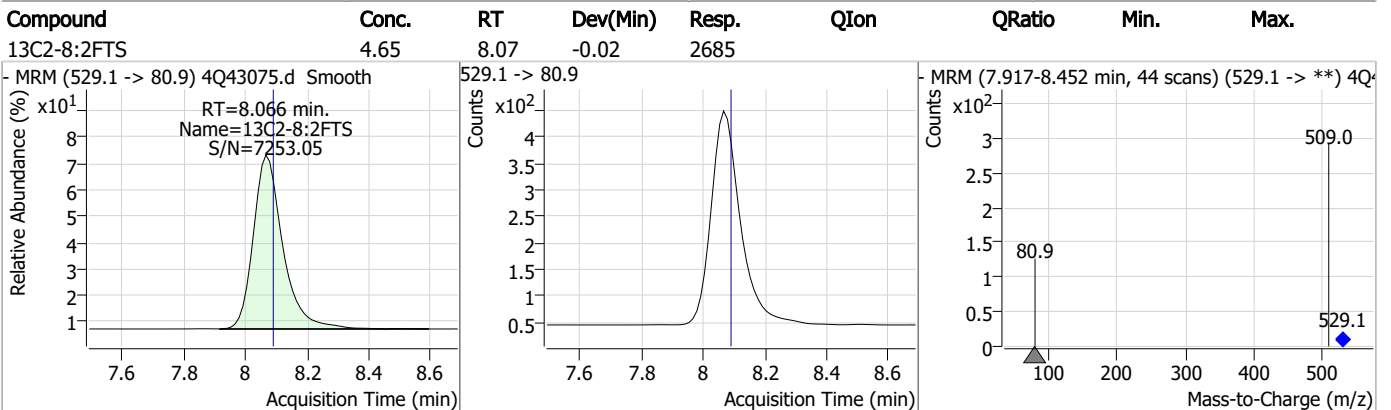
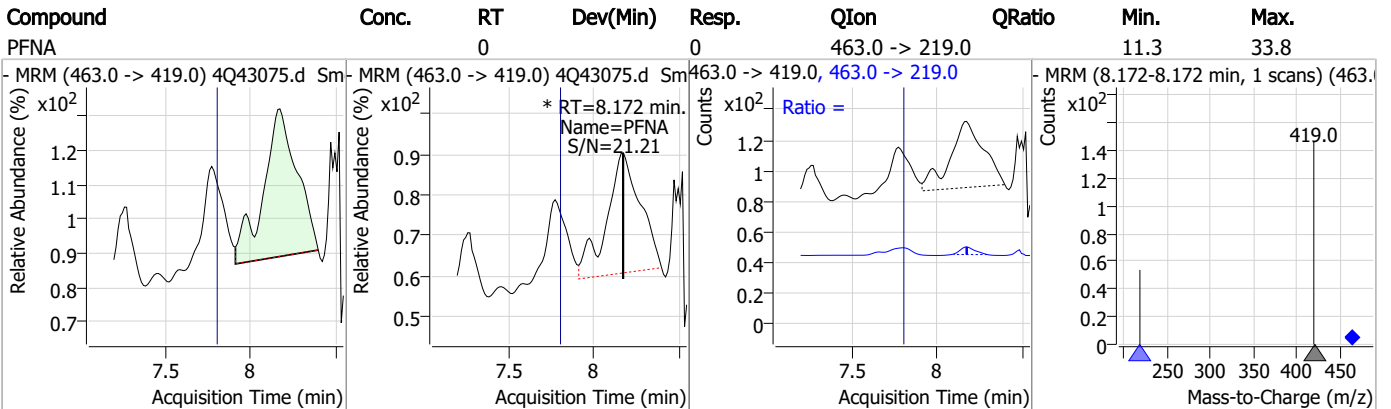
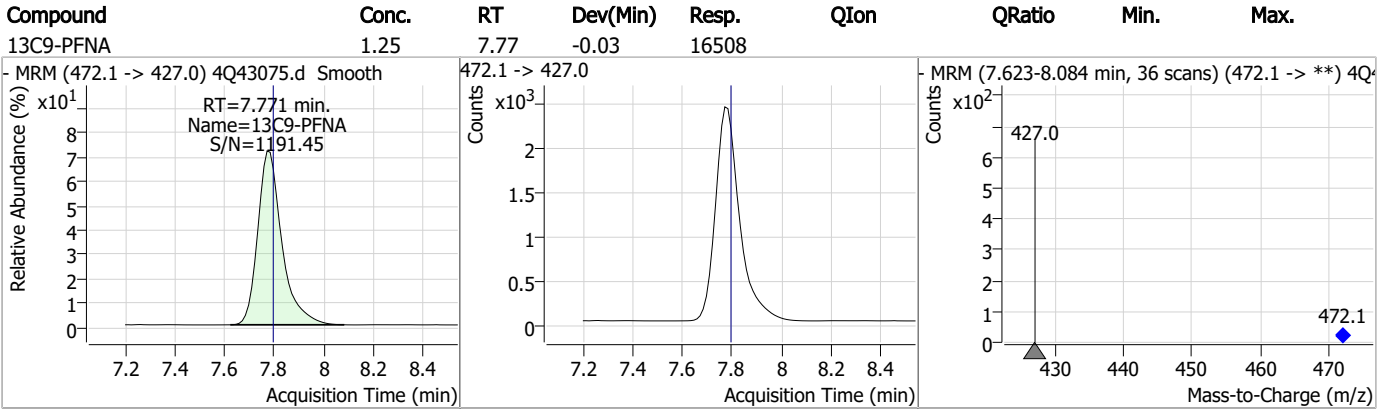
Perfluorinated Compounds by LC/MS/MS



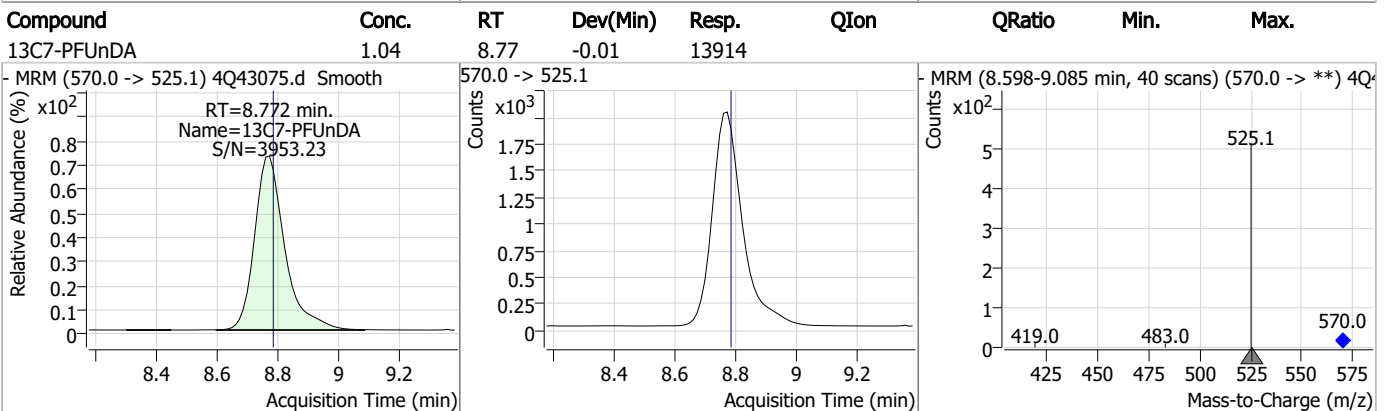
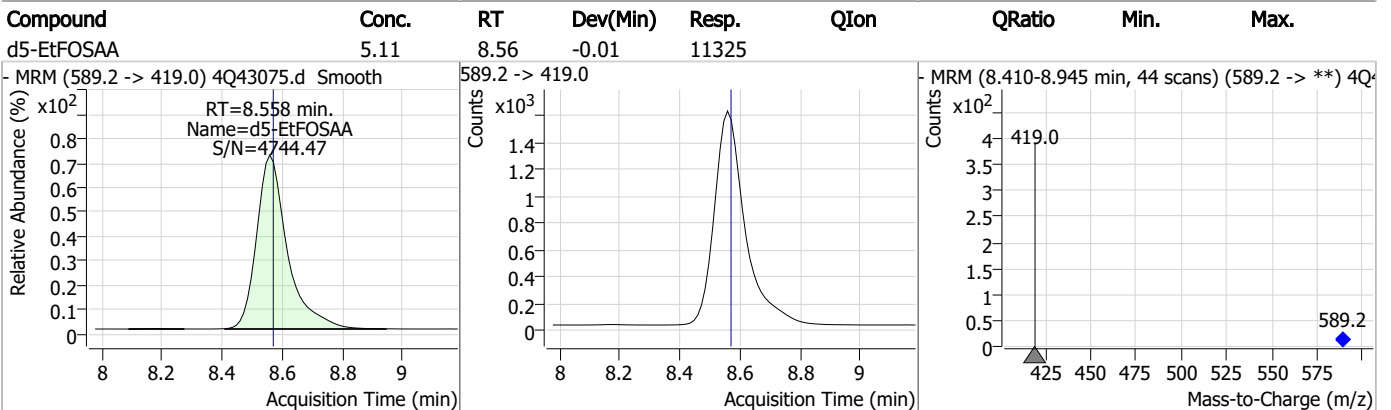
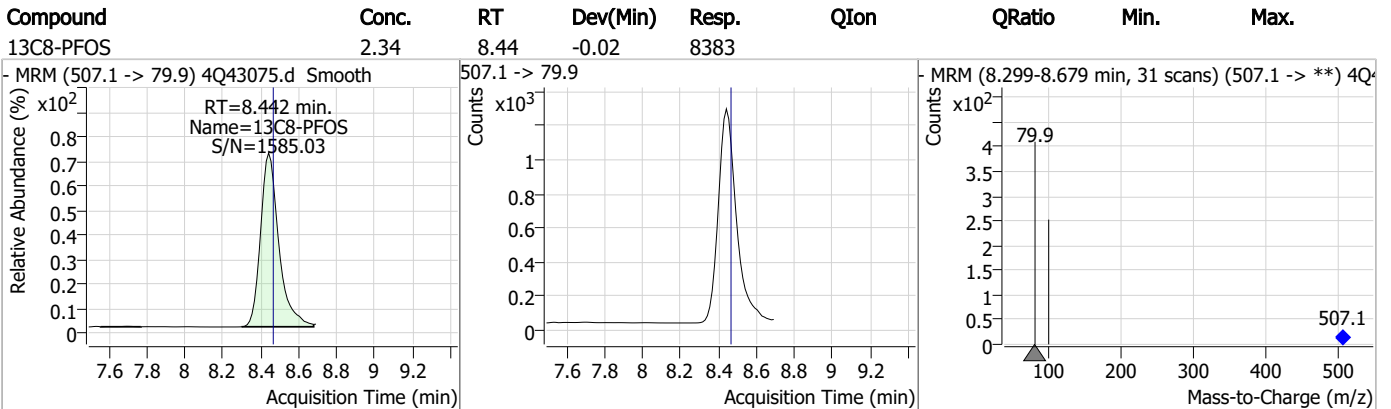
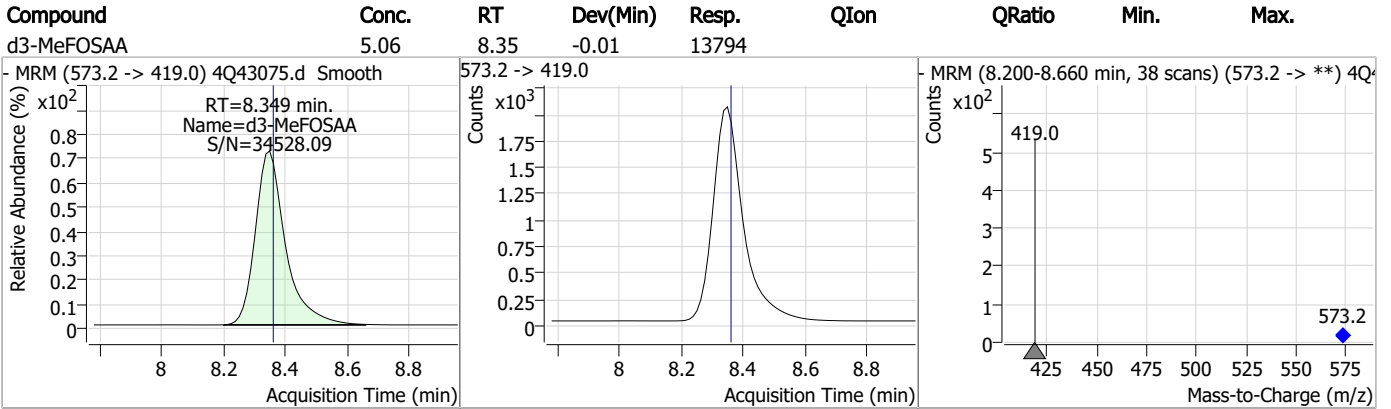
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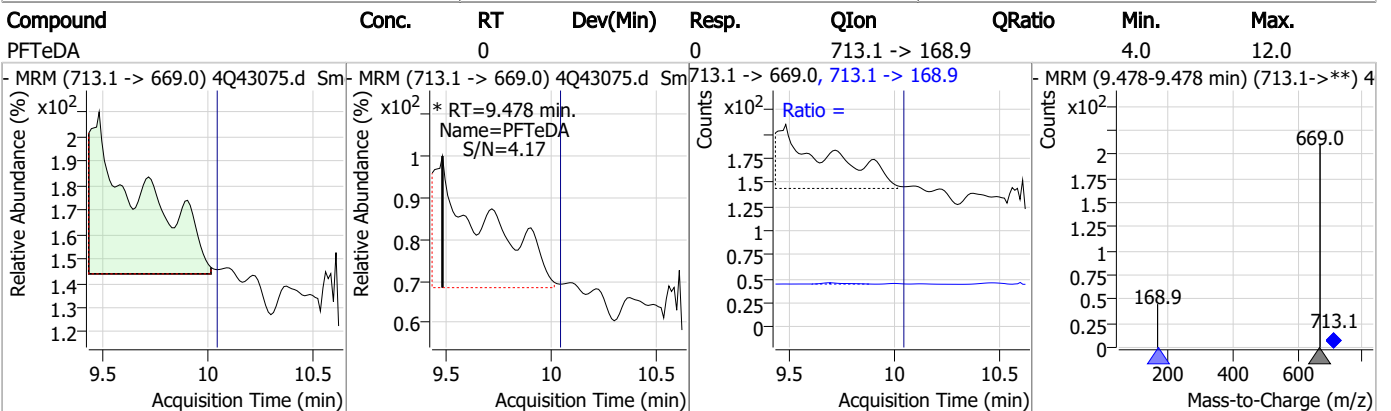
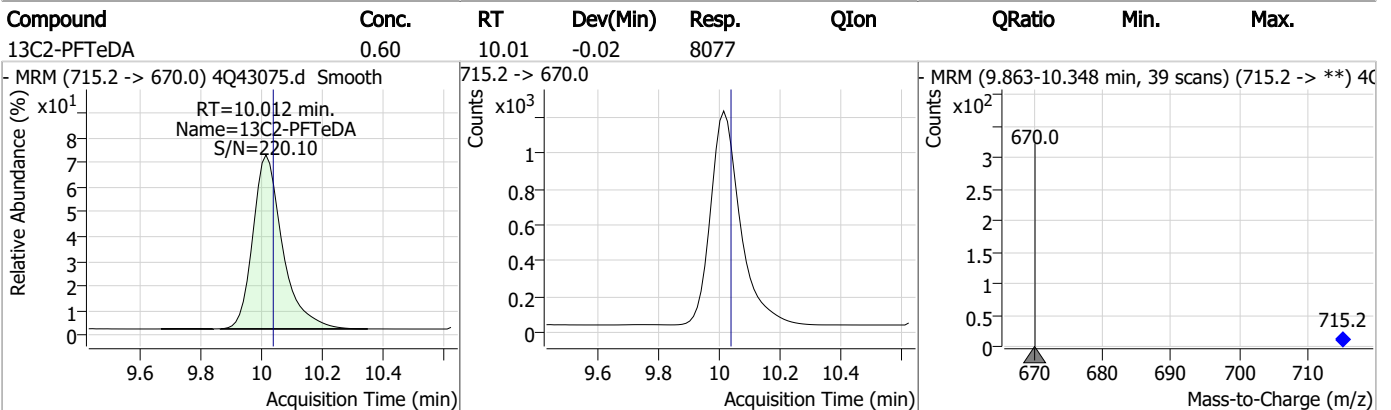
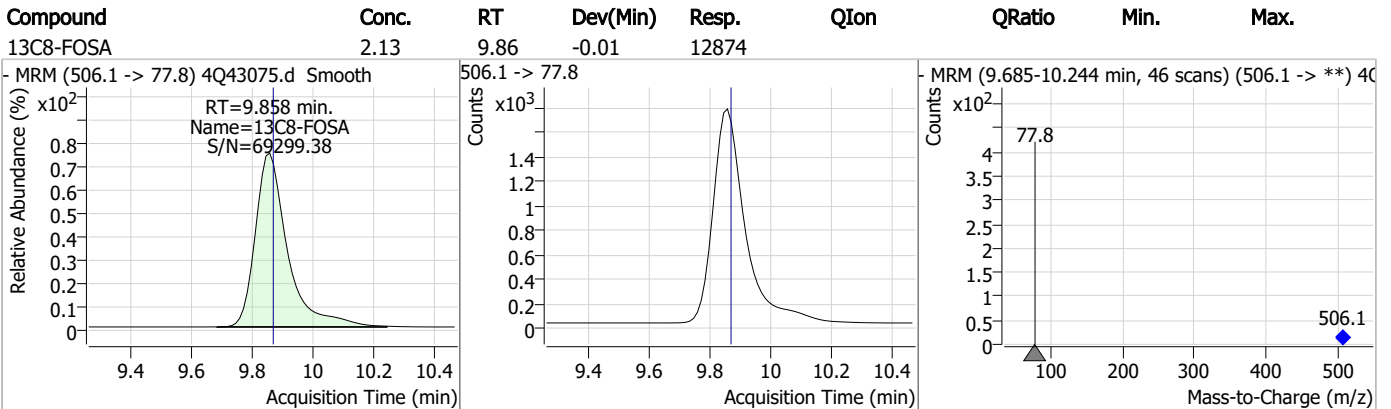
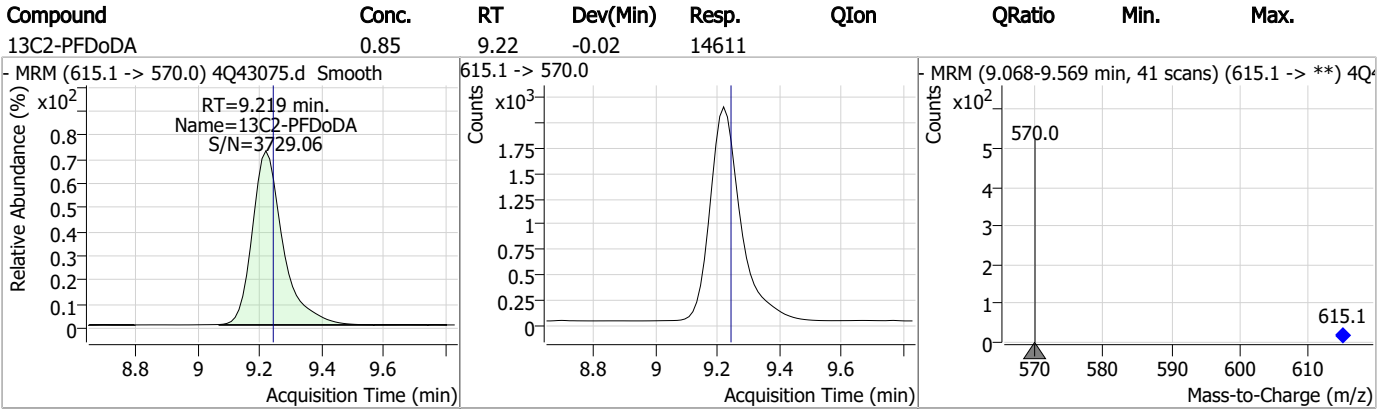
Perfluorinated Compounds by LC/MS/MS



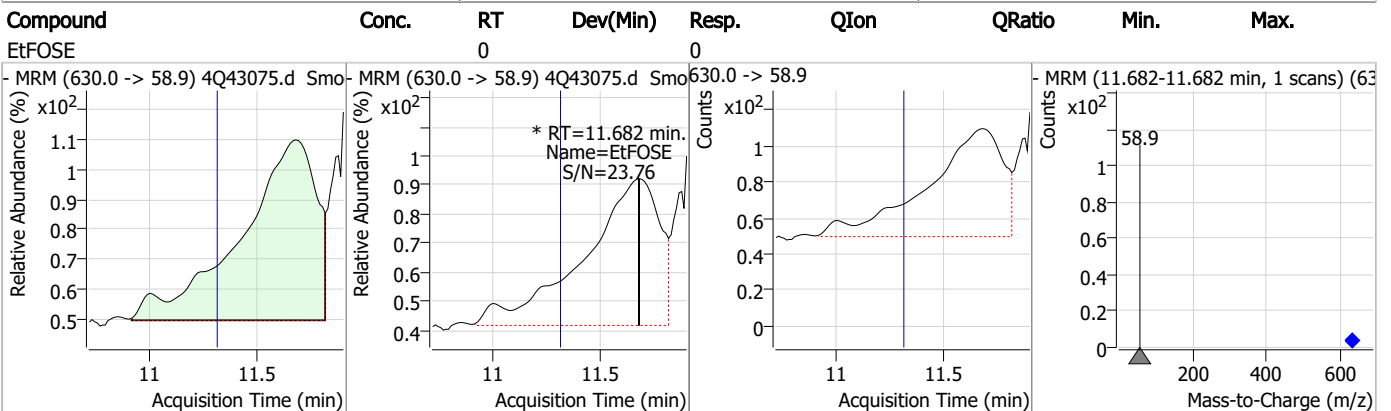
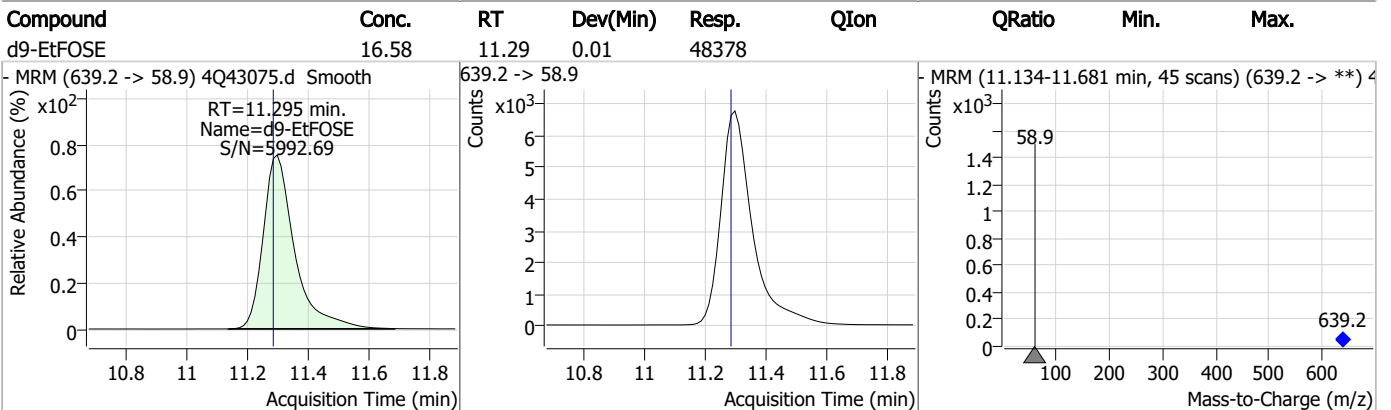
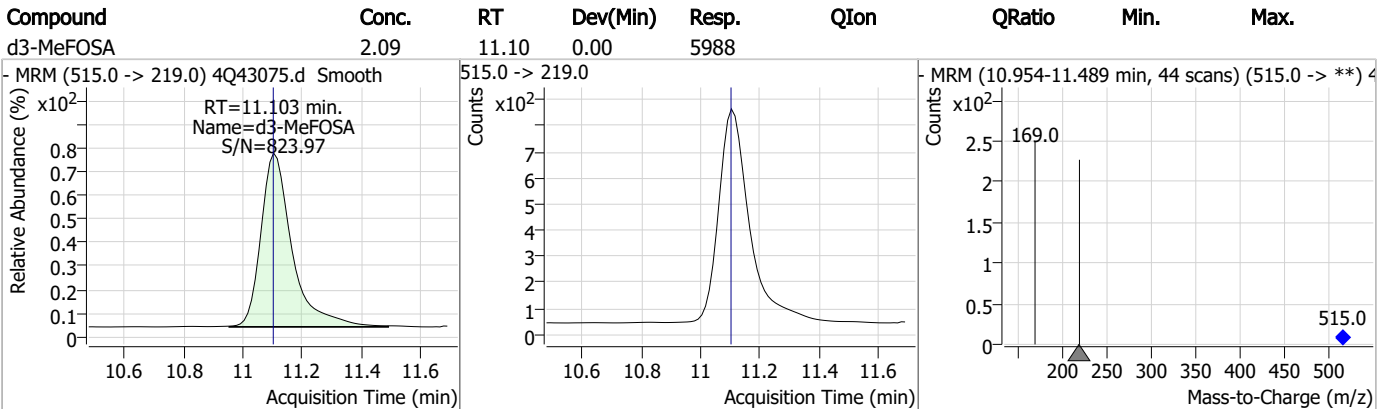
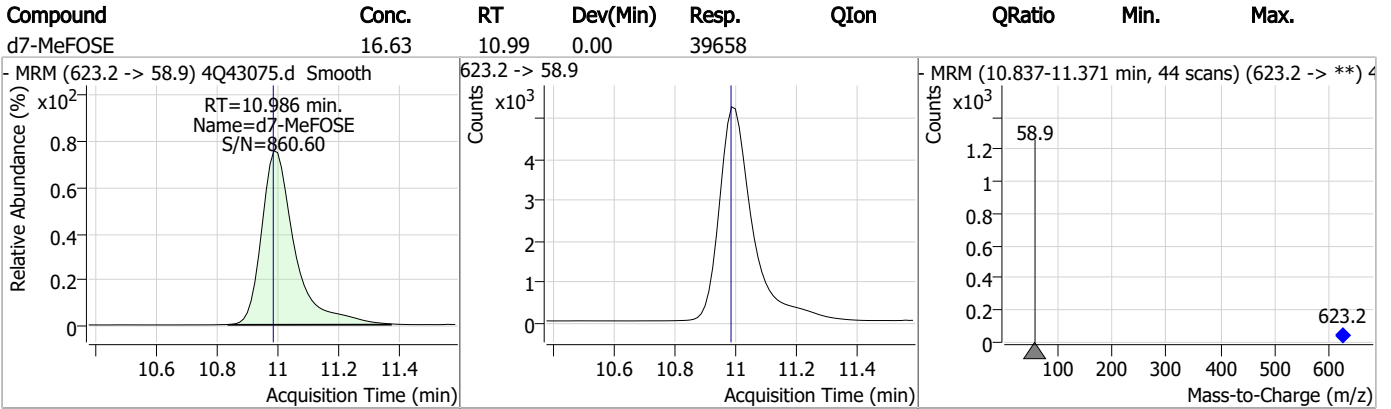
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

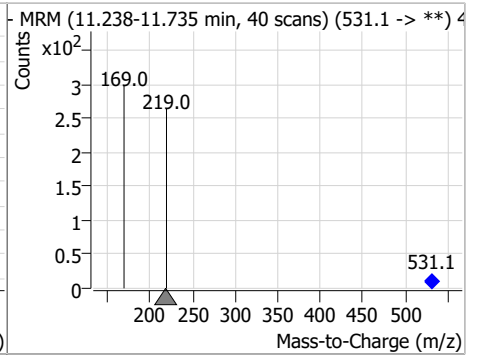
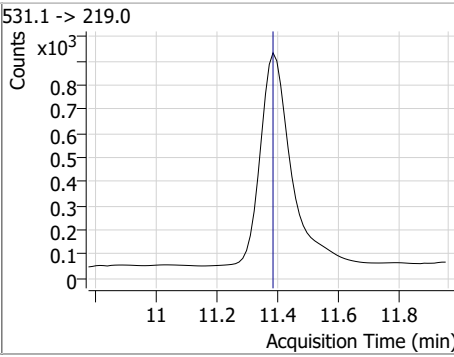
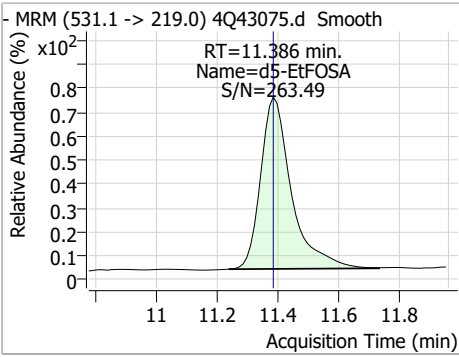


Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.00	11.39	0.00	6174				



7.1.7
7

Manual Integration Approval Summary

Sample Number: FC5088-5 Method: EPA DRAFT 1633
Lab FileID: 4Q43075.D Analyst approved: 04/17/23 15:22 Martha Valls
Injection Time: 04/15/23 20:56 Supervisor approved: 04/17/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		3.03	Split peak

7.1.7.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43067.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 7:04:38 PM
 Sample Name : op96368-mb
 Vial : P4-C8
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96368,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	111280	10.00 µg/L	0.000
M5-PFPeA	4.475	268.3 -> 223.0	61944	5.00 µg/L	0.000
M5-PFHxA	5.647	318.0 -> 273.0	48916	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	24487	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	30388	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	16427	1.25 µg/L	-0.025
M6-PFDA	8.291	519.1 -> 474.1	16367	1.25 µg/L	-0.012
M7-PFUnDA	8.772	570.0 -> 525.1	16387	1.25 µg/L	-0.012
M2-PFDoDA	9.219	615.1 -> 570.0	19337	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	11840	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	12757	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	10644	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	6150	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	8944	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1480	5.00 µg/L	0.000
M2-6:2FTS	6.986	429.1 -> 80.9	2057	5.00 µg/L	-0.012
M2-8:2FTS	8.066	529.1 -> 80.9	3167	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	14050	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	28717	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	11353	5.00 µg/L	-0.012
M7-MeFOSE	10.999	623.2 -> 58.9	42615	25.00 µg/L	0.014
M9-EtFOSE	11.295	639.2 -> 58.9	51053	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	6277	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	5988	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	8702	2.50 µg/L	-0.024
13C3-PFBA	3.003	216.0 -> 172.0	56157	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	4166	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	33201	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	12414	1.25 µg/L	-0.012
13C5-PFNA	7.772	468.0 -> 423.0	18091	1.25 µg/L	-0.025
13C2-PFHxA	5.648	315.1 -> 270.0	37370	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1480	6.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.1%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2057	6.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.0%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3167	5.89 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.9%		
13C2-PFDoDA	9.219	615.1 -> 570.0	19337	1.27 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C2-PFTeDA	10.012	715.2 -> 670.0	11840	1.00 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.6%		
13C3-PFBS	5.552	302.1 -> 79.9	10644	2.78 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.2%		
13C3-PFHxS	7.329	402.1 -> 79.9	6150	2.67 µg/L	-0.012

7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C4-PFBA	2.999	216.8 -> 171.9	111280	11.38 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.8%	
13C4-PFHpA	6.567	367.1 -> 322.0	24487	2.89 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.4%	
13C5-PFHxA	5.647	318.0 -> 273.0	48916	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C5-PFPeA	4.475	268.3 -> 223.0	61944	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.5%	
13C6-PFDA	8.291	519.1 -> 474.1	16367	1.50 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.9%	
13C7-PFUnDA	8.772	570.0 -> 525.1	16387	1.38 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C8-FOSA	9.858	506.1 -> 77.8	12757	2.24 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C8-PFOA	7.227	421.1 -> 376.0	30388	2.78 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C8-PFOS	8.442	507.1 -> 79.9	8944	2.65 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C9-PFNA	7.771	472.1 -> 427.0	16427	1.25 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
d3-MeFOSAA	8.349	573.2 -> 419.0	14050	5.48 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	28717	10.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.5%	
d3-MeFOSA	11.103	515.0 -> 219.0	5988	2.22 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.9%	
d5-EtFOSAA	8.558	589.2 -> 419.0	11353	5.45 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d7-MeFOSE	10.999	623.2 -> 58.9	42615	18.99 µg/L	0.014
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.9%	
d9-EtFOSE	11.295	639.2 -> 58.9	51053	18.59 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.4%	
d5-EtFOSA	11.386	531.1 -> 219.0	6277	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.3%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.650	449.0 -> 98.9	929	0.06	µg/L	100
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	27	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.763	548.8 -> 98.9	0		µg/L	m
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	0	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.1
7

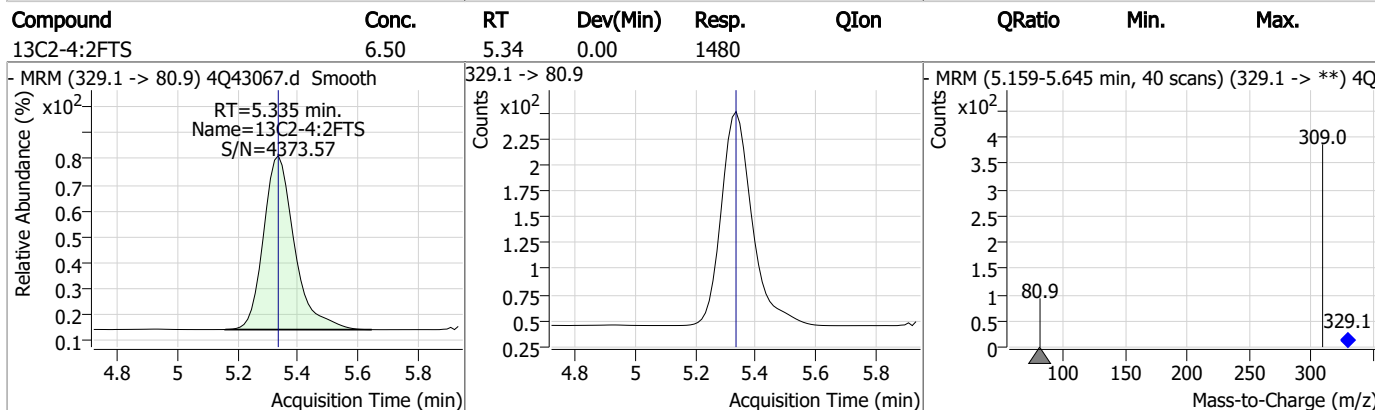
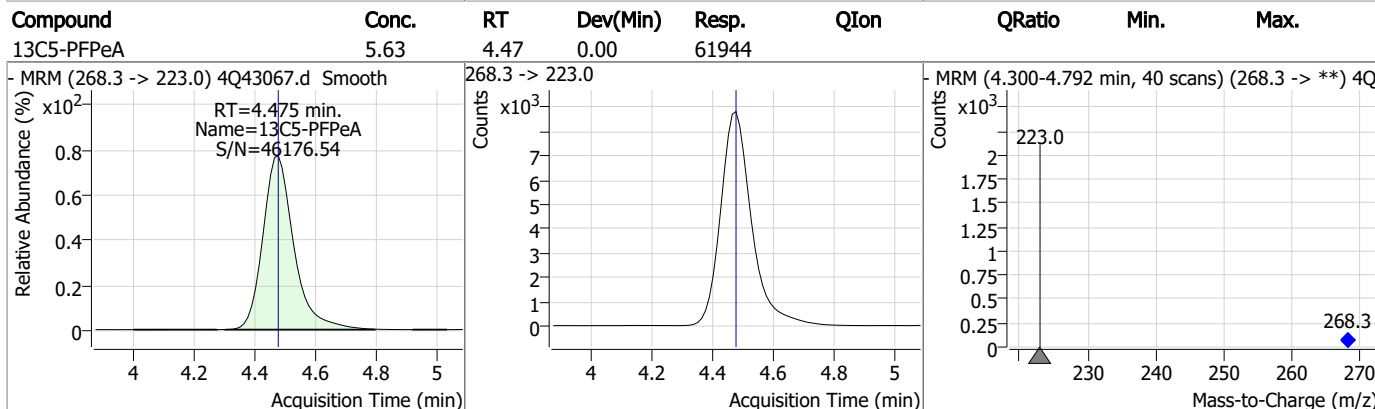
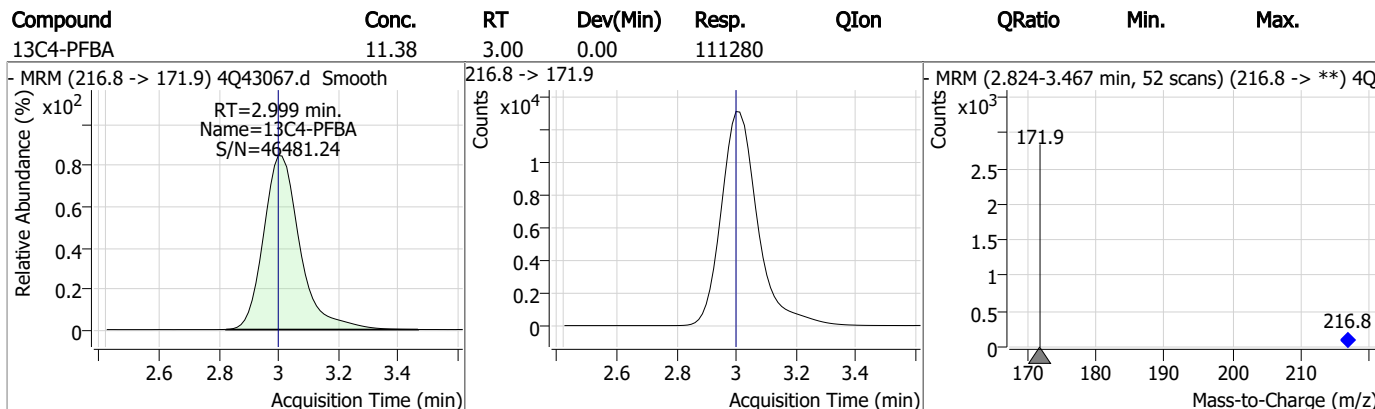
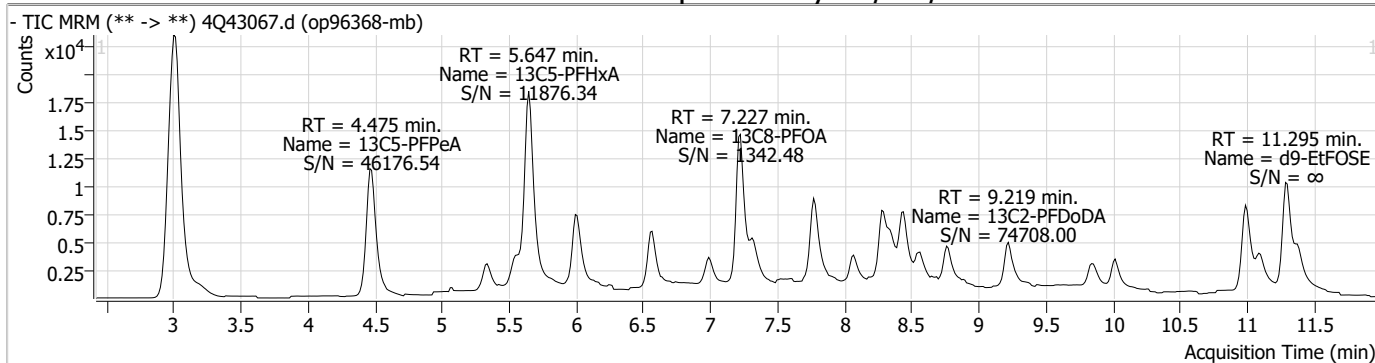
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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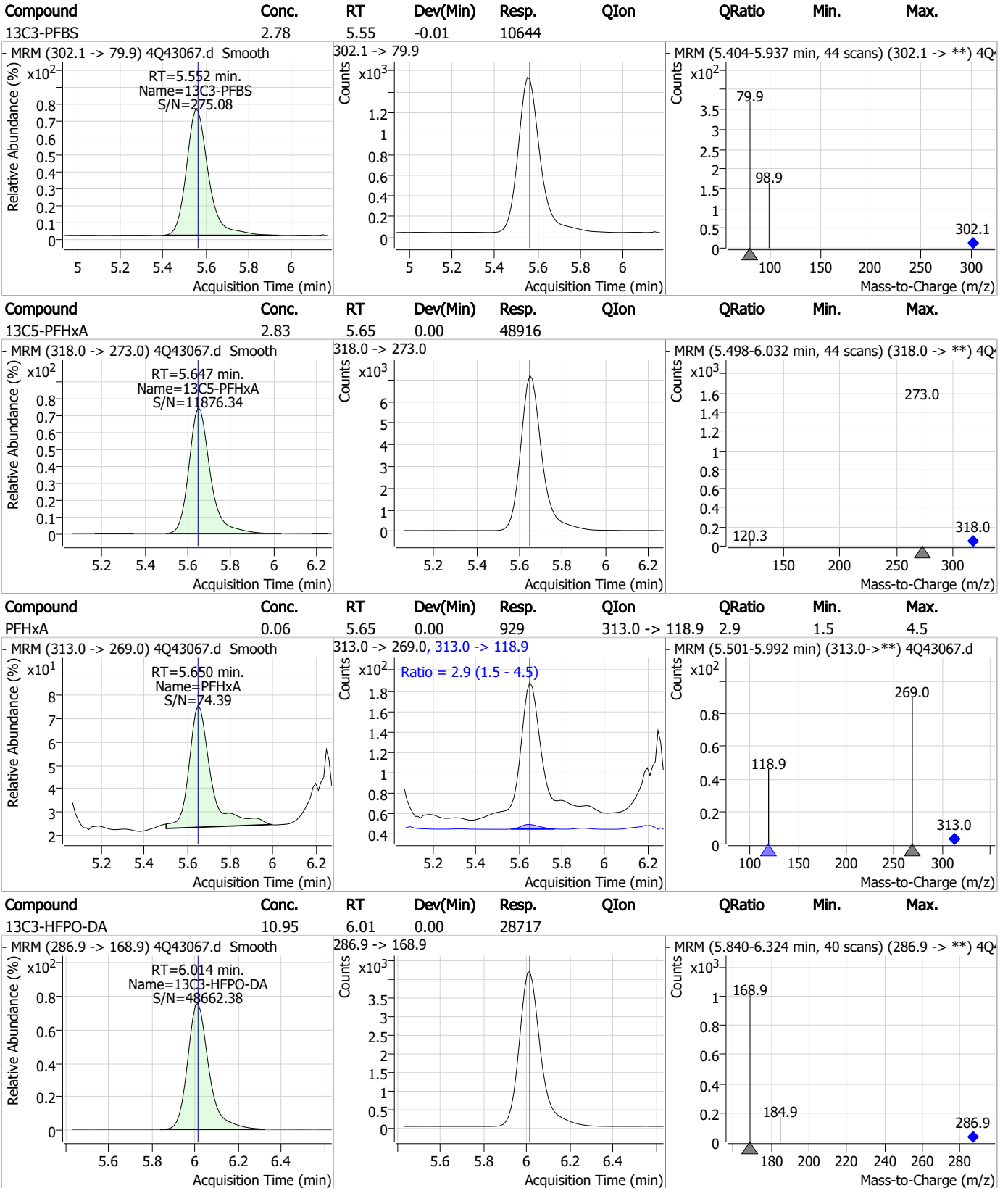
7.2.1

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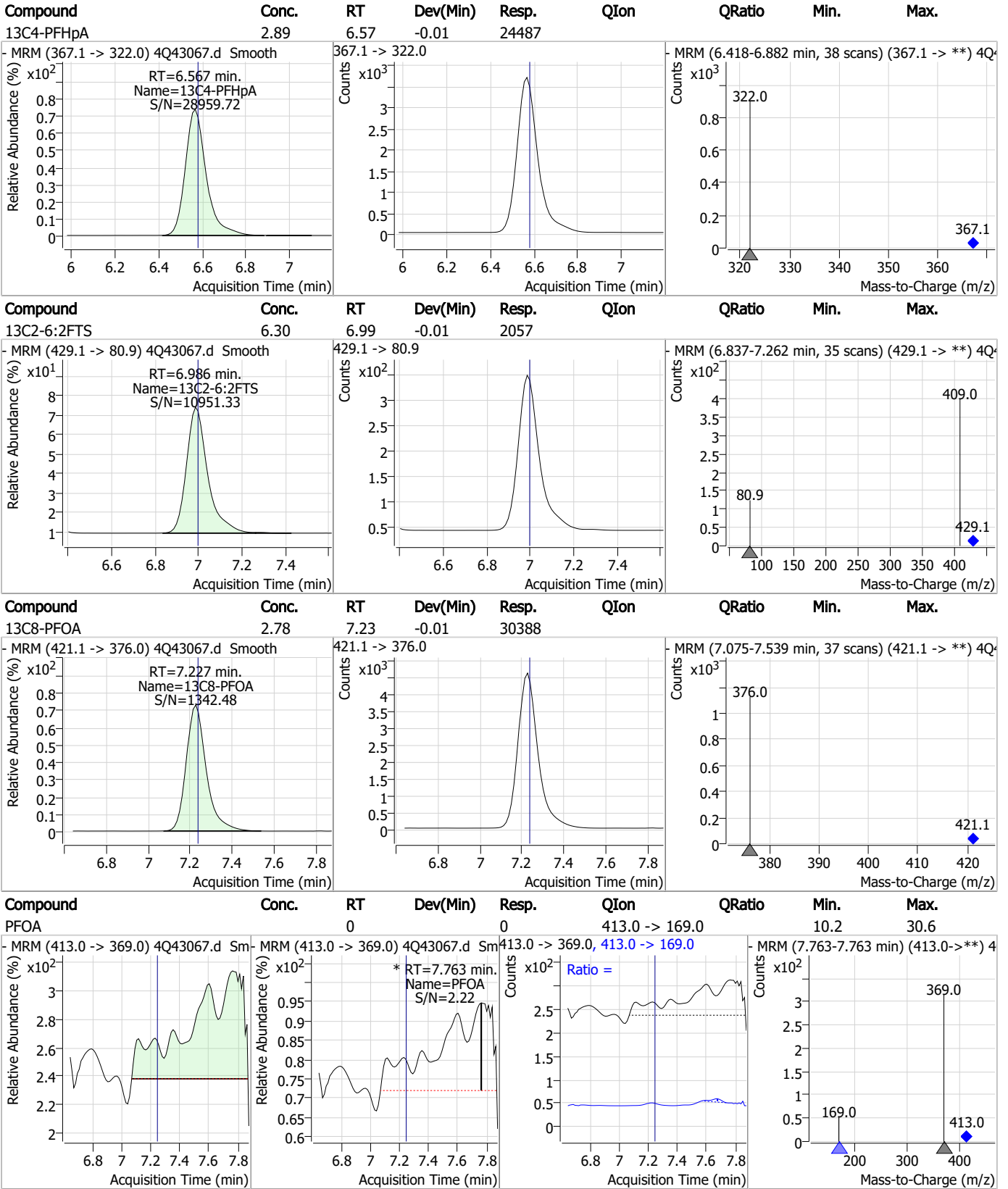
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



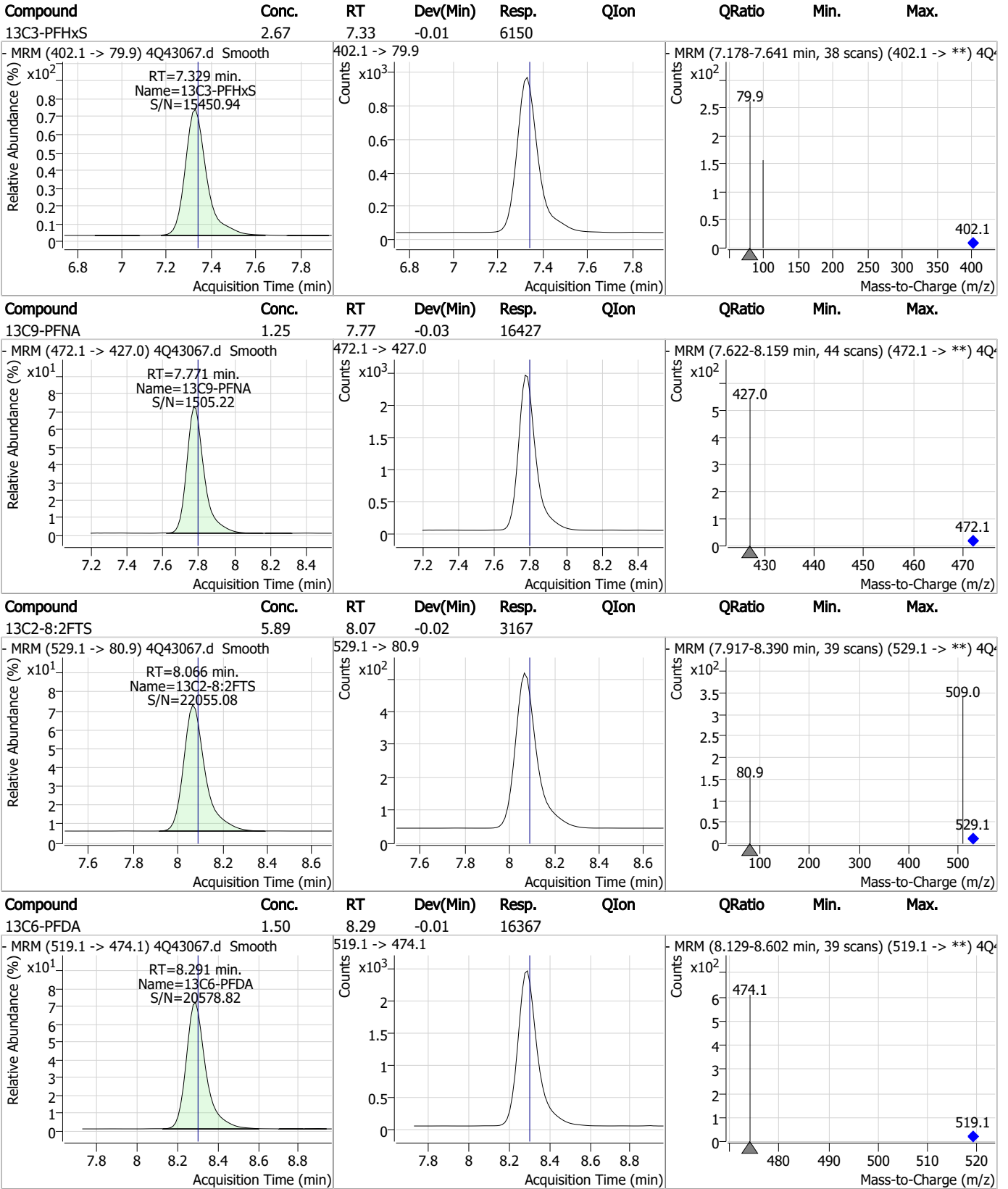
Perfluorinated Compounds by LC/MS/MS



7.2.1

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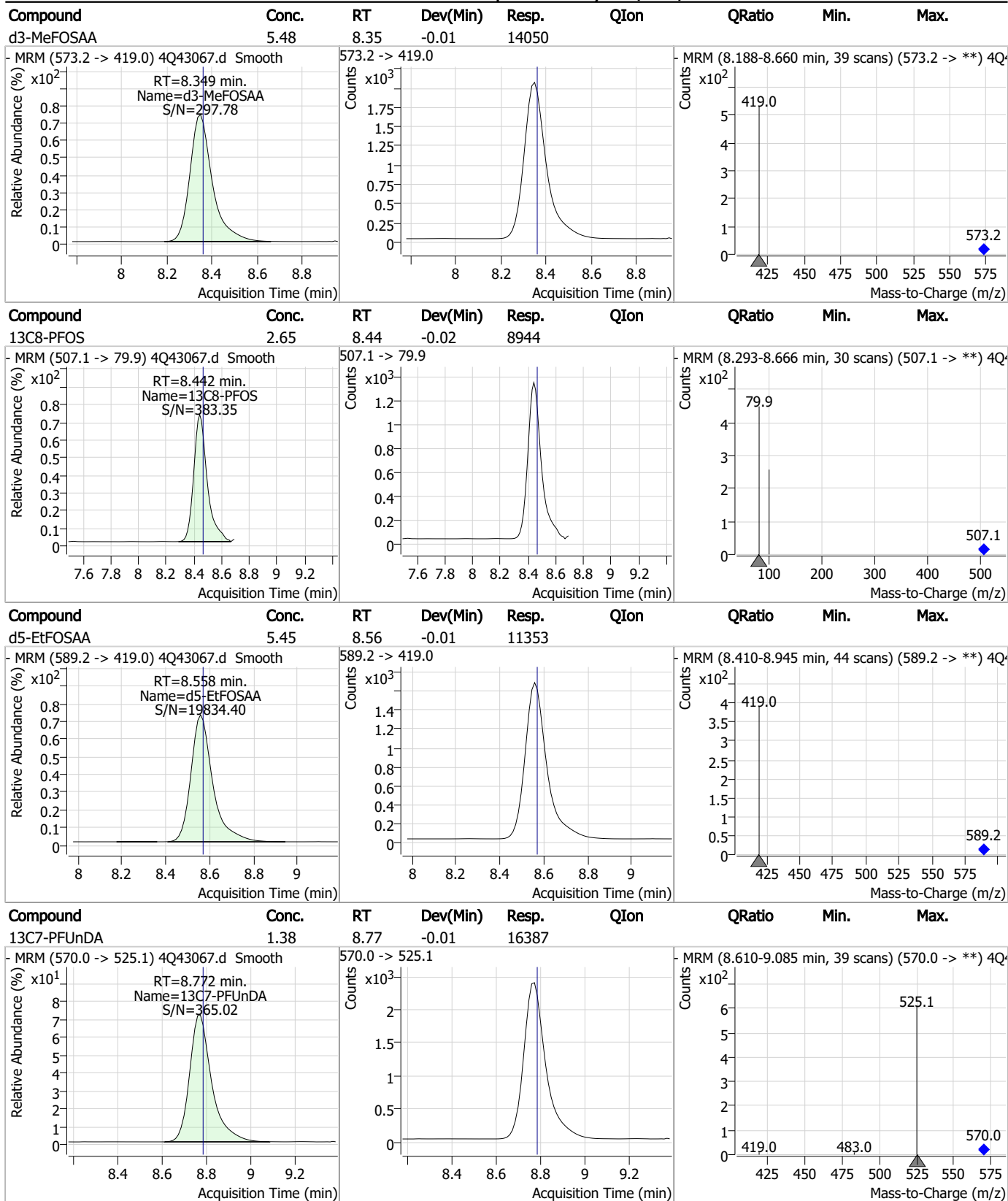
Perfluorinated Compounds by LC/MS/MS



7.2.1

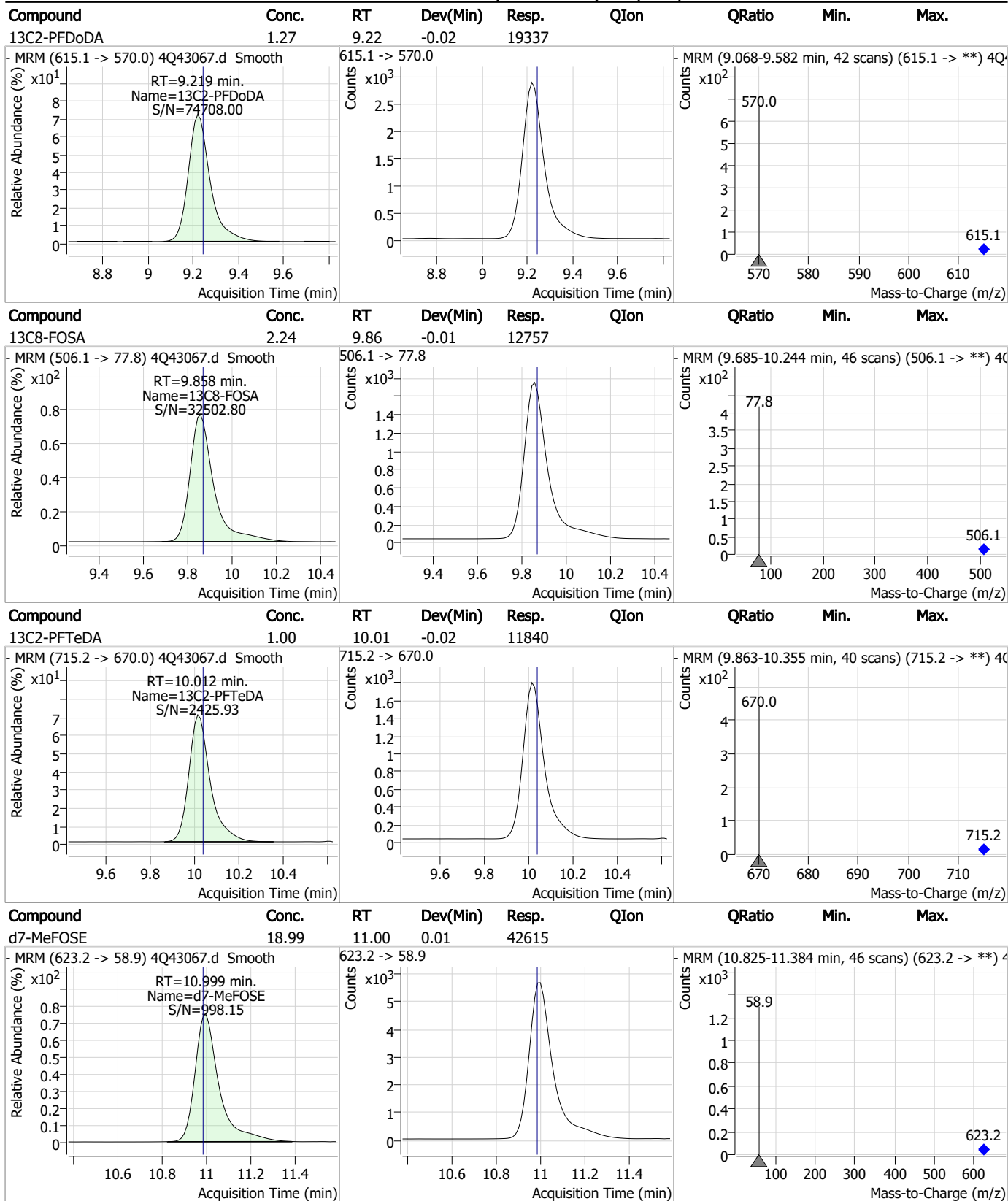
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Perfluorinated Compounds by LC/MS/MS



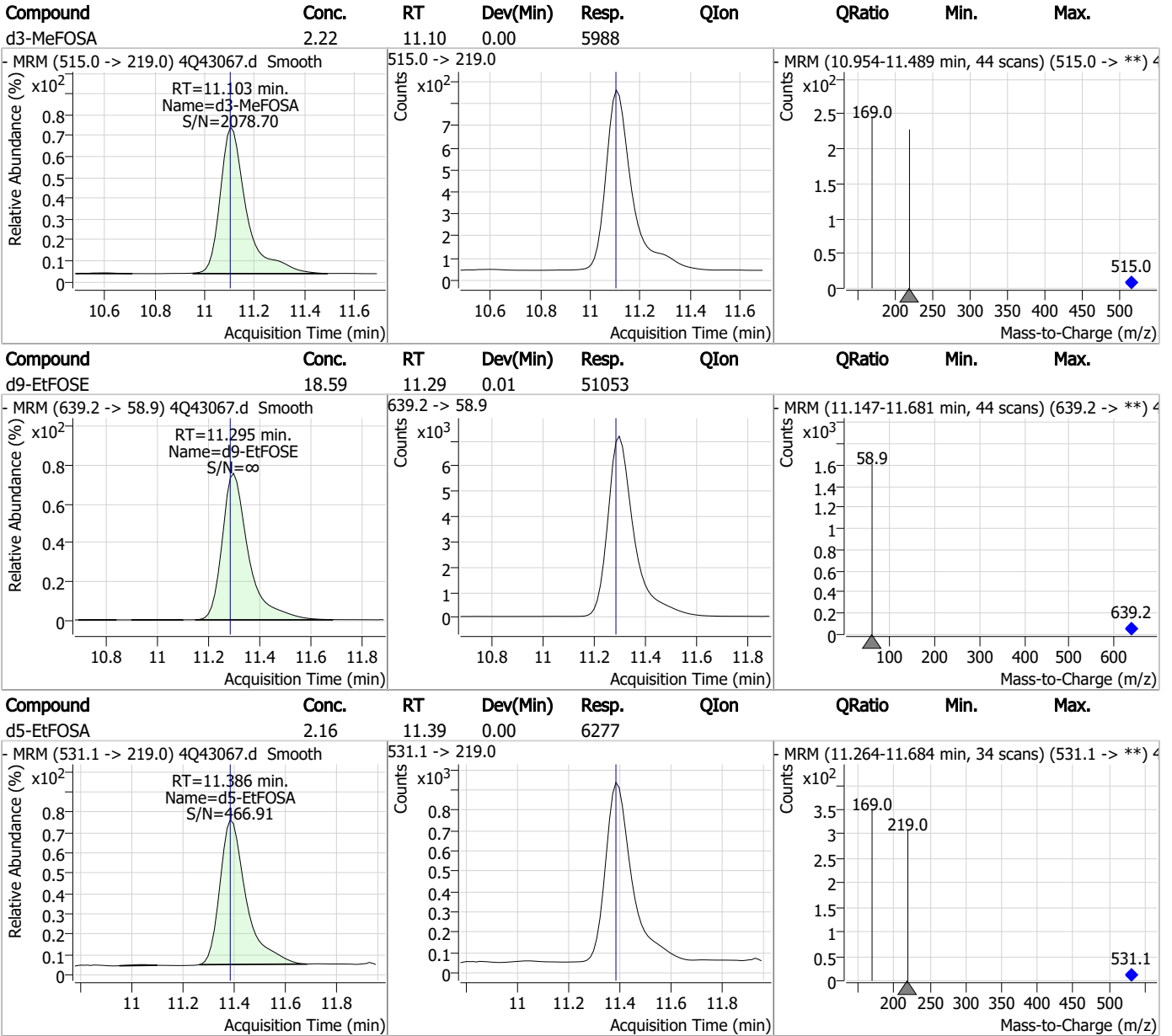
7.2.1
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Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43009.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 5:29:21 AM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	140916	10.00 µg/L	0.000
M5-PFPeA	4.462	268.3 -> 223.0	80910	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	63614	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	31596	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	38772	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	20813	1.25 µg/L	-0.025
M6-PFDA	8.279	519.1 -> 474.1	19853	1.25 µg/L	-0.024
M7-PFUnDA	8.760	570.0 -> 525.1	21217	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	26531	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	19271	1.25 µg/L	-0.024
M8-FOSA	9.846	506.1 -> 77.8	17034	2.50 µg/L	-0.024
M3-PFBS	5.552	302.1 -> 79.9	13473	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	8323	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	12022	2.50 µg/L	-0.024
M2-4:2FTS	5.323	329.1 -> 80.9	1718	5.00 µg/L	-0.012
M2-6:2FTS	6.986	429.1 -> 80.9	2437	5.00 µg/L	-0.012
M2-8:2FTS	8.066	529.1 -> 80.9	4213	5.00 µg/L	-0.024
M3-MeFOSAA	8.337	573.2 -> 419.0	19264	5.00 µg/L	-0.024
M3-HFPO-DA	6.002	286.9 -> 168.9	38836	10.00 µg/L	-0.012
M5-EtFOSAA	8.546	589.2 -> 419.0	15793	5.00 µg/L	-0.024
M7-MeFOSE	10.986	623.2 -> 58.9	64549	25.00 µg/L	0.002
M9-EtFOSE	11.282	639.2 -> 58.9	79256	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	10517	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	9506	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	12330	2.50 µg/L	-0.024
13C3-PFBA	3.003	216.0 -> 172.0	77920	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	5630	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	48296	2.50 µg/L	-0.010
13C2-PFDA	8.279	515.1 -> 470.1	18658	1.25 µg/L	-0.024
13C5-PFNA	7.772	468.0 -> 423.0	24889	1.25 µg/L	-0.025
13C2-PFHxA	5.635	315.1 -> 270.0	53267	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1718	5.59 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2437	5.52 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C2-8:2FTS	8.066	529.1 -> 80.9	4213	5.80 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.0%		
13C2-PFDoDA	9.219	615.1 -> 570.0	26531	1.15 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C2-PFTeDA	10.012	715.2 -> 670.0	19271	1.08 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.2%		
13C3-PFBS	5.552	302.1 -> 79.9	13473	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C3-PFHxS	7.329	402.1 -> 79.9	8323	2.67 µg/L	-0.012

7.22
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C4-PFBA	2.999	216.8 -> 171.9	140916	10.38 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C4-PFHpA	6.567	367.1 -> 322.0	31596	2.61 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFHxA	5.647	318.0 -> 273.0	63614	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C5-PFPeA	4.462	268.3 -> 223.0	80910	5.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.279	519.1 -> 474.1	19853	1.21 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C7-PFUnDA	8.760	570.0 -> 525.1	21217	1.19 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C8-FOSA	9.846	506.1 -> 77.8	17034	2.11 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.5%	
13C8-PFOA	7.227	421.1 -> 376.0	38772	2.44 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOS	8.442	507.1 -> 79.9	12022	2.51 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C9-PFNA	7.771	472.1 -> 427.0	20813	1.15 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.8%	
d3-MeFOSAA	8.337	573.2 -> 419.0	19264	5.30 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C3-HFPO-DA	6.002	286.9 -> 168.9	38836	10.39 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d3-MeFOSA	11.103	515.0 -> 219.0	9506	2.49 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
d5-EtFOSAA	8.546	589.2 -> 419.0	15793	5.35 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d7-MeFOSE	10.986	623.2 -> 58.9	64549	20.30 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.2%	
d9-EtFOSE	11.282	639.2 -> 58.9	79256	20.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.5%	
d5-EtFOSA	11.386	531.1 -> 219.0	10517	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.22
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	11.388	526.0 -> 219.0	188	0.05 µg/L	#	29
		526.0 -> 169.0	161			
EtFOSE	11.308	630.0 -> 58.9	449	0.18 µg/L		100
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8	-	N.D.		
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9	-	N.D.		
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9	-	N.D.		

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.2
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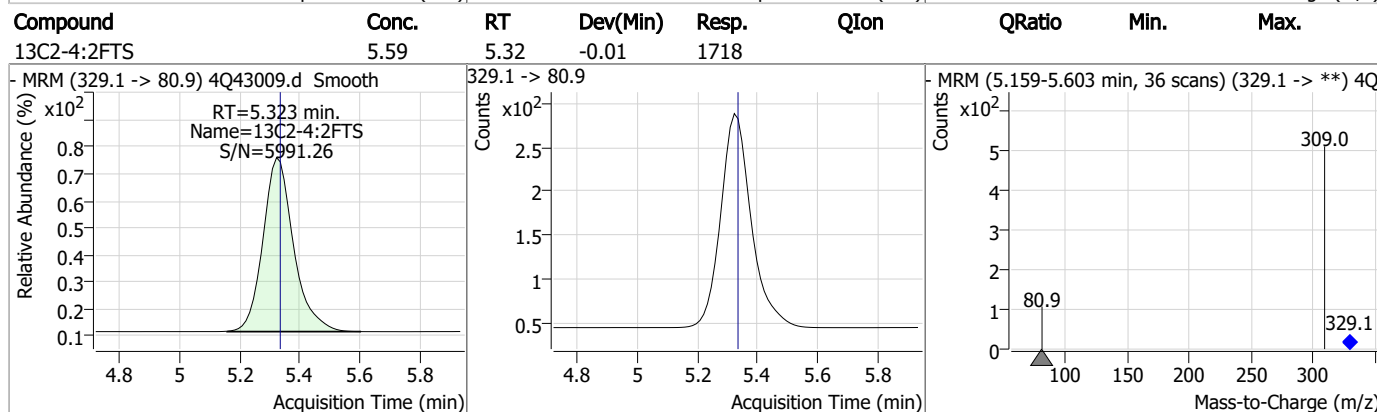
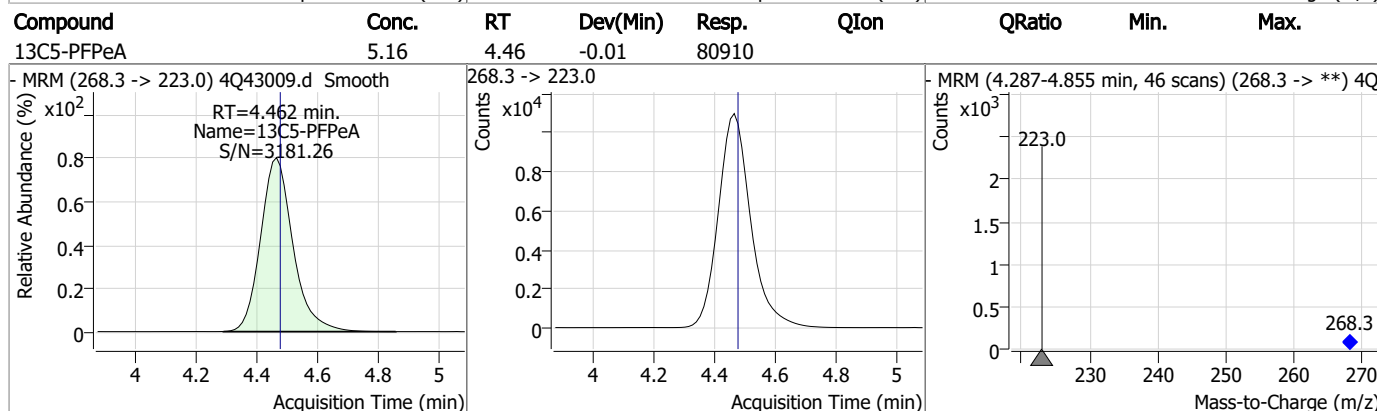
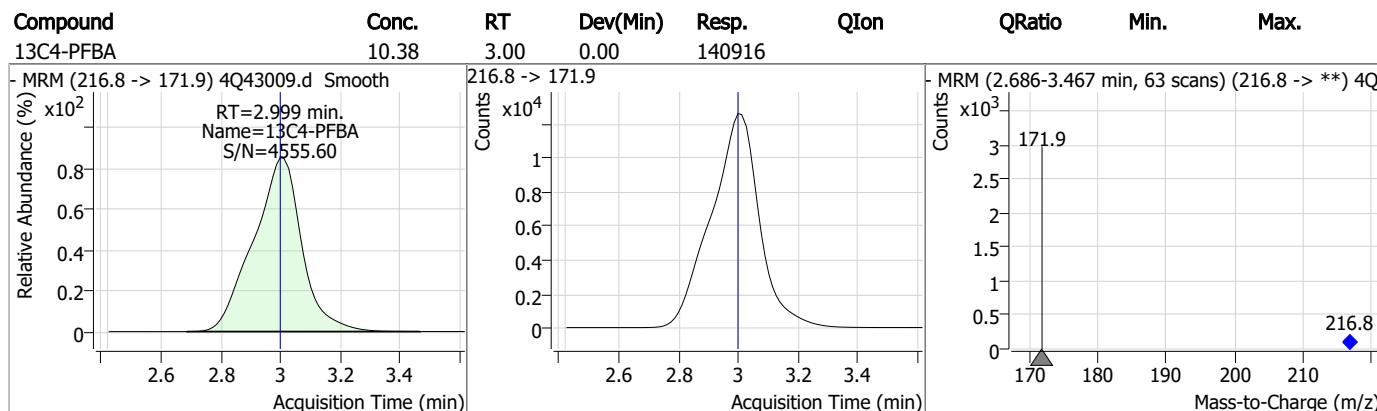
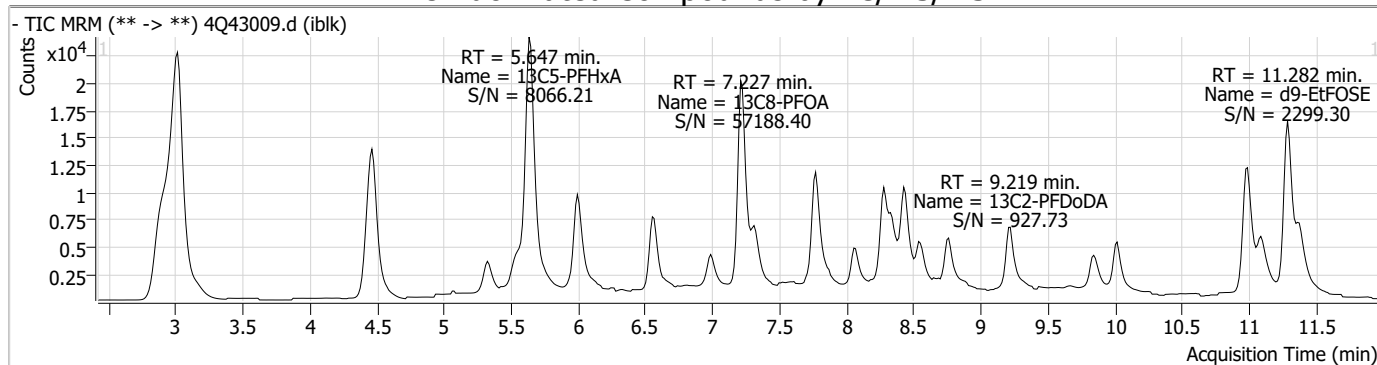
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.2

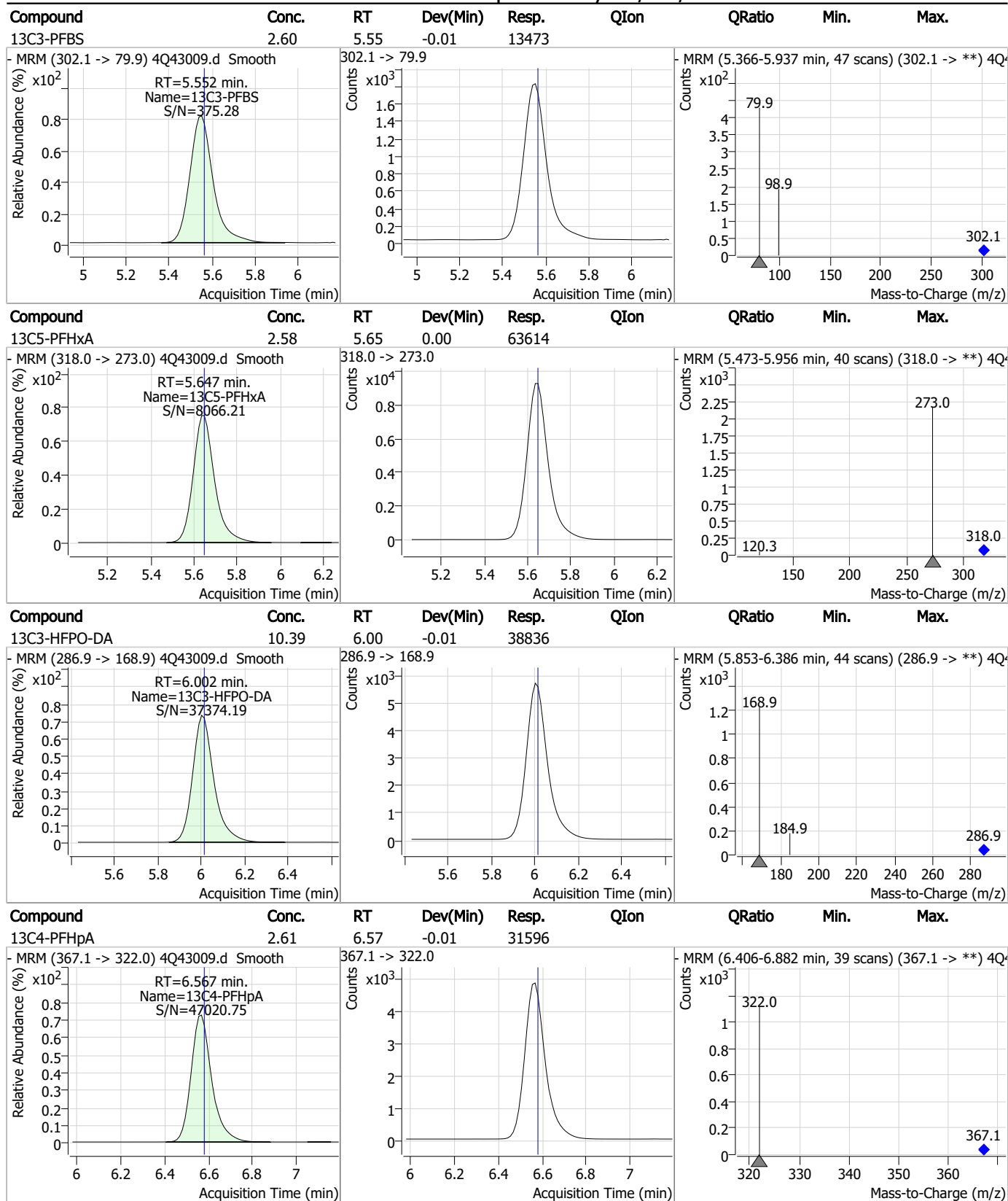
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Perfluorinated Compounds by LC/MS/MS



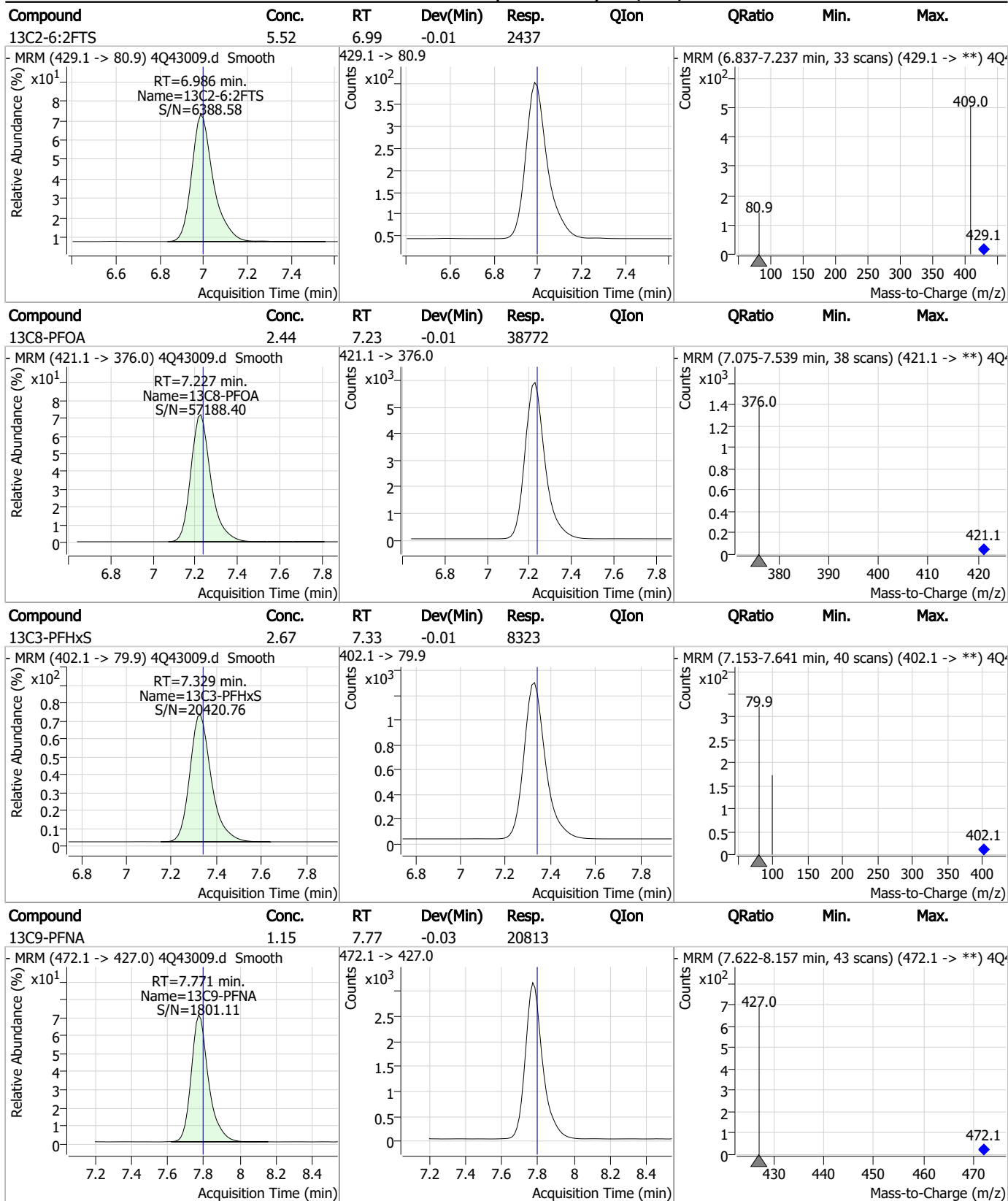
7.2.2
7

Perfluorinated Compounds by LC/MS/MS



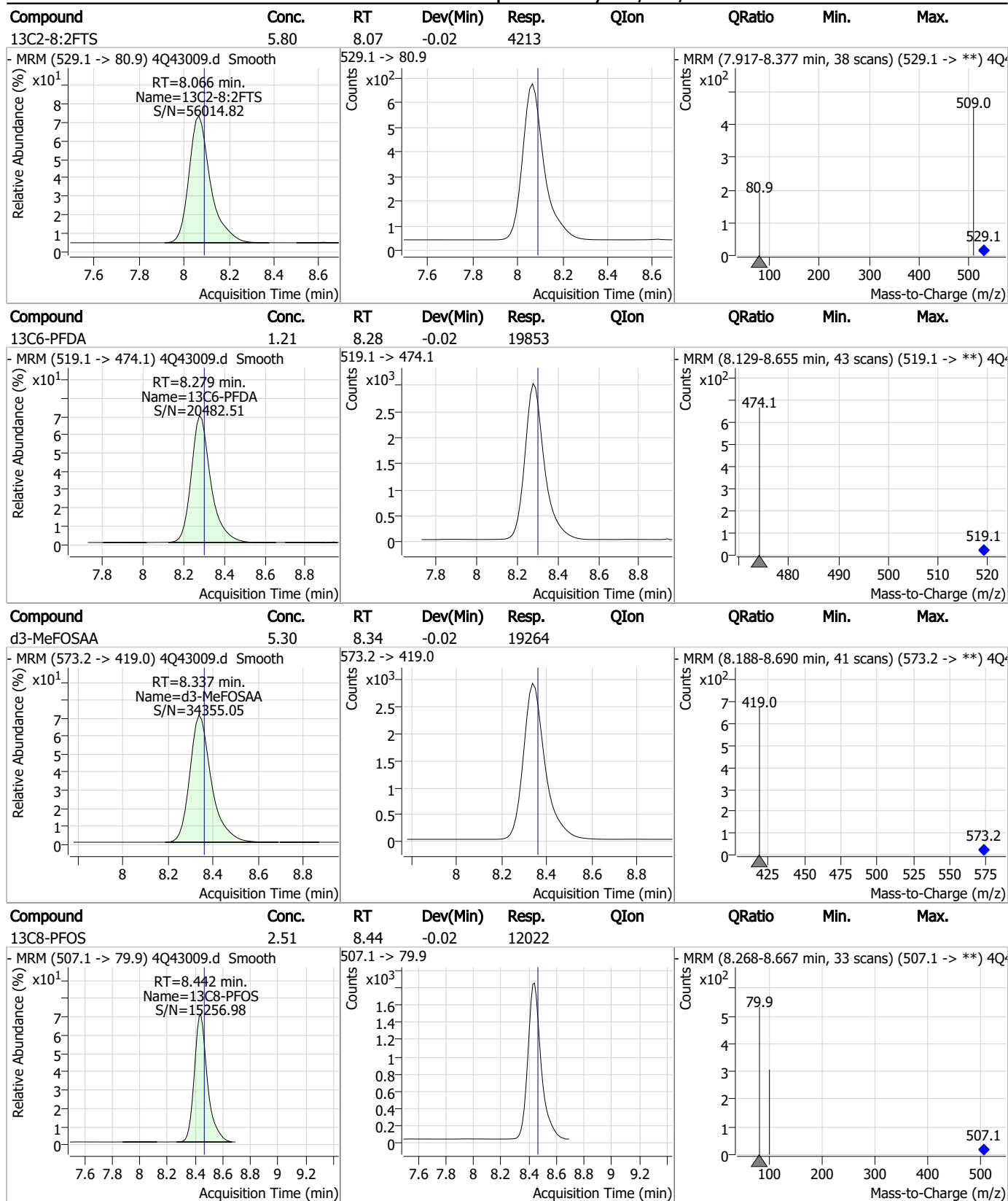
7.2.2
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Perfluorinated Compounds by LC/MS/MS



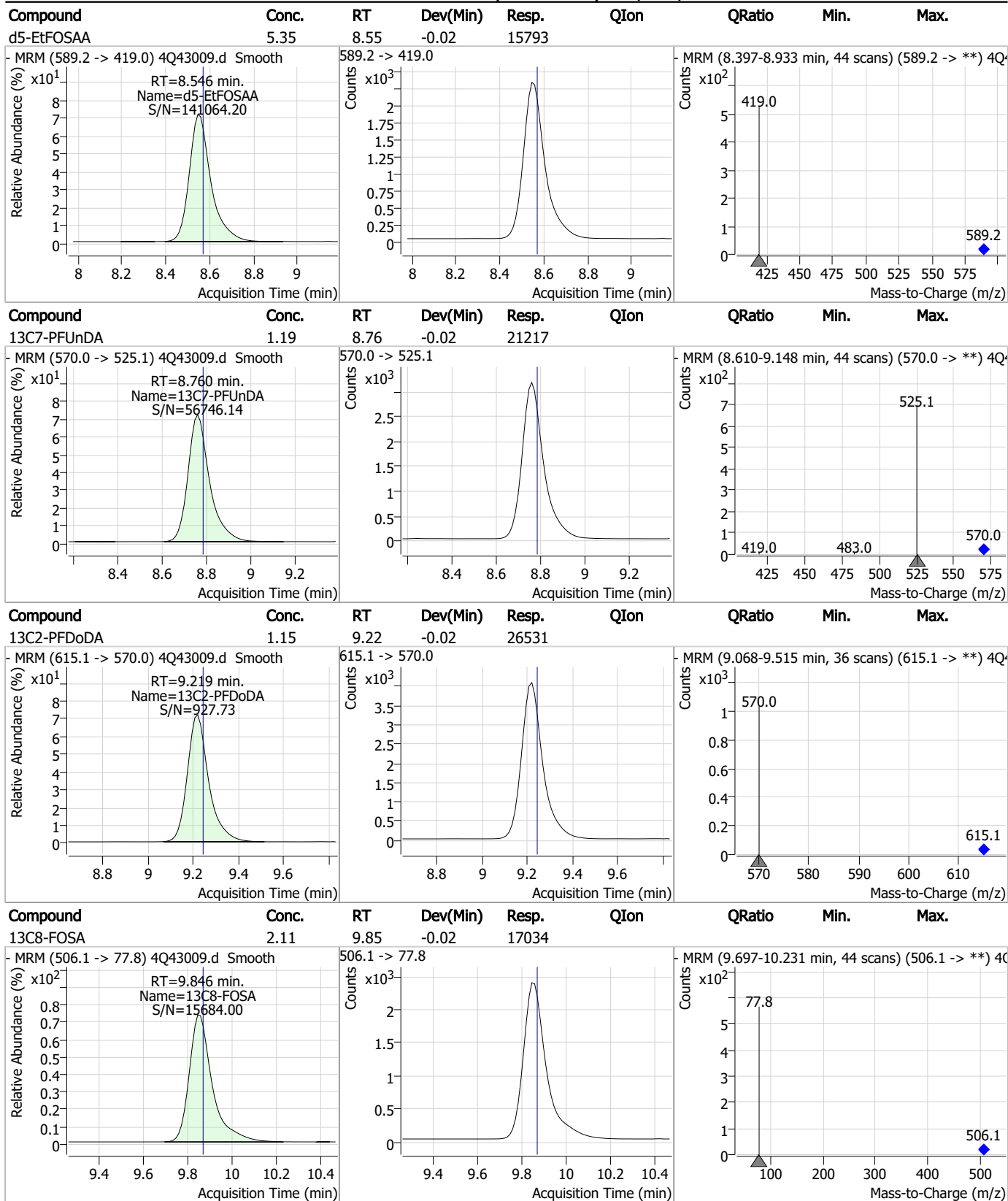
7.2.2
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Perfluorinated Compounds by LC/MS/MS



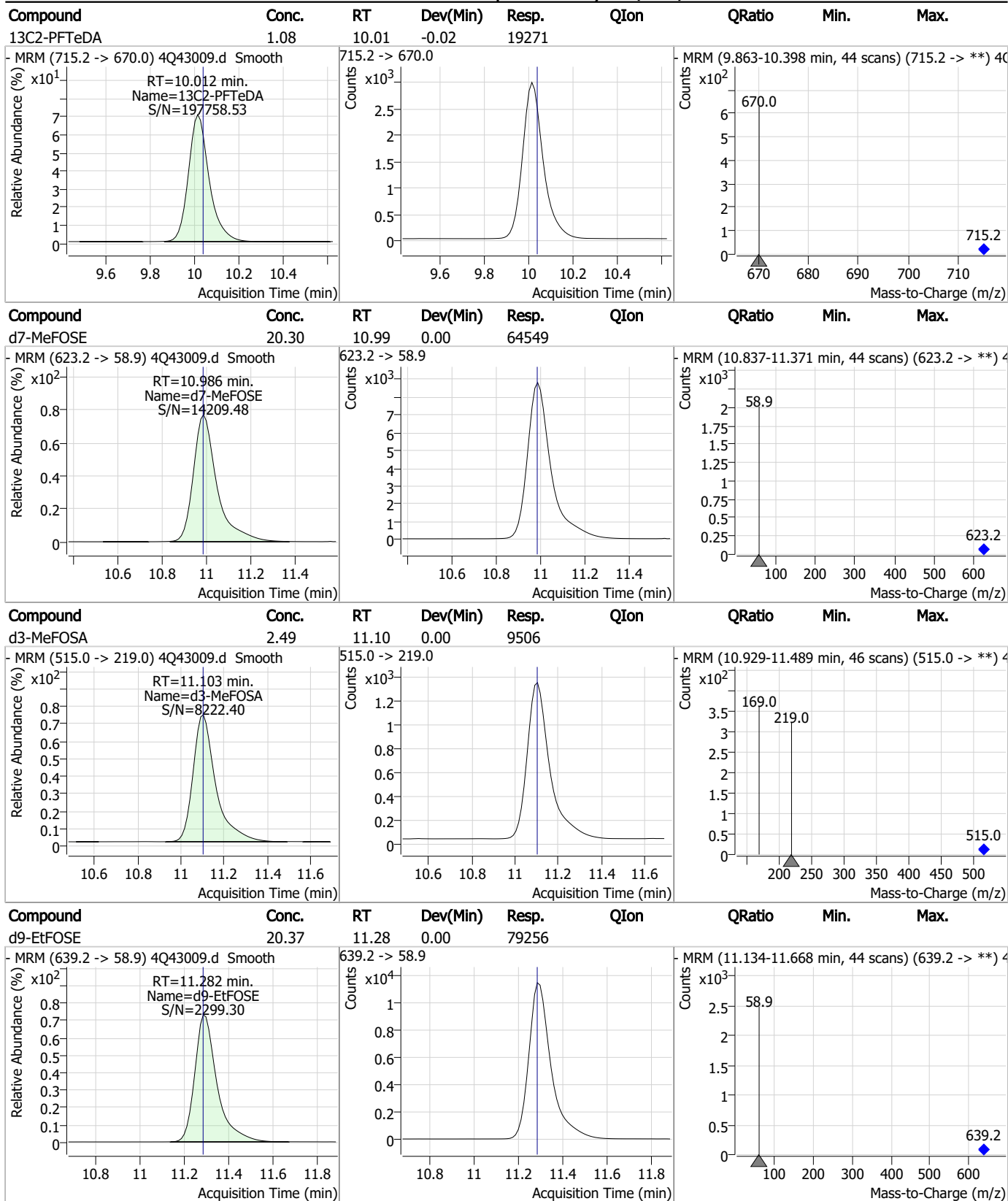
7.2.2
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Perfluorinated Compounds by LC/MS/MS



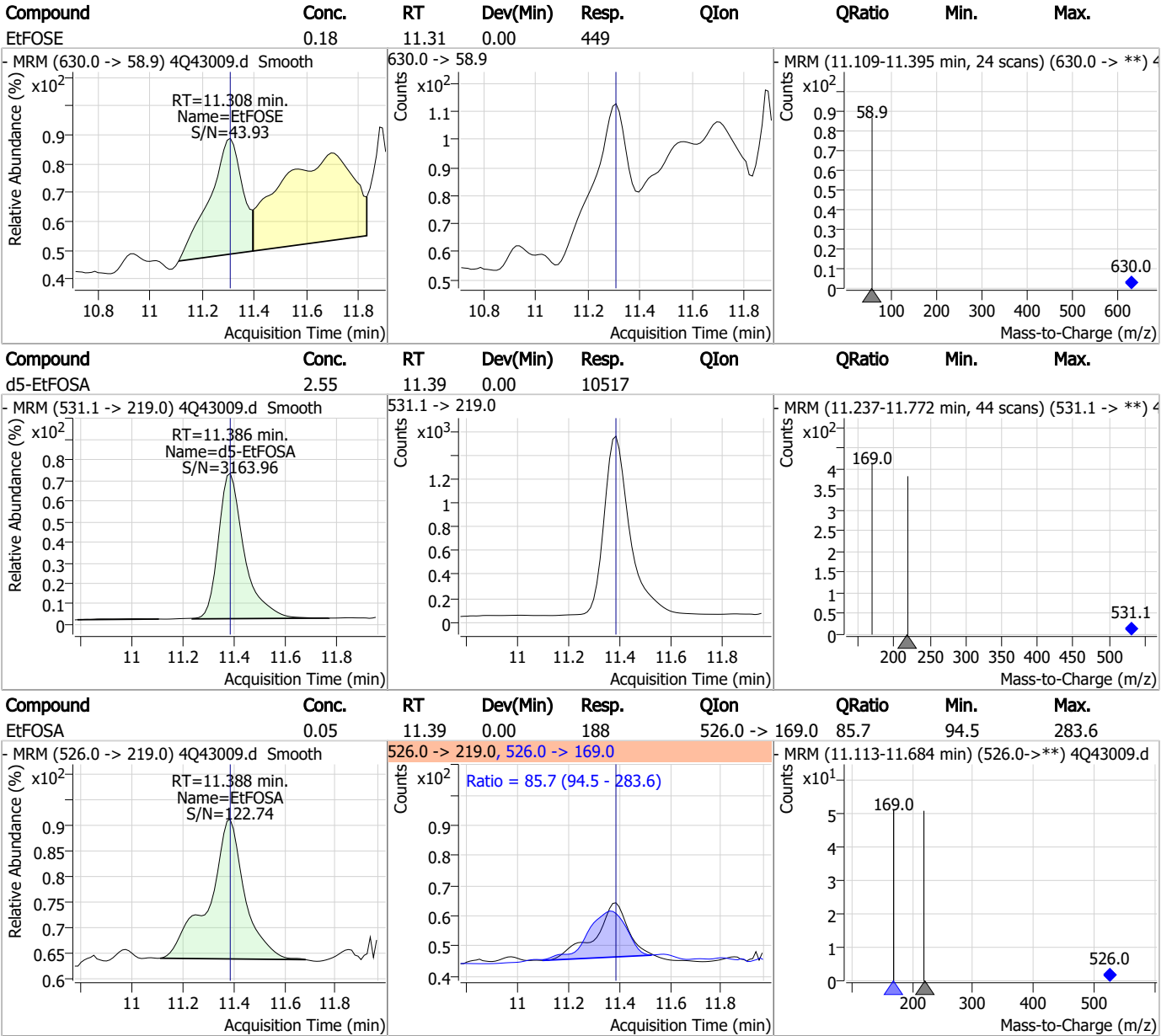
7.2.2
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Perfluorinated Compounds by LC/MS/MS



7.2.2
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Perfluorinated Compounds by LC/MS/MS



7.2.2

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43064.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 6:22:28 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	136372	10.00 µg/L	-0.013
M5-PFPeA	4.462	268.3 -> 223.0	81064	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	61905	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	31147	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	38305	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	21592	1.25 µg/L	-0.025
M6-PFDA	8.291	519.1 -> 474.1	19242	1.25 µg/L	-0.012
M7-PFUnDA	8.772	570.0 -> 525.1	21732	1.25 µg/L	-0.012
M2-PFDoDA	9.219	615.1 -> 570.0	26517	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	19556	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	17152	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	13707	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	8409	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	11865	2.50 µg/L	-0.024
M2-4:2FTS	5.323	329.1 -> 80.9	1681	5.00 µg/L	-0.012
M2-6:2FTS	6.986	429.1 -> 80.9	2693	5.00 µg/L	-0.012
M2-8:2FTS	8.066	529.1 -> 80.9	3976	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	19055	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	37164	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	15899	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	59893	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	74513	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	9731	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	8735	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	12666	2.50 µg/L	-0.024
13C3-PFBA	2.991	216.0 -> 172.0	76132	5.00 µg/L	0.000
18O2-PFHxS	7.328	403.0 -> 83.9	5700	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	48663	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	18777	1.25 µg/L	-0.012
13C5-PFNA	7.772	468.0 -> 423.0	23351	1.25 µg/L	-0.025
13C2-PFHxA	5.648	315.1 -> 270.0	52539	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1681	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2693	6.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.6%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3976	5.41 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-PFDoDA	9.219	615.1 -> 570.0	26517	1.15 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.8%		
13C2-PFTeDA	10.012	715.2 -> 670.0	19556	1.09 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.9%		
13C3-PFBS	5.552	302.1 -> 79.9	13707	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C3-PFHxS	7.329	402.1 -> 79.9	8409	2.67 µg/L	-0.012

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C4-PFBA	2.986	216.8 -> 171.9	136372	10.29 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFHpA	6.567	367.1 -> 322.0	31147	2.61 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFHxA	5.647	318.0 -> 273.0	61905	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.462	268.3 -> 223.0	81064	5.24 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C6-PFDA	8.291	519.1 -> 474.1	19242	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C7-PFUnDA	8.772	570.0 -> 525.1	21732	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-FOSA	9.858	506.1 -> 77.8	17152	2.07 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.8%	
13C8-PFOA	7.227	421.1 -> 376.0	38305	2.39 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C8-PFOS	8.442	507.1 -> 79.9	11865	2.42 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C9-PFNA	7.771	472.1 -> 427.0	21592	1.27 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
d3-MeFOSAA	8.349	573.2 -> 419.0	19055	5.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	37164	10.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
d3-MeFOSA	11.103	515.0 -> 219.0	8735	2.23 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.1%	
d5-EtFOSAA	8.558	589.2 -> 419.0	15899	5.24 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d7-MeFOSE	10.986	623.2 -> 58.9	59893	18.34 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.3%	
d9-EtFOSE	11.295	639.2 -> 58.9	74513	18.64 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.6%	
d5-EtFOSA	11.386	531.1 -> 219.0	9731	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.9%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.3
7

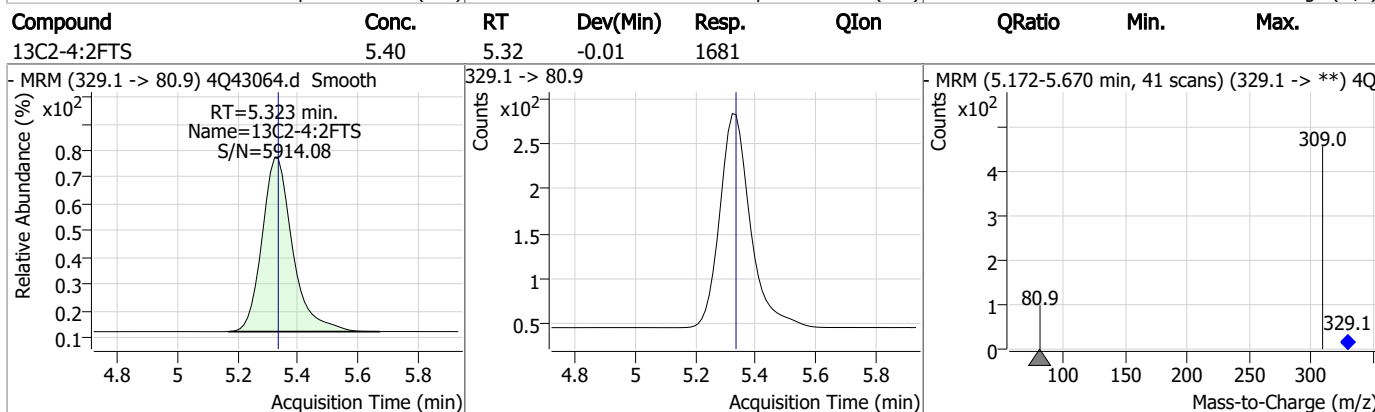
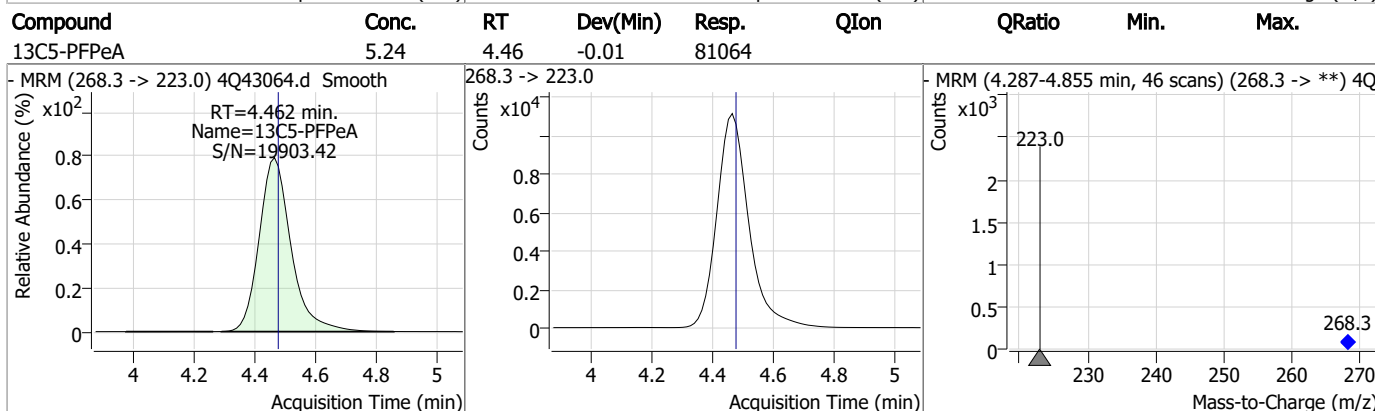
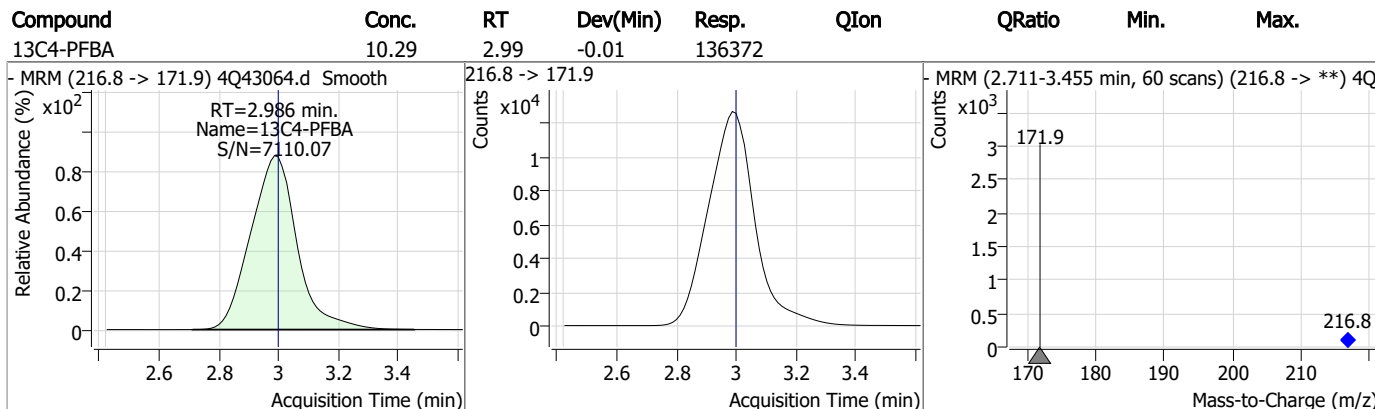
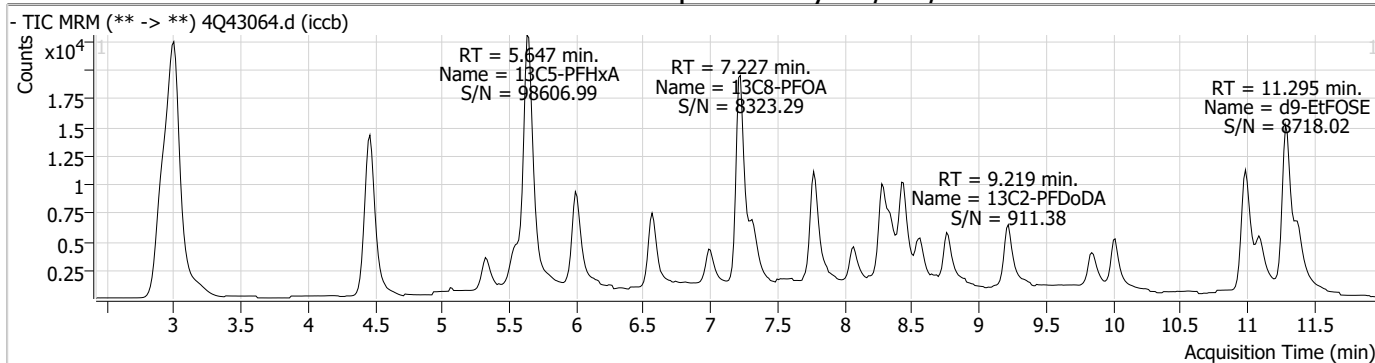
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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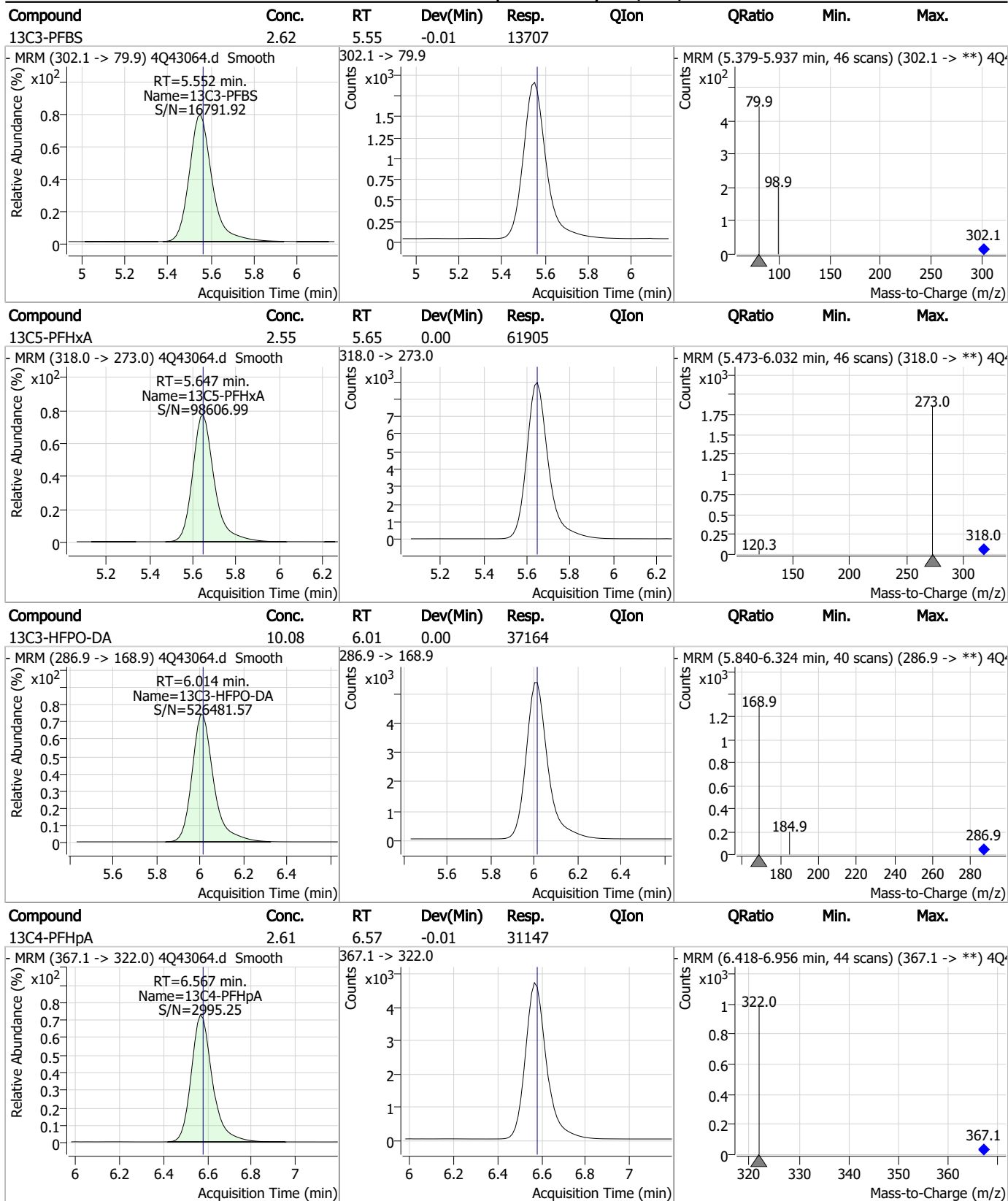
7.2.3

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Perfluorinated Compounds by LC/MS/MS

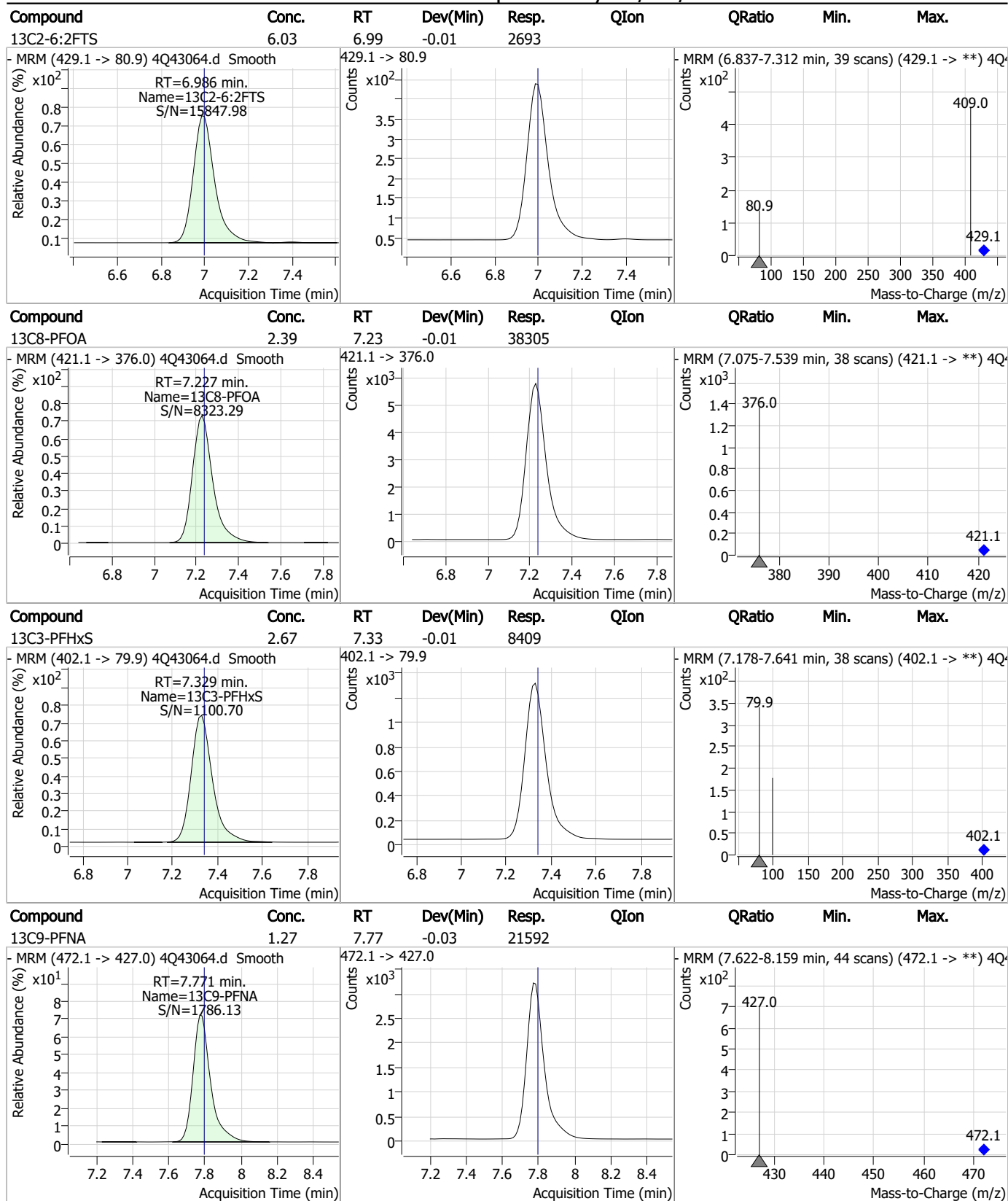


Perfluorinated Compounds by LC/MS/MS



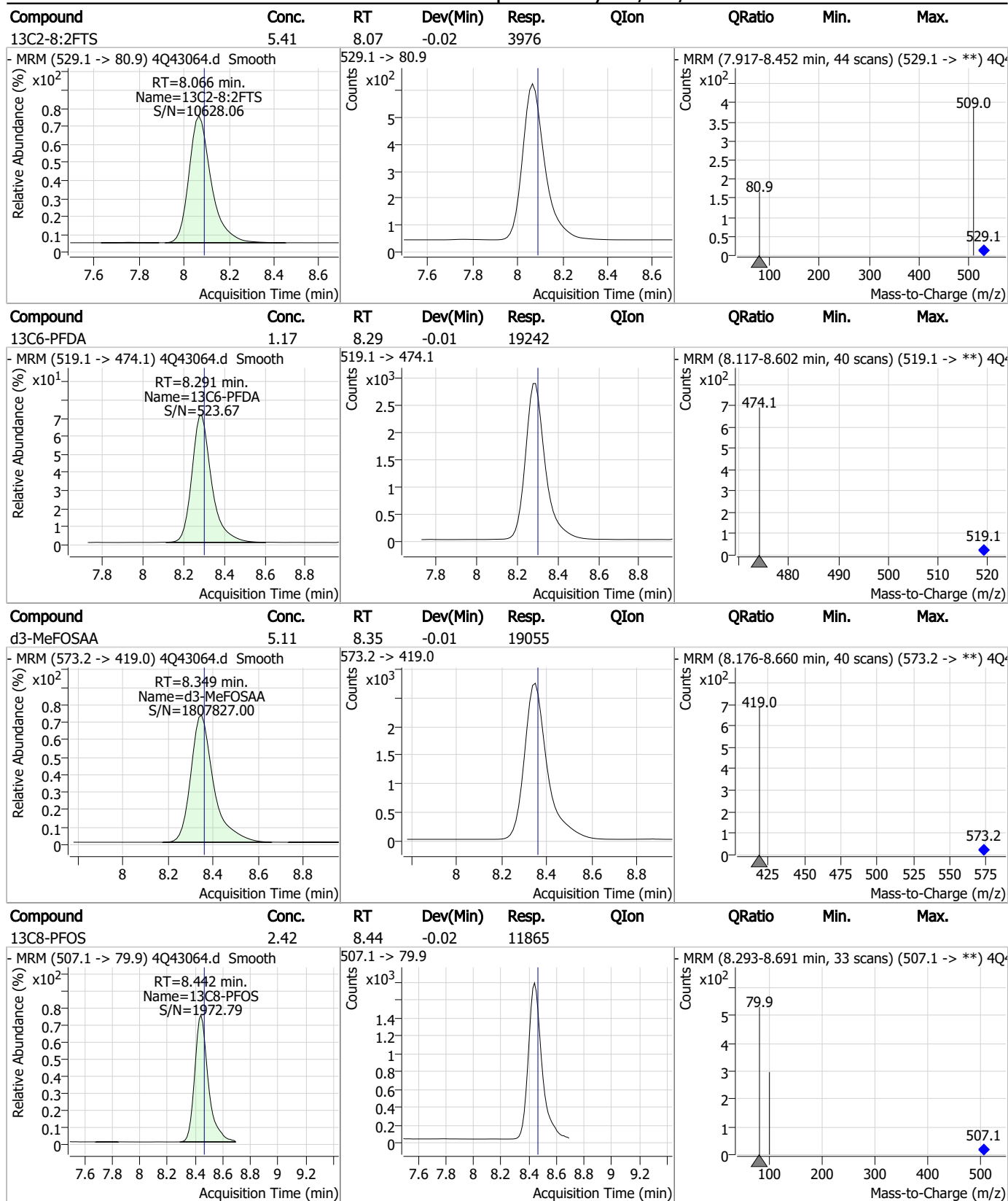
7.2.3
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Perfluorinated Compounds by LC/MS/MS



7.2.3
7

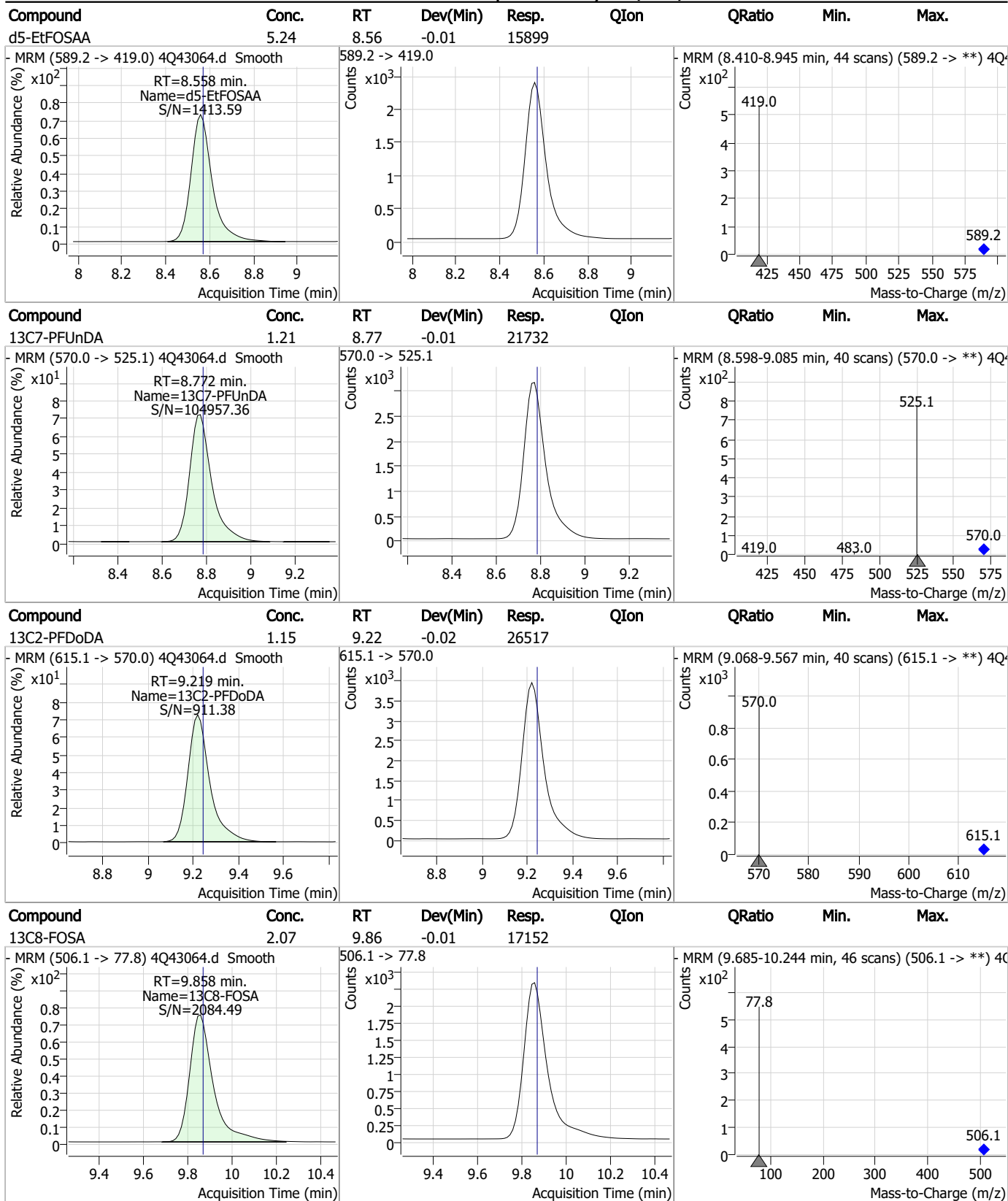
Perfluorinated Compounds by LC/MS/MS



7.2.3

7

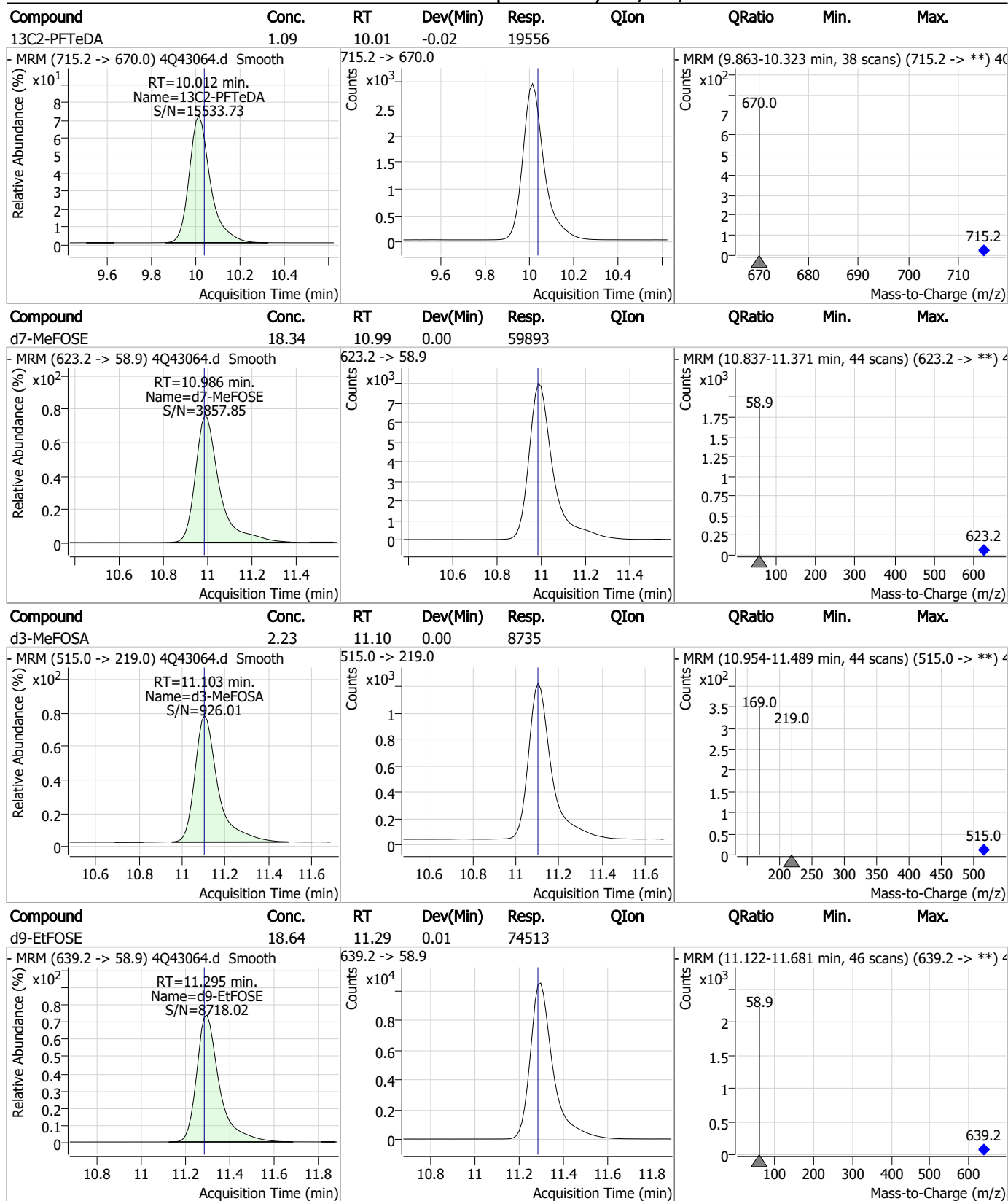
Perfluorinated Compounds by LC/MS/MS



7.2.3

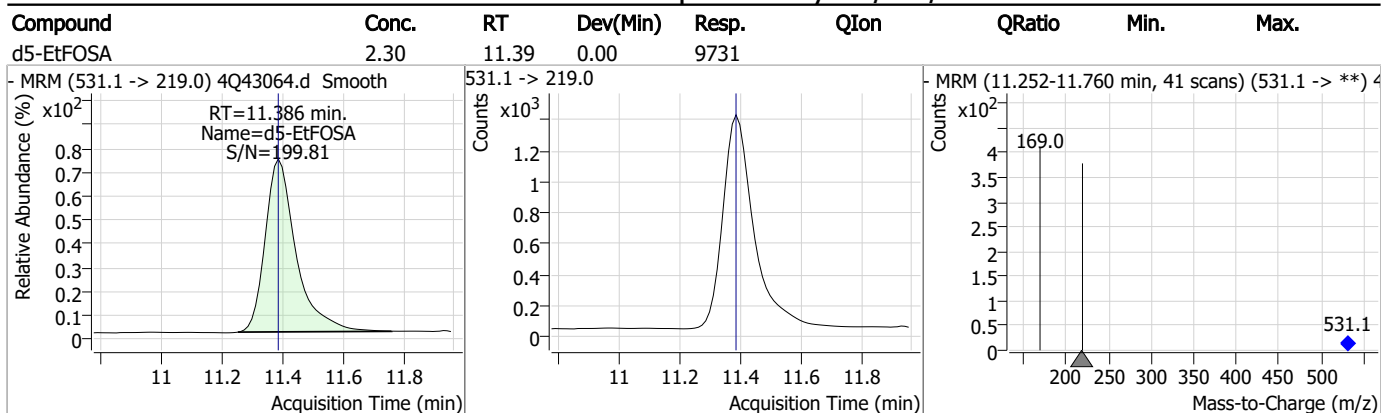
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Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43074.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 8:42:53 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	143844	10.00 µg/L	-0.013
M5-PFPeA	4.462	268.3 -> 223.0	80649	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	62709	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	31204	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	40088	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	20827	1.25 µg/L	-0.025
M6-PFDA	8.291	519.1 -> 474.1	20621	1.25 µg/L	-0.012
M7-PFUnDA	8.760	570.0 -> 525.1	22058	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	27839	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	20056	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	17116	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	13735	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	7975	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	12043	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1895	5.00 µg/L	0.000
M2-6:2FTS	6.999	429.1 -> 80.9	2746	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	4269	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	19236	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	38178	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	16410	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	62275	25.00 µg/L	0.002
M9-EtFOSE	11.282	639.2 -> 58.9	76583	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	10150	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	8944	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	12150	2.50 µg/L	-0.024
13C3-PFBA	2.991	216.0 -> 172.0	78754	5.00 µg/L	0.000
18O2-PFHxS	7.328	403.0 -> 83.9	6001	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	49444	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	18206	1.25 µg/L	-0.012
13C5-PFNA	7.772	468.0 -> 423.0	25361	1.25 µg/L	-0.025
13C2-PFHxA	5.648	315.1 -> 270.0	54798	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1895	5.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.6%		
13C2-6:2FTS	6.999	429.1 -> 80.9	2746	5.84 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.8%		
13C2-8:2FTS	8.066	529.1 -> 80.9	4269	5.51 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.3%		
13C2-PFDoDA	9.219	615.1 -> 570.0	27839	1.24 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-PFTeDA	10.012	715.2 -> 670.0	20056	1.15 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C3-PFBS	5.552	302.1 -> 79.9	13735	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-PFHxS	7.329	402.1 -> 79.9	7975	2.40 µg/L	-0.012

7.2.4
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C4-PFBA	2.986	216.8 -> 171.9	143844	10.49 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C4-PFHpA	6.567	367.1 -> 322.0	31204	2.51 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFHxA	5.647	318.0 -> 273.0	62709	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.462	268.3 -> 223.0	80649	5.00 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C6-PFDA	8.291	519.1 -> 474.1	20621	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C7-PFUnDA	8.760	570.0 -> 525.1	22058	1.27 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-FOSA	9.858	506.1 -> 77.8	17116	2.15 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.2%	
13C8-PFOA	7.227	421.1 -> 376.0	40088	2.46 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-PFOS	8.442	507.1 -> 79.9	12043	2.56 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C9-PFNA	7.771	472.1 -> 427.0	20827	1.13 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.2%	
d3-MeFOSAA	8.349	573.2 -> 419.0	19236	5.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	38178	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSA	11.103	515.0 -> 219.0	8944	2.38 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
d5-EtFOSAA	8.558	589.2 -> 419.0	16410	5.64 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.8%	
d7-MeFOSE	10.986	623.2 -> 58.9	62275	19.87 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.5%	
d9-EtFOSE	11.282	639.2 -> 58.9	76583	19.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.9%	
d5-EtFOSA	11.386	531.1 -> 219.0	10150	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.670	630.0 -> 58.9	0		µg/L m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.4
7

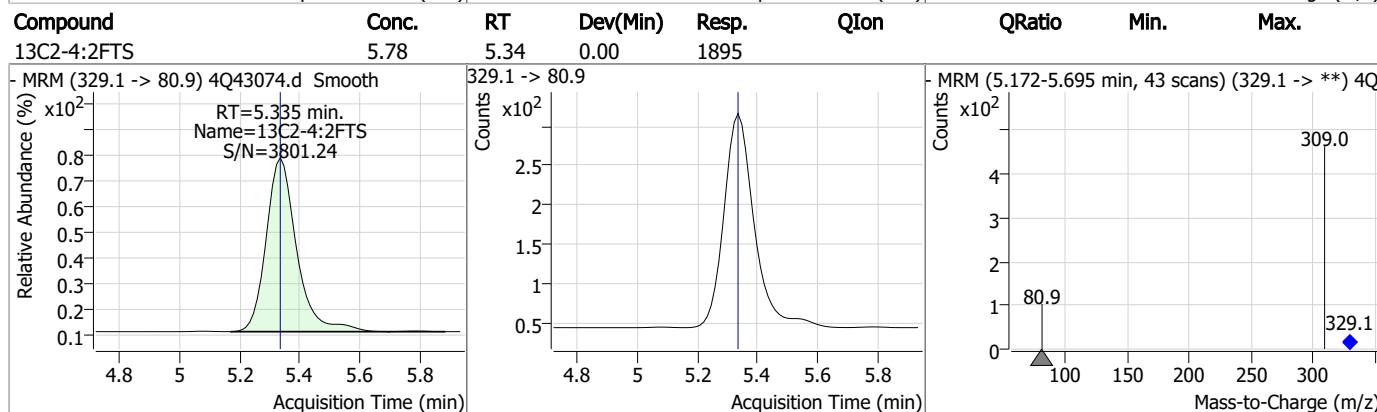
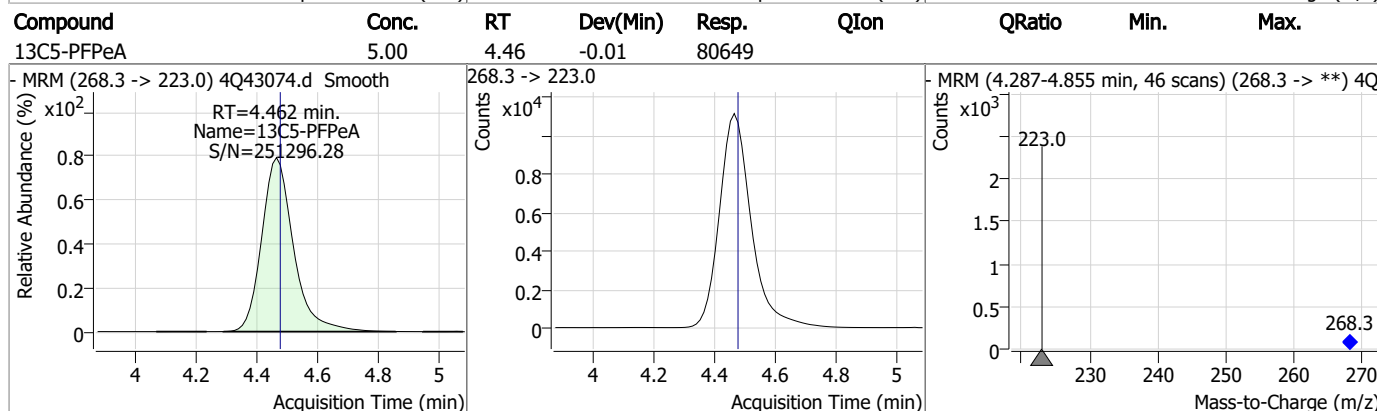
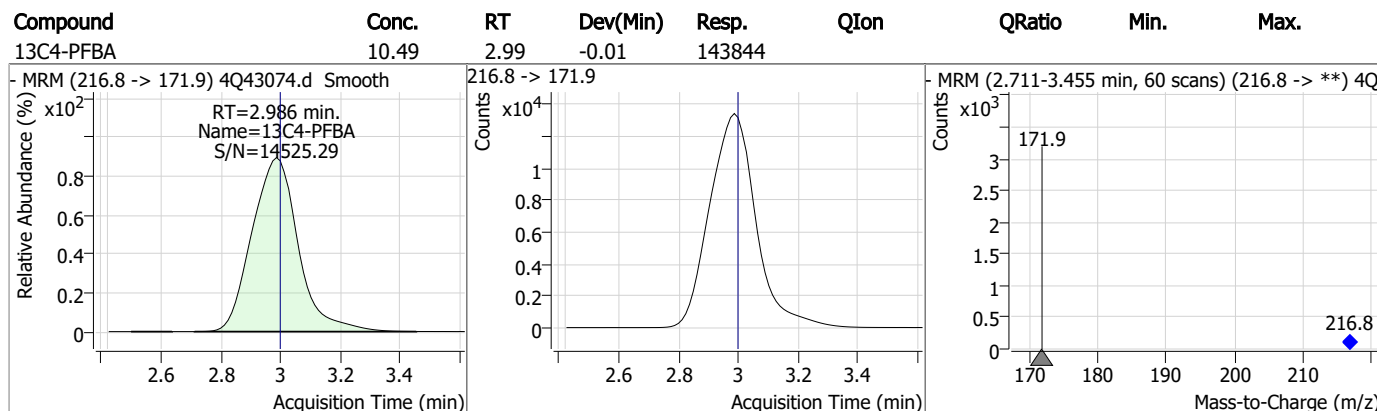
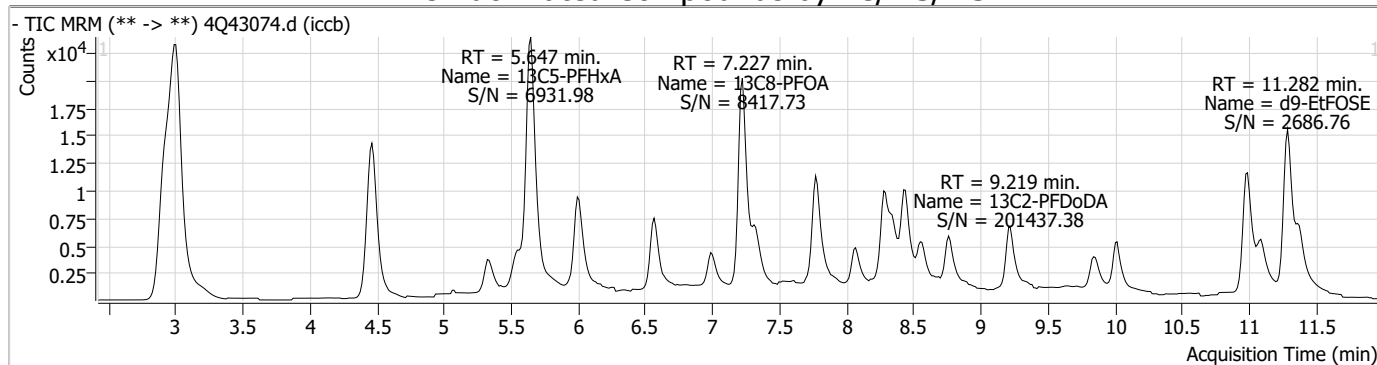
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.4

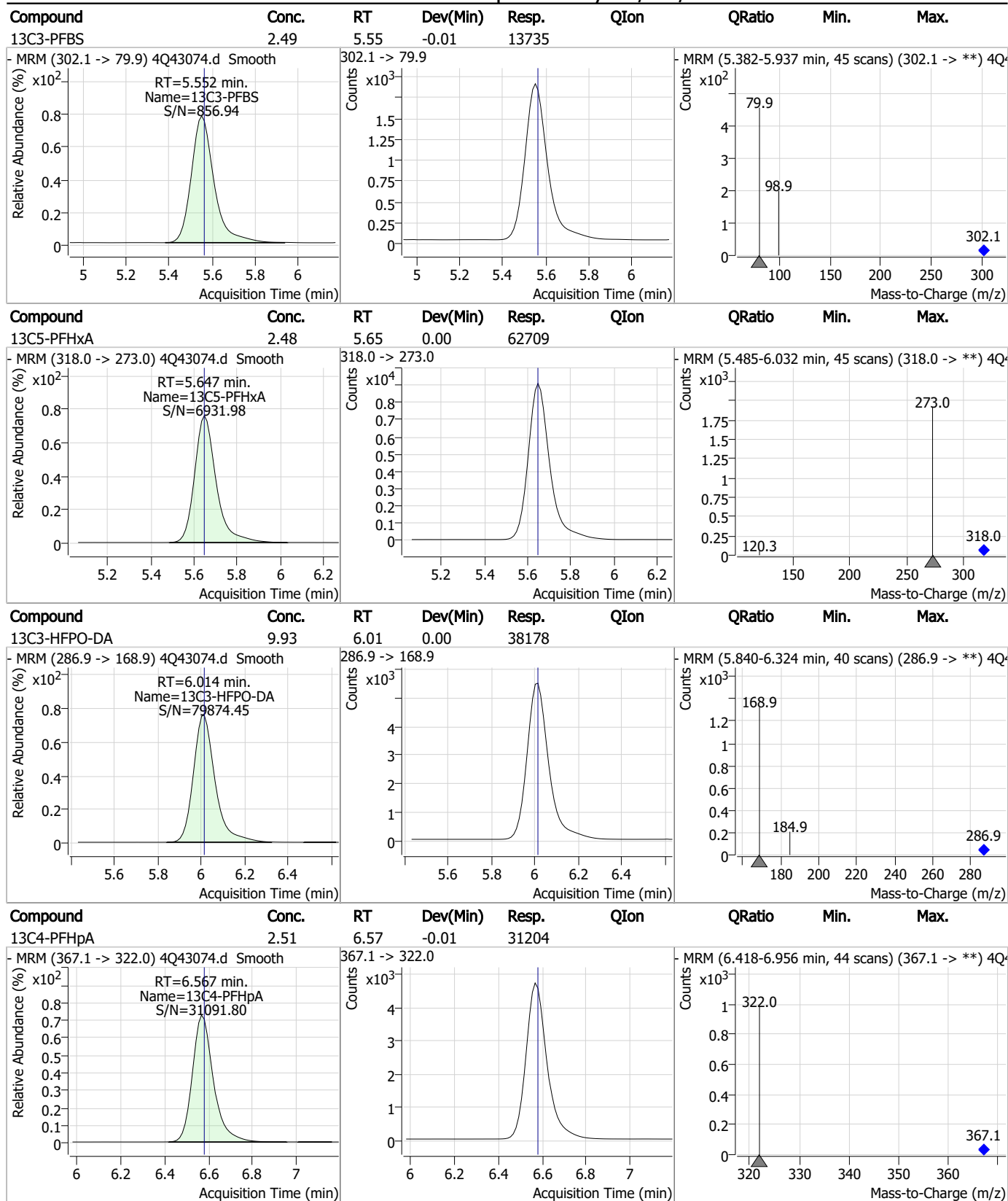
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Perfluorinated Compounds by LC/MS/MS



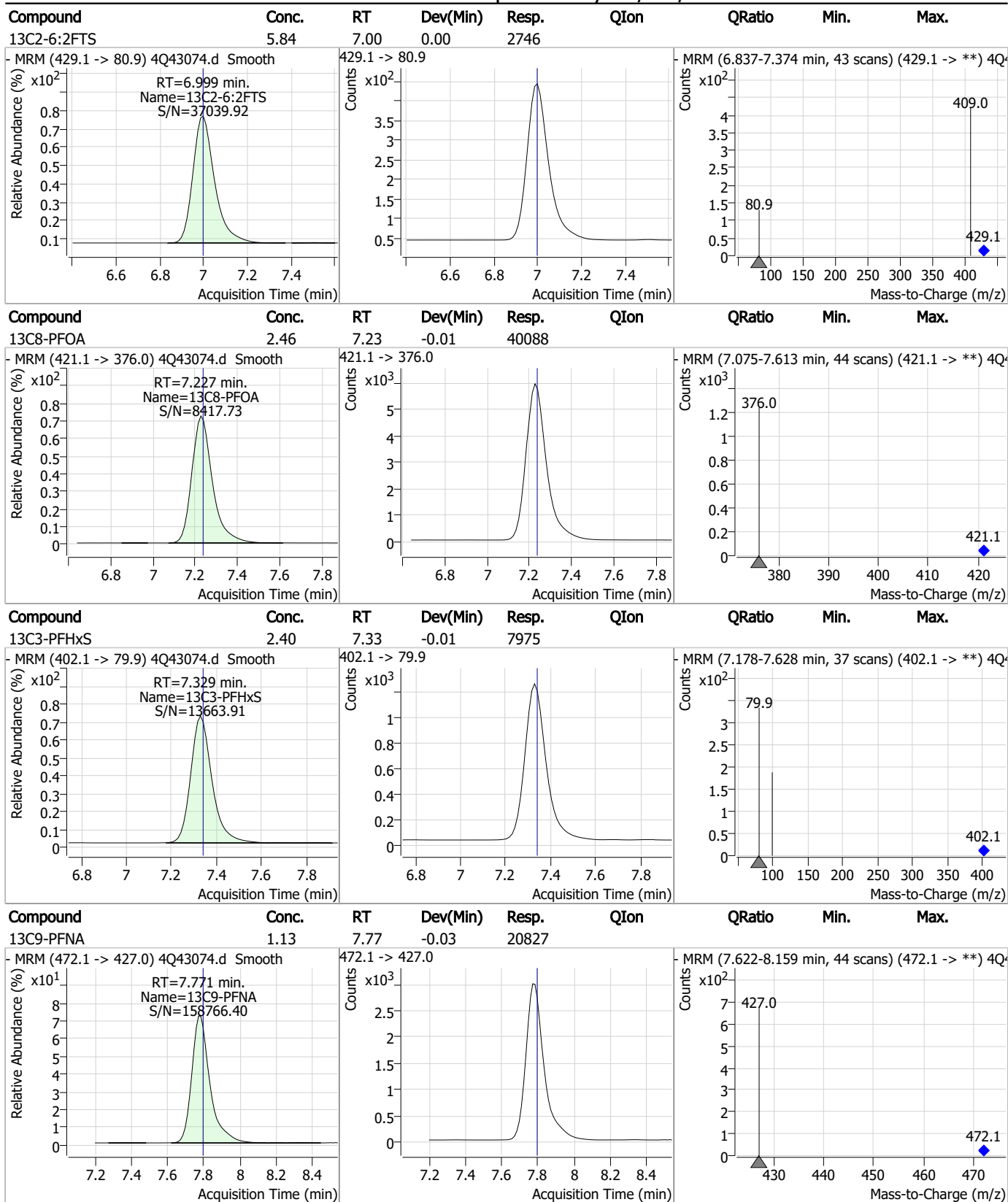
7.2.4
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Perfluorinated Compounds by LC/MS/MS



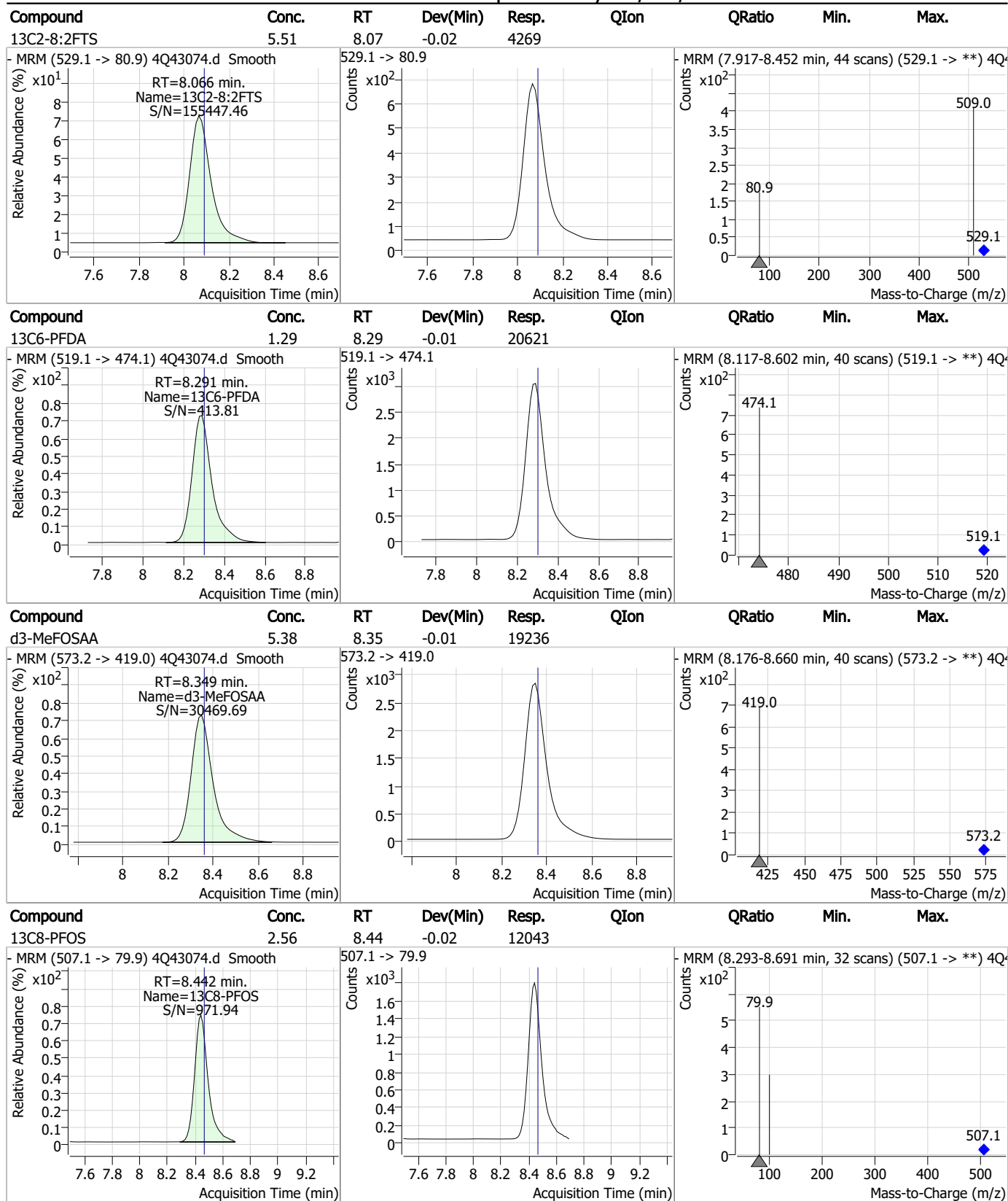
7.2.4
7

Perfluorinated Compounds by LC/MS/MS



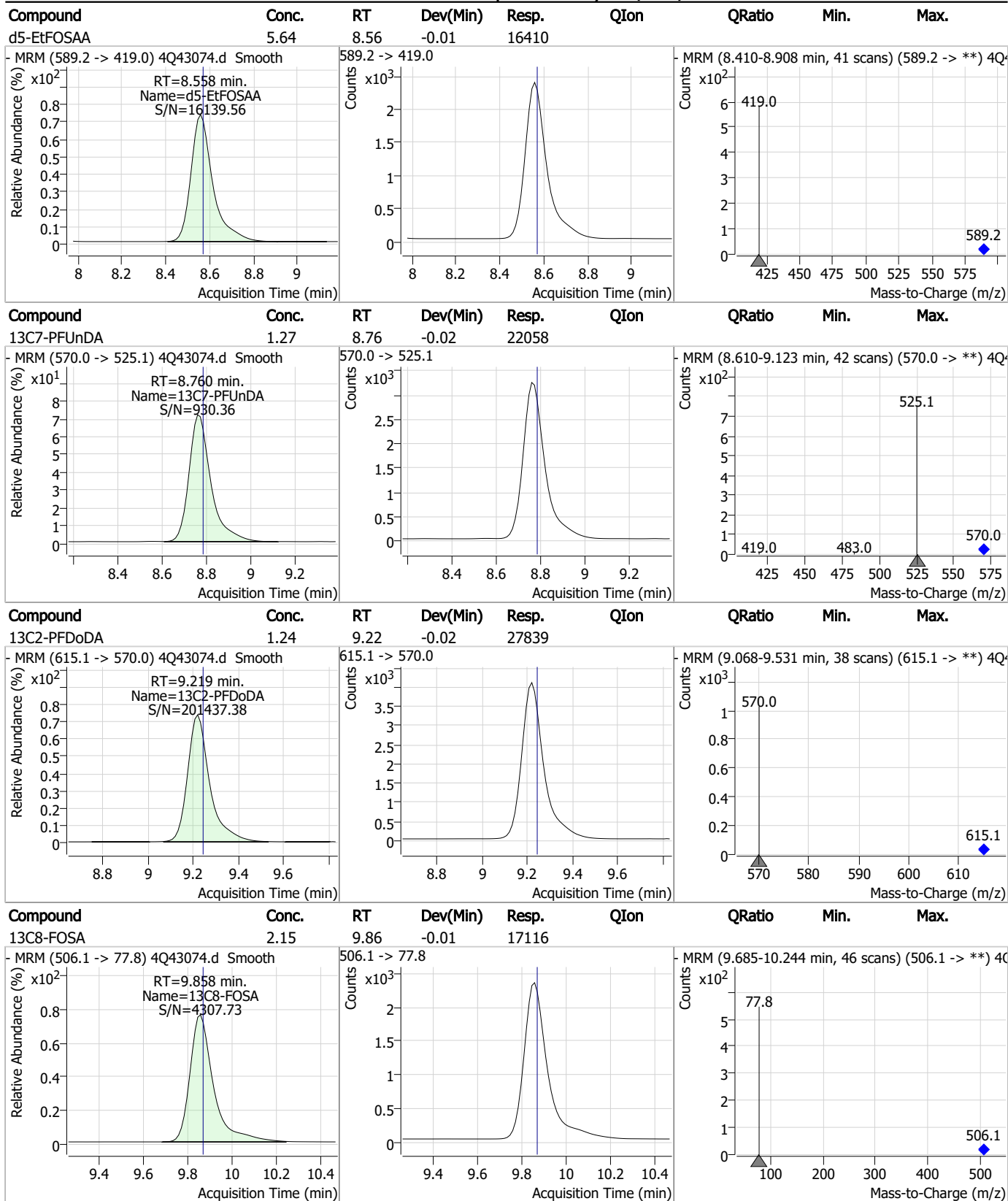
7.2.4
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Perfluorinated Compounds by LC/MS/MS



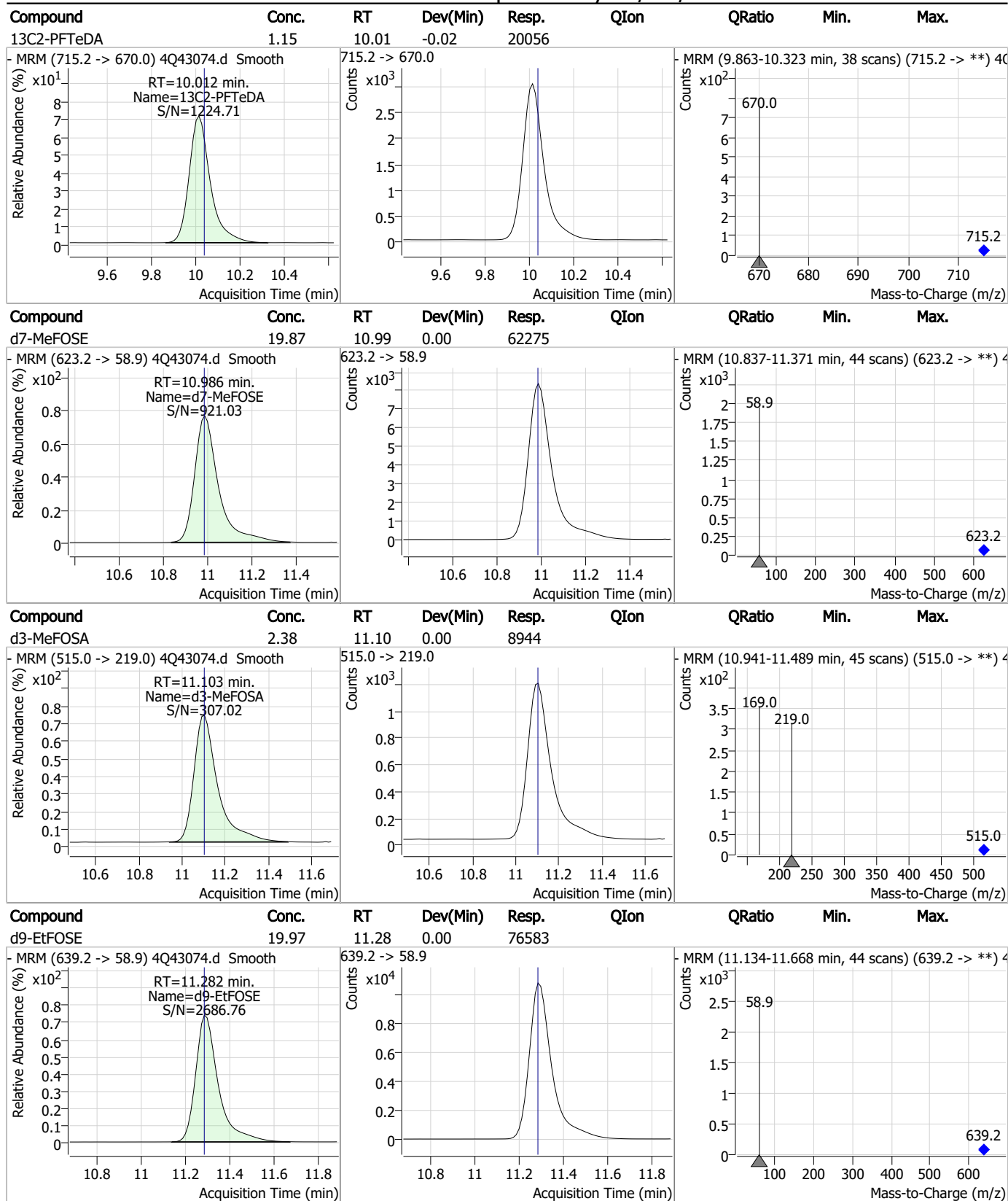
7.2.4
7

Perfluorinated Compounds by LC/MS/MS



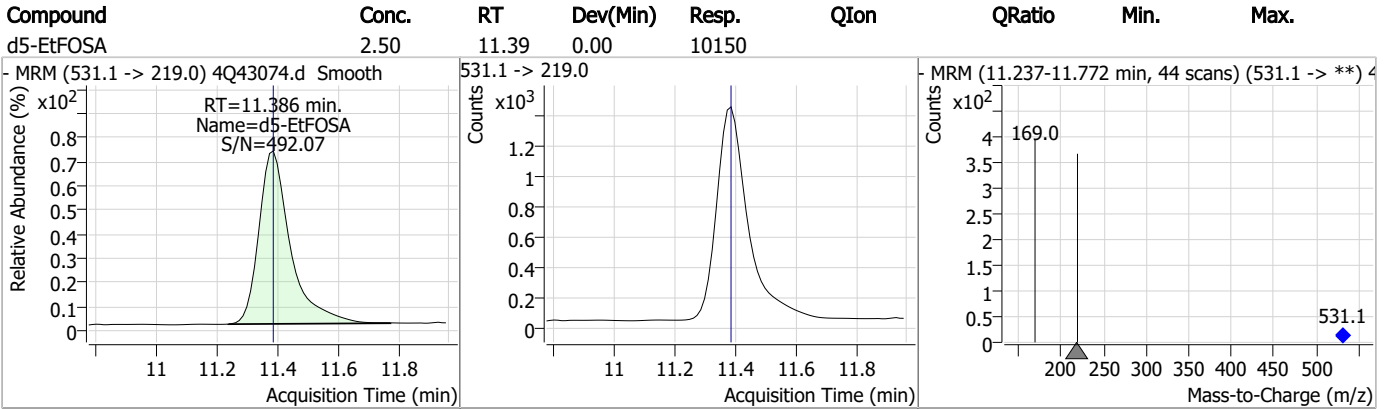
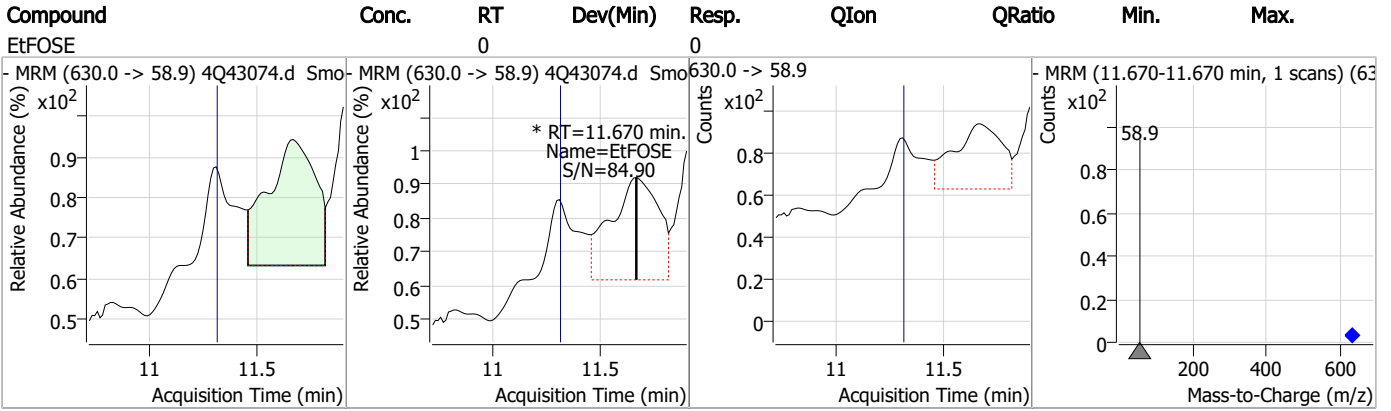
7.2.4
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Perfluorinated Compounds by LC/MS/MS



7.2.4
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Perfluorinated Compounds by LC/MS/MS



7.2.4
7



Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43078.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 9:39:06 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	143666	10.00 µg/L	0.000
M5-PFPeA	4.462	268.3 -> 223.0	82317	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	64582	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	32749	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	40044	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	21961	1.25 µg/L	-0.025
M6-PFDA	8.279	519.1 -> 474.1	20677	1.25 µg/L	-0.024
M7-PFUnDA	8.760	570.0 -> 525.1	21994	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	28169	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	19684	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	17322	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	13754	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	8210	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	12129	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	2009	5.00 µg/L	0.000
M2-6:2FTS	6.986	429.1 -> 80.9	2770	5.00 µg/L	-0.012
M2-8:2FTS	8.066	529.1 -> 80.9	4080	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	19555	5.00 µg/L	-0.012
M3-HFPO-DA	6.002	286.9 -> 168.9	38577	10.00 µg/L	-0.012
M5-EtFOSAA	8.558	589.2 -> 419.0	16439	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	62351	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	75594	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	10256	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	9025	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	12490	2.50 µg/L	-0.024
13C3-PFBA	2.991	216.0 -> 172.0	79902	5.00 µg/L	0.000
18O2-PFHxS	7.328	403.0 -> 83.9	6097	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	48716	2.50 µg/L	-0.010
13C2-PFDA	8.279	515.1 -> 470.1	19006	1.25 µg/L	-0.024
13C5-PFNA	7.772	468.0 -> 423.0	24320	1.25 µg/L	-0.025
13C2-PFHxA	5.648	315.1 -> 270.0	54547	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	2009	6.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.6%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2770	5.80 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.9%		
13C2-8:2FTS	8.066	529.1 -> 80.9	4080	5.19 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-PFDoDA	9.219	615.1 -> 570.0	28169	1.20 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-PFTeDA	10.012	715.2 -> 670.0	19684	1.08 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.5%		
13C3-PFBS	5.552	302.1 -> 79.9	13754	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFHxS	7.329	402.1 -> 79.9	8210	2.43 µg/L	-0.012

7.2.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50 13C4-PFBA	Range: 50.0 - 150.0% 2.999	216.8 -> 171.9	143666	Recovery = 97.3% 10.32 µg/L	0.000
Spiked Amount: 10.00 13C4-PFHpA	Range: 50.0 - 150.0% 6.567	367.1 -> 322.0	32749	Recovery = 103.2% 2.64 µg/L	-0.013
Spiked Amount: 2.50 13C5-PFHxA	Range: 50.0 - 150.0% 5.647	318.0 -> 273.0	64582	Recovery = 105.8% 2.56 µg/L	0.000
Spiked Amount: 2.50 13C5-PFPeA	Range: 50.0 - 150.0% 4.462	268.3 -> 223.0	82317	Recovery = 102.5% 5.12 µg/L	-0.012
Spiked Amount: 5.00 13C6-PFDA	Range: 50.0 - 150.0% 8.279	519.1 -> 474.1	20677	Recovery = 102.4% 1.24 µg/L	-0.024
Spiked Amount: 1.25 13C7-PFUnDA	Range: 50.0 - 150.0% 8.760	570.0 -> 525.1	21994	Recovery = 99.0% 1.21 µg/L	-0.025
Spiked Amount: 1.25 13C8-FOSA	Range: 50.0 - 150.0% 9.858	506.1 -> 77.8	17322	Recovery = 96.9% 2.12 µg/L	-0.012
Spiked Amount: 2.50 13C8-PFOA	Range: 50.0 - 150.0% 7.227	421.1 -> 376.0	40044	Recovery = 84.8% 2.50 µg/L	-0.010
Spiked Amount: 2.50 13C8-PFOS	Range: 50.0 - 150.0% 8.442	507.1 -> 79.9	12129	Recovery = 99.9% 2.50 µg/L	-0.024
Spiked Amount: 2.50 13C9-PFNA	Range: 50.0 - 150.0% 7.771	472.1 -> 427.0	21961	Recovery = 100.2% 1.24 µg/L	-0.025
Spiked Amount: 1.25 d3-MeFOSAA	Range: 50.0 - 150.0% 8.349	573.2 -> 419.0	19555	Recovery = 99.1% 5.32 µg/L	-0.012
Spiked Amount: 5.00 13C3-HFPO-DA	Range: 50.0 - 150.0% 6.002	286.9 -> 168.9	38577	Recovery = 106.3% 10.08 µg/L	-0.012
Spiked Amount: 10.00 d3-MeFOSA	Range: 50.0 - 150.0% 11.103	515.0 -> 219.0	9025	Recovery = 100.8% 2.33 µg/L	0.001
Spiked Amount: 2.50 d5-EtFOSAA	Range: 50.0 - 150.0% 8.558	589.2 -> 419.0	16439	Recovery = 93.4% 5.50 µg/L	-0.012
Spiked Amount: 5.00 d7-MeFOSE	Range: 50.0 - 150.0% 10.986	623.2 -> 58.9	62351	Recovery = 110.0% 19.36 µg/L	0.002
Spiked Amount: 25.00 d9-EtFOSE	Range: 50.0 - 150.0% 11.295	639.2 -> 58.9	75594	Recovery = 77.4% 19.18 µg/L	0.013
Spiked Amount: 25.00 d5-EtFOSA	Range: 50.0 - 150.0% 11.386	531.1 -> 219.0	10256	Recovery = 76.7% 2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	

Target Compounds

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	-	599.0 -> 79.9	-	N.D.	

7.25
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	11.670	630.0 -> 58.9	0		µg/L m	1
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed



7.2.5
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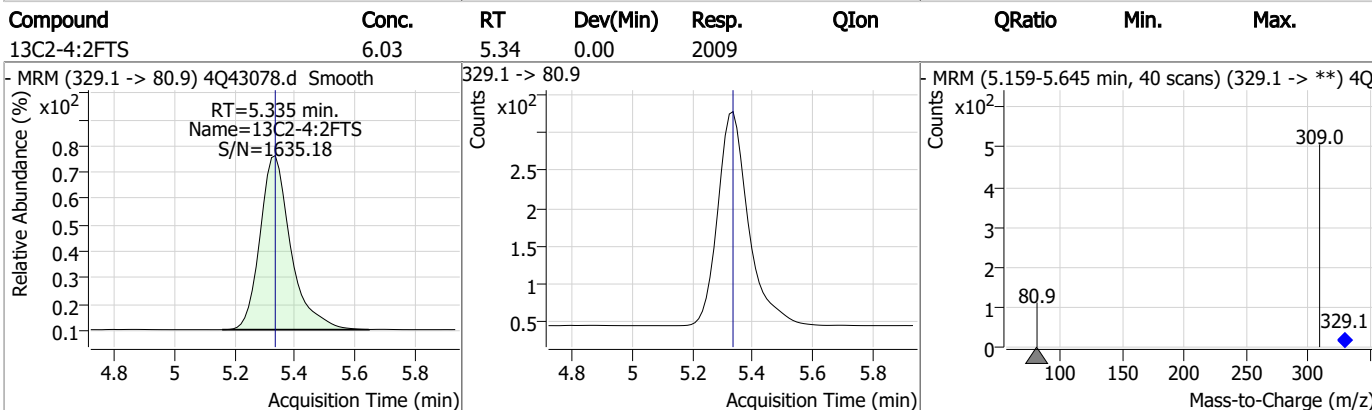
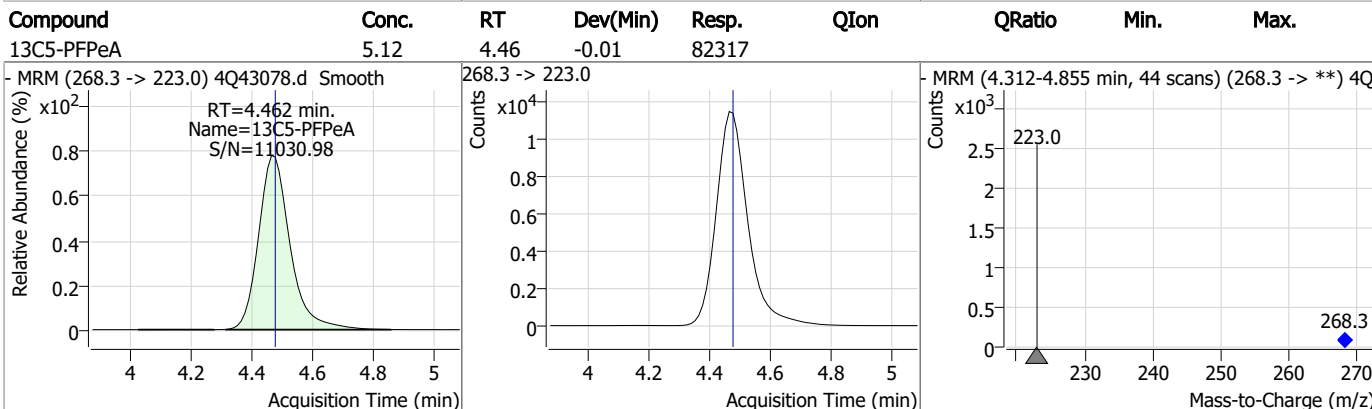
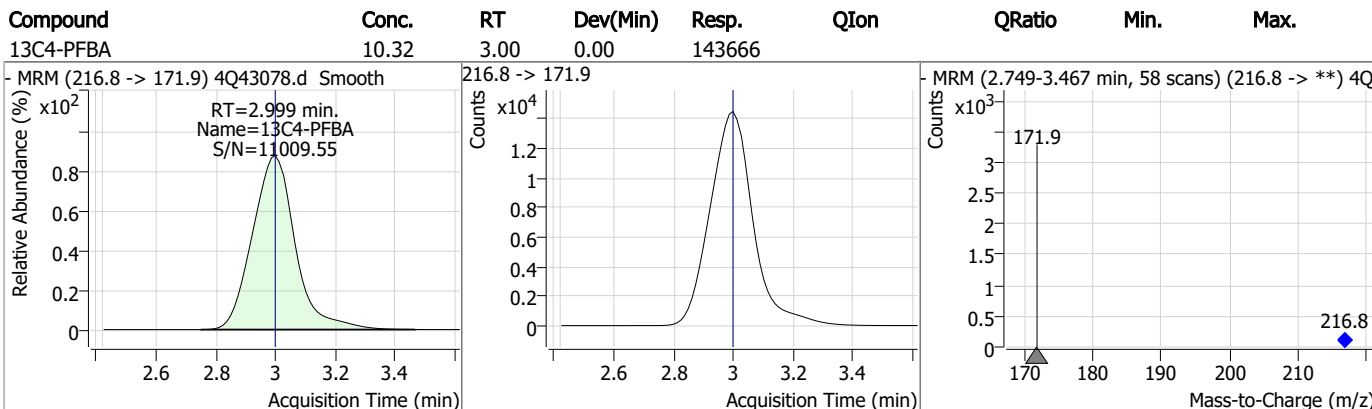
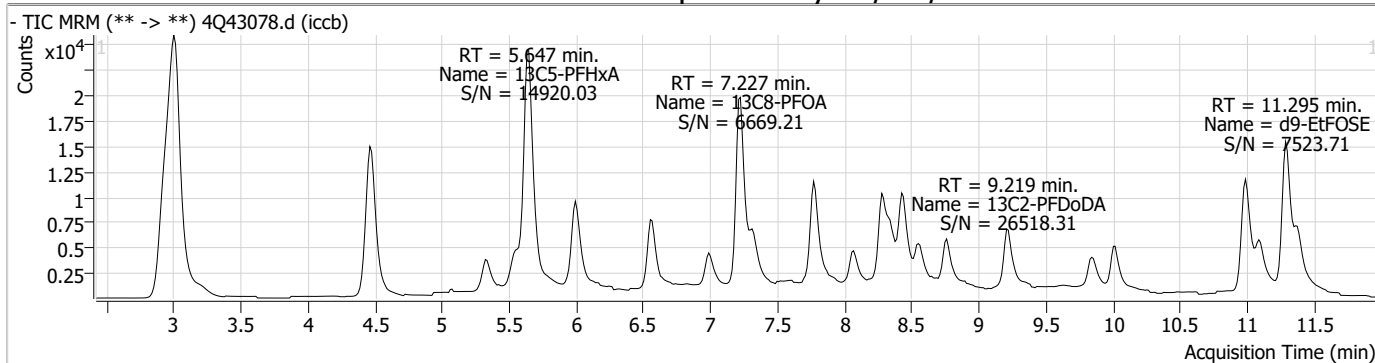
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.2.5

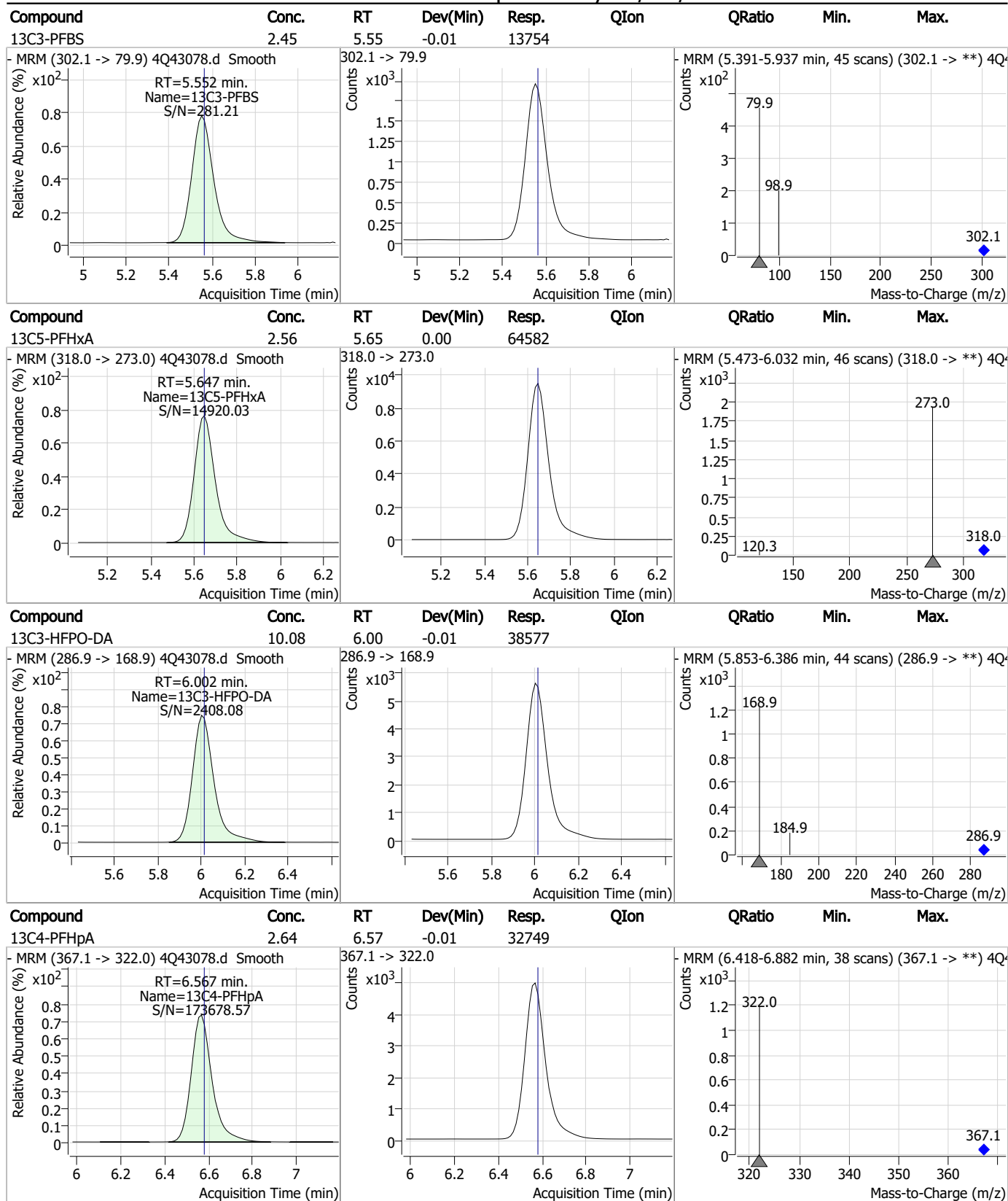
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Perfluorinated Compounds by LC/MS/MS



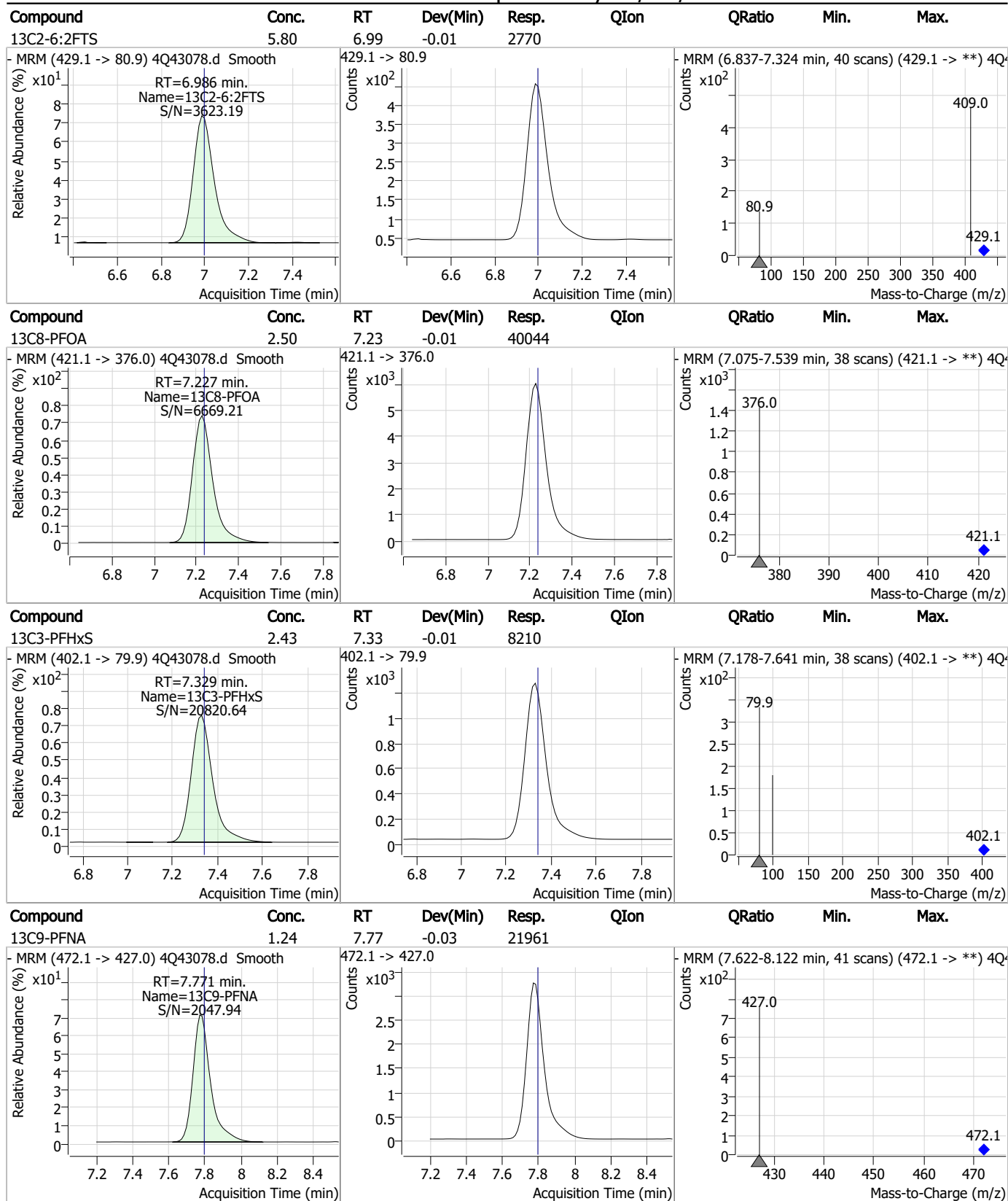
7.2.5
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Perfluorinated Compounds by LC/MS/MS



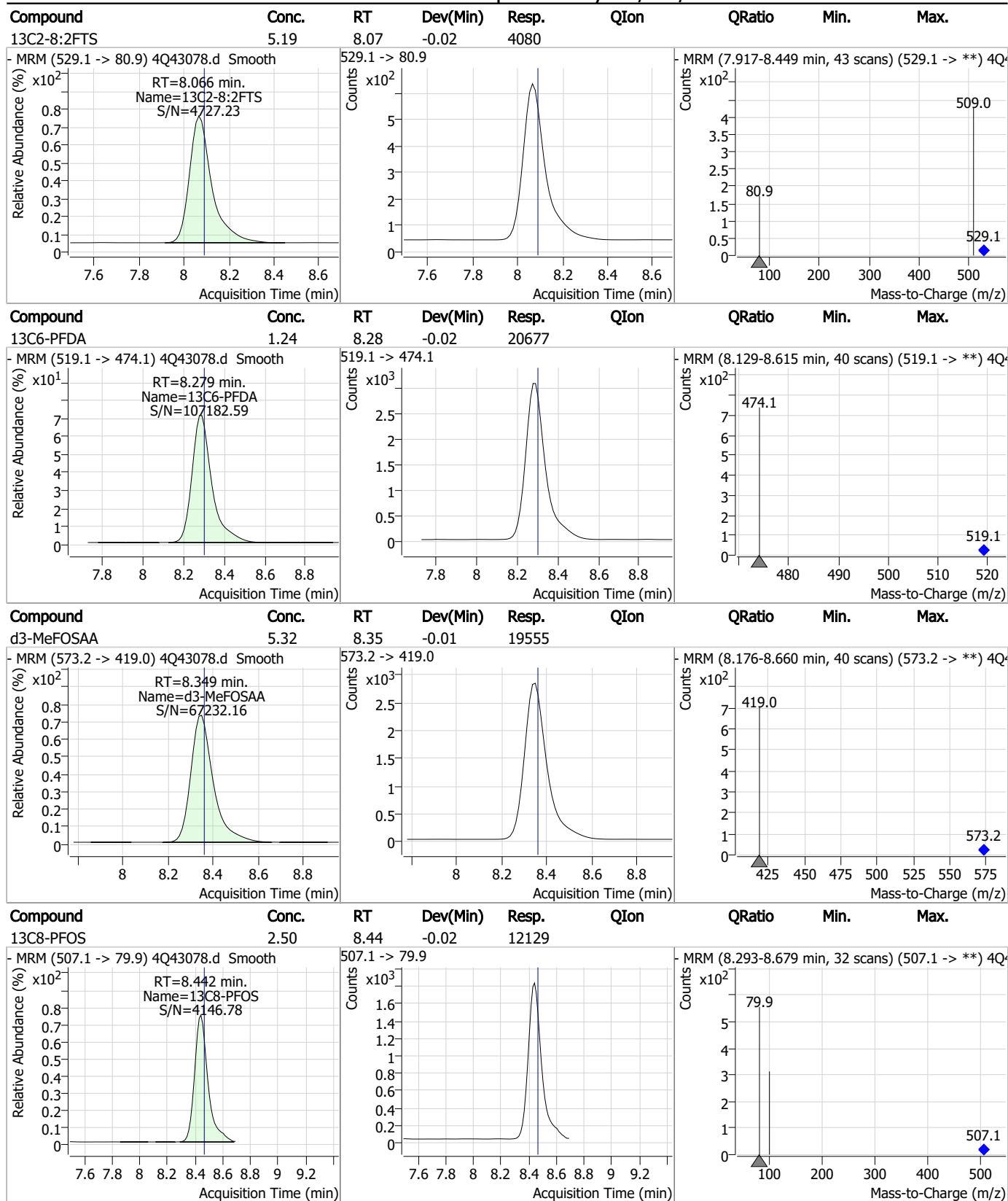
7.25
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Perfluorinated Compounds by LC/MS/MS



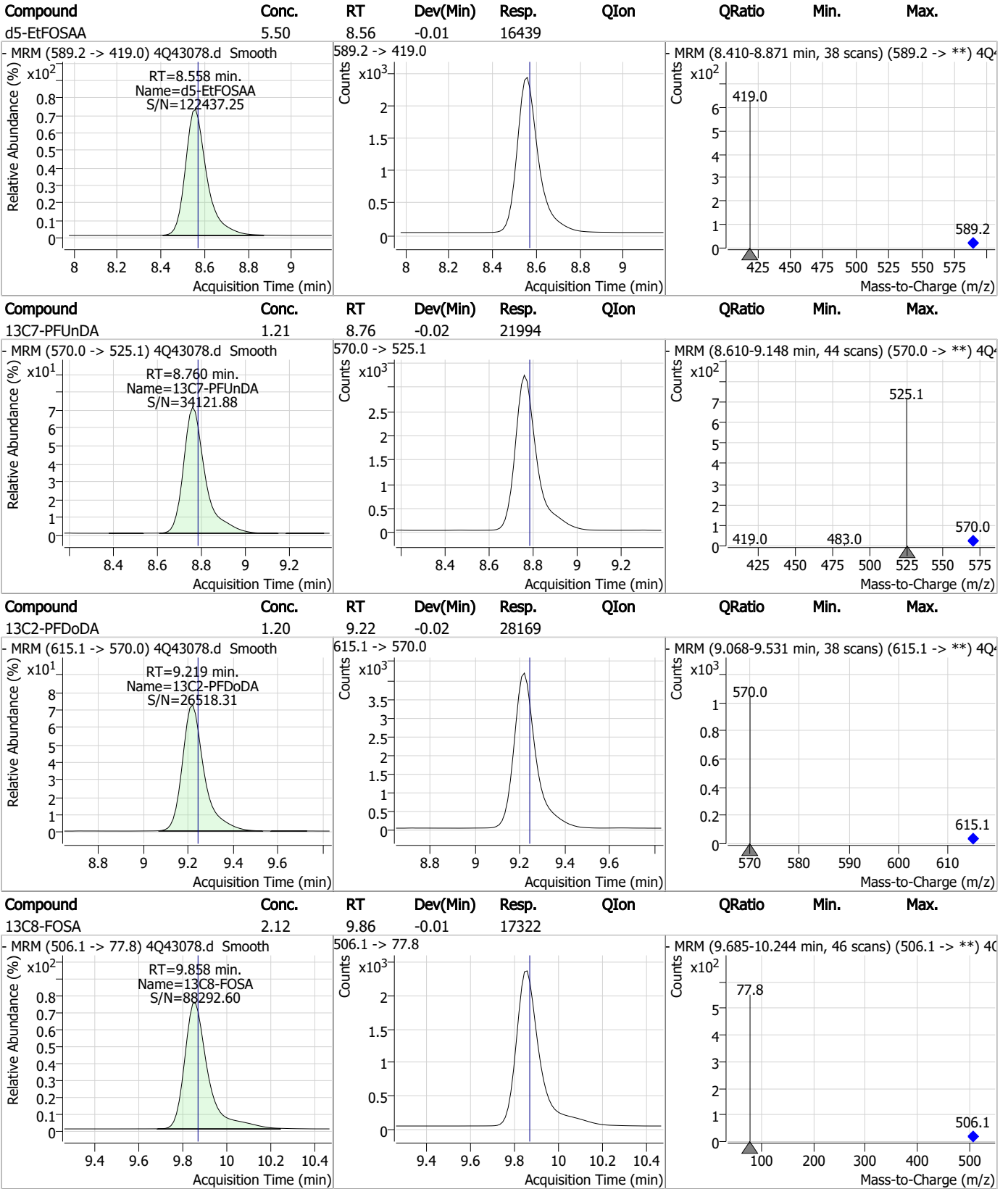
7.25
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Perfluorinated Compounds by LC/MS/MS



7.25
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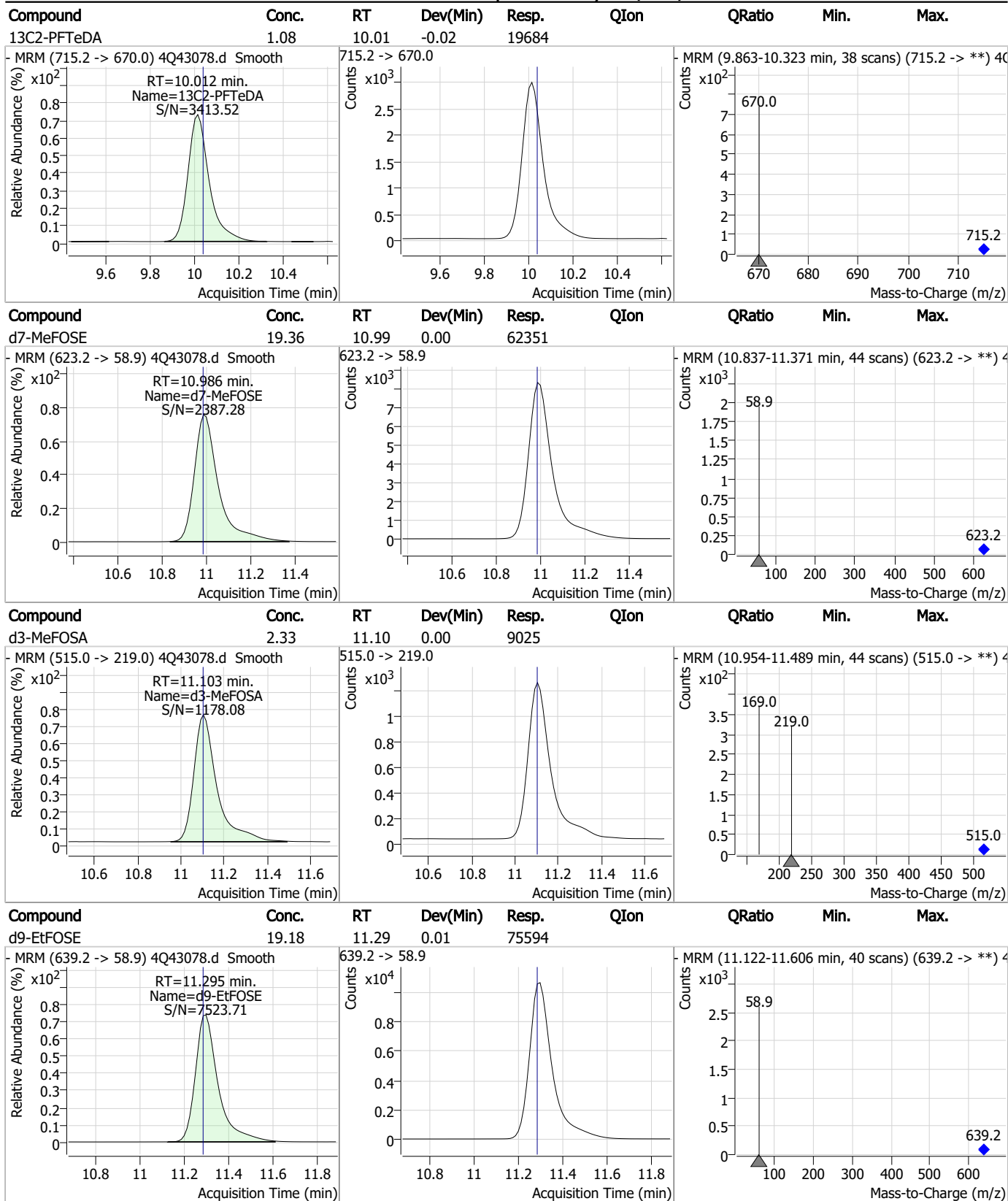
Perfluorinated Compounds by LC/MS/MS



7.25

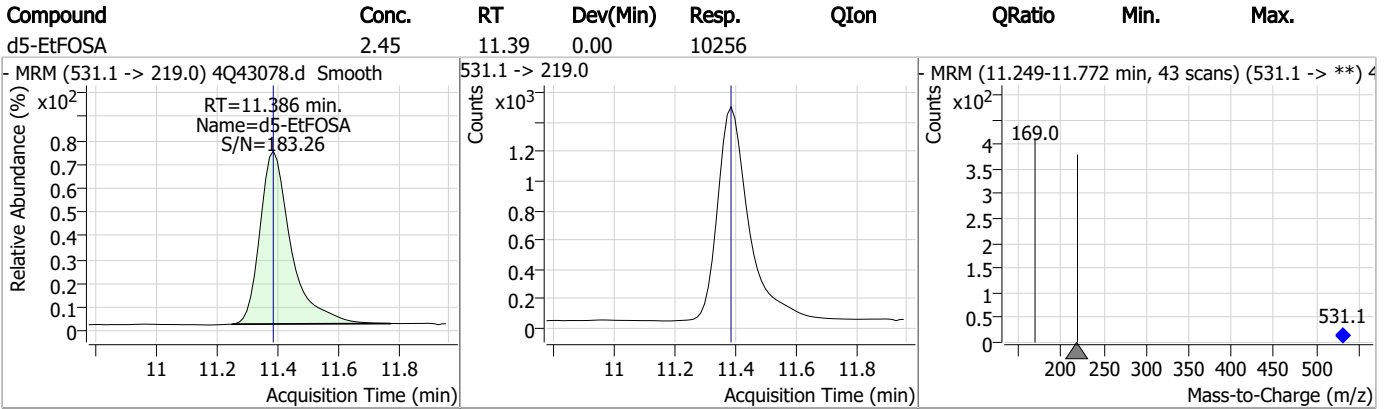
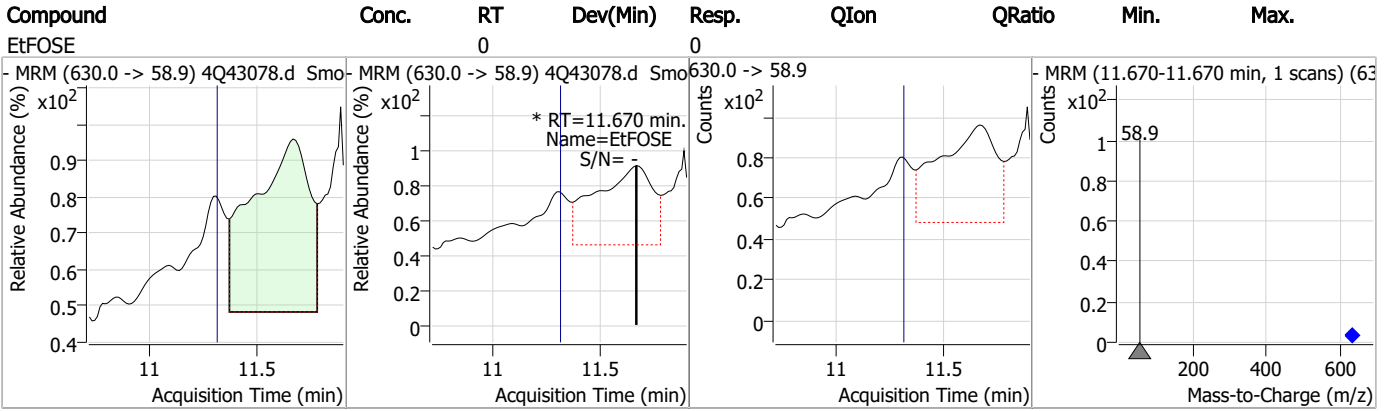
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Perfluorinated Compounds by LC/MS/MS



7.25
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Perfluorinated Compounds by LC/MS/MS



7.2.5

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43148.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 11:12:30 AM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	151096	10.00 µg/L	0.000
M5-PFPeA	4.450	268.3 -> 223.0	87885	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	71433	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	35751	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	44777	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	24454	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	22912	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	24384	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	30497	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	22128	1.25 µg/L	0.012
M8-FOSA	9.846	506.1 -> 77.8	18847	2.50 µg/L	0.012
M3-PFBS	5.539	302.1 -> 79.9	15290	2.50 µg/L	0.012
M3-PFHxS	7.317	402.1 -> 79.9	9715	2.50 µg/L	0.000
M8-PFOS	8.430	507.1 -> 79.9	12696	2.50 µg/L	0.012
M2-4:2FTS	5.309	329.1 -> 80.9	2121	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	2985	5.00 µg/L	0.000
M2-8:2FTS	8.054	529.1 -> 80.9	4883	5.00 µg/L	0.000
M3-MeFOSAA	8.324	573.2 -> 419.0	21520	5.00 µg/L	0.000
M3-HFPO-DA	5.989	286.9 -> 168.9	43779	10.00 µg/L	0.000
M5-EtFOSAA	8.533	589.2 -> 419.0	17533	5.00 µg/L	0.000
M7-MeFOSE	10.974	623.2 -> 58.9	70163	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	86488	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	11572	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	10204	2.50 µg/L	0.000
13C4-PFOS	8.430	502.8 -> 79.9	13612	2.50 µg/L	0.012
13C3-PFBA	2.966	216.0 -> 172.0	84520	5.00 µg/L	0.000
18O2-PFHxS	7.316	403.0 -> 83.9	6384	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	53803	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	20193	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	27529	1.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	60627	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.309	329.1 -> 80.9	2121	6.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2985	5.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.3%		
13C2-8:2FTS	8.054	529.1 -> 80.9	4883	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.6%		
13C2-PFDoDA	9.194	615.1 -> 570.0	30497	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	10.000	715.2 -> 670.0	22128	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C3-PFBS	5.539	302.1 -> 79.9	15290	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFHxS	7.317	402.1 -> 79.9	9715	2.75 µg/L	0.000

7.2.6
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.0%	
13C4-PFBA	2.961	216.8 -> 171.9	151096	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C4-PFHpA	6.555	367.1 -> 322.0	35751	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	71433	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.450	268.3 -> 223.0	87885	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C6-PFDA	8.266	519.1 -> 474.1	22912	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.748	570.0 -> 525.1	24384	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-FOSA	9.846	506.1 -> 77.8	18847	2.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.7%	
13C8-PFOA	7.214	421.1 -> 376.0	44777	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOS	8.430	507.1 -> 79.9	12696	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C9-PFNA	7.759	472.1 -> 427.0	24454	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSAA	8.324	573.2 -> 419.0	21520	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	43779	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
d3-MeFOSA	11.090	515.0 -> 219.0	10204	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.533	589.2 -> 419.0	17533	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
d7-MeFOSE	10.974	623.2 -> 58.9	70163	19.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.9%	
d9-EtFOSE	11.282	639.2 -> 58.9	86488	20.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.5%	
d5-EtFOSA	11.373	531.1 -> 219.0	11572	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	

7.2.6
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	8.235	463.0 -> 419.0	0	µg/L	m	1
		463.0 -> 219.0	0			
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	-	413.0 -> 369.0	-	N.D.		
		413.0 -> 169.0				
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
MeFOSA	-	511.9 -> 219.0	-	N.D.		
		511.9 -> 169.0				
MeFOSE	-	616.1 -> 58.9	-	N.D.		
PFDoDS	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
NFDHA	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.2.6
7

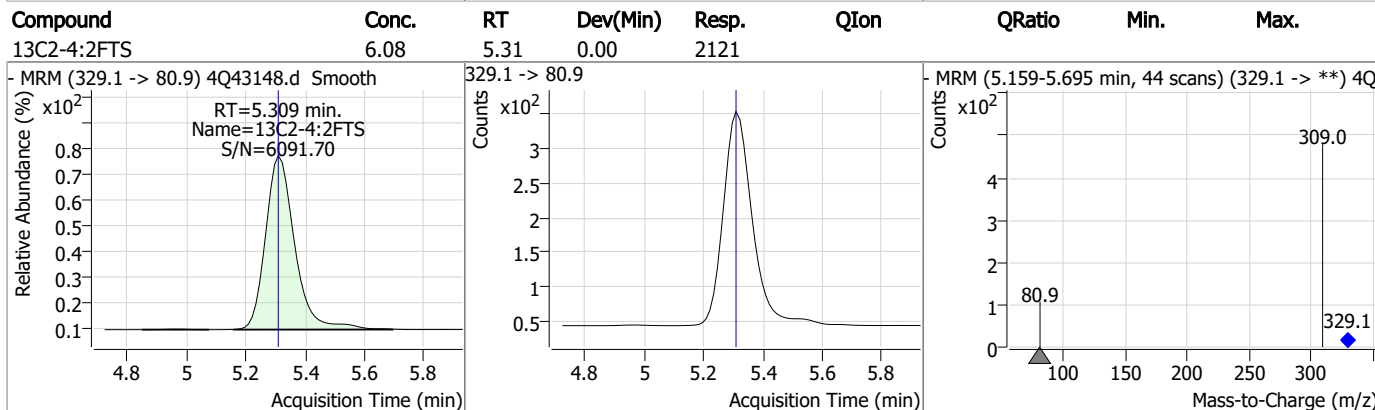
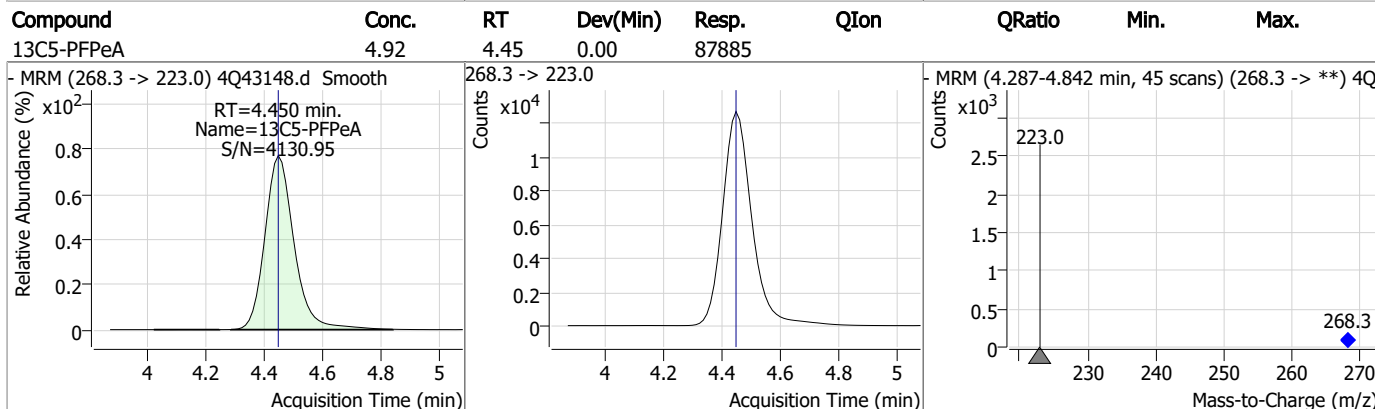
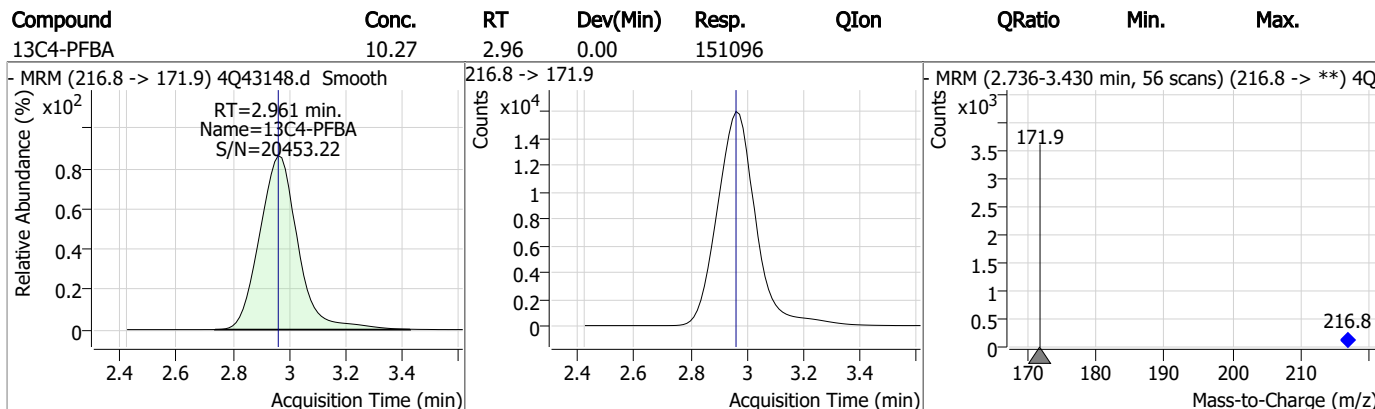
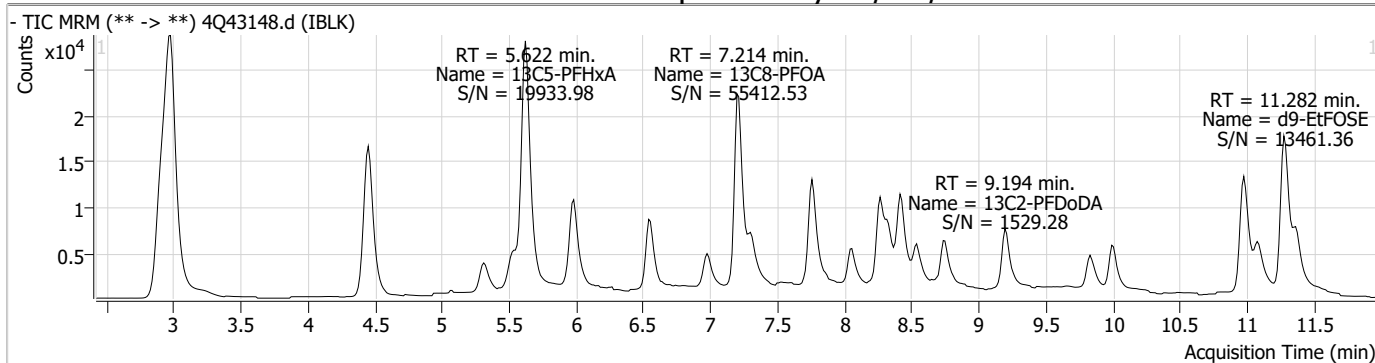
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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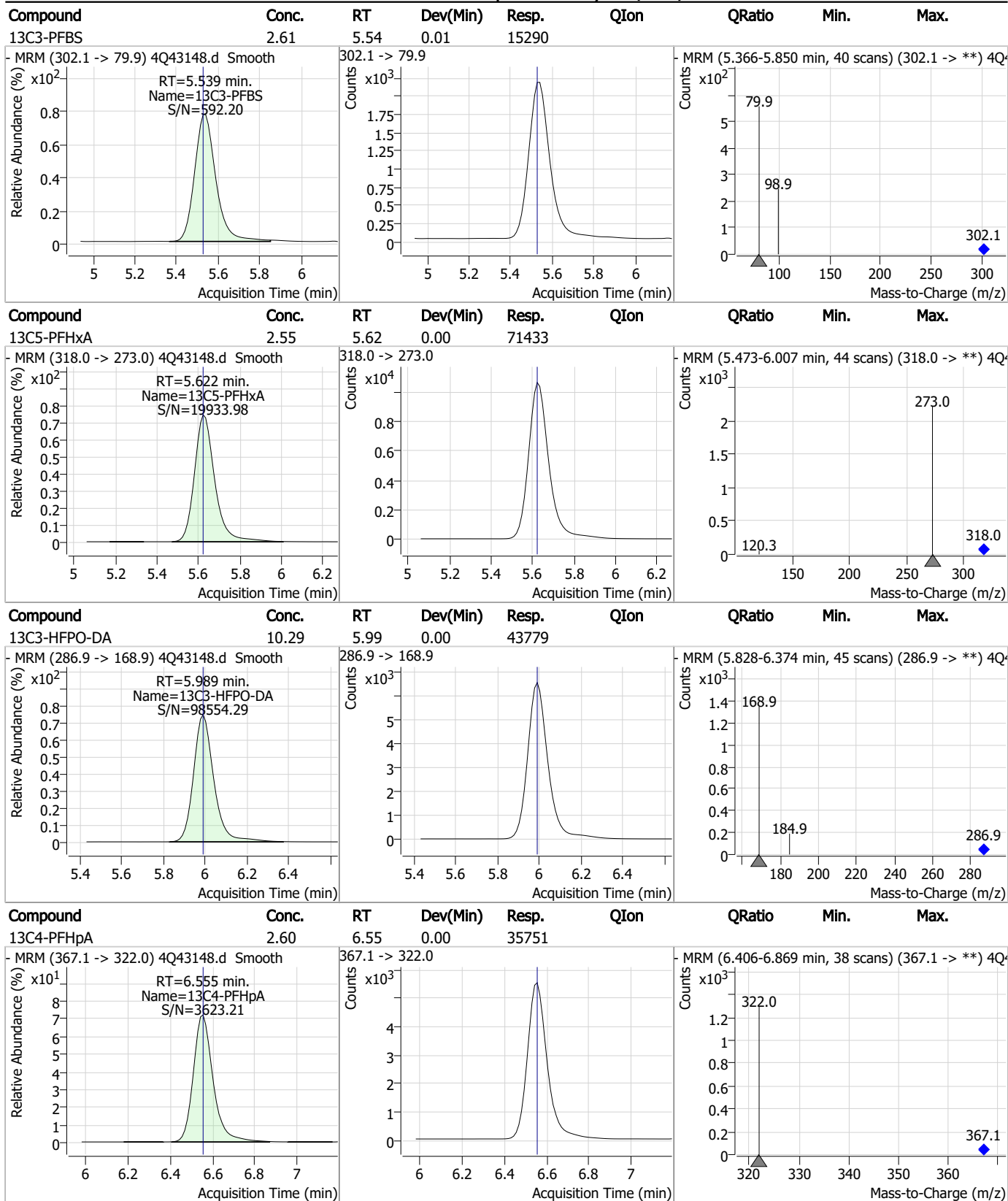
7.2.6

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Perfluorinated Compounds by LC/MS/MS

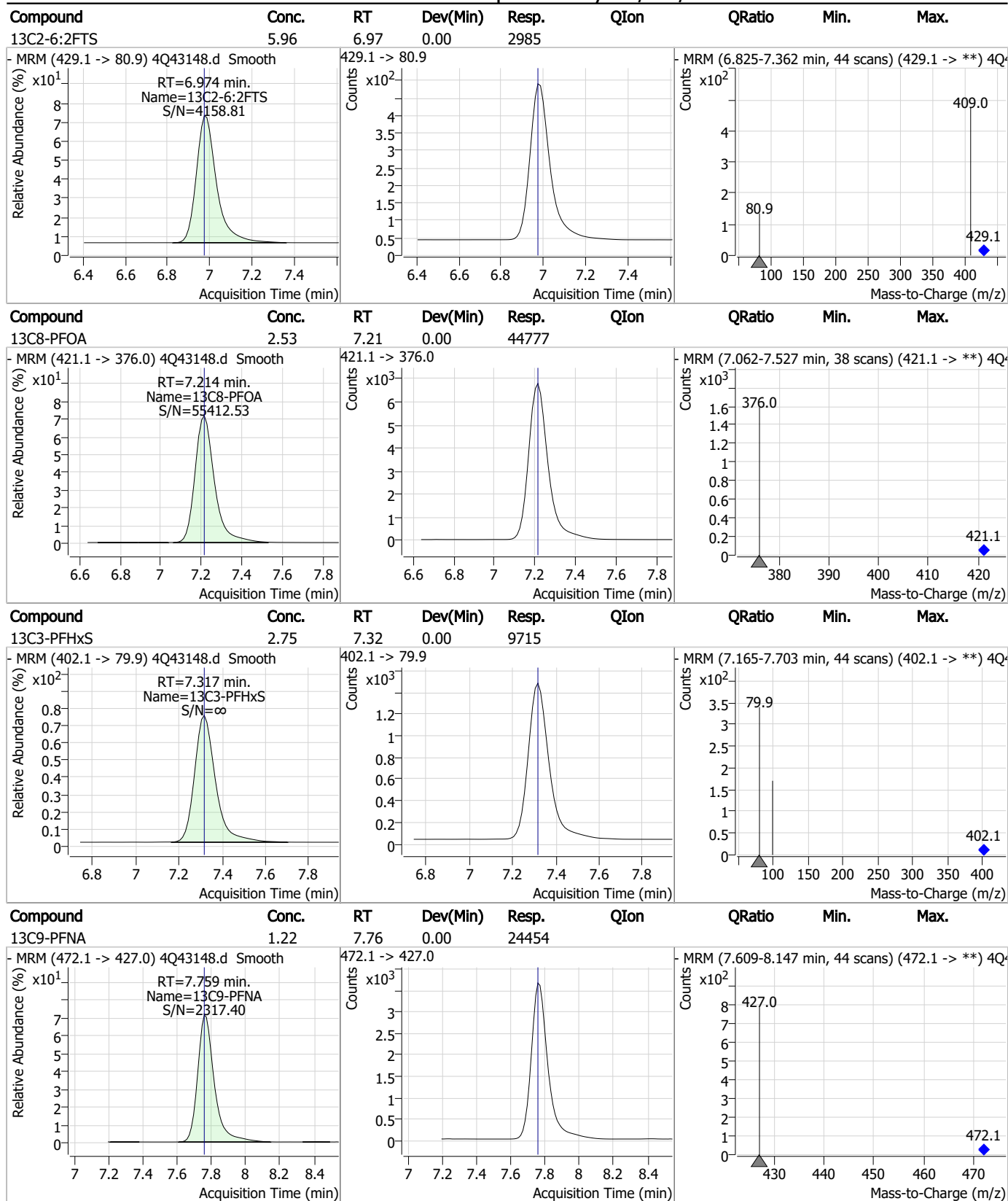


Perfluorinated Compounds by LC/MS/MS



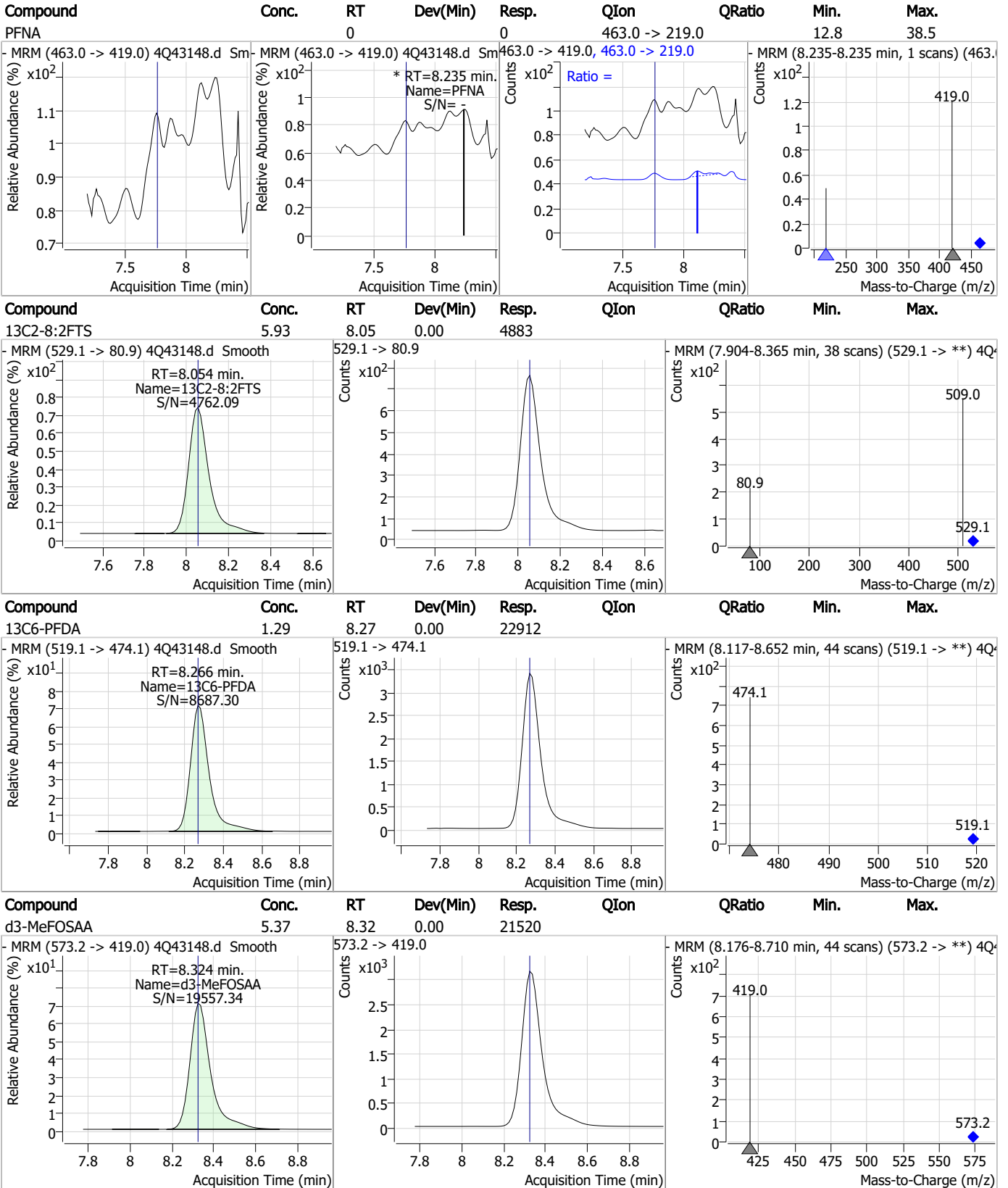
7.2.6
7

Perfluorinated Compounds by LC/MS/MS



7.26
7

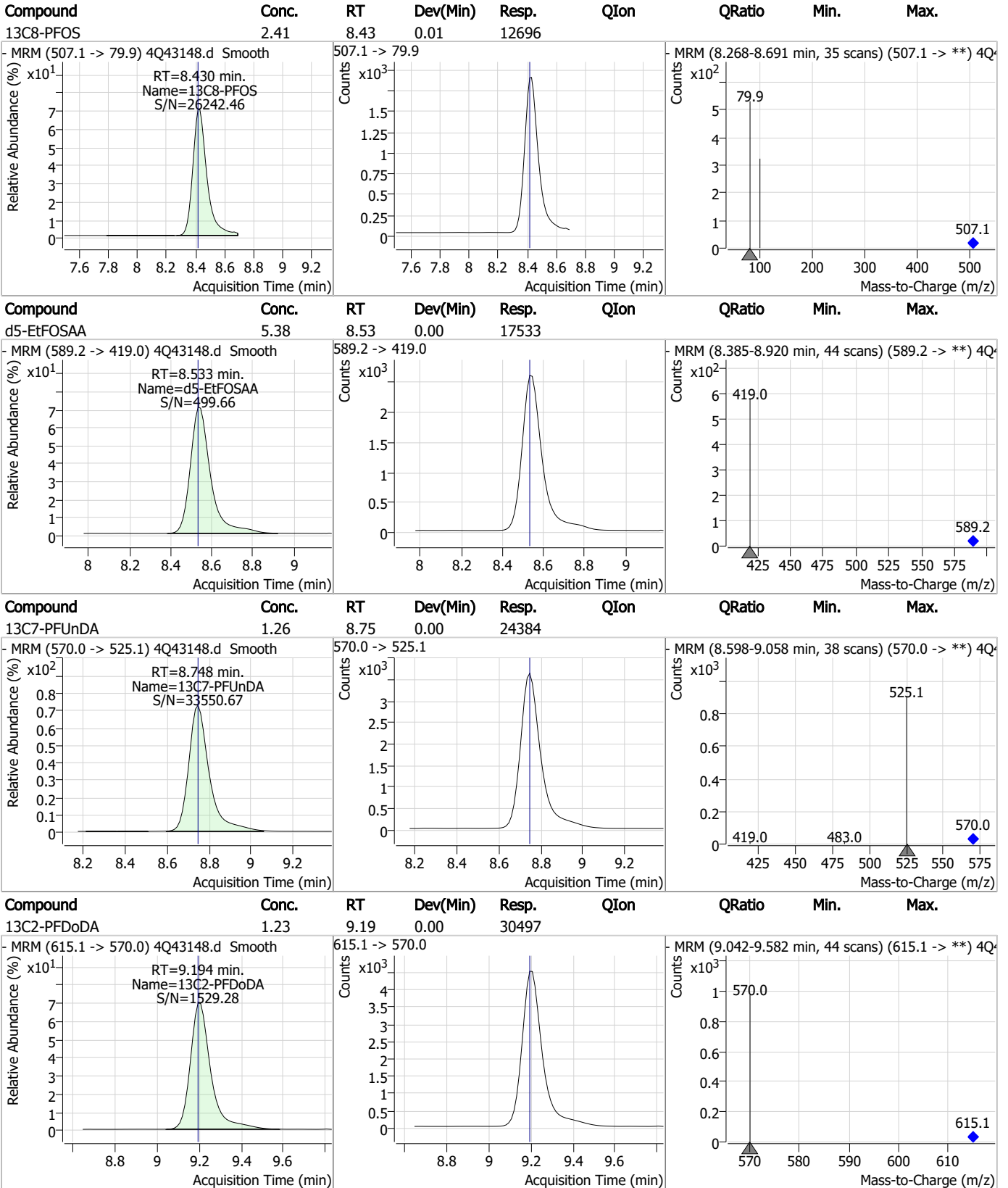
Perfluorinated Compounds by LC/MS/MS



7.2.6

7

Perfluorinated Compounds by LC/MS/MS

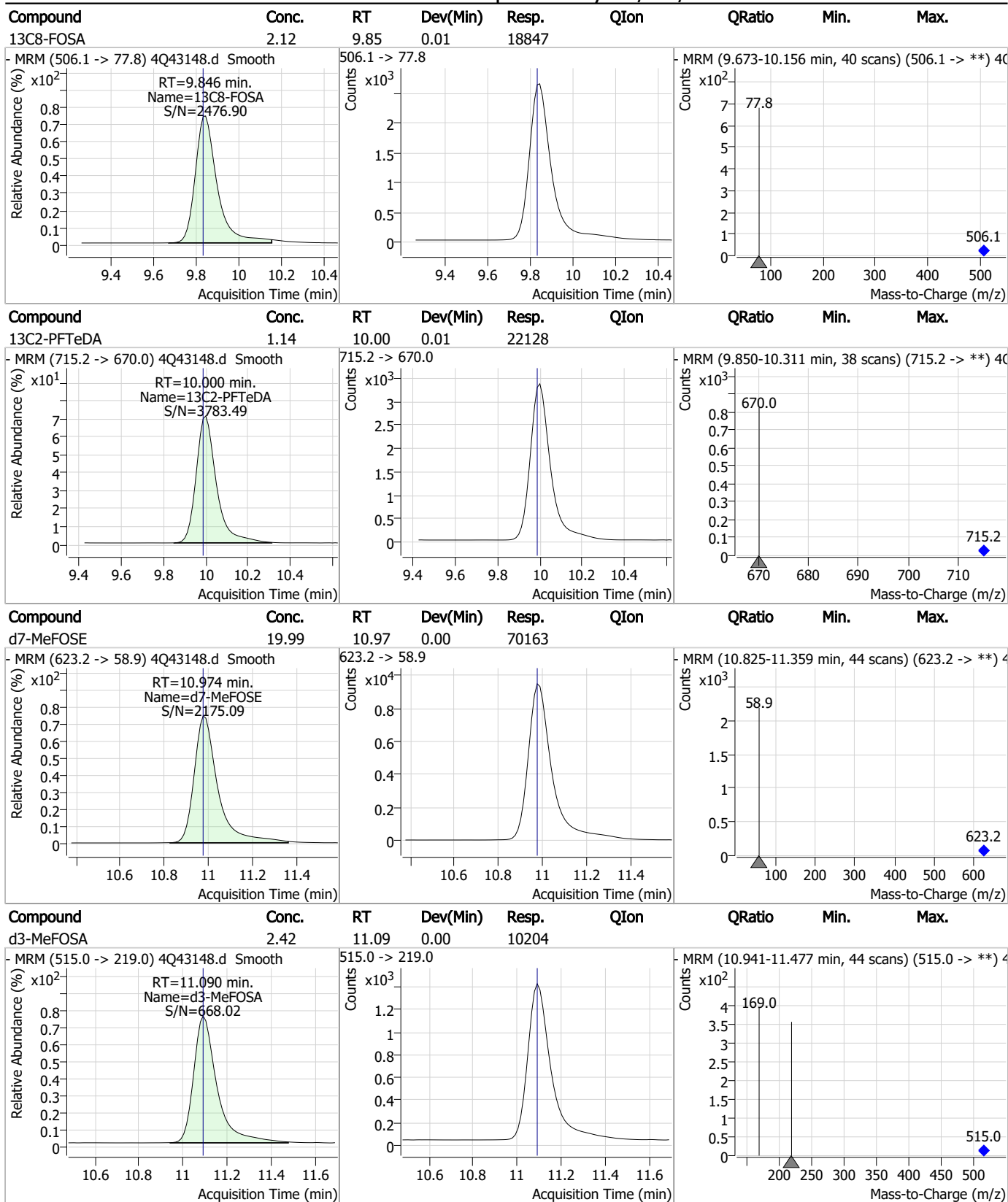


7.2.6

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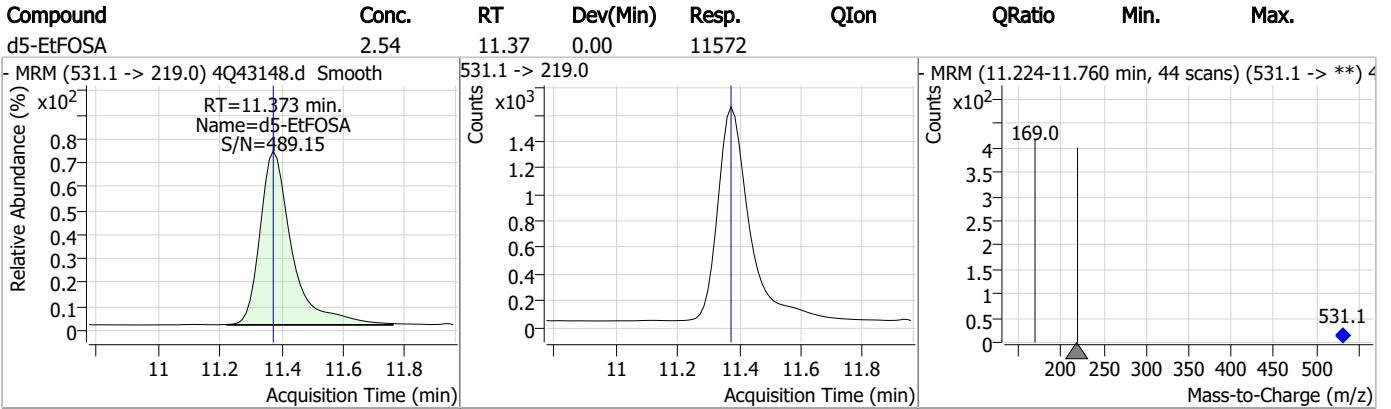
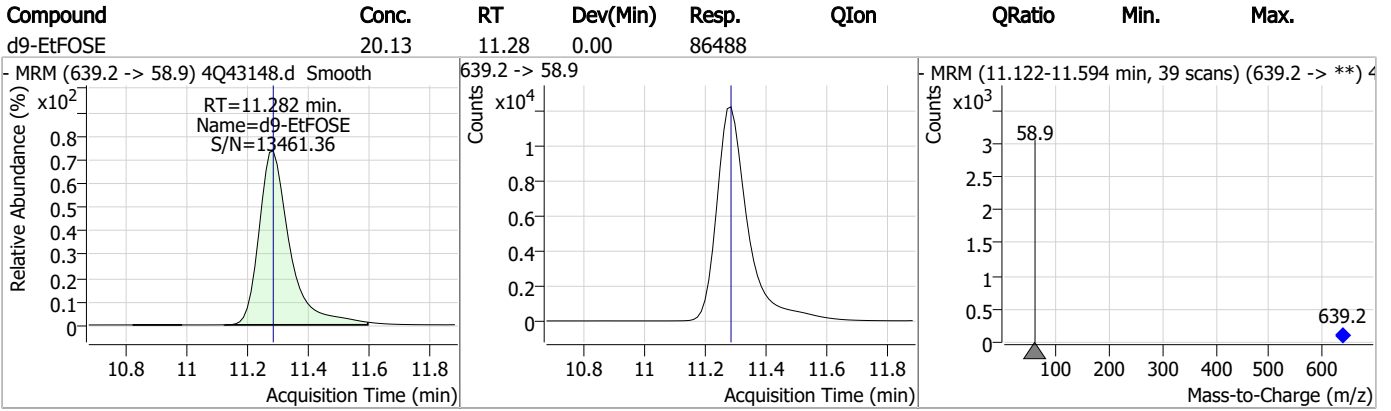


Perfluorinated Compounds by LC/MS/MS



7.26
7

Perfluorinated Compounds by LC/MS/MS



7.2.6

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43162.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 2:43:14 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96296,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	154529	10.00 µg/L	0.000
M5-PFPeA	4.449	268.3 -> 223.0	90009	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	69485	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	35825	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	43337	2.50 µg/L	0.000
M9-PFNA	7.758	472.1 -> 427.0	25294	1.25 µg/L	-0.001
M6-PFDA	8.265	519.1 -> 474.1	22662	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	24360	1.25 µg/L	-0.001
M2-PFDoDA	9.193	615.1 -> 570.0	30570	1.25 µg/L	-0.001
M2-PFTeDA	9.986	715.2 -> 670.0	21431	1.25 µg/L	-0.001
M8-FOSA	9.832	506.1 -> 77.8	18842	2.50 µg/L	-0.002
M3-PFBS	5.527	302.1 -> 79.9	15176	2.50 µg/L	0.000
M3-PFHxS	7.304	402.1 -> 79.9	9149	2.50 µg/L	-0.013
M8-PFOS	8.417	507.1 -> 79.9	12933	2.50 µg/L	0.000
M2-4:2FTS	5.310	329.1 -> 80.9	2157	5.00 µg/L	0.001
M2-6:2FTS	6.973	429.1 -> 80.9	2920	5.00 µg/L	-0.001
M2-8:2FTS	8.052	529.1 -> 80.9	4849	5.00 µg/L	-0.001
M3-MeFOSAA	8.323	573.2 -> 419.0	21758	5.00 µg/L	-0.001
M3-HFPO-DA	5.989	286.9 -> 168.9	42685	10.00 µg/L	0.000
M5-EtFOSAA	8.532	589.2 -> 419.0	17636	5.00 µg/L	-0.001
M7-MeFOSE	10.972	623.2 -> 58.9	67217	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	80944	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	10868	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	10221	2.50 µg/L	-0.002
13C4-PFOS	8.418	502.8 -> 79.9	13327	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	85940	5.00 µg/L	0.000
18O2-PFHxS	7.315	403.0 -> 83.9	6417	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	52922	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	20294	1.25 µg/L	-0.001
13C5-PFNA	7.759	468.0 -> 423.0	27538	1.25 µg/L	-0.001
13C2-PFHxA	5.623	315.1 -> 270.0	59268	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.310	329.1 -> 80.9	2157	6.16 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.1%		
13C2-6:2FTS	6.973	429.1 -> 80.9	2920	5.80 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C2-8:2FTS	8.052	529.1 -> 80.9	4849	5.86 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.2%		
13C2-PFDoDA	9.193	615.1 -> 570.0	30570	1.22 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-PFTeDA	9.986	715.2 -> 670.0	21431	1.10 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C3-PFBS	5.527	302.1 -> 79.9	15176	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.304	402.1 -> 79.9	9149	2.58 µg/L	-0.013

7.27
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C4-PFBA	2.961	216.8 -> 171.9	154529	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C4-PFHpA	6.555	367.1 -> 322.0	35825	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFHxA	5.622	318.0 -> 273.0	69485	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C5-PFPeA	4.449	268.3 -> 223.0	90009	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.265	519.1 -> 474.1	22662	1.27 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C7-PFUnDA	8.747	570.0 -> 525.1	24360	1.26 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-FOSA	9.832	506.1 -> 77.8	18842	2.16 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C8-PFOA	7.213	421.1 -> 376.0	43337	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-PFOS	8.417	507.1 -> 79.9	12933	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	7.758	472.1 -> 427.0	25294	1.26 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSAA	8.323	573.2 -> 419.0	21758	5.54 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	42685	10.26 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	10221	2.48 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.532	589.2 -> 419.0	17636	5.53 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	67217	19.56 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.2%	
d9-EtFOSE	11.281	639.2 -> 58.9	80944	19.25 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.0%	
d5-EtFOSA	11.373	531.1 -> 219.0	10868	2.44 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.27
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	-	313.0 -> 269.0	-	N.D.	
		313.0 -> 118.9			
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
MeFOSA	-	511.9 -> 219.0	-	N.D.	
		511.9 -> 169.0			
MeFOSE	-	616.1 -> 58.9	-	N.D.	
PFDoDS	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
NFDHA	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
PFMBA	-	279.0 -> 85.1	-	N.D.	
PFMPA	-	229.0 -> 84.9	-	N.D.	
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

= Qualifier out of range, m = manually integrated, + = Area summed

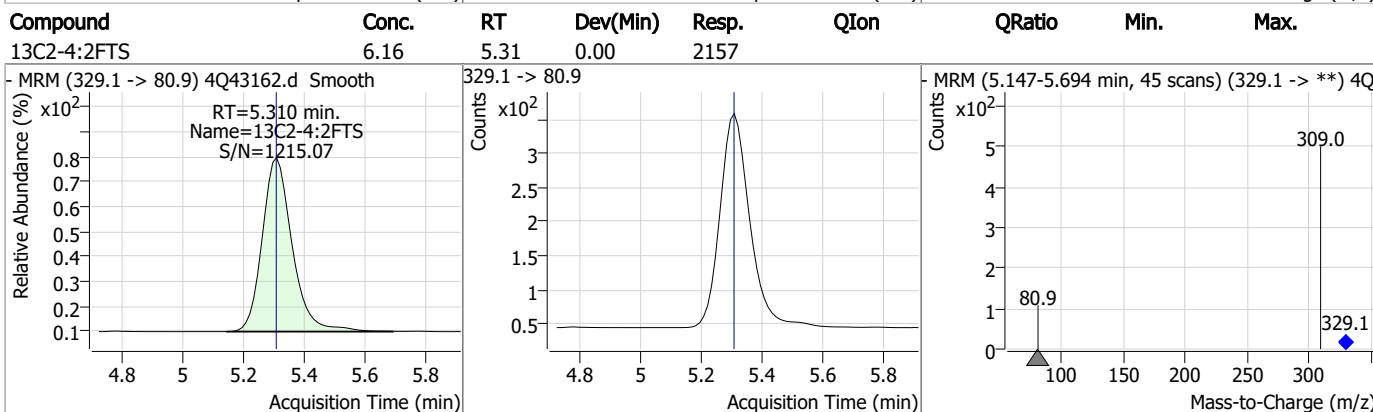
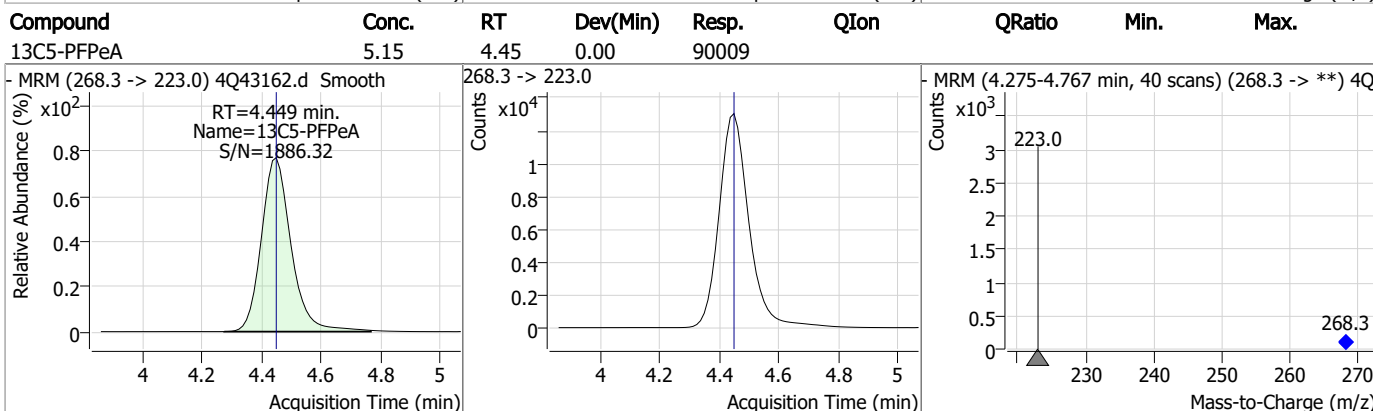
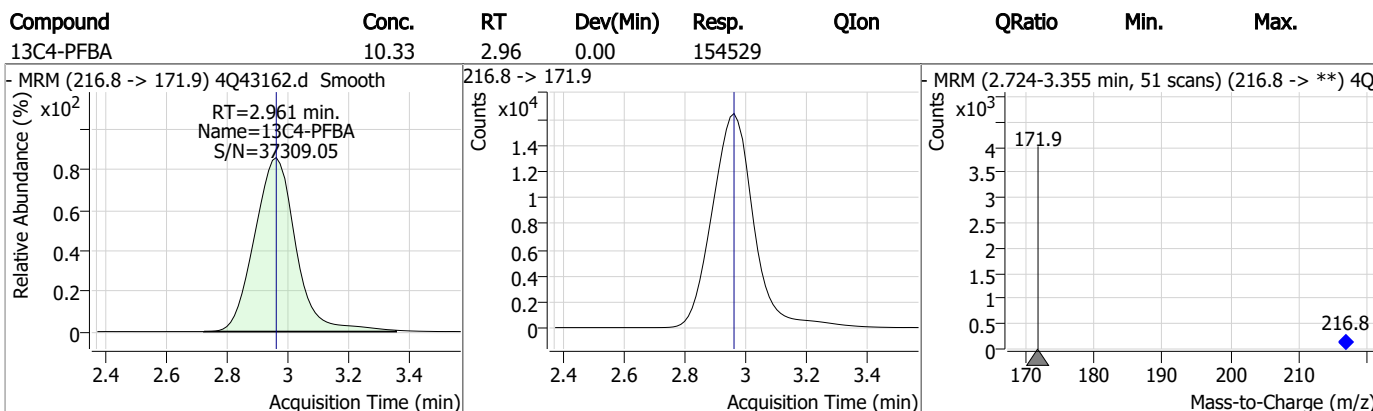
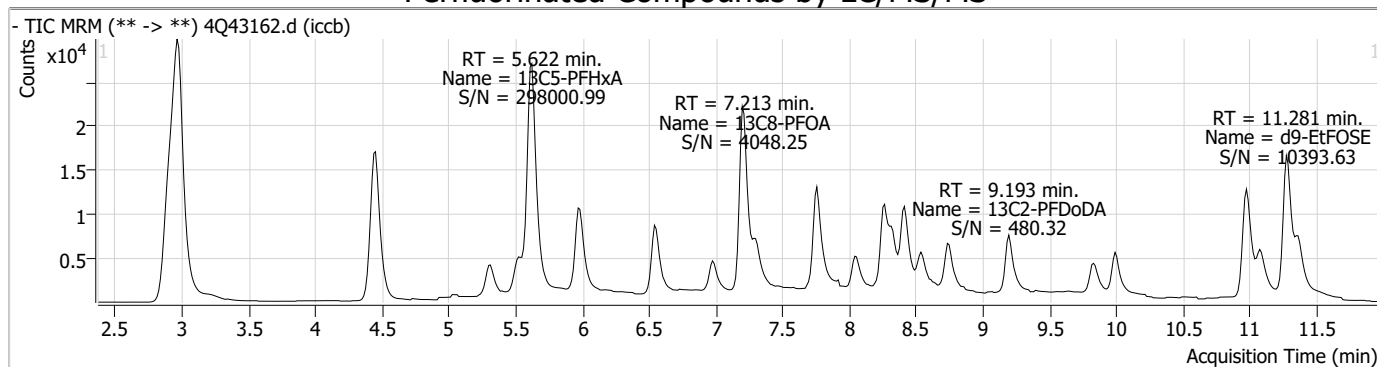
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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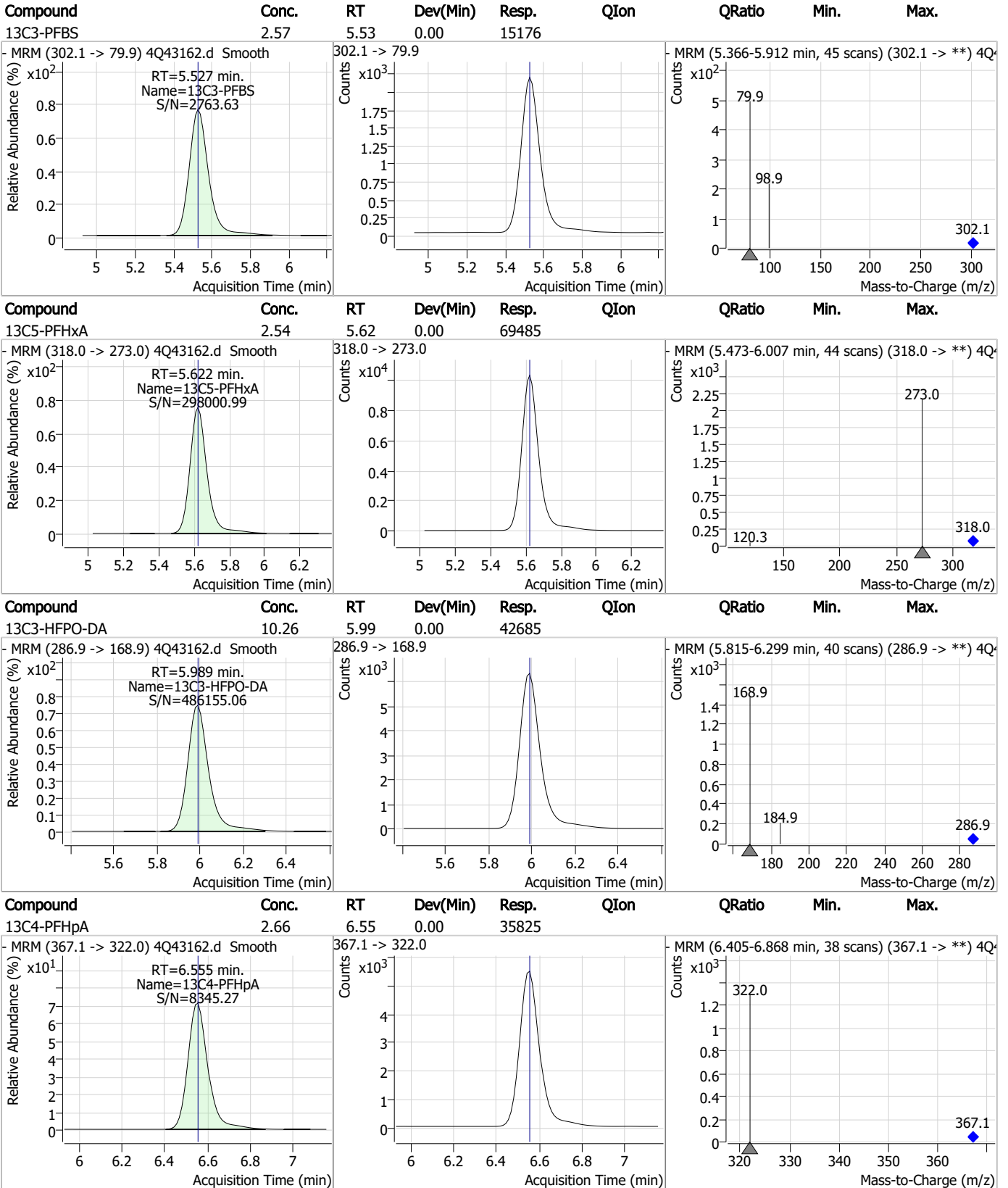
7.2.7

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

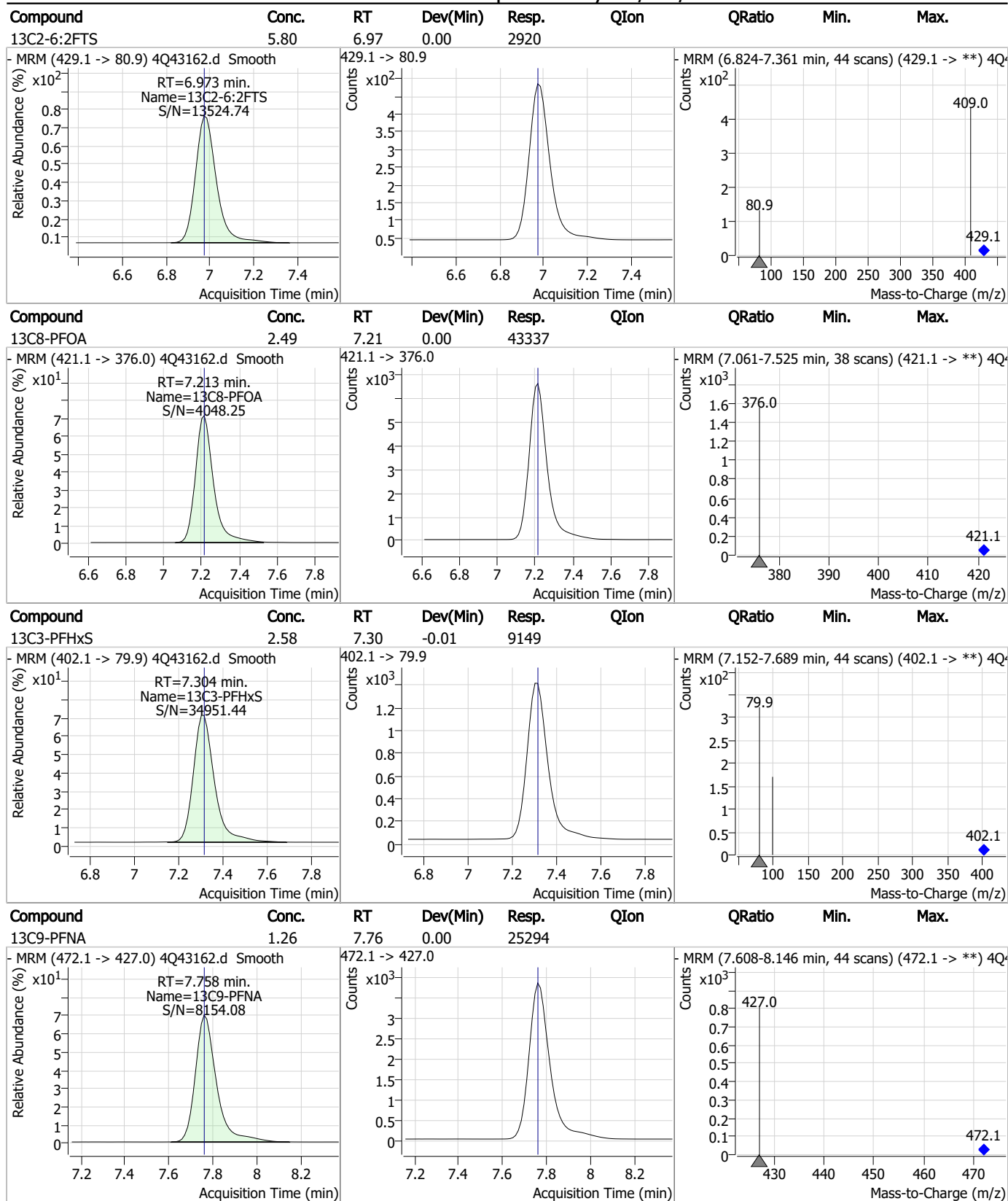


7.2.7

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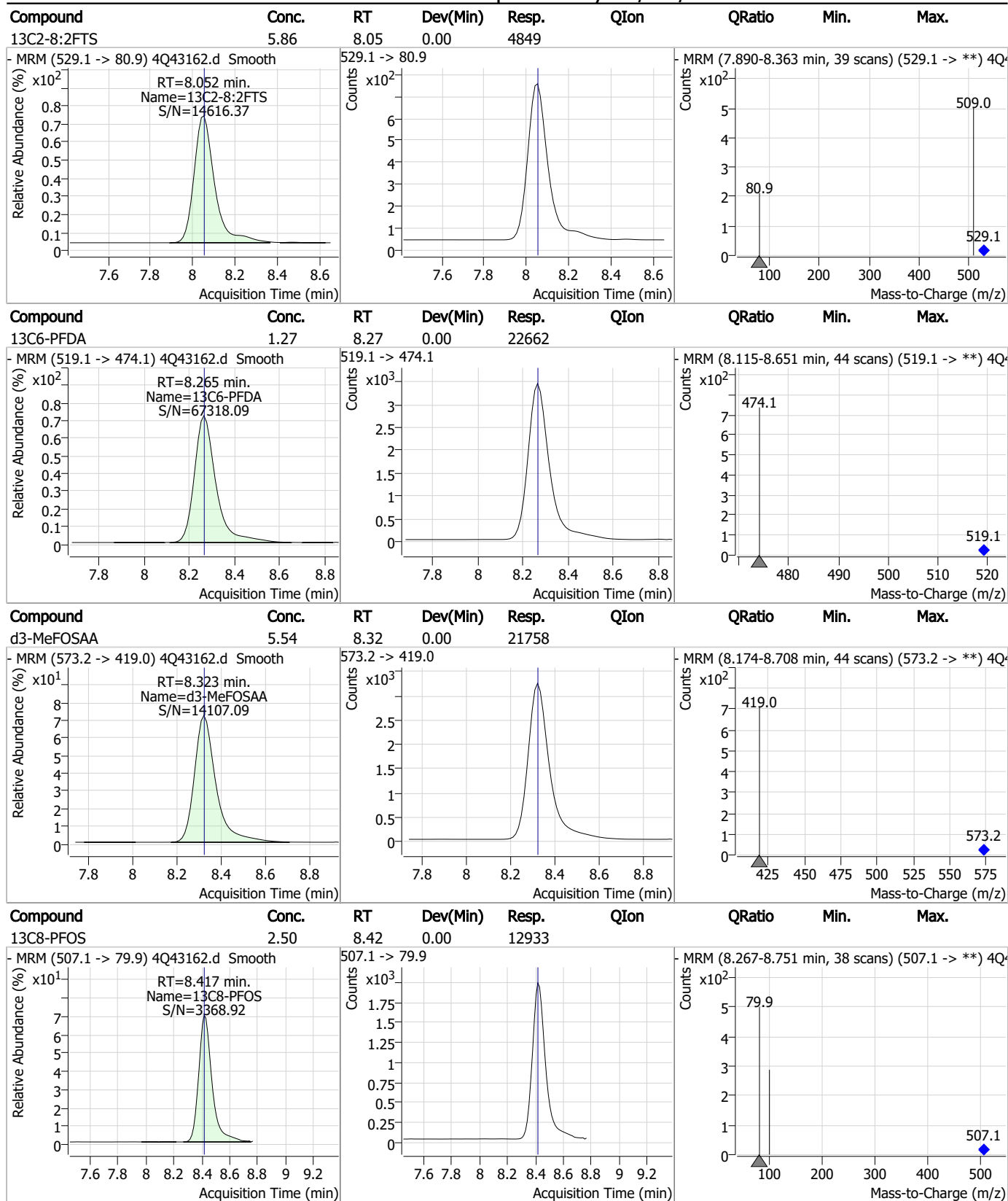


Perfluorinated Compounds by LC/MS/MS



7.27
7

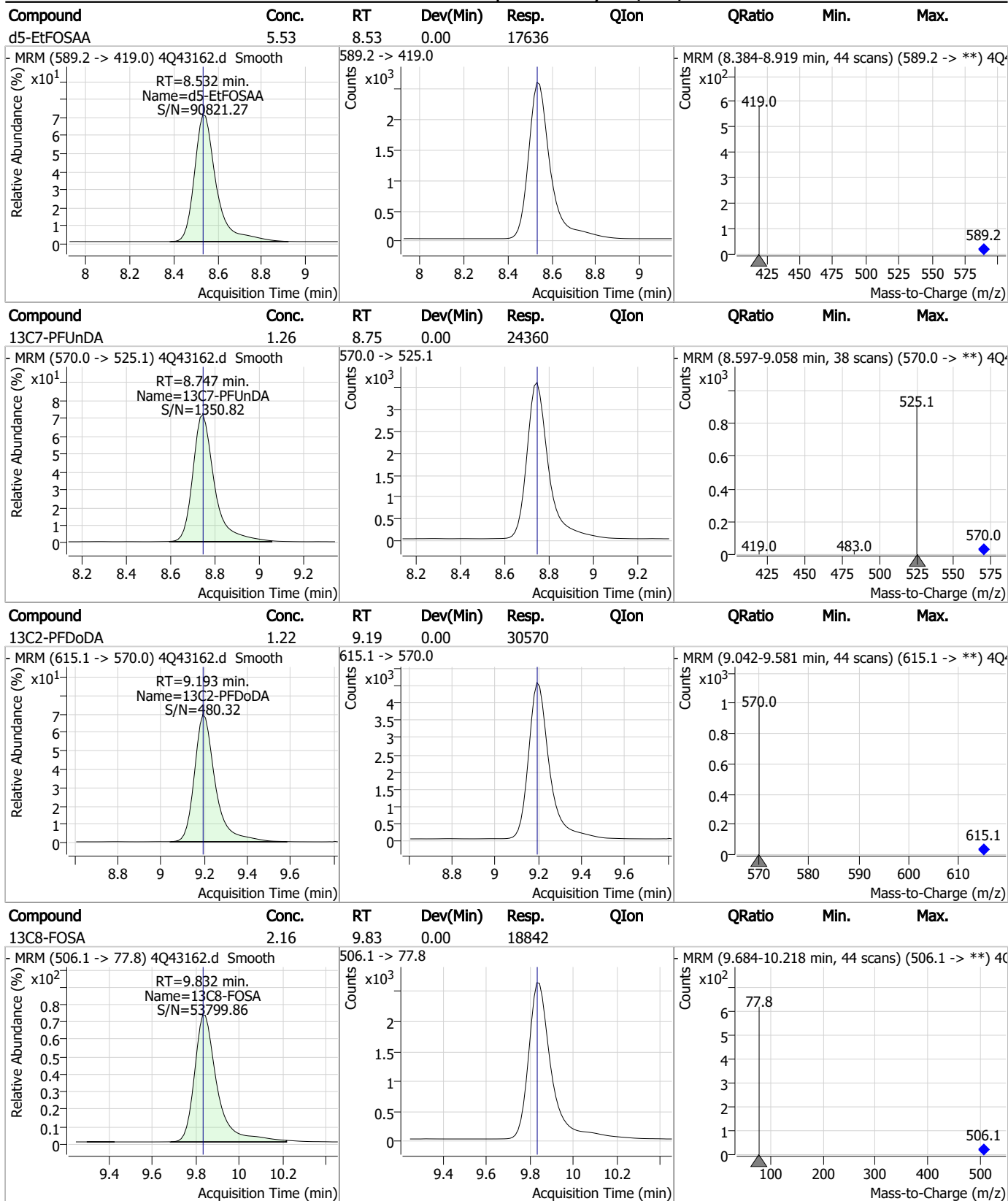
Perfluorinated Compounds by LC/MS/MS



7.27
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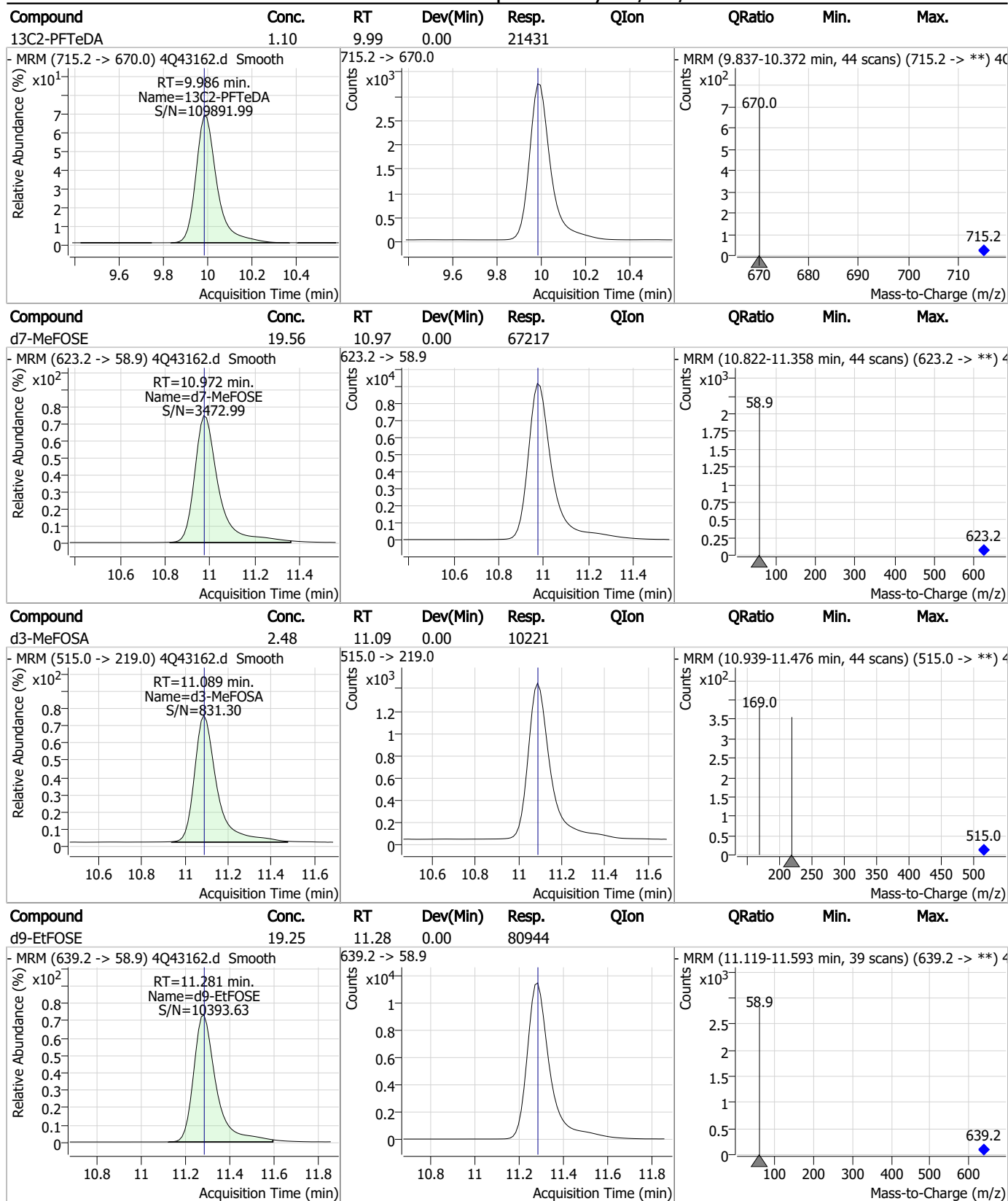


Perfluorinated Compounds by LC/MS/MS



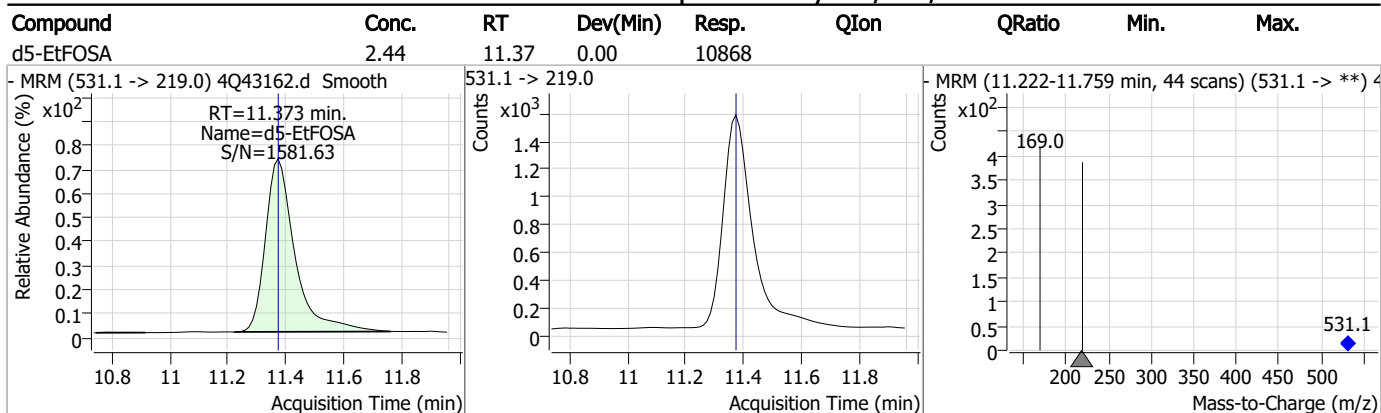
7.27
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Perfluorinated Compounds by LC/MS/MS



7.2.7
7

Perfluorinated Compounds by LC/MS/MS



7.2.7
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43065.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 6:36:30 PM
 Sample Name : op96368-bs
 Vial : P4-C6
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96368,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	113270	10.00 µg/L	0.000
M5-PFPeA	4.475	268.3 -> 223.0	64221	5.00 µg/L	0.000
M5-PFHxA	5.647	318.0 -> 273.0	50265	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	24511	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	31991	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	16448	1.25 µg/L	-0.025
M6-PFDA	8.291	519.1 -> 474.1	15792	1.25 µg/L	-0.012
M7-PFUnDA	8.772	570.0 -> 525.1	16451	1.25 µg/L	-0.012
M2-PFDoDA	9.219	615.1 -> 570.0	18945	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	12481	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	12227	2.50 µg/L	-0.012
M3-PFBS	5.564	302.1 -> 79.9	11117	2.50 µg/L	0.000
M3-PFHxS	7.329	402.1 -> 79.9	6615	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	9242	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1392	5.00 µg/L	0.000
M2-6:2FTS	6.986	429.1 -> 80.9	2136	5.00 µg/L	-0.012
M2-8:2FTS	8.066	529.1 -> 80.9	3428	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	13408	5.00 µg/L	-0.012
M3-HFPO-DA	6.002	286.9 -> 168.9	29750	10.00 µg/L	-0.012
M5-EtFOSAA	8.558	589.2 -> 419.0	11106	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	43650	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	52294	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	6368	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	5759	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	9145	2.50 µg/L	-0.024
13C3-PFBA	3.003	216.0 -> 172.0	54075	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	3983	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	32654	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	12833	1.25 µg/L	-0.012
13C5-PFNA	7.772	468.0 -> 423.0	16799	1.25 µg/L	-0.025
13C2-PFHxA	5.648	315.1 -> 270.0	36686	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1392	6.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.0%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2136	6.84 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 136.8%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3428	6.67 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 133.4%		
13C2-PFDoDA	9.219	615.1 -> 570.0	18945	1.20 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12481	1.01 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.2%		
13C3-PFBS	5.564	302.1 -> 79.9	11117	3.04 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.5%		
13C3-PFHxS	7.329	402.1 -> 79.9	6615	3.00 µg/L	-0.012

7.31
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 120.0%	
13C4-PFBA	2.999	216.8 -> 171.9	113270	12.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 120.3%	
13C4-PFHpA	6.567	367.1 -> 322.0	24511	2.94 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.7%	
13C5-PFHxA	5.647	318.0 -> 273.0	50265	2.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 118.6%	
13C5-PFPeA	4.475	268.3 -> 223.0	64221	5.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.8%	
13C6-PFDA	8.291	519.1 -> 474.1	15792	1.40 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.9%	
13C7-PFUnDA	8.772	570.0 -> 525.1	16451	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.3%	
13C8-FOSA	9.858	506.1 -> 77.8	12227	2.04 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.8%	
13C8-PFOA	7.227	421.1 -> 376.0	31991	2.98 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.0%	
13C8-PFOS	8.442	507.1 -> 79.9	9242	2.61 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C9-PFNA	7.771	472.1 -> 427.0	16448	1.34 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.5%	
d3-MeFOSAA	8.349	573.2 -> 419.0	13408	4.98 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C3-HFPO-DA	6.002	286.9 -> 168.9	29750	11.55 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 115.5%	
d3-MeFOSA	11.103	515.0 -> 219.0	5759	2.03 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.4%	
d5-EtFOSAA	8.558	589.2 -> 419.0	11106	5.07 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
d7-MeFOSE	10.986	623.2 -> 58.9	43650	18.51 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.0%	
d9-EtFOSE	11.295	639.2 -> 58.9	52294	18.12 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.5%	
d5-EtFOSA	11.386	531.1 -> 219.0	6368	2.08 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.3%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	17724	10.21 µg/L	95
		327.1 -> 80.9	7757		
6:2FTS	6.987	427.1 -> 407.0	15373	10.54 µg/L	98
		427.1 -> 80.9	6665		
8:2FTS	8.066	527.1 -> 507.0	15698	10.21 µg/L	96
		527.1 -> 80.8	6544		
EtFOSAA	8.571	584.2 -> 419.1	4845	2.92 µg/L	m 95
		584.2 -> 526.0	2008		
FOSA	9.850	498.1 -> 77.9	10814	2.75 µg/L	98
		498.1 -> 478.0	350		
MeFOSAA	8.350	570.1 -> 419.0	4954	2.68 µg/L	m 85
		570.1 -> 483.0	1090		
PFBA	3.007	212.8 -> 168.9	27719	10.72 µg/L	100
PFBS	5.565	298.7 -> 79.9	9874	2.38 µg/L	95
		298.7 -> 98.8	4076		
PFDA	8.292	512.9 -> 469.0	25552	2.83 µg/L	98
		512.9 -> 219.0	5172		
PFDoDA	9.220	613.1 -> 569.0	33394	2.80 µg/L	99
		613.1 -> 319.0	4816		
PFDS	9.382	599.0 -> 79.9	5075	2.46 µg/L	98

7.3.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2517			
PFHpA	6.568	363.1 -> 319.0	34837	2.85	µg/L	99
		363.1 -> 169.0	6236			
PFHpS	7.912	449.0 -> 79.9	6628	2.76	µg/L	95
		449.0 -> 98.9	3698			
PFHxA	5.650	313.0 -> 269.0	40789	2.74	µg/L	99
		313.0 -> 118.9	1297			
PFHxS	7.318	398.7 -> 79.9	5611	2.48	µg/L	m 100
		398.7 -> 98.9	2895			
PFNA	7.772	463.0 -> 419.0	24951	2.84	µg/L	93
		463.0 -> 219.0	6499			
PFNS	8.937	548.8 -> 79.9	3688	2.59	µg/L	98
		548.8 -> 98.9	1957			
PFOA	7.228	413.0 -> 369.0	39042	2.61	µg/L	99
		413.0 -> 169.0	7753			
PFOS	8.443	498.9 -> 79.9	8760	2.44	µg/L	m 90
		498.9 -> 98.8	4652			
PFPeA	4.477	263.0 -> 219.0	68292	5.62	µg/L	100
PFPeS	6.607	349.1 -> 79.9	5341	2.77	µg/L	94
		349.1 -> 98.9	2495			
PFTeDA	10.013	713.1 -> 669.0	27069	2.75	µg/L	100
		713.1 -> 168.9	2181			
PFTrDA	9.630	663.0 -> 619.0	39942	2.59	µg/L	98
		663.0 -> 168.9	3614			
PFUnDA	8.773	563.1 -> 519.0	23930	2.57	µg/L	98
		563.1 -> 269.1	4926			
11Cl-PF3OUdS	9.681	630.9 -> 450.9	39360	5.07	µg/L	99
		632.9 -> 452.9	12023			
9Cl-PF3ONS	8.800	530.8 -> 351.0	43441	5.01	µg/L	99
		532.8 -> 353.0	13081			
ADONA	6.819	376.9 -> 250.9	97772	5.47	µg/L	99
		376.9 -> 84.8	26631			
HFPO-DA	6.003	284.9 -> 168.9	12954	5.49	µg/L	98
		284.9 -> 184.9	1529			
3:3FTCA	3.979	241.0 -> 177.0	7337	12.95	µg/L	100
		241.0 -> 117.0	711			
5:3FTCA	6.333	341.0 -> 237.1	150606	71.67	µg/L	99
		341.0 -> 217.0	106210			
7:3FTCA	7.774	441.0 -> 316.9	61910	71.89	µg/L	100
		441.0 -> 336.9	136680			
EtFOSA	11.388	526.0 -> 219.0	12394	5.46	µg/L	m 65
		526.0 -> 169.0	17041			
EtFOSE	11.308	630.0 -> 58.9	22542	13.99	µg/L	100
MeFOSA	11.104	511.9 -> 219.0	10185	5.47	µg/L	m 78
		511.9 -> 169.0	15192			
MeFOSE	11.012	616.1 -> 58.9	20625	13.44	µg/L	m 100
PFDoDS	10.152	699.1 -> 79.9	4116	2.30	µg/L	100
		699.1 -> 98.8	2335			
NFDHA	5.541	295.0 -> 201.0	5879	5.88	µg/L	97
		295.0 -> 84.9	1362			
PFMBA	4.891	279.0 -> 85.1	39268	5.65	µg/L	100
PFMPA	3.615	229.0 -> 84.9	33962	5.59	µg/L	100
PFEESA	6.084	314.8 -> 134.9	61493	4.92	µg/L	100
		314.8 -> 82.9	2062			

= Qualifier out of range, m = manually integrated, + = Area summed

7.3.1
7

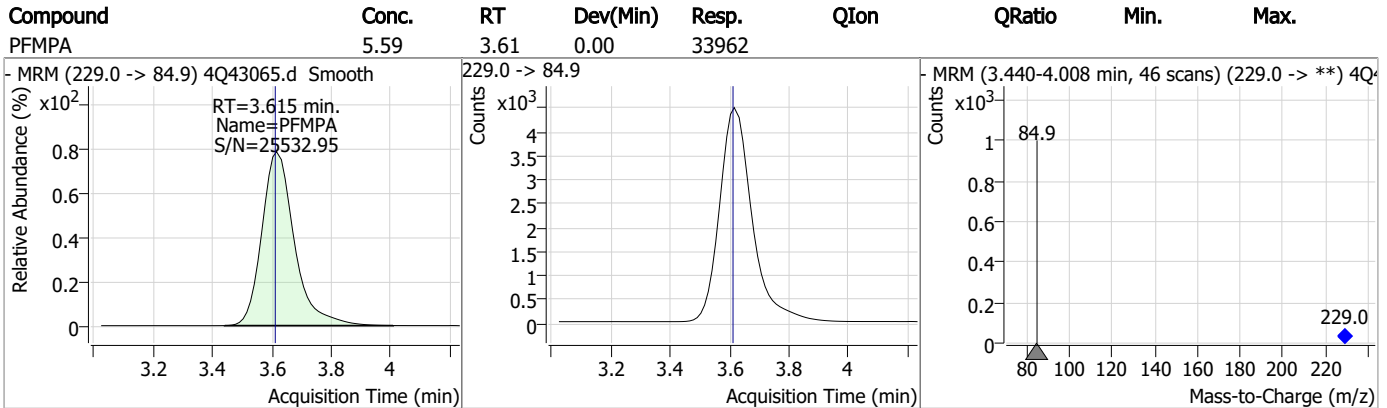
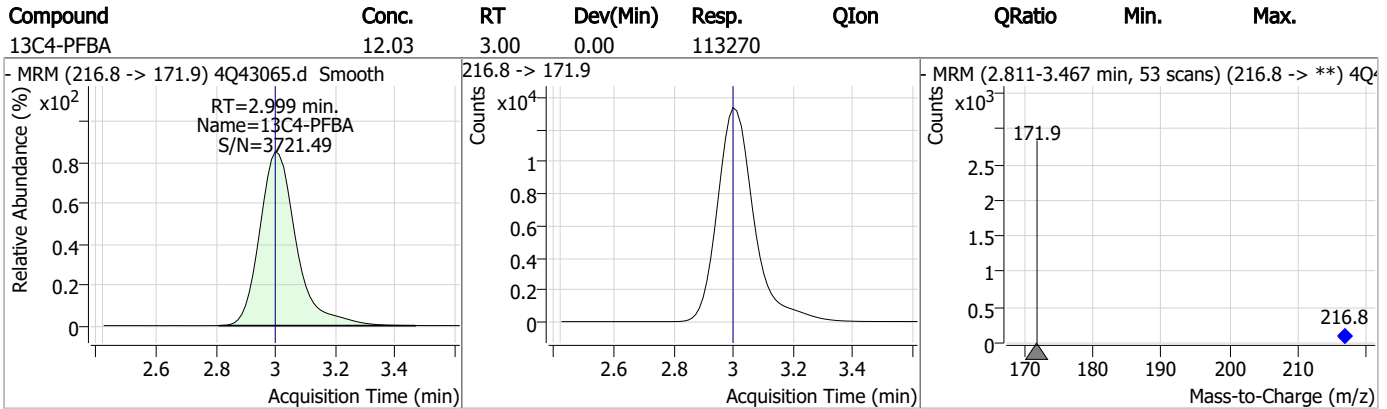
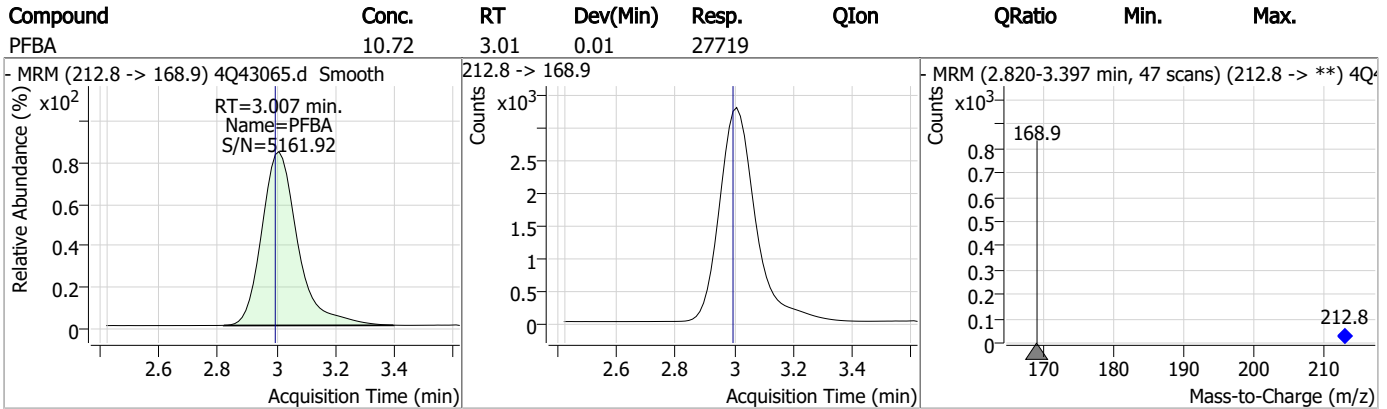
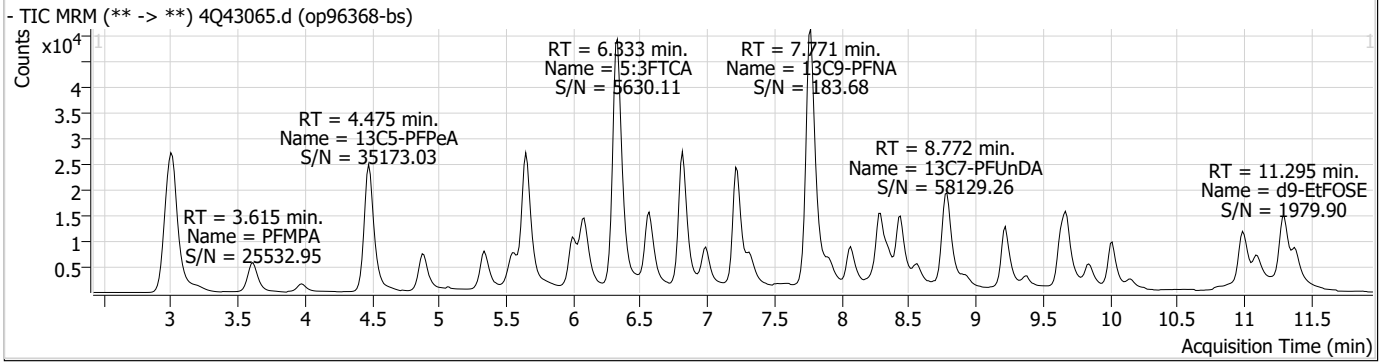
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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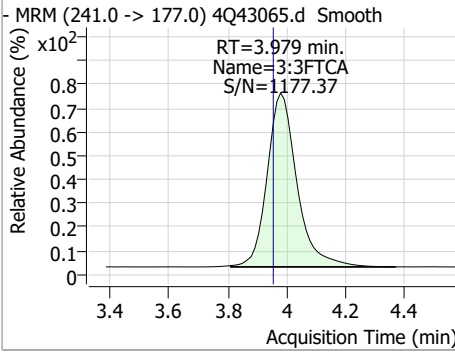
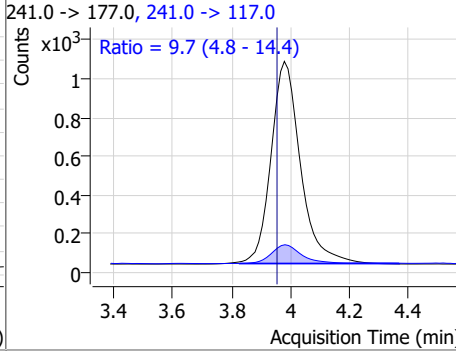
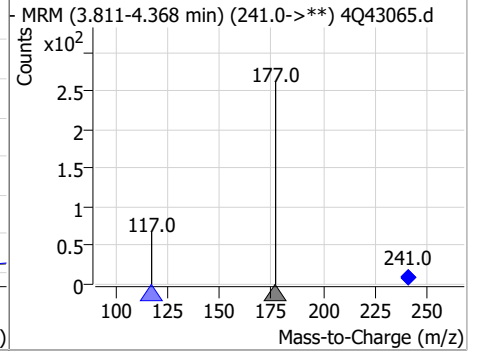
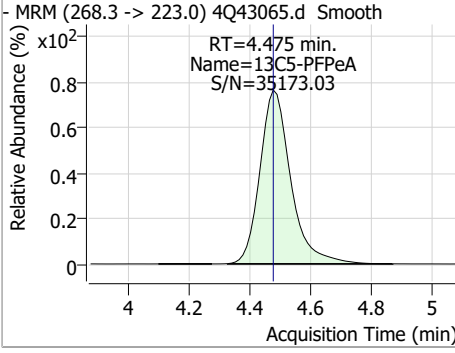
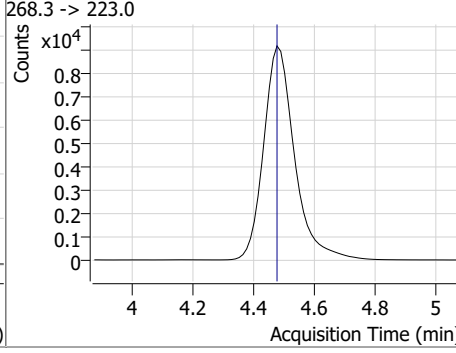
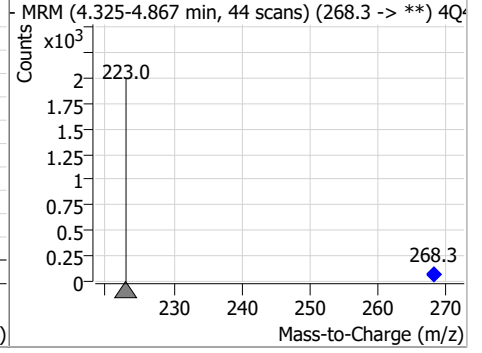
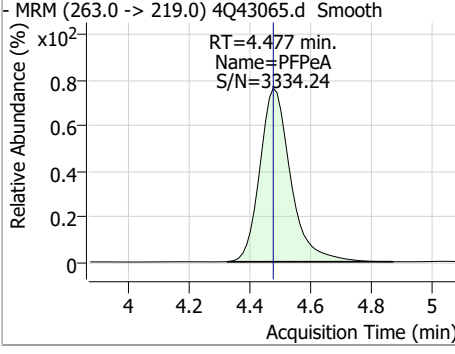
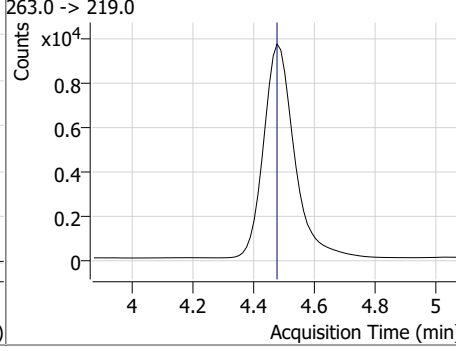
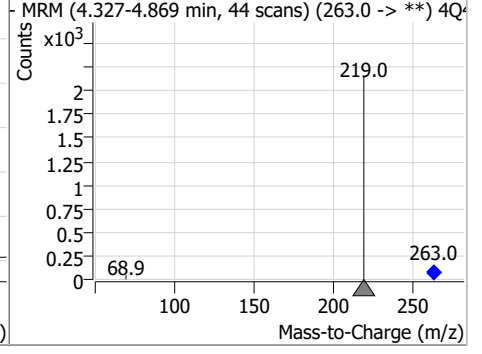
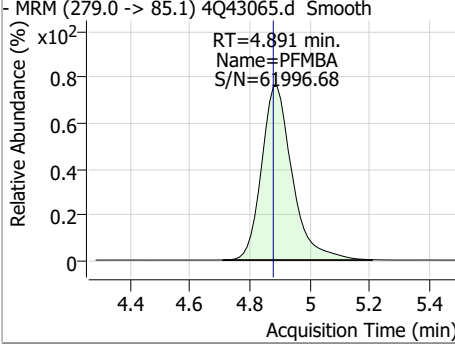
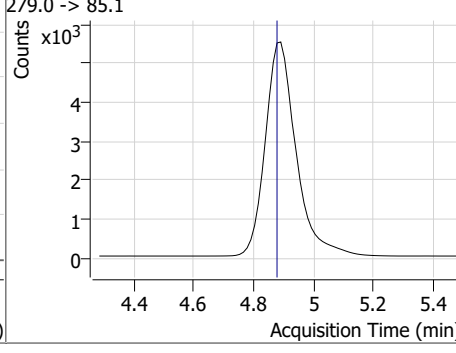
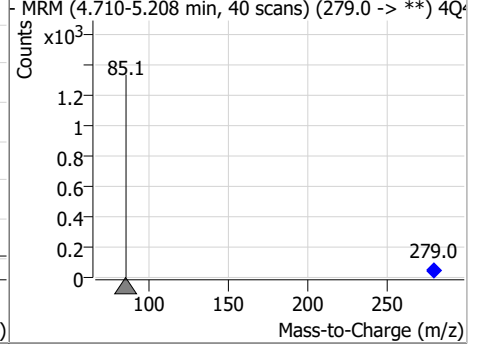
7.3.1

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Perfluorinated Compounds by LC/MS/MS



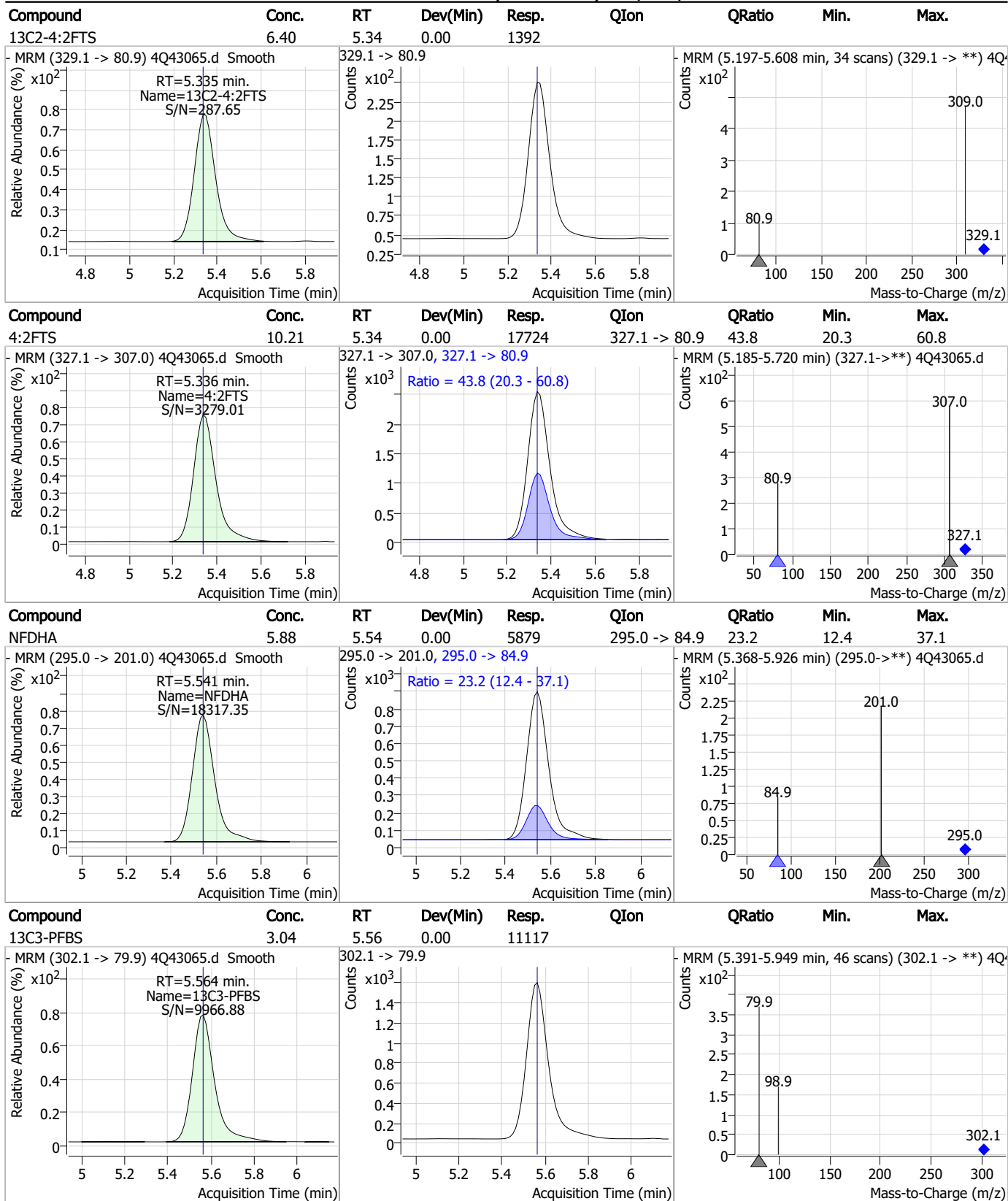
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.95	3.98	0.02	7337	241.0 -> 117.0	9.7	4.8	14.4
- MRM (241.0 -> 177.0) 4Q43065.d Smooth			241.0 -> 177.0, 241.0 -> 117.0			- MRM (3.811-4.368 min) (241.0->**) 4Q43065.d		
								
13C5-PFPeA	5.94	4.47	0.00	64221				
- MRM (268.3 -> 223.0) 4Q43065.d Smooth			268.3 -> 223.0			- MRM (4.325-4.867 min, 44 scans) (268.3 -> **) 4Q43065.d		
								
PFPeA	5.62	4.48	0.00	68292				
- MRM (263.0 -> 219.0) 4Q43065.d Smooth			263.0 -> 219.0			- MRM (4.327-4.869 min, 44 scans) (263.0 -> **) 4Q43065.d		
								
PFMBA	5.65	4.89	0.01	39268				
- MRM (279.0 -> 85.1) 4Q43065.d Smooth			279.0 -> 85.1			- MRM (4.710-5.208 min, 40 scans) (279.0 -> **) 4Q43065.d		
								

7.3.1

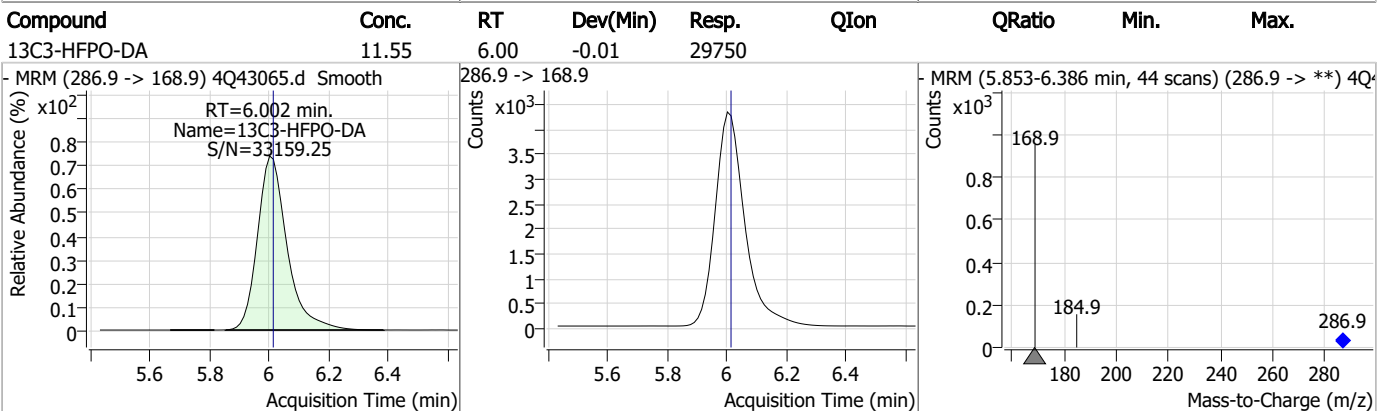
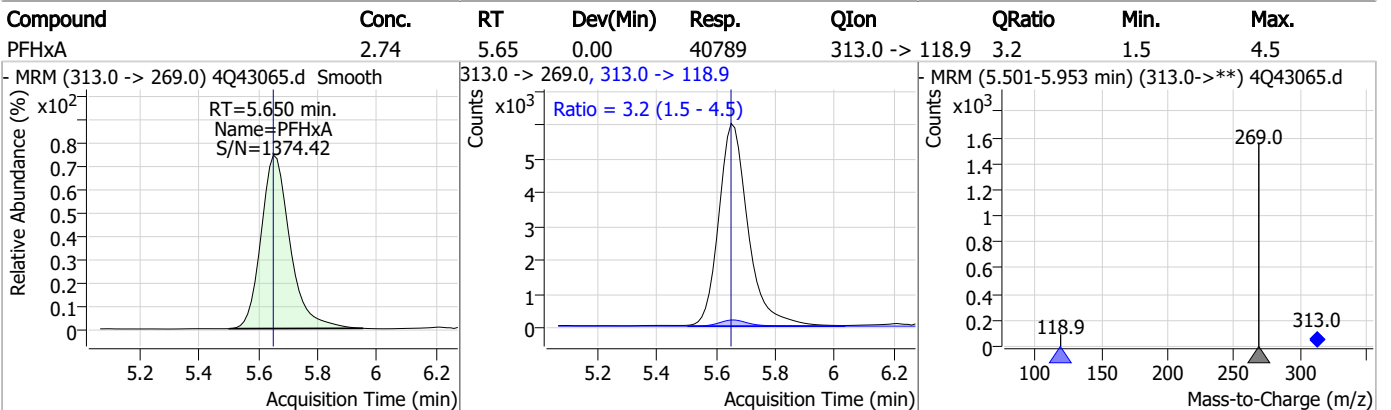
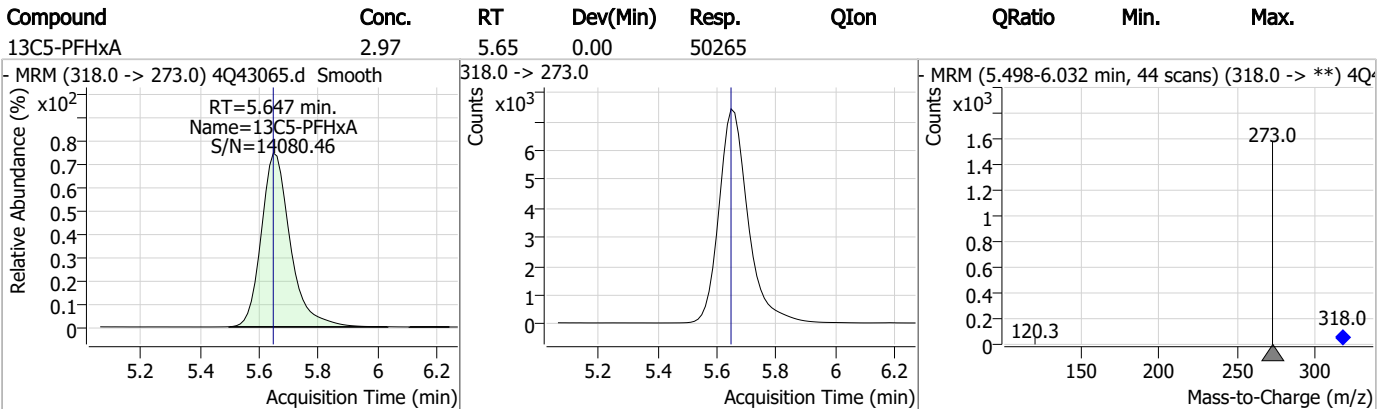
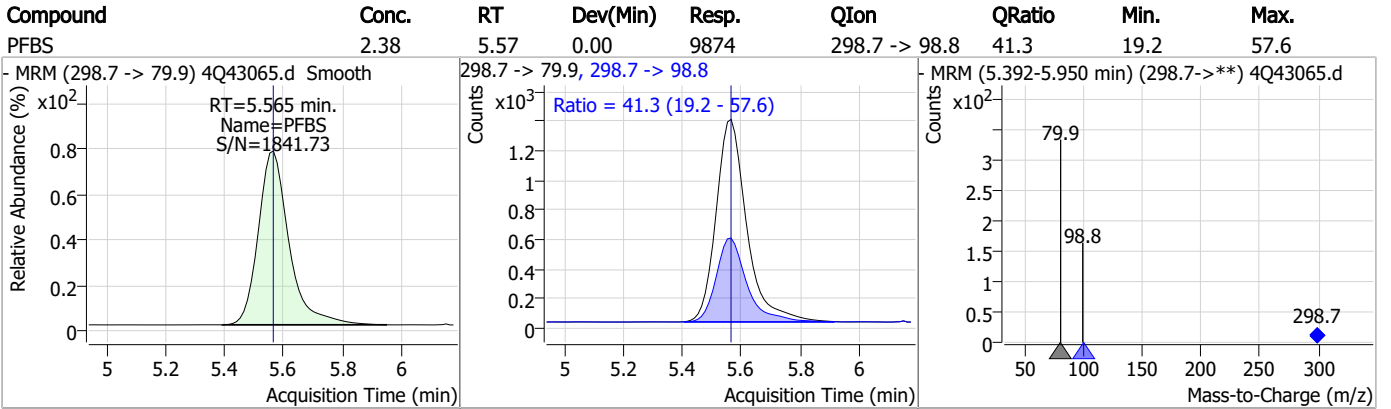
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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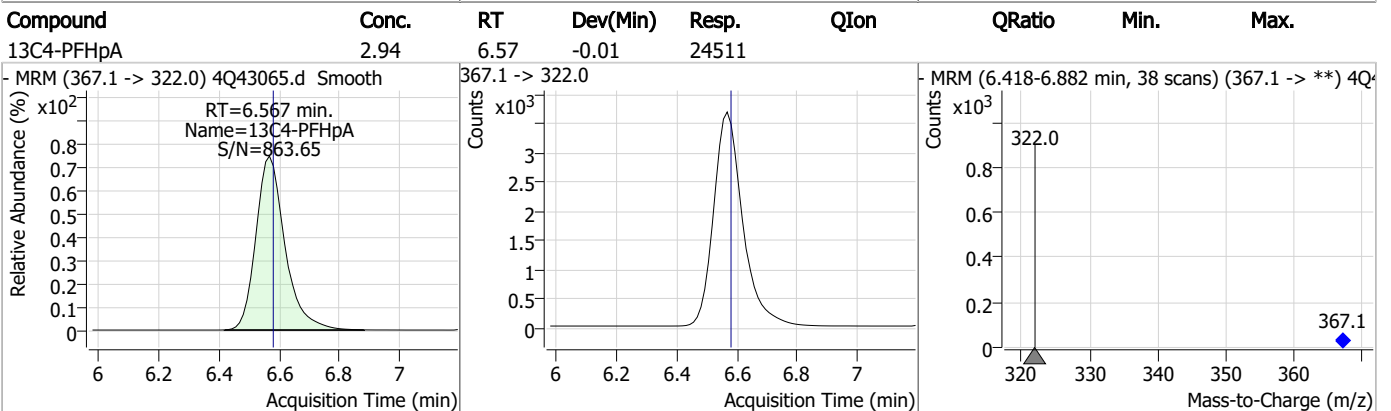
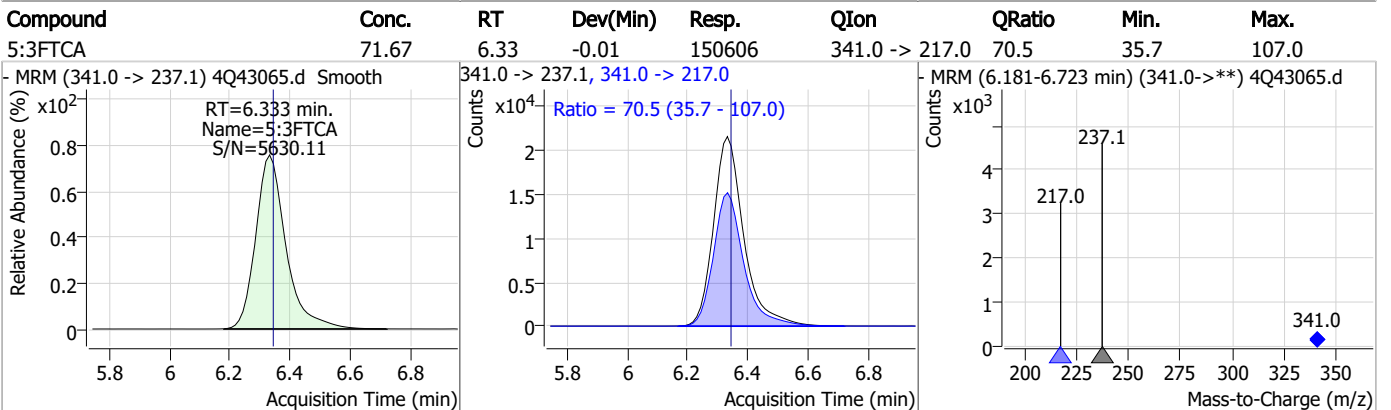
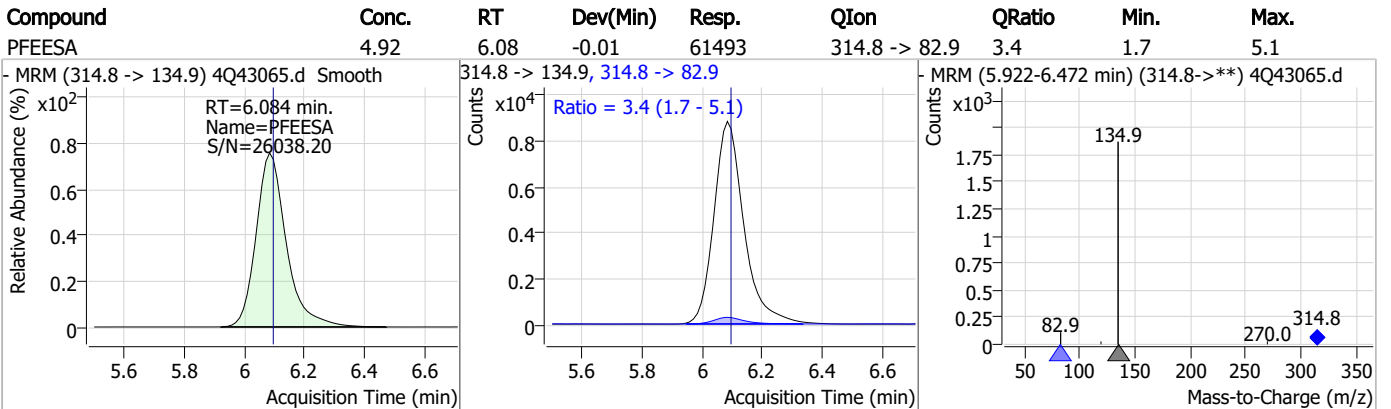
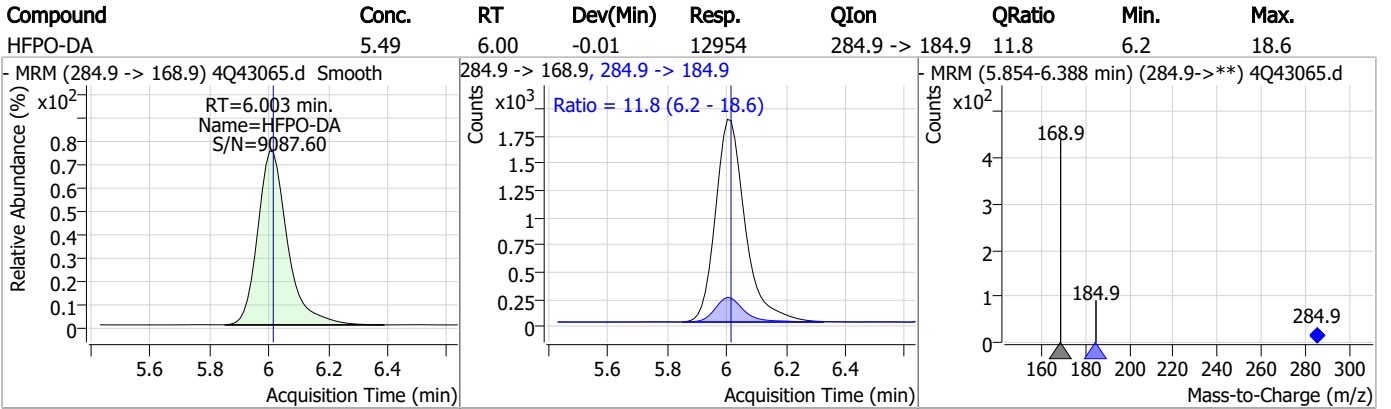
Perfluorinated Compounds by LC/MS/MS



7.3.1

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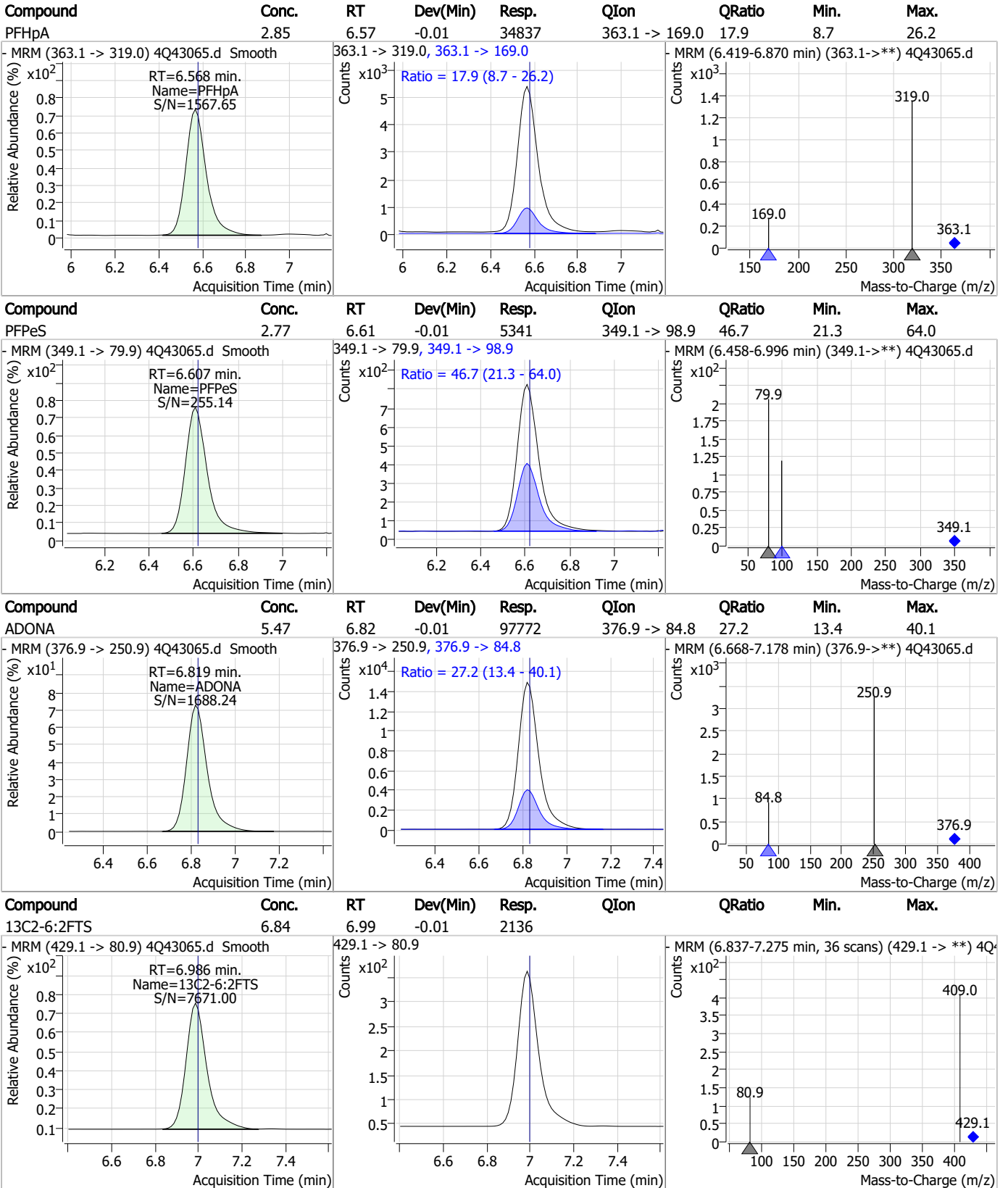
Perfluorinated Compounds by LC/MS/MS



7.3.1

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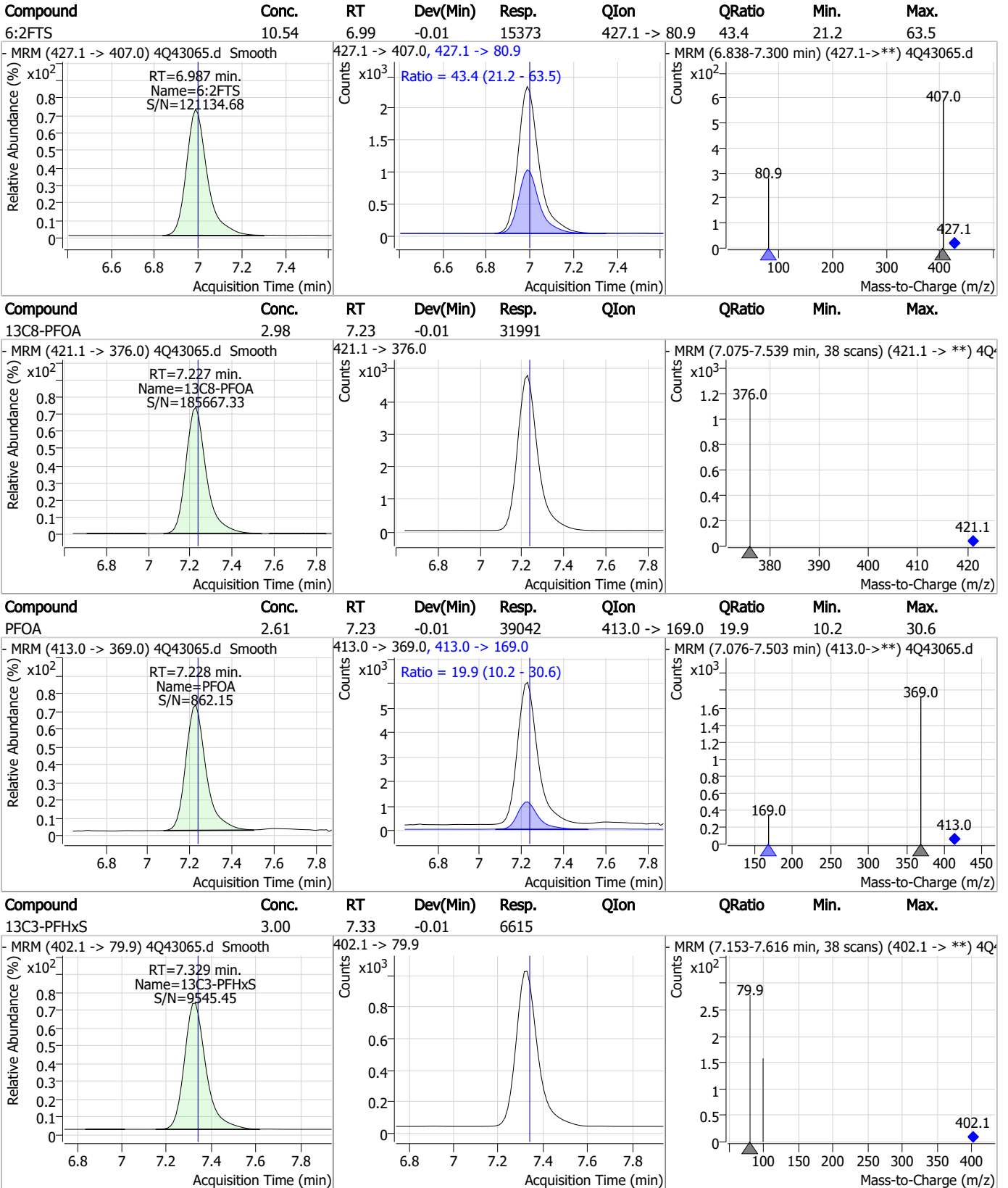
Perfluorinated Compounds by LC/MS/MS



7.3.1

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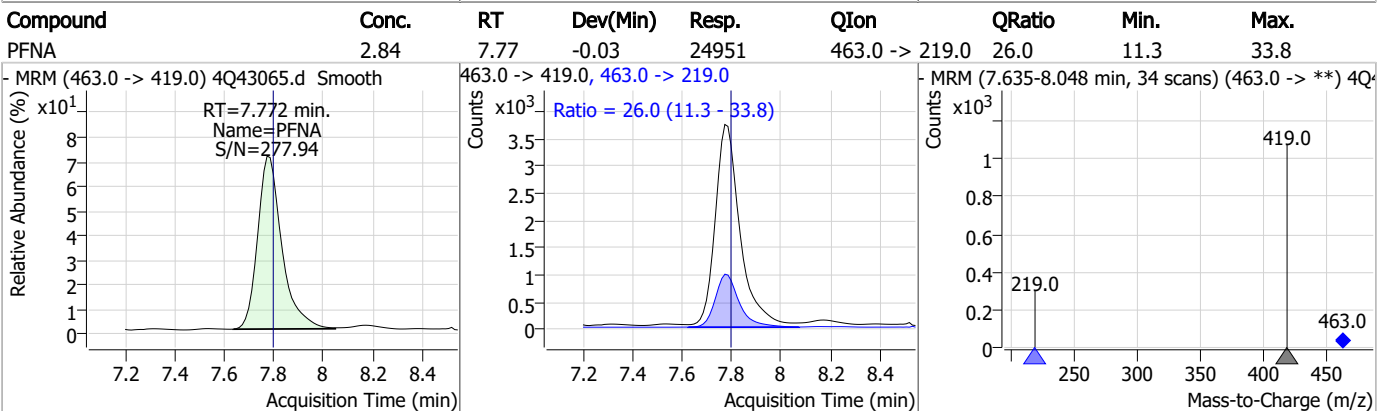
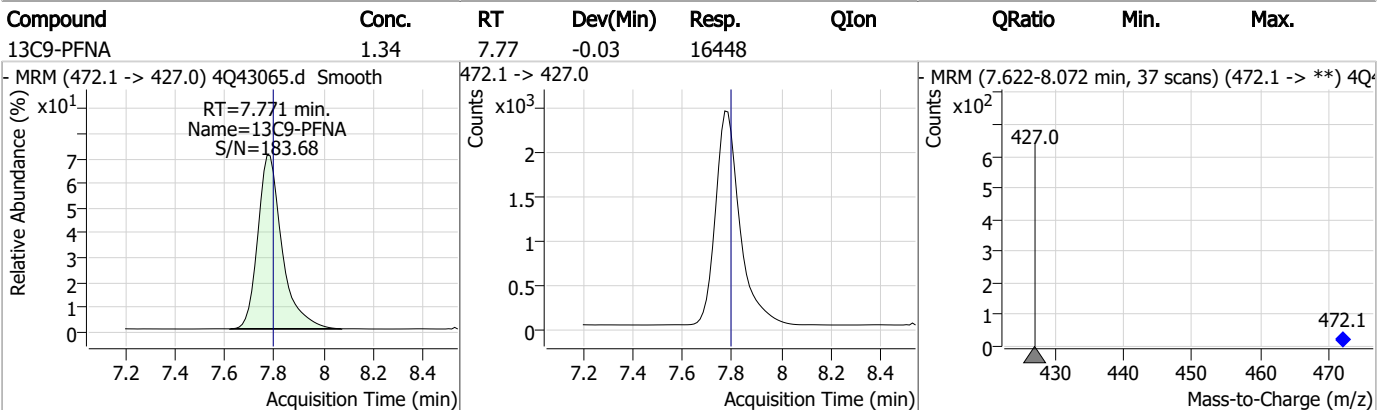
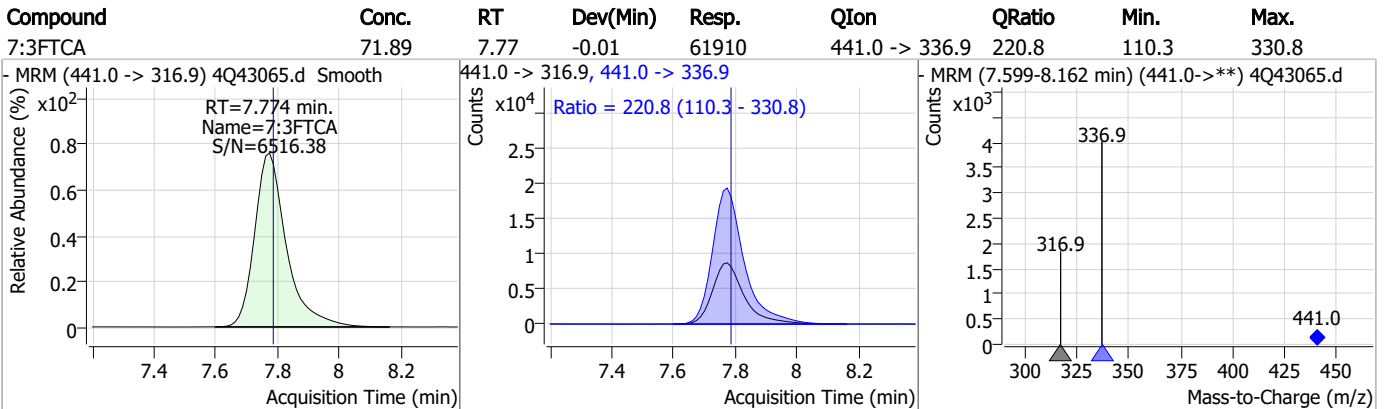
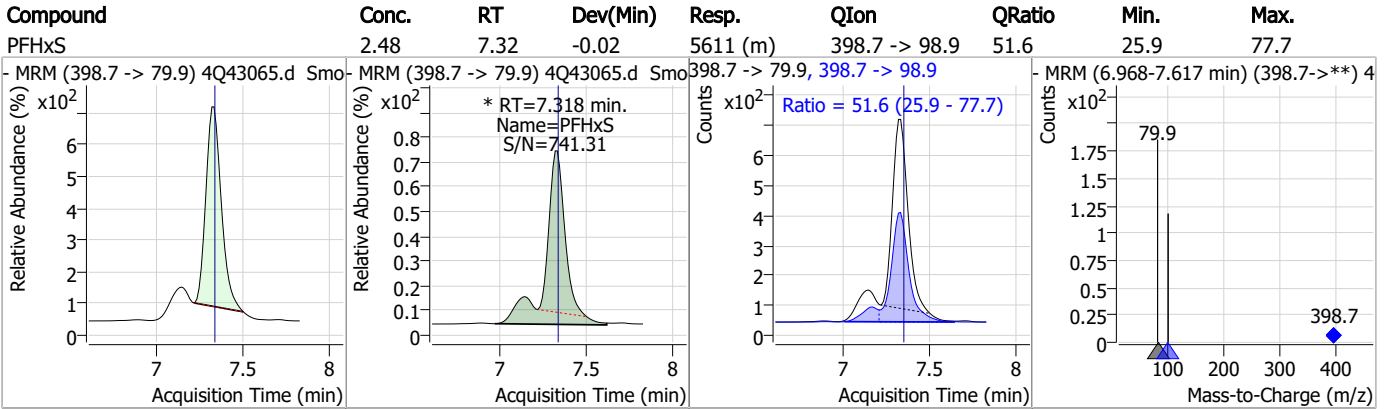
Perfluorinated Compounds by LC/MS/MS



7.3.1

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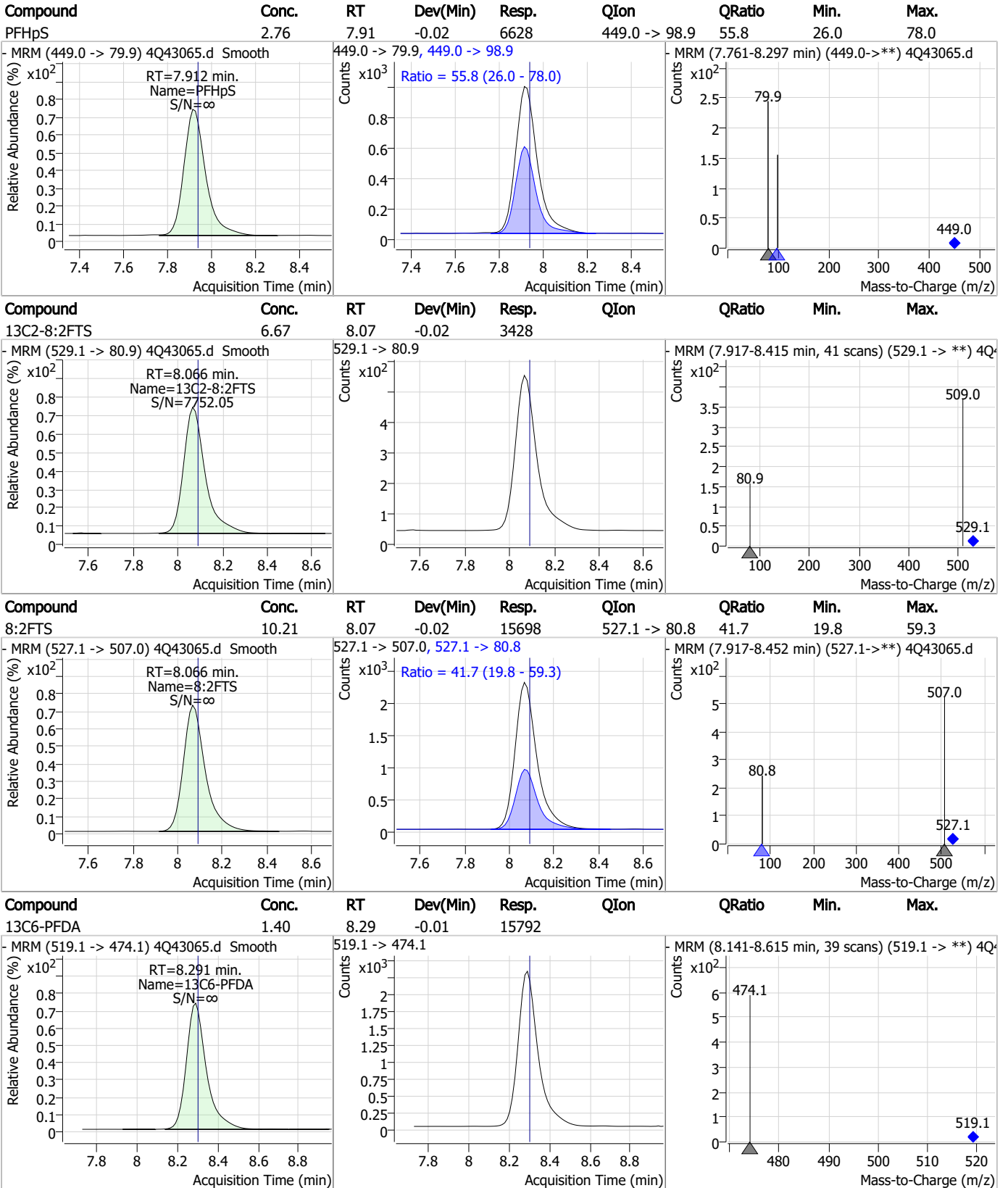
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS

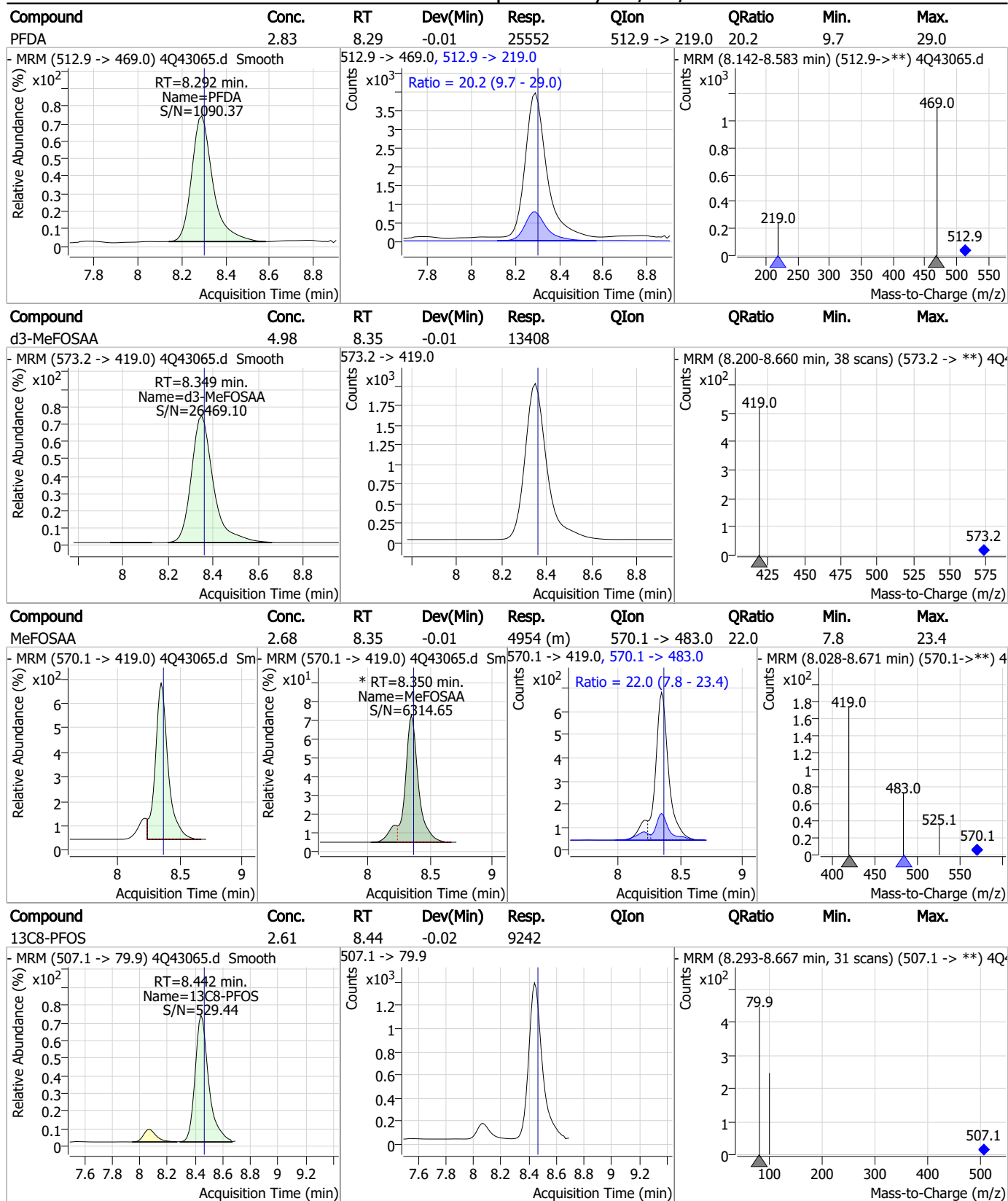


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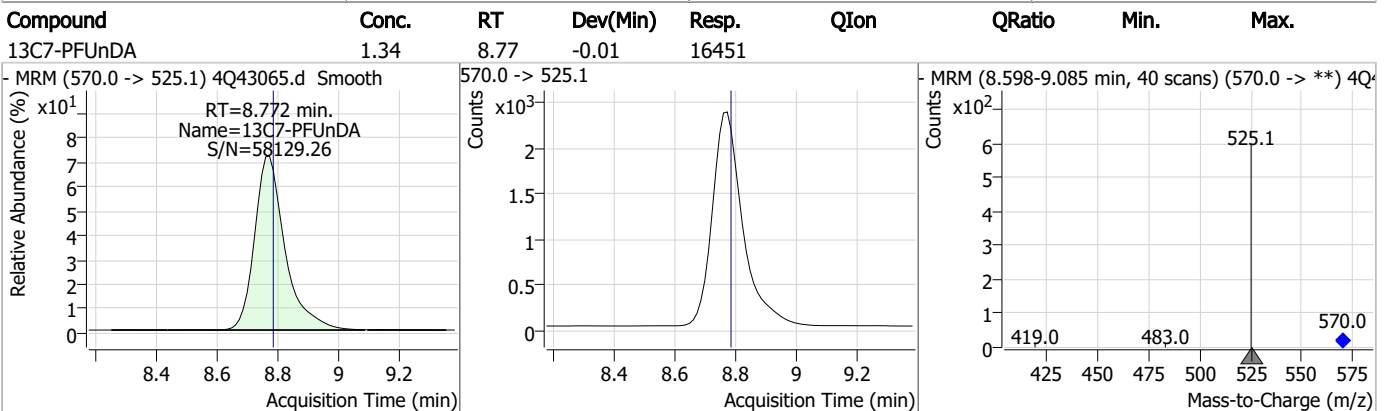
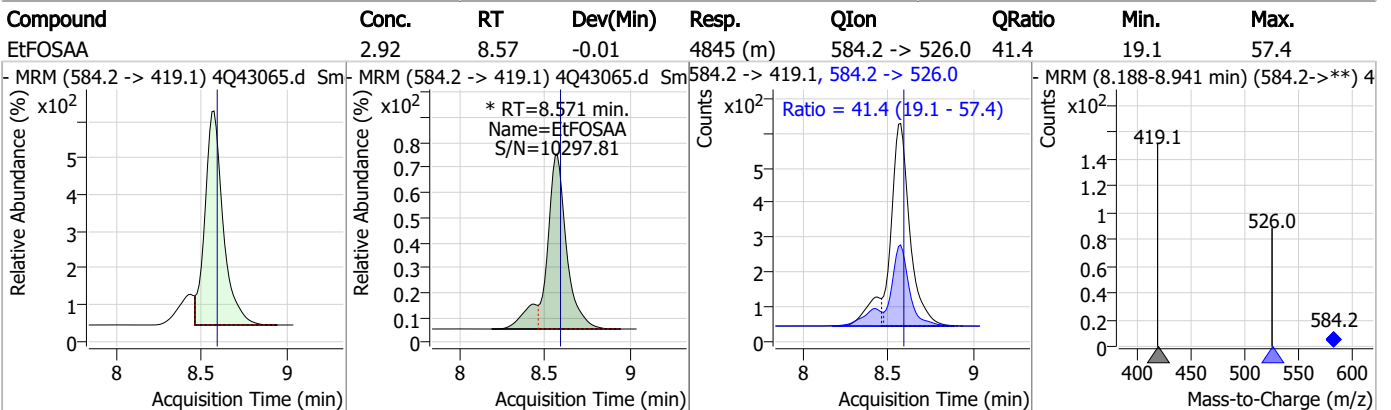
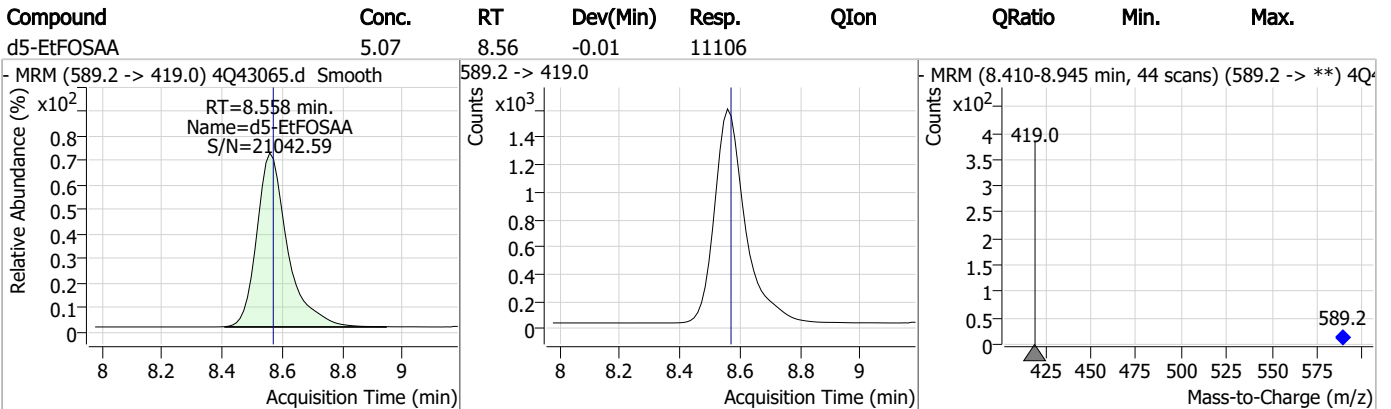
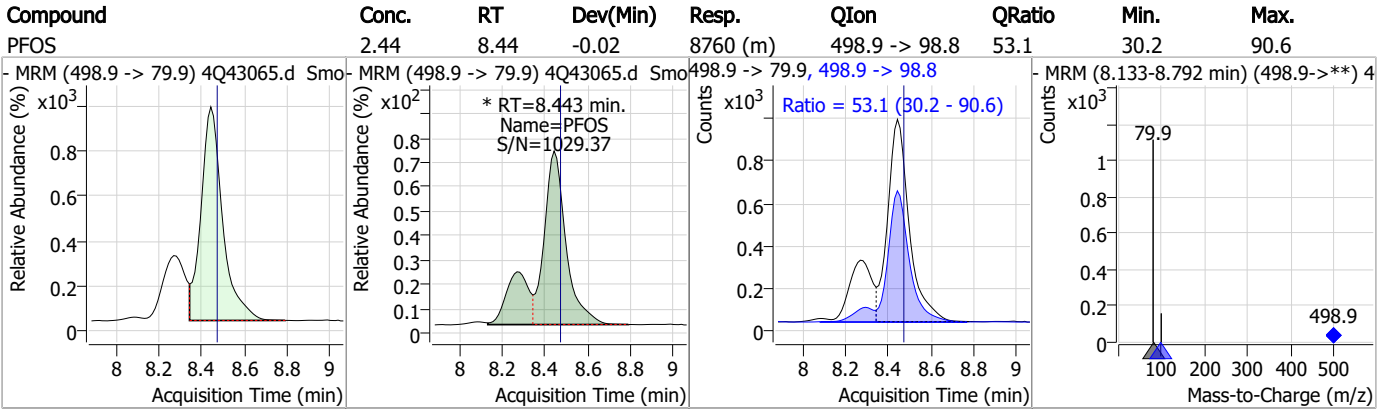


Perfluorinated Compounds by LC/MS/MS

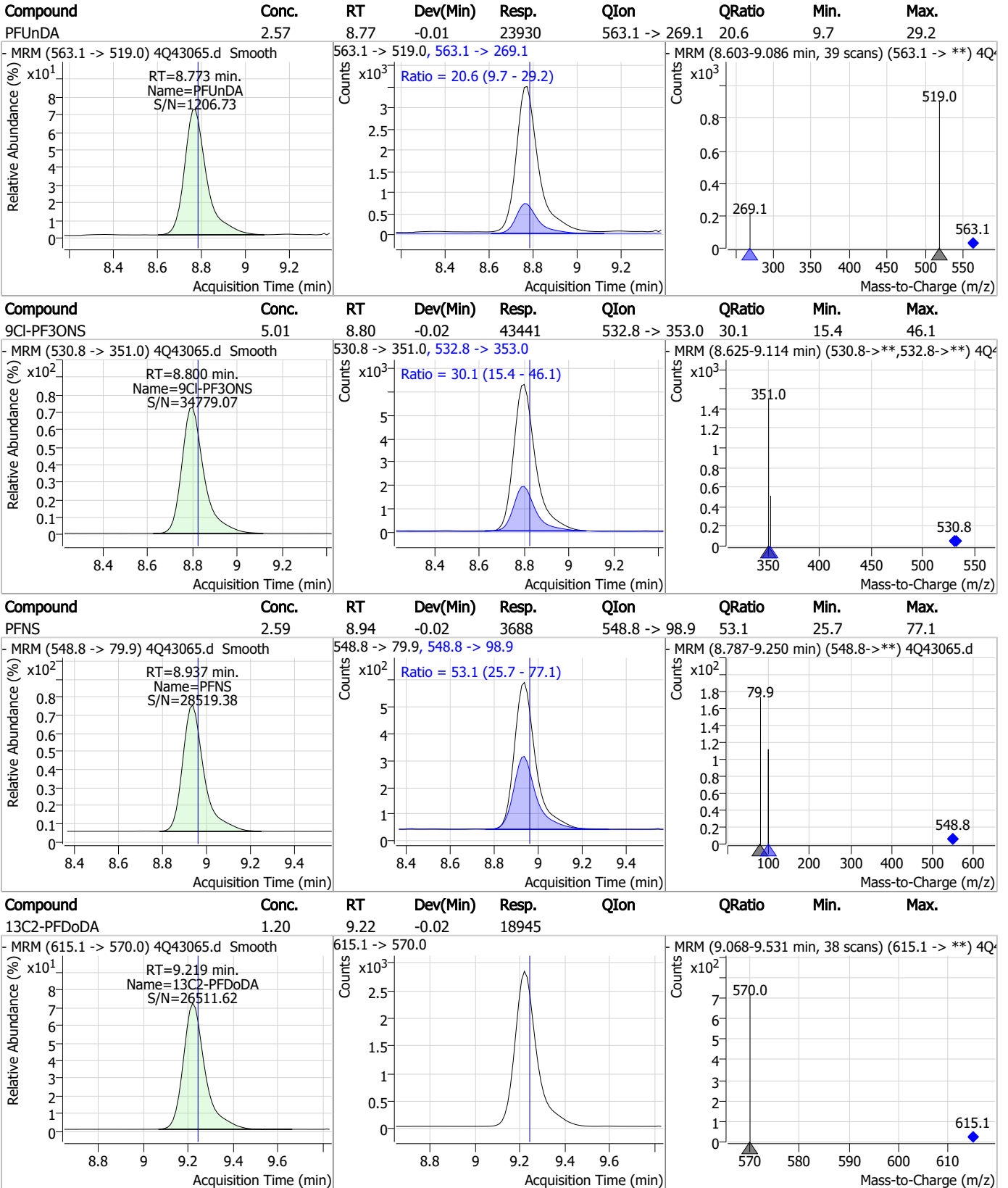


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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

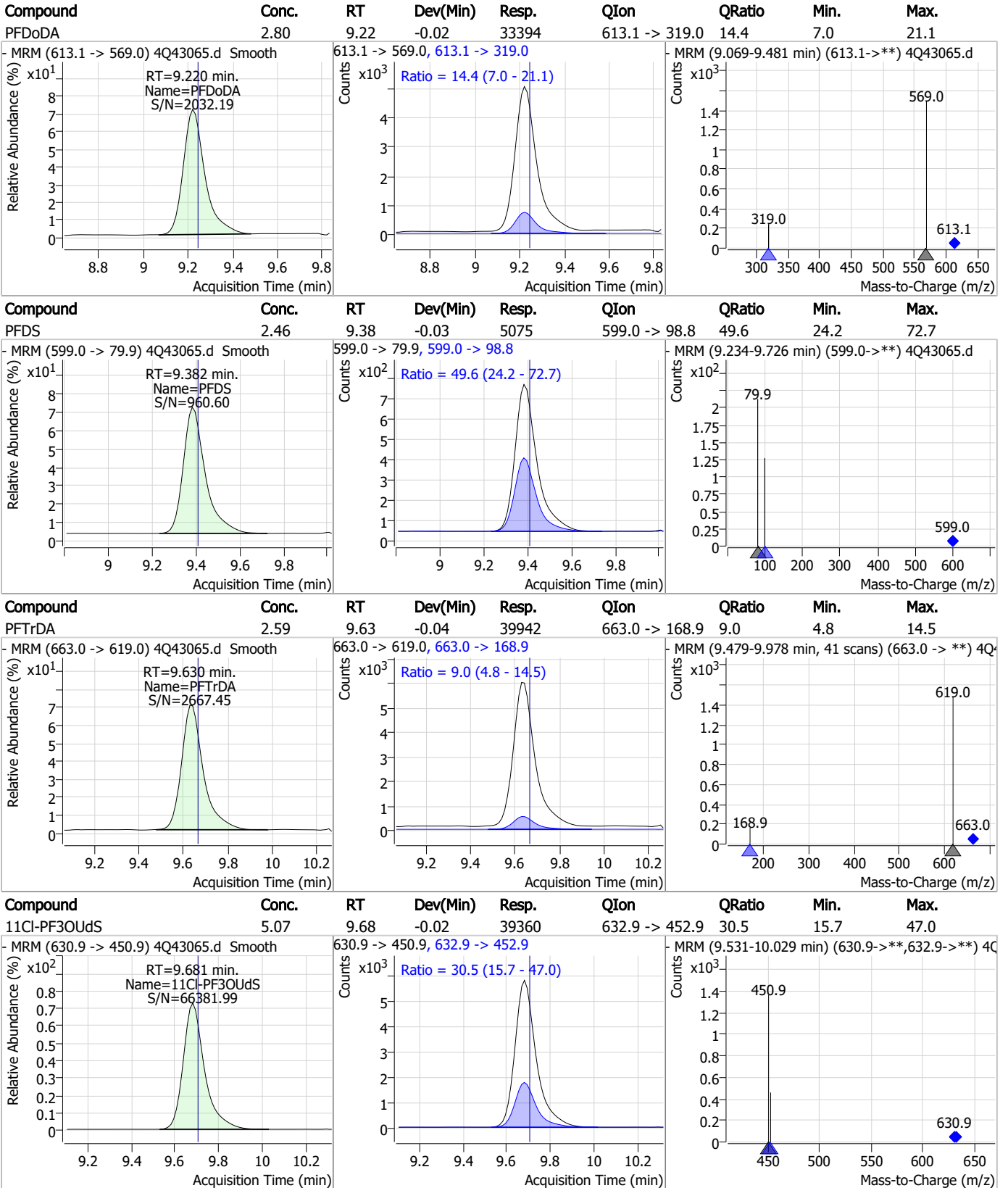


7.3.1

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Perfluorinated Compounds by LC/MS/MS

