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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC6066

Sampling Date: 05/12/23



Report to:

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Total number of pages in report: 662



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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Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)
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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: FC6066-1: AF-RHMW17S-WGN01LF-2305W2	7
4.2: FC6066-2: AF-RHMW17S-WQEB01-2305W2	10
4.3: FC6066-3: AF-RHMW17D-WGN01LF-2305W2	13
4.4: FC6066-4: AF-RHMW17D-WQFB01-2305W2	16
4.5: FC6066-5: AF-RHMW17-WGN01LF-2305W2	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	35
6.3: Matrix Spike Summary	39
6.4: Duplicate Summary	41
6.5: Injection Standard Area Summaries	43
6.6: TDCA Retention Time Checks	47
6.7: Ion Ratio Summaries	51
6.8: Isotope Dilution Standard Recovery Summaries	53
6.9: Initial and Continuing Calibration Summaries	56
6.10: Run Sequence Reports	72
Section 7: MS Semi-volatiles - Raw Data	76
7.1: Samples	77
7.2: Method Blanks	137
7.3: Blank Spikes	170
7.4: Matrix Spikes	214
7.5: Duplicates	236
7.6: Retention Time Markers	248
7.7: Initial and Continuing Calibrations	300
7.8: Instrument Run Logs	610
7.9: Standard Prep Logs	615
7.10: Sample Prep Logs	662



Sample Summary

AECOM, INC.

Job No: FC6066

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC6066-1	05/12/23	10:25	AYJV 05/13/23	AQ	Ground Water	AF-RHMW17S-WGN01LF-2305W2
FC6066-2	05/12/23	11:10	AYJV 05/13/23	AQ	Equipment Blank	AF-RHMW17S-WQEB01-2305W2
FC6066-3	05/12/23	12:25	AYJV 05/13/23	AQ	Ground Water	AF-RHMW17D-WGN01LF-2305W2
FC6066-4	05/12/23	11:30	AYJV 05/13/23	AQ	Field Blank Water	AF-RHMW17D-WQFB01-2305W2
FC6066-5	05/12/23	13:35	AYJV 05/13/23	AQ	Ground Water	AF-RHMW17-WGN01LF-2305W2

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: AECOM, INC.

Job No: FC6066

Site: N6274223F0104 RH Fire Suppression System

Report Date: 5/19/2023 2:54:51 PM

On 05/13/2023, 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 0.7 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC6066 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: OP96892

Sample(s) FC6066-3MS, FC6066-5DUP, FC6066-3MS were used as the QC samples indicated.

Blank Spike Recovery(s) for 3:3 Fluorotelomer carboxylate are outside control limits.

Matrix Spike Recovery(s) for 3:3 Fluorotelomer carboxylate, PFMBA, PFMPA are outside control limits. Probable cause is due to matrix interference.

Sample(s) FC6066-3 have surrogates outside control limits.

FC6066-3 for Perfluorobutanoic acid: Associated ID Standard outside control limits, Confirmed by batch QC.

FC6066-3 for 13C4-PFBA: Outside control limits.

FC6066-1 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6066-3 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6066-2 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6066-4 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

FC6066-5 for 3:3 Fluorotelomer carboxylate: Associated BS recovery outside control limits.

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: FC6066
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 05/12/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC6066-1 AF-RHMW17S-WGN01LF-2305W2

Perfluoropentanoic acid	1.6 J	7.3	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.8 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	1.1 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	0.89 J	3.6	0.91	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	0.69 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanesulfonic acid	0.75 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	1.4 J	3.6	1.8	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	5.3 J	18	7.3	ng/l	EPA DRAFT 1633

FC6066-2 AF-RHMW17S-WQEB01-2305W2

No hits reported in this sample.

FC6066-3 AF-RHMW17D-WGN01LF-2305W2

Perfluoroheptanesulfonic acid	7.1	3.8	1.9	ng/l	EPA DRAFT 1633
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FC6066-4 AF-RHMW17D-WQFB01-2305W2

No hits reported in this sample.

FC6066-5 AF-RHMW17-WGN01LF-2305W2

Perfluoropentanoic acid	3.7 J	7.3	1.8	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	2.4 J	3.6	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.92 J	3.6	1.8	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	16.5 J	18	7.3	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-2305W2		
Lab Sample ID:	FC6066-1	Date Sampled:	05/12/23
Matrix:	AQ - Ground Water	Date Received:	05/13/23
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	6Q17951.D	1	05/17/23 15:35	MV	05/16/23 11:00	OP96892	S6Q271
Run #2							

Run #	Initial Volume	Final Volume
Run #1	550 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.6	7.3	1.8	0.85	ng/l	J
307-24-4	Perfluorohexanoic acid	1.8	3.6	1.8	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.1	3.6	1.8	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	0.89	3.6	0.91	0.45	ng/l	J
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.69	3.6	1.8	0.45	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.75	3.6	1.8	0.45	ng/l	J
1763-23-1	Perfluorooctanesulfonic acid	1.4	3.6	1.8	0.49	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	5.3	18	7.3	3.2	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	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-2305W2		
Lab Sample ID:	FC6066-1	Date Sampled:	05/12/23
Matrix:	AQ - Ground Water	Date Received:	05/13/23
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	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	36	18	4.0	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.91	ng/l	
919005-14-4	ADONA	3.6 U	7.3	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.3	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	7.3	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.3	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.3	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.3	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	7.3	1.8	0.71	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^a	9.1 U	18	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	91	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	91	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	32%		20-150%
	13C5-PFPeA	95%		20-150%
	13C5-PFHxA	116%		20-150%
	13C4-PFHpA	113%		20-150%
	13C8-PFOA	112%		20-150%
	13C9-PFNA	110%		20-150%
	13C6-PFDA	103%		20-150%
	13C7-PFUnDA	101%		20-150%
	13C2-PFDoDA	85%		20-150%
	13C2-PFTeDA	69%		20-150%
	13C3-PFBS	106%		20-150%
	13C3-PFHxS	101%		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-RHMW17S-WGN01LF-2305W2	
Lab Sample ID:	FC6066-1	Date Sampled: 05/12/23
Matrix:	AQ - Ground Water	Date Received: 05/13/23
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	96%		20-150%
	13C8-FOSA	84%		20-150%
	d3-MeFOSA	73%		20-150%
	d5-EtFOSA	76%		20-150%
	d3-MeFOSAA	95%		20-150%
	d5-EtFOSAA	91%		20-150%
	d7-MeFOSE	71%		20-150%
	d9-EtFOSE	79%		20-150%
	13C2-4:2FTS	137%		20-180%
	13C2-6:2FTS	110%		20-180%
	13C2-8:2FTS	100%		20-180%
	13C3-HFPO-DA	100%		20-150%

(a) Associated BS recovery 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-RHMW17S-WQEB01-2305W2		
Lab Sample ID:	FC6066-2	Date Sampled:	05/12/23
Matrix:	AQ - Equipment Blank	Date Received:	05/13/23
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	6Q17956.D	1	05/17/23 16:48	MV	05/16/23 11:00	OP96892	S6Q271
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	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	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	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	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	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	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-WQEB01-2305W2		Date Sampled:	05/12/23
Lab Sample ID:	FC6066-2	Date Received:	05/13/23	
Matrix:	AQ - Equipment Blank	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	3.8 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	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.96	ng/l	
919005-14-4	ADONA	3.8 U	7.7	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.7	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	7.7	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.7	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.7	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.7	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.7	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^a	9.6 U	19	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	96	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	96	19	7.5	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	117%		20-150%
	13C8-PFOA	111%		20-150%
	13C9-PFNA	110%		20-150%
	13C6-PFDA	101%		20-150%
	13C7-PFUnDA	94%		20-150%
	13C2-PFDoDA	94%		20-150%
	13C2-PFTeDA	88%		20-150%
	13C3-PFBS	107%		20-150%
	13C3-PFHxS	103%		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-WQEB01-2305W2		Date Sampled:	05/12/23
Lab Sample ID:	FC6066-2		Date Received:	05/13/23
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	112%		20-150%
	13C8-FOSA	78%		20-150%
	d3-MeFOSA	77%		20-150%
	d5-EtFOSA	79%		20-150%
	d3-MeFOSAA	103%		20-150%
	d5-EtFOSAA	109%		20-150%
	d7-MeFOSE	68%		20-150%
	d9-EtFOSE	83%		20-150%
	13C2-4:2FTS	113%		20-180%
	13C2-6:2FTS	110%		20-180%
	13C2-8:2FTS	105%		20-180%
	13C3-HFPO-DA	112%		20-150%

(a) Associated BS recovery 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-WGN01LF-2305W2		
Lab Sample ID:	FC6066-3	Date Sampled:	05/12/23
Matrix:	AQ - Ground Water	Date Received:	05/13/23
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	6Q17952.D	1	05/17/23 15:50	MV	05/16/23 11:00	OP96892	S6Q271
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 ^a	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	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	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	7.1	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	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	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	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-RHMW17D-WGN01LF-2305W2		
Lab Sample ID:	FC6066-3	Date Sampled:	05/12/23
Matrix:	AQ - Ground Water	Date Received:	05/13/23
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	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.96	ng/l	
919005-14-4	ADONA	3.8 U	7.7	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.7	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	7.7	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.7	3.8	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.7	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.7	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.7	1.9	0.75	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^b	9.6 U	19	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	96	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	96	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	5% ^c		20-150%
	13C5-PFPeA	33%		20-150%
	13C5-PFHxA	103%		20-150%
	13C4-PFHpA	110%		20-150%
	13C8-PFOA	117%		20-150%
	13C9-PFNA	104%		20-150%
	13C6-PFDA	109%		20-150%
	13C7-PFUnDA	90%		20-150%
	13C2-PFDoDA	87%		20-150%
	13C2-PFTeDA	64%		20-150%
	13C3-PFBS	110%		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

Report of Analysis

Client Sample ID:	AF-RHMW17D-WGN01LF-2305W2		
Lab Sample ID:	FC6066-3	Date Sampled:	05/12/23
Matrix:	AQ - Ground Water	Date Received:	05/13/23
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	110%		20-150%
	13C8-FOSA	90%		20-150%
	d3-MeFOSA	93%		20-150%
	d5-EtFOSA	99%		20-150%
	d3-MeFOSAA	146%		20-150%
	d5-EtFOSAA	148%		20-150%
	d7-MeFOSE	69%		20-150%
	d9-EtFOSE	82%		20-150%
	13C2-4:2FTS	107%		20-180%
	13C2-6:2FTS	120%		20-180%
	13C2-8:2FTS	131%		20-180%
	13C3-HFPO-DA	92%		20-150%

- (a) Associated ID Standard outside control limits, Confirmed by batch QC.
- (b) Associated BS recovery 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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW17D-WQFB01-2305W2		
Lab Sample ID:	FC6066-4	Date Sampled:	05/12/23
Matrix:	AQ - Field Blank Water	Date Received:	05/13/23
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	6Q17957.D	1	05/17/23 17:02	MV	05/16/23 11:00	OP96892	S6Q271
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	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	3.8	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	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	3.8	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	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	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	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-WQFB01-2305W2		
Lab Sample ID:	FC6066-4	Date Sampled:	05/12/23
Matrix:	AQ - Field Blank Water	Date Received:	05/13/23
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	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.94	ng/l	
919005-14-4	ADONA	3.8 U	7.5	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.5	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.5	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.5	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^a	9.4 U	19	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	94	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	94	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	112%		20-150%
	13C5-PFPeA	113%		20-150%
	13C5-PFHxA	117%		20-150%
	13C4-PFHpA	112%		20-150%
	13C8-PFOA	113%		20-150%
	13C9-PFNA	113%		20-150%
	13C6-PFDA	103%		20-150%
	13C7-PFUnDA	99%		20-150%
	13C2-PFDoDA	93%		20-150%
	13C2-PFTeDA	91%		20-150%
	13C3-PFBS	116%		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

Report of Analysis

Client Sample ID: AF-RHMW17D-WQFB01-2305W2		Date Sampled: 05/12/23
Lab Sample ID: FC6066-4		Date Received: 05/13/23
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	98%		20-150%
	13C8-FOSA	63%		20-150%
	d3-MeFOSA	70%		20-150%
	d5-EtFOSA	69%		20-150%
	d3-MeFOSAA	98%		20-150%
	d5-EtFOSAA	105%		20-150%
	d7-MeFOSE	61%		20-150%
	d9-EtFOSE	71%		20-150%
	13C2-4:2FTS	115%		20-180%
	13C2-6:2FTS	108%		20-180%
	13C2-8:2FTS	110%		20-180%
	13C3-HFPO-DA	115%		20-150%

(a) Associated BS recovery 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-RHMW17-WGN01LF-2305W2		
Lab Sample ID:	FC6066-5	Date Sampled:	05/12/23
Matrix:	AQ - Ground Water	Date Received:	05/13/23
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	6Q17958.D	1	05/17/23 17:17	MV	05/16/23 11:00	OP96892	S6Q271
Run #2							

Run #	Initial Volume	Final Volume
Run #1	550 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	3.7	7.3	1.8	0.85	ng/l	J
307-24-4	Perfluorohexanoic acid	2.4	3.6	1.8	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.92	3.6	1.8	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	16.5	18	7.3	3.2	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	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-2305W2		Date Sampled:	05/12/23
Lab Sample ID:	FC6066-5	Date Received:	05/13/23	
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	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	36	18	4.0	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.91	ng/l	
919005-14-4	ADONA	3.6 U	7.3	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.3	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	7.3	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.3	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.3	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.3	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	7.3	1.8	0.71	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylat ^a	9.1 U	18	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	91	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	91	18	7.1	ng/l	

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

13C4-PFBA	98%		20-150%
13C5-PFPeA	109%		20-150%
13C5-PFHxA	114%		20-150%
13C4-PFHpA	107%		20-150%
13C8-PFOA	109%		20-150%
13C9-PFNA	115%		20-150%
13C6-PFDA	110%		20-150%
13C7-PFUnDA	85%		20-150%
13C2-PFDoDA	63%		20-150%
13C2-PFTeDA	46%		20-150%
13C3-PFBS	108%		20-150%
13C3-PFHxS	105%		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-2305W2		Date Sampled:	05/12/23
Lab Sample ID:	FC6066-5		Date Received:	05/13/23
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	106%		20-150%
	13C8-FOSA	90%		20-150%
	d3-MeFOSA	79%		20-150%
	d5-EtFOSA	86%		20-150%
	d3-MeFOSAA	113%		20-150%
	d5-EtFOSAA	117%		20-150%
	d7-MeFOSE	80%		20-150%
	d9-EtFOSE	95%		20-150%
	13C2-4:2FTS	111%		20-180%
	13C2-6:2FTS	117%		20-180%
	13C2-8:2FTS	88%		20-180%
	13C3-HFPO-DA	105%		20-150%

(a) Associated BS recovery 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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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



SGS North America Inc - Orlando

FC6066

COC #: 2305W2AFSG12

PAGE 1 OF 1

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO Quote # SKIFF #

Client / Reporting Information			Project Information			Analytical Information										Matrix Codes
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			<div style="text-align: center; font-size: 2em; font-weight: bold;"> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe
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 #													
Sampler(s) Name(s) (Printed) Sampler 1: <u>Andy Young</u> Sampler 2: <u>Jerse Villalobos</u>			Client Purchase Order #			PFAS EPA Draft: 1633 INITIAL ASSESSMENT LABEL VERIFICATION										
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY	
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NOVE	ICI	NaOH	PHOS	PERCA	AMOH-ZNAC	DI WATER		MECH
1	AF-RHWW17S-WGN01LF-2305W2	5/12/23	1625	AY, JV	GW	3		X								X
2	AF-RHWW17S-WQEB01-2305W2	5/12/23	1110	AY, JV	GW	3		X								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 United AwB 016-97082974										
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		Date Time:	Relinquished By/Affiliation		Date Time:	Received By/Affiliation		Date Time:	Received By/Affiliation				
1 Andy Young / AECOM		5/12/23	2 Alex Edmundo / AECOM		5/12/23	3 Alex Edmundo		5/12/23	4 Alex Edmundo		5/12/23	5 Alex Edmundo				
5			6			7			8			1500				
Lab Use Only: Cooler Temperature (e) Celsius (corrected): <u>0.874</u>													http://www.sgs.com/en/terms-and-conditions			

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FC6066: Chain of Custody

Page 1 of 4





SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
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FC6066
SGS - ORLANDO JOB # :

COC #: 2305W2AFSG11
PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes				
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="text-align: center;"> </div>										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				
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 #		PFAS EPA Draft 1633										LAB USE ONLY				
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	ROVE	PCB	NO3	NO2	PHOS	AMON	ZINC	DI WATER	MICH	PFAS EPA Draft 1633	LAB USE ONLY
3	AF-RHMMW17D-WGN01LF-2305W2	5/12/23	1225	AKJV	GW	3		X									X	
4	AF-RHMMW17D-WQFB01-2305W2	5/12/23	1130	AKJV	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 _____		<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 AWB 016-97082974												
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	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation	
1 Andy Young/AECOM	5/12/23	2 AKX Edmonds/AECo	3 AKX Edmonds/AECo	5/12/23	4 AKX Edmonds/AECo	5			7			8						
Lab Use Only : Cooler Temperature (s) Celsius (corrected): _____																		

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5.1
5



SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

FC6066

SGS - ORLANDO JOB # :

COC #: 2305W2AFSG10

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes			
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small; margin-right: 5px;">PFAS EPA Draft: 1633</div> <div style="border: 1px solid black; padding: 5px; font-size: 2em; font-family: cursive;"> <i>[Signature]</i> 5/12/23 </div> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
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: <i>Andy Young</i> Sampler 2: <i>Jorge Villalobos</i>																	
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION		CONTAINER INFORMATION										LAB USE ONLY			
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	PCD	NEOH	INCS	PERCH	NOH-ZNAC		DI WATER	MECH	
S	AF-RHMMW17-WGN01LF-2305W2	5/12/23	1335	<i>AY, JV</i>	GW	3		X									
				<div style="font-size: 2em; font-family: cursive;"> <i>[Signature]</i> 5/12/23 </div>													
Turnaround Time (Business days)				Data Deliverable Information						Comments / Remarks							
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		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 <i>United AWR 016-97082974</i>							
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>Andy Young / AECOM</i>		Date Time: <i>5/12/23 1445</i>		Received By/Affiliation 2 <i>Alex Edmunds</i>		Date Time: <i>5/12/23</i>		Relinquished By/Affiliation 3 <i>Alex Edmunds</i>		Date Time: <i>5/12/23</i>		Received By/Affiliation 4 <i>[Signature]</i>		Date Time: <i>5/12/23</i>			
Relinquished by/Affiliation 5		Date Time:		Received By/Affiliation 6		Date Time:		Relinquished By/Affiliation 7		Date Time:		Received By/Affiliation 8		Date Time:			
Lab Use Only : Cooler Temperature (s) Celsius (corrected):												http://www.sgs.com/en/terms-and-conditions					

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FC6066: Chain of Custody

Page 3 of 4



5.1
5

SGS Sample Receipt Summary

Job Number: FC6066

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 5/13/2023 3:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-97082974

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (0.8);

Cooler Temps (Corrected) °C: Cooler 1: (0.7);

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: 5/13/2023 3:00:00 PM

Reviewer: CD

Date: 5/15/2023

FC6066: Chain of Custody

Page 4 of 4

QC Evaluation: DOD QSM5.x Limits

Job Number: FC6066
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 05/12/23

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 FC6066

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: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q271-IBLK	6Q17941.D	1	05/17/23	MV	n/a	n/a	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q271-IBLK	6Q17941.D	1	05/17/23	MV	n/a	n/a	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	100% 20-150%
	13C5-PFHxA	98% 20-150%
	13C4-PFHpA	99% 20-150%
	13C8-PFOA	98% 20-150%
	13C9-PFNA	97% 20-150%
	13C6-PFDA	99% 20-150%
	13C7-PFUnDA	106% 20-150%
	13C2-PFDoDA	101% 20-150%
	13C2-PFTeDA	101% 20-150%
	13C3-PFBS	101% 20-150%
	13C3-PFHxS	96% 20-150%
	13C8-PFOS	101% 20-150%
	13C8-FOSA	111% 20-150%
	d3-MeFOSA	105% 20-150%
	d5-EtFOSA	103% 20-150%
	d3-MeFOSAA	99% 20-150%
	d5-EtFOSAA	111% 20-150%
	d7-MeFOSE	115% 20-150%
	d9-EtFOSE	111% 20-150%
	13C2-4:2FTS	104% 20-180%
	13C2-6:2FTS	101% 20-180%
	13C2-8:2FTS	102% 20-180%
	13C3-HFPO-DA	99% 20-150%

6.1.1
6

Continuing Calibration Blank

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q271-ICCB	6Q17955.D	1	05/17/23	MV	n/a	n/a	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-2, FC6066-4, FC6066-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q271-ICCB	6Q17955.D	1	05/17/23	MV	n/a	n/a	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-2, FC6066-4, FC6066-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	102% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	107% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	102% 20-150%
	13C9-PFNA	95% 20-150%
	13C6-PFDA	92% 20-150%
	13C7-PFUnDA	101% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	99% 20-150%
	13C3-PFBS	105% 20-150%
	13C3-PFHxS	97% 20-150%
	13C8-PFOS	92% 20-150%
	13C8-FOSA	98% 20-150%
	d3-MeFOSA	89% 20-150%
	d5-EtFOSA	91% 20-150%
	d3-MeFOSAA	82% 20-150%
	d5-EtFOSAA	94% 20-150%
	d7-MeFOSE	104% 20-150%
	d9-EtFOSE	101% 20-150%
	13C2-4:2FTS	97% 20-180%
	13C2-6:2FTS	96% 20-180%
	13C2-8:2FTS	92% 20-180%
	13C3-HFPO-DA	102% 20-150%

Method Blank Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-MB	6Q17947.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Method Blank Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-MB	6Q17947.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	110% 20-150%
	13C5-PFPeA	108% 20-150%
	13C5-PFHxA	114% 20-150%
	13C4-PFHpA	114% 20-150%
	13C8-PFOA	110% 20-150%
	13C9-PFNA	103% 20-150%
	13C6-PFDA	106% 20-150%
	13C7-PFUnDA	103% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	97% 20-150%
	13C3-PFBS	108% 20-150%
	13C3-PFHxS	110% 20-150%
	13C8-PFOS	101% 20-150%
	13C8-FOSA	61% 20-150%
	d3-MeFOSA	62% 20-150%
	d5-EtFOSA	71% 20-150%
	d3-MeFOSAA	103% 20-150%
	d5-EtFOSAA	104% 20-150%
	d7-MeFOSE	60% 20-150%
	d9-EtFOSE	71% 20-150%
	13C2-4:2FTS	111% 20-180%
	13C2-6:2FTS	115% 20-180%
	13C2-8:2FTS	100% 20-180%
	13C3-HFPO-DA	111% 20-150%

Blank Spike Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-LLBS	6Q17946.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0285	95	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0144	96	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0075	100	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0071	95	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0070	93	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0067	89	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0070	93	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0065	87	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0067	89	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0069	92	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0067	89	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0064	96	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0074	105	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0069	101	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0069	97	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0066	95	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0064	89	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0066	91	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0070	96	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0270	96	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0267	94	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0323	112	40-150
754-91-6	PFOSA	0.0075	0.0071	95	40-150
31506-32-8	MeFOSA	0.015	0.0147	98	40-150
4151-50-2	EtFOSA	0.015	0.0118	79	40-150
2355-31-9	MeFOSAA	0.0075	0.0063	84	40-150
2991-50-6	EtFOSAA	0.0075	0.0067	89	40-150
24448-09-7	MeFOSE	0.0375	0.0332	89	40-150
1691-99-2	EtFOSE	0.0375	0.0343	91	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0137	91	40-150
919005-14-4	ADONA	0.0142	0.0130	92	40-150
377-73-1	PFMPA	0.015	0.0136	91	40-150
863090-89-5	PFMBA	0.015	0.0133	89	40-150
151772-58-6	NFDHA	0.015	0.0124	83	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0139	99	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0139	98	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-LLBS	6Q17946.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0111	83	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0295	79	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.171	91	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.194	103	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	107%	20-150%
	13C5-PFPeA	106%	20-150%
	13C5-PFHxA	108%	20-150%
	13C4-PFHpA	107%	20-150%
	13C8-PFOA	108%	20-150%
	13C9-PFNA	114%	20-150%
	13C6-PFDA	104%	20-150%
	13C7-PFUnDA	113%	20-150%
	13C2-PFDoDA	106%	20-150%
	13C2-PFTeDA	103%	20-150%
	13C3-PFBS	108%	20-150%
	13C3-PFHxS	99%	20-150%
	13C8-PFOS	104%	20-150%
	13C8-FOSA	86%	20-150%
	d3-MeFOSA	78%	20-150%
	d5-EtFOSA	84%	20-150%
	d3-MeFOSAA	108%	20-150%
	d5-EtFOSAA	102%	20-150%
	d7-MeFOSE	74%	20-150%
	d9-EtFOSE	84%	20-150%
	13C2-4:2FTS	105%	20-180%
	13C2-6:2FTS	108%	20-180%
	13C2-8:2FTS	101%	20-180%
	13C3-HFPO-DA	106%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-BS	6Q17945.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0944	94	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0476	95	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0237	95	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0258	103	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0234	94	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0241	96	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0246	98	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0237	95	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0237	95	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0240	96	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0230	92	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0209	94	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0228	97	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0211	92	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0231	97	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0233	100	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0237	99	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0237	98	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0227	94	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0978	104	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0877	92	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0939	98	40-150
754-91-6	PFOSA	0.025	0.0241	96	40-150
31506-32-8	MeFOSA	0.05	0.0451	90	40-150
4151-50-2	EtFOSA	0.05	0.0474	95	40-150
2355-31-9	MeFOSAA	0.025	0.0236	94	40-150
2991-50-6	EtFOSAA	0.025	0.0237	95	40-150
24448-09-7	MeFOSE	0.125	0.116	93	40-150
1691-99-2	EtFOSE	0.125	0.110	88	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0484	97	40-150
919005-14-4	ADONA	0.0473	0.0438	93	40-150
377-73-1	PFMPA	0.05	0.0212	42	40-150
863090-89-5	PFMBA	0.05	0.0491	98	40-150
151772-58-6	NFDHA	0.05	0.0430	86	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0422	90	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0433	92	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-BS	6Q17945.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0389	87	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0466	37*	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.534	85	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.600	96	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	25%	20-150%
	13C5-PFPeA	101%	20-150%
	13C5-PFHxA	115%	20-150%
	13C4-PFHpA	106%	20-150%
	13C8-PFOA	114%	20-150%
	13C9-PFNA	98%	20-150%
	13C6-PFDA	118%	20-150%
	13C7-PFUnDA	109%	20-150%
	13C2-PFDoDA	110%	20-150%
	13C2-PFTeDA	112%	20-150%
	13C3-PFBS	112%	20-150%
	13C3-PFHxS	110%	20-150%
	13C8-PFOS	112%	20-150%
	13C8-FOSA	94%	20-150%
	d3-MeFOSA	91%	20-150%
	d5-EtFOSA	89%	20-150%
	d3-MeFOSAA	108%	20-150%
	d5-EtFOSAA	114%	20-150%
	d7-MeFOSE	73%	20-150%
	d9-EtFOSE	87%	20-150%
	13C2-4:2FTS	101%	20-180%
	13C2-6:2FTS	115%	20-180%
	13C2-8:2FTS	109%	20-180%
	13C3-HFPO-DA	109%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-MS	6Q17953.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271
FC6066-3	6Q17952.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	FC6066-3 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	0.0943	0.0833	88	40-150
2706-90-3	Perfluoropentanoic acid	0.0077 U	0.0472	0.0487	103	40-150
307-24-4	Perfluorohexanoic acid	0.0038 U	0.0236	0.0223	95	40-150
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0236	0.0235	100	40-150
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0236	0.0225	95	40-150
375-95-1	Perfluorononanoic acid	0.0038 U	0.0236	0.0246	104	40-150
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0236	0.0237	100	40-150
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0236	0.0235	100	40-150
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0236	0.0238	101	40-150
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0236	0.0212	90	40-150
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0236	0.0241	102	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0209	0.0206	98	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0048 U	0.0222	0.0226	102	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0216	0.0217	101	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0071	0.0225	0.0314	108	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0038 U	0.0219	0.0241	110	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0038 U	0.0227	0.0225	99	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0038 U	0.0228	0.0226	99	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0048 U	0.0229	0.0138	60	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019 U	0.0884	0.0914	103	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U	0.0896	0.0974	109	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U	0.0906	0.104	115	40-150
754-91-6	PFOSA	0.0038 U	0.0236	0.0210	89	40-150
31506-32-8	MeFOSA	0.0077 U	0.0472	0.0462	98	40-150
4151-50-2	EtFOSA	0.0077 U	0.0472	0.0437	93	40-150
2355-31-9	MeFOSAA	0.0048 U	0.0236	0.0252	107	40-150
2991-50-6	EtFOSAA	0.0048 U	0.0236	0.0217	92	40-150
24448-09-7	MeFOSE	0.038 U	0.118	0.108	92	40-150
1691-99-2	EtFOSE	0.038 U	0.118	0.117	99	40-150
13252-13-6	HFPO-DA (GenX)	0.0038 U	0.0472	0.0474	100	40-150
919005-14-4	ADONA	0.0077 U	0.0446	0.0486	109	40-150
377-73-1	PFMPA	0.0077 U	0.0472	0.0126	27*	40-150
863090-89-5	PFMBA	0.0077 U	0.0472	0.0725	154*	40-150
151772-58-6	NFDHA	0.0077 U	0.0472	0.0386	82	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0077 U	0.0441	0.0473	107	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0077 U	0.0446	0.0409	92	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-MS	6Q17953.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271
FC6066-3	6Q17952.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	FC6066-3 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0077 U	0.042	0.0419	100	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	0.118	0.0374	32*	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.096 U	0.59	0.590	100	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.096 U	0.59	0.623	106	40-150

CAS No.	ID Standard Recoveries	MS	FC6066-3	Limits
	13C4-PFBA	4%* a	5%* a	20-150%
	13C5-PFPeA	28%	33%	20-150%
	13C5-PFHxA	93%	103%	20-150%
	13C4-PFHpA	102%	110%	20-150%
	13C8-PFOA	105%	117%	20-150%
	13C9-PFNA	98%	104%	20-150%
	13C6-PFDA	101%	109%	20-150%
	13C7-PFUnDA	97%	90%	20-150%
	13C2-PFDoDA	90%	87%	20-150%
	13C2-PFTeDA	67%	64%	20-150%
	13C3-PFBS	106%	110%	20-150%
	13C3-PFHxS	109%	114%	20-150%
	13C8-PFOS	113%	110%	20-150%
	13C8-FOSA	113%	90%	20-150%
	d3-MeFOSA	103%	93%	20-150%
	d5-EtFOSA	104%	99%	20-150%
	d3-MeFOSAA	134%	146%	20-150%
	d5-EtFOSAA	150%	148%	20-150%
	d7-MeFOSE	89%	69%	20-150%
	d9-EtFOSE	95%	82%	20-150%
	13C2-4:2FTS	106%	107%	20-180%
	13C2-6:2FTS	111%	120%	20-180%
	13C2-8:2FTS	107%	131%	20-180%
	13C3-HFPO-DA	87%	92%	20-150%

(a) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-DUP	6Q17959.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271
FC6066-5	6Q17958.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	FC6066-5 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.015 U		ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0037 J		0.0038 J		3	30
307-24-4	Perfluorohexanoic acid	0.0024 J		0.0024 J		0	30
375-85-9	Perfluoroheptanoic acid	0.00092 J		0.0010 J		8	30
335-67-1	Perfluorooctanoic acid	0.0036 U		ND		nc	30
375-95-1	Perfluorononanoic acid	0.0036 U		ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0036 U		ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0036 U		ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0036 U		ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0036 U		ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0036 U		ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0036 U		ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U		ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0036 U		ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0036 U		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0036 U		ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0036 U		ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0036 U		ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U		ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.018 U		ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0165 J		0.0193		16	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U		ND		nc	30
754-91-6	PFOSA	0.0036 U		ND		nc	30
31506-32-8	MeFOSA	0.0073 U		ND		nc	30
4151-50-2	EtFOSA	0.0073 U		ND		nc	30
2355-31-9	MeFOSAA	0.0045 U		ND		nc	30
2991-50-6	EtFOSAA	0.0045 U		ND		nc	30
24448-09-7	MeFOSE	0.036 U		ND		nc	30
1691-99-2	EtFOSE	0.036 U		ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0036 U		ND		nc	30
919005-14-4	ADONA	0.0073 U		ND		nc	30
377-73-1	PFMPA	0.0073 U		ND		nc	30
863090-89-5	PFMBA	0.0073 U		ND		nc	30
151772-58-6	NFDHA	0.0073 U		ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U		ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U		ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96892-DUP	6Q17959.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271
FC6066-5	6Q17958.D	1	05/17/23	MV	05/16/23	OP96892	S6Q271

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC6066-1, FC6066-2, FC6066-3, FC6066-4, FC6066-5

CAS No.	Compound	FC6066-5 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0073	U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.018	U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.091	U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.091	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC6066-5	Limits
	13C4-PFBA	90%	98%	20-150%
	13C5-PFPeA	100%	109%	20-150%
	13C5-PFHxA	108%	114%	20-150%
	13C4-PFHpA	104%	107%	20-150%
	13C8-PFOA	105%	109%	20-150%
	13C9-PFNA	93%	115%	20-150%
	13C6-PFDA	92%	110%	20-150%
	13C7-PFUnDA	67%	85%	20-150%
	13C2-PFDoDA	56%	63%	20-150%
	13C2-PFTeDA	37%	46%	20-150%
	13C3-PFBS	108%	108%	20-150%
	13C3-PFHxS	103%	105%	20-150%
	13C8-PFOS	77%	106%	20-150%
	13C8-FOSA	81%	90%	20-150%
	d3-MeFOSA	59%	79%	20-150%
	d5-EtFOSA	59%	86%	20-150%
	d3-MeFOSAA	75%	113%	20-150%
	d5-EtFOSAA	79%	117%	20-150%
	d7-MeFOSE	61%	80%	20-150%
	d9-EtFOSE	64%	95%	20-150%
	13C2-4:2FTS	112%	111%	20-180%
	13C2-6:2FTS	114%	117%	20-180%
	13C2-8:2FTS	81%	88%	20-180%
	13C3-HFPO-DA	101%	105%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q271-CC268	Injection Date:	05/17/23
Lab File ID:	6Q17942.D	Injection Time:	13:25
Instrument ID:	GCMS6Q	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	63276	2.90	46451	5.47	73935	7.07	24723	7.58	21248	8.06
Check Std ^c	61252	2.90	44214	5.47	72543	7.07	26132	7.58	20443	8.06
Upper Limit ^d	126552	3.30	92902	5.87	147870	7.47	49446	7.98	42496	8.46
Lower Limit ^e	18983	2.50	13935	5.07	22181	6.67	7417	7.18	6374	7.66

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	56954	2.85	43370	5.45	65478	7.05	25024	7.57	10842	7.95	2
OP96892-BS	52023	2.90	36462	5.47	57520	7.07	21868	7.60	16717	8.06	1
OP96892-LLBS	53575	2.90	38427	5.47	59657	7.07	20880	7.58	17922	8.06	1
OP96892-MB	52281	2.90	36861	5.47	59806	7.07	21604	7.58	18884	8.06	1
ZZZZZZ	44204	2.90	35071	5.45	62512	7.07	19415	7.58	17462	8.06	1
ZZZZZZ	45167	2.90	37561	5.45	62045	7.07	20481	7.58	17632	8.06	1
ZZZZZZ	54255	2.90	40577	5.45	64383	7.07	23434	7.58	19735	8.06	1
FC6066-1	49382	2.90	37225	5.45	62677	7.07	21136	7.58	18045	8.06	1
FC6066-3	52975	2.90	39937	5.47	59464	7.05	22582	7.58	20911	8.05	1
OP96892-MS	53349	2.90	39729	5.45	61594	7.07	21947	7.58	18511	8.06	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: S6Q268-ICC268 6Q17741.D 05/12/23 12:58. 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: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q271-CC268	Injection Date:	05/17/23
Lab File ID:	6Q17942.D	Injection Time:	13:25
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	8457	7.17	12749	8.23
Check Std ^c	8079	7.17	12275	8.21
Upper Limit ^d	16914	7.57	25498	8.61
Lower Limit ^e	2537	6.77	3825	7.81

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
ZZZZZZ	7728	7.17	9858	8.10	2
OP96892-BS	6718	7.18	9865	8.23	1
OP96892-LLBS	7099	7.17	10925	8.21	1
OP96892-MB	6875	7.17	10426	8.21	1
ZZZZZZ	6599	7.17	9741	8.23	1
ZZZZZZ	6561	7.17	11205	8.23	1
ZZZZZZ	7220	7.17	11089	8.21	1
FC6066-1	7450	7.17	11112	8.23	1
FC6066-3	6840	7.17	10027	8.21	1
OP96892-MS	6645	7.17	9457	8.21	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q268-ICC268 6Q17741.D 05/12/23 12:58. 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.

Injection Standard Area Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q271-CC268	Injection Date:	05/17/23
Lab File ID:	6Q17954.D	Injection Time:	16:19
Instrument ID:	GCMS6Q	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	63276	2.90	46451	5.47	73935	7.07	24723	7.58	21248	8.06
Check Std ^c	62331	2.90	43449	5.45	73782	7.07	25159	7.58	20715	8.06
Upper Limit ^d	126552	3.30	92902	5.85	147870	7.47	49446	7.98	42496	8.46
Lower Limit ^e	18983	2.50	13935	5.05	22181	6.67	7417	7.18	6374	7.66

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
S6Q271-ICCB	61875	2.90	43244	5.45	73763	7.07	26106	7.58	21602	8.06	1
FC6066-2	51776	2.90	37306	5.47	60415	7.07	21317	7.58	17793	8.06	1
FC6066-4	52712	2.90	36529	5.45	60974	7.07	21085	7.58	18690	8.06	1
FC6066-5	51743	2.90	37913	5.45	62153	7.07	19869	7.58	18079	8.06	1
OP96892-DUP	50860	2.90	37657	5.47	58804	7.07	22127	7.58	16505	8.06	1
OP96916-BS	57082	2.88	39809	5.45	64387	7.07	22255	7.60	18590	8.06	1
OP96916-LLBS	57848	2.88	44200	5.47	69107	7.07	23576	7.60	19709	8.06	1
OP96916-MB	56494	2.88	39934	5.45	62484	7.07	22953	7.58	18193	8.06	1
ZZZZZZ	55120	2.90	37822	5.47	59599	7.07	22976	7.58	18017	8.06	1
ZZZZZZ	57244	2.89	38445	5.47	58605	7.07	22315	7.58	19253	8.06	1
ZZZZZZ	55421	2.89	38661	5.45	57240	7.07	21605	7.58	17783	8.06	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: S6Q268-ICC268 6Q17741.D 05/12/23 12:58. 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: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q271-CC268	Injection Date:	05/17/23
Lab File ID:	6Q17954.D	Injection Time:	16:19
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	8457	7.17	12749	8.23
Check Std ^c	8384	7.17	12196	8.23
Upper Limit ^d	16914	7.57	25498	8.63
Lower Limit ^e	2537	6.77	3825	7.83

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q271-ICCB	8026	7.17	13294	8.21	1
FC6066-2	7214	7.17	10263	8.21	1
FC6066-4	6768	7.18	10607	8.23	1
FC6066-5	7092	7.17	9922	8.21	1
OP96892-DUP	6626	7.18	11299	8.21	1
OP96916-BS	7676	7.18	11529	8.23	1
OP96916-LLBS	7441	7.18	11718	8.21	1
OP96916-MB	7101	7.17	11824	8.21	1
ZZZZZZ	7193	7.17	10273	8.23	1
ZZZZZZ	7245	7.17	10710	8.23	1
ZZZZZZ	7083	7.17	11016	8.21	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q268-ICC268 6Q17741.D 05/12/23 12:58. 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.

TDCA Retention Time Check

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q268-RT	Injection Date:	05/12/23
Lab File ID:	6Q17735.D	Injection Time:	11:31
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.228	--	--
TDCA	6.787	1.441	1.000
TCDCA	6.638	1.590	1.000
TUDCA	5.772	2.456	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
S6Q268-IC268	6Q17737.D	05/12/23	12:00	00:29	Mass Calibration Verification
S6Q268-IC268	6Q17738.D	05/12/23	12:15	00:44	Initial cal 1
S6Q268-IC268	6Q17739.D	05/12/23	12:29	00:58	Initial cal 2
S6Q268-IC268	6Q17740.D	05/12/23	12:44	01:13	Initial cal 3
S6Q268-ICC268	6Q17741.D	05/12/23	12:58	01:27	Initial cal 4
S6Q268-IC268	6Q17742.D	05/12/23	13:13	01:42	Initial cal 5
S6Q268-IC268	6Q17743.D	05/12/23	13:27	01:56	Initial cal 6
S6Q268-IC268	6Q17744.D	05/12/23	13:42	02:11	Initial cal 7
S6Q268-IC268	6Q17745.D	05/12/23	13:56	02:25	Initial cal 8
S6Q268-IBLK	6Q17746.D	05/12/23	14:11	02:40	Instrument Blank
S6Q268-IBLK	6Q17746.D	05/12/23	14:11	02:40	Instrument Blank
S6Q268-ICV268	6Q17747.D	05/12/23	14:25	02:54	Initial cal verification 4
S6Q268-ICV268	6Q17748.D	05/12/23	14:40	03:09	Initial cal verification 20
S6Q268-CC268	6Q17749.D	05/12/23	14:54	03:23	Continuing cal 4
S6Q268-CC268	6Q17750.D	05/12/23	15:09	03:38	Continuing cal 1.0LL
OP96784-MB	6Q17751.D	05/12/23	15:23	03:52	Method Blank
FC5890-1	6Q17752.D	05/12/23	15:38	04:07	(used for QC only; not part of job FC6066)
FC5890-2	6Q17755.D	05/12/23	16:21	04:50	(used for QC only; not part of job FC6066)
OP96784-DUP	6Q17757.D	05/12/23	16:50	05:19	Duplicate
S6Q268-CC268	6Q17759.D	05/12/23	17:19	05:48	Continuing cal 4
S6Q268-ICCB	6Q17760.D	05/12/23	17:34	06:03	Continuing Calibration Blank
S6Q268-CC268	6Q17764.D	05/12/23	18:32	07:01	Continuing cal 4
S6Q268-ICCB	6Q17765.D	05/12/23	18:46	07:15	Continuing Calibration Blank
OP96842-MB	6Q17766.D	05/12/23	19:00	07:29	Method Blank
OP96842-BS	6Q17767.D	05/12/23	19:15	07:44	Blank Spike
OP96842-LLBS	6Q17768.D	05/12/23	19:29	07:58	Blank Spike
ZZZZZZ	6Q17769.D	05/12/23	19:44	08:13	(unrelated sample)
ZZZZZZ	6Q17770.D	05/12/23	19:58	08:27	(unrelated sample)
ZZZZZZ	6Q17771.D	05/12/23	20:13	08:42	(unrelated sample)
FC5443-4	6Q17772.D	05/12/23	20:27	08:56	(used for QC only; not part of job FC6066)
ZZZZZZ	6Q17775.D	05/12/23	21:11	09:40	(unrelated sample)
S6Q268-ECC268	6Q17777.D	05/12/23	21:40	10:09	Ending cal 4
S6Q268-ICCB	6Q17778.D	05/12/23	21:54	10:23	Continuing Calibration Blank

TDCA Retention Time Check

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q271-RT	Injection Date:	05/17/23
Lab File ID:	6Q17938.D	Injection Time:	12:27
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.215	--	--
TDCA	6.787	1.428	1.000
TCDCA	6.625	1.590	1.000
TUDCA	5.785	2.430	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
S6Q271-IBLK	6Q17941.D	05/17/23	13:10	00:43	Instrument Blank
S6Q271-IBLK	6Q17941.D	05/17/23	13:10	00:43	Instrument Blank
S6Q271-CC268	6Q17942.D	05/17/23	13:25	00:58	Continuing cal 4
S6Q271-CC268	6Q17943.D	05/17/23	13:39	01:12	Continuing cal 1.0LL
ZZZZZZ	6Q17944.D	05/17/23	13:54	01:27	(unrelated sample)
OP96892-BS	6Q17945.D	05/17/23	14:08	01:41	Blank Spike
OP96892-LLBS	6Q17946.D	05/17/23	14:23	01:56	Blank Spike
OP96892-MB	6Q17947.D	05/17/23	14:37	02:10	Method Blank
ZZZZZZ	6Q17948.D	05/17/23	14:52	02:25	(unrelated sample)
ZZZZZZ	6Q17949.D	05/17/23	15:06	02:39	(unrelated sample)
ZZZZZZ	6Q17950.D	05/17/23	15:21	02:54	(unrelated sample)
FC6066-1	6Q17951.D	05/17/23	15:35	03:08	AF-RHMW17S-WGN01LF-2305W2
FC6066-3	6Q17952.D	05/17/23	15:50	03:23	AF-RHMW17D-WGN01LF-2305W2
OP96892-MS	6Q17953.D	05/17/23	16:04	03:37	Matrix Spike
S6Q271-CC268	6Q17954.D	05/17/23	16:19	03:52	Continuing cal 4
S6Q271-ICCB	6Q17955.D	05/17/23	16:33	04:06	Continuing Calibration Blank
FC6066-2	6Q17956.D	05/17/23	16:48	04:21	AF-RHMW17S-WQEB01-2305W2
FC6066-4	6Q17957.D	05/17/23	17:02	04:35	AF-RHMW17D-WQFB01-2305W2
FC6066-5	6Q17958.D	05/17/23	17:17	04:50	AF-RHMW17-WGN01LF-2305W2
OP96892-DUP	6Q17959.D	05/17/23	17:31	05:04	Duplicate
OP96916-BS	6Q17960.D	05/17/23	17:46	05:19	Blank Spike
OP96916-LLBS	6Q17961.D	05/17/23	18:00	05:33	Blank Spike
OP96916-MB	6Q17962.D	05/17/23	18:15	05:48	Method Blank
ZZZZZZ	6Q17963.D	05/17/23	18:29	06:02	(unrelated sample)
ZZZZZZ	6Q17964.D	05/17/23	18:44	06:17	(unrelated sample)
ZZZZZZ	6Q17965.D	05/17/23	18:58	06:31	(unrelated sample)
S6Q271-CC268	6Q17966.D	05/17/23	19:13	06:46	Continuing cal 4
S6Q271-ICCB	6Q17967.D	05/17/23	19:27	07:00	Continuing Calibration Blank
FC5501-4	6Q17968.D	05/17/23	19:42	07:15	(used for QC only; not part of job FC6066)
ZZZZZZ	6Q17970.D	05/17/23	20:11	07:44	(unrelated sample)
ZZZZZZ	6Q17971.D	05/17/23	20:25	07:58	(unrelated sample)
ZZZZZZ	6Q17972.D	05/17/23	20:40	08:13	(unrelated sample)
ZZZZZZ	6Q17973.D	05/17/23	20:54	08:27	(unrelated sample)
ZZZZZZ	6Q17974.D	05/17/23	21:08	08:41	(unrelated sample)

TDCA Retention Time Check

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q271-RT	Injection Date:	05/17/23
Lab File ID:	6Q17938.D	Injection Time:	12:27
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q17975.D	05/17/23	21:23	08:56	(unrelated sample)
ZZZZZZ	6Q17976.D	05/17/23	21:37	09:10	(unrelated sample)
S6Q271-CC268	6Q17977.D	05/17/23	21:52	09:25	Continuing cal 4
S6Q271-ICCB	6Q17978.D	05/17/23	22:06	09:39	Continuing Calibration Blank
OP96916-DUP	6Q17979.D	05/17/23	22:21	09:54	Duplicate
FC5501-12	6Q17980.D	05/17/23	22:35	10:08	(used for QC only; not part of job FC6066)
ZZZZZZ	6Q17981.D	05/17/23	22:50	10:23	(unrelated sample)
ZZZZZZ	6Q17982.D	05/17/23	23:04	10:37	(unrelated sample)
ZZZZZZ	6Q17983.D	05/17/23	23:19	10:52	(unrelated sample)
S6Q271-CC268	6Q17984.D	05/17/23	23:33	11:06	Continuing cal 4
S6Q271-CC268	6Q17985.D	05/17/23	23:48	11:21	Continuing cal 1.0LL
S6Q271-ICCB	6Q17986.D	05/18/23	00:02	11:35	Continuing Calibration Blank
OP96917-BS	6Q17987.D	05/18/23	00:17	11:50	Blank Spike
OP96917-LLBS	6Q17988.D	05/18/23	00:31	12:04	Blank Spike
OP96917-MB	6Q17989.D	05/18/23	00:46	12:19	Method Blank
ZZZZZZ	6Q17990.D	05/18/23	01:00	12:33	(unrelated sample)
ZZZZZZ	6Q17991.D	05/18/23	01:15	12:48	(unrelated sample)
ZZZZZZ	6Q17992.D	05/18/23	01:29	13:02	(unrelated sample)
ZZZZZZ	6Q17993.D	05/18/23	01:44	13:17	(unrelated sample)
ZZZZZZ	6Q17994.D	05/18/23	01:58	13:31	(unrelated sample)
FC5542-6	6Q17995.D	05/18/23	02:13	13:46	(used for QC only; not part of job FC6066)
S6Q271-CC268	6Q17997.D	05/18/23	02:42	14:15	Continuing cal 4
S6Q271-ICCB	6Q17998.D	05/18/23	02:56	14:29	Continuing Calibration Blank
ZZZZZZ	6Q17999.D	05/18/23	03:11	14:44	(unrelated sample)
ZZZZZZ	6Q18000.D	05/18/23	03:25	14:58	(unrelated sample)
ZZZZZZ	6Q18001.D	05/18/23	03:40	15:13	(unrelated sample)
ZZZZZZ	6Q18002.D	05/18/23	03:54	15:27	(unrelated sample)
ZZZZZZ	6Q18003.D	05/18/23	04:09	15:42	(unrelated sample)
ZZZZZZ	6Q18004.D	05/18/23	04:23	15:56	(unrelated sample)
ZZZZZZ	6Q18005.D	05/18/23	04:38	16:11	(unrelated sample)
S6Q271-CC268	6Q18009.D	05/18/23	05:35	17:08	Continuing cal 4
S6Q271-ICCB	6Q18010.D	05/18/23	05:50	17:23	Continuing Calibration Blank
OP96918-BS	6Q18011.D	05/18/23	06:04	17:37	Blank Spike
OP96918-LLBS	6Q18012.D	05/18/23	06:19	17:52	Blank Spike
OP96918-MB	6Q18013.D	05/18/23	06:33	18:06	Method Blank
JD64582-1A	6Q18014.D	05/18/23	06:48	18:21	(used for QC only; not part of job FC6066)
OP96918-MS	6Q18015.D	05/18/23	07:02	18:35	Matrix Spike
ZZZZZZ	6Q18016.D	05/18/23	07:17	18:50	(unrelated sample)
JD64738-1	6Q18017.D	05/18/23	07:31	19:04	(used for QC only; not part of job FC6066)
OP96918-DUP	6Q18018.D	05/18/23	07:46	19:19	Duplicate
ZZZZZZ	6Q18019.D	05/18/23	08:00	19:33	(unrelated sample)
ZZZZZZ	6Q18020.D	05/18/23	08:15	19:48	(unrelated sample)
S6Q271-CC268	6Q18021.D	05/18/23	08:29	20:02	Continuing cal 4
S6Q271-ICCB	6Q18022.D	05/18/23	08:44	20:17	Continuing Calibration Blank

6.6.2

6

TDCA Retention Time Check

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q271-RT	Injection Date:	05/17/23
Lab File ID:	6Q17938.D	Injection Time:	12:27
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q18023.D	05/18/23	08:58	20:31	(unrelated sample)
ZZZZZZ	6Q18024.D	05/18/23	09:13	20:46	(unrelated sample)
ZZZZZZ	6Q18025.D	05/18/23	09:27	21:00	(unrelated sample)
ZZZZZZ	6Q18026.D	05/18/23	09:42	21:15	(unrelated sample)
ZZZZZZ	6Q18027.D	05/18/23	09:56	21:29	(unrelated sample)
ZZZZZZ	6Q18028.D	05/18/23	10:11	21:44	(unrelated sample)
ZZZZZZ	6Q18029.D	05/18/23	10:25	21:58	(unrelated sample)
ZZZZZZ	6Q18030.D	05/18/23	10:40	22:13	(unrelated sample)
ZZZZZZ	6Q18031.D	05/18/23	10:54	22:27	(unrelated sample)
ZZZZZZ	6Q18032.D	05/18/23	11:09	22:42	(unrelated sample)
S6Q271-CC268	6Q18033.D	05/18/23	11:23	22:56	Continuing cal 4
S6Q271-ICCB	6Q18034.D	05/18/23	11:38	23:11	Continuing Calibration Blank
ZZZZZZ	6Q18035.D	05/18/23	11:52	23:25	(unrelated sample)
S6Q271-ECC268	6Q18036.D	05/18/23	12:07	23:40	Ending cal 4
S6Q271-ICCB	6Q18037.D	05/18/23	12:21	23:54	Continuing Calibration Blank

6.6.2
6

Ion Ratio Summary

Job Number: FC6066
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q271 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios (Set 1)						
		PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFHpS	PFOS
S6Q268-ICC268	6Q17741.D	0	4.8	16.3	16.7	36.6	52.1	53.6
FC6066-1	6Q17951.D	0	4.6	15.3	23.2	30.4	10	37
FC6066-3	6Q17952.D						.3	
FC6066-2	6Q17956.D							
FC6066-4	6Q17957.D							
FC6066-5	6Q17958.D	0	4.1	16.8				

6.7.1

6

Ion Ratio Summary

Job Number: FC6066
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q271	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios (Set 2) 6:2FTS
S6Q268-ICC268	6Q17741.D	32.4
FC6066-1	6Q17951.D	37.5
FC6066-3	6Q17952.D	
FC6066-2	6Q17956.D	
FC6066-4	6Q17957.D	
FC6066-5	6Q17958.D	33.8

6.7.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC6066
 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
FC6066-1	6Q17951.D	32	95	116	113	112	110	103	101
FC6066-2	6Q17956.D	114	110	112	117	111	110	101	94
FC6066-3	6Q17952.D	5* a	33	103	110	117	104	109	90
FC6066-4	6Q17957.D	112	113	117	112	113	113	103	99
FC6066-5	6Q17958.D	98	109	114	107	109	115	110	85
OP96892-BS	6Q17945.D	25	101	115	106	114	98	118	109
OP96892-DUP	6Q17959.D	90	100	108	104	105	93	92	67
OP96892-LLBS	6Q17946.D	107	106	108	107	108	114	104	113
OP96892-MB	6Q17947.D	110	108	114	114	110	103	106	103
OP96892-MS	6Q17953.D	4* a	28	93	102	105	98	101	97
S6Q271-IBLK	6Q17941.D	101	100	98	99	98	97	99	106
S6Q271-ICCB	6Q17955.D	102	103	107	104	102	95	92	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: FC6066
 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
FC6066-1	6Q17951.D	85	69	106	101	96	84	73	76
FC6066-2	6Q17956.D	94	88	107	103	112	78	77	79
FC6066-3	6Q17952.D	87	64	110	114	110	90	93	99
FC6066-4	6Q17957.D	93	91	116	109	98	63	70	69
FC6066-5	6Q17958.D	63	46	108	105	106	90	79	86
OP96892-BS	6Q17945.D	110	112	112	110	112	94	91	89
OP96892-DUP	6Q17959.D	56	37	108	103	77	81	59	59
OP96892-LLBS	6Q17946.D	106	103	108	99	104	86	78	84
OP96892-MB	6Q17947.D	98	97	108	110	101	61	62	71
OP96892-MS	6Q17953.D	90	67	106	109	113	113	103	104
S6Q271-IBLK	6Q17941.D	101	101	101	96	101	111	105	103
S6Q271-ICCB	6Q17955.D	99	99	105	97	92	98	89	91

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: FC6066
 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
FC6066-1	6Q17951.D	95	91	71	79	137	110	100	100
FC6066-2	6Q17956.D	103	109	68	83	113	110	105	112
FC6066-3	6Q17952.D	146	148	69	82	107	120	131	92
FC6066-4	6Q17957.D	98	105	61	71	115	108	110	115
FC6066-5	6Q17958.D	113	117	80	95	111	117	88	105
OP96892-BS	6Q17945.D	108	114	73	87	101	115	109	109
OP96892-DUP	6Q17959.D	75	79	61	64	112	114	81	101
OP96892-LLBS	6Q17946.D	108	102	74	84	105	108	101	106
OP96892-MB	6Q17947.D	103	104	60	71	111	115	100	111
OP96892-MS	6Q17953.D	134	150	89	95	106	111	107	87
S6Q271-IBLK	6Q17941.D	99	111	115	111	104	101	102	99
S6Q271-ICCB	6Q17955.D	82	94	104	101	97	96	92	102

Isotope Dilution Standards	Recovery Limits
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S17 = d3-MeFOSAA	20-150%
S18 = d5-EtFOSAA	20-150%
S19 = d7-MeFOSE	20-150%
S20 = d9-EtFOSE	20-150%
S21 = 13C2-4:2FTS	20-180%
S22 = 13C2-6:2FTS	20-180%
S23 = 13C2-8:2FTS	20-180%
S24 = 13C3-HFPO-DA	20-150%

6.8.1
6

Initial Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICC268
 Lab FileID: 6Q17741.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD	Level Last Update Time
D:\MassHunter\Methods	1633_051223_S6Q268.quantmethod.xml	D:\MassHunter\Data\051223_1633_S6Q268	5/15/2023 10:38:00 AM	D:\MassHunter\Data\051223_1633_S6Q268\6Q17738.d	Avg RF	0.3414	0.3414	0.3473	0.3457	0.3793	0.3767	0.3726	0.3656	0.3587	4.580	5/15/2023 10:38:00 AM
D:\MassHunter\Data\051223_1633_S6Q268	6Q17739.d	D:\MassHunter\Data\051223_1633_S6Q268	6Q17740.d	D:\MassHunter\Data\051223_1633_S6Q268\6Q17741.d	Avg RF	0.7045	0.7085	0.7136	0.7174	0.7918	0.7713	0.7879	0.7414	0.7421	4.932	5/15/2023 10:38:00 AM
D:\MassHunter\Data\051223_1633_S6Q268	6Q17742.d	D:\MassHunter\Data\051223_1633_S6Q268	6Q17743.d	D:\MassHunter\Data\051223_1633_S6Q268\6Q17744.d	Avg RF	0.0861	0.0849	0.0856	0.0851	0.0930	0.0919	0.0957	0.0934	0.0895	4.977	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17745.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17746.d	D:\MassHunter\Data\051223_1633_S6Q268\6Q17747.d	Avg RF	1.3776	1.3884	1.3956	1.4127	1.5345	1.4897	1.5349	1.4185	1.4440	4.534	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17748.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17749.d	D:\MassHunter\Data\051223_1633_S6Q268\6Q17750.d	Avg RF	0.9734	1.0051	0.9841	1.0055	1.0978	1.0782	1.0631	1.0356	1.0303	4.430	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17751.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17752.d	D:\MassHunter\Data\051223_1633_S6Q268\6Q17753.d	Avg RF	0.1090	0.1021	0.1070	0.1081	0.1128	0.1148	0.1119	0.1088	0.1093	3.588	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17754.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17755.d	D:\MassHunter>Data\051223_1633_S6Q268\6Q17756.d	Avg RF	0.9983	0.9239	0.9309	0.9177	0.9954	1.0056	1.0502	1.1006	0.9903	6.531	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17757.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17758.d	D:\MassHunter>Data\051223_1633_S6Q268\6Q17759.d	Avg RF	1.2675	1.2020	1.3313	1.2889	1.4255	1.3987	1.3603	1.3631	1.3297	5.529	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17760.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17761.d	D:\MassHunter>Data\051223_1633_S6Q268\6Q17762.d	Avg RF	0.1810	0.1593	0.1672	0.1675	0.1794	0.1718	0.1678	0.1787	0.1716	4.417	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17763.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17764.d	D:\MassHunter>Data\051223_1633_S6Q268\6Q17765.d	Avg RF	0.0762	0.0752	0.0790	0.0785	0.0788	0.0781	0.0784	0.0787	0.0778	1.793	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17766.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17767.d	D:\MassHunter>Data\051223_1633_S6Q268\6Q17768.d	Avg RF	1.2305	1.2547	1.1628	1.1869	1.3507	1.2992	1.2737	1.2370	1.2495	4.808	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17769.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17770.d	D:\MassHunter>Data\051223_1633_S6Q268\6Q17771.d	Avg RF	1.1979	1.4101	1.2713	1.1317	1.3008	1.2684	1.1651	1.2062	1.2439	7.097	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17772.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17773.d	D:\MassHunter>Data\051223_1633_S6Q268\6Q17774.d	Avg RF	0.9088	0.7976	0.9299	0.9173	1.0350	0.9545	0.9402	0.9457	0.9286	7.063	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17775.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17776.d	D:\MassHunter>Data\051223_1633_S6Q268\6Q17777.d	Avg RF	1.4944	1.2432	1.6199	1.3669	1.8264	1.4765	1.6275	1.7187	1.5467	12.262	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17778.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17779.d	D:\MassHunter>Data\051223_1633_S6Q268\6Q17780.d	Avg RF	0.8048	0.8877	0.9919	0.8347	0.9561	0.9551	0.8783	0.9544	0.9079	7.337	5/15/2023 10:38:00 AM
D:\MassHunter>Data\051223_1633_S6Q268	6Q17781.d	D:\MassHunter>Data\051223_1633_S6Q268	6Q17782.d	D:\MassHunter\Data\051223_1633_S6Q268\6Q17783.d	Avg RF											5/15/2023 10:38:00 AM



Initial Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICC268
 Lab FileID: 6Q17741.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0325	1.0023	1.0042	0.9417	1.0070	1.0577	0.9546	0.9654	0.9957	3.977
T PFTfDA	Avg RF	1.0722	1.1173	1.1929	1.1642	1.2716	1.2627	1.1072	1.0469	1.1544	7.244
I M2-PFTeDA	Avg RF	1.2629	1.2832	1.1925	1.1527	1.4295	1.3841	1.2789	1.2570	1.2801	7.102
T PFTeDA						ISTD					
I M8-FOSA	Avg RF	0.9201	0.8719	0.9052	0.9554	0.9686	0.9644	0.9789	0.9221	0.9358	3.955
T FOSA						ISTD					
I M3-PFBS	Avg RF	1.1842	1.1812	1.1979	1.2055	1.2522	1.2096	1.2719	1.2579	1.2200	2.899
T PFBS						ISTD					
I M3-PFHxS	Avg RF	1.2379	1.3617	1.4321	1.3173	1.3949	1.3445	1.4975	1.3919	1.3722	5.653
T PFPeS	Avg RF	1.3838	1.3765	1.4082	1.2534	1.4773	1.3501	1.4300	1.3908	1.3838	4.708
T PFHxS						ISTD					
I M8-PFOS	Avg RF	1.2889	1.4378	1.1981	1.2297	1.4115	1.4276	1.2499	1.4270	1.3338	7.638
T PFHpS	Avg RF	1.2705	1.3508	1.2391	1.2039	1.4472	1.4075	1.2378	1.3293	1.3108	6.665
T PFOS	Avg RF	1.2445	1.2972	1.1345	1.0683	1.2286	1.2934	1.1344	1.2710	1.2090	7.081
T PFNS	Avg RF	0.8519	0.8788	0.7349	0.7201	0.8616	0.8609	0.7678	0.8175	0.8117	7.692
T PFDS	Avg RF	0.3906	0.4760	0.4171	0.4032	0.4558	0.4403	0.4197	0.4299	0.4291	6.484
T PFDoDS						ISTD					
I M2-4:2FTS	Avg RF	7.0997	7.3295	7.4788	7.6060	7.6226	7.6647	7.6807	7.6536	7.5169	2.741
T 4:2FTS						ISTD					
I M2-6:2FTS	Avg RF	5.2815	5.4612	5.6074	5.1463	5.7396	5.8387	5.7881	4.6750	5.4422	7.267
T 6:2FTS						ISTD					
I M2-8:2FTS	Avg RF	3.2419	2.7408	2.6251	3.0807	3.0176	2.8086	3.0273	2.1853	2.8409	11.687
T 8:2FTS						ISTD					
I M3-MeFOSAA	Avg RF	0.8210	0.9035	1.0349	0.9505	1.0140	1.0189	0.9896	1.0073	0.9675	7.543
T MeFOSAA						ISTD					
I M3-HFO-DA	Avg RF	1.0129	0.9388	0.9489	0.9077	1.0434	0.9614	0.9991	0.9214	0.9667	4.901
T HFPO-DA	Avg RF	15.39	14.90	16.05	16.39	17.72	16.30	15.86	14.77	15.92	5.954
T ADONA	Avg RF	5.6537	5.6627	6.2009	6.3895	6.5828	6.2872	6.2154	5.2969	6.0361	7.351
T 9Cl-PF3ONS	Avg RF	3.5794	3.8276	3.7217	4.0079	4.0372	3.8744	3.6131	3.5692	3.7788	4.953
T 11Cl-PF3OUds						ISTD					
I M5-EFOSAA	Avg RF	1.1049	0.8169	0.9222	0.8995	0.9167	0.9565	0.9353	0.8960	0.9310	8.747
T EFOSAA						ISTD					
I M7-MeFOSE	Avg RF	1.1901	1.1008	1.1064	1.0819	1.1809	1.2100	1.2417	1.2441	1.1695	5.535
T MeFOSE						ISTD					
I M9-EFOSE	Avg RF	1.0298	1.0058	1.0581	1.0412	1.1200	1.1685	1.1424	1.1498	1.0894	5.753
T EFOSE						ISTD					

Page 2 of 4
 Generated at 10:38 AM on 5/15/2023

Initial Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICC268
 Lab FileID: 6Q17741.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	1.1049	1.1427	0.9891	1.0016	1.1522	1.0966	1.1428	1.0276	1.0822	6.160
I M3-MeFOSA											
T MeFOSA	Avg RF	1.2190	1.2124	1.0551	1.0738	1.2457	1.2345	1.1746	0.9943	1.1512	8.345
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.7703	0.8456	0.7443	0.8014	0.7919	0.7925	0.7641	0.7569	0.7834	4.073
S 13C8-PFOS	Linear	0.7133	0.7794	0.7757	0.8277	0.7744	0.7817	0.7935	0.7772	0.7777	4.048
S d5-EFOSAA	Linear	0.6083	0.6885	0.5529	0.6316	0.6170	0.6282	0.6117	0.6176	0.6195	5.983
S 13C8-FOSA	Linear	1.5500	1.7763	1.5505	1.6831	1.6532	1.7120	1.6017	1.7376	1.6587	5.056
S d7-MeFOSE	Linear	0.5697	0.6835	0.5887	0.6301	0.6385	0.6445	0.5938	0.5779	0.6158	6.406
S d3-MeFOSA	Linear	0.5215	0.6121	0.5884	0.6390	0.5953	0.5911	0.5938	0.6955	0.6046	8.164
S d9-EFOSE	Linear	0.7242	0.8500	0.7107	0.7859	0.7327	0.7477	0.7156	0.6857	0.7441	6.973
S d5-EFOSA	Linear	0.6800	0.7366	0.6998	0.7542	0.6959	0.7762	0.7103	0.7802	0.7292	5.246
I 13C3-PFBA											
S 13C4-PFBA	Linear	1.1861	1.1920	1.1834	1.2023	1.1961	1.1808	1.1763	1.1737	1.1863	0.832
I 18O2-PFHxS											
S 13C2-4:2FTS	Linear	0.0962	0.0939	0.0940	0.0958	0.0944	0.1019	0.1005	0.0853	0.0953	5.258
S 13C3-PFBS	Linear	2.1400	2.1440	2.2449	2.1862	2.1994	2.2884	2.2645	1.9538	2.1776	4.833
S 13C2-6:2FTS	Linear	0.1215	0.1209	0.1221	0.1309	0.1222	0.1260	0.1169	0.1212	0.1227	3.359
S 13C3-PFHxS	Linear	1.3333	1.2552	1.2661	1.3882	1.3218	1.4594	1.3469	1.2821	1.3316	5.113
S 13C2-8:2FTS	Linear	0.1249	0.1303	0.1347	0.1197	0.1282	0.1438	0.1323	0.1420	0.1320	6.185
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8598	0.9549	0.9200	0.9577	0.9895	0.9857	0.9733	0.9061	0.9434	4.755
I 13C2-PFDA											
S 13C6-PFDA	Linear	0.8225	0.8970	0.8909	0.8553	0.7606	0.7855	0.7645	0.7773	0.8192	6.816
S 13C7-PFUnDA	Linear	1.1403	1.0565	1.0819	1.1089	1.0602	0.9589	1.0814	0.9231	1.0514	7.021
S 13C2-PFDODA	Linear	1.0734	1.0747	1.1339	1.0549	1.0029	0.9410	1.0661	1.0160	1.0454	5.551
S 13C2-PFTeDA	Linear	0.7596	0.6753	0.8067	0.7162	0.6658	0.6255	0.7148	0.7065	0.7088	7.939
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.8537	0.9703	0.8632	0.8985	0.8355	1.0052	1.0384	0.9283	0.9241	8.074
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.5477	0.5455	0.5377	0.4901	0.5467	0.5285	0.5105	0.4999	0.5258	4.332
S 13C5-PFHxA	Linear	1.2408	1.2989	1.1756	1.0829	1.2349	1.1870	1.1516	1.0852	1.1821	6.403
S 13C3-HPOD-A	Linear	0.1810	0.1874	0.1818	0.1654	0.1843	0.1846	0.1884	0.1908	0.1830	4.275
S 13C4-PFHpA	Linear	1.0678	1.0582	1.0661	0.9892	1.0529	1.0496	1.0353	0.9891	1.0385	3.092

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

Initial Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICC268
 Lab FileID: 6Q17741.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 = 1.186335 * x	
S 13C5-PFPeA	Linear	y = 0.525834 * x	
S 13C2-4:2FTS	Linear	y = 0.095253 * x	
S 13C3-PFBS	Linear	y = 2.177640 * x	
S 13C5-PFHxA	Linear	y = 1.182127 * x	
S 13C3-HFPO-DA	Linear	y = 0.182964 * x	
S 13C4-PFHpA	Linear	y = 1.038521 * x	
S 13C8-PFOA	Linear	y = 0.122707 * x	
S 13C3-PFHxS	Linear	y = 0.943385 * x	
S 13C9-PFNA	Linear	y = 1.331627 * x	
S 13C2-8:2FTS	Linear	y = 0.924150 * x	
S 13C6-PEDA	Linear	y = 0.132008 * x	
S d3-MeFOSAA	Linear	y = 0.819193 * x	
S 13C8-PFOS	Linear	y = 0.783379 * x	
S d5-EFOSAA	Linear	y = 0.777742 * x	
S 13C7-PFUInDA	Linear	y = 0.619470 * x	
S 13C2-PFDODA	Linear	y = 1.051404 * x	
S 13C8-FOSA	Linear	y = 1.045358 * x	
S 13C2-PFTeDA	Linear	y = 1.658683 * x	
S d7-MeFOSE	Linear	y = 0.708815 * x	
S d3-MeFOSA	Linear	y = 0.615845 * x	
S d9-EFOSE	Linear	y = 0.604592 * x	
S d5-EFOSA	Linear	y = 0.744056 * x	
S d5-EFOSA	Linear	y = 0.729153 * x	

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

Initial Calibration Verification

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICV268
 Lab FileID: 6Q17747.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051223_1633_S6Q268\s6q268.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051223_1633_S6Q268\6Q17738.d
 2:D:\MassHunter\Data\051223_1633_S6Q268\6Q17739.d
 3:D:\MassHunter\Data\051223_1633_S6Q268\6Q17740.d
 4:D:\MassHunter\Data\051223_1633_S6Q268\6Q17741.d
 5:D:\MassHunter\Data\051223_1633_S6Q268\6Q17742.d
 6:D:\MassHunter\Data\051223_1633_S6Q268\6Q17743.d
 7:D:\MassHunter\Data\051223_1633_S6Q268\6Q17744.d
 8:D:\MassHunter\Data\051223_1633_S6Q268\6Q17745.d

Data File: 6Q17747
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.579	-8.4	91.6
13C2-6:2FTS	5.000	5.040	0.8	100.8
13C2-8:2FTS	5.000	4.644	-7.1	92.9
13C2-PFDoDA	1.250	1.272	1.7	101.7
13C2-PFTeDA	1.250	1.183	-5.4	94.6
13C3-PFBS	2.500	2.450	-2.0	98.0
13C3-PFHxS	2.500	2.455	-1.8	98.2
13C4-PFBA	10.000	9.971	-0.3	99.7
13C4-PFHpA	2.500	2.463	-1.5	98.5
13C5-PFHxA	2.500	2.542	1.7	101.7
13C5-PFPeA	5.000	4.942	-1.2	98.8
13C6-PFDA	1.250	1.141	-8.7	91.3
13C7-PFUnDA	1.250	1.301	4.0	104.0
13C8-FOSA	2.500	2.658	6.3	106.3
13C8-PFOA	2.500	2.401	-4.0	96.0
13C8-PFOS	2.500	2.647	5.9	105.9
13C9-PFNA	1.250	1.385	10.8	110.8
4:2FTS	9.375	10.106	7.8	107.8
6:2FTS	9.500	9.210	-3.1	96.9
8:2FTS	9.600	10.582	10.2	110.2
d3-MeFOSAA	5.000	5.320	6.4	106.4
EtFOSAA	2.500	2.508	0.3	100.3
FOSA	2.500	2.364	-5.4	94.6
MeFOSAA	2.500	2.440	-2.4	97.6
PFBA	10.000	9.770	-2.3	97.7
PFBS	2.218	2.197	-1.0	99.0
PFDA	2.500	2.752	10.1	110.1
PFDoDA	2.500	2.344	-6.3	93.7
PFDS	2.413	2.412	0.0	100.0
PFHpA	2.500	2.612	4.5	104.5
PFHpS	2.383	2.204	-7.5	92.5
PFHxA	2.500	2.491	-0.4	99.6
PFHxS	2.285	2.230	-2.4	97.6
PFNA	2.500	2.261	-9.5	90.5
PFNS	2.405	2.423	0.7	100.7
PFOA	2.500	2.477	-0.9	99.1
PFOS	2.320	2.403	3.6	103.6

Initial Calibration Verification

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICV268
 Lab FileID: 6Q17747.D

PFPeA	5.000	5.020	0.4	100.4
PFPeS	2.353	2.307	-1.9	98.1
PFTeDA	2.500	2.621	4.8	104.8
PFTTrDA	2.500	2.365	-5.4	94.6
PFUnDA	2.500	2.400	-4.0	96.0
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	4.586	-2.9	97.1
13C3-HFPO-DA	10.000	9.790	-2.1	97.9
9C1-PF3ONS	4.675	4.615	-1.3	98.7
ADONA	4.725	4.622	-2.2	97.8
HFPO-DA	5.000	5.172	3.4	103.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.284	-1.6	98.4
5:3FTCA	62.400	58.105	-6.9	93.1
7:3FTCA	62.400	61.457	-1.5	98.5
d3-MeFOSA	2.500	2.651	6.0	106.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.139	2.8	102.8
EtFOSE	12.500	11.880	-5.0	95.0
MeFOSA	5.000	4.865	-2.7	97.3
MeFOSE	12.500	12.535	0.3	100.3
PFDoDS	2.425	2.521	4.0	104.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.357	7.1	107.1
d7-MeFOSE	25.000	26.256	5.0	105.0
d9-EtFOSE	25.000	26.315	5.3	105.3
d5-EtFOSA	2.500	2.557	2.3	102.3
NFDHA	5.000	4.838	-3.2	96.8
PFMBA	5.000	5.013	0.3	100.3
PFMPA	5.000	4.998	0.0	100.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.284	-3.7	96.3

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICV268
 Lab FileID: 6Q17748.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051223_1633_S6Q268\s6q268.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051223_1633_S6Q268\6Q17738.d
 2:D:\MassHunter\Data\051223_1633_S6Q268\6Q17739.d
 3:D:\MassHunter\Data\051223_1633_S6Q268\6Q17740.d
 4:D:\MassHunter\Data\051223_1633_S6Q268\6Q17741.d
 5:D:\MassHunter\Data\051223_1633_S6Q268\6Q17742.d
 6:D:\MassHunter\Data\051223_1633_S6Q268\6Q17743.d
 7:D:\MassHunter\Data\051223_1633_S6Q268\6Q17744.d
 8:D:\MassHunter\Data\051223_1633_S6Q268\6Q17745.d

Data File: 6Q17748
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.653	13.1	113.1
13C2-6:2FTS	5.000	5.261	5.2	105.2
13C2-8:2FTS	5.000	4.859	-2.8	97.2
13C2-PFDoDA	1.250	1.332	6.5	106.5
13C2-PFTeDA	1.250	1.318	5.5	105.5
13C3-PFBS	2.500	2.724	8.9	108.9
13C3-PFHxS	2.500	2.472	-1.1	98.9
13C4-PFBA	10.000	9.972	-0.3	99.7
13C4-PFHpA	2.500	2.712	8.5	108.5
13C5-PFHxA	2.500	2.767	10.7	110.7
13C5-PFPeA	5.000	5.316	6.3	106.3
13C6-PFDA	1.250	1.384	10.7	110.7
13C7-PFUnDA	1.250	1.313	5.0	105.0
13C8-FOSA	2.500	2.559	2.4	102.4
13C8-PFOA	2.500	2.508	0.3	100.3
13C8-PFOS	2.500	2.732	9.3	109.3
13C9-PFNA	1.250	1.244	-0.4	99.6
4:2FTS	20.000	20.468	2.3	102.3
6:2FTS	20.000	21.758	8.8	108.8
8:2FTS	20.000	22.115	10.6	110.6
d3-MeFOSAA	5.000	5.272	5.4	105.4
EtFOSAA	20.000	18.879	-5.6	94.4
FOSA	20.000	22.974	14.9	114.9
MeFOSAA	20.000	23.036	15.2	115.2
PFBA	20.000	21.118	5.6	105.6
PFBS	20.000	21.200	6.0	106.0
PFDA	20.000	21.392	7.0	107.0
PFDoDA	20.000	20.090	0.5	100.5
PFDS	20.000	21.783	8.9	108.9
PFHpA	20.000	21.328	6.6	106.6
PFHpS	20.000	21.417	7.1	107.1
PFHxA	20.000	20.345	1.7	101.7
PFHxS	20.000	23.661	18.3	118.3
PFNA	20.000	24.840	24.2	124.2
PFNS	20.000	23.003	15.0	115.0
PFOA	20.000	20.006	0.0	100.0
PFOS	20.000	16.358	-18.2	81.8

Initial Calibration Verification

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q268-ICV268
 Lab FileID: 6Q17748.D

PFPeA	20.000	23.584	17.9	117.9
PFPeS	20.000	23.435	17.2	117.2
PFTeDA	20.000	22.462	12.3	112.3
PFTTrDA	20.000	18.430	-7.9	92.1
PFUnDA	20.000	20.848	4.2	104.2
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	22.839	14.2	114.2
13C3-HFPO-DA	10.000	10.936	9.4	109.4
9C1-PF3ONS	20.000	20.482	2.4	102.4
ADONA	20.000	20.786	3.9	103.9
HFPO-DA	20.000	20.810	4.1	104.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	21.207	6.0	106.0
5:3FTCA	20.000	21.452	7.3	107.3
7:3FTCA	20.000	20.114	0.6	100.6
d3-MeFOSA	2.500	2.682	7.3	107.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	21.073	5.4	105.4
EtFOSE	100.000	123.179	23.2	123.2
MeFOSA	20.000	20.763	3.8	103.8
MeFOSE	100.000	114.159	14.2	114.2
PFDoDS	20.000	19.657	-1.7	98.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.638	12.8	112.8
d7-MeFOSE	25.000	24.941	-0.2	99.8
d9-EtFOSE	25.000	26.187	4.7	104.7
d5-EtFOSA	2.500	2.505	0.2	100.2
NFDHA	20.000	21.072	5.4	105.4
PFMBA	20.000	21.935	9.7	109.7
PFMPA	20.000	22.214	11.1	111.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	20.000	18.322	-8.4	91.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q271-CC268
 Lab FileID: 6Q17942.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051723_1633_S6Q271\s6q271.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051223_1633_S6Q268\6Q17738.d
 2:D:\MassHunter\Data\051223_1633_S6Q268\6Q17739.d
 3:D:\MassHunter\Data\051223_1633_S6Q268\6Q17740.d
 4:D:\MassHunter\Data\051223_1633_S6Q268\6Q17741.d
 5:D:\MassHunter\Data\051223_1633_S6Q268\6Q17742.d
 6:D:\MassHunter\Data\051223_1633_S6Q268\6Q17743.d
 7:D:\MassHunter\Data\051223_1633_S6Q268\6Q17744.d
 8:D:\MassHunter\Data\051223_1633_S6Q268\6Q17745.d

Data File: 6Q17942
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.697	-6.1	93.9
13C2-6:2FTS	5.000	4.831	-3.4	96.6
13C2-8:2FTS	5.000	4.998	0.0	100.0
13C2-PFDoDA	1.250	1.218	-2.5	97.5
13C2-PFTeDA	1.250	1.317	5.4	105.4
13C3-PFBS	2.500	2.526	1.0	101.0
13C3-PFHxS	2.500	2.462	-1.5	98.5
13C4-PFBA	10.000	10.120	1.2	101.2
13C4-PFHpA	2.500	2.494	-0.3	99.7
13C5-PFHxA	2.500	2.516	0.6	100.6
13C5-PFPeA	5.000	4.978	-0.4	99.6
13C6-PFDA	1.250	1.305	4.4	104.4
13C7-PFUnDA	1.250	1.337	6.9	106.9
13C8-FOSA	2.500	2.649	5.9	105.9
13C8-PFOA	2.500	2.464	-1.4	98.6
13C8-PFOS	2.500	2.486	-0.6	99.4
13C9-PFNA	1.250	1.240	-0.8	99.2
4:2FTS	9.375	9.470	1.0	101.0
6:2FTS	9.500	9.827	3.4	103.4
8:2FTS	9.600	9.717	1.2	101.2
d3-MeFOSAA	5.000	4.862	-2.8	97.2
EtFOSAA	2.500	2.061	-17.6	82.4
FOSA	2.500	2.385	-4.6	95.4
MeFOSAA	2.500	2.495	-0.2	99.8
PFBA	10.000	9.714	-2.9	97.1
PFBS	2.218	2.008	-9.4	90.6
PFDA	2.500	2.344	-6.2	93.8
PFDoDA	2.500	2.516	0.6	100.6
PFDS	2.413	2.335	-3.2	96.8
PFHpA	2.500	2.481	-0.8	99.2
PFHpS	2.383	2.196	-7.8	92.2
PFHxA	2.500	2.463	-1.5	98.5
PFHxS	2.285	2.220	-2.9	97.1
PFNA	2.500	2.197	-12.1	87.9
PFNS	2.405	2.490	3.5	103.5
PFOA	2.500	2.209	-11.6	88.4
PFOS	2.320	2.354	1.5	101.5

Continuing Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q271-CC268
 Lab FileID: 6Q17942.D

PFPeA	5.000	4.856	-2.9	97.1
PFPeS	2.353	2.366	0.5	100.5
PFTeDA	2.500	2.433	-2.7	97.3
PFTrDA	2.500	2.517	0.7	100.7
PFUnDA	2.500	2.276	-9.0	91.0
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	4.652	-1.5	98.5
13C3-HFPO-DA	10.000	10.152	1.5	101.5
9C1-PF3ONS	4.675	4.561	-2.4	97.6
ADONA	4.725	4.761	0.8	100.8
HFPO-DA	5.000	4.904	-1.9	98.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.237	-1.9	98.1
5:3FTCA	62.400	59.719	-4.3	95.7
7:3FTCA	62.400	66.405	6.4	106.4
d3-MeFOSA	2.500	2.562	2.5	102.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.892	-2.2	97.8
EtFOSE	12.500	12.345	-1.2	98.8
MeFOSA	5.000	4.771	-4.6	95.4
MeFOSE	12.500	12.144	-2.8	97.2
PFDoDS	2.425	2.450	1.0	101.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.312	6.2	106.2
d7-MeFOSE	25.000	27.133	8.5	108.5
d9-EtFOSE	25.000	27.539	10.2	110.2
d5-EtFOSA	2.500	2.467	-1.3	98.7
NFDHA	5.000	4.926	-1.5	98.5
PFMBA	5.000	4.868	-2.6	97.4
PFMPA	5.000	4.995	-0.1	99.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.202	-5.6	94.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q271-CC268
 Lab FileID: 6Q17943.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051723_1633_S6Q271\s6q271.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051223_1633_S6Q268\6Q17738.d
 2:D:\MassHunter\Data\051223_1633_S6Q268\6Q17739.d
 3:D:\MassHunter\Data\051223_1633_S6Q268\6Q17740.d
 4:D:\MassHunter\Data\051223_1633_S6Q268\6Q17741.d
 5:D:\MassHunter\Data\051223_1633_S6Q268\6Q17742.d
 6:D:\MassHunter\Data\051223_1633_S6Q268\6Q17743.d
 7:D:\MassHunter\Data\051223_1633_S6Q268\6Q17744.d
 8:D:\MassHunter\Data\051223_1633_S6Q268\6Q17745.d

Data File: 6Q17943
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.715	-5.7	94.3
13C2-6:2FTS	5.000	4.981	-0.4	99.6
13C2-8:2FTS	5.000	5.000	0.0	100.0
13C2-PFDoDA	1.250	1.242	-0.7	99.3
13C2-PFTeDA	1.250	1.299	3.9	103.9
13C3-PFBS	2.500	2.490	-0.4	99.6
13C3-PFHxS	2.500	2.444	-2.2	97.8
13C4-PFBA	10.000	10.090	0.9	100.9
13C4-PFHpA	2.500	2.637	5.5	105.5
13C5-PFHxA	2.500	2.610	4.4	104.4
13C5-PFPeA	5.000	5.083	1.7	101.7
13C6-PFDA	1.250	1.236	-1.2	98.8
13C7-PFUnDA	1.250	1.199	-4.1	95.9
13C8-FOSA	2.500	2.797	11.9	111.9
13C8-PFOA	2.500	2.779	11.2	111.2
13C8-PFOS	2.500	2.538	1.5	101.5
13C9-PFNA	1.250	1.242	-0.6	99.4
4:2FTS	0.750	0.713	-4.9	95.1
6:2FTS	0.760	0.733	-3.5	96.5
8:2FTS	0.768	0.665	-13.4	86.6
d3-MeFOSAA	5.000	4.929	-1.4	98.6
EtFOSAA	0.200	0.175	-12.5	87.5
FOSA	0.200	0.167	-16.7	83.3
MeFOSAA	0.200	0.183	-8.3	91.7
PFBA	0.800	0.759	-5.1	94.9
PFBS	0.177	0.168	-5.3	94.7
PFDA	0.200	0.218	8.9	108.9
PFDoDA	0.200	0.217	8.7	108.7
PFDS	0.193	0.179	-7.2	92.8
PFHpA	0.200	0.199	-0.7	99.3
PFHpS	0.191	0.179	-6.4	93.6
PFHxA	0.200	0.201	0.6	100.6
PFHxS	0.183	0.187	1.9	101.9
PFNA	0.200	0.187	-6.3	93.7
PFNS	0.192	0.183	-4.6	95.4
PFOA	0.200	0.199	-0.4	99.6
PFOS	0.186	0.174	-6.3	93.7