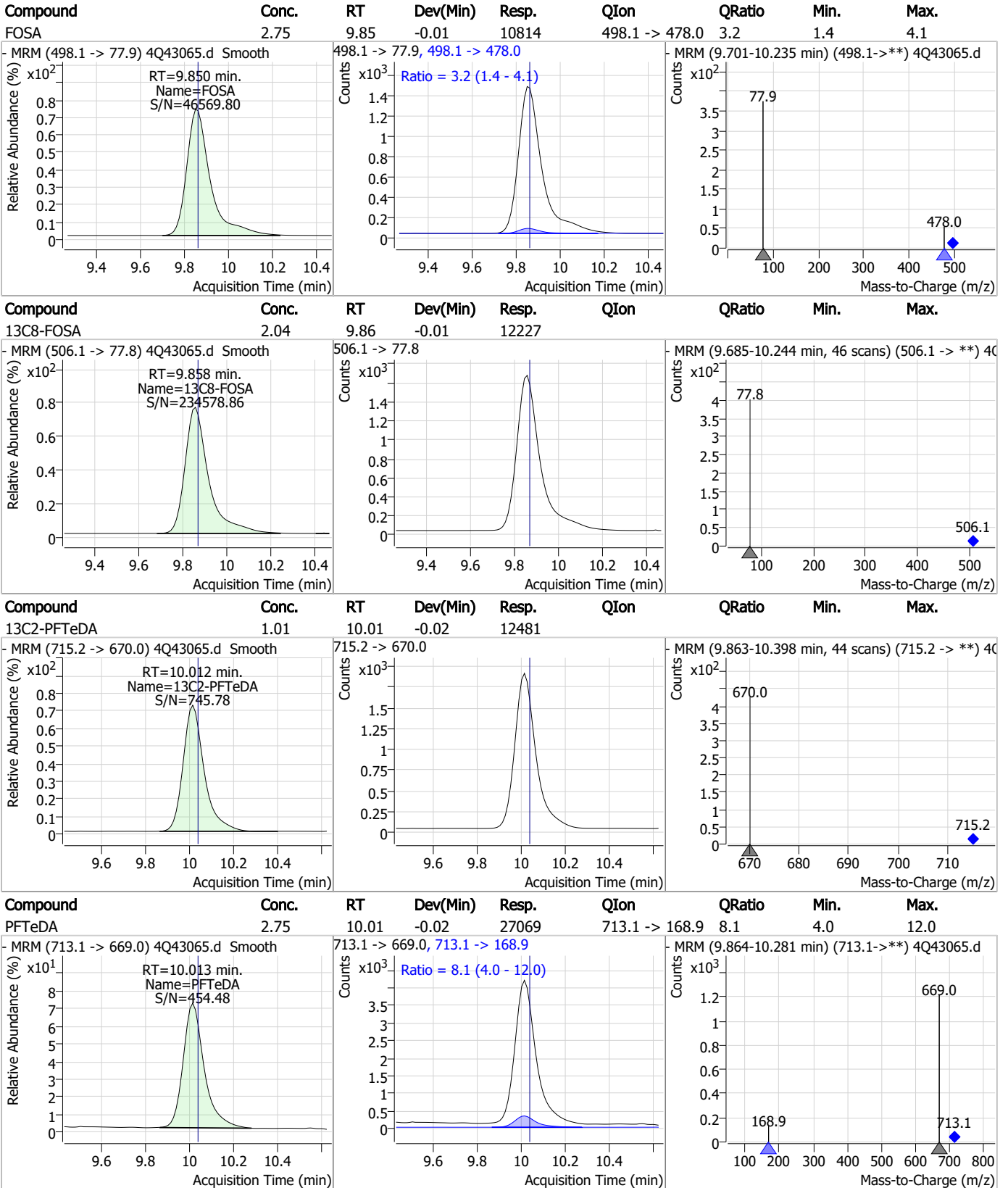


7.3.1

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Perfluorinated Compounds by LC/MS/MS

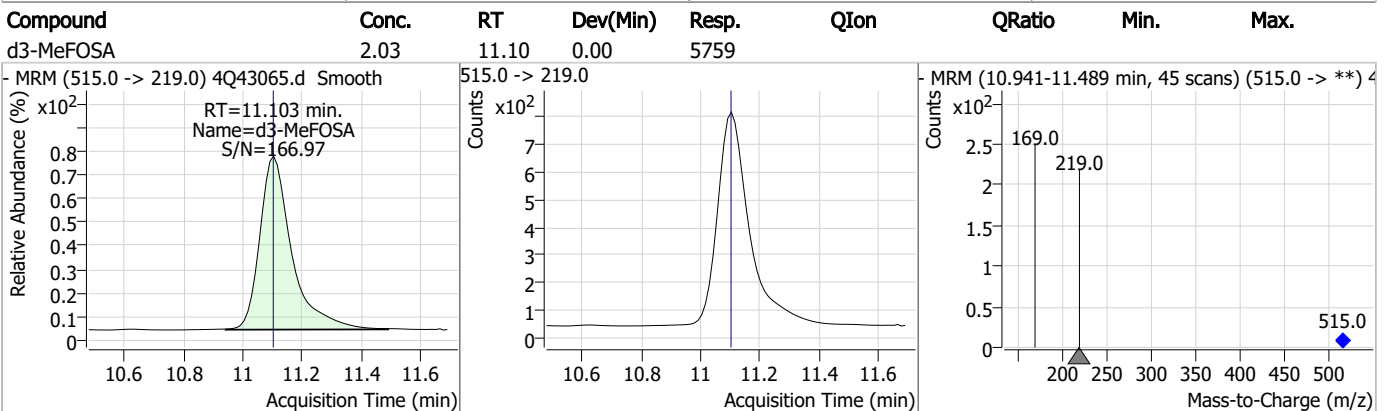
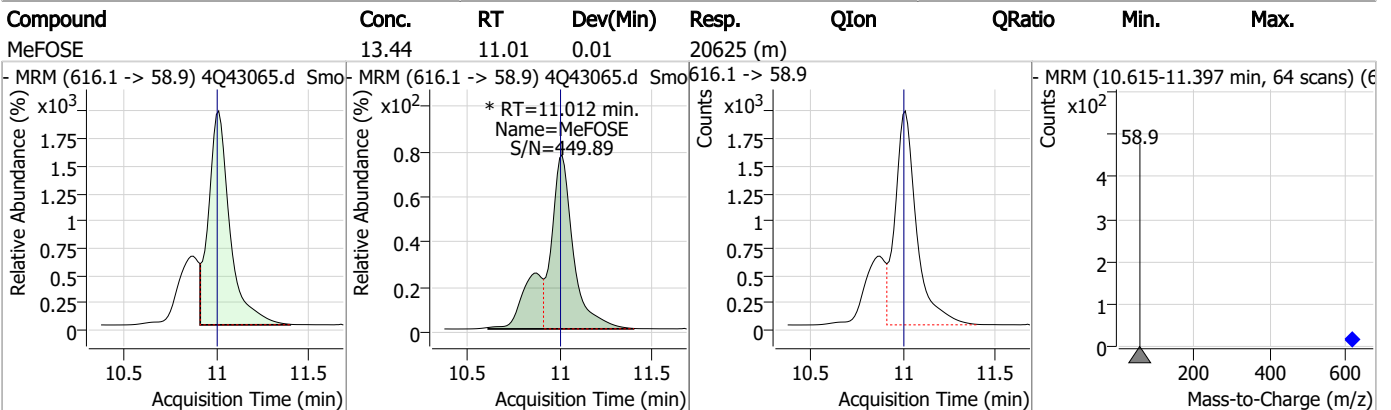
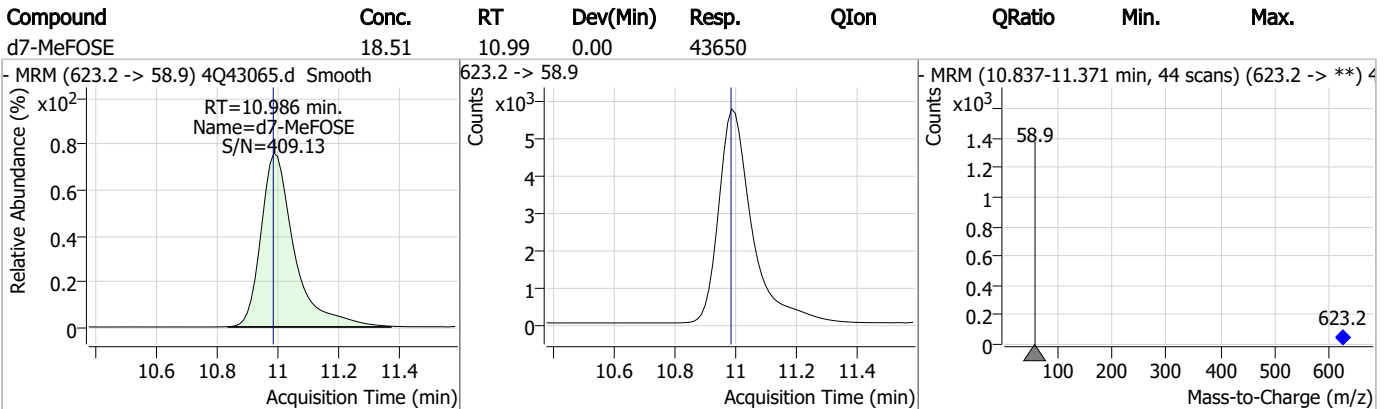
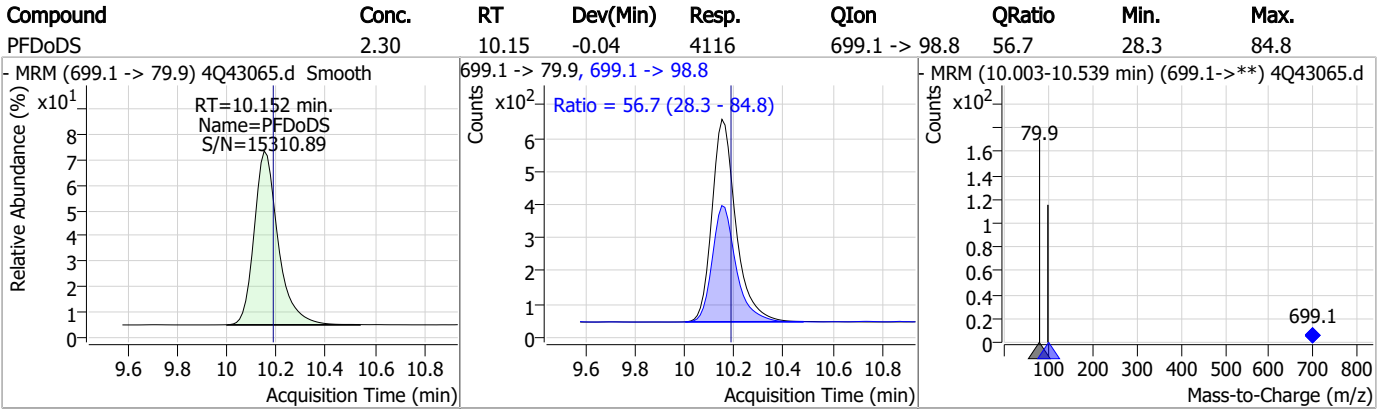


7.3.1

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Perfluorinated Compounds by LC/MS/MS

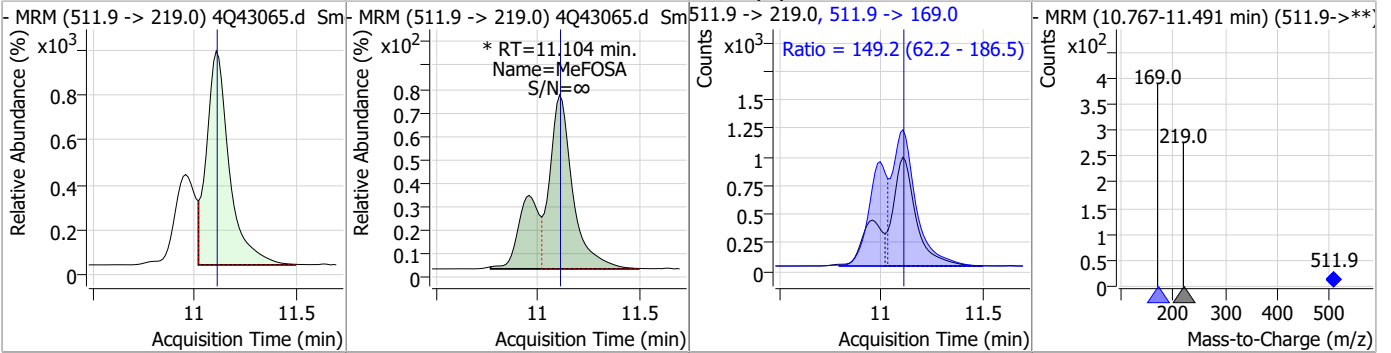


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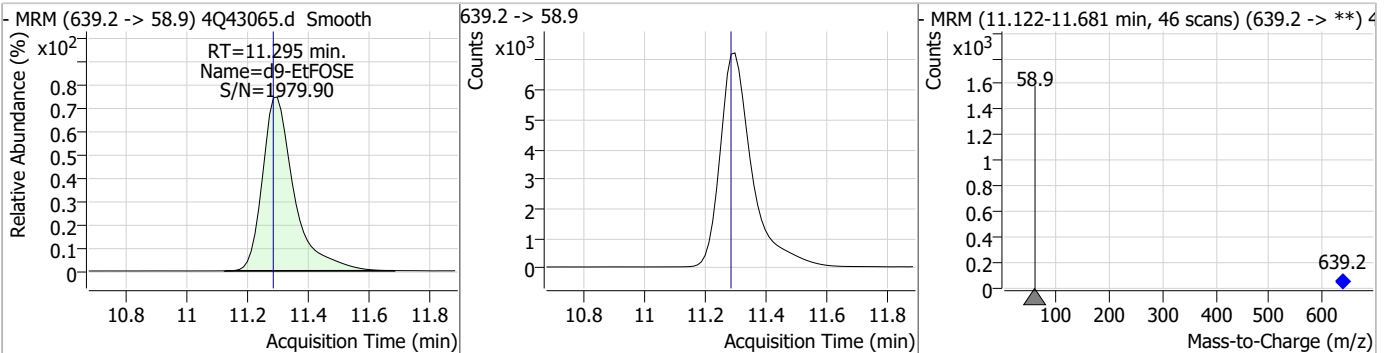
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Perfluorinated Compounds by LC/MS/MS

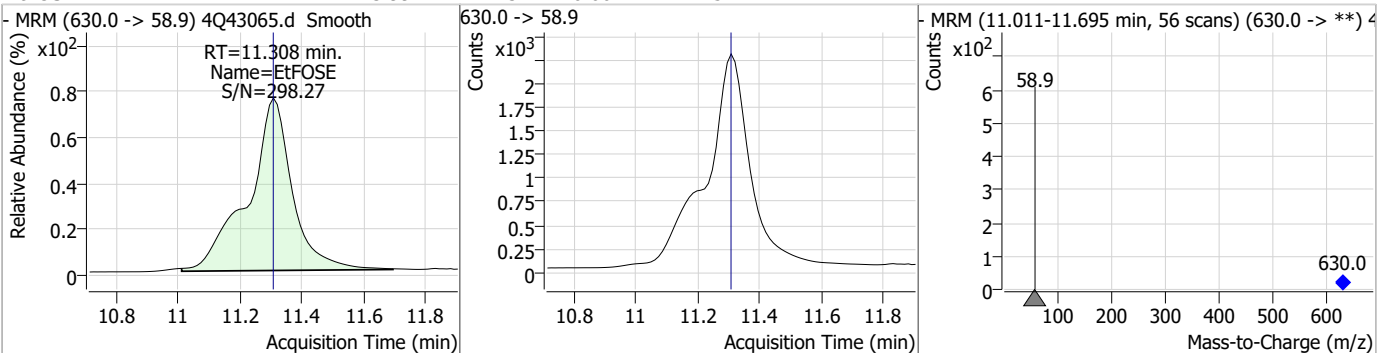
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.47	11.10	0.00	10185 (m)	511.9 -> 169.0	149.2	62.2	186.5



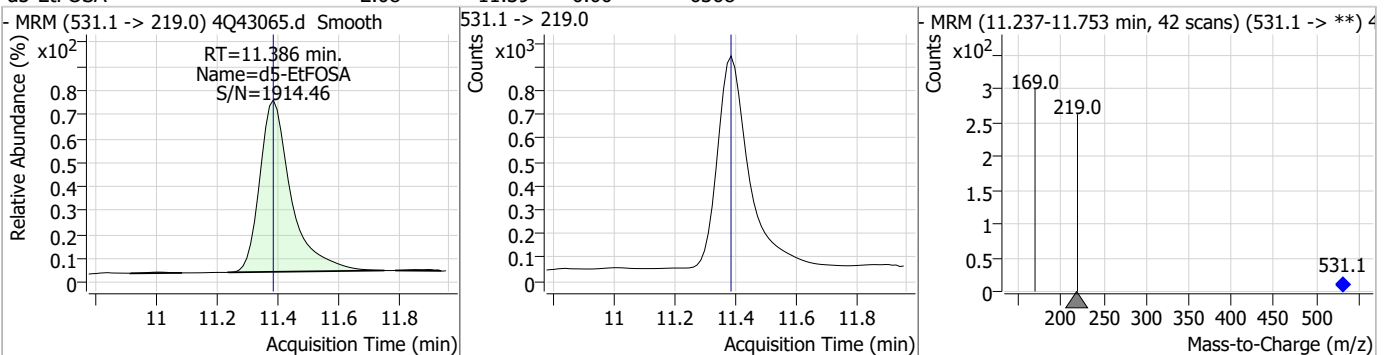
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.12	11.29	0.01	52294				



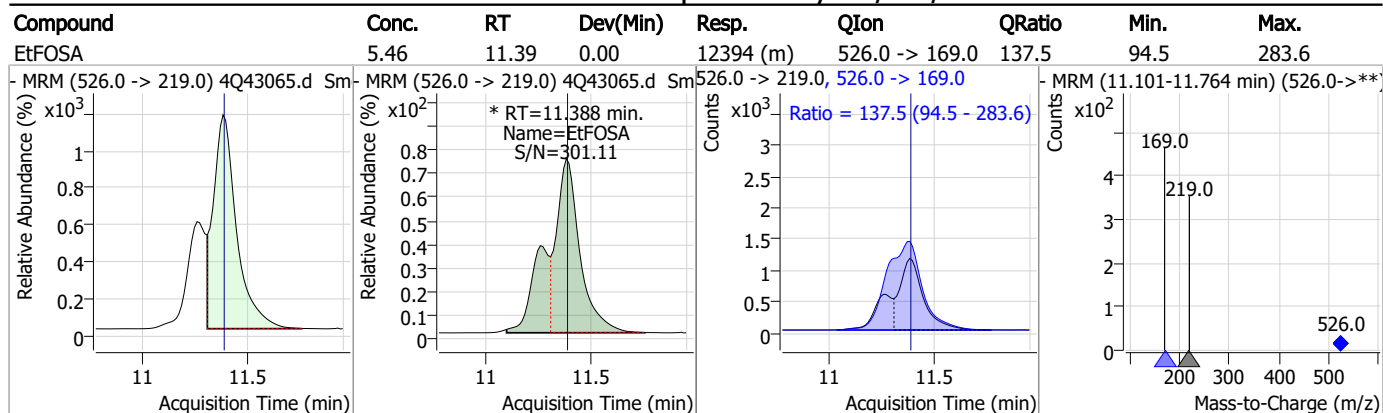
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.99	11.31	0.00	22542				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.08	11.39	0.00	6368				



Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Manual Integration Approval Summary

Sample Number: OP96368-BS Method: EPA DRAFT 1633
Lab FileID: 4Q43065.D Analyst approved: 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 18:36 Supervisor approved: 04/17/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.35	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.44	Split peak
EtFOSAA	2991-50-6		8.57	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.3.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43066.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 6:50:35 PM
 Sample Name : op96368-llbs:3
 Vial : P4-C7
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96368,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	116021	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	65190	5.00 µg/L	0.000
M5-PFHxA	5.647	318.0 -> 273.0	50781	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	25305	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	31402	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	17363	1.25 µg/L	-0.025
M6-PFDA	8.279	519.1 -> 474.1	16457	1.25 µg/L	-0.024
M7-PFUnDA	8.760	570.0 -> 525.1	17460	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	19704	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	12412	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	12454	2.50 µg/L	-0.012
M3-PFBS	5.564	302.1 -> 79.9	11130	2.50 µg/L	0.000
M3-PFHxS	7.329	402.1 -> 79.9	6549	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	9435	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1532	5.00 µg/L	0.000
M2-6:2FTS	6.999	429.1 -> 80.9	2112	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	3329	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	14053	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	29622	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	11785	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	43021	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	52310	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	6505	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	6033	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	8552	2.50 µg/L	-0.024
13C3-PFBA	3.016	216.0 -> 172.0	58892	5.00 µg/L	0.025
18O2-PFHxS	7.328	403.0 -> 83.9	4076	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	35126	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	13446	1.25 µg/L	-0.012
13C5-PFNA	7.772	468.0 -> 423.0	16865	1.25 µg/L	-0.025
13C2-PFHxA	5.648	315.1 -> 270.0	38852	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1532	6.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 137.6%		
13C2-6:2FTS	6.999	429.1 -> 80.9	2112	6.61 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 132.2%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3329	6.33 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.6%		
13C2-PFDoDA	9.219	615.1 -> 570.0	19704	1.19 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C2-PFTeDA	10.012	715.2 -> 670.0	12412	0.96 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.1%		
13C3-PFBS	5.564	302.1 -> 79.9	11130	2.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.8%		
13C3-PFHxS	7.329	402.1 -> 79.9	6549	2.90 µg/L	-0.012

7.32
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.1%	
13C4-PFBA	3.011	216.8 -> 171.9	116021	11.31 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.1%	
13C4-PFHpA	6.567	367.1 -> 322.0	25305	2.87 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.7%	
13C5-PFHxA	5.647	318.0 -> 273.0	50781	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.1%	
13C5-PFPeA	4.475	268.3 -> 223.0	65190	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C6-PFDA	8.279	519.1 -> 474.1	16457	1.39 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C7-PFUnDA	8.760	570.0 -> 525.1	17460	1.36 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C8-FOSA	9.858	506.1 -> 77.8	12454	2.23 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.1%	
13C8-PFOA	7.227	421.1 -> 376.0	31402	2.71 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C8-PFOS	8.442	507.1 -> 79.9	9435	2.85 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.8%	
13C9-PFNA	7.771	472.1 -> 427.0	17363	1.41 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.0%	
d3-MeFOSAA	8.349	573.2 -> 419.0	14053	5.58 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.6%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	29622	10.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
d3-MeFOSA	11.103	515.0 -> 219.0	6033	2.28 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
d5-EtFOSAA	8.558	589.2 -> 419.0	11785	5.76 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.1%	
d7-MeFOSE	10.986	623.2 -> 58.9	43021	19.51 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
d9-EtFOSE	11.295	639.2 -> 58.9	52310	19.38 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.5%	
d5-EtFOSA	11.386	531.1 -> 219.0	6505	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.0%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	5855	3.07 µg/L	100
		327.1 -> 80.9	2371		
6:2FTS	6.999	427.1 -> 407.0	5084	3.52 µg/L	99
		427.1 -> 80.9	2121		
8:2FTS	8.066	527.1 -> 507.0	5223	3.50 µg/L	98
		527.1 -> 80.8	2008		
EtFOSAA	8.559	584.2 -> 419.1	1360	0.77 µg/L	m 86
		584.2 -> 526.0	637		
FOSA	9.862	498.1 -> 77.9	3538	0.88 µg/L	99
		498.1 -> 478.0	106		
MeFOSAA	8.350	570.1 -> 419.0	1447	0.75 µg/L	82
		570.1 -> 483.0	337		
PFBA	3.020	212.8 -> 168.9	8707	3.29 µg/L	100
PFBS	5.553	298.7 -> 79.9	3029	0.73 µg/L	97
		298.7 -> 98.8	1219		
PFDA	8.292	512.9 -> 469.0	7934	0.84 µg/L	98
		512.9 -> 219.0	1464		
PFDODA	9.220	613.1 -> 569.0	9902	0.80 µg/L	98
		613.1 -> 319.0	1469		
PFDS	9.382	599.0 -> 79.9	1637	0.78 µg/L	87

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8	651	0.87	µg/L	97
		363.1 -> 319.0	10941			
PFHpS	7.912	363.1 -> 169.0	1790	0.87	µg/L	95
		449.0 -> 79.9	2143			
PFHxA	5.650	449.0 -> 98.9	1038	0.86	µg/L	99
		313.0 -> 269.0	12997			
PFHxS	7.330	313.0 -> 118.9	443	0.74	µg/L	95
		398.7 -> 79.9	1651			
PFNA	7.785	398.7 -> 98.9	913	0.75	µg/L	85
		463.0 -> 419.0	6940			
PFNS	8.925	463.0 -> 219.0	2073	0.79	µg/L	95
		548.8 -> 79.9	1140			
PFOA	7.228	548.8 -> 98.9	546	0.80	µg/L	100
		413.0 -> 369.0	11687			
PFOS	8.443	413.0 -> 169.0	2377	0.81	µg/L	80
		498.9 -> 79.9	2989			
PFPeA	4.477	498.9 -> 98.8	1359	1.70	µg/L	100
		263.0 -> 219.0	20939			
PFPeS	6.607	349.1 -> 79.9	1721	0.90	µg/L	95
		349.1 -> 98.9	678			
PFTeDA	10.013	713.1 -> 669.0	7991	0.82	µg/L	98
		713.1 -> 168.9	682			
PFTrDA	9.630	663.0 -> 619.0	12194	0.76	µg/L	100
		663.0 -> 168.9	1203			
PFUnDA	8.761	563.1 -> 519.0	7942	0.80	µg/L	97
		563.1 -> 269.1	1452			
11Cl-PF3OUdS	9.681	630.9 -> 450.9	12063	1.56	µg/L	98
		632.9 -> 452.9	3898			
9Cl-PF3ONS	8.788	530.8 -> 351.0	13198	1.53	µg/L	99
		532.8 -> 353.0	4155			
ADONA	6.831	376.9 -> 250.9	29217	1.64	µg/L	99
		376.9 -> 84.8	8004			
HFPO-DA	6.015	284.9 -> 168.9	3952	1.68	µg/L	99
		284.9 -> 184.9	508			
3:3FTCA	3.979	241.0 -> 177.0	2225	3.87	µg/L	97
		241.0 -> 117.0	190			
5:3FTCA	6.333	341.0 -> 237.1	46312	21.81	µg/L	99
		341.0 -> 217.0	32539			
7:3FTCA	7.774	441.0 -> 316.9	18829	21.64	µg/L	99
		441.0 -> 336.9	41873			
EtFOSA	11.388	526.0 -> 219.0	3801	1.64	µg/L	66
		526.0 -> 169.0	5292			
EtFOSE	11.308	630.0 -> 58.9	6597	4.09	µg/L	100
		511.9 -> 219.0	2996			
MeFOSA	11.104	511.9 -> 169.0	4764	1.54	µg/L	69
		616.1 -> 58.9	6286			
MeFOSE	11.012	699.1 -> 79.9	1238	4.16	µg/L	100
		699.1 -> 98.8	805			
PFDoDS	10.152	295.0 -> 201.0	1903	0.68	µg/L	88
		295.0 -> 84.9	551			
NFDHA	5.541	279.0 -> 85.1	11733	1.88	µg/L	92
		229.0 -> 84.9	10417			
PFMBA	4.878	314.8 -> 134.9	18834	1.66	µg/L	100
PFMPA	3.615	314.8 -> 82.9	698	1.69	µg/L	100
PFEESA	6.096			1.49	µg/L	99

= Qualifier out of range, m = manually integrated, + = Area summed

7.3.2
7

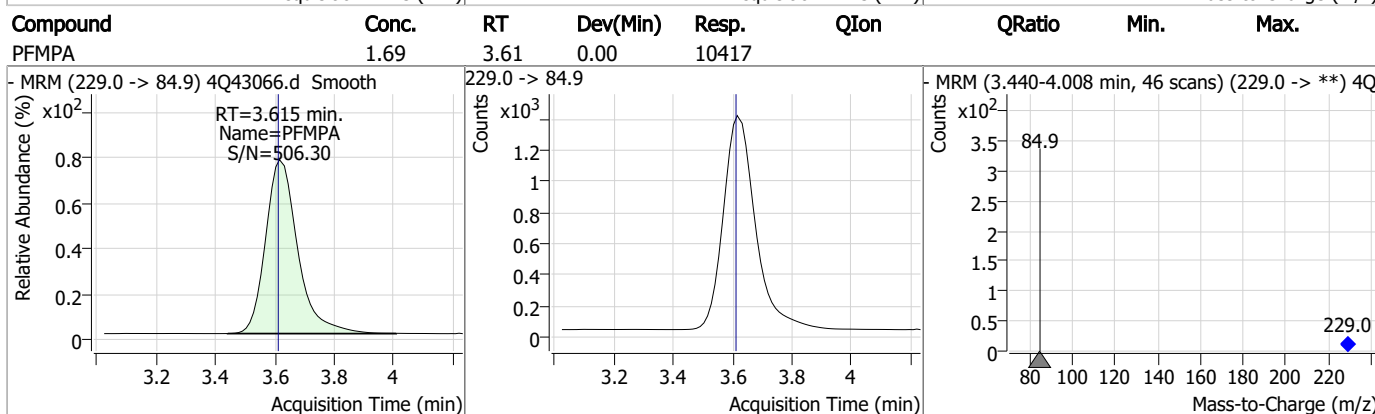
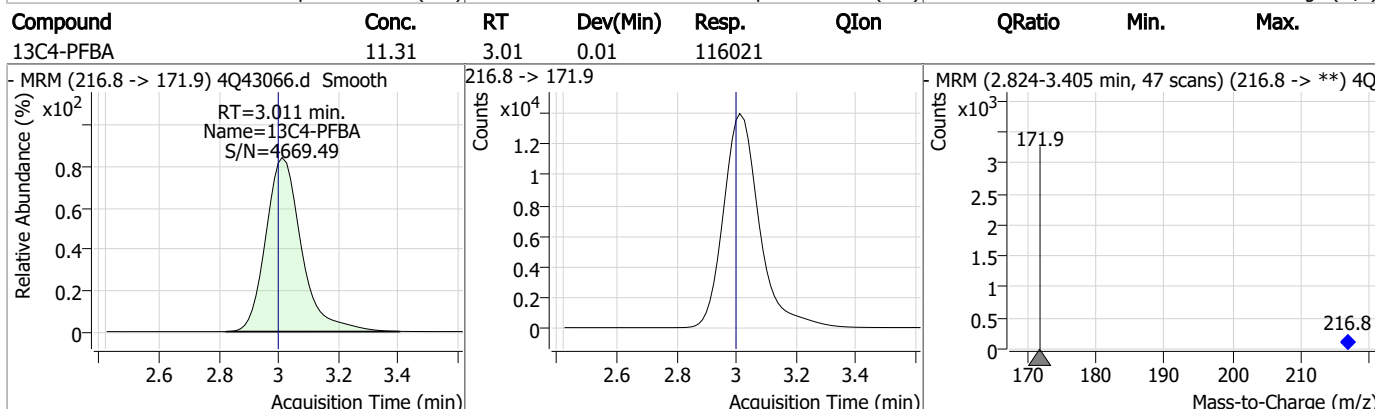
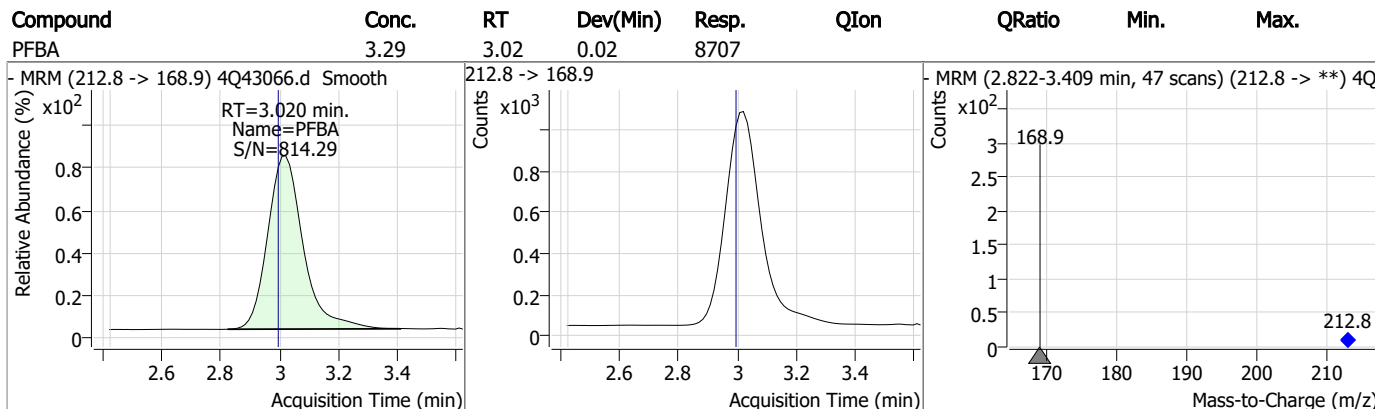
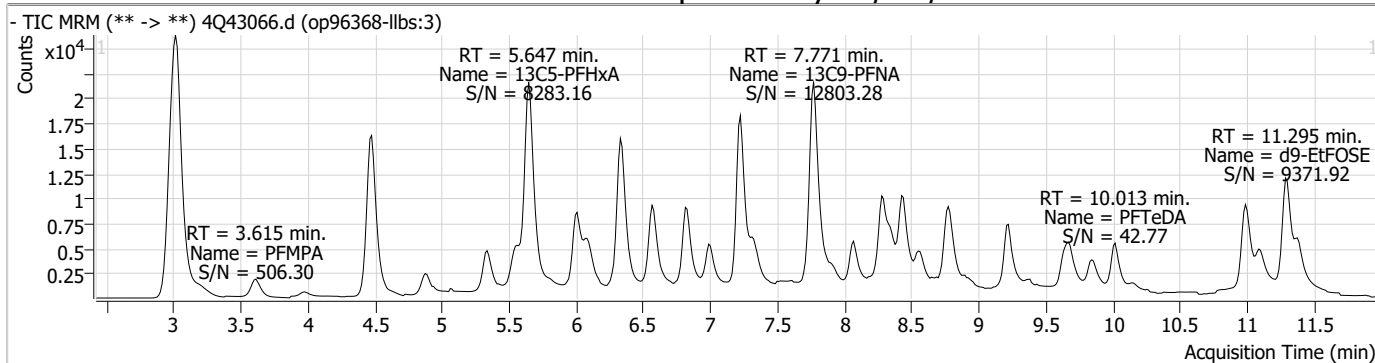
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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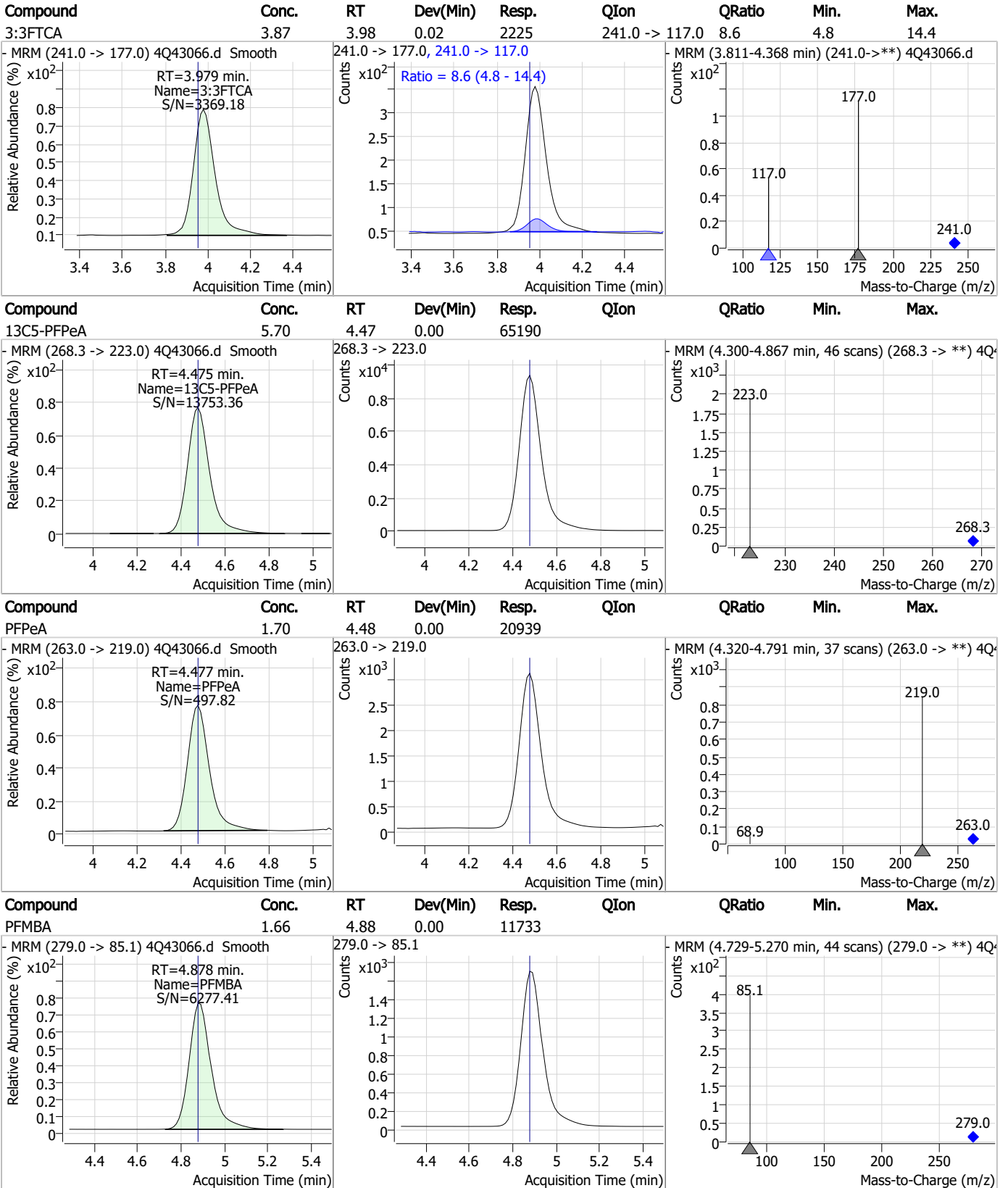
7.3.2

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

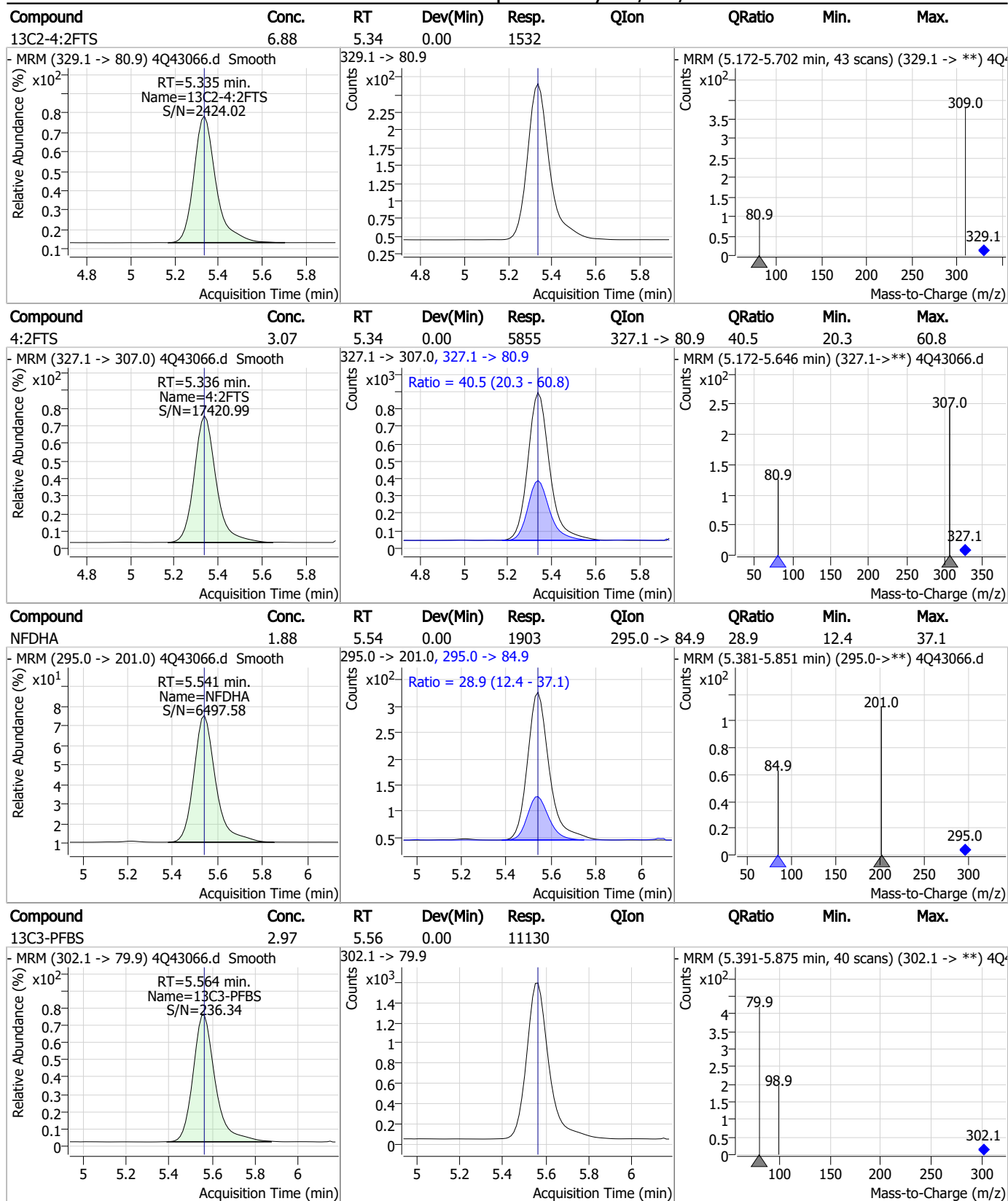


7.3.2

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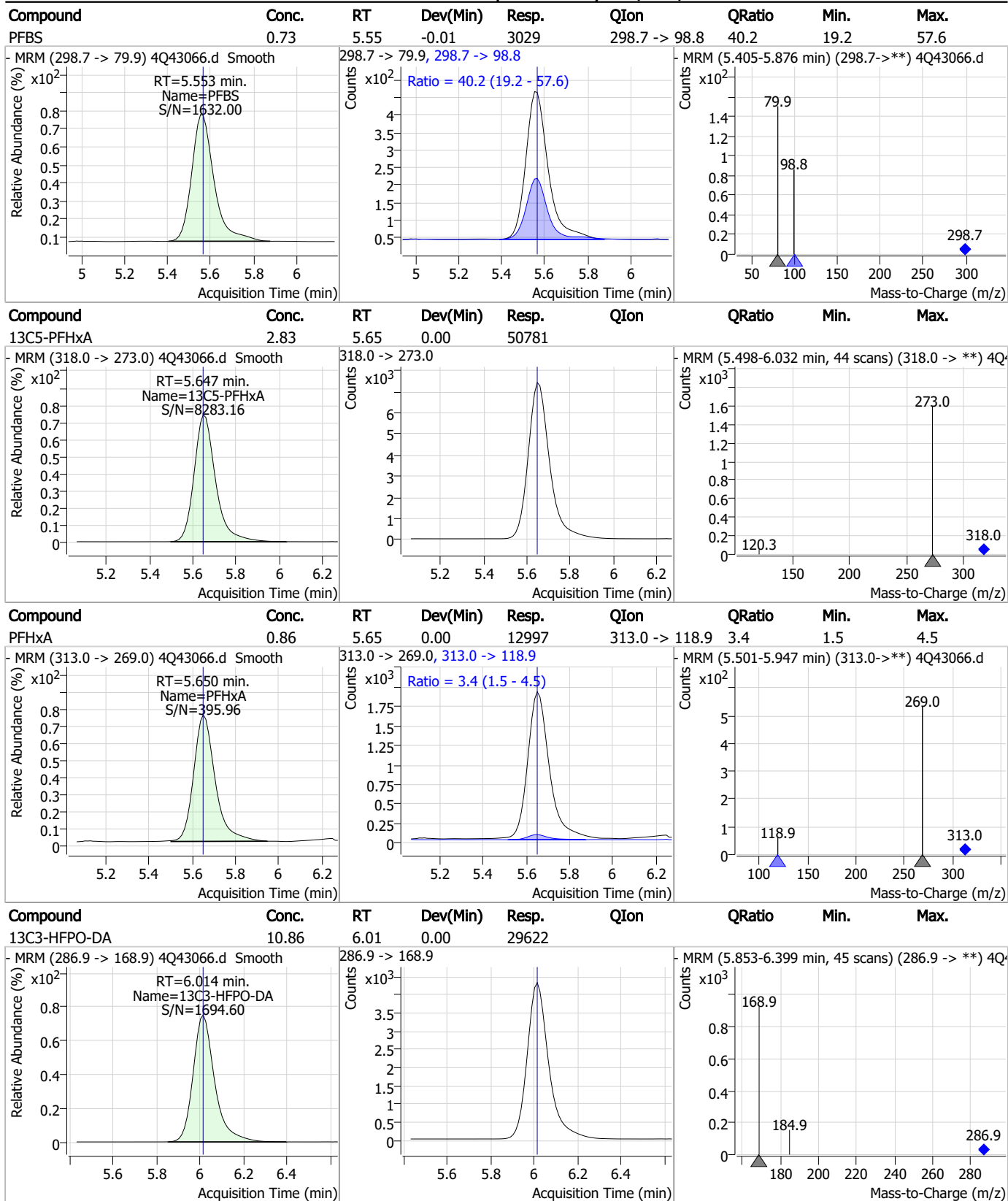


Perfluorinated Compounds by LC/MS/MS



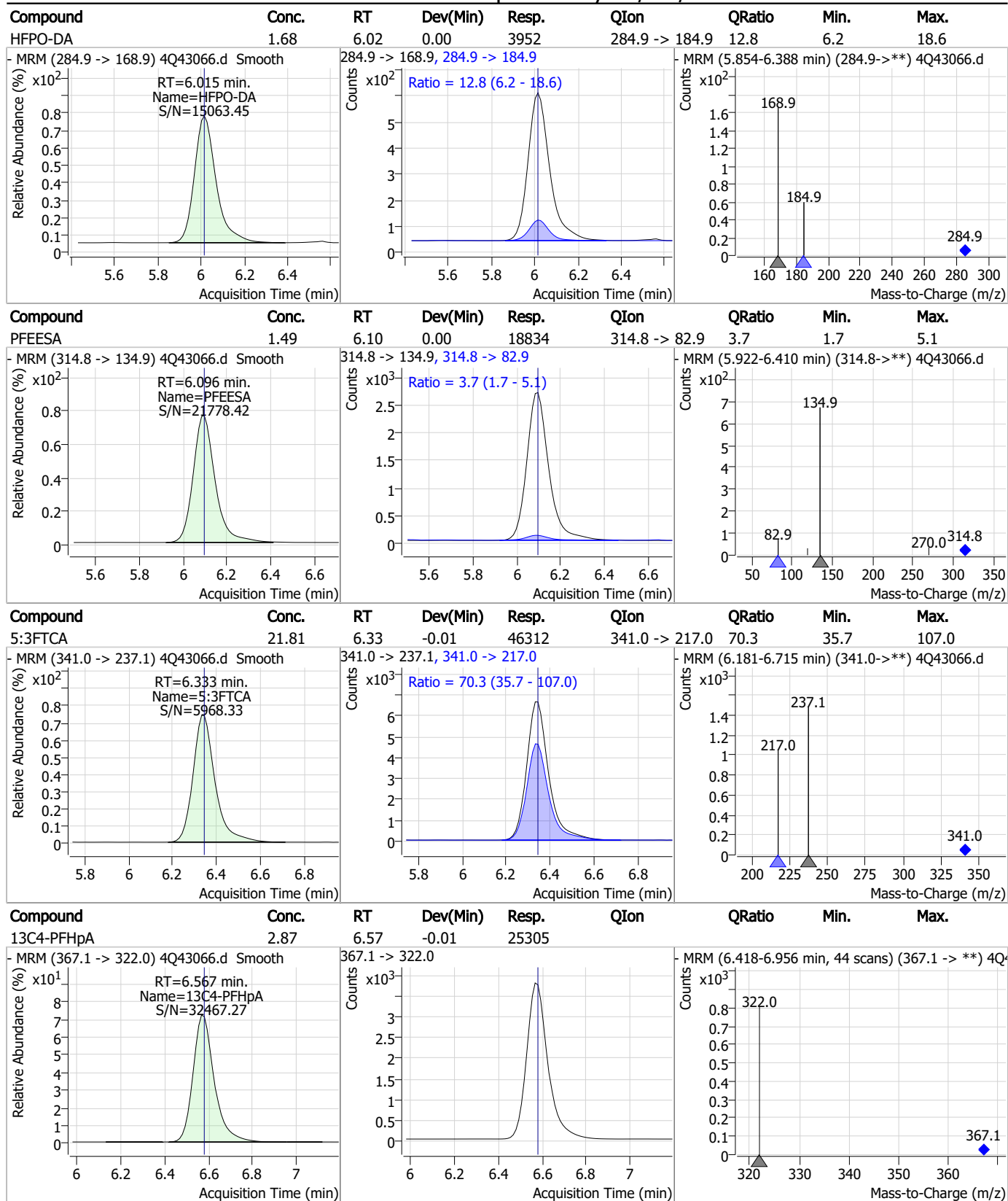
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



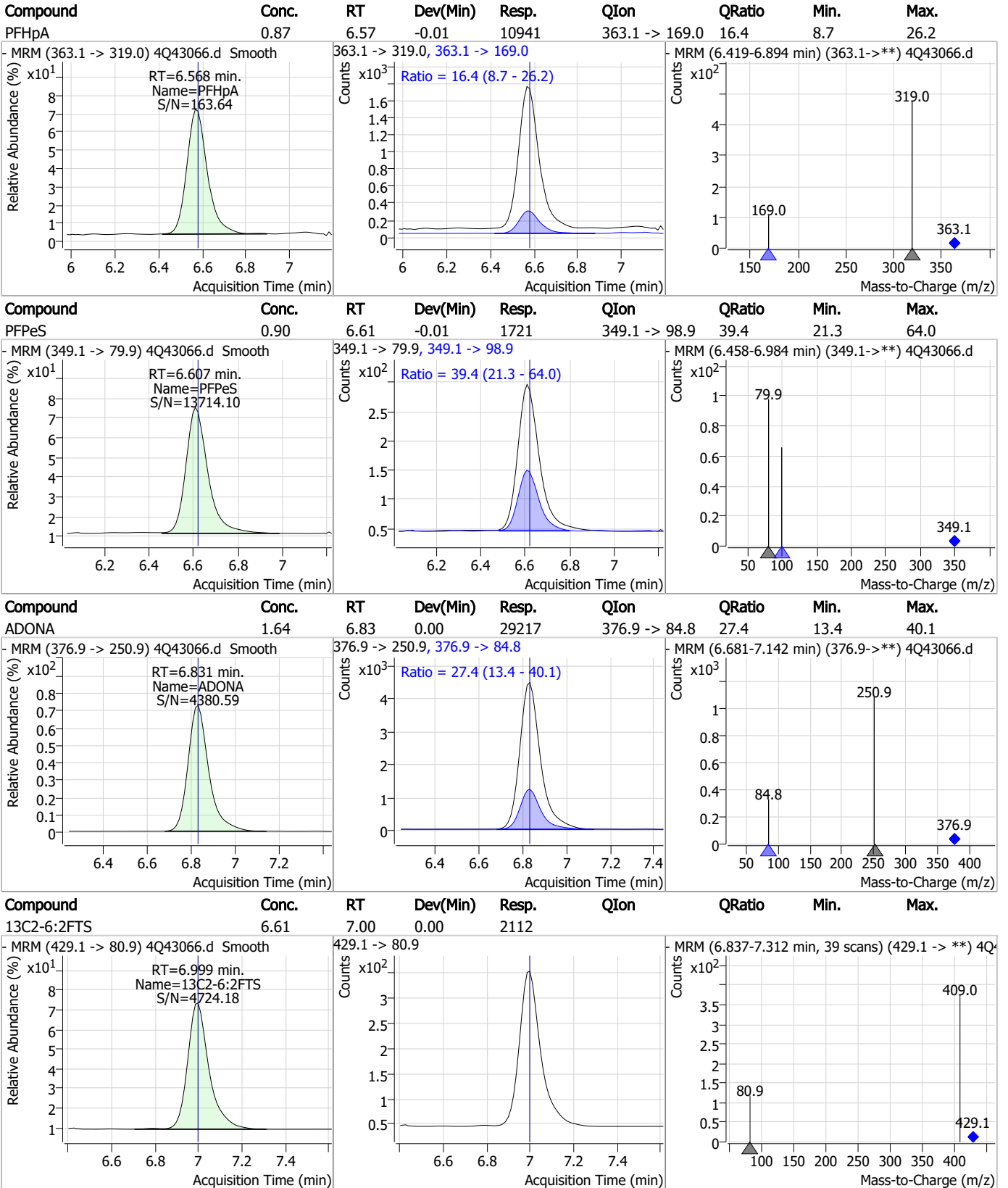
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

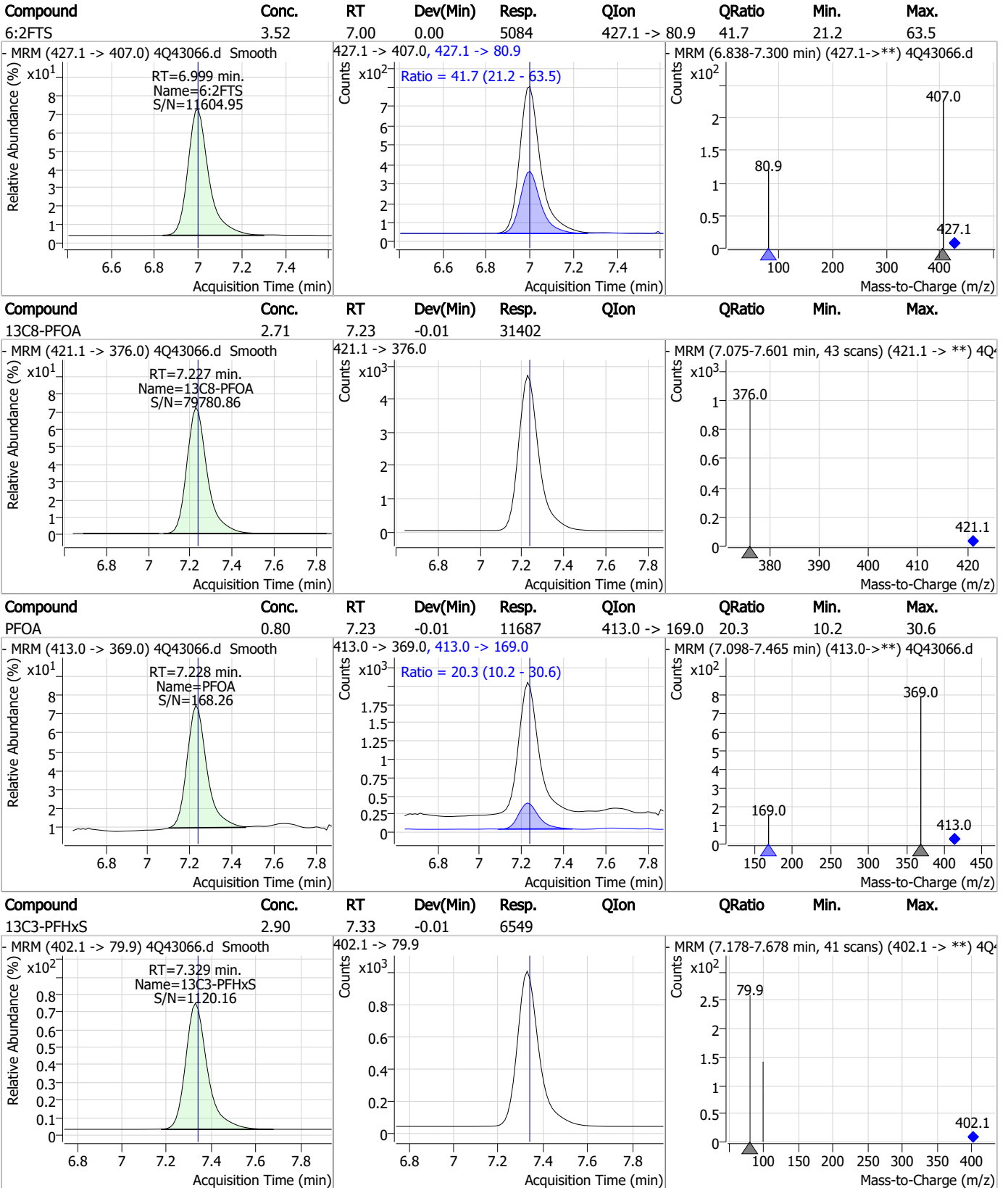
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

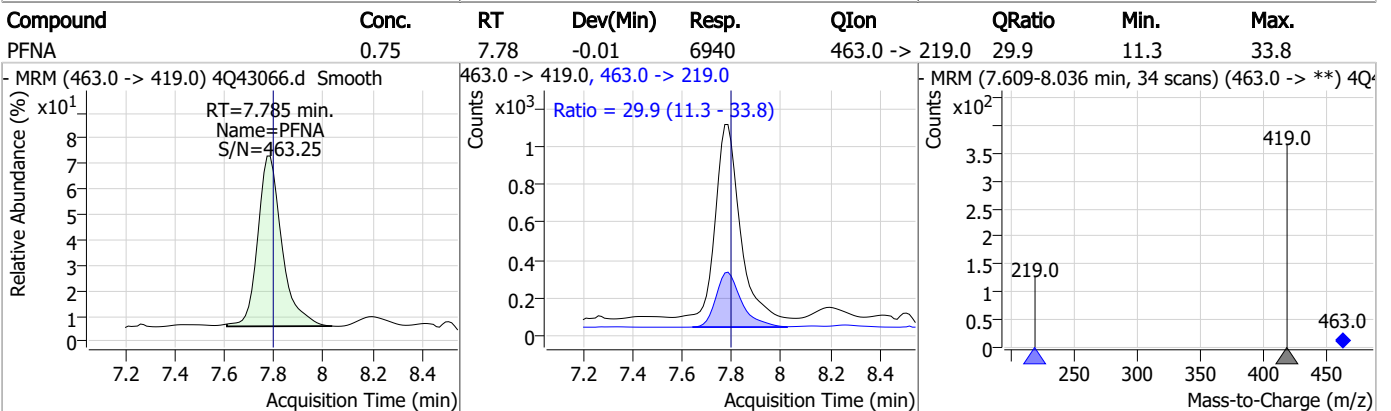
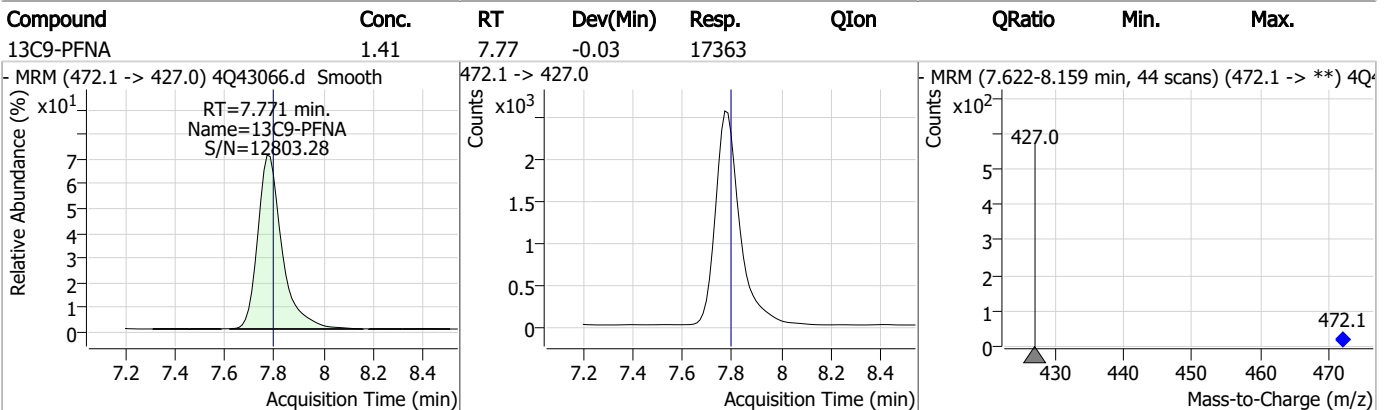
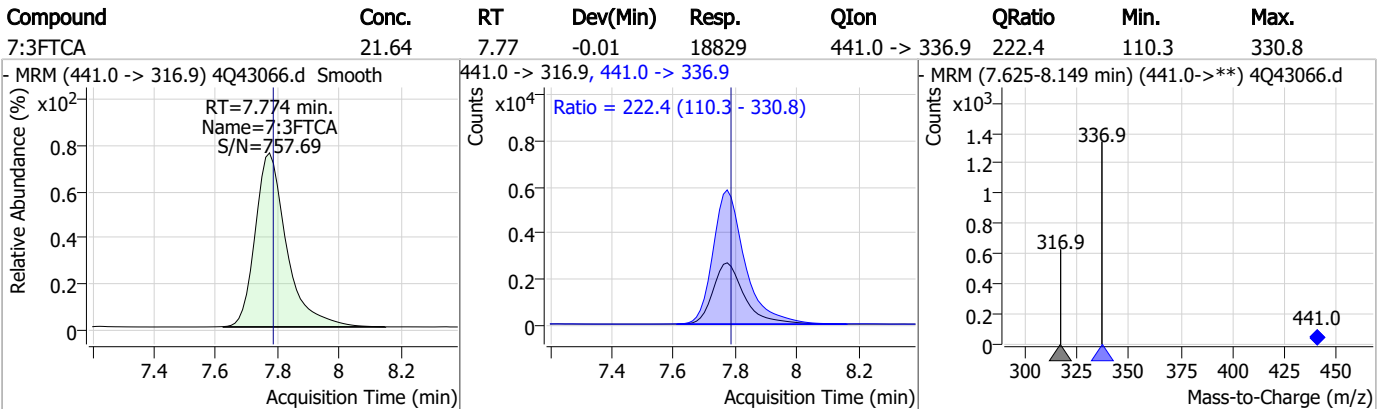
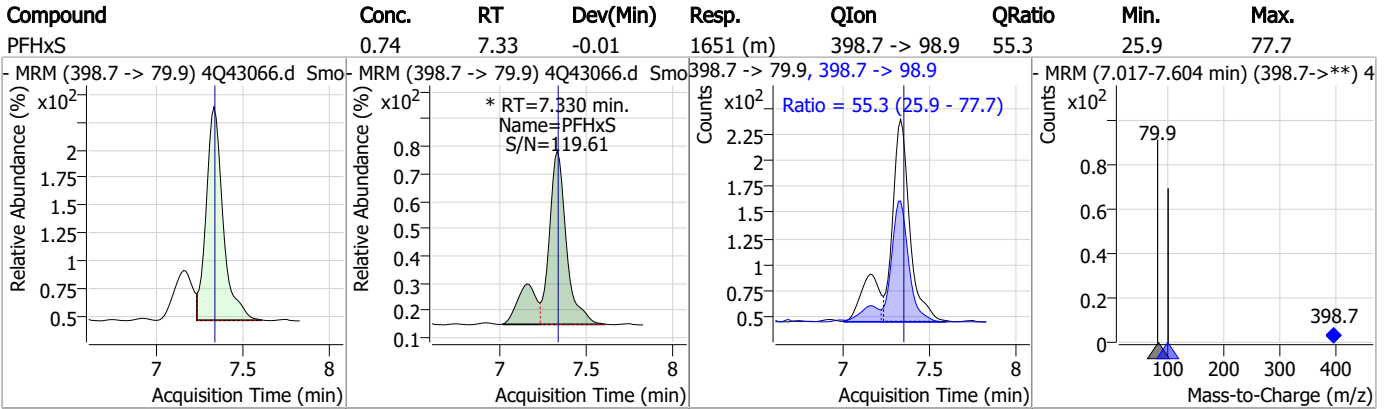
Perfluorinated Compounds by LC/MS/MS



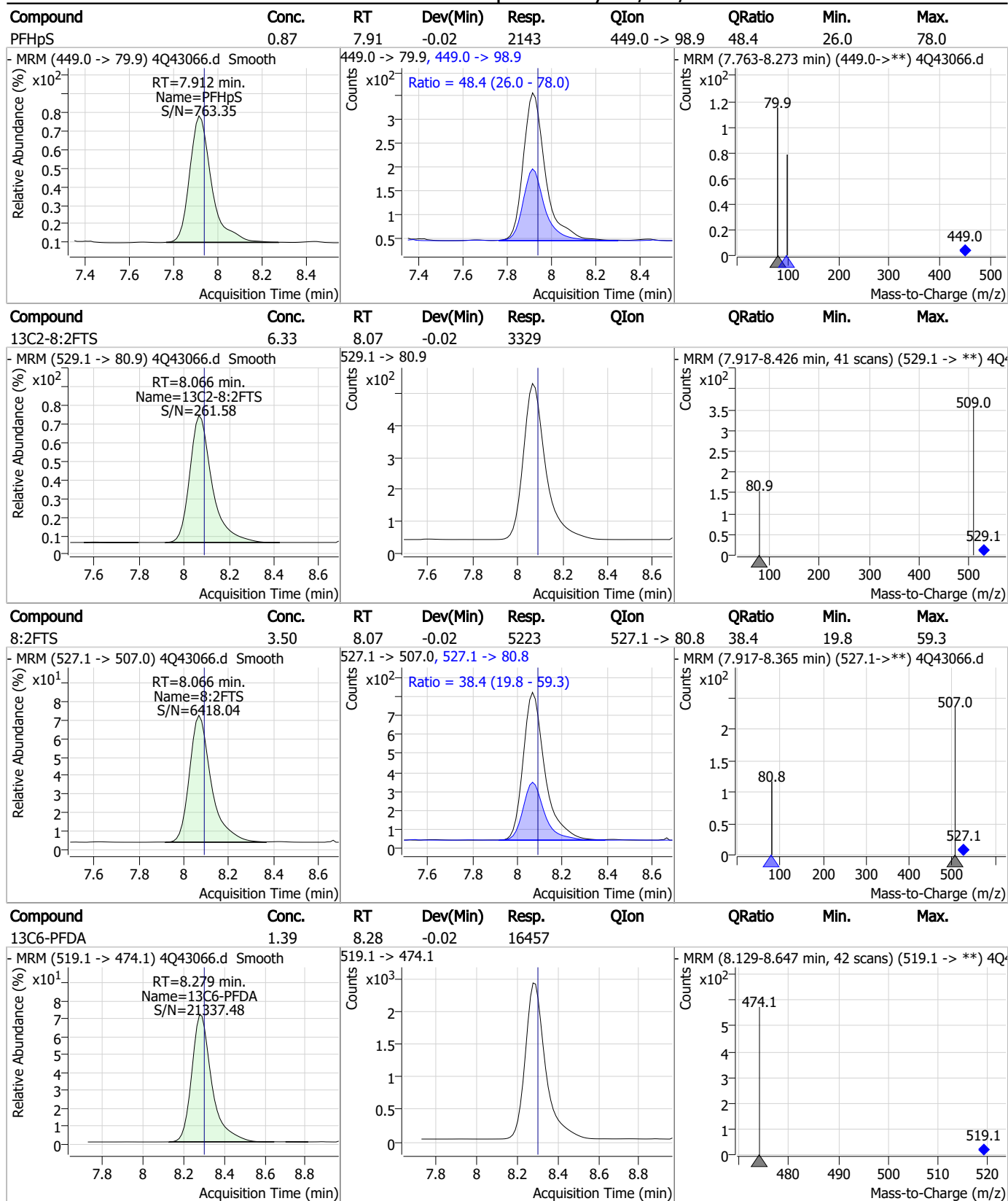
7.3.2

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Perfluorinated Compounds by LC/MS/MS

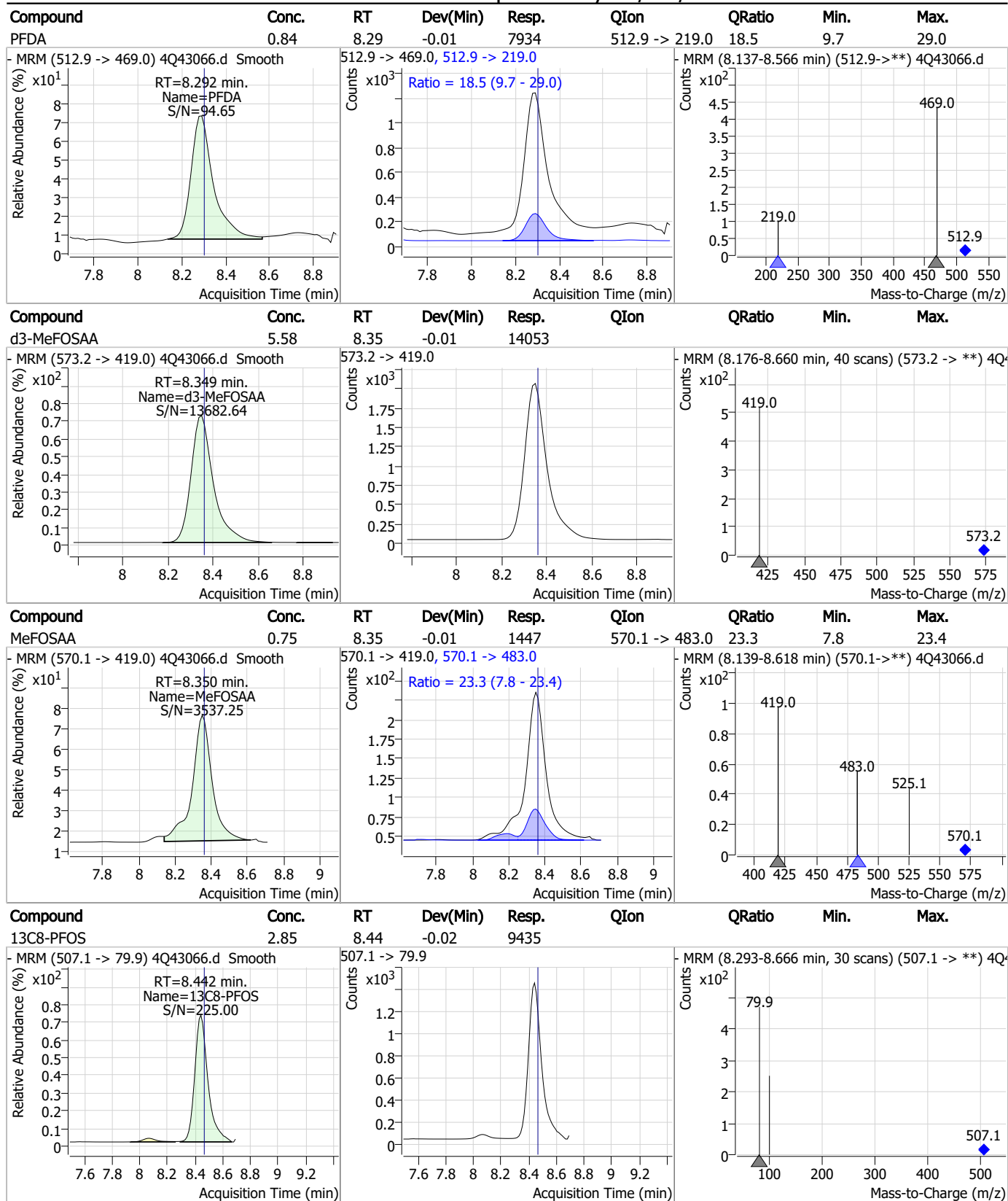


Perfluorinated Compounds by LC/MS/MS



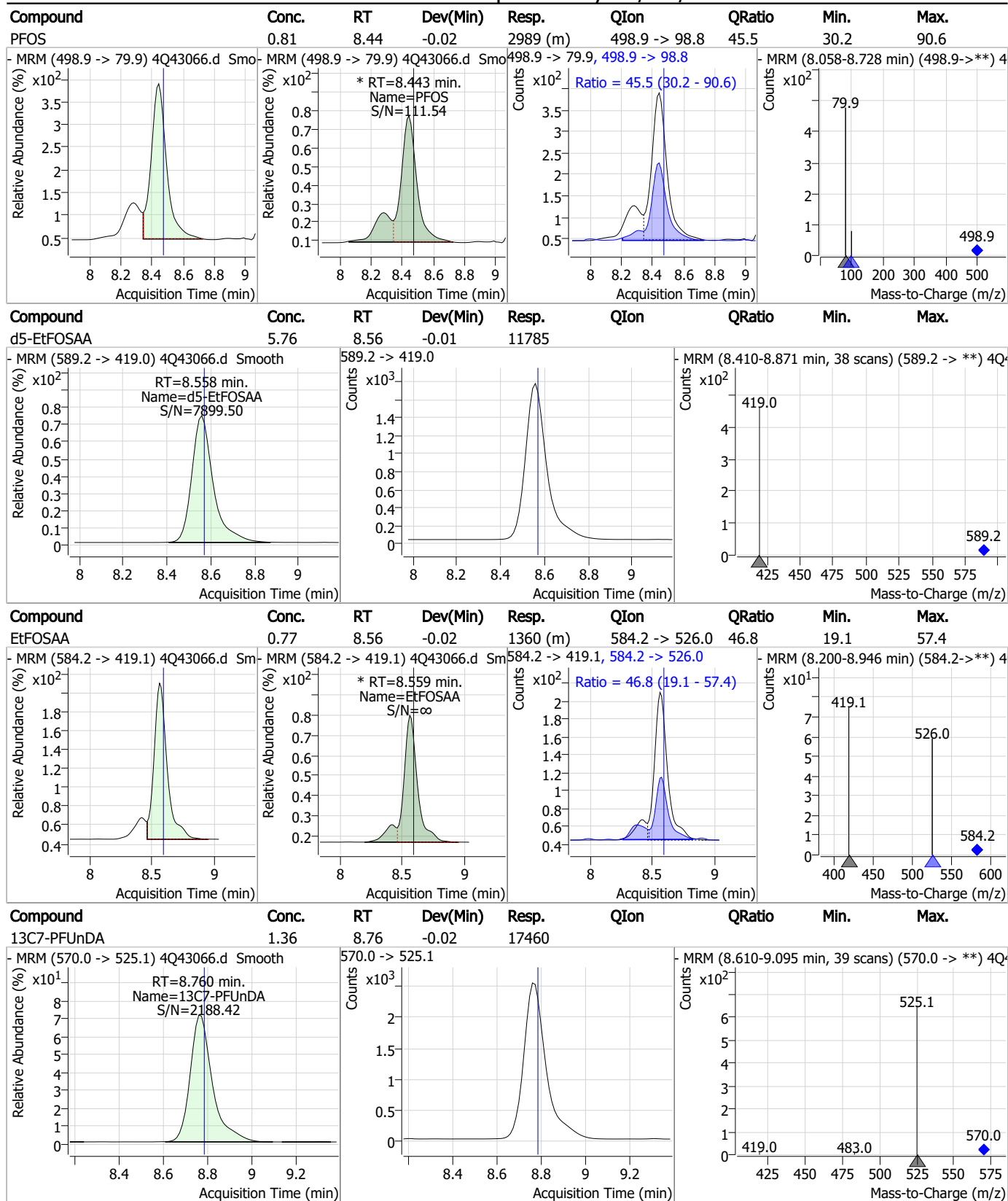
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Perfluorinated Compounds by LC/MS/MS



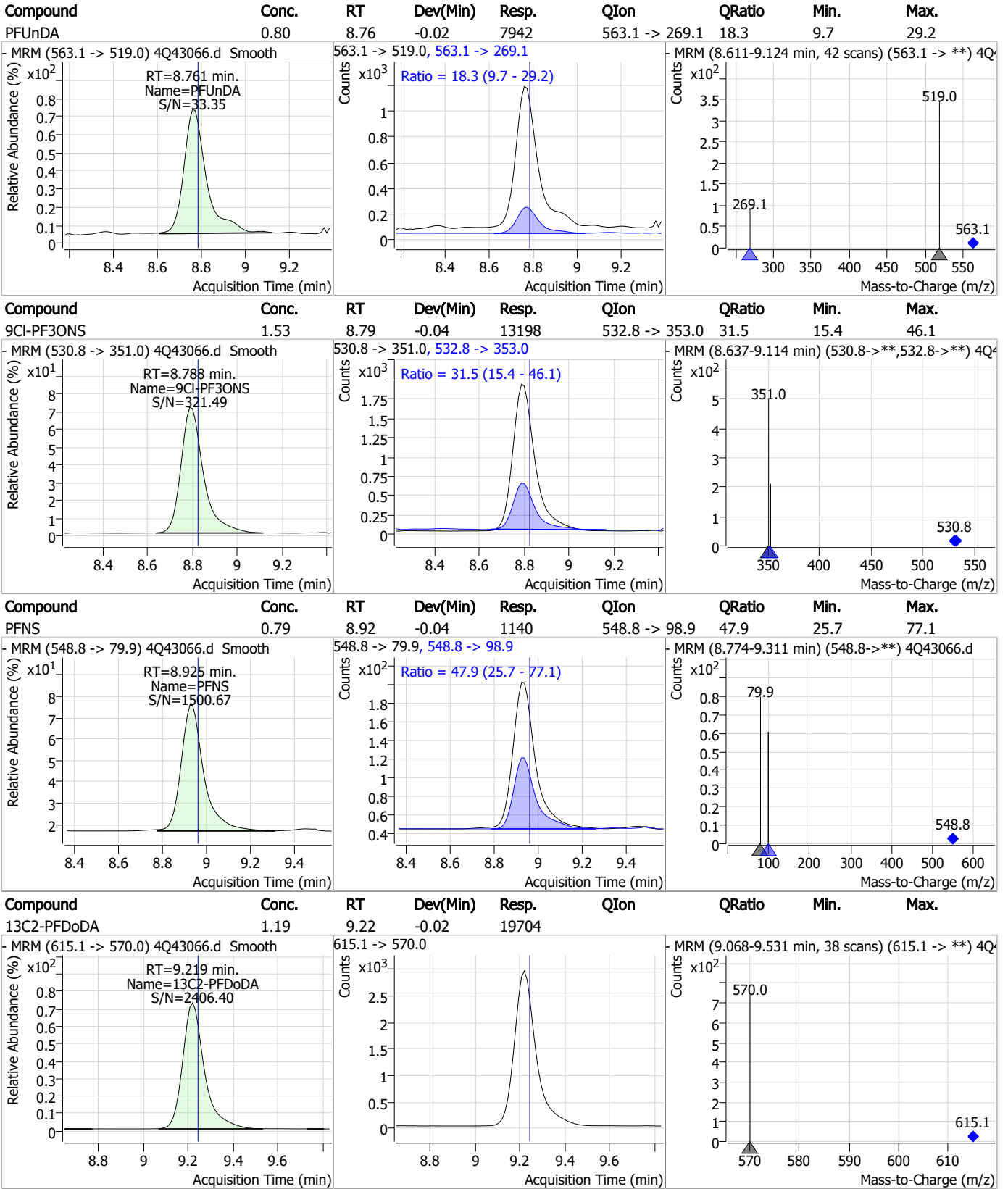
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

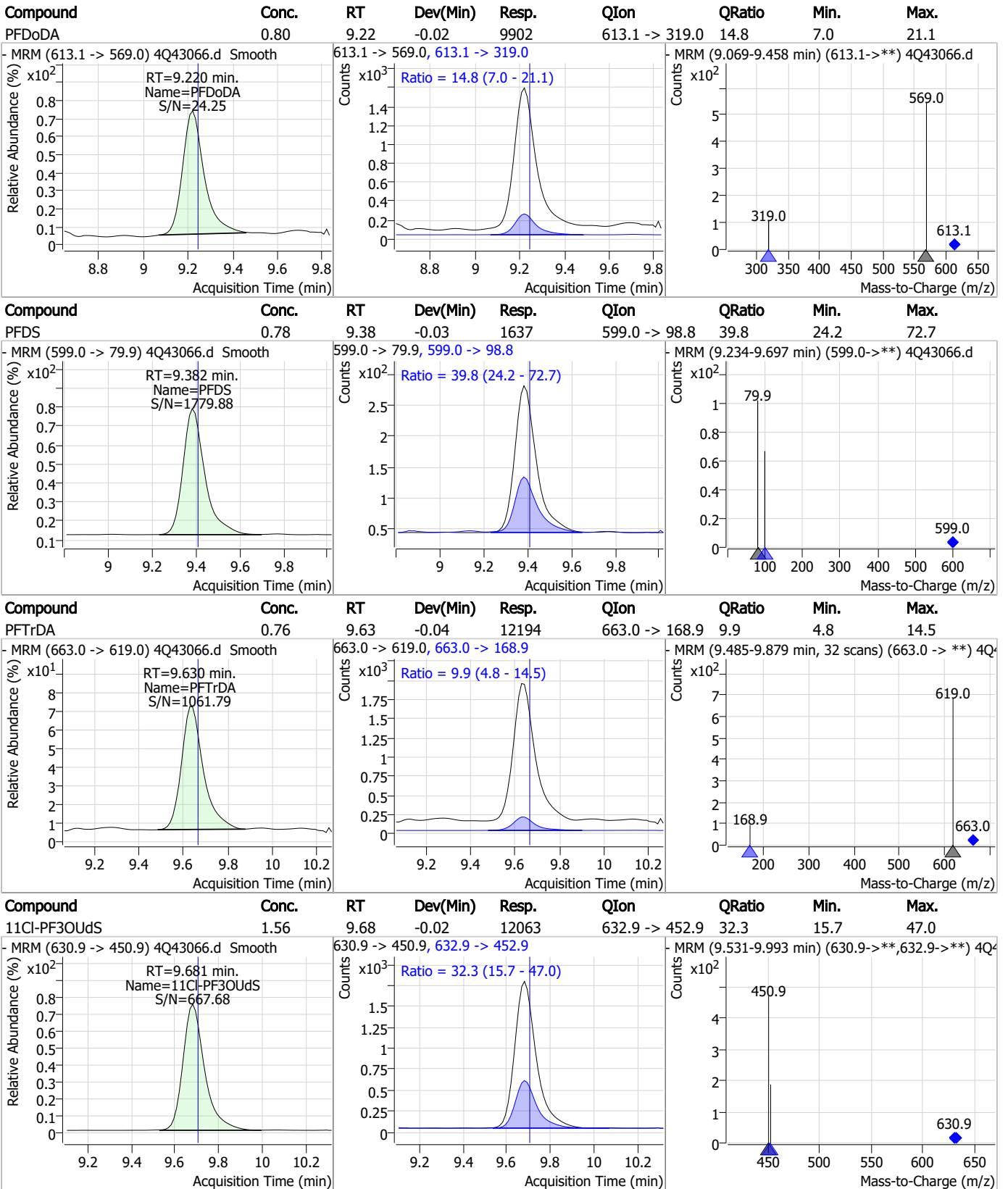
Perfluorinated Compounds by LC/MS/MS



7.3.2

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Perfluorinated Compounds by LC/MS/MS

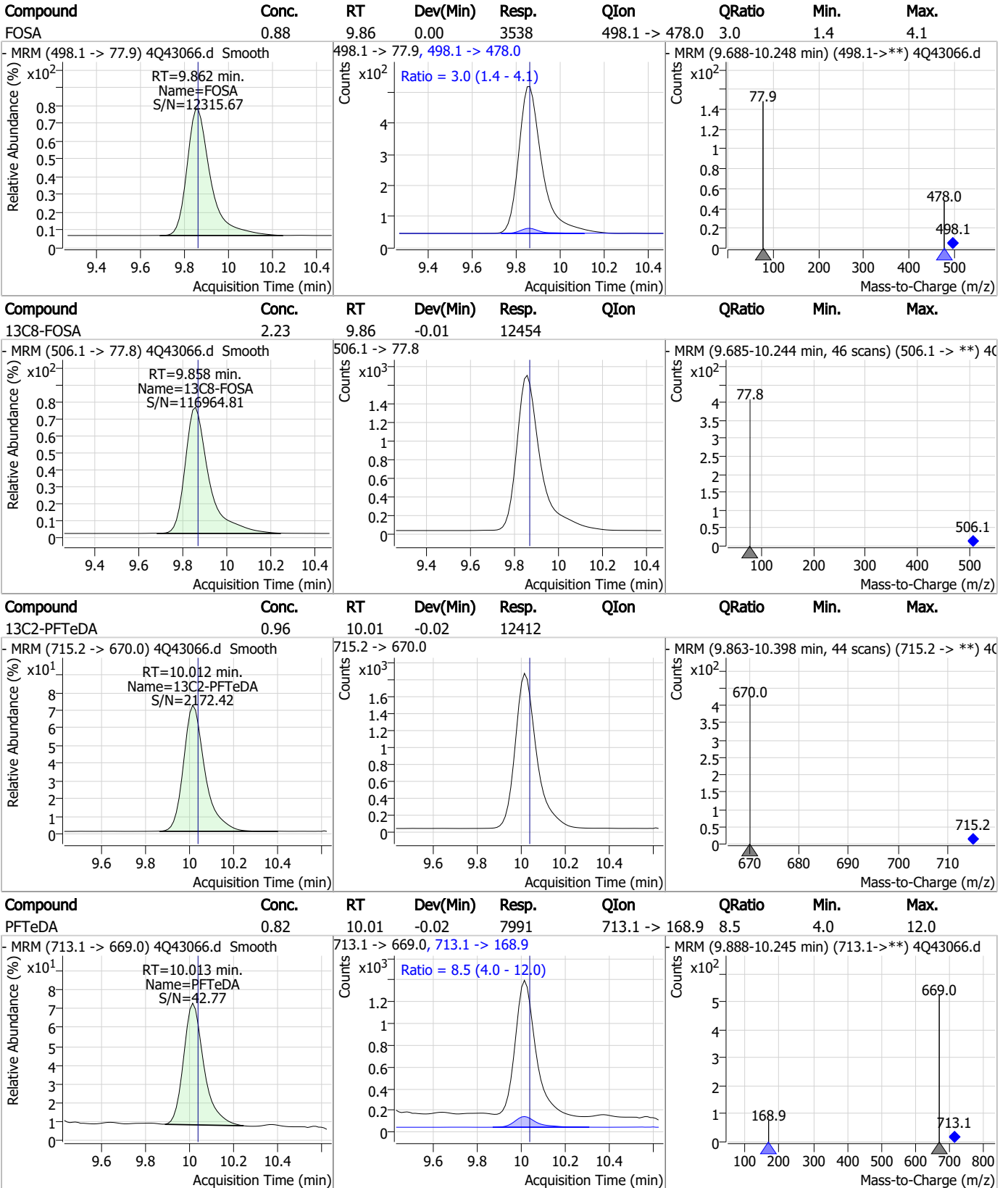


7.3.2

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Perfluorinated Compounds by LC/MS/MS



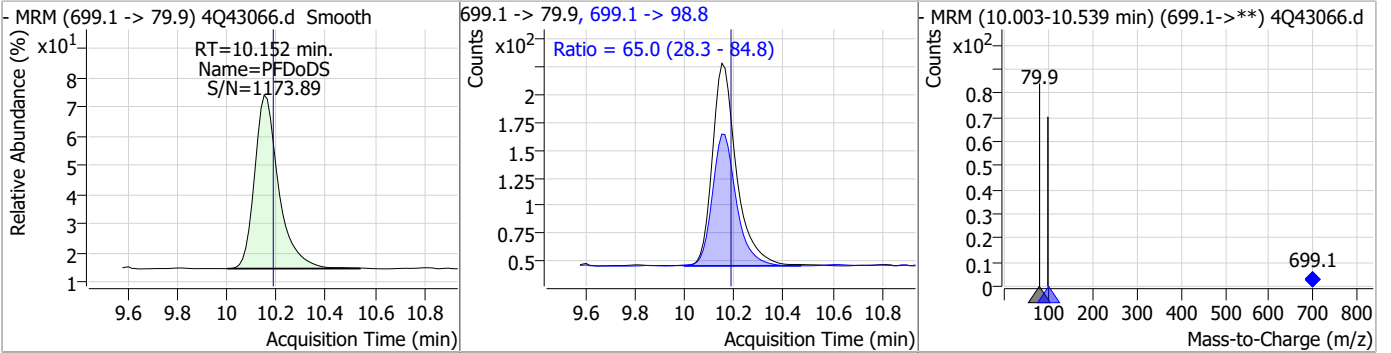
7.3.2

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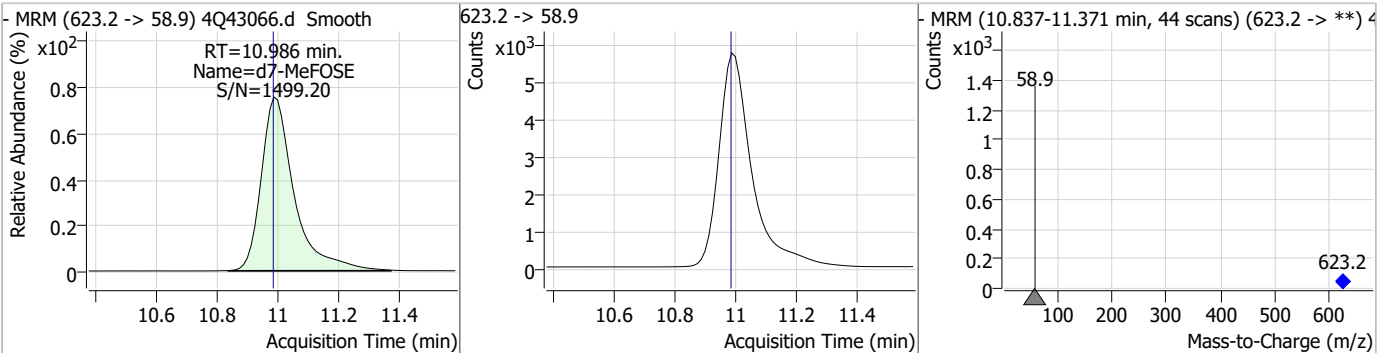


Perfluorinated Compounds by LC/MS/MS

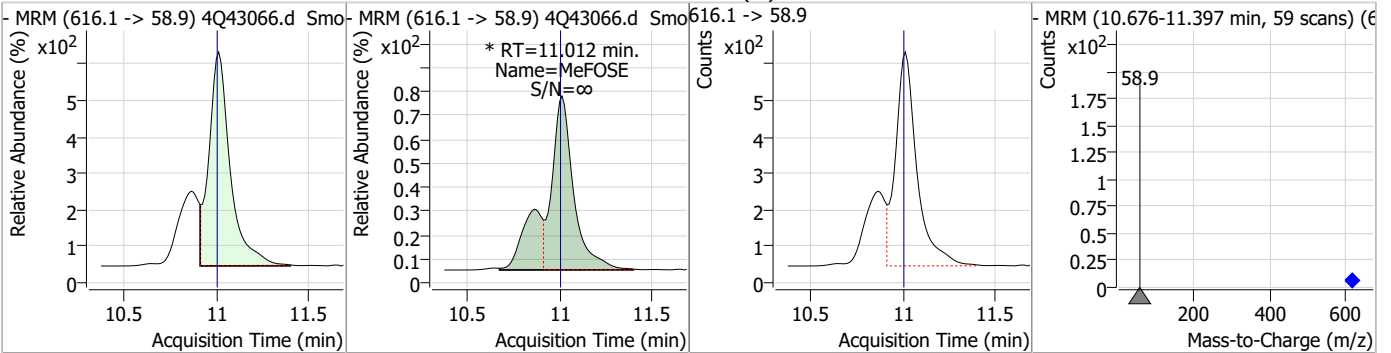
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.68	10.15	-0.04	1238	699.1 -> 98.8	65.0	28.3	84.8



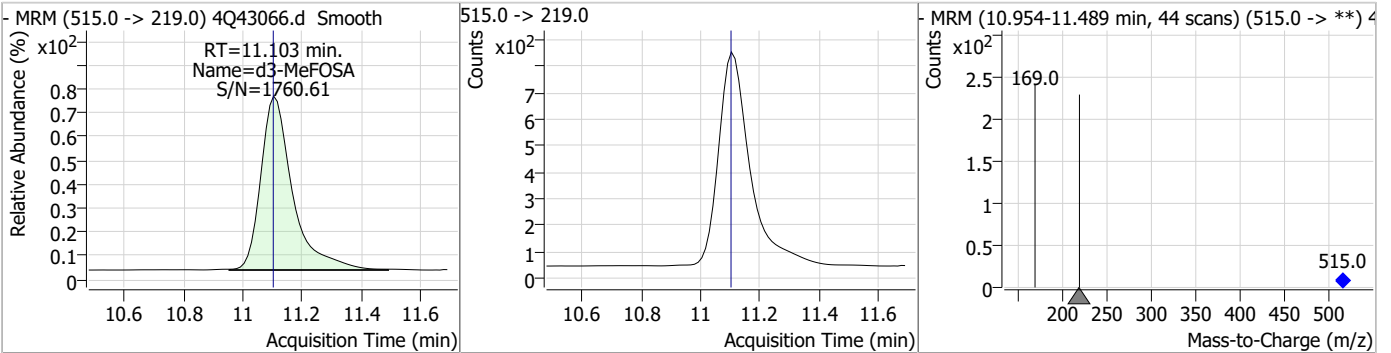
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.51	10.99	0.00	43021				



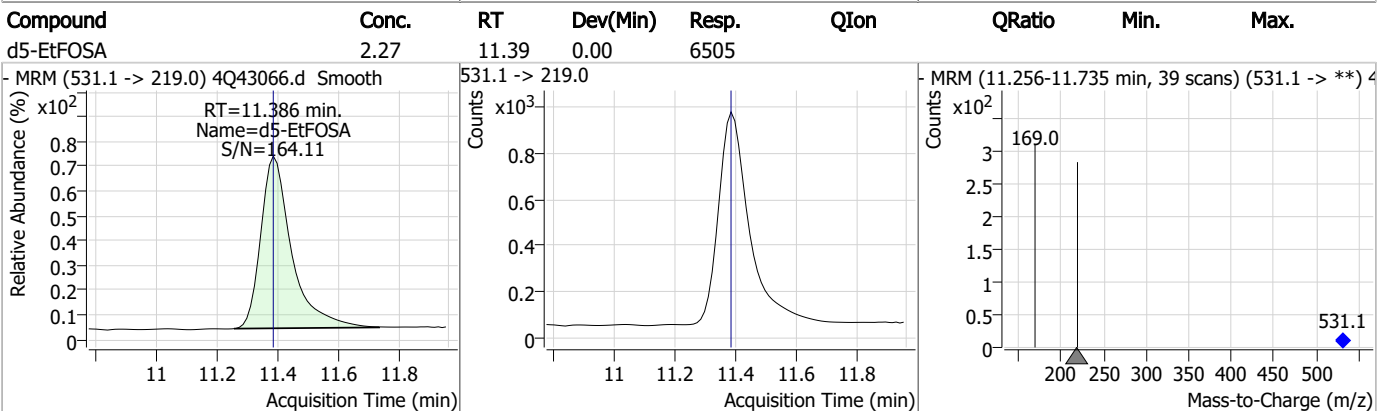
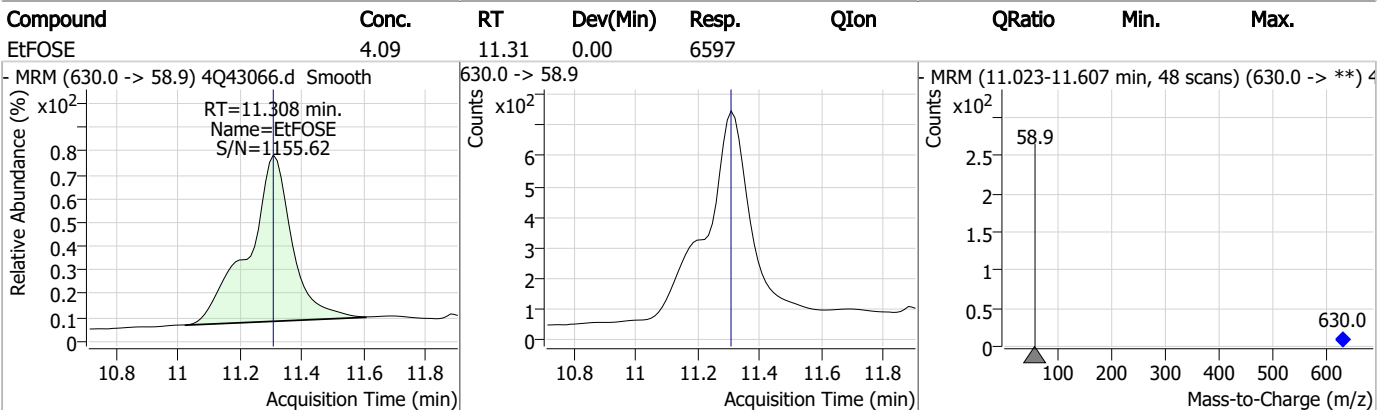
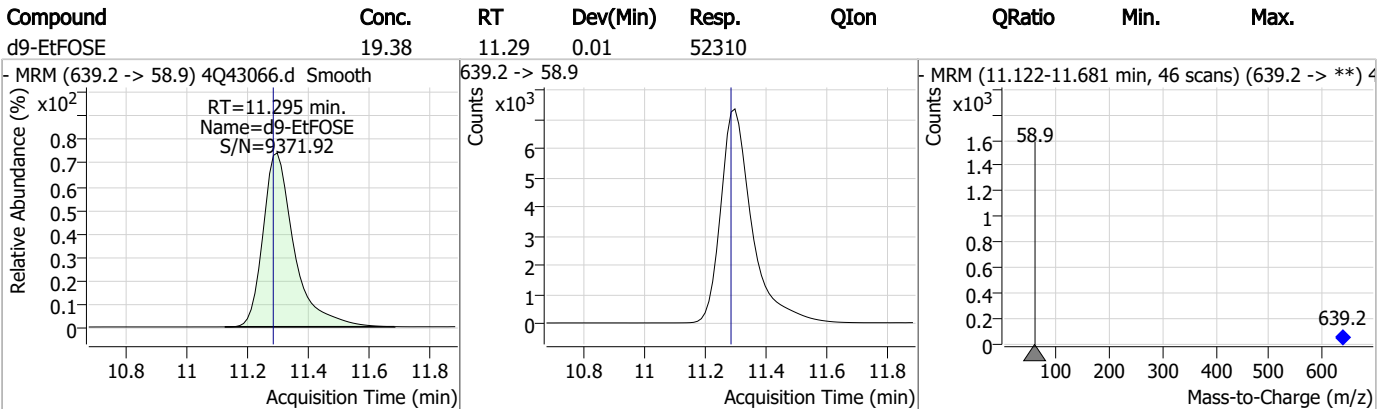
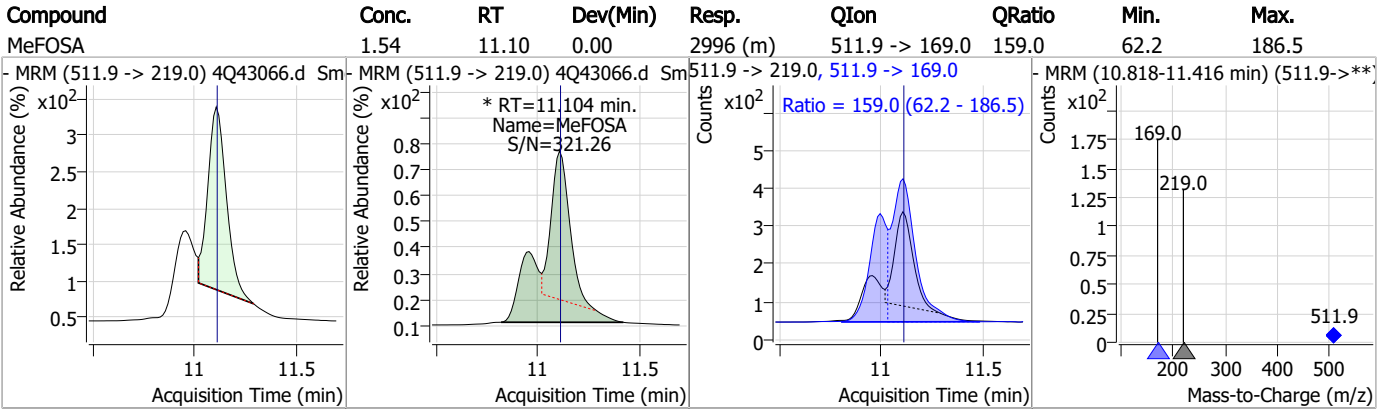
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	4.16	11.01	0.01	6286 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.28	11.10	0.00	6033				



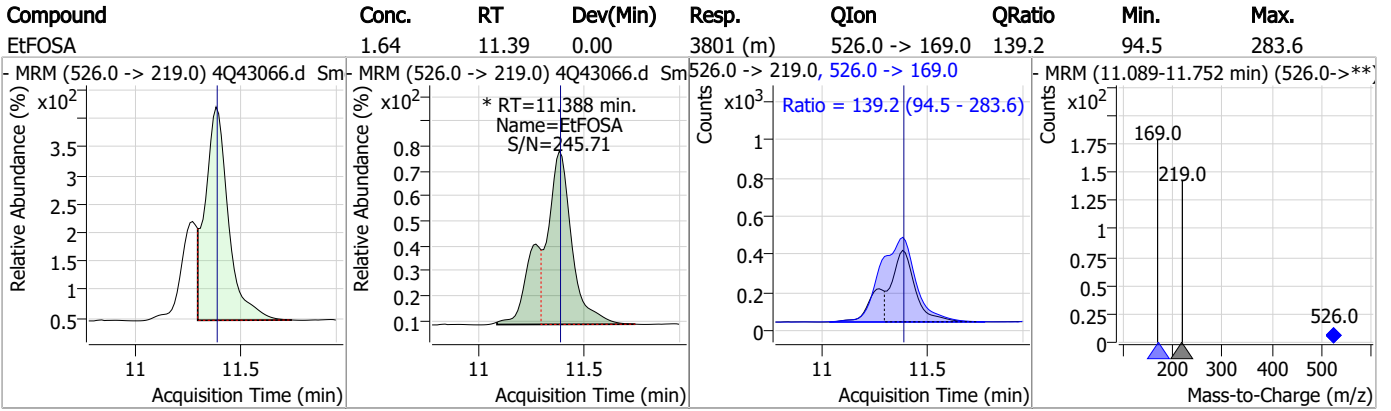
Perfluorinated Compounds by LC/MS/MS



7.3.2

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Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Manual Integration Approval Summary

Sample Number: OP96368-LLBS Method: EPA DRAFT 1633
Lab FileID: 4Q43066.D Analyst approved: 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 18:50 Supervisor approved: 04/17/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.44	Split peak
EtFOSAA	2991-50-6		8.56	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.3.2.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43071.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 8:00:48 PM
 Sample Name : op96368-ms
 Vial : P4-D3
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96368,S4q622,540,,,5,0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	2458	10.00 µg/L	0.000
M5-PFPeA	4.462	268.3 -> 223.0	24209	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	47028	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	23894	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	28844	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	15858	1.25 µg/L	-0.025
M6-PFDA	8.279	519.1 -> 474.1	15791	1.25 µg/L	-0.024
M7-PFUnDA	8.760	570.0 -> 525.1	16699	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	18521	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	9201	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	13132	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	9989	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	5972	2.50 µg/L	-0.012
M8-PFOS	8.430	507.1 -> 79.9	8175	2.50 µg/L	-0.037
M2-4:2FTS	5.323	329.1 -> 80.9	1531	5.00 µg/L	-0.012
M2-6:2FTS	6.999	429.1 -> 80.9	1789	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	2888	5.00 µg/L	-0.024
M3-MeFOSAA	8.337	573.2 -> 419.0	14808	5.00 µg/L	-0.024
M3-HFPO-DA	6.002	286.9 -> 168.9	27395	10.00 µg/L	-0.012
M5-EtFOSAA	8.546	589.2 -> 419.0	11974	5.00 µg/L	-0.024
M7-MeFOSE	10.986	623.2 -> 58.9	38008	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	45169	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	7139	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	6885	2.50 µg/L	0.001
13C4-PFOS	8.430	502.8 -> 79.9	7991	2.50 µg/L	-0.037
13C3-PFBA	3.003	216.0 -> 172.0	57008	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	4182	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	34137	2.50 µg/L	-0.010
13C2-PFDA	8.279	515.1 -> 470.1	13868	1.25 µg/L	-0.024
13C5-PFNA	7.772	468.0 -> 423.0	17640	1.25 µg/L	-0.025
13C2-PFHxA	5.648	315.1 -> 270.0	40312	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1531	6.70 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 134.1%		
13C2-6:2FTS	6.999	429.1 -> 80.9	1789	5.46 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-8:2FTS	8.066	529.1 -> 80.9	2888	5.35 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-PFDoDA	9.219	615.1 -> 570.0	18521	1.08 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.8%		
13C2-PFTeDA	10.012	715.2 -> 670.0	9201	0.69 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 55.4%		
13C3-PFBS	5.552	302.1 -> 79.9	9989	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C3-PFHxS	7.329	402.1 -> 79.9	5972	2.58 µg/L	-0.012

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C4-PFBA	2.999	216.8 -> 171.9	2458	0.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 2.5%		
13C4-PFHpA	6.567	367.1 -> 322.0	23894	2.61 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C5-PFHxA	5.647	318.0 -> 273.0	47028	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C5-PFPeA	4.462	268.3 -> 223.0	24209	2.04 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 40.8%		
13C6-PFDA	8.279	519.1 -> 474.1	15791	1.29 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C7-PFUnDA	8.760	570.0 -> 525.1	16699	1.26 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C8-FOSA	9.858	506.1 -> 77.8	13132	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C8-PFOA	7.227	421.1 -> 376.0	28844	2.57 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C8-PFOS	8.430	507.1 -> 79.9	8175	2.64 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C9-PFNA	7.771	472.1 -> 427.0	15858	1.23 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.7%		
d3-MeFOSAA	8.337	573.2 -> 419.0	14808	6.29 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.8%		
13C3-HFPO-DA	6.002	286.9 -> 168.9	27395	9.68 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.8%		
d3-MeFOSA	11.103	515.0 -> 219.0	6885	2.78 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.3%		
d5-EtFOSAA	8.546	589.2 -> 419.0	11974	6.26 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 125.2%		
d7-MeFOSE	10.986	623.2 -> 58.9	38008	18.44 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 73.8%		
d9-EtFOSE	11.295	639.2 -> 58.9	45169	17.91 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 71.6%		
d5-EtFOSA	11.386	531.1 -> 219.0	7139	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
Target Compounds					QValue
4:2FTS	5.323	327.1 -> 307.0	22490	11.78 µg/L	96
		327.1 -> 80.9	9749		
6:2FTS	6.999	427.1 -> 407.0	14167	11.59 µg/L	98
		427.1 -> 80.9	6217		
8:2FTS	8.066	527.1 -> 507.0	16634	12.84 µg/L	100
		527.1 -> 80.8	6544		
EtFOSAA	8.547	584.2 -> 419.1	5547	3.10 µg/L	m 72
		584.2 -> 526.0	3077		
FOSA	9.850	498.1 -> 77.9	12504	2.96 µg/L	99
		498.1 -> 478.0	399		
MeFOSAA	8.337	570.1 -> 419.0	5911	2.90 µg/L	# 81
		570.1 -> 483.0	1388		
PFBA	3.007	212.8 -> 168.9	527	9.38 µg/L	100
PFBS	5.553	298.7 -> 79.9	10573	2.84 µg/L	99
		298.7 -> 98.8	4138		
PFDA	8.280	512.9 -> 469.0	26510	2.94 µg/L	92
		512.9 -> 219.0	6079		
PFDODA	9.220	613.1 -> 569.0	37749	3.23 µg/L	99
		613.1 -> 319.0	5190		
PFDS	9.382	599.0 -> 79.9	6179	3.38 µg/L	86

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2392			
PFHpA	6.568	363.1 -> 319.0	37175	3.12	µg/L	99
		363.1 -> 169.0	6358			
PFHpS	7.912	449.0 -> 79.9	6046	2.84	µg/L	93
		449.0 -> 98.9	3442			
PFHxA	5.650	313.0 -> 269.0	42359	3.04	µg/L	100
		313.0 -> 118.9	1335			
PFHxS	7.330	398.7 -> 79.9	6118	2.99	µg/L	m 94
		398.7 -> 98.9	2894			
PFNA	7.772	463.0 -> 419.0	26079	3.08	µg/L	93
		463.0 -> 219.0	6781			
PFNS	8.925	548.8 -> 79.9	3704	2.94	µg/L	99
		548.8 -> 98.9	1918			
PFOA	7.228	413.0 -> 369.0	41781	3.10	µg/L	99
		413.0 -> 169.0	8406			
PFOS	8.431	498.9 -> 79.9	9173	2.88	µg/L	m 86
		498.9 -> 98.8	4542			
PFPeA	4.464	263.0 -> 219.0	28478	6.21	µg/L	100
PFPeS	6.607	349.1 -> 79.9	5384	3.09	µg/L	99
		349.1 -> 98.9	2269			
PFTeDA	10.013	713.1 -> 669.0	23240	3.21	µg/L	98
		713.1 -> 168.9	2014			
PFTrDA	9.630	663.0 -> 619.0	38294	2.54	µg/L	99
		663.0 -> 168.9	3925			
PFUnDA	8.761	563.1 -> 519.0	27578	2.92	µg/L	99
		563.1 -> 269.1	5508			
11Cl-PF3OUdS	9.681	630.9 -> 450.9	38320	5.36	µg/L	99
		632.9 -> 452.9	11838			
9Cl-PF3ONS	8.788	530.8 -> 351.0	47296	5.92	µg/L	100
		532.8 -> 353.0	14426			
ADONA	6.831	376.9 -> 250.9	104744	6.37	µg/L	100
		376.9 -> 84.8	28116			
HFPO-DA	6.003	284.9 -> 168.9	12898	5.94	µg/L	100
		284.9 -> 184.9	1615			
3:3FTCA	3.979	241.0 -> 177.0	1694	7.93	µg/L	100
		241.0 -> 117.0	164			
5:3FTCA	6.333	341.0 -> 237.1	184490	93.84	µg/L	100
		341.0 -> 217.0	130945			
7:3FTCA	7.762	441.0 -> 316.9	66802	82.91	µg/L	99
		441.0 -> 336.9	147883			
EtFOSA	11.388	526.0 -> 219.0	15878	6.24	µg/L	m 62
		526.0 -> 169.0	21303			
EtFOSE	11.308	630.0 -> 58.9	21965	15.78	µg/L	100
MeFOSA	11.104	511.9 -> 219.0	12793	5.75	µg/L	m 77
		511.9 -> 169.0	19227			
MeFOSE	11.012	616.1 -> 58.9	19799	14.82	µg/L	m 100
PFDoDS	10.152	699.1 -> 79.9	2987	1.89	µg/L	95
		699.1 -> 98.8	1789			
NFDHA	5.529	295.0 -> 201.0	5291	5.65	µg/L	100
		295.0 -> 84.9	1325			
PFMBA	4.878	279.0 -> 85.1	28782	10.98	µg/L	100
PFMPA	3.615	229.0 -> 84.9	1935	0.84	µg/L	100
PFEESA	6.084	314.8 -> 134.9	64981	5.56	µg/L	100
		314.8 -> 82.9	2163			

= Qualifier out of range, m = manually integrated, + = Area summed

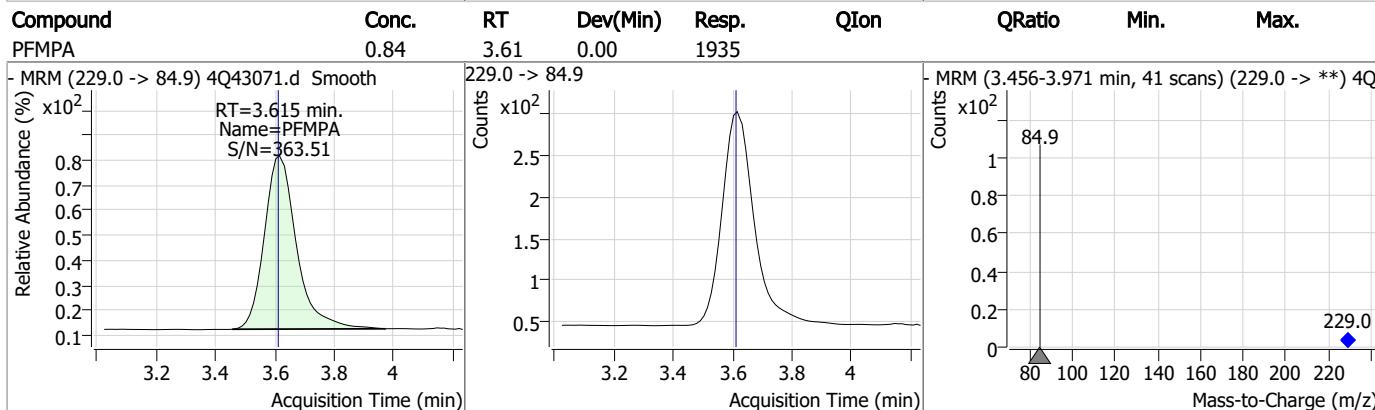
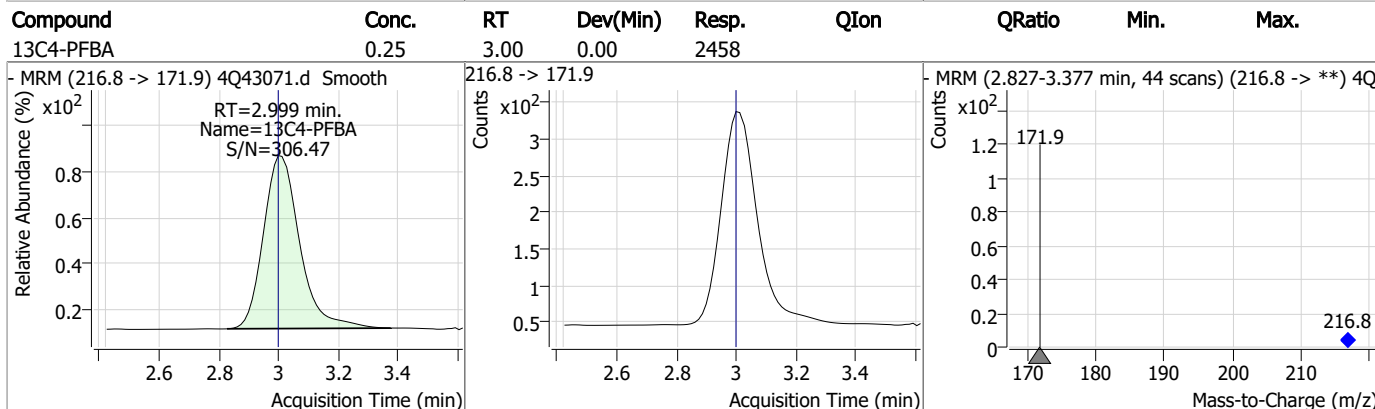
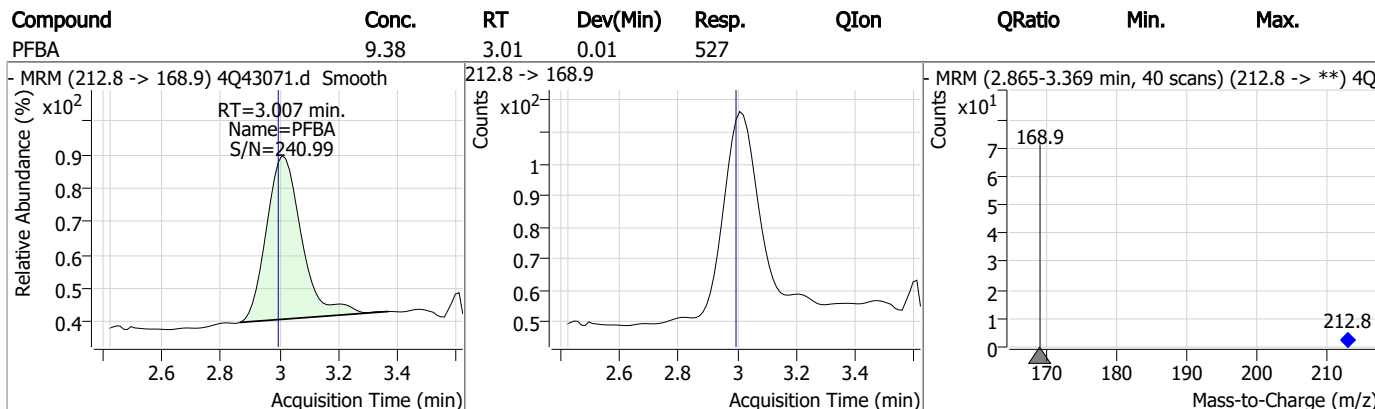
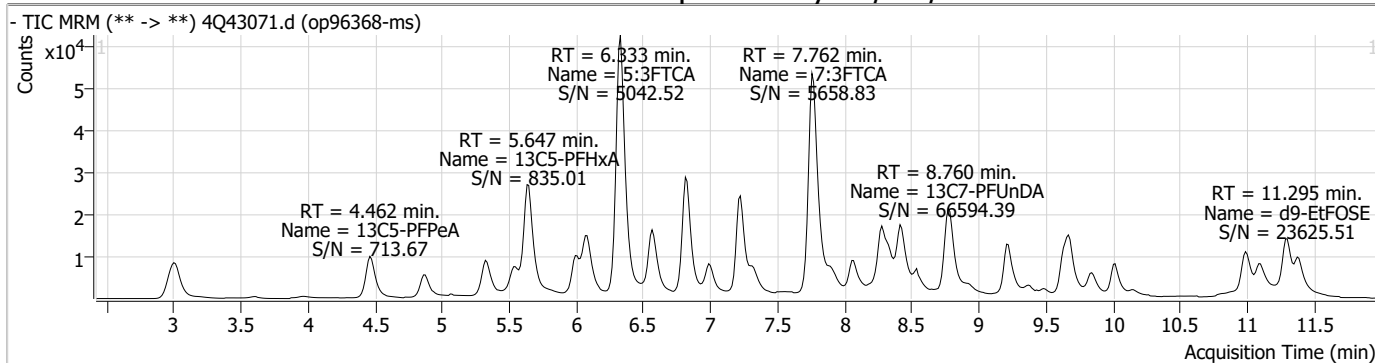
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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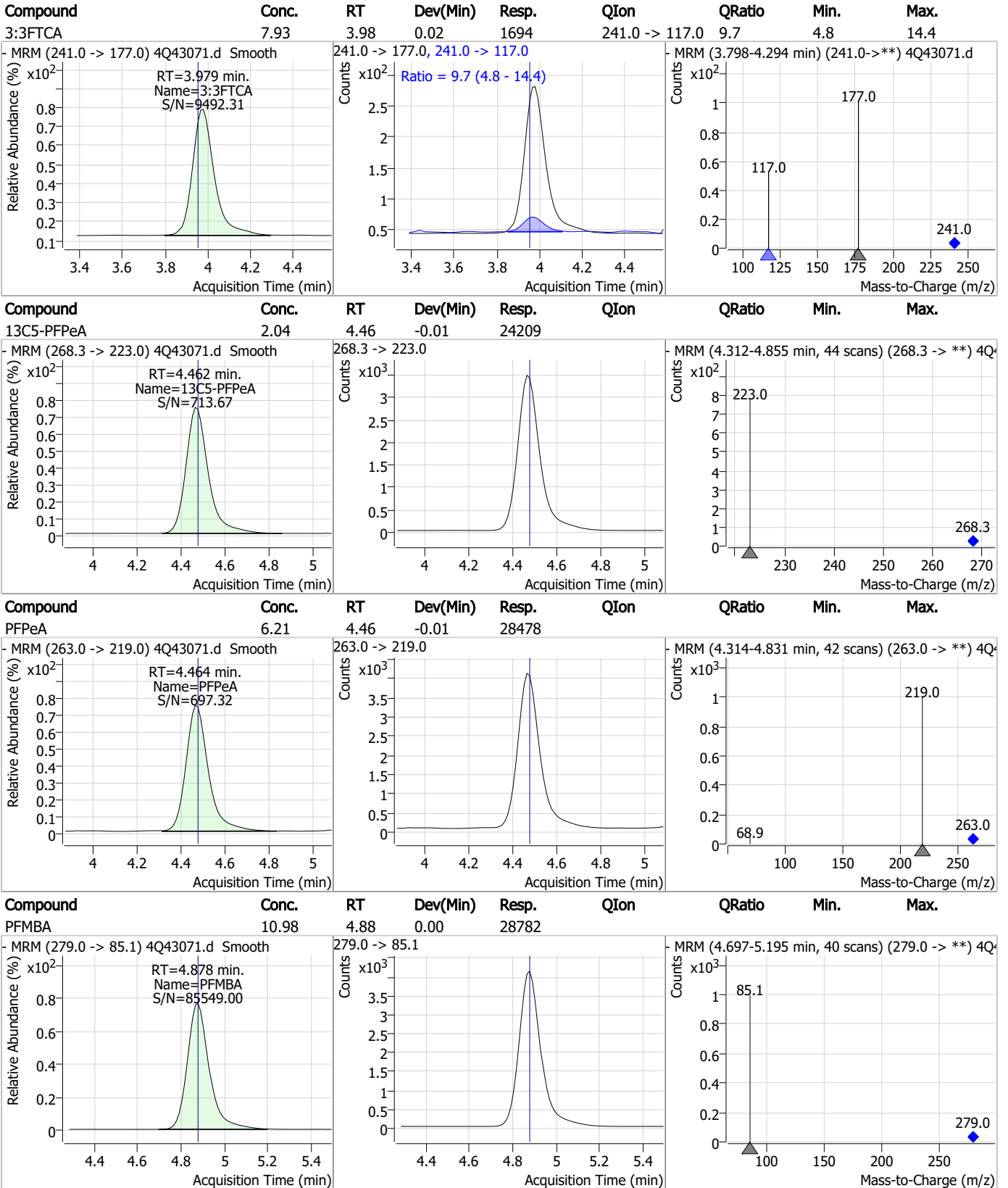
7.4.1

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Perfluorinated Compounds by LC/MS/MS



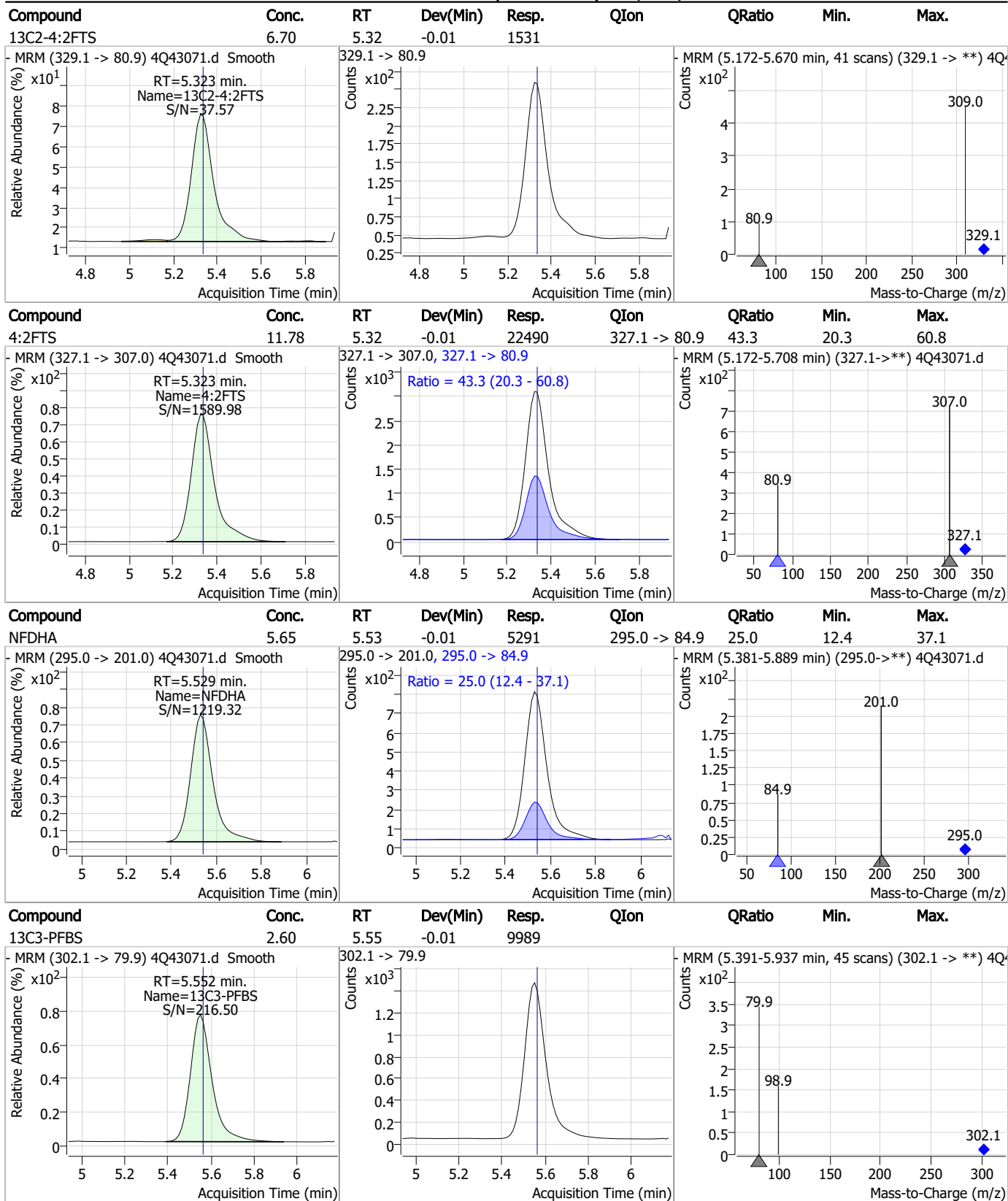
Perfluorinated Compounds by LC/MS/MS



7.4.1

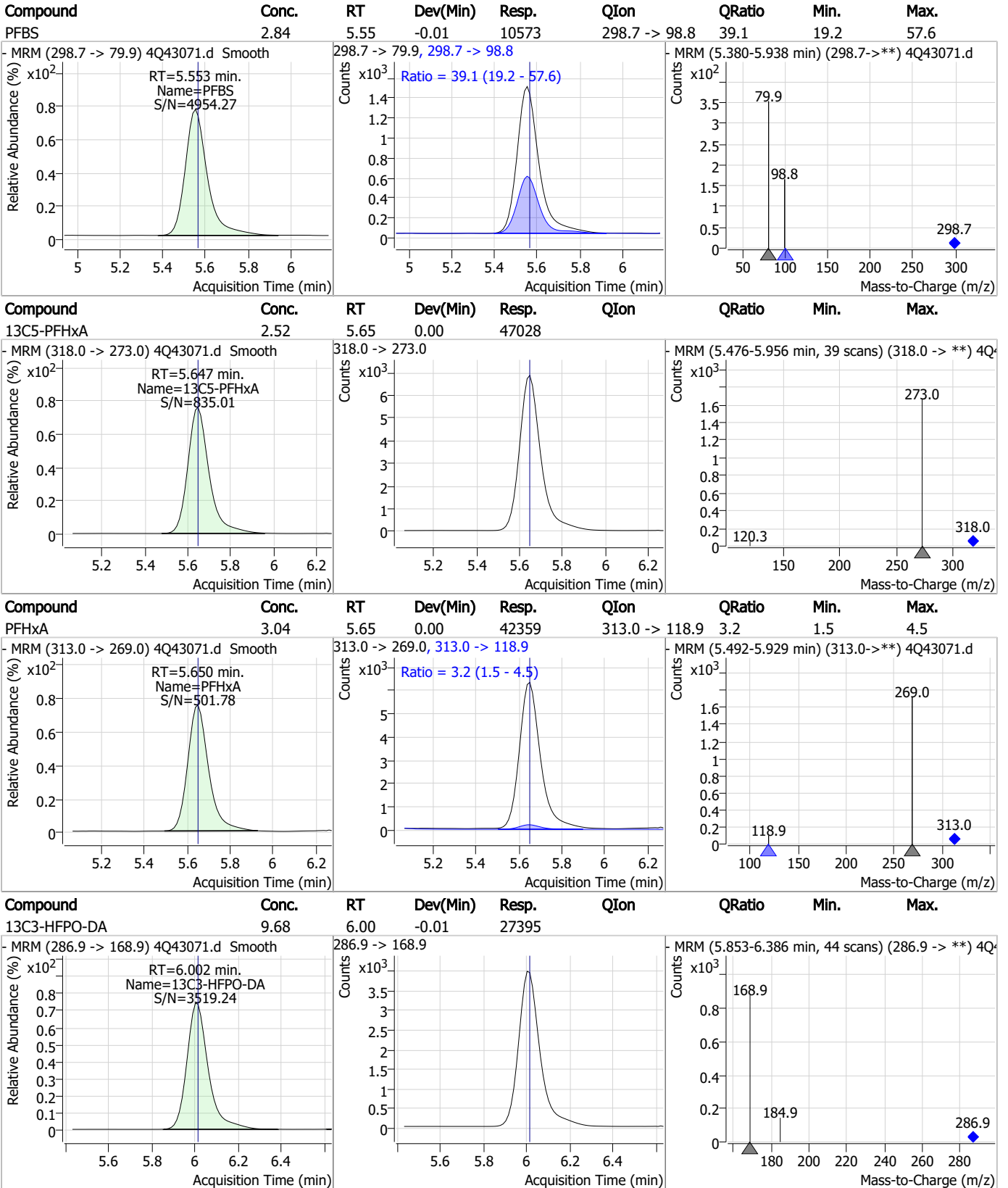
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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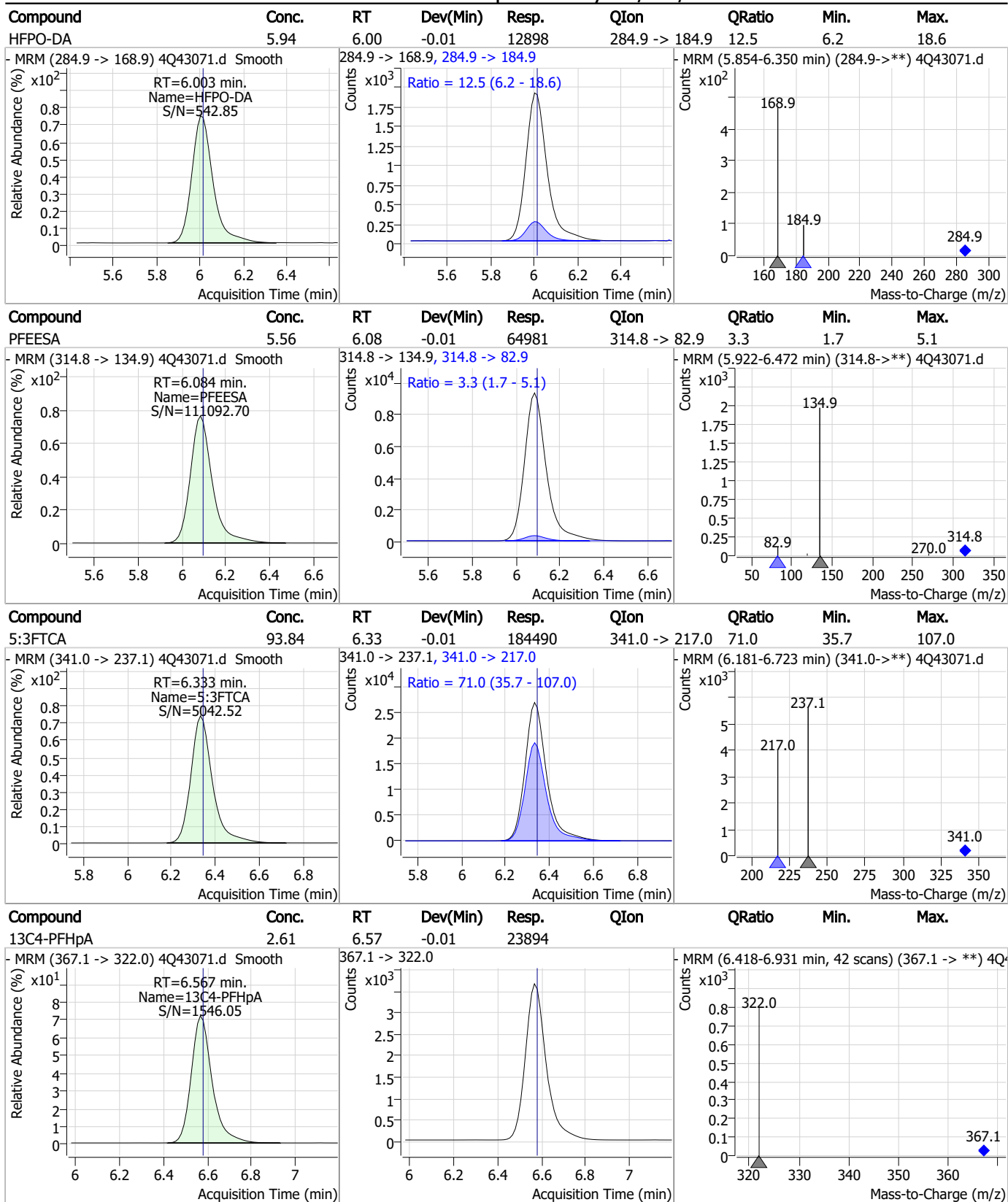
Perfluorinated Compounds by LC/MS/MS



7.4.1

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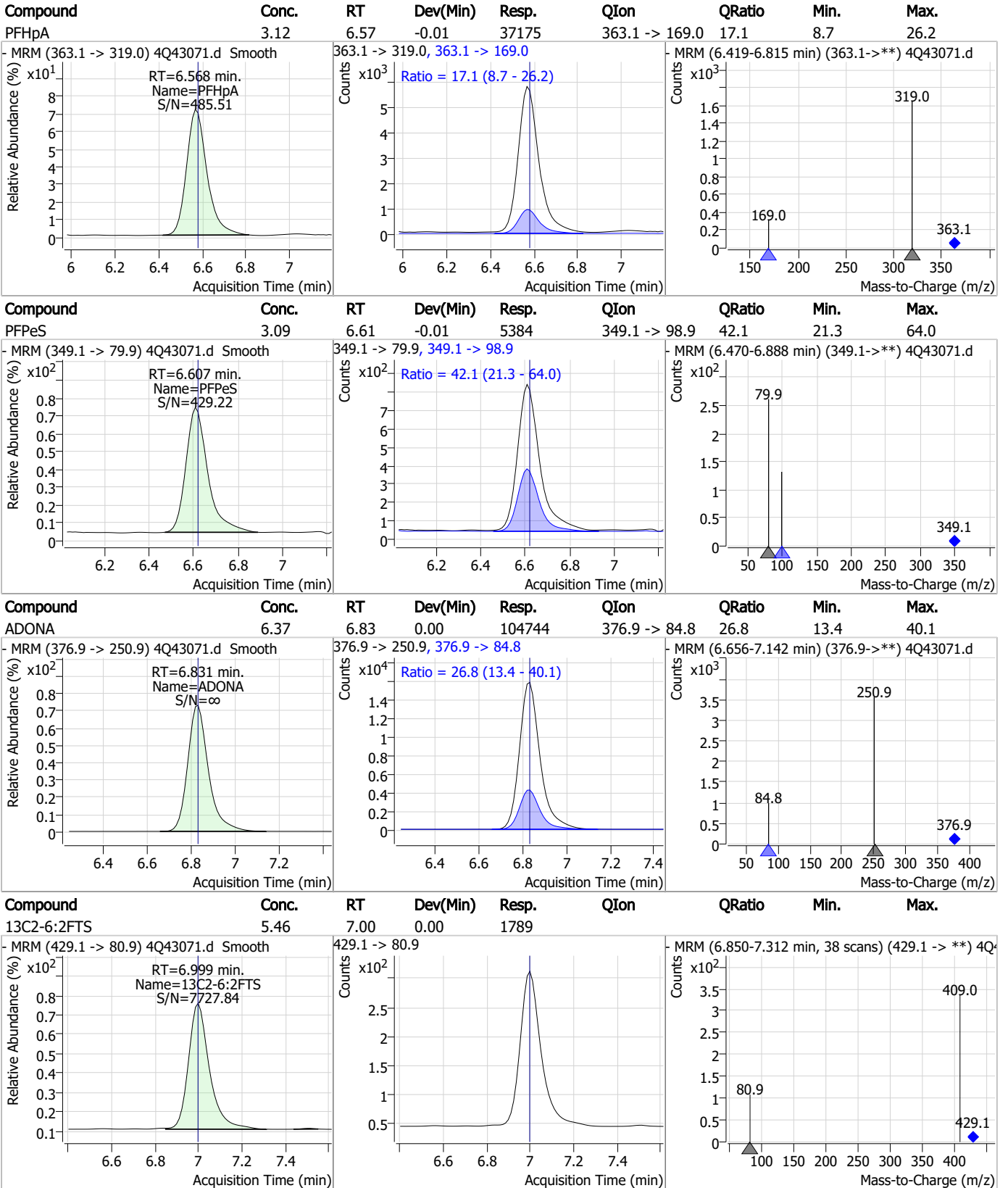
Perfluorinated Compounds by LC/MS/MS



7.4.1
7



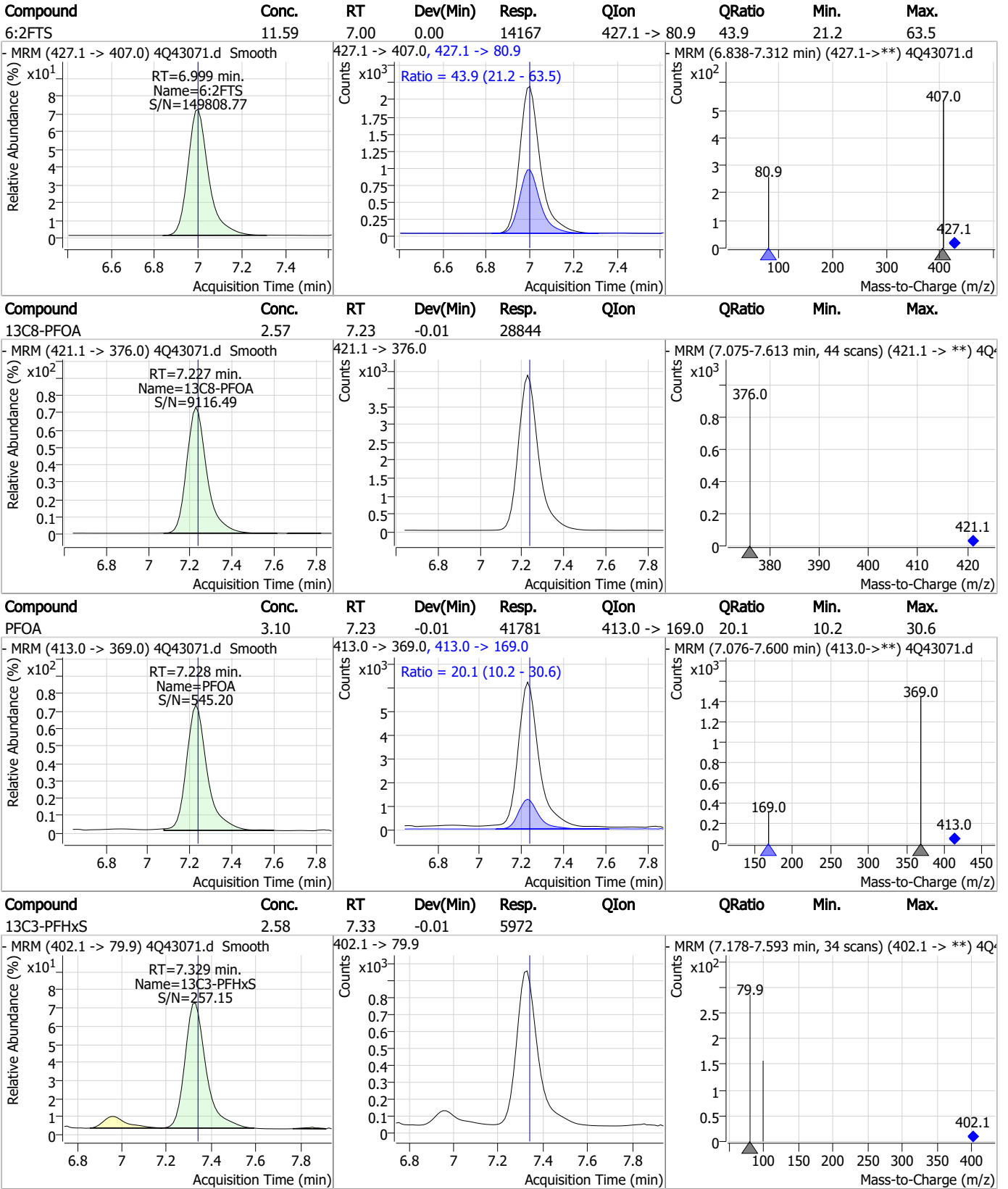
Perfluorinated Compounds by LC/MS/MS



7.4.1

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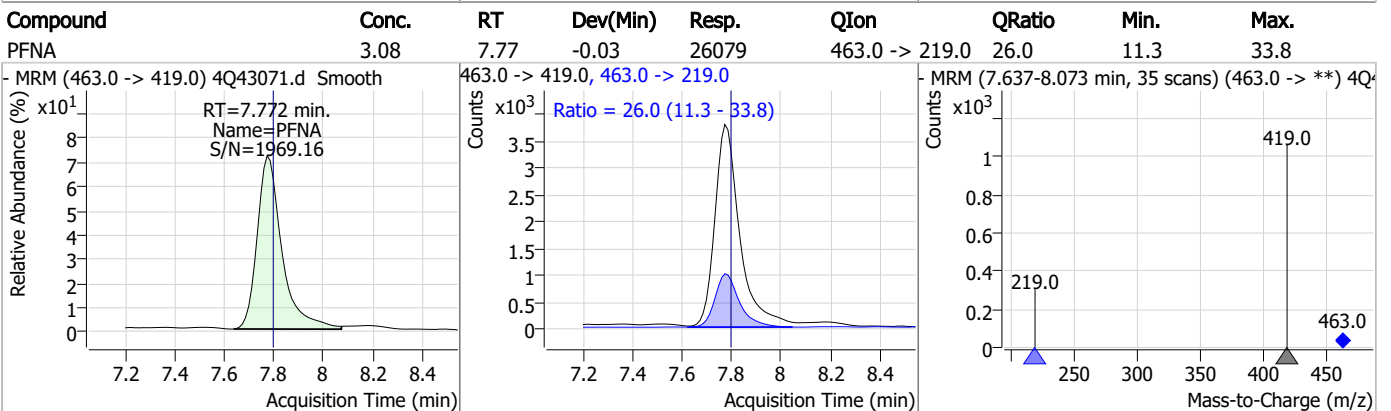
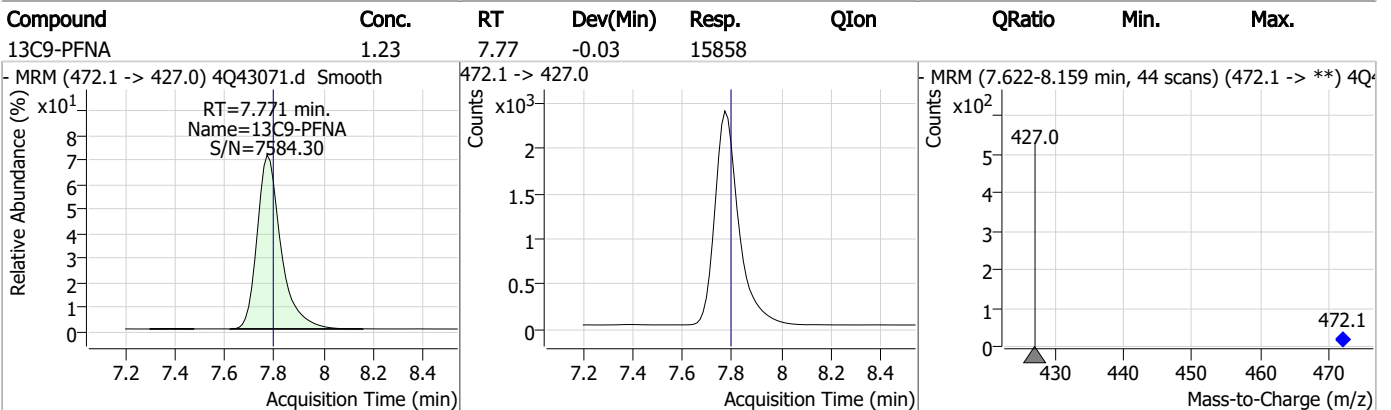
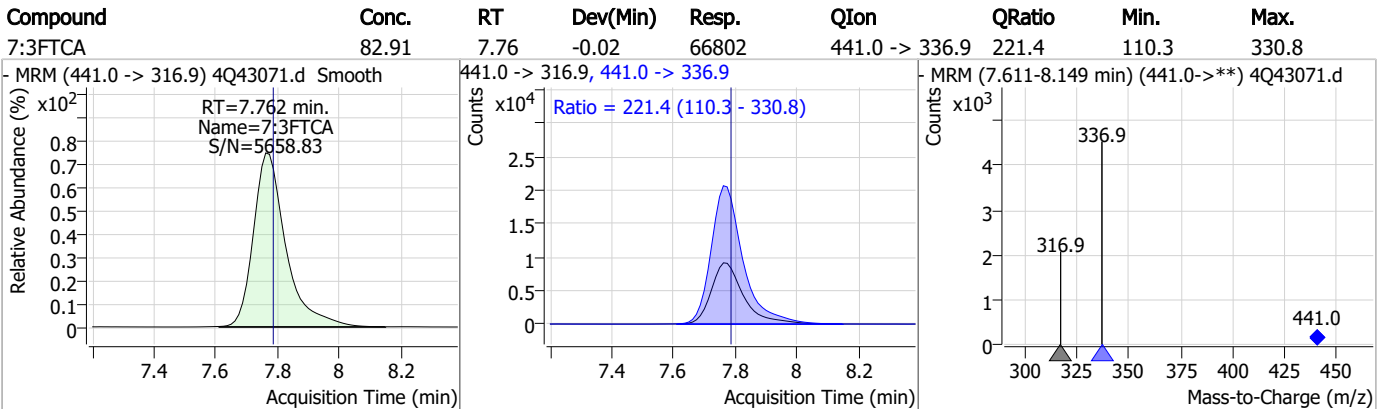
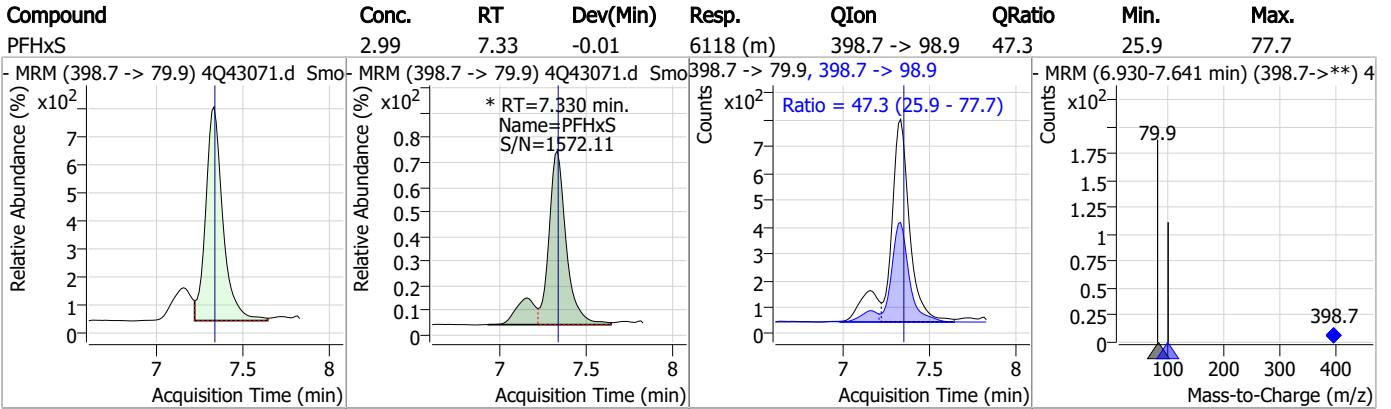
Perfluorinated Compounds by LC/MS/MS



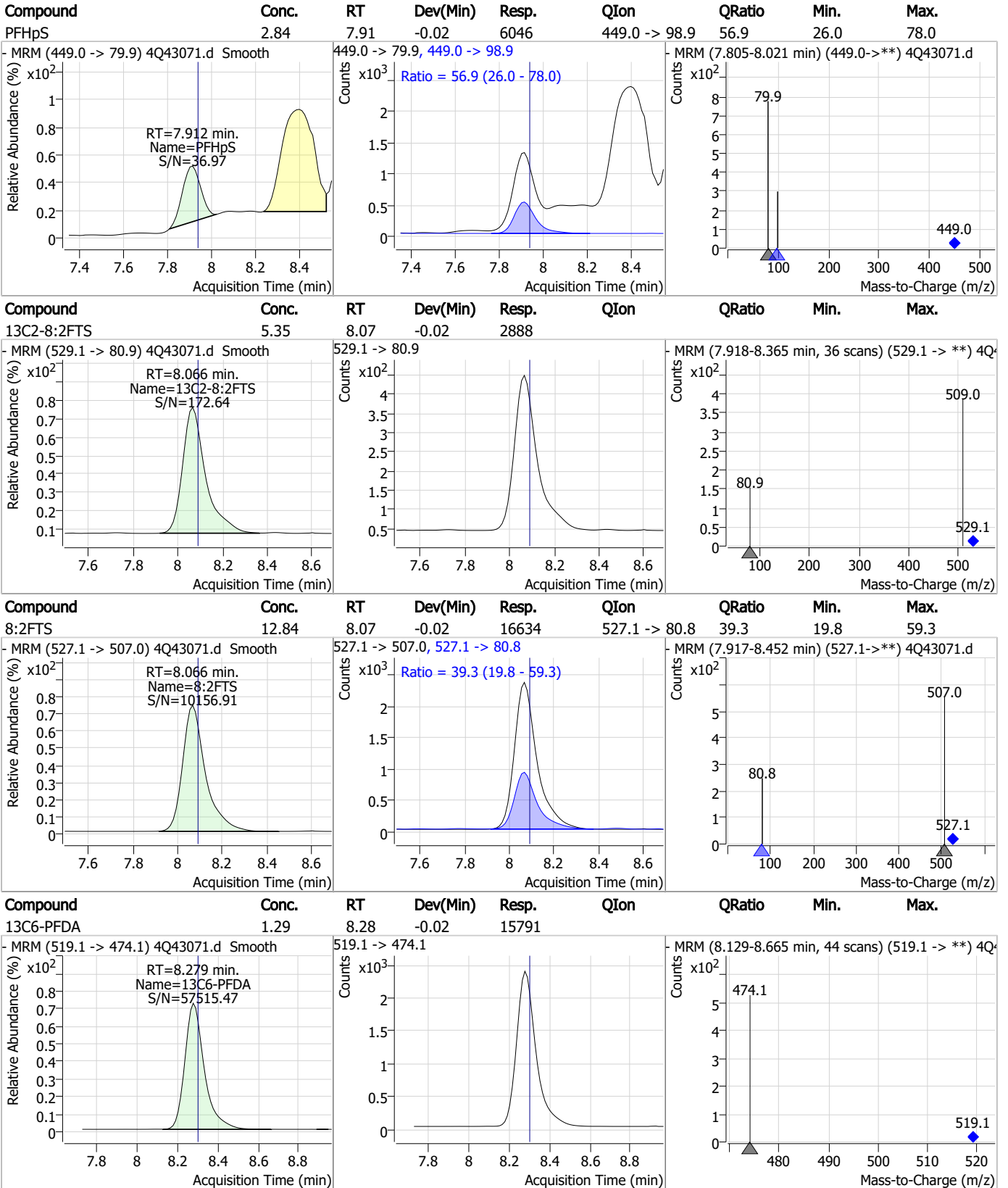
7.4.1

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

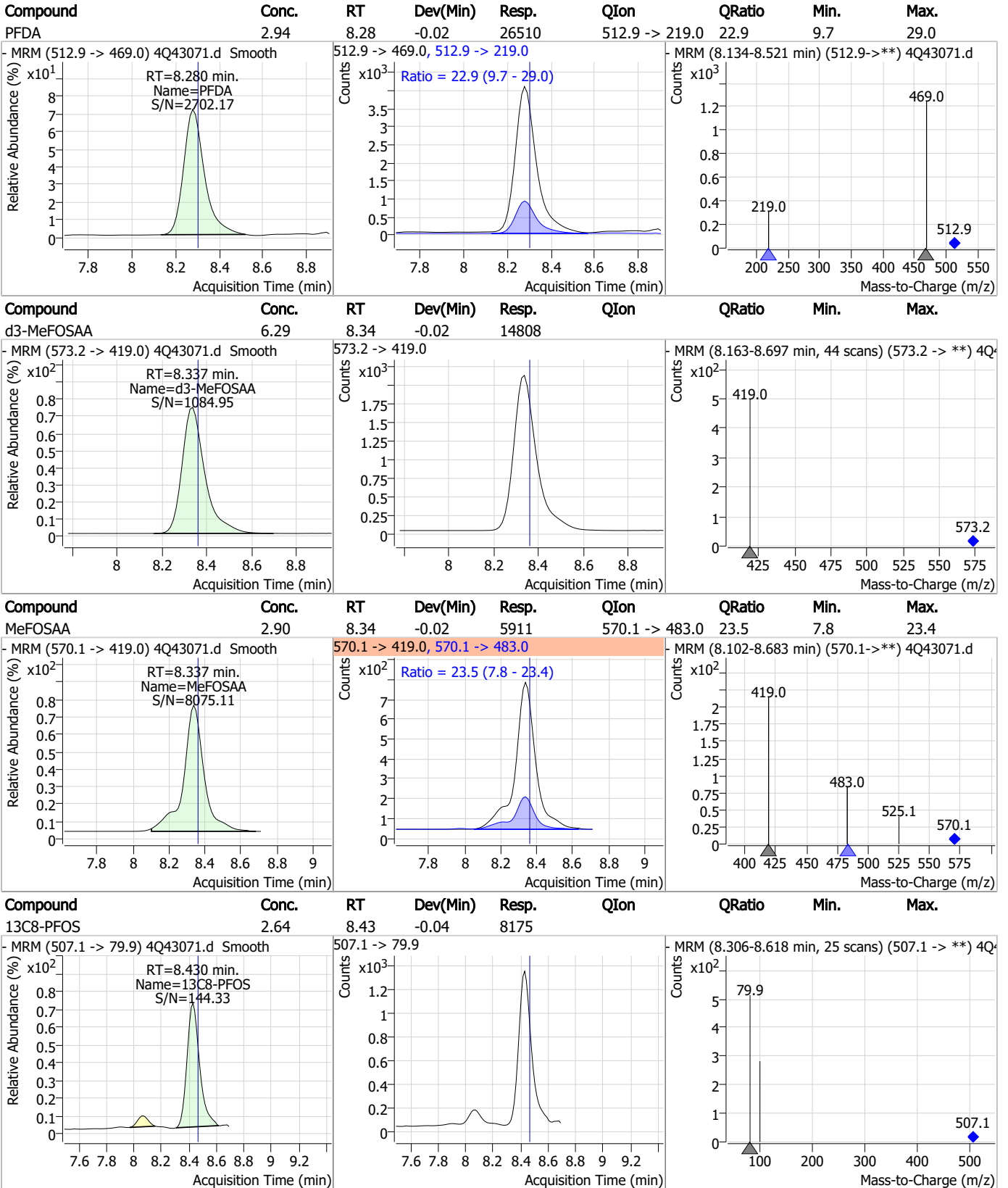


7.4.1

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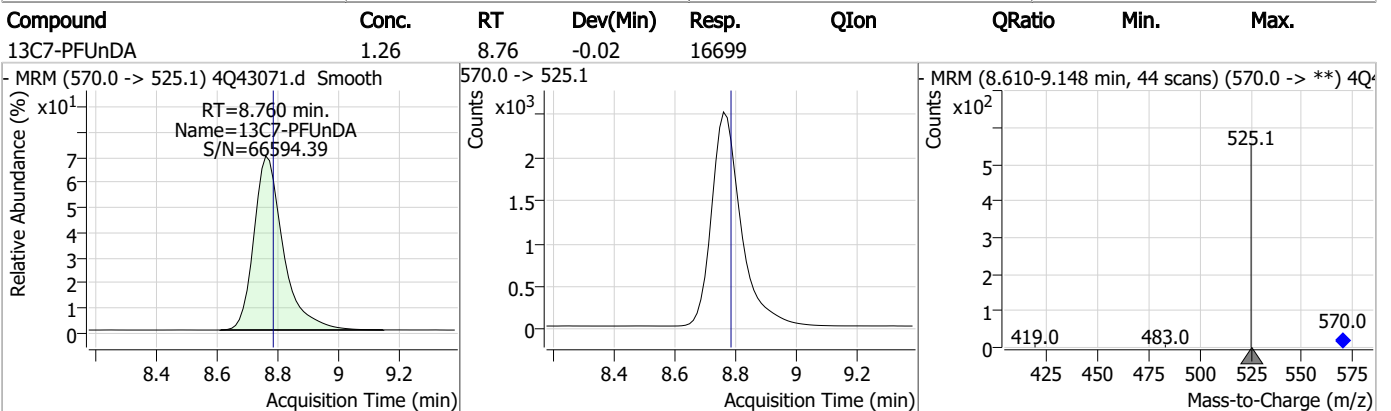
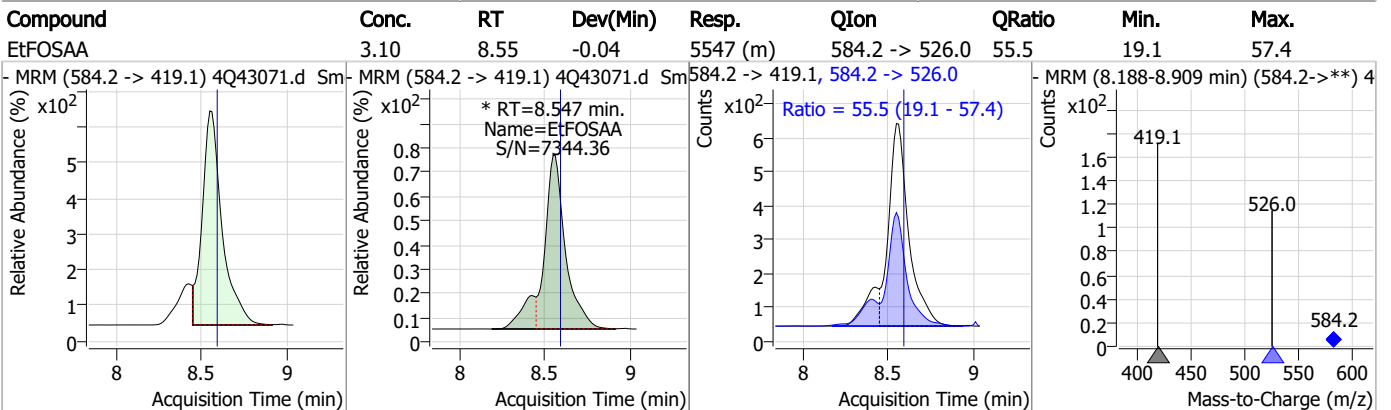
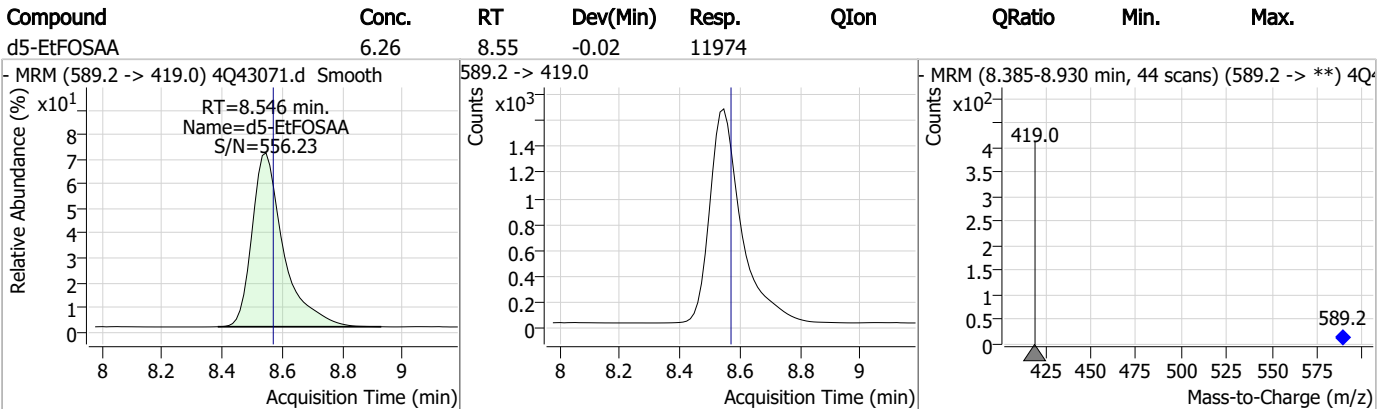
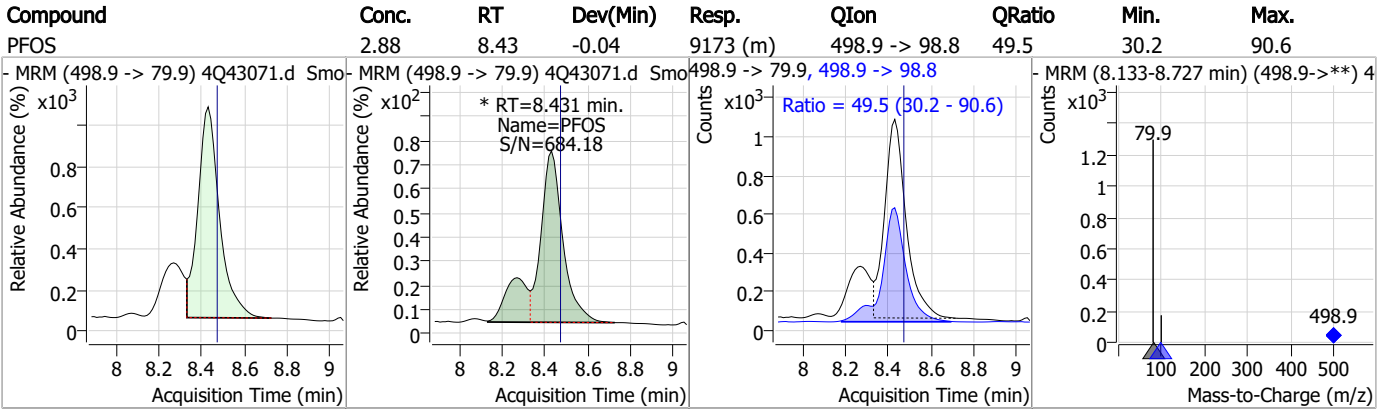
Perfluorinated Compounds by LC/MS/MS



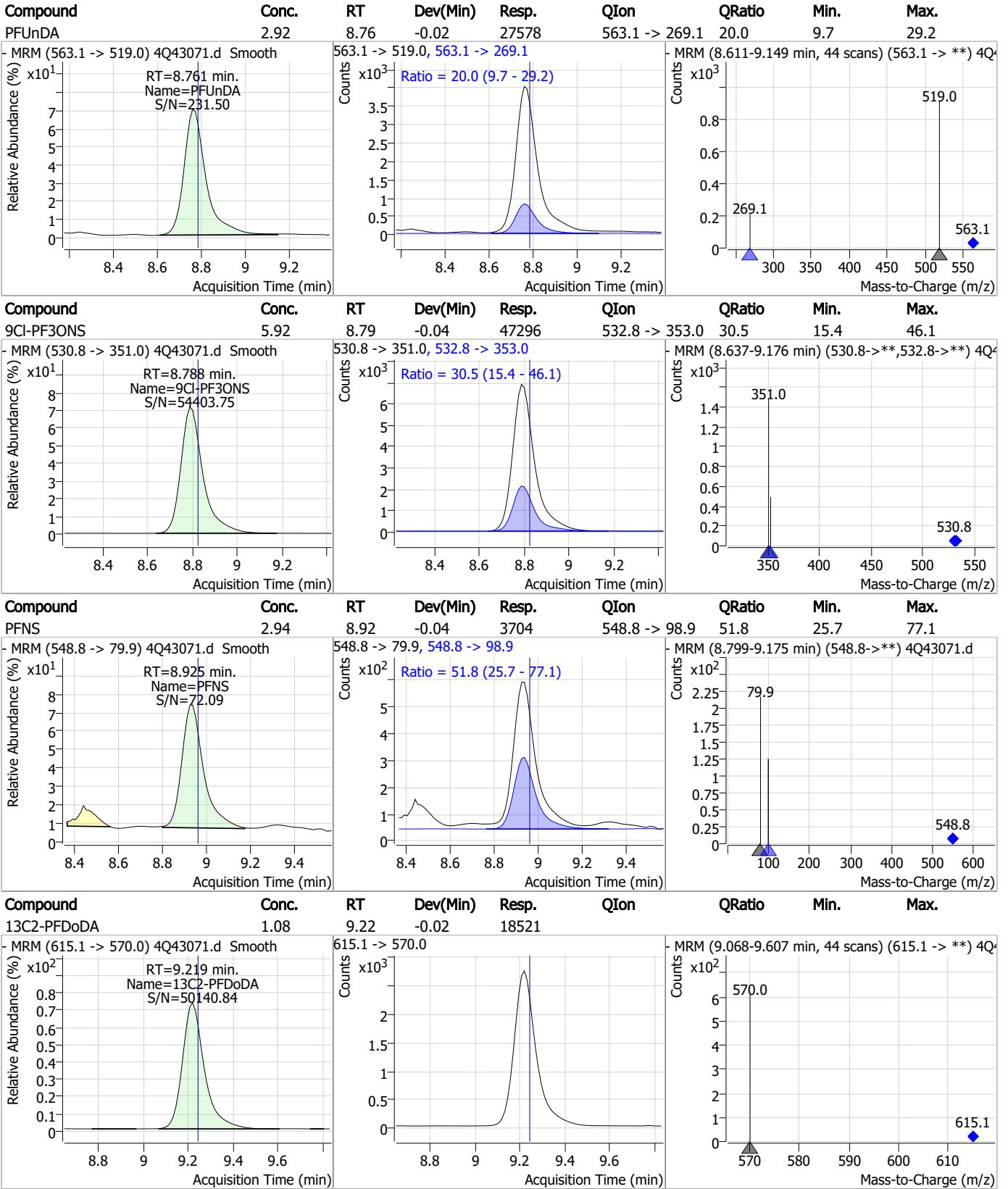
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Perfluorinated Compounds by LC/MS/MS



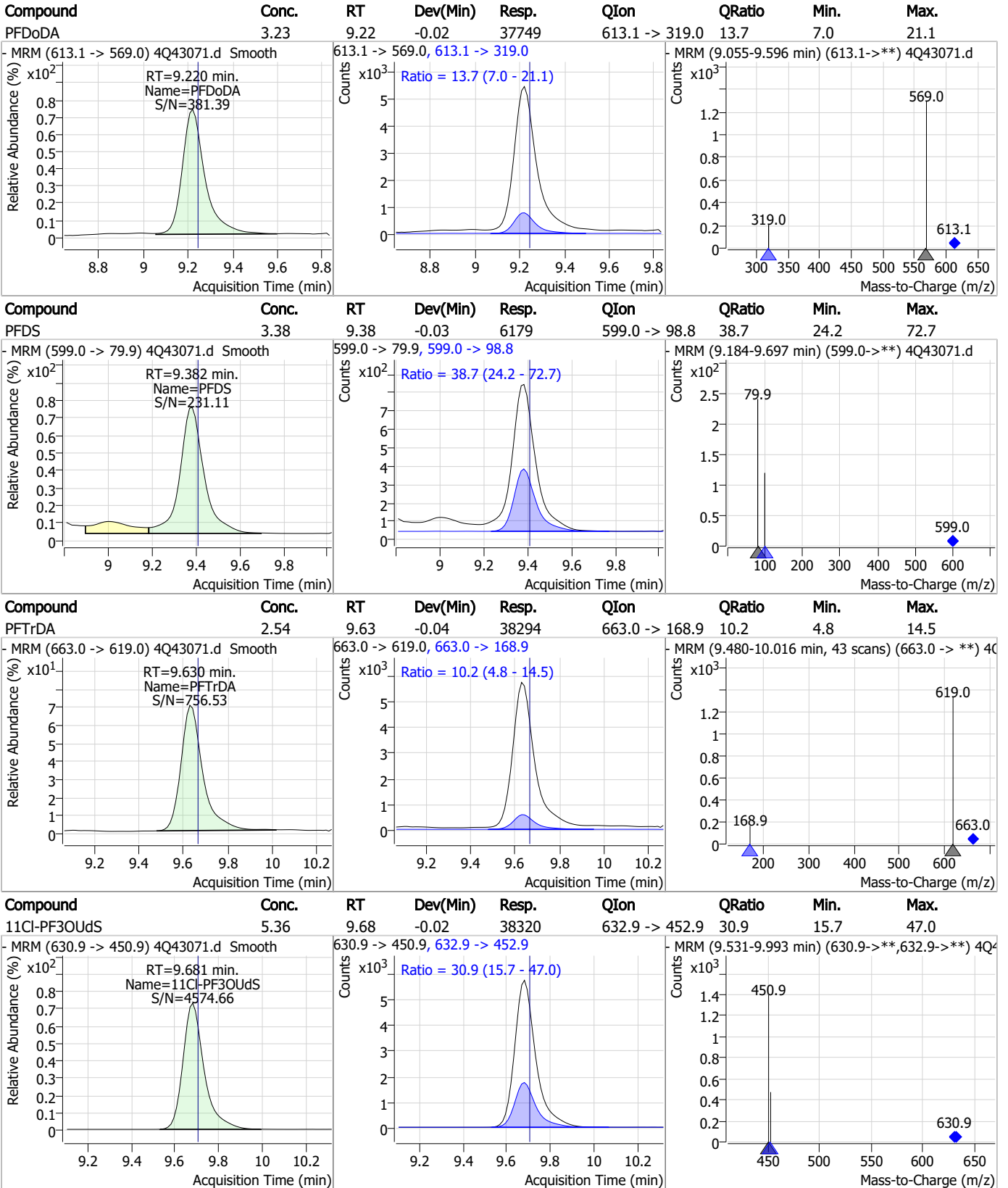
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Perfluorinated Compounds by LC/MS/MS

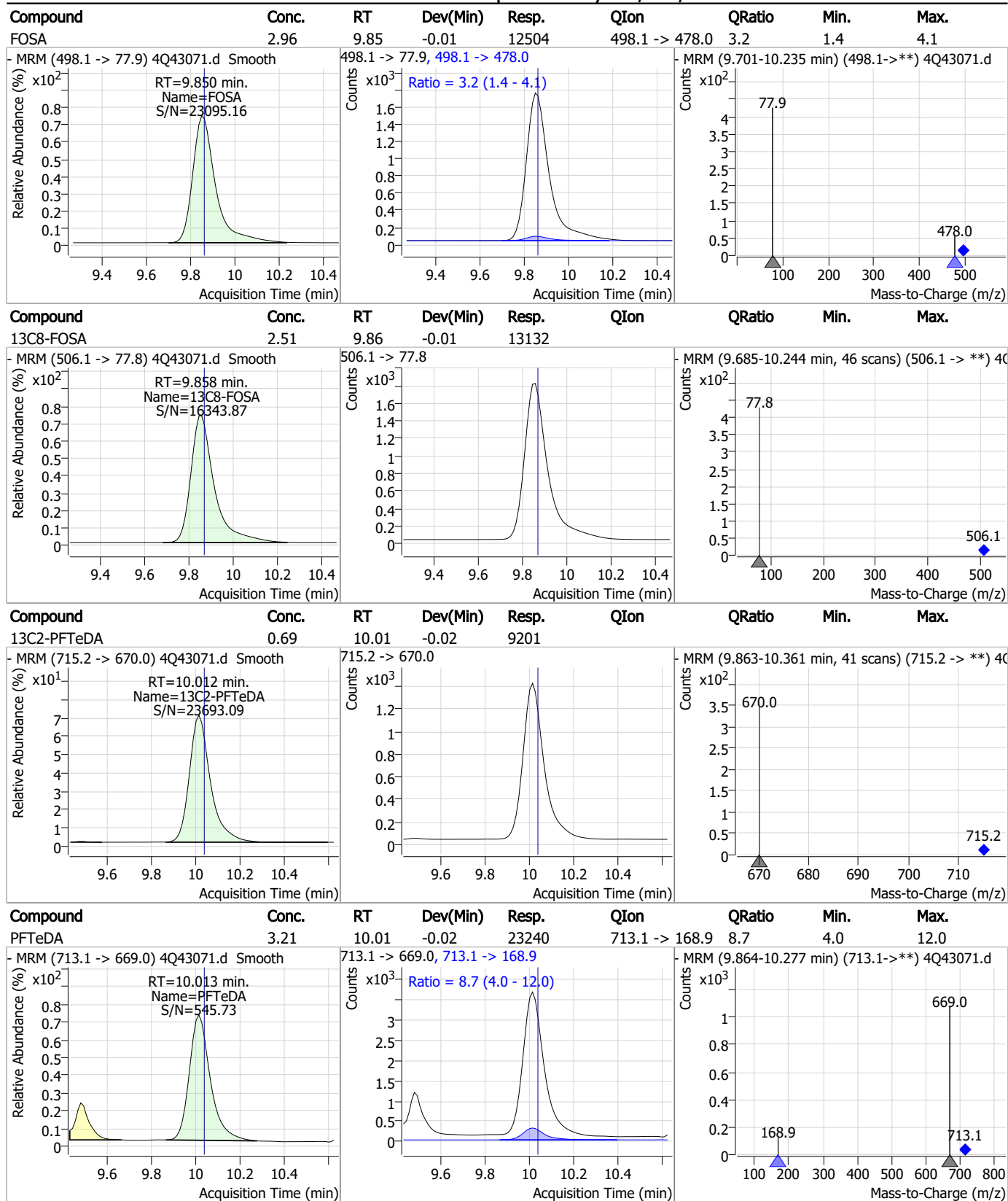


7.4.1

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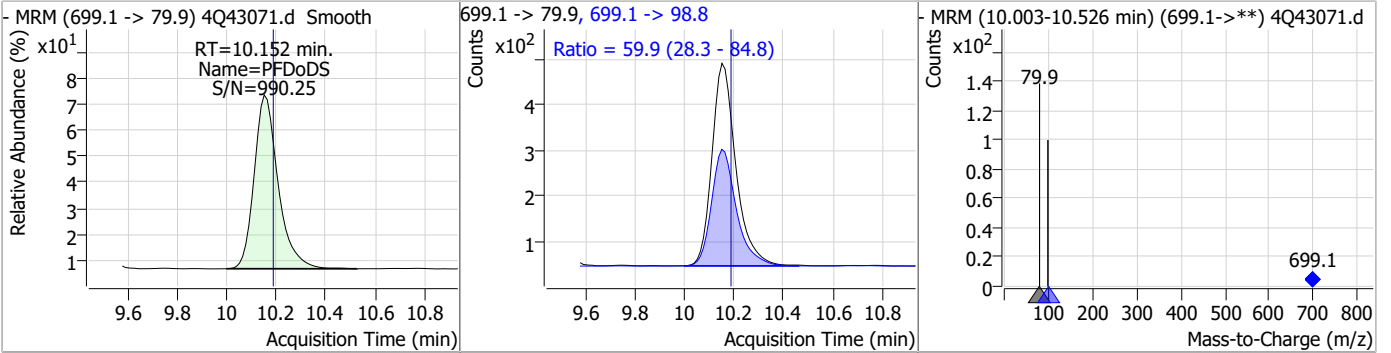
Perfluorinated Compounds by LC/MS/MS



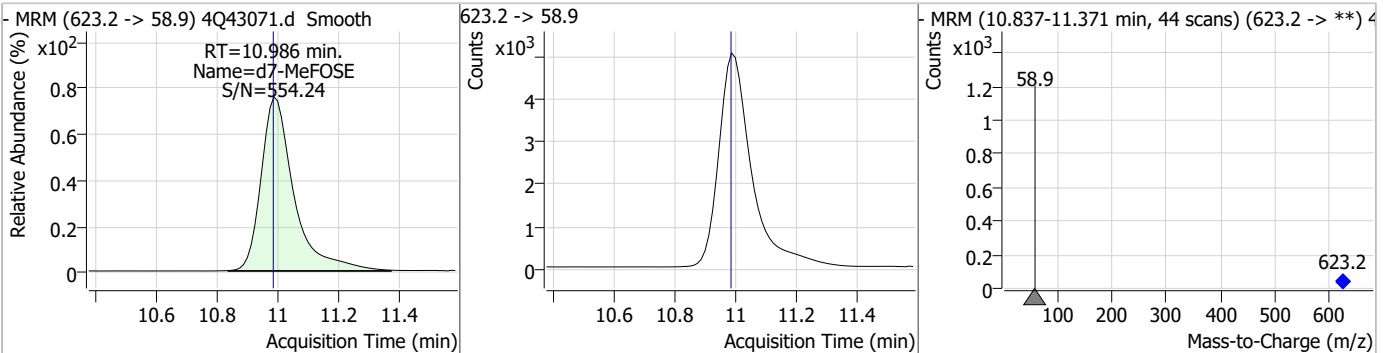
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Perfluorinated Compounds by LC/MS/MS

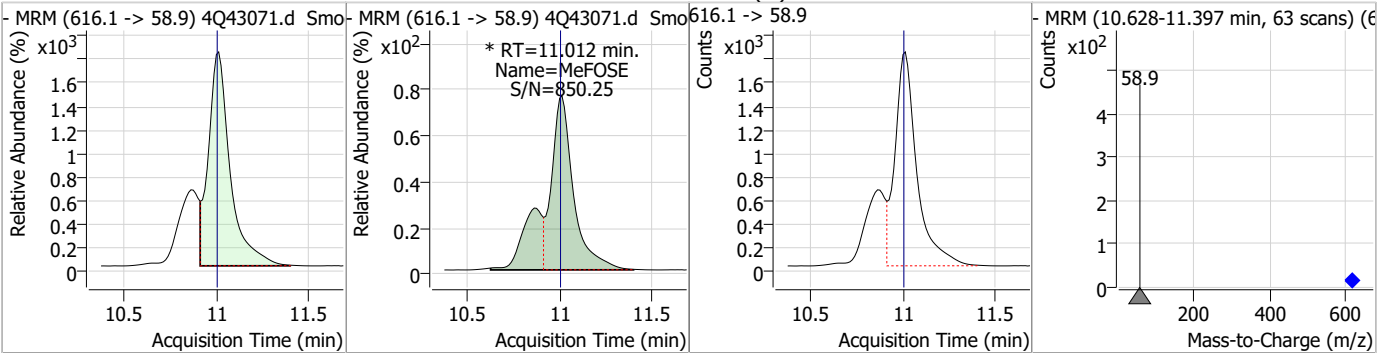
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.89	10.15	-0.04	2987	699.1 -> 98.8	59.9	28.3	84.8



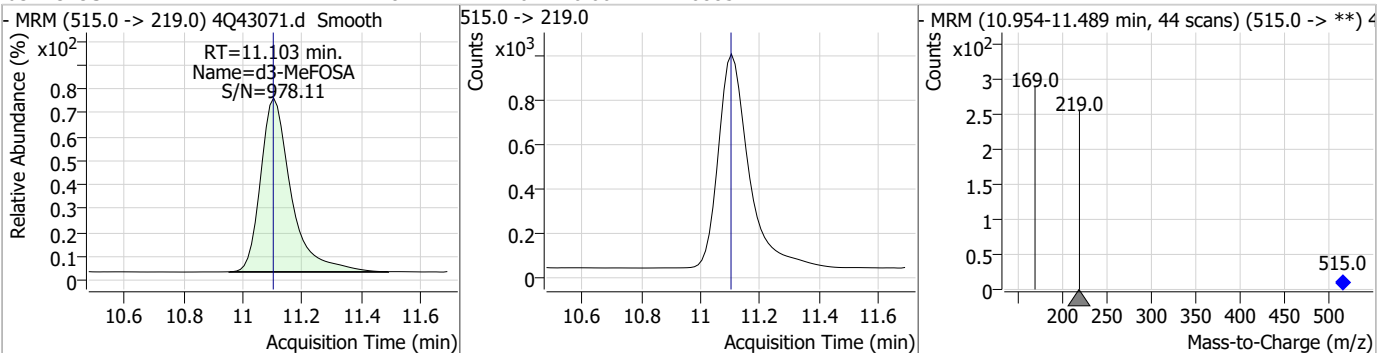
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.44	10.99	0.00	38008				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	14.82	11.01	0.01	19799 (m)				

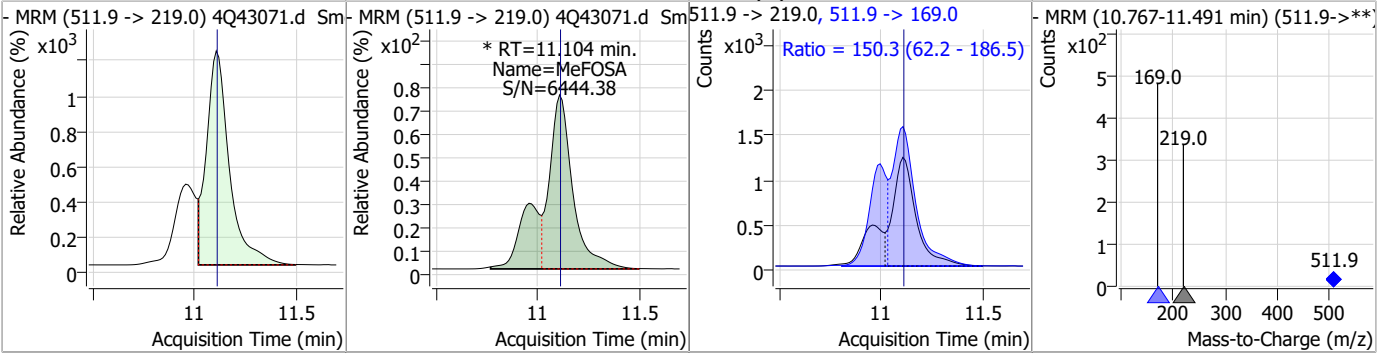


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.78	11.10	0.00	6885				

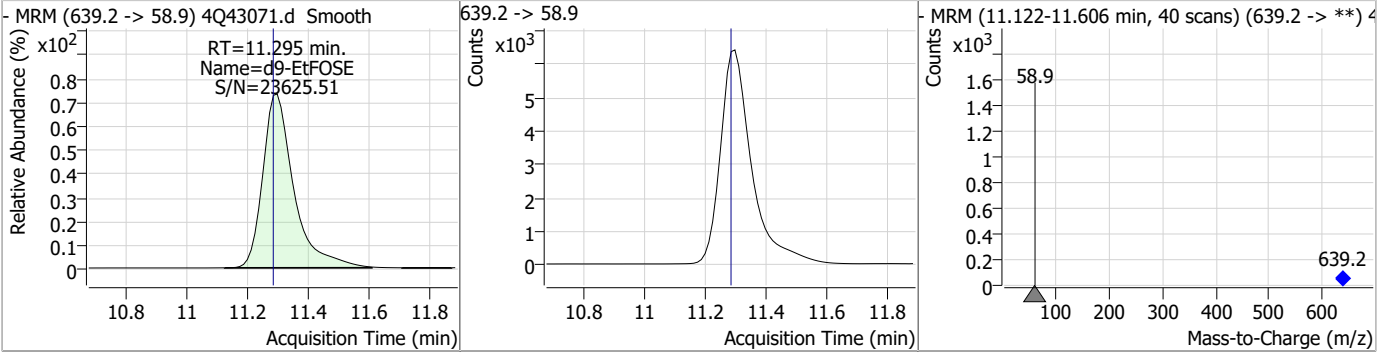


Perfluorinated Compounds by LC/MS/MS

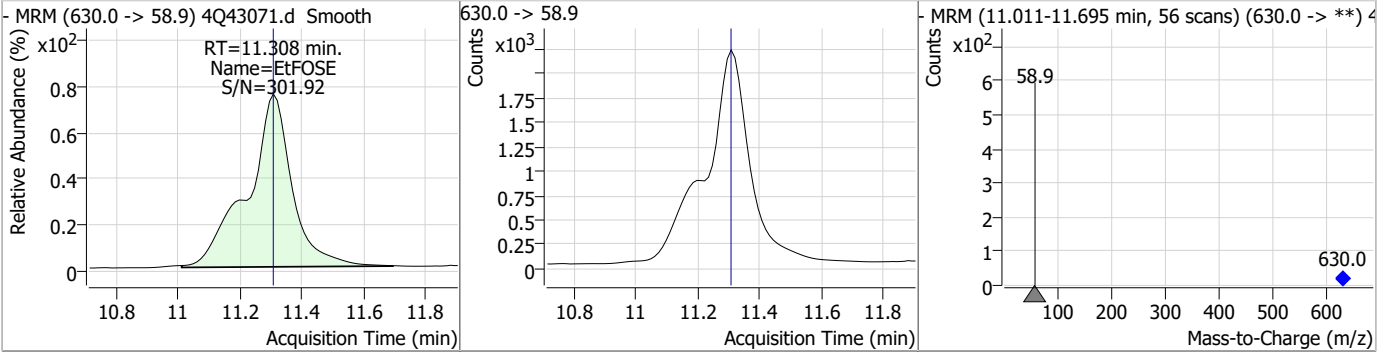
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.75	11.10	0.00	12793 (m)	511.9 -> 169.0	150.3	62.2	186.5



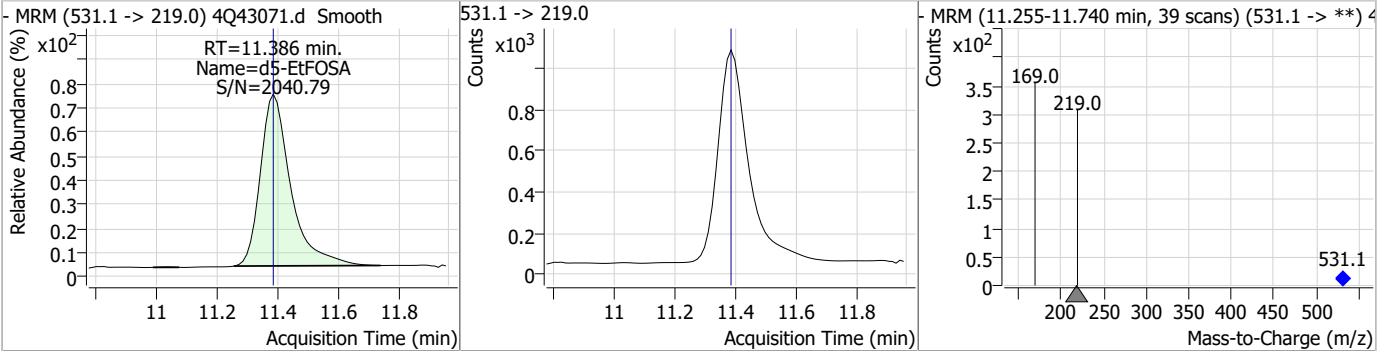
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.91	11.29	0.01	45169				



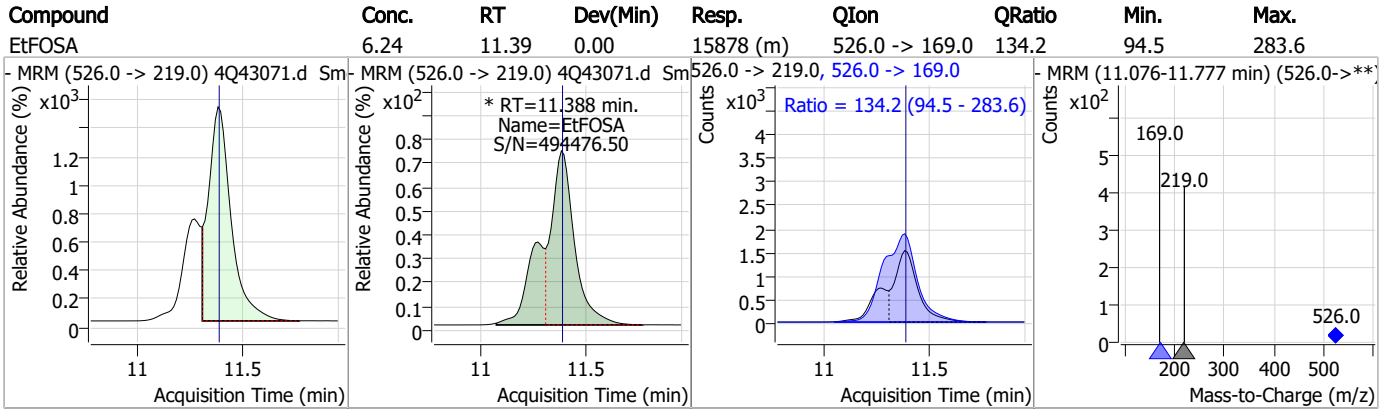
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	15.78	11.31	0.00	21965				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.67	11.39	0.00	7139				



Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP96368-MS Method: EPA DRAFT 1633
Lab FileID: 4Q43071.D Analyst approved: 04/17/23 17:12 Martha Valls
Injection Time: 04/15/23 20:00 Supervisor approved: 04/17/23 17:14 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.55	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.4.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43076.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 9:11:00 PM
 Sample Name : op96368-dup
 Vial : P4-D6
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96368,S4q622,560,,,5,0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	112069	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	60196	5.00 µg/L	0.000
M5-PFHxA	5.647	318.0 -> 273.0	48021	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	23937	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	28530	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	15554	1.25 µg/L	-0.012
M6-PFDA	8.291	519.1 -> 474.1	14690	1.25 µg/L	-0.012
M7-PFUnDA	8.772	570.0 -> 525.1	12200	1.25 µg/L	-0.012
M2-PFDoDA	9.219	615.1 -> 570.0	10837	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	6757	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	11823	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	10104	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	6516	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	8057	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1351	5.00 µg/L	0.000
M2-6:2FTS	6.999	429.1 -> 80.9	2041	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	2537	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	11837	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	28269	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	8997	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	32600	25.00 µg/L	0.002
M9-EtFOSE	11.282	639.2 -> 58.9	40242	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	4982	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	4833	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	8542	2.50 µg/L	-0.024
13C3-PFBA	3.016	216.0 -> 172.0	57730	5.00 µg/L	0.025
18O2-PFHxS	7.328	403.0 -> 83.9	4077	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	32452	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	13172	1.25 µg/L	-0.012
13C5-PFNA	7.784	468.0 -> 423.0	17360	1.25 µg/L	-0.012
13C2-PFHxA	5.648	315.1 -> 270.0	38286	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1351	6.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.3%		
13C2-6:2FTS	6.999	429.1 -> 80.9	2041	6.39 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.7%		
13C2-8:2FTS	8.066	529.1 -> 80.9	2537	4.82 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C2-PFDoDA	9.219	615.1 -> 570.0	10837	0.67 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 53.5%		
13C2-PFTeDA	10.012	715.2 -> 670.0	6757	0.54 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 42.8%		
13C3-PFBS	5.552	302.1 -> 79.9	10104	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C3-PFHxS	7.329	402.1 -> 79.9	6516	2.89 µg/L	-0.012

7.5.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.5%	
13C4-PFBA	3.011	216.8 -> 171.9	112069	11.15 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C4-PFHpA	6.567	367.1 -> 322.0	23937	2.75 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.1%	
13C5-PFHxA	5.647	318.0 -> 273.0	48021	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C5-PFPeA	4.475	268.3 -> 223.0	60196	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C6-PFDA	8.291	519.1 -> 474.1	14690	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C7-PFUnDA	8.772	570.0 -> 525.1	12200	0.97 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 77.5%	
13C8-FOSA	9.858	506.1 -> 77.8	11823	2.12 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.7%	
13C8-PFOA	7.227	421.1 -> 376.0	28530	2.67 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C8-PFOS	8.442	507.1 -> 79.9	8057	2.43 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C9-PFNA	7.784	472.1 -> 427.0	15554	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
d3-MeFOSAA	8.349	573.2 -> 419.0	11837	4.70 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	28269	10.52 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.2%	
d3-MeFOSA	11.103	515.0 -> 219.0	4833	1.83 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.1%	
d5-EtFOSAA	8.558	589.2 -> 419.0	8997	4.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
d7-MeFOSE	10.986	623.2 -> 58.9	32600	14.80 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 59.2%	
d9-EtFOSE	11.282	639.2 -> 58.9	40242	14.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 59.7%	
d5-EtFOSA	11.386	531.1 -> 219.0	4982	1.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 69.7%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.999	427.1 -> 407.0	2915	2.09 µg/L	99
		427.1 -> 80.9	1219		
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	3.046	212.8 -> 168.9	1426	0.56 µg/L	m 100
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.5.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8				
		363.1 -> 319.0	1776	0.15	µg/L	87
PFHpS	-	363.1 -> 169.0	214			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.650	449.0 -> 98.9				
		313.0 -> 269.0	7193	0.51	µg/L	98
PFHxS	-	313.0 -> 118.9	261			
		398.7 -> 79.9	-	N.D.		
PFNA	8.197	398.7 -> 98.9				
		463.0 -> 419.0	0		µg/L	m
PFNS	-	463.0 -> 219.0	0			1
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.477	498.9 -> 98.8				
		263.0 -> 219.0	10577	0.93	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

= Qualifier out of range, m = manually integrated, + = Area summed

7.5.1
7

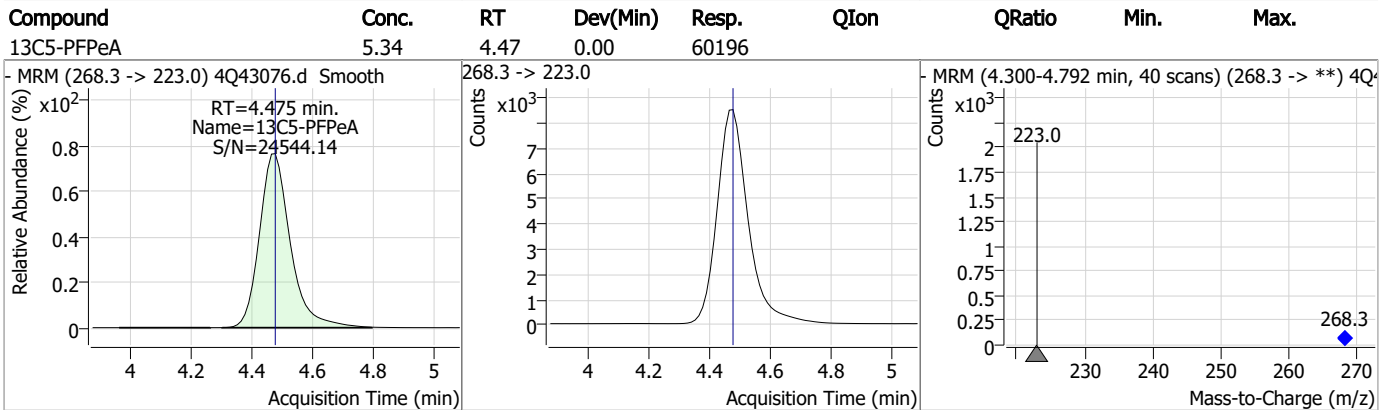
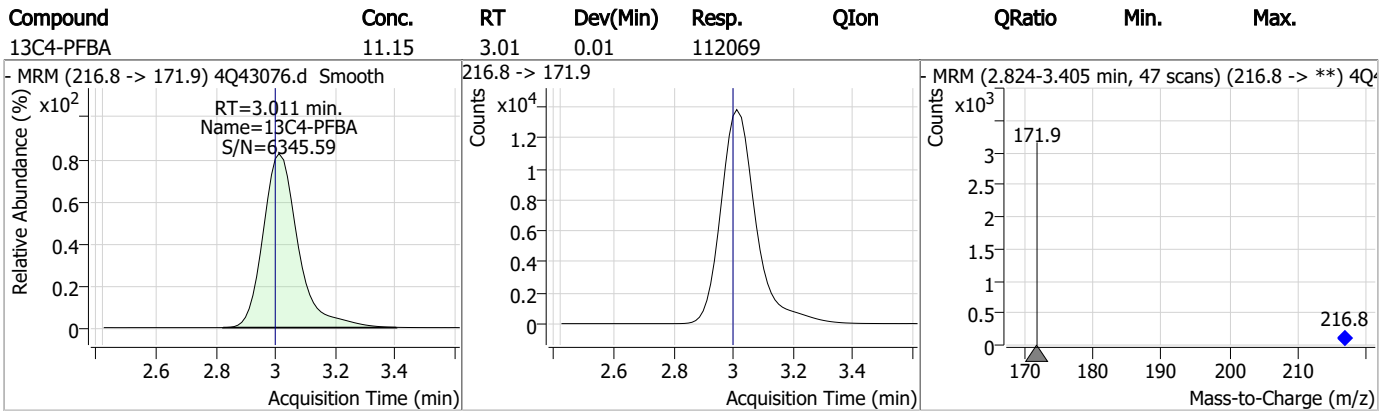
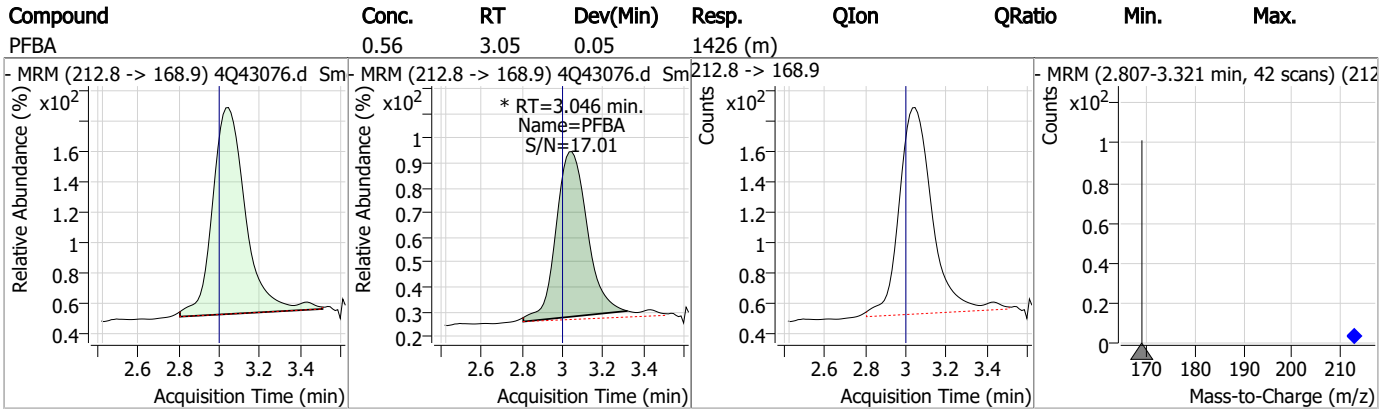
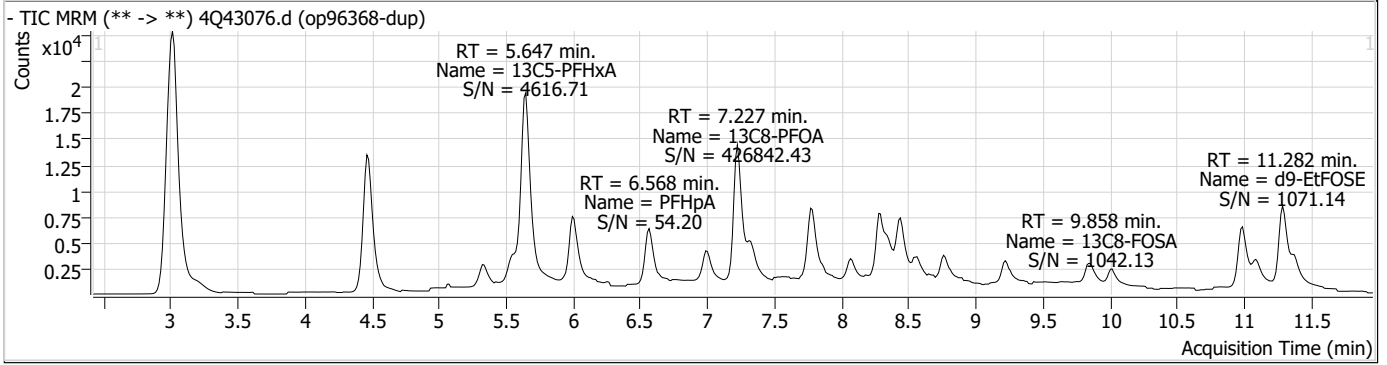
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.5.1

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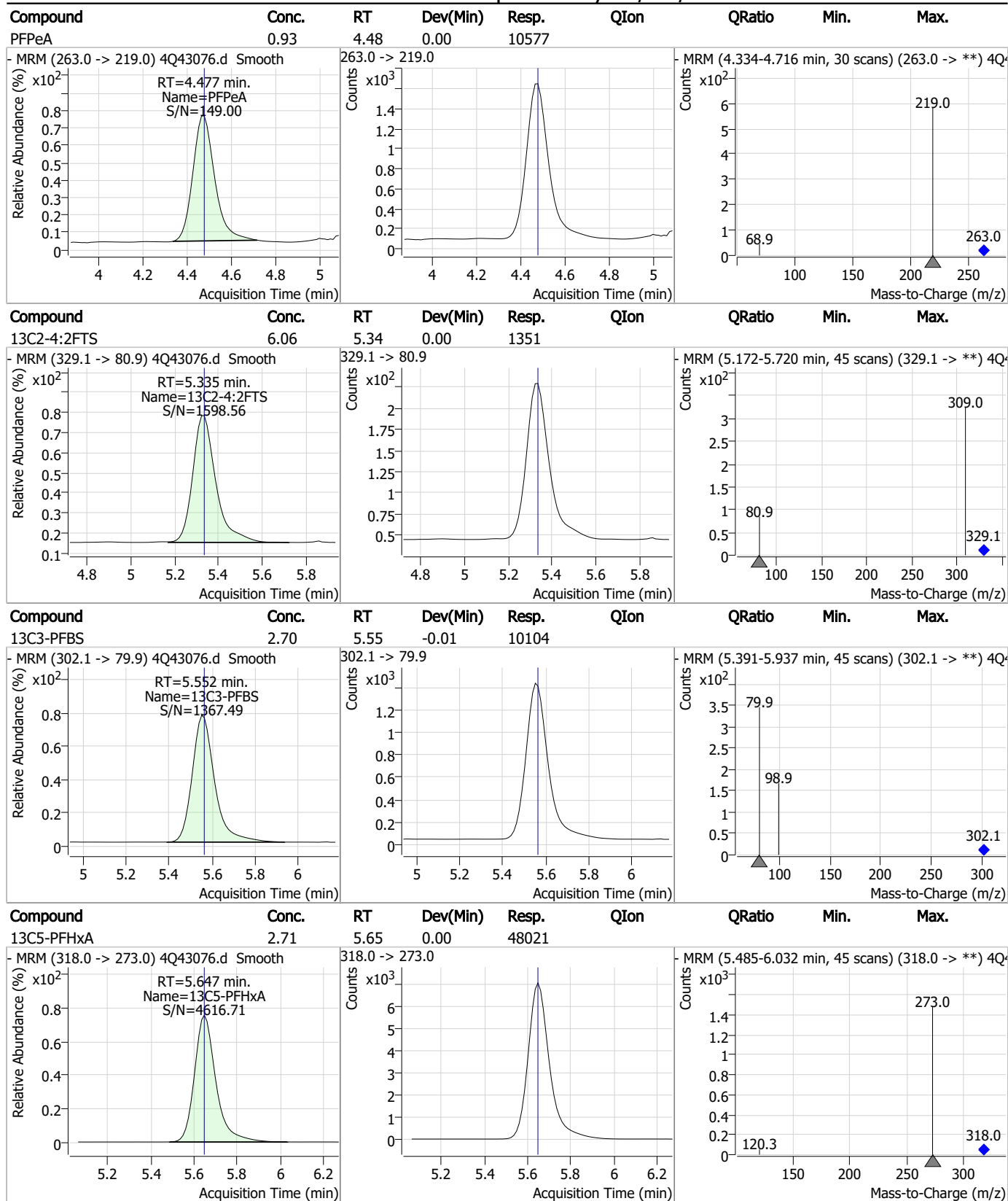
Perfluorinated Compounds by LC/MS/MS



7.5.1

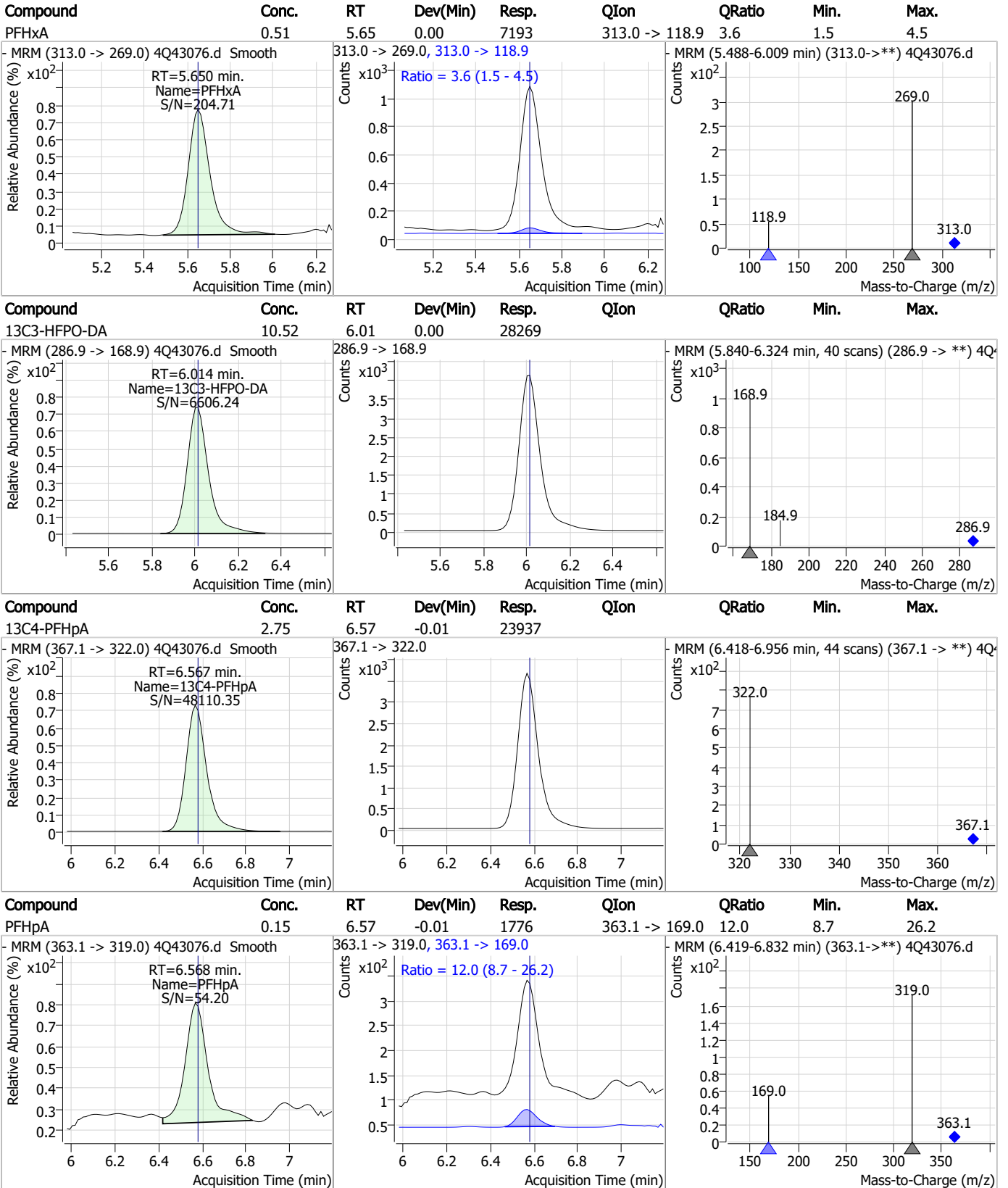
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Perfluorinated Compounds by LC/MS/MS



7.5.1
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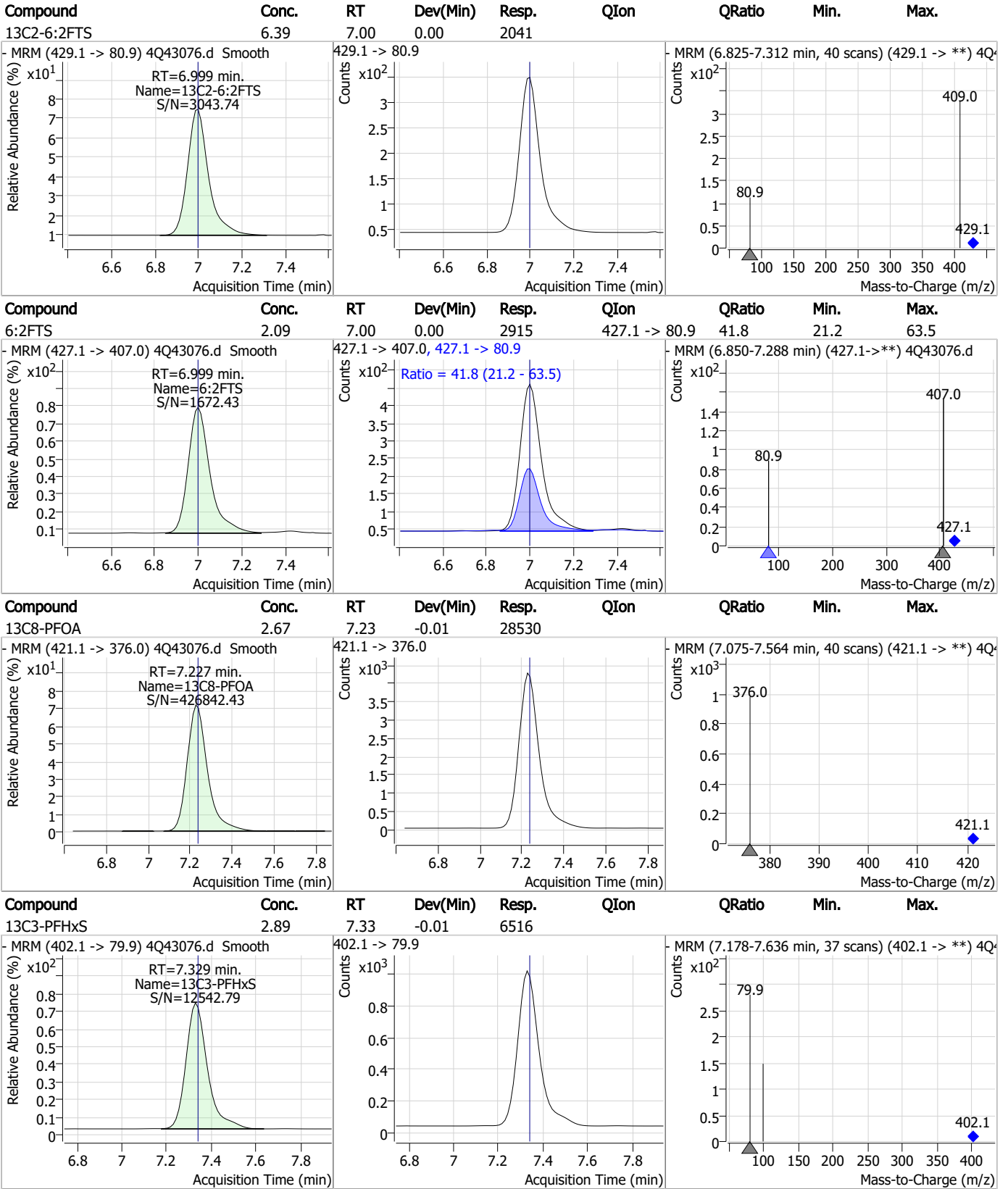
Perfluorinated Compounds by LC/MS/MS



7.5.1

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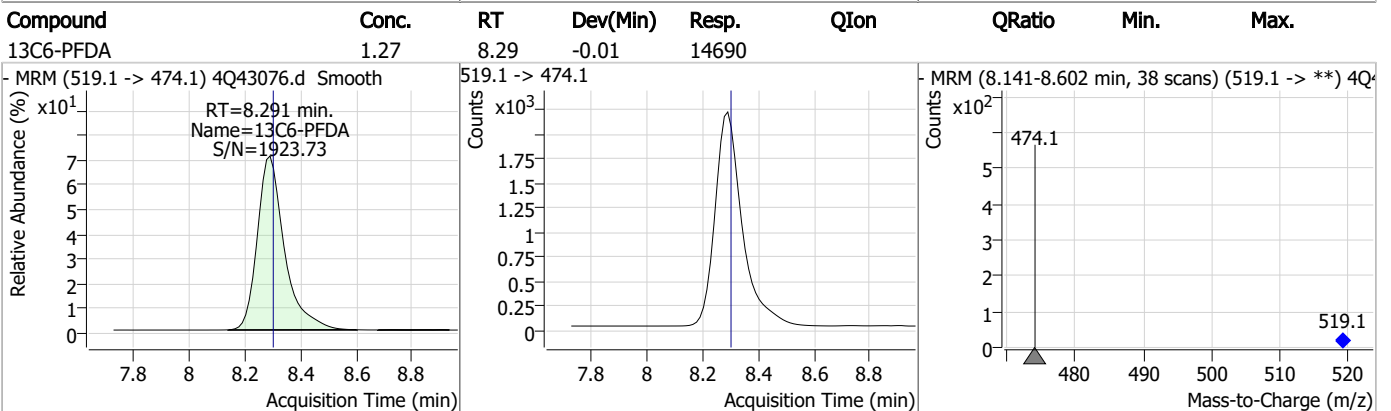
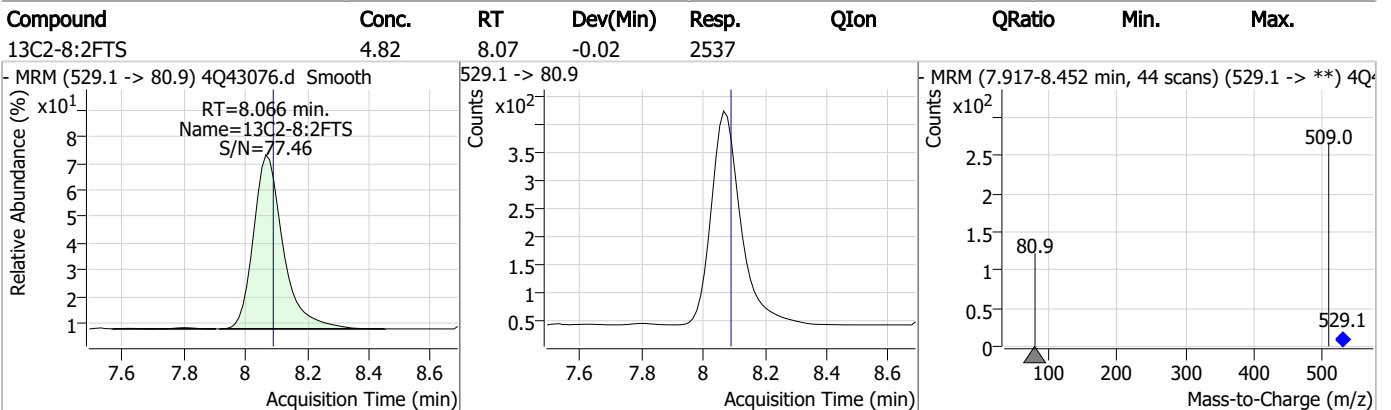
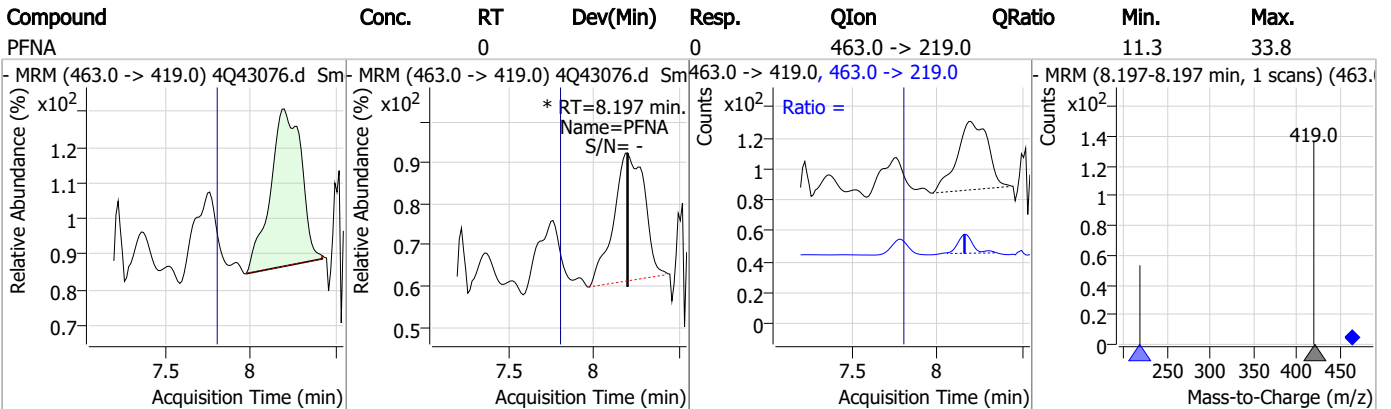
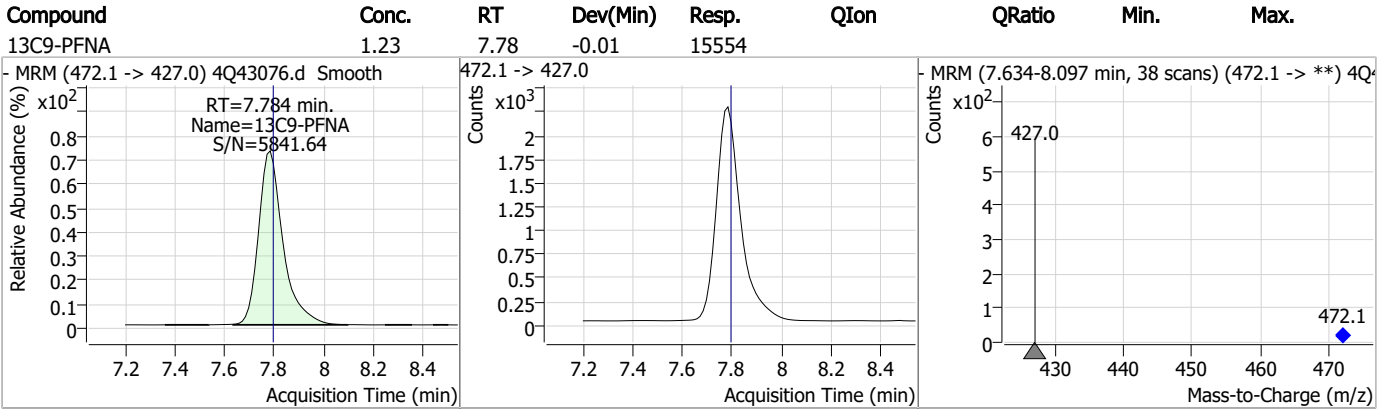
Perfluorinated Compounds by LC/MS/MS



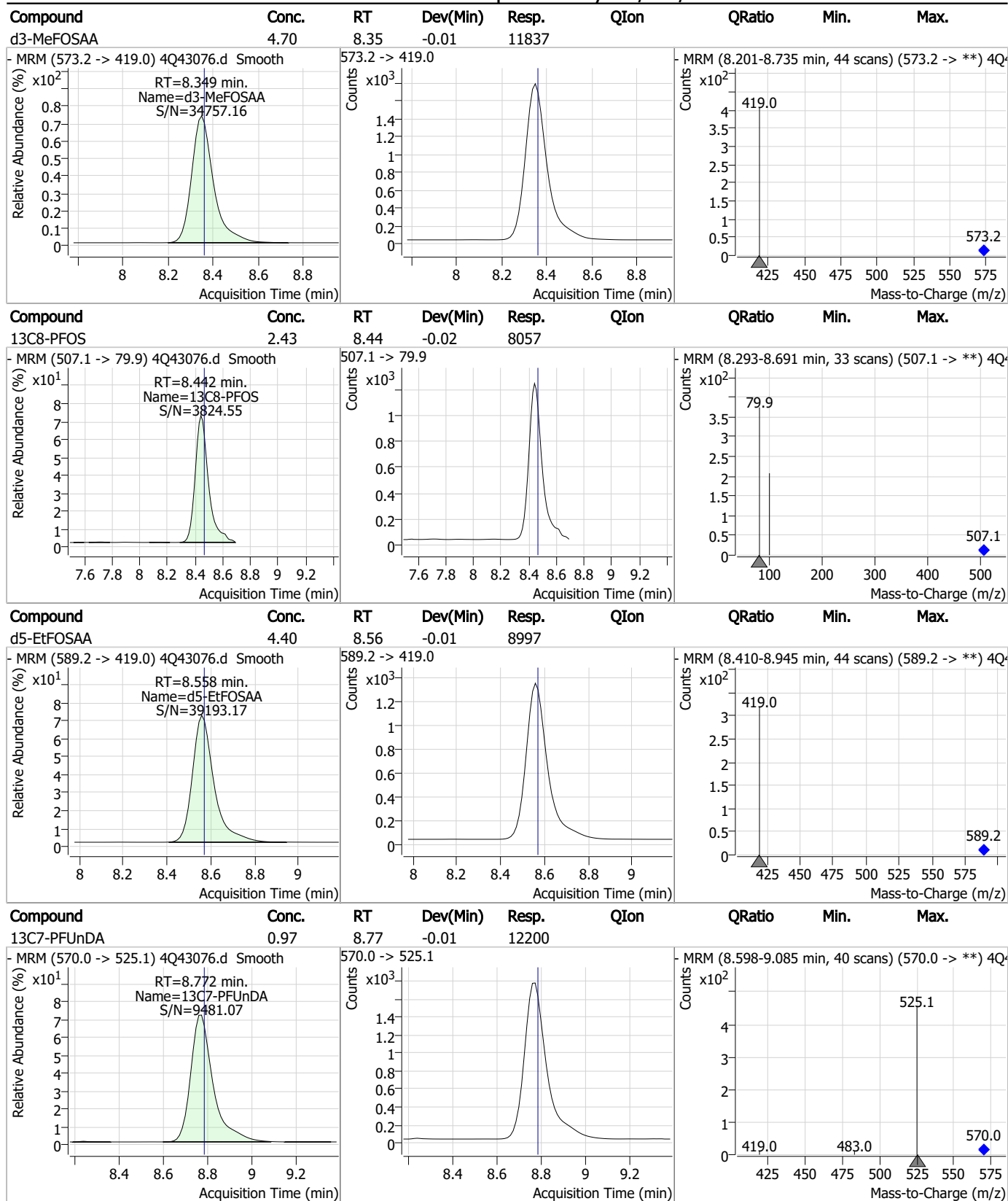
7.5.1

7

Perfluorinated Compounds by LC/MS/MS

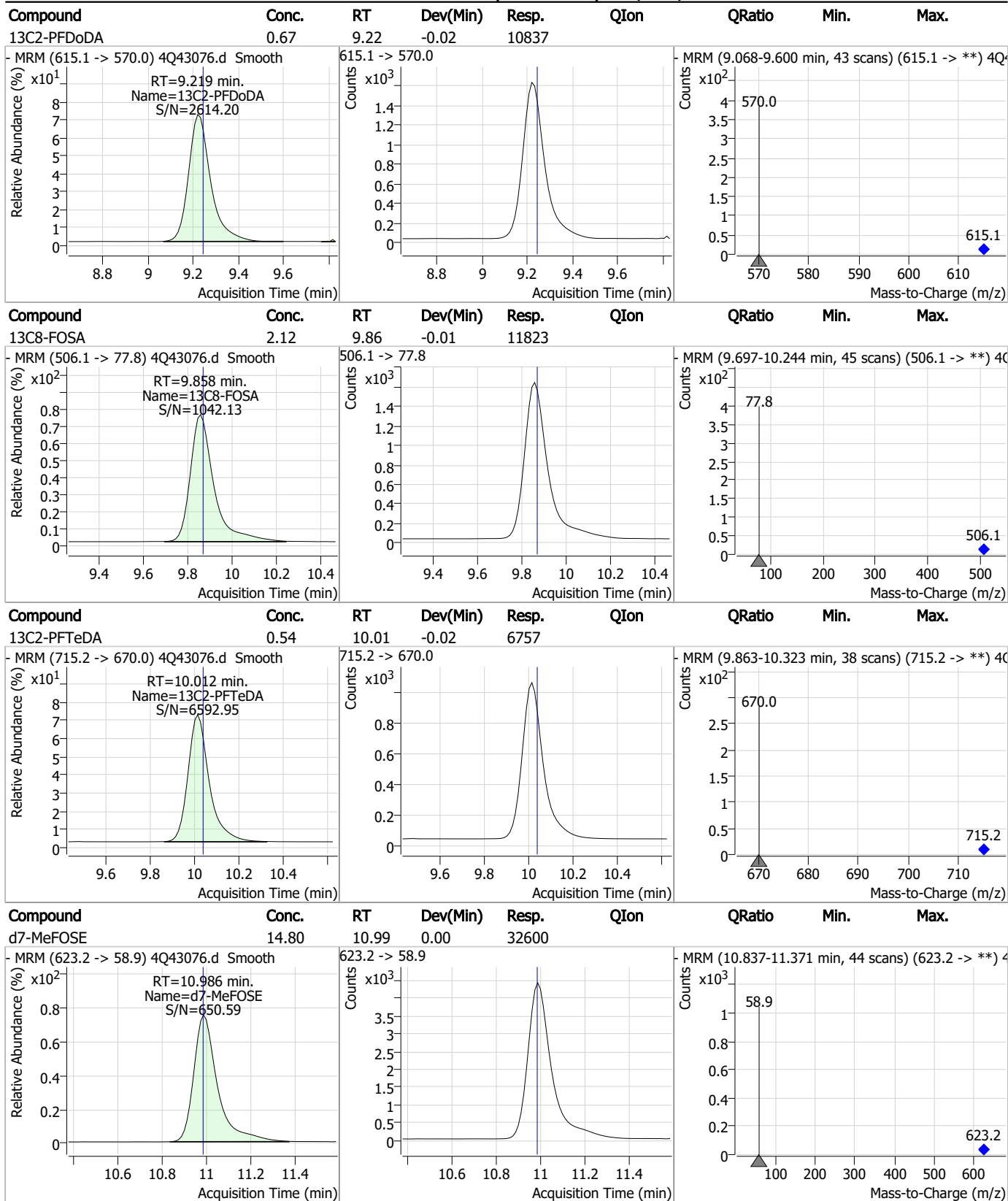


Perfluorinated Compounds by LC/MS/MS



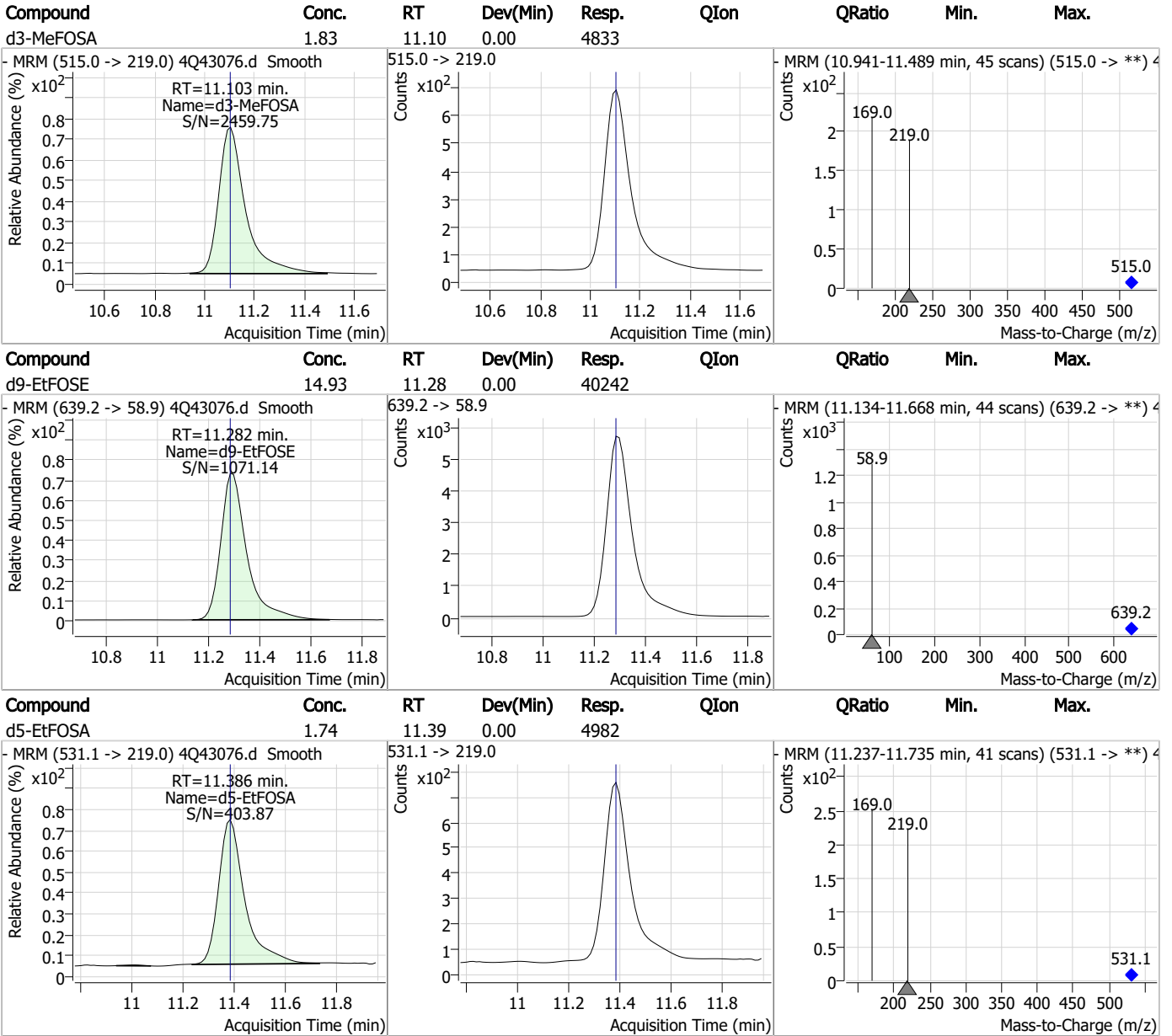
7.5.1
7

Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Perfluorinated Compounds by LC/MS/MS



7.5.1

7



Manual Integration Approval Summary

Sample Number: OP96368-DUP Method: EPA DRAFT 1633
Lab FileID: 4Q43076.D Analyst approved: 04/17/23 17:12 Martha Valls
Injection Time: 04/15/23 21:11 Supervisor approved: 04/17/23 17:14 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		3.05	Poorly defined baseline

7.5.1.1

7

Perfluorinated Compounds by LC/MS/MS

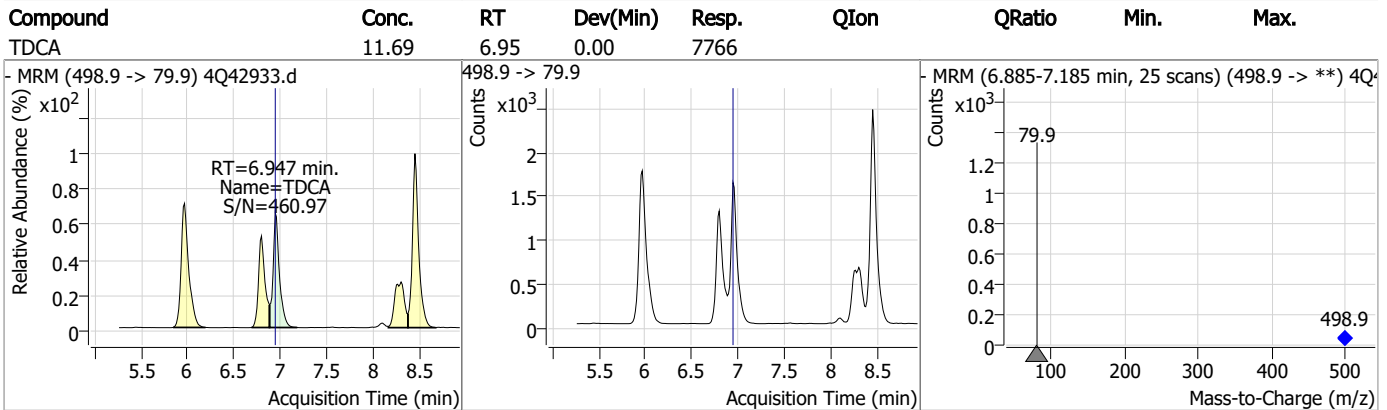
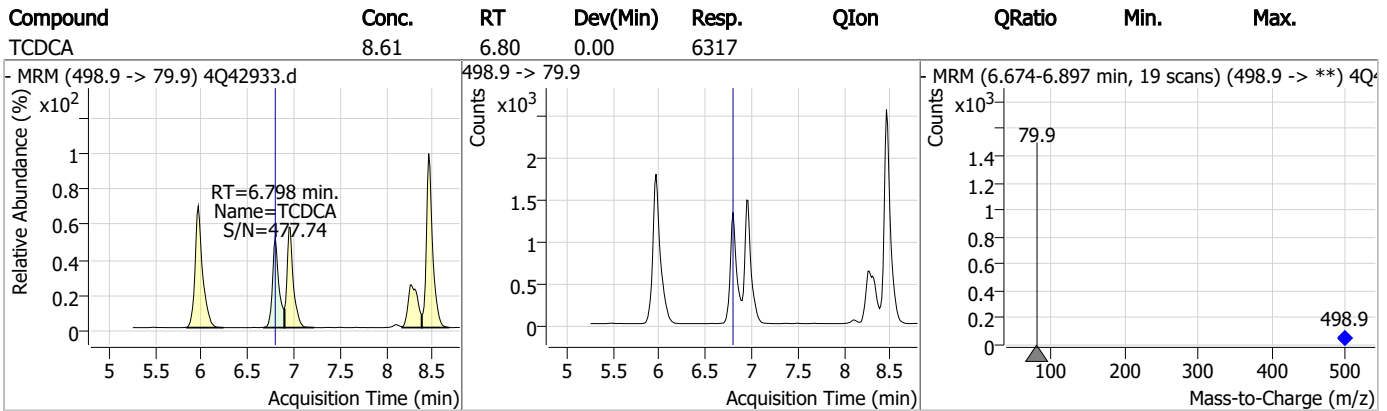
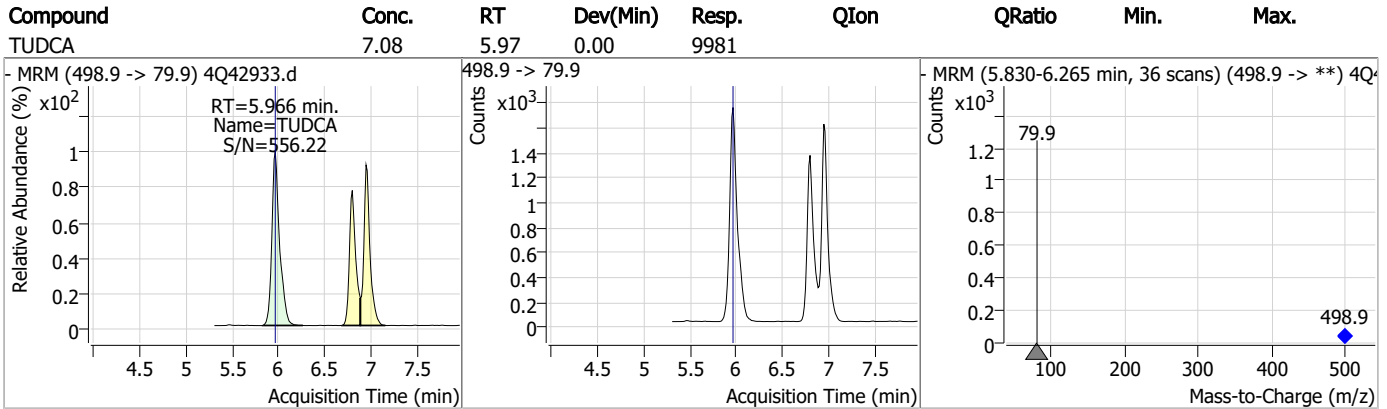
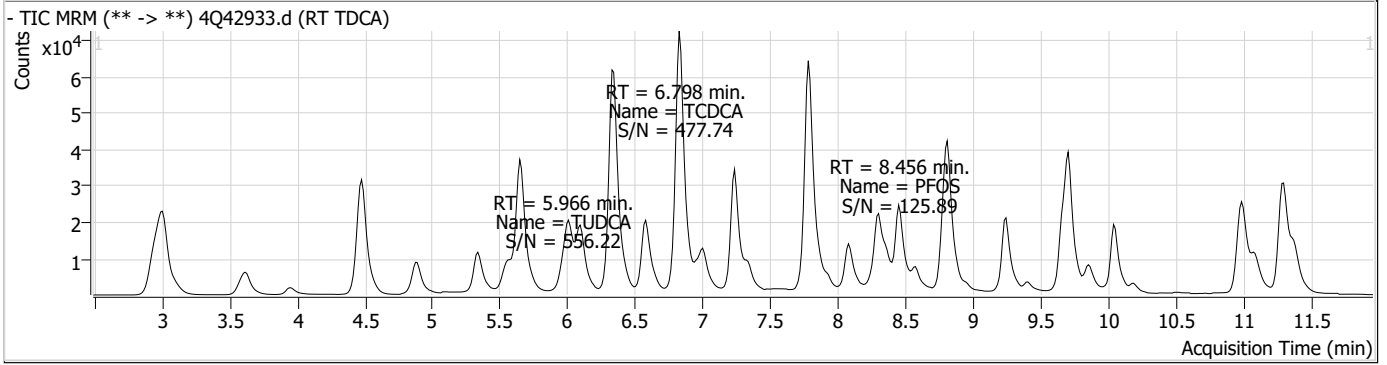
Data File : 4Q42933.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 11:07:46 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q621 TDCA.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.467	507.1 -> 79.9	15897	2.50	µg/L	0.000	
13C4-PFOS	8.455	502.8 -> 79.9	16267	2.50	µg/L	0.000	
System Monitoring Compounds							
13C8-PFOS	8.467	507.1 -> 79.9	15897	2.48	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%				
Target Compounds							
PFOS	8.456	498.9 -> 79.9 498.9 -> 98.8	16177 8244	2.98	µg/L	m	89
TCDCa	6.798	498.9 -> 79.9	6317	8.61	ng/ml		100
TDCA	6.947	498.9 -> 79.9	7766	11.69	ng/ml		100
TUDCA	5.966	498.9 -> 79.9	9981	7.08	ng/ml		100

= Qualifier out of range, m = manually integrated, + = Area summed

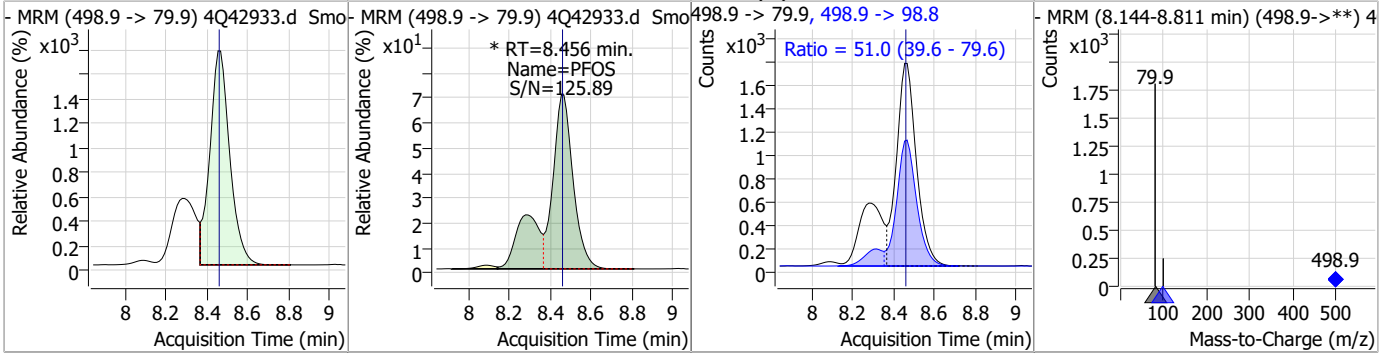
7.6.1
7

Perfluorinated Compounds by LC/MS/MS

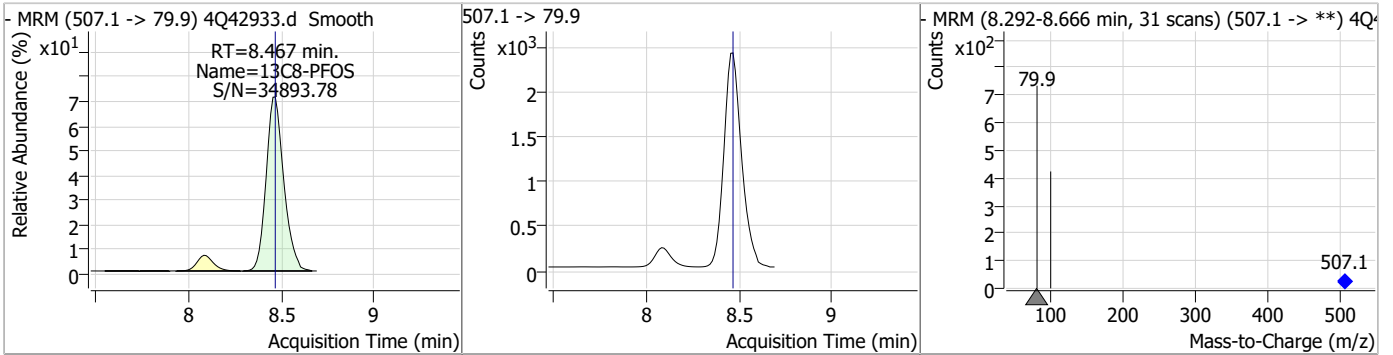


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.98	8.46	0.00	16177 (m)	498.9 -> 98.8	51.0	39.6	79.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.48	8.47	0.00	15897				



7.6.1

7

Manual Integration Approval Summary

Sample Number: S4Q621-RT Method: EPA DRAFT 1633
Lab FileID: 4Q42933.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 11:07 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.46	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42934.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 11:21:49 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	92046	10.00 µg/L	0.000
M5-PFPeA	4.475	268.3 -> 223.0	74095	5.00 µg/L	0.000
M5-PFHxA	5.646	318.0 -> 273.0	56616	2.50 µg/L	0.000
M4-PFHpA	6.580	367.1 -> 322.0	28736	2.50 µg/L	0.000
M8-PFOA	7.237	421.1 -> 376.0	34976	2.50 µg/L	0.000
M9-PFNA	7.797	472.1 -> 427.0	20317	1.25 µg/L	0.000
M6-PFDA	8.303	519.1 -> 474.1	20288	1.25 µg/L	0.000
M7-PFUnDA	8.785	570.0 -> 525.1	19564	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	27933	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	20352	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	17843	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	12663	2.50 µg/L	0.000
M3-PFHxS	7.341	402.1 -> 79.9	7360	2.50 µg/L	0.000
M8-PFOS	8.467	507.1 -> 79.9	10515	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1515	5.00 µg/L	0.000
M2-6:2FTS	6.998	429.1 -> 80.9	2178	5.00 µg/L	0.000
M2-8:2FTS	8.090	529.1 -> 80.9	4080	5.00 µg/L	0.000
M3-MeFOSAA	8.360	573.2 -> 419.0	16839	5.00 µg/L	0.000
M3-HFPO-DA	6.014	286.9 -> 168.9	36471	10.00 µg/L	0.000
M5-EtFOSAA	8.570	589.2 -> 419.0	13902	5.00 µg/L	0.000
M7-MeFOSE	10.985	623.2 -> 58.9	66941	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	85392	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	9291	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8448	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	10411	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	56214	5.00 µg/L	0.000
18O2-PFHxS	7.340	403.0 -> 83.9	5465	2.50 µg/L	0.000
13C4-PFOA	7.237	417.1 -> 372.0	41449	2.50 µg/L	0.000
13C2-PFDA	8.303	515.1 -> 470.1	18081	1.25 µg/L	0.000
13C5-PFNA	7.797	468.0 -> 423.0	20749	1.25 µg/L	0.000
13C2-PFHxA	5.647	315.1 -> 270.0	50284	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1515	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-6:2FTS	6.998	429.1 -> 80.9	2178	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-8:2FTS	8.090	529.1 -> 80.9	4080	5.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.7%		
13C2-PFDoDA	9.243	615.1 -> 570.0	27933	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-PFTeDA	10.036	715.2 -> 670.0	20352	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFBS	5.564	302.1 -> 79.9	12663	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFHxS	7.341	402.1 -> 79.9	7360	2.43 µg/L	0.000

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C4-PFBA	2.999	216.8 -> 171.9	92046	9.40 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C4-PFHpA	6.580	367.1 -> 322.0	28736	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFHxA	5.646	318.0 -> 273.0	56616	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C5-PFPeA	4.475	268.3 -> 223.0	74095	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C6-PFDA	8.303	519.1 -> 474.1	20288	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C7-PFUnDA	8.785	570.0 -> 525.1	19564	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.6%	
13C8-FOSA	9.870	506.1 -> 77.8	17843	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-PFOA	7.237	421.1 -> 376.0	34976	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-PFOS	8.467	507.1 -> 79.9	10515	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C9-PFNA	7.797	472.1 -> 427.0	20317	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.5%	
d3-MeFOSAA	8.360	573.2 -> 419.0	16839	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	36471	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d3-MeFOSA	11.102	515.0 -> 219.0	8448	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
d5-EtFOSAA	8.570	589.2 -> 419.0	13902	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.6%	
d7-MeFOSE	10.985	623.2 -> 58.9	66941	24.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d9-EtFOSE	11.282	639.2 -> 58.9	85392	25.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSA	11.386	531.1 -> 219.0	9291	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	108196	57.28 µg/L	100
		327.1 -> 80.9	43879		
6:2FTS	6.998	427.1 -> 407.0	88174	59.28 µg/L	100
		427.1 -> 80.9	37341		
8:2FTS	8.090	527.1 -> 507.0	104865	57.33 µg/L	100
		527.1 -> 80.8	41461		
EtFOSAA	8.583	584.2 -> 419.1	32283	15.55 µg/L	m 87
		584.2 -> 526.0	14863		
FOSA	9.861	498.1 -> 77.9	197227	34.33 µg/L	m 100
		498.1 -> 478.0	5443		
MeFOSAA	8.361	570.1 -> 419.0	35797	15.43 µg/L	m 90
		570.1 -> 483.0	7124		
PFBA	2.995	212.8 -> 168.9	131767	62.68 µg/L	100
PFBS	5.565	298.7 -> 79.9	59395	12.57 µg/L	100
		298.7 -> 98.8	22824		
PFDA	8.304	512.9 -> 469.0	161174	13.89 µg/L	100
		512.9 -> 219.0	31178		
PFDoDA	9.244	613.1 -> 569.0	260313	14.78 µg/L	100
		613.1 -> 319.0	36532		
PFDS	9.409	599.0 -> 79.9	33829	14.39 µg/L	100

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.580	599.0 -> 98.8	16401	15.43	µg/L	100
		363.1 -> 319.0	221231			
PFHpS	7.936	363.1 -> 169.0	38658	14.44	µg/L	100
		449.0 -> 79.9	39516			
PFHxA	5.649	449.0 -> 98.9	20540	15.04	µg/L	100
		313.0 -> 269.0	252130			
PFHxS	7.342	313.0 -> 118.9	7499	13.43	µg/L	m
		398.7 -> 79.9	33870			
PFNA	7.659	398.7 -> 98.9	16778	28.59	µg/L	m
		463.0 -> 419.0	310533			
PFNS	8.961	463.0 -> 219.0	81533	13.92	µg/L	100
		548.8 -> 79.9	22523			
PFOA	7.238	548.8 -> 98.9	11580	30.41	µg/L	m
		413.0 -> 369.0	496946			
PFOS	8.468	413.0 -> 169.0	103781	13.53	µg/L	m
		498.9 -> 79.9	55388			
PFPeA	4.477	498.9 -> 98.8	28068	28.83	µg/L	100
		263.0 -> 219.0	404422			
PFPeS	6.619	349.1 -> 79.9	30978	14.43	µg/L	100
		349.1 -> 98.9	13212			
PFTeDA	10.037	713.1 -> 669.0	247206	15.43	µg/L	100
		713.1 -> 168.9	19772			
PFTrDA	9.666	663.0 -> 619.0	317820	14.00	µg/L	100
		663.0 -> 168.9	30774			
PFUnDA	8.785	563.1 -> 519.0	171152	15.47	µg/L	100
		563.1 -> 269.1	33306			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	251859	26.46	µg/L	100
		632.9 -> 452.9	78861			
9Cl-PF3ONS	8.825	530.8 -> 351.0	278388	26.18	µg/L	100
		532.8 -> 353.0	85497			
ADONA	6.831	376.9 -> 250.9	590183	26.94	µg/L	100
		376.9 -> 84.8	157955			
HFPO-DA	6.015	284.9 -> 168.9	81268	28.12	µg/L	100
		284.9 -> 184.9	10073			
3:3FTCA	3.954	241.0 -> 177.0	45444	69.54	µg/L	100
		241.0 -> 117.0	4355			
5:3FTCA	6.345	341.0 -> 237.1	875683	369.97	µg/L	100
		341.0 -> 217.0	624391			
7:3FTCA	7.786	441.0 -> 316.9	353074	363.99	µg/L	100
		441.0 -> 336.9	778578			
EtFOSA	11.388	526.0 -> 219.0	164350	49.64	µg/L	m
		526.0 -> 169.0	226245			
EtFOSE	11.308	630.0 -> 58.9	236589	89.89	µg/L	100
		511.9 -> 219.0	134898			
MeFOSA	11.103	511.9 -> 169.0	198920	49.39	µg/L	m
		616.1 -> 58.9	222770			
MeFOSE	10.998	699.1 -> 79.9	29364	94.69	µg/L	m
		699.1 -> 98.8	16601			
PFDoDS	10.189	295.0 -> 201.0	36076	14.45	µg/L	100
		295.0 -> 84.9	8931			
NFDHA	5.541	279.0 -> 85.1	231696	32.02	µg/L	100
		229.0 -> 84.9	196884			
PFMBA	4.878	314.8 -> 134.9	376485	28.89	µg/L	100
PFMPA	3.611	314.8 -> 82.9	12821	28.07	µg/L	100
PFEESA	6.096			26.75	µg/L	100

= Qualifier out of range, m = manually integrated, + = Area summed

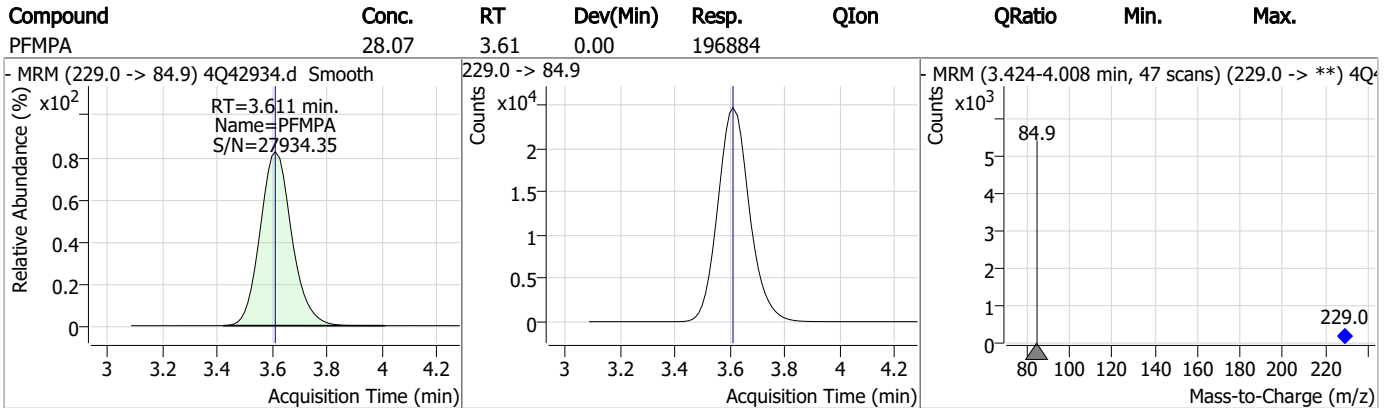
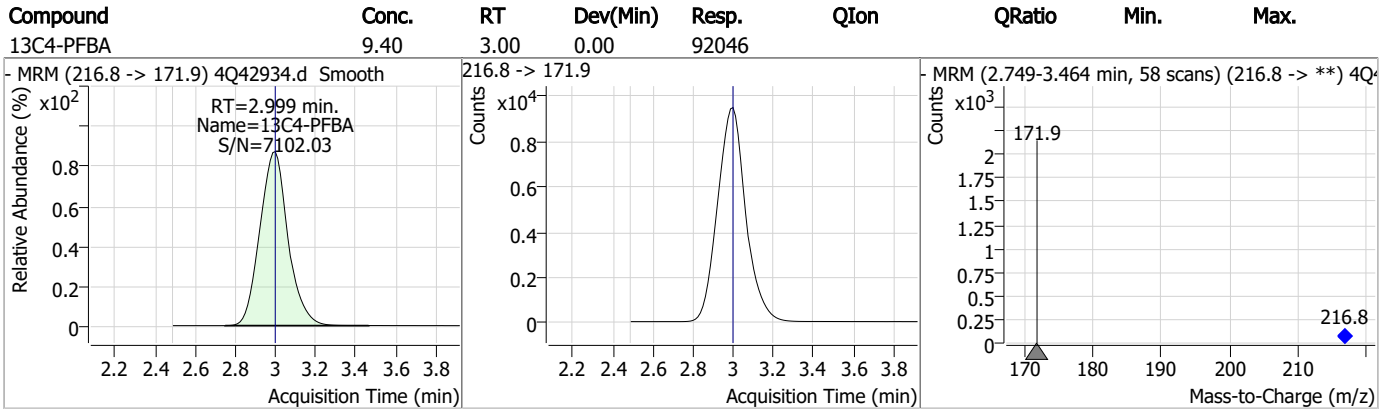
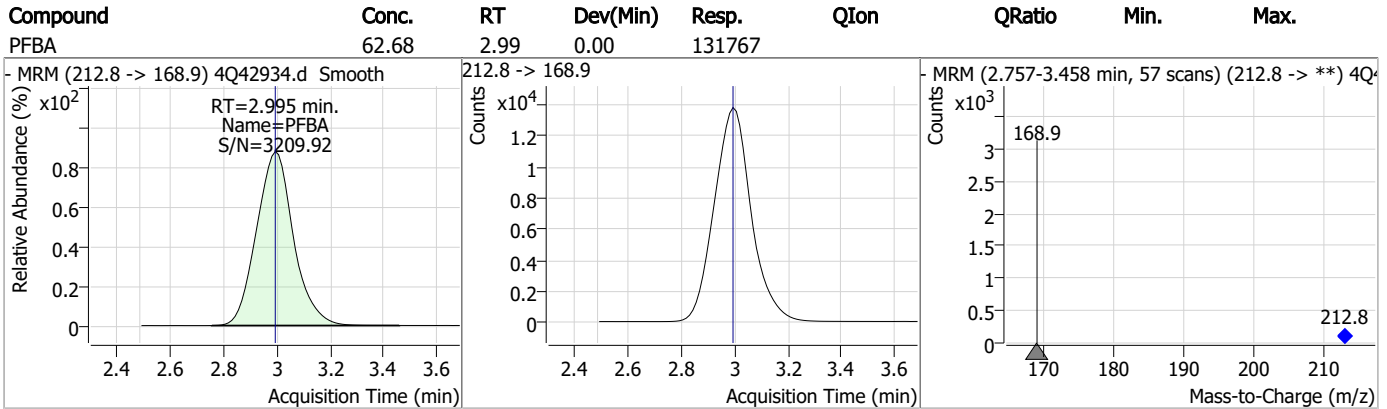
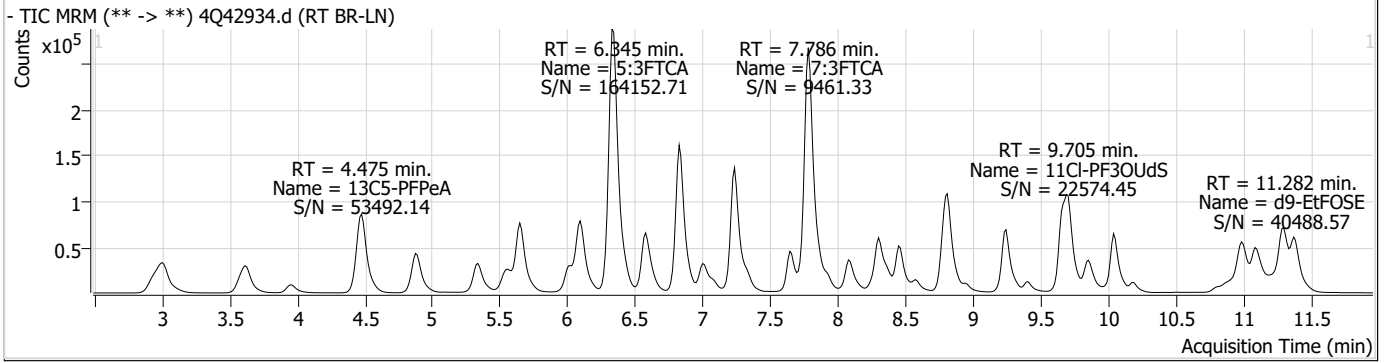
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.6.2

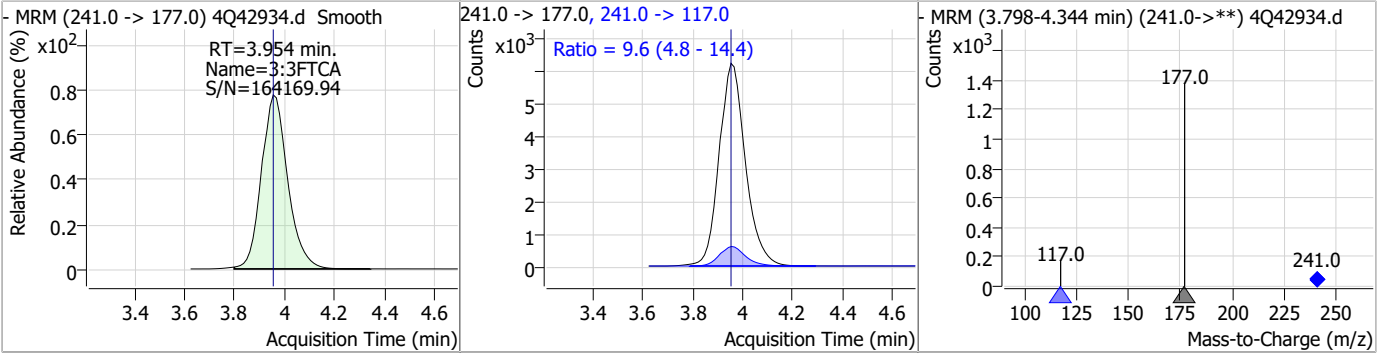
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Perfluorinated Compounds by LC/MS/MS

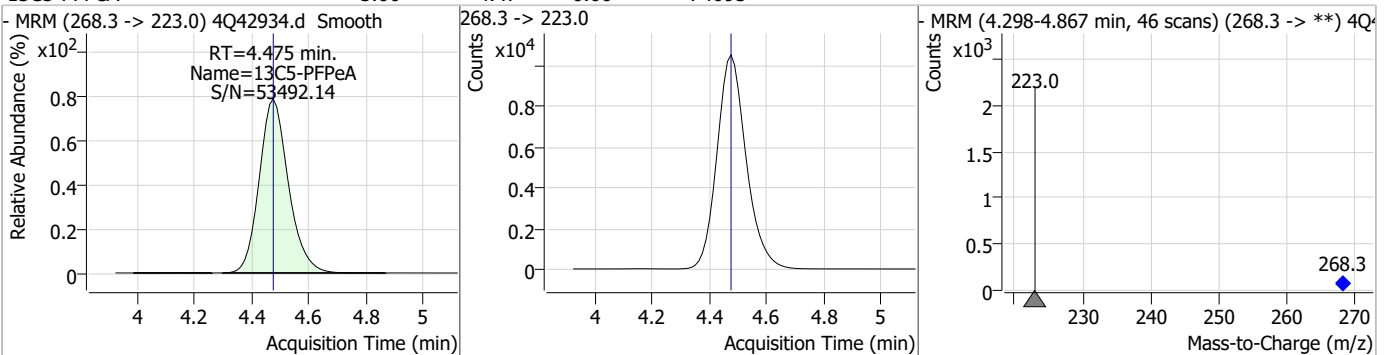


Perfluorinated Compounds by LC/MS/MS

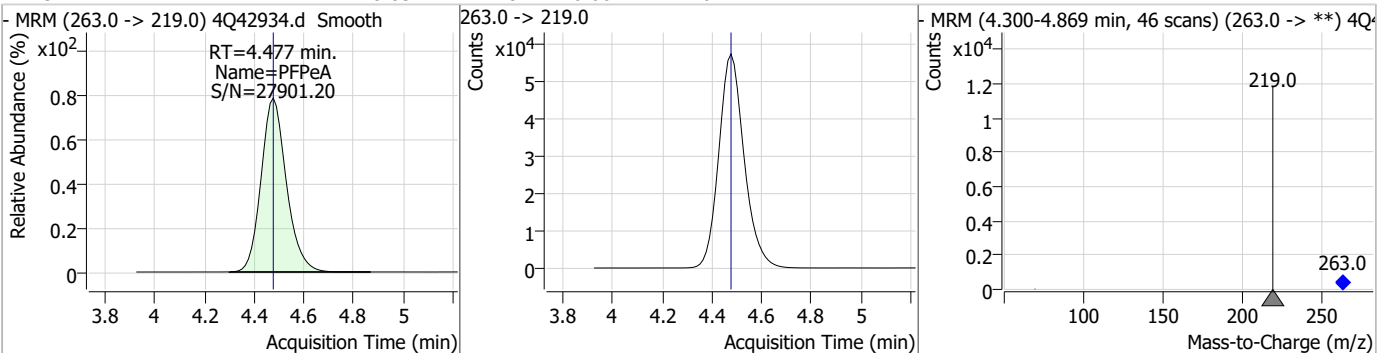
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	69.54	3.95	0.00	45444	241.0 -> 117.0	9.6	4.8	14.4



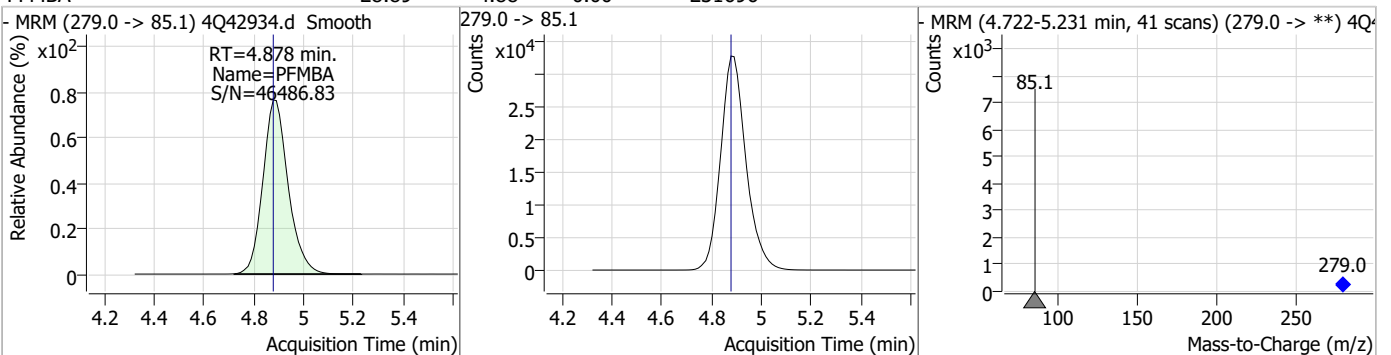
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.00	4.47	0.00	74095	268.3 -> 223.0			



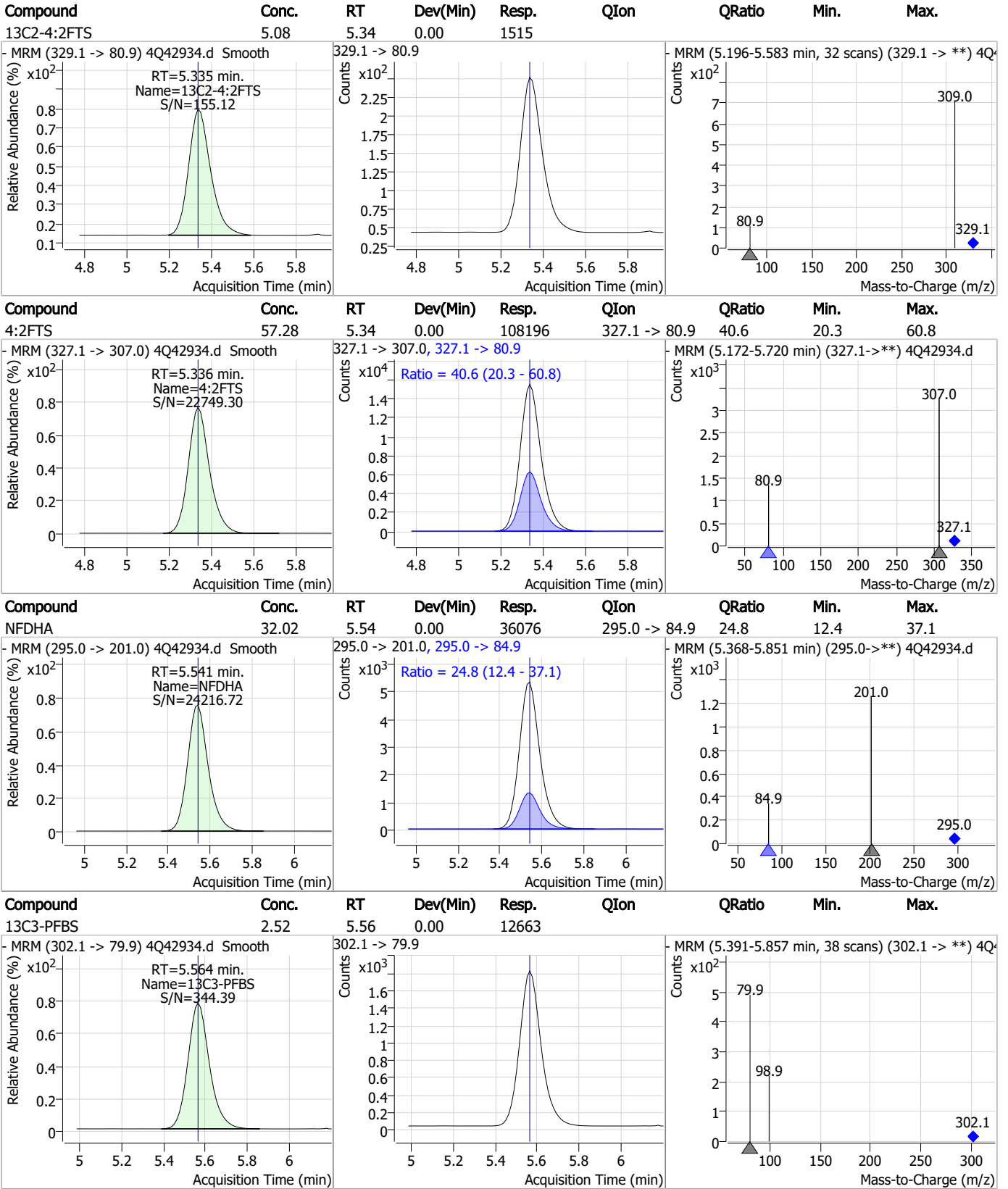
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	28.83	4.48	0.00	404422	263.0 -> 219.0			



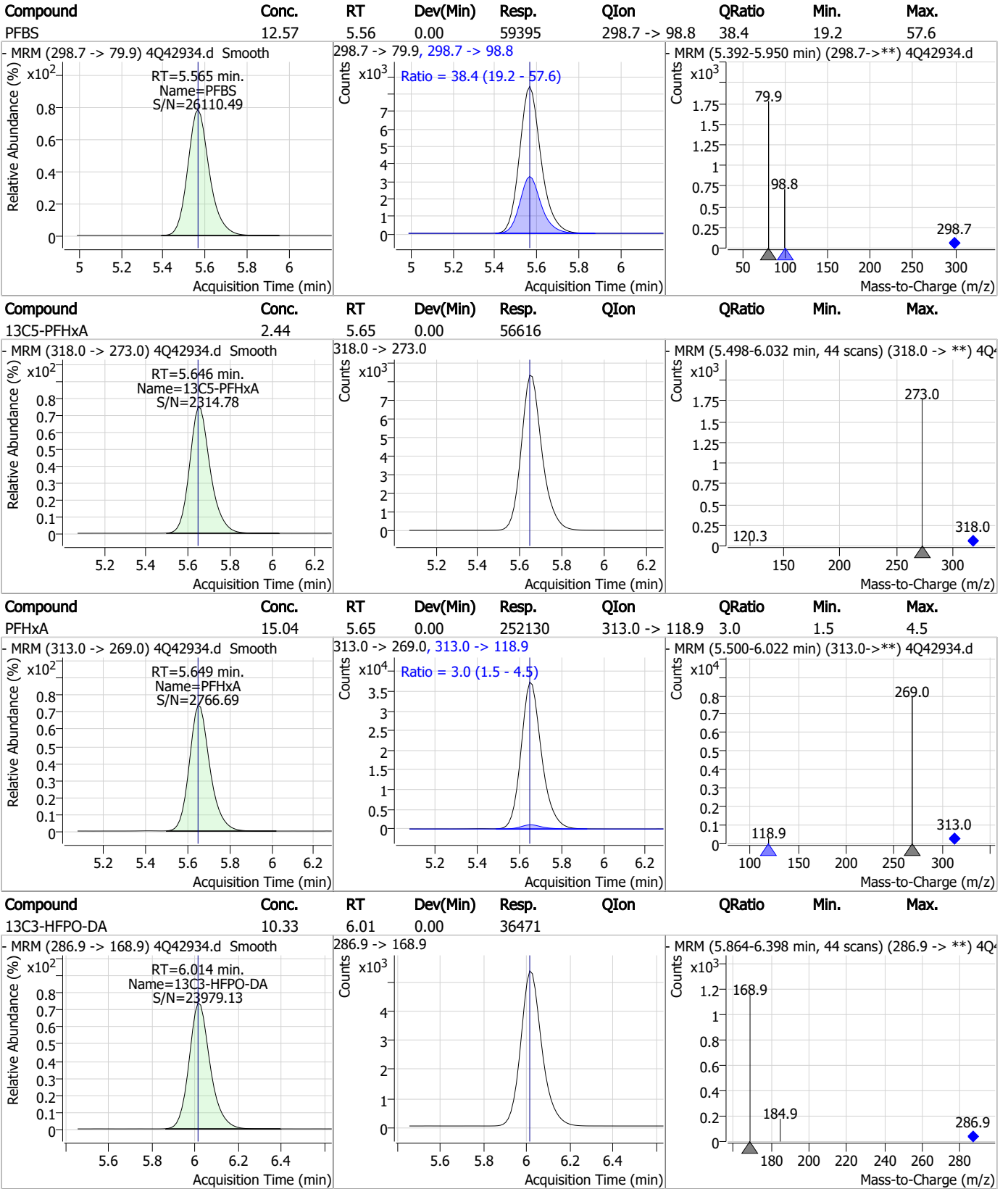
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	28.89	4.88	0.00	231696	279.0 -> 85.1			



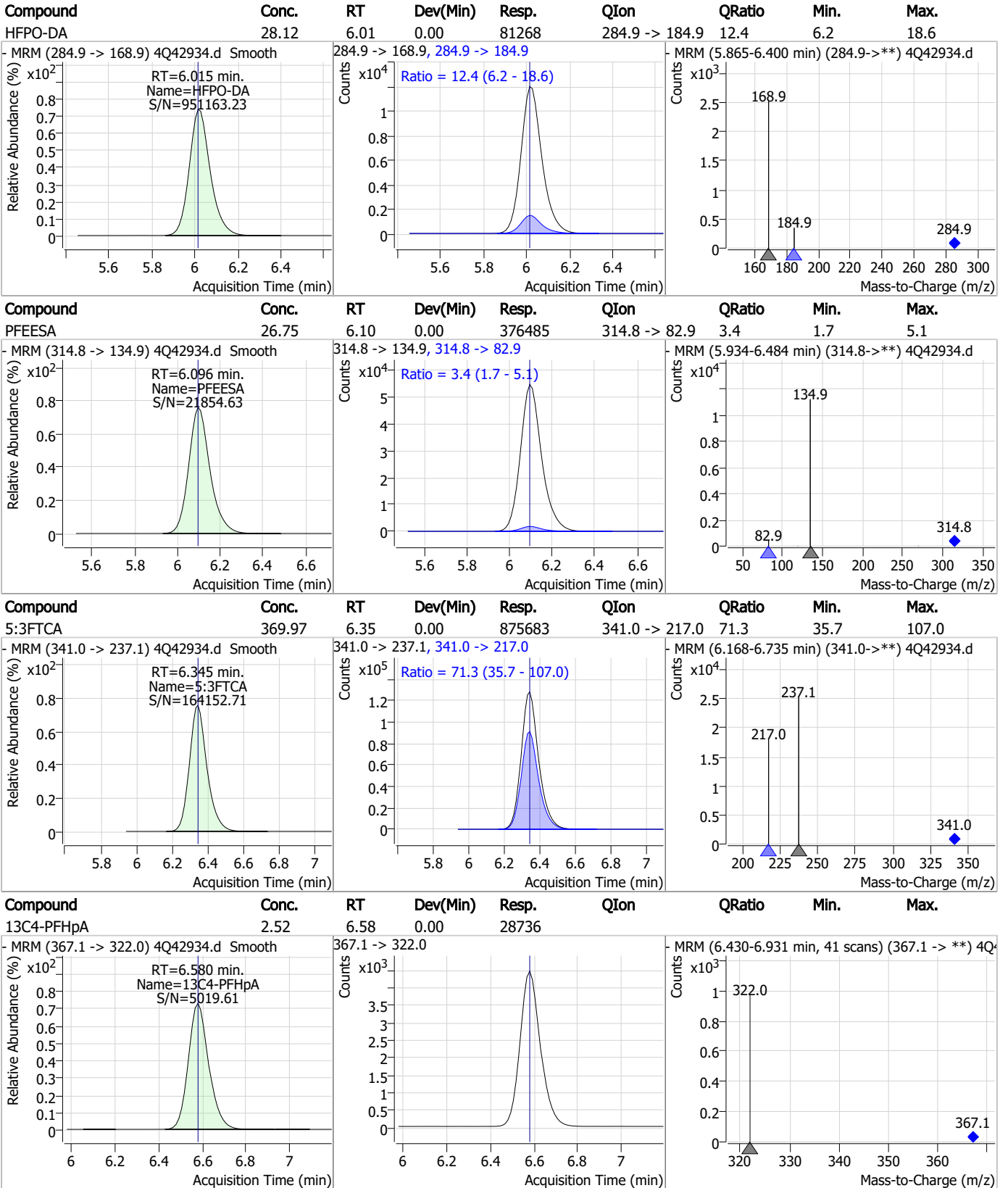
Perfluorinated Compounds by LC/MS/MS



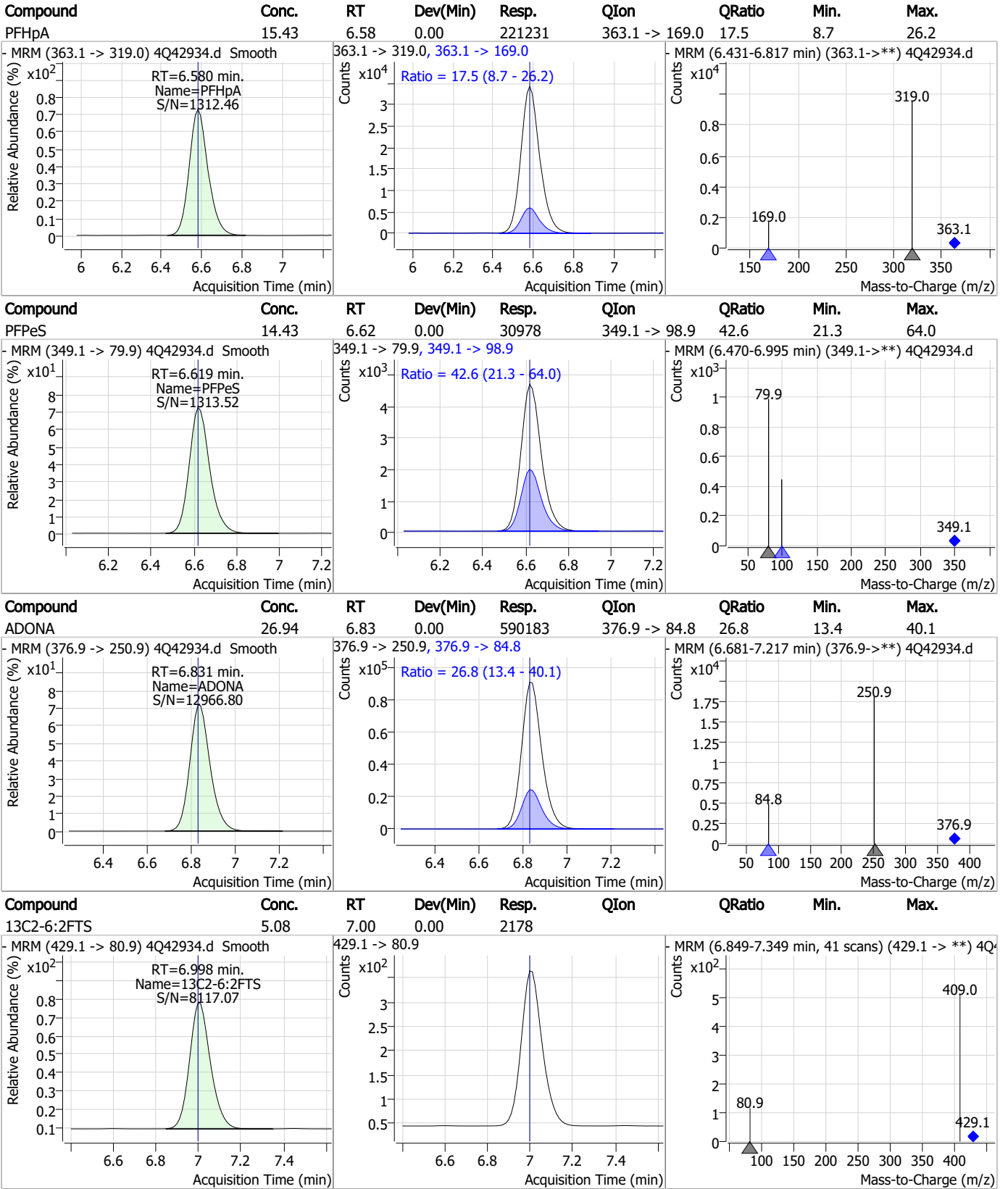
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



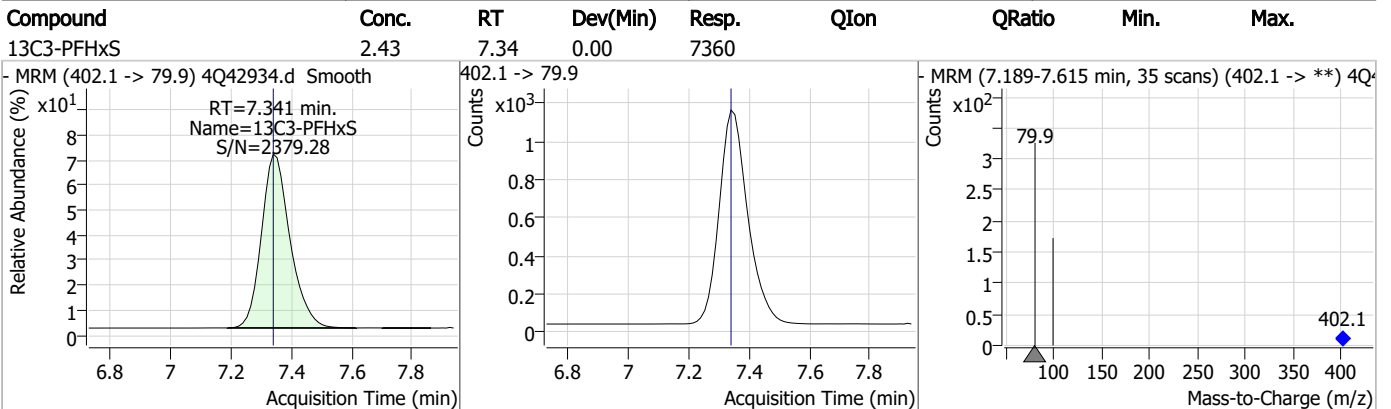
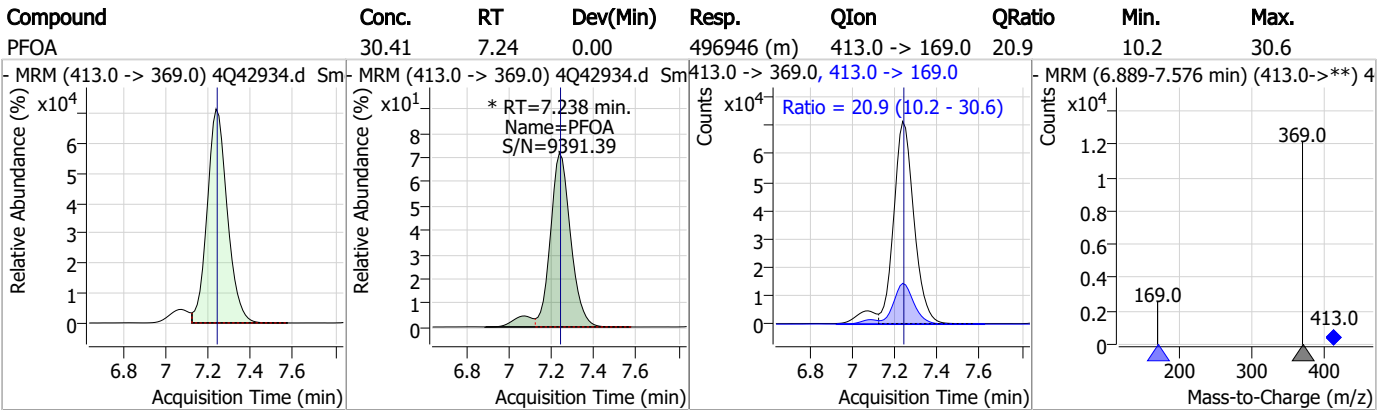
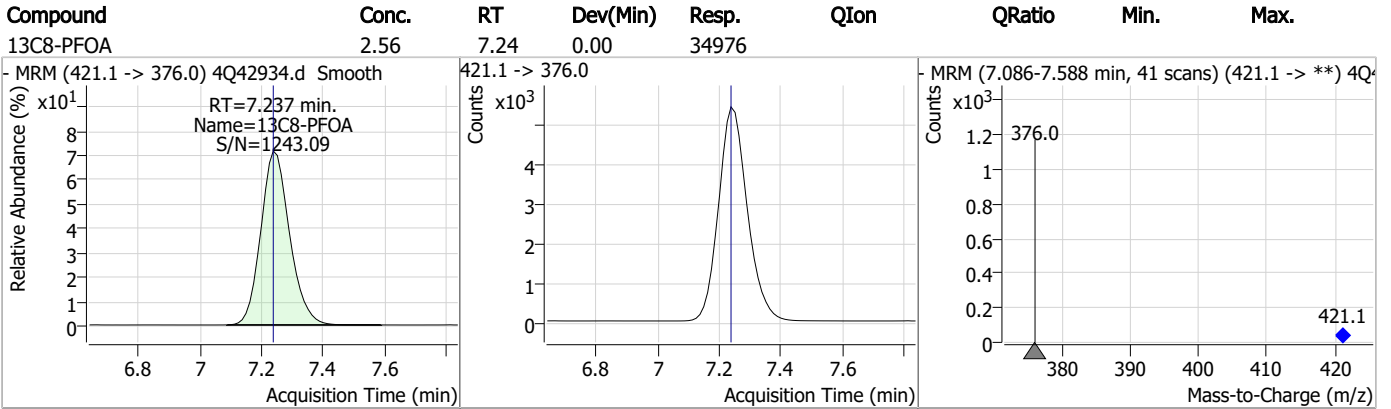
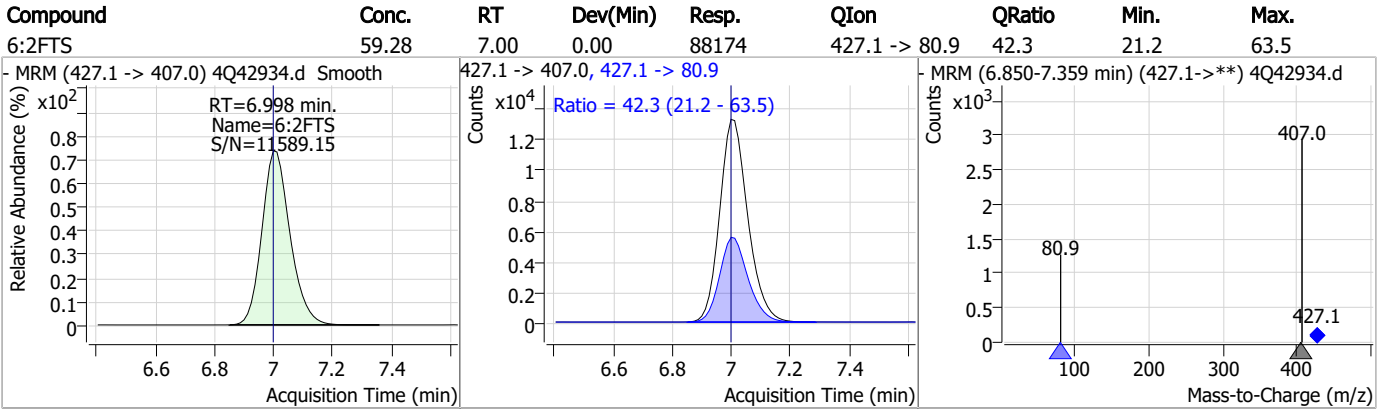
Perfluorinated Compounds by LC/MS/MS



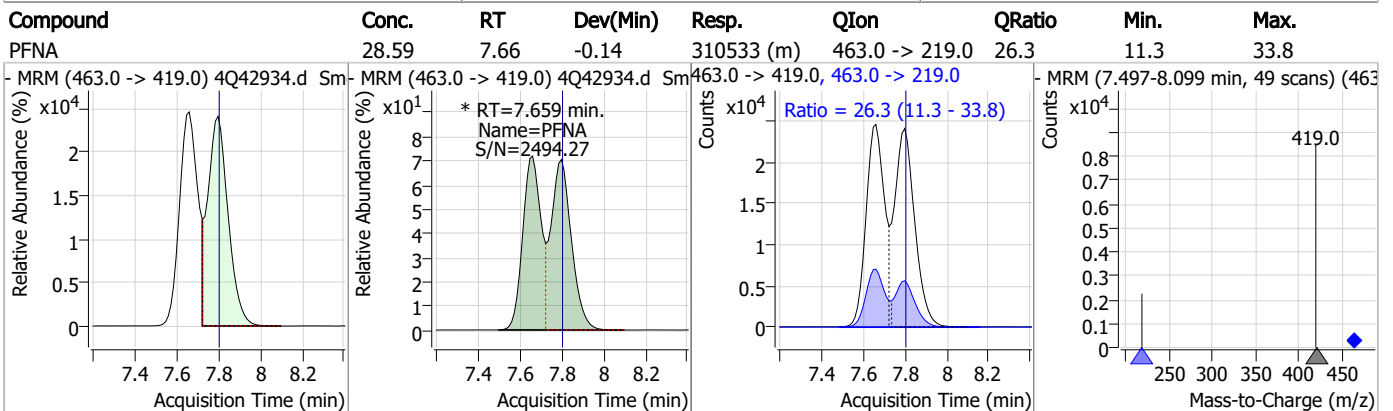
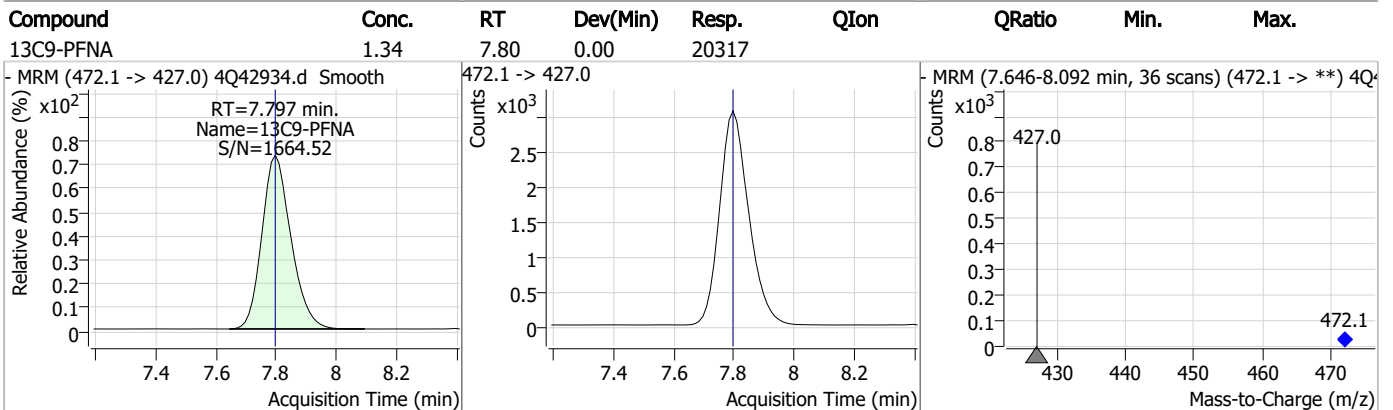
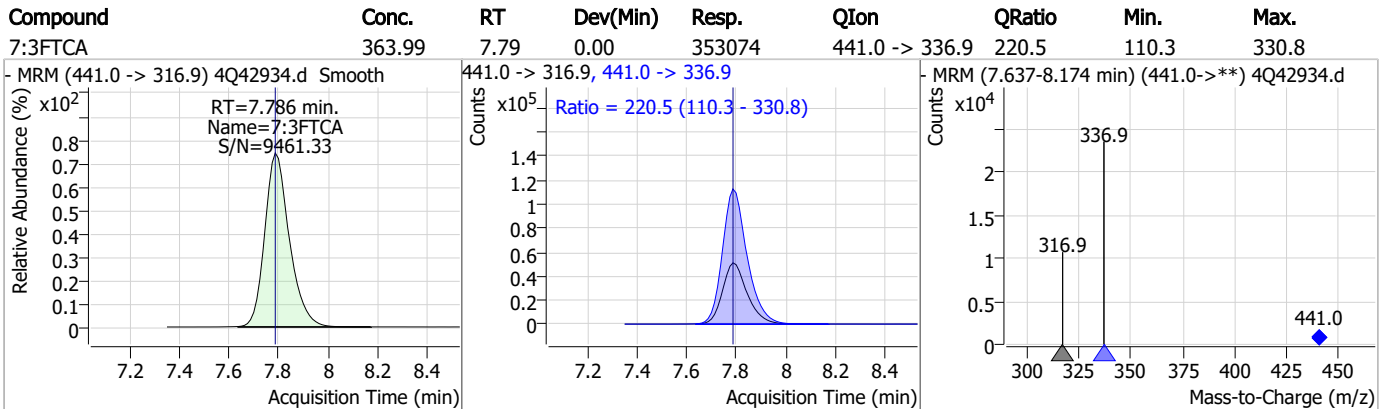
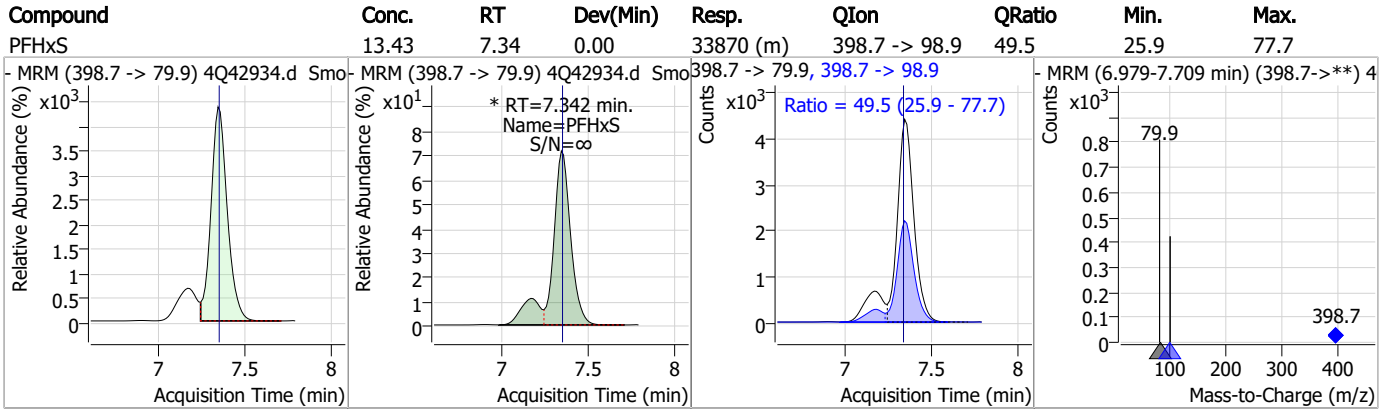
7.6.2

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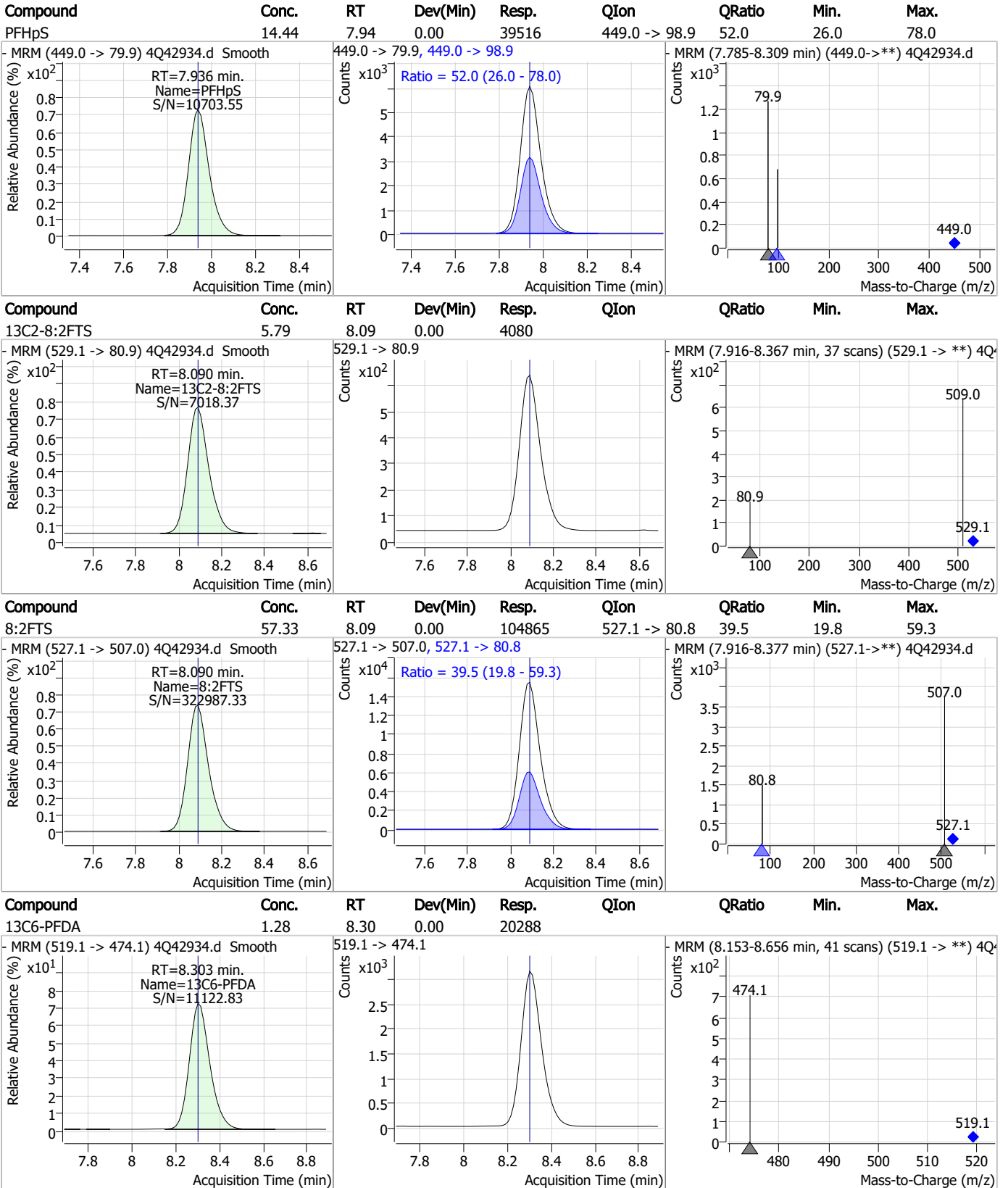
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

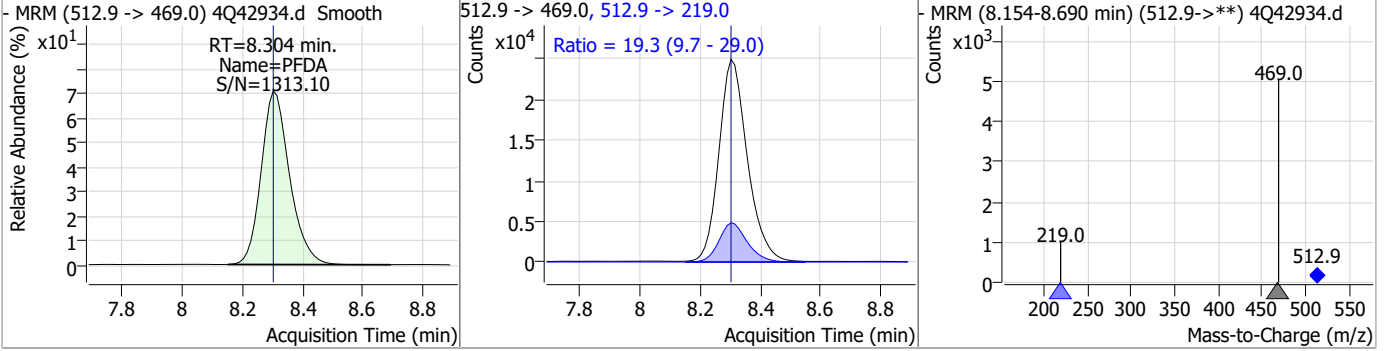


7.6.2

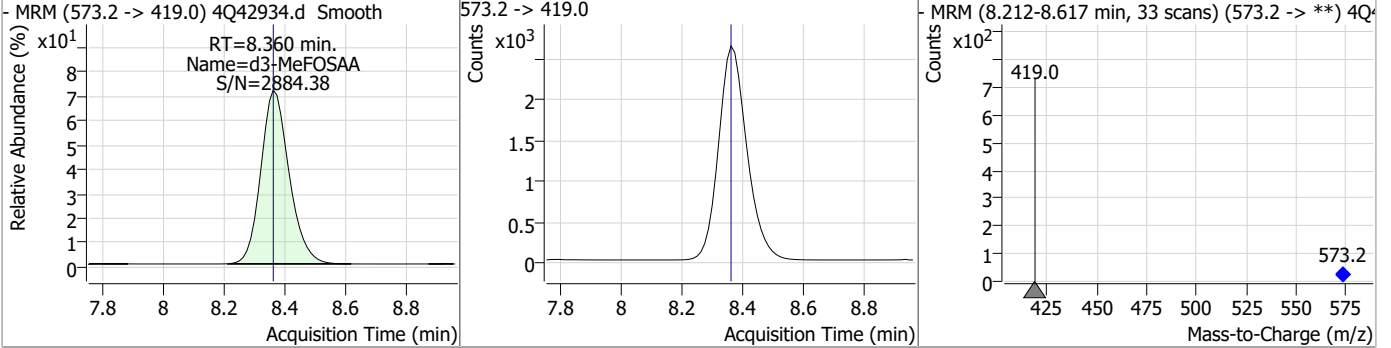
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Perfluorinated Compounds by LC/MS/MS

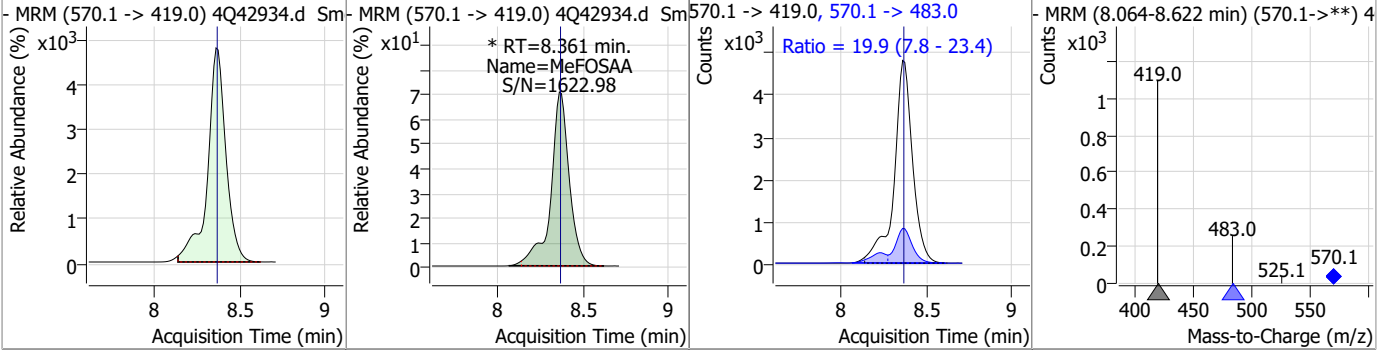
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	13.89	8.30	0.00	161174	512.9 -> 219.0	19.3	9.7	29.0



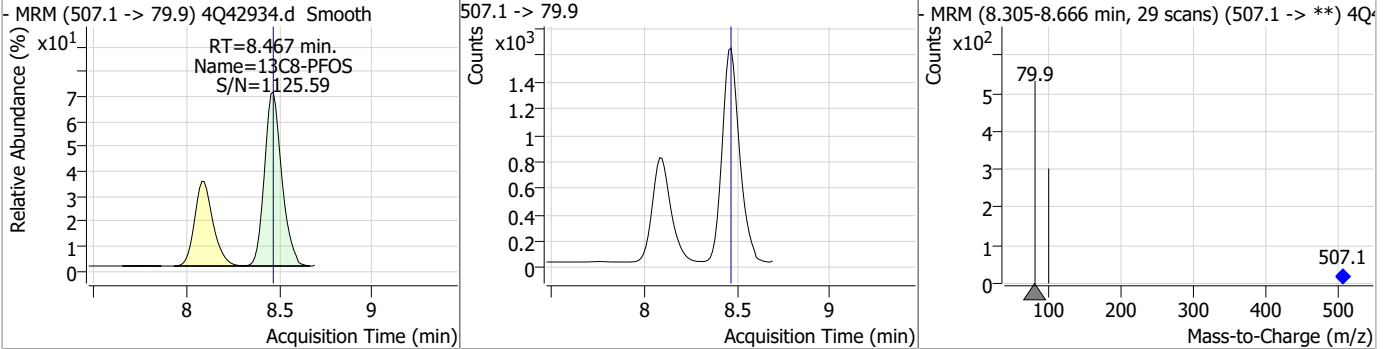
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.49	8.36	0.00	16839				



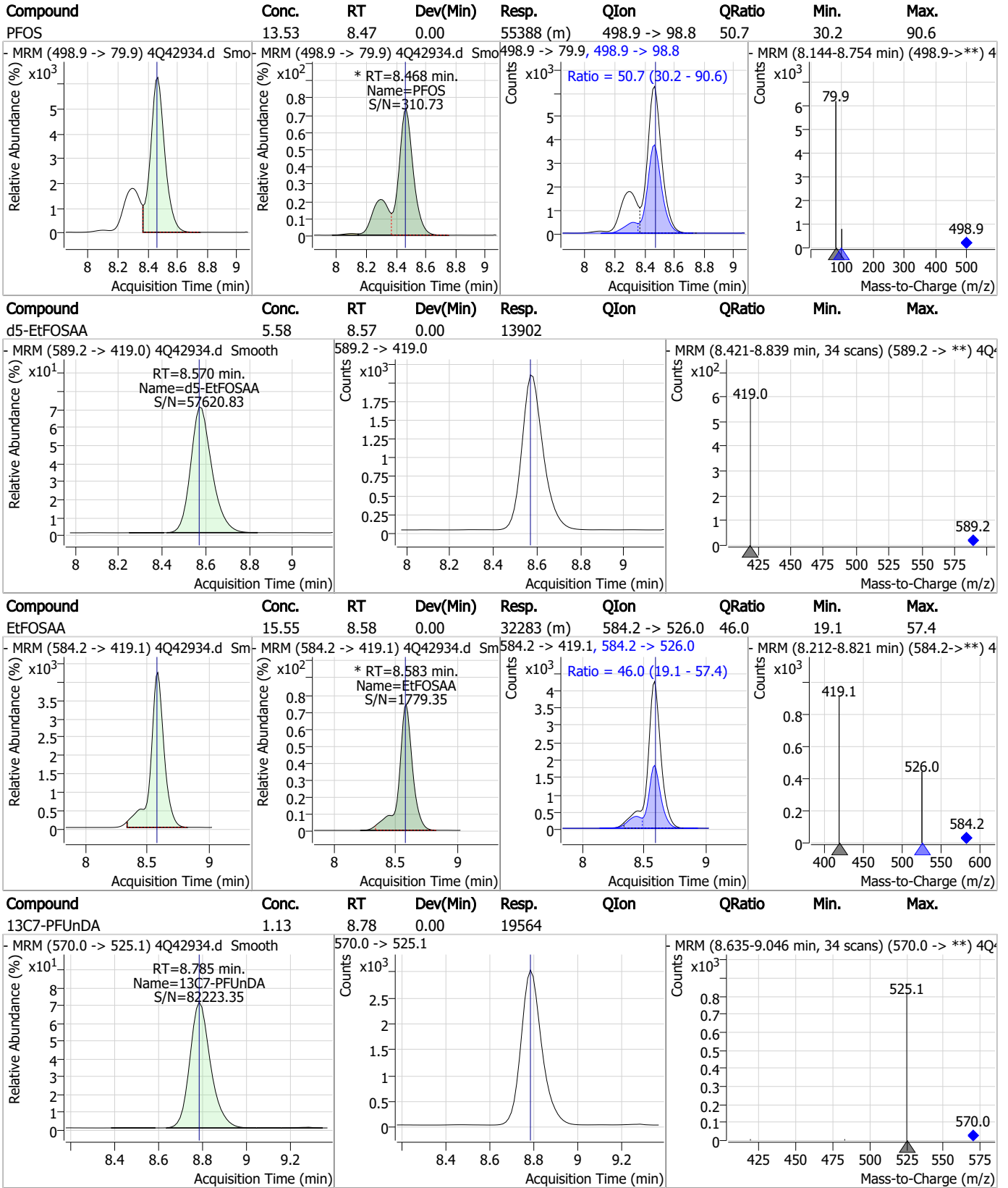
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	15.43	8.36	0.00	35797 (m)	570.1 -> 483.0	19.9	7.8	23.4



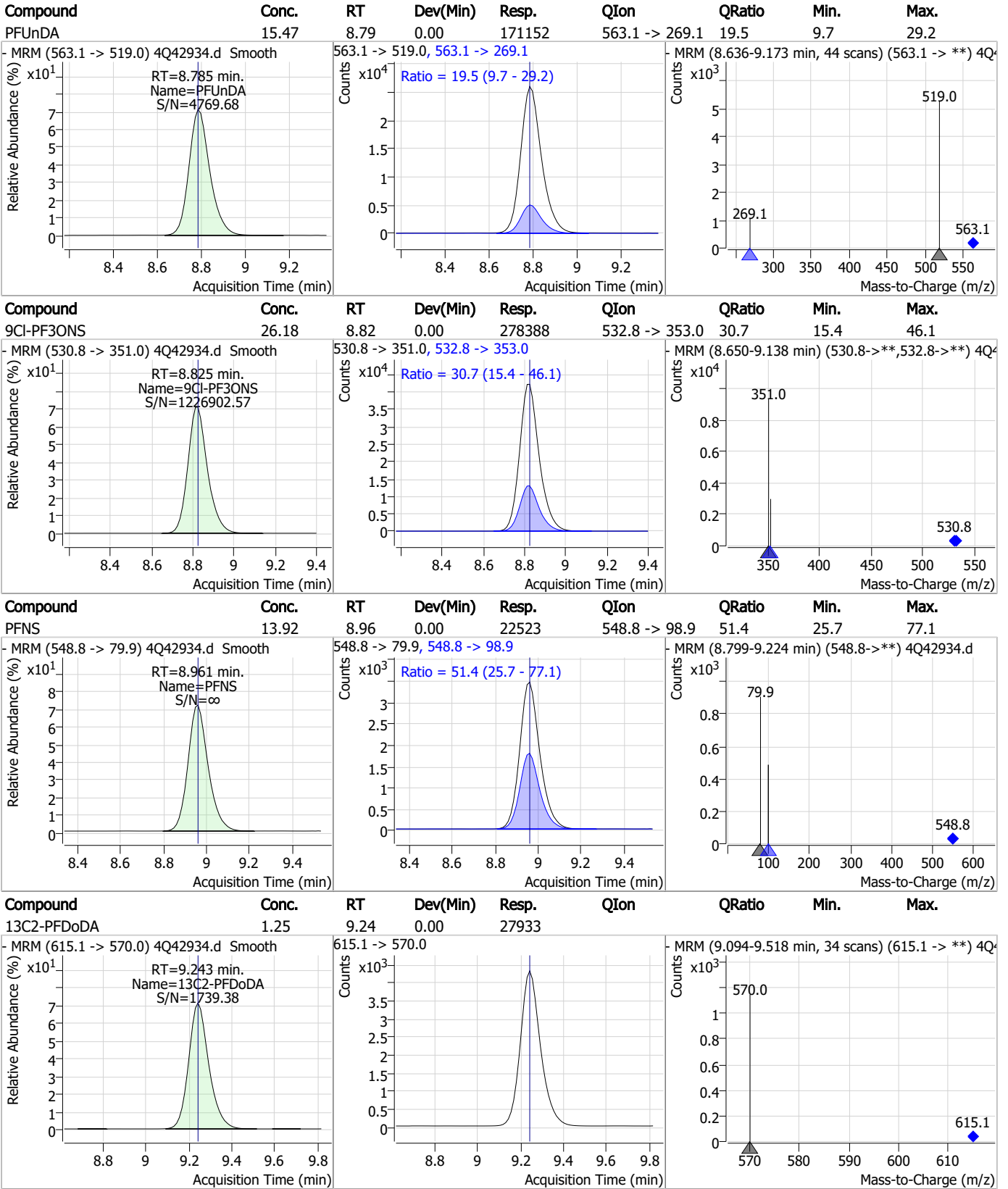
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.61	8.47	0.00	10515				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

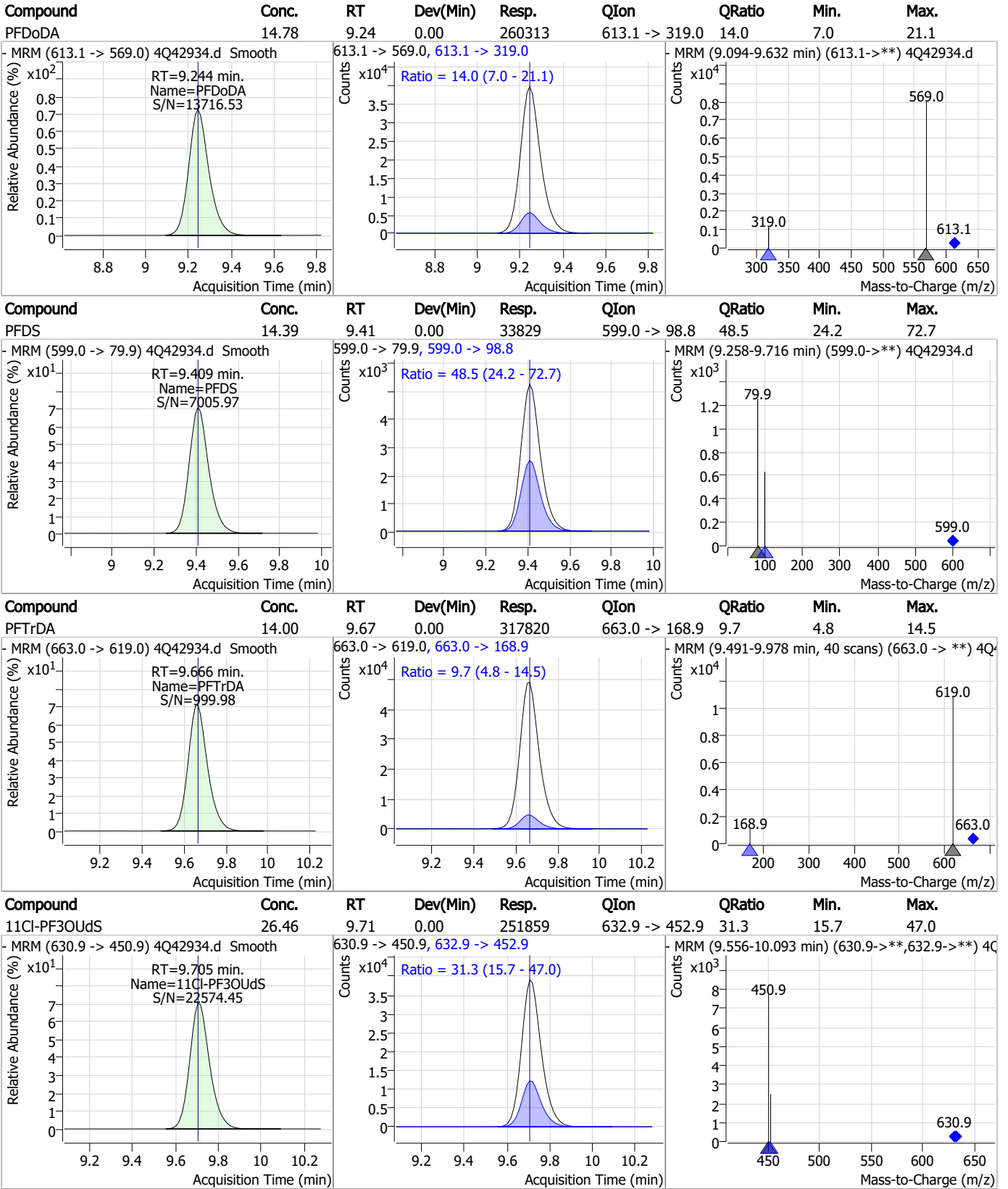


7.6.2

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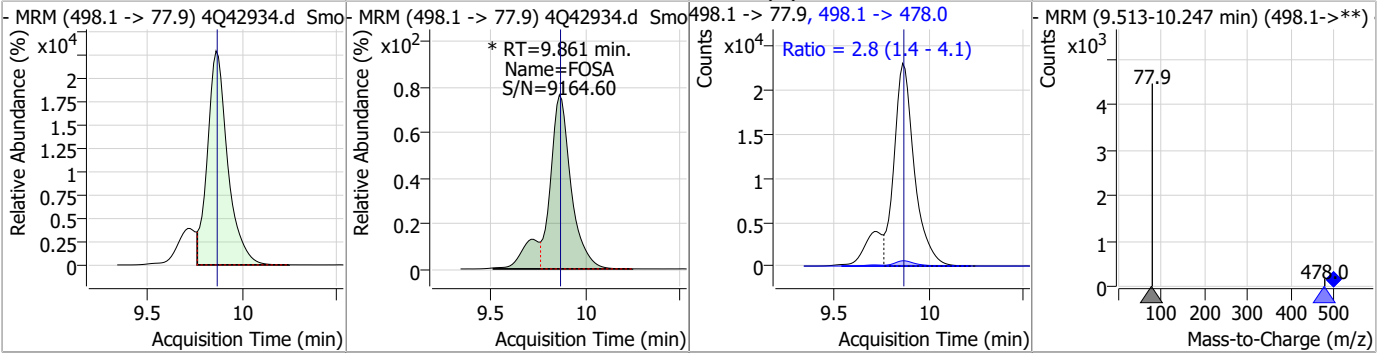


Perfluorinated Compounds by LC/MS/MS

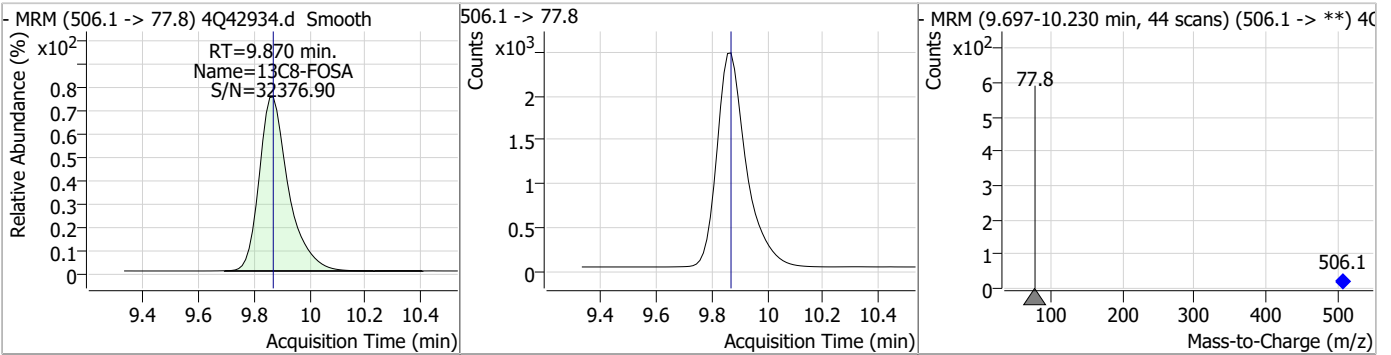


Perfluorinated Compounds by LC/MS/MS

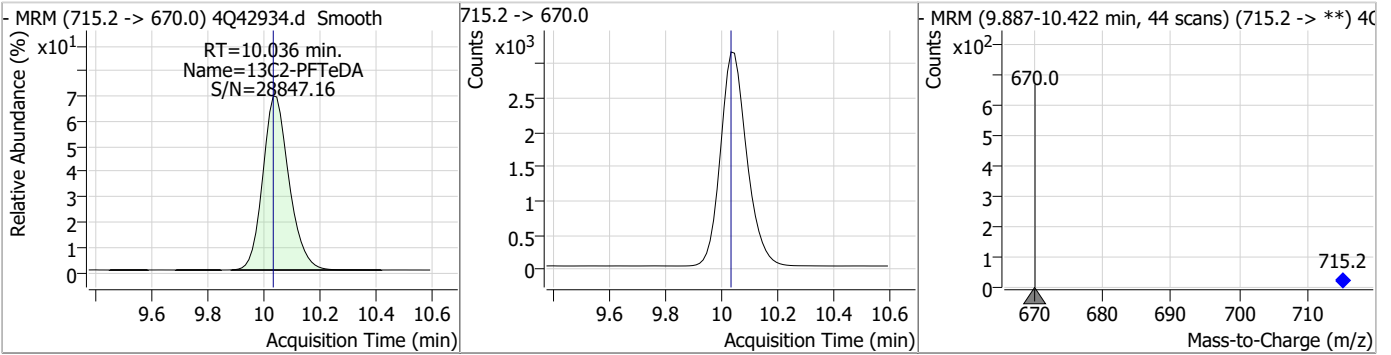
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	34.33	9.86	0.00	197227 (m)	498.1 -> 478.0	2.8	1.4	4.1



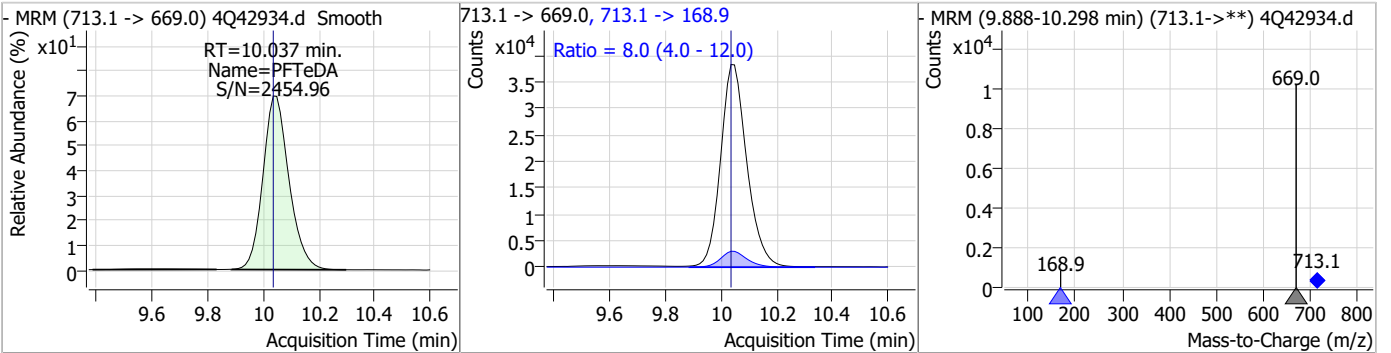
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.62	9.87	0.00	17843				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	10.04	0.00	20352				

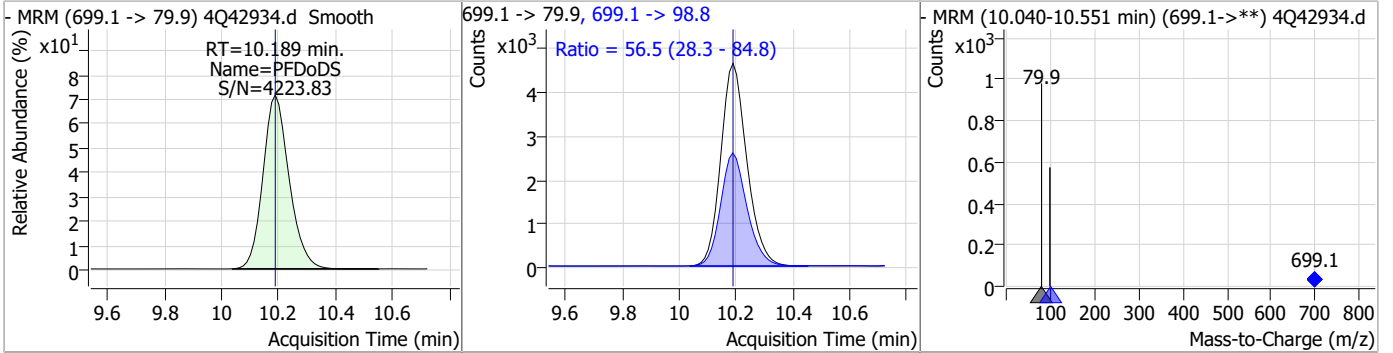


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.43	10.04	0.00	247206	713.1 -> 168.9	8.0	4.0	12.0

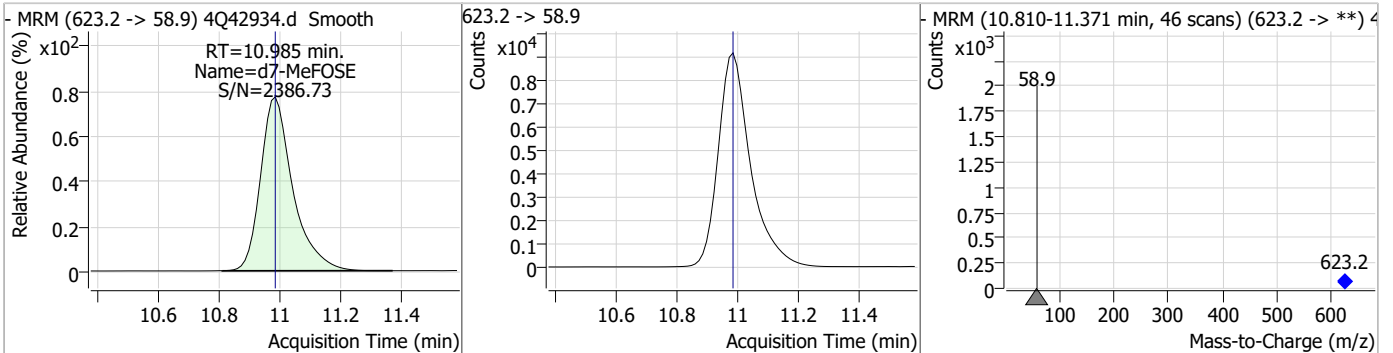


Perfluorinated Compounds by LC/MS/MS

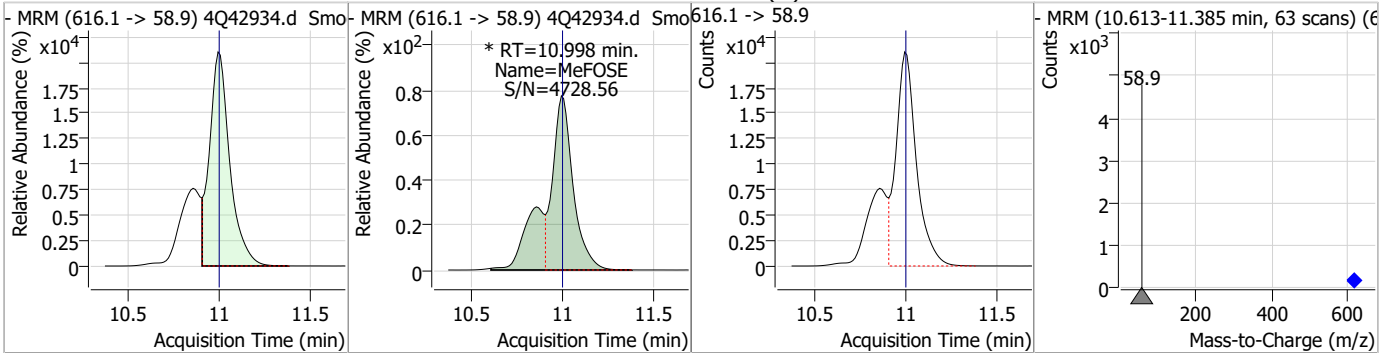
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	14.45	10.19	0.00	29364	699.1 -> 98.8	56.5	28.3	84.8



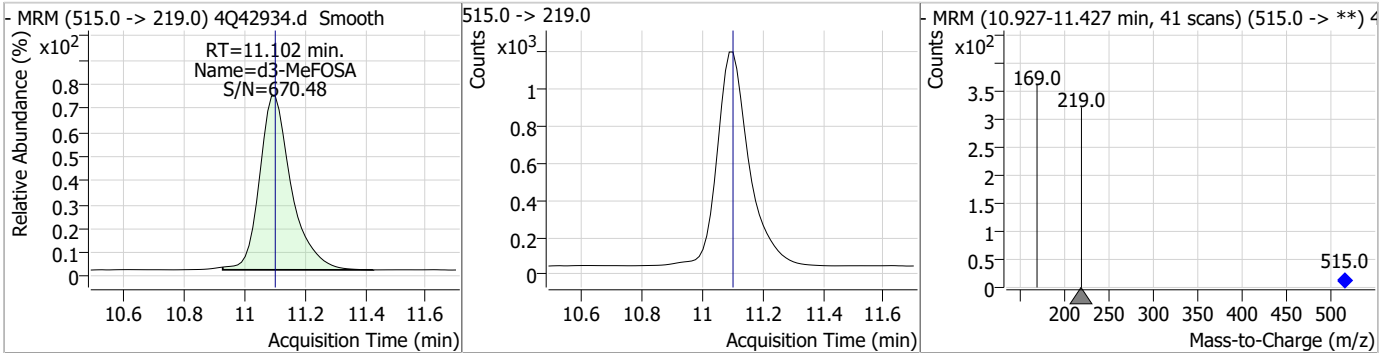
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.93	10.98	0.00	66941				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	94.69	11.00	0.00	222770 (m)				

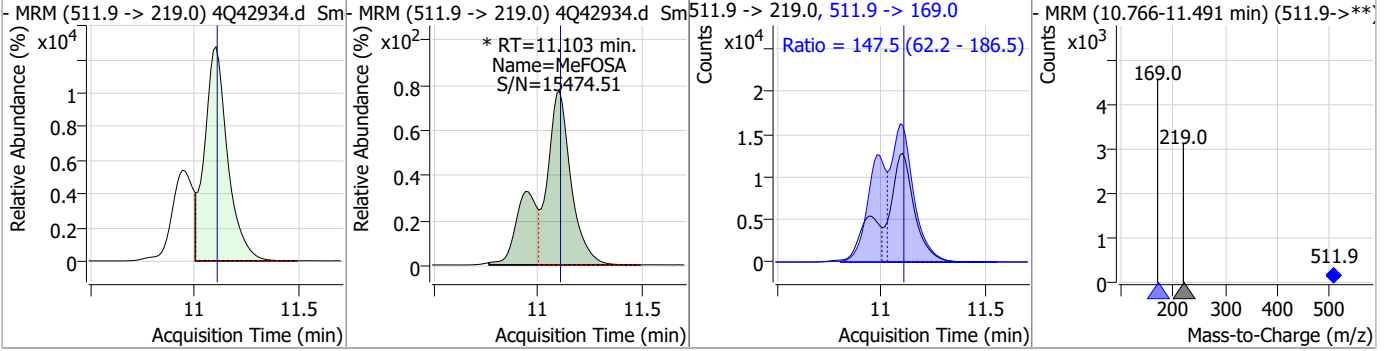


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.62	11.10	0.00	8448				

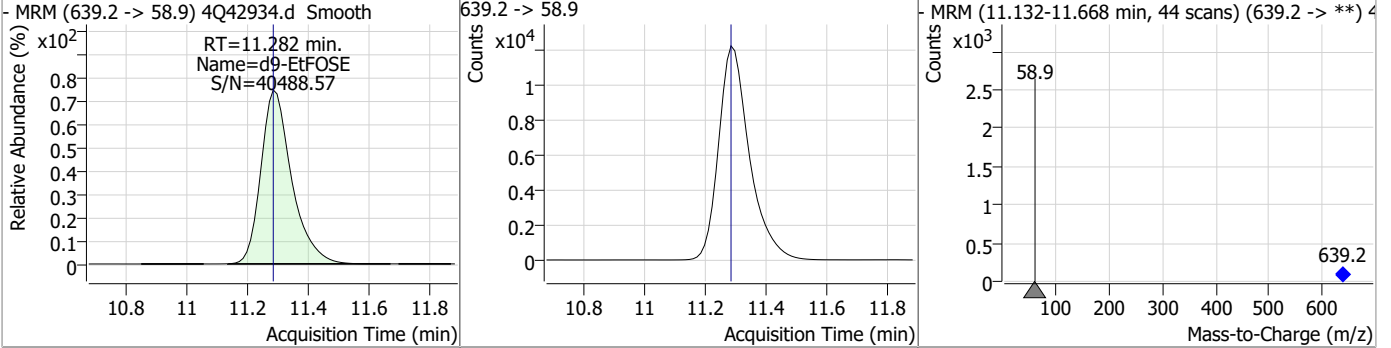


Perfluorinated Compounds by LC/MS/MS

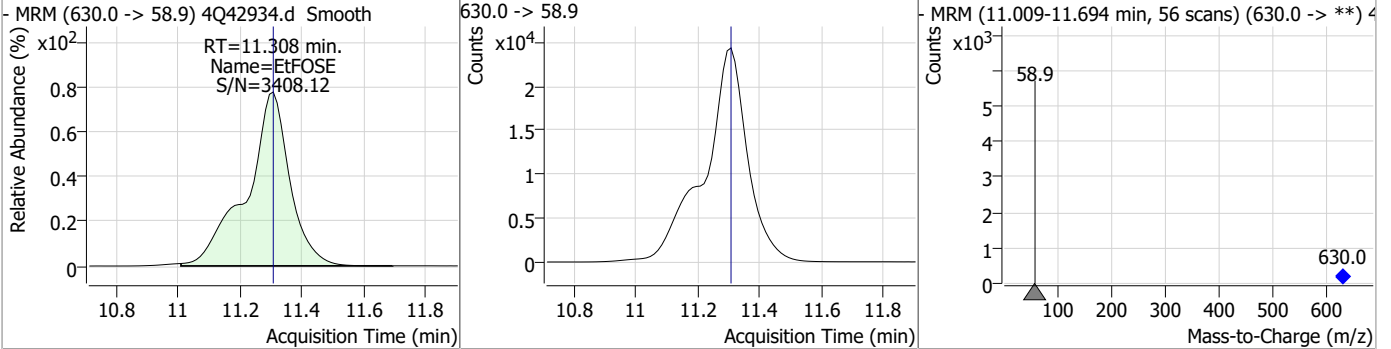
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	49.39	11.10	0.00	134898 (m)	511.9 -> 169.0	147.5	62.2	186.5



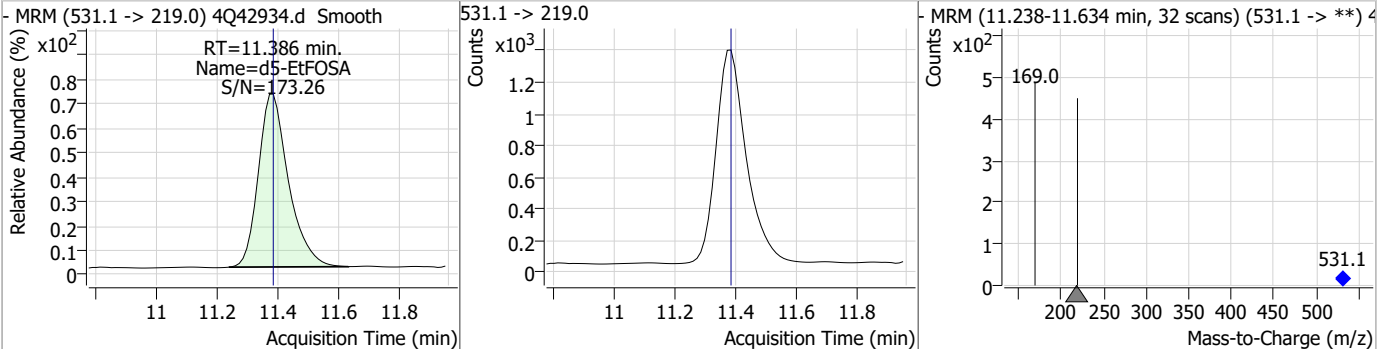
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.99	11.28	0.00	85392				



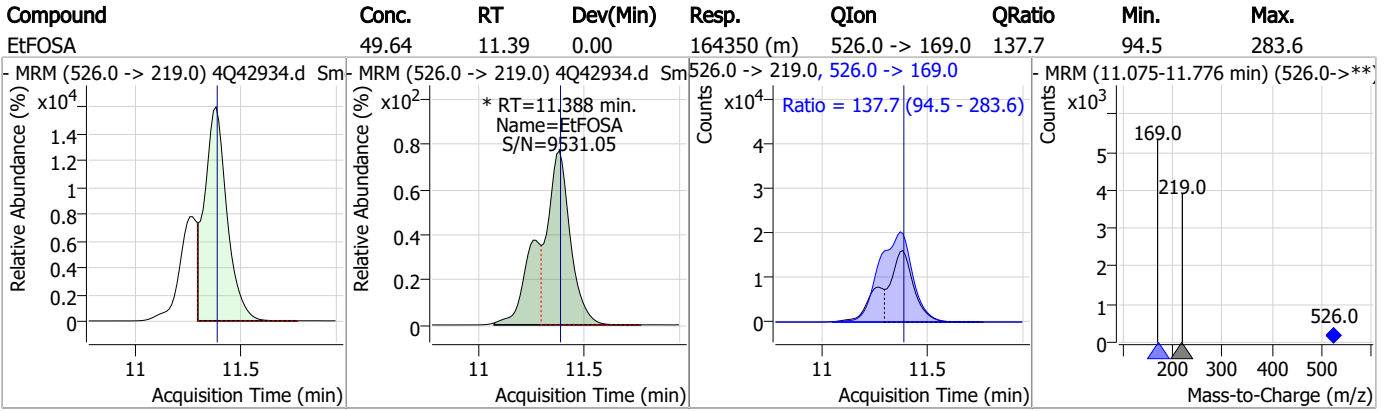
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	89.89	11.31	0.00	236589				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.67	11.39	0.00	9291				



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S4Q621-RT Method: EPA DRAFT 1633
Lab FileID: 4Q42934.D Analyst approved: 04/17/23 14:53 Martha Valls
Injection Time: 04/14/23 11:21 Supervisor approved: 04/17/23 15:47 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.24	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
Perfluorononanoic acid	375-95-1		7.66	Split peak
MeFOSAA	2355-31-9		8.36	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
PFOSA	754-91-6		9.86	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.6.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43006.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 4:47:10 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q622 TDCA.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