Continuing Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q271-CC268
 Lab FileID: 6Q17943.D

PFPeA	0.400	0.391	-2.3	97.7
PFPeS	0.188	0.191	1.4	101.4
PFTeDA	0.200	0.190	-4.8	95.2
PFTTrDA	0.200	0.195	-2.6	97.4
PFUnDA	0.200	0.203	1.4	101.4
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	0.378	0.377	-0.3	99.7
13C3-HFPO-DA	10.000	10.420	4.2	104.2
9C1-PF3ONS	0.367	0.376	2.3	102.3
ADONA	0.378	0.351	-7.3	92.7
HFPO-DA	0.400	0.379	-5.3	94.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.980	-1.8	98.2
5:3FTCA	4.992	5.297	6.1	106.1
7:3FTCA	4.992	5.811	16.4	116.4
d3-MeFOSA	2.500	2.585	3.4	103.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.382	-4.5	95.5
EtFOSE	1.000	0.976	-2.4	97.6
MeFOSA	0.400	0.393	-1.8	98.2
MeFOSE	1.000	0.905	-9.5	90.5
PFDoDS	0.194	0.200	3.3	103.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.099	2.0	102.0
d7-MeFOSE	25.000	27.441	9.8	109.8
d9-EtFOSE	25.000	27.046	8.2	108.2
d5-EtFOSA	2.500	2.459	-1.7	98.3
NFDHA	0.400	0.362	-9.5	90.5
PFMBA	0.400	0.387	-3.2	96.8
PFMPA	0.400	0.416	4.1	104.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.344	-3.5	96.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q271-CC268
 Lab FileID: 6Q17954.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051723_1633_S6Q271\s6q271.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051223_1633_S6Q268\6Q17738.d
 2:D:\MassHunter\Data\051223_1633_S6Q268\6Q17739.d
 3:D:\MassHunter\Data\051223_1633_S6Q268\6Q17740.d
 4:D:\MassHunter\Data\051223_1633_S6Q268\6Q17741.d
 5:D:\MassHunter\Data\051223_1633_S6Q268\6Q17742.d
 6:D:\MassHunter\Data\051223_1633_S6Q268\6Q17743.d
 7:D:\MassHunter\Data\051223_1633_S6Q268\6Q17744.d
 8:D:\MassHunter\Data\051223_1633_S6Q268\6Q17745.d

Data File: 6Q17954
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.796	-4.1	95.9
13C2-6:2FTS	5.000	5.011	0.2	100.2
13C2-8:2FTS	5.000	4.638	-7.2	92.8
13C2-PFDoDA	1.250	1.279	2.3	102.3
13C2-PFTeDA	1.250	1.221	-2.3	97.7
13C3-PFBS	2.500	2.496	-0.2	99.8
13C3-PFHxS	2.500	2.453	-1.9	98.1
13C4-PFBA	10.000	10.174	1.7	101.7
13C4-PFHpA	2.500	2.553	2.1	102.1
13C5-PFHxA	2.500	2.648	5.9	105.9
13C5-PFPeA	5.000	5.064	1.3	101.3
13C6-PFDA	1.250	1.343	7.4	107.4
13C7-PFUnDA	1.250	1.362	8.9	108.9
13C8-FOSA	2.500	2.847	13.9	113.9
13C8-PFOA	2.500	2.394	-4.2	95.8
13C8-PFOS	2.500	2.754	10.2	110.2
13C9-PFNA	1.250	1.215	-2.8	97.2
4:2FTS	9.375	8.940	-4.6	95.4
6:2FTS	9.500	9.266	-2.5	97.5
8:2FTS	9.600	10.602	10.4	110.4
d3-MeFOSAA	5.000	5.121	2.4	102.4
EtFOSAA	2.500	2.115	-15.4	84.6
FOSA	2.500	2.245	-10.2	89.8
MeFOSAA	2.500	2.395	-4.2	95.8
PFBA	10.000	9.812	-1.9	98.1
PFBS	2.218	2.115	-4.7	95.3
PFDA	2.500	2.319	-7.2	92.8
PFDoDA	2.500	2.336	-6.6	93.4
PFDS	2.413	2.179	-9.7	90.3
PFHpA	2.500	2.509	0.4	100.4
PFHpS	2.383	2.104	-11.7	88.3
PFHxA	2.500	2.350	-6.0	94.0
PFHxS	2.285	2.334	2.1	102.1
PFNA	2.500	2.383	-4.7	95.3
PFNS	2.405	2.343	-2.6	97.4
PFOA	2.500	2.410	-3.6	96.4
PFOS	2.320	2.037	-12.2	87.8

Continuing Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q271-CC268
 Lab FileID: 6Q17954.D

PFPeA	5.000	5.058	1.2	101.2
PFPeS	2.353	2.359	0.3	100.3
PFTeDA	2.500	2.513	0.5	100.5
PFTTrDA	2.500	2.299	-8.0	92.0
PFUnDA	2.500	2.399	-4.0	96.0
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	4.736	0.2	100.2
13C3-HFPO-DA	10.000	10.168	1.7	101.7
9C1-PF3ONS	4.675	4.944	5.8	105.8
ADONA	4.725	4.531	-4.1	95.9
HFPO-DA	5.000	5.154	3.1	103.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.565	0.7	100.7
5:3FTCA	62.400	56.761	-9.0	91.0
7:3FTCA	62.400	60.834	-2.5	97.5
d3-MeFOSA	2.500	2.488	-0.5	99.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.871	-2.6	97.4
EtFOSE	12.500	11.851	-5.2	94.8
MeFOSA	5.000	4.958	-0.8	99.2
MeFOSE	12.500	11.773	-5.8	94.2
PFDoDS	2.425	2.365	-2.5	97.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.242	4.8	104.8
d7-MeFOSE	25.000	28.485	13.9	113.9
d9-EtFOSE	25.000	28.400	13.6	113.6
d5-EtFOSA	2.500	2.525	1.0	101.0
NFDHA	5.000	4.705	-5.9	94.1
PFMBA	5.000	5.056	1.1	101.1
PFMPA	5.000	5.008	0.2	100.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.245	-4.6	95.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q271-CC268
 Lab FileID: 6Q17966.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\051723_1633_S6Q271\s6q271.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\051223_1633_S6Q268\6Q17738.d
 2:D:\MassHunter\Data\051223_1633_S6Q268\6Q17739.d
 3:D:\MassHunter\Data\051223_1633_S6Q268\6Q17740.d
 4:D:\MassHunter\Data\051223_1633_S6Q268\6Q17741.d
 5:D:\MassHunter\Data\051223_1633_S6Q268\6Q17742.d
 6:D:\MassHunter\Data\051223_1633_S6Q268\6Q17743.d
 7:D:\MassHunter\Data\051223_1633_S6Q268\6Q17744.d
 8:D:\MassHunter\Data\051223_1633_S6Q268\6Q17745.d

Data File: 6Q17966
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.597	-8.1	91.9
13C2-6:2FTS	5.000	4.524	-9.5	90.5
13C2-8:2FTS	5.000	4.983	-0.3	99.7
13C2-PFDoDA	1.250	1.341	7.3	107.3
13C2-PFTeDA	1.250	1.295	3.6	103.6
13C3-PFBS	2.500	2.363	-5.5	94.5
13C3-PFHxS	2.500	2.407	-3.7	96.3
13C4-PFBA	10.000	10.124	1.2	101.2
13C4-PFHpA	2.500	2.616	4.6	104.6
13C5-PFHxA	2.500	2.550	2.0	102.0
13C5-PFPeA	5.000	5.127	2.5	102.5
13C6-PFDA	1.250	1.336	6.9	106.9
13C7-PFUnDA	1.250	1.331	6.5	106.5
13C8-FOSA	2.500	2.668	6.7	106.7
13C8-PFOA	2.500	2.631	5.3	105.3
13C8-PFOS	2.500	2.561	2.5	102.5
13C9-PFNA	1.250	1.319	5.5	105.5
4:2FTS	9.375	8.913	-4.9	95.1
6:2FTS	9.500	10.243	7.8	107.8
8:2FTS	9.600	9.527	-0.8	99.2
d3-MeFOSAA	5.000	4.797	-4.1	95.9
EtFOSAA	2.500	2.290	-8.4	91.6
FOSA	2.500	2.238	-10.5	89.5
MeFOSAA	2.500	2.548	1.9	101.9
PFBA	10.000	9.766	-2.3	97.7
PFBS	2.218	2.196	-1.0	99.0
PFDA	2.500	2.451	-2.0	98.0
PFDoDA	2.500	2.451	-2.0	98.0
PFDS	2.413	2.360	-2.2	97.8
PFHpA	2.500	2.439	-2.4	97.6
PFHpS	2.383	2.053	-13.9	86.1
PFHxA	2.500	2.498	-0.1	99.9
PFHxS	2.285	2.172	-4.9	95.1
PFNA	2.500	2.461	-1.6	98.4
PFNS	2.405	2.434	1.2	101.2
PFOA	2.500	2.239	-10.4	89.6
PFOS	2.320	2.188	-5.7	94.3

Continuing Calibration Summary

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q271-CC268
 Lab FileID: 6Q17966.D

PFPeA	5.000	4.967	-0.7	99.3
PFPeS	2.353	2.323	-1.3	98.7
PFTeDA	2.500	2.500	0.0	100.0
PFTTrDA	2.500	2.512	0.5	100.5
PFUnDA	2.500	2.454	-1.8	98.2
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	4.518	-4.4	95.6
13C3-HFPO-DA	10.000	10.488	4.9	104.9
9C1-PF3ONS	4.675	4.615	-1.3	98.7
ADONA	4.725	4.485	-5.1	94.9
HFPO-DA	5.000	5.027	0.5	100.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.438	-0.3	99.7
5:3FTCA	62.400	61.171	-2.0	98.0
7:3FTCA	62.400	65.551	5.1	105.1
d3-MeFOSA	2.500	2.336	-6.6	93.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.032	0.6	100.6
EtFOSE	12.500	12.739	1.9	101.9
MeFOSA	5.000	5.281	5.6	105.6
MeFOSE	12.500	12.261	-1.9	98.1
PFDoDS	2.425	2.291	-5.5	94.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.926	-1.5	98.5
d7-MeFOSE	25.000	26.419	5.7	105.7
d9-EtFOSE	25.000	26.093	4.4	104.4
d5-EtFOSA	2.500	2.366	-5.4	94.6
NFDHA	5.000	5.265	5.3	105.3
PFMBA	5.000	4.958	-0.8	99.2
PFMPA	5.000	4.993	-0.1	99.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.425	-0.6	99.4

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q268	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q268-RT	6Q17735.D	05/12/23 11:31	n/a	Retention Time Marker
S6Q268-RT	6Q17736.D	05/12/23 11:46	n/a	Retention Time Marker
S6Q268-IC268	6Q17737.D	05/12/23 12:00	n/a	Mass Calibration Verification
S6Q268-IC268	6Q17738.D	05/12/23 12:15	n/a	Initial cal 1
S6Q268-IC268	6Q17739.D	05/12/23 12:29	n/a	Initial cal 2
S6Q268-IC268	6Q17740.D	05/12/23 12:44	n/a	Initial cal 3
S6Q268-ICC268	6Q17741.D	05/12/23 12:58	n/a	Initial cal 4
S6Q268-IC268	6Q17742.D	05/12/23 13:13	n/a	Initial cal 5
S6Q268-IC268	6Q17743.D	05/12/23 13:27	n/a	Initial cal 6
S6Q268-IC268	6Q17744.D	05/12/23 13:42	n/a	Initial cal 7
S6Q268-IC268	6Q17745.D	05/12/23 13:56	n/a	Initial cal 8
S6Q268-IBLK	6Q17746.D	05/12/23 14:11	n/a	Instrument Blank
S6Q268-IBLK	6Q17746.D	05/12/23 14:11	n/a	Instrument Blank
S6Q268-ICV268	6Q17747.D	05/12/23 14:25	n/a	Initial cal verification 4
S6Q268-ICV268	6Q17748.D	05/12/23 14:40	n/a	Initial cal verification 20
S6Q268-CC268	6Q17749.D	05/12/23 14:54	n/a	Continuing cal 4
S6Q268-CC268	6Q17750.D	05/12/23 15:09	n/a	Continuing cal 1.0LL
OP96784-MB	6Q17751.D	05/12/23 15:23	OP96784	Method Blank
FC5890-1	6Q17752.D	05/12/23 15:38	OP96784	(used for QC only; not part of job FC6066)
FC5890-2	6Q17755.D	05/12/23 16:21	OP96784	(used for QC only; not part of job FC6066)
OP96784-DUP	6Q17757.D	05/12/23 16:50	OP96784	Duplicate
S6Q268-CC268	6Q17759.D	05/12/23 17:19	n/a	Continuing cal 4
S6Q268-ICCB	6Q17760.D	05/12/23 17:34	n/a	Continuing Calibration Blank
S6Q268-CC268	6Q17764.D	05/12/23 18:32	n/a	Continuing cal 4
S6Q268-ICCB	6Q17765.D	05/12/23 18:46	n/a	Continuing Calibration Blank
OP96842-MB	6Q17766.D	05/12/23 19:00	OP96842	Method Blank
OP96842-BS	6Q17767.D	05/12/23 19:15	OP96842	Blank Spike
OP96842-LLBS	6Q17768.D	05/12/23 19:29	OP96842	Blank Spike
ZZZZZZ	6Q17769.D	05/12/23 19:44	OP96842	(unrelated sample)
ZZZZZZ	6Q17770.D	05/12/23 19:58	OP96842	(unrelated sample)
ZZZZZZ	6Q17771.D	05/12/23 20:13	OP96842	(unrelated sample)
FC5443-4	6Q17772.D	05/12/23 20:27	OP96842	(used for QC only; not part of job FC6066)
ZZZZZZ	6Q17775.D	05/12/23 21:11	OP96842	(unrelated sample)
S6Q268-ECC268	6Q17777.D	05/12/23 21:40	n/a	Ending cal 4
S6Q268-ICCB	6Q17778.D	05/12/23 21:54	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q271	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q271-RT	6Q17938.D	05/17/23 12:27	n/a	Retention Time Marker
S6Q271-RT	6Q17939.D	05/17/23 12:41	n/a	Retention Time Marker
S6Q271-IBLK	6Q17941.D	05/17/23 13:10	n/a	Instrument Blank
S6Q271-IBLK	6Q17941.D	05/17/23 13:10	n/a	Instrument Blank
S6Q271-CC268	6Q17942.D	05/17/23 13:25	n/a	Continuing cal 4
S6Q271-CC268	6Q17943.D	05/17/23 13:39	n/a	Continuing cal 1.0LL
ZZZZZZ	6Q17944.D	05/17/23 13:54	OP96847	(unrelated sample)
OP96892-BS	6Q17945.D	05/17/23 14:08	OP96892	Blank Spike
OP96892-LLBS	6Q17946.D	05/17/23 14:23	OP96892	Blank Spike
OP96892-MB	6Q17947.D	05/17/23 14:37	OP96892	Method Blank
ZZZZZZ	6Q17948.D	05/17/23 14:52	OP96892	(unrelated sample)
ZZZZZZ	6Q17949.D	05/17/23 15:06	OP96892	(unrelated sample)
ZZZZZZ	6Q17950.D	05/17/23 15:21	OP96892	(unrelated sample)
FC6066-1	6Q17951.D	05/17/23 15:35	OP96892	AF-RHMW17S-WGN01LF-2305W2
FC6066-3	6Q17952.D	05/17/23 15:50	OP96892	AF-RHMW17D-WGN01LF-2305W2
OP96892-MS	6Q17953.D	05/17/23 16:04	OP96892	Matrix Spike
S6Q271-CC268	6Q17954.D	05/17/23 16:19	n/a	Continuing cal 4
S6Q271-ICCB	6Q17955.D	05/17/23 16:33	n/a	Continuing Calibration Blank
FC6066-2	6Q17956.D	05/17/23 16:48	OP96892	AF-RHMW17S-WQEB01-2305W2
FC6066-4	6Q17957.D	05/17/23 17:02	OP96892	AF-RHMW17D-WQFB01-2305W2
FC6066-5	6Q17958.D	05/17/23 17:17	OP96892	AF-RHMW17-WGN01LF-2305W2
OP96892-DUP	6Q17959.D	05/17/23 17:31	OP96892	Duplicate
OP96916-BS	6Q17960.D	05/17/23 17:46	OP96916	Blank Spike
OP96916-LLBS	6Q17961.D	05/17/23 18:00	OP96916	Blank Spike
OP96916-MB	6Q17962.D	05/17/23 18:15	OP96916	Method Blank
ZZZZZZ	6Q17963.D	05/17/23 18:29	OP96916	(unrelated sample)
ZZZZZZ	6Q17964.D	05/17/23 18:44	OP96916	(unrelated sample)
ZZZZZZ	6Q17965.D	05/17/23 18:58	OP96916	(unrelated sample)
S6Q271-CC268	6Q17966.D	05/17/23 19:13	n/a	Continuing cal 4
S6Q271-ICCB	6Q17967.D	05/17/23 19:27	n/a	Continuing Calibration Blank
FC5501-4	6Q17968.D	05/17/23 19:42	OP96916	(used for QC only; not part of job FC6066)
ZZZZZZ	6Q17970.D	05/17/23 20:11	OP96916	(unrelated sample)
ZZZZZZ	6Q17971.D	05/17/23 20:25	OP96916	(unrelated sample)
ZZZZZZ	6Q17972.D	05/17/23 20:40	OP96916	(unrelated sample)
ZZZZZZ	6Q17973.D	05/17/23 20:54	OP96916	(unrelated sample)
ZZZZZZ	6Q17974.D	05/17/23 21:08	OP96916	(unrelated sample)
ZZZZZZ	6Q17975.D	05/17/23 21:23	OP96916	(unrelated sample)
ZZZZZZ	6Q17976.D	05/17/23 21:37	OP96916	(unrelated sample)
S6Q271-CC268	6Q17977.D	05/17/23 21:52	n/a	Continuing cal 4
S6Q271-ICCB	6Q17978.D	05/17/23 22:06	n/a	Continuing Calibration Blank
OP96916-DUP	6Q17979.D	05/17/23 22:21	OP96916	Duplicate
FC5501-12	6Q17980.D	05/17/23 22:35	OP96916	(used for QC only; not part of job FC6066)
ZZZZZZ	6Q17981.D	05/17/23 22:50	OP96916	(unrelated sample)
ZZZZZZ	6Q17982.D	05/17/23 23:04	OP96916	(unrelated sample)
ZZZZZZ	6Q17983.D	05/17/23 23:19	OP96916	(unrelated sample)
S6Q271-CC268	6Q17984.D	05/17/23 23:33	n/a	Continuing cal 4

Run Sequence Report

Job Number: FC6066
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q271	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q271-CC268	6Q17985.D	05/17/23 23:48	n/a	Continuing cal 1.0LL
S6Q271-ICCB	6Q17986.D	05/18/23 00:02	n/a	Continuing Calibration Blank
OP96917-BS	6Q17987.D	05/18/23 00:17	OP96917	Blank Spike
OP96917-LLBS	6Q17988.D	05/18/23 00:31	OP96917	Blank Spike
OP96917-MB	6Q17989.D	05/18/23 00:46	OP96917	Method Blank
ZZZZZZ	6Q17990.D	05/18/23 01:00	OP96917	(unrelated sample)
ZZZZZZ	6Q17991.D	05/18/23 01:15	OP96917	(unrelated sample)
ZZZZZZ	6Q17992.D	05/18/23 01:29	OP96917	(unrelated sample)
ZZZZZZ	6Q17993.D	05/18/23 01:44	OP96917	(unrelated sample)
ZZZZZZ	6Q17994.D	05/18/23 01:58	OP96917	(unrelated sample)
FC5542-6	6Q17995.D	05/18/23 02:13	OP96917	(used for QC only; not part of job FC6066)
S6Q271-CC268	6Q17997.D	05/18/23 02:42	n/a	Continuing cal 4
S6Q271-ICCB	6Q17998.D	05/18/23 02:56	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17999.D	05/18/23 03:11	OP96917	(unrelated sample)
ZZZZZZ	6Q18000.D	05/18/23 03:25	OP96917	(unrelated sample)
ZZZZZZ	6Q18001.D	05/18/23 03:40	OP96917	(unrelated sample)
ZZZZZZ	6Q18002.D	05/18/23 03:54	OP96917	(unrelated sample)
ZZZZZZ	6Q18003.D	05/18/23 04:09	OP96917	(unrelated sample)
ZZZZZZ	6Q18004.D	05/18/23 04:23	OP96917	(unrelated sample)
ZZZZZZ	6Q18005.D	05/18/23 04:38	OP96917	(unrelated sample)
S6Q271-CC268	6Q18009.D	05/18/23 05:35	n/a	Continuing cal 4
S6Q271-ICCB	6Q18010.D	05/18/23 05:50	n/a	Continuing Calibration Blank
OP96918-BS	6Q18011.D	05/18/23 06:04	OP96918	Blank Spike
OP96918-LLBS	6Q18012.D	05/18/23 06:19	OP96918	Blank Spike
OP96918-MB	6Q18013.D	05/18/23 06:33	OP96918	Method Blank
JD64582-1A	6Q18014.D	05/18/23 06:48	OP96918	(used for QC only; not part of job FC6066)
OP96918-MS	6Q18015.D	05/18/23 07:02	OP96918	Matrix Spike
ZZZZZZ	6Q18016.D	05/18/23 07:17	OP96918	(unrelated sample)
JD64738-1	6Q18017.D	05/18/23 07:31	OP96918	(used for QC only; not part of job FC6066)
OP96918-DUP	6Q18018.D	05/18/23 07:46	OP96918	Duplicate
ZZZZZZ	6Q18019.D	05/18/23 08:00	OP96918	(unrelated sample)
ZZZZZZ	6Q18020.D	05/18/23 08:15	OP96918	(unrelated sample)
S6Q271-CC268	6Q18021.D	05/18/23 08:29	n/a	Continuing cal 4
S6Q271-ICCB	6Q18022.D	05/18/23 08:44	n/a	Continuing Calibration Blank
ZZZZZZ	6Q18023.D	05/18/23 08:58	OP96918	(unrelated sample)
ZZZZZZ	6Q18024.D	05/18/23 09:13	OP96918	(unrelated sample)
ZZZZZZ	6Q18025.D	05/18/23 09:27	OP96918	(unrelated sample)
ZZZZZZ	6Q18026.D	05/18/23 09:42	OP96918	(unrelated sample)
ZZZZZZ	6Q18027.D	05/18/23 09:56	OP96918	(unrelated sample)
ZZZZZZ	6Q18028.D	05/18/23 10:11	OP96918	(unrelated sample)
ZZZZZZ	6Q18029.D	05/18/23 10:25	OP96918	(unrelated sample)
ZZZZZZ	6Q18030.D	05/18/23 10:40	OP96918	(unrelated sample)
ZZZZZZ	6Q18031.D	05/18/23 10:54	OP96918	(unrelated sample)
ZZZZZZ	6Q18032.D	05/18/23 11:09	OP96918	(unrelated sample)
S6Q271-CC268	6Q18033.D	05/18/23 11:23	n/a	Continuing cal 4
S6Q271-ICCB	6Q18034.D	05/18/23 11:38	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC6066
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q271	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q18035.D	05/18/23 11:52	OP96918	(unrelated sample)
S6Q271-ECC268	6Q18036.D	05/18/23 12:07	n/a	Ending cal 4
S6Q271-ICCB	6Q18037.D	05/18/23 12:21	n/a	Continuing Calibration Blank

6.10.2

6

MS Semi-volatiles

Raw Data

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtje
 05/19/23 14:29

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17951.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 3:35:42 PM
 Sample Name : FC6066-1
 Vial : P2-A7
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	37859	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	37192	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	51136	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	43742	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	66477	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	21461	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	15287	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	19097	1.25 µg/L	0.000
M2-PFDoDA	8.937	615.1 -> 570.0	16111	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	8864	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	15548	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	17195	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10050	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	8331	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	1949	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2011	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	1962	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	16534	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	27214	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	12492	5.00 µg/L	-0.012
M7-MeFOSE	10.672	623.2 -> 58.9	48276	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	65385	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	6162	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	4877	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11112	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	49382	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	7450	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	62677	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	18045	1.25 µg/L	0.000
13C5-PFNA	7.584	468.0 -> 423.0	21136	1.25 µg/L	0.000
13C2-PFHxA	5.454	315.1 -> 270.0	37225	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1949	6.86 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 137.3%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2011	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-8:2FTS	7.852	529.1 -> 80.9	1962	4.99 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFDoDA	8.937	615.1 -> 570.0	16111	1.07 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.4%		
13C2-PFTeDA	9.664	715.2 -> 670.0	8864	0.87 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.3%		
13C3-PFBS	5.384	302.1 -> 79.9	17195	2.65 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C3-PFHxS	7.167	402.1 -> 79.9	10050	2.53 µg/L	0.000

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 = 101.3%		
13C4-PFBA	2.901	216.8 -> 171.9	37859	3.23	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 32.3%		
13C4-PFHpA	6.420	367.1 -> 322.0	43742	2.83	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.1%		
13C5-PFHxA	5.466	318.0 -> 273.0	51136	2.91	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.2%		
13C5-PFPeA	4.259	268.3 -> 223.0	37192	4.75	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%		
13C6-PFDA	8.076	519.1 -> 474.1	15287	1.29	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%		
13C7-PFUnDA	8.518	570.0 -> 525.1	19097	1.26	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C8-FOSA	9.636	506.1 -> 77.8	15548	2.11	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.4%		
13C8-PFOA	7.064	421.1 -> 376.0	66477	2.81	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.4%		
13C8-PFOS	8.226	507.1 -> 79.9	8331	2.41	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C9-PFNA	7.583	472.1 -> 427.0	21461	1.37	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.9%		
d3-MeFOSAA	8.121	573.2 -> 419.0	16534	4.75	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.0%		
13C3-HFPO-DA	5.831	286.9 -> 168.9	27214	9.99	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
d3-MeFOSA	10.752	515.0 -> 219.0	4877	1.81	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.6%		
d5-EtFOSAA	8.316	589.2 -> 419.0	12492	4.54	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.7%		
d7-MeFOSE	10.672	623.2 -> 58.9	48276	17.64	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 70.5%		
d9-EtFOSE	10.907	639.2 -> 58.9	65385	19.77	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.1%		
d5-EtFOSA	10.984	531.1 -> 219.0	6162	1.90	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.1%		

Target Compounds

Compound	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	6.838	427.1 -> 407.0	1269	0.58	µg/L	91
		427.1 -> 80.9	476			
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	3.181	212.8 -> 168.9	0	µg/L	m	1
PFBS	5.385	298.7 -> 79.9	640	0.08	µg/L	90
		298.7 -> 98.8	195			
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	6.408	599.0 -> 98.8				
		363.1 -> 319.0	2731	0.12	µg/L	98
PFHpS	7.685	363.1 -> 169.0	418			
		449.0 -> 79.9	367	0.08	µg/L	#m 40
PFHxA	5.469	449.0 -> 98.9	37			
		313.0 -> 269.0	4101	0.20	µg/L	99
PFHxS	-	313.0 -> 118.9	189			
		398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9	-			
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0	-			
		548.8 -> 79.9	-	N.D.		
PFOA	7.066	548.8 -> 98.9	-			
		413.0 -> 369.0	3251	0.10	µg/L	m 85
PFOS	8.030	413.0 -> 169.0	755			
		498.9 -> 79.9	660	0.15	µg/L	m 77
PFPeA	4.274	498.9 -> 98.8	244			
		263.0 -> 219.0	1943	0.18	µg/L	100
PFPeS	-	349.1 -> 79.9	-			
		349.1 -> 98.9	-	N.D.		
PFTeDA	-	713.1 -> 669.0	-			
		713.1 -> 168.9	-	N.D.		
PFTrDA	-	663.0 -> 619.0	-			
		663.0 -> 168.9	-	N.D.		
PFUnDA	-	563.1 -> 519.0	-			
		563.1 -> 269.1	-	N.D.		
11Cl-PF3OUdS	-	630.9 -> 450.9	-			
		632.9 -> 452.9	-	N.D.		
9Cl-PF3ONS	-	530.8 -> 351.0	-			
		532.8 -> 353.0	-	N.D.		
ADONA	-	376.9 -> 250.9	-			
		376.9 -> 84.8	-	N.D.		
HFPO-DA	-	284.9 -> 168.9	-			
		284.9 -> 184.9	-	N.D.		
3:3FTCA	3.709	241.0 -> 177.0	0		µg/L	m 1
		241.0 -> 117.0	0			
5:3FTCA	-	341.0 -> 237.1	-			
		341.0 -> 217.0	-	N.D.		
7:3FTCA	-	441.0 -> 316.9	-			
		441.0 -> 336.9	-	N.D.		
EtFOSA	-	526.0 -> 219.0	-			
		526.0 -> 169.0	-	N.D.		
EtFOSE	-	630.0 -> 58.9	-			
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0	-			
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-			
		699.1 -> 98.8	-	N.D.		
PFDoDS	-	295.0 -> 201.0	-			
		295.0 -> 84.9	-	N.D.		
NFDHA	-	279.0 -> 85.1	-			
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-			
		314.8 -> 82.9	-	N.D.		

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

7.1.1
7

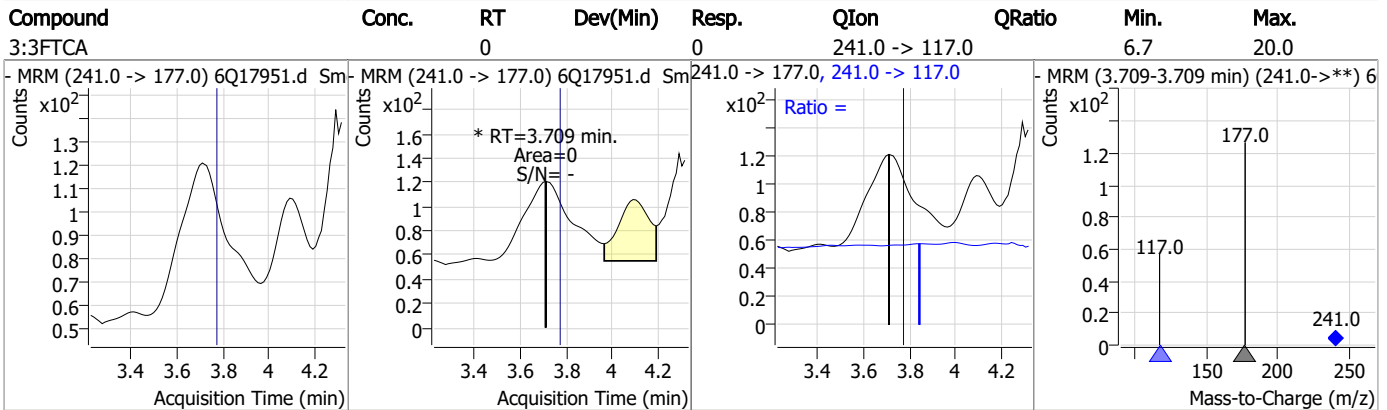
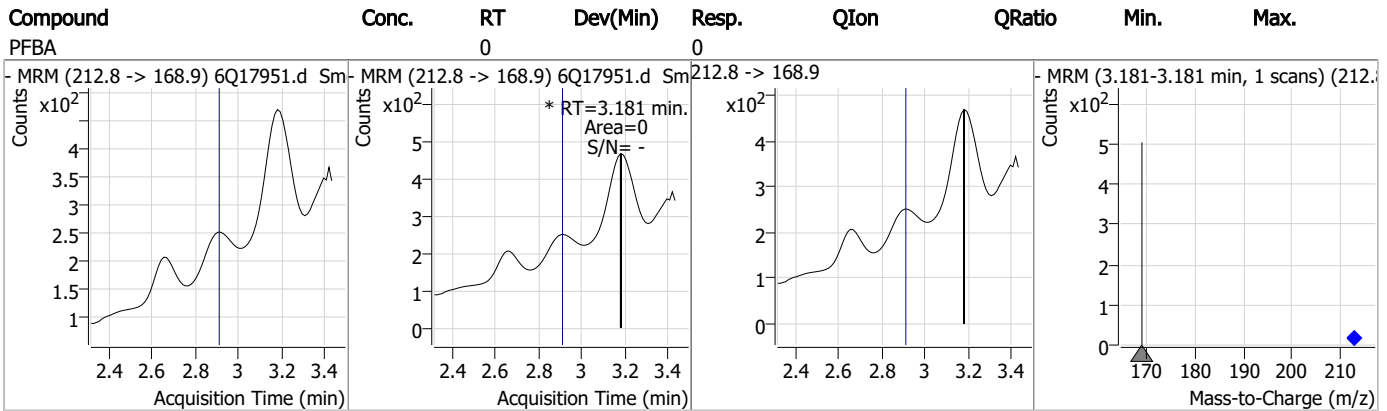
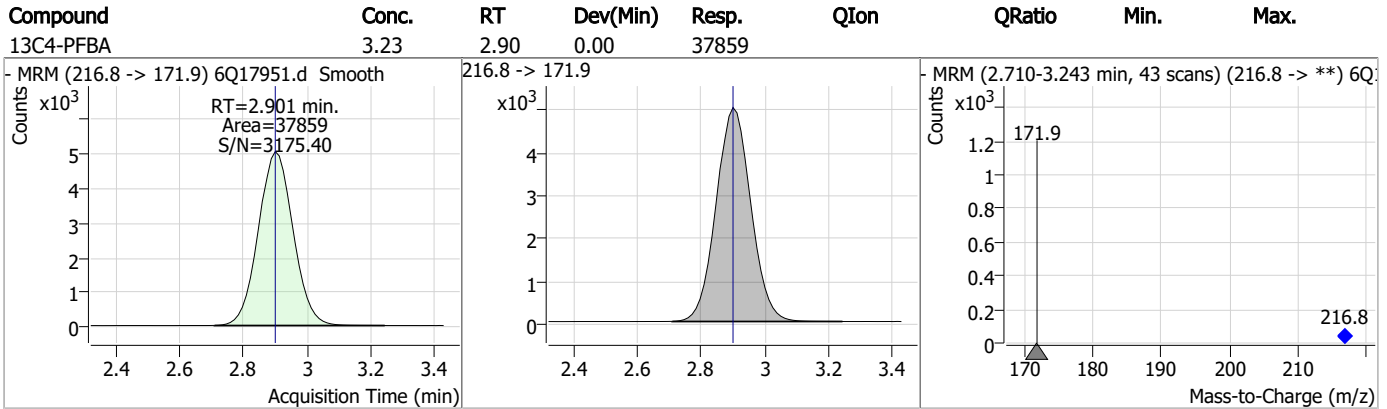
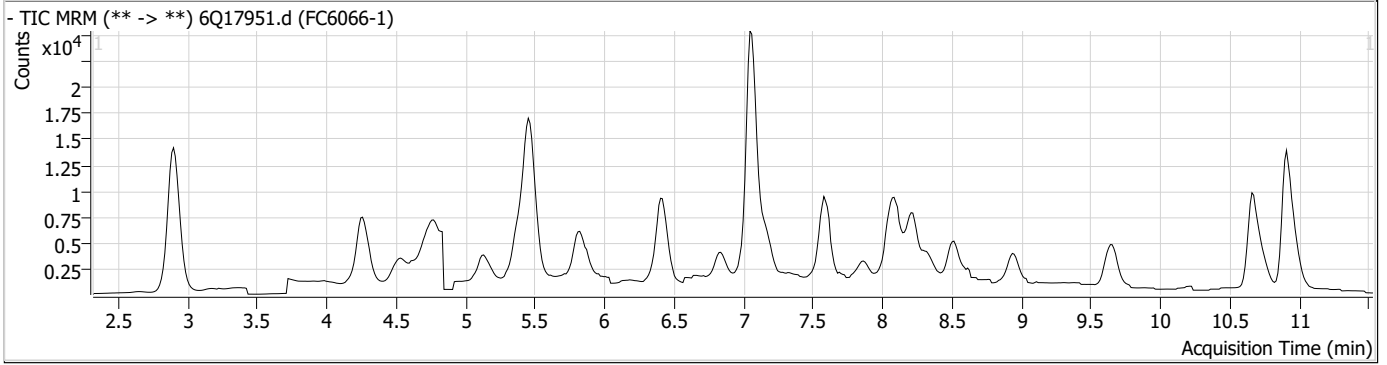
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.1
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Perfluorinated Compounds by LC/MS/MS

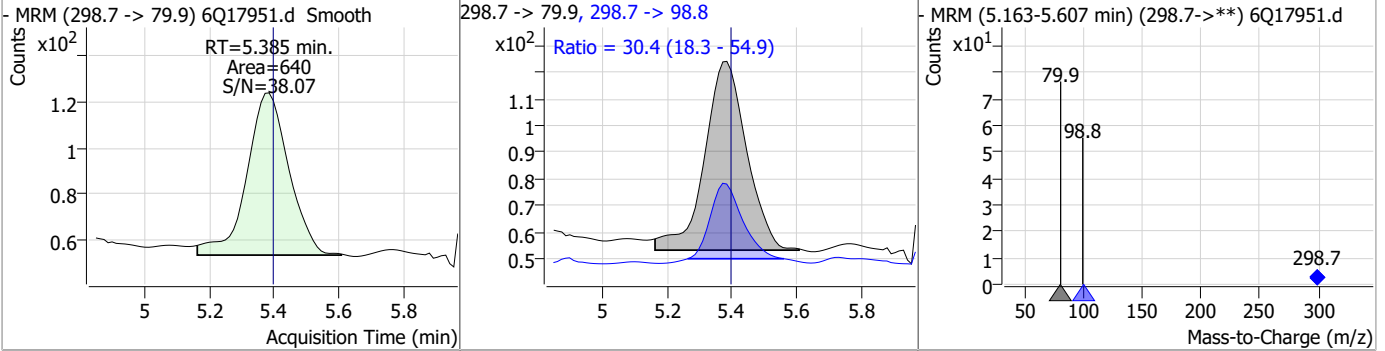


Perfluorinated Compounds by LC/MS/MS

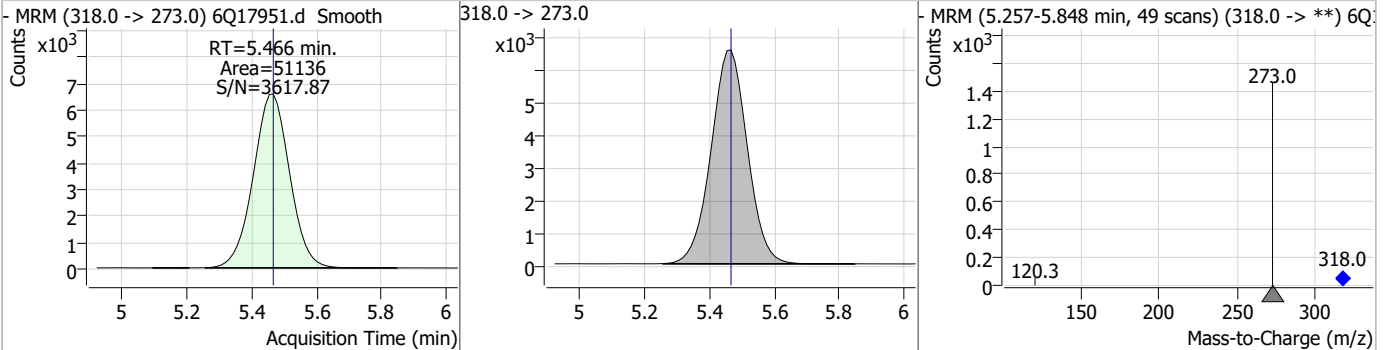
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.75	4.26	-0.01	37192				
PFPeA	0.18	4.27	0.00	1943				
13C2-4:2FTS	6.86	5.13	-0.01	1949				
13C3-PFBS	2.65	5.38	-0.01	17195				

Perfluorinated Compounds by LC/MS/MS

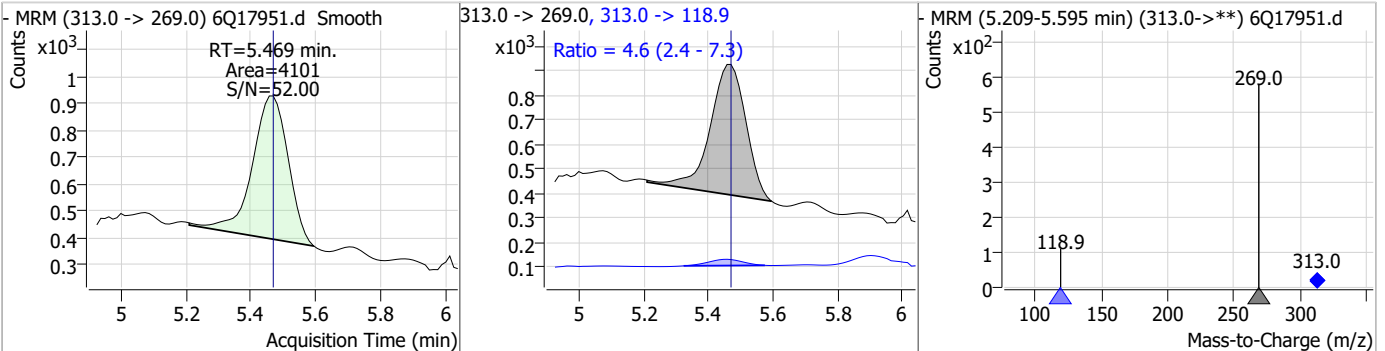
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.08	5.38	-0.01	640	298.7 -> 98.8	30.4	18.3	54.9



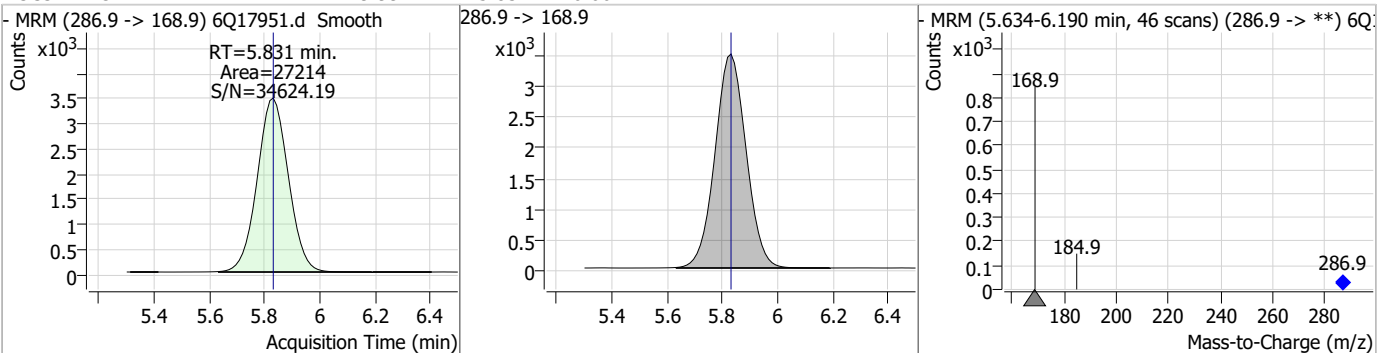
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.91	5.47	0.00	51136				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.20	5.47	0.00	4101	313.0 -> 118.9	4.6	2.4	7.3

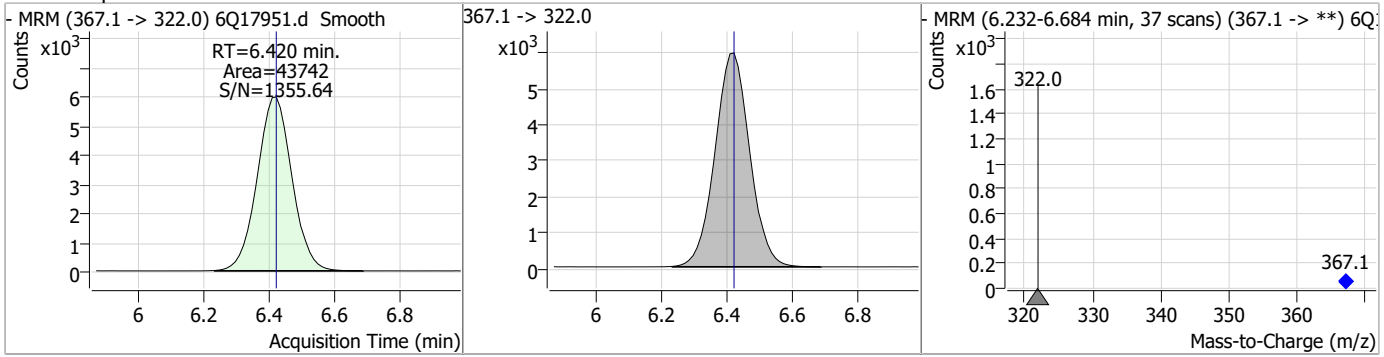


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.99	5.83	0.00	27214				

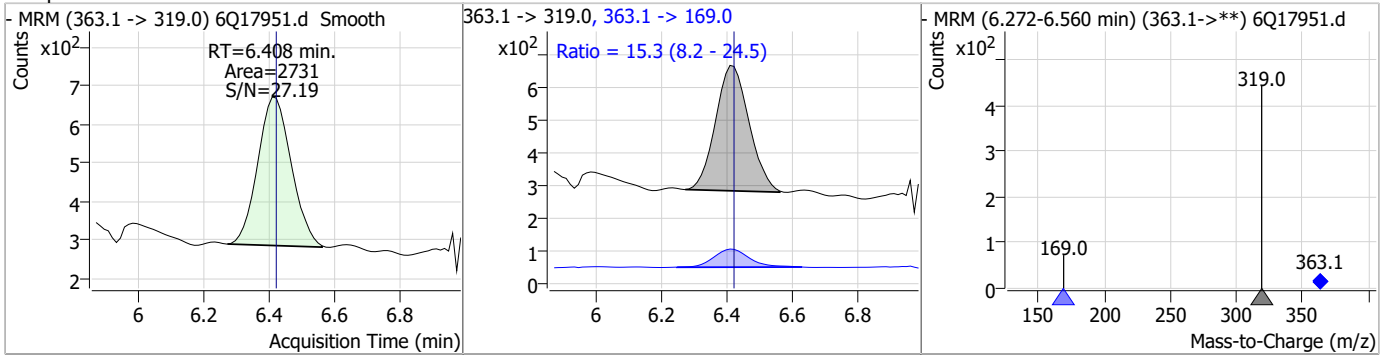


Perfluorinated Compounds by LC/MS/MS

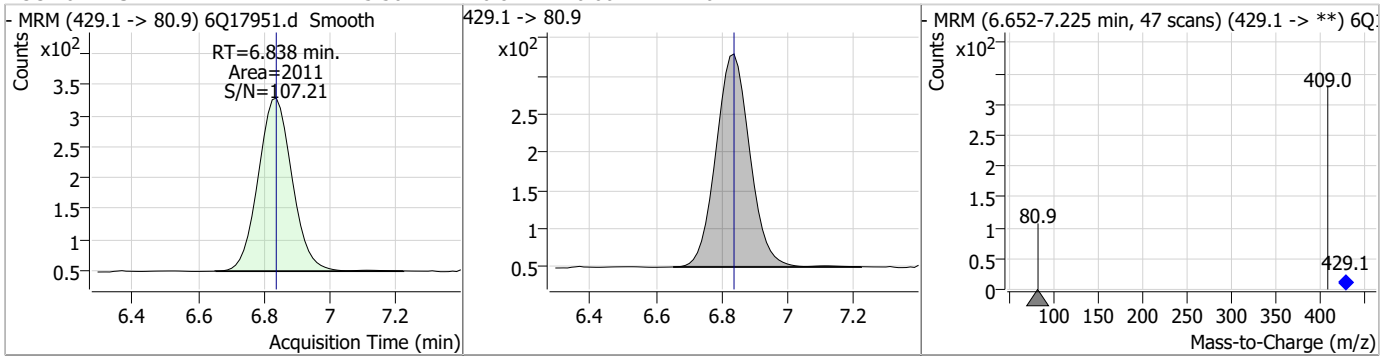
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.83	6.42	0.00	43742				



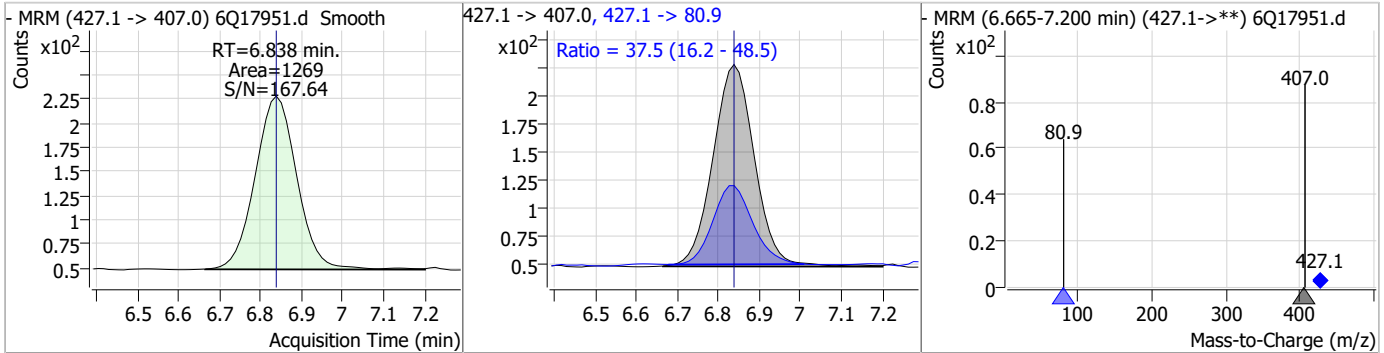
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpa	0.12	6.41	-0.01	2731	363.1 -> 169.0	15.3	8.2	24.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.50	6.84	0.00	2011				



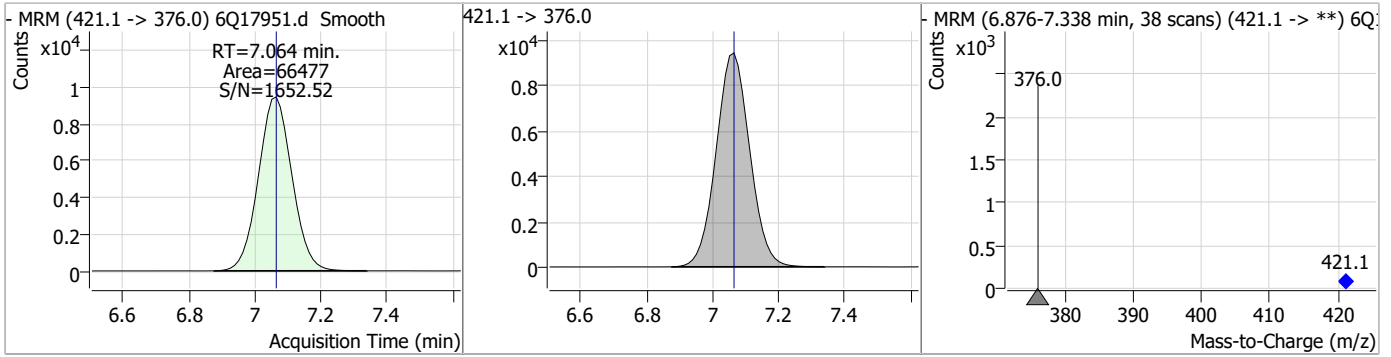
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.58	6.84	0.00	1269	427.1 -> 80.9	37.5	16.2	48.5



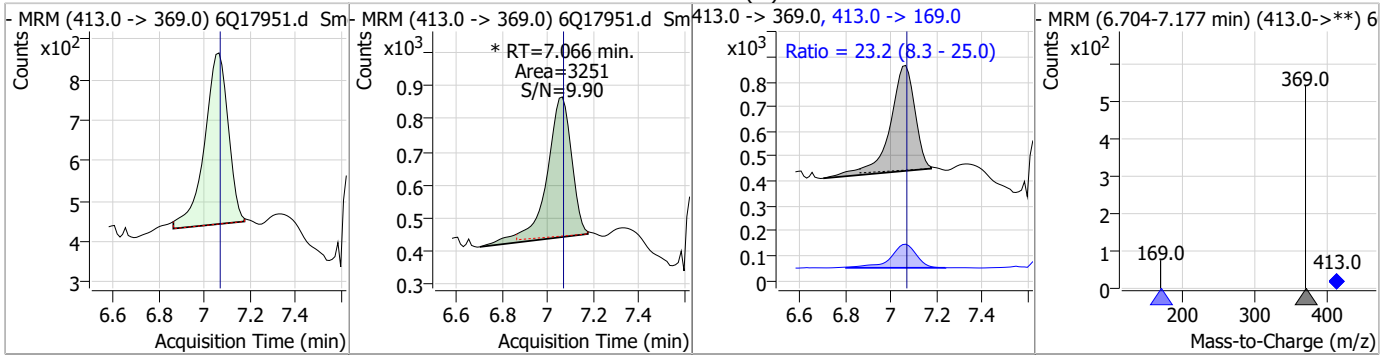
7.1.1
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Perfluorinated Compounds by LC/MS/MS

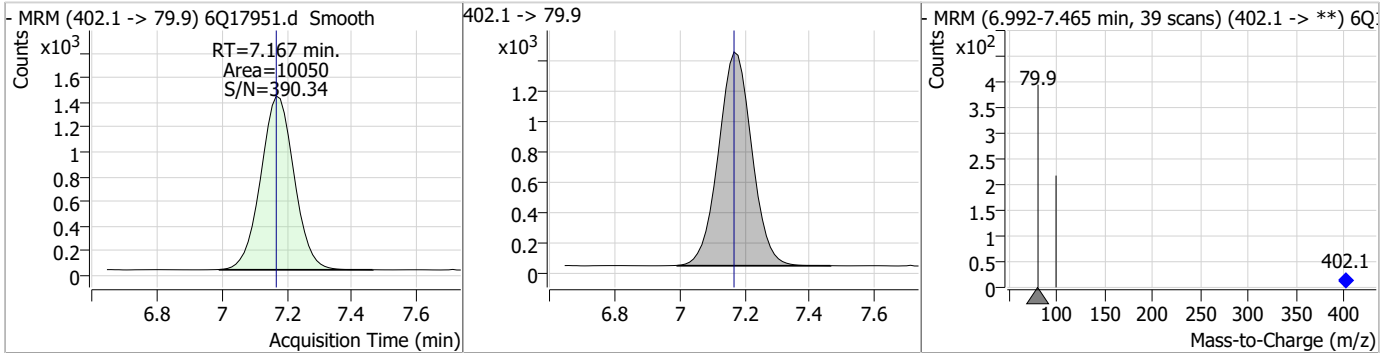
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.81	7.06	0.00	66477				



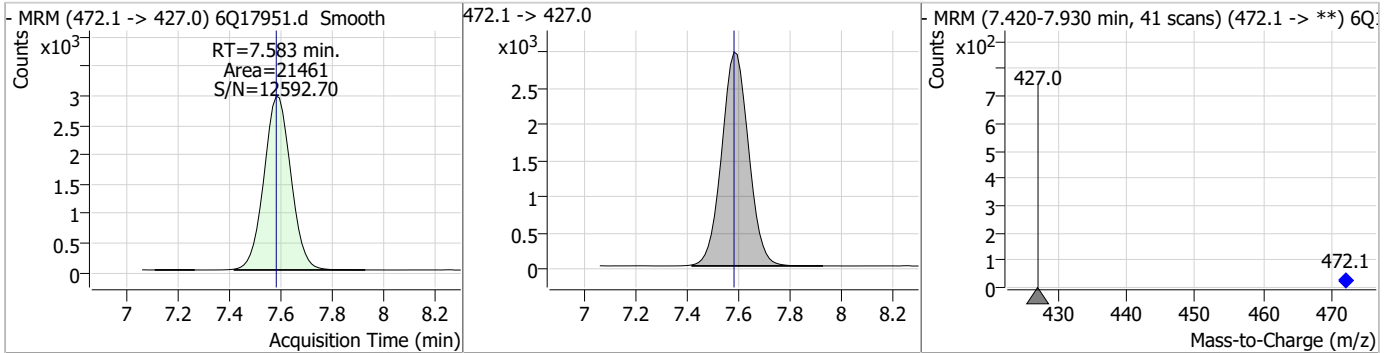
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.10	7.07	0.00	3251 (m)	413.0 -> 169.0	23.2	8.3	25.0



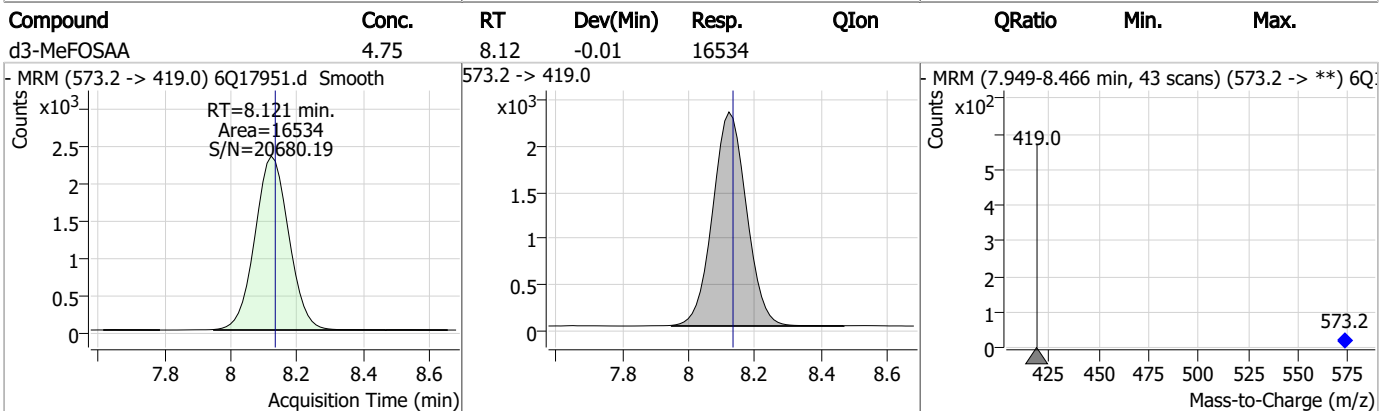
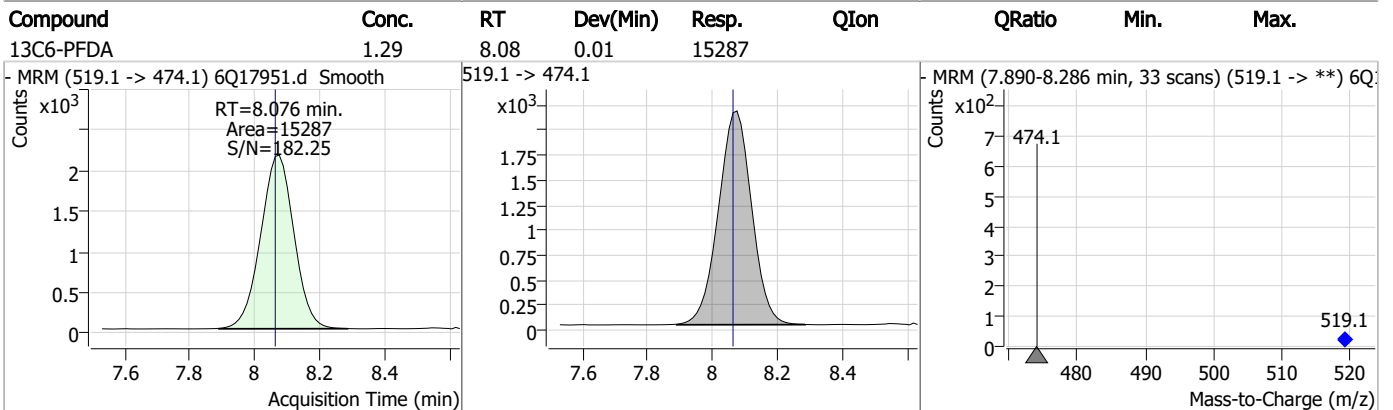
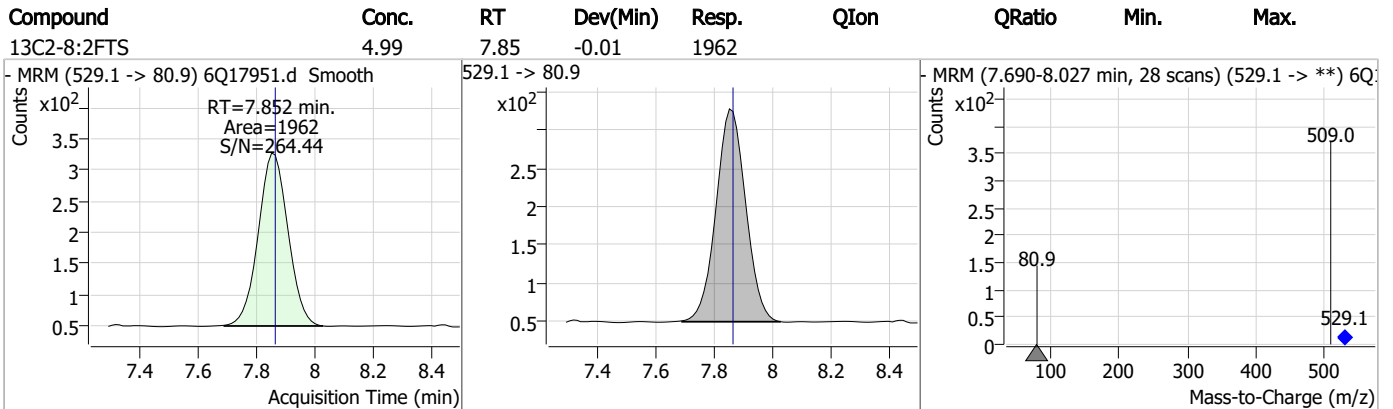
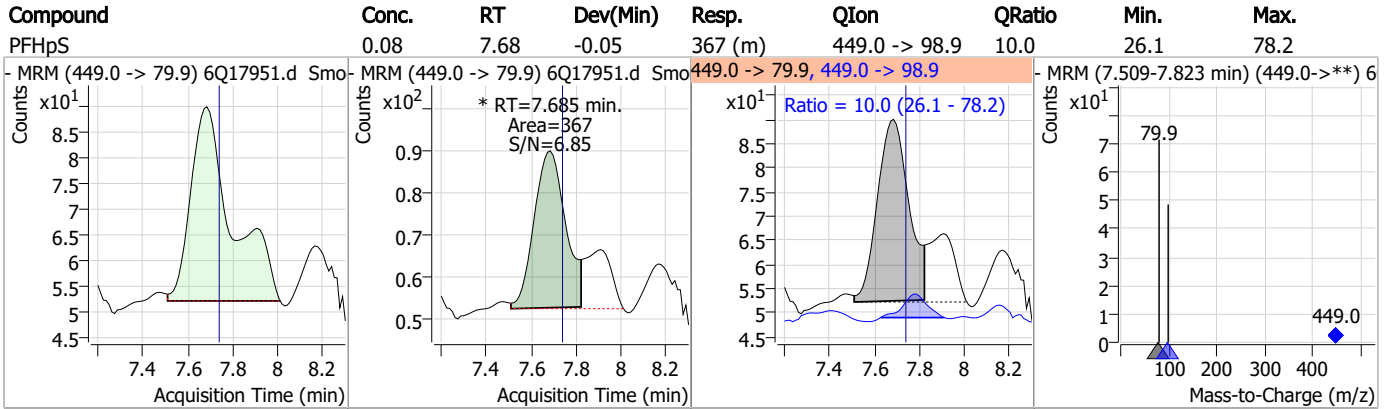
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.53	7.17	0.00	10050				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.37	7.58	0.00	21461				

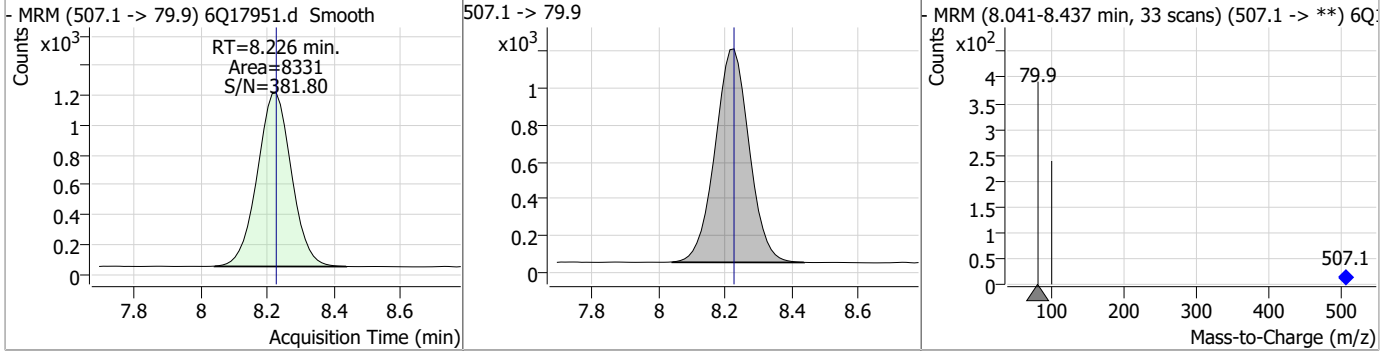


Perfluorinated Compounds by LC/MS/MS

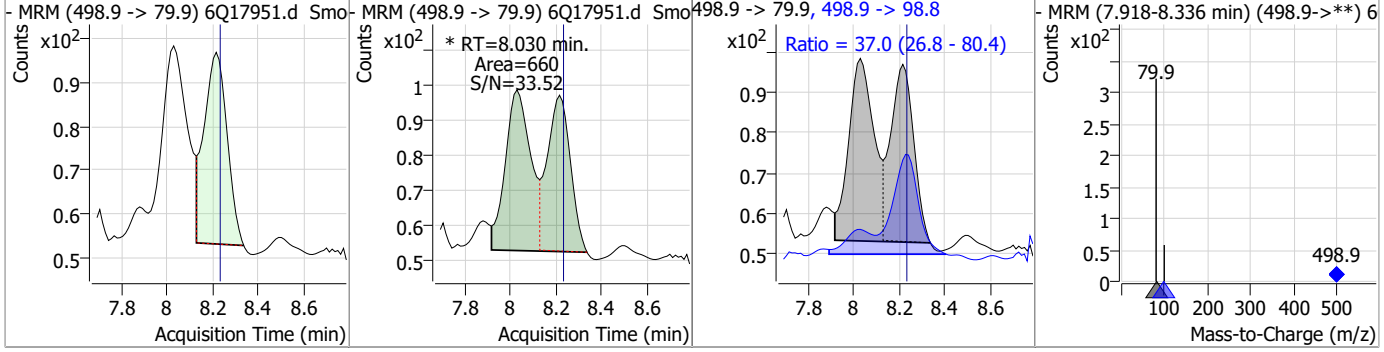


Perfluorinated Compounds by LC/MS/MS

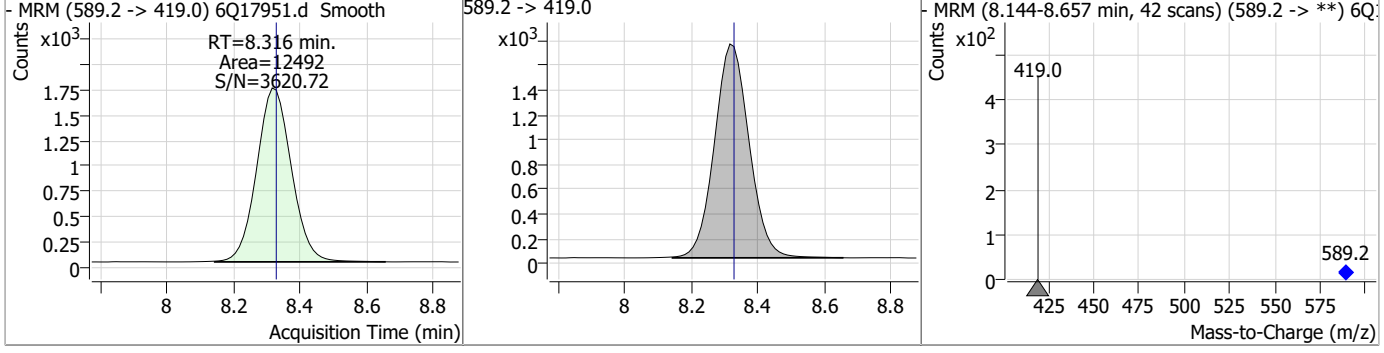
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.41	8.23	0.00	8331				



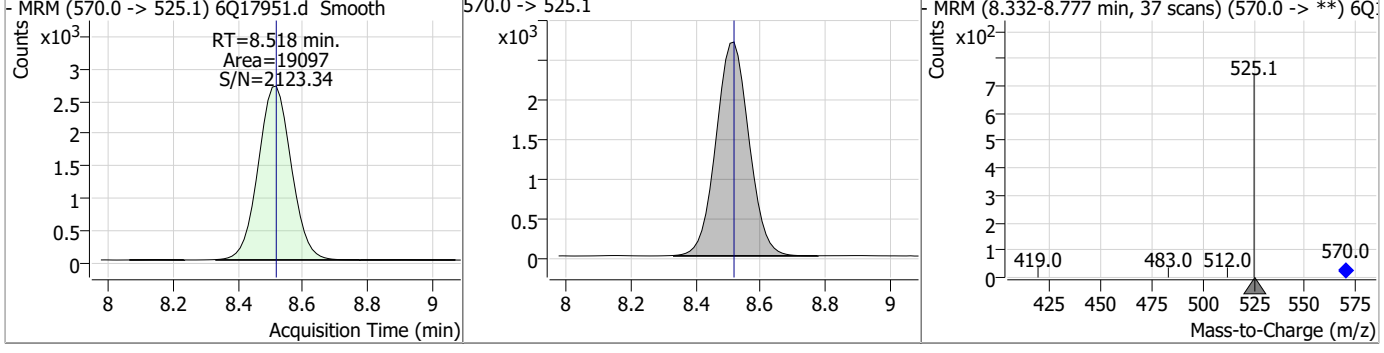
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.15	8.03	-0.20	660 (m)	498.9 -> 98.8	37.0	26.8	80.4



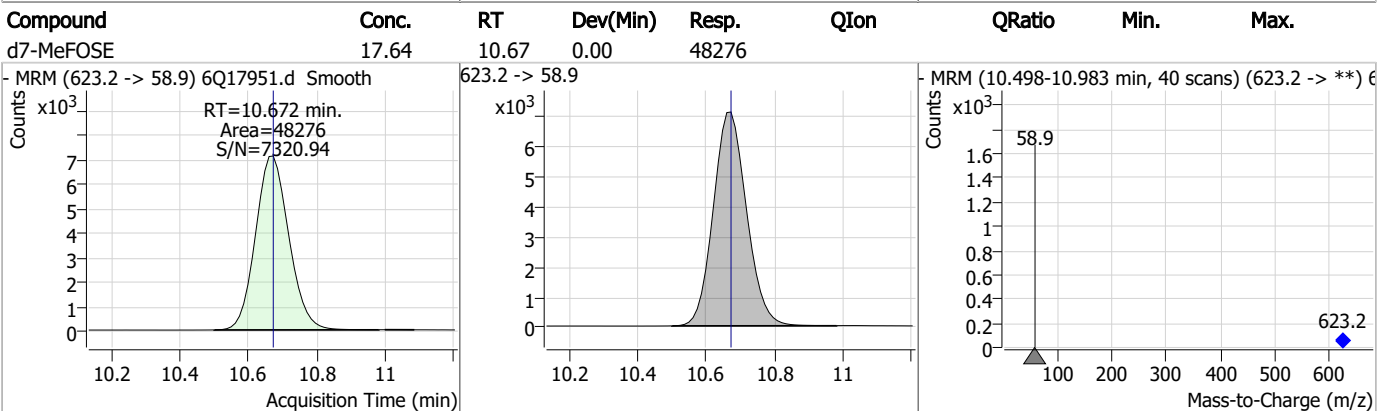
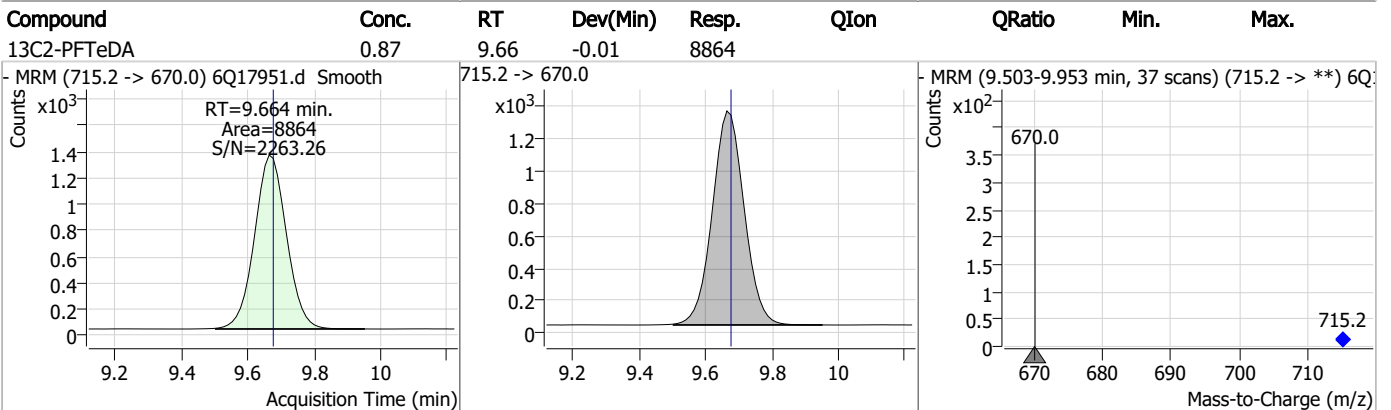
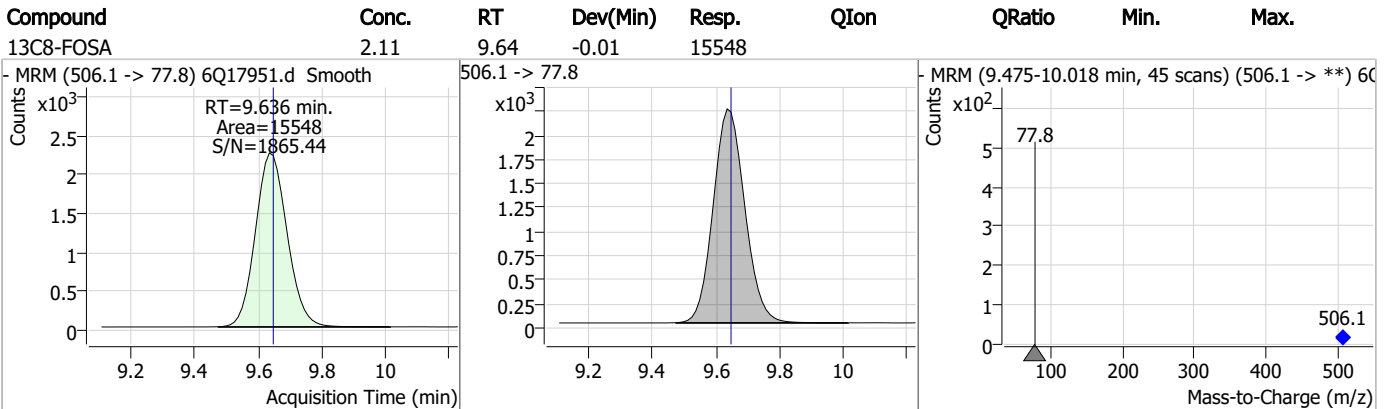
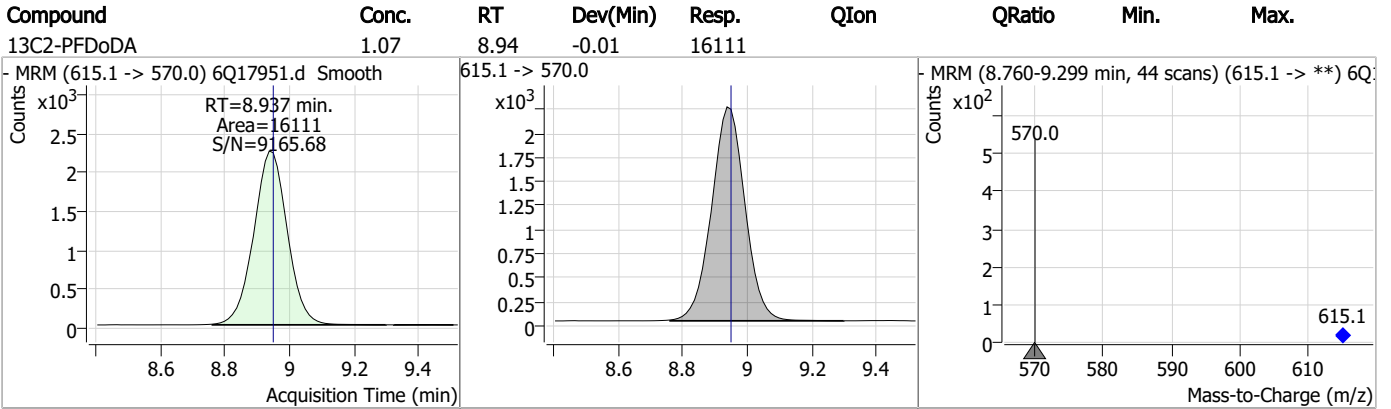
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.54	8.32	-0.01	12492				



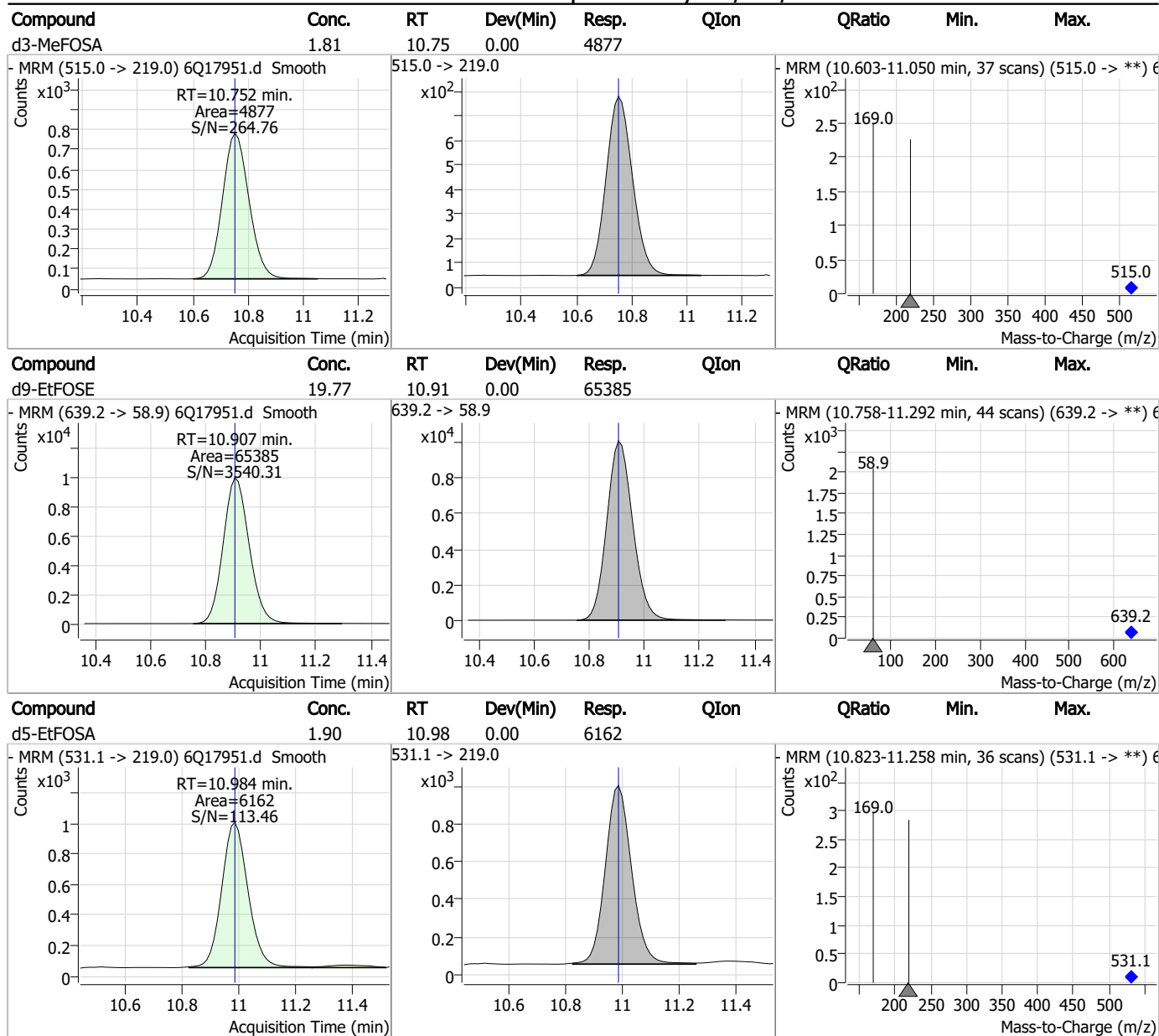
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.26	8.52	0.00	19097				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.1
7

Manual Integration Approval Summary

Sample Number: FC6066-1 Method: EPA DRAFT 1633
Lab FileID: 6Q17951.D Analyst approved: 05/18/23 14:45 Martha Valls
Injection Time: 05/17/23 15:35 Supervisor approved: 05/19/23 14:29 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.07	Split peak
Perfluoroheptanesulfonic acid	375-92-8		7.68	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.03	Split peak

7.1.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17956.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 4:48:08 PM
 Sample Name : FC6066-2
 Vial : P2-A8
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	140041	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	43000	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	49393	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	45194	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	63340	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	21602	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	14726	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	17508	1.25 µg/L	0.000
M2-PFDoDA	8.937	615.1 -> 570.0	17430	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	11040	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	13226	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	16838	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	9856	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	8937	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1554	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1947	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	2005	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	16559	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	30470	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	13903	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	43243	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	63120	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	5935	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	4782	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	10263	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	51776	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	7214	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	60415	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	17793	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	21317	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	37306	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1554	5.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1947	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-8:2FTS	7.852	529.1 -> 80.9	2005	5.26 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-PFDoDA	8.937	615.1 -> 570.0	17430	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C2-PFTeDA	9.664	715.2 -> 670.0	11040	1.09 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.5%		
13C3-PFBS	5.384	302.1 -> 79.9	16838	2.68 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C3-PFHxS	7.167	402.1 -> 79.9	9856	2.57 µg/L	0.000

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 = 102.6%	
13C4-PFBA	2.901	216.8 -> 171.9	140041	11.40 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.0%	
13C4-PFHpA	6.420	367.1 -> 322.0	45194	2.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.6%	
13C5-PFHxA	5.466	318.0 -> 273.0	49393	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C5-PFPeA	4.259	268.3 -> 223.0	43000	5.48 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C6-PFDA	8.064	519.1 -> 474.1	14726	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C7-PFUnDA	8.518	570.0 -> 525.1	17508	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C8-FOSA	9.636	506.1 -> 77.8	13226	1.94 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.7%	
13C8-PFOA	7.064	421.1 -> 376.0	63340	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.1%	
13C8-PFOS	8.214	507.1 -> 79.9	8937	2.80 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C9-PFNA	7.583	472.1 -> 427.0	21602	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.7%	
d3-MeFOSAA	8.121	573.2 -> 419.0	16559	5.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	30470	11.16 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 111.6%	
d3-MeFOSA	10.752	515.0 -> 219.0	4782	1.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.1%	
d5-EtFOSAA	8.316	589.2 -> 419.0	13903	5.47 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
d7-MeFOSE	10.660	623.2 -> 58.9	43243	17.11 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.4%	
d9-EtFOSE	10.907	639.2 -> 58.9	63120	20.67 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.7%	
d5-EtFOSA	10.984	531.1 -> 219.0	5935	1.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.3%	

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.	