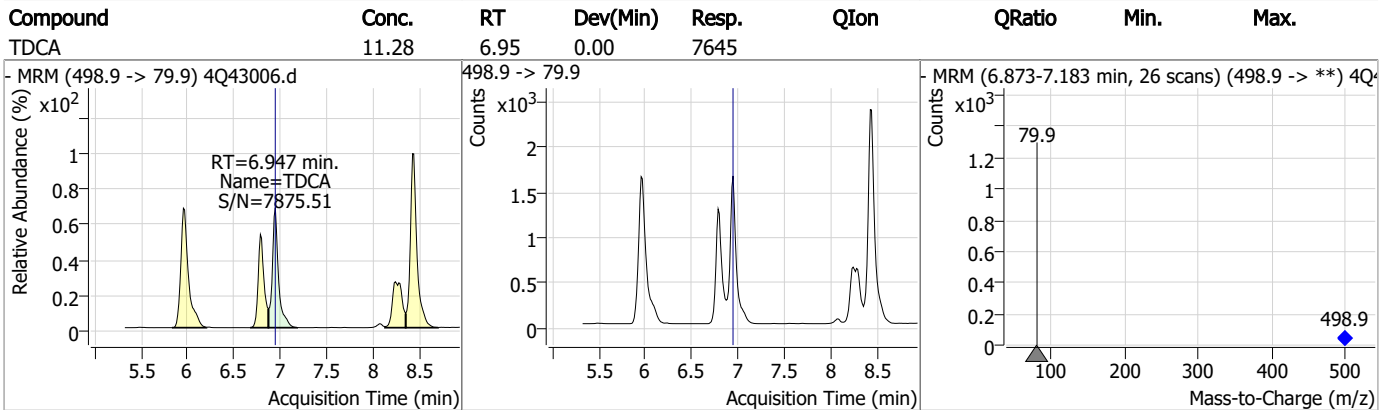
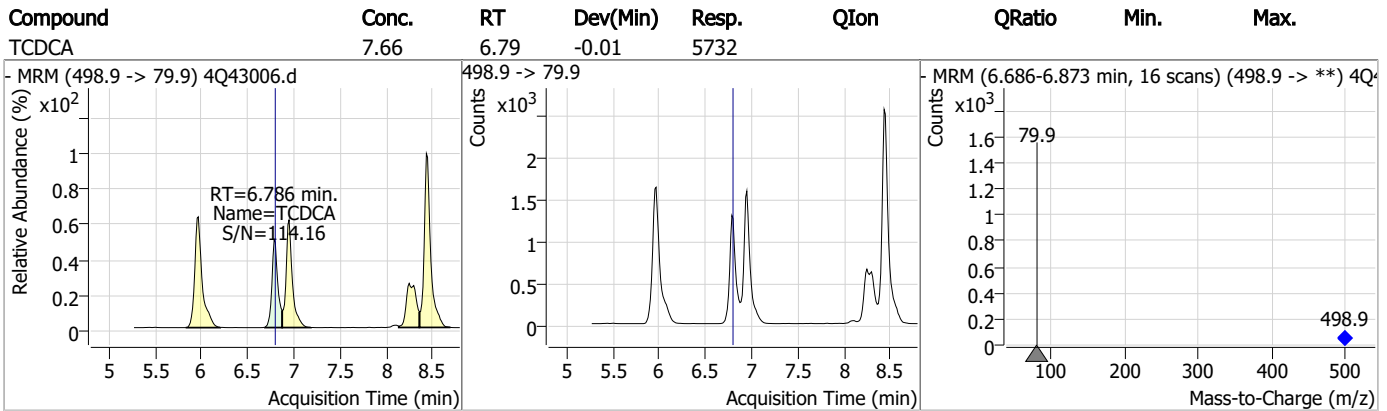
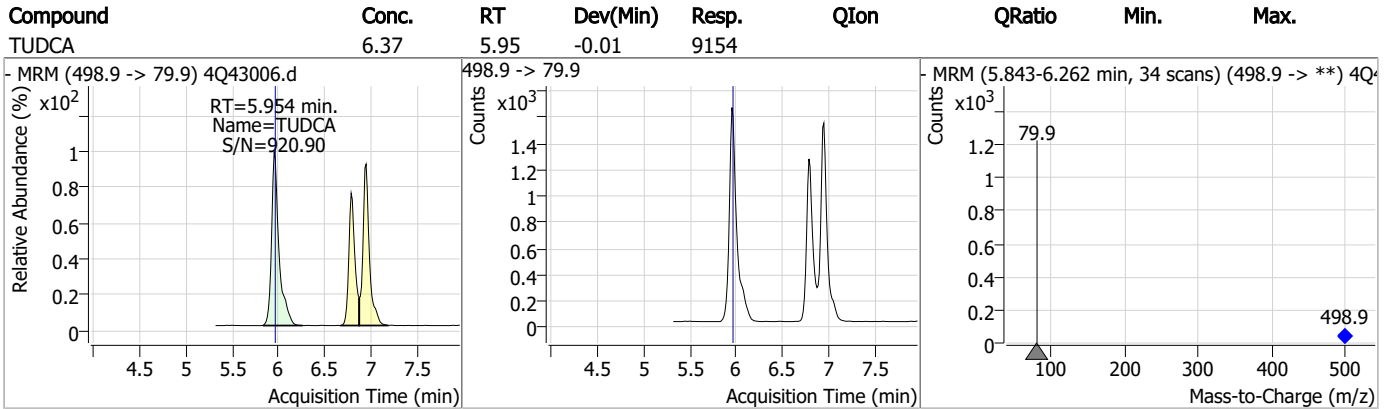
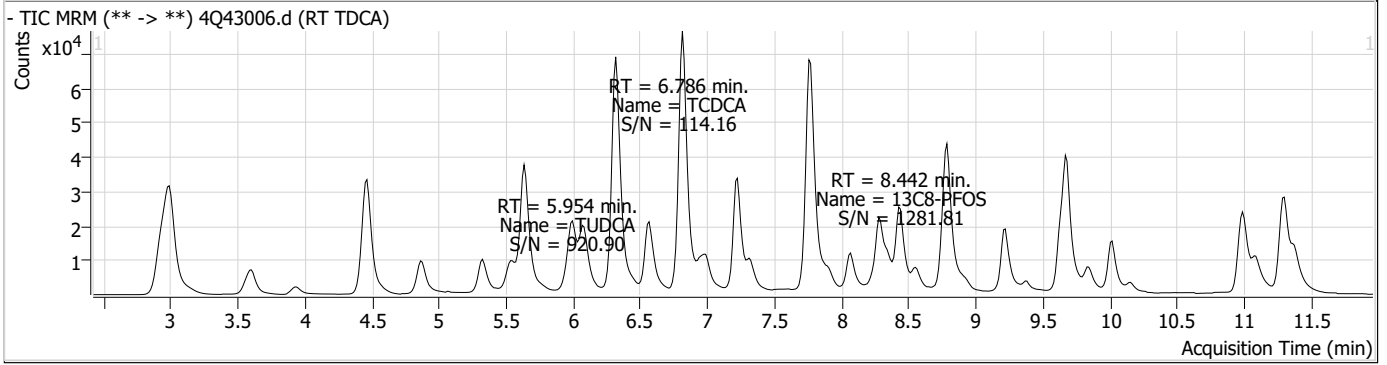
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.442	507.1 -> 79.9	16216	2.50	µg/L	-0.024	
13C4-PFOS	8.443	502.8 -> 79.9	17567	2.50	µg/L	-0.012	
System Monitoring Compounds							
13C8-PFOS	8.442	507.1 -> 79.9	16216	2.34	µg/L	-0.024	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.7%				
Target Compounds							
PFOS	8.443	498.9 -> 79.9 498.9 -> 98.8	17446 7902	3.15	µg/L	m	81
TCDCa	6.786	498.9 -> 79.9	5732	7.66	ng/ml		100
TDCA	6.947	498.9 -> 79.9	7645	11.28	ng/ml		100
TUDCA	5.954	498.9 -> 79.9	9154	6.37	ng/ml		100

= Qualifier out of range, m = manually integrated, + = Area summed

7.6.3

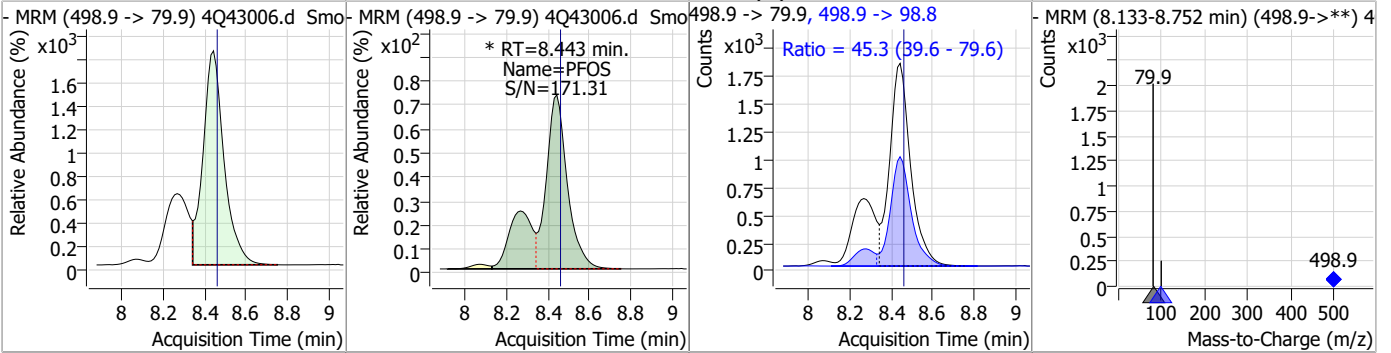
7

Perfluorinated Compounds by LC/MS/MS

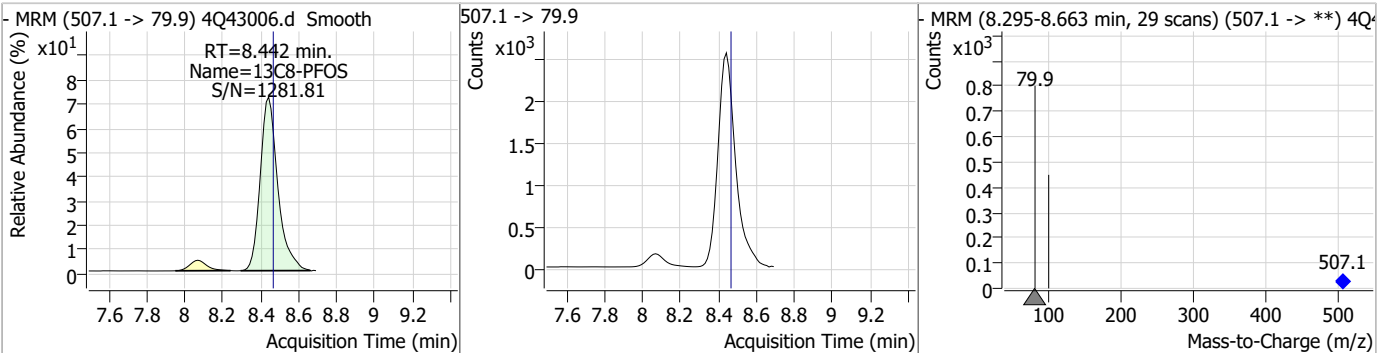


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.15	8.44	-0.01	17446 (m)	498.9 -> 98.8	45.3	39.6	79.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.34	8.44	-0.02	16216				



7.6.3

7

Manual Integration Approval Summary

Sample Number: S4Q622-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43006.D Analyst approved: 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 04:47 Supervisor approved: 04/17/23 17:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.44	Split peak

7.6.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43007.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 5:01:14 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	124966	10.00 µg/L	-0.013
M5-PFPeA	4.462	268.3 -> 223.0	74156	5.00 µg/L	-0.012
M5-PFHxA	5.634	318.0 -> 273.0	59392	2.50 µg/L	-0.012
M4-PFHpA	6.567	367.1 -> 322.0	30244	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	34472	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	19948	1.25 µg/L	-0.025
M6-PFDA	8.279	519.1 -> 474.1	19353	1.25 µg/L	-0.024
M7-PFUnDA	8.760	570.0 -> 525.1	19819	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	25131	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	17115	1.25 µg/L	-0.024
M8-FOSA	9.846	506.1 -> 77.8	15671	2.50 µg/L	-0.024
M3-PFBS	5.552	302.1 -> 79.9	12481	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	7711	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	10753	2.50 µg/L	-0.024
M2-4:2FTS	5.323	329.1 -> 80.9	1343	5.00 µg/L	-0.012
M2-6:2FTS	6.986	429.1 -> 80.9	2204	5.00 µg/L	-0.012
M2-8:2FTS	8.066	529.1 -> 80.9	3414	5.00 µg/L	-0.024
M3-MeFOSAA	8.337	573.2 -> 419.0	16675	5.00 µg/L	-0.024
M3-HFPO-DA	6.002	286.9 -> 168.9	37079	10.00 µg/L	-0.012
M5-EtFOSAA	8.546	589.2 -> 419.0	14141	5.00 µg/L	-0.024
M7-MeFOSE	10.986	623.2 -> 58.9	57047	25.00 µg/L	0.002
M9-EtFOSE	11.282	639.2 -> 58.9	67483	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	9206	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	8970	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	11021	2.50 µg/L	-0.024
13C3-PFBA	2.978	216.0 -> 172.0	70115	5.00 µg/L	-0.013
18O2-PFHxS	7.328	403.0 -> 83.9	5406	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	42023	2.50 µg/L	-0.010
13C2-PFDA	8.279	515.1 -> 470.1	16191	1.25 µg/L	-0.024
13C5-PFNA	7.772	468.0 -> 423.0	22049	1.25 µg/L	-0.025
13C2-PFHxA	5.635	315.1 -> 270.0	50124	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1343	4.55 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2204	5.20 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3414	4.90 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-PFDoDA	9.219	615.1 -> 570.0	25131	1.26 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-PFTeDA	10.012	715.2 -> 670.0	17115	1.10 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C3-PFBS	5.552	302.1 -> 79.9	12481	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFHxS	7.329	402.1 -> 79.9	7711	2.58 µg/L	-0.012

7.6.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C4-PFBA	2.986	216.8 -> 171.9	124966	10.23 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C4-PFHpA	6.567	367.1 -> 322.0	30244	2.66 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C5-PFHxA	5.634	318.0 -> 273.0	59392	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFPeA	4.462	268.3 -> 223.0	74156	5.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C6-PFDA	8.279	519.1 -> 474.1	19353	1.36 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C7-PFUnDA	8.760	570.0 -> 525.1	19819	1.28 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-FOSA	9.846	506.1 -> 77.8	15671	2.17 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.0%	
13C8-PFOA	7.227	421.1 -> 376.0	34472	2.49 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOS	8.442	507.1 -> 79.9	10753	2.52 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C9-PFNA	7.771	472.1 -> 427.0	19948	1.24 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSAA	8.337	573.2 -> 419.0	16675	5.14 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-HFPO-DA	6.002	286.9 -> 168.9	37079	10.54 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d3-MeFOSA	11.103	515.0 -> 219.0	8970	2.63 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
d5-EtFOSAA	8.546	589.2 -> 419.0	14141	5.36 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.2%	
d7-MeFOSE	10.986	623.2 -> 58.9	57047	20.07 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.3%	
d9-EtFOSE	11.282	639.2 -> 58.9	67483	19.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
d5-EtFOSA	11.386	531.1 -> 219.0	9206	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
Target Compounds					QValue
4:2FTS	5.323	327.1 -> 307.0	95815	57.24 µg/L	98
		327.1 -> 80.9	40326		
6:2FTS	6.987	427.1 -> 407.0	83943	55.78 µg/L	98
		427.1 -> 80.9	34216		
8:2FTS	8.066	527.1 -> 507.0	91219	59.59 µg/L	98
		527.1 -> 80.8	36937		
EtFOSAA	8.559	584.2 -> 419.1	30315	14.35 µg/L	m 84
		584.2 -> 526.0	14528		
FOSA	9.850	498.1 -> 77.9	179765	35.63 µg/L	m 100
		498.1 -> 478.0	5098		
MeFOSAA	8.337	570.1 -> 419.0	33899	14.75 µg/L	m 87
		570.1 -> 483.0	7179		
PFBA	2.982	212.8 -> 168.9	163896	57.43 µg/L	100
PFBS	5.553	298.7 -> 79.9	63820	13.70 µg/L	99
		298.7 -> 98.8	24046		
PFDA	8.280	512.9 -> 469.0	165311	14.94 µg/L	99
		512.9 -> 219.0	32556		
PFDoDA	9.220	613.1 -> 569.0	231575	14.61 µg/L	100
		613.1 -> 319.0	32869		
PFDS	9.382	599.0 -> 79.9	34117	14.19 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	16819			
PFHpA	6.568	363.1 -> 319.0	226044	14.98	µg/L	98
		363.1 -> 169.0	41152			
PFHpS	7.912	449.0 -> 79.9	41802	14.93	µg/L	99
		449.0 -> 98.9	22008			
PFHxA	5.637	313.0 -> 269.0	257442	14.64	µg/L	100
		313.0 -> 118.9	7672			
PFHxS	7.330	398.7 -> 79.9	35047	13.27	µg/L	m 99
		398.7 -> 98.9	18323			
PFNA	7.772	463.0 -> 419.0	317242	29.75	µg/L	m 91
		463.0 -> 219.0	84996			
PFNS	8.925	548.8 -> 79.9	23853	14.42	µg/L	98
		548.8 -> 98.9	12510			
PFOA	7.228	413.0 -> 369.0	513424	31.88	µg/L	m 98
		413.0 -> 169.0	109686			
PFOS	8.431	498.9 -> 79.9	56709	13.55	µg/L	m 87
		498.9 -> 98.8	28633			
PFPeA	4.464	263.0 -> 219.0	431039	30.71	µg/L	100
PFPeS	6.607	349.1 -> 79.9	32546	14.47	µg/L	98
		349.1 -> 98.9	14321			
PFTeDA	10.013	713.1 -> 669.0	205456	15.25	µg/L	99
		713.1 -> 168.9	17152			
PFTrDA	9.630	663.0 -> 619.0	287993	14.10	µg/L	100
		663.0 -> 168.9	27600			
PFUnDA	8.761	563.1 -> 519.0	164059	14.64	µg/L	99
		563.1 -> 269.1	31427			
11CI-PF3OUdS	9.681	630.9 -> 450.9	270003	27.90	µg/L	99
		632.9 -> 452.9	83665			
9CI-PF3ONS	8.788	530.8 -> 351.0	293133	27.11	µg/L	100
		532.8 -> 353.0	90148			
ADONA	6.819	376.9 -> 250.9	616006	27.66	µg/L	100
		376.9 -> 84.8	164178			
HFPO-DA	6.003	284.9 -> 168.9	84461	28.74	µg/L	98
		284.9 -> 184.9	9883			
3:3FTCA	3.942	241.0 -> 177.0	51463	78.68	µg/L	97
		241.0 -> 117.0	4318			
5:3FTCA	6.321	341.0 -> 237.1	944586	380.43	µg/L	100
		341.0 -> 217.0	670618			
7:3FTCA	7.762	441.0 -> 316.9	386334	379.67	µg/L	99
		441.0 -> 336.9	860183			
EtFOSA	11.388	526.0 -> 219.0	167634	51.10	µg/L	m 64
		526.0 -> 169.0	229769			
EtFOSE	11.308	630.0 -> 58.9	206462	99.26	µg/L	100
MeFOSA	11.104	511.9 -> 219.0	141663	48.85	µg/L	m 81
		511.9 -> 169.0	206935			
MeFOSE	11.000	616.1 -> 58.9	189343	94.44	µg/L	m 100
PFDoDS	10.152	699.1 -> 79.9	30092	14.48	µg/L	98
		699.1 -> 98.8	16514			
NFDHA	5.529	295.0 -> 201.0	35608	30.13	µg/L	98
		295.0 -> 84.9	9247			
PFMBA	4.866	279.0 -> 85.1	244874	30.51	µg/L	100
PFMPA	3.602	229.0 -> 84.9	215776	30.74	µg/L	100
PFEESA	6.084	314.8 -> 134.9	396439	26.86	µg/L	100
		314.8 -> 82.9	13328			

= Qualifier out of range, m = manually integrated, + = Area summed

7.6.4
7

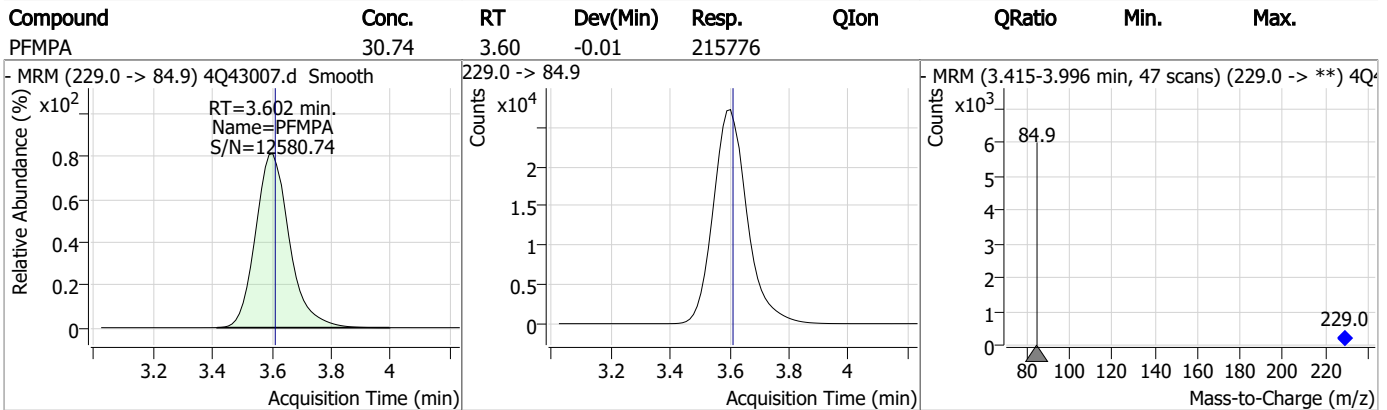
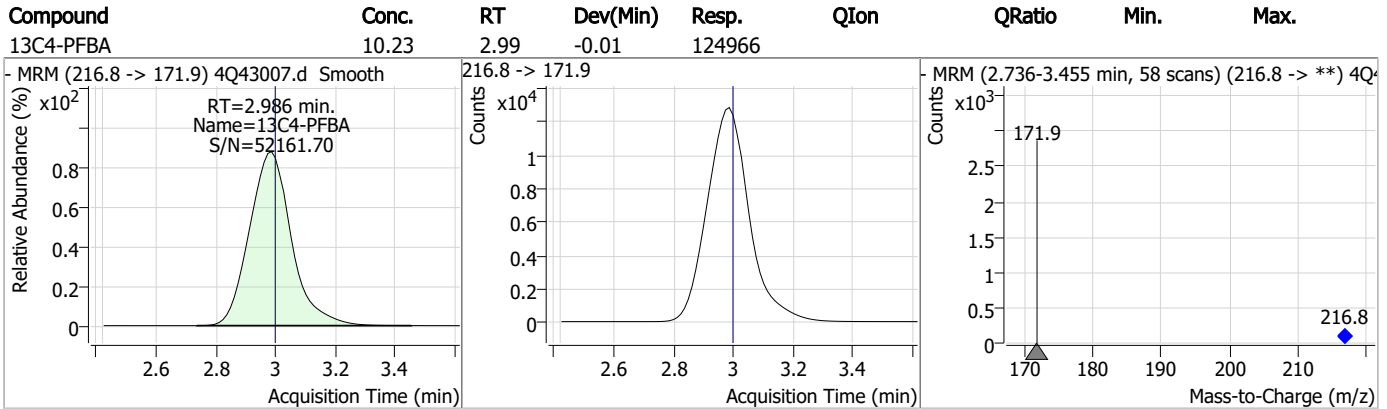
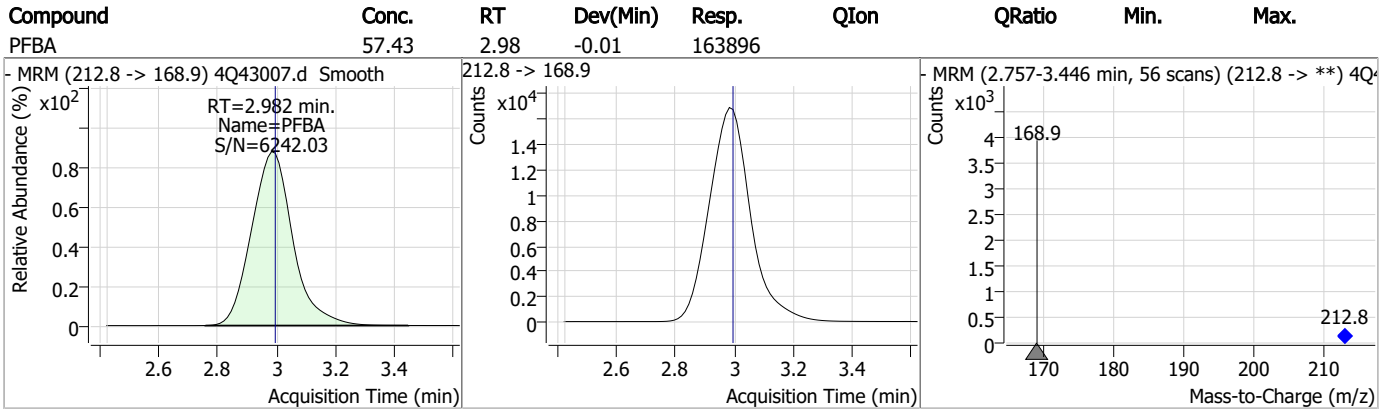
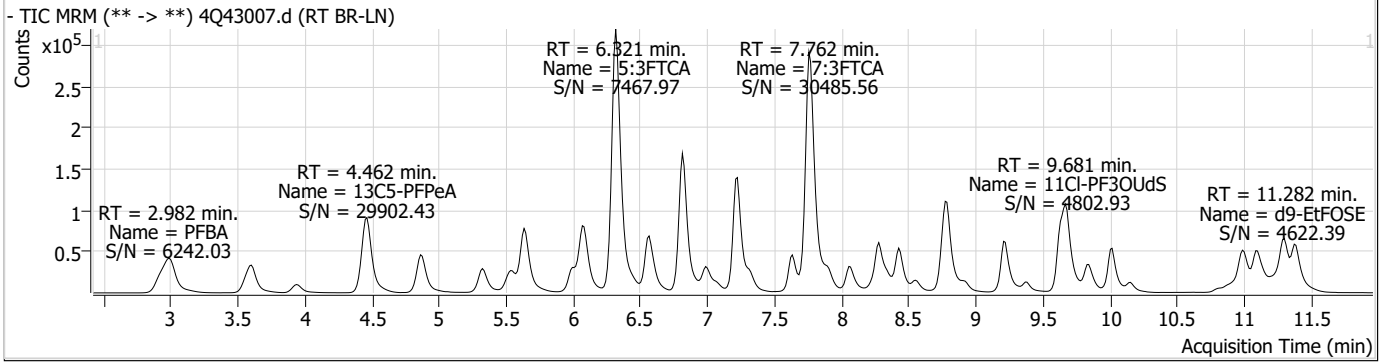
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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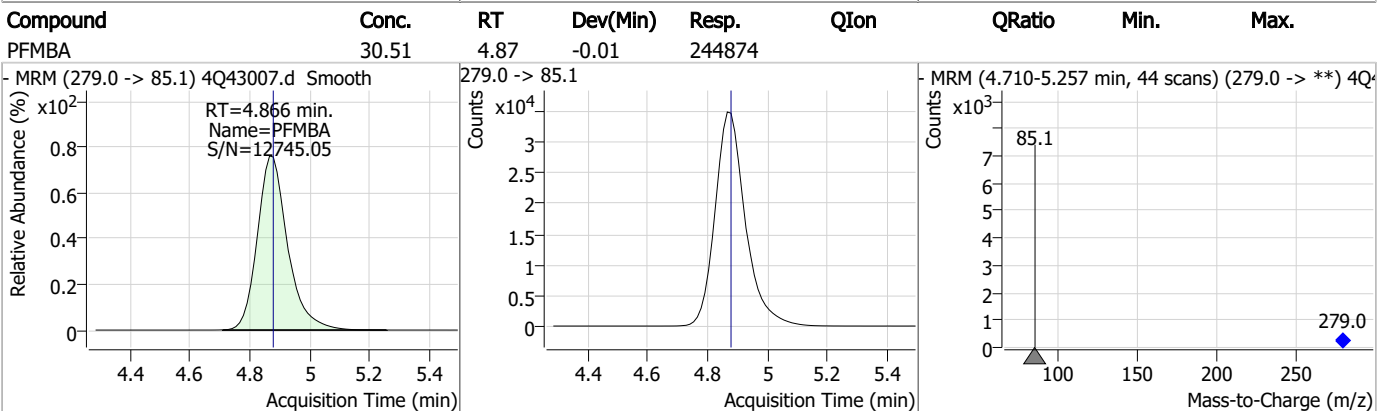
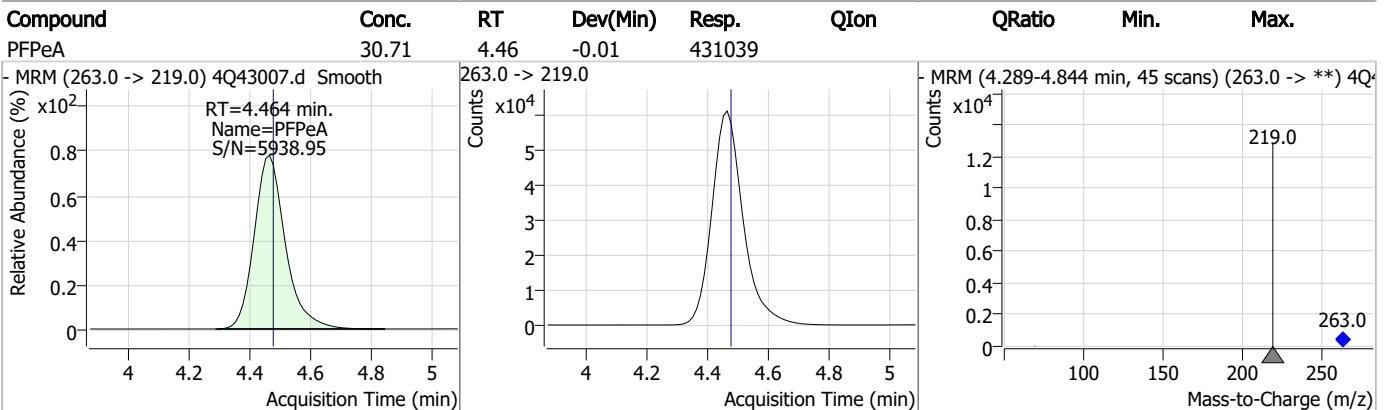
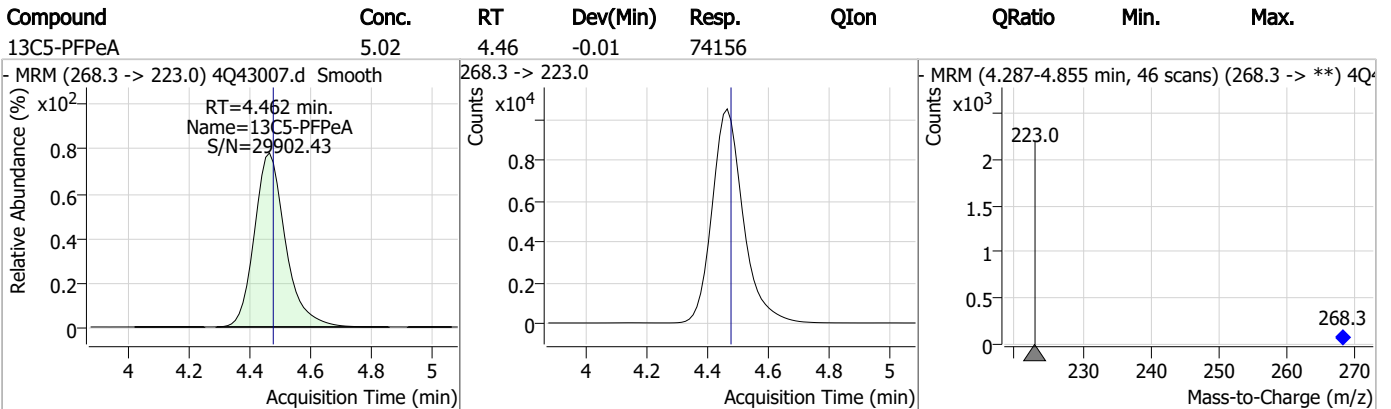
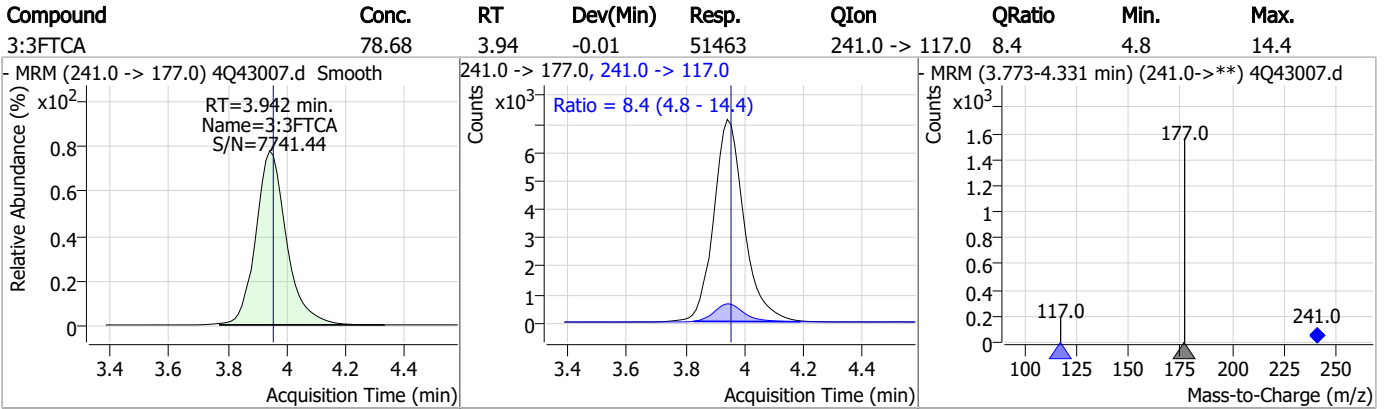
7.6.4

7

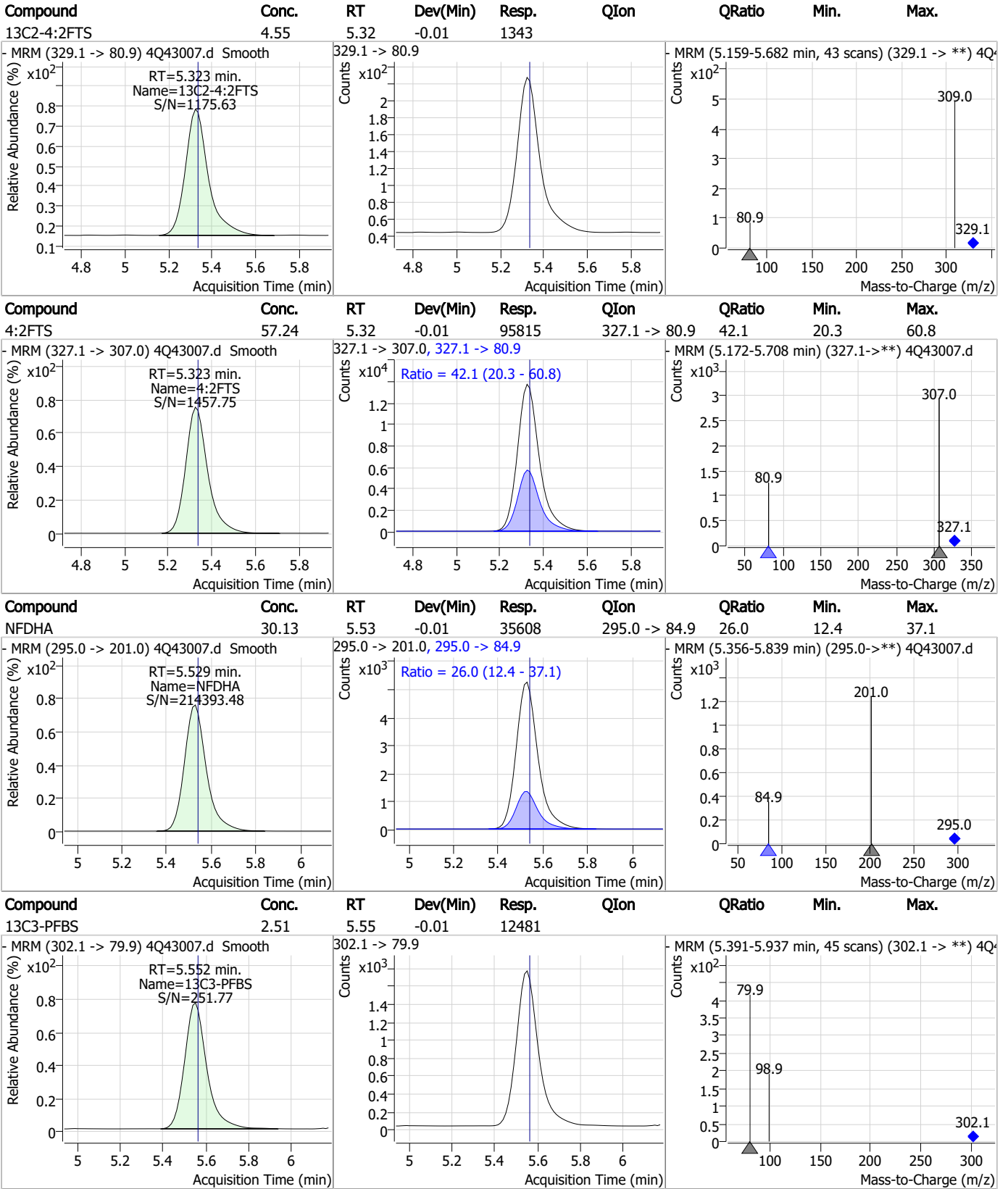
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



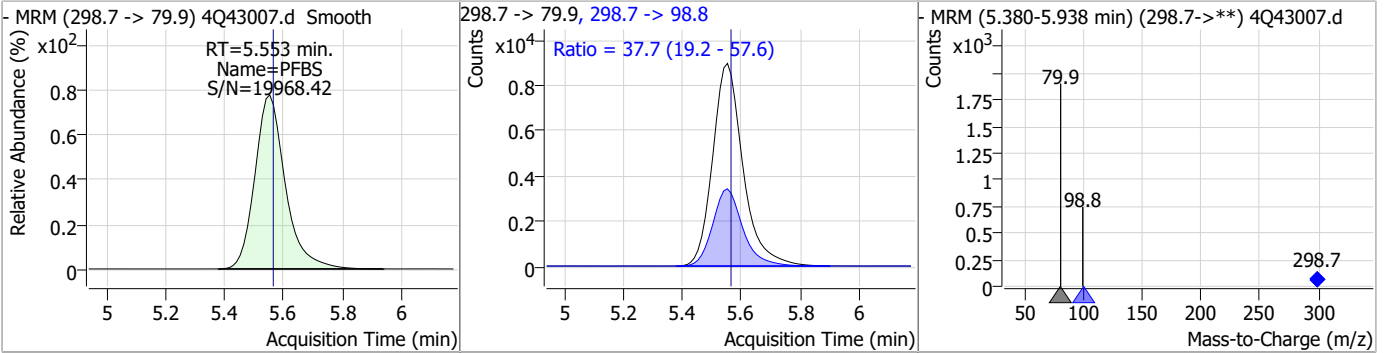
7.6.4

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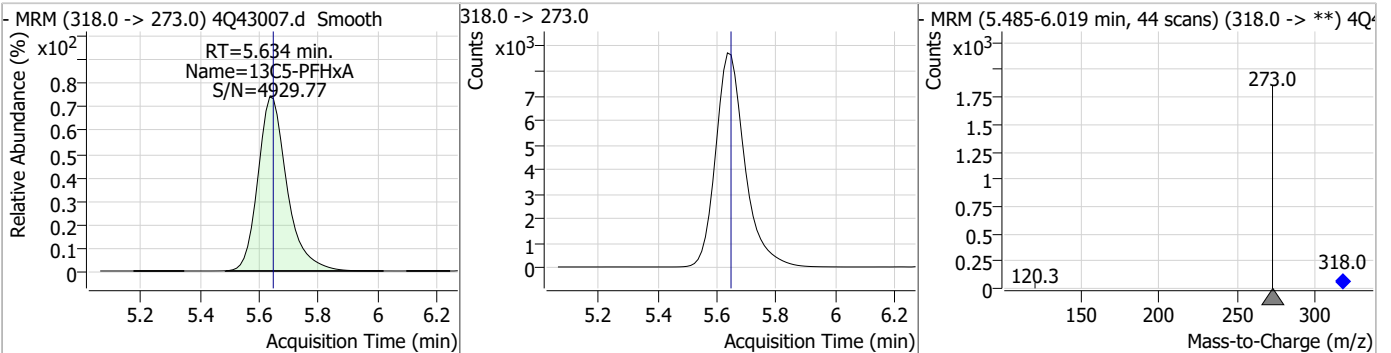


Perfluorinated Compounds by LC/MS/MS

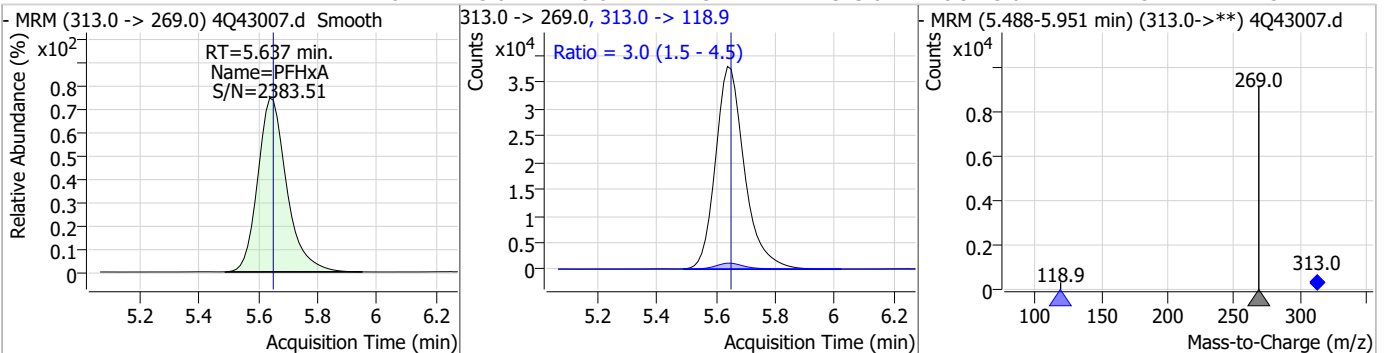
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	13.70	5.55	-0.01	63820	298.7 -> 98.8	37.7	19.2	57.6



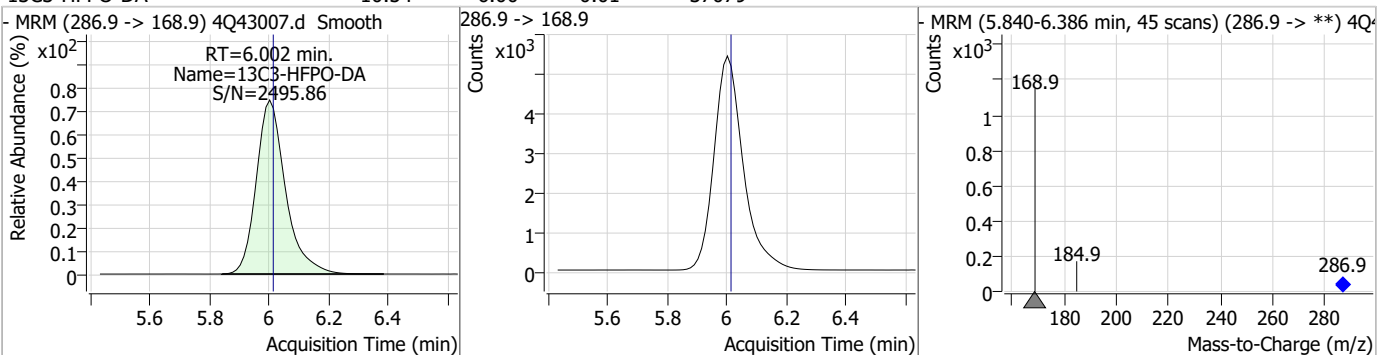
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.63	-0.01	59392				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	14.64	5.64	-0.01	257442	313.0 -> 118.9	3.0	1.5	4.5

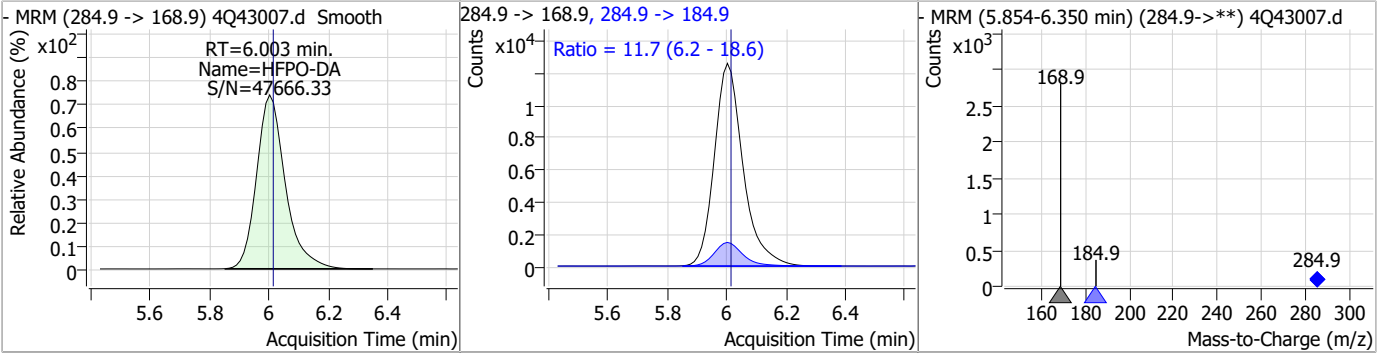


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.54	6.00	-0.01	37079				

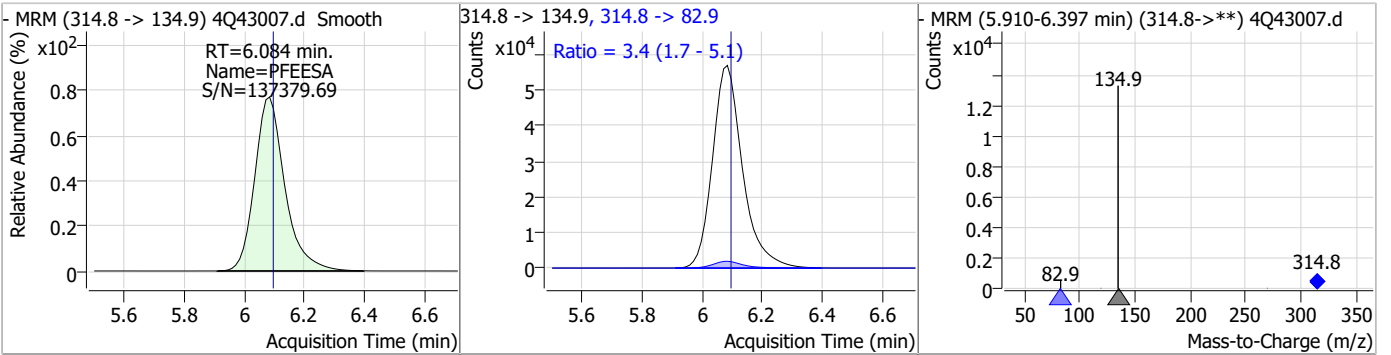


Perfluorinated Compounds by LC/MS/MS

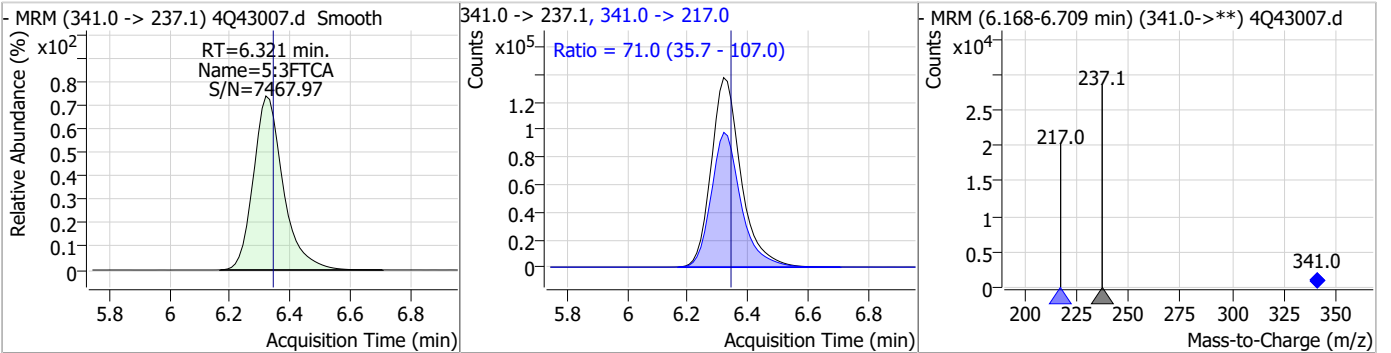
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	28.74	6.00	-0.01	84461	284.9 -> 184.9	11.7	6.2	18.6



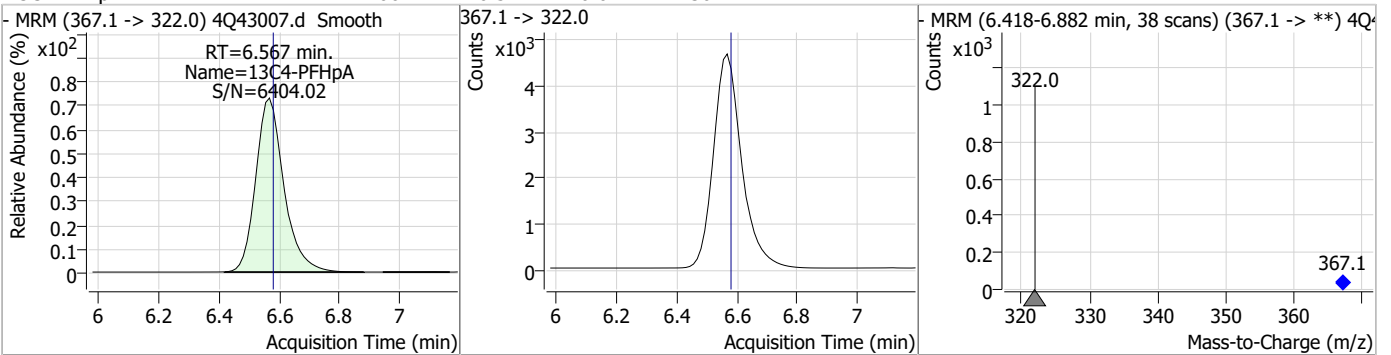
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	26.86	6.08	-0.01	396439	314.8 -> 82.9	3.4	1.7	5.1



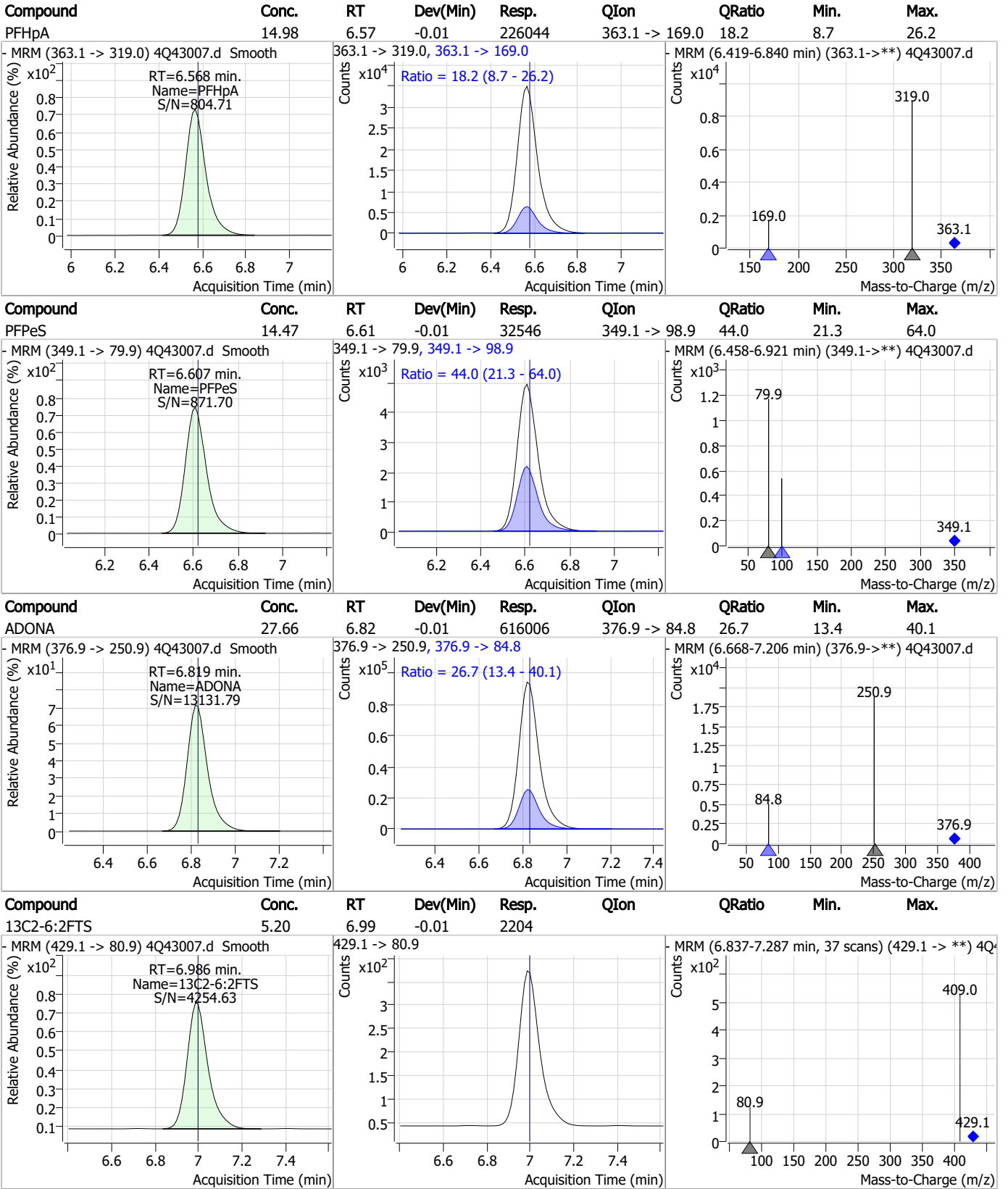
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	380.43	6.32	-0.02	944586	341.0 -> 217.0	71.0	35.7	107.0



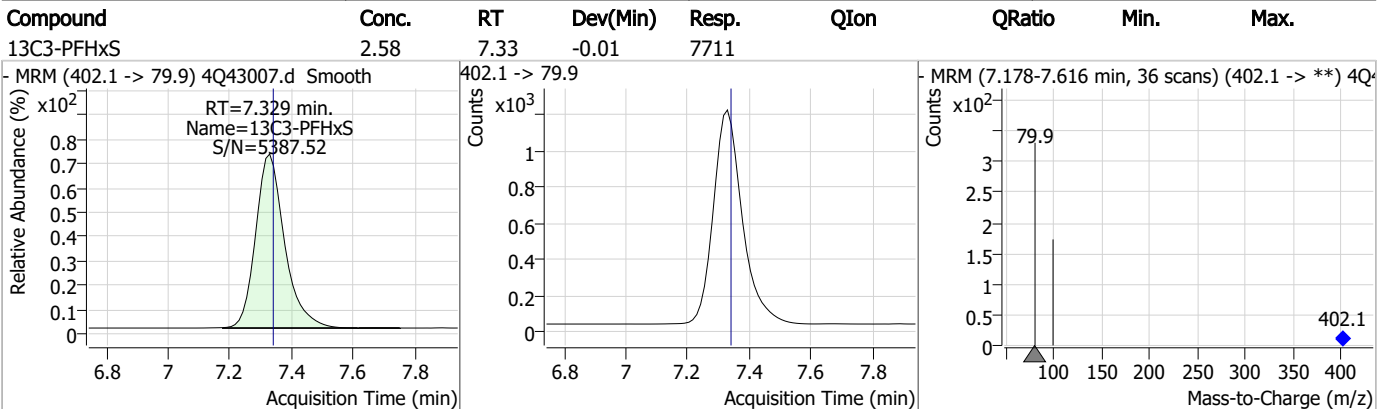
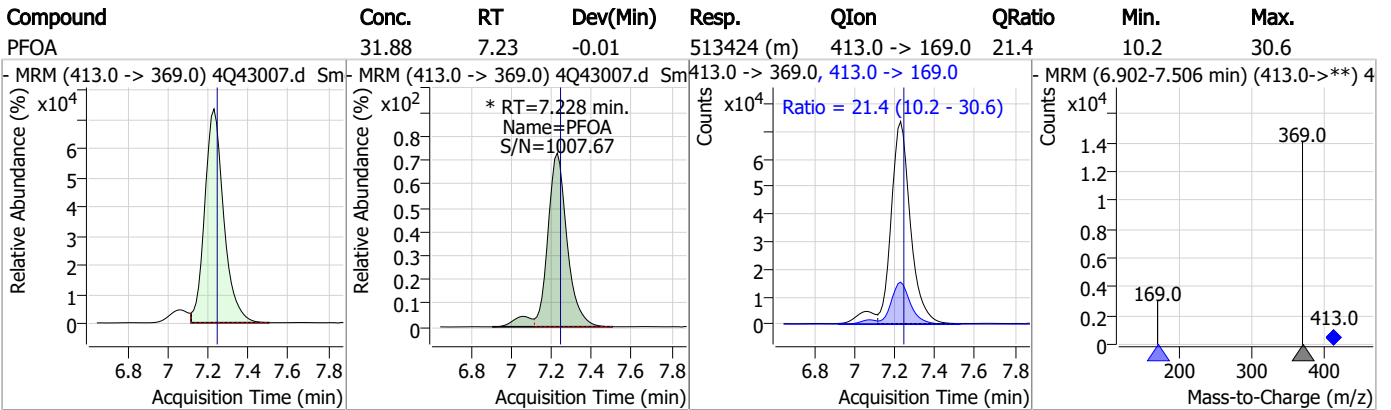
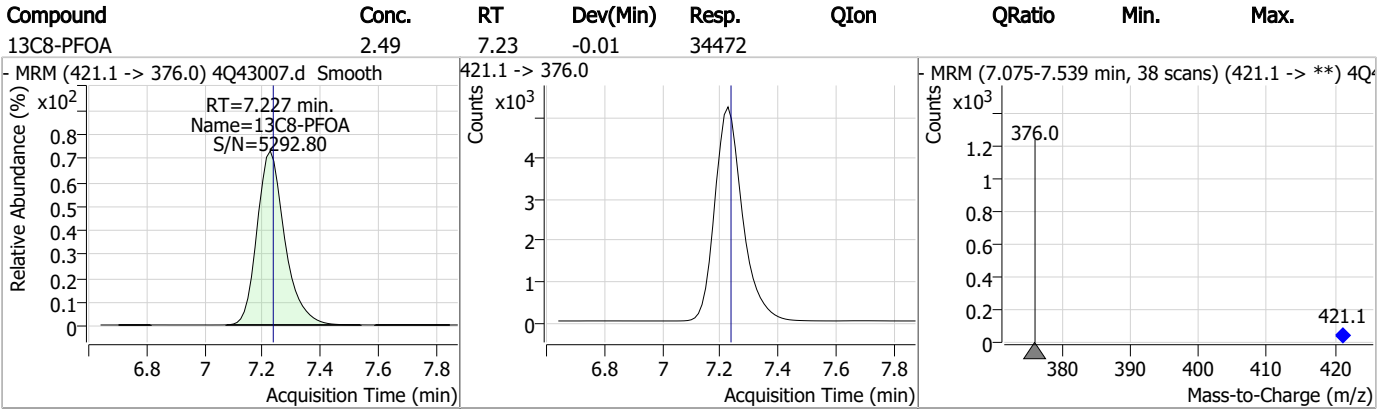
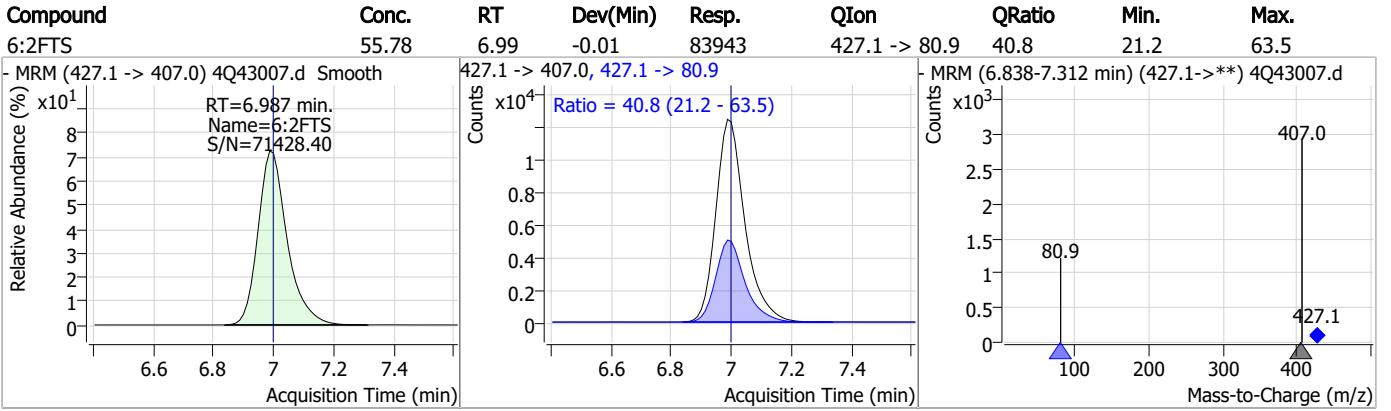
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.66	6.57	-0.01	30244				



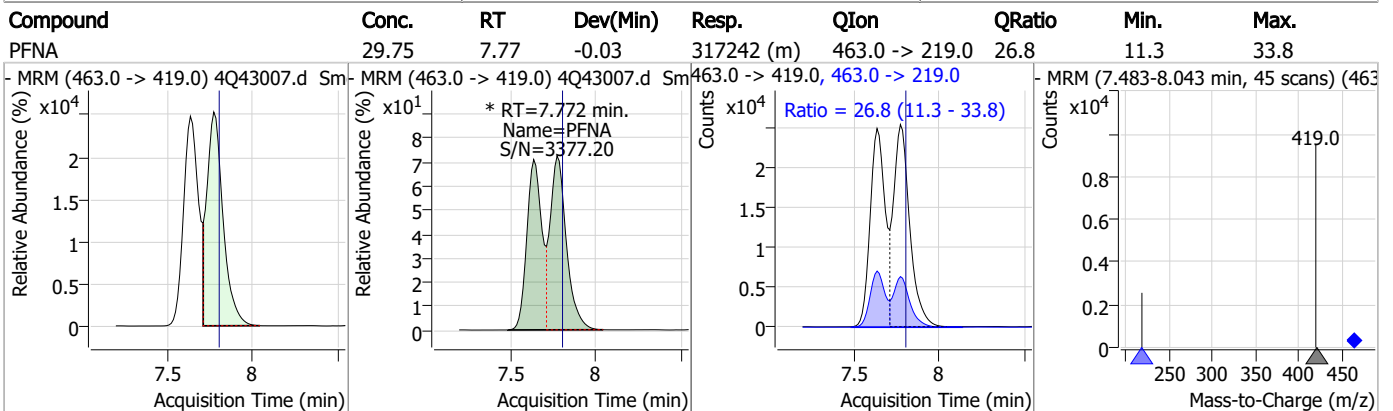
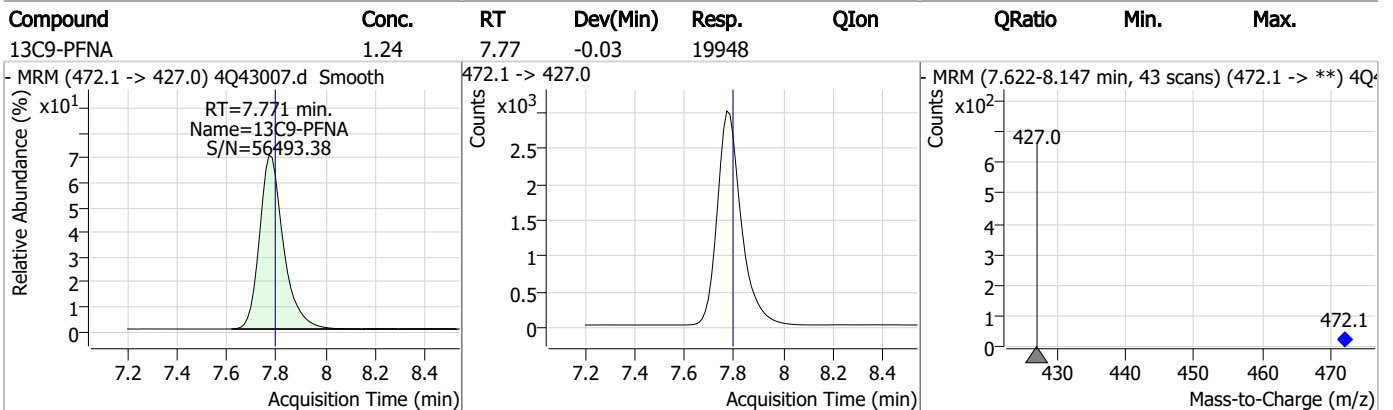
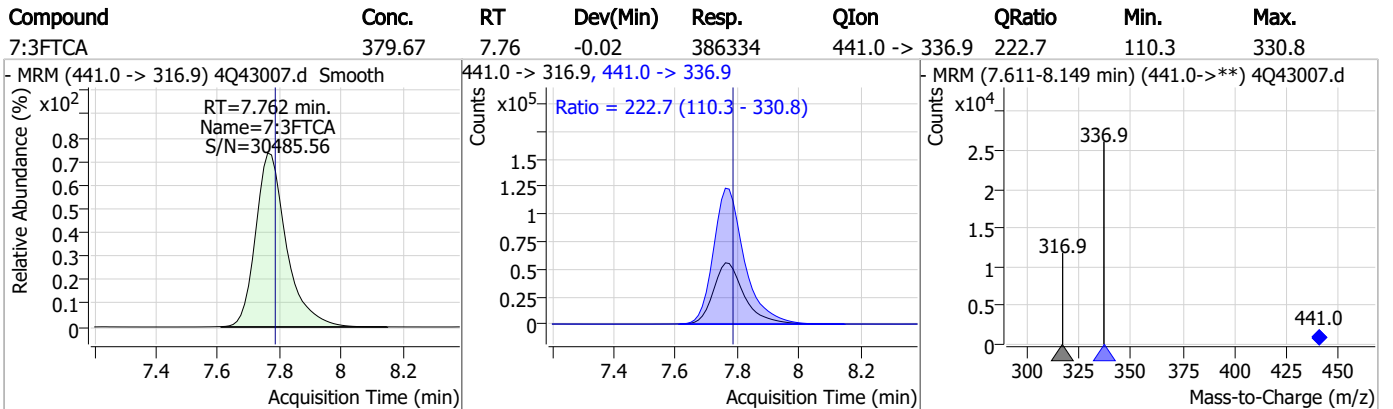
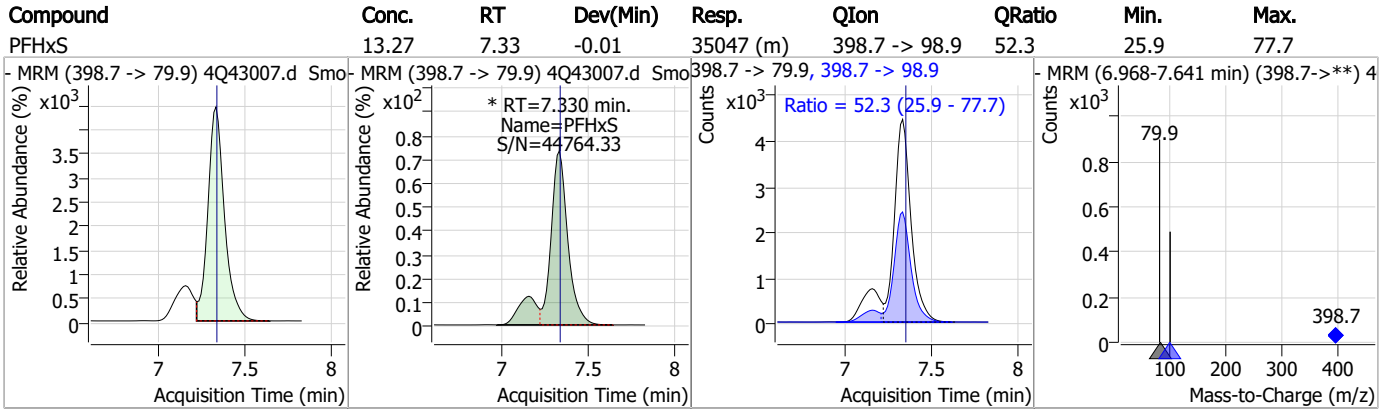
Perfluorinated Compounds by LC/MS/MS



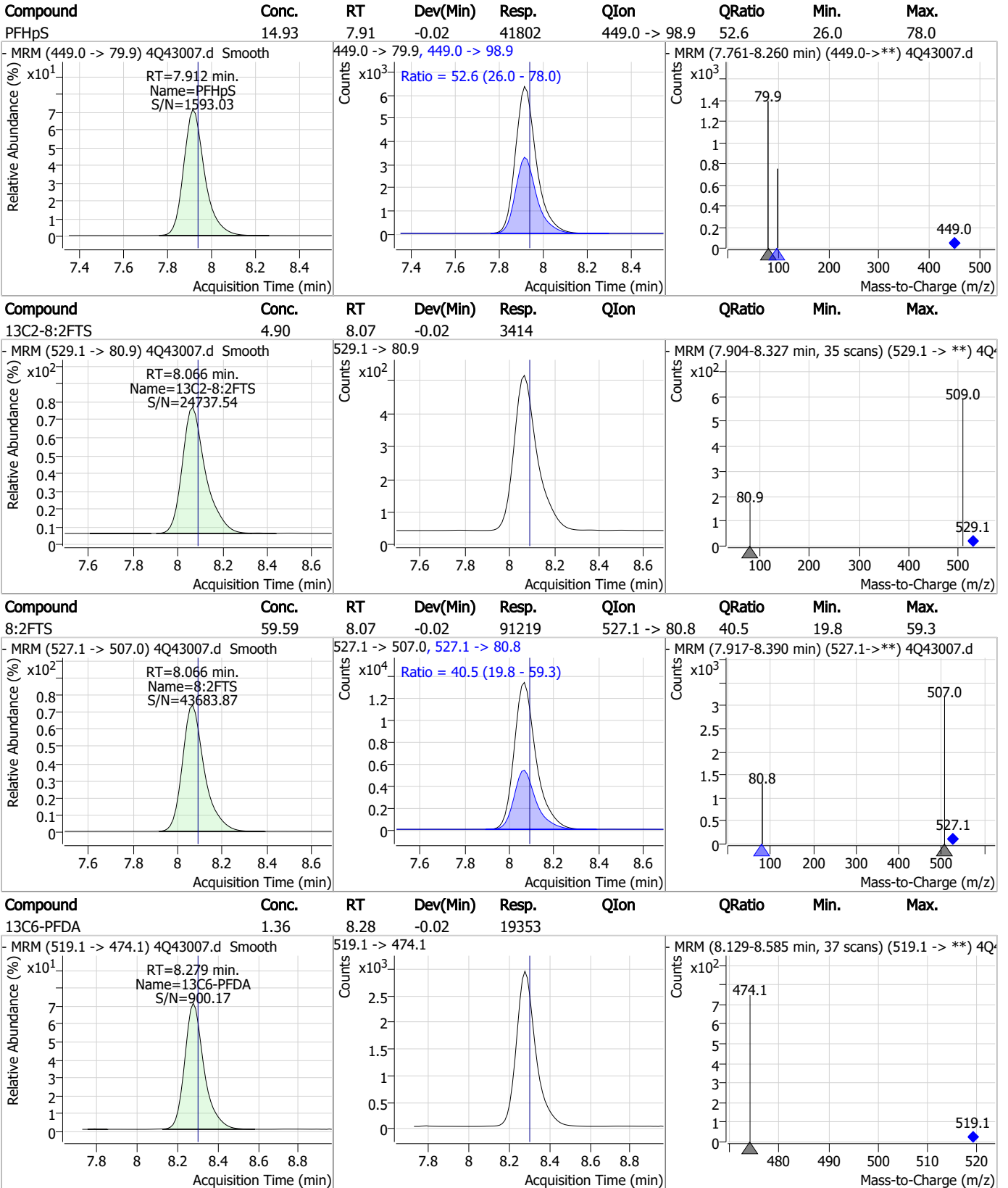
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

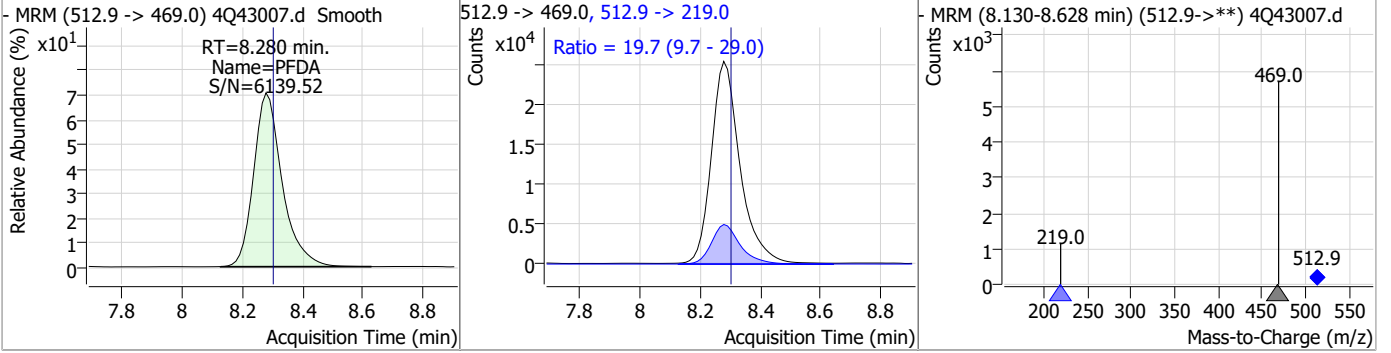


7.6.4

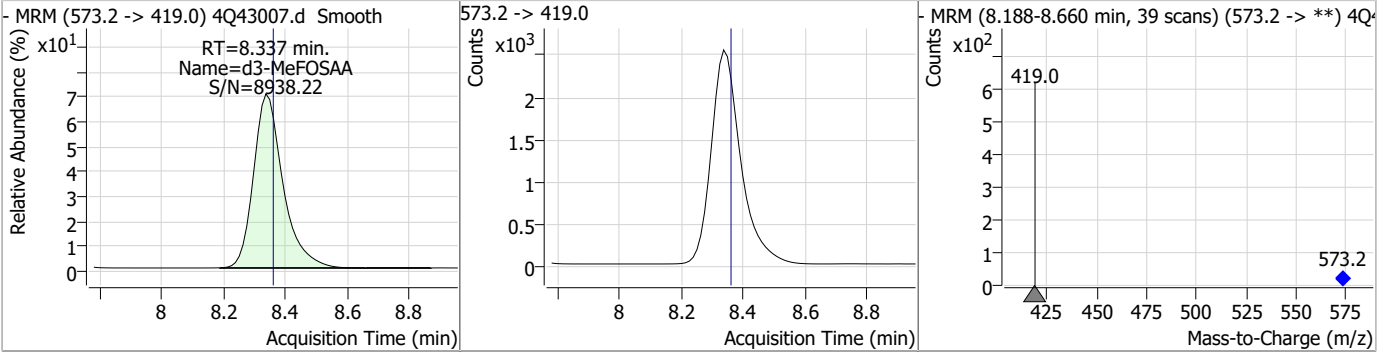
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Perfluorinated Compounds by LC/MS/MS

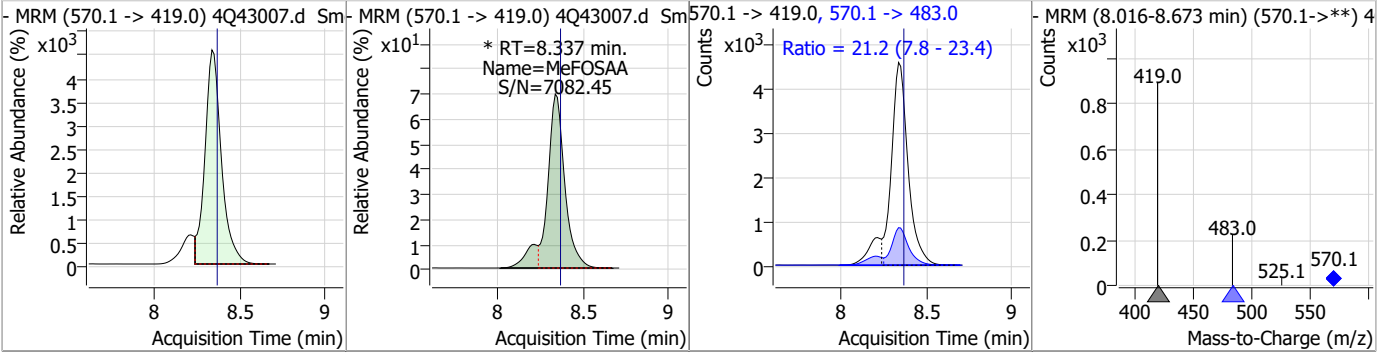
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	14.94	8.28	-0.02	165311	512.9 -> 219.0	19.7	9.7	29.0



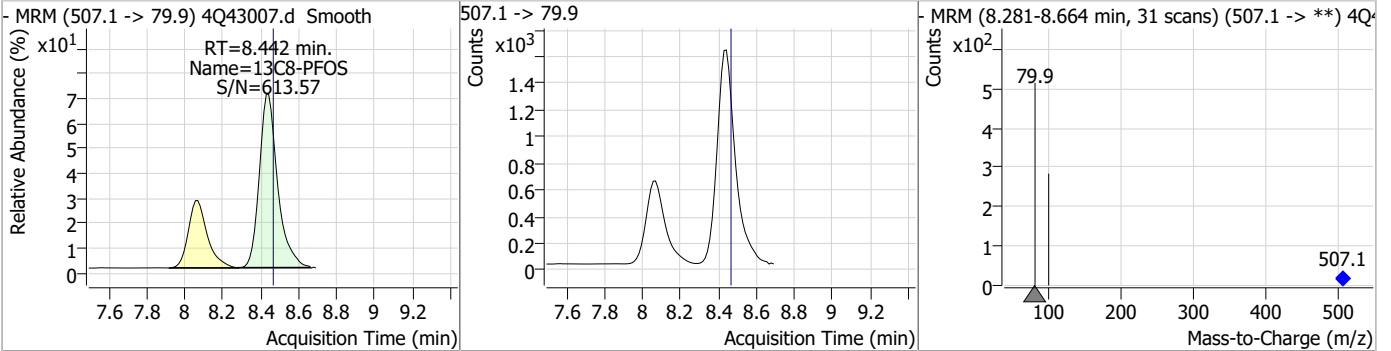
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.14	8.34	-0.02	16675				



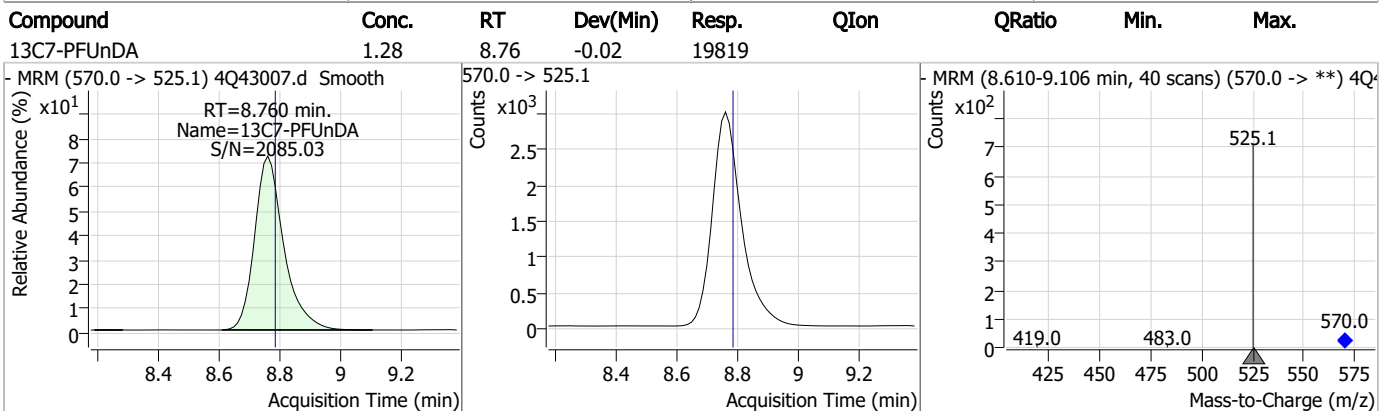
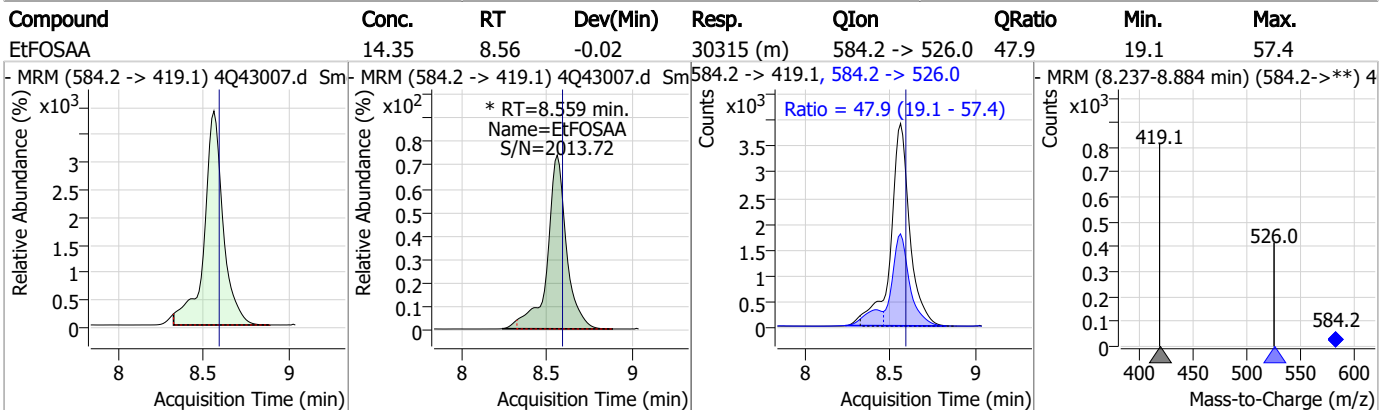
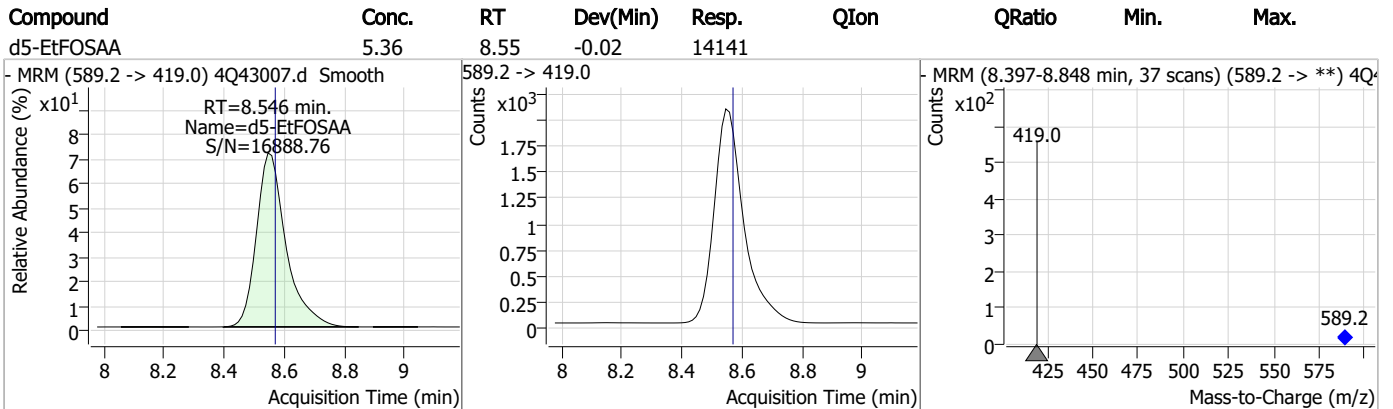
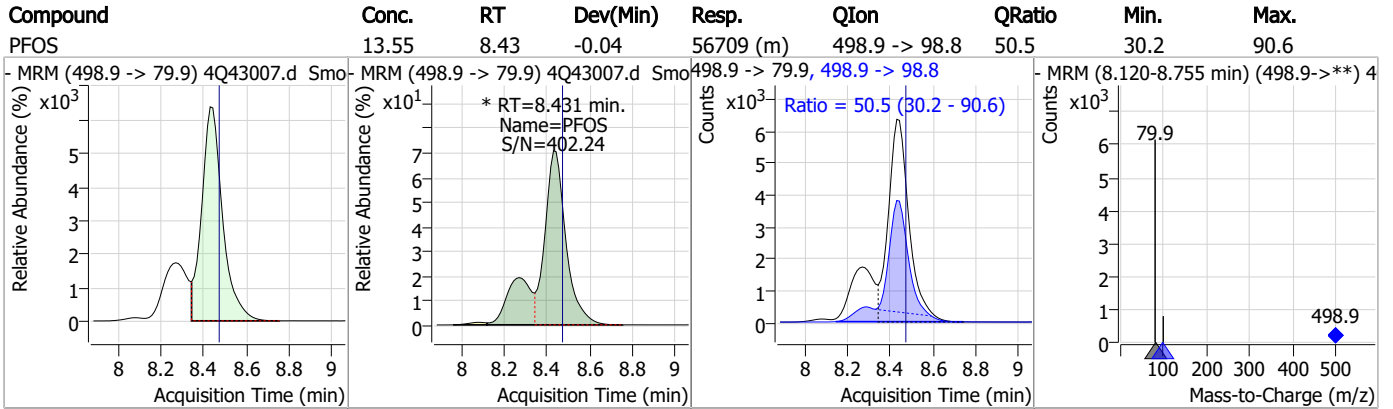
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	14.75	8.34	-0.02	33899 (m)	570.1 -> 483.0	21.2	7.8	23.4



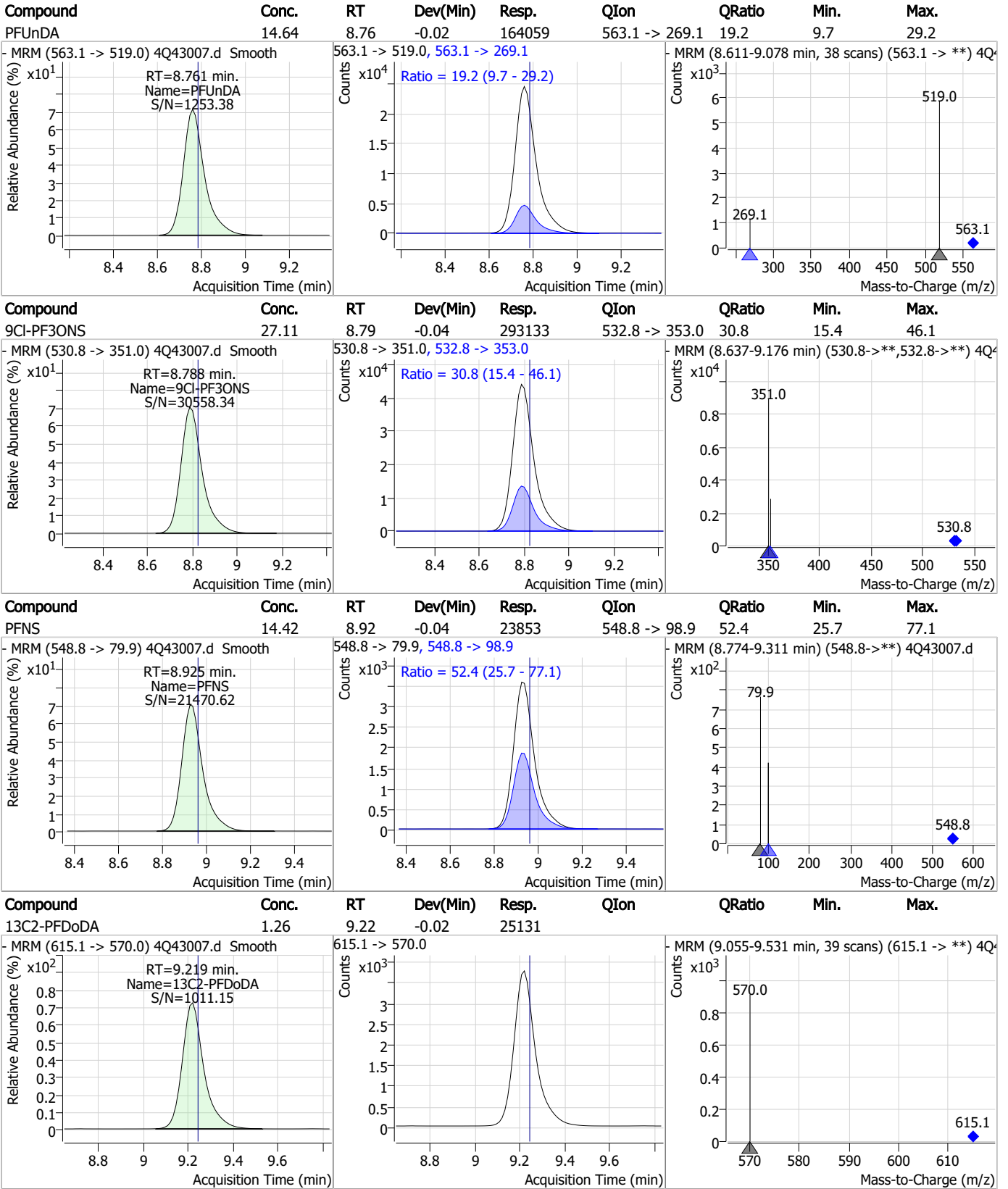
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.52	8.44	-0.02	10753				



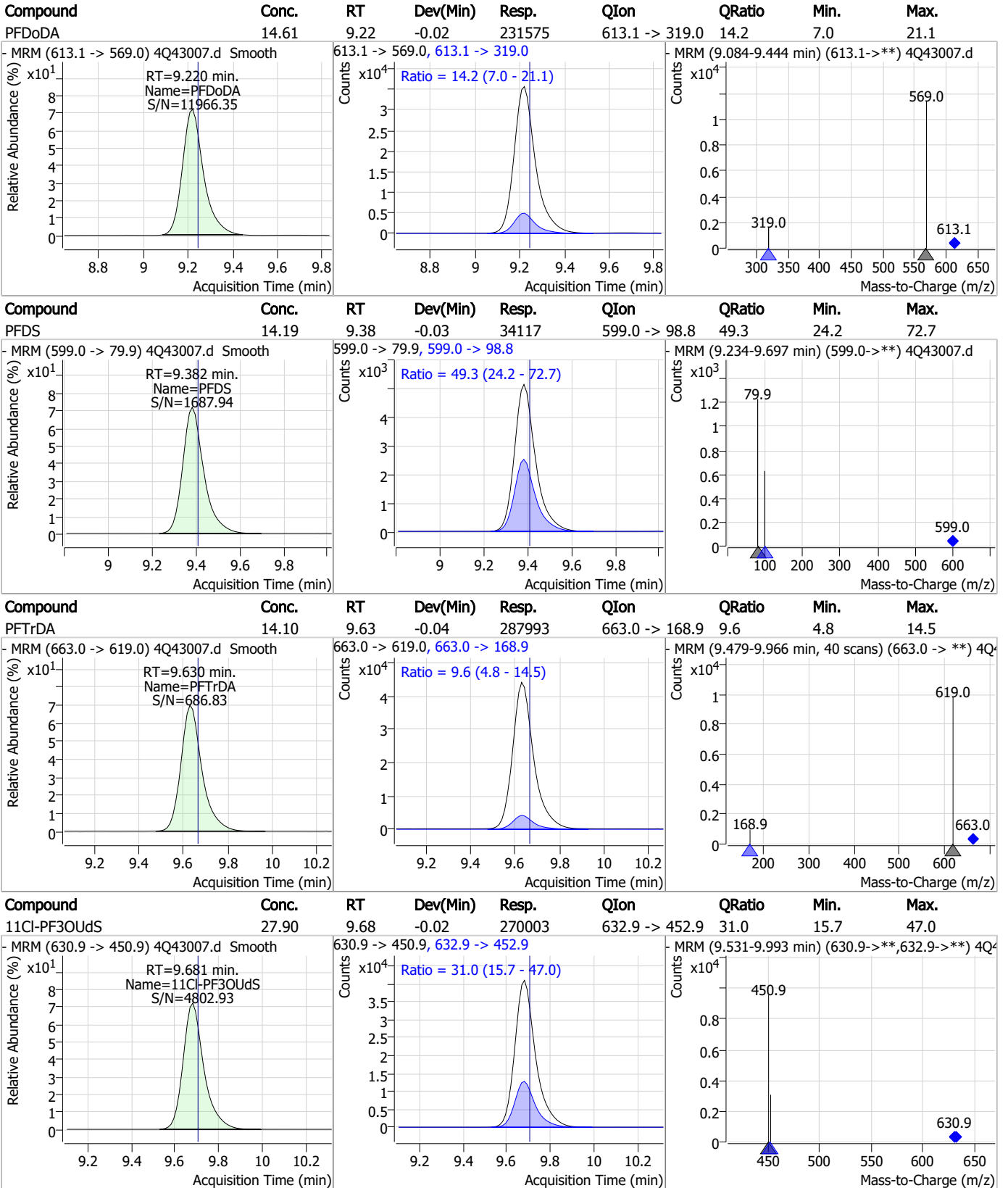
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



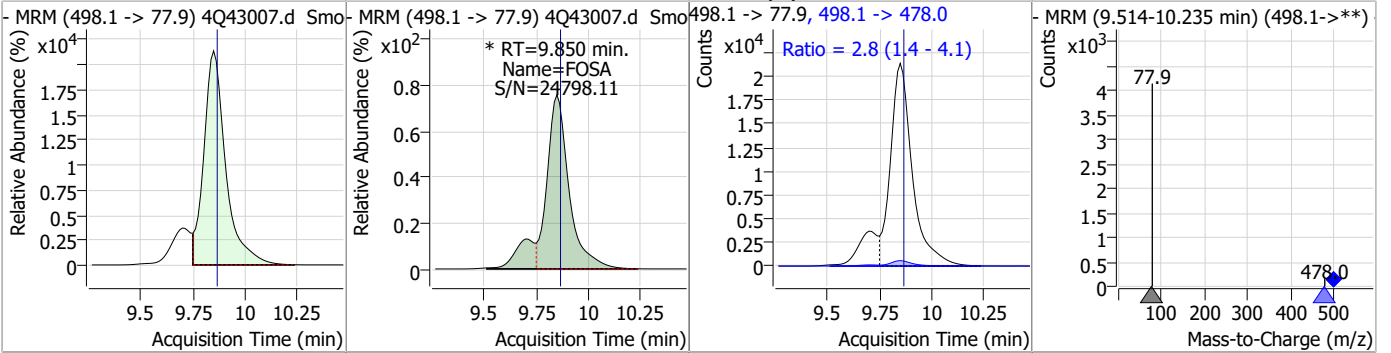
7.6.4

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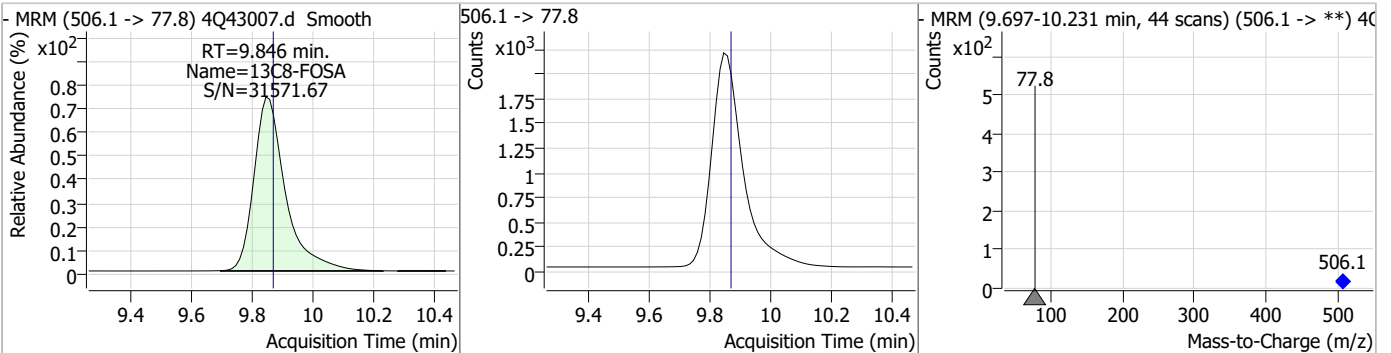


Perfluorinated Compounds by LC/MS/MS

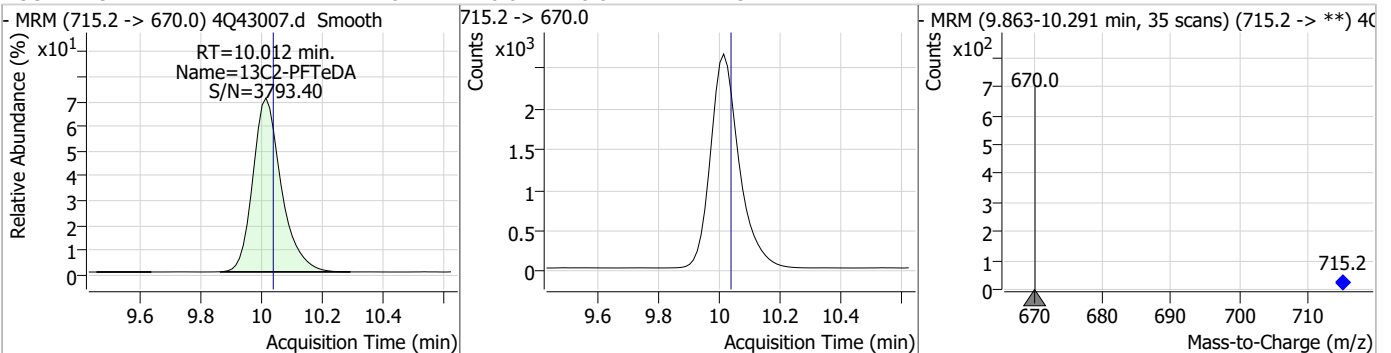
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	35.63	9.85	-0.01	179765 (m)	498.1 -> 478.0	2.8	1.4	4.1



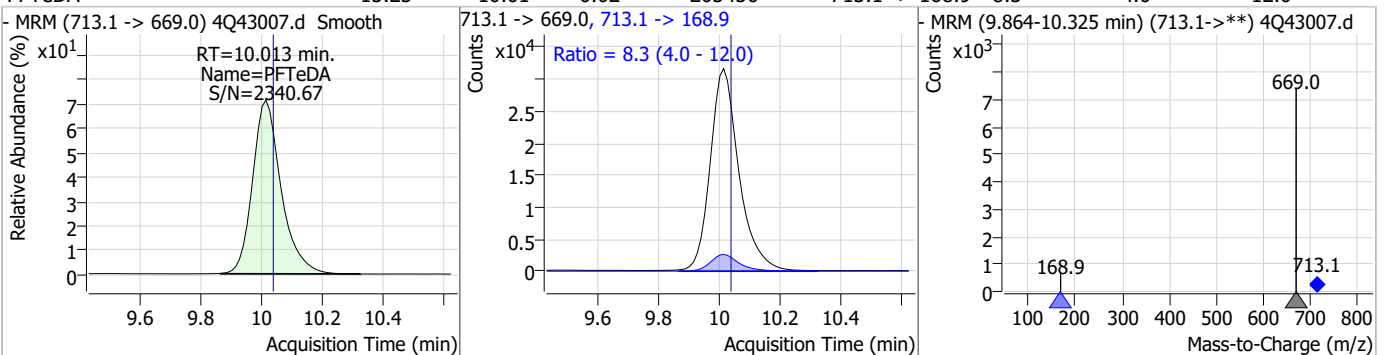
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.17	9.85	-0.02	15671				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.10	10.01	-0.02	17115				

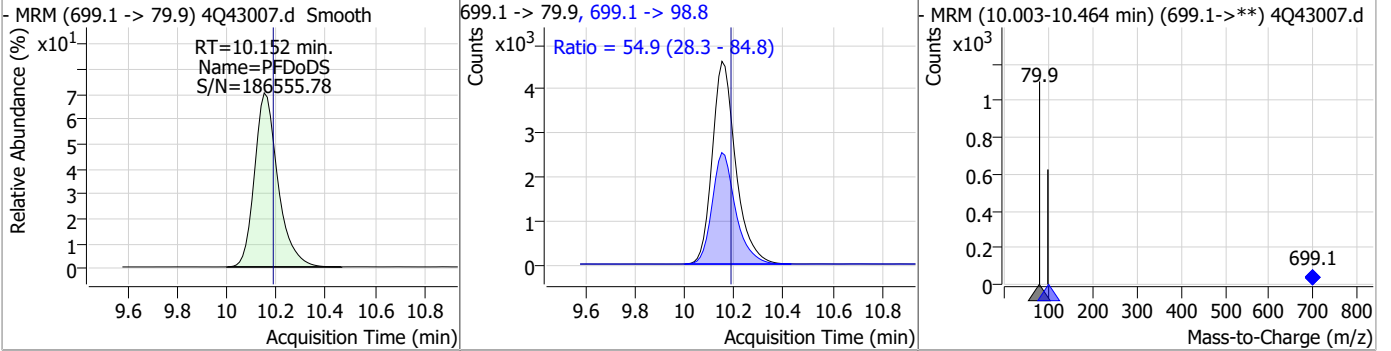


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.25	10.01	-0.02	205456	713.1 -> 168.9	8.3	4.0	12.0

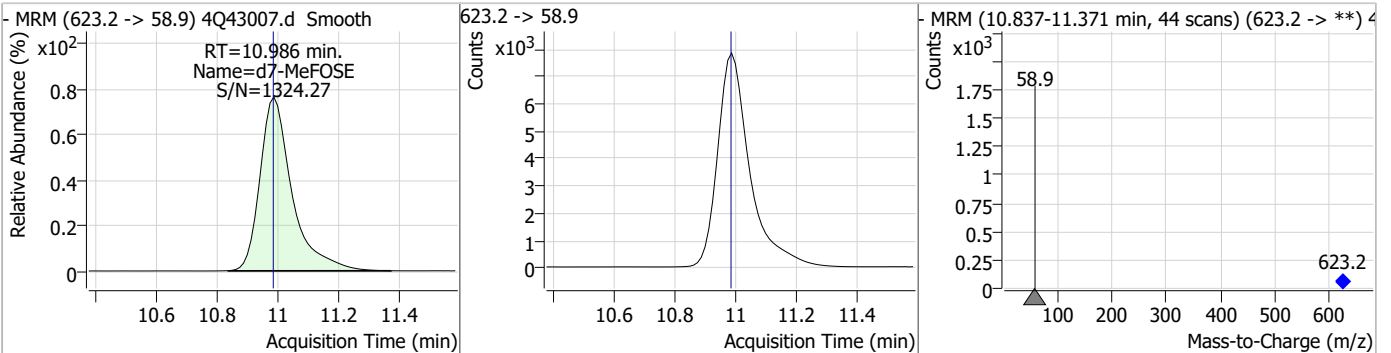


Perfluorinated Compounds by LC/MS/MS

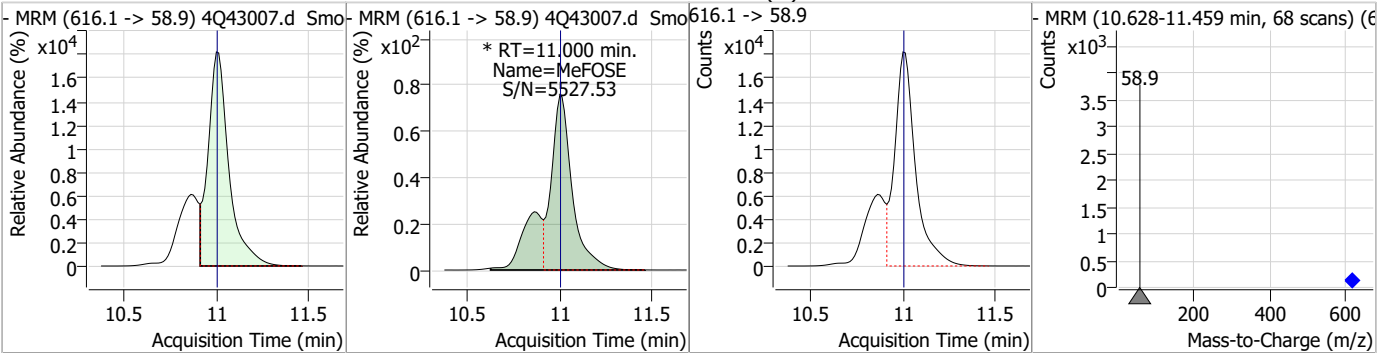
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	14.48	10.15	-0.04	30092	699.1 -> 98.8	54.9	28.3	84.8



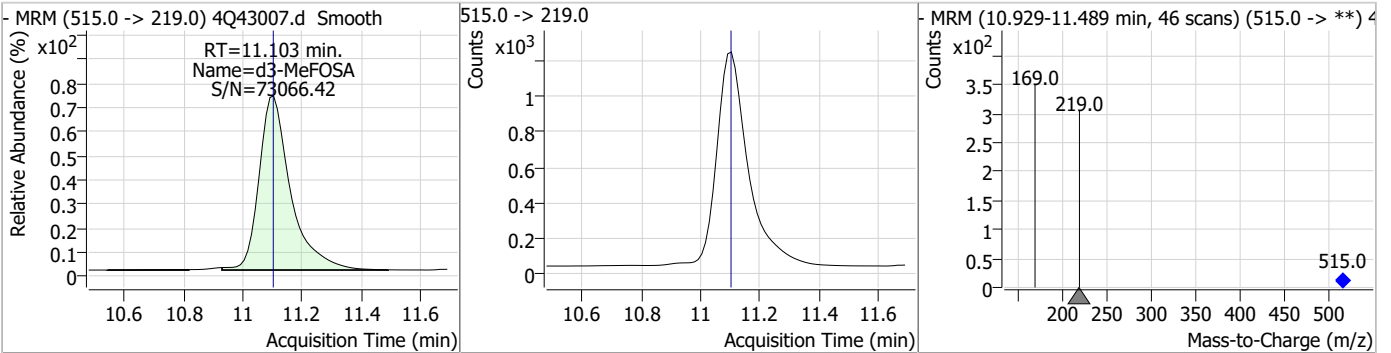
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.07	10.99	0.00	57047				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	94.44	11.00	0.00	189343 (m)				

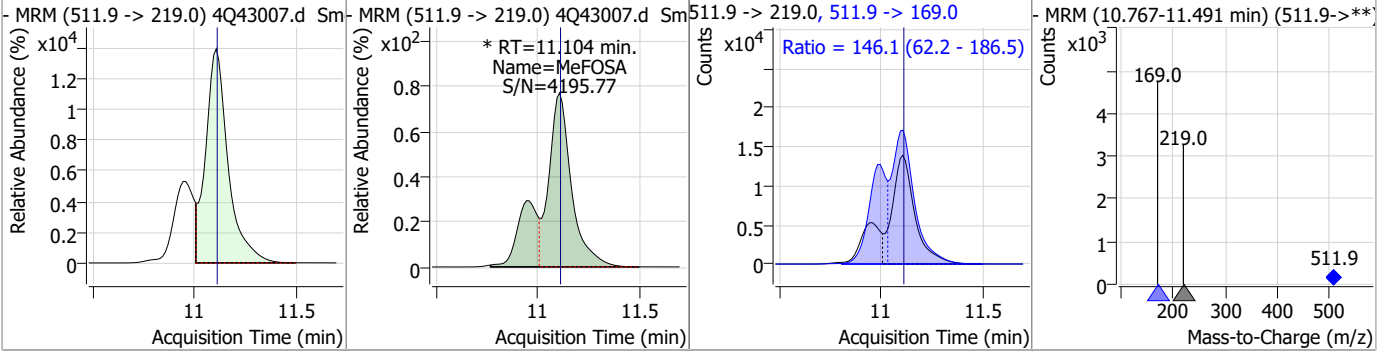


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.63	11.10	0.00	8970				

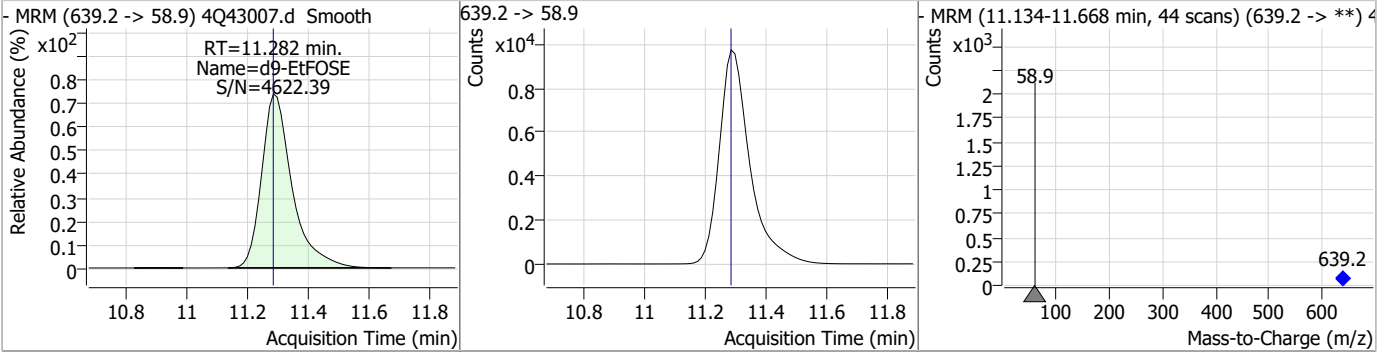


Perfluorinated Compounds by LC/MS/MS

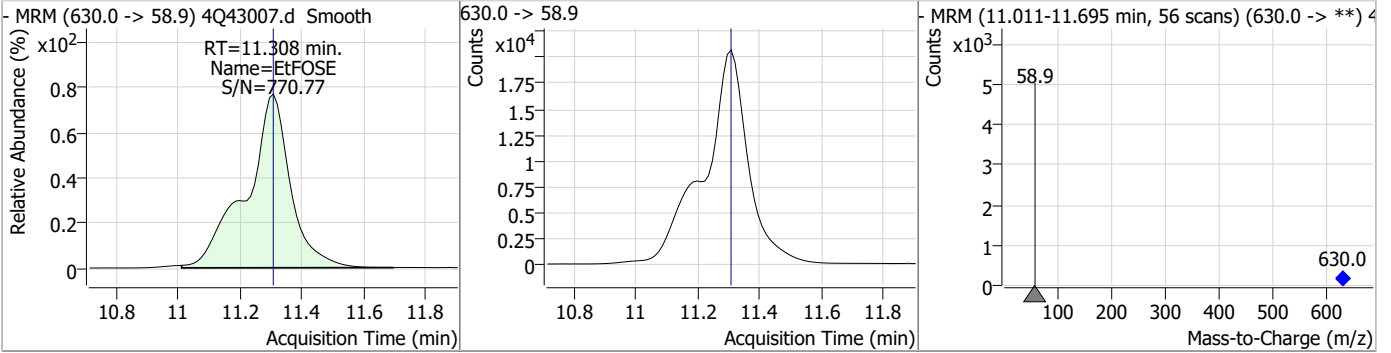
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	48.85	11.10	0.00	141663 (m)	511.9 -> 169.0	146.1	62.2	186.5



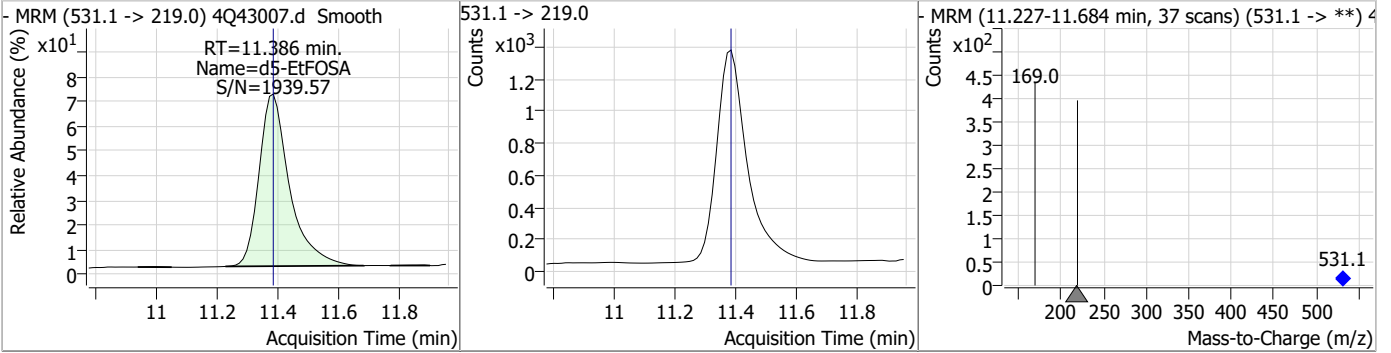
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.40	11.28	0.00	67483				



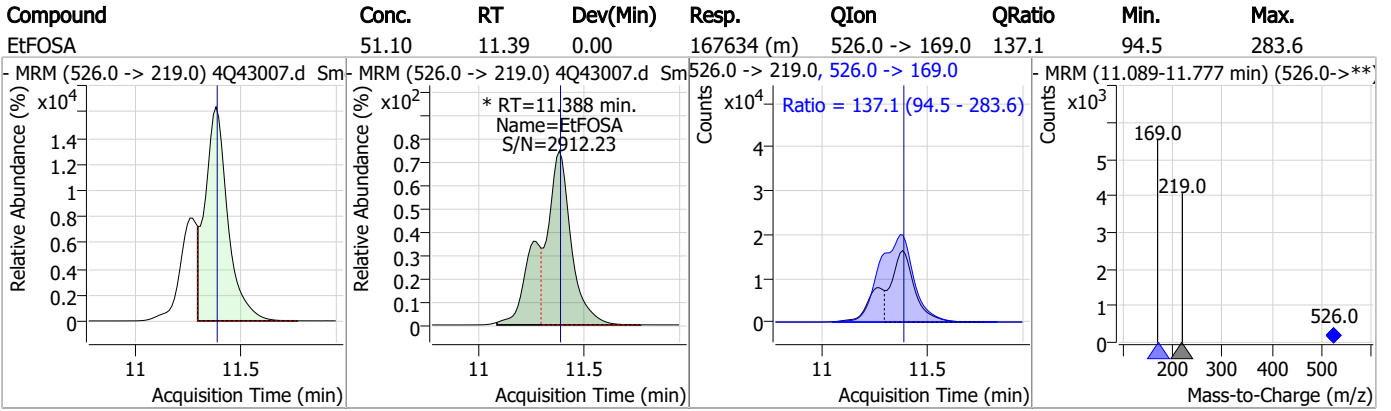
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	99.26	11.31	0.00	206462				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.50	11.39	0.00	9206				



Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S4Q622-RT **Method:** EPA DRAFT 1633
Lab FileID: 4Q43007.D **Analyst approved:** 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 05:01 **Supervisor approved:** 04/17/23 17:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.23	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorononanoic acid	375-95-1		7.77	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.56	Split peak
PFOSA	754-91-6		9.85	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.6.4.1
7

Perfluorinated Compounds by LC/MS/MS

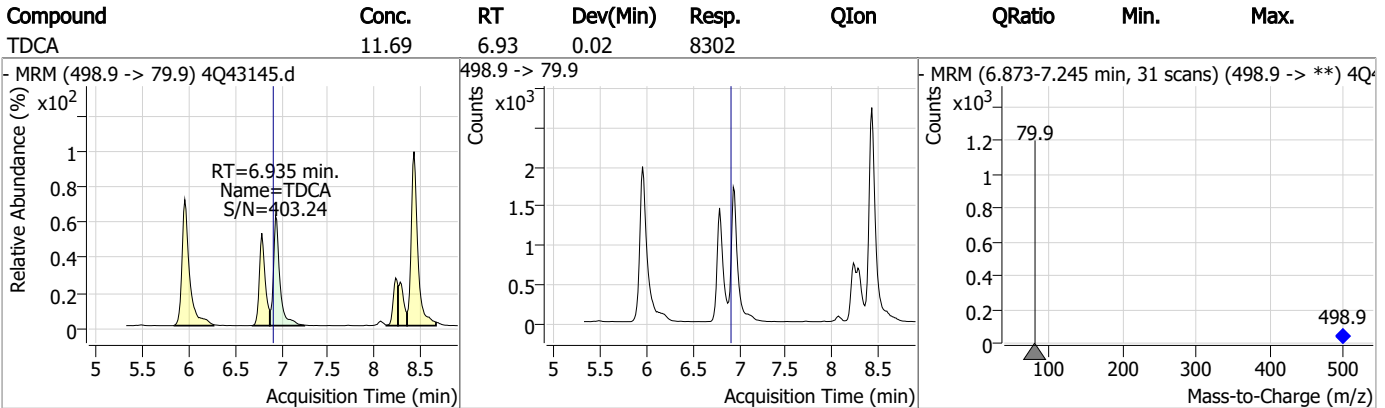
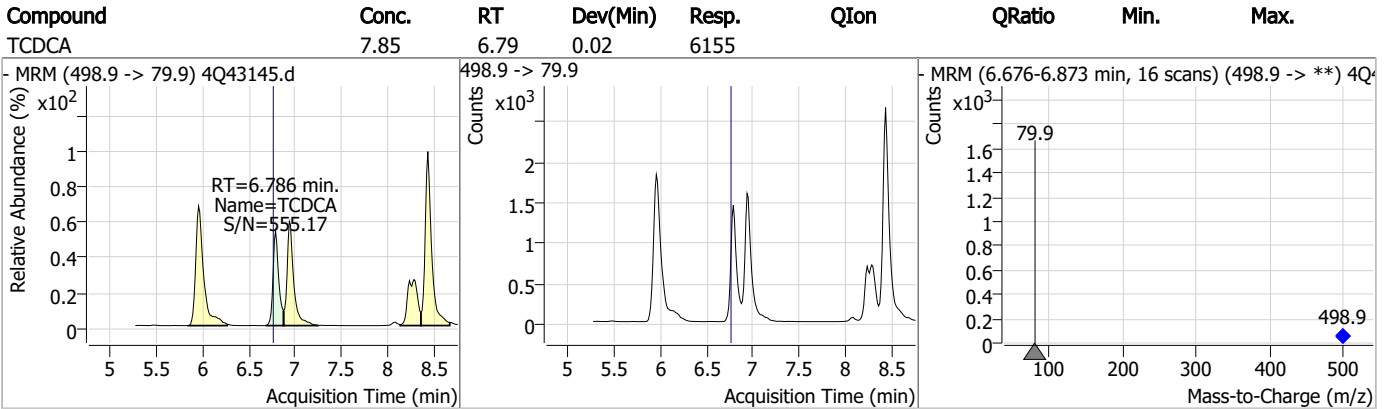
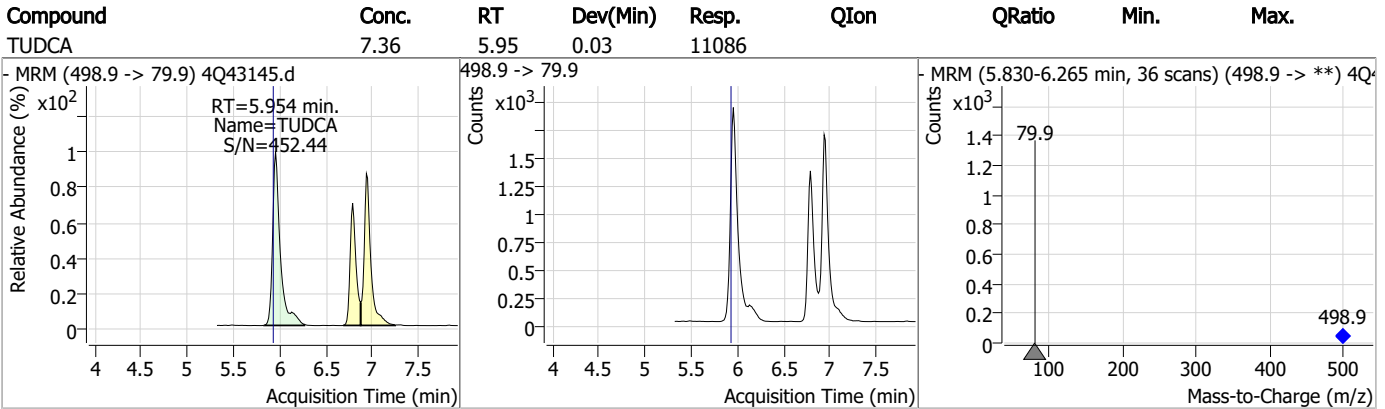
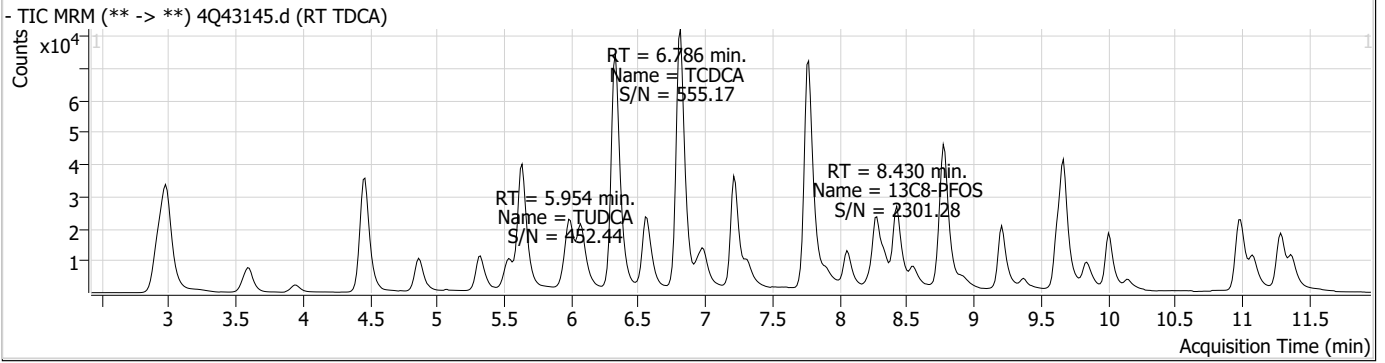
Data File : 4Q43145.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 10:28:42 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q624 TDCA.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M8-PFOS	8.430	507.1 -> 79.9	16995	2.50 µg/L	0.025
13C4-PFOS	8.430	502.8 -> 79.9	18423	2.50 µg/L	0.025
System Monitoring Compounds					
13C8-PFOS	8.430	507.1 -> 79.9	16995	2.34 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.6%		
Target Compounds					
PFOS	8.431	498.9 -> 79.9 498.9 -> 98.8	17687 8755	3.05 µg/L m	87
TCDCa	6.786	498.9 -> 79.9	6155	7.85 ng/ml	100
TDCA	6.935	498.9 -> 79.9	8302	11.69 ng/ml	100
TUDCA	5.954	498.9 -> 79.9	11086	7.36 ng/ml	100

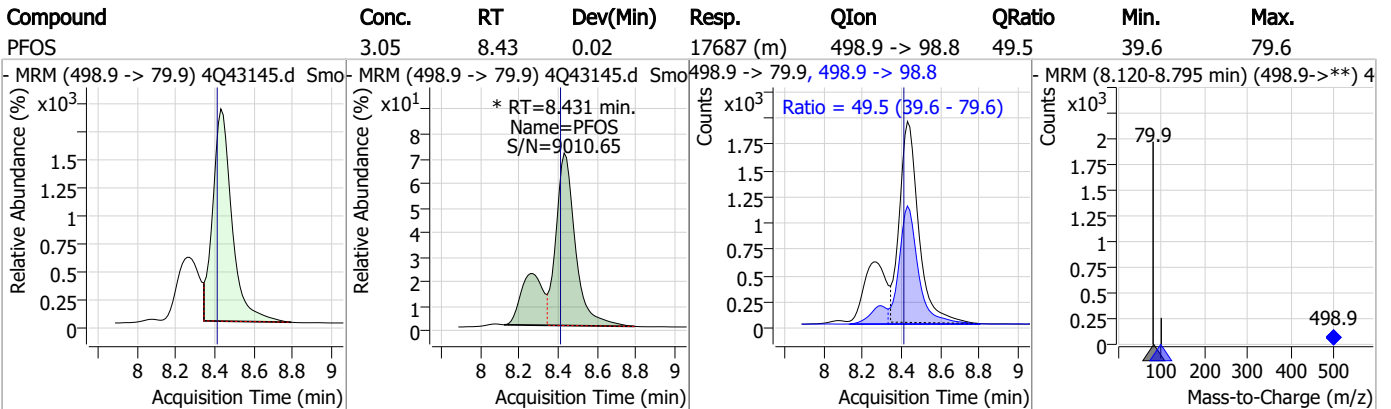
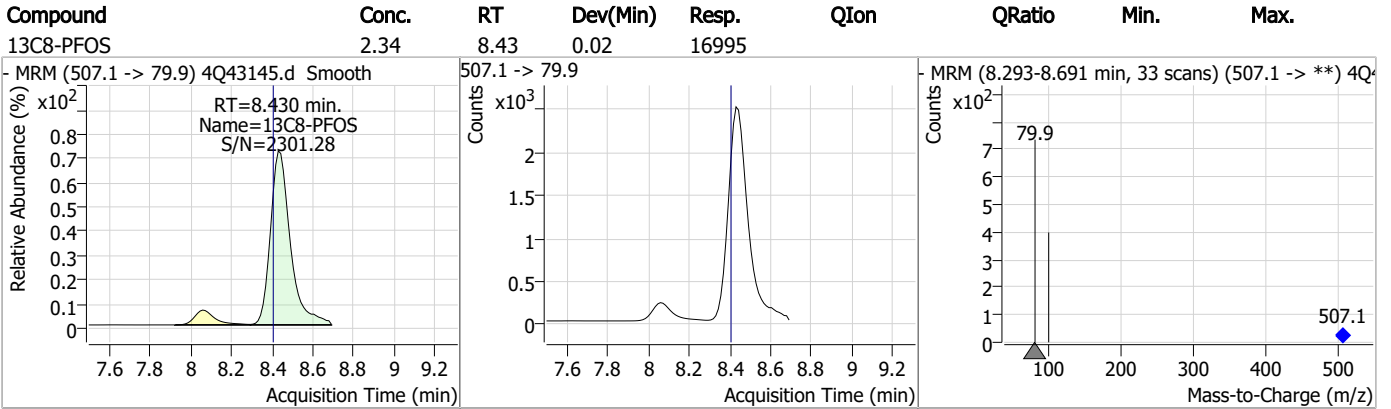
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.5
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Manual Integration Approval Summary

Sample Number: S4Q624-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43145.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 10:28 Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak

7.6.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43146.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 10:44:23 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.077	216.8 -> 171.9	149651	10.00 µg/L	0.116
M5-PFPeA	4.500	268.3 -> 223.0	81998	5.00 µg/L	0.050
M5-PFHxA	5.647	318.0 -> 273.0	67777	2.50 µg/L	0.025
M4-PFHpA	6.567	367.1 -> 322.0	32891	2.50 µg/L	0.012
M8-PFOA	7.214	421.1 -> 376.0	38836	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	21838	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	22150	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	21989	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	28804	1.25 µg/L	0.000
M2-PFTeDA	9.987	715.2 -> 670.0	20691	1.25 µg/L	0.000
M8-FOSA	9.846	506.1 -> 77.8	17622	2.50 µg/L	0.012
M3-PFBS	5.564	302.1 -> 79.9	14168	2.50 µg/L	0.037
M3-PFHxS	7.317	402.1 -> 79.9	8631	2.50 µg/L	0.000
M8-PFOS	8.430	507.1 -> 79.9	12015	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1512	5.00 µg/L	0.026
M2-6:2FTS	6.986	429.1 -> 80.9	2466	5.00 µg/L	0.012
M2-8:2FTS	8.054	529.1 -> 80.9	3336	5.00 µg/L	0.000
M3-MeFOSAA	8.337	573.2 -> 419.0	19698	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	41985	10.00 µg/L	0.025
M5-EtFOSAA	8.546	589.2 -> 419.0	14872	5.00 µg/L	0.012
M7-MeFOSE	10.962	623.2 -> 58.9	60484	25.00 µg/L	-0.012
M9-EtFOSE	11.270	639.2 -> 58.9	73237	25.00 µg/L	-0.012
M5-EtFOSA	11.361	531.1 -> 219.0	9985	2.50 µg/L	-0.012
M3-MeFOSA	11.078	515.0 -> 219.0	9831	2.50 µg/L	-0.012
13C4-PFOS	8.430	502.8 -> 79.9	13452	2.50 µg/L	0.012
13C3-PFBA	3.068	216.0 -> 172.0	82316	5.00 µg/L	0.102
18O2-PFHxS	7.316	403.0 -> 83.9	6414	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	47330	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	19679	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	26520	1.25 µg/L	0.000
13C2-PFHxA	5.648	315.1 -> 270.0	56143	2.50 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1512	4.31 µg/L	0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2466	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-8:2FTS	8.054	529.1 -> 80.9	3336	4.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.6%		
13C2-PFDoDA	9.194	615.1 -> 570.0	28804	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFTeDA	9.987	715.2 -> 670.0	20691	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.8%		
13C3-PFBS	5.564	302.1 -> 79.9	14168	2.40 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C3-PFHxS	7.317	402.1 -> 79.9	8631	2.43 µg/L	0.000

7.6.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C4-PFBA	3.077	216.8 -> 171.9	149651	10.44 µg/L	0.116
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C4-PFHpA	6.567	367.1 -> 322.0	32891	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.647	318.0 -> 273.0	67777	2.61 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFPeA	4.500	268.3 -> 223.0	81998	4.96 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.266	519.1 -> 474.1	22150	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C7-PFUnDA	8.748	570.0 -> 525.1	21989	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C8-FOSA	9.846	506.1 -> 77.8	17622	2.00 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.1%	
13C8-PFOA	7.214	421.1 -> 376.0	38836	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOS	8.430	507.1 -> 79.9	12015	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C9-PFNA	7.759	472.1 -> 427.0	21838	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.4%	
d3-MeFOSAA	8.337	573.2 -> 419.0	19698	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	41985	10.66 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
d3-MeFOSA	11.078	515.0 -> 219.0	9831	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
d5-EtFOSAA	8.546	589.2 -> 419.0	14872	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
d7-MeFOSE	10.962	623.2 -> 58.9	60484	17.43 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.7%	
d9-EtFOSE	11.270	639.2 -> 58.9	73237	17.25 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 69.0%	
d5-EtFOSA	11.361	531.1 -> 219.0	9985	2.22 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	114595	60.81 µg/L	99
		327.1 -> 80.9	49125		
6:2FTS	6.987	427.1 -> 407.0	93643	55.61 µg/L	95
		427.1 -> 80.9	39008		
8:2FTS	8.054	527.1 -> 507.0	104287	69.72 µg/L	92
		527.1 -> 80.8	40833		
EtFOSAA	8.547	584.2 -> 419.1	33807	15.22 µg/L	m 96
		584.2 -> 526.0	16690		
FOSA	9.837	498.1 -> 77.9	201325	35.48 µg/L	m 98
		498.1 -> 478.0	6219		
MeFOSAA	8.337	570.1 -> 419.0	37563	13.84 µg/L	m 95
		570.1 -> 483.0	7522		
PFBA	3.071	212.8 -> 168.9	194917	57.03 µg/L	100
PFBS	5.565	298.7 -> 79.9	70784	13.39 µg/L	97
		298.7 -> 98.8	27410		
PFDA	8.280	512.9 -> 469.0	186807	14.75 µg/L	100
		512.9 -> 219.0	36932		
PFDoDA	9.195	613.1 -> 569.0	269602	14.84 µg/L	100
		613.1 -> 319.0	36906		
PFDS	9.358	599.0 -> 79.9	37214	13.85 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8	18451	15.58	µg/L	97
		363.1 -> 319.0	255633			
PFHpS	7.900	363.1 -> 169.0	44754	14.72	µg/L	99
		449.0 -> 79.9	46038			
PFHxA	5.650	449.0 -> 98.9	24042	14.59	µg/L	100
		313.0 -> 269.0	292638			
PFHxS	7.318	313.0 -> 118.9	8857	13.86	µg/L	m
		398.7 -> 79.9	40977			
PFNA	7.760	398.7 -> 98.9	21208	30.36	µg/L	m
		463.0 -> 419.0	354375			
PFNS	8.912	463.0 -> 219.0	96245	14.77	µg/L	97
		548.8 -> 79.9	27318			
PFOA	7.215	548.8 -> 98.9	14091	32.54	µg/L	m
		413.0 -> 369.0	590455			
PFOS	8.431	413.0 -> 169.0	124740	13.62	µg/L	m
		498.9 -> 79.9	63694			
PFPeA	4.502	498.9 -> 98.8	32660	31.13	µg/L	100
		263.0 -> 219.0	483165			
PFPeS	6.607	349.1 -> 79.9	37019	14.71	µg/L	98
		349.1 -> 98.9	16135			
PFTeDA	9.988	713.1 -> 669.0	240358	14.75	µg/L	98
		713.1 -> 168.9	19888			
PFTrDA	9.617	663.0 -> 619.0	328020	14.02	µg/L	99
		663.0 -> 168.9	31920			
PFUnDA	8.748	563.1 -> 519.0	179540	14.44	µg/L	97
		563.1 -> 269.1	35803			
11CI-PF3OUdS	9.656	630.9 -> 450.9	297763	27.17	µg/L	100
		632.9 -> 452.9	91668			
9CI-PF3ONS	8.775	530.8 -> 351.0	336305	27.47	µg/L	98
		532.8 -> 353.0	101172			
ADONA	6.819	376.9 -> 250.9	703029	27.88	µg/L	98
		376.9 -> 84.8	191322			
HFPO-DA	6.015	284.9 -> 168.9	94429	28.38	µg/L	96
		284.9 -> 184.9	10847			
3:3FTCA	4.017	241.0 -> 177.0	56986	78.79	µg/L	100
		241.0 -> 117.0	5169			
5:3FTCA	6.345	341.0 -> 237.1	1071731	378.23	µg/L	99
		341.0 -> 217.0	756498			
7:3FTCA	7.762	441.0 -> 316.9	431974	372.00	µg/L	99
		441.0 -> 336.9	963154			
EtFOSA	11.375	526.0 -> 219.0	187347	52.66	µg/L	m
		526.0 -> 169.0	257662			
EtFOSE	11.283	630.0 -> 58.9	220857	97.84	µg/L	100
		511.9 -> 219.0	145538			
MeFOSA	11.079	511.9 -> 169.0	228894	45.79	µg/L	m
		616.1 -> 58.9	201715			
MeFOSE	10.987	699.1 -> 79.9	32431	94.89	µg/L	m
		699.1 -> 98.8	18350			
PFDoDS	10.140	295.0 -> 201.0	39606	13.96	µg/L	96
		295.0 -> 84.9	10060			
NFDHA	5.529	279.0 -> 85.1	276159	29.37	µg/L	99
		229.0 -> 84.9	244504			
PFMBA	4.891	314.8 -> 134.9	445492	31.12	µg/L	100
		314.8 -> 82.9	15002			
PFMPA	3.657			31.50	µg/L	100
PFEESA	6.084			26.45	µg/L	100

= Qualifier out of range, m = manually integrated, + = Area summed

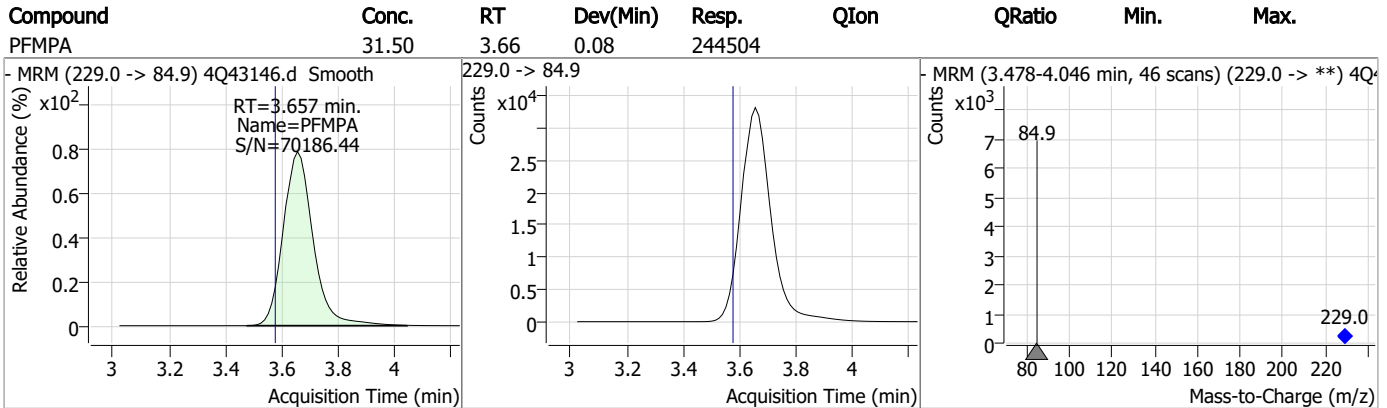
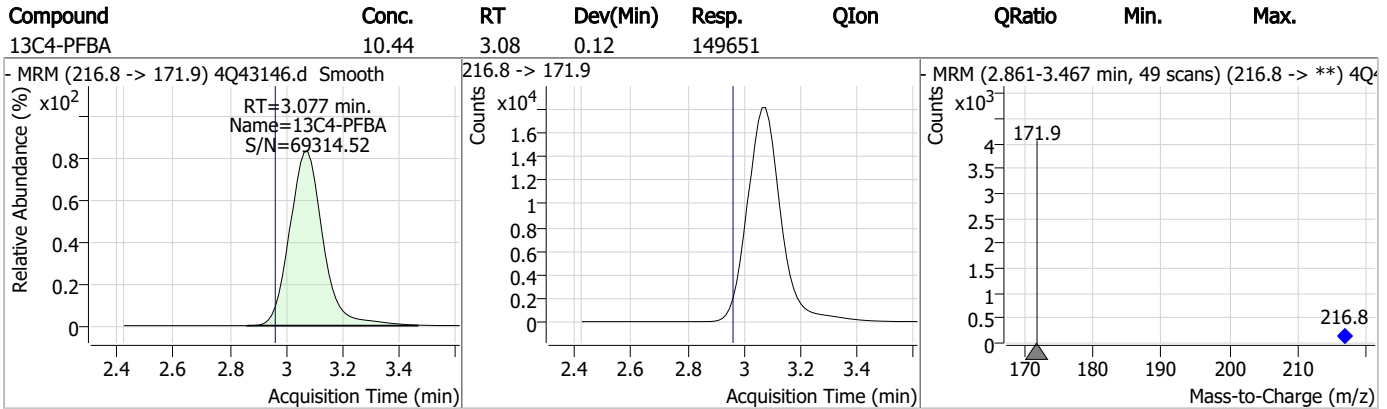
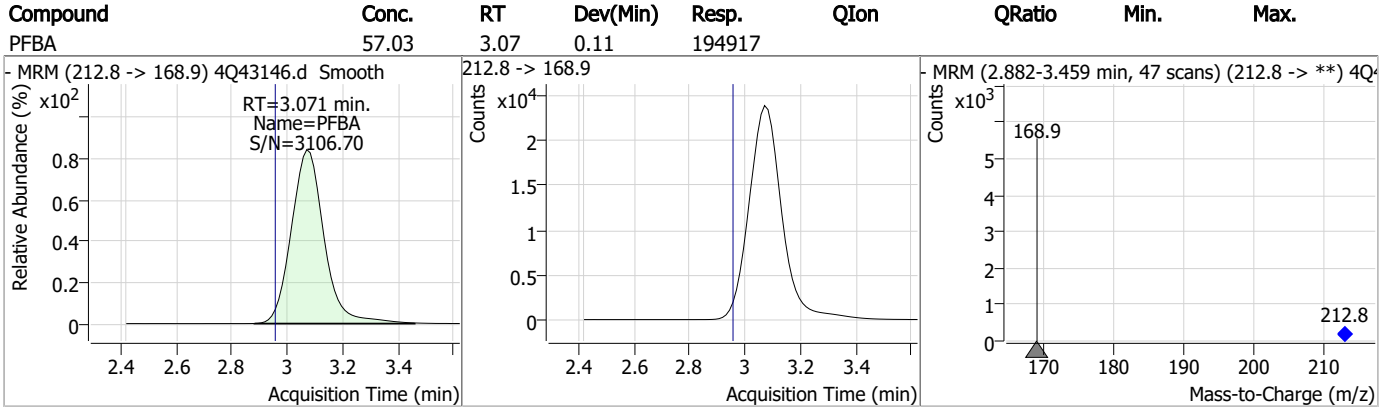
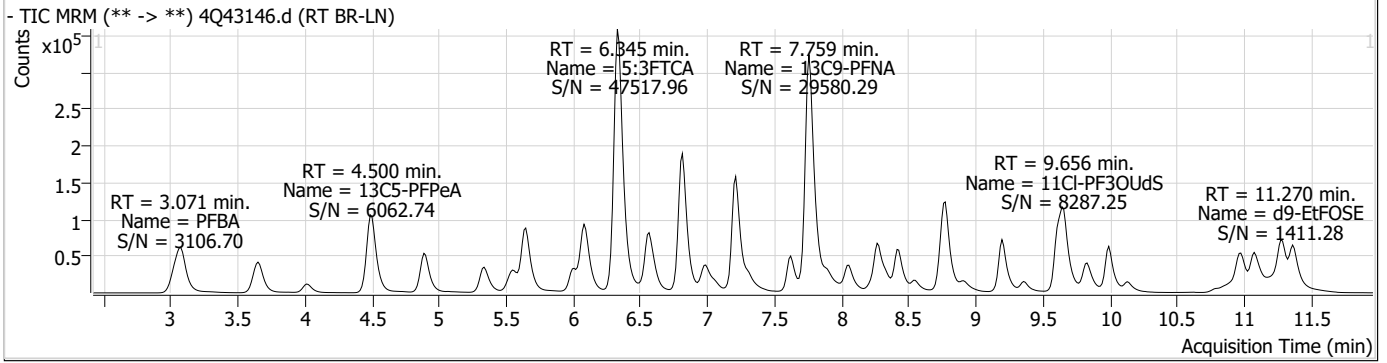
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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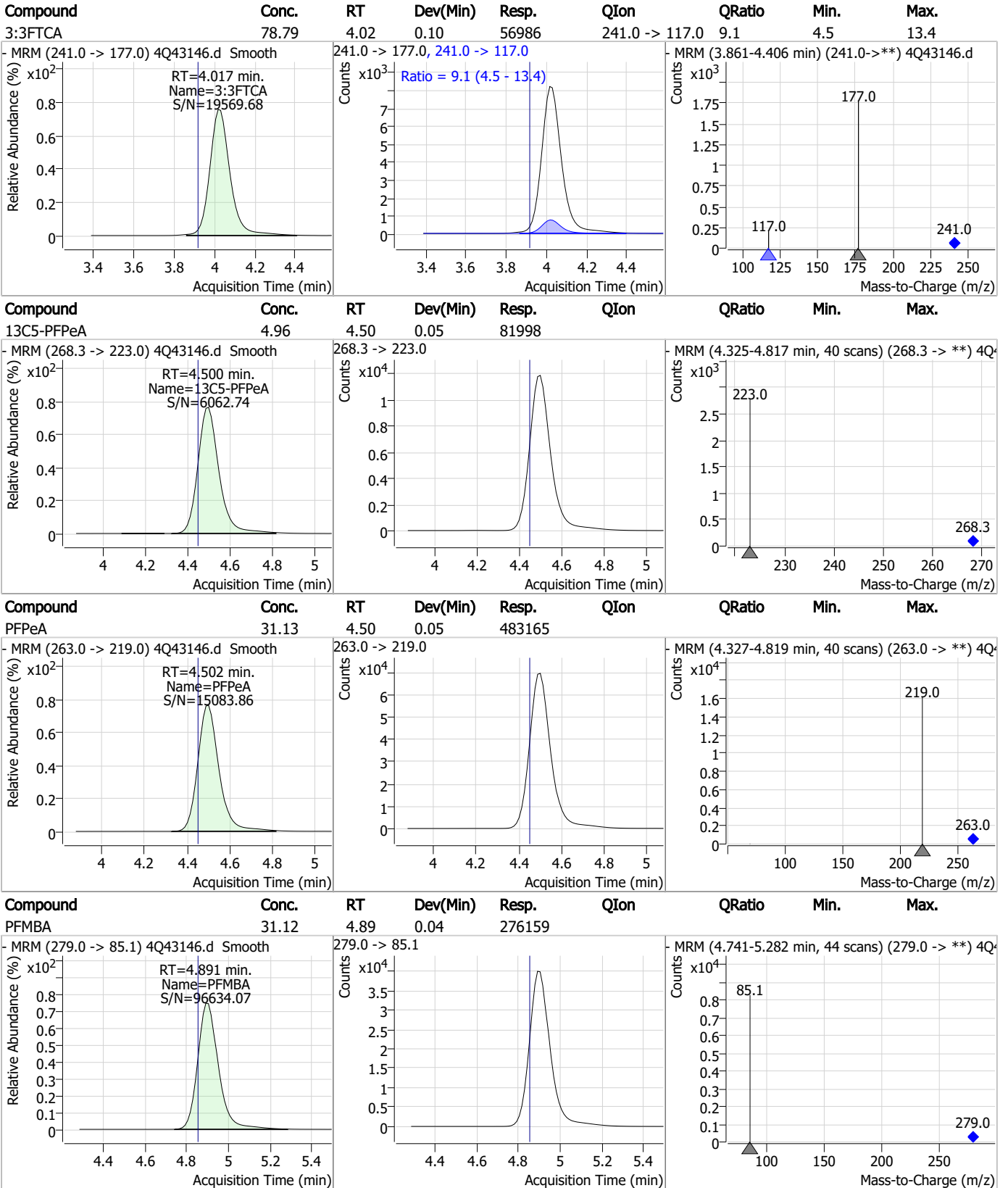
7.6.6

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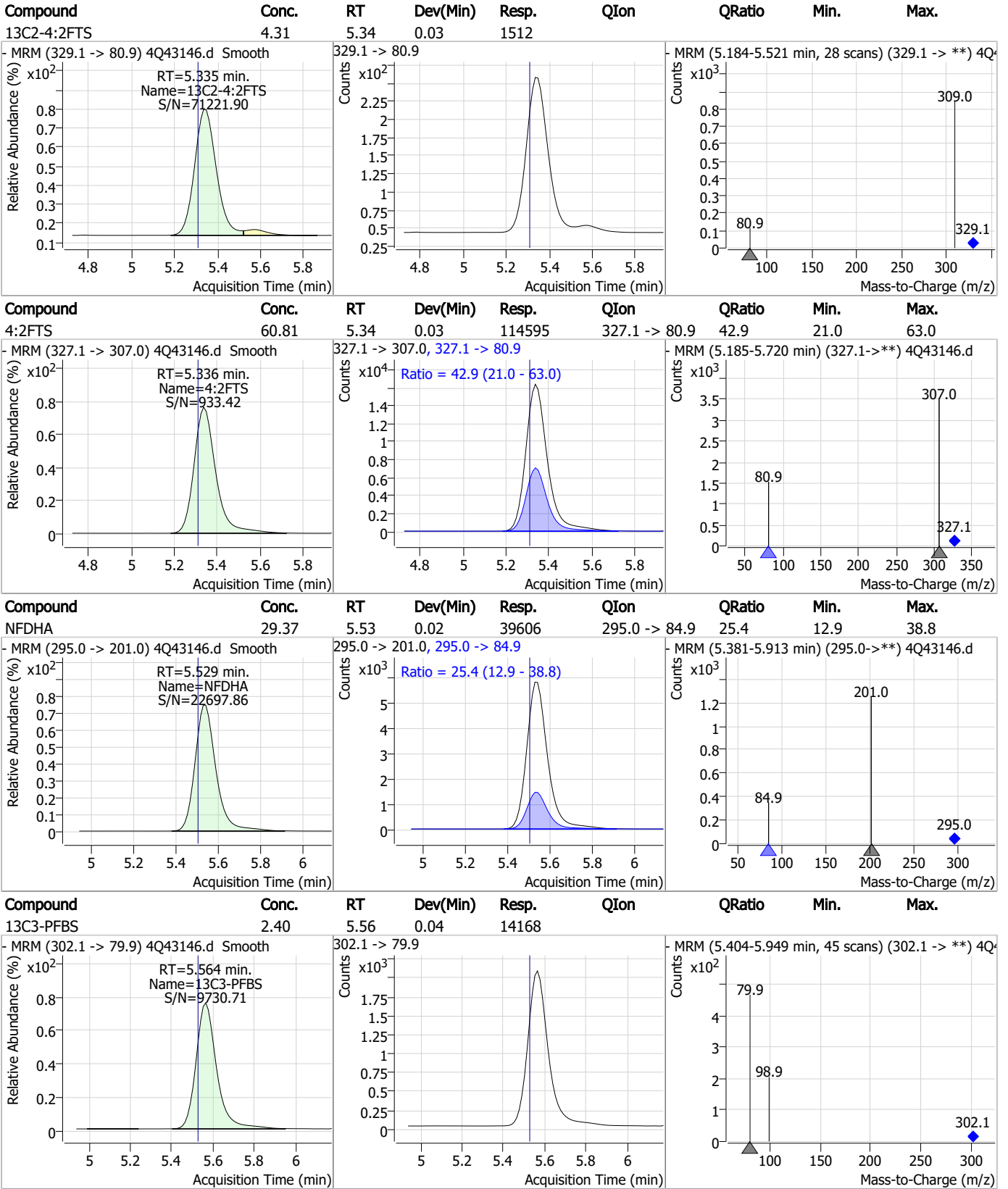
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

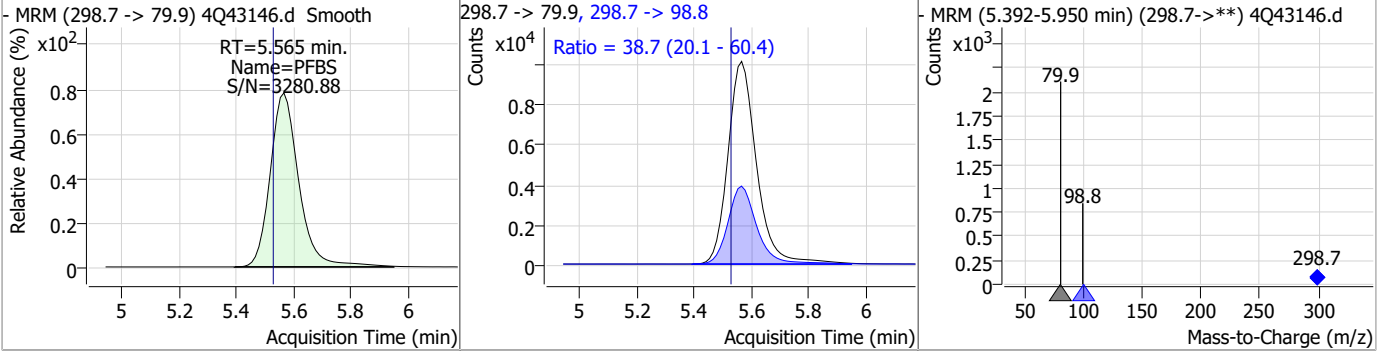


Perfluorinated Compounds by LC/MS/MS

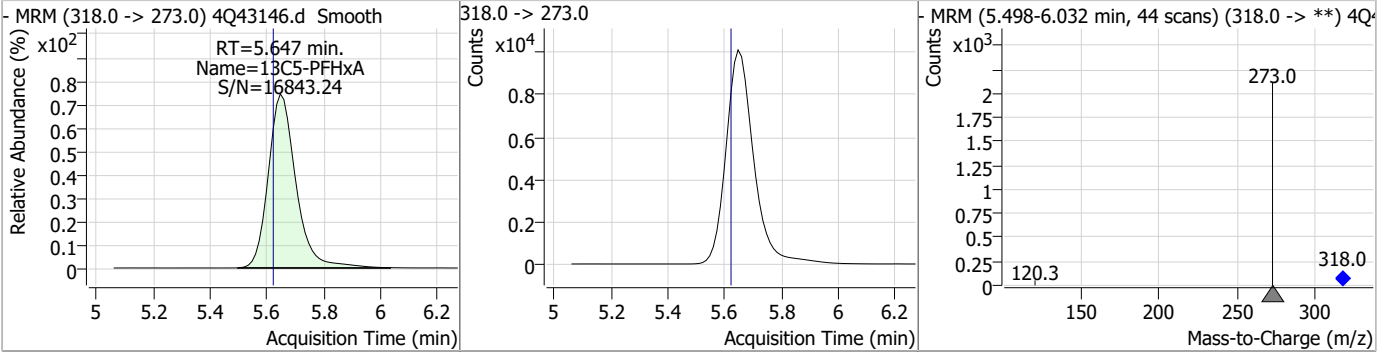


Perfluorinated Compounds by LC/MS/MS

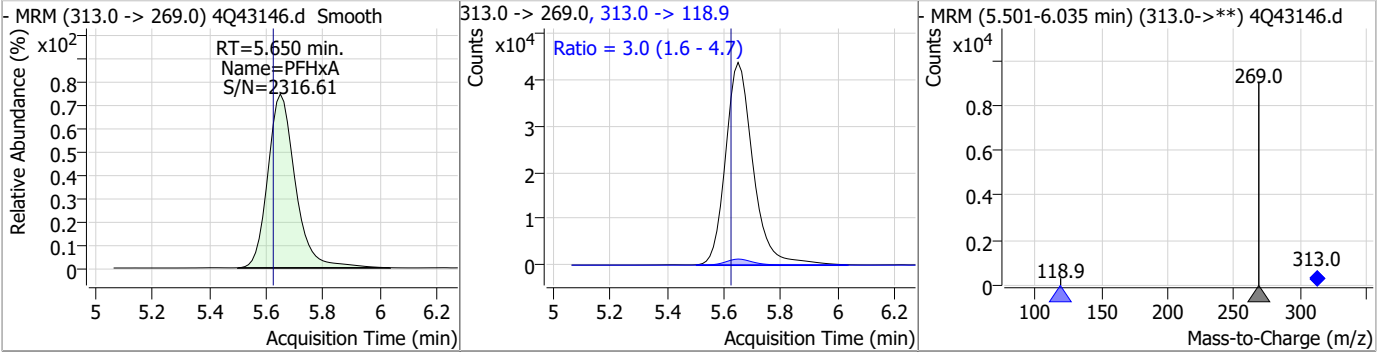
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	13.39	5.57	0.04	70784	298.7 -> 98.8	38.7	20.1	60.4



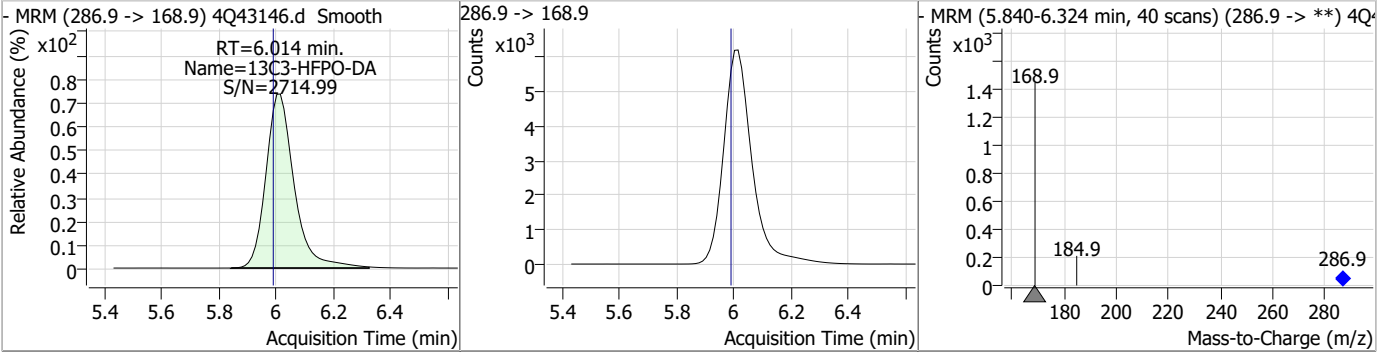
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.61	5.65	0.02	67777				



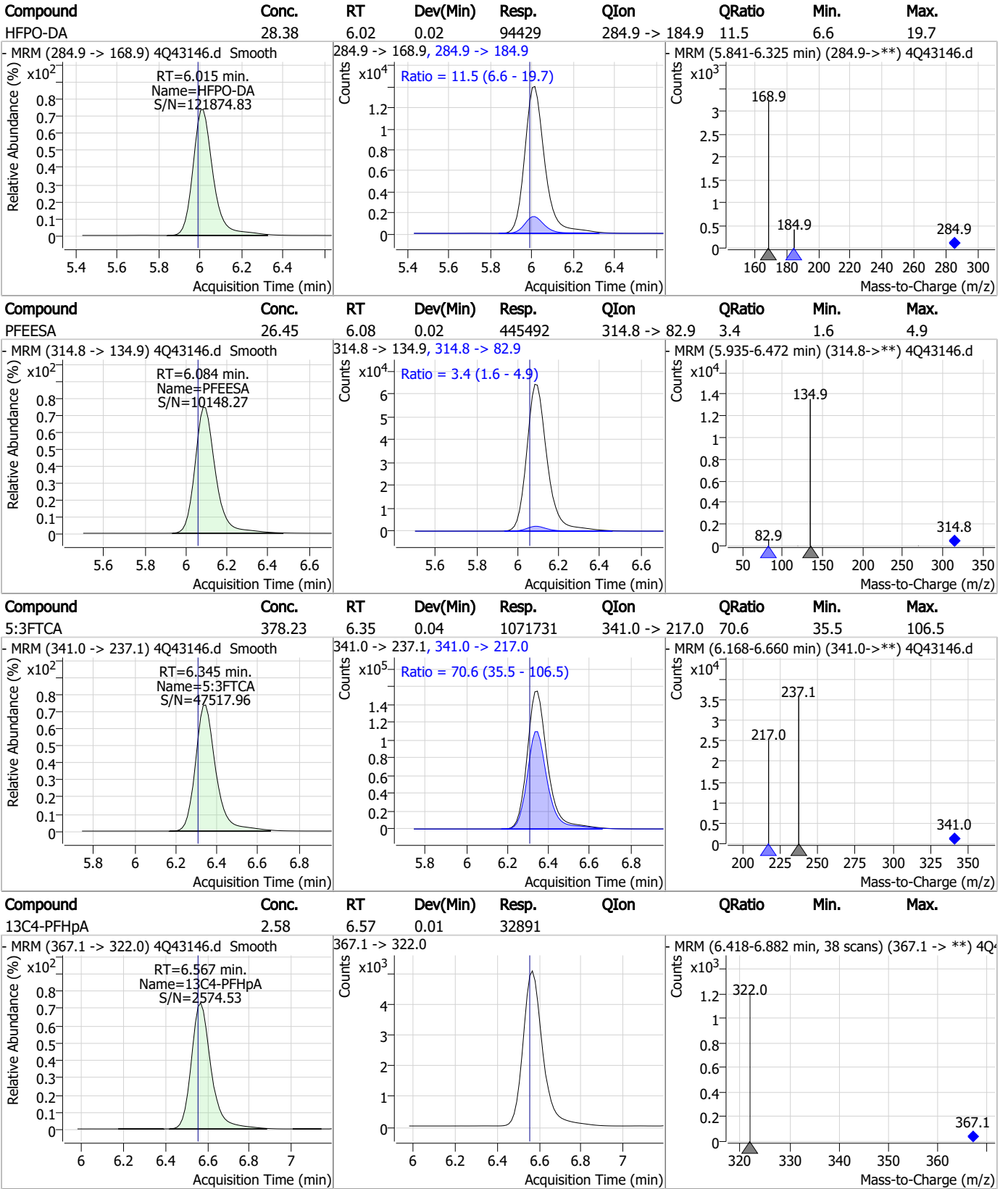
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	14.59	5.65	0.02	292638	313.0 -> 118.9	3.0	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.66	6.01	0.02	41985				



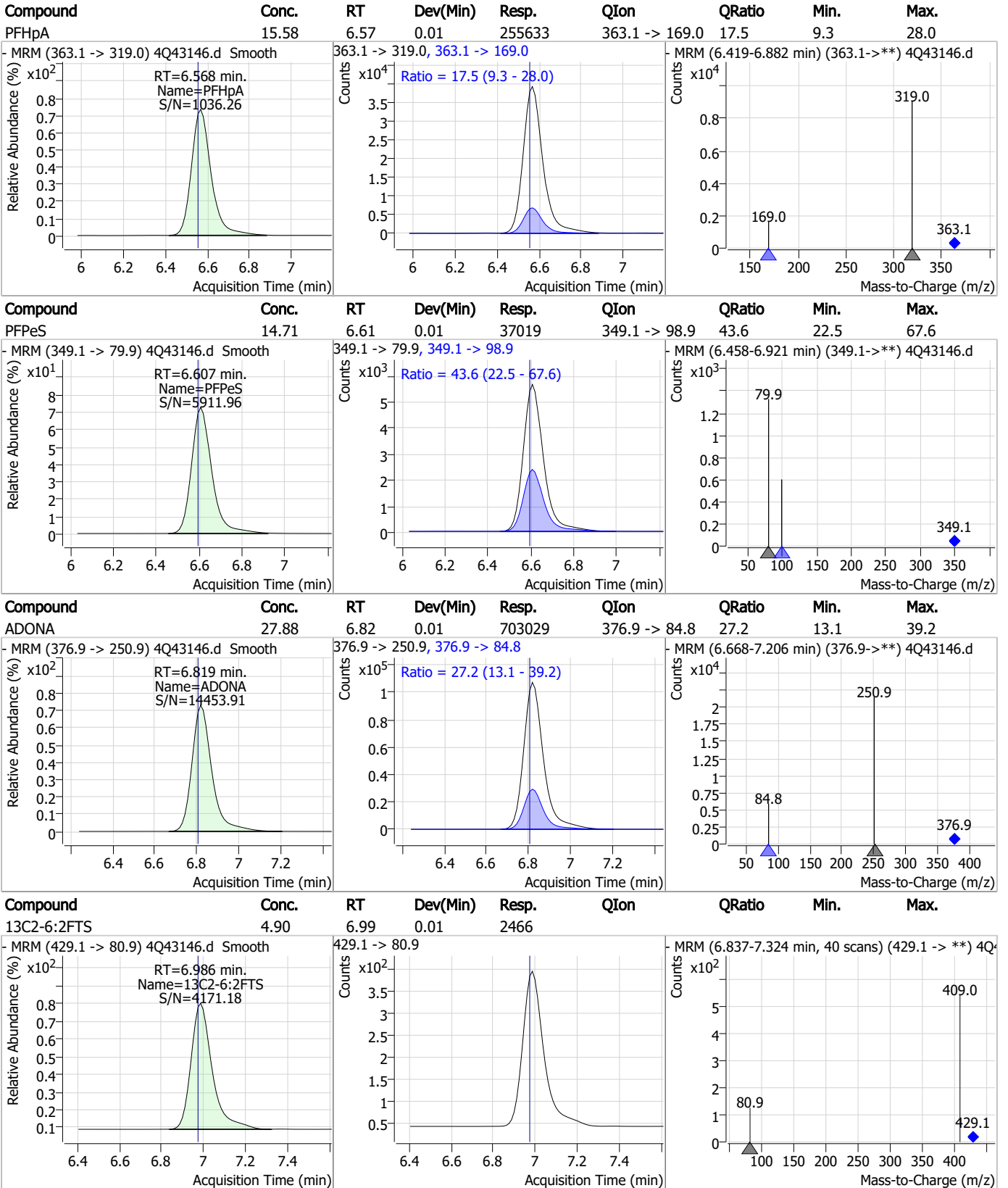
Perfluorinated Compounds by LC/MS/MS



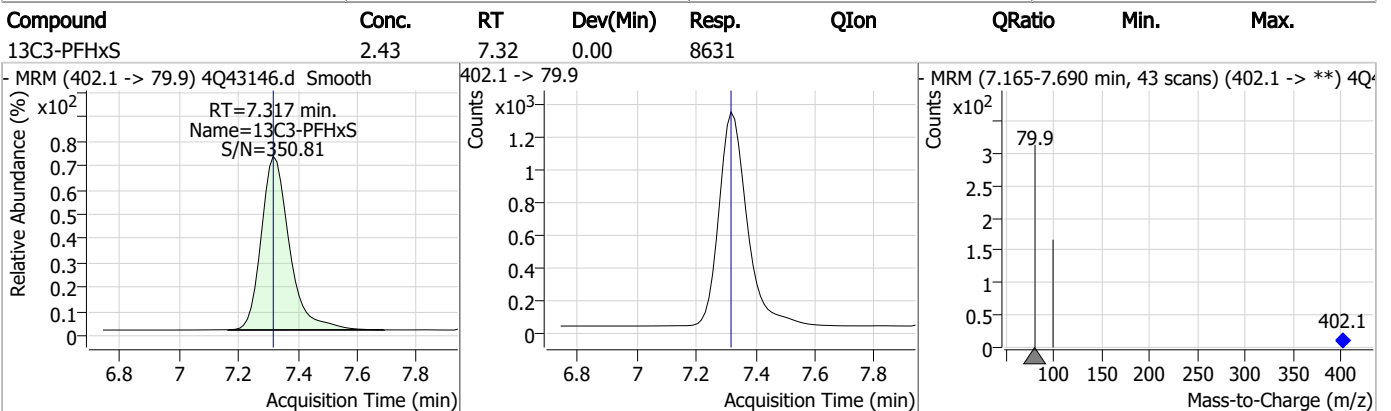
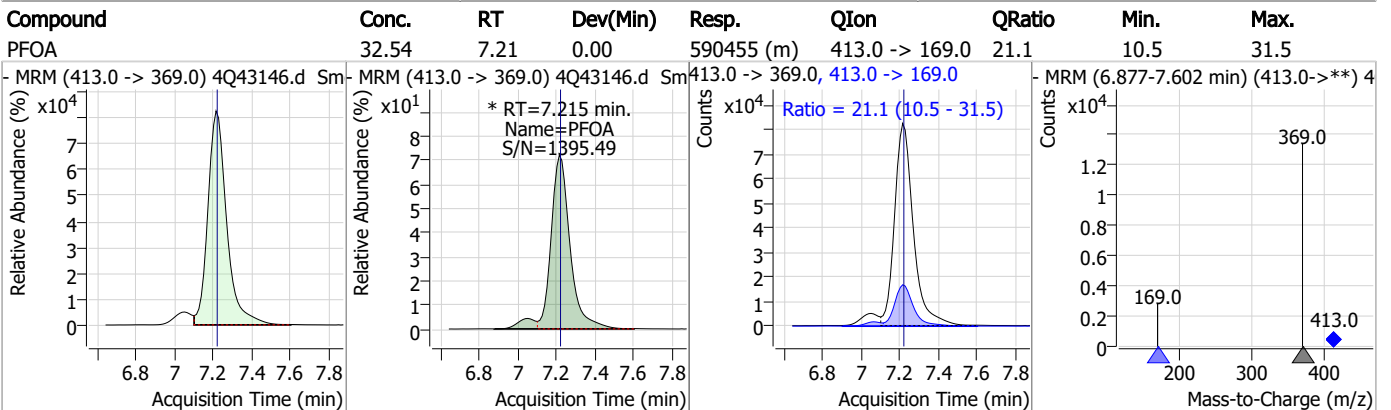
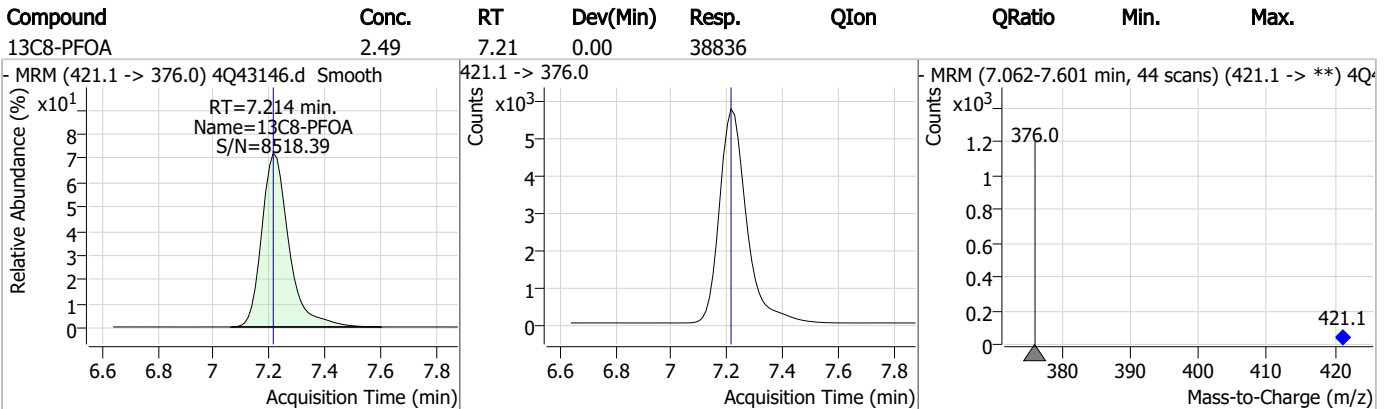
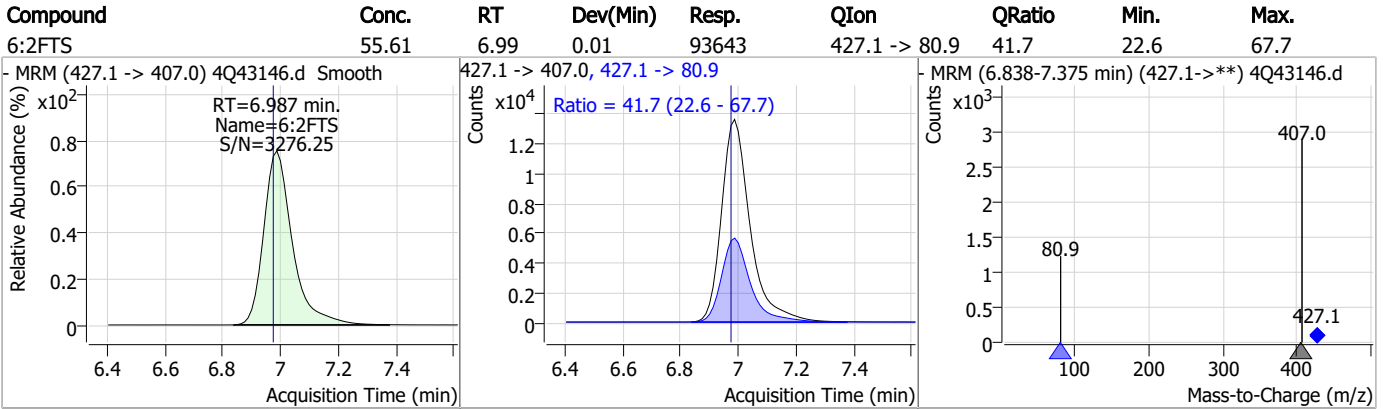
7.6.6

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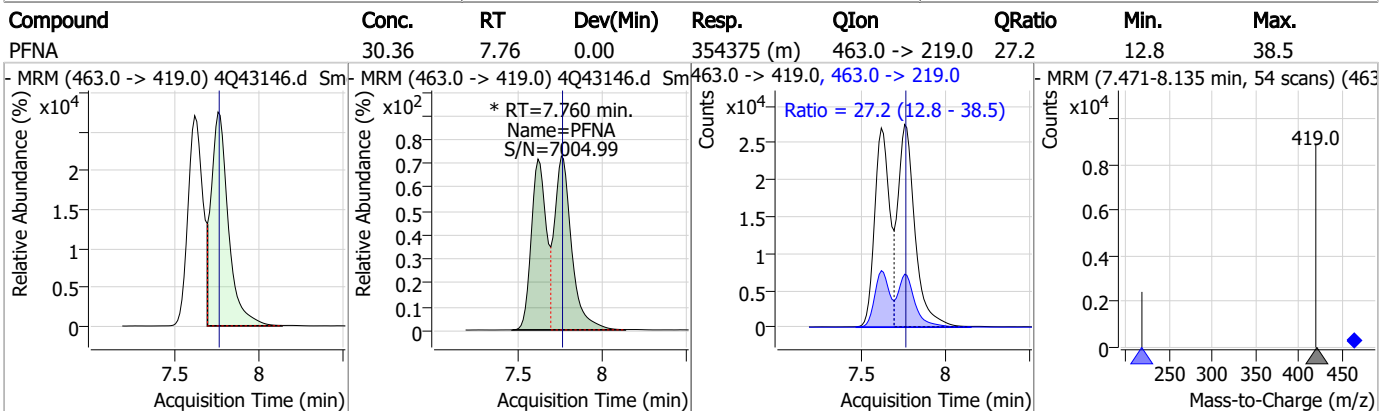
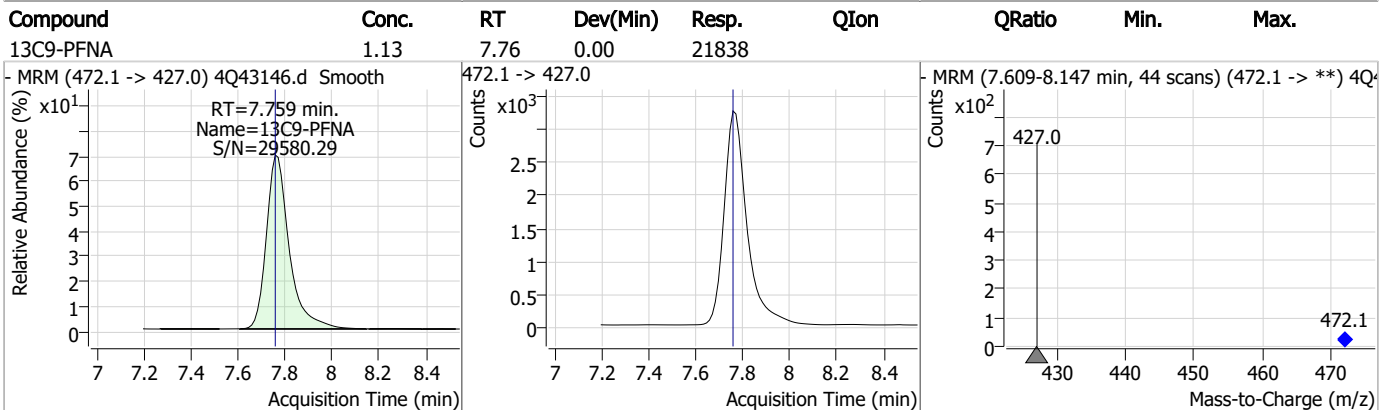
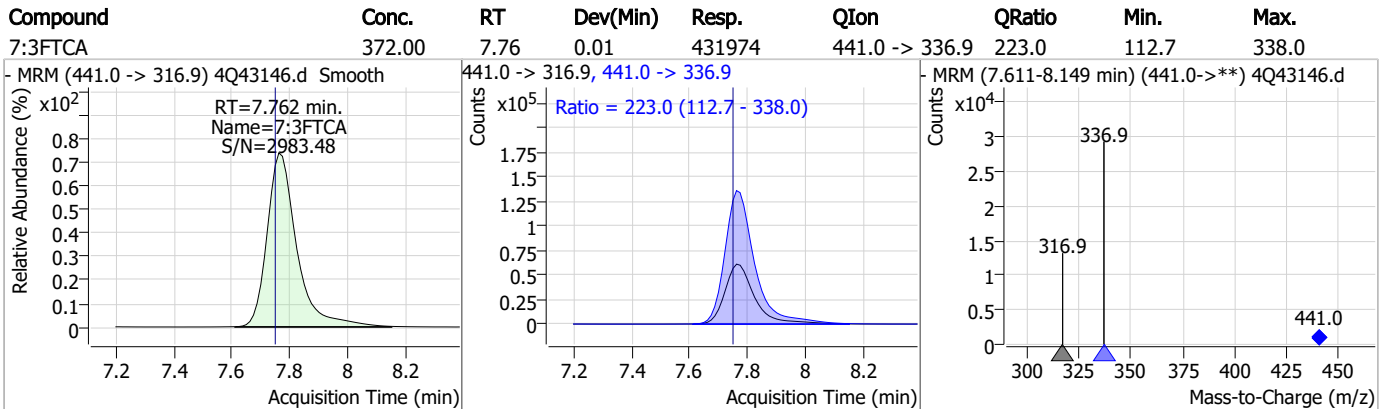
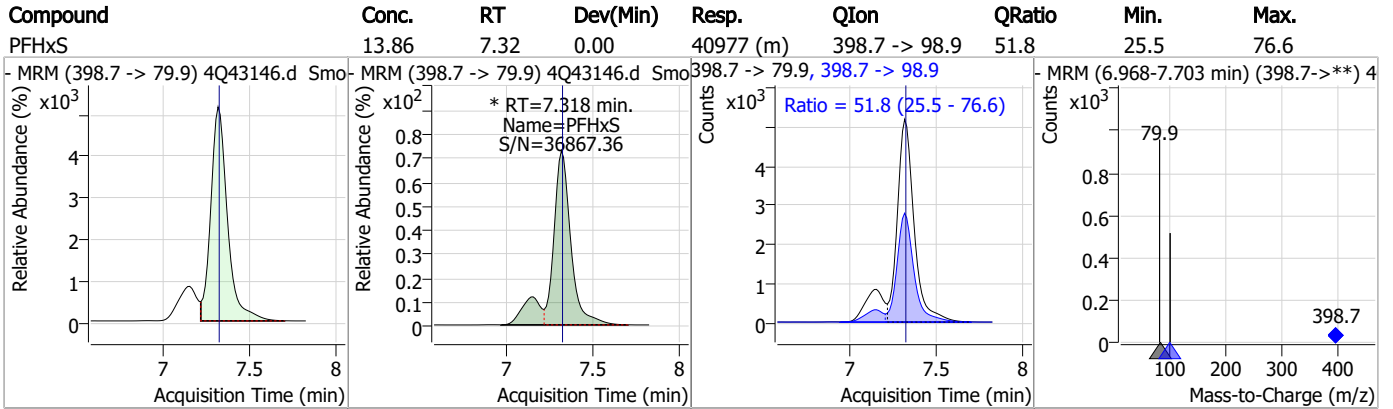
Perfluorinated Compounds by LC/MS/MS



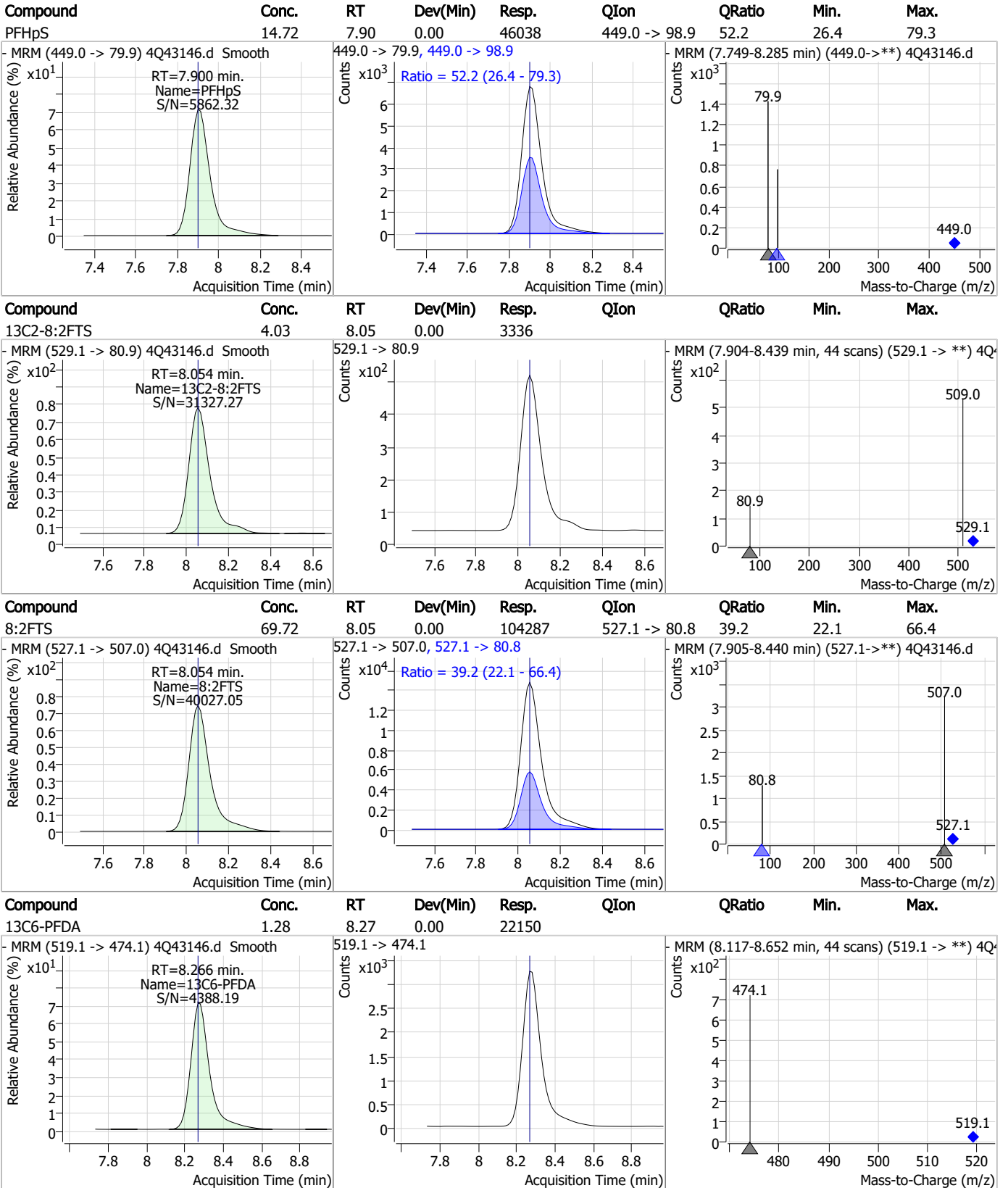
Perfluorinated Compounds by LC/MS/MS



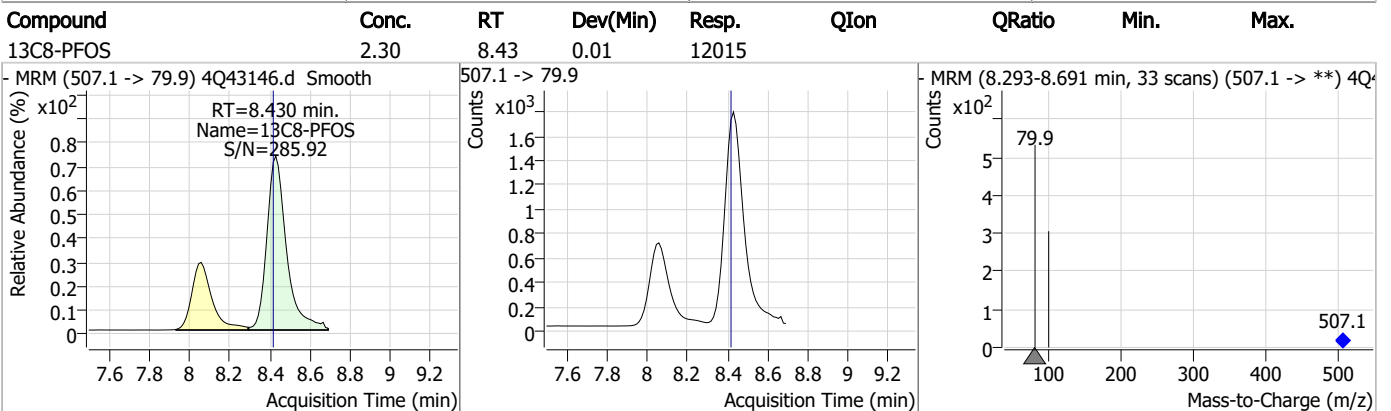
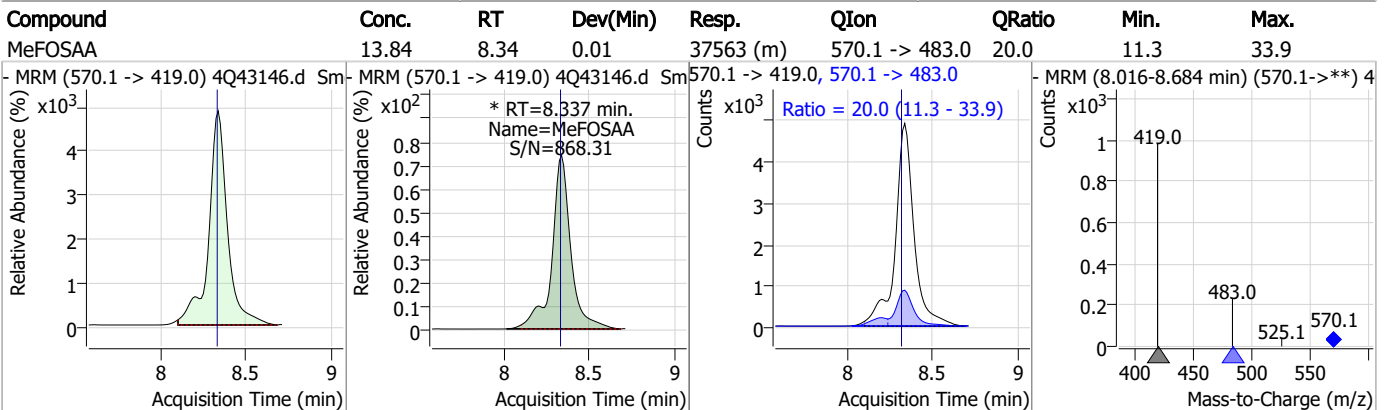
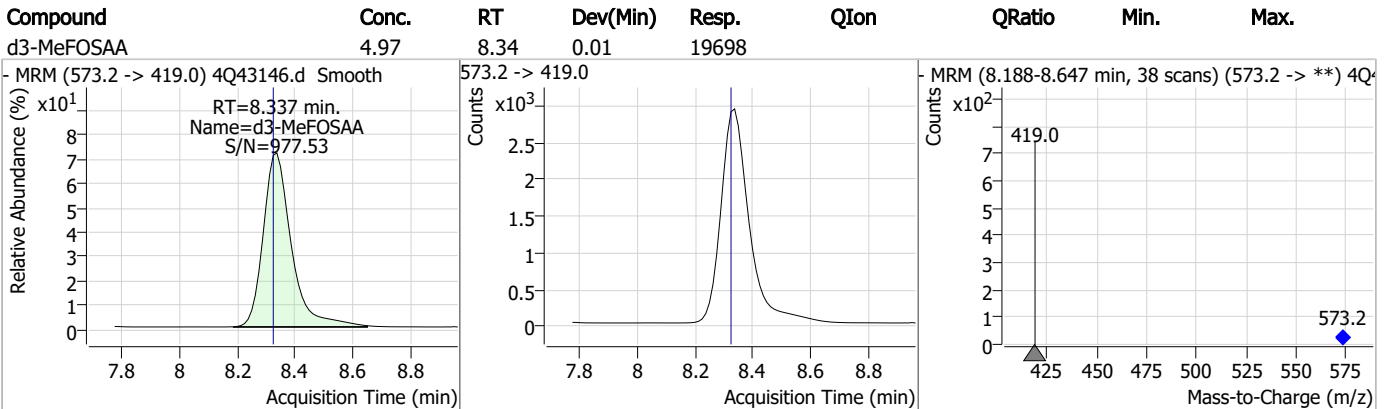
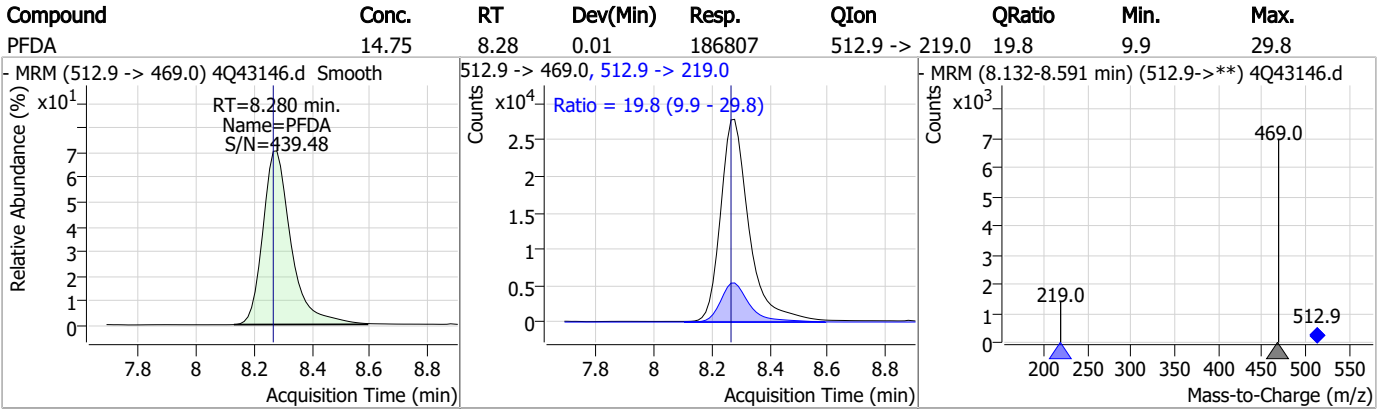
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

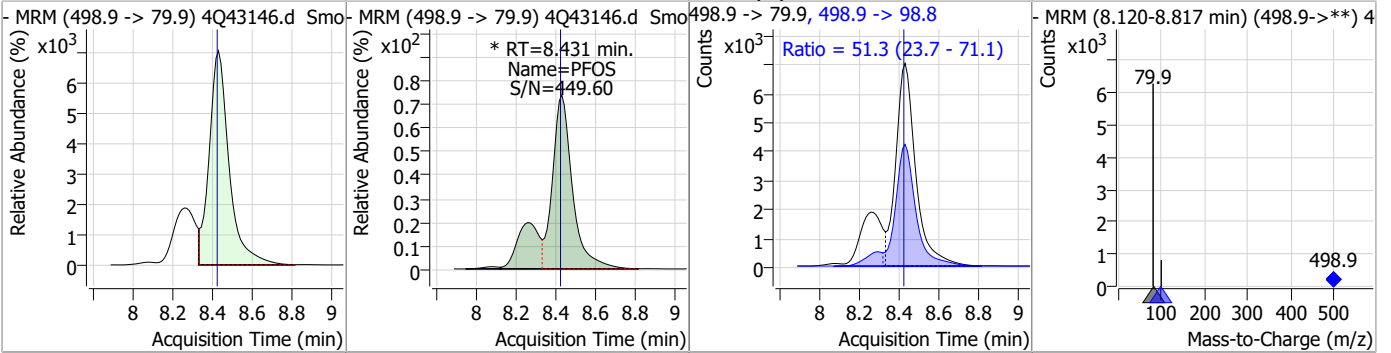


Perfluorinated Compounds by LC/MS/MS

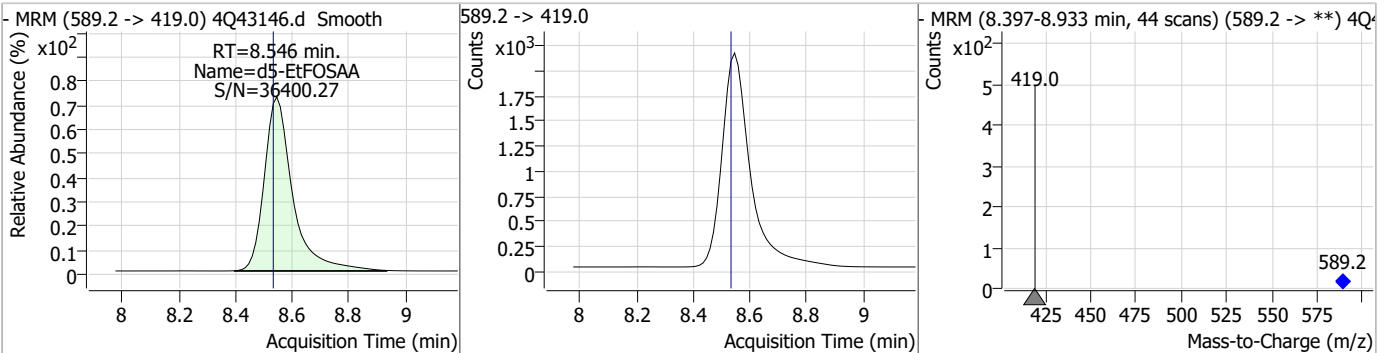


Perfluorinated Compounds by LC/MS/MS

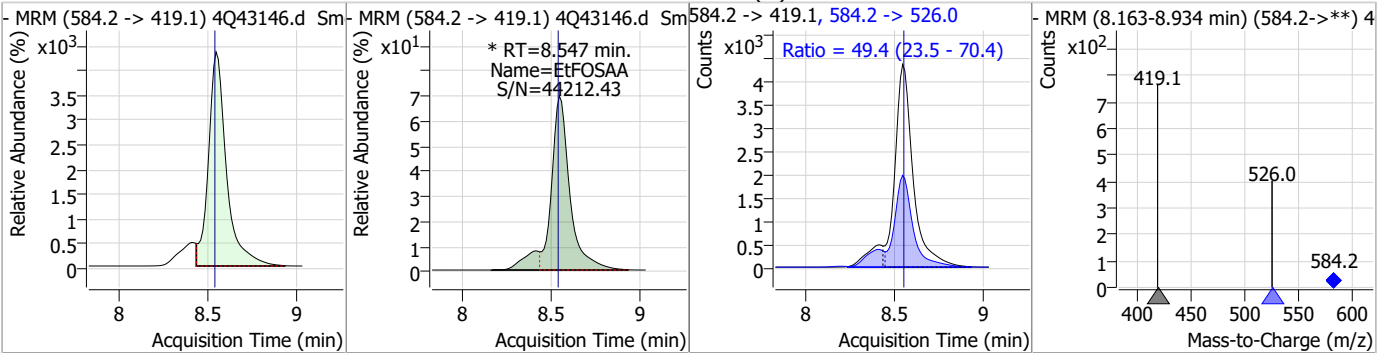
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	13.62	8.43	0.01	63694 (m)	498.9 -> 98.8	51.3	23.7	71.1



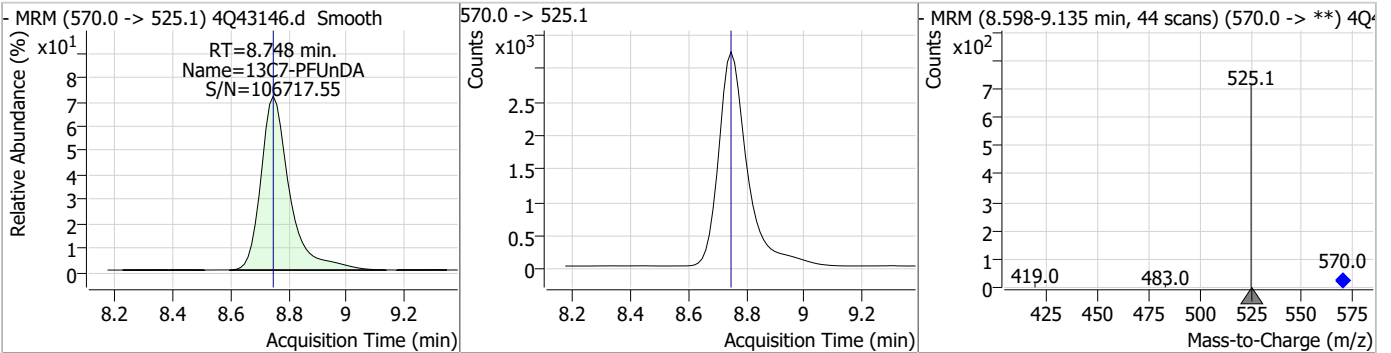
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.62	8.55	0.01	14872				



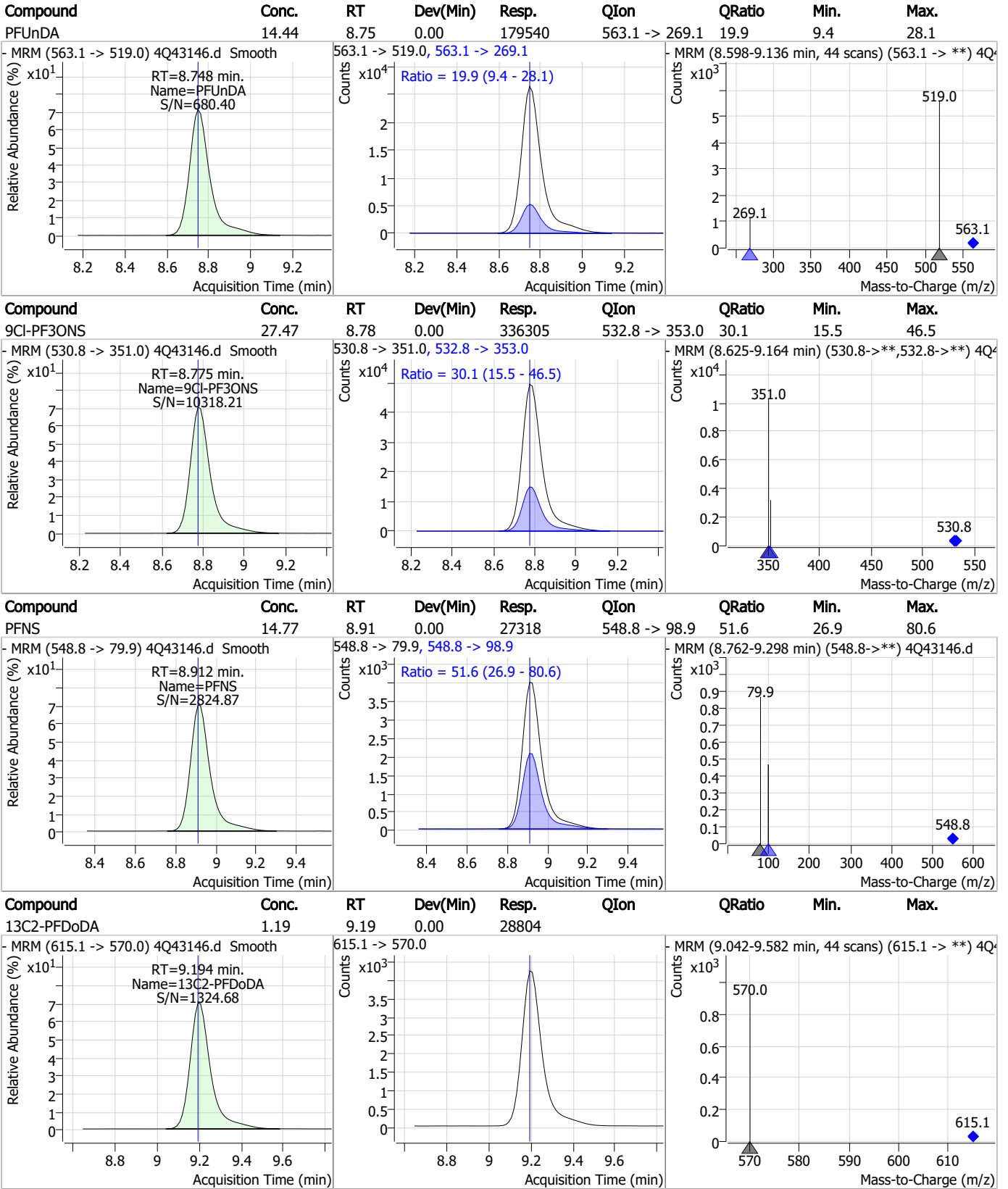
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	15.22	8.55	0.00	33807 (m)	584.2 -> 526.0	49.4	23.5	70.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.17	8.75	0.00	21989				



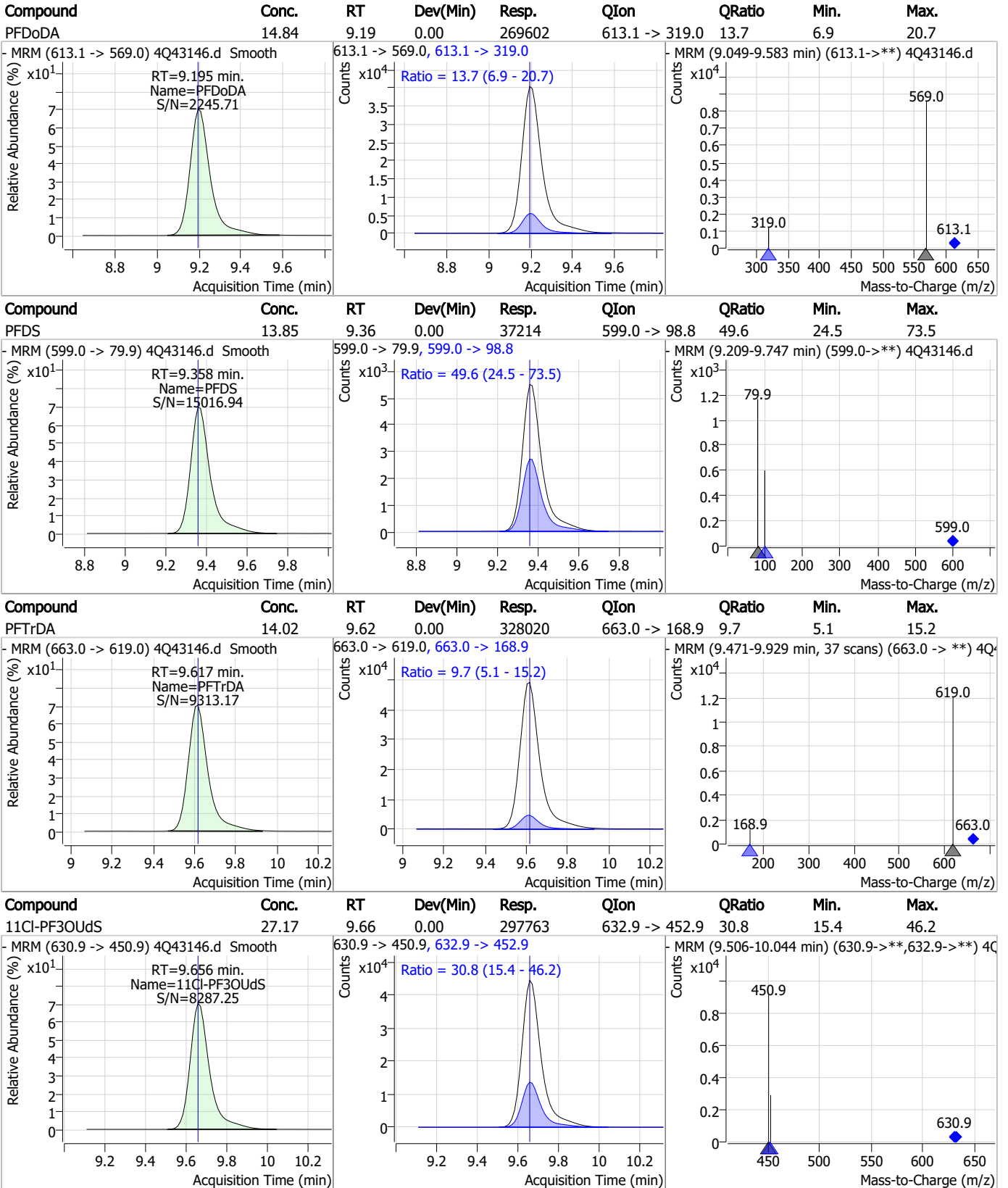
Perfluorinated Compounds by LC/MS/MS



7.6.6
7



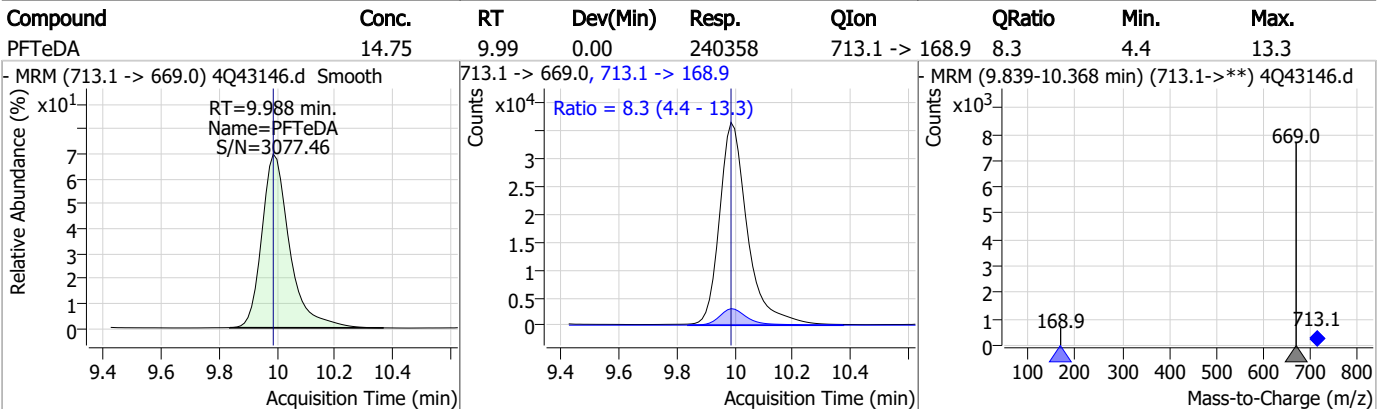
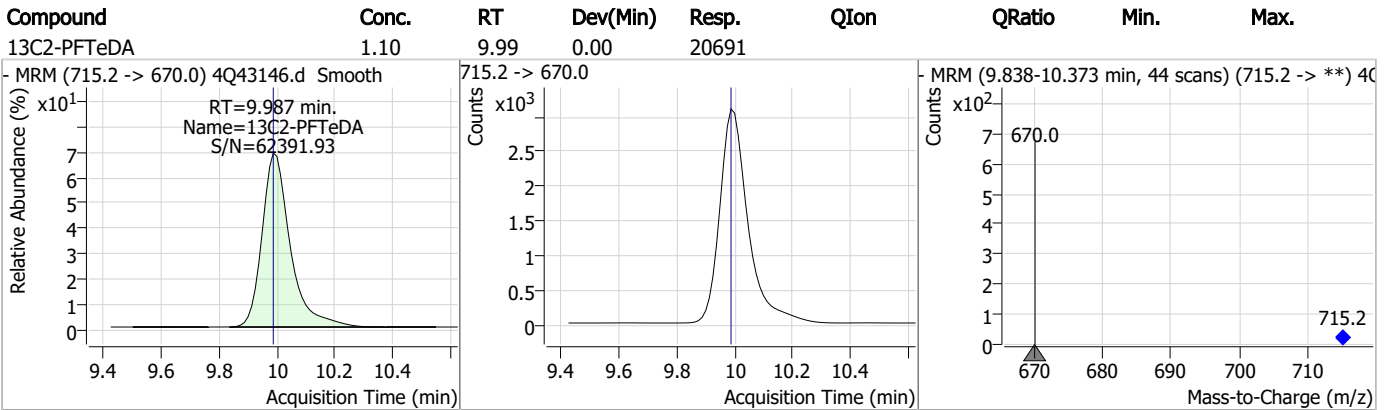
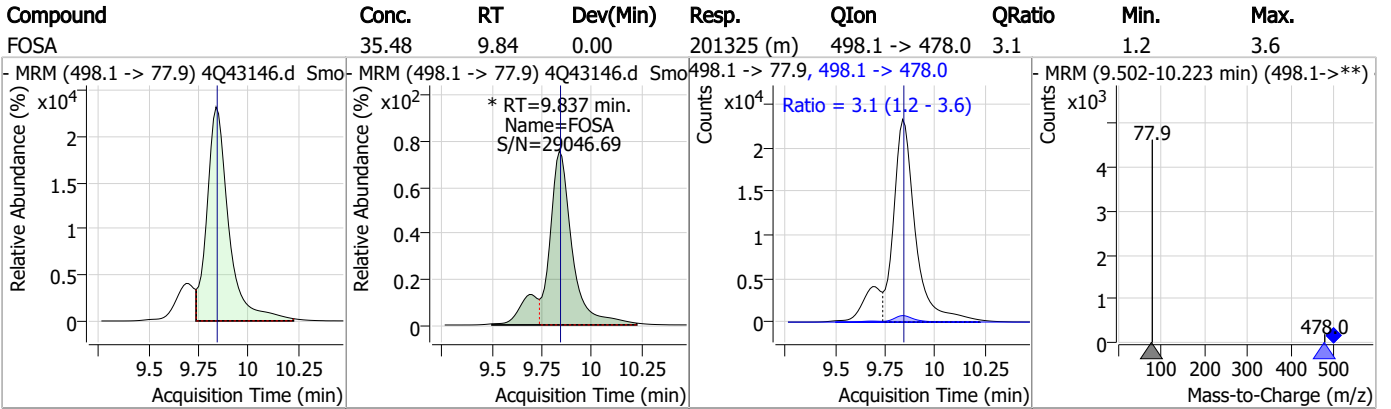
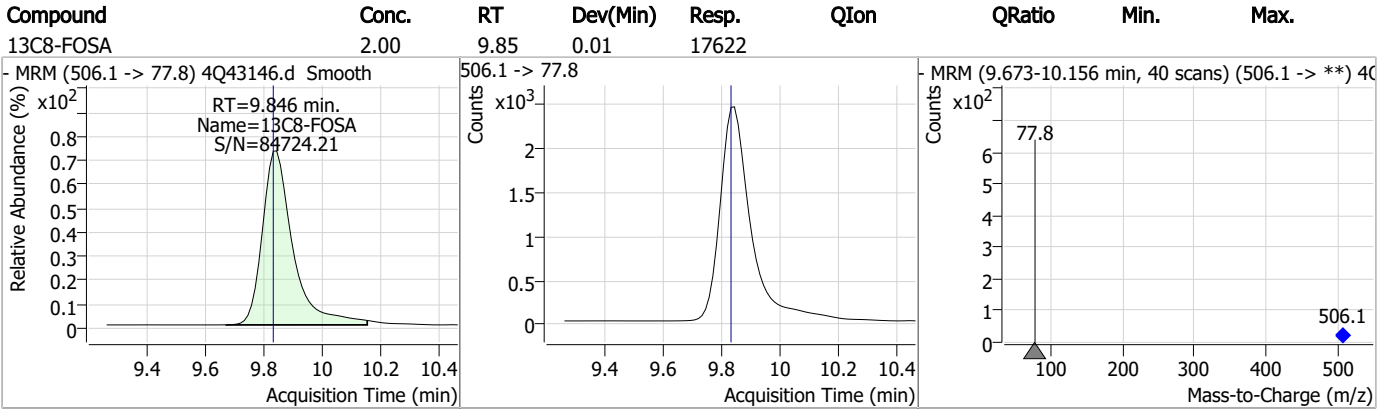
Perfluorinated Compounds by LC/MS/MS



7.6.6

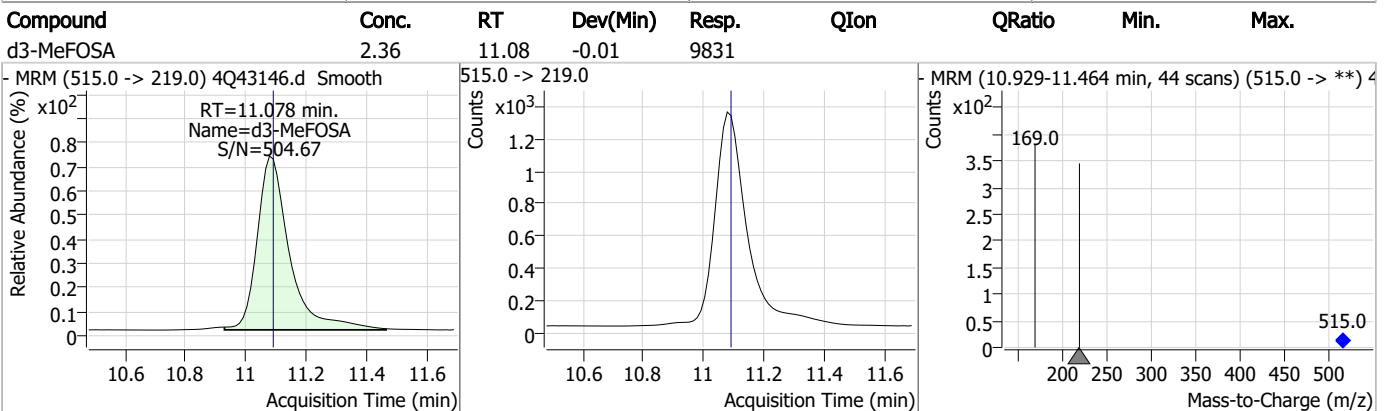
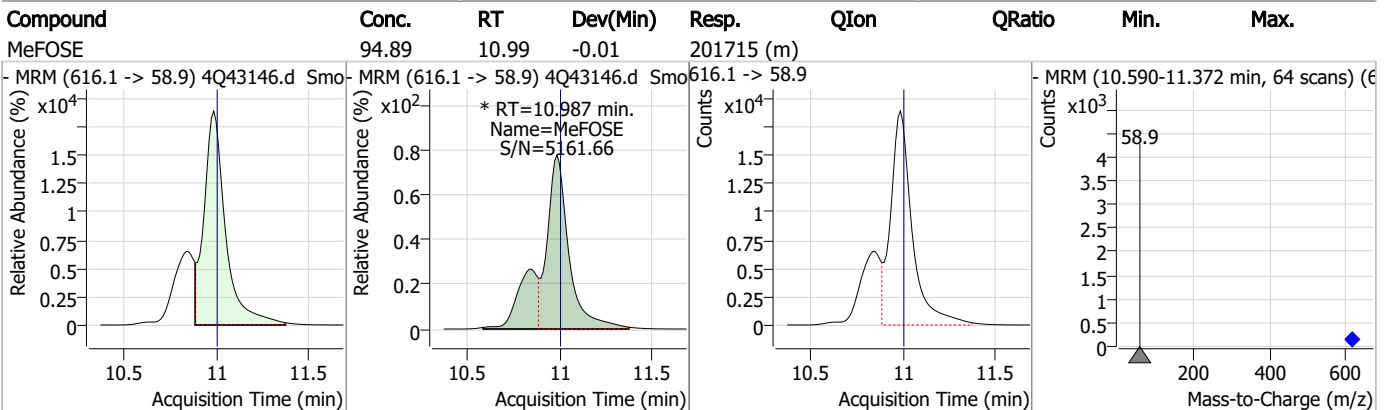
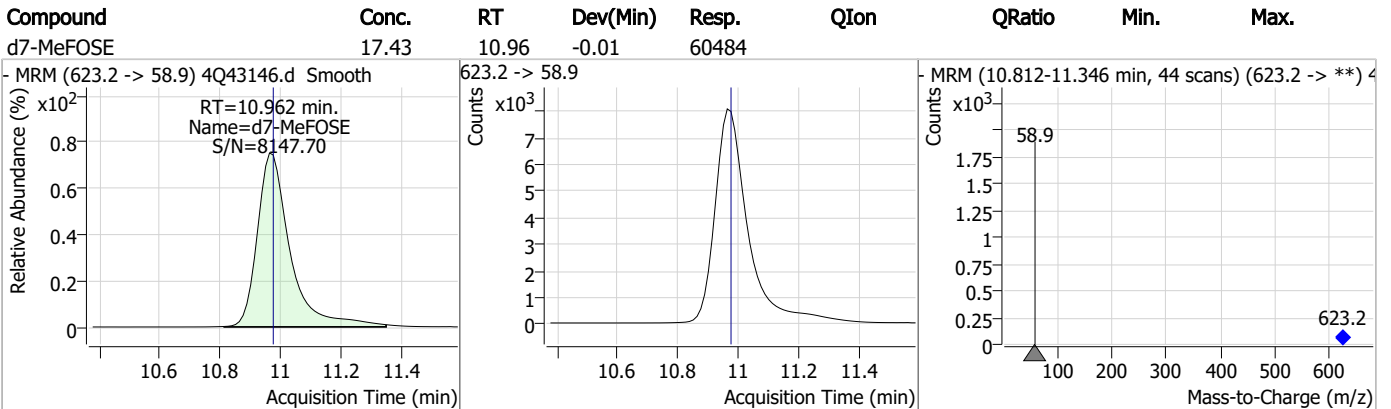
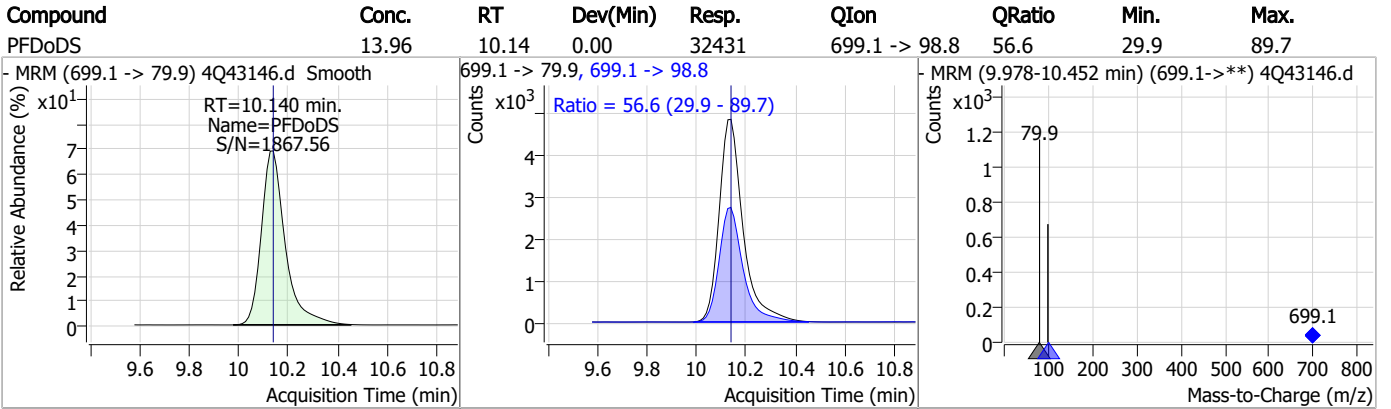
7

Perfluorinated Compounds by LC/MS/MS



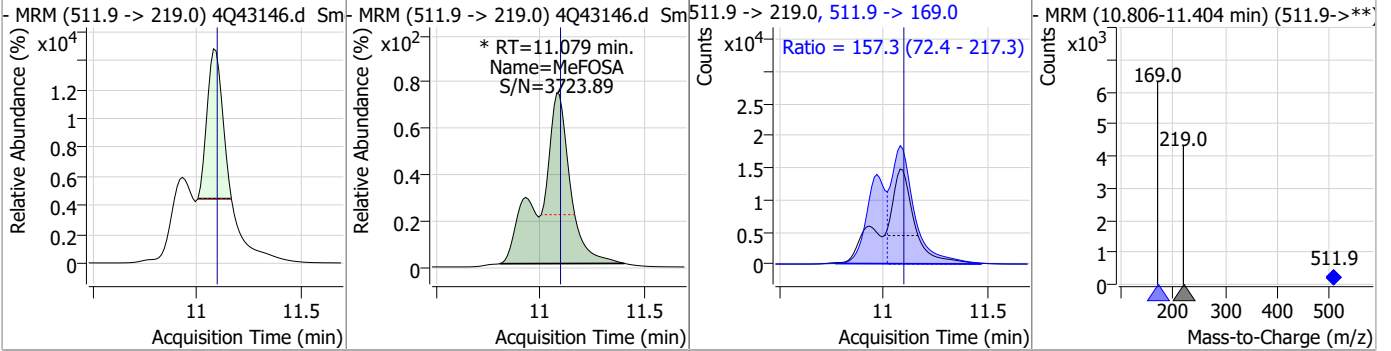
7.6.6
7

Perfluorinated Compounds by LC/MS/MS

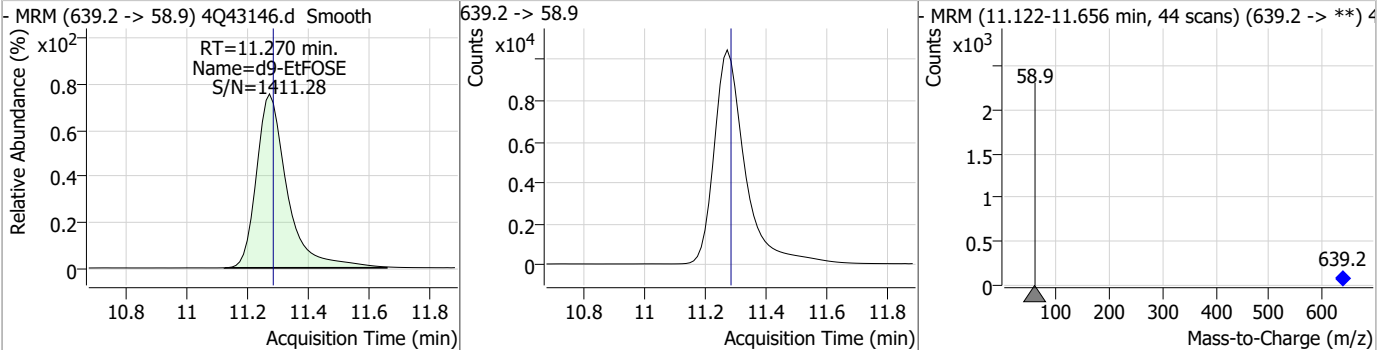


Perfluorinated Compounds by LC/MS/MS

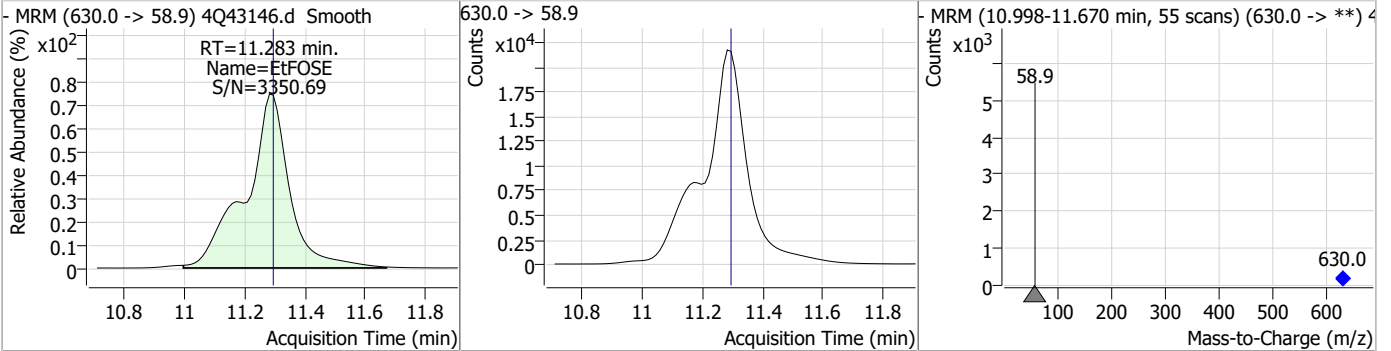
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	45.79	11.08	-0.01	145538 (m)	511.9 -> 169.0	157.3	72.4	217.3



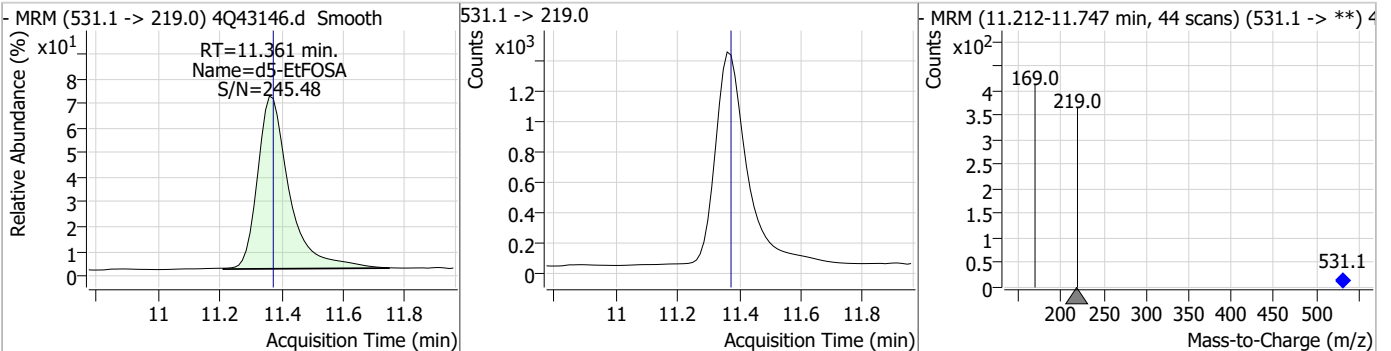
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.25	11.27	-0.01	73237				



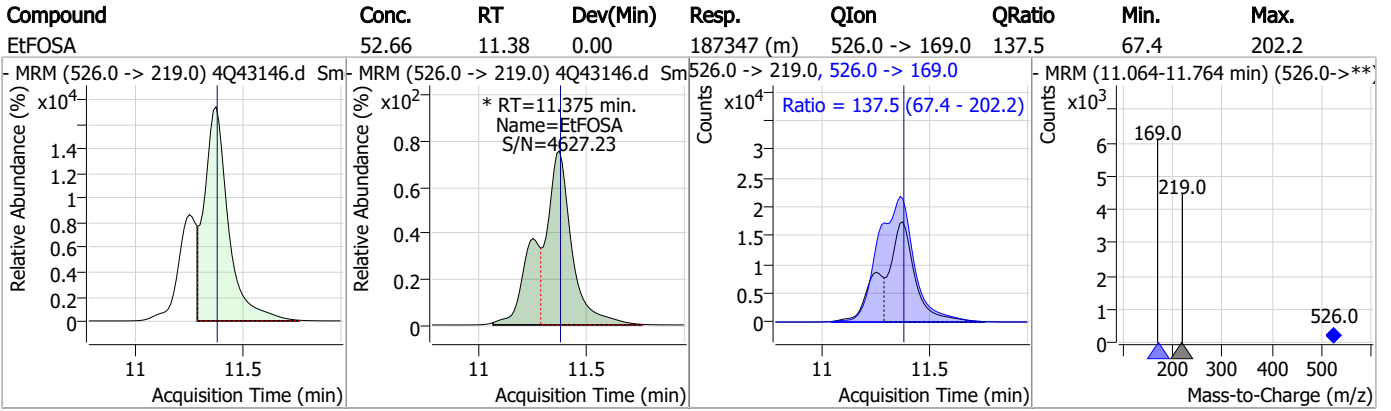
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	97.84	11.28	-0.01	220857				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.22	11.36	-0.01	9985				



Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Manual Integration Approval Summary

Sample Number: S4Q624-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43146.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 10:44 Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.21	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
Perfluorononanoic acid	375-95-1		7.76	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.55	Split peak
PFOSA	754-91-6		9.84	Split peak
MeFOSE	24448-09-7		10.99	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.6.6.1
7

QQQ Check Tune Report



Instrument Name LCMS4-Q
MS Model G6470A
MS Instrument Serial SG2004G105
Software Firmware Version 10.0.142, FW: A.00.08.100
Tune Date & Time 10 April 2023 11:18:30
Data Path D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.62E+0 [R] (Torr); 3.48E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	4000
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

7.7.1

7

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.66	-0.04	Pass	131498
302.00	302.02	0.02	Pass	0.70	0.67	-0.03	Pass	181863
601.98	602.05	0.07	Pass	0.70	0.68	-0.02	Pass	385148
1033.99	1034.06	0.07	Pass	0.70	0.68	-0.02	Pass	594104
1633.95	1633.99	0.04	Pass	0.70	0.67	-0.03	Pass	1150578
2233.91	2233.92	0.01	Pass	0.70	0.71	0.01	Pass	785740

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	0.70	0.60	-0.10	Pass	30294
112.99	112.98	-0.01	Pass	0.70	0.71	0.01	Pass	104967
302.00	302.00	0.00	Pass	0.70	0.68	-0.02	Pass	129052
601.98	601.93	-0.05	Pass	0.70	0.70	0.00	Pass	214015
1033.99	1033.89	-0.10	Pass	0.70	0.73	0.03	Pass	103123
1633.95	1633.75	-0.20	Pass	0.70	0.79	0.09	Pass	133334
2233.91	2233.61	-0.30	Pass	0.70	0.78	0.08	Pass	69357

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.01	0.02	Pass	1.20	1.18	-0.02	Pass	179323
302.00	302.00	0.00	Pass	1.20	1.41	0.21	Pass	240318
601.98	602.02	0.04	Pass	1.20	1.44	0.24	Pass	651863
1033.99	1034.03	0.04	Pass	1.20	1.50	0.30	Pass	1242281
1633.95	1633.96	0.01	Pass	1.20	1.33	0.13	Pass	3088977
2233.91	2233.88	-0.03	Pass	1.20	1.20	0.00	Pass	1794324

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.09	0.09	Pass	1.20	1.10	-0.10	Pass	40477
112.99	112.96	-0.03	Pass	1.20	1.21	0.01	Pass	147250
302.00	302.00	0.00	Pass	1.20	1.44	0.24	Pass	192249
601.98	601.99	0.01	Pass	1.20	1.51	0.31	Pass	419577
1033.99	1033.87	-0.12	Pass	1.20	1.55	0.35	Pass	220523
1633.95	1633.69	-0.26	Pass	1.20	1.54	0.34	Pass	377309
2233.91	2233.67	-0.24	Pass	1.20	1.38	0.18	Pass	259352

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.90	-0.09	Pass	2.50	2.48	-0.02	Pass	252983
302.00	302.01	0.01	Pass	2.50	2.74	0.24	Pass	302089
601.98	602.07	0.09	Pass	2.50	2.69	0.19	Pass	868943
1033.99	1034.04	0.05	Pass	2.50	2.73	0.23	Pass	2046121
1633.95	1633.96	0.01	Pass	2.50	2.59	0.09	Pass	6120042
2233.91	2233.80	-0.11	Pass	2.50	2.41	-0.09	Pass	4664111

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	2.50	2.36	-0.14	Pass	51400
112.99	112.98	-0.01	Pass	2.50	2.50	0.00	Pass	195155
302.00	301.99	-0.01	Pass	2.50	2.67	0.17	Pass	250730
601.98	601.96	-0.02	Pass	2.50	2.77	0.27	Pass	544063
1033.99	1033.87	-0.12	Pass	2.50	2.82	0.32	Pass	327135
1633.95	1633.74	-0.21	Pass	2.50	2.69	0.19	Pass	682574
2233.91	2233.64	-0.27	Pass	2.50	2.51	0.01	Pass	606196

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42936.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 11:49:59 AM
 Sample Name : ic621-1
 Vial : P1-A2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	98817	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	68363	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	52629	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	26597	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	32978	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	18186	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	17072	1.25 µg/L	0.012
M7-PFUnDA	8.785	570.0 -> 525.1	19641	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	24715	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	19011	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	16781	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	11429	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	6913	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	10185	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1625	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2459	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3708	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	16135	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	32774	10.00 µg/L	0.000
M5-EtFOSAA	8.582	589.2 -> 419.0	13408	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	73605	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	90628	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	9256	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8489	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	10538	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	57805	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	4881	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	40535	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	16378	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	19341	1.25 µg/L	0.000
13C2-PFHxA	5.647	315.1 -> 270.0	45802	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1625	6.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.9%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2459	6.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.5%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3708	5.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.8%		
13C2-PFDoDA	9.243	615.1 -> 570.0	24715	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFTeDA	10.036	715.2 -> 670.0	19011	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFBS	5.564	302.1 -> 79.9	11429	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.354	402.1 -> 79.9	6913	2.56 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C4-PFBA	3.011	216.8 -> 171.9	98817	9.82 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFHpA	6.580	367.1 -> 322.0	26597	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFHxA	5.659	318.0 -> 273.0	52629	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.475	268.3 -> 223.0	68363	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.315	519.1 -> 474.1	17072	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C7-PFUnDA	8.785	570.0 -> 525.1	19641	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-FOSA	9.870	506.1 -> 77.8	16781	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C8-PFOA	7.250	421.1 -> 376.0	32978	2.47 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOS	8.467	507.1 -> 79.9	10185	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C9-PFNA	7.797	472.1 -> 427.0	18186	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSAA	8.373	573.2 -> 419.0	16135	5.20 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	32774	10.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d3-MeFOSA	11.102	515.0 -> 219.0	8489	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
d5-EtFOSAA	8.582	589.2 -> 419.0	13408	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
d7-MeFOSE	10.985	623.2 -> 58.9	73605	27.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.3%	
d9-EtFOSE	11.294	639.2 -> 58.9	90628	27.25 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d5-EtFOSA	11.386	531.1 -> 219.0	9256	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	1424	0.70 µg/L	93
		327.1 -> 80.9	640		
6:2FTS	7.011	427.1 -> 407.0	1255	0.75 µg/L	94
		427.1 -> 80.9	576		
8:2FTS	8.090	527.1 -> 507.0	1441	0.87 µg/L	94
		527.1 -> 80.8	519		
EtFOSAA	8.583	584.2 -> 419.1	368	0.18 µg/L	m 79
		584.2 -> 526.0	187		
FOSA	9.861	498.1 -> 77.9	1107	0.20 µg/L	97
		498.1 -> 478.0	40		
MeFOSAA	8.361	570.1 -> 419.0	574	0.26 µg/L	m 90
		570.1 -> 483.0	114		
PFBA	3.020	212.8 -> 168.9	1918	0.85 µg/L	100
PFBS	5.565	298.7 -> 79.9	710	0.17 µg/L	79
		298.7 -> 98.8	363		
PFDA	8.304	512.9 -> 469.0	2072	0.21 µg/L	95
		512.9 -> 219.0	448		
PFDODA	9.244	613.1 -> 569.0	3212	0.21 µg/L	98
		613.1 -> 319.0	422		
PFDS	9.409	599.0 -> 79.9	428	0.19 µg/L	90

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	236			
PFHpA	6.580	363.1 -> 319.0	2624	0.20	µg/L	94
		363.1 -> 169.0	534			
PFHpS	7.936	449.0 -> 79.9	534	0.20	µg/L	89
		449.0 -> 98.9	235			
PFHxA	5.662	313.0 -> 269.0	3332	0.21	µg/L	96
		313.0 -> 118.9	147			
PFHxS	7.355	398.7 -> 79.9	454	0.19	µg/L	m 85
		398.7 -> 98.9	188			
PFNA	7.797	463.0 -> 419.0	2266	0.23	µg/L	98
		463.0 -> 219.0	537			
PFNS	8.961	548.8 -> 79.9	251	0.16	µg/L	84
		548.8 -> 98.9	157			
PFOA	7.252	413.0 -> 369.0	3867	0.25	µg/L	91
		413.0 -> 169.0	622			
PFOS	8.456	498.9 -> 79.9	851	0.21	µg/L	90
		498.9 -> 98.8	450			
PFPeA	4.477	263.0 -> 219.0	5366	0.41	µg/L	100
PFPeS	6.619	349.1 -> 79.9	347	0.17	µg/L	78
		349.1 -> 98.9	196			
PFTeDA	10.037	713.1 -> 669.0	3265	0.22	µg/L	99
		713.1 -> 168.9	250			
PFTrDA	9.666	663.0 -> 619.0	4786	0.24	µg/L	96
		663.0 -> 168.9	390			
PFUnDA	8.785	563.1 -> 519.0	2699	0.24	µg/L	93
		563.1 -> 269.1	443			
11CI-PF3OUdS	9.705	630.9 -> 450.9	3055	0.36	µg/L	96
		632.9 -> 452.9	885			
9CI-PF3ONS	8.825	530.8 -> 351.0	3318	0.35	µg/L	97
		532.8 -> 353.0	971			
ADONA	6.843	376.9 -> 250.9	7365	0.37	µg/L	96
		376.9 -> 84.8	1815			
HFPO-DA	6.015	284.9 -> 168.9	1075	0.41	µg/L	89
		284.9 -> 184.9	180			
3:3FTCA	3.979	241.0 -> 177.0	567	0.94	µg/L	96
		241.0 -> 117.0	63			
5:3FTCA	6.345	341.0 -> 237.1	10936	4.97	µg/L	99
		341.0 -> 217.0	7750			
7:3FTCA	7.799	441.0 -> 316.9	4527	5.02	µg/L	98
		441.0 -> 336.9	10137			
EtFOSA	11.388	526.0 -> 219.0	1287	0.39	µg/L	73
		526.0 -> 169.0	1921			
EtFOSE	11.308	630.0 -> 58.9	3102	1.11	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	1178	0.43	µg/L	m 92
		511.9 -> 169.0	1569			
MeFOSE	10.998	616.1 -> 58.9	2777	1.07	µg/L	100
PFDoDS	10.189	699.1 -> 79.9	394	0.20	µg/L	99
		699.1 -> 98.8	225			
NFDHA	5.541	295.0 -> 201.0	420	0.40	µg/L	88
		295.0 -> 84.9	129			
PFMBA	4.891	279.0 -> 85.1	3008	0.41	µg/L	100
PFMPA	3.628	229.0 -> 84.9	2618	0.40	µg/L	100
PFEESA	6.096	314.8 -> 134.9	4749	0.36	µg/L	98
		314.8 -> 82.9	135			

= Qualifier out of range, m = manually integrated, + = Area summed

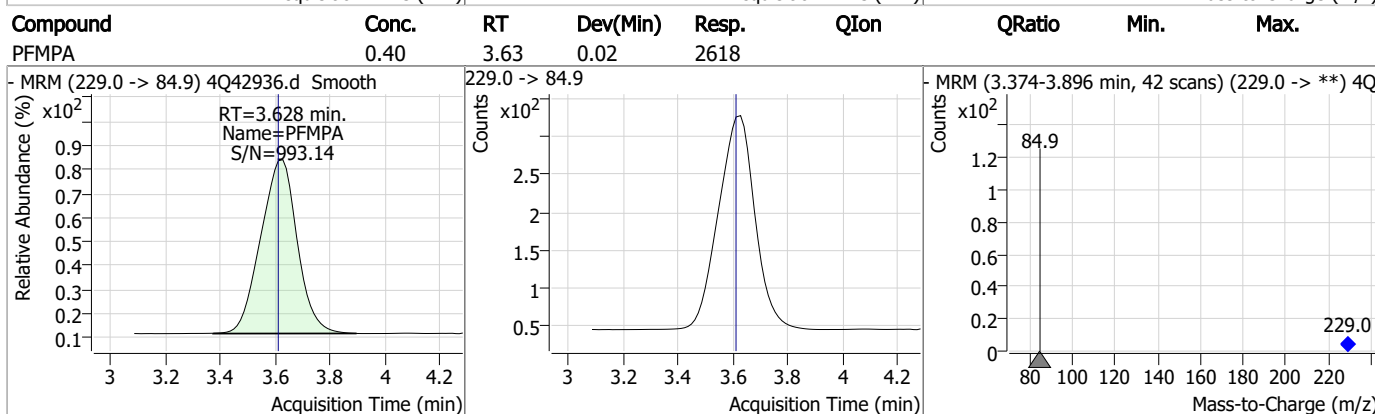
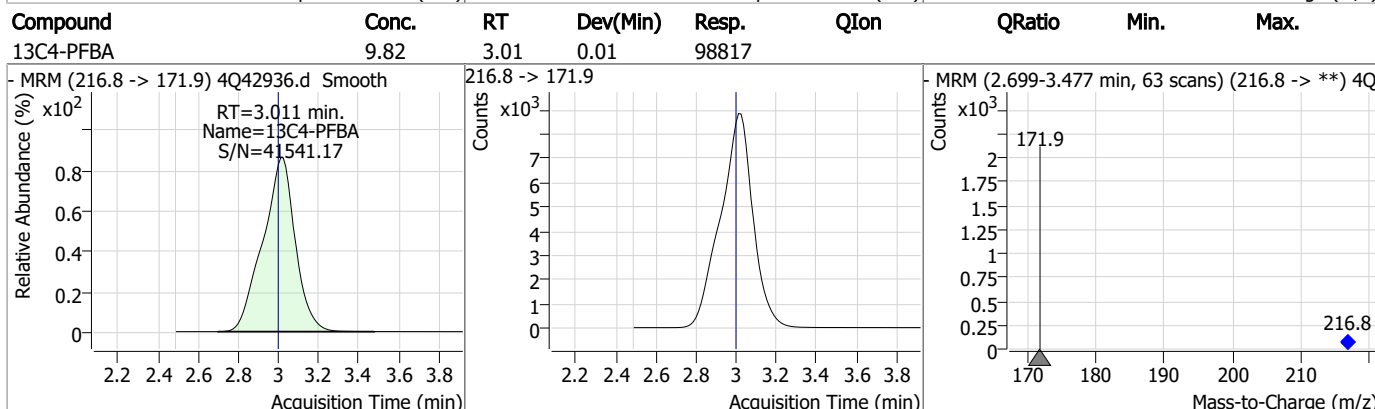
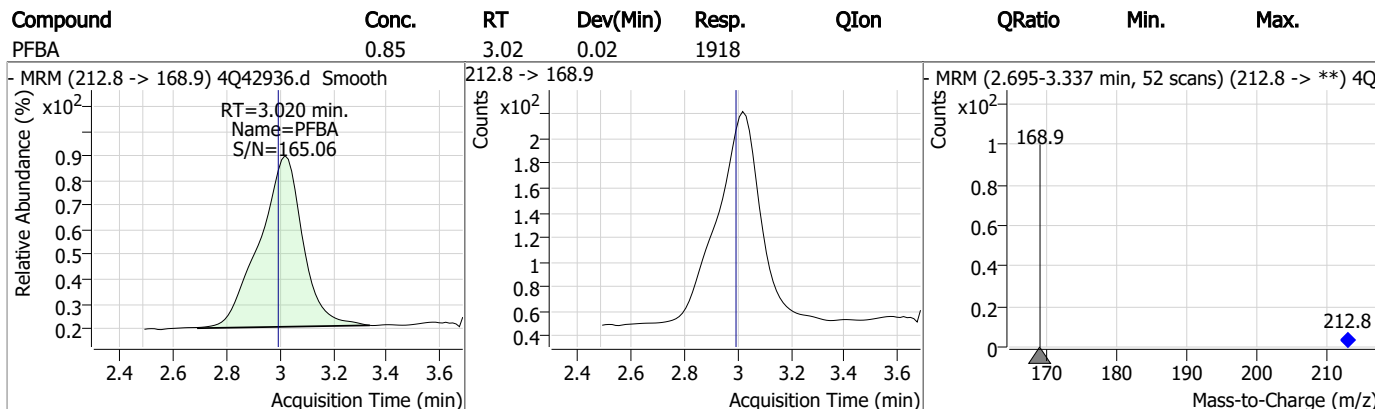
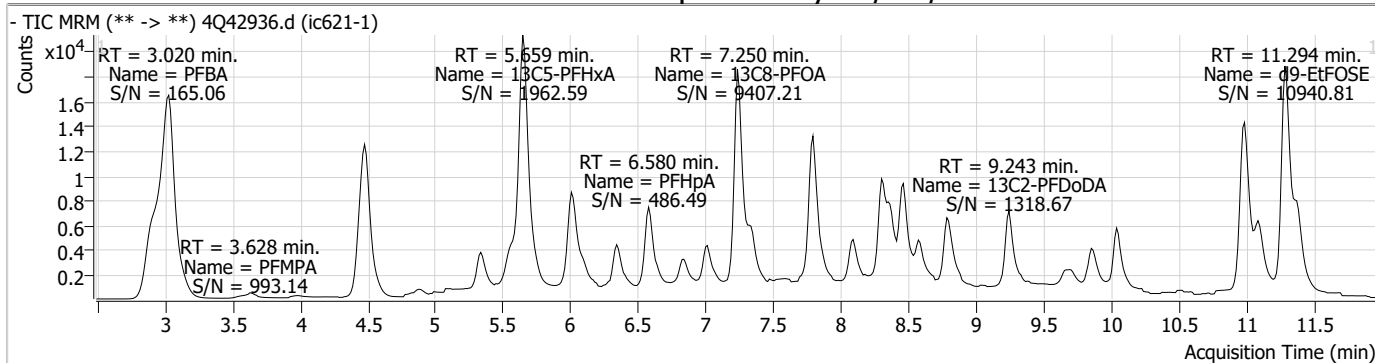
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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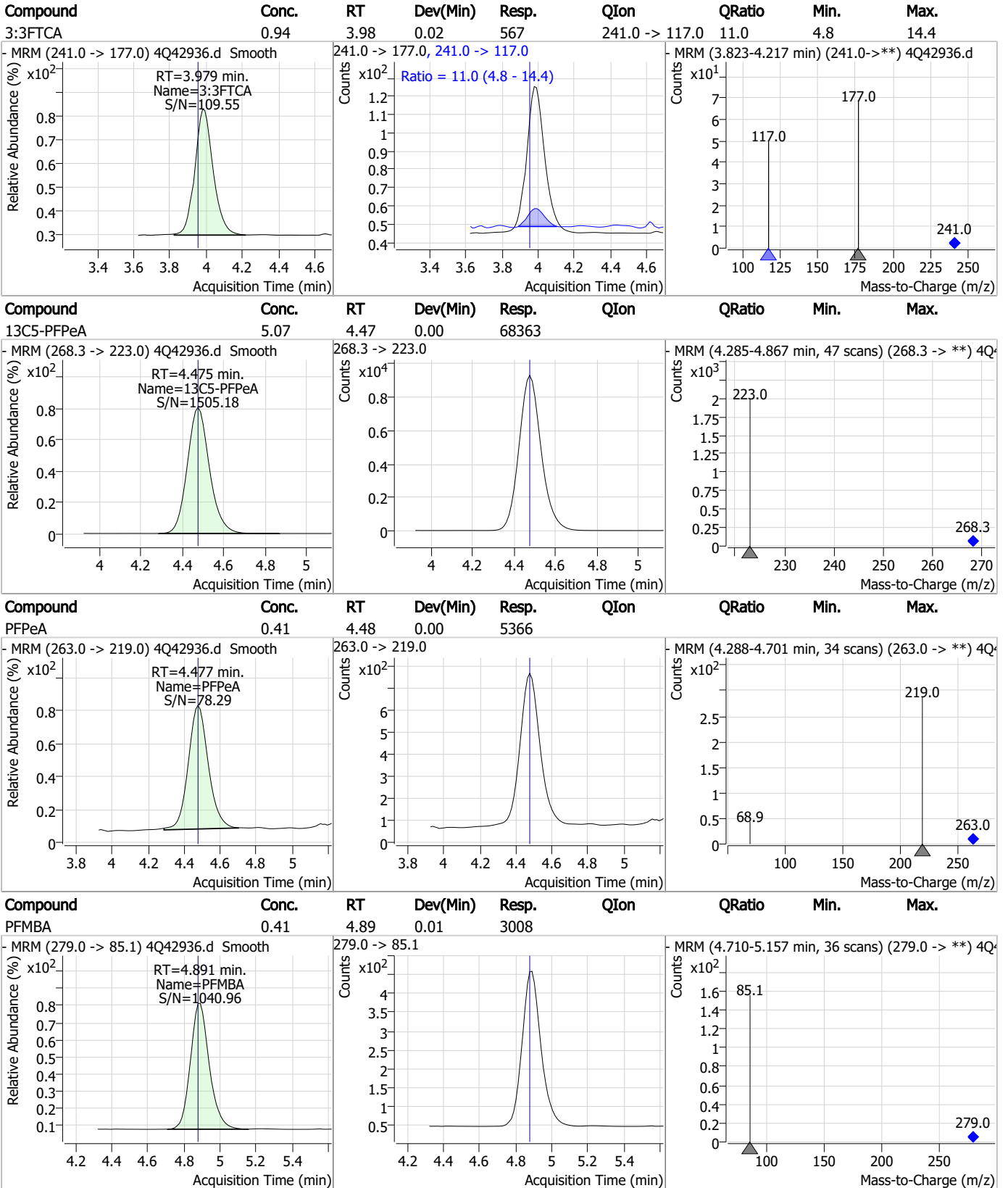
7.7.2
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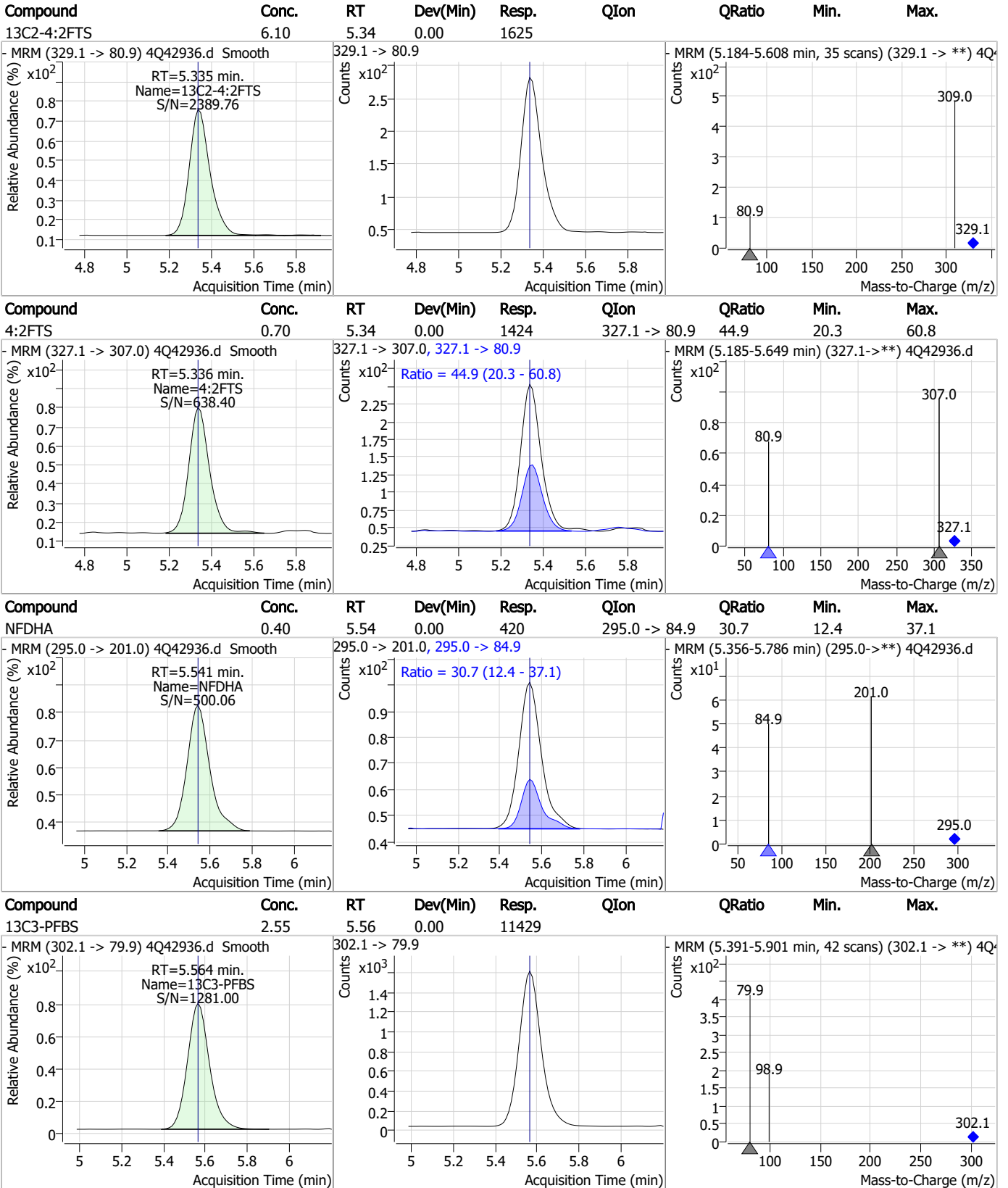
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

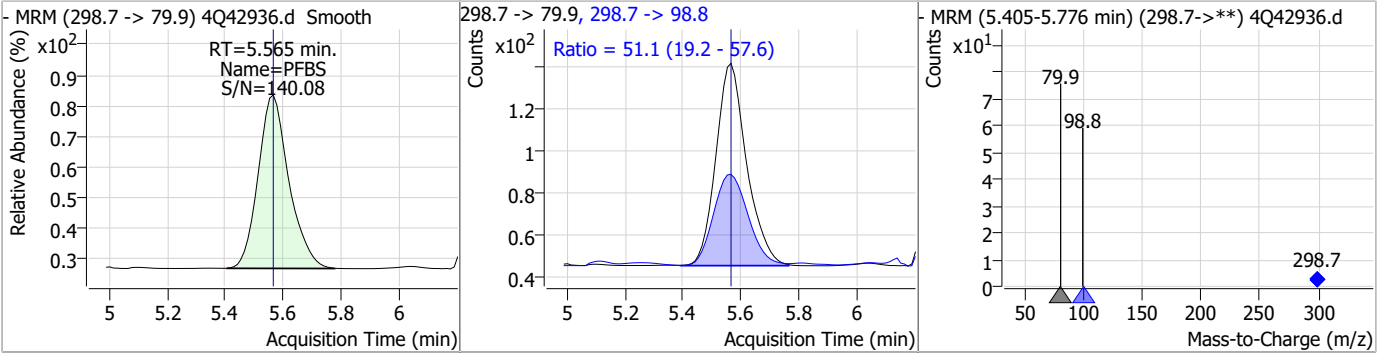


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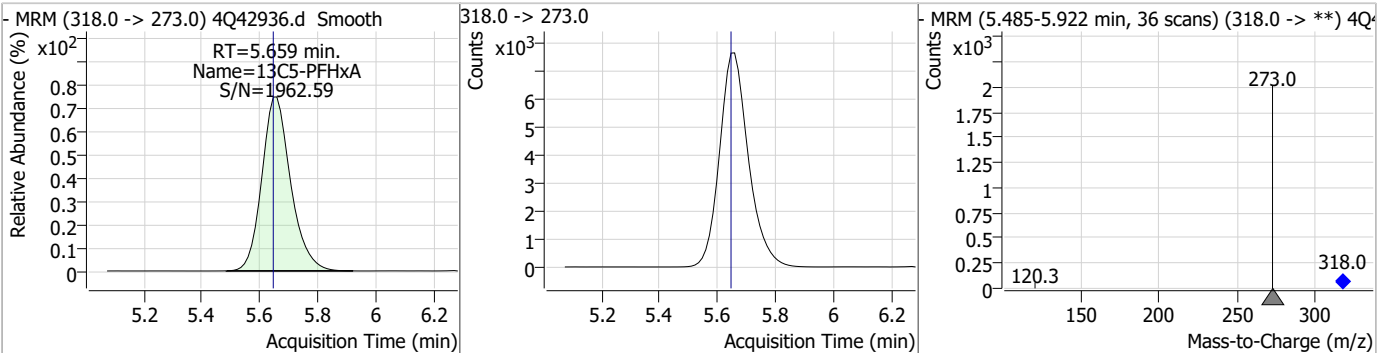
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Perfluorinated Compounds by LC/MS/MS

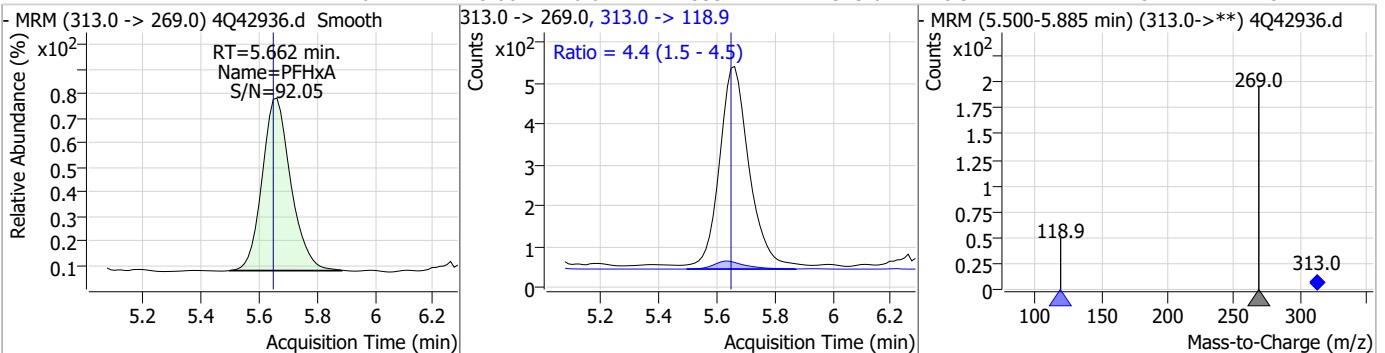
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.56	0.00	710	298.7 -> 98.8	51.1	19.2	57.6



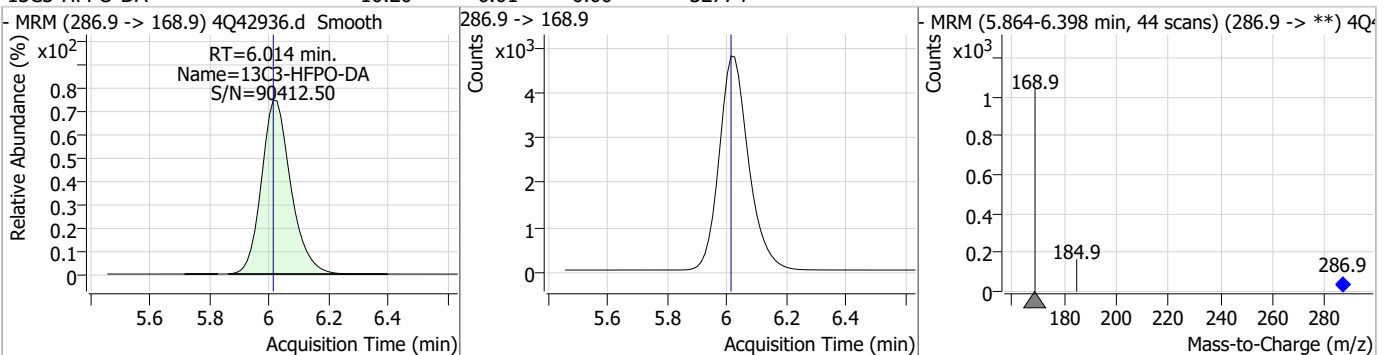
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.66	0.01	52629				



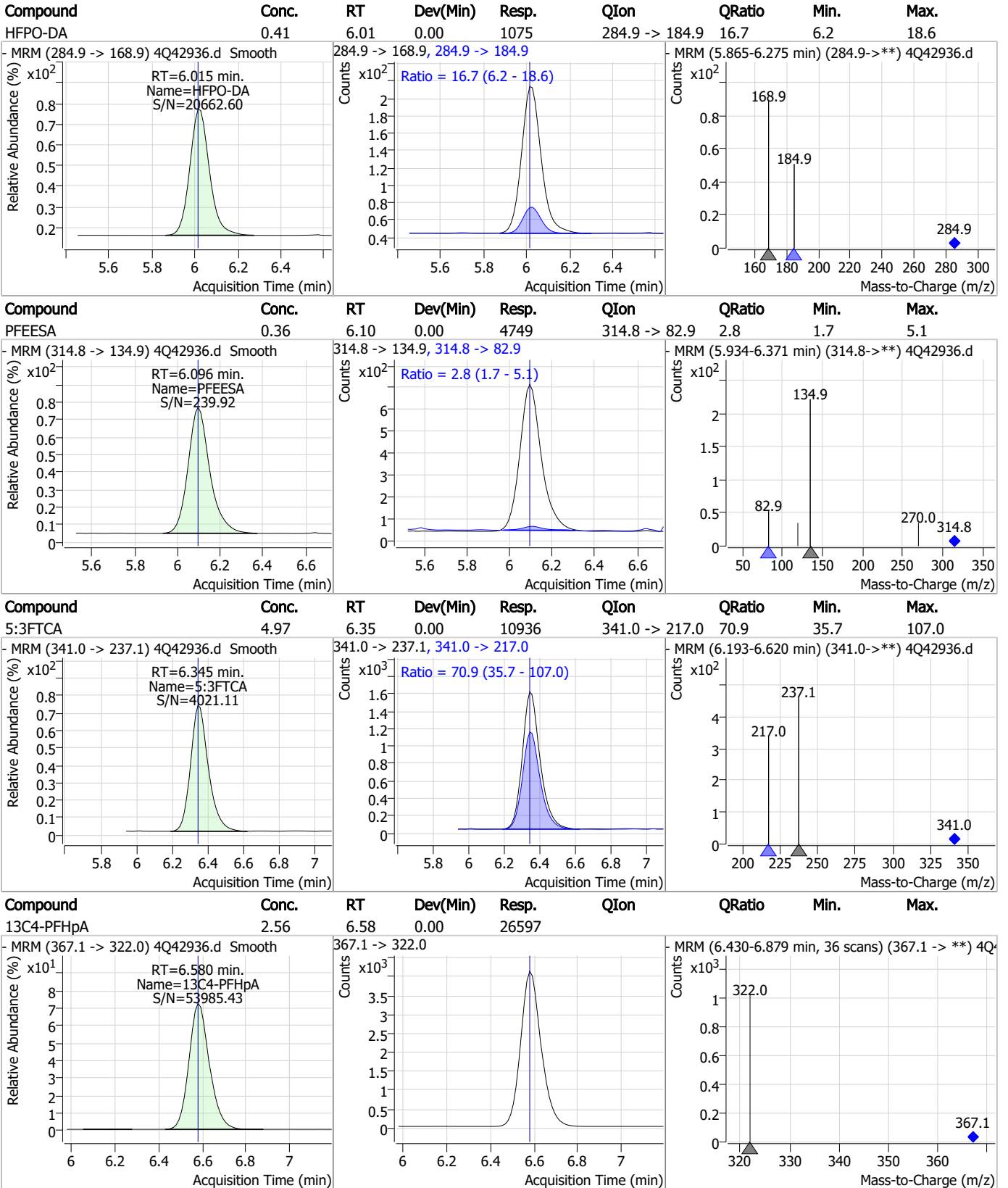
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.21	5.66	0.01	3332	313.0 -> 118.9	4.4	1.5	4.5



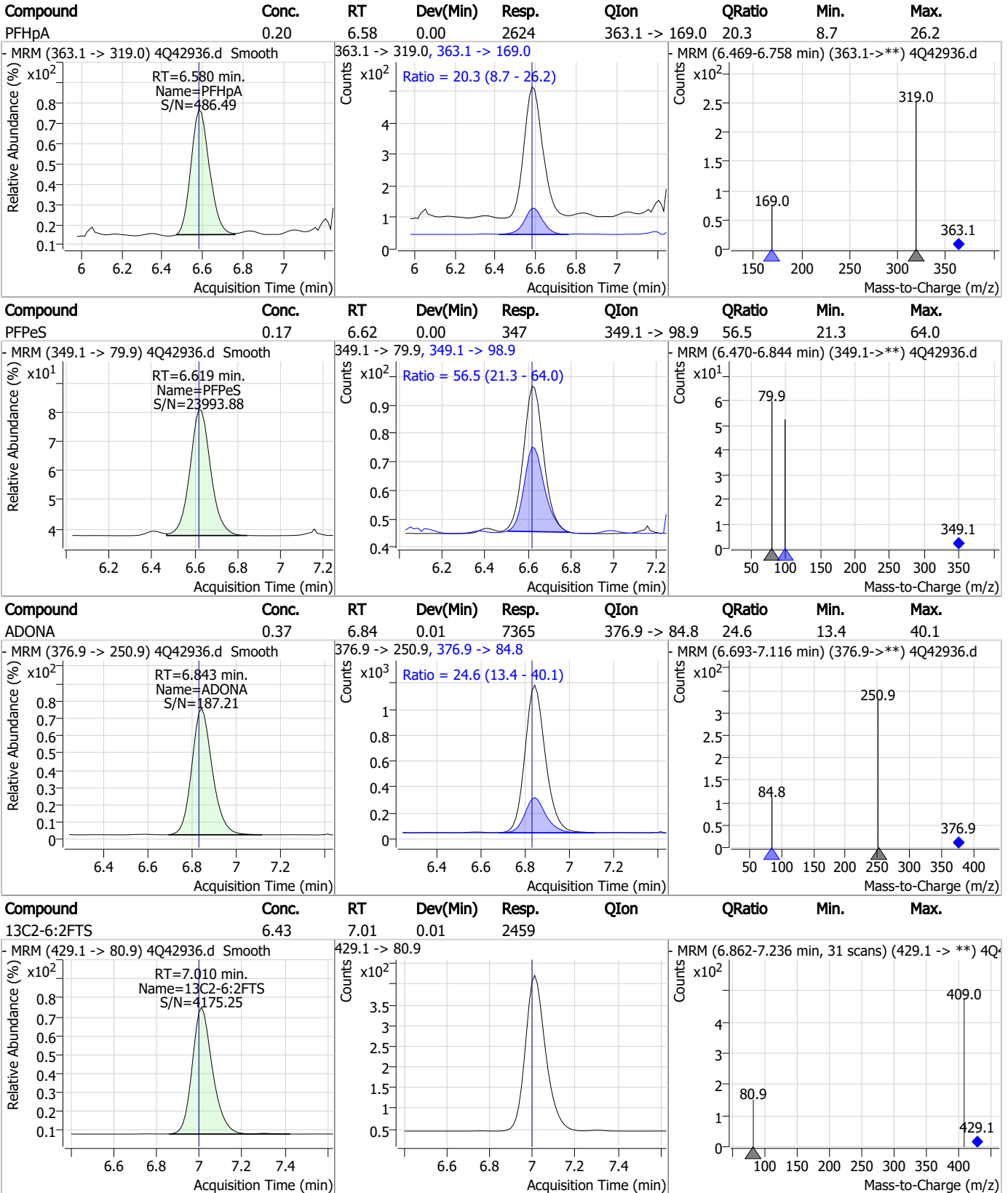
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.20	6.01	0.00	32774				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

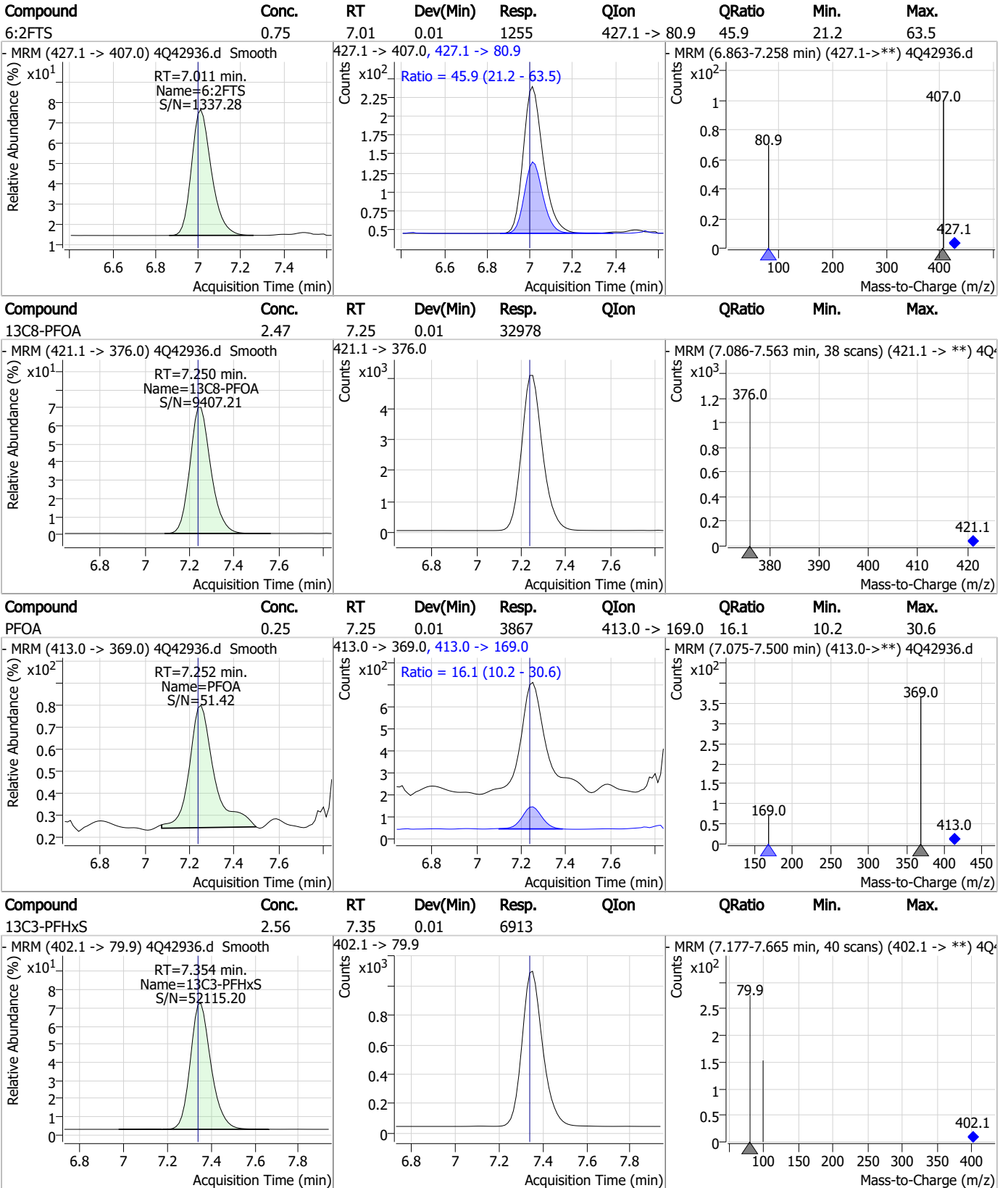


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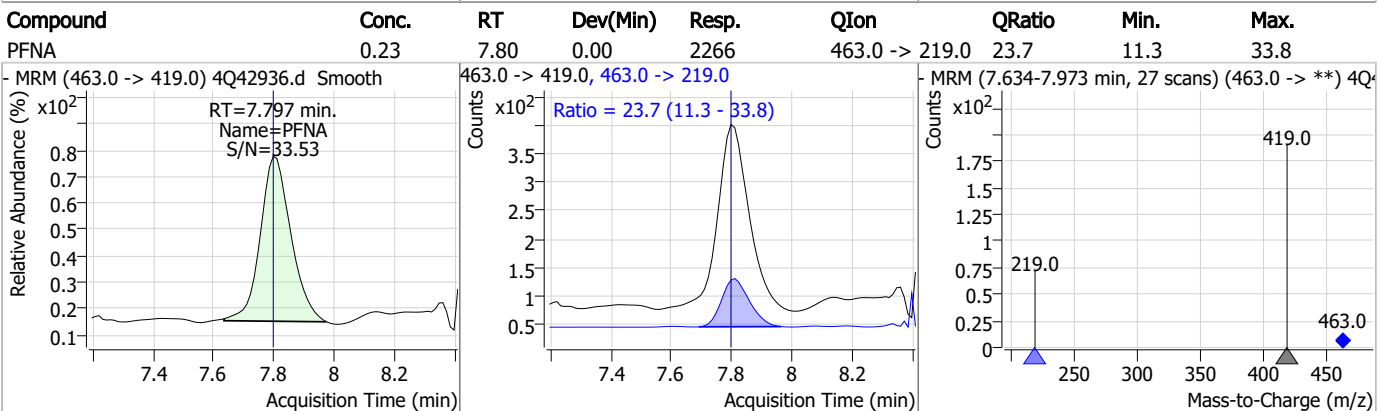
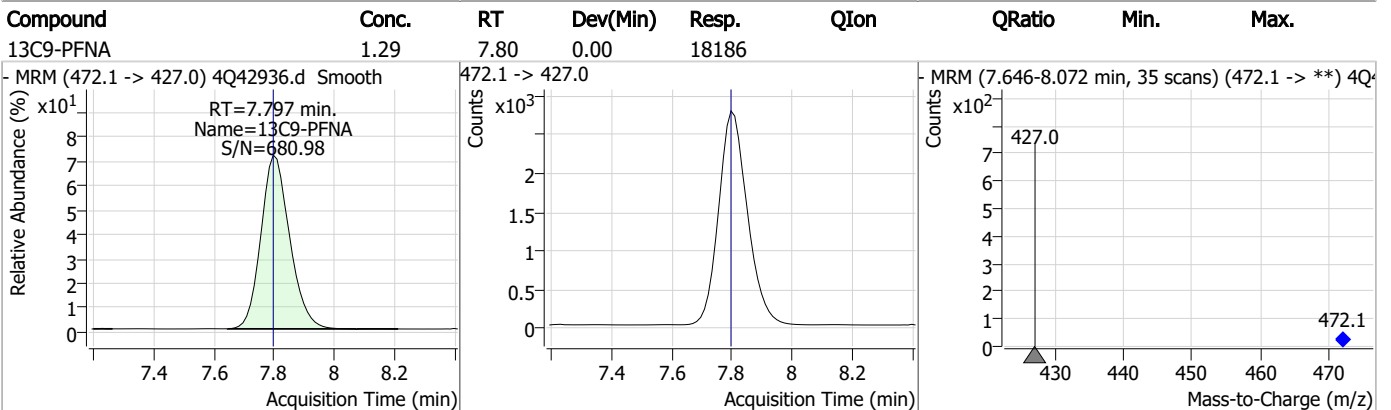
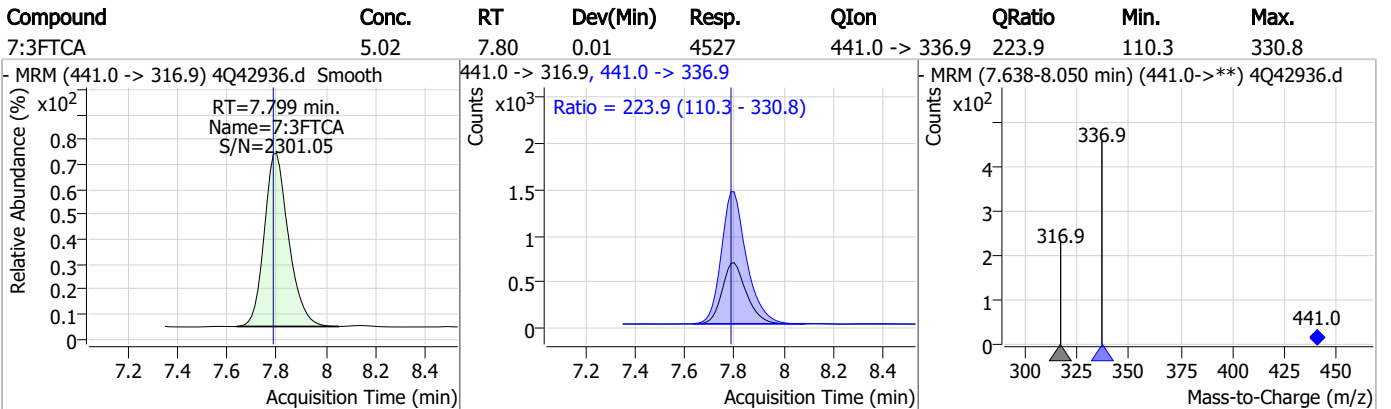
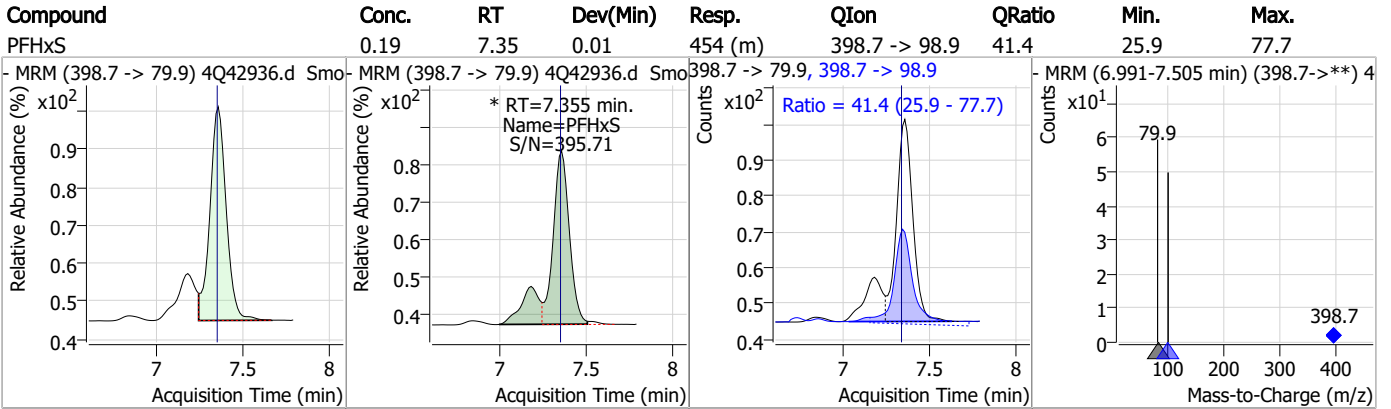
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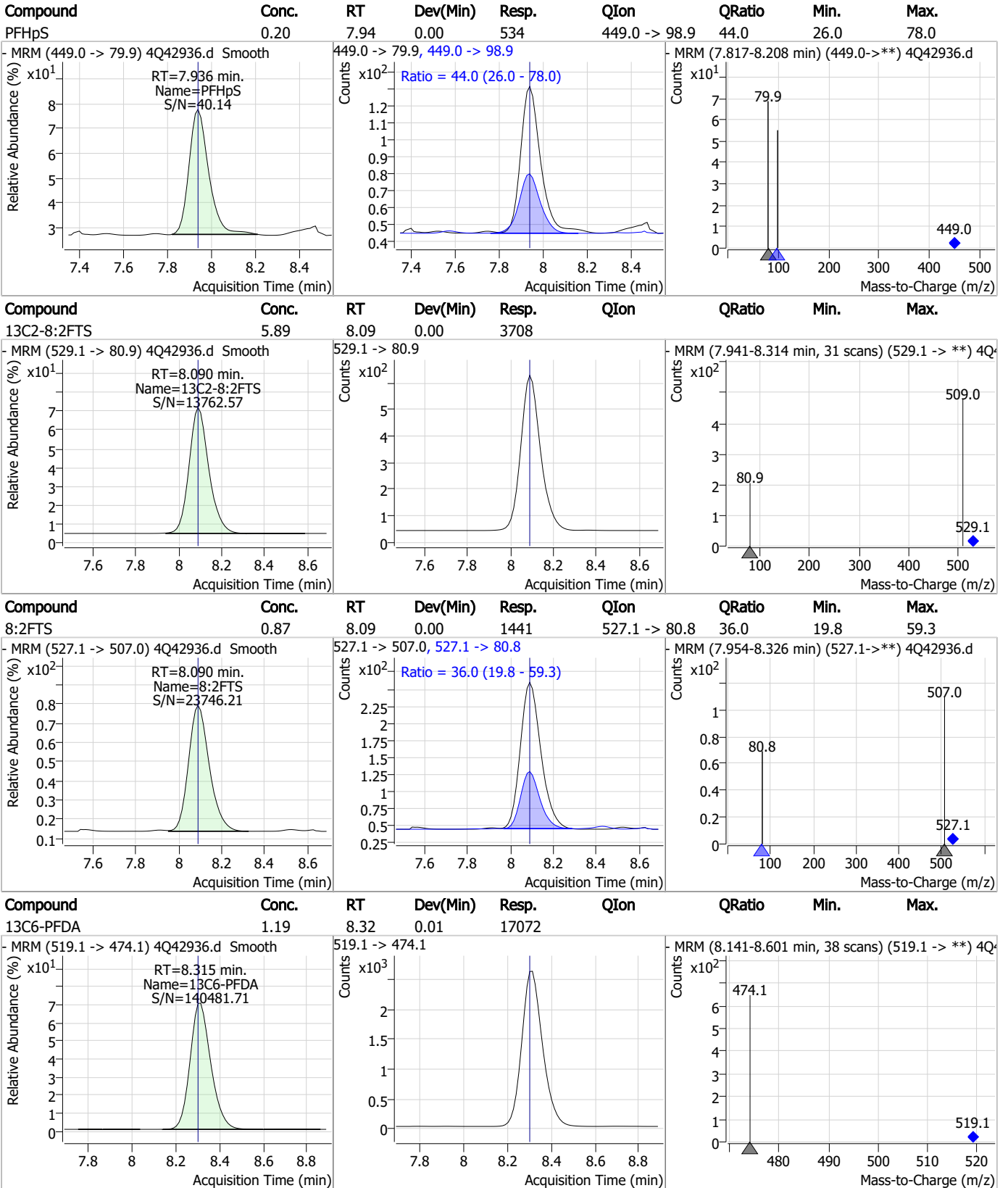
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



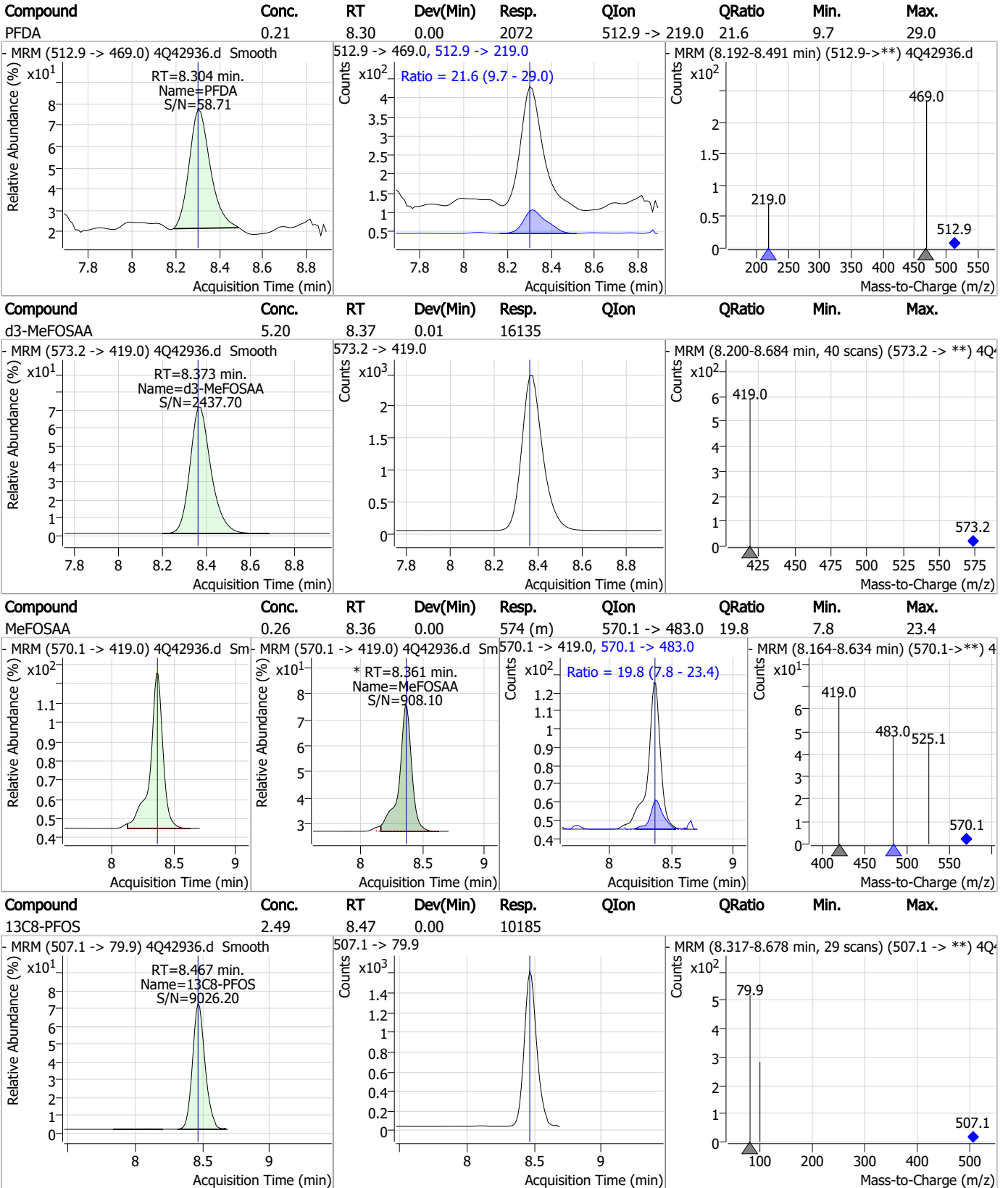
Perfluorinated Compounds by LC/MS/MS



7.7.2
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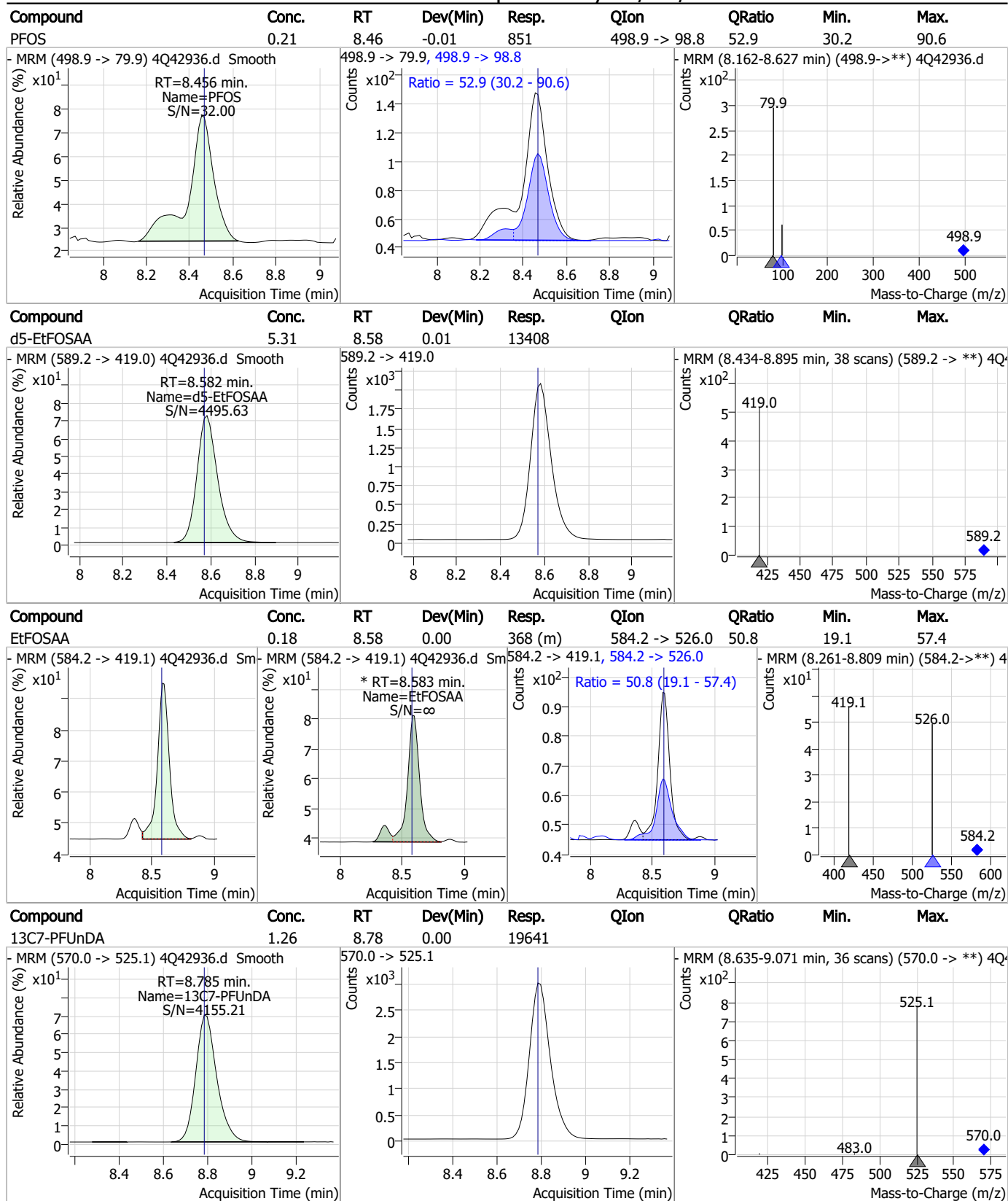
Perfluorinated Compounds by LC/MS/MS



7.7.2

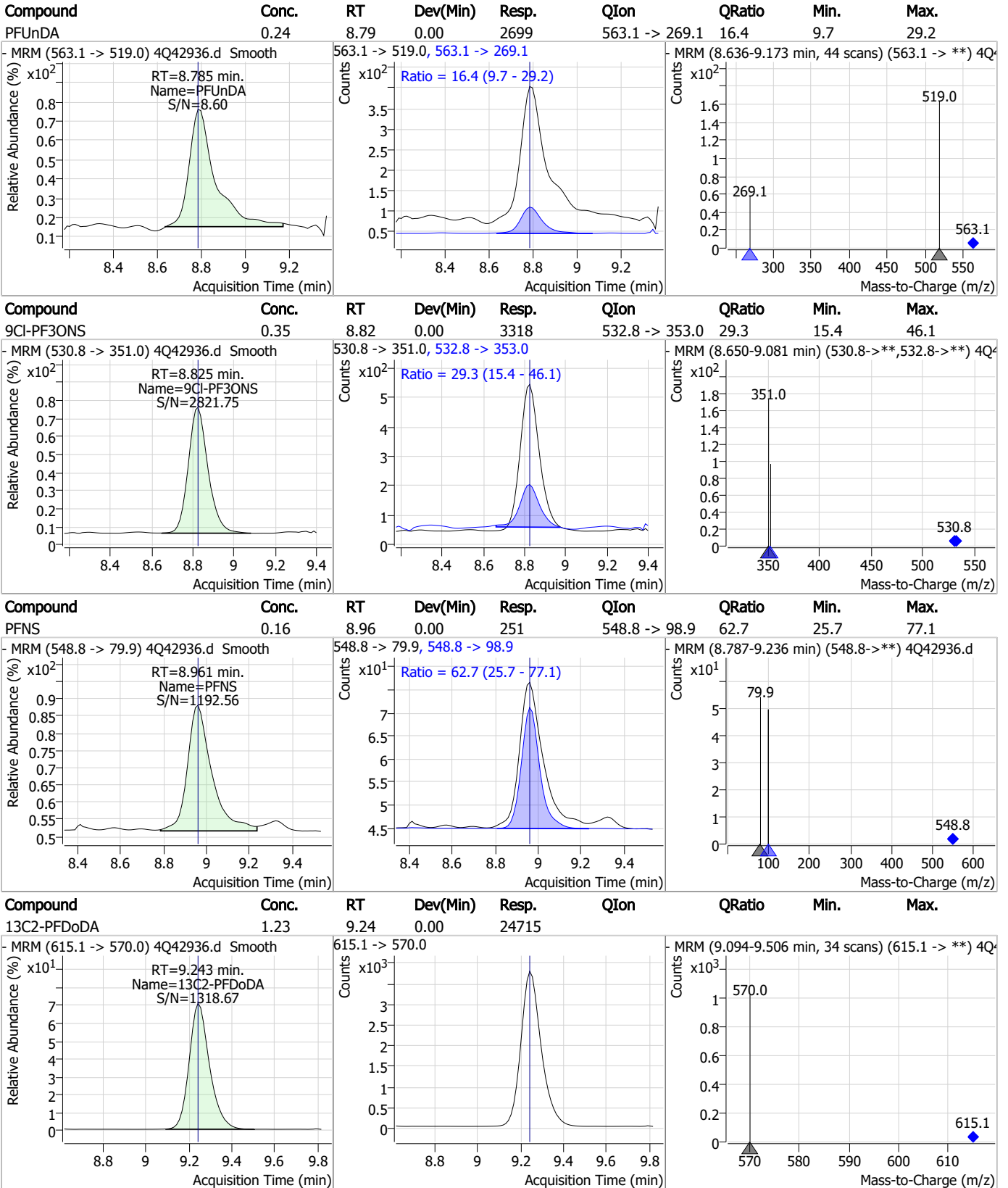
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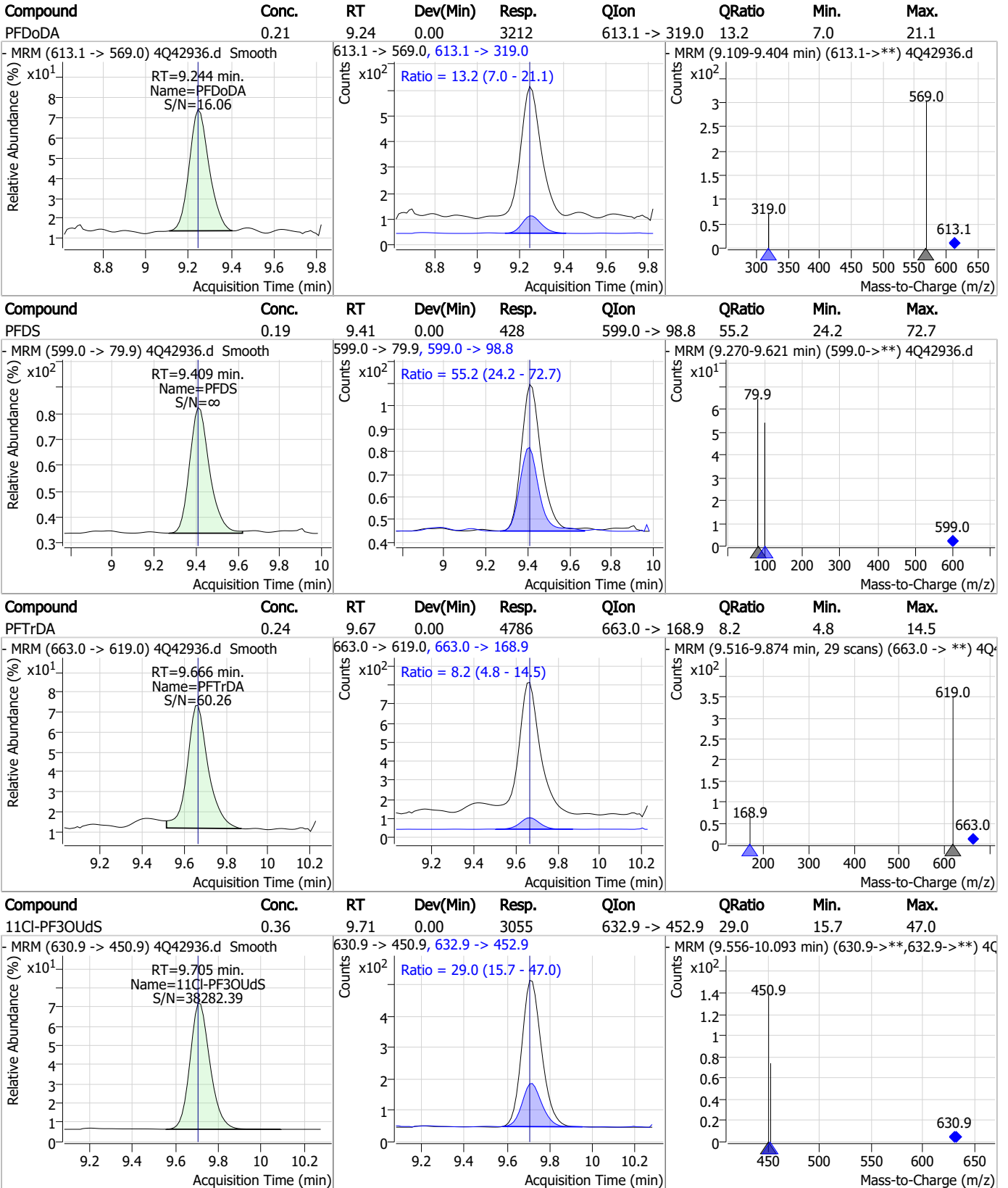


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Perfluorinated Compounds by LC/MS/MS

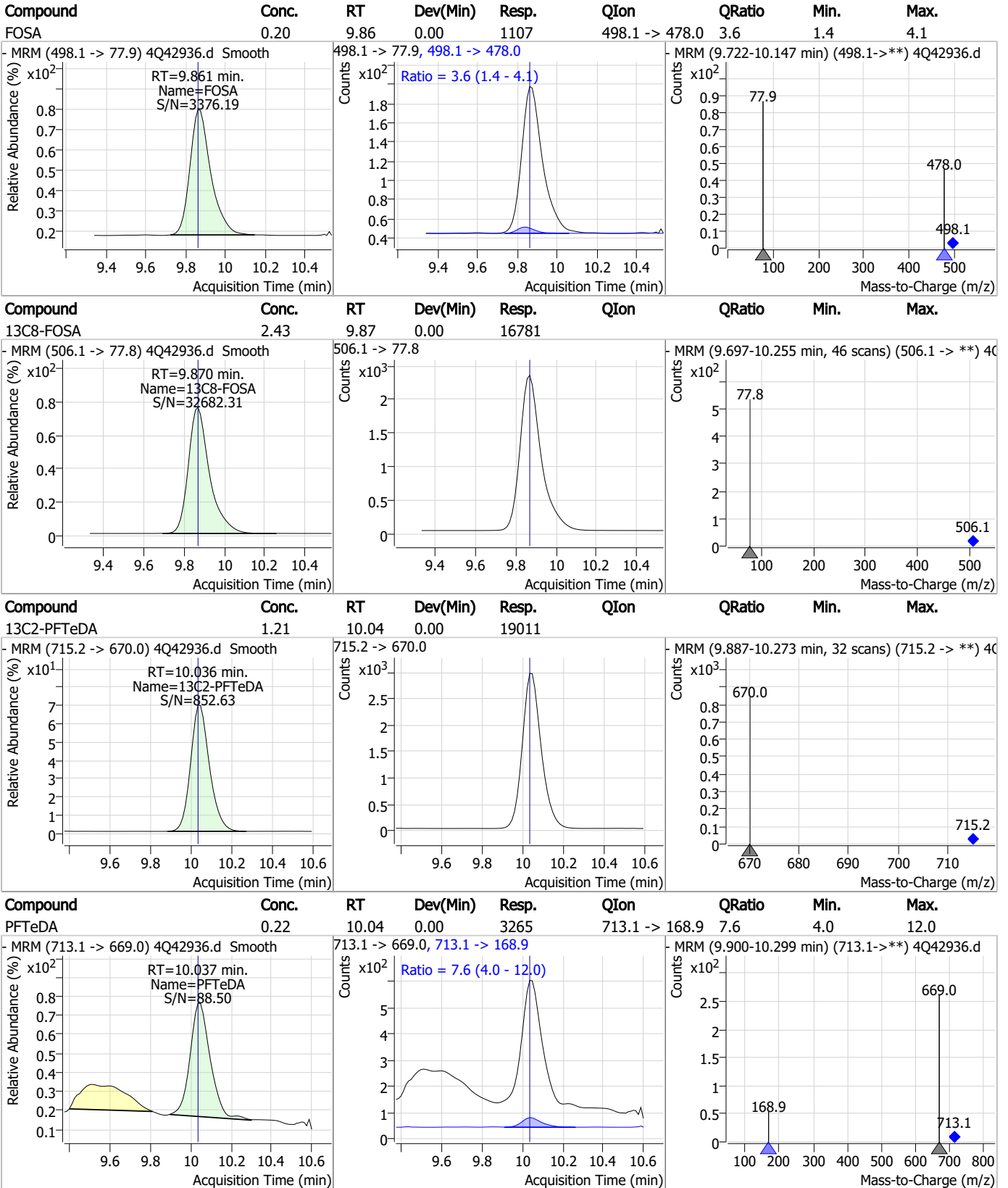


Perfluorinated Compounds by LC/MS/MS



7.7.2
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Perfluorinated Compounds by LC/MS/MS

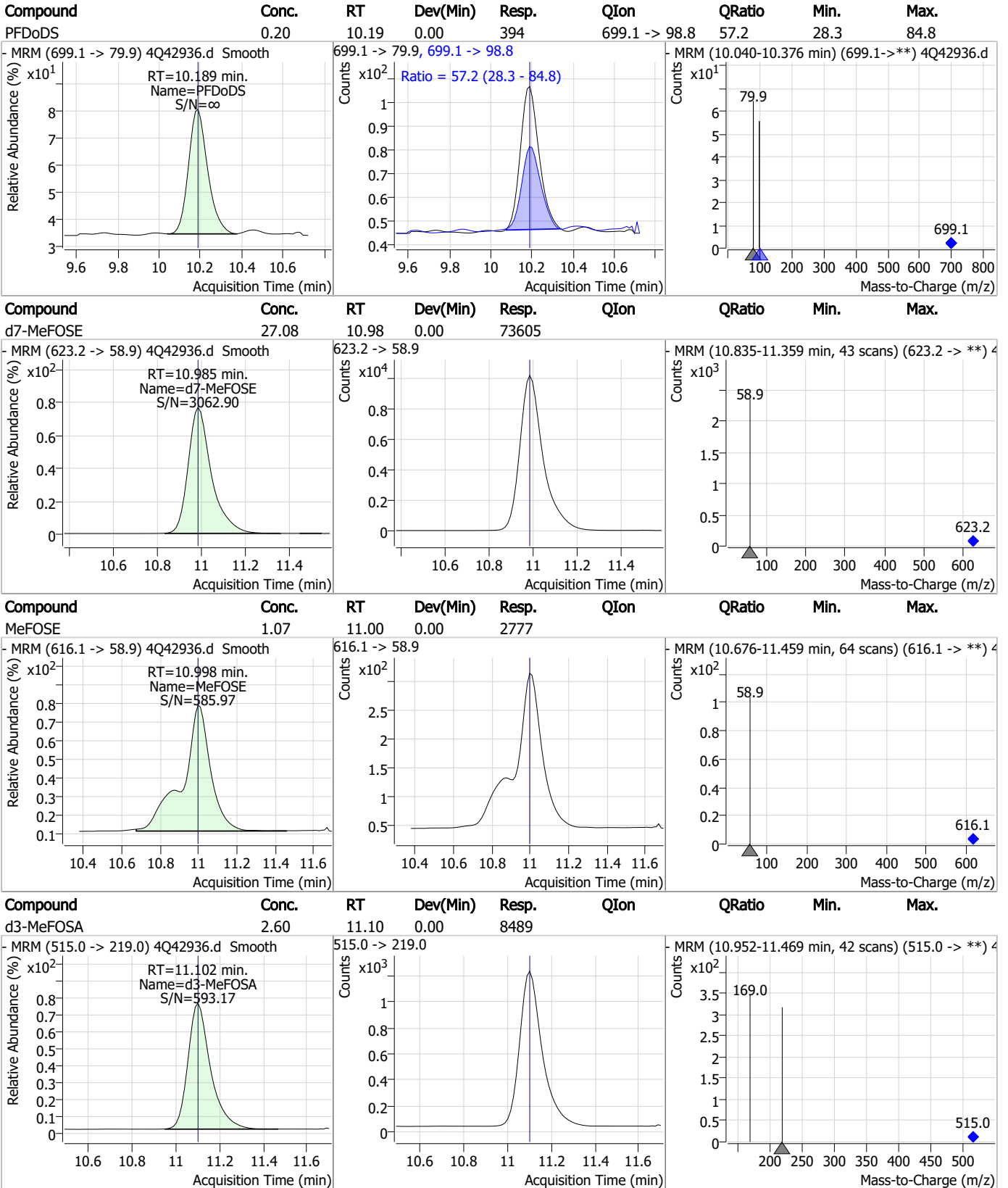


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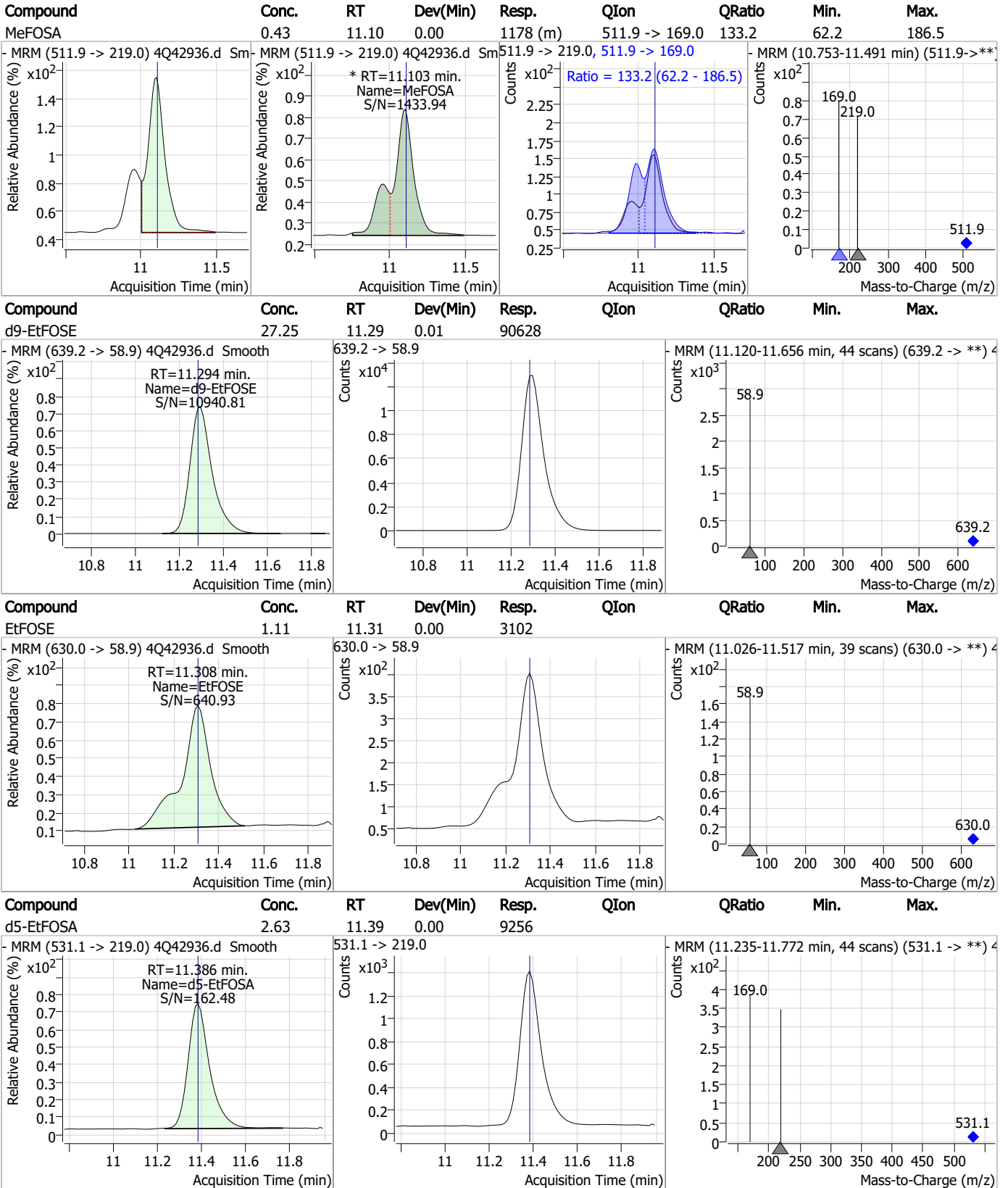
Perfluorinated Compounds by LC/MS/MS



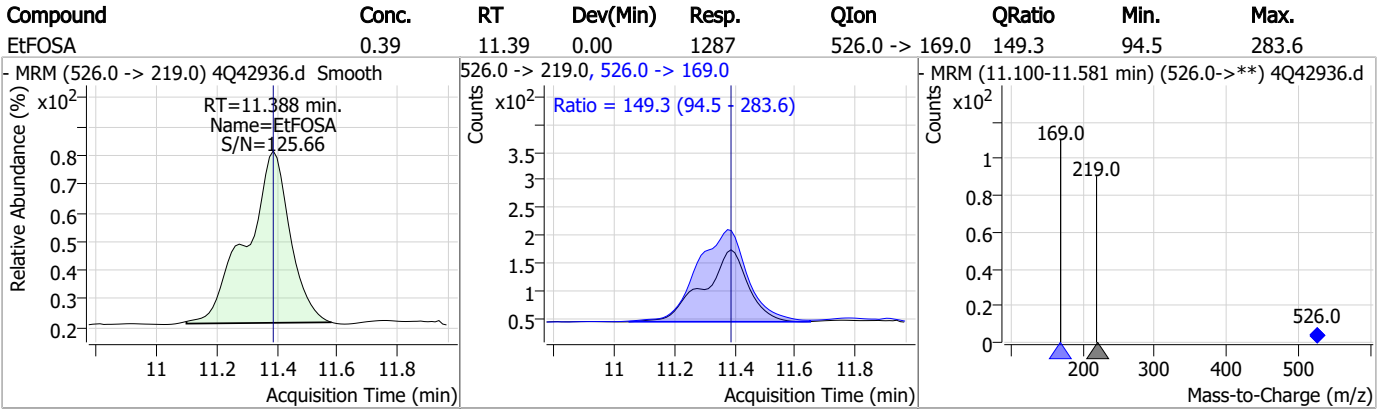
7.7.2

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.2

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Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42936.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 11:49 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.36	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSA	31506-32-8		11.10	Split peak

7.7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42937.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 12:04:03 PM
 Sample Name : ic621-2
 Vial : P1-A3
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	118430	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	79249	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	61431	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	31091	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	39202	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	21663	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	20734	1.25 µg/L	0.012
M7-PFUnDA	8.785	570.0 -> 525.1	22986	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	29666	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	23211	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	20720	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	13025	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	8224	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	12035	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1779	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2701	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	4128	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	18722	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	37746	10.00 µg/L	0.000
M5-EtFOSAA	8.582	589.2 -> 419.0	15123	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	90682	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	109200	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	10076	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9499	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12395	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	68609	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	6037	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	47008	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	18078	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	22771	1.25 µg/L	0.000
13C2-PFHxA	5.660	315.1 -> 270.0	53124	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1779	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2701	5.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.2%		
13C2-8:2FTS	8.090	529.1 -> 80.9	4128	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFDoDA	9.243	615.1 -> 570.0	29666	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-PFTeDA	10.036	715.2 -> 670.0	23211	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C3-PFBS	5.564	302.1 -> 79.9	13025	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFHxS	7.354	402.1 -> 79.9	8224	2.46 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C4-PFBA	3.011	216.8 -> 171.9	118430	9.91 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.580	367.1 -> 322.0	31091	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C5-PFHxA	5.659	318.0 -> 273.0	61431	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFPeA	4.475	268.3 -> 223.0	79249	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.315	519.1 -> 474.1	20734	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C7-PFUnDA	8.785	570.0 -> 525.1	22986	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C8-FOSA	9.870	506.1 -> 77.8	20720	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-PFOA	7.250	421.1 -> 376.0	39202	2.53 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOS	8.467	507.1 -> 79.9	12035	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.797	472.1 -> 427.0	21663	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.5%	
d3-MeFOSAA	8.373	573.2 -> 419.0	18722	5.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	37746	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d3-MeFOSA	11.102	515.0 -> 219.0	9499	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
d5-EtFOSAA	8.582	589.2 -> 419.0	15123	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d7-MeFOSE	10.985	623.2 -> 58.9	90682	28.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
d9-EtFOSE	11.282	639.2 -> 58.9	109200	27.92 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 111.7%	
d5-EtFOSA	11.386	531.1 -> 219.0	10076	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	3240	1.46 µg/L	99
		327.1 -> 80.9	1290		
6:2FTS	7.011	427.1 -> 407.0	2543	1.38 µg/L	94
		427.1 -> 80.9	1172		
8:2FTS	8.090	527.1 -> 507.0	2859	1.54 µg/L	92
		527.1 -> 80.8	1271		
EtFOSAA	8.583	584.2 -> 419.1	900	0.40 µg/L	m 88
		584.2 -> 526.0	410		
FOSA	9.861	498.1 -> 77.9	2499	0.37 µg/L	99
		498.1 -> 478.0	72		
MeFOSAA	8.373	570.1 -> 419.0	887	0.34 µg/L	m 92
		570.1 -> 483.0	169		
PFBA	3.020	212.8 -> 168.9	3923	1.45 µg/L	100
PFBS	5.565	298.7 -> 79.9	1713	0.35 µg/L	99
		298.7 -> 98.8	667		
PFDA	8.316	512.9 -> 469.0	4026	0.34 µg/L	87
		512.9 -> 219.0	1019		
PFDODA	9.244	613.1 -> 569.0	6629	0.35 µg/L	97
		613.1 -> 319.0	1008		
PFDS	9.409	599.0 -> 79.9	1041	0.39 µg/L	100

7.7.3
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	501			
PFHpA	6.580	363.1 -> 319.0	5491	0.35	µg/L	91
		363.1 -> 169.0	1181			
PFHpS	7.936	449.0 -> 79.9	1023	0.33	µg/L	92
		449.0 -> 98.9	590			
PFHxA	5.649	313.0 -> 269.0	6920	0.38	µg/L	99
		313.0 -> 118.9	188			
PFHxS	7.342	398.7 -> 79.9	979	0.35	µg/L	m 92
		398.7 -> 98.9	451			
PFNA	7.797	463.0 -> 419.0	4521	0.39	µg/L	95
		463.0 -> 219.0	1118			
PFNS	8.961	548.8 -> 79.9	635	0.34	µg/L	94
		548.8 -> 98.9	300			
PFOA	7.252	413.0 -> 369.0	6358	0.35	µg/L	99
		413.0 -> 169.0	1268			
PFOS	8.468	498.9 -> 79.9	1521	0.32	µg/L	m 89
		498.9 -> 98.8	790			
PFPeA	4.477	263.0 -> 219.0	10964	0.73	µg/L	100
PFPeS	6.619	349.1 -> 79.9	785	0.33	µg/L	m 99
		349.1 -> 98.9	337			
PFTeDA	10.050	713.1 -> 669.0	7043	0.39	µg/L	99
		713.1 -> 168.9	601			
PFTrDA	9.666	663.0 -> 619.0	9319	0.39	µg/L	98
		663.0 -> 168.9	844			
PFUnDA	8.785	563.1 -> 519.0	5096	0.39	µg/L	99
		563.1 -> 269.1	1010			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	7099	0.72	µg/L	100
		632.9 -> 452.9	2206			
9Cl-PF3ONS	8.825	530.8 -> 351.0	7636	0.69	µg/L	98
		532.8 -> 353.0	2441			
ADONA	6.843	376.9 -> 250.9	15703	0.69	µg/L	96
		376.9 -> 84.8	4533			
HFPO-DA	6.015	284.9 -> 168.9	2287	0.76	µg/L	93
		284.9 -> 184.9	347			
3:3FTCA	3.979	241.0 -> 177.0	1280	1.83	µg/L	97
		241.0 -> 117.0	138			
5:3FTCA	6.345	341.0 -> 237.1	23272	9.06	µg/L	97
		341.0 -> 217.0	17127			
7:3FTCA	7.799	441.0 -> 316.9	9824	9.33	µg/L	99
		441.0 -> 336.9	21874			
EtFOSA	11.388	526.0 -> 219.0	2770	0.77	µg/L	m 59
		526.0 -> 169.0	3589			
EtFOSE	11.308	630.0 -> 58.9	6266	1.86	µg/L	100
MeFOSA	11.091	511.9 -> 219.0	2261	0.74	µg/L	m 79
		511.9 -> 169.0	3344			
MeFOSE	10.998	616.1 -> 58.9	6213	1.95	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	852	0.37	µg/L	95
		699.1 -> 98.8	451			
NFDHA	5.541	295.0 -> 201.0	932	0.76	µg/L	94
		295.0 -> 84.9	259			
PFMBA	4.878	279.0 -> 85.1	6260	0.73	µg/L	100
PFMPA	3.611	229.0 -> 84.9	5511	0.73	µg/L	100
PFEESA	6.096	314.8 -> 134.9	9991	0.65	µg/L	99
		314.8 -> 82.9	378			

= Qualifier out of range, m = manually integrated, + = Area summed

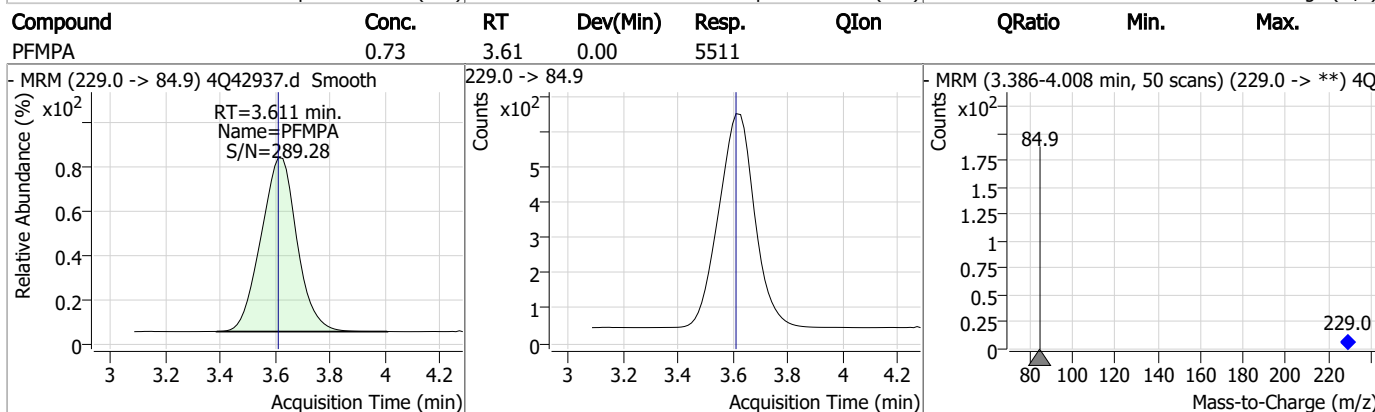
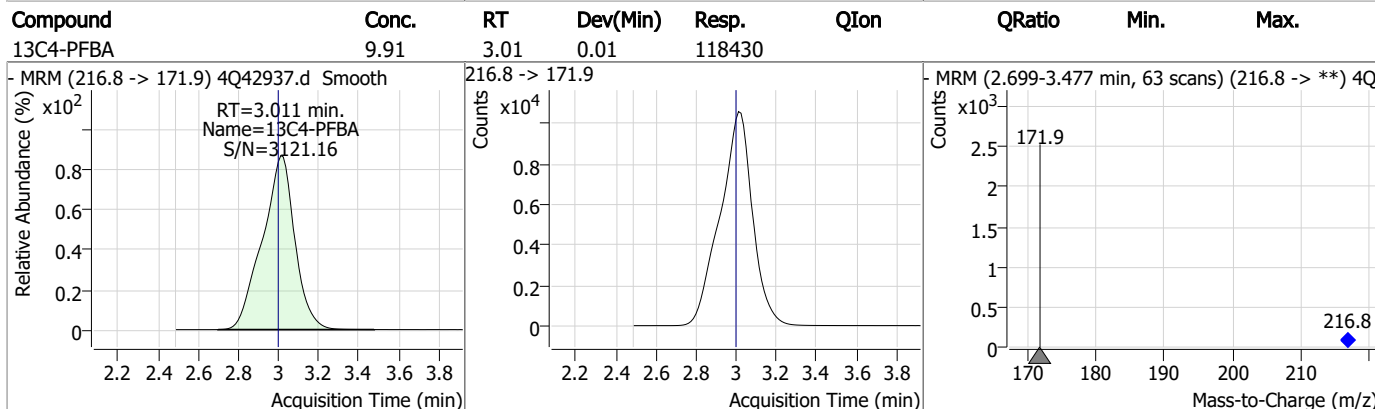
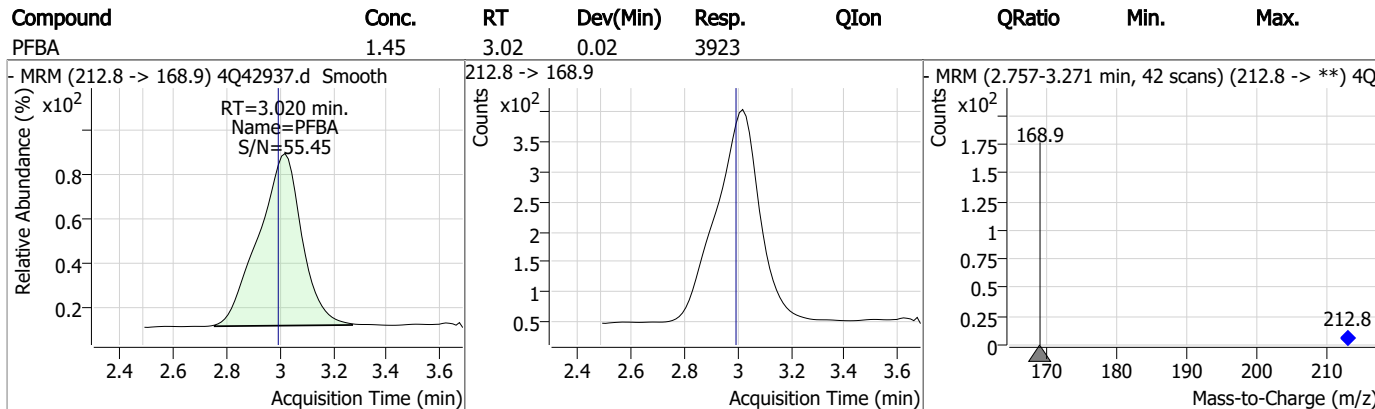
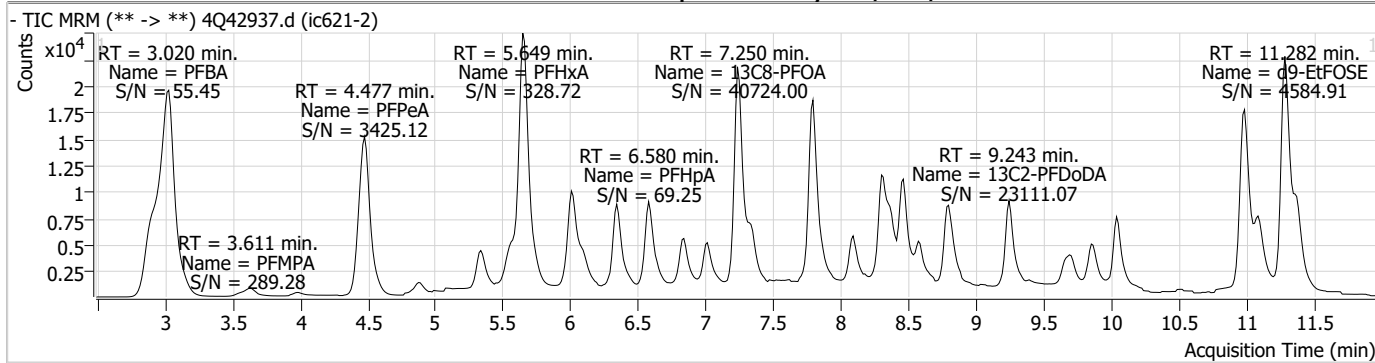
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.3

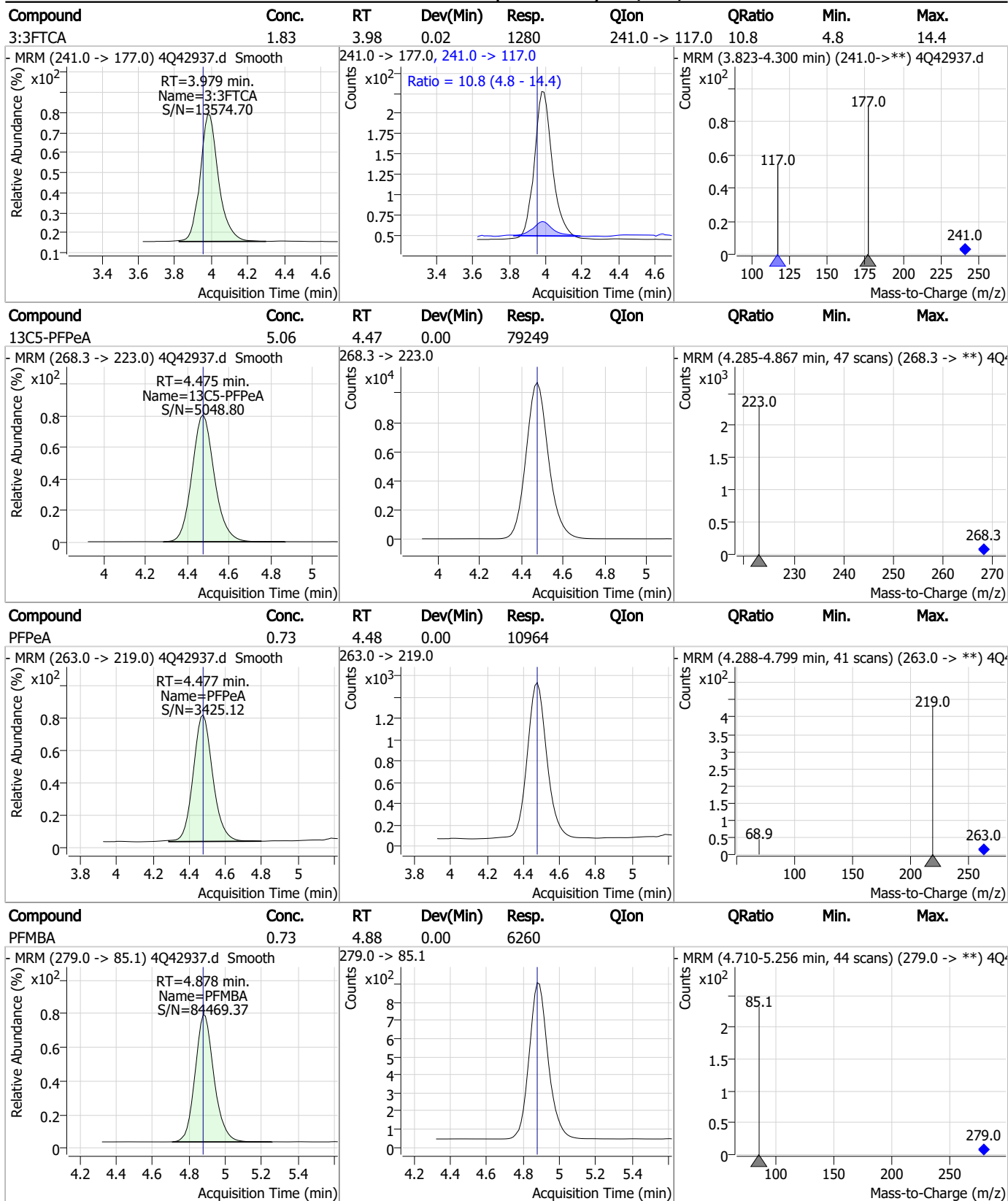
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Perfluorinated Compounds by LC/MS/MS



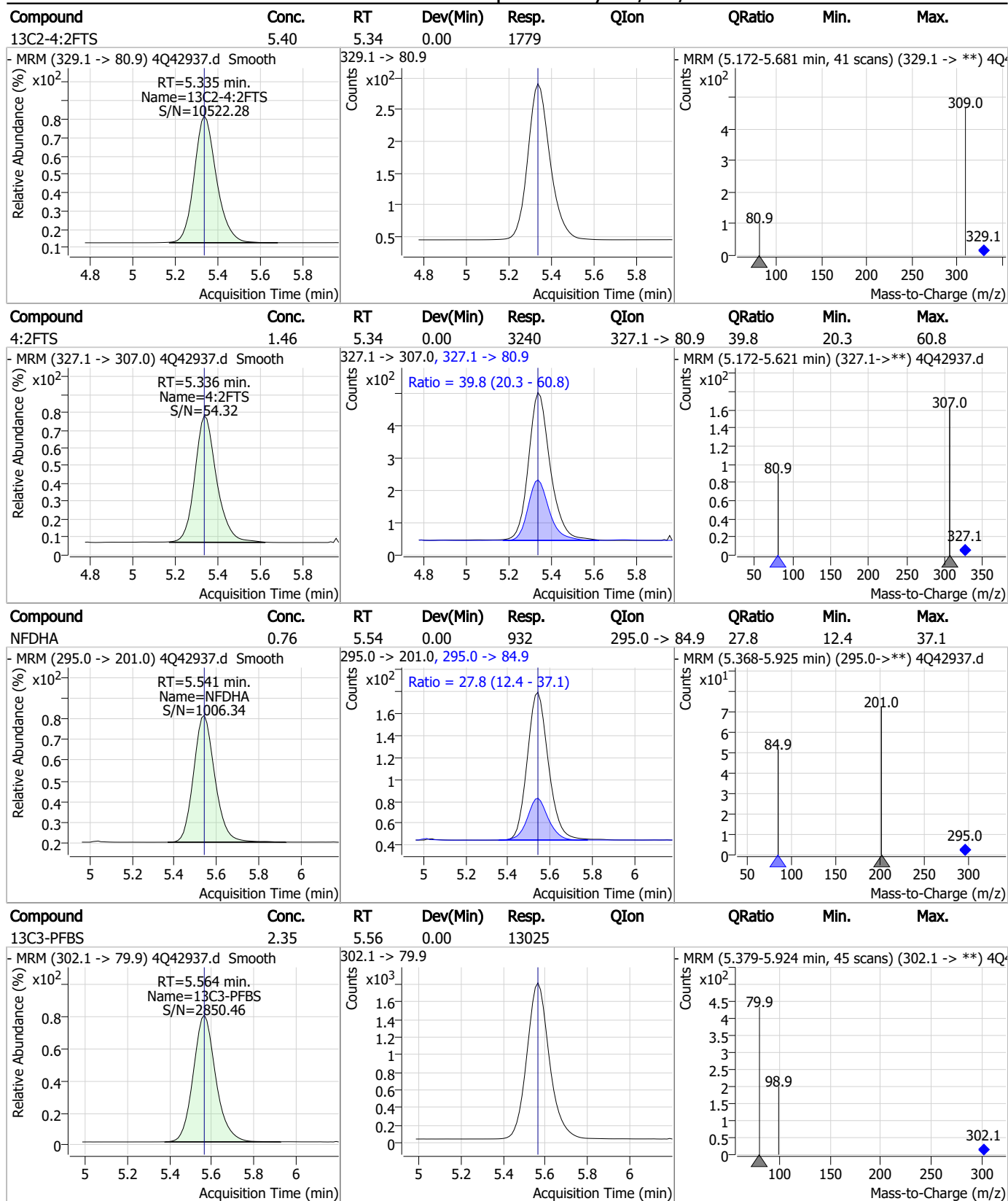
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
7

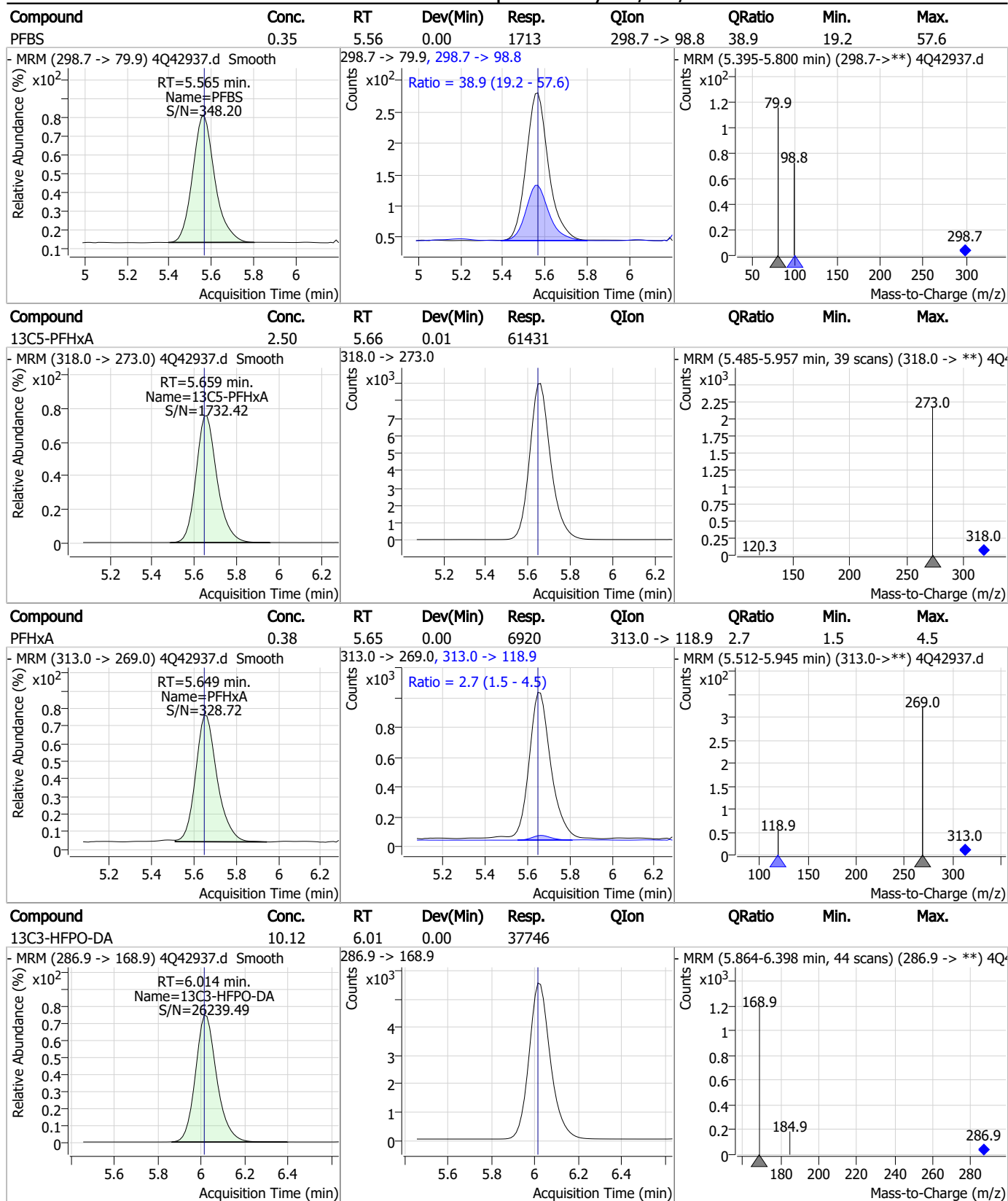
Perfluorinated Compounds by LC/MS/MS



7.7.3

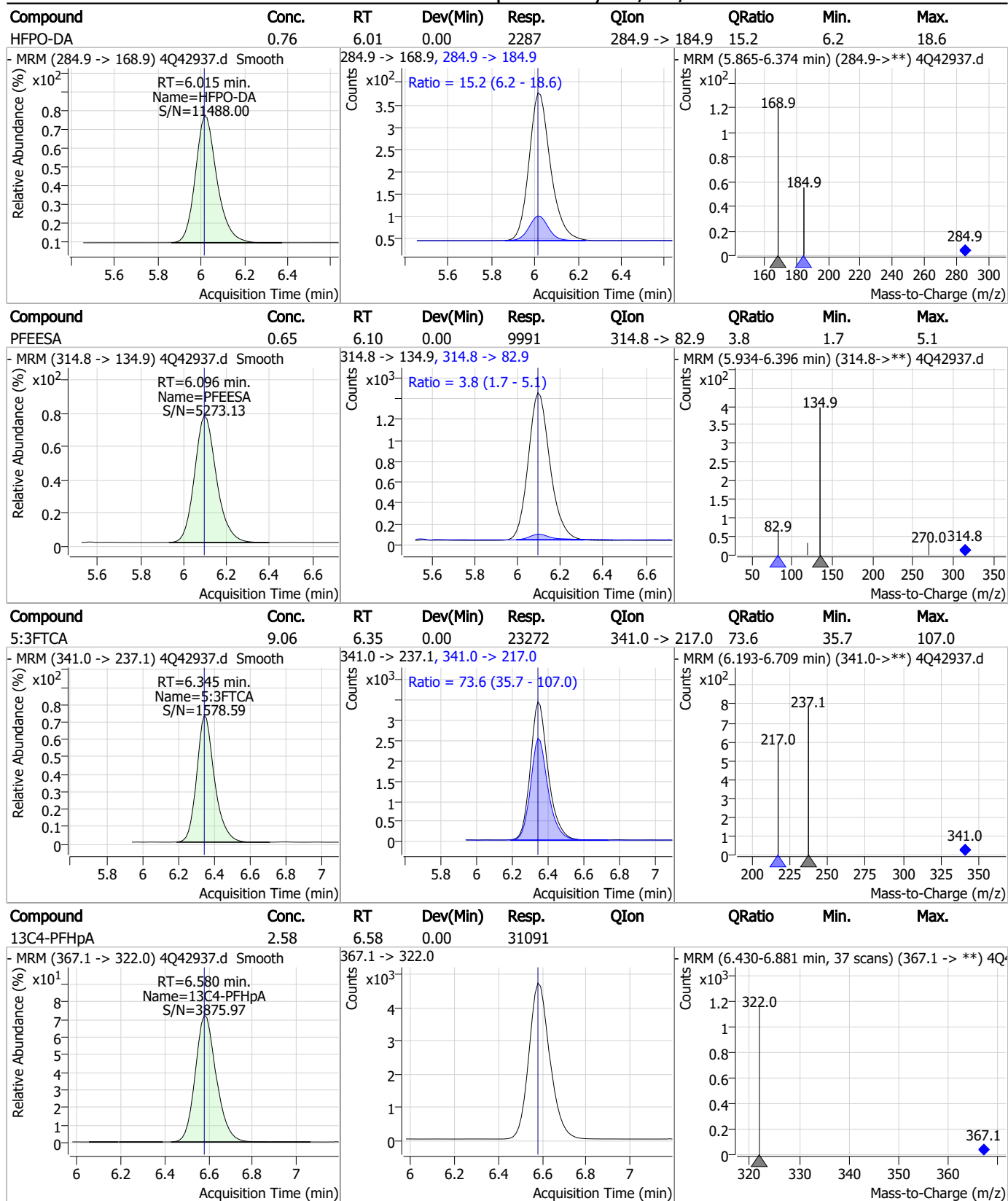
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Perfluorinated Compounds by LC/MS/MS