7.12
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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	7.177	548.8 -> 98.9	0	µg/L	m	1
		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

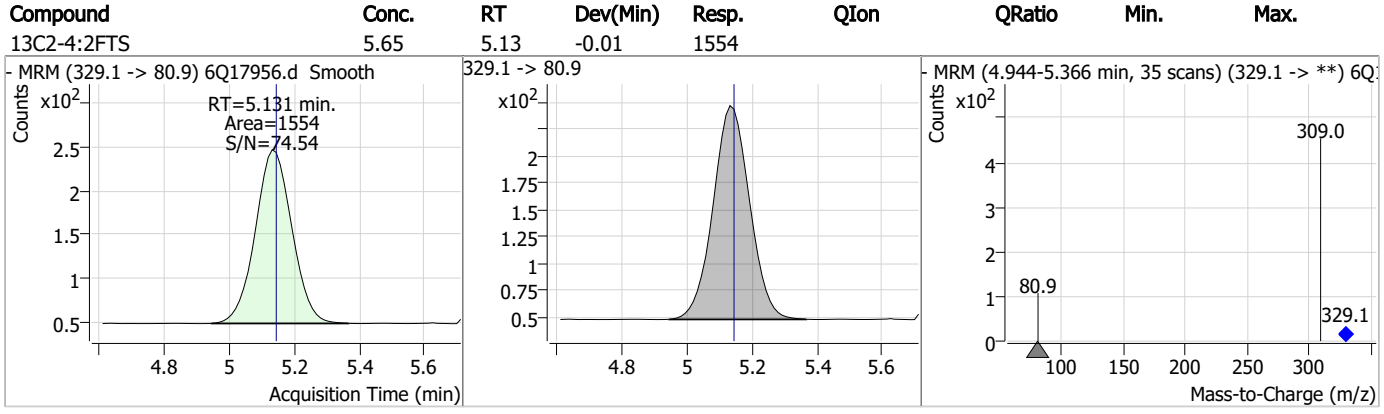
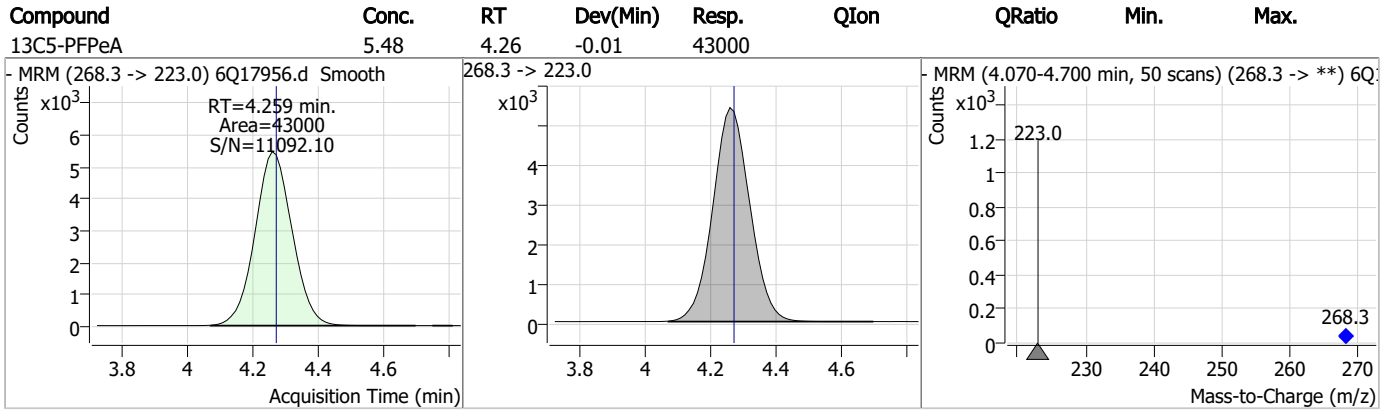
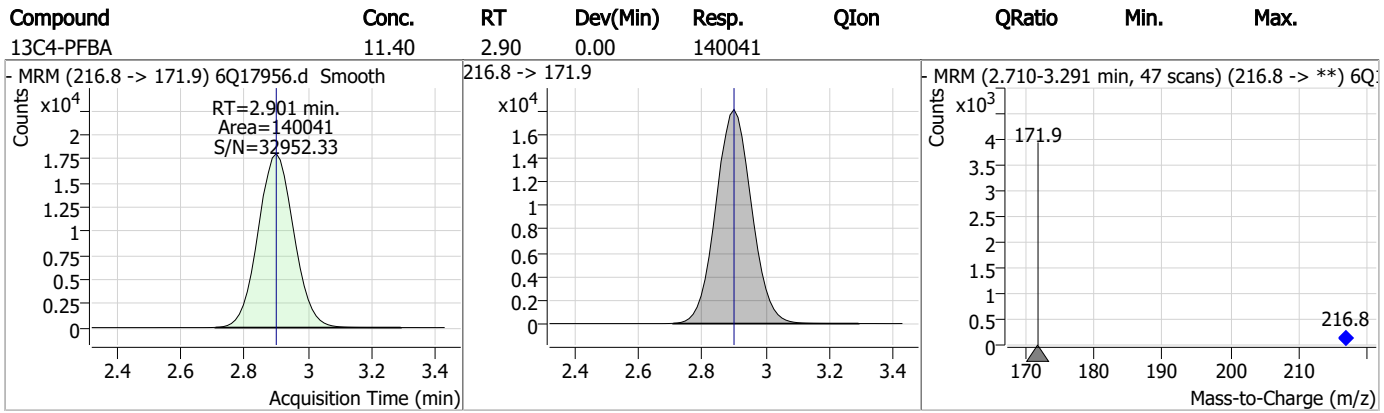
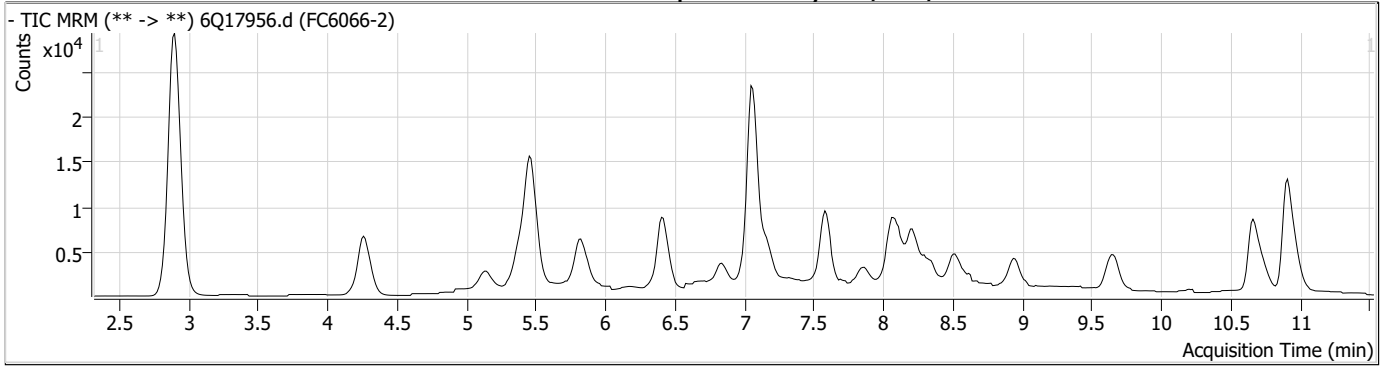
Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

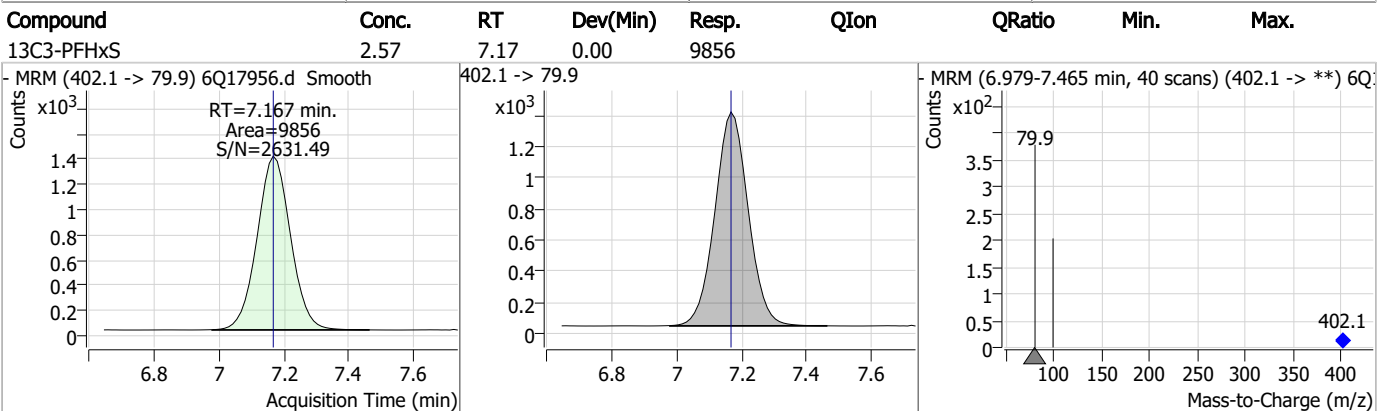
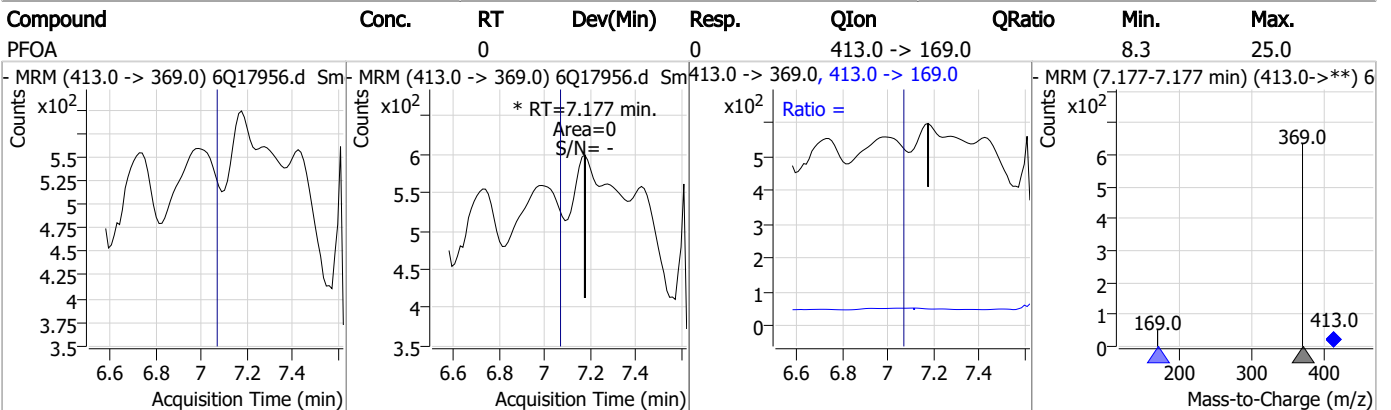
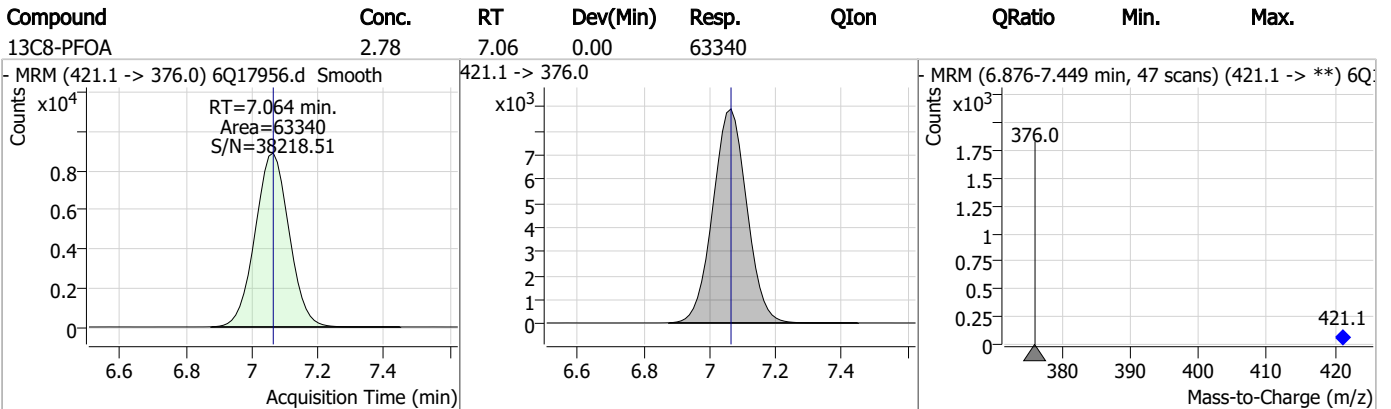
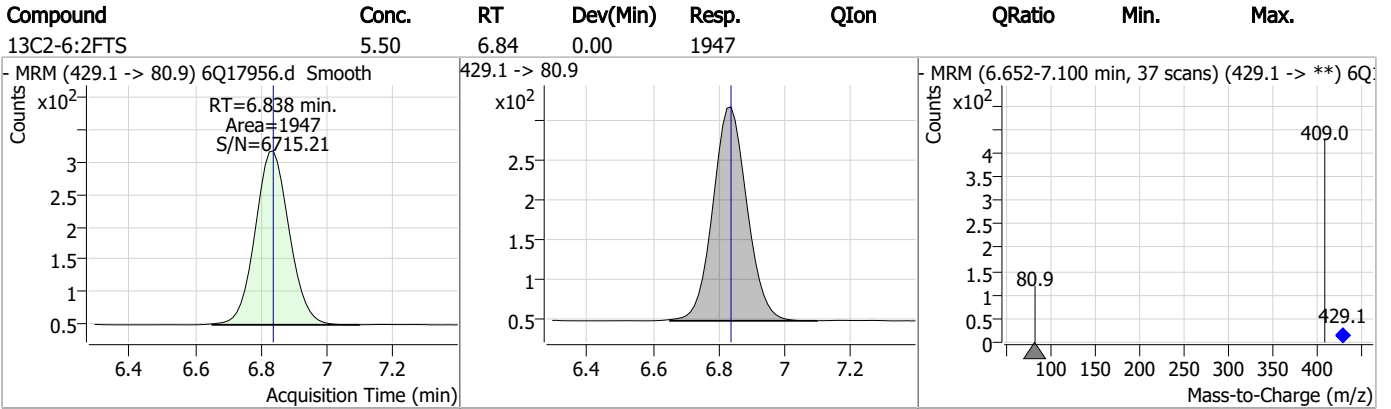


Perfluorinated Compounds by LC/MS/MS

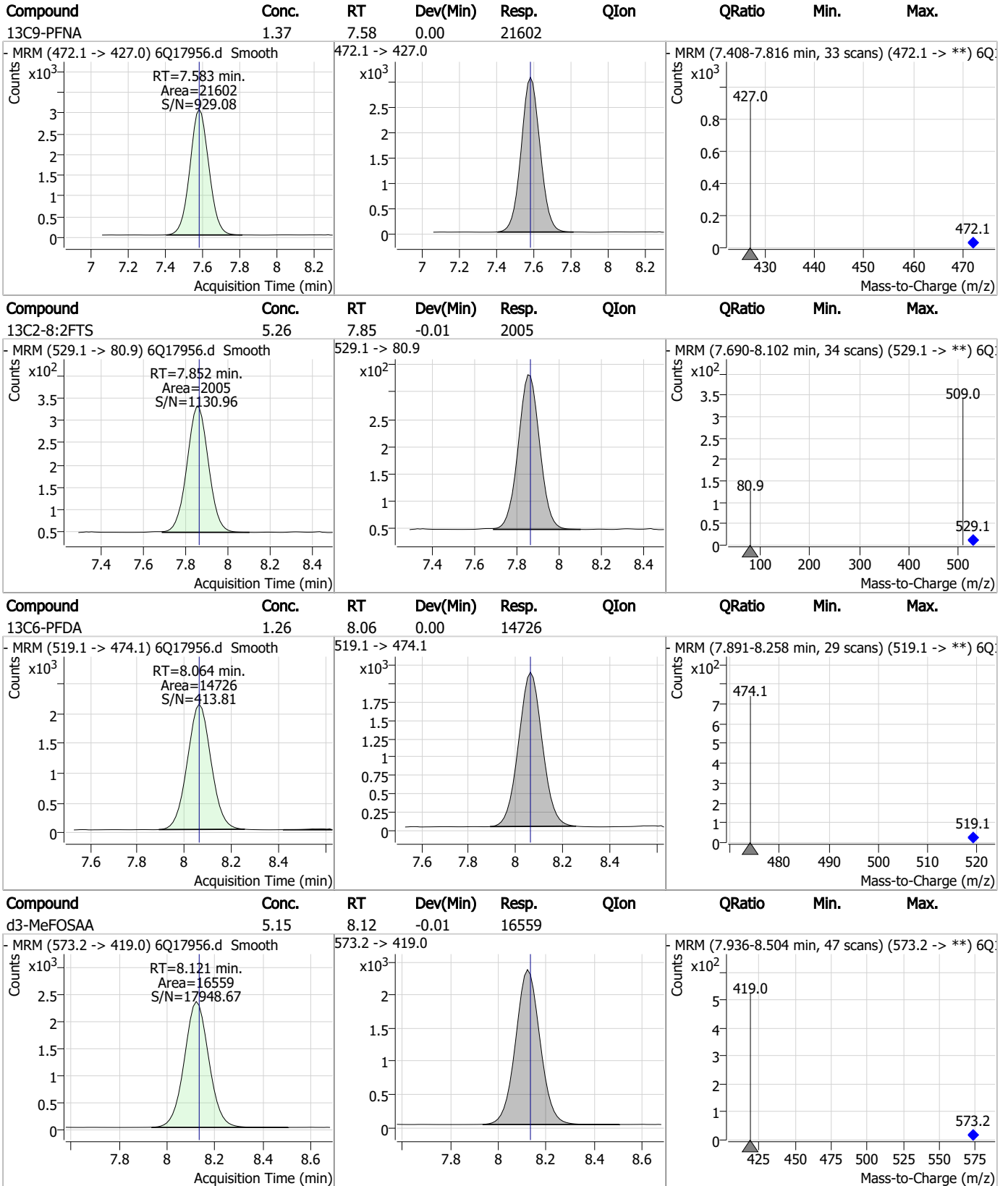
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.68	5.38	-0.01	16838				
13C5-PFHxA	2.80	5.47	0.00	49393				
13C3-HFPO-DA	11.16	5.83	0.00	30470				
13C4-PFHpA	2.92	6.42	0.00	45194				

7.1.2
7

Perfluorinated Compounds by LC/MS/MS



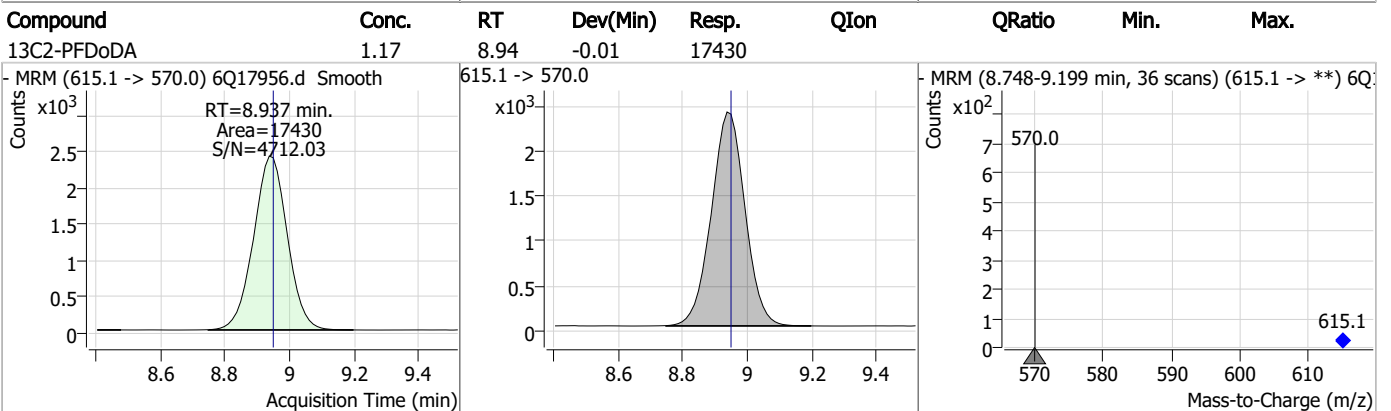
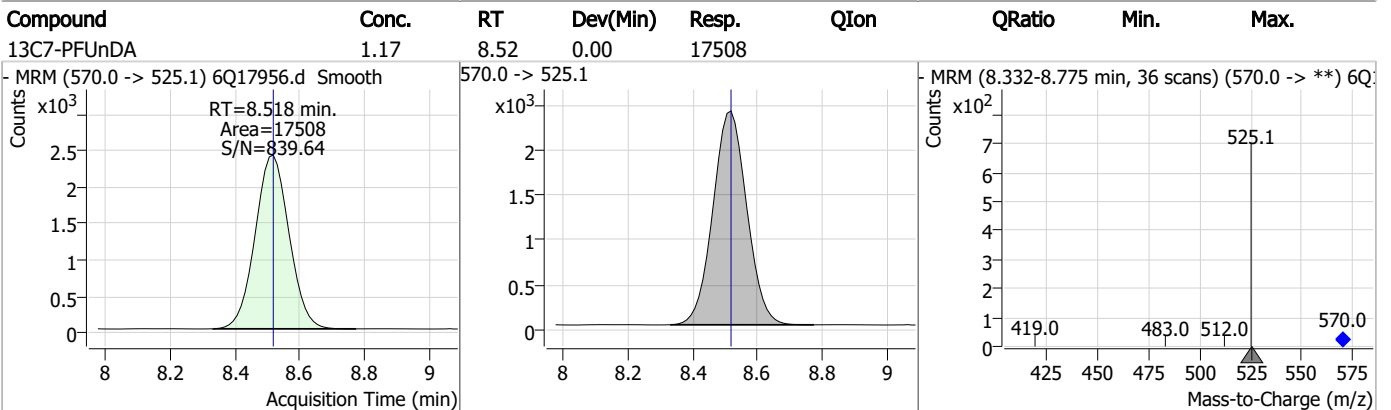
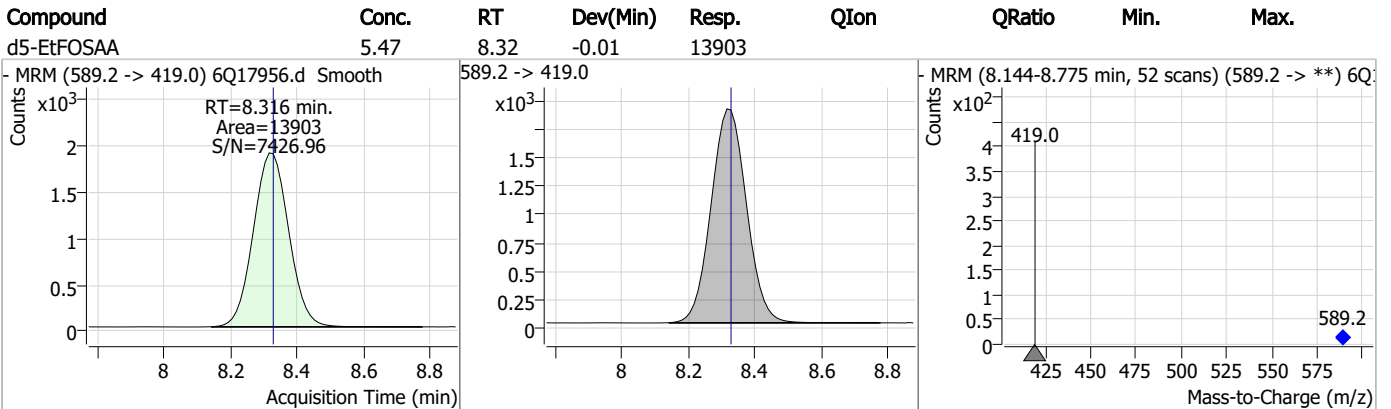
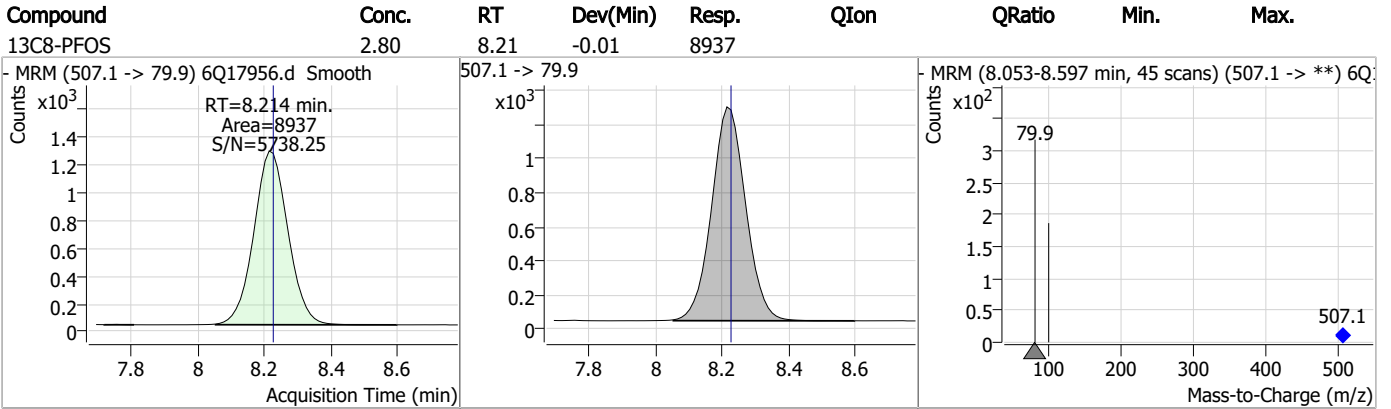
Perfluorinated Compounds by LC/MS/MS



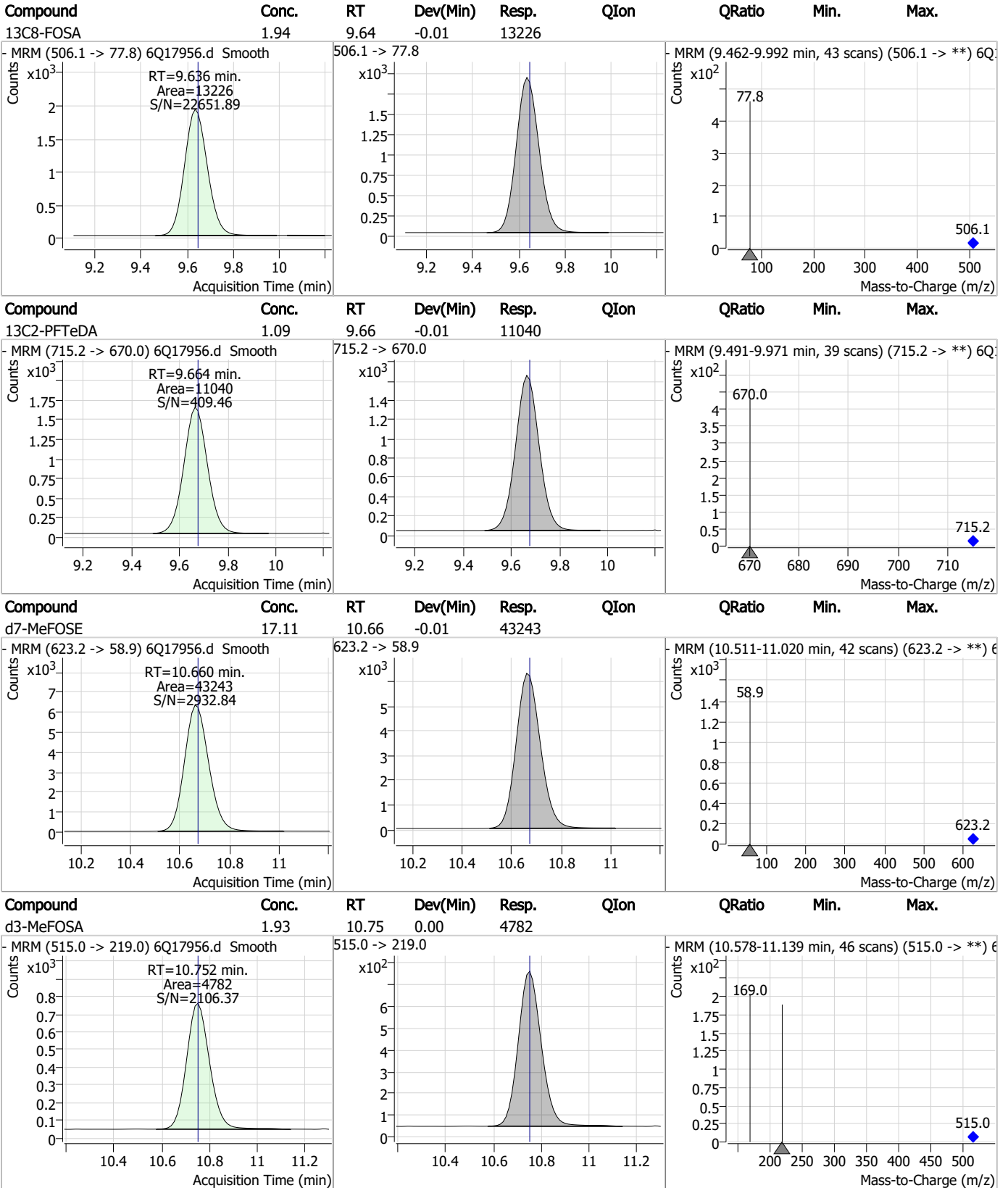
7.1.2

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Perfluorinated Compounds by LC/MS/MS



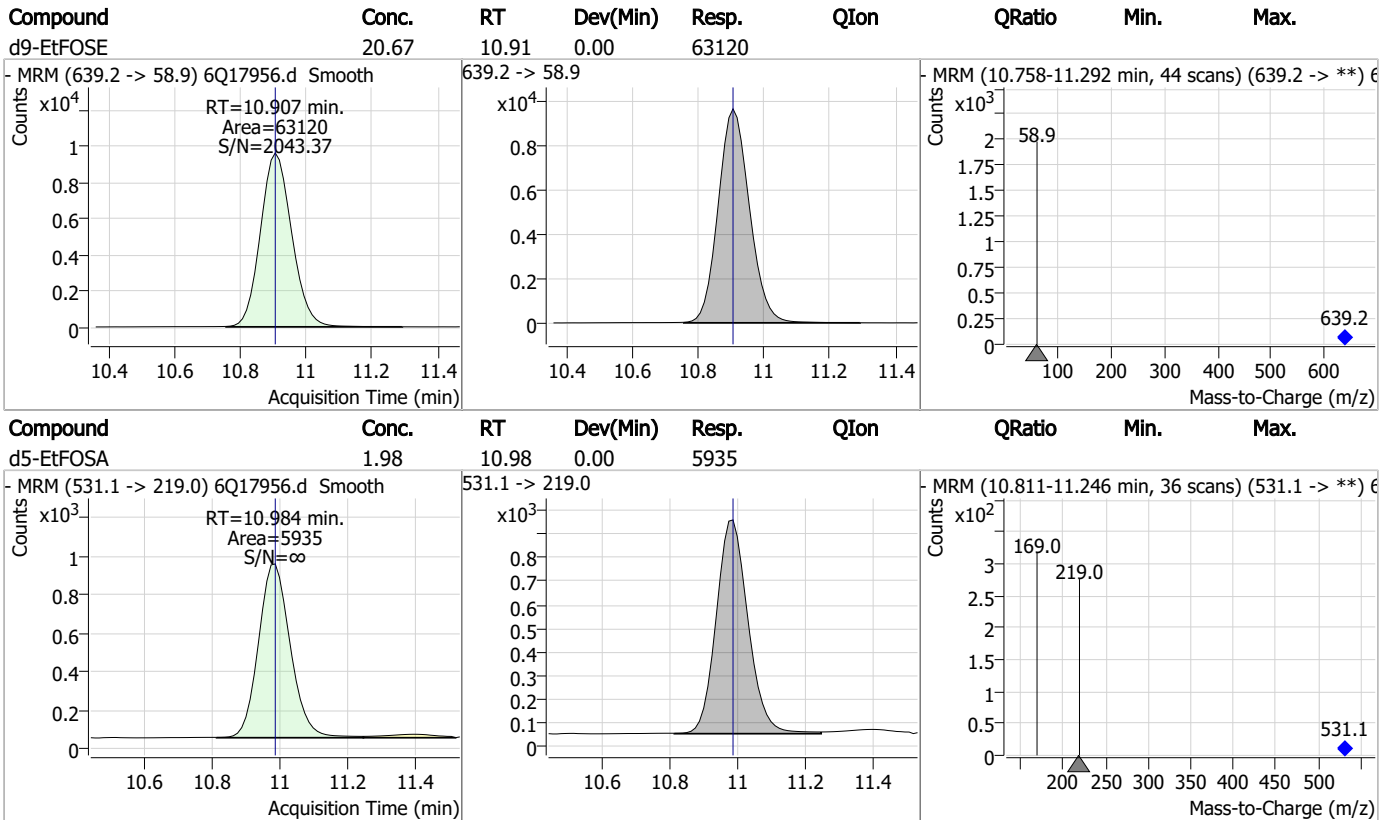
Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS



7.1.2
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17952.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 3:50:12 PM
 Sample Name : FC6066-3
 Vial : P2-A9
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,520,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	6431	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	13798	5.00 µg/L	-0.012
M5-PFHxA	5.454	318.0 -> 273.0	48624	2.50 µg/L	-0.012
M4-PFHpA	6.407	367.1 -> 322.0	45806	2.50 µg/L	-0.012
M8-PFOA	7.064	421.1 -> 376.0	65396	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	21705	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	18606	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	19733	1.25 µg/L	-0.012
M2-PFDoDA	8.937	615.1 -> 570.0	18990	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	9468	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	14956	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	16316	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10402	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	8581	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1399	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2014	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	2371	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	22902	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	26916	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	18397	5.00 µg/L	-0.012
M7-MeFOSE	10.672	623.2 -> 58.9	42613	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	61386	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	7233	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	5656	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	10027	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	52975	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	6840	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	59464	2.50 µg/L	-0.014
13C2-PFDA	8.052	515.1 -> 470.1	20911	1.25 µg/L	-0.012
13C5-PFNA	7.583	468.0 -> 423.0	22582	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	39937	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1399	5.37 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2014	6.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.0%		
13C2-8:2FTS	7.852	529.1 -> 80.9	2371	6.57 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.3%		
13C2-PFDoDA	8.937	615.1 -> 570.0	18990	1.09 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.9%		
13C2-PFTeDA	9.664	715.2 -> 670.0	9468	0.80 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 63.9%		
13C3-PFBS	5.384	302.1 -> 79.9	16316	2.74 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C3-PFHxS	7.167	402.1 -> 79.9	10402	2.86 µg/L	0.000

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 = 114.2%		
13C4-PFBA	2.901	216.8 -> 171.9	6431	0.51 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 5.1%		
13C4-PFHpA	6.407	367.1 -> 322.0	45806	2.76 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.4%		
13C5-PFHxA	5.454	318.0 -> 273.0	48624	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C5-PFPeA	4.259	268.3 -> 223.0	13798	1.64 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 32.9%		
13C6-PFDA	8.064	519.1 -> 474.1	18606	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C7-PFUnDA	8.506	570.0 -> 525.1	19733	1.12 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C8-FOSA	9.636	506.1 -> 77.8	14956	2.25 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.9%		
13C8-PFOA	7.064	421.1 -> 376.0	65396	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.6%		
13C8-PFOS	8.214	507.1 -> 79.9	8581	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C9-PFNA	7.583	472.1 -> 427.0	21705	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
d3-MeFOSAA	8.121	573.2 -> 419.0	22902	7.29 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 145.8%		
13C3-HFPO-DA	5.831	286.9 -> 168.9	26916	9.21 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 92.1%		
d3-MeFOSA	10.752	515.0 -> 219.0	5656	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.3%		
d5-EtFOSAA	8.316	589.2 -> 419.0	18397	7.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 148.1%		
d7-MeFOSE	10.672	623.2 -> 58.9	42613	17.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 69.0%		
d9-EtFOSE	10.907	639.2 -> 58.9	61386	20.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 82.3%		
d5-EtFOSA	10.985	531.1 -> 219.0	7233	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%		

7.13
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	9.039	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	7.698	449.0 -> 79.9	3383	0.74	µg/L #	26
		449.0 -> 98.9	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	8.742	548.8 -> 79.9	0		µg/L m	1
		548.8 -> 98.9				
PFOA	7.066	413.0 -> 369.0	0		µg/L m	1
		413.0 -> 169.0	0			
PFOS	8.129	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	9.194	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	-	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

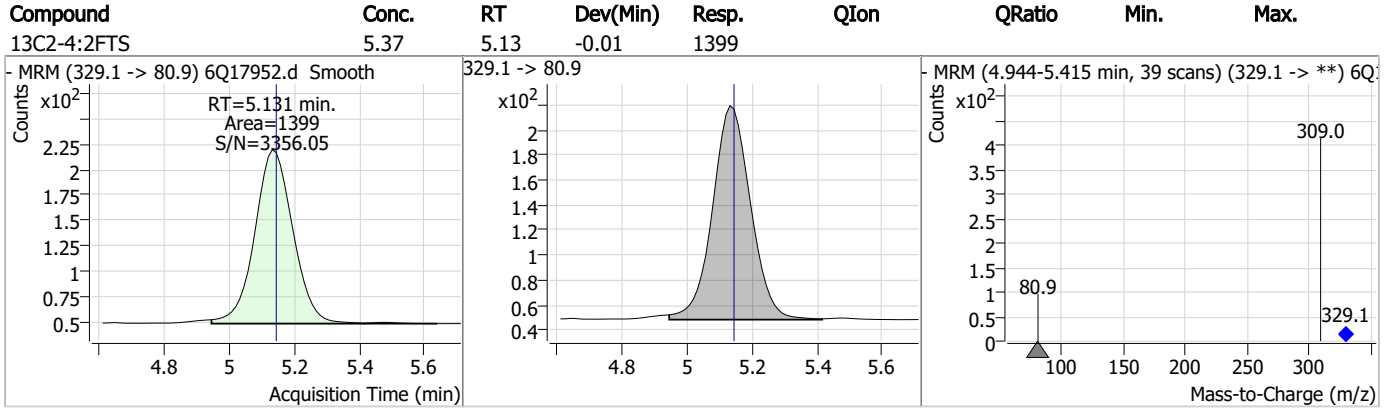
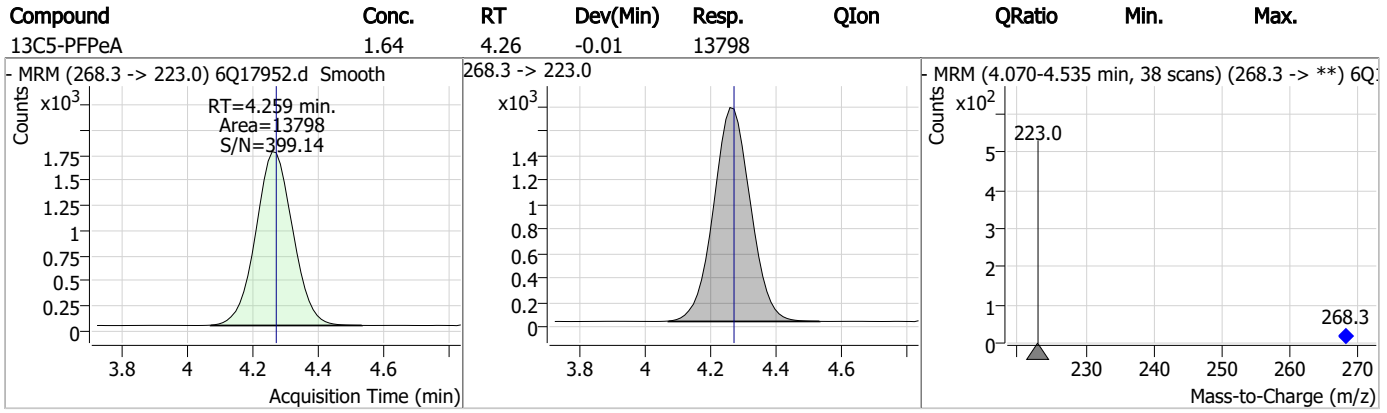
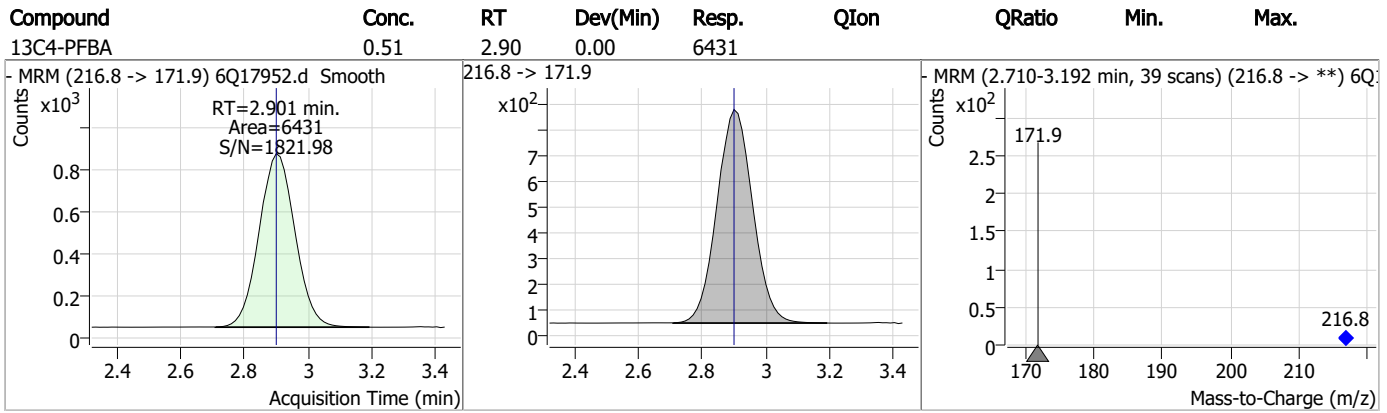
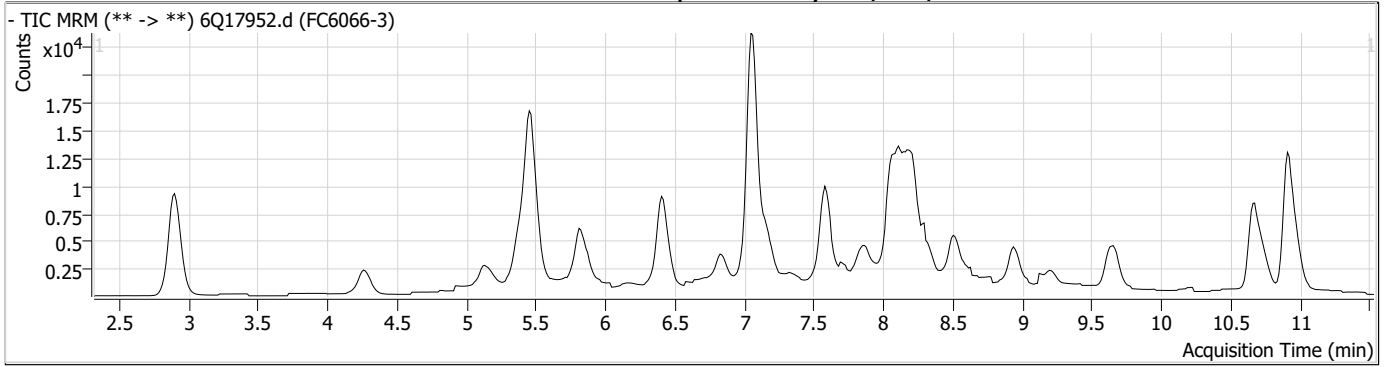
7.1.3
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.1.3
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Perfluorinated Compounds by LC/MS/MS



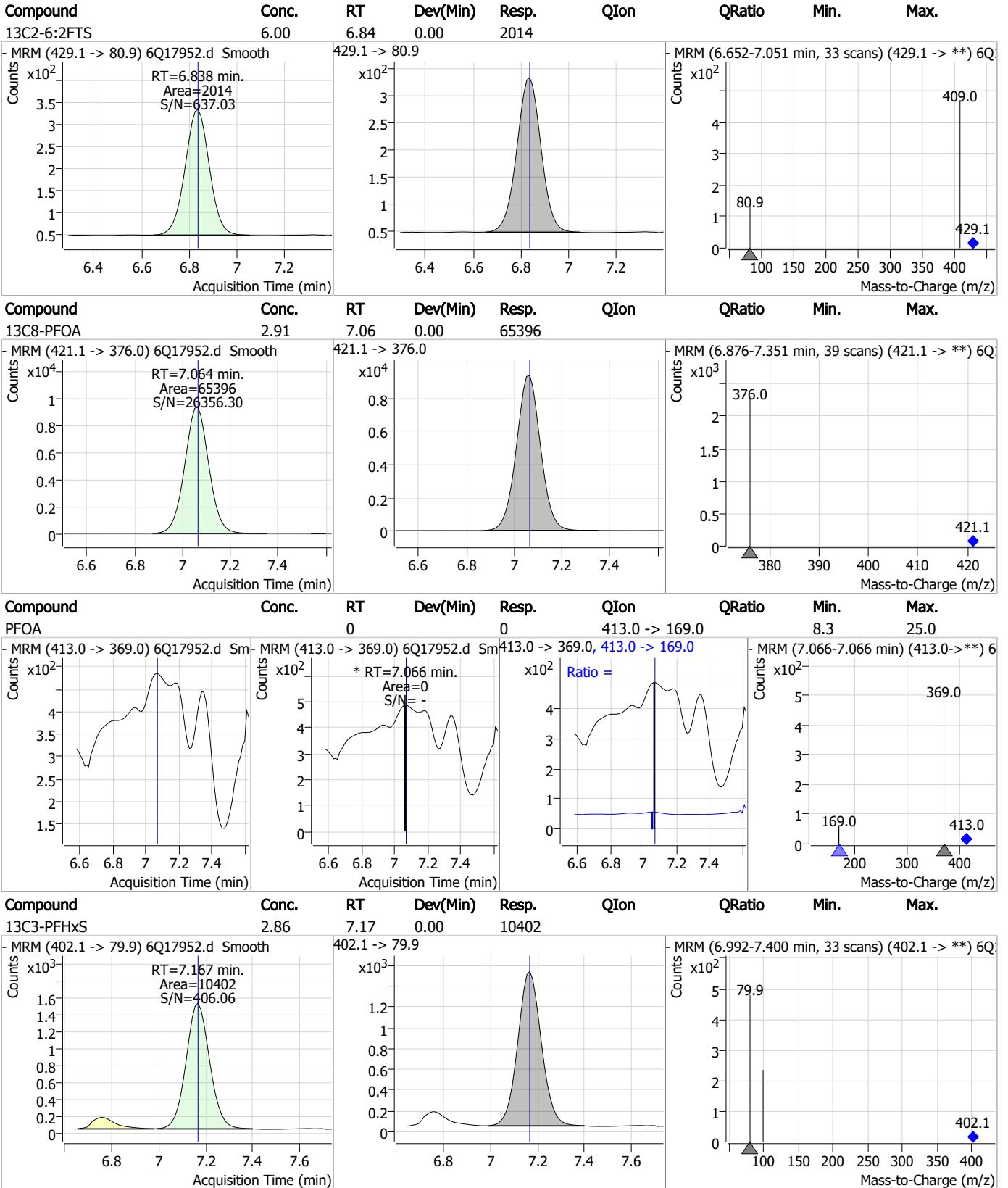
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.74	5.38	-0.01	16316				
13C5-PFHxA	2.57	5.45	-0.01	48624				
13C3-HFPO-DA	9.21	5.83	0.00	26916				
13C4-PFHpA	2.76	6.41	-0.01	45806				

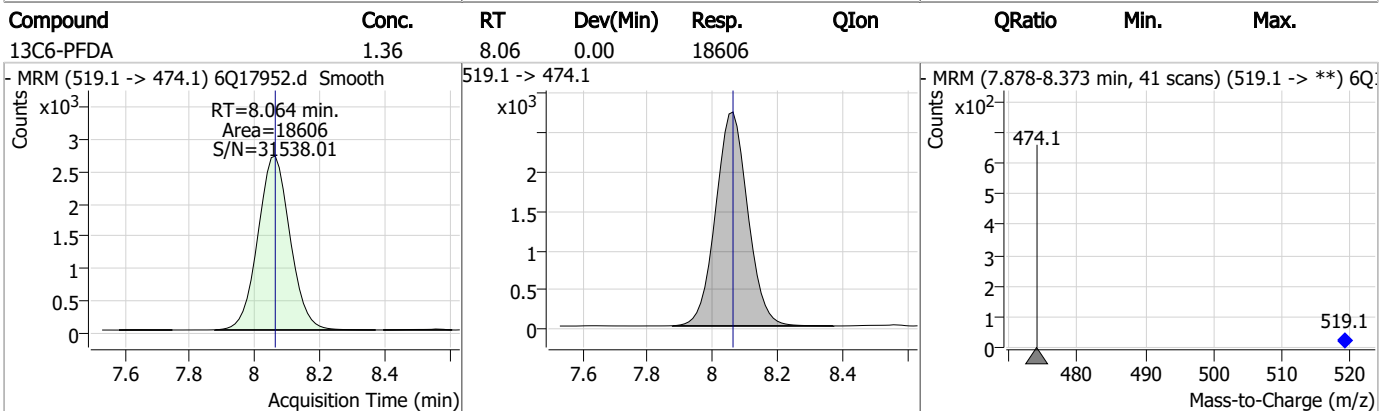
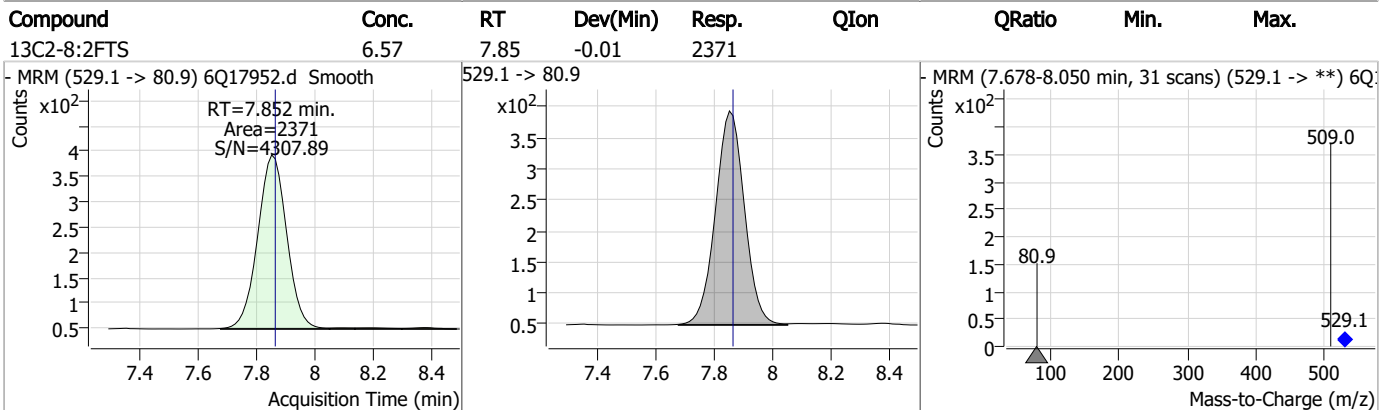
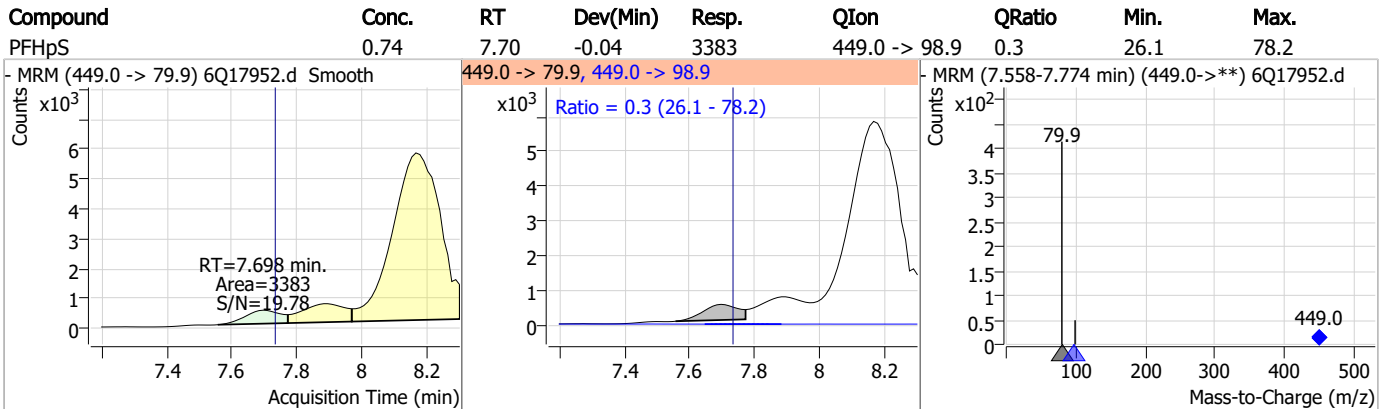
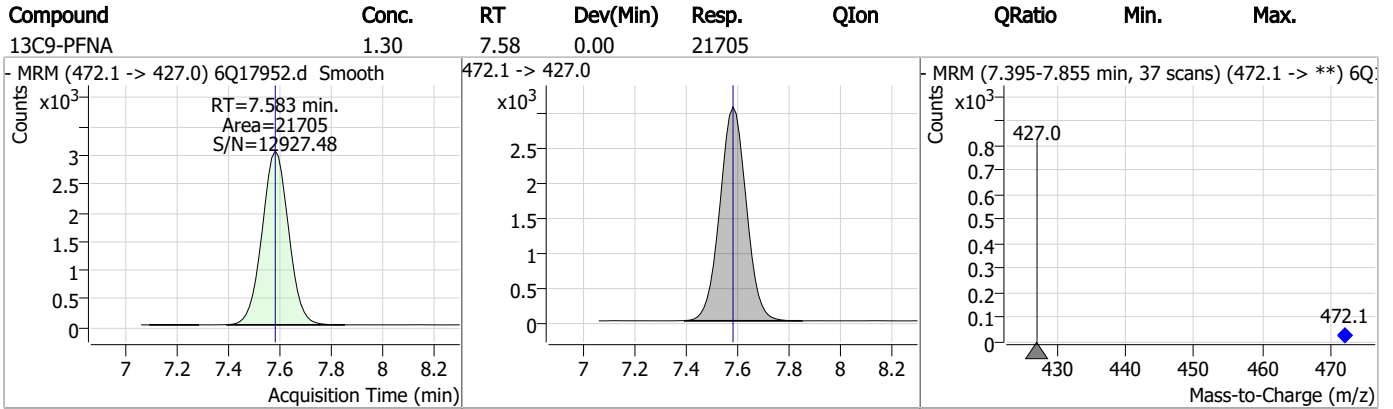
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Perfluorinated Compounds by LC/MS/MS



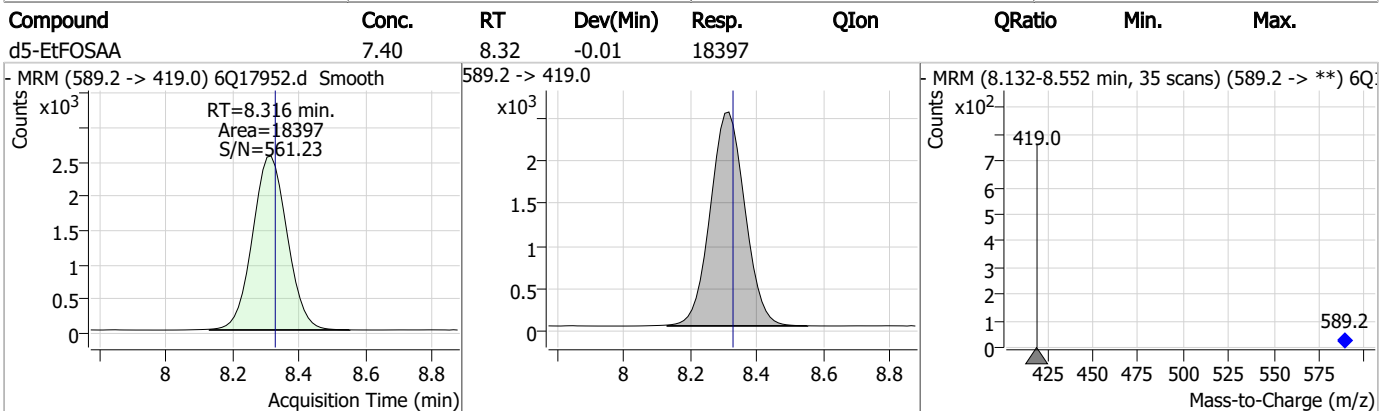
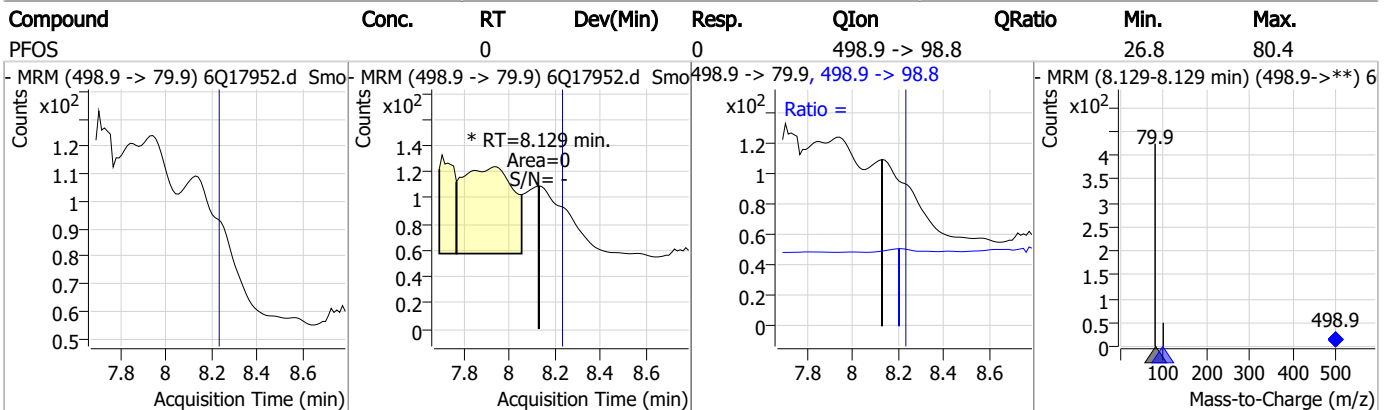
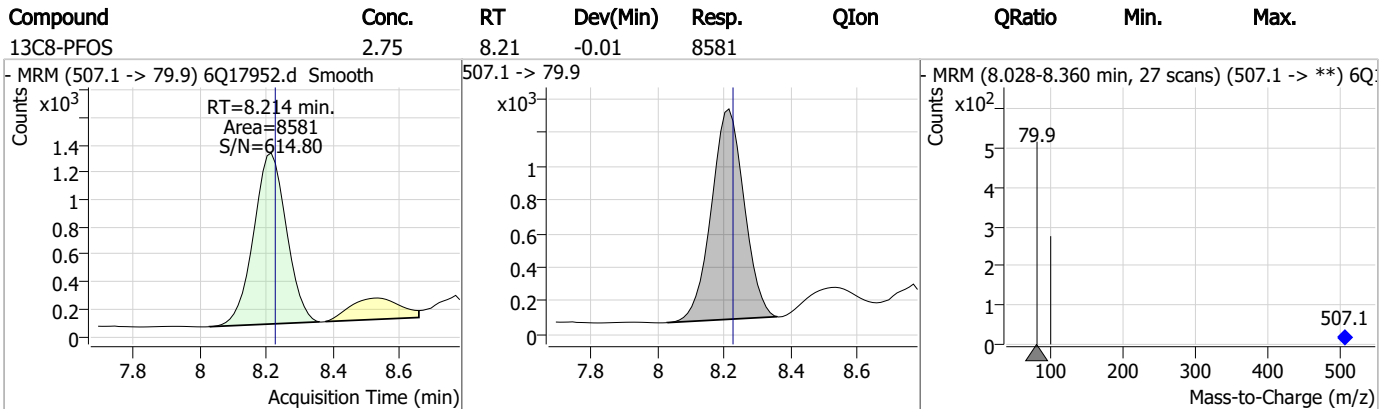
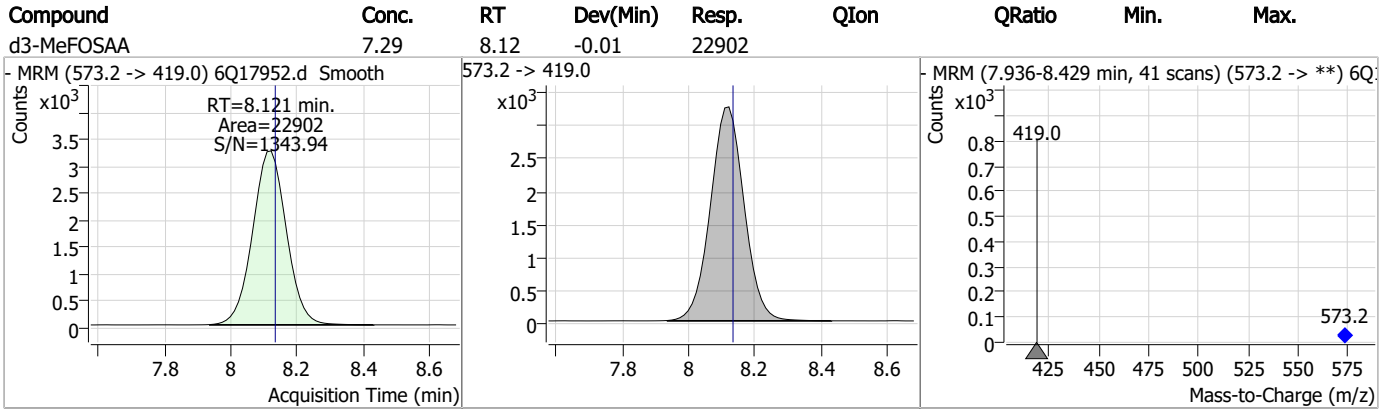
Perfluorinated Compounds by LC/MS/MS



7.1.3

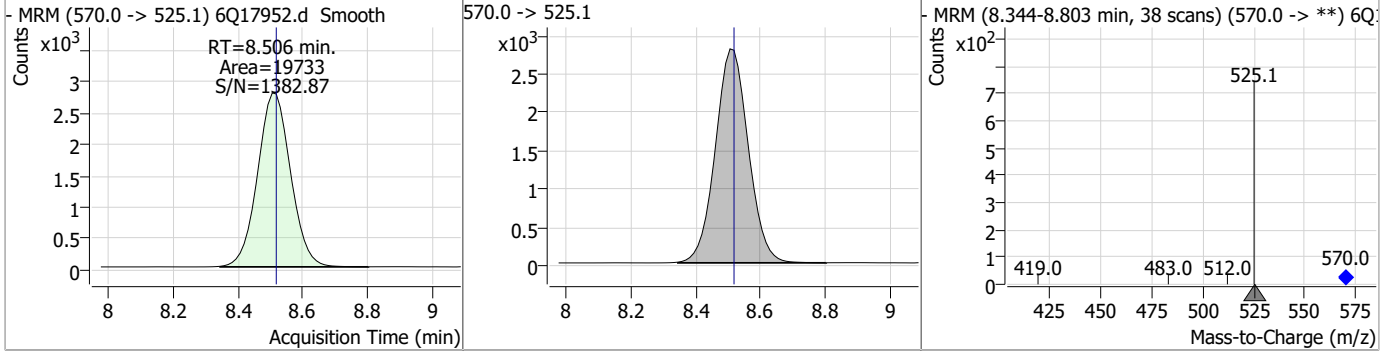
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Perfluorinated Compounds by LC/MS/MS

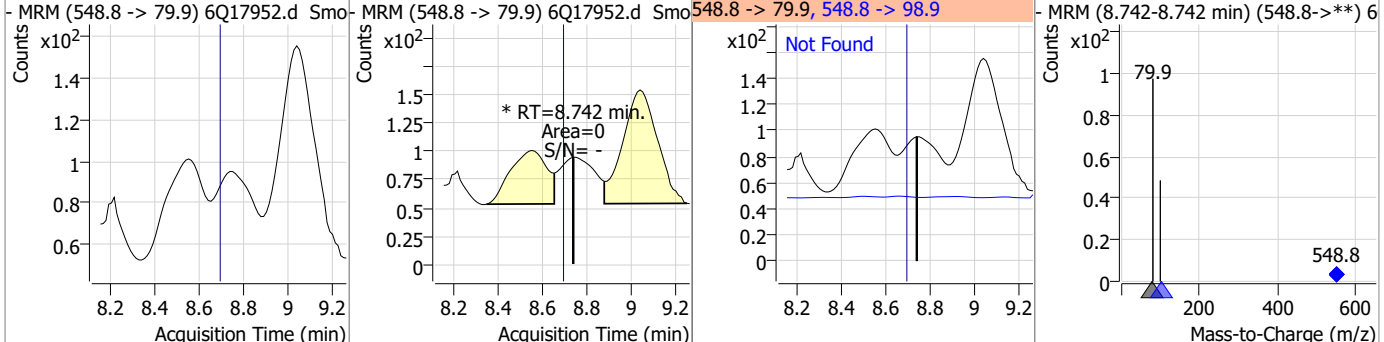


Perfluorinated Compounds by LC/MS/MS

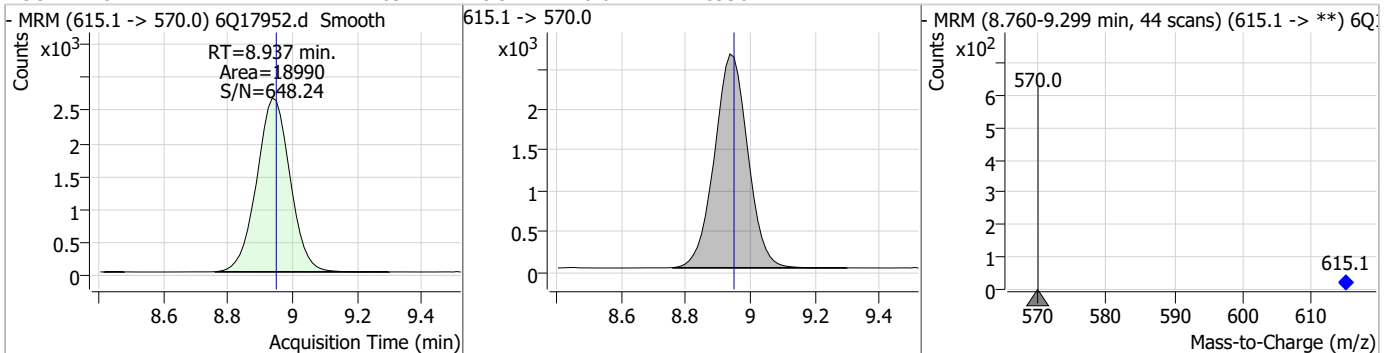
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.12	8.51	-0.01	19733				



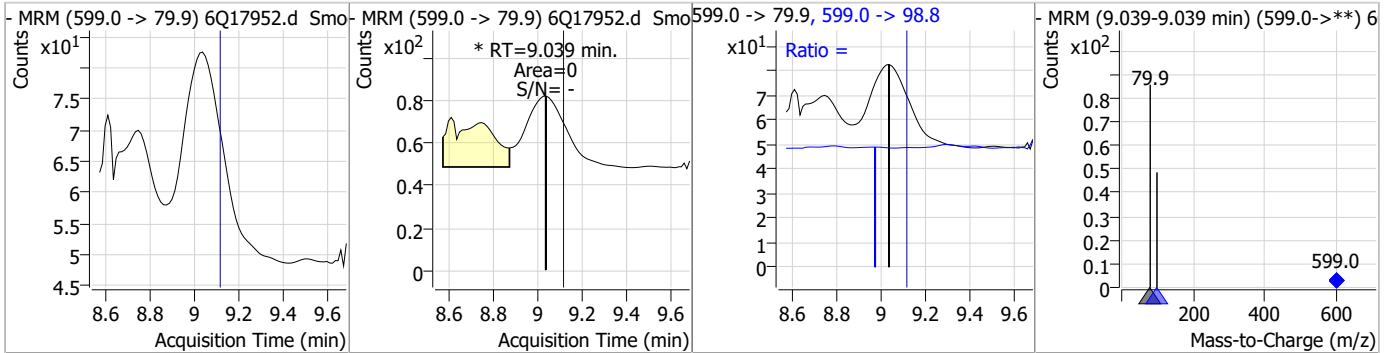
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0	0		0	548.8 -> 98.9		29.0	87.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.09	8.94	-0.01	18990				



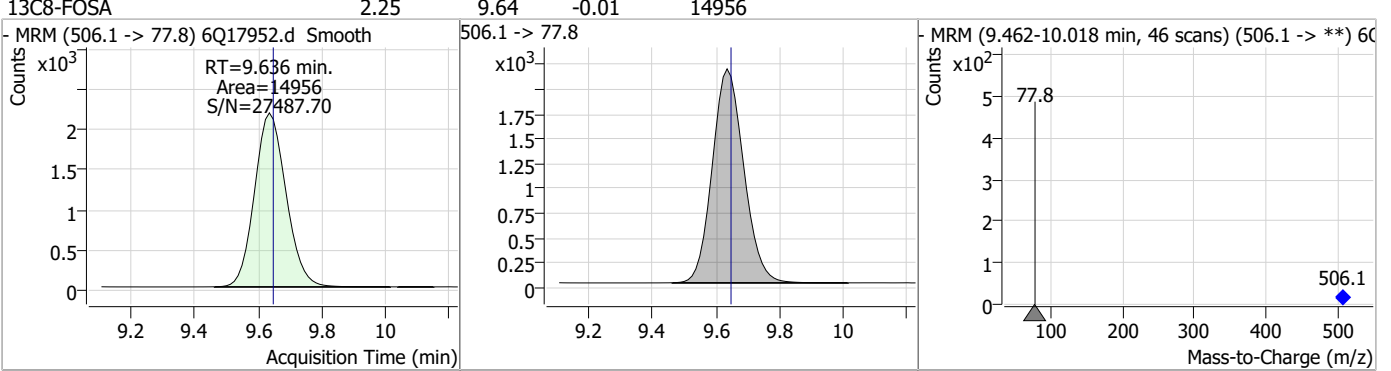
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0	0		0	599.0 -> 98.8		25.7	77.0



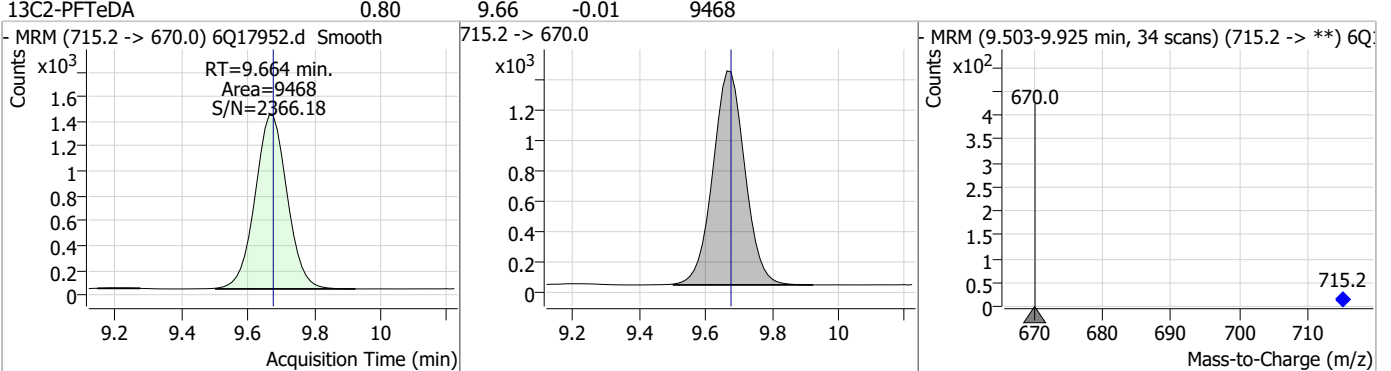
7.1.3
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Perfluorinated Compounds by LC/MS/MS

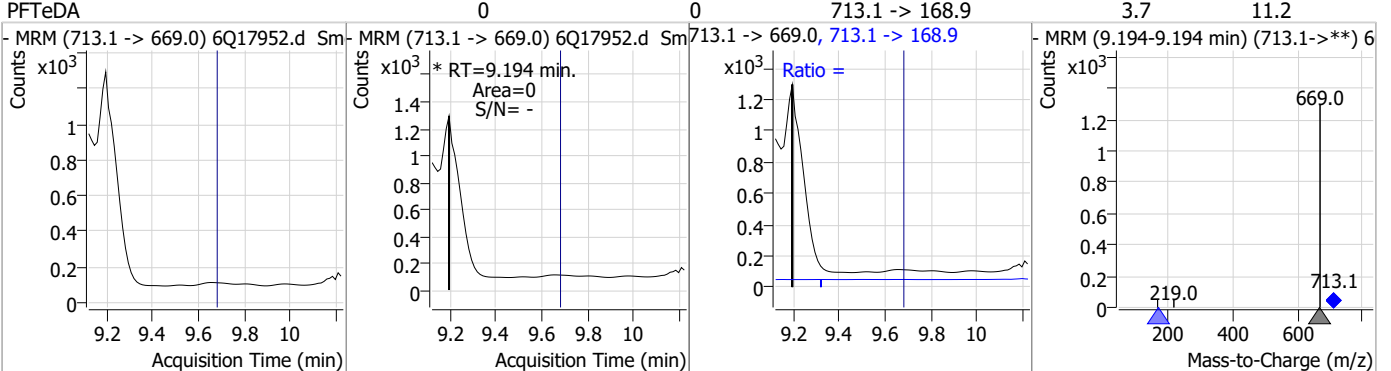
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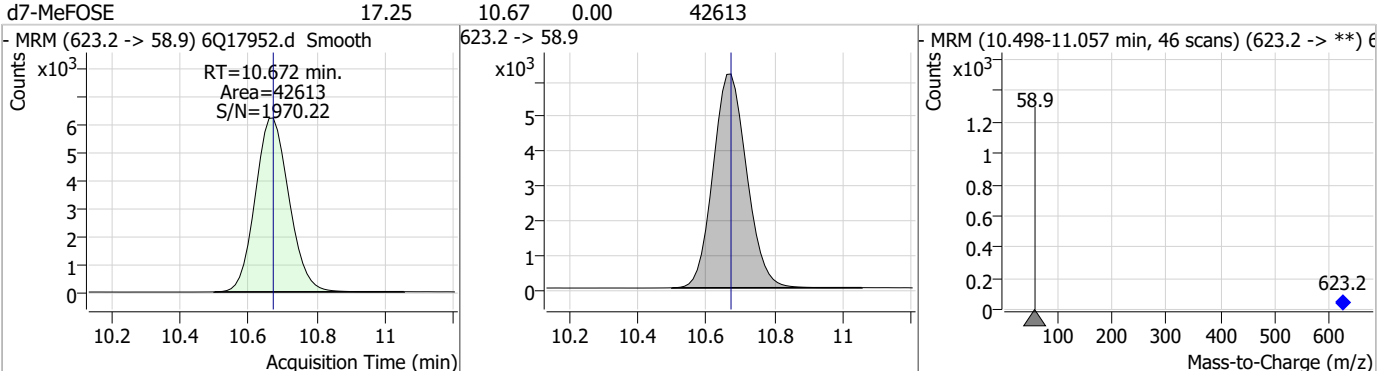
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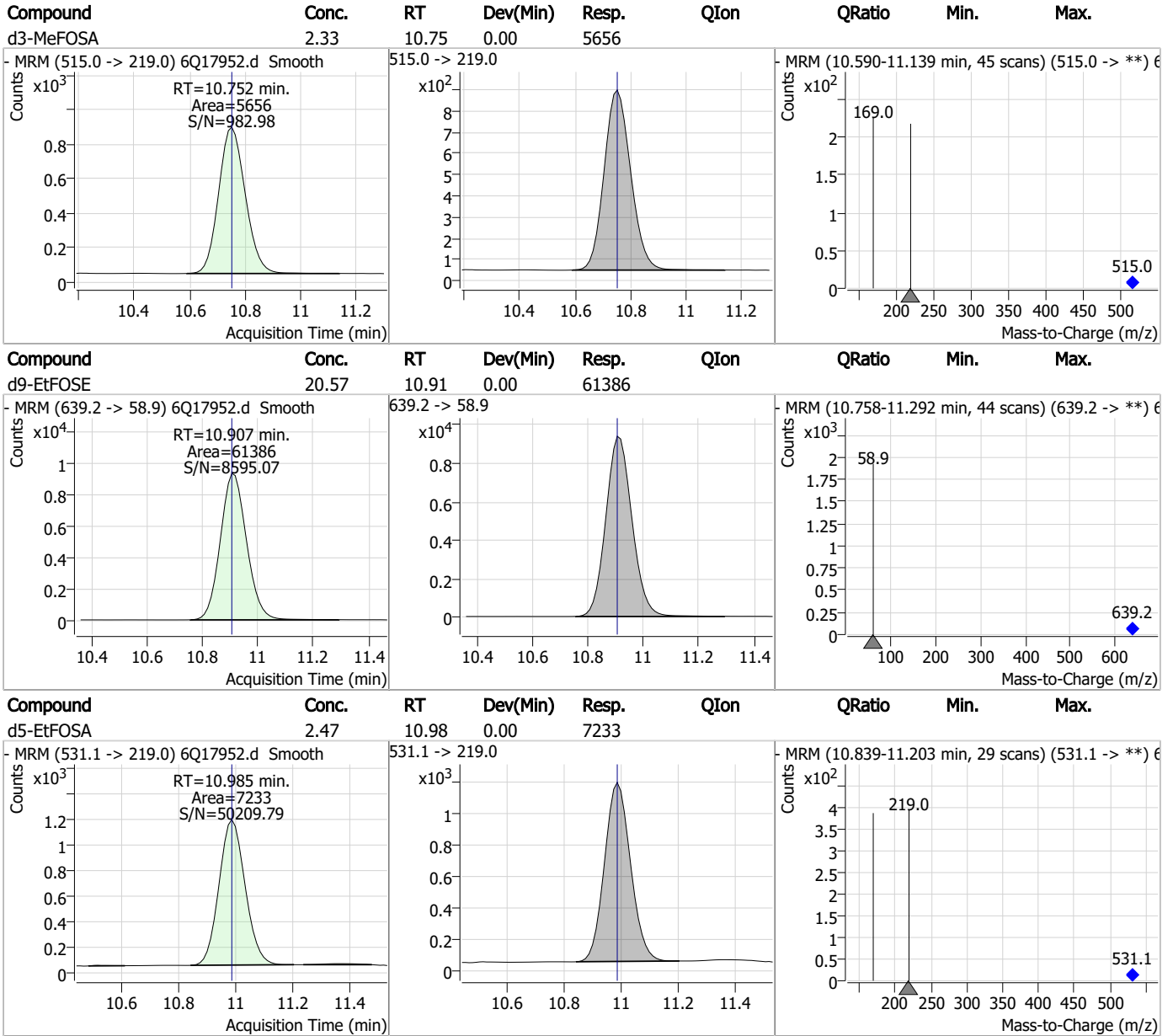
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Perfluorinated Compounds by LC/MS/MS



7.1.3

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17957.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 5:02:41 PM
 Sample Name : FC6066-4
 Vial : P2-B2
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	140337	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	43407	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	50382	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	42519	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	65166	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	21992	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	15843	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	19502	1.25 µg/L	0.000
M2-PFDoDA	8.937	615.1 -> 570.0	18265	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	11993	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	11108	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	17061	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	9815	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	8111	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1480	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	1800	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	1970	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	16282	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	30677	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	13766	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	39890	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	56234	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	5326	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	4458	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	10607	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	52712	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	6768	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	60974	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	18690	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	21085	1.25 µg/L	0.000
13C2-PFHxA	5.454	315.1 -> 270.0	36529	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1480	5.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.8%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1800	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	1970	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-PFDoDA	8.937	615.1 -> 570.0	18265	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C2-PFTeDA	9.664	715.2 -> 670.0	11993	1.13 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C3-PFBS	5.384	302.1 -> 79.9	17061	2.89 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.8%		
13C3-PFHxS	7.167	402.1 -> 79.9	9815	2.72 µg/L	0.000

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 = 108.9%	
13C4-PFBA	2.901	216.8 -> 171.9	140337	11.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C4-PFHpA	6.420	367.1 -> 322.0	42519	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C5-PFHxA	5.466	318.0 -> 273.0	50382	2.92 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.7%	
13C5-PFPeA	4.259	268.3 -> 223.0	43407	5.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C6-PFDA	8.064	519.1 -> 474.1	15843	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C7-PFUnDA	8.518	570.0 -> 525.1	19502	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-FOSA	9.636	506.1 -> 77.8	11108	1.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 63.1%	
13C8-PFOA	7.064	421.1 -> 376.0	65166	2.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.3%	
13C8-PFOS	8.226	507.1 -> 79.9	8111	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C9-PFNA	7.583	472.1 -> 427.0	21992	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.9%	
d3-MeFOSAA	8.121	573.2 -> 419.0	16282	4.90 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	30677	11.48 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 114.8%	
d3-MeFOSA	10.752	515.0 -> 219.0	4458	1.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 69.5%	
d5-EtFOSAA	8.329	589.2 -> 419.0	13766	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
d7-MeFOSE	10.660	623.2 -> 58.9	39890	15.27 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 61.1%	
d9-EtFOSE	10.907	639.2 -> 58.9	56234	17.81 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 71.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	5326	1.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 68.9%	

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.	