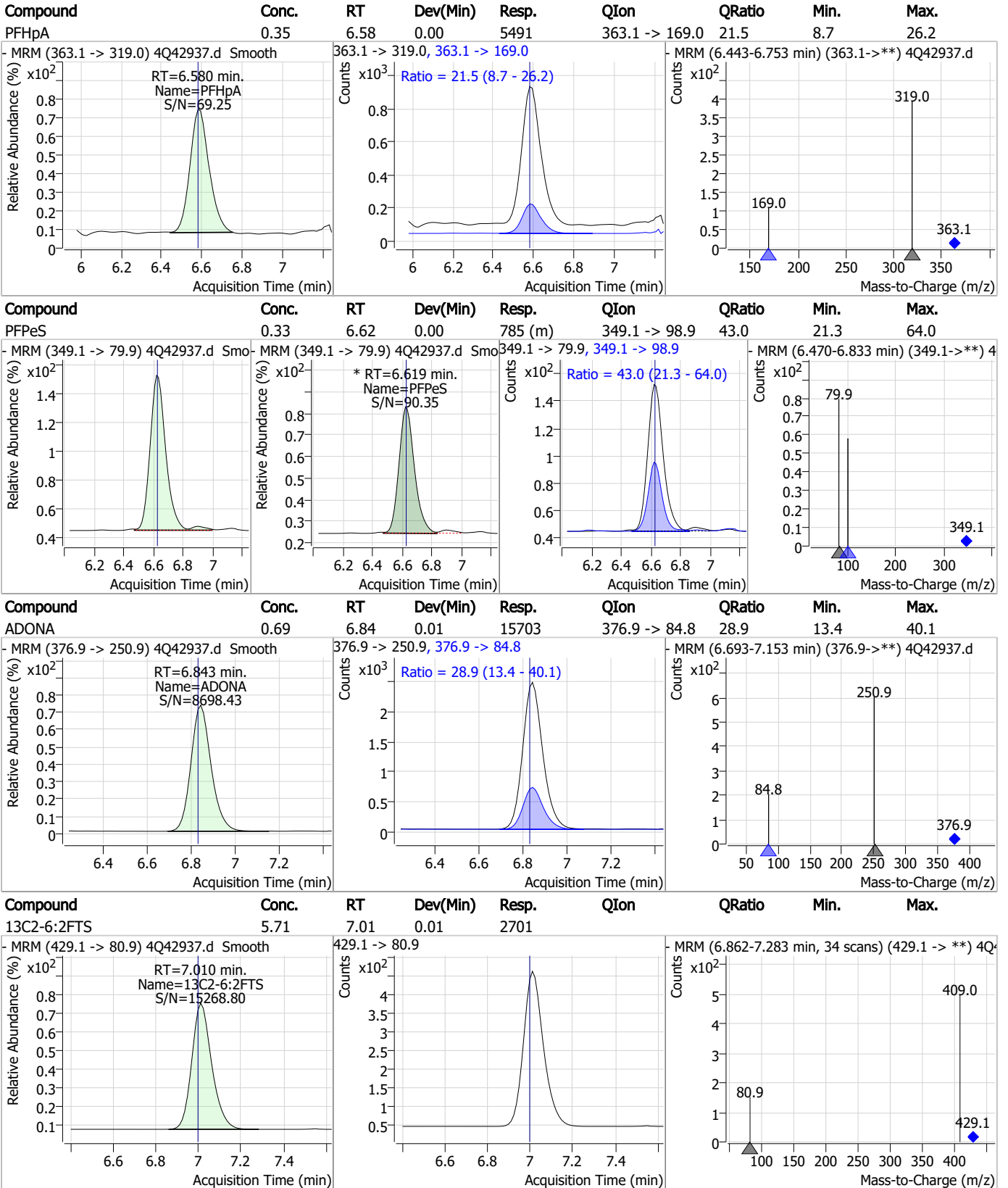
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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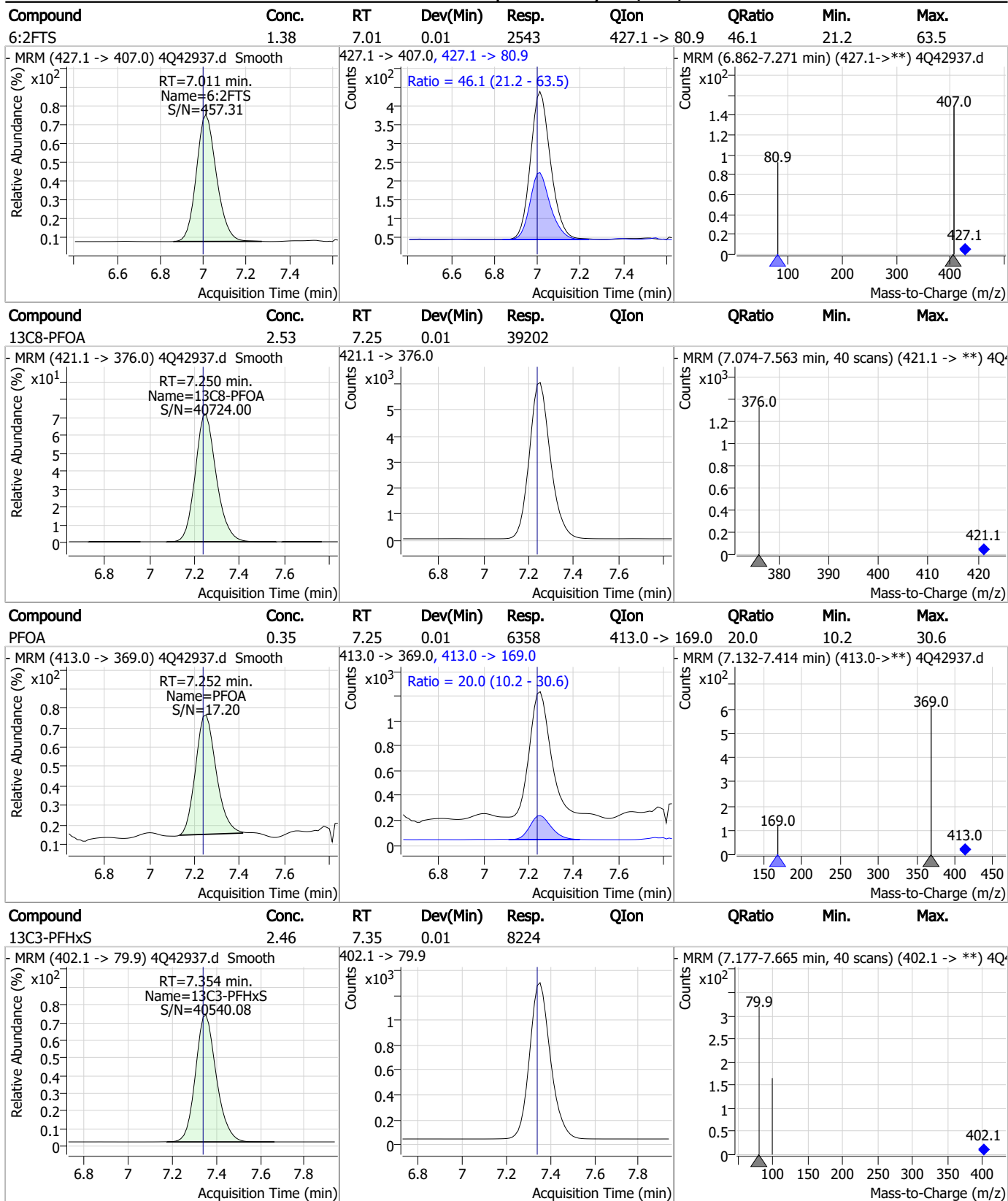
Perfluorinated Compounds by LC/MS/MS



7.7.3

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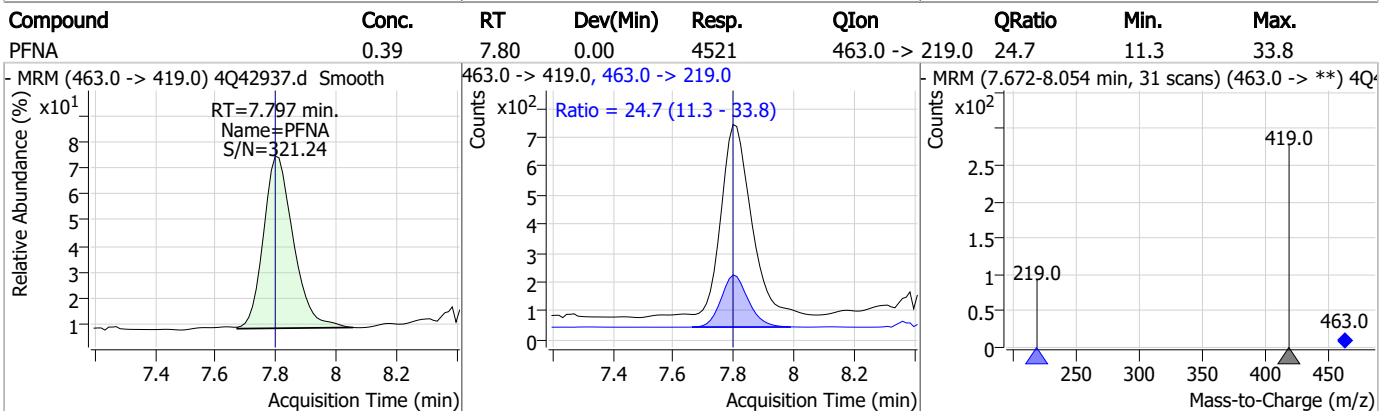
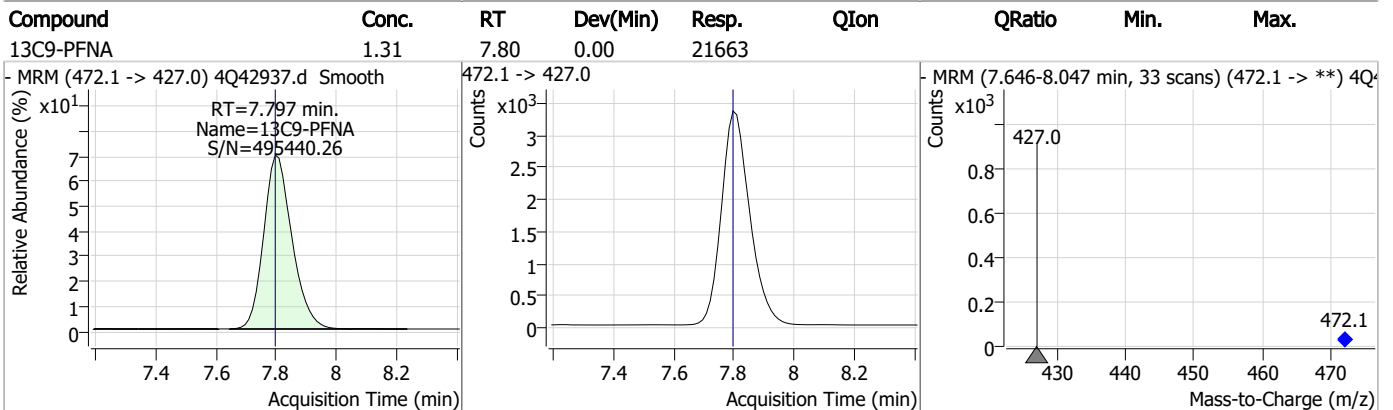
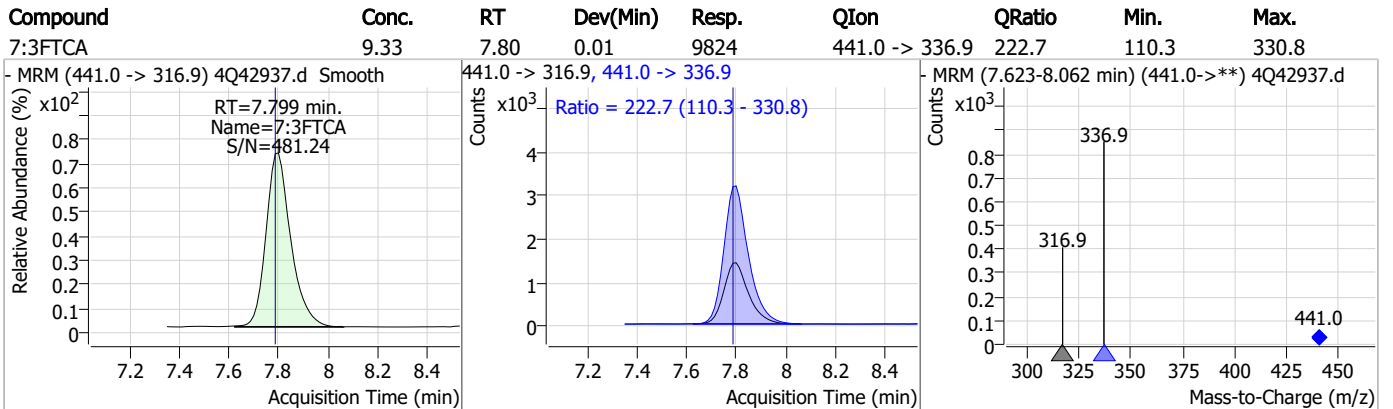
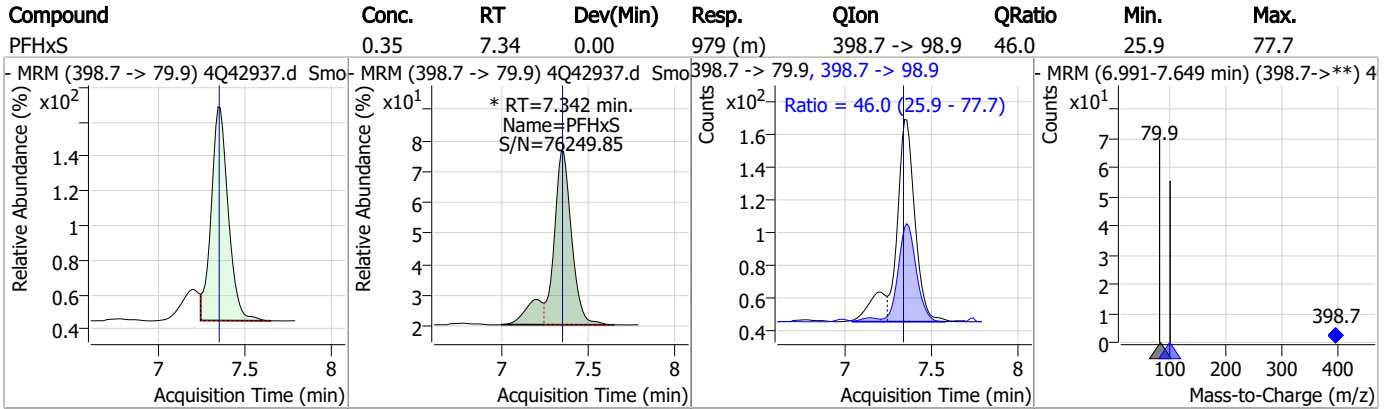
Perfluorinated Compounds by LC/MS/MS



7.7.3

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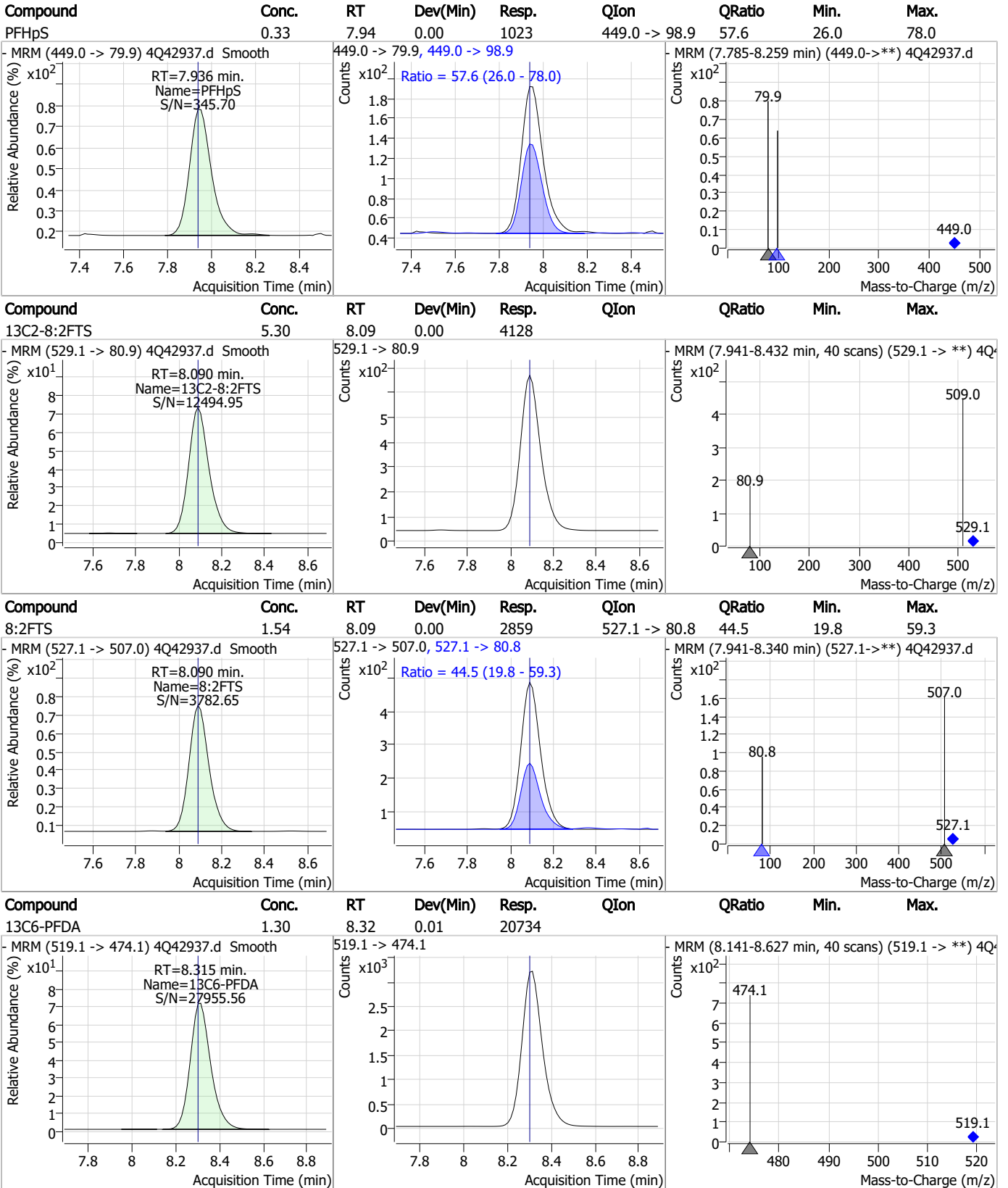
Perfluorinated Compounds by LC/MS/MS



7.7.3

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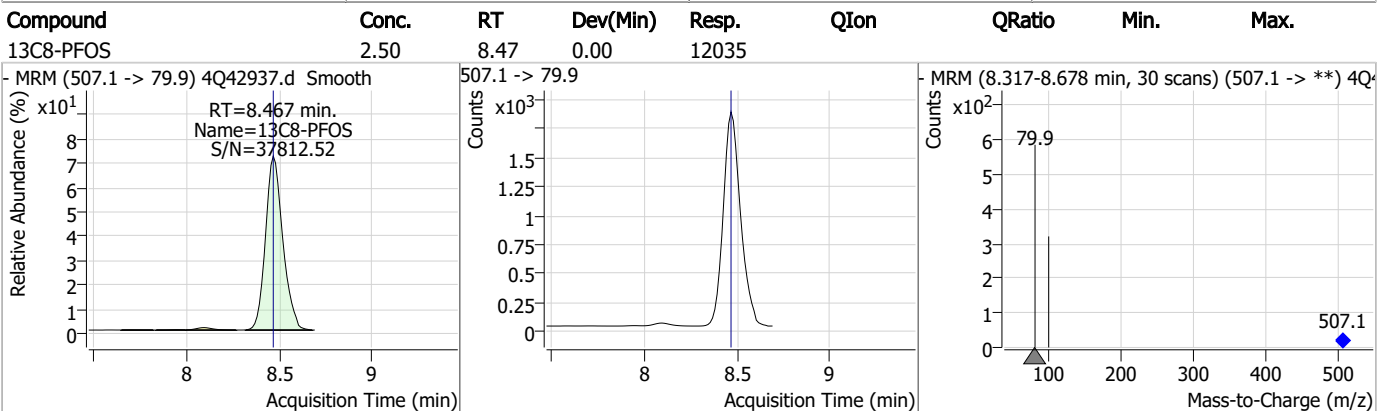
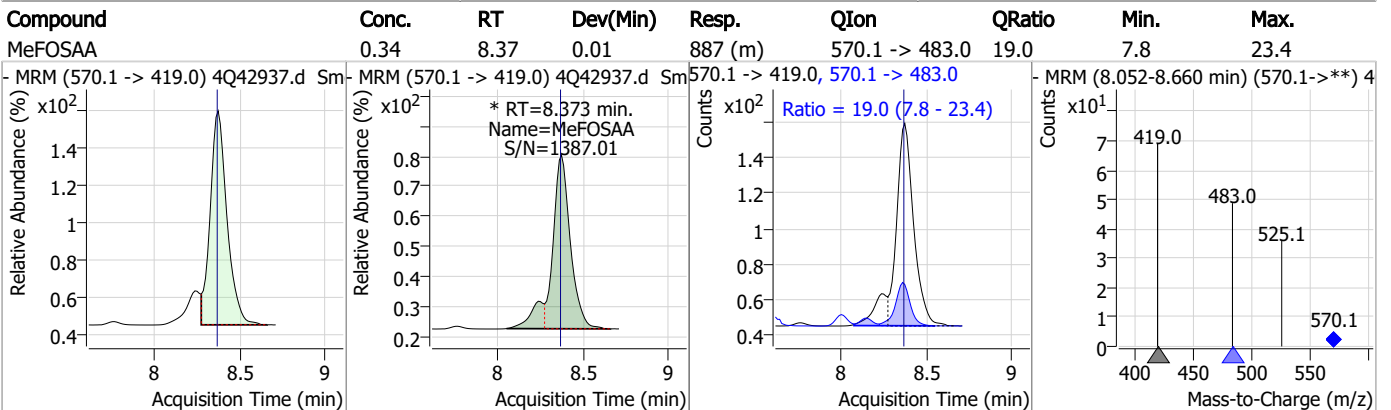
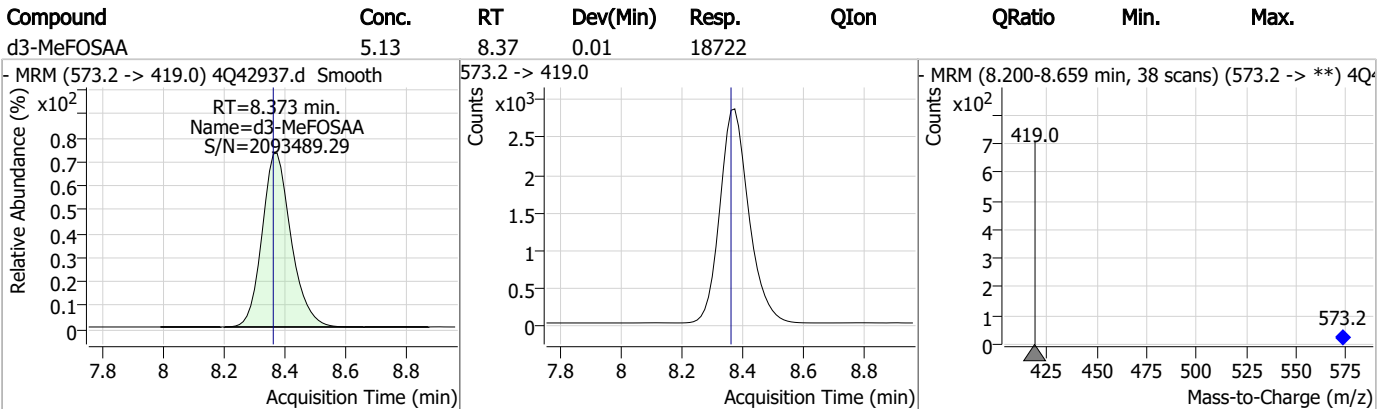
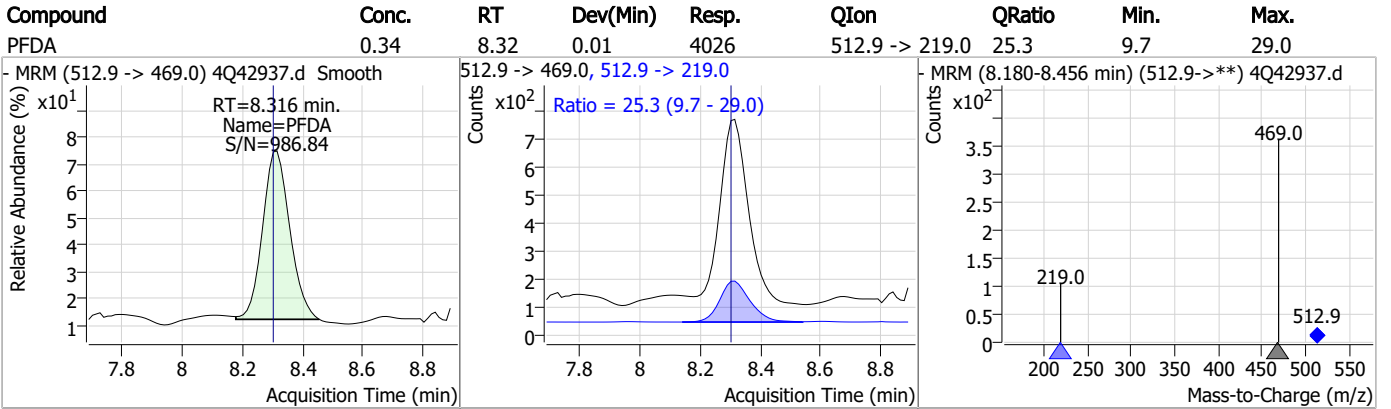
Perfluorinated Compounds by LC/MS/MS



7.7.3

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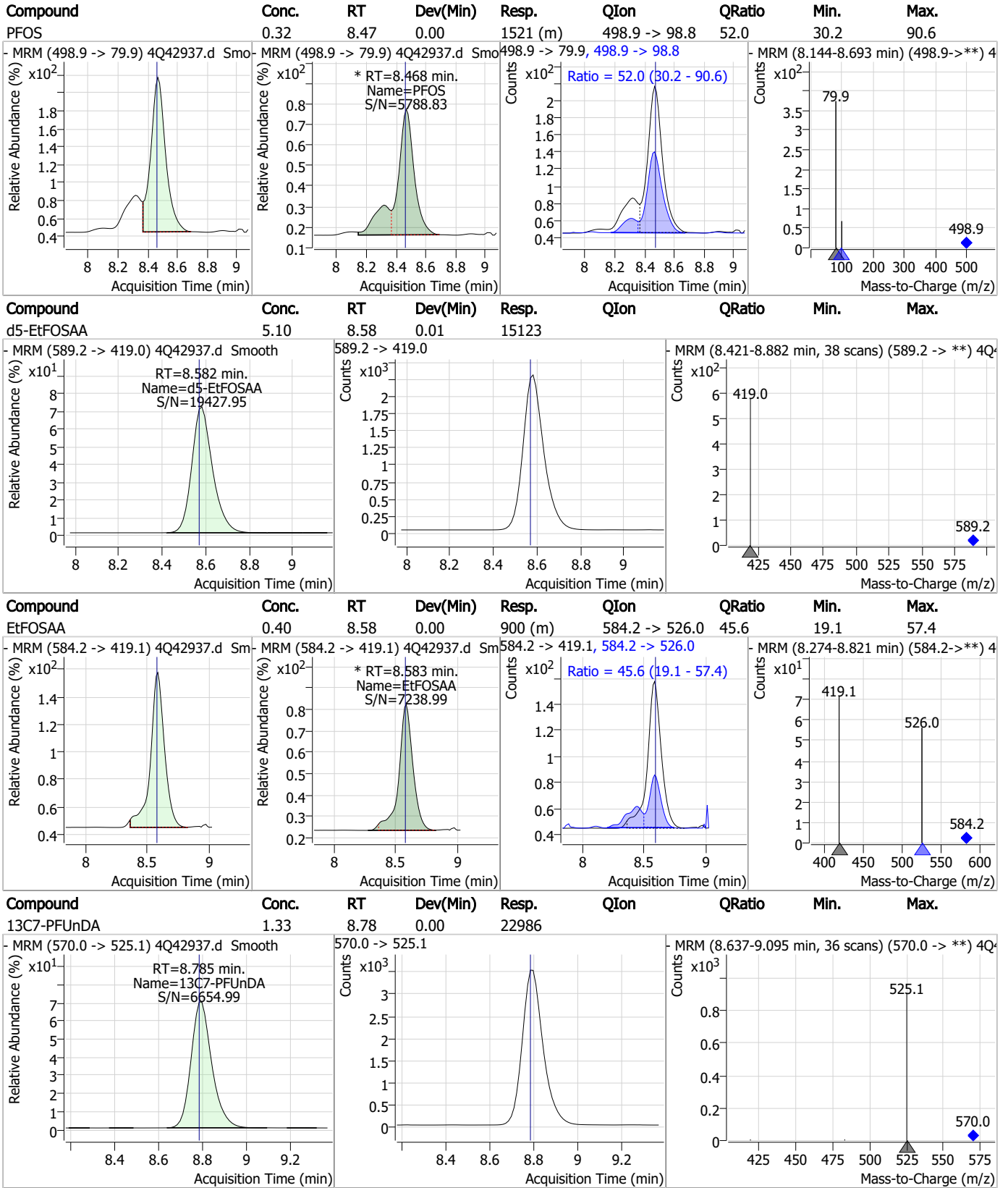
Perfluorinated Compounds by LC/MS/MS



7.7.3

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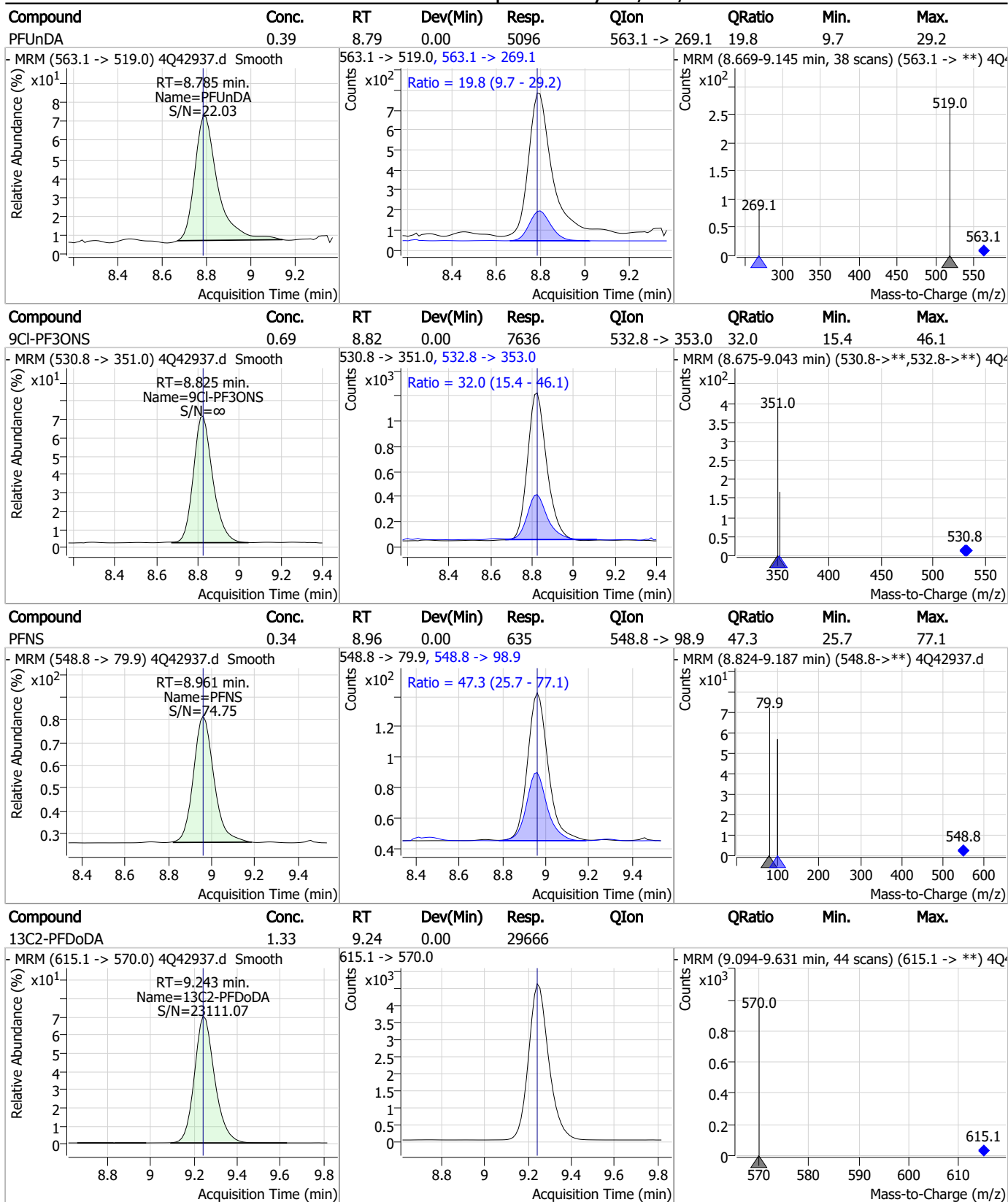
Perfluorinated Compounds by LC/MS/MS



7.7.3

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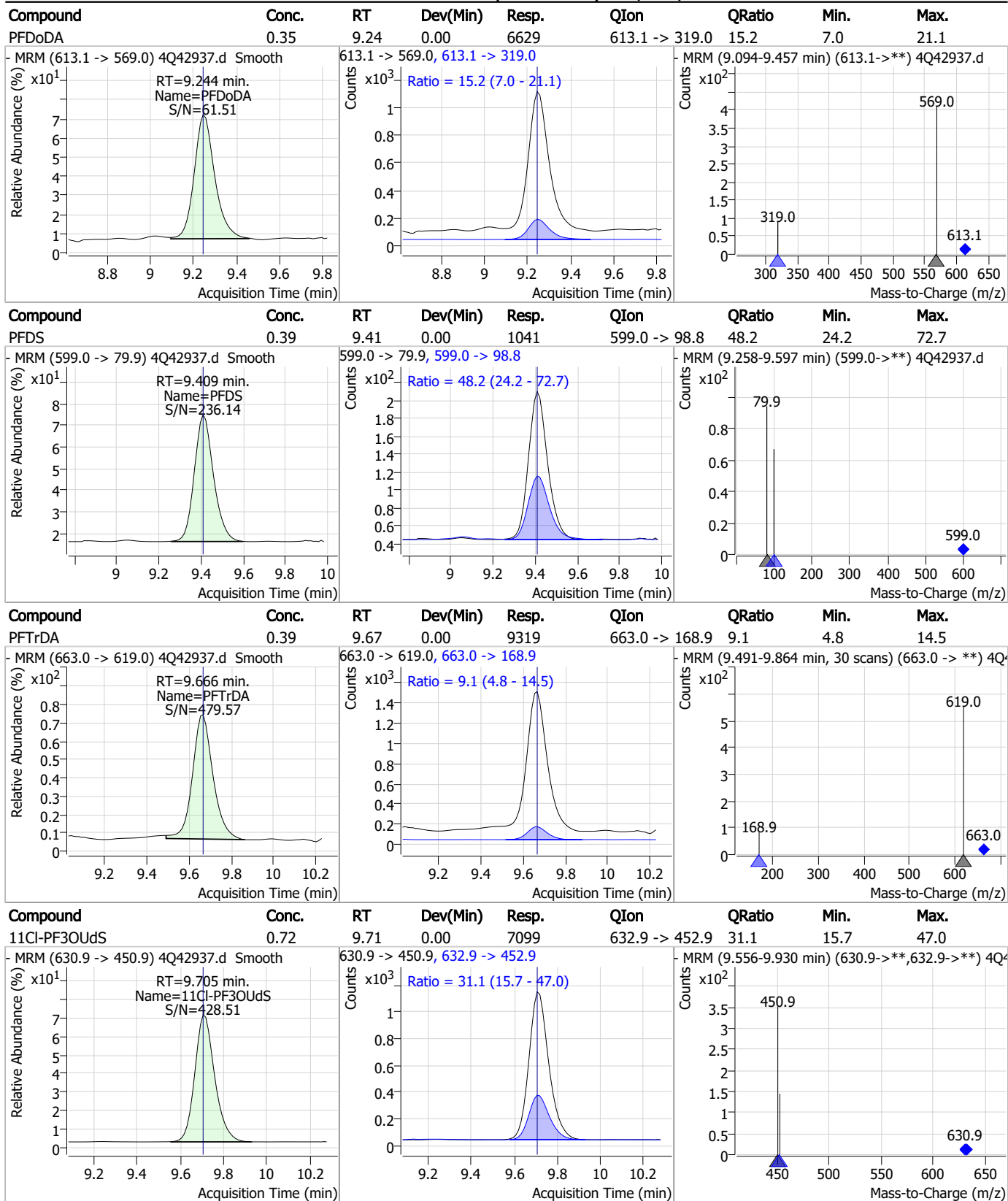
Perfluorinated Compounds by LC/MS/MS



7.7.3

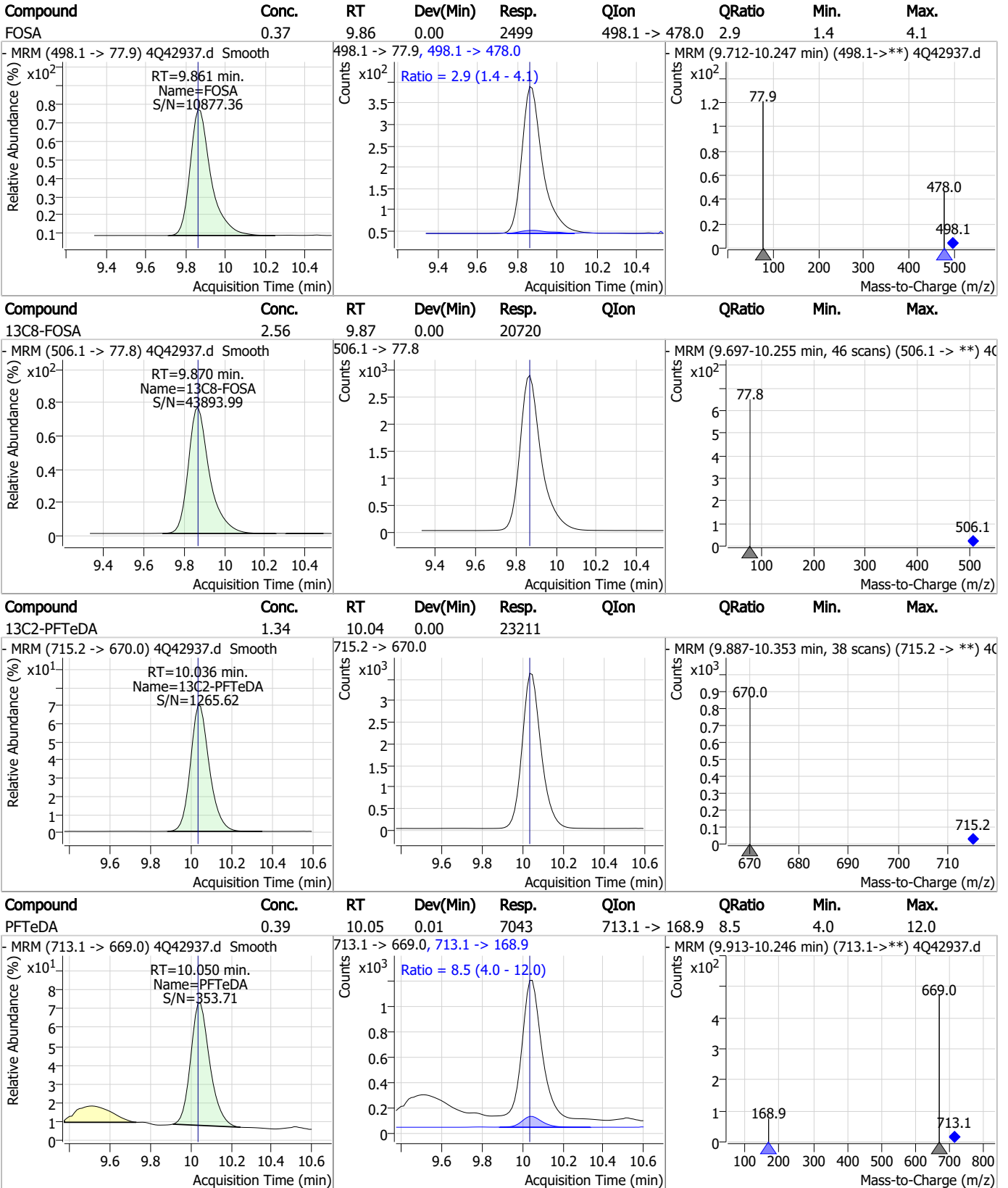
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS



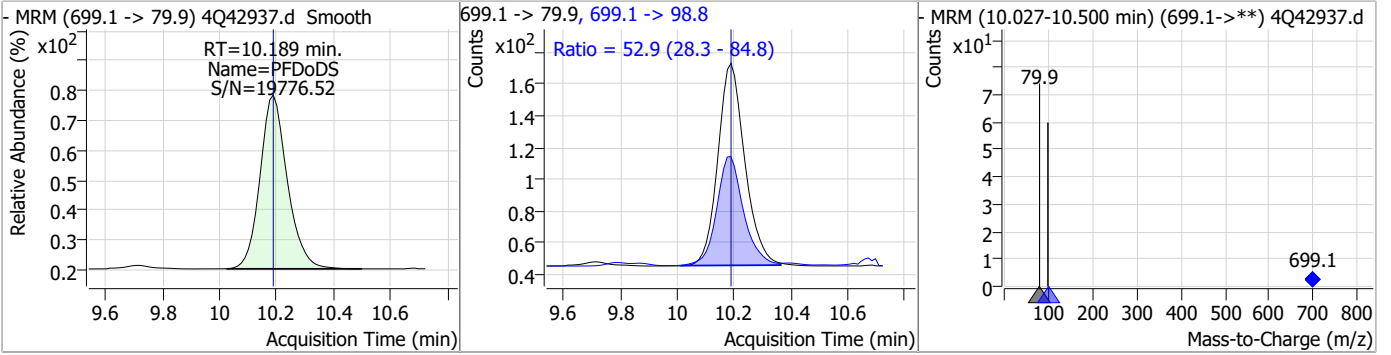
7.7.3

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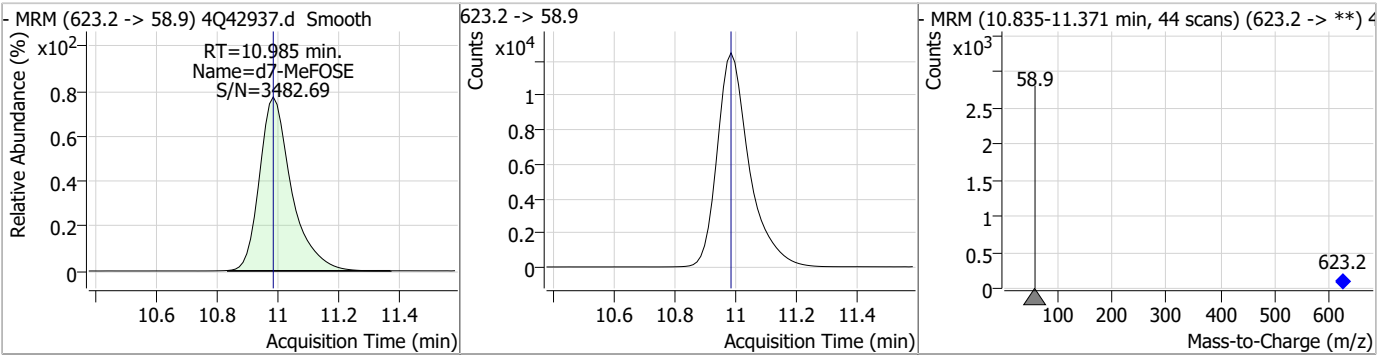


Perfluorinated Compounds by LC/MS/MS

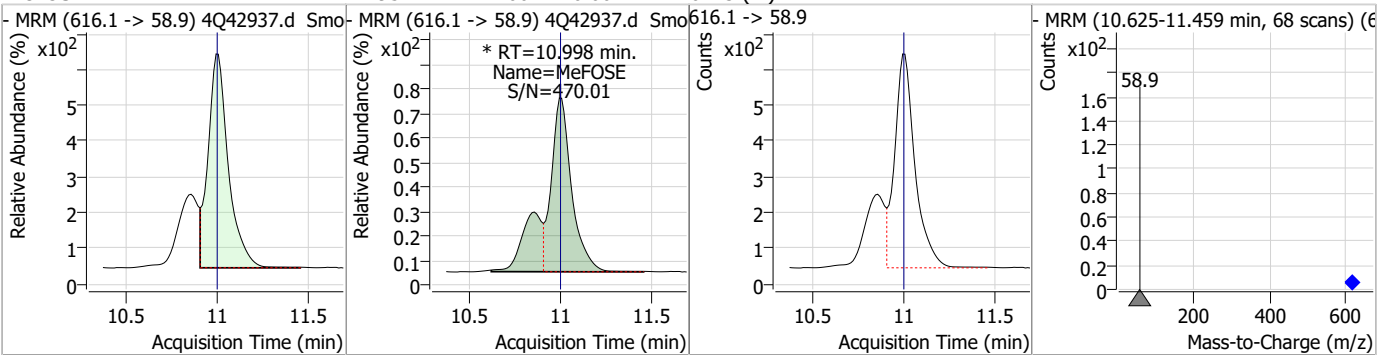
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.37	10.19	0.00	852	699.1 -> 98.8	52.9	28.3	84.8



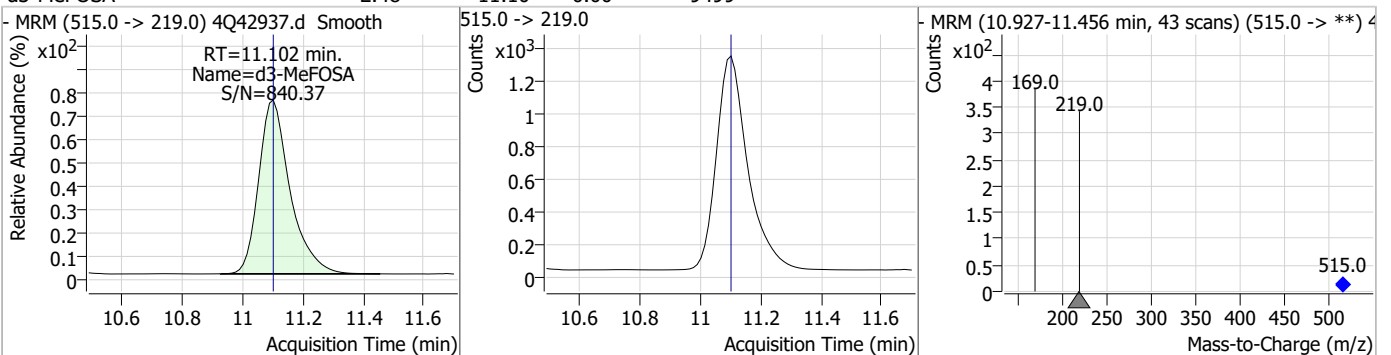
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	28.37	10.98	0.00	90682				



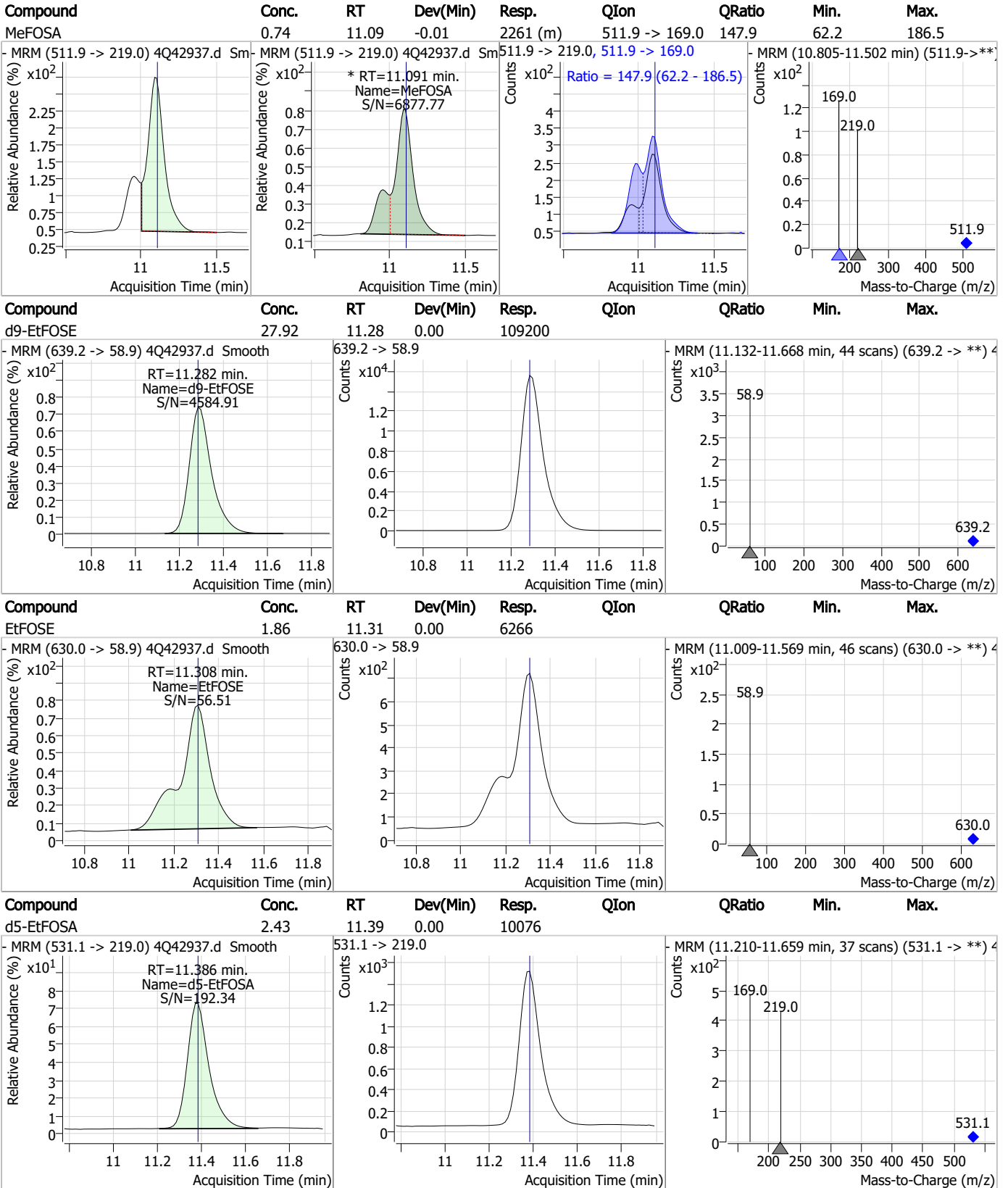
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.95	11.00	0.00	6213 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.48	11.10	0.00	9499				



Perfluorinated Compounds by LC/MS/MS

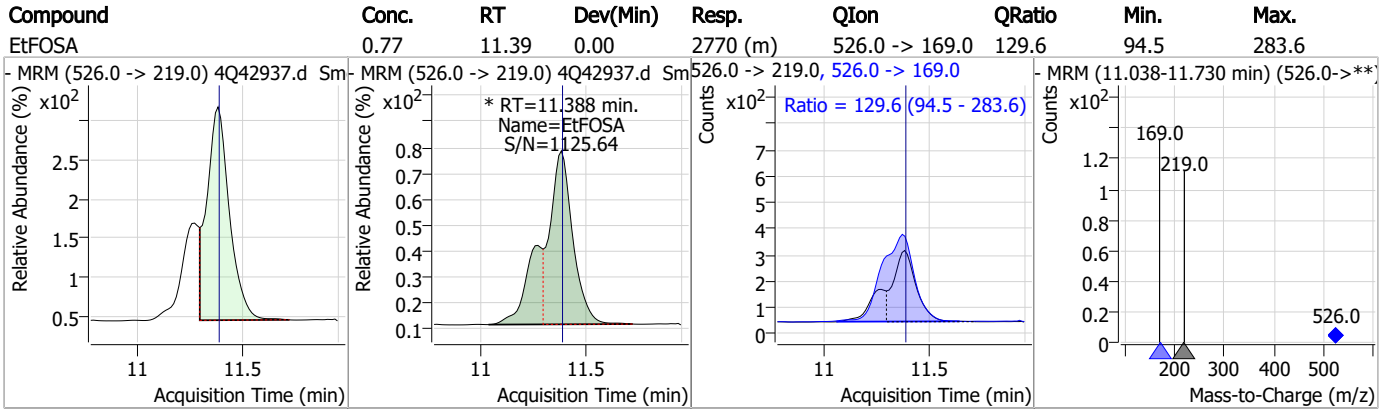


7.7.3

7



Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42937.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 12:04 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		6.62	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42938.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 12:27:15 PM
 Sample Name : ic621-3
 Vial : P1-A4
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.114	216.8 -> 171.9	145141	10.00 µg/L	0.116
M5-PFPeA	4.525	268.3 -> 223.0	85658	5.00 µg/L	0.050
M5-PFHxA	5.684	318.0 -> 273.0	66221	2.50 µg/L	0.037
M4-PFHpA	6.605	367.1 -> 322.0	30104	2.50 µg/L	0.025
M8-PFOA	7.250	421.1 -> 376.0	40124	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	22828	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	22483	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	23802	1.25 µg/L	0.012
M2-PFDoDA	9.255	615.1 -> 570.0	31188	1.25 µg/L	0.012
M2-PFTeDA	10.049	715.2 -> 670.0	24845	1.25 µg/L	0.012
M8-FOSA	9.883	506.1 -> 77.8	23891	2.50 µg/L	0.012
M3-PFBS	5.601	302.1 -> 79.9	14615	2.50 µg/L	0.037
M3-PFHxS	7.354	402.1 -> 79.9	8233	2.50 µg/L	0.013
M8-PFOS	8.479	507.1 -> 79.9	12589	2.50 µg/L	0.012
M2-4:2FTS	5.372	329.1 -> 80.9	1825	5.00 µg/L	0.037
M2-6:2FTS	7.023	429.1 -> 80.9	2503	5.00 µg/L	0.025
M2-8:2FTS	8.102	529.1 -> 80.9	4231	5.00 µg/L	0.012
M3-MeFOSAA	8.373	573.2 -> 419.0	20044	5.00 µg/L	0.012
M3-HFPO-DA	6.051	286.9 -> 168.9	38681	10.00 µg/L	0.037
M5-EtFOSAA	8.582	589.2 -> 419.0	16212	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	95244	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	116911	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	10266	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9758	2.50 µg/L	0.000
13C4-PFOS	8.480	502.8 -> 79.9	12437	2.50 µg/L	0.012
13C3-PFBA	3.105	216.0 -> 172.0	80712	5.00 µg/L	0.115
18O2-PFHxS	7.353	403.0 -> 83.9	6049	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	48748	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19911	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	23883	1.25 µg/L	0.012
13C2-PFHxA	5.685	315.1 -> 270.0	57939	2.50 µg/L	0.037
System Monitoring Compounds					
13C2-4:2FTS	5.372	329.1 -> 80.9	1825	5.52 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C2-6:2FTS	7.023	429.1 -> 80.9	2503	5.28 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-8:2FTS	8.102	529.1 -> 80.9	4231	5.42 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-PFDoDA	9.255	615.1 -> 570.0	31188	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-PFTeDA	10.049	715.2 -> 670.0	24845	1.30 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-PFBS	5.601	302.1 -> 79.9	14615	2.63 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.354	402.1 -> 79.9	8233	2.46 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C4-PFBA	3.114	216.8 -> 171.9	145141	10.33 µg/L	0.116
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C4-PFHpA	6.605	367.1 -> 322.0	30104	2.29 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C5-PFHxA	5.684	318.0 -> 273.0	66221	2.47 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C5-PFPeA	4.525	268.3 -> 223.0	85658	5.02 µg/L	0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C6-PFDA	8.315	519.1 -> 474.1	22483	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C7-PFUnDA	8.797	570.0 -> 525.1	23802	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C8-FOSA	9.883	506.1 -> 77.8	23891	2.94 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.5%		
13C8-PFOA	7.250	421.1 -> 376.0	40124	2.50 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C8-PFOS	8.479	507.1 -> 79.9	12589	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C9-PFNA	7.809	472.1 -> 427.0	22828	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
d3-MeFOSAA	8.373	573.2 -> 419.0	20044	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C3-HFPO-DA	6.051	286.9 -> 168.9	38681	9.51 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
d3-MeFOSA	11.102	515.0 -> 219.0	9758	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
d5-EtFOSAA	8.582	589.2 -> 419.0	16212	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
d7-MeFOSE	10.985	623.2 -> 58.9	95244	29.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 118.8%		
d9-EtFOSE	11.294	639.2 -> 58.9	116911	29.79 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
d5-EtFOSA	11.386	531.1 -> 219.0	10266	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
Target Compounds					QValue
4:2FTS	5.373	327.1 -> 307.0	11088	4.87 µg/L	100
		327.1 -> 80.9	4495		
6:2FTS	7.023	427.1 -> 407.0	8199	4.80 µg/L	99
		427.1 -> 80.9	3545		
8:2FTS	8.103	527.1 -> 507.0	8385	4.42 µg/L	93
		527.1 -> 80.8	3686		
EtFOSAA	8.595	584.2 -> 419.1	3121	1.29 µg/L	m 88
		584.2 -> 526.0	1428		
FOSA	9.874	498.1 -> 77.9	9400	1.22 µg/L	99
		498.1 -> 478.0	283		
MeFOSAA	8.373	570.1 -> 419.0	3140	1.14 µg/L	92
		570.1 -> 483.0	602		
PFBA	3.108	212.8 -> 168.9	15687	4.73 µg/L	100
PFBS	5.590	298.7 -> 79.9	5725	1.05 µg/L	87
		298.7 -> 98.8	2633		
PFDA	8.316	512.9 -> 469.0	15110	1.18 µg/L	99
		512.9 -> 219.0	2839		
PFDODA	9.256	613.1 -> 569.0	23887	1.21 µg/L	100
		613.1 -> 319.0	3310		
PFDS	9.409	599.0 -> 79.9	3327	1.18 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1630			
PFHpA	6.605	363.1 -> 319.0	18390	1.22	µg/L	98
		363.1 -> 169.0	3362			
PFHpS	7.950	449.0 -> 79.9	3833	1.17	µg/L	97
		449.0 -> 98.9	1900			
PFHxA	5.686	313.0 -> 269.0	23319	1.19	µg/L	100
		313.0 -> 118.9	724			
PFHxS	7.355	398.7 -> 79.9	3098	1.10	µg/L	m 97
		398.7 -> 98.9	1660			
PFNA	7.810	463.0 -> 419.0	14099	1.16	µg/L	94
		463.0 -> 219.0	3594			
PFNS	8.961	548.8 -> 79.9	2191	1.13	µg/L	96
		548.8 -> 98.9	1191			
PFOA	7.252	413.0 -> 369.0	21849	1.17	µg/L	98
		413.0 -> 169.0	4651			
PFOS	8.480	498.9 -> 79.9	5664	1.16	µg/L	m 81
		498.9 -> 98.8	2596			
PFPeA	4.527	263.0 -> 219.0	38246	2.36	µg/L	100
PFPeS	6.646	349.1 -> 79.9	2715	1.13	µg/L	99
		349.1 -> 98.9	1179			
PFTeDA	10.050	713.1 -> 669.0	24383	1.25	µg/L	100
		713.1 -> 168.9	1949			
PFTrDA	9.666	663.0 -> 619.0	30959	1.22	µg/L	99
		663.0 -> 168.9	3065			
PFUnDA	8.798	563.1 -> 519.0	16468	1.22	µg/L	99
		563.1 -> 269.1	3143			
11CI-PF3OUdS	9.718	630.9 -> 450.9	23785	2.36	µg/L	98
		632.9 -> 452.9	7731			
9CI-PF3ONS	8.825	530.8 -> 351.0	26136	2.32	µg/L	96
		532.8 -> 353.0	7496			
ADONA	6.855	376.9 -> 250.9	54497	2.35	µg/L	100
		376.9 -> 84.8	14616			
HFPO-DA	6.052	284.9 -> 168.9	7632	2.49	µg/L	99
		284.9 -> 184.9	990			
3:3FTCA	4.092	241.0 -> 177.0	4451	5.89	µg/L	97
		241.0 -> 117.0	482			
5:3FTCA	6.382	341.0 -> 237.1	83027	29.99	µg/L	100
		341.0 -> 217.0	59146			
7:3FTCA	7.811	441.0 -> 316.9	34714	30.60	µg/L	98
		441.0 -> 336.9	75219			
EtFOSA	11.388	526.0 -> 219.0	9073	2.48	µg/L	65
		526.0 -> 169.0	12520			
EtFOSE	11.308	630.0 -> 58.9	21840	6.06	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	7991	2.53	µg/L	m 82
		511.9 -> 169.0	11604			
MeFOSE	11.010	616.1 -> 58.9	20412	6.10	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	2902	1.19	µg/L	94
		699.1 -> 98.8	1773			
NFDHA	5.565	295.0 -> 201.0	3405	2.58	µg/L	100
		295.0 -> 84.9	840			
PFMBA	4.928	279.0 -> 85.1	22330	2.41	µg/L	100
PFMPA	3.691	229.0 -> 84.9	19059	2.35	µg/L	100
PFEESA	6.121	314.8 -> 134.9	35188	2.14	µg/L	99
		314.8 -> 82.9	1273			

= Qualifier out of range, m = manually integrated, + = Area summed

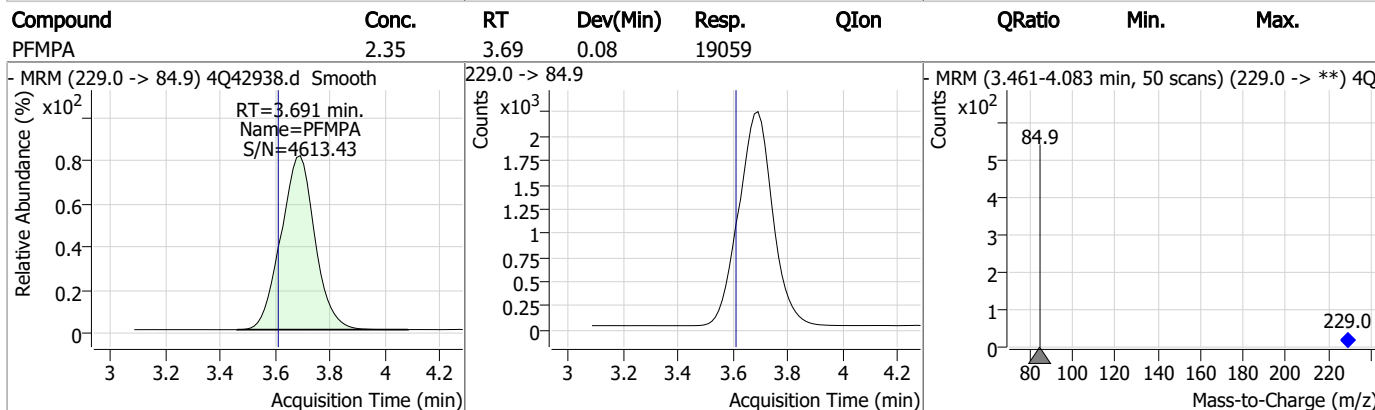
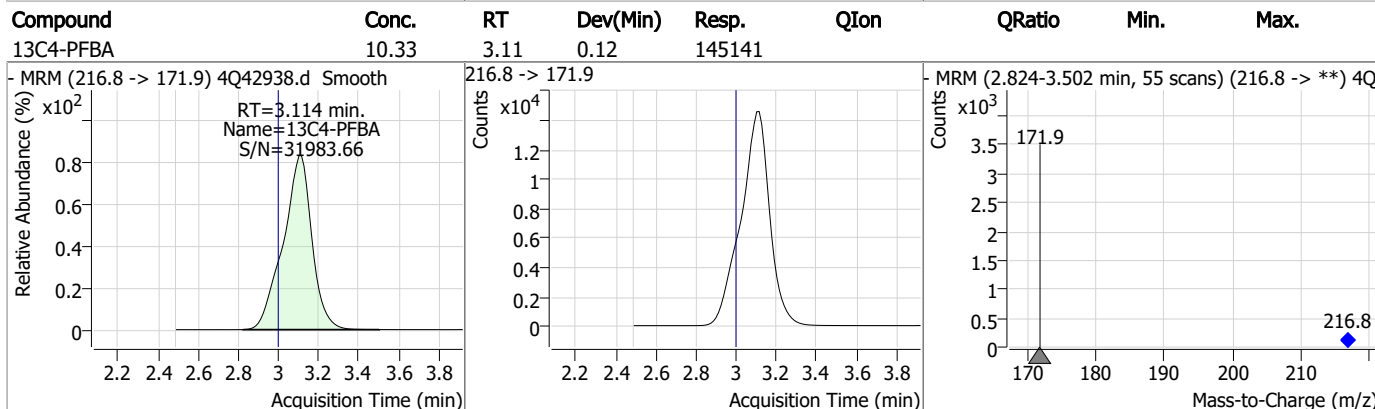
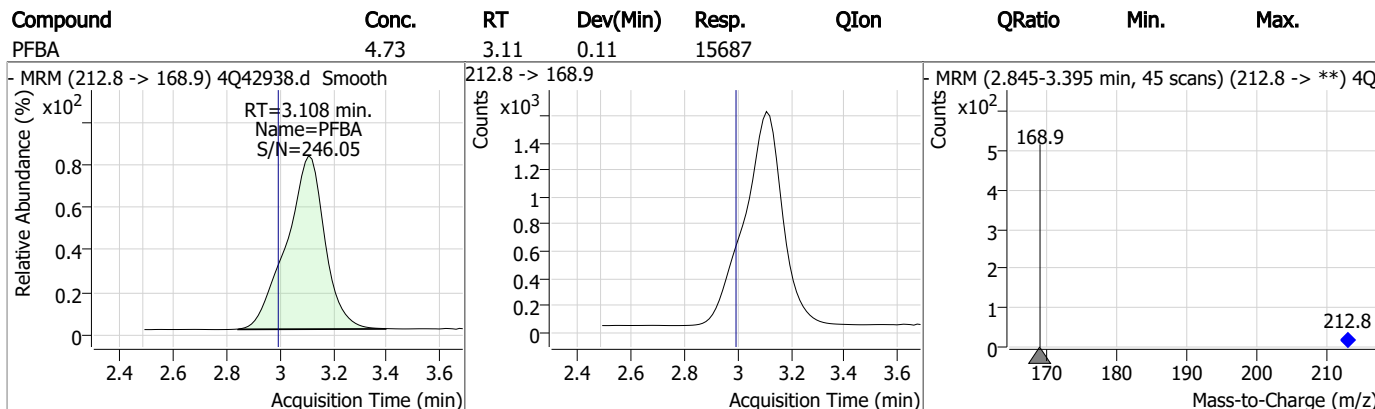
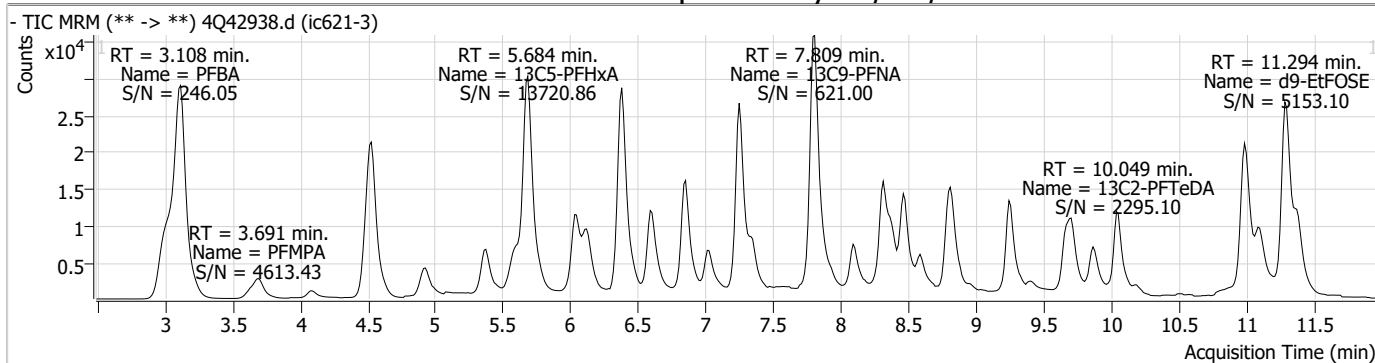
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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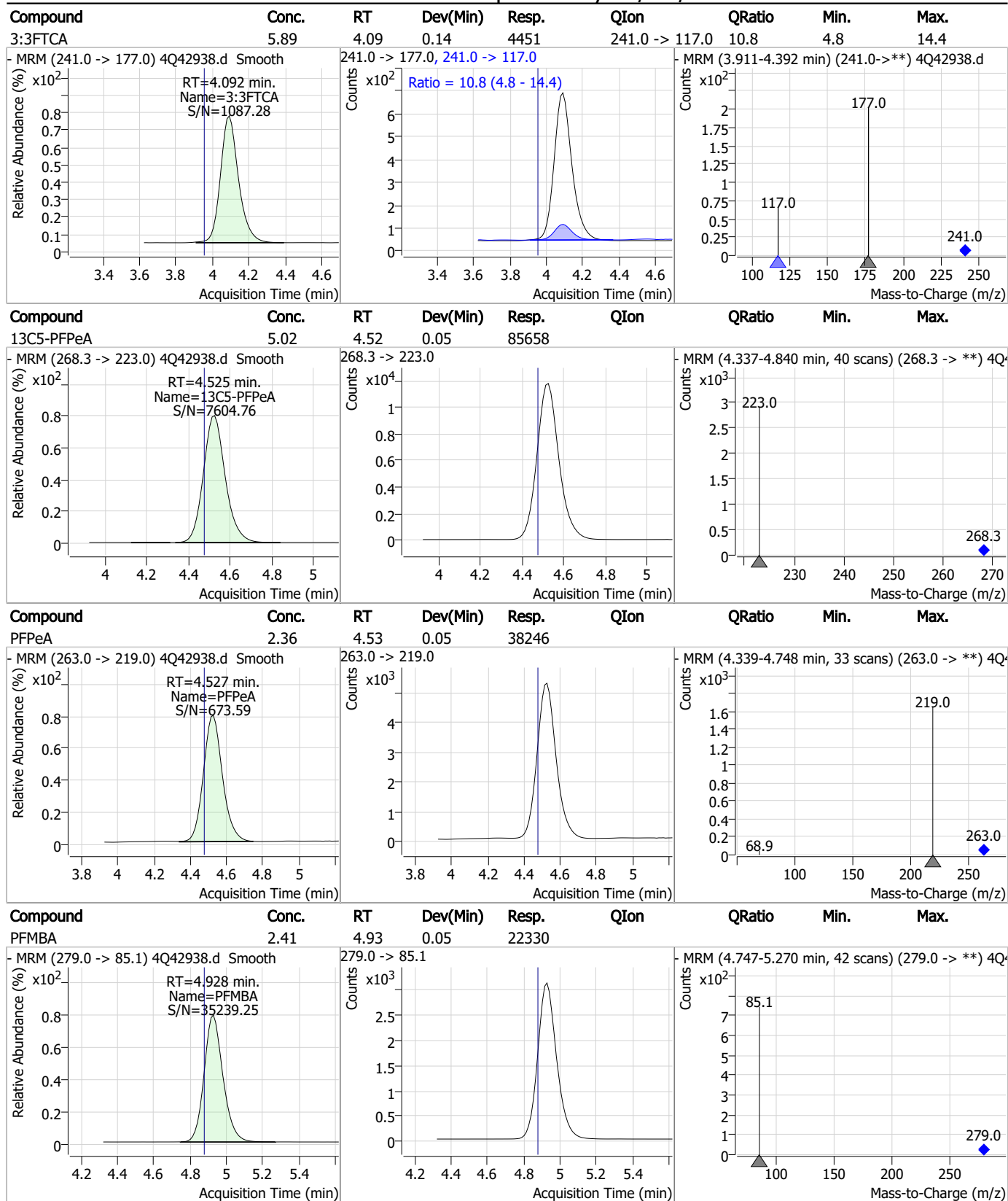
7.7.4

7

Perfluorinated Compounds by LC/MS/MS

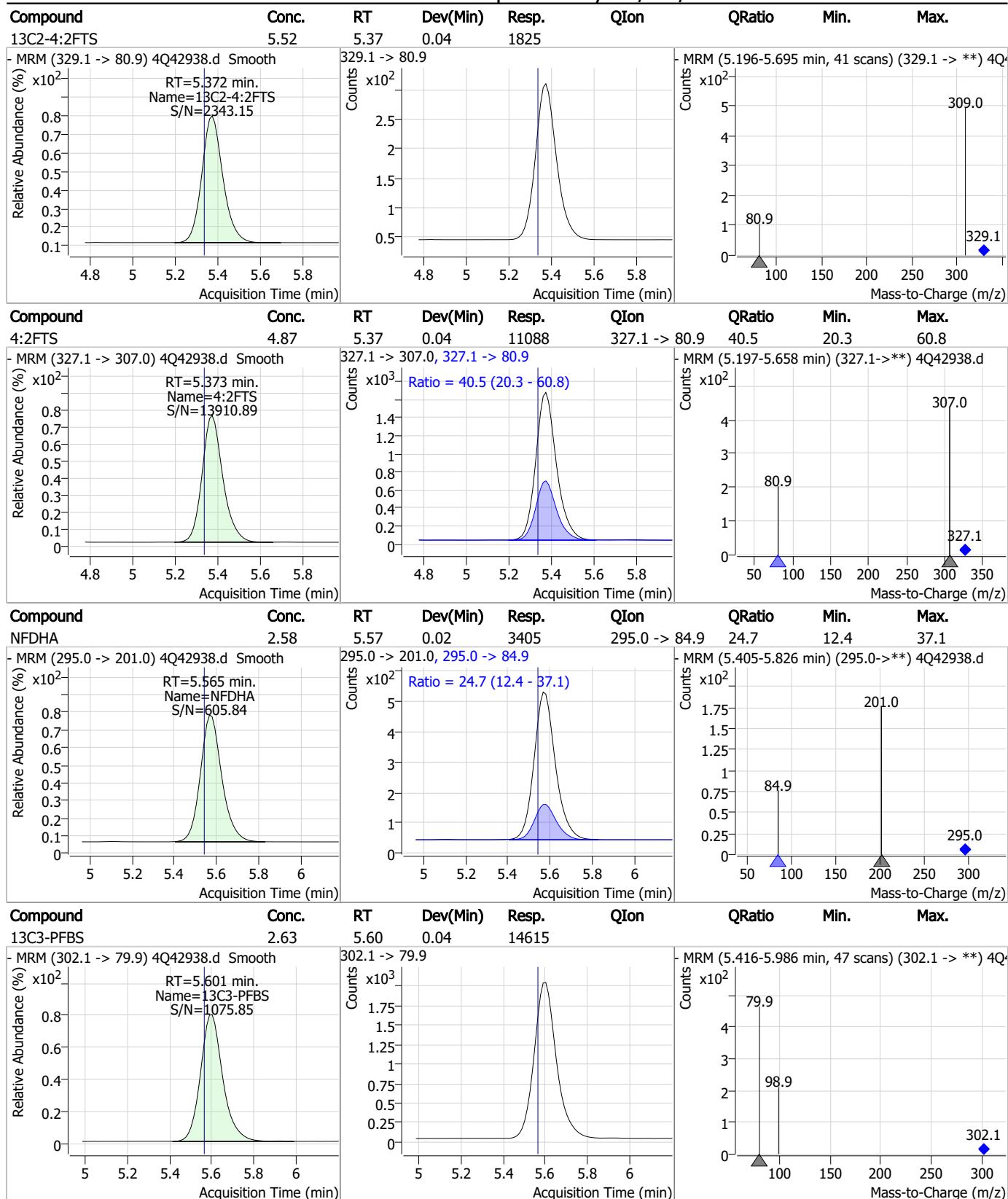


Perfluorinated Compounds by LC/MS/MS



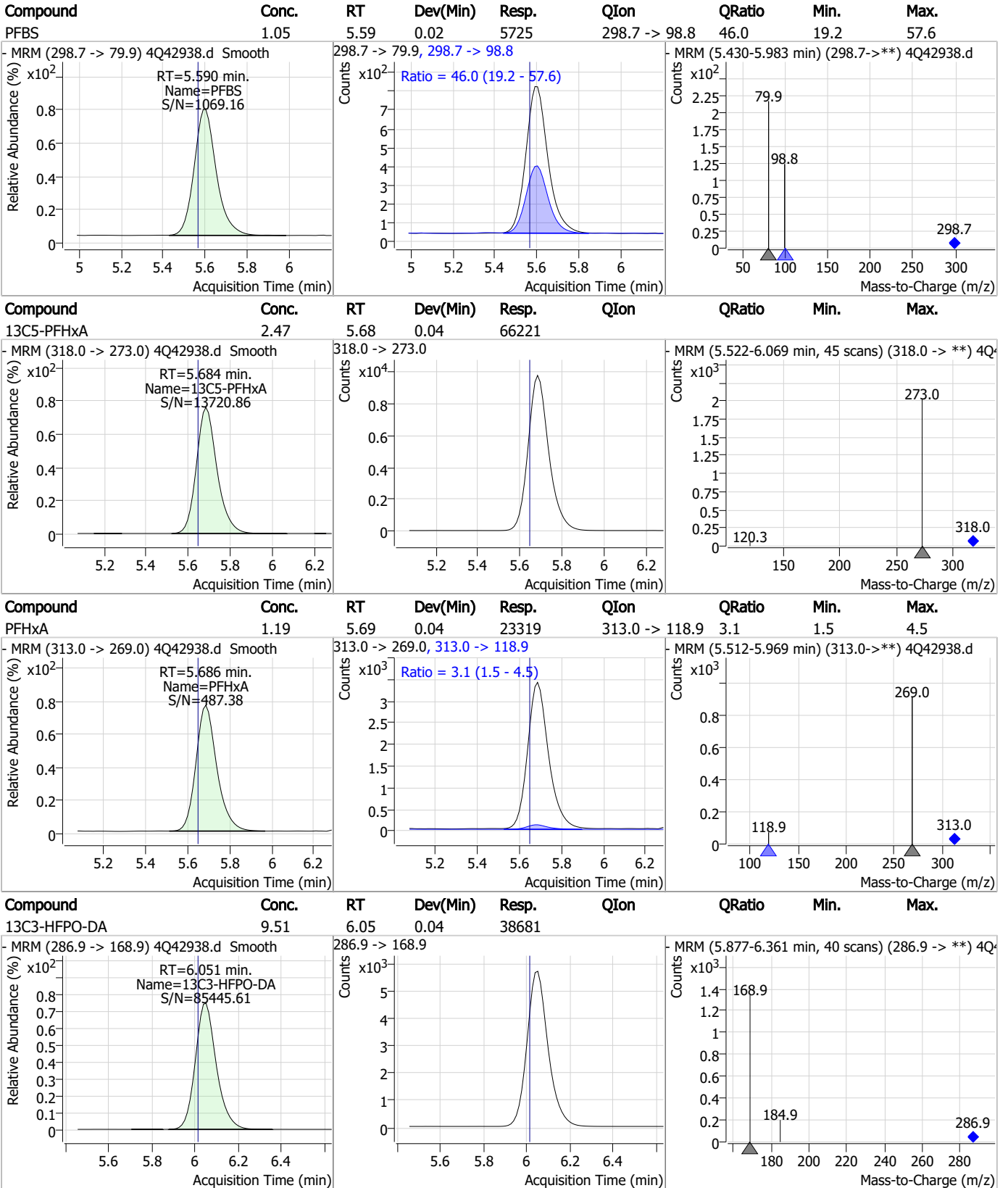
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

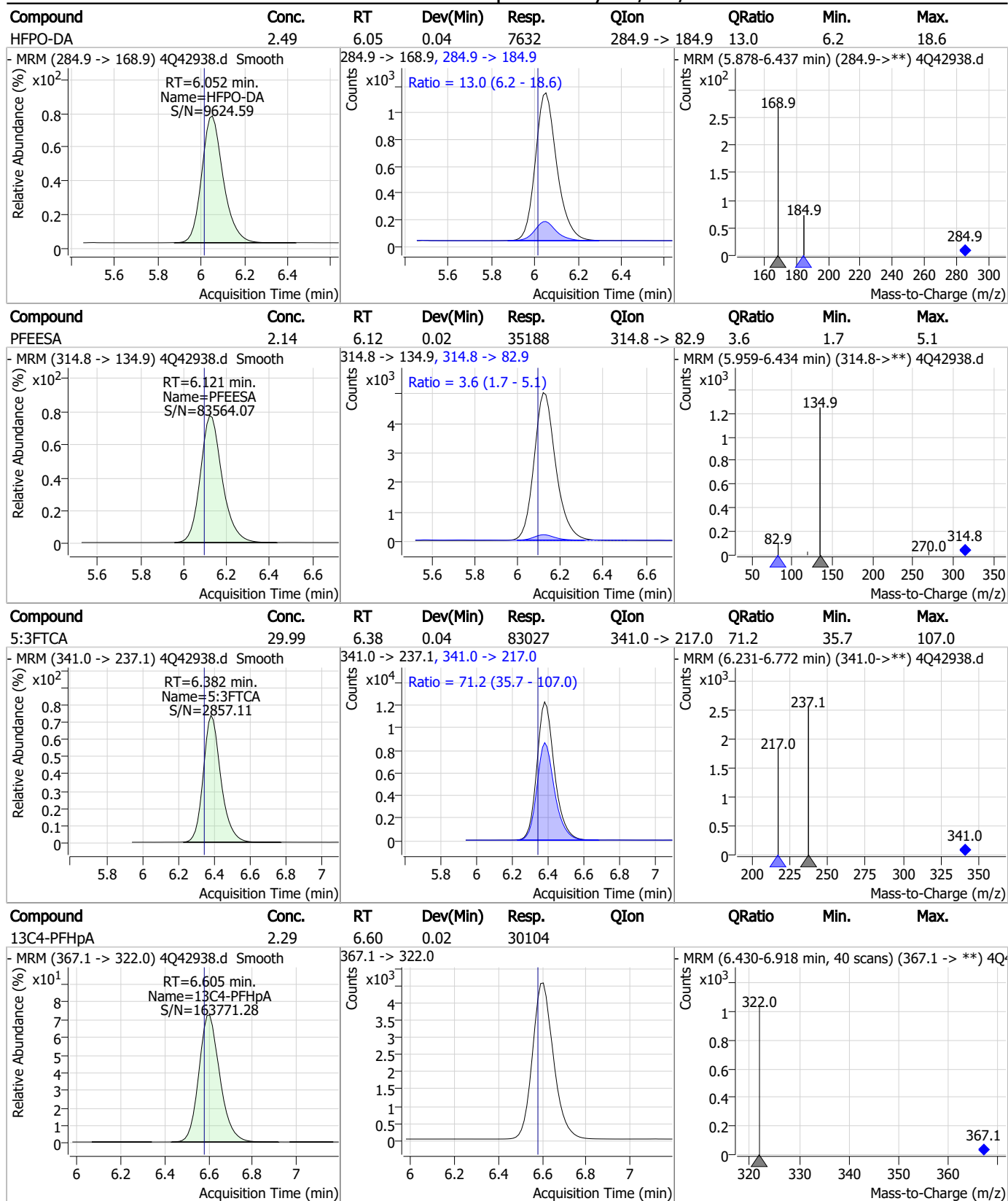
Perfluorinated Compounds by LC/MS/MS



7.7.4

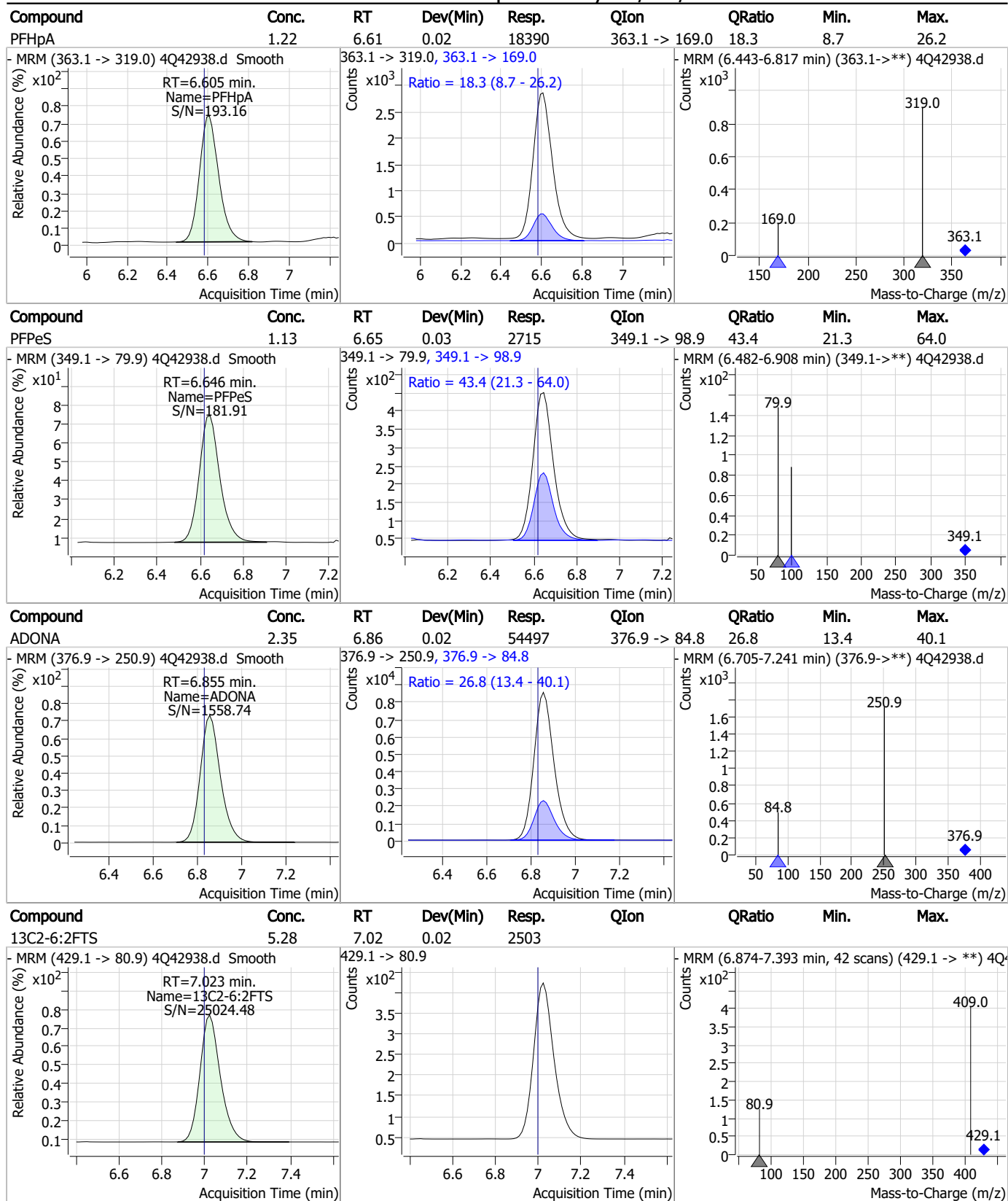
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Perfluorinated Compounds by LC/MS/MS



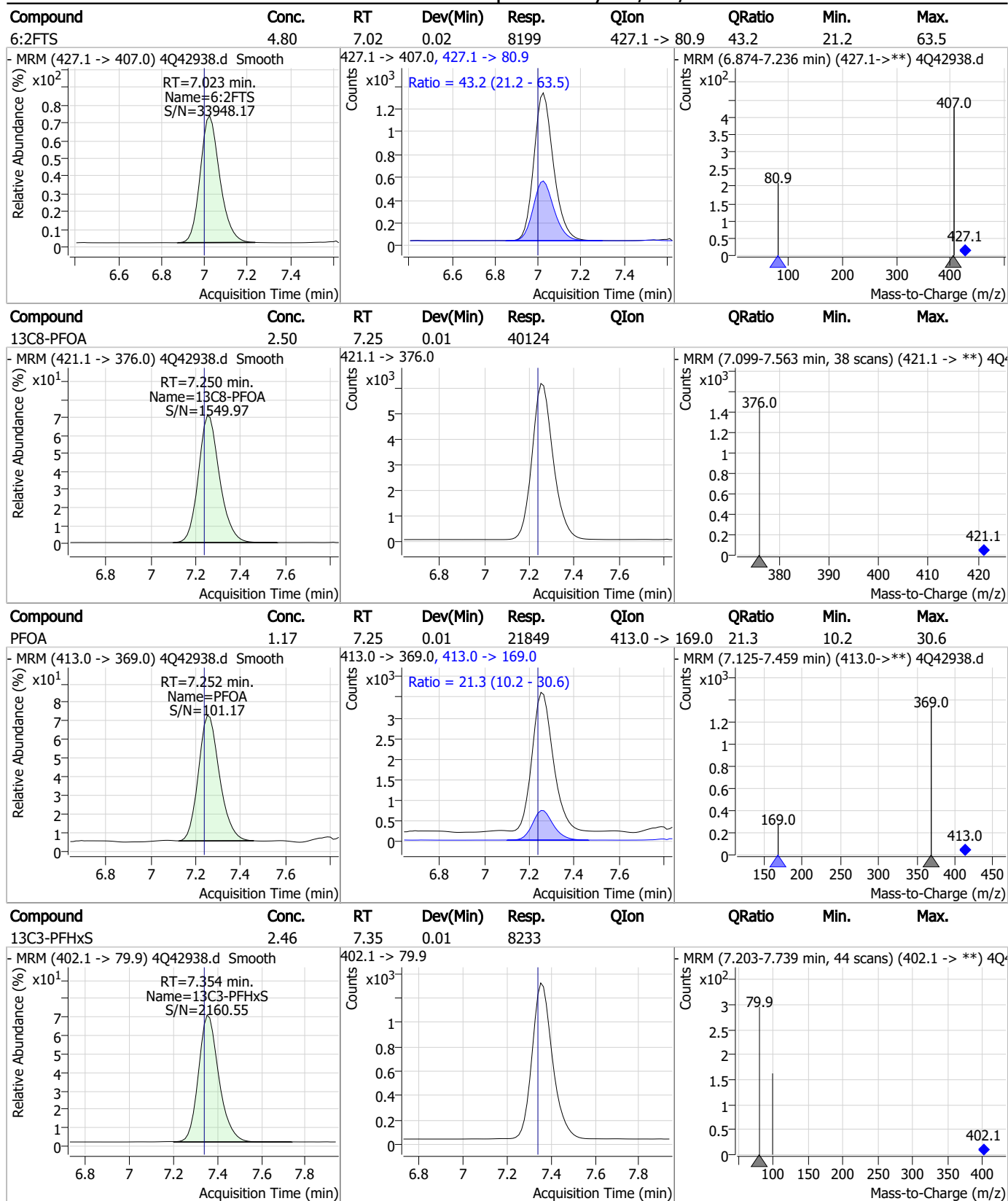
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Perfluorinated Compounds by LC/MS/MS



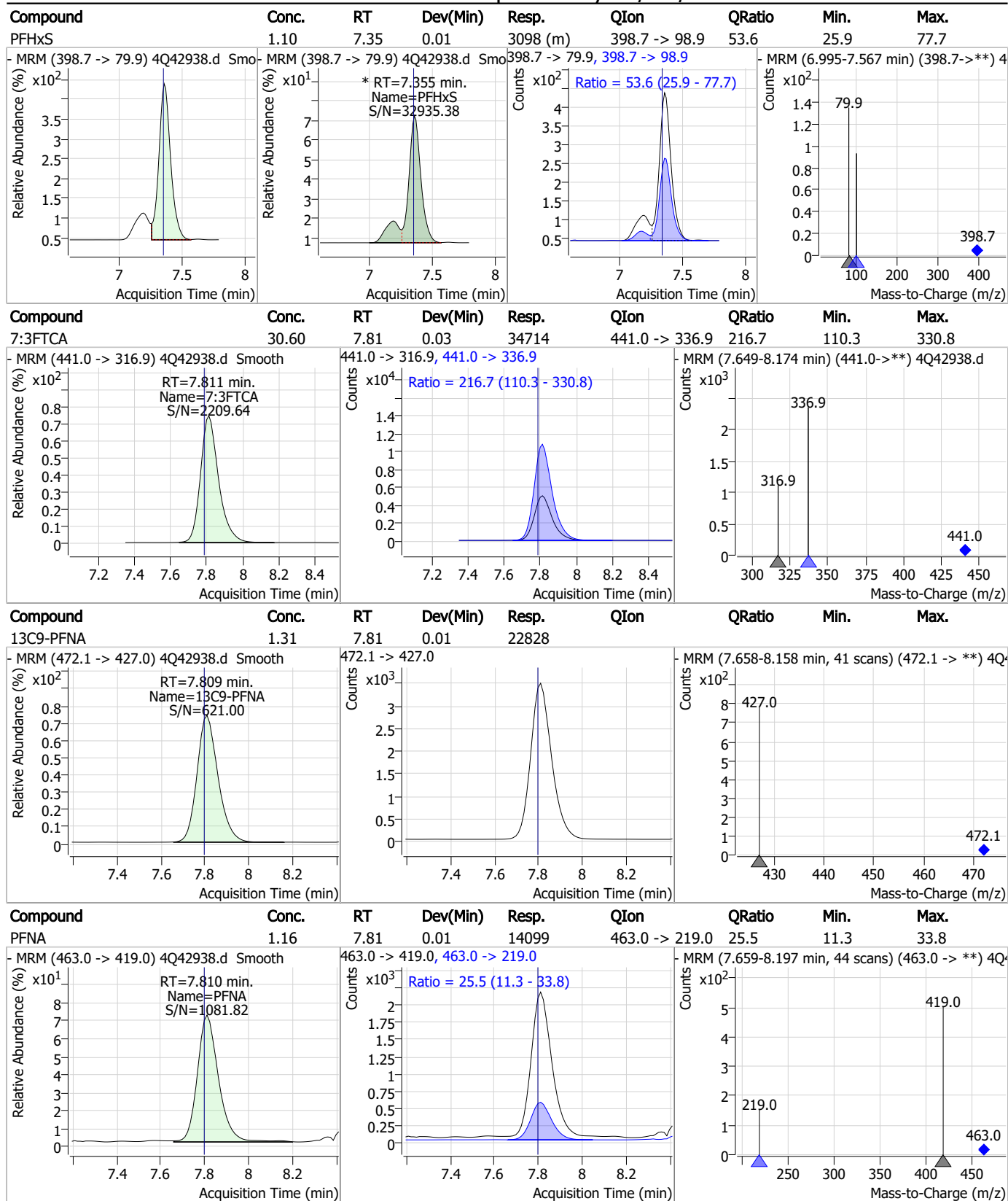
7.7.4
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Perfluorinated Compounds by LC/MS/MS



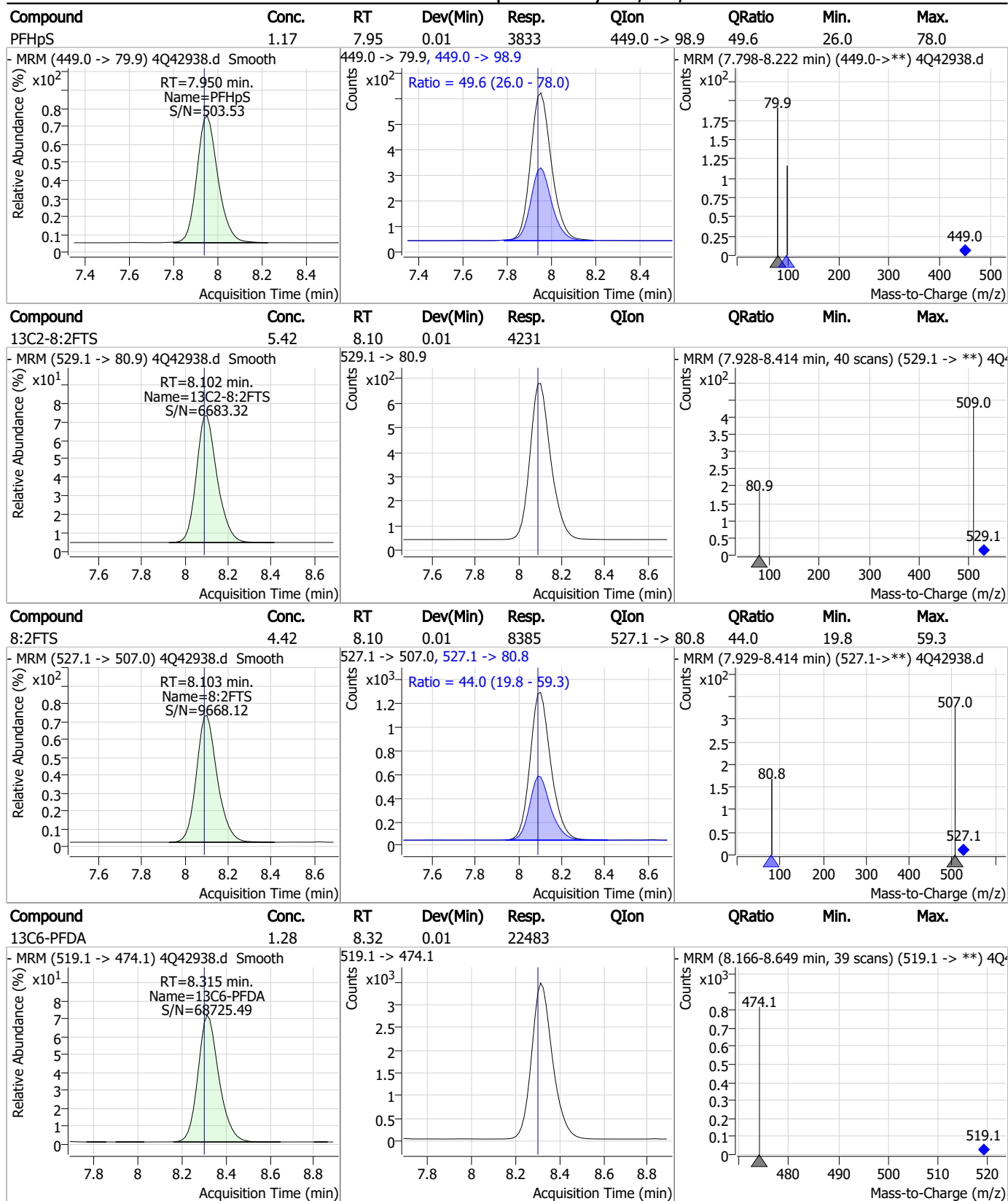
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



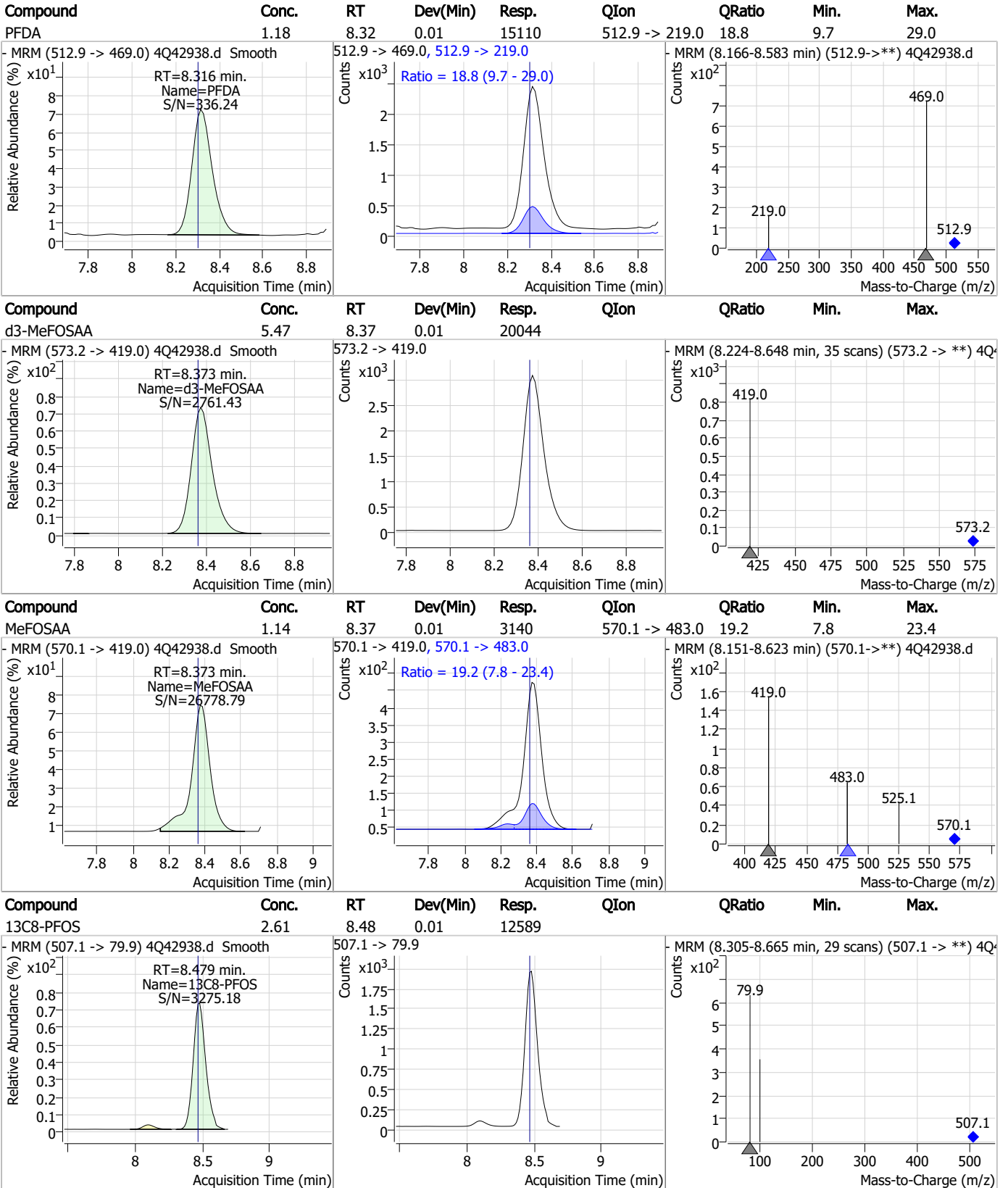
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
7

Perfluorinated Compounds by LC/MS/MS

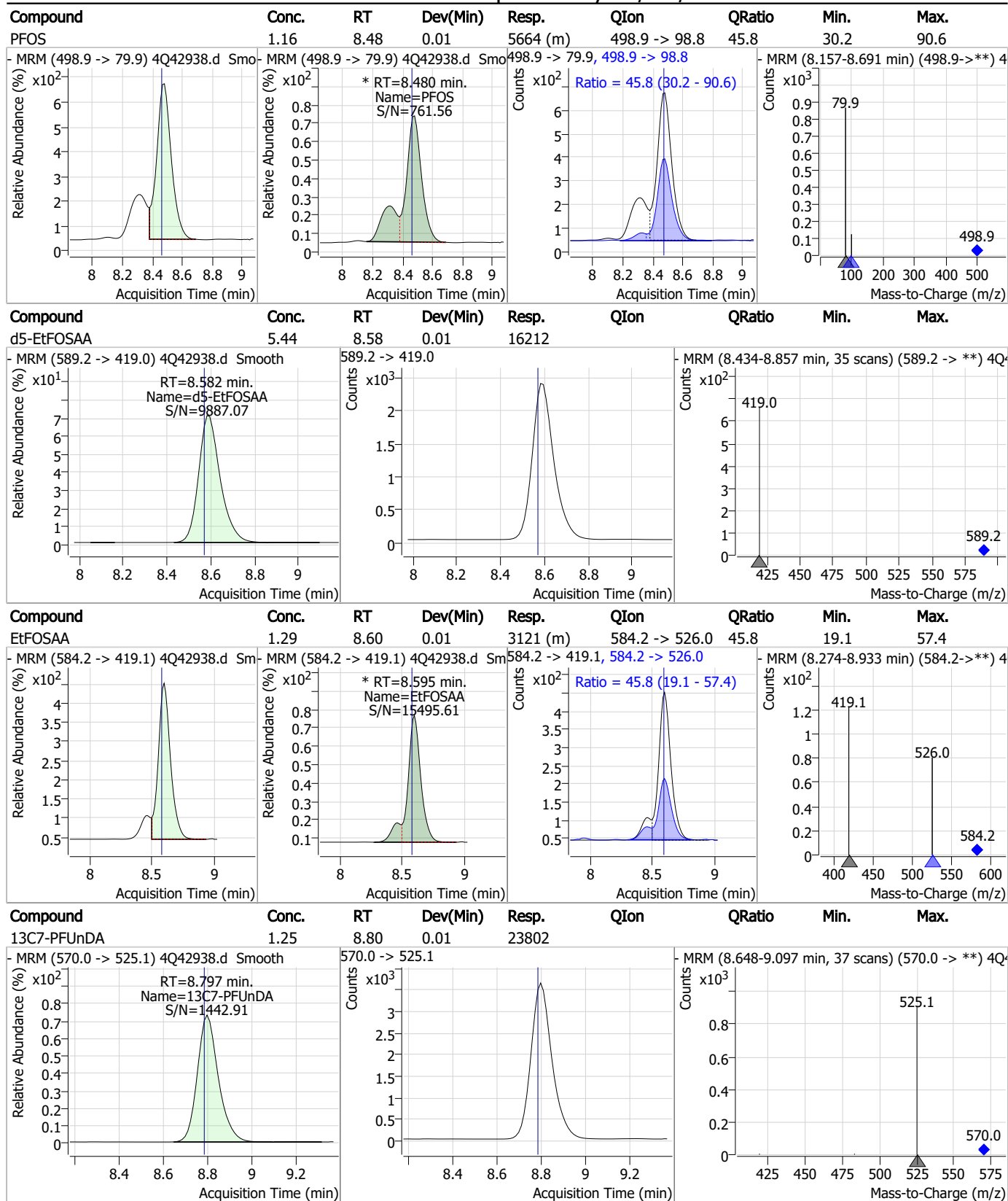


7.7.4

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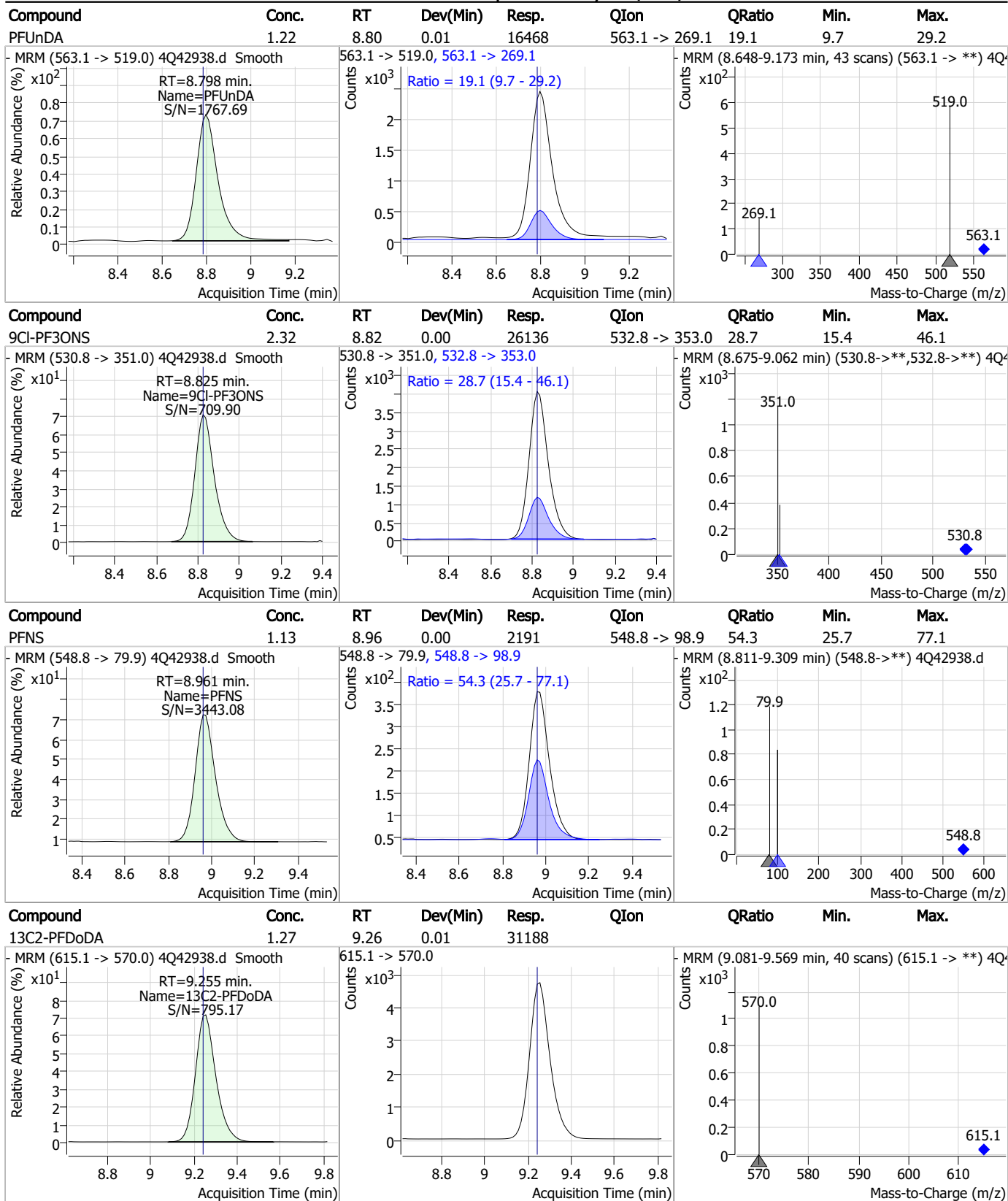


Perfluorinated Compounds by LC/MS/MS



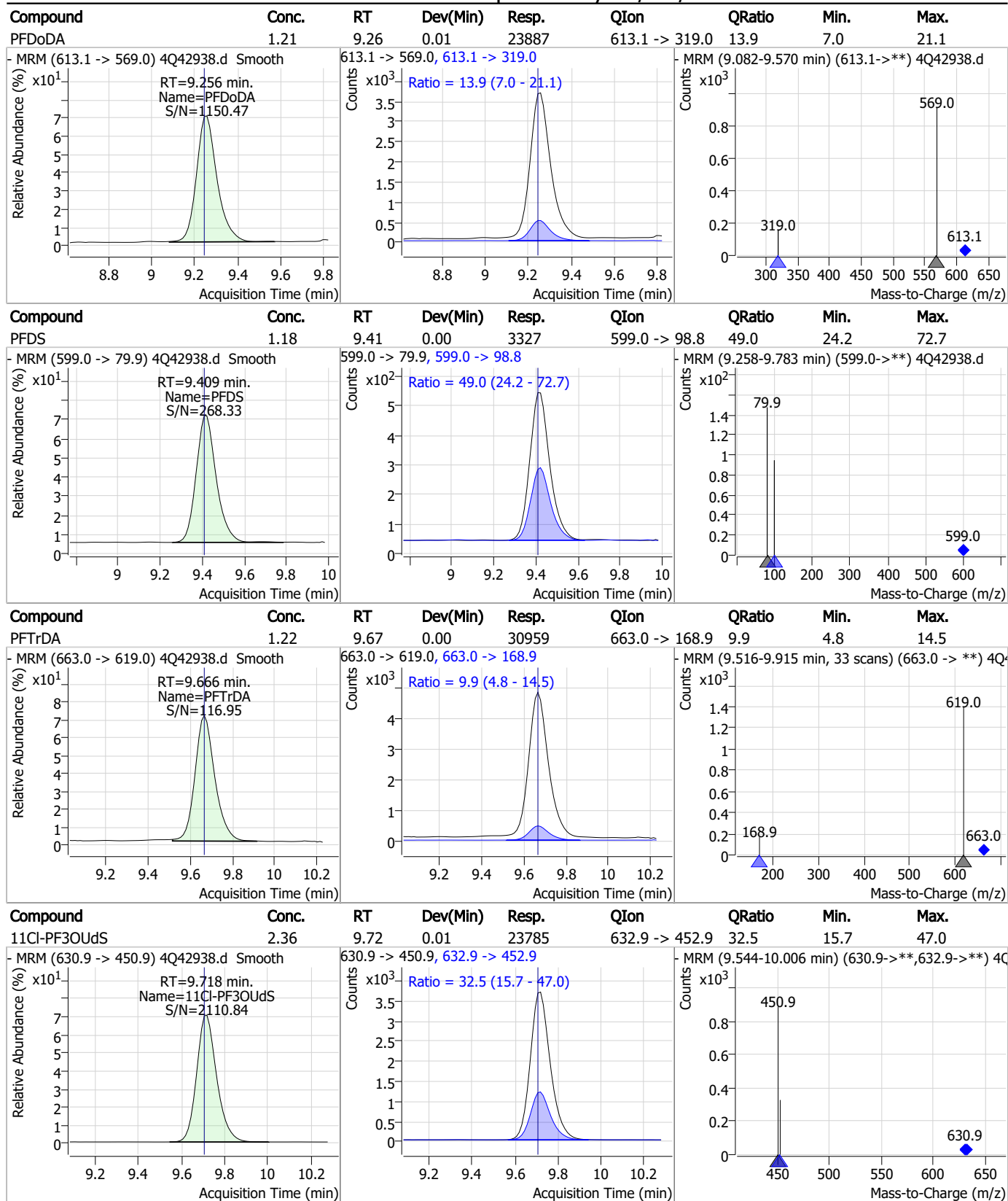
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
7

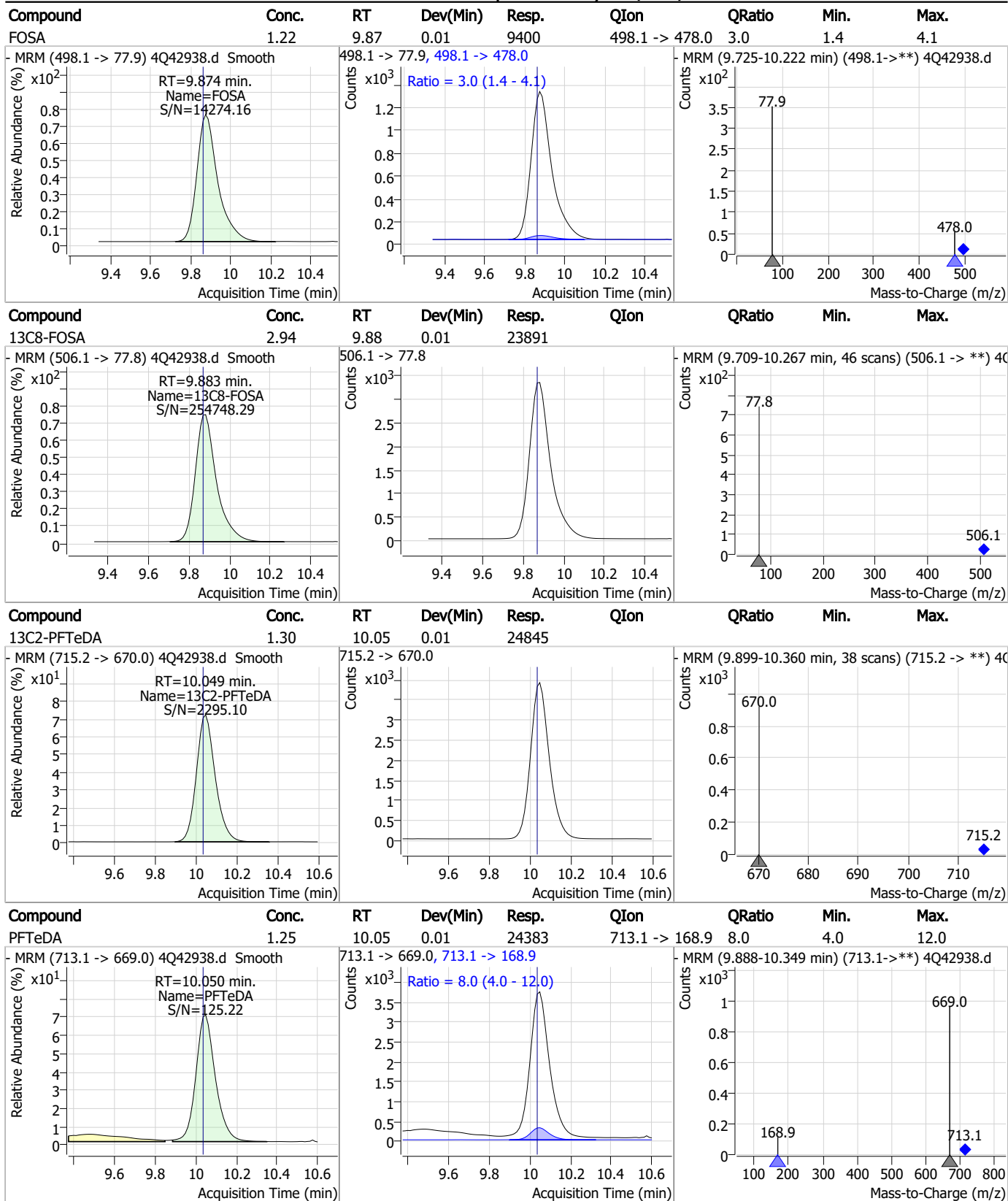
Perfluorinated Compounds by LC/MS/MS



7.7.4

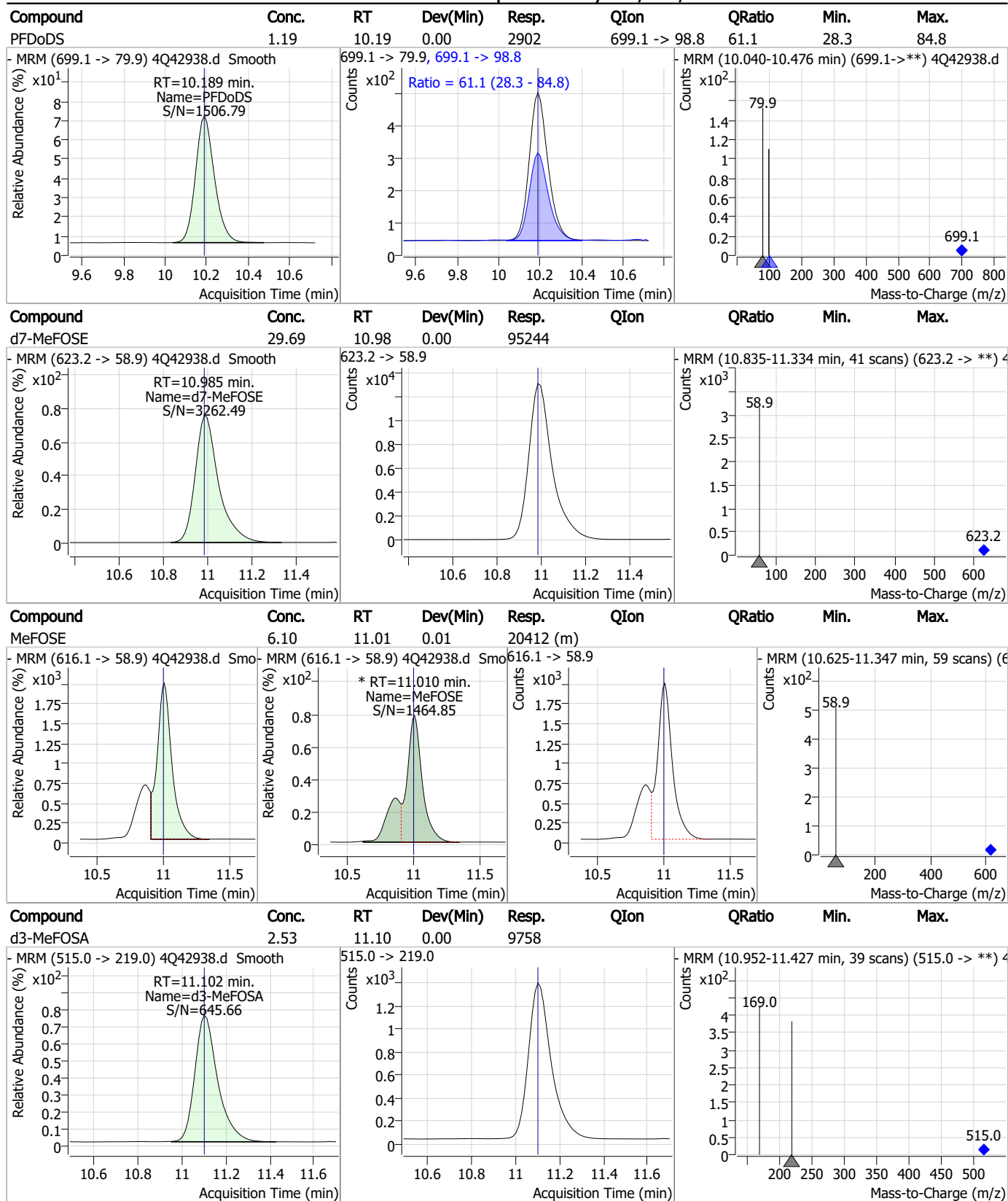
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Perfluorinated Compounds by LC/MS/MS



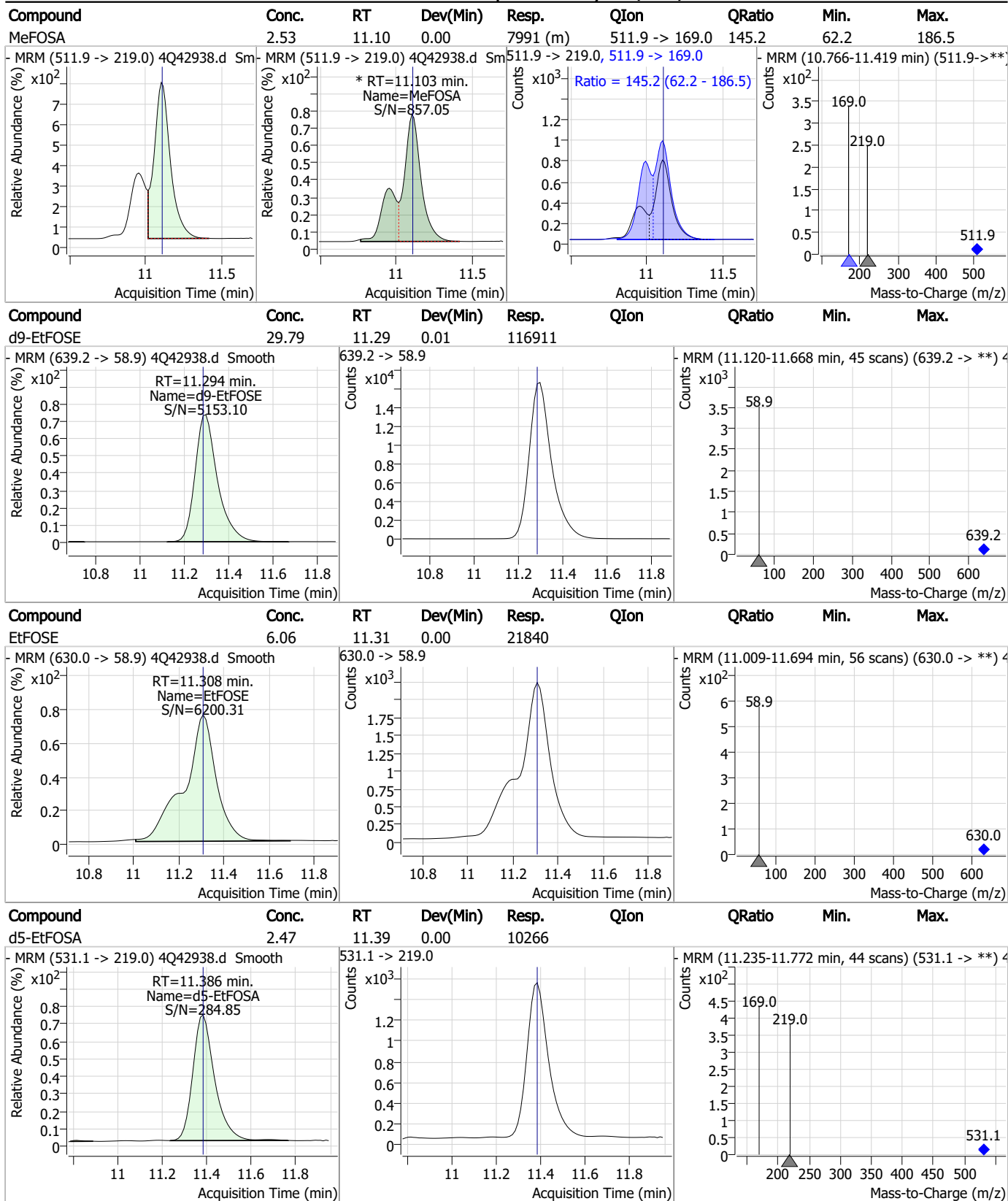
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

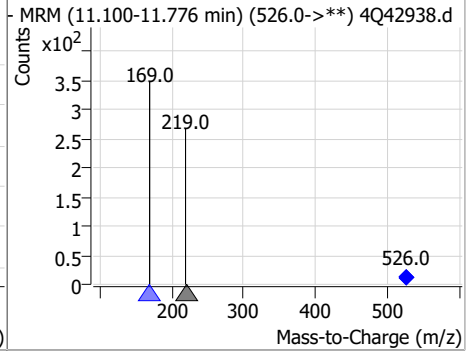
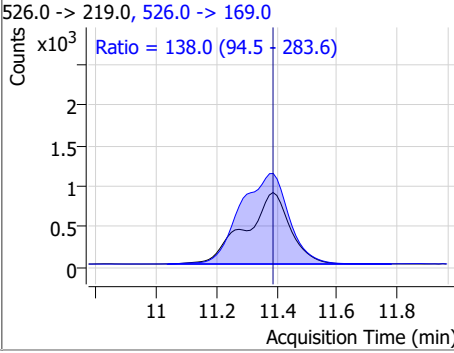
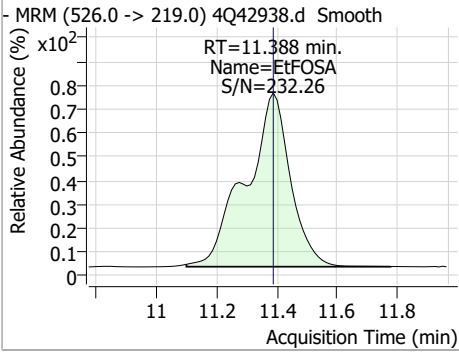
Perfluorinated Compounds by LC/MS/MS



7.7.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.48	11.39	0.00	9073	526.0 -> 169.0	138.0	94.5	283.6



7.7.4

7

Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42938.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 12:27 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.48	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak

7.7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42939.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 12:41:22 PM
 Sample Name : icc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	120375	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	80061	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	62115	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	31115	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	37981	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	21026	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	21093	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	23316	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	29780	1.25 µg/L	0.000
M2-PFTeDA	10.049	715.2 -> 670.0	24267	1.25 µg/L	0.012
M8-FOSA	9.870	506.1 -> 77.8	23409	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	13467	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	7756	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	11879	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1702	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2251	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3785	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	18782	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	36164	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	16357	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	95106	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	112460	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	9919	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8698	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12553	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	69115	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	5654	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	45894	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19253	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	23326	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	52502	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1702	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2251	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3785	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFDoDA	9.243	615.1 -> 570.0	29780	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	10.049	715.2 -> 670.0	24267	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C3-PFBS	5.564	302.1 -> 79.9	13467	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C3-PFHxS	7.354	402.1 -> 79.9	7756	2.48 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFBA	3.011	216.8 -> 171.9	120375	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.580	367.1 -> 322.0	31115	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFHxA	5.659	318.0 -> 273.0	62115	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.475	268.3 -> 223.0	80061	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.315	519.1 -> 474.1	21093	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C7-PFUnDA	8.797	570.0 -> 525.1	23316	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-FOSA	9.870	506.1 -> 77.8	23409	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C8-PFOA	7.250	421.1 -> 376.0	37981	2.51 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.467	507.1 -> 79.9	11879	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C9-PFNA	7.797	472.1 -> 427.0	21026	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSAA	8.373	573.2 -> 419.0	18782	5.08 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	36164	9.81 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d3-MeFOSA	11.102	515.0 -> 219.0	8698	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.5%	
d5-EtFOSAA	8.582	589.2 -> 419.0	16357	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.9%	
d7-MeFOSE	10.985	623.2 -> 58.9	95106	29.38 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 117.5%	
d9-EtFOSE	11.282	639.2 -> 58.9	112460	28.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.6%	
d5-EtFOSA	11.386	531.1 -> 219.0	9919	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	19194	9.05 µg/L	100
		327.1 -> 80.9	7773		
6:2FTS	7.011	427.1 -> 407.0	15124	9.84 µg/L	96
		427.1 -> 80.9	6737		
8:2FTS	8.090	527.1 -> 507.0	17053	10.05 µg/L	95
		527.1 -> 80.8	7291		
EtFOSAA	8.595	584.2 -> 419.1	5753	2.35 µg/L	m 86
		584.2 -> 526.0	2697		
FOSA	9.874	498.1 -> 77.9	18589	2.47 µg/L	99
		498.1 -> 478.0	553		
MeFOSAA	8.373	570.1 -> 419.0	6652	2.57 µg/L	m 97
		570.1 -> 483.0	940		
PFBA	3.020	212.8 -> 168.9	26946	9.80 µg/L	100
PFBS	5.565	298.7 -> 79.9	11111	2.21 µg/L	97
		298.7 -> 98.8	4474		
PFDA	8.316	512.9 -> 469.0	29554	2.45 µg/L	94
		512.9 -> 219.0	6510		
PFDODA	9.244	613.1 -> 569.0	47114	2.51 µg/L	100
		613.1 -> 319.0	6566		
PFDS	9.421	599.0 -> 79.9	6265	2.36 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3296			
PFHpA	6.593	363.1 -> 319.0	37116	2.39	µg/L	100
		363.1 -> 169.0	6516			
PFHpS	7.936	449.0 -> 79.9	6726	2.18	µg/L	96
		449.0 -> 98.9	3699			
PFHxA	5.662	313.0 -> 269.0	44388	2.41	µg/L	99
		313.0 -> 118.9	1413			
PFHxS	7.355	398.7 -> 79.9	6072	2.28	µg/L	m 93
		398.7 -> 98.9	2840			
PFNA	7.797	463.0 -> 419.0	25657	2.28	µg/L	94
		463.0 -> 219.0	6530			
PFNS	8.961	548.8 -> 79.9	4279	2.34	µg/L	98
		548.8 -> 98.9	2259			
PFOA	7.252	413.0 -> 369.0	40059	2.26	µg/L	99
		413.0 -> 169.0	8343			
PFOS	8.468	498.9 -> 79.9	10370	2.24	µg/L	m 87
		498.9 -> 98.8	5269			
PFPeA	4.477	263.0 -> 219.0	73408	4.84	µg/L	100
PFPeS	6.632	349.1 -> 79.9	5535	2.45	µg/L	98
		349.1 -> 98.9	2432			
PFTeDA	10.050	713.1 -> 669.0	46064	2.41	µg/L	98
		713.1 -> 168.9	4091			
PFTrDA	9.666	663.0 -> 619.0	60430	2.50	µg/L	100
		663.0 -> 168.9	5921			
PFUnDA	8.798	563.1 -> 519.0	29888	2.27	µg/L	98
		563.1 -> 269.1	6052			
11CI-PF3OUdS	9.718	630.9 -> 450.9	47754	5.06	µg/L	99
		632.9 -> 452.9	14653			
9CI-PF3ONS	8.825	530.8 -> 351.0	49397	4.68	µg/L	99
		532.8 -> 353.0	14813			
ADONA	6.843	376.9 -> 250.9	105995	4.88	µg/L	98
		376.9 -> 84.8	27486			
HFPO-DA	6.027	284.9 -> 168.9	14152	4.94	µg/L	99
		284.9 -> 184.9	1793			
3:3FTCA	3.992	241.0 -> 177.0	8279	11.72	µg/L	100
		241.0 -> 117.0	796			
5:3FTCA	6.357	341.0 -> 237.1	159751	61.52	µg/L	99
		341.0 -> 217.0	112343			
7:3FTCA	7.799	441.0 -> 316.9	65764	61.80	µg/L	98
		441.0 -> 336.9	147416			
EtFOSA	11.388	526.0 -> 219.0	16558	4.68	µg/L	m 65
		526.0 -> 169.0	22815			
EtFOSE	11.308	630.0 -> 58.9	41731	12.04	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	14559	5.18	µg/L	m 81
		511.9 -> 169.0	21314			
MeFOSE	11.010	616.1 -> 58.9	39887	11.93	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	5357	2.33	µg/L	100
		699.1 -> 98.8	3009			
NFDHA	5.541	295.0 -> 201.0	6406	5.18	µg/L	99
		295.0 -> 84.9	1609			
PFMBA	4.891	279.0 -> 85.1	41607	4.80	µg/L	100
PFMPA	3.628	229.0 -> 84.9	36216	4.78	µg/L	100
PFEESA	6.096	314.8 -> 134.9	66394	4.30	µg/L	100
		314.8 -> 82.9	2302			

= Qualifier out of range, m = manually integrated, + = Area summed

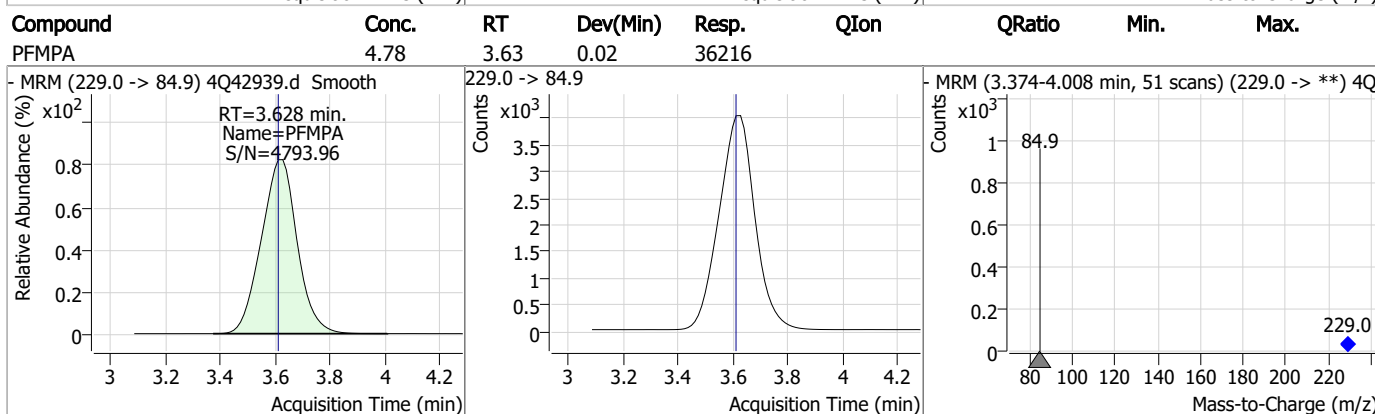
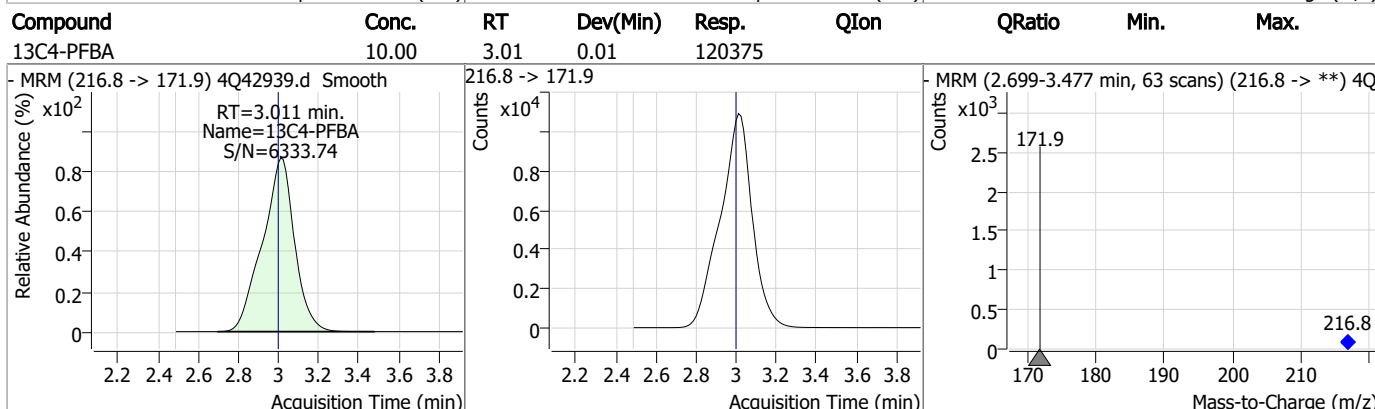
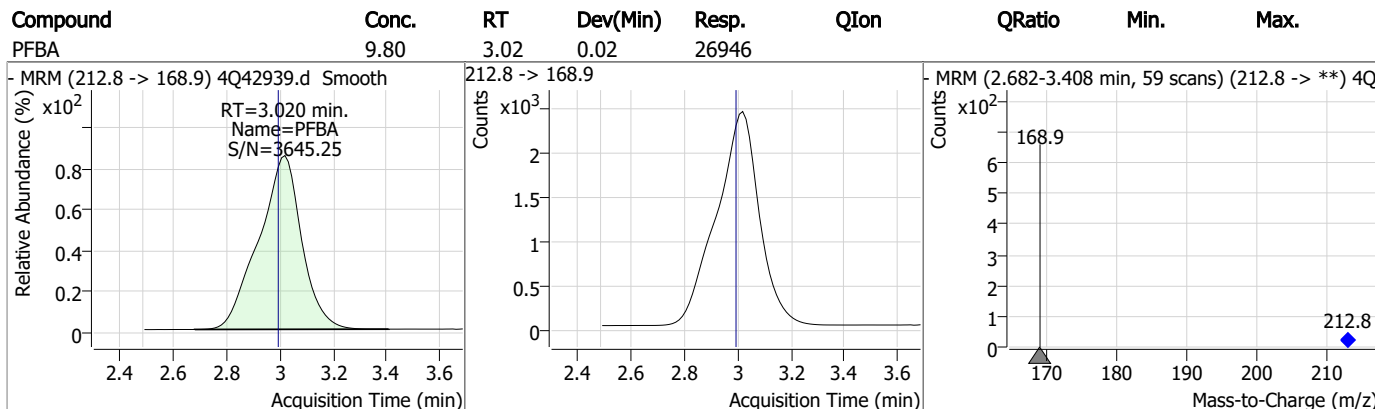
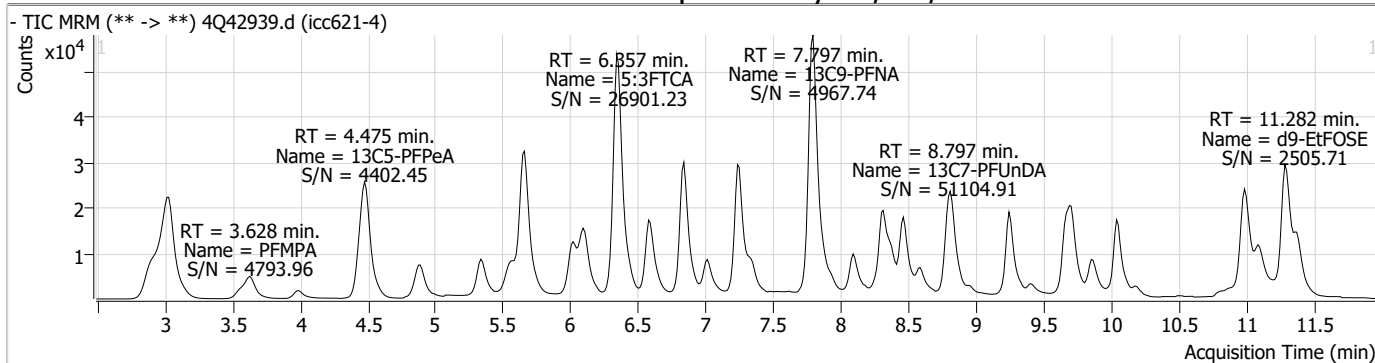
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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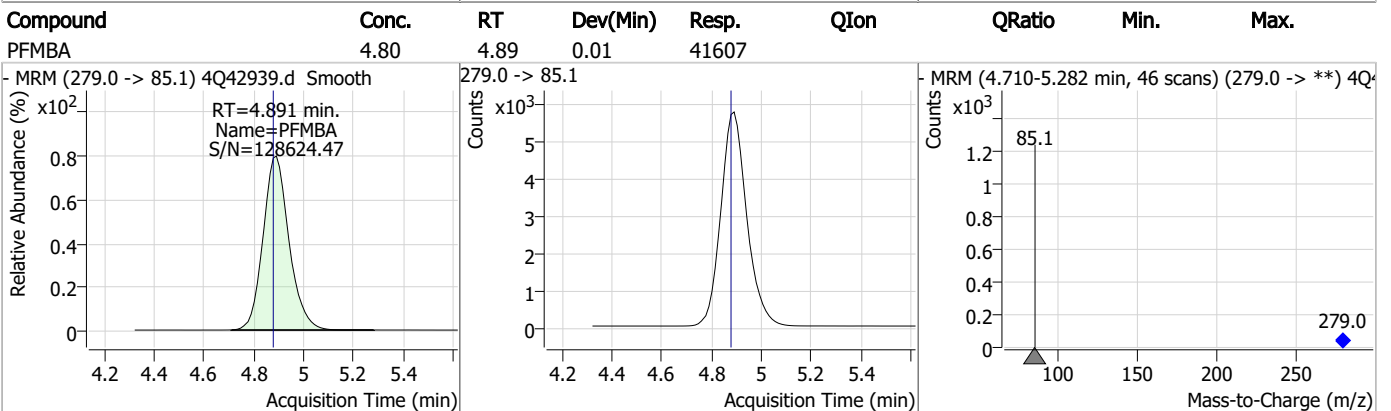
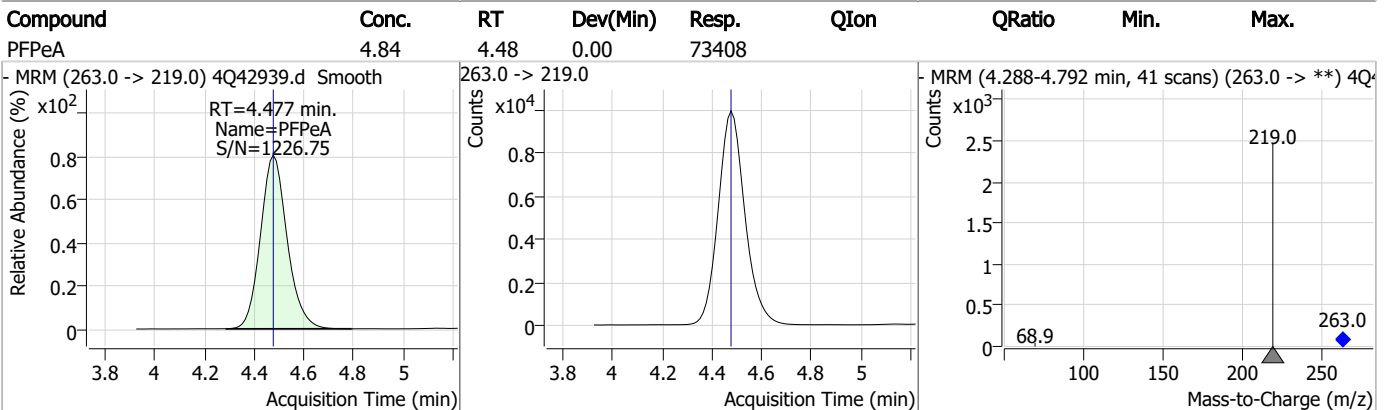
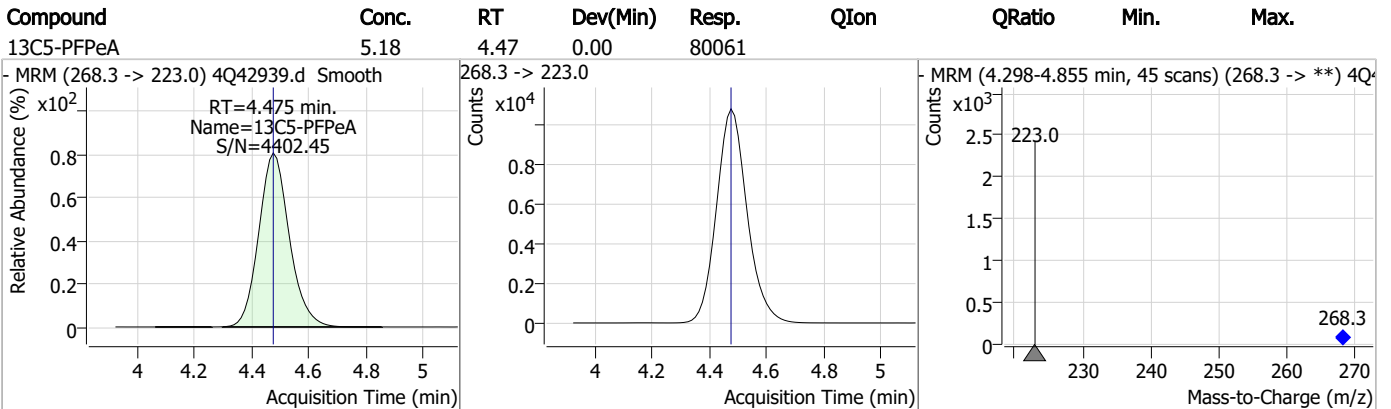
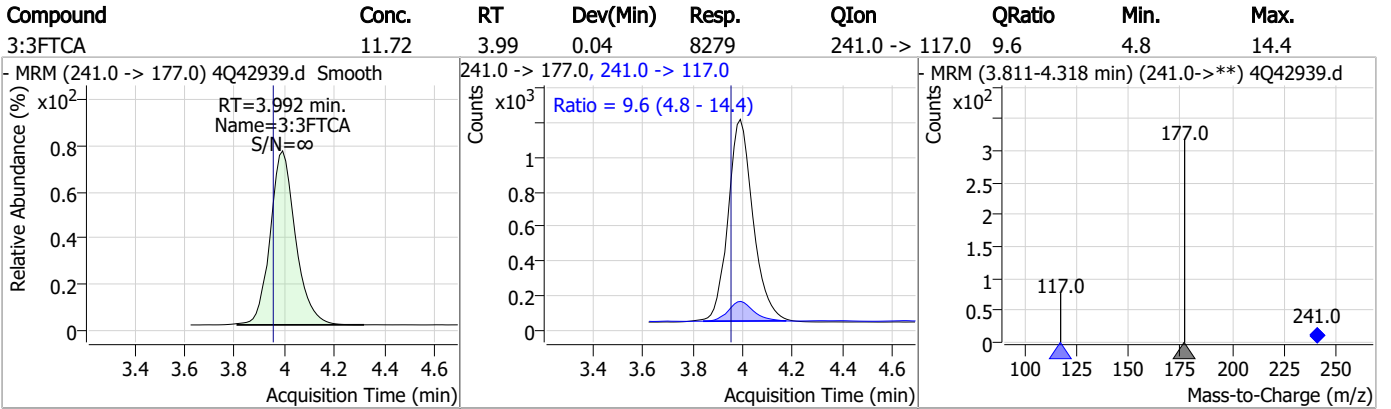
7.7.5

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

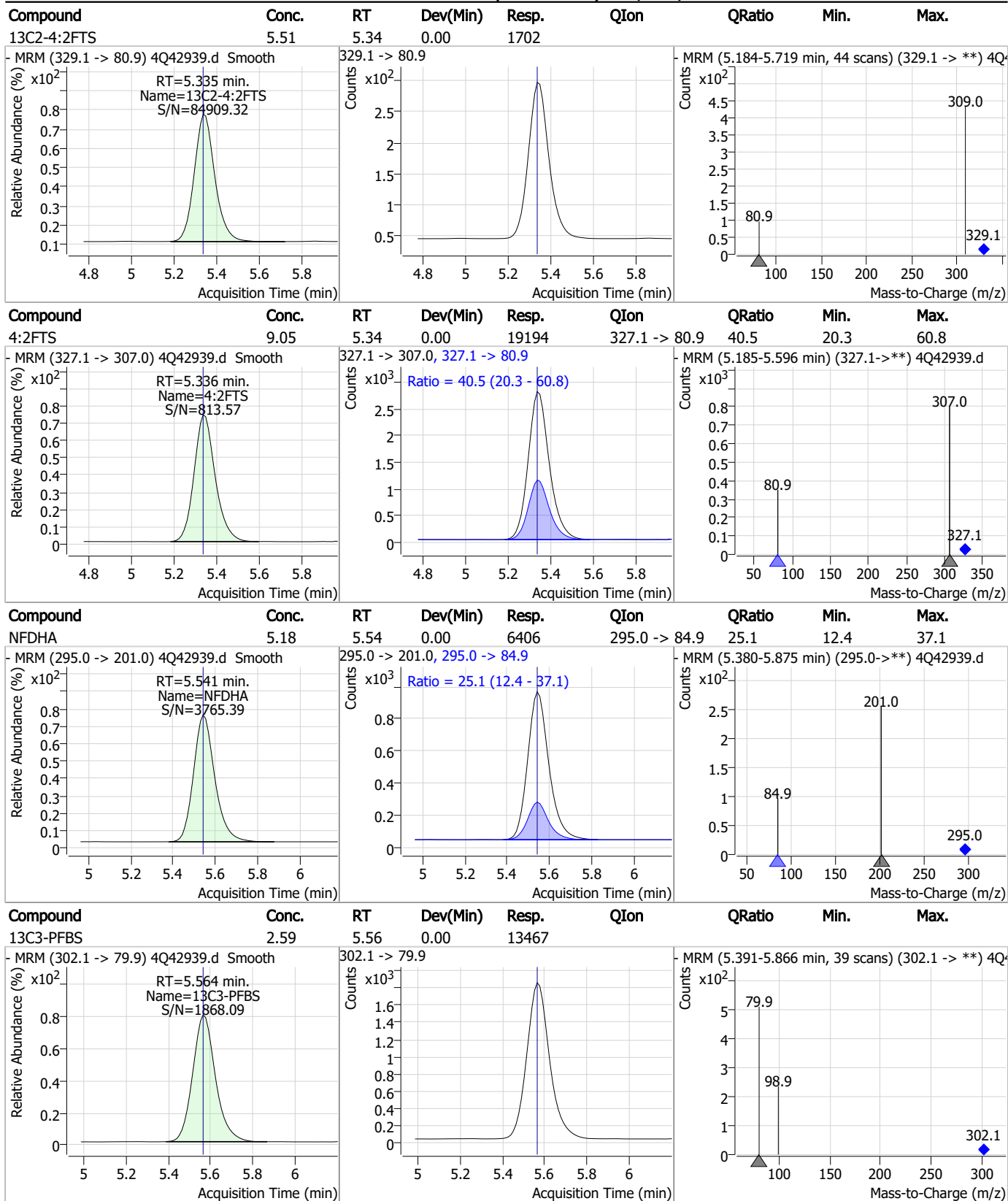


7.7.5

7



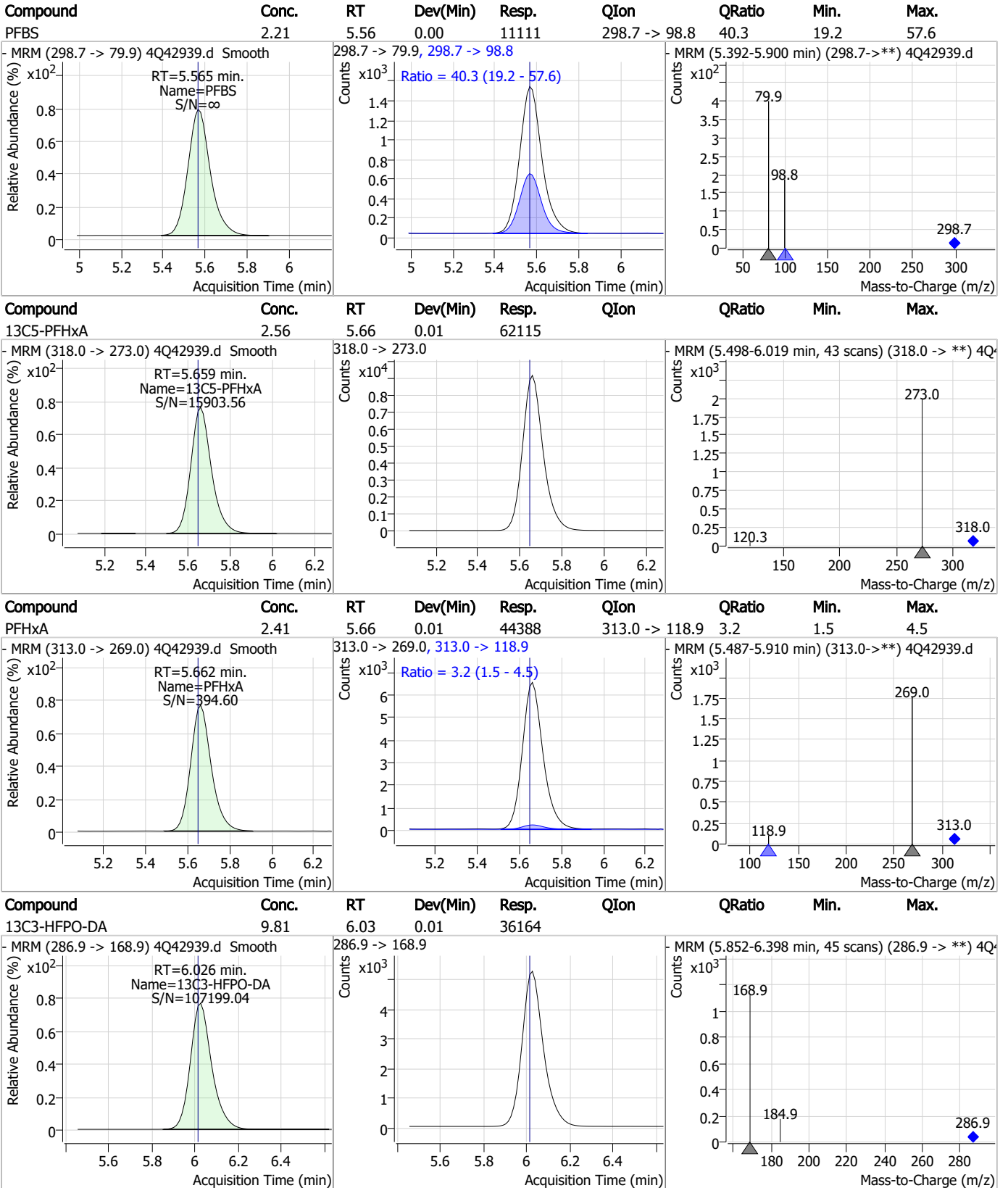
Perfluorinated Compounds by LC/MS/MS



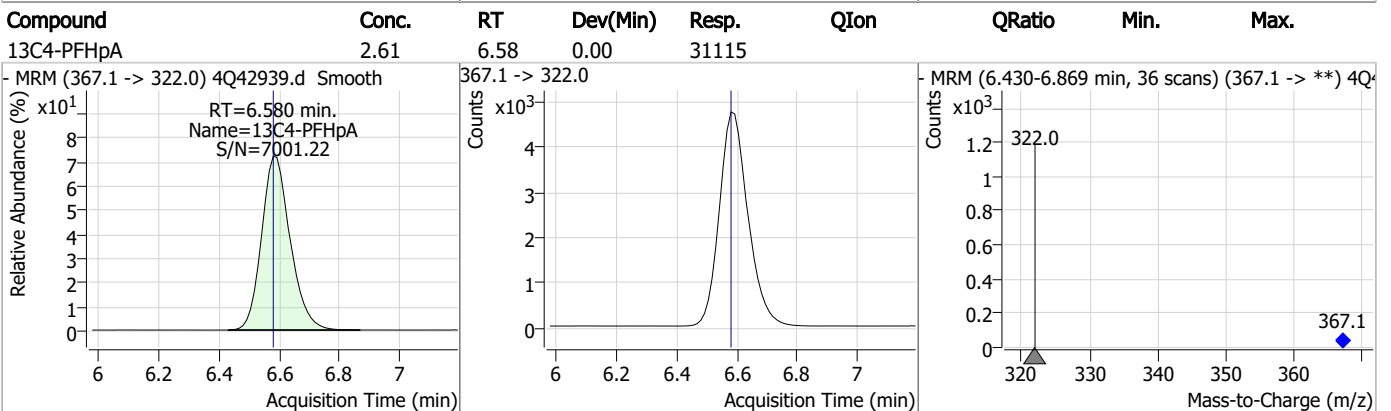
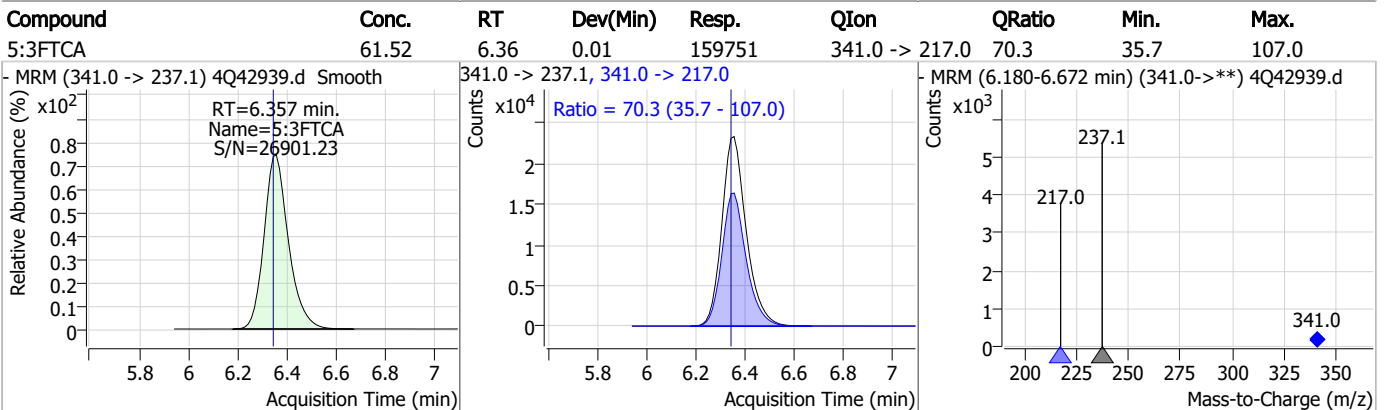
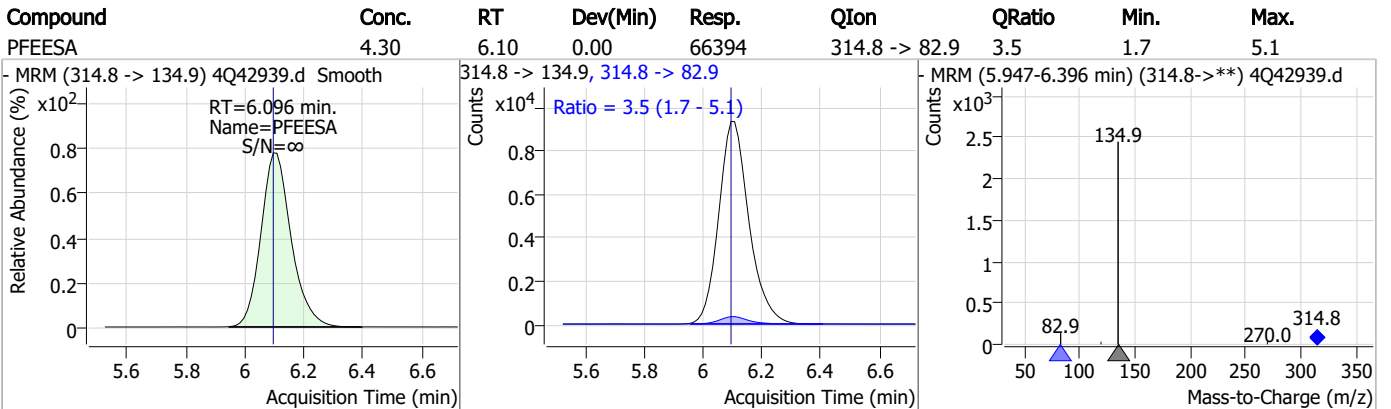
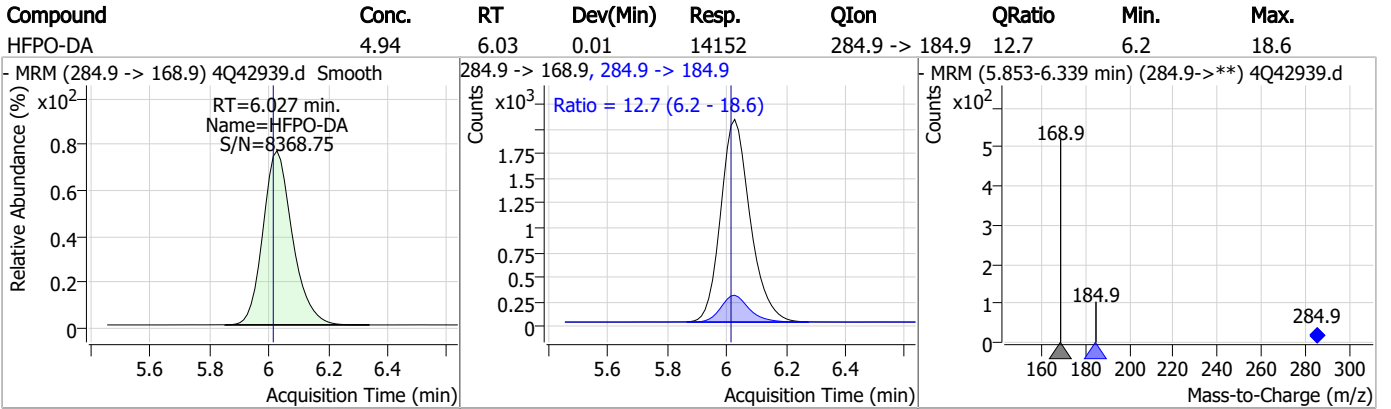
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Perfluorinated Compounds by LC/MS/MS



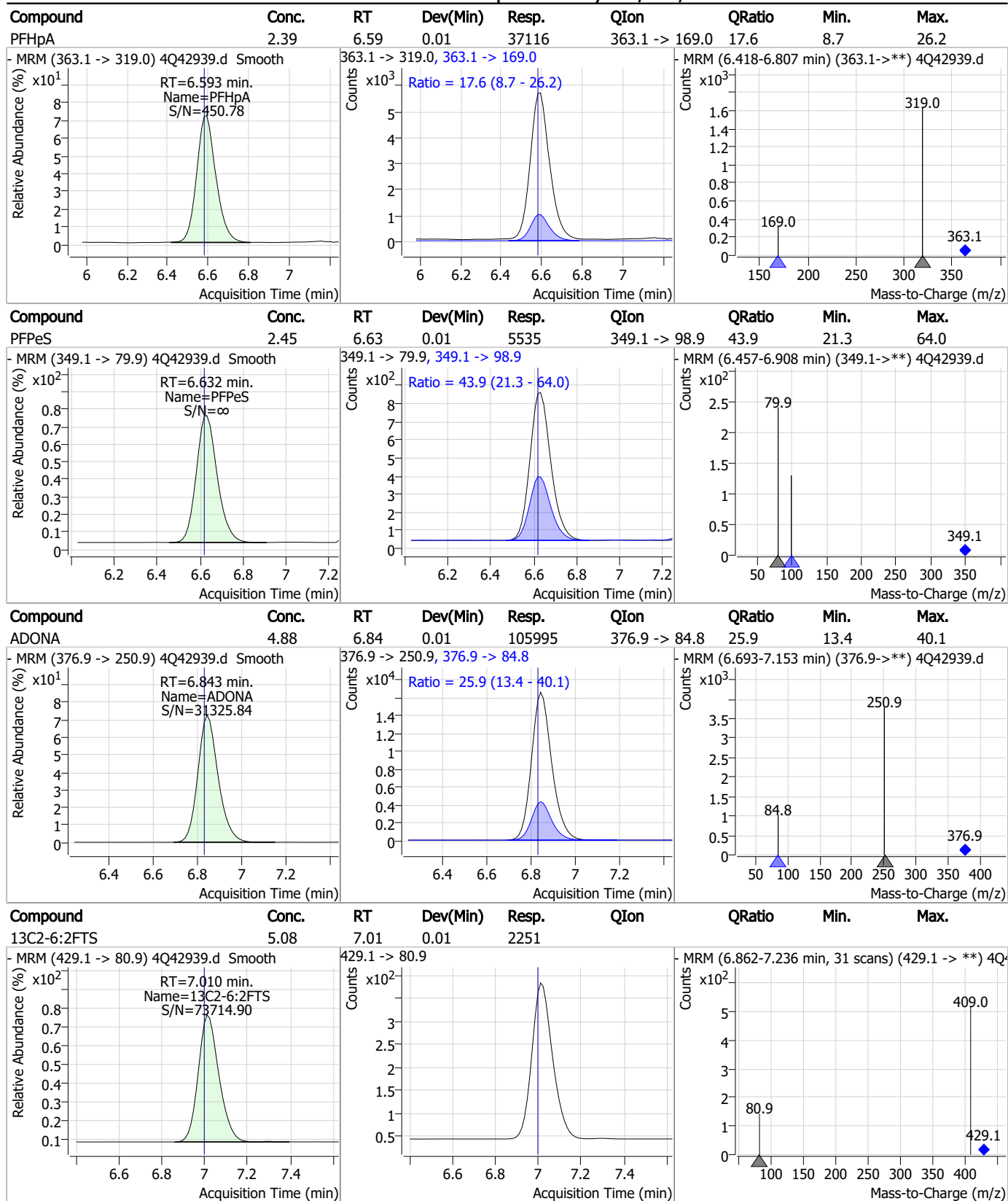
Perfluorinated Compounds by LC/MS/MS



7.7.5

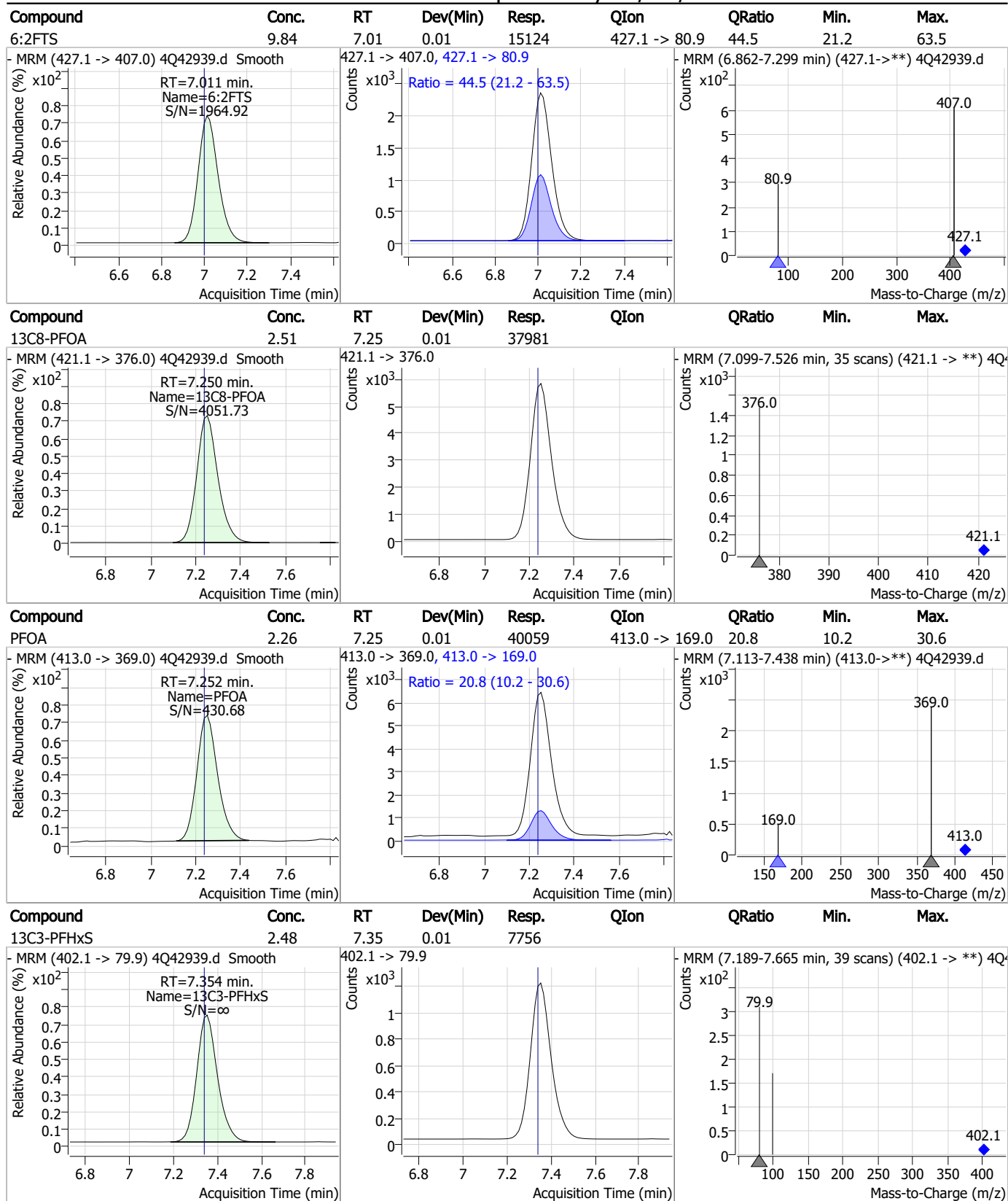
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Perfluorinated Compounds by LC/MS/MS



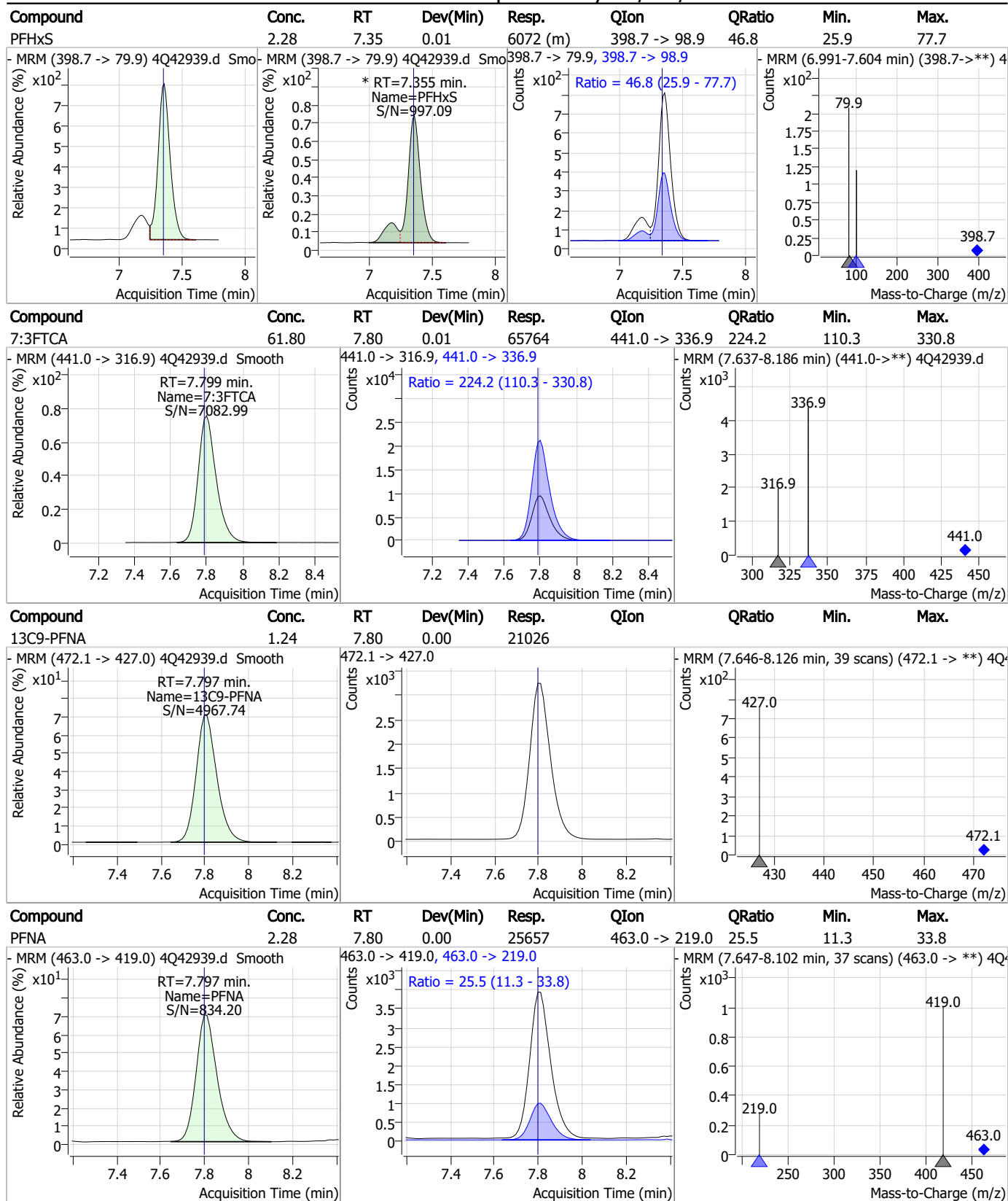
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Perfluorinated Compounds by LC/MS/MS



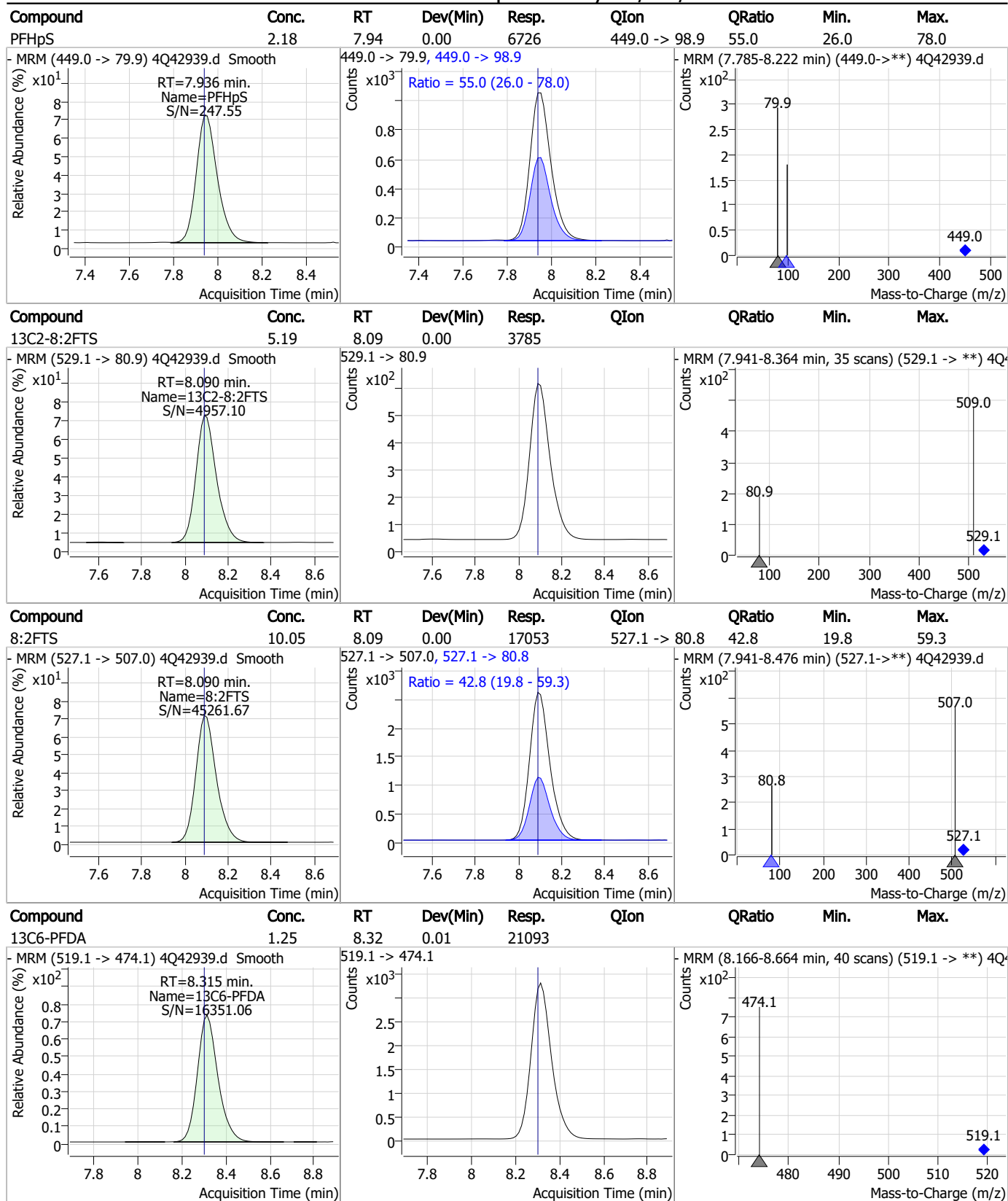
7.7.5
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Perfluorinated Compounds by LC/MS/MS



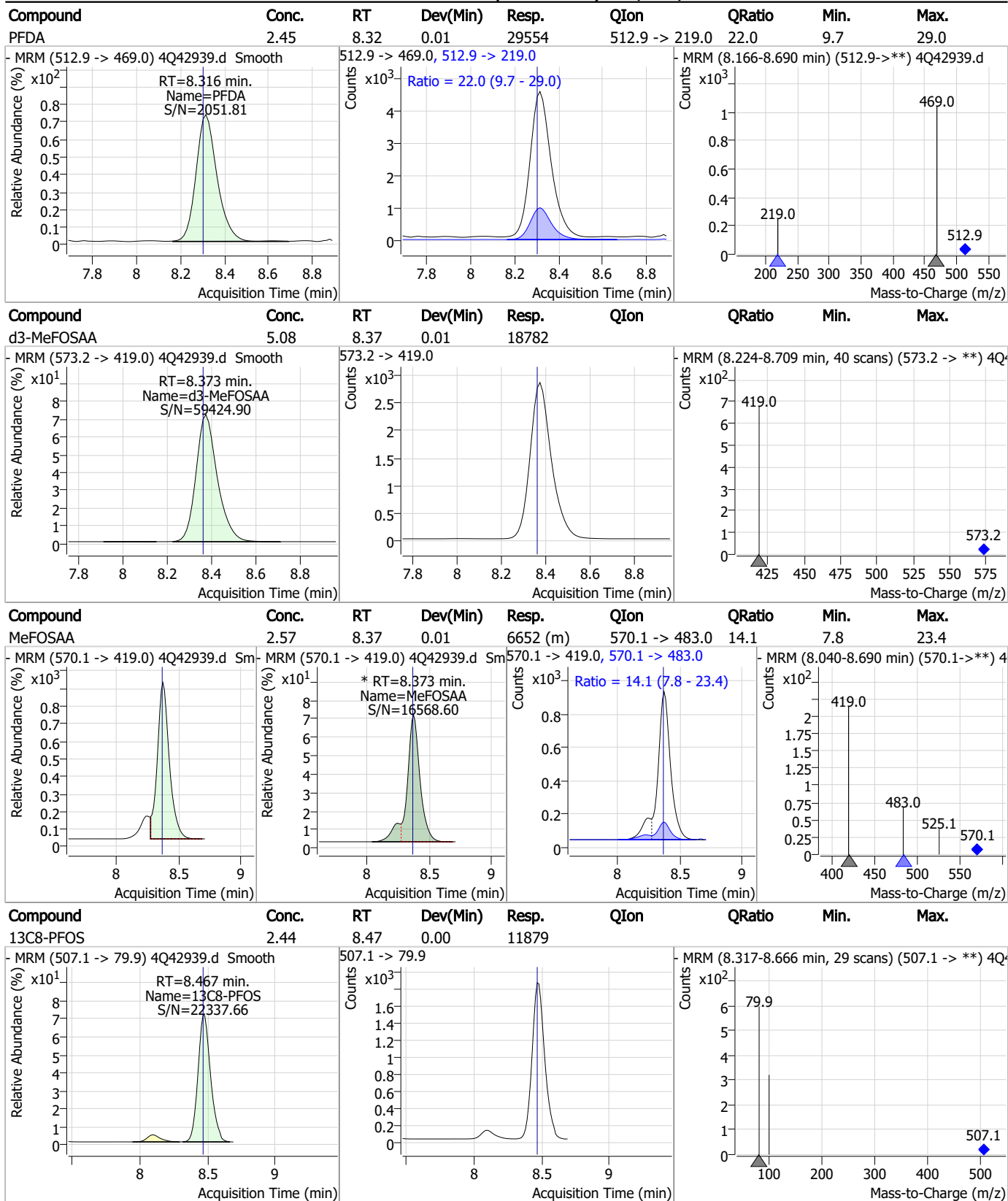
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Perfluorinated Compounds by LC/MS/MS



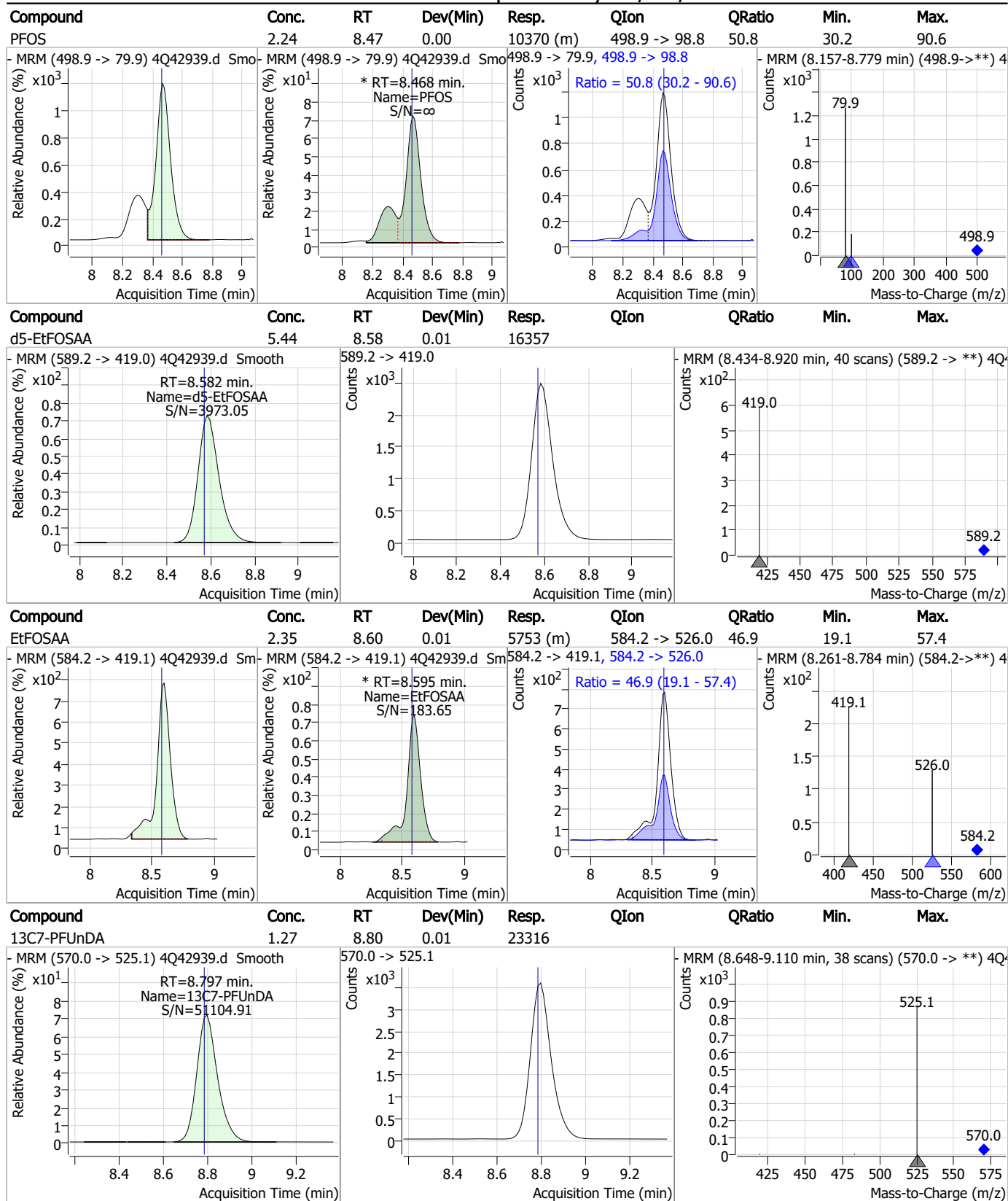
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

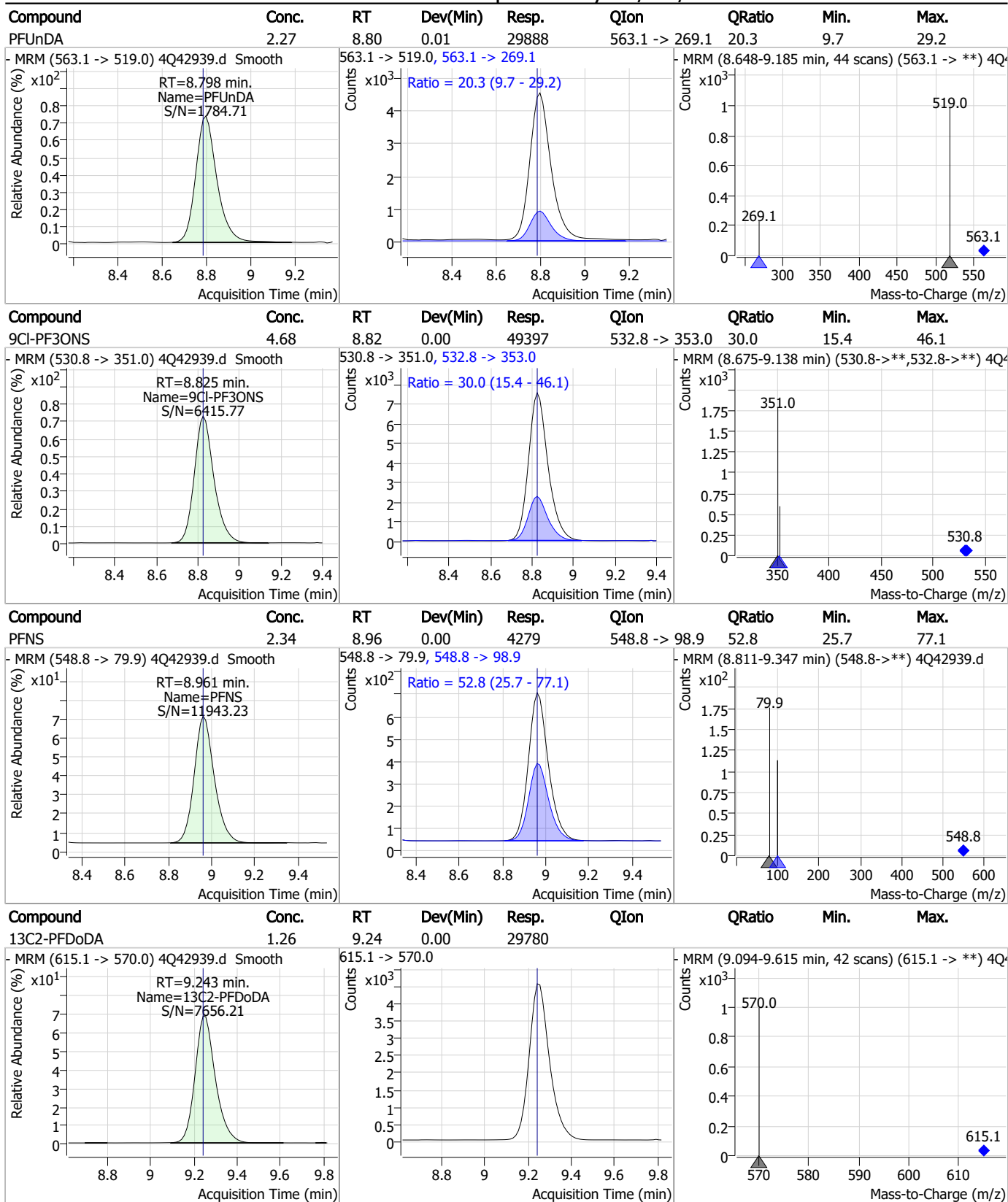
Perfluorinated Compounds by LC/MS/MS



7.7.5

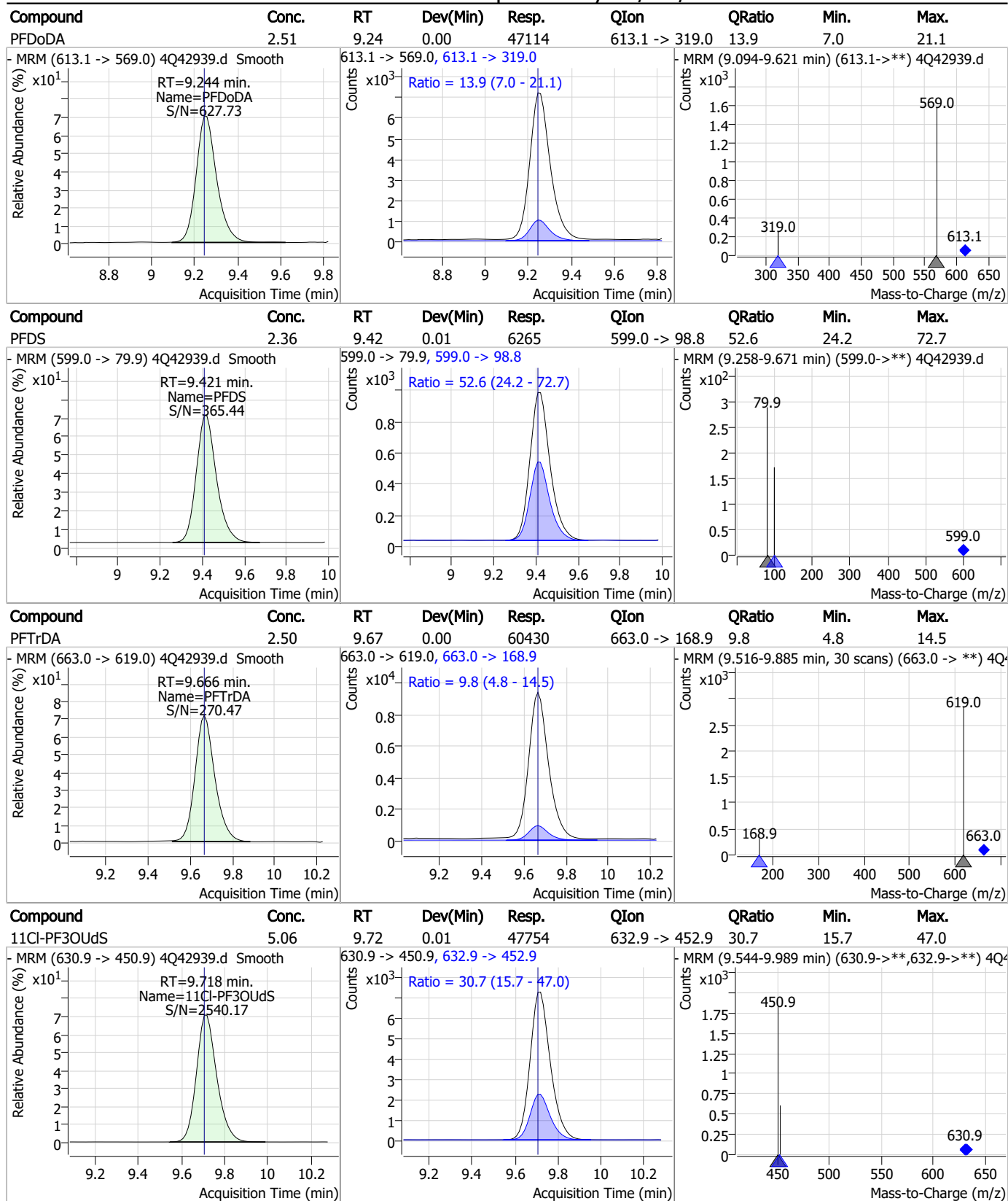
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

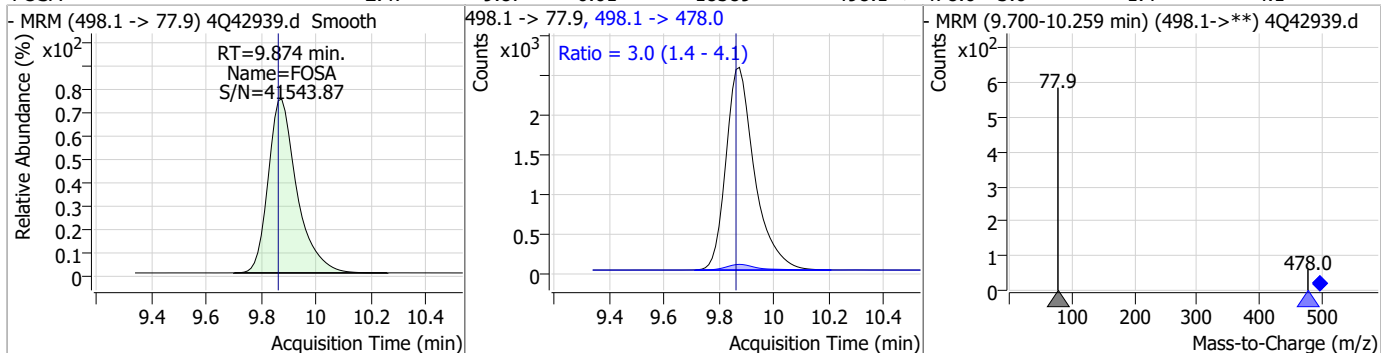
Perfluorinated Compounds by LC/MS/MS



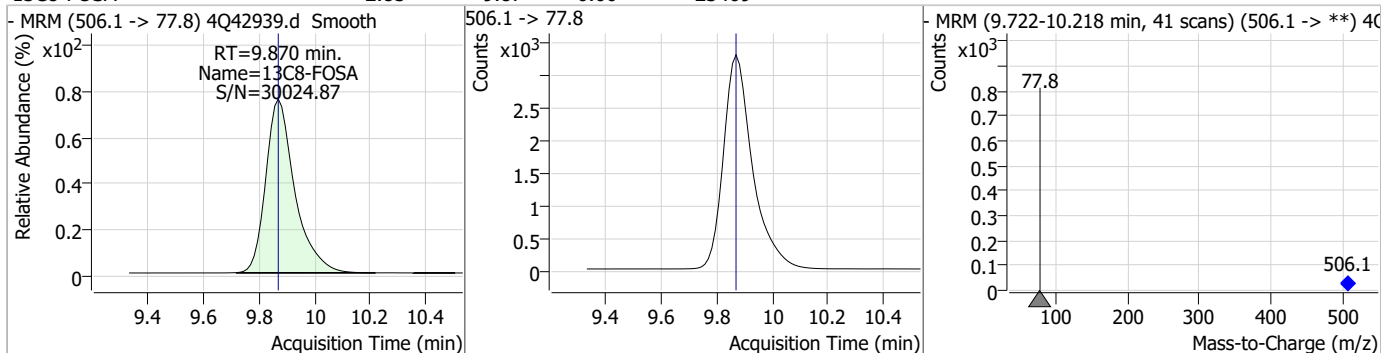
7.7.5
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Perfluorinated Compounds by LC/MS/MS

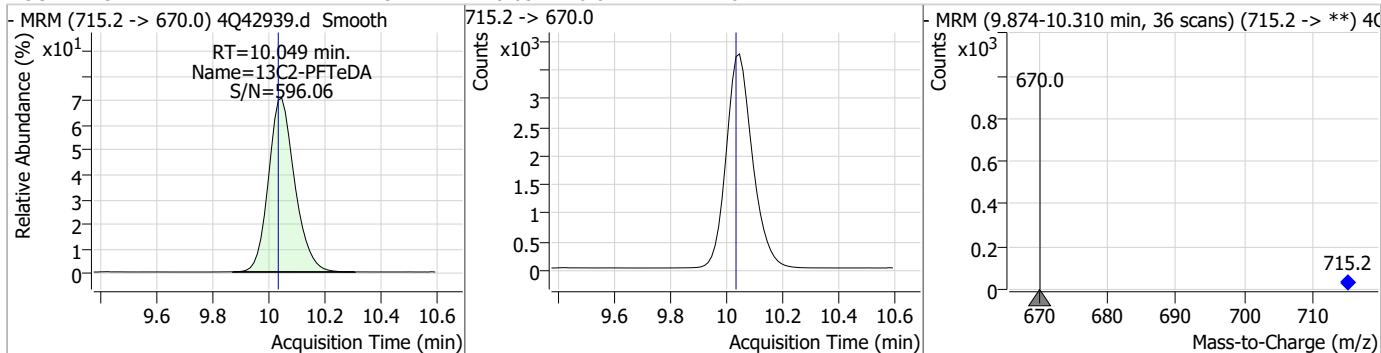
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.47	9.87	0.01	18589	498.1 -> 478.0	3.0	1.4	4.1



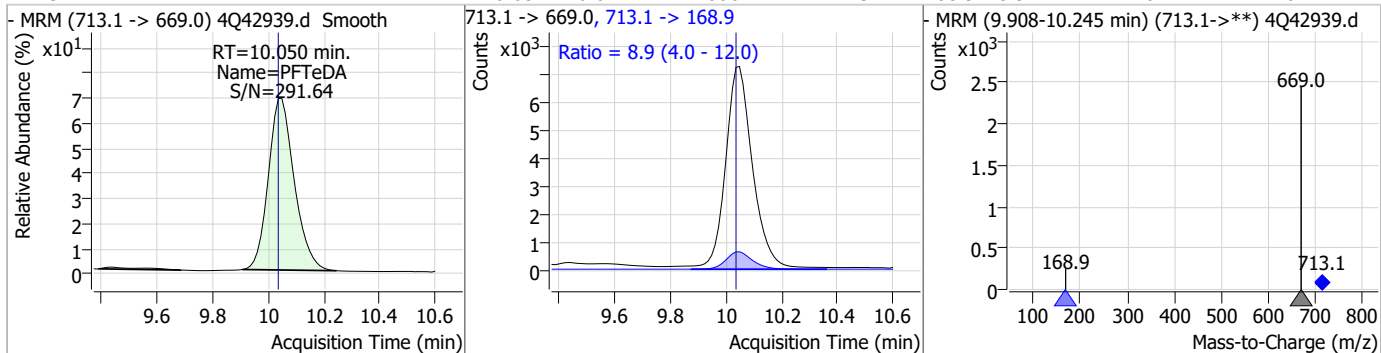
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.85	9.87	0.00	23409				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.32	10.05	0.01	24267				

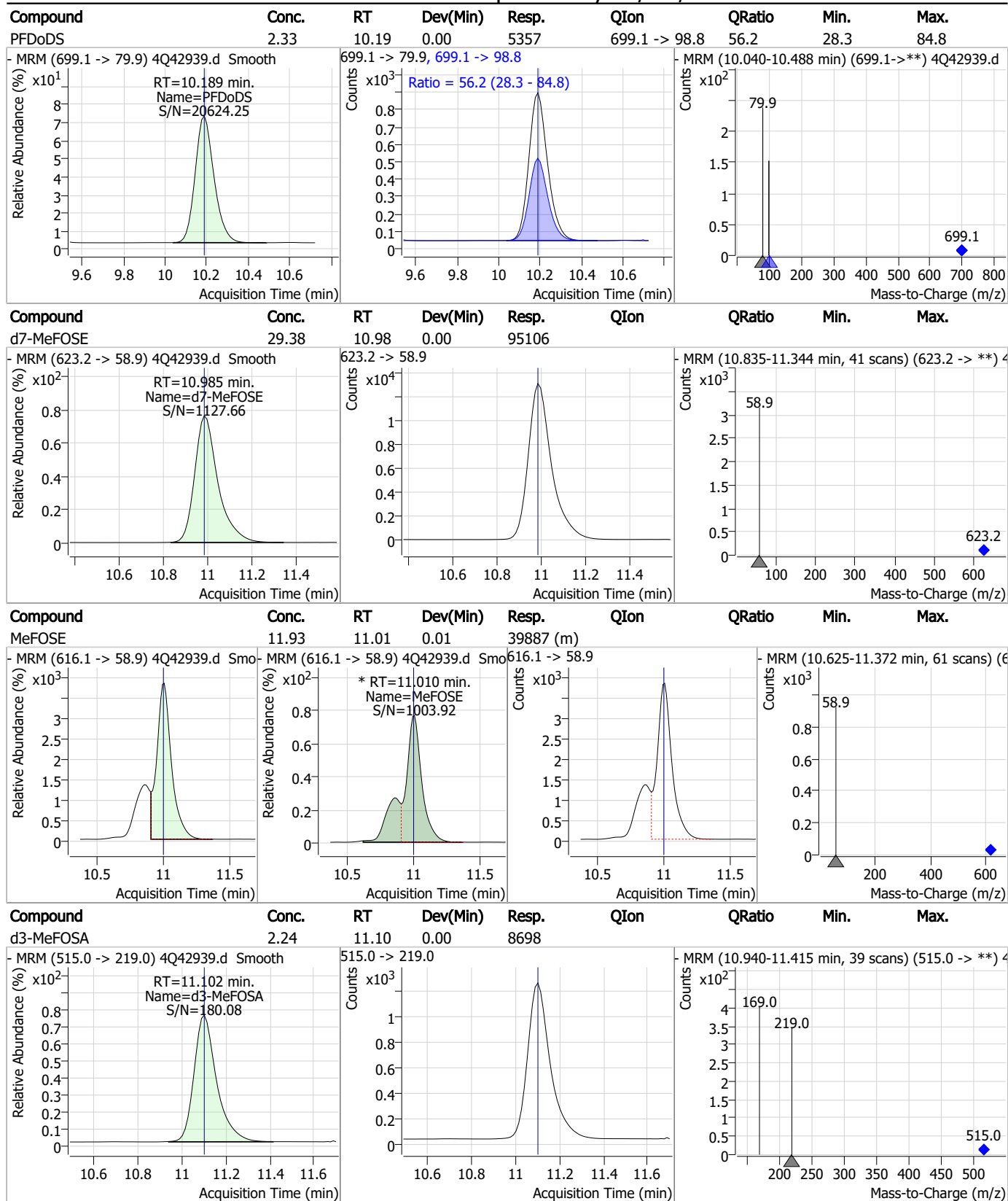


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.41	10.05	0.01	46064	713.1 -> 168.9	8.9	4.0	12.0



7.7.5
7

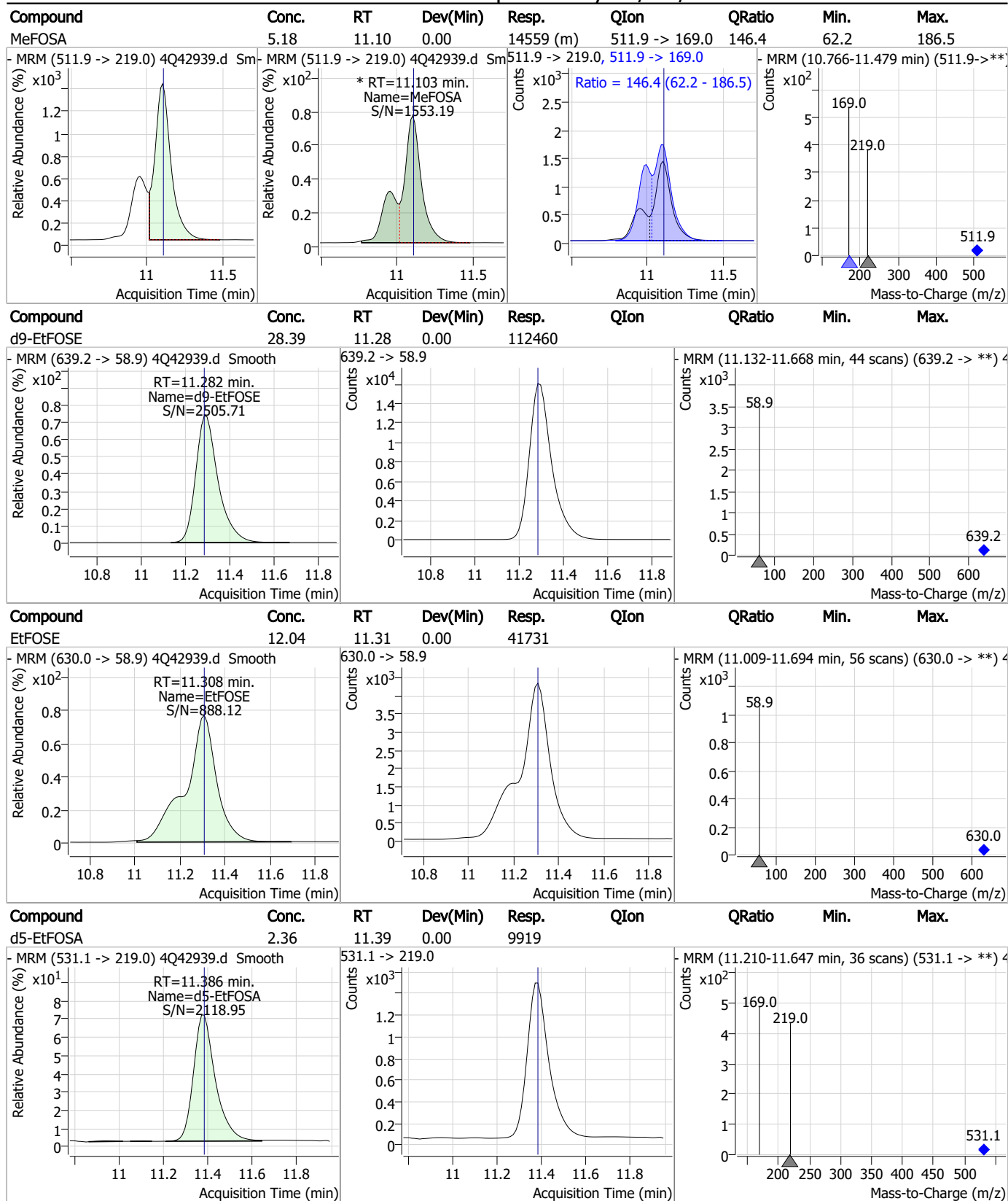
Perfluorinated Compounds by LC/MS/MS



7.7.5

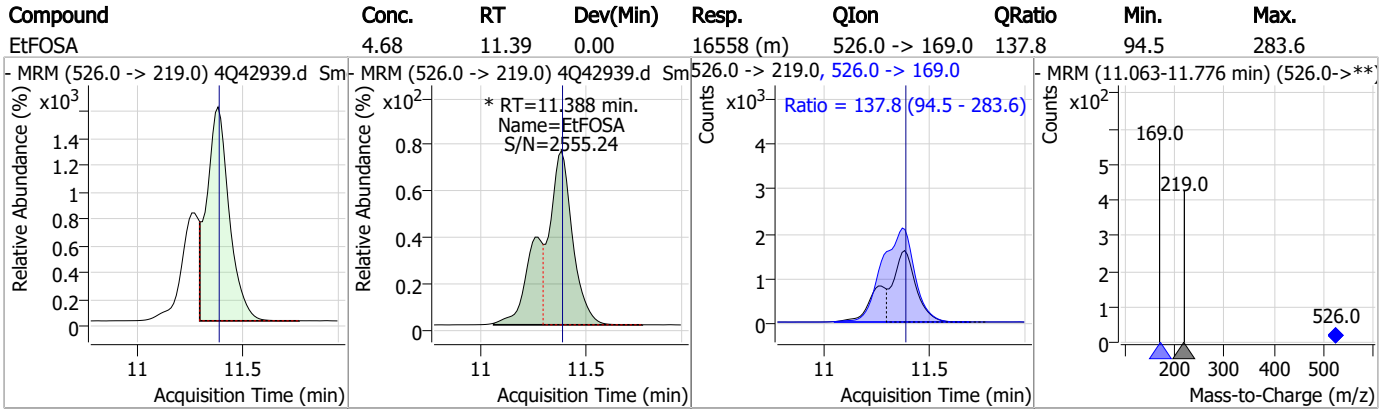
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S4Q621-ICC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42939.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 12:41 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42940.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 12:55:26 PM
 Sample Name : ic621-5
 Vial : P1-A6
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	124921	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	81444	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	63076	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	31657	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	38752	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	21167	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	20520	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	22969	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	29504	1.25 µg/L	0.000
M2-PFTeDA	10.049	715.2 -> 670.0	23133	1.25 µg/L	0.012
M8-FOSA	9.870	506.1 -> 77.8	21479	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	13607	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	8315	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	11920	2.50 µg/L	0.000
M2-4:2FTS	5.348	329.1 -> 80.9	1656	5.00 µg/L	0.012
M2-6:2FTS	7.010	429.1 -> 80.9	2366	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3957	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	17803	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	38527	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	14945	5.00 µg/L	0.012
M7-MeFOSE	10.997	623.2 -> 58.9	86850	25.00 µg/L	0.012
M9-EtFOSE	11.307	639.2 -> 58.9	105010	25.00 µg/L	0.025
M5-EtFOSA	11.398	531.1 -> 219.0	10750	2.50 µg/L	0.012
M3-MeFOSA	11.114	515.0 -> 219.0	10151	2.50 µg/L	0.012
13C4-PFOS	8.467	502.8 -> 79.9	12789	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	71718	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	5765	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	45475	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19235	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	24615	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	54681	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.348	329.1 -> 80.9	1656	5.26 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2366	5.24 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3957	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-PFDoDA	9.243	615.1 -> 570.0	29504	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	10.049	715.2 -> 670.0	23133	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFBS	5.564	302.1 -> 79.9	13607	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.354	402.1 -> 79.9	8315	2.61 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFBA	3.011	216.8 -> 171.9	124921	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.592	367.1 -> 322.0	31657	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.659	318.0 -> 273.0	63076	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C5-PFPeA	4.475	268.3 -> 223.0	81444	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.315	519.1 -> 474.1	20520	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.797	570.0 -> 525.1	22969	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-FOSA	9.870	506.1 -> 77.8	21479	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C8-PFOA	7.250	421.1 -> 376.0	38752	2.59 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOS	8.467	507.1 -> 79.9	11920	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C9-PFNA	7.809	472.1 -> 427.0	21167	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
d3-MeFOSAA	8.373	573.2 -> 419.0	17803	4.73 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	38527	10.04 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d3-MeFOSA	11.114	515.0 -> 219.0	10151	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
d5-EtFOSAA	8.582	589.2 -> 419.0	14945	4.88 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d7-MeFOSE	10.997	623.2 -> 58.9	86850	26.33 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d9-EtFOSE	11.307	639.2 -> 58.9	105010	26.02 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d5-EtFOSA	11.398	531.1 -> 219.0	10750	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
Target Compounds					QValue
4:2FTS	5.348	327.1 -> 307.0	36799	17.83 µg/L	98
		327.1 -> 80.9	15406		
6:2FTS	7.011	427.1 -> 407.0	30231	18.71 µg/L	99
		427.1 -> 80.9	12999		
8:2FTS	8.090	527.1 -> 507.0	33000	18.60 µg/L	100
		527.1 -> 80.8	13134		
EtFOSAA	8.595	584.2 -> 419.1	10984	4.92 µg/L	m 81
		584.2 -> 526.0	5467		
FOSA	9.874	498.1 -> 77.9	34438	4.98 µg/L	98
		498.1 -> 478.0	1137		
MeFOSAA	8.373	570.1 -> 419.0	12057	4.91 µg/L	m 94
		570.1 -> 483.0	2201		
PFBA	3.020	212.8 -> 168.9	56170	19.69 µg/L	100
PFBS	5.565	298.7 -> 79.9	22223	4.38 µg/L	95
		298.7 -> 98.8	9189		
PFDA	8.316	512.9 -> 469.0	58800	5.01 µg/L	99
		512.9 -> 219.0	11537		
PFDoDA	9.244	613.1 -> 569.0	94272	5.07 µg/L	100
		613.1 -> 319.0	13067		
PFDS	9.409	599.0 -> 79.9	12682	4.76 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6404			
PFHpA	6.593	363.1 -> 319.0	78545	4.97	µg/L	99
		363.1 -> 169.0	13546			
PFHpS	7.936	449.0 -> 79.9	14498	4.67	µg/L	99
		449.0 -> 98.9	7427			
PFHxA	5.662	313.0 -> 269.0	92008	4.93	µg/L	100
		313.0 -> 118.9	2717			
PFHxS	7.355	398.7 -> 79.9	11654	4.09	µg/L	m 96
		398.7 -> 98.9	6387			
PFNA	7.810	463.0 -> 419.0	55072	4.87	µg/L	96
		463.0 -> 219.0	13387			
PFNS	8.961	548.8 -> 79.9	8919	4.86	µg/L	96
		548.8 -> 98.9	4317			
PFOA	7.252	413.0 -> 369.0	83867	4.63	µg/L	98
		413.0 -> 169.0	17926			
PFOS	8.468	498.9 -> 79.9	20749	4.47	µg/L	m 85
		498.9 -> 98.8	10167			
PFPeA	4.477	263.0 -> 219.0	152277	9.88	µg/L	100
PFPeS	6.632	349.1 -> 79.9	11718	4.83	µg/L	98
		349.1 -> 98.9	4855			
PFTeDA	10.050	713.1 -> 669.0	90965	4.99	µg/L	100
		713.1 -> 168.9	7419			
PFTrDA	9.666	663.0 -> 619.0	119591	4.99	µg/L	99
		663.0 -> 168.9	11208			
PFUnDA	8.798	563.1 -> 519.0	62199	4.79	µg/L	100
		563.1 -> 269.1	12206			
11CI-PF3OUdS	9.705	630.9 -> 450.9	98327	9.78	µg/L	99
		632.9 -> 452.9	30139			
9CI-PF3ONS	8.825	530.8 -> 351.0	104680	9.32	µg/L	99
		532.8 -> 353.0	31565			
ADONA	6.843	376.9 -> 250.9	216314	9.35	µg/L	99
		376.9 -> 84.8	58876			
HFPO-DA	6.027	284.9 -> 168.9	29468	9.65	µg/L	100
		284.9 -> 184.9	3608			
3:3FTCA	3.992	241.0 -> 177.0	17393	24.21	µg/L	98
		241.0 -> 117.0	1572			
5:3FTCA	6.357	341.0 -> 237.1	330585	125.37	µg/L	99
		341.0 -> 217.0	238118			
7:3FTCA	7.799	441.0 -> 316.9	138396	128.06	µg/L	99
		441.0 -> 336.9	307498			
EtFOSA	11.400	526.0 -> 219.0	38265	9.99	µg/L	m 63
		526.0 -> 169.0	51446			
EtFOSE	11.320	630.0 -> 58.9	78212	24.16	µg/L	100
MeFOSA	11.116	511.9 -> 219.0	31361	9.56	µg/L	m 79
		511.9 -> 169.0	46574			
MeFOSE	11.010	616.1 -> 58.9	74370	24.36	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	10759	4.67	µg/L	99
		699.1 -> 98.8	6195			
NFDHA	5.541	295.0 -> 201.0	13046	10.39	µg/L	100
		295.0 -> 84.9	3244			
PFMBA	4.891	279.0 -> 85.1	86371	9.80	µg/L	100
PFMPA	3.628	229.0 -> 84.9	75259	9.76	µg/L	100
PFEESA	6.108	314.8 -> 134.9	139198	8.88	µg/L	100
		314.8 -> 82.9	4696			

= Qualifier out of range, m = manually integrated, + = Area summed

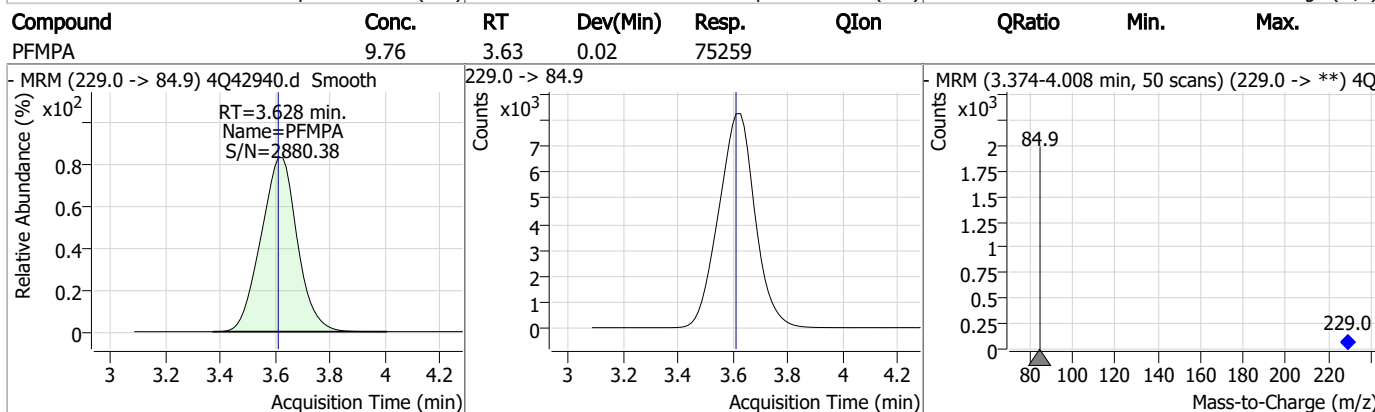
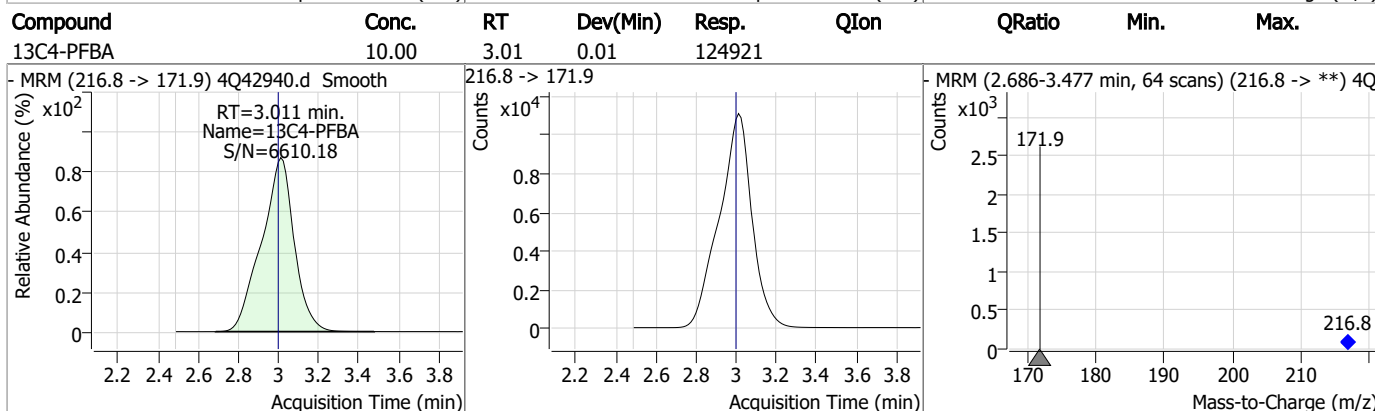
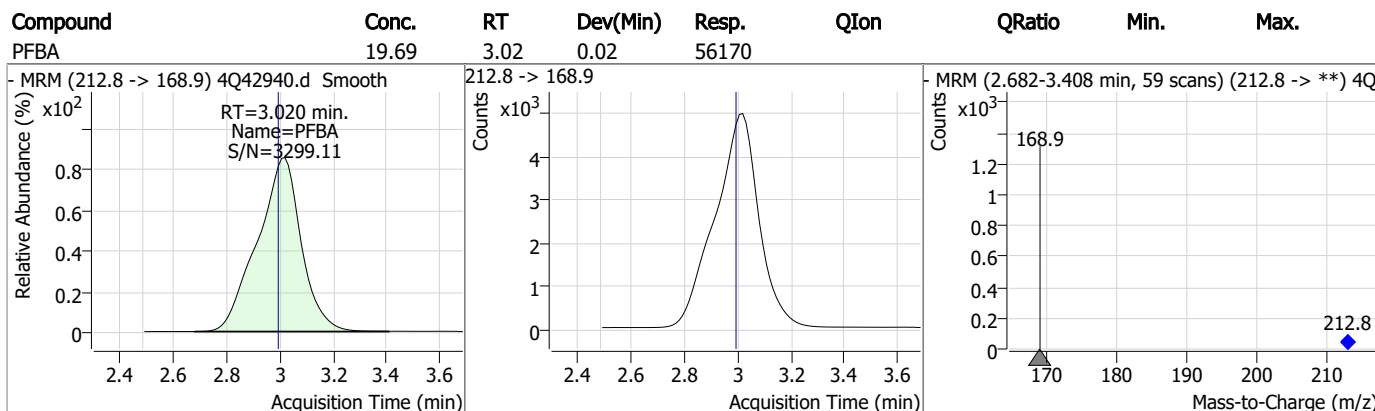
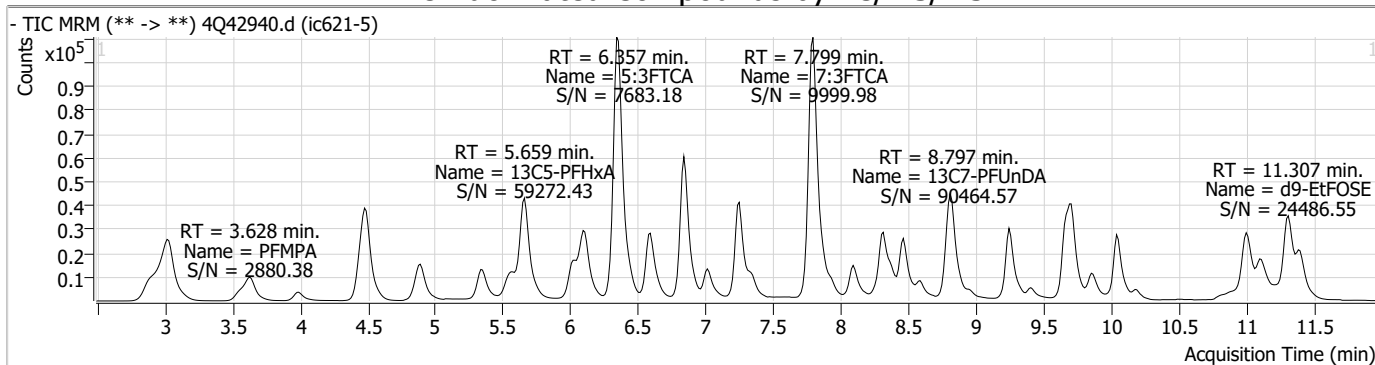
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.6
7

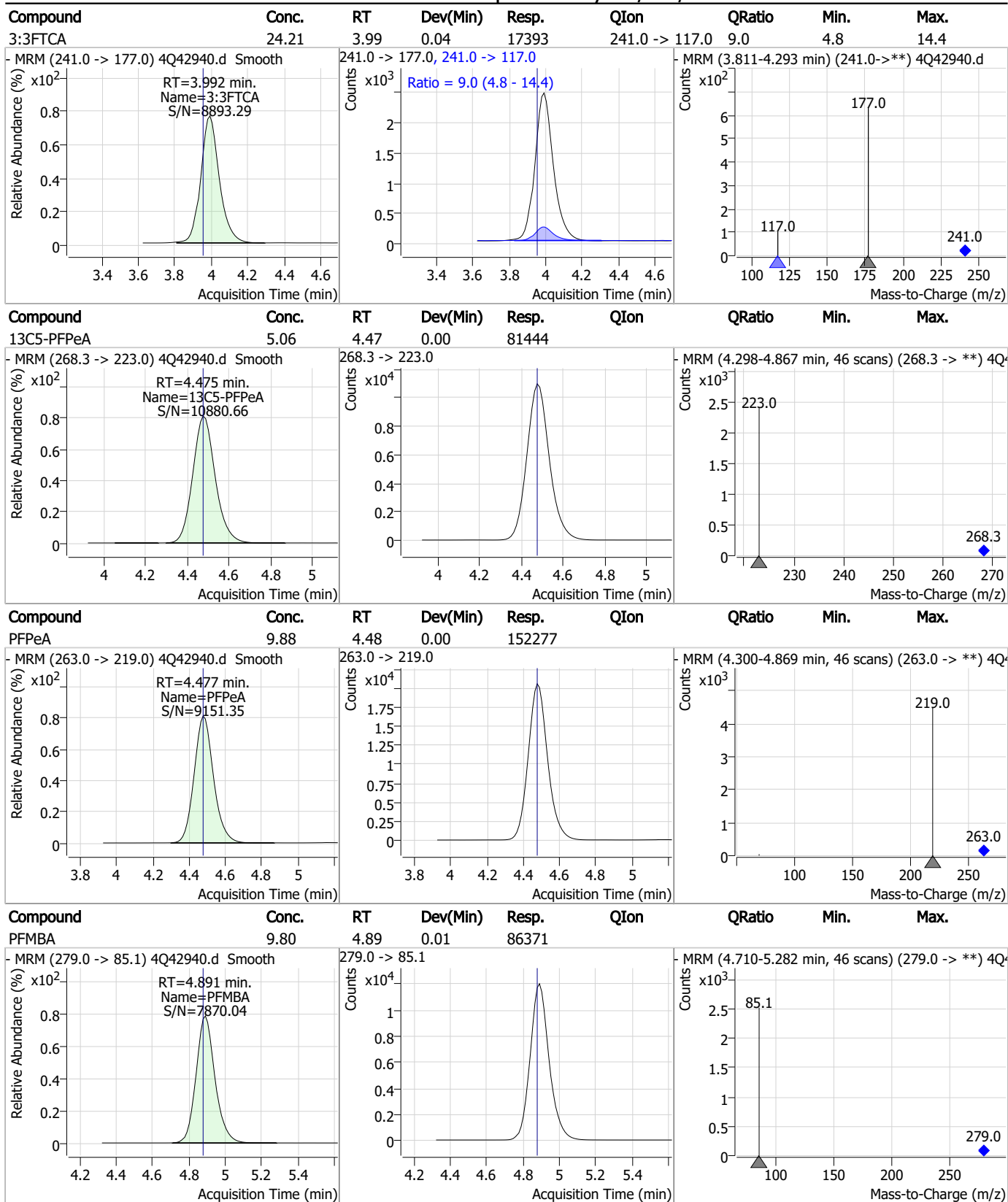


Perfluorinated Compounds by LC/MS/MS



7.7.6
7

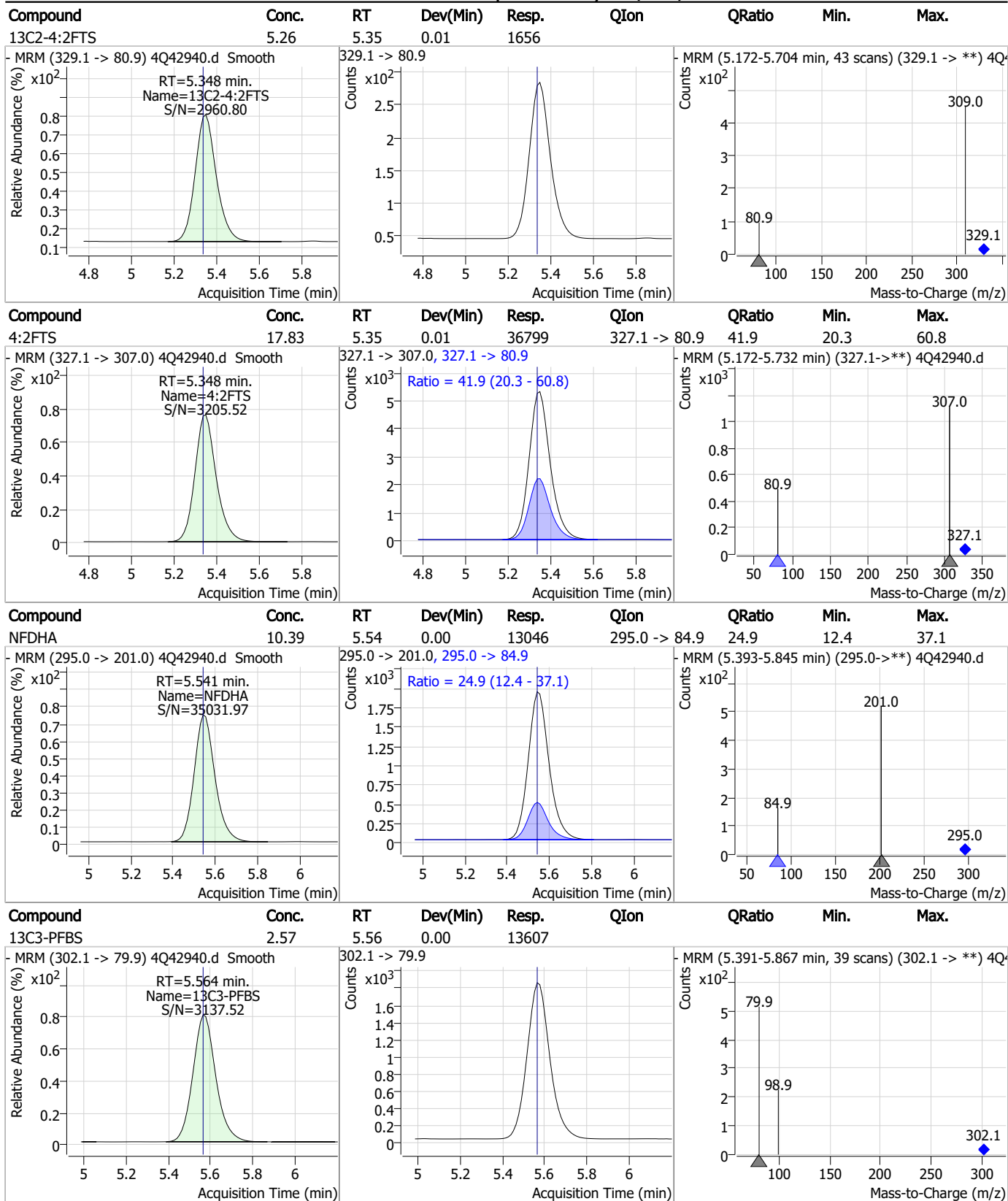
Perfluorinated Compounds by LC/MS/MS



7.7.6
7

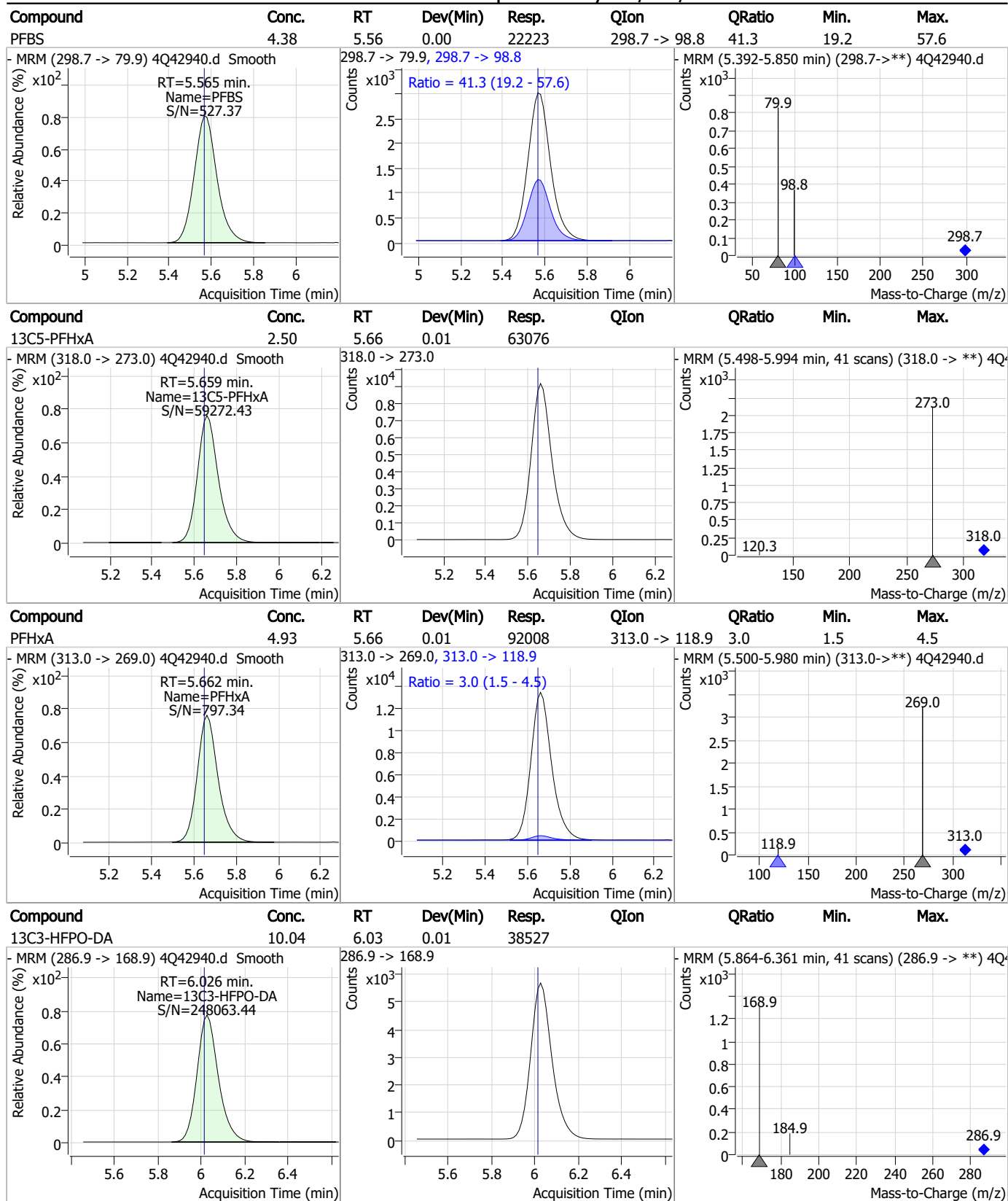


Perfluorinated Compounds by LC/MS/MS



7.7.6
7

Perfluorinated Compounds by LC/MS/MS

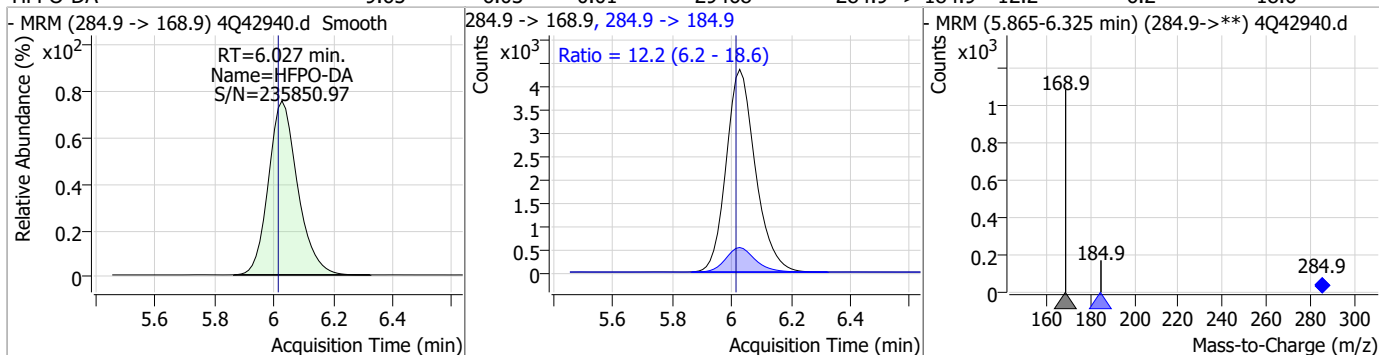


7.7.6

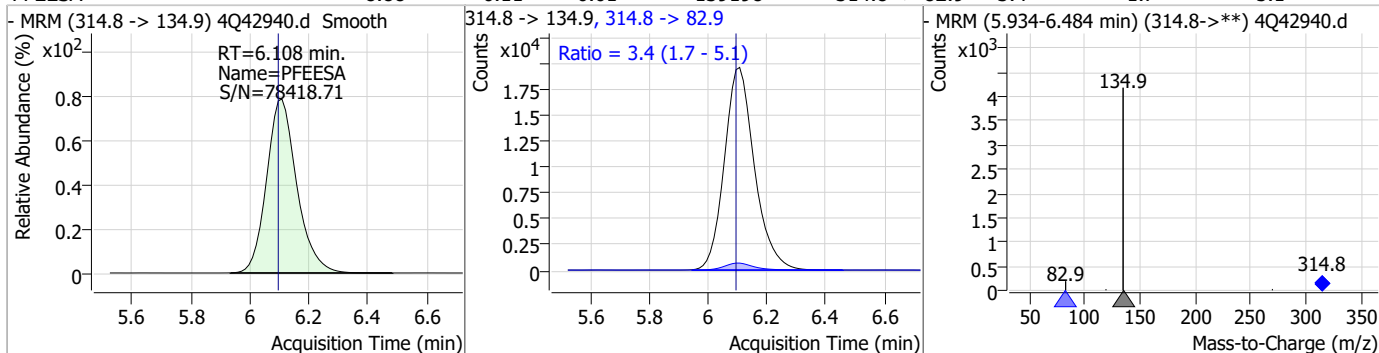
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Perfluorinated Compounds by LC/MS/MS

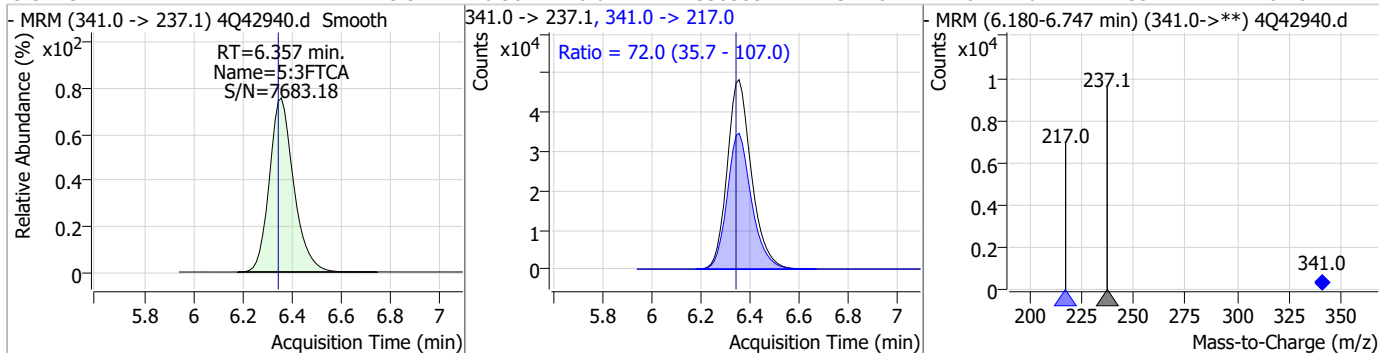
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.65	6.03	0.01	29468	284.9 -> 184.9	12.2	6.2	18.6



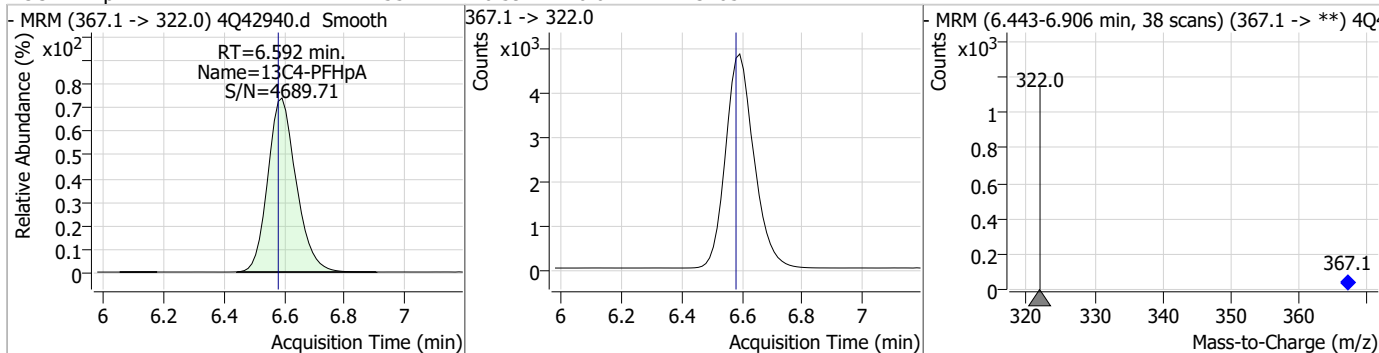
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.88	6.11	0.01	139198	314.8 -> 82.9	3.4	1.7	5.1



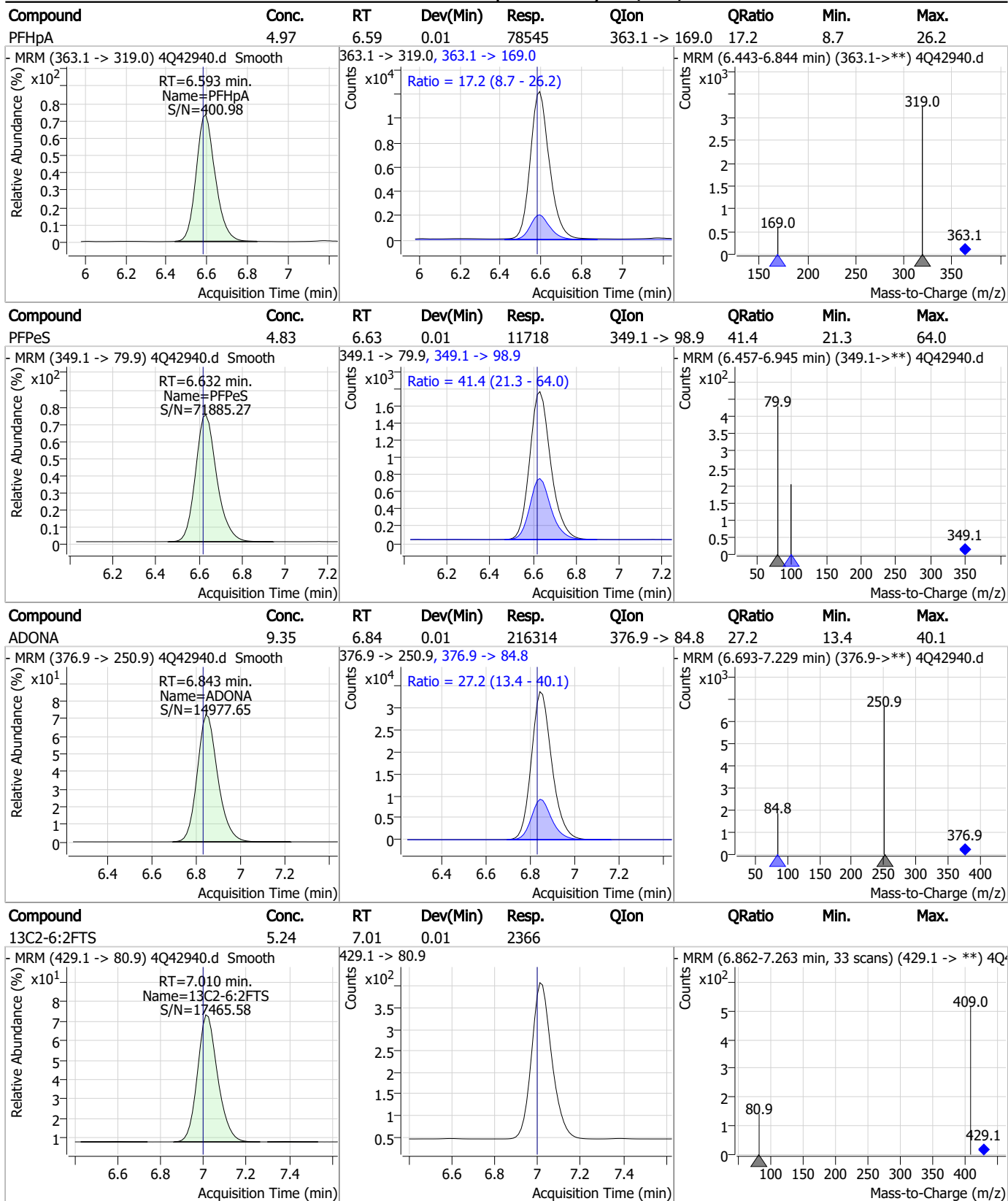
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	125.37	6.36	0.01	330585	341.0 -> 217.0	72.0	35.7	107.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.55	6.59	0.01	31657	367.1 -> 322.0			

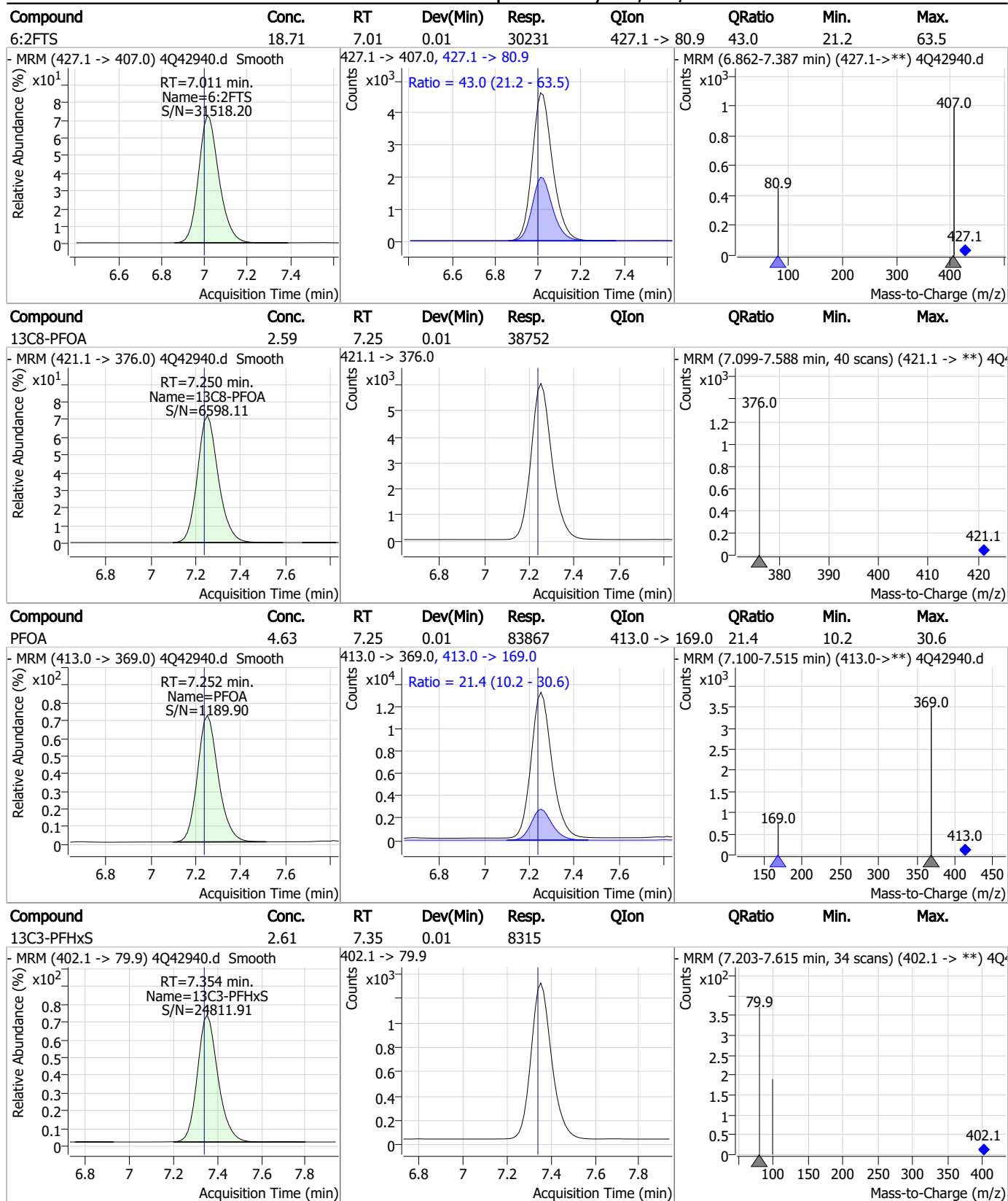


Perfluorinated Compounds by LC/MS/MS



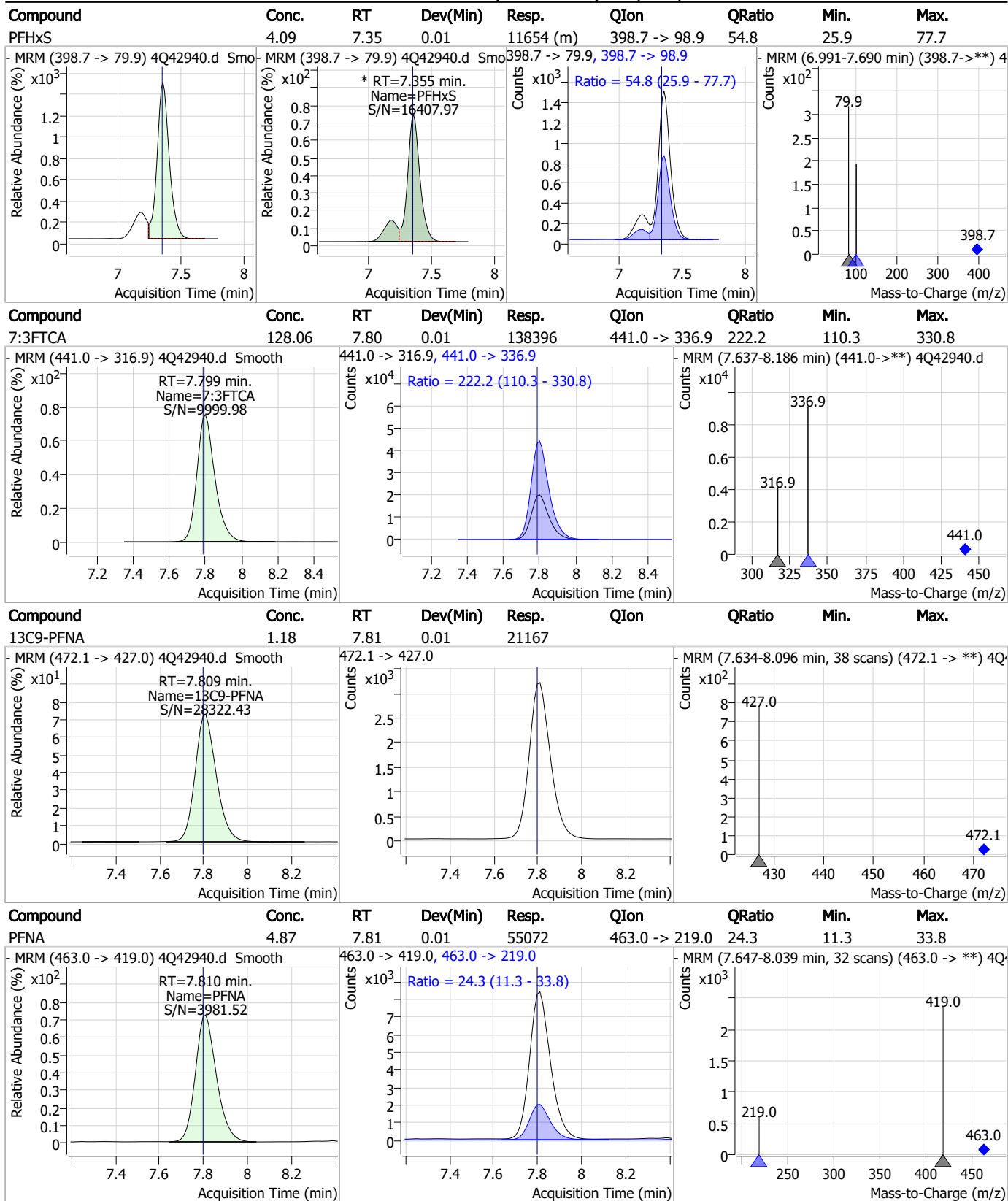
7.7.6
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Perfluorinated Compounds by LC/MS/MS



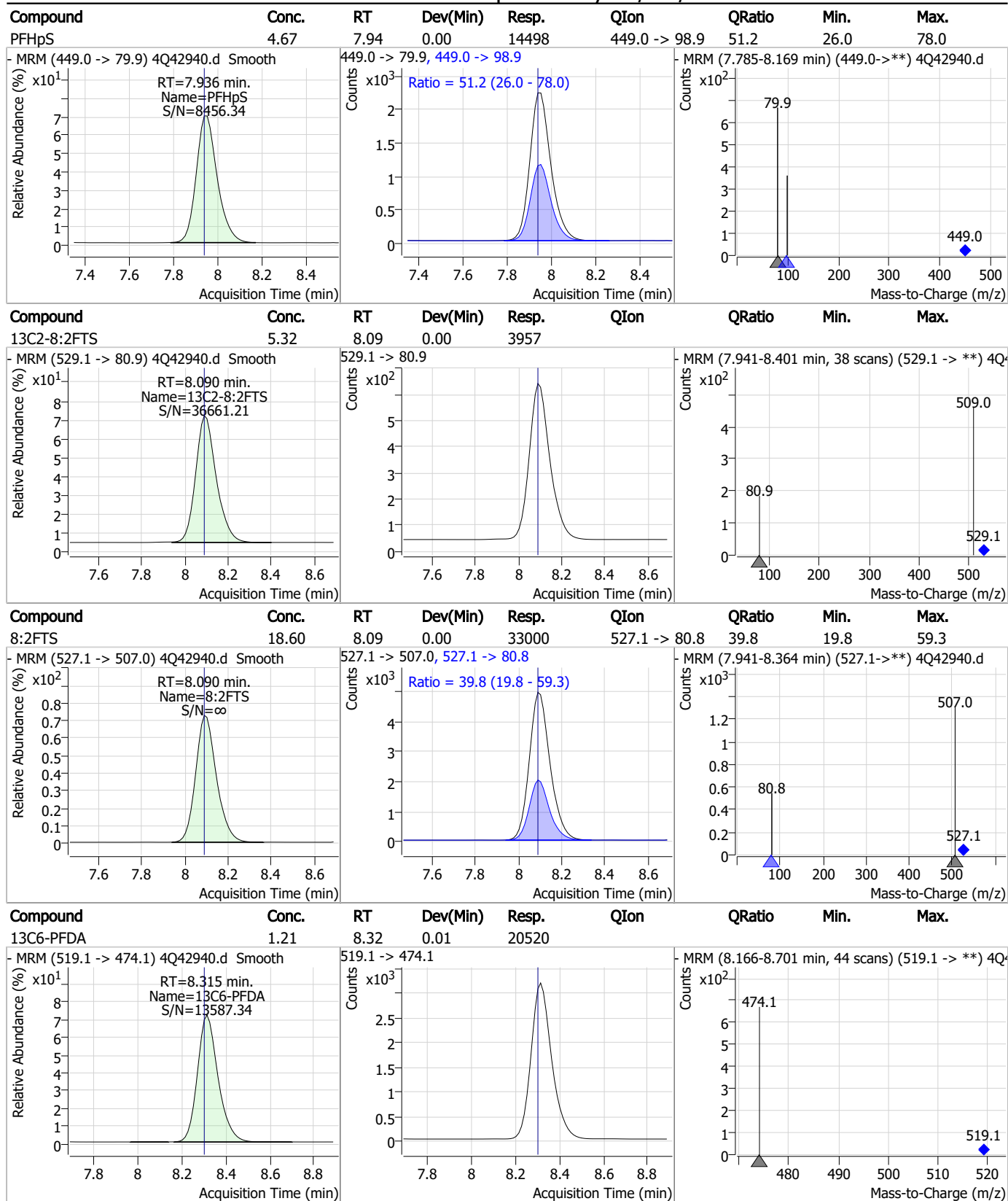
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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Perfluorinated Compounds by LC/MS/MS

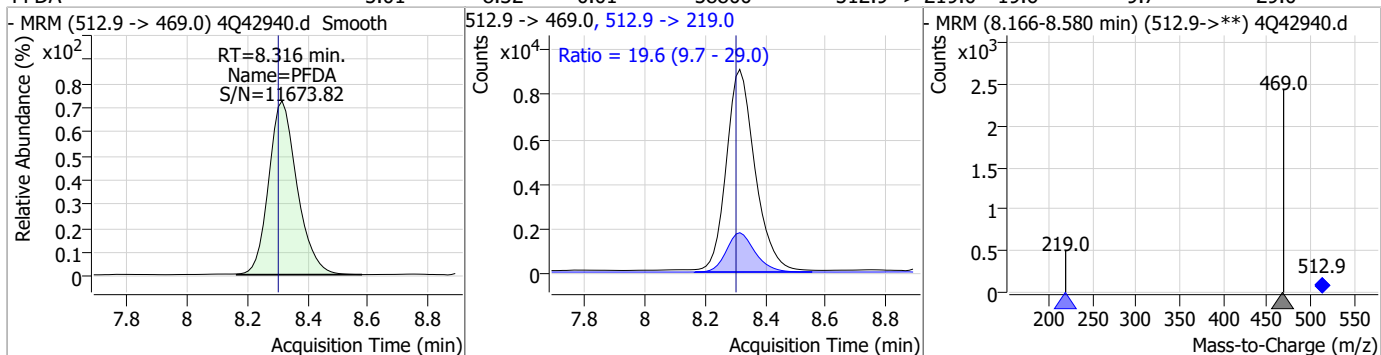


7.7.6

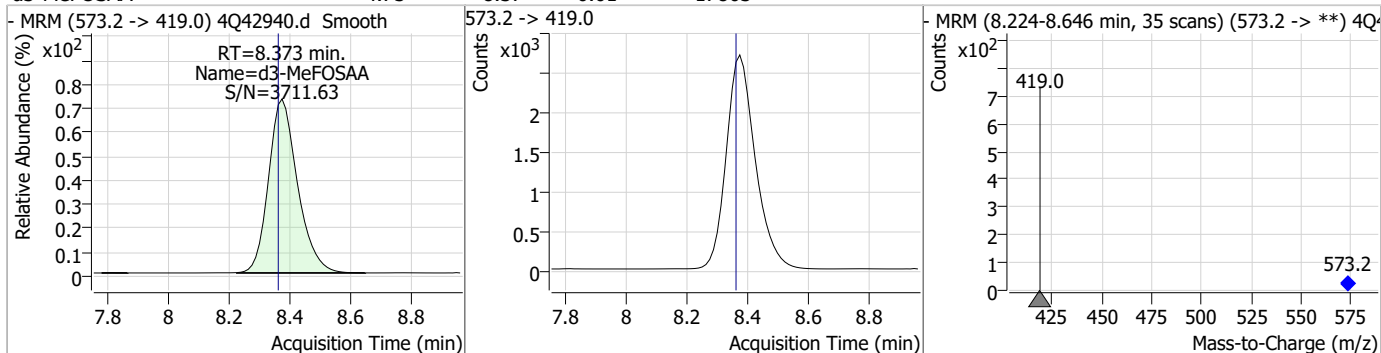
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Perfluorinated Compounds by LC/MS/MS

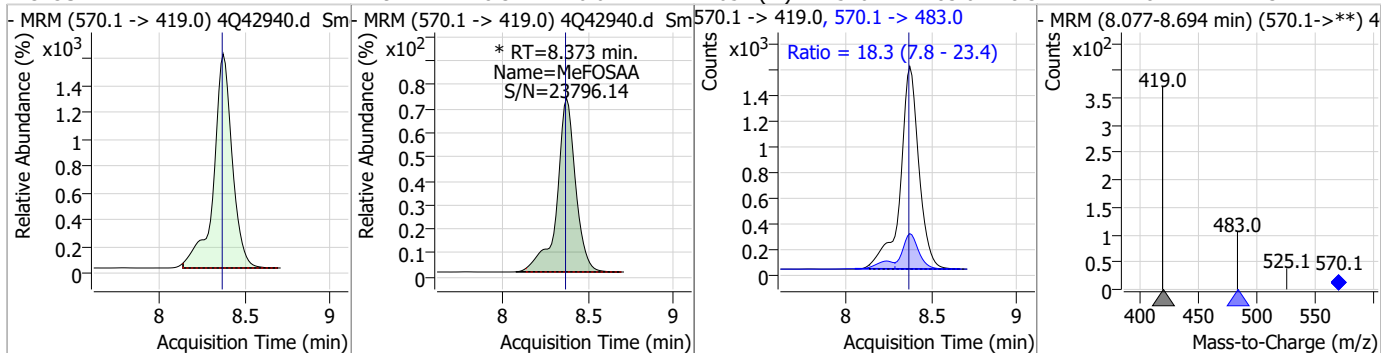
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	5.01	8.32	0.01	58800	512.9 -> 219.0	19.6	9.7	29.0



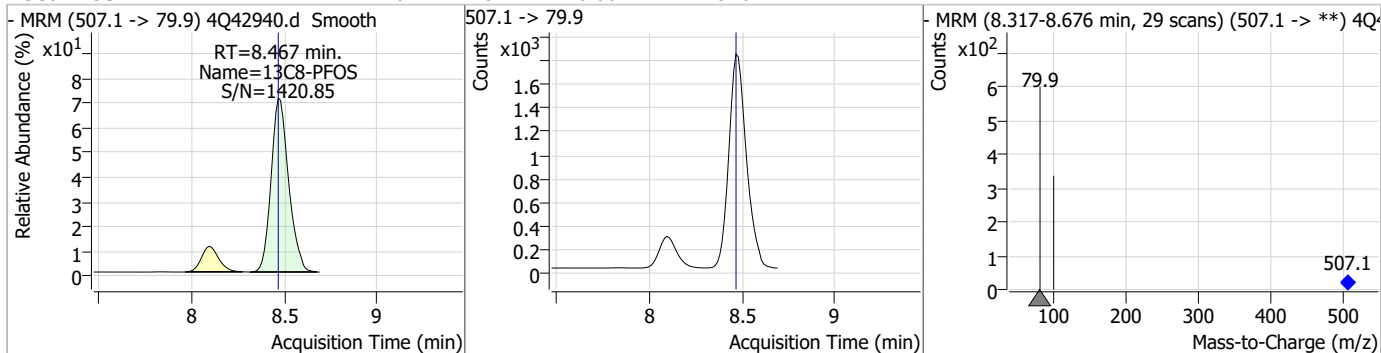
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.73	8.37	0.01	17803				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.91	8.37	0.01	12057 (m)	570.1 -> 483.0	18.3	7.8	23.4

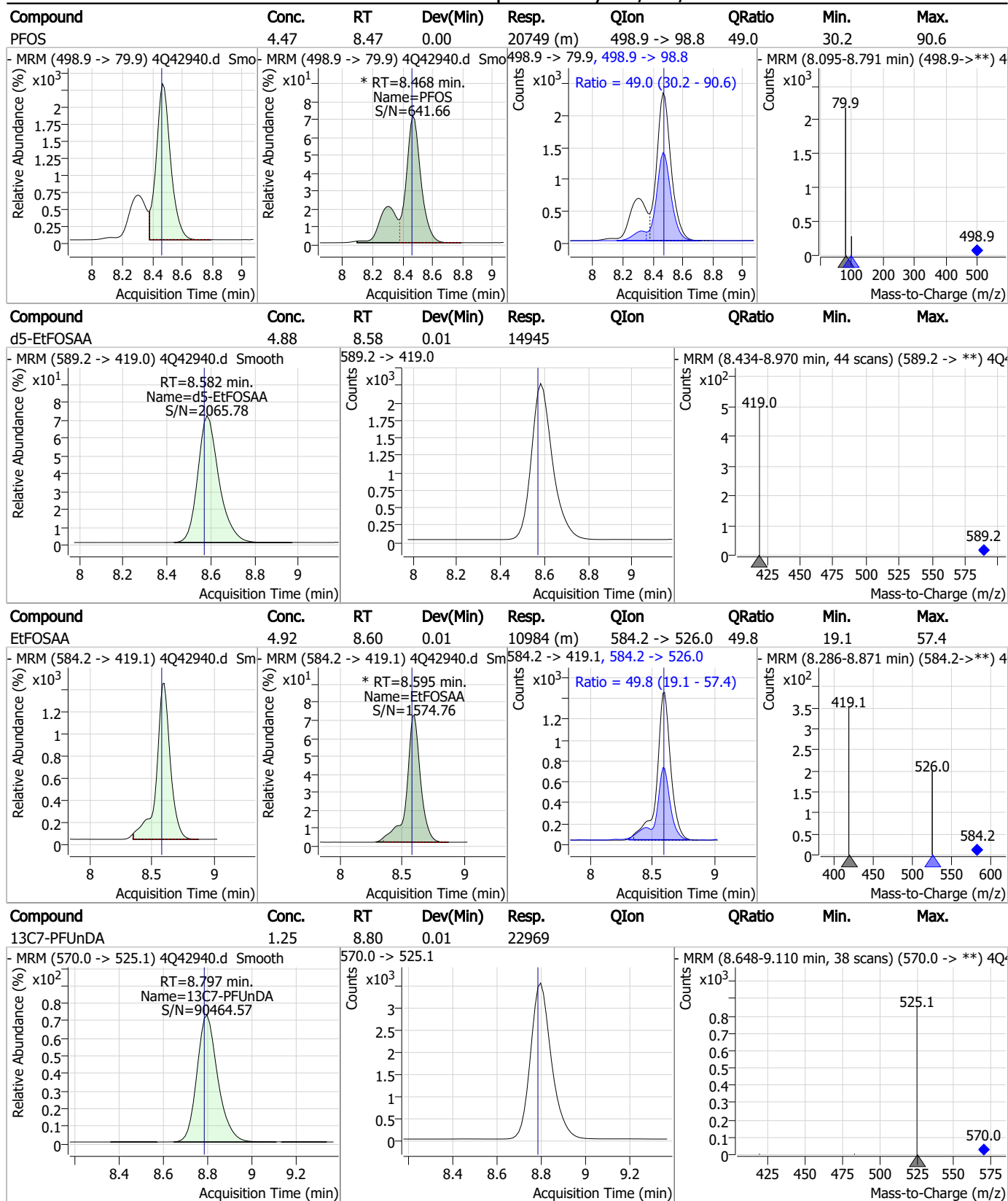


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.40	8.47	0.00	11920				



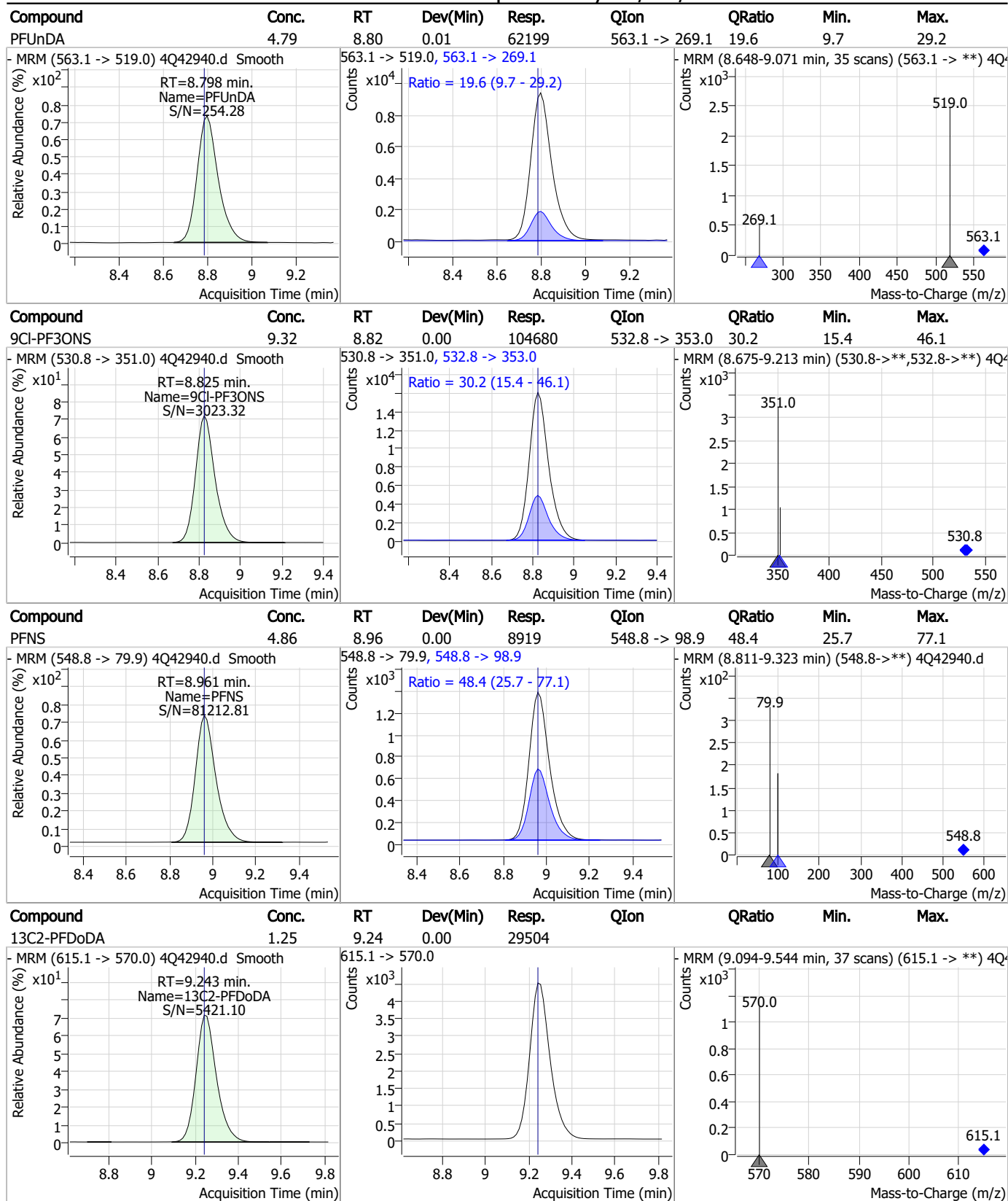
7.7.6
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Perfluorinated Compounds by LC/MS/MS



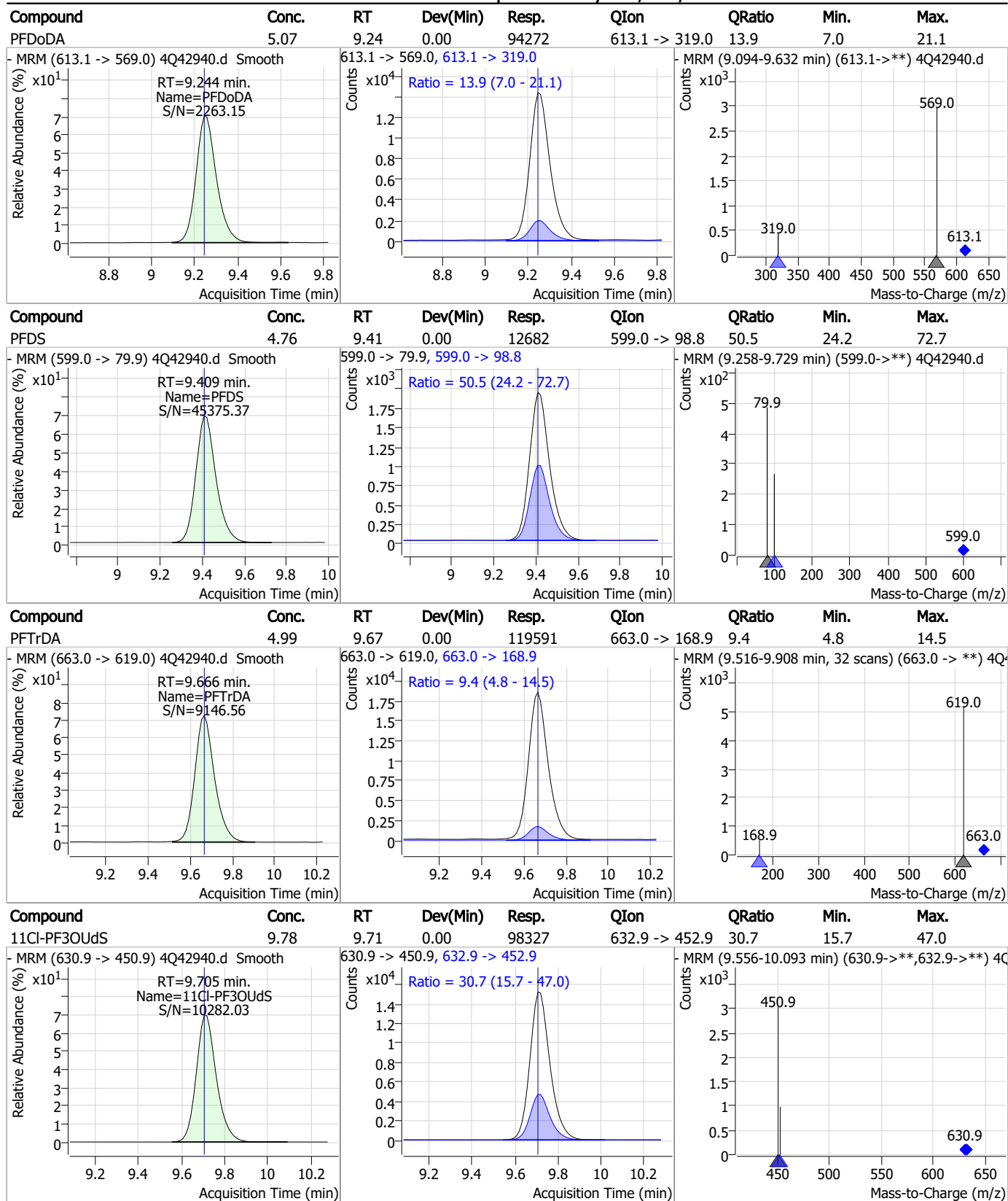
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
7

Perfluorinated Compounds by LC/MS/MS

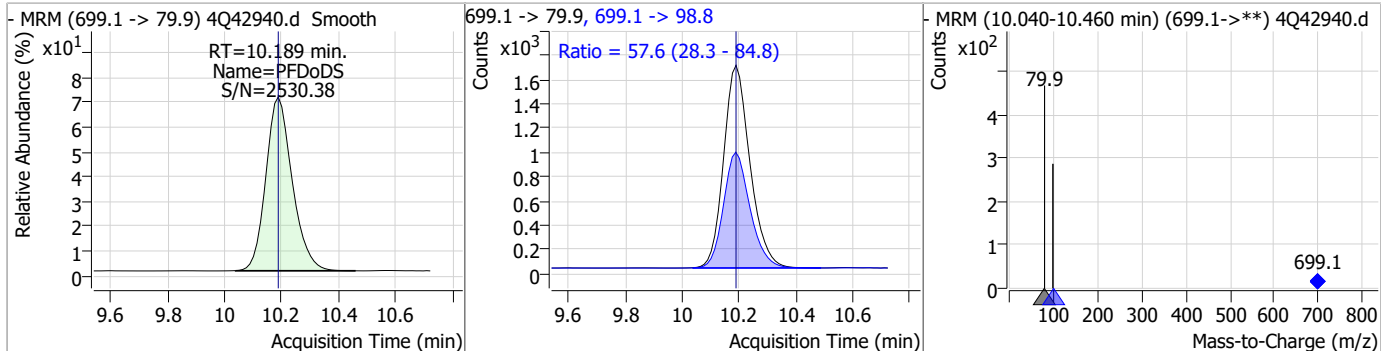
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.98	9.87	0.01	34438	498.1 -> 478.0	3.3	1.4	4.1
- MRM (498.1 -> 77.9) 4Q42940.d Smooth			498.1 -> 77.9, 498.1 -> 478.0			- MRM (9.700-10.235 min) (498.1->**) 4Q42940.d		
13C8-FOSA	2.57	9.87	0.00	21479				
- MRM (506.1 -> 77.8) 4Q42940.d Smooth			506.1 -> 77.8			- MRM (9.722-10.242 min, 43 scans) (506.1 -> **) 4Q42940.d		
13C2-PFTeDA	1.25	10.05	0.01	23133				
- MRM (715.2 -> 670.0) 4Q42940.d Smooth			715.2 -> 670.0			- MRM (9.874-10.298 min, 35 scans) (715.2 -> **) 4Q42940.d		
PFTeDA	4.99	10.05	0.01	90965	713.1 -> 168.9	8.2	4.0	12.0
- MRM (713.1 -> 669.0) 4Q42940.d Smooth			713.1 -> 669.0, 713.1 -> 168.9			- MRM (9.875-10.270 min) (713.1->**) 4Q42940.d		

7.7.6

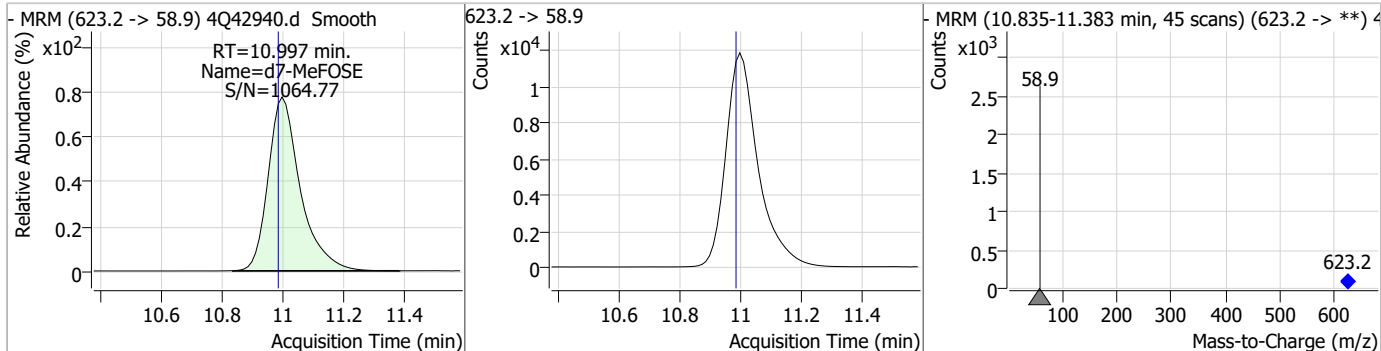
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Perfluorinated Compounds by LC/MS/MS

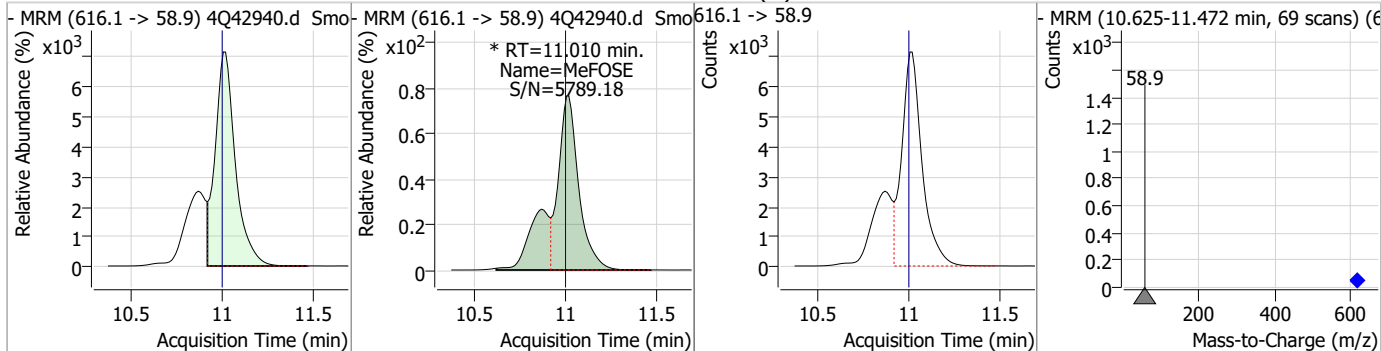
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	4.67	10.19	0.00	10759	699.1 -> 98.8	57.6	28.3	84.8



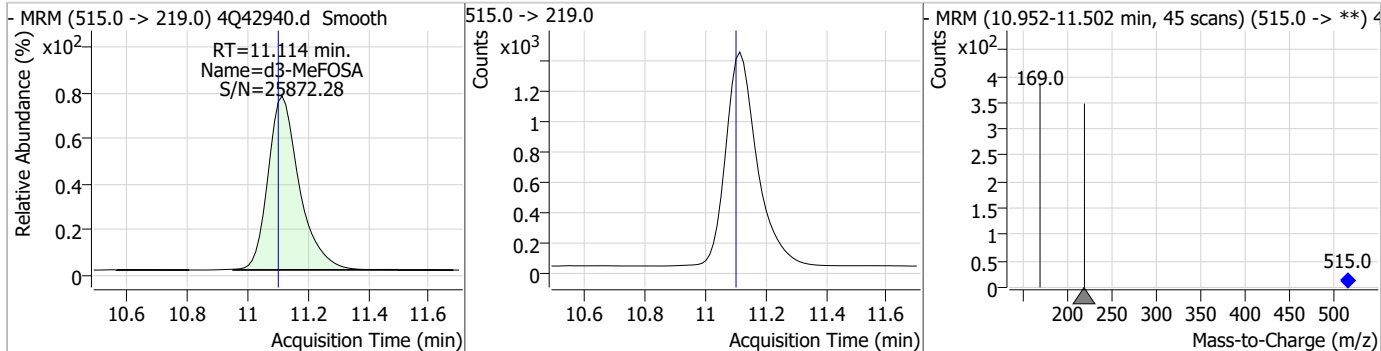
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.33	11.00	0.01	86850				



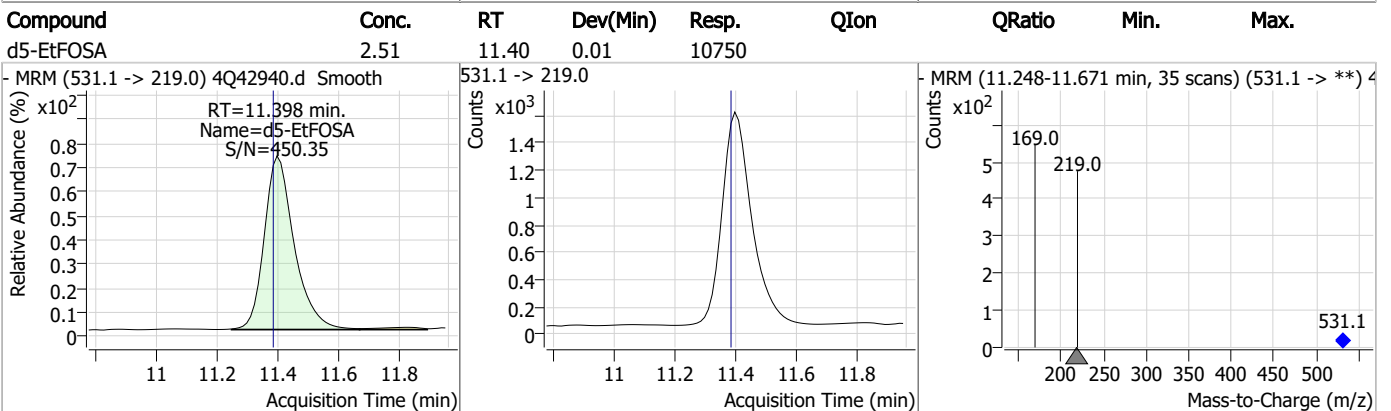
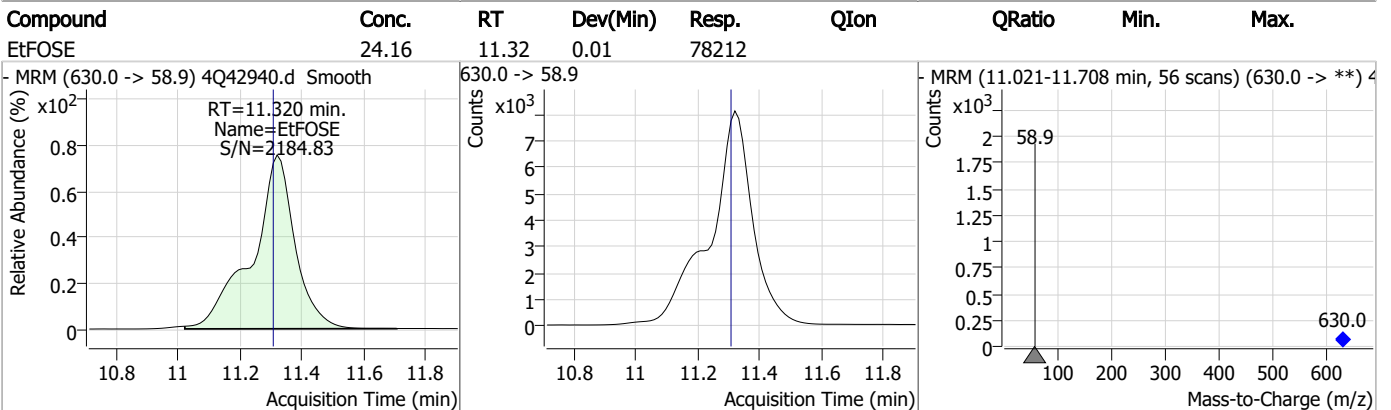
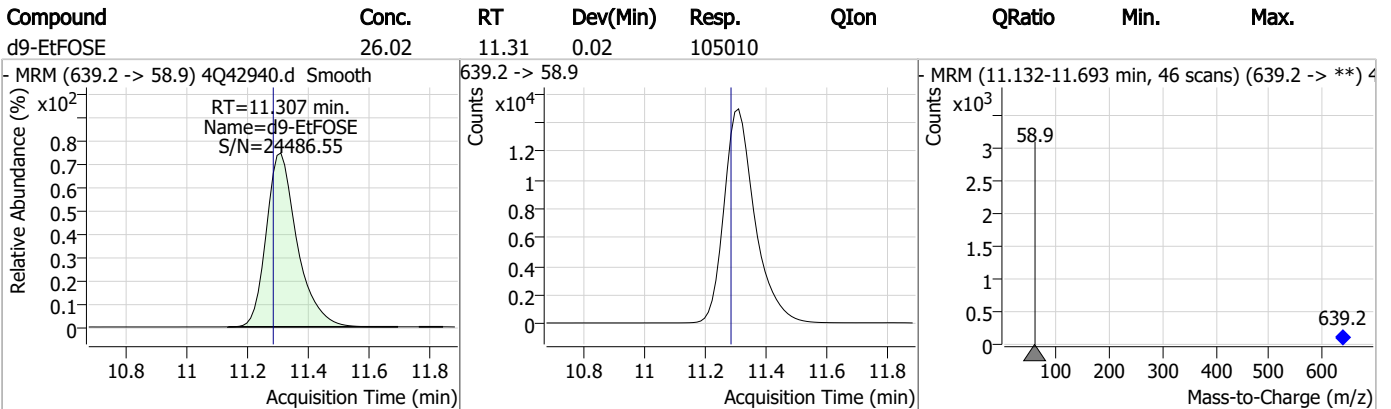
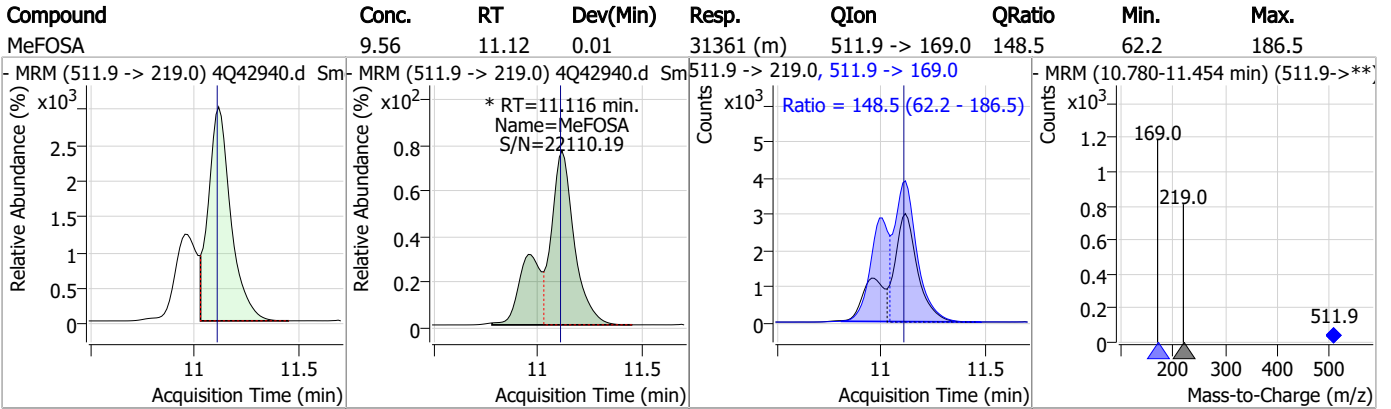
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	24.36	11.01	0.01	74370 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.56	11.11	0.01	10151				

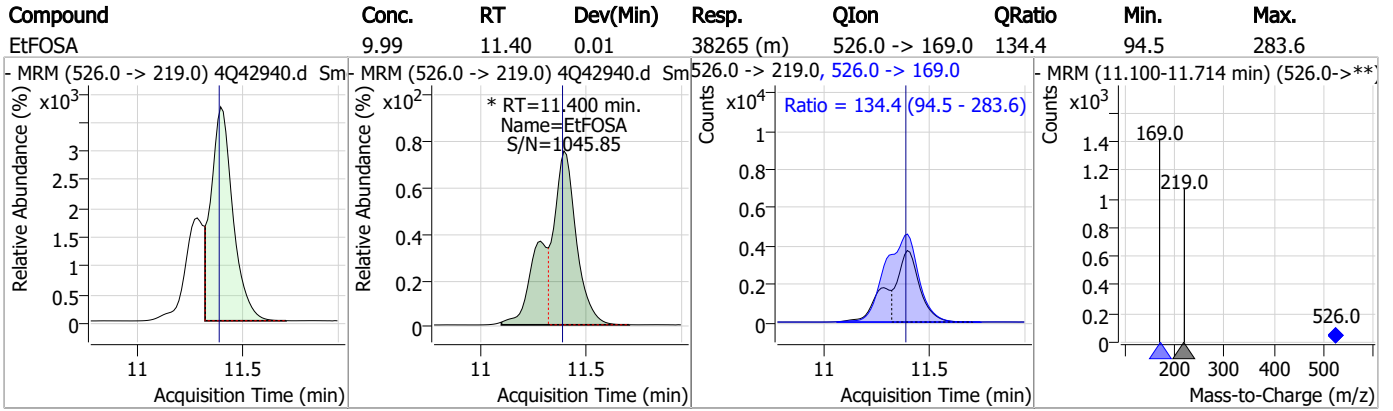


Perfluorinated Compounds by LC/MS/MS



7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42940.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 12:55 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.12	Split peak
EtFOSA	4151-50-2		11.40	Split peak

7.7.6.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 04/17/23 14:32

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42941.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 1:09:29 PM
 Sample Name : ic621-6
 Vial : P1-A7
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.024	216.8 -> 171.9	126412	10.00 µg/L	0.025
M5-PFPeA	4.462	268.3 -> 223.0	81834	5.00 µg/L	-0.012
M5-PFHxA	5.646	318.0 -> 273.0	63527	2.50 µg/L	0.000
M4-PFHpA	6.580	367.1 -> 322.0	31808	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	37243	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	21809	1.25 µg/L	0.000
M6-PFDA	8.315	519.1 -> 474.1	20998	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	21474	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	27372	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	20512	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	17533	2.50 µg/L	0.000
M3-PFBS	5.551	302.1 -> 79.9	14110	2.50 µg/L	-0.012
M3-PFHxS	7.354	402.1 -> 79.9	8257	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	12070	2.50 µg/L	0.000
M2-4:2FTS	5.323	329.1 -> 80.9	1452	5.00 µg/L	-0.012
M2-6:2FTS	7.010	429.1 -> 80.9	2236	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3527	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	17884	5.00 µg/L	0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	38938	10.00 µg/L	0.000
M5-EtFOSAA	8.582	589.2 -> 419.0	14045	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	62837	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	80189	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	10156	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9584	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12669	2.50 µg/L	0.000
13C3-PFBA	3.028	216.0 -> 172.0	72633	5.00 µg/L	0.037
18O2-PFHxS	7.353	403.0 -> 83.9	6061	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	46239	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	18825	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	24784	1.25 µg/L	0.000
13C2-PFHxA	5.647	315.1 -> 270.0	55207	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1452	4.39 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2236	4.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3527	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-PFDoDA	9.243	615.1 -> 570.0	27372	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-PFTeDA	10.036	715.2 -> 670.0	20512	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C3-PFBS	5.551	302.1 -> 79.9	14110	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.354	402.1 -> 79.9	8257	2.46 µg/L	0.013

7.7.7
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C4-PFBA	3.024	216.8 -> 171.9	126412	9.99 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C4-PFHpA	6.580	367.1 -> 322.0	31808	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C5-PFHxA	5.646	318.0 -> 273.0	63527	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C5-PFPeA	4.462	268.3 -> 223.0	81834	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C6-PFDA	8.315	519.1 -> 474.1	20998	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C7-PFUnDA	8.797	570.0 -> 525.1	21474	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C8-FOSA	9.870	506.1 -> 77.8	17533	2.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 84.6%		
13C8-PFOA	7.250	421.1 -> 376.0	37243	2.45 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C8-PFOS	8.467	507.1 -> 79.9	12070	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C9-PFNA	7.797	472.1 -> 427.0	21809	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
d3-MeFOSAA	8.373	573.2 -> 419.0	17884	4.79 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C3-HFPO-DA	6.014	286.9 -> 168.9	38938	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
d3-MeFOSA	11.102	515.0 -> 219.0	9584	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
d5-EtFOSAA	8.582	589.2 -> 419.0	14045	4.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.6%		
d7-MeFOSE	10.985	623.2 -> 58.9	62837	19.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 76.9%		
d9-EtFOSE	11.294	639.2 -> 58.9	80189	20.06 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 80.2%		
d5-EtFOSA	11.386	531.1 -> 219.0	10156	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.9%		
Target Compounds					QValue
4:2FTS	5.323	327.1 -> 307.0	86277	47.66 µg/L	98
		327.1 -> 80.9	36011		
6:2FTS	7.011	427.1 -> 407.0	69045	45.23 µg/L	100
		427.1 -> 80.9	29064		
8:2FTS	8.090	527.1 -> 507.0	74437	47.07 µg/L	96
		527.1 -> 80.8	31399		
EtFOSAA	8.583	584.2 -> 419.1	24919	11.88 µg/L	m 86
		584.2 -> 526.0	11587		
FOSA	9.874	498.1 -> 77.9	67848	12.02 µg/L	99
		498.1 -> 478.0	1957		
MeFOSAA	8.373	570.1 -> 419.0	26871	10.90 µg/L	m 85
		570.1 -> 483.0	5843		
PFBA	3.032	212.8 -> 168.9	141543	49.03 µg/L	100
PFBS	5.552	298.7 -> 79.9	57723	10.96 µg/L	97
		298.7 -> 98.8	21216		
PFDA	8.316	512.9 -> 469.0	146600	12.21 µg/L	99
		512.9 -> 219.0	28673		
PFDoDA	9.244	613.1 -> 569.0	215453	12.48 µg/L	99
		613.1 -> 319.0	29708		
PFDS	9.409	599.0 -> 79.9	31216	11.57 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	15229			
PFHpA	6.580	363.1 -> 319.0	198822	12.53	µg/L	100
		363.1 -> 169.0	35138			
PFHpS	7.936	449.0 -> 79.9	36937	11.76	µg/L	99
		449.0 -> 98.9	18919			
PFHxA	5.649	313.0 -> 269.0	231353	12.30	µg/L	99
		313.0 -> 118.9	7474			
PFHxS	7.355	398.7 -> 79.9	31261	11.05	µg/L	m 100
		398.7 -> 98.9	16193			
PFNA	7.797	463.0 -> 419.0	137984	11.84	µg/L	95
		463.0 -> 219.0	34461			
PFNS	8.961	548.8 -> 79.9	22258	11.98	µg/L	100
		548.8 -> 98.9	11487			
PFOA	7.252	413.0 -> 369.0	216081	12.42	µg/L	99
		413.0 -> 169.0	43078			
PFOS	8.468	498.9 -> 79.9	52470	11.17	µg/L	m 84
		498.9 -> 98.8	25355			
PFPeA	4.464	263.0 -> 219.0	384441	24.82	µg/L	100
PFPeS	6.619	349.1 -> 79.9	28905	12.00	µg/L	99
		349.1 -> 98.9	12488			
PFTeDA	10.037	713.1 -> 669.0	197481	12.23	µg/L	99
		713.1 -> 168.9	16352			
PFTrDA	9.666	663.0 -> 619.0	266056	11.96	µg/L	99
		663.0 -> 168.9	25219			
PFUnDA	8.798	563.1 -> 519.0	141972	11.69	µg/L	100
		563.1 -> 269.1	27866			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	243104	23.92	µg/L	100
		632.9 -> 452.9	75926			
9Cl-PF3ONS	8.825	530.8 -> 351.0	269692	23.75	µg/L	100
		532.8 -> 353.0	82823			
ADONA	6.843	376.9 -> 250.9	552337	23.61	µg/L	100
		376.9 -> 84.8	148755			
HFPO-DA	6.015	284.9 -> 168.9	75047	24.32	µg/L	100
		284.9 -> 184.9	9286			
3:3FTCA	3.979	241.0 -> 177.0	44989	62.33	µg/L	100
		241.0 -> 117.0	4315			
5:3FTCA	6.345	341.0 -> 237.1	841310	316.78	µg/L	100
		341.0 -> 217.0	599805			
7:3FTCA	7.786	441.0 -> 316.9	337679	310.25	µg/L	98
		441.0 -> 336.9	756780			
EtFOSA	11.388	526.0 -> 219.0	90504	25.01	µg/L	m 64
		526.0 -> 169.0	123529			
EtFOSE	11.308	630.0 -> 58.9	148842	60.22	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	72250	23.32	µg/L	m 77
		511.9 -> 169.0	108340			
MeFOSE	11.010	616.1 -> 58.9	132184	59.85	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	27343	11.72	µg/L	99
		699.1 -> 98.8	15267			
NFDHA	5.528	295.0 -> 201.0	31926	25.26	µg/L	98
		295.0 -> 84.9	8190			
PFMBA	4.878	279.0 -> 85.1	221121	24.97	µg/L	100
PFMPA	3.628	229.0 -> 84.9	194173	25.07	µg/L	100
PFEESA	6.083	314.8 -> 134.9	353987	22.42	µg/L	100
		314.8 -> 82.9	11637			

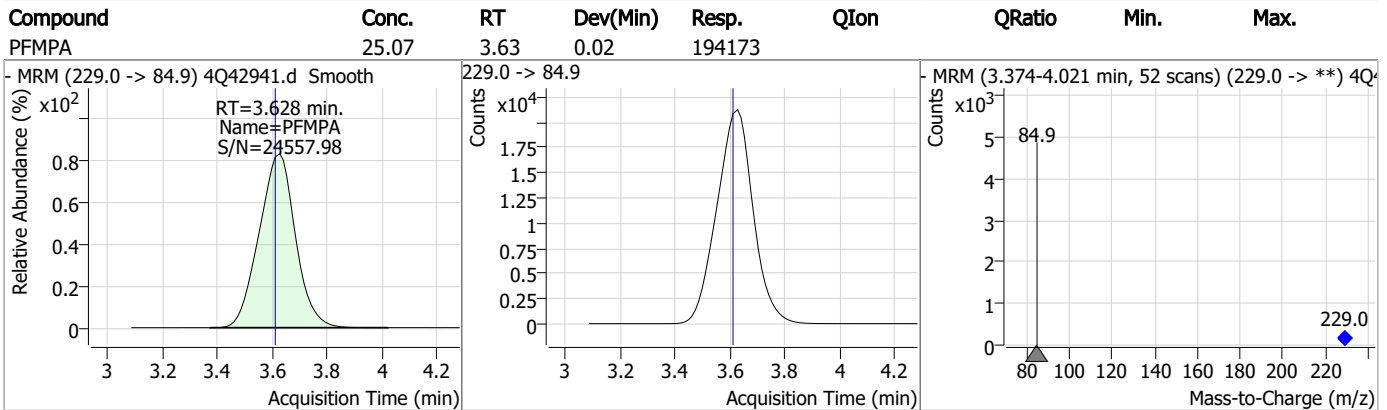
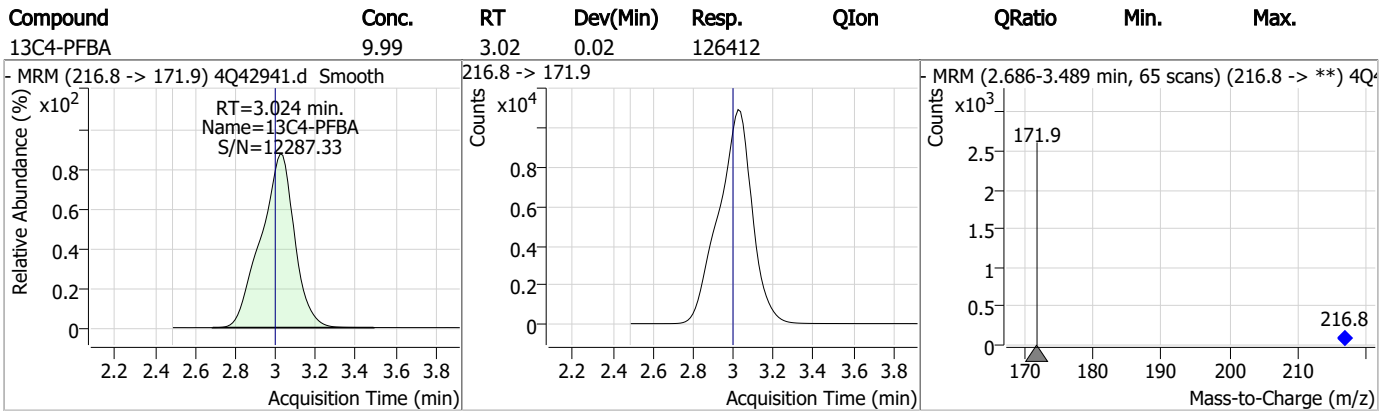
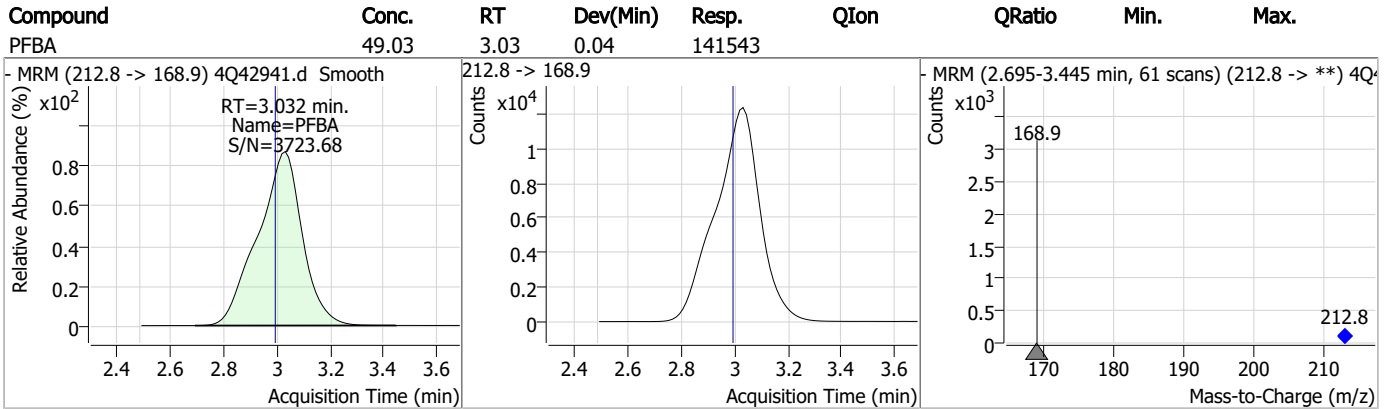
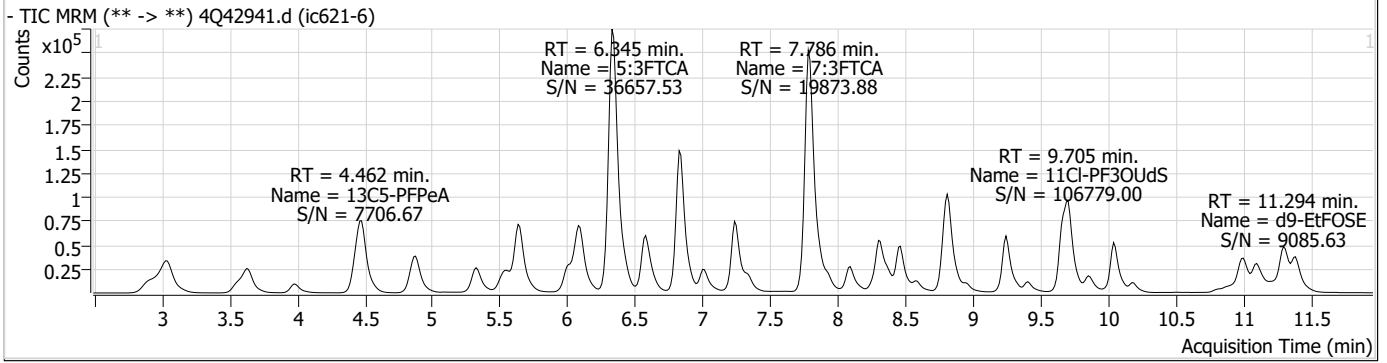
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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7.7.7
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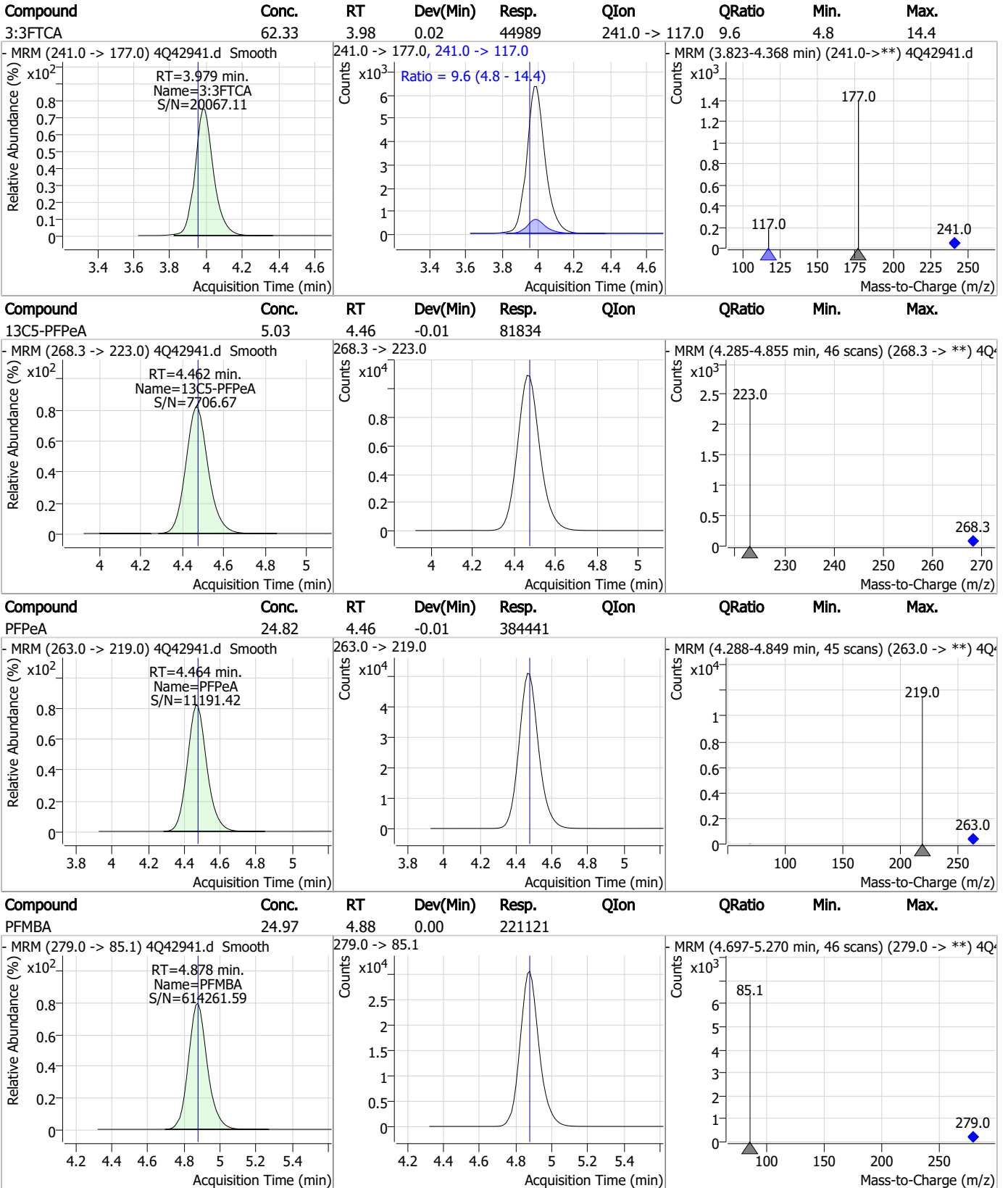
Perfluorinated Compounds by LC/MS/MS



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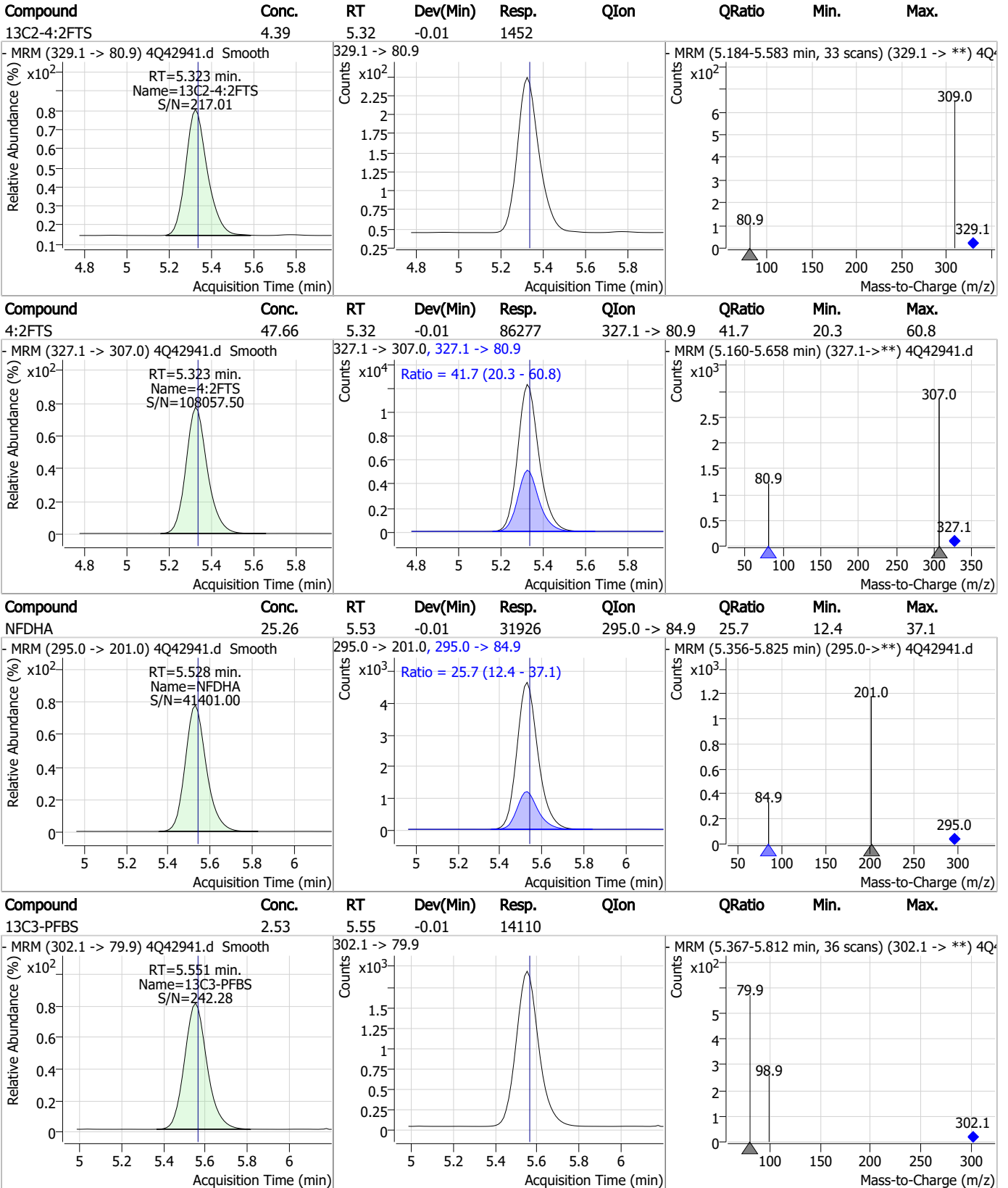
Perfluorinated Compounds by LC/MS/MS



7.7.7

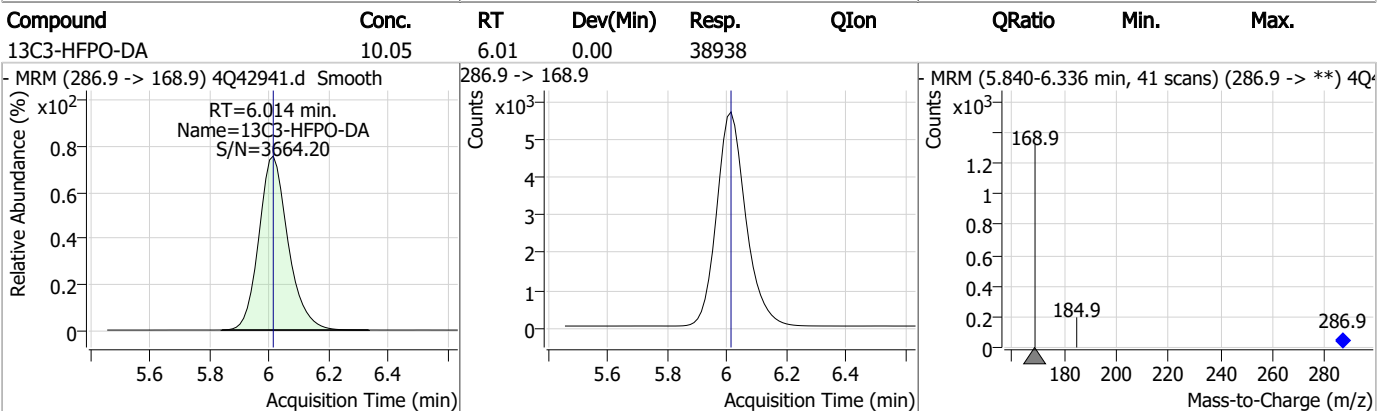
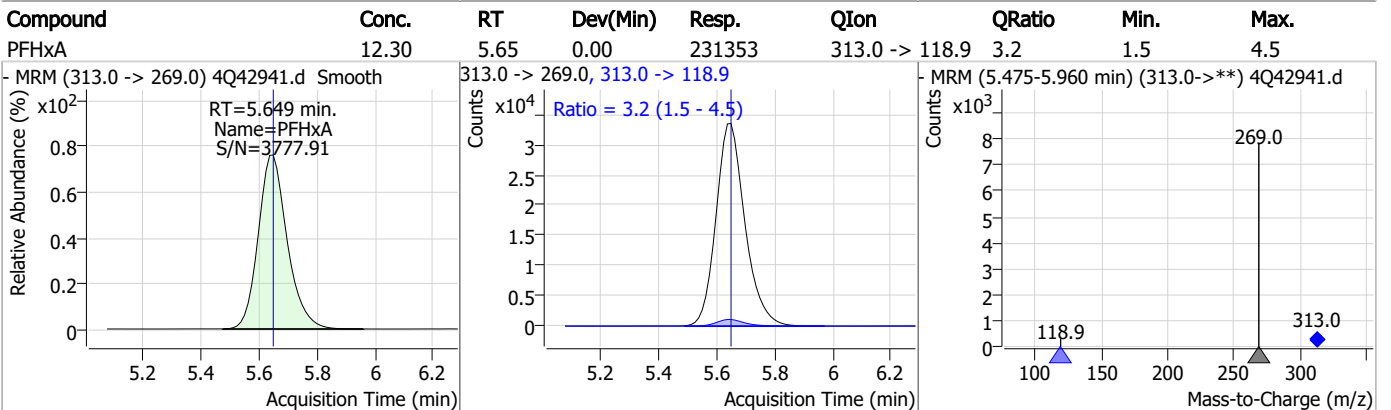
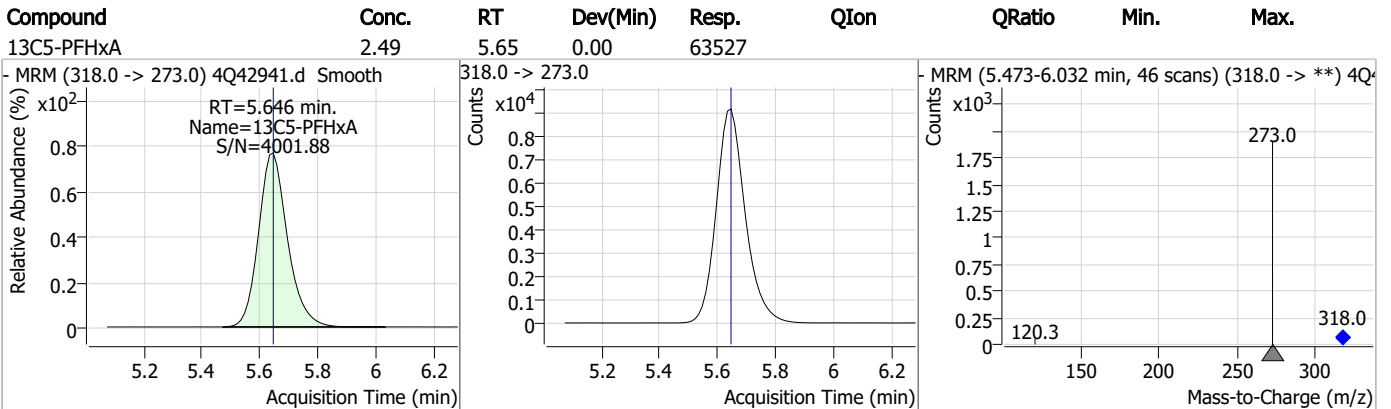
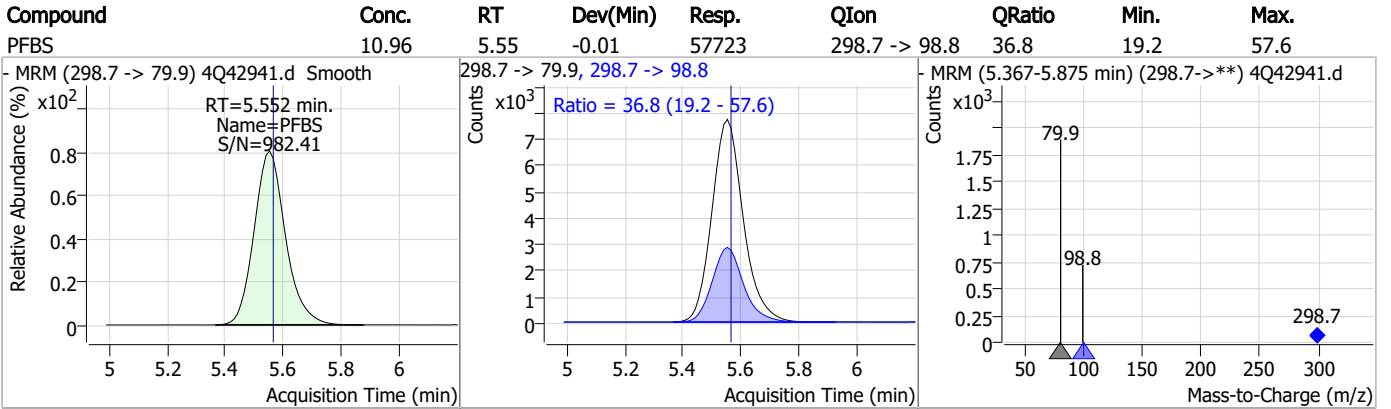
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Perfluorinated Compounds by LC/MS/MS

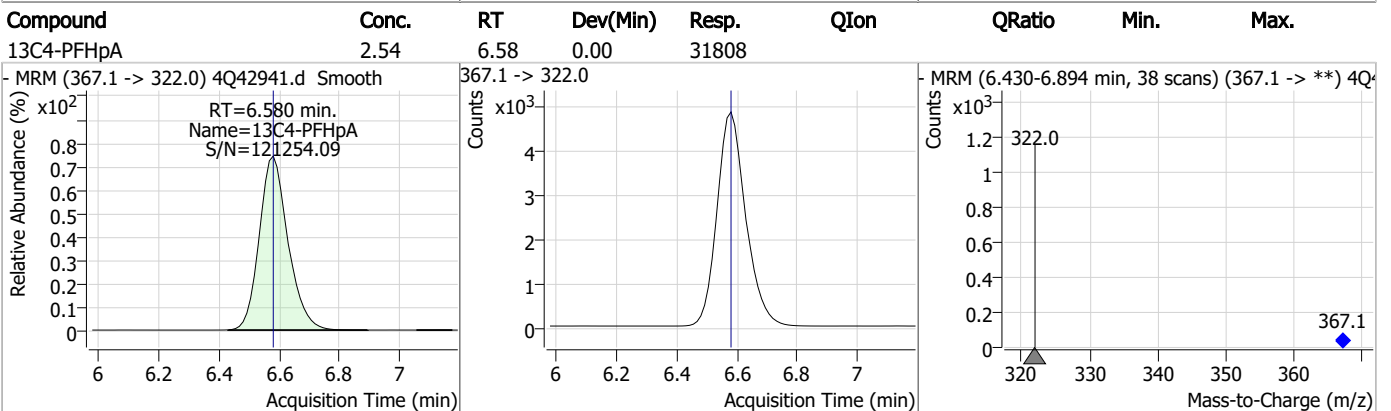
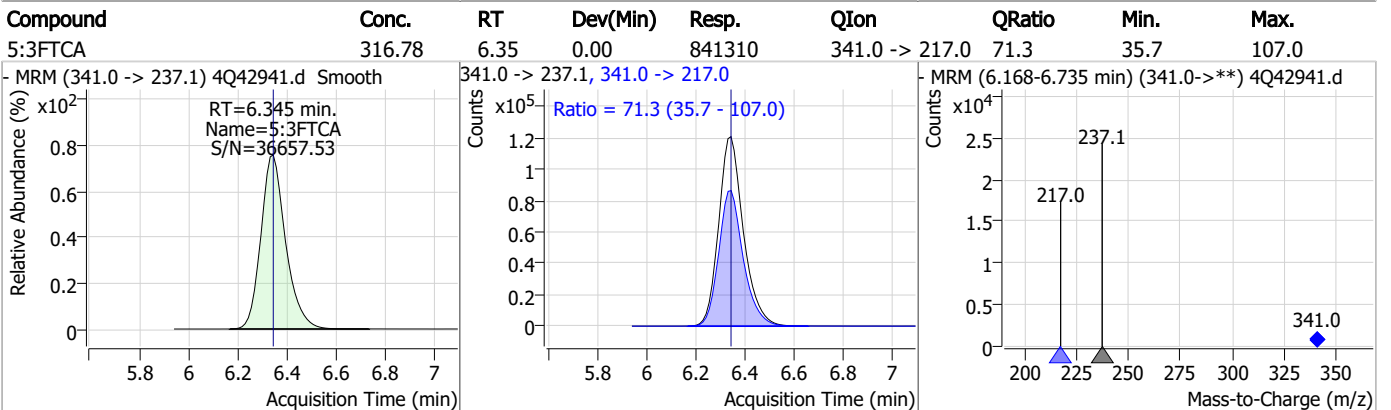
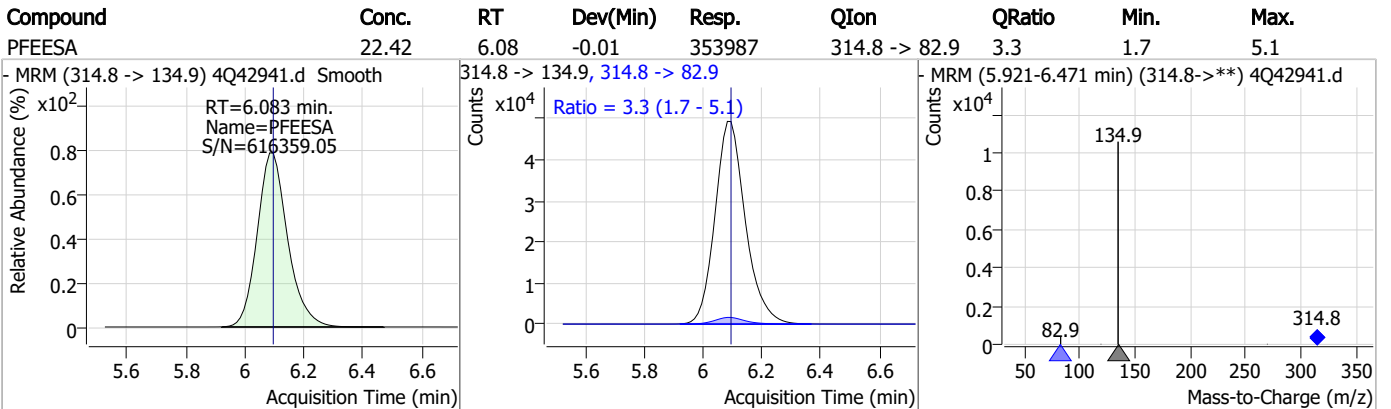
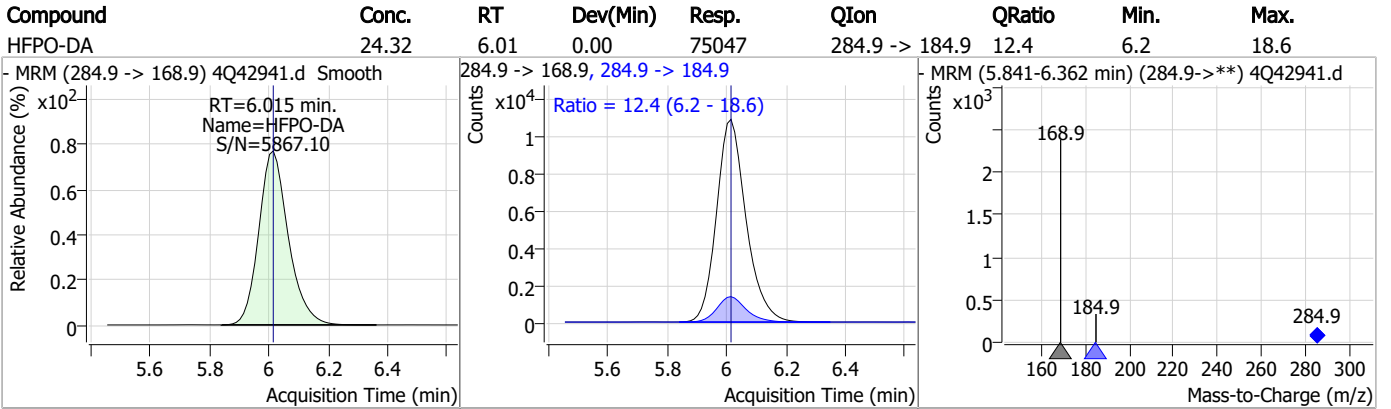


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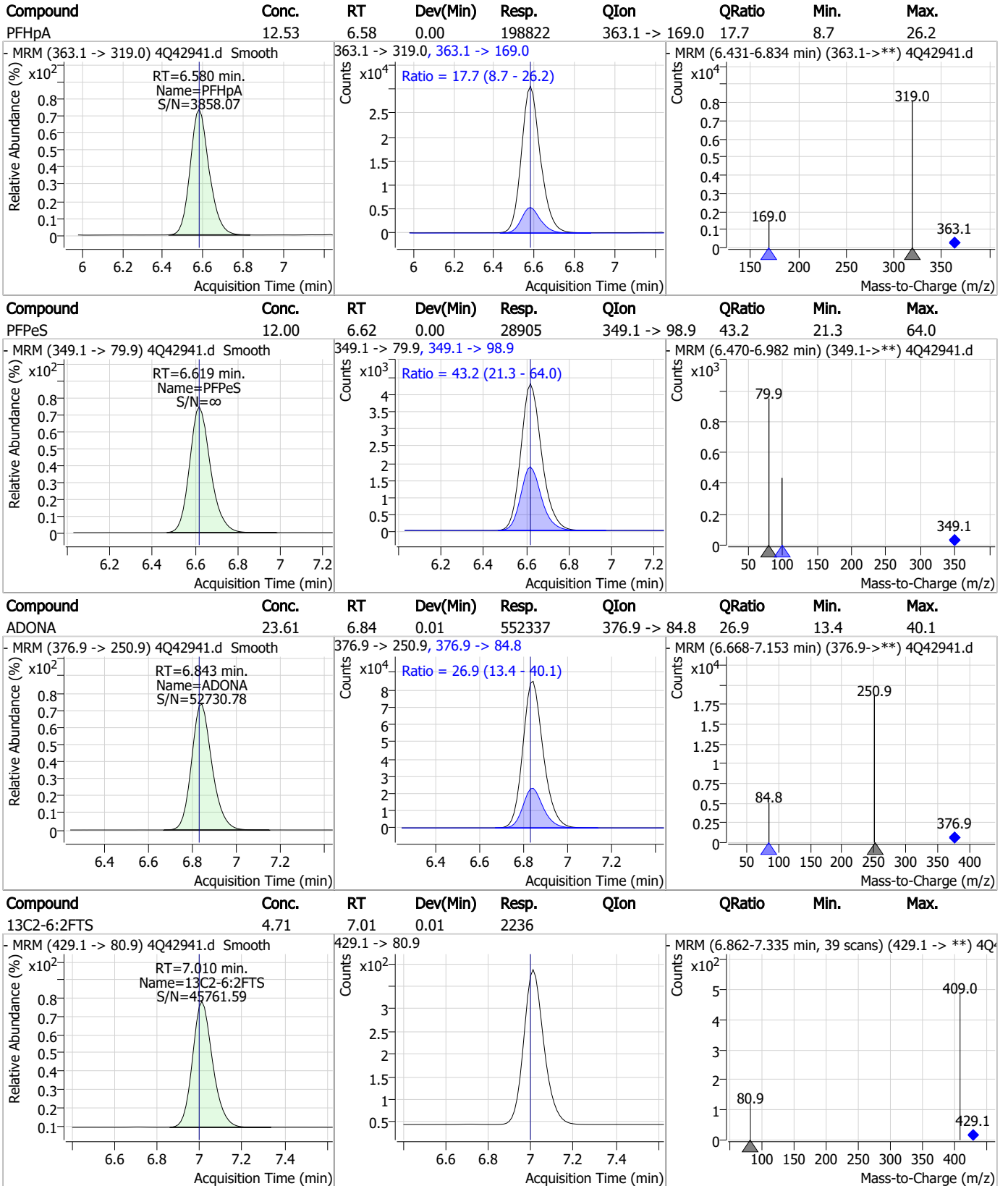
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



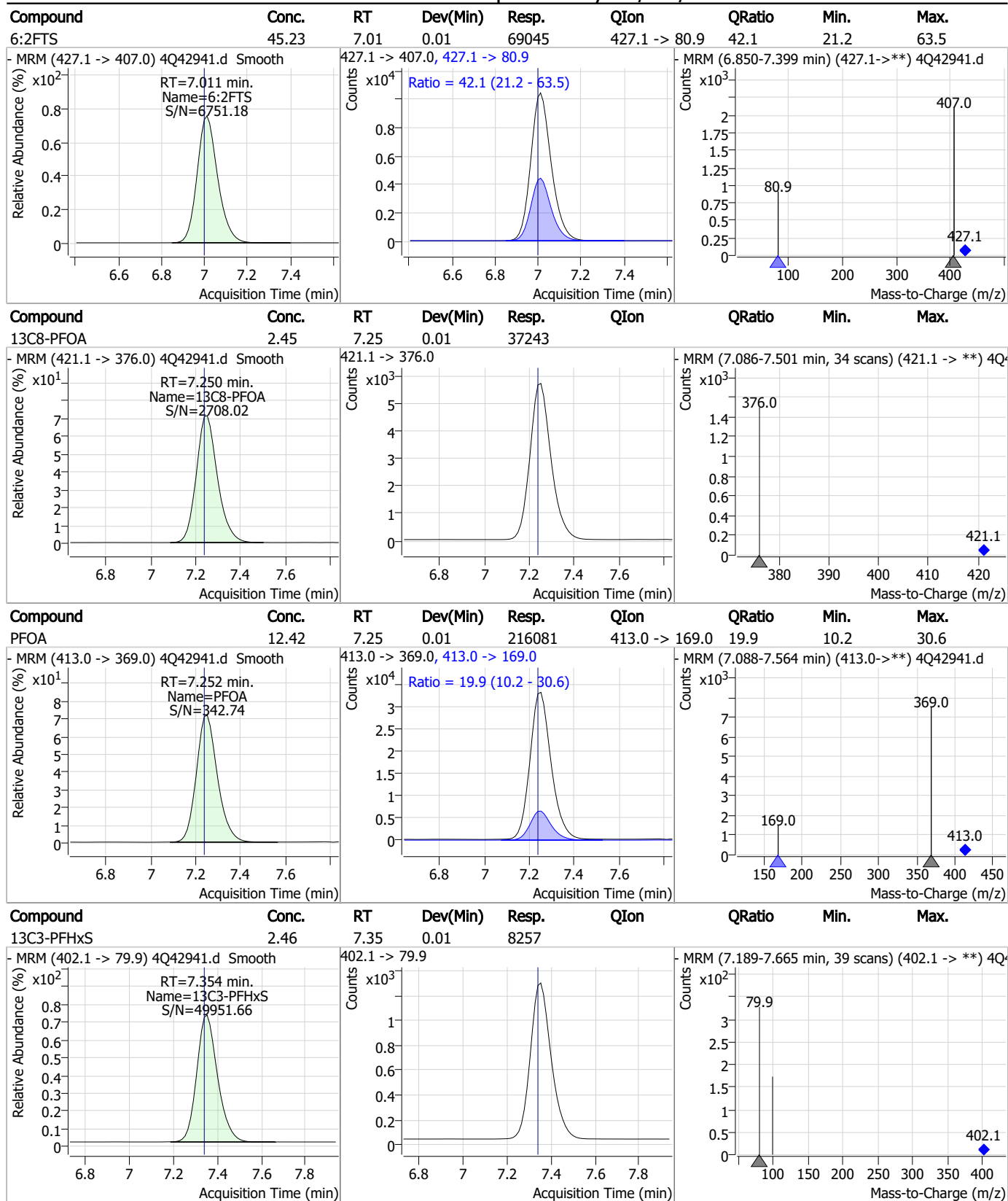
Perfluorinated Compounds by LC/MS/MS



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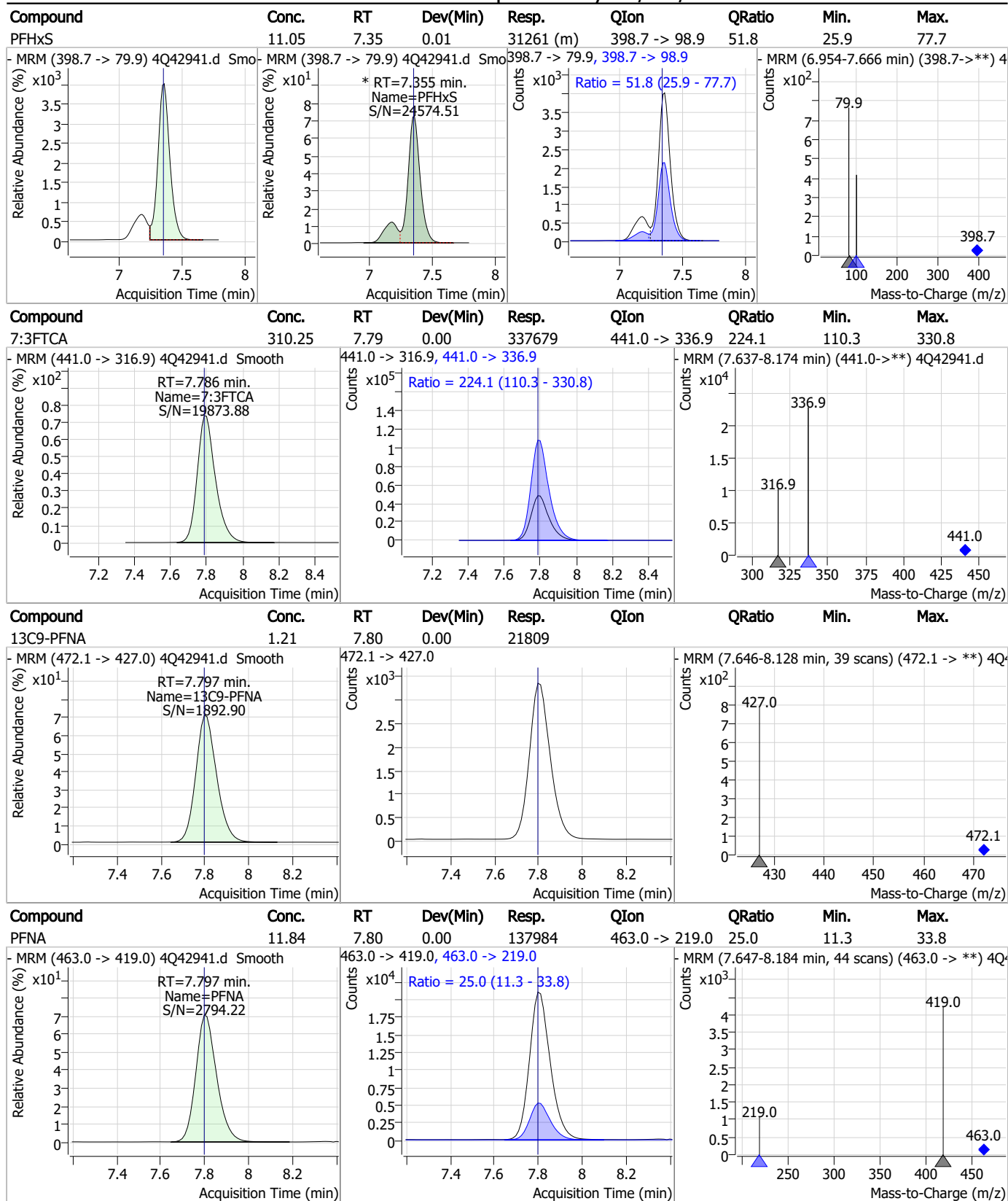
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Perfluorinated Compounds by LC/MS/MS