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

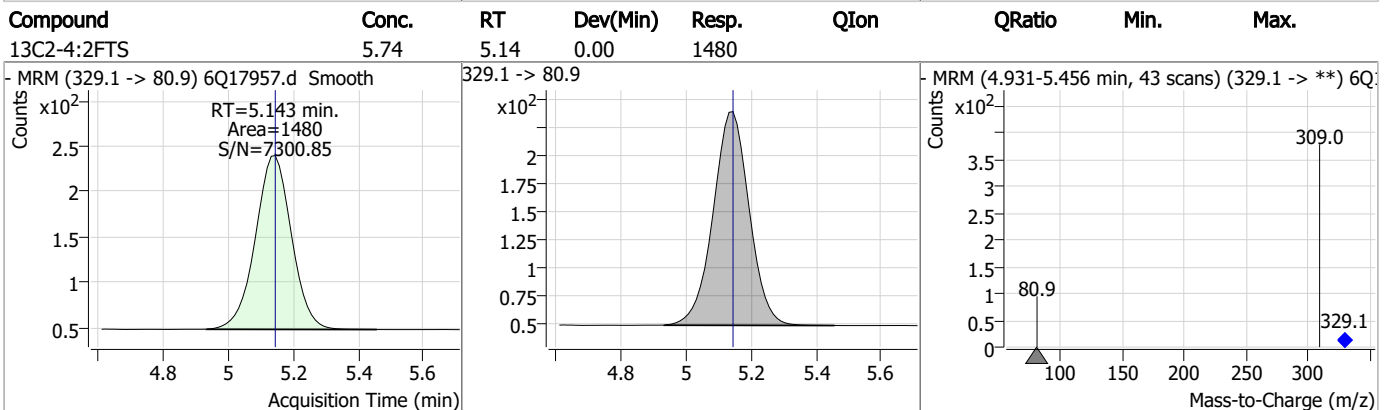
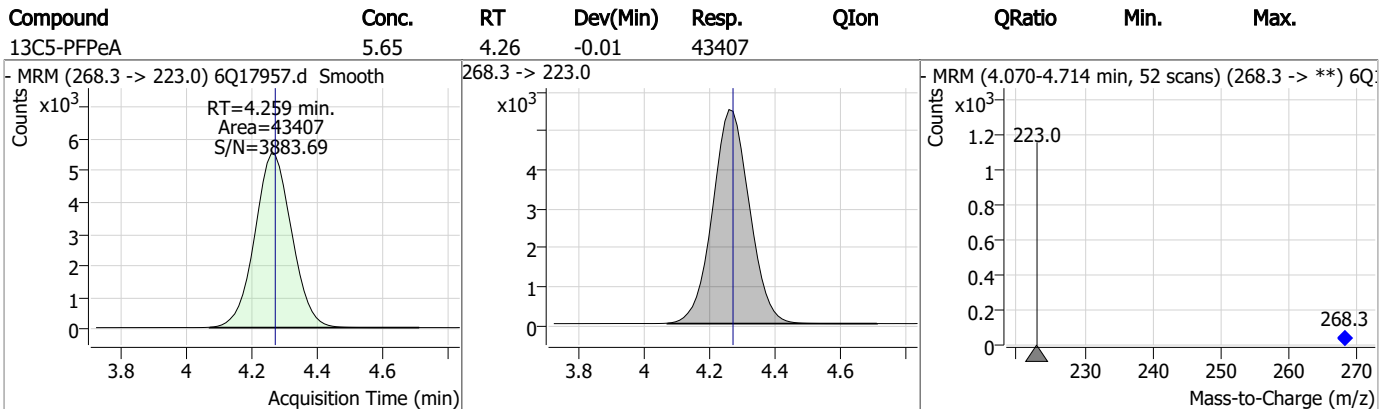
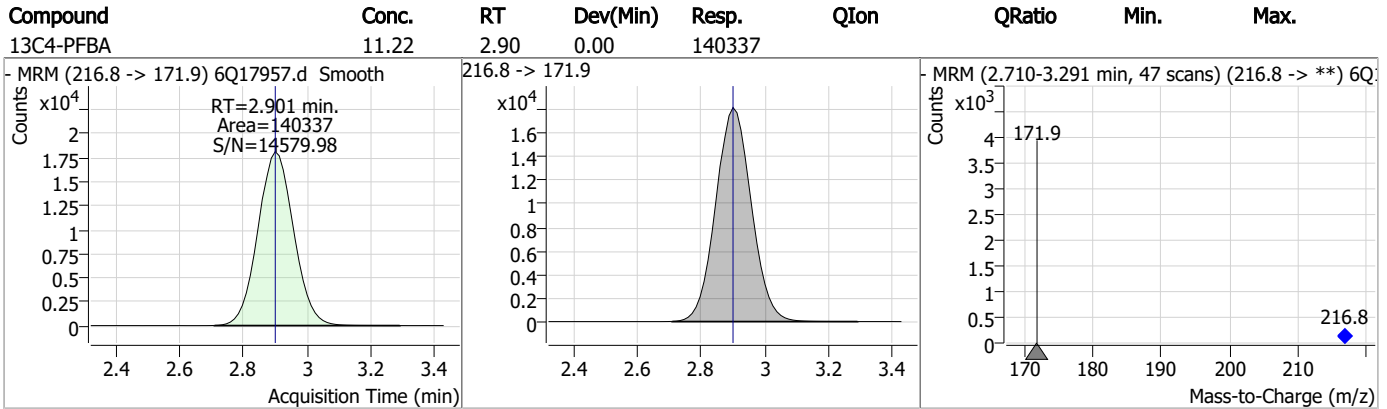
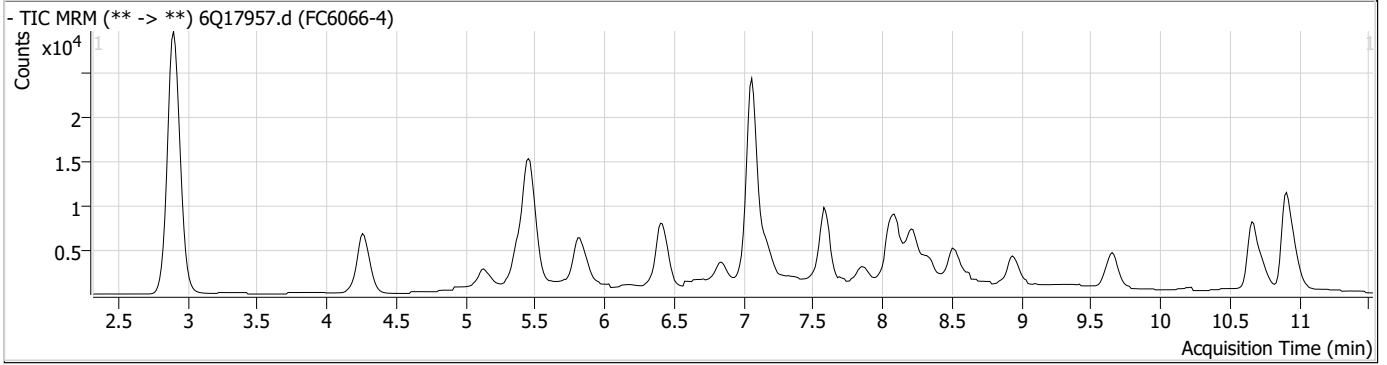
Perfluorinated Compounds by LC/MS/MS

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



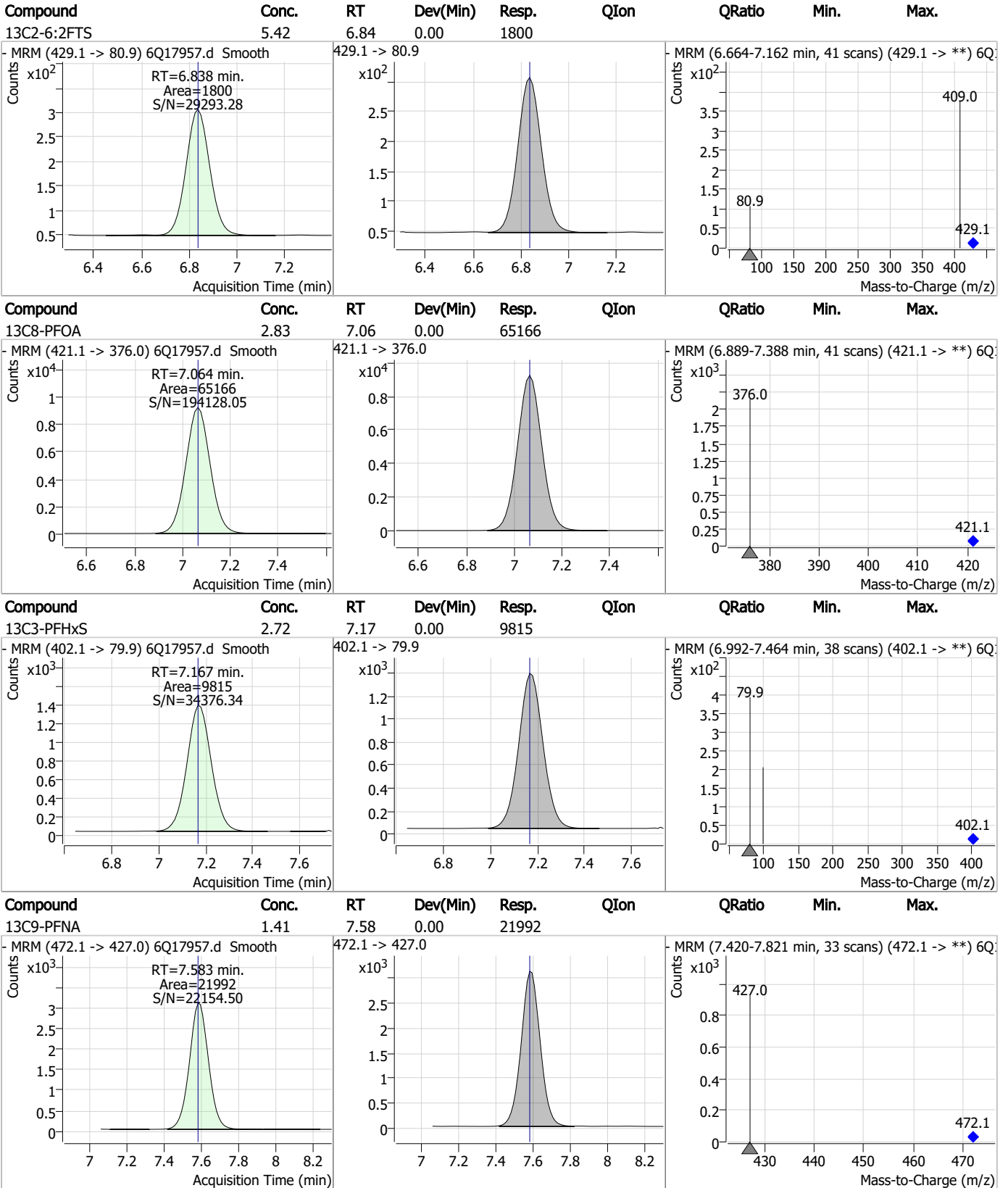
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.89	5.38	-0.01	17061				
13C5-PFHxA	2.92	5.47	0.00	50382				
13C3-HFPO-DA	11.48	5.83	0.00	30677				
13C4-PFHpA	2.80	6.42	0.00	42519				

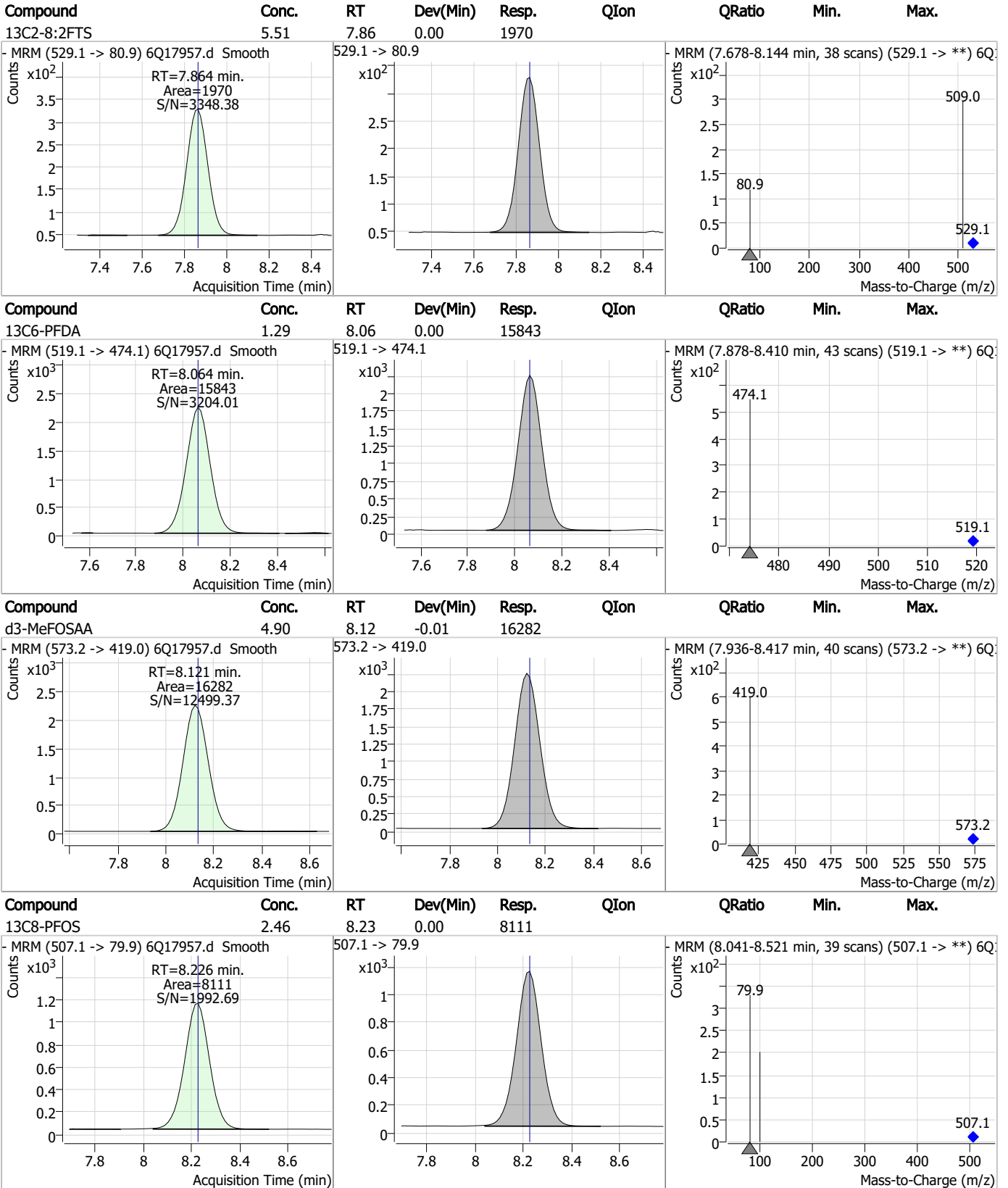
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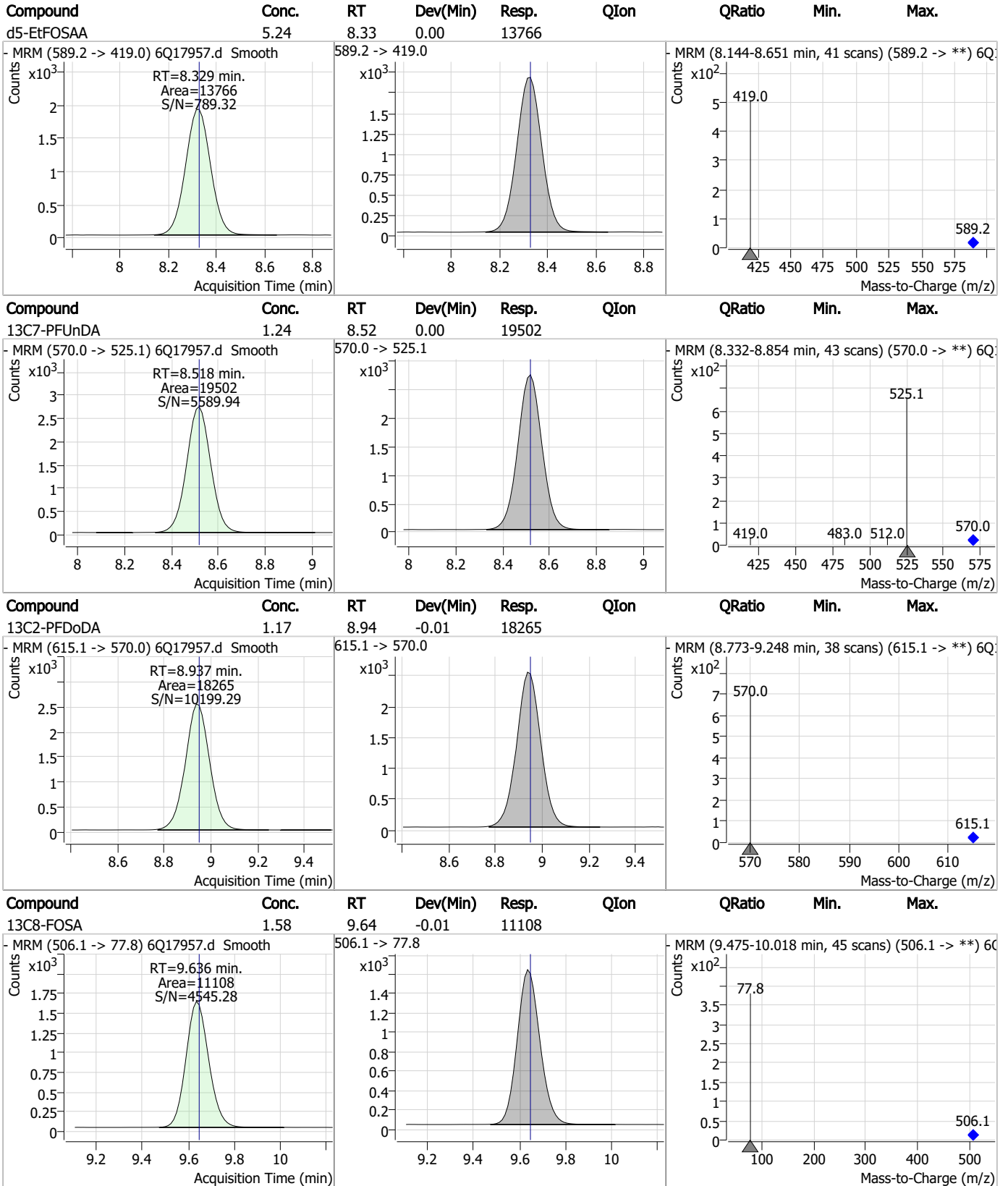
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.4

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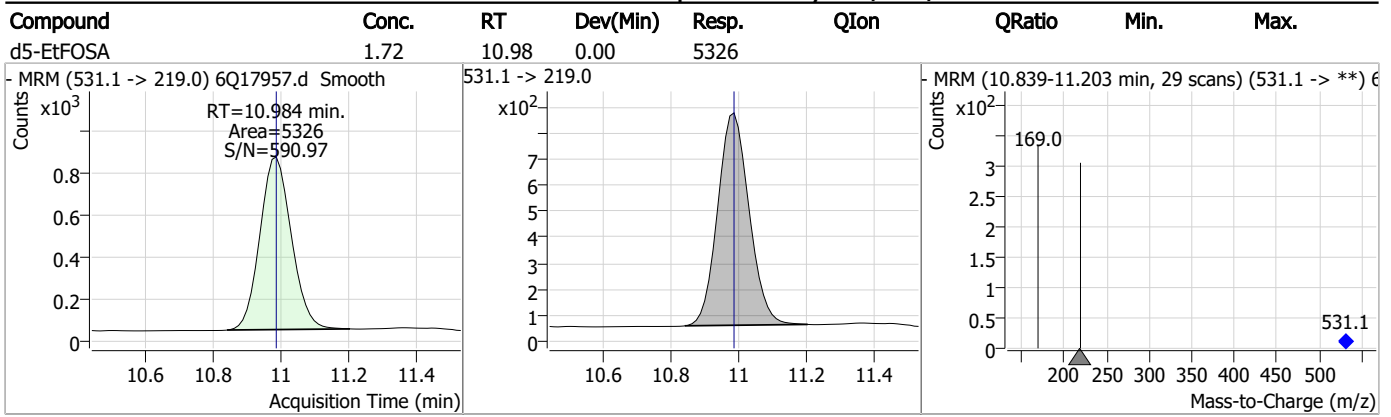
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.13	9.66	-0.01	11993				
d7-MeFOSE	15.27	10.66	-0.01	39890				
d3-MeFOSA	1.74	10.75	0.00	4458				
d9-EtFOSE	17.81	10.91	0.00	56234				

7.1.4

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Perfluorinated Compounds by LC/MS/MS



7.1.4
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17958.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 5:17:09 PM
 Sample Name : FC6066-5
 Vial : P2-B3
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	119912	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	43301	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	51268	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	42166	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	63787	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	21124	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	16230	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	16134	1.25 µg/L	-0.012
M2-PFDoDA	8.937	615.1 -> 570.0	11931	1.25 µg/L	-0.012
M2-PFTeDA	9.677	715.2 -> 670.0	5899	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	14864	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	16626	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	9957	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	8147	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1499	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2029	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	1647	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	17498	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	29263	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	14369	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	48809	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	70058	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	6209	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	4753	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	9922	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	51743	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	7092	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	62153	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	18079	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	19869	1.25 µg/L	0.000
13C2-PFHxA	5.454	315.1 -> 270.0	37913	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1499	5.55 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2029	5.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.6%		
13C2-8:2FTS	7.852	529.1 -> 80.9	1647	4.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.0%		
13C2-PFDoDA	8.937	615.1 -> 570.0	11931	0.79 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 63.1%		
13C2-PFTeDA	9.677	715.2 -> 670.0	5899	0.58 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 46.0%		
13C3-PFBS	5.384	302.1 -> 79.9	16626	2.69 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C3-PFHxS	7.167	402.1 -> 79.9	9957	2.64 µg/L	0.000

7.15
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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 = 105.4%	
13C4-PFBA	2.901	216.8 -> 171.9	119912	9.77 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C4-PFHpA	6.420	367.1 -> 322.0	42166	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C5-PFHxA	5.466	318.0 -> 273.0	51268	2.86 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.4%	
13C5-PFPeA	4.259	268.3 -> 223.0	43301	5.43 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C6-PFDA	8.064	519.1 -> 474.1	16230	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.6%	
13C7-PFUnDA	8.506	570.0 -> 525.1	16134	1.06 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 84.9%	
13C8-FOSA	9.636	506.1 -> 77.8	14864	2.26 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.3%	
13C8-PFOA	7.064	421.1 -> 376.0	63787	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C8-PFOS	8.214	507.1 -> 79.9	8147	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%	
13C9-PFNA	7.583	472.1 -> 427.0	21124	1.44 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.0%	
d3-MeFOSAA	8.121	573.2 -> 419.0	17498	5.63 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.6%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	29263	10.55 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.5%	
d3-MeFOSA	10.752	515.0 -> 219.0	4753	1.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.2%	
d5-EtFOSAA	8.316	589.2 -> 419.0	14369	5.84 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.9%	
d7-MeFOSE	10.660	623.2 -> 58.9	48809	19.97 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.9%	
d9-EtFOSE	10.907	639.2 -> 58.9	70058	23.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d5-EtFOSA	10.985	531.1 -> 219.0	6209	2.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.8%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.838	427.1 -> 407.0	3999	1.81 µg/L	98
		427.1 -> 80.9	1351		
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	6.420	599.0 -> 98.8				
		363.1 -> 319.0	2132	0.10	µg/L	99
PFHpS	-	363.1 -> 169.0	358			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.457	449.0 -> 98.9				
		313.0 -> 269.0	5338	0.26	µg/L	98
PFHxS	-	313.0 -> 118.9	219			
		398.7 -> 79.9	-	N.D.		
PFNA	8.044	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	7.066	548.8 -> 98.9				
		413.0 -> 369.0	0		µg/L	m
PFOS	-	413.0 -> 169.0	0			1
		498.9 -> 79.9	-	N.D.		
PFPeA	4.262	498.9 -> 98.8				
		263.0 -> 219.0	5078	0.41	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				
PFMPA	-					
PFEESA	-					

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

7.1.5
7

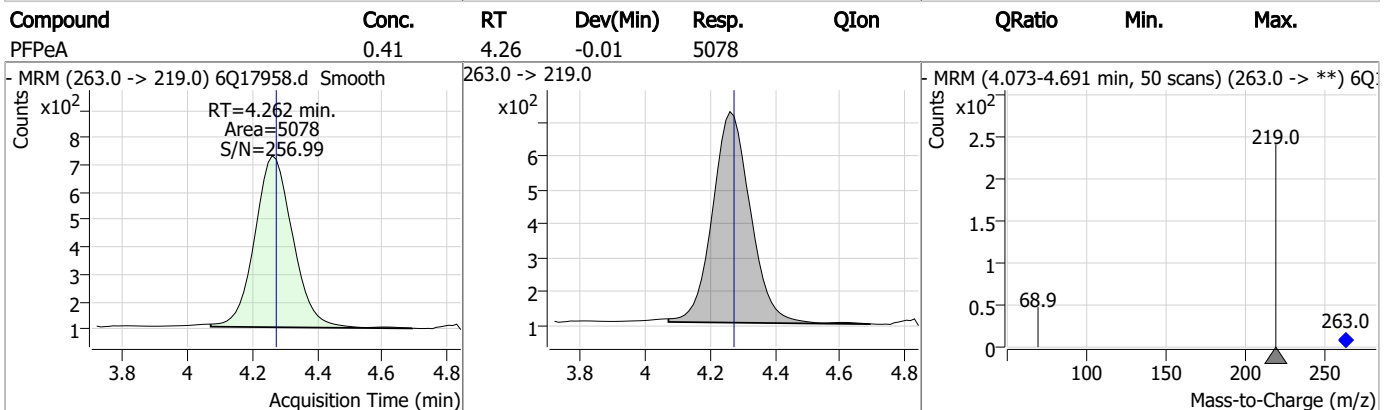
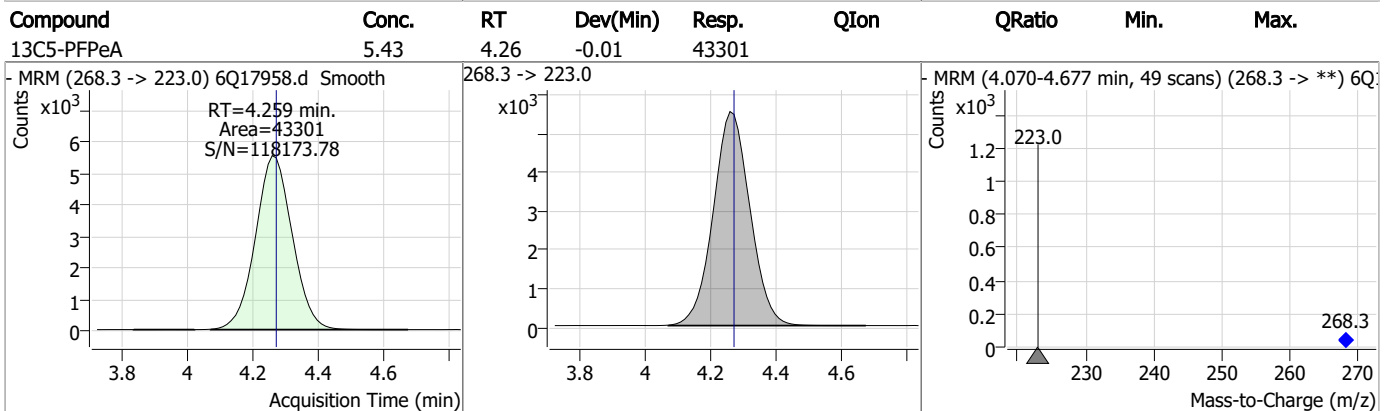
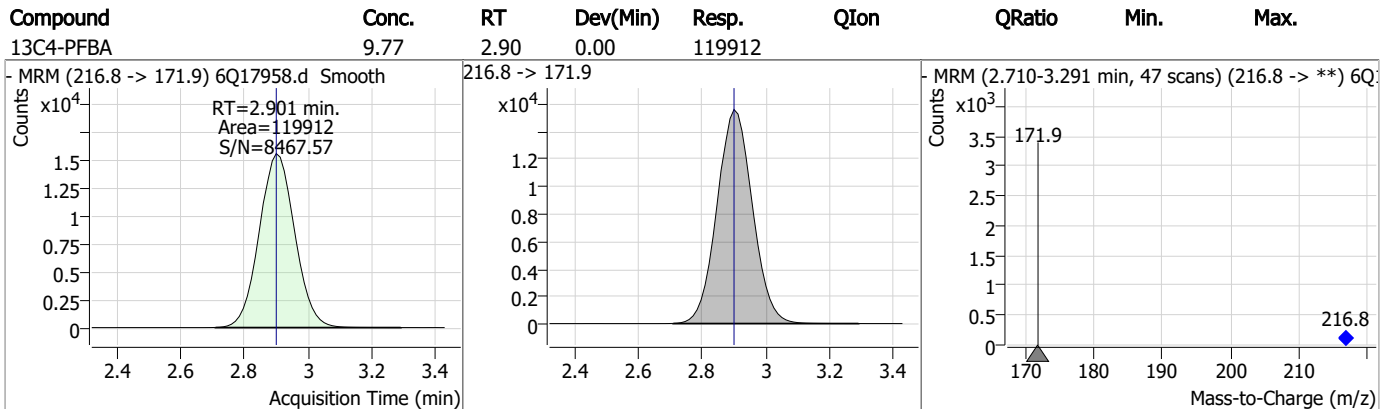
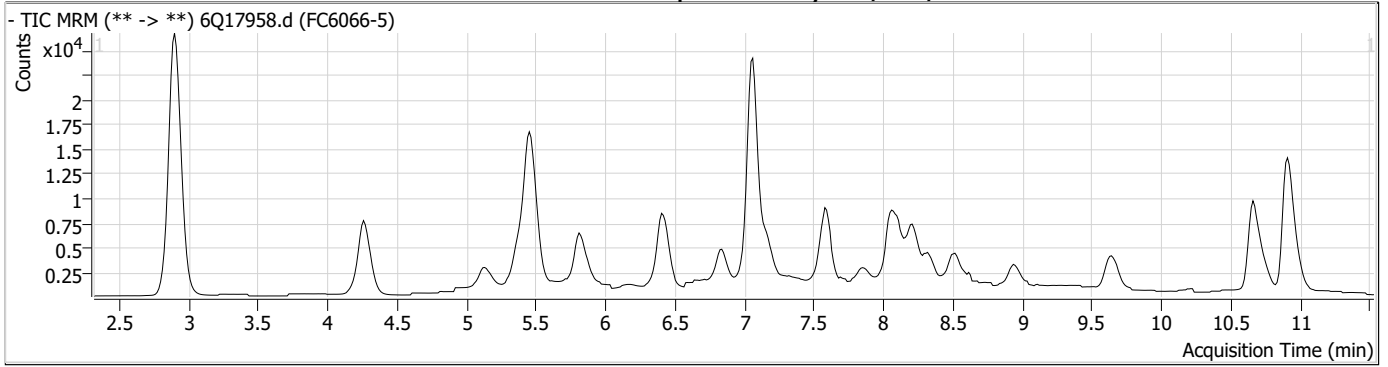
Perfluorinated Compounds by LC/MS/MS

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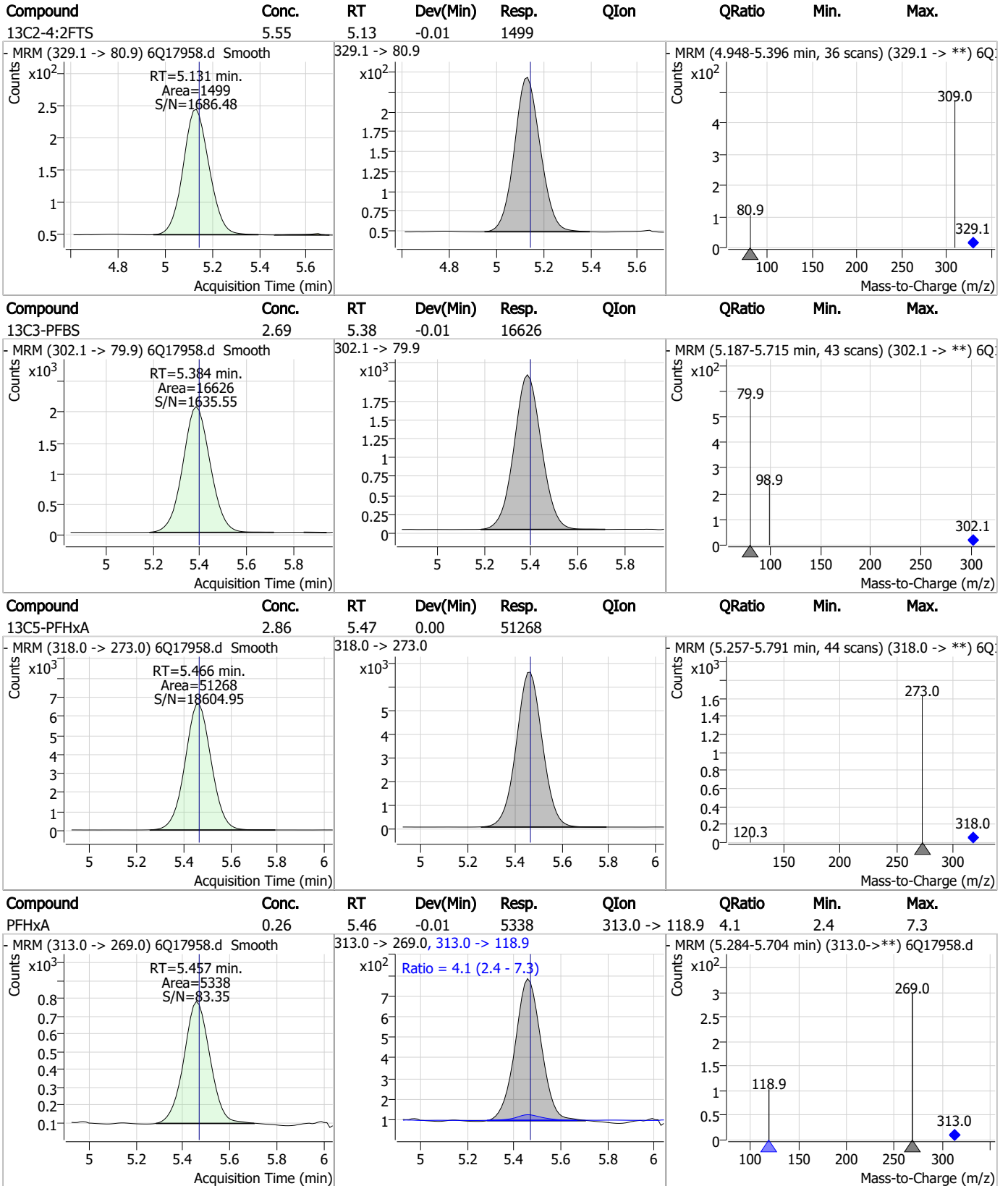
7.1.5
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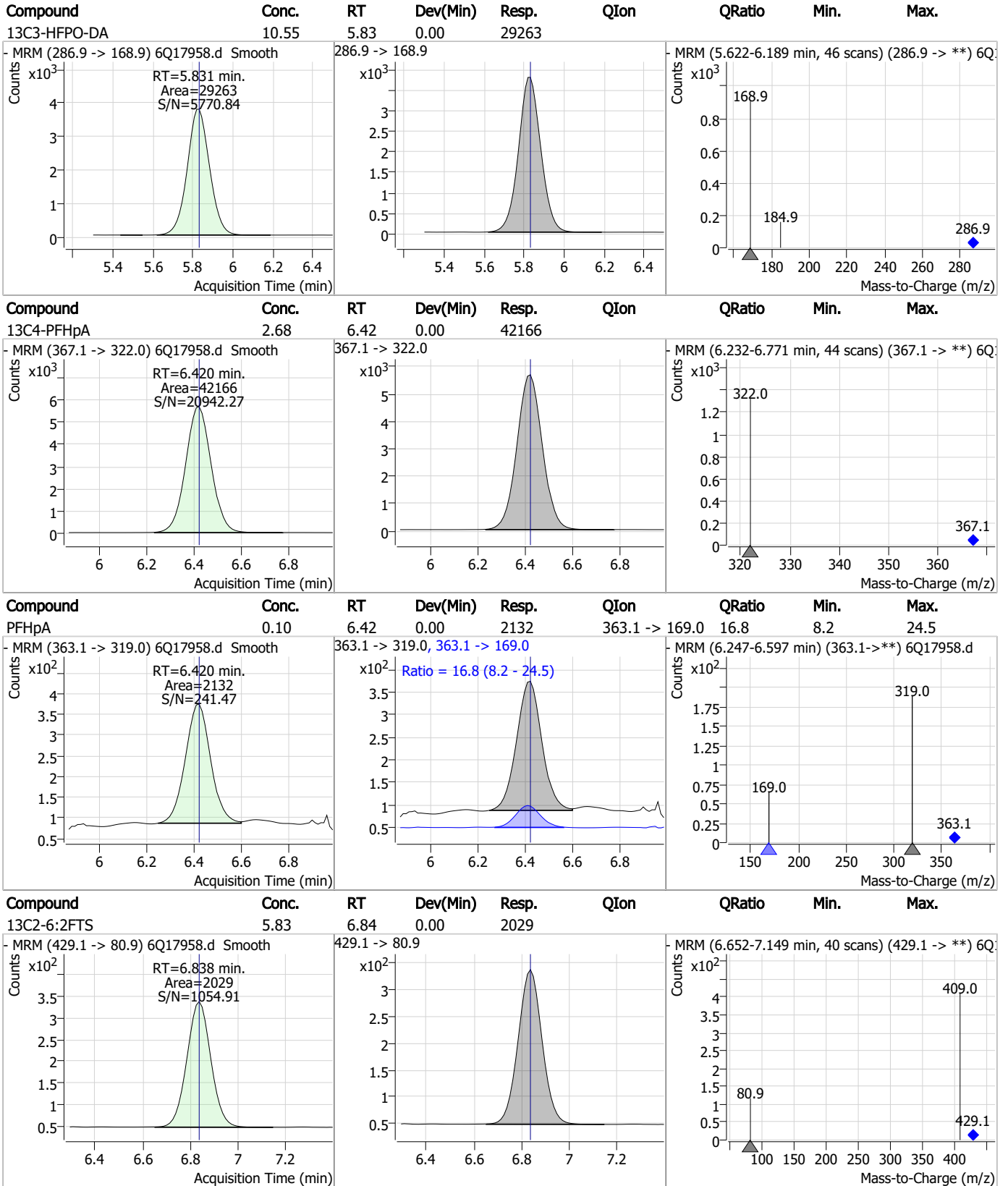
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

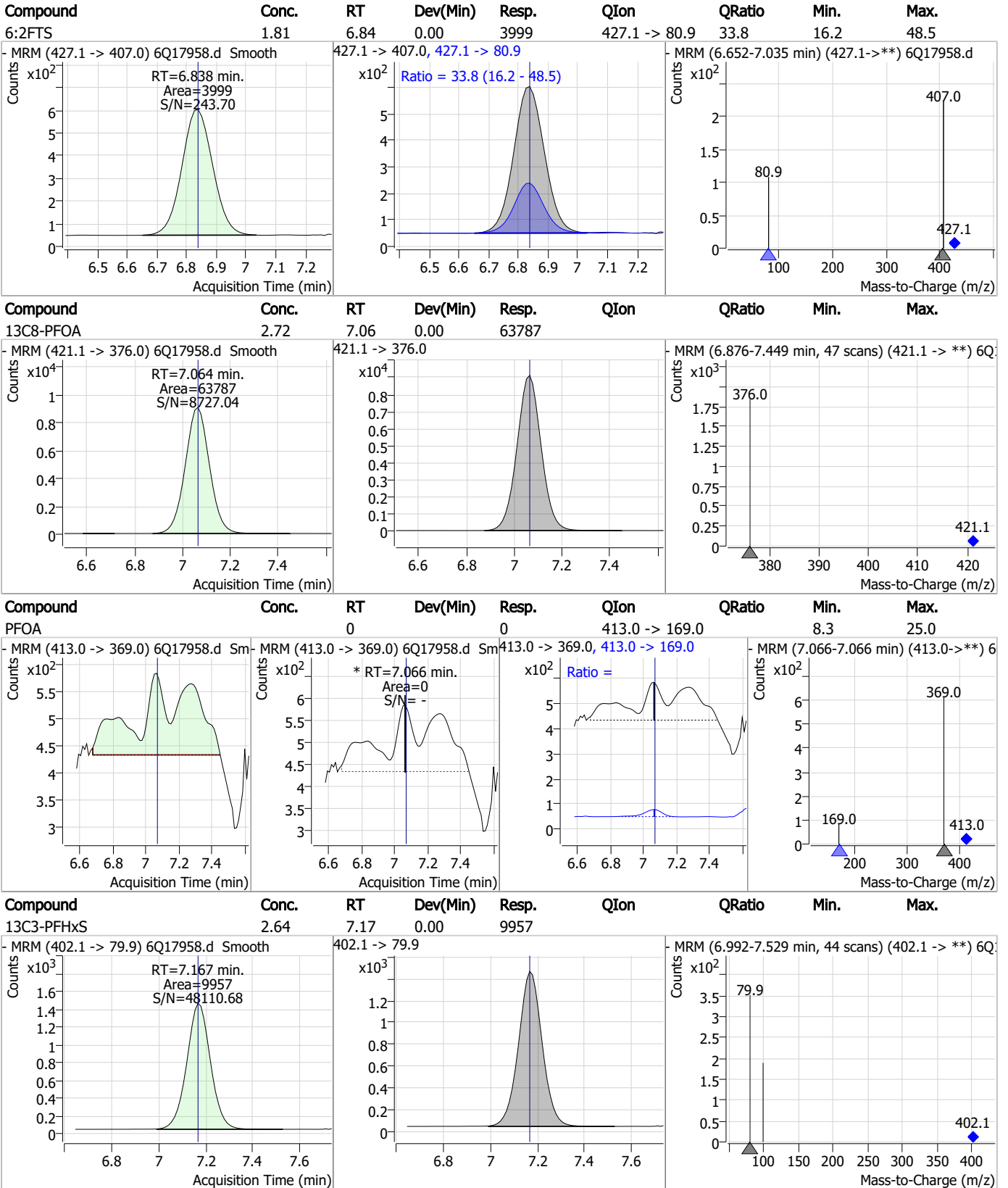


Perfluorinated Compounds by LC/MS/MS



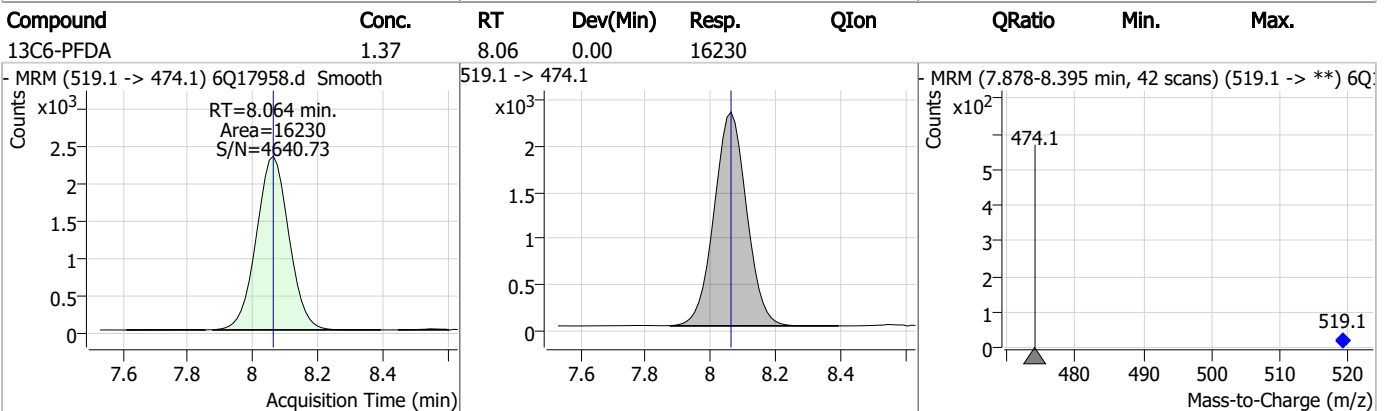
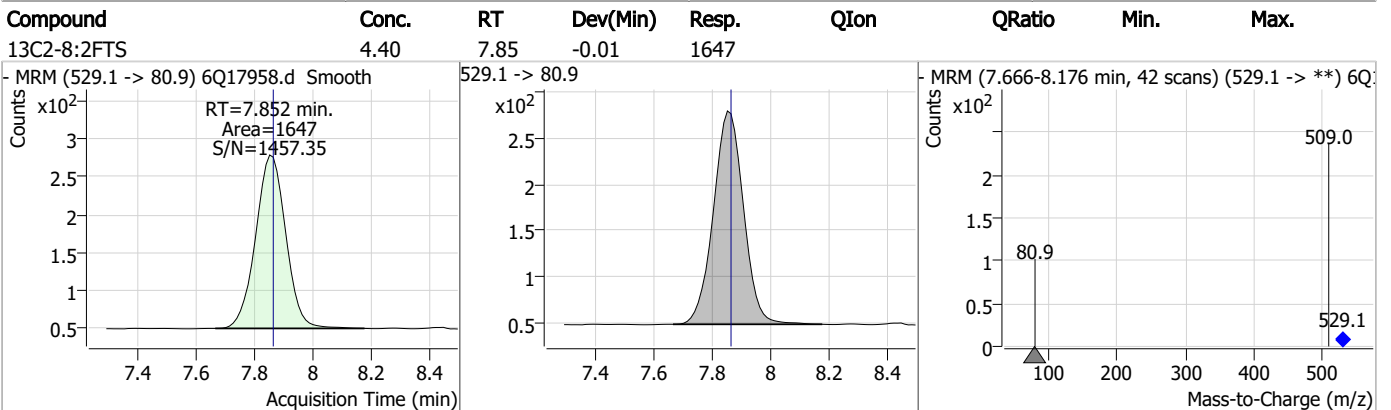
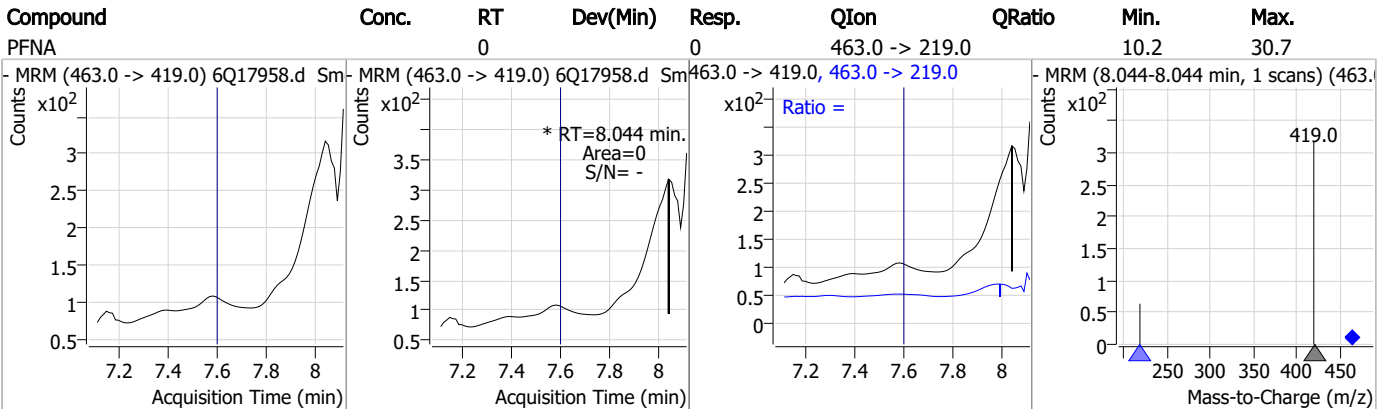
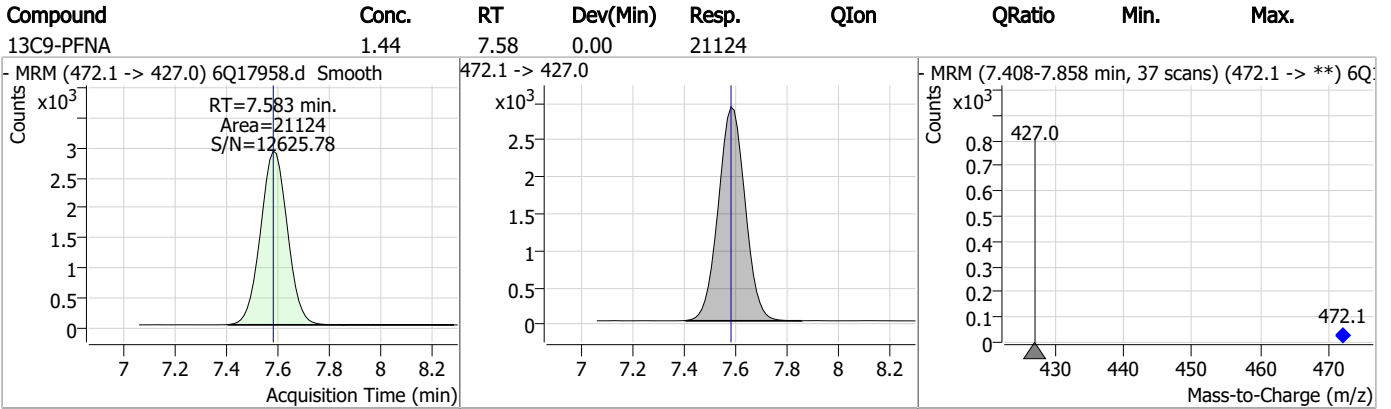
7.1.5
7

Perfluorinated Compounds by LC/MS/MS



7.15
7

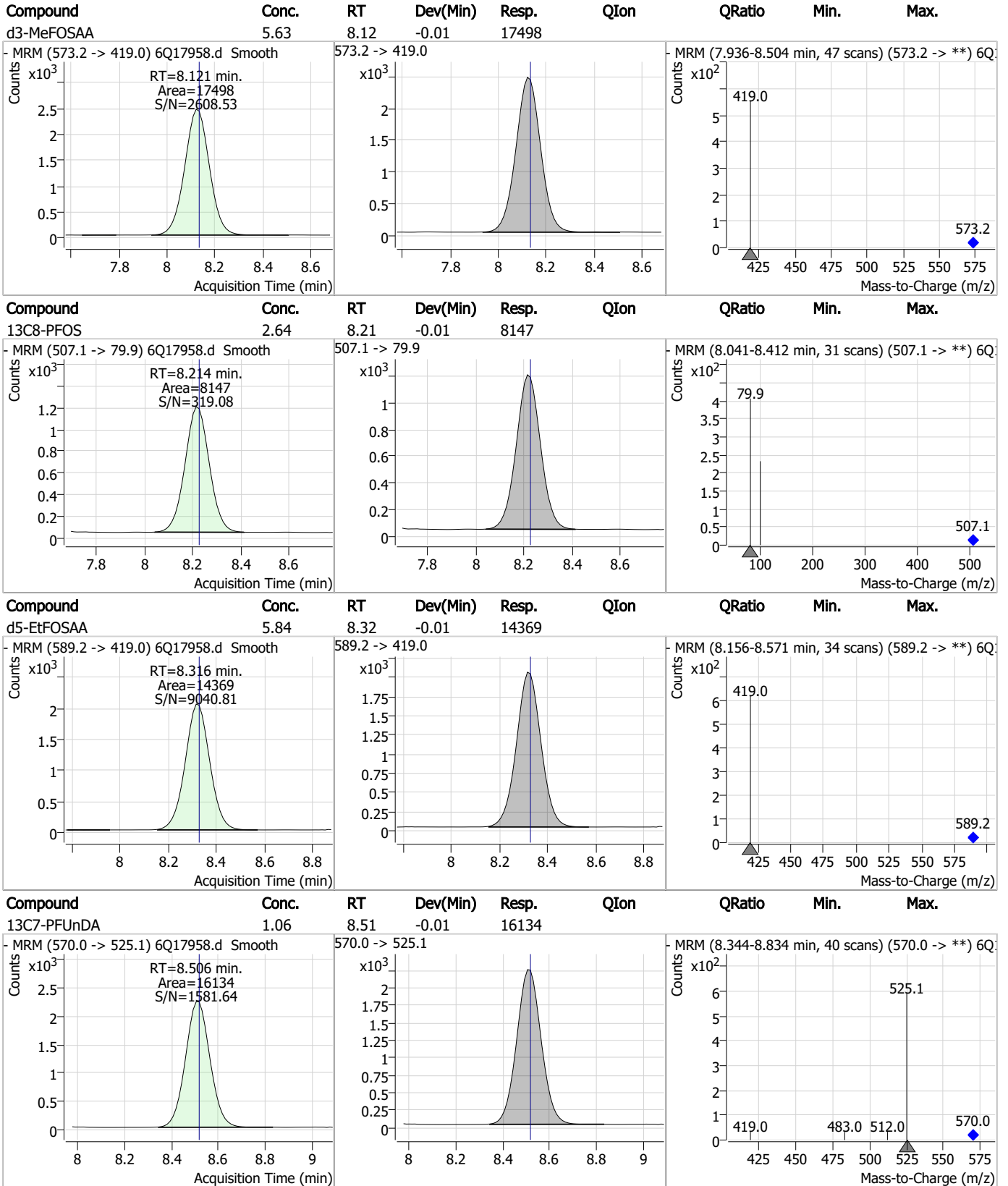
Perfluorinated Compounds by LC/MS/MS



7.1.5

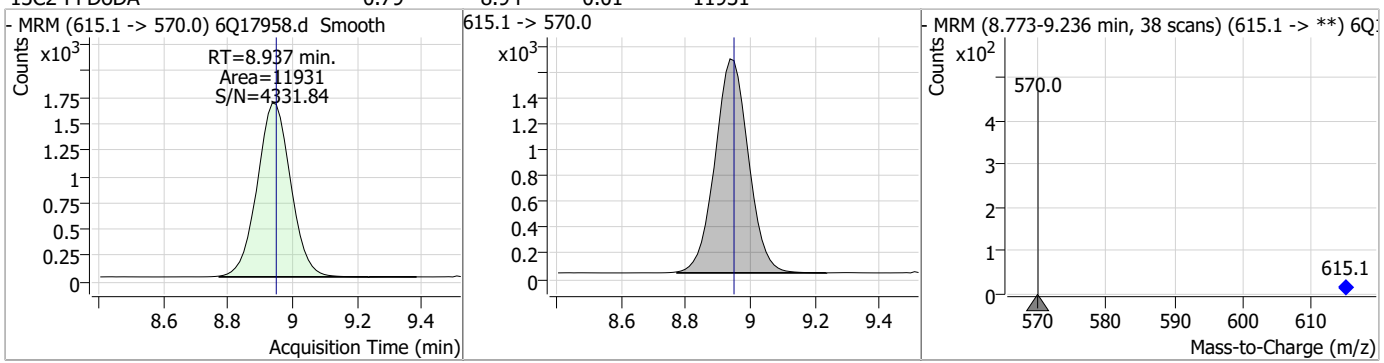
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Perfluorinated Compounds by LC/MS/MS

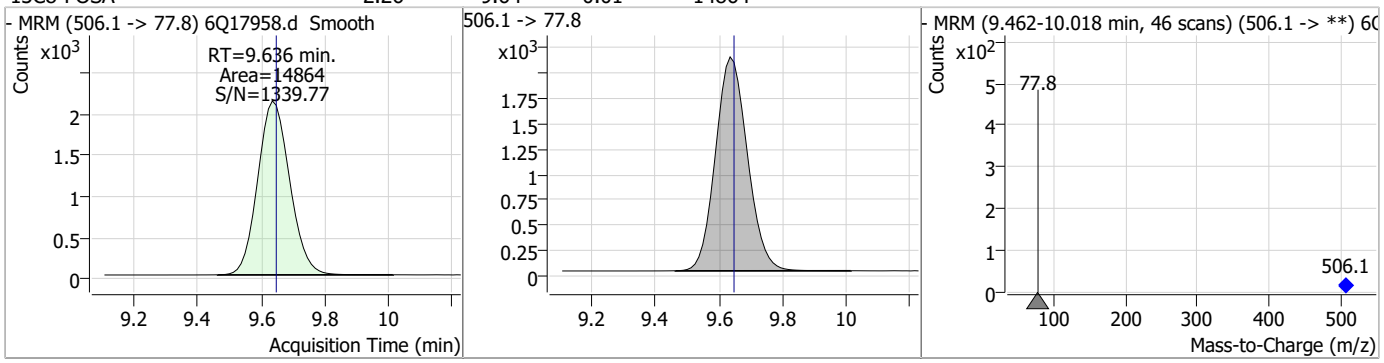


Perfluorinated Compounds by LC/MS/MS

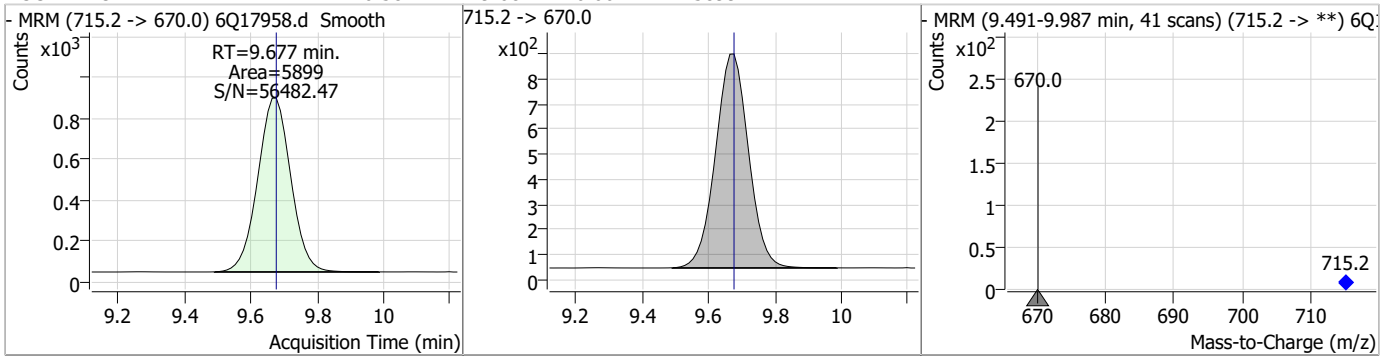
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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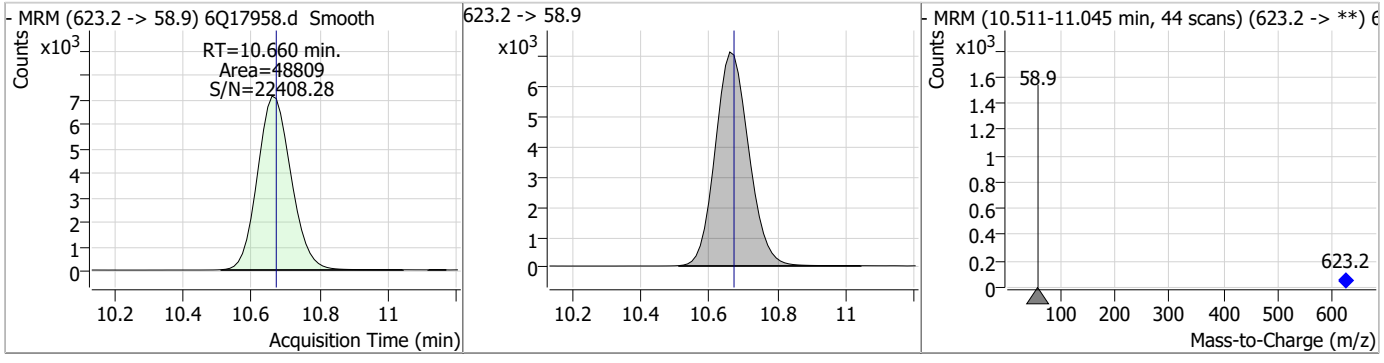
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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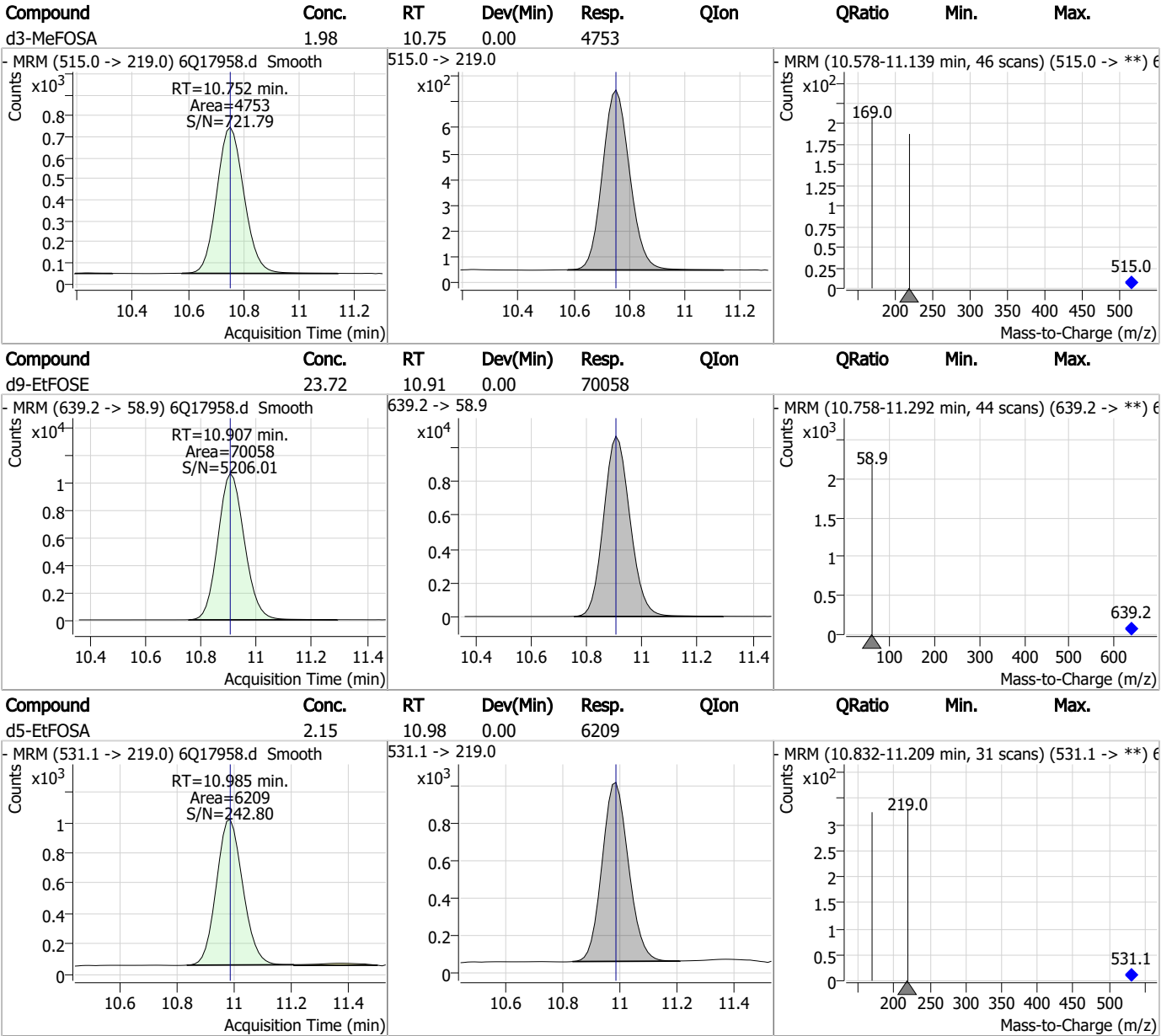


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.1.5
7

Perfluorinated Compounds by LC/MS/MS



7.1.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17947.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 2:37:42 PM
 Sample Name : op96892-mb
 Vial : P2-A3
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	136069	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	41829	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	49707	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	43663	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	61956	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	20572	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	16437	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	20483	1.25 µg/L	-0.012
M2-PFDoDA	8.937	615.1 -> 570.0	19252	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	12982	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	10600	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	16204	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10046	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	8207	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1456	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1933	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	1809	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	16804	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	29841	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	13400	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	38476	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	55009	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	5402	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	3934	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	10426	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	52281	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	6875	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	59806	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	18884	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	21604	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	36861	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1456	5.56 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.2%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1933	5.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.6%		
13C2-8:2FTS	7.852	529.1 -> 80.9	1809	4.98 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFDoDA	8.937	615.1 -> 570.0	19252	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFTeDA	9.664	715.2 -> 670.0	12982	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFBS	5.384	302.1 -> 79.9	16204	2.71 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C3-PFHxS	7.167	402.1 -> 79.9	10046	2.74 µg/L	0.000

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 = 109.7%	
13C4-PFBA	2.901	216.8 -> 171.9	136069	10.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C4-PFHpA	6.420	367.1 -> 322.0	43663	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C5-PFHxA	5.466	318.0 -> 273.0	49707	2.85 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.1%	
13C5-PFPeA	4.259	268.3 -> 223.0	41829	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C6-PFDA	8.064	519.1 -> 474.1	16437	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C7-PFUnDA	8.506	570.0 -> 525.1	20483	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-FOSA	9.636	506.1 -> 77.8	10600	1.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 61.3%	
13C8-PFOA	7.064	421.1 -> 376.0	61956	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C8-PFOS	8.214	507.1 -> 79.9	8207	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C9-PFNA	7.583	472.1 -> 427.0	20572	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSAA	8.121	573.2 -> 419.0	16804	5.14 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	29841	11.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.6%	
d3-MeFOSA	10.752	515.0 -> 219.0	3934	1.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 62.4%	
d5-EtFOSAA	8.316	589.2 -> 419.0	13400	5.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d7-MeFOSE	10.660	623.2 -> 58.9	38476	14.98 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 59.9%	
d9-EtFOSE	10.907	639.2 -> 58.9	55009	17.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 70.9%	
d5-EtFOSA	10.984	531.1 -> 219.0	5402	1.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.1%	

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.	

7.2.1
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			
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.	
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

7.2.1
7

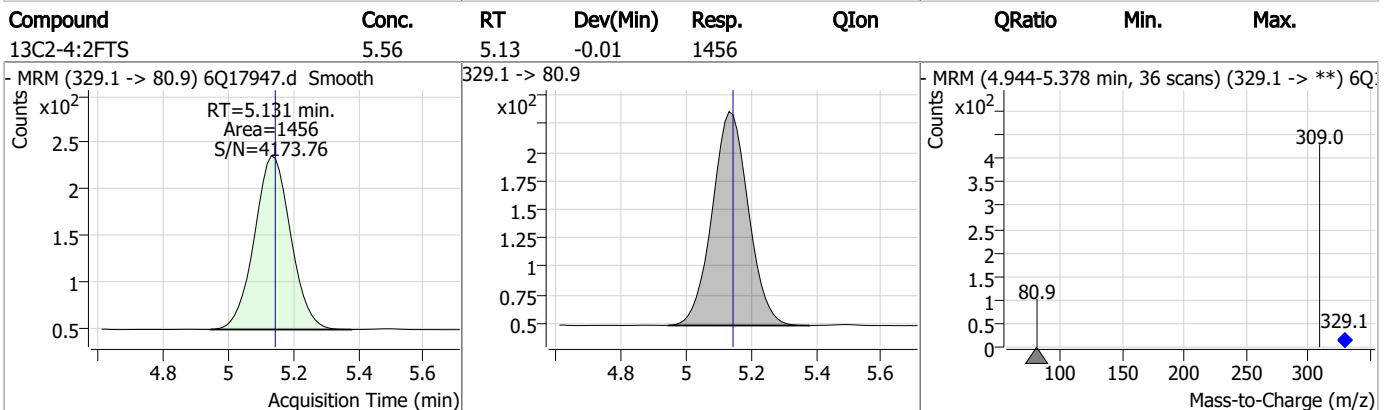
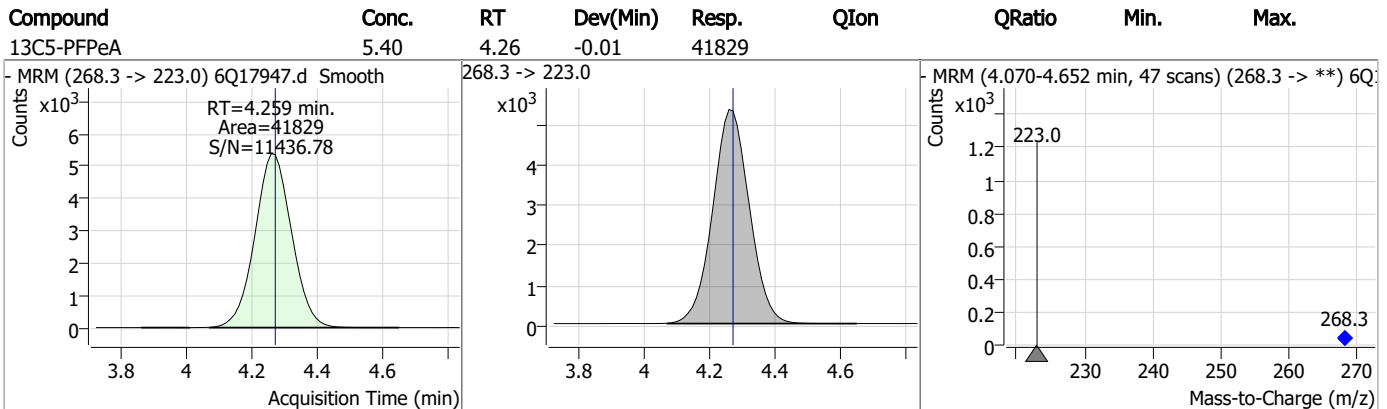
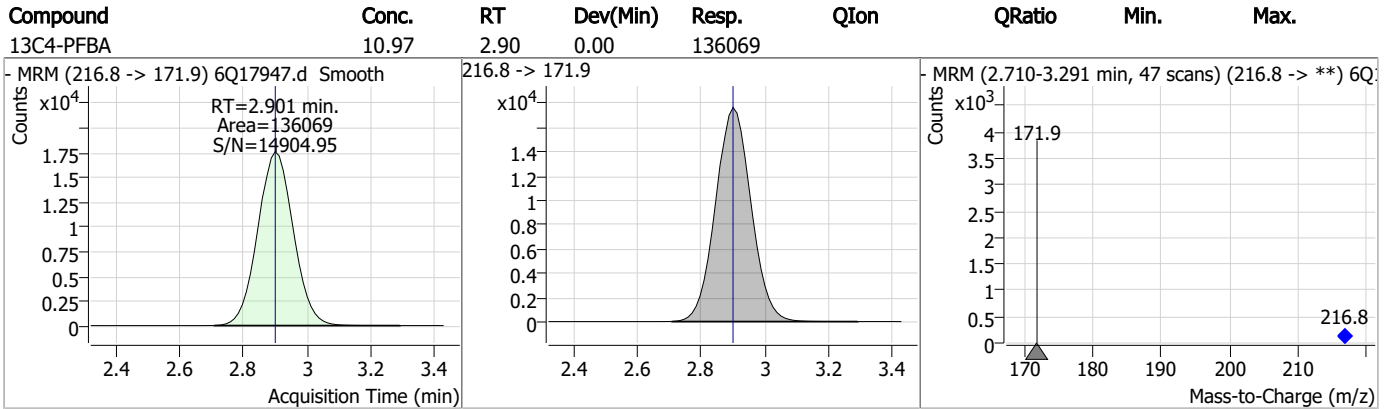
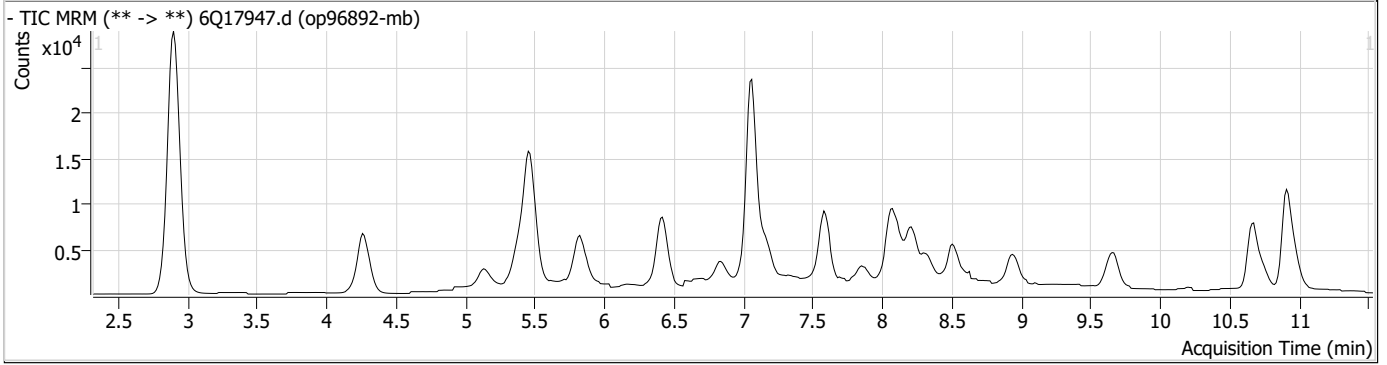
Perfluorinated Compounds by LC/MS/MS

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

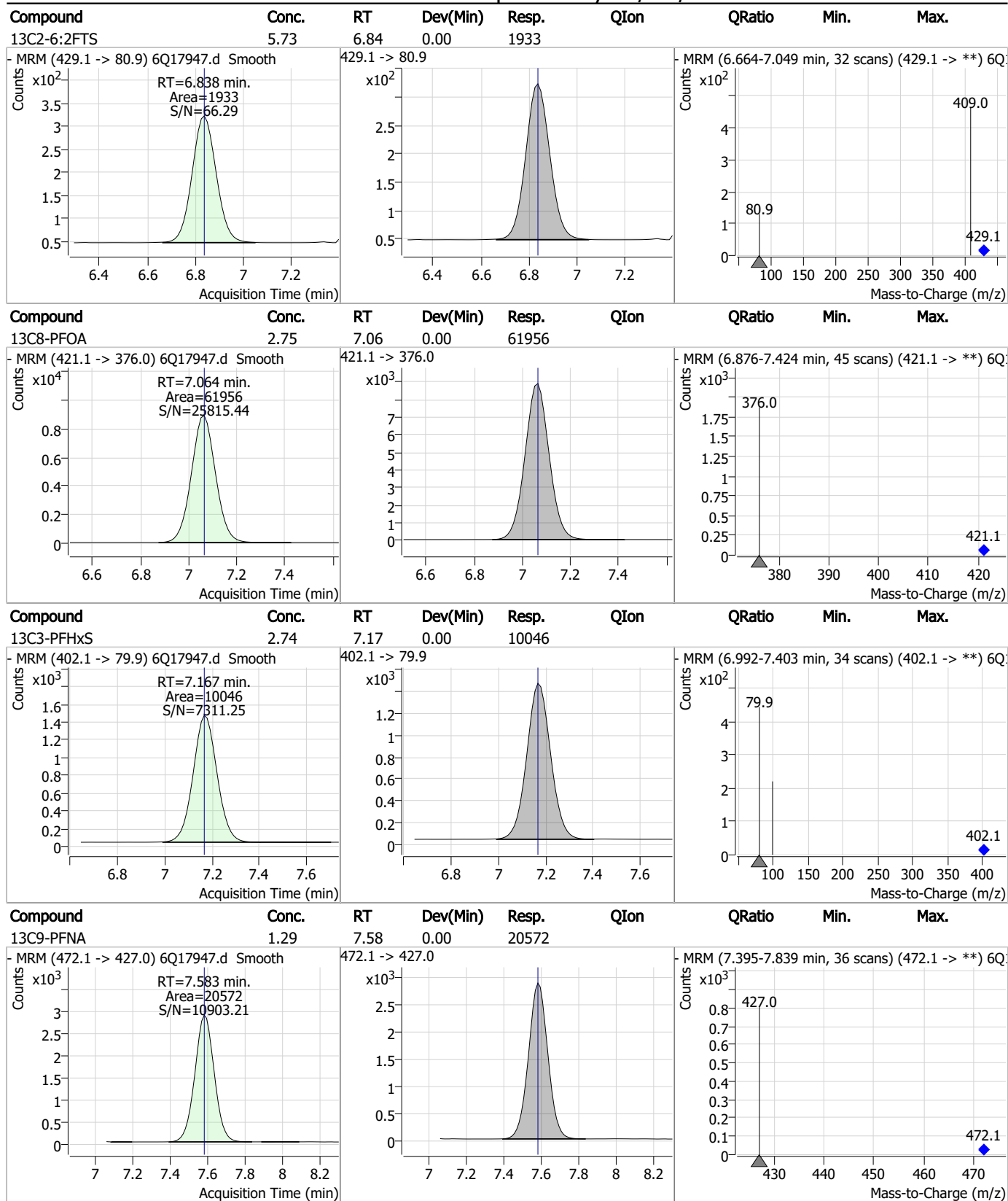


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.71	5.38	-0.01	16204				
13C5-PFHxA	2.85	5.47	0.00	49707				
13C3-HFPO-DA	11.06	5.83	0.00	29841				
13C4-PFHpA	2.85	6.42	0.00	43663				

7.2.1
7

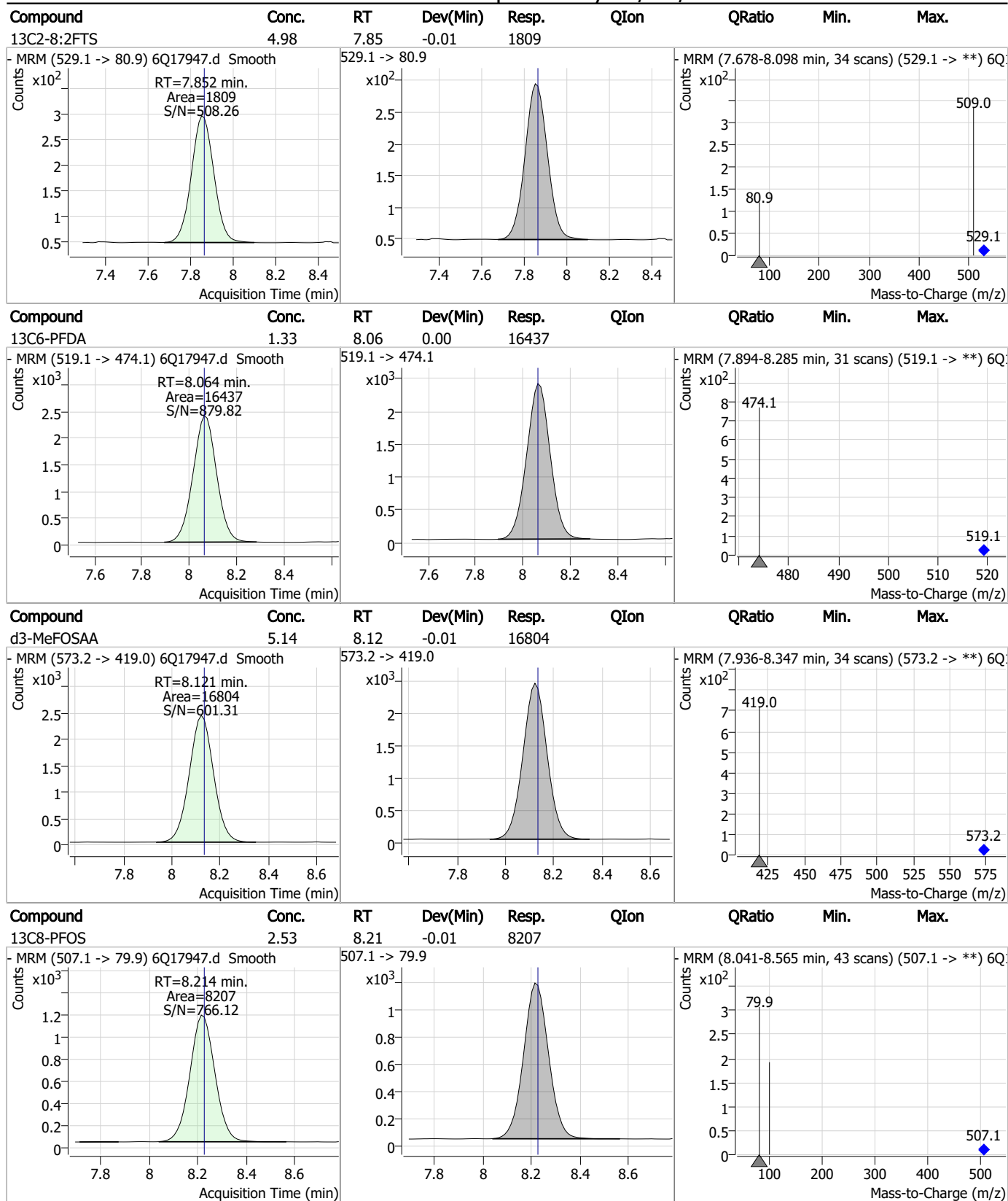
Perfluorinated Compounds by LC/MS/MS



7.2.1
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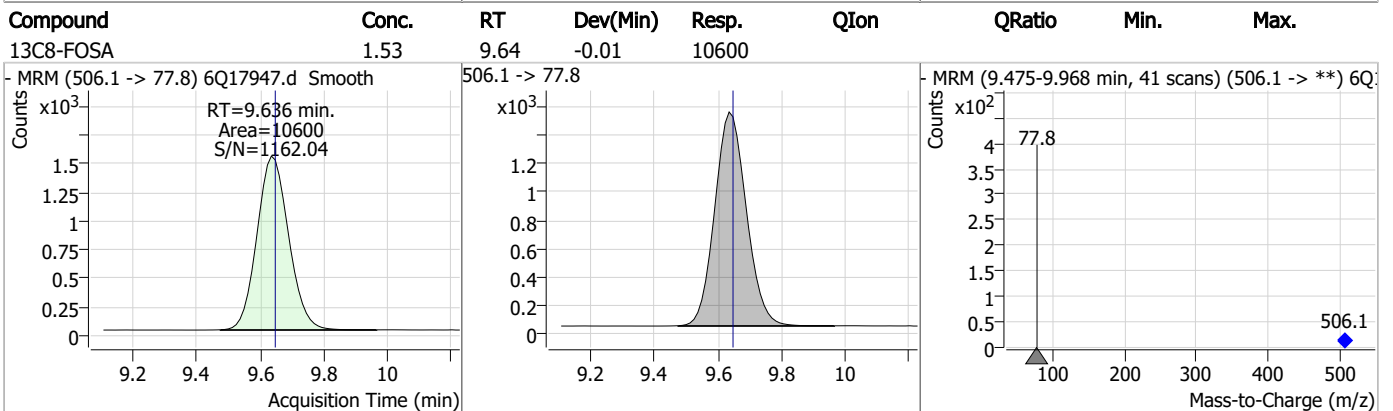
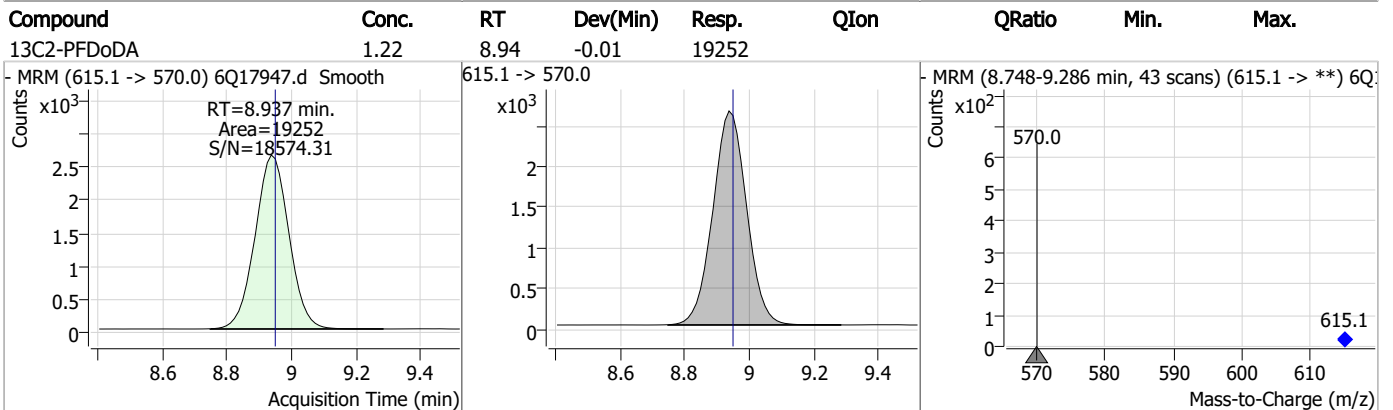
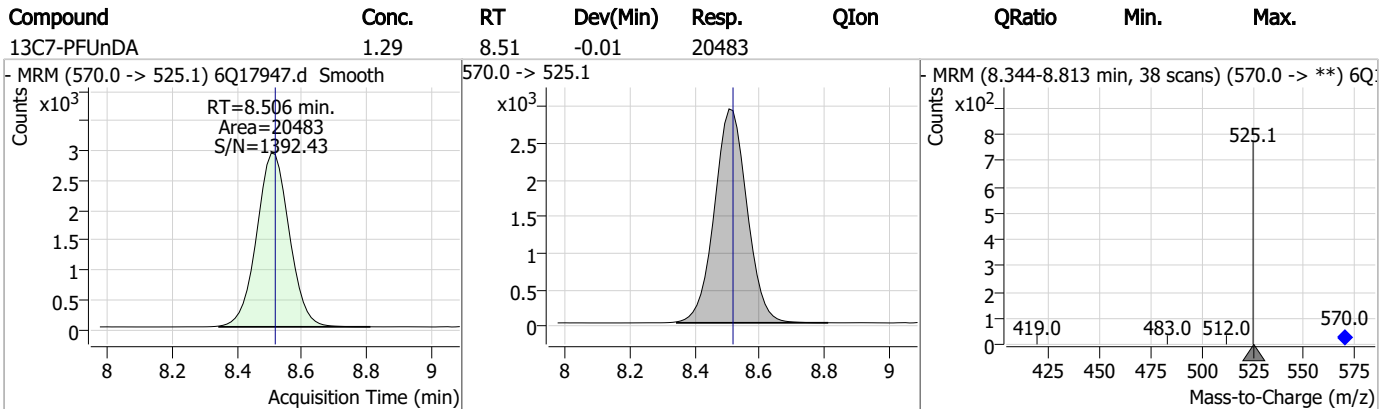
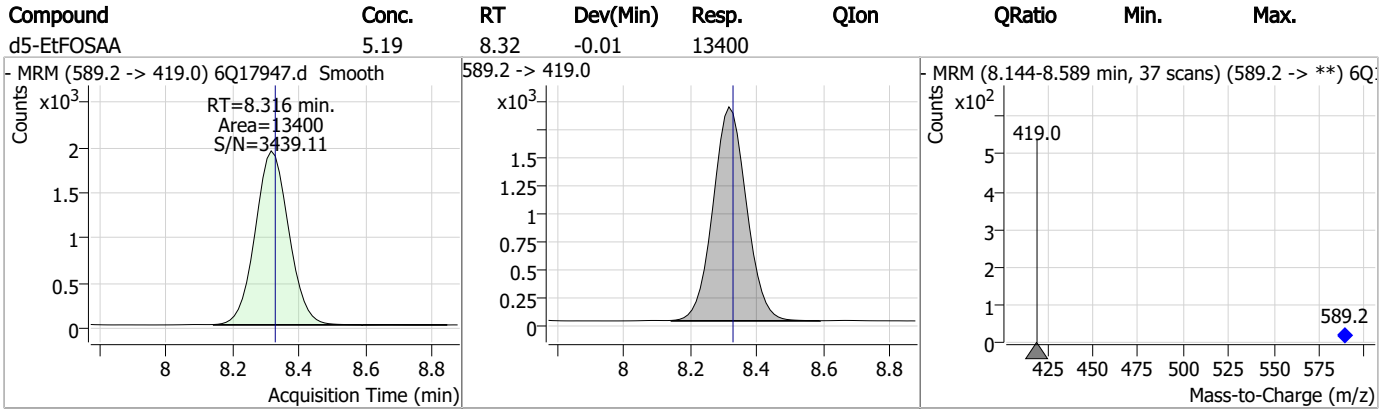


Perfluorinated Compounds by LC/MS/MS

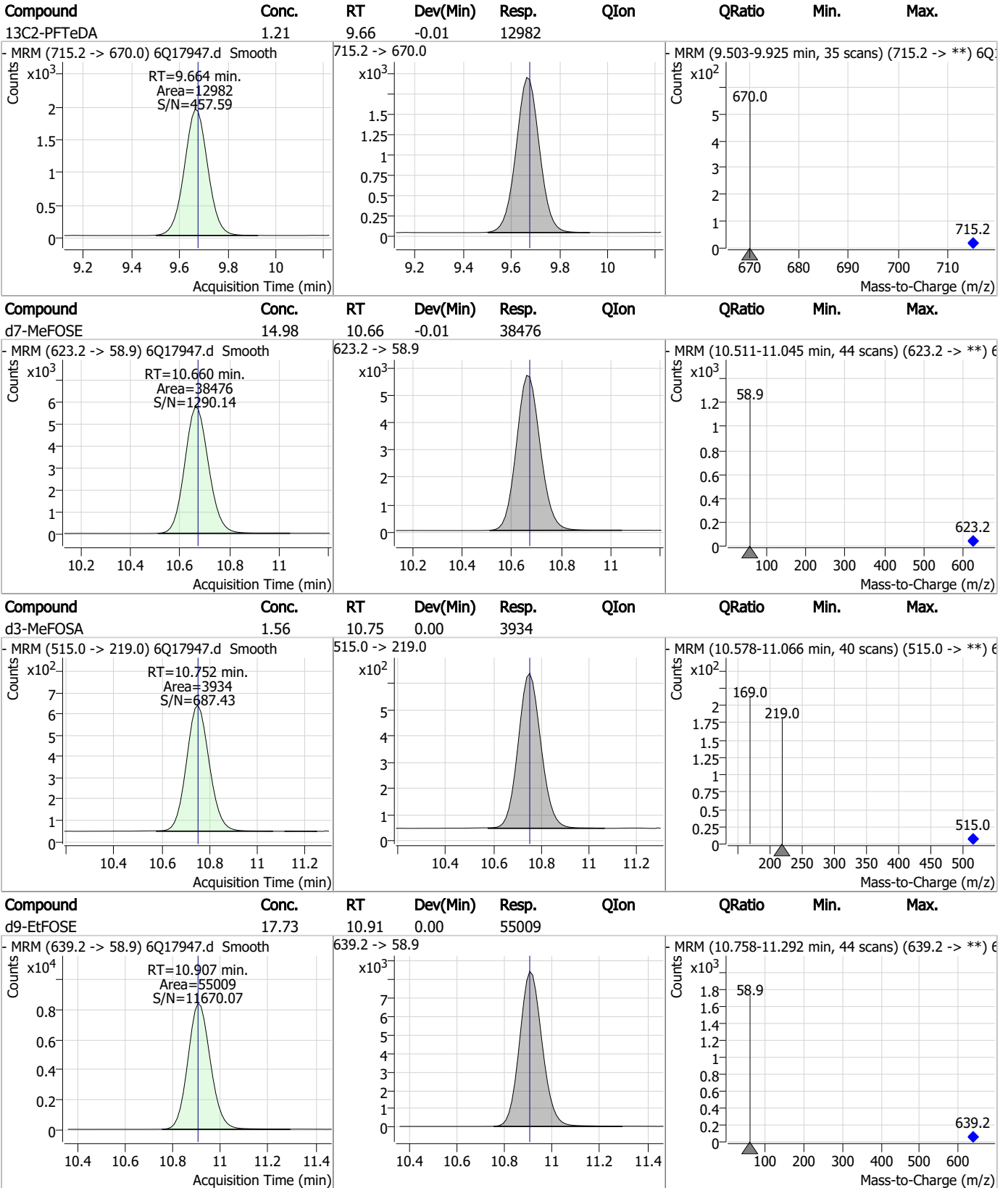


7.2.1
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Perfluorinated Compounds by LC/MS/MS



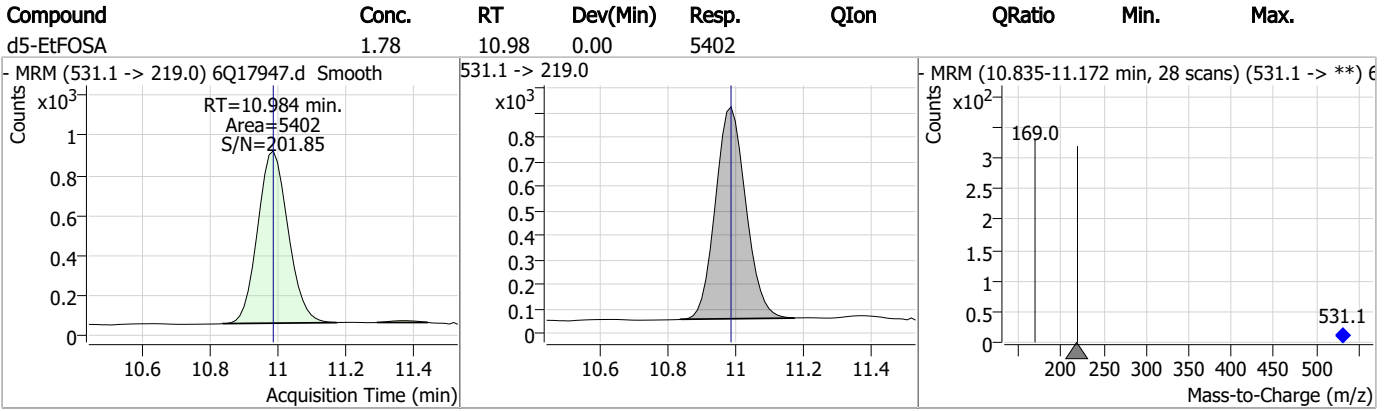
Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17941.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 1:10:50 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96663,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	146277	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	46347	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	51425	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	45472	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	65303	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	22478	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	16690	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	22988	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	21705	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14650	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	21400	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	17917	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10358	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	9063	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	1606	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2011	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	2195	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	18035	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	32199	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	15892	5.00 µg/L	-0.012
M7-MeFOSE	10.672	623.2 -> 58.9	81780	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	95998	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8697	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7380	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11587	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	61275	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	8133	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	70905	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	20550	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	25172	1.25 µg/L	0.000
13C2-PFHxA	5.454	315.1 -> 270.0	44258	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1606	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2011	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-8:2FTS	7.852	529.1 -> 80.9	2195	5.11 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFDoDA	8.949	615.1 -> 570.0	21705	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14650	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFBS	5.384	302.1 -> 79.9	17917	2.53 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C3-PFHxS	7.167	402.1 -> 79.9	10358	2.39 µg/L	0.000

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 = 95.6%	
13C4-PFBA	2.901	216.8 -> 171.9	146277	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.420	367.1 -> 322.0	45472	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C5-PFHxA	5.466	318.0 -> 273.0	51425	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFPeA	4.272	268.3 -> 223.0	46347	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C6-PFDA	8.064	519.1 -> 474.1	16690	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C7-PFUnDA	8.518	570.0 -> 525.1	22988	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C8-FOSA	9.636	506.1 -> 77.8	21400	2.78 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C8-PFOA	7.064	421.1 -> 376.0	65303	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C8-PFOS	8.226	507.1 -> 79.9	9063	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C9-PFNA	7.583	472.1 -> 427.0	22478	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
d3-MeFOSAA	8.121	573.2 -> 419.0	18035	4.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	32199	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	7380	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
d5-EtFOSAA	8.316	589.2 -> 419.0	15892	5.54 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.7%	
d7-MeFOSE	10.672	623.2 -> 58.9	81780	28.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 114.6%	
d9-EtFOSE	10.907	639.2 -> 58.9	95998	27.84 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 111.4%	
d5-EtFOSA	10.984	531.1 -> 219.0	8697	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	

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	-	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.	

7.2.2
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	7.277	413.0 -> 369.0	0	µg/L	m	1
		413.0 -> 169.0	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				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-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

7.2.2
7

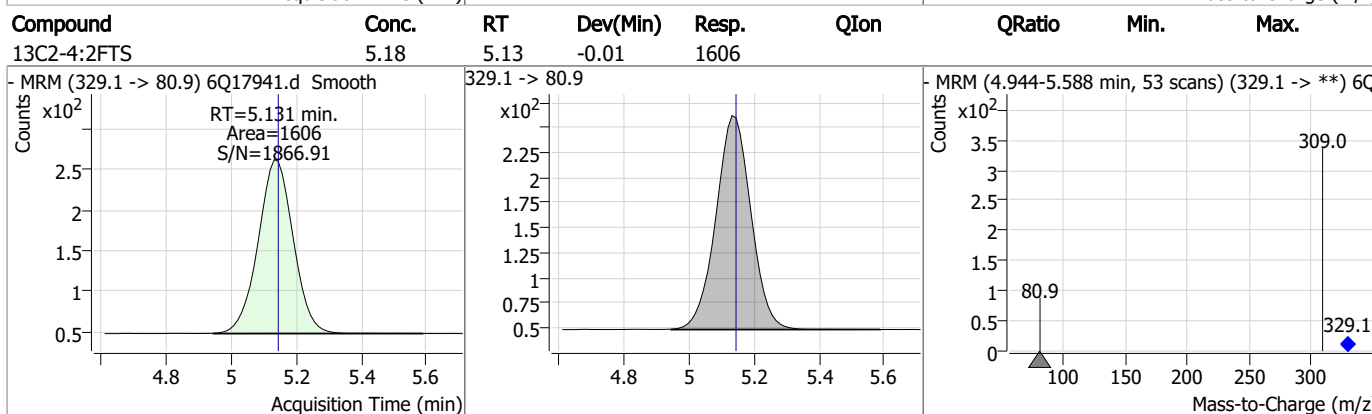
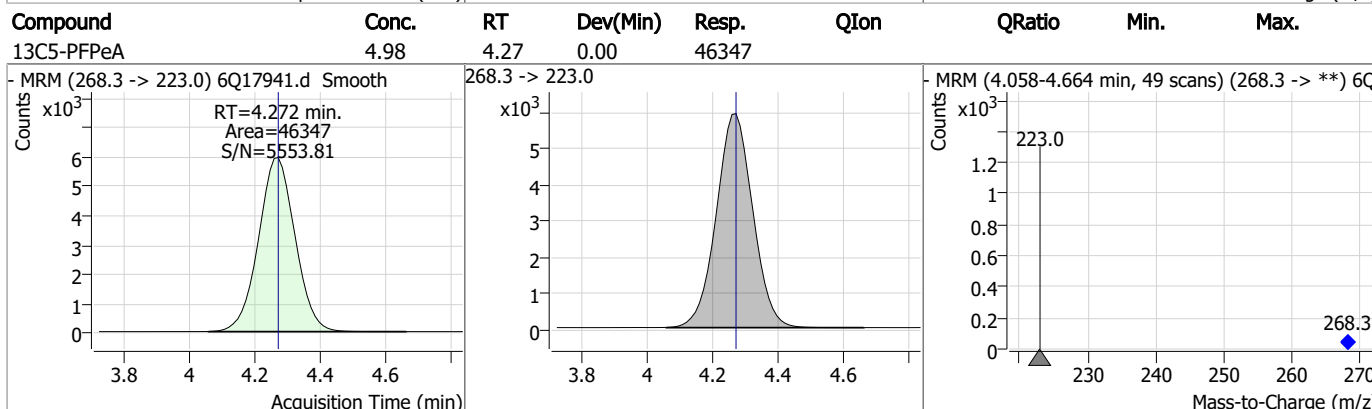
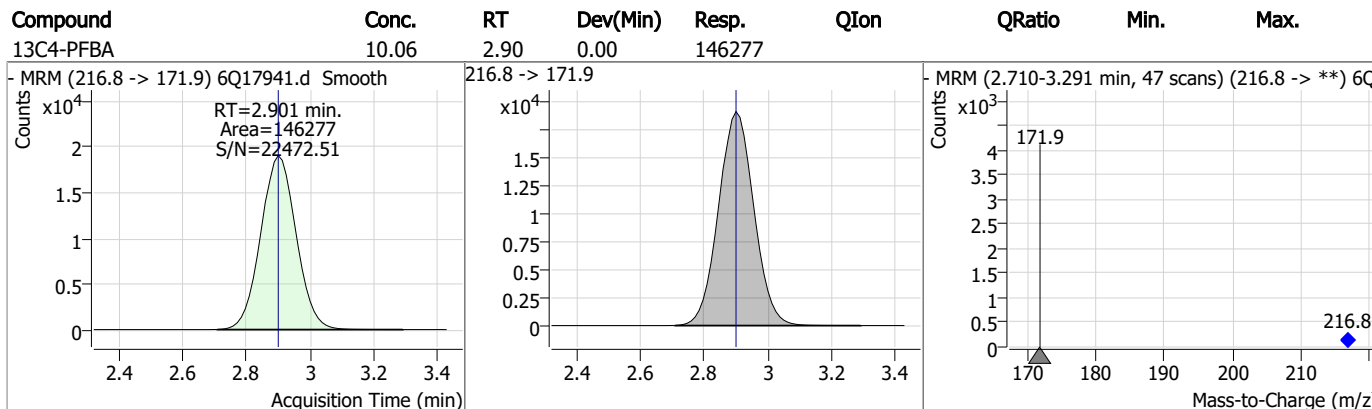
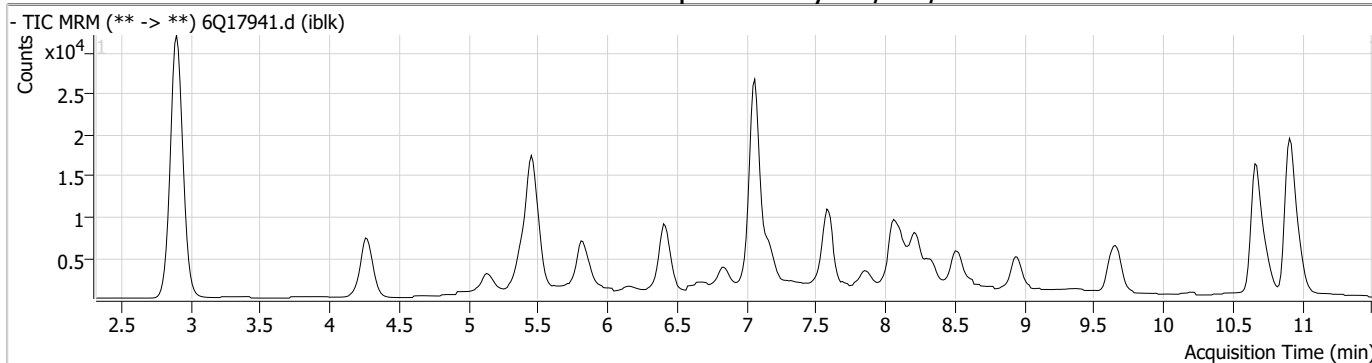
Perfluorinated Compounds by LC/MS/MS

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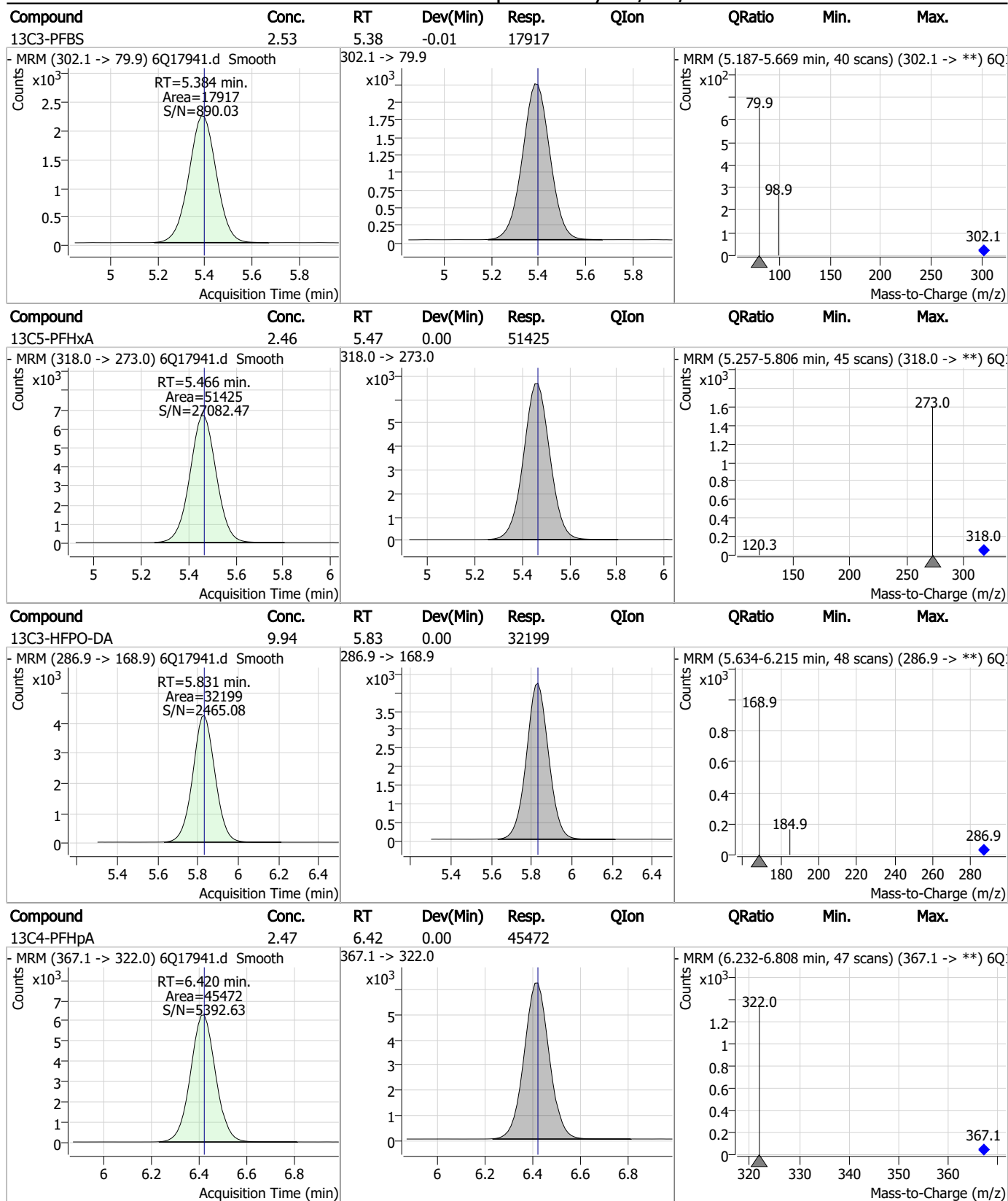
7.2.2

7

Perfluorinated Compounds by LC/MS/MS

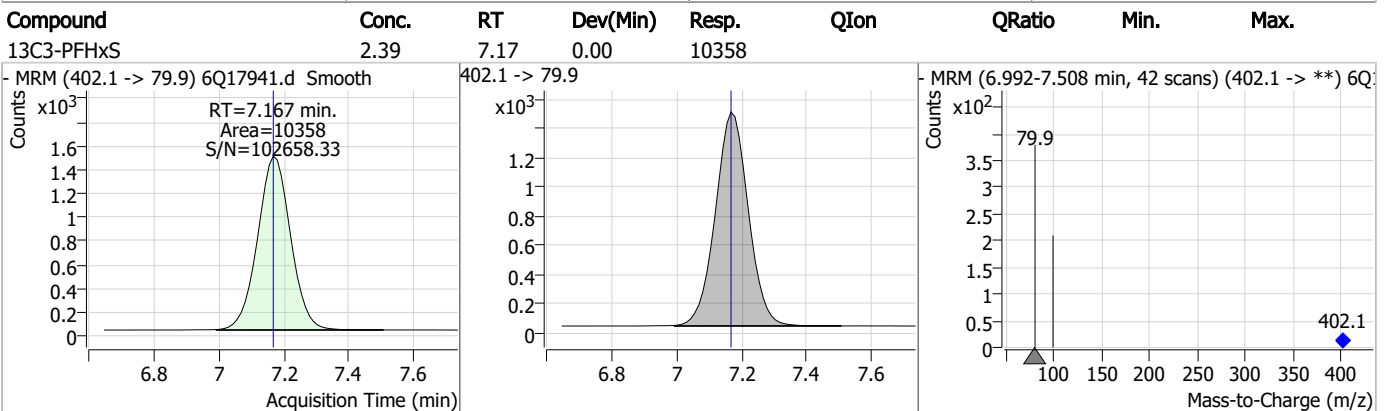
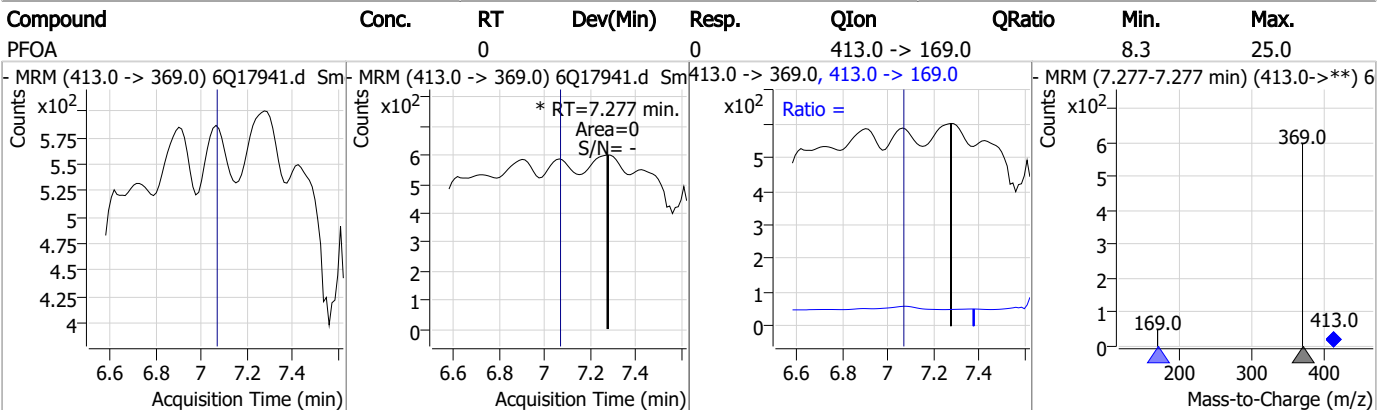
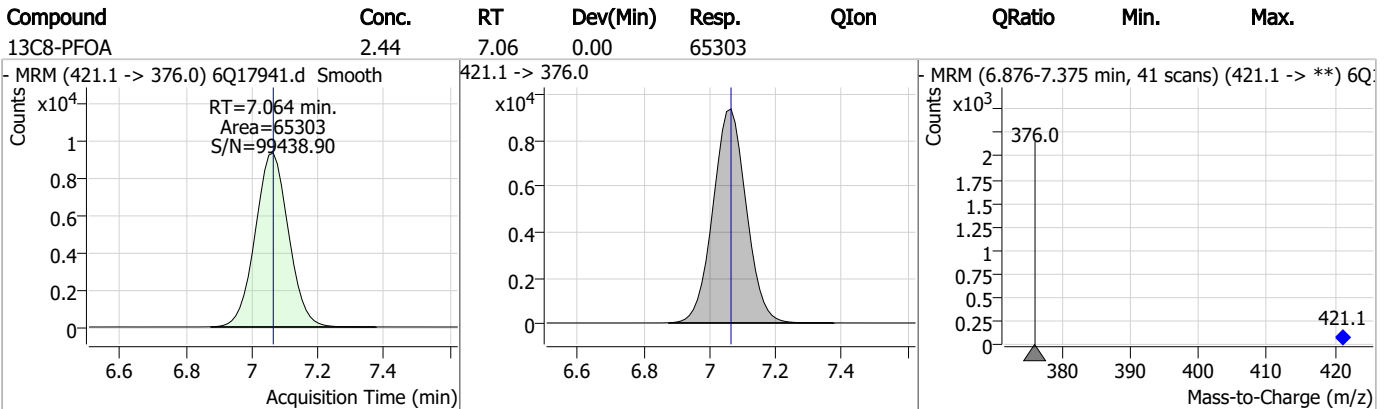
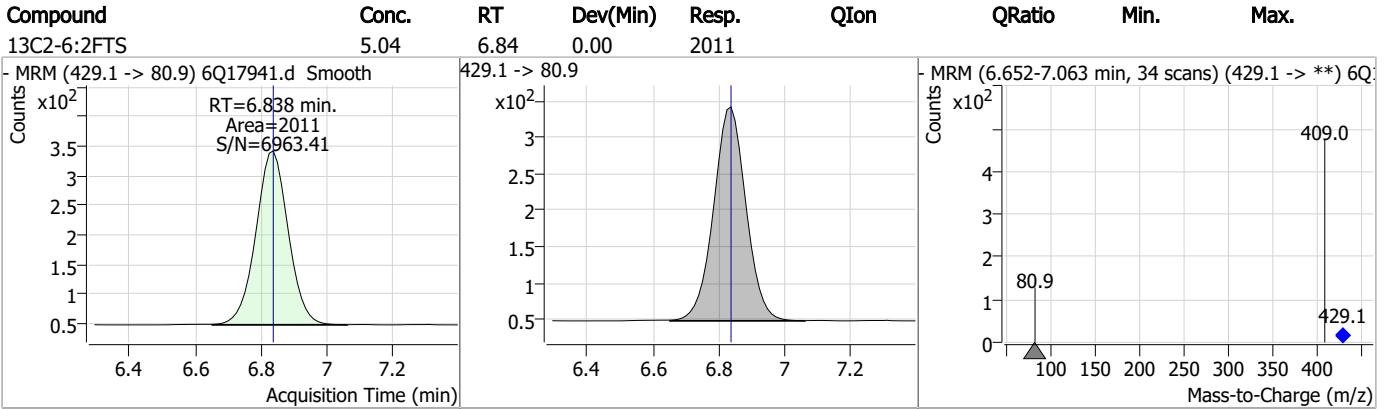


Perfluorinated Compounds by LC/MS/MS

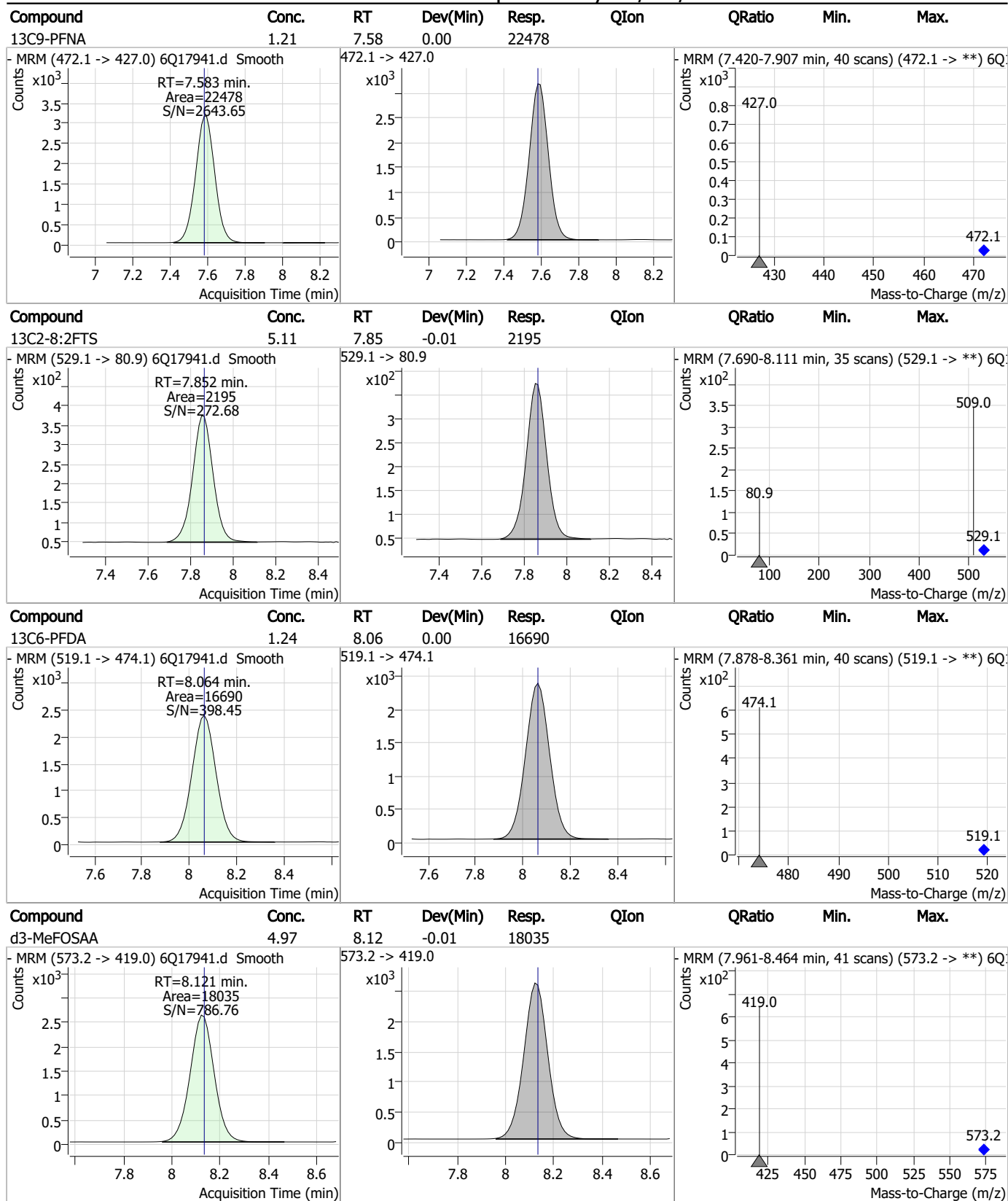


7.2.2
7

Perfluorinated Compounds by LC/MS/MS

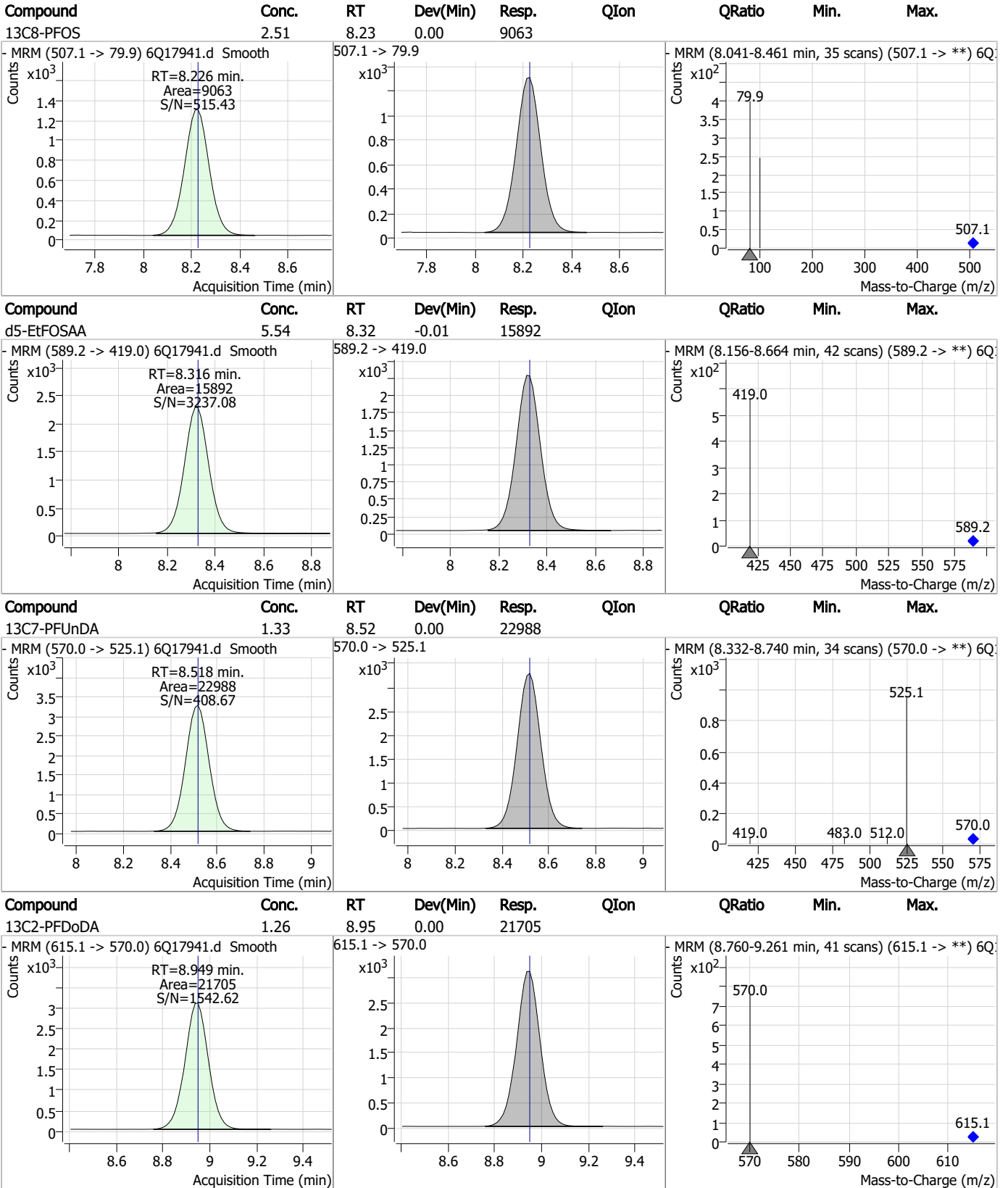


Perfluorinated Compounds by LC/MS/MS



7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2

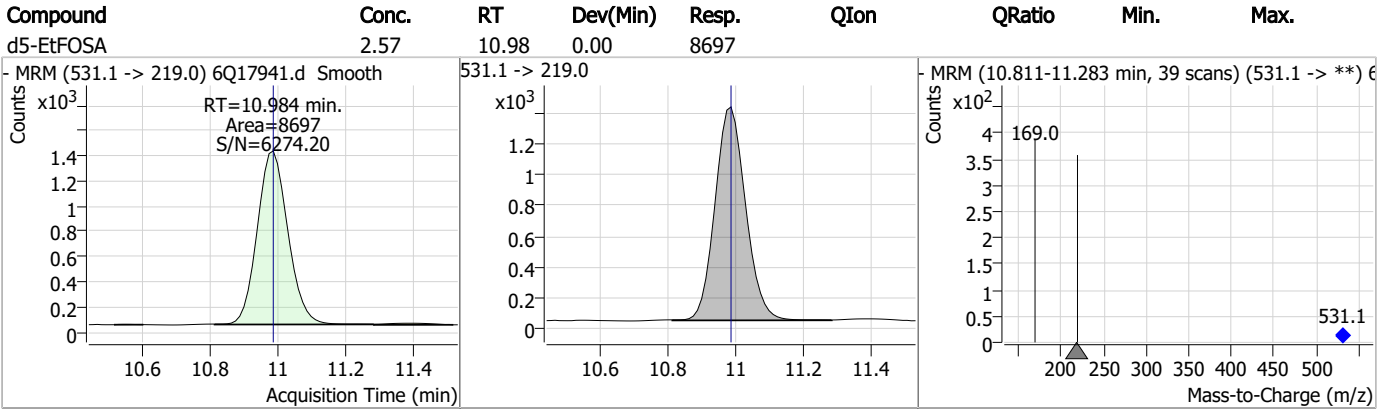
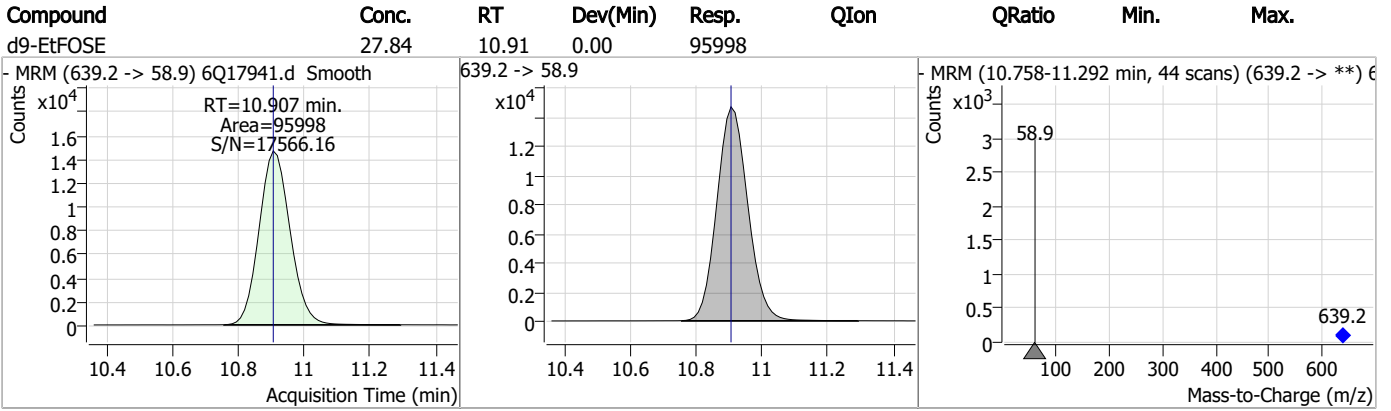
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.78	9.64	-0.01	21400				
13C2-PFTeDA	1.26	9.68	0.00	14650				
d7-MeFOSE	28.65	10.67	0.00	81780				
d3-MeFOSA	2.63	10.75	0.00	7380				

7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17955.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 4:33:40 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96663,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	149062	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	46773	5.00 µg/L	-0.012
M5-PFHxA	5.454	318.0 -> 273.0	54815	2.50 µg/L	-0.012
M4-PFHpA	6.420	367.1 -> 322.0	46915	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	70951	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	22840	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	16346	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	23047	1.25 µg/L	-0.012
M2-PFDoDA	8.937	615.1 -> 570.0	22467	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	15121	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	21612	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	18295	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10375	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	9503	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1486	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1894	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	1951	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	17014	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	32318	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	15519	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	84744	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	99796	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8845	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7166	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	13294	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	61875	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	8026	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	73763	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21602	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	26106	1.25 µg/L	0.000
13C2-PFHxA	5.454	315.1 -> 270.0	43244	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1486	4.86 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1894	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C2-8:2FTS	7.852	529.1 -> 80.9	1951	4.60 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.1%		
13C2-PFDoDA	8.937	615.1 -> 570.0	22467	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-PFTeDA	9.664	715.2 -> 670.0	15121	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFBS	5.384	302.1 -> 79.9	18295	2.62 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C3-PFHxS	7.167	402.1 -> 79.9	10375	2.43 µg/L	0.000

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 = 97.1%	
13C4-PFBA	2.901	216.8 -> 171.9	149062	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C4-PFHpA	6.420	367.1 -> 322.0	46915	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFHxA	5.454	318.0 -> 273.0	54815	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.2%	
13C5-PFPeA	4.259	268.3 -> 223.0	46773	5.14 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C6-PFDA	8.064	519.1 -> 474.1	16346	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C7-PFUnDA	8.506	570.0 -> 525.1	23047	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-FOSA	9.636	506.1 -> 77.8	21612	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOA	7.064	421.1 -> 376.0	70951	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-PFOS	8.214	507.1 -> 79.9	9503	2.30 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C9-PFNA	7.583	472.1 -> 427.0	22840	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.7%	
d3-MeFOSAA	8.121	573.2 -> 419.0	17014	4.08 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	32318	10.21 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d3-MeFOSA	10.752	515.0 -> 219.0	7166	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.2%	
d5-EtFOSAA	8.316	589.2 -> 419.0	15519	4.71 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
d7-MeFOSE	10.660	623.2 -> 58.9	84744	25.88 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	99796	25.22 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d5-EtFOSA	10.984	531.1 -> 219.0	8845	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.2%	

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.	

7.2.3
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	-	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

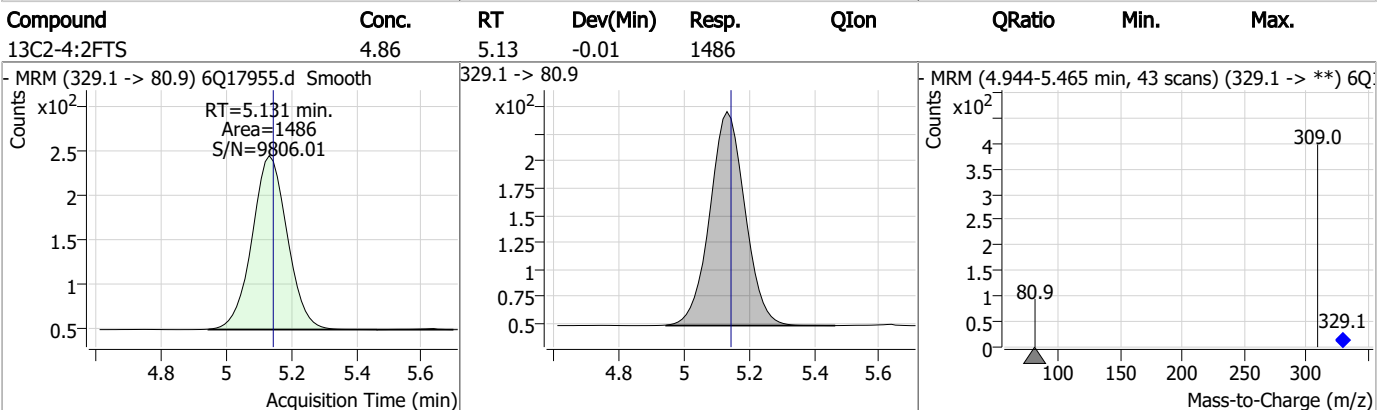
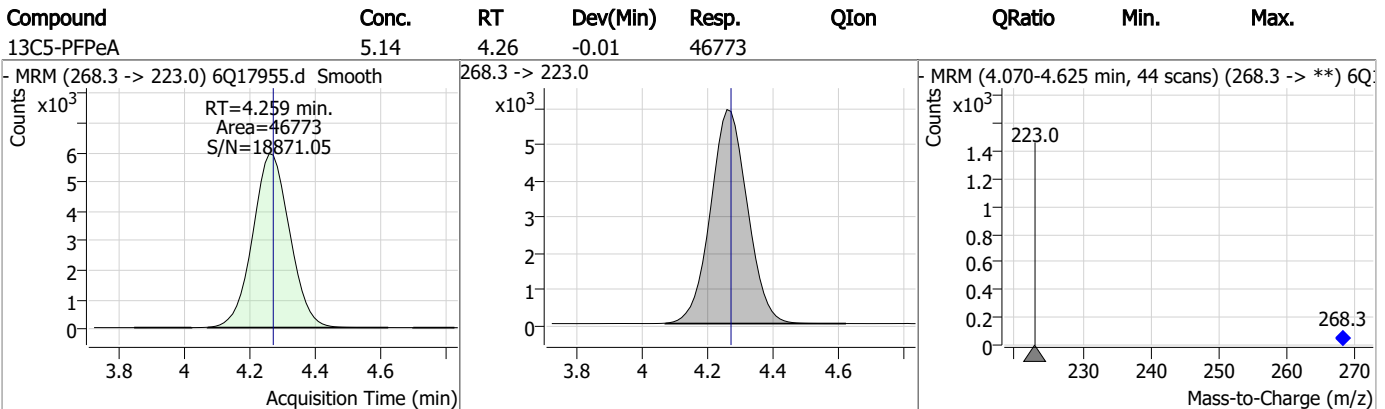
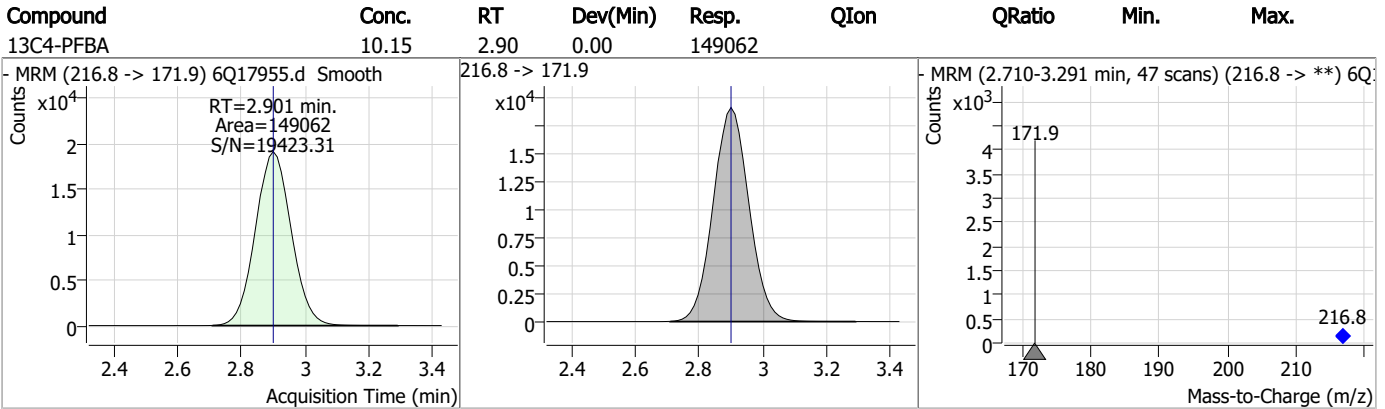
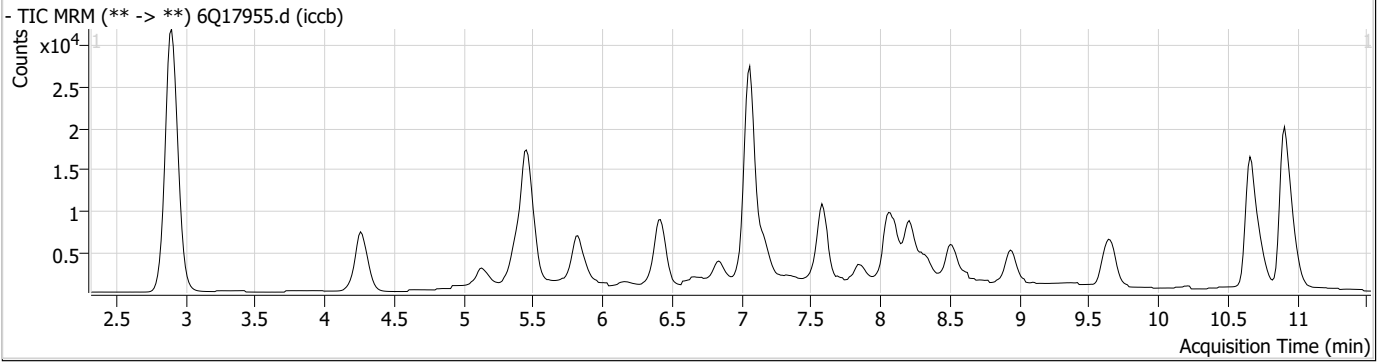
Perfluorinated Compounds by LC/MS/MS

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

7

Perfluorinated Compounds by LC/MS/MS

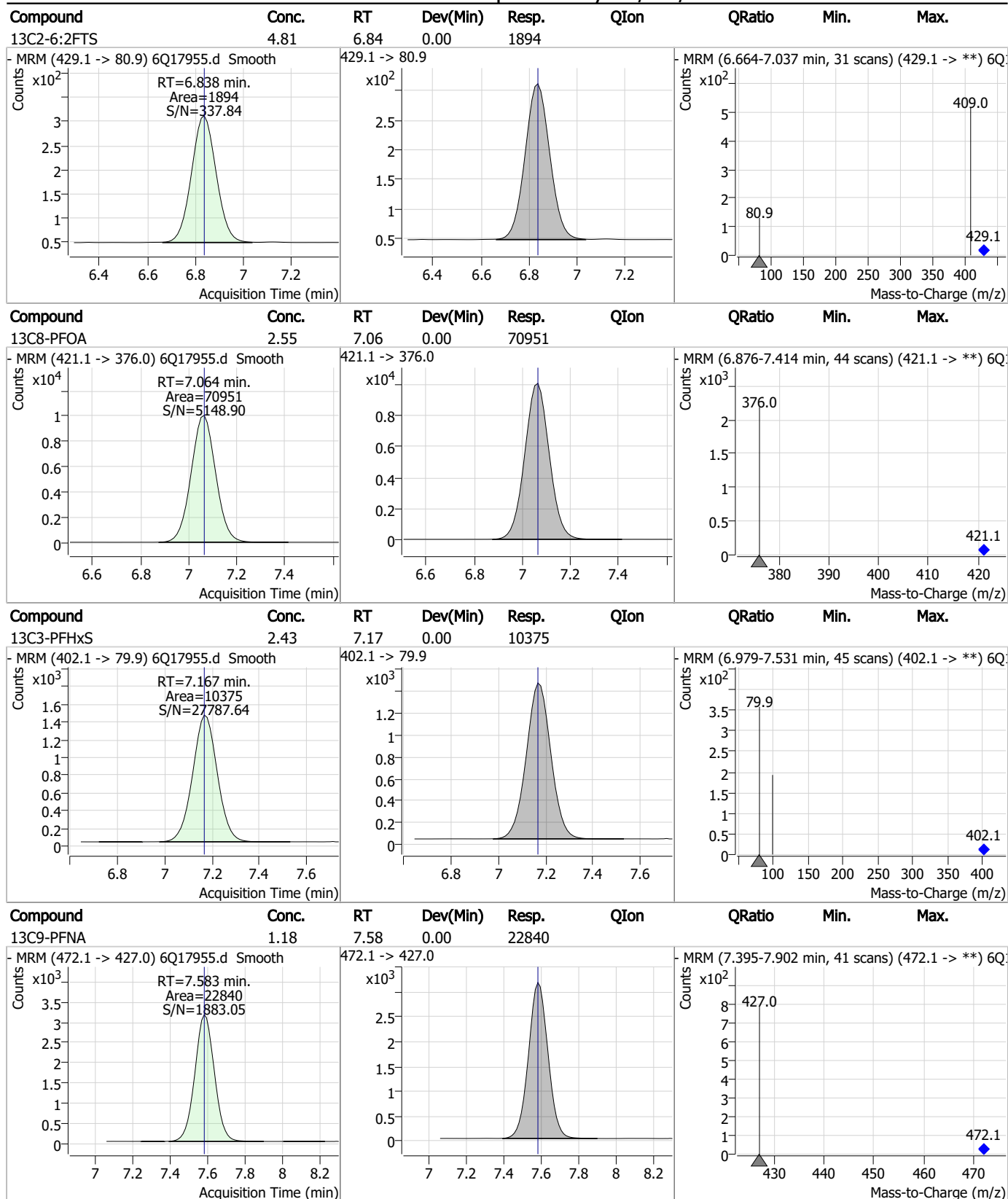


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.62	5.38	-0.01	18295				
13C5-PFHxA	2.68	5.45	-0.01	54815				
13C3-HFPO-DA	10.21	5.83	0.00	32318				
13C4-PFHpA	2.61	6.42	0.00	46915				

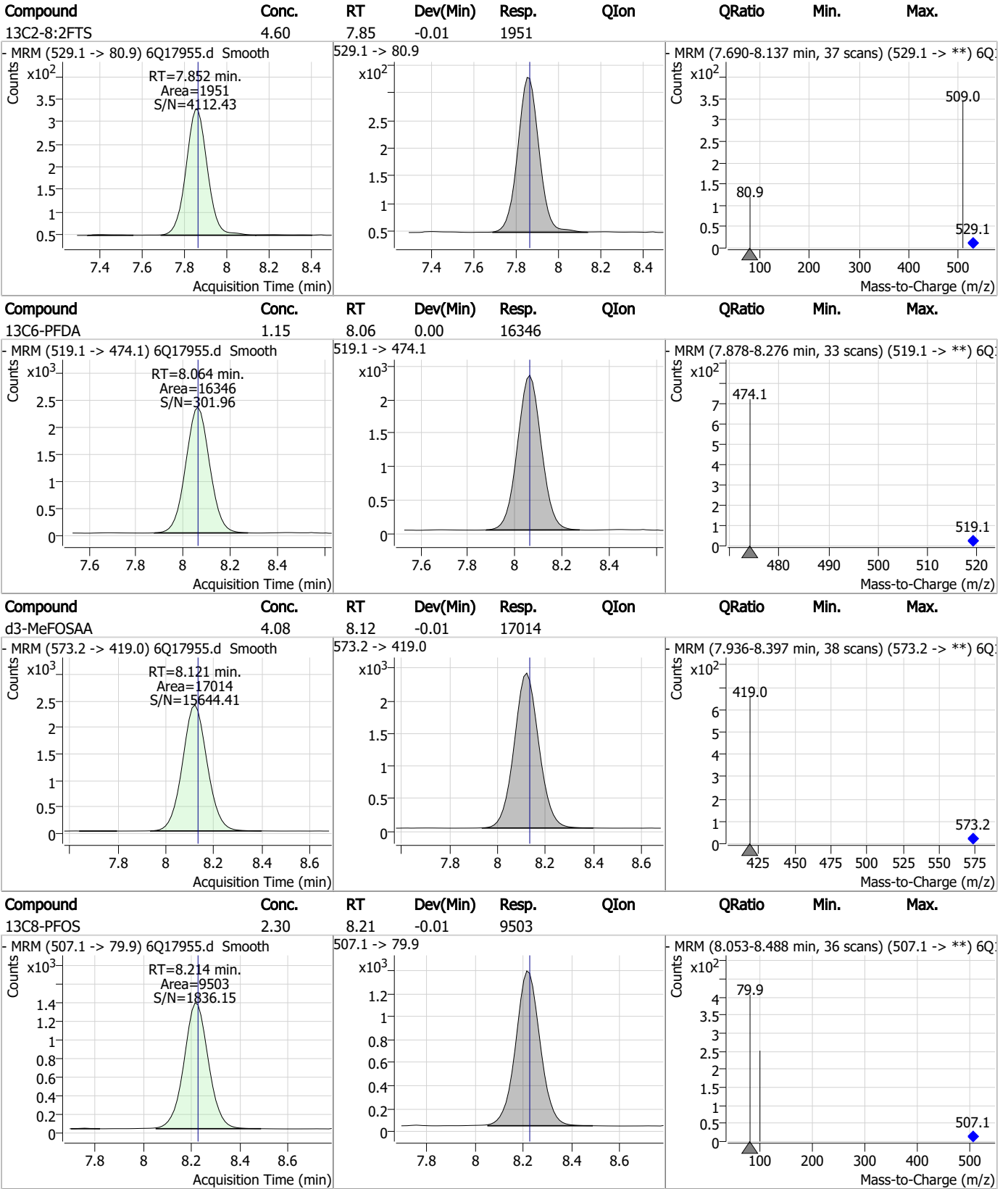
7.2.3
7

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

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.71	8.32	-0.01	15519				
13C7-PFUnDA	1.27	8.51	-0.01	23047				
13C2-PFDoDA	1.24	8.94	-0.01	22467				
13C8-FOSA	2.45	9.64	-0.01	21612				

7.2.3
7

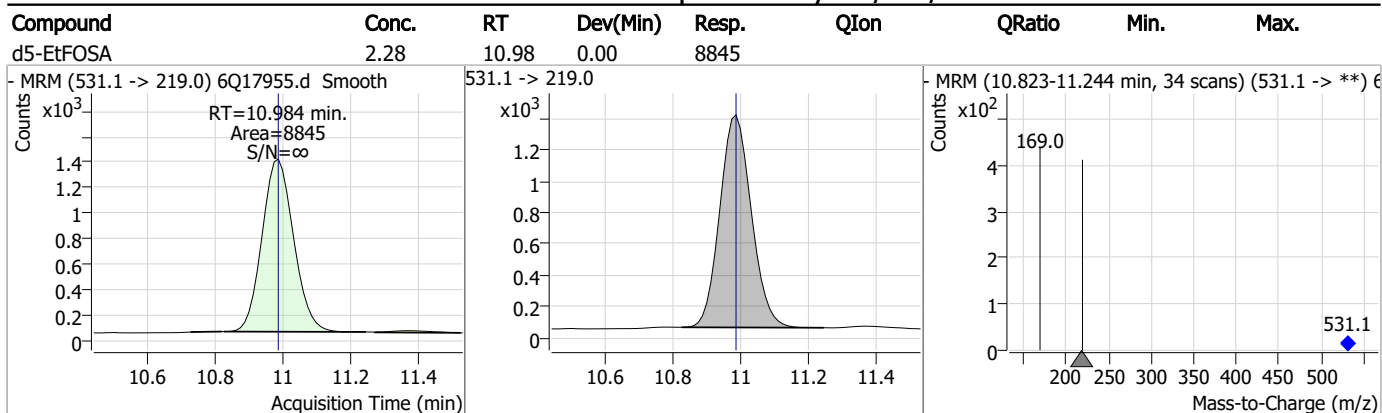
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.66	-0.01	15121				
d7-MeFOSE	25.88	10.66	-0.01	84744				
d3-MeFOSA	2.23	10.75	0.00	7166				
d9-EtFOSE	25.22	10.91	0.00	99796				

7.2.3

7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17945.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 2:08:44 PM
 Sample Name : op96892-bs
 Vial : P2-A1
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	30379	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	38718	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	49600	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	40087	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	61657	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	19878	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	16171	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	19241	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	19154	1.25 µg/L	0.000
M2-PFTeDA	9.664	715.2 -> 670.0	13286	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	15430	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	16327	2.50 µg/L	-0.013
M3-PFHxS	7.179	402.1 -> 79.9	9842	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	8606	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	1289	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1896	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	1932	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	16683	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	29201	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	13887	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	44416	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	64187	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	6370	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	5419	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	9865	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	52023	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	6718	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	57520	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	16717	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	21868	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	36462	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1289	5.04 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1896	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	1932	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-PFDoDA	8.949	615.1 -> 570.0	19154	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C2-PFTeDA	9.664	715.2 -> 670.0	13286	1.40 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.1%		
13C3-PFBS	5.384	302.1 -> 79.9	16327	2.79 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C3-PFHxS	7.179	402.1 -> 79.9	9842	2.75 µg/L	0.012

7.3.1
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 = 110.0%	
13C4-PFBA	2.901	216.8 -> 171.9	30379	2.46 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 24.6%	
13C4-PFHpA	6.420	367.1 -> 322.0	40087	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C5-PFHxA	5.466	318.0 -> 273.0	49600	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.1%	
13C5-PFPeA	4.259	268.3 -> 223.0	38718	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C6-PFDA	8.064	519.1 -> 474.1	16171	1.48 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 118.1%	
13C7-PFUnDA	8.518	570.0 -> 525.1	19241	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C8-FOSA	9.636	506.1 -> 77.8	15430	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-PFOA	7.064	421.1 -> 376.0	61657	2.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C8-PFOS	8.226	507.1 -> 79.9	8606	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C9-PFNA	7.595	472.1 -> 427.0	19878	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	16683	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	29201	10.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	5419	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.9%	
d5-EtFOSAA	8.329	589.2 -> 419.0	13887	5.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.6%	
d7-MeFOSE	10.660	623.2 -> 58.9	44416	18.28 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.1%	
d9-EtFOSE	10.907	639.2 -> 58.9	64187	21.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
d5-EtFOSA	10.984	531.1 -> 219.0	6370	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.6%	
Target Compounds					QValue
4:2FTS	5.132	327.1 -> 307.0	18948	9.78 µg/L	98
		327.1 -> 80.9	7315		
6:2FTS	6.838	427.1 -> 407.0	18107	8.77 µg/L	97
		427.1 -> 80.9	6133		
8:2FTS	7.865	527.1 -> 507.0	10313	9.39 µg/L	97
		527.1 -> 80.8	4007		
EtFOSAA	8.330	584.2 -> 419.1	6138	2.37 µg/L	95
		584.2 -> 526.0	3010		
FOSA	9.639	498.1 -> 77.9	13902	2.41 µg/L	99
		498.1 -> 478.0	416		
MeFOSAA	8.134	570.1 -> 419.0	7625	2.36 µg/L	100
		570.1 -> 483.0	1506		
PFBA	2.907	212.8 -> 168.9	10289	9.44 µg/L	100
PFBS	5.385	298.7 -> 79.9	16687	2.09 µg/L	98
		298.7 -> 98.8	6270		
PFDA	8.064	512.9 -> 469.0	49178	2.46 µg/L	96
		512.9 -> 219.0	7200		
PFDoDA	8.950	613.1 -> 569.0	36101	2.37 µg/L	99
		613.1 -> 319.0	5088		
PFDS	9.101	599.0 -> 79.9	6622	2.37 µg/L	95

7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	3182	2.58	µg/L	98
		363.1 -> 319.0	51600			
PFHpS	7.735	363.1 -> 169.0	7922	2.31	µg/L	89
		449.0 -> 79.9	10592			
PFHxA	5.457	449.0 -> 98.9	4729	2.37	µg/L	100
		313.0 -> 269.0	46536			
PFHxS	7.180	313.0 -> 118.9	2168	2.11	µg/L	98
		398.7 -> 79.9	11511			
PFNA	7.596	398.7 -> 98.9	5568	2.41	µg/L	96
		463.0 -> 419.0	35646			
PFNS	8.681	463.0 -> 219.0	6573	2.37	µg/L	96
		548.8 -> 79.9	9848			
PFOA	7.066	548.8 -> 98.9	5439	2.34	µg/L	99
		413.0 -> 369.0	71937			
PFOS	8.228	413.0 -> 169.0	11657	2.33	µg/L	91
		498.9 -> 79.9	10500			
PFPeA	4.262	498.9 -> 98.8	4988	4.76	µg/L	100
		263.0 -> 219.0	53219			
PFPeS	6.471	349.1 -> 79.9	12322	2.28	µg/L	99
		349.1 -> 98.9	5604			
PFTeDA	9.665	713.1 -> 669.0	31349	2.30	µg/L	99
		713.1 -> 168.9	2292			
PFTrDA	9.333	663.0 -> 619.0	42426	2.40	µg/L	96
		663.0 -> 168.9	3966			
PFUnDA	8.518	563.1 -> 519.0	33064	2.37	µg/L	98
		563.1 -> 269.1	4924			
11CI-PF3OUdS	9.385	630.9 -> 450.9	47817	4.33	µg/L	93
		632.9 -> 452.9	15044			
9CI-PF3ONS	8.557	530.8 -> 351.0	74425	4.22	µg/L	95
		532.8 -> 353.0	23377			
ADONA	6.671	376.9 -> 250.9	203680	4.38	µg/L	91
		376.9 -> 84.8	57664			
HFPO-DA	5.832	284.9 -> 168.9	13668	4.84	µg/L	99
		284.9 -> 184.9	1836			
3:3FTCA	3.790	241.0 -> 177.0	3228	4.66	µg/L	97
		241.0 -> 117.0	475			
5:3FTCA	6.161	341.0 -> 237.1	181836	53.42	µg/L	99
		341.0 -> 217.0	131295			
7:3FTCA	7.586	441.0 -> 316.9	92602	59.96	µg/L	97
		441.0 -> 336.9	189965			
EtFOSA	10.986	526.0 -> 219.0	13069	4.74	µg/L	95
		526.0 -> 169.0	15476			
EtFOSE	10.920	630.0 -> 58.9	30722	10.98	µg/L	100
		511.9 -> 219.0	11250			
MeFOSA	10.753	511.9 -> 169.0	15427	4.51	µg/L	94
		616.1 -> 58.9	24148			
MeFOSE	10.686	699.1 -> 79.9	3350	11.62	µg/L	100
		699.1 -> 98.8	1736			
PFDoDS	9.793	295.0 -> 201.0	9322	2.27	µg/L	93
		295.0 -> 84.9	2636			
NFDHA	5.348	279.0 -> 85.1	39188	4.30	µg/L	98
		229.0 -> 84.9	12181			
PFMBA	4.675	314.8 -> 134.9	102671	3.89	µg/L	100
		314.8 -> 82.9	3697			

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

7.3.1
7

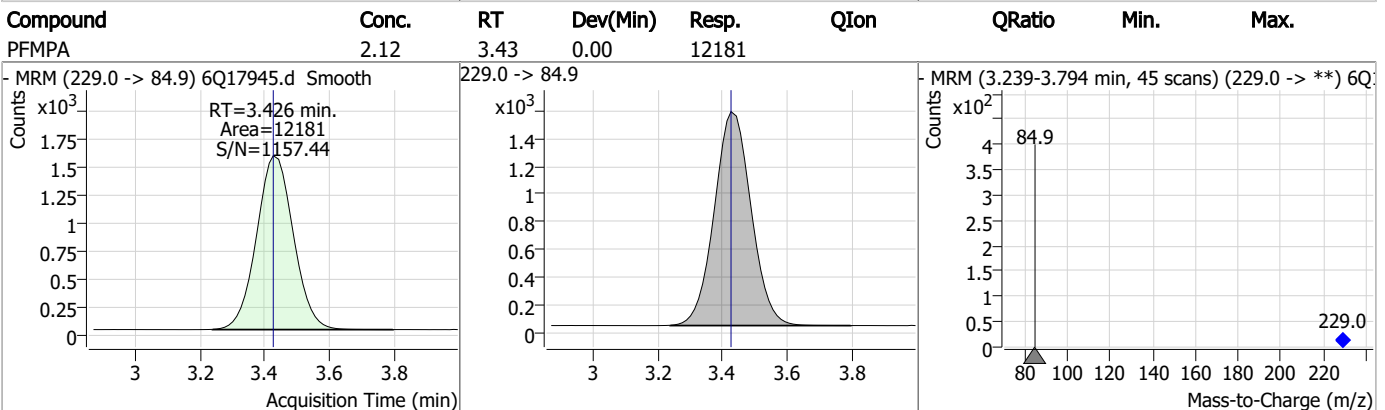
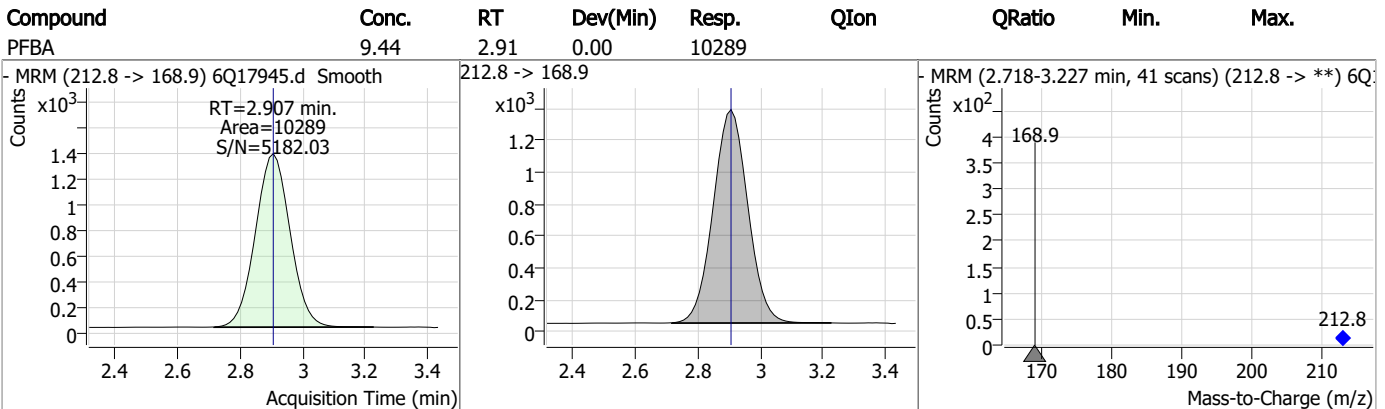
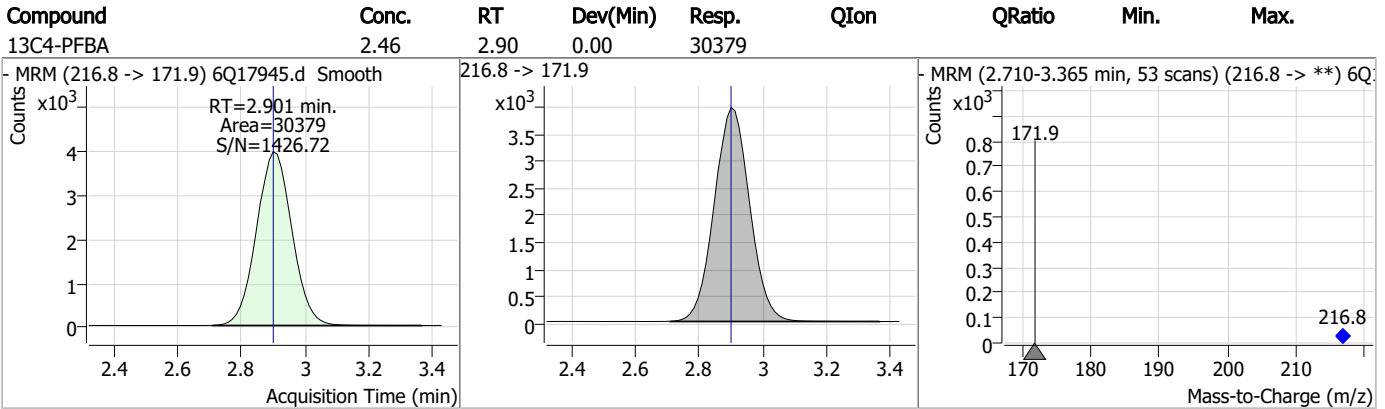
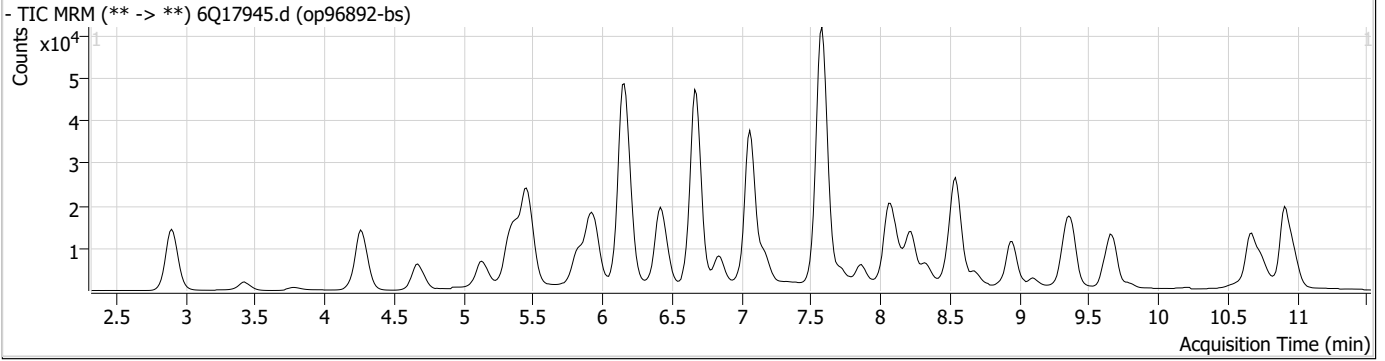
Perfluorinated Compounds by LC/MS/MS

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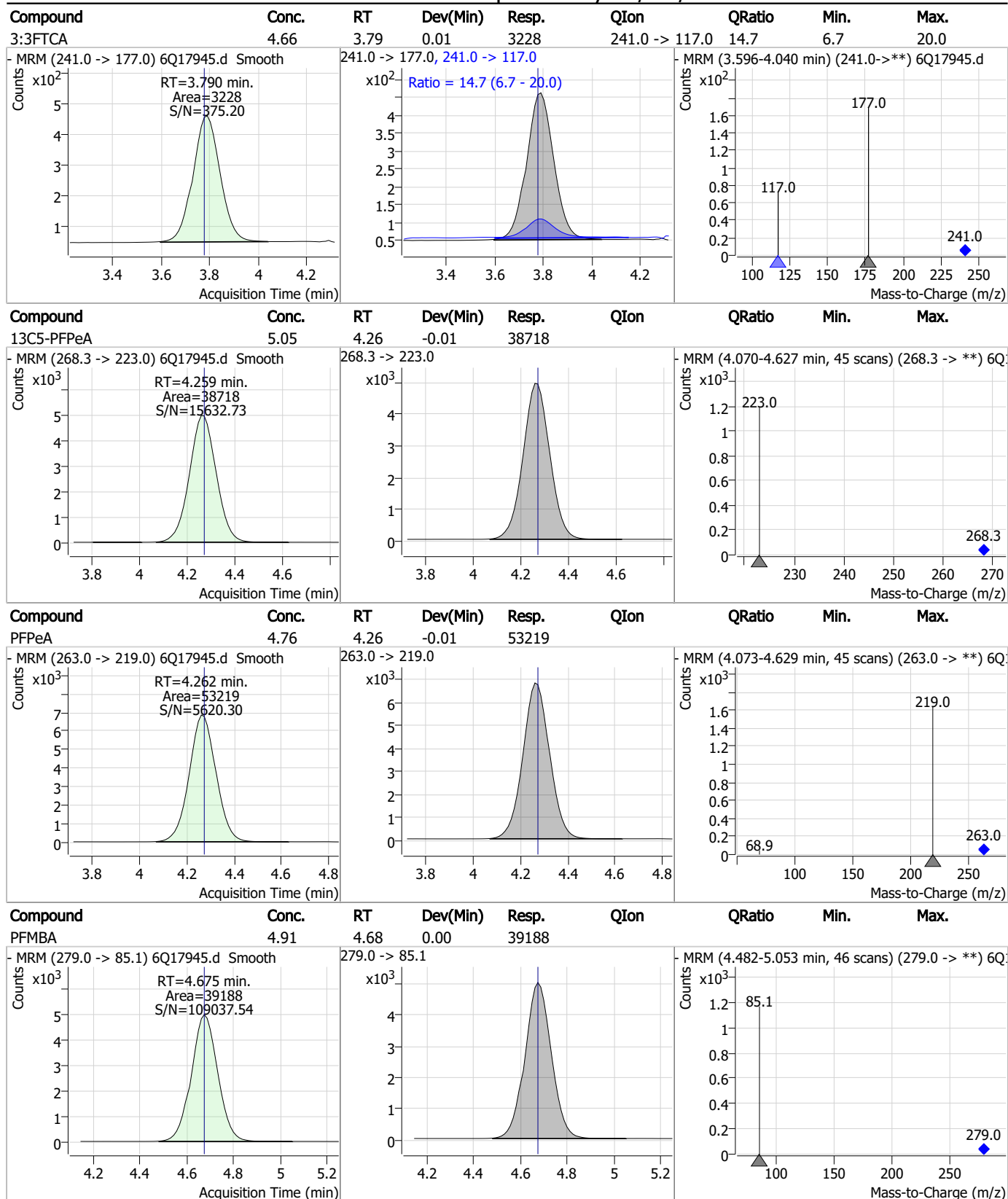
7.3.1

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Perfluorinated Compounds by LC/MS/MS

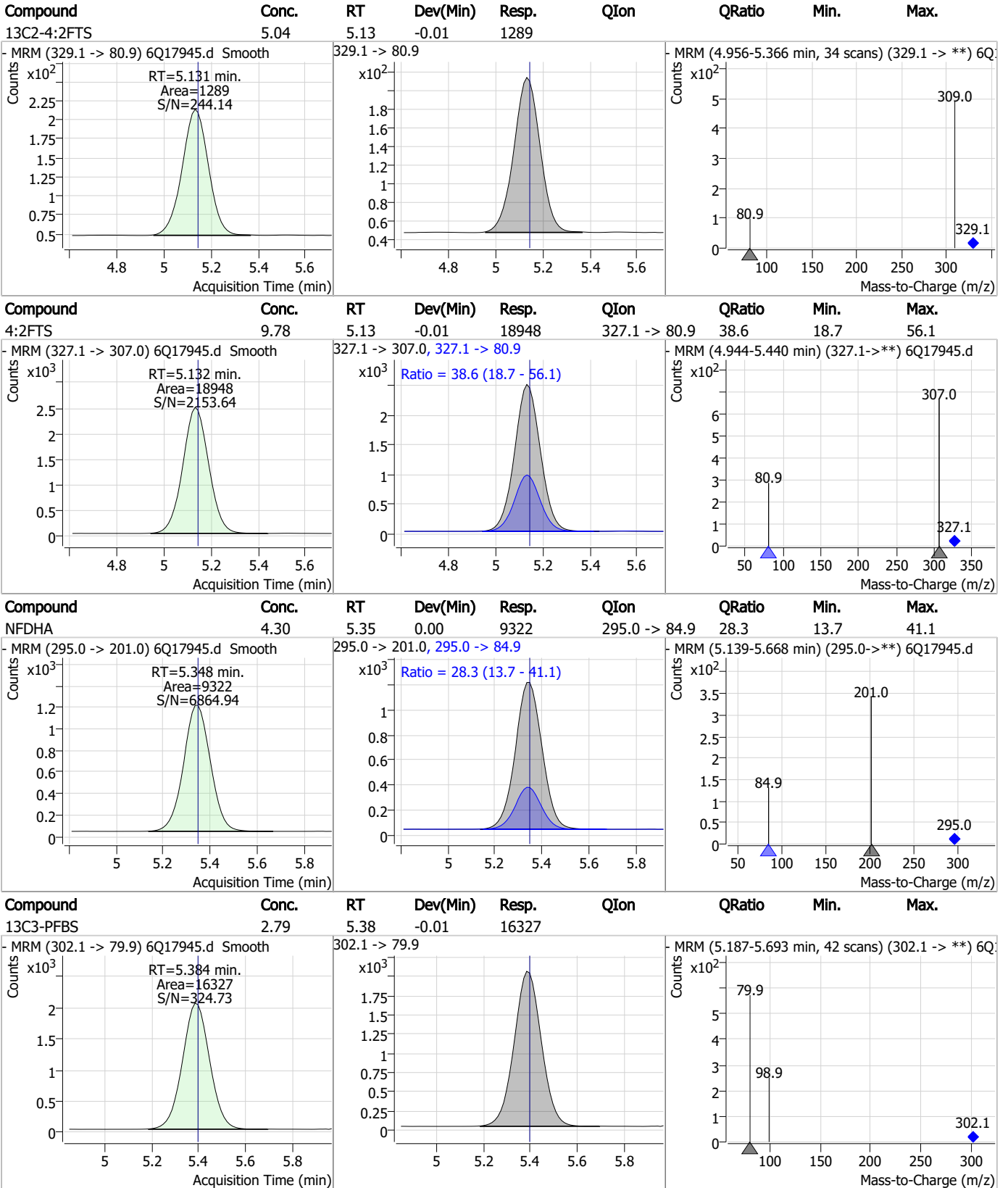


Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Perfluorinated Compounds by LC/MS/MS

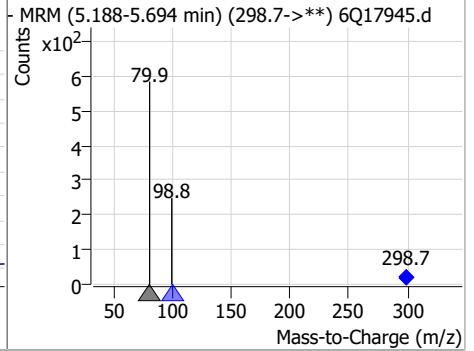
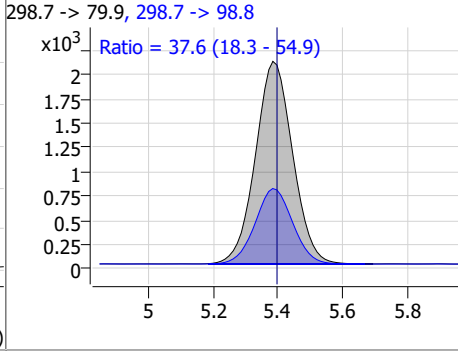
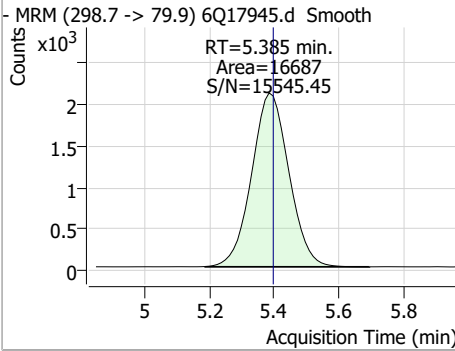


7.3.1

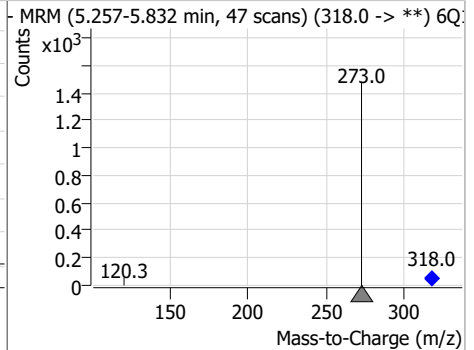
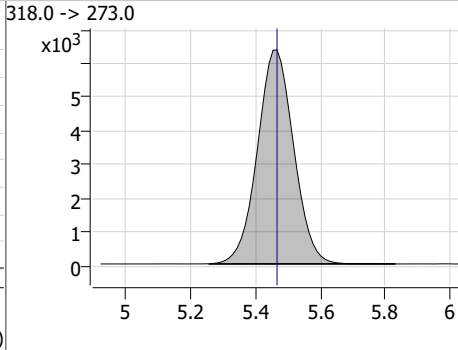
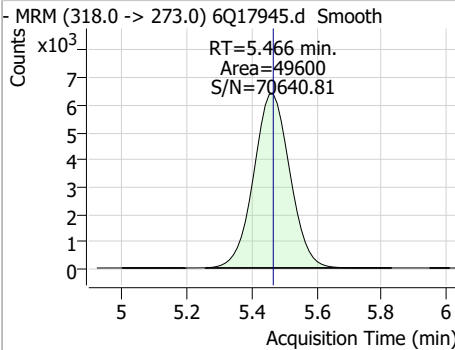
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Perfluorinated Compounds by LC/MS/MS

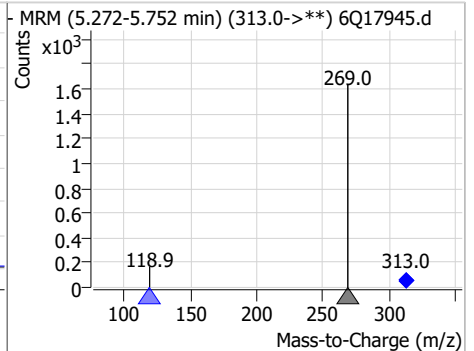
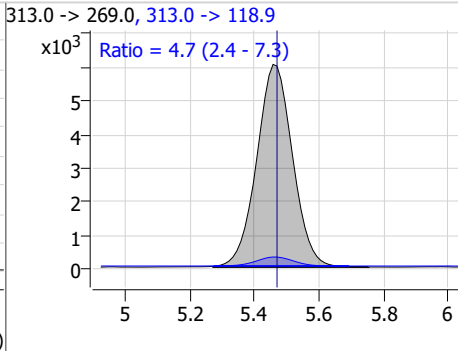
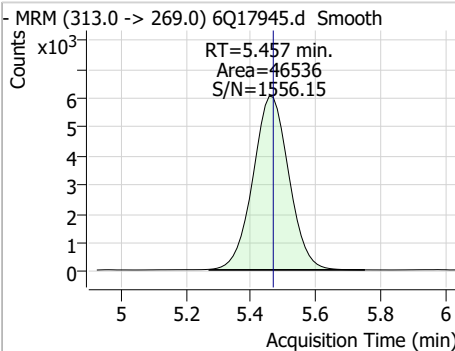
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.09	5.38	-0.01	16687	298.7 -> 98.8	37.6	18.3	54.9



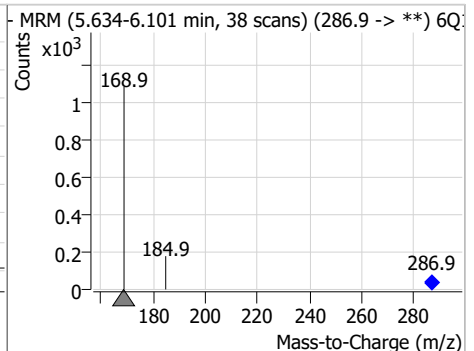
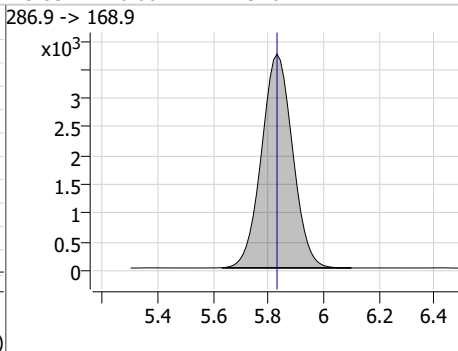
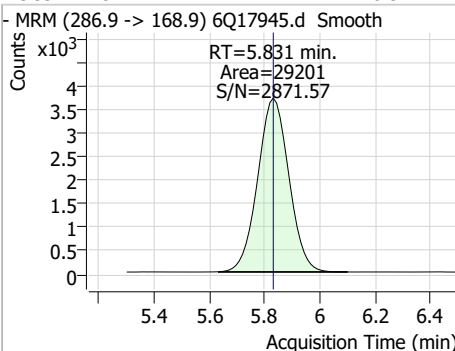
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.88	5.47	0.00	49600	318.0 -> 273.0	4.7	2.4	7.3



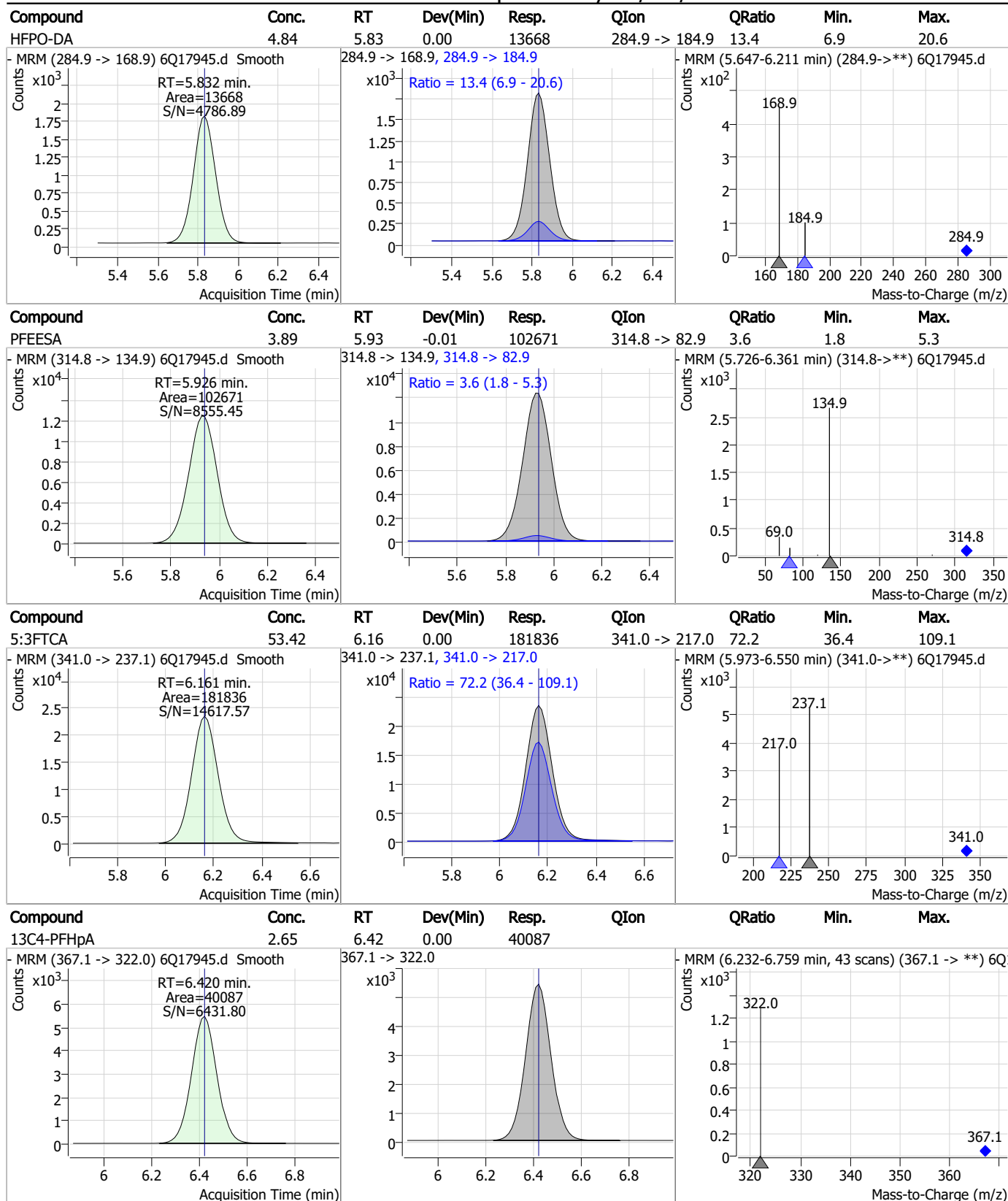
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.37	5.46	-0.01	46536	313.0 -> 118.9	4.7	2.4	7.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.94	5.83	0.00	29201	286.9 -> 168.9	4.7	2.4	7.3

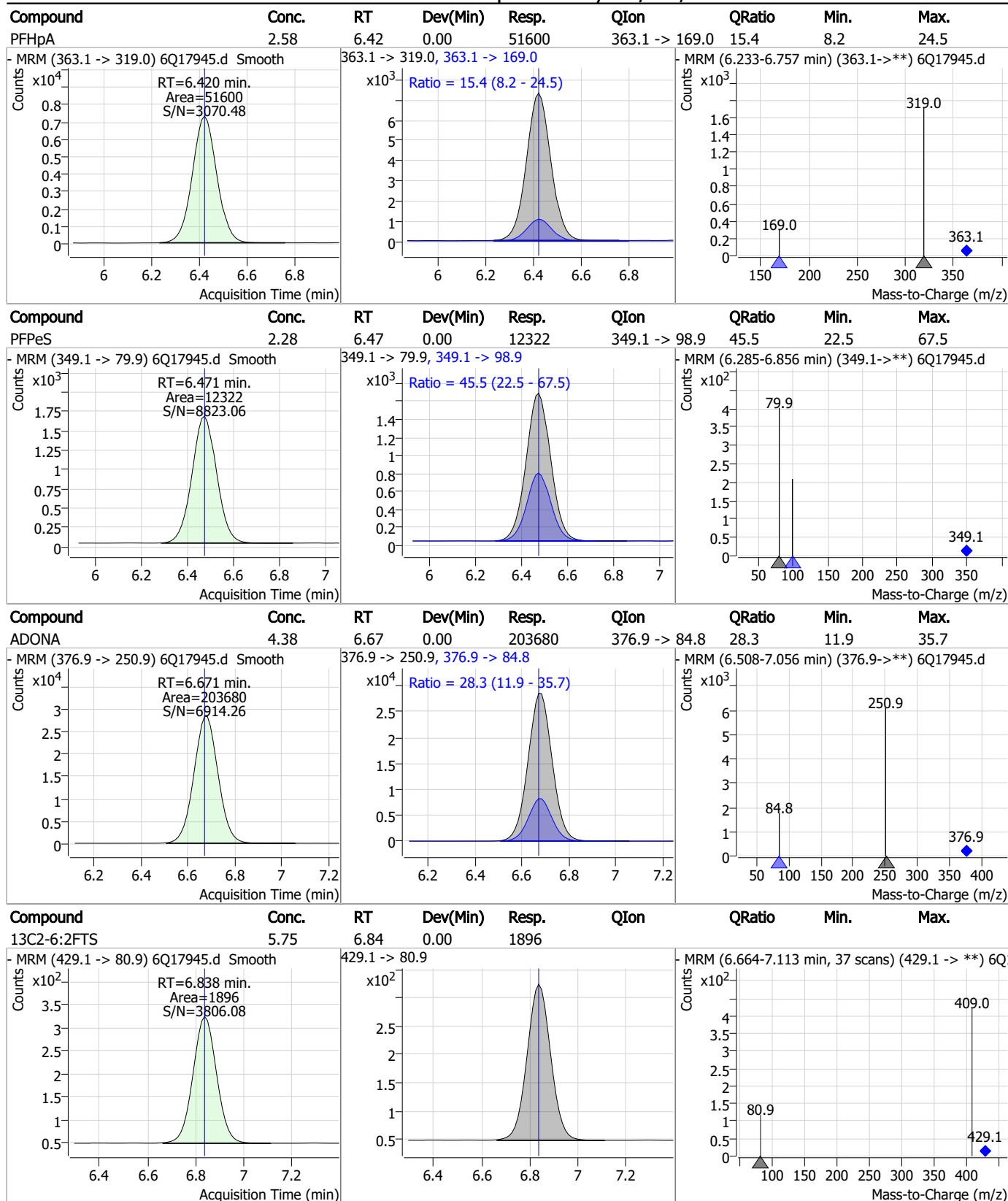


Perfluorinated Compounds by LC/MS/MS



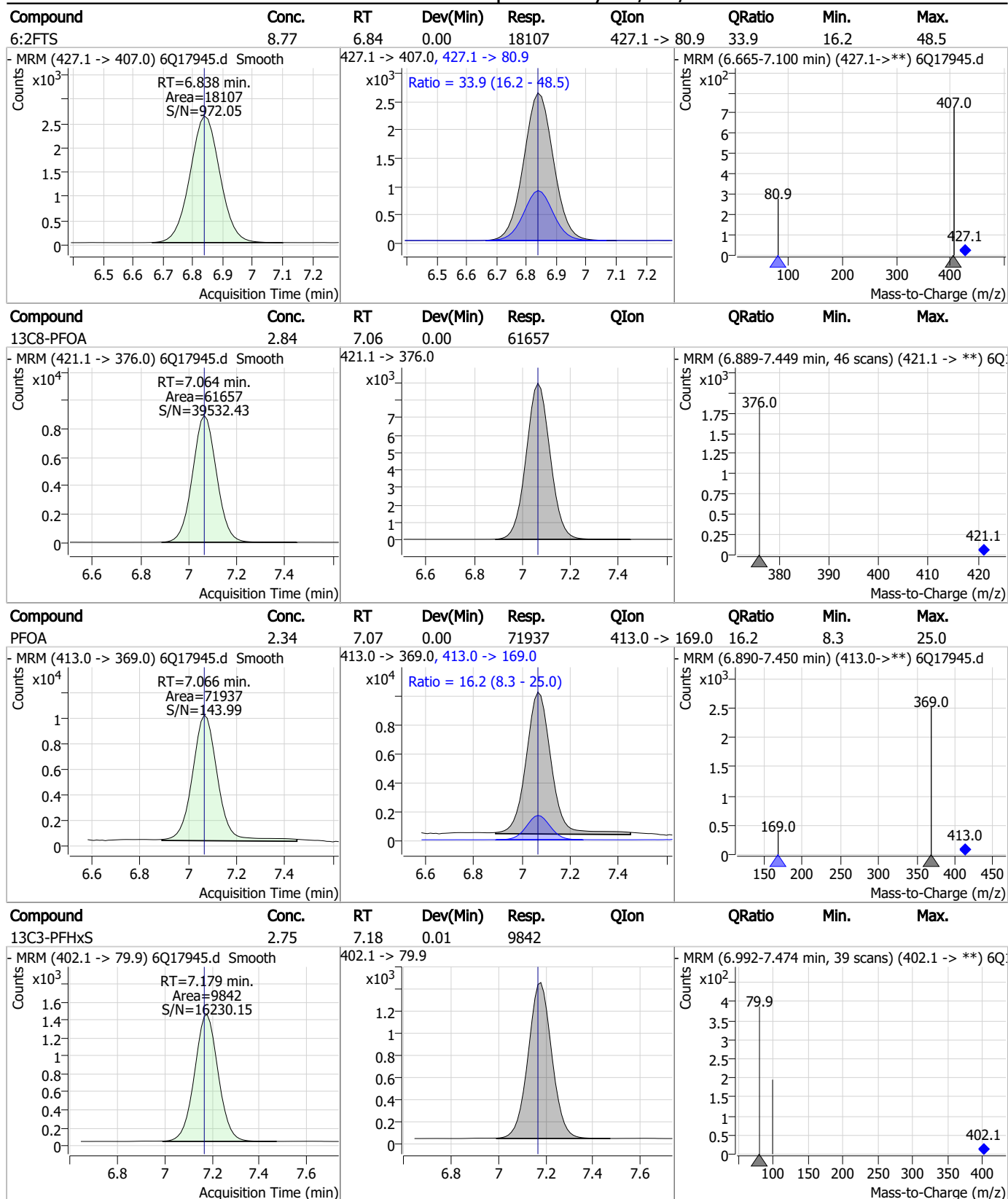
7.3.1
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Perfluorinated Compounds by LC/MS/MS