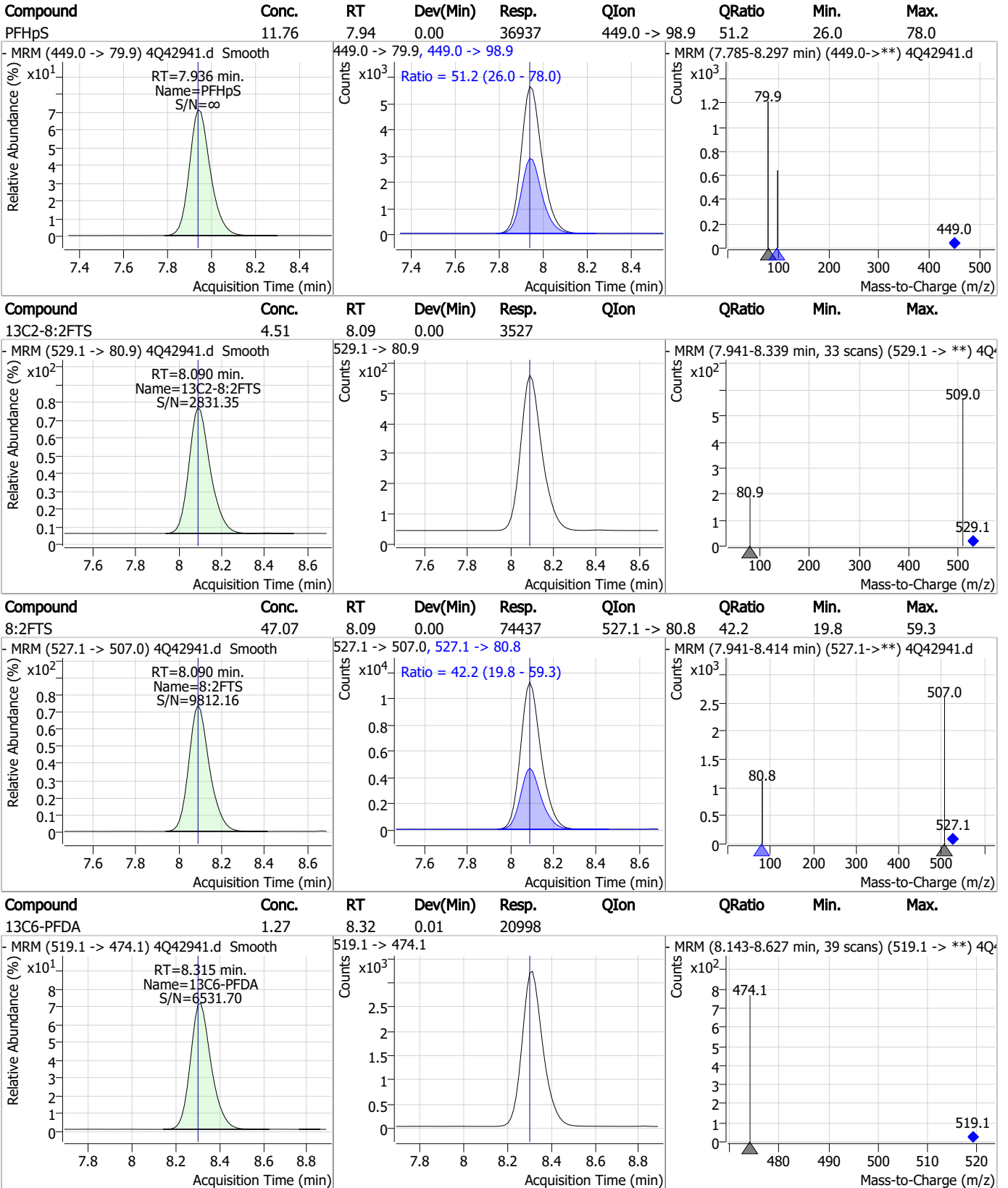
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Perfluorinated Compounds by LC/MS/MS



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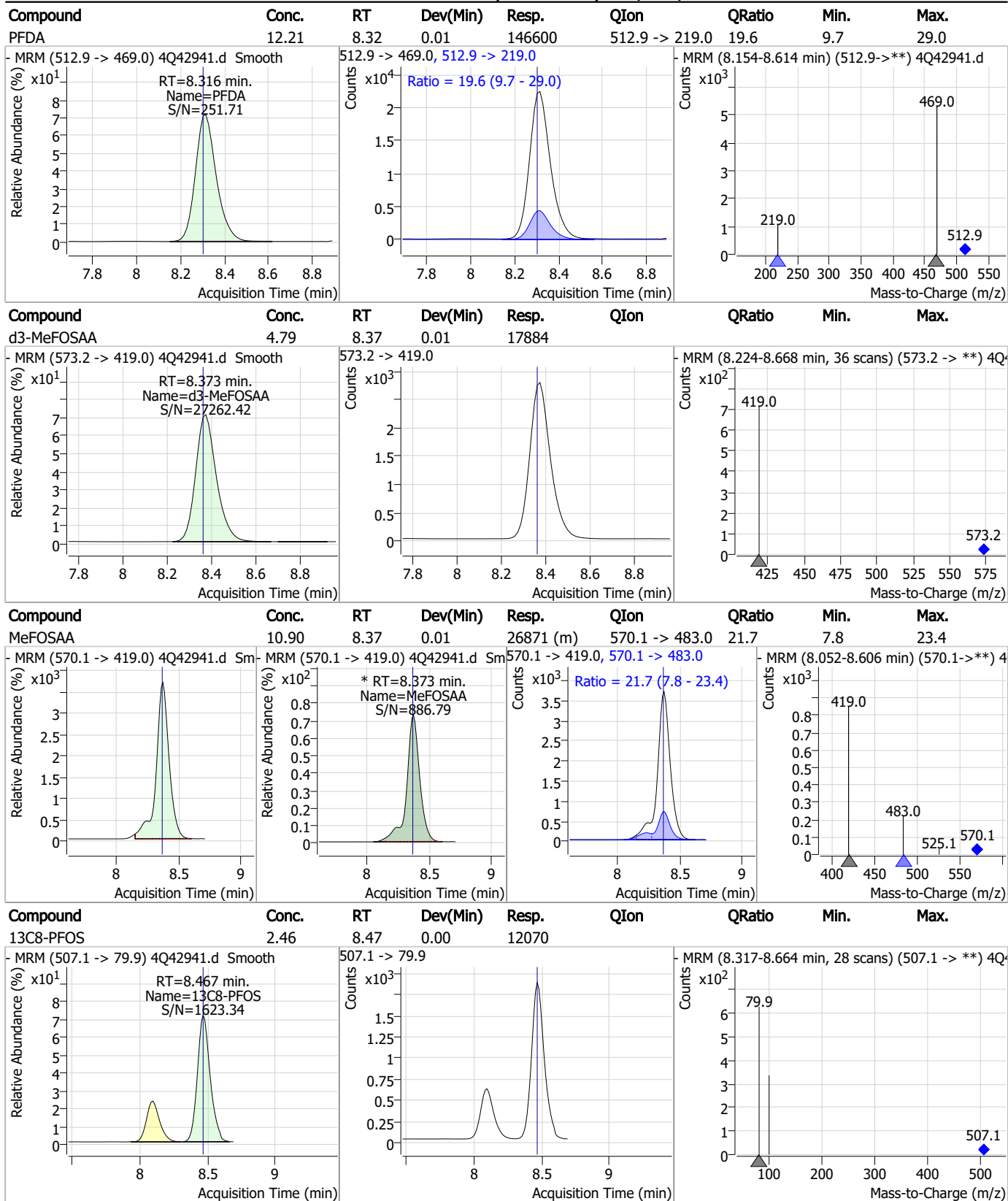
Perfluorinated Compounds by LC/MS/MS



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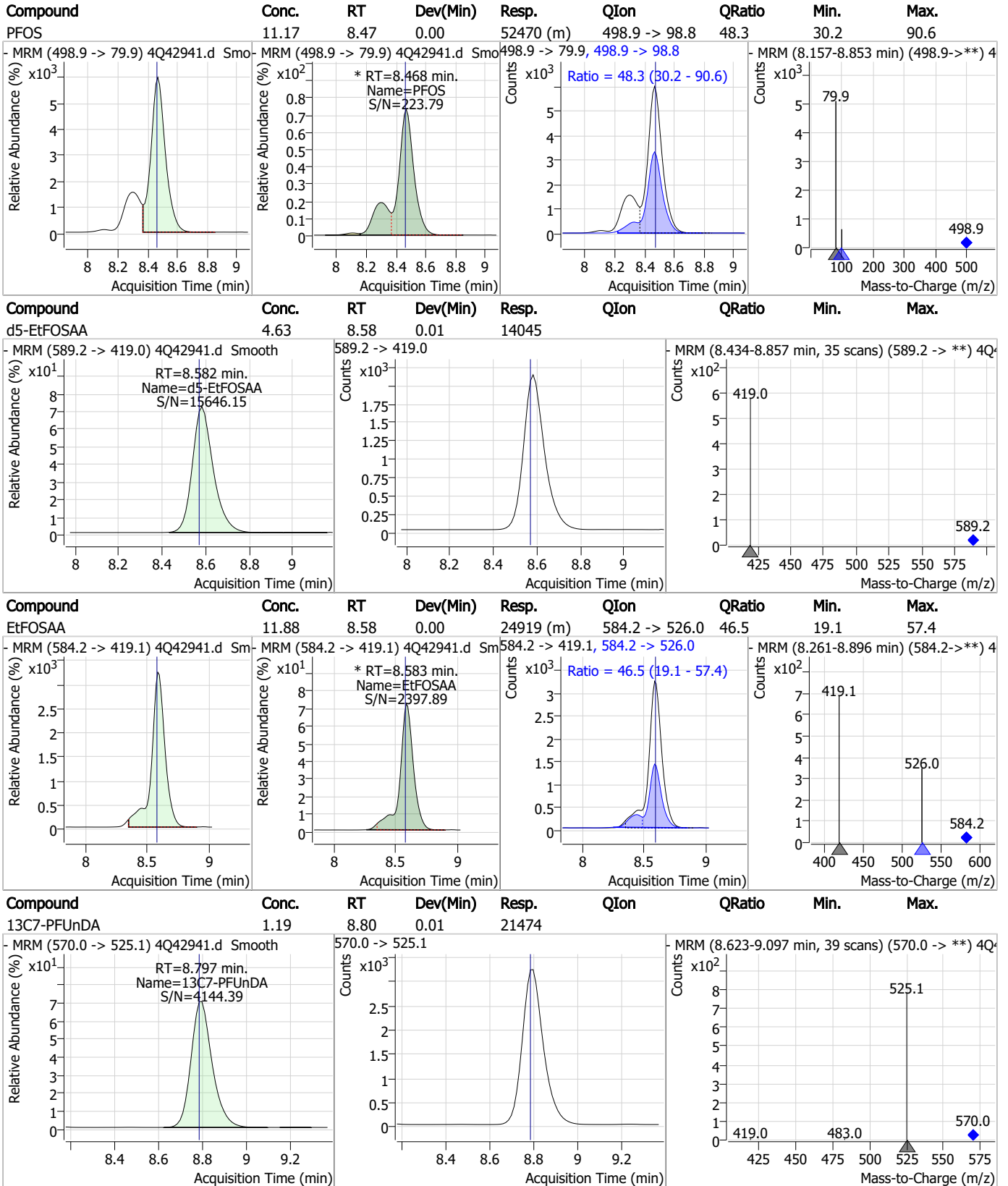
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Perfluorinated Compounds by LC/MS/MS



7.7.7
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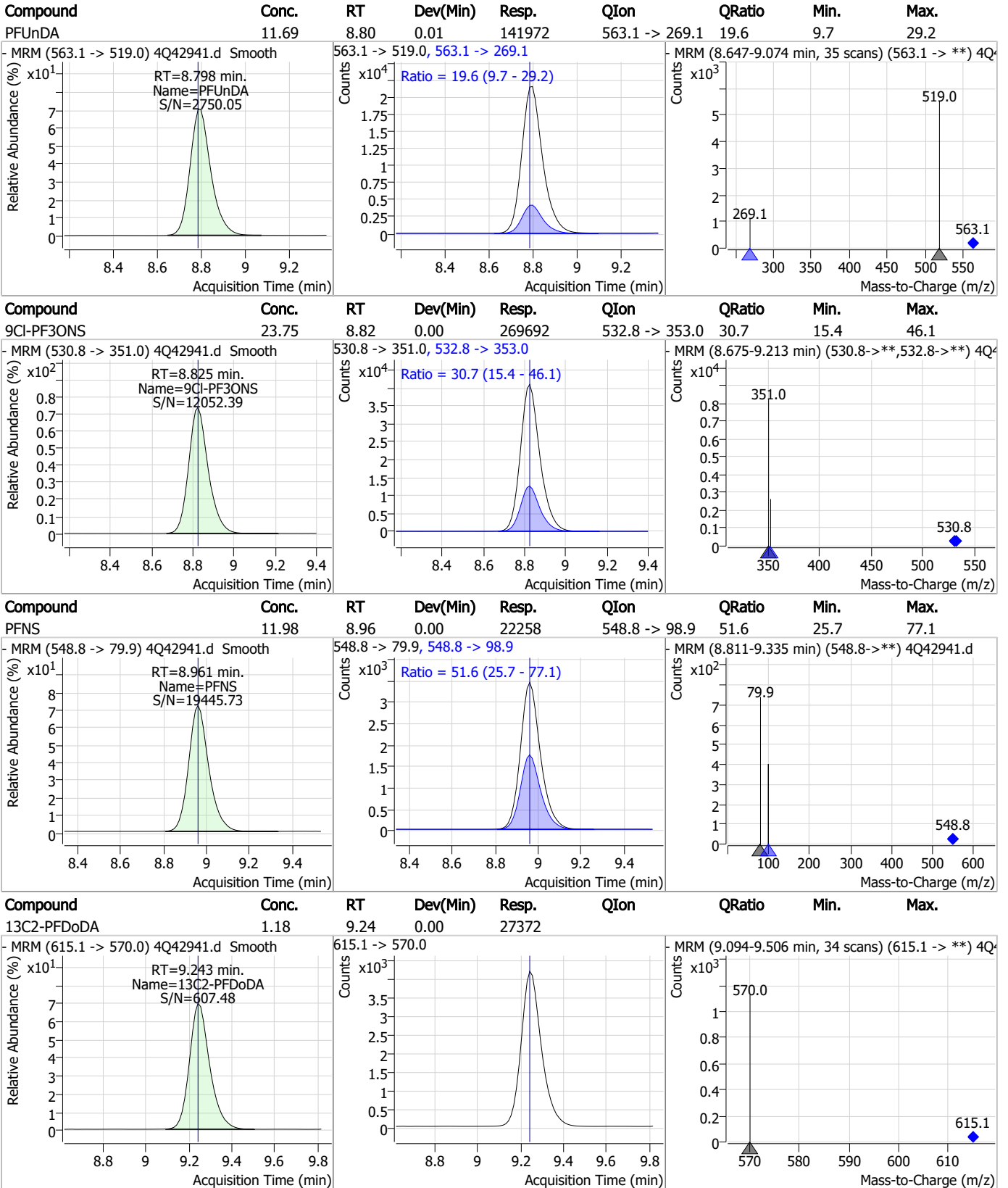
Perfluorinated Compounds by LC/MS/MS



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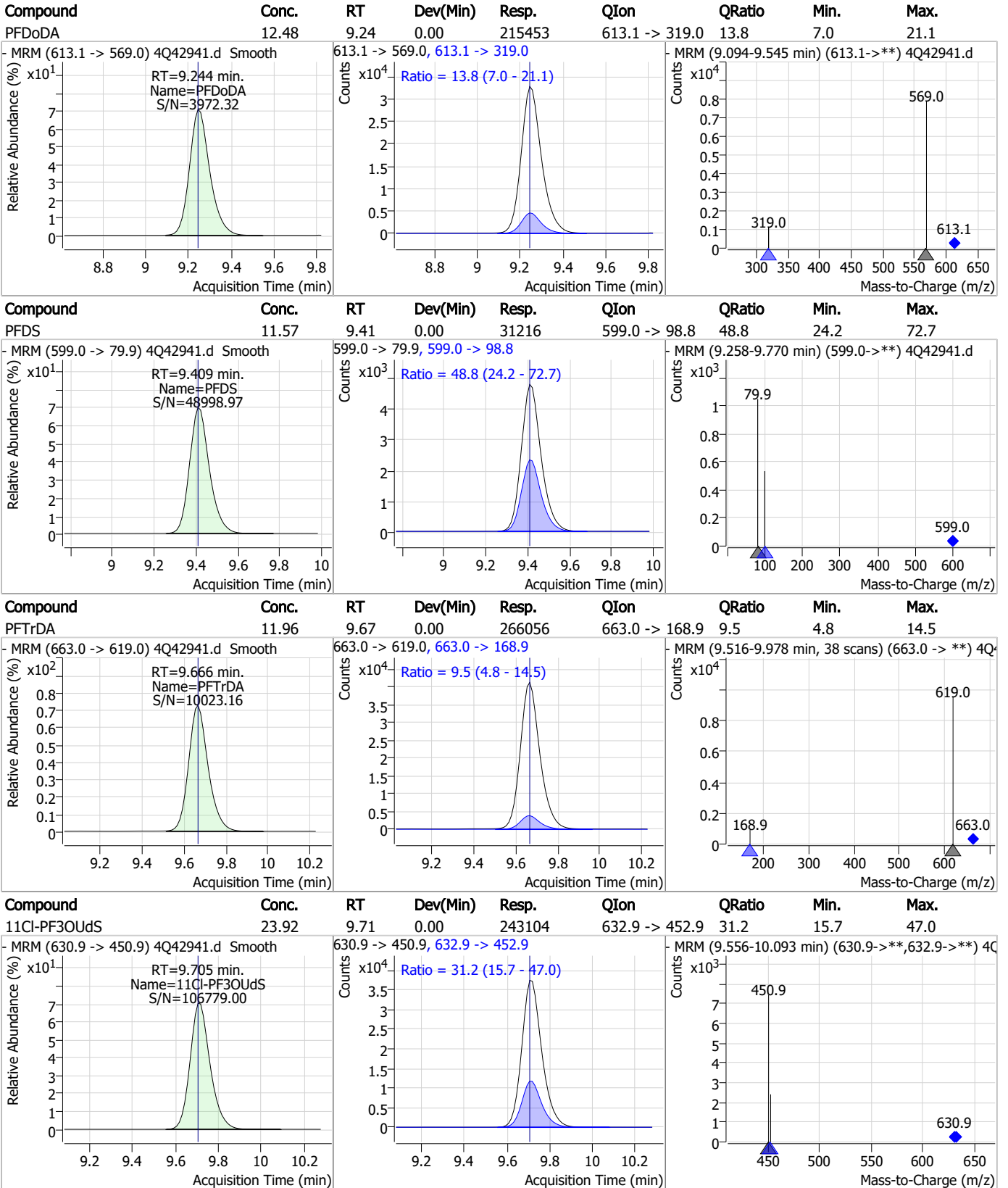
Perfluorinated Compounds by LC/MS/MS



7.7.7
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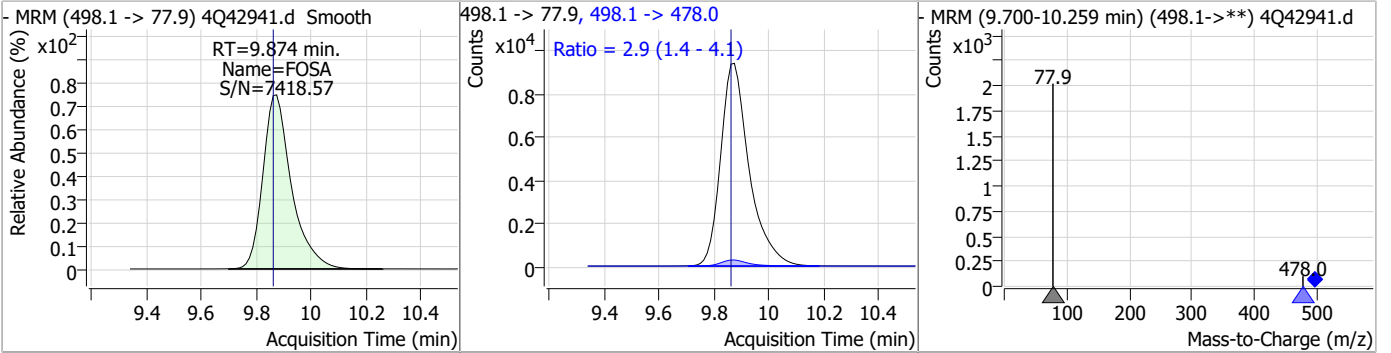
Perfluorinated Compounds by LC/MS/MS



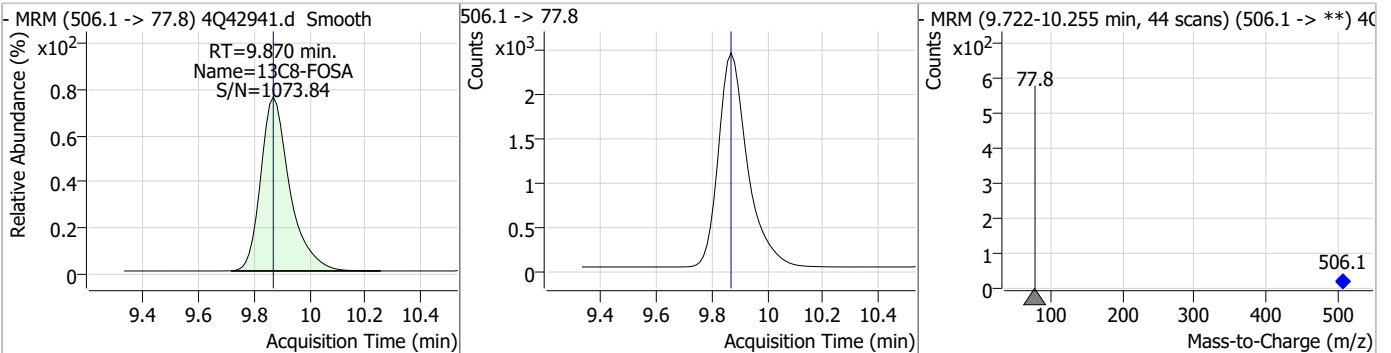
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Perfluorinated Compounds by LC/MS/MS

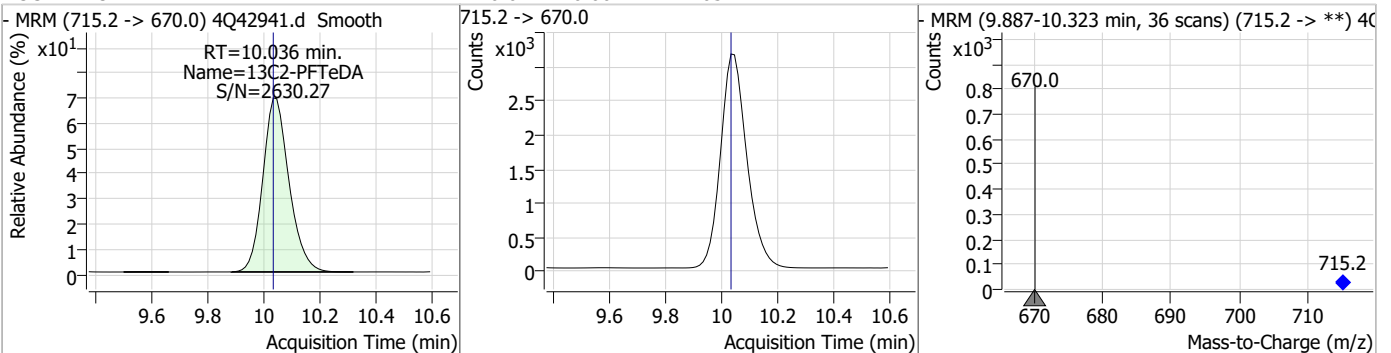
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	12.02	9.87	0.01	67848	498.1 -> 478.0	2.9	1.4	4.1



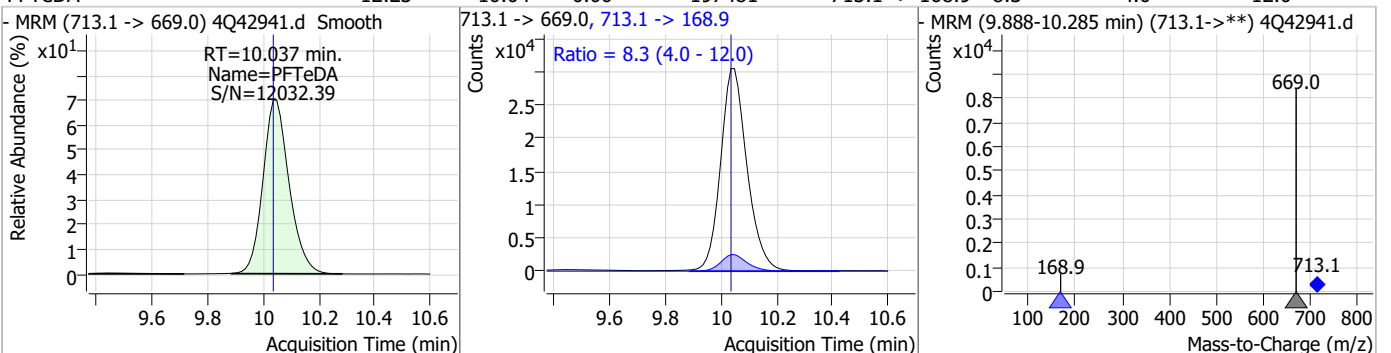
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.12	9.87	0.00	17533				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.14	10.04	0.00	20512				

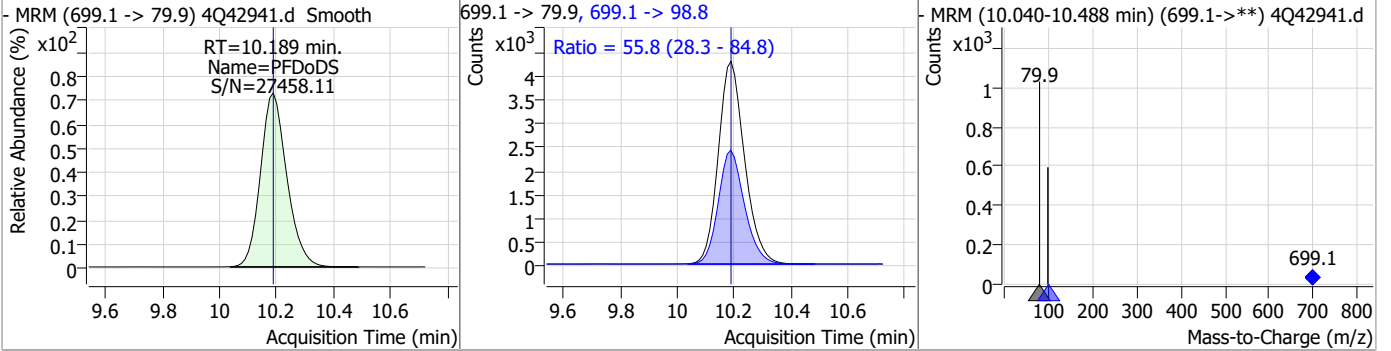


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.23	10.04	0.00	197481	713.1 -> 168.9	8.3	4.0	12.0

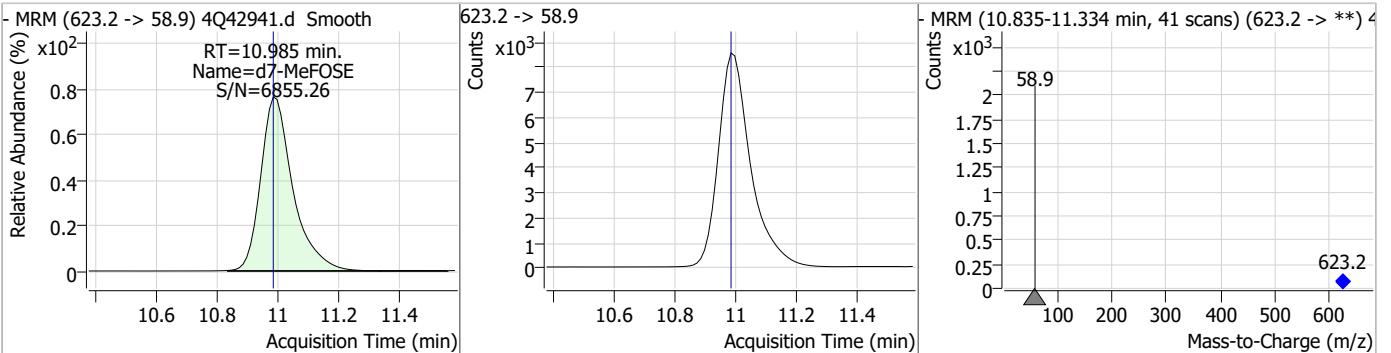


Perfluorinated Compounds by LC/MS/MS

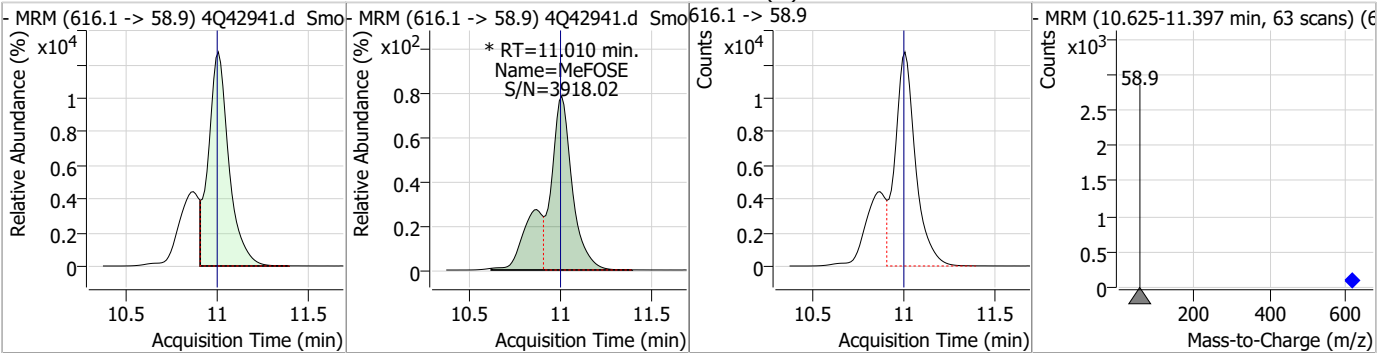
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	11.72	10.19	0.00	27343	699.1 -> 98.8	55.8	28.3	84.8



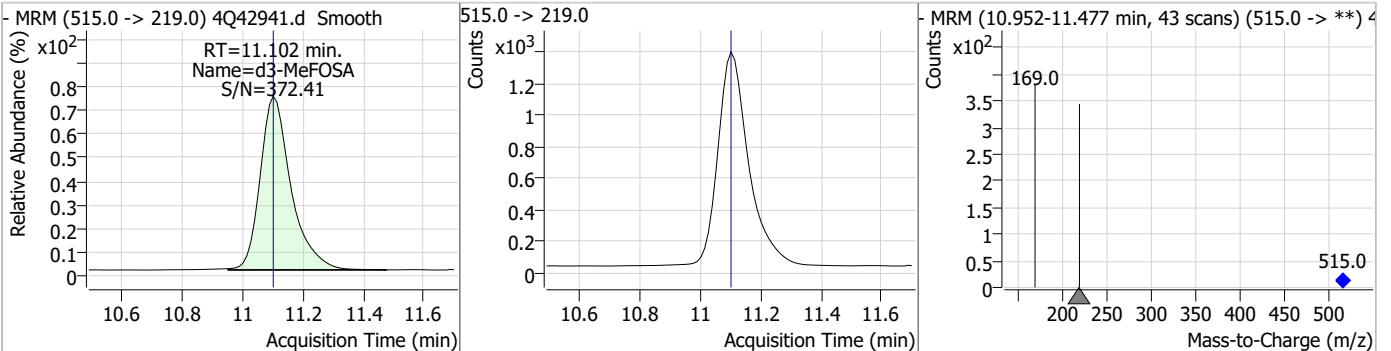
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.23	10.98	0.00	62837				



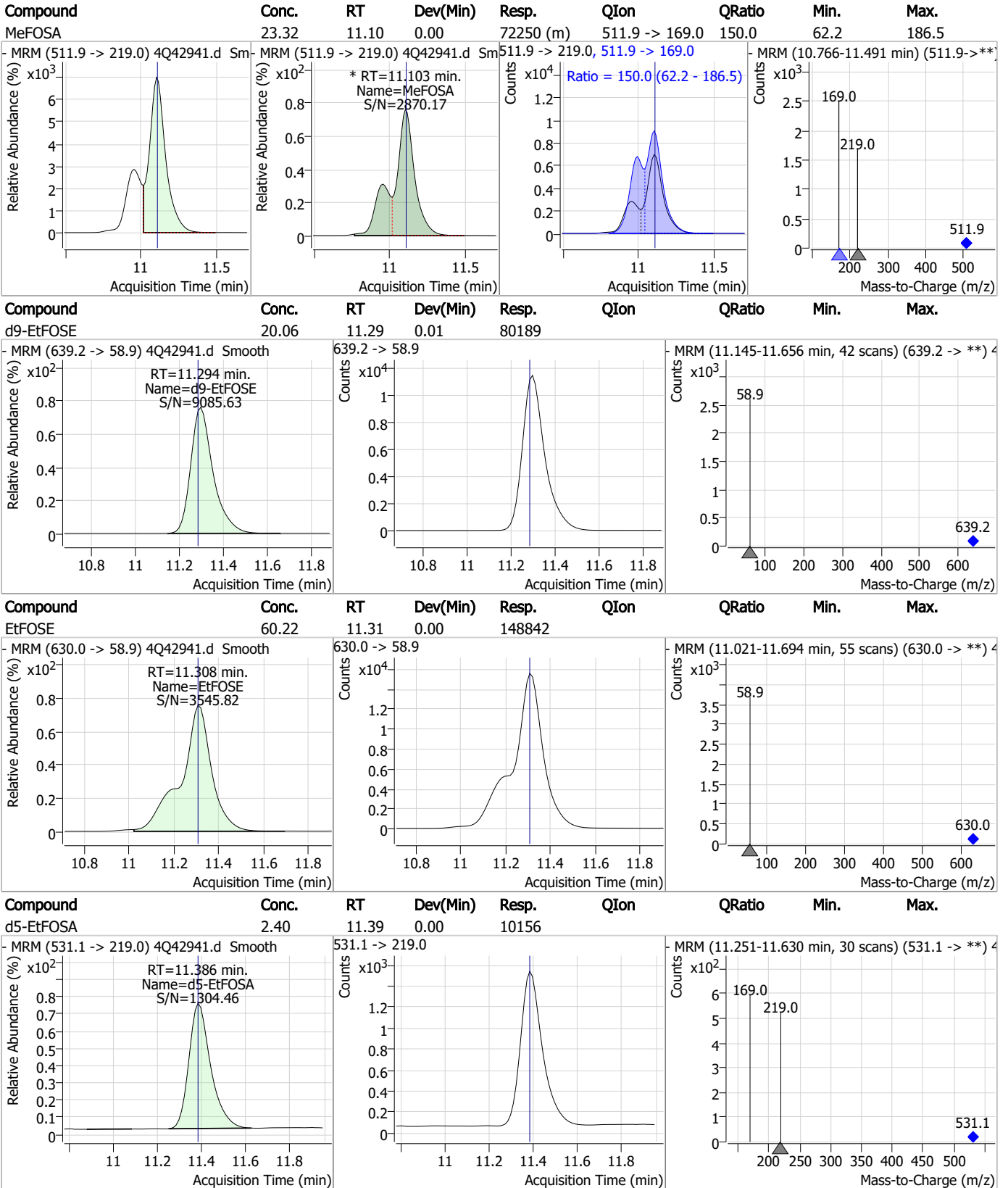
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	59.85	11.01	0.01	132184 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.44	11.10	0.00	9584				

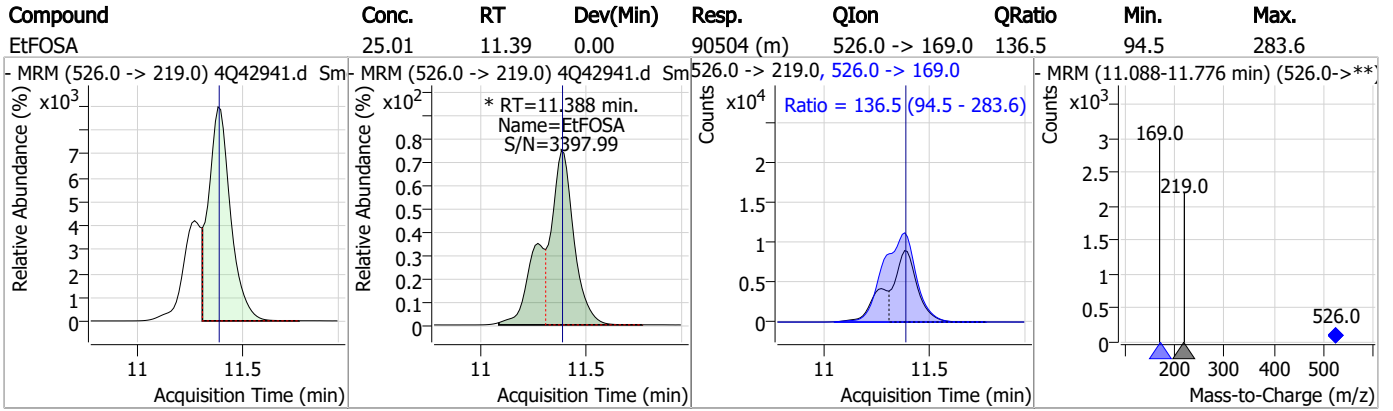


Perfluorinated Compounds by LC/MS/MS



7.7.7
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Perfluorinated Compounds by LC/MS/MS



7.7.7

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Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42941.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 13:09 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.7.1
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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 04/17/23 14:32

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42942.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 1:23:33 PM
 Sample Name : ic621-7
 Vial : P1-A8
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	102593	10.00 µg/L	-0.013
M5-PFPeA	4.475	268.3 -> 223.0	69460	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	56715	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	26681	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	32514	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	17690	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	17039	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	18595	1.25 µg/L	0.012
M2-PFDoDA	9.255	615.1 -> 570.0	23332	1.25 µg/L	0.012
M2-PFTeDA	10.049	715.2 -> 670.0	17892	1.25 µg/L	0.012
M8-FOSA	9.870	506.1 -> 77.8	14752	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	11690	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	7094	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	10282	2.50 µg/L	0.000
M2-4:2FTS	5.348	329.1 -> 80.9	1223	5.00 µg/L	0.012
M2-6:2FTS	7.010	429.1 -> 80.9	1583	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3042	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	14817	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	34783	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	11616	5.00 µg/L	0.012
M7-MeFOSE	10.985	623.2 -> 58.9	53798	25.00 µg/L	0.000
M9-EtFOSE	11.294	639.2 -> 58.9	64655	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	8894	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	8039	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	10340	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	59199	5.00 µg/L	0.000
18O2-PFHxS	7.353	403.0 -> 83.9	5192	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	39776	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	15282	1.25 µg/L	0.012
13C5-PFNA	7.809	468.0 -> 423.0	20720	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	48967	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.348	329.1 -> 80.9	1223	4.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C2-6:2FTS	7.010	429.1 -> 80.9	1583	3.89 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.8%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3042	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C2-PFDoDA	9.255	615.1 -> 570.0	23332	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C2-PFTeDA	10.049	715.2 -> 670.0	17892	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.564	302.1 -> 79.9	11690	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.354	402.1 -> 79.9	7094	2.47 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C4-PFBA	2.986	216.8 -> 171.9	102593	9.95 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.592	367.1 -> 322.0	26681	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFHxA	5.659	318.0 -> 273.0	56715	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFPeA	4.475	268.3 -> 223.0	69460	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C6-PFDA	8.315	519.1 -> 474.1	17039	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C7-PFUnDA	8.797	570.0 -> 525.1	18595	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.870	506.1 -> 77.8	14752	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C8-PFOA	7.250	421.1 -> 376.0	32514	2.48 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.467	507.1 -> 79.9	10282	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.809	472.1 -> 427.0	17690	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.7%	
d3-MeFOSAA	8.373	573.2 -> 419.0	14817	4.87 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	34783	10.12 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d3-MeFOSA	11.102	515.0 -> 219.0	8039	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
d5-EtFOSAA	8.582	589.2 -> 419.0	11616	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d7-MeFOSE	10.985	623.2 -> 58.9	53798	20.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.7%	
d9-EtFOSE	11.294	639.2 -> 58.9	64655	19.81 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
d5-EtFOSA	11.386	531.1 -> 219.0	8894	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	149113	97.77 µg/L	98
		327.1 -> 80.9	62168		
6:2FTS	7.011	427.1 -> 407.0	118873	110.00 µg/L	99
		427.1 -> 80.9	50766		
8:2FTS	8.090	527.1 -> 507.0	130148	95.42 µg/L	98
		527.1 -> 80.8	52682		
EtFOSAA	8.595	584.2 -> 419.1	46615	26.86 µg/L	m 83
		584.2 -> 526.0	22537		
FOSA	9.874	498.1 -> 77.9	128381	27.03 µg/L	100
		498.1 -> 478.0	3676		
MeFOSAA	8.373	570.1 -> 419.0	51741	25.34 µg/L	m 84
		570.1 -> 483.0	11601		
PFBA	2.982	212.8 -> 168.9	255389	109.00 µg/L	100
PFBS	5.565	298.7 -> 79.9	108008	24.76 µg/L	100
		298.7 -> 98.8	41796		
PFDA	8.316	512.9 -> 469.0	275937	28.32 µg/L	99
		512.9 -> 219.0	54317		
PFDoDA	9.256	613.1 -> 569.0	400458	27.22 µg/L	100
		613.1 -> 319.0	56638		
PFDS	9.421	599.0 -> 79.9	58904	25.62 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	29103			
PFHpA	6.593	363.1 -> 319.0	378304	28.42	µg/L	99
		363.1 -> 169.0	67836			
PFHpS	7.936	449.0 -> 79.9	70063	26.18	µg/L	100
		449.0 -> 98.9	36405			
PFHxA	5.662	313.0 -> 269.0	444401	26.47	µg/L	100
		313.0 -> 118.9	13168			
PFHxS	7.355	398.7 -> 79.9	61105	25.14	µg/L	m 98
		398.7 -> 98.9	30890			
PFNA	7.810	463.0 -> 419.0	259527	27.44	µg/L	95
		463.0 -> 219.0	64719			
PFNS	8.961	548.8 -> 79.9	43695	27.61	µg/L	97
		548.8 -> 98.9	21676			
PFOA	7.252	413.0 -> 369.0	409809	26.98	µg/L	100
		413.0 -> 169.0	83910			
PFOS	8.468	498.9 -> 79.9	96521	24.12	µg/L	m 85
		498.9 -> 98.8	47000			
PFPeA	4.477	263.0 -> 219.0	722329	54.94	µg/L	100
PFPeS	6.619	349.1 -> 79.9	54365	26.28	µg/L	99
		349.1 -> 98.9	23502			
PFTeDA	10.050	713.1 -> 669.0	367233	26.07	µg/L	100
		713.1 -> 168.9	29972			
PFTrDA	9.666	663.0 -> 619.0	483565	25.51	µg/L	100
		663.0 -> 168.9	46443			
PFUnDA	8.798	563.1 -> 519.0	273178	25.97	µg/L	98
		563.1 -> 269.1	51378			
11CI-PF3OUdS	9.718	630.9 -> 450.9	444453	48.96	µg/L	100
		632.9 -> 452.9	138808			
9CI-PF3ONS	8.825	530.8 -> 351.0	525108	51.78	µg/L	99
		532.8 -> 353.0	158417			
ADONA	6.843	376.9 -> 250.9	1045774	50.05	µg/L	99
		376.9 -> 84.8	284110			
HFPO-DA	6.027	284.9 -> 168.9	146599	53.18	µg/L	99
		284.9 -> 184.9	17473			
3:3FTCA	3.954	241.0 -> 177.0	85991	140.36	µg/L	99
		241.0 -> 117.0	8070			
5:3FTCA	6.345	341.0 -> 237.1	1585312	668.61	µg/L	100
		341.0 -> 217.0	1136011			
7:3FTCA	7.786	441.0 -> 316.9	638400	656.99	µg/L	100
		441.0 -> 336.9	1407835			
EtFOSA	11.388	526.0 -> 219.0	170980	53.95	µg/L	m 63
		526.0 -> 169.0	230636			
EtFOSE	11.308	630.0 -> 58.9	269944	135.46	µg/L	100
MeFOSA	11.103	511.9 -> 219.0	138850	53.42	µg/L	m 81
		511.9 -> 169.0	202913			
MeFOSE	11.010	616.1 -> 58.9	248200	131.27	µg/L	m 100
PFDoDS	10.189	699.1 -> 79.9	51354	25.83	µg/L	100
		699.1 -> 98.8	28999			
NFDHA	5.541	295.0 -> 201.0	58788	52.09	µg/L	100
		295.0 -> 84.9	14454			
PFMBA	4.891	279.0 -> 85.1	414238	55.10	µg/L	100
PFMPA	3.598	229.0 -> 84.9	362117	55.07	µg/L	100
PFEESA	6.096	314.8 -> 134.9	676104	47.96	µg/L	100
		314.8 -> 82.9	22203			

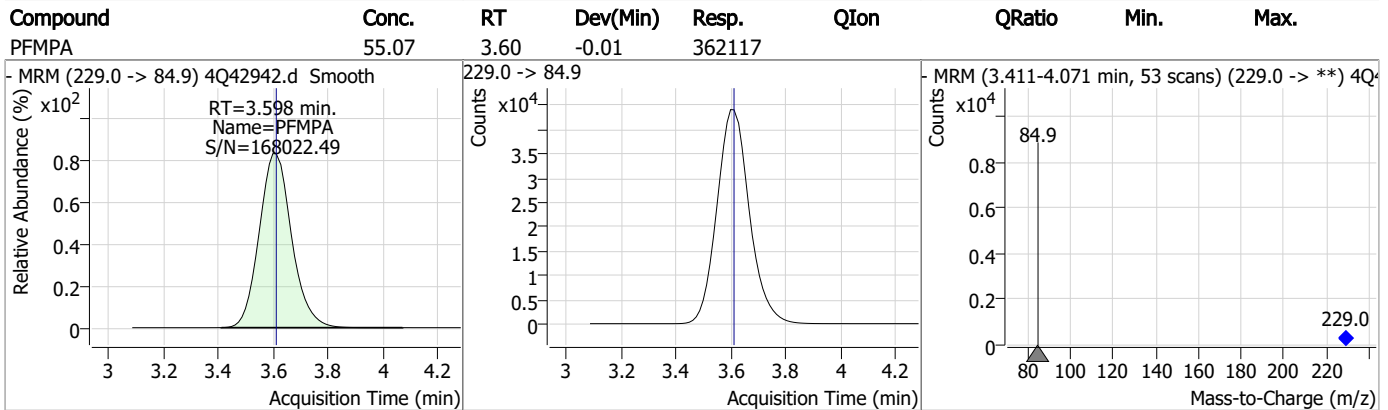
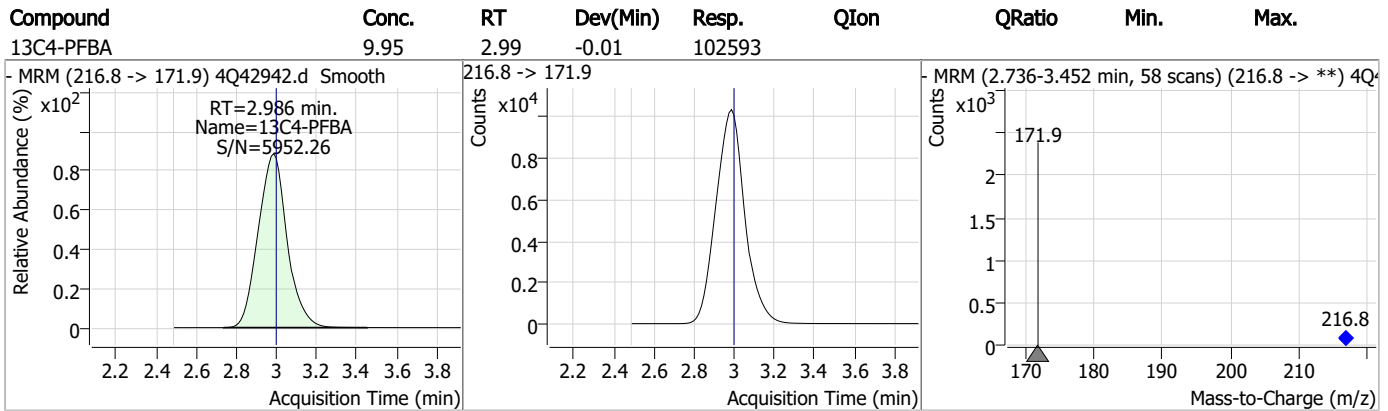
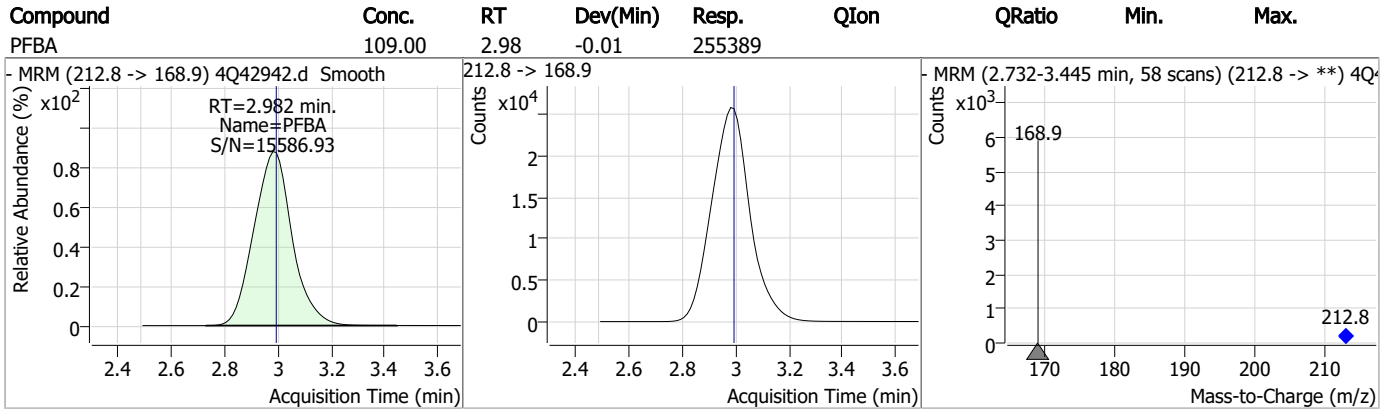
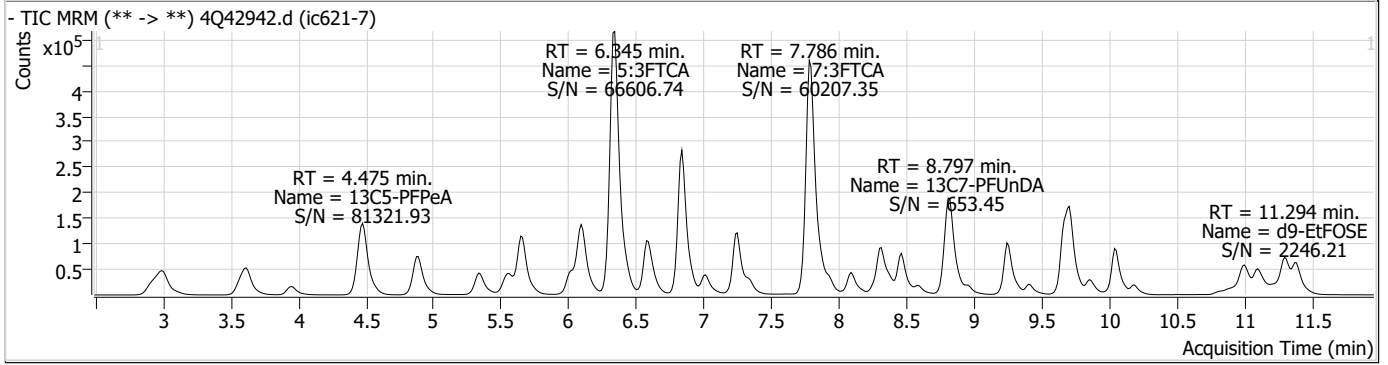
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

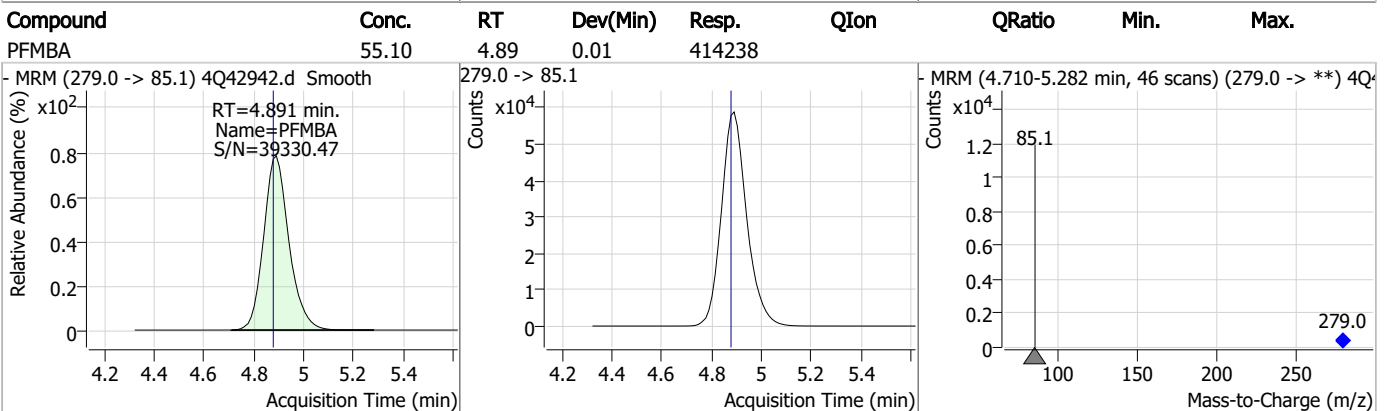
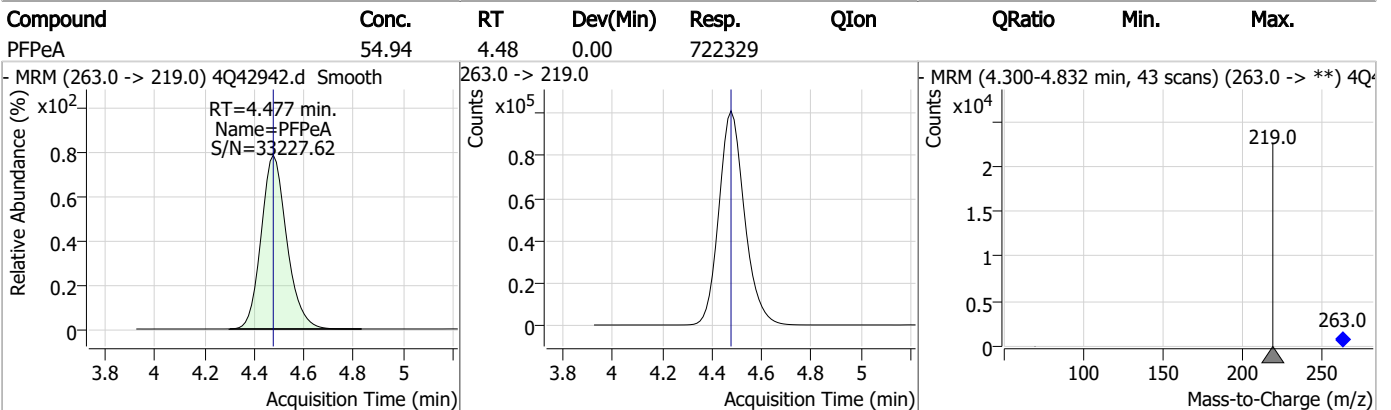
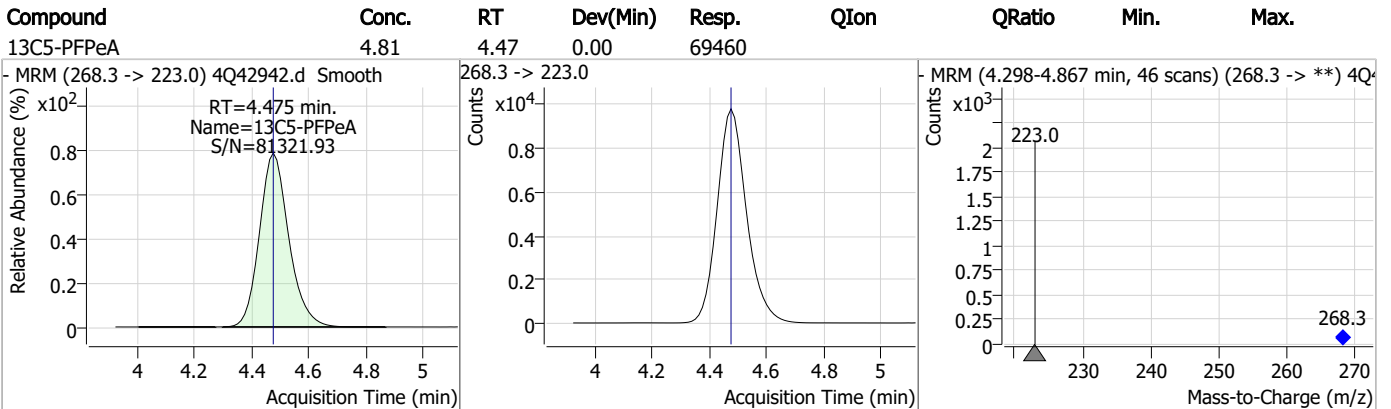
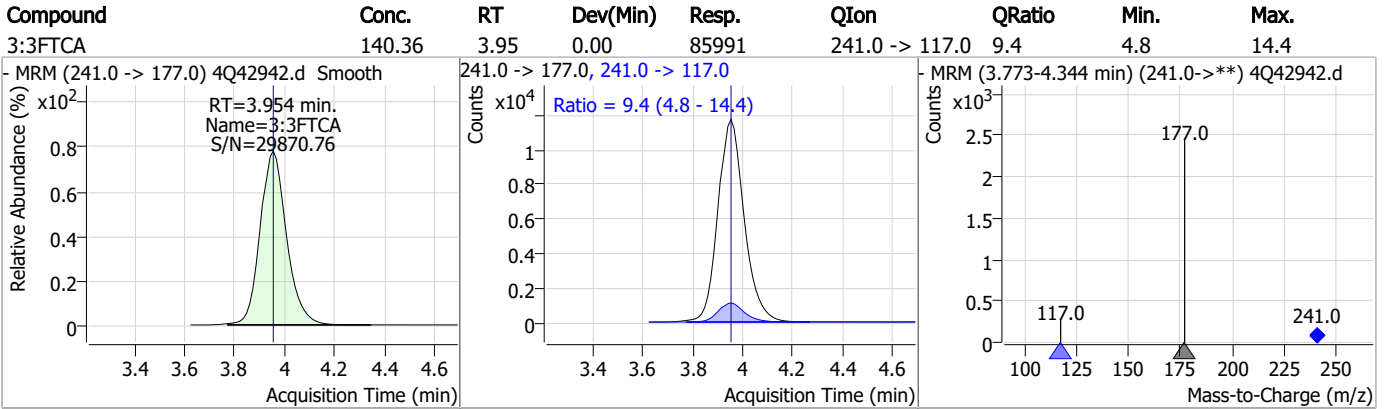
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.8
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Perfluorinated Compounds by LC/MS/MS



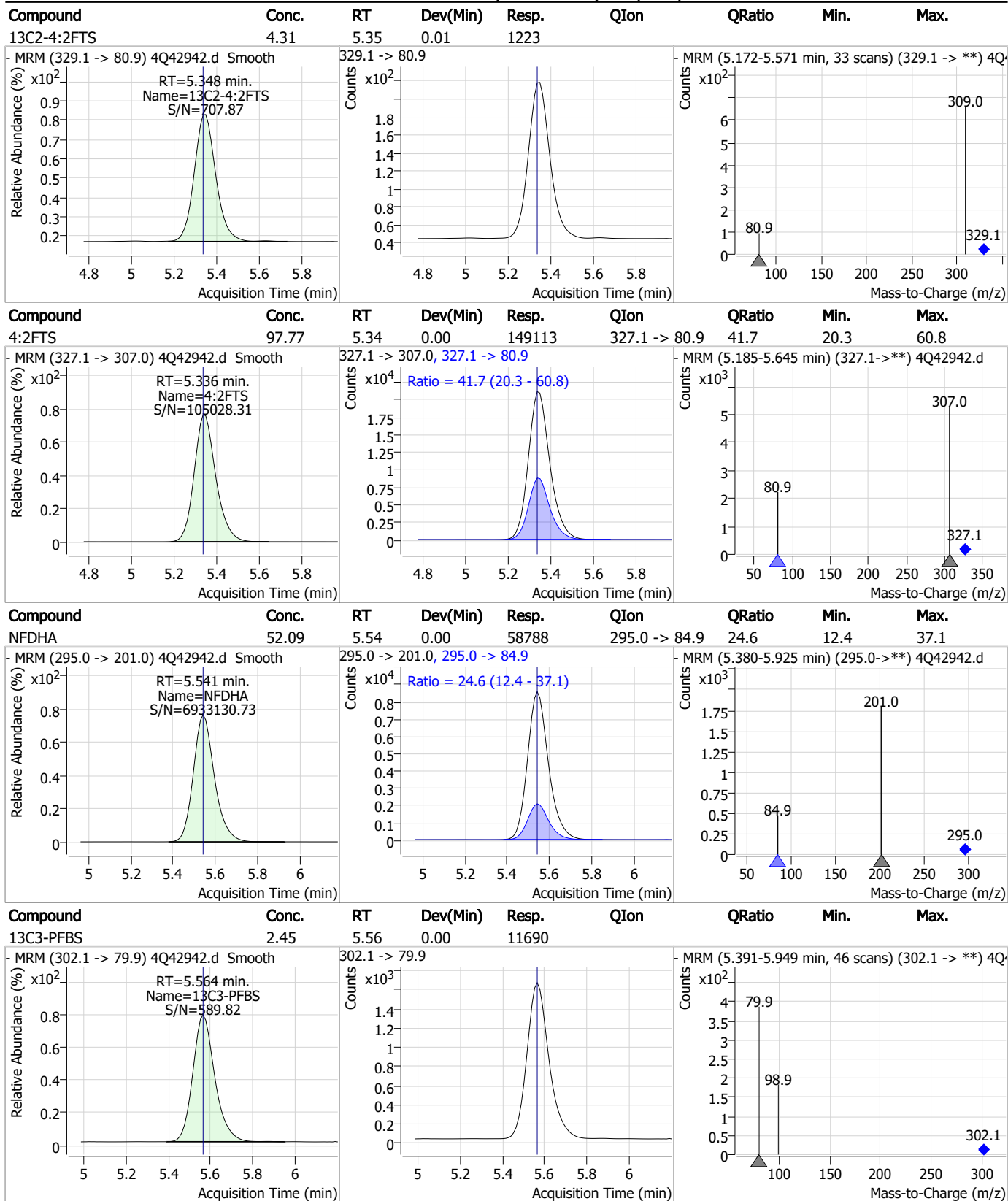
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

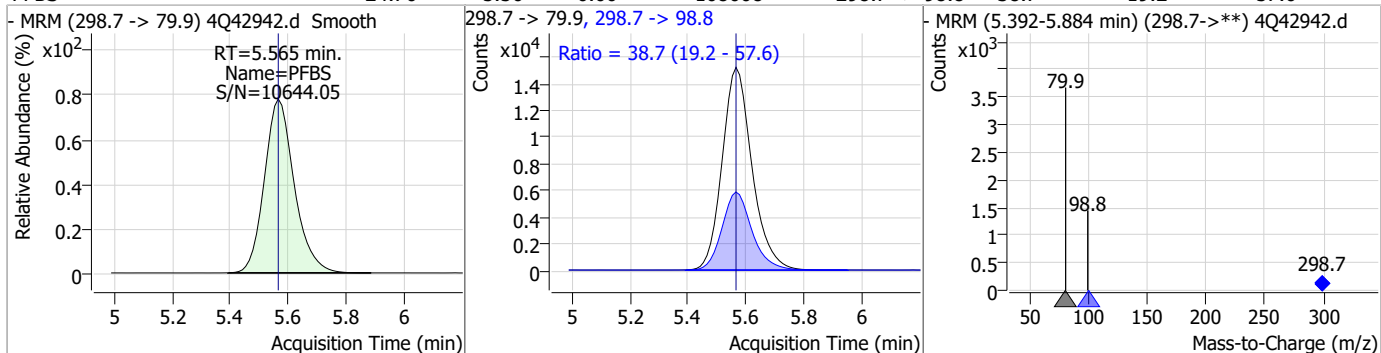


7.7.8
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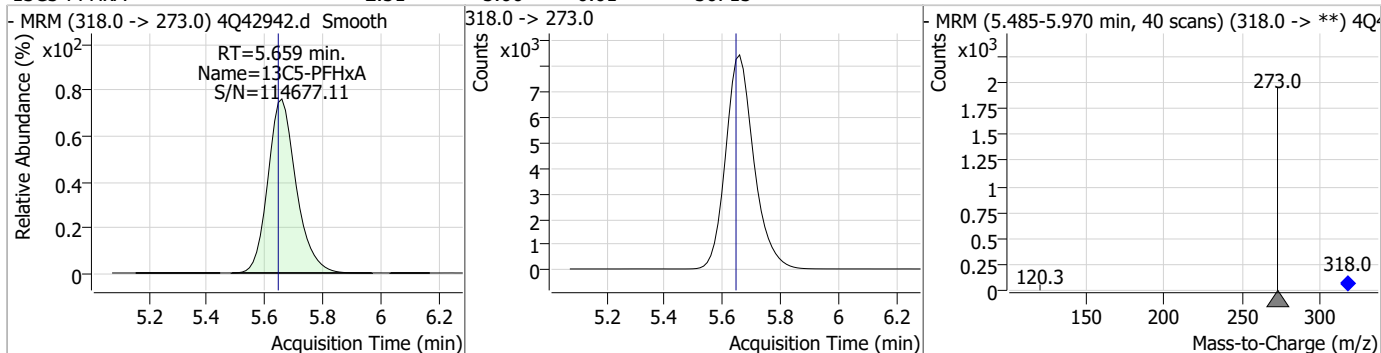


Perfluorinated Compounds by LC/MS/MS

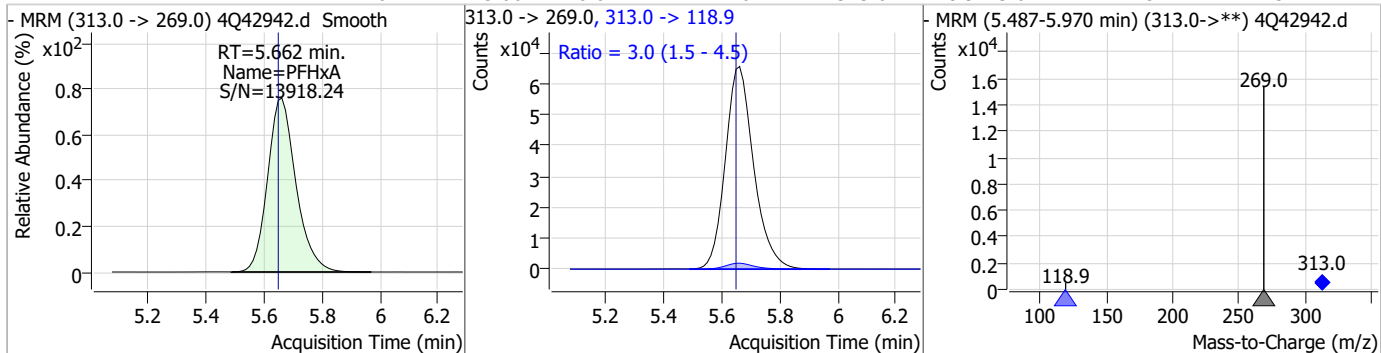
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	24.76	5.56	0.00	108008	298.7 -> 98.8	38.7	19.2	57.6



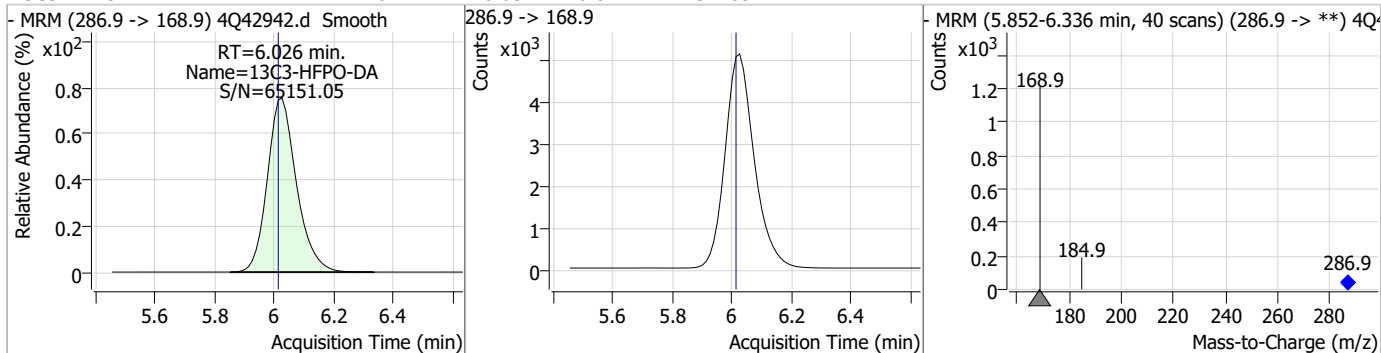
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.66	0.01	56715				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	26.47	5.66	0.01	444401	313.0 -> 118.9	3.0	1.5	4.5

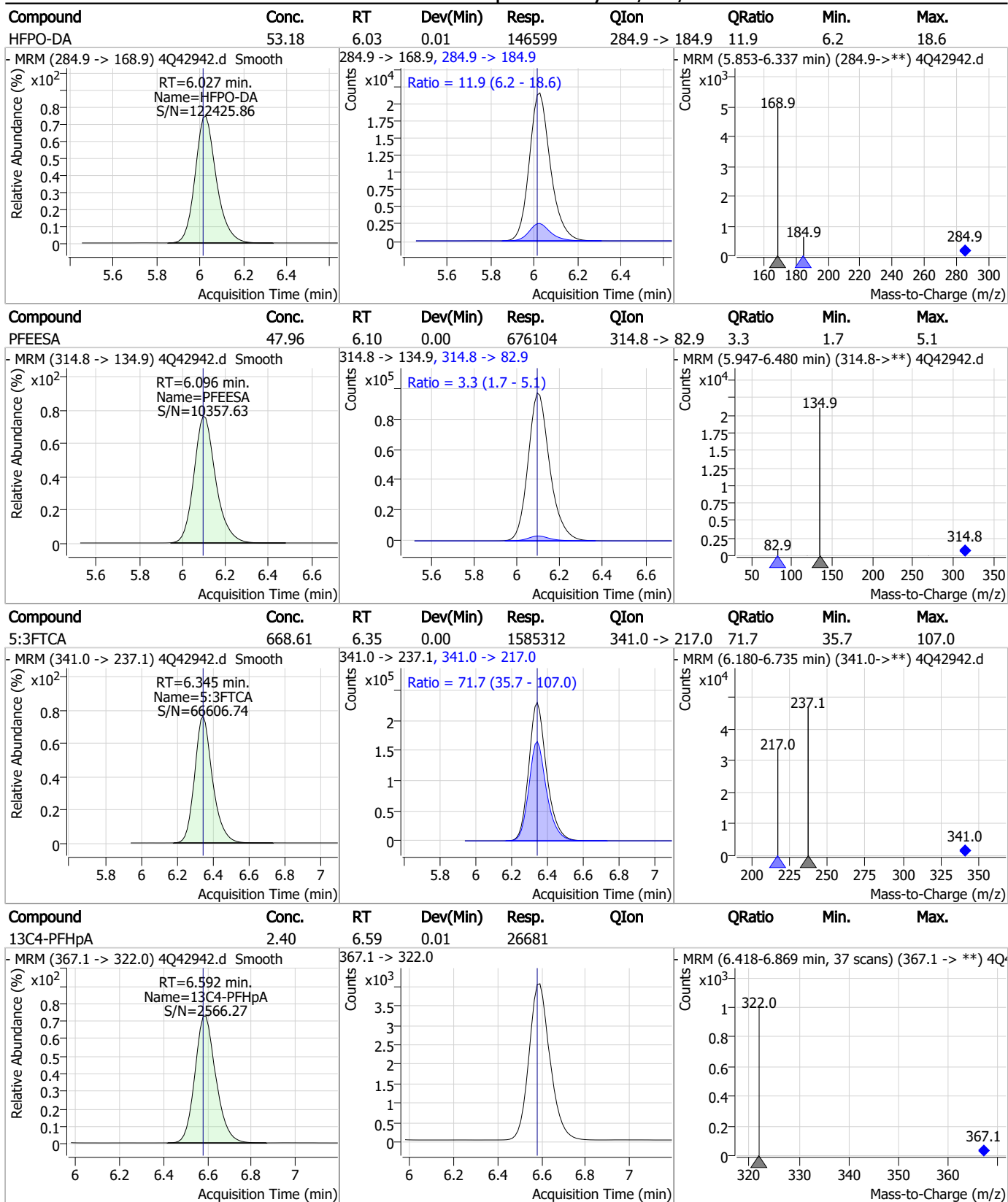


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.12	6.03	0.01	34783				



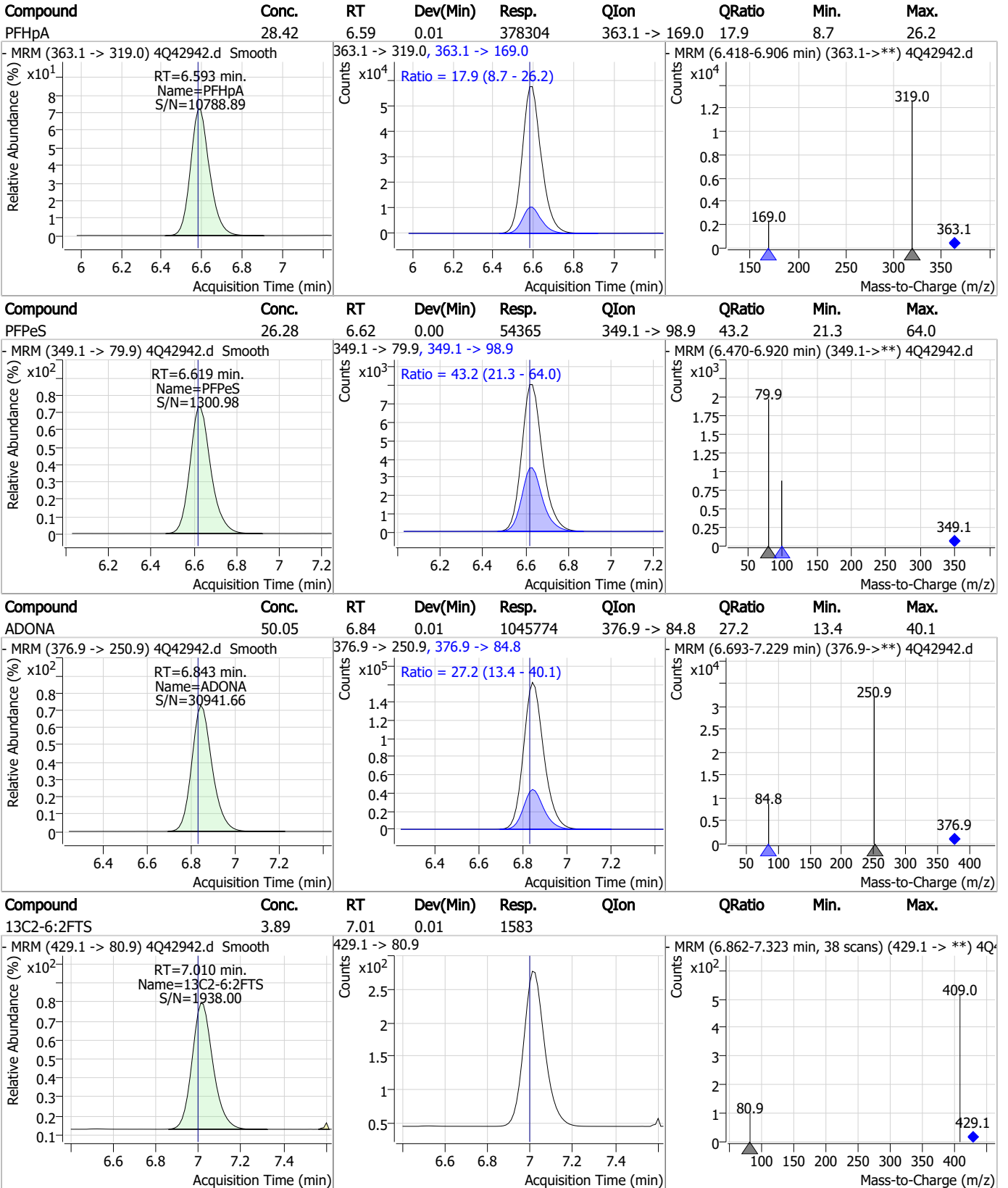
7.7.8
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Perfluorinated Compounds by LC/MS/MS



7.7.8
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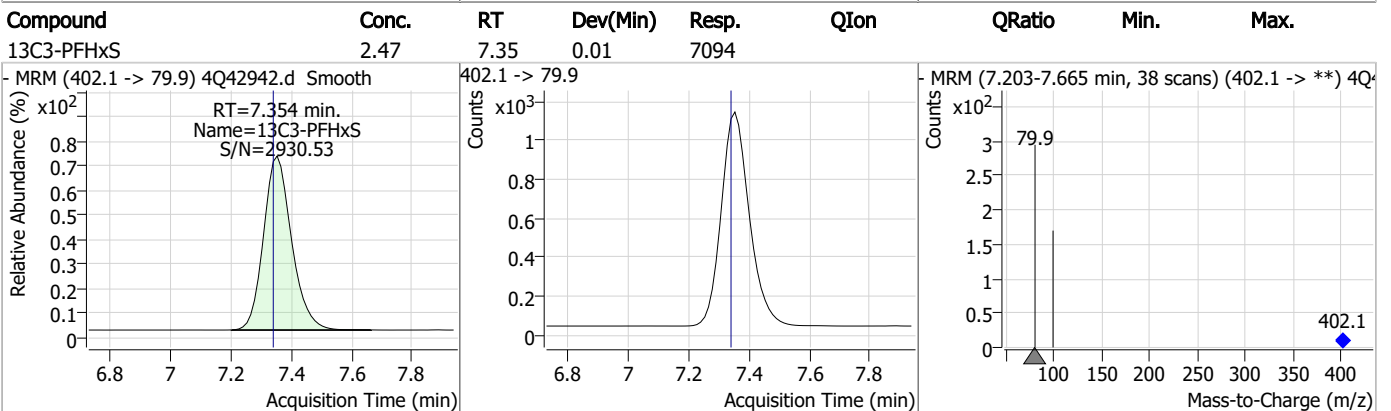
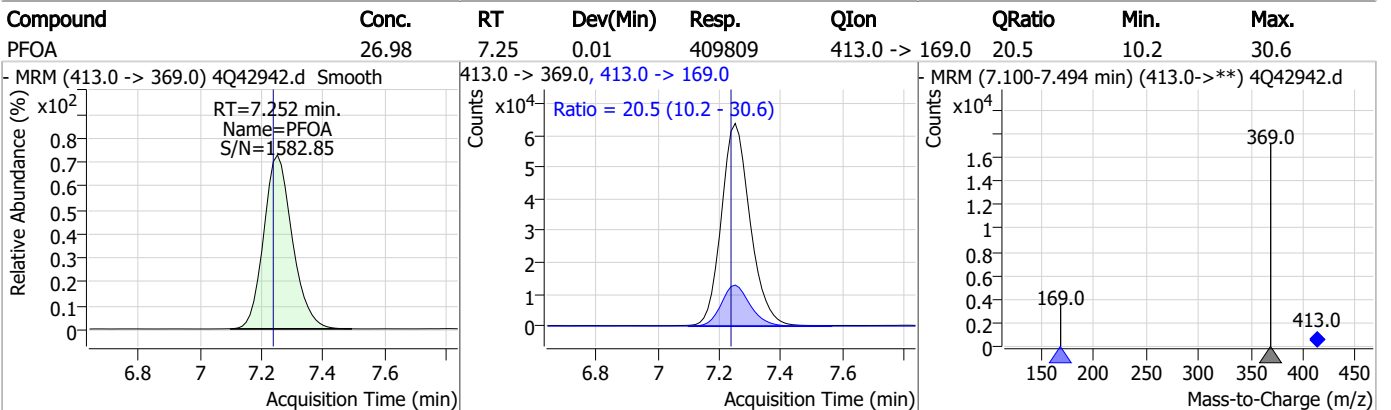
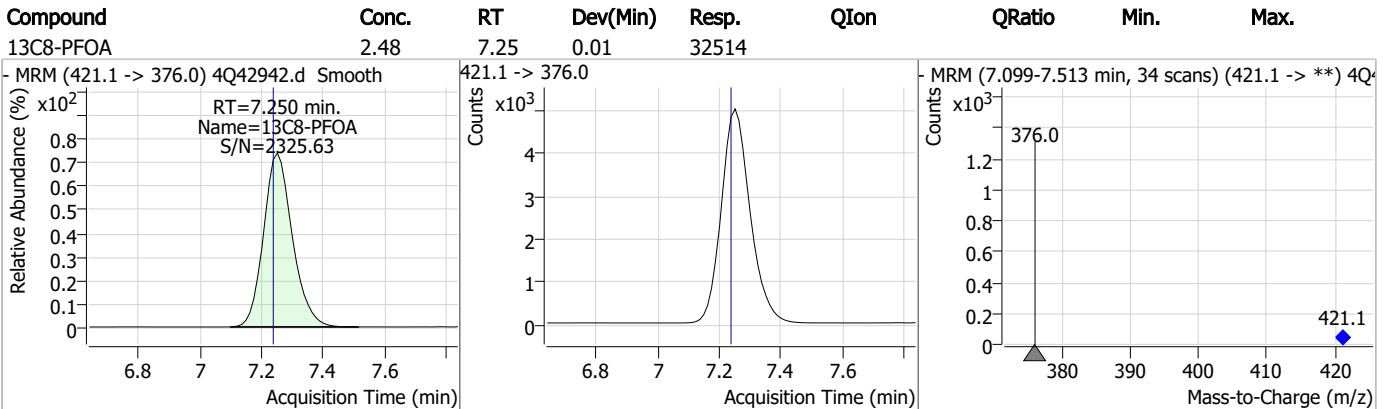
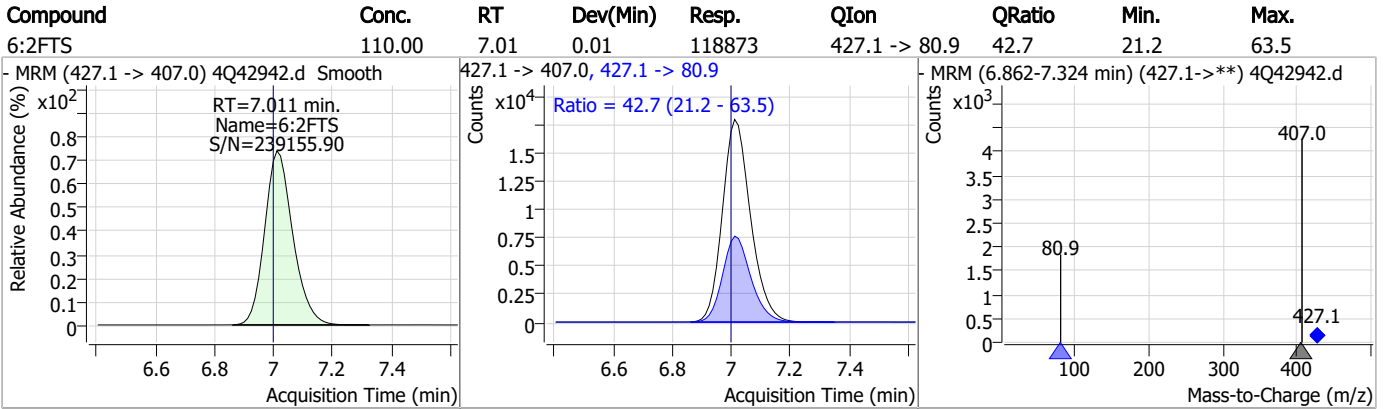
Perfluorinated Compounds by LC/MS/MS



7.7.8

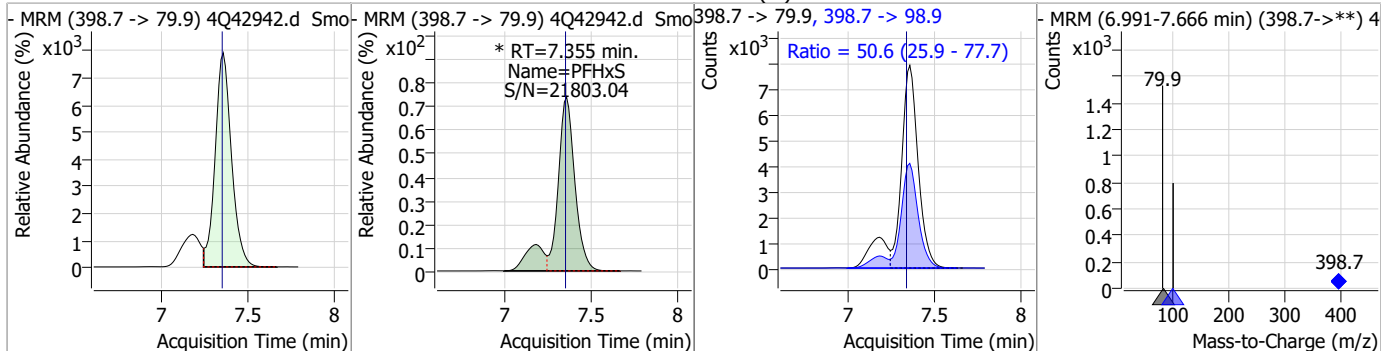
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Perfluorinated Compounds by LC/MS/MS

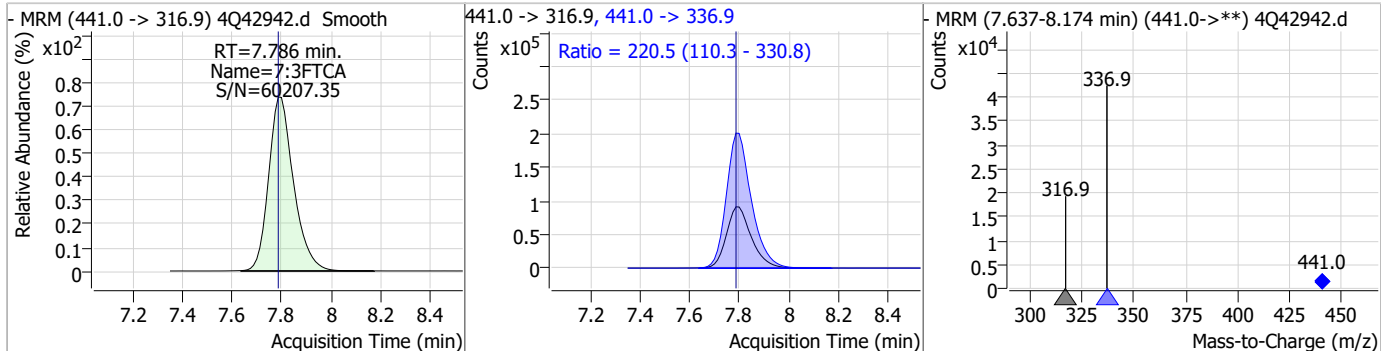


Perfluorinated Compounds by LC/MS/MS

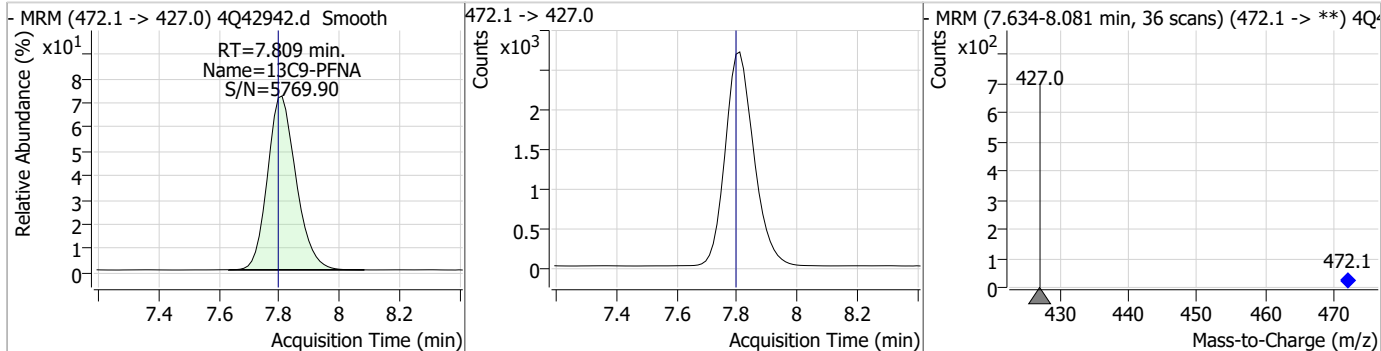
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	25.14	7.35	0.01	61105 (m)	398.7 -> 98.9	50.6	25.9	77.7



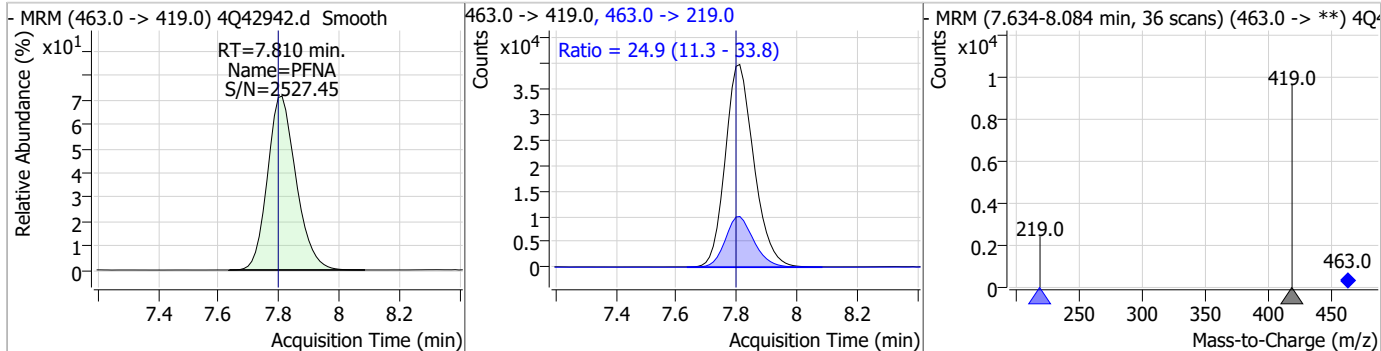
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	656.99	7.79	0.00	638400	441.0 -> 336.9	220.5	110.3	330.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.17	7.81	0.01	17690				

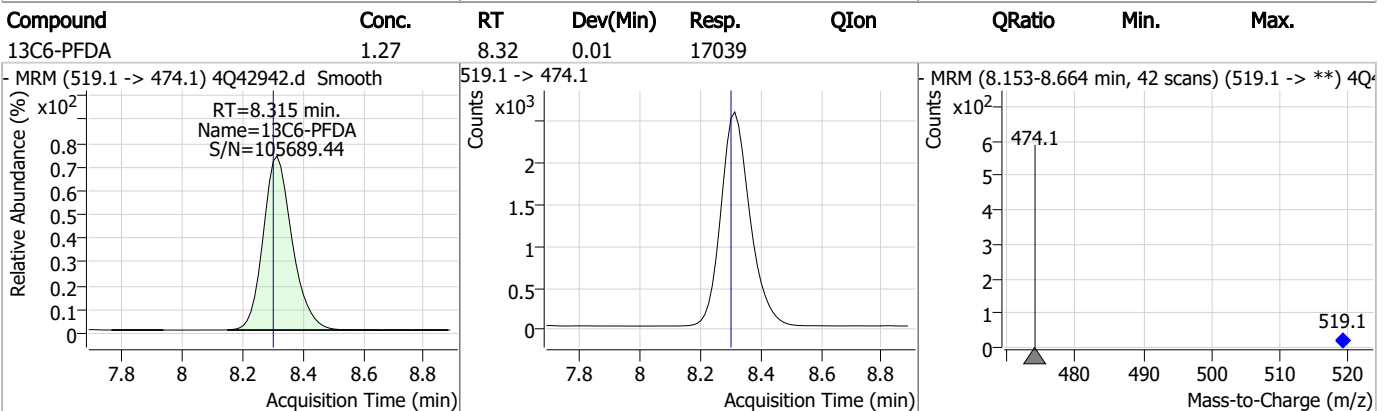
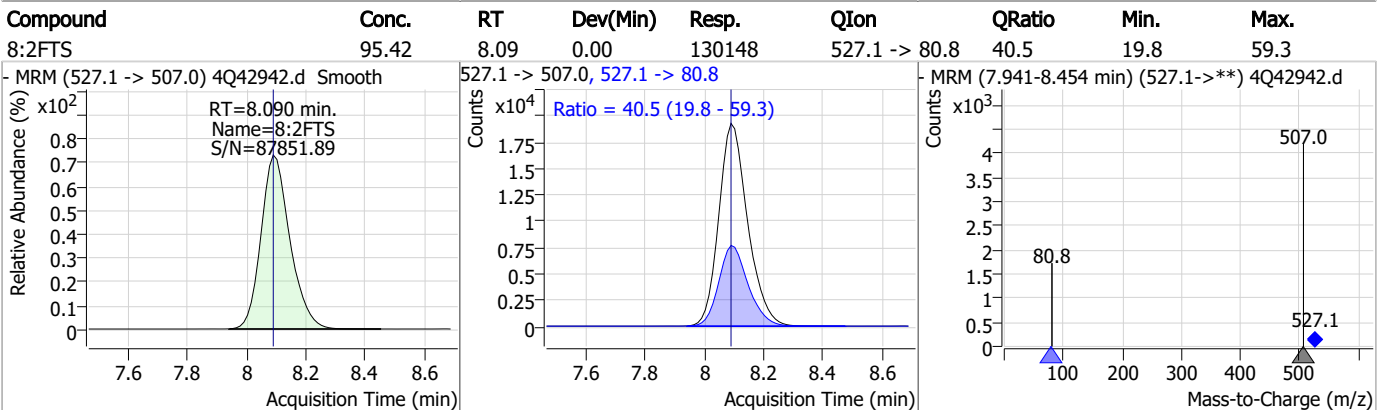
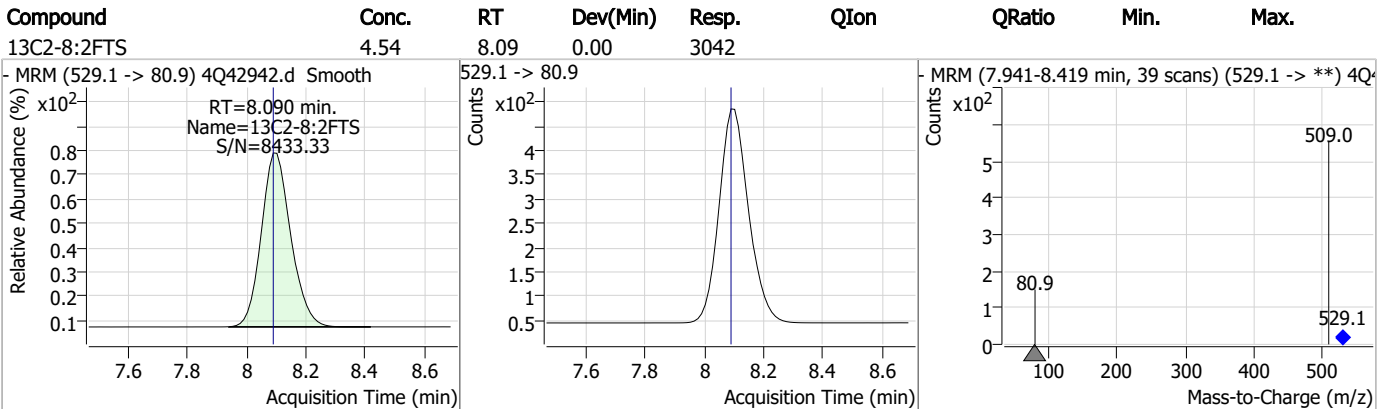
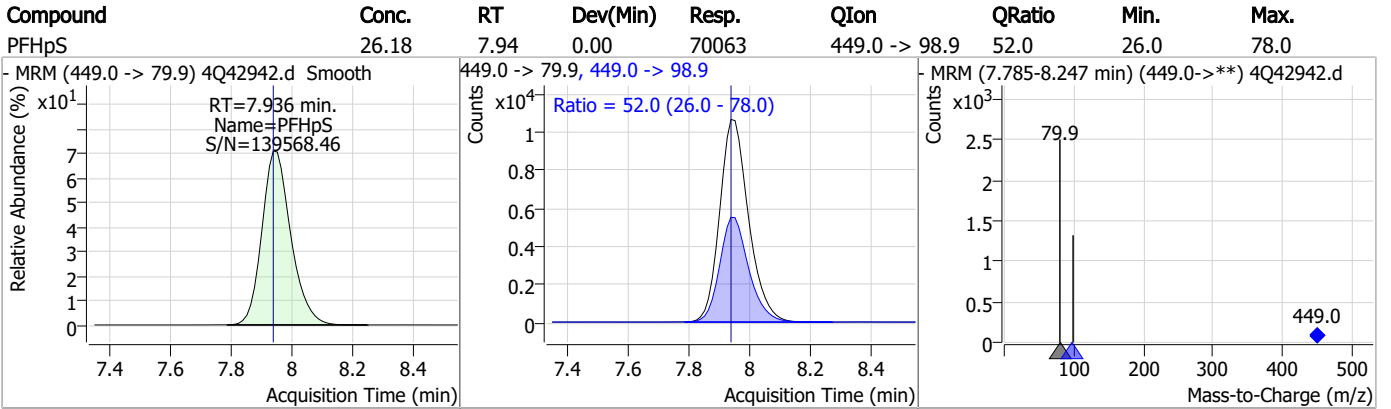


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	27.44	7.81	0.01	259527	463.0 -> 219.0	24.9	11.3	33.8



7.7.8
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Perfluorinated Compounds by LC/MS/MS

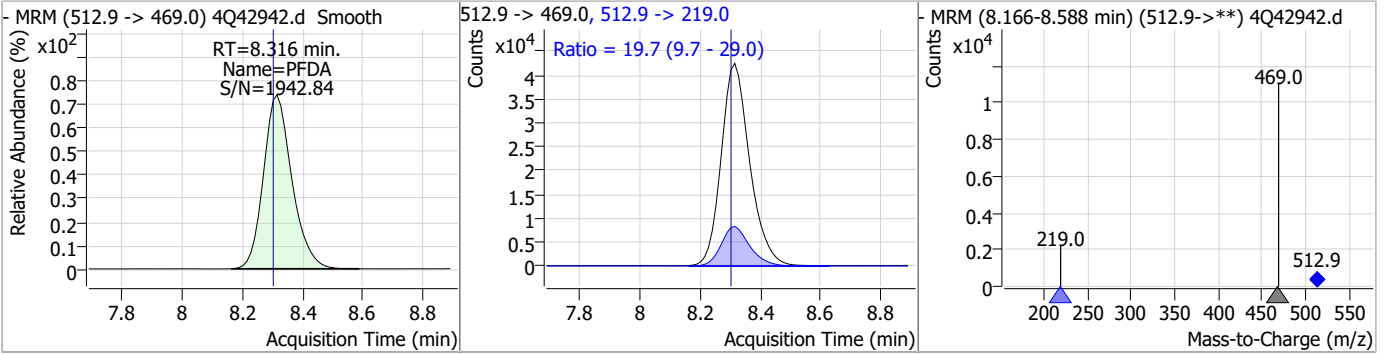


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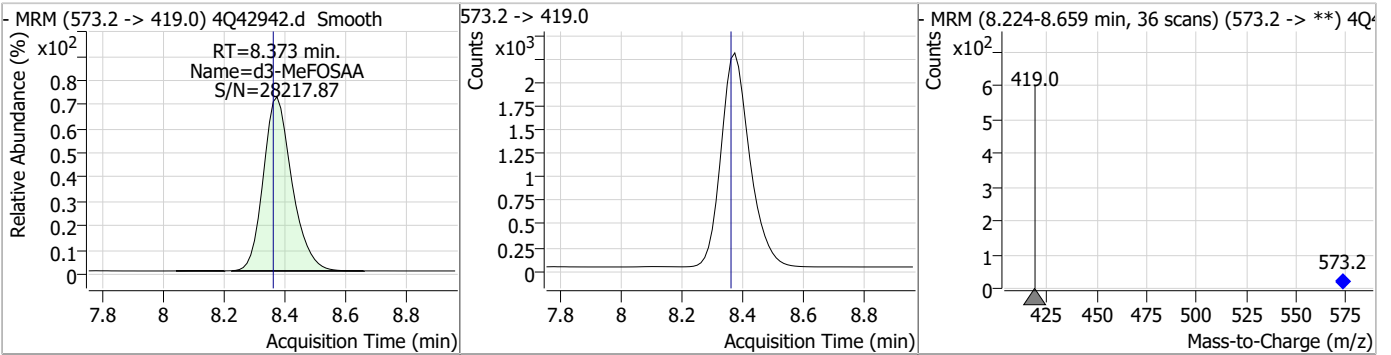
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Perfluorinated Compounds by LC/MS/MS

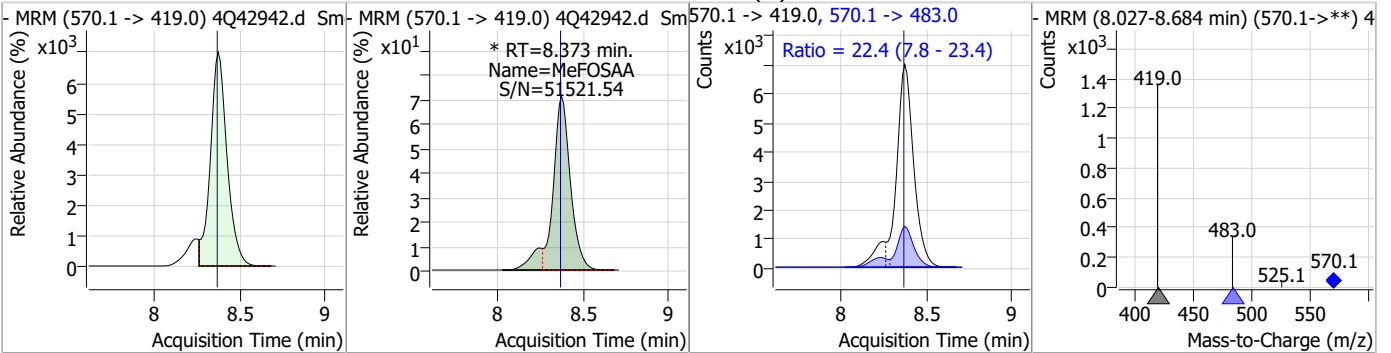
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	28.32	8.32	0.01	275937	512.9 -> 219.0	19.7	9.7	29.0



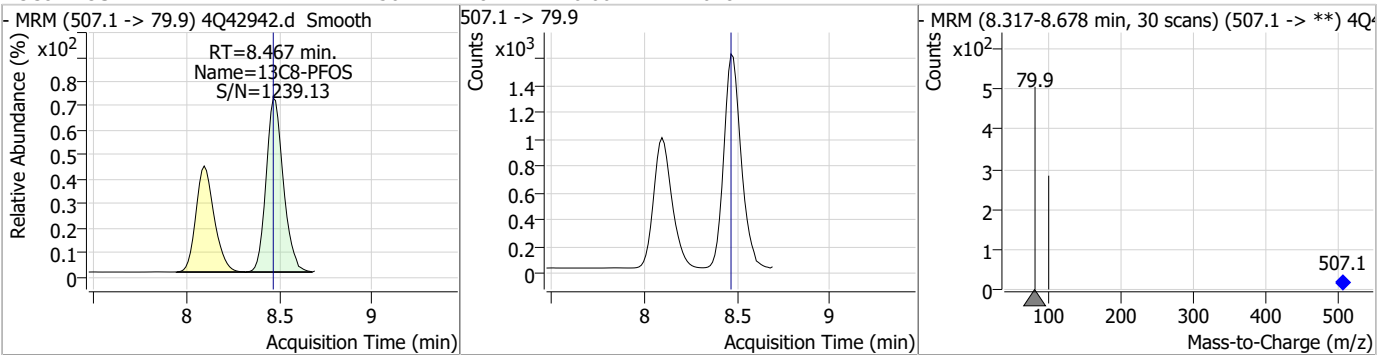
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.87	8.37	0.01	14817				



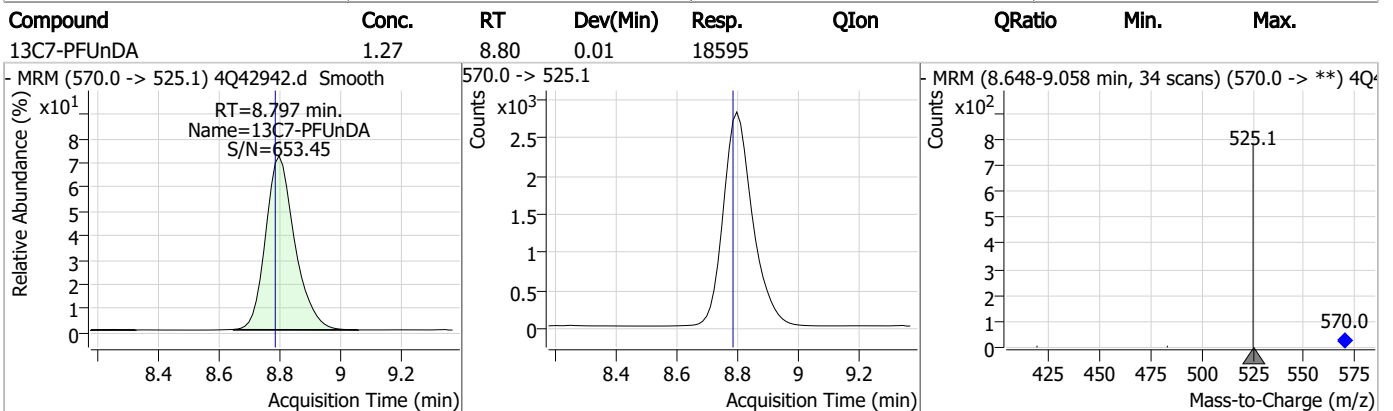
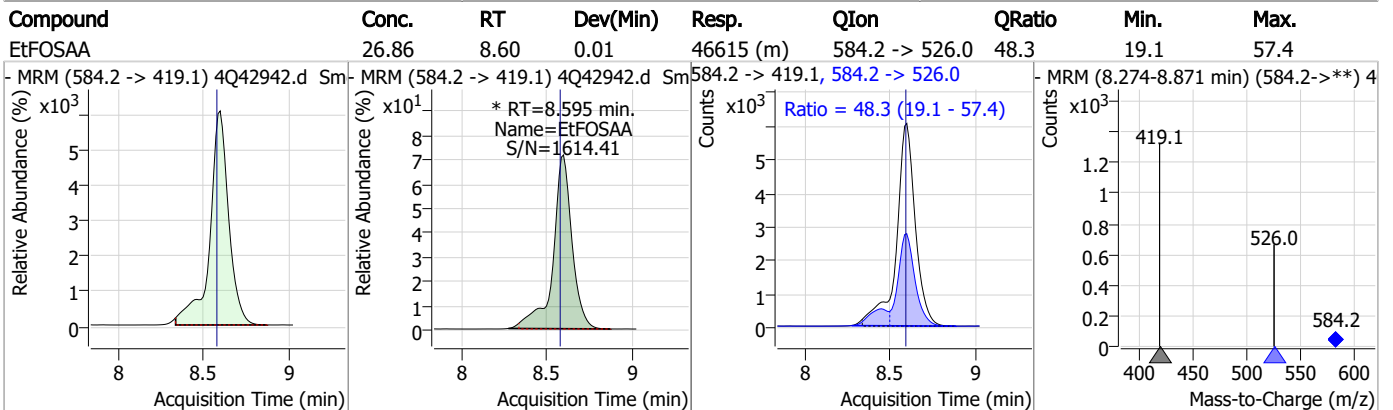
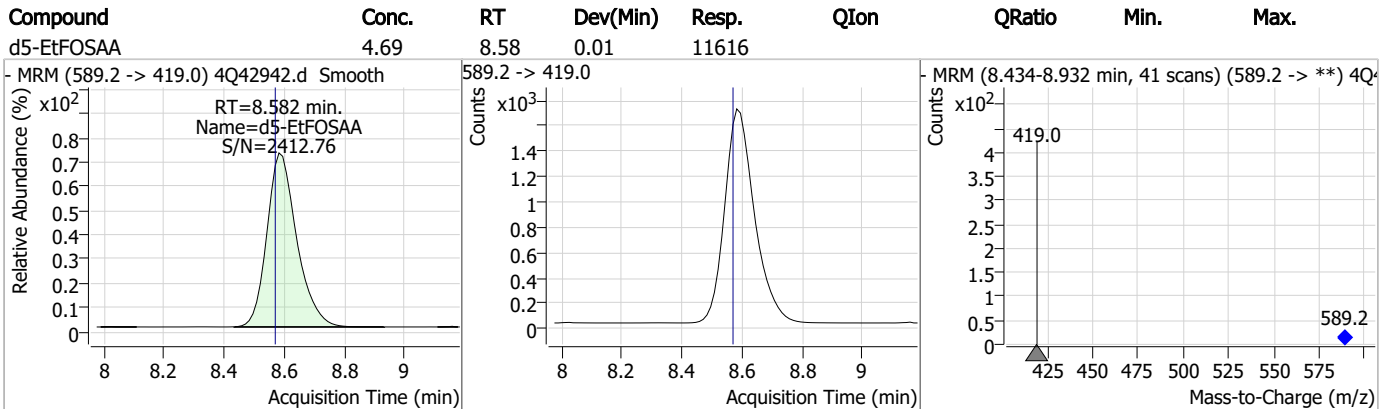
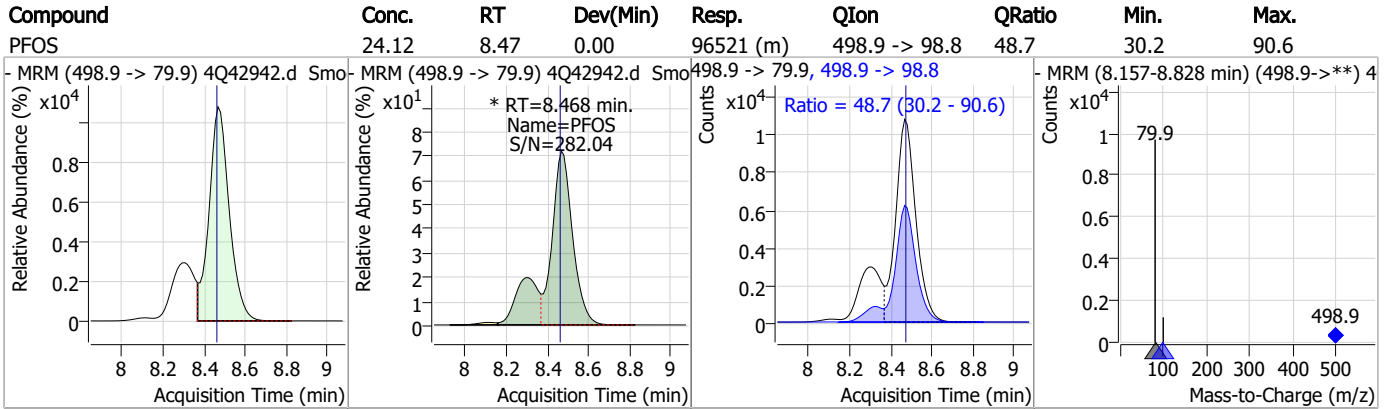
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	25.34	8.37	0.01	51741 (m)	570.1 -> 483.0	22.4	7.8	23.4



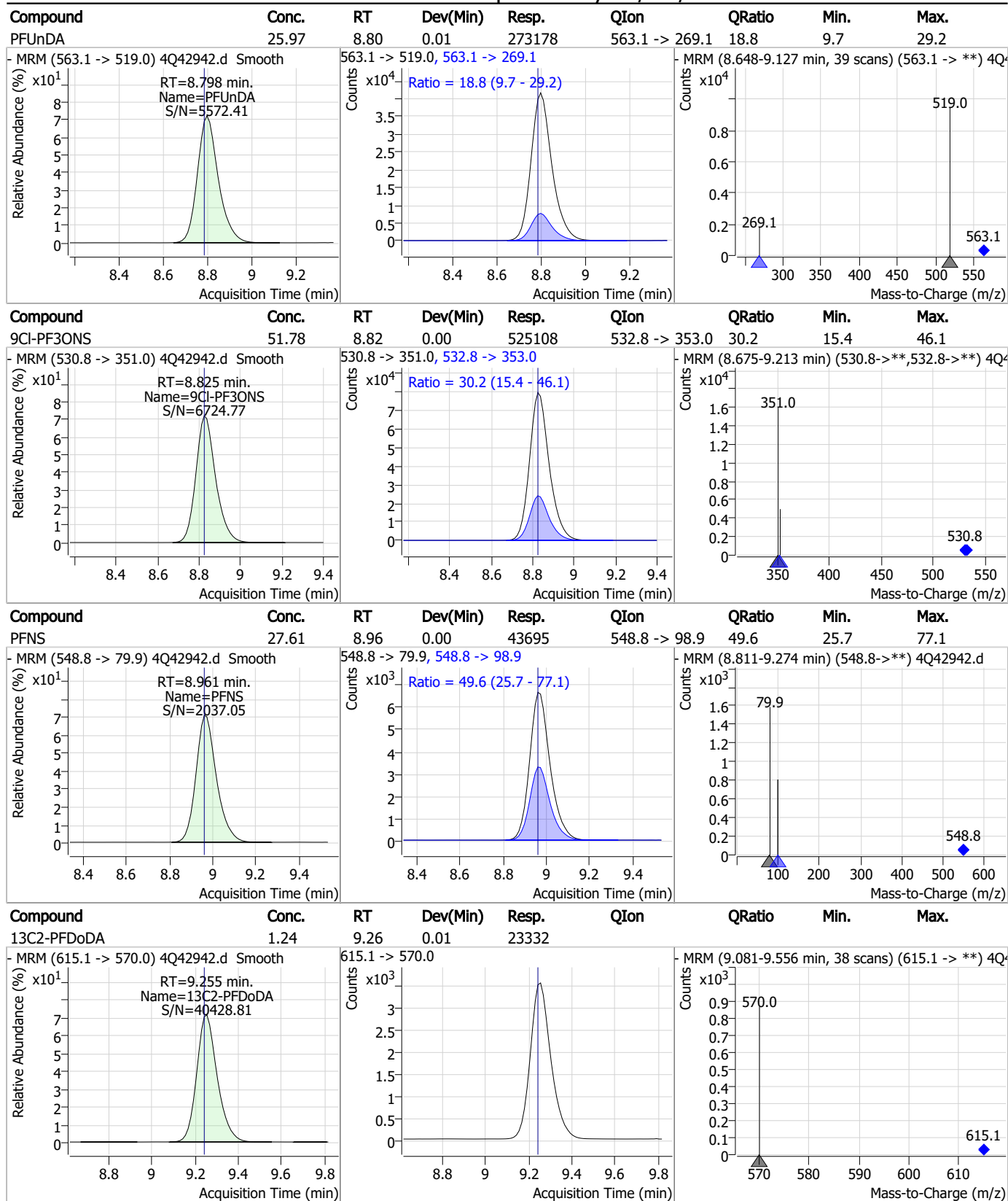
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.56	8.47	0.00	10282				



Perfluorinated Compounds by LC/MS/MS

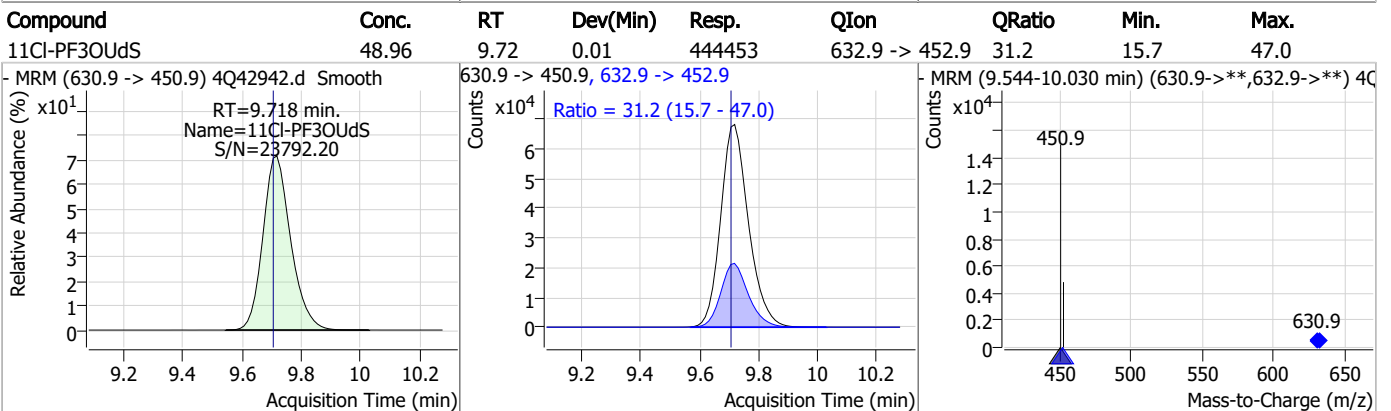
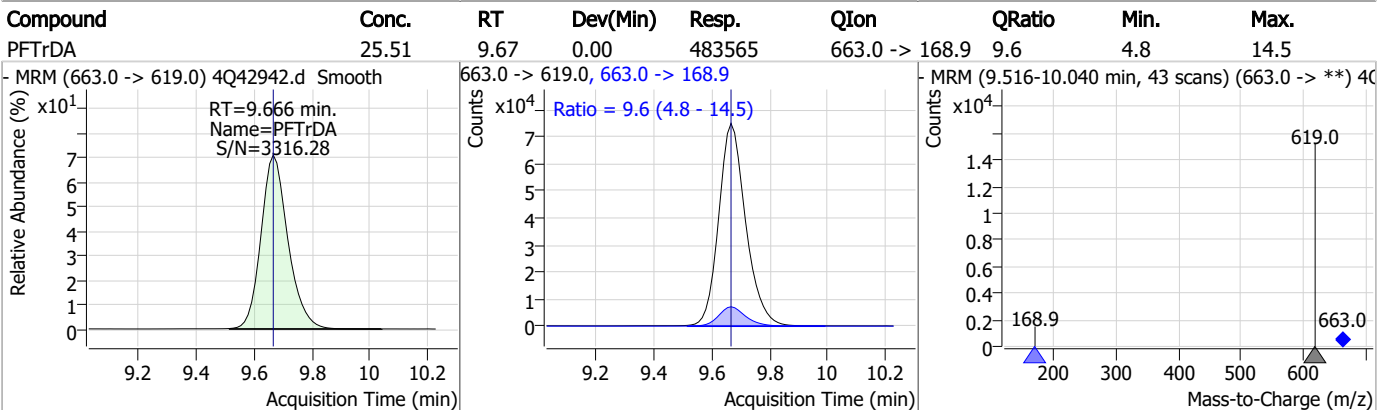
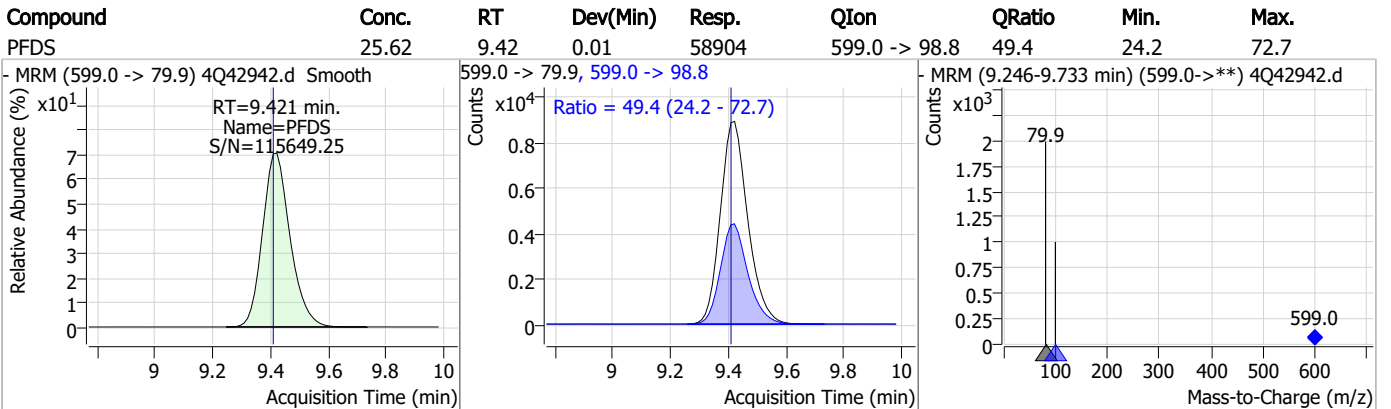
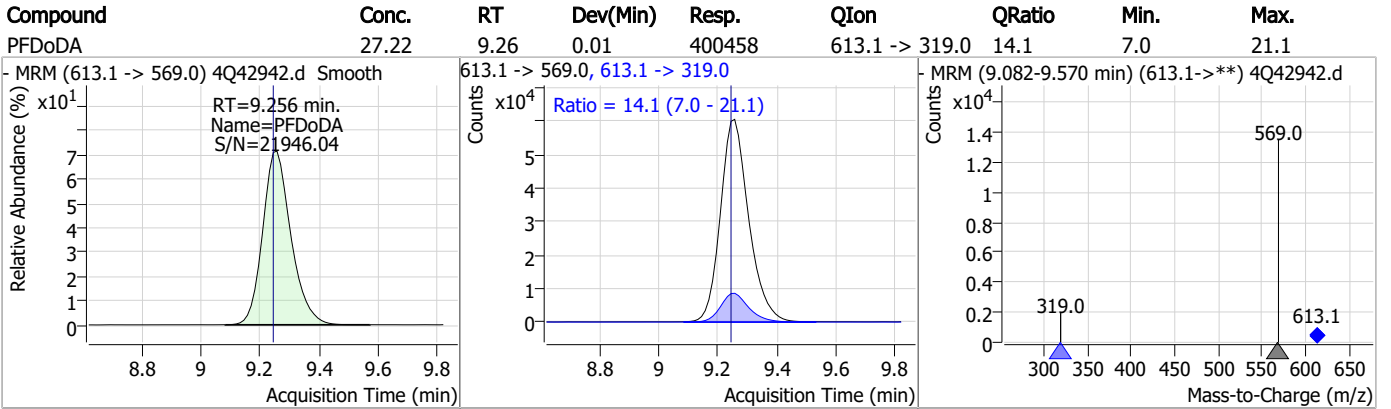


Perfluorinated Compounds by LC/MS/MS



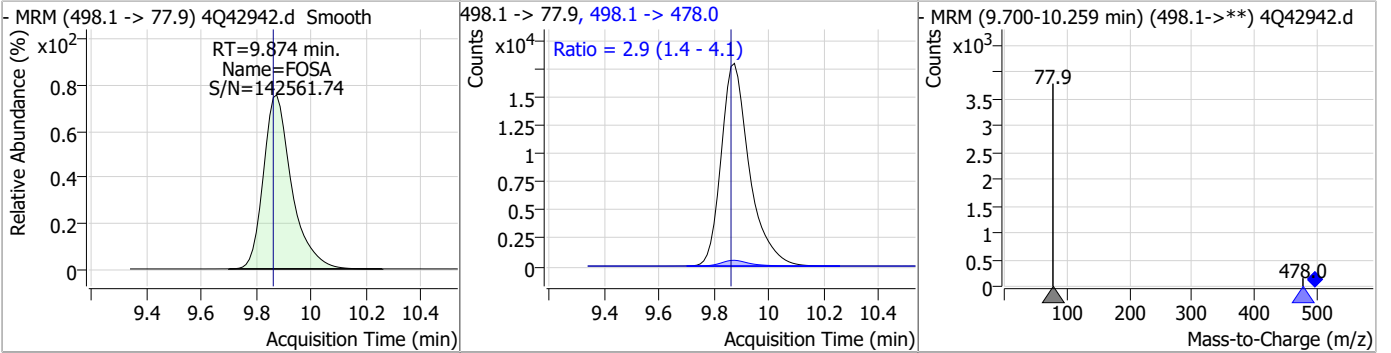
7.7.8
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Perfluorinated Compounds by LC/MS/MS

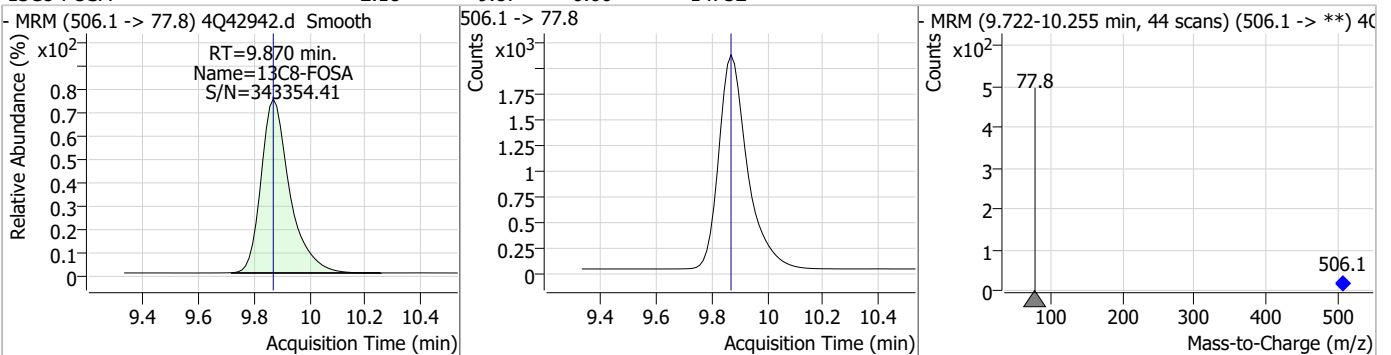


Perfluorinated Compounds by LC/MS/MS

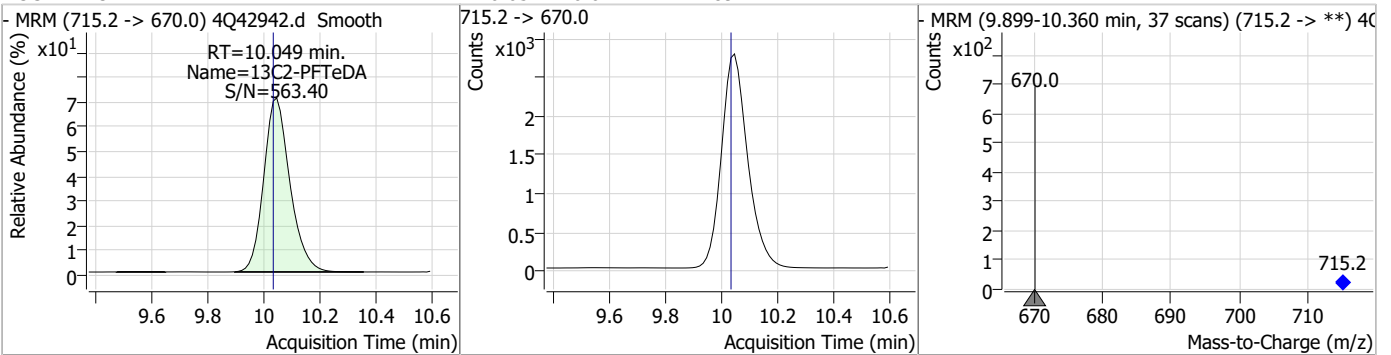
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	27.03	9.87	0.01	128381	498.1 -> 478.0	2.9	1.4	4.1



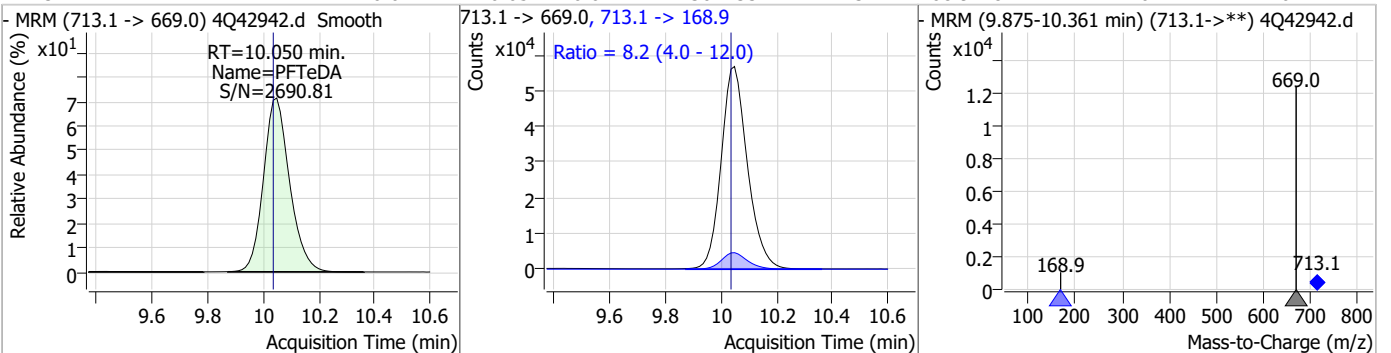
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.18	9.87	0.00	14752				



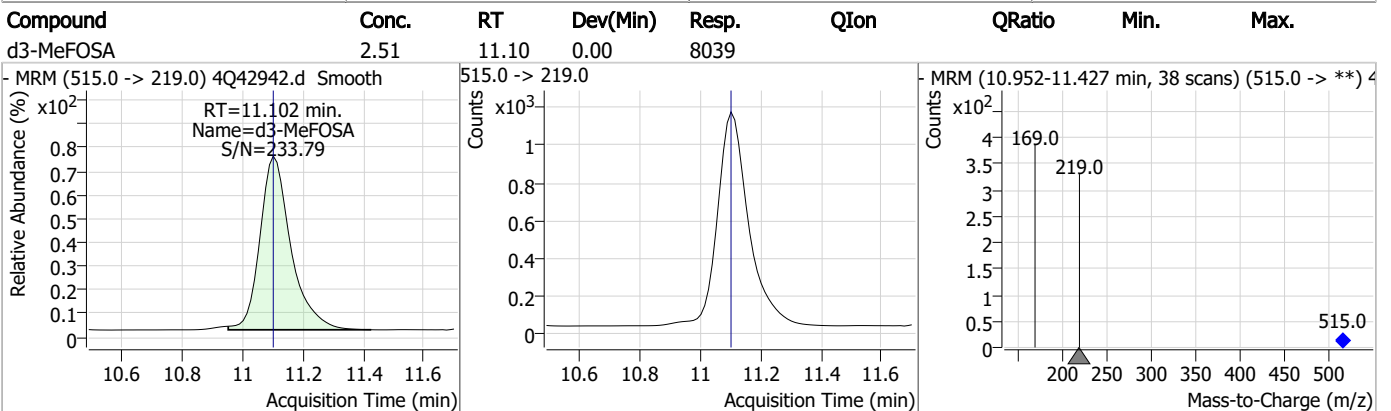
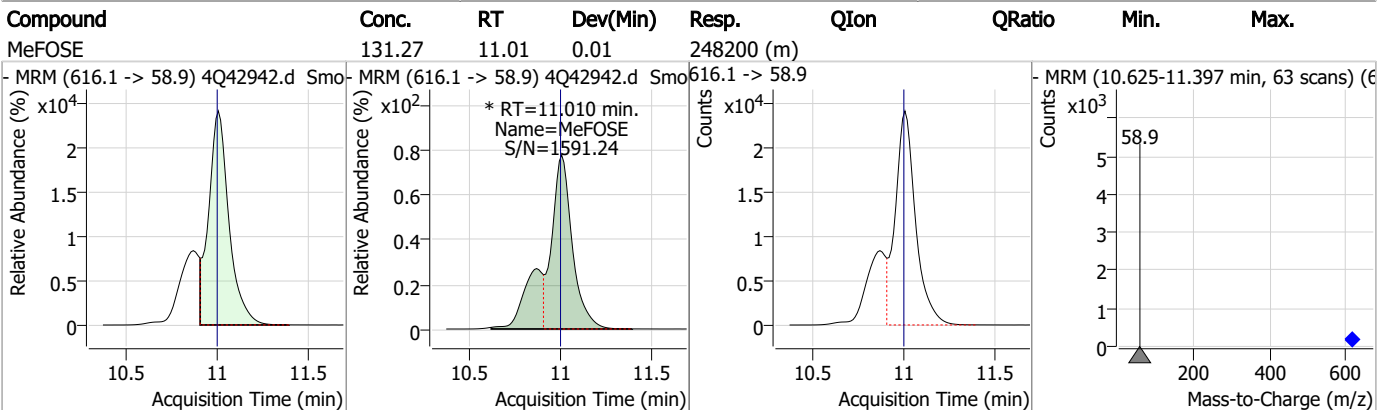
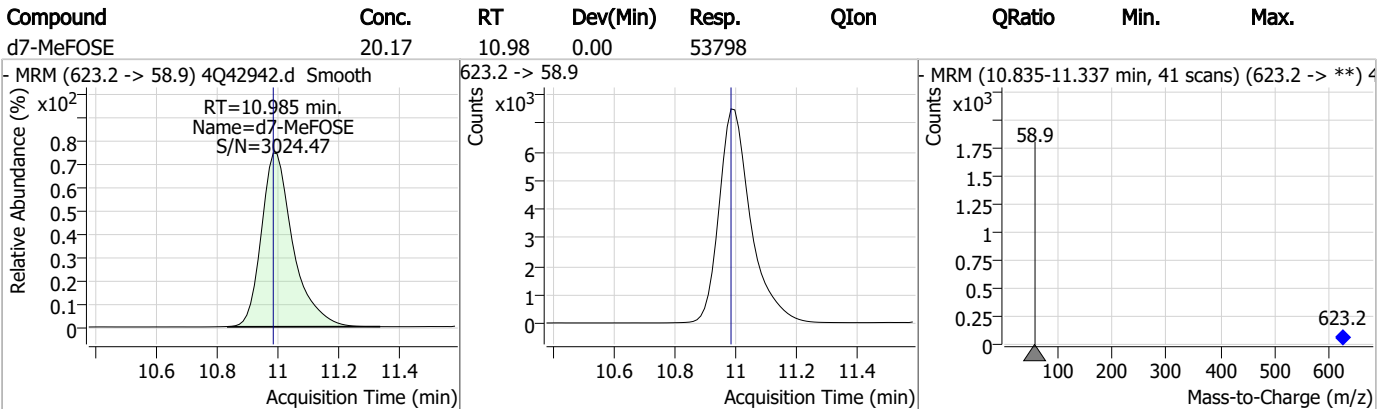
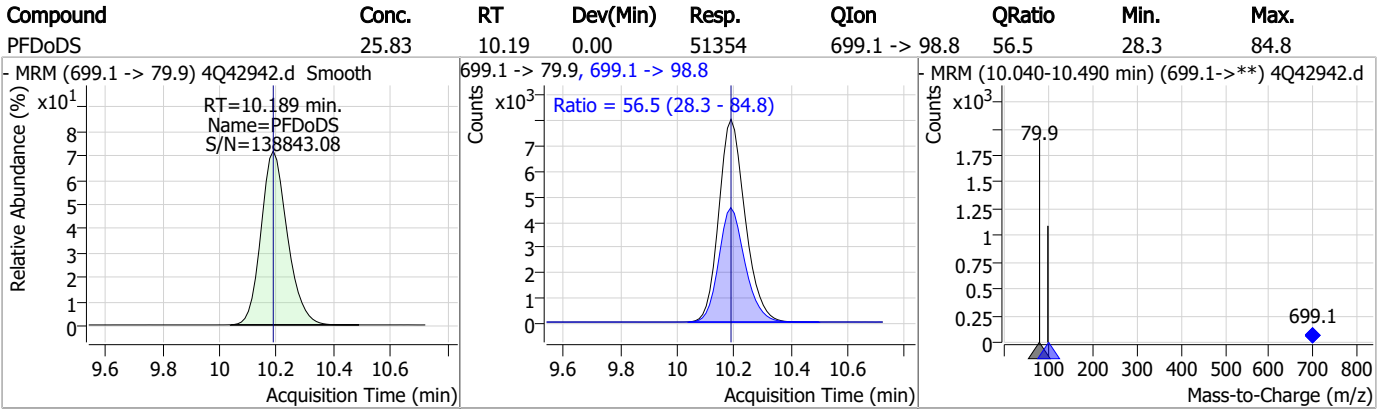
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	10.05	0.01	17892				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	26.07	10.05	0.01	367233	713.1 -> 168.9	8.2	4.0	12.0



Perfluorinated Compounds by LC/MS/MS

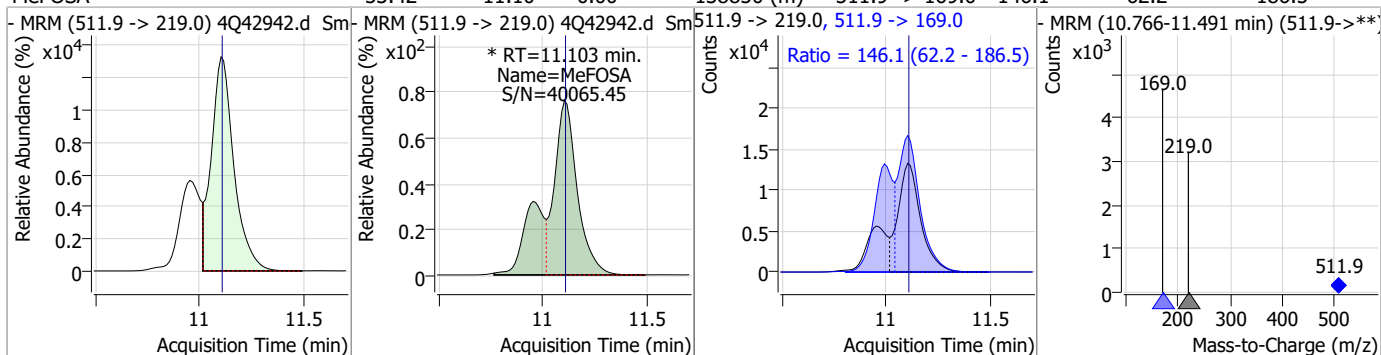


7.7.8

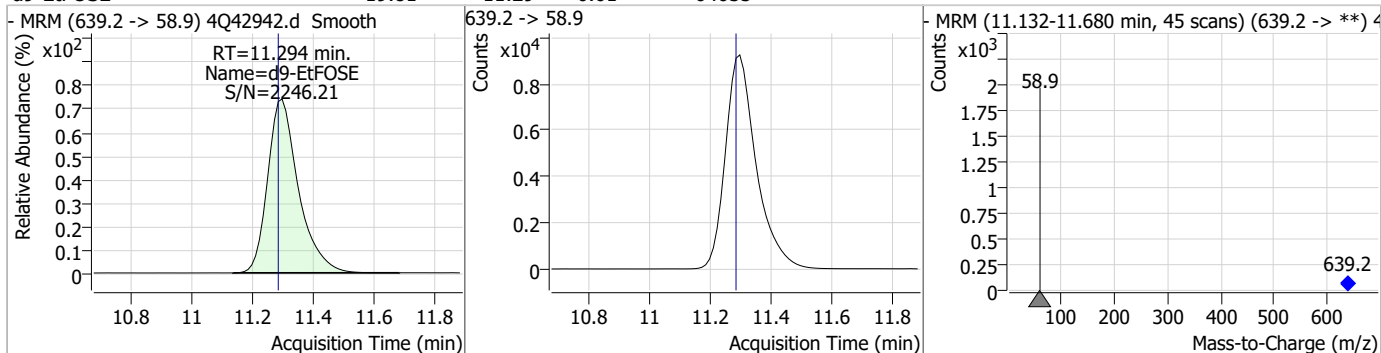
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Perfluorinated Compounds by LC/MS/MS

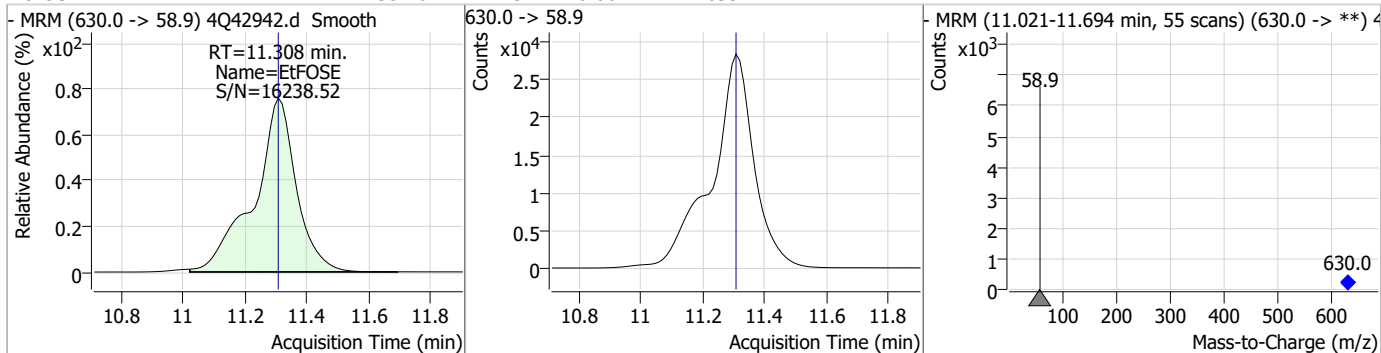
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	53.42	11.10	0.00	138850 (m)	511.9 -> 169.0	146.1	62.2	186.5



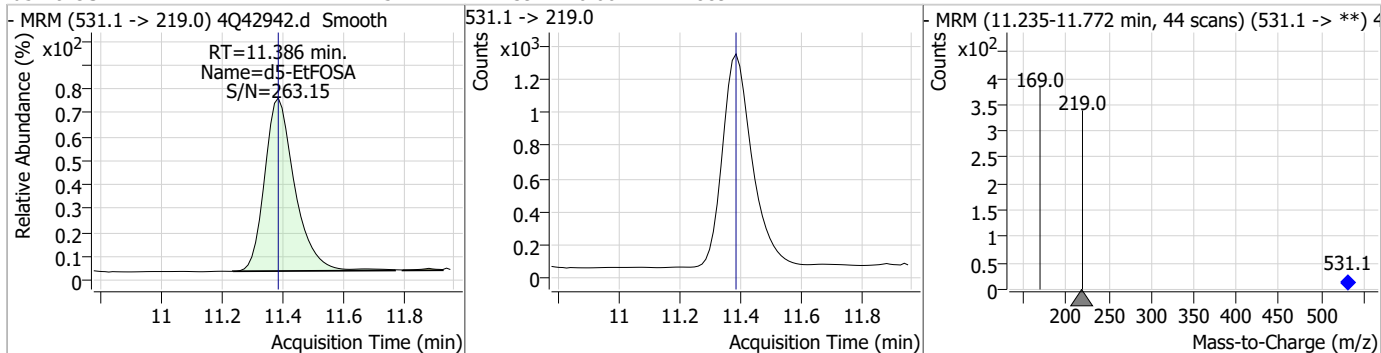
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.81	11.29	0.01	64655				



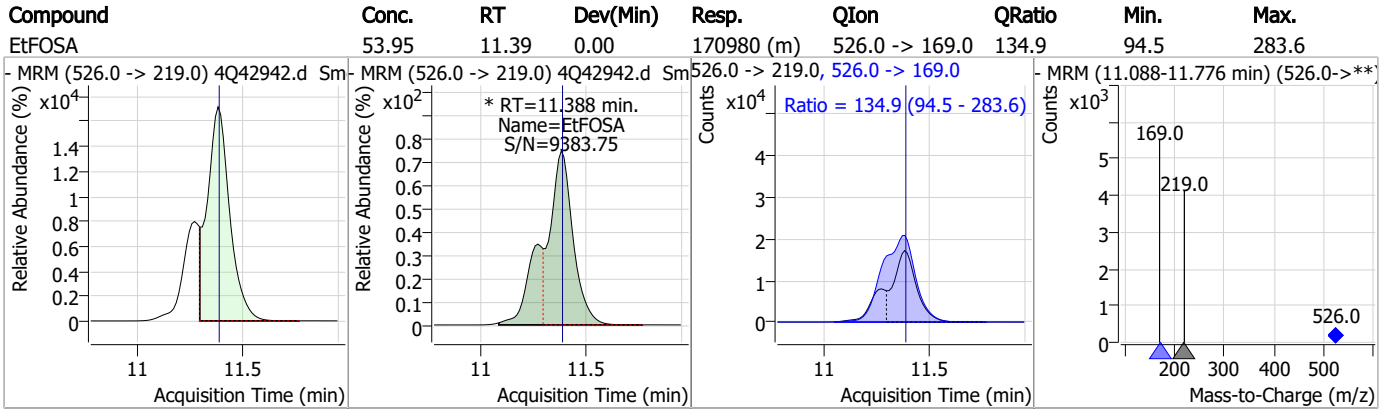
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	135.46	11.31	0.00	269944				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.57	11.39	0.00	8894				



Perfluorinated Compounds by LC/MS/MS



7.7.8

7

Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42942.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 13:23 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.8.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42943.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 1:37:37 PM
 Sample Name : ic621-8
 Vial : P1-A9
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	102643	10.00 µg/L	0.012
M5-PFPeA	4.475	268.3 -> 223.0	67834	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	55320	2.50 µg/L	0.012
M4-PFHpA	6.580	367.1 -> 322.0	27176	2.50 µg/L	0.000
M8-PFOA	7.250	421.1 -> 376.0	32006	2.50 µg/L	0.013
M9-PFNA	7.797	472.1 -> 427.0	18136	1.25 µg/L	0.000
M6-PFDA	8.303	519.1 -> 474.1	16822	1.25 µg/L	0.000
M7-PFUnDA	8.785	570.0 -> 525.1	17497	1.25 µg/L	0.000
M2-PFDoDA	9.243	615.1 -> 570.0	23859	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	18140	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	15039	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	11594	2.50 µg/L	0.000
M3-PFHxS	7.341	402.1 -> 79.9	7490	2.50 µg/L	0.000
M8-PFOS	8.467	507.1 -> 79.9	9556	2.50 µg/L	0.000
M2-4:2FTS	5.348	329.1 -> 80.9	1037	5.00 µg/L	0.012
M2-6:2FTS	7.010	429.1 -> 80.9	1557	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	2666	5.00 µg/L	0.000
M3-MeFOSAA	8.360	573.2 -> 419.0	13621	5.00 µg/L	0.000
M3-HFPO-DA	6.026	286.9 -> 168.9	34332	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	10514	5.00 µg/L	0.012
M7-MeFOSE	10.997	623.2 -> 58.9	49713	25.00 µg/L	0.012
M9-EtFOSE	11.294	639.2 -> 58.9	63989	25.00 µg/L	0.012
M5-EtFOSA	11.398	531.1 -> 219.0	8598	2.50 µg/L	0.012
M3-MeFOSA	11.102	515.0 -> 219.0	7952	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	9764	2.50 µg/L	0.000
13C3-PFBA	3.016	216.0 -> 172.0	58962	5.00 µg/L	0.025
18O2-PFHxS	7.353	403.0 -> 83.9	5402	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	39389	2.50 µg/L	0.013
13C2-PFDA	8.303	515.1 -> 470.1	15542	1.25 µg/L	0.000
13C5-PFNA	7.797	468.0 -> 423.0	19223	1.25 µg/L	0.000
13C2-PFHxA	5.660	315.1 -> 270.0	48222	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.348	329.1 -> 80.9	1037	3.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 70.3%		
13C2-6:2FTS	7.010	429.1 -> 80.9	1557	3.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 73.5%		
13C2-8:2FTS	8.090	529.1 -> 80.9	2666	3.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 76.5%		
13C2-PFDoDA	9.243	615.1 -> 570.0	23859	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFTeDA	10.036	715.2 -> 670.0	18140	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFBS	5.564	302.1 -> 79.9	11594	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C3-PFHxS	7.341	402.1 -> 79.9	7490	2.51 µg/L	0.000

7.7.9
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFBA	3.011	216.8 -> 171.9	102643	10.00 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.580	367.1 -> 322.0	27176	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.659	318.0 -> 273.0	55320	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFPeA	4.475	268.3 -> 223.0	67834	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C6-PFDA	8.303	519.1 -> 474.1	16822	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C7-PFUnDA	8.785	570.0 -> 525.1	17497	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-FOSA	9.870	506.1 -> 77.8	15039	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-PFOA	7.250	421.1 -> 376.0	32006	2.47 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOS	8.467	507.1 -> 79.9	9556	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C9-PFNA	7.797	472.1 -> 427.0	18136	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%	
d3-MeFOSAA	8.360	573.2 -> 419.0	13621	4.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	34332	10.14 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSA	11.102	515.0 -> 219.0	7952	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
d5-EtFOSAA	8.582	589.2 -> 419.0	10514	4.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
d7-MeFOSE	10.997	623.2 -> 58.9	49713	19.74 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
d9-EtFOSE	11.294	639.2 -> 58.9	63989	20.77 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.1%	
d5-EtFOSA	11.398	531.1 -> 219.0	8598	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	325462	251.84 µg/L	99
		327.1 -> 80.9	134920		
6:2FTS	7.011	427.1 -> 407.0	244704	230.19 µg/L	99
		427.1 -> 80.9	102296		
8:2FTS	8.090	527.1 -> 507.0	273965	229.18 µg/L	100
		527.1 -> 80.8	108192		
EtFOSAA	8.583	584.2 -> 419.1	108416	69.03 µg/L	m 86
		584.2 -> 526.0	51029		
FOSA	9.861	498.1 -> 77.9	313877	64.82 µg/L	100
		498.1 -> 478.0	8852		
MeFOSAA	8.373	570.1 -> 419.0	122323	65.17 µg/L	m 89
		570.1 -> 483.0	24998		
PFBA	3.020	212.8 -> 168.9	614809	262.28 µg/L	100
PFBS	5.565	298.7 -> 79.9	247553	57.21 µg/L	99
		298.7 -> 98.8	96440		
PFDA	8.304	512.9 -> 469.0	635700	66.09 µg/L	99
		512.9 -> 219.0	126012		
PFDoDA	9.244	613.1 -> 569.0	947715	62.99 µg/L	99
		613.1 -> 319.0	135269		
PFDS	9.409	599.0 -> 79.9	136623	63.94 µg/L	98

7.7.9
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	67872			
PFHpA	6.593	363.1 -> 319.0	894863	66.01	µg/L	100
		363.1 -> 169.0	158450			
PFHpS	7.936	449.0 -> 79.9	167050	67.16	µg/L	100
		449.0 -> 98.9	86636			
PFHxA	5.662	313.0 -> 269.0	1057722	64.59	µg/L	100
		313.0 -> 118.9	31634			
PFHxS	7.342	398.7 -> 79.9	158231	61.66	µg/L	m 96
		398.7 -> 98.9	78041			
PFNA	7.797	463.0 -> 419.0	607902	62.70	µg/L	94
		463.0 -> 219.0	153301			
PFNS	8.961	548.8 -> 79.9	106786	72.62	µg/L	99
		548.8 -> 98.9	55497			
PFOA	7.252	413.0 -> 369.0	974655	65.18	µg/L	100
		413.0 -> 169.0	197208			
PFOS	8.468	498.9 -> 79.9	224848	60.45	µg/L	m 85
		498.9 -> 98.8	110965			
PFPeA	4.477	263.0 -> 219.0	1698521	132.28	µg/L	100
PFPeS	6.632	349.1 -> 79.9	134652	61.64	µg/L	98
		349.1 -> 98.9	58711			
PFTeDA	10.037	713.1 -> 669.0	861044	60.29	µg/L	100
		713.1 -> 168.9	70146			
PFTrDA	9.654	663.0 -> 619.0	1078811	55.65	µg/L	100
		663.0 -> 168.9	103955			
PFUnDA	8.785	563.1 -> 519.0	611628	61.80	µg/L	100
		563.1 -> 269.1	118771			
11CI-PF3OUdS	9.705	630.9 -> 450.9	1006397	112.31	µg/L	99
		632.9 -> 452.9	310164			
9CI-PF3ONS	8.812	530.8 -> 351.0	1185562	118.44	µg/L	100
		532.8 -> 353.0	364698			
ADONA	6.843	376.9 -> 250.9	2486865	120.59	µg/L	100
		376.9 -> 84.8	666664			
HFPO-DA	6.027	284.9 -> 168.9	348817	128.20	µg/L	98
		284.9 -> 184.9	40558			
3:3FTCA	3.979	241.0 -> 177.0	217606	363.71	µg/L	99
		241.0 -> 117.0	19941			
5:3FTCA	6.345	341.0 -> 237.1	3796979	1641.78	µg/L	100
		341.0 -> 217.0	2710111			
7:3FTCA	7.786	441.0 -> 316.9	1491931	1574.11	µg/L	99
		441.0 -> 336.9	3308937			
EtFOSA	11.400	526.0 -> 219.0	403228	131.62	µg/L	m 64
		526.0 -> 169.0	550141			
EtFOSE	11.320	630.0 -> 58.9	623625	316.20	µg/L	100
MeFOSA	11.116	511.9 -> 219.0	321816	125.17	µg/L	m 79
		511.9 -> 169.0	476751			
MeFOSE	11.010	616.1 -> 58.9	567406	324.75	µg/L	m 100
PFDoDS	10.176	699.1 -> 79.9	121607	65.83	µg/L	99
		699.1 -> 98.8	67715			
NFDHA	5.541	295.0 -> 201.0	121383	110.27	µg/L	100
		295.0 -> 84.9	30125			
PFMBA	4.891	279.0 -> 85.1	979514	133.41	µg/L	100
PFMPA	3.611	229.0 -> 84.9	878322	136.79	µg/L	100
PFEESA	6.096	314.8 -> 134.9	1607415	116.91	µg/L	100
		314.8 -> 82.9	54107			

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.9
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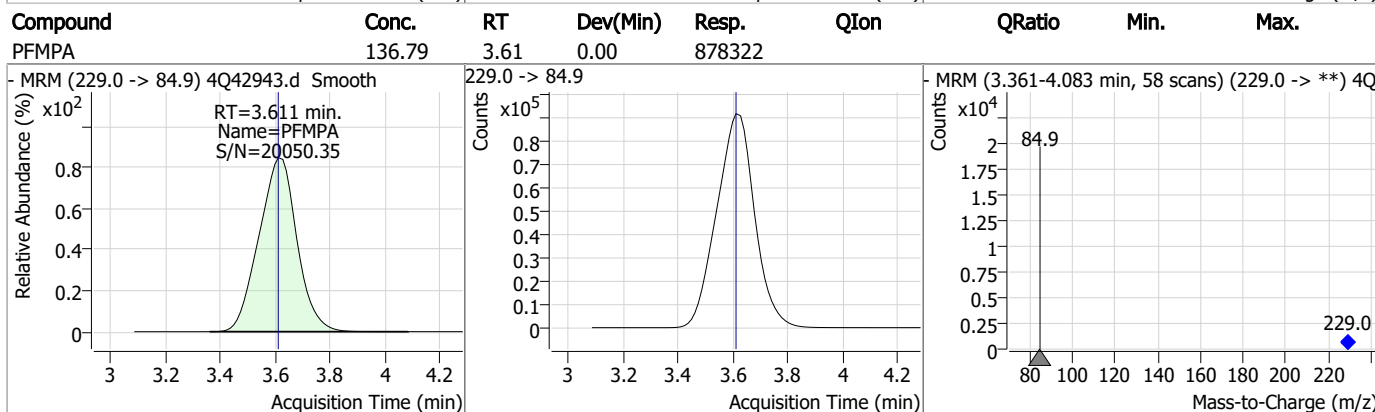
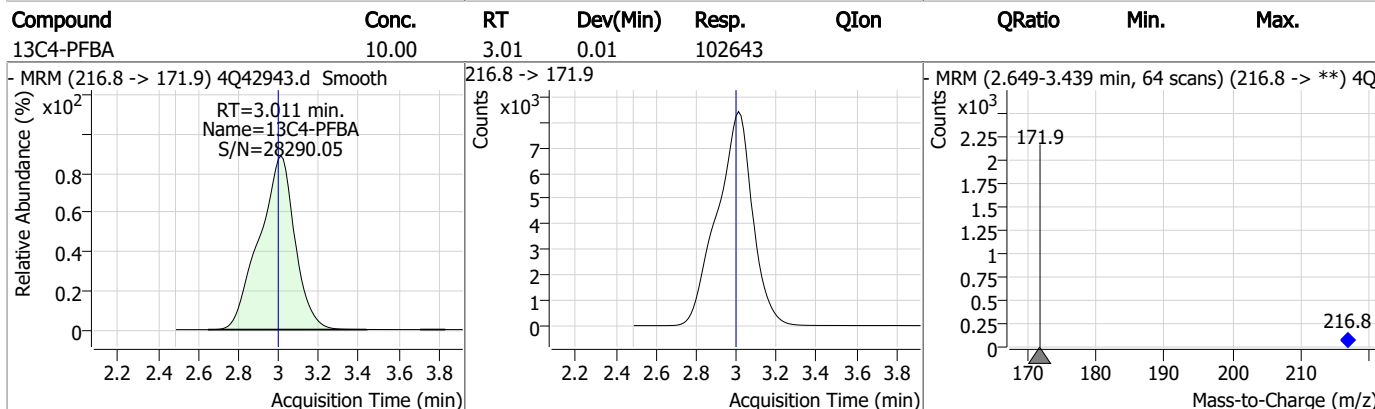
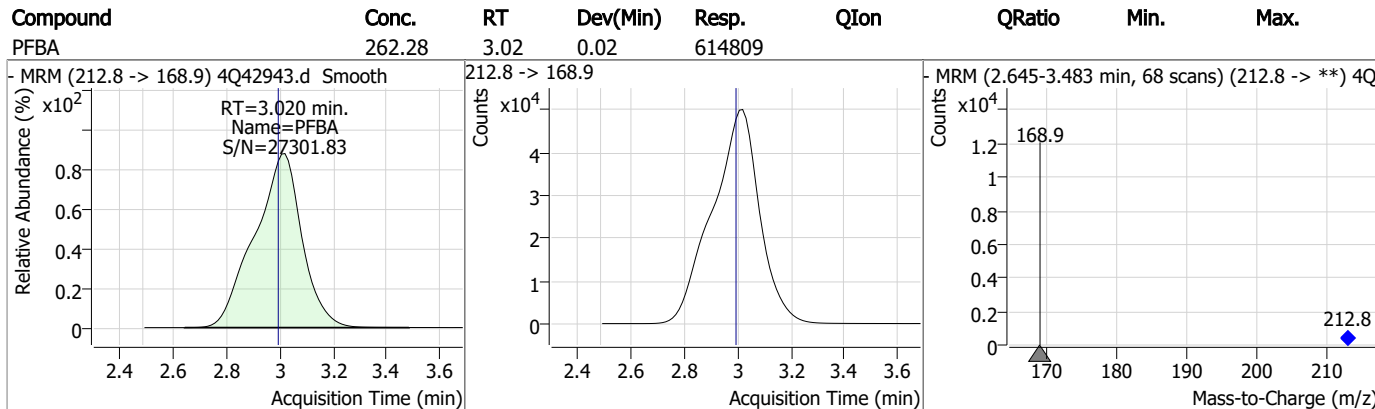
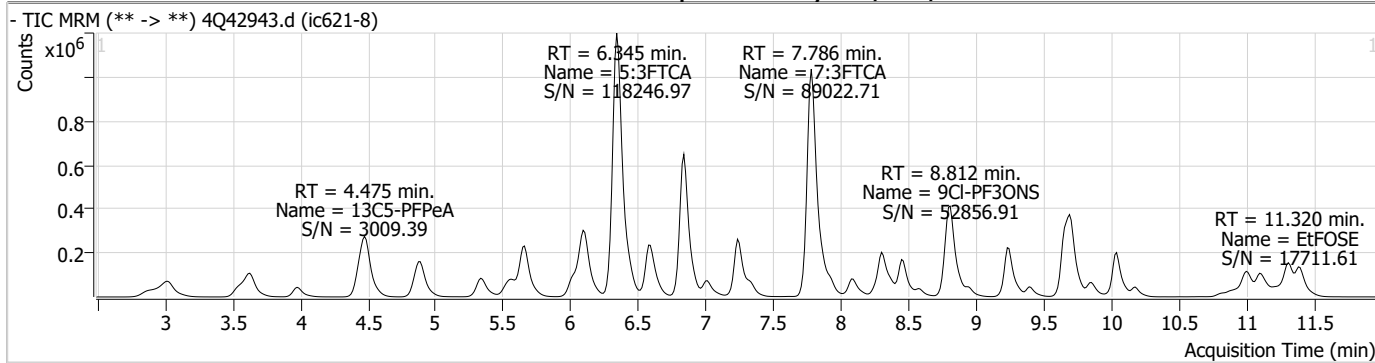
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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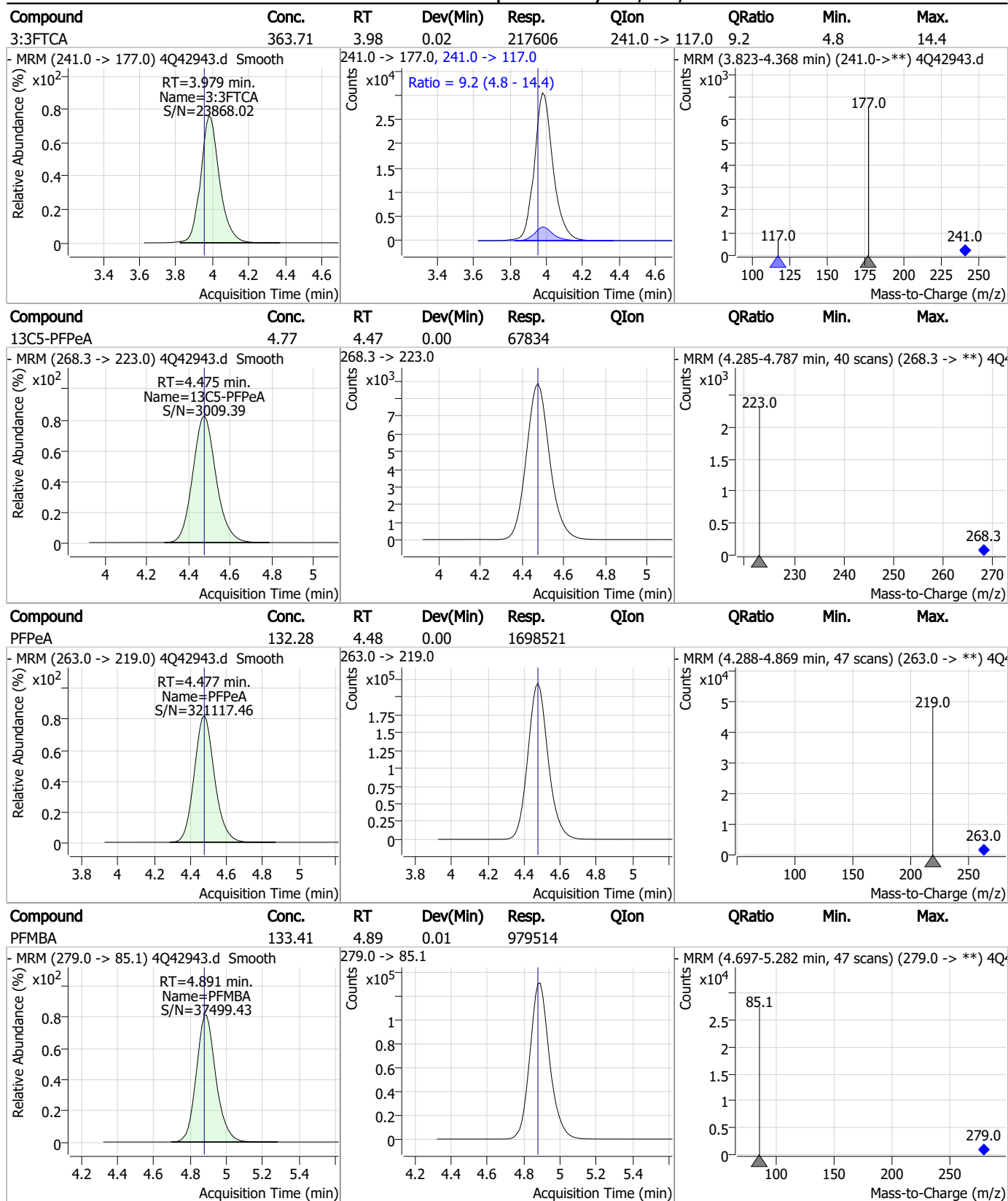
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Perfluorinated Compounds by LC/MS/MS

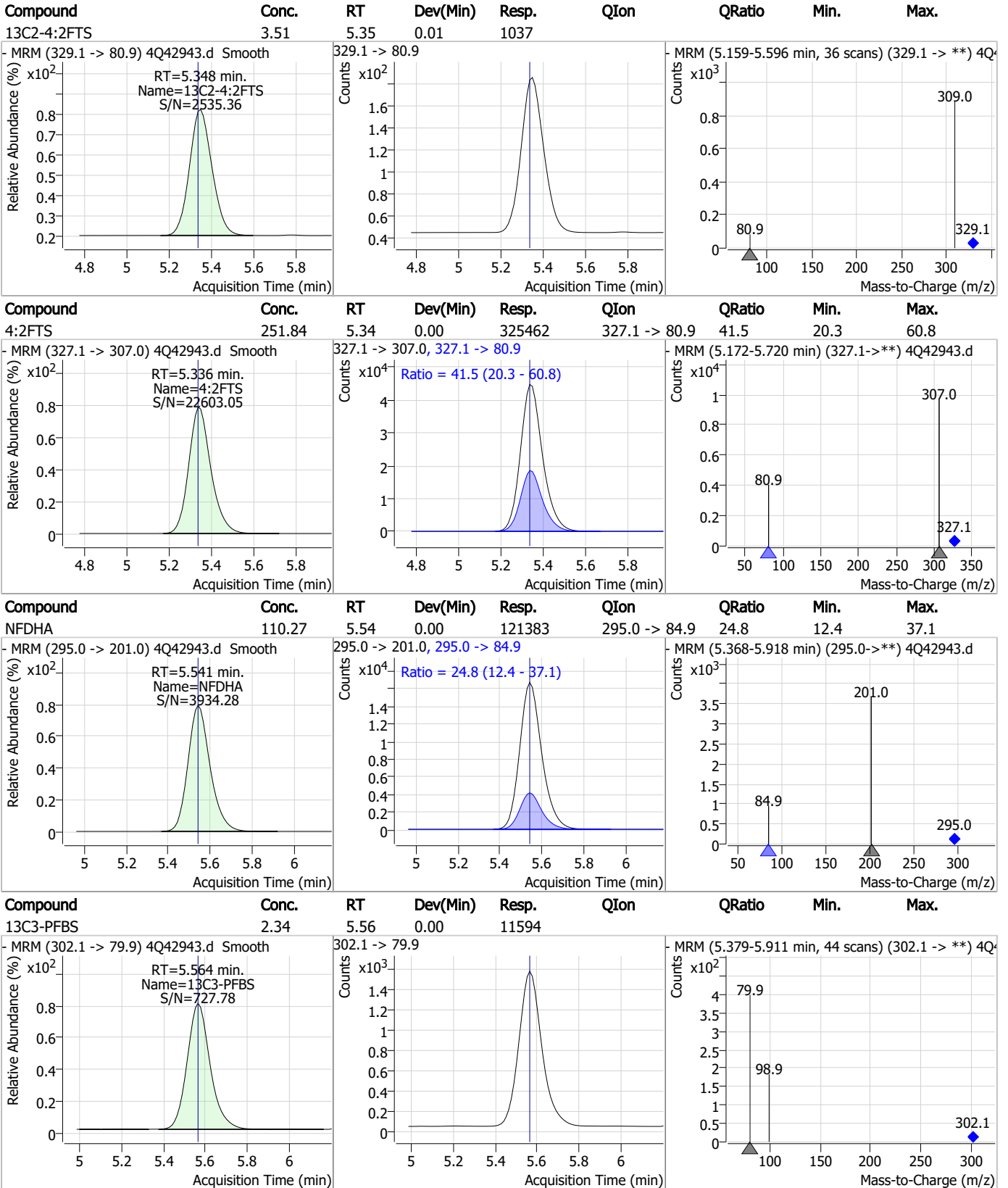


Perfluorinated Compounds by LC/MS/MS



7.7.9
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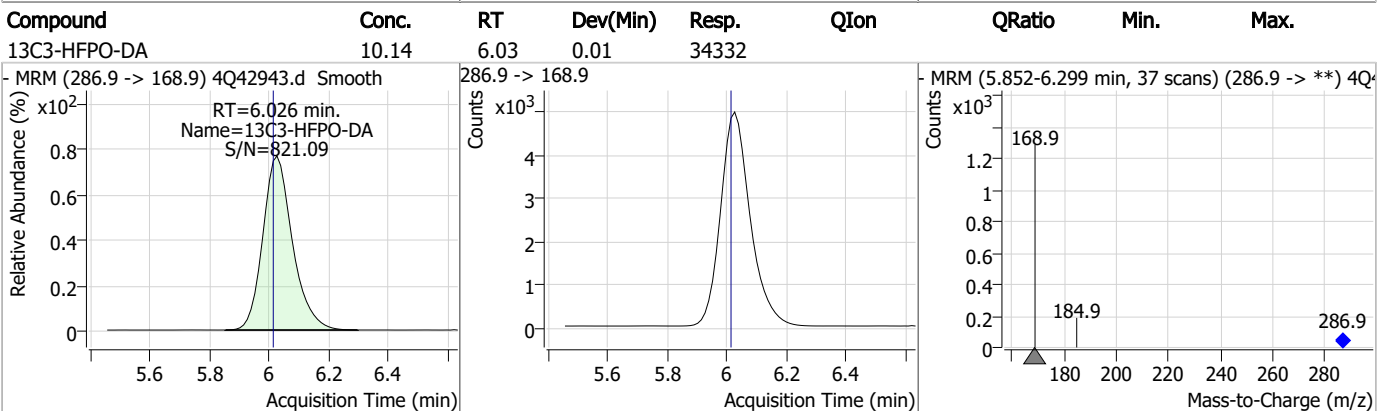
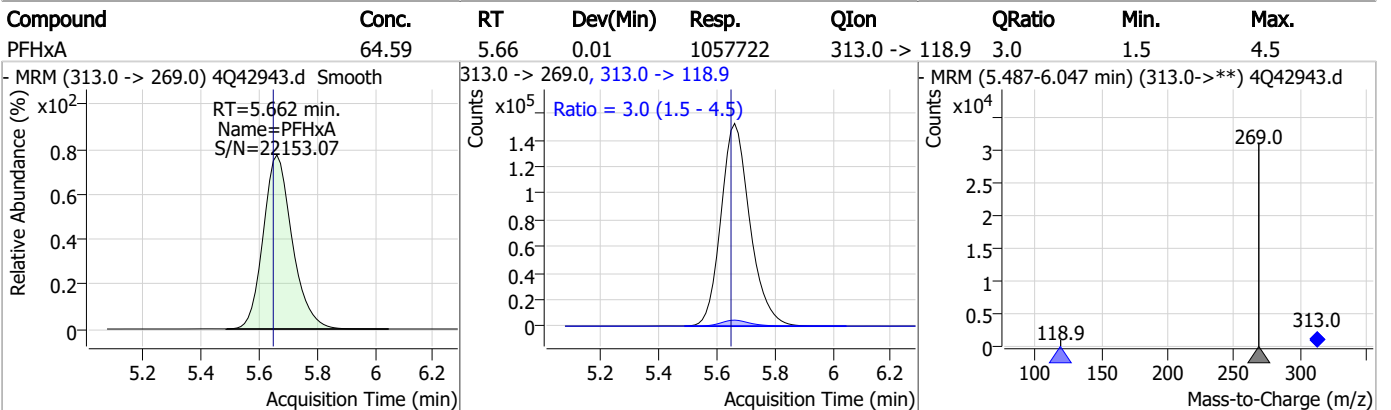
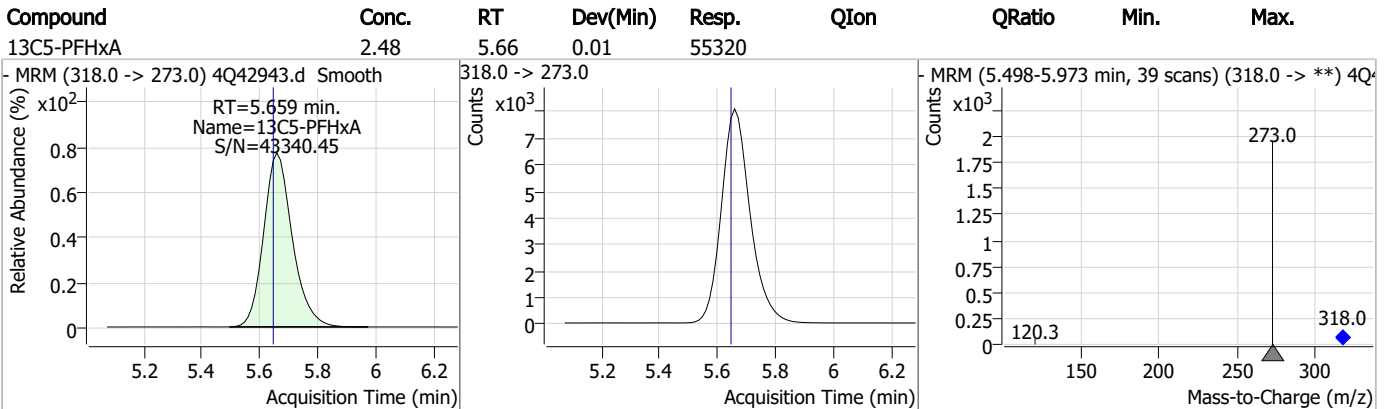
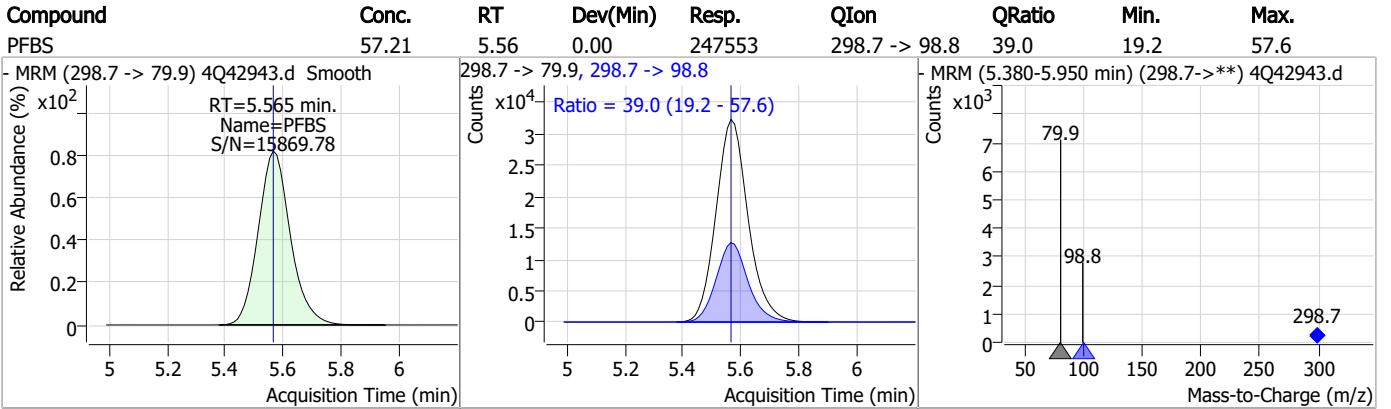
Perfluorinated Compounds by LC/MS/MS



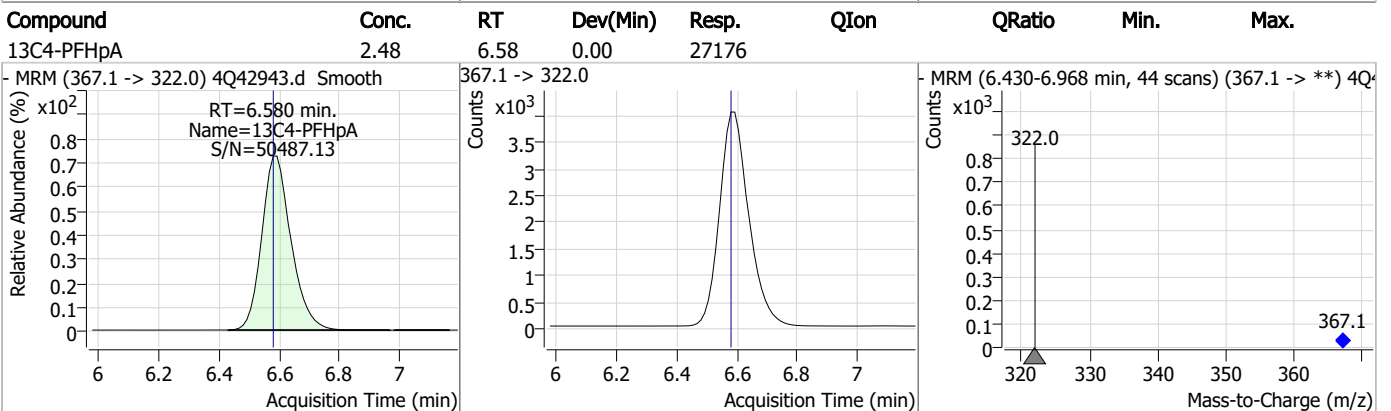
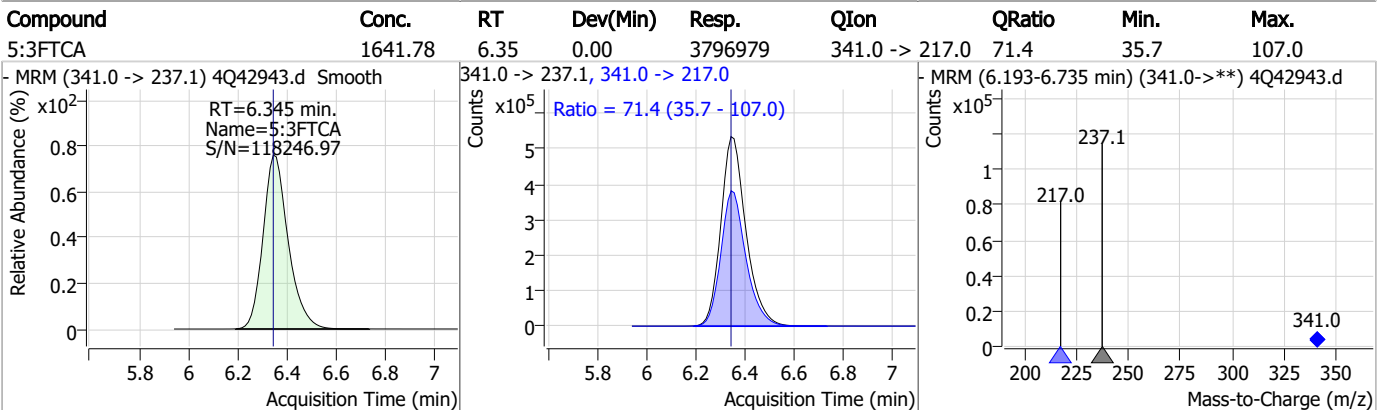
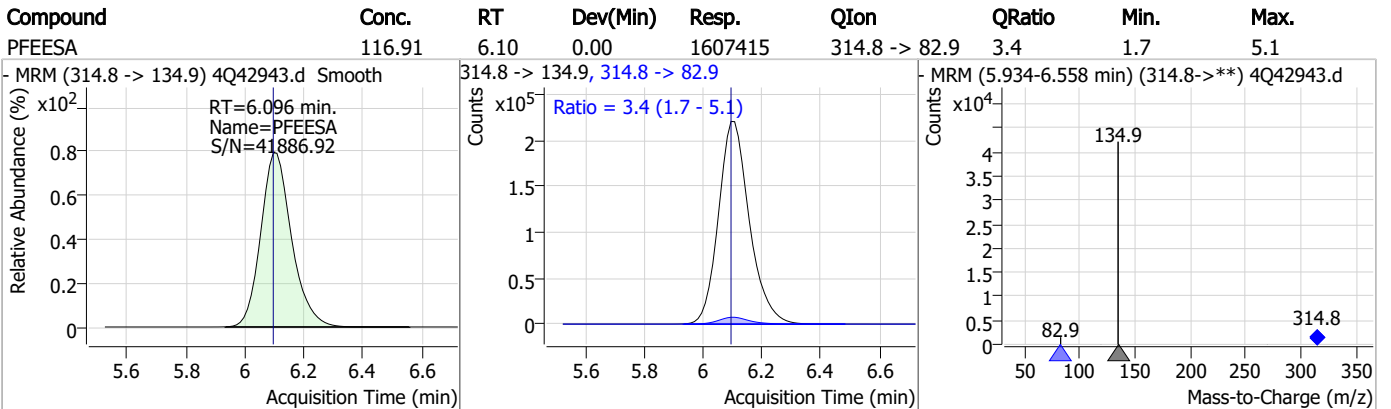
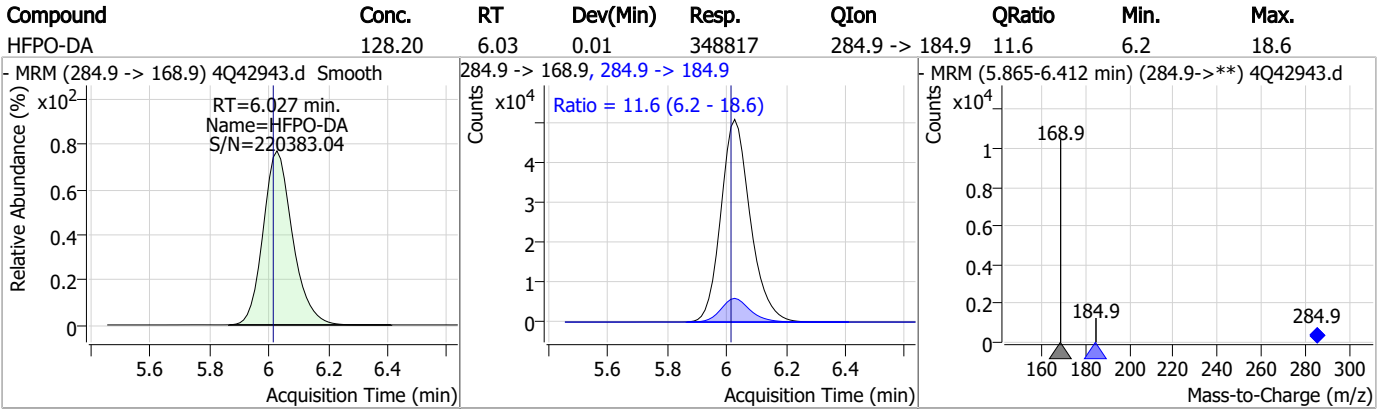
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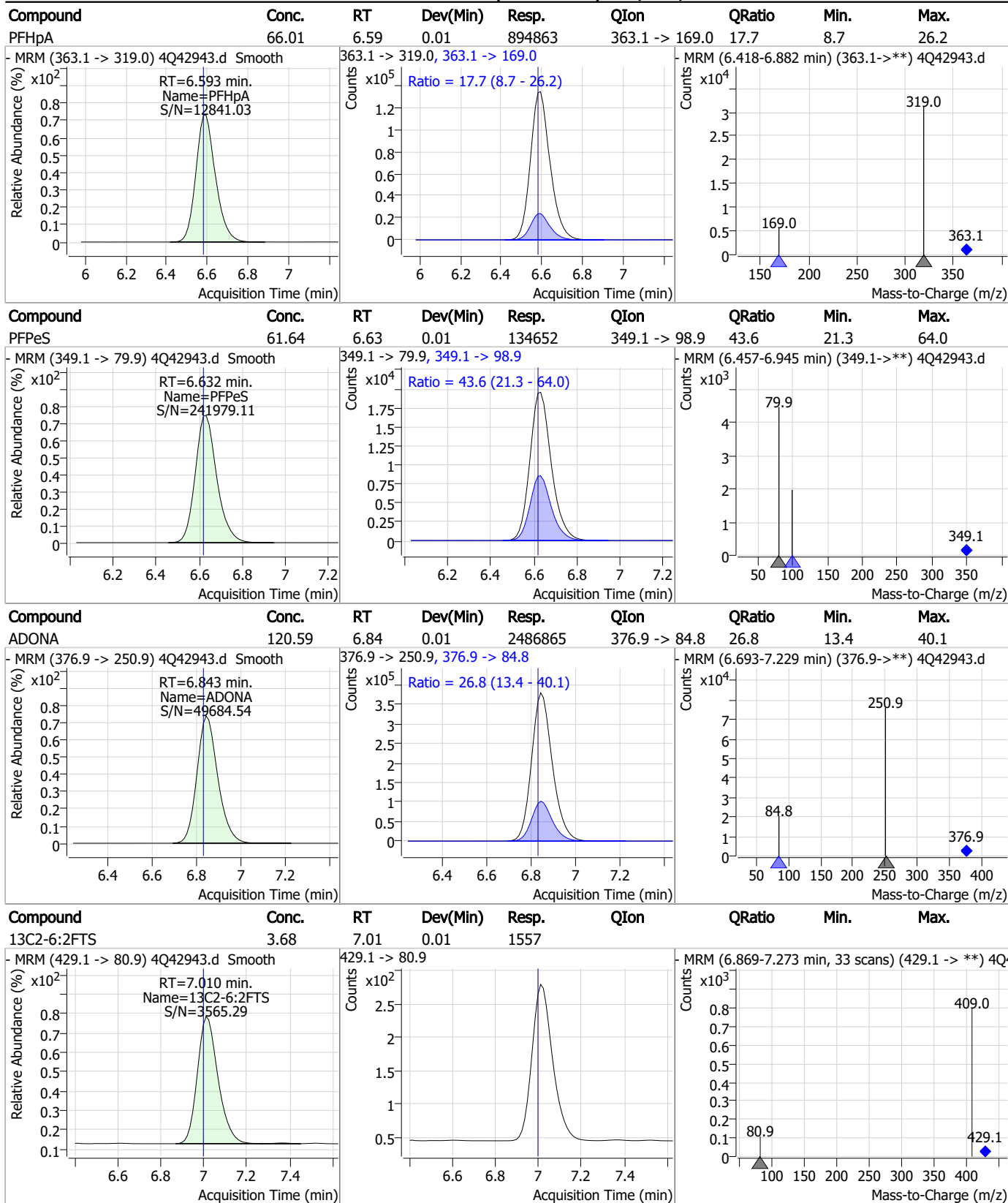
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

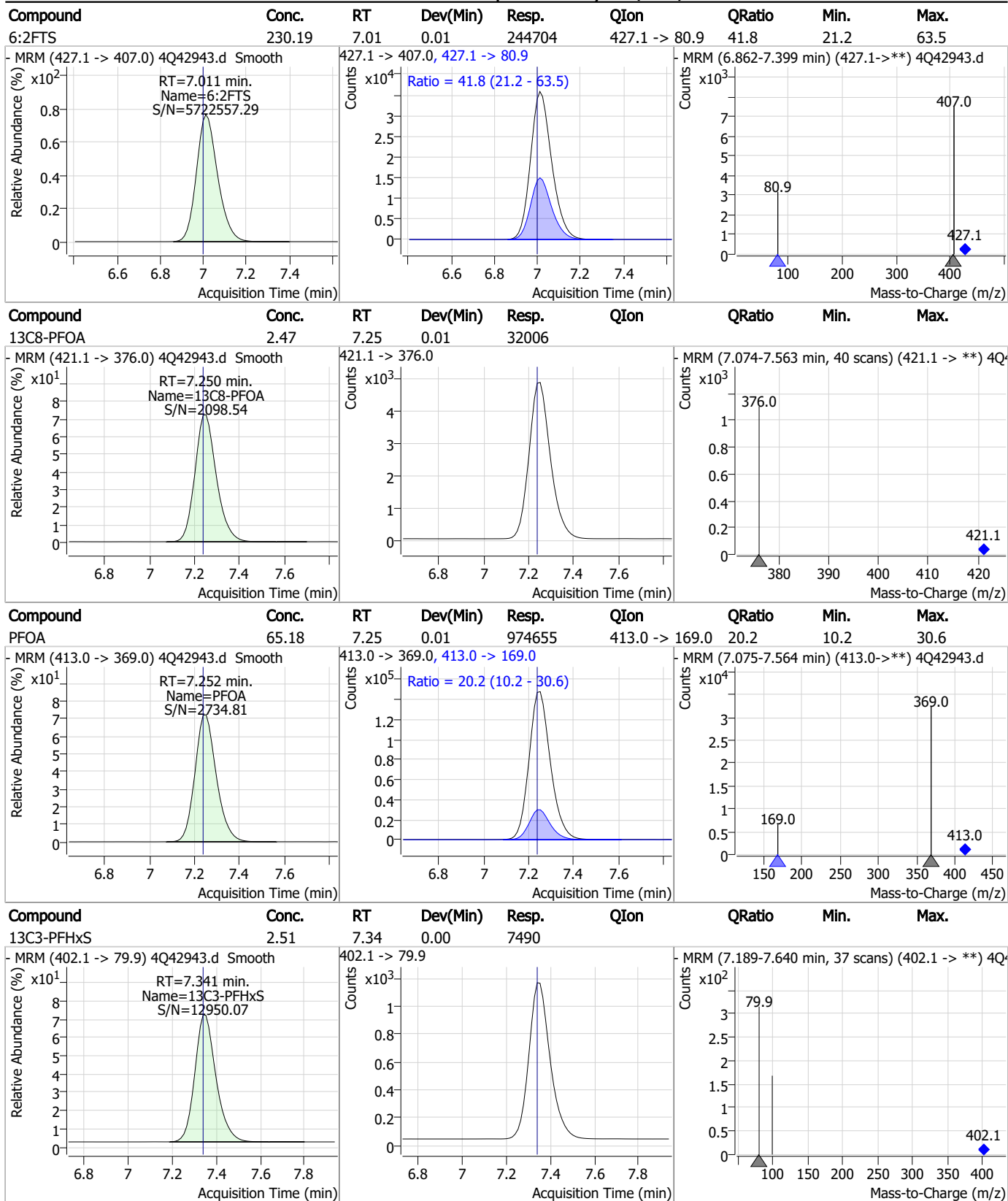


Perfluorinated Compounds by LC/MS/MS



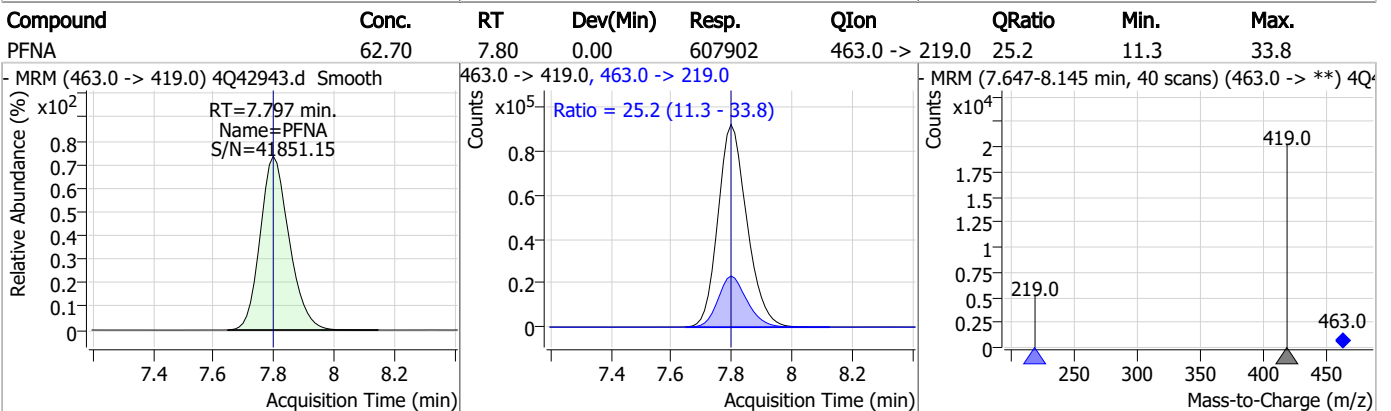
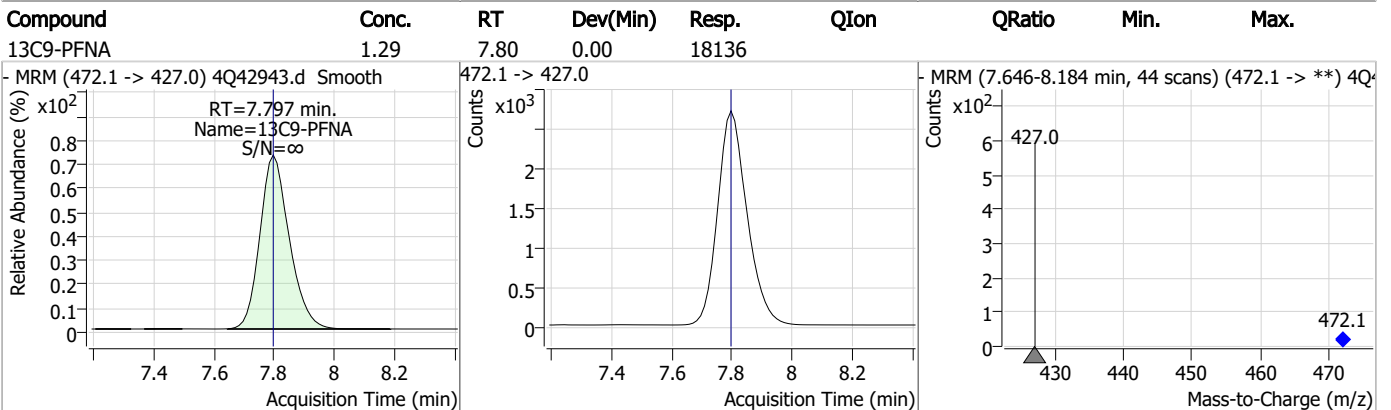
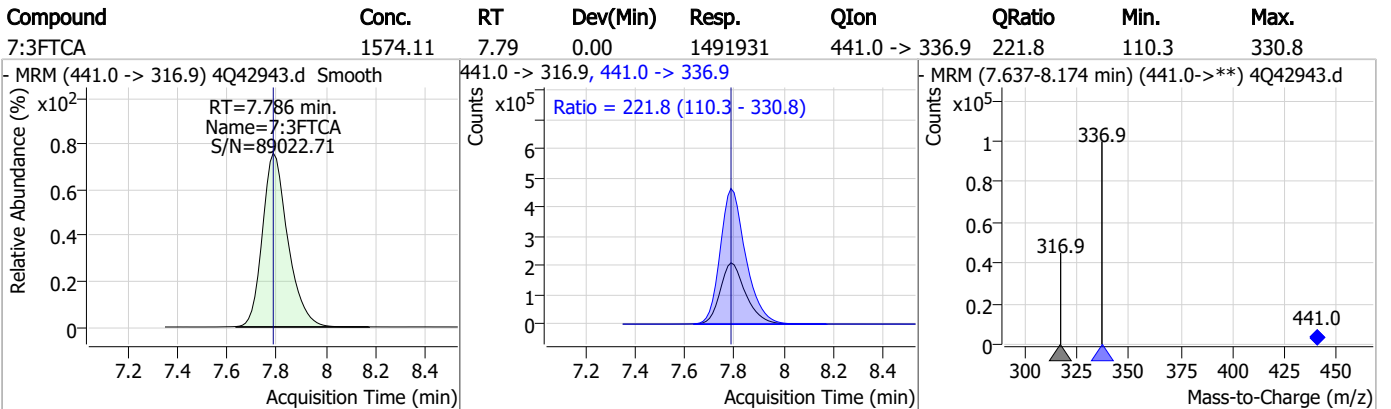
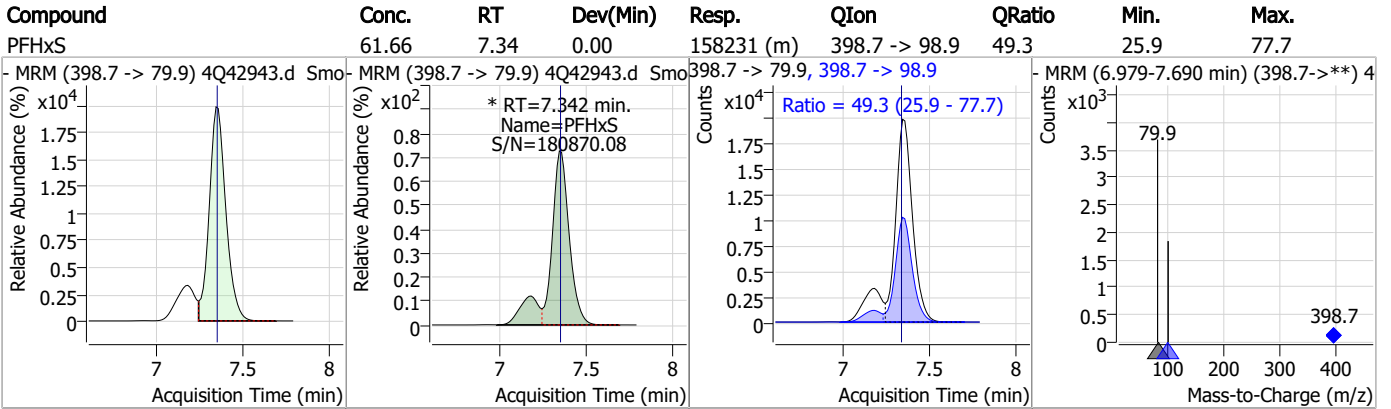
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Perfluorinated Compounds by LC/MS/MS

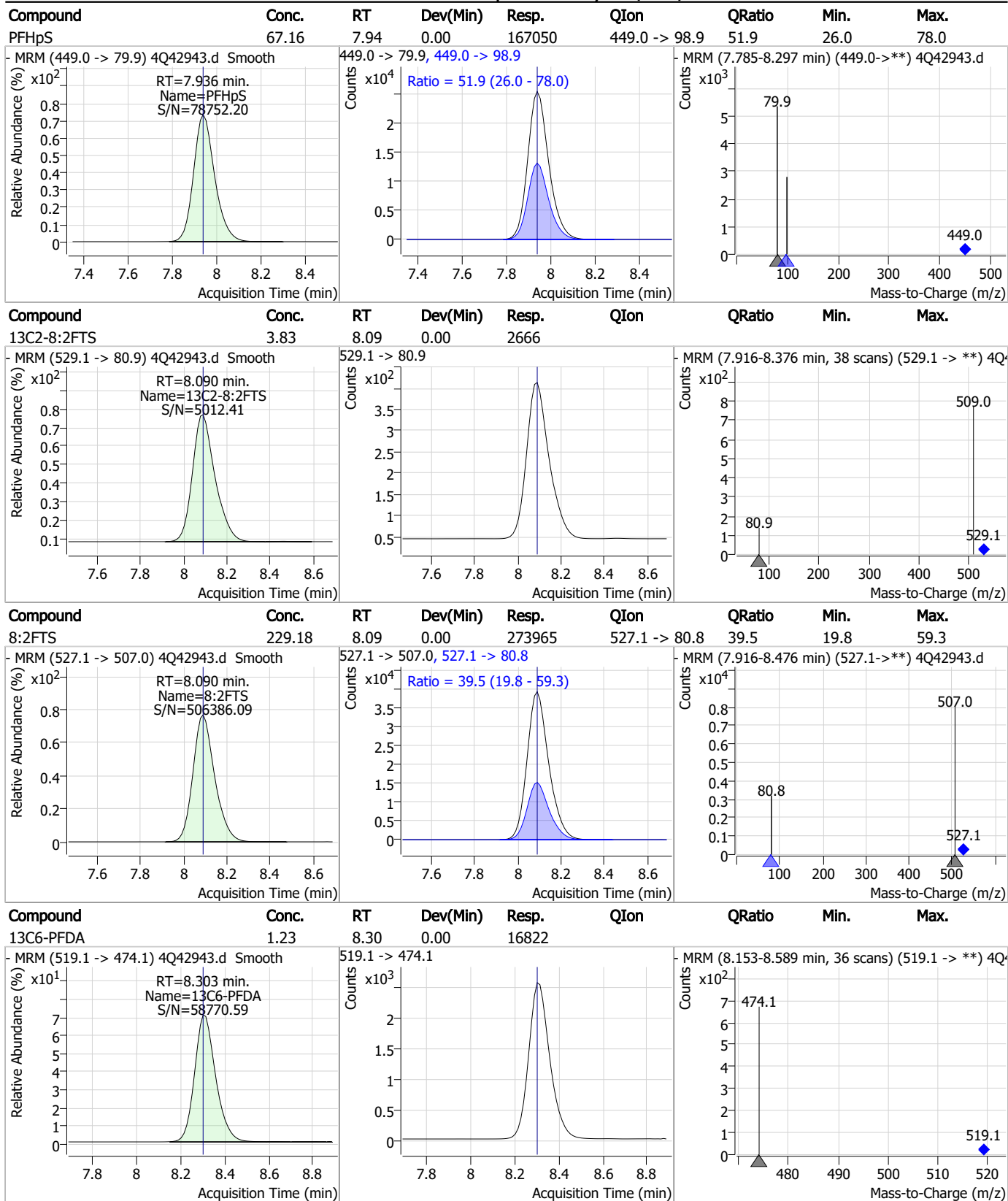


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Perfluorinated Compounds by LC/MS/MS

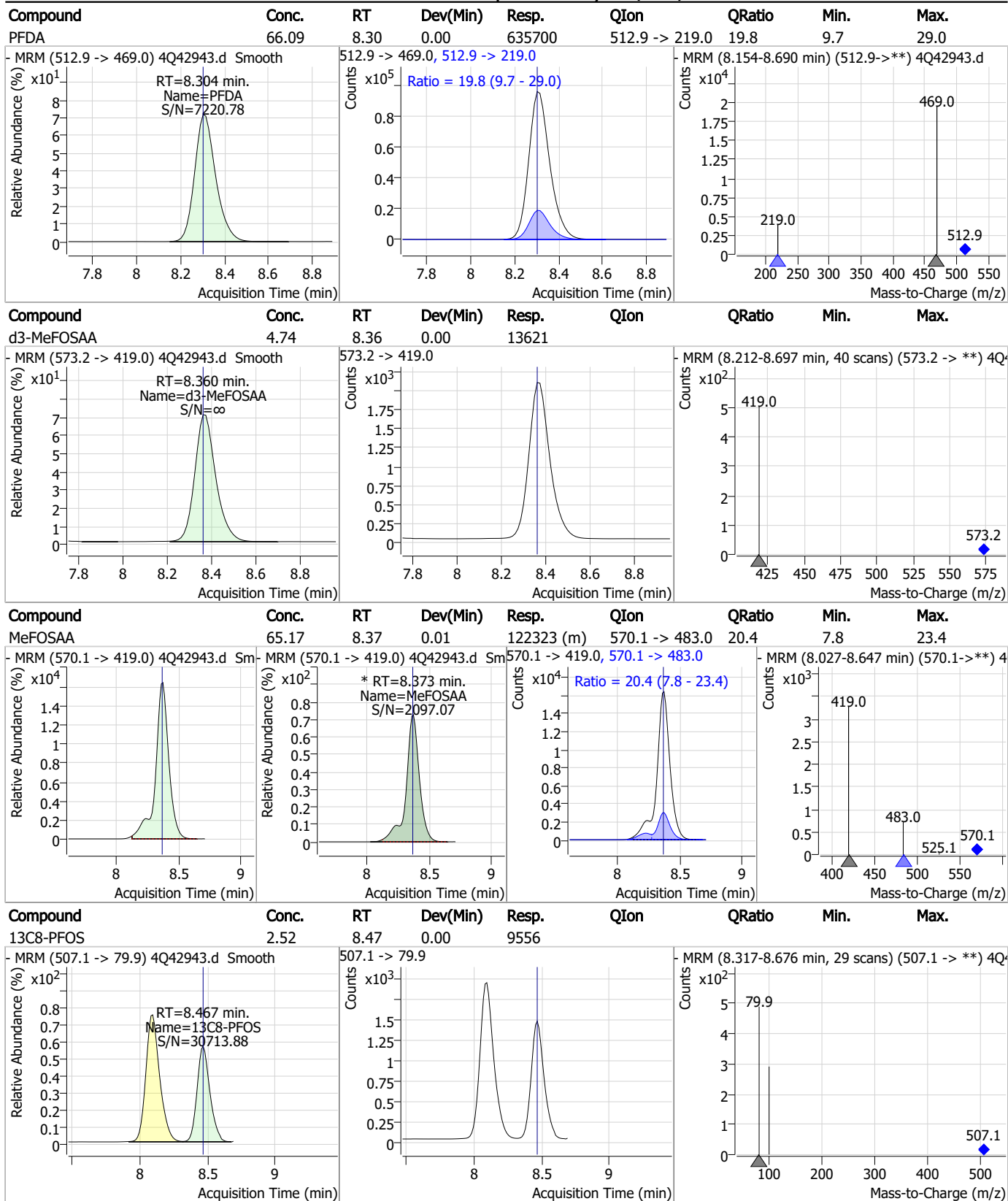


Perfluorinated Compounds by LC/MS/MS



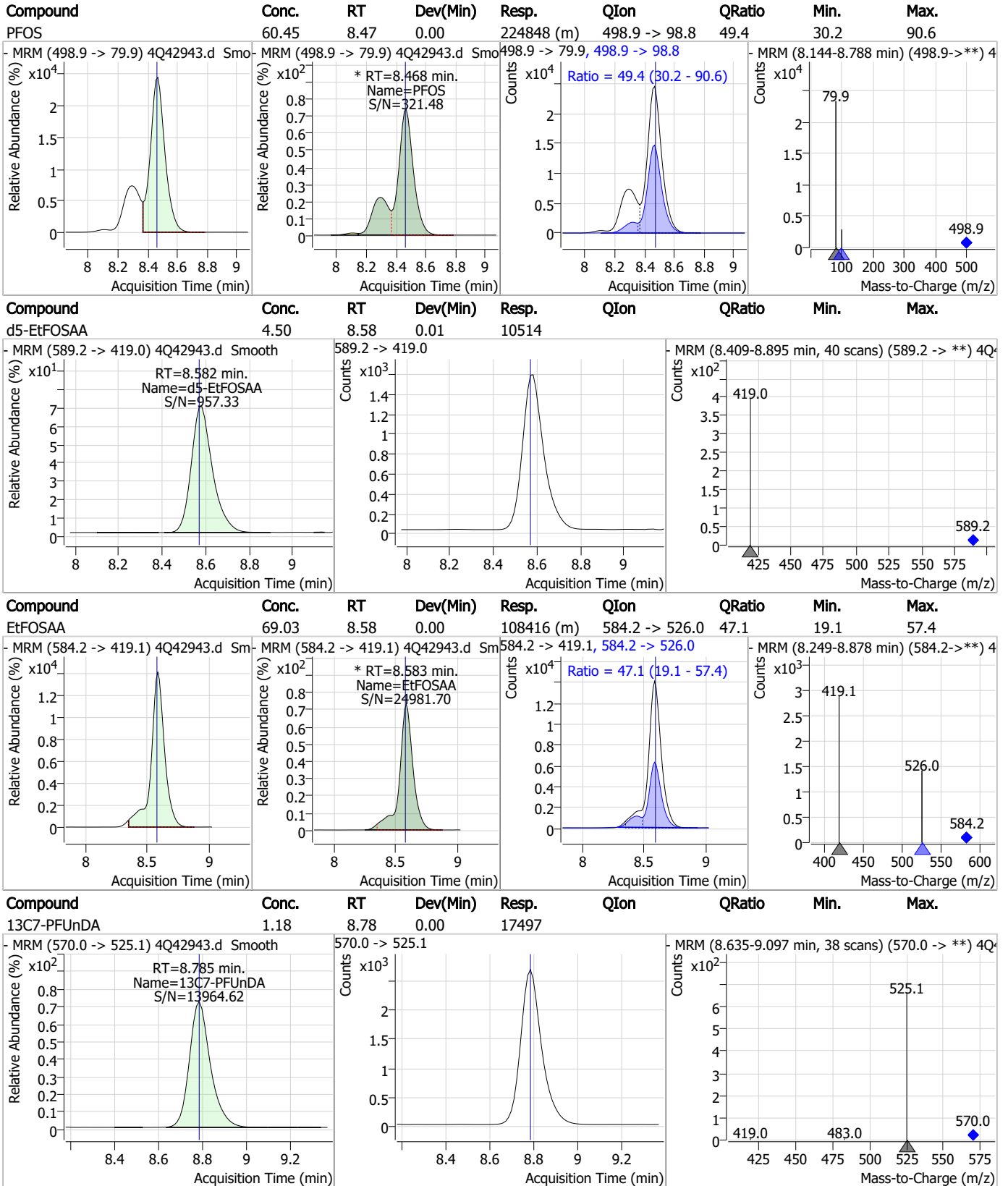
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

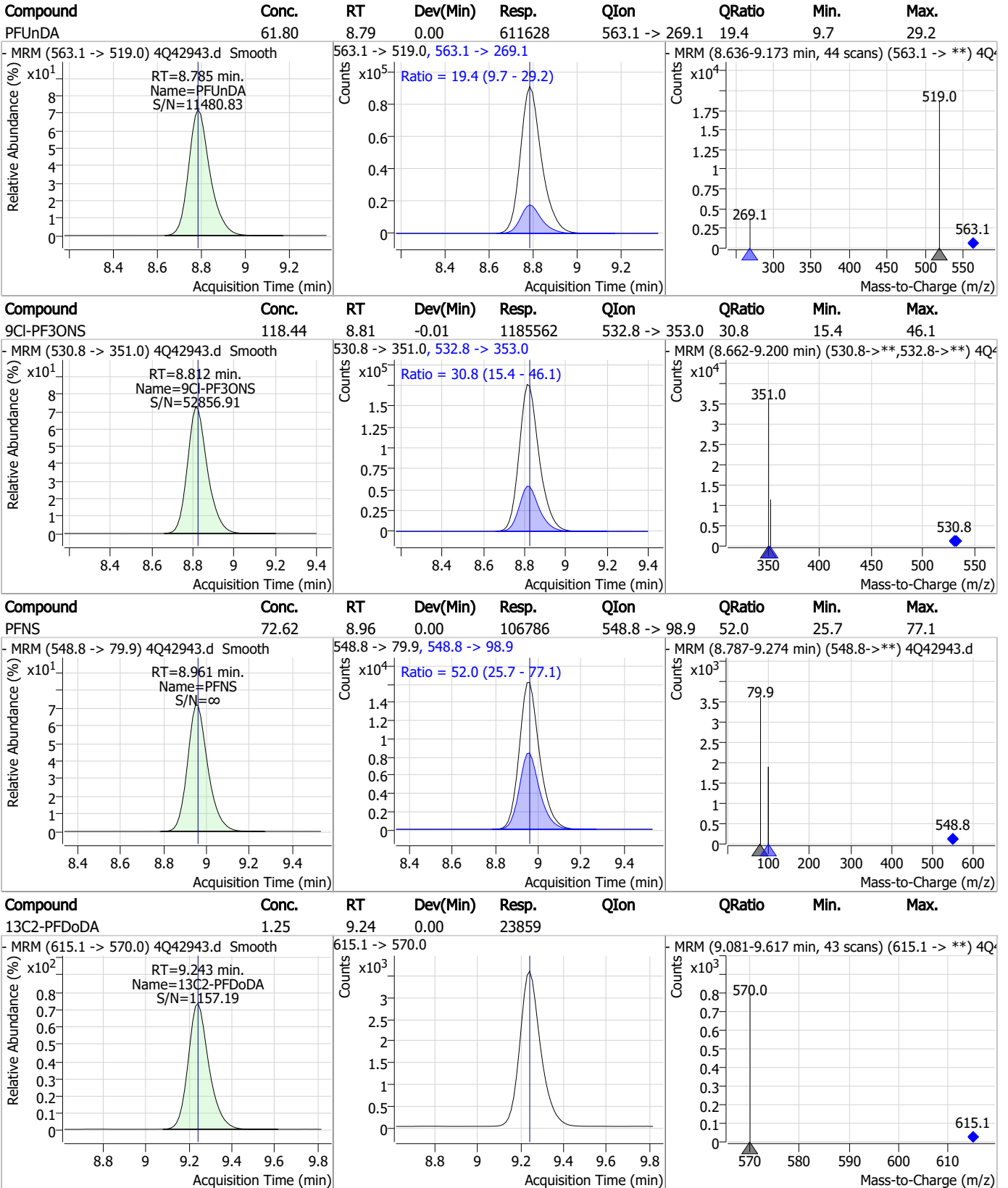


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Perfluorinated Compounds by LC/MS/MS

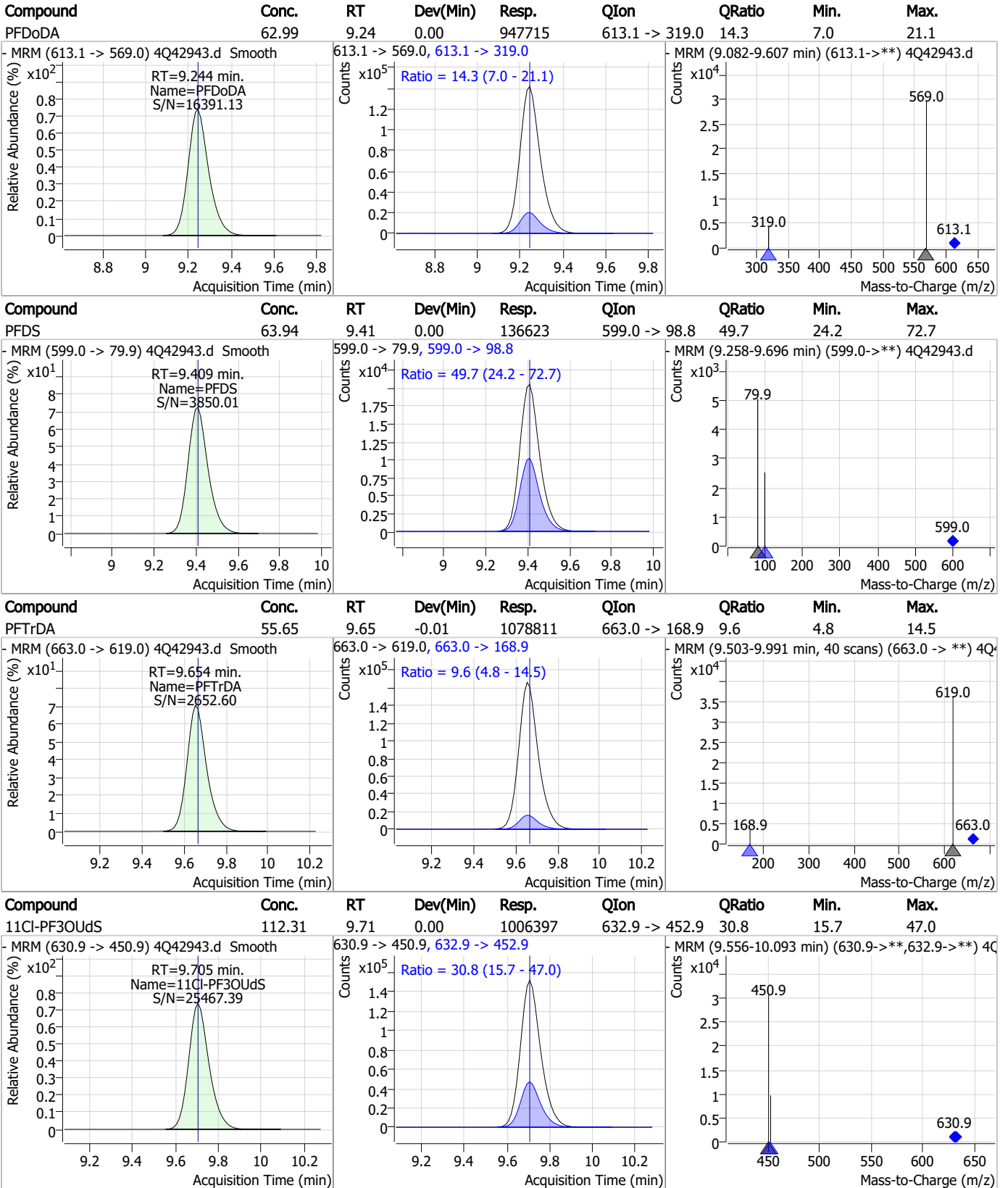


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Perfluorinated Compounds by LC/MS/MS

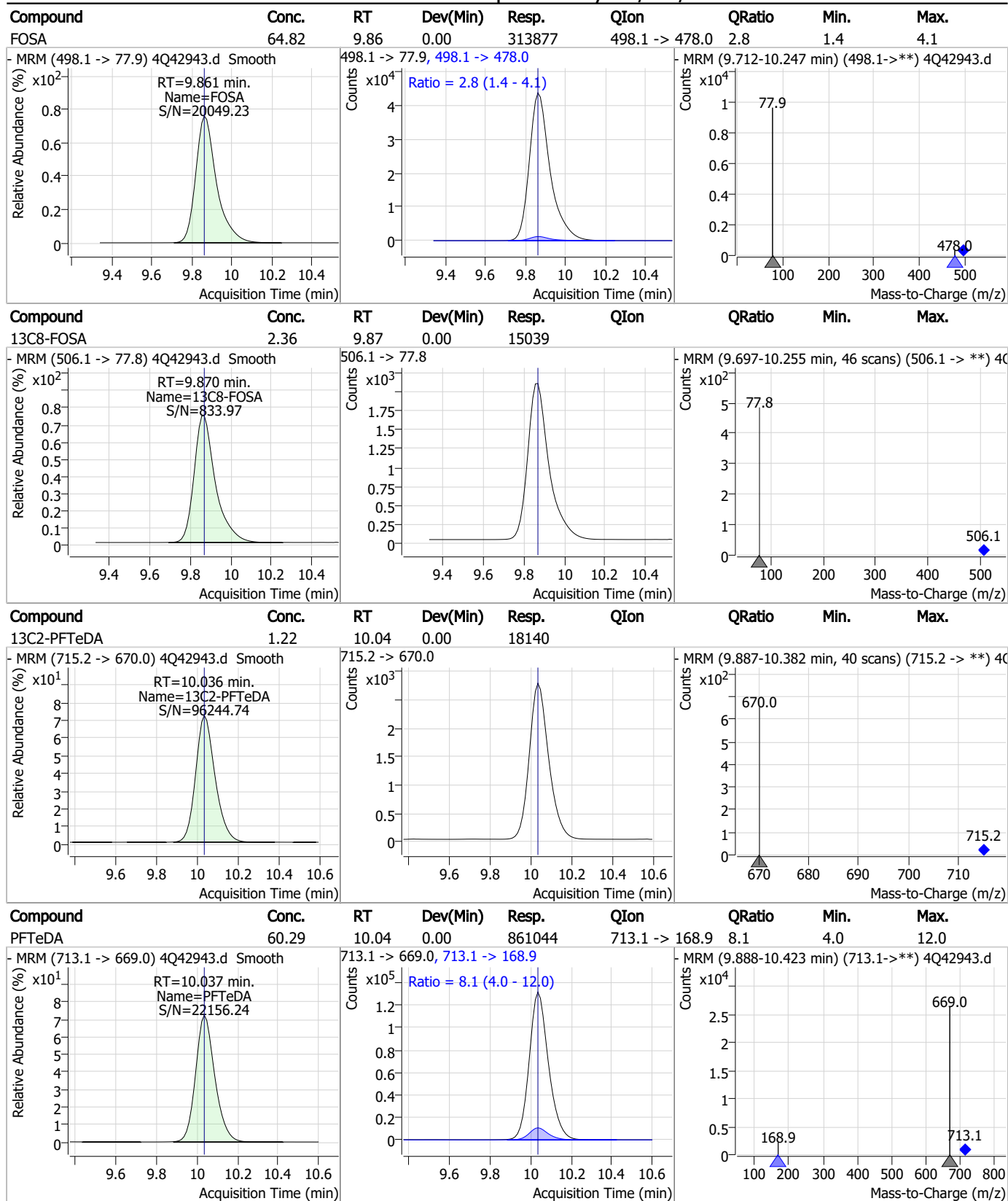


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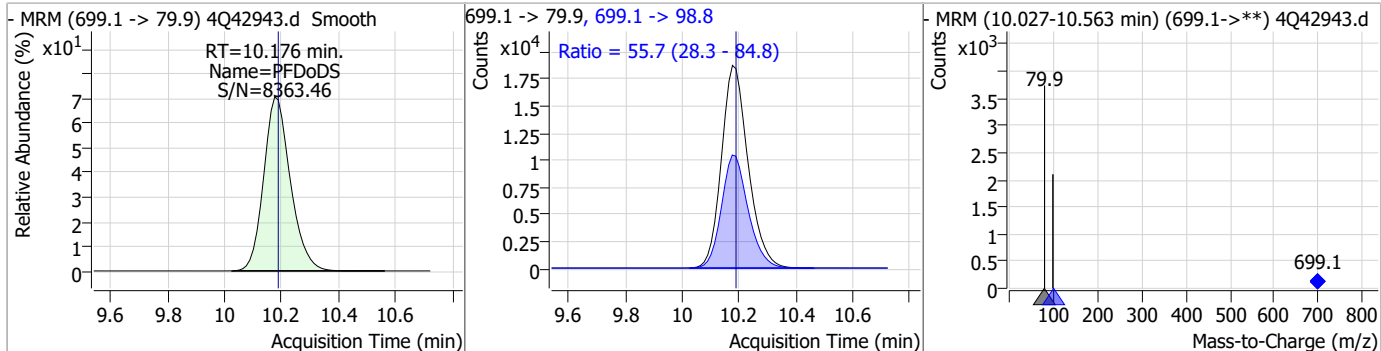
Perfluorinated Compounds by LC/MS/MS



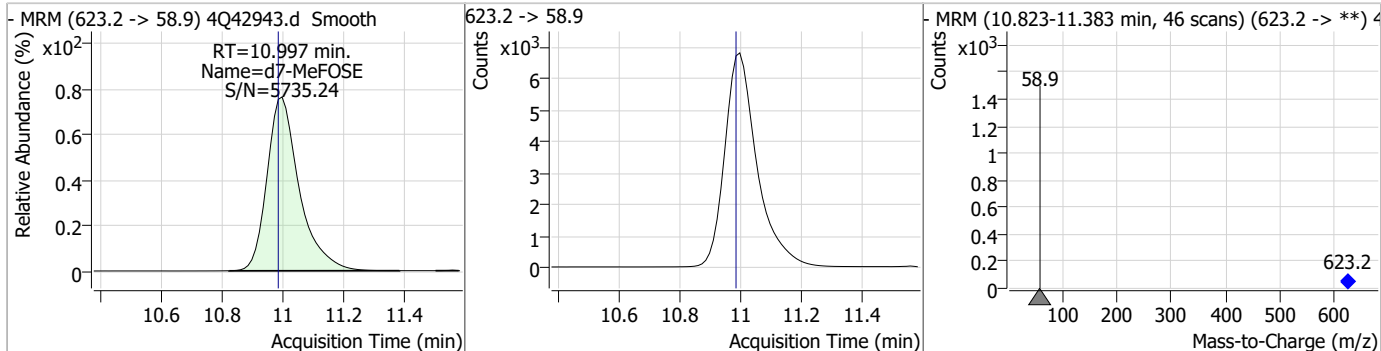
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Perfluorinated Compounds by LC/MS/MS

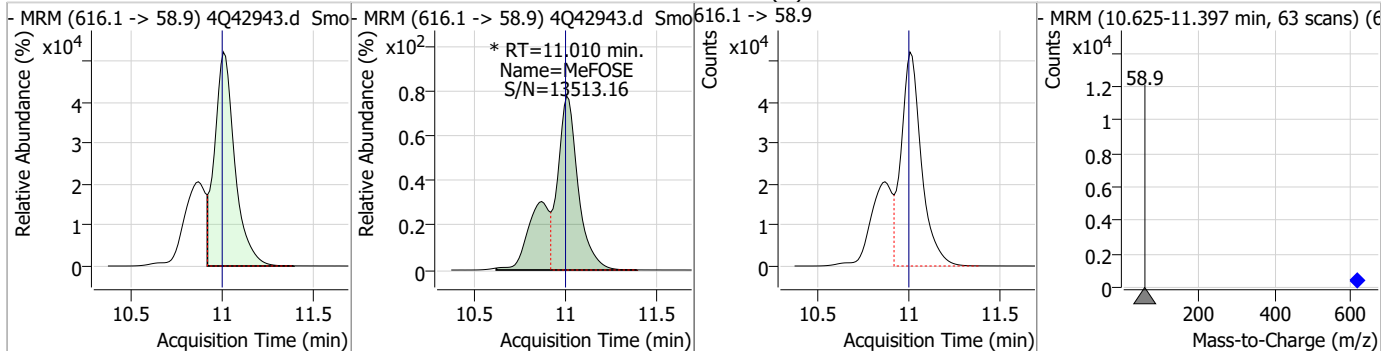
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDS	65.83	10.18	-0.01	121607	699.1 -> 98.8	55.7	28.3	84.8



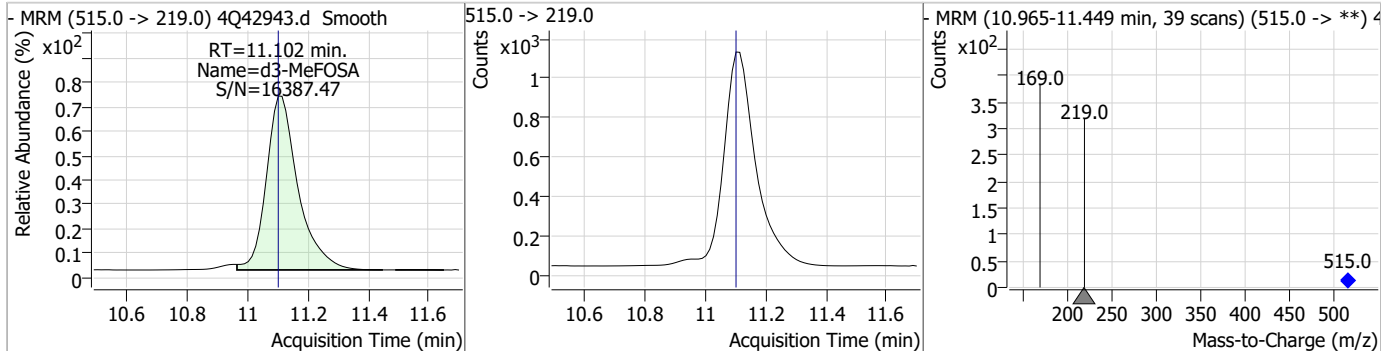
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.74	11.00	0.01	49713				



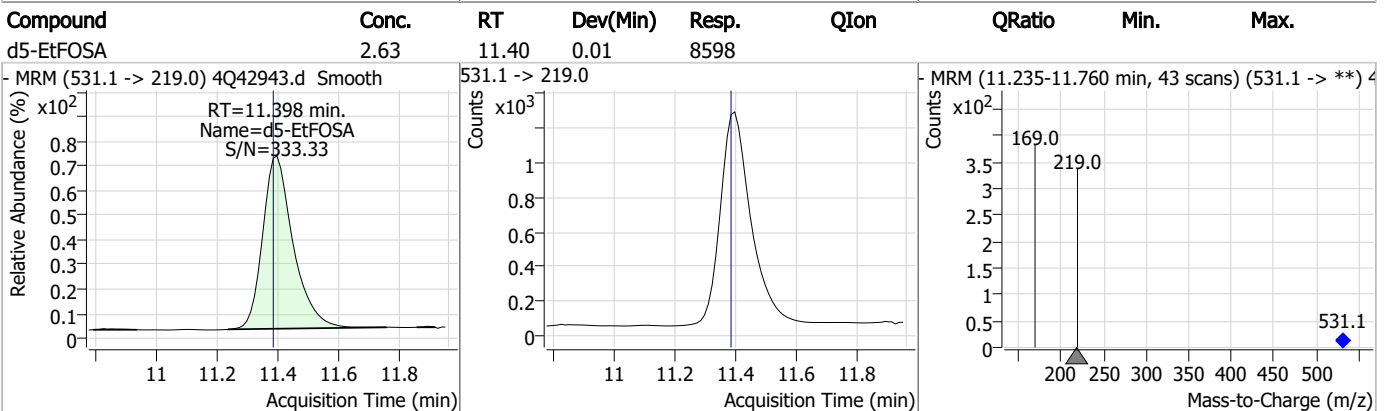
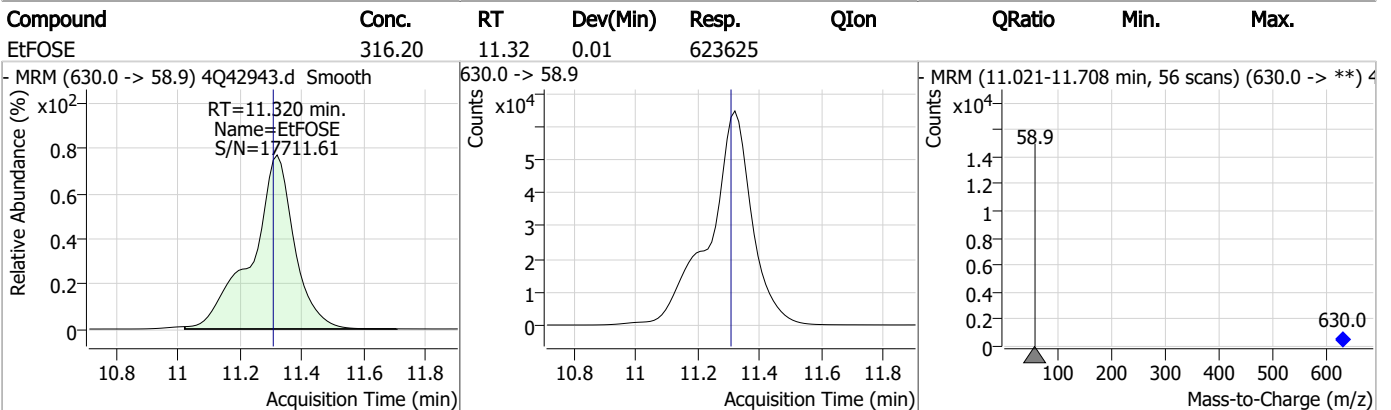
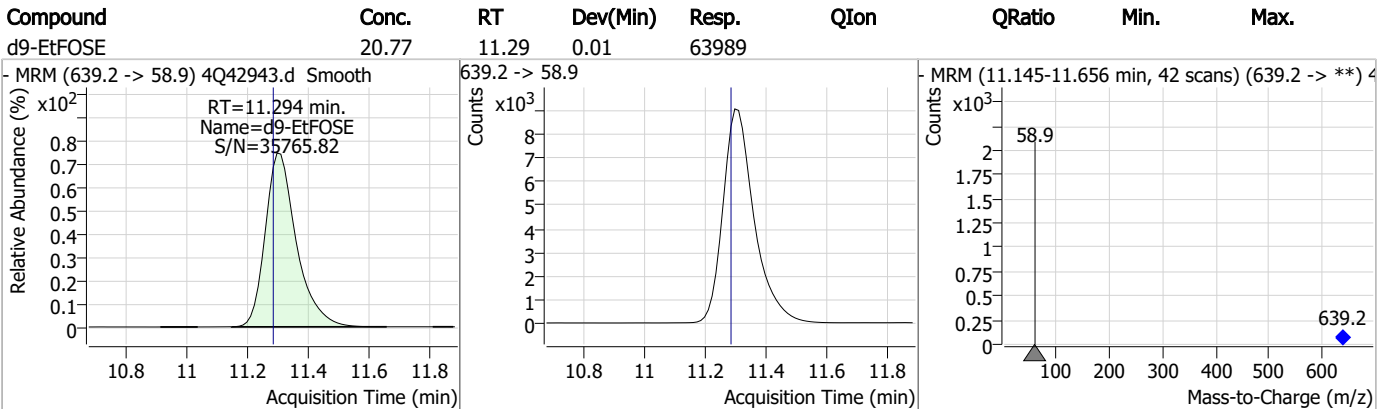
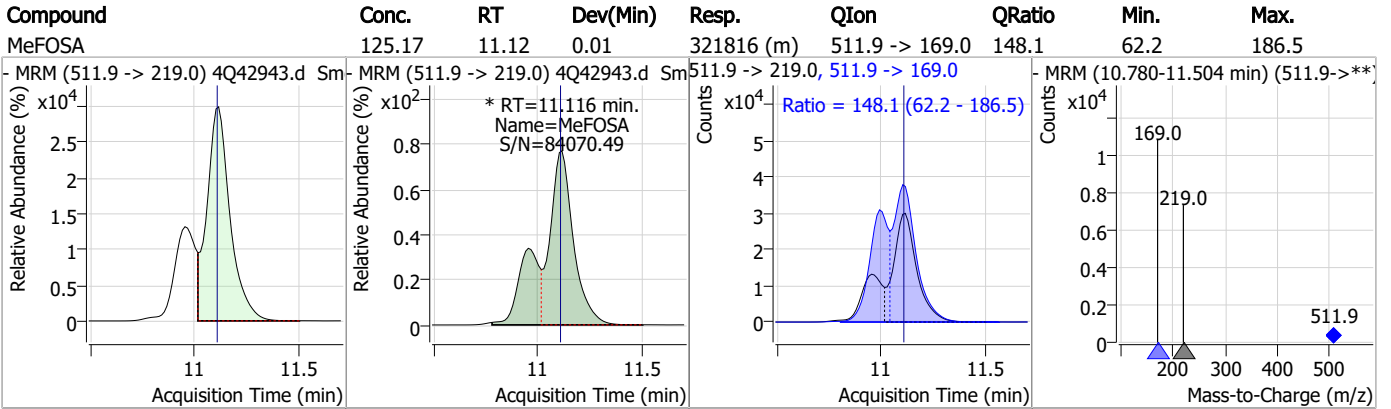
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	324.75	11.01	0.01	567406 (m)				



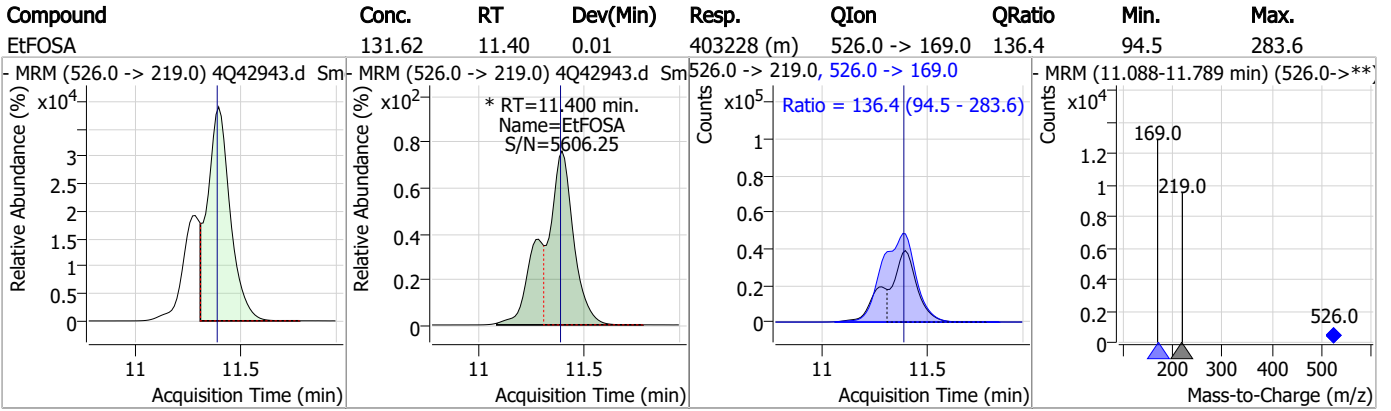
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.63	11.10	0.00	7952				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.9

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Manual Integration Approval Summary

Sample Number: S4Q621-IC621 Method: EPA DRAFT 1633
Lab FileID: 4Q42943.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 13:37 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.34	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.58	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.12	Split peak
EtFOSA	4151-50-2		11.40	Split peak

7.7.9.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42945.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 2:05:46 PM
 Sample Name : icv621-4
 Vial : P1-B1
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	114282	10.00 µg/L	-0.013
M5-PFPeA	4.475	268.3 -> 223.0	75854	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	58947	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	29149	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	37022	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	18964	1.25 µg/L	0.012
M6-PFDA	8.328	519.1 -> 474.1	19212	1.25 µg/L	0.025
M7-PFUnDA	8.797	570.0 -> 525.1	20455	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	25144	1.25 µg/L	0.000
M2-PFTeDA	10.011	715.2 -> 670.0	18924	1.25 µg/L	-0.025
M8-FOSA	9.858	506.1 -> 77.8	15960	2.50 µg/L	-0.012
M3-PFBS	5.564	302.1 -> 79.9	13068	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	7835	2.50 µg/L	0.013
M8-PFOS	8.479	507.1 -> 79.9	11292	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1351	5.00 µg/L	0.000
M2-6:2FTS	7.023	429.1 -> 80.9	2035	5.00 µg/L	0.025
M2-8:2FTS	8.102	529.1 -> 80.9	3225	5.00 µg/L	0.012
M3-MeFOSAA	8.385	573.2 -> 419.0	16070	5.00 µg/L	0.025
M3-HFPO-DA	6.026	286.9 -> 168.9	37196	10.00 µg/L	0.012
M5-EtFOSAA	8.595	589.2 -> 419.0	12435	5.00 µg/L	0.025
M7-MeFOSE	10.972	623.2 -> 58.9	57691	25.00 µg/L	-0.012
M9-EtFOSE	11.282	639.2 -> 58.9	72890	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9770	2.50 µg/L	-0.012
M3-MeFOSA	11.089	515.0 -> 219.0	8514	2.50 µg/L	-0.012
13C4-PFOS	8.480	502.8 -> 79.9	11710	2.50 µg/L	0.012
13C3-PFBA	2.991	216.0 -> 172.0	66740	5.00 µg/L	0.000
18O2-PFHxS	7.353	403.0 -> 83.9	5375	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	44799	2.50 µg/L	0.013
13C2-PFDA	8.328	515.1 -> 470.1	18014	1.25 µg/L	0.025
13C5-PFNA	7.809	468.0 -> 423.0	22595	1.25 µg/L	0.012
13C2-PFHxA	5.660	315.1 -> 270.0	51664	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1351	4.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C2-6:2FTS	7.023	429.1 -> 80.9	2035	4.83 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-8:2FTS	8.102	529.1 -> 80.9	3225	4.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C2-PFDoDA	9.243	615.1 -> 570.0	25144	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C2-PFTeDA	10.011	715.2 -> 670.0	18924	1.10 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C3-PFBS	5.564	302.1 -> 79.9	13068	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C3-PFHxS	7.354	402.1 -> 79.9	7835	2.63 µg/L	0.013

7.7.10
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C4-PFBA	2.986	216.8 -> 171.9	114282	9.83 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFHpA	6.592	367.1 -> 322.0	29149	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFHxA	5.659	318.0 -> 273.0	58947	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFPeA	4.475	268.3 -> 223.0	75854	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C6-PFDA	8.328	519.1 -> 474.1	19212	1.21 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.797	570.0 -> 525.1	20455	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-FOSA	9.858	506.1 -> 77.8	15960	2.98 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.4%	
13C8-PFOA	7.250	421.1 -> 376.0	37022	2.51 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOS	8.479	507.1 -> 79.9	11292	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C9-PFNA	7.809	472.1 -> 427.0	18964	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.2%	
d3-MeFOSAA	8.385	573.2 -> 419.0	16070	4.66 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	37196	10.26 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSA	11.089	515.0 -> 219.0	8514	2.35 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
d5-EtFOSAA	8.595	589.2 -> 419.0	12435	4.44 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
d7-MeFOSE	10.972	623.2 -> 58.9	57691	19.10 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.4%	
d9-EtFOSE	11.282	639.2 -> 58.9	72890	19.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.9%	
d5-EtFOSA	11.373	531.1 -> 219.0	9770	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
Target Compounds					QValue
4:2FTS	5.348	327.1 -> 307.0	15049	8.94 µg/L	95
		327.1 -> 80.9	6599		
6:2FTS	7.023	427.1 -> 407.0	12866	9.26 µg/L	94
		427.1 -> 80.9	5927		
8:2FTS	8.103	527.1 -> 507.0	13884	9.60 µg/L	97
		527.1 -> 80.8	5771		
EtFOSAA	8.608	584.2 -> 419.1	4379	2.36 µg/L	m 81
		584.2 -> 526.0	2191		
FOSA	9.849	498.1 -> 77.9	12070	2.35 µg/L	99
		498.1 -> 478.0	380		
MeFOSAA	8.386	570.1 -> 419.0	5086	2.30 µg/L	m 83
		570.1 -> 483.0	1150		
PFBA	2.995	212.8 -> 168.9	24641	9.44 µg/L	100
PFBS	5.565	298.7 -> 79.9	10292	2.11 µg/L	99
		298.7 -> 98.8	3874		
PFDA	8.328	512.9 -> 469.0	25728	2.34 µg/L	99
		512.9 -> 219.0	5106		
PFDODA	9.244	613.1 -> 569.0	38415	2.42 µg/L	100
		613.1 -> 319.0	5358		
PFDS	9.396	599.0 -> 79.9	5754	2.28 µg/L	99

7.7.10
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2819			
PFHpA	6.593	363.1 -> 319.0	34915	2.40	µg/L	97
		363.1 -> 169.0	6562			
PFHpS	7.950	449.0 -> 79.9	6649	2.26	µg/L	99
		449.0 -> 98.9	3523			
PFHxA	5.662	313.0 -> 269.0	41136	2.36	µg/L	100
		313.0 -> 118.9	1266			
PFHxS	7.355	398.7 -> 79.9	5413	2.02	µg/L	m 96
		398.7 -> 98.9	2944			
PFNA	7.810	463.0 -> 419.0	24681	2.43	µg/L	95
		463.0 -> 219.0	6197			
PFNS	8.961	548.8 -> 79.9	3892	2.24	µg/L	97
		548.8 -> 98.9	1922			
PFOA	7.252	413.0 -> 369.0	38063	2.20	µg/L	99
		413.0 -> 169.0	7891			
PFOS	8.480	498.9 -> 79.9	9782	2.23	µg/L	m 84
		498.9 -> 98.8	4751			
PFPeA	4.477	263.0 -> 219.0	67966	4.73	µg/L	100
PFPeS	6.632	349.1 -> 79.9	4953	2.17	µg/L	100
		349.1 -> 98.9	2100			
PFTeDA	10.012	713.1 -> 669.0	34997	2.35	µg/L	100
		713.1 -> 168.9	2826			
PFTrDA	9.641	663.0 -> 619.0	48326	2.37	µg/L	99
		663.0 -> 168.9	4886			
PFUnDA	8.798	563.1 -> 519.0	25089	2.17	µg/L	98
		563.1 -> 269.1	5070			
11Cl-PF3OUdS	9.693	630.9 -> 450.9	44324	4.57	µg/L	99
		632.9 -> 452.9	14005			
9Cl-PF3ONS	8.825	530.8 -> 351.0	47826	4.41	µg/L	99
		532.8 -> 353.0	14549			
ADONA	6.843	376.9 -> 250.9	101133	4.53	µg/L	99
		376.9 -> 84.8	27669			
HFPO-DA	6.027	284.9 -> 168.9	13573	4.60	µg/L	100
		284.9 -> 184.9	1681			
3:3FTCA	3.954	241.0 -> 177.0	7897	11.80	µg/L	98
		241.0 -> 117.0	802			
5:3FTCA	6.345	341.0 -> 237.1	148231	60.15	µg/L	100
		341.0 -> 217.0	105285			
7:3FTCA	7.799	441.0 -> 316.9	60006	59.42	µg/L	98
		441.0 -> 336.9	133869			
EtFOSA	11.375	526.0 -> 219.0	16122	4.63	µg/L	m 63
		526.0 -> 169.0	21744			
EtFOSE	11.295	630.0 -> 58.9	27354	12.18	µg/L	100
MeFOSA	11.091	511.9 -> 219.0	13297	4.83	µg/L	m 83
		511.9 -> 169.0	19157			
MeFOSE	10.985	616.1 -> 58.9	23703	11.69	µg/L	m 100
PFDoDS	10.152	699.1 -> 79.9	4884	2.24	µg/L	99
		699.1 -> 98.8	2784			
NFDHA	5.541	295.0 -> 201.0	5463	4.66	µg/L	98
		295.0 -> 84.9	1417			
PFMBA	4.891	279.0 -> 85.1	38460	4.68	µg/L	100
PFMPA	3.611	229.0 -> 84.9	33438	4.66	µg/L	100
PFEESA	6.108	314.8 -> 134.9	61306	4.18	µg/L	100
		314.8 -> 82.9	2104			

= Qualifier out of range, m = manually integrated, + = Area summed

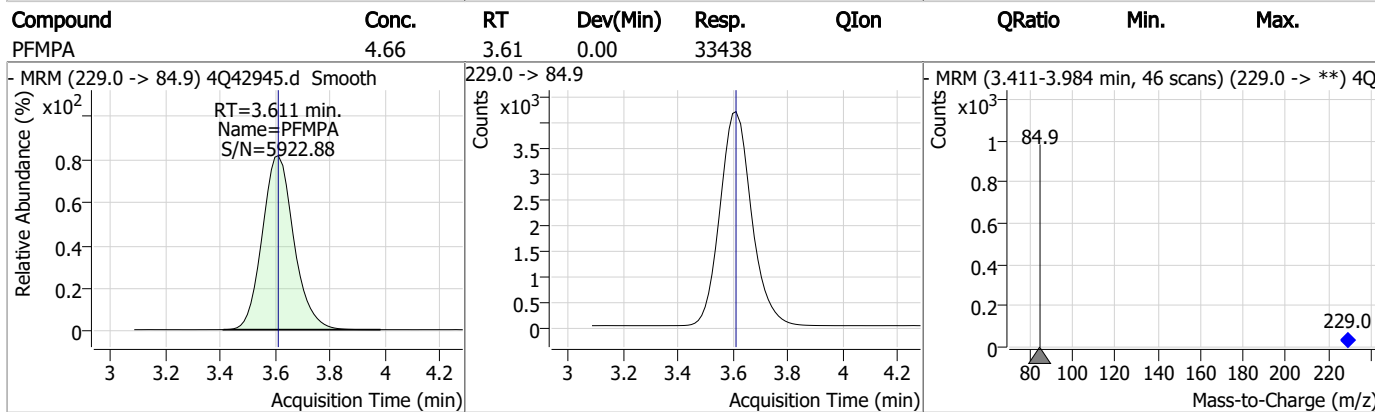
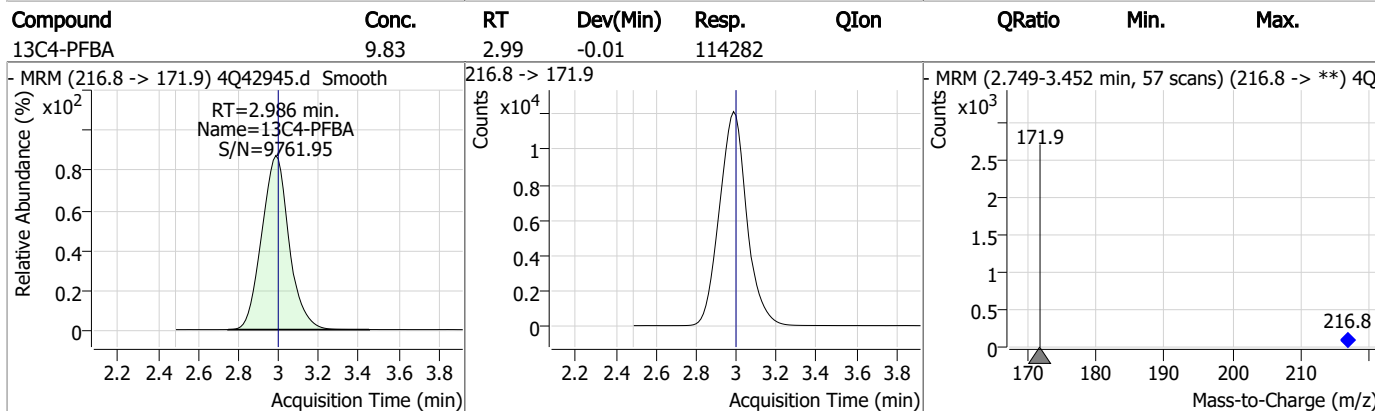
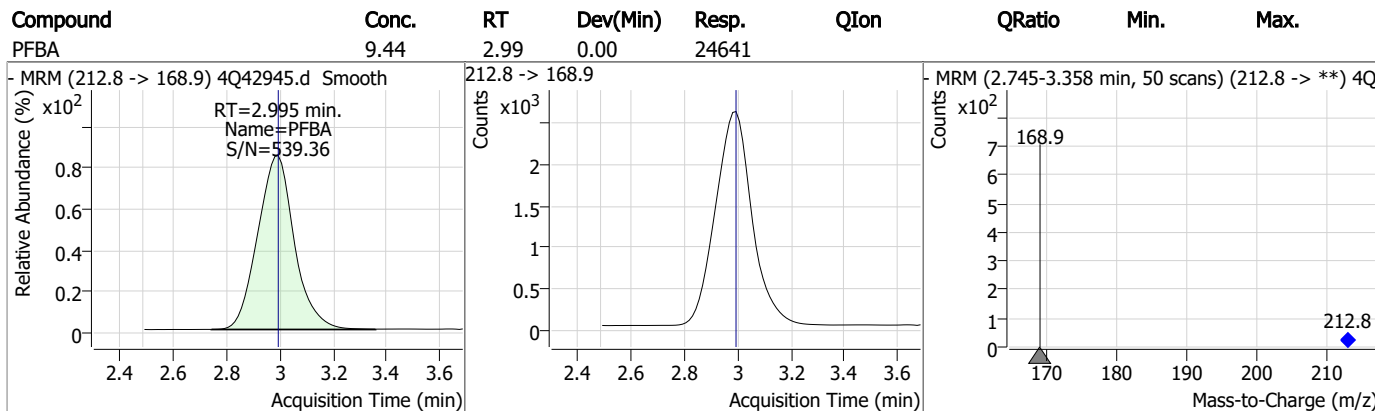
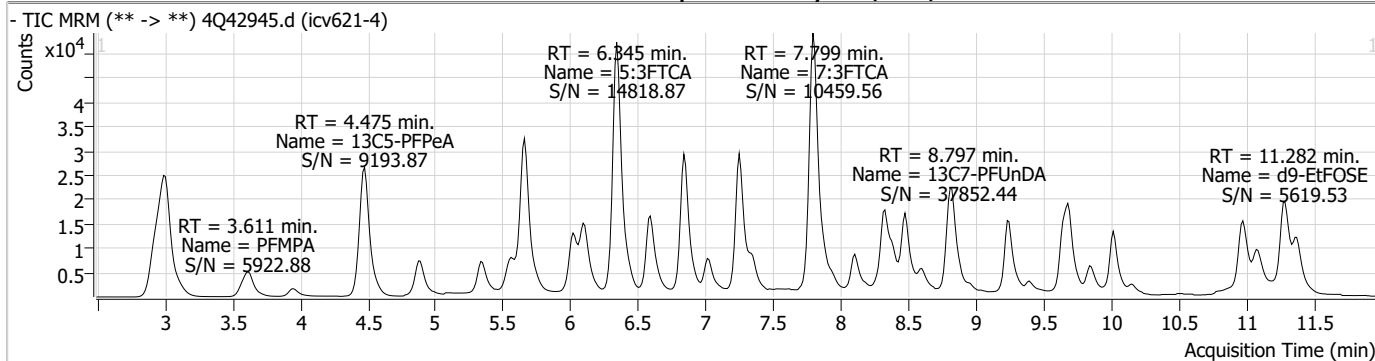
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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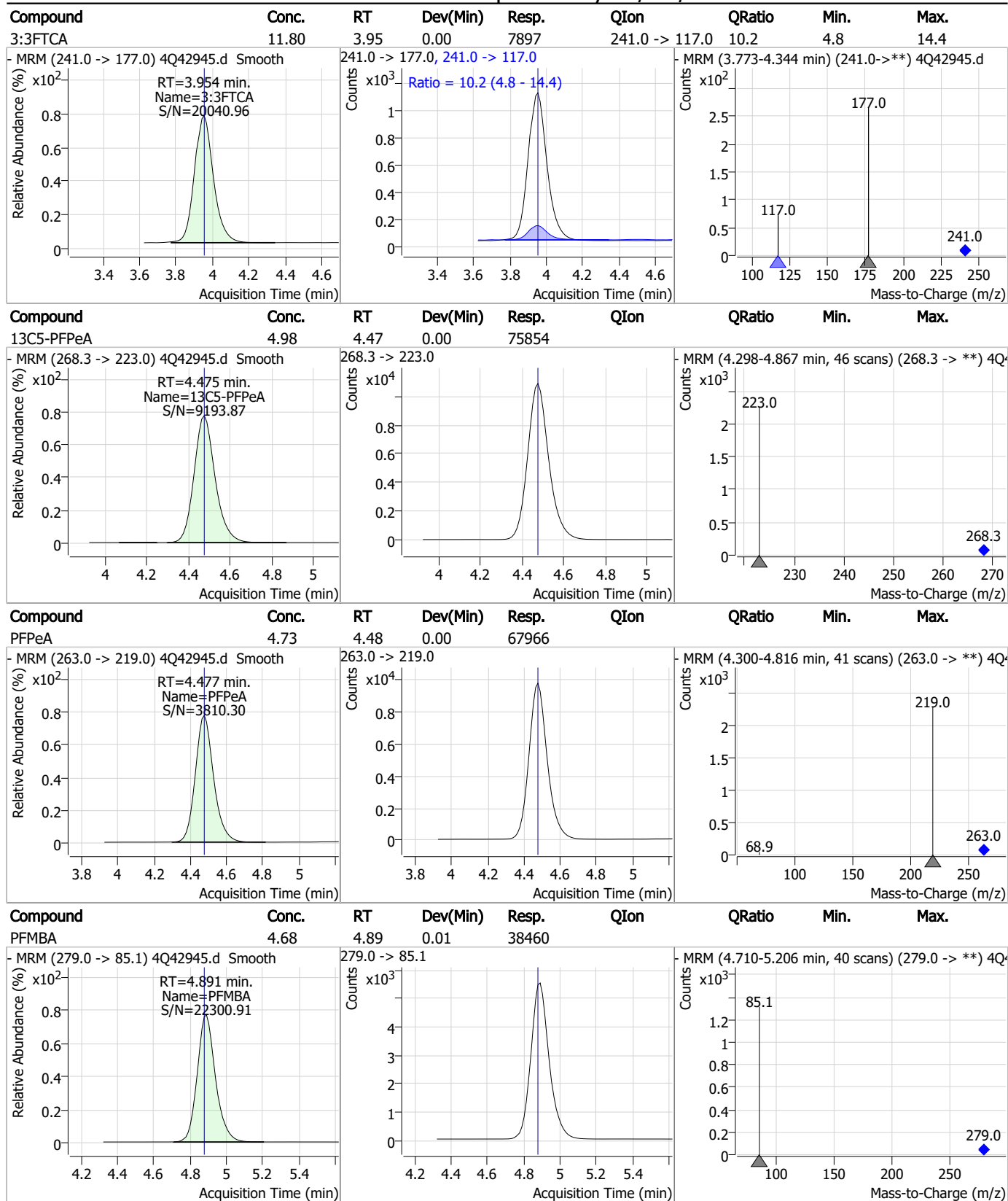
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Perfluorinated Compounds by LC/MS/MS

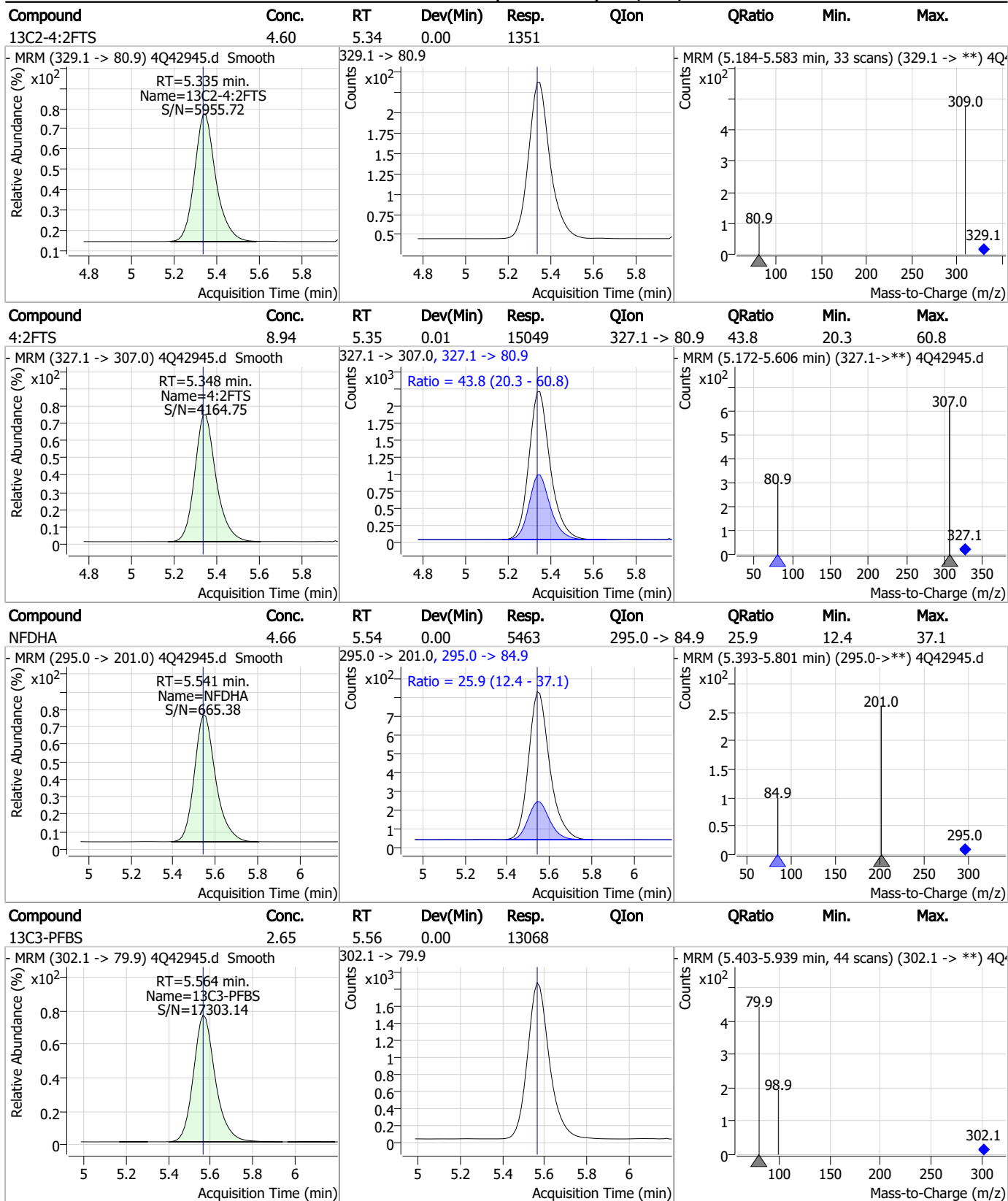


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

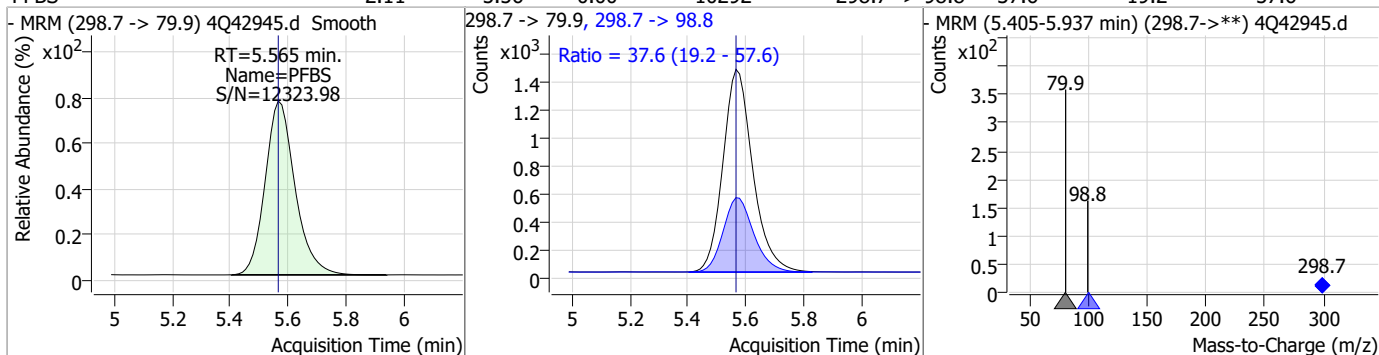
Perfluorinated Compounds by LC/MS/MS



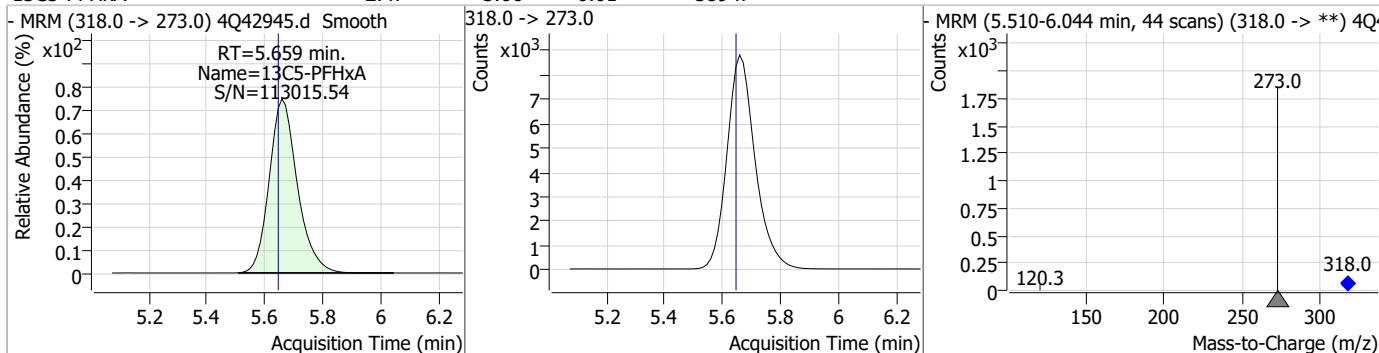
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

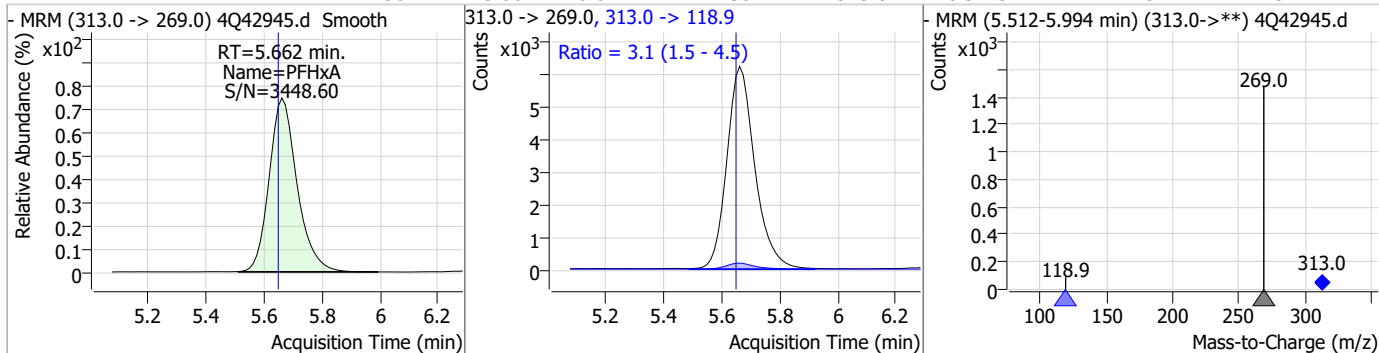
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.11	5.56	0.00	10292	298.7 -> 98.8	37.6	19.2	57.6



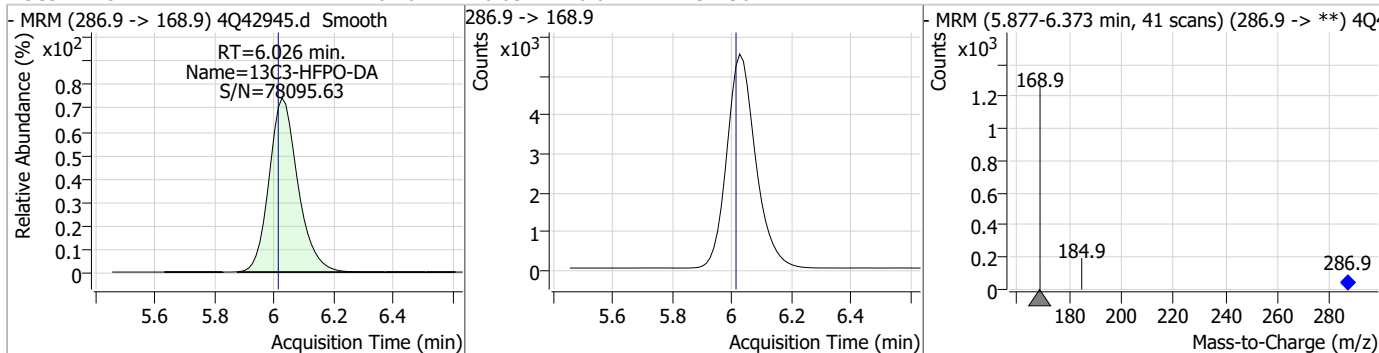
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.66	0.01	58947				



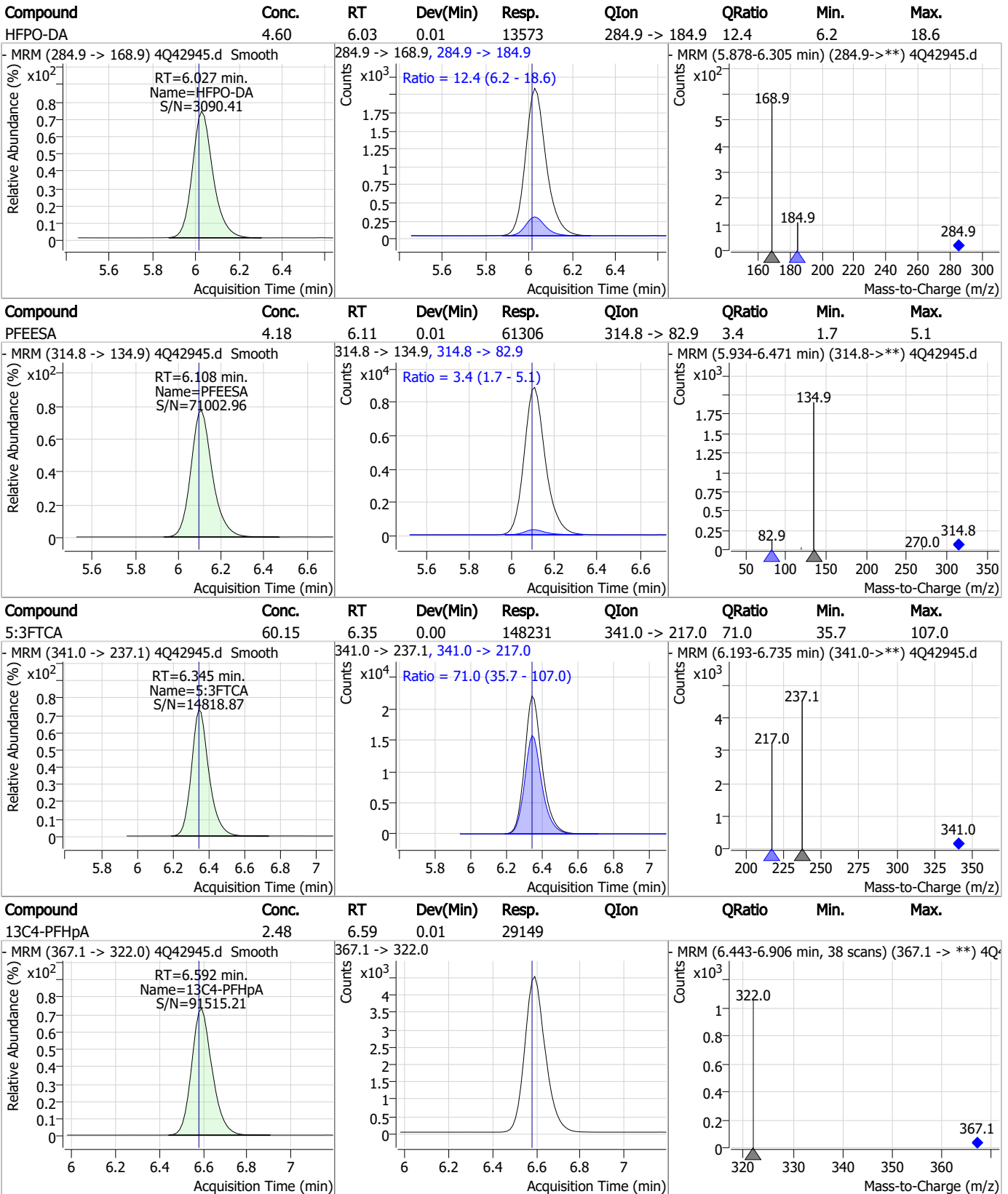
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.36	5.66	0.01	41136	313.0 -> 118.9	3.1	1.5	4.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.26	6.03	0.01	37196				

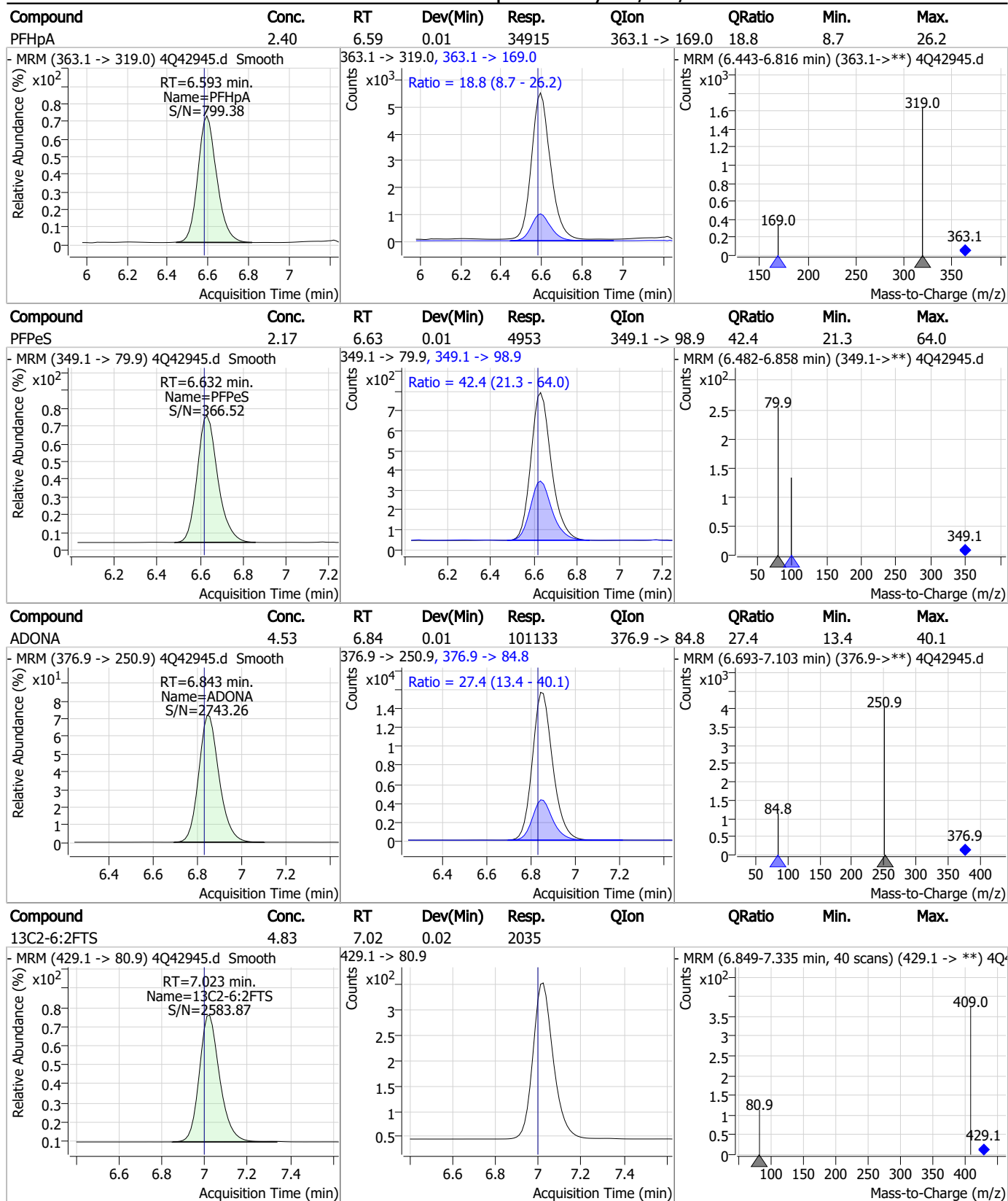


Perfluorinated Compounds by LC/MS/MS



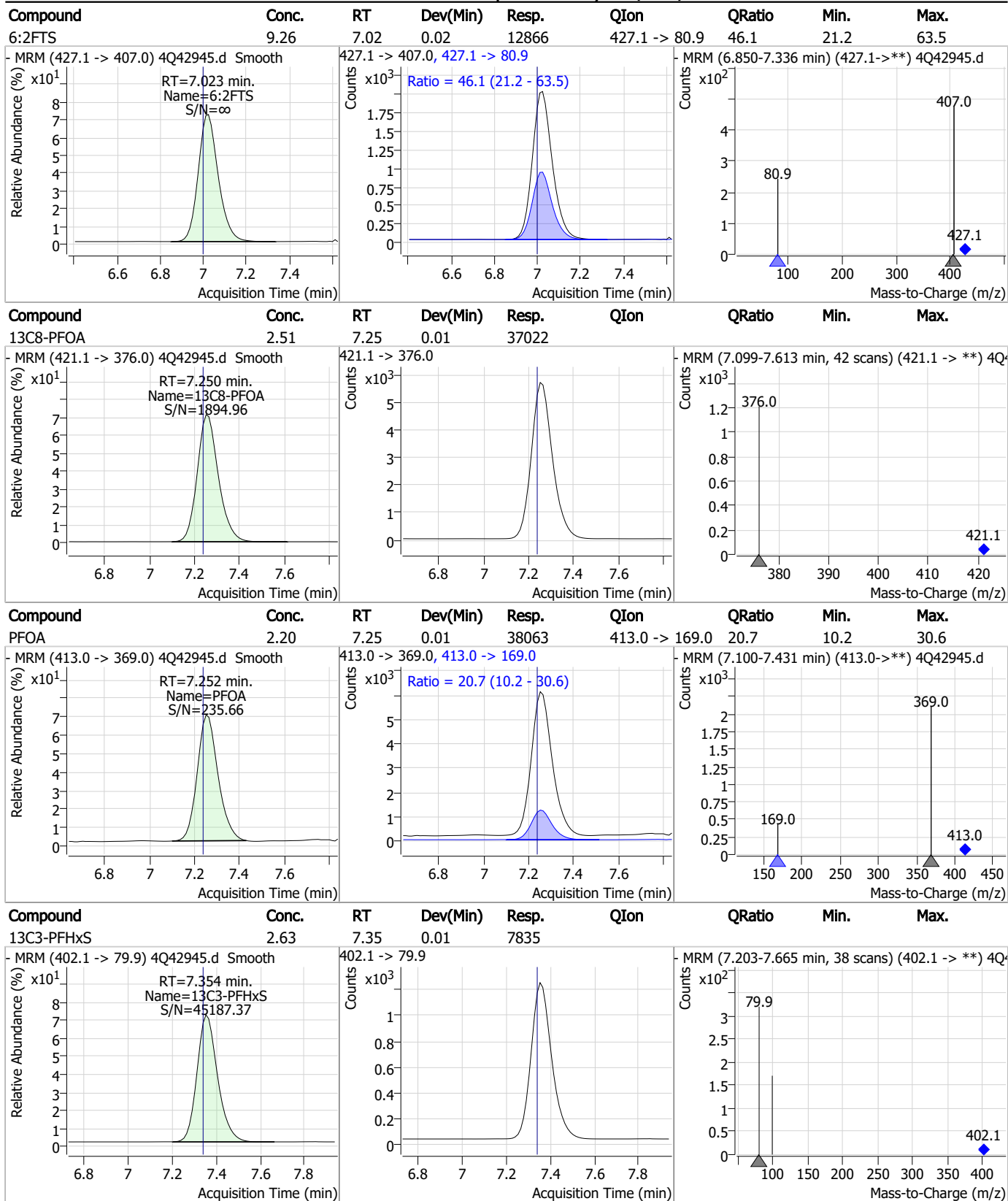
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Perfluorinated Compounds by LC/MS/MS



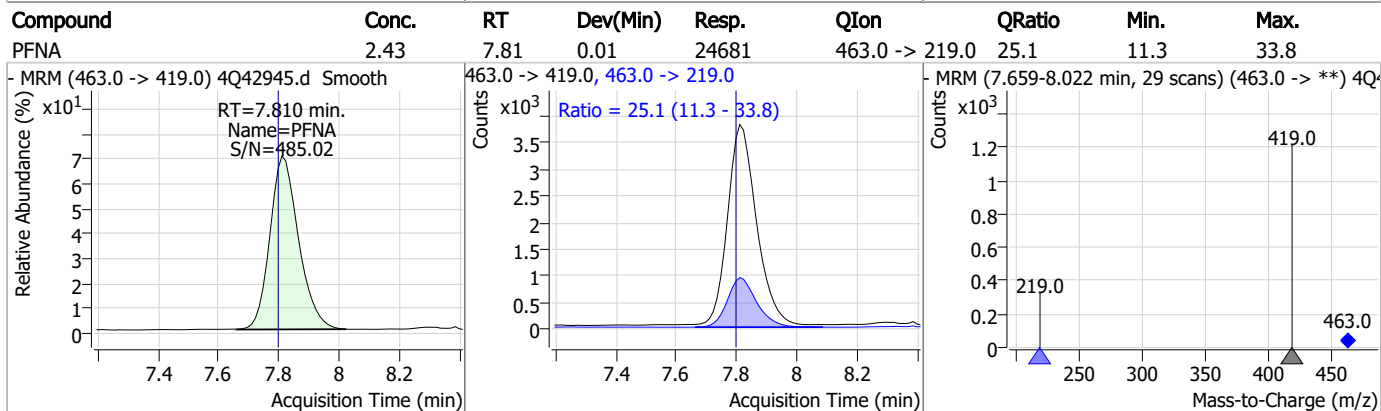
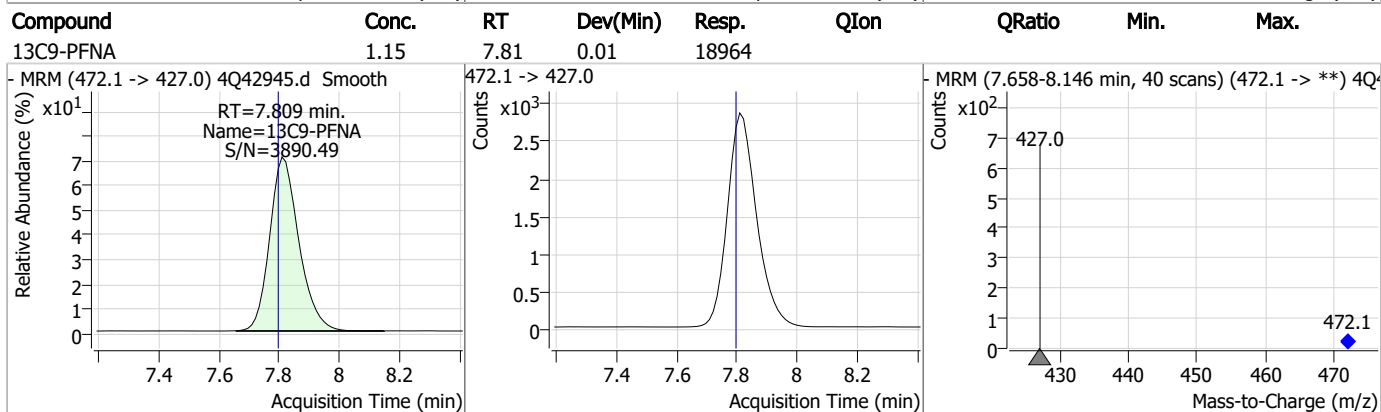
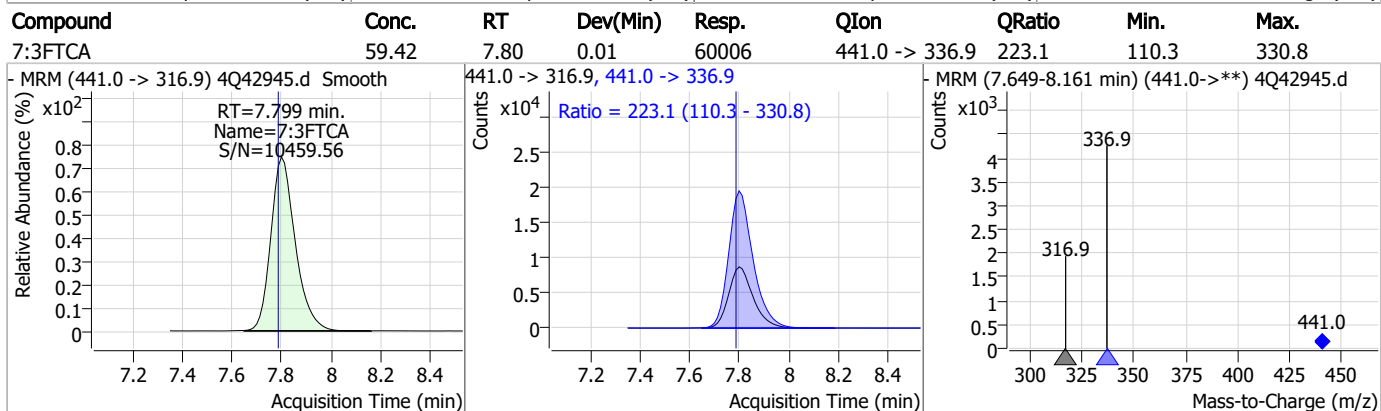
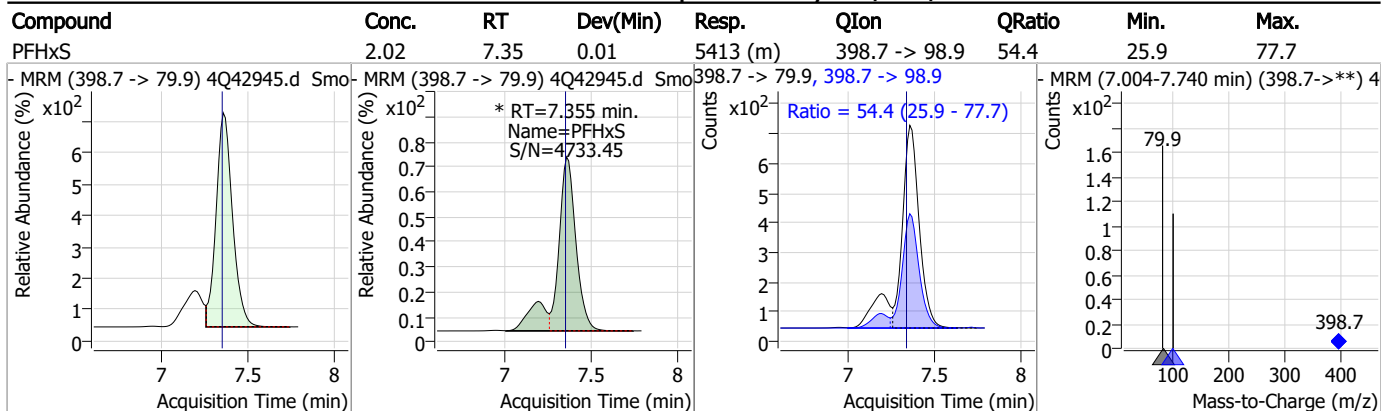
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Perfluorinated Compounds by LC/MS/MS



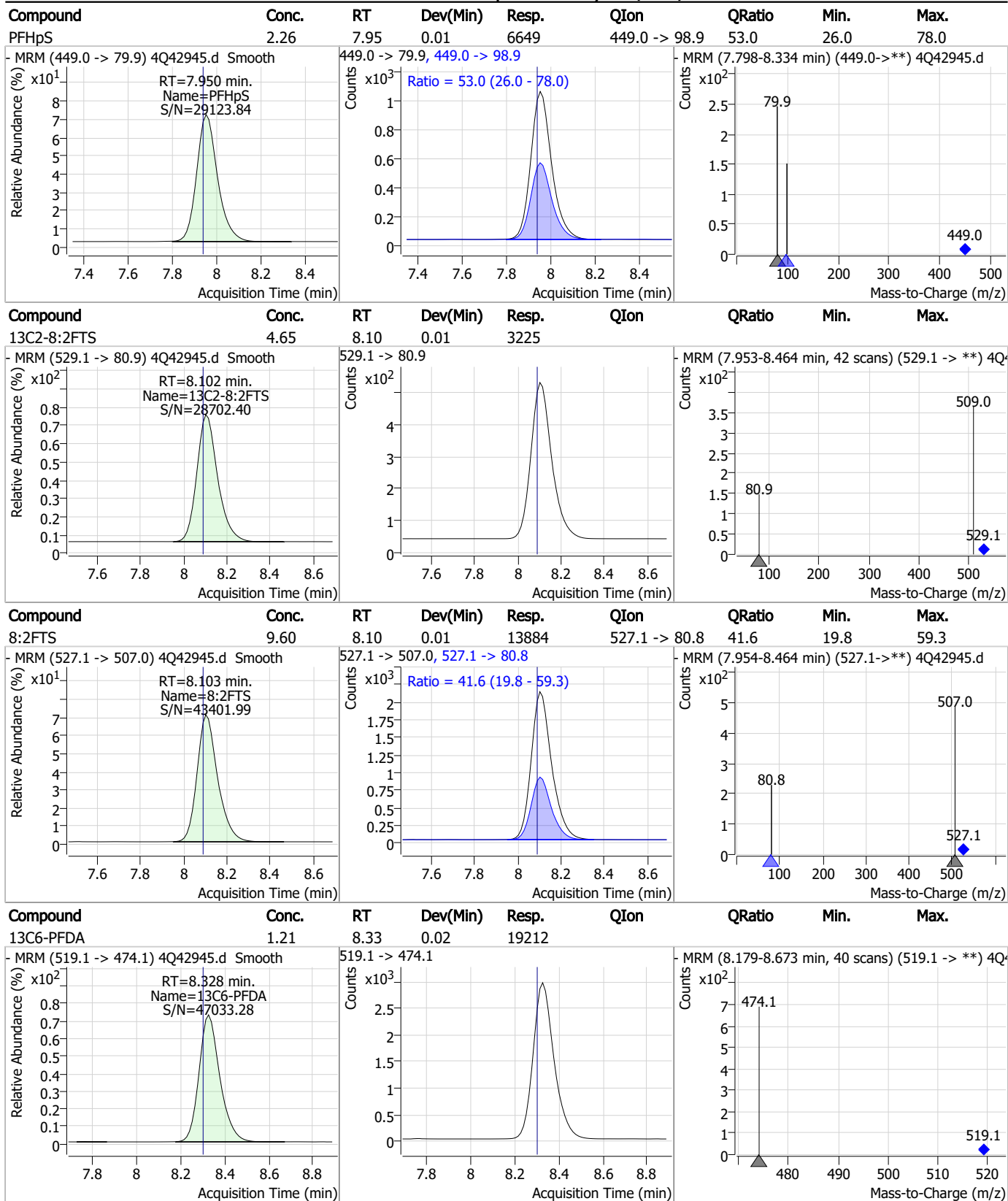
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Perfluorinated Compounds by LC/MS/MS



7.7.10 7

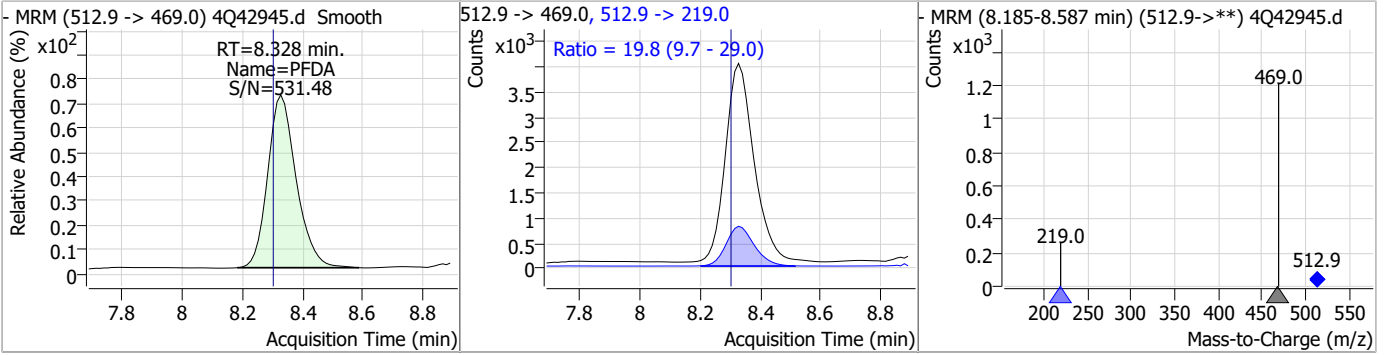
Perfluorinated Compounds by LC/MS/MS



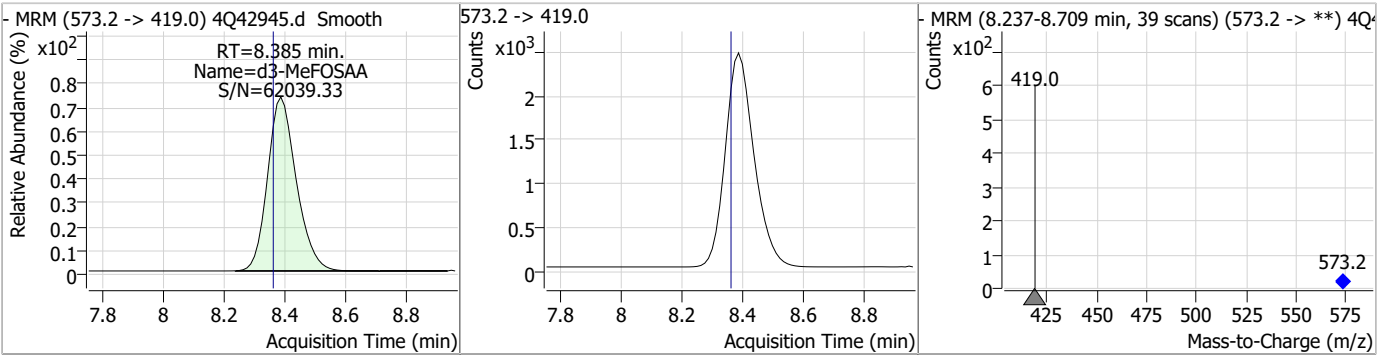
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

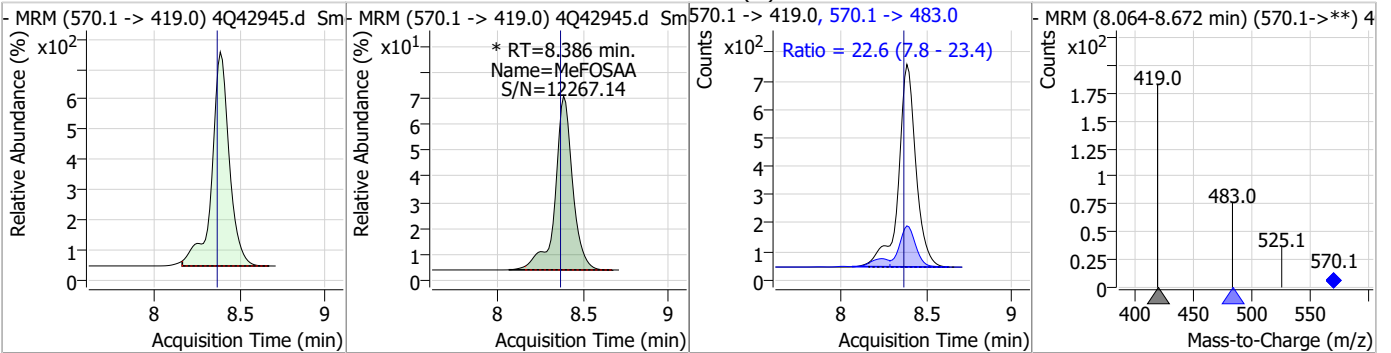
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.34	8.33	0.02	25728	512.9 -> 219.0	19.8	9.7	29.0



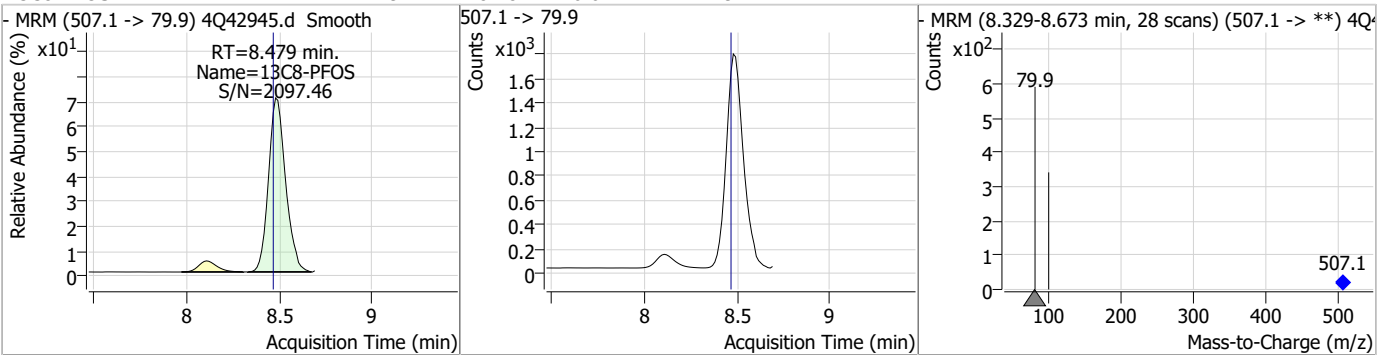
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.66	8.39	0.02	16070				



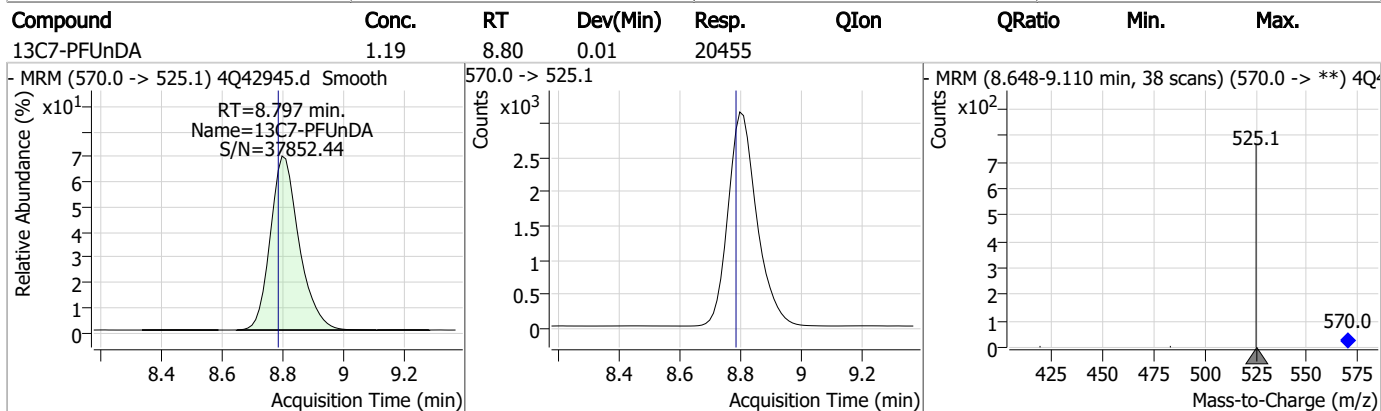
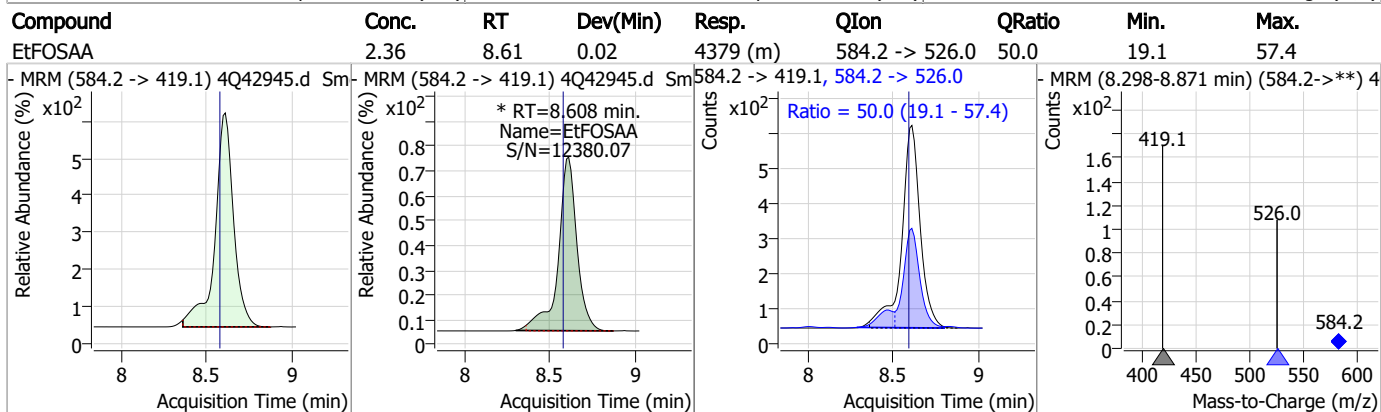
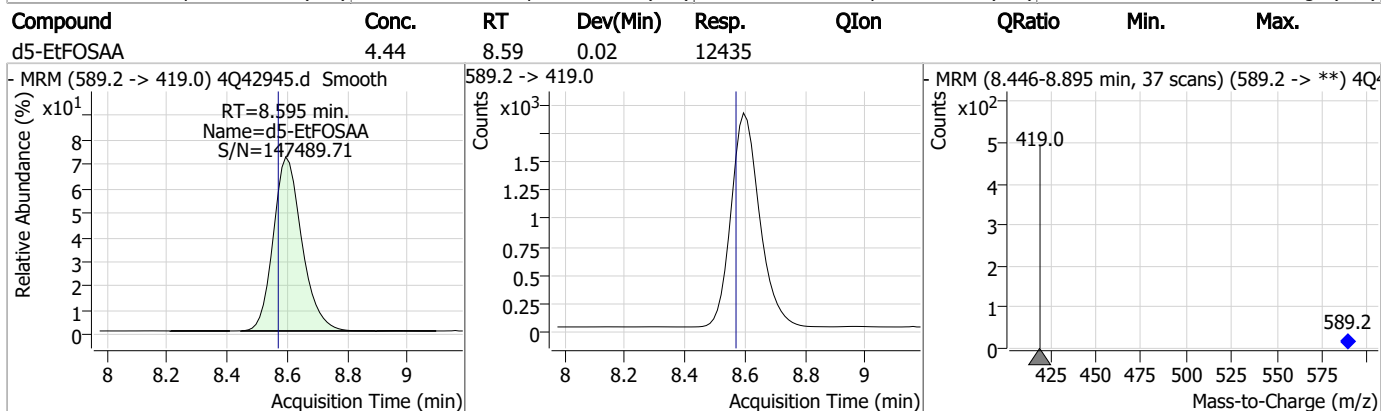
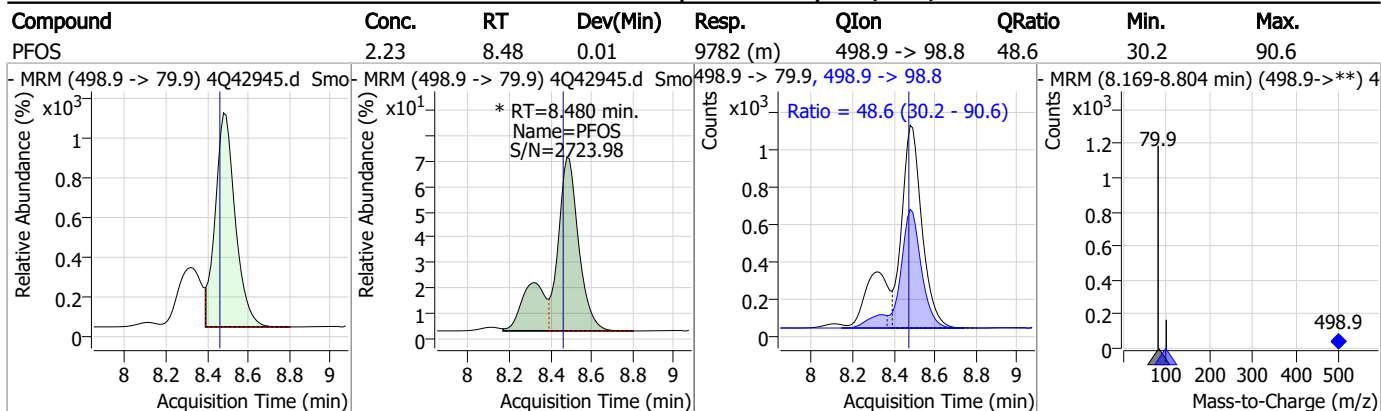
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.30	8.39	0.02	5086 (m)	570.1 -> 483.0	22.6	7.8	23.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.48	0.01	11292				

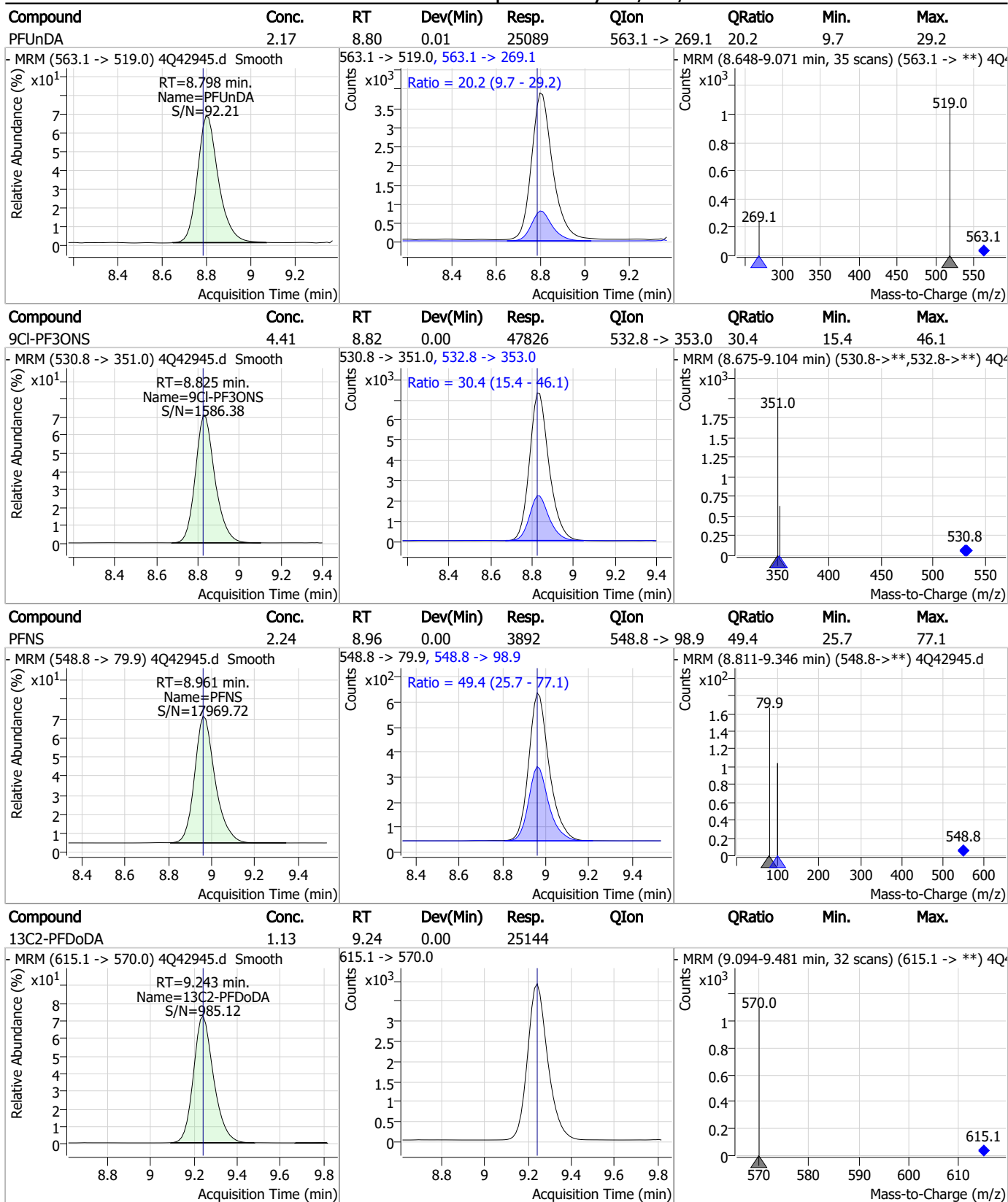


Perfluorinated Compounds by LC/MS/MS



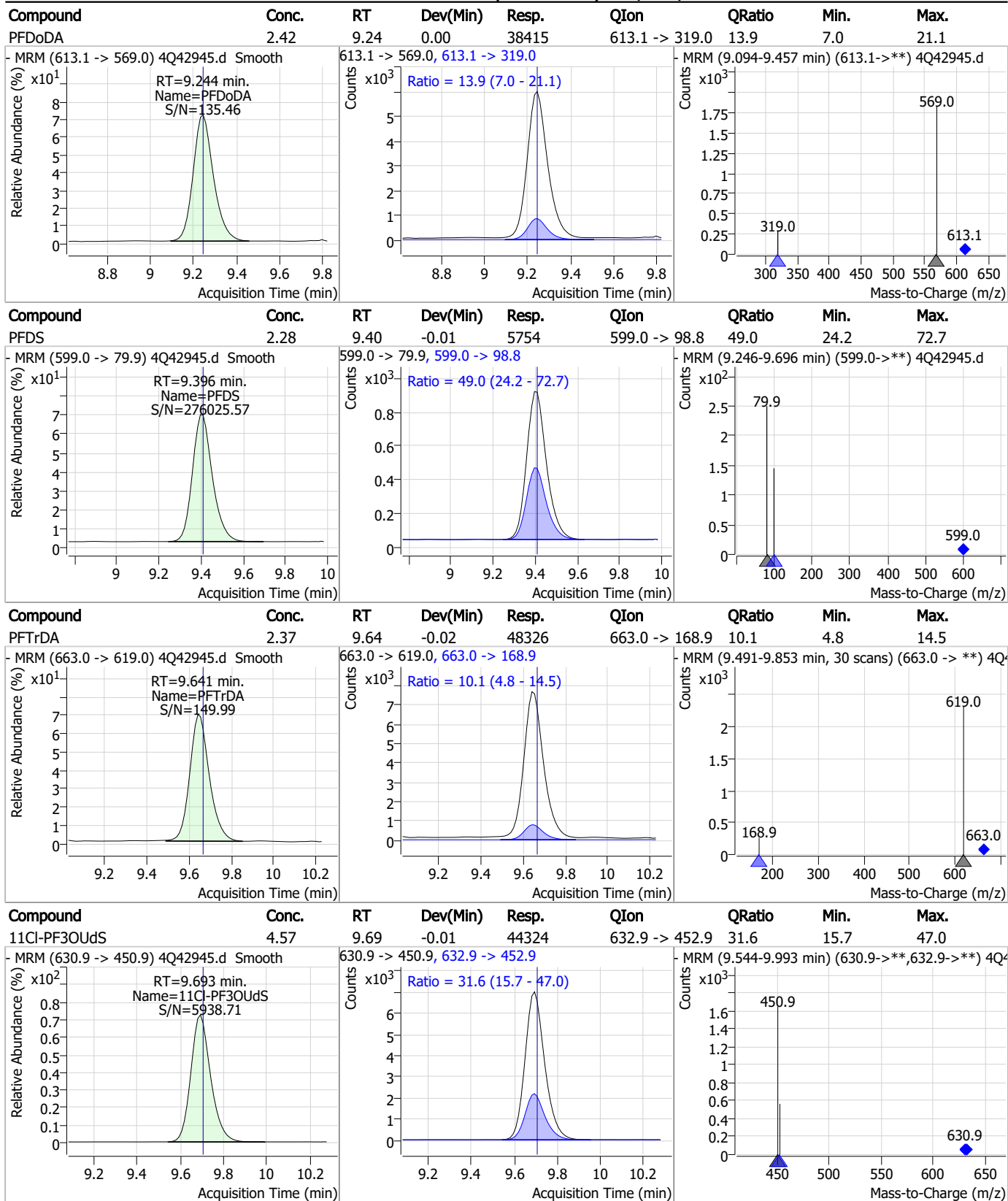
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Perfluorinated Compounds by LC/MS/MS



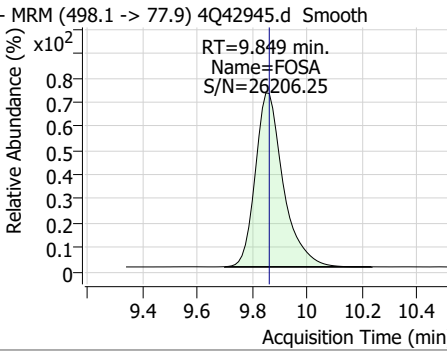
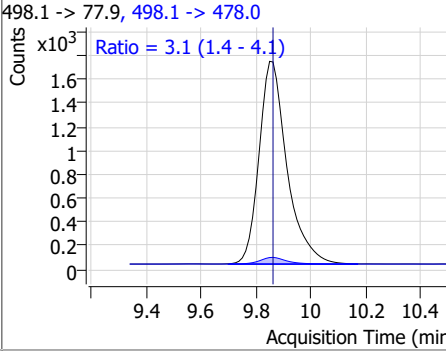
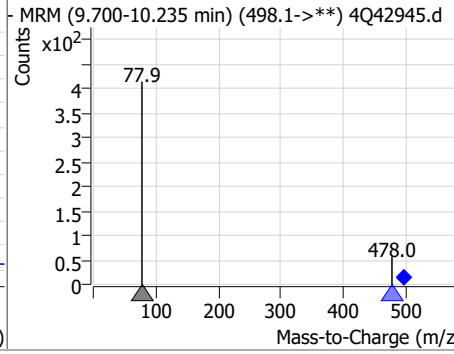
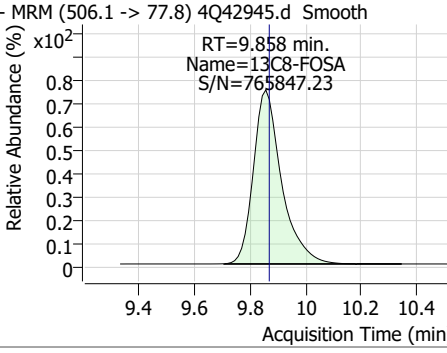
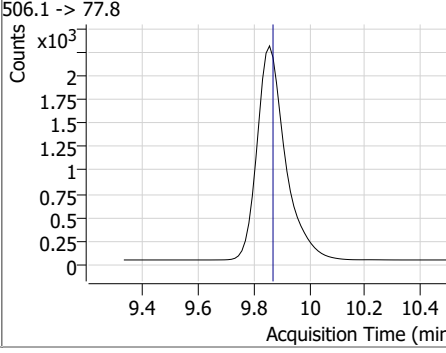
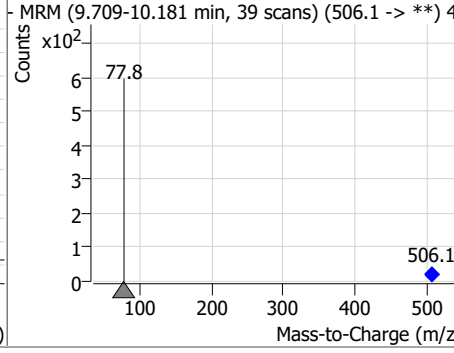
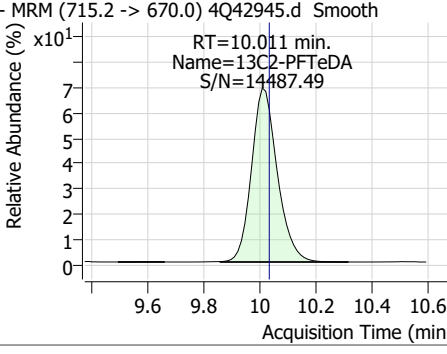
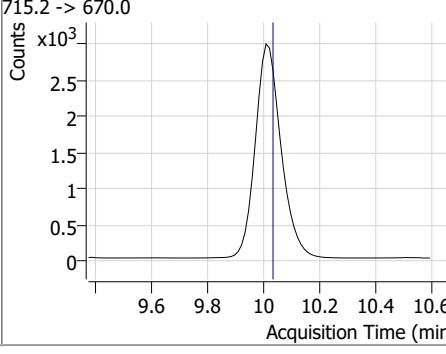
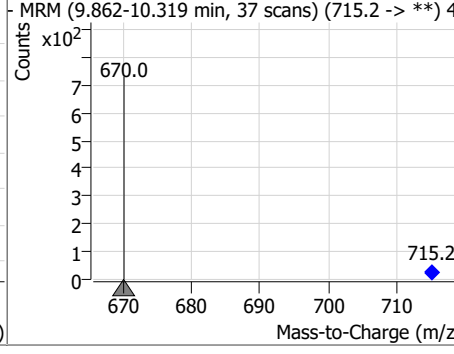
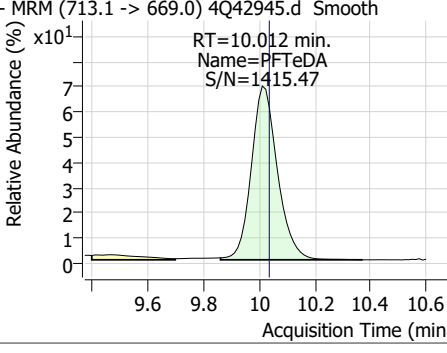
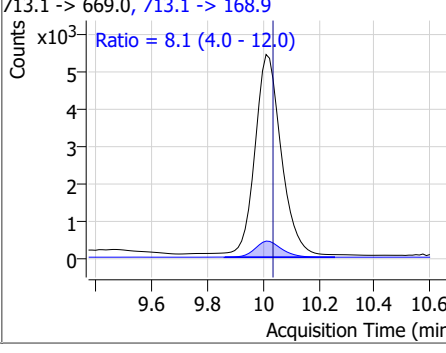
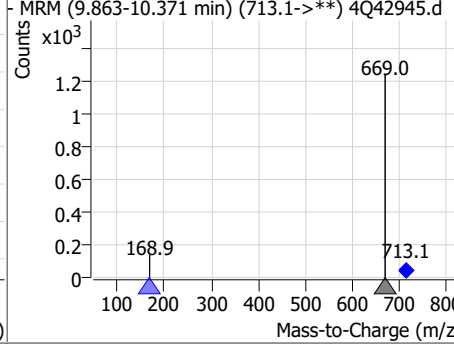
7.7.10
7

Perfluorinated Compounds by LC/MS/MS



7.7.10
7

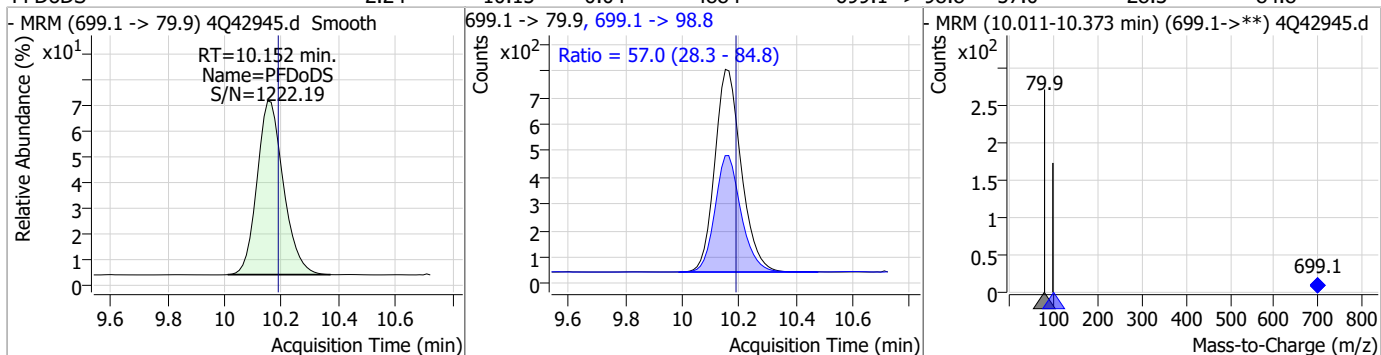
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.35	9.85	-0.01	12070	498.1 -> 478.0	3.1	1.4	4.1
- MRM (498.1 -> 77.9) 4Q42945.d Smooth 			498.1 -> 77.9, 498.1 -> 478.0 			- MRM (9.700-10.235 min) (498.1->**) 4Q42945.d 		
13C8-FOSA	2.08	9.86	-0.01	15960				
- MRM (506.1 -> 77.8) 4Q42945.d Smooth 			506.1 -> 77.8 			- MRM (9.709-10.181 min, 39 scans) (506.1 -> **) 4Q42945.d 		
13C2-PFTeDA	1.10	10.01	-0.02	18924				
- MRM (715.2 -> 670.0) 4Q42945.d Smooth 			715.2 -> 670.0 			- MRM (9.862-10.319 min, 37 scans) (715.2 -> **) 4Q42945.d 		
PFTeDA	2.35	10.01	-0.02	34997	713.1 -> 168.9	8.1	4.0	12.0
- MRM (713.1 -> 669.0) 4Q42945.d Smooth 			713.1 -> 669.0, 713.1 -> 168.9 			- MRM (9.863-10.371 min) (713.1->**) 4Q42945.d 		

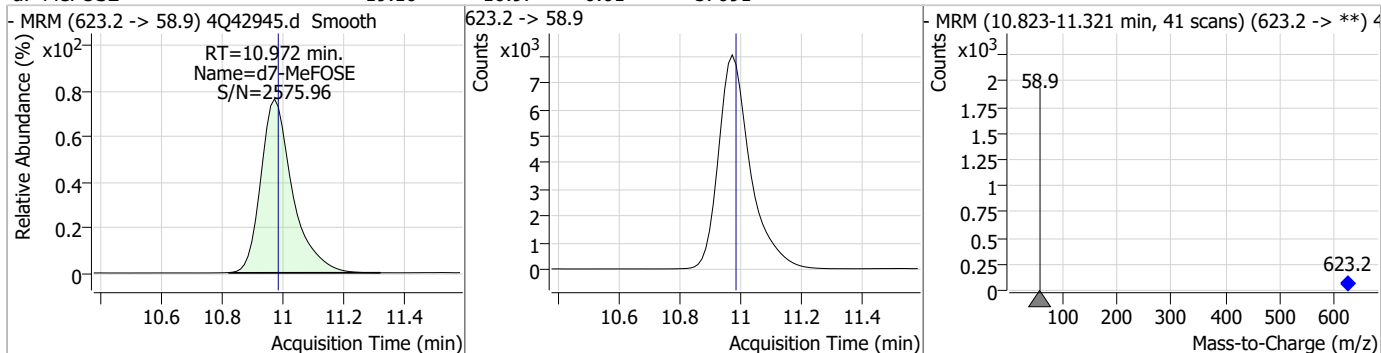
7.7.10
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Perfluorinated Compounds by LC/MS/MS

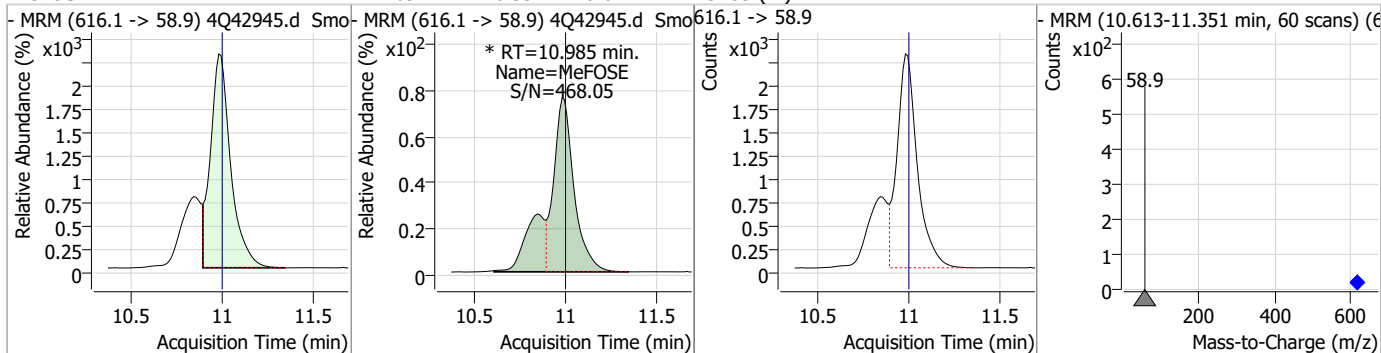
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.24	10.15	-0.04	4884	699.1 -> 98.8	57.0	28.3	84.8



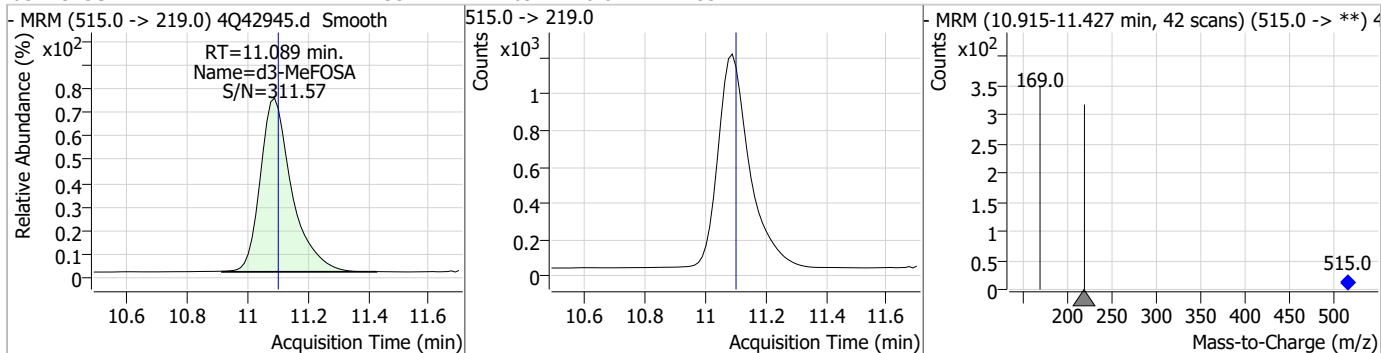
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.10	10.97	-0.01	57691				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.69	10.99	-0.01	23703 (m)				



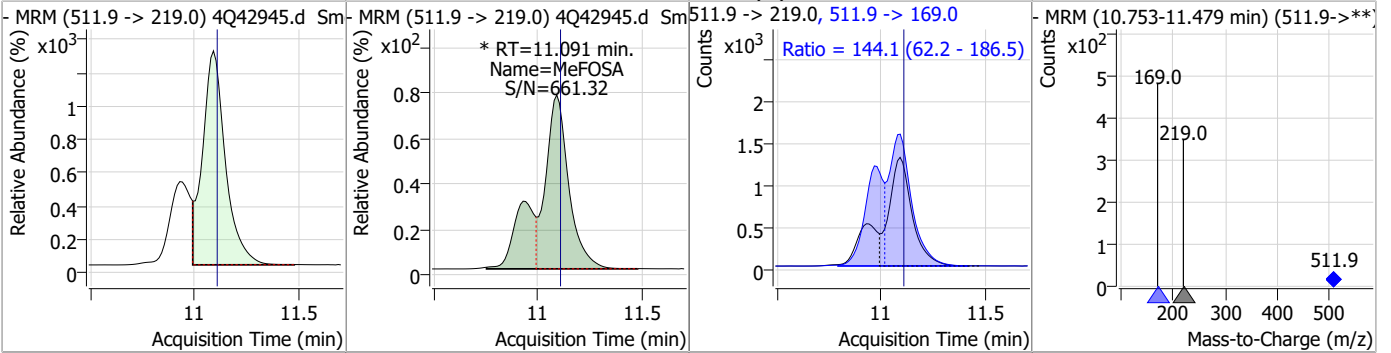
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	11.09	-0.01	8514				



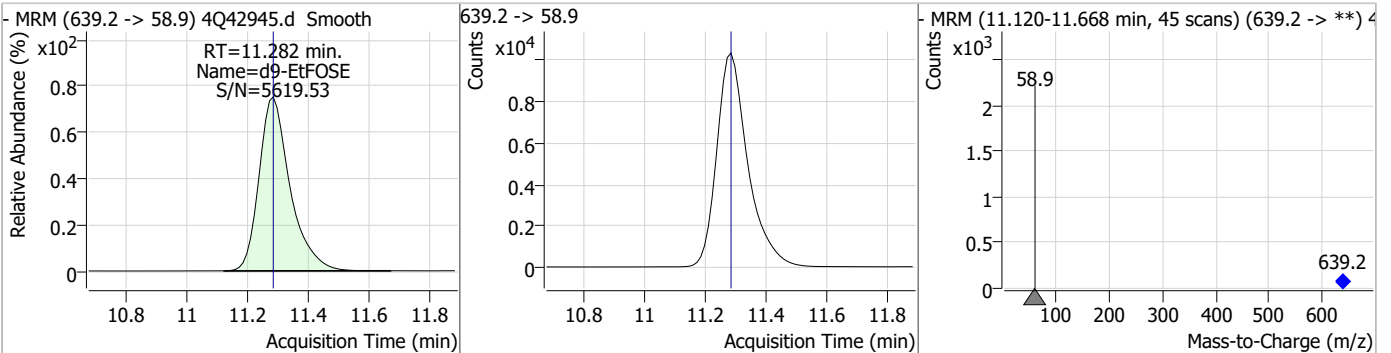
7.7.10
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Perfluorinated Compounds by LC/MS/MS

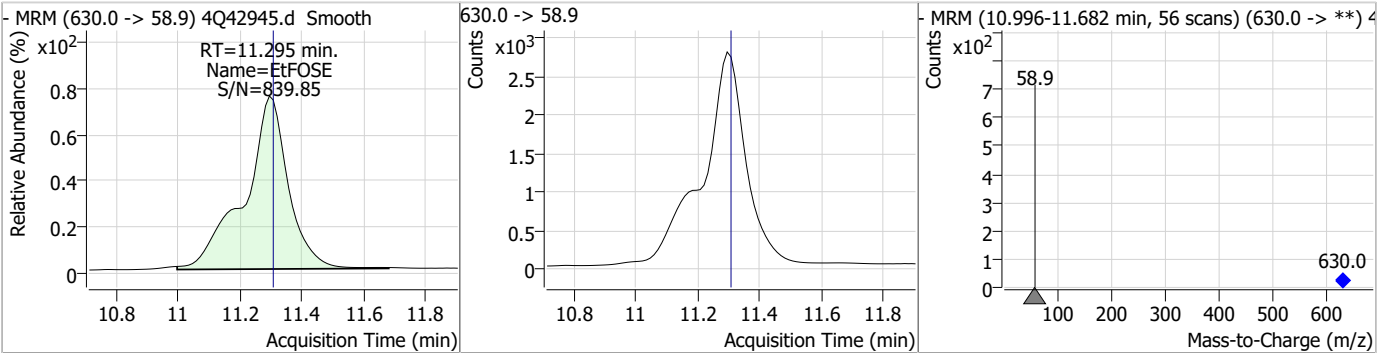
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.83	11.09	-0.01	13297 (m)	511.9 -> 169.0	144.1	62.2	186.5



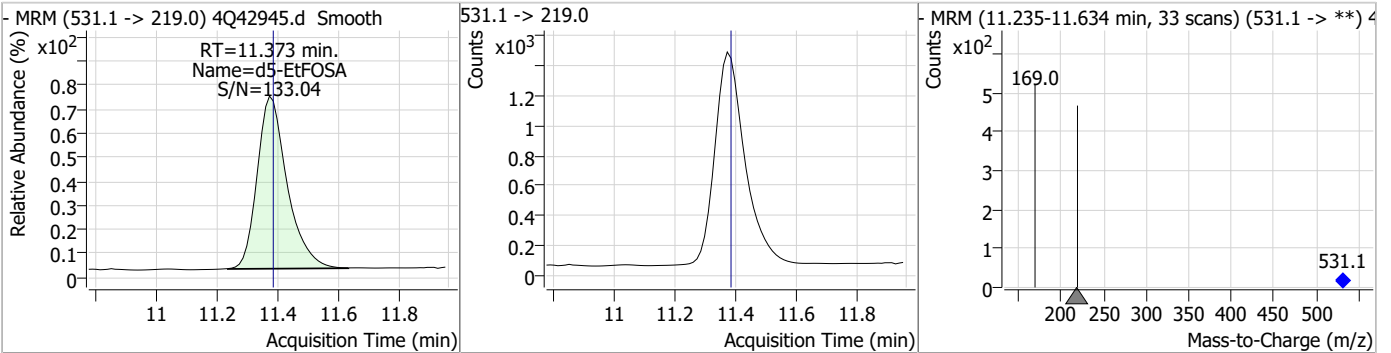
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.72	11.28	0.00	72890				



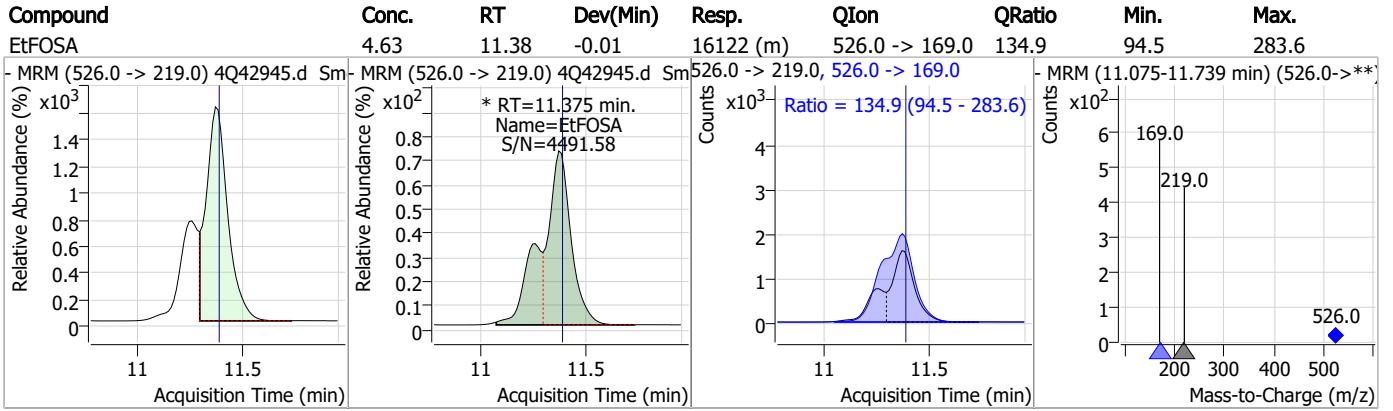
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.18	11.30	-0.01	27354				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	11.37	-0.01	9770				



Perfluorinated Compounds by LC/MS/MS



7.7.10
7



Manual Integration Approval Summary

Sample Number: S4Q621-ICV621 Method: EPA DRAFT 1633
Lab FileID: 4Q42945.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 14:05 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.39	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.48	Split peak
EtFOSAA	2991-50-6		8.61	Split peak
MeFOSE	24448-09-7		10.98	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.10.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q42946.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/14/2023 2:19:52 PM
 Sample Name : icv621-20
 Vial : P1-B2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q621.batch.bin
 Sample Information : OP96301,S4q621,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	130871	10.00 µg/L	-0.013
M5-PFPeA	4.475	268.3 -> 223.0	86264	5.00 µg/L	0.000
M5-PFHxA	5.659	318.0 -> 273.0	67390	2.50 µg/L	0.012
M4-PFHpA	6.592	367.1 -> 322.0	31914	2.50 µg/L	0.012
M8-PFOA	7.250	421.1 -> 376.0	40502	2.50 µg/L	0.013
M9-PFNA	7.809	472.1 -> 427.0	21152	1.25 µg/L	0.012
M6-PFDA	8.315	519.1 -> 474.1	20562	1.25 µg/L	0.012
M7-PFUnDA	8.797	570.0 -> 525.1	21203	1.25 µg/L	0.012
M2-PFDoDA	9.243	615.1 -> 570.0	28529	1.25 µg/L	0.000
M2-PFTeDA	10.036	715.2 -> 670.0	21163	1.25 µg/L	0.000
M8-FOSA	9.870	506.1 -> 77.8	18047	2.50 µg/L	0.000
M3-PFBS	5.564	302.1 -> 79.9	14054	2.50 µg/L	0.000
M3-PFHxS	7.354	402.1 -> 79.9	8413	2.50 µg/L	0.013
M8-PFOS	8.467	507.1 -> 79.9	12146	2.50 µg/L	0.000
M2-4:2FTS	5.335	329.1 -> 80.9	1461	5.00 µg/L	0.000
M2-6:2FTS	7.010	429.1 -> 80.9	2144	5.00 µg/L	0.012
M2-8:2FTS	8.090	529.1 -> 80.9	3635	5.00 µg/L	0.000
M3-MeFOSAA	8.373	573.2 -> 419.0	16928	5.00 µg/L	0.012
M3-HFPO-DA	6.026	286.9 -> 168.9	41152	10.00 µg/L	0.012
M5-EtFOSAA	8.582	589.2 -> 419.0	14073	5.00 µg/L	0.012
M7-MeFOSE	10.997	623.2 -> 58.9	64344	25.00 µg/L	0.012
M9-EtFOSE	11.294	639.2 -> 58.9	78370	25.00 µg/L	0.012
M5-EtFOSA	11.386	531.1 -> 219.0	11053	2.50 µg/L	0.000
M3-MeFOSA	11.102	515.0 -> 219.0	9393	2.50 µg/L	0.000
13C4-PFOS	8.467	502.8 -> 79.9	12522	2.50 µg/L	0.000
13C3-PFBA	2.991	216.0 -> 172.0	75920	5.00 µg/L	0.000
18O2-PFHxS	7.353	403.0 -> 83.9	6273	2.50 µg/L	0.013
13C4-PFOA	7.251	417.1 -> 372.0	49589	2.50 µg/L	0.013
13C2-PFDA	8.316	515.1 -> 470.1	19488	1.25 µg/L	0.012
13C5-PFNA	7.797	468.0 -> 423.0	24673	1.25 µg/L	0.000
13C2-PFHxA	5.660	315.1 -> 270.0	58049	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1461	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.3%		
13C2-6:2FTS	7.010	429.1 -> 80.9	2144	4.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C2-8:2FTS	8.090	529.1 -> 80.9	3635	4.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C2-PFDoDA	9.243	615.1 -> 570.0	28529	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFTeDA	10.036	715.2 -> 670.0	21163	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C3-PFBS	5.564	302.1 -> 79.9	14054	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C3-PFHxS	7.354	402.1 -> 79.9	8413	2.42 µg/L	0.013

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C4-PFBA	2.986	216.8 -> 171.9	130871	9.90 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFHpA	6.592	367.1 -> 322.0	31914	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFHxA	5.659	318.0 -> 273.0	67390	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C5-PFPeA	4.475	268.3 -> 223.0	86264	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.315	519.1 -> 474.1	20562	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C7-PFUnDA	8.797	570.0 -> 525.1	21203	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C8-FOSA	9.870	506.1 -> 77.8	18047	2.20 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.1%	
13C8-PFOA	7.250	421.1 -> 376.0	40502	2.48 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOS	8.467	507.1 -> 79.9	12146	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C9-PFNA	7.809	472.1 -> 427.0	21152	1.18 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.1%	
d3-MeFOSAA	8.373	573.2 -> 419.0	16928	4.59 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C3-HFPO-DA	6.026	286.9 -> 168.9	41152	10.10 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	11.102	515.0 -> 219.0	9393	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.582	589.2 -> 419.0	14073	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d7-MeFOSE	10.997	623.2 -> 58.9	64344	19.92 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d9-EtFOSE	11.294	639.2 -> 58.9	78370	19.83 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
d5-EtFOSA	11.386	531.1 -> 219.0	11053	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
Target Compounds					QValue
4:2FTS	5.348	327.1 -> 307.0	43850	24.07 µg/L	97
		327.1 -> 80.9	18548		
6:2FTS	7.011	427.1 -> 407.0	36632	25.02 µg/L	99
		427.1 -> 80.9	15338		
8:2FTS	8.090	527.1 -> 507.0	38182	23.43 µg/L	97
		527.1 -> 80.8	15711		
EtFOSAA	8.595	584.2 -> 419.1	47132	22.42 µg/L	m 85
		584.2 -> 526.0	22430		
FOSA	9.861	498.1 -> 77.9	137970	23.74 µg/L	100
		498.1 -> 478.0	3956		
MeFOSAA	8.373	570.1 -> 419.0	54195	23.23 µg/L	m 87
		570.1 -> 483.0	11422		
PFBA	2.995	212.8 -> 168.9	65140	21.79 µg/L	100
PFBS	5.565	298.7 -> 79.9	130543	24.89 µg/L	99
		298.7 -> 98.8	49476		
PFDA	8.316	512.9 -> 469.0	286852	24.40 µg/L	99
		512.9 -> 219.0	56409		
PFDoDA	9.244	613.1 -> 569.0	368092	20.46 µg/L	100
		613.1 -> 319.0	50909		
PFDS	9.409	599.0 -> 79.9	63196	23.27 µg/L	100

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.593	599.0 -> 98.8	30566	23.84	µg/L	99
		363.1 -> 319.0	379568			
PFHpS	7.936	363.1 -> 169.0	67414	23.62	µg/L	99
		449.0 -> 79.9	74668			
PFHxA	5.662	449.0 -> 98.9	39316	23.40	µg/L	100
		313.0 -> 269.0	466735			
PFHxS	7.355	313.0 -> 118.9	14050	24.69	µg/L	98
		398.7 -> 79.9	71158			
PFNA	7.797	398.7 -> 98.9	36091	25.84	µg/L	96
		463.0 -> 419.0	292165			
PFNS	8.961	463.0 -> 219.0	71416	24.91	µg/L	99
		548.8 -> 79.9	46554			
PFOA	7.252	548.8 -> 98.9	23467	21.98	µg/L	100
		413.0 -> 369.0	415985			
PFOS	8.468	413.0 -> 169.0	84619	20.14	µg/L	82
		498.9 -> 79.9	95210			
PFPeA	4.477	498.9 -> 98.8	44149	24.43	µg/L	100
		263.0 -> 219.0	398882			
PFPeS	6.632	349.1 -> 79.9	62867	25.62	µg/L	99
		349.1 -> 98.9	27189			
PFTeDA	10.037	713.1 -> 669.0	396398	23.79	µg/L	100
		713.1 -> 168.9	32160			
PFTrDA	9.666	663.0 -> 619.0	441790	19.06	µg/L	100
		663.0 -> 168.9	43545			
PFUnDA	8.798	563.1 -> 519.0	268118	22.36	µg/L	99
		563.1 -> 269.1	51192			
11Cl-PF3OUdS	9.705	630.9 -> 450.9	252237	23.48	µg/L	98
		632.9 -> 452.9	76305			
9Cl-PF3ONS	8.825	530.8 -> 351.0	278343	23.20	µg/L	99
		532.8 -> 353.0	83771			
ADONA	6.843	376.9 -> 250.9	557441	22.55	µg/L	99
		376.9 -> 84.8	151992			
HFPO-DA	6.027	284.9 -> 168.9	70722	21.68	µg/L	100
		284.9 -> 184.9	8706			
3:3FTCA	3.954	241.0 -> 177.0	16961	22.29	µg/L	99
		241.0 -> 117.0	1669			
5:3FTCA	6.345	341.0 -> 237.1	67293	23.89	µg/L	99
		341.0 -> 217.0	47323			
7:3FTCA	7.786	441.0 -> 316.9	24253	21.01	µg/L	96
		441.0 -> 336.9	55063			
EtFOSA	11.388	526.0 -> 219.0	86921	22.07	µg/L	47
		526.0 -> 169.0	97241			
EtFOSE	11.308	630.0 -> 58.9	291838	120.82	µg/L	100
		511.9 -> 219.0	69001			
MeFOSA	11.103	511.9 -> 169.0	80787	22.72	µg/L	94
		616.1 -> 58.9	257631			
MeFOSE	11.010	699.1 -> 79.9	53320	113.93	µg/L	100
		699.1 -> 98.8	29639			
PFDoDS	10.176	295.0 -> 201.0	30696	22.89	µg/L	99
		295.0 -> 84.9	7783			
NFDHA	5.541	279.0 -> 85.1	220004	23.56	µg/L	100
		229.0 -> 84.9	190119			
PFMBA	4.891	314.8 -> 134.9	346780	20.70	µg/L	100
		314.8 -> 82.9	11571			

= Qualifier out of range, m = manually integrated, + = Area summed

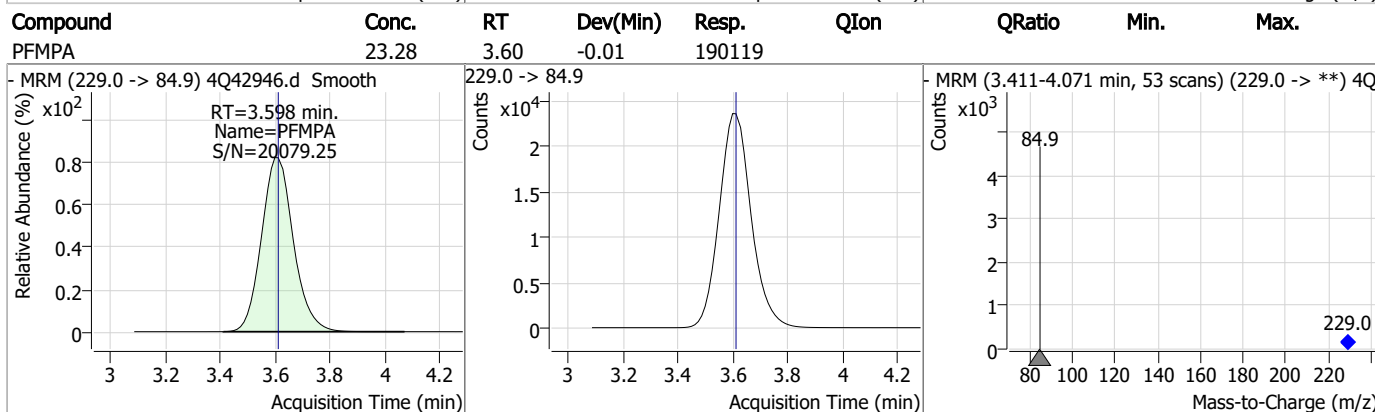
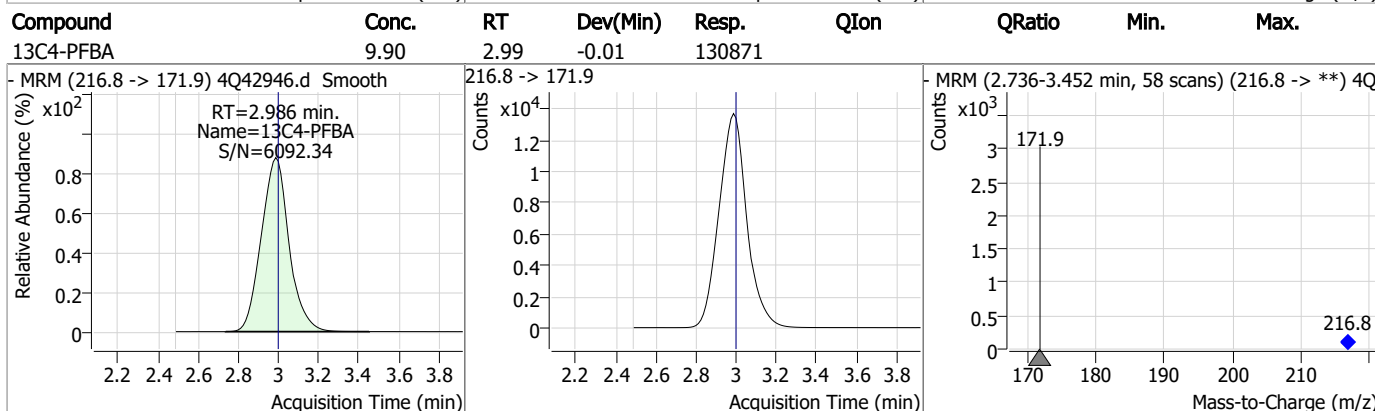
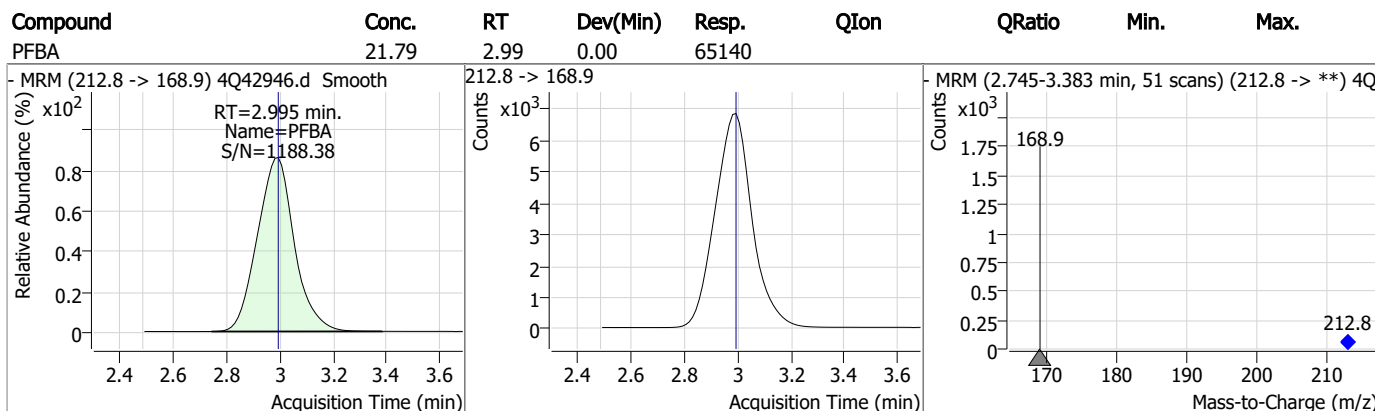
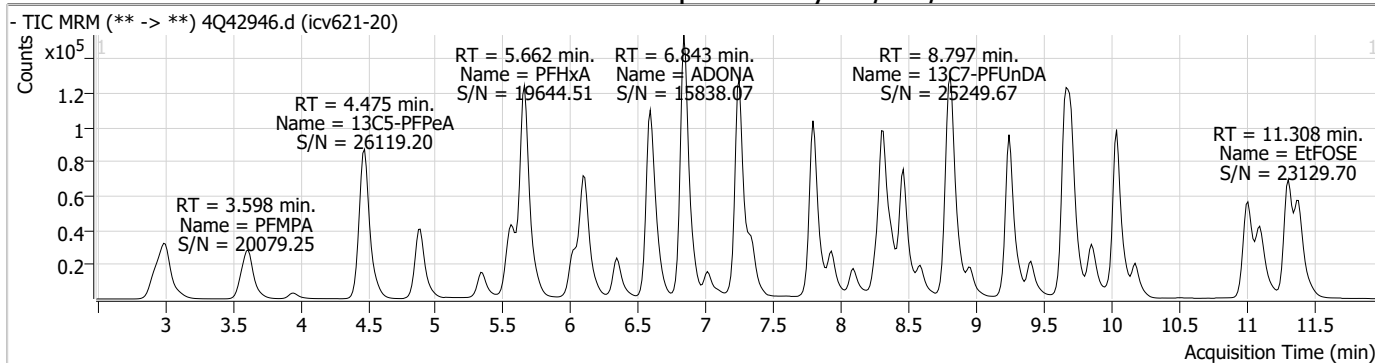
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.11

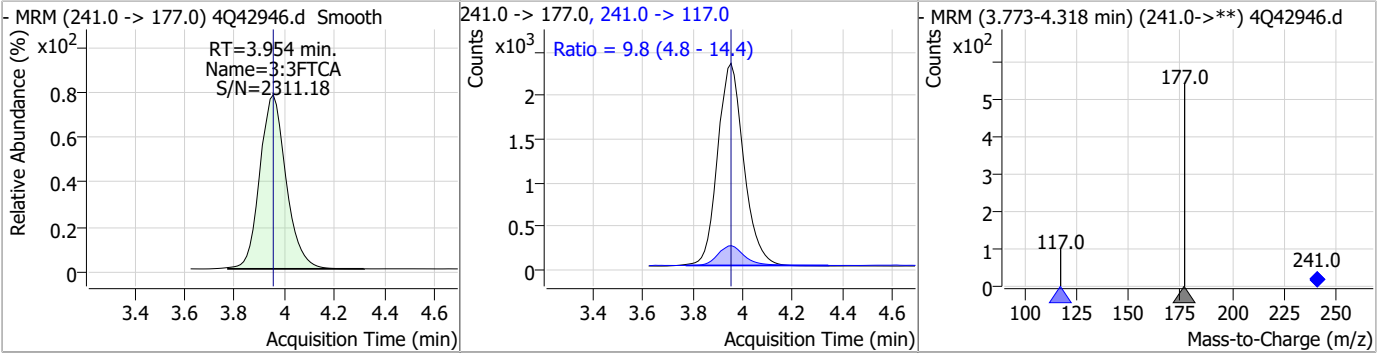
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Perfluorinated Compounds by LC/MS/MS

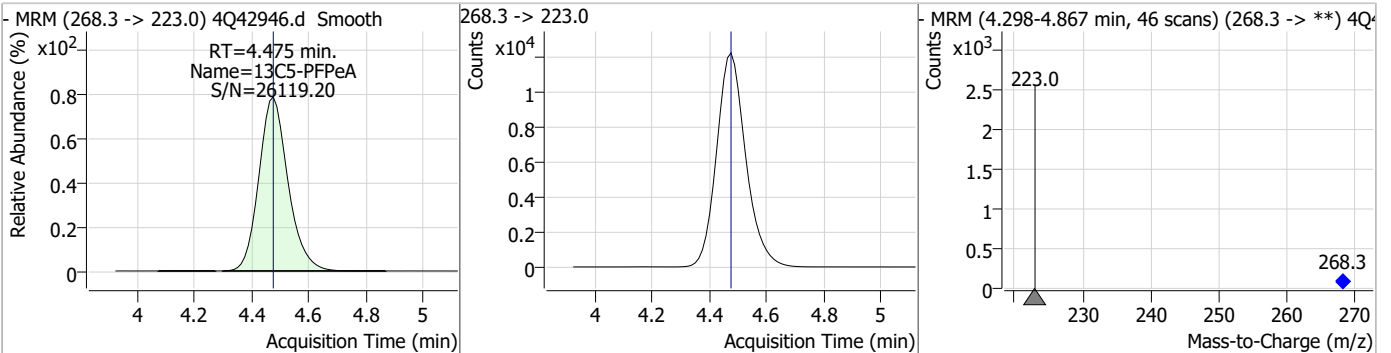


Perfluorinated Compounds by LC/MS/MS

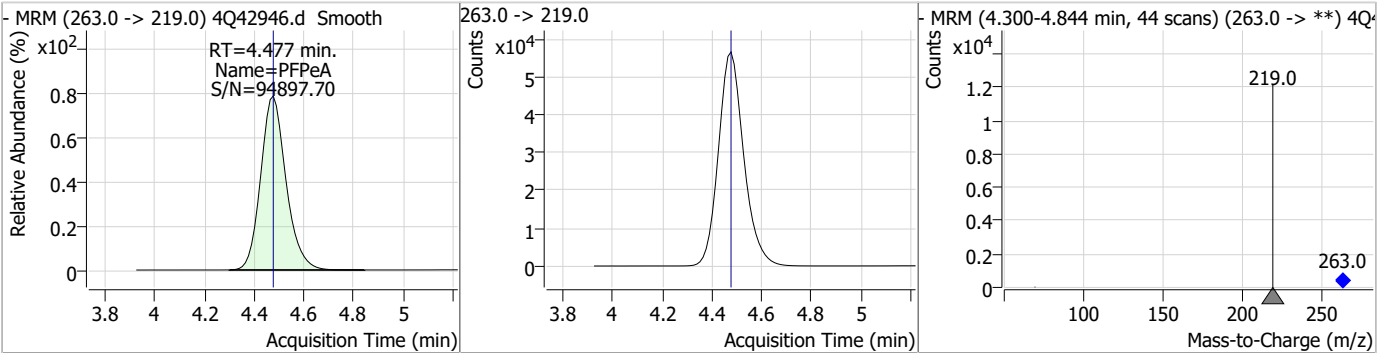
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	22.29	3.95	0.00	16961	241.0 -> 117.0	9.8	4.8	14.4



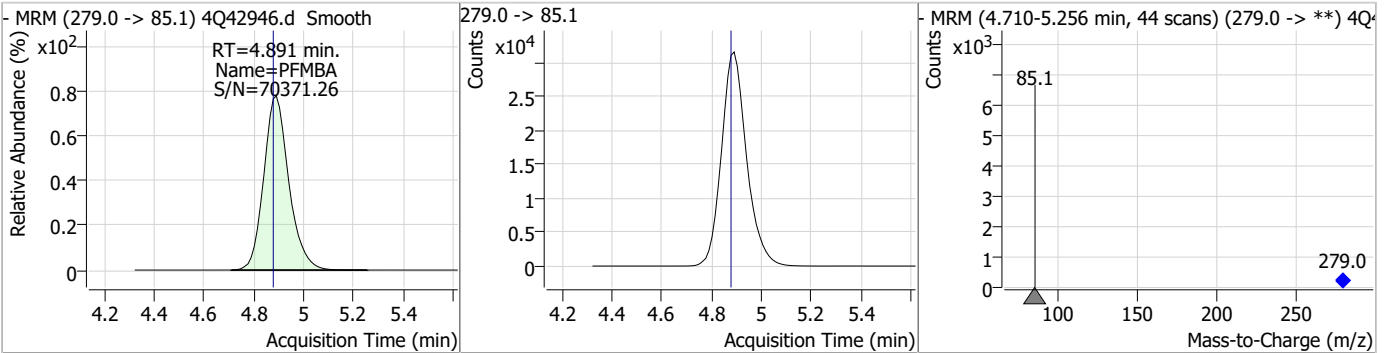
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.04	4.47	0.00	86264				



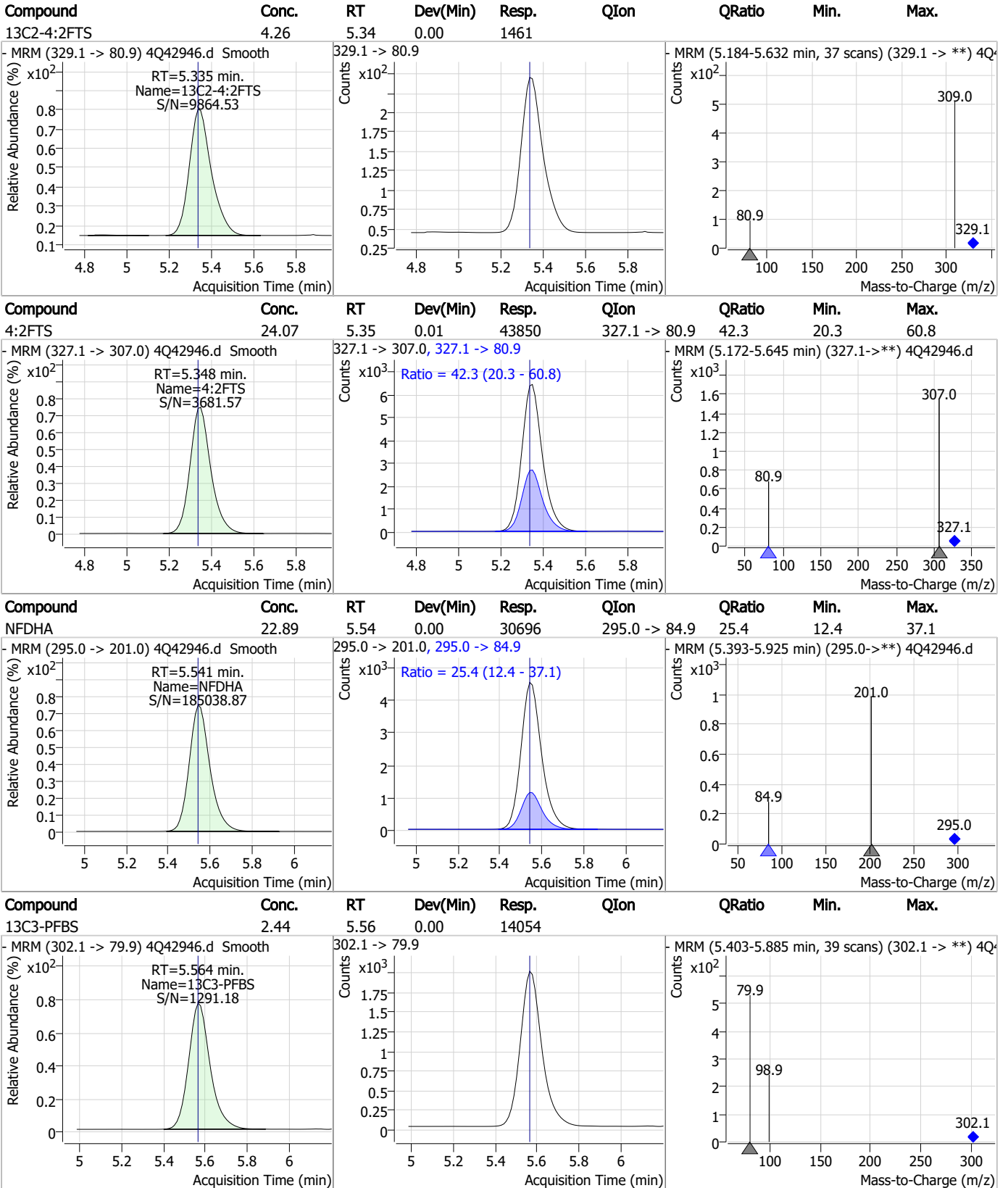
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	24.43	4.48	0.00	398882				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	23.56	4.89	0.01	220004				



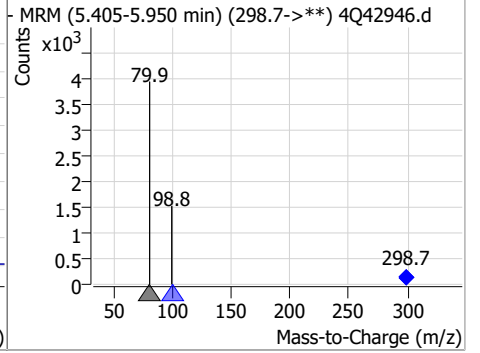
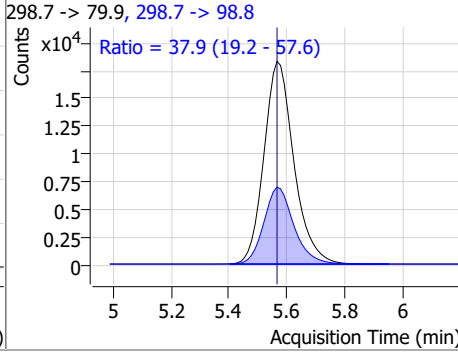
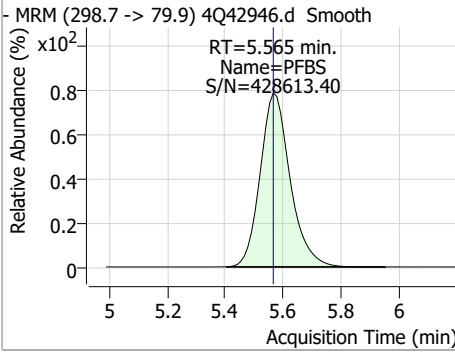
Perfluorinated Compounds by LC/MS/MS



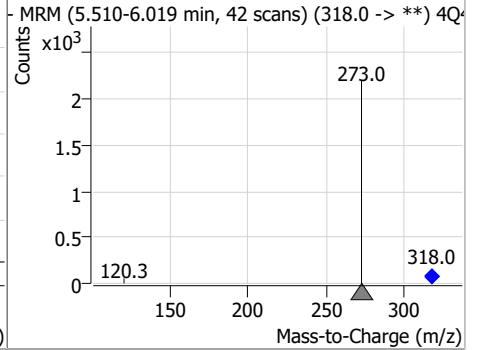
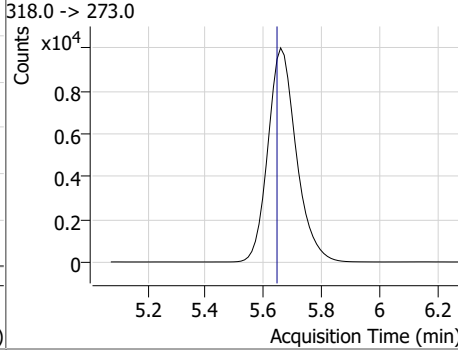
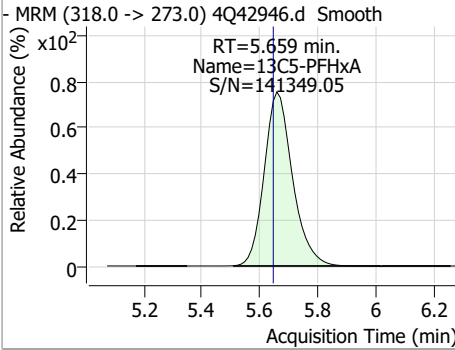
7.7.11
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Perfluorinated Compounds by LC/MS/MS

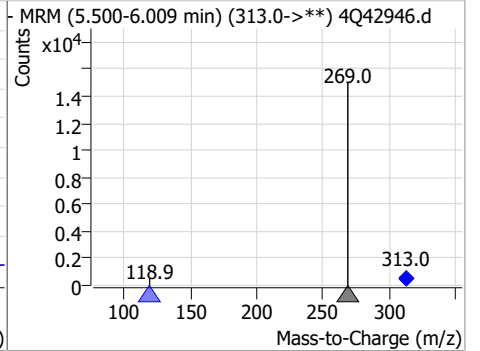
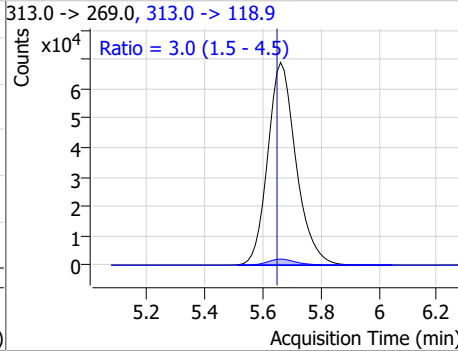
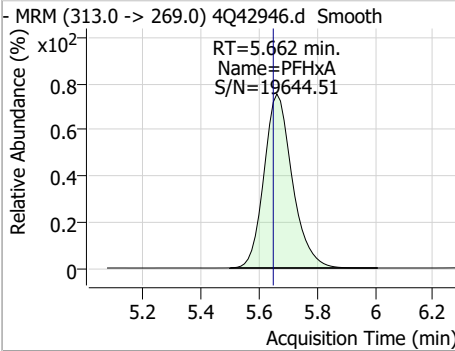
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	24.89	5.56	0.00	130543	298.7 -> 98.8	37.9	19.2	57.6



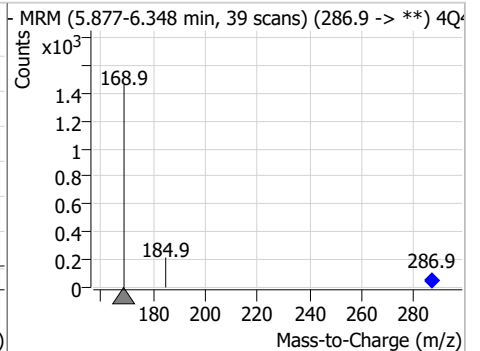
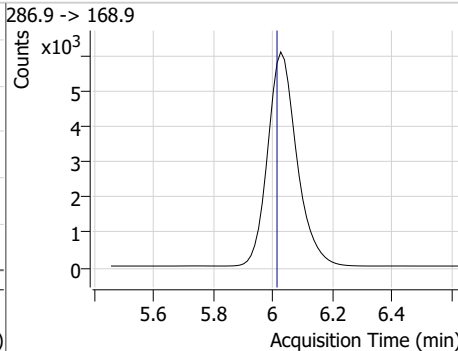
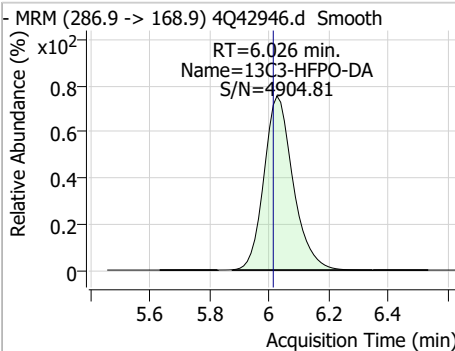
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.66	0.01	67390				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	23.40	5.66	0.01	466735	313.0 -> 118.9	3.0	1.5	4.5

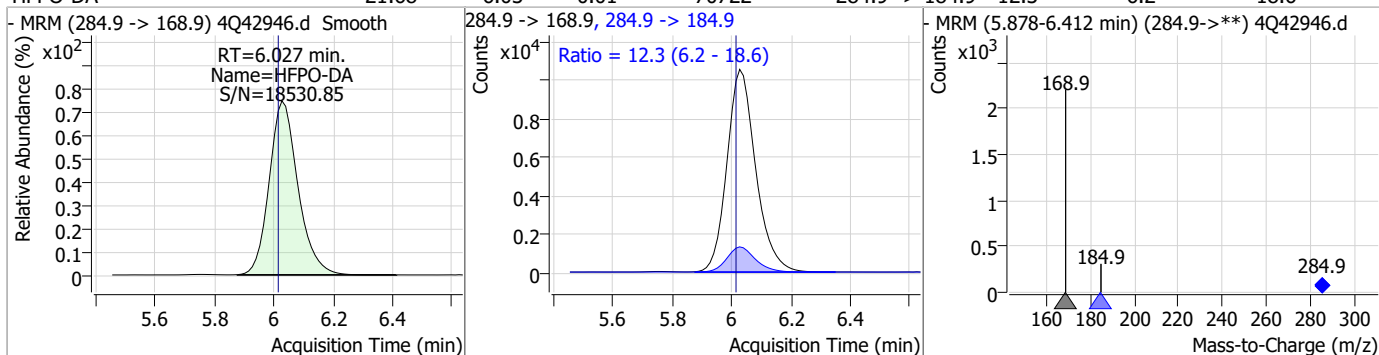


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.10	6.03	0.01	41152				

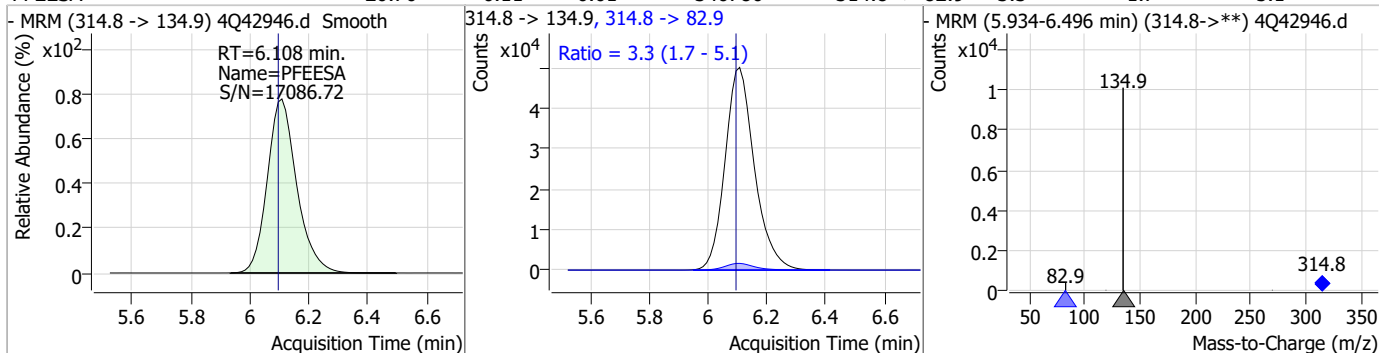


Perfluorinated Compounds by LC/MS/MS

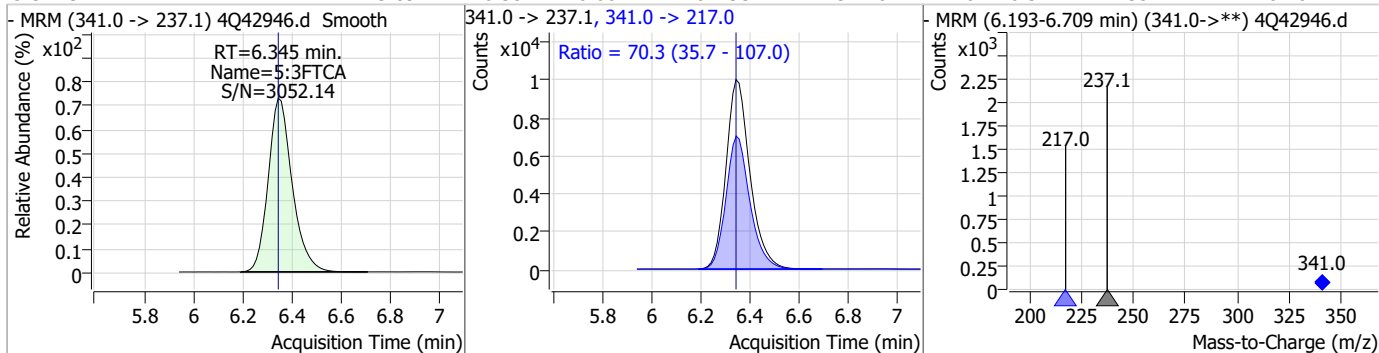
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	21.68	6.03	0.01	70722	284.9 -> 184.9	12.3	6.2	18.6



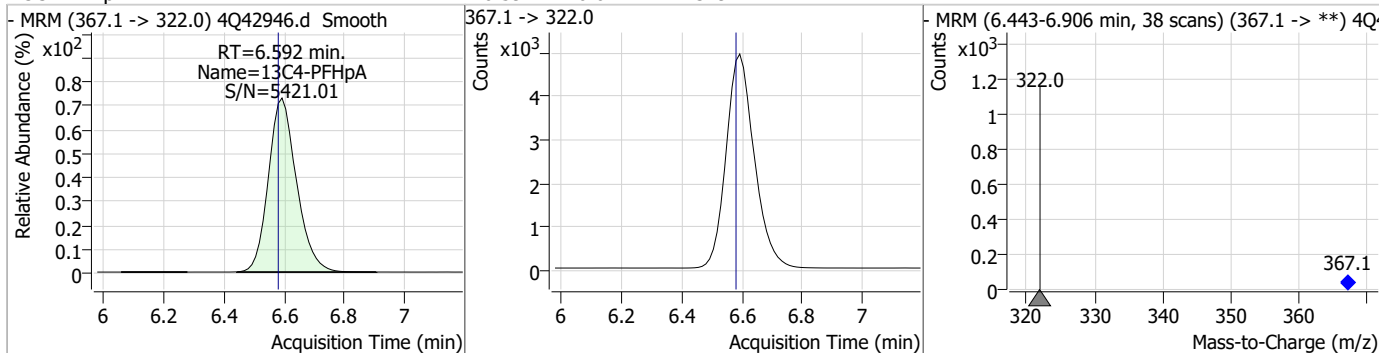
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	20.70	6.11	0.01	346780	314.8 -> 82.9	3.3	1.7	5.1



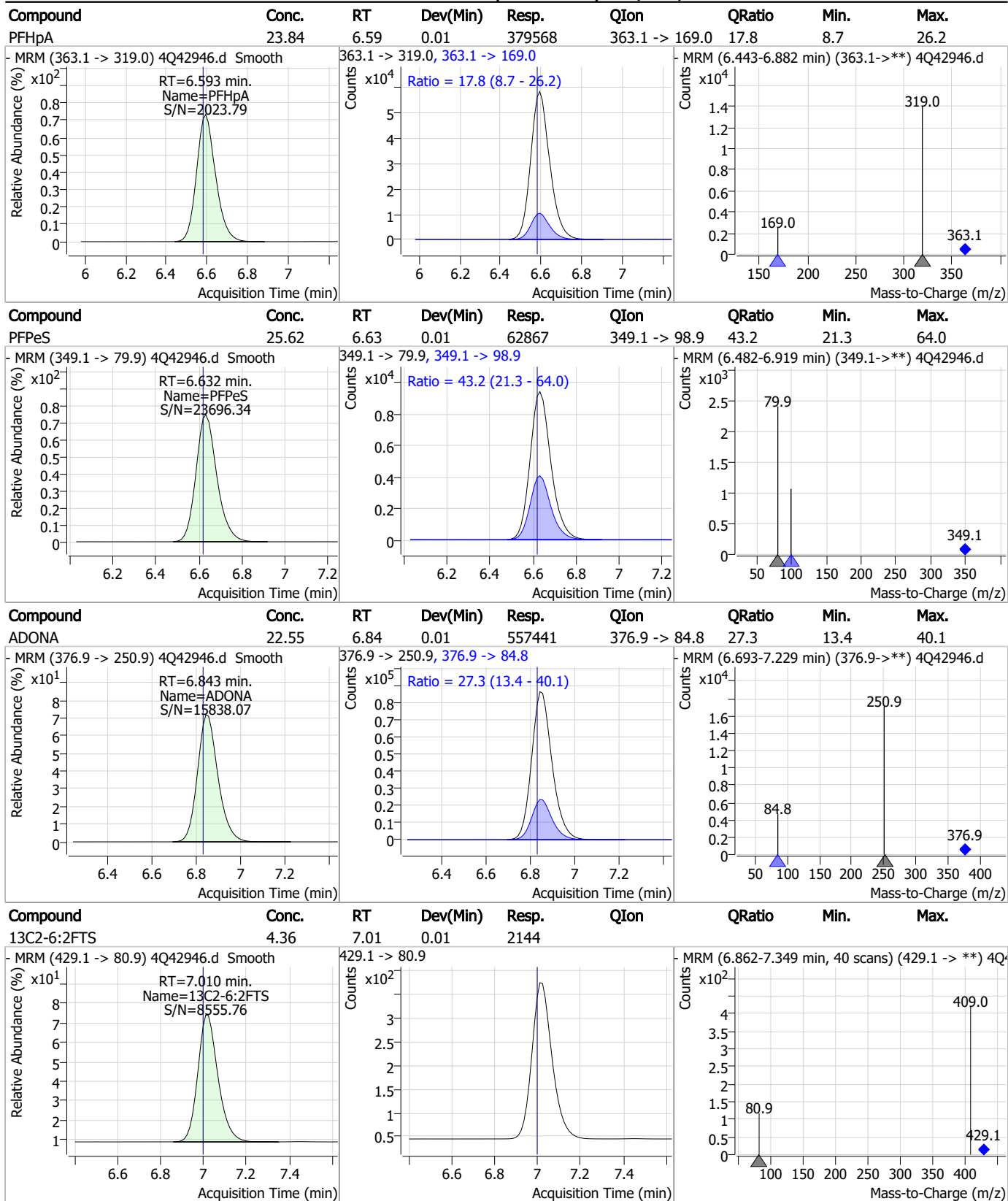
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	23.89	6.35	0.00	67293	341.0 -> 217.0	70.3	35.7	107.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.42	6.59	0.01	31914	367.1 -> 322.0			

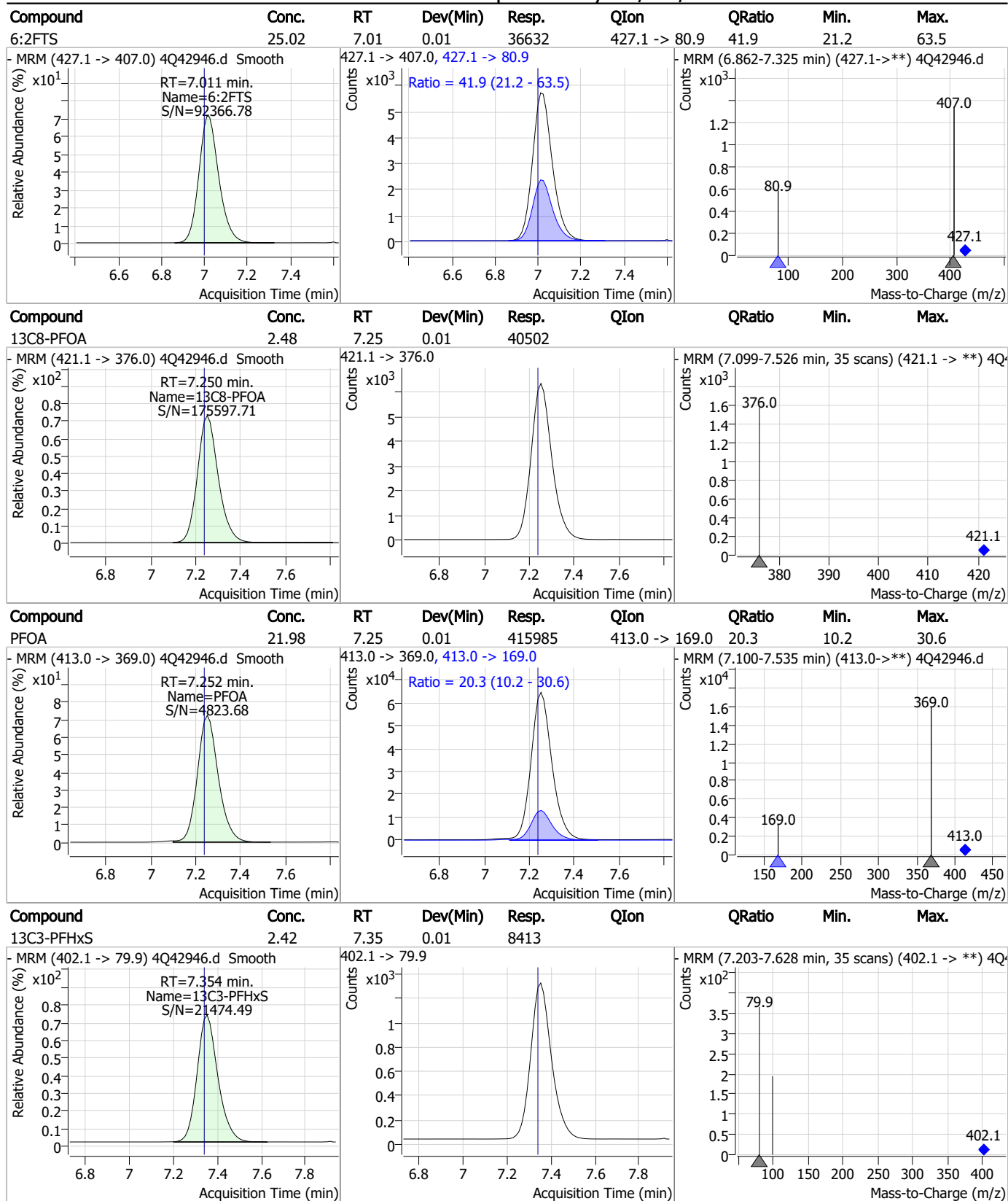


Perfluorinated Compounds by LC/MS/MS



7.7.11
7

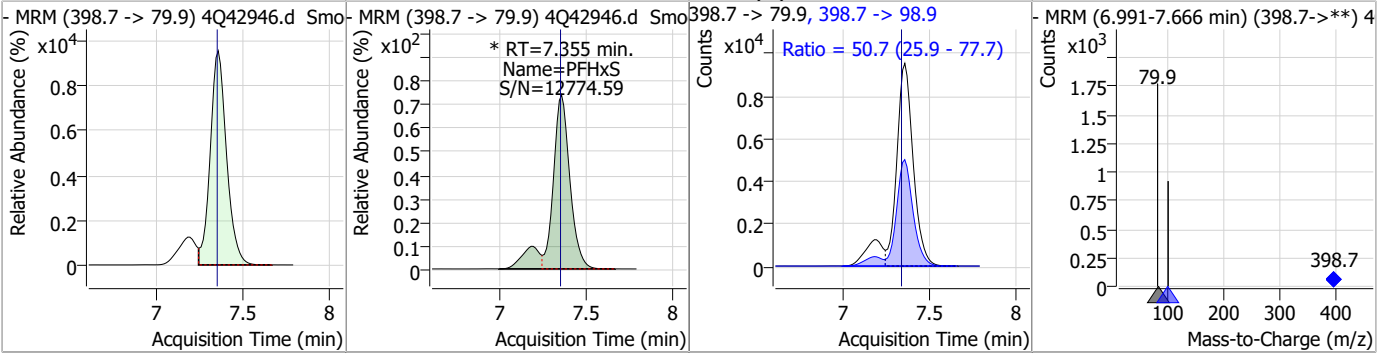
Perfluorinated Compounds by LC/MS/MS



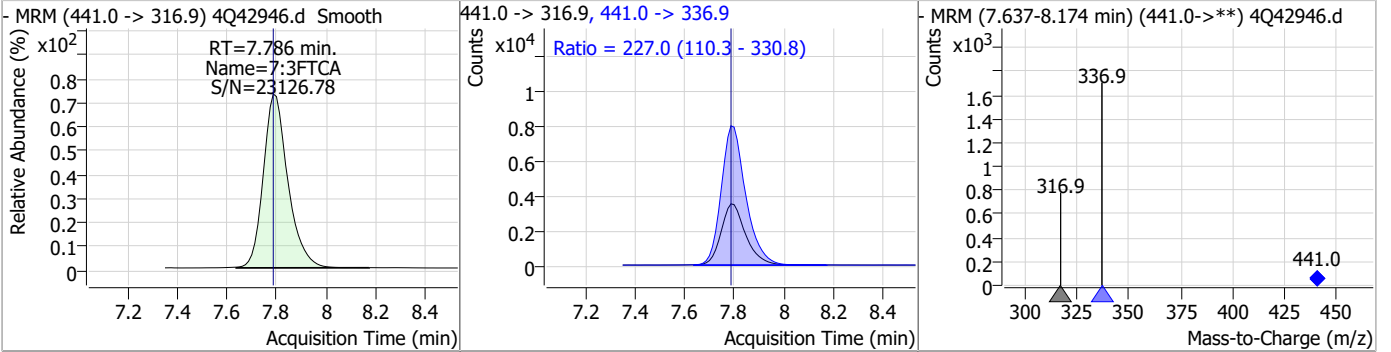
7.7.11

Perfluorinated Compounds by LC/MS/MS

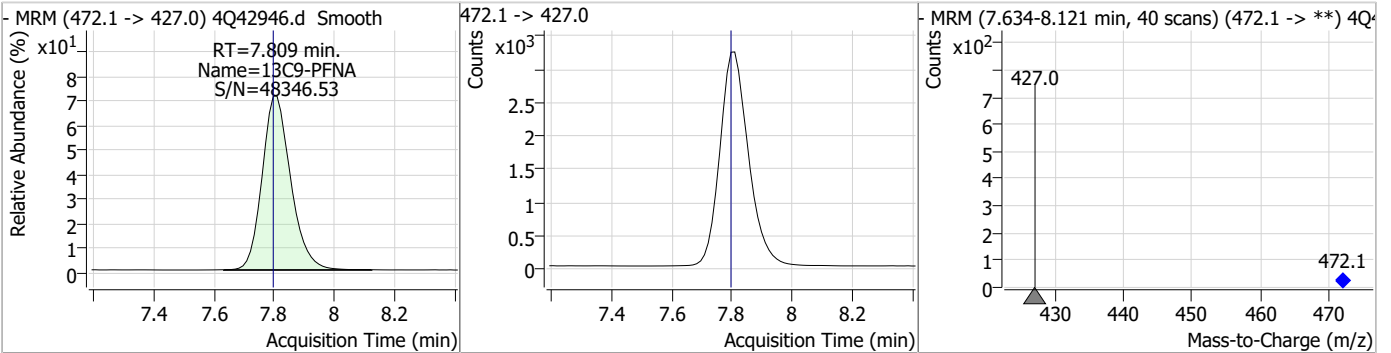
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	24.69	7.35	0.01	71158 (m)	398.7 -> 98.9	50.7	25.9	77.7



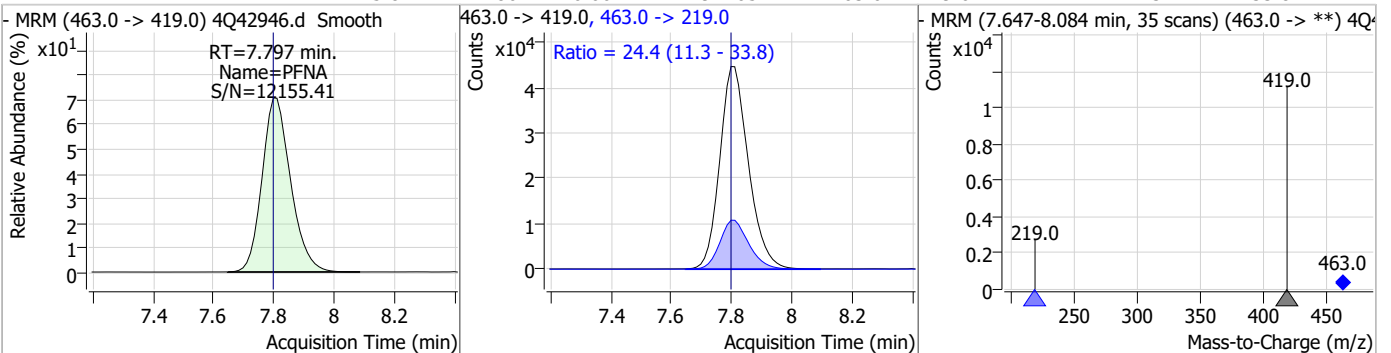
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	21.01	7.79	0.00	24253	441.0 -> 336.9	227.0	110.3	330.8



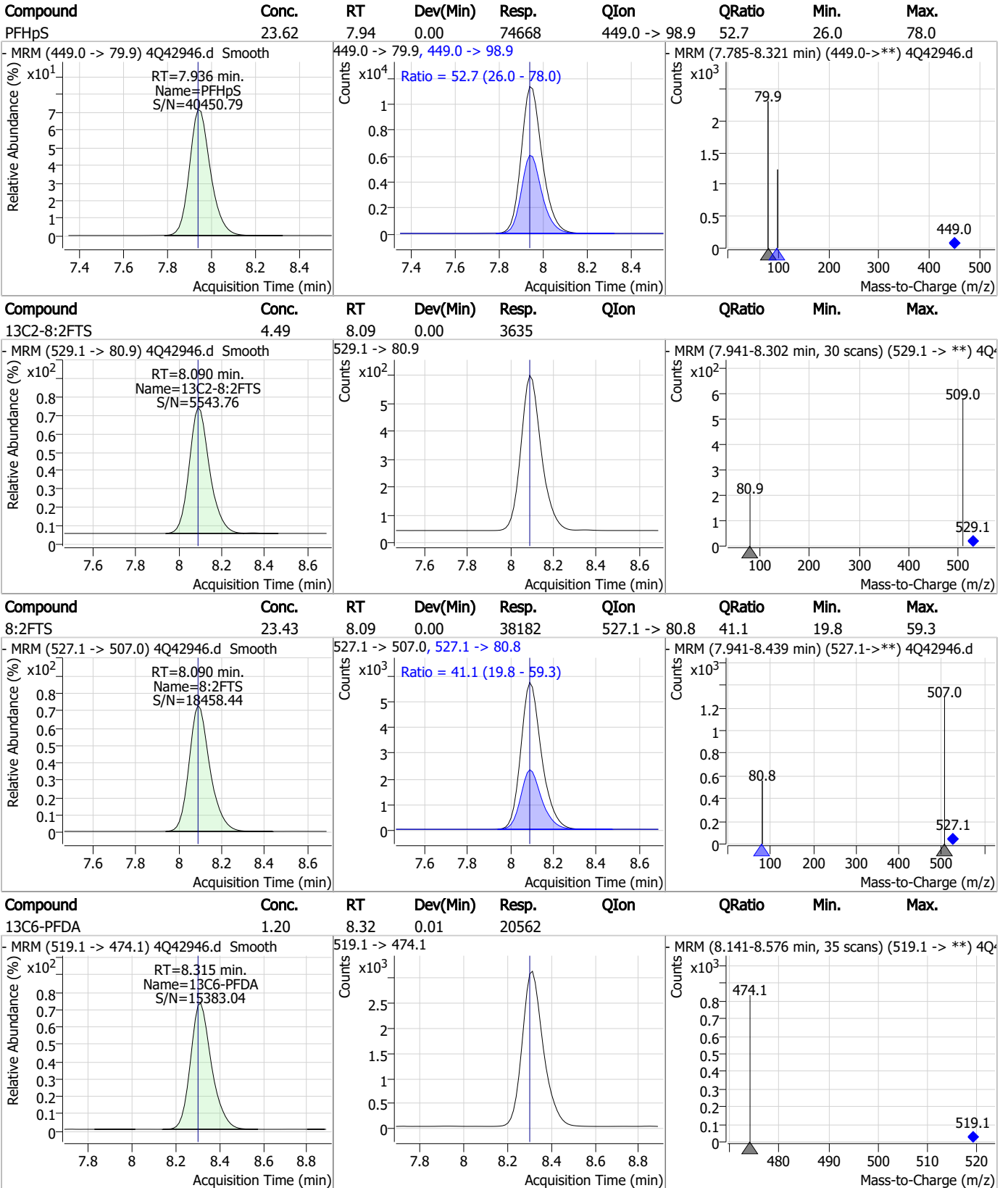
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.18	7.81	0.01	21152	472.1 -> 427.0	47.0	427.0	472.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	25.84	7.80	0.00	292165	463.0 -> 219.0	24.4	11.3	33.8



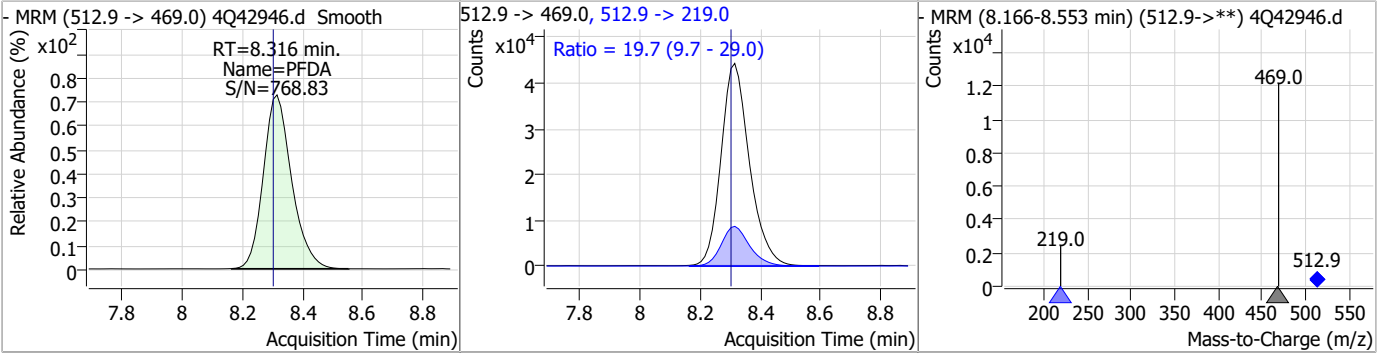
Perfluorinated Compounds by LC/MS/MS



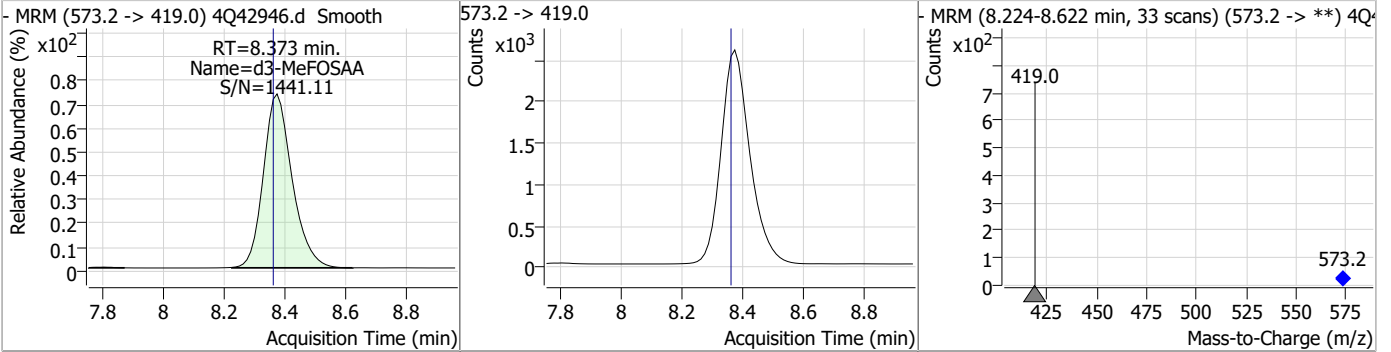
7.7.11

Perfluorinated Compounds by LC/MS/MS

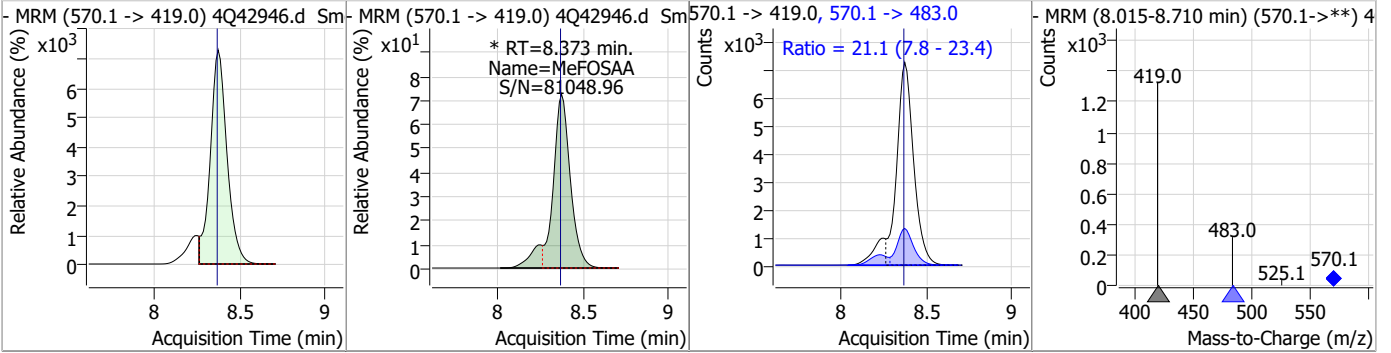
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	24.40	8.32	0.01	286852	512.9 -> 219.0	19.7	9.7	29.0



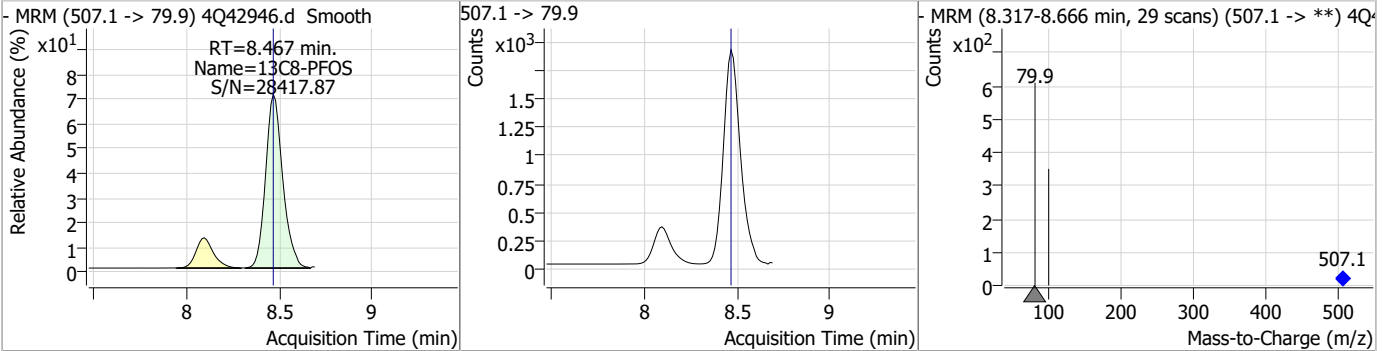
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.59	8.37	0.01	16928				



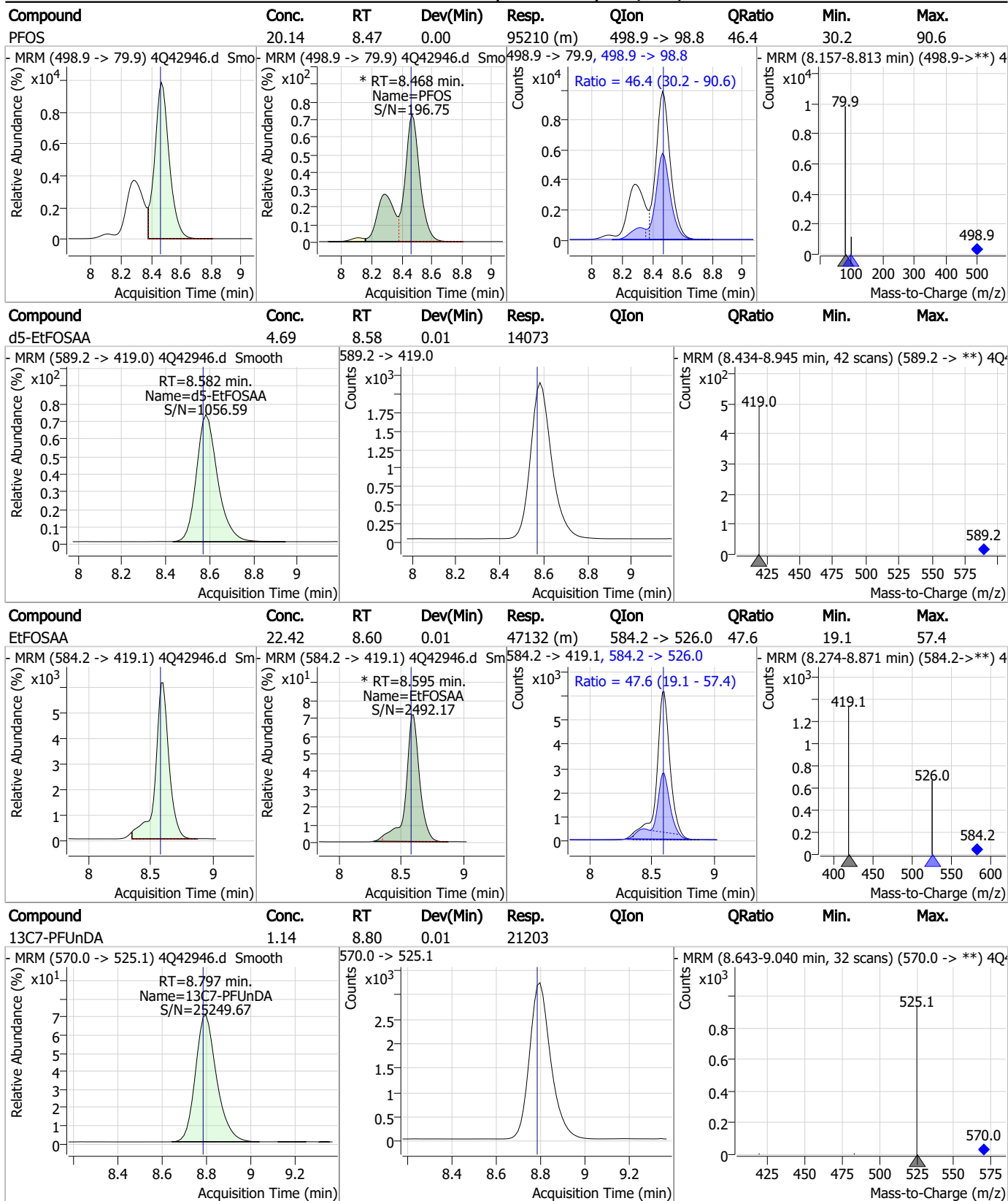
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	23.23	8.37	0.01	54195 (m)	570.1 -> 483.0	21.1	7.8	23.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.50	8.47	0.00	12146				

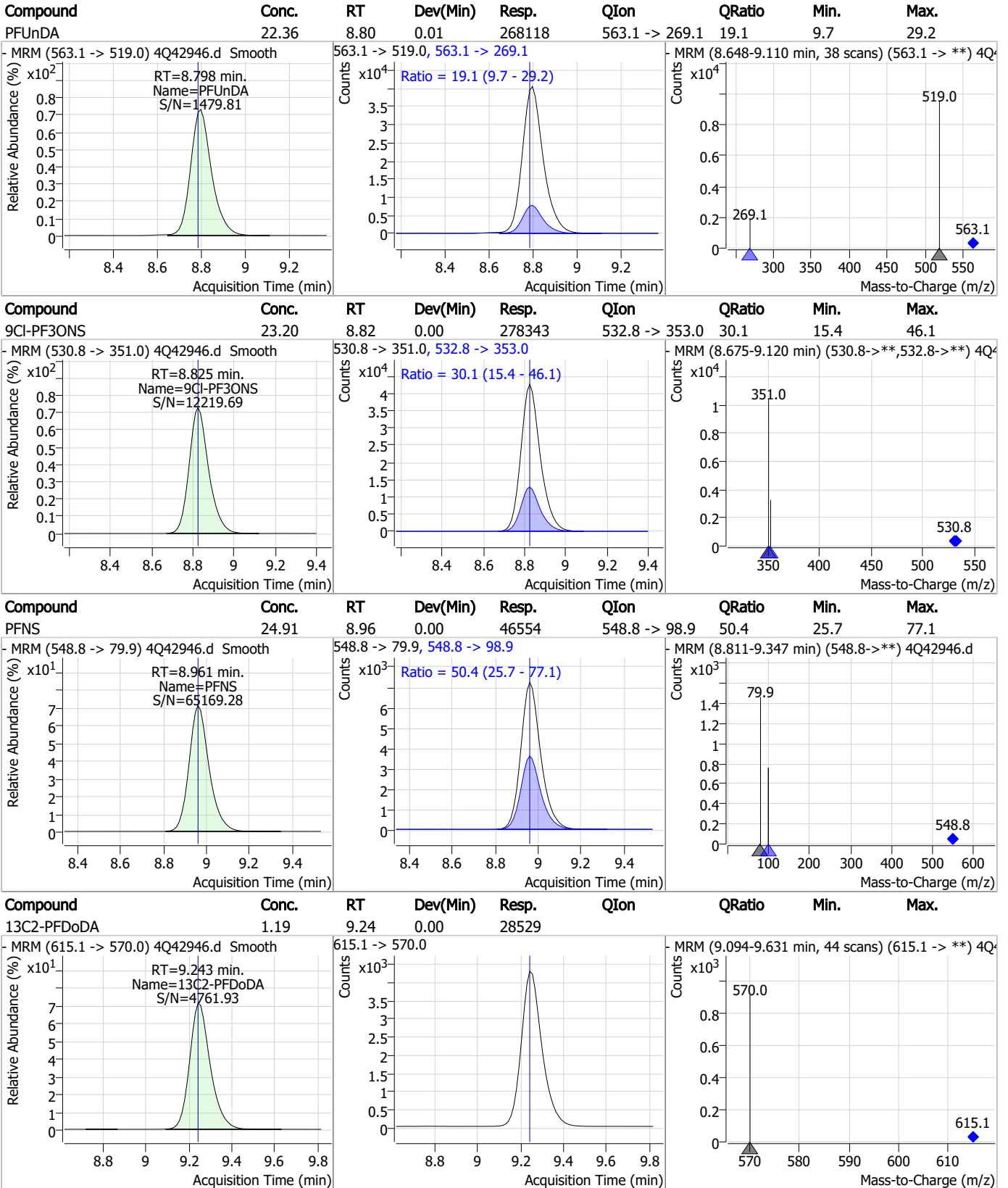


Perfluorinated Compounds by LC/MS/MS



7.7.11
7

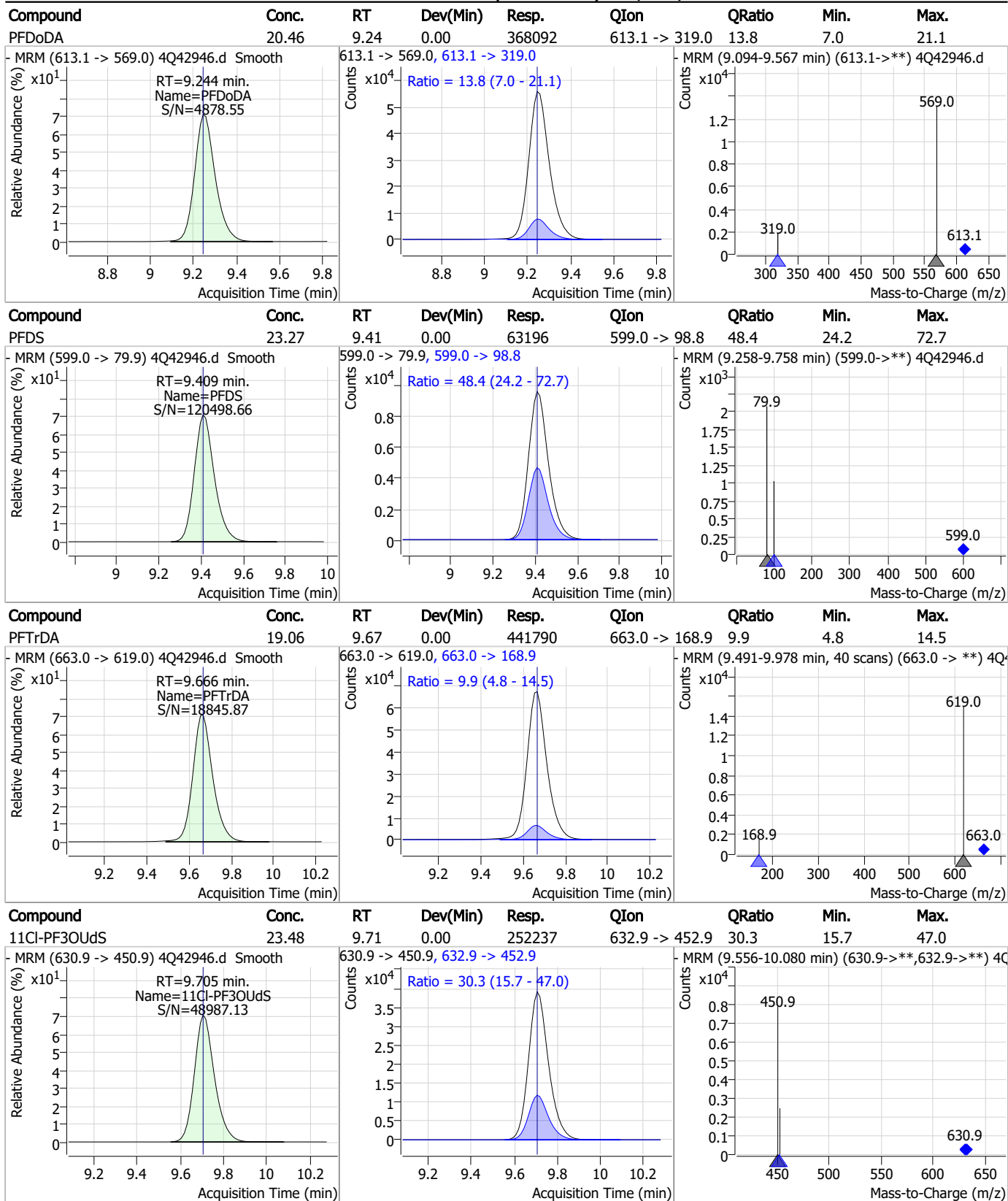
Perfluorinated Compounds by LC/MS/MS



7.7.11

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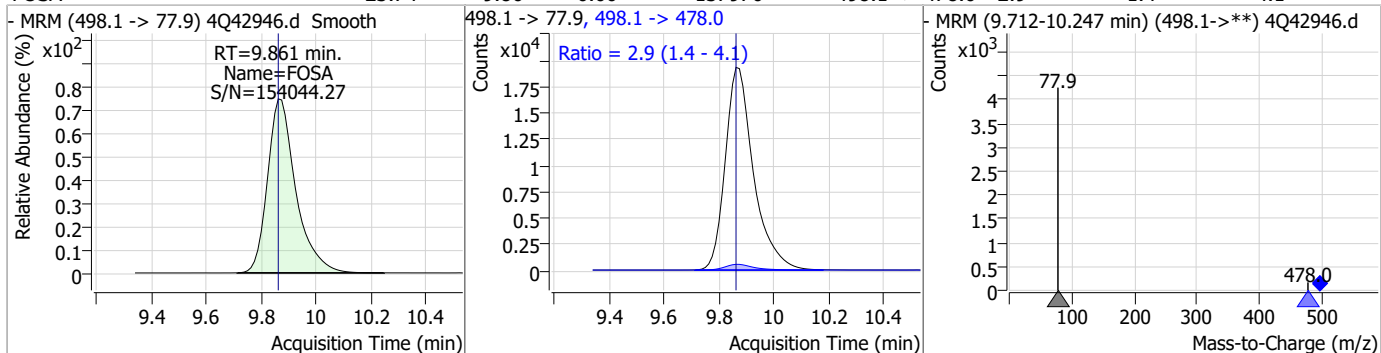
Perfluorinated Compounds by LC/MS/MS



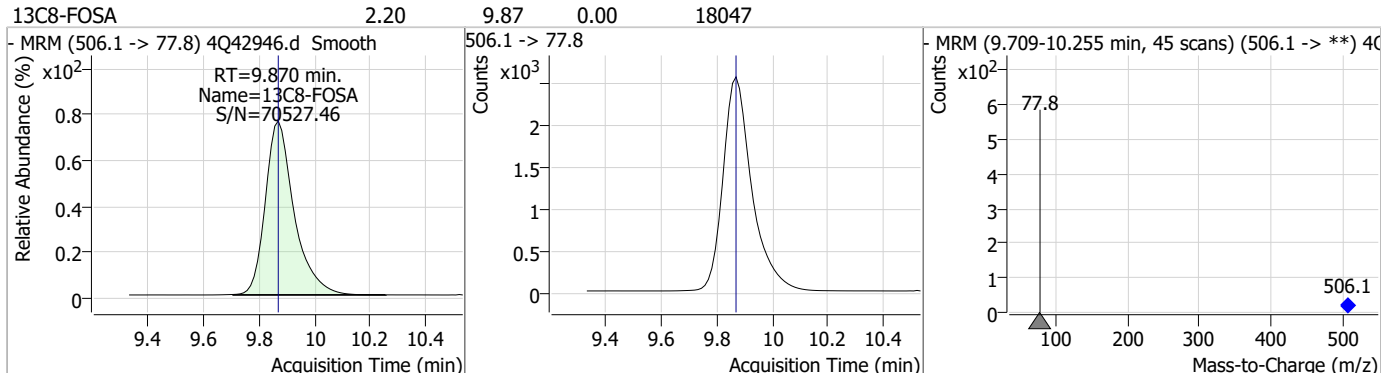
7.7.11
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Perfluorinated Compounds by LC/MS/MS

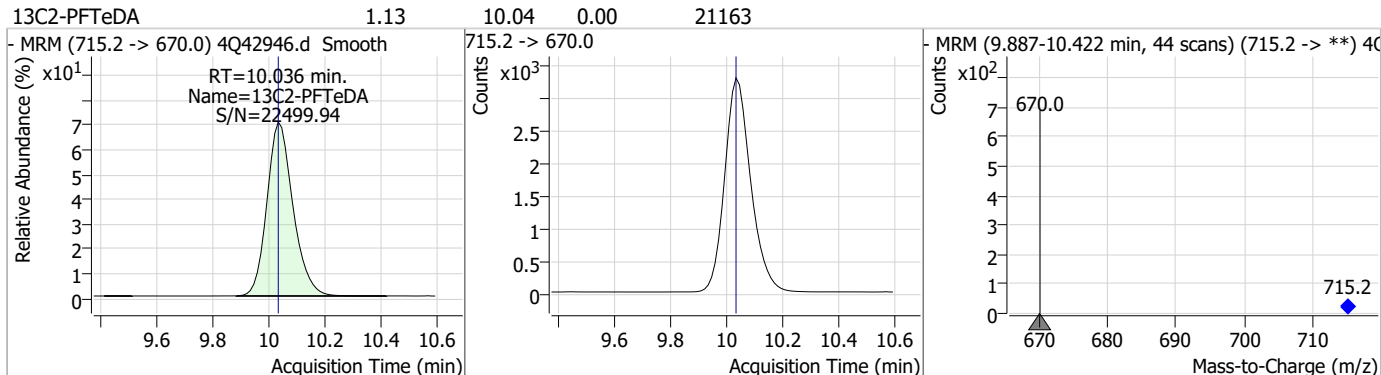
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	23.74	9.86	0.00	137970	498.1 -> 478.0	2.9	1.4	4.1



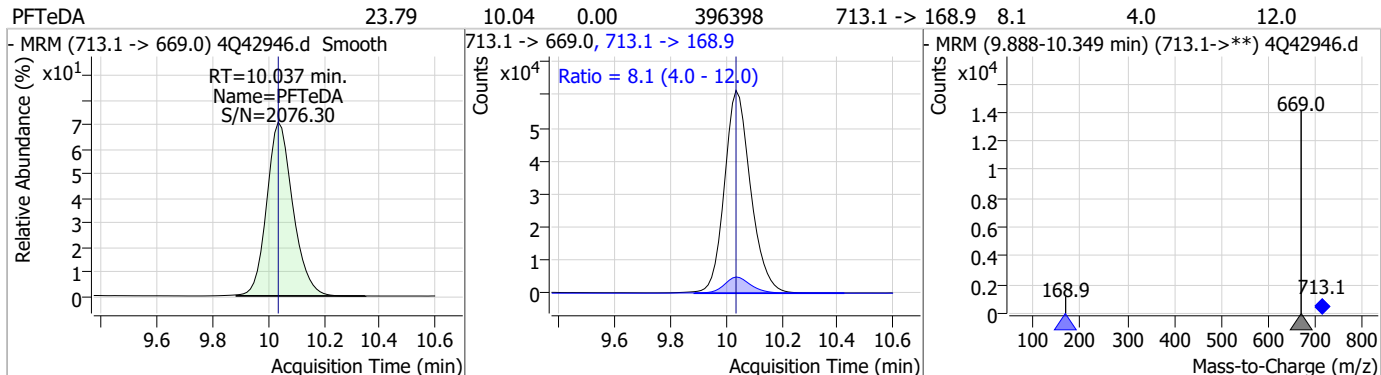
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.20	9.87	0.00	18047				



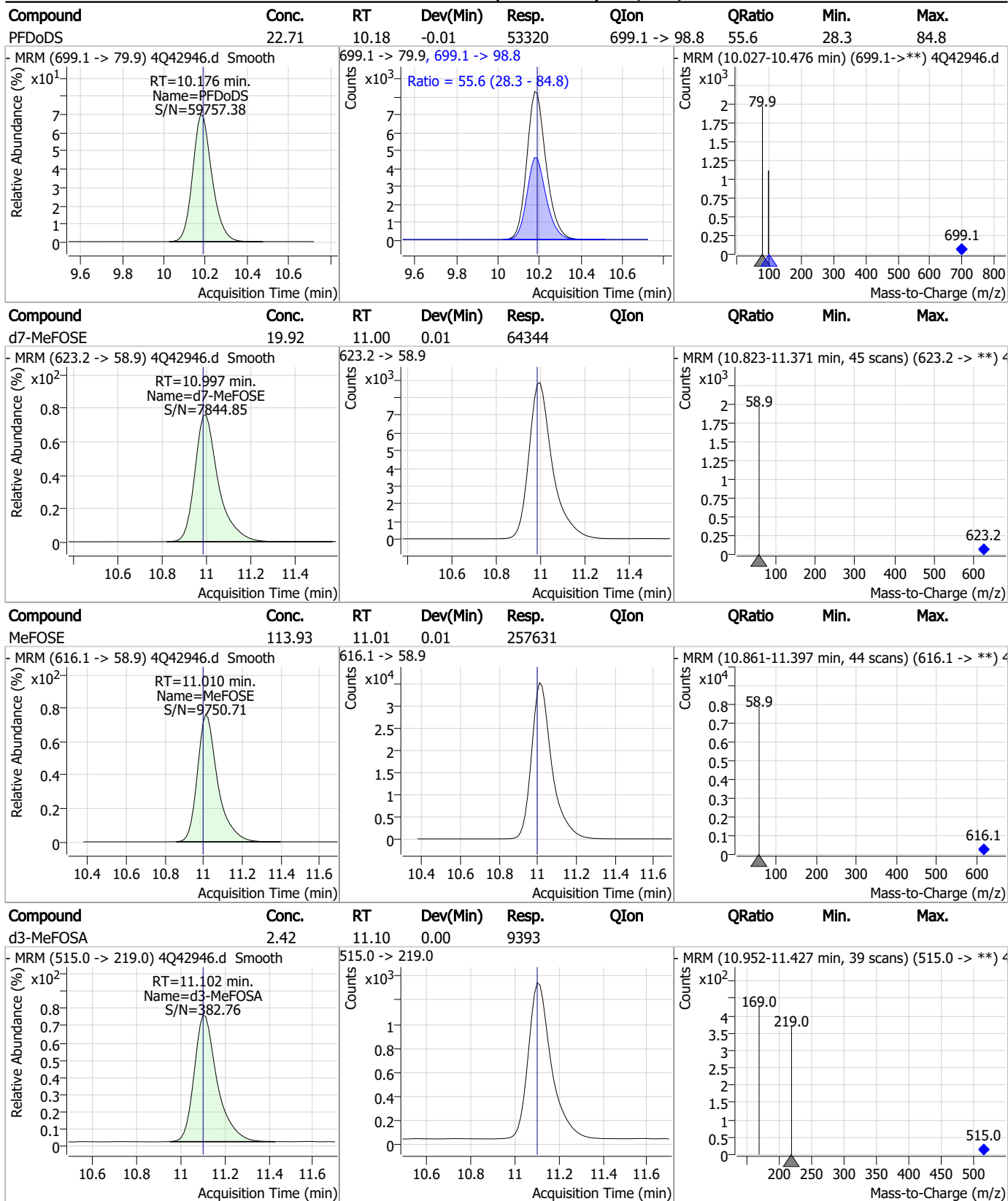
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.13	10.04	0.00	21163				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	23.79	10.04	0.00	396398	713.1 -> 168.9	8.1	4.0	12.0



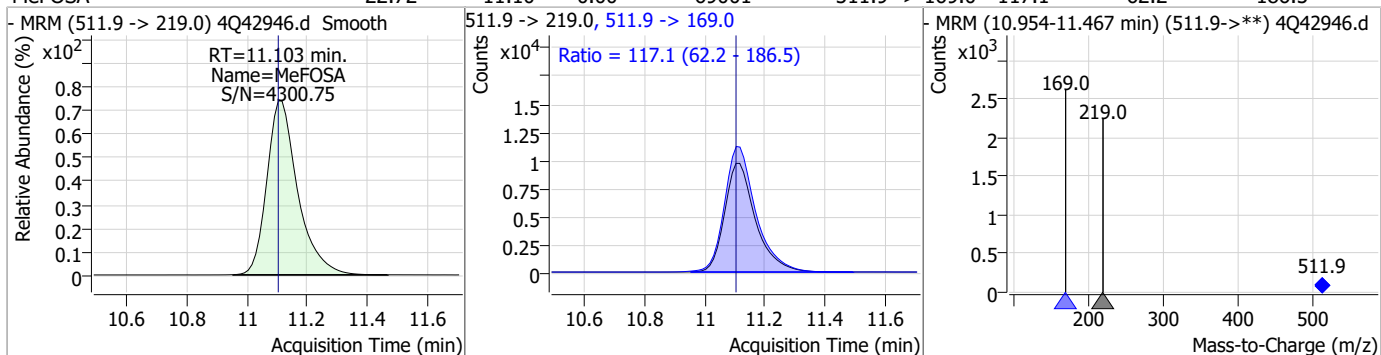
Perfluorinated Compounds by LC/MS/MS



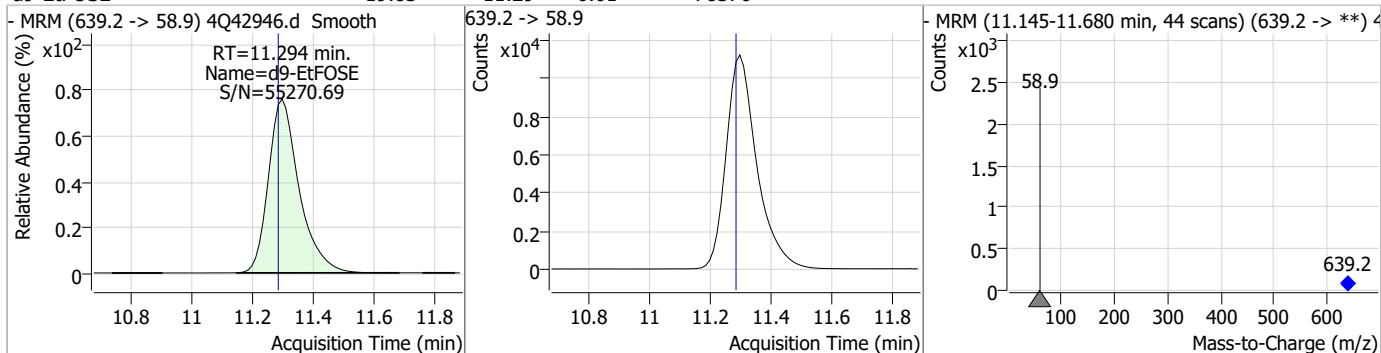
7.7.11
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Perfluorinated Compounds by LC/MS/MS

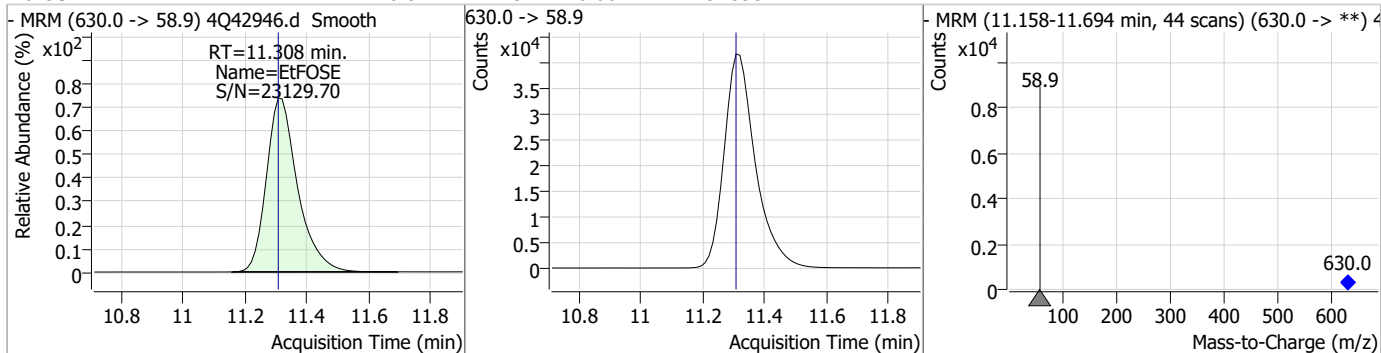
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	22.72	11.10	0.00	69001	511.9 -> 169.0	117.1	62.2	186.5



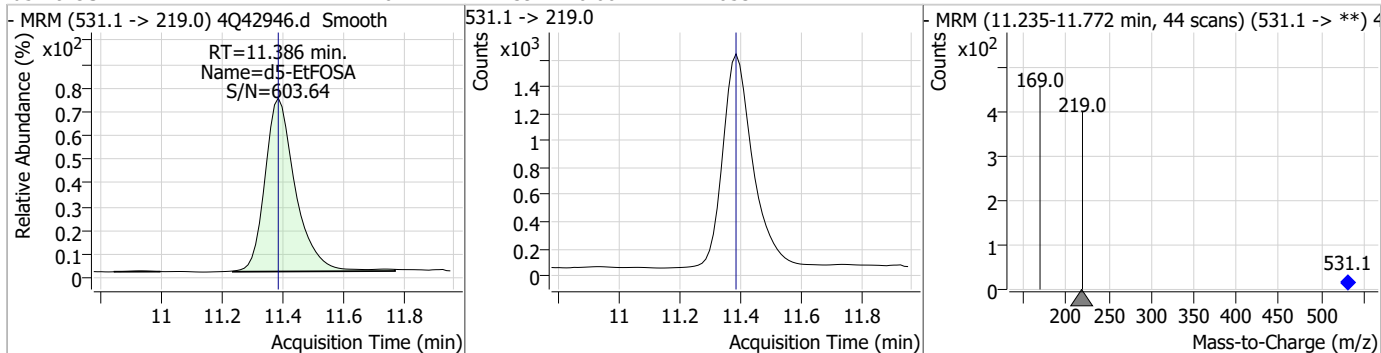
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.83	11.29	0.01	78370	639.2 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	120.82	11.31	0.00	291838	630.0 -> 58.9			

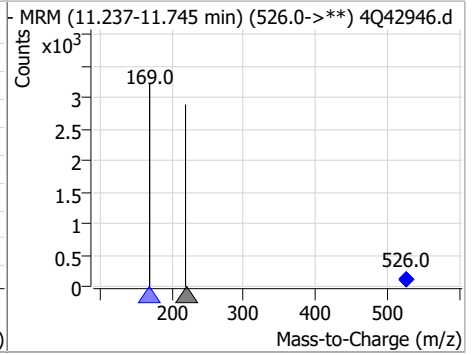
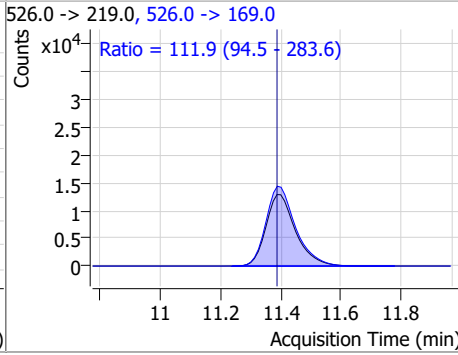
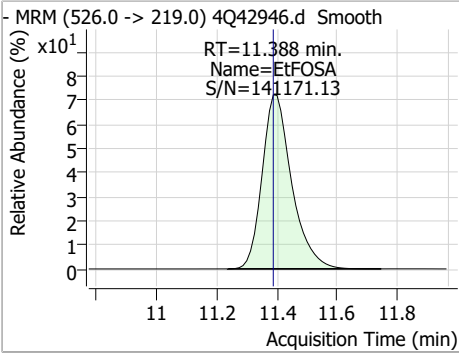


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.64	11.39	0.00	11053	531.1 -> 219.0			



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	22.07	11.39	0.00	86921	526.0 -> 169.0	111.9	94.5	283.6



7.7.11

7



Manual Integration Approval Summary

Sample Number: S4Q621-ICV621 Method: EPA DRAFT 1633
Lab FileID: 4Q42946.D Analyst approved: 04/16/23 19:11 Martha Valls
Injection Time: 04/14/23 14:19 Supervisor approved: 04/17/23 14:32 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.36	Split peak
MeFOSAA	2355-31-9		8.37	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.47	Split peak
EtFOSAA	2991-50-6		8.60	Split peak

7.7.11.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43011.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 5:57:29 AM
 Sample Name : cc621-1.0LL
 Vial : P1-A2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	115863	10.00 µg/L	0.012
M5-PFPeA	4.462	268.3 -> 223.0	67594	5.00 µg/L	-0.012
M5-PFHxA	5.634	318.0 -> 273.0	51900	2.50 µg/L	-0.012
M4-PFHpA	6.567	367.1 -> 322.0	26005	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	32515	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	18322	1.25 µg/L	-0.012
M6-PFDA	8.279	519.1 -> 474.1	17882	1.25 µg/L	-0.024
M7-PFUnDA	8.760	570.0 -> 525.1	18228	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	22393	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	16256	1.25 µg/L	-0.024
M8-FOSA	9.846	506.1 -> 77.8	14136	2.50 µg/L	-0.024
M3-PFBS	5.539	302.1 -> 79.9	11225	2.50 µg/L	-0.024
M3-PFHxS	7.329	402.1 -> 79.9	6968	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	9938	2.50 µg/L	-0.024
M2-4:2FTS	5.323	329.1 -> 80.9	1381	5.00 µg/L	-0.012
M2-6:2FTS	6.999	429.1 -> 80.9	2205	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	3581	5.00 µg/L	-0.024
M3-MeFOSAA	8.337	573.2 -> 419.0	15557	5.00 µg/L	-0.024
M3-HFPO-DA	6.002	286.9 -> 168.9	32308	10.00 µg/L	-0.012
M5-EtFOSAA	8.558	589.2 -> 419.0	13336	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	51927	25.00 µg/L	0.002
M9-EtFOSE	11.282	639.2 -> 58.9	64457	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	8526	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	7601	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	9896	2.50 µg/L	-0.024
13C3-PFBA	3.003	216.0 -> 172.0	64524	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	5061	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	38674	2.50 µg/L	-0.010
13C2-PFDA	8.279	515.1 -> 470.1	15590	1.25 µg/L	-0.024
13C5-PFNA	7.784	468.0 -> 423.0	19988	1.25 µg/L	-0.012
13C2-PFHxA	5.635	315.1 -> 270.0	44645	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1381	4.99 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C2-6:2FTS	6.999	429.1 -> 80.9	2205	5.56 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3581	5.48 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-PFDoDA	9.219	615.1 -> 570.0	22393	1.17 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C2-PFTeDA	10.012	715.2 -> 670.0	16256	1.09 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.0%		
13C3-PFBS	5.539	302.1 -> 79.9	11225	2.41 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C3-PFHxS	7.329	402.1 -> 79.9	6968	2.49 µg/L	-0.012

7.7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFBA	3.011	216.8 -> 171.9	115863	10.31 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C4-PFHpA	6.567	367.1 -> 322.0	26005	2.57 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	5.634	318.0 -> 273.0	51900	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFPeA	4.462	268.3 -> 223.0	67594	5.14 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C6-PFDA	8.279	519.1 -> 474.1	17882	1.30 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C7-PFUnDA	8.760	570.0 -> 525.1	18228	1.22 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C8-FOSA	9.846	506.1 -> 77.8	14136	2.18 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.4%	
13C8-PFOA	7.227	421.1 -> 376.0	32515	2.55 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOS	8.442	507.1 -> 79.9	9938	2.59 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C9-PFNA	7.784	472.1 -> 427.0	18322	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSAA	8.337	573.2 -> 419.0	15557	5.34 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C3-HFPO-DA	6.002	286.9 -> 168.9	32308	10.31 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
d3-MeFOSA	11.103	515.0 -> 219.0	7601	2.48 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
d5-EtFOSAA	8.558	589.2 -> 419.0	13336	5.63 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.6%	
d7-MeFOSE	10.986	623.2 -> 58.9	51927	20.35 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.4%	
d9-EtFOSE	11.282	639.2 -> 58.9	64457	20.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
d5-EtFOSA	11.386	531.1 -> 219.0	8526	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
Target Compounds					QValue
4:2FTS	5.323	327.1 -> 307.0	1351	0.78 µg/L	90
		327.1 -> 80.9	631		
6:2FTS	6.999	427.1 -> 407.0	1320	0.88 µg/L	99
		427.1 -> 80.9	550		
8:2FTS	8.066	527.1 -> 507.0	1244	0.77 µg/L	81
		527.1 -> 80.8	634		
EtFOSAA	8.559	584.2 -> 419.1	349	0.18 µg/L	#m 59
		584.2 -> 526.0	221		
FOSA	9.850	498.1 -> 77.9	936	0.21 µg/L	# 94
		498.1 -> 478.0	44		
MeFOSAA	8.350	570.1 -> 419.0	353	0.16 µg/L	# 81
		570.1 -> 483.0	84		
PFBA	3.007	212.8 -> 168.9	2119	0.80 µg/L	100
PFBS	5.553	298.7 -> 79.9	859	0.20 µg/L	92
		298.7 -> 98.8	289		
PFDA	8.280	512.9 -> 469.0	1884	0.18 µg/L	98
		512.9 -> 219.0	385		
PFDODA	9.220	613.1 -> 569.0	3241	0.23 µg/L	96
		613.1 -> 319.0	407		
PFDS	9.382	599.0 -> 79.9	403	0.18 µg/L	84

7.7.12
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	238			
PFHpA	6.568	363.1 -> 319.0	2623	0.20	µg/L	95
		363.1 -> 169.0	512			
PFHpS	7.912	449.0 -> 79.9	482	0.19	µg/L	98
		449.0 -> 98.9	245			
PFHxA	5.637	313.0 -> 269.0	2910	0.19	µg/L	99
		313.0 -> 118.9	100			
PFHxS	7.330	398.7 -> 79.9	483	0.20	µg/L	m 93
		398.7 -> 98.9	227			
PFNA	7.785	463.0 -> 419.0	2162	0.22	µg/L	98
		463.0 -> 219.0	503			
PFNS	8.937	548.8 -> 79.9	255	0.17	µg/L	94
		548.8 -> 98.9	142			
PFOA	7.228	413.0 -> 369.0	3453	0.23	µg/L	95
		413.0 -> 169.0	629			
PFOS	8.443	498.9 -> 79.9	670	0.17	µg/L	m 87
		498.9 -> 98.8	469			
PFPeA	4.464	263.0 -> 219.0	5152	0.40	µg/L	100
PFPeS	6.607	349.1 -> 79.9	474	0.23	µg/L	86
		349.1 -> 98.9	159			
PFTeDA	10.013	713.1 -> 669.0	2305	0.18	µg/L	# 87
		713.1 -> 168.9	291			
PFTrDA	9.630	663.0 -> 619.0	3325	0.18	µg/L	98
		663.0 -> 168.9	351			
PFUnDA	8.761	563.1 -> 519.0	2406	0.23	µg/L	98
		563.1 -> 269.1	453			
11Cl-PF3OUdS	9.681	630.9 -> 450.9	3396	0.40	µg/L	98
		632.9 -> 452.9	1093			
9Cl-PF3ONS	8.788	530.8 -> 351.0	3485	0.37	µg/L	87
		532.8 -> 353.0	813			
ADONA	6.819	376.9 -> 250.9	7508	0.39	µg/L	98
		376.9 -> 84.8	1942			
HFPO-DA	6.003	284.9 -> 168.9	1031	0.40	µg/L	96
		284.9 -> 184.9	143			
3:3FTCA	3.979	241.0 -> 177.0	626	1.05	µg/L	97
		241.0 -> 117.0	53			
5:3FTCA	6.333	341.0 -> 237.1	11630	5.36	µg/L	100
		341.0 -> 217.0	8310			
7:3FTCA	7.774	441.0 -> 316.9	4531	5.10	µg/L	84
		441.0 -> 336.9	11134			
EtFOSA	11.388	526.0 -> 219.0	1376	0.45	µg/L	m 56
		526.0 -> 169.0	1724			
EtFOSE	11.308	630.0 -> 58.9	2287	1.15	µg/L	m 100
MeFOSA	11.104	511.9 -> 219.0	1093	0.44	µg/L	m 89
		511.9 -> 169.0	1498			
MeFOSE	11.000	616.1 -> 58.9	2217	1.22	µg/L	100
PFDoDS	10.152	699.1 -> 79.9	431	0.22	µg/L	97
		699.1 -> 98.8	235			
NFDHA	5.516	295.0 -> 201.0	406	0.39	µg/L	100
		295.0 -> 84.9	101			
PFMBA	4.878	279.0 -> 85.1	2991	0.41	µg/L	100
PFMPA	3.602	229.0 -> 84.9	2631	0.41	µg/L	100
PFEESA	6.084	314.8 -> 134.9	4515	0.35	µg/L	99
		314.8 -> 82.9	145			

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.12
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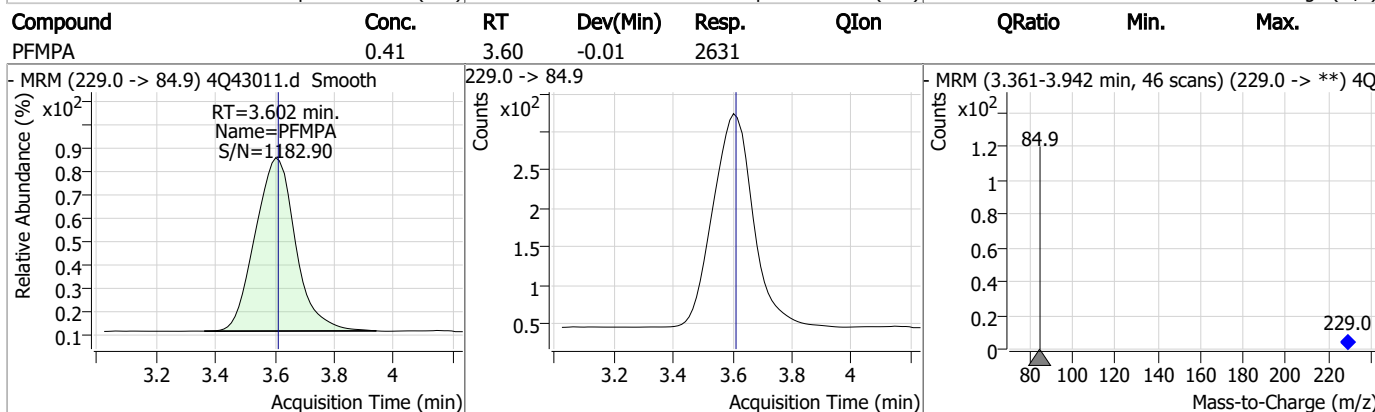
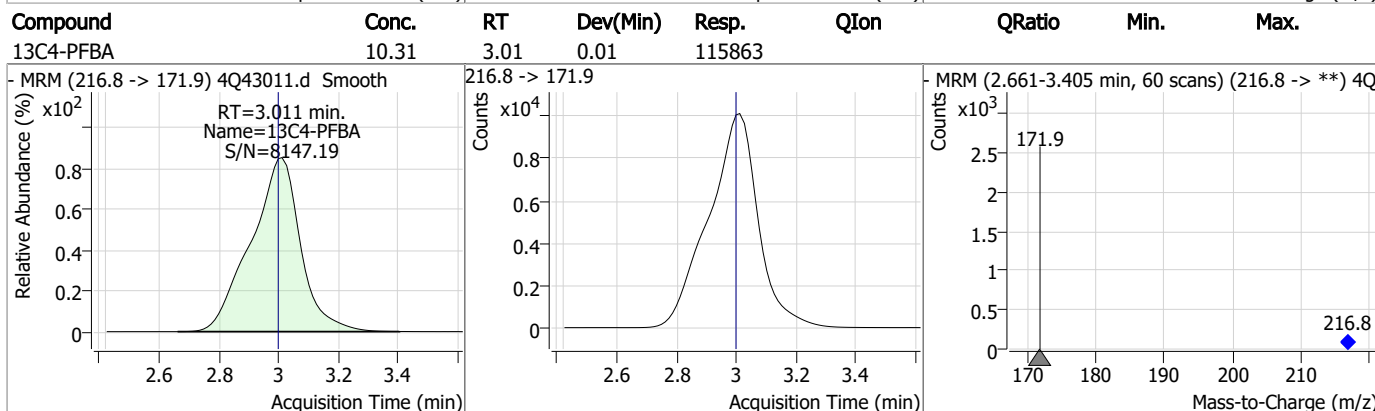
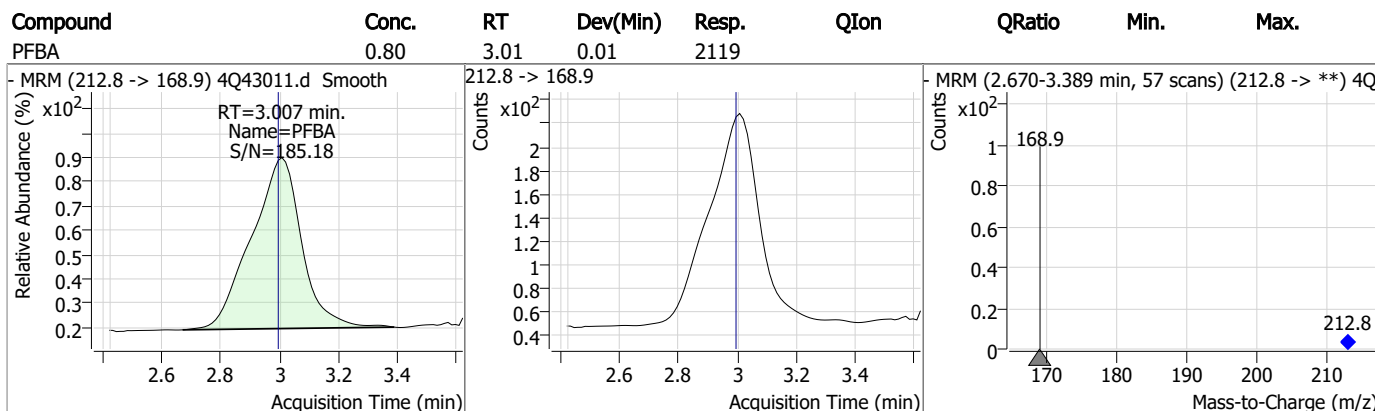
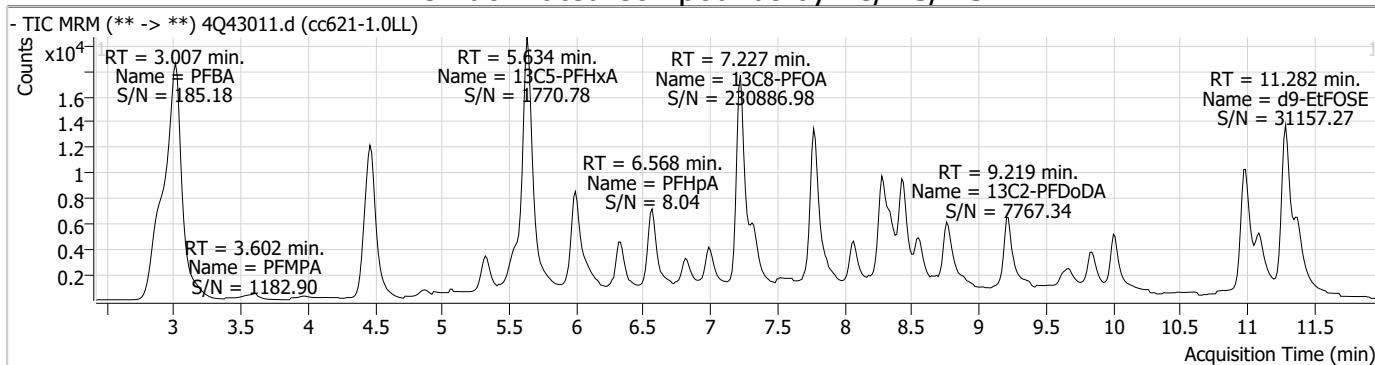
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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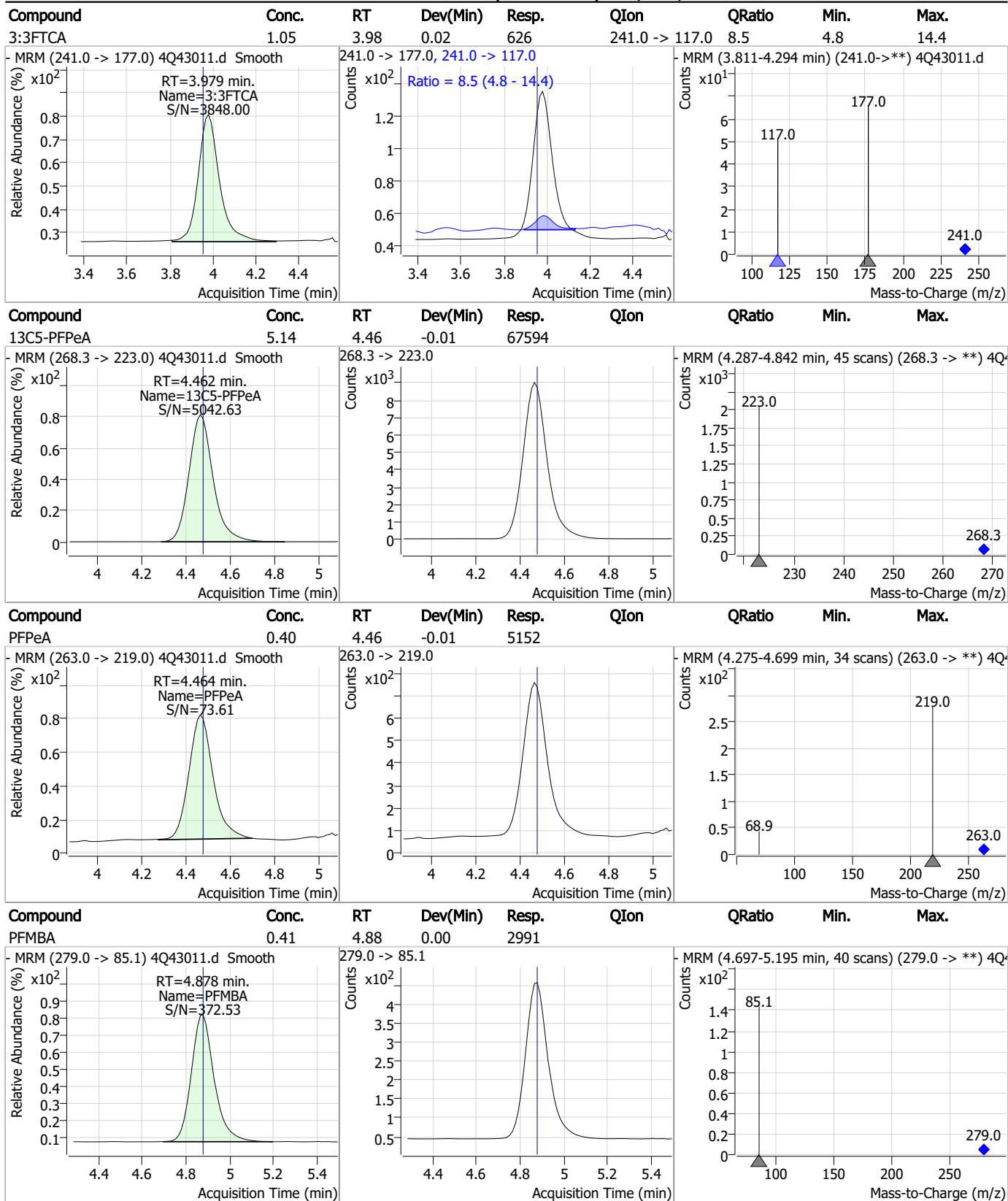
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Perfluorinated Compounds by LC/MS/MS



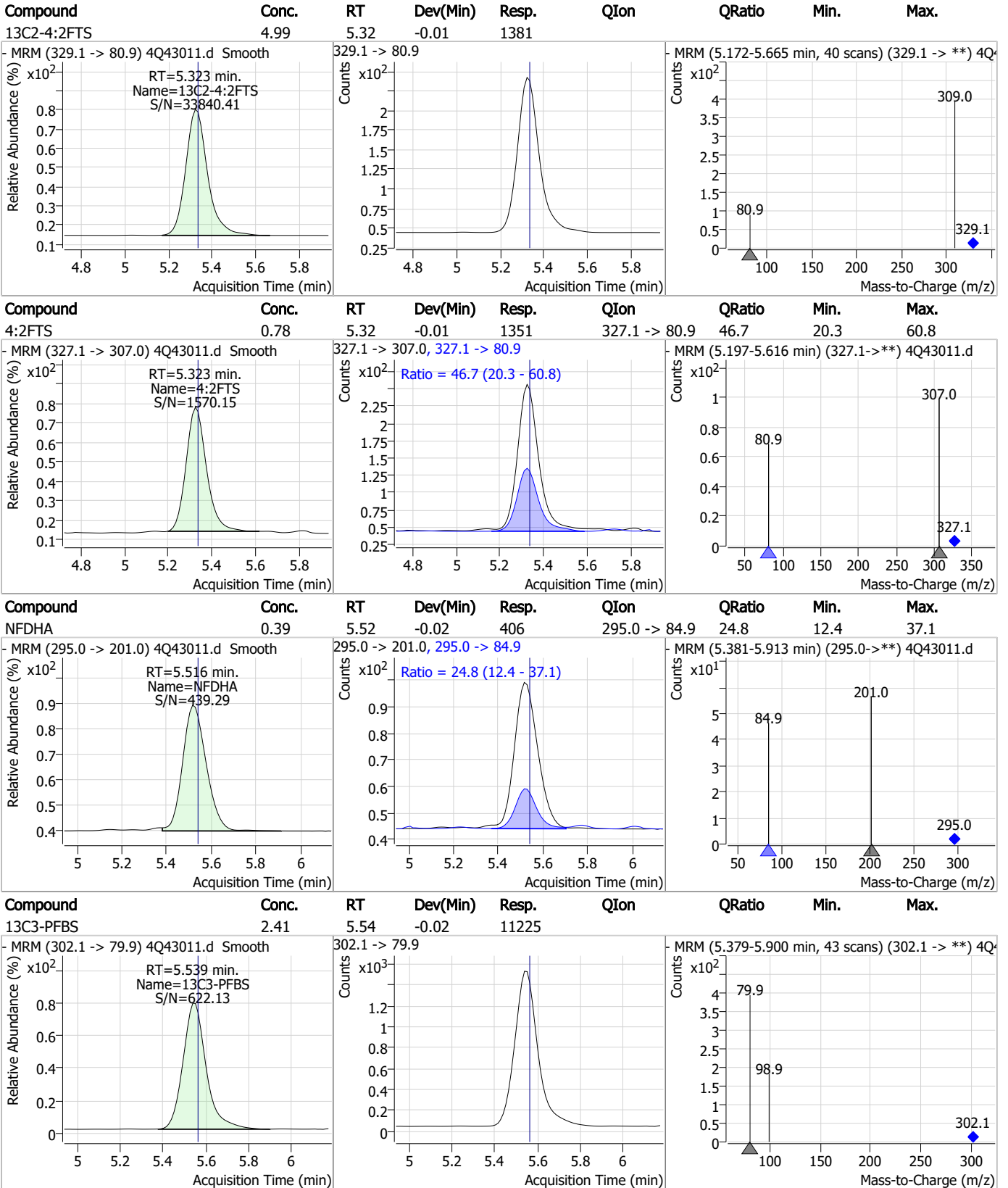
Perfluorinated Compounds by LC/MS/MS



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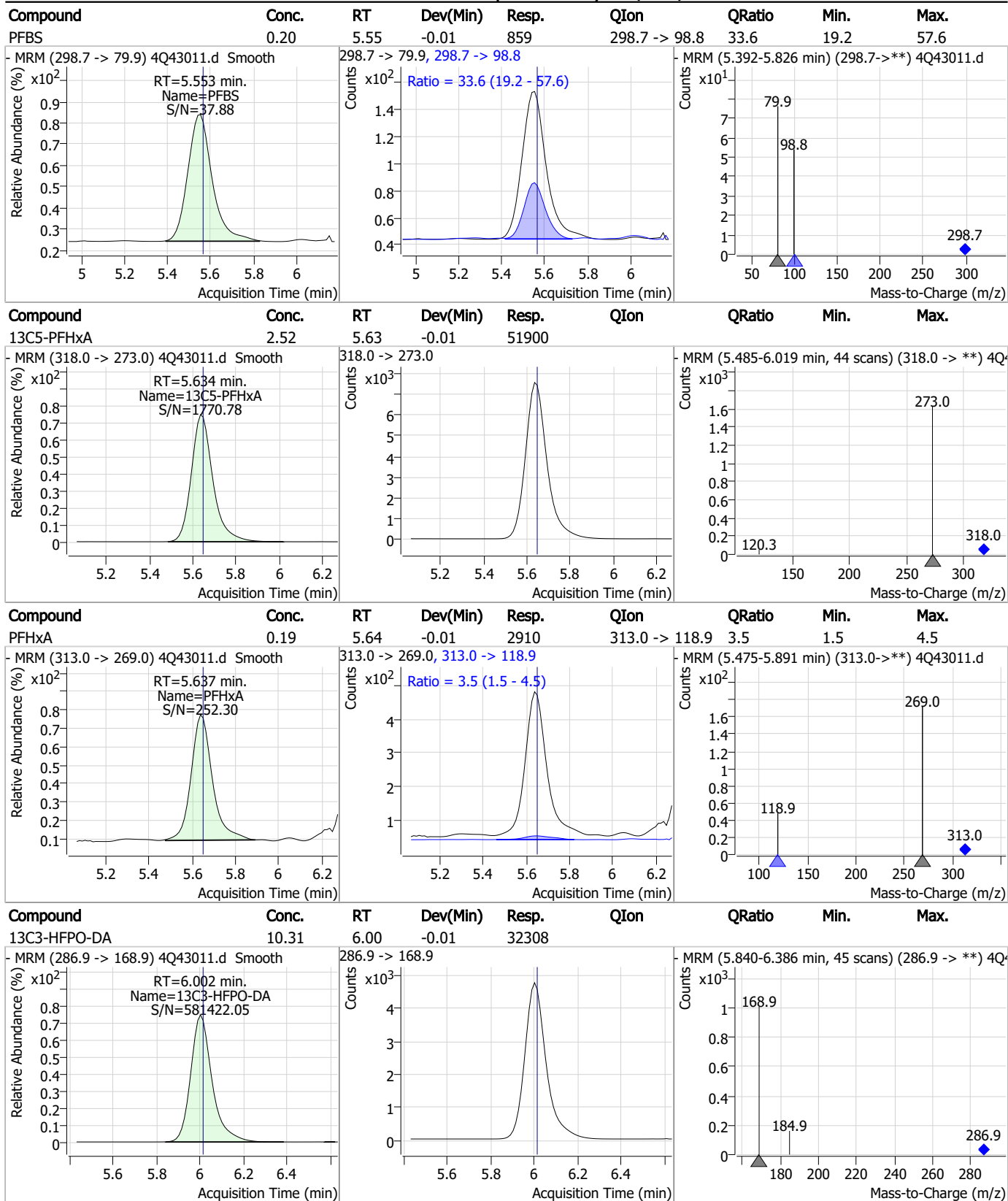
Perfluorinated Compounds by LC/MS/MS



7.7.12 7

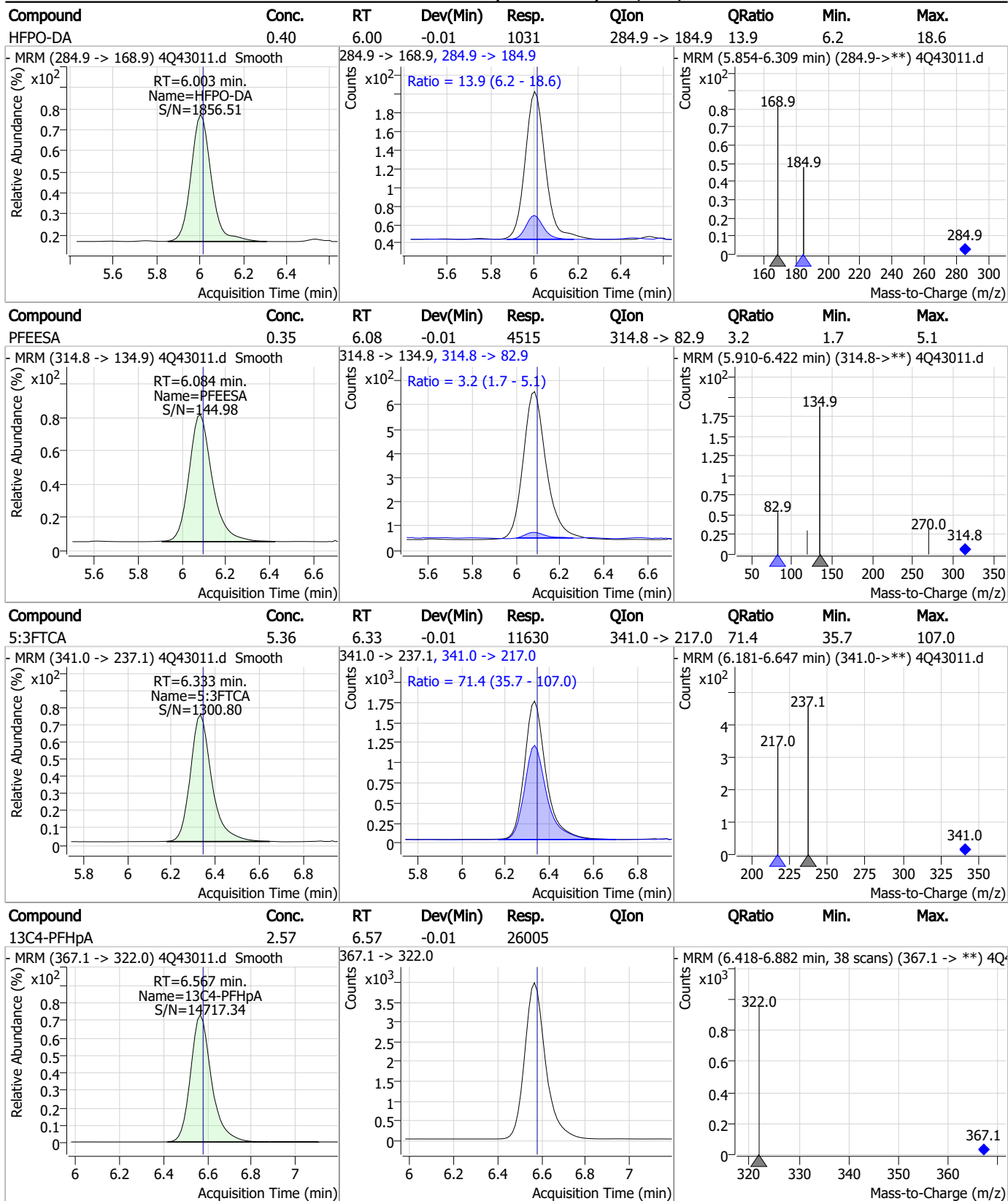


Perfluorinated Compounds by LC/MS/MS



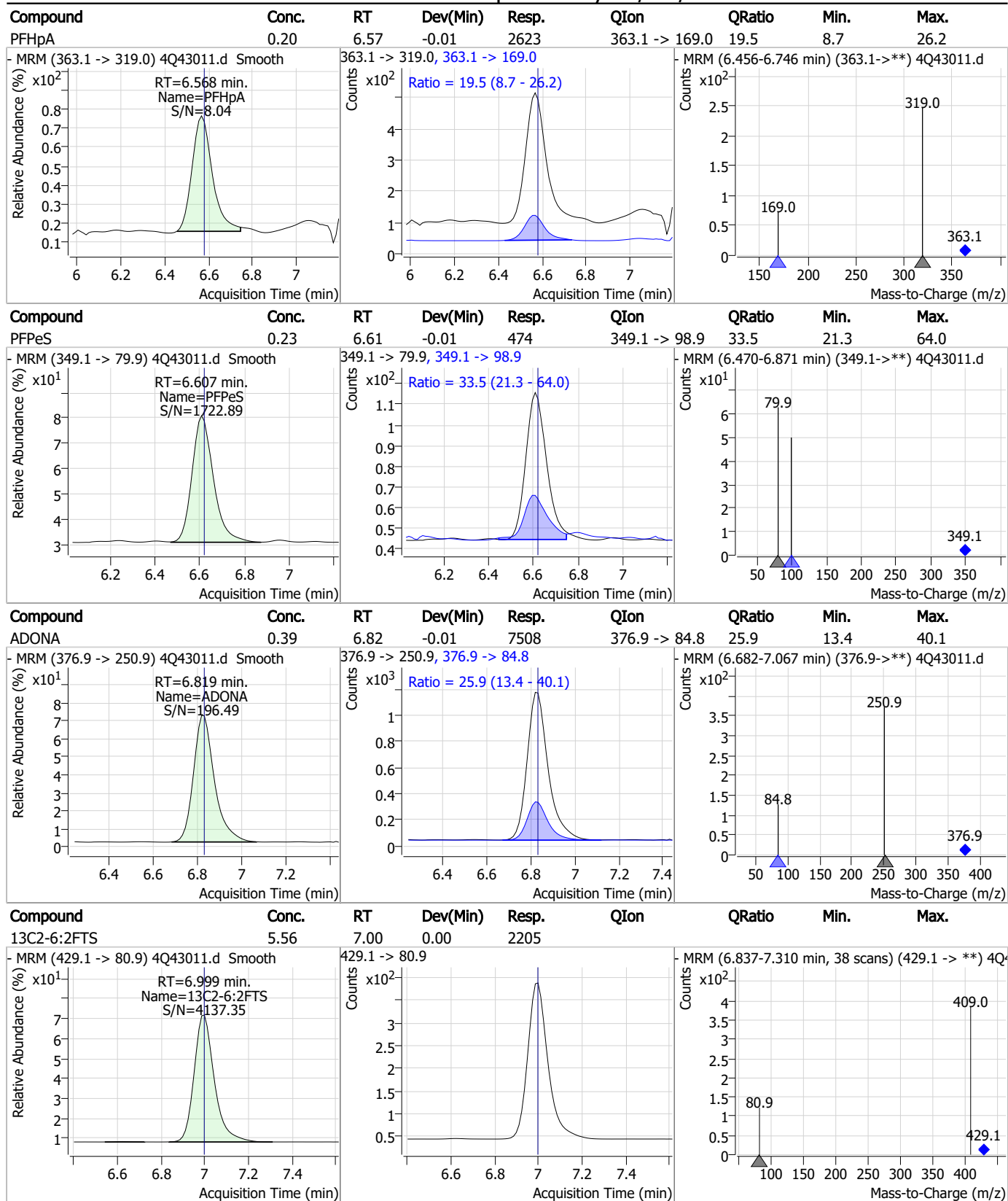
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Perfluorinated Compounds by LC/MS/MS



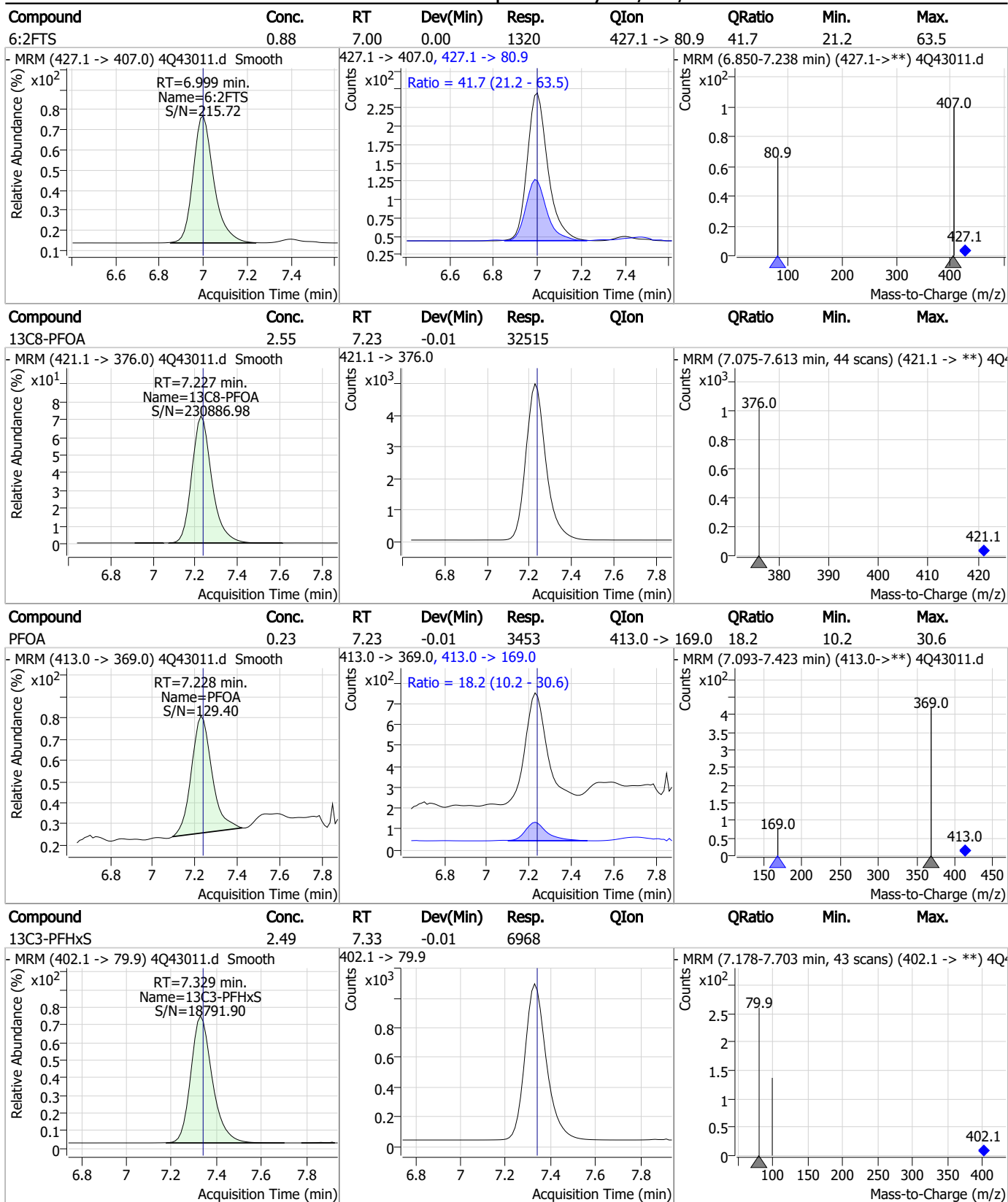
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Perfluorinated Compounds by LC/MS/MS



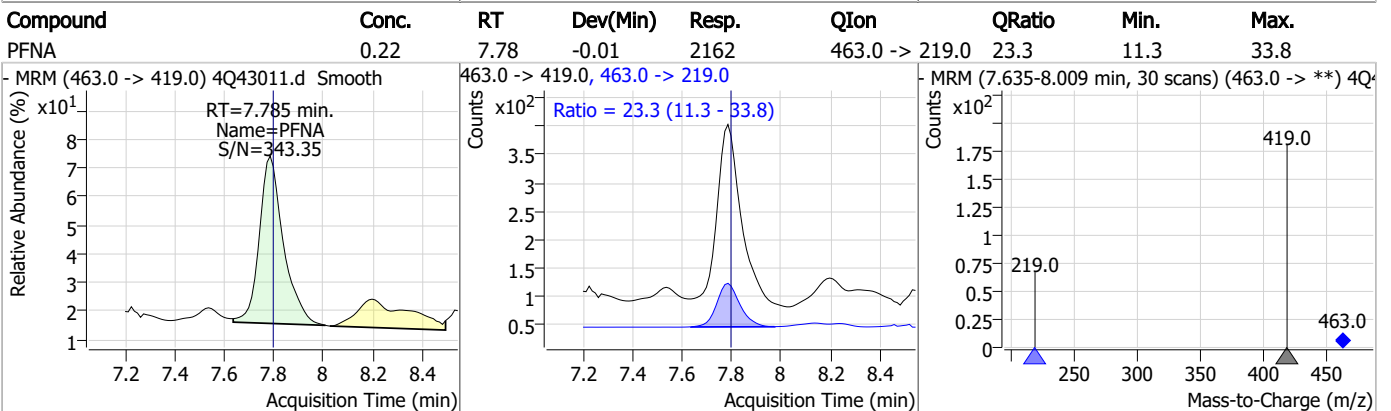
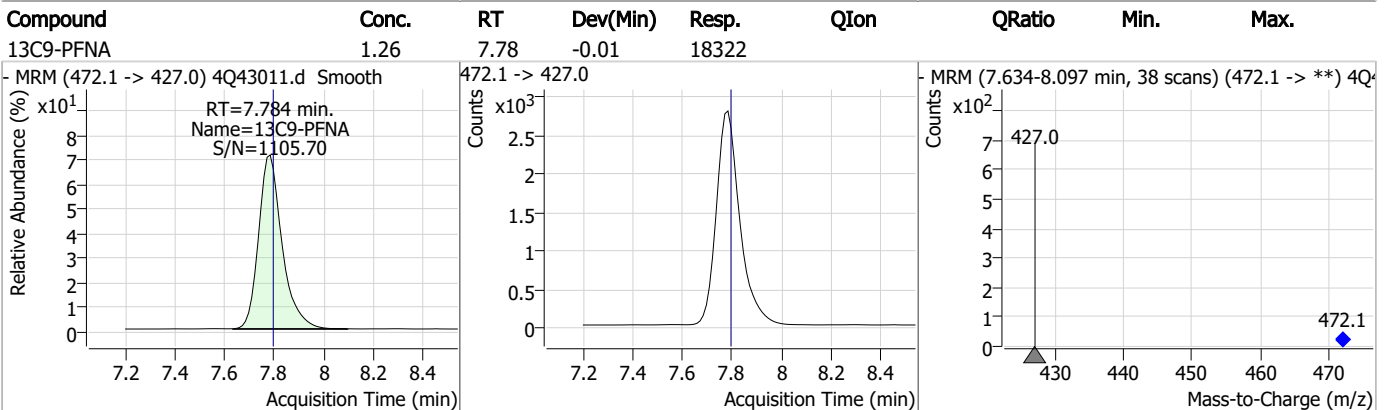
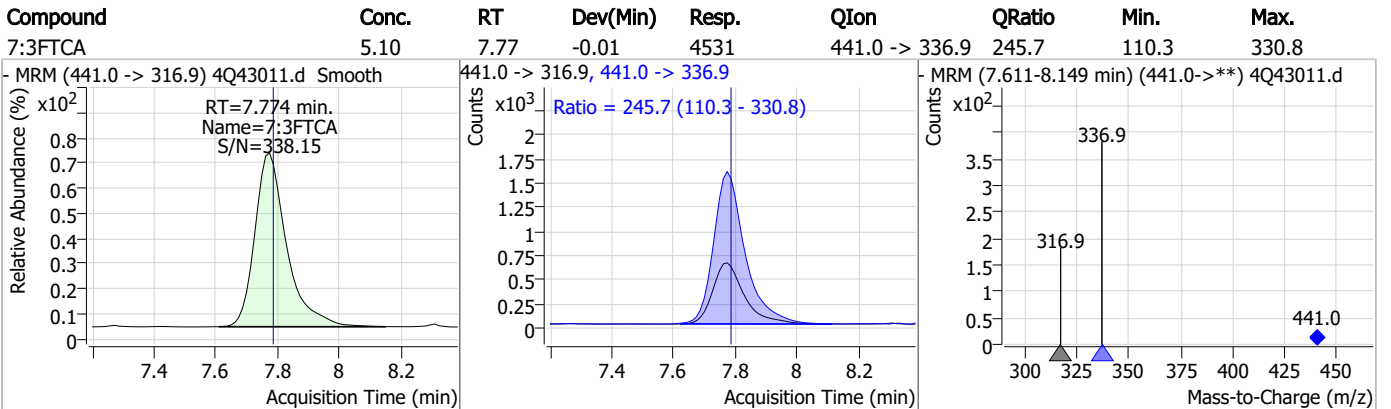
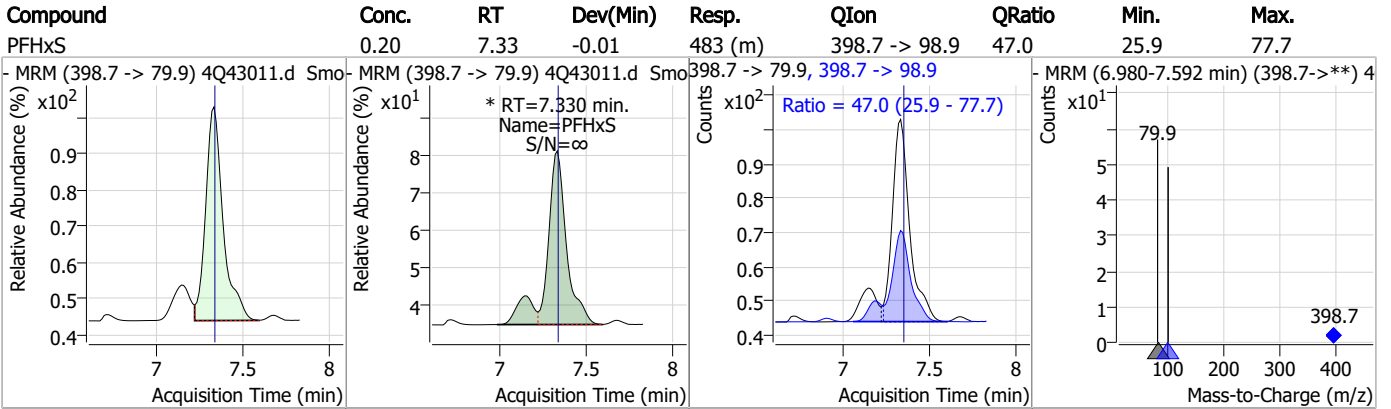
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Perfluorinated Compounds by LC/MS/MS



7.7.12

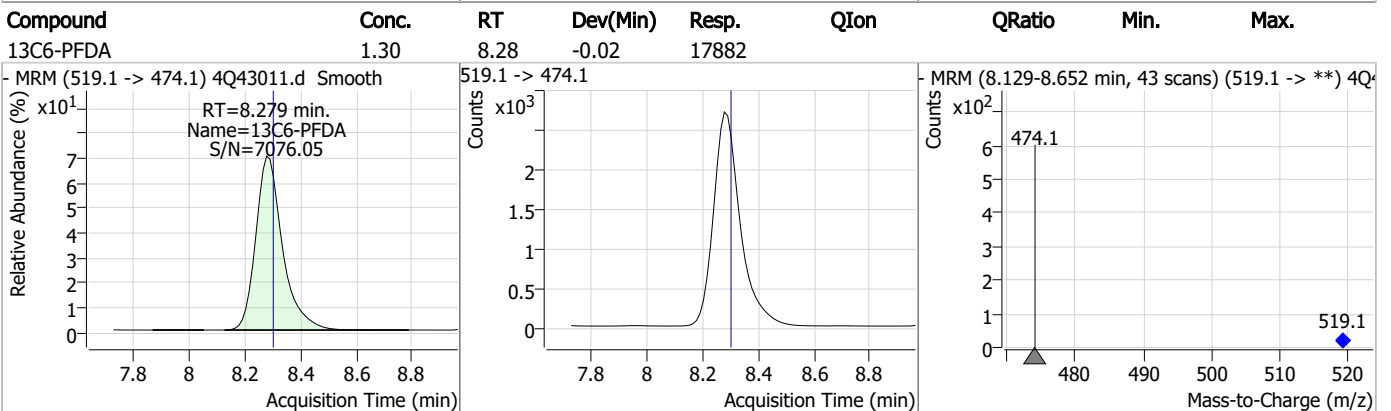
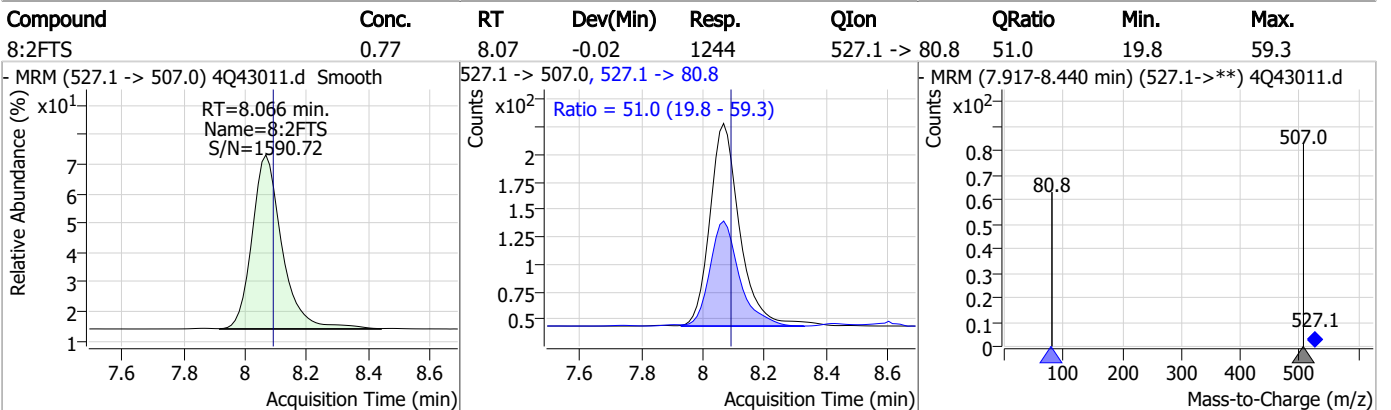
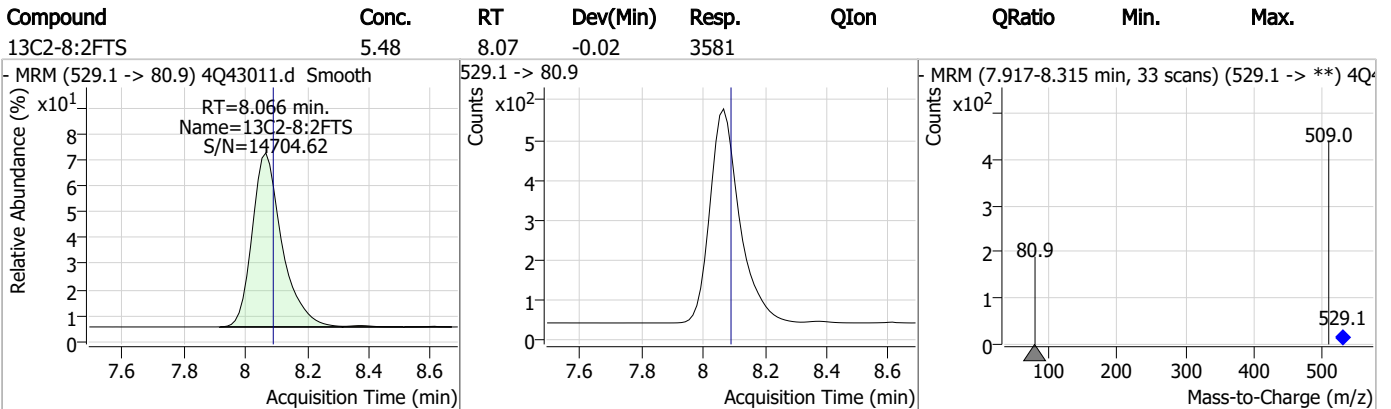
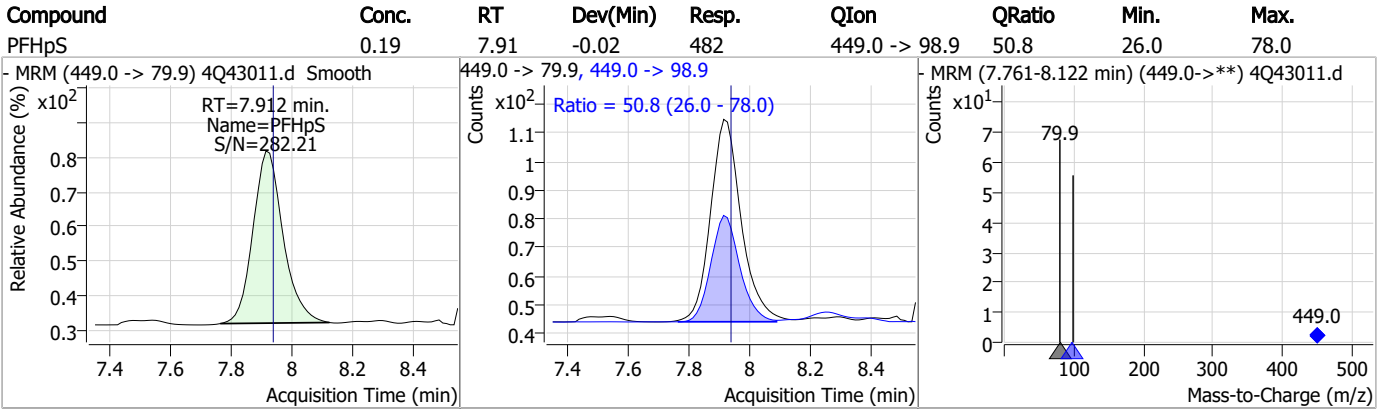
Perfluorinated Compounds by LC/MS/MS



7.7.12
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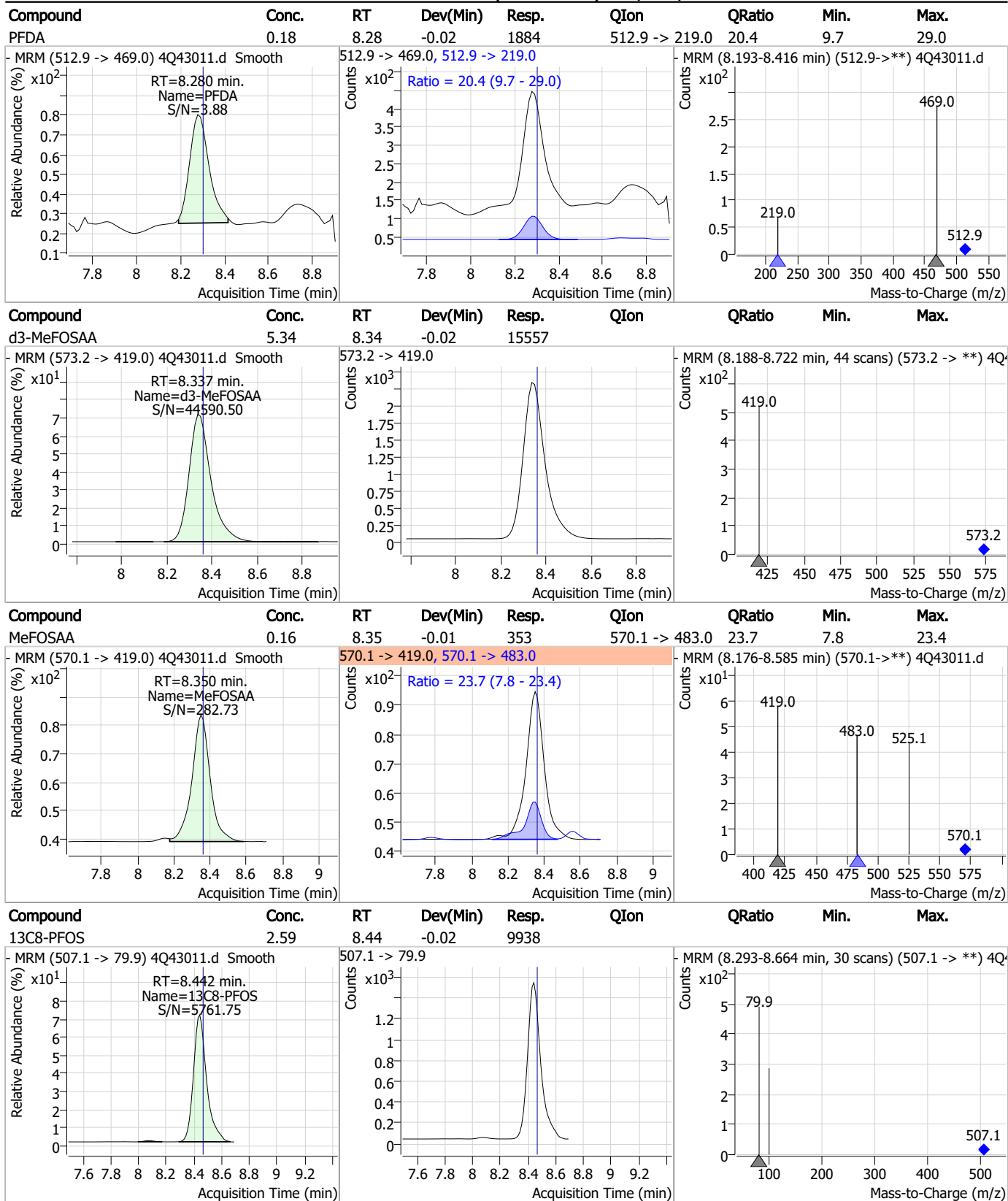


Perfluorinated Compounds by LC/MS/MS



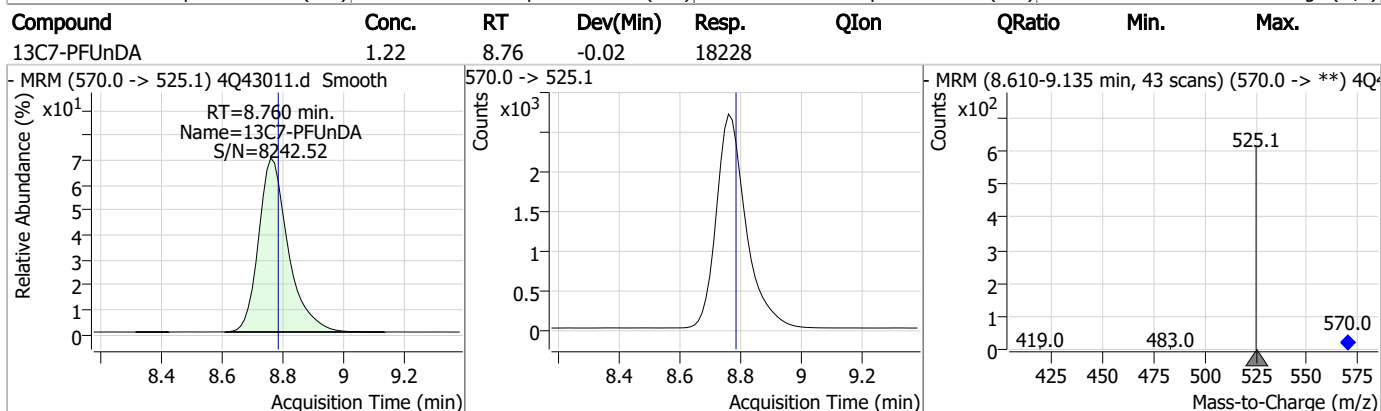
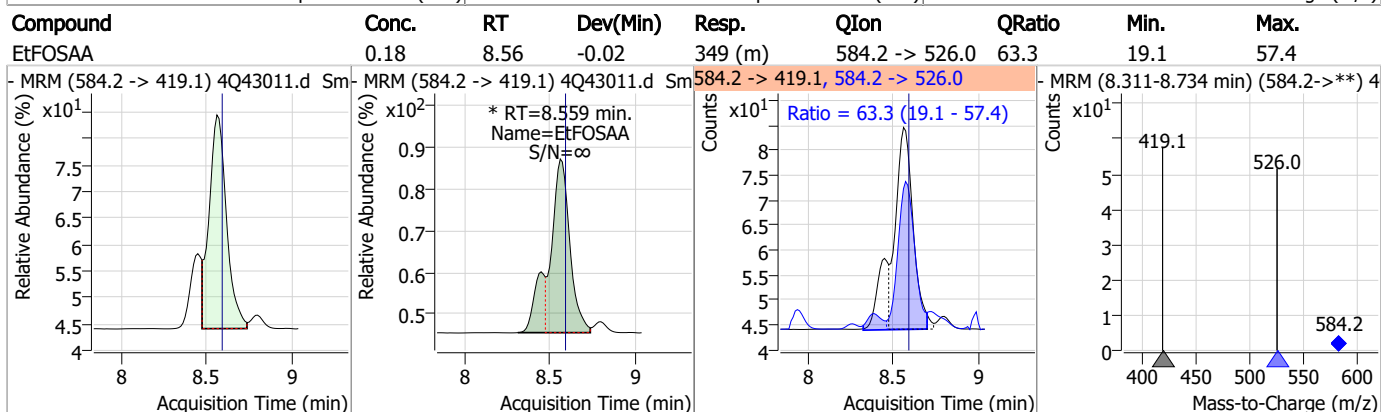
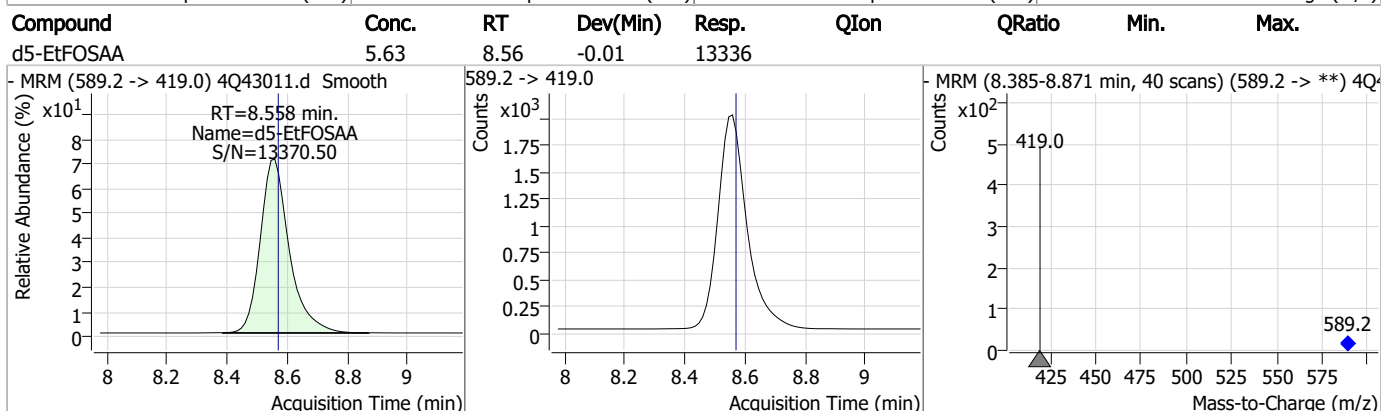
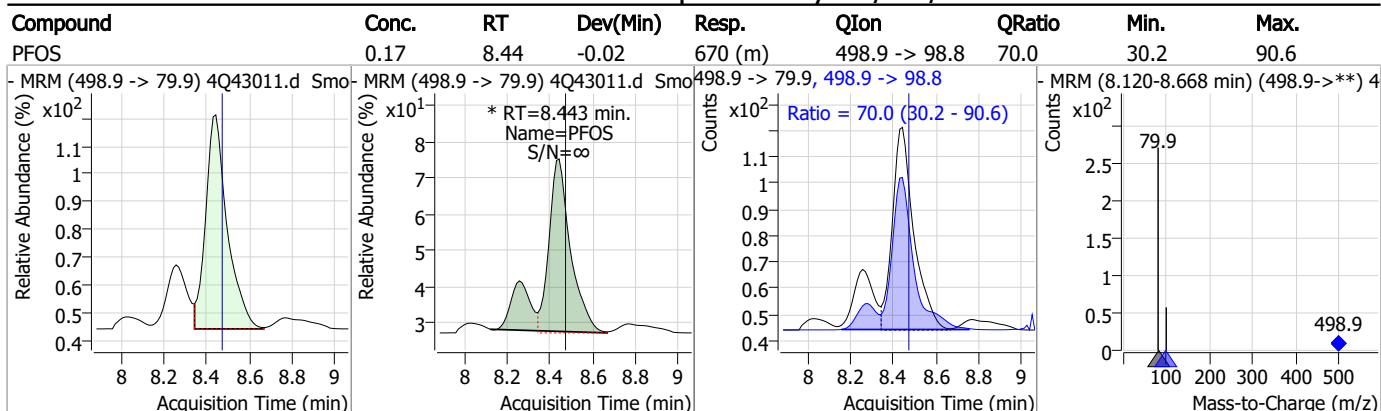
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Perfluorinated Compounds by LC/MS/MS



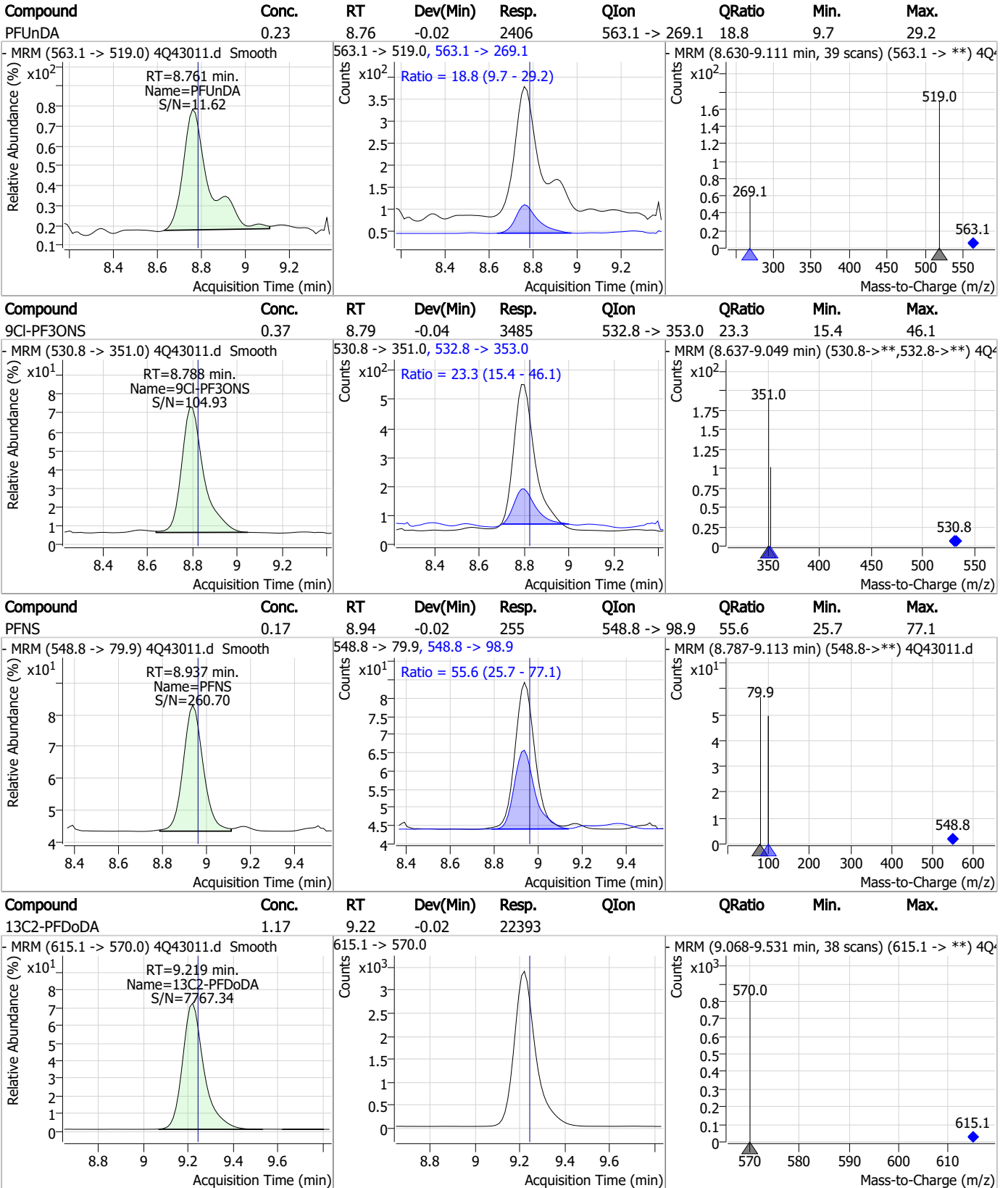
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Perfluorinated Compounds by LC/MS/MS



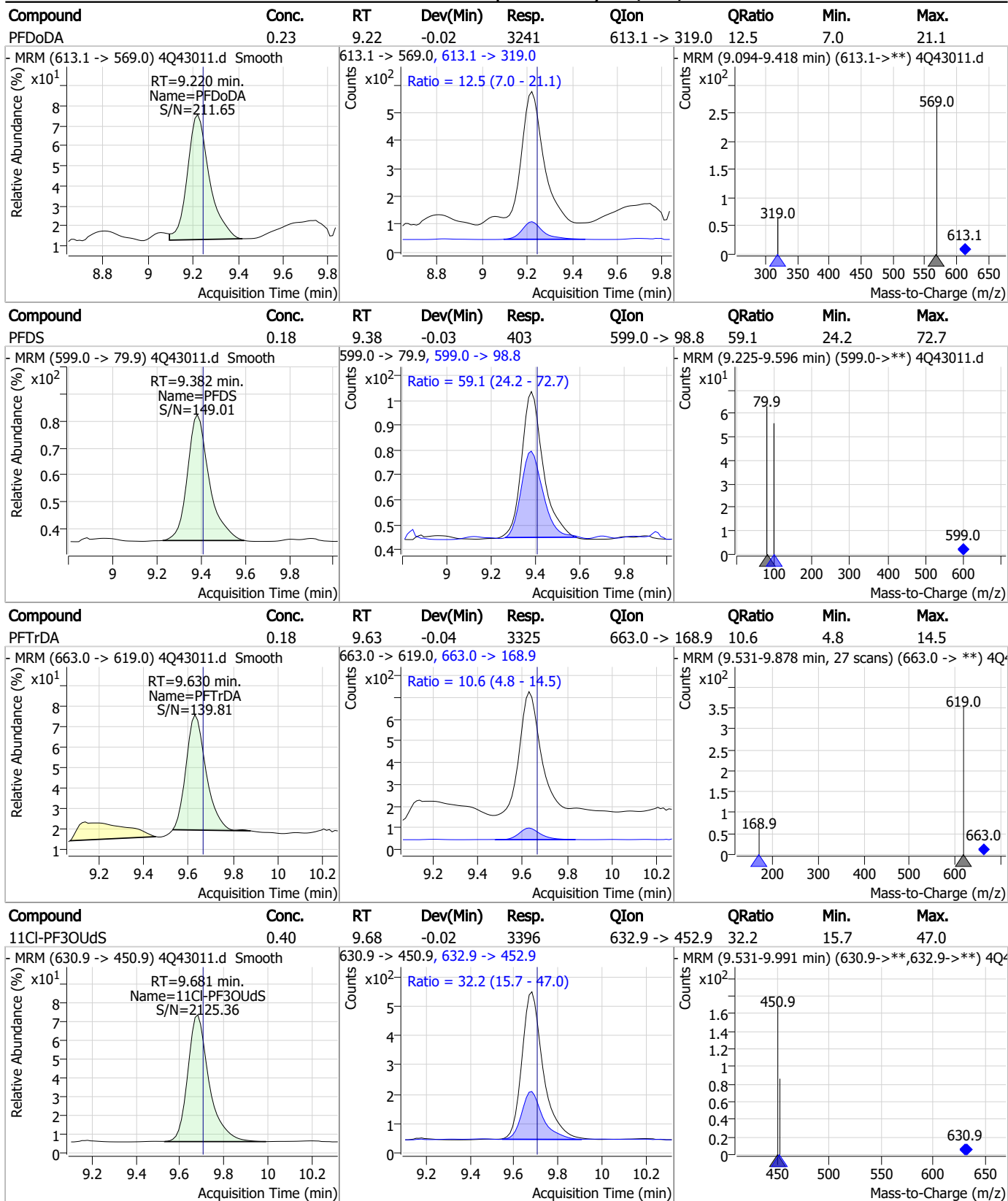
7.7.12
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Perfluorinated Compounds by LC/MS/MS



7.7.12 7

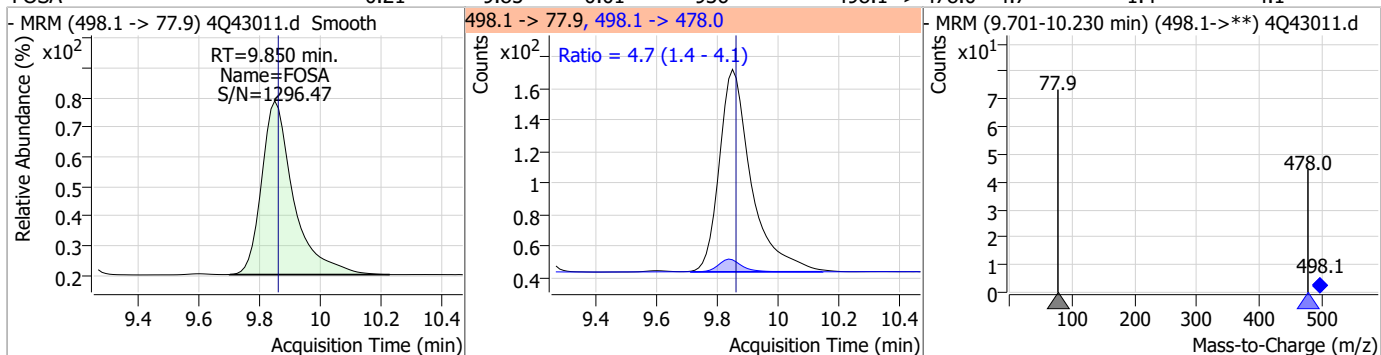
Perfluorinated Compounds by LC/MS/MS



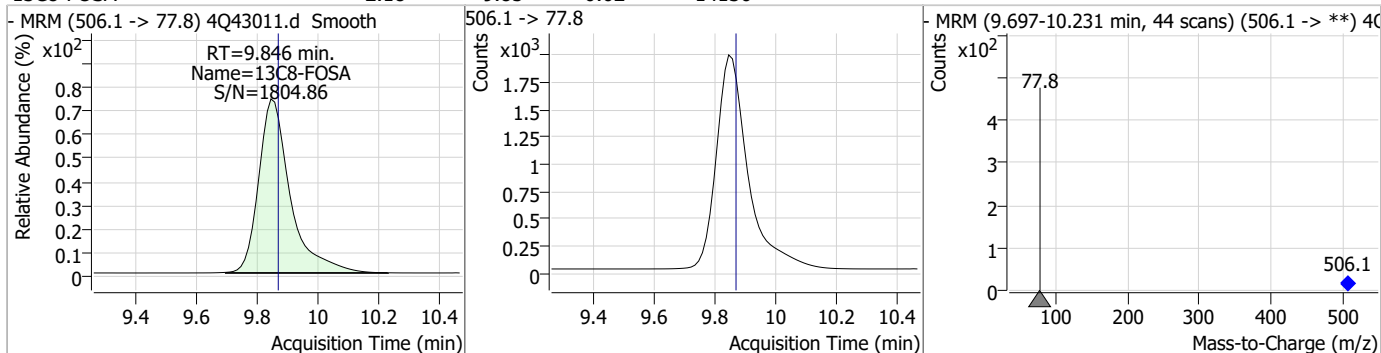
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Perfluorinated Compounds by LC/MS/MS

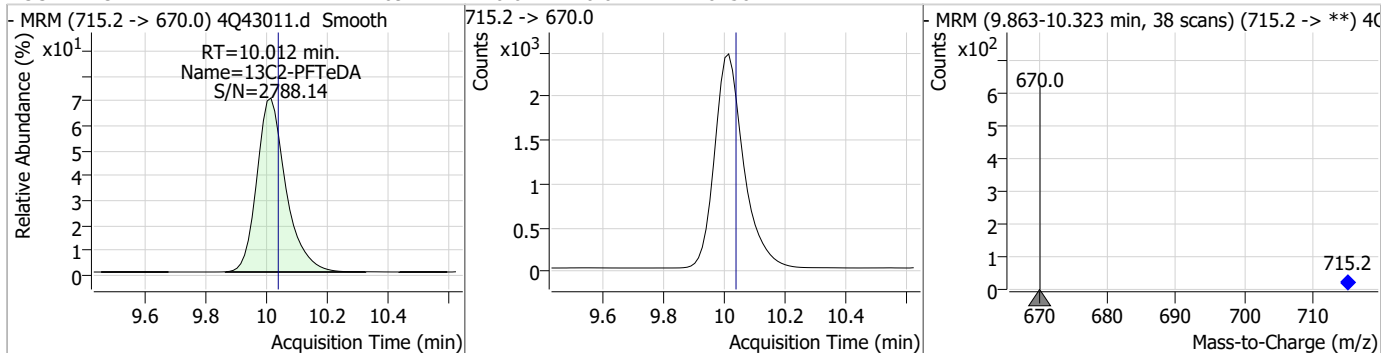
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.21	9.85	-0.01	936	498.1 -> 478.0	4.7	1.4	4.1



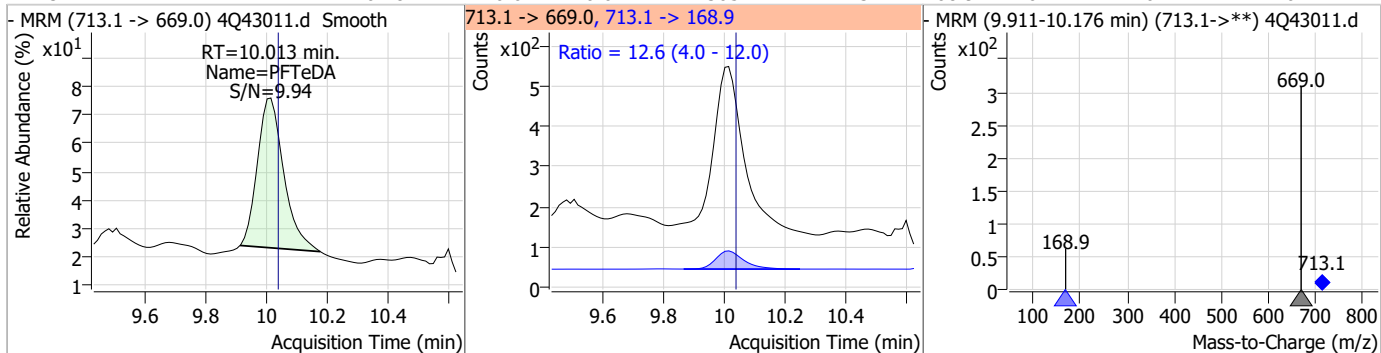
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.18	9.85	-0.02	14136				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.09	10.01	-0.02	16256				

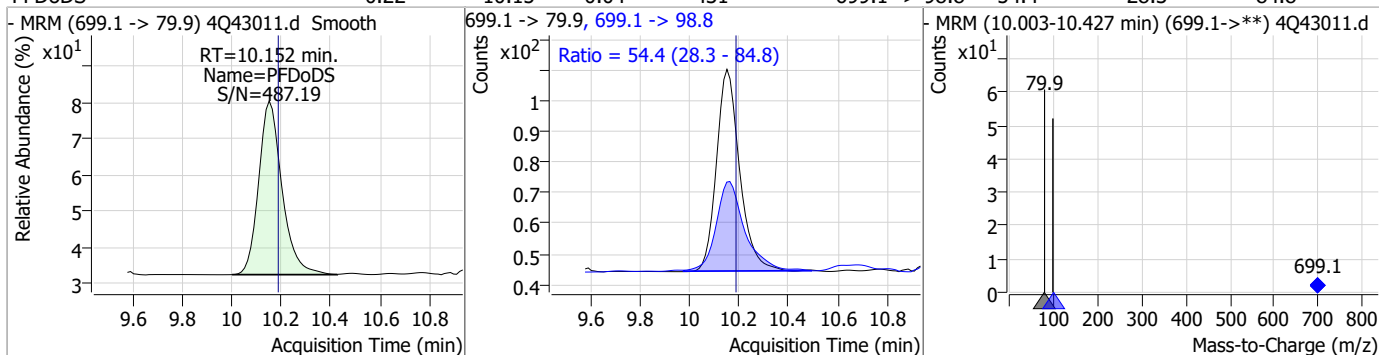


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.18	10.01	-0.02	2305	713.1 -> 168.9	12.6	4.0	12.0

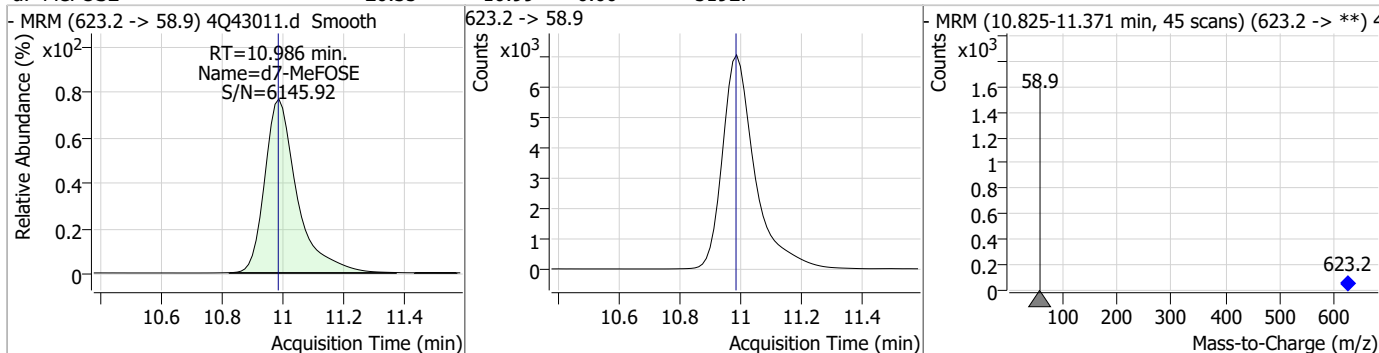


Perfluorinated Compounds by LC/MS/MS

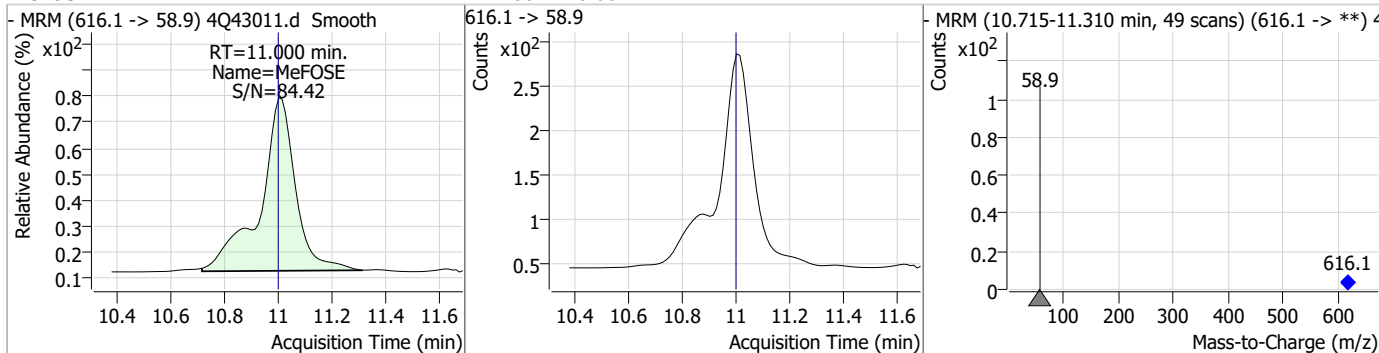
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.22	10.15	-0.04	431	699.1 -> 98.8	54.4	28.3	84.8



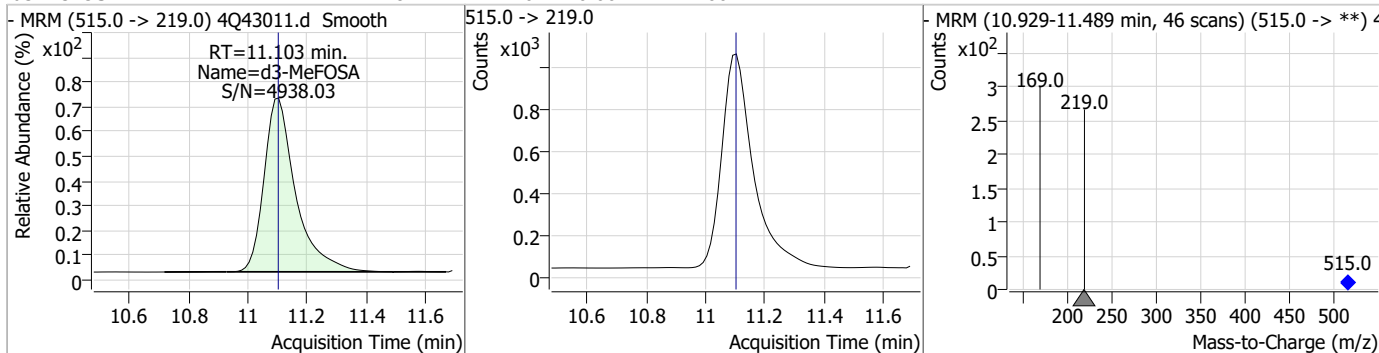
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.35	10.99	0.00	51927				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.22	11.00	0.00	2217				

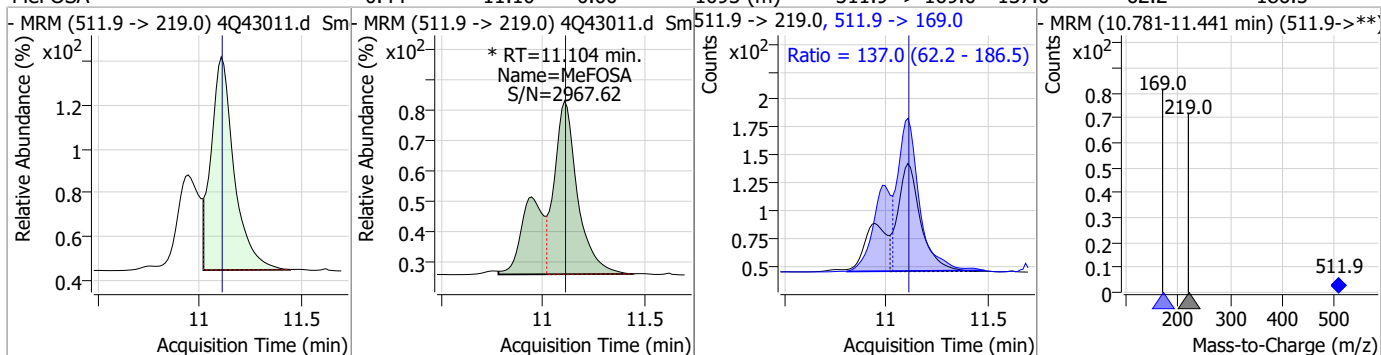


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.48	11.10	0.00	7601				

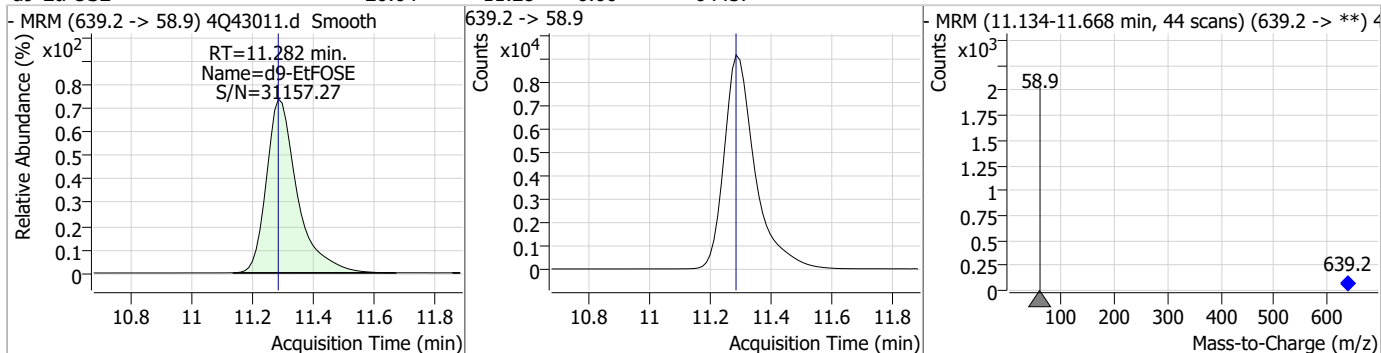


Perfluorinated Compounds by LC/MS/MS

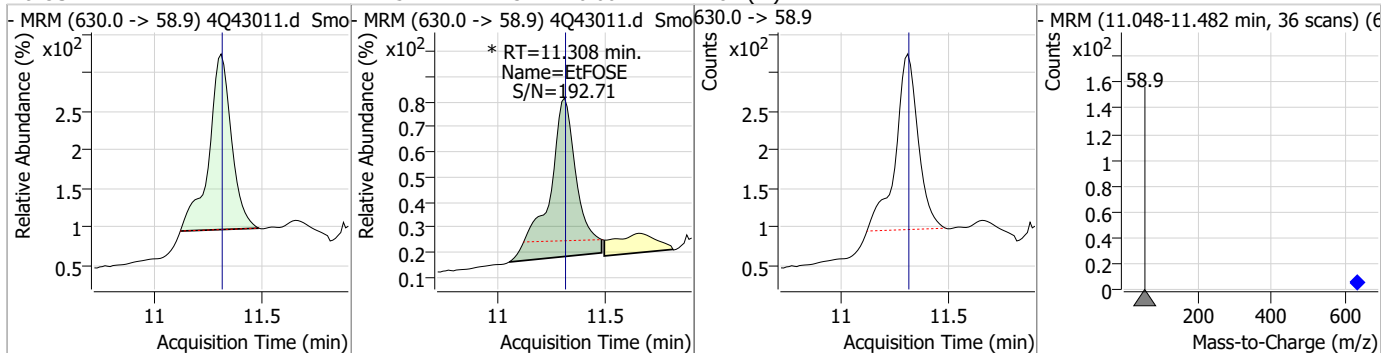
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.44	11.10	0.00	1093 (m)	511.9 -> 169.0	137.0	62.2	186.5



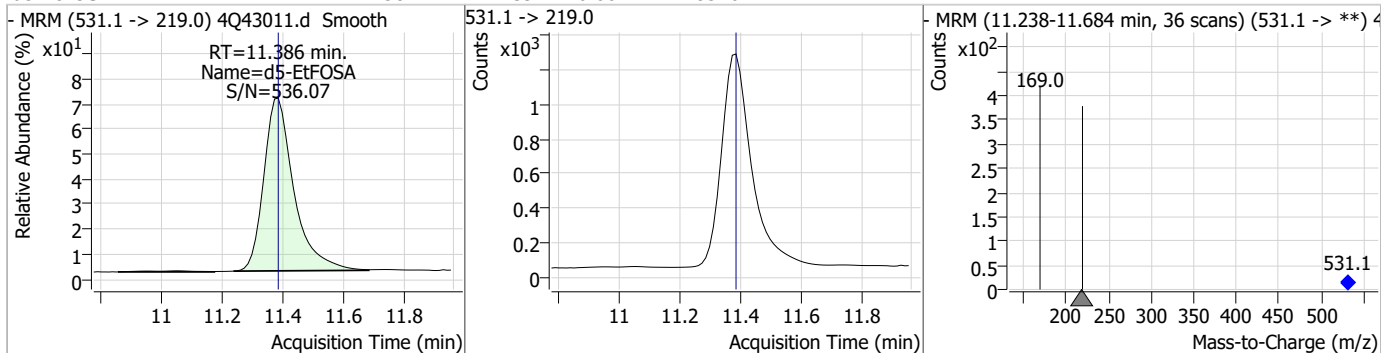
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.64	11.28	0.00	64457				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.15	11.31	0.00	2287 (m)				

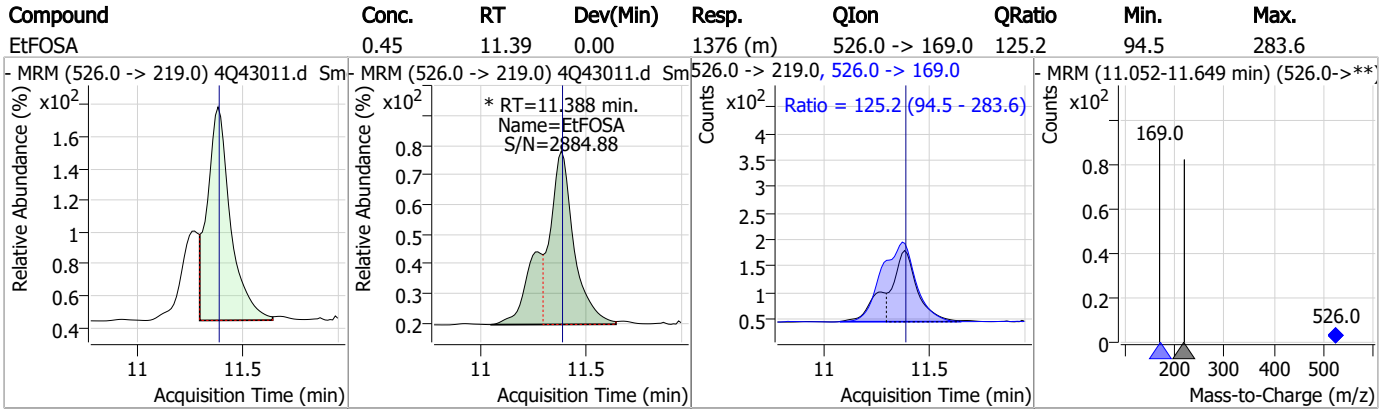


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.58	11.39	0.00	8526				



7.7.12
7

Perfluorinated Compounds by LC/MS/MS



7.7.12

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Manual Integration Approval Summary

Sample Number: S4Q622-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43011.D Analyst approved: 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 05:57 Supervisor approved: 04/17/23 17:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.44	Split peak
EtFOSAA	2991-50-6		8.56	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSE	1691-99-2		11.31	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.12.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43022.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 8:32:01 AM
 Sample Name : cc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.011	216.8 -> 171.9	139318	10.00 µg/L	0.012
M5-PFPeA	4.462	268.3 -> 223.0	79913	5.00 µg/L	-0.012
M5-PFHxA	5.634	318.0 -> 273.0	62862	2.50 µg/L	-0.012
M4-PFHpA	6.567	367.1 -> 322.0	31937	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	38998	2.50 µg/L	-0.010
M9-PFNA	7.771	472.1 -> 427.0	22102	1.25 µg/L	-0.025
M6-PFDA	8.279	519.1 -> 474.1	20887	1.25 µg/L	-0.024
M7-PFUnDA	8.748	570.0 -> 525.1	22200	1.25 µg/L	-0.037
M2-PFDoDA	9.206	615.1 -> 570.0	27115	1.25 µg/L	-0.036
M2-PFTeDA	10.012	715.2 -> 670.0	18912	1.25 µg/L	-0.024
M8-FOSA	9.846	506.1 -> 77.8	16764	2.50 µg/L	-0.024
M3-PFBS	5.552	302.1 -> 79.9	13486	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	8220	2.50 µg/L	-0.012
M8-PFOS	8.430	507.1 -> 79.9	12351	2.50 µg/L	-0.037
M2-4:2FTS	5.323	329.1 -> 80.9	1646	5.00 µg/L	-0.012
M2-6:2FTS	6.986	429.1 -> 80.9	2512	5.00 µg/L	-0.012
M2-8:2FTS	8.054	529.1 -> 80.9	4383	5.00 µg/L	-0.036
M3-MeFOSAA	8.337	573.2 -> 419.0	18346	5.00 µg/L	-0.024
M3-HFPO-DA	6.002	286.9 -> 168.9	39090	10.00 µg/L	-0.012
M5-EtFOSAA	8.546	589.2 -> 419.0	16063	5.00 µg/L	-0.024
M7-MeFOSE	10.986	623.2 -> 58.9	60837	25.00 µg/L	0.002
M9-EtFOSE	11.282	639.2 -> 58.9	75130	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	9805	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	8992	2.50 µg/L	-0.011
13C4-PFOS	8.430	502.8 -> 79.9	12185	2.50 µg/L	-0.037
13C3-PFBA	3.003	216.0 -> 172.0	77501	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	5933	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	47208	2.50 µg/L	-0.010
13C2-PFDA	8.279	515.1 -> 470.1	17832	1.25 µg/L	-0.024
13C5-PFNA	7.772	468.0 -> 423.0	24674	1.25 µg/L	-0.025
13C2-PFHxA	5.635	315.1 -> 270.0	53141	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1646	5.08 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2512	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C2-8:2FTS	8.054	529.1 -> 80.9	4383	5.73 µg/L	-0.036
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.5%		
13C2-PFDoDA	9.206	615.1 -> 570.0	27115	1.23 µg/L	-0.036
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-PFTeDA	10.012	715.2 -> 670.0	18912	1.11 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.5%		
13C3-PFBS	5.552	302.1 -> 79.9	13486	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C3-PFHxS	7.329	402.1 -> 79.9	8220	2.50 µg/L	-0.012

7.7.13
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFBA	3.011	216.8 -> 171.9	139318	10.32 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C4-PFHpA	6.567	367.1 -> 322.0	31937	2.65 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C5-PFHxA	5.634	318.0 -> 273.0	62862	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.462	268.3 -> 223.0	79913	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C6-PFDA	8.279	519.1 -> 474.1	20887	1.33 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C7-PFUnDA	8.748	570.0 -> 525.1	22200	1.30 µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C8-FOSA	9.846	506.1 -> 77.8	16764	2.10 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.1%	
13C8-PFOA	7.227	421.1 -> 376.0	38998	2.51 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-PFOS	8.430	507.1 -> 79.9	12351	2.61 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C9-PFNA	7.771	472.1 -> 427.0	22102	1.23 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
d3-MeFOSAA	8.337	573.2 -> 419.0	18346	5.11 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C3-HFPO-DA	6.002	286.9 -> 168.9	39090	10.48 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
d3-MeFOSA	11.090	515.0 -> 219.0	8992	2.38 µg/L	-0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
d5-EtFOSAA	8.546	589.2 -> 419.0	16063	5.51 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
d7-MeFOSE	10.986	623.2 -> 58.9	60837	19.36 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.4%	
d9-EtFOSE	11.282	639.2 -> 58.9	75130	19.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.1%	
d5-EtFOSA	11.386	531.1 -> 219.0	9805	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
Target Compounds					QValue
4:2FTS	5.323	327.1 -> 307.0	20045	9.77 µg/L	96
		327.1 -> 80.9	8652		
6:2FTS	6.987	427.1 -> 407.0	17111	9.98 µg/L	100
		427.1 -> 80.9	7283		
8:2FTS	8.054	527.1 -> 507.0	18920	9.63 µg/L	98
		527.1 -> 80.8	7234		
EtFOSAA	8.547	584.2 -> 419.1	5418	2.26 µg/L	m 77
		584.2 -> 526.0	2829		
FOSA	9.850	498.1 -> 77.9	13450	2.49 µg/L	99
		498.1 -> 478.0	387		
MeFOSAA	8.337	570.1 -> 419.0	6106	2.42 µg/L	#m 79
		570.1 -> 483.0	1499		
PFBA	3.007	212.8 -> 168.9	29929	9.41 µg/L	100
PFBS	5.553	298.7 -> 79.9	10910	2.17 µg/L	98
		298.7 -> 98.8	4336		
PFDA	8.280	512.9 -> 469.0	29931	2.51 µg/L	99
		512.9 -> 219.0	5848		
PFDODA	9.207	613.1 -> 569.0	41510	2.43 µg/L	98
		613.1 -> 319.0	6103		
PFDS	9.370	599.0 -> 79.9	6169	2.23 µg/L	97

7.7.13
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8	3099	2.43	µg/L	99
		363.1 -> 319.0	38731			
PFHpS	7.912	363.1 -> 169.0	6994	2.32	µg/L	99
		449.0 -> 79.9	7445			
PFHxA	5.637	449.0 -> 98.9	3948	2.40	µg/L	100
		313.0 -> 269.0	44697			
PFHxS	7.330	313.0 -> 118.9	1376	2.16	µg/L	97
		398.7 -> 79.9	6085			
PFNA	7.772	398.7 -> 98.9	3267	2.27	µg/L	90
		463.0 -> 419.0	26795			
PFNS	8.925	463.0 -> 219.0	7282	2.30	µg/L	99
		548.8 -> 79.9	4377			
PFOA	7.228	548.8 -> 98.9	2295	2.35	µg/L	100
		413.0 -> 369.0	42728			
PFOS	8.431	413.0 -> 169.0	8702	2.11	µg/L	93
		498.9 -> 79.9	10127			
PFPeA	4.464	498.9 -> 98.8	5549	4.98	µg/L	100
		263.0 -> 219.0	75401			
PFPeS	6.607	349.1 -> 79.9	5619	2.34	µg/L	97
		349.1 -> 98.9	2511			
PFTeDA	10.013	713.1 -> 669.0	36946	2.48	µg/L	99
		713.1 -> 168.9	3030			
PFTrDA	9.630	663.0 -> 619.0	51111	2.32	µg/L	100
		663.0 -> 168.9	5047			
PFUnDA	8.761	563.1 -> 519.0	28777	2.29	µg/L	100
		563.1 -> 269.1	5614			
11Cl-PF3OUdS	9.681	630.9 -> 450.9	49008	4.80	µg/L	99
		632.9 -> 452.9	15014			
9Cl-PF3ONS	8.788	530.8 -> 351.0	49041	4.30	µg/L	99
		532.8 -> 353.0	14700			
ADONA	6.819	376.9 -> 250.9	108233	4.61	µg/L	99
		376.9 -> 84.8	28610			
HFPO-DA	6.003	284.9 -> 168.9	15044	4.86	µg/L	98
		284.9 -> 184.9	1999			
3:3FTCA	3.979	241.0 -> 177.0	8917	12.65	µg/L	99
		241.0 -> 117.0	833			
5:3FTCA	6.333	341.0 -> 237.1	166355	63.30	µg/L	100
		341.0 -> 217.0	118392			
7:3FTCA	7.762	441.0 -> 316.9	67563	62.73	µg/L	97
		441.0 -> 336.9	152759			
EtFOSA	11.388	526.0 -> 219.0	17190	4.92	µg/L	63
		526.0 -> 169.0	23113			
EtFOSE	11.308	630.0 -> 58.9	28913	12.49	µg/L	100
		511.9 -> 219.0	14636			
MeFOSA	11.104	511.9 -> 169.0	20543	5.03	µg/L	86
		616.1 -> 58.9	25361			
MeFOSE	11.000	699.1 -> 79.9	5402	11.86	µg/L	100
		699.1 -> 98.8	3055			
PFDoDS	10.152	295.0 -> 201.0	6721	2.26	µg/L	100
		295.0 -> 84.9	1673			
NFDHA	5.529	279.0 -> 85.1	42430	5.37	µg/L	100
		229.0 -> 84.9	37413			
PFMBA	4.878	314.8 -> 134.9	68617	4.95	µg/L	100
		314.8 -> 82.9	2380			
PFMPA	3.602			4.39	µg/L	100
PFEESA	6.084			4.39	µg/L	100

7.7.13
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= Qualifier out of range, m = manually integrated, + = Area summed

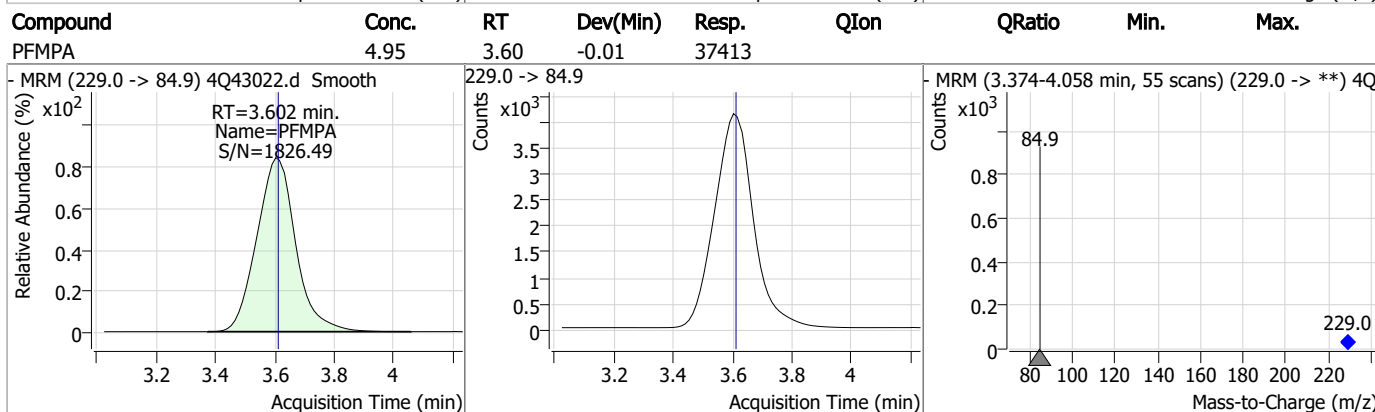
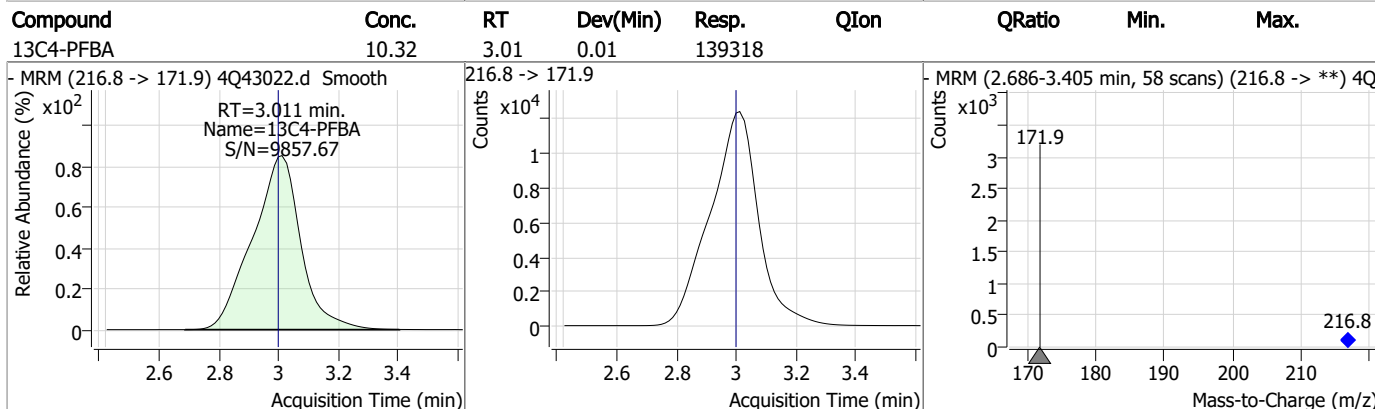
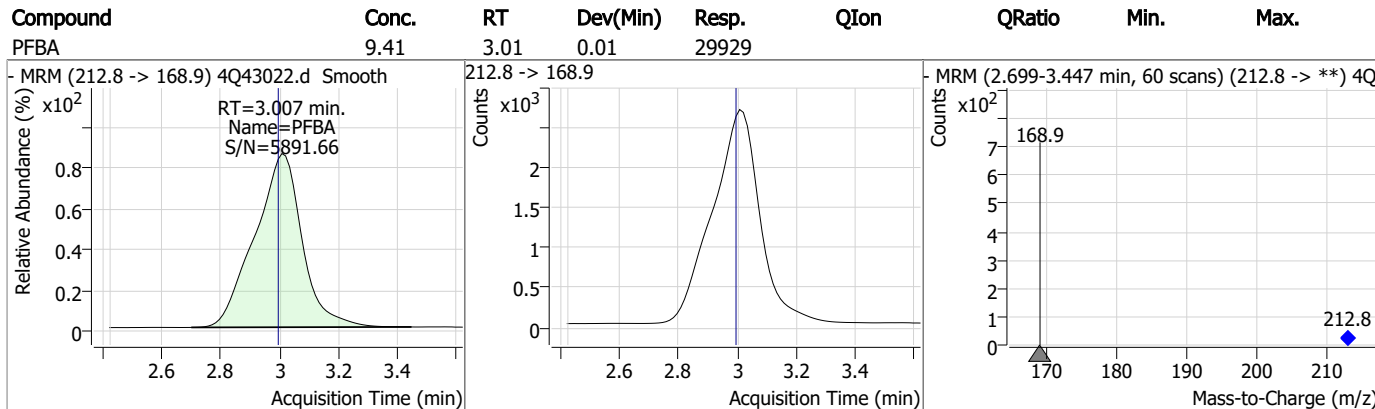
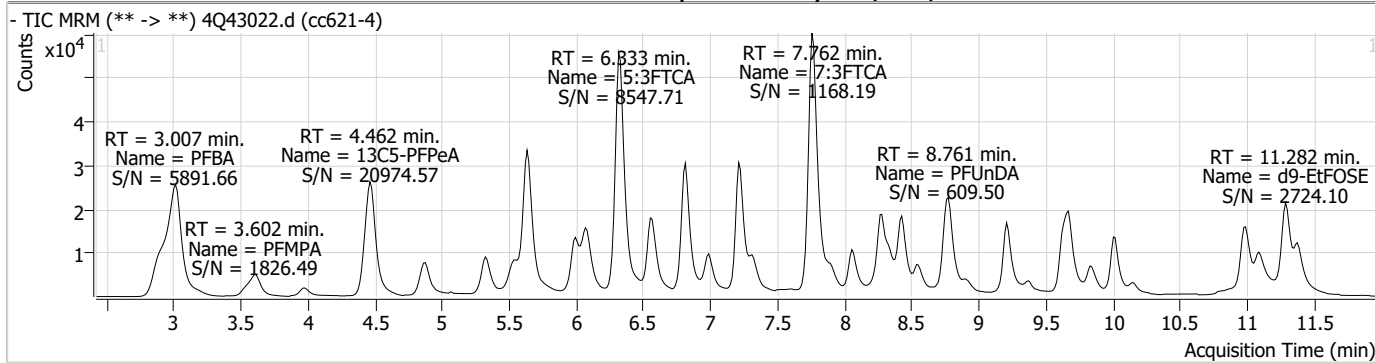
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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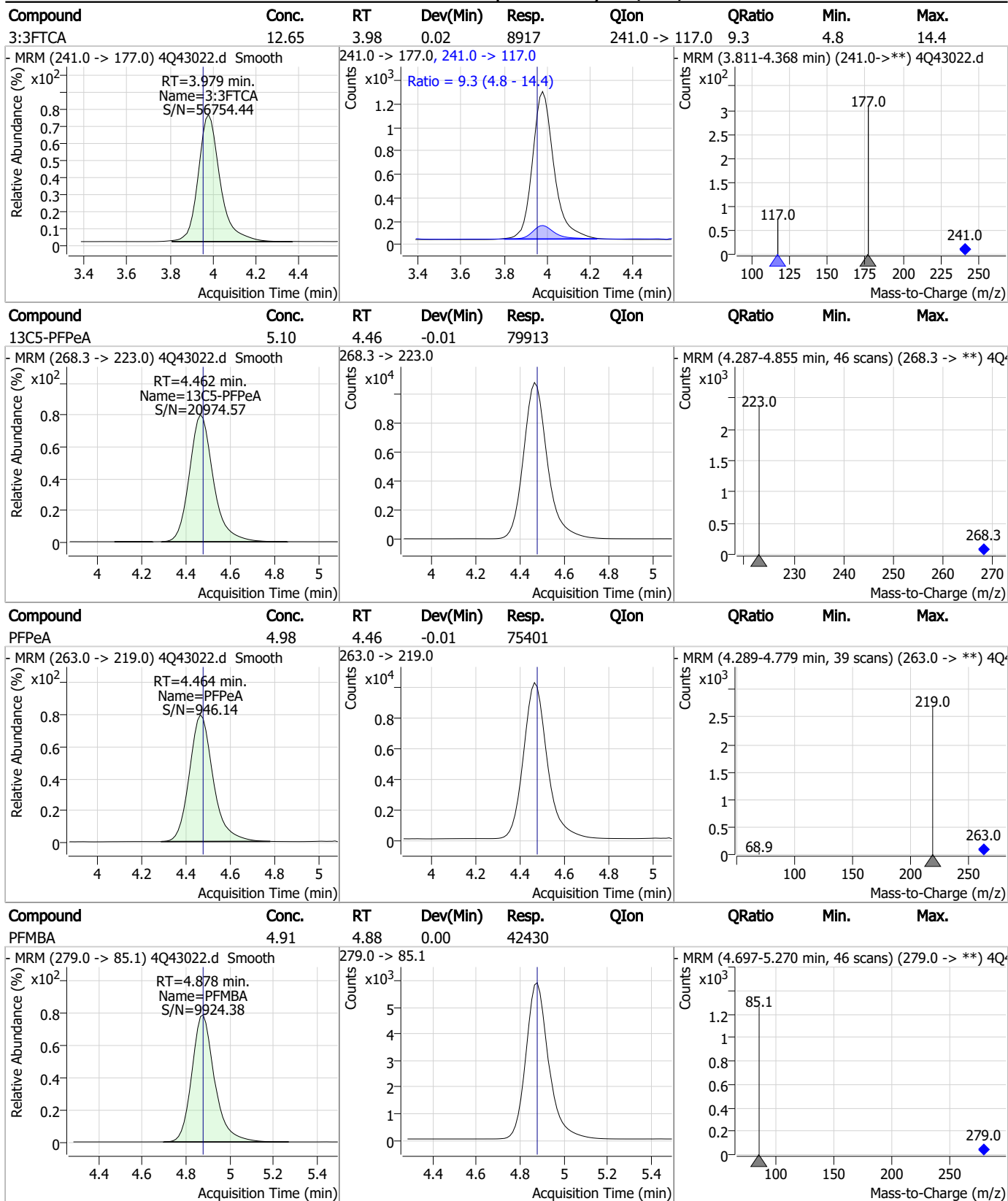
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Perfluorinated Compounds by LC/MS/MS

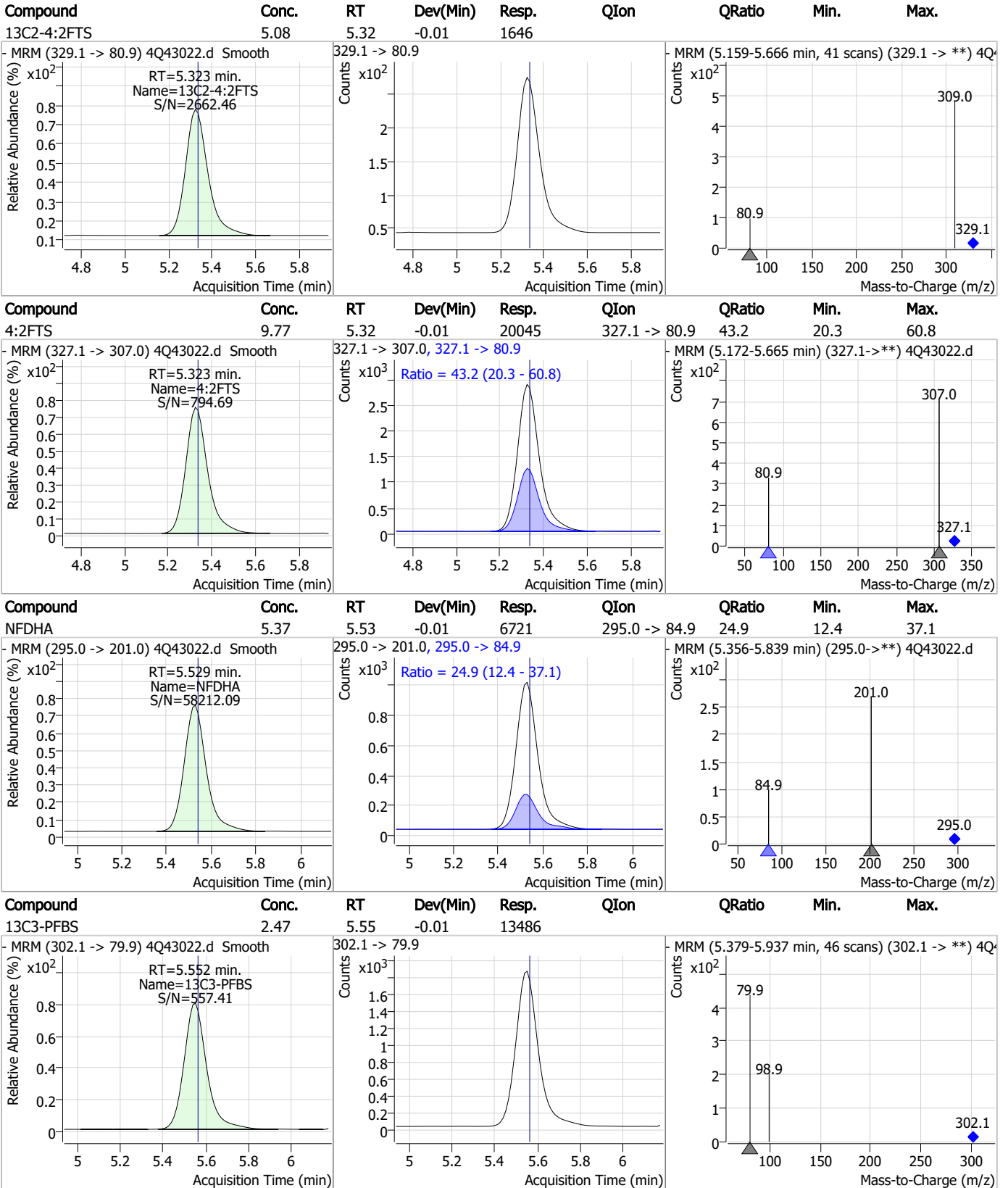


Perfluorinated Compounds by LC/MS/MS



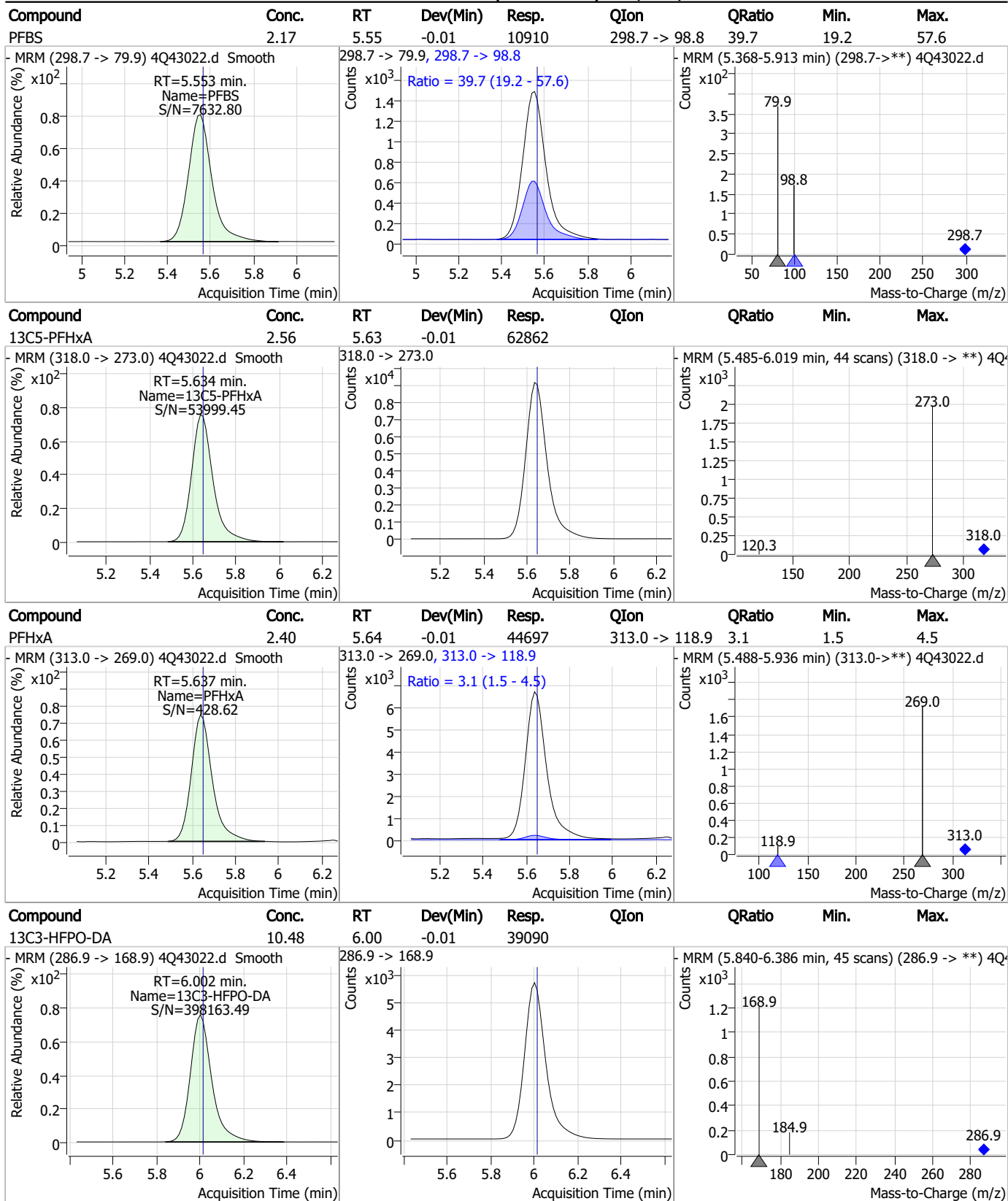
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Perfluorinated Compounds by LC/MS/MS



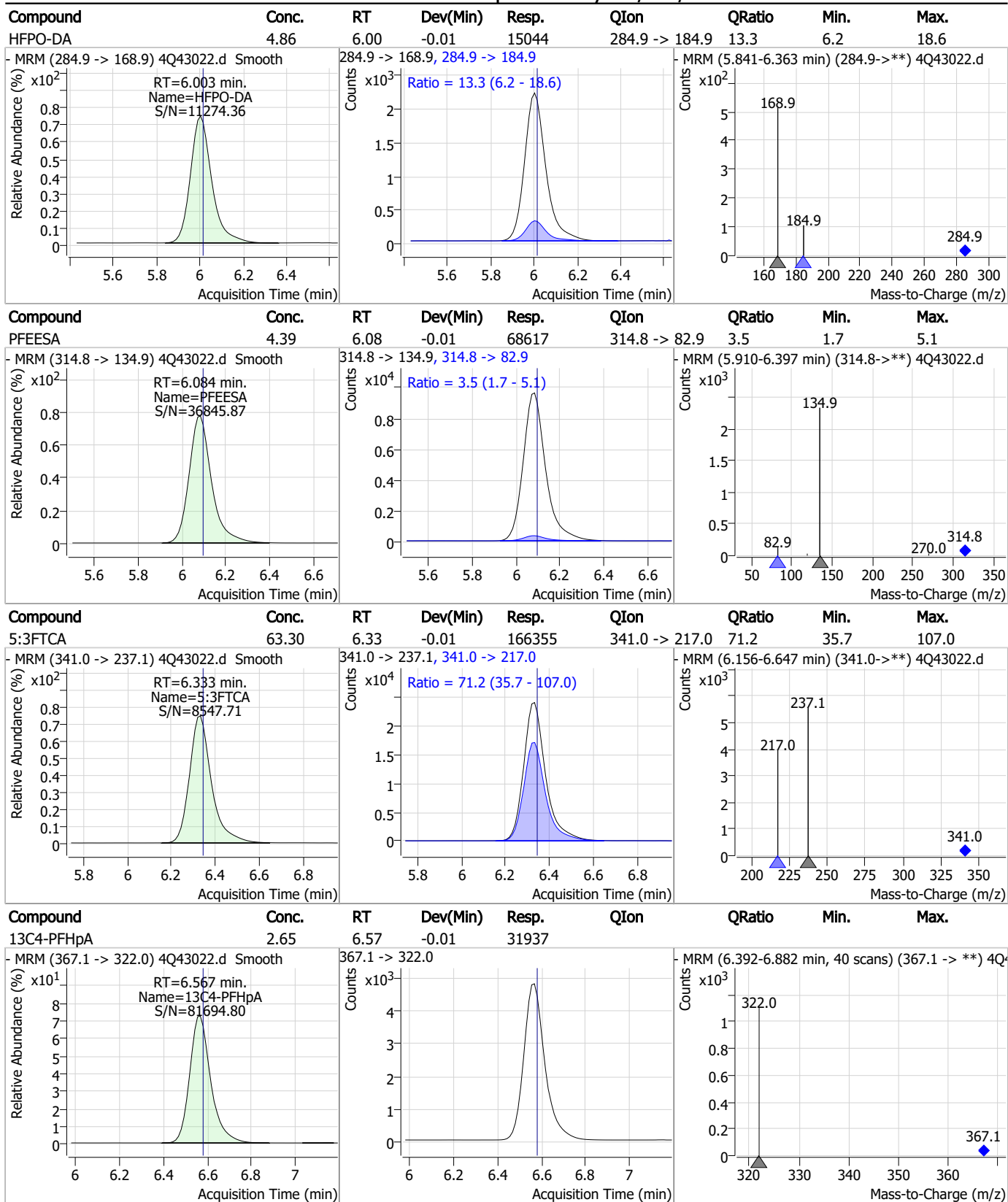
7.7.13 7

Perfluorinated Compounds by LC/MS/MS



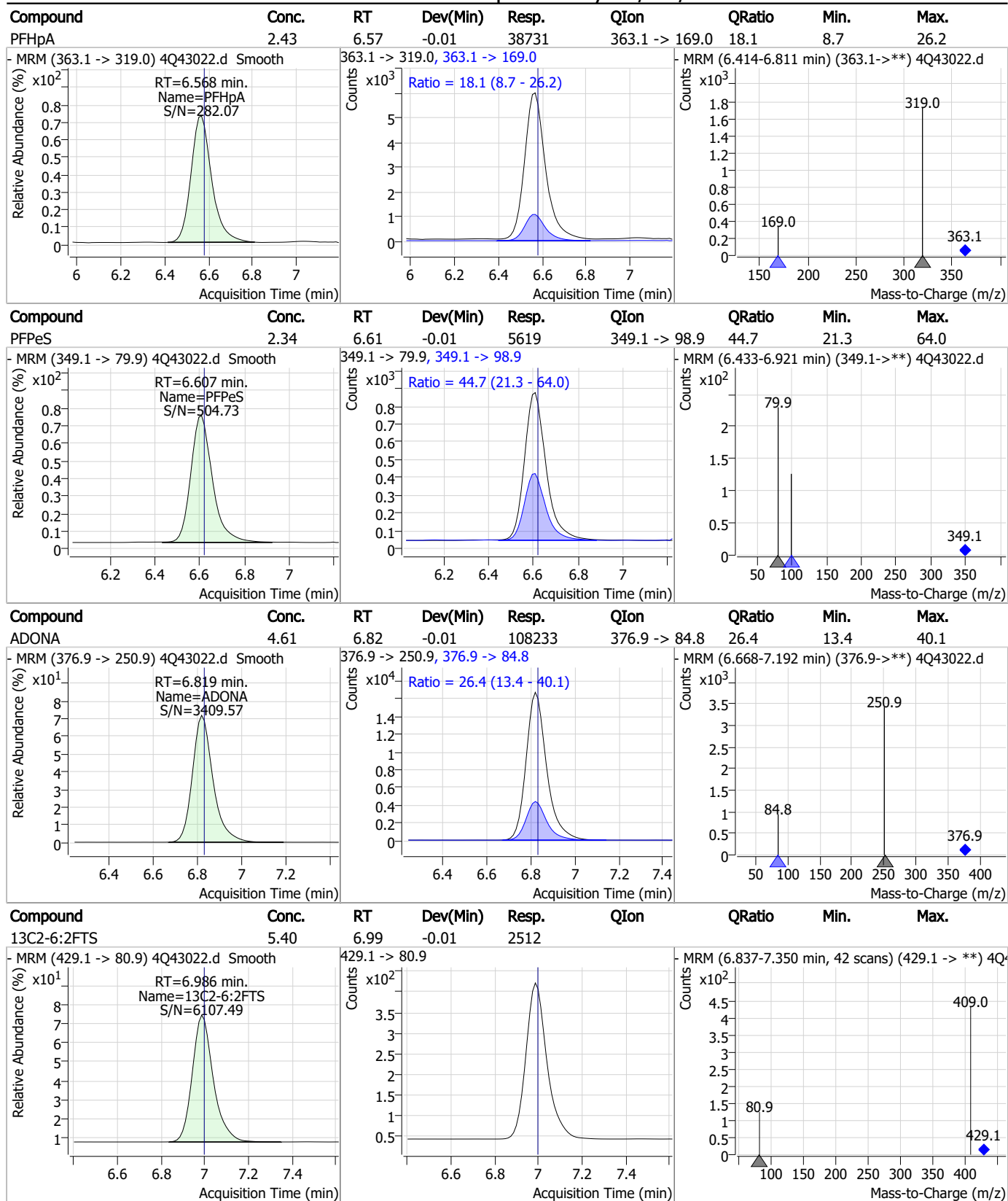
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Perfluorinated Compounds by LC/MS/MS



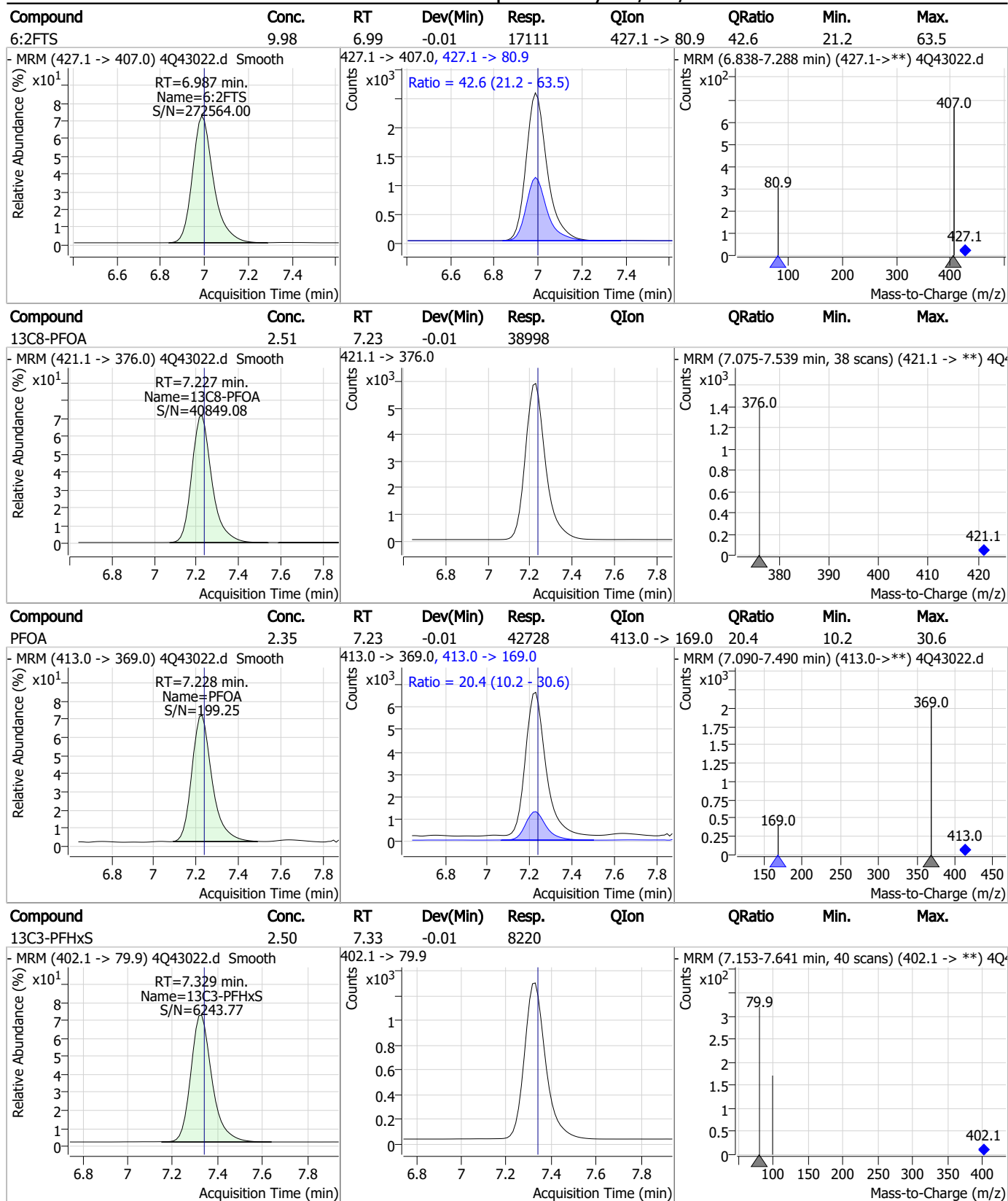
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Perfluorinated Compounds by LC/MS/MS



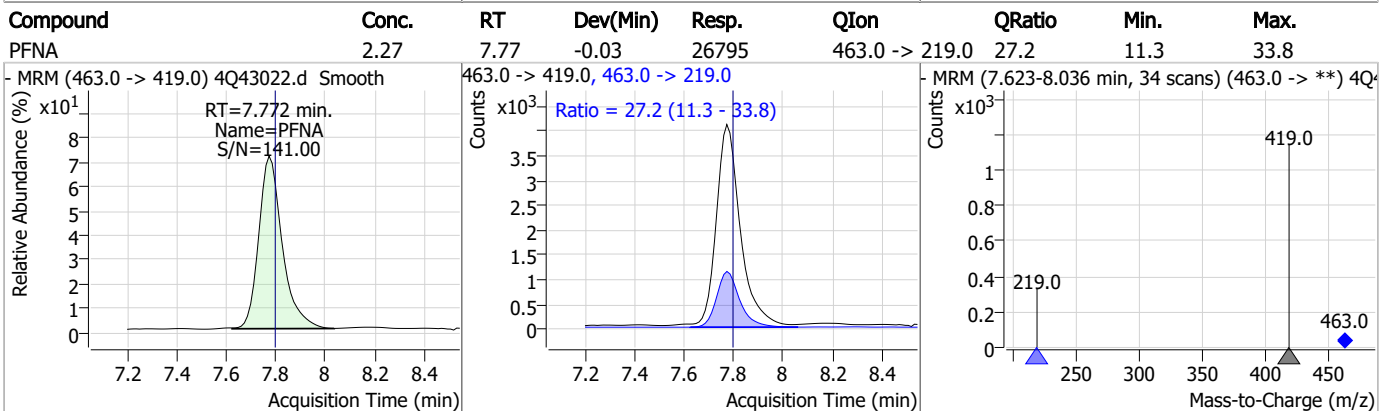
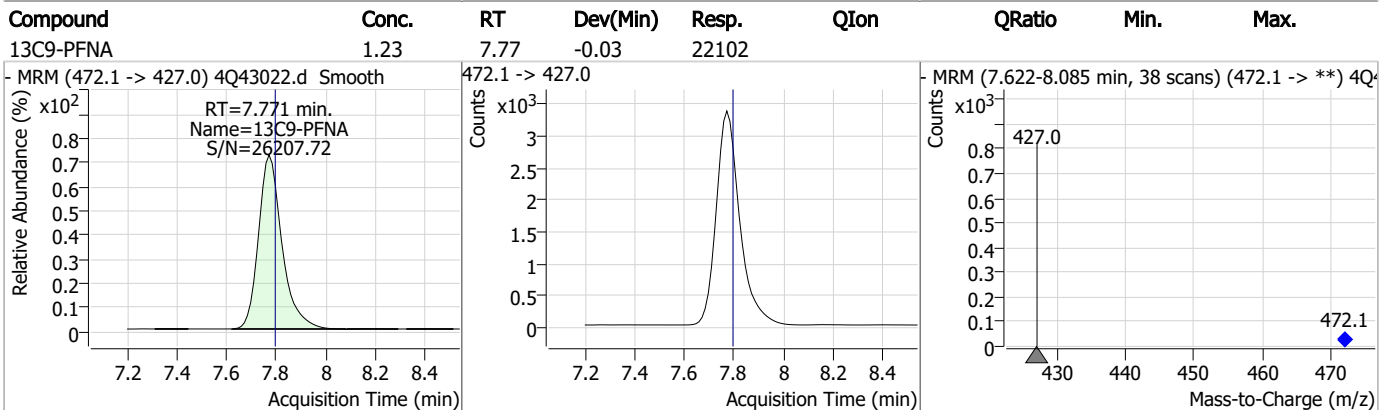
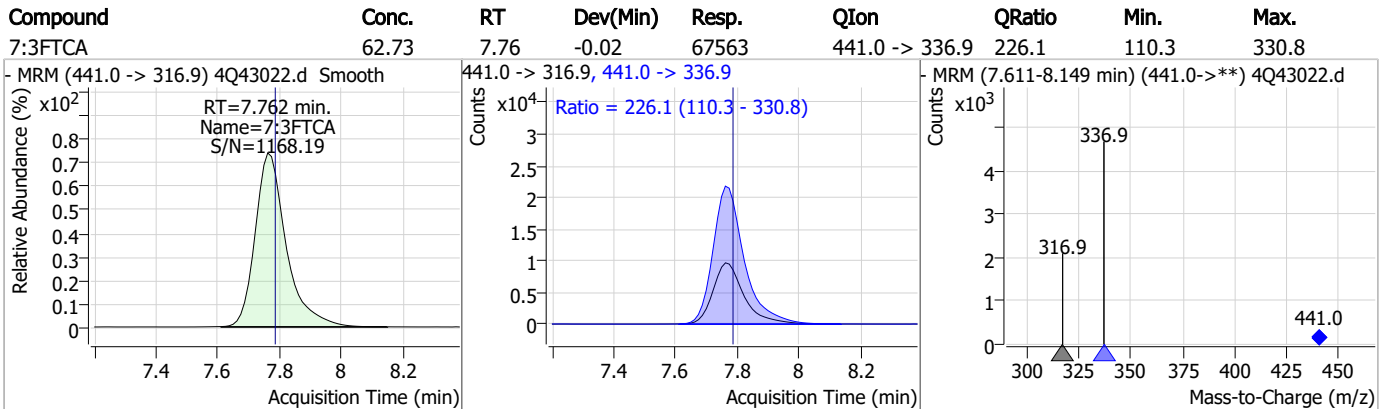
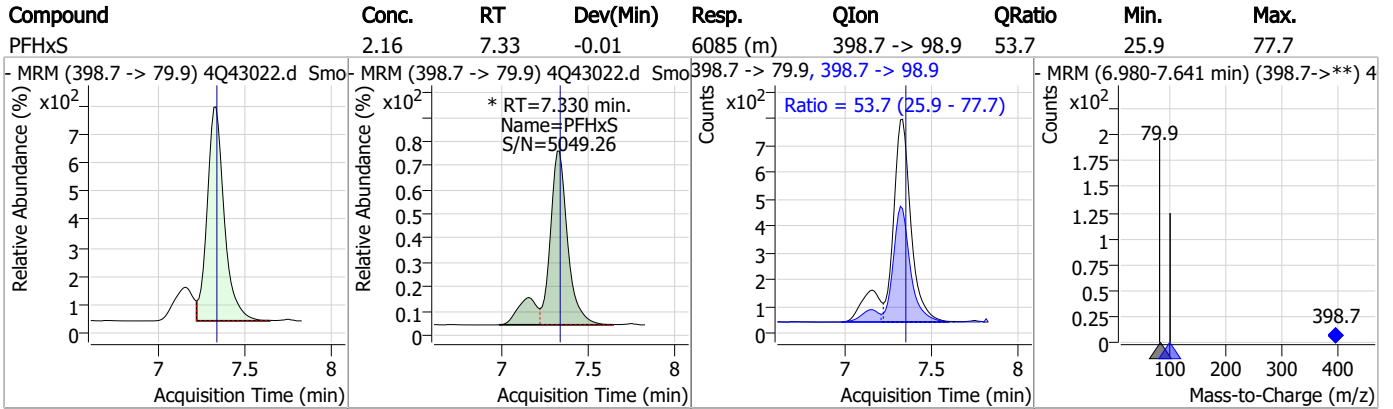
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Perfluorinated Compounds by LC/MS/MS



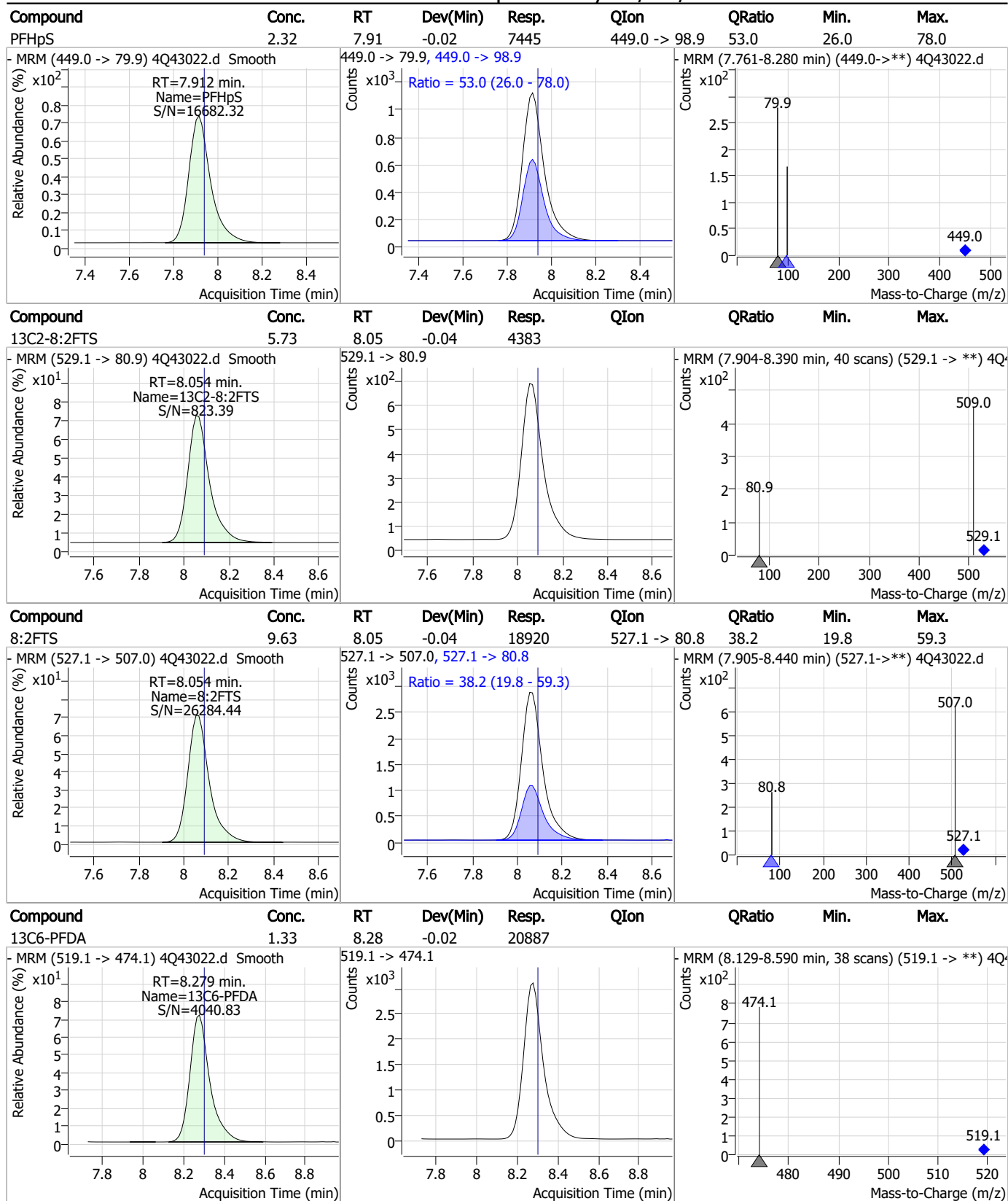
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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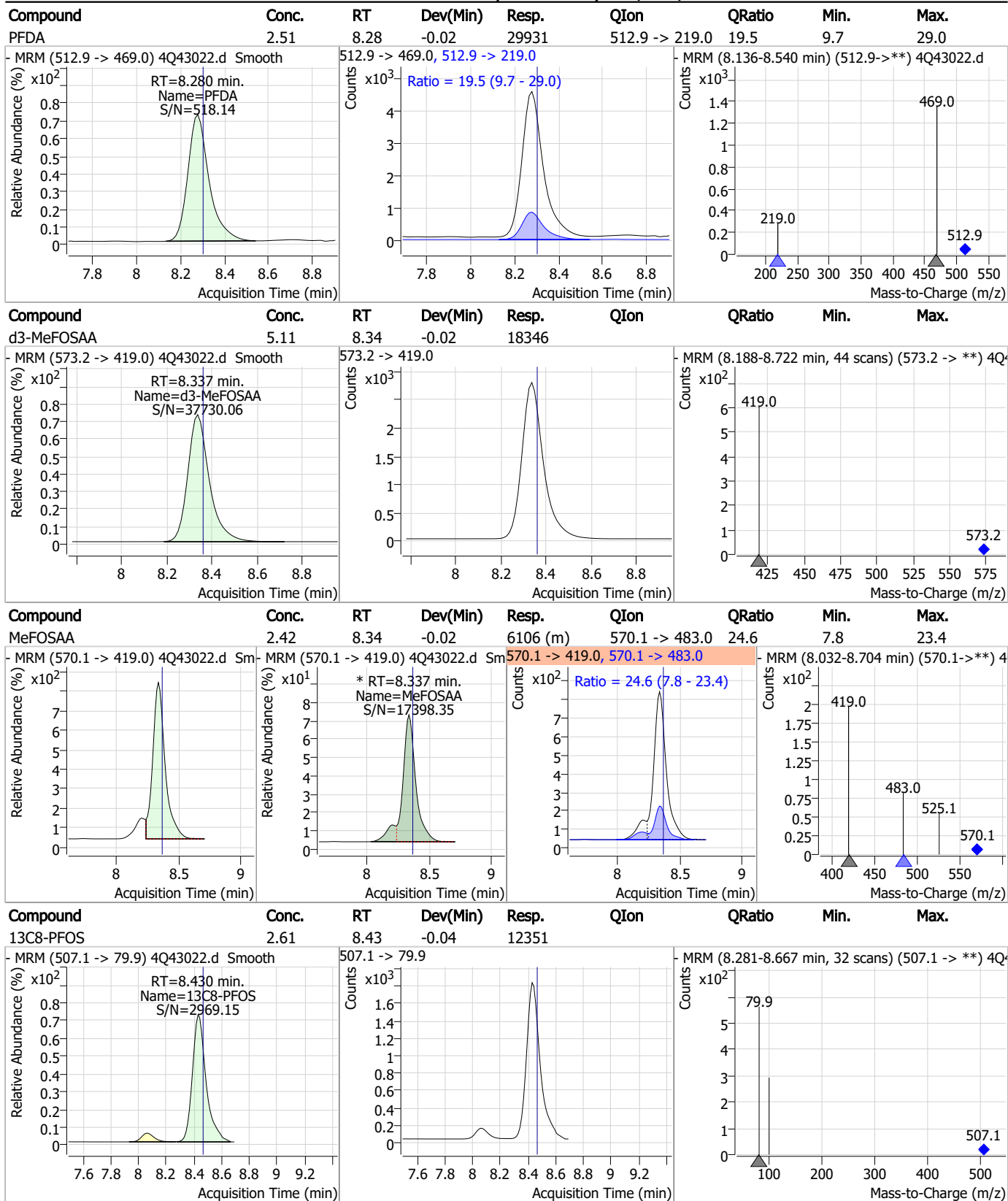
Perfluorinated Compounds by LC/MS/MS



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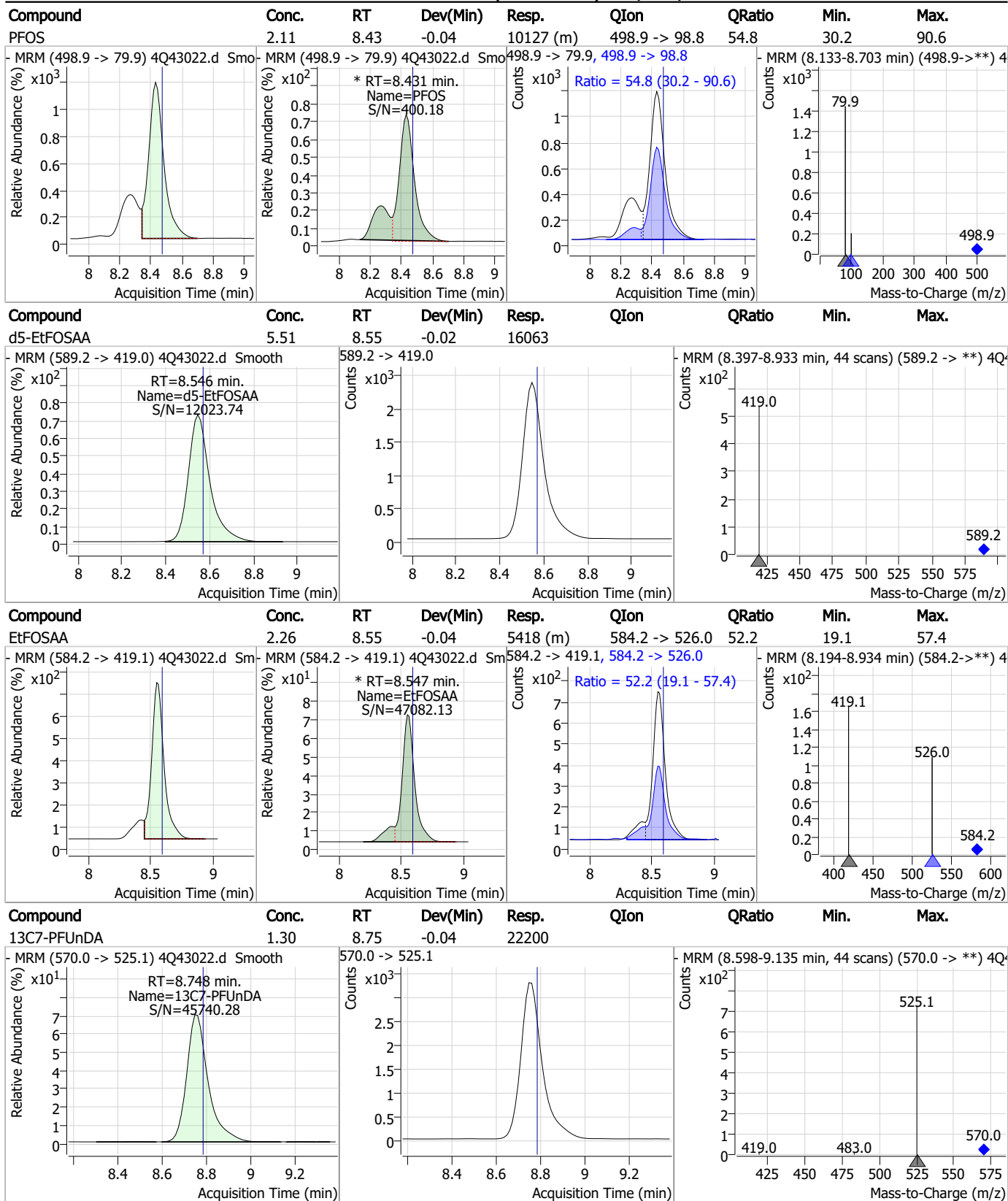
Perfluorinated Compounds by LC/MS/MS



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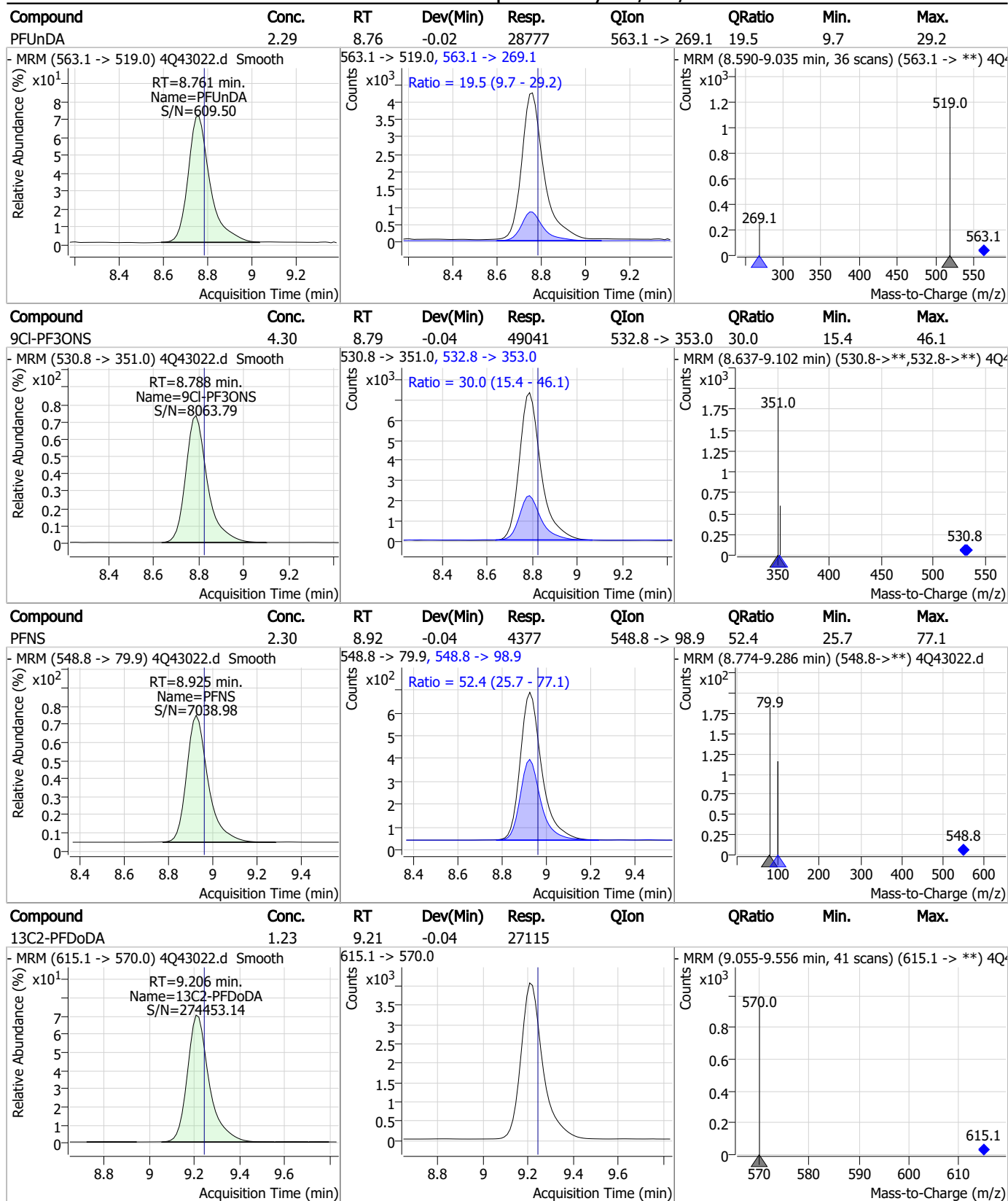
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Perfluorinated Compounds by LC/MS/MS



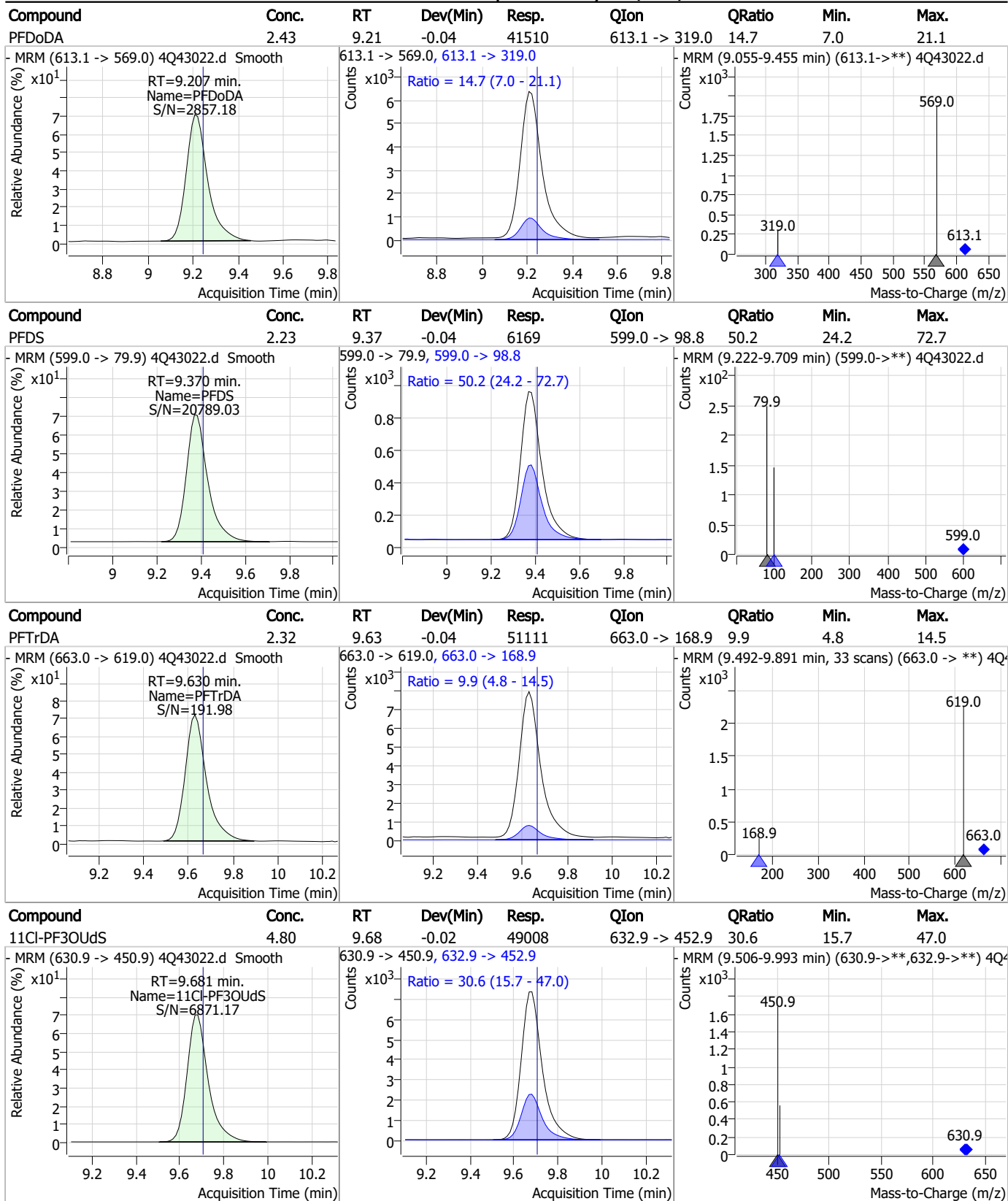
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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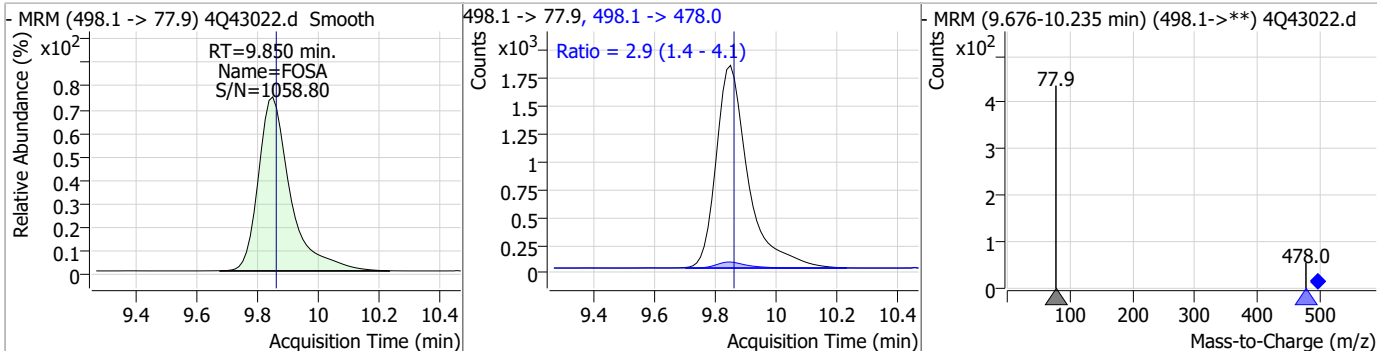
Perfluorinated Compounds by LC/MS/MS



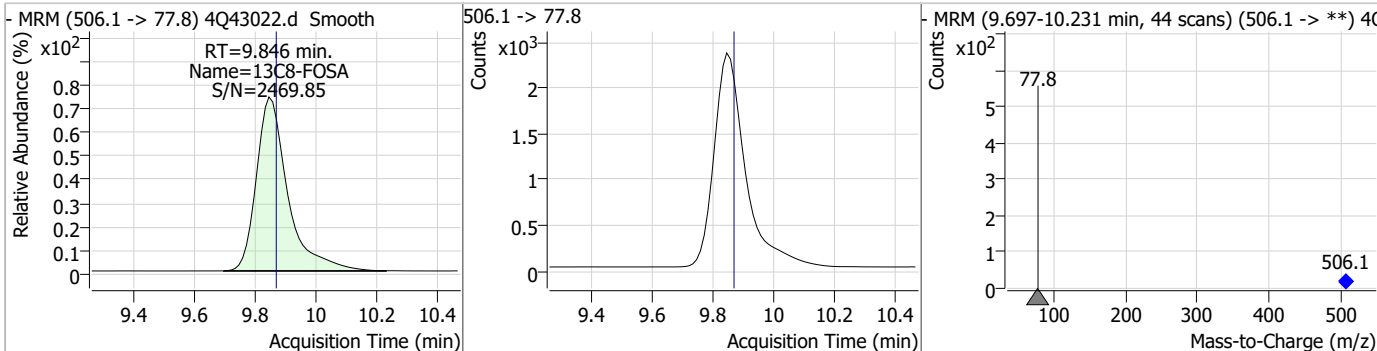
7.7.13
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Perfluorinated Compounds by LC/MS/MS

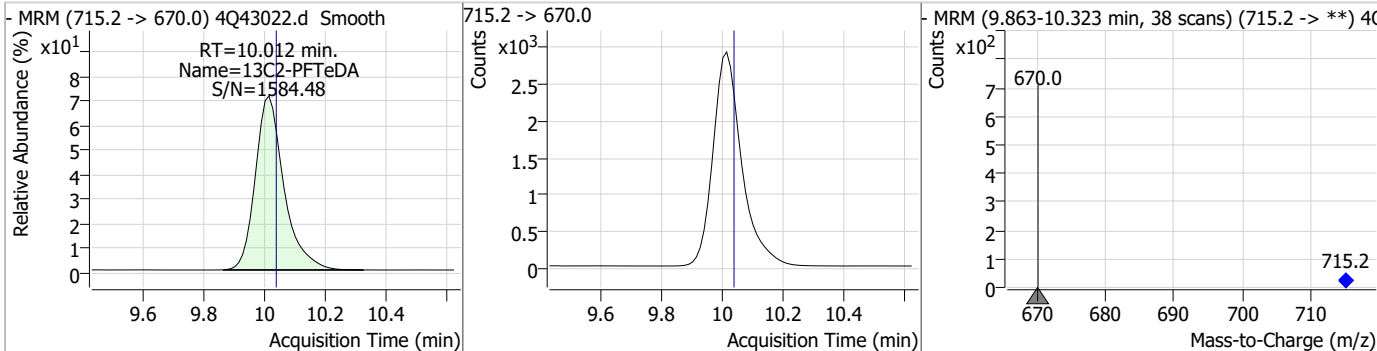
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.49	9.85	-0.01	13450	498.1 -> 478.0	2.9	1.4	4.1



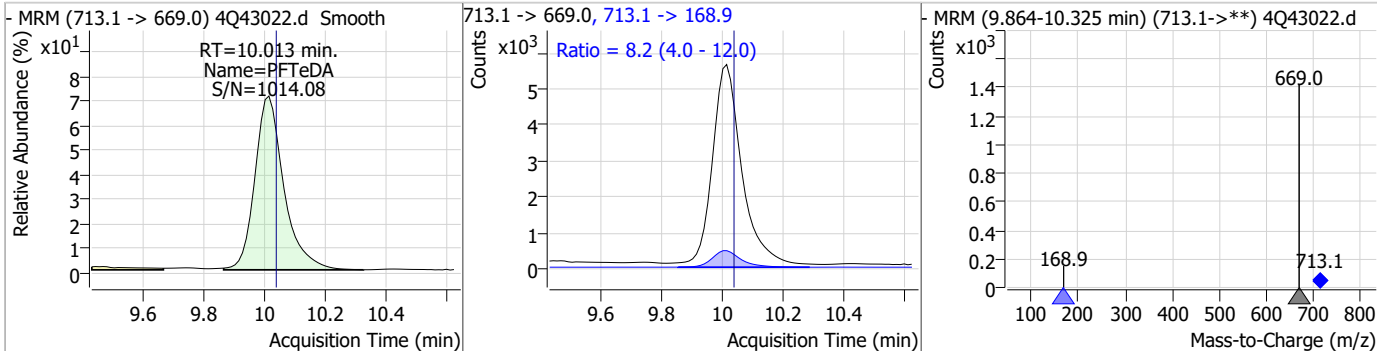
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.10	9.85	-0.02	16764				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.11	10.01	-0.02	18912				



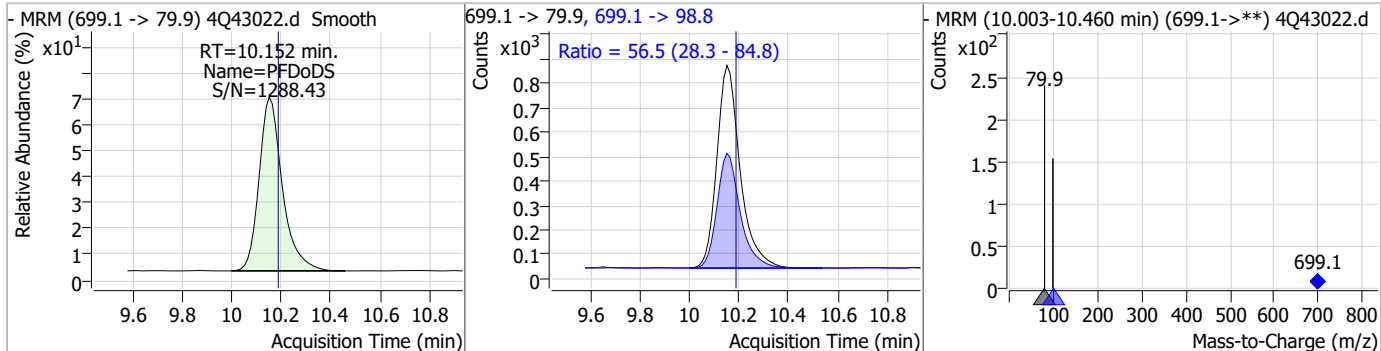
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.48	10.01	-0.02	36946	713.1 -> 168.9	8.2	4.0	12.0



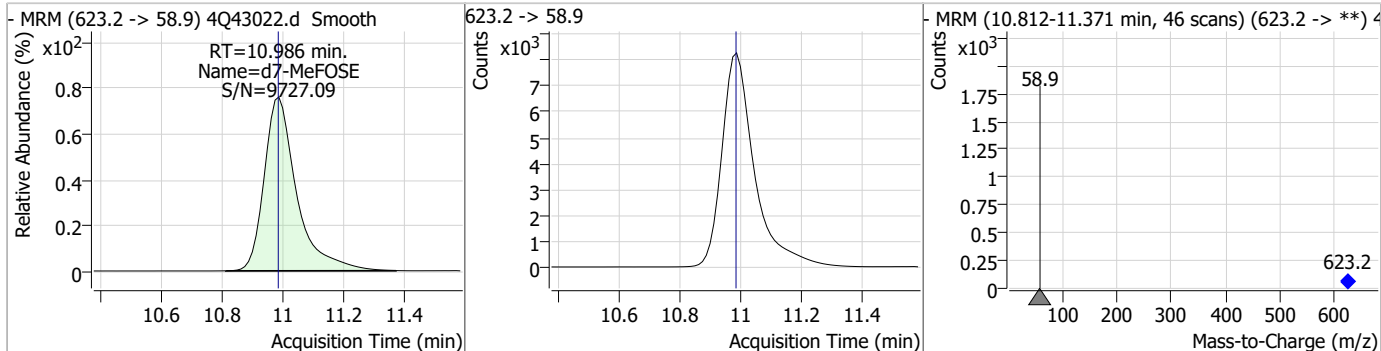
7.7.13
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Perfluorinated Compounds by LC/MS/MS

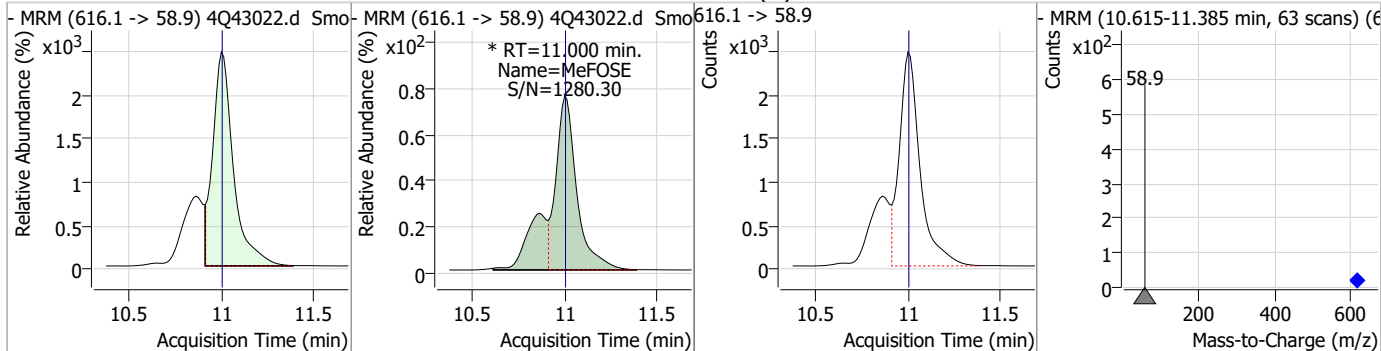
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.26	10.15	-0.04	5402	699.1 -> 98.8	56.5	28.3	84.8



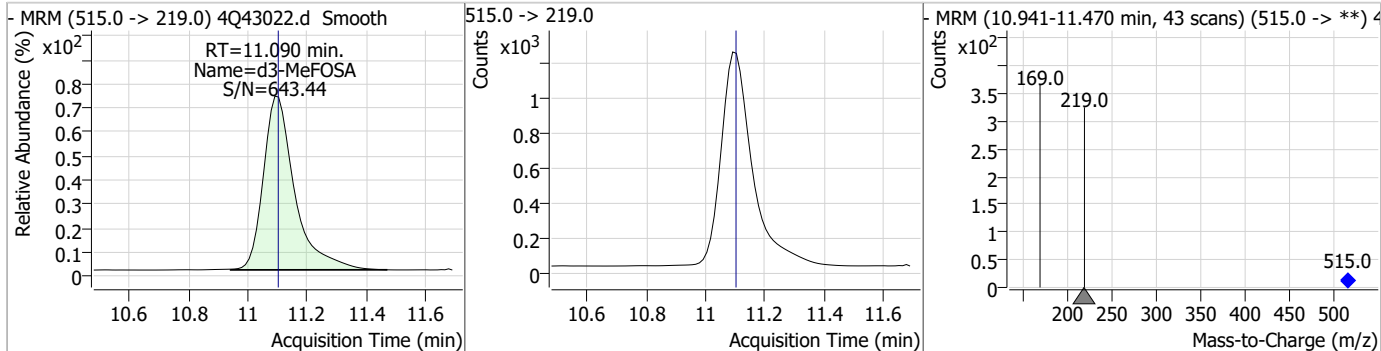
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.36	10.99	0.00	60837				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.86	11.00	0.00	25361 (m)				

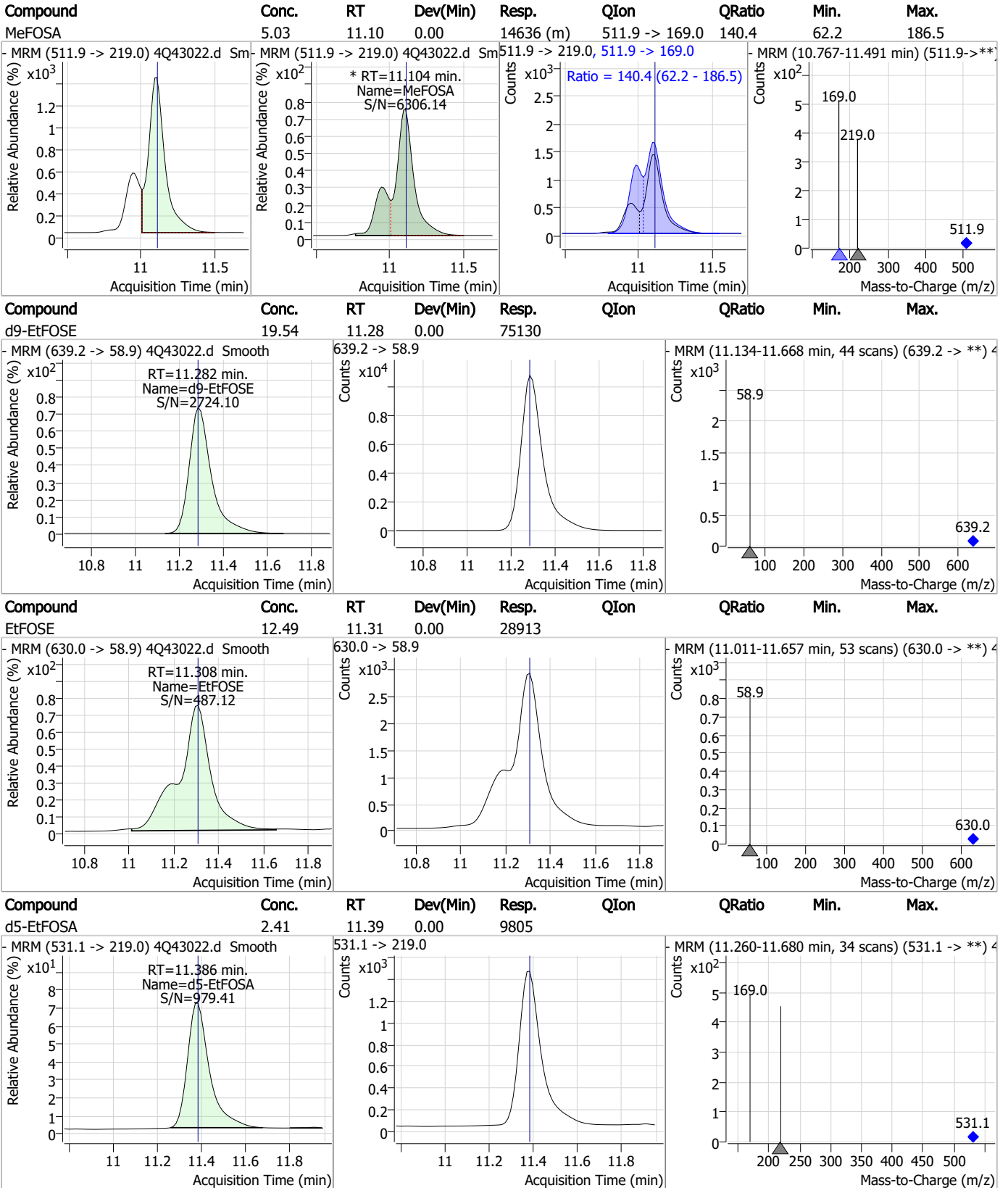


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.38	11.09	-0.01	8992				



7.7.13
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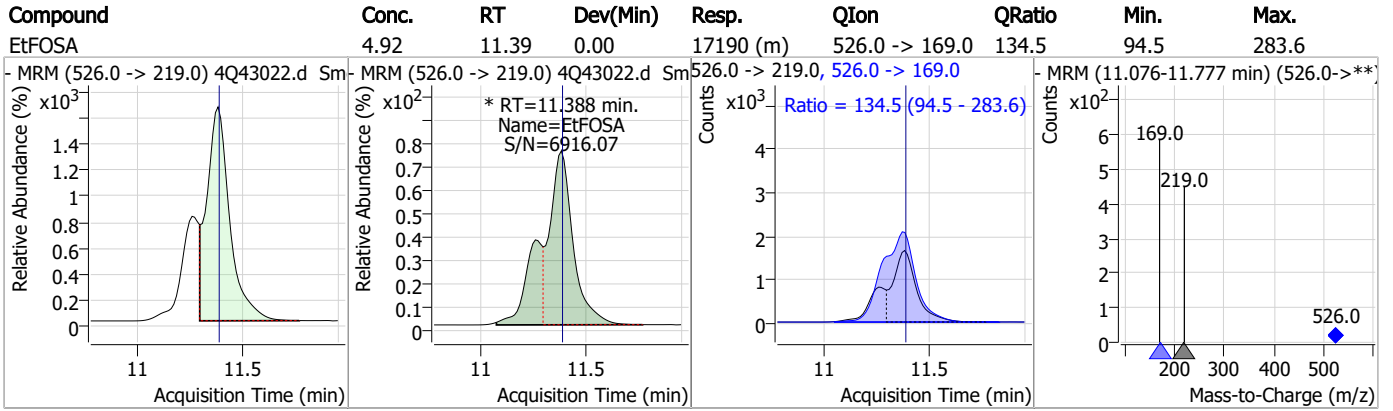
Perfluorinated Compounds by LC/MS/MS



7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13

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Manual Integration Approval Summary

Sample Number: S4Q622-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43022.D Analyst approved: 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 08:32 Supervisor approved: 04/18/23 15:43 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.55	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.13.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43062.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 5:54:18 PM
 Sample Name : cc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.986	216.8 -> 171.9	139279	10.00 µg/L	-0.013
M5-PFPeA	4.462	268.3 -> 223.0	81788	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	63553	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	32181	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	40073	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	21077	1.25 µg/L	-0.012
M6-PFDA	8.291	519.1 -> 474.1	20297	1.25 µg/L	-0.012
M7-PFUnDA	8.760	570.0 -> 525.1	21892	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	27331	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	20032	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	17337	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	13704	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	8634	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	12578	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1661	5.00 µg/L	0.000
M2-6:2FTS	6.999	429.1 -> 80.9	2532	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	3888	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	18292	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	38499	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	15771	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	61114	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	75413	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	10077	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	9270	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	12651	2.50 µg/L	-0.024
13C3-PFBA	2.991	216.0 -> 172.0	77615	5.00 µg/L	0.000
18O2-PFHxS	7.328	403.0 -> 83.9	5953	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	48448	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	18642	1.25 µg/L	-0.012
13C5-PFNA	7.784	468.0 -> 423.0	23962	1.25 µg/L	-0.012
13C2-PFHxA	5.648	315.1 -> 270.0	54866	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1661	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-6:2FTS	6.999	429.1 -> 80.9	2532	5.43 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3888	5.06 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C2-PFDoDA	9.219	615.1 -> 570.0	27331	1.19 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-PFTeDA	10.012	715.2 -> 670.0	20032	1.12 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C3-PFBS	5.552	302.1 -> 79.9	13704	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C3-PFHxS	7.329	402.1 -> 79.9	8634	2.62 µg/L	-0.012

7.7.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C4-PFBA	2.986	216.8 -> 171.9	139279	10.30 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C4-PFHpA	6.567	367.1 -> 322.0	32181	2.58 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFHxA	5.647	318.0 -> 273.0	63553	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFPeA	4.462	268.3 -> 223.0	81788	5.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C6-PFDA	8.291	519.1 -> 474.1	20297	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C7-PFUnDA	8.760	570.0 -> 525.1	21892	1.23 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-FOSA	9.858	506.1 -> 77.8	17337	2.10 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.8%	
13C8-PFOA	7.227	421.1 -> 376.0	40073	2.51 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.442	507.1 -> 79.9	12578	2.56 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.784	472.1 -> 427.0	21077	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
d3-MeFOSAA	8.349	573.2 -> 419.0	18292	4.91 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	38499	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSA	11.103	515.0 -> 219.0	9270	2.37 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
d5-EtFOSAA	8.558	589.2 -> 419.0	15771	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d7-MeFOSE	10.986	623.2 -> 58.9	61114	18.73 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.9%	
d9-EtFOSE	11.295	639.2 -> 58.9	75413	18.89 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.6%	
d5-EtFOSA	11.386	531.1 -> 219.0	10077	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
Target Compounds					QValue
4:2FTS	5.323	327.1 -> 307.0	18700	9.03 µg/L	94
		327.1 -> 80.9	8249		
6:2FTS	6.999	427.1 -> 407.0	15695	9.08 µg/L	98
		427.1 -> 80.9	6831		
8:2FTS	8.066	527.1 -> 507.0	17429	10.00 µg/L	97
		527.1 -> 80.8	6527		
EtFOSAA	8.559	584.2 -> 419.1	5486	2.33 µg/L	m 88
		584.2 -> 526.0	2511		
FOSA	9.850	498.1 -> 77.9	13564	2.43 µg/L	99
		498.1 -> 478.0	412		
MeFOSAA	8.350	570.1 -> 419.0	6003	2.38 µg/L	m 87
		570.1 -> 483.0	1269		
PFBA	2.995	212.8 -> 168.9	29778	9.36 µg/L	100
PFBS	5.553	298.7 -> 79.9	11047	2.16 µg/L	97
		298.7 -> 98.8	4431		
PFDA	8.292	512.9 -> 469.0	29644	2.55 µg/L	99
		512.9 -> 219.0	5833		
PFDODA	9.220	613.1 -> 569.0	43055	2.50 µg/L	99
		613.1 -> 319.0	5899		
PFDS	9.382	599.0 -> 79.9	6024	2.14 µg/L	98

7.7.14
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2988			
PFHpA	6.568	363.1 -> 319.0	39549	2.46	µg/L	98
		363.1 -> 169.0	7237			
PFHpS	7.925	449.0 -> 79.9	7585	2.32	µg/L	100
		449.0 -> 98.9	3948			
PFHxA	5.650	313.0 -> 269.0	44129	2.35	µg/L	99
		313.0 -> 118.9	1413			
PFHxS	7.330	398.7 -> 79.9	6161	2.08	µg/L	m 98
		398.7 -> 98.9	3281			
PFNA	7.785	463.0 -> 419.0	26570	2.36	µg/L	95
		463.0 -> 219.0	6591			
PFNS	8.937	548.8 -> 79.9	4146	2.14	µg/L	99
		548.8 -> 98.9	2111			
PFOA	7.228	413.0 -> 369.0	42805	2.29	µg/L	99
		413.0 -> 169.0	8935			
PFOS	8.443	498.9 -> 79.9	10053	2.05	µg/L	m 89
		498.9 -> 98.8	5235			
PFPeA	4.464	263.0 -> 219.0	76999	4.97	µg/L	100
PFPeS	6.607	349.1 -> 79.9	5483	2.18	µg/L	93
		349.1 -> 98.9	2574			
PFTeDA	10.013	713.1 -> 669.0	36207	2.30	µg/L	99
		713.1 -> 168.9	3064			
PFTrDA	9.630	663.0 -> 619.0	53949	2.43	µg/L	99
		663.0 -> 168.9	5397			
PFUnDA	8.761	563.1 -> 519.0	28660	2.31	µg/L	99
		563.1 -> 269.1	5660			
11CI-PF3OUdS	9.681	630.9 -> 450.9	48501	4.83	µg/L	100
		632.9 -> 452.9	15214			
9CI-PF3ONS	8.800	530.8 -> 351.0	49452	4.41	µg/L	99
		532.8 -> 353.0	14785			
ADONA	6.831	376.9 -> 250.9	110024	4.76	µg/L	100
		376.9 -> 84.8	29259			
HFPO-DA	6.015	284.9 -> 168.9	14261	4.67	µg/L	99
		284.9 -> 184.9	1720			
3:3FTCA	3.979	241.0 -> 177.0	9309	12.90	µg/L	99
		241.0 -> 117.0	859			
5:3FTCA	6.333	341.0 -> 237.1	172981	65.11	µg/L	100
		341.0 -> 217.0	122639			
7:3FTCA	7.774	441.0 -> 316.9	72264	66.37	µg/L	98
		441.0 -> 336.9	161275			
EtFOSA	11.388	526.0 -> 219.0	17008	4.74	µg/L	m 64
		526.0 -> 169.0	23249			
EtFOSE	11.308	630.0 -> 58.9	28859	12.42	µg/L	100
MeFOSA	11.104	511.9 -> 219.0	13794	4.60	µg/L	m 78
		511.9 -> 169.0	20638			
MeFOSE	11.012	616.1 -> 58.9	26184	12.19	µg/L	m 100
PFDoDS	10.152	699.1 -> 79.9	5526	2.27	µg/L	98
		699.1 -> 98.8	3031			
NFDHA	5.529	295.0 -> 201.0	6546	5.18	µg/L	96
		295.0 -> 84.9	1753			
PFMBA	4.878	279.0 -> 85.1	43999	4.97	µg/L	100
PFMPA	3.602	229.0 -> 84.9	38393	4.96	µg/L	100
PFEESA	6.084	314.8 -> 134.9	70136	4.44	µg/L	100
		314.8 -> 82.9	2420			

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.14
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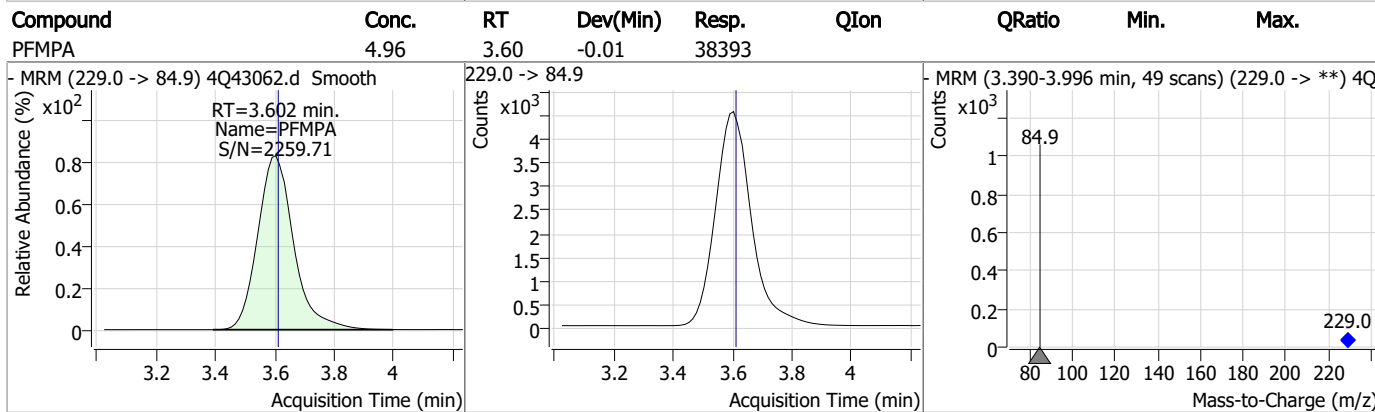
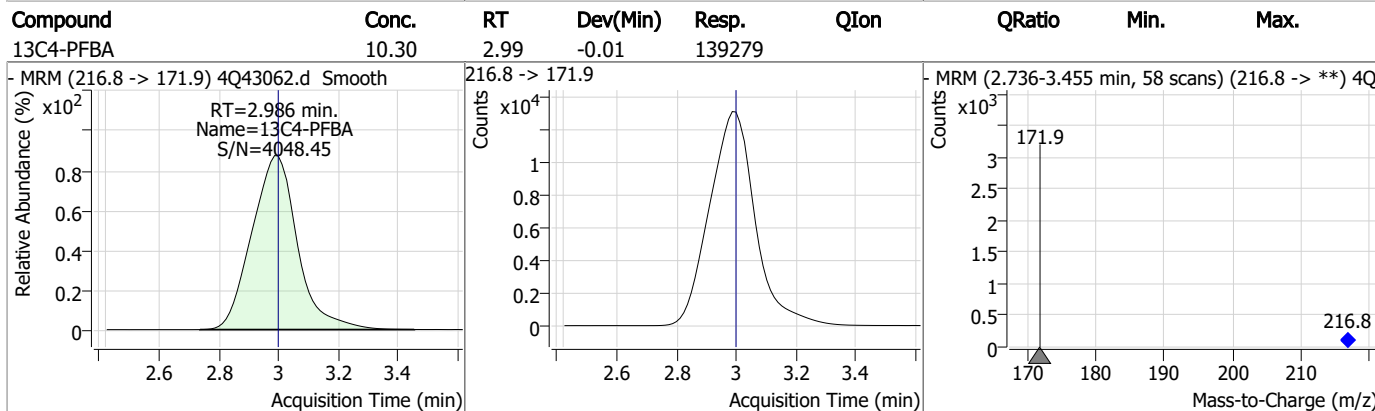
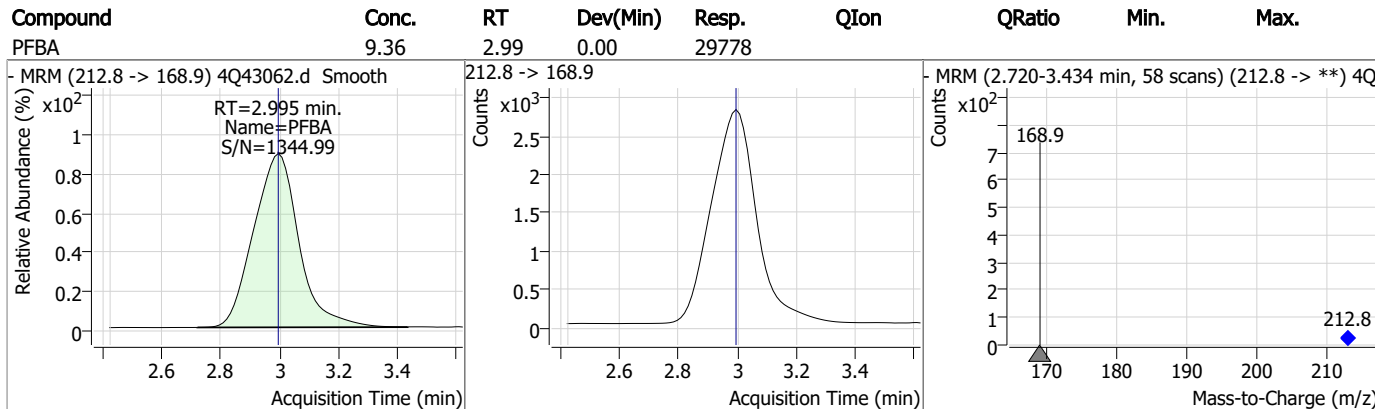
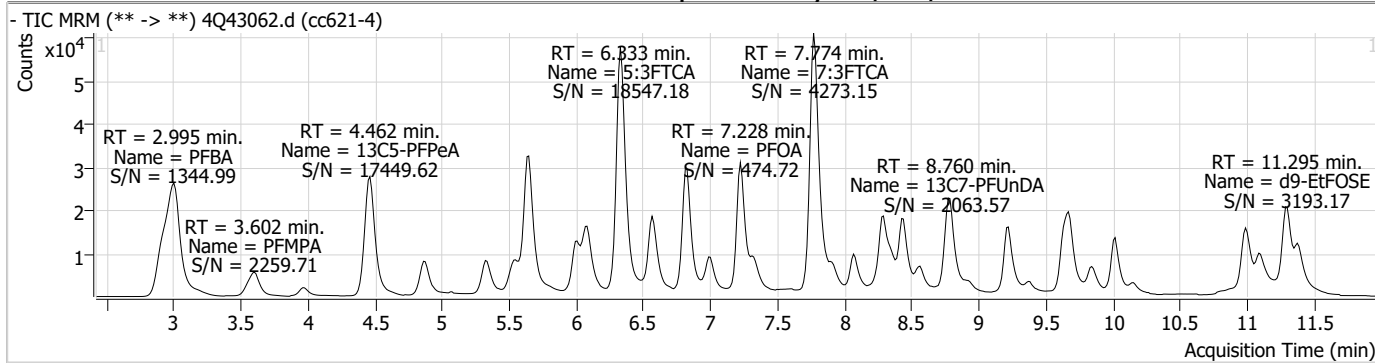
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.14

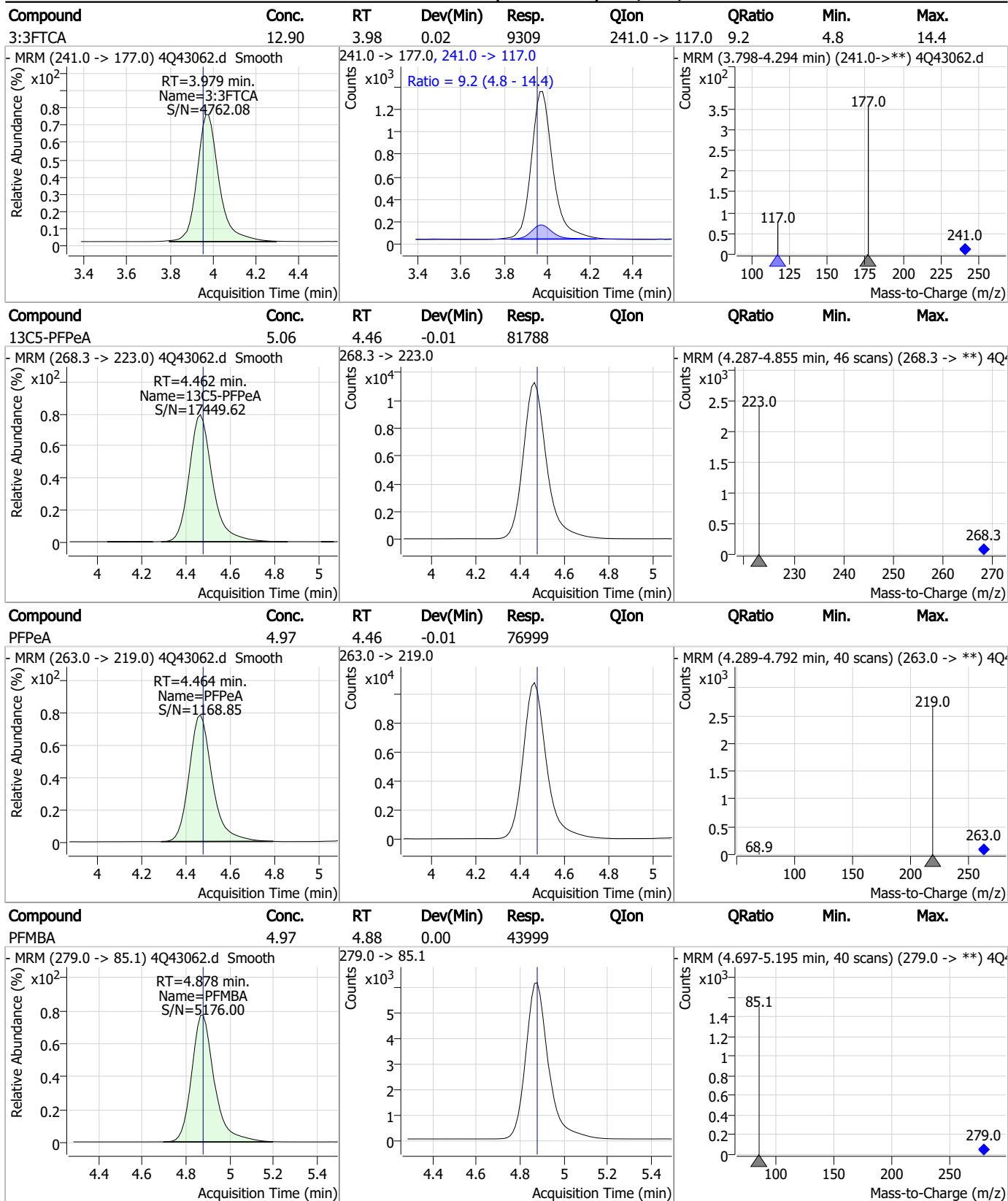
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Perfluorinated Compounds by LC/MS/MS



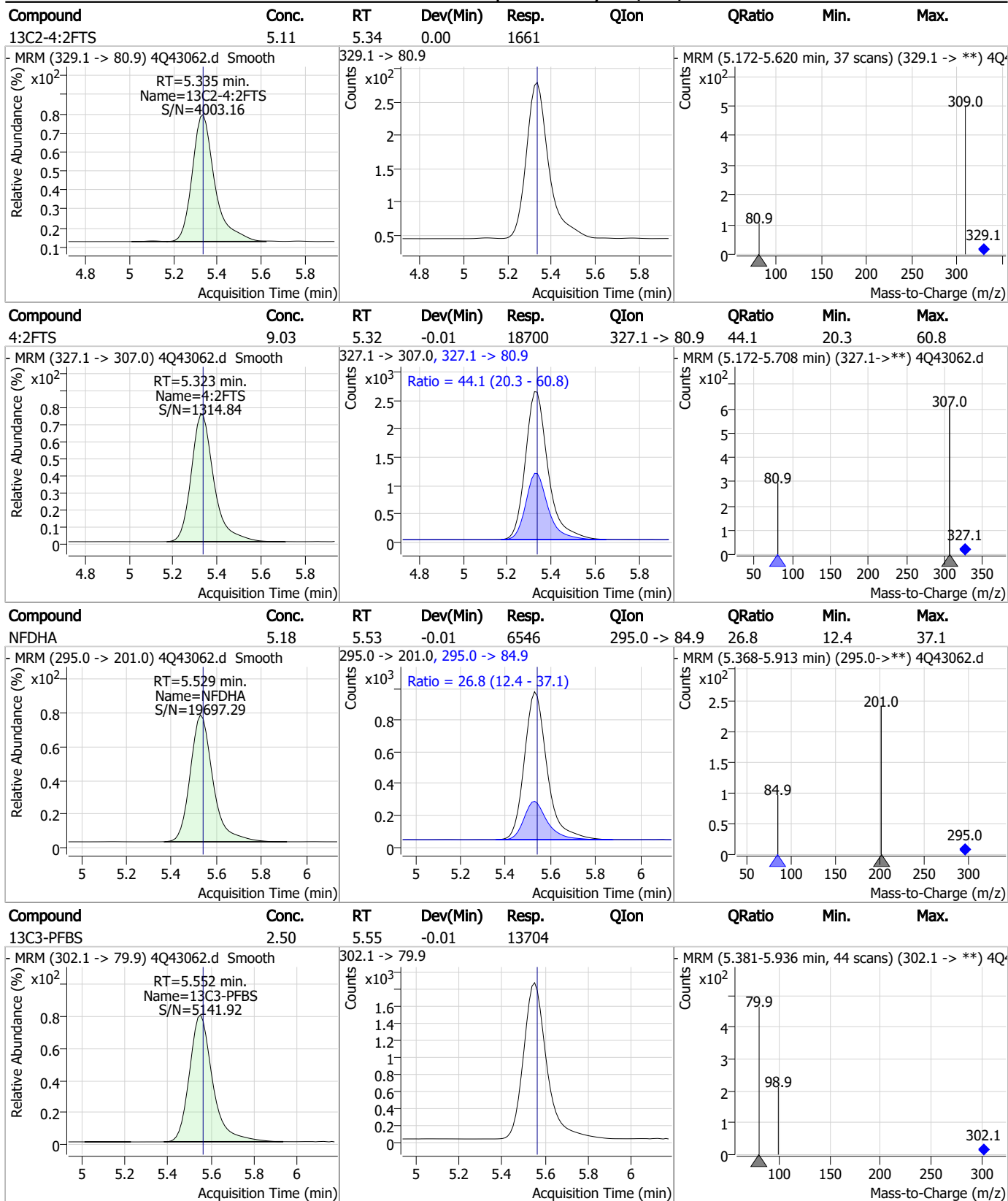
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Perfluorinated Compounds by LC/MS/MS



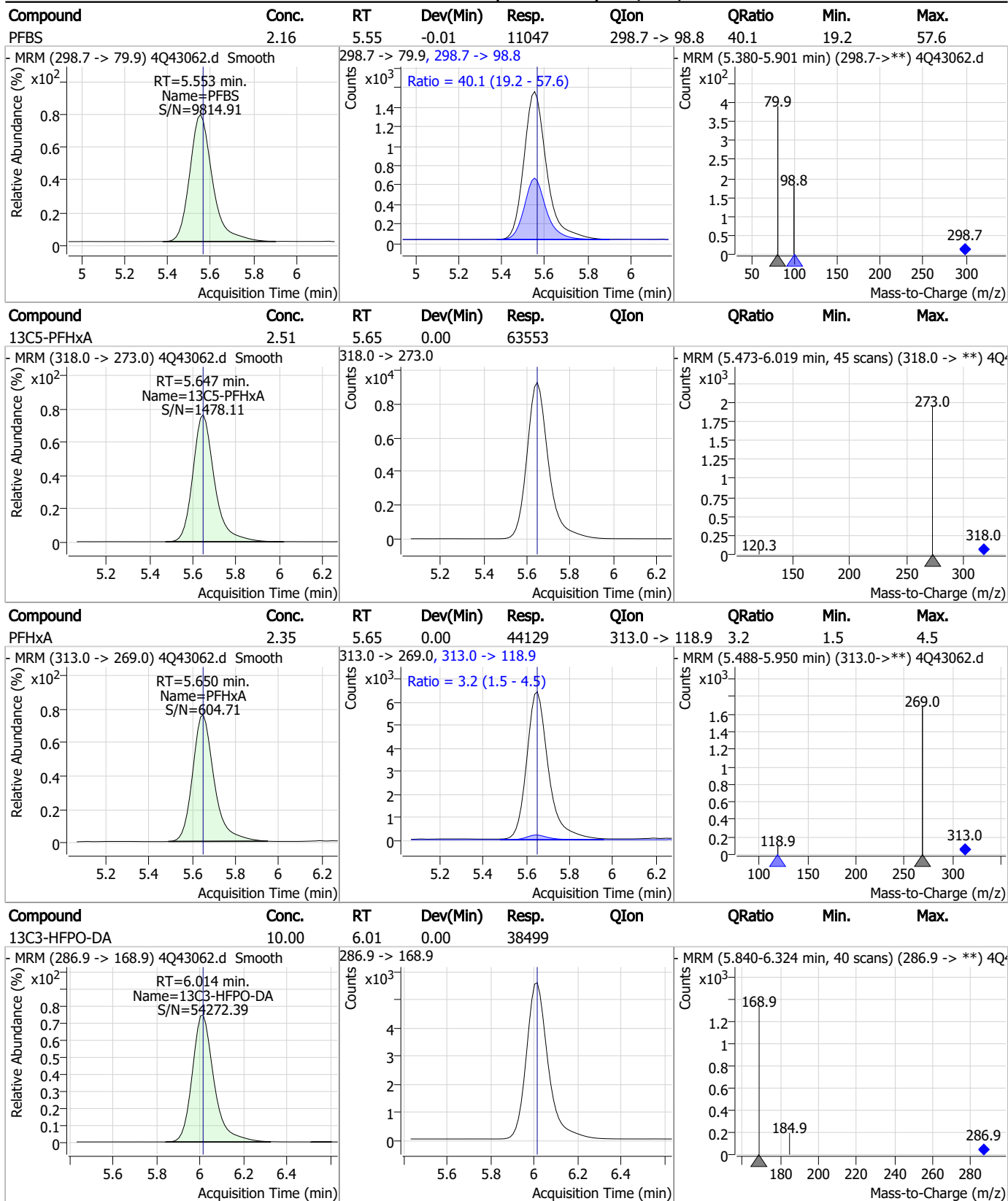
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Perfluorinated Compounds by LC/MS/MS



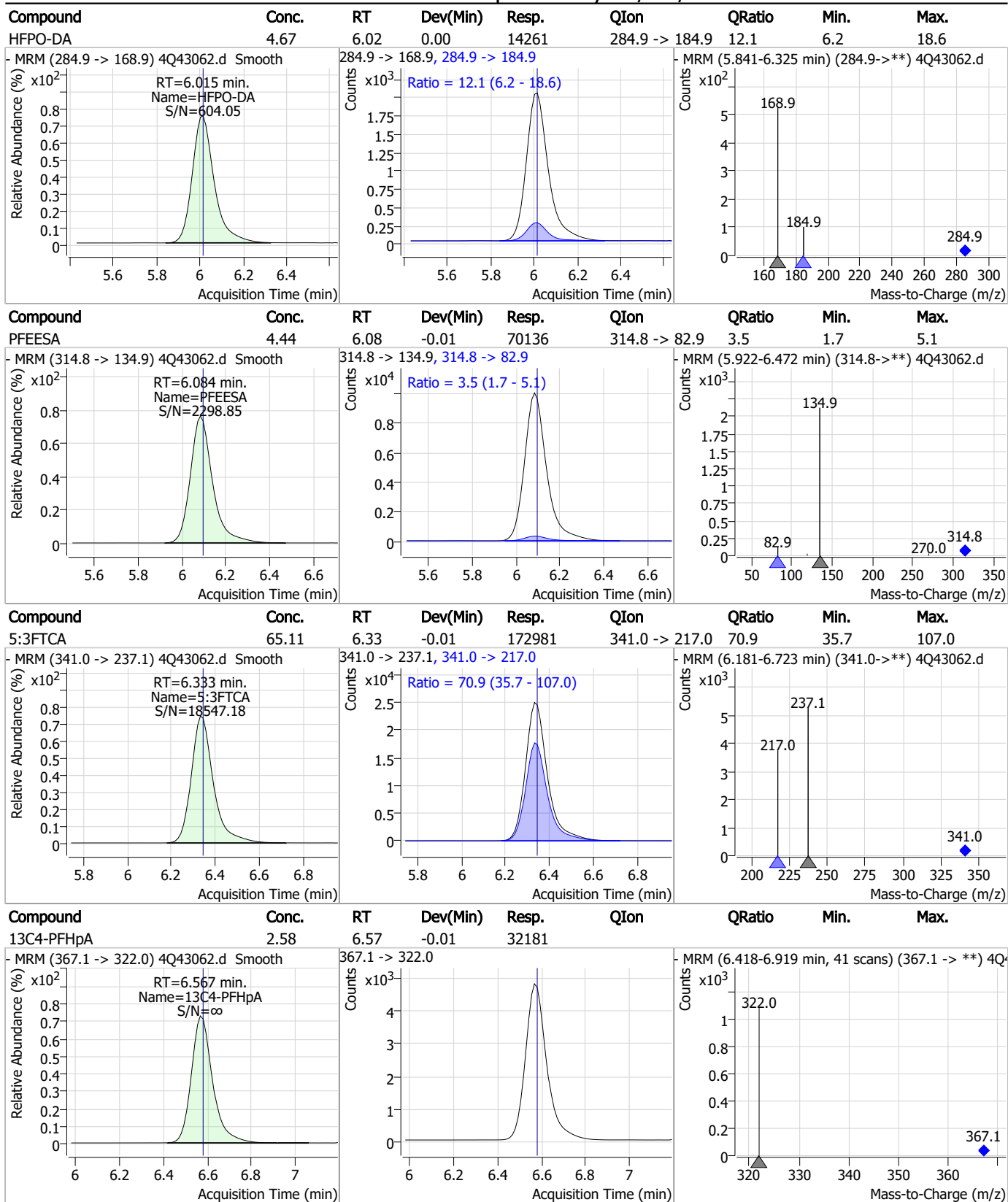
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Perfluorinated Compounds by LC/MS/MS



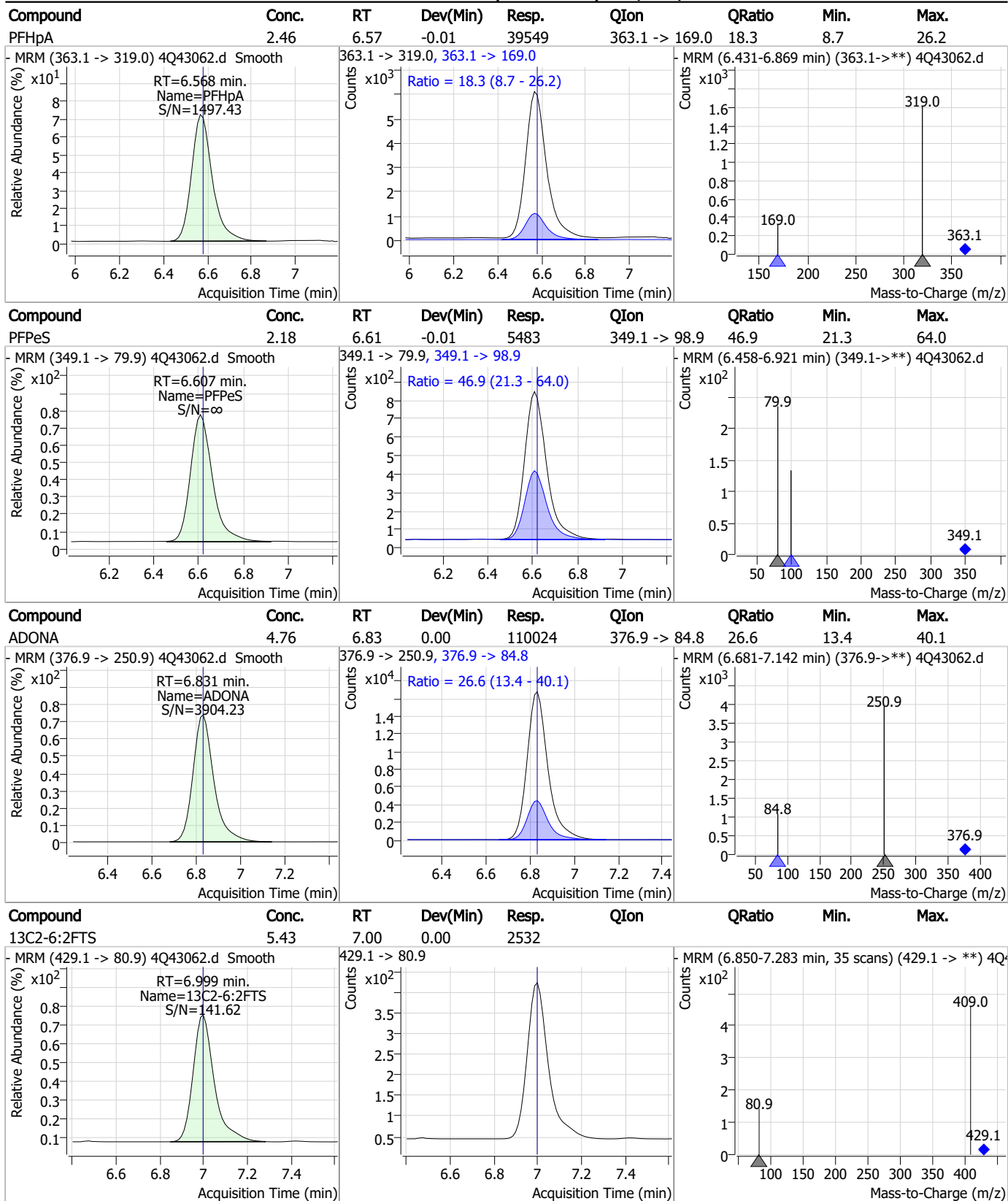
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Perfluorinated Compounds by LC/MS/MS



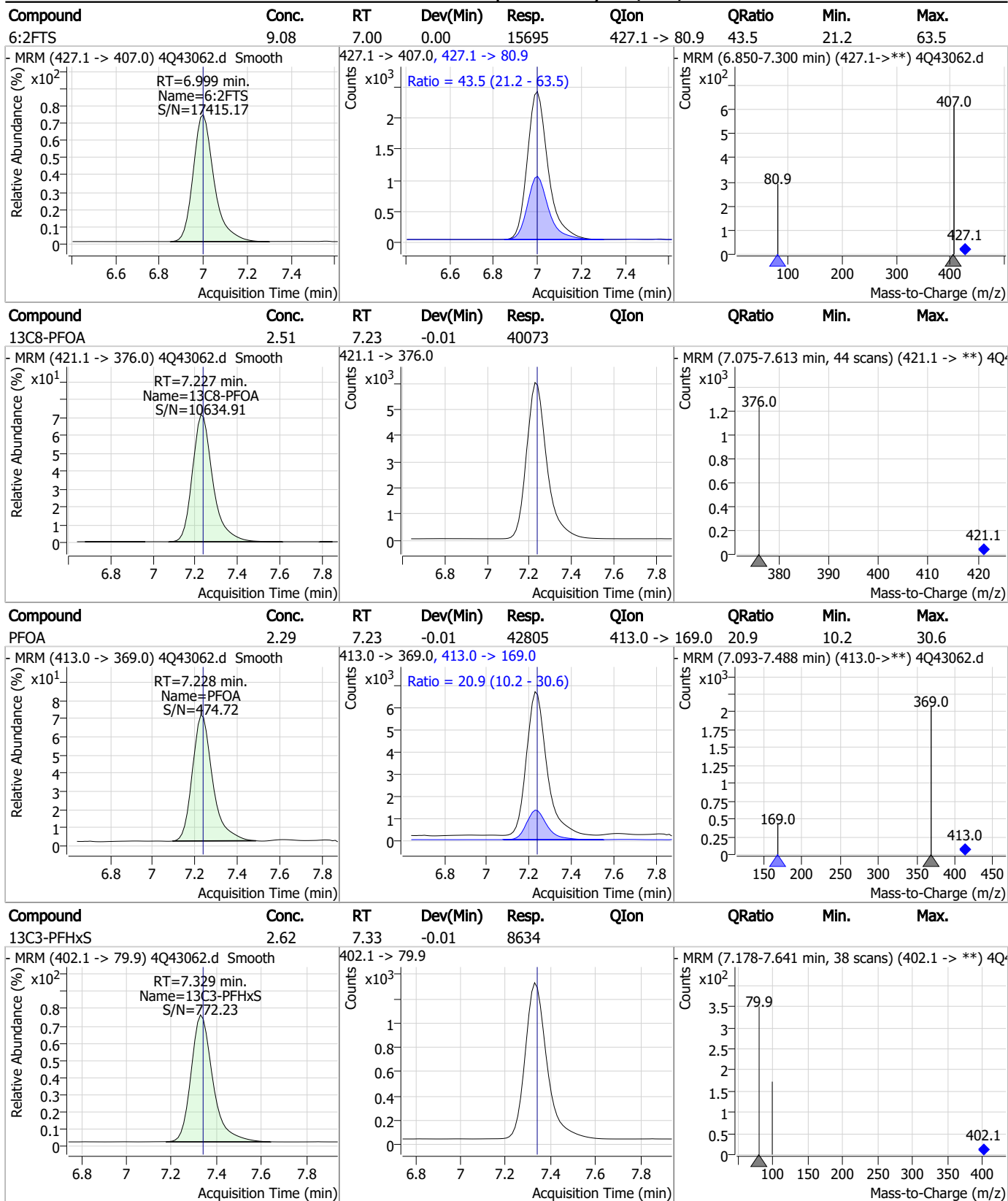
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Perfluorinated Compounds by LC/MS/MS



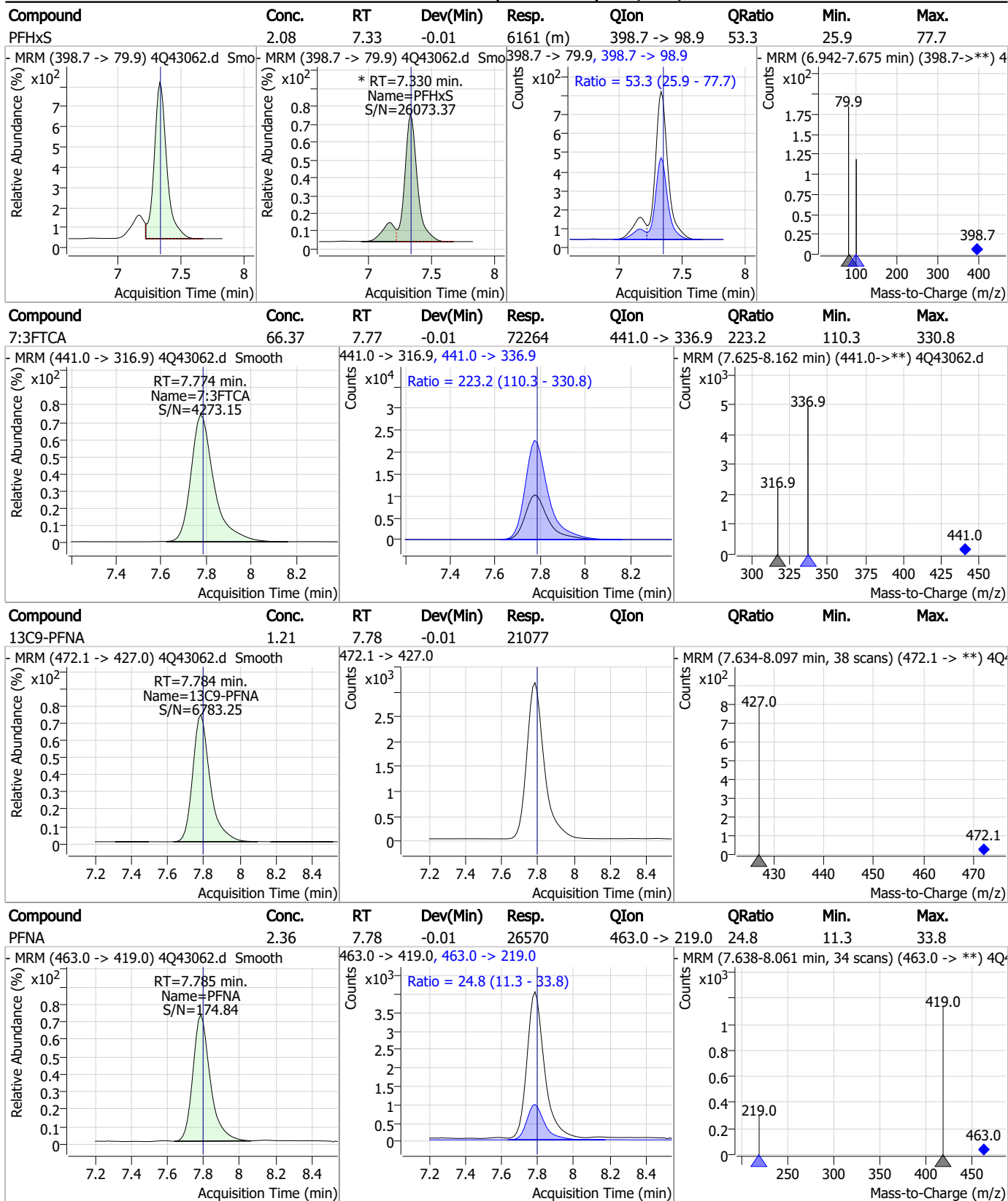
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Perfluorinated Compounds by LC/MS/MS



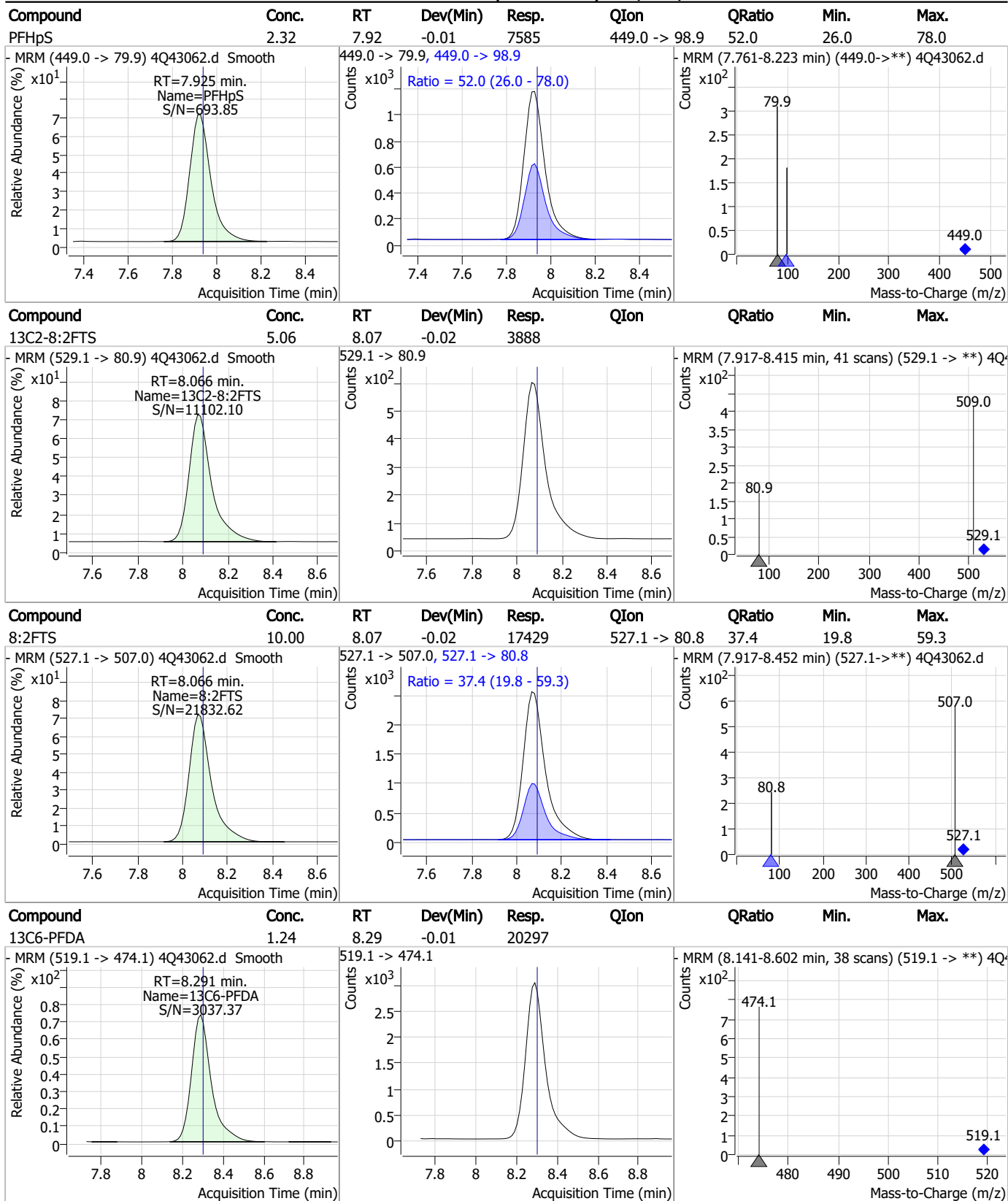
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Perfluorinated Compounds by LC/MS/MS



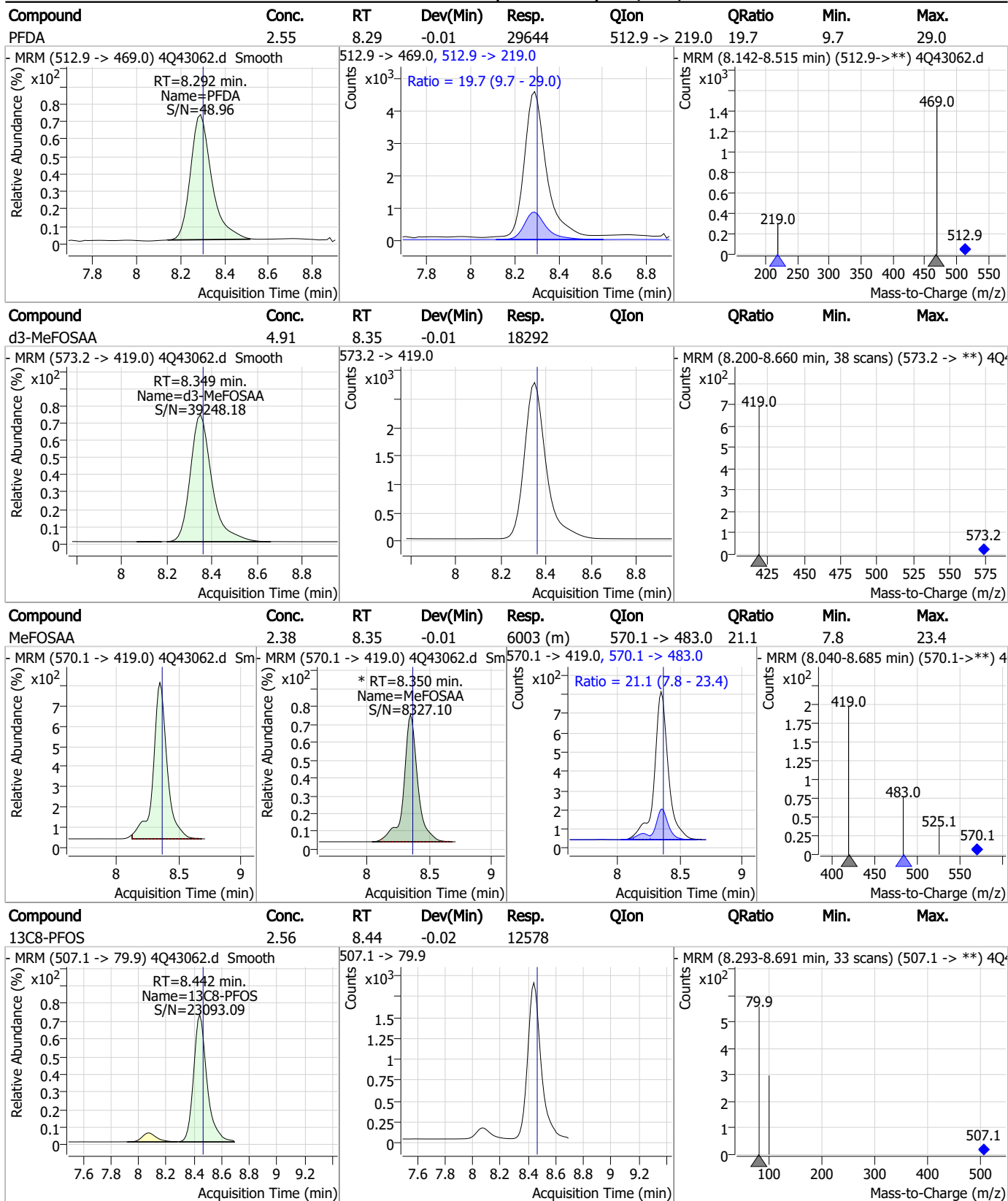
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Perfluorinated Compounds by LC/MS/MS



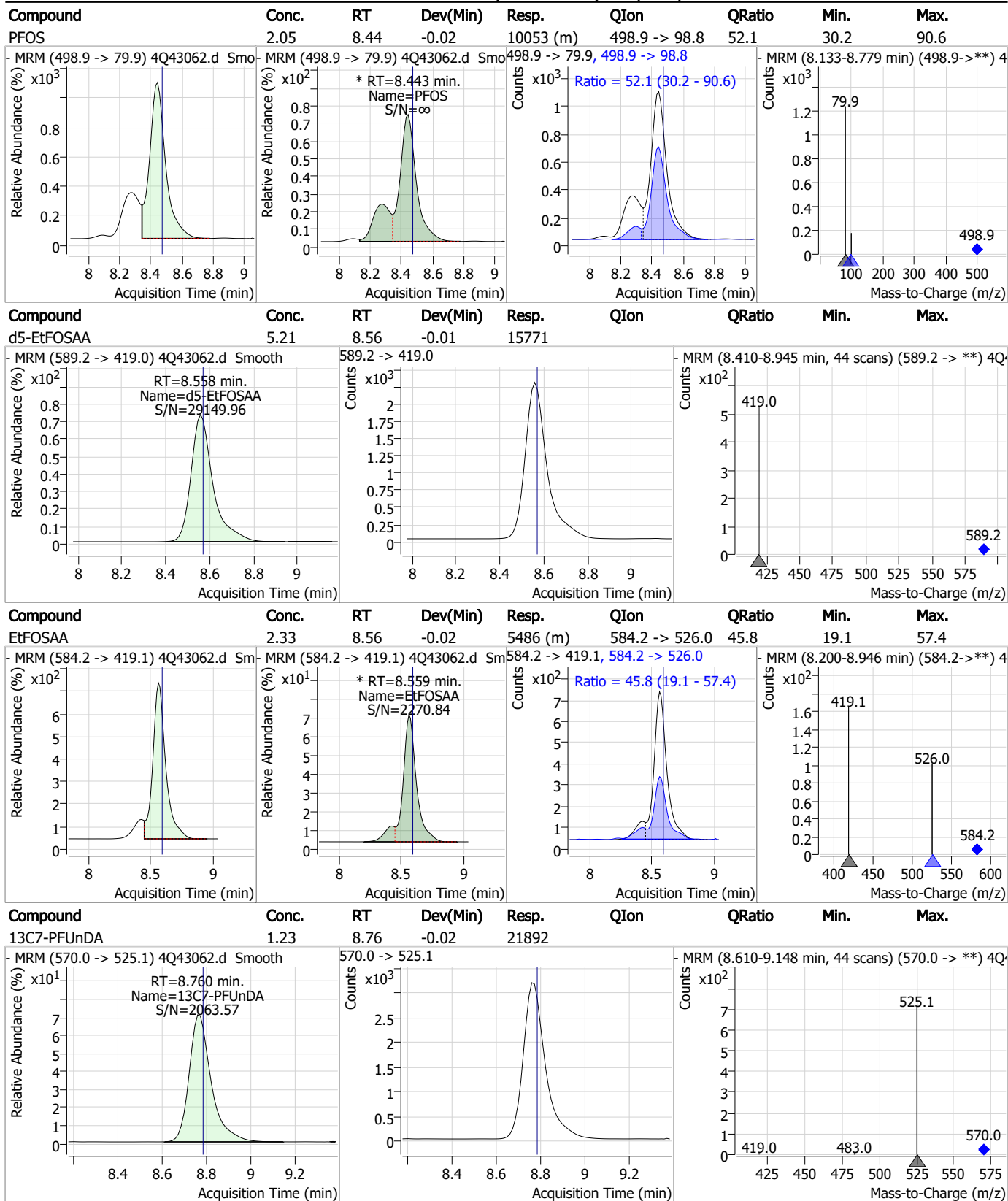
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Perfluorinated Compounds by LC/MS/MS



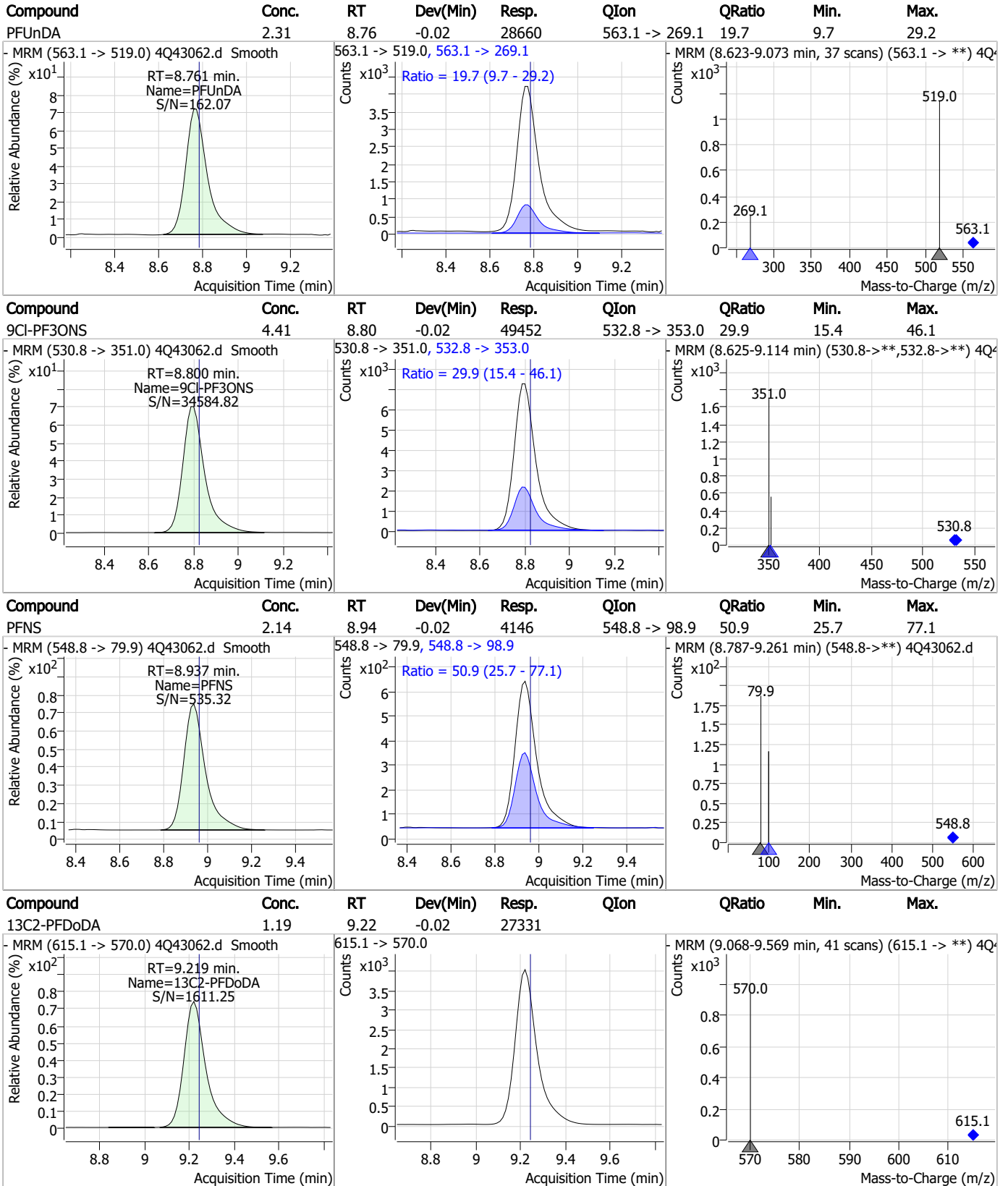
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Perfluorinated Compounds by LC/MS/MS



7.7.14

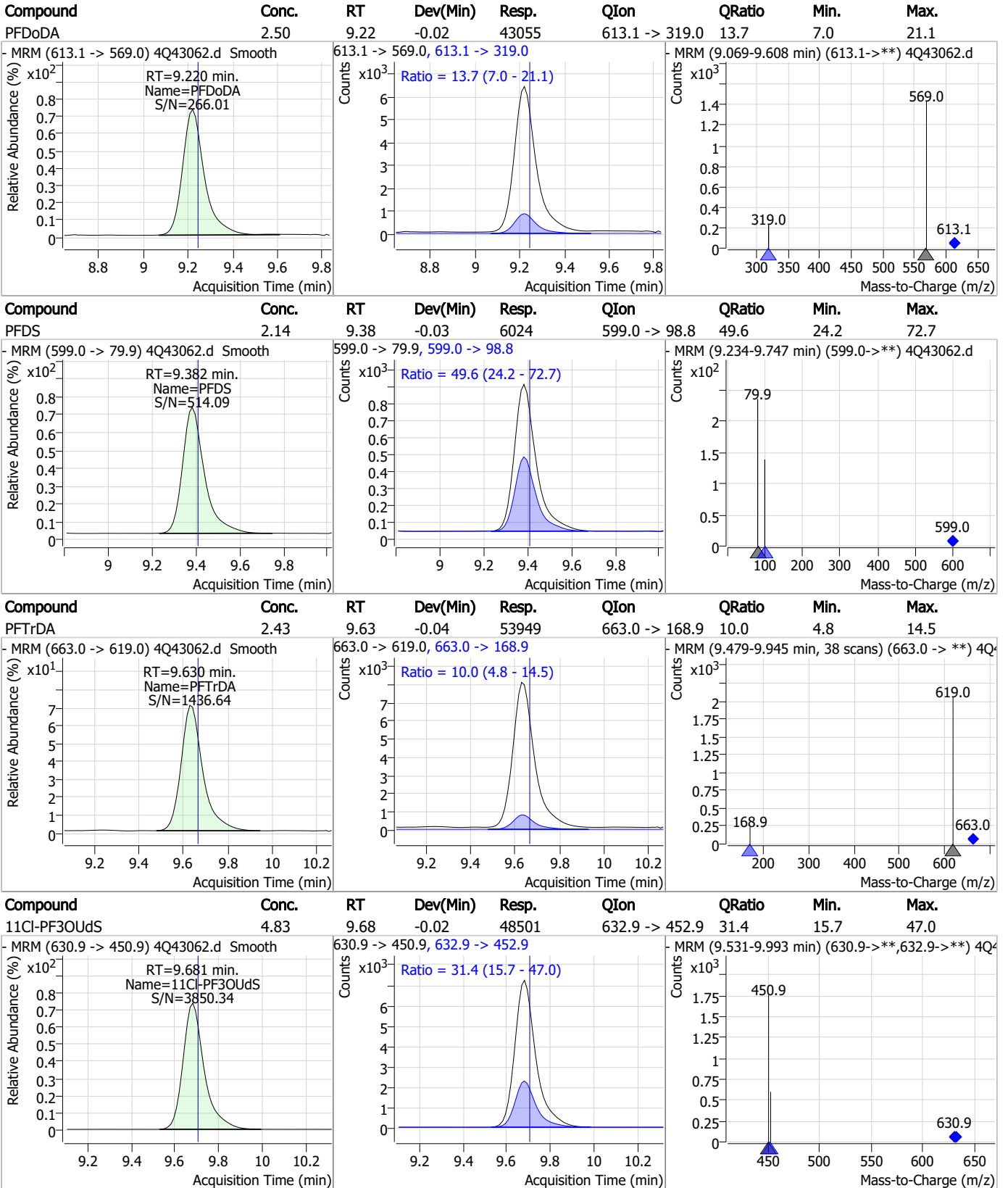
Perfluorinated Compounds by LC/MS/MS



7.7.14
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Perfluorinated Compounds by LC/MS/MS

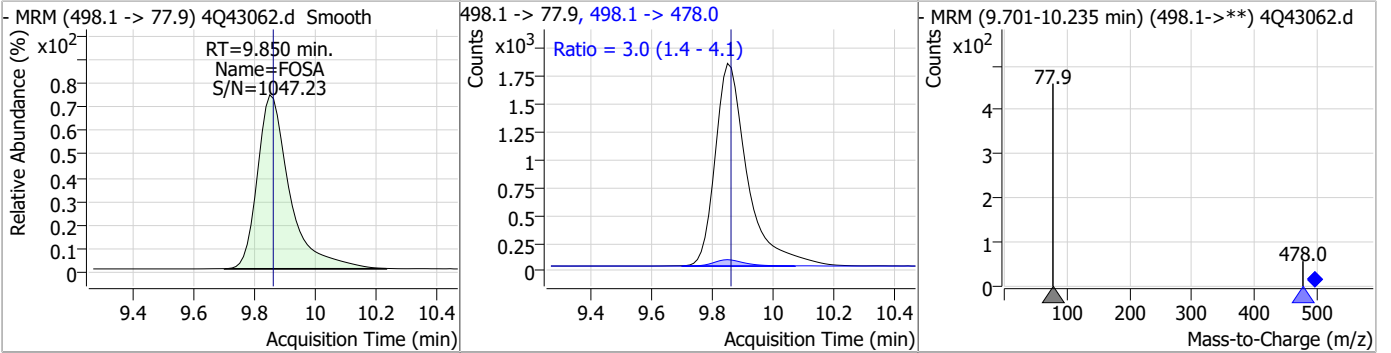


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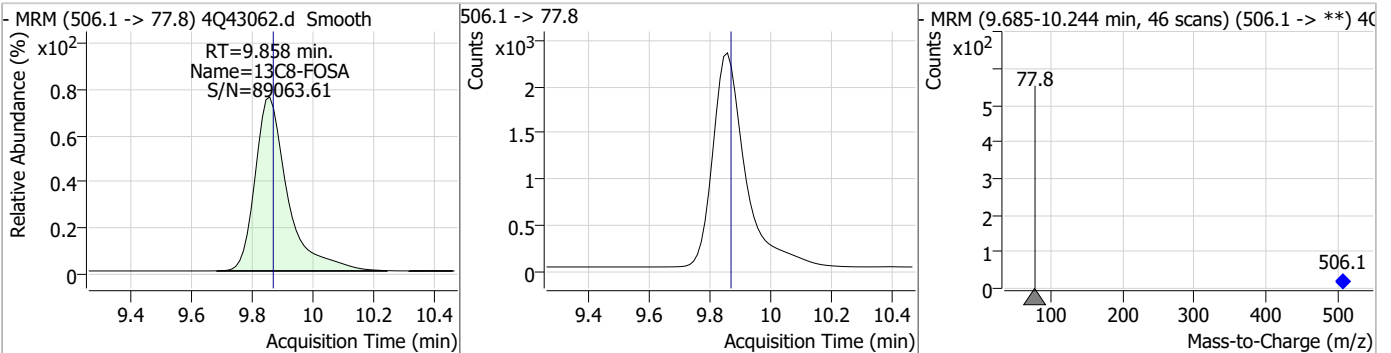


Perfluorinated Compounds by LC/MS/MS

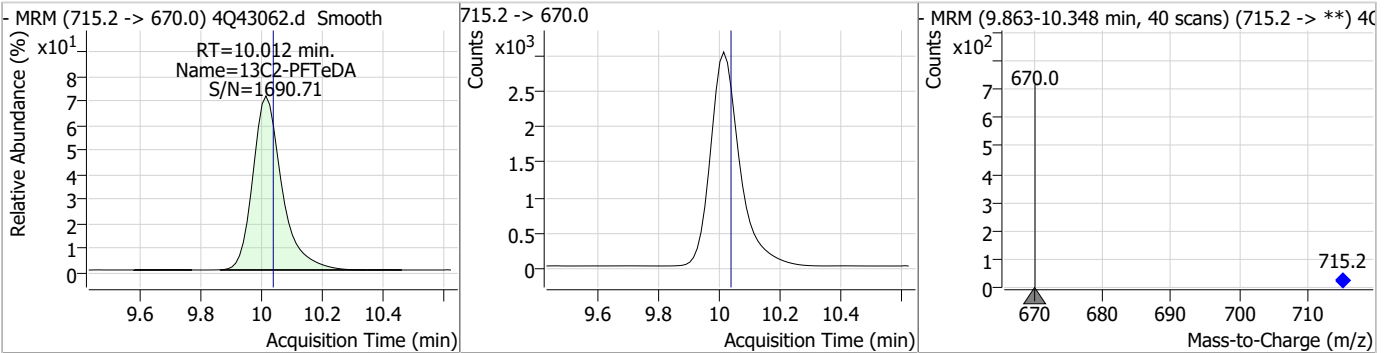
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.43	9.85	-0.01	13564	498.1 -> 478.0	3.0	1.4	4.1



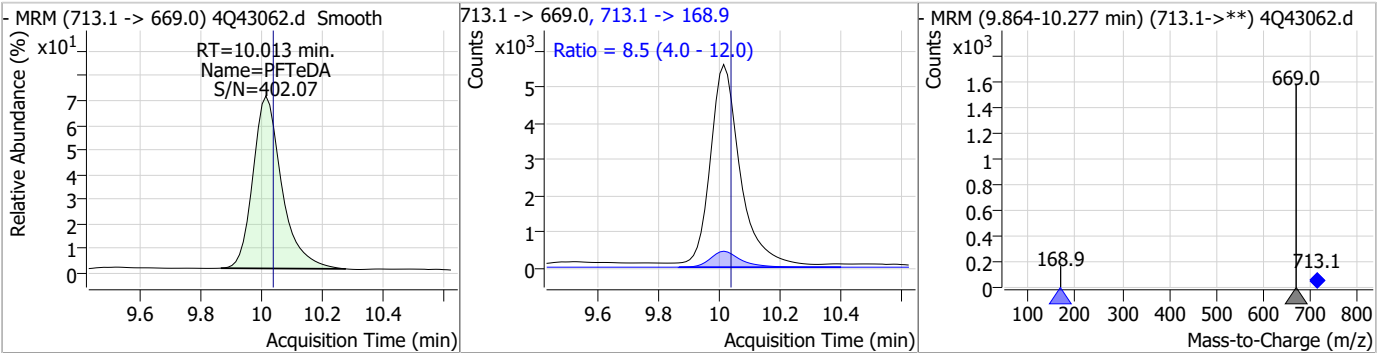
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.10	9.86	-0.01	17337				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.12	10.01	-0.02	20032				

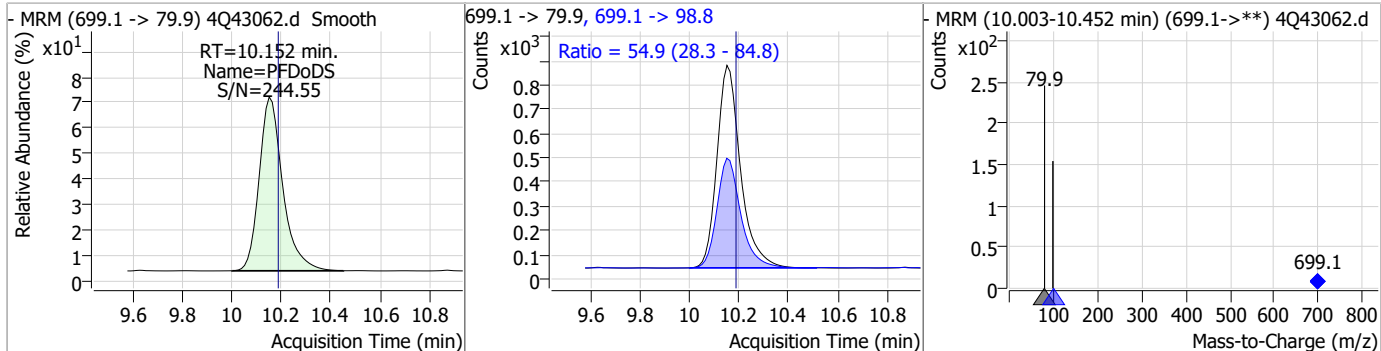


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.30	10.01	-0.02	36207	713.1 -> 168.9	8.5	4.0	12.0

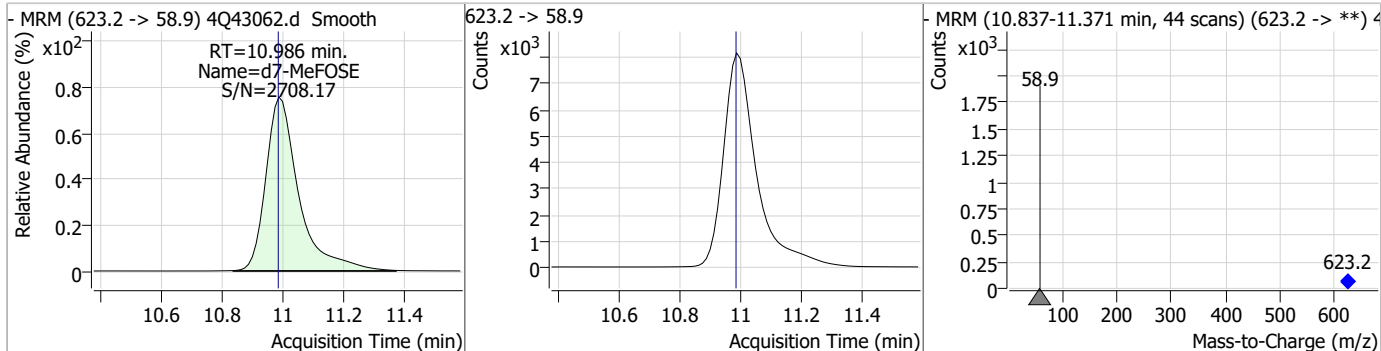


Perfluorinated Compounds by LC/MS/MS

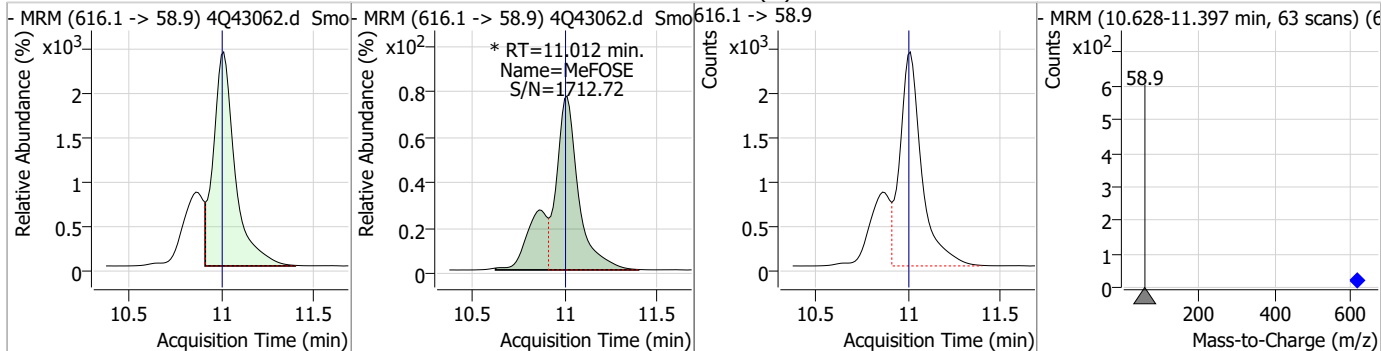
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.27	10.15	-0.04	5526	699.1 -> 98.8	54.9	28.3	84.8



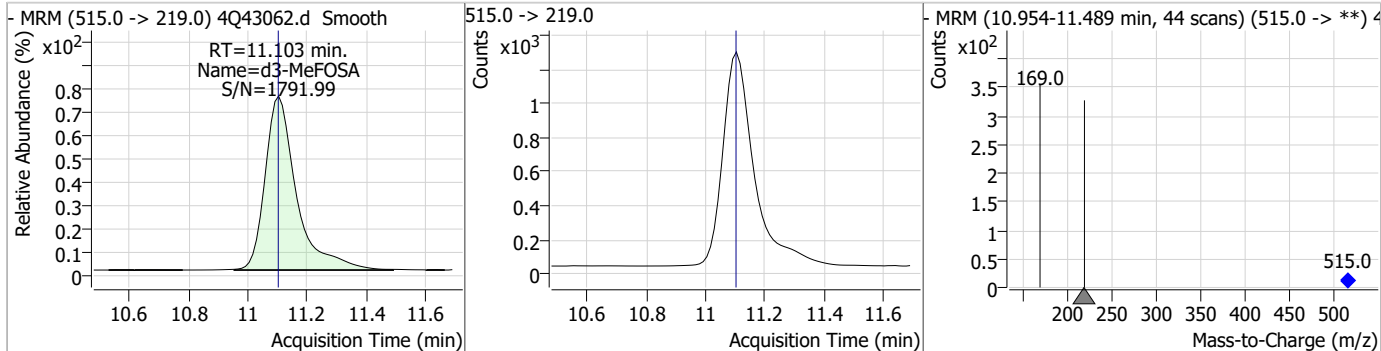
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.73	10.99	0.00	61114				