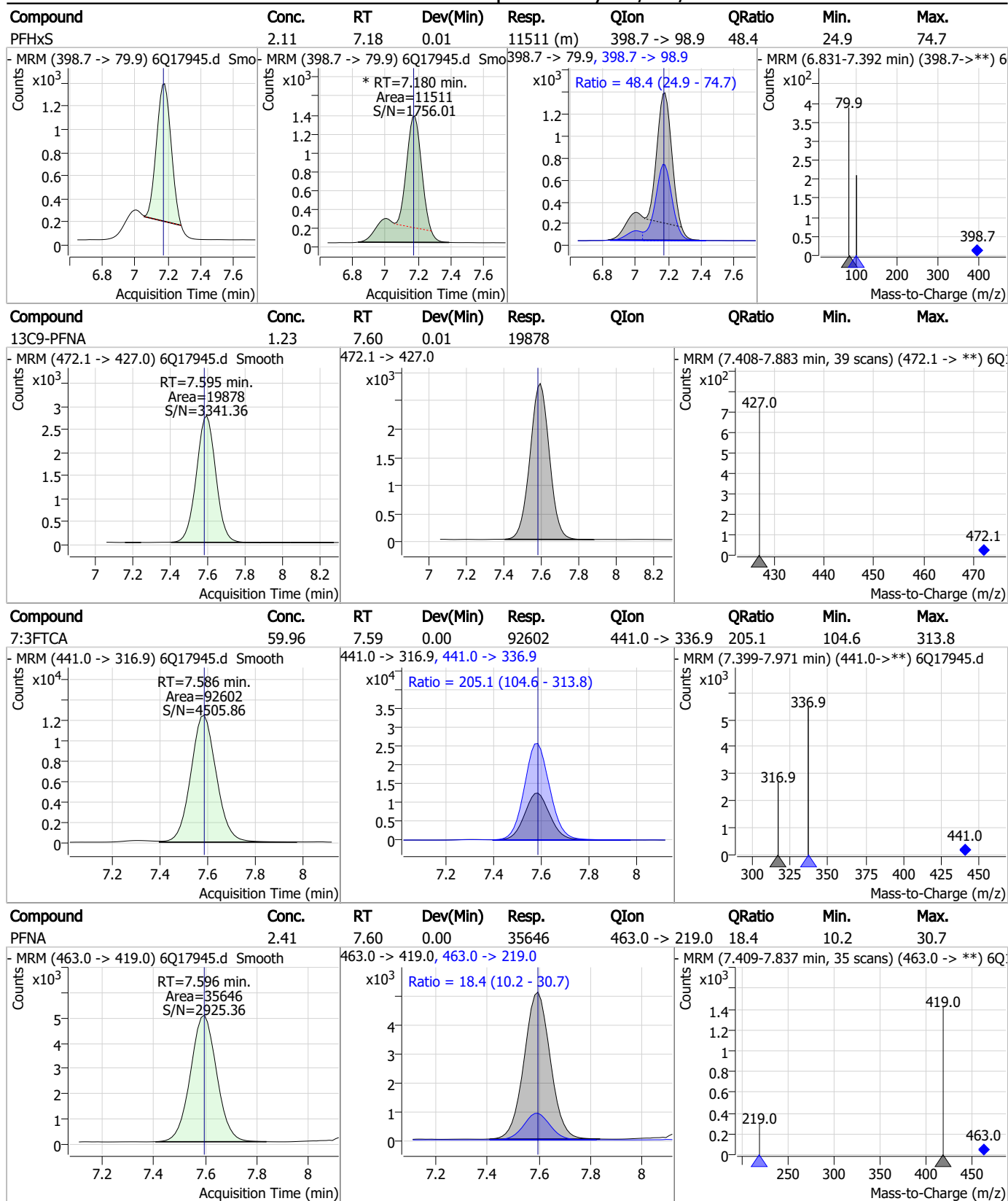
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Perfluorinated Compounds by LC/MS/MS



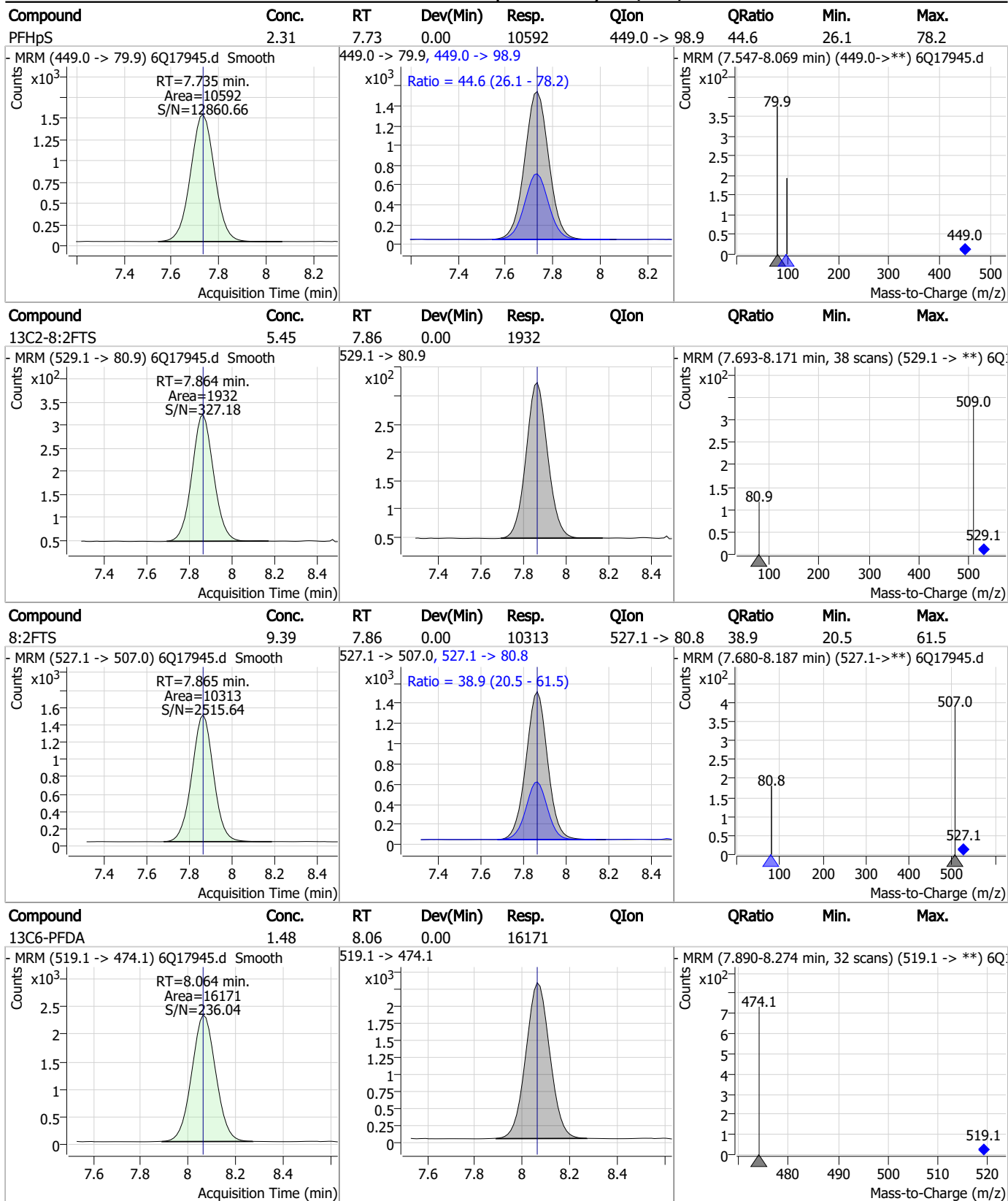
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Perfluorinated Compounds by LC/MS/MS



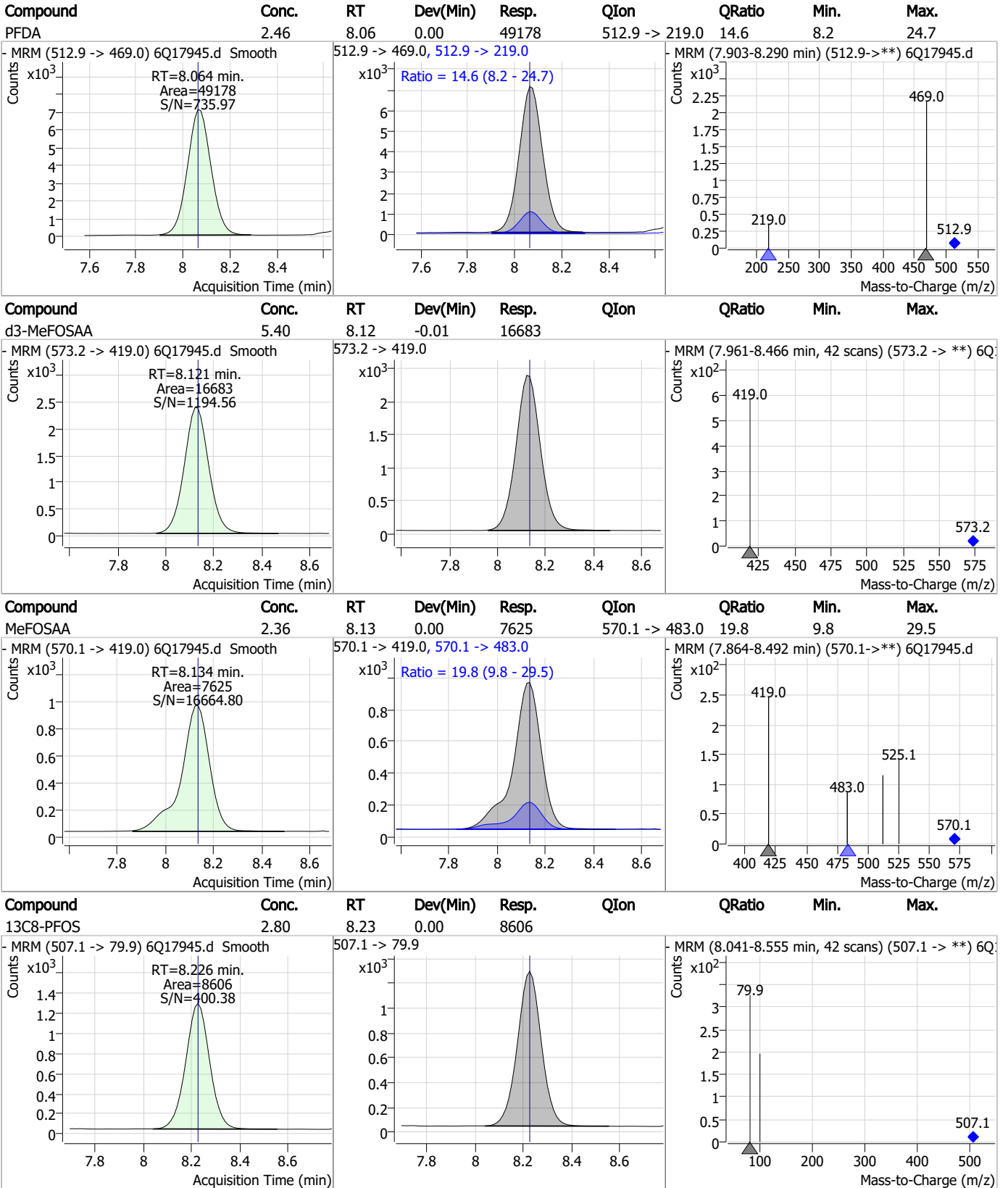
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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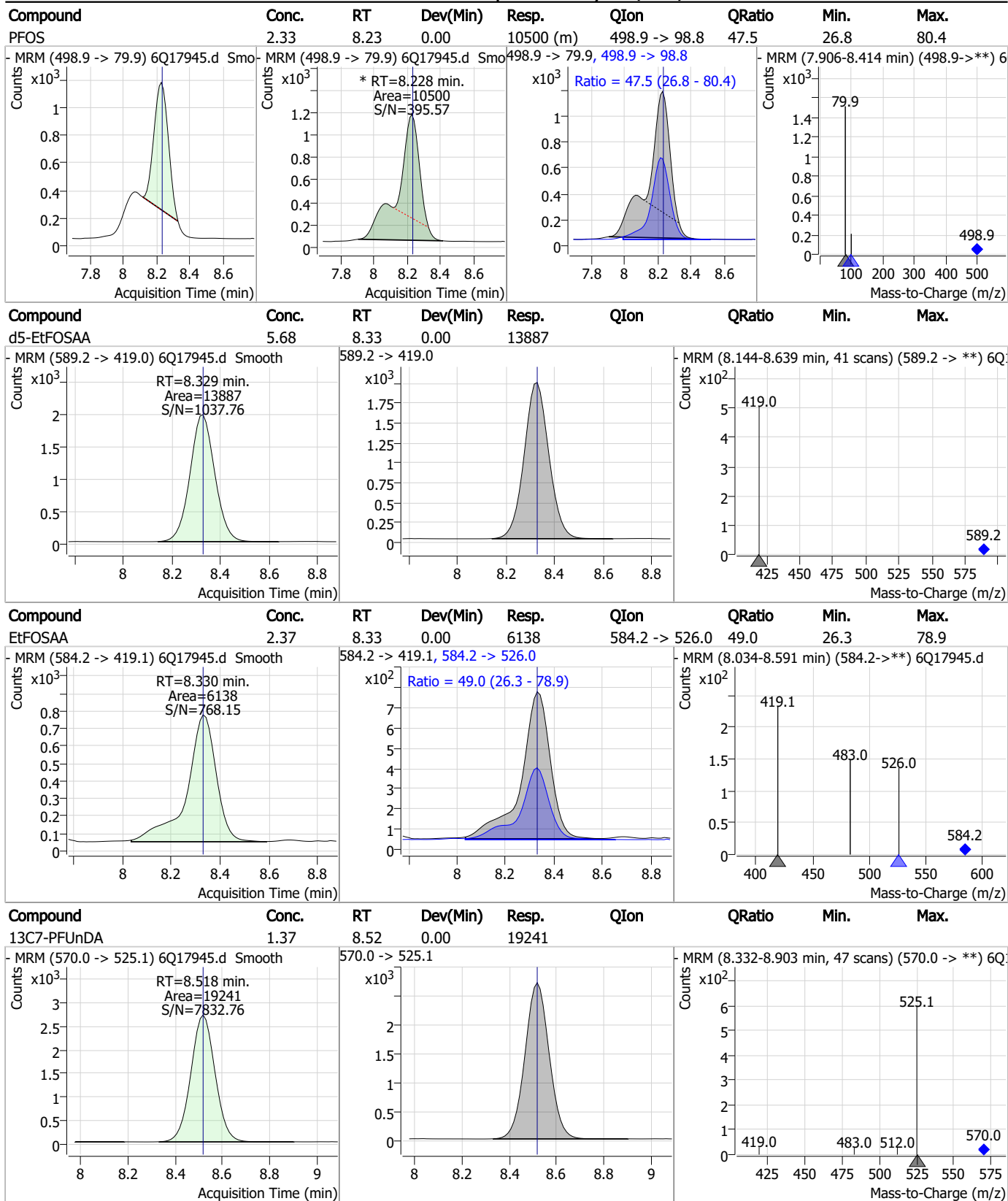
Perfluorinated Compounds by LC/MS/MS



7.3.1

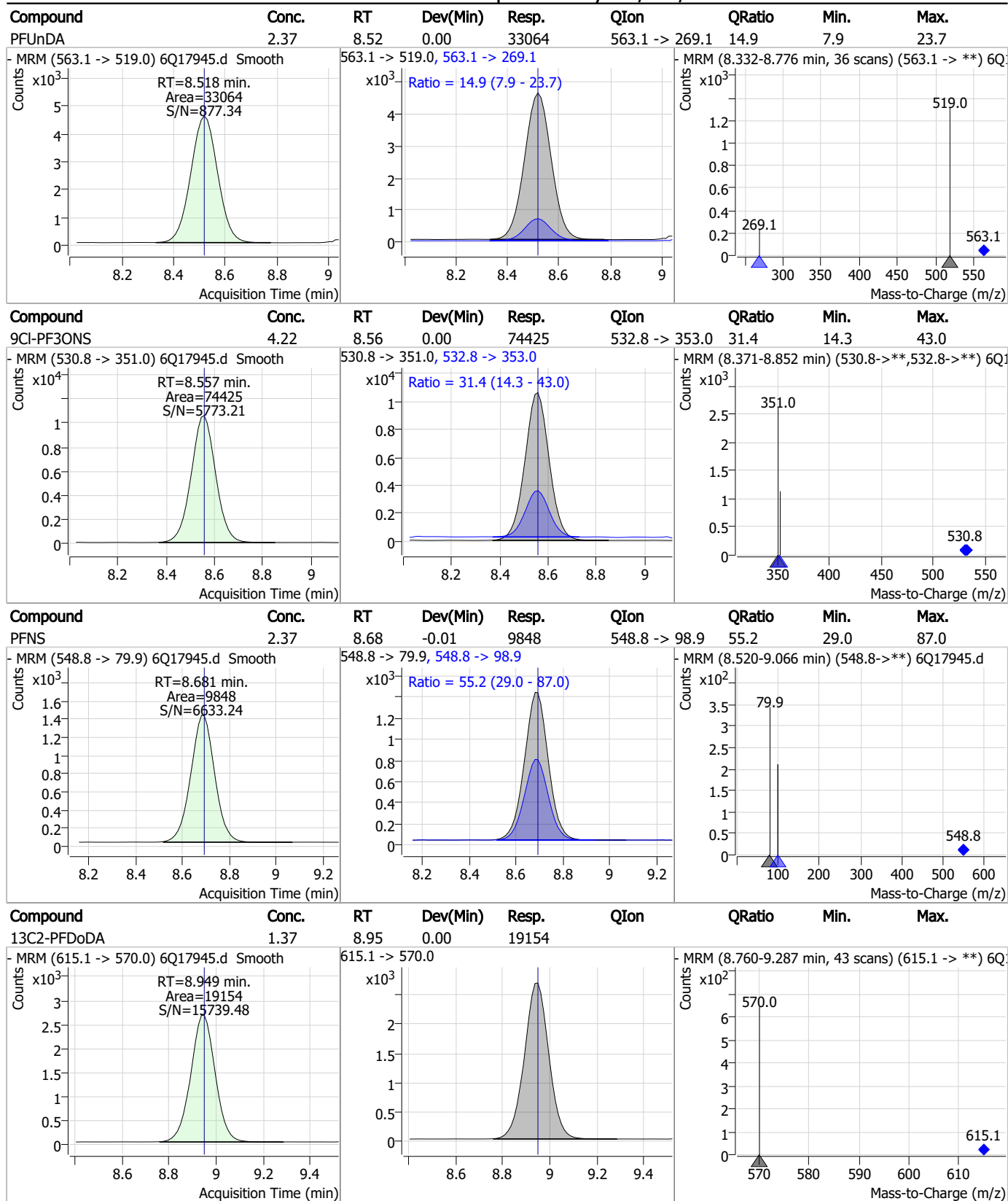
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Perfluorinated Compounds by LC/MS/MS



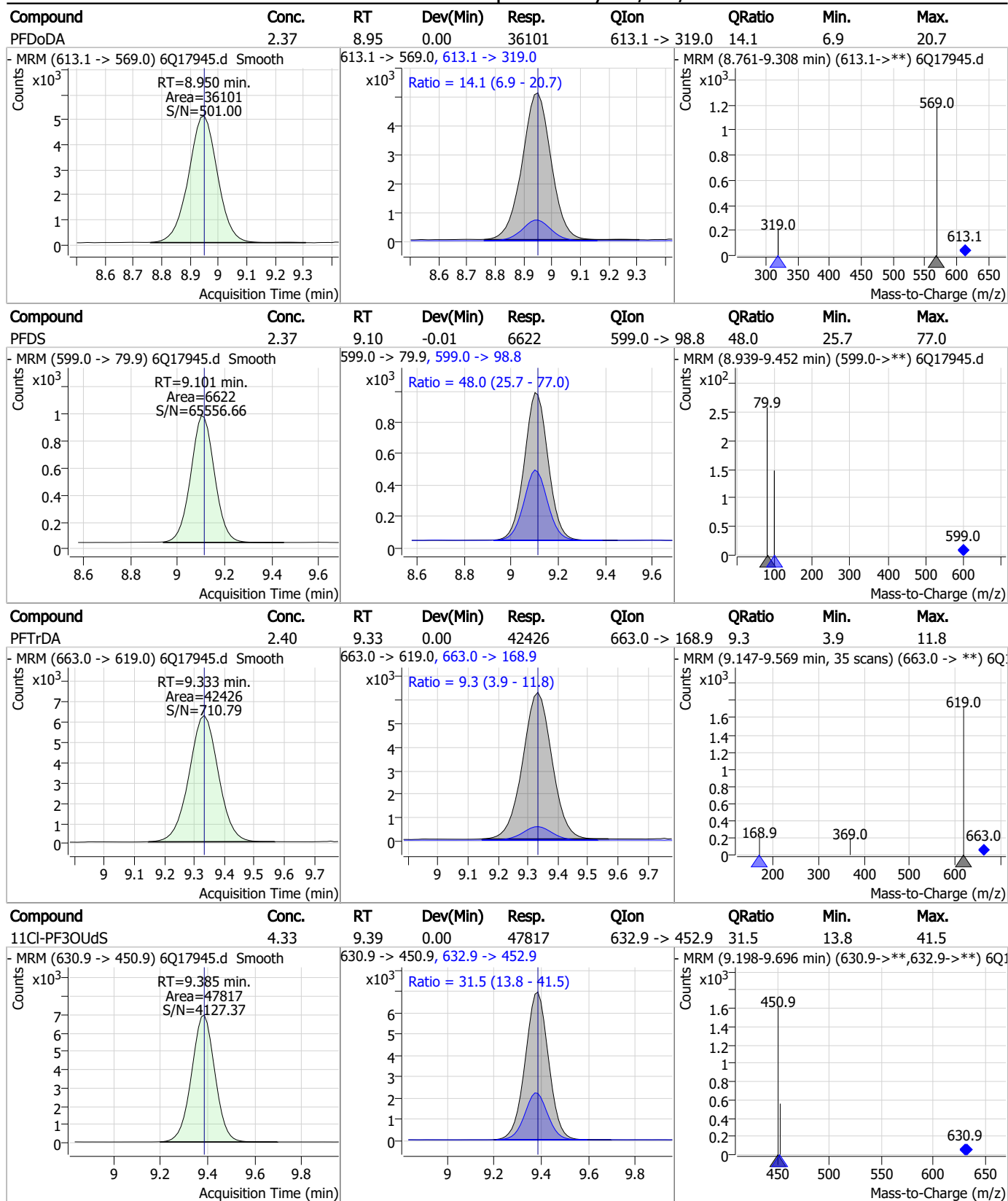
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Perfluorinated Compounds by LC/MS/MS



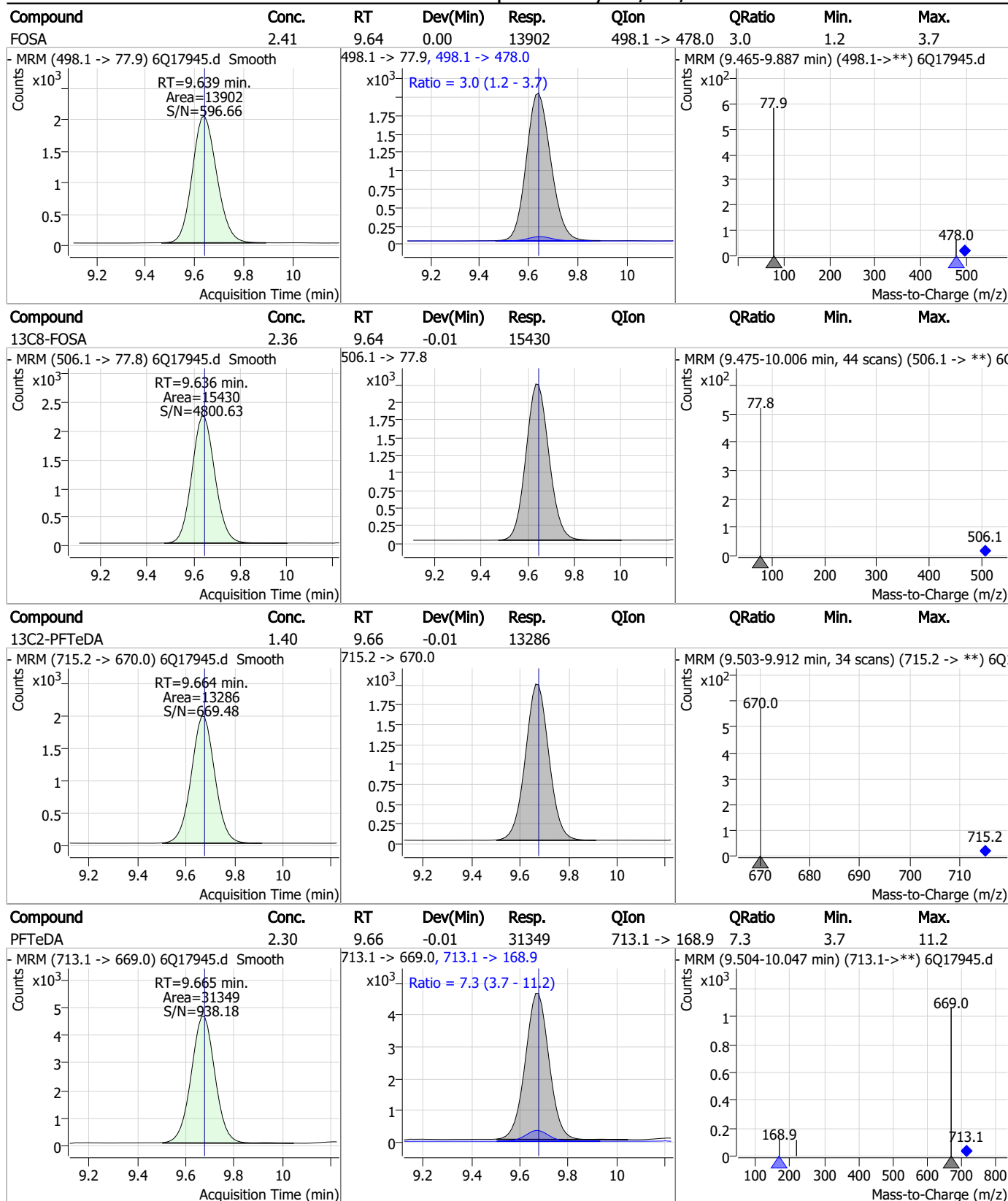
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Perfluorinated Compounds by LC/MS/MS



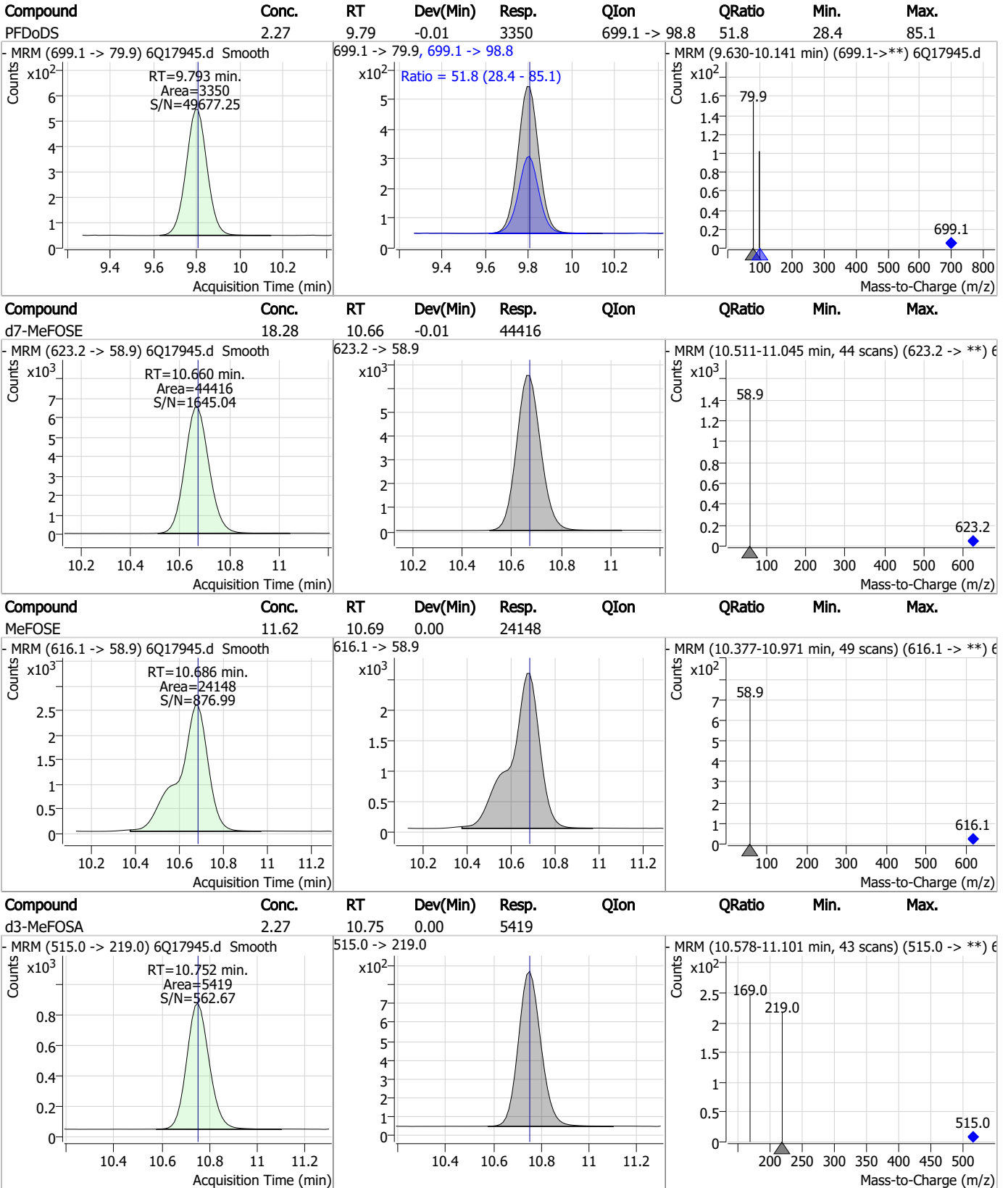
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Perfluorinated Compounds by LC/MS/MS



7.3.1
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Perfluorinated Compounds by LC/MS/MS

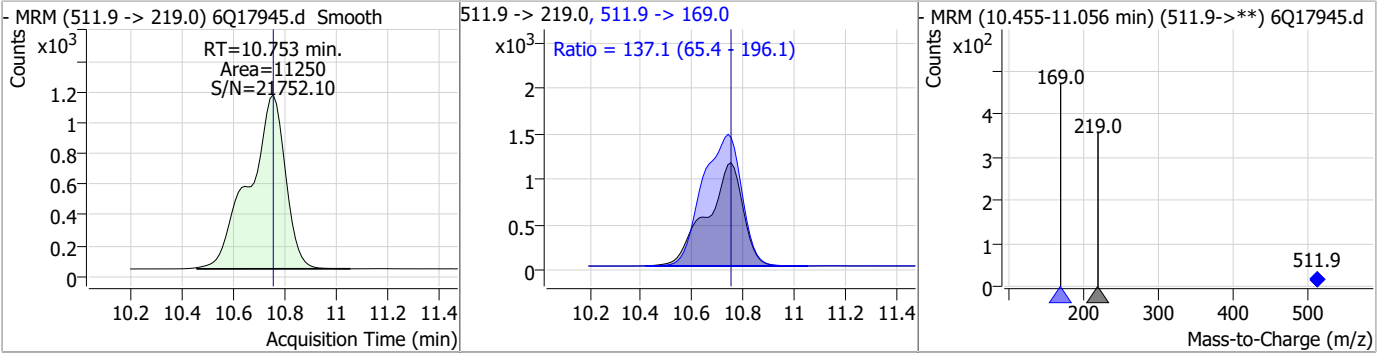


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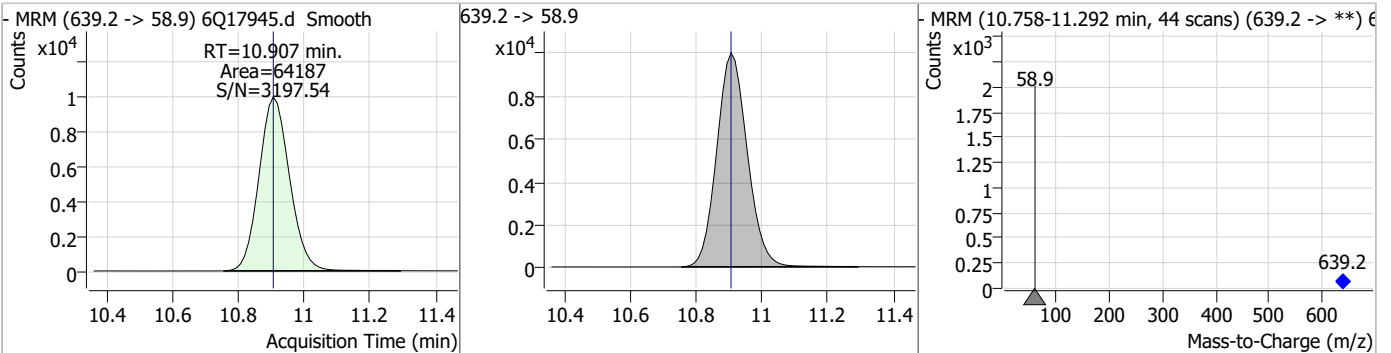
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Perfluorinated Compounds by LC/MS/MS

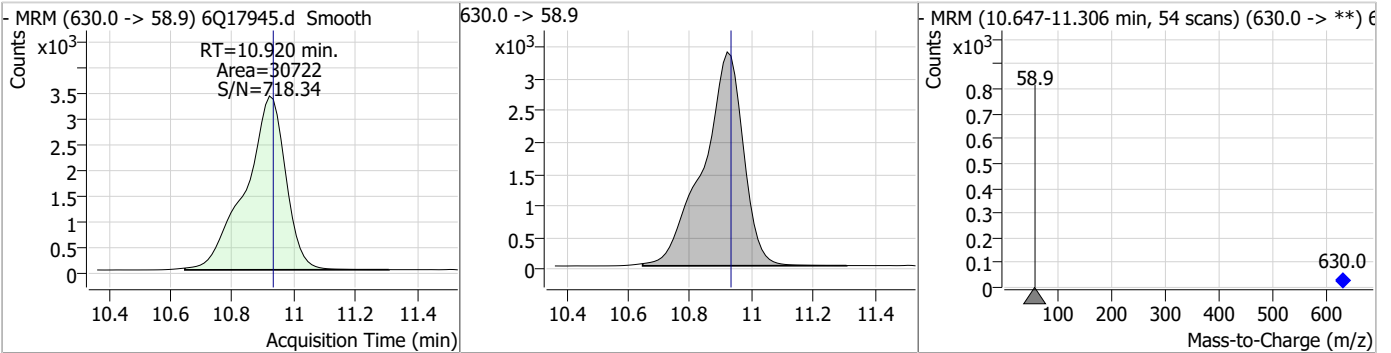
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.51	10.75	0.00	11250	511.9 -> 169.0	137.1	65.4	196.1



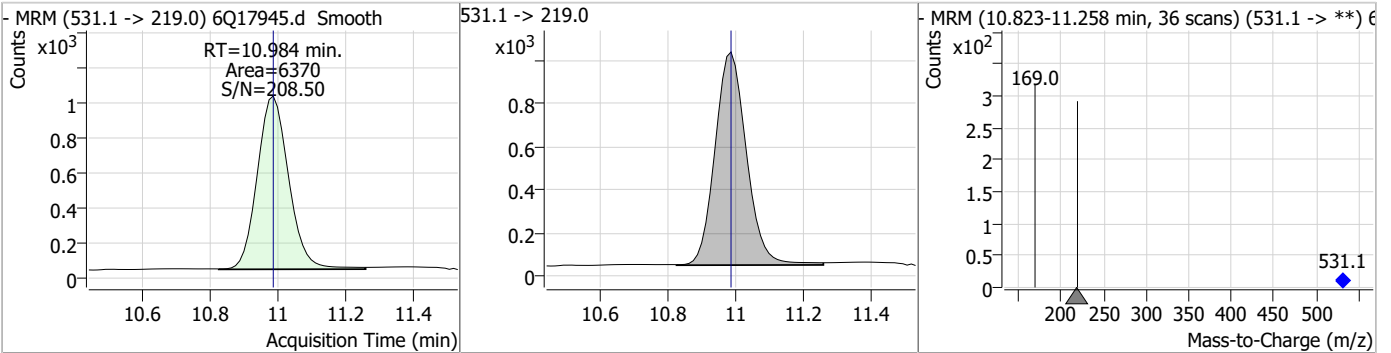
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.86	10.91	0.00	64187				



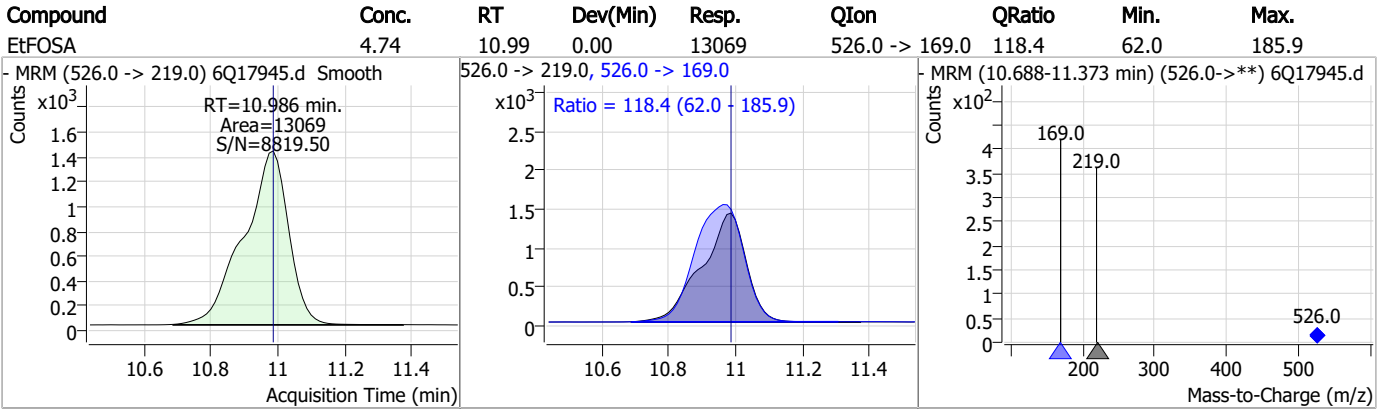
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	10.98	10.92	-0.01	30722				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.21	10.98	0.00	6370				



Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Manual Integration Approval Summary

Sample Number: OP96892-BS Method: EPA DRAFT 1633
Lab FileID: 6Q17945.D Analyst approved: 05/18/23 14:21 Martha Valls
Injection Time: 05/17/23 14:08 Supervisor approved: 05/19/23 14:29 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.3.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17946.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 2:23:13 PM
 Sample Name : op96892-llbs:3
 Vial : P2-A2
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	135786	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	42945	5.00 µg/L	-0.012
M5-PFHxA	5.454	318.0 -> 273.0	49064	2.50 µg/L	-0.012
M4-PFHpA	6.420	367.1 -> 322.0	42856	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	60971	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22029	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	15197	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	21268	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	19858	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	13086	1.25 µg/L	0.000
M8-FOSA	9.636	506.1 -> 77.8	15576	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	16633	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	9337	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	8840	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	1414	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1883	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	1890	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	18430	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	29699	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	13853	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	49567	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	67949	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	6693	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	5137	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	10925	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	53575	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	7099	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	59657	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	17922	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	20880	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	38427	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1414	5.23 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1883	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	1890	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-PFDoDA	8.949	615.1 -> 570.0	19858	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	13086	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C3-PFBS	5.384	302.1 -> 79.9	16633	2.69 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C3-PFHxS	7.167	402.1 -> 79.9	9337	2.47 µg/L	0.000

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 = 98.8%	
13C4-PFBA	2.901	216.8 -> 171.9	135786	10.68 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C4-PFHpA	6.420	367.1 -> 322.0	42856	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C5-PFHxA	5.454	318.0 -> 273.0	49064	2.70 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C5-PFPeA	4.259	268.3 -> 223.0	42945	5.31 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C6-PFDA	8.064	519.1 -> 474.1	15197	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C7-PFUnDA	8.518	570.0 -> 525.1	21268	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.9%	
13C8-FOSA	9.636	506.1 -> 77.8	15576	2.15 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.0%	
13C8-PFOA	7.064	421.1 -> 376.0	60971	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C8-PFOS	8.226	507.1 -> 79.9	8840	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C9-PFNA	7.595	472.1 -> 427.0	22029	1.43 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.2%	
d3-MeFOSAA	8.121	573.2 -> 419.0	18430	5.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	29699	10.56 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
d3-MeFOSA	10.752	515.0 -> 219.0	5137	1.94 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.8%	
d5-EtFOSAA	8.329	589.2 -> 419.0	13853	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d7-MeFOSE	10.660	623.2 -> 58.9	49567	18.42 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 73.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	67949	20.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 83.6%	
d5-EtFOSA	10.984	531.1 -> 219.0	6693	2.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.0%	
Target Compounds					QValue
4:2FTS	5.132	327.1 -> 307.0	5732	2.70 µg/L	97
		327.1 -> 80.9	2254		
6:2FTS	6.838	427.1 -> 407.0	5476	2.67 µg/L	98
		427.1 -> 80.9	1830		
8:2FTS	7.865	527.1 -> 507.0	3465	3.23 µg/L	99
		527.1 -> 80.8	1449		
EtFOSAA	8.330	584.2 -> 419.1	1733	0.67 µg/L	94
		584.2 -> 526.0	988		
FOSA	9.639	498.1 -> 77.9	4143	0.71 µg/L	98
		498.1 -> 478.0	126		
MeFOSAA	8.134	570.1 -> 419.0	2247	0.63 µg/L	94
		570.1 -> 483.0	384		
PFBA	2.907	212.8 -> 168.9	13868	2.85 µg/L	100
PFBS	5.385	298.7 -> 79.9	5209	0.64 µg/L	99
		298.7 -> 98.8	1927		
PFDA	8.064	512.9 -> 469.0	13148	0.70 µg/L	96
		512.9 -> 219.0	1927		
PFDODA	8.938	613.1 -> 569.0	10604	0.67 µg/L	99
		613.1 -> 319.0	1516		
PFDS	9.101	599.0 -> 79.9	1890	0.66 µg/L	100

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	975			
PFHpA	6.420	363.1 -> 319.0	15100	0.70	µg/L	98
		363.1 -> 169.0	2619			
PFHpS	7.735	449.0 -> 79.9	3277	0.69	µg/L	96
		449.0 -> 98.9	1624			
PFHxA	5.457	313.0 -> 269.0	14646	0.75	µg/L	99
		313.0 -> 118.9	662			
PFHxS	7.180	398.7 -> 79.9	3581	0.69	µg/L	m 98
		398.7 -> 98.9	1729			
PFNA	7.584	463.0 -> 419.0	11017	0.67	µg/L	99
		463.0 -> 219.0	2323			
PFNS	8.681	548.8 -> 79.9	2743	0.64	µg/L	95
		548.8 -> 98.9	1493			
PFOA	7.066	413.0 -> 369.0	21324	0.70	µg/L	100
		413.0 -> 169.0	3594			
PFOS	8.215	498.9 -> 79.9	3050	0.66	µg/L	m 90
		498.9 -> 98.8	1414			
PFPeA	4.262	263.0 -> 219.0	17819	1.44	µg/L	100
PFPeS	6.471	349.1 -> 79.9	3807	0.74	µg/L	100
		349.1 -> 98.9	1716			
PFTeDA	9.665	713.1 -> 669.0	9002	0.67	µg/L	100
		713.1 -> 168.9	664			
PFTrDA	9.333	663.0 -> 619.0	12719	0.69	µg/L	97
		663.0 -> 168.9	1114			
PFUnDA	8.518	563.1 -> 519.0	10042	0.65	µg/L	100
		563.1 -> 269.1	1597			
11CI-PF3OUdS	9.373	630.9 -> 450.9	15567	1.39	µg/L	95
		632.9 -> 452.9	4742			
9CI-PF3ONS	8.557	530.8 -> 351.0	24855	1.39	µg/L	93
		532.8 -> 353.0	8054			
ADONA	6.683	376.9 -> 250.9	61593	1.30	µg/L	91
		376.9 -> 84.8	17511			
HFPO-DA	5.832	284.9 -> 168.9	3932	1.37	µg/L	98
		284.9 -> 184.9	563			
3:3FTCA	3.790	241.0 -> 177.0	2269	2.95	µg/L	97
		241.0 -> 117.0	332			
5:3FTCA	6.161	341.0 -> 237.1	57538	17.09	µg/L	100
		341.0 -> 217.0	41994			
7:3FTCA	7.586	441.0 -> 316.9	29582	19.36	µg/L	86
		441.0 -> 336.9	55235			
EtFOSA	10.974	526.0 -> 219.0	3432	1.18	µg/L	89
		526.0 -> 169.0	4675			
EtFOSE	10.920	630.0 -> 58.9	10146	3.43	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	3467	1.47	µg/L	100
		511.9 -> 169.0	4524			
MeFOSE	10.673	616.1 -> 58.9	7707	3.32	µg/L	100
PFDoDS	9.793	699.1 -> 79.9	1055	0.70	µg/L	91
		699.1 -> 98.8	529			
NFDHA	5.336	295.0 -> 201.0	2654	1.24	µg/L	97
		295.0 -> 84.9	682			
PFMBA	4.675	279.0 -> 85.1	11798	1.33	µg/L	100
PFMPA	3.426	229.0 -> 84.9	8697	1.36	µg/L	100
PFEESA	5.938	314.8 -> 134.9	28996	1.11	µg/L	98
		314.8 -> 82.9	1202			

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

7.3.2
7

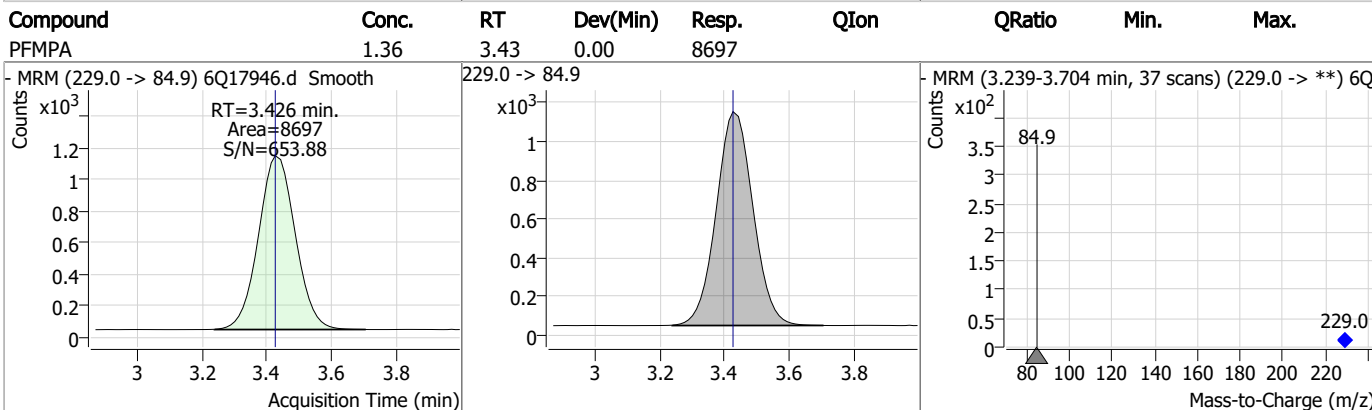
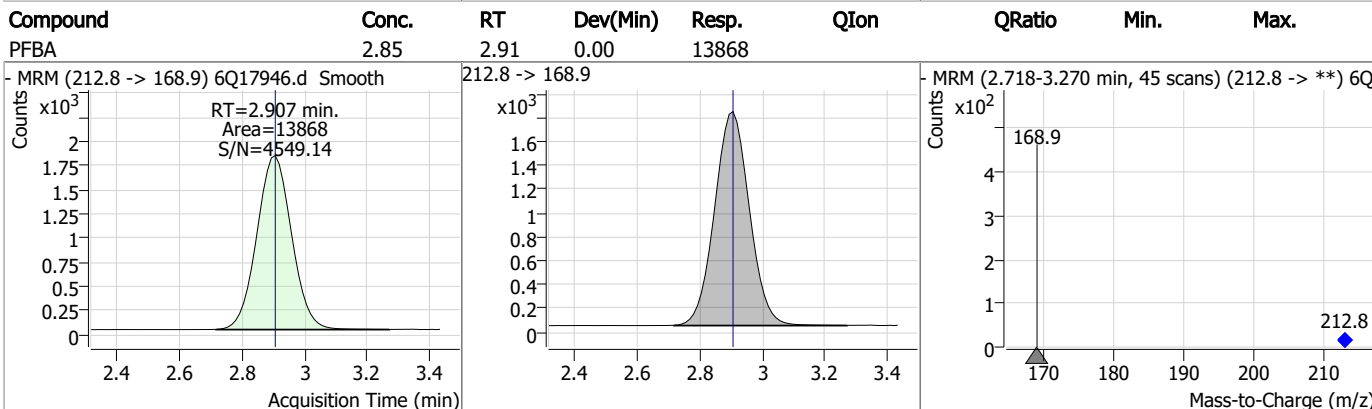
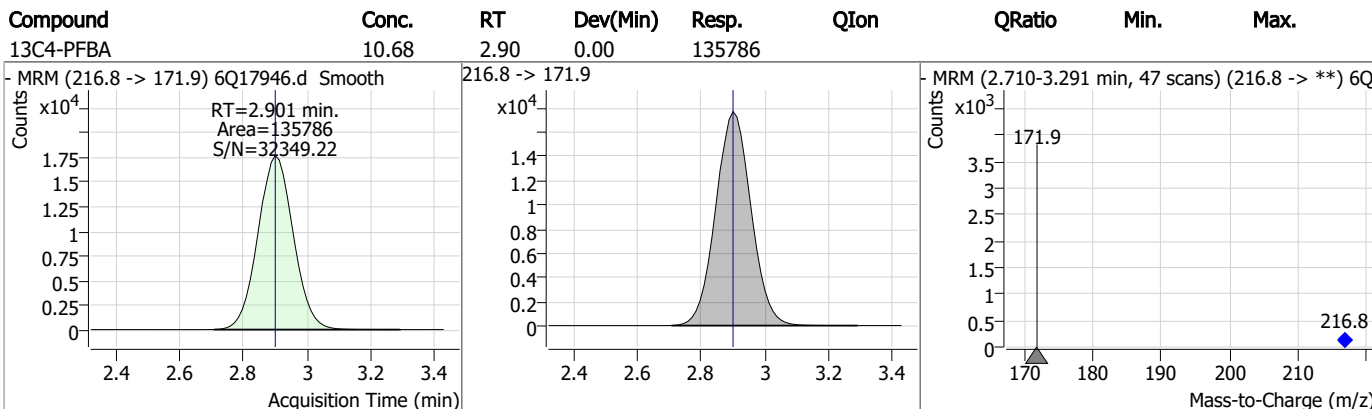
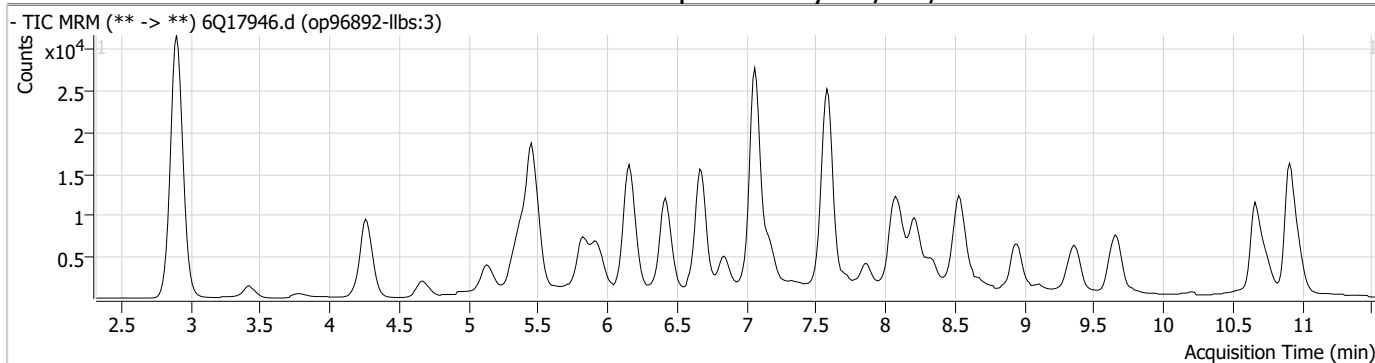
Perfluorinated Compounds by LC/MS/MS

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

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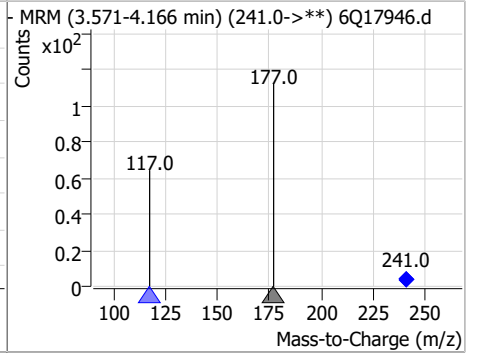
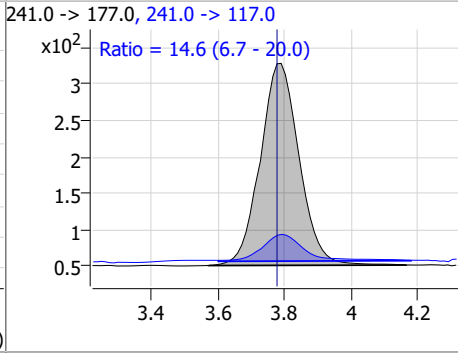
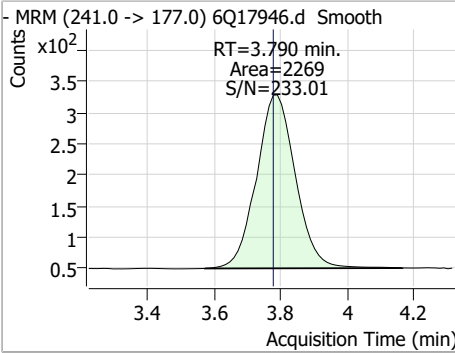
Perfluorinated Compounds by LC/MS/MS



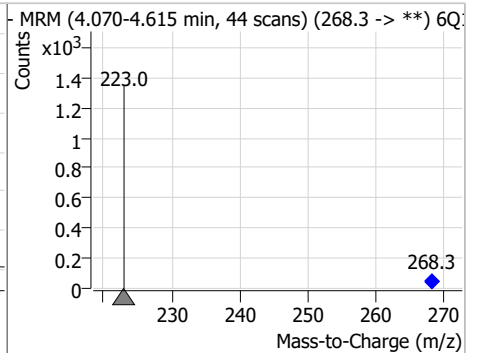
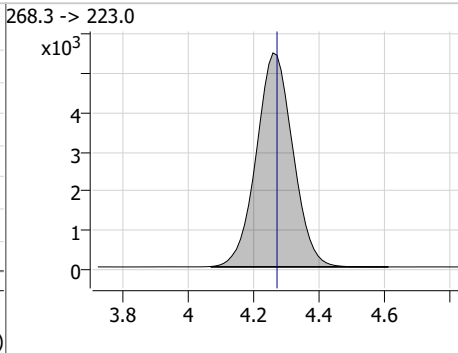
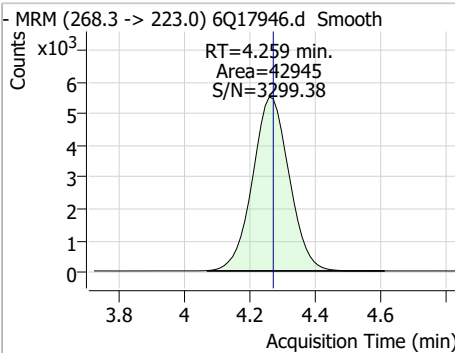
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

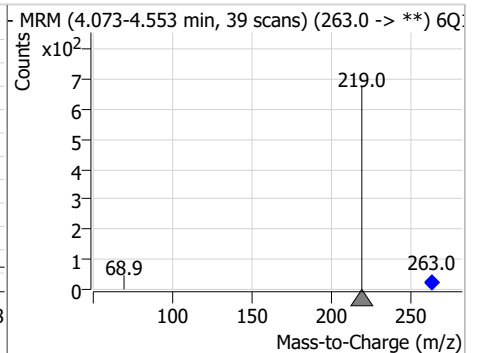
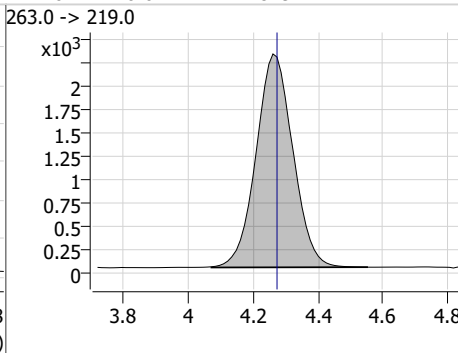
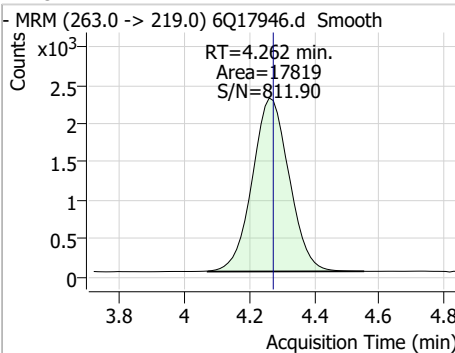
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	2.95	3.79	0.01	2269	241.0 -> 117.0	14.6	6.7	20.0



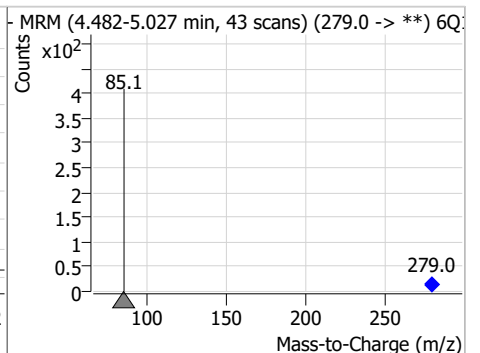
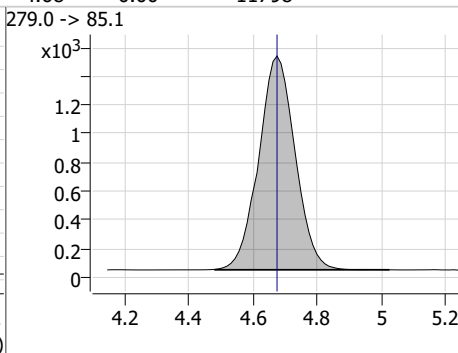
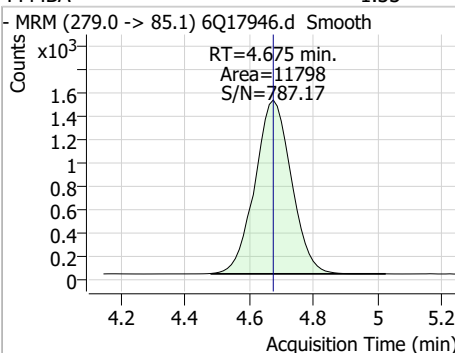
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.31	4.26	-0.01	42945				



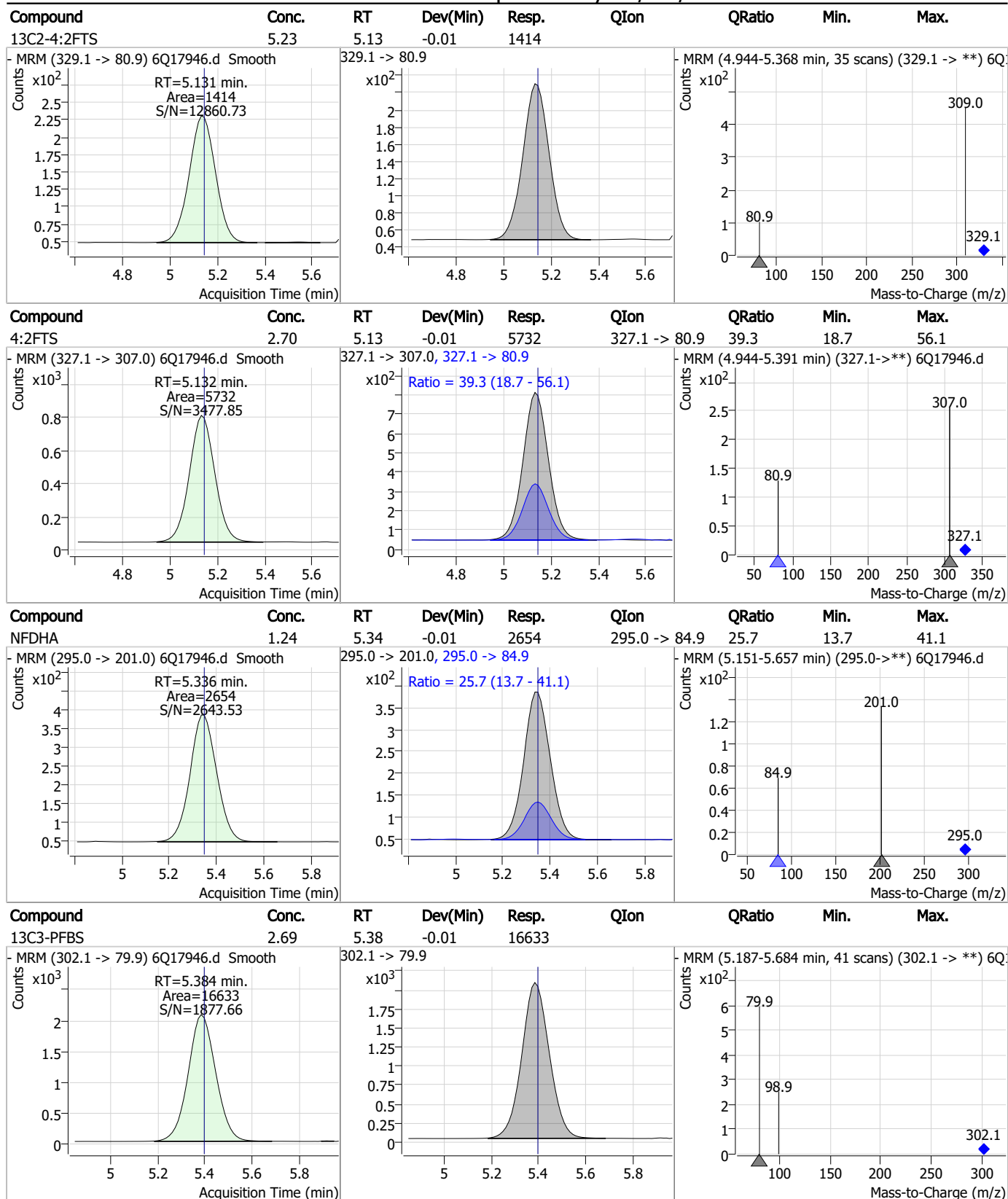
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.44	4.26	-0.01	17819				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.33	4.68	0.00	11798				



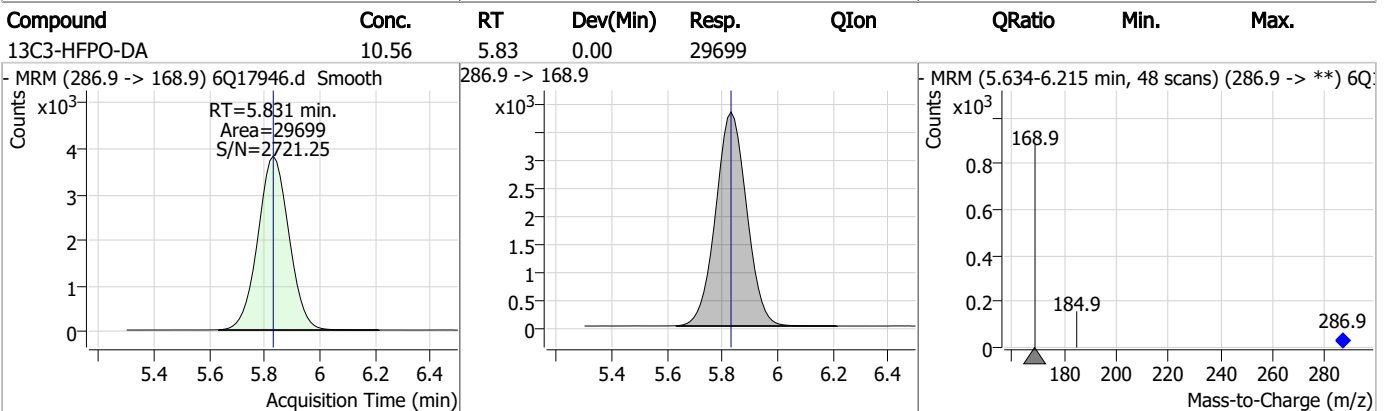
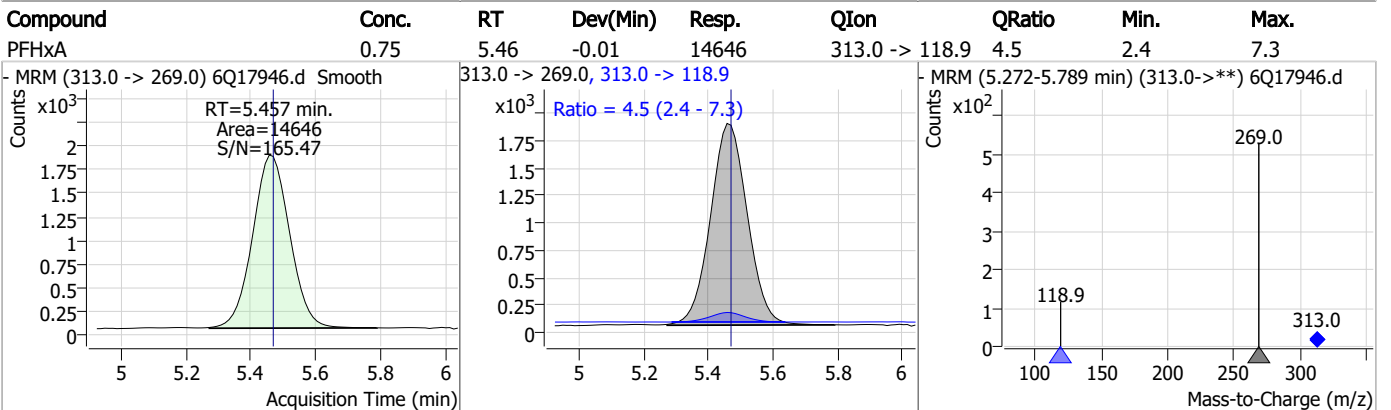
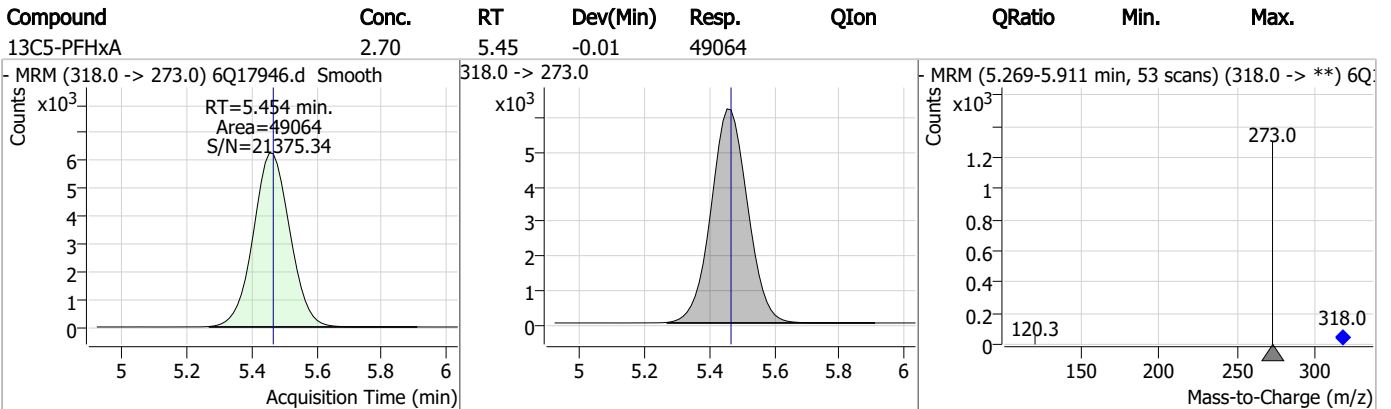
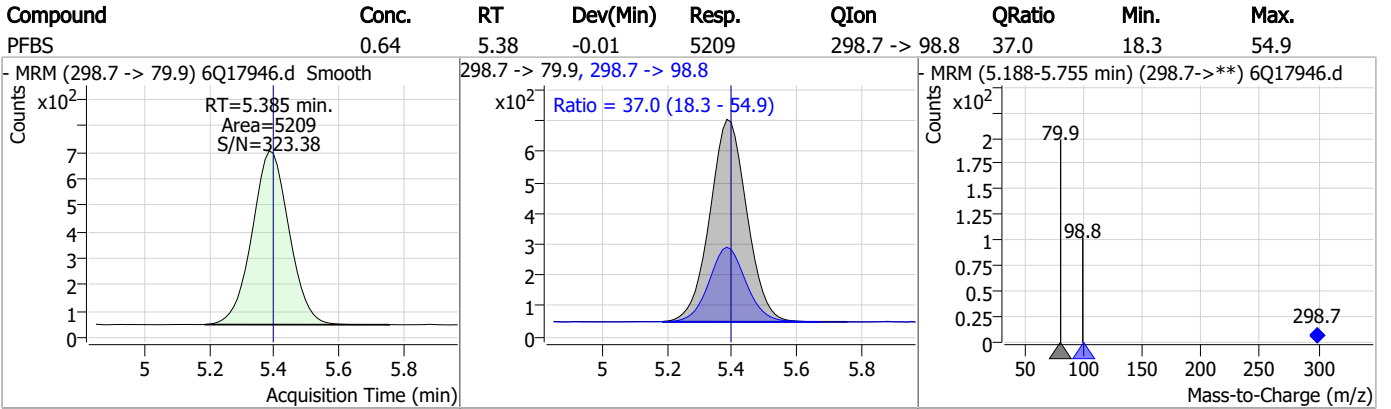
Perfluorinated Compounds by LC/MS/MS



7.3.2
7

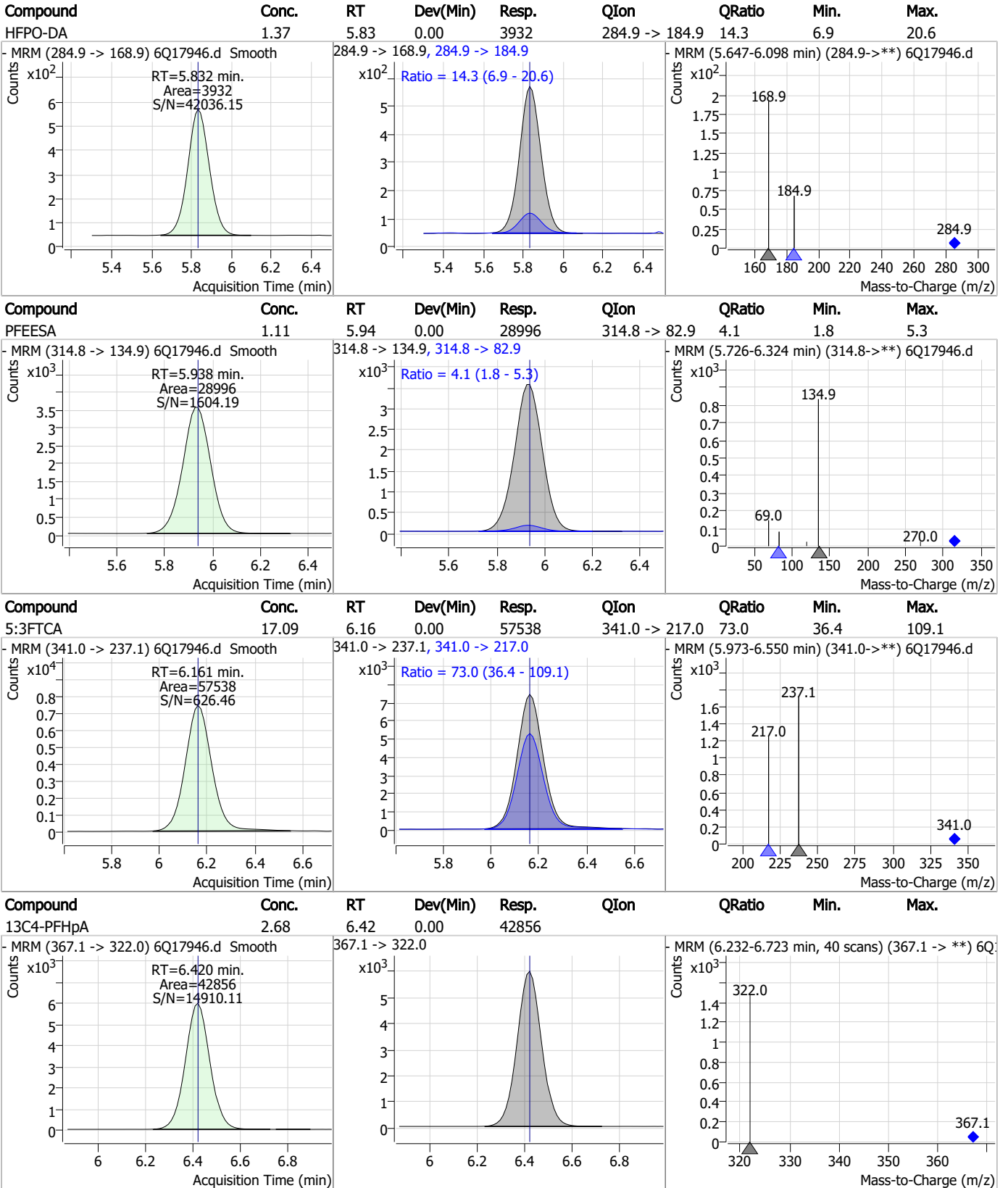


Perfluorinated Compounds by LC/MS/MS



7.3.2
7

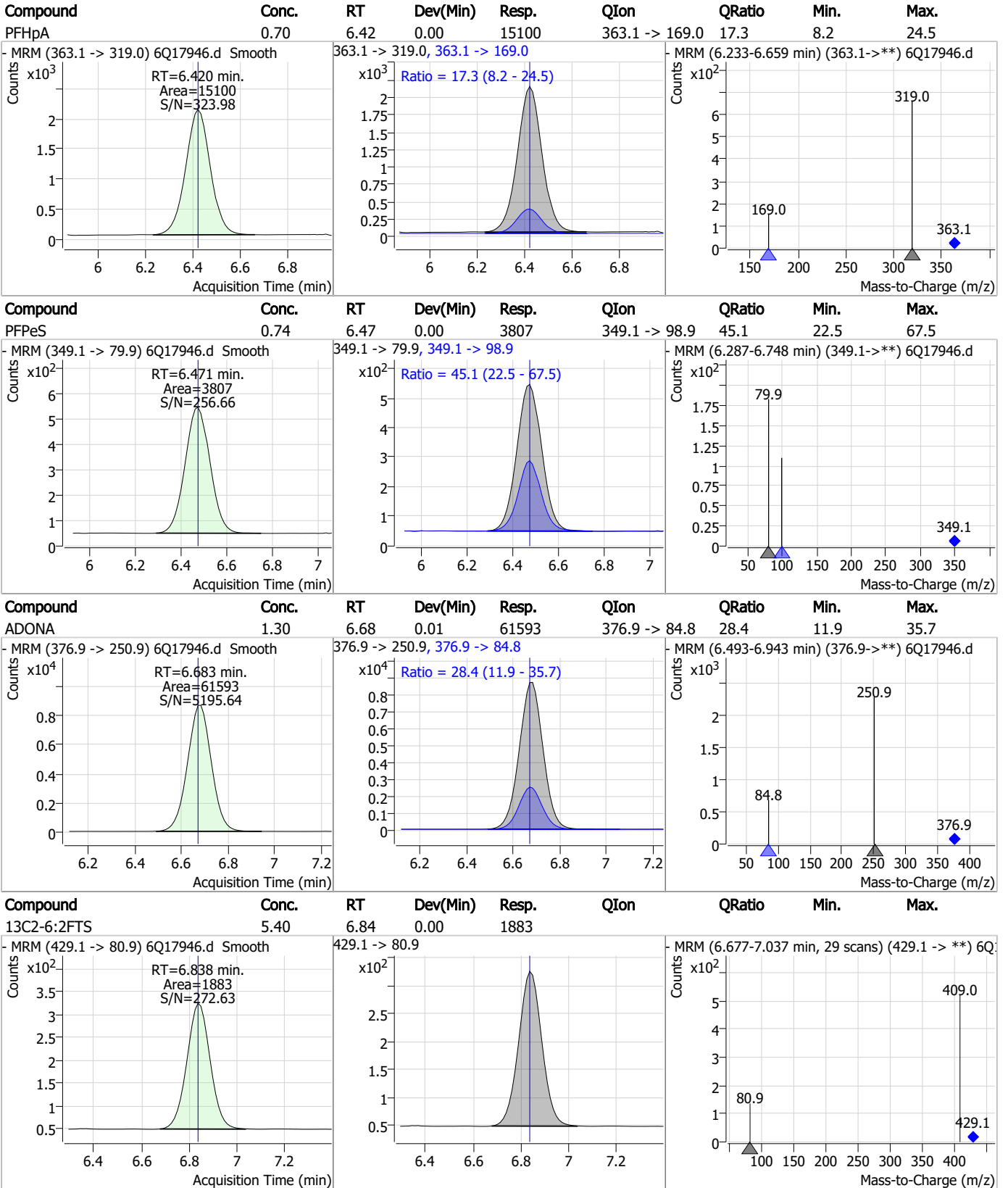
Perfluorinated Compounds by LC/MS/MS



7.3.2

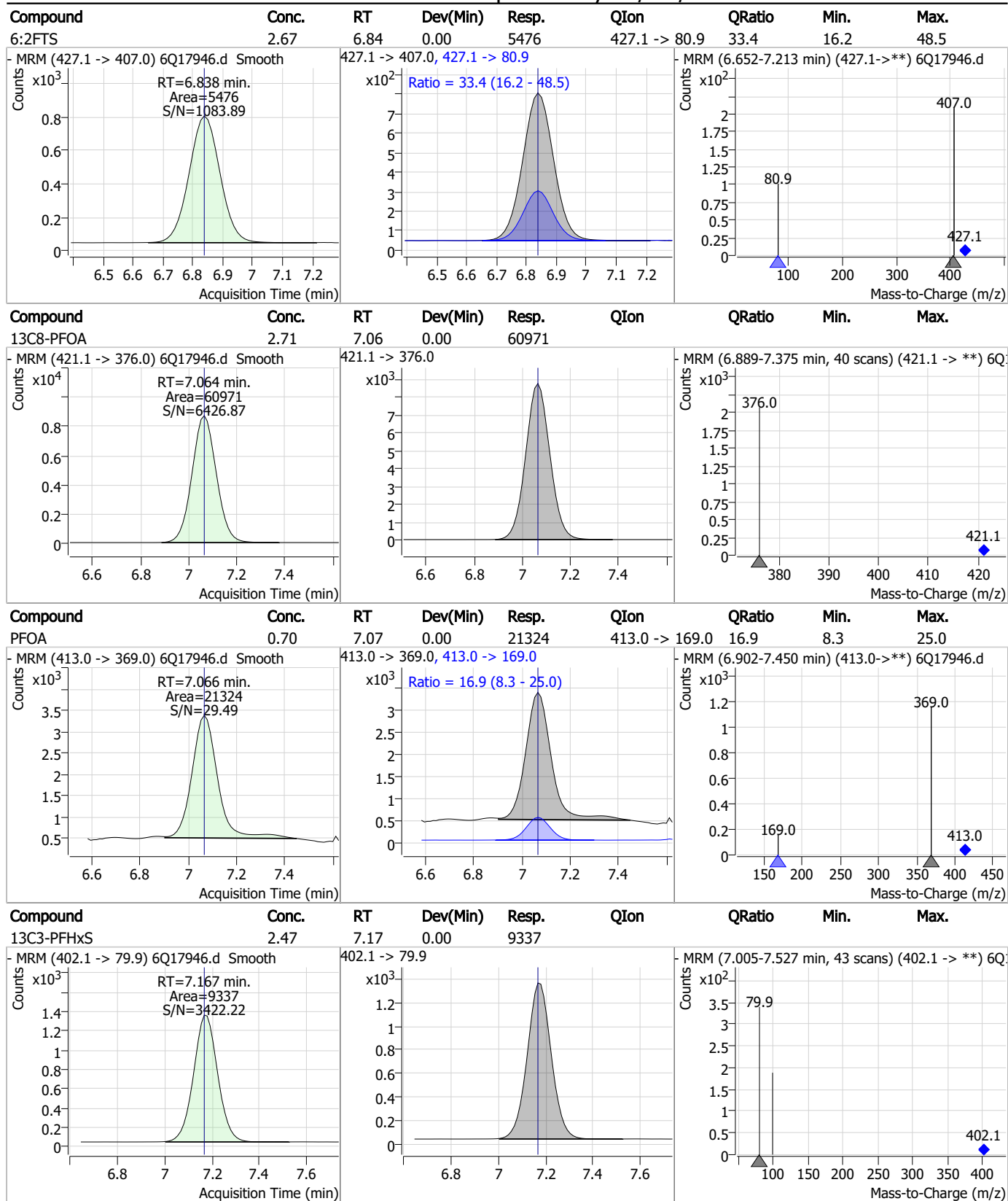
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Perfluorinated Compounds by LC/MS/MS



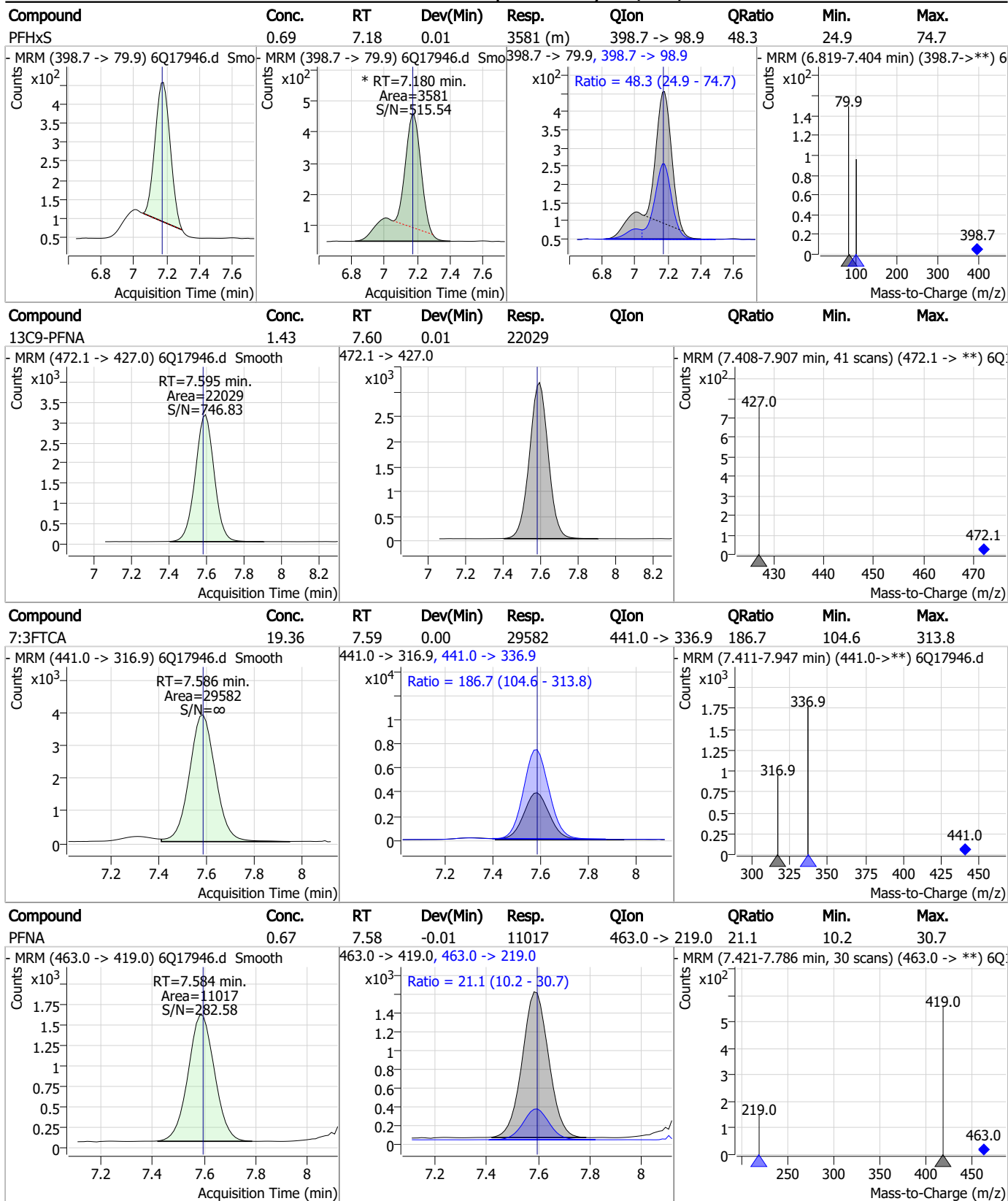
7.3.2
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Perfluorinated Compounds by LC/MS/MS