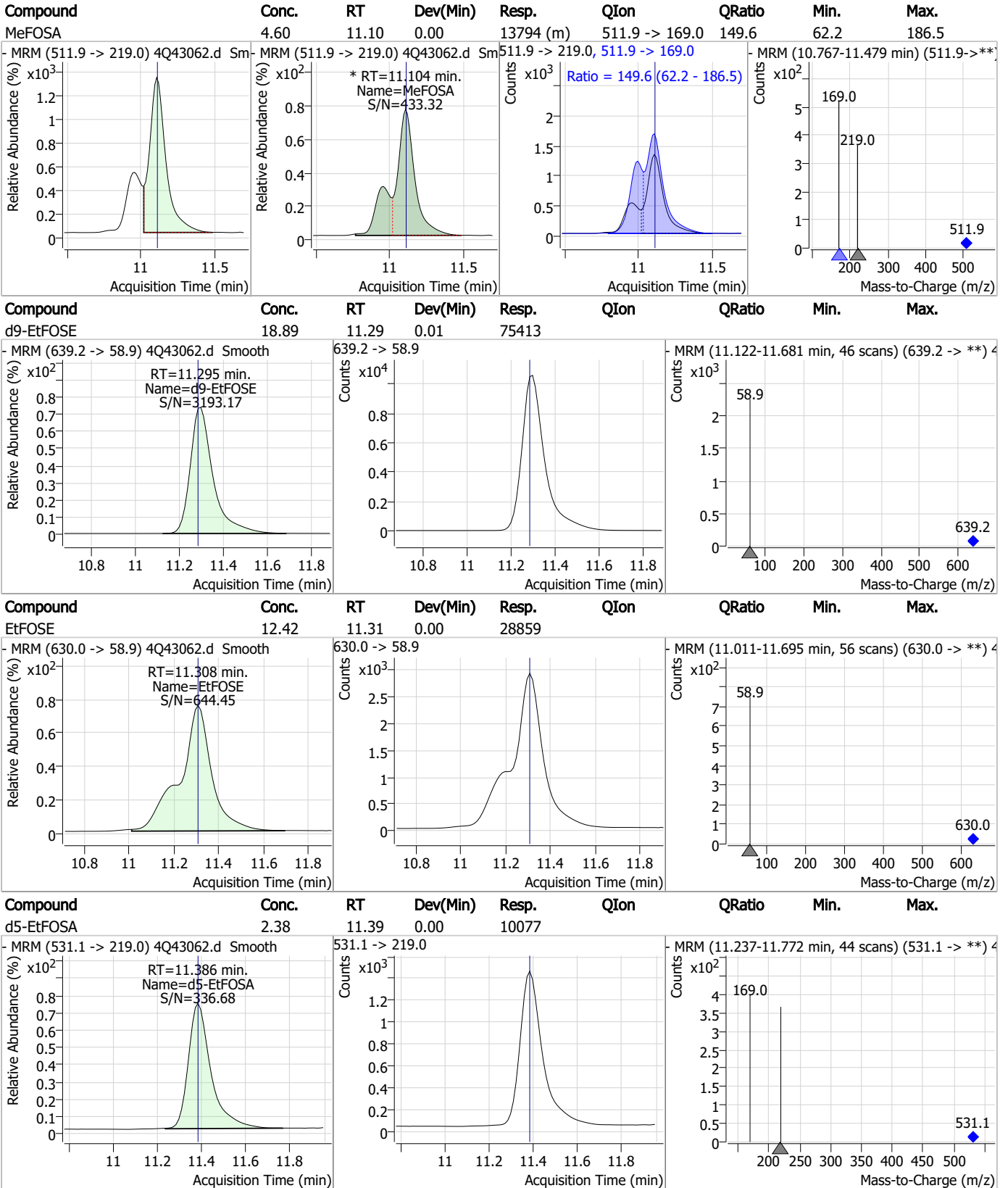
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.19	11.01	0.01	26184 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.37	11.10	0.00	9270				



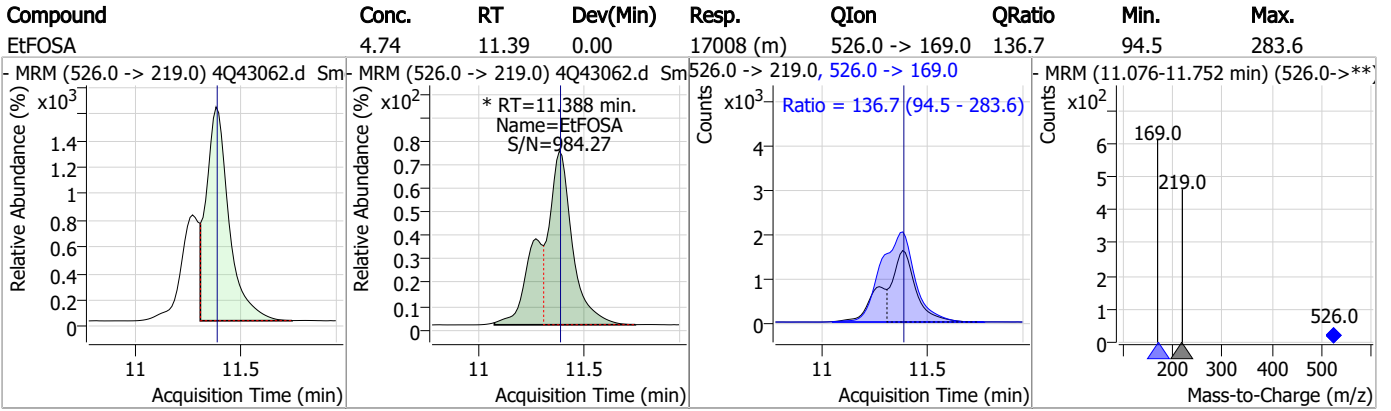
Perfluorinated Compounds by LC/MS/MS



7.7.14
7



Perfluorinated Compounds by LC/MS/MS



7.7.14
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Manual Integration Approval Summary

Sample Number: S4Q622-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43062.D Analyst approved: 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 17:54 Supervisor approved: 04/17/23 17:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.35	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.44	Split peak
EtFOSAA	2991-50-6		8.56	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.14.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43063.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 6:08:25 PM
 Sample Name : cc621-1.0LL
 Vial : P1-A2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	118174	10.00 µg/L	0.000
M5-PFPeA	4.462	268.3 -> 223.0	68639	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	52597	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	26676	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	32851	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	18171	1.25 µg/L	-0.012
M6-PFDA	8.291	519.1 -> 474.1	17444	1.25 µg/L	-0.012
M7-PFUnDA	8.772	570.0 -> 525.1	18090	1.25 µg/L	-0.012
M2-PFDoDA	9.219	615.1 -> 570.0	22684	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	16151	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	14226	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	11254	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	6900	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	10090	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1516	5.00 µg/L	0.000
M2-6:2FTS	6.999	429.1 -> 80.9	2168	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	3365	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	15749	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	31668	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	12880	5.00 µg/L	-0.012
M7-MeFOSE	10.999	623.2 -> 58.9	52681	25.00 µg/L	0.014
M9-EtFOSE	11.307	639.2 -> 58.9	63858	25.00 µg/L	0.025
M5-EtFOSA	11.398	531.1 -> 219.0	8430	2.50 µg/L	0.013
M3-MeFOSA	11.115	515.0 -> 219.0	7855	2.50 µg/L	0.014
13C4-PFOS	8.443	502.8 -> 79.9	10118	2.50 µg/L	-0.024
13C3-PFBA	3.003	216.0 -> 172.0	65645	5.00 µg/L	0.012
18O2-PFHxS	7.328	403.0 -> 83.9	4867	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	40905	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	15594	1.25 µg/L	-0.012
13C5-PFNA	7.784	468.0 -> 423.0	20419	1.25 µg/L	-0.012
13C2-PFHxA	5.648	315.1 -> 270.0	45242	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1516	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C2-6:2FTS	6.999	429.1 -> 80.9	2168	5.68 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C2-8:2FTS	8.066	529.1 -> 80.9	3365	5.36 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-PFDoDA	9.219	615.1 -> 570.0	22684	1.18 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-PFTeDA	10.012	715.2 -> 670.0	16151	1.08 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.5%		
13C3-PFBS	5.552	302.1 -> 79.9	11254	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFHxS	7.329	402.1 -> 79.9	6900	2.56 µg/L	-0.012

7.7.15
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C4-PFBA	2.999	216.8 -> 171.9	118174	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFHpA	6.567	367.1 -> 322.0	26676	2.60 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.647	318.0 -> 273.0	52597	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFPeA	4.462	268.3 -> 223.0	68639	5.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C6-PFDA	8.291	519.1 -> 474.1	17444	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C7-PFUnDA	8.772	570.0 -> 525.1	18090	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C8-FOSA	9.858	506.1 -> 77.8	14226	2.15 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.0%	
13C8-PFOA	7.227	421.1 -> 376.0	32851	2.44 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C8-PFOS	8.442	507.1 -> 79.9	10090	2.57 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C9-PFNA	7.784	472.1 -> 427.0	18171	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%	
d3-MeFOSAA	8.349	573.2 -> 419.0	15749	5.28 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	31668	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d3-MeFOSA	11.115	515.0 -> 219.0	7855	2.51 µg/L	0.014
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
d5-EtFOSAA	8.558	589.2 -> 419.0	12880	5.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
d7-MeFOSE	10.999	623.2 -> 58.9	52681	20.19 µg/L	0.014
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.8%	
d9-EtFOSE	11.307	639.2 -> 58.9	63858	20.00 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.0%	
d5-EtFOSA	11.398	531.1 -> 219.0	8430	2.49 µg/L	0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	1402	0.74 µg/L	93
		327.1 -> 80.9	508		
6:2FTS	6.999	427.1 -> 407.0	1216	0.82 µg/L	92
		427.1 -> 80.9	573		
8:2FTS	8.066	527.1 -> 507.0	1151	0.76 µg/L	81
		527.1 -> 80.8	591		
EtFOSAA	8.559	584.2 -> 419.1	459	0.24 µg/L	m 86
		584.2 -> 526.0	213		
FOSA	9.850	498.1 -> 77.9	1147	0.25 µg/L	99
		498.1 -> 478.0	29		
MeFOSAA	8.362	570.1 -> 419.0	441	0.20 µg/L	94
		570.1 -> 483.0	80		
PFBA	3.007	212.8 -> 168.9	2152	0.80 µg/L	100
PFBS	5.553	298.7 -> 79.9	844	0.20 µg/L	96
		298.7 -> 98.8	301		
PFDA	8.292	512.9 -> 469.0	2398	0.24 µg/L	97
		512.9 -> 219.0	427		
PFDODA	9.220	613.1 -> 569.0	3004	0.21 µg/L	92
		613.1 -> 319.0	523		
PFDS	9.396	599.0 -> 79.9	464	0.21 µg/L	91

7.7.15
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8	196	0.22	µg/L	99
		363.1 -> 319.0	2919			
PFHpS	7.925	363.1 -> 169.0	497	0.24	µg/L	99
		449.0 -> 79.9	627			
PFHxA	5.650	449.0 -> 98.9	320	0.22	µg/L	98
		313.0 -> 269.0	3430			
PFHxS	7.330	313.0 -> 118.9	84	0.22	µg/L	m
		398.7 -> 79.9	512			
PFNA	7.785	398.7 -> 98.9	241	0.23	µg/L	97
		463.0 -> 419.0	2258			
PFNS	8.937	463.0 -> 219.0	544	0.17	µg/L	90
		548.8 -> 79.9	268			
PFOA	7.240	548.8 -> 98.9	156	0.17	µg/L	95
		413.0 -> 369.0	2629			
PFOS	8.443	413.0 -> 169.0	592	0.21	µg/L	m
		498.9 -> 79.9	807			
PFPeA	4.464	498.9 -> 98.8	402	0.41	µg/L	100
		263.0 -> 219.0	5266			
PFPeS	6.607	349.1 -> 79.9	437	0.22	µg/L	88
		349.1 -> 98.9	219			
PFTeDA	10.013	713.1 -> 669.0	2416	0.19	µg/L	98
		713.1 -> 168.9	212			
PFTrDA	9.630	663.0 -> 619.0	4331	0.24	µg/L	98
		663.0 -> 168.9	381			
PFUnDA	8.773	563.1 -> 519.0	2299	0.22	µg/L	96
		563.1 -> 269.1	410			
11Cl-PF3OUdS	9.681	630.9 -> 450.9	3380	0.41	µg/L	96
		632.9 -> 452.9	1139			
9Cl-PF3ONS	8.800	530.8 -> 351.0	3737	0.40	µg/L	88
		532.8 -> 353.0	902			
ADONA	6.831	376.9 -> 250.9	7254	0.38	µg/L	94
		376.9 -> 84.8	2175			
HFPO-DA	6.015	284.9 -> 168.9	1030	0.41	µg/L	89
		284.9 -> 184.9	174			
3:3FTCA	3.979	241.0 -> 177.0	666	1.10	µg/L	99
		241.0 -> 117.0	66			
5:3FTCA	6.333	341.0 -> 237.1	12204	5.55	µg/L	99
		341.0 -> 217.0	8559			
7:3FTCA	7.774	441.0 -> 316.9	4908	5.45	µg/L	97
		441.0 -> 336.9	11076			
EtFOSA	11.400	526.0 -> 219.0	1333	0.44	µg/L	55
		526.0 -> 169.0	1637			
EtFOSE	11.321	630.0 -> 58.9	2465	1.25	µg/L	m
		511.9 -> 219.0	1040			
MeFOSA	11.117	511.9 -> 169.0	1497	0.41	µg/L	m
		616.1 -> 58.9	2025			
MeFOSE	11.012	699.1 -> 79.9	391	1.09	µg/L	m
		699.1 -> 98.8	236			
PFDoDS	10.152	295.0 -> 201.0	430	0.20	µg/L	95
		295.0 -> 84.9	85			
NFDHA	5.529	279.0 -> 85.1	3127	0.41	µg/L	90
		229.0 -> 84.9	2662			
PFMBA	4.878	314.8 -> 134.9	4607	0.42	µg/L	100
		314.8 -> 82.9	234			
PFMPA	3.602			0.41	µg/L	100
PFEESA	6.084			0.35	µg/L	95

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.15
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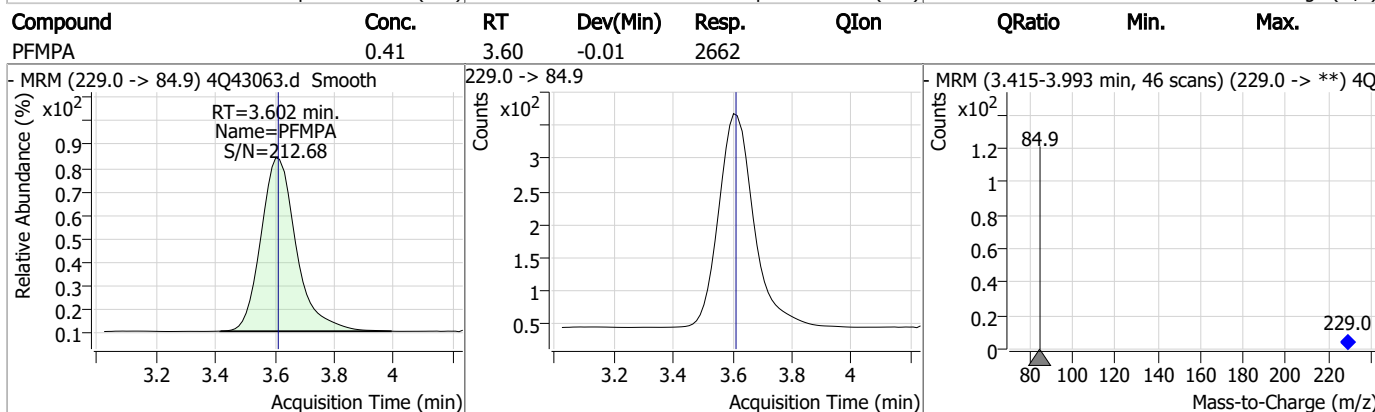
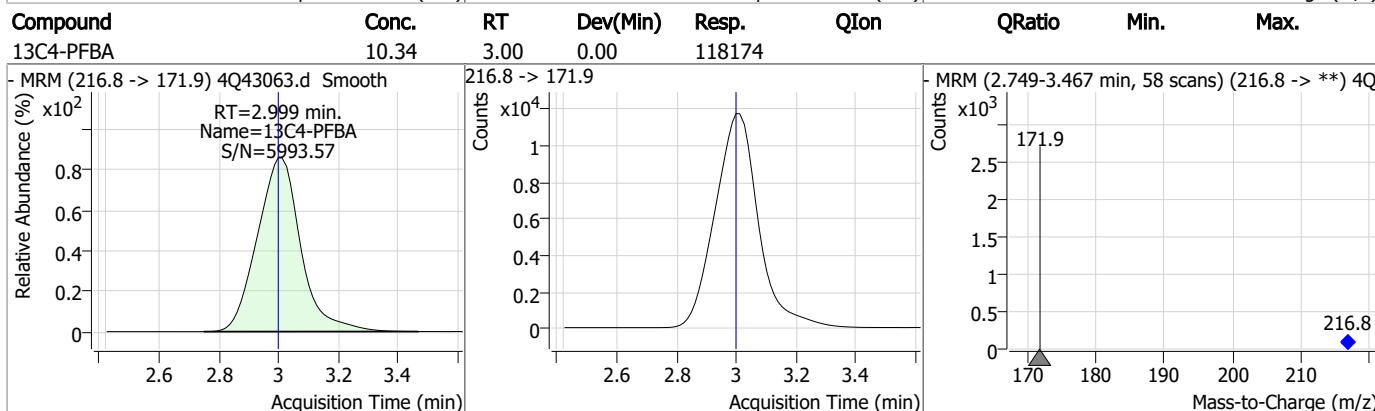
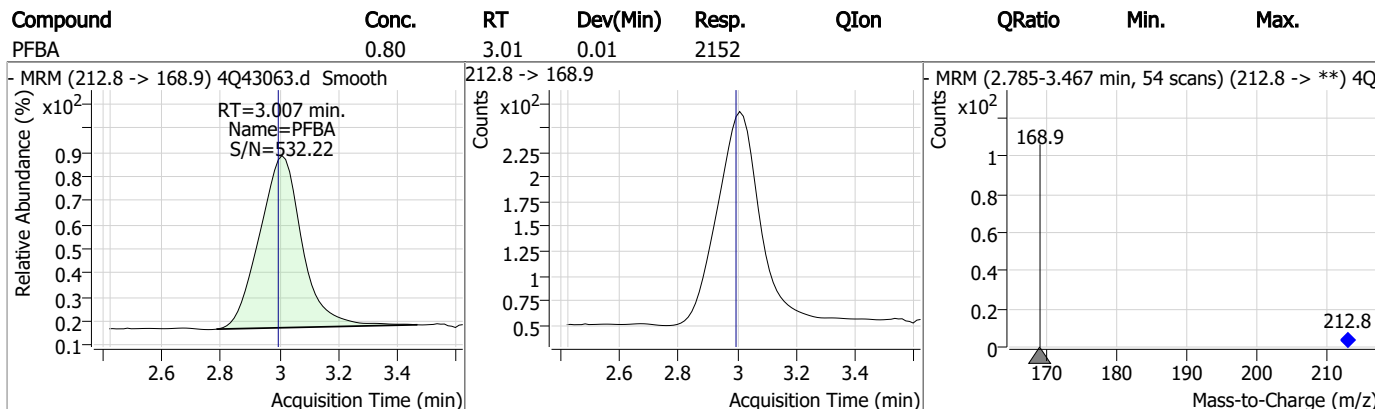
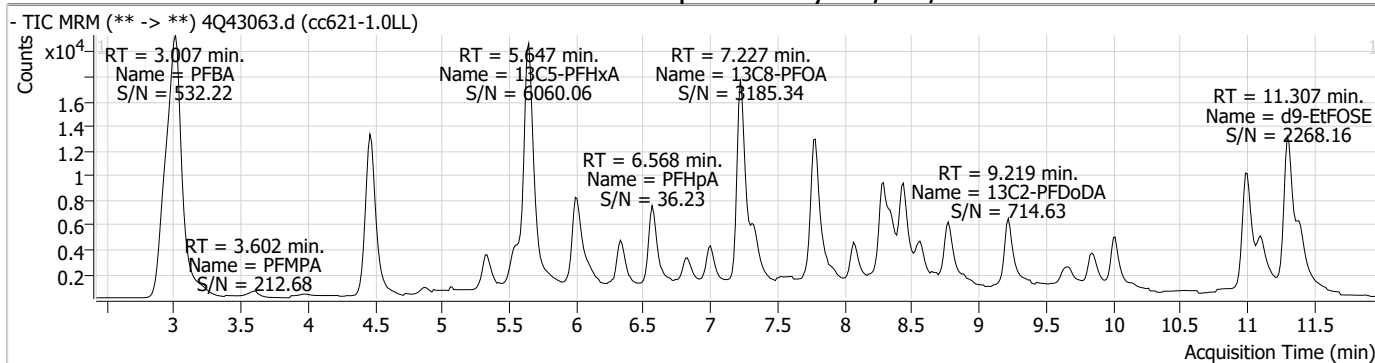
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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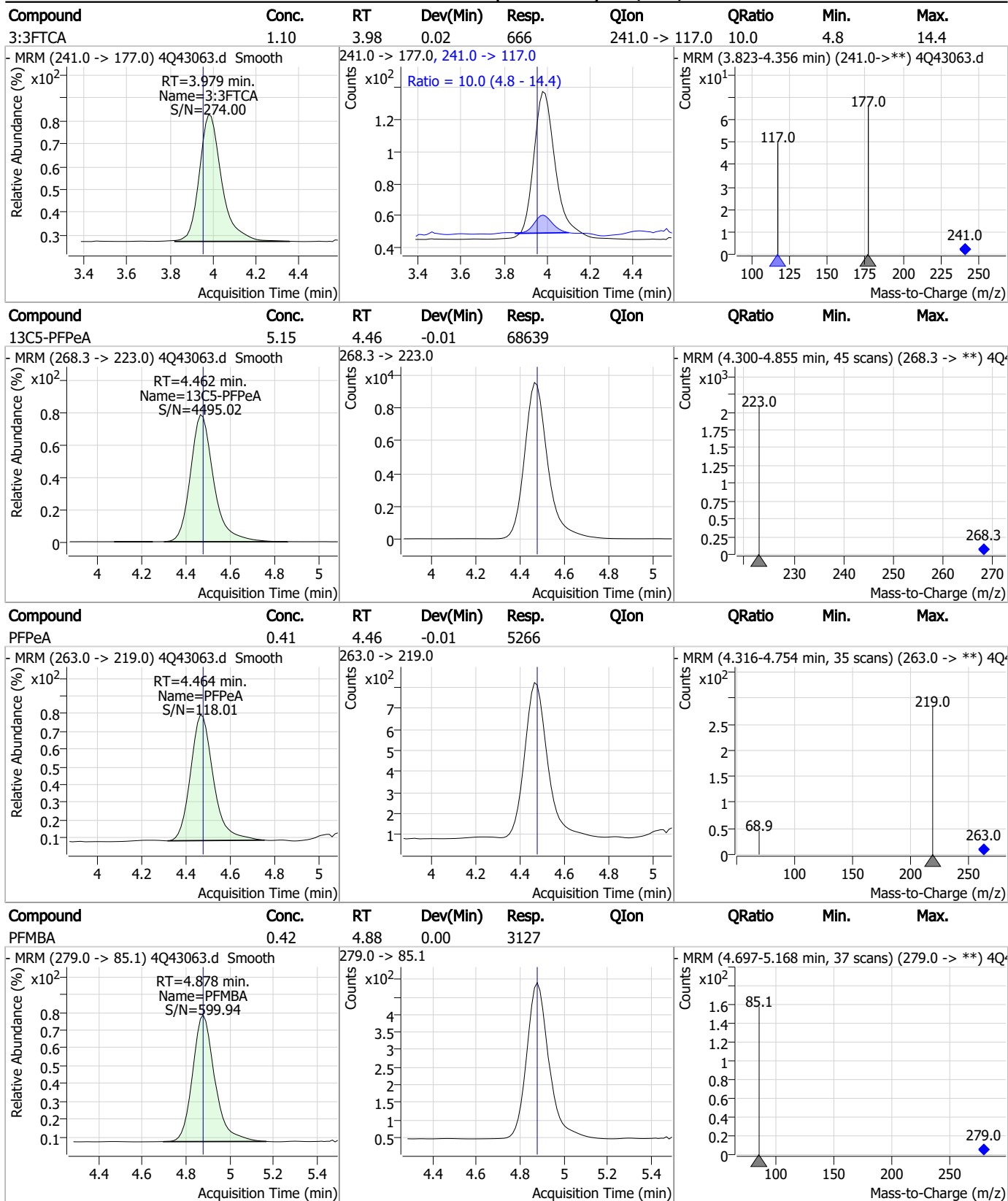
7.7.15

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Perfluorinated Compounds by LC/MS/MS



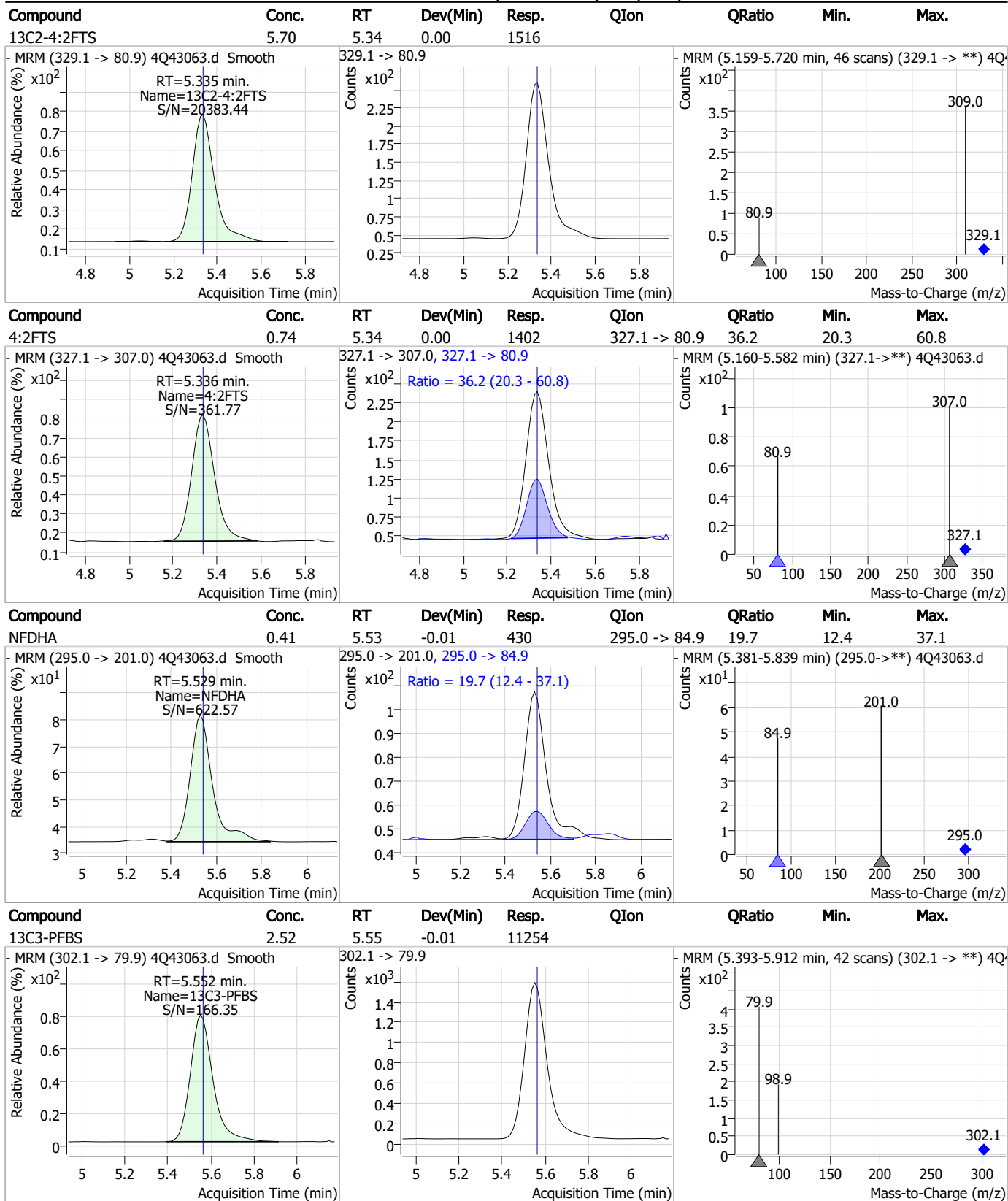
Perfluorinated Compounds by LC/MS/MS



7.7.15
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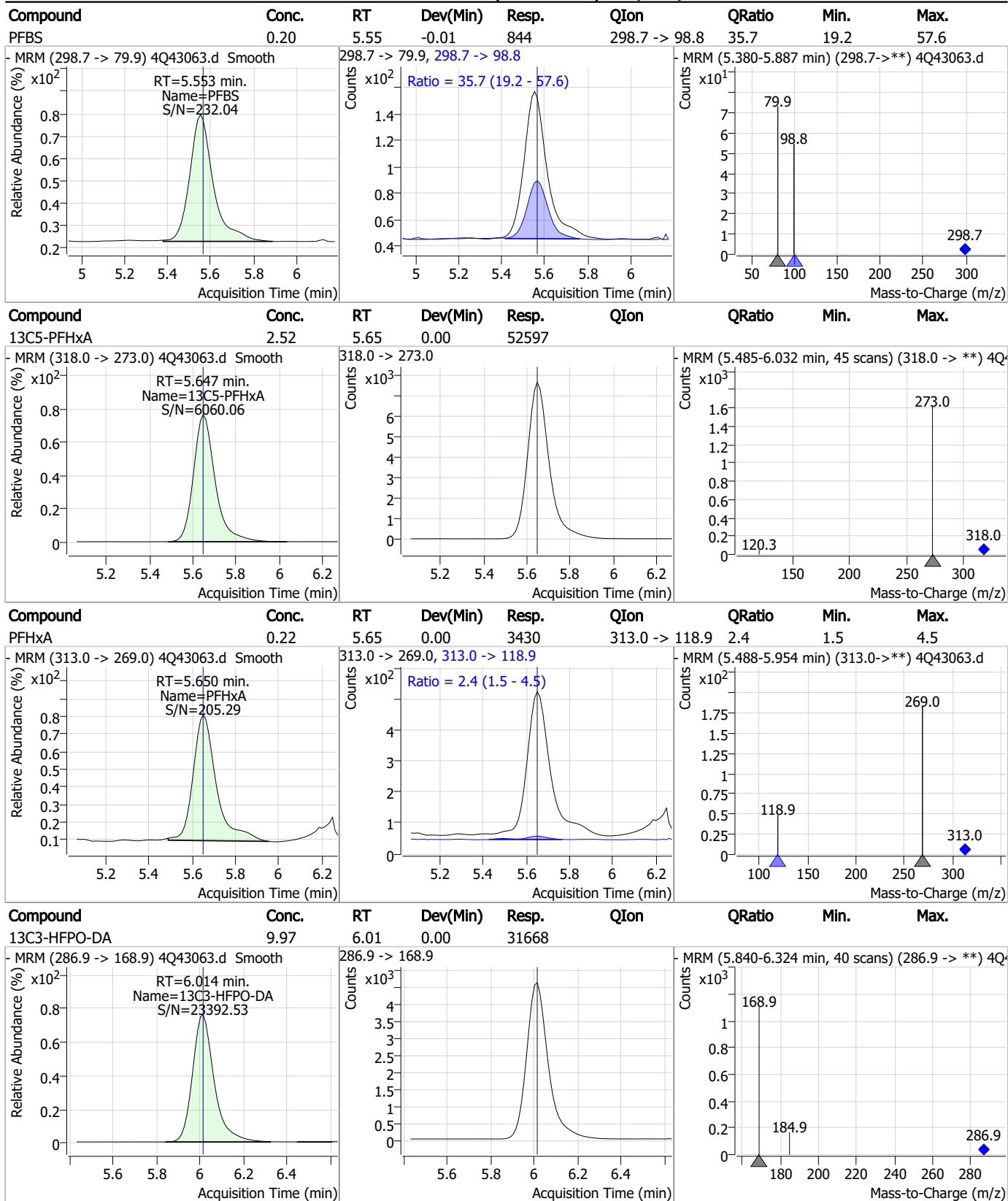


Perfluorinated Compounds by LC/MS/MS



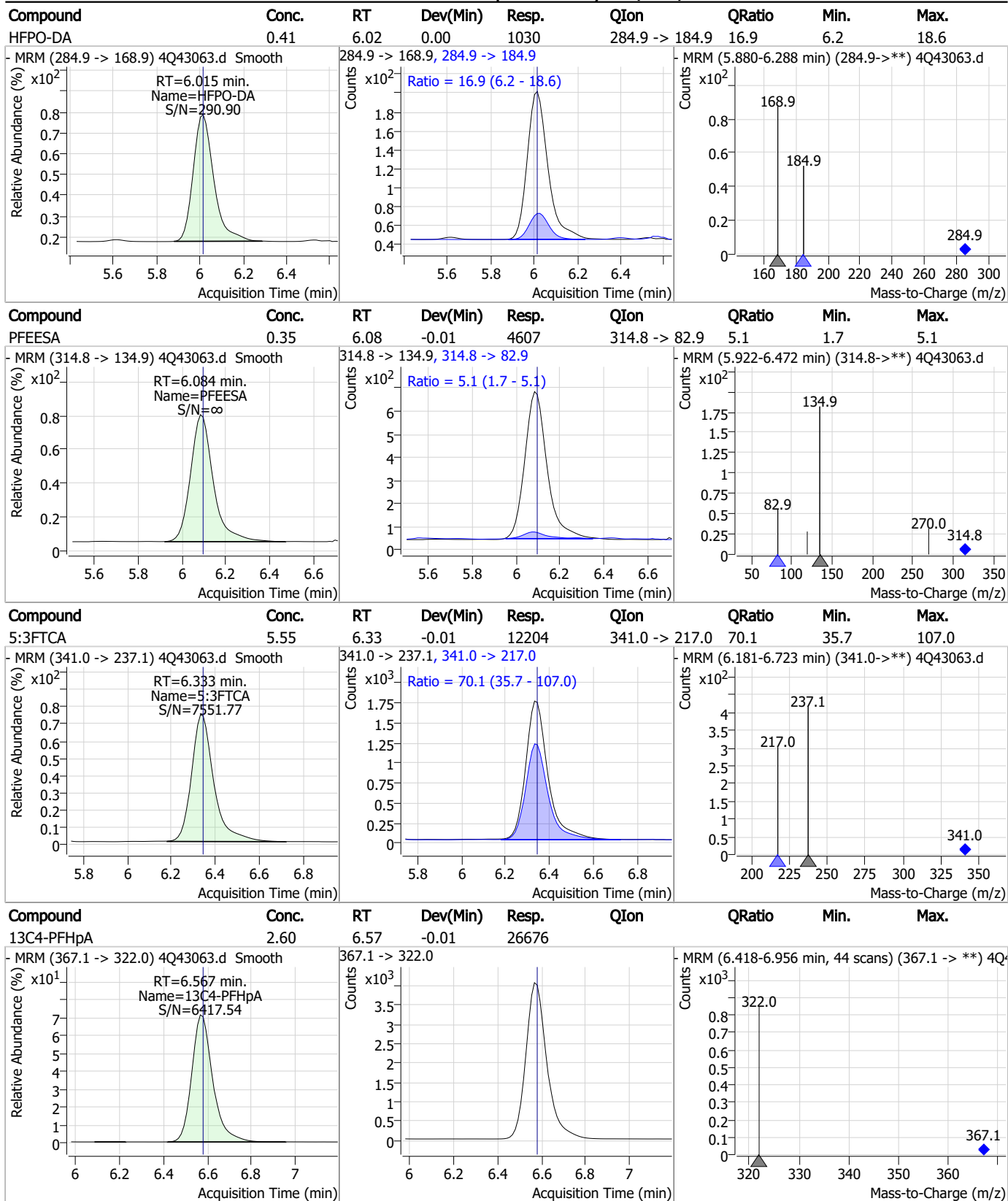
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Perfluorinated Compounds by LC/MS/MS



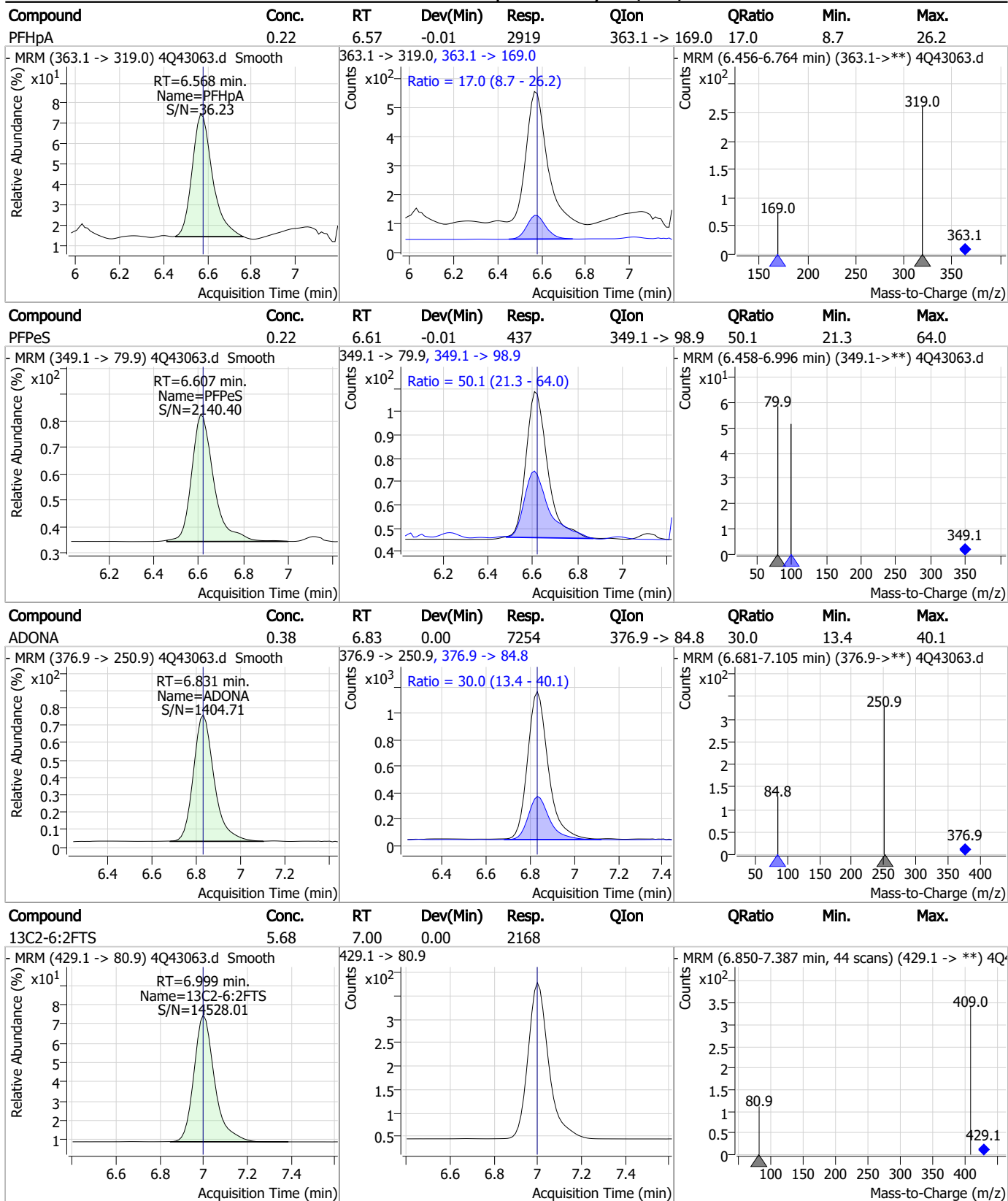
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Perfluorinated Compounds by LC/MS/MS



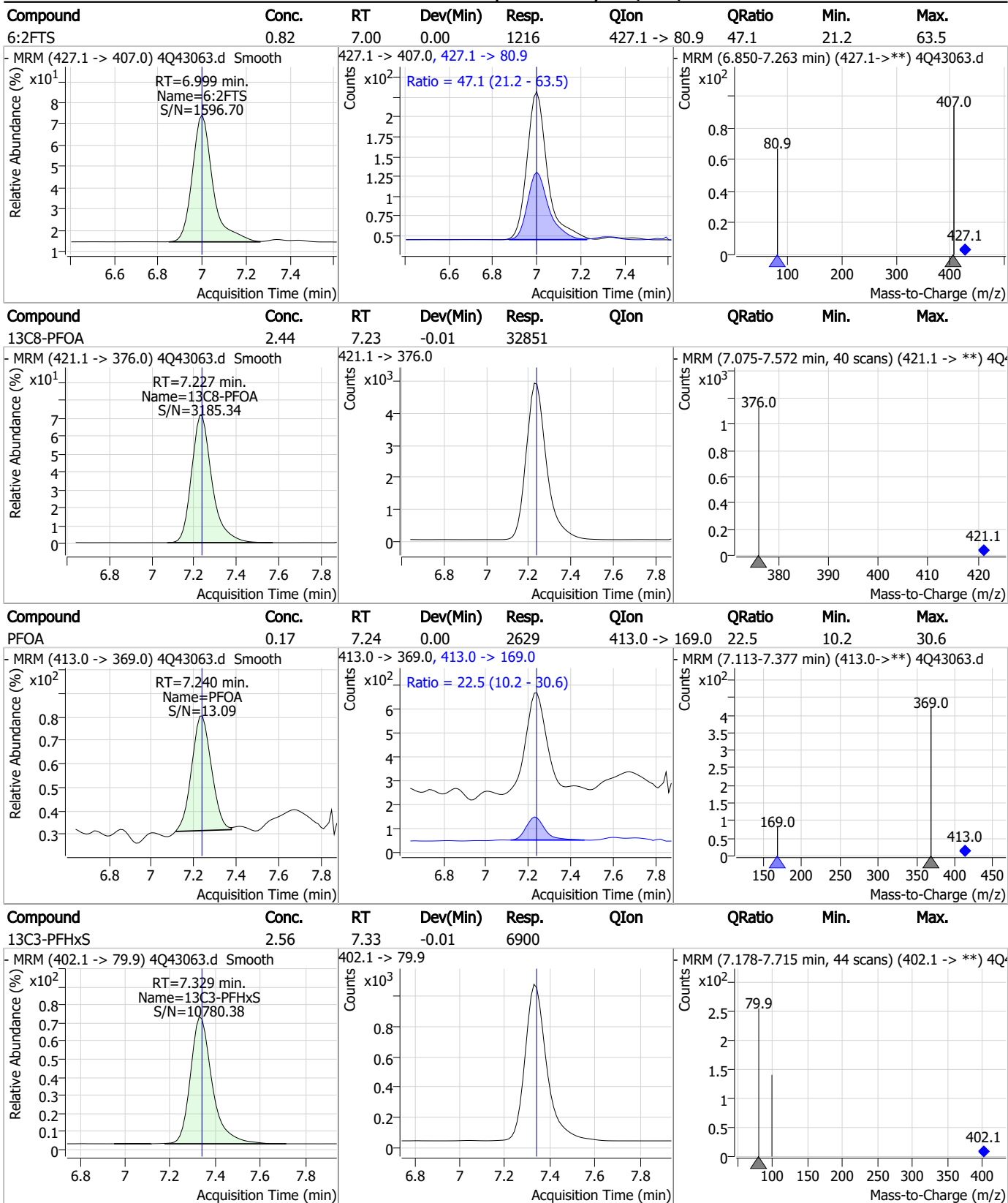
7.7.15 7

Perfluorinated Compounds by LC/MS/MS



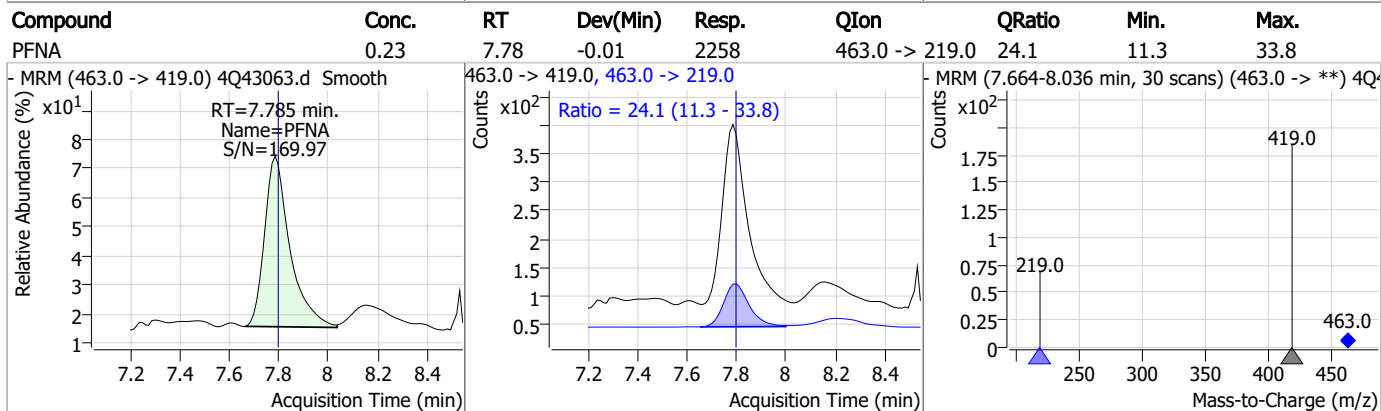
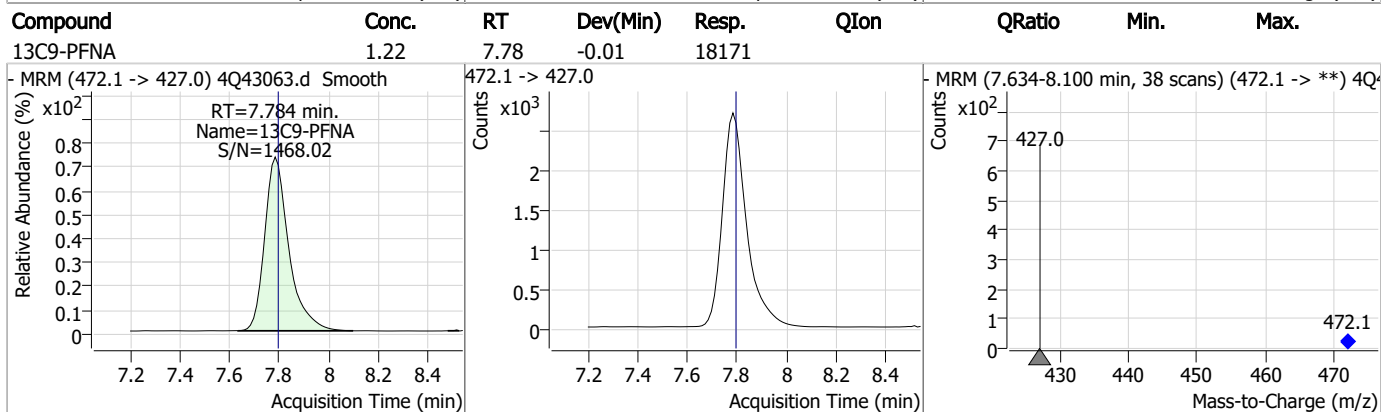
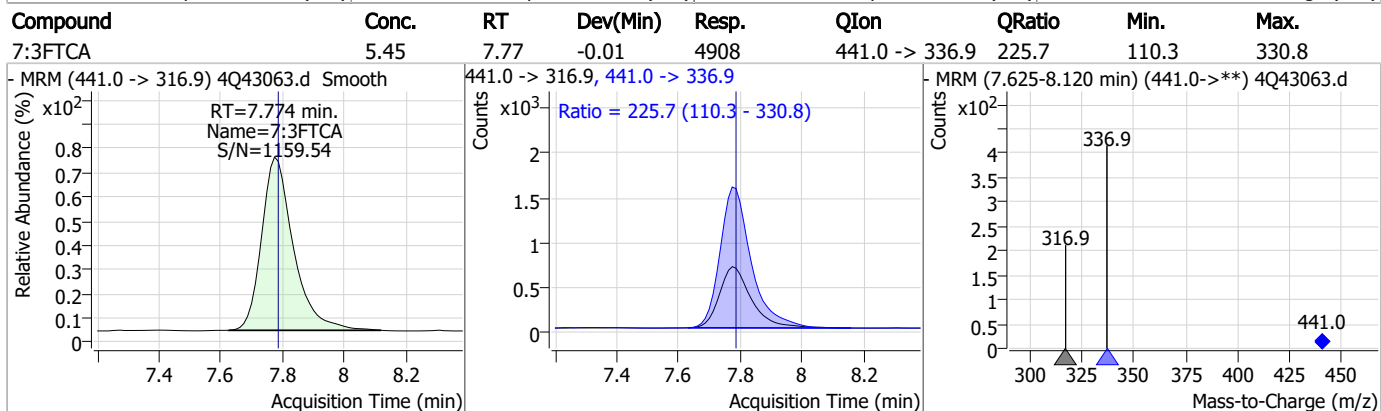
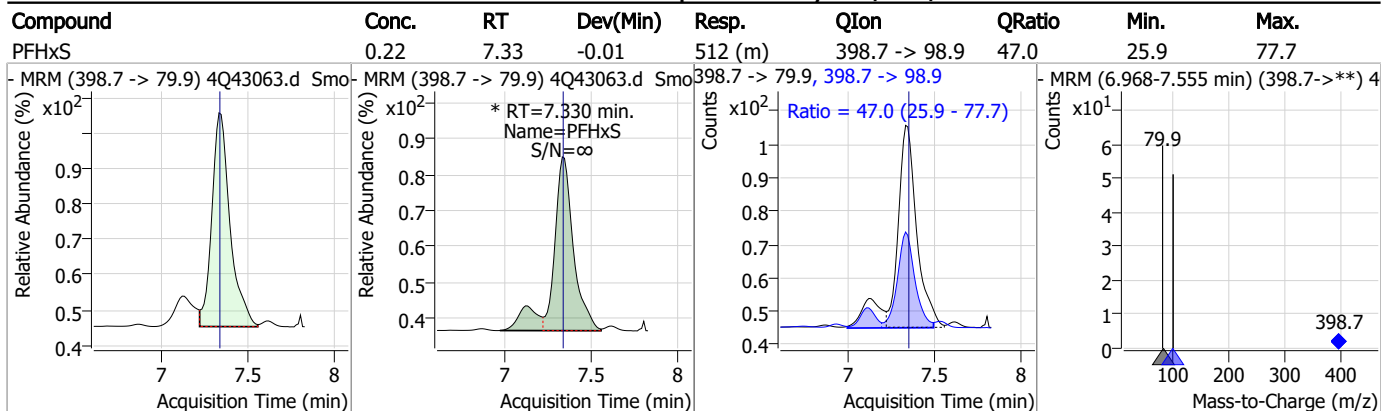
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Perfluorinated Compounds by LC/MS/MS



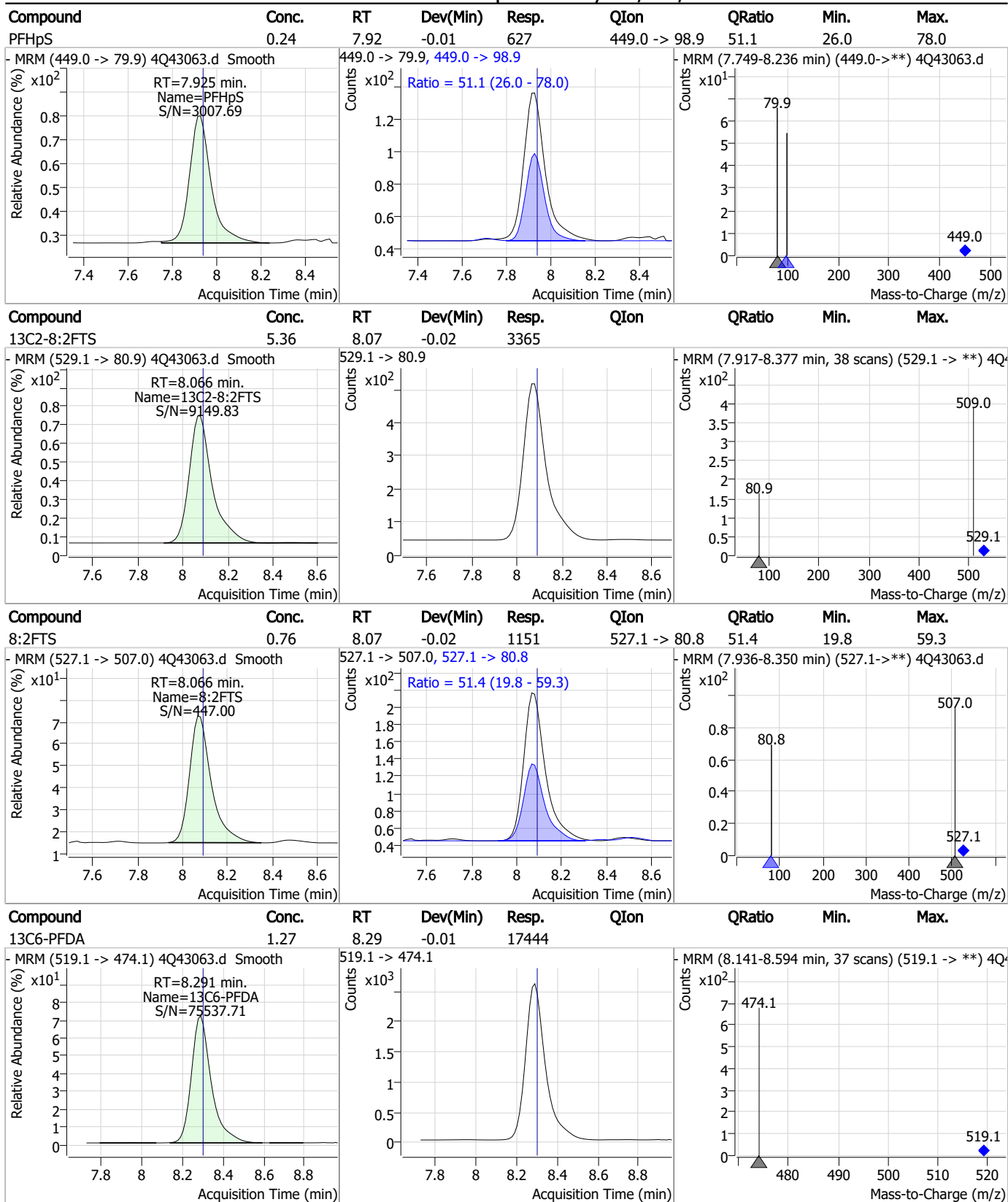
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Perfluorinated Compounds by LC/MS/MS



7.7.15
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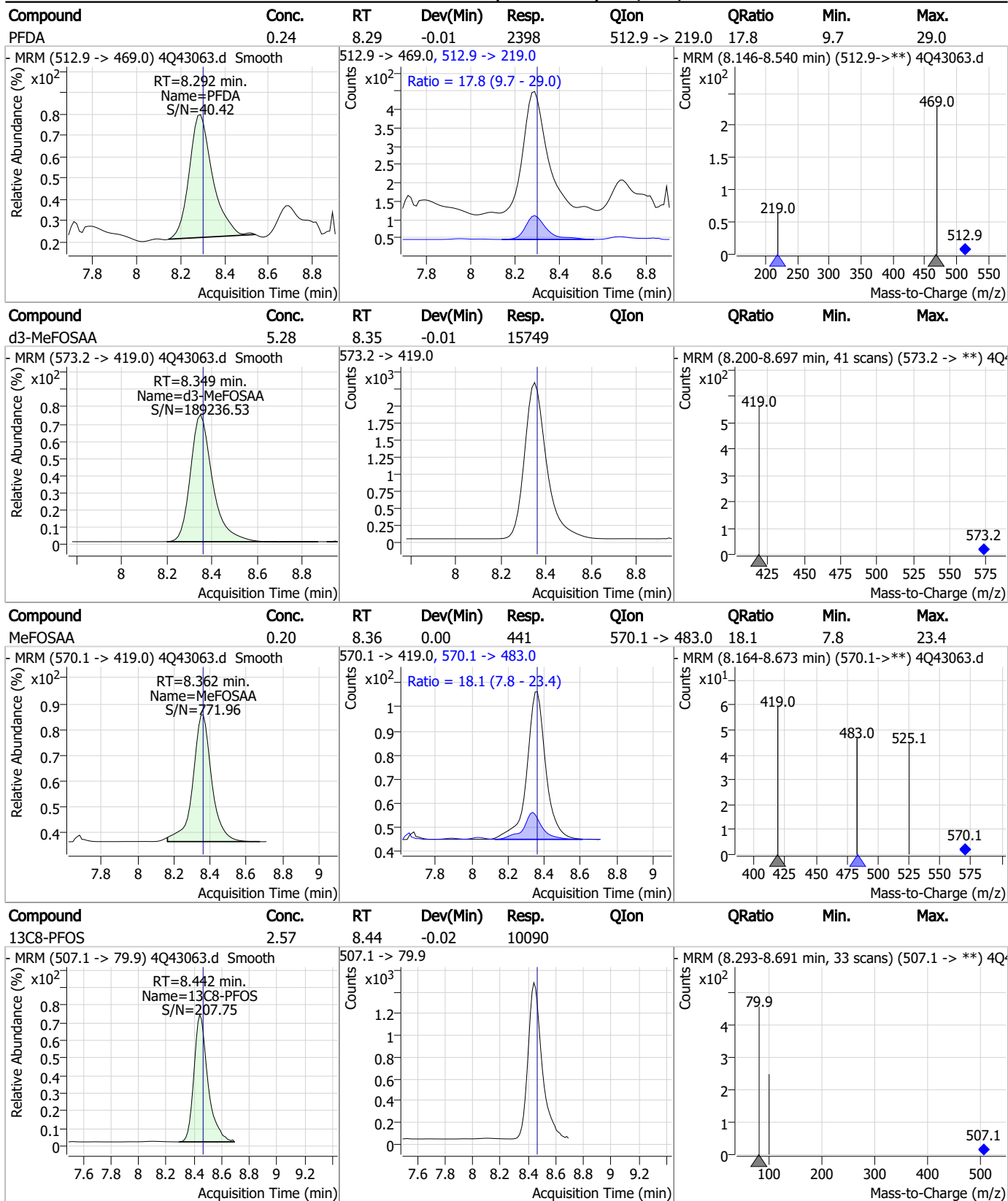
Perfluorinated Compounds by LC/MS/MS



7.7.15

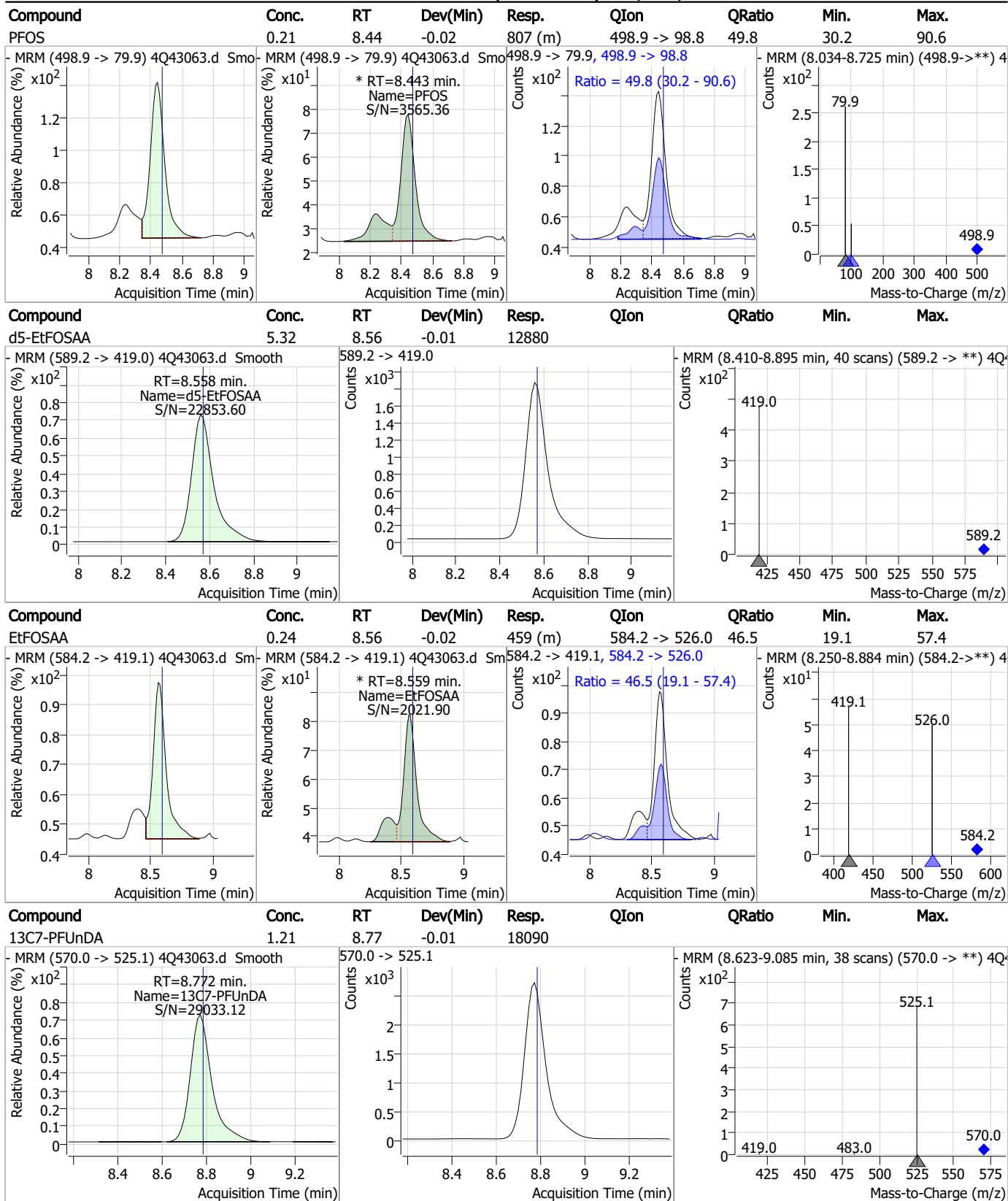
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Perfluorinated Compounds by LC/MS/MS



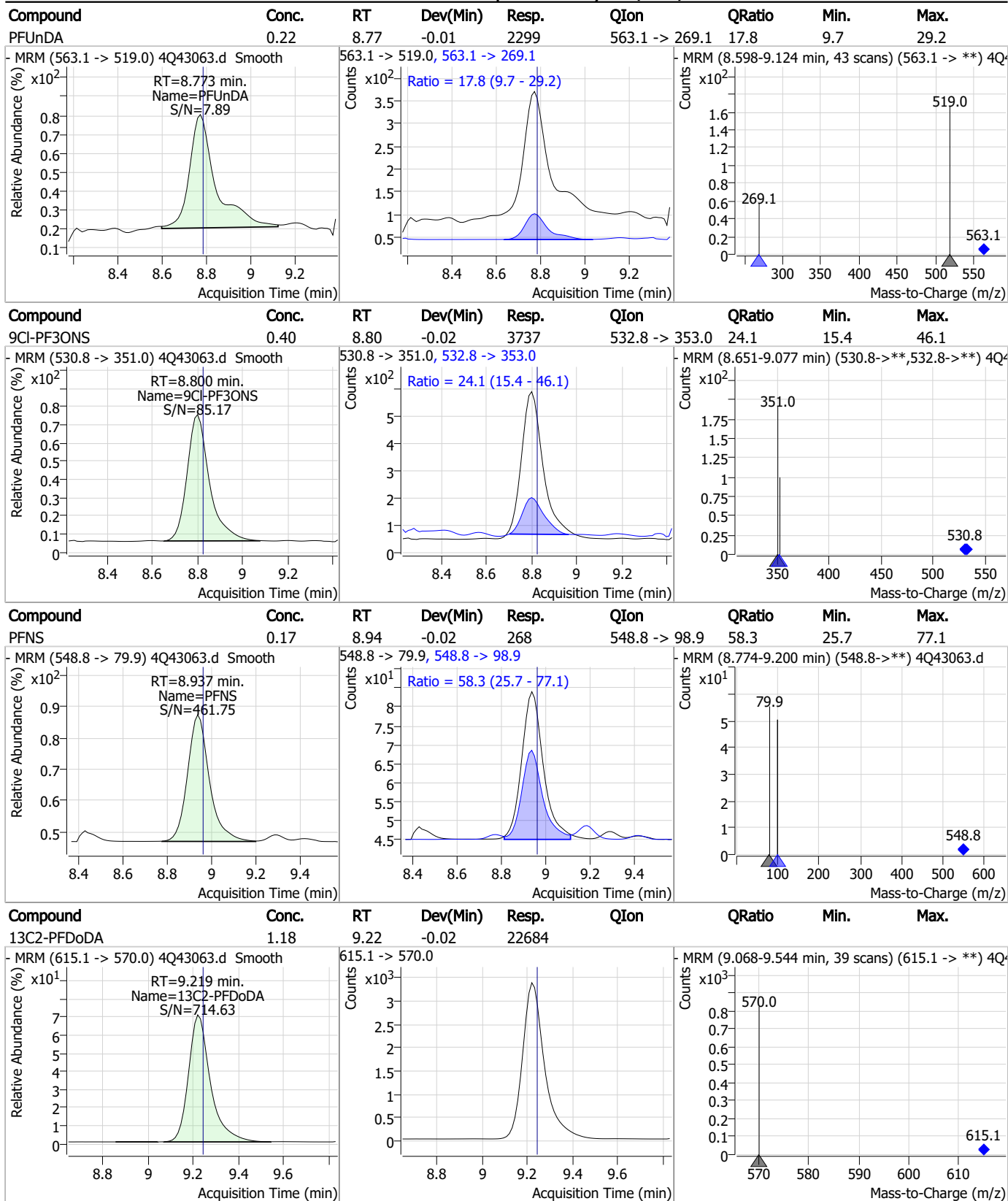
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Perfluorinated Compounds by LC/MS/MS



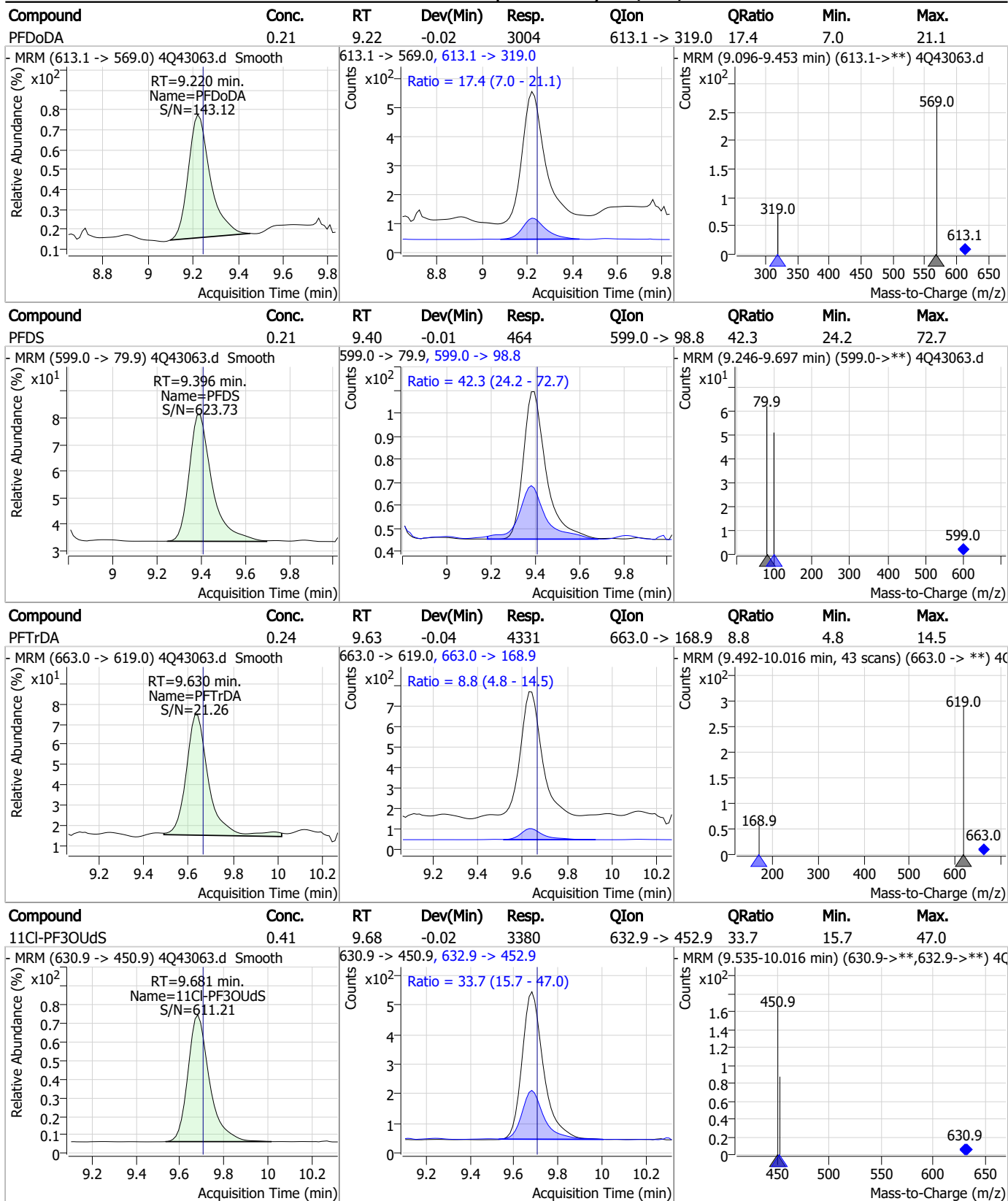
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Perfluorinated Compounds by LC/MS/MS



7.7.15
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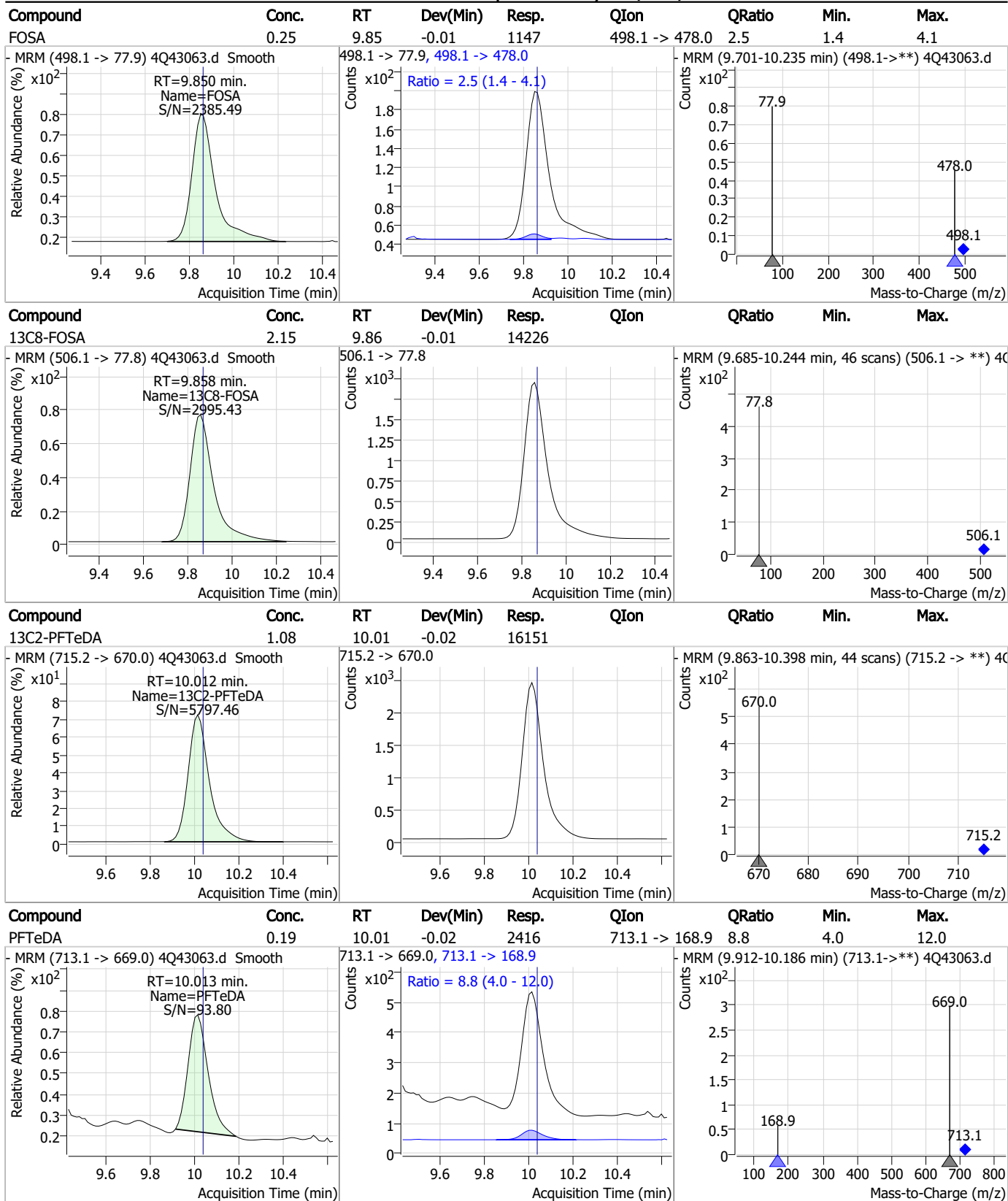
Perfluorinated Compounds by LC/MS/MS



7.7.15
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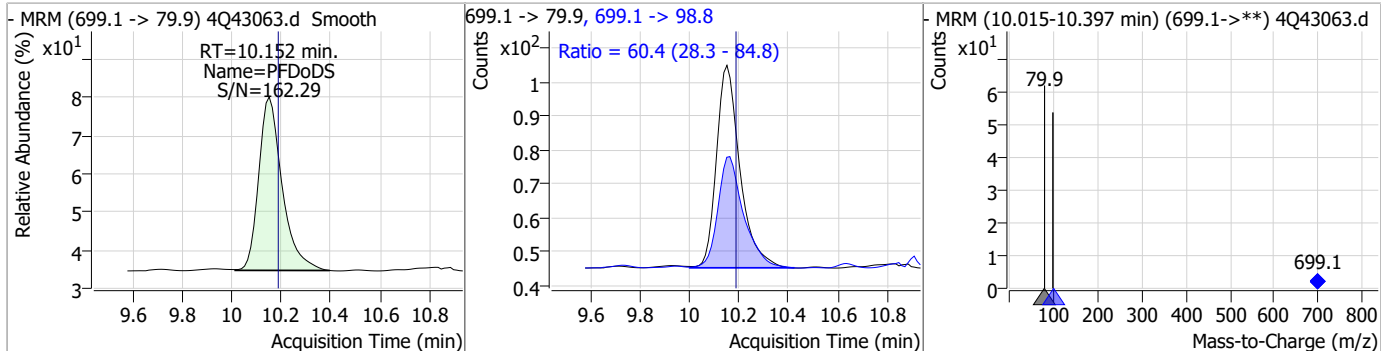
Perfluorinated Compounds by LC/MS/MS



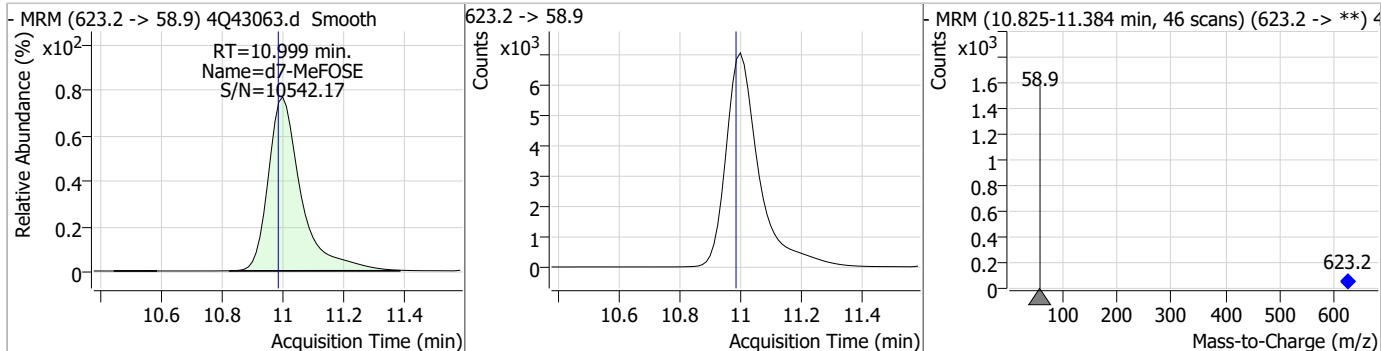
7.7.15
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Perfluorinated Compounds by LC/MS/MS

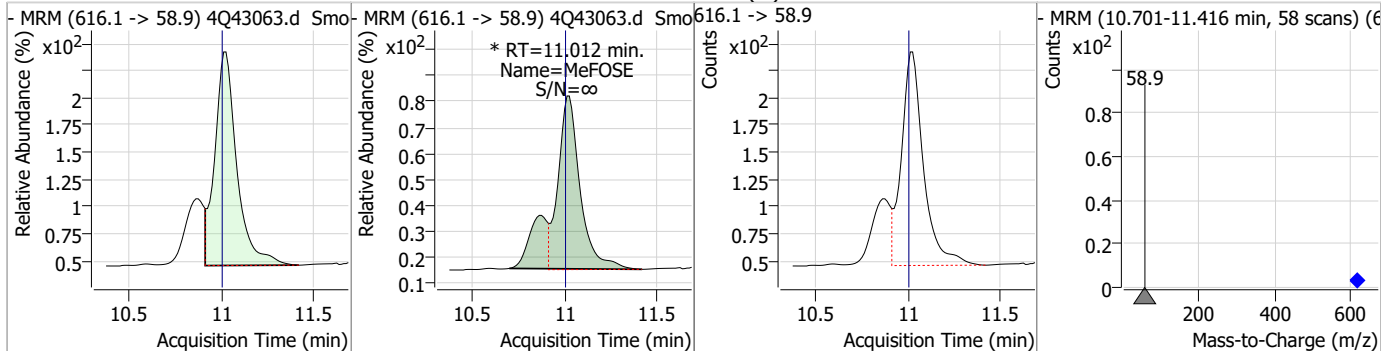
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.20	10.15	-0.04	391	699.1 -> 98.8	60.4	28.3	84.8



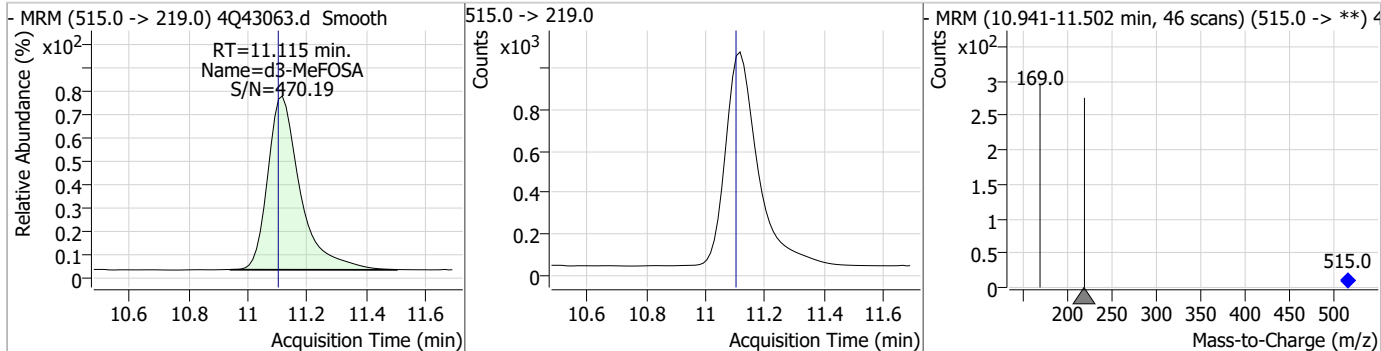
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.19	11.00	0.01	52681				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.09	11.01	0.01	2025 (m)				



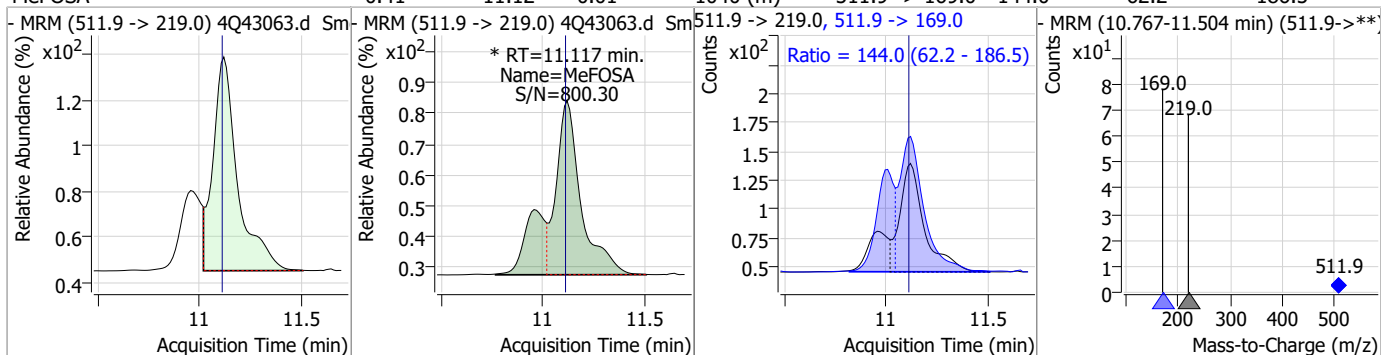
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	11.12	0.01	7855				



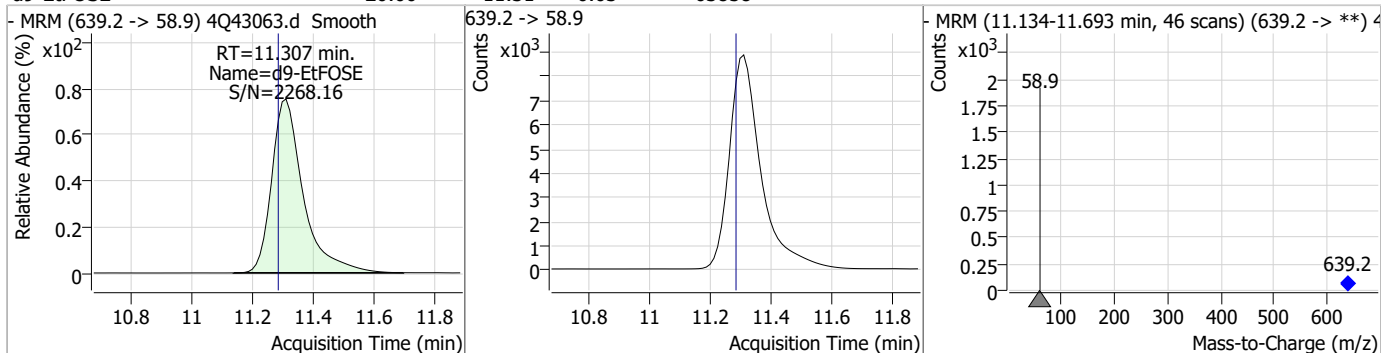
7.7.15
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Perfluorinated Compounds by LC/MS/MS

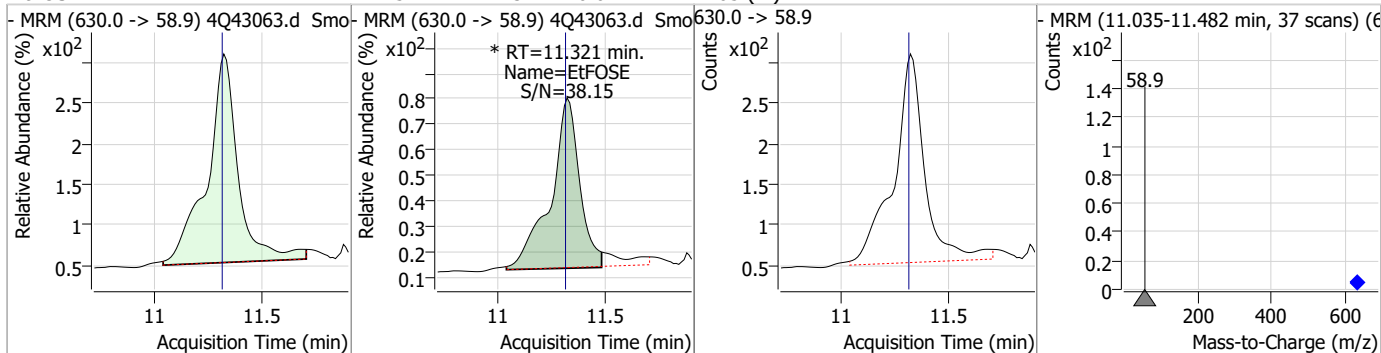
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.41	11.12	0.01	1040 (m)	511.9 -> 169.0	144.0	62.2	186.5



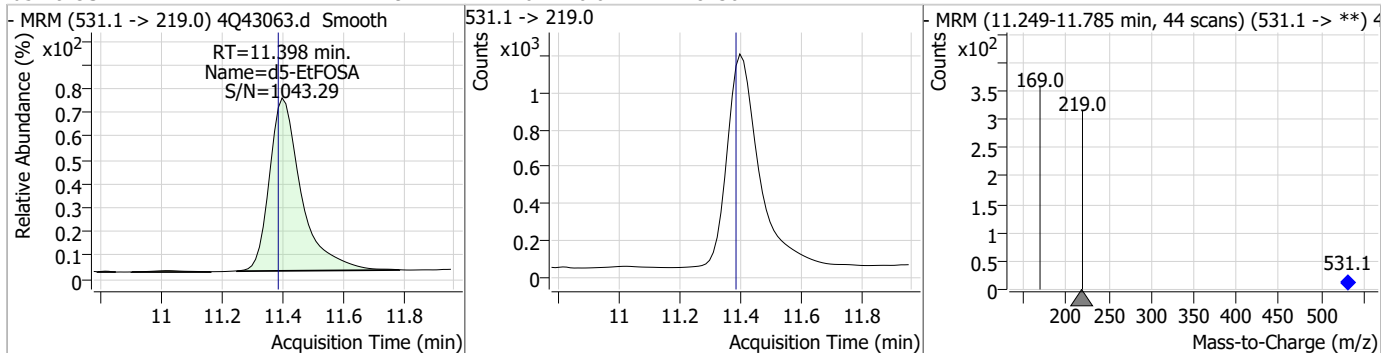
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.00	11.31	0.03	63858				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.25	11.32	0.01	2465 (m)				

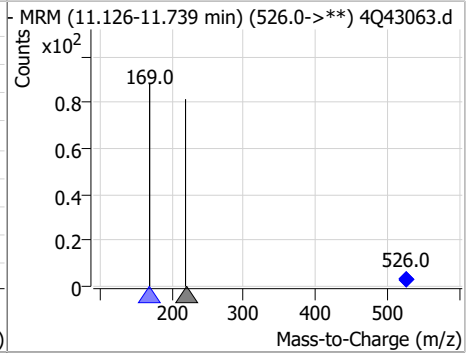
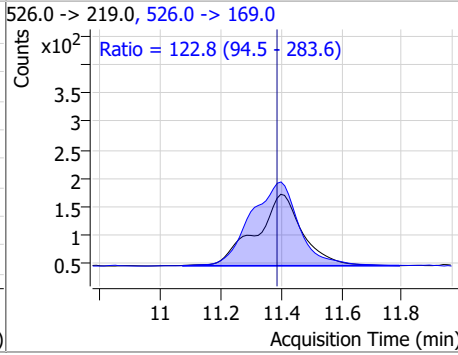
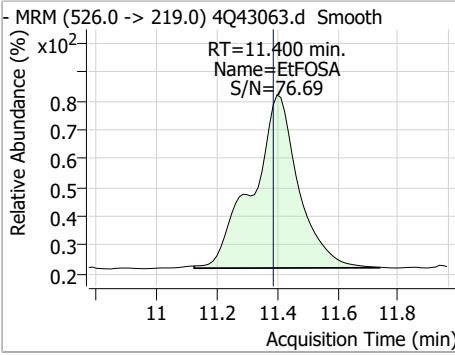


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	11.40	0.01	8430				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	0.44	11.40	0.01	1333	526.0 -> 169.0	122.8	94.5	283.6



7.7.15
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Manual Integration Approval Summary

Sample Number: S4Q622-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43063.D Analyst approved: 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 18:08 Supervisor approved: 04/17/23 17:03 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.44	Split peak
EtFOSAA	2991-50-6		8.56	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.12	Split peak
EtFOSE	1691-99-2		11.32	Split peak

7.7.15.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43073.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 8:28:51 PM
 Sample Name : cc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	142041	10.00 µg/L	0.000
M5-PFPeA	4.462	268.3 -> 223.0	80402	5.00 µg/L	-0.012
M5-PFHxA	5.647	318.0 -> 273.0	62700	2.50 µg/L	0.000
M4-PFHpA	6.567	367.1 -> 322.0	31549	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	39071	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	21974	1.25 µg/L	-0.012
M6-PFDA	8.291	519.1 -> 474.1	21106	1.25 µg/L	-0.012
M7-PFUnDA	8.772	570.0 -> 525.1	21612	1.25 µg/L	-0.012
M2-PFDoDA	9.219	615.1 -> 570.0	27549	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	19711	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	17275	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	13627	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	8273	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	12238	2.50 µg/L	-0.024
M2-4:2FTS	5.335	329.1 -> 80.9	1816	5.00 µg/L	0.000
M2-6:2FTS	6.999	429.1 -> 80.9	2653	5.00 µg/L	0.001
M2-8:2FTS	8.066	529.1 -> 80.9	4191	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	19321	5.00 µg/L	-0.012
M3-HFPO-DA	6.014	286.9 -> 168.9	38732	10.00 µg/L	0.000
M5-EtFOSAA	8.558	589.2 -> 419.0	16467	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	61670	25.00 µg/L	0.002
M9-EtFOSE	11.295	639.2 -> 58.9	76503	25.00 µg/L	0.013
M5-EtFOSA	11.386	531.1 -> 219.0	10223	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	9364	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	12501	2.50 µg/L	-0.024
13C3-PFBA	2.991	216.0 -> 172.0	78984	5.00 µg/L	0.000
18O2-PFHxS	7.328	403.0 -> 83.9	5819	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	47246	2.50 µg/L	-0.010
13C2-PFDA	8.292	515.1 -> 470.1	18422	1.25 µg/L	-0.012
13C5-PFNA	7.784	468.0 -> 423.0	24492	1.25 µg/L	-0.012
13C2-PFHxA	5.648	315.1 -> 270.0	54446	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1816	5.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.2%		
13C2-6:2FTS	6.999	429.1 -> 80.9	2653	5.82 µg/L	0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.3%		
13C2-8:2FTS	8.066	529.1 -> 80.9	4191	5.58 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C2-PFDoDA	9.219	615.1 -> 570.0	27549	1.21 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFTeDA	10.012	715.2 -> 670.0	19711	1.12 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.3%		
13C3-PFBS	5.552	302.1 -> 79.9	13627	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C3-PFHxS	7.329	402.1 -> 79.9	8273	2.57 µg/L	-0.012

7.7.16
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C4-PFBA	2.999	216.8 -> 171.9	142041	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C4-PFHpA	6.567	367.1 -> 322.0	31549	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFHxA	5.647	318.0 -> 273.0	62700	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFPeA	4.462	268.3 -> 223.0	80402	5.01 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C6-PFDA	8.291	519.1 -> 474.1	21106	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C7-PFUnDA	8.772	570.0 -> 525.1	21612	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-FOSA	9.858	506.1 -> 77.8	17275	2.11 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.5%	
13C8-PFOA	7.227	421.1 -> 376.0	39071	2.51 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.442	507.1 -> 79.9	12238	2.53 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C9-PFNA	7.784	472.1 -> 427.0	21974	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
d3-MeFOSAA	8.349	573.2 -> 419.0	19321	5.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	38732	10.14 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSA	11.103	515.0 -> 219.0	9364	2.42 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
d5-EtFOSAA	8.558	589.2 -> 419.0	16467	5.50 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.0%	
d7-MeFOSE	10.986	623.2 -> 58.9	61670	19.13 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.5%	
d9-EtFOSE	11.295	639.2 -> 58.9	76503	19.39 µg/L	0.013
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
d5-EtFOSA	11.386	531.1 -> 219.0	10223	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	20616	9.11 µg/L	100
		327.1 -> 80.9	8427		
6:2FTS	6.999	427.1 -> 407.0	17698	9.77 µg/L	100
		427.1 -> 80.9	7538		
8:2FTS	8.066	527.1 -> 507.0	19014	10.12 µg/L	98
		527.1 -> 80.8	7775		
EtFOSAA	8.571	584.2 -> 419.1	5698	2.32 µg/L	88
		584.2 -> 526.0	2580		
FOSA	9.850	498.1 -> 77.9	13233	2.38 µg/L	99
		498.1 -> 478.0	401		
MeFOSAA	8.350	570.1 -> 419.0	6426	2.41 µg/L	m 82
		570.1 -> 483.0	1479		
PFBA	2.995	212.8 -> 168.9	30352	9.36 µg/L	100
PFBS	5.553	298.7 -> 79.9	11346	2.23 µg/L	99
		298.7 -> 98.8	4298		
PFDA	8.292	512.9 -> 469.0	29961	2.48 µg/L	100
		512.9 -> 219.0	5803		
PFDoDA	9.220	613.1 -> 569.0	42097	2.42 µg/L	99
		613.1 -> 319.0	5789		
PFDS	9.382	599.0 -> 79.9	6146	2.25 µg/L	98

7.7.16
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3082			
PFHpA	6.568	363.1 -> 319.0	38013	2.42	µg/L	98
		363.1 -> 169.0	7039			
PFHpS	7.912	449.0 -> 79.9	7881	2.47	µg/L	97
		449.0 -> 98.9	3933			
PFHxA	5.650	313.0 -> 269.0	44742	2.41	µg/L	100
		313.0 -> 118.9	1407			
PFHxS	7.330	398.7 -> 79.9	5974	2.11	µg/L	m 91
		398.7 -> 98.9	3457			
PFNA	7.785	463.0 -> 419.0	28302	2.41	µg/L	96
		463.0 -> 219.0	6845			
PFNS	8.937	548.8 -> 79.9	4066	2.16	µg/L	100
		548.8 -> 98.9	2093			
PFOA	7.228	413.0 -> 369.0	41286	2.26	µg/L	99
		413.0 -> 169.0	8580			
PFOS	8.443	498.9 -> 79.9	10478	2.20	µg/L	m 84
		498.9 -> 98.8	5051			
PFPeA	4.464	263.0 -> 219.0	76071	5.00	µg/L	100
PFPeS	6.607	349.1 -> 79.9	5736	2.38	µg/L	97
		349.1 -> 98.9	2556			
PFTeDA	10.013	713.1 -> 669.0	36379	2.34	µg/L	99
		713.1 -> 168.9	3032			
PFTrDA	9.630	663.0 -> 619.0	52868	2.36	µg/L	99
		663.0 -> 168.9	5341			
PFUnDA	8.773	563.1 -> 519.0	28822	2.36	µg/L	100
		563.1 -> 269.1	5578			
11CI-PF3OUdS	9.681	630.9 -> 450.9	49416	4.89	µg/L	98
		632.9 -> 452.9	14972			
9CI-PF3ONS	8.800	530.8 -> 351.0	49841	4.41	µg/L	97
		532.8 -> 353.0	14611			
ADONA	6.831	376.9 -> 250.9	109180	4.69	µg/L	99
		376.9 -> 84.8	29549			
HFPO-DA	6.015	284.9 -> 168.9	14174	4.62	µg/L	97
		284.9 -> 184.9	1910			
3:3FTCA	3.979	241.0 -> 177.0	9058	12.77	µg/L	100
		241.0 -> 117.0	875			
5:3FTCA	6.333	341.0 -> 237.1	172170	65.68	µg/L	100
		341.0 -> 217.0	122584			
7:3FTCA	7.774	441.0 -> 316.9	71363	66.43	µg/L	99
		441.0 -> 336.9	158413			
EtFOSA	11.388	526.0 -> 219.0	16969	4.66	µg/L	m 67
		526.0 -> 169.0	23809			
EtFOSE	11.308	630.0 -> 58.9	29440	12.49	µg/L	100
MeFOSA	11.104	511.9 -> 219.0	14408	4.76	µg/L	m 82
		511.9 -> 169.0	20846			
MeFOSE	11.012	616.1 -> 58.9	25930	11.96	µg/L	m 100
PFDoDS	10.152	699.1 -> 79.9	5418	2.29	µg/L	99
		699.1 -> 98.8	3016			
NFDHA	5.529	295.0 -> 201.0	6376	5.11	µg/L	99
		295.0 -> 84.9	1537			
PFMBA	4.878	279.0 -> 85.1	43823	5.04	µg/L	100
PFMPA	3.602	229.0 -> 84.9	38617	5.07	µg/L	100
PFEESA	6.084	314.8 -> 134.9	69699	4.47	µg/L	100
		314.8 -> 82.9	2443			

= Qualifier out of range, m = manually integrated, + = Area summed

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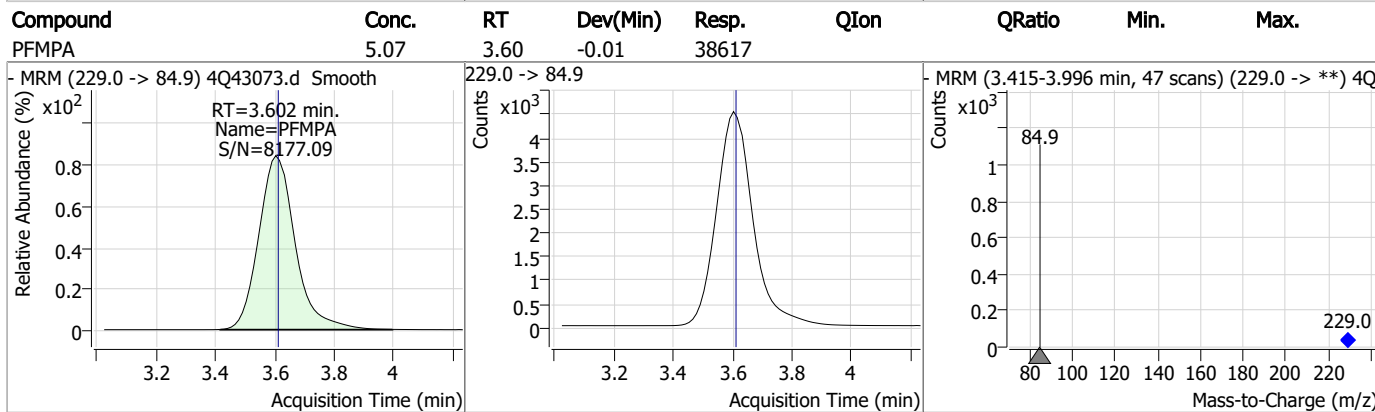
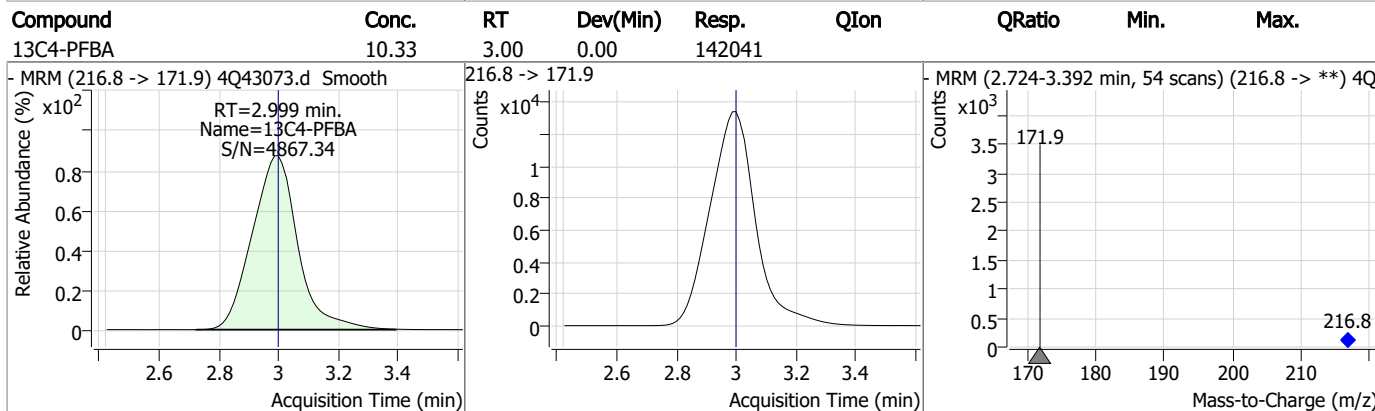
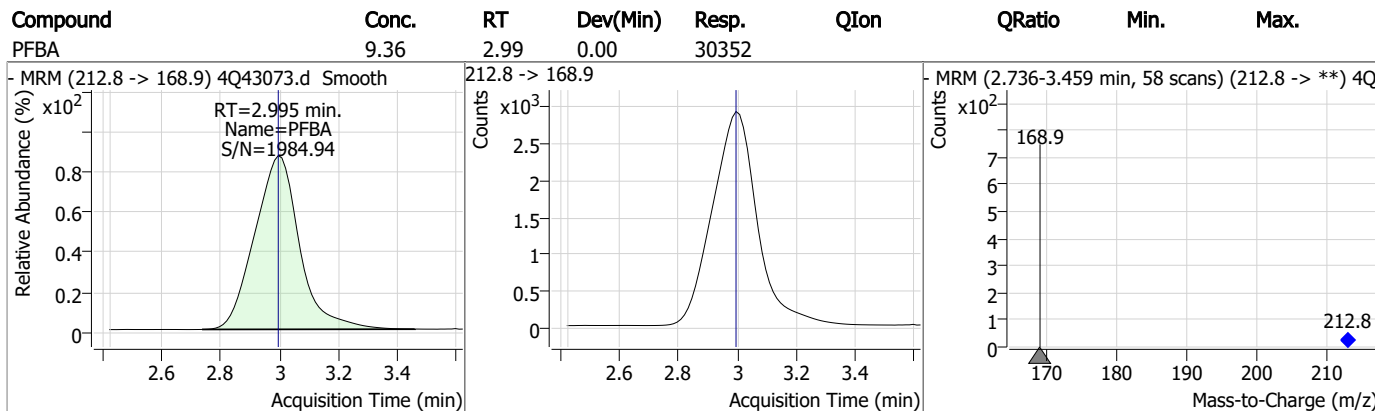
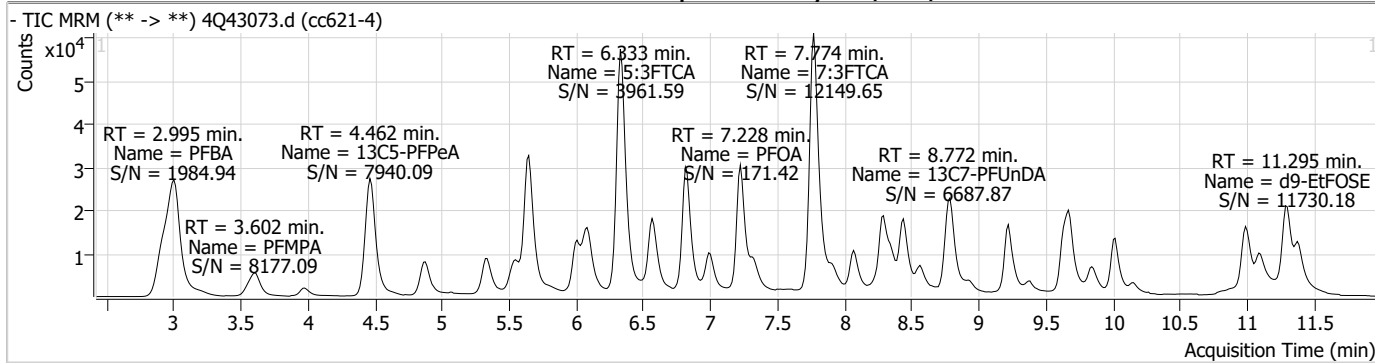
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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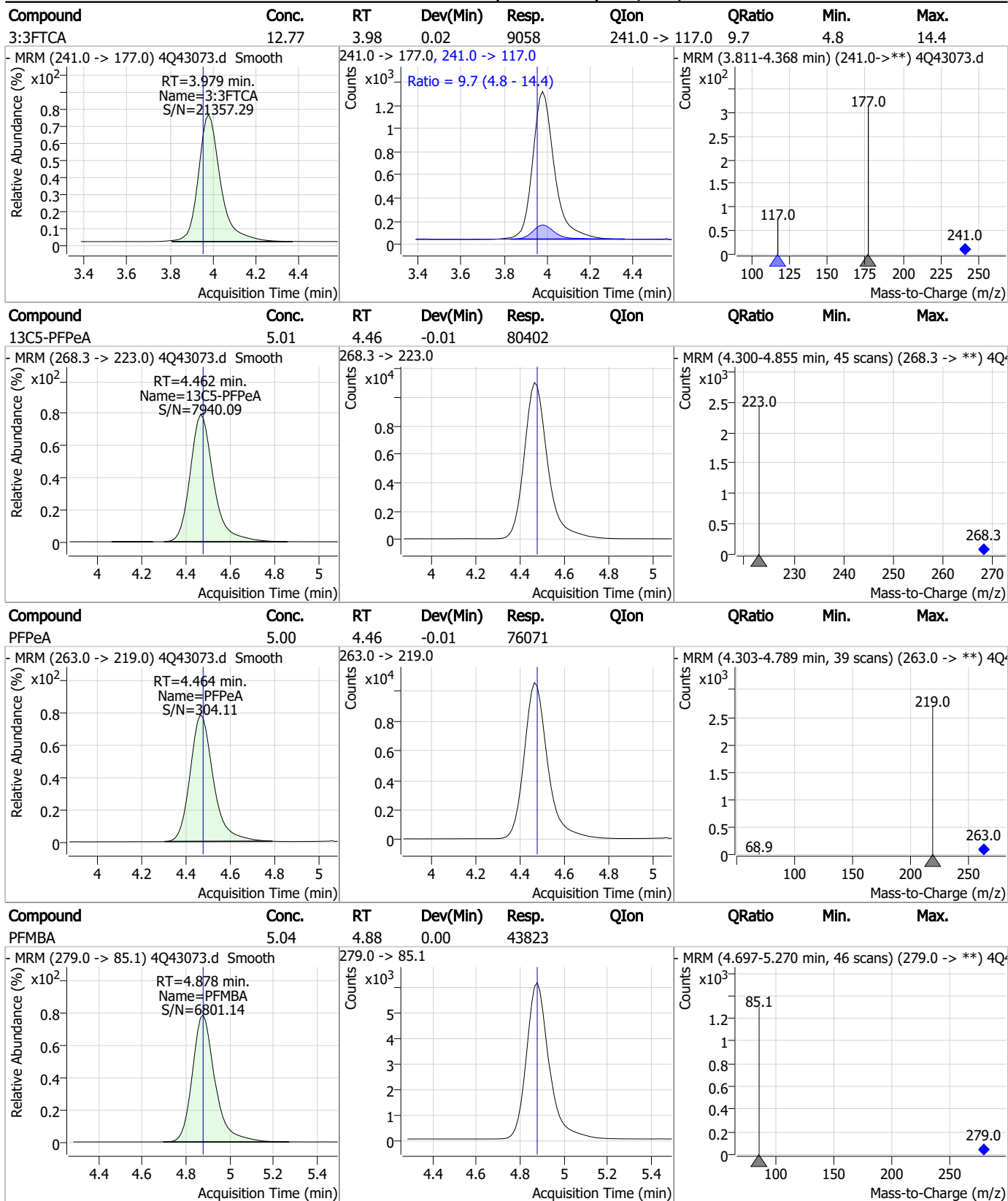
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Perfluorinated Compounds by LC/MS/MS



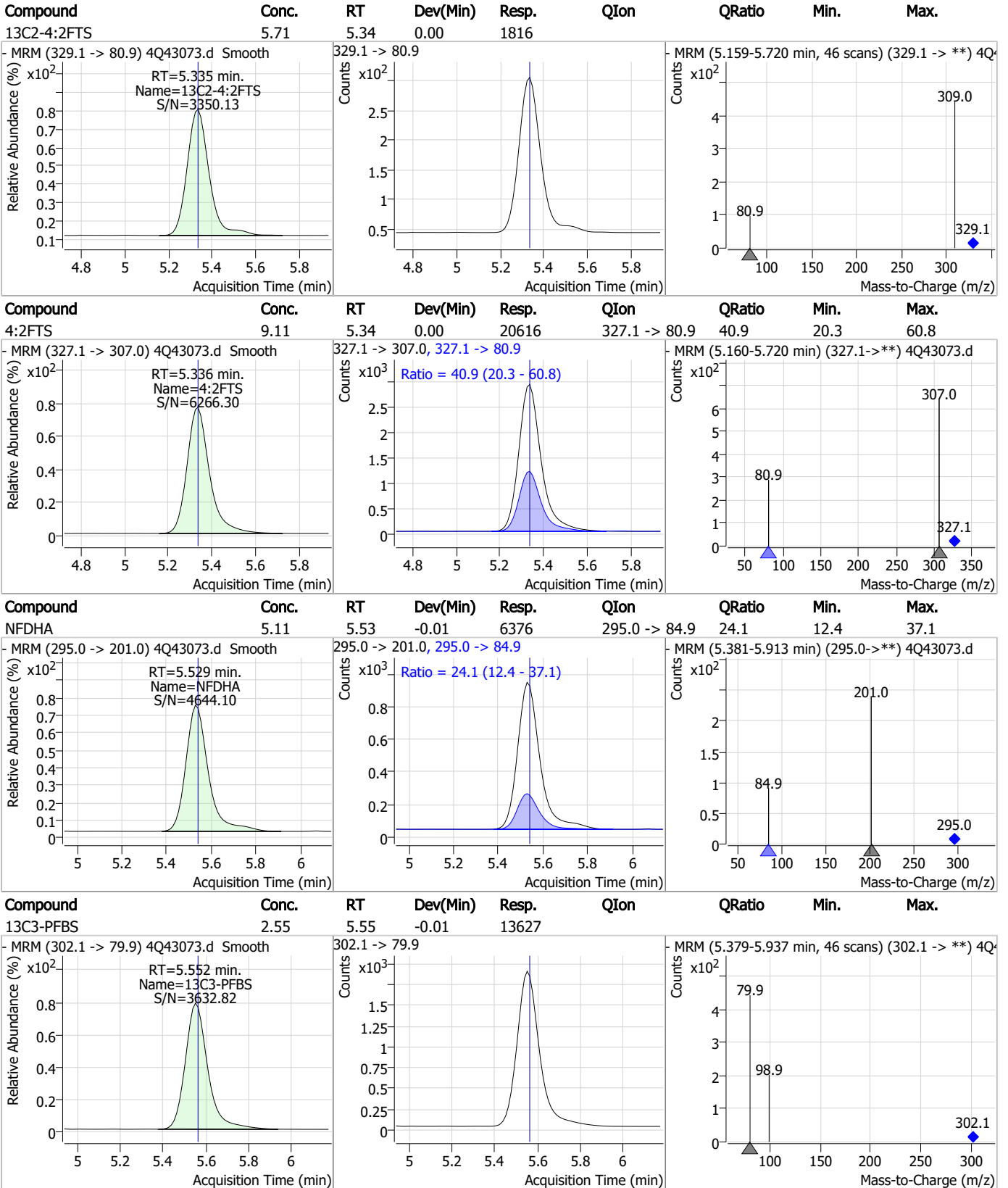
Perfluorinated Compounds by LC/MS/MS



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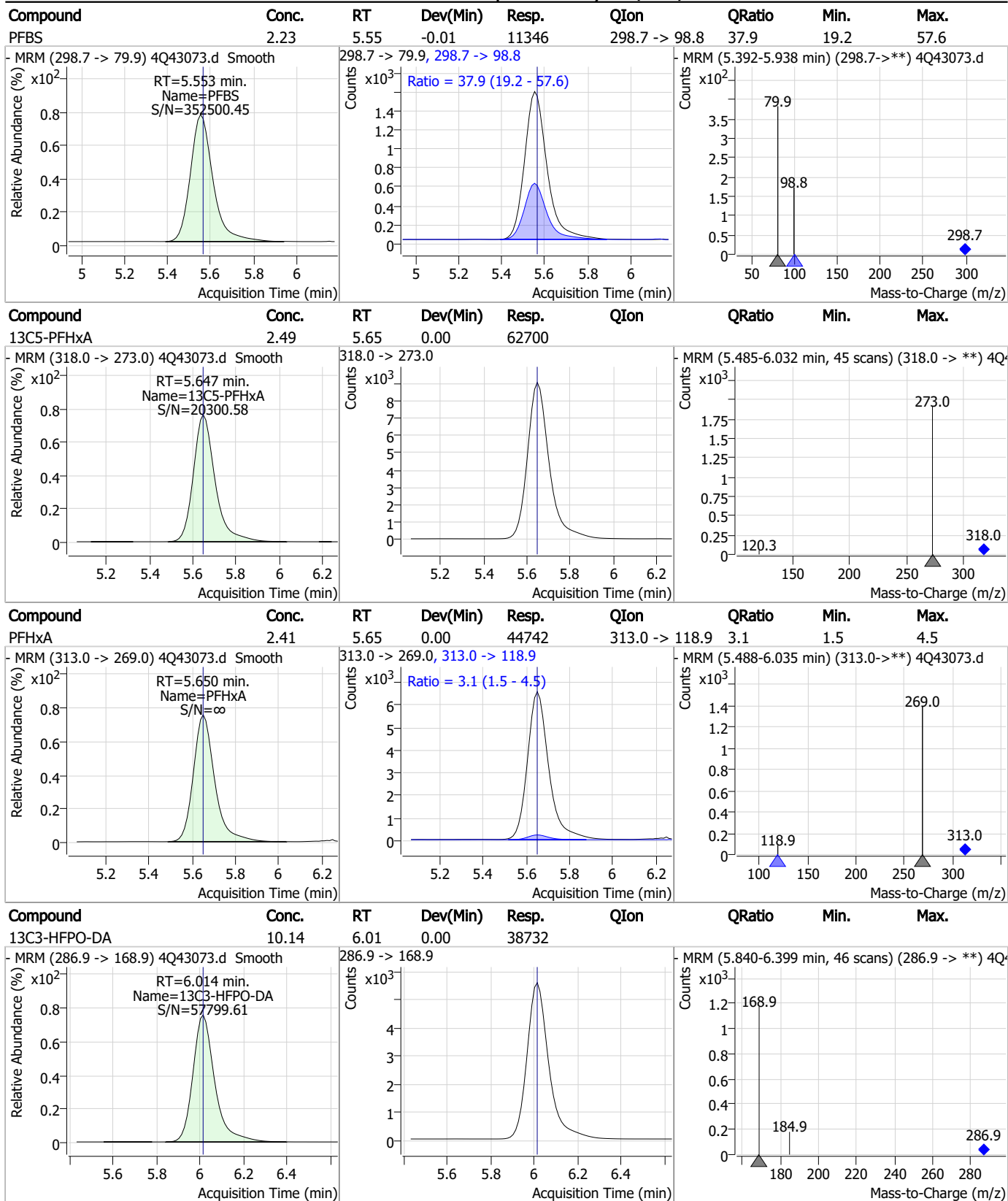
Perfluorinated Compounds by LC/MS/MS



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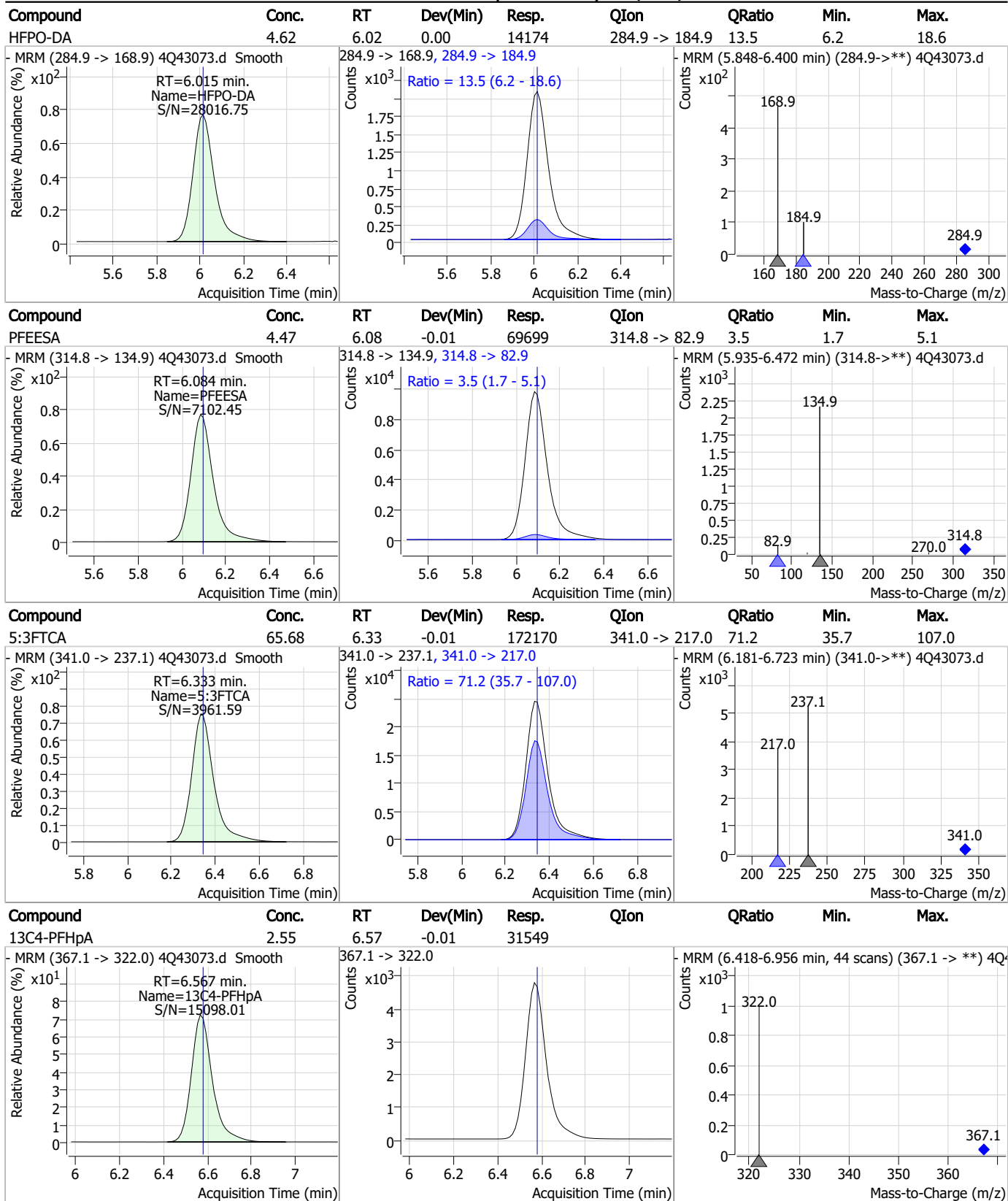


Perfluorinated Compounds by LC/MS/MS



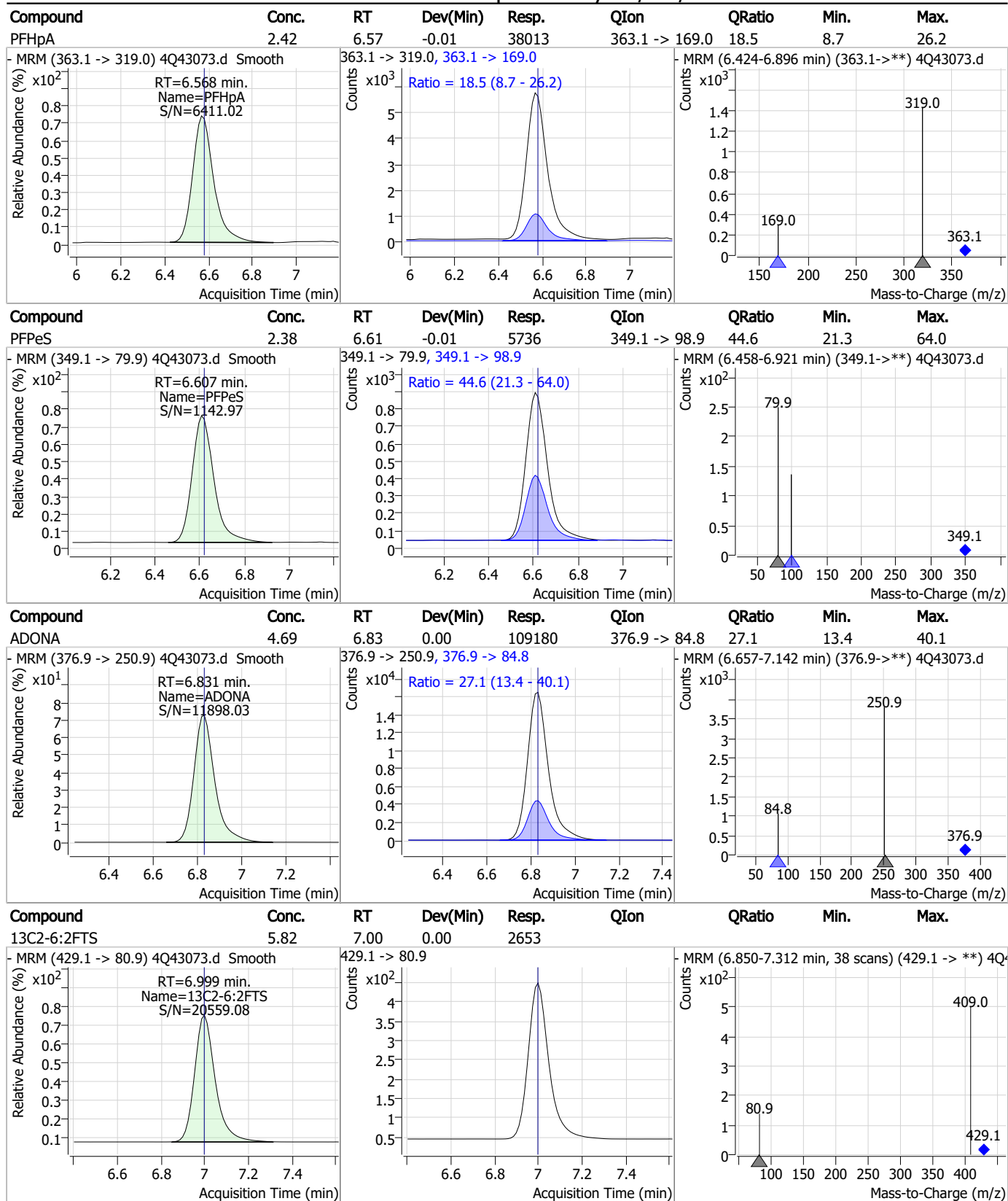
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Perfluorinated Compounds by LC/MS/MS



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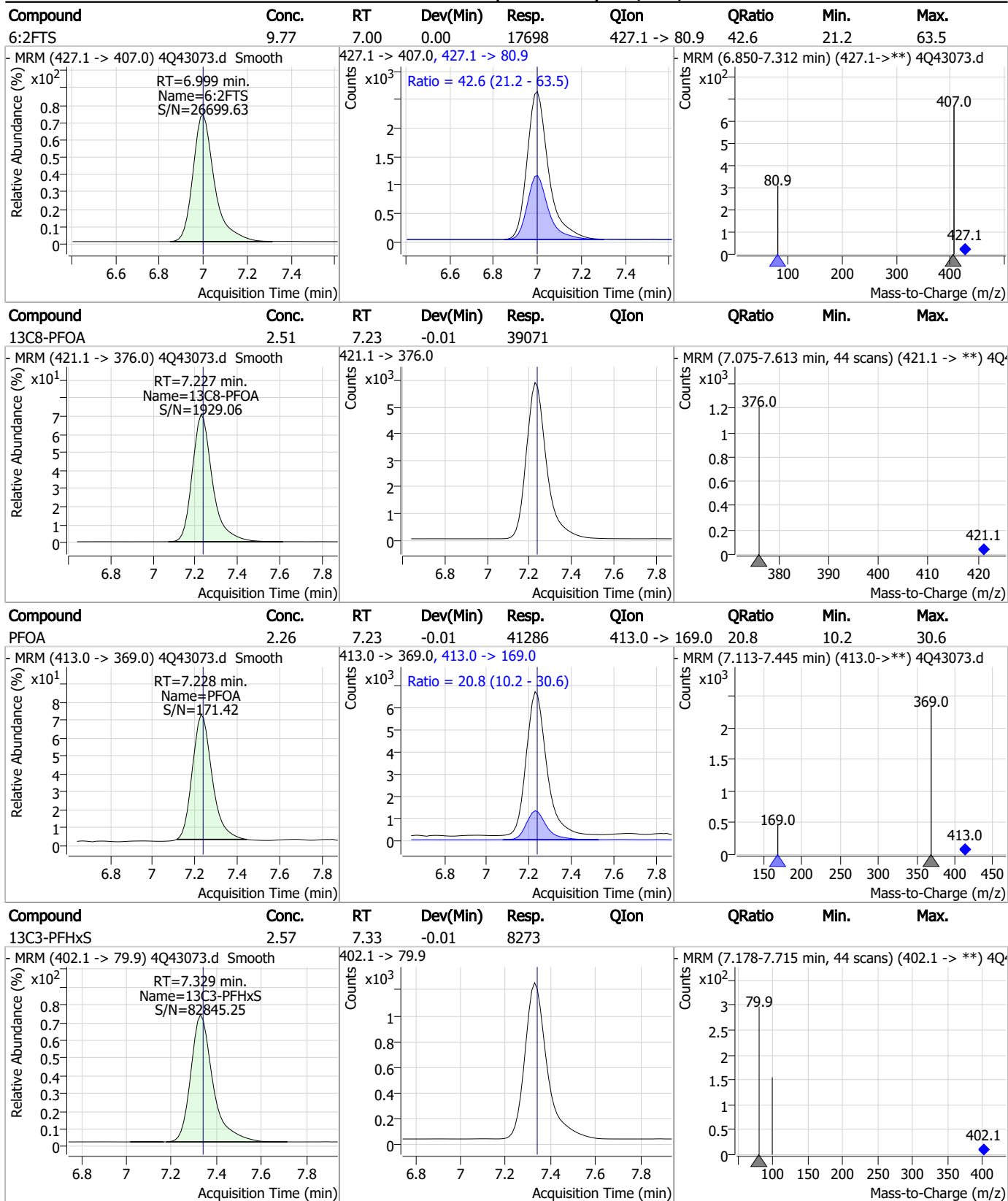
Perfluorinated Compounds by LC/MS/MS



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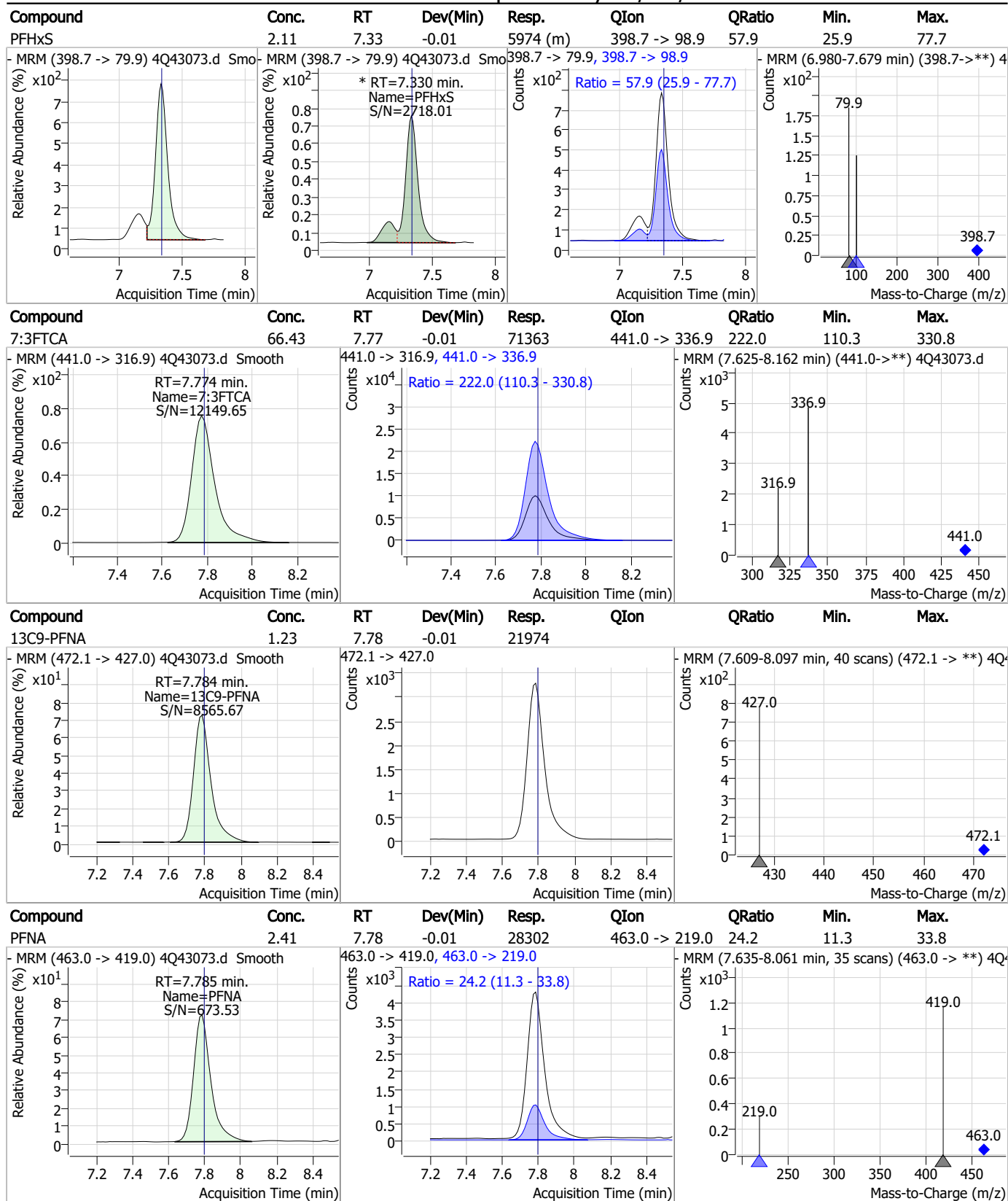
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Perfluorinated Compounds by LC/MS/MS



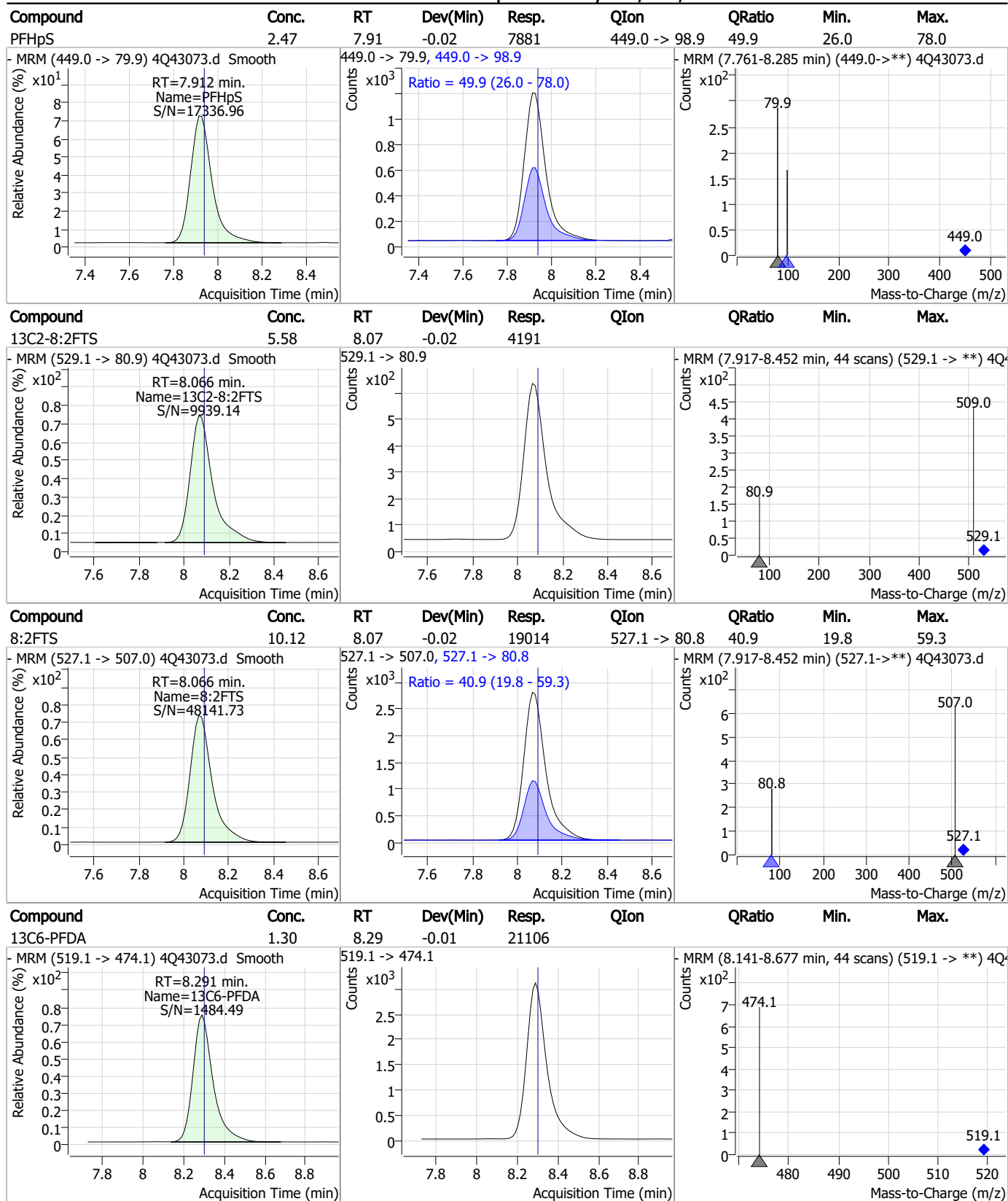
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

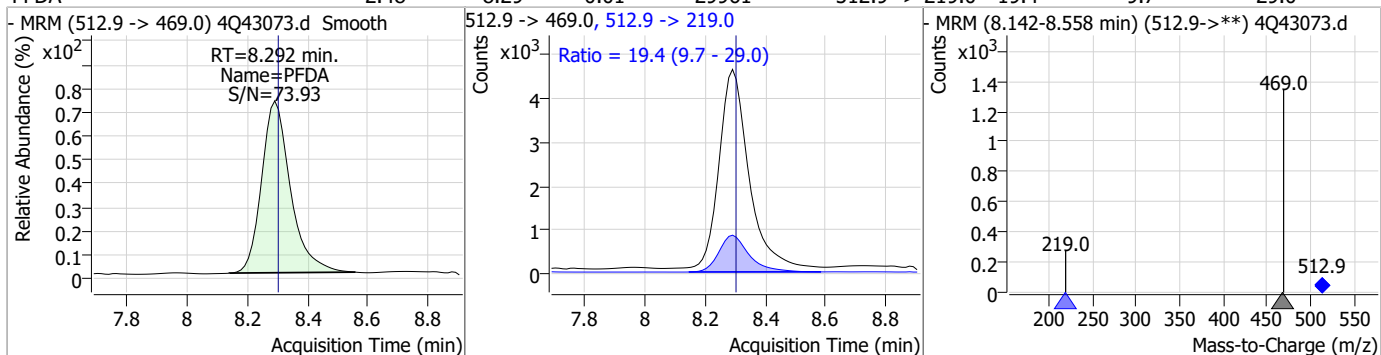


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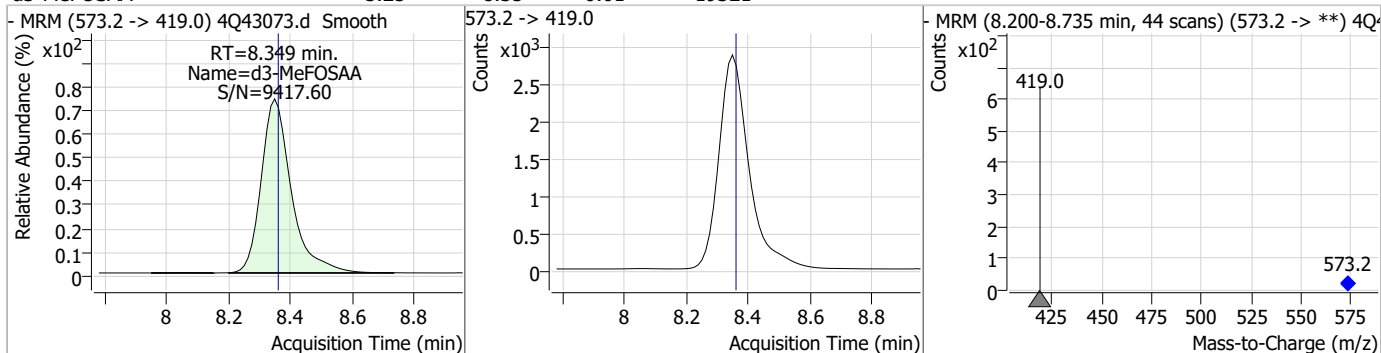
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Perfluorinated Compounds by LC/MS/MS

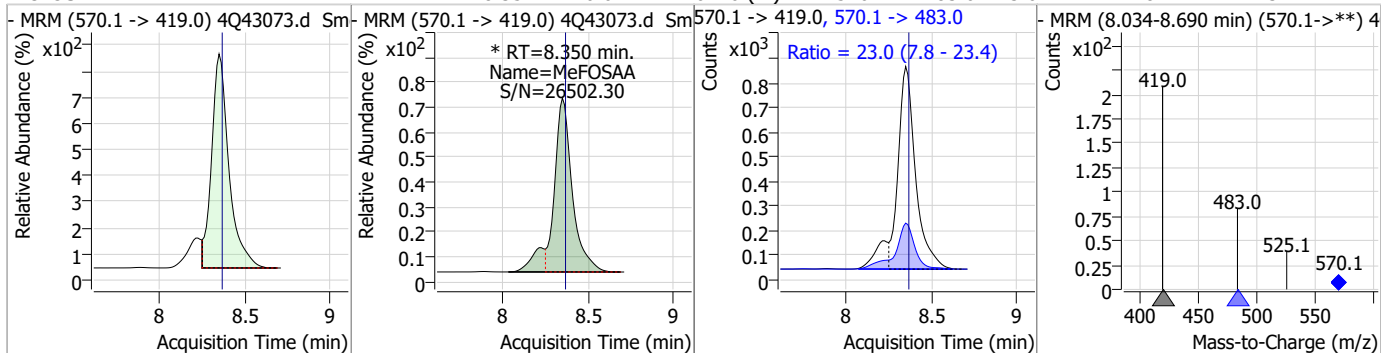
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.48	8.29	-0.01	29961	512.9 -> 219.0	19.4	9.7	29.0



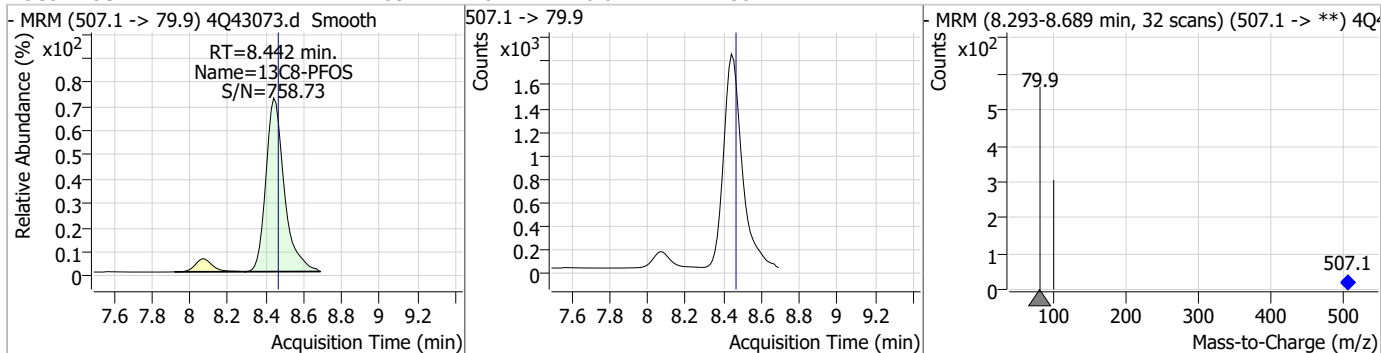
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.25	8.35	-0.01	19321				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.41	8.35	-0.01	6426 (m)	570.1 -> 483.0	23.0	7.8	23.4

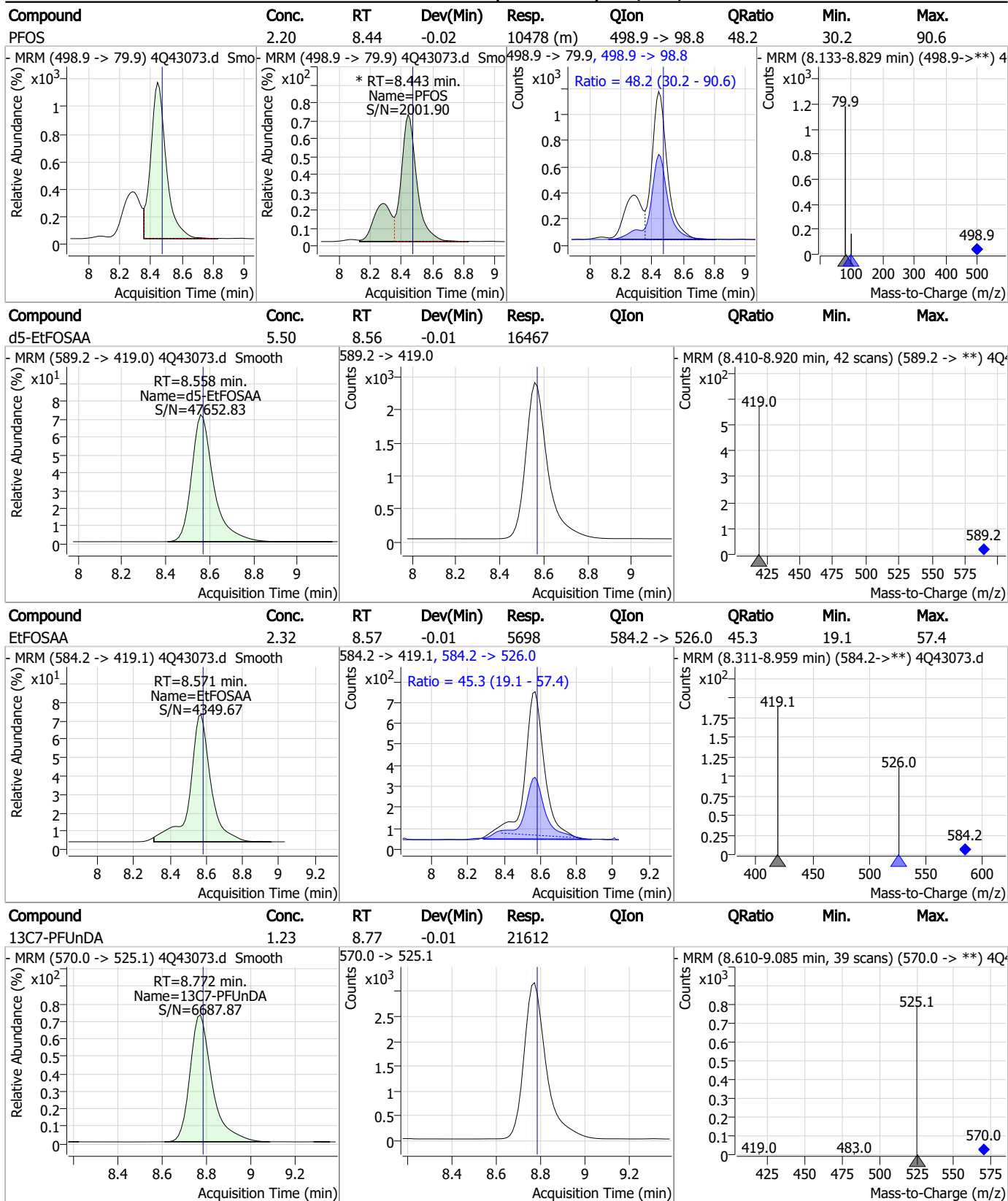


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.53	8.44	-0.02	12238				



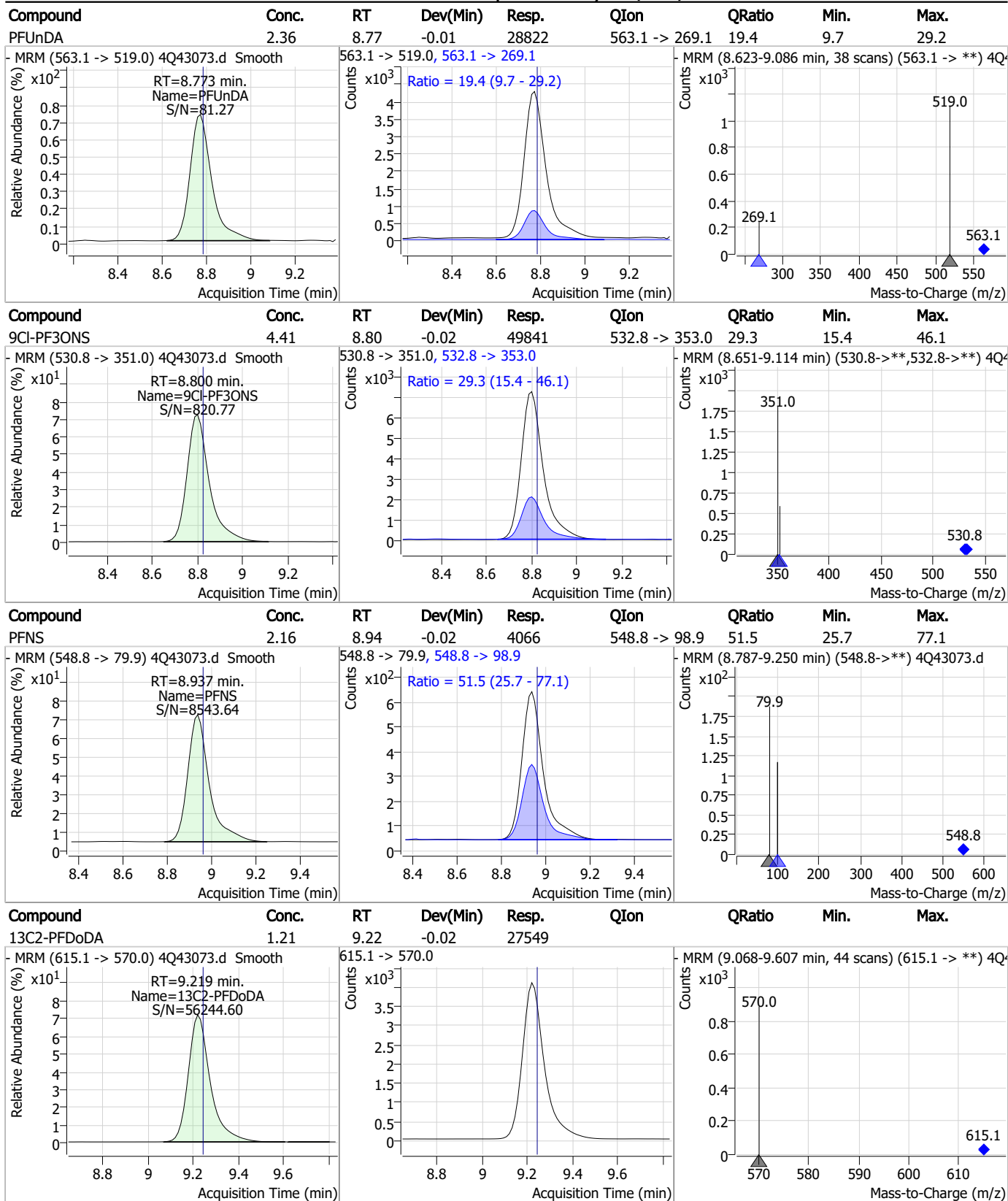
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Perfluorinated Compounds by LC/MS/MS



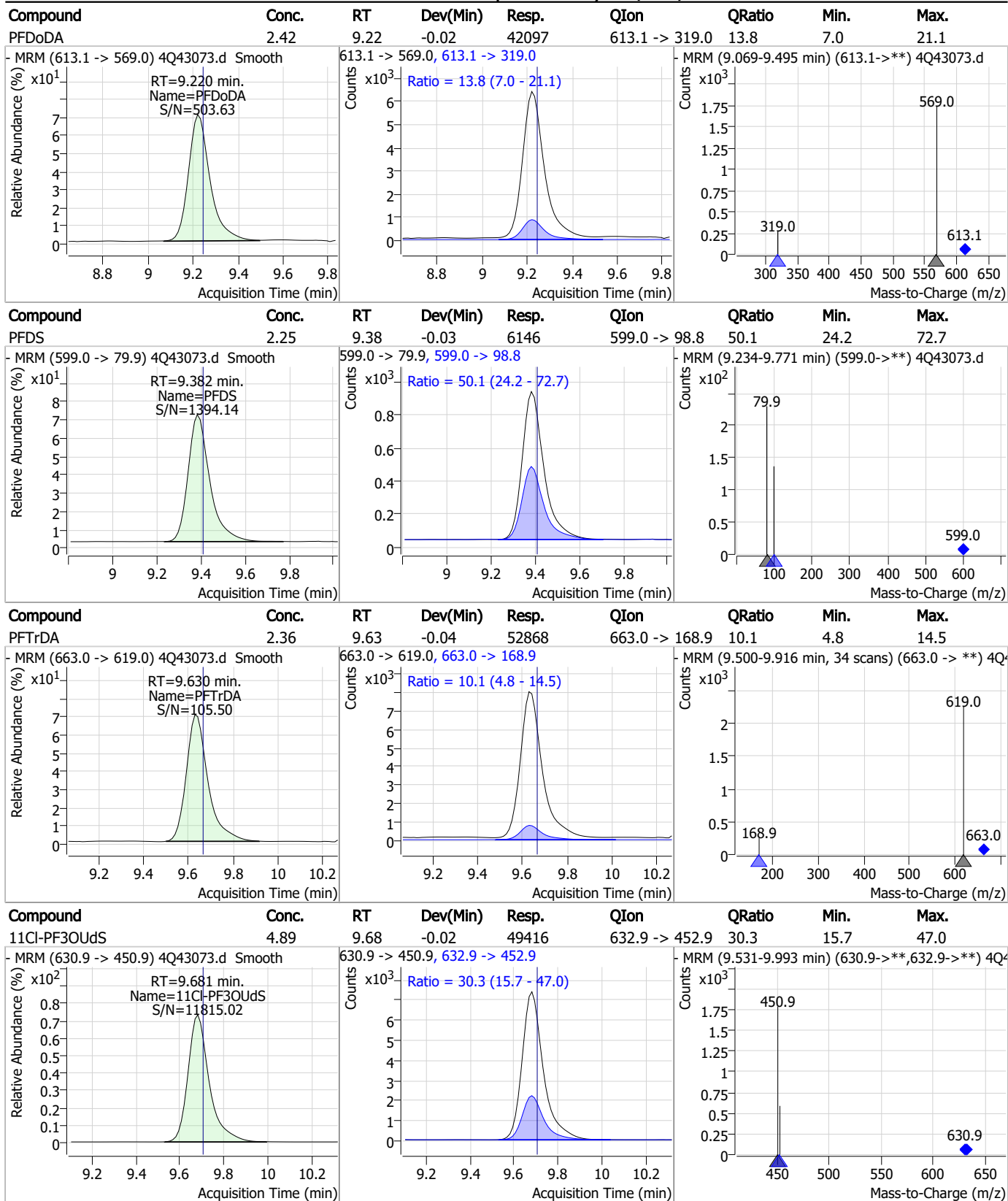
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Perfluorinated Compounds by LC/MS/MS



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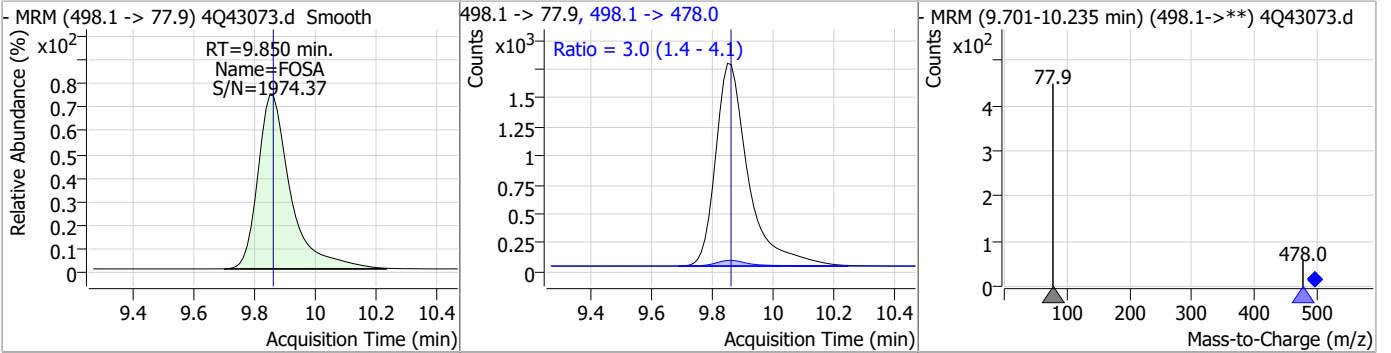
Perfluorinated Compounds by LC/MS/MS



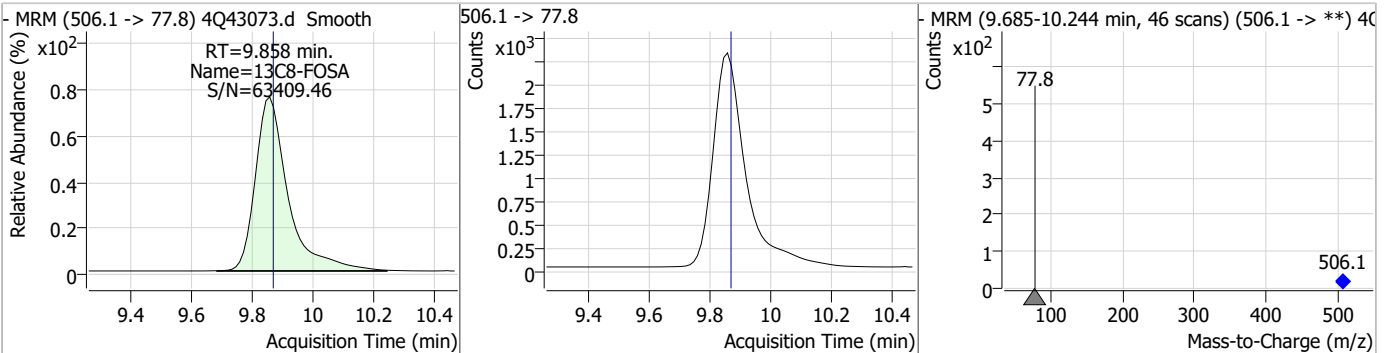
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Perfluorinated Compounds by LC/MS/MS

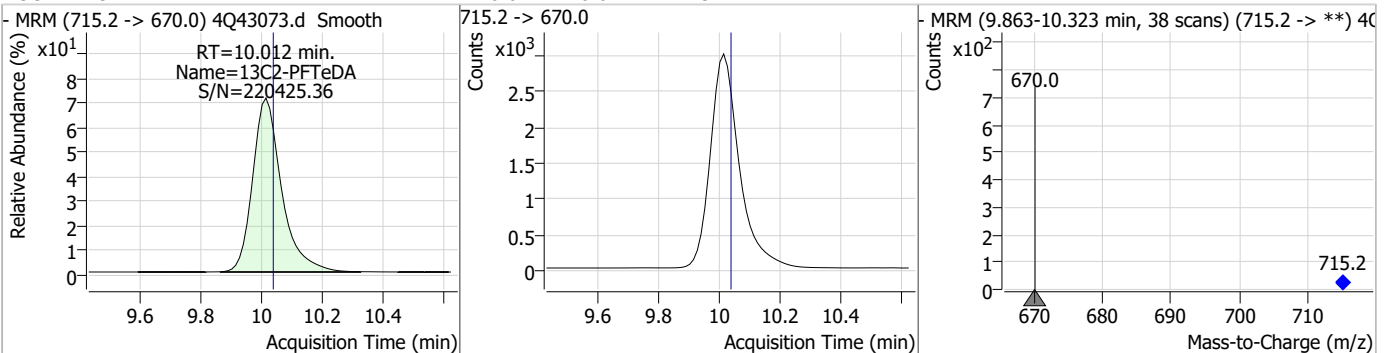
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.38	9.85	-0.01	13233	498.1 -> 478.0	3.0	1.4	4.1



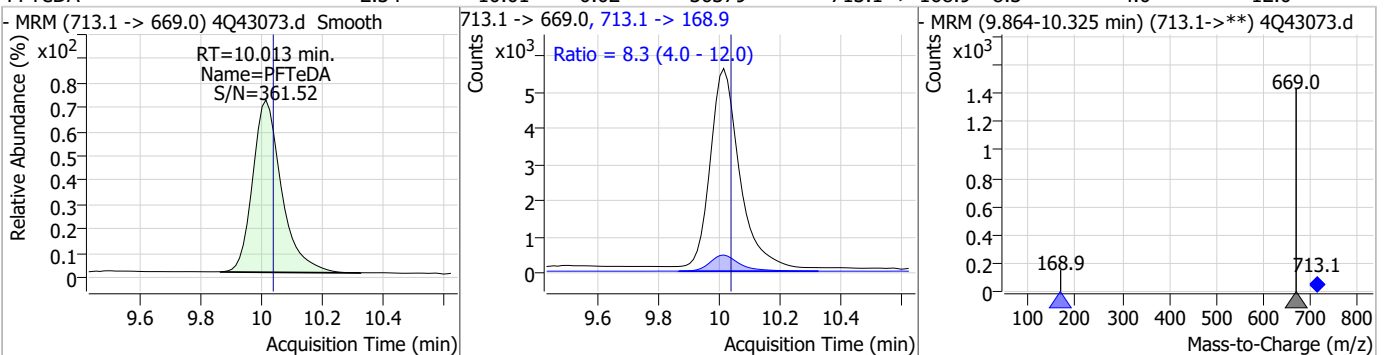
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.11	9.86	-0.01	17275				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.12	10.01	-0.02	19711				

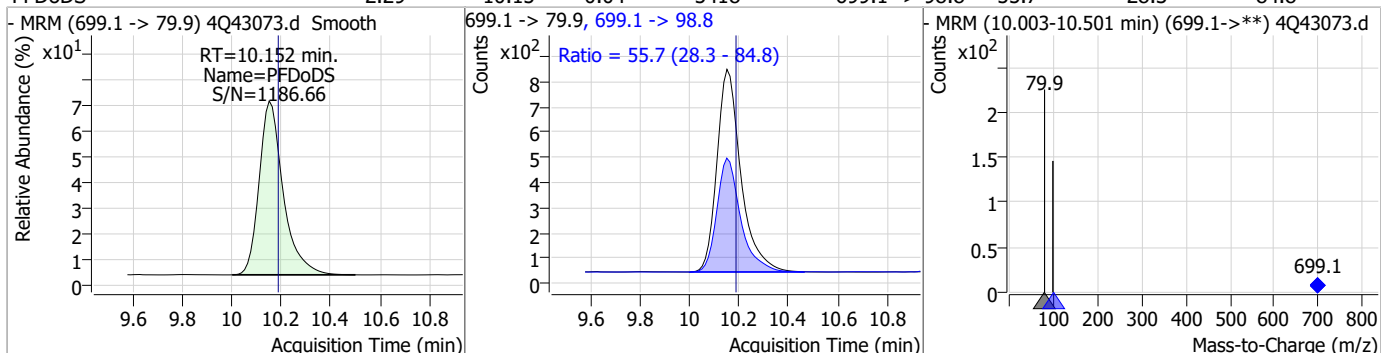


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.34	10.01	-0.02	36379	713.1 -> 168.9	8.3	4.0	12.0

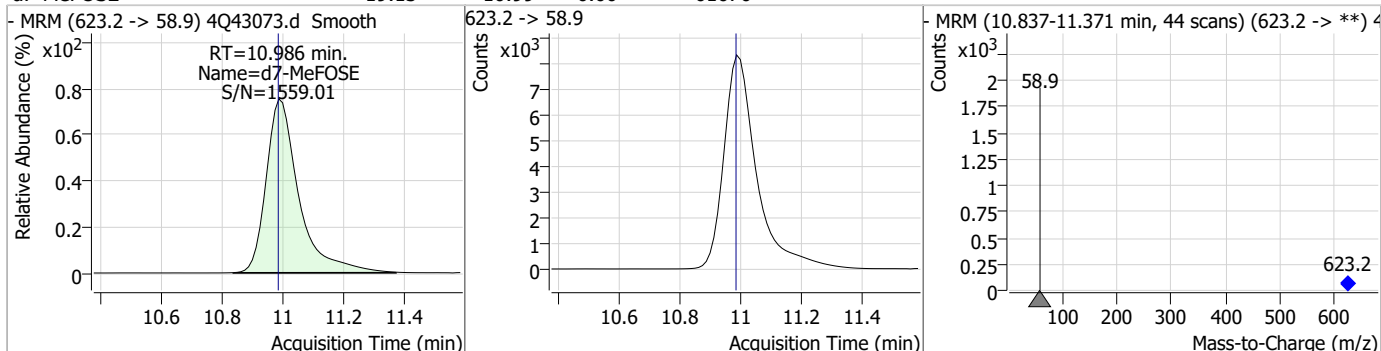


Perfluorinated Compounds by LC/MS/MS

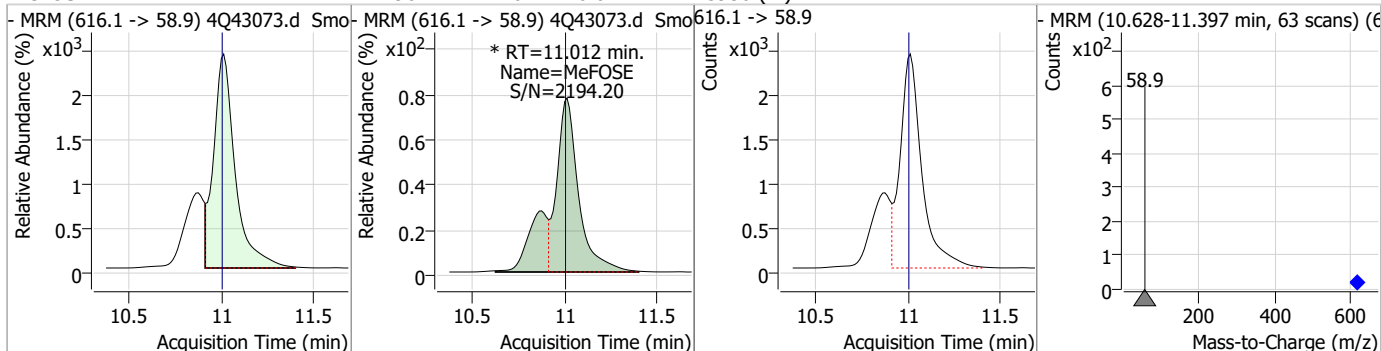
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.29	10.15	-0.04	5418	699.1 -> 98.8	55.7	28.3	84.8



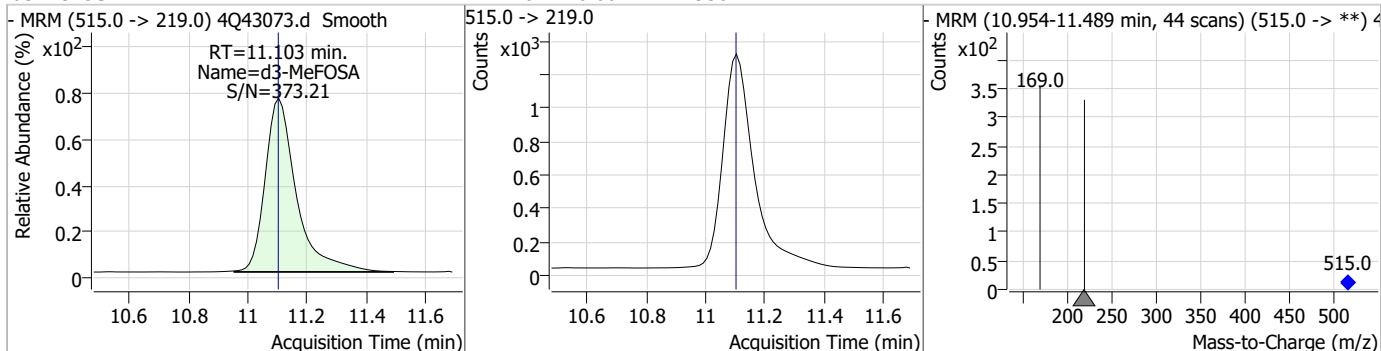
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.13	10.99	0.00	61670				



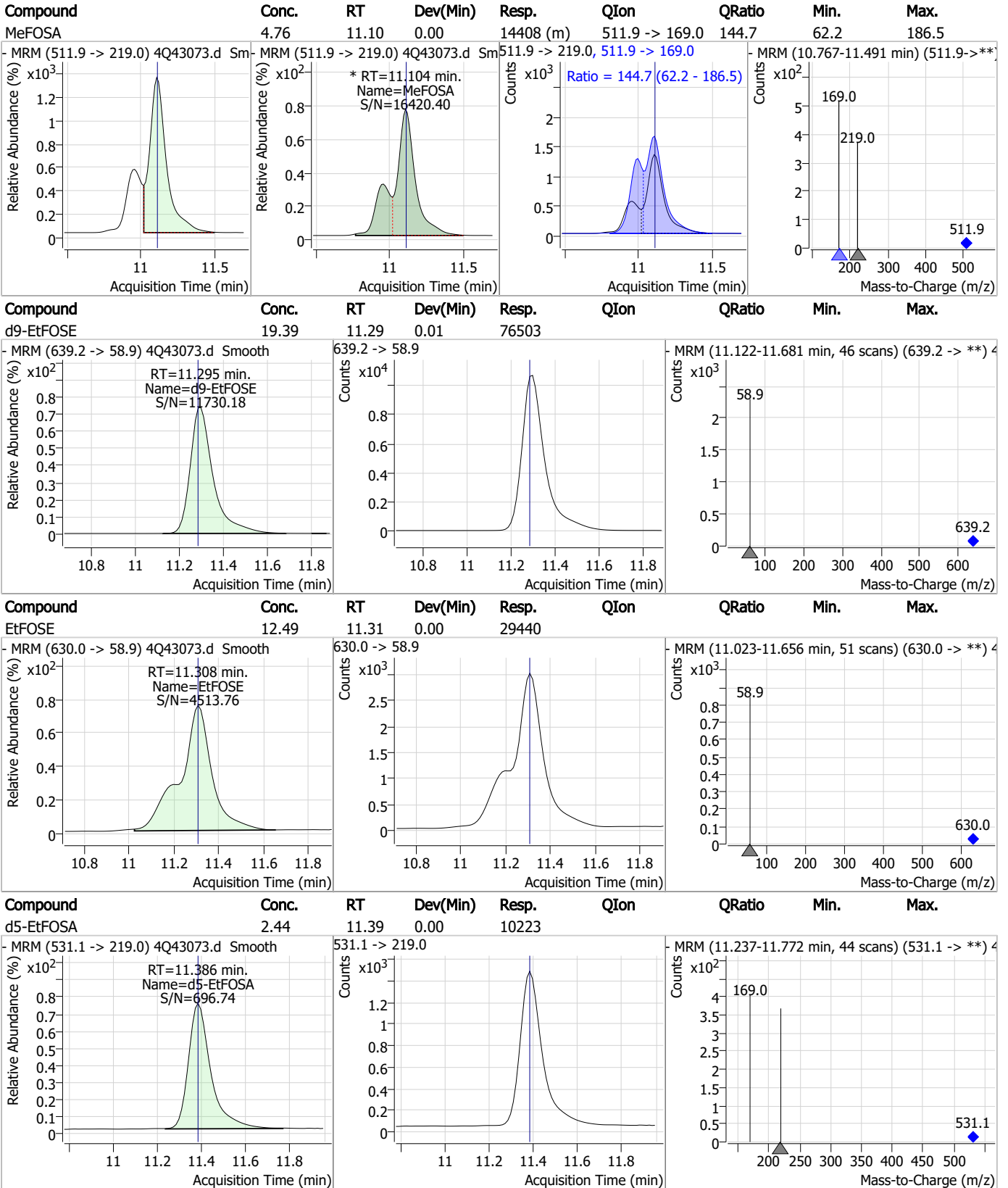
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.96	11.01	0.01	25930 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.42	11.10	0.00	9364				



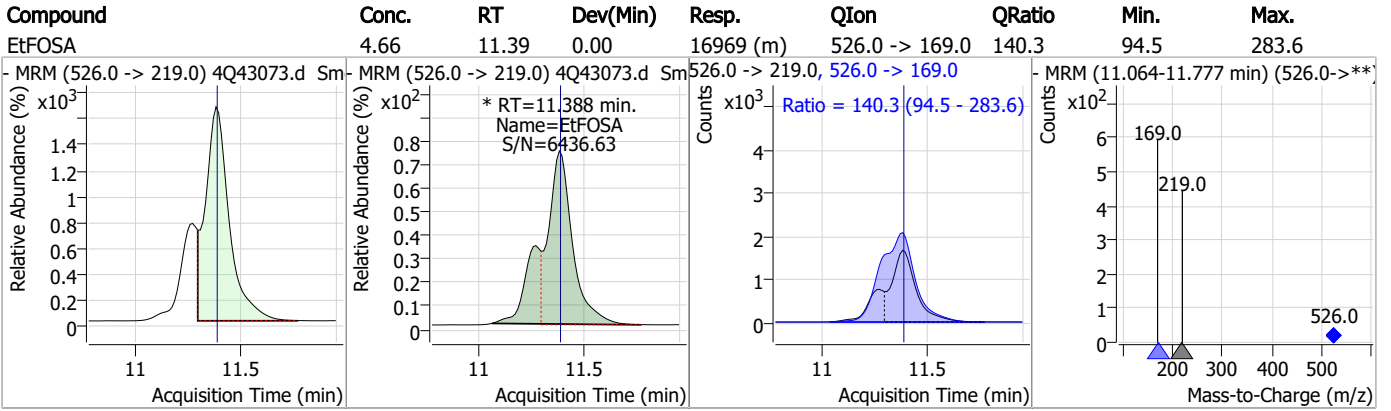
Perfluorinated Compounds by LC/MS/MS



7.7.16
7



Perfluorinated Compounds by LC/MS/MS



7.7.16
7

Manual Integration Approval Summary

Sample Number: S4Q622-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43073.D Analyst approved: 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 20:28 Supervisor approved: 04/17/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.35	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.44	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.16.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43077.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/15/2023 9:25:02 PM
 Sample Name : ecc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q622.batch.bin
 Sample Information : OP96296,S4q622,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	143451	10.00 µg/L	0.000
M5-PFPeA	4.462	268.3 -> 223.0	81879	5.00 µg/L	-0.012
M5-PFHxA	5.634	318.0 -> 273.0	62985	2.50 µg/L	-0.012
M4-PFHpA	6.567	367.1 -> 322.0	31144	2.50 µg/L	-0.013
M8-PFOA	7.227	421.1 -> 376.0	39541	2.50 µg/L	-0.010
M9-PFNA	7.784	472.1 -> 427.0	21643	1.25 µg/L	-0.012
M6-PFDA	8.291	519.1 -> 474.1	20491	1.25 µg/L	-0.012
M7-PFUnDA	8.760	570.0 -> 525.1	22417	1.25 µg/L	-0.025
M2-PFDoDA	9.219	615.1 -> 570.0	27758	1.25 µg/L	-0.024
M2-PFTeDA	10.012	715.2 -> 670.0	20077	1.25 µg/L	-0.024
M8-FOSA	9.858	506.1 -> 77.8	17034	2.50 µg/L	-0.012
M3-PFBS	5.552	302.1 -> 79.9	13391	2.50 µg/L	-0.012
M3-PFHxS	7.329	402.1 -> 79.9	8515	2.50 µg/L	-0.012
M8-PFOS	8.442	507.1 -> 79.9	12163	2.50 µg/L	-0.024
M2-4:2FTS	5.323	329.1 -> 80.9	1882	5.00 µg/L	-0.012
M2-6:2FTS	6.986	429.1 -> 80.9	2594	5.00 µg/L	-0.012
M2-8:2FTS	8.066	529.1 -> 80.9	4149	5.00 µg/L	-0.024
M3-MeFOSAA	8.349	573.2 -> 419.0	20036	5.00 µg/L	-0.012
M3-HFPO-DA	6.002	286.9 -> 168.9	38504	10.00 µg/L	-0.012
M5-EtFOSAA	8.558	589.2 -> 419.0	15753	5.00 µg/L	-0.012
M7-MeFOSE	10.986	623.2 -> 58.9	62192	25.00 µg/L	0.002
M9-EtFOSE	11.282	639.2 -> 58.9	77920	25.00 µg/L	0.000
M5-EtFOSA	11.386	531.1 -> 219.0	10438	2.50 µg/L	0.000
M3-MeFOSA	11.103	515.0 -> 219.0	9245	2.50 µg/L	0.001
13C4-PFOS	8.443	502.8 -> 79.9	12216	2.50 µg/L	-0.024
13C3-PFBA	2.991	216.0 -> 172.0	79459	5.00 µg/L	0.000
18O2-PFHxS	7.328	403.0 -> 83.9	5756	2.50 µg/L	-0.012
13C4-PFOA	7.227	417.1 -> 372.0	46803	2.50 µg/L	-0.010
13C2-PFDA	8.279	515.1 -> 470.1	19161	1.25 µg/L	-0.024
13C5-PFNA	7.784	468.0 -> 423.0	23863	1.25 µg/L	-0.012
13C2-PFHxA	5.635	315.1 -> 270.0	53510	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.1 -> 80.9	1882	5.99 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.7%		
13C2-6:2FTS	6.986	429.1 -> 80.9	2594	5.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-8:2FTS	8.066	529.1 -> 80.9	4149	5.59 µg/L	-0.024
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C2-PFDoDA	9.219	615.1 -> 570.0	27758	1.18 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C2-PFTeDA	10.012	715.2 -> 670.0	20077	1.09 µg/L	-0.024
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.5%		
13C3-PFBS	5.552	302.1 -> 79.9	13391	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-PFHxS	7.329	402.1 -> 79.9	8515	2.67 µg/L	-0.012

7.7.17
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C4-PFBA	2.999	216.8 -> 171.9	143451	10.37 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C4-PFHpA	6.567	367.1 -> 322.0	31144	2.56 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFHxA	5.634	318.0 -> 273.0	62985	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFPeA	4.462	268.3 -> 223.0	81879	5.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C6-PFDA	8.291	519.1 -> 474.1	20491	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C7-PFUnDA	8.760	570.0 -> 525.1	22417	1.22 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-FOSA	9.858	506.1 -> 77.8	17034	2.13 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.3%	
13C8-PFOA	7.227	421.1 -> 376.0	39541	2.57 µg/L	-0.010
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-PFOS	8.442	507.1 -> 79.9	12163	2.57 µg/L	-0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C9-PFNA	7.784	472.1 -> 427.0	21643	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSAA	8.349	573.2 -> 419.0	20036	5.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.4%	
13C3-HFPO-DA	6.002	286.9 -> 168.9	38504	10.25 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d3-MeFOSA	11.103	515.0 -> 219.0	9245	2.44 µg/L	0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
d5-EtFOSAA	8.558	589.2 -> 419.0	15753	5.39 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.7%	
d7-MeFOSE	10.986	623.2 -> 58.9	62192	19.74 µg/L	0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
d9-EtFOSE	11.282	639.2 -> 58.9	77920	20.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.8%	
d5-EtFOSA	11.386	531.1 -> 219.0	10438	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
Target Compounds					QValue
4:2FTS	5.323	327.1 -> 307.0	20752	8.84 µg/L	96
		327.1 -> 80.9	8985		
6:2FTS	6.987	427.1 -> 407.0	18296	10.33 µg/L	99
		427.1 -> 80.9	7908		
8:2FTS	8.066	527.1 -> 507.0	19000	10.21 µg/L	97
		527.1 -> 80.8	7840		
EtFOSAA	8.559	584.2 -> 419.1	5823	2.47 µg/L	m 80
		584.2 -> 526.0	2951		
FOSA	9.850	498.1 -> 77.9	13878	2.53 µg/L	100
		498.1 -> 478.0	386		
MeFOSAA	8.350	570.1 -> 419.0	6286	2.28 µg/L	m 86
		570.1 -> 483.0	1356		
PFBA	2.995	212.8 -> 168.9	30649	9.36 µg/L	100
PFBS	5.553	298.7 -> 79.9	11537	2.31 µg/L	99
		298.7 -> 98.8	4348		
PFDA	8.292	512.9 -> 469.0	30512	2.60 µg/L	98
		512.9 -> 219.0	5609		
PFDODA	9.220	613.1 -> 569.0	43274	2.47 µg/L	100
		613.1 -> 319.0	6034		
PFDS	9.382	599.0 -> 79.9	6137	2.26 µg/L	96

7.7.17
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.568	599.0 -> 98.8	3150	2.47	µg/L	97
		363.1 -> 319.0	38317			
PFHpS	7.912	363.1 -> 169.0	7174	2.35	µg/L	96
		449.0 -> 79.9	7425			
PFHxA	5.637	449.0 -> 98.9	4079	2.47	µg/L	100
		313.0 -> 269.0	45968			
PFHxS	7.330	313.0 -> 118.9	1341	2.11	µg/L	99
		398.7 -> 79.9	6169			
PFNA	7.785	398.7 -> 98.9	3238	2.41	µg/L	95
		463.0 -> 419.0	27891			
PFNS	8.937	463.0 -> 219.0	6898	2.25	µg/L	96
		548.8 -> 79.9	4219			
PFOA	7.228	548.8 -> 98.9	2047	2.42	µg/L	100
		413.0 -> 369.0	44650			
PFOS	8.443	413.0 -> 169.0	9055	2.25	µg/L	83
		498.9 -> 79.9	10636			
PFPeA	4.464	498.9 -> 98.8	5062	5.01	µg/L	100
		263.0 -> 219.0	77606			
PFPeS	6.607	349.1 -> 79.9	5973	2.41	µg/L	100
		349.1 -> 98.9	2560			
PFTeDA	10.013	713.1 -> 669.0	36230	2.29	µg/L	98
		713.1 -> 168.9	3112			
PFTrDA	9.630	663.0 -> 619.0	52976	2.35	µg/L	99
		663.0 -> 168.9	5264			
PFUnDA	8.761	563.1 -> 519.0	28478	2.25	µg/L	99
		563.1 -> 269.1	5455			
11CI-PF3OUdS	9.681	630.9 -> 450.9	49212	4.90	µg/L	97
		632.9 -> 452.9	14648			
9CI-PF3ONS	8.788	530.8 -> 351.0	49925	4.45	µg/L	98
		532.8 -> 353.0	15871			
ADONA	6.819	376.9 -> 250.9	110329	4.77	µg/L	98
		376.9 -> 84.8	28646			
HFPO-DA	6.003	284.9 -> 168.9	14878	4.88	µg/L	98
		284.9 -> 184.9	1703			
3:3FTCA	3.979	241.0 -> 177.0	9096	12.60	µg/L	100
		241.0 -> 117.0	860			
5:3FTCA	6.333	341.0 -> 237.1	171974	65.31	µg/L	99
		341.0 -> 217.0	120627			
7:3FTCA	7.774	441.0 -> 316.9	69671	64.56	µg/L	98
		441.0 -> 336.9	156343			
EtFOSA	11.388	526.0 -> 219.0	17265	4.64	µg/L	68
		526.0 -> 169.0	24486			
EtFOSE	11.308	630.0 -> 58.9	30705	12.79	µg/L	100
		511.9 -> 219.0	14410			
MeFOSA	11.104	511.9 -> 169.0	21239	4.82	µg/L	80
		616.1 -> 58.9	26113			
MeFOSE	11.012	699.1 -> 79.9	5563	11.95	µg/L	100
		699.1 -> 98.8	3122			
PFDoDS	10.152	295.0 -> 201.0	6548	2.37	µg/L	99
		295.0 -> 84.9	1727			
NFDHA	5.529	279.0 -> 85.1	43524	5.22	µg/L	97
		229.0 -> 84.9	38374			
PFMBA	4.878	314.8 -> 134.9	69047	4.91	µg/L	100
PFMPA	3.602	314.8 -> 82.9	2461	4.95	µg/L	100
PFEESA	6.084			4.41	µg/L	100

= Qualifier out of range, m = manually integrated, + = Area summed

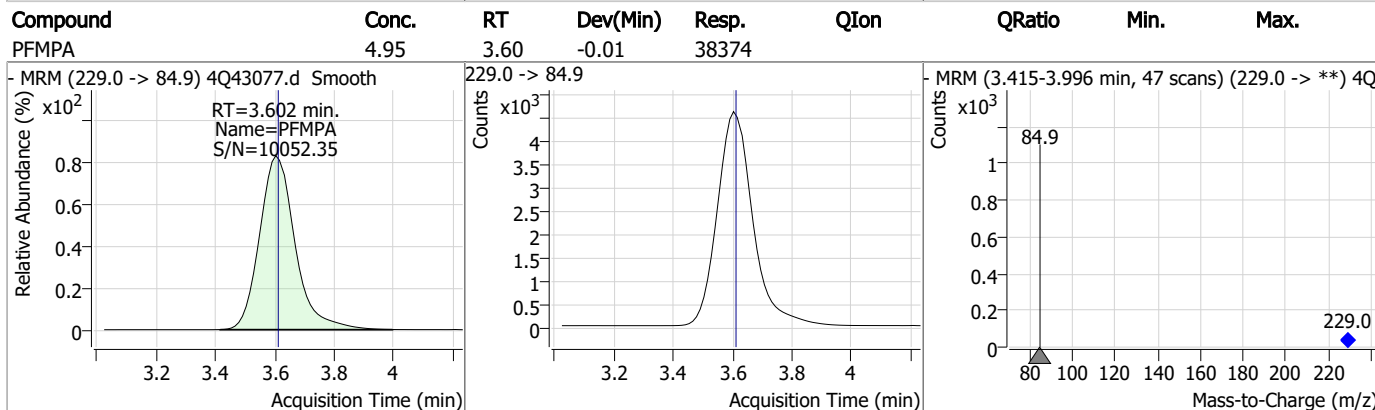
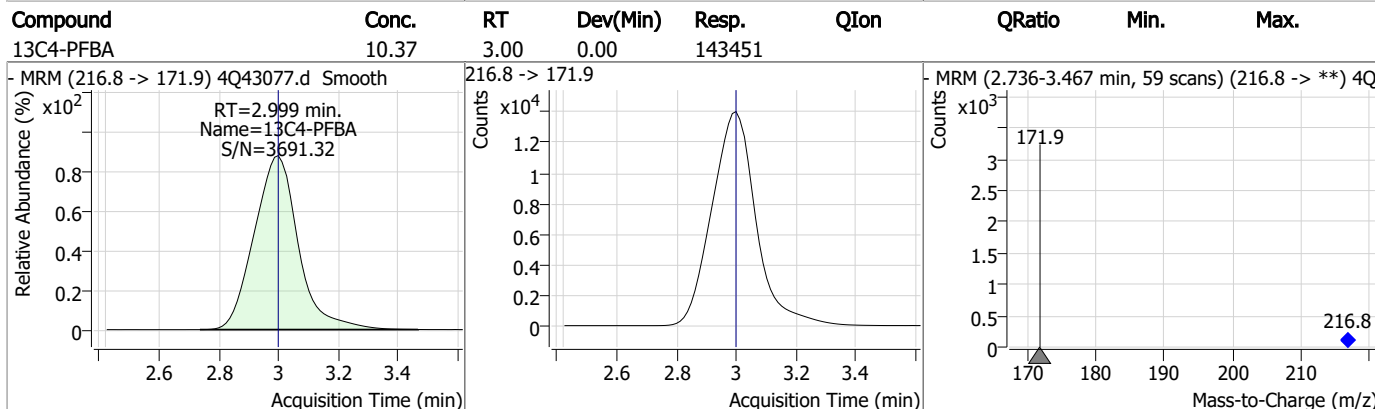
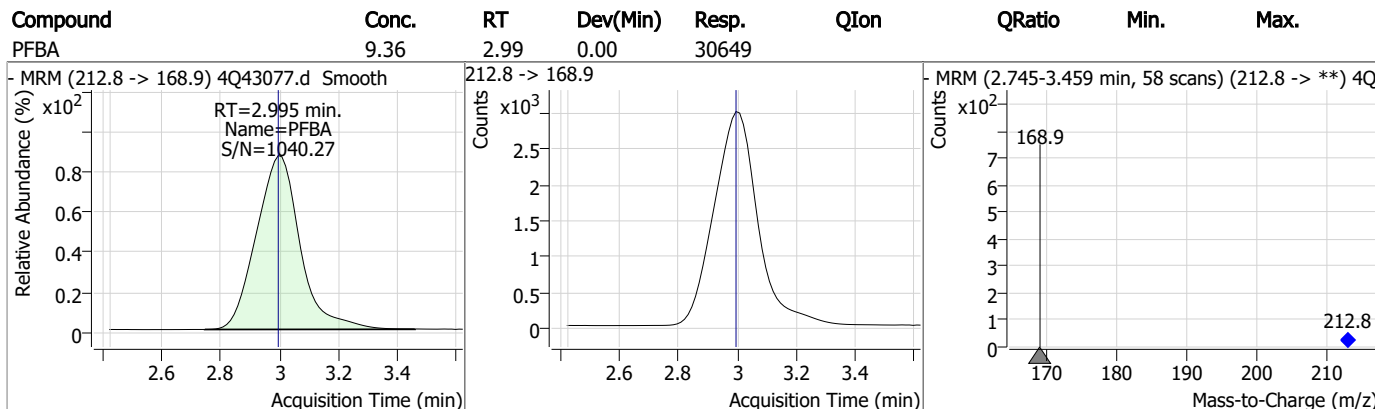
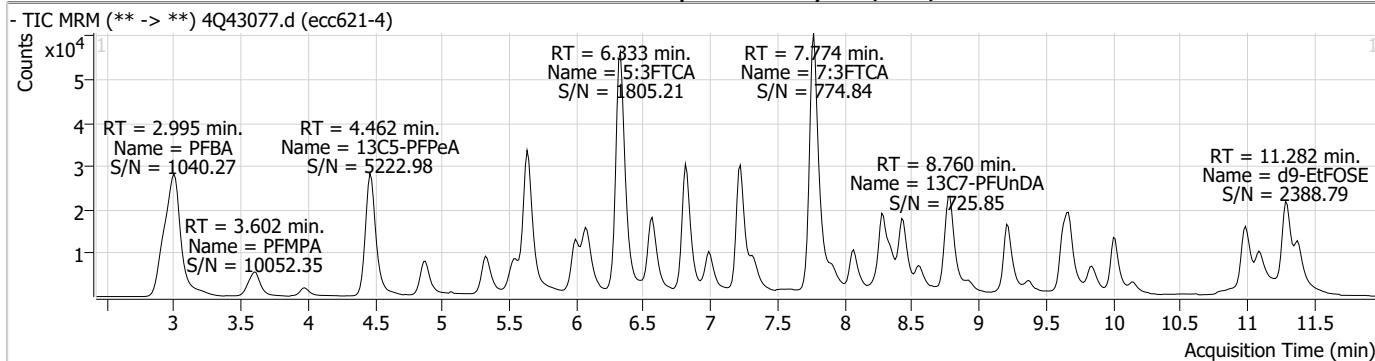
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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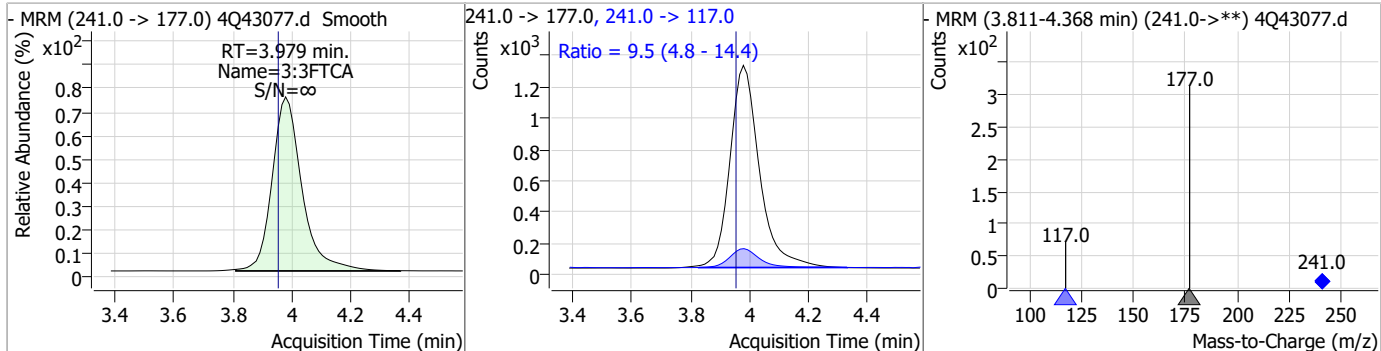
Perfluorinated Compounds by LC/MS/MS



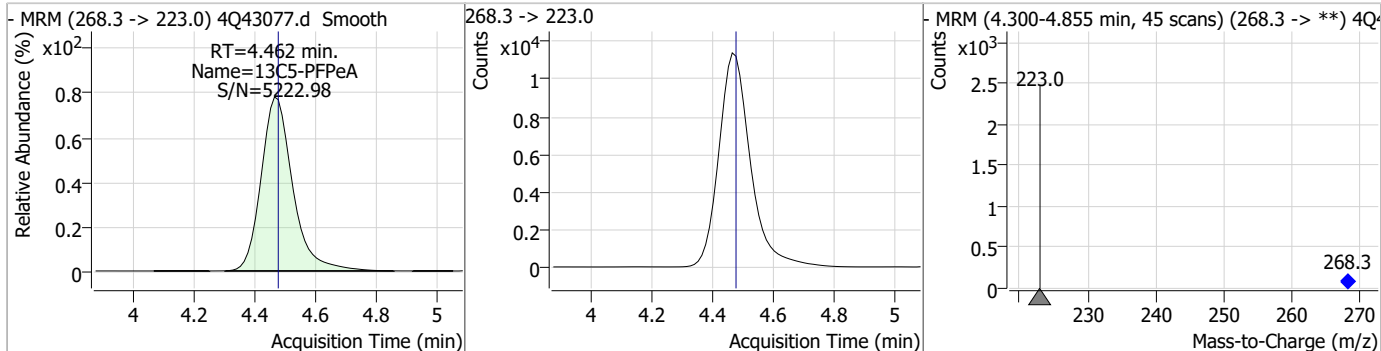
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Perfluorinated Compounds by LC/MS/MS

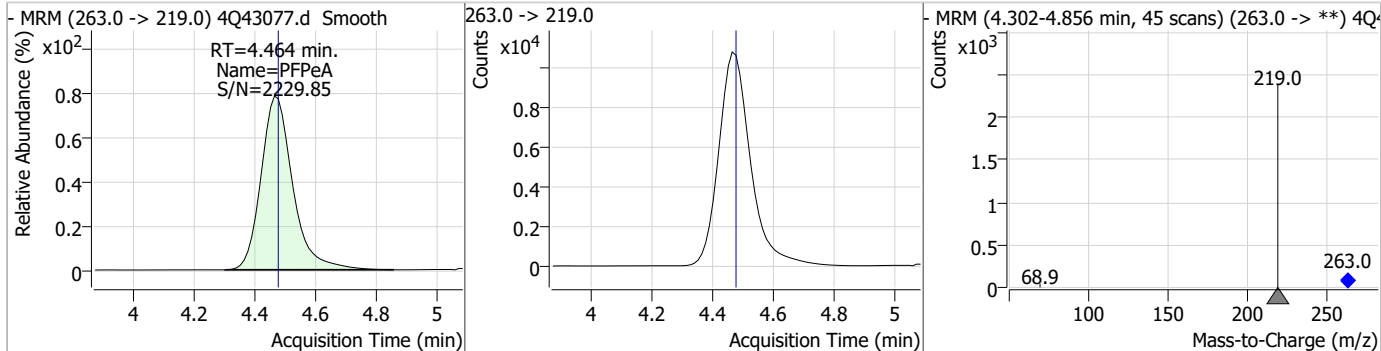
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.60	3.98	0.02	9096	241.0 -> 117.0	9.5	4.8	14.4



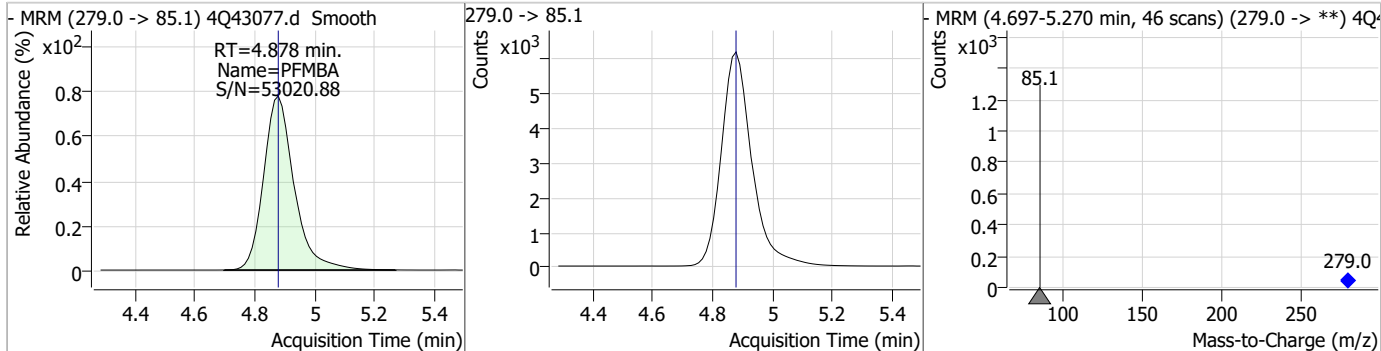
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.19	4.46	-0.01	81879				



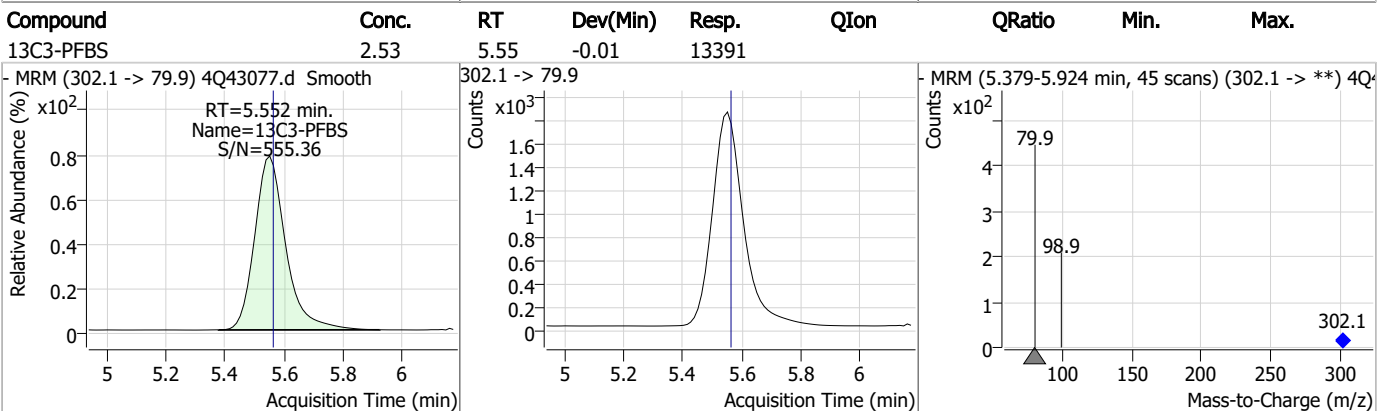
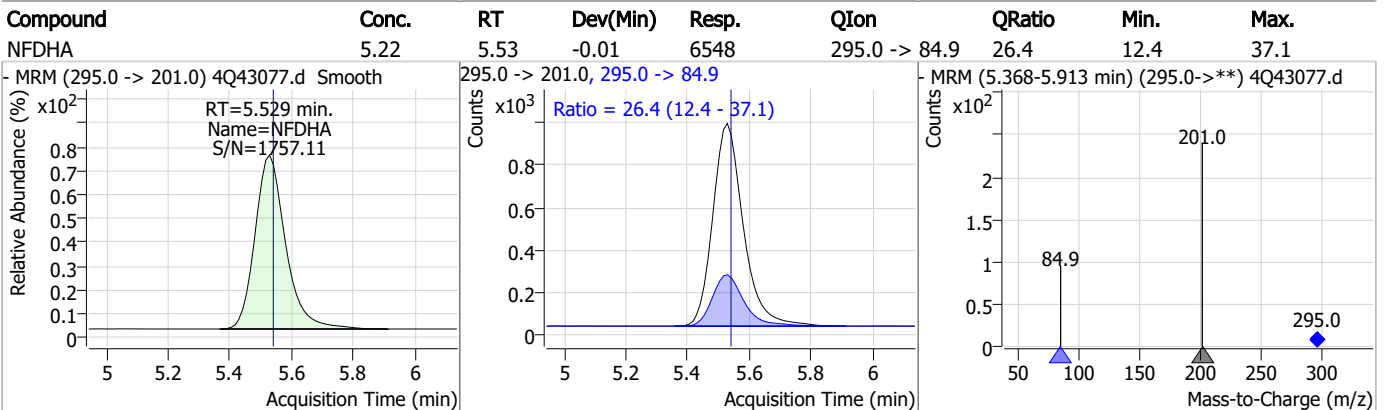
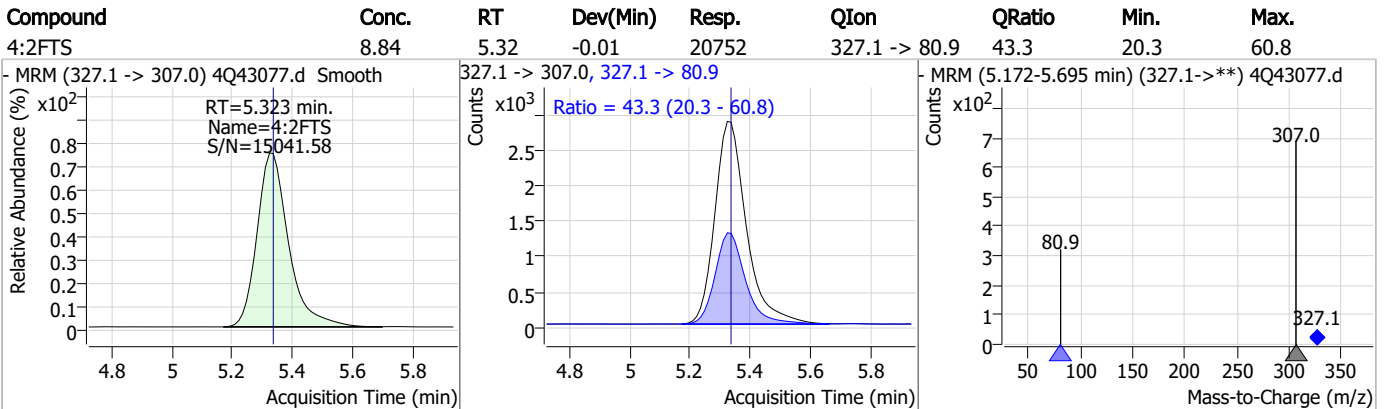
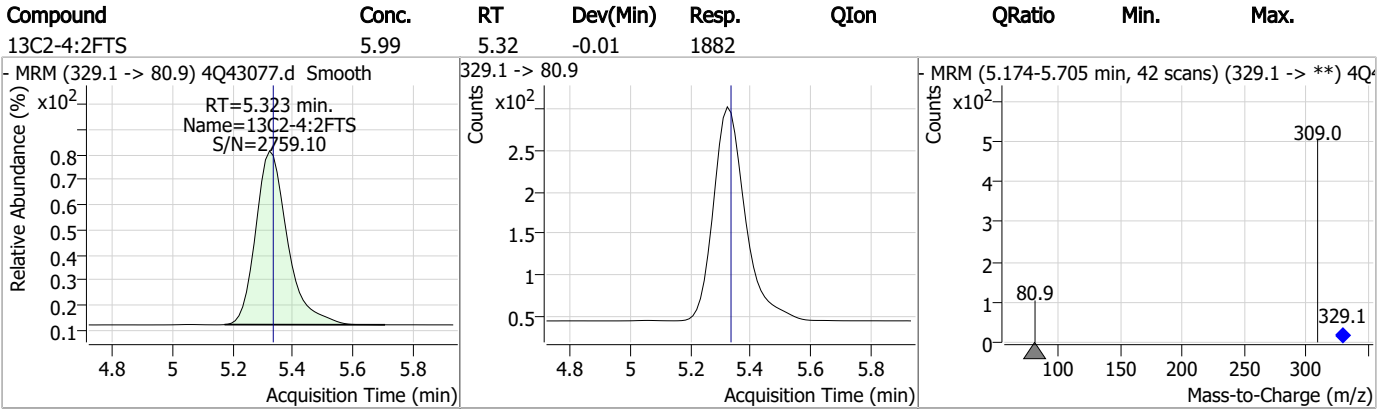
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.01	4.46	-0.01	77606				



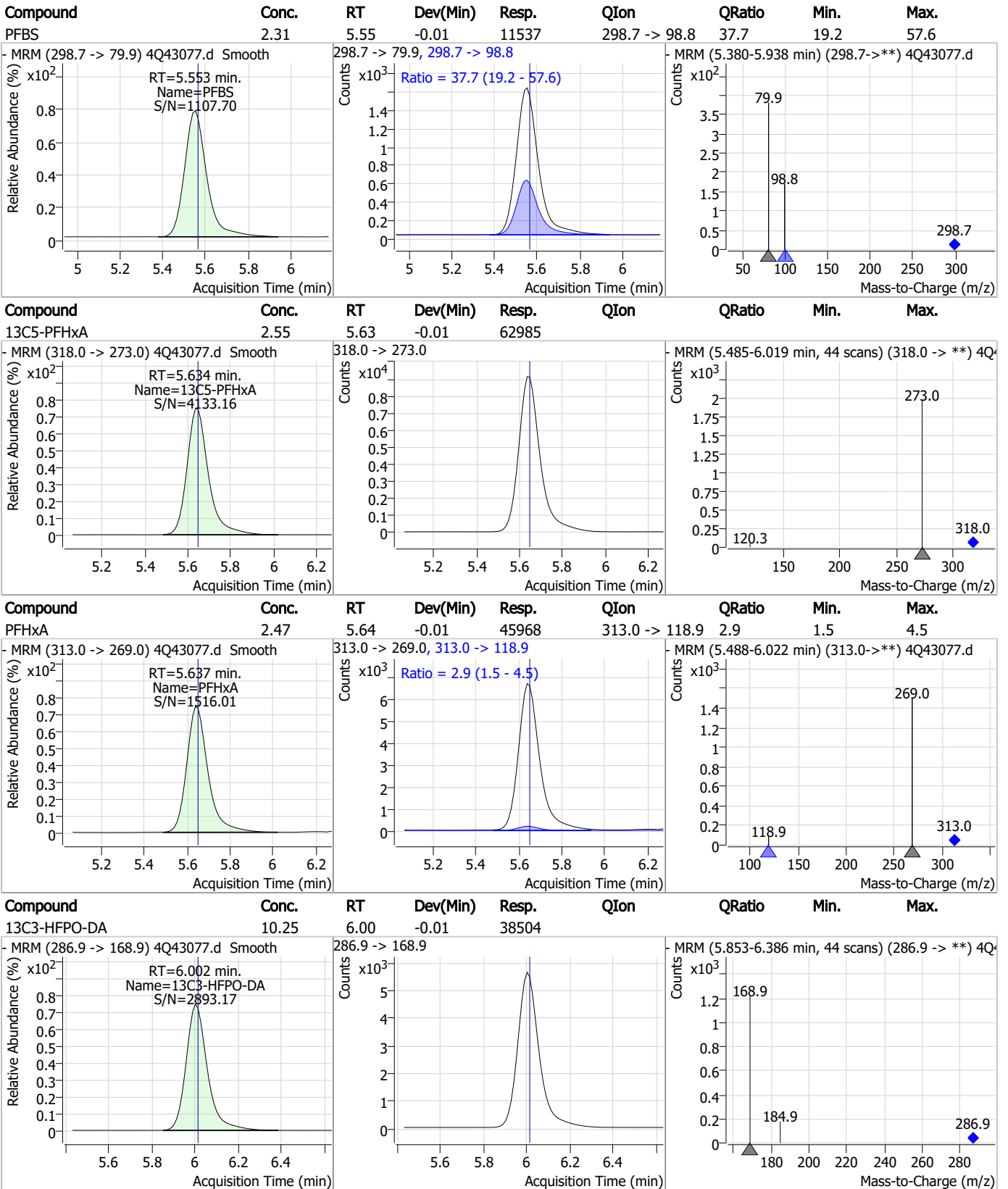
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.91	4.88	0.00	43524				



Perfluorinated Compounds by LC/MS/MS

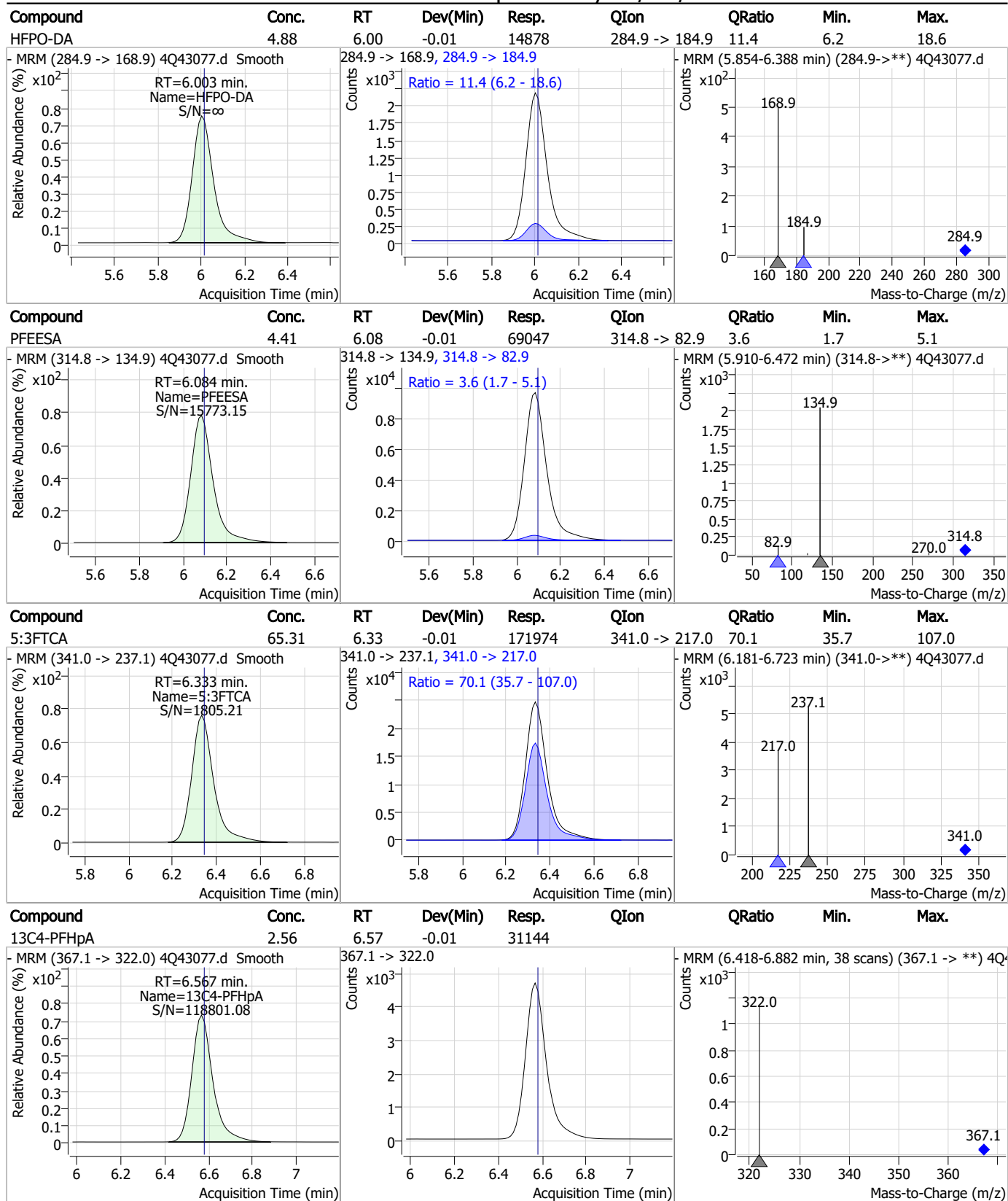


Perfluorinated Compounds by LC/MS/MS



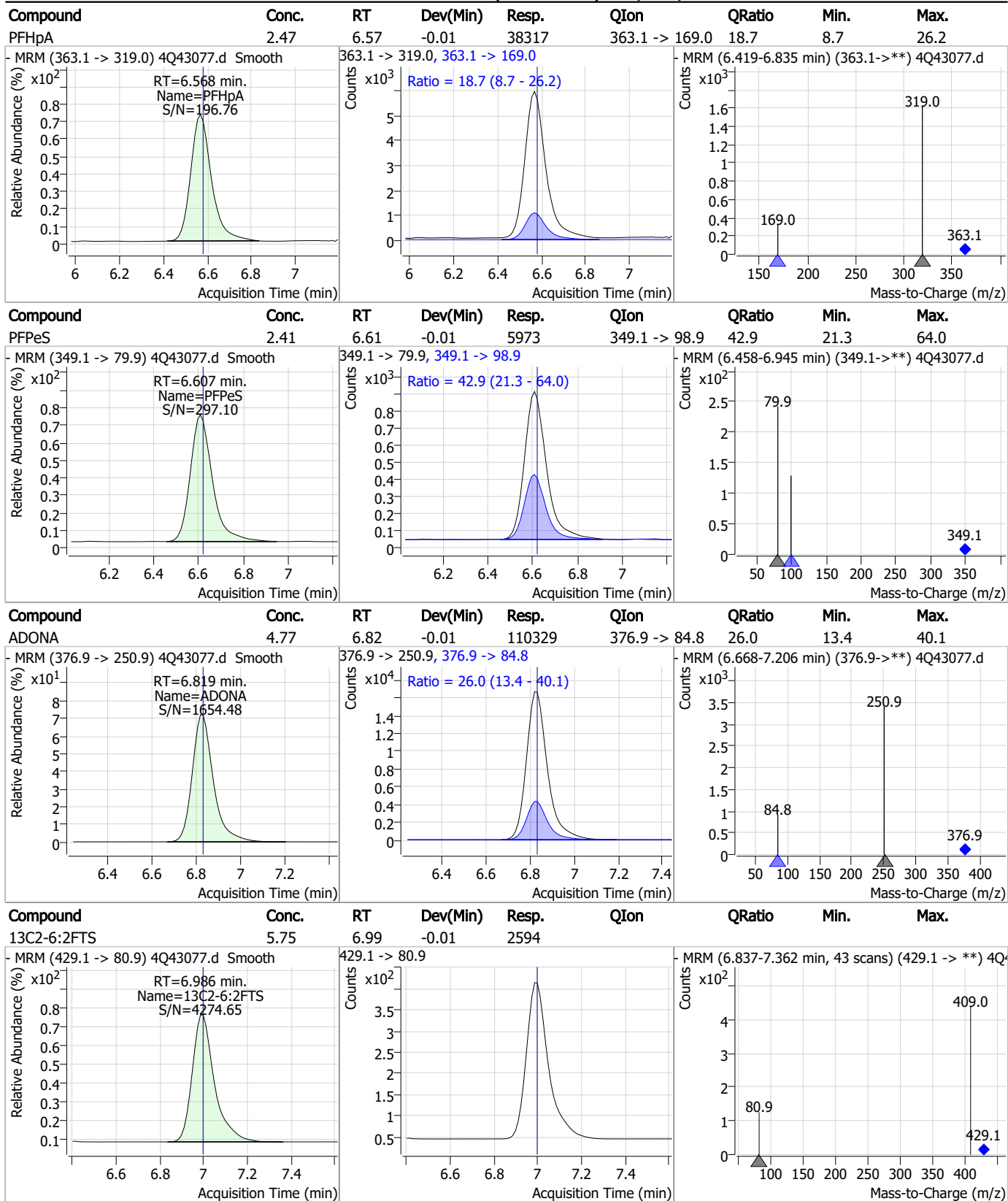
7.7.17

Perfluorinated Compounds by LC/MS/MS



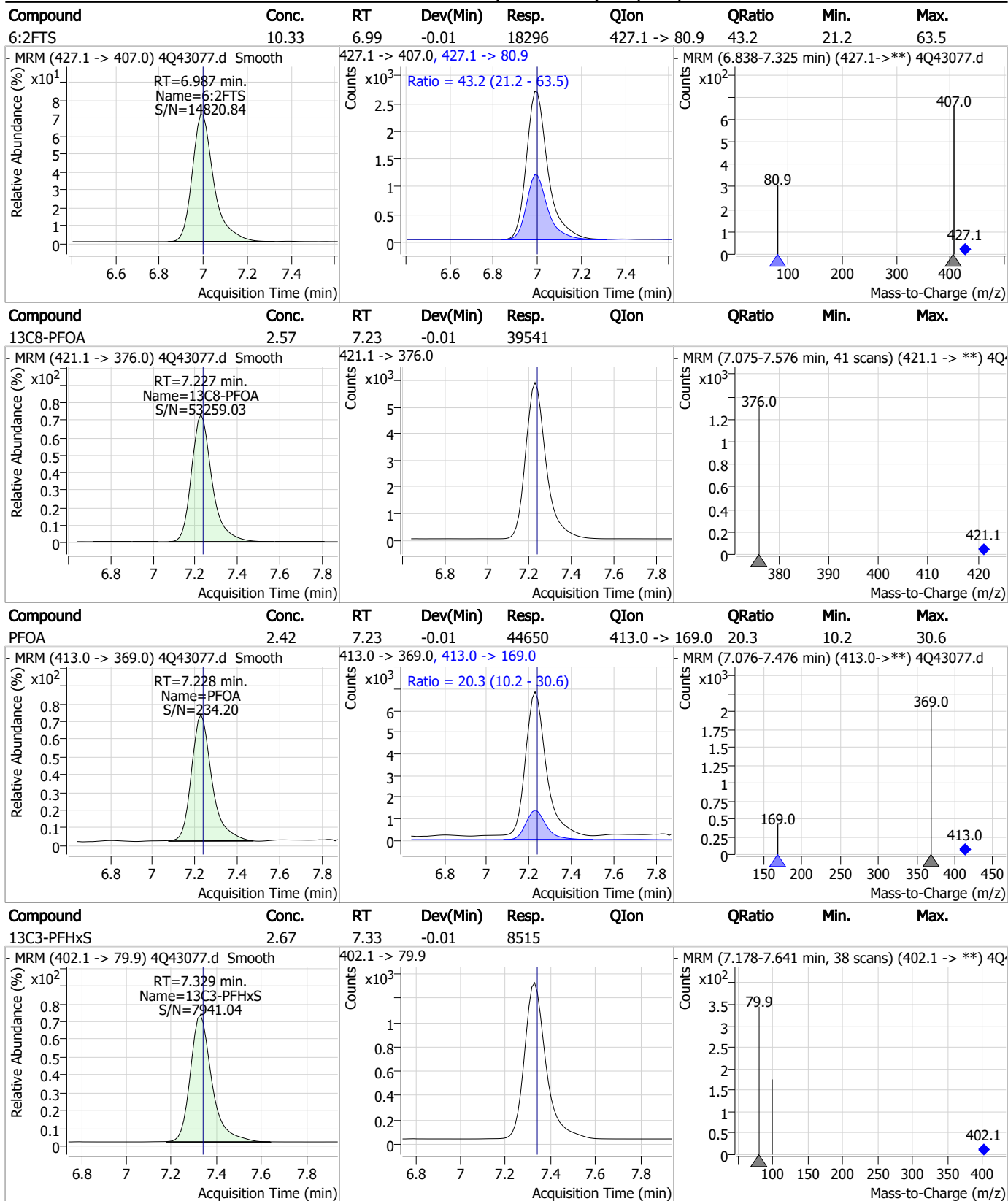
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Perfluorinated Compounds by LC/MS/MS



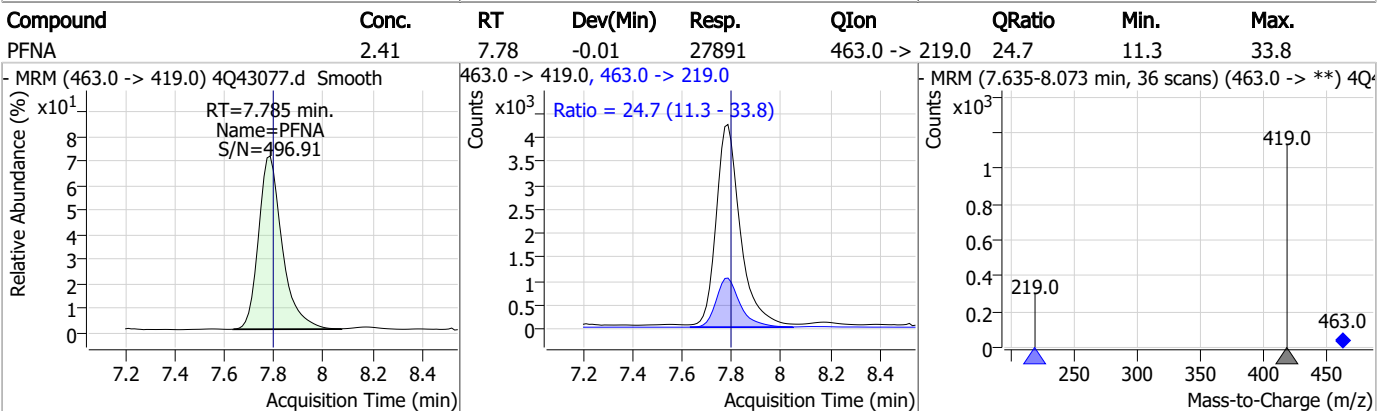
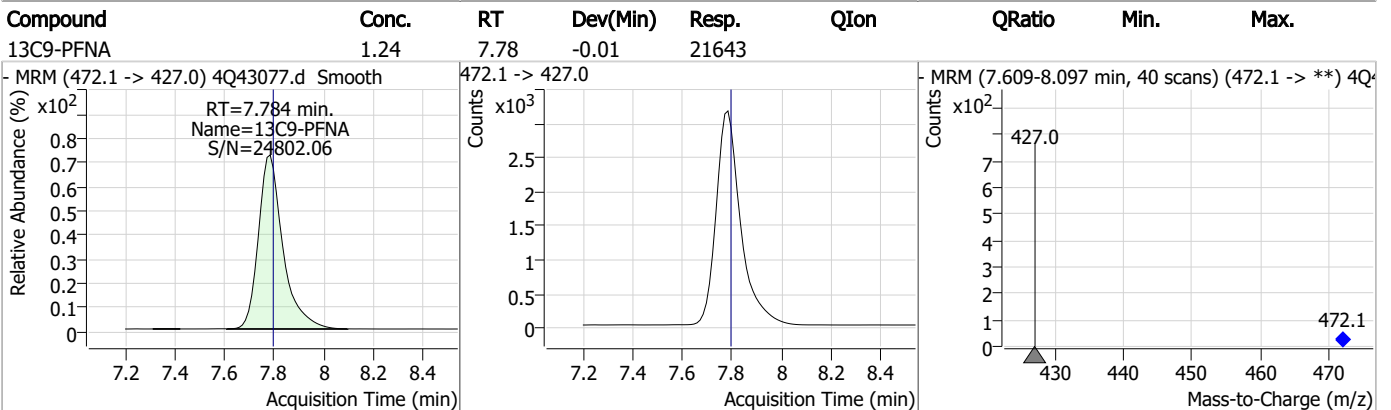
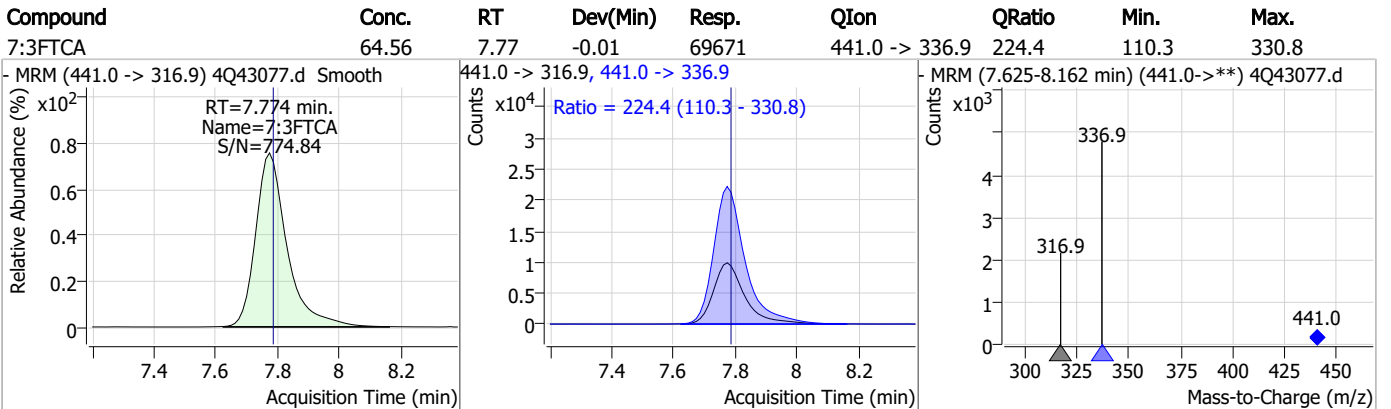
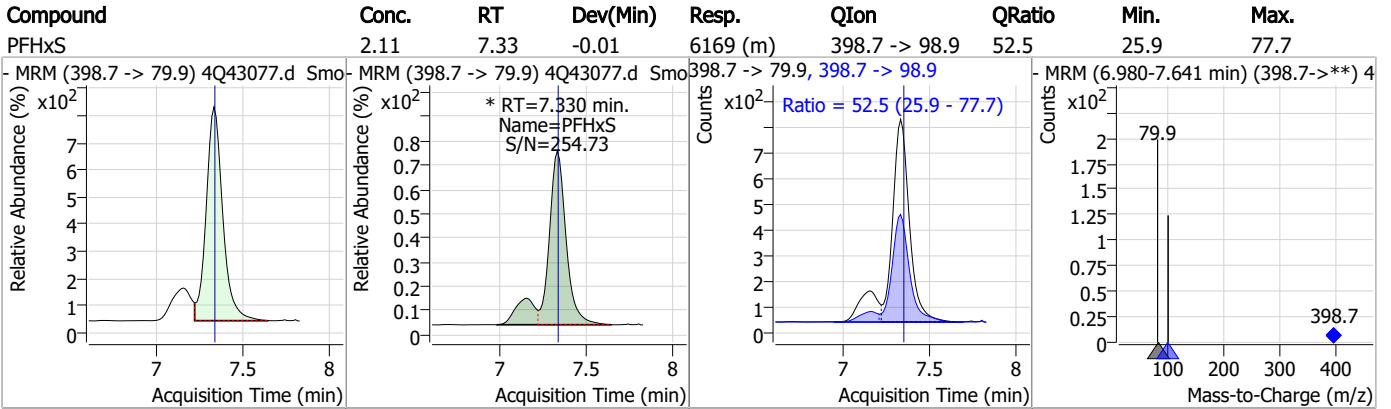
7.7.17

Perfluorinated Compounds by LC/MS/MS

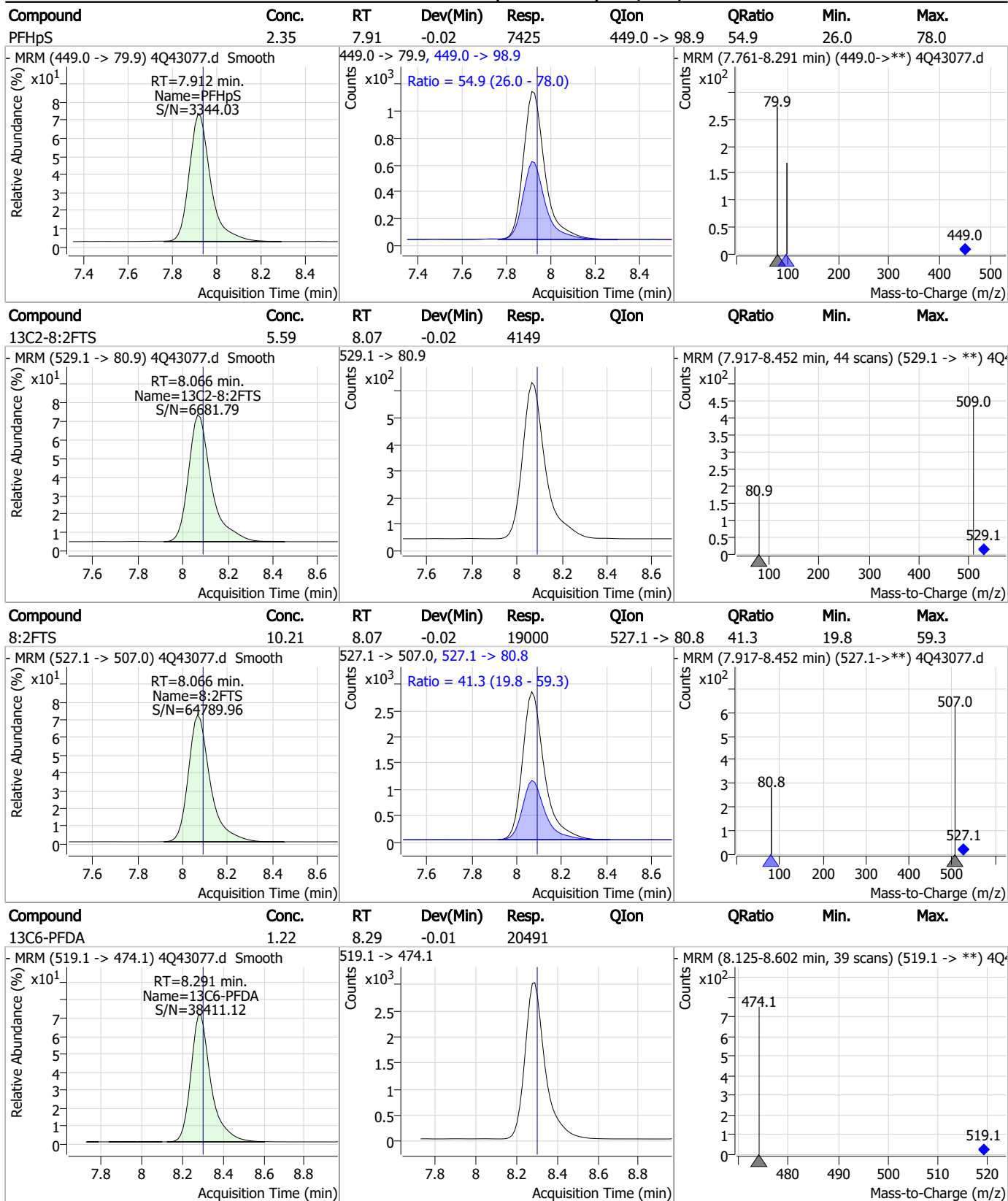


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Perfluorinated Compounds by LC/MS/MS



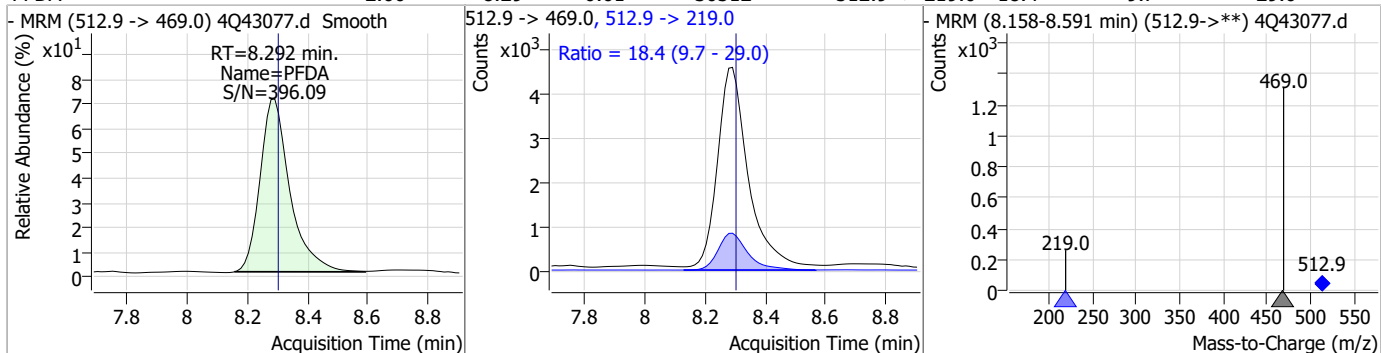
Perfluorinated Compounds by LC/MS/MS



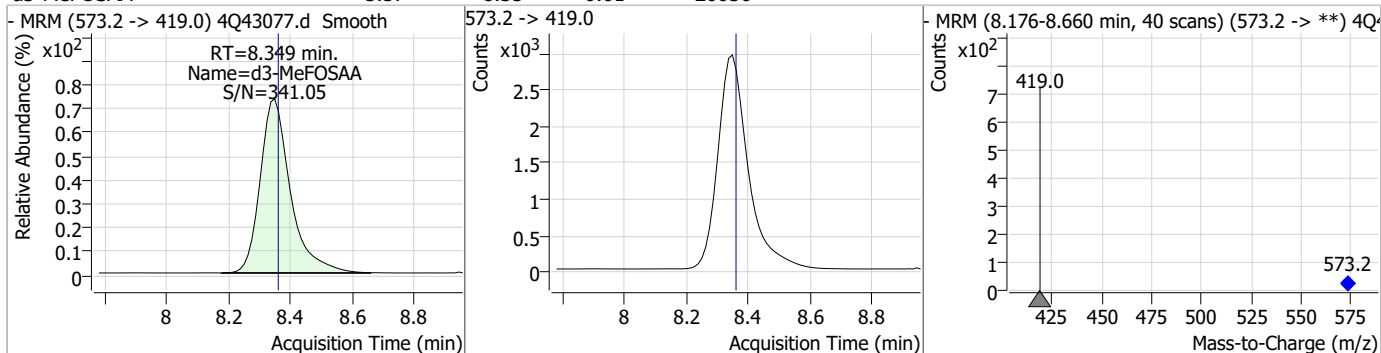
7.7.17

Perfluorinated Compounds by LC/MS/MS

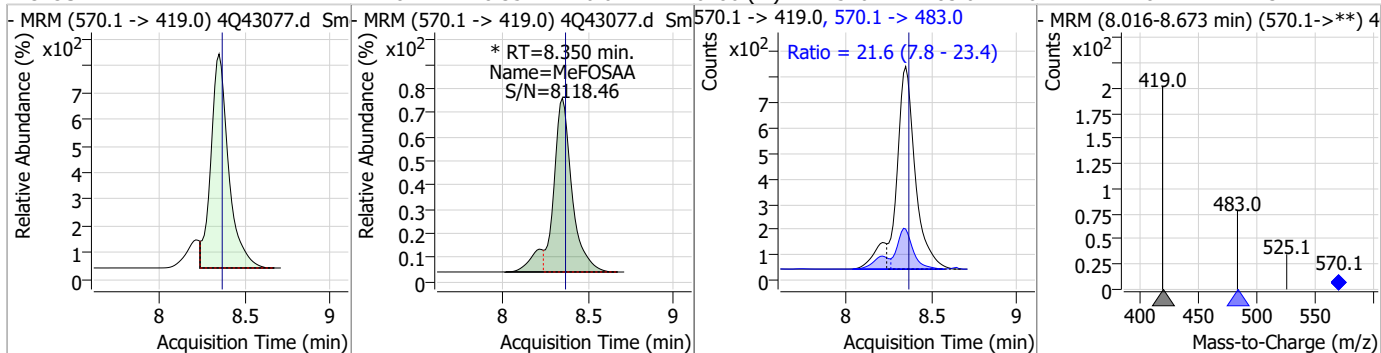
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.60	8.29	-0.01	30512	512.9 -> 219.0	18.4	9.7	29.0



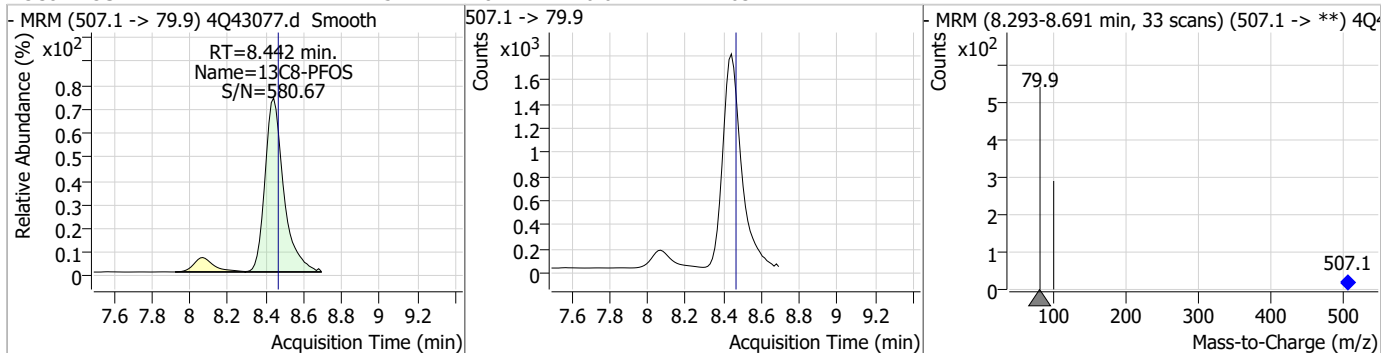
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.57	8.35	-0.01	20036				



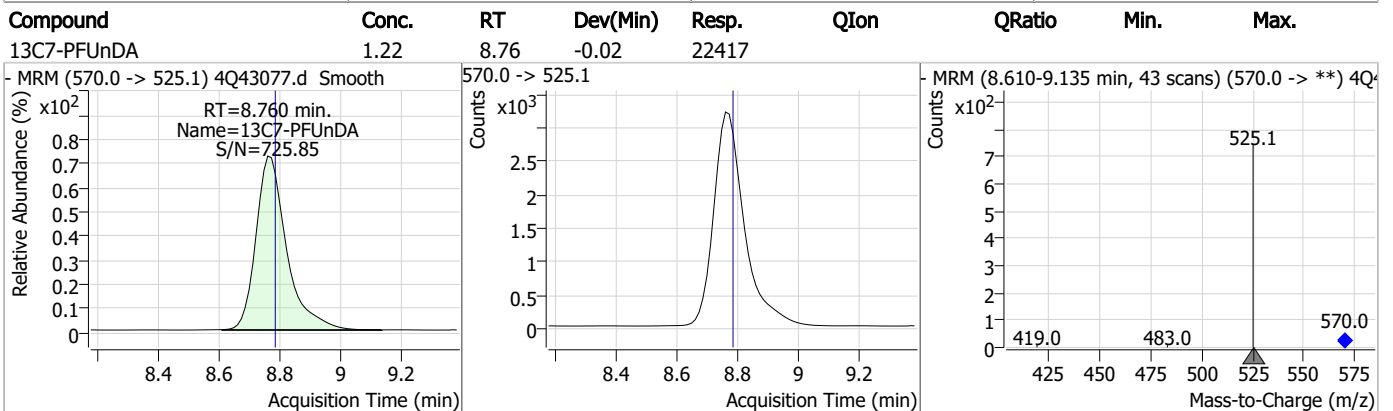
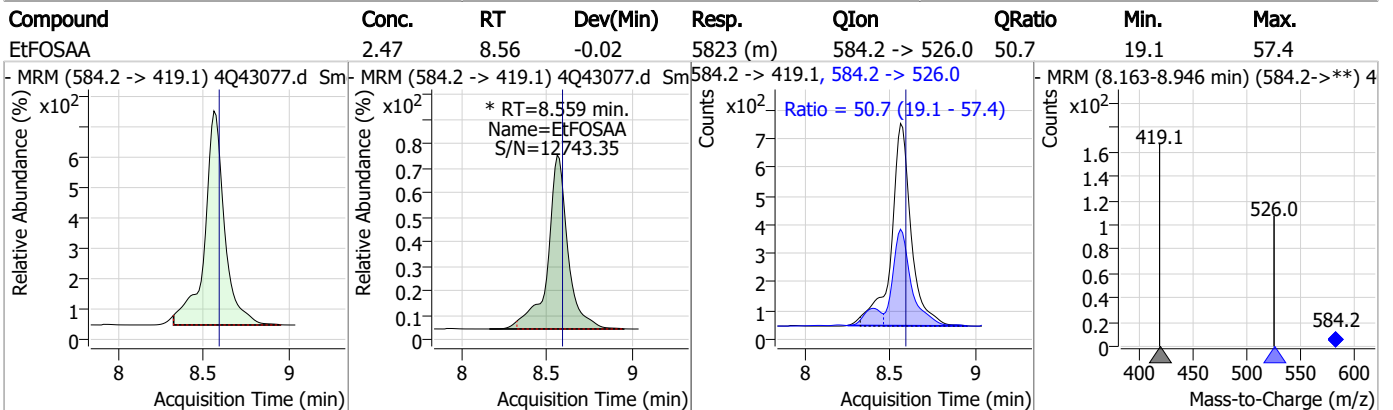
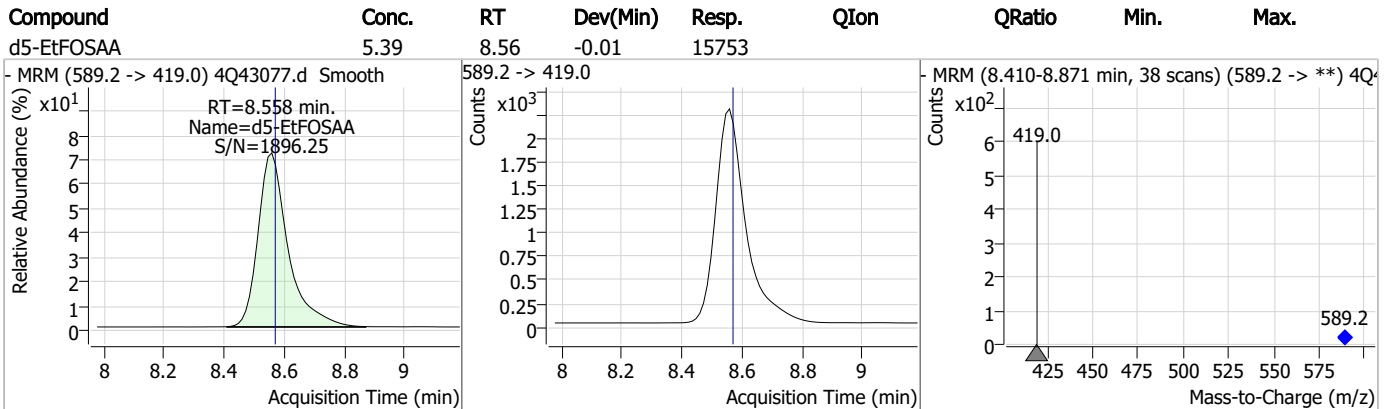
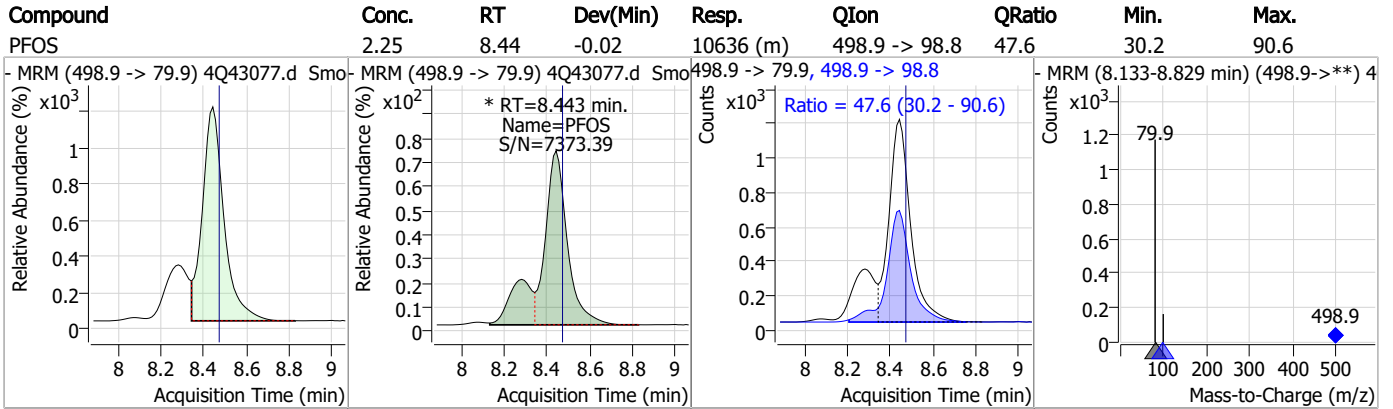
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.28	8.35	-0.01	6286 (m)	570.1 -> 483.0	21.6	7.8	23.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.57	8.44	-0.02	12163				

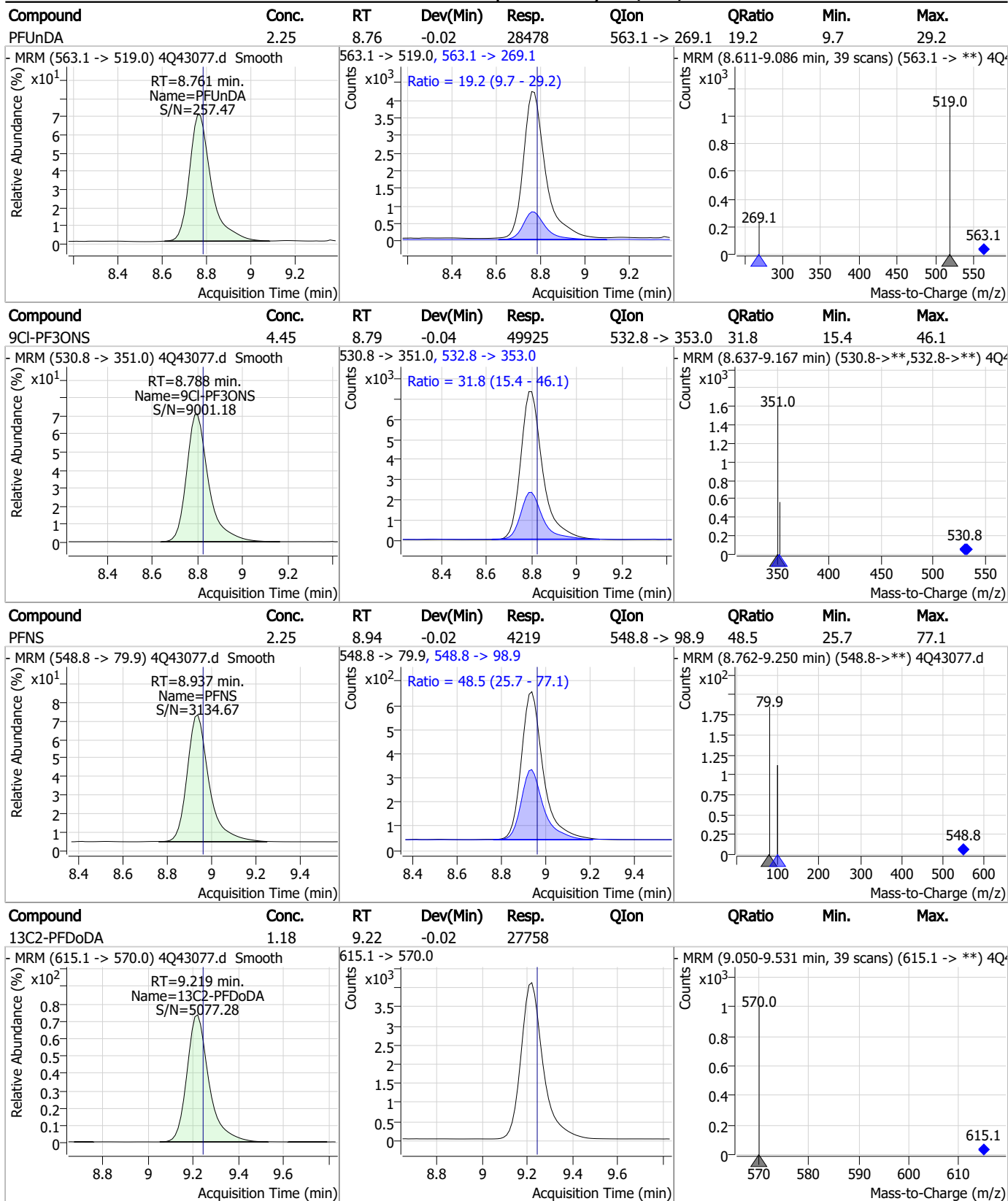


Perfluorinated Compounds by LC/MS/MS



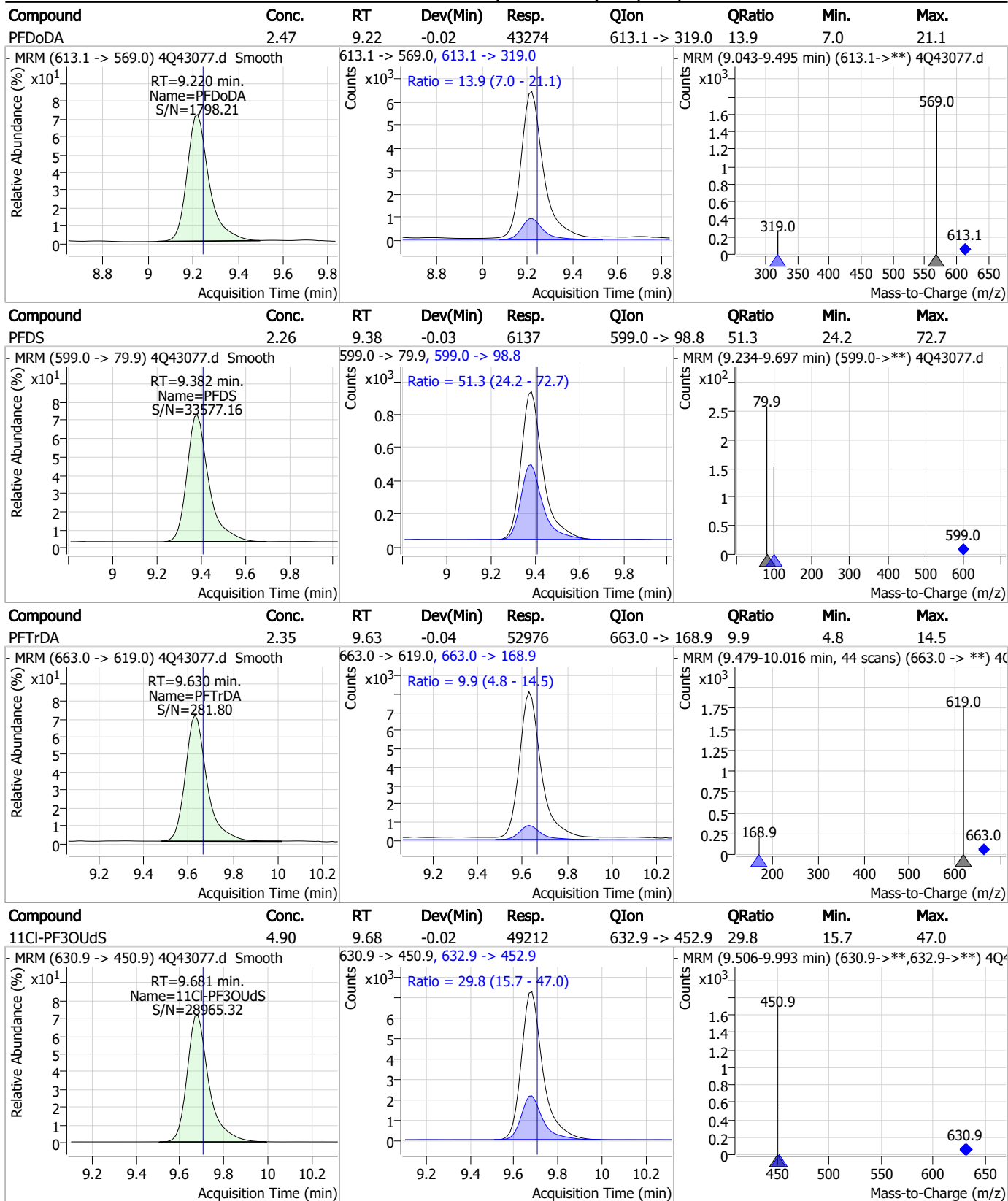
7.7.17

Perfluorinated Compounds by LC/MS/MS



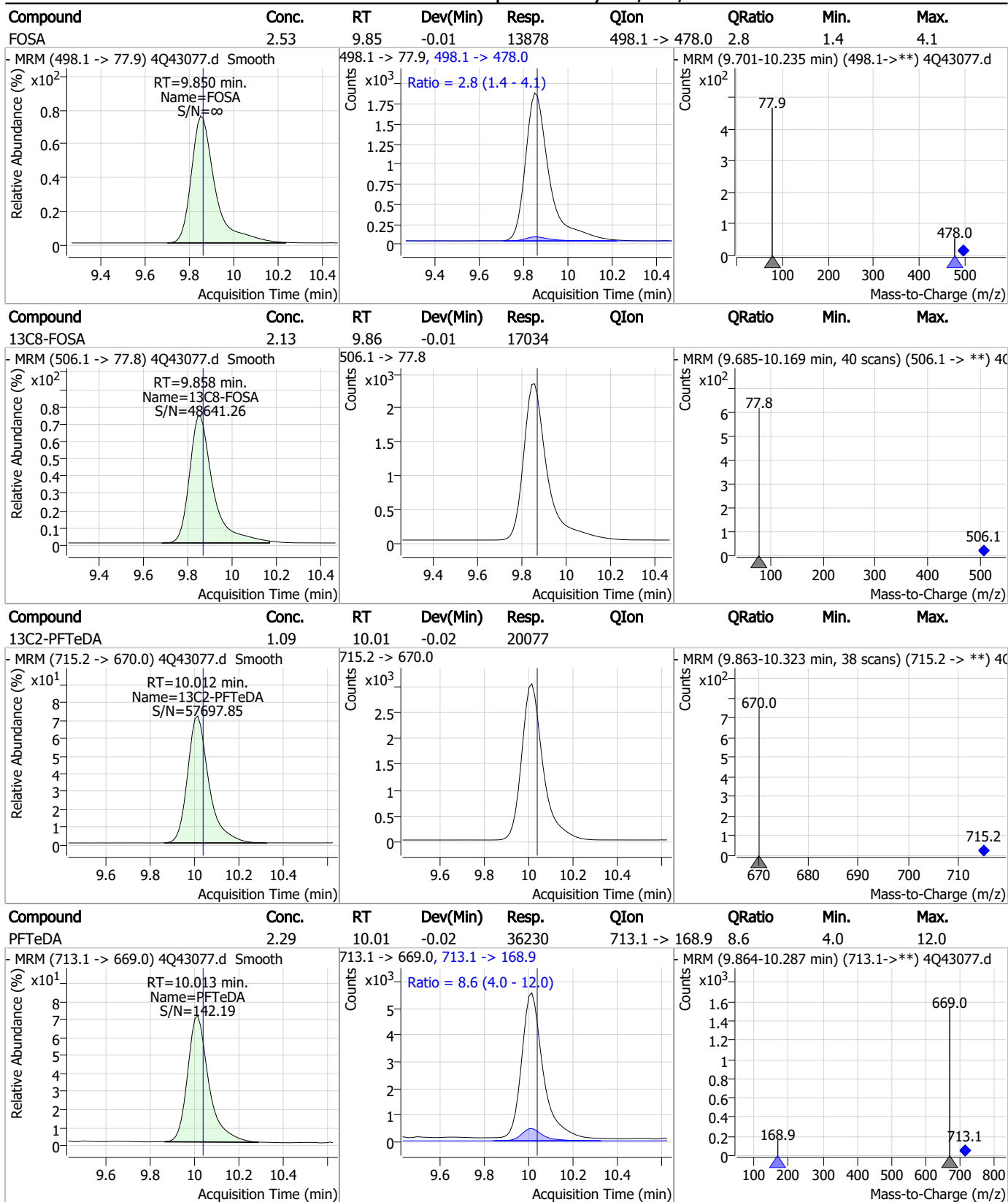
7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17

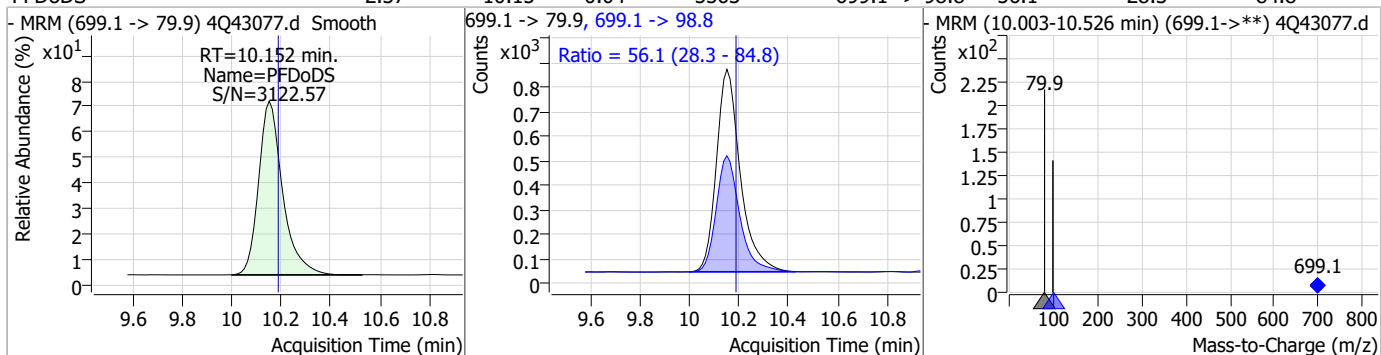
Perfluorinated Compounds by LC/MS/MS



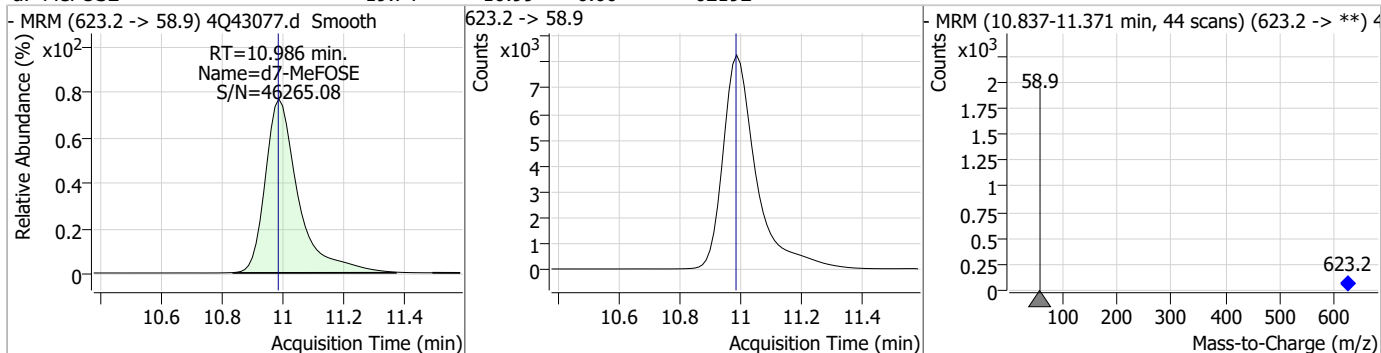
7.7.17

Perfluorinated Compounds by LC/MS/MS

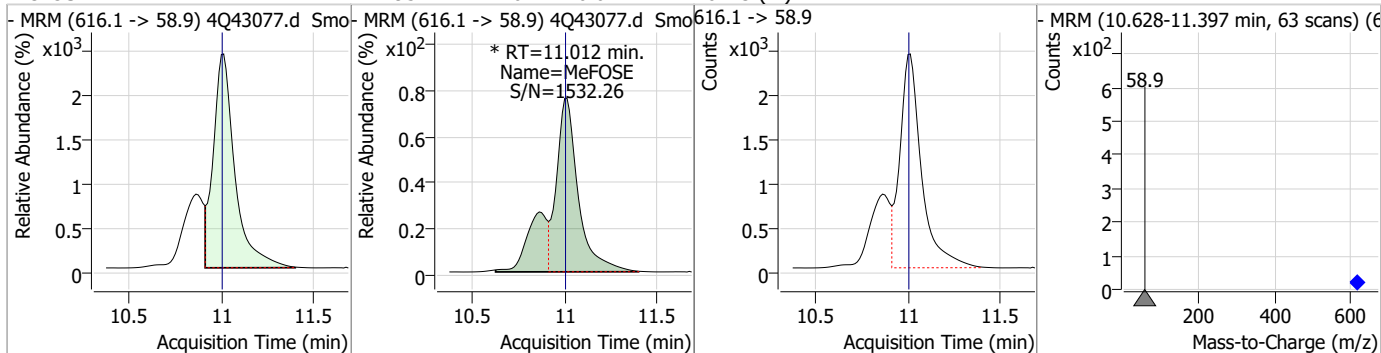
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.37	10.15	-0.04	5563	699.1 -> 98.8	56.1	28.3	84.8



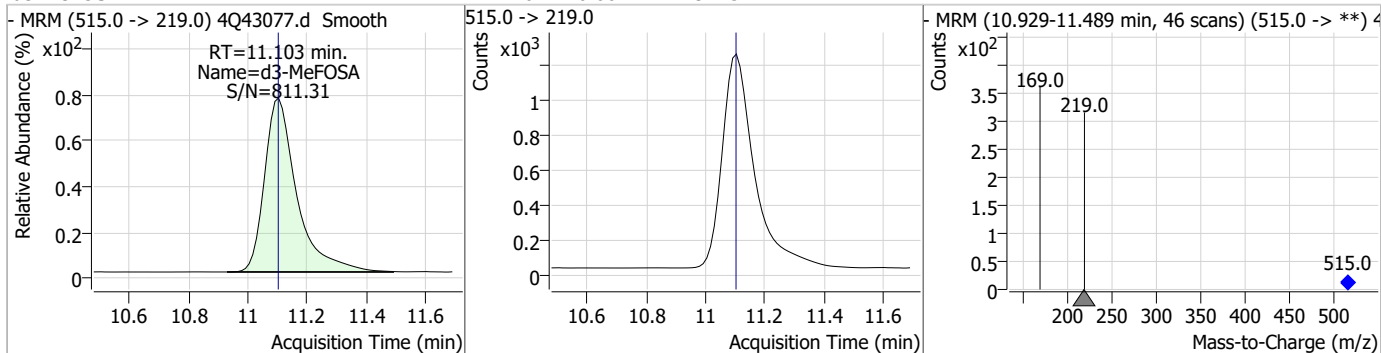
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.74	10.99	0.00	62192				



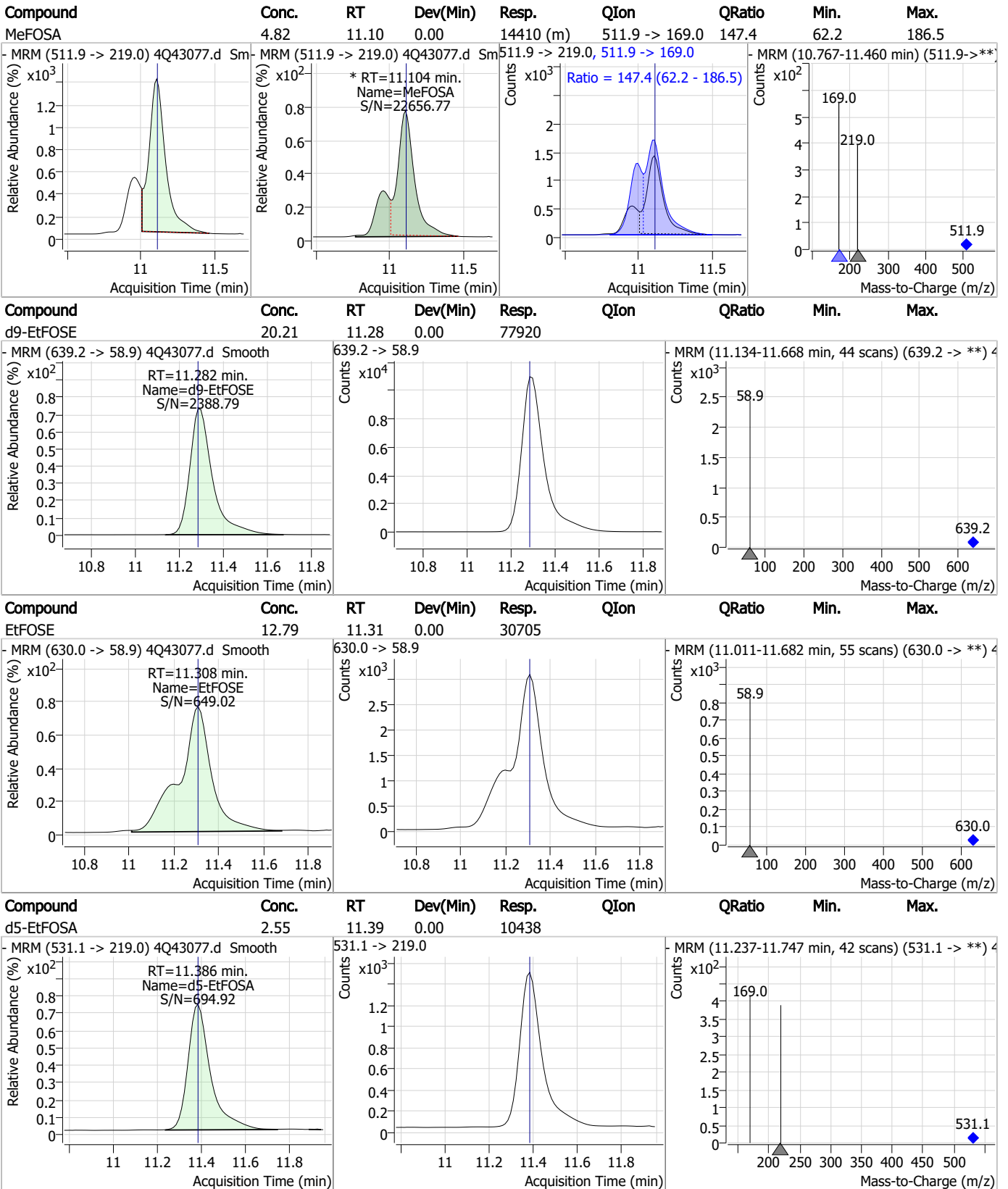
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.95	11.01	0.01	26113 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.44	11.10	0.00	9245				

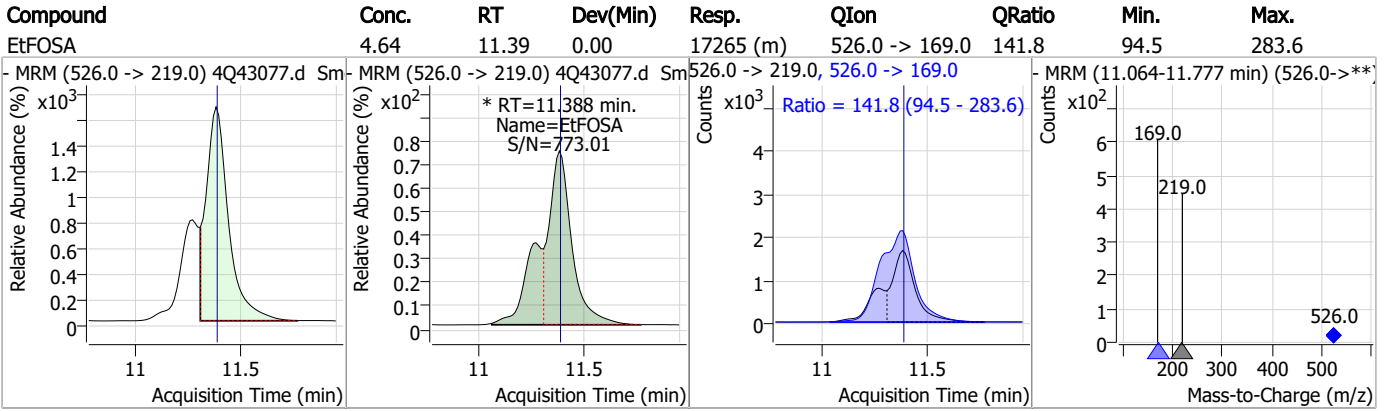


Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17
7

Manual Integration Approval Summary

Sample Number: S4Q622-ECC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43077.D Analyst approved: 04/17/23 15:01 Martha Valls
Injection Time: 04/15/23 21:25 Supervisor approved: 04/17/23 17:09 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
MeFOSAA	2355-31-9		8.35	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.44	Split peak
EtFOSAA	2991-50-6		8.56	Split peak
MeFOSE	24448-09-7		11.01	Split peak
MeFOSA	31506-32-8		11.10	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.17.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43149.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 11:26:32 AM
 Sample Name : cc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	131431	10.00 µg/L	0.000
M5-PFPeA	4.450	268.3 -> 223.0	77007	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	61637	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	32038	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	37708	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	21465	1.25 µg/L	0.000
M6-PFDA	8.266	519.1 -> 474.1	20061	1.25 µg/L	0.000
M7-PFUnDA	8.748	570.0 -> 525.1	22408	1.25 µg/L	0.000
M2-PFDoDA	9.194	615.1 -> 570.0	27252	1.25 µg/L	0.000
M2-PFTeDA	9.987	715.2 -> 670.0	19312	1.25 µg/L	0.000
M8-FOSA	9.834	506.1 -> 77.8	16484	2.50 µg/L	0.000
M3-PFBS	5.527	302.1 -> 79.9	13582	2.50 µg/L	0.000
M3-PFHxS	7.317	402.1 -> 79.9	8292	2.50 µg/L	0.000
M8-PFOS	8.417	507.1 -> 79.9	11830	2.50 µg/L	0.000
M2-4:2FTS	5.309	329.1 -> 80.9	1645	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	2756	5.00 µg/L	0.000
M2-8:2FTS	8.054	529.1 -> 80.9	4136	5.00 µg/L	0.000
M3-MeFOSAA	8.324	573.2 -> 419.0	18997	5.00 µg/L	0.000
M3-HFPO-DA	5.989	286.9 -> 168.9	38086	10.00 µg/L	0.000
M5-EtFOSAA	8.533	589.2 -> 419.0	14732	5.00 µg/L	0.000
M7-MeFOSE	10.974	623.2 -> 58.9	60614	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	75918	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9928	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	9515	2.50 µg/L	0.000
13C4-PFOS	8.418	502.8 -> 79.9	12080	2.50 µg/L	0.000
13C3-PFBA	2.966	216.0 -> 172.0	73315	5.00 µg/L	0.000
18O2-PFHxS	7.316	403.0 -> 83.9	5988	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	45562	2.50 µg/L	0.000
13C2-PFDA	8.267	515.1 -> 470.1	18679	1.25 µg/L	0.000
13C5-PFNA	7.759	468.0 -> 423.0	23741	1.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	51832	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.309	329.1 -> 80.9	1645	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2756	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C2-8:2FTS	8.054	529.1 -> 80.9	4136	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.1%		
13C2-PFDoDA	9.194	615.1 -> 570.0	27252	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C2-PFTeDA	9.987	715.2 -> 670.0	19312	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.3%		
13C3-PFBS	5.527	302.1 -> 79.9	13582	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFHxS	7.317	402.1 -> 79.9	8292	2.50 µg/L	0.000

7.7.18
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFBA	2.961	216.8 -> 171.9	131431	10.29 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFHpA	6.555	367.1 -> 322.0	32038	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C5-PFHxA	5.622	318.0 -> 273.0	61637	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C5-PFPeA	4.450	268.3 -> 223.0	77007	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.266	519.1 -> 474.1	20061	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C7-PFUnDA	8.748	570.0 -> 525.1	22408	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-FOSA	9.834	506.1 -> 77.8	16484	2.09 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.5%	
13C8-PFOA	7.214	421.1 -> 376.0	37708	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.417	507.1 -> 79.9	11830	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C9-PFNA	7.759	472.1 -> 427.0	21465	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSAA	8.324	573.2 -> 419.0	18997	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	38086	10.47 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSA	11.090	515.0 -> 219.0	9515	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
d5-EtFOSAA	8.533	589.2 -> 419.0	14732	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d7-MeFOSE	10.974	623.2 -> 58.9	60614	19.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.8%	
d9-EtFOSE	11.282	639.2 -> 58.9	75918	19.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	9928	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
Target Compounds					QValue
4:2FTS	5.310	327.1 -> 307.0	17151	8.37 µg/L	97
		327.1 -> 80.9	7498		
6:2FTS	6.974	427.1 -> 407.0	14418	7.66 µg/L	97
		427.1 -> 80.9	6255		
8:2FTS	8.054	527.1 -> 507.0	16338	8.81 µg/L	95
		527.1 -> 80.8	6672		
EtFOSAA	8.547	584.2 -> 419.1	4772	2.17 µg/L	90
		584.2 -> 526.0	2572		
FOSA	9.837	498.1 -> 77.9	11064	2.08 µg/L	99
		498.1 -> 478.0	315		
MeFOSAA	8.325	570.1 -> 419.0	5095	1.95 µg/L	m 97
		570.1 -> 483.0	1231		
PFBA	2.957	212.8 -> 168.9	23320	7.77 µg/L	100
PFBS	5.528	298.7 -> 79.9	9449	1.86 µg/L	96
		298.7 -> 98.8	3569		
PFDA	8.267	512.9 -> 469.0	25992	2.27 µg/L	97
		512.9 -> 219.0	4776		
PFDODA	9.195	613.1 -> 569.0	35169	2.05 µg/L	99
		613.1 -> 319.0	4962		
PFDS	9.358	599.0 -> 79.9	4941	1.87 µg/L	96

7.7.18
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2554			
PFHpA	6.555	363.1 -> 319.0	32748	2.05	µg/L	99
		363.1 -> 169.0	6015			
PFHpS	7.900	449.0 -> 79.9	6321	2.05	µg/L	98
		449.0 -> 98.9	3262			
PFHxA	5.625	313.0 -> 269.0	37602	2.06	µg/L	99
		313.0 -> 118.9	1074			
PFHxS	7.318	398.7 -> 79.9	5359	1.89	µg/L	m 96
		398.7 -> 98.9	2575			
PFNA	7.760	463.0 -> 419.0	23290	2.03	µg/L	99
		463.0 -> 219.0	5906			
PFNS	8.912	548.8 -> 79.9	3657	2.01	µg/L	97
		548.8 -> 98.9	1894			
PFOA	7.215	413.0 -> 369.0	35809	2.03	µg/L	98
		413.0 -> 169.0	7173			
PFOS	8.419	498.9 -> 79.9	8889	1.93	µg/L	m 98
		498.9 -> 98.8	4106			
PFPeA	4.452	263.0 -> 219.0	63363	4.35	µg/L	100
PFPeS	6.595	349.1 -> 79.9	4751	1.96	µg/L	99
		349.1 -> 98.9	2170			
PFTeDA	9.988	713.1 -> 669.0	31253	2.06	µg/L	98
		713.1 -> 168.9	2577			
PFTrDA	9.617	663.0 -> 619.0	43017	1.94	µg/L	100
		663.0 -> 168.9	4346			
PFUnDA	8.748	563.1 -> 519.0	24185	1.91	µg/L	95
		563.1 -> 269.1	5045			
11CI-PF3OUdS	9.656	630.9 -> 450.9	48907	4.92	µg/L	100
		632.9 -> 452.9	14940			
9CI-PF3ONS	8.775	530.8 -> 351.0	50402	4.54	µg/L	99
		532.8 -> 353.0	15332			
ADONA	6.806	376.9 -> 250.9	112748	4.93	µg/L	99
		376.9 -> 84.8	30034			
HFPO-DA	5.990	284.9 -> 168.9	15034	4.98	µg/L	98
		284.9 -> 184.9	1850			
3:3FTCA	3.917	241.0 -> 177.0	8791	12.94	µg/L	99
		241.0 -> 117.0	804			
5:3FTCA	6.308	341.0 -> 237.1	168544	65.41	µg/L	99
		341.0 -> 217.0	118275			
7:3FTCA	7.749	441.0 -> 316.9	67527	63.94	µg/L	98
		441.0 -> 336.9	154485			
EtFOSA	11.375	526.0 -> 219.0	18490	5.23	µg/L	m 100
		526.0 -> 169.0	24947			
EtFOSE	11.295	630.0 -> 58.9	30099	12.86	µg/L	100
MeFOSA	11.092	511.9 -> 219.0	15091	4.91	µg/L	m 99
		511.9 -> 169.0	22086			
MeFOSE	11.000	616.1 -> 58.9	26158	12.28	µg/L	m 100
PFDoDS	10.140	699.1 -> 79.9	4257	1.86	µg/L	98
		699.1 -> 98.8	2466			
NFDHA	5.504	295.0 -> 201.0	6902	5.63	µg/L	94
		295.0 -> 84.9	1593			
PFMBA	4.853	279.0 -> 85.1	42913	5.15	µg/L	100
PFMPA	3.578	229.0 -> 84.9	38117	5.23	µg/L	100
PFEESA	6.059	314.8 -> 134.9	68663	4.48	µg/L	100
		314.8 -> 82.9	2257			

= Qualifier out of range, m = manually integrated, + = Area summed



7.7.18
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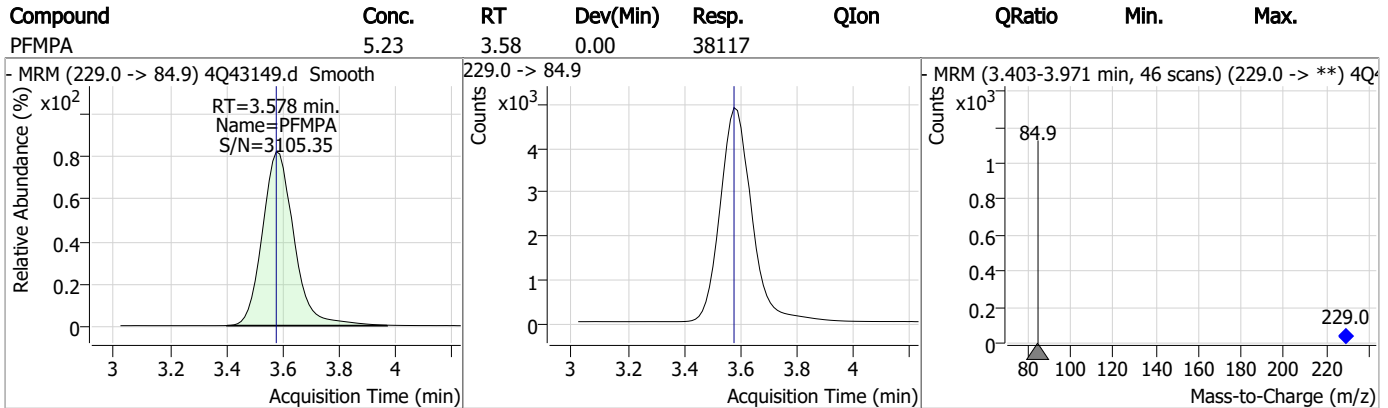
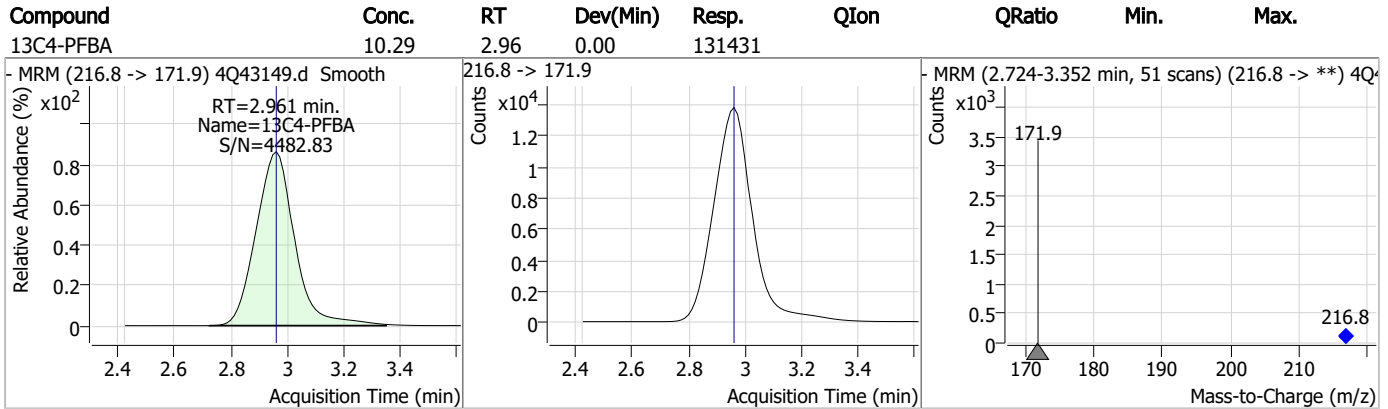
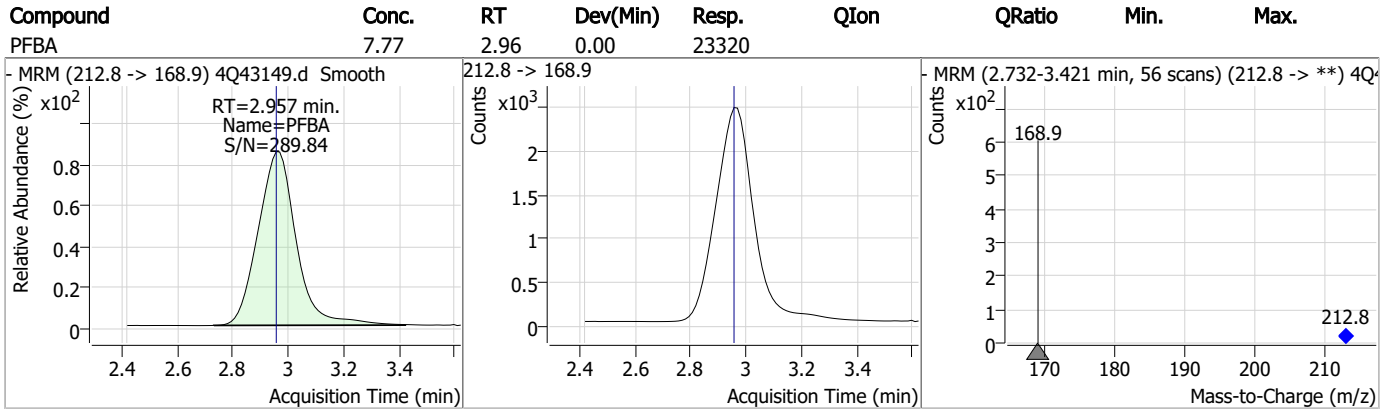
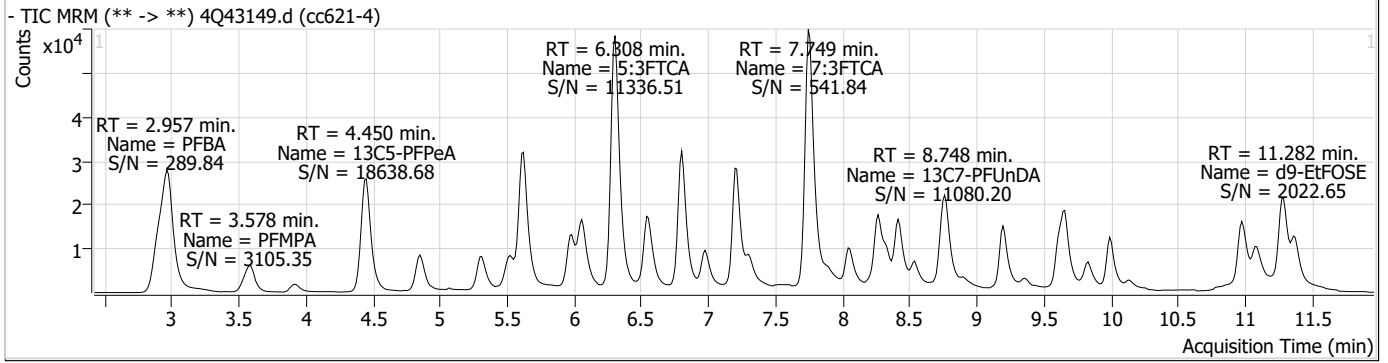
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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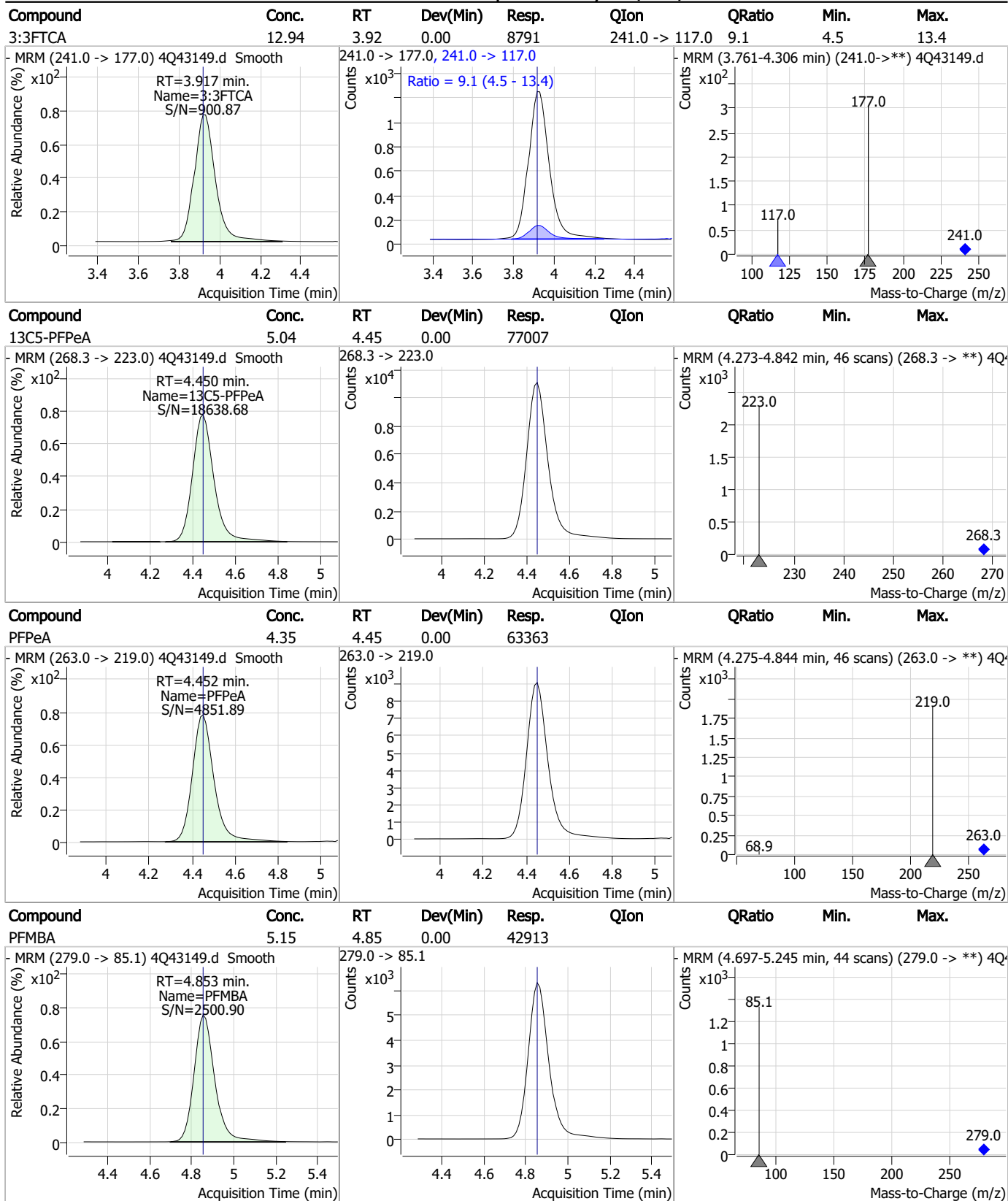
7.7.18

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Perfluorinated Compounds by LC/MS/MS



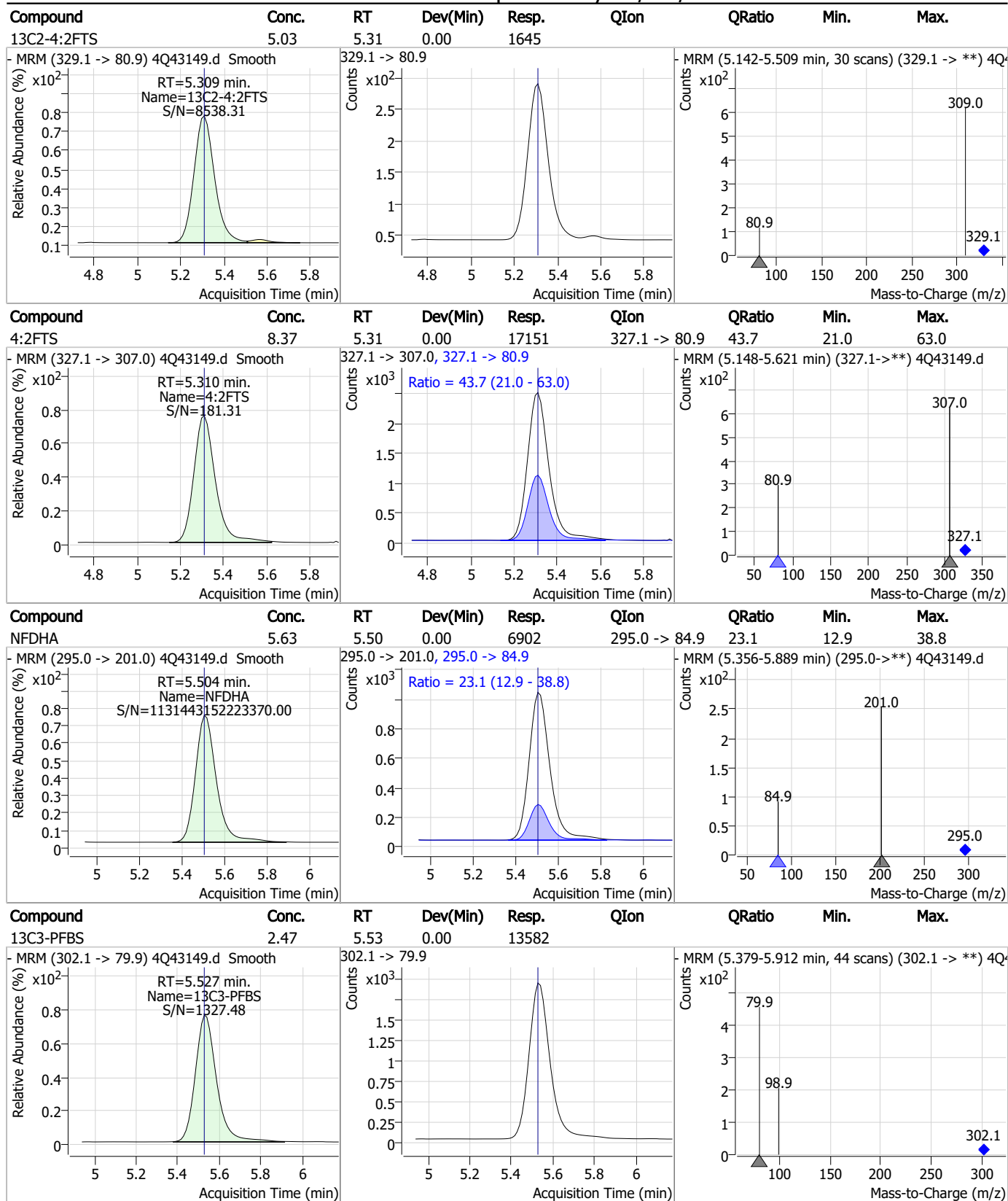
Perfluorinated Compounds by LC/MS/MS



7.7.18



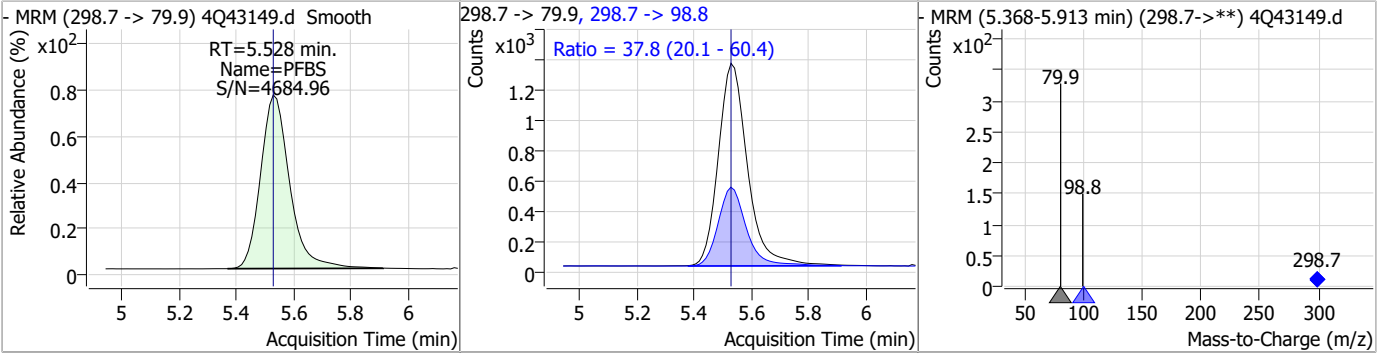
Perfluorinated Compounds by LC/MS/MS



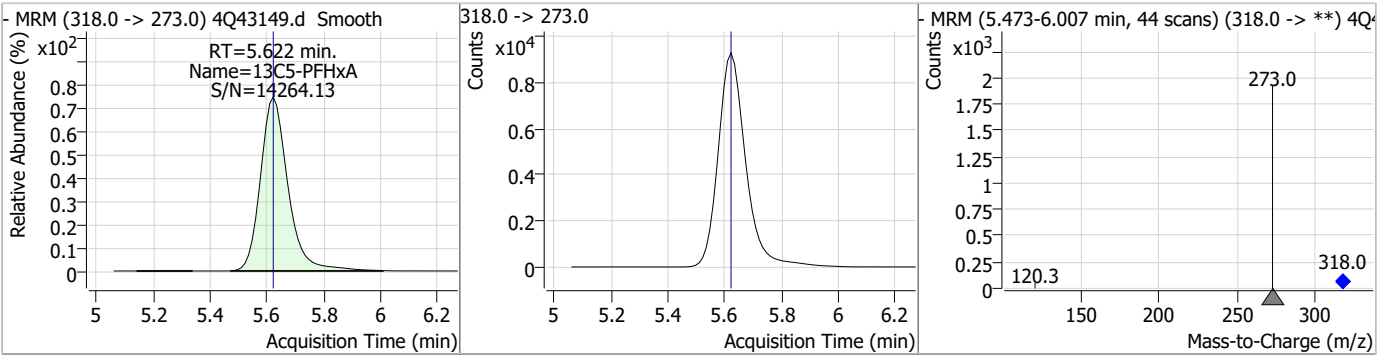
7.7.18
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Perfluorinated Compounds by LC/MS/MS

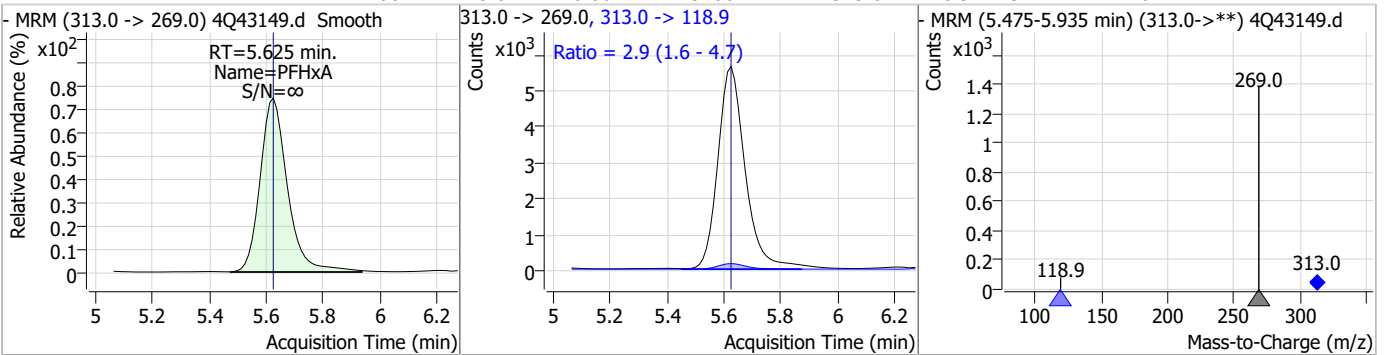
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.86	5.53	0.00	9449	298.7 -> 98.8	37.8	20.1	60.4



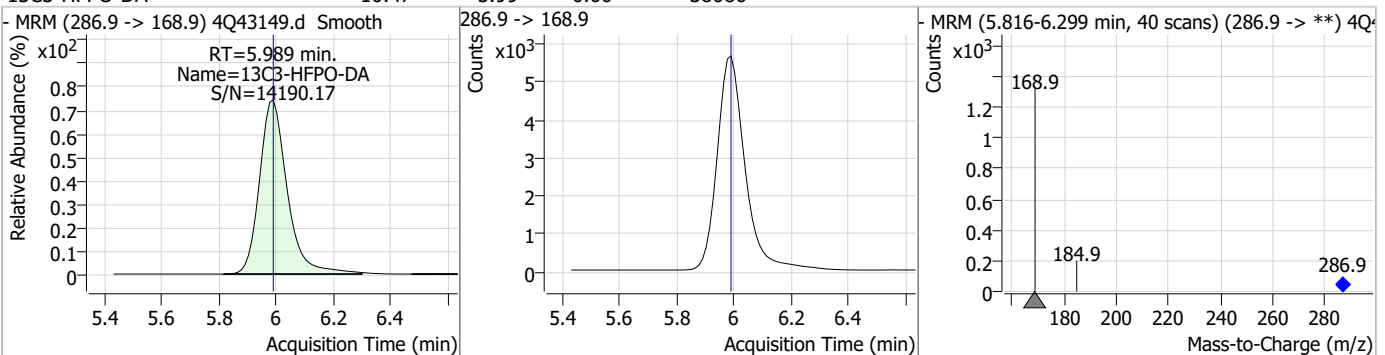
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.62	0.00	61637				



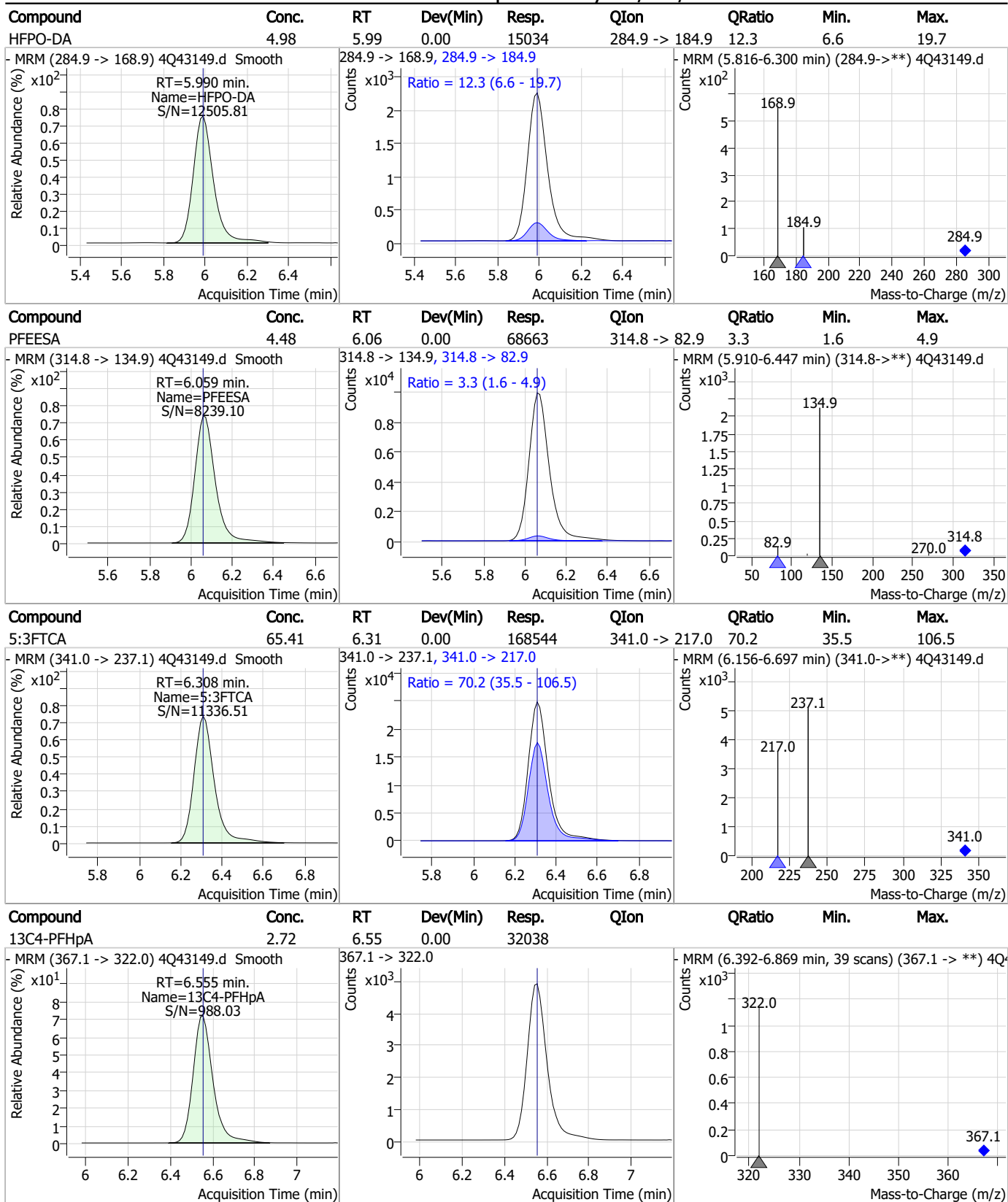
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.06	5.62	0.00	37602	313.0 -> 118.9	2.9	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.47	5.99	0.00	38086				



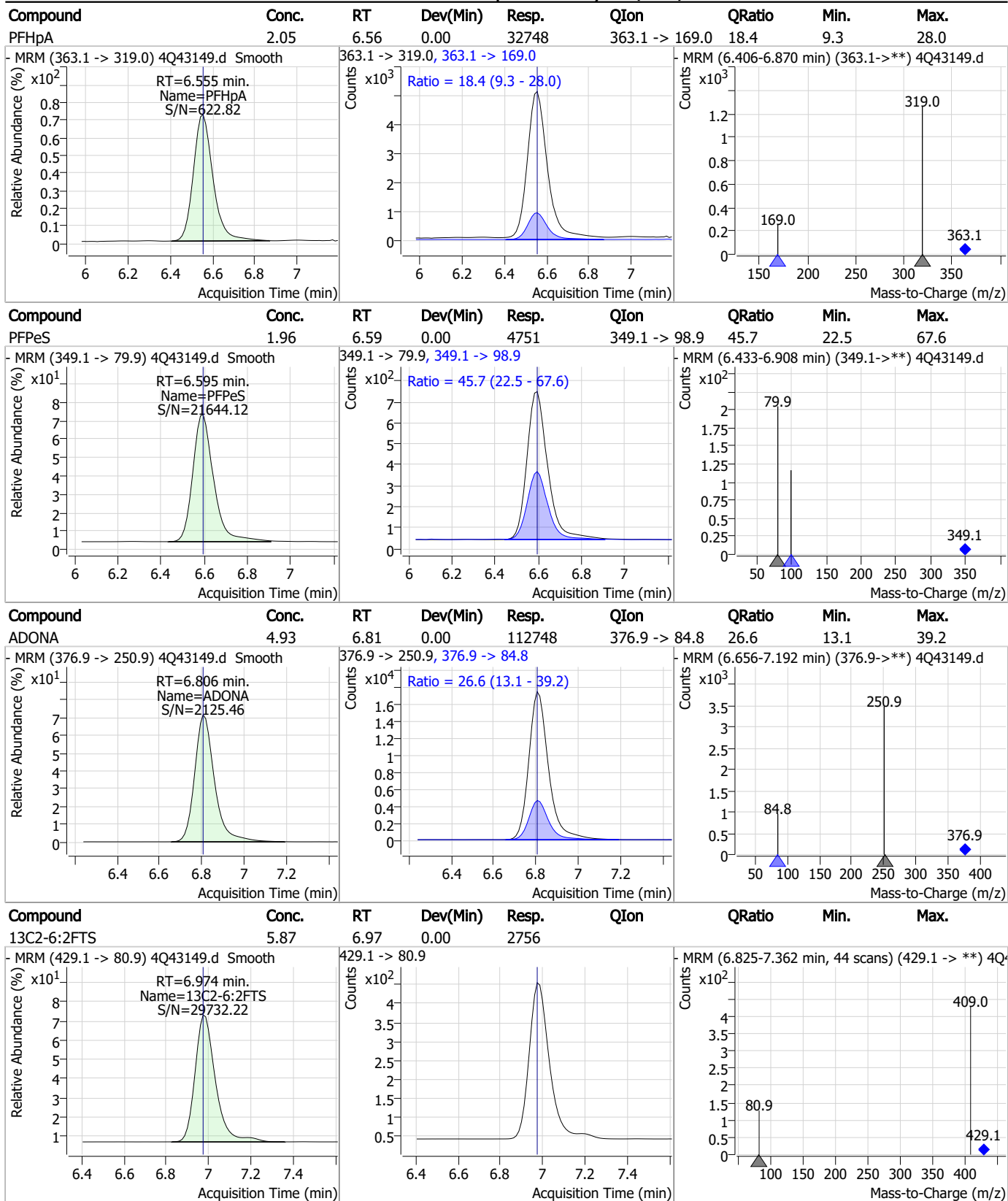
Perfluorinated Compounds by LC/MS/MS



7.7.18 7



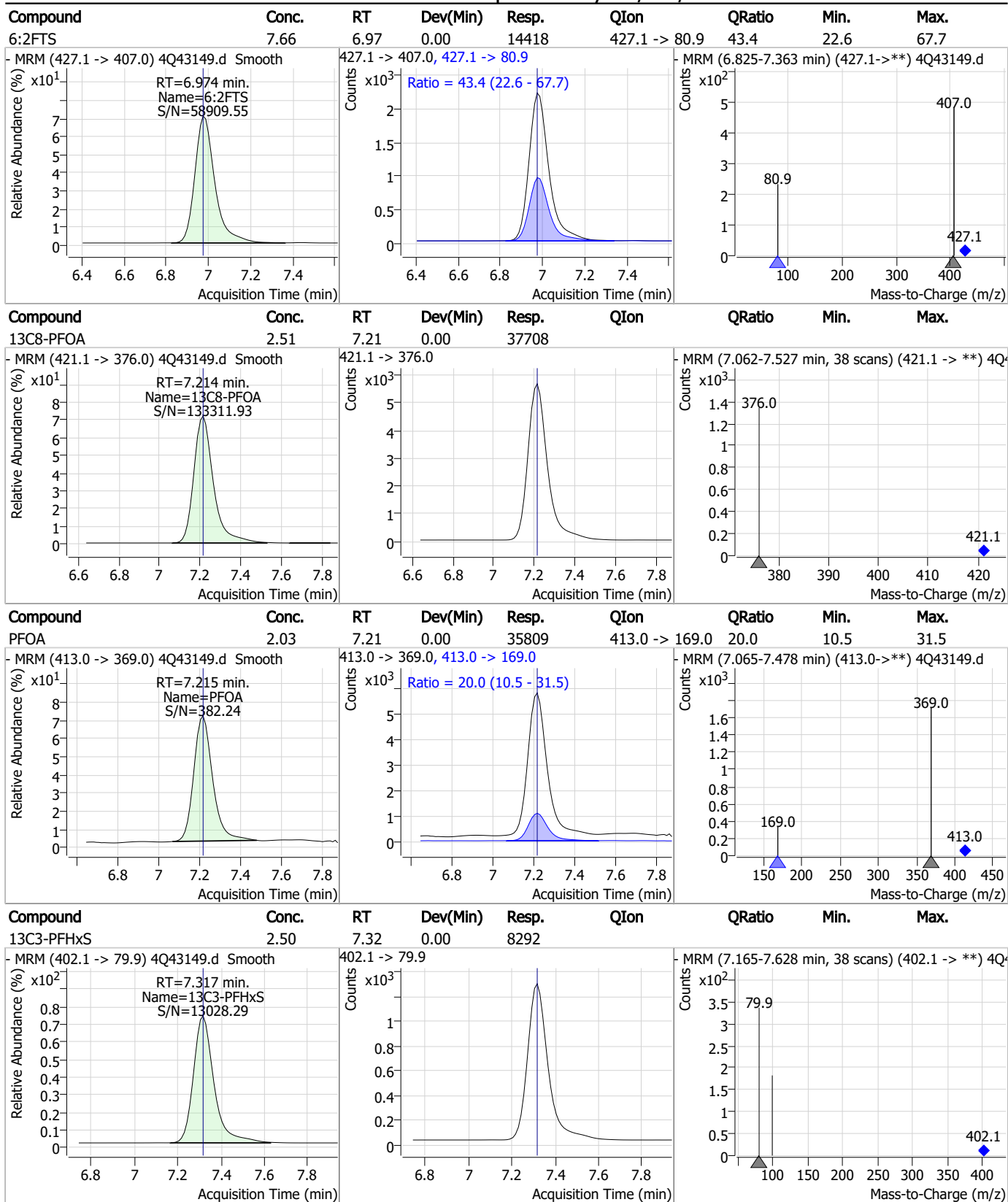
Perfluorinated Compounds by LC/MS/MS



7.7.18
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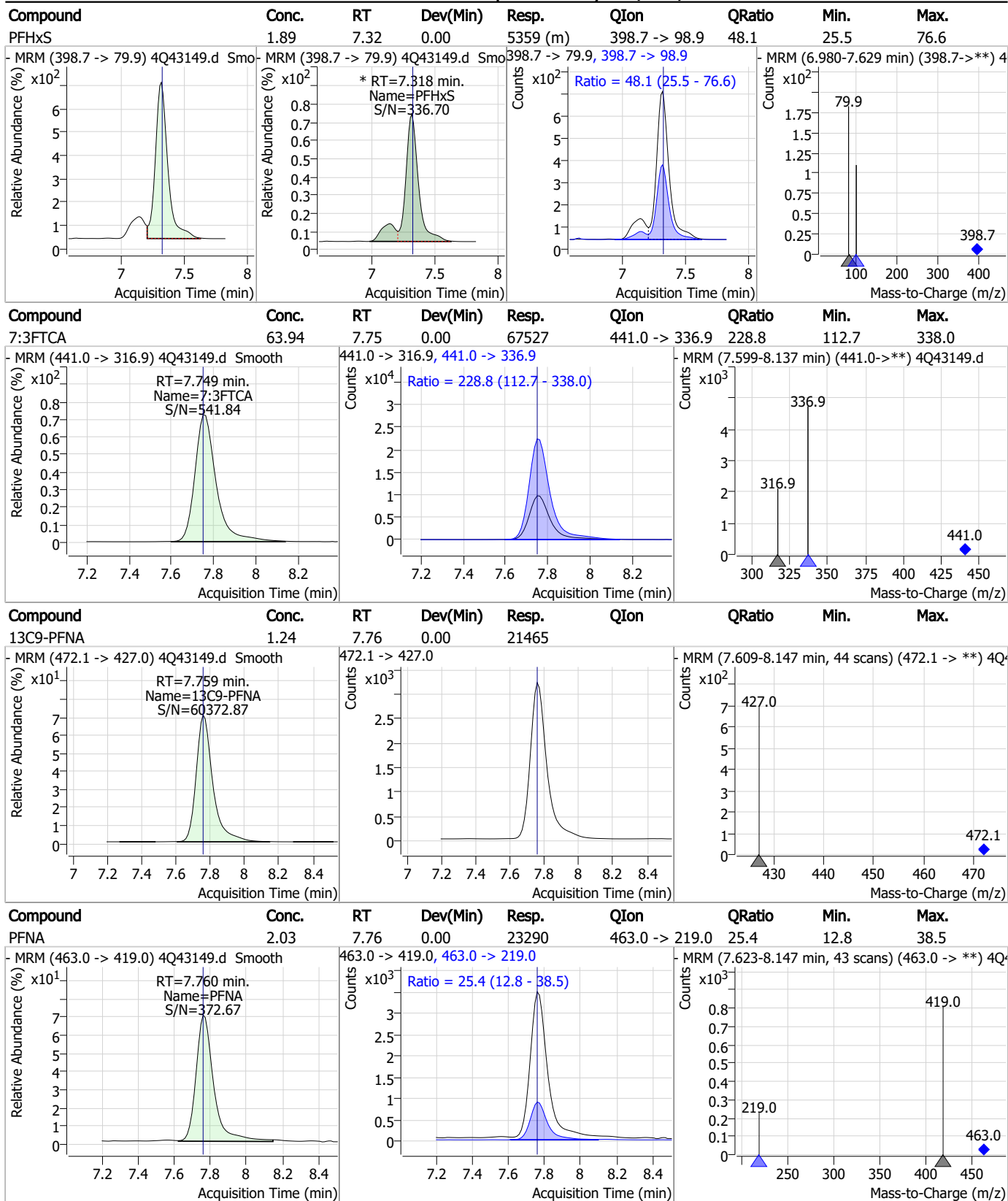


Perfluorinated Compounds by LC/MS/MS



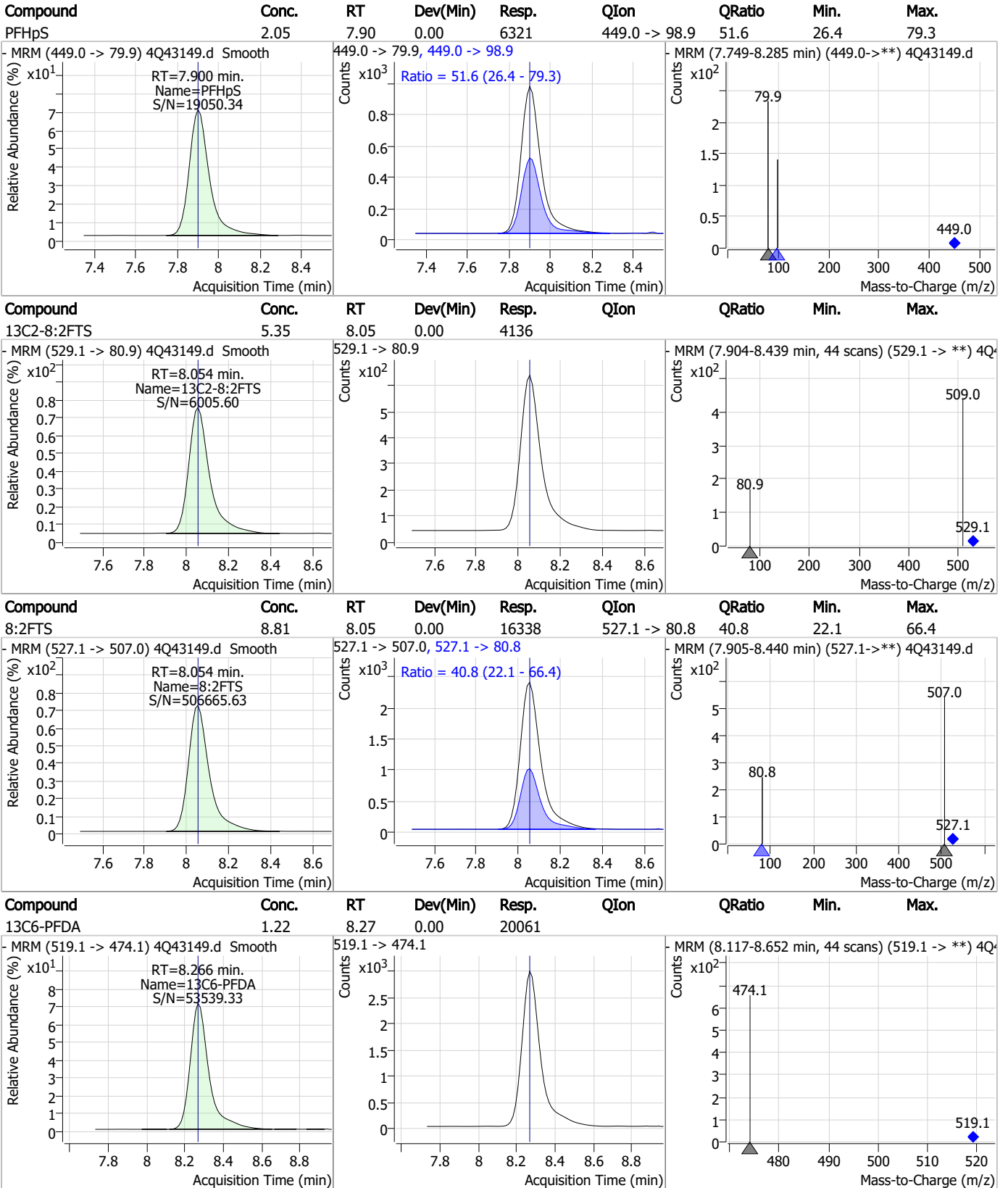
7.7.18
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Perfluorinated Compounds by LC/MS/MS



7.7.18
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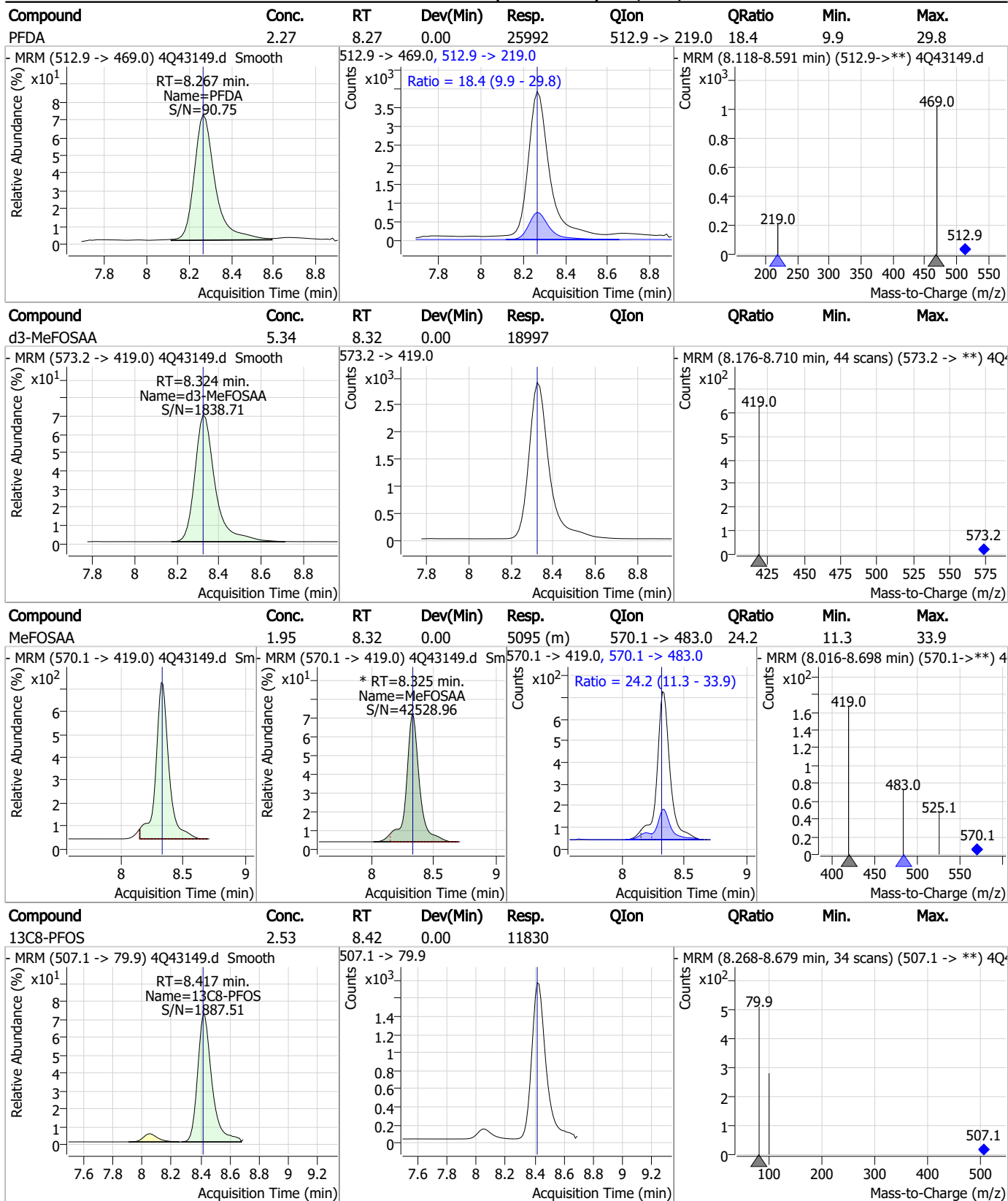
Perfluorinated Compounds by LC/MS/MS



7.7.18 7



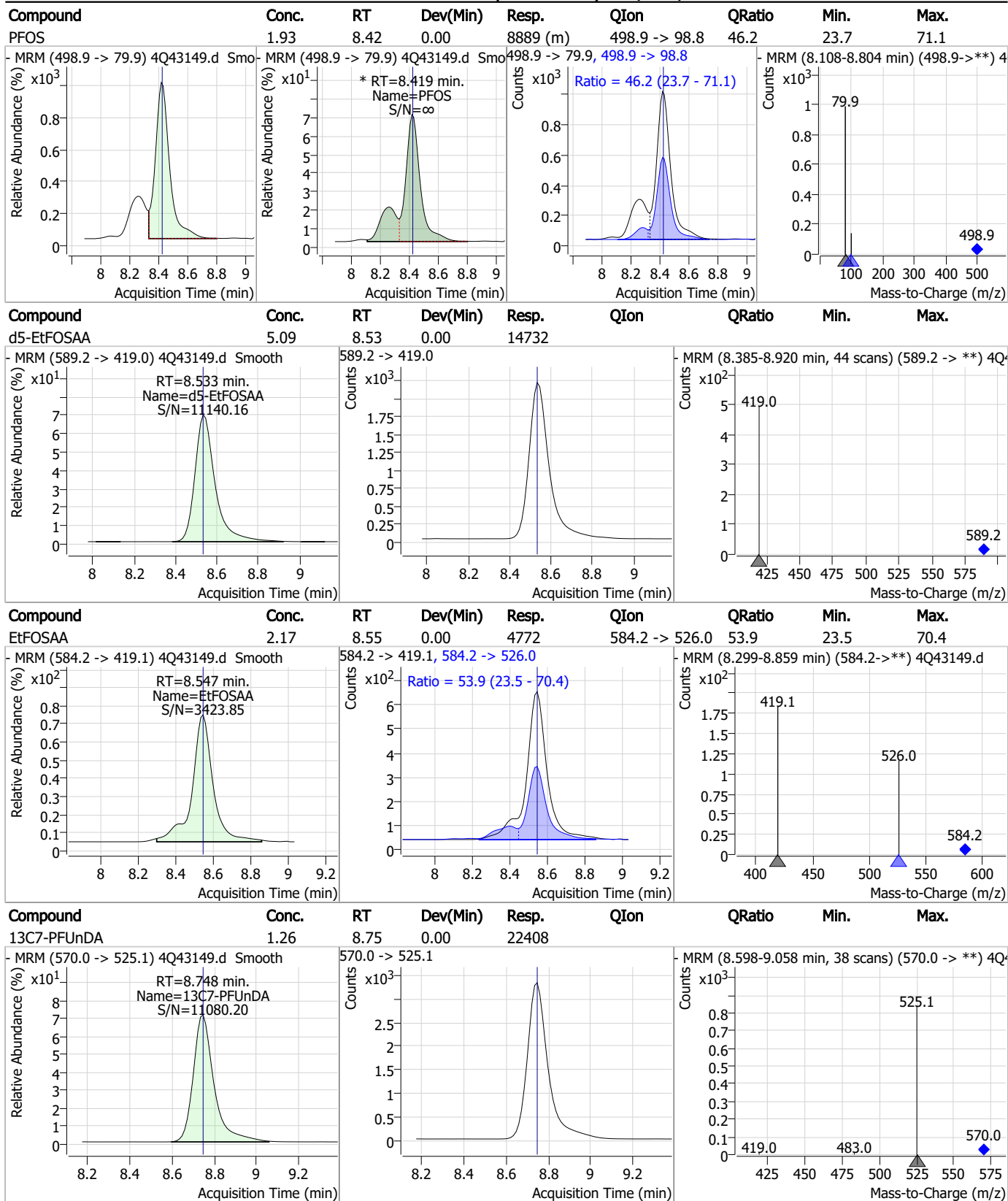
Perfluorinated Compounds by LC/MS/MS



7.7.18
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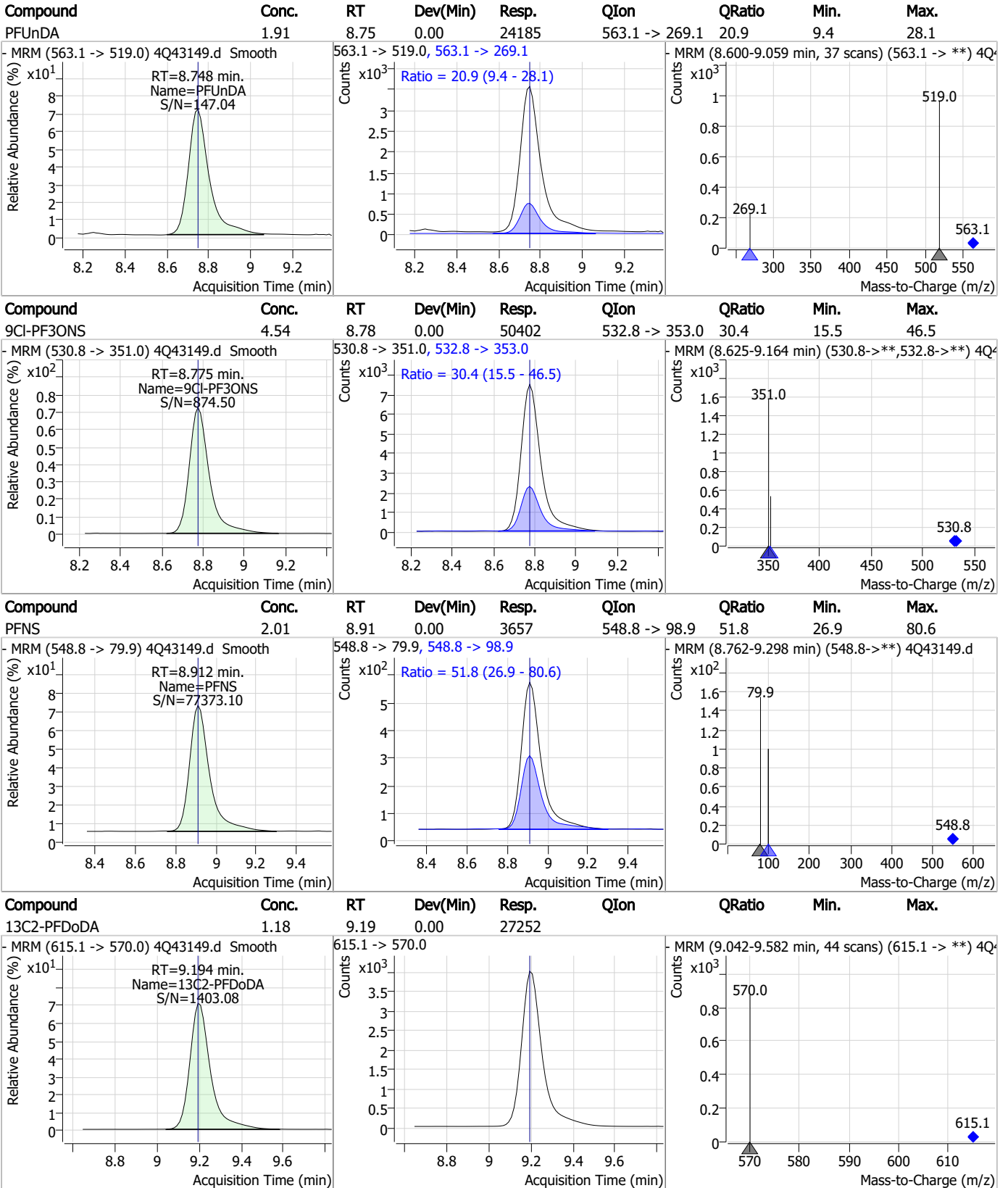


Perfluorinated Compounds by LC/MS/MS



7.7.18
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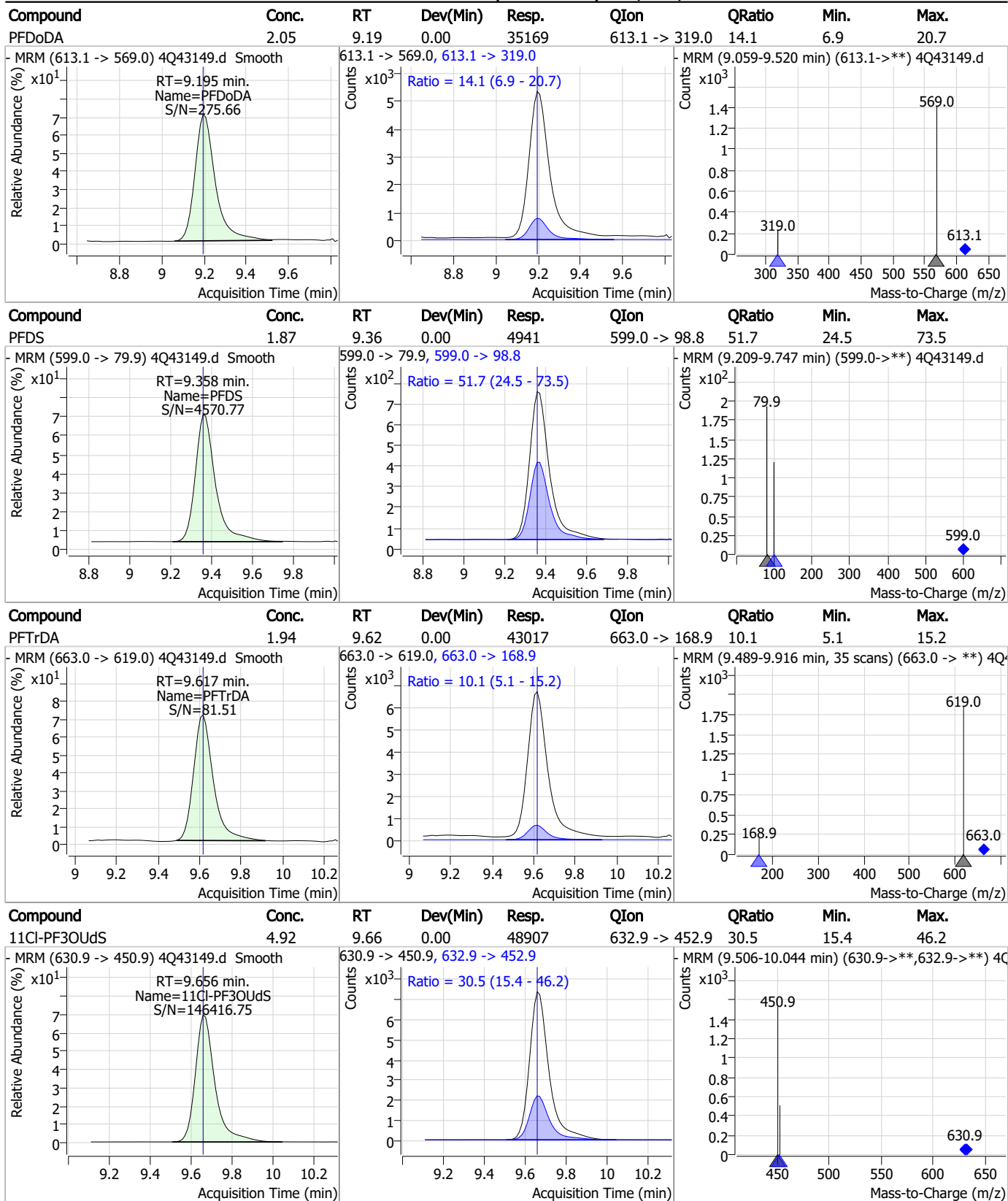
Perfluorinated Compounds by LC/MS/MS



7.7.18 7

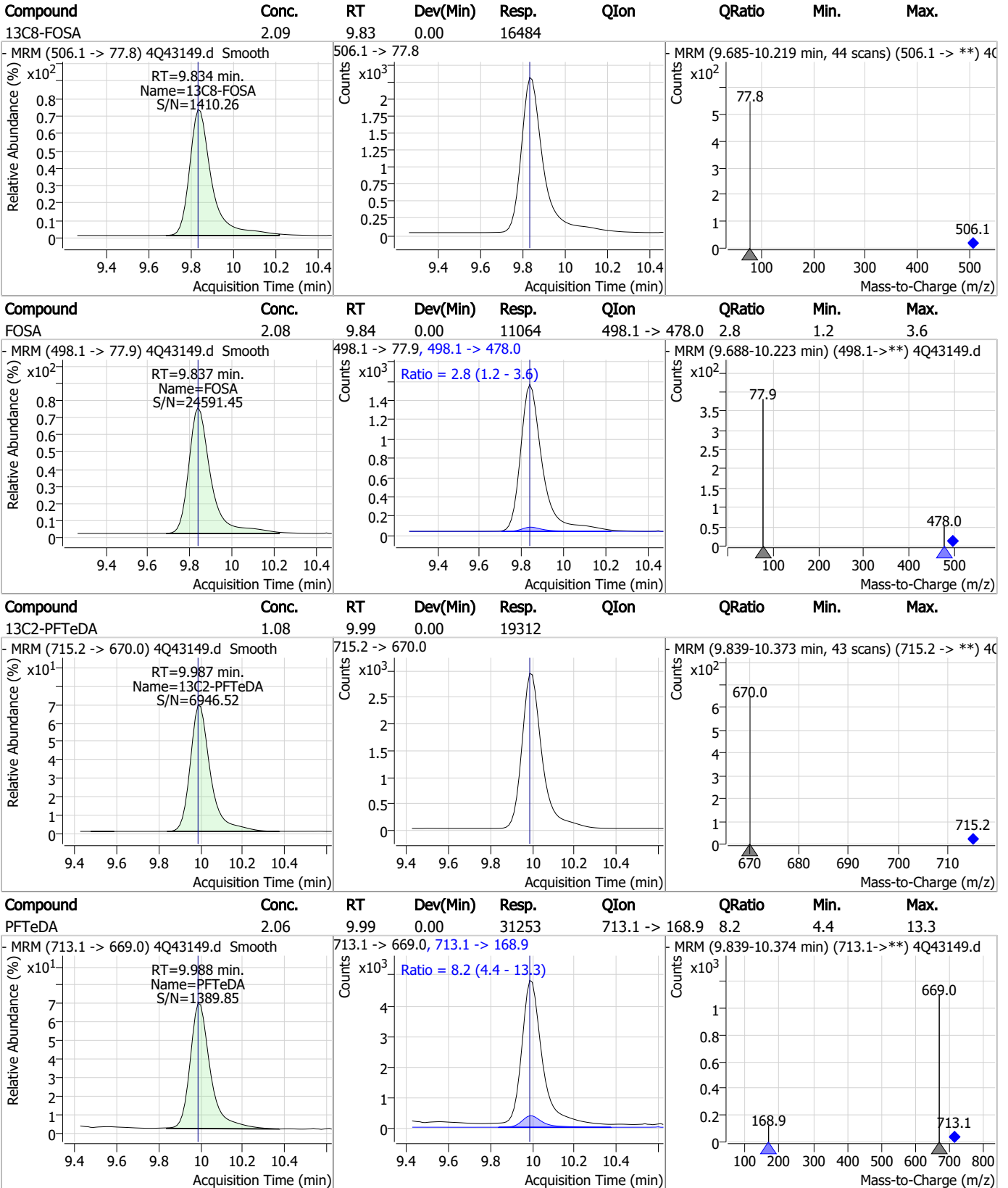


Perfluorinated Compounds by LC/MS/MS



7.7.18
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Perfluorinated Compounds by LC/MS/MS

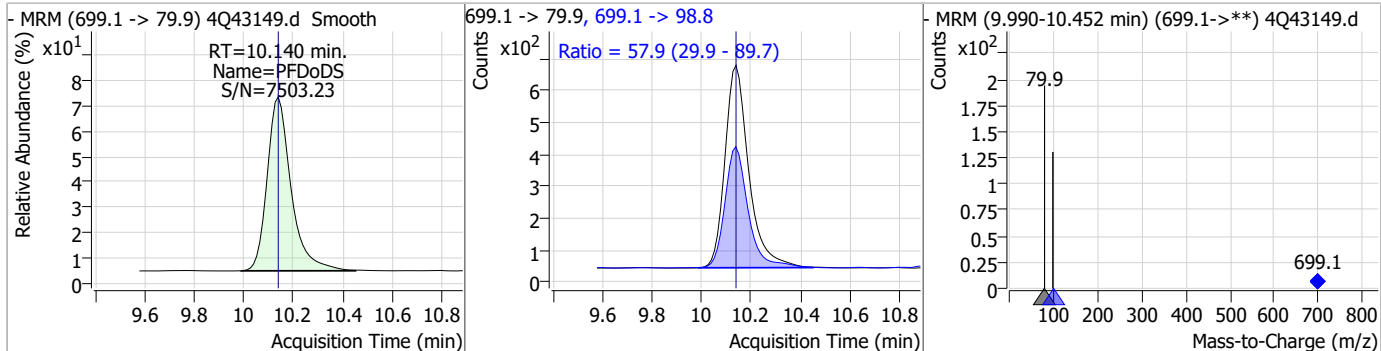


7.7.18 7

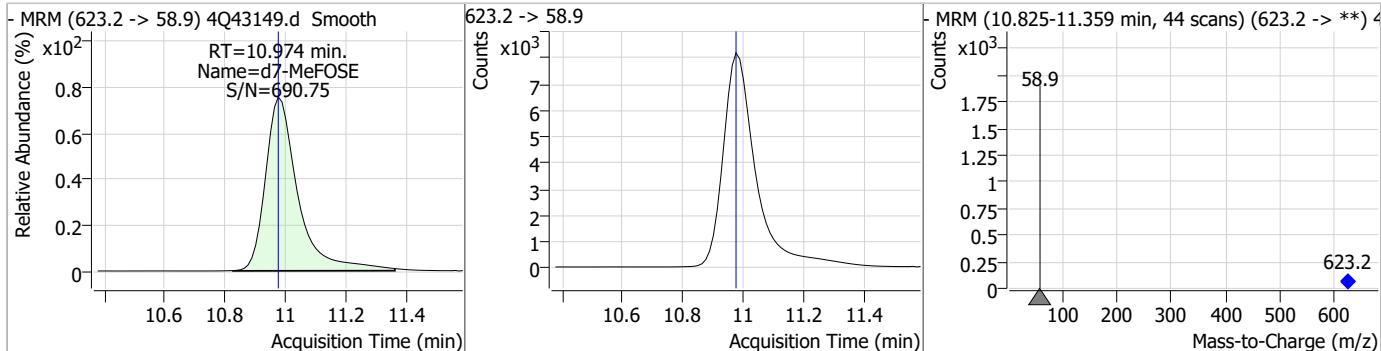


Perfluorinated Compounds by LC/MS/MS

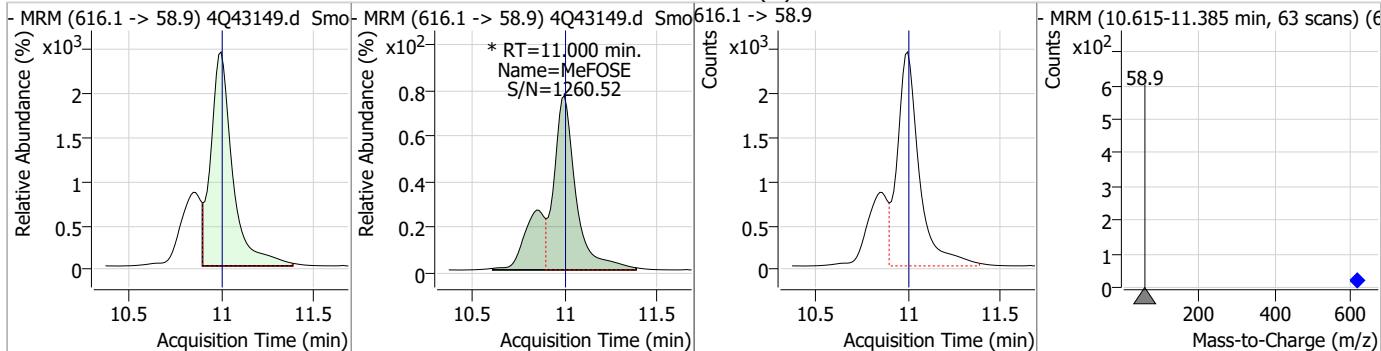
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	1.86	10.14	0.00	4257	699.1 -> 98.8	57.9	29.9	89.7



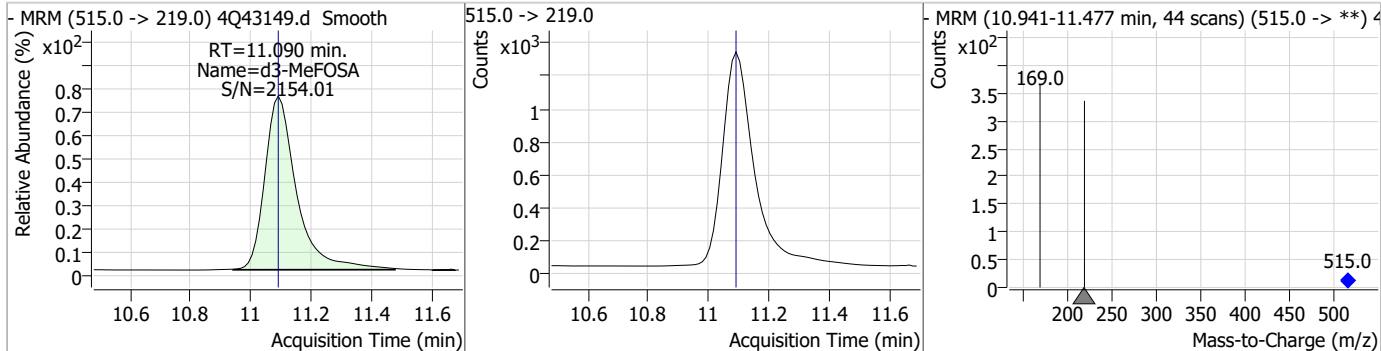
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.46	10.97	0.00	60614				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.28	11.00	0.00	26158 (m)				

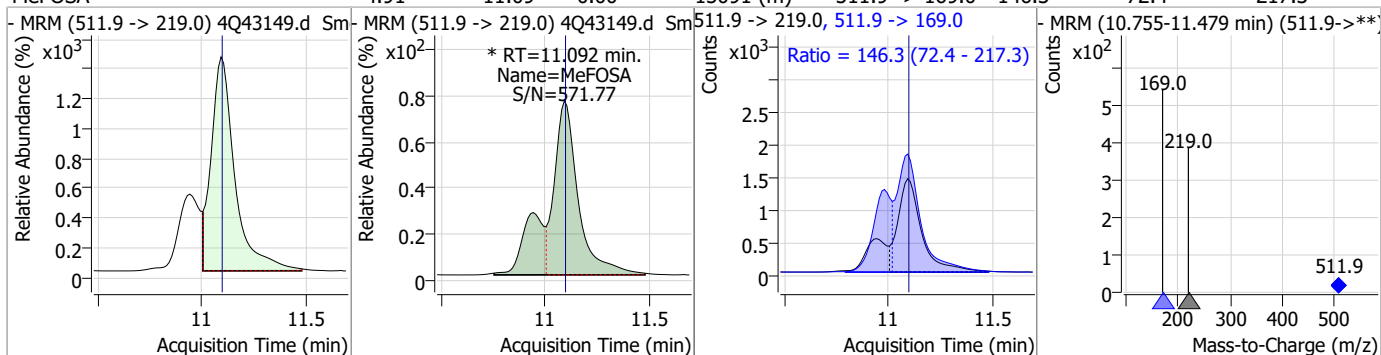


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.54	11.09	0.00	9515				

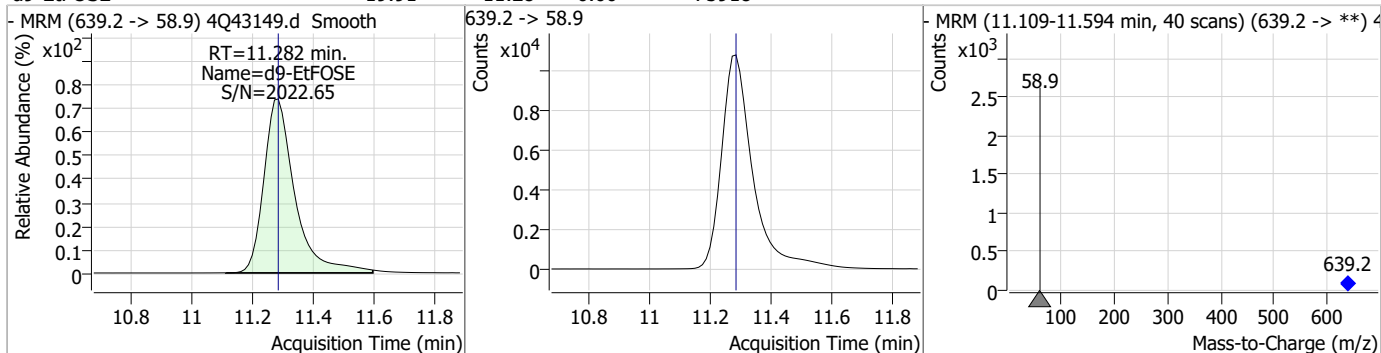


Perfluorinated Compounds by LC/MS/MS

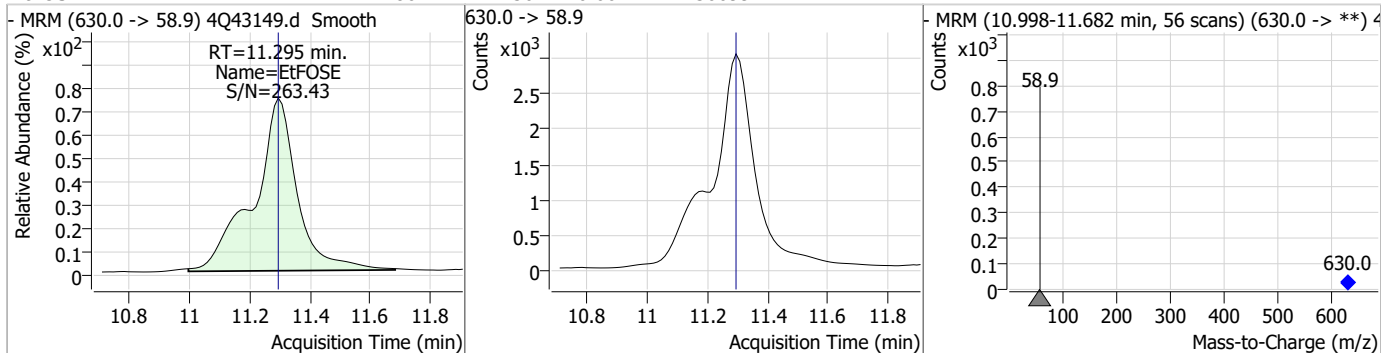
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.91	11.09	0.00	15091 (m)	511.9 -> 169.0	146.3	72.4	217.3



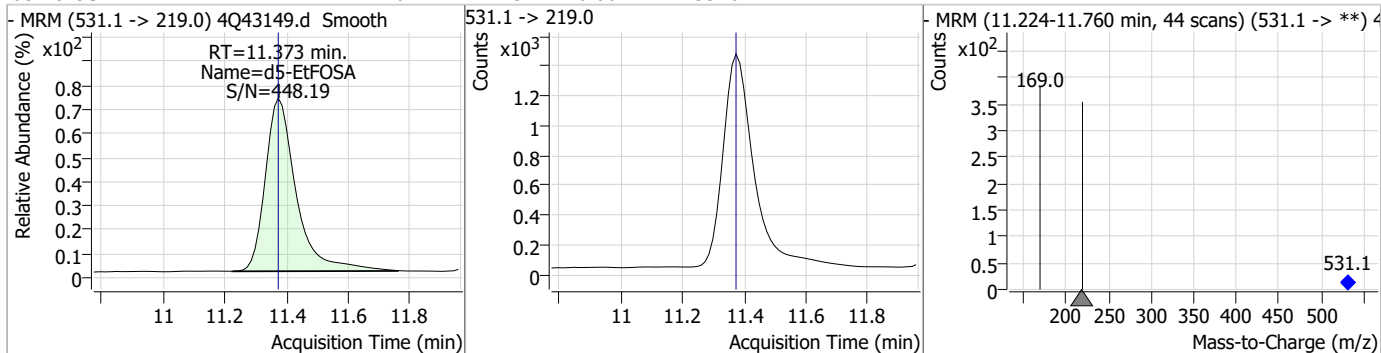
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.91	11.28	0.00	75918				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.86	11.30	0.00	30099				

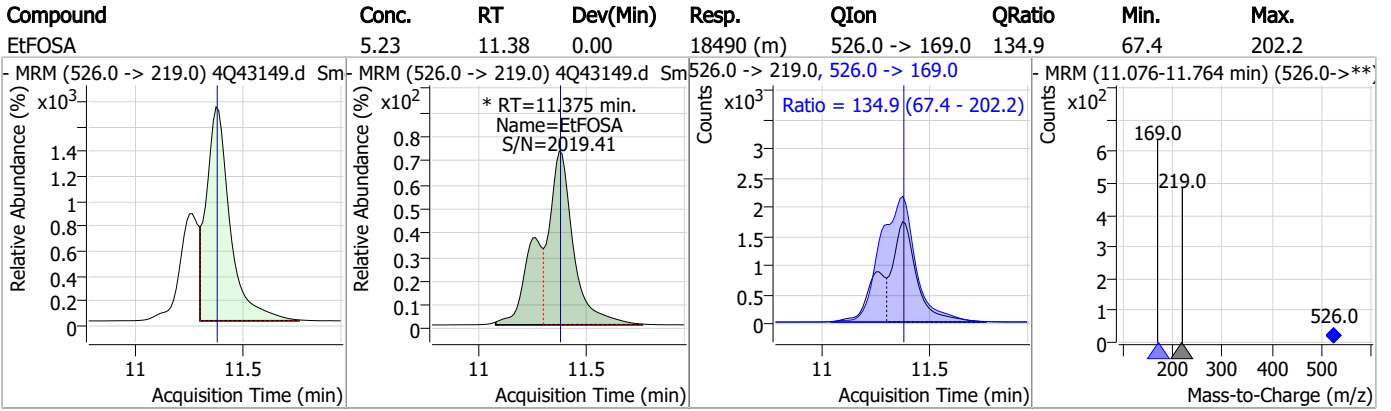


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	11.37	0.00	9928				



7.7.18
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Perfluorinated Compounds by LC/MS/MS



7.7.18

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Manual Integration Approval Summary

Sample Number: S4Q624-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43149.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 11:26 Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.42	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.18.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43150.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 11:40:35 AM
 Sample Name : cc621-1.0LL
 Vial : P1-A2
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96301,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.999	216.8 -> 171.9	122225	10.00 µg/L	0.038
M5-PFPeA	4.450	268.3 -> 223.0	67216	5.00 µg/L	0.000
M5-PFHxA	5.622	318.0 -> 273.0	54275	2.50 µg/L	0.000
M4-PFHpA	6.555	367.1 -> 322.0	27334	2.50 µg/L	0.000
M8-PFOA	7.214	421.1 -> 376.0	33601	2.50 µg/L	0.000
M9-PFNA	7.759	472.1 -> 427.0	19049	1.25 µg/L	0.000
M6-PFDA	8.254	519.1 -> 474.1	18234	1.25 µg/L	-0.012
M7-PFUnDA	8.735	570.0 -> 525.1	19696	1.25 µg/L	-0.012
M2-PFDoDA	9.194	615.1 -> 570.0	23444	1.25 µg/L	0.000
M2-PFTeDA	10.000	715.2 -> 670.0	17386	1.25 µg/L	0.012
M8-FOSA	9.846	506.1 -> 77.8	14846	2.50 µg/L	0.012
M3-PFBS	5.539	302.1 -> 79.9	11707	2.50 µg/L	0.012
M3-PFHxS	7.317	402.1 -> 79.9	7220	2.50 µg/L	0.000
M8-PFOS	8.405	507.1 -> 79.9	11096	2.50 µg/L	-0.012
M2-4:2FTS	5.309	329.1 -> 80.9	1679	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	2466	5.00 µg/L	0.000
M2-8:2FTS	8.041	529.1 -> 80.9	3644	5.00 µg/L	-0.012
M3-MeFOSAA	8.312	573.2 -> 419.0	16628	5.00 µg/L	-0.012
M3-HFPO-DA	5.989	286.9 -> 168.9	33199	10.00 µg/L	0.000
M5-EtFOSAA	8.521	589.2 -> 419.0	14244	5.00 µg/L	-0.012
M7-MeFOSE	10.974	623.2 -> 58.9	54134	25.00 µg/L	0.000
M9-EtFOSE	11.282	639.2 -> 58.9	68326	25.00 µg/L	0.000
M5-EtFOSA	11.373	531.1 -> 219.0	9208	2.50 µg/L	0.000
M3-MeFOSA	11.090	515.0 -> 219.0	8339	2.50 µg/L	0.000
13C4-PFOS	8.406	502.8 -> 79.9	10777	2.50 µg/L	-0.012
13C3-PFBA	2.991	216.0 -> 172.0	67847	5.00 µg/L	0.025
18O2-PFHxS	7.316	403.0 -> 83.9	5253	2.50 µg/L	0.000
13C4-PFOA	7.214	417.1 -> 372.0	40803	2.50 µg/L	0.000
13C2-PFDA	8.254	515.1 -> 470.1	16239	1.25 µg/L	-0.012
13C5-PFNA	7.759	468.0 -> 423.0	20802	1.25 µg/L	0.000
13C2-PFHxA	5.623	315.1 -> 270.0	46030	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.309	329.1 -> 80.9	1679	5.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.1%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2466	5.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.8%		
13C2-8:2FTS	8.041	529.1 -> 80.9	3644	5.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.5%		
13C2-PFDoDA	9.194	615.1 -> 570.0	23444	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C2-PFTeDA	10.000	715.2 -> 670.0	17386	1.12 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.4%		
13C3-PFBS	5.539	302.1 -> 79.9	11707	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.317	402.1 -> 79.9	7220	2.48 µg/L	0.000

7.7.19
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C4-PFBA	2.999	216.8 -> 171.9	122225	10.34 µg/L	0.038
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C4-PFHpA	6.555	367.1 -> 322.0	27334	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C5-PFHxA	5.622	318.0 -> 273.0	54275	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.450	268.3 -> 223.0	67216	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.254	519.1 -> 474.1	18234	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C7-PFUnDA	8.735	570.0 -> 525.1	19696	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.846	506.1 -> 77.8	14846	2.11 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.2%	
13C8-PFOA	7.214	421.1 -> 376.0	33601	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.405	507.1 -> 79.9	11096	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C9-PFNA	7.759	472.1 -> 427.0	19049	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSAA	8.312	573.2 -> 419.0	16628	5.24 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	33199	10.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSA	11.090	515.0 -> 219.0	8339	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSAA	8.521	589.2 -> 419.0	14244	5.52 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.4%	
d7-MeFOSE	10.974	623.2 -> 58.9	54134	19.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.9%	
d9-EtFOSE	11.282	639.2 -> 58.9	68326	20.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
d5-EtFOSA	11.373	531.1 -> 219.0	9208	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%	
Target Compounds					QValue
4:2FTS	5.310	327.1 -> 307.0	1594	0.76 µg/L	96
		327.1 -> 80.9	709		
6:2FTS	6.974	427.1 -> 407.0	1476	0.88 µg/L	88
		427.1 -> 80.9	548		
8:2FTS	8.042	527.1 -> 507.0	1224	0.75 µg/L	95
		527.1 -> 80.8	583		
EtFOSAA	8.534	584.2 -> 419.1	411	0.19 µg/L	m 79
		584.2 -> 526.0	252		
FOSA	9.837	498.1 -> 77.9	1117	0.23 µg/L	97
		498.1 -> 478.0	17		
MeFOSAA	8.312	570.1 -> 419.0	324	0.14 µg/L	m 86
		570.1 -> 483.0	96		
PFBA	2.995	212.8 -> 168.9	2145	0.77 µg/L	100
PFBS	5.540	298.7 -> 79.9	821	0.19 µg/L	94
		298.7 -> 98.8	363		
PFDA	8.255	512.9 -> 469.0	2398	0.23 µg/L	93
		512.9 -> 219.0	398		
PFDODA	9.195	613.1 -> 569.0	2842	0.19 µg/L	97
		613.1 -> 319.0	432		
PFDS	9.370	599.0 -> 79.9	421	0.17 µg/L	71

7.7.19
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.555	599.0 -> 98.8	290	0.19	µg/L	92
		363.1 -> 319.0	2538			
PFHpS	7.887	363.1 -> 169.0	568	0.19	µg/L	84
		449.0 -> 79.9	555			
PFHxA	5.625	449.0 -> 98.9	230	0.21	µg/L	99
		313.0 -> 269.0	3405			
PFHxS	7.318	313.0 -> 118.9	119	0.18	µg/L	m
		398.7 -> 79.9	446			
PFNA	7.760	398.7 -> 98.9	292	0.24	µg/L	93
		463.0 -> 419.0	2467			
PFNS	8.899	463.0 -> 219.0	541	0.20	µg/L	97
		548.8 -> 79.9	338			
PFOA	7.215	548.8 -> 98.9	174	0.24	µg/L	96
		413.0 -> 369.0	3772			
PFOS	8.406	413.0 -> 169.0	715	0.18	µg/L	m
		498.9 -> 79.9	794			
PFPeA	4.452	498.9 -> 98.8	428	0.42	µg/L	100
		263.0 -> 219.0	5333			
PFPeS	6.595	349.1 -> 79.9	497	0.24	µg/L	81
		349.1 -> 98.9	162			
PFTeDA	10.000	713.1 -> 669.0	2174	0.16	µg/L	93
		713.1 -> 168.9	249			
PFTrDA	9.617	663.0 -> 619.0	3481	0.18	µg/L	100
		663.0 -> 168.9	353			
PFUnDA	8.736	563.1 -> 519.0	1749	0.16	µg/L	85
		563.1 -> 269.1	448			
11Cl-PF3OUdS	9.669	630.9 -> 450.9	3586	0.41	µg/L	99
		632.9 -> 452.9	1087			
9Cl-PF3ONS	8.763	530.8 -> 351.0	3485	0.36	µg/L	99
		532.8 -> 353.0	1108			
ADONA	6.806	376.9 -> 250.9	7835	0.39	µg/L	97
		376.9 -> 84.8	2180			
HFPO-DA	5.990	284.9 -> 168.9	1049	0.40	µg/L	90
		284.9 -> 184.9	177			
3:3FTCA	3.967	241.0 -> 177.0	701	1.18	µg/L	92
		241.0 -> 117.0	84			
5:3FTCA	6.321	341.0 -> 237.1	12061	5.32	µg/L	99
		341.0 -> 217.0	8418			
7:3FTCA	7.749	441.0 -> 316.9	4589	4.94	µg/L	86
		441.0 -> 336.9	11388			
EtFOSA	11.375	526.0 -> 219.0	1393	0.42	µg/L	m
		526.0 -> 169.0	1810			
EtFOSE	11.295	630.0 -> 58.9	1988	0.94	µg/L	m
		511.9 -> 219.0	1138			
MeFOSA	11.092	511.9 -> 169.0	1578	0.42	µg/L	m
		616.1 -> 58.9	2208			
MeFOSE	11.000	699.1 -> 79.9	473	1.16	µg/L	m
		699.1 -> 98.8	218			
PFDoDS	10.140	295.0 -> 201.0	429	0.22	µg/L	82
		295.0 -> 84.9	94			
NFDHA	5.504	279.0 -> 85.1	3189	0.44	µg/L	100
		229.0 -> 84.9	2735			
PFMBA	4.866	314.8 -> 134.9	4910	0.43	µg/L	100
		314.8 -> 82.9	198			
PFMPA	3.590			0.36	µg/L	98
PFEESA	6.071					

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.19
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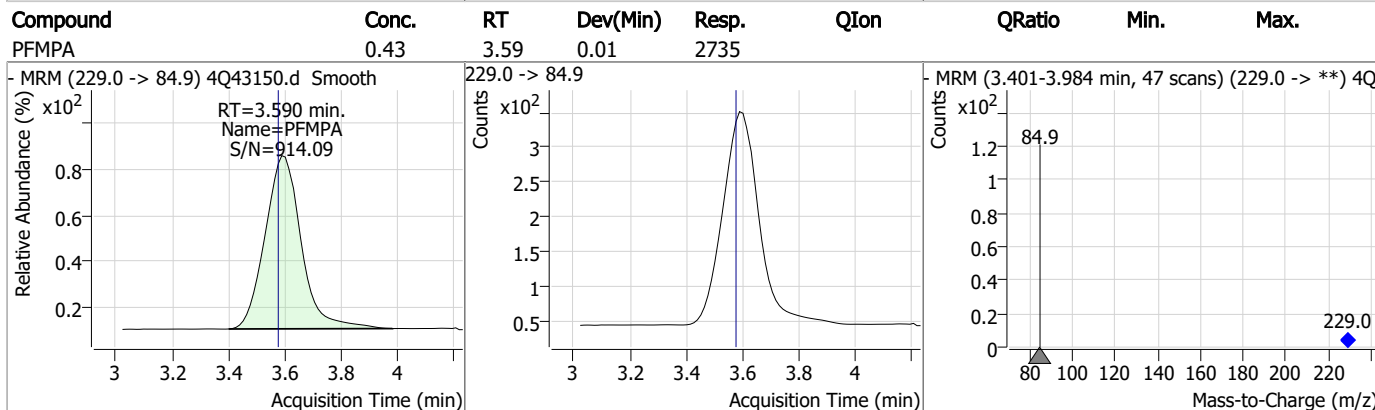
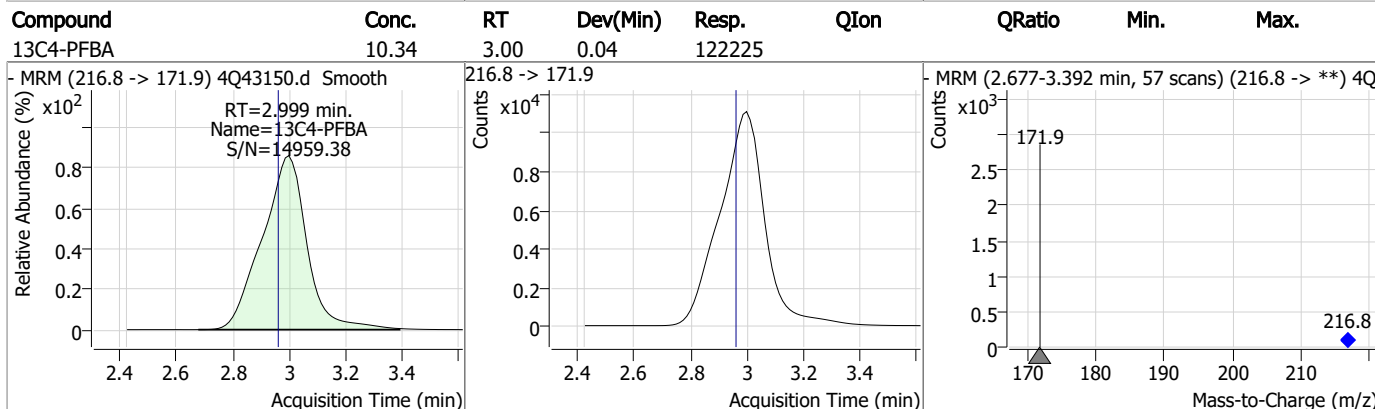
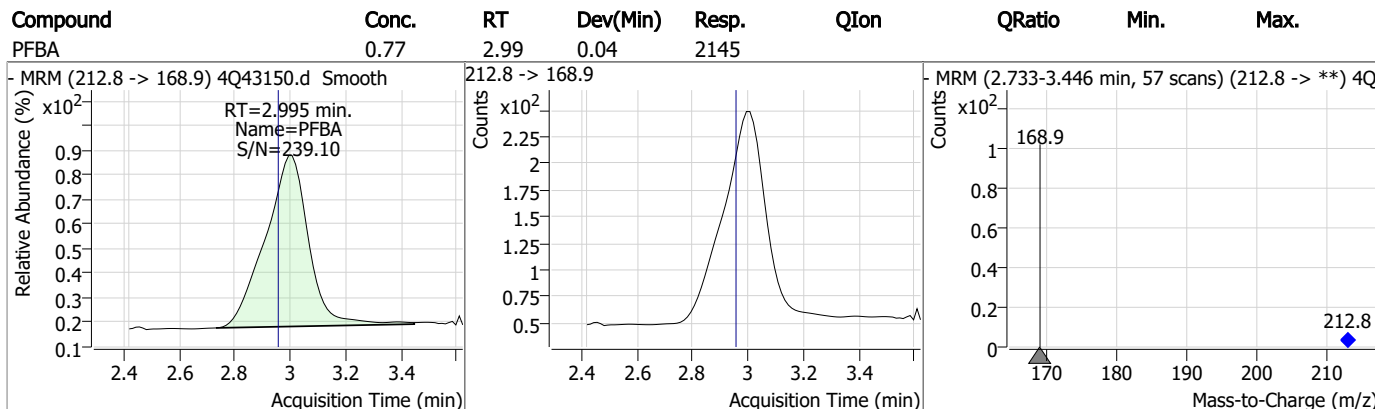
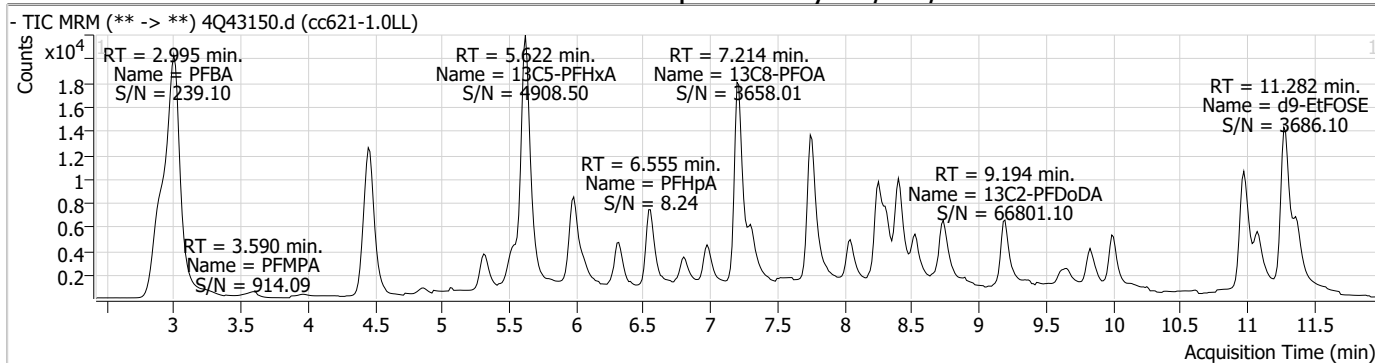
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.19

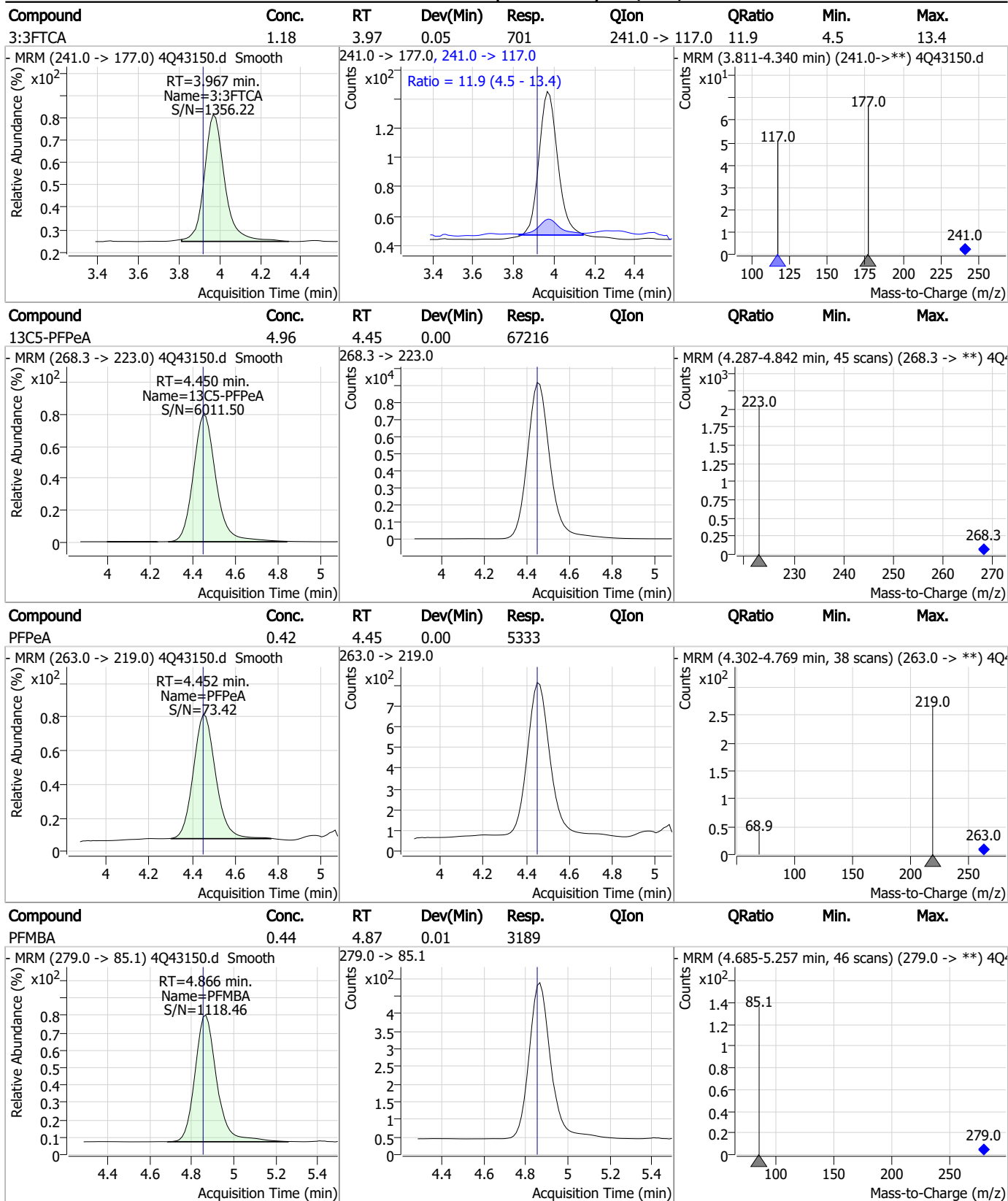
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Perfluorinated Compounds by LC/MS/MS



7.7.19
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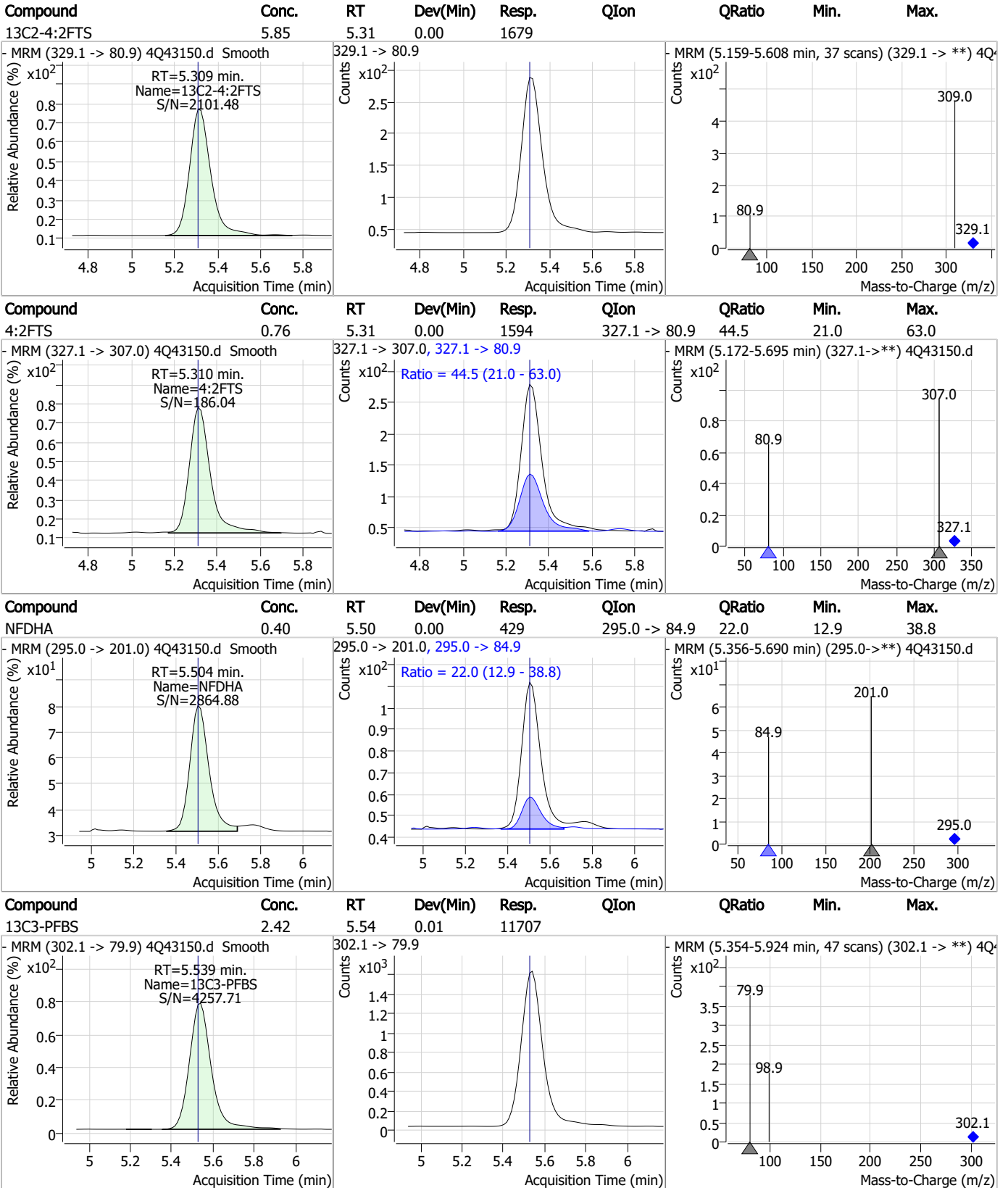
Perfluorinated Compounds by LC/MS/MS



7.7.19

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Perfluorinated Compounds by LC/MS/MS

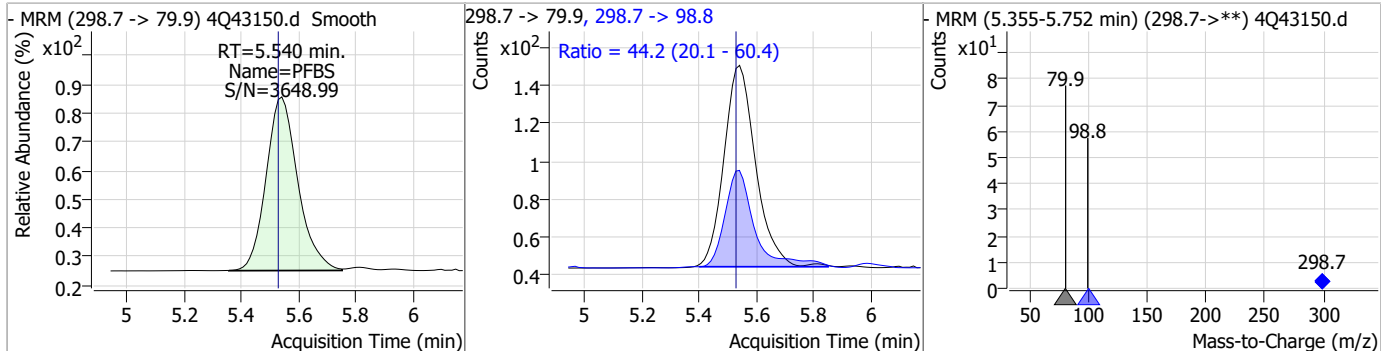


7.7.19 7

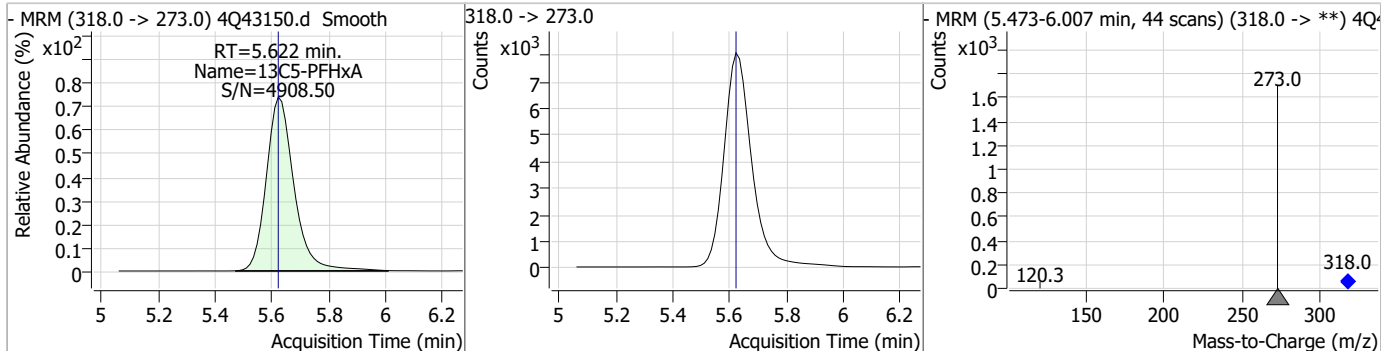


Perfluorinated Compounds by LC/MS/MS

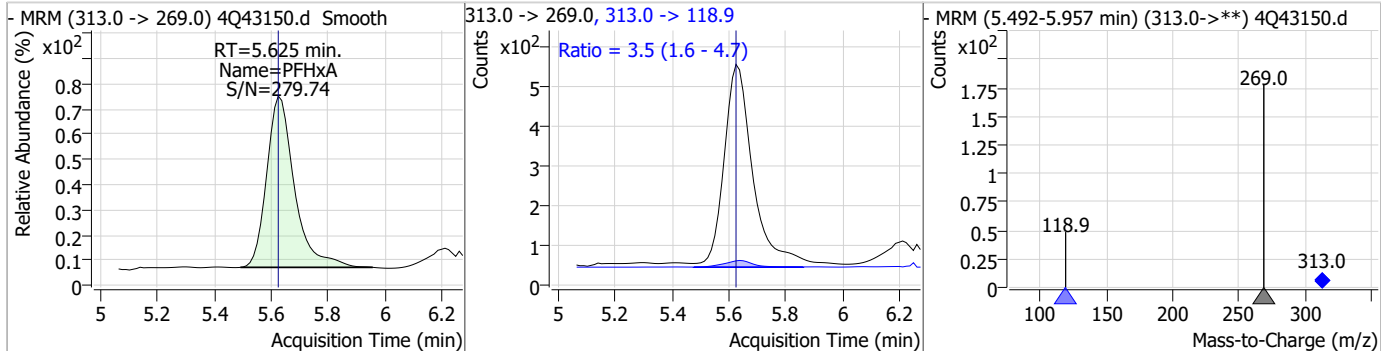
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.19	5.54	0.01	821	298.7 -> 98.8	44.2	20.1	60.4



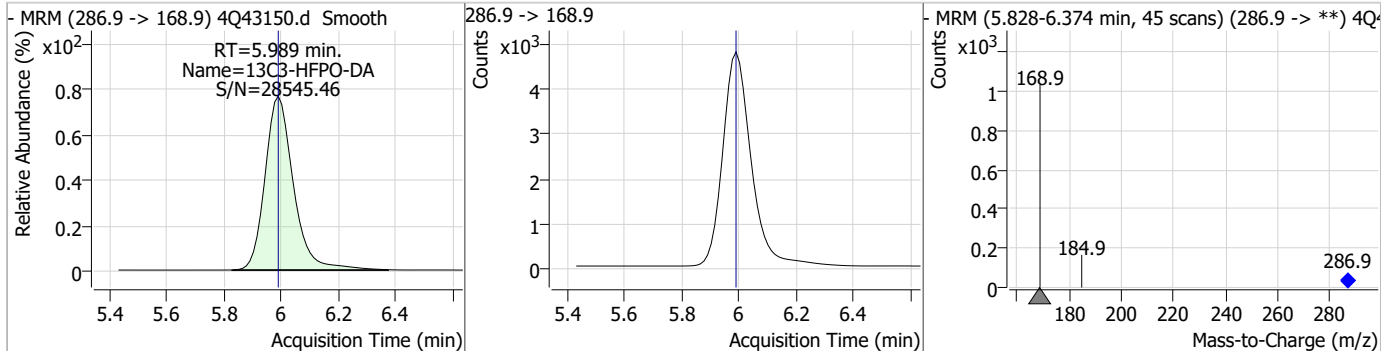
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.62	0.00	54275				



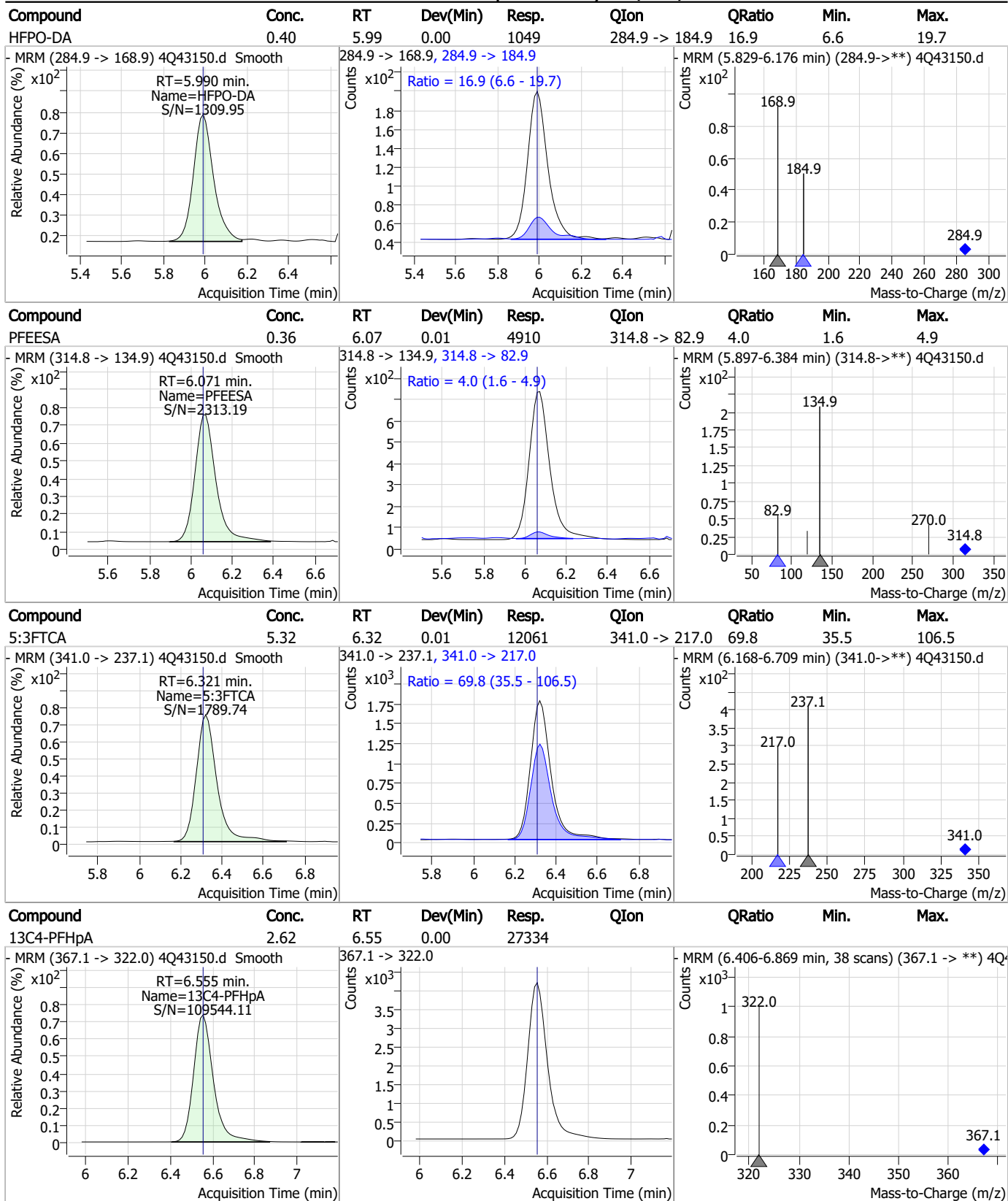
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.21	5.62	0.00	3405	313.0 -> 118.9	3.5	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.28	5.99	0.00	33199				

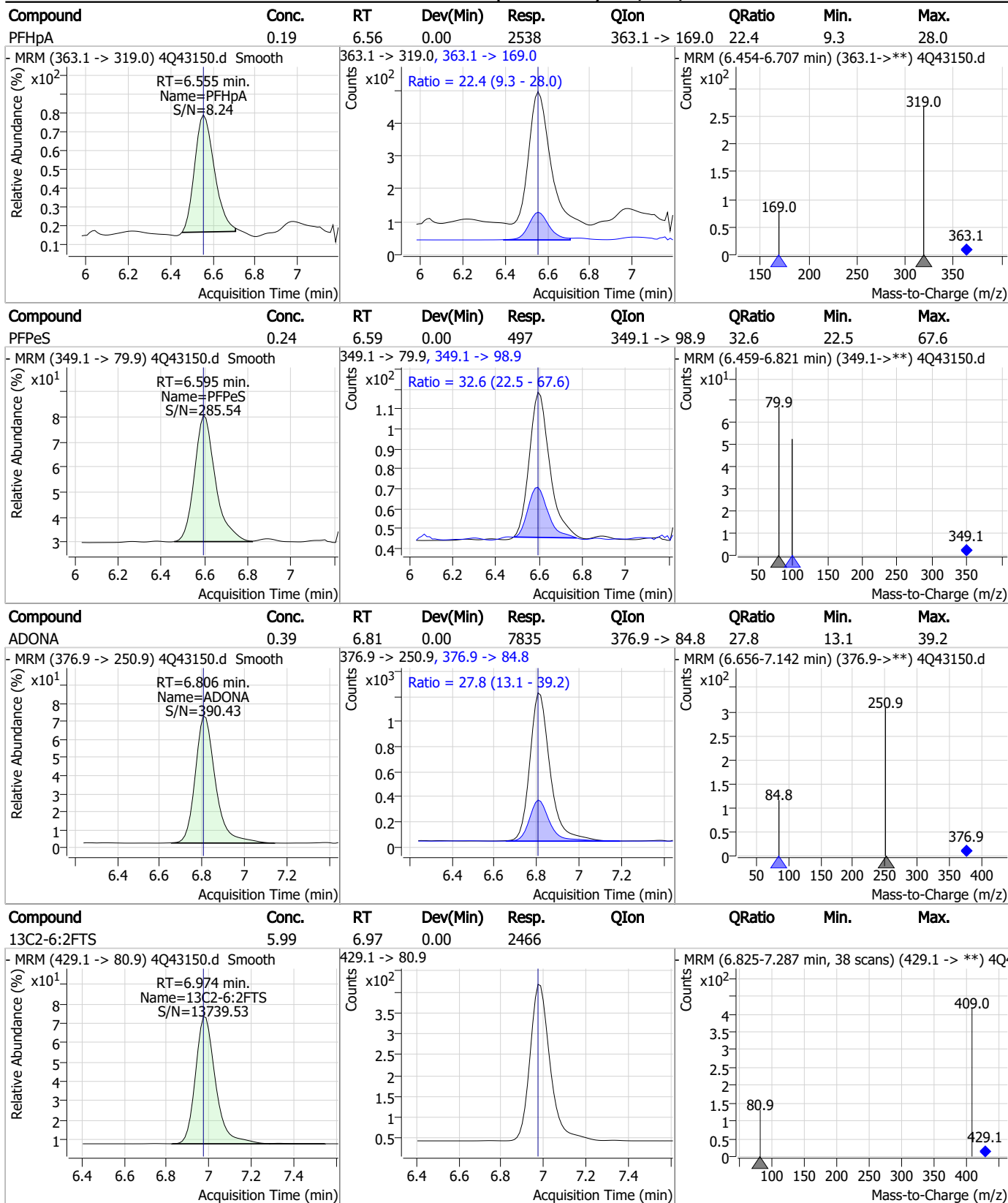


Perfluorinated Compounds by LC/MS/MS



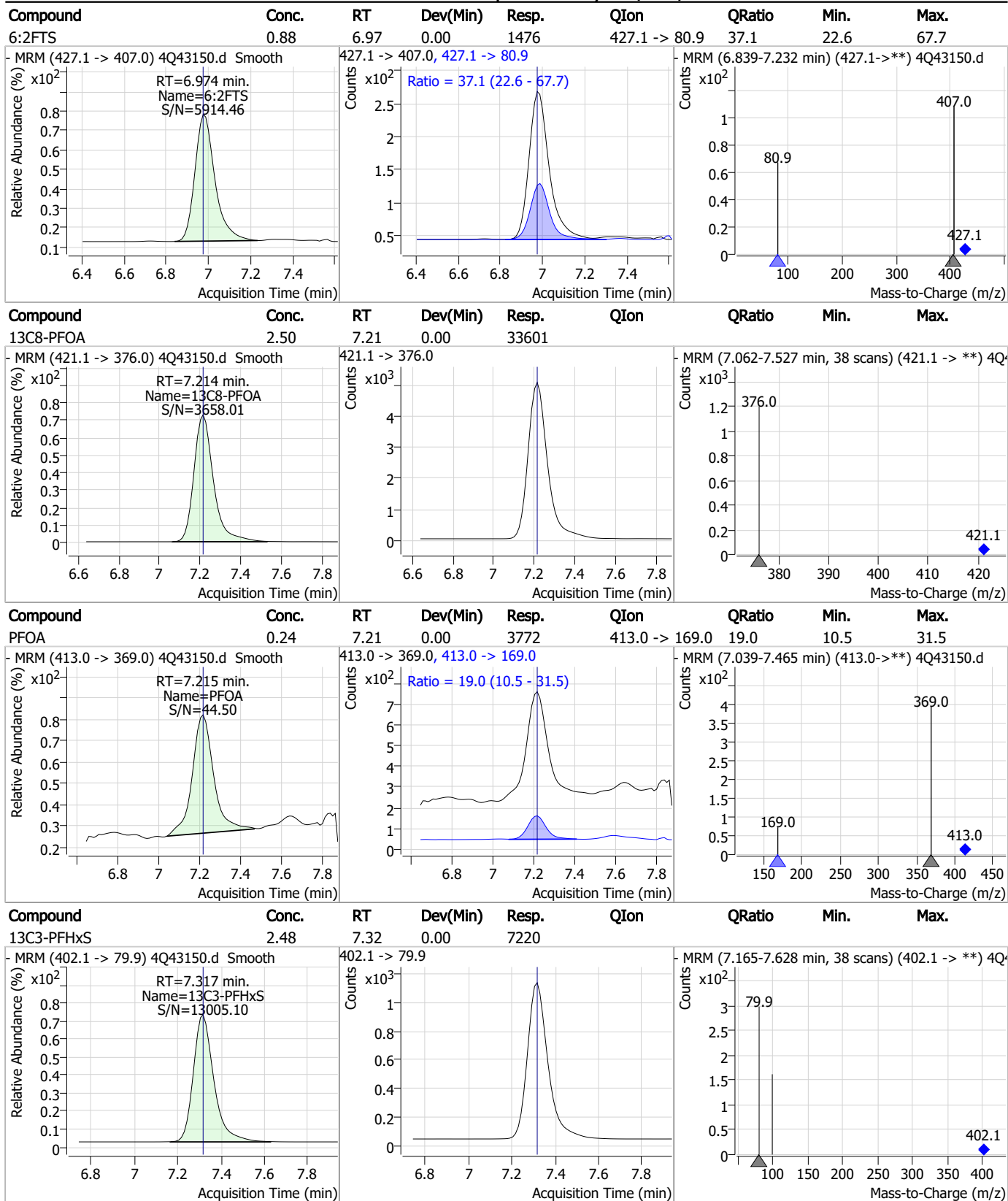
7.7.19
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Perfluorinated Compounds by LC/MS/MS



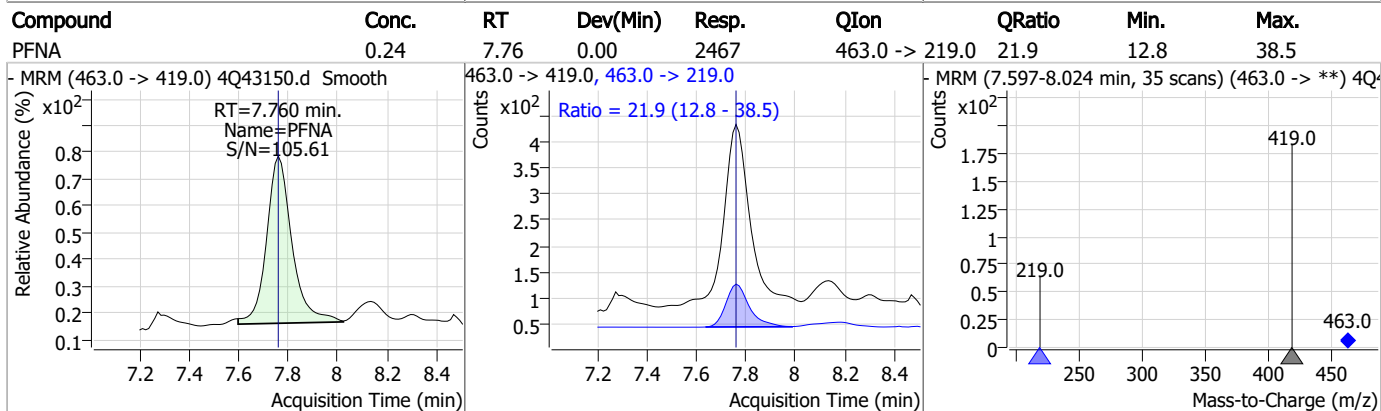
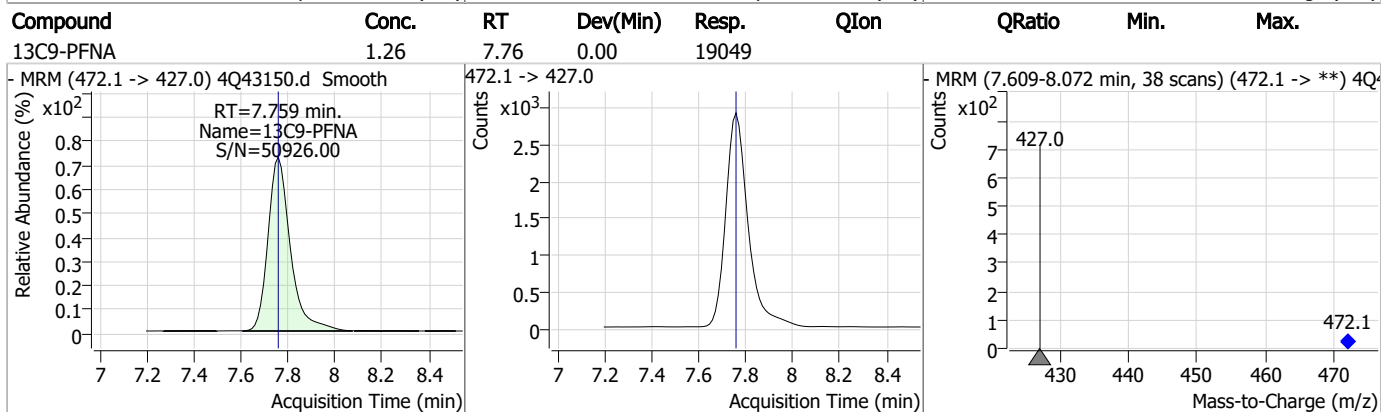
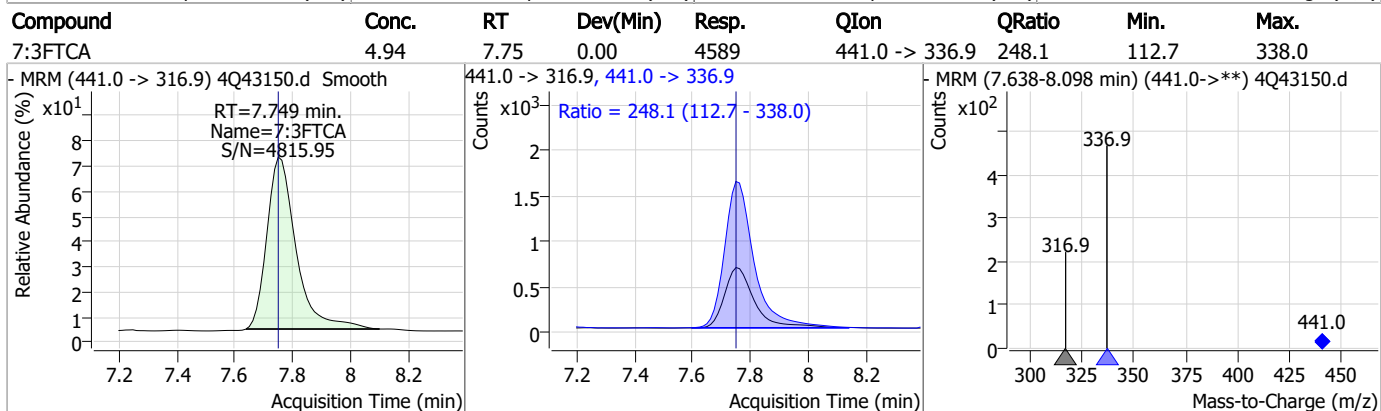
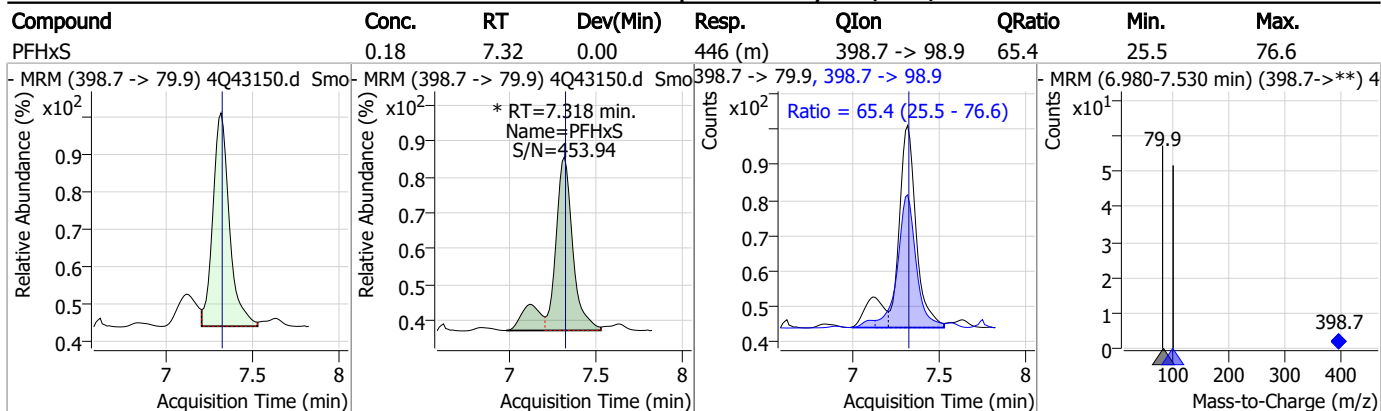
7.7.19 7

Perfluorinated Compounds by LC/MS/MS



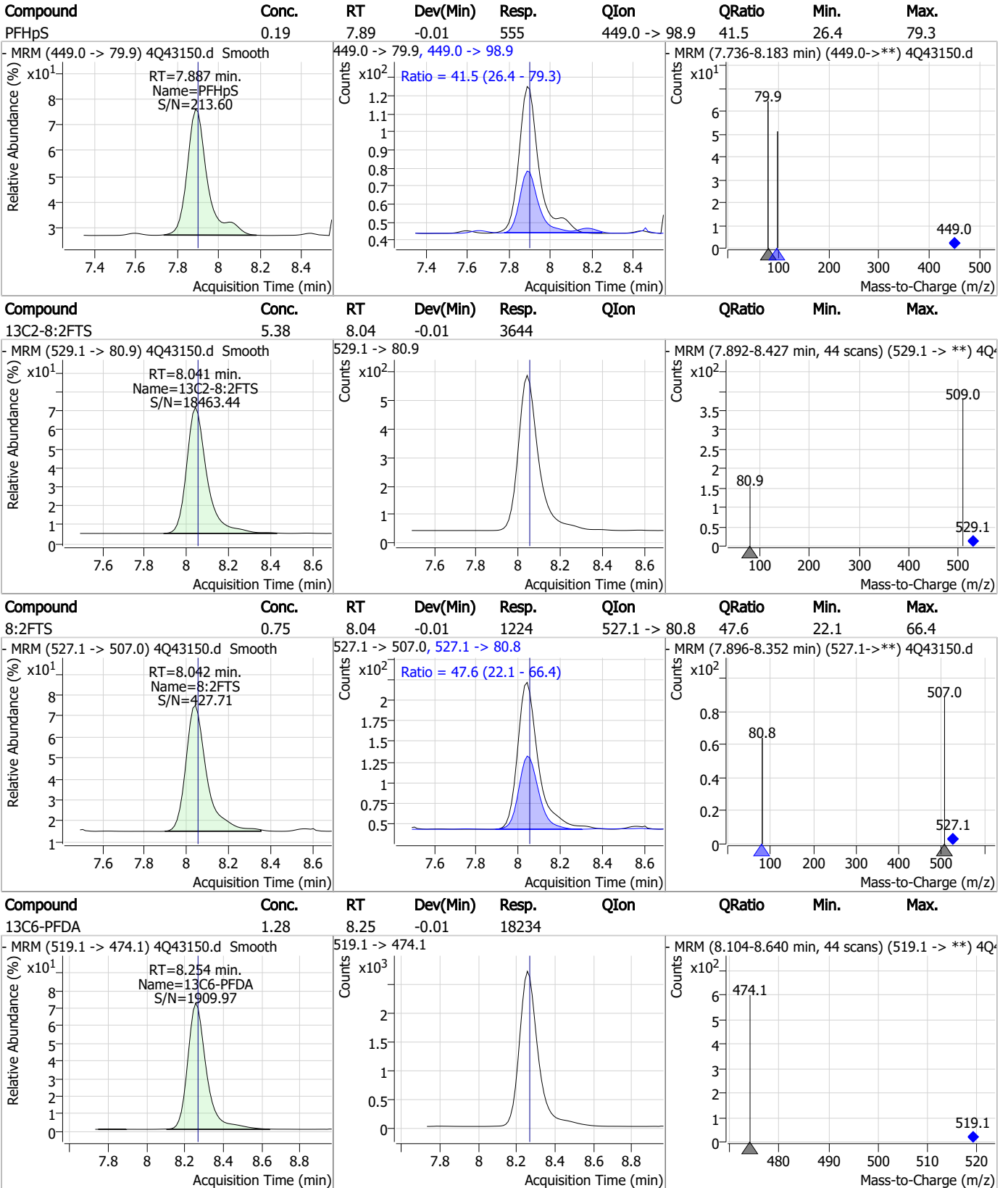
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Perfluorinated Compounds by LC/MS/MS



7.7.19
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Perfluorinated Compounds by LC/MS/MS

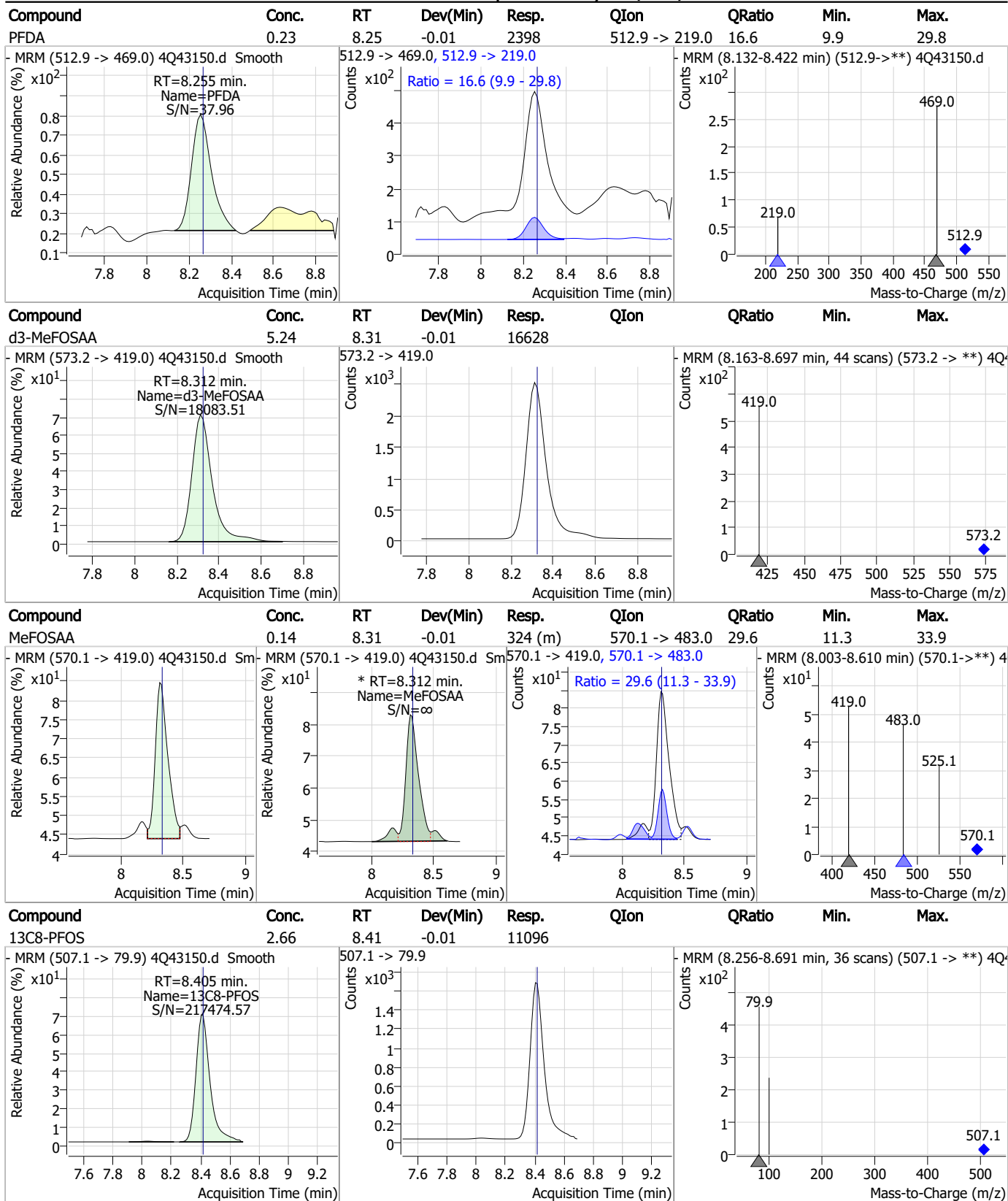


7.7.19

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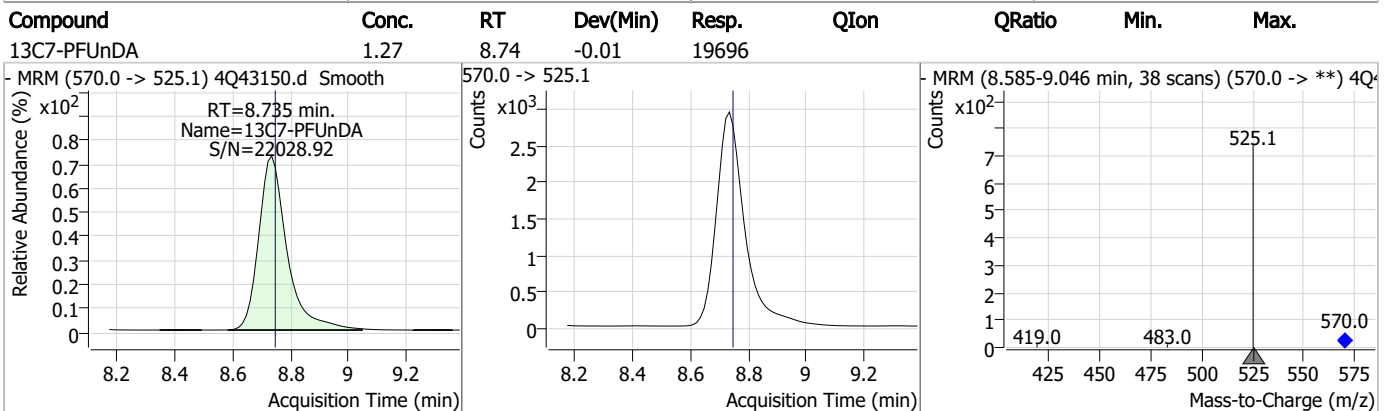
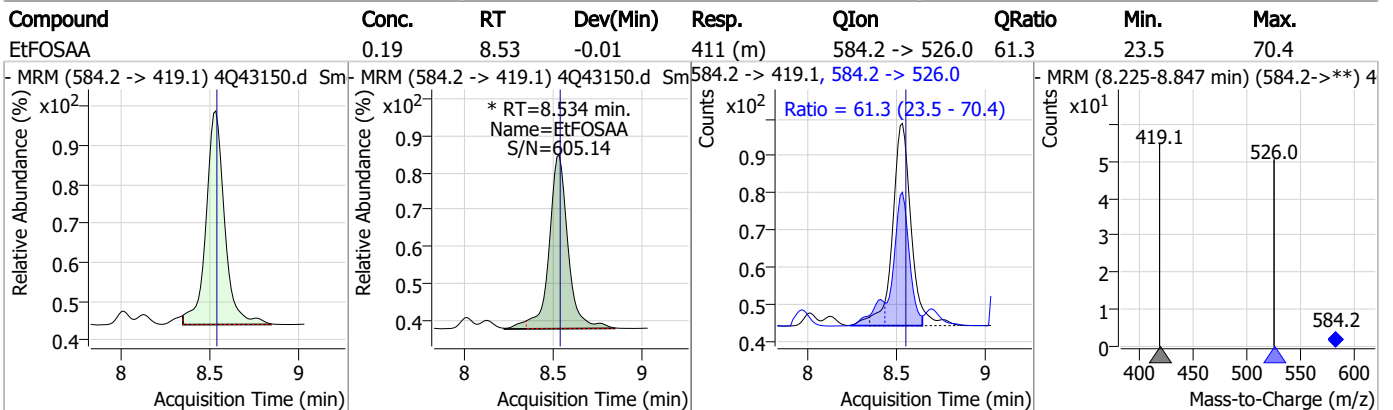
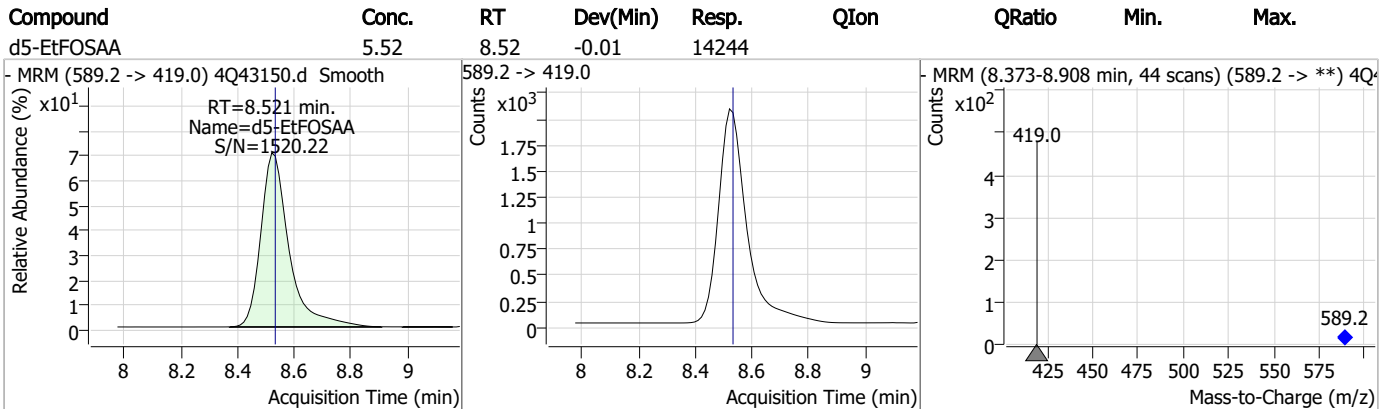
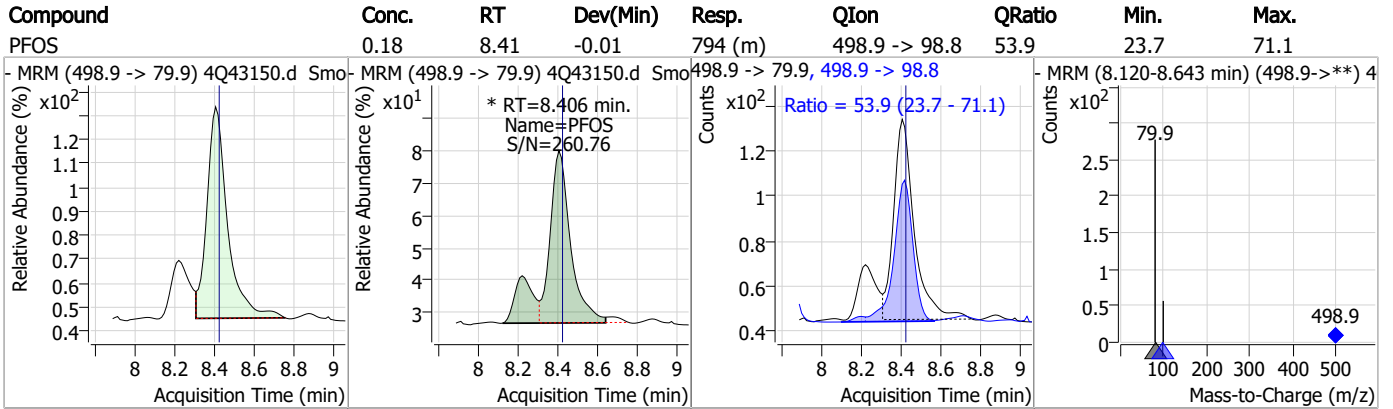


Perfluorinated Compounds by LC/MS/MS



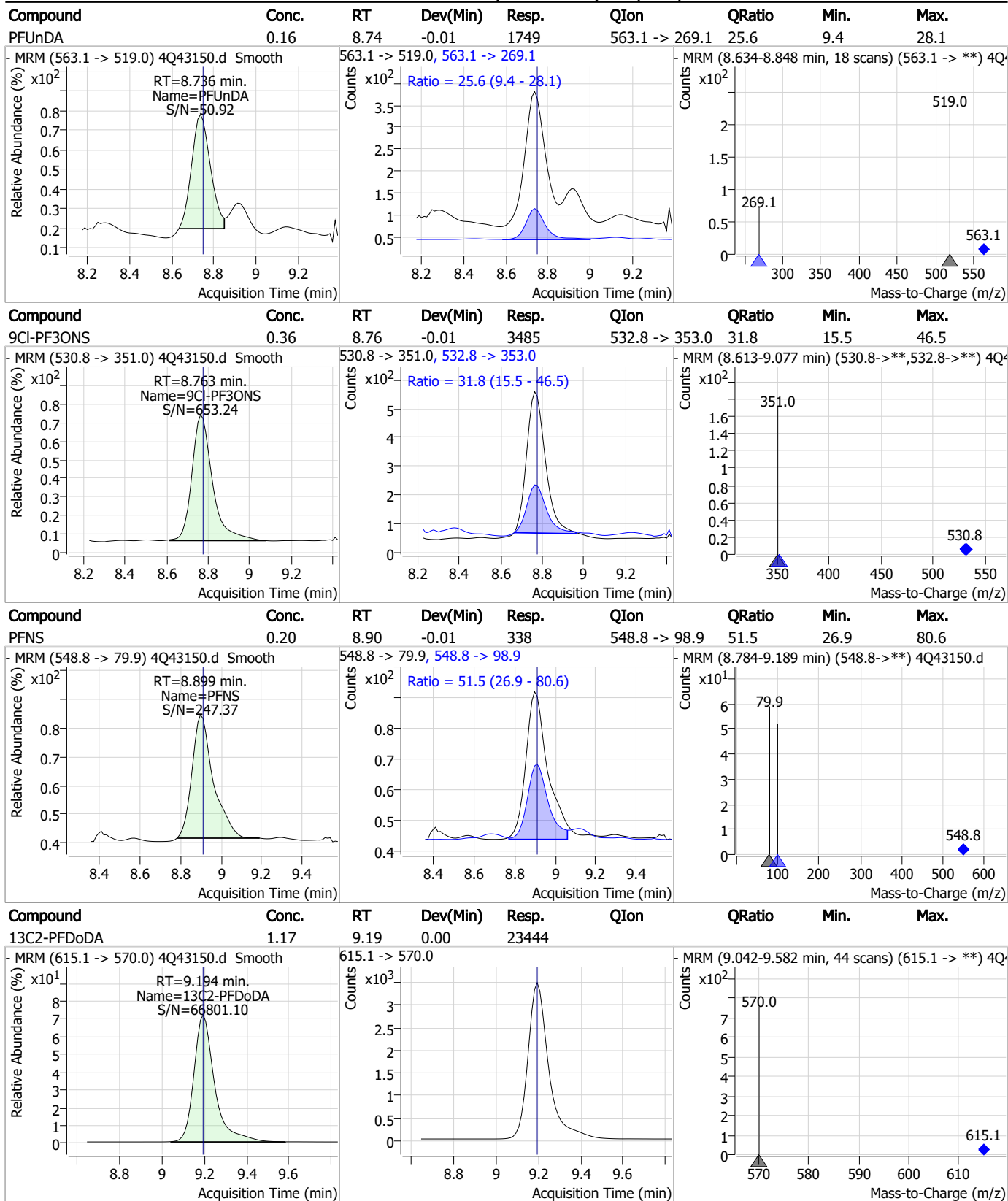
7.7.19
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Perfluorinated Compounds by LC/MS/MS



7.7.19 7

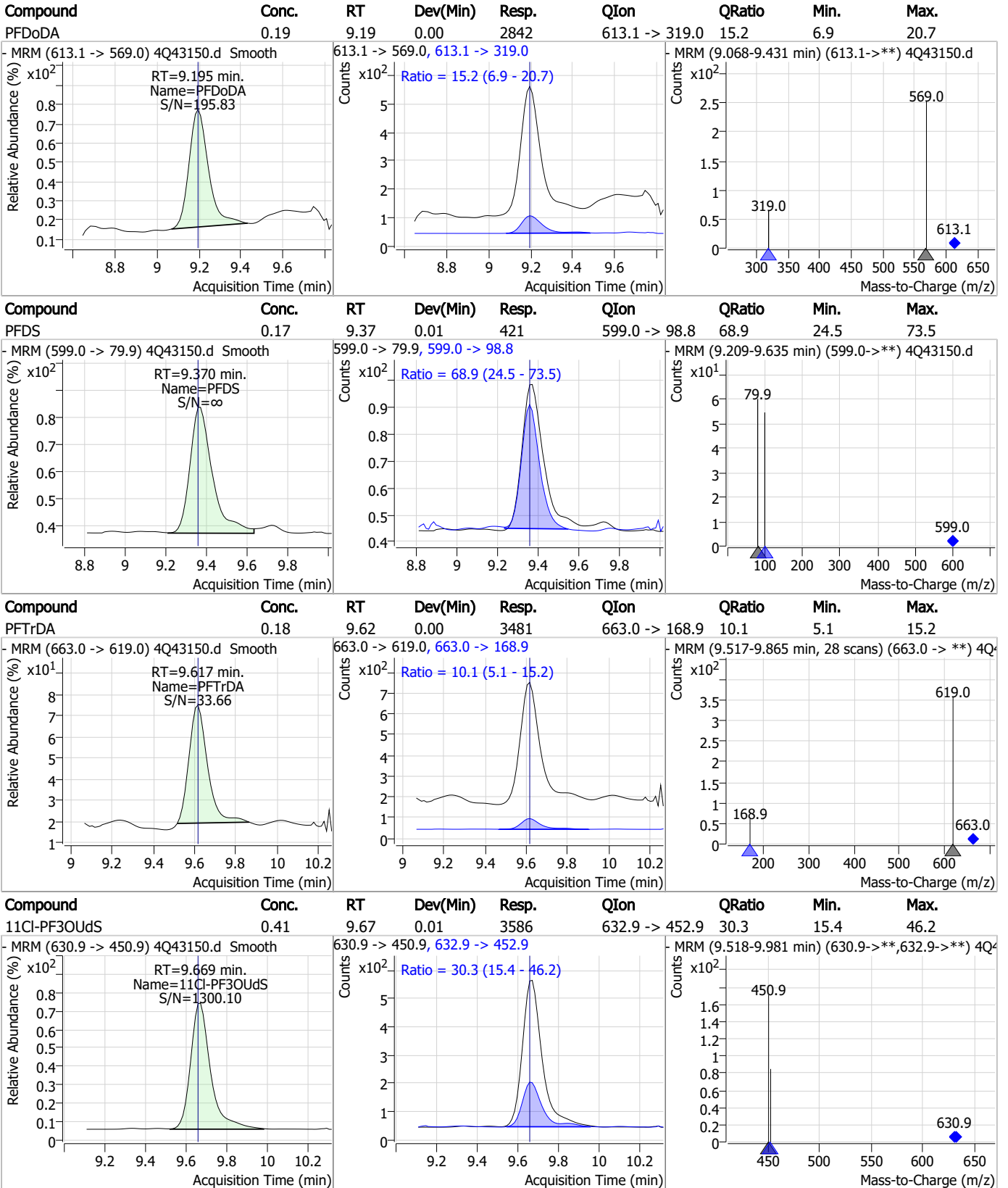
Perfluorinated Compounds by LC/MS/MS



7.7.19

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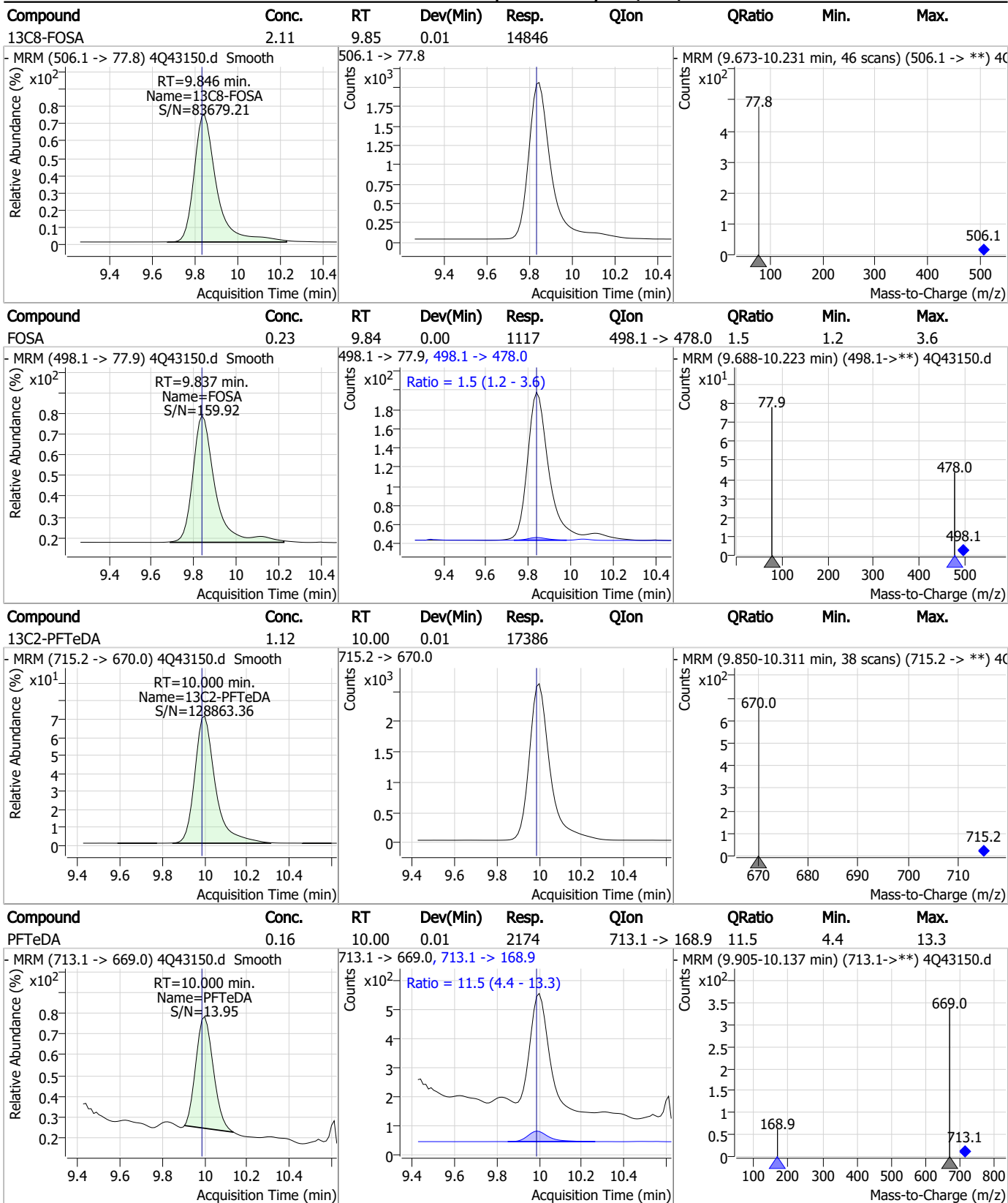
Perfluorinated Compounds by LC/MS/MS



7.7.19 7



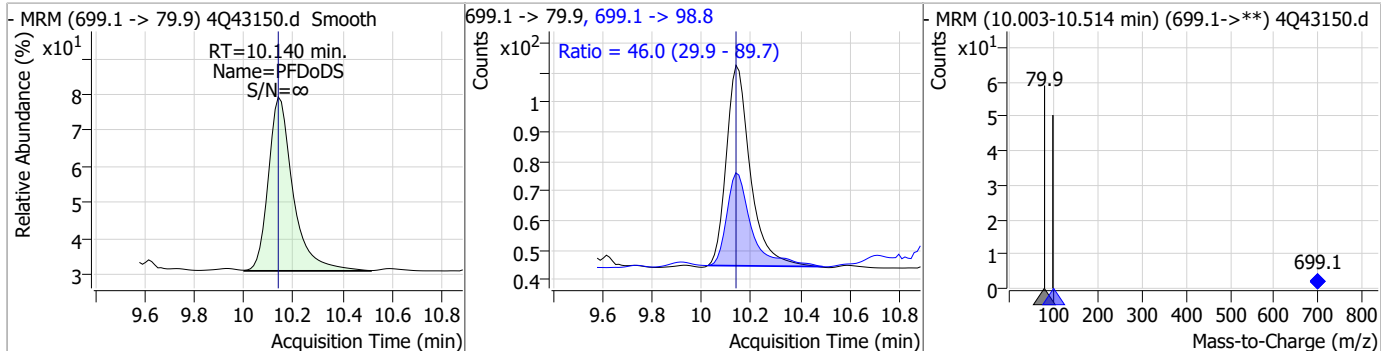
Perfluorinated Compounds by LC/MS/MS



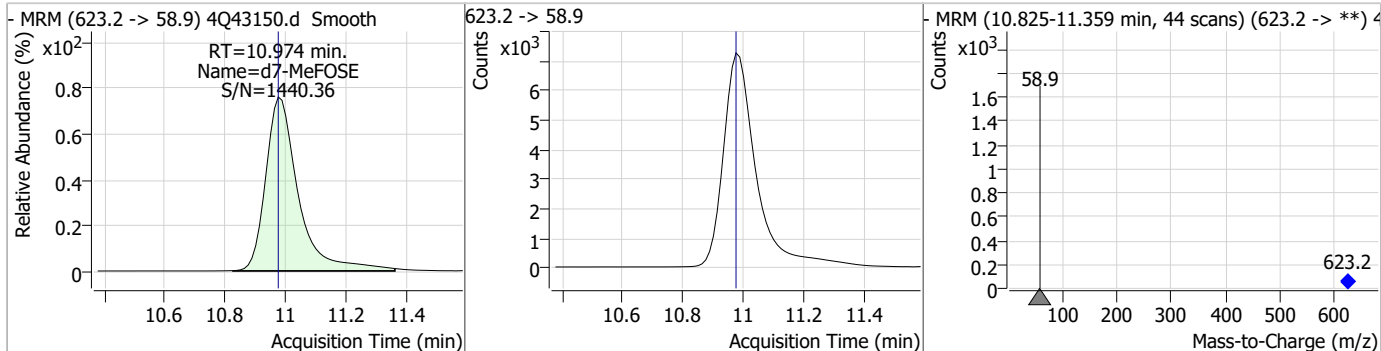
7.7.19 7

Perfluorinated Compounds by LC/MS/MS

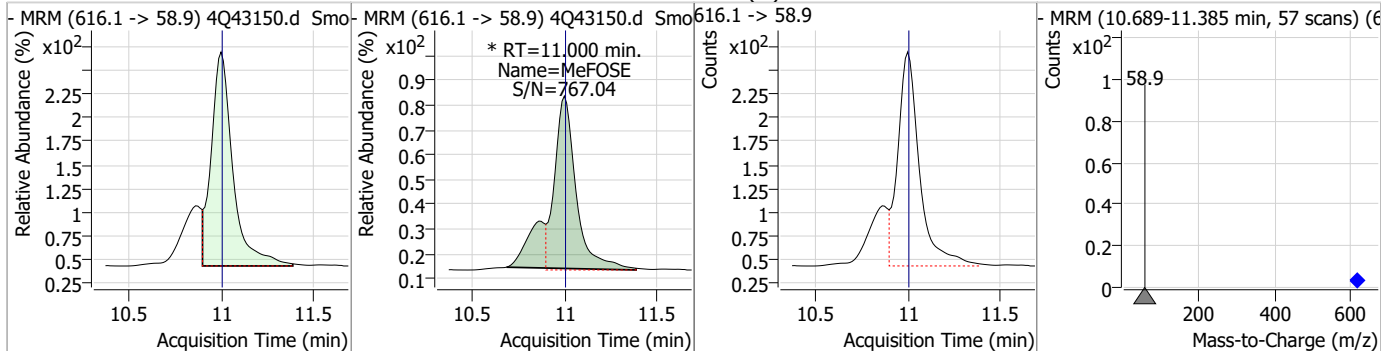
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.22	10.14	0.00	473	699.1 -> 98.8	46.0	29.9	89.7



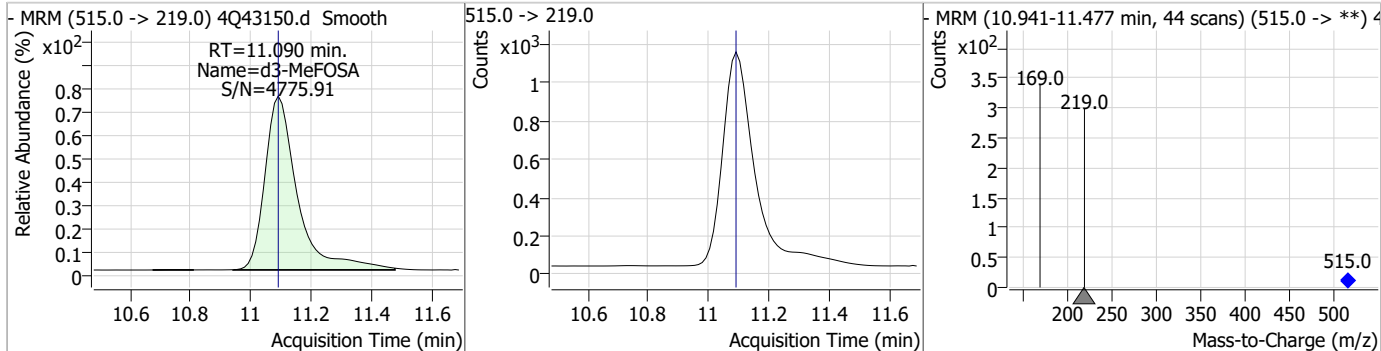
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.48	10.97	0.00	54134				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.16	11.00	0.00	2208 (m)				



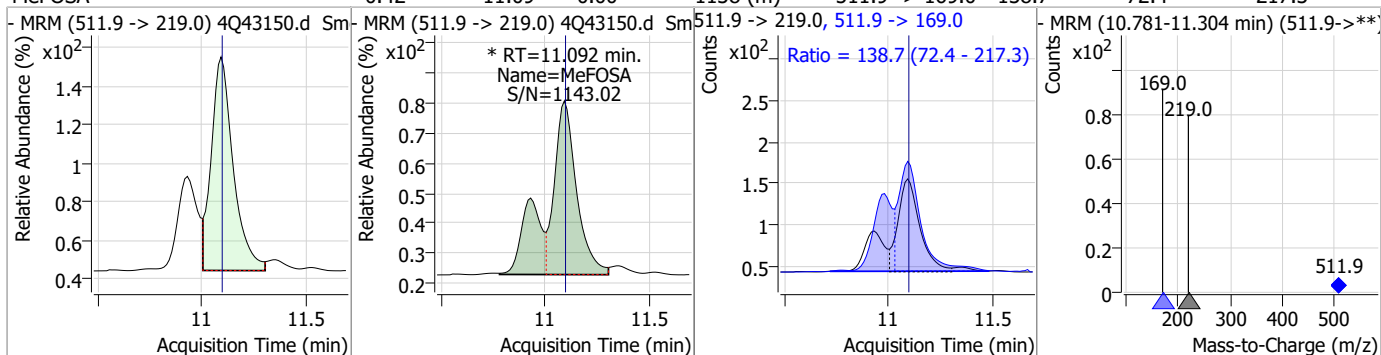
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.50	11.09	0.00	8339				



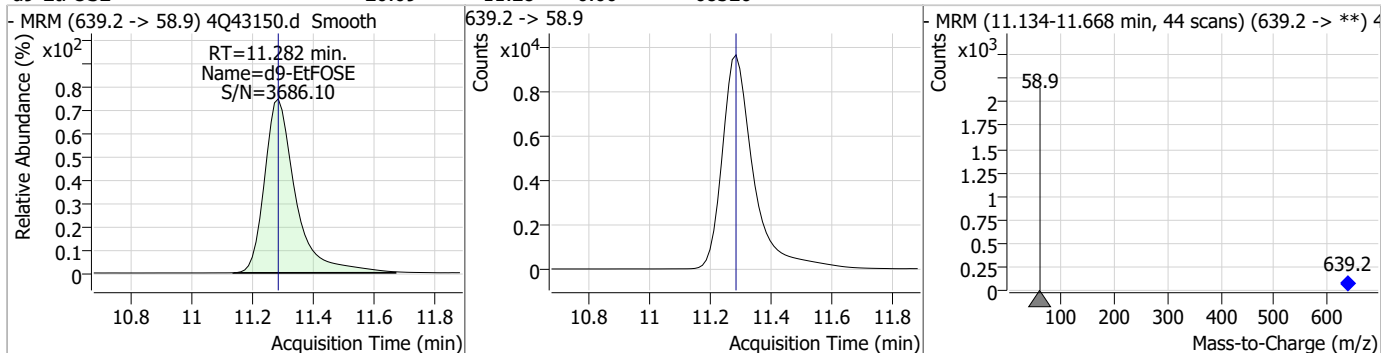
7.7.19
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Perfluorinated Compounds by LC/MS/MS

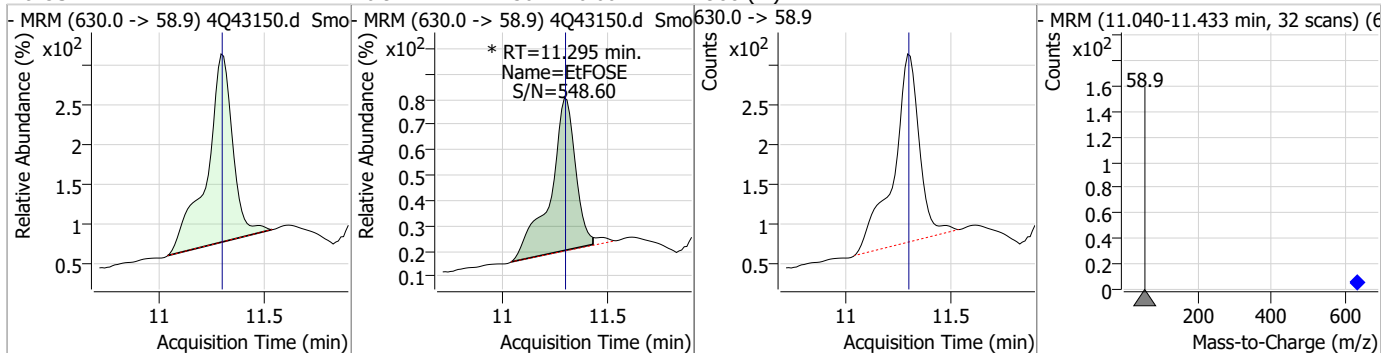
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.42	11.09	0.00	1138 (m)	511.9 -> 169.0	138.7	72.4	217.3



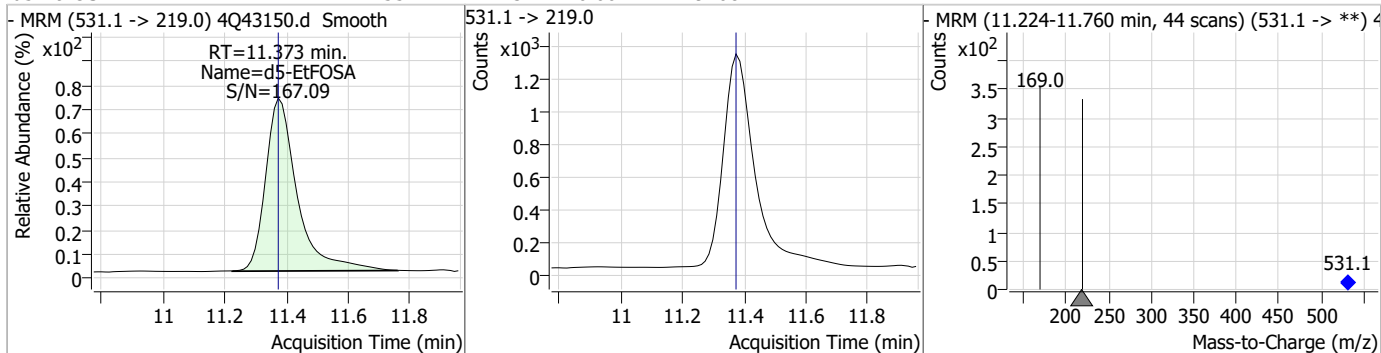
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.09	11.28	0.00	68326				



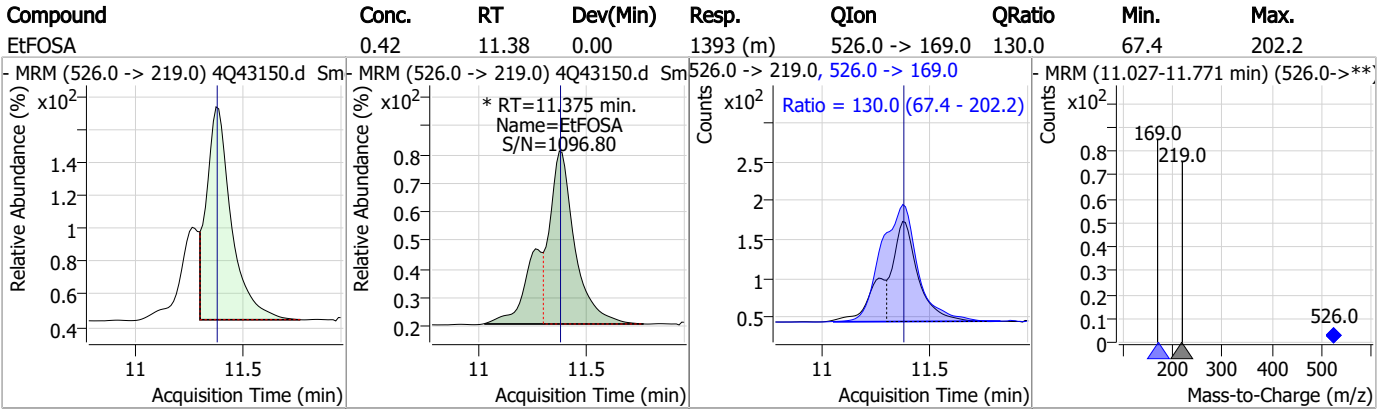
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.94	11.30	0.00	1988 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.55	11.37	0.00	9208				



Perfluorinated Compounds by LC/MS/MS



7.7.19

7

Manual Integration Approval Summary

Sample Number: S4Q624-CC621
Lab FileID: 4Q43150.D
Injection Time: 04/18/23 11:40

Method: EPA DRAFT 1633
Analyst approved: 04/19/23 14:48 Martha Valls
Supervisor approved: 04/19/23 16:01 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.41	Split peak
EtFOSAA	2991-50-6		8.53	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSE	1691-99-2		11.29	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.19.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43161.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 2:29:11 PM
 Sample Name : cc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96296,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.064	216.8 -> 171.9	146945	10.00 µg/L	0.103
M5-PFPeA	4.487	268.3 -> 223.0	79216	5.00 µg/L	0.037
M5-PFHxA	5.646	318.0 -> 273.0	62019	2.50 µg/L	0.024
M4-PFHpA	6.567	367.1 -> 322.0	28817	2.50 µg/L	0.012
M8-PFOA	7.213	421.1 -> 376.0	37962	2.50 µg/L	0.000
M9-PFNA	7.771	472.1 -> 427.0	21058	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	20032	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	21009	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	26282	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	18593	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	17031	2.50 µg/L	0.011
M3-PFBS	5.564	302.1 -> 79.9	13339	2.50 µg/L	0.037
M3-PFHxS	7.316	402.1 -> 79.9	8360	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	12004	2.50 µg/L	0.012
M2-4:2FTS	5.335	329.1 -> 80.9	1745	5.00 µg/L	0.026
M2-6:2FTS	6.985	429.1 -> 80.9	2218	5.00 µg/L	0.012
M2-8:2FTS	8.052	529.1 -> 80.9	3607	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	16770	5.00 µg/L	0.011
M3-HFPO-DA	6.014	286.9 -> 168.9	36600	10.00 µg/L	0.025
M5-EtFOSAA	8.545	589.2 -> 419.0	14391	5.00 µg/L	0.011
M7-MeFOSE	10.972	623.2 -> 58.9	58204	25.00 µg/L	-0.002
M9-EtFOSE	11.281	639.2 -> 58.9	70991	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	9718	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	8695	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	12210	2.50 µg/L	0.012
13C3-PFBA	3.068	216.0 -> 172.0	79564	5.00 µg/L	0.102
18O2-PFHxS	7.328	403.0 -> 83.9	5651	2.50 µg/L	0.012
13C4-PFOA	7.214	417.1 -> 372.0	46011	2.50 µg/L	0.000
13C2-PFDA	8.265	515.1 -> 470.1	17318	1.25 µg/L	-0.001
13C5-PFNA	7.771	468.0 -> 423.0	23837	1.25 µg/L	0.012
13C2-PFHxA	5.647	315.1 -> 270.0	53192	2.50 µg/L	0.024
System Monitoring Compounds					
13C2-4:2FTS	5.335	329.1 -> 80.9	1745	5.65 µg/L	0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-6:2FTS	6.985	429.1 -> 80.9	2218	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3607	4.95 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-PFDoDA	9.205	615.1 -> 570.0	26282	1.23 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.998	715.2 -> 670.0	18593	1.12 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.6%		
13C3-PFBS	5.564	302.1 -> 79.9	13339	2.57 µg/L	0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.316	402.1 -> 79.9	8360	2.67 µg/L	-0.001

7.7.20
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C4-PFBA	3.064	216.8 -> 171.9	146945	10.61 µg/L	0.103
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C4-PFHpA	6.567	367.1 -> 322.0	28817	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C5-PFHxA	5.646	318.0 -> 273.0	62019	2.52 µg/L	0.024
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.487	268.3 -> 223.0	79216	5.05 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C6-PFDA	8.265	519.1 -> 474.1	20032	1.32 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C7-PFUnDA	8.747	570.0 -> 525.1	21009	1.27 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C8-FOSA	9.845	506.1 -> 77.8	17031	2.13 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.3%	
13C8-PFOA	7.213	421.1 -> 376.0	37962	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.429	507.1 -> 79.9	12004	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C9-PFNA	7.771	472.1 -> 427.0	21058	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSAA	8.335	573.2 -> 419.0	16770	4.66 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C3-HFPO-DA	6.014	286.9 -> 168.9	36600	9.80 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSA	11.089	515.0 -> 219.0	8695	2.30 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.0%	
d5-EtFOSAA	8.545	589.2 -> 419.0	14391	4.92 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d7-MeFOSE	10.972	623.2 -> 58.9	58204	18.48 µg/L	-0.002
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.9%	
d9-EtFOSE	11.281	639.2 -> 58.9	70991	18.42 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.7%	
d5-EtFOSA	11.373	531.1 -> 219.0	9718	2.38 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
Target Compounds					QValue
4:2FTS	5.336	327.1 -> 307.0	17228	7.92 µg/L	96
		327.1 -> 80.9	7651		
6:2FTS	6.986	427.1 -> 407.0	13325	8.80 µg/L	99
		427.1 -> 80.9	5904		
8:2FTS	8.053	527.1 -> 507.0	14241	8.81 µg/L	95
		527.1 -> 80.8	5832		
EtFOSAA	8.545	584.2 -> 419.1	4313	2.01 µg/L	m 87
		584.2 -> 526.0	2408		
FOSA	9.848	498.1 -> 77.9	11367	2.07 µg/L	97
		498.1 -> 478.0	390		
MeFOSAA	8.336	570.1 -> 419.0	5255	2.27 µg/L	m 97
		570.1 -> 483.0	1104		
PFBA	3.071	212.8 -> 168.9	26063	7.77 µg/L	100
PFBS	5.565	298.7 -> 79.9	9079	1.82 µg/L	98
		298.7 -> 98.8	3558		
PFDA	8.278	512.9 -> 469.0	25050	2.19 µg/L	99
		512.9 -> 219.0	5025		
PFDODA	9.206	613.1 -> 569.0	33876	2.04 µg/L	97
		613.1 -> 319.0	5104		
PFDS	9.369	599.0 -> 79.9	4988	1.86 µg/L	97

7.7.20
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2553			
PFHpA	6.568	363.1 -> 319.0	30429	2.12	µg/L	99
		363.1 -> 169.0	5555			
PFHpS	7.910	449.0 -> 79.9	5999	1.92	µg/L	98
		449.0 -> 98.9	3264			
PFHxA	5.649	313.0 -> 269.0	37702	2.05	µg/L	99
		313.0 -> 118.9	1284			
PFHxS	7.317	398.7 -> 79.9	5114	1.79	µg/L	m 96
		398.7 -> 98.9	2749			
PFNA	7.771	463.0 -> 419.0	22635	2.01	µg/L	98
		463.0 -> 219.0	5580			
PFNS	8.911	548.8 -> 79.9	3536	1.91	µg/L	94
		548.8 -> 98.9	1755			
PFOA	7.215	413.0 -> 369.0	35261	1.99	µg/L	99
		413.0 -> 169.0	7505			
PFOS	8.431	498.9 -> 79.9	8710	1.86	µg/L	m 99
		498.9 -> 98.8	4180			
PFPeA	4.489	263.0 -> 219.0	63581	4.24	µg/L	100
PFPeS	6.606	349.1 -> 79.9	4322	1.77	µg/L	99
		349.1 -> 98.9	1980			
PFTeDA	9.999	713.1 -> 669.0	29945	2.05	µg/L	100
		713.1 -> 168.9	2639			
PFTrDA	9.616	663.0 -> 619.0	42936	2.01	µg/L	100
		663.0 -> 168.9	4340			
PFUnDA	8.747	563.1 -> 519.0	24492	2.06	µg/L	99
		563.1 -> 269.1	4702			
11CI-PF3OUdS	9.668	630.9 -> 450.9	47721	5.00	µg/L	98
		632.9 -> 452.9	15277			
9CI-PF3ONS	8.775	530.8 -> 351.0	49792	4.67	µg/L	99
		532.8 -> 353.0	15604			
ADONA	6.818	376.9 -> 250.9	105705	4.81	µg/L	99
		376.9 -> 84.8	28038			
HFPO-DA	6.015	284.9 -> 168.9	13511	4.66	µg/L	99
		284.9 -> 184.9	1808			
3:3FTCA	4.029	241.0 -> 177.0	9076	12.99	µg/L	99
		241.0 -> 117.0	842			
5:3FTCA	6.343	341.0 -> 237.1	168699	65.07	µg/L	99
		341.0 -> 217.0	118893			
7:3FTCA	7.773	441.0 -> 316.9	67504	63.53	µg/L	97
		441.0 -> 336.9	148597			
EtFOSA	11.375	526.0 -> 219.0	17736	5.12	µg/L	m 100
		526.0 -> 169.0	23887			
EtFOSE	11.295	630.0 -> 58.9	27851	12.73	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	14293	5.08	µg/L	m 98
		511.9 -> 169.0	21102			
MeFOSE	10.997	616.1 -> 58.9	26121	12.77	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	4248	1.83	µg/L	98
		699.1 -> 98.8	2475			
NFDHA	5.541	295.0 -> 201.0	6158	4.99	µg/L	100
		295.0 -> 84.9	1609			
PFMBA	4.891	279.0 -> 85.1	43483	5.07	µg/L	100
PFMPA	3.653	229.0 -> 84.9	38485	5.13	µg/L	100
PFEESA	6.083	314.8 -> 134.9	68139	4.42	µg/L	99
		314.8 -> 82.9	2541			

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.20
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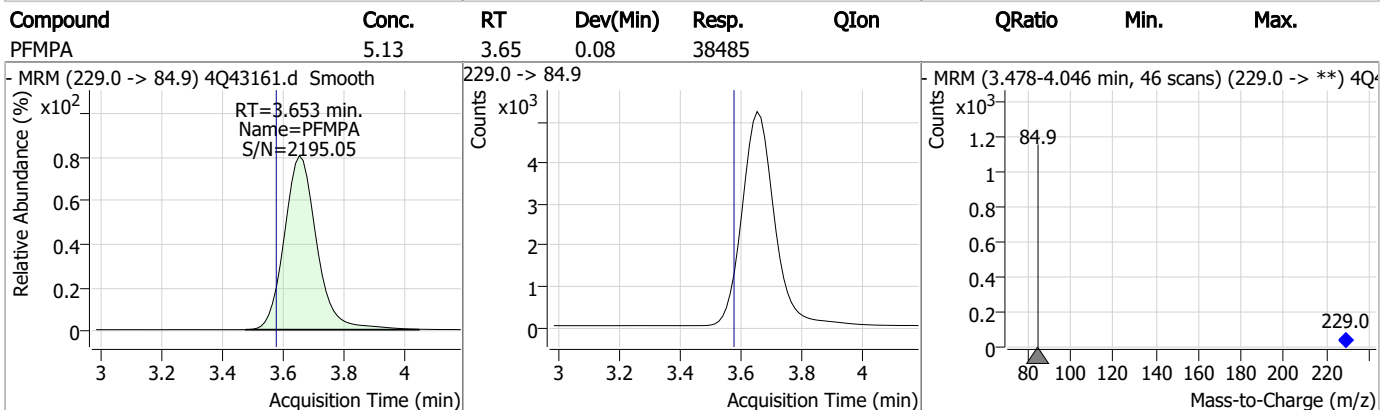
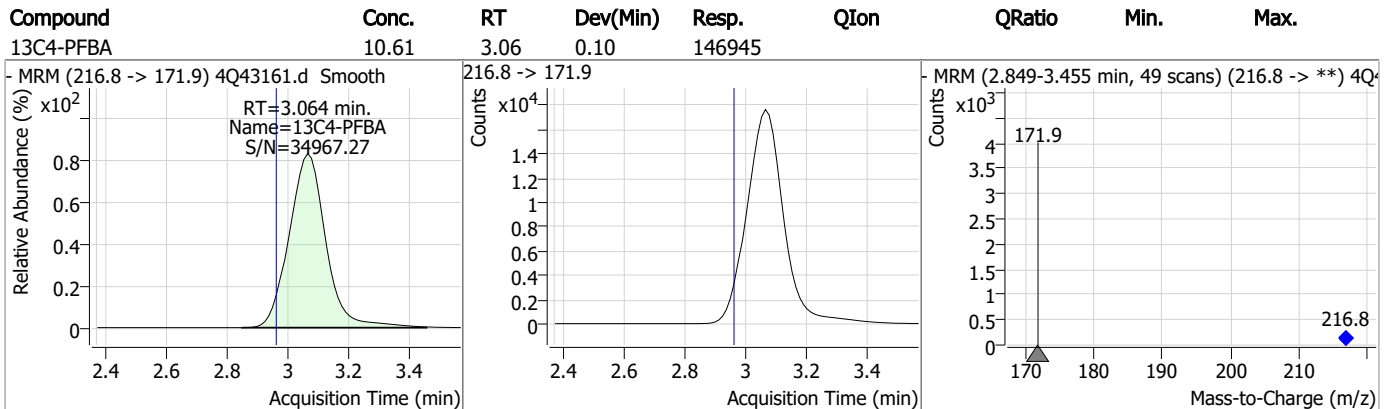
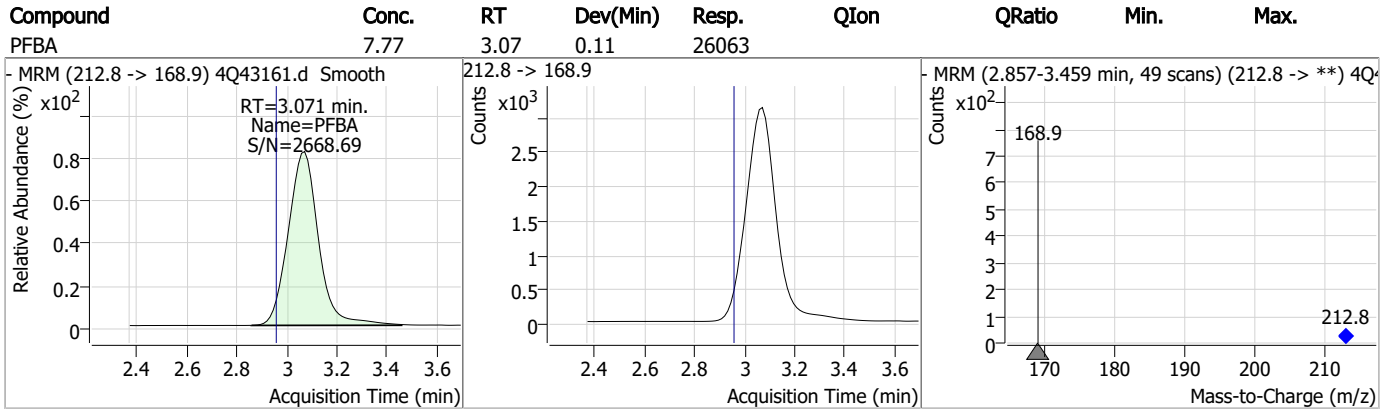
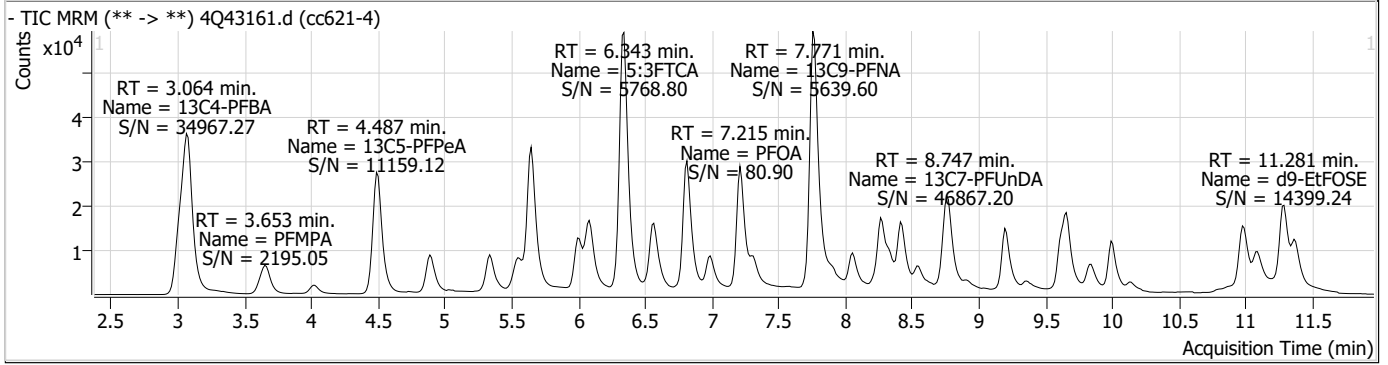
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.20

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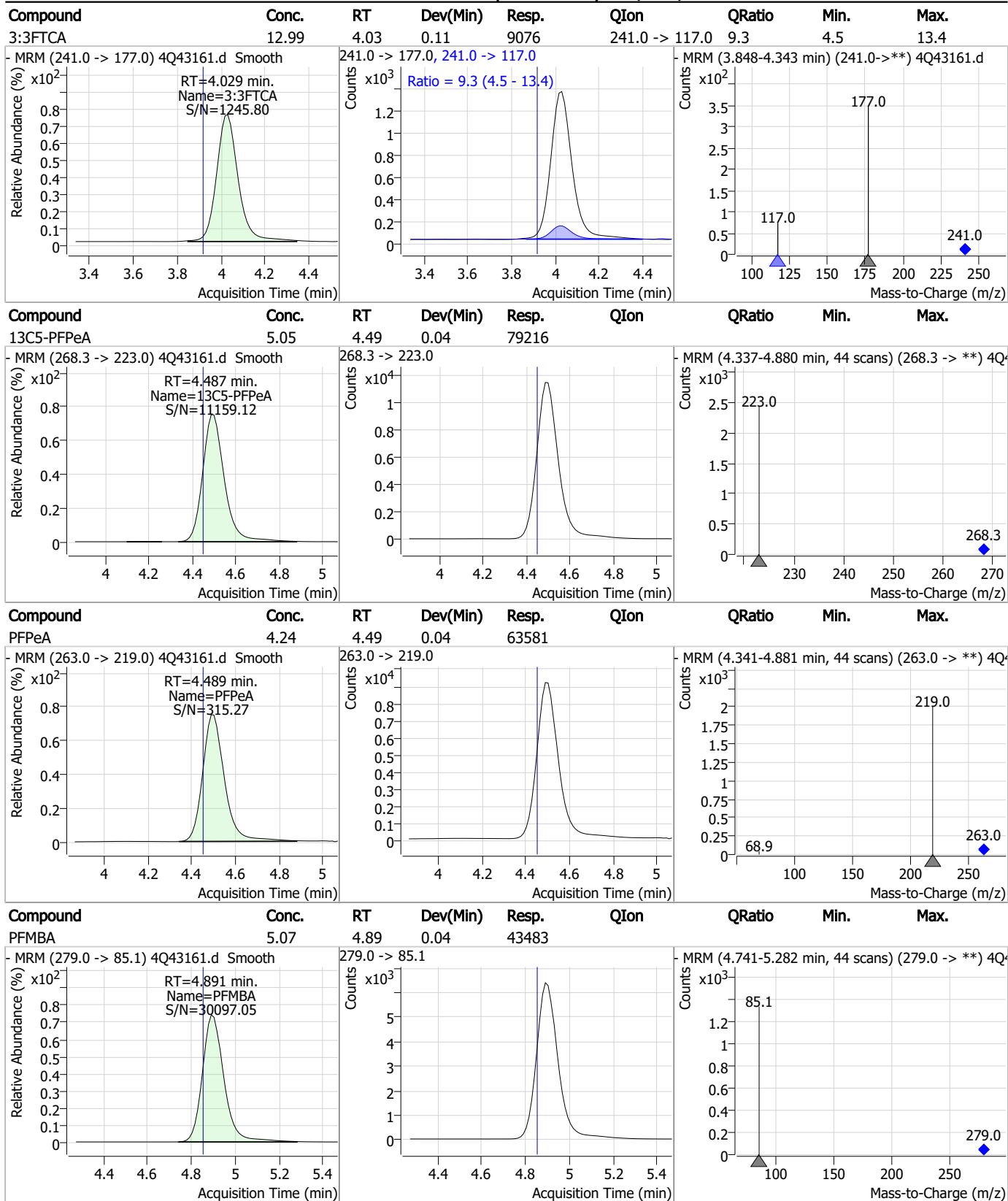
Perfluorinated Compounds by LC/MS/MS



7.7.20
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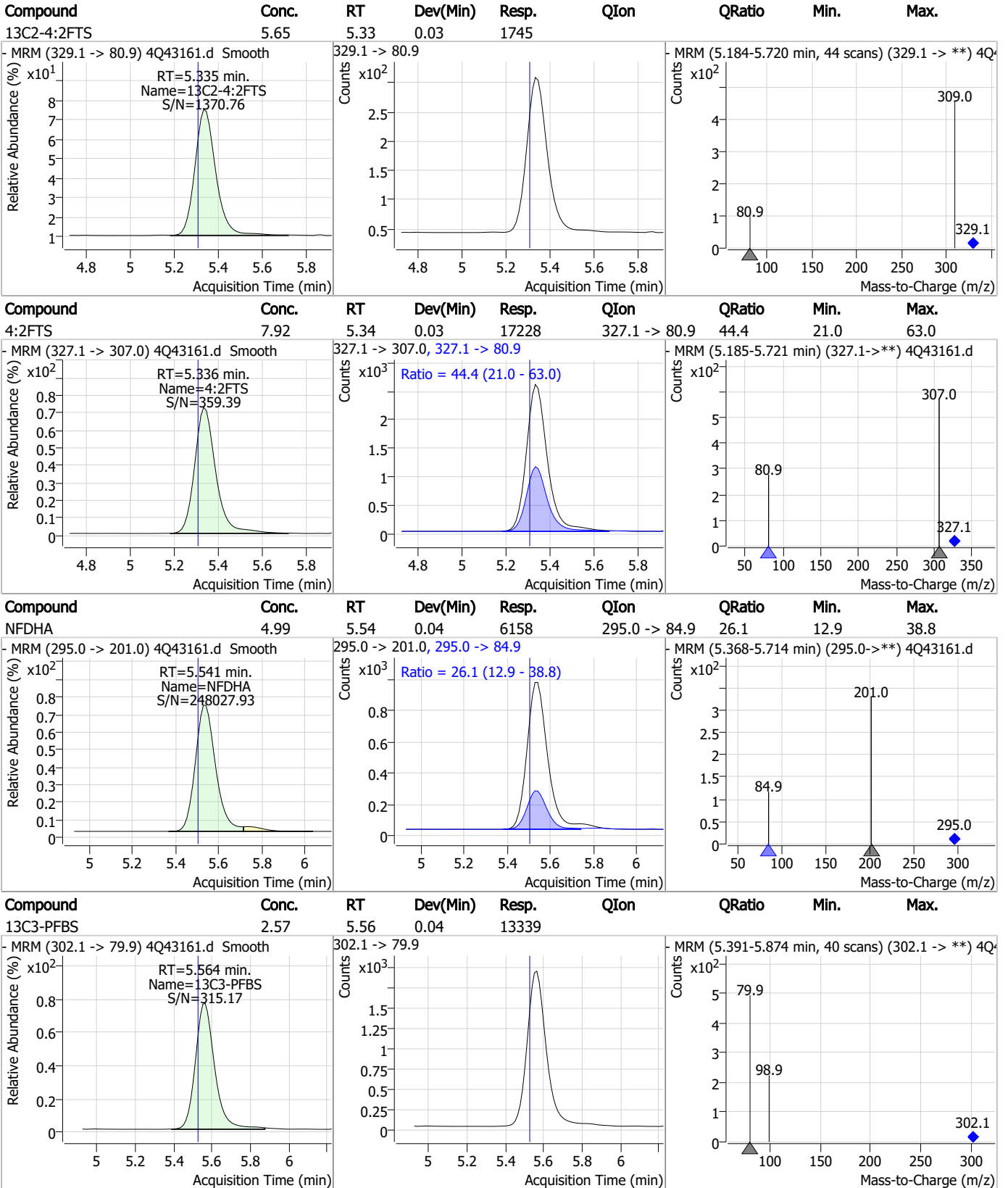


Perfluorinated Compounds by LC/MS/MS



7.7.20
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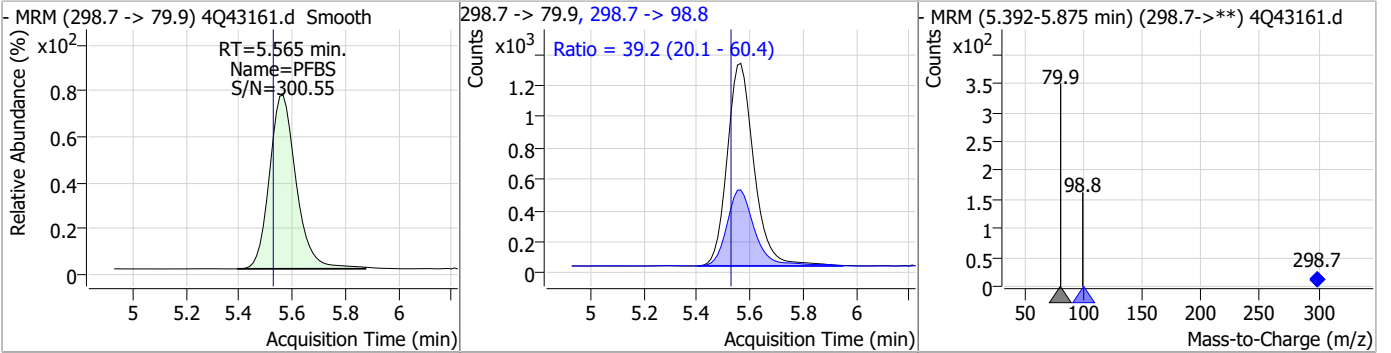
Perfluorinated Compounds by LC/MS/MS



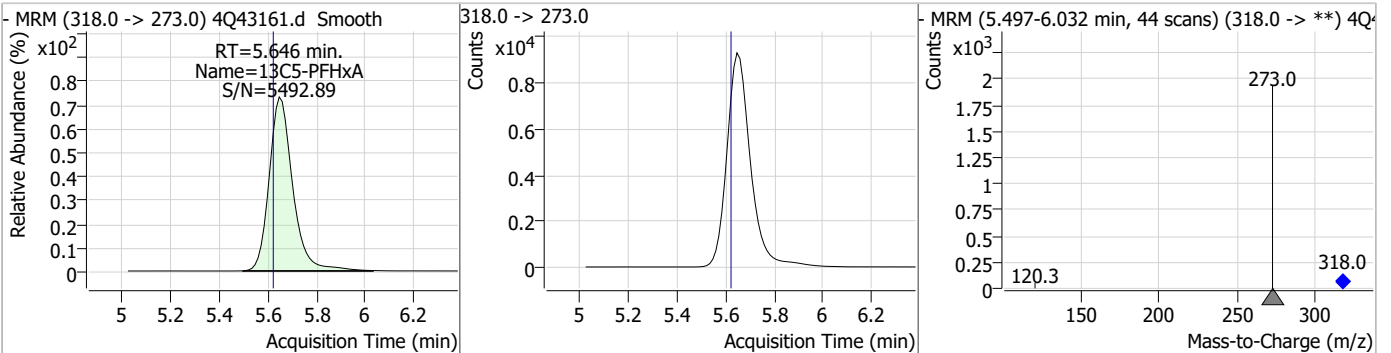
7.7.20 7

Perfluorinated Compounds by LC/MS/MS

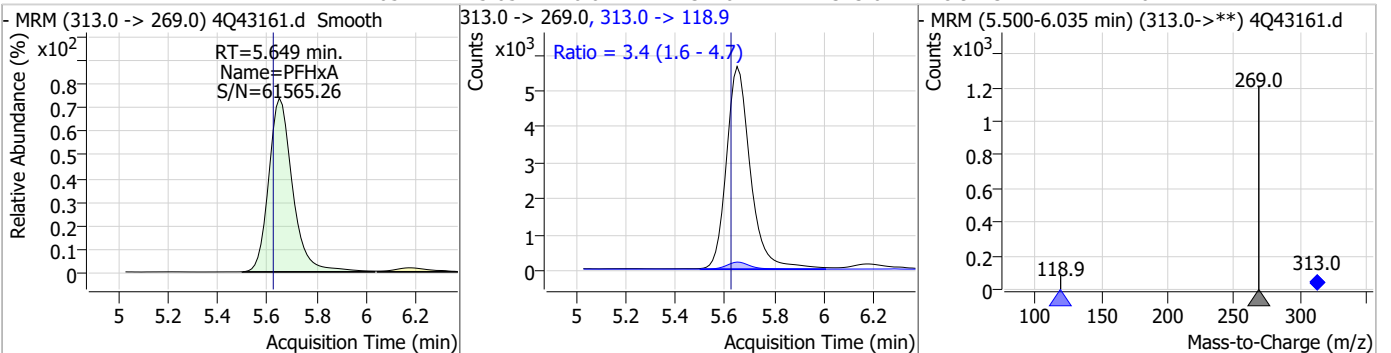
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.82	5.56	0.04	9079	298.7 -> 98.8	39.2	20.1	60.4



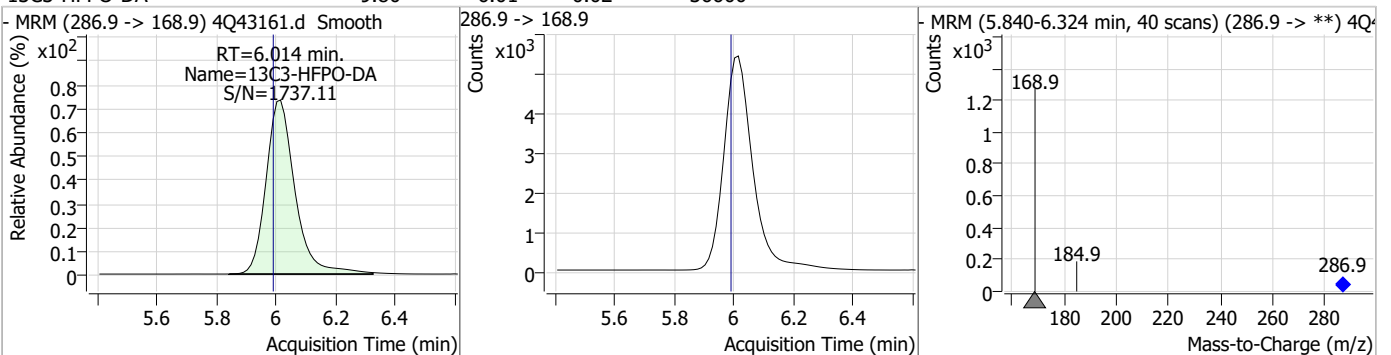
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.65	0.02	62019				



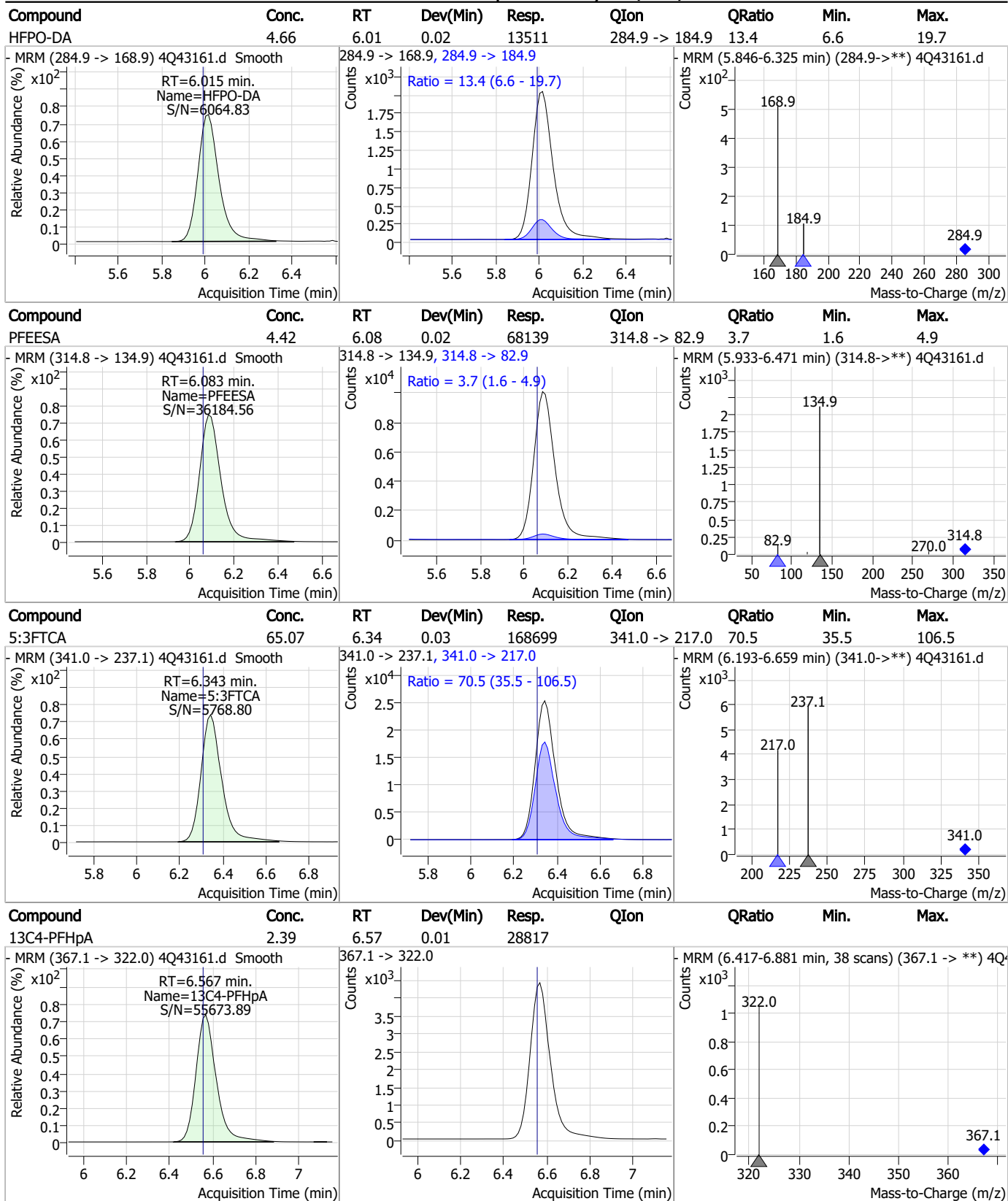
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.05	5.65	0.02	37702	313.0 -> 118.9	3.4	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.80	6.01	0.02	36600				

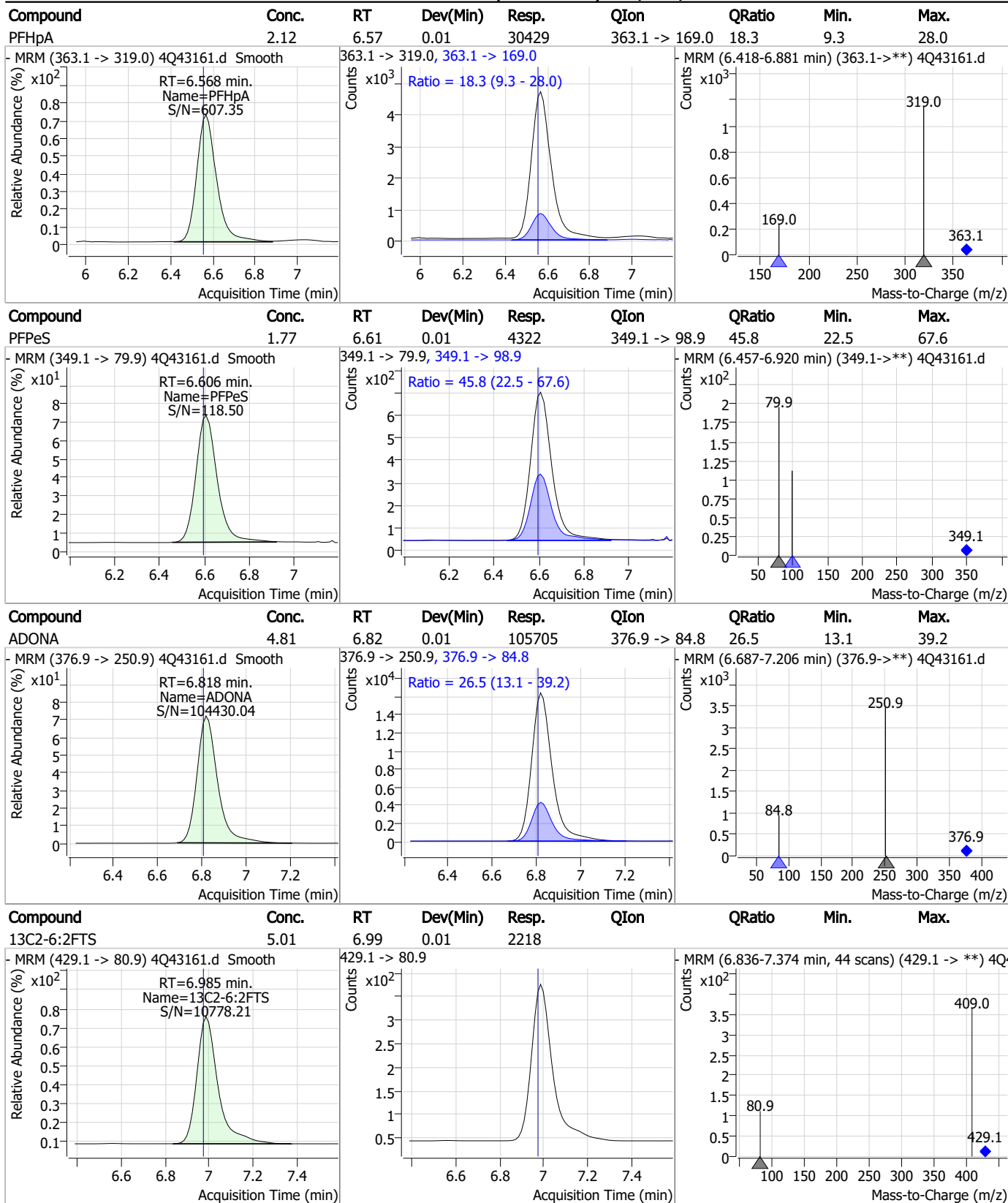


Perfluorinated Compounds by LC/MS/MS



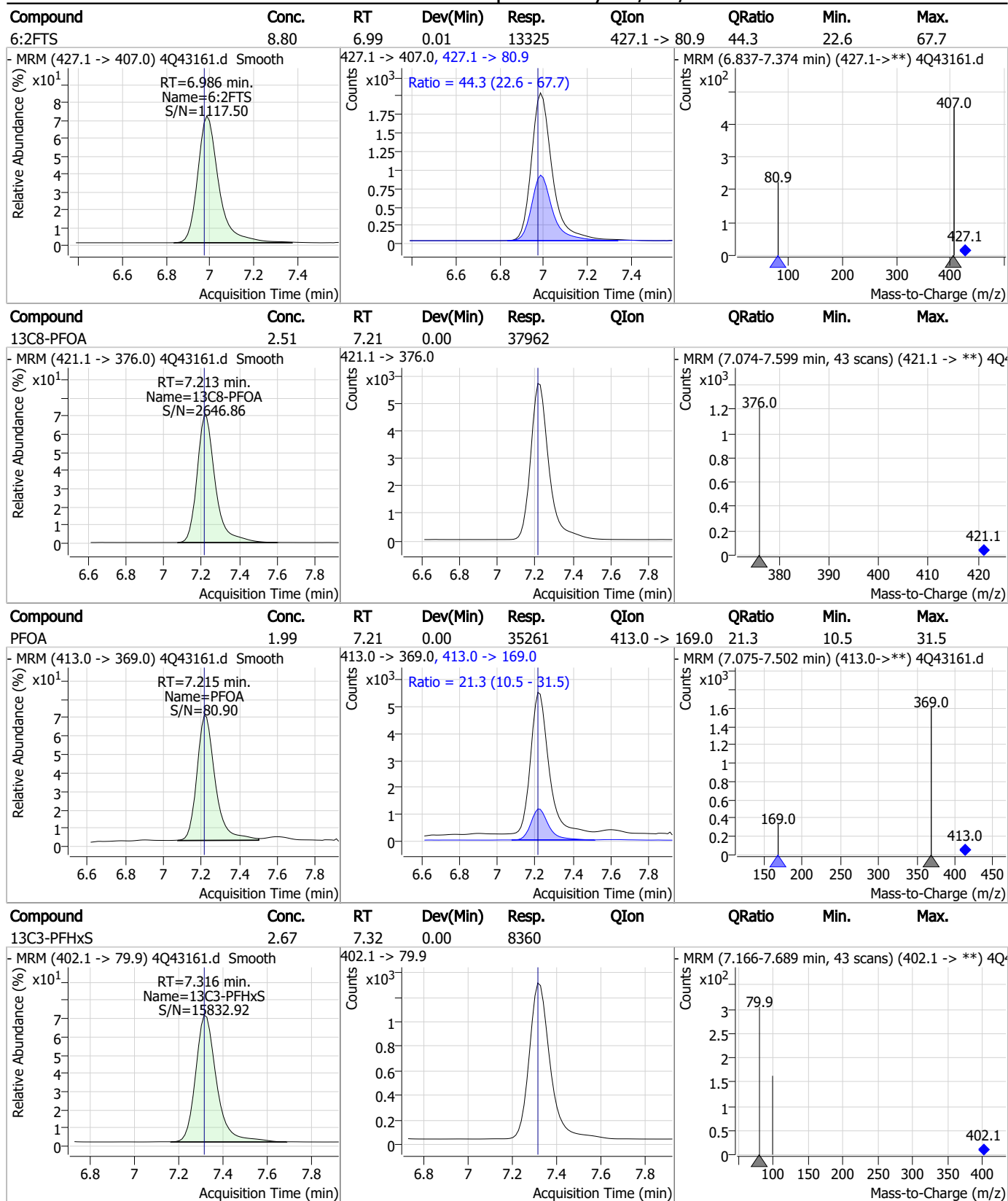
7.7.20 7

Perfluorinated Compounds by LC/MS/MS



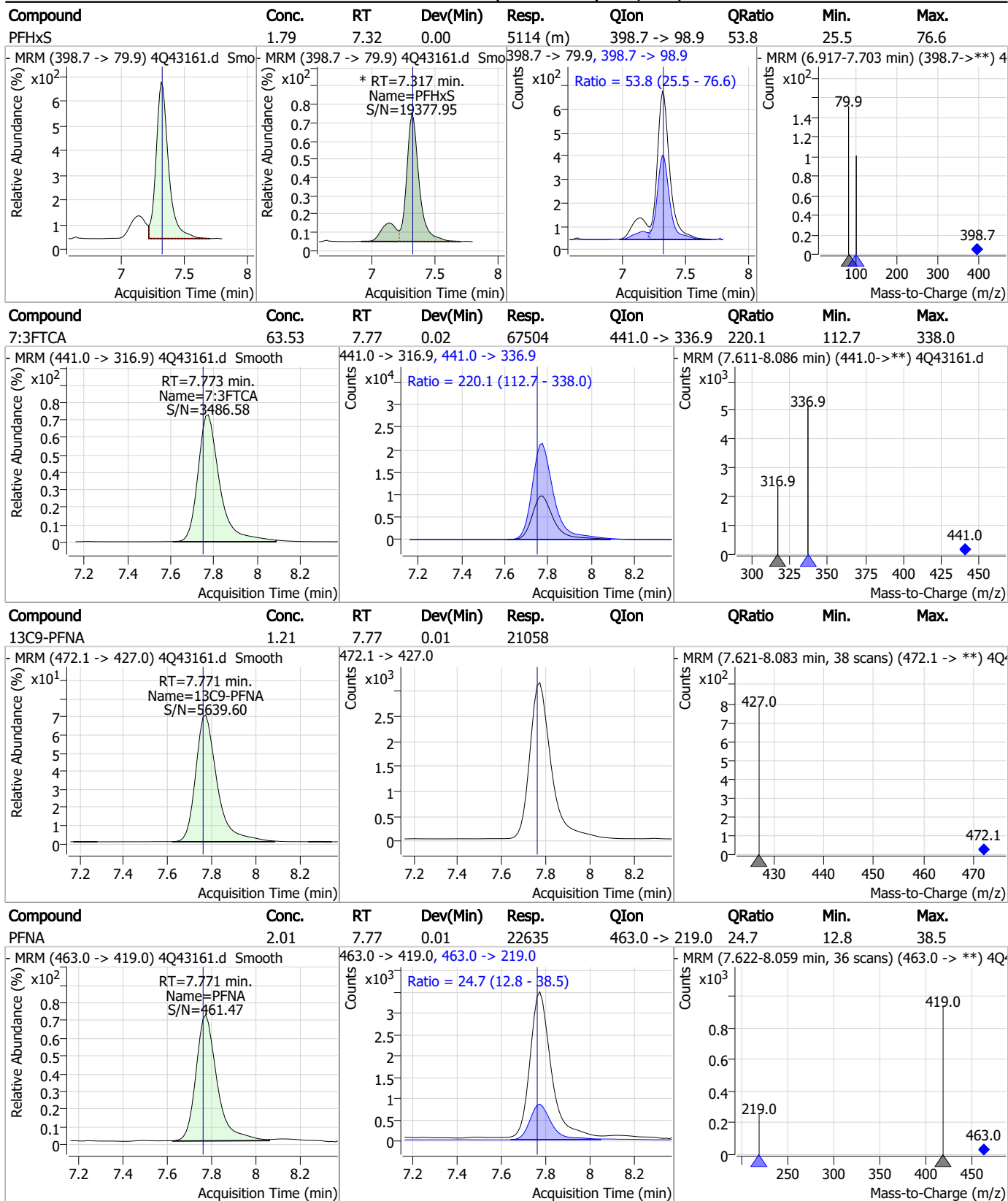
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Perfluorinated Compounds by LC/MS/MS



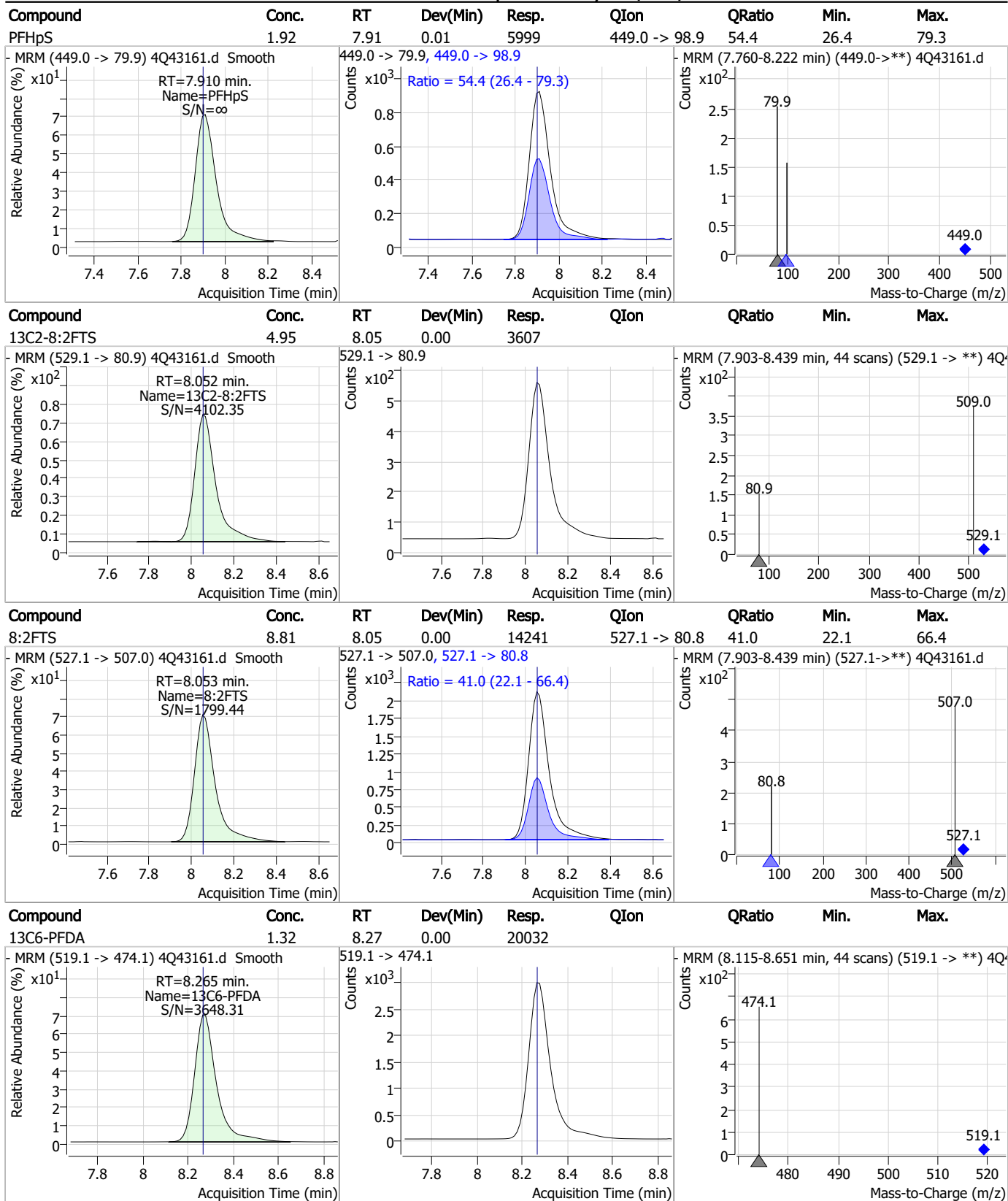
7.7.20 7

Perfluorinated Compounds by LC/MS/MS



7.7.20
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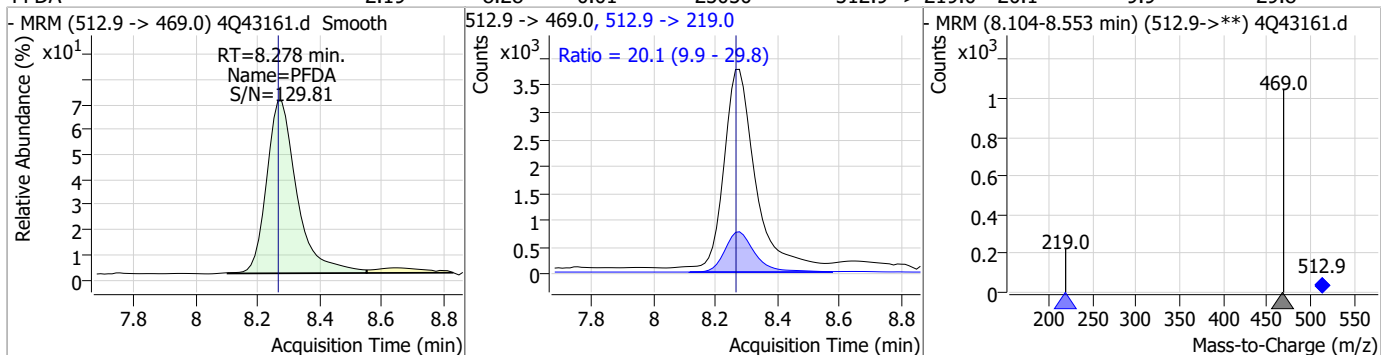
Perfluorinated Compounds by LC/MS/MS



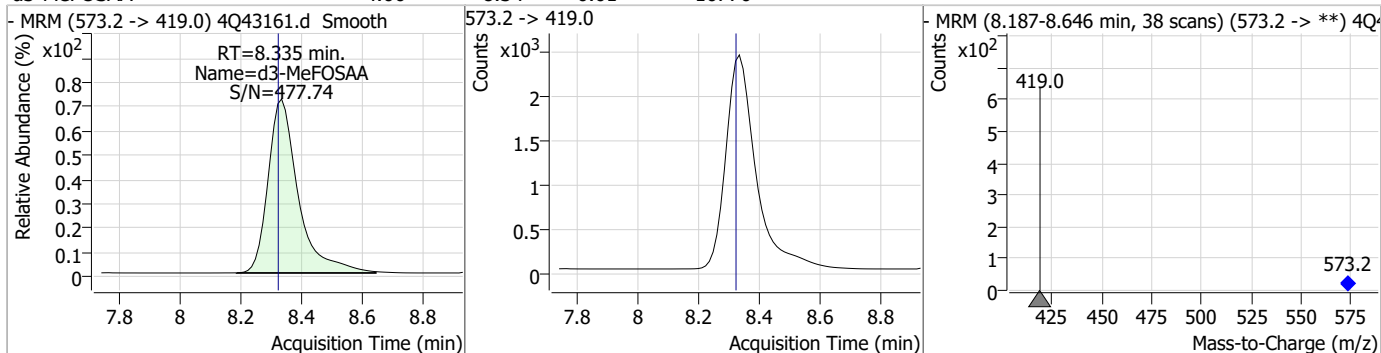
7.7.20
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Perfluorinated Compounds by LC/MS/MS

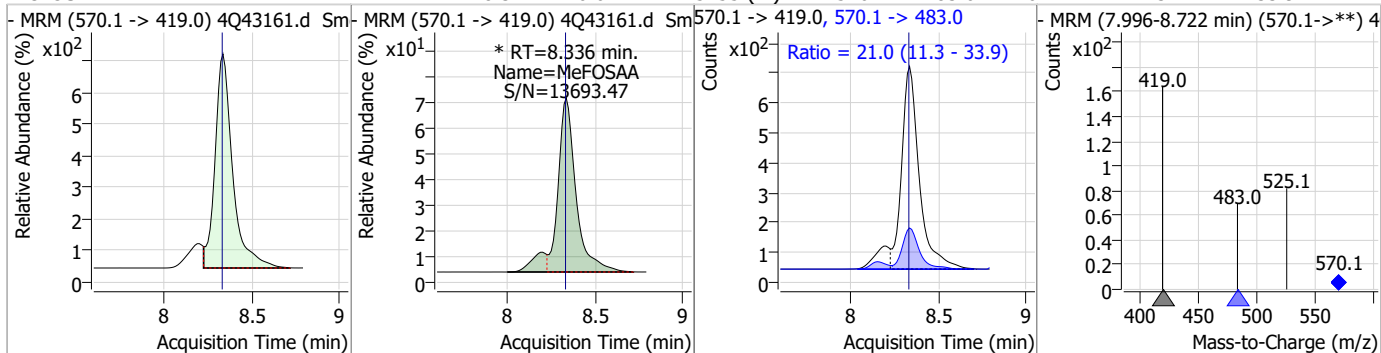
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.19	8.28	0.01	25050	512.9 -> 219.0	20.1	9.9	29.8



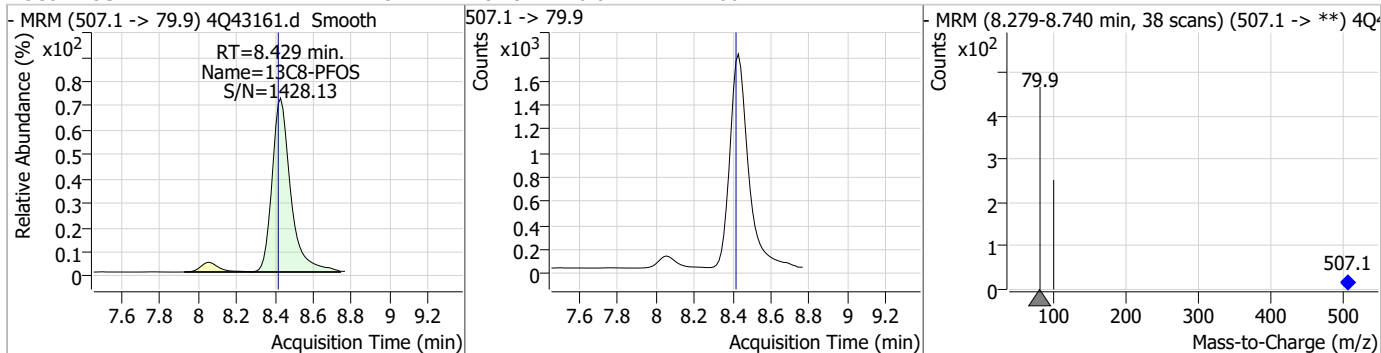
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.66	8.34	0.01	16770				



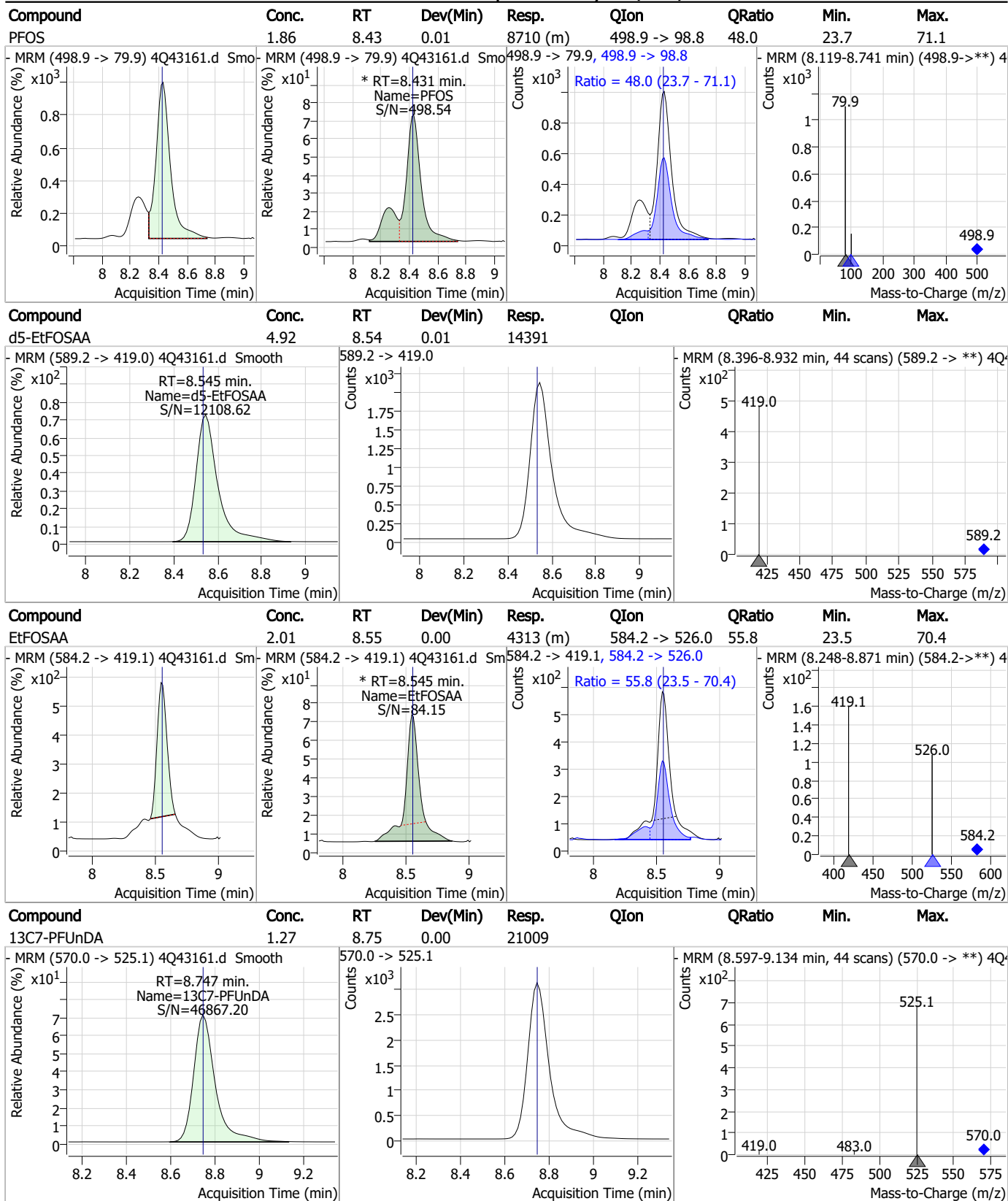
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.27	8.34	0.01	5255 (m)	570.1 -> 483.0	21.0	11.3	33.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.43	0.01	12004				



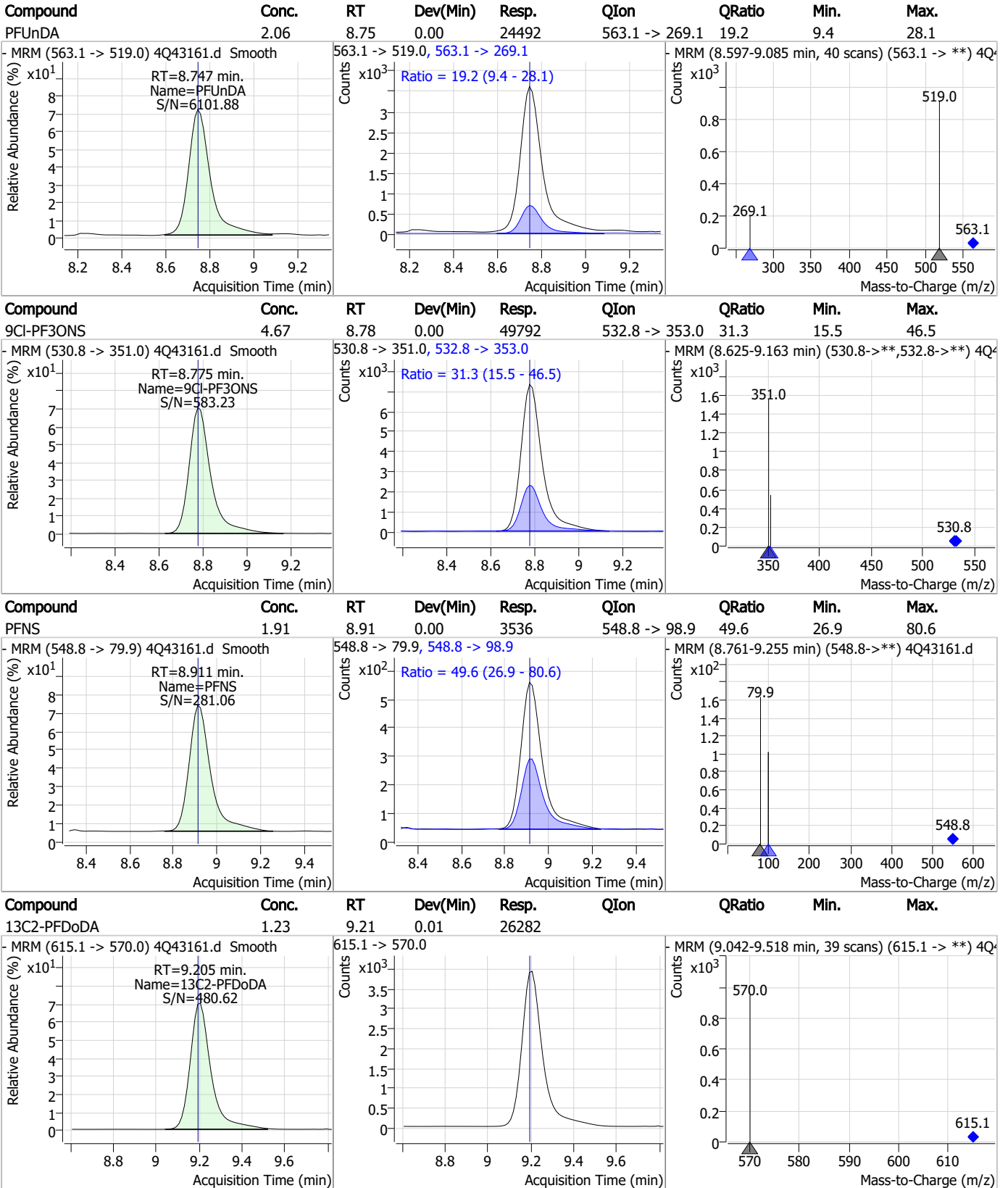
Perfluorinated Compounds by LC/MS/MS



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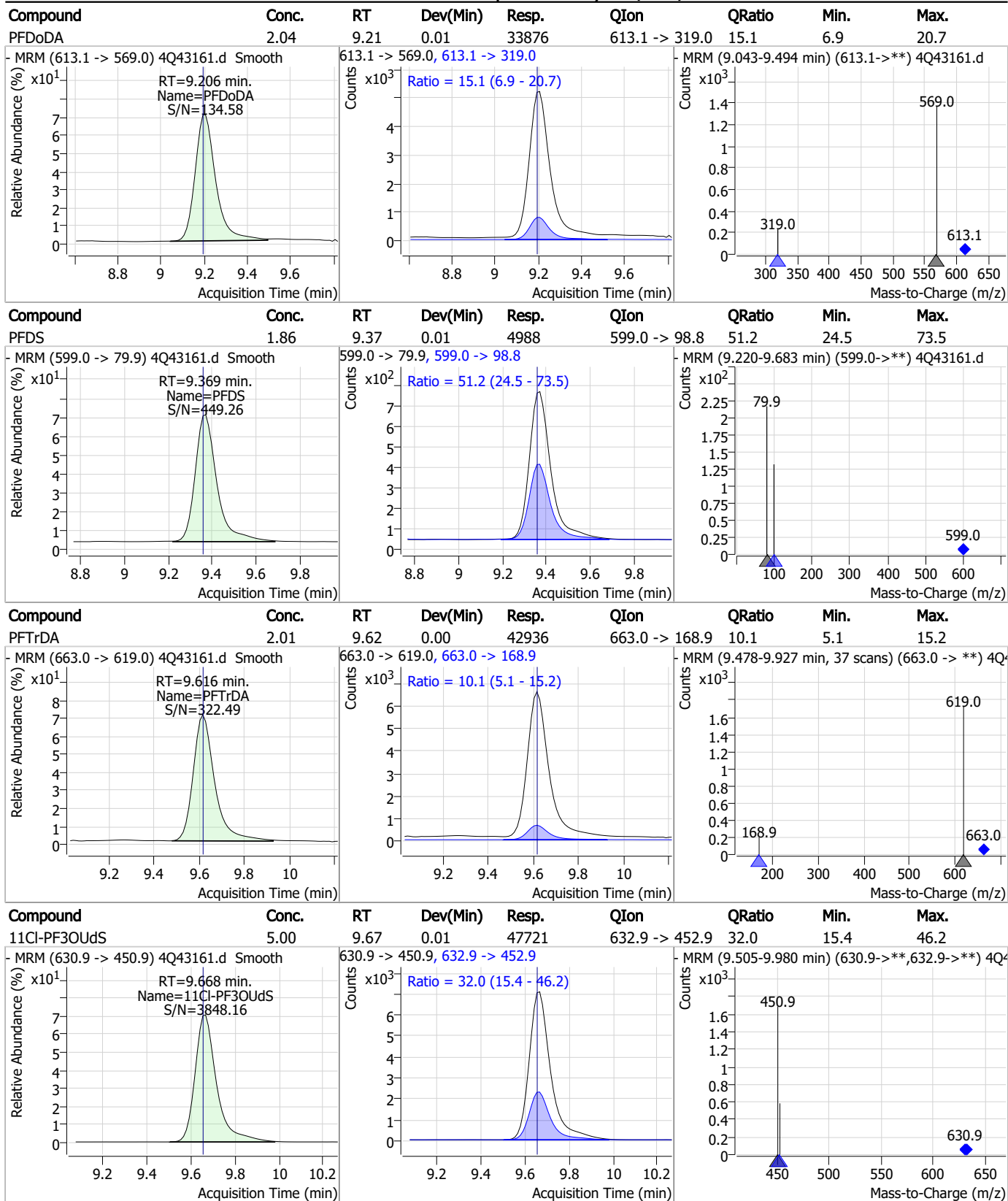
Perfluorinated Compounds by LC/MS/MS



7.7.20 7

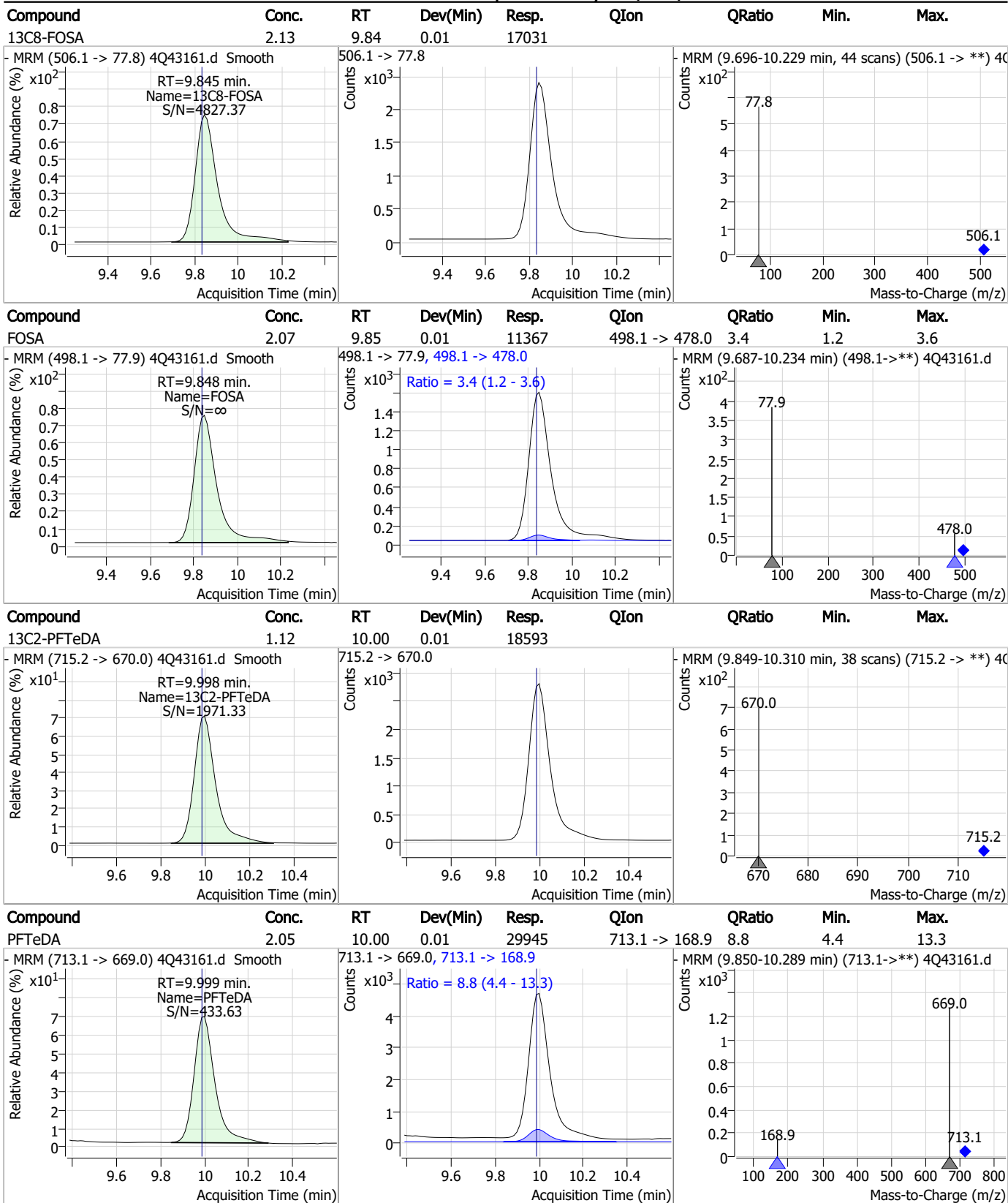


Perfluorinated Compounds by LC/MS/MS



7.7.20
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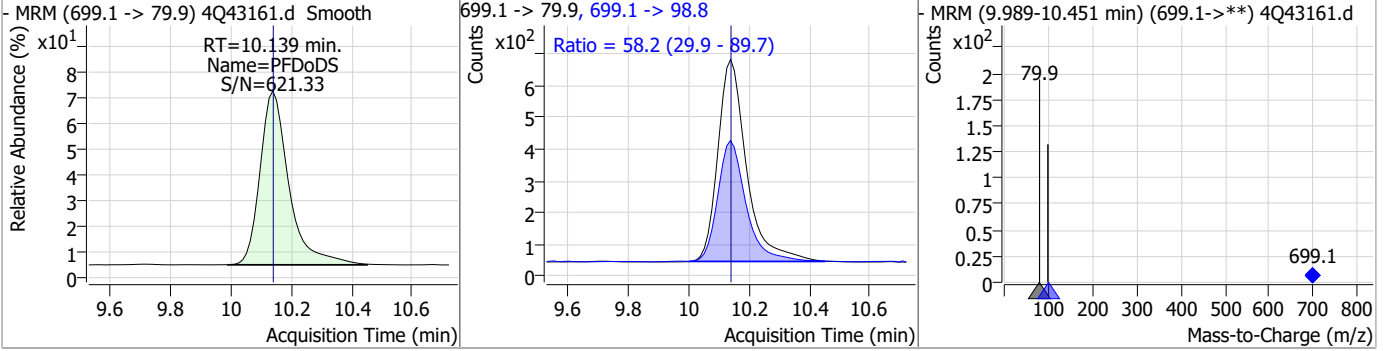
Perfluorinated Compounds by LC/MS/MS



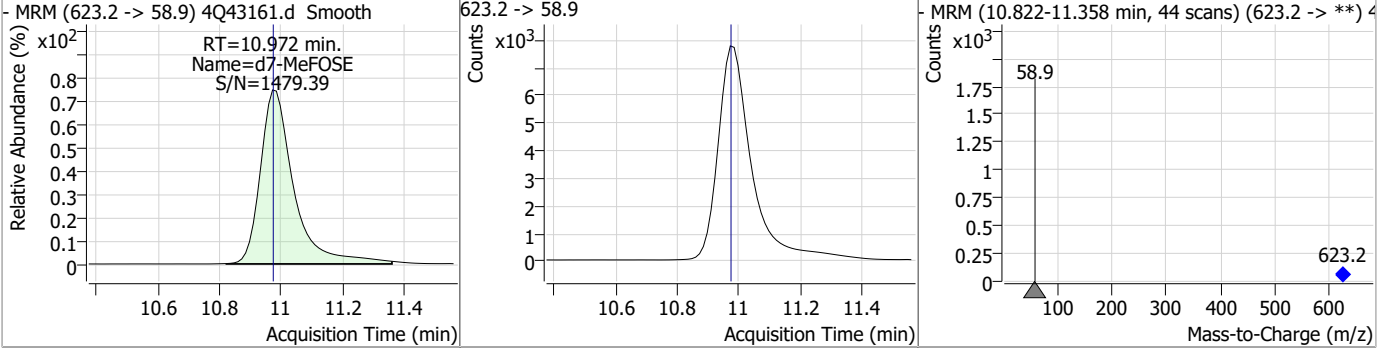
7.7.20
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Perfluorinated Compounds by LC/MS/MS

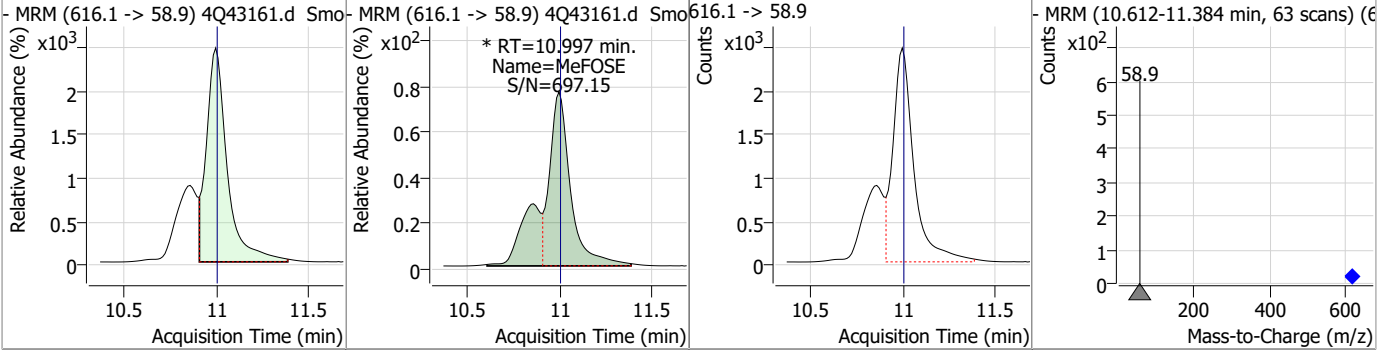
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.83	10.14	0.00	4248	699.1 -> 98.8	58.2	29.9	89.7



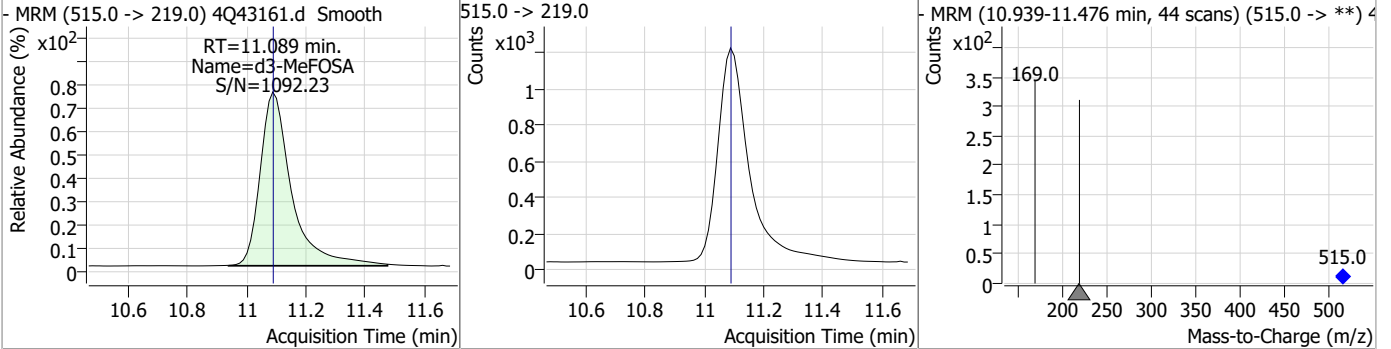
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.48	10.97	0.00	58204				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.77	11.00	0.00	26121 (m)				



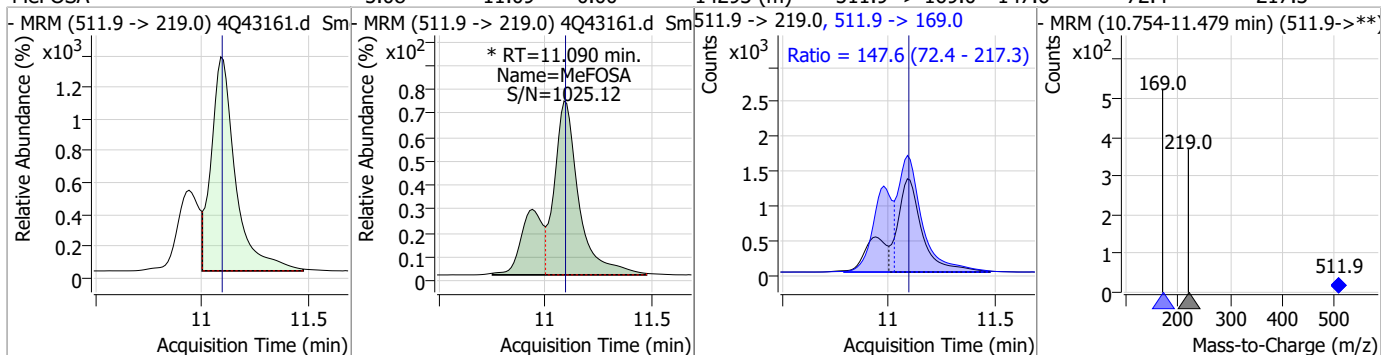
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.30	11.09	0.00	8695				



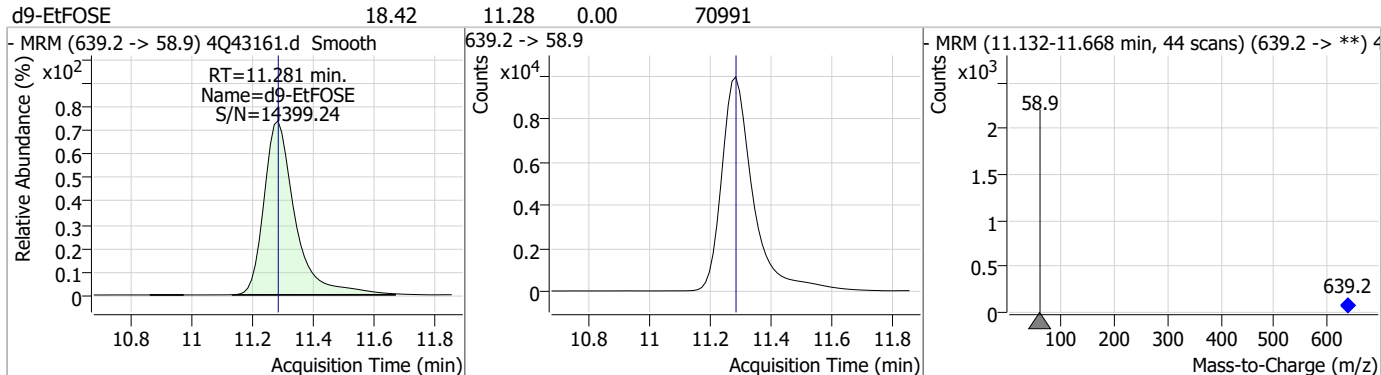
7.7.20
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Perfluorinated Compounds by LC/MS/MS

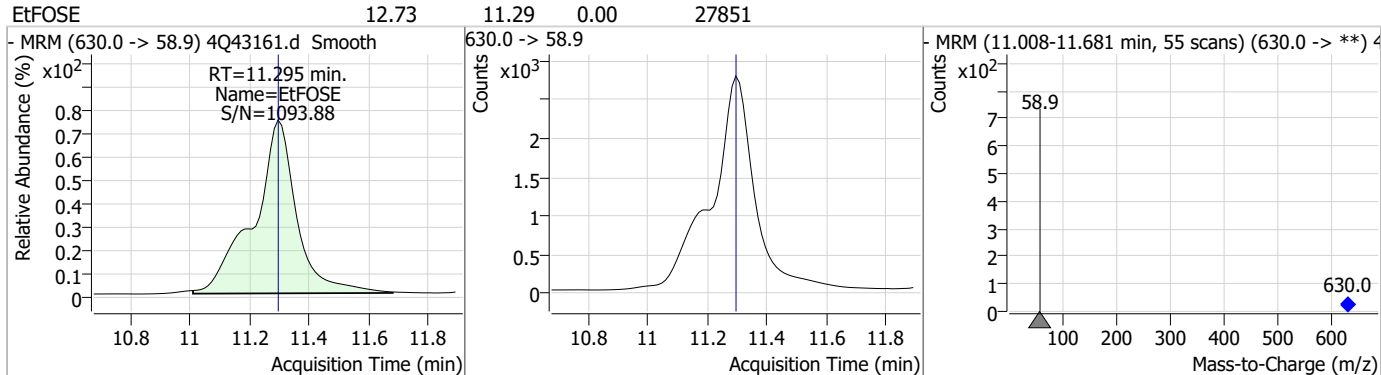
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.08	11.09	0.00	14293 (m)	511.9 -> 169.0	147.6	72.4	217.3



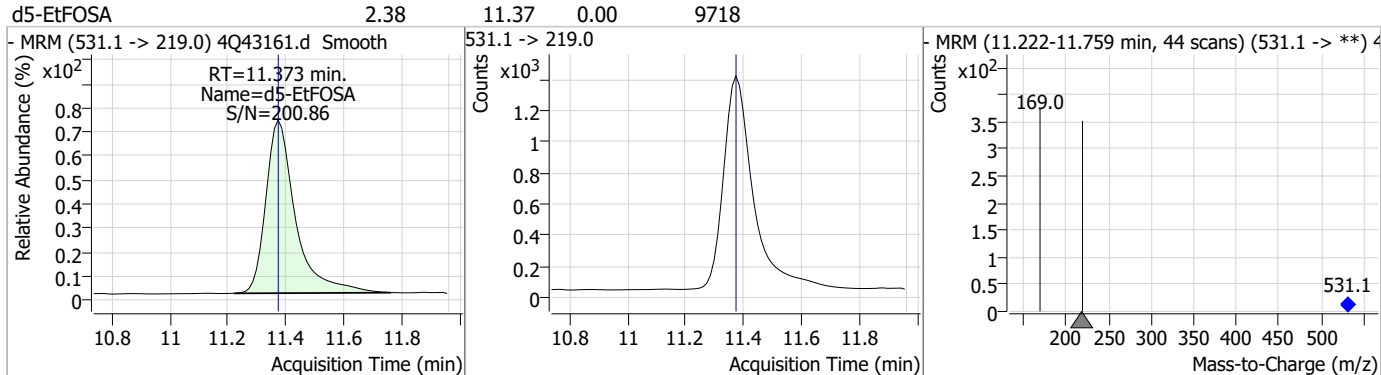
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.42	11.28	0.00	70991				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.73	11.29	0.00	27851				

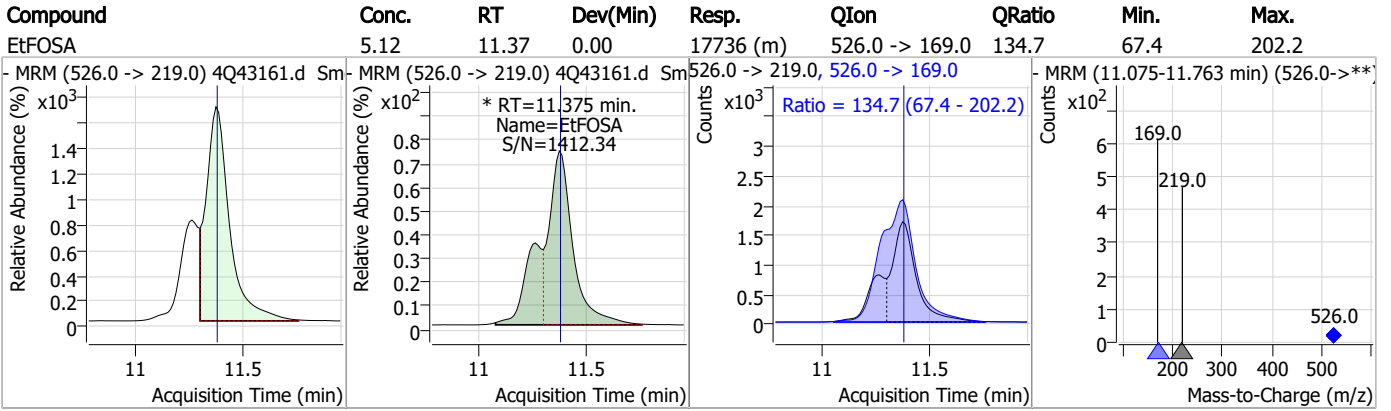


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.38	11.37	0.00	9718				



7.7.20
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Perfluorinated Compounds by LC/MS/MS



7.7.20
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Manual Integration Approval Summary

Sample Number: S4Q624-CC621
Lab FileID: 4Q43161.D
Injection Time: 04/18/23 14:29

Method: EPA DRAFT 1633
Analyst approved: 04/19/23 13:20 Martha Valls
Supervisor approved: 04/19/23 16:26 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.34	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.54	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.20.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43173.d
 Operator : marthav
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 4/18/2023 5:17:53 PM
 Sample Name : cc621-4
 Vial : P1-A5
 DA Method File : 1633_041423_S4Q621.quantmethod.xml
 Batch Name : s4q624.batch.bin
 Sample Information : OP96296,S4q624,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	139131	10.00 µg/L	0.000
M5-PFPeA	4.449	268.3 -> 223.0	76849	5.00 µg/L	0.000
M5-PFHxA	5.634	318.0 -> 273.0	62106	2.50 µg/L	0.012
M4-PFHpA	6.555	367.1 -> 322.0	31429	2.50 µg/L	0.000
M8-PFOA	7.213	421.1 -> 376.0	36923	2.50 µg/L	0.000
M9-PFNA	7.771	472.1 -> 427.0	20726	1.25 µg/L	0.012
M6-PFDA	8.265	519.1 -> 474.1	20118	1.25 µg/L	-0.001
M7-PFUnDA	8.747	570.0 -> 525.1	20979	1.25 µg/L	-0.001
M2-PFDoDA	9.205	615.1 -> 570.0	27442	1.25 µg/L	0.011
M2-PFTeDA	9.998	715.2 -> 670.0	19256	1.25 µg/L	0.011
M8-FOSA	9.845	506.1 -> 77.8	16591	2.50 µg/L	0.011
M3-PFBS	5.539	302.1 -> 79.9	13200	2.50 µg/L	0.012
M3-PFHxS	7.316	402.1 -> 79.9	7887	2.50 µg/L	-0.001
M8-PFOS	8.429	507.1 -> 79.9	11528	2.50 µg/L	0.012
M2-4:2FTS	5.322	329.1 -> 80.9	1722	5.00 µg/L	0.013
M2-6:2FTS	6.985	429.1 -> 80.9	2393	5.00 µg/L	0.012
M2-8:2FTS	8.052	529.1 -> 80.9	3734	5.00 µg/L	-0.001
M3-MeFOSAA	8.335	573.2 -> 419.0	18058	5.00 µg/L	0.011
M3-HFPO-DA	5.989	286.9 -> 168.9	36613	10.00 µg/L	0.000
M5-EtFOSAA	8.545	589.2 -> 419.0	15414	5.00 µg/L	0.011
M7-MeFOSE	10.984	623.2 -> 58.9	59346	25.00 µg/L	0.010
M9-EtFOSE	11.281	639.2 -> 58.9	73584	25.00 µg/L	-0.001
M5-EtFOSA	11.373	531.1 -> 219.0	9949	2.50 µg/L	-0.001
M3-MeFOSA	11.089	515.0 -> 219.0	8985	2.50 µg/L	-0.002
13C4-PFOS	8.430	502.8 -> 79.9	12351	2.50 µg/L	0.012
13C3-PFBA	2.966	216.0 -> 172.0	76007	5.00 µg/L	0.000
18O2-PFHxS	7.315	403.0 -> 83.9	5372	2.50 µg/L	-0.001
13C4-PFOA	7.214	417.1 -> 372.0	46607	2.50 µg/L	0.000
13C2-PFDA	8.278	515.1 -> 470.1	18434	1.25 µg/L	0.011
13C5-PFNA	7.771	468.0 -> 423.0	23176	1.25 µg/L	0.012
13C2-PFHxA	5.635	315.1 -> 270.0	53084	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.322	329.1 -> 80.9	1722	5.87 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.3%		
13C2-6:2FTS	6.985	429.1 -> 80.9	2393	5.68 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C2-8:2FTS	8.052	529.1 -> 80.9	3734	5.39 µg/L	-0.001
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C2-PFDoDA	9.205	615.1 -> 570.0	27442	1.21 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-PFTeDA	9.998	715.2 -> 670.0	19256	1.09 µg/L	0.011
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C3-PFBS	5.539	302.1 -> 79.9	13200	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFHxS	7.316	402.1 -> 79.9	7887	2.65 µg/L	-0.001

7.7.21
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C4-PFBA	2.961	216.8 -> 171.9	139131	10.51 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C4-PFHpA	6.555	367.1 -> 322.0	31429	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C5-PFHxA	5.634	318.0 -> 273.0	62106	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFPeA	4.449	268.3 -> 223.0	76849	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C6-PFDA	8.265	519.1 -> 474.1	20118	1.24 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C7-PFUnDA	8.747	570.0 -> 525.1	20979	1.19 µg/L	-0.001
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C8-FOSA	9.845	506.1 -> 77.8	16591	2.05 µg/L	0.011
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C8-PFOA	7.213	421.1 -> 376.0	36923	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-PFOS	8.429	507.1 -> 79.9	11528	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C9-PFNA	7.771	472.1 -> 427.0	20726	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSAA	8.335	573.2 -> 419.0	18058	4.96 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C3-HFPO-DA	5.989	286.9 -> 168.9	36613	9.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSA	11.089	515.0 -> 219.0	8985	2.35 µg/L	-0.002
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
d5-EtFOSAA	8.545	589.2 -> 419.0	15414	5.21 µg/L	0.011
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
d7-MeFOSE	10.984	623.2 -> 58.9	59346	18.63 µg/L	0.010
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 74.5%	
d9-EtFOSE	11.281	639.2 -> 58.9	73584	18.88 µg/L	-0.001
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.5%	
d5-EtFOSA	11.373	531.1 -> 219.0	9949	2.41 µg/L	-0.001
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
Target Compounds					QValue
4:2FTS	5.311	327.1 -> 307.0	16243	7.57 µg/L	98
		327.1 -> 80.9	7028		
6:2FTS	6.986	427.1 -> 407.0	13443	8.23 µg/L	96
		427.1 -> 80.9	6378		
8:2FTS	8.053	527.1 -> 507.0	14955	8.93 µg/L	96
		527.1 -> 80.8	6223		
EtFOSAA	8.545	584.2 -> 419.1	4822	2.09 µg/L	m 97
		584.2 -> 526.0	2185		
FOSA	9.848	498.1 -> 77.9	11279	2.11 µg/L	97
		498.1 -> 478.0	396		
MeFOSAA	8.336	570.1 -> 419.0	5020	2.02 µg/L	100
		570.1 -> 483.0	1136		
PFBA	2.970	212.8 -> 168.9	24639	7.75 µg/L	100
PFBS	5.540	298.7 -> 79.9	9047	1.84 µg/L	99
		298.7 -> 98.8	3715		
PFDA	8.266	512.9 -> 469.0	25921	2.25 µg/L	100
		512.9 -> 219.0	5120		
PFDODA	9.206	613.1 -> 569.0	35809	2.07 µg/L	99
		613.1 -> 319.0	5117		
PFDS	9.369	599.0 -> 79.9	4982	1.93 µg/L	95

7.7.21
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2611			
PFHpA	6.555	363.1 -> 319.0	32697	2.09	µg/L	99
		363.1 -> 169.0	5900			
PFHpS	7.897	449.0 -> 79.9	6574	2.19	µg/L	93
		449.0 -> 98.9	3142			
PFHxA	5.637	313.0 -> 269.0	36797	2.00	µg/L	100
		313.0 -> 118.9	1107			
PFHxS	7.317	398.7 -> 79.9	5243	1.94	µg/L	m 97
		398.7 -> 98.9	2553			
PFNA	7.771	463.0 -> 419.0	22633	2.04	µg/L	99
		463.0 -> 219.0	5925			
PFNS	8.911	548.8 -> 79.9	3647	2.06	µg/L	99
		548.8 -> 98.9	1938			
PFOA	7.215	413.0 -> 369.0	35262	2.04	µg/L	99
		413.0 -> 169.0	7196			
PFOS	8.431	498.9 -> 79.9	8189	1.82	µg/L	m 91
		498.9 -> 98.8	4389			
PFPeA	4.452	263.0 -> 219.0	62711	4.31	µg/L	100
PFPeS	6.594	349.1 -> 79.9	4815	2.09	µg/L	99
		349.1 -> 98.9	2215			
PFTeDA	9.999	713.1 -> 669.0	30377	2.00	µg/L	100
		713.1 -> 168.9	2653			
PFTrDA	9.616	663.0 -> 619.0	44511	2.00	µg/L	99
		663.0 -> 168.9	4260			
PFUnDA	8.747	563.1 -> 519.0	23400	1.97	µg/L	96
		563.1 -> 269.1	4814			
11Cl-PF3OUdS	9.668	630.9 -> 450.9	50187	5.25	µg/L	98
		632.9 -> 452.9	14845			
9Cl-PF3ONS	8.775	530.8 -> 351.0	50537	4.73	µg/L	100
		532.8 -> 353.0	15646			
ADONA	6.818	376.9 -> 250.9	111203	5.06	µg/L	99
		376.9 -> 84.8	29682			
HFPO-DA	6.002	284.9 -> 168.9	14007	4.83	µg/L	99
		284.9 -> 184.9	1779			
3:3FTCA	3.929	241.0 -> 177.0	9132	13.47	µg/L	98
		241.0 -> 117.0	876			
5:3FTCA	6.318	341.0 -> 237.1	171591	66.09	µg/L	97
		341.0 -> 217.0	117200			
7:3FTCA	7.761	441.0 -> 316.9	68635	64.50	µg/L	98
		441.0 -> 336.9	156838			
EtFOSA	11.387	526.0 -> 219.0	17788	5.02	µg/L	m 99
		526.0 -> 169.0	24123			
EtFOSE	11.295	630.0 -> 58.9	29547	13.03	µg/L	100
MeFOSA	11.090	511.9 -> 219.0	14935	5.14	µg/L	m 99
		511.9 -> 169.0	21468			
MeFOSE	10.997	616.1 -> 58.9	25844	12.39	µg/L	m 100
PFDoDS	10.139	699.1 -> 79.9	4321	1.94	µg/L	99
		699.1 -> 98.8	2542			
NFDHA	5.516	295.0 -> 201.0	6697	5.42	µg/L	93
		295.0 -> 84.9	1502			
PFMBA	4.866	279.0 -> 85.1	43694	5.25	µg/L	100
PFMPA	3.591	229.0 -> 84.9	39046	5.37	µg/L	100
PFEESA	6.071	314.8 -> 134.9	68878	4.46	µg/L	100
		314.8 -> 82.9	2351			

= Qualifier out of range, m = manually integrated, + = Area summed

7.7.21
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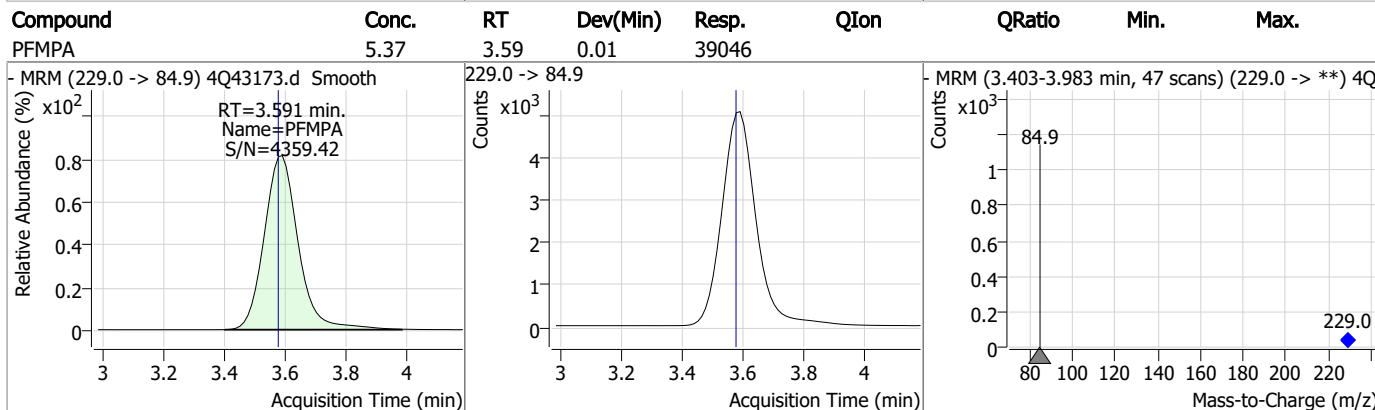
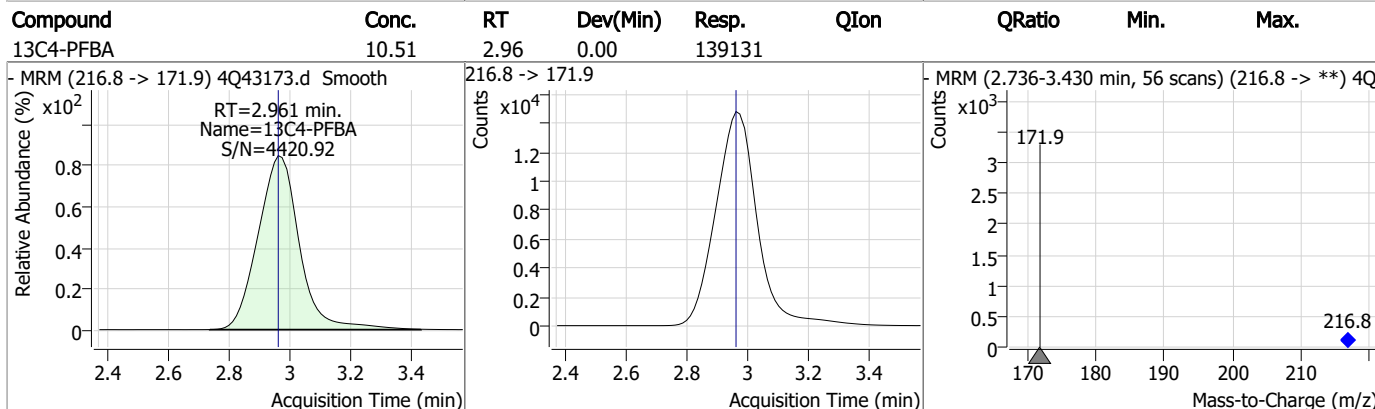
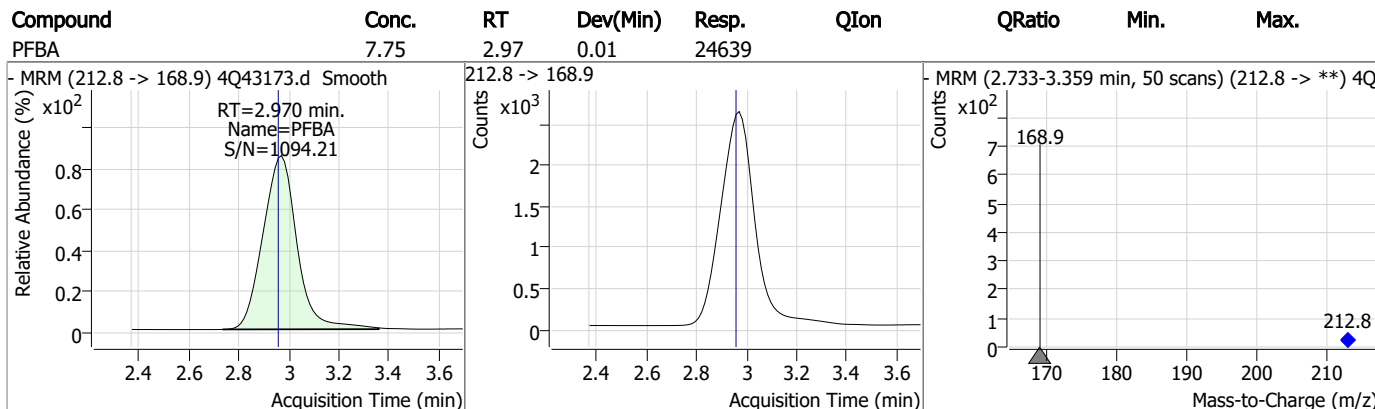
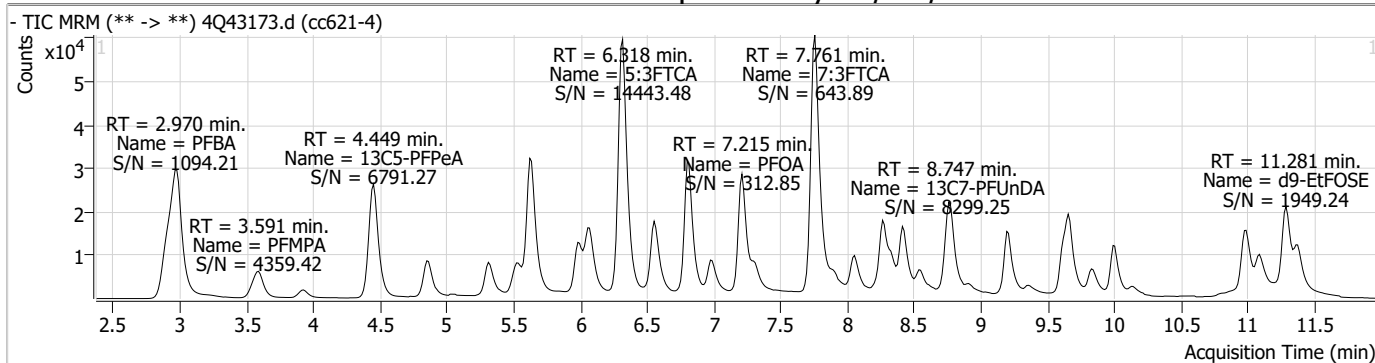
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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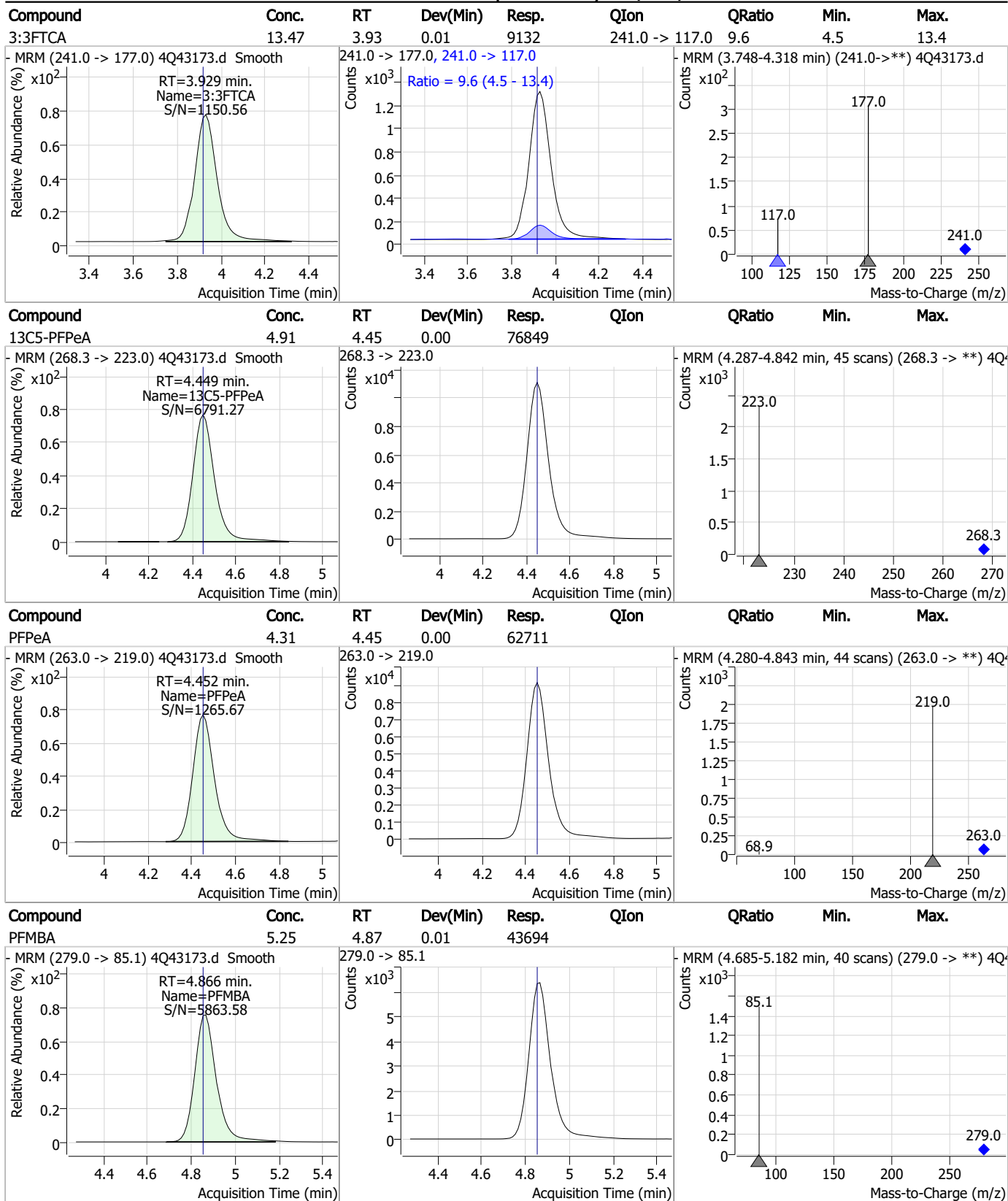
7.7.21

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Perfluorinated Compounds by LC/MS/MS



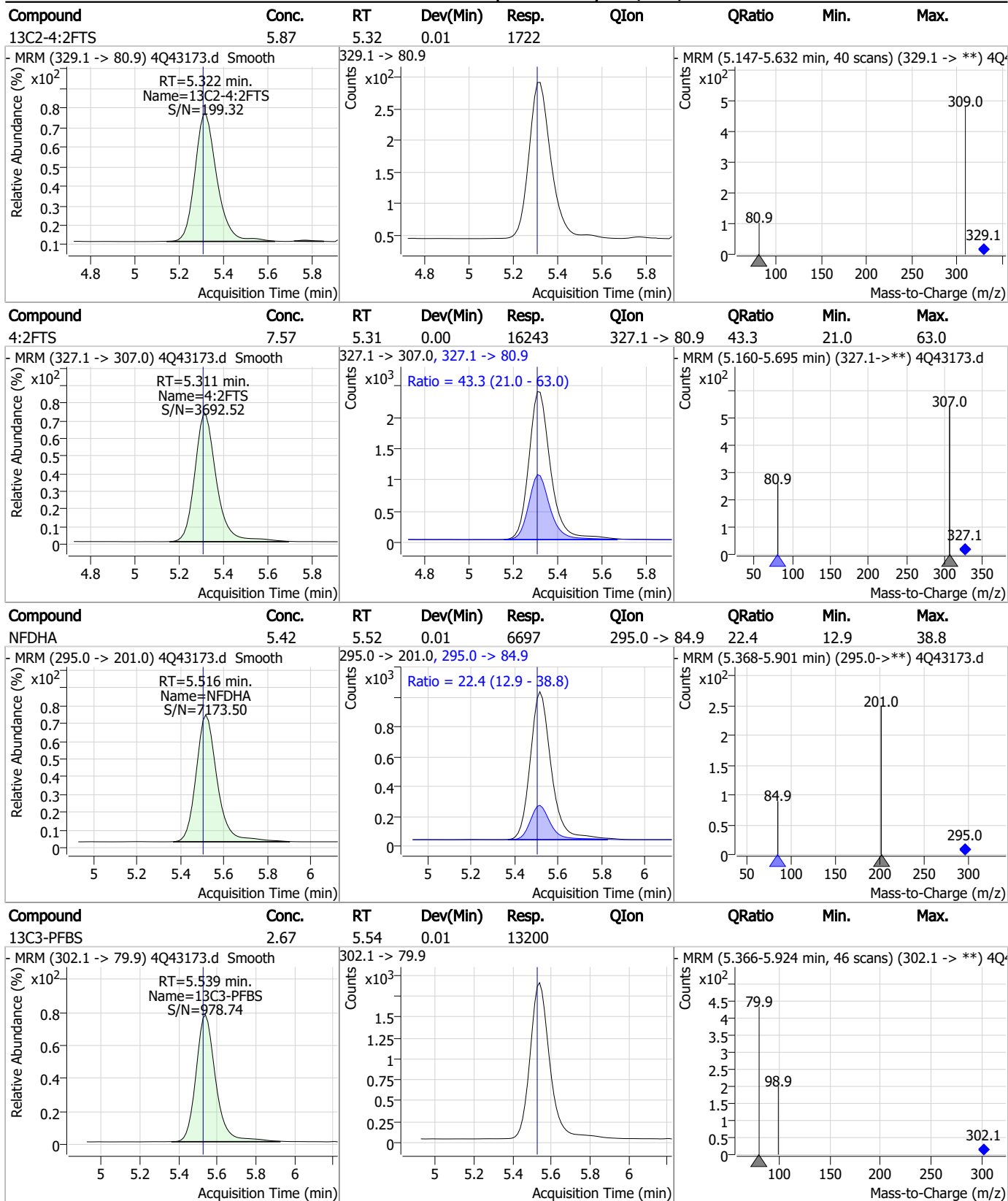
Perfluorinated Compounds by LC/MS/MS



7.7.21

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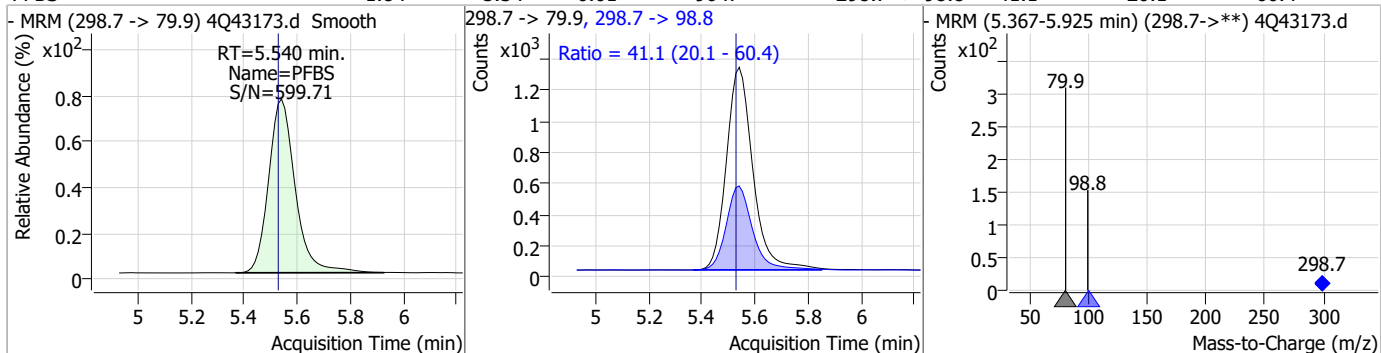
Perfluorinated Compounds by LC/MS/MS



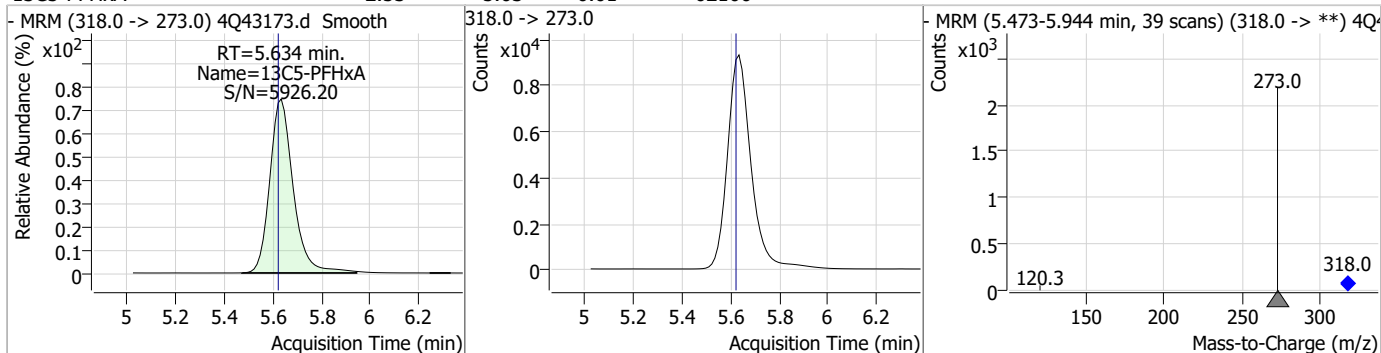
7.7.21 7

Perfluorinated Compounds by LC/MS/MS

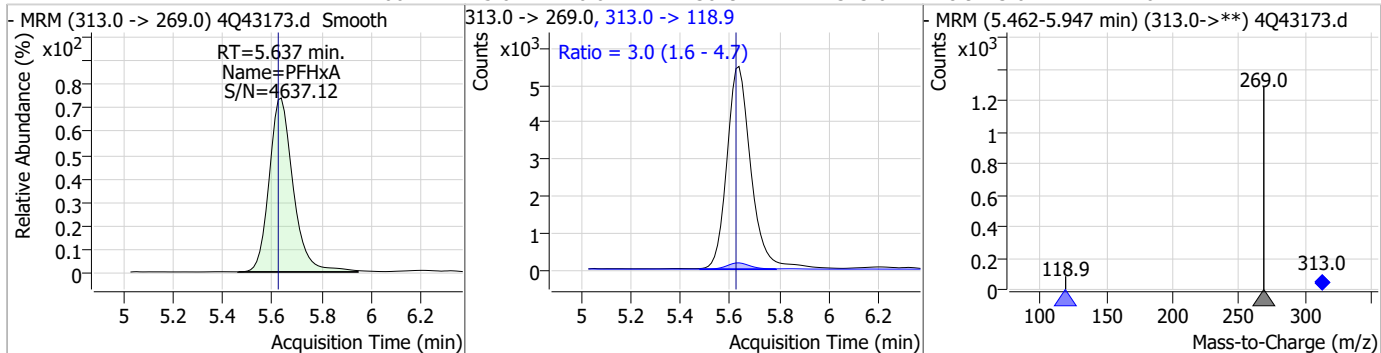
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.84	5.54	0.01	9047	298.7 -> 98.8	41.1	20.1	60.4



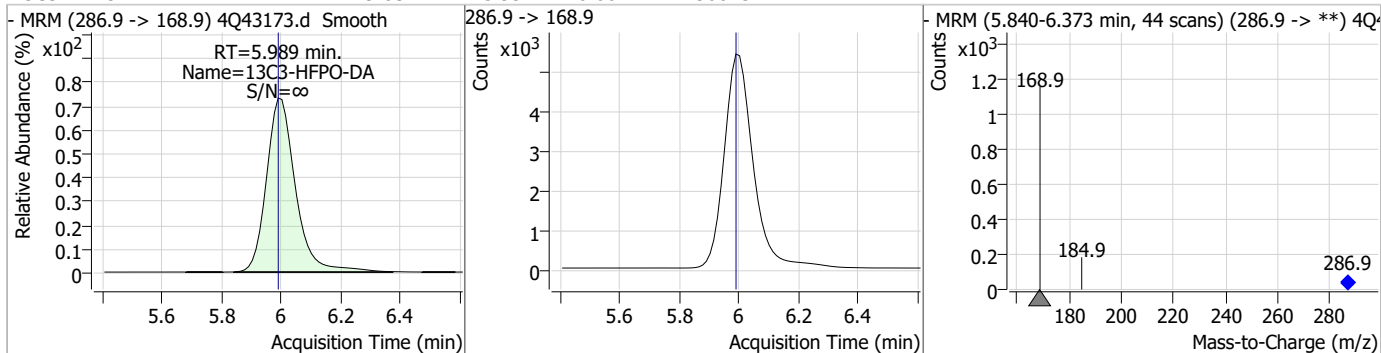
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.63	0.01	62106				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.00	5.64	0.01	36797	313.0 -> 118.9	3.0	1.6	4.7



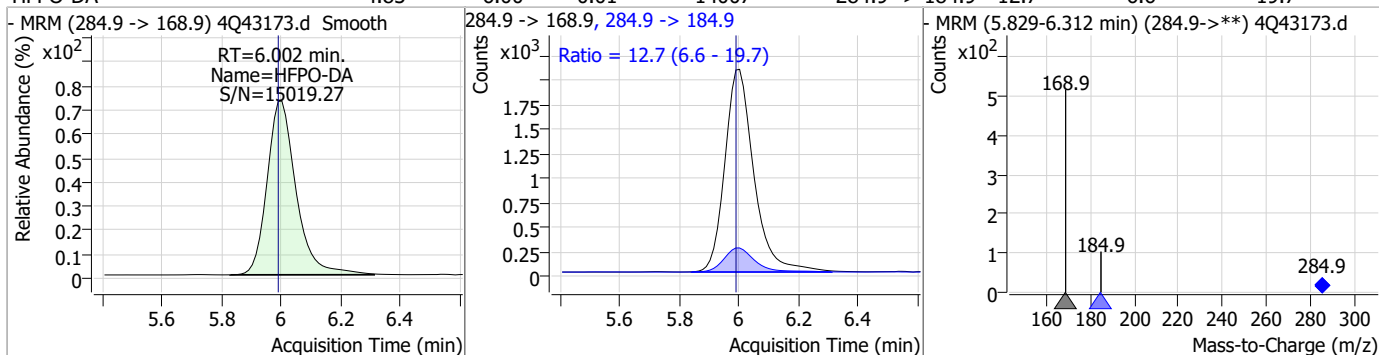
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.83	5.99	0.00	36613				



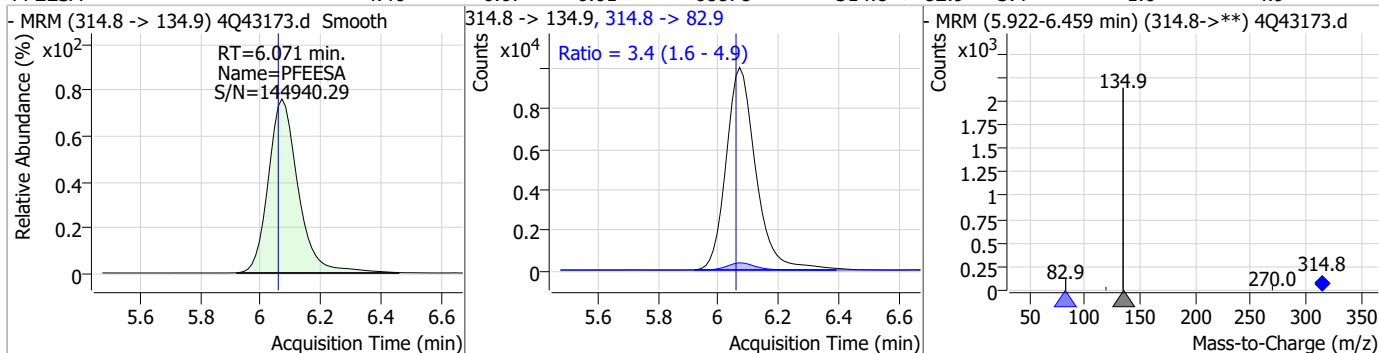
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Perfluorinated Compounds by LC/MS/MS

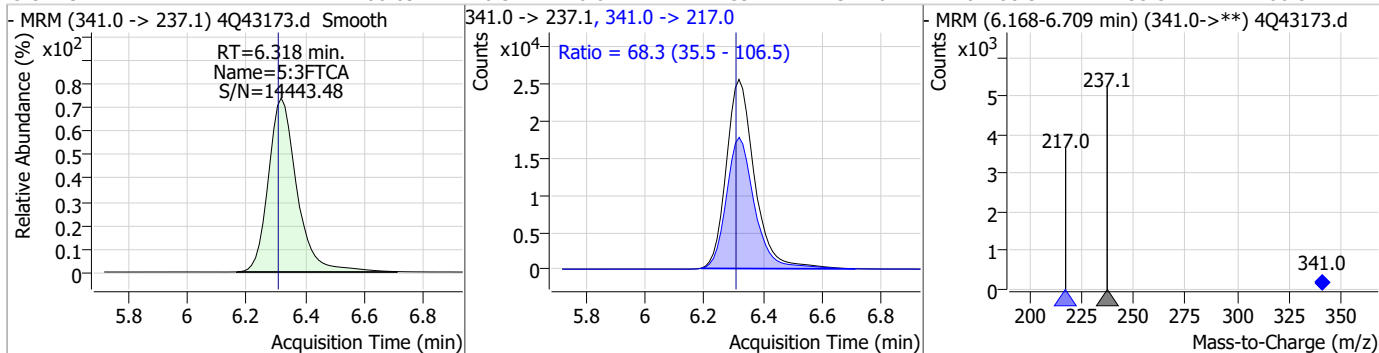
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.83	6.00	0.01	14007	284.9 -> 184.9	12.7	6.6	19.7



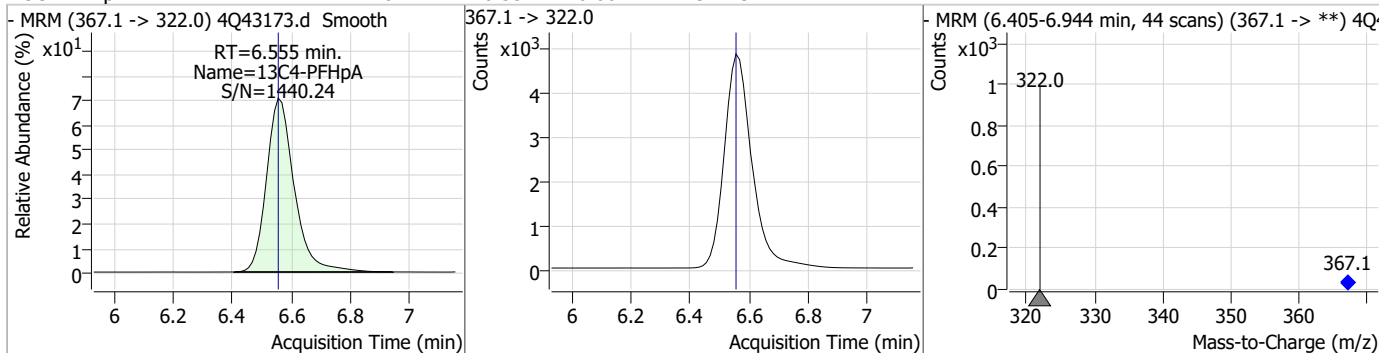
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.46	6.07	0.01	68878	314.8 -> 82.9	3.4	1.6	4.9



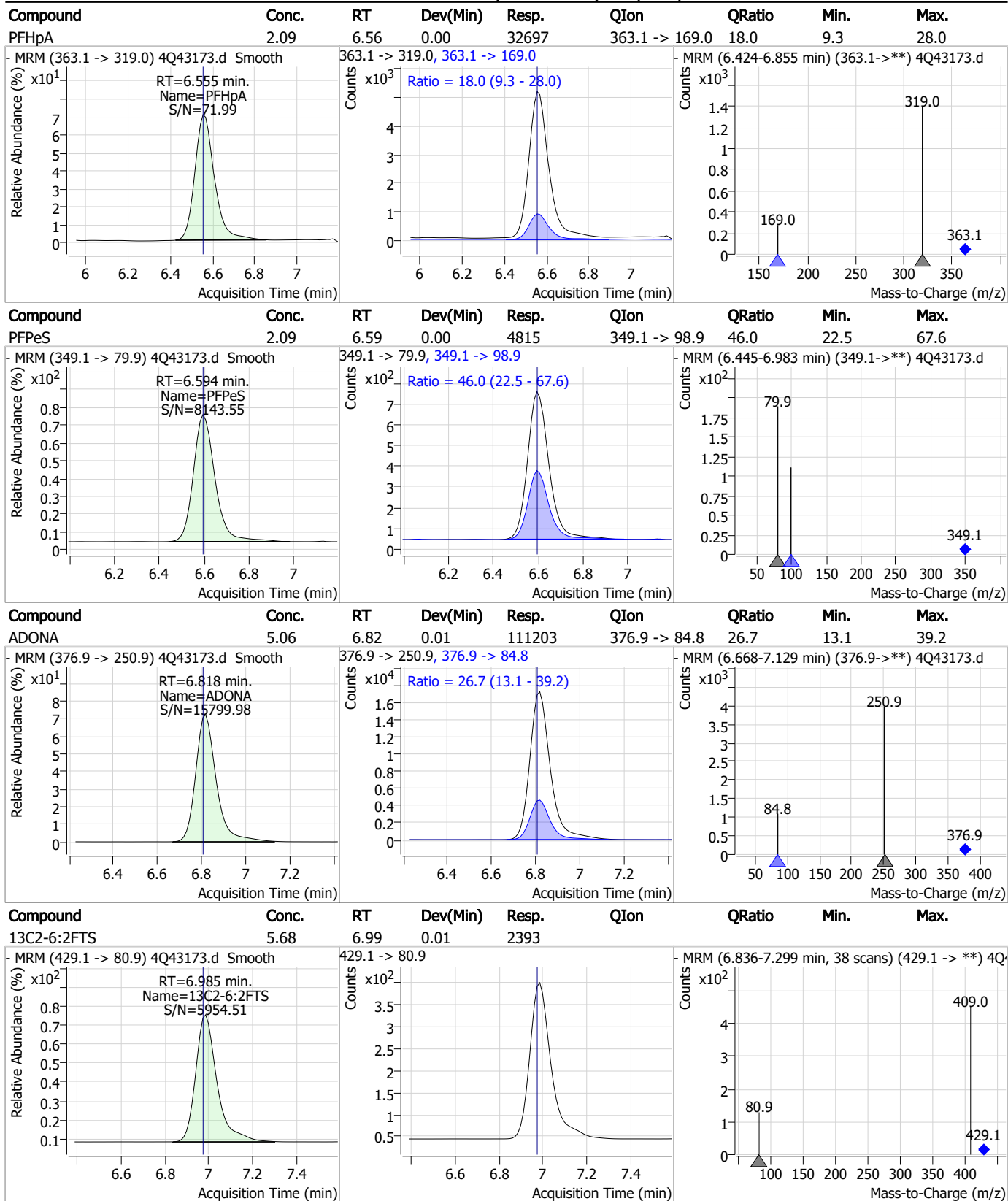
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	66.09	6.32	0.01	171591	341.0 -> 217.0	68.3	35.5	106.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.61	6.55	0.00	31429				

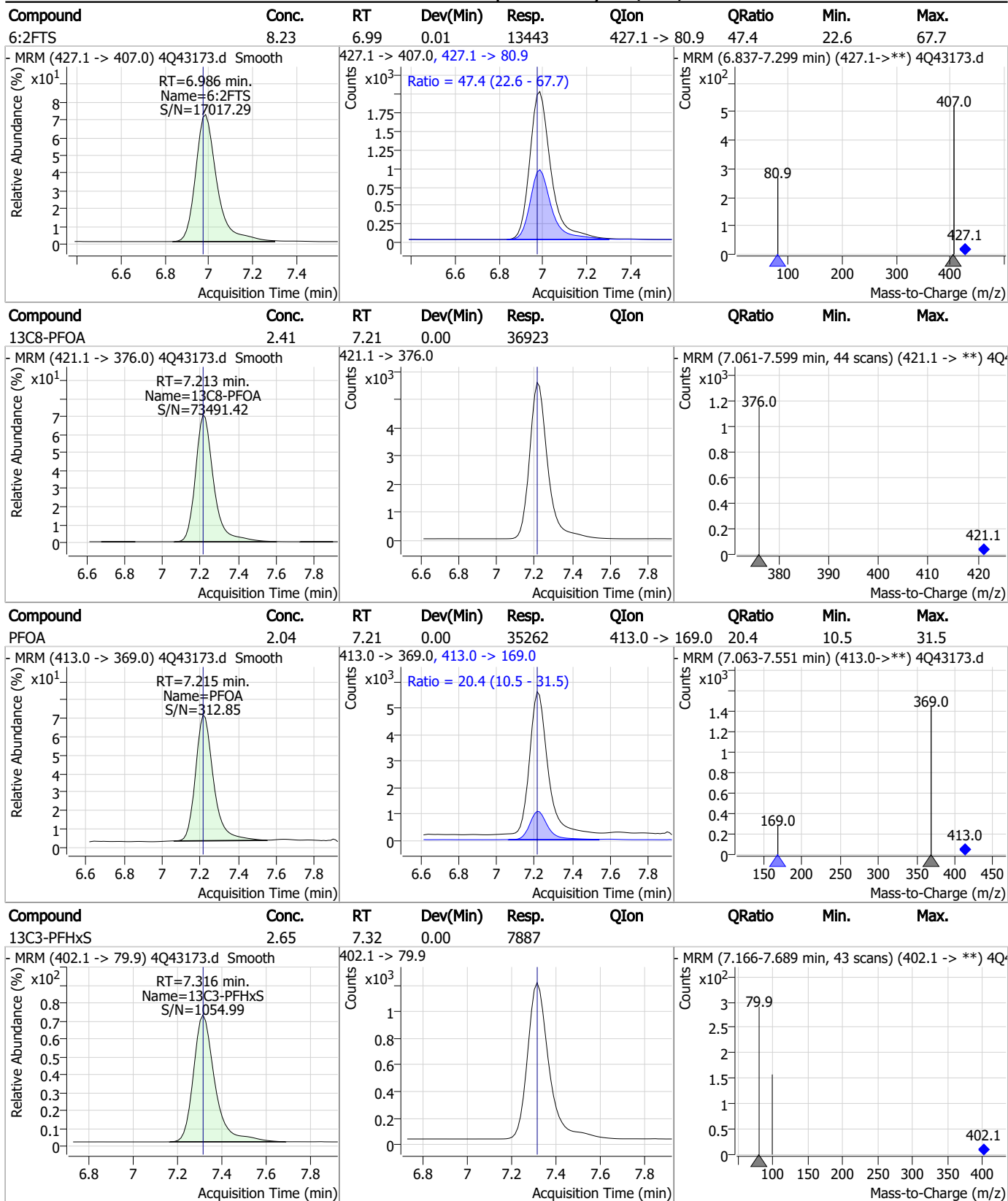


Perfluorinated Compounds by LC/MS/MS



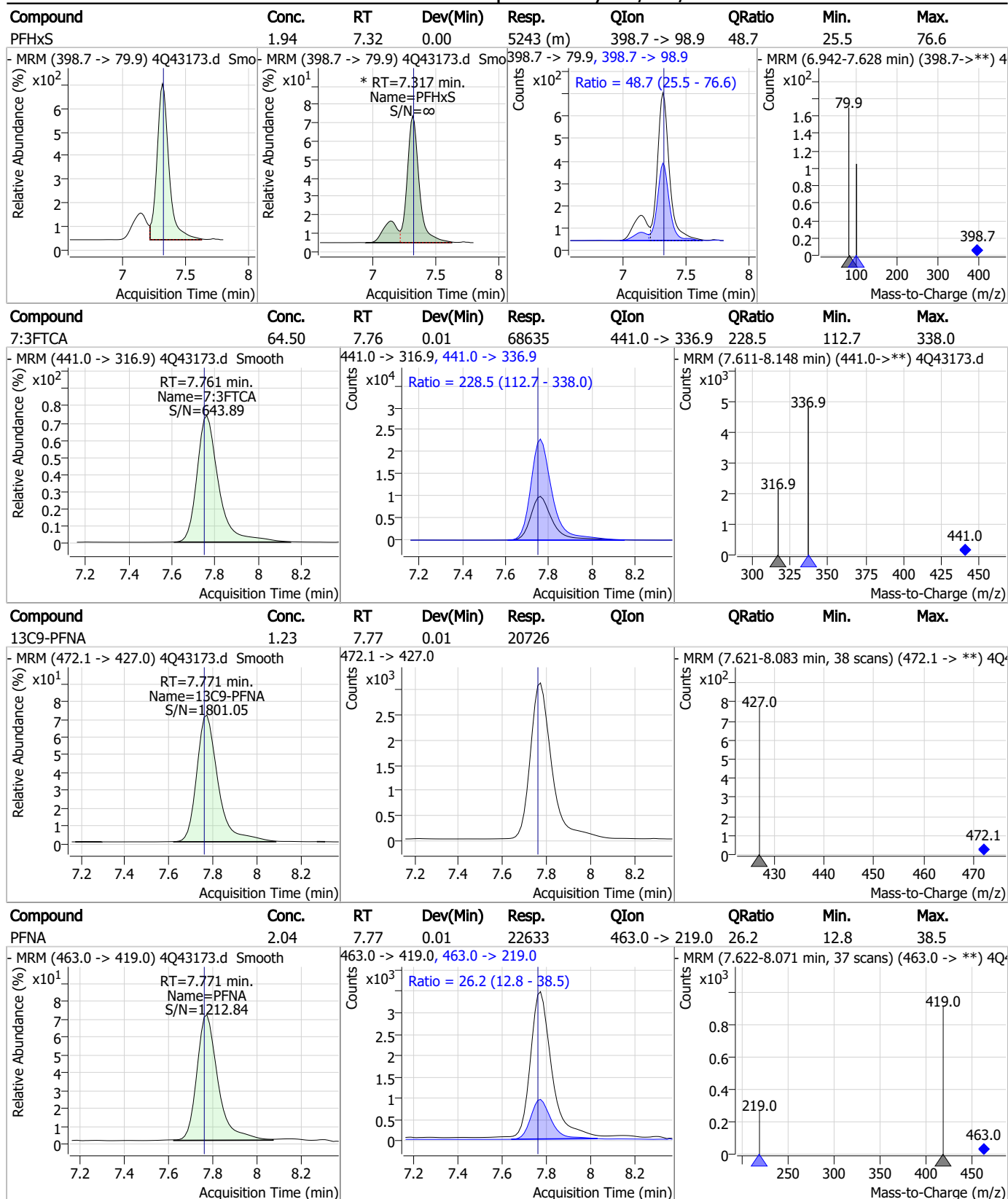
7.7.21
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Perfluorinated Compounds by LC/MS/MS



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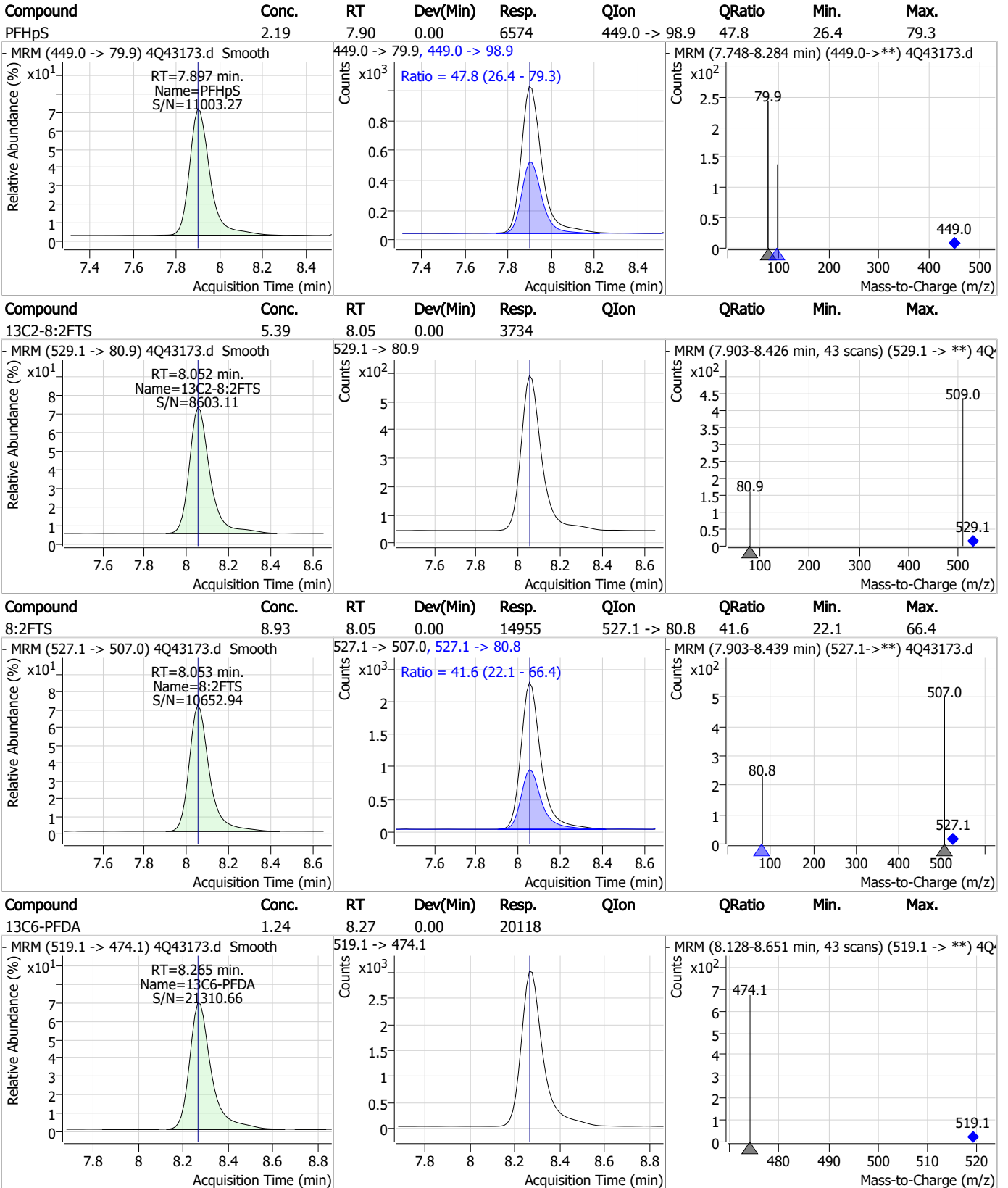
Perfluorinated Compounds by LC/MS/MS



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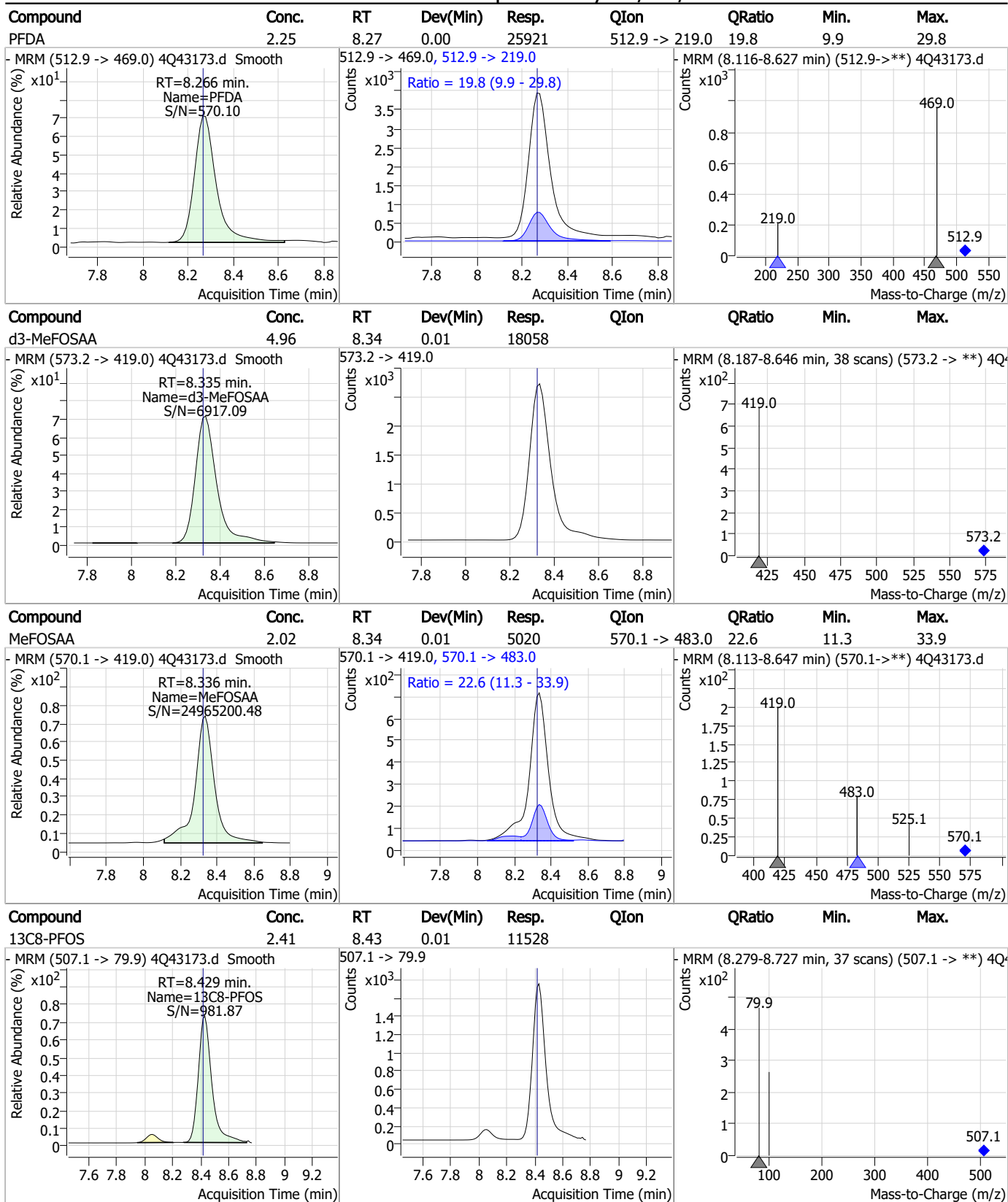
Perfluorinated Compounds by LC/MS/MS



7.7.21 7



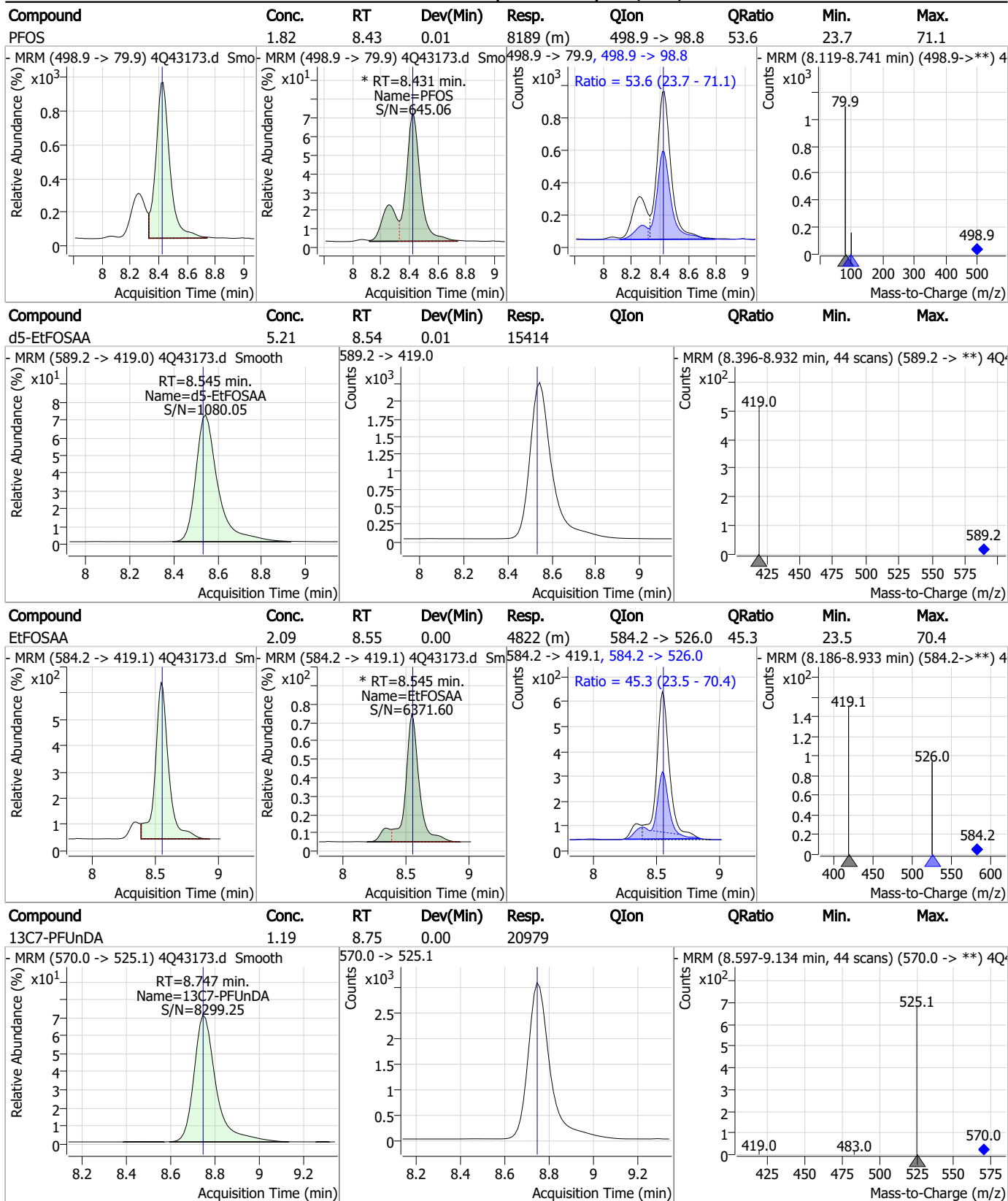
Perfluorinated Compounds by LC/MS/MS



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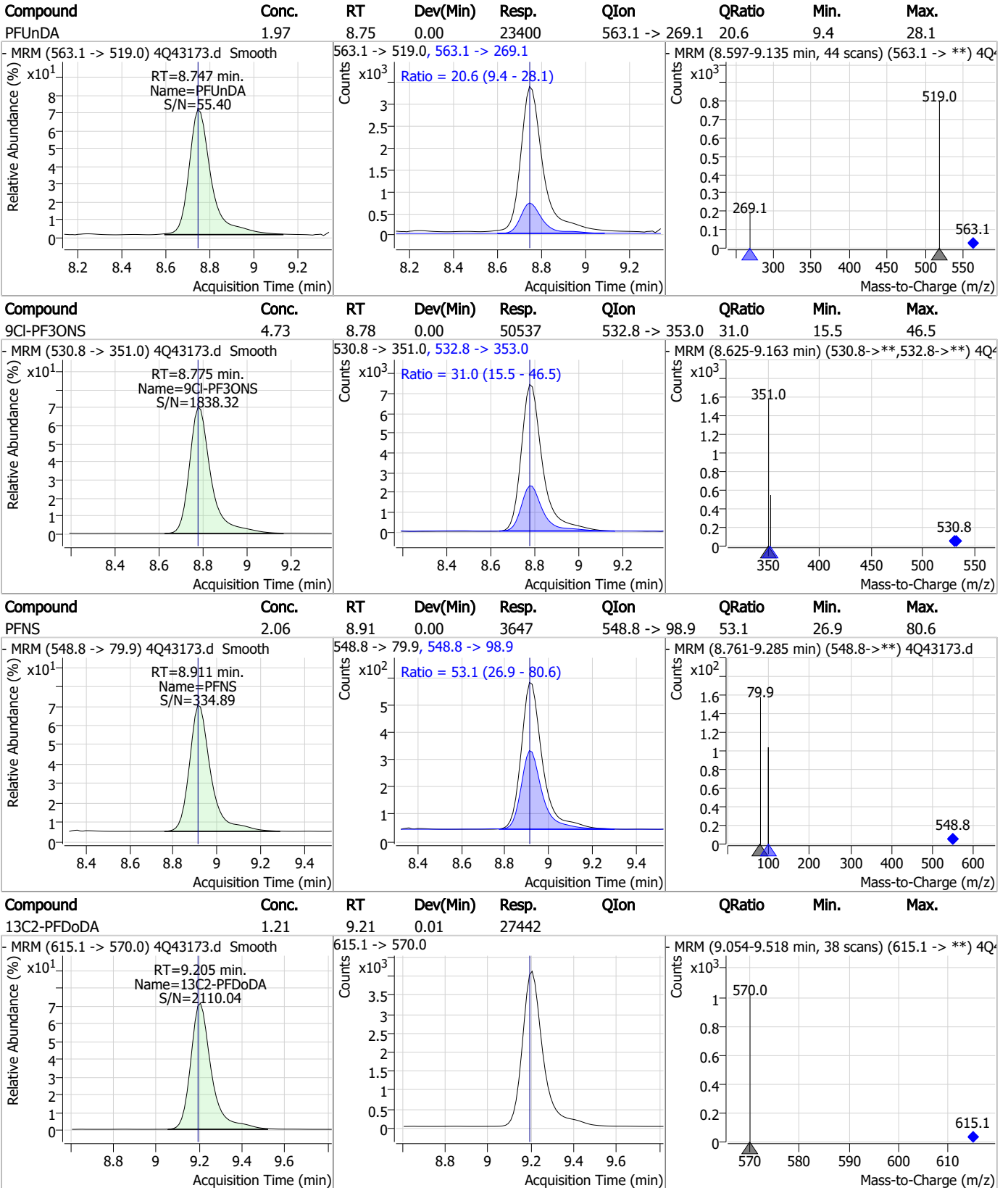
Perfluorinated Compounds by LC/MS/MS



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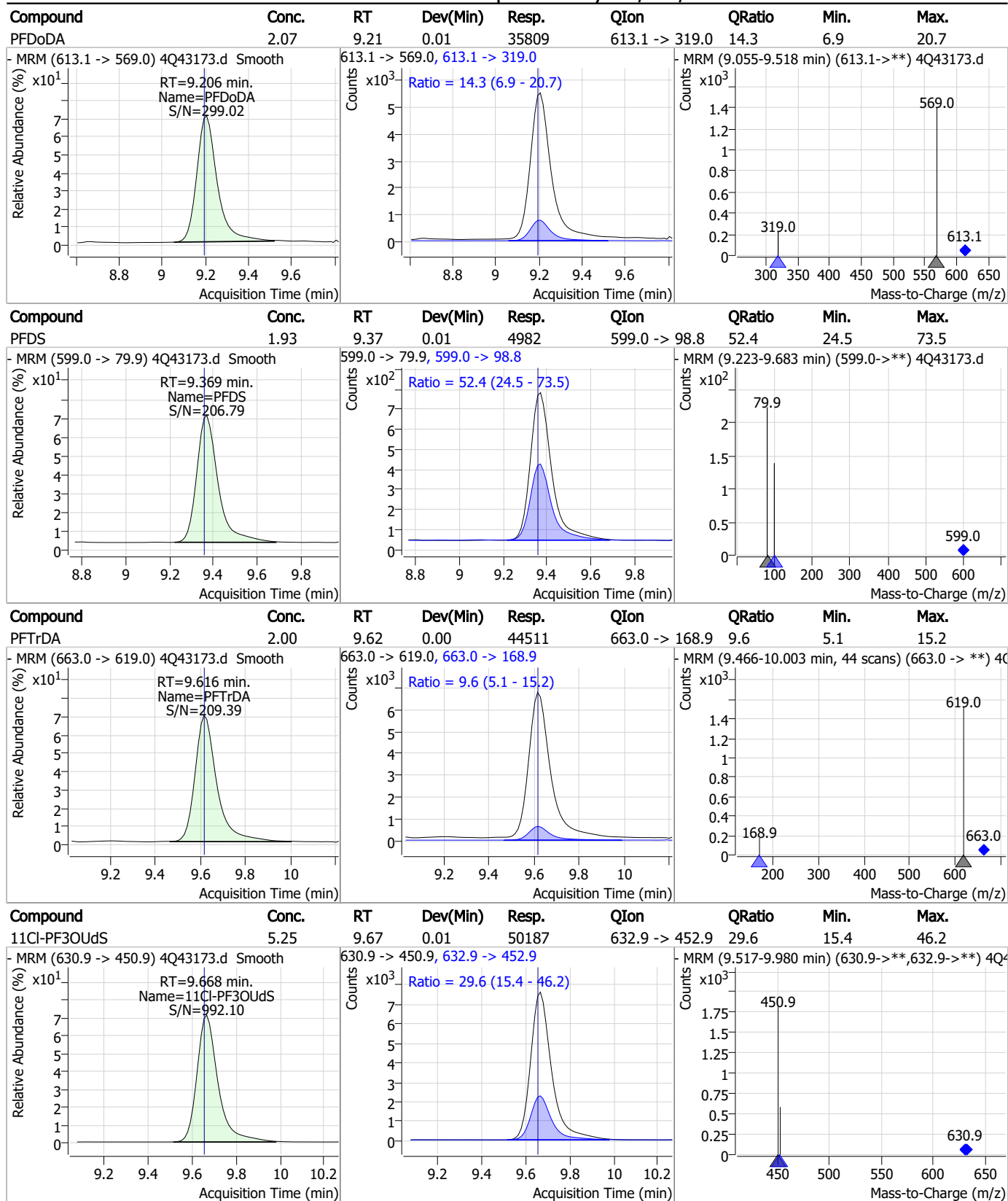
Perfluorinated Compounds by LC/MS/MS



7.7.21 7



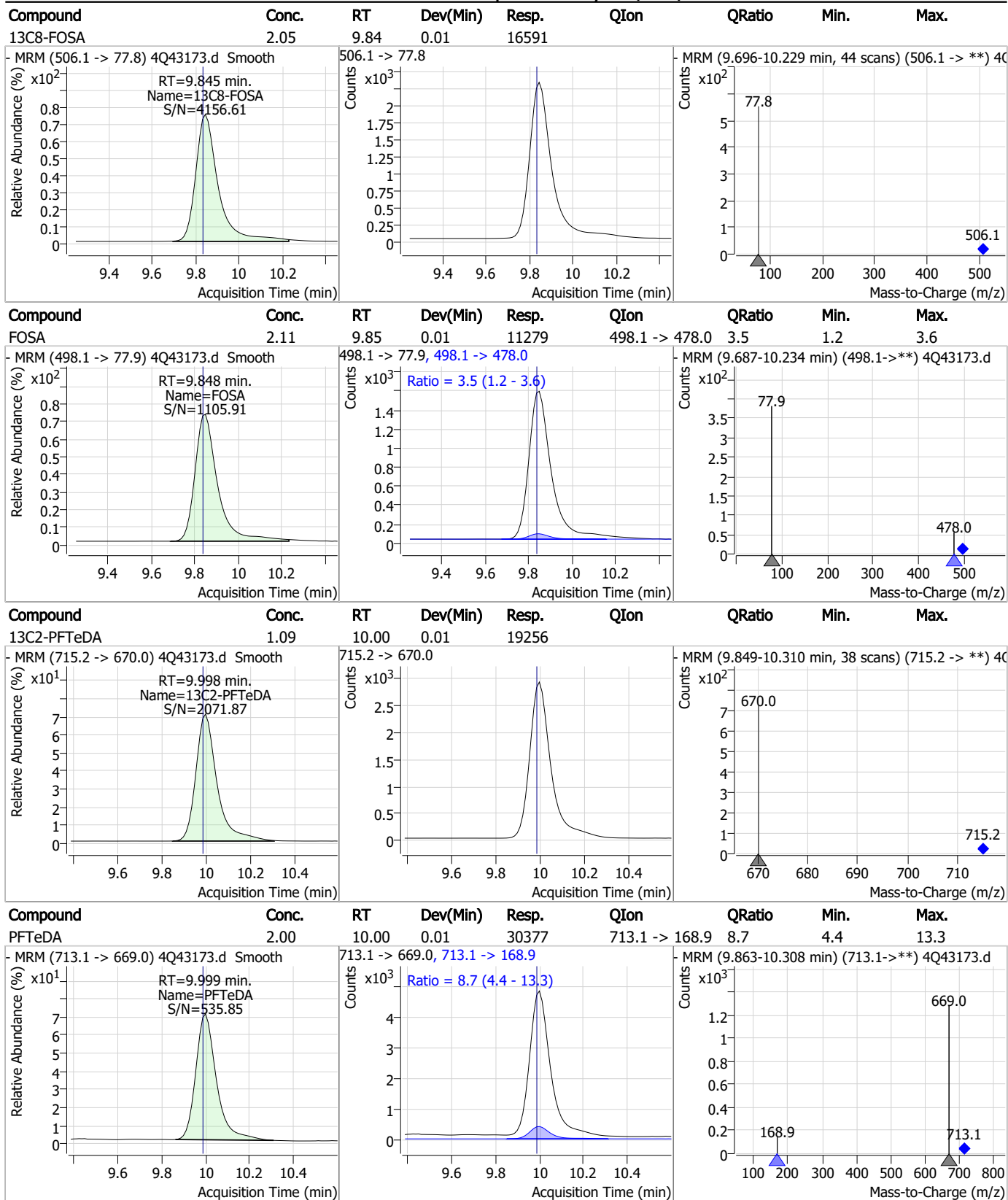
Perfluorinated Compounds by LC/MS/MS



7.7.21

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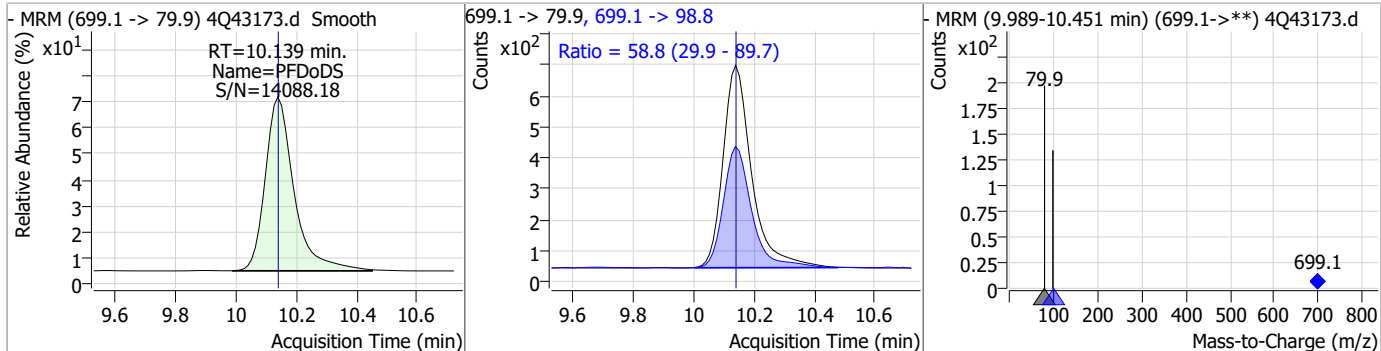
Perfluorinated Compounds by LC/MS/MS



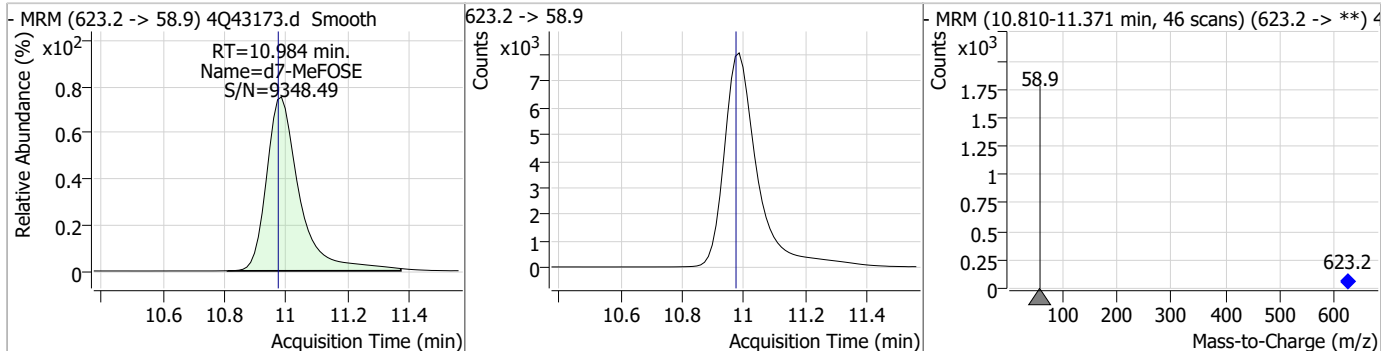
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Perfluorinated Compounds by LC/MS/MS

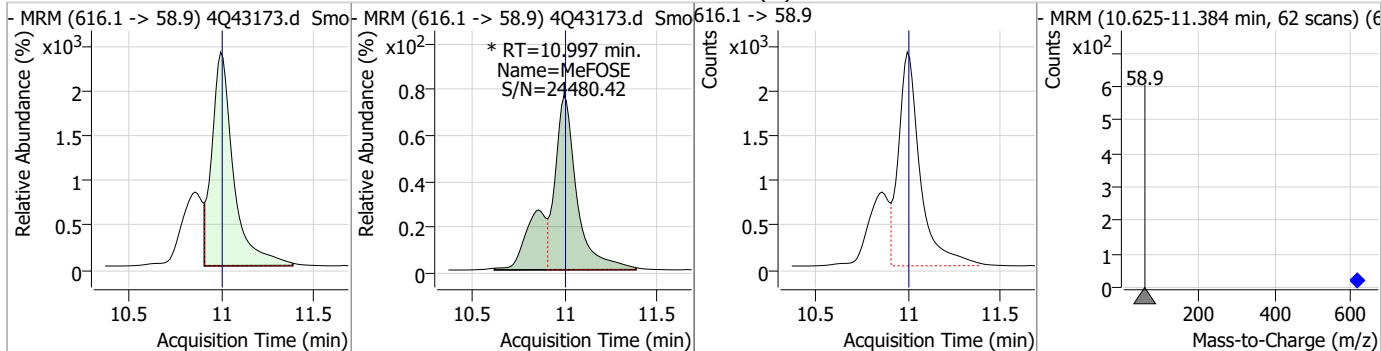
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.94	10.14	0.00	4321	699.1 -> 98.8	58.8	29.9	89.7



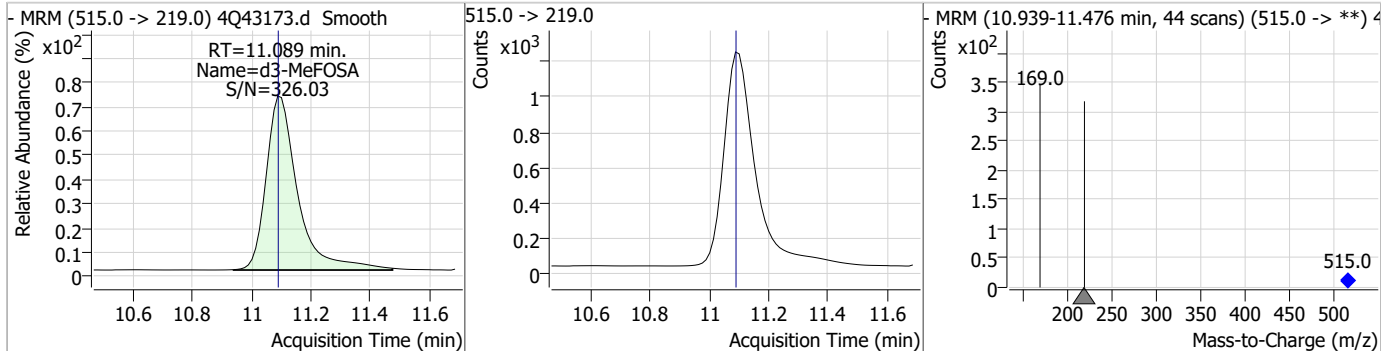
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.63	10.98	0.01	59346				



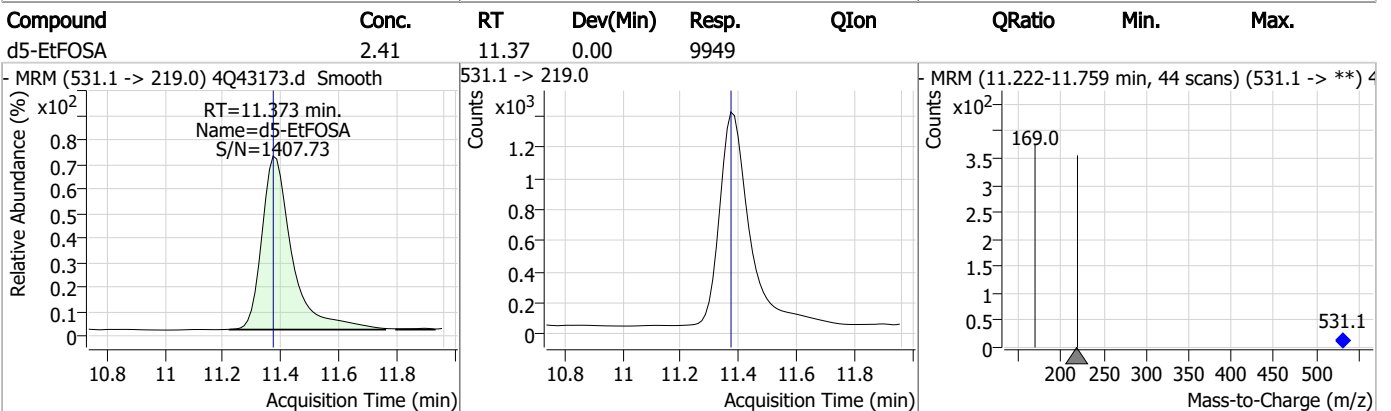
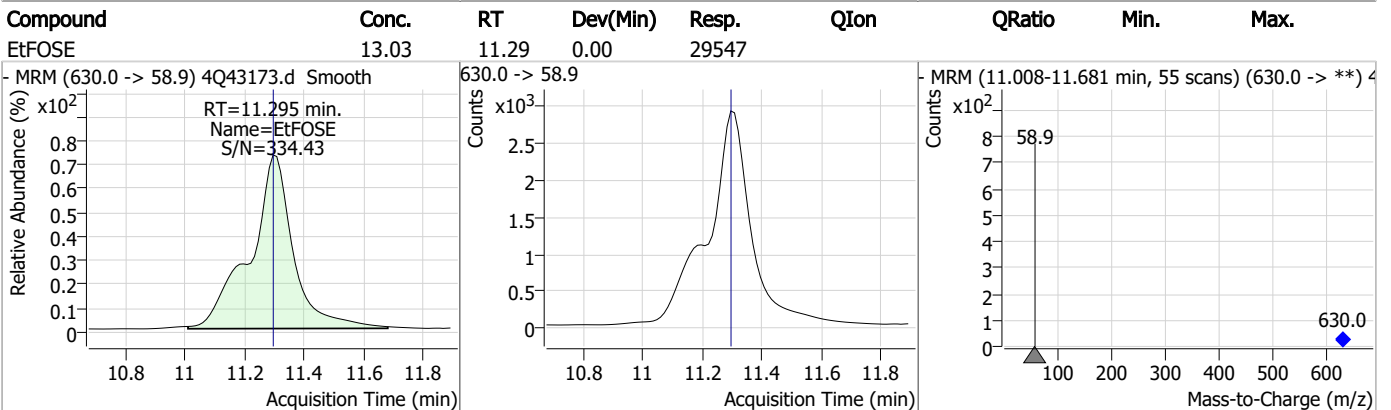
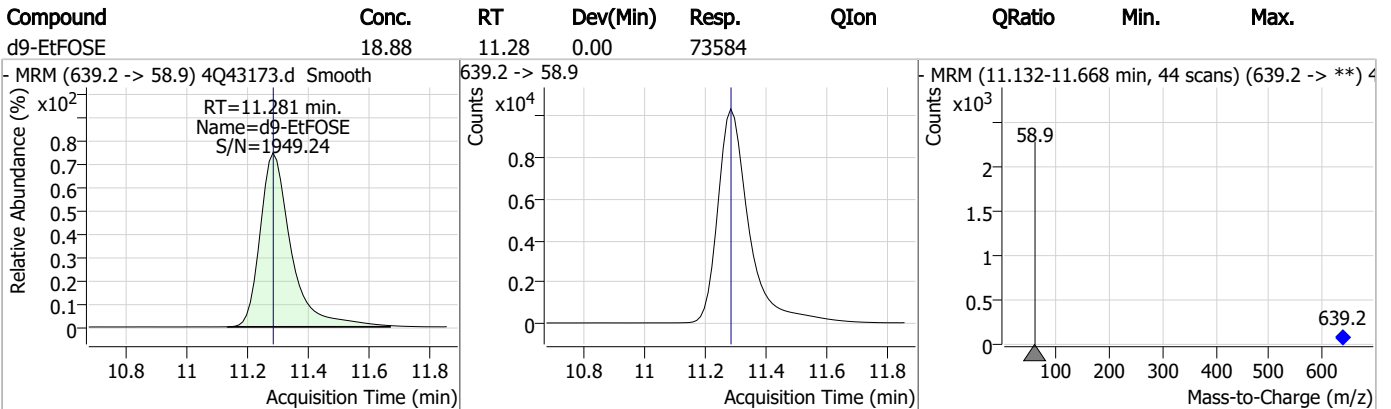
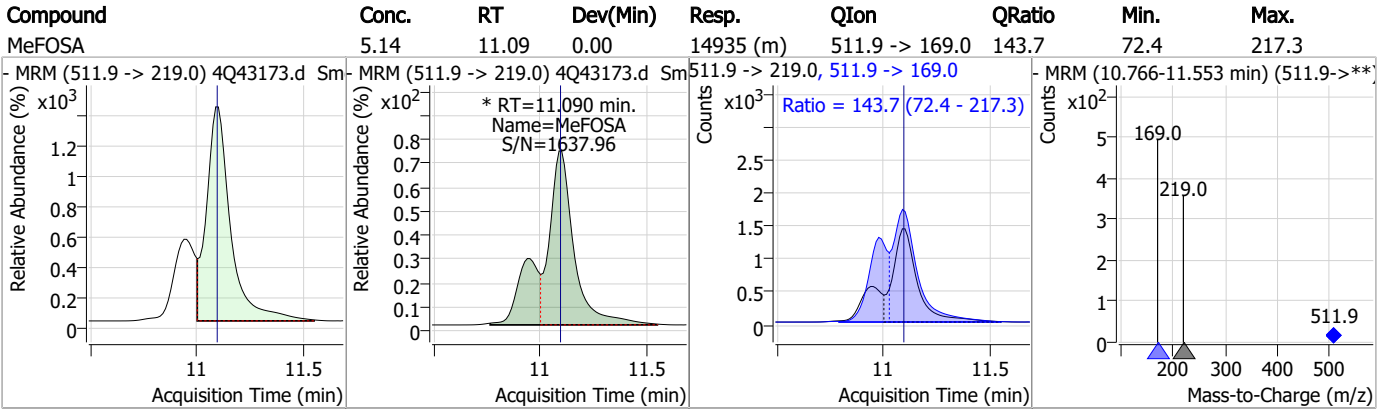
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.39	11.00	0.00	25844 (m)				



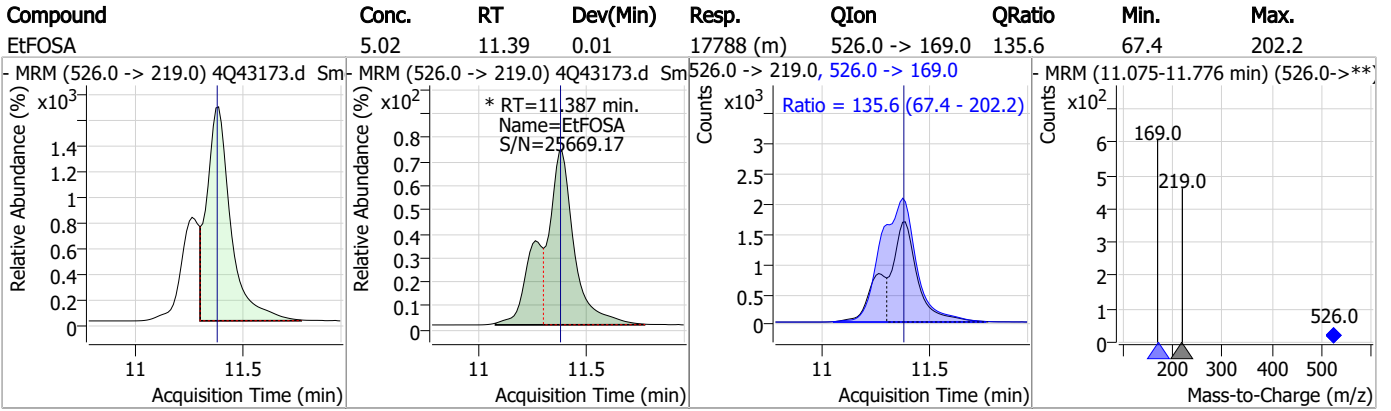
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	11.09	0.00	8985				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.21

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Manual Integration Approval Summary

Sample Number: S4Q624-CC621 Method: EPA DRAFT 1633
Lab FileID: 4Q43173.D Analyst approved: 04/19/23 13:20 Martha Valls
Injection Time: 04/18/23 17:17 Supervisor approved: 04/19/23 17:20 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.43	Split peak
EtFOSAA	2991-50-6		8.54	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.39	Split peak

7.7.21.1
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SGS ORLANDO

DATE:	04/14/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	ID_041423_S4Q621
CAL DATE:	04/14/23
ANALYST:	M. Valls
RUN BATCH:	S4Q621

ELUENT A LOT #:	224863 W5%ACN 214785 2ml(MA)MAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098B
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q42930.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
2	4Q42931.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
3	4Q42932.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
4	4Q42933.d	P1-B3	RT TDCA	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
5	4Q42934.d	P1-B4	RT BR-LN	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
6	4Q42935.d	P1-A1	ic621-0	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
7	4Q42936.d	P1-A2	ic621-1	1633full_4Q.m	Calibration	1.6/500	OP96301,S4q621500,,5.0.1,water	✓
8	4Q42937.d	P1-A3	ic621-2	1633full_4Q.m	Calibration	3.2/500	OP96301,S4q621500,,5.0.1,water	✓
9	4Q42938.d	P1-A4	ic621-3	1633full_4Q.m	Calibration	10/500	OP96301,S4q621500,,5.0.1,water	✓
10	4Q42939.d	P1-A5	ic621-4	1633full_4Q.m	Calibration	20/500	OP96301,S4q621500,,5.0.1,water	✓
11	4Q42940.d	P1-A6	ic621-5	1633full_4Q.m	Calibration	40/500	OP96301,S4q621500,,5.0.1,water	✓
12	4Q42941.d	P1-A7	ic621-6	1633full_4Q.m	Calibration	100/500	OP96301,S4q621500,,5.0.1,water	✓
13	4Q42942.d	P1-A8	ic621-7	1633full_4Q.m	Calibration	200/500	OP96301,S4q621500,,5.0.1,water	✓
14	4Q42943.d	P1-A9	ic621-8	1633full_4Q.m	Calibration	1x	OP96301,S4q621500,,5.0.1,water	✓
15	4Q42944.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96301,S4q621500,,5.0.1,water	✓
16	4Q42945.d	P1-B1	icv621-4	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	✓
17	4Q42946.d	P1-B2	icv621-20	1633full_4Q.m	QC	100/500	OP96301,S4q621500,,5.0.1,water	Prep by NG
18	4Q42947.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	✓
19	4Q42948.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q621500,,5.0.1,water	✓
20	4Q42949.d	P1-C1	Test cc4 2104-a	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	LCMS2104-A Pass
21	4Q42950.d	P1-C2	Test cc4 2104-b	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	LCMS2104-B Pass
22	4Q42951.d	P1-C3	Test cc4 2104-c	1633full_4Q.m	QC	20/500	OP96301,S4q621500,,5.0.1,water	LCMS2104-C Pass
23	4Q42952.d	P1-C4	Full list 2100-a	1633full_4Q.m	QC	100/500	OP96301,S4q621500,,5.0.1,water	LCMS2100-C Pass
24	4Q42953.d	P1-B8	blank	1633full_4Q.m	QC		OP96301,S4q621500,,5.0.1,water	Clean
25	4Q42954.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621500,,5.0.1,water	✓
26	4Q42955.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	✓
27	4Q42956.d	P2-F6	op96296-bs	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	rr batch, no peaks
28	4Q42957.d	P2-F7	op96296-llbs:3	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	↓
29	4Q42958.d	P2-F8	op96296-mb	1633full_4Q.m	Sample		OP96296,S4q621500,,5.0.1,water	↓
30	4Q42959.d	P2-F9	FC3816-1	1633full_4Q.m	Sample		OP96296,S4q621560,,5.0.1,water	rr1x
31	4Q42960.d	P3-A1	FC3816-2	1633full_4Q.m	Sample		OP96296,S4q621550,,5.0.1,water	↓
32	4Q42961.d	P3-A2	op96296-ms	1633full_4Q.m	Sample		OP96296,S4q621530,,5.0.1,water	↓
33	4Q42962.d	P3-A3	FC3816-3	1633full_4Q.m	Sample		OP96296,S4q621530,,5.0.1,water	↓
34	4Q42963.d	P3-A4	op96296-dup	1633full_4Q.m	Sample		OP96296,S4q621540,,5.0.1,water	↓
35	4Q42964.d	P3-A5	FC3816-4	1633full_4Q.m	Sample		OP96296,S4q621550,,5.0.1,water	↓

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LCMS4-4Q ANALYSIS LOG

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36	4Q42965.d	P3-A6	FC3816-5	1633full_4Q.m	Sample		OP96296,S4q621,550,,5.0.1,water	↓
37	4Q42966.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621,500,,5.0.1,water	✓
38	4Q42967.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621,500,,5.0.1,water	✓
39	4Q42968.d	P3-A7	FC3816-6	1633full_4Q.m	Sample		OP96296,S4q621,520,,5.0.1,water	↓
40	4Q42969.d	P3-A8	FC3816-7	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
41	4Q42970.d	P3-A9	FC3816-8	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
42	4Q42971.d	P3-B1	FC3816-9	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
43	4Q42972.d	P3-B2	FC3816-10	1633full_4Q.m	Sample		OP96296,S4q621,560,,5.0.1,water	↓
44	4Q42973.d	P3-B3	FC3816-11	1633full_4Q.m	Sample		OP96296,S4q621,540,,5.0.1,water	↓
45	4Q42974.d	P3-B4	FC3816-12	1633full_4Q.m	Sample		OP96296,S4q621,520,,5.0.1,water	↓
46	4Q42975.d	P3-B5	FC3816-13	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
47	4Q42976.d	P3-B6	FC3816-14	1633full_4Q.m	Sample		OP96296,S4q621,570,,5.0.1,water	↓
48	4Q42977.d	P3-B7	FC3816-15	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
49	4Q42978.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621,500,,5.0.1,water	✓
50	4Q42979.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q621,500,,5.0.1,water	✓
51	4Q42980.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621,500,,5.0.1,water	✓
52	4Q42981.d	P3-B8	FC3816-16	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
53	4Q42982.d	P3-B9	FC3816-17	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
54	4Q42983.d	P3-C1	FC3816-18	1633full_4Q.m	Sample		OP96296,S4q621,530,,5.0.1,water	↓
55	4Q42984.d	P3-C2	op96297-bs	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
56	4Q42985.d	P3-C3	op96297-llbs:2	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
57	4Q42986.d	P3-C4	op96297-mb	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
58	4Q42987.d	P3-C5	FC3790-1	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	r5x surr high
59	4Q42988.d	P3-C6	FC3790-2	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	✓
60	4Q42989.d	P3-C7	FC3790-3	1633full_4Q.m	Sample		OP96297,S4q621,560,,5.0.1,water	✓
61	4Q42990.d	P3-C8	FC3790-4	1633full_4Q.m	Sample		OP96297,S4q621,560,,5.0.1,water	✓ + r12x FNA
62	4Q42991.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96297,S4q621,500,,5.0.1,water	✓
63	4Q42992.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96297,S4q621,500,,5.0.1,water	✓
64	4Q42993.d	P3-C9	FC3790-5	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	✓
65	4Q42994.d	P3-D1	op96297-ms	1633full_4Q.m	Sample		OP96297,S4q621,560,,5.0.1,water	✓
66	4Q42995.d	P3-D2	op96297-msd	1633full_4Q.m	Sample		OP96297,S4q621,570,,5.0.1,water	✓
67	4Q42996.d	P3-D3	FC3790-6	1633full_4Q.m	Sample		OP96297,S4q621,550,,5.0.1,water	rr, no NIS
68	4Q42997.d	P3-D4	FC3790-4	1633full_4Q.m	Sample	50/500	OP96297,S4q621,560,,5.0.10,water	rr lower dilution. 2x
69	4Q42998.d	P3-D5	FC3757-19	1633full_4Q.m	Sample	250/500	OP96301,S4q621,560,,5.0.2,water	✓
70	4Q42999.d	P3-D6	op96301-dup	1633full_4Q.m	Sample	250/500	OP96301,S4q621,560,,5.0.2,water	✓
71	4Q43000.d	P3-D7	FC3818-4	1633full_4Q.m	Sample	100/500	OP96323,S4q621,545,,5.0.5,water	✓
72	4Q43001.d	P3-D8	FC3818-5	1633full_4Q.m	Sample	100/500	OP96323,S4q621,520,,5.0.5,water	✓
73	4Q43002.d	P1-A5	ecc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q621,500,,5.0.1,water	✓
74	4Q43003.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q621,500,,5.0.1,water	✓



SGS ORLANDO

DATE:	04/15/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	ID_041423_S4Q621
CAL DATE:	04/14/23
ANALYST:	M. Valls
RUN BATCH:	S4Q622

ELUENT A LOT #:	224863 W5%ACN 214785 2mmMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
57	4Q43004.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96296.S4q622.500,,5.0.1,water	✓
58	4Q43005.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96296.S4q622.500,,5.0.1,water	✓
59	4Q43006.d	P1-B3	RT TDCA	1633full_4Q.m	Sample		OP96296.S4q622.500,,5.0.1,water	✓
60	4Q43007.d	P1-B4	RT BR-LN	1633full_4Q.m	Sample		OP96296.S4q622.500,,5.0.1,water	✓
61	4Q43008.d	P1-A9	High Std	1633full_4Q.m	Sample		OP96296.S4q622.500,,5.0.1,water	✓
62	4Q43009.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96296.S4q622.500,,5.0.1,water	✓
63	4Q43010.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296.S4q622.500,,5.0.1,water	✓
64	4Q43011.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96296.S4q622.500,,5.0.1,water	✓
65	4Q43012.d	P3-E1	op96322-bs	1633full_4Q.m	Sample		OP96322.S4q622.500,,5.0.1,water	✓
66	4Q43013.d	P3-E2	op96322-llbs-2	1633full_4Q.m	Sample		OP96322.S4q622.500,,5.0.1,water	✓, pfoa high
67	4Q43014.d	P3-E3	op96322-mb	1633full_4Q.m	Sample		OP96322.S4q622.500,,5.0.1,water	✓
68	4Q43015.d	P3-E4	JD62964-1A	1633full_4Q.m	Sample		OP96322.S4q622.195,,5.0.10,water	redo at 60ml
69	4Q43016.d	P3-E5	JD62964-2A	1633full_4Q.m	Sample		OP96322.S4q622.280,,5.0.10,water	redo at 60ml
70	4Q43017.d	P3-E6	JD62964-3A	1633full_4Q.m	Sample		OP96322.S4q622.310,,5.0.10,water	redo at 60ml
71	4Q43018.d	P3-E7	JD62964-4A	1633full_4Q.m	Sample		OP96322.S4q622.230,,5.0.10,water	redo at 60ml
72	4Q43019.d	P3-F2	JD63124-1A	1633full_4Q.m	Sample		OP96322.S4q622.285,,5.0.10,water	redo at 60ml
73	4Q43020.d	P3-F3	JD63124-2A	1633full_4Q.m	Sample		OP96322.S4q622.310,,5.0.10,water	redo at 60ml
74	4Q43021.d	P3-F4	JD63124-3A	1633full_4Q.m	Sample		OP96322.S4q622.500,,5.0.10,water	redo at 60ml
75	4Q43022.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296.S4q622.500,,5.0.1,water	Pass
76	4Q43023.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296.S4q622.500,,5.0.1,water	✓
77	4Q43024.d	P3-E8	JD62814-1	1633full_4Q.m	Sample		OP96322.S4q622.525,,5.0.1,water	✓
78	4Q43025.d	P3-E9	JD62814-2	1633full_4Q.m	Sample		OP96322.S4q622.538,,5.0.1,water	✓
79	4Q43026.d	P3-F1	JD62814-3	1633full_4Q.m	Sample		OP96322.S4q622.270,,5.0.1,water	✓
80	4Q43027.d	P3-F5	FC5043-1	1633full_4Q.m	Sample		OP96322.S4q622.125,,5.0.1,water	rr for 7:3 target, fail in ccv
81	4Q43028.d	P3-F6	FC5043-2	1633full_4Q.m	Sample		OP96322.S4q622.500,,5.0.1,water	↓
82	4Q43029.d	P3-F7	op96322-ms	1633full_4Q.m	Sample		OP96322.S4q622.510,,5.0.1,water	↓
83	4Q43030.d	P3-F8	FC5043-3	1633full_4Q.m	Sample		OP96322.S4q622.500,,5.0.1,water	r15x surr high
84	4Q43031.d	P3-F9	FC5043-4	1633full_4Q.m	Sample		OP96322.S4q622.500,,5.0.1,water	rr for 7:3 target, fail in ccv
85	4Q43032.d	P4-A1	op96322-dup	1633full_4Q.m	Sample		OP96322.S4q622.500,,5.0.1,water	↓
86	4Q43033.d	P4-A2	FC5043-5	1633full_4Q.m	Sample		OP96322.S4q622.550,,5.0.1,water	r15x surr high
87	4Q43034.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296.S4q622.500,,5.0.1,water	7:3FTCA fail low, d5-EFOSAA high
88	4Q43035.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296.S4q622.500,,5.0.1,water	✓
89	4Q43036.d	P4-A3	DA54565-1	1633full_4Q.m	Sample		OP96322.S4q622.250,,5.0.1,water	✓
90	4Q43037.d	P4-A4	DA54565-2	1633full_4Q.m	Sample		OP96322.S4q622.240,,5.0.1,water	✓
91	4Q43038.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296.S4q622.500,,5.0.1,water	Pass

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LCMS4-4Q ANALYSIS LOG

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92	4Q43039.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296.S4q622.500,,5.0.1,water	✓
93	4Q43040.d	P4-A5	op96371-bs	1633full_4Q.m	Sample	OP96371.S4q622.500,,5.0.1,water	✓
94	4Q43041.d	P4-A6	op96371-llbs:2	1633full_4Q.m	Sample	OP96371.S4q622.500,,5.0.1,water	✓
95	4Q43042.d	P4-A7	op96371-mb	1633full_4Q.m	Sample	OP96371.S4q622.500,,5.0.1,water	✓
96	4Q43043.d	P4-A8	JD63141-1A	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓ + rr10x high surr
97	4Q43044.d	P4-A9	JD63141-2A	1633full_4Q.m	Sample	OP96371.S4q622.510,,5.0.1,water	✓ + rr10x high surr
98	4Q43045.d	P4-B1	JD63141-3A	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓
99	4Q43046.d	P4-B2	JD63141-4A	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓ + rr10x high surr
100	4Q43047.d	P4-B3	JD63141-5A	1633full_4Q.m	Sample	OP96371.S4q622.510,,5.0.1,water	✓ + rr10x high surr
101	4Q43048.d	P4-B4	JD63141-7A	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓
102	4Q43049.d	P1-B8	test blk	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	clean
103	4Q43050.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296.S4q622.500,,5.0.1,water	Pass
104	4Q43051.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296.S4q622.500,,5.0.1,water	✓
105	4Q43052.d	P4-B5	JD63141-9A	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓
106	4Q43053.d	P4-B6	op96371-ms	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓
107	4Q43054.d	P4-B7	JD63141-10A	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓ + rr10x
108	4Q43055.d	P4-B8	op96371-dup	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	RR10X
109	4Q43056.d	P4-B9	JD63141-12A	1633full_4Q.m	Sample	OP96371.S4q622.60,,5.0.1,water	RR1X co
110	4Q43057.d	P4-C1	JD63141-13A	1633full_4Q.m	Sample	OP96371.S4q622.530,,5.0.1,water	✓
111	4Q43058.d	P4-C2	JD63141-14A	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓
112	4Q43059.d	P4-C3	JD63141-15A	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓
113	4Q43060.d	P4-C4	JD63141-16A	1633full_4Q.m	Sample	OP96371.S4q622.60,,5.0.1,water	✓
114	4Q43061.d	P4-C5	JD63141-17A	1633full_4Q.m	Sample	OP96371.S4q622.545,,5.0.1,water	✓ + rr10x high surr
115	4Q43062.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296.S4q622.500,,5.0.1,water	Pass
116	4Q43063.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	OP96296.S4q622.500,,5.0.1,water	Pass
117	4Q43064.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296.S4q622.500,,5.0.1,water	✓
118	4Q43065.d	P4-C6	op96368-bs	1633full_4Q.m	Sample	OP96368.S4q622.500,,5.0.1,water	✓
119	4Q43066.d	P4-C7	op96368-llbs:3	1633full_4Q.m	Sample	OP96368.S4q622.500,,5.0.1,water	✓
120	4Q43067.d	P4-C8	op96368-mb	1633full_4Q.m	Sample	OP96368.S4q622.500,,5.0.1,water	✓
121	4Q43068.d	P4-D1	FC5088-1	1633full_4Q.m	Sample	OP96368.S4q622.540,,5.0.1,water	✓ + rr5x 4:2 high
122	4Q43069.d	P4-D2	FC5088-2	1633full_4Q.m	Sample	OP96368.S4q622.520,,5.0.1,water	✓
123	4Q43070.d	P4-D3	FC5088-3	1633full_4Q.m	Sample	OP96368.S4q622.570,,5.0.1,water	✓
124	4Q43071.d	P4-D4	op96368-ms	1633full_4Q.m	Sample	OP96368.S4q622.540,,5.0.1,water	✓
125	4Q43072.d	P4-D5	FC5088-4	1633full_4Q.m	Sample	OP96368.S4q622.530,,5.0.1,water	✓
126	4Q43073.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296.S4q622.500,,5.0.1,water	✓
127	4Q43074.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296.S4q622.500,,5.0.1,water	✓
128	4Q43075.d	P4-D5	FC5088-5	1633full_4Q.m	Sample	OP96368.S4q622.540,,5.0.1,water	✓
129	4Q43076.d	P4-D6	op96368-dup	1633full_4Q.m	Sample	OP96368.S4q622.560,,5.0.1,water	✓
130	4Q43077.d	P1-A5	ecc621-4	1633full_4Q.m	QC	OP96296.S4q622.500,,5.0.1,water	✓
131	4Q43078.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296.S4q622.500,,5.0.1,water	✓

SGS ORLANDO

DATE:	04/18/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	ID_041423_S4Q621
CAL DATE:	04/14/23
ANALYST:	M. Valls
RUN BATCH:	S4Q624

ELUENT A LOT #:	224863 W5%ACN 214785 2ml/MAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q43143.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0,1,water	✓
2	4Q43144.d	P1-B9	CCB	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0,1,water	✓
3	4Q43145.d	P1-B3	RT TDCA	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0,1,water	✓
4	4Q43146.d	P1-B4	RT BR-LN	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0,1,water	✓
5	4Q43147.d	P1-A9	High Std	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0,1,water	✓
6	4Q43148.d	P1-A1	IBLK	1633full_4Q.m	Sample		OP96301,S4q624,500,,5.0,1,water	✓
7	4Q43149.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96301,S4q624,500,,5.0,1,water	✓
8	4Q43150.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q624,500,,5.0,1,water	✓
9	4Q43151.d	P4-B7	JD63141-12A	1633full_4Q.m	Sample		OP96371,S4q624,60,,5.0,1,water	✓
10	4Q43152.d	P4-B8	JD63141-17A	1633full_4Q.m	Sample	50/500	OP96371,S4q624,545,,5.0,10,water	✓
11	4Q43153.d	P4-B9	FC5088-1	1633full_4Q.m	Sample	100/500	OP96368,S4q624,540,,5.0,5,water	✓
12	4Q43154.d	P4-C1	op96403-bs	1633full_4Q.m	Sample		OP96403,S4q624,500,,5.0,1,water	✓
13	4Q43155.d	P4-C2	op96403-llbs:3	1633full_4Q.m	Sample		OP96403,S4q624,500,,5.0,1,water	✓
14	4Q43156.d	P4-C3	op96403-mb	1633full_4Q.m	Sample		OP96403,S4q624,500,,5.0,1,water	✓
15	4Q43157.d	P4-C4	FC5164-1	1633full_4Q.m	Sample		OP96403,S4q624,560,,5.0,1,water	✓
16	4Q43158.d	P4-C5	FC5164-2	1633full_4Q.m	Sample		OP96403,S4q624,550,,5.0,1,water	✓
17	4Q43159.d	P4-C6	FC5194-1	1633full_4Q.m	Sample		OP96403,S4q624,510,,5.0,1,water	✓
18	4Q43160.d	P4-C7	op96403-ms	1633full_4Q.m	Sample		OP96403,S4q624,510,,5.0,1,water	✓
19	4Q43161.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0,1,water	✓
20	4Q43162.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0,1,water	✓
21	4Q43163.d	P4-C8	FC5194-2	1633full_4Q.m	Sample		OP96403,S4q624,560,,5.0,1,water	REDO
22	4Q43164.d	P4-C9	op96403-dup	1633full_4Q.m	Sample		OP96403,S4q624,570,,5.0,1,water	REDO
23	4Q43165.d	P4-D1	FC5194-3	1633full_4Q.m	Sample		OP96403,S4q624,530,,5.0,1,water	REDO
24	4Q43166.d	P4-D2	FC5088-3	1633full_4Q.m	Sample		OP96368,S4q624,570,,5.0,1,water	✓
25	4Q43167.d	P5-A1	op96427-bs	1633full_4Q.m	Sample		OP96427,S4q624,500,,5.0,1,water	✓
26	4Q43168.d	P5-A2	op96427-llbs:3	1633full_4Q.m	Sample		OP96427,S4q624,500,,5.0,1,water	✓
27	4Q43169.d	P5-A3	op96427-mb	1633full_4Q.m	Sample		OP96427,S4q624,500,,5.0,1,water	✓
28	4Q43170.d	P5-A4	FC5252-1	1633full_4Q.m	Sample		OP96427,S4q624,570,,5.0,1,water	✓
29	4Q43171.d	P5-A5	FC5252-2	1633full_4Q.m	Sample		OP96427,S4q624,550,,5.0,1,water	✓
30	4Q43172.d	P5-A6	op96427-ms	1633full_4Q.m	Sample		OP96427,S4q624,540,,5.0,1,water	✓
31	4Q43173.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,500,,5.0,1,water	✓
32	4Q43174.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,500,,5.0,1,water	✓
33	4Q43175.d	P5-A7	FC5252-3	1633full_4Q.m	Sample		OP96427,S4q624,550,,5.0,1,water	✓
34	4Q43176.d	P5-A8	op96427-dup	1633full_4Q.m	Sample		OP96427,S4q624,560,,5.0,1,water	✓
35	4Q43177.d	P5-A9	FC5252-4	1633full_4Q.m	Sample		OP96427,S4q624,570,,5.0,1,water	✓

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LCMS4-4Q ANALYSIS LOG

SGS ORLANDO

36	4Q43178.d	P5-B1	FC5252-5	1633full_4Q.m	Sample	OP96427,S4q624,510,,5.0.1,water	pfba low. Redo
37	4Q43179.d	P5-B2	op96386-bs	1633full_4Q.m	Sample	OP96386,S4q624,500,,5.0.1,water	✓
38	4Q43180.d	P5-B3	op96386-llbs:2	1633full_4Q.m	Sample	OP96386,S4q624,500,,5.0.1,water	✓
39	4Q43181.d	P5-B4	op96386-mb	1633full_4Q.m	Sample	OP96386,S4q624,500,,5.0.1,water	✓
40	4Q43182.d	P5-B5	JD63151-1	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
41	4Q43183.d	P5-B6	JD63151-2	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓ + RR2X
42	4Q43184.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296,S4q624,500,,5.0.1,water	✓
43	4Q43185.d	P1-A2	cc621-1,OLL	1633full_4Q.m	QC	OP96301,S4q624,500,,5.0.1,water	✓
44	4Q43186.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,500,,5.0.1,water	✓
45	4Q43187.d	P5-B7	JD63151-3	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
46	4Q43188.d	P5-B8	op96386-ms	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
47	4Q43189.d	P5-B9	JD63151-4	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
48	4Q43190.d	P5-C1	op96386-dup	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
49	4Q43191.d	P5-C2	JD63151-5	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
50	4Q43192.d	P5-C3	JD63151-6	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
51	4Q43193.d	P5-C4	JD63151-7	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
52	4Q43194.d	P5-C5	JD63151-8	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
53	4Q43195.d	P5-C7	JD63170-1	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	✓
54	4Q43196.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296,S4q624,500,,5.0.1,water	✓
55	4Q43197.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,500,,5.0.1,water	✓
56	4Q43198.d	P5-C8	JD63170-2	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr10x, high surr
57	4Q43199.d	P5-C9	JD63170-3	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr1x co + 5x high surr
58	4Q43200.d	P5-D1	JD63170-4	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr5x
59	4Q43201.d	P5-D2	JD63170-5	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr10x, high surr
60	4Q43202.d	P5-D3	JD63170-6	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr10x, high surr
61	4Q43203.d	P5-D4	JD63170-7	1633full_4Q.m	Sample	OP96386,S4q624,545,,5.0.1,water	rr1x co
62	4Q43204.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296,S4q624,500,,5.0.1,water	✓
63	4Q43205.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,500,,5.0.1,water	✓
64	4Q43206.d	P5-D5	op96364-bs	1633full_4Q.m	Sample	OP96364,S4q624,500,,5.0.1,soil	✓
65	4Q43207.d	P5-D6	op96364-llbs:2	1633full_4Q.m	Sample	OP96364,S4q624,500,,5.0.1,soil	✓
66	4Q43208.d	P5-D7	op96364-mb	1633full_4Q.m	Sample	OP96364,S4q624,500,,5.0.1,soil	✓
67	4Q43209.d	P5-D8	JD62946-1	1633full_4Q.m	Sample	OP96364,S4q624,496,,5.0.1,soil	✓
68	4Q43210.d	P5-D9	op96364-ms	1633full_4Q.m	Sample	OP96364,S4q624,498,,5.0.1,soil	✓
69	4Q43211.d	P5-E1	JD62924-1B	1633full_4Q.m	Sample	OP96364,S4q624,505,,5.0.1,soil	✓
70	4Q43212.d	P5-E2	op96364-dup	1633full_4Q.m	Sample	OP96364,S4q624,495,,5.0.1,soil	✓
71	4Q43213.d	P5-E3	JD63287-1	1633full_4Q.m	Sample	OP96364,S4q624,504,,5.0.1,soil	✓
72	4Q43214.d	P5-E4	JD63287-2	1633full_4Q.m	Sample	OP96364,S4q624,496,,5.0.1,soil	✓
73	4Q43215.d	P5-E5	JD63287-3	1633full_4Q.m	Sample	OP96364,S4q624,501,,5.0.1,soil	✓
74	4Q43216.d	P1-A5	cc621-4	1633full_4Q.m	QC	OP96296,S4q624,500,,5.0.1,water	✓
75	4Q43217.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96296,S4q624,500,,5.0.1,water	✓
76	4Q43218.d	P5-E6	JD63287-4	1633full_4Q.m	Sample	OP96364,S4q624,496,,5.0.1,soil	✓
77	4Q43219.d	P5-E7	JD63287-5	1633full_4Q.m	Sample	OP96364,S4q624,495,,5.0.1,soil	✓
78	4Q43220.d	P5-E8	JD63287-6	1633full_4Q.m	Sample	OP96364,S4q624,499,,5.0.1,soil	✓

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SGS ORLANDO LCMS4-4Q ANALYSIS LOG

79	4Q43221.d	P5-E9	JD63287-7	1633full_4Q.m	Sample		OP96364,S4q624,5.02,,5.0.1,soil	✓
80	4Q43222.d	P5-F1	JD63287-8	1633full_4Q.m	Sample		OP96364,S4q624,4.96,,5.0.1,soil	✓
81	4Q43223.d	P5-F2	JD63287-9	1633full_4Q.m	Sample		OP96364,S4q624,5.00,,5.0.1,soil	✓
82	4Q43224.d	P5-F3	JD63287-10	1633full_4Q.m	Sample		OP96364,S4q624,5.00,,5.0.1,soil	✓
83	4Q43225.d	P5-F4	JD63287-11	1633full_4Q.m	Sample		OP96364,S4q624,4.98,,5.0.1,soil	✓
84	4Q43226.d	P5-F5	JD63287-12	1633full_4Q.m	Sample		OP96364,S4q624,4.99,,5.0.1,soil	✓
85	4Q43227.d	P5-F6	JD63287-13	1633full_4Q.m	Sample		OP96364,S4q624,4.97,,5.0.1,soil	✓
86	4Q43228.d	P1-A5	cc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,5.00,,5.0.1,water	✓
87	4Q43229.d	P1-A2	cc621-1.0LL	1633full_4Q.m	QC	1.6/500	OP96301,S4q624,5.00,,5.0.1,water	✓
88	4Q43230.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,5.00,,5.0.1,water	✓
89	4Q43231.d	P5-F7	JD63287-14	1633full_4Q.m	Sample		OP96364,S4q624,4.99,,5.0.1,soil	✓
90	4Q43232.d	P5-F8	JD63287-15	1633full_4Q.m	Sample		OP96364,S4q624,4.97,,5.0.1,soil	✓
91	4Q43233.d	P5-F9	JD63287-16	1633full_4Q.m	Sample		OP96364,S4q624,5.00,,5.0.1,soil	✓
92	4Q43234.d	P5-C7	JD63287-17	1633full_4Q.m	Sample		OP96364,S4q624,4.99,,5.0.1,soil	✓
93	4Q43235.d	P1-A5	ecc621-4	1633full_4Q.m	QC	20/500	OP96296,S4q624,5.00,,5.0.1,water	✓
94	4Q43236.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96296,S4q624,5.00,,5.0.1,water	✓



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2098A	1033 SPIKE Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	2.50uL	4mL	0.25 ppm	1033 MIX	4/6/23	10/6/23	MW
		11672B	MXH			4/16/24				250ppb				
		LCMS 2097	Br-In Et, Me	Sgs	9/1	10/28/23	3ppm	250uL		312.5ppb				
		11674B	PFAC MXF	Wellington	1/11/25	3/30/24	2ppm	250uL		350ppb				
		11675	PFAC MXG		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11642B	PFAC MXJ		9/14/26	3/23/24	4-20 ppm	312uL		312/1000 ppb				
LCMS 2099	537.1 Du std. (INTERNAL)	11070	MSF-PEA	Wellington Labs	07/06/25	04/06/24	50ppm	80uL	4mL	1.0ppm	2011MSA 41, H2O	04/13/23	06/15/23	NG
		10438A	Mw:2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10512B	d3-N-MSDSAA		10/22/25	05/15/23		160uL		2.0ppm				NG
		10498A	M:PFOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M:PFDA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (90)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O	4/11/23	7/24/23	MW
91B	List 40 spike (Std)	LCMS 2067	40 List ADD ON #1	Sgs wld.		8/23/23	1.0ppm	400uL			(2.40031)			
		LCMS 2070	40 List ADD ON #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	Fose Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 2101	Fose std.	11336	N-et Fose	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me fose		5/13/27	9/19/23	50ppm	200uL						

* B/C checked are normal

* tested & passed on 10/11/23

MS 2100 91B * 100% 100% 100%

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2095A-J	(10ppb) PFC ID SURF	A-J 11669	PFAC-2YES	Wellington Labs	01/15/23	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	05/10/23	03/28/23	09/18/23	NS
↓	↓	11585	M2HFO-DA	↓	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-METOSA	↓	05/06/27	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 2096A-B	1033 spike Cal cert.	11672	PFAC-MxH	Wellington Labs	8/15/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 2.50ppb	1033 MIX	3/30/23	9/13/23	MUJ
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	0.25 0.25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxG	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxH	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11642B	PFAC-MxJ	↓	10/28/23	10/28/23	50ppm	200uL	5mL	2ppm	1033 MIX	4/16/23	10/28/23	MUJ
LCMS 2097A-B	BR-LN metet for 1033	11497	br-N metosa	Wellington Labs	08/23/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Effosa	↓	10/07/27	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metose	↓	10/28/23	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effose	↓	10/17/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/6/24								

* tested & used on 3/29/24 10/27

** based on date opened as specified in each SGS - Orlando SOP.



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List Std. ADD-ON #1	10726A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth	2/8/23	3/21/23	MV
		10840	L ⁻ PFDOs		7/9/26	10/18/23							8/23/23	
		10829	N ⁻ McFosA		8/3/26	8/23/23								
		10837	N ⁻ EtFosA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFODA		5/7/26	10/18/23								
		11116 B	3:3 FTCA PFP2PA		2/3/27	2/8/24								
		10685A	5:3 FTCA PFP2PA		11/11/25	8/23/23								
		11116 A	7:3 FTCA FHP2PA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA PF50HxA		3/31/25	10/18/23								
		10764	PFMPA PF406A		3/31/25	2/8/24								
		10765B	NFHDA 3.6-08P2PA		3/31/25	10/18/23								
					NS	02/10/23								

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-Icms std prep log.xls 030819

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
* 2074 A-B LCMS 2074 A-B	PFC SPIKE	11613	PROA-SD C8000015	Absolute	11/09/27	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	03/23/23	UG
↓	↓	10829	N-Me- FSA-M	Wellington Labs	08/23/26	09/23/23	50ppm	40uL	↓	↓	↓	↓	↓	NG
↓	↓	11250	FBSA-1	↓	11/10/26	11/08/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11249	FHSA-1	↓	12/29/26	11/03/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11332	FTECHS	↓	03/28/27	10/18/23	↓	↓	↓	↓	↓	↓	↓	NG
* 2075 A-F LCMS 2075 A-F	(10 PPB) PFC ID SURC	11639	MPAC- 24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	02/23/23	NG
↓	↓	11585	N2HFO- DA	Wellington Labs	11/08/25	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	11385	A-N- NFCOSAM	Wellington Labs	05/10/27	01/01/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
* 2076 LCMS 2076	40 List std. ADDON #2	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/17/23	5/19/26	MV
↓	↓	11249	FHSA-1	↓	2/29/26	11/3/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
↓	↓	11140	L-PFAS	↓	7/12/26	5/26/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
* 2077 A-B LCMS 2077 A-B	1633 Solvent B	11387	Ammonium Acetate	Sigmall drich	---	1/25/24	99.9%	0.62g	4L	2mM	MA	2/28/23	4/28/23	MV
↓	↓	224870	HPLC water	Fisher	---	2/28/23	↓	3,800ml	↓	95%	↓	↓	↓	↓
↓	↓	220225	Acetonil trile	↓	---	2/20/24	↓	200mL	↓	5%	↓	↓	↓	↓
↓	↓					n/a	n/a	n/a	2/28/23					
↓	↓					Continue next page #1								

* based on date opened as specified in each SGS - Orlando SOP.

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2052	1633 prep mix	Lot: 221044	MeOH	Fisher	—	1/4/24	99.9%	92 mL	100 mL	92%	N/A	1/19/23	2/19/23	MV
↓	↓	Lot: 219481	NH4OH	↓	—	9/19/23	100%	3.3 mL	↓	1%	↓	↓	↓	↓
↓	↓	Lot: 224863	H2O	↓	—	1/17/24	100%	1.7 mL	↓	4%	↓	↓	↓	↓
↓	↓	Lot: 224297	Acetic ACID	↓	—	6/24	99.7%	0.625 mL	↓	.625%	↓	↓	↓	↓
LCMS 2053	(spike) Full list std	11568	PF6A 200 28	SGS standards	11/9/27	1/10/24	1.0 ppm	400 NL	4.0 mL	100 ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
↓	↓	LCMS 1987	40 list add-on #1	↓	—	3/21/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 1986	40 list add-on #2	↓	—	4/8/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2054	FOSC std.	↓	—	7/24/23	5.0 ppm	400 NL	↓	500 ppb	↓	↓	↓	↓
LCMS 2054	FOSC std.	11336	N-Et-FOSE	Wellington	5/13/27	9/19/23	50 ppm	200 NL	2.0 mL	5 ppm	95% MeOH 5% H2O	12/4/23	7/24/23	MV
↓	↓	11338	N-Me FOSE	↓	5/13/27	9/19/23	50 ppm	200 NL	↓	↓	↓	↓	↓	↓
LCMS 2055	1633 Cal std.	10855	PFAC-MxH	Wellington	9/14/26	1/17/24	1-4 ppm	250 NL	4 mL	62.5 125 250 ppb	1633 MIX	1/24/23	7/24/23	MV
↓	↓	10853I	PFAC-MxI	↓	9/14/26	1/11/24	1-10 ppm	250 NL	↓	62.5 125 250 ppb	↓	↓	↓	↓
↓	↓	11579B	PFAC-MxF	↓	1/11/25	1/11/24	2 ppm	500 NL	↓	250 ppb	↓	↓	↓	↓
↓	↓	11607A	PFAC-MxG	↓	3/4/25	1/24/24	2 ppm	250 NL	↓	125 ppb	↓	↓	↓	↓
↓	↓	10854I	PFAC-MxJ	↓	9/14/26	1/11/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11492	PFAC-MxJ	↓	9/14/26	1/24/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11603	PFAC-MxJ	↓	9/14/26	1/24/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓

* based on date opened as specified in each SGS - Orlando SOP.

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**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

br-NMeFOSE

**2-(N-Methylperfluorooctanesulfonamido)ethanol
Isomeric Mix**

<u>PRODUCT CODE:</u>	br-NMeFOSE
<u>LOT NUMBER:</u>	brNMeFOSE0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/02/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 3: LC/MS Data (SIR)
 Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

brNMeFOSE0922 (1 of 7)
rev1

7.9.1

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix**

<u>PRODUCT CODE:</u>	br-NEtFOSE
<u>LOT NUMBER:</u>	brNEtFOSE1022
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/12/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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brNEtFOSE1022 (1 of 7)
rev1

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**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

br-NMeFOSA

**N-Methylperfluorooctanesulfonamide
Isomeric Mix**

PRODUCT CODE: br-NMeFOSA
LOT NUMBER: brNMeFOSA0822
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 08/18/2022
LAST TESTED: (mm/dd/yyyy) 08/23/2022
EXPIRY DATE: (mm/dd/yyyy) 08/23/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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brNMeFOSA0822 (1 of 6)
rev1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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brNEtFOSA0922 (1 of 6)
rev1

7.9.1

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rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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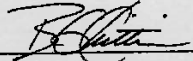
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXJ:0921 (1 of 5)
rev1

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Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
 B.G. Chittim, General Manager

Date: 10/02/2021
(m/mcd/yyyy)

Form#:13, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFACMX.0921 (3 of 5)
 rev1

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rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

**Native PFAS
Solution/Mixture**

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0822
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 08/05/2022
LAST TESTED: (mm/dd/yyyy) 08/08/2022
EXPIRY DATE: (mm/dd/yyyy) 08/08/2027
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₉, C₁₀ and C₁₂ linear; C₆ and C₈ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Revision# 9, Revised 2020-12-23

PFACMXH0822 1 of 11
rev0

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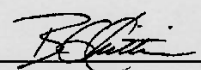
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Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUDA	1000		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTriDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^a	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexadisulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctadisulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonadisulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decadisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecadisulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecane sulfonate	8:2FTS	4000	3840	16

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.
^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.
^c See Table D for percent composition of linear and branched PFHxSK isomers.
^d See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 08/09/2022
(mm/dd/yyyy)

11674 A-B
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Form# 13, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

PFACMXFC122 (1 of 5)
rev0

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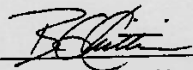
Table A:

PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxananoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By:



B.G. Chittim, General Manager

Date: 01/12/2022

(mm/dd/yyyy)

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rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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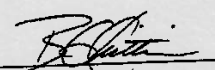
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PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

Table A

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By:  Date: 12/09/2022
(mm/dd/yyyy)
 B.G. Chittim, General Manager

7.9.1
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PRODUCT CODE:

FPePA

LOT NUMBER:

FPePA1120

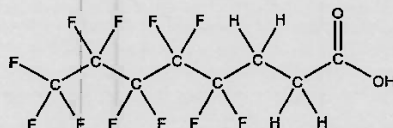
COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:

CAS #:

914637-49-3



MOLECULAR FORMULA:

C₈H₅F₁₁O₂

MOLECULAR WEIGHT:

342.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

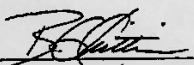
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid (C₈H₃F₁₁O₂) as an impurity determined by ¹⁹F NMR.

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Certified By:


B.G. Chittim, General Manager

Date:

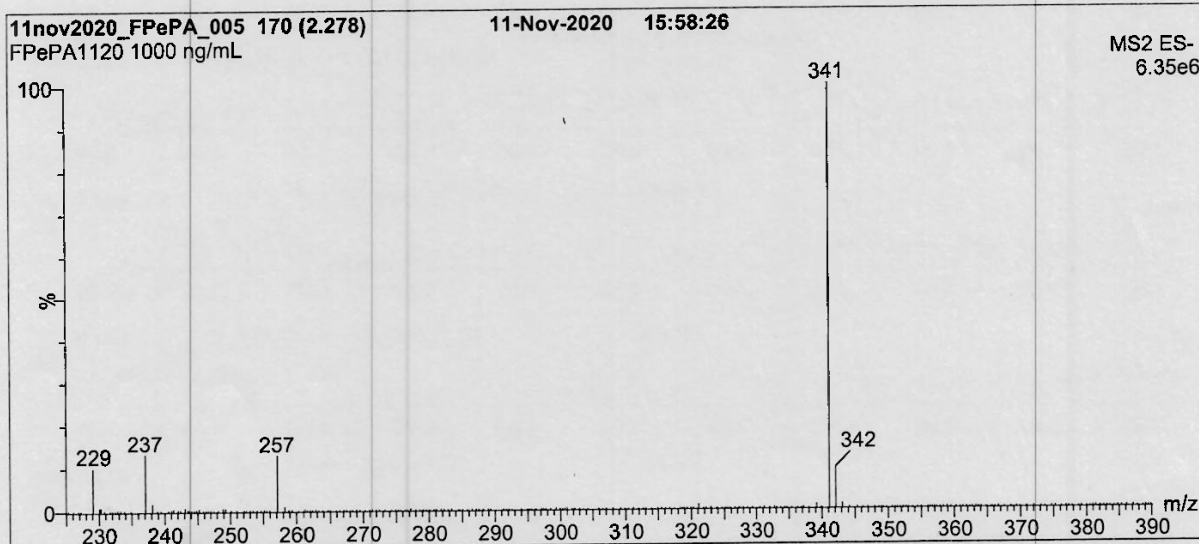
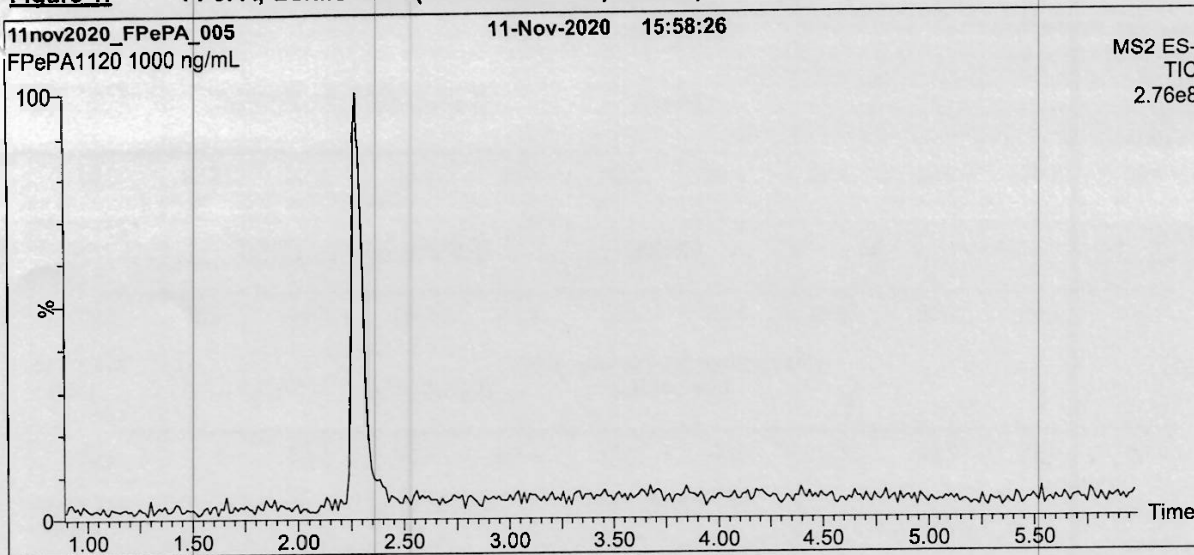
11/27/2020
(mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10

FPePA1120 (1 of 4)
rev0

Figure 1: FPePA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{1a}
1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 18.50
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

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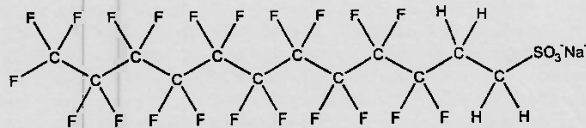


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0221
COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE: **CAS #:** 108026-35-3



MOLECULAR FORMULA: C₁₂H₄F₂₁SO₃Na **MOLECULAR WEIGHT:** 650.18
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
48.3 ± 2.4 µg/mL (10:2FTS acid)
48.2 ± 2.4 µg/mL (10:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/03/2021
EXPIRY DATE: (mm/dd/yyyy) 03/03/2026
RECOMMENDED STORAGE: Refrigerate ampoule

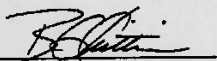
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 03/05/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

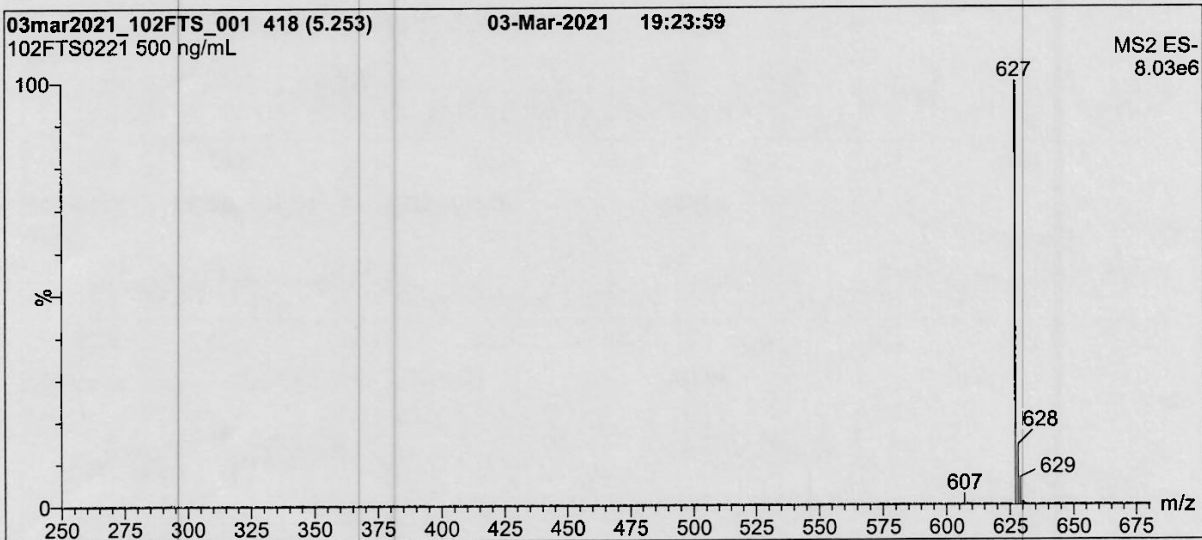
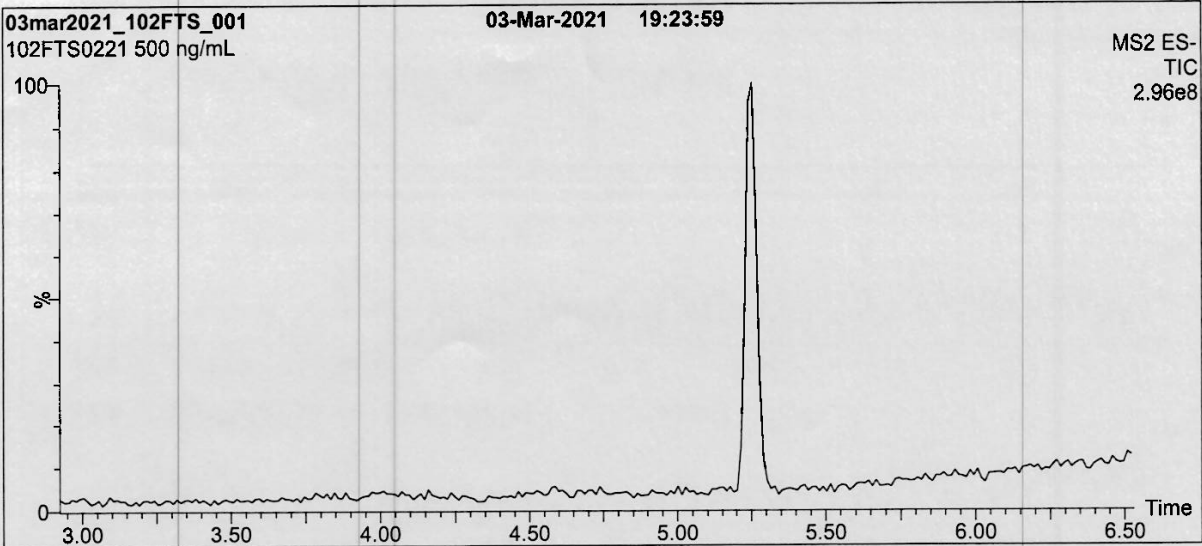
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

7.9.1

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Figure 1: 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
 Waters Xevo TQ-S micro MS

Chromatographic Conditions:
 Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
 Start: 40% H₂O / 60% (80:20 MeOH:ACN)
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for 3 min
 before returning to initial conditions in 0.75 min.
 Time: 12 min

Flow: 300 μ L/min

MS Parameters:
 Experiment: Full Scan (250 - 850 amu)
 Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 25.00
 Desolvation Temperature ($^{\circ}$ C) = 500
 Desolvation Gas Flow (L/hr) = 1000

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFEESA

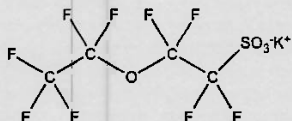
LOT NUMBER:

PFEESA0520

COMPOUND:

Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE:



CAS #:

117205-07-9

MOLECULAR FORMULA:

$C_4F_9SO_4K$

MOLECULAR WEIGHT:

354.19

CONCENTRATION:

50.0 ± 2.5 µg/ml (K salt)
 44.6 ± 2.2 µg/ml (PFEESA acid)
 44.5 ± 2.2 µg/ml (PFEESA anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2020

EXPIRY DATE: (mm/dd/yyyy)

05/13/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/29/2020
(mm/dd/yyyy)

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10763 A-B



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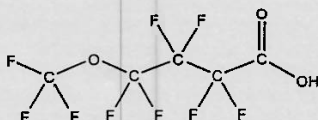
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **MOLECULAR WEIGHT:** 280.05

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

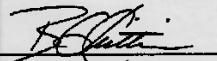
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)
rev1

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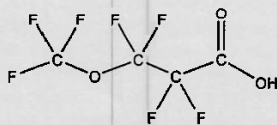
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

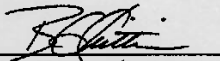
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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PF4OPeA0320 (1 of 4)
rev1

7.9.1

7

10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

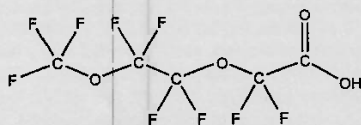
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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10829



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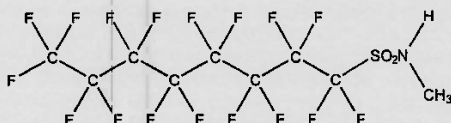
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

MOLECULAR FORMULA: C₈H₄F₁₇NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/03/2021
EXPIRY DATE: (mm/dd/yyyy) 08/03/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

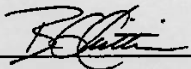
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: 
B.G. Chittim, General Manager

Date: 08/04/2021
(mm/dd/yyyy)

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Revision#:9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)
rev0

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PRODUCT CODE:

N-EtFOSA-M

10837

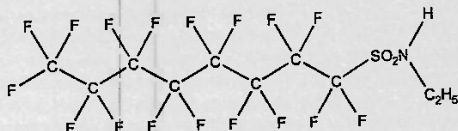
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

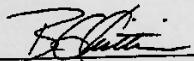
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021

(mm/dd/yyyy)

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7.9.1
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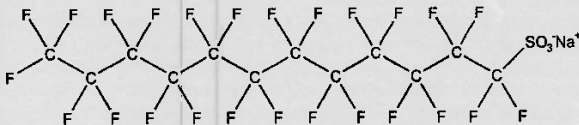
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
48.5 ± 2.4 µg/mL (PFDoS acid)
48.4 ± 2.4 µg/mL (PFDoS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/09/2021
EXPIRY DATE: (mm/dd/yyyy) 07/09/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 07/16/2021
(mm/dd/yyyy)

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PRODUCT CODE:

PFODA

10847 NS 01/18/23

LOT NUMBER:

PFODA0821

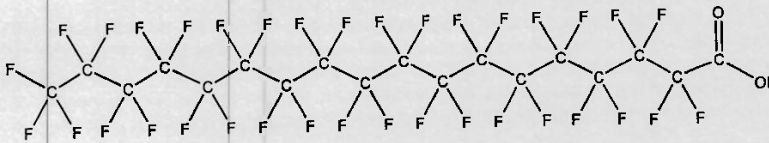
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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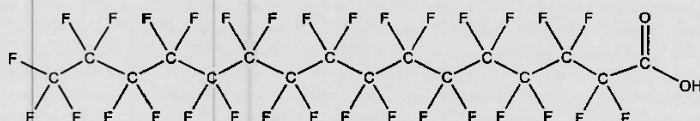
CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

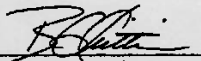
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 B.G. Chittim, General Manager

Date: 05/25/2021
 (mm/dd/yyyy)

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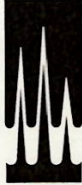
PFHxDA0421 (1 of 4)
 rev0

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1116 A.B ^{mw}

1116B on the back mw



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

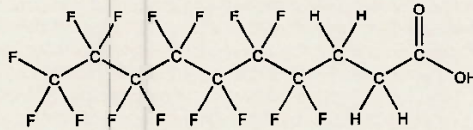
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

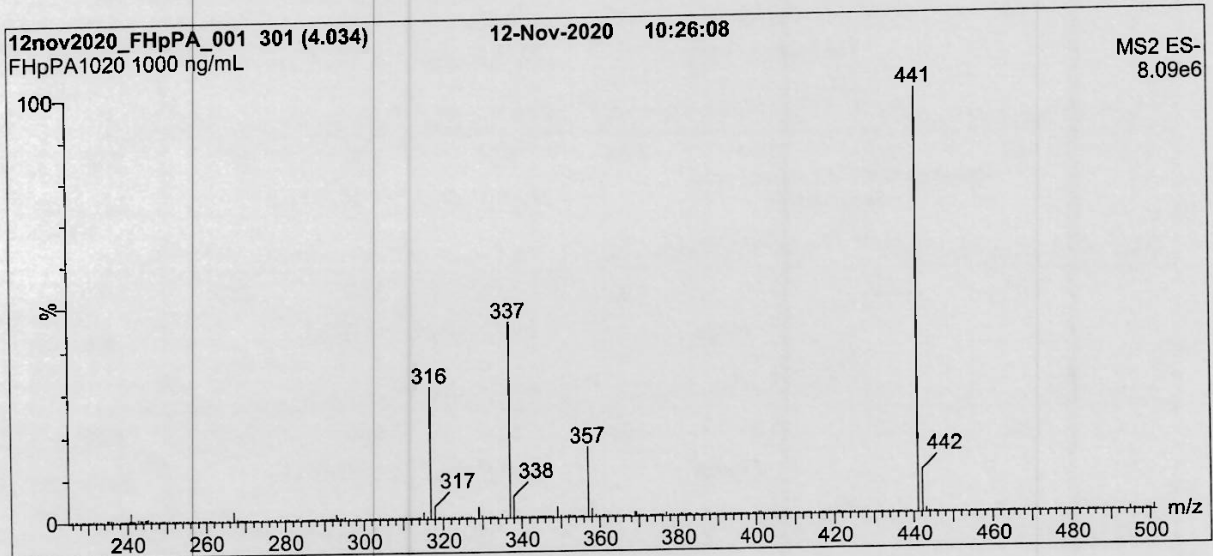
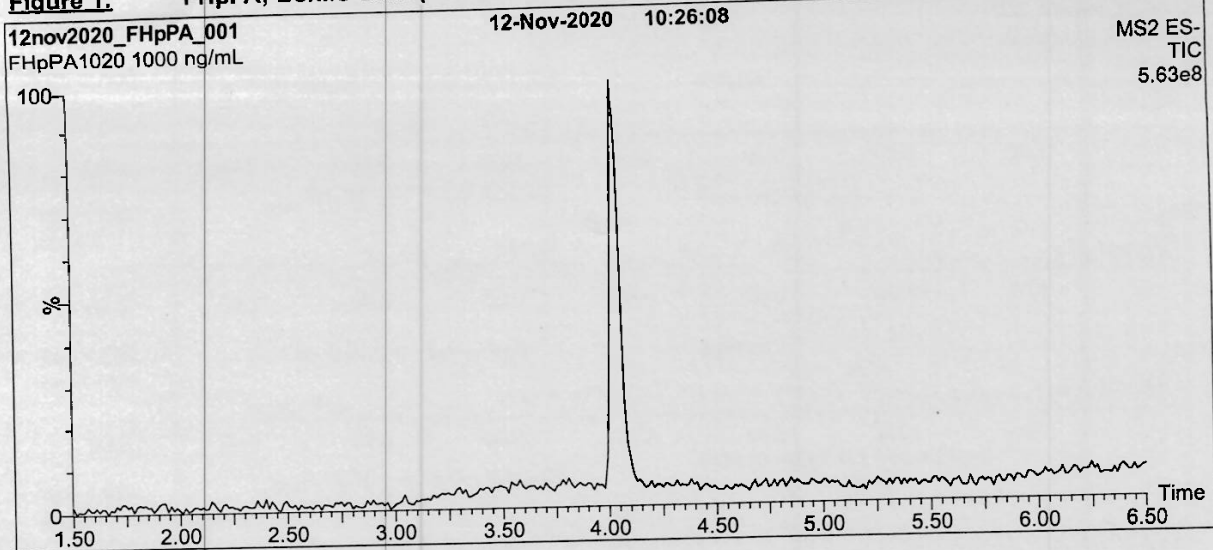
Date: 11/27/2020

(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

FPrPA(3:3FTEA) 1116 B



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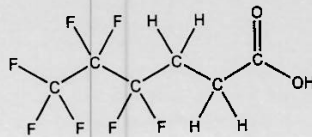
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0122

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: C₆H₅F₇O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/03/2022
EXPIRY DATE: (mm/dd/yyyy) 02/03/2027
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 242.09
SOLVENT(S): Methanol

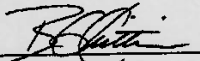
DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid (C₆H₃F₇O₂) as an impurity determined by ¹⁹F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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11140



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

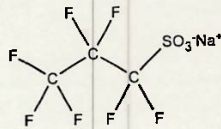
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)

46.0 ± 2.3 µg/mL (PFPrS acid)

45.8 ± 2.3 µg/mL (PFPrS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021

(mm/dd/yyyy)

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11852 11249
7/1/22 KA



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

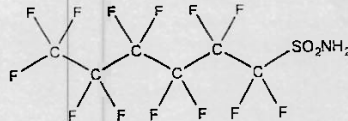
COMPOUND:

Perfluoro-1-hexanesulfonamide

STRUCTURE:

CAS #:

41997-13-1



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT:

399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

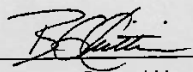
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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11250 LK 7/11/22



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FBSA-I

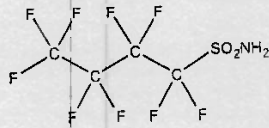
LOT NUMBER: FBSA11211

COMPOUND:

Perfluoro-1-butananesulfonamide

STRUCTURE:

CAS #: 30334-69-1



MOLECULAR FORMULA:

C₄H₂F₁₀NO₂S

MOLECULAR WEIGHT: 299.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S): Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/10/2021

EXPIRY DATE: (mm/dd/yyyy)

11/10/2026

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 11/10/2021

(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

FBSA11211 (1 of 4)
rev0

11332



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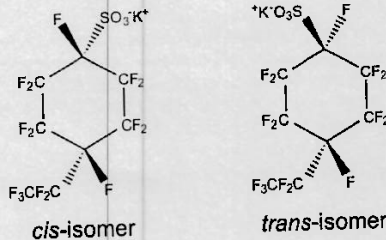
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:

PFECHS
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

LOT NUMBER: PFECHS0222

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:
CONCENTRATION:

$C_8F_{15}SO_3K$
50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)
>98%

MOLECULAR WEIGHT: 500.22
SOLVENT(S): Methanol

CHEMICAL PURITY:

LAST TESTED: (mm/dd/yyyy)

03/28/2022

EXPIRY DATE: (mm/dd/yyyy)

03/28/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

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Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022
(mm/dd/yyyy)

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11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

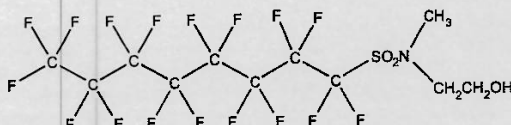
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

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Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11615 A-5
rec'd 01/19/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled PFAS Injection
Standard Solution/Mixture

PRODUCT CODE:	MPFAC-HIF-IS
LOT NUMBER:	MPFACHIFIS1122
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/28/2022
LAST TESTED: (mm/dd/yyyy)	11/29/2022
EXPIRY DATE: (mm/dd/yyyy)	11/29/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4 , C_6 , C_8 - C_{10}) and two mass-labelled (^{18}O and ^{13}C) perfluoroalkanesulfonates (C_6 and C_8). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of $\geq 99\%$ per ^{13}C or >94% per ^{18}O .

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Form#: 13 Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

MPFACHIFIS1122 (1 of 5)
rev0

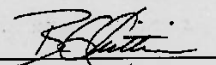
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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 12/05/2022
(mm/dd/yyyy)



11626
rec'd 01/26/23

CERTIFIED WEIGHT REPORT

Part Number: **64029A**
Lot Number: **110922**
Description: **PFOA - DOD**
28 components
Expiration Date: **110827**
Recommended Storage: **Freezer (0 °C)**
Nominal Concentration (µg/mL): **1.0**
NIST Test ID#: **6UTB**

Solvent(s): **Methanol (1 mM KOH)**
2-Propanol
Lot# **102722 (98%)**
32500 (2%)

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Prashant Chauhan</i>	DATE
Reviewed By: <i>Prashant Chauhan</i>	110922
Reviewed By: <i>Pedro L. Rentas</i>	DATE

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTriDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluorooctanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
14. N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHPS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	29108-34-4	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxadecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorooctadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.8	1.00	0.05	756426-58-1	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	6.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
Uncertainty Reference: Taylor, B.N. and Kaye, C.E. "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

11636 A-J
rec'd 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES1022
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 10/28/2022
LAST TESTED: (mm/dd/yyyy) 11/23/2022
EXPIRY DATE: (mm/dd/yyyy) 11/23/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctanesulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

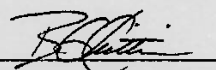
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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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Table A: MPFAC-HIF-ES; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₆)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₃ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₅ -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 11/24/2022
(mm/dd/yyyy)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 04/12/23 11:00
 Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time: 4/13/23 10:21
 Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: OP96368 Ext. By: GH

Conc. By: _____ Viald By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 96368 MB	/	500	7	N/A	25		5	AG	
OP 96368 BS	/	500	7			200			
OP 96368 LLBS	/	500	7			100			
FC5088-1	2	540	6						
	2	520	6						
	3	510	7						
	4	530	6						
	5	540	6	N/A	25		5	AG	
OP FC5088-3MS	3	540	7	N/A	25	200	5	AG	
OP MSD									
OP FC5088-5DUP	3	560	6	N/A	25		5	AG	

Comments: Carbon cleaned overnight due to broken centrifuge

EIS (SURR) ID: 11741A-C Conc: 250-5000 ng/ml Exp. Date: 04/11/24 Inj. By: GH Ver. By: AG
 SPIKE.1 ID: LCMS20180 Conc: VARIED Exp. Date: 10/06/23 Inj. By: GH Ver. By: AG
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11702D-F Conc: 250-1000 ng/ml Exp. Date: 4/5/24 Inj. By: MW Ver. By: NG

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 224231 1% NH4OH MeOH PF353 SPE Lot # S23-001184
 Water Lot# OP96265 0.3M Formic Acid PF347 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF346 5% Formic Acid _____ Carbon Lot# 160898

Relinquished By: [Signature]
 Accepted By: [Signature]

Date: 04/12/23
 Date: 4/13/23

1633 AQ extraction 042222.xls NF

7.10.1
7