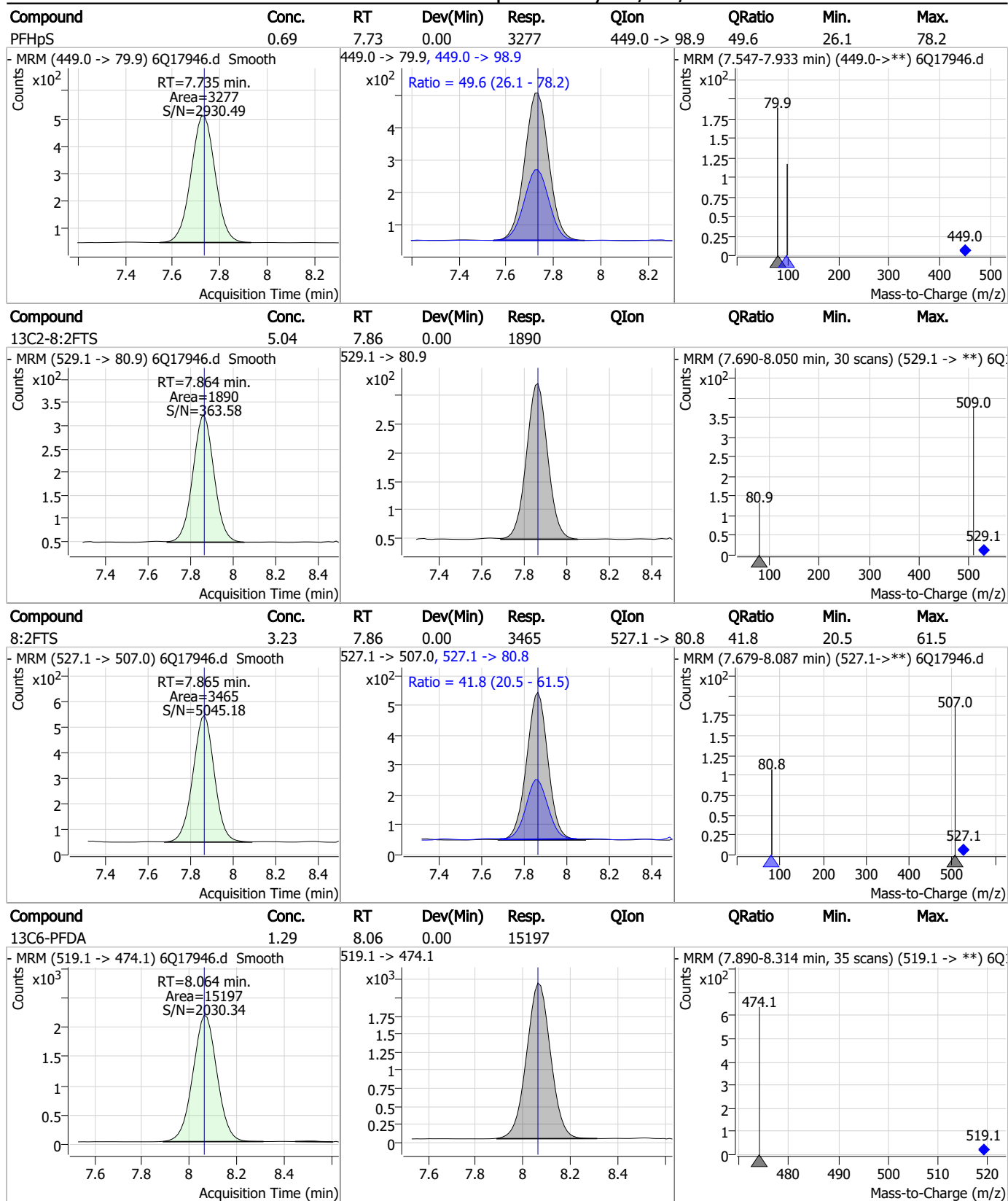
7.3.2
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Perfluorinated Compounds by LC/MS/MS



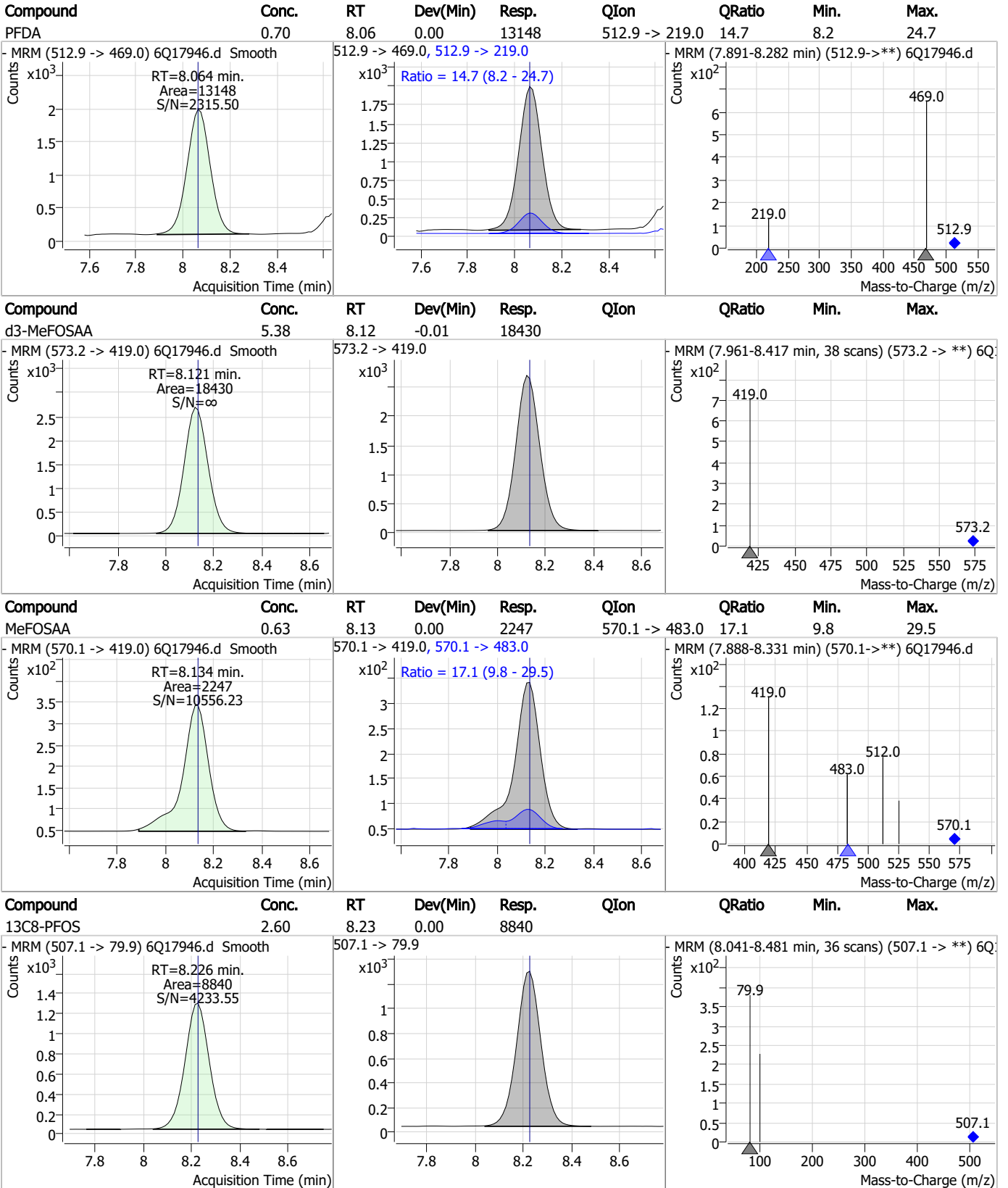
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

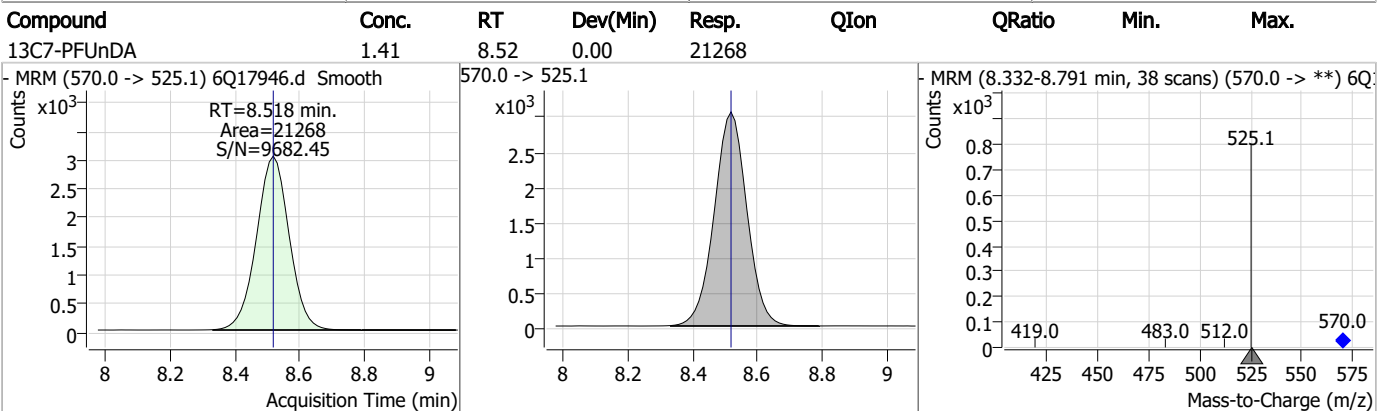
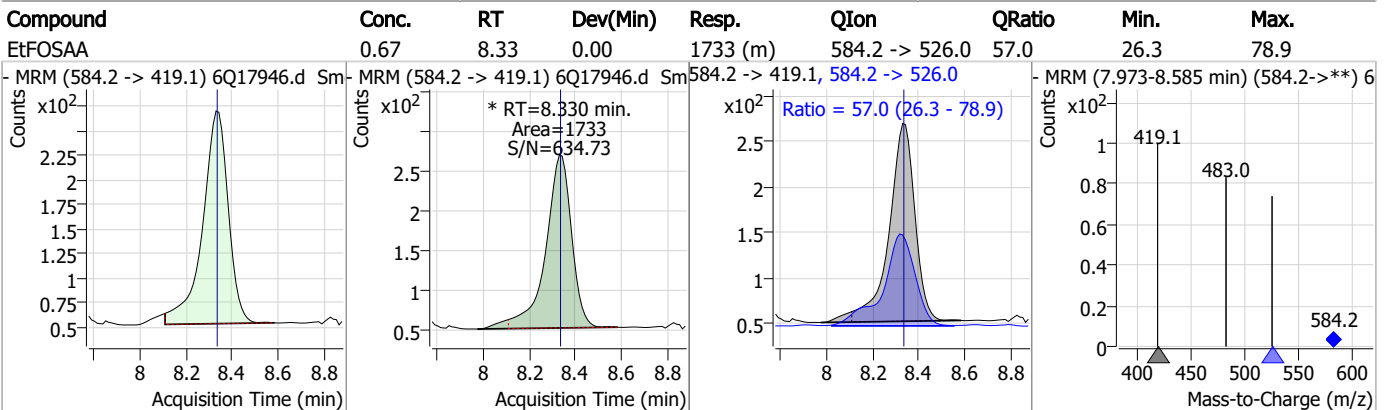
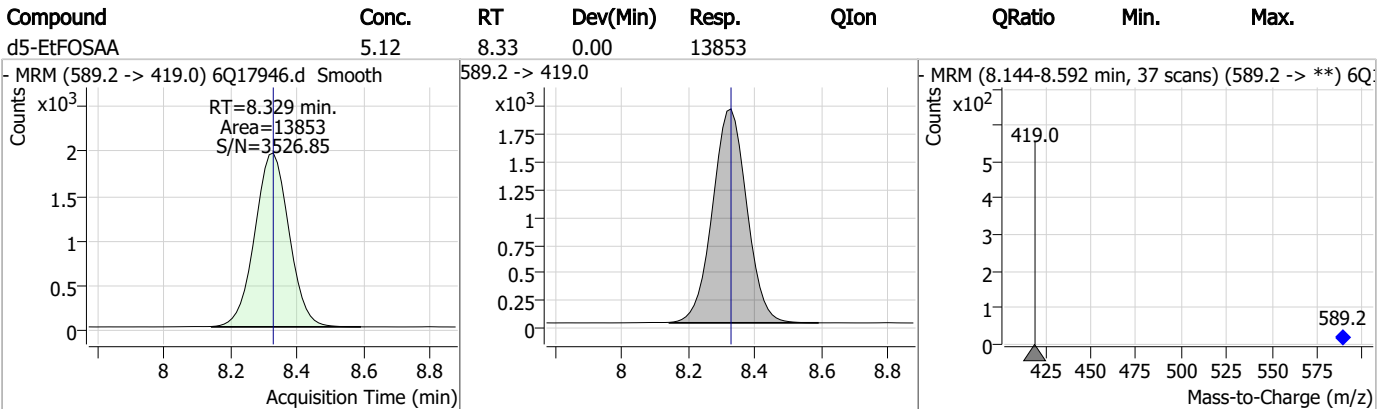
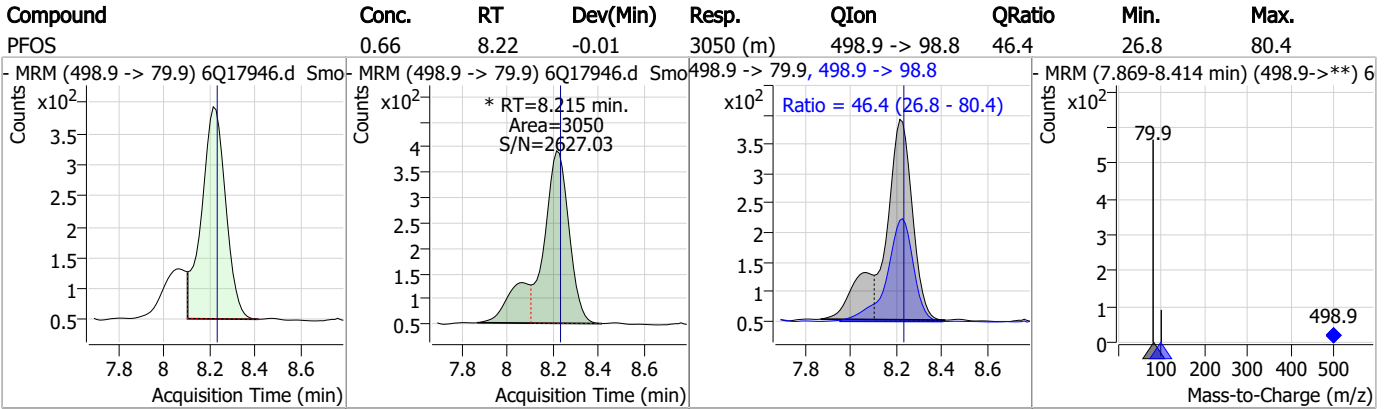
Perfluorinated Compounds by LC/MS/MS



7.3.2

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Perfluorinated Compounds by LC/MS/MS

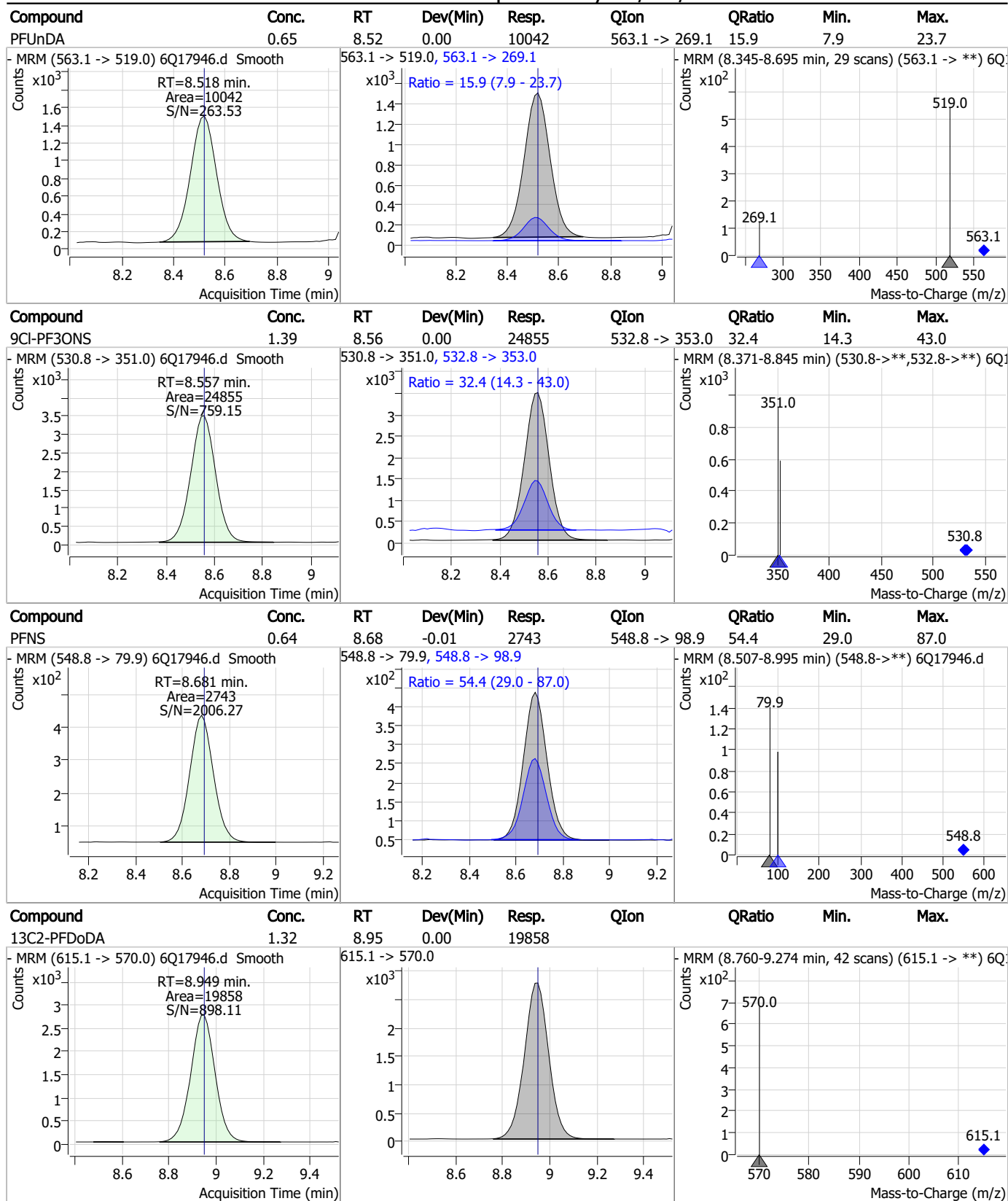


7.3.2

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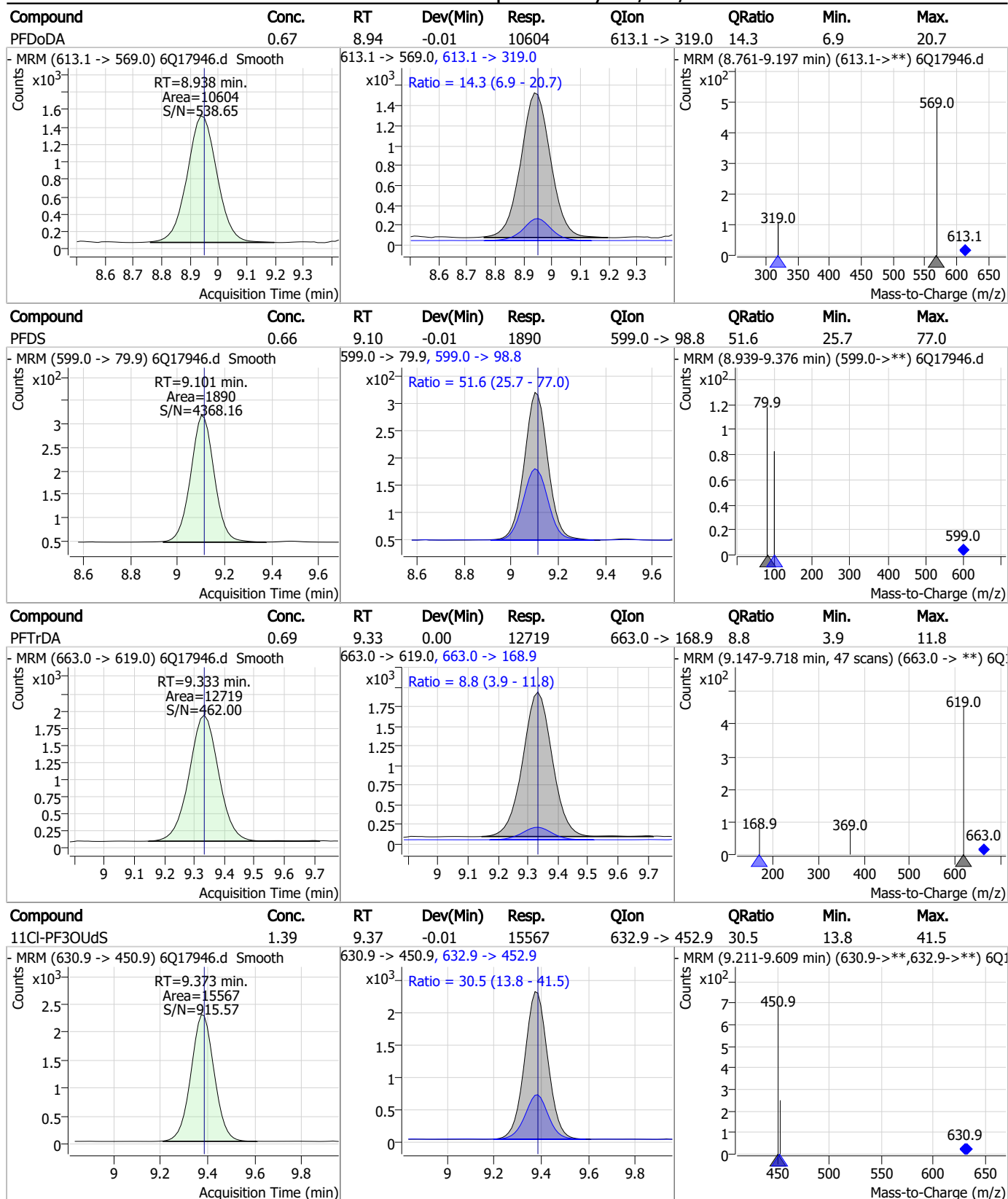


Perfluorinated Compounds by LC/MS/MS



7.3.2
7

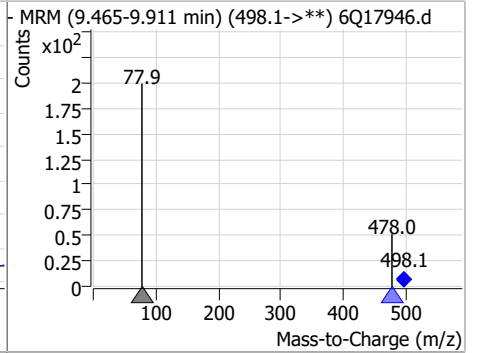
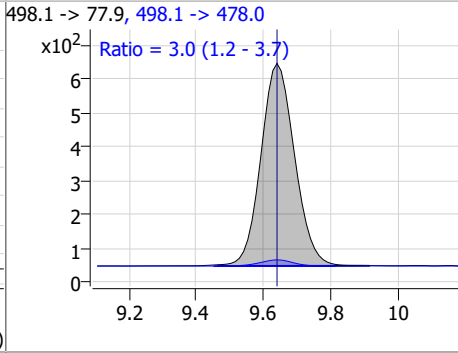
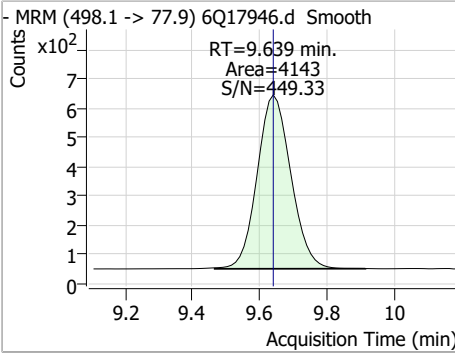
Perfluorinated Compounds by LC/MS/MS



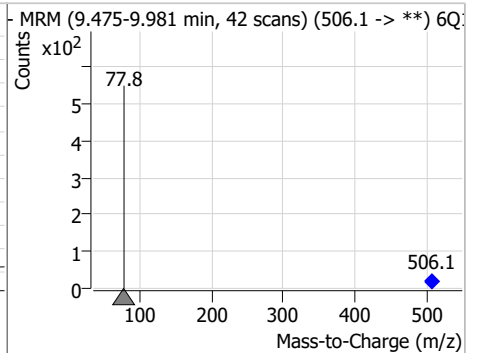
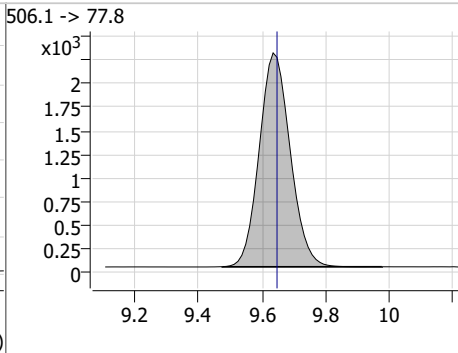
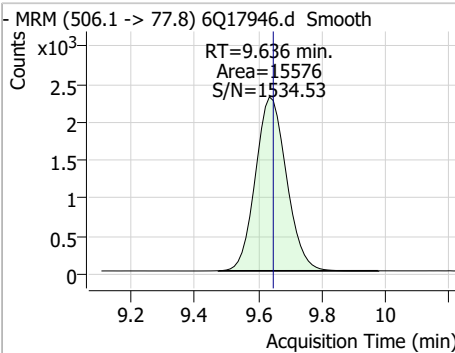
7.3.2
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Perfluorinated Compounds by LC/MS/MS

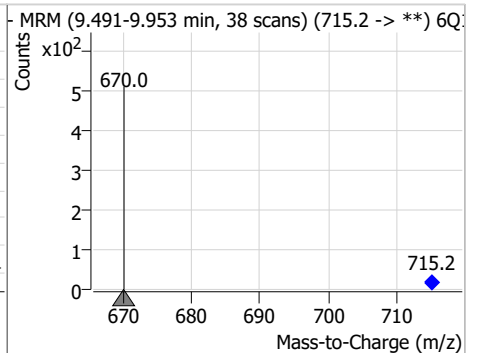
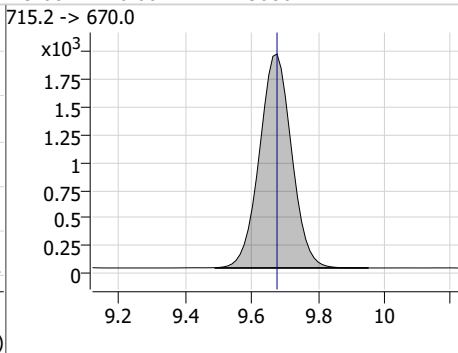
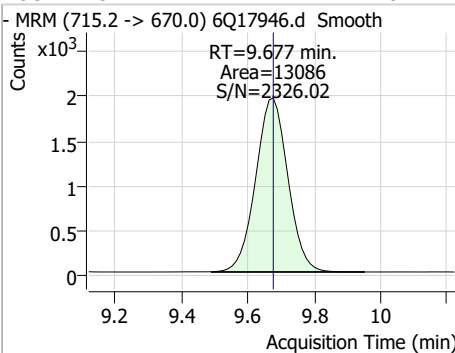
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.71	9.64	0.00	4143	498.1 -> 478.0	3.0	1.2	3.7



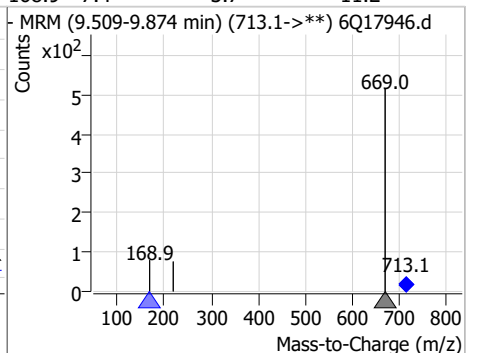
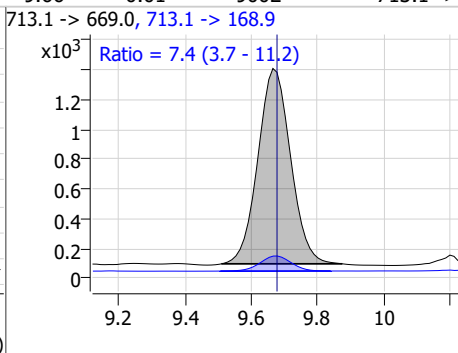
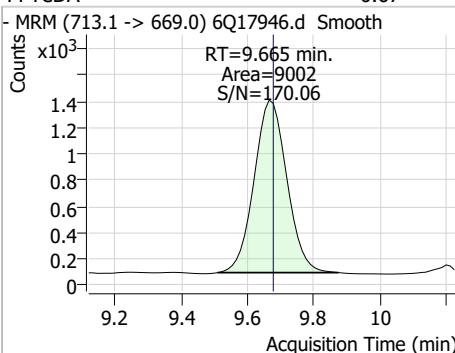
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.15	9.64	-0.01	15576				



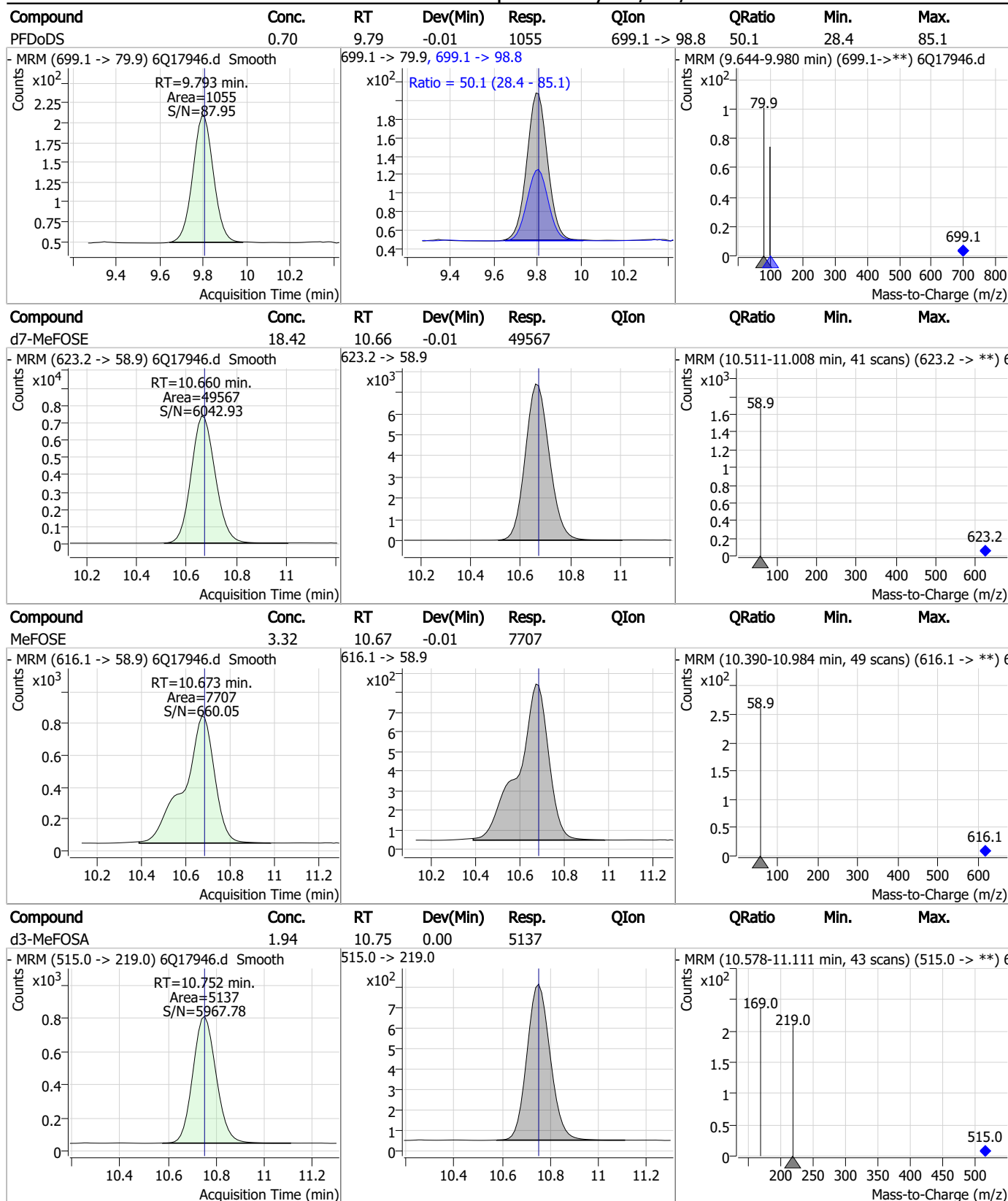
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.29	9.68	0.00	13086				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.67	9.66	-0.01	9002	713.1 -> 168.9	7.4	3.7	11.2

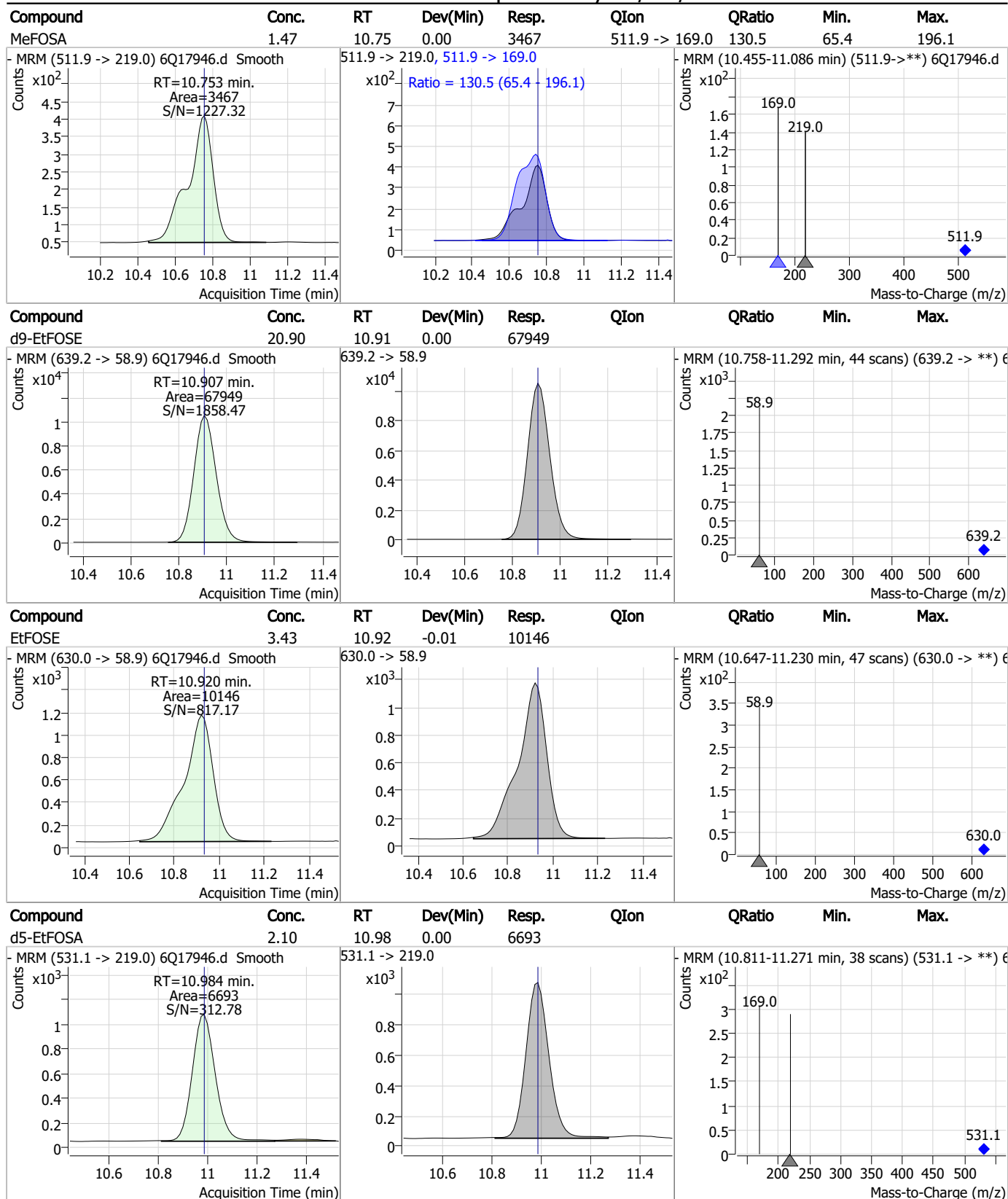


Perfluorinated Compounds by LC/MS/MS



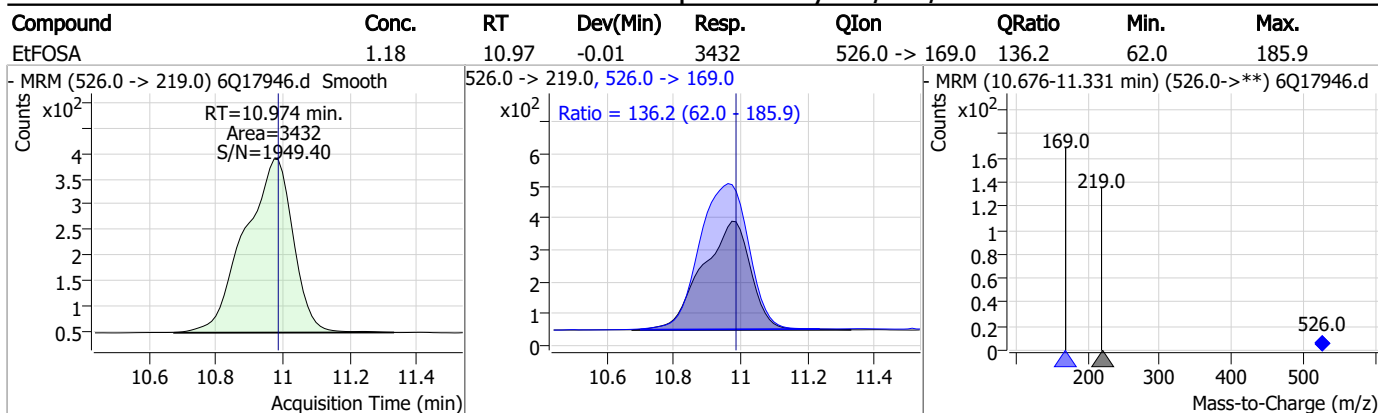
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP96892-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q17946.D Analyst approved: 05/18/23 14:21 Martha Valls
Injection Time: 05/17/23 14:23 Supervisor approved: 05/19/23 14:29 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak
EtFOSAA	2991-50-6		8.33	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17953.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 4:04:41 PM
 Sample Name : op96892-ms
 Vial : P2-B1
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	5615	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	11548	5.00 µg/L	-0.012
M5-PFHxA	5.454	318.0 -> 273.0	43692	2.50 µg/L	-0.012
M4-PFHpA	6.420	367.1 -> 322.0	42276	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	61138	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	19897	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	15367	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	18811	1.25 µg/L	0.000
M2-PFDoDA	8.937	615.1 -> 570.0	17375	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	8756	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	17667	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	15377	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	9622	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	8338	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1347	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1805	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	1874	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	19817	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	25257	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	17585	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	51544	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	67147	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	7161	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	5889	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	9457	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	53349	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	6645	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	61594	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	18511	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	21947	1.25 µg/L	0.000
13C2-PFHxA	5.454	315.1 -> 270.0	39729	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1347	5.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1805	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	1874	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFDoDA	8.937	615.1 -> 570.0	17375	1.12 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C2-PFTeDA	9.664	715.2 -> 670.0	8756	0.83 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 66.7%		
13C3-PFBS	5.384	302.1 -> 79.9	15377	2.66 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C3-PFHxS	7.167	402.1 -> 79.9	9622	2.72 µg/L	0.000

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 = 108.7%		
13C4-PFBA	2.901	216.8 -> 171.9	5615	0.44 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 4.4%		
13C4-PFHpA	6.420	367.1 -> 322.0	42276	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C5-PFHxA	5.454	318.0 -> 273.0	43692	2.33 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.0%		
13C5-PFPeA	4.259	268.3 -> 223.0	11548	1.38 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 27.6%		
13C6-PFDA	8.064	519.1 -> 474.1	15367	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C7-PFUnDA	8.518	570.0 -> 525.1	18811	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C8-FOSA	9.636	506.1 -> 77.8	17667	2.82 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.6%		
13C8-PFOA	7.064	421.1 -> 376.0	61138	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C8-PFOS	8.214	507.1 -> 79.9	8338	2.83 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.4%		
13C9-PFNA	7.583	472.1 -> 427.0	19897	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
d3-MeFOSAA	8.121	573.2 -> 419.0	19817	6.69 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 133.7%		
13C3-HFPO-DA	5.831	286.9 -> 168.9	25257	8.69 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 86.9%		
d3-MeFOSA	10.752	515.0 -> 219.0	5889	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%		
d5-EtFOSAA	8.316	589.2 -> 419.0	17585	7.50 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 150.1%		
d7-MeFOSE	10.660	623.2 -> 58.9	51544	22.13 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 88.5%		
d9-EtFOSE	10.907	639.2 -> 58.9	67147	23.86 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 95.4%		
d5-EtFOSA	10.984	531.1 -> 219.0	7161	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
Target Compounds					QValue
4:2FTS	5.132	327.1 -> 307.0	19626	9.69 µg/L	99
		327.1 -> 80.9	7470		
6:2FTS	6.838	427.1 -> 407.0	20283	10.32 µg/L	99
		427.1 -> 80.9	6497		
8:2FTS	7.865	527.1 -> 507.0	11784	11.06 µg/L	93
		527.1 -> 80.8	4297		
EtFOSAA	8.318	584.2 -> 419.1	7525	2.30 µg/L	93
		584.2 -> 526.0	4348		
FOSA	9.639	498.1 -> 77.9	14702	2.22 µg/L	99
		498.1 -> 478.0	399		
MeFOSAA	8.122	570.1 -> 419.0	10261	2.68 µg/L	96
		570.1 -> 483.0	1814		
PFBA	2.907	212.8 -> 168.9	1779	8.83 µg/L	100
PFBS	5.385	298.7 -> 79.9	16381	2.18 µg/L	97
		298.7 -> 98.8	6250		
PFDA	8.064	512.9 -> 469.0	47822	2.52 µg/L	99
		512.9 -> 219.0	8025		
PFDoDA	8.938	613.1 -> 569.0	34843	2.52 µg/L	99
		613.1 -> 319.0	4641		
PFDS	9.101	599.0 -> 79.9	6489	2.40 µg/L	90

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	2861	2.49	µg/L	97
		363.1 -> 319.0	52591			
PFHpS	7.723	363.1 -> 169.0	7946	3.33	µg/L	71
		449.0 -> 79.9	14796			
PFHxA	5.457	449.0 -> 98.9	4715	2.36	µg/L	100
		313.0 -> 269.0	40886			
PFHxS	7.168	313.0 -> 118.9	1905	2.31	µg/L	98
		398.7 -> 79.9	12276			
PFNA	7.584	398.7 -> 98.9	6263	2.61	µg/L	95
		463.0 -> 419.0	38607			
PFNS	8.681	463.0 -> 219.0	7072	2.39	µg/L	87
		548.8 -> 79.9	9625			
PFOA	7.066	548.8 -> 98.9	4677	2.39	µg/L	99
		413.0 -> 369.0	72608			
PFOS	8.215	413.0 -> 169.0	12489	2.56	µg/L	87
		498.9 -> 79.9	11176			
PFPeA	4.262	498.9 -> 98.8	4953	5.16	µg/L	100
		263.0 -> 219.0	17200			
PFPeS	6.459	349.1 -> 79.9	12670	2.40	µg/L	99
		349.1 -> 98.9	5656			
PFTeDA	9.665	713.1 -> 669.0	22944	2.56	µg/L	98
		713.1 -> 168.9	1559			
PFTrDA	9.333	663.0 -> 619.0	35991	2.24	µg/L	96
		663.0 -> 168.9	3276			
PFUnDA	8.518	563.1 -> 519.0	33962	2.49	µg/L	99
		563.1 -> 269.1	5247			
11CI-PF3OUdS	9.373	630.9 -> 450.9	41351	4.33	µg/L	94
		632.9 -> 452.9	12645			
9CI-PF3ONS	8.545	530.8 -> 351.0	76384	5.01	µg/L	82
		532.8 -> 353.0	29113			
ADONA	6.671	376.9 -> 250.9	207117	5.15	µg/L	90
		376.9 -> 84.8	59915			
HFPO-DA	5.832	284.9 -> 168.9	12279	5.03	µg/L	99
		284.9 -> 184.9	1655			
3:3FTCA	3.790	241.0 -> 177.0	820	3.97	µg/L	94
		241.0 -> 117.0	91			
5:3FTCA	6.161	341.0 -> 237.1	187624	62.57	µg/L	93
		341.0 -> 217.0	147421			
7:3FTCA	7.572	441.0 -> 316.9	89820	66.02	µg/L	93
		441.0 -> 336.9	197248			
EtFOSA	10.986	526.0 -> 219.0	14364	4.63	µg/L	96
		526.0 -> 169.0	18384			
EtFOSE	10.920	630.0 -> 58.9	36287	12.40	µg/L	100
		511.9 -> 219.0	13270			
MeFOSA	10.753	511.9 -> 169.0	17370	4.89	µg/L	100
		616.1 -> 58.9	27526			
MeFOSE	10.686	699.1 -> 79.9	2100	11.42	µg/L	100
		699.1 -> 98.8	1150			
PFDoDS	9.793	295.0 -> 201.0	7820	4.09	µg/L	100
		295.0 -> 84.9	2149			
NFDHA	5.336	279.0 -> 85.1	18300	7.69	µg/L	100
		229.0 -> 84.9	2285			
PFMBA	3.426	314.8 -> 134.9	103247	4.44	µg/L	100
		314.8 -> 82.9	3632			

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

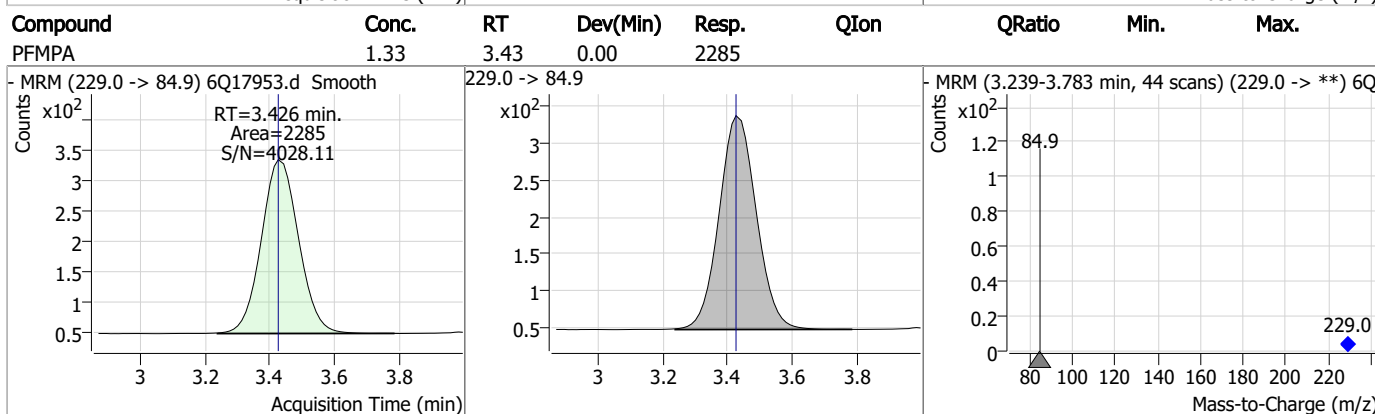
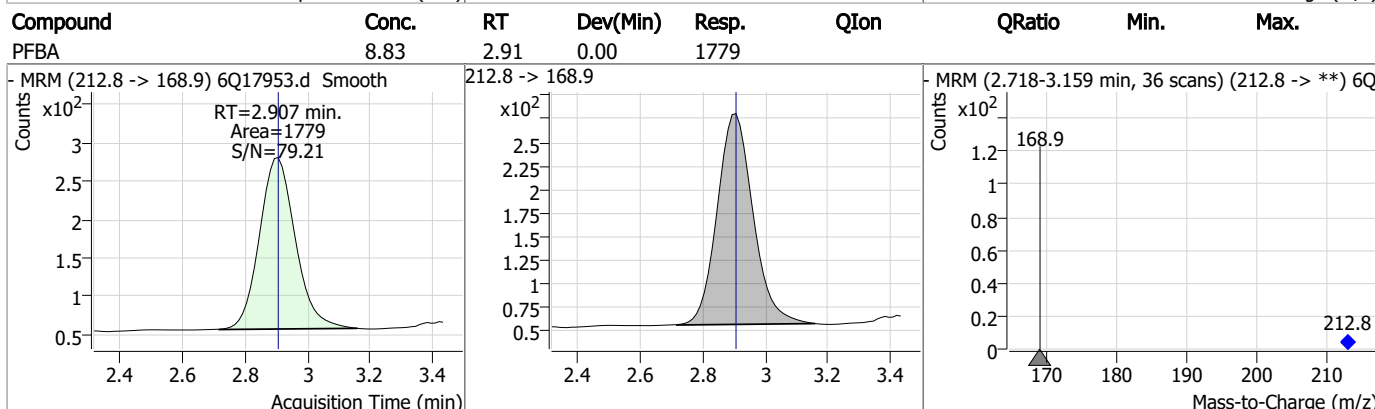
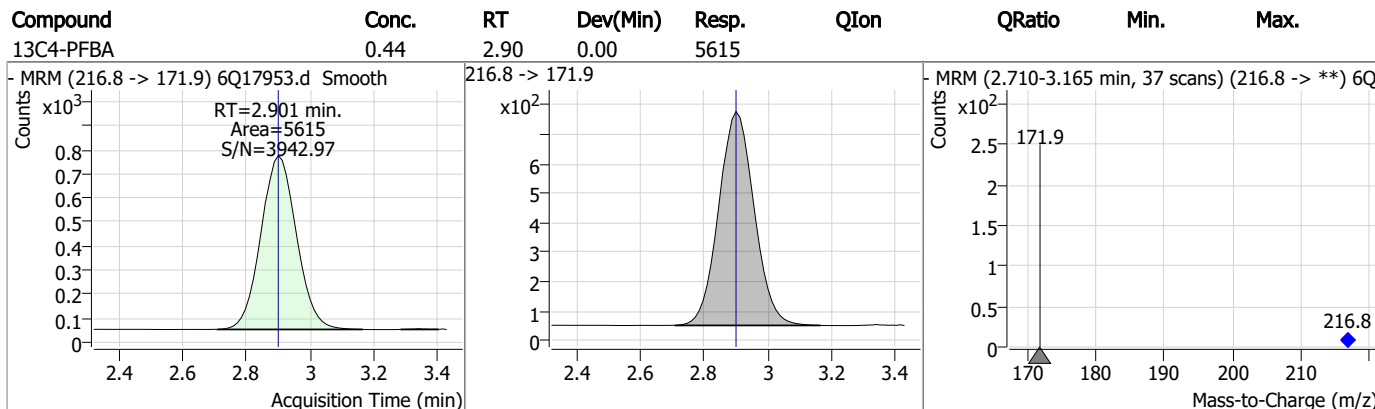
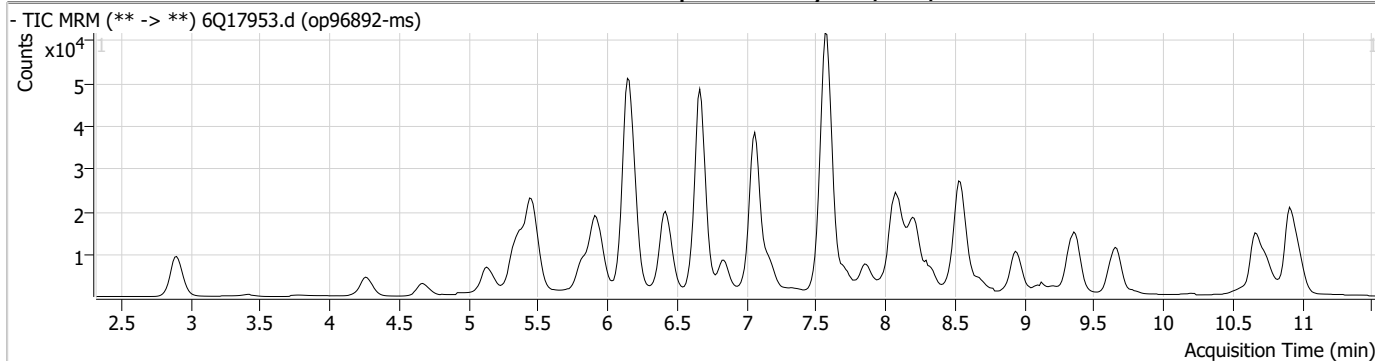
Perfluorinated Compounds by LC/MS/MS

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

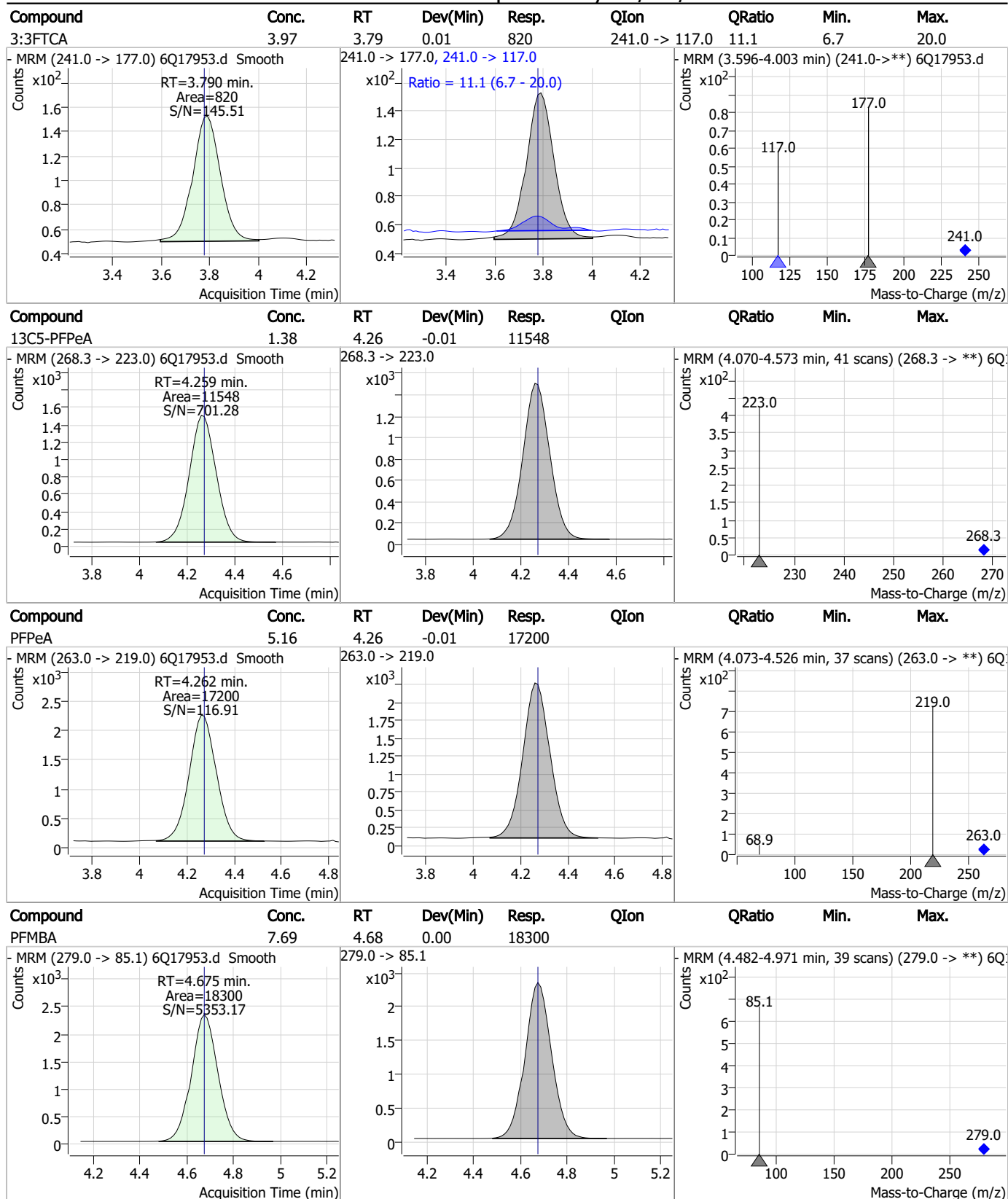
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Perfluorinated Compounds by LC/MS/MS



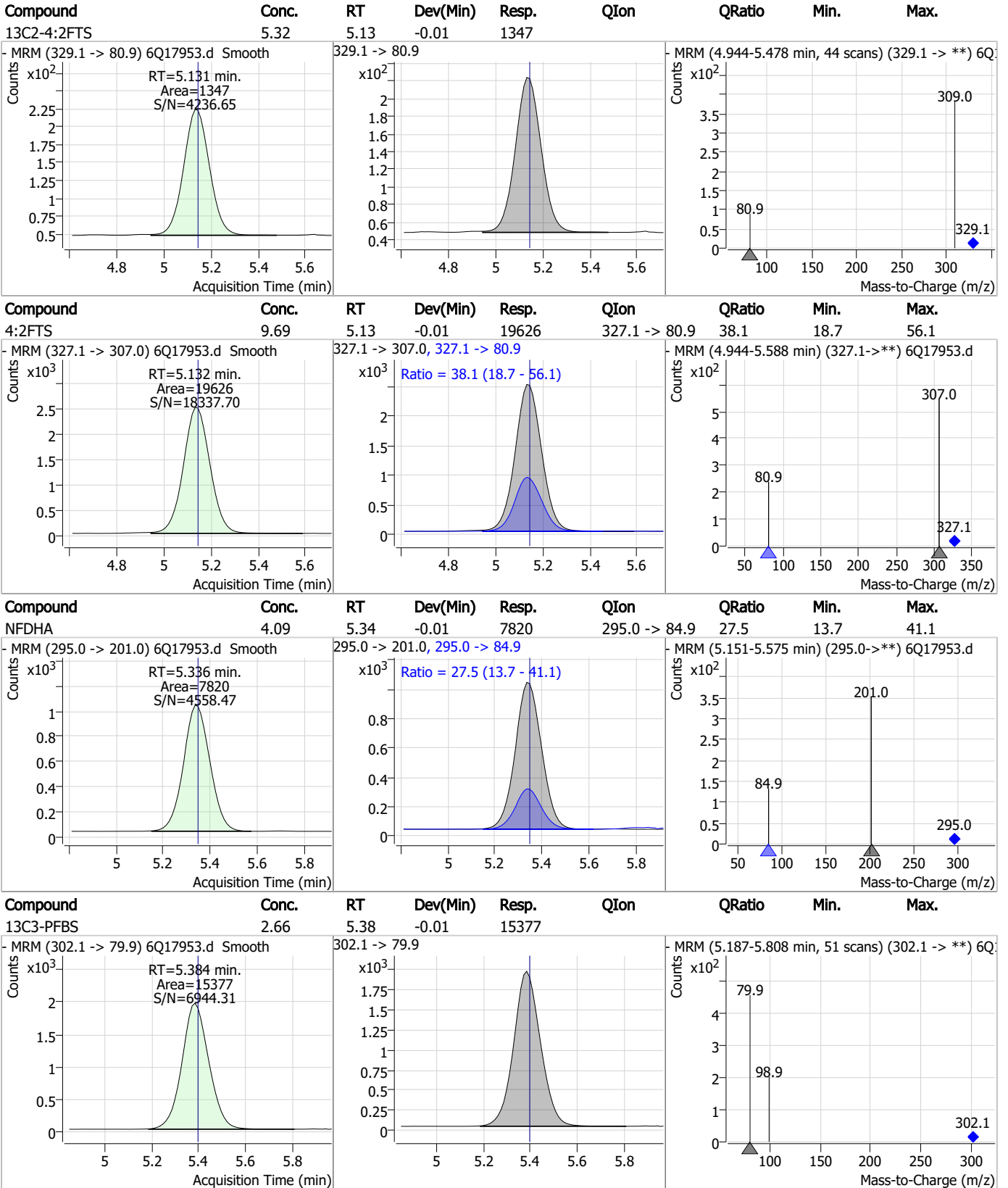
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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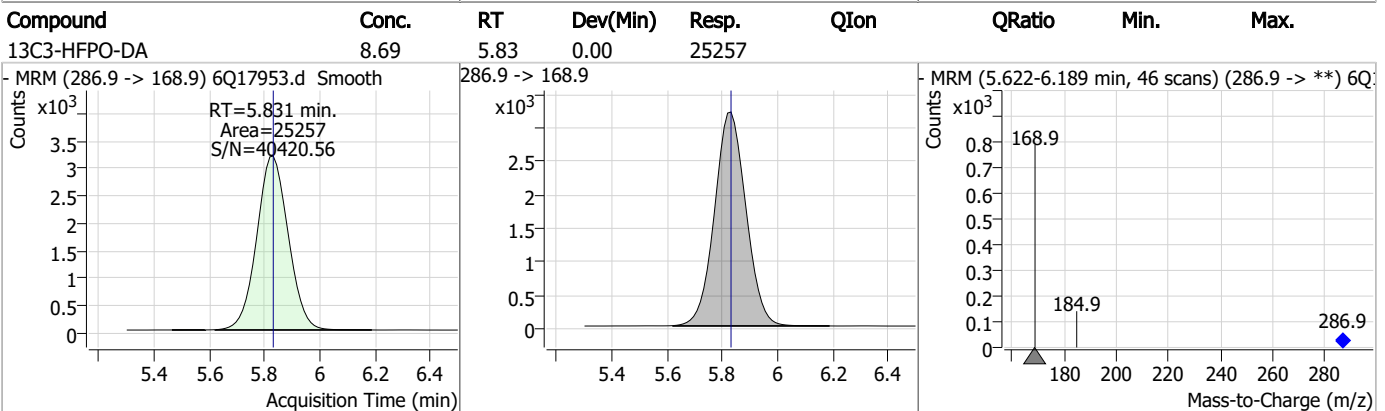
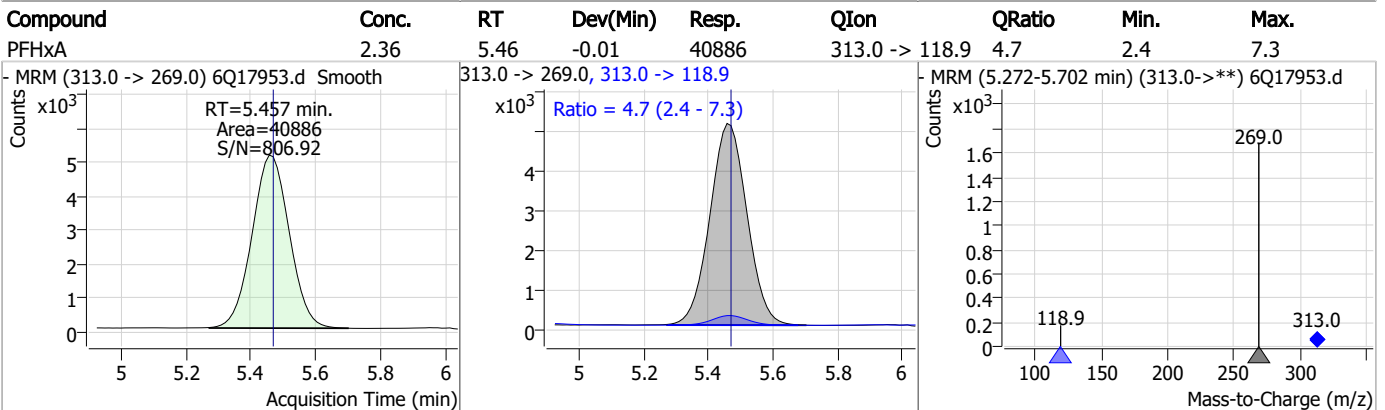
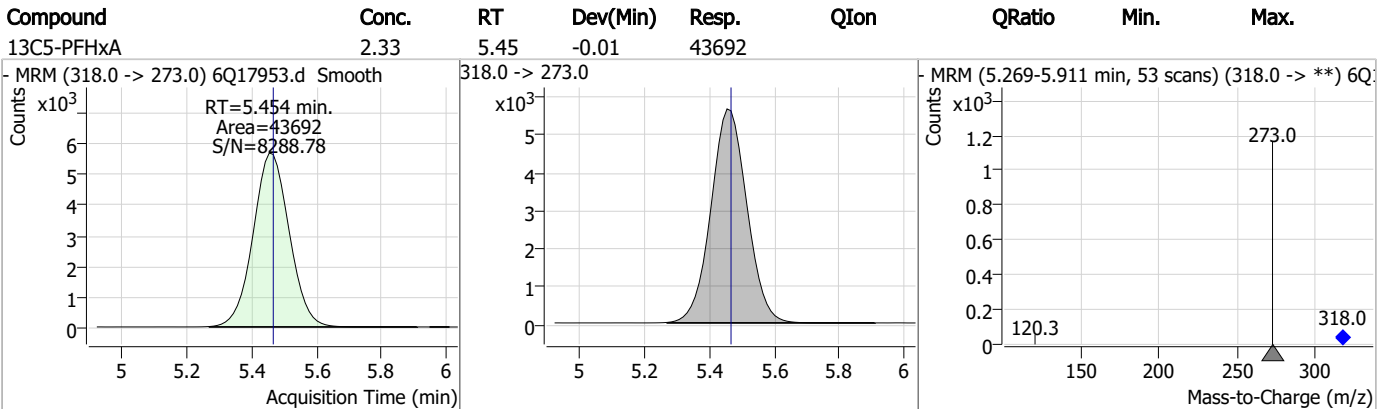
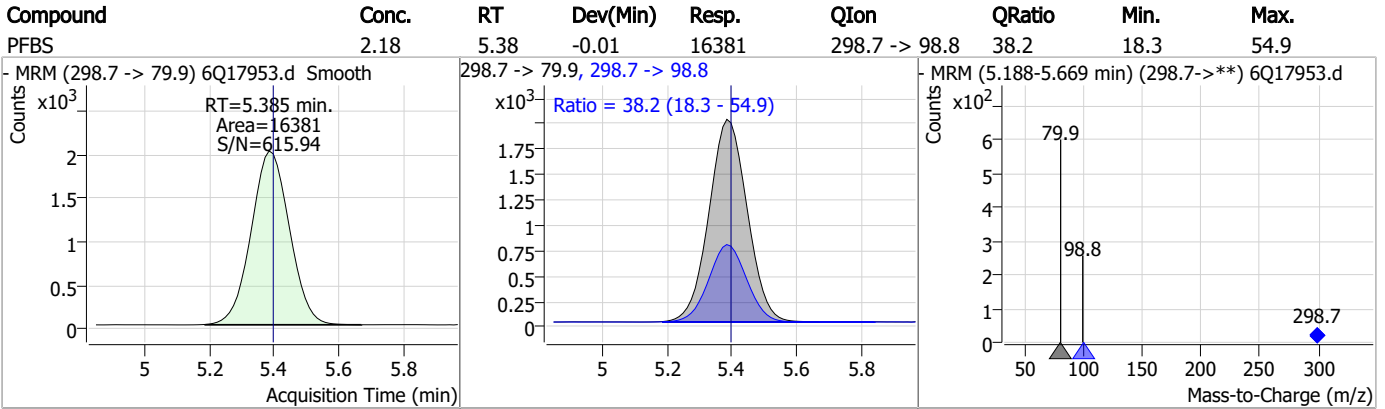
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS

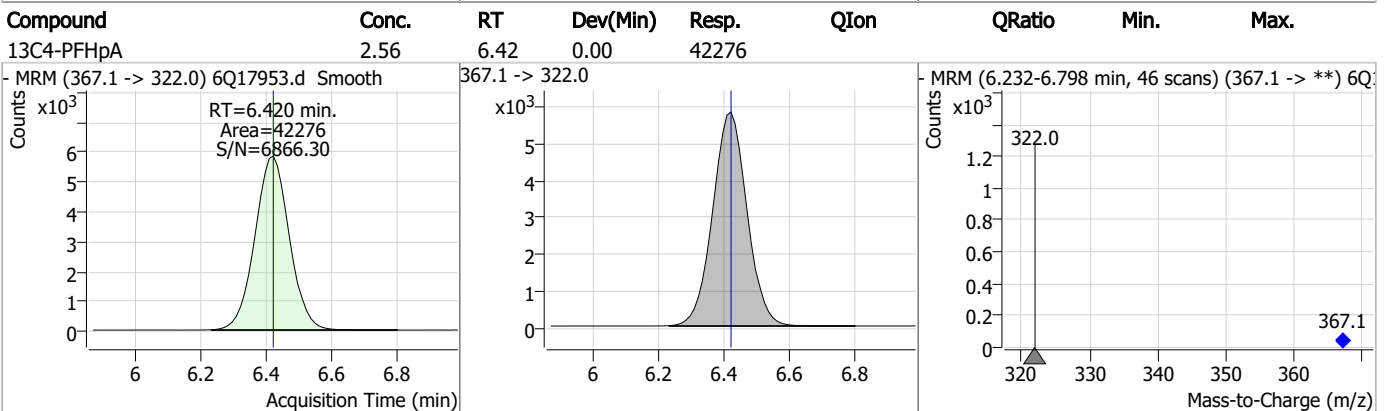
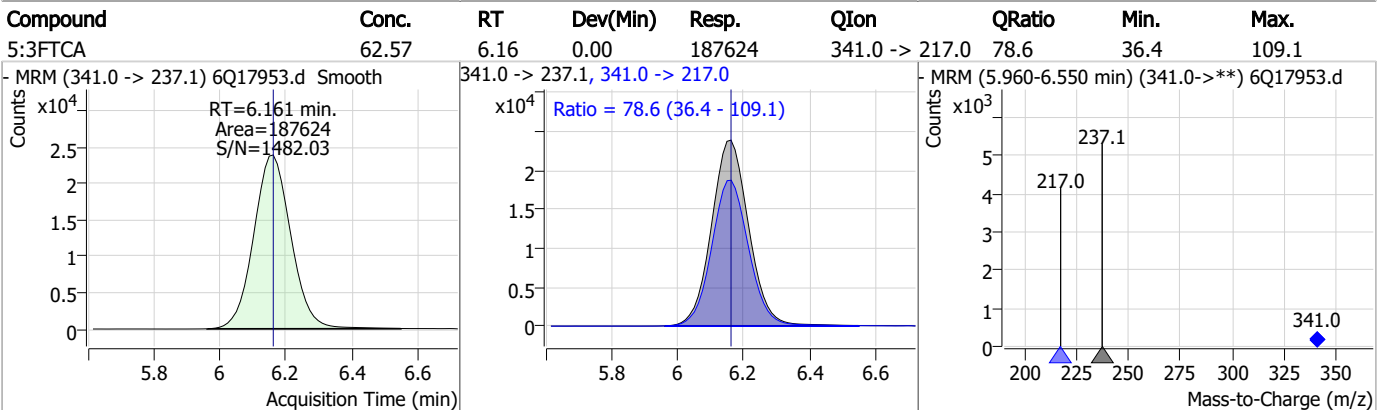
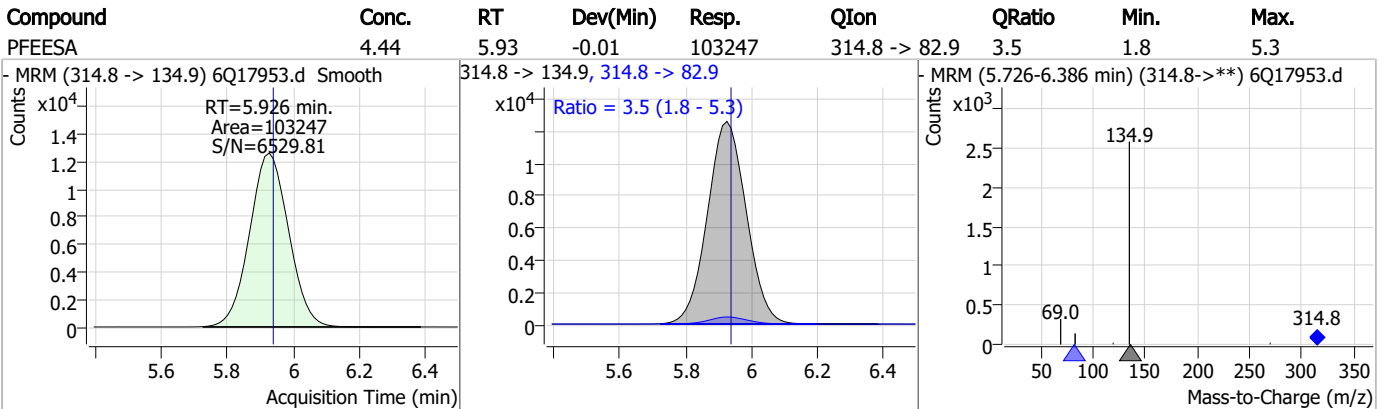
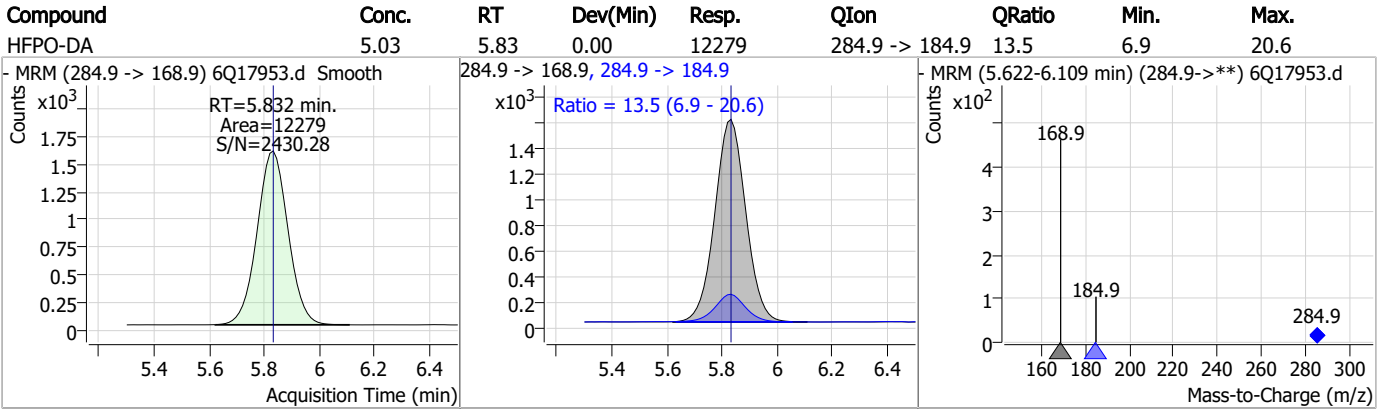


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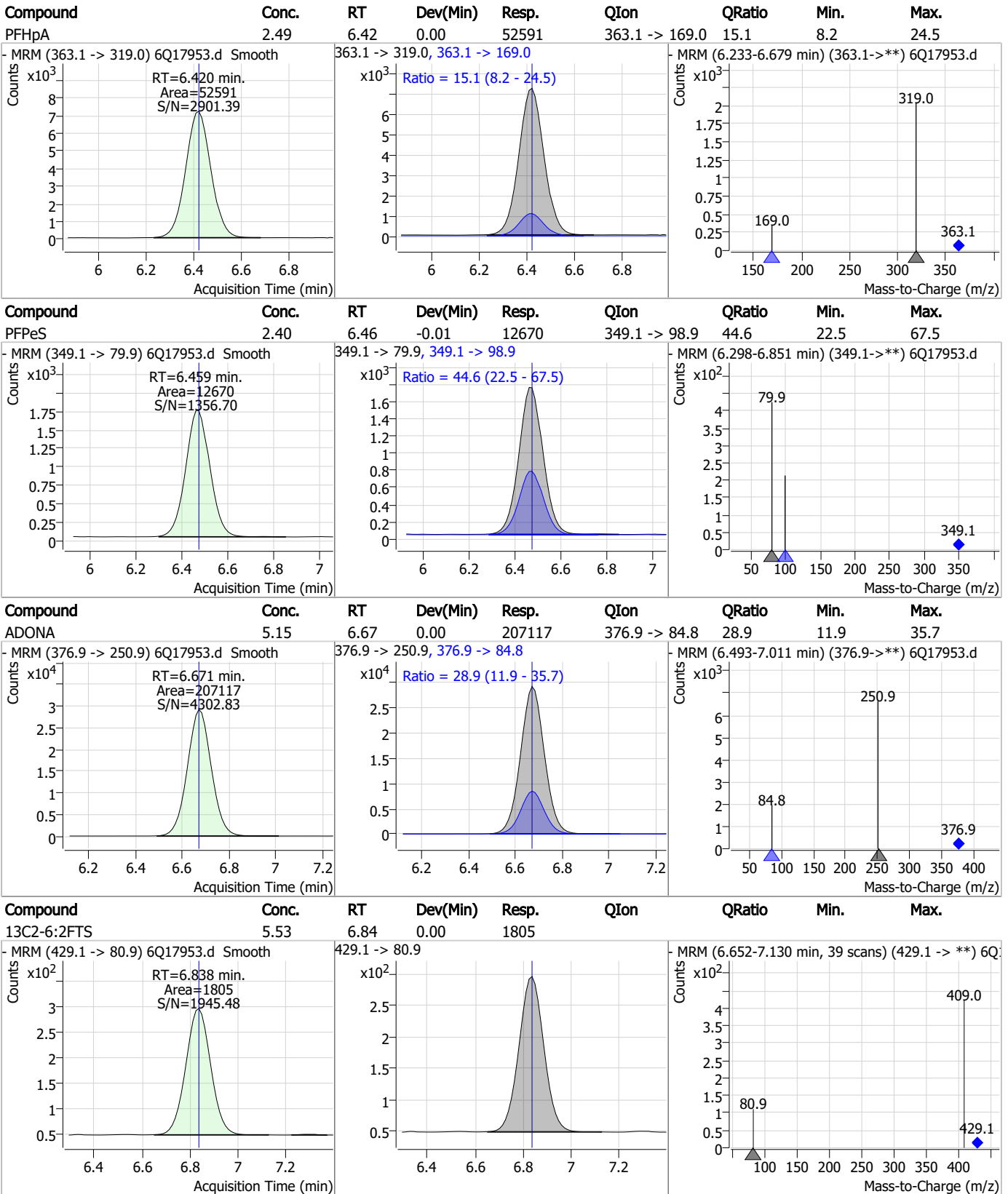
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

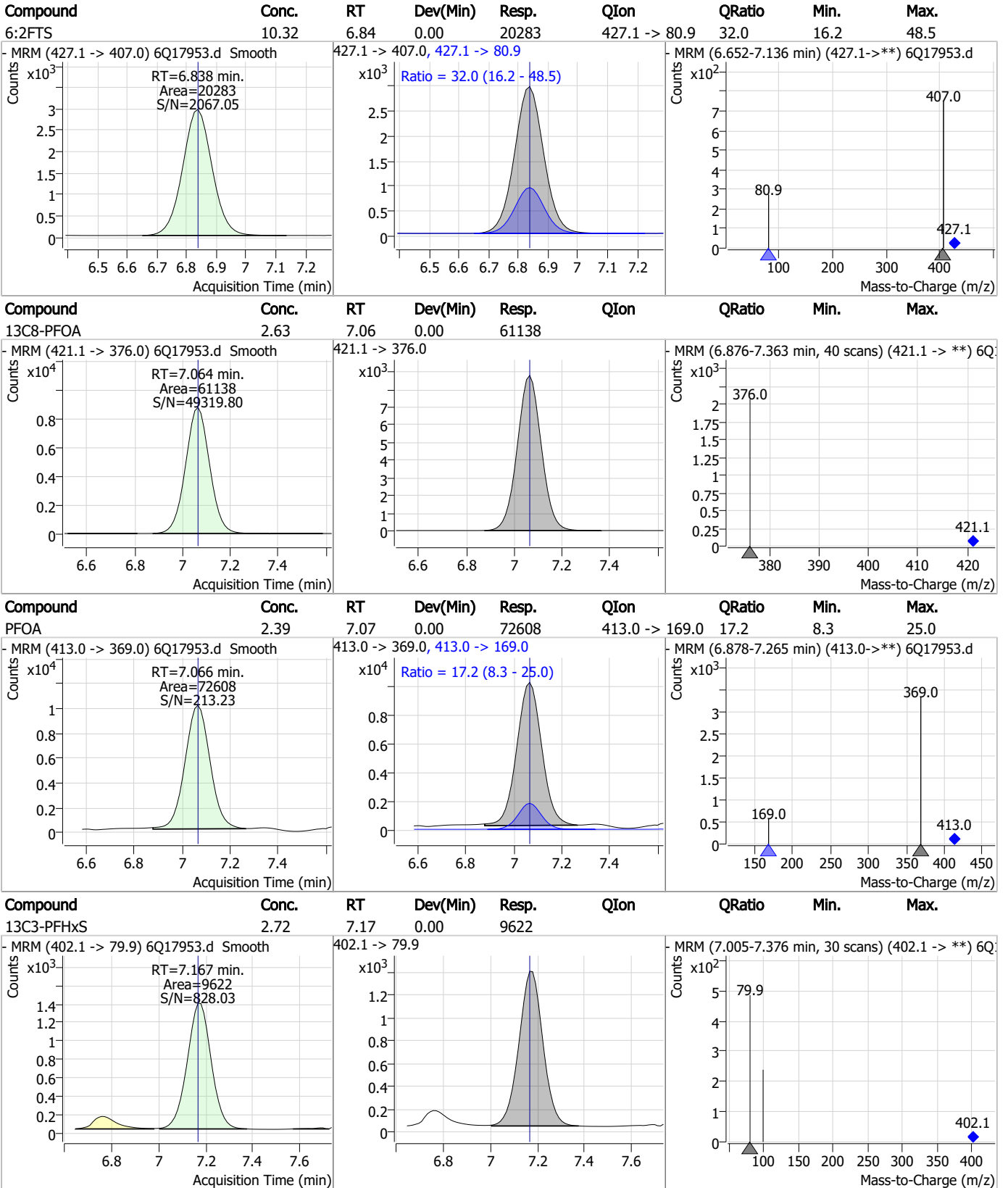


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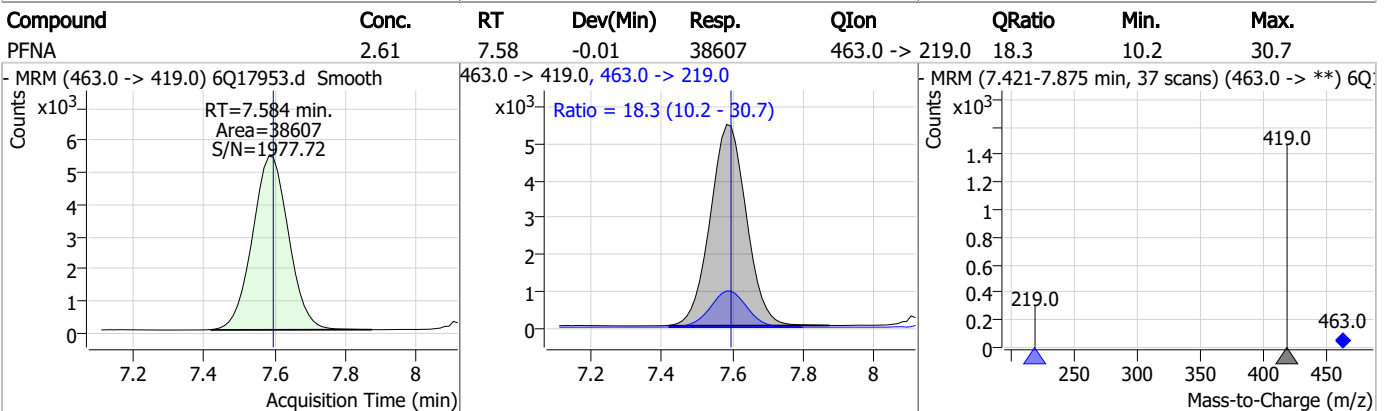
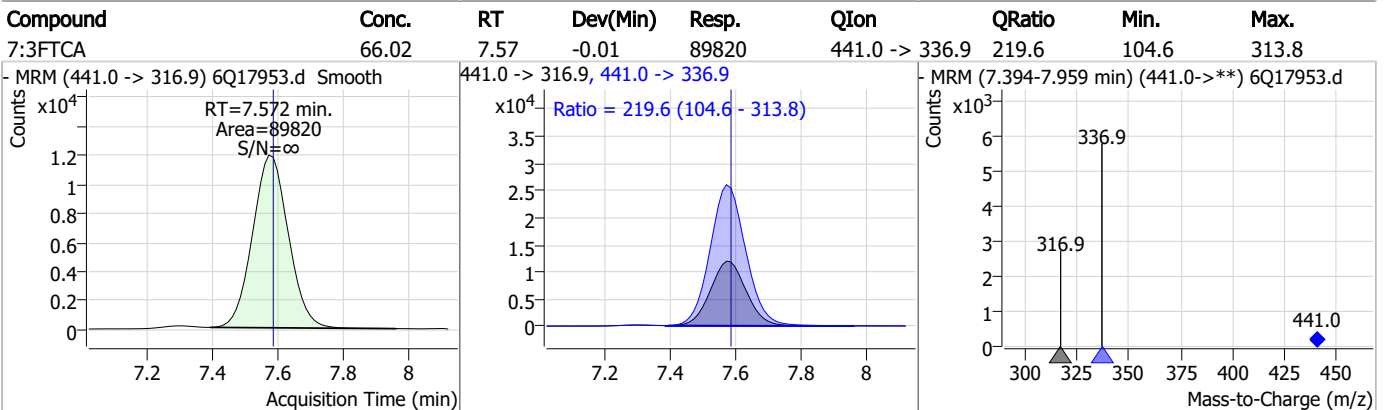
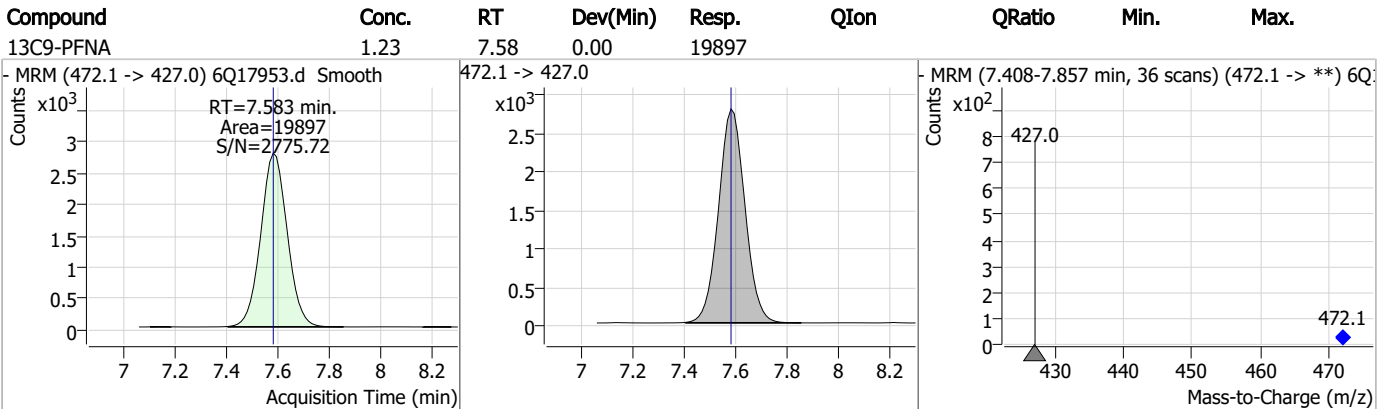
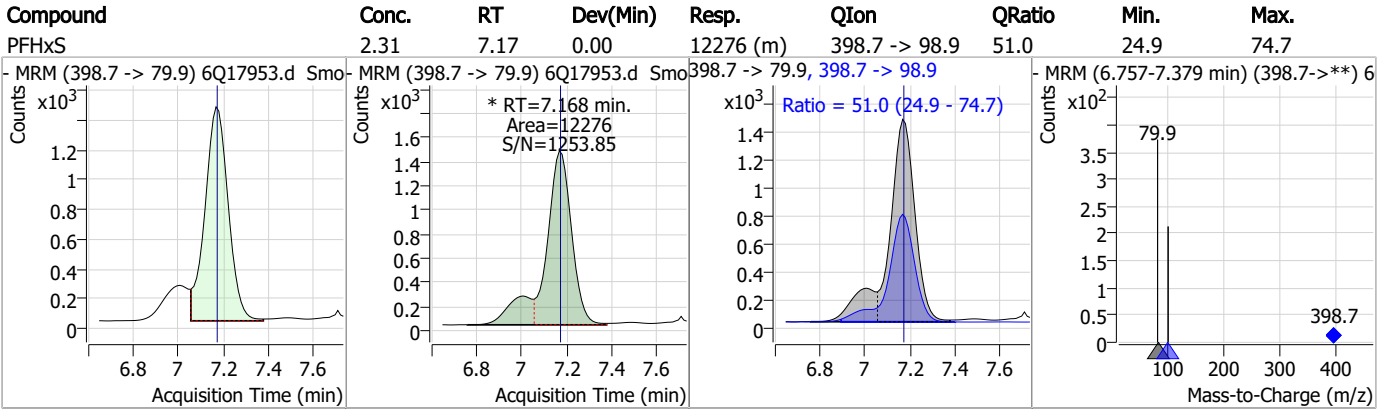
Perfluorinated Compounds by LC/MS/MS



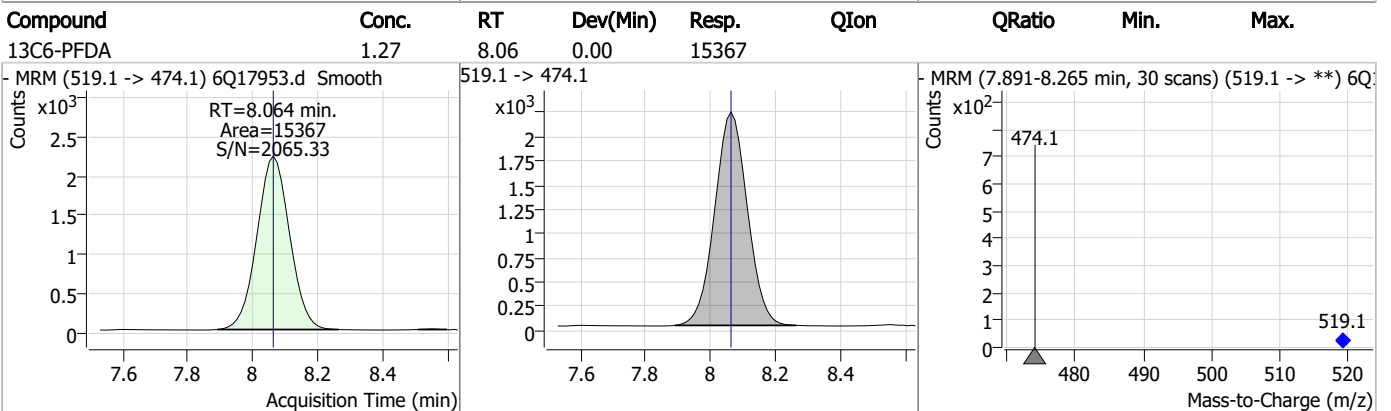
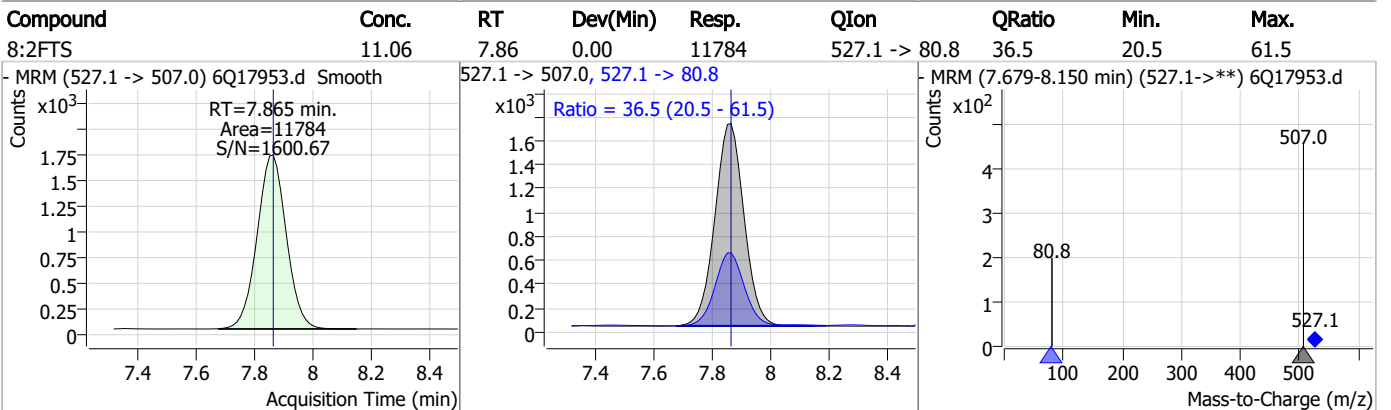
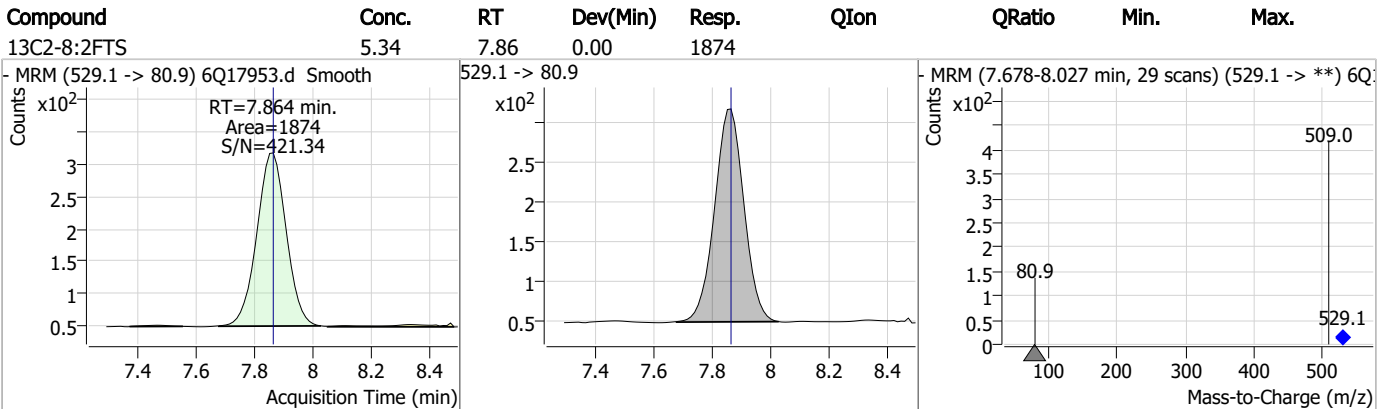
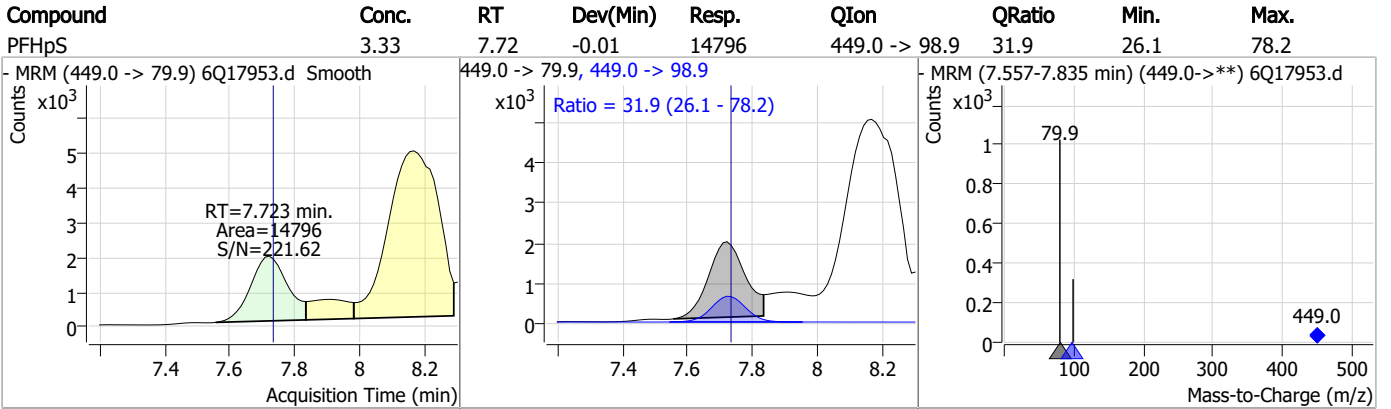
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Perfluorinated Compounds by LC/MS/MS



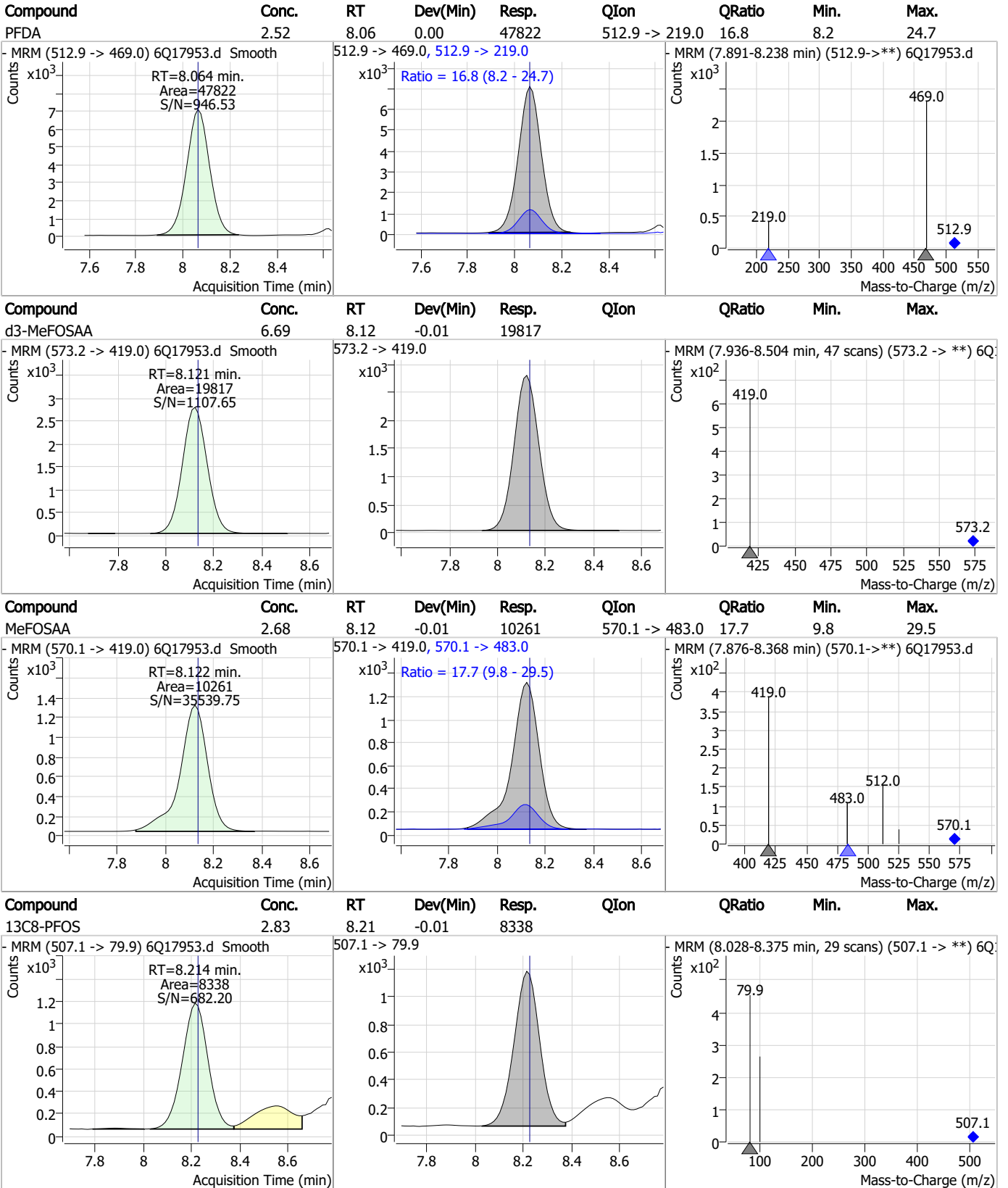
Perfluorinated Compounds by LC/MS/MS



7.4.1

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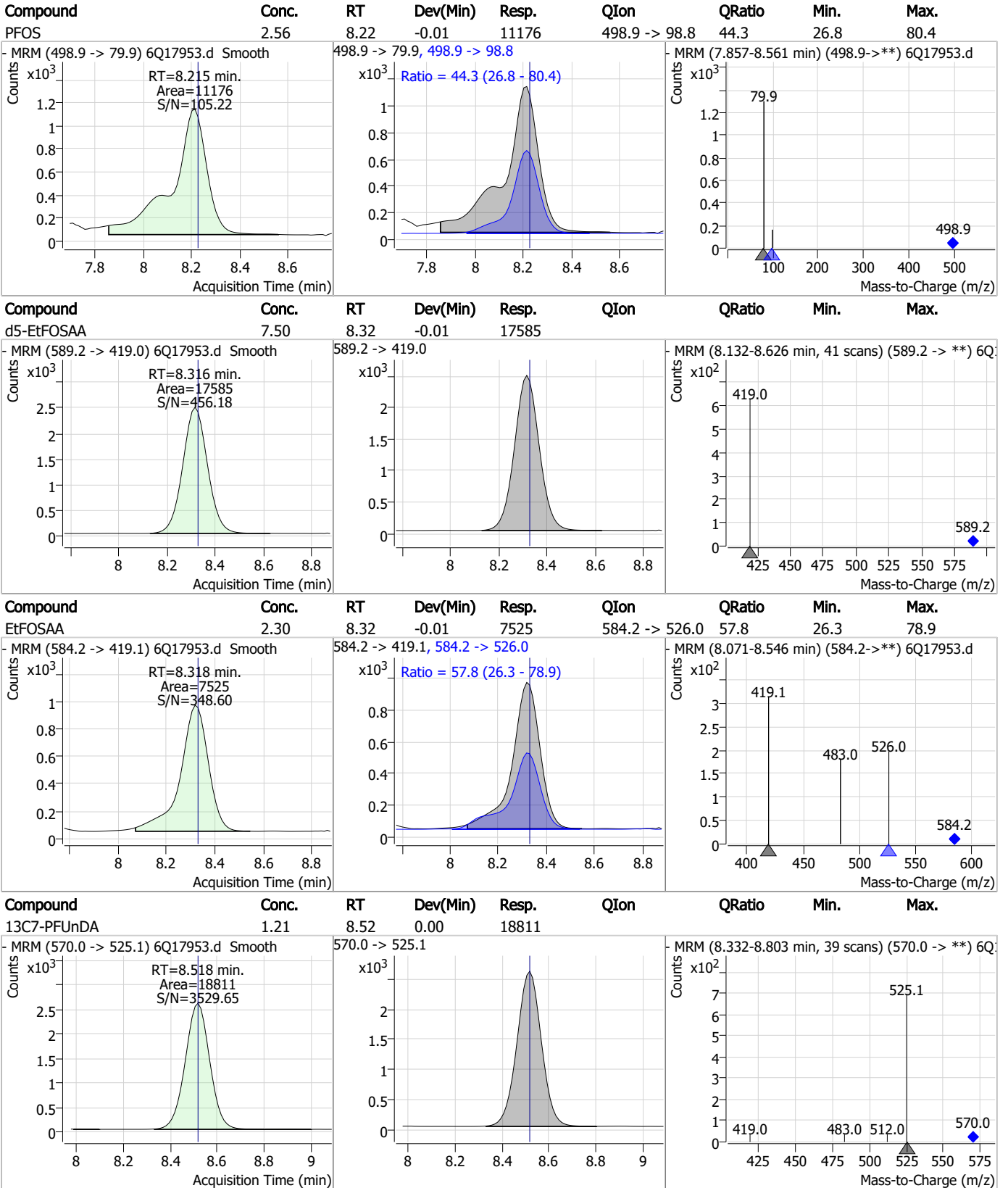
Perfluorinated Compounds by LC/MS/MS



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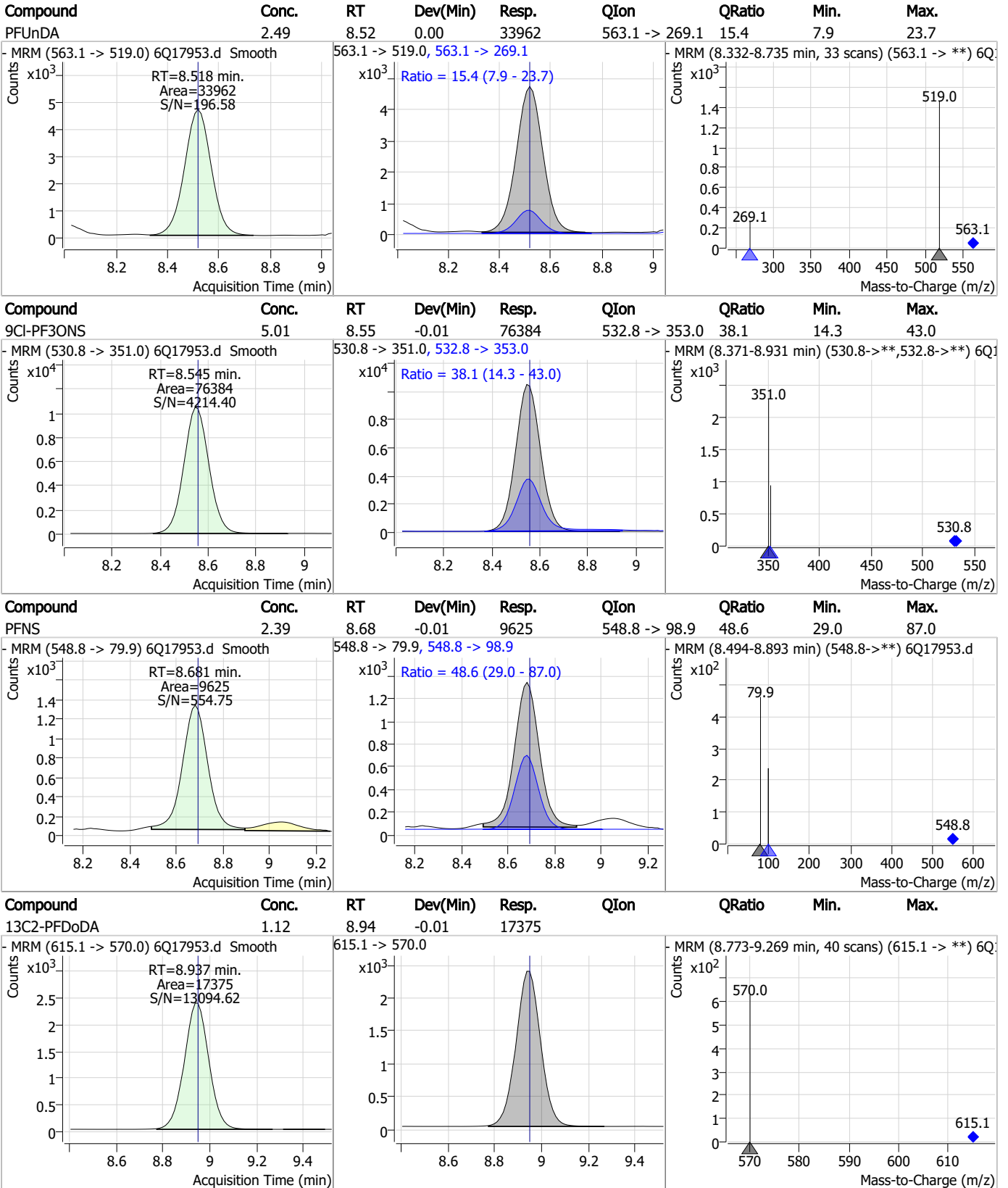
Perfluorinated Compounds by LC/MS/MS



7.4.1

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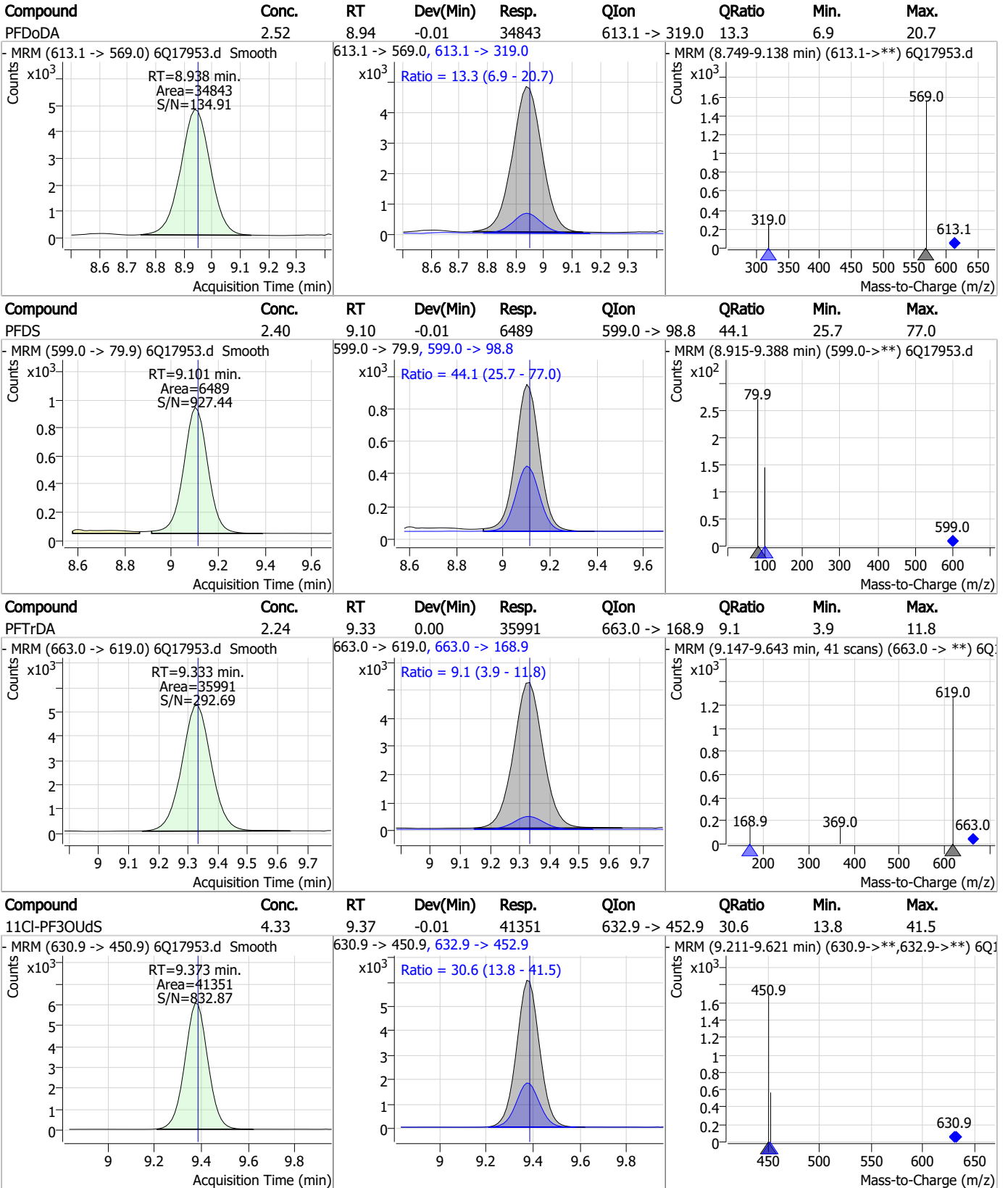
Perfluorinated Compounds by LC/MS/MS



7.4.1

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Perfluorinated Compounds by LC/MS/MS

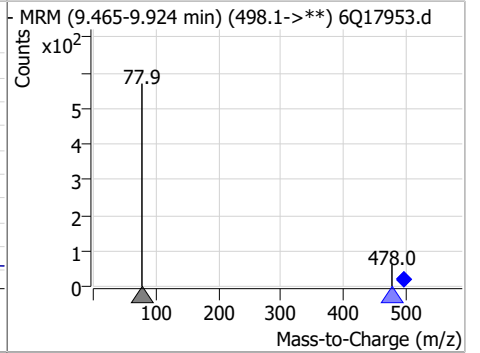
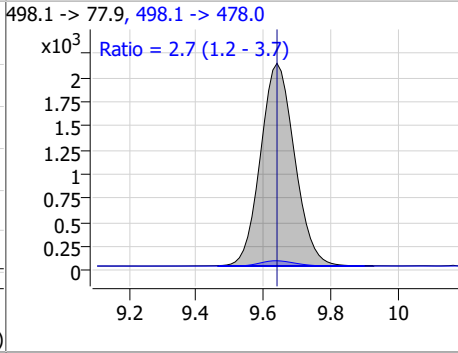
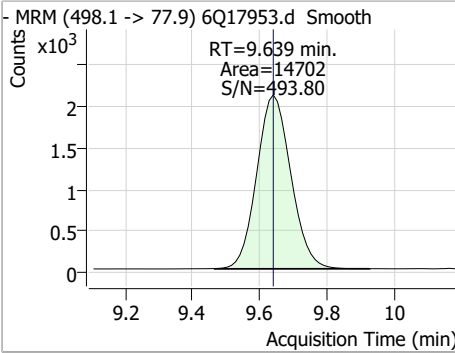


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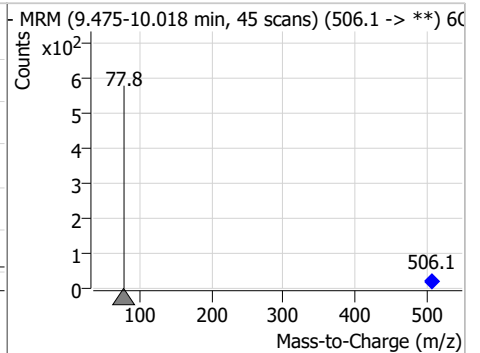
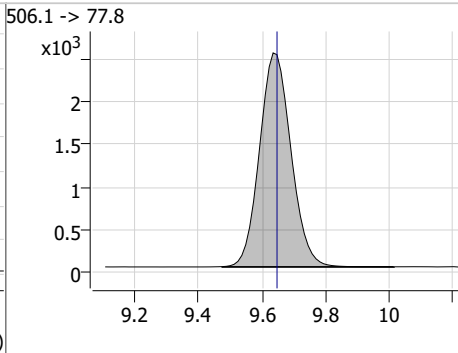
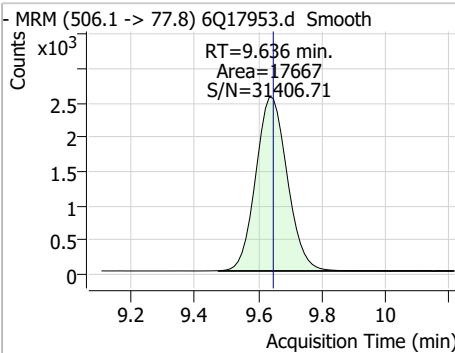
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Perfluorinated Compounds by LC/MS/MS

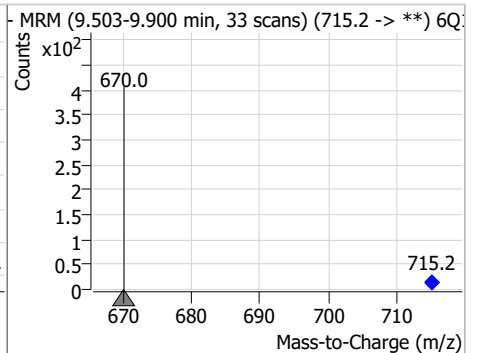
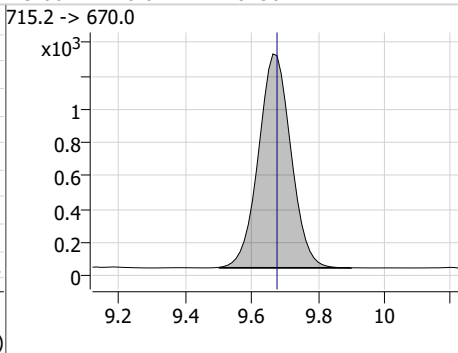
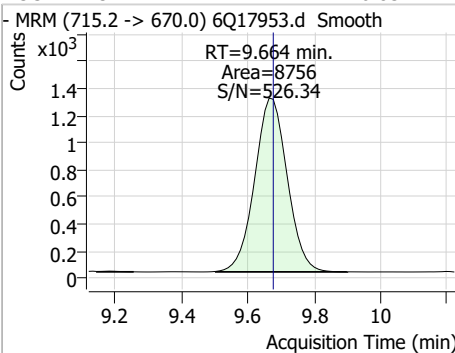
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.22	9.64	0.00	14702	498.1 -> 478.0	2.7	1.2	3.7



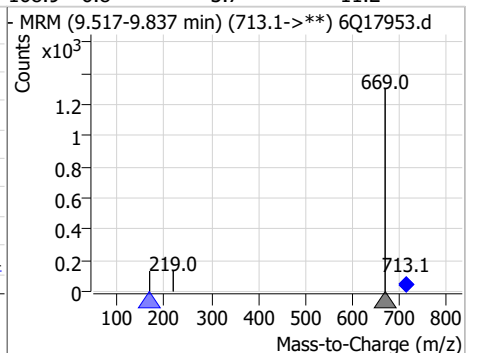
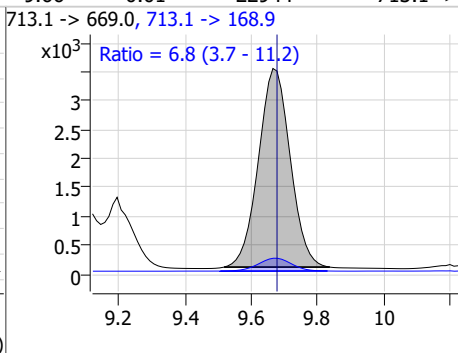
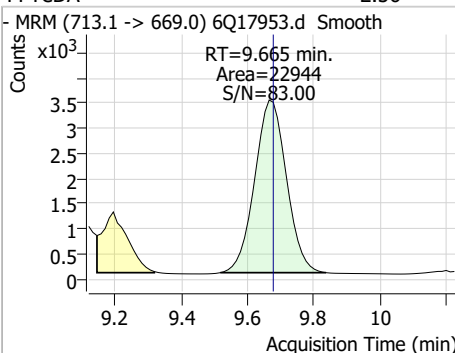
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.82	9.64	-0.01	17667				



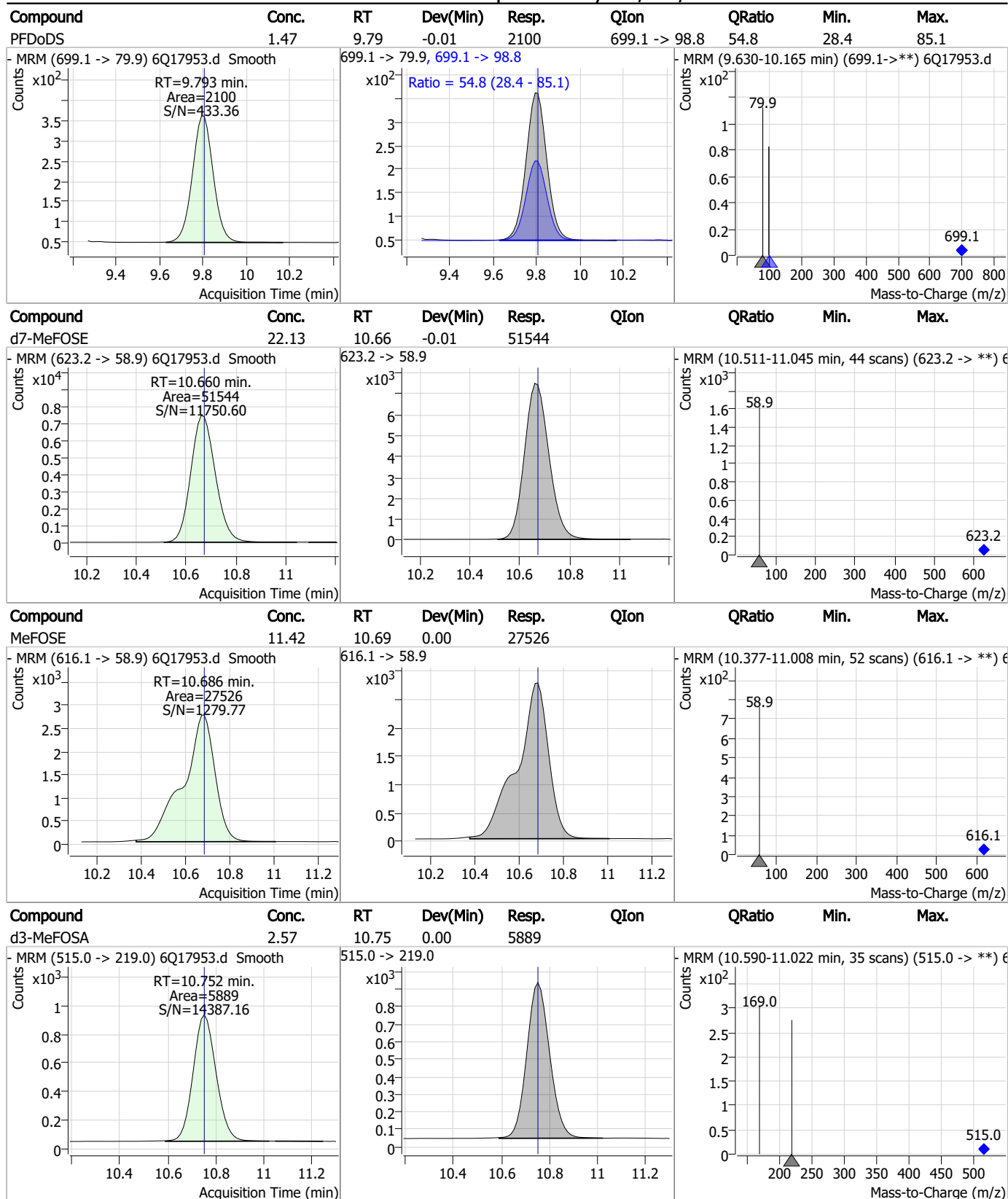
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.83	9.66	-0.01	8756				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.56	9.66	-0.01	22944	713.1 -> 168.9	6.8	3.7	11.2

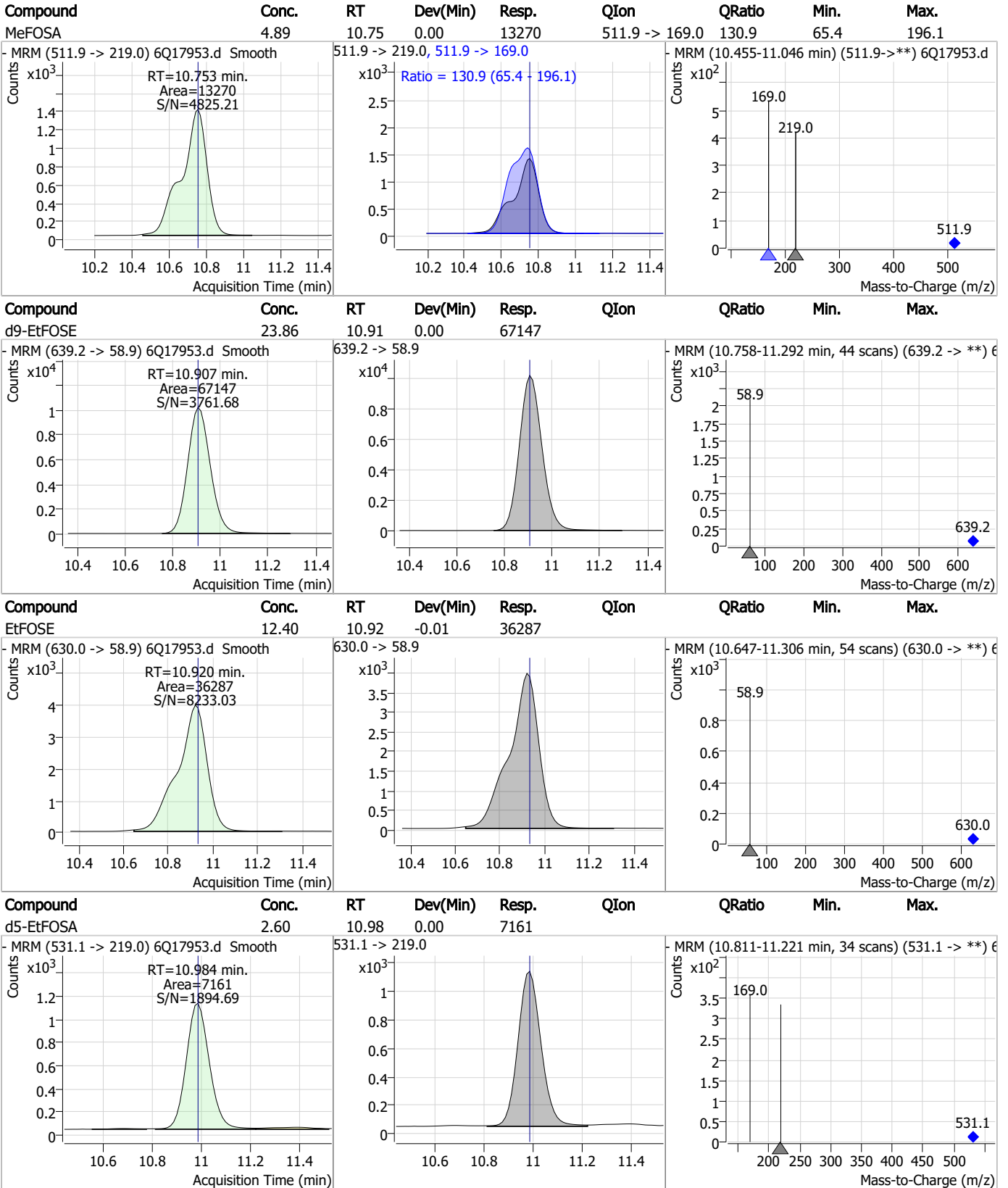


Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS

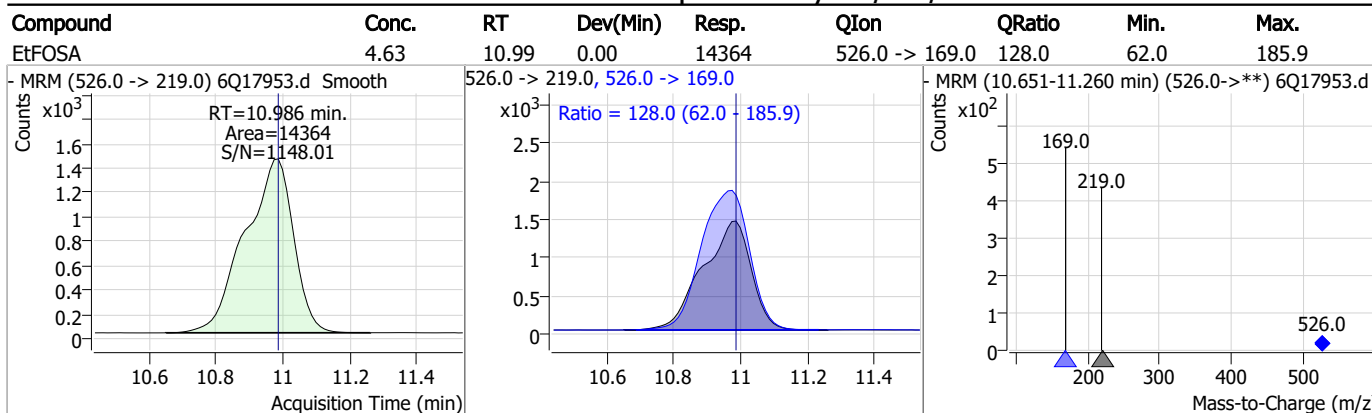


7.4.1

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Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Manual Integration Approval Summary

Sample Number: OP96892-MS Method: EPA DRAFT 1633
Lab FileID: 6Q17953.D Analyst approved: 05/18/23 14:45 Martha Valls
Injection Time: 05/17/23 16:04 Supervisor approved: 05/19/23 14:35 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17959.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 5:31:37 PM
 Sample Name : op96892-dup
 Vial : P2-B4
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96892,S6Q271,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	108571	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	39490	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	47961	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	40491	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	58008	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	19082	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	12495	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	11712	1.25 µg/L	0.000
M2-PFDoDA	8.937	615.1 -> 570.0	9618	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	4299	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	15268	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	15556	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	9048	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	6771	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1414	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	1846	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	1416	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	13308	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	27776	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	11072	5.00 µg/L	0.000
M7-MeFOSE	10.660	623.2 -> 58.9	42116	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	54005	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	4859	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	4019	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	11299	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	50860	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	6626	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	58804	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	16505	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	22127	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	37657	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1414	5.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1846	5.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.5%		
13C2-8:2FTS	7.864	529.1 -> 80.9	1416	4.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.0%		
13C2-PFDoDA	8.937	615.1 -> 570.0	9618	0.70 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 55.7%		
13C2-PFTeDA	9.664	715.2 -> 670.0	4299	0.46 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 36.7%		
13C3-PFBS	5.384	302.1 -> 79.9	15556	2.70 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C3-PFHxS	7.167	402.1 -> 79.9	9048	2.56 µg/L	0.000

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 = 102.5%	
13C4-PFBA	2.901	216.8 -> 171.9	108571	9.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C4-PFHpA	6.420	367.1 -> 322.0	40491	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C5-PFHxA	5.466	318.0 -> 273.0	47961	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C5-PFPeA	4.259	268.3 -> 223.0	39490	4.99 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C6-PFDA	8.064	519.1 -> 474.1	12495	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C7-PFUnDA	8.518	570.0 -> 525.1	11712	0.84 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 67.5%	
13C8-FOSA	9.636	506.1 -> 77.8	15268	2.04 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.5%	
13C8-PFOA	7.064	421.1 -> 376.0	58008	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-PFOS	8.226	507.1 -> 79.9	6771	1.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.1%	
13C9-PFNA	7.595	472.1 -> 427.0	19082	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.3%	
d3-MeFOSAA	8.121	573.2 -> 419.0	13308	3.76 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 75.2%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	27776	10.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
d3-MeFOSA	10.752	515.0 -> 219.0	4019	1.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 58.8%	
d5-EtFOSAA	8.329	589.2 -> 419.0	11072	3.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 79.1%	
d7-MeFOSE	10.660	623.2 -> 58.9	42116	15.13 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 60.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	54005	16.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 64.2%	
d5-EtFOSA	10.984	531.1 -> 219.0	4859	1.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 59.0%	

7.5.1
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Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	6.838	427.1 -> 407.0 427.1 -> 80.9	4276 1492	2.13 µg/L	96
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	6.420	599.0 -> 98.8				
		363.1 -> 319.0	2228	0.11	µg/L	89
PFHpS	-	363.1 -> 169.0	261			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.457	449.0 -> 98.9				
		313.0 -> 269.0	5074	0.27	µg/L	98
PFHxS	-	313.0 -> 118.9	280			
		398.7 -> 79.9	-	N.D.		
PFNA	8.031	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	4.262	498.9 -> 98.8				
		263.0 -> 219.0	4797	0.42	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				
PFMPA	-					
PFEESA	-					

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

7.5.1
7

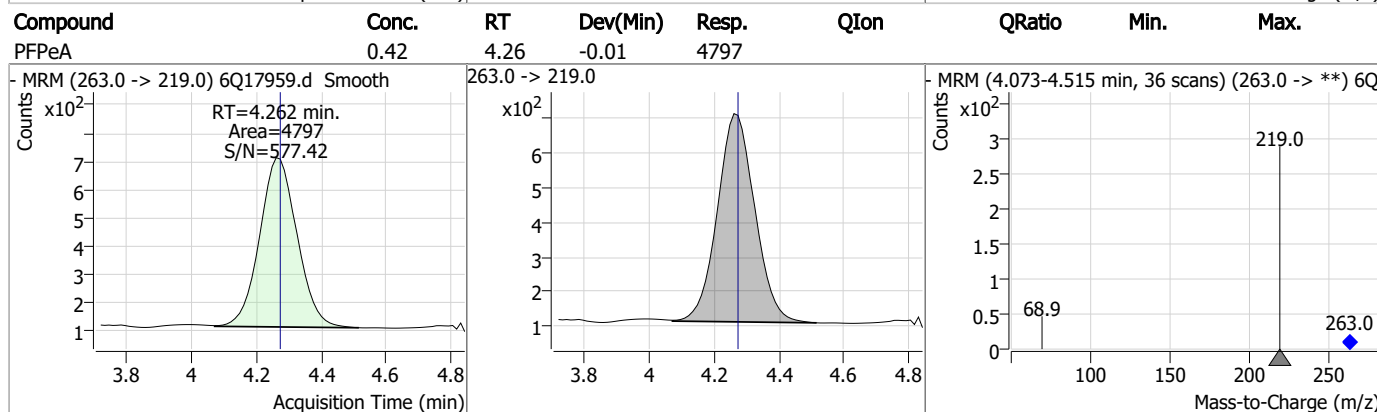
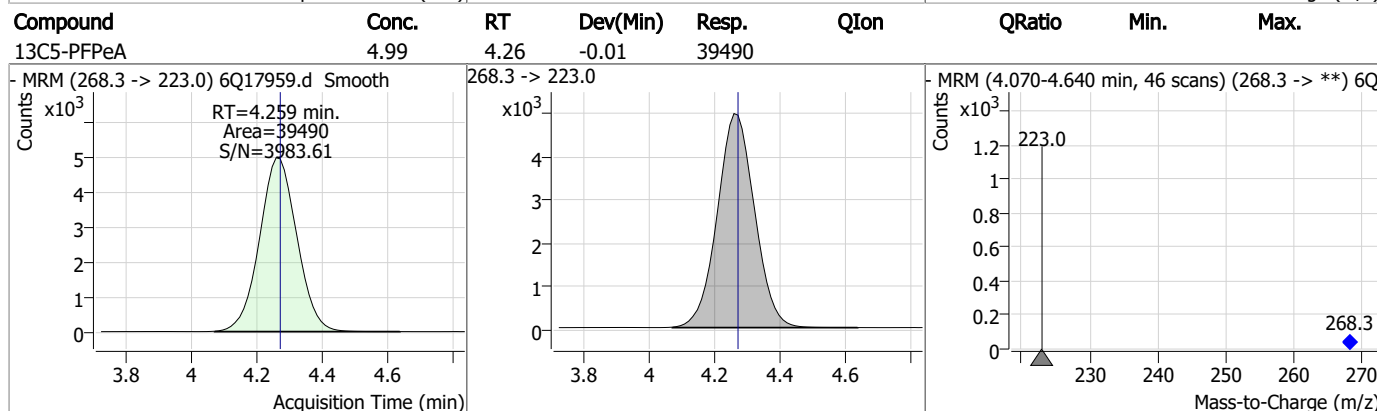
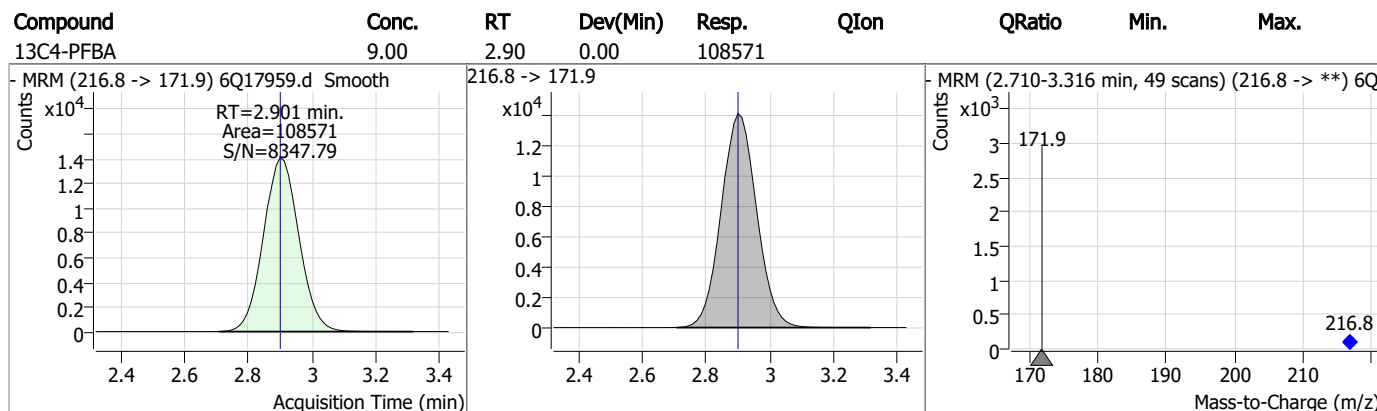
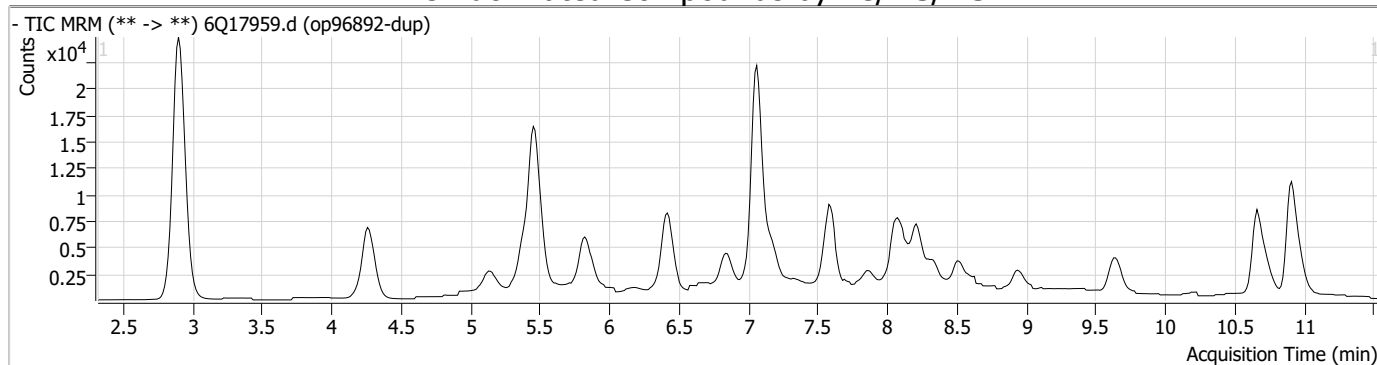
Perfluorinated Compounds by LC/MS/MS

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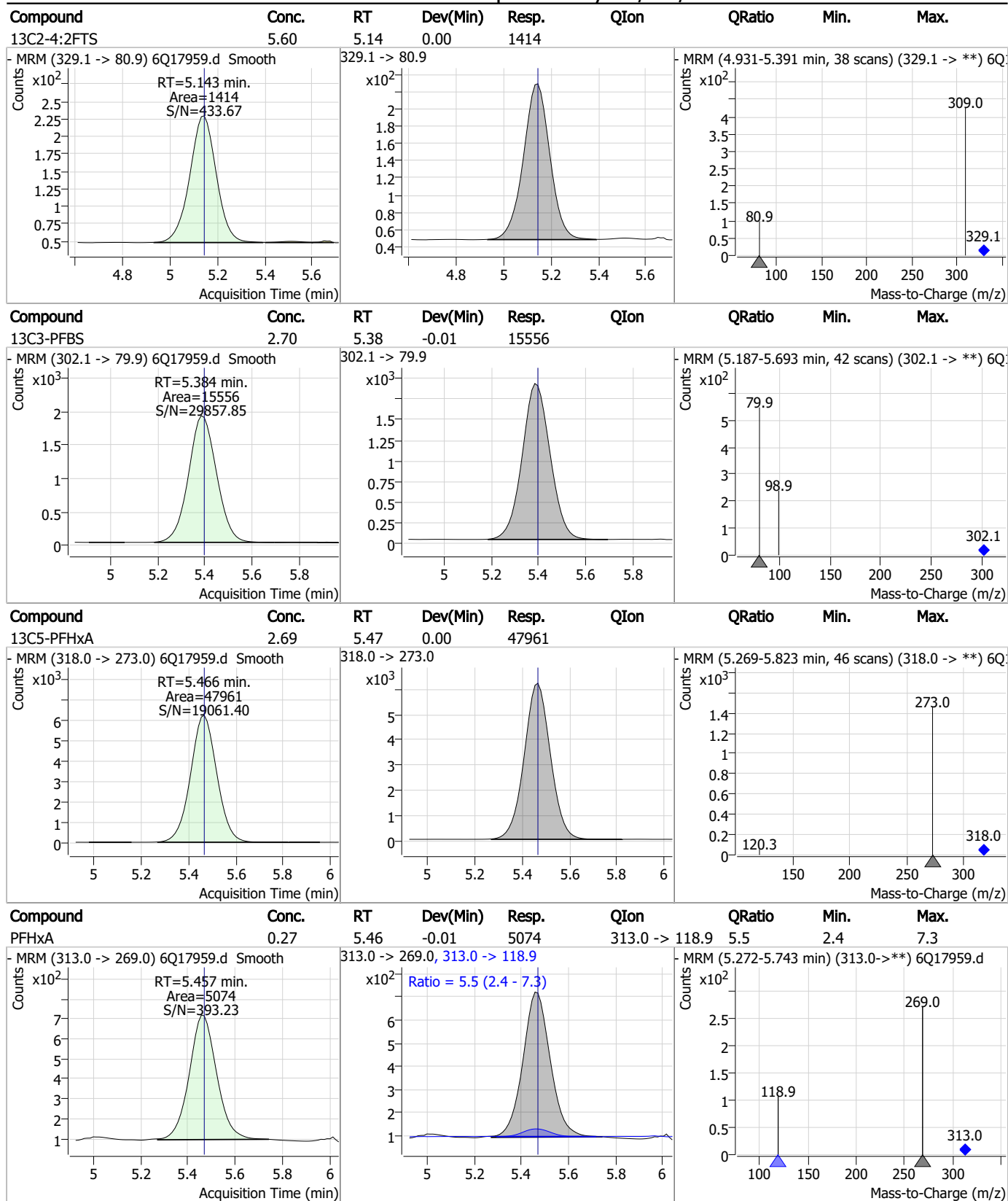
7.5.1

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Perfluorinated Compounds by LC/MS/MS



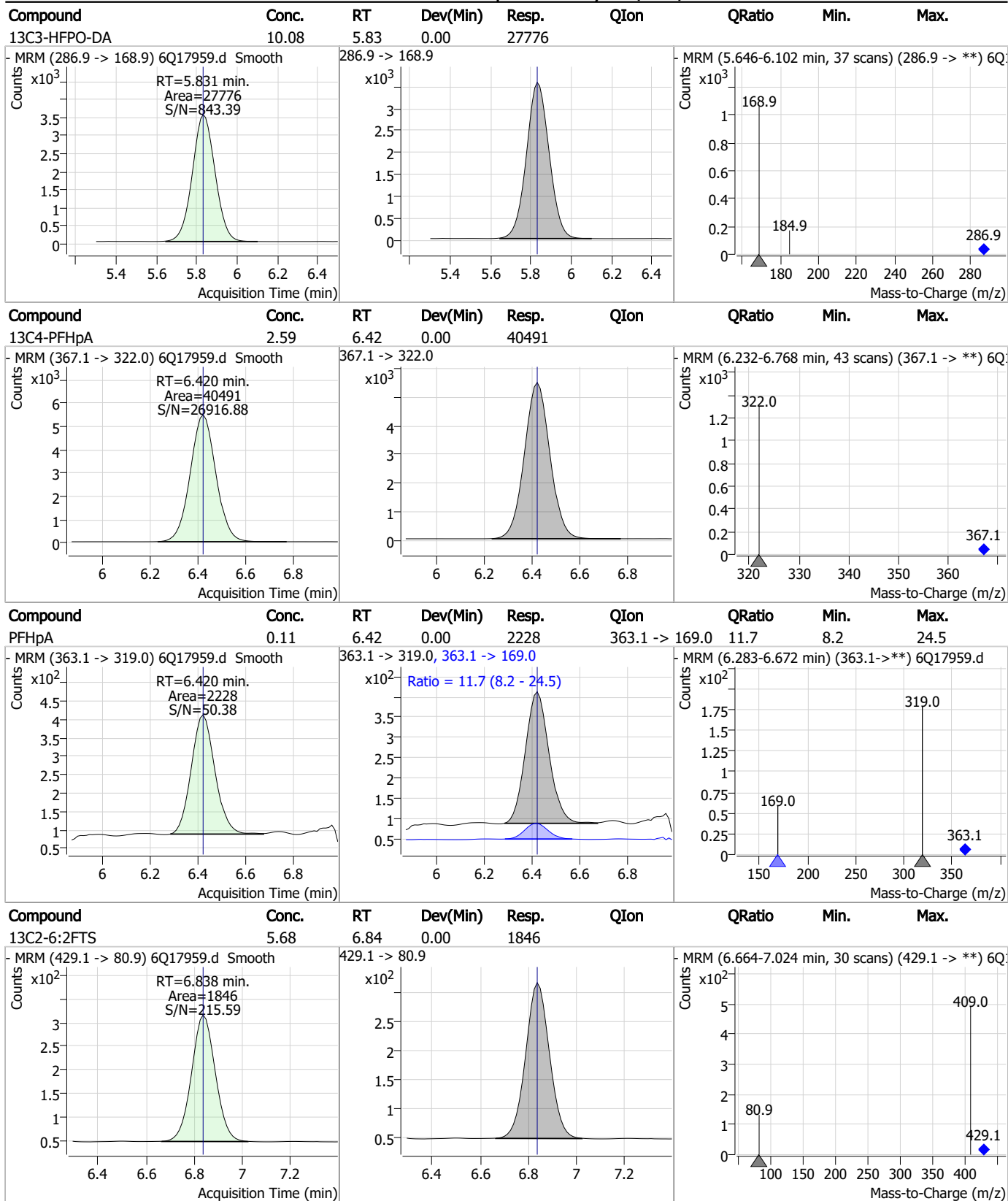
Perfluorinated Compounds by LC/MS/MS



7.5.1

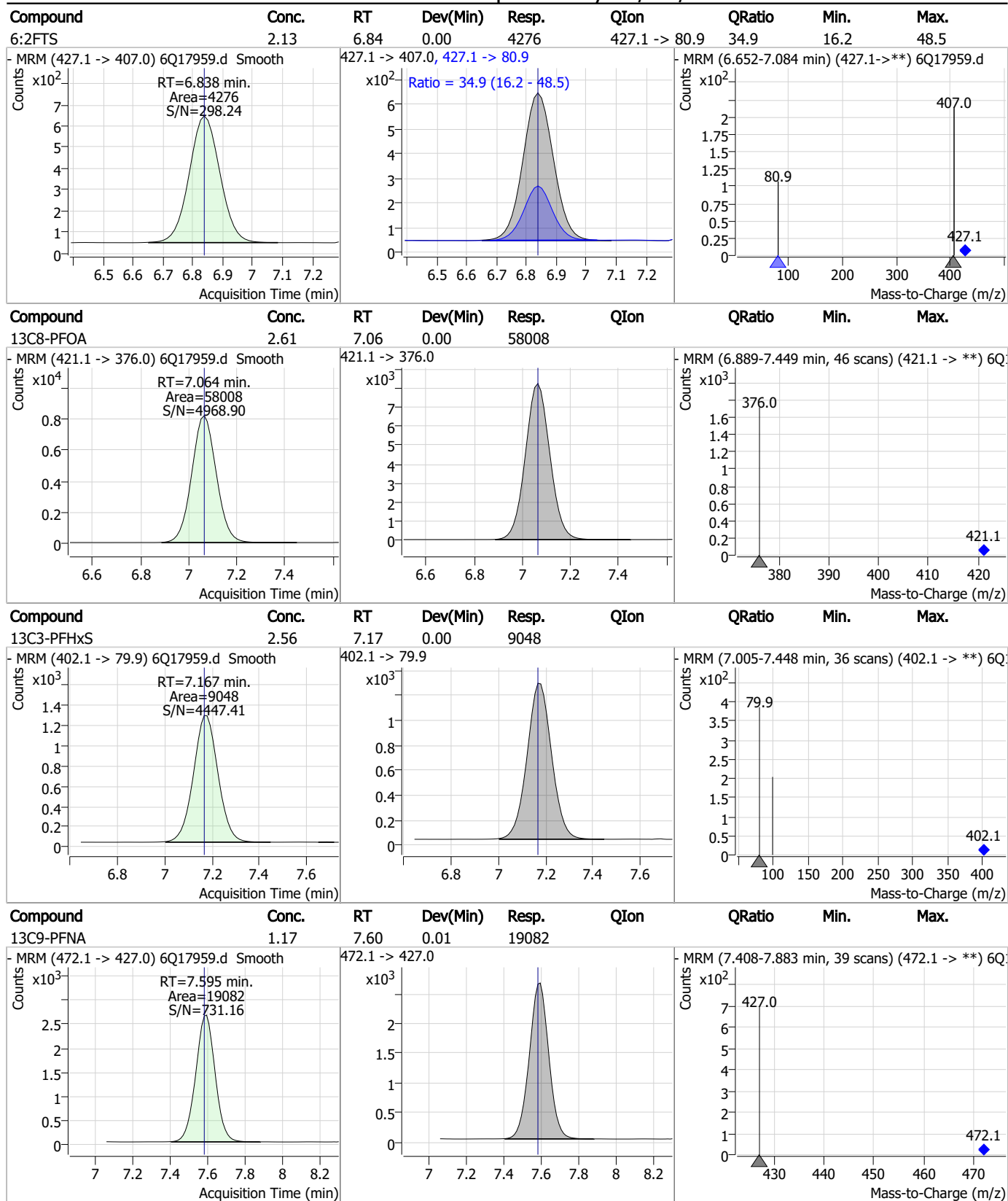
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Perfluorinated Compounds by LC/MS/MS



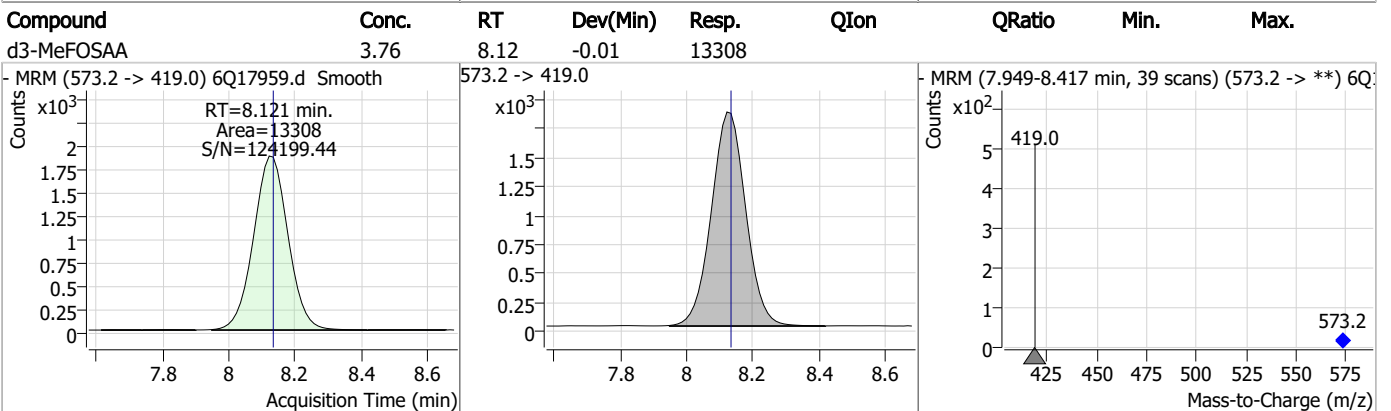
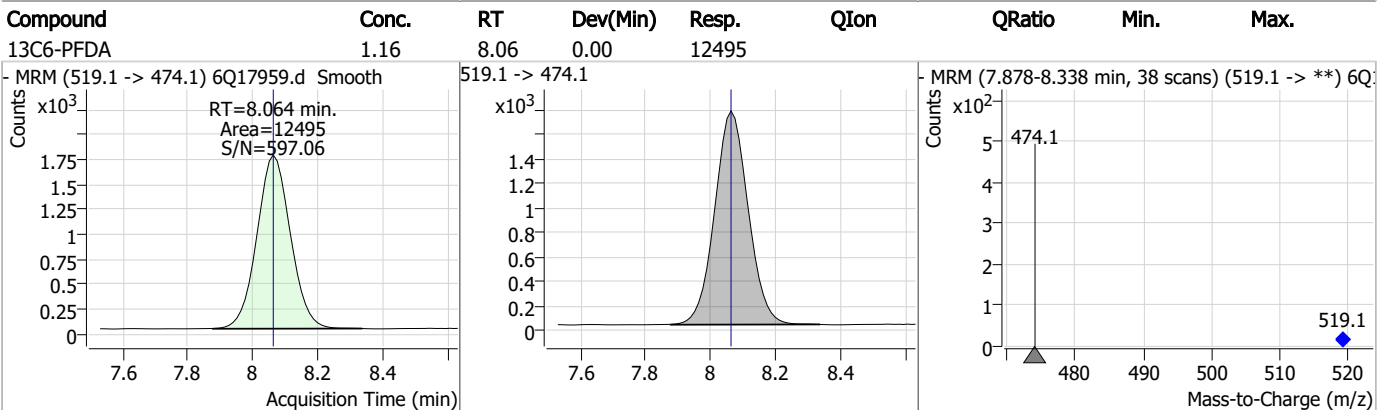
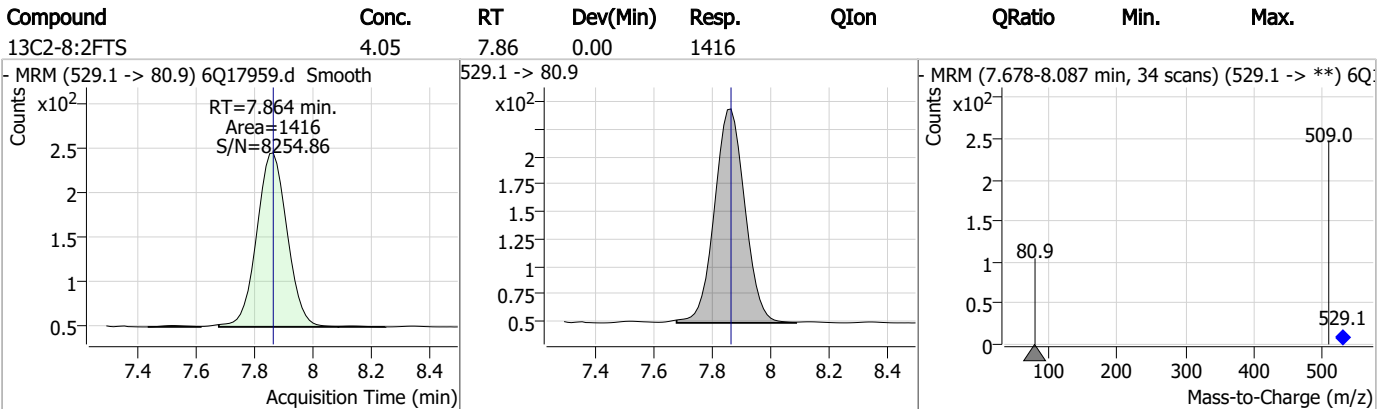
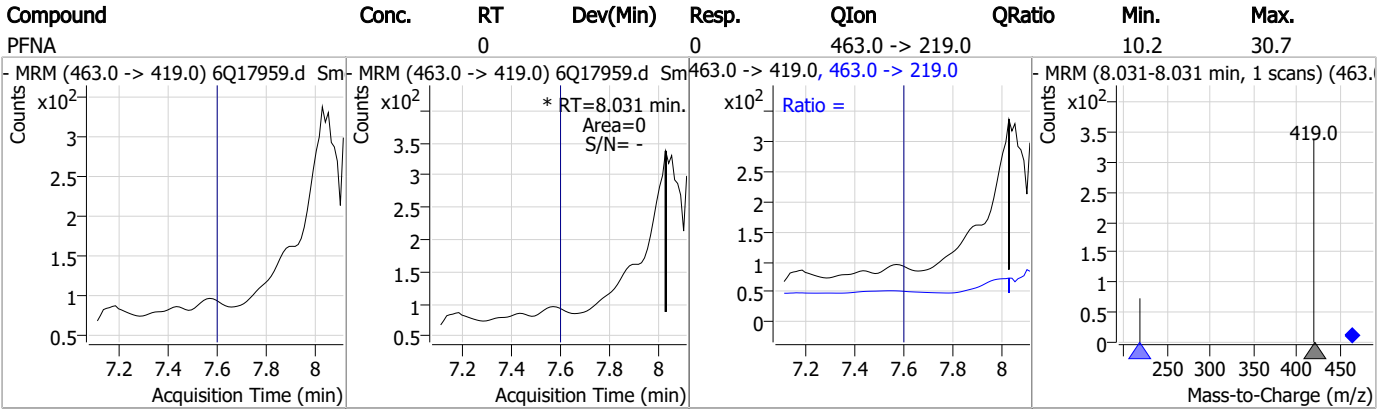
7.5.1
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Perfluorinated Compounds by LC/MS/MS

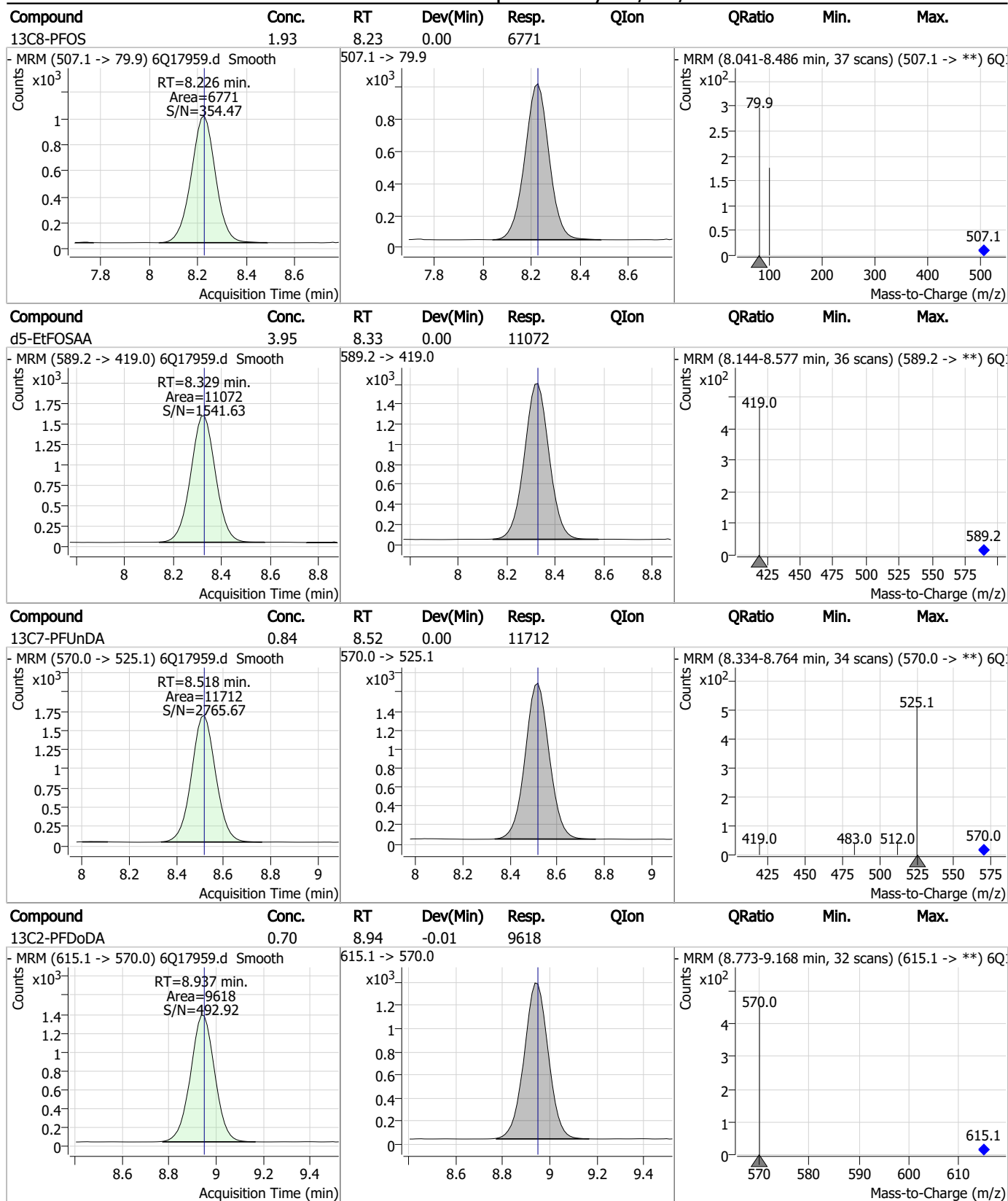


7.5.1
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Perfluorinated Compounds by LC/MS/MS



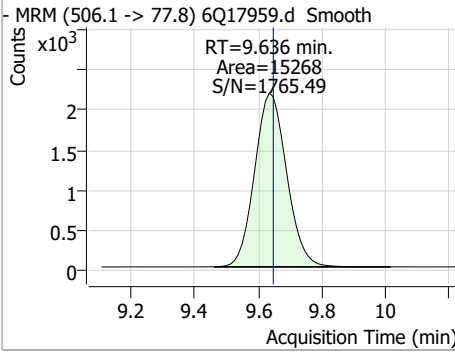
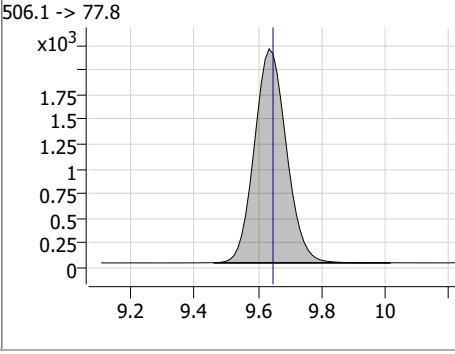
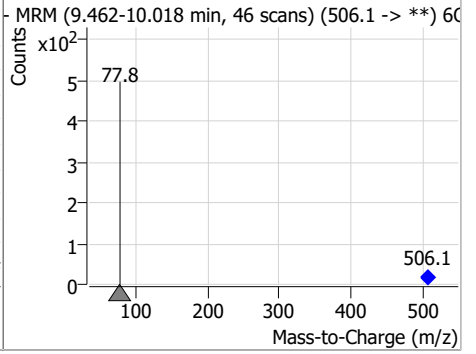
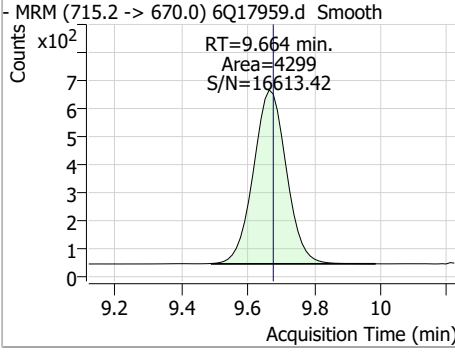
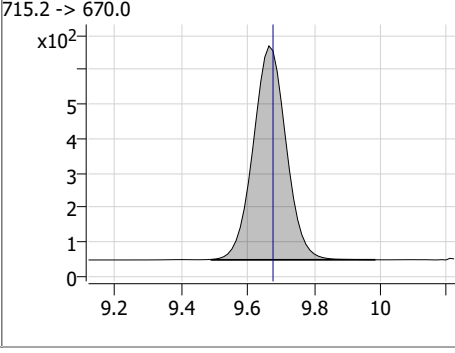
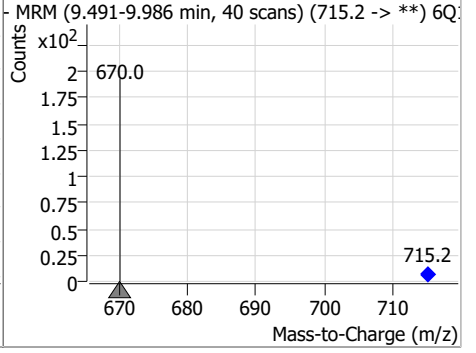
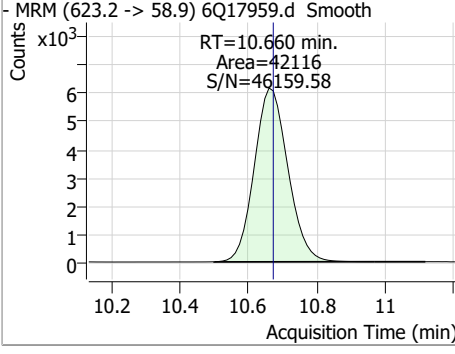
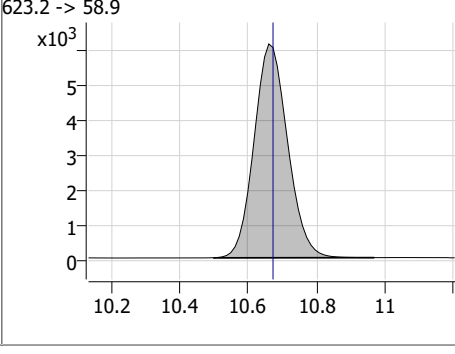
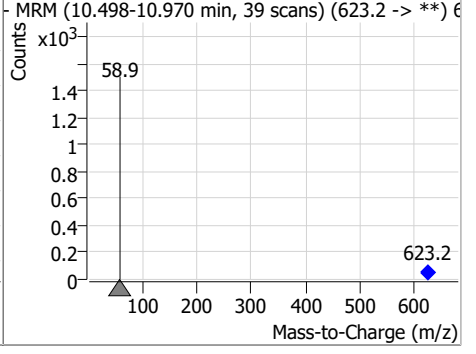
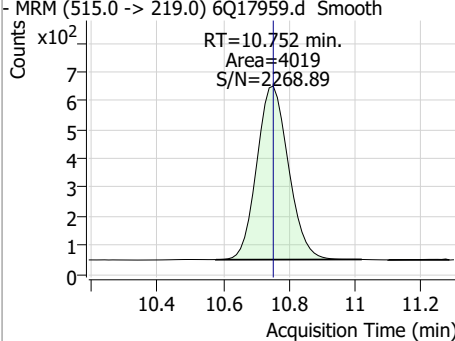
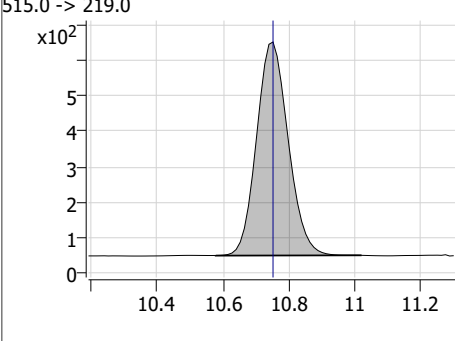
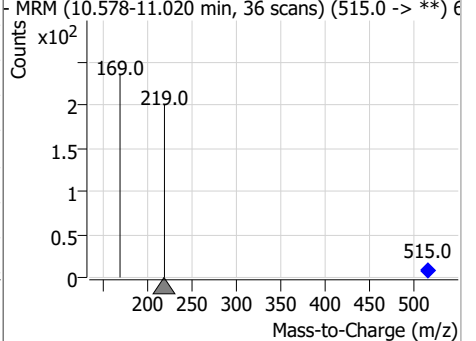
Perfluorinated Compounds by LC/MS/MS



7.5.1

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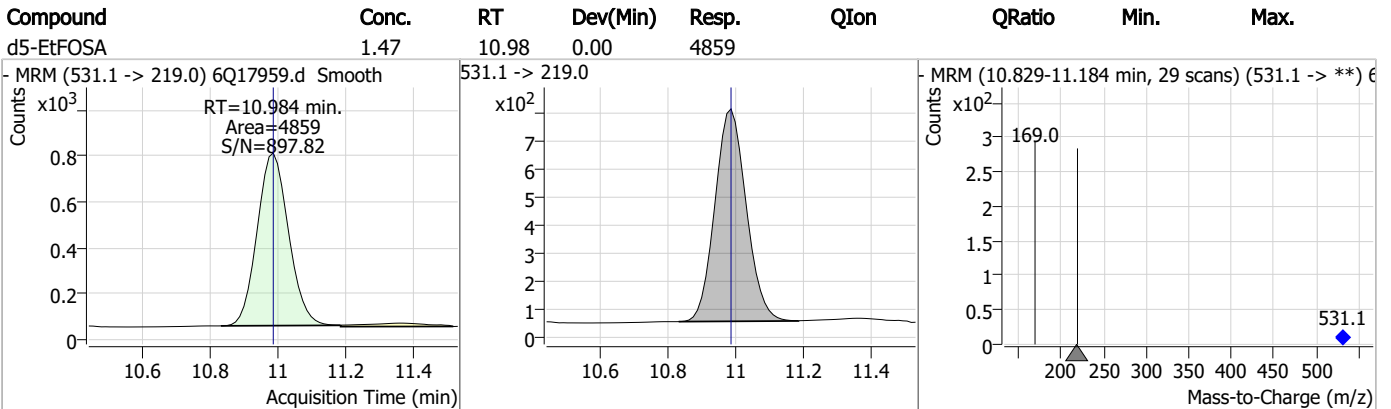
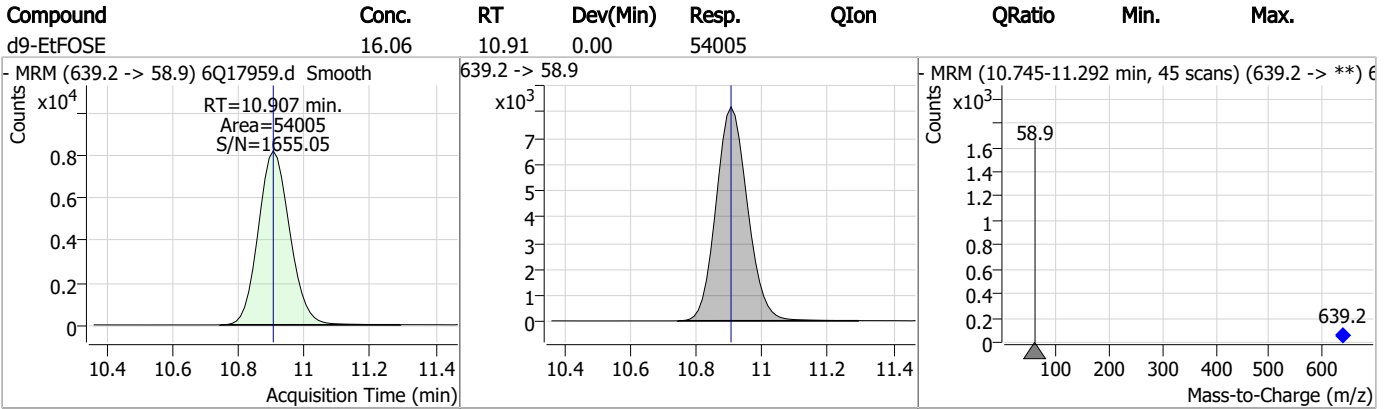
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.04	9.64	-0.01	15268				
- MRM (506.1 -> 77.8) 6Q17959.d Smooth 			506.1 -> 77.8 			- MRM (9.462-10.018 min, 46 scans) (506.1 -> **) 6Q17959.d Smooth 		
13C2-PFTeDA	0.46	9.66	-0.01	4299				
- MRM (715.2 -> 670.0) 6Q17959.d Smooth 			715.2 -> 670.0 			- MRM (9.491-9.986 min, 40 scans) (715.2 -> **) 6Q17959.d Smooth 		
d7-MeFOSE	15.13	10.66	-0.01	42116				
- MRM (623.2 -> 58.9) 6Q17959.d Smooth 			623.2 -> 58.9 			- MRM (10.498-10.970 min, 39 scans) (623.2 -> **) 6Q17959.d Smooth 		
d3-MeFOSA	1.47	10.75	0.00	4019				
- MRM (515.0 -> 219.0) 6Q17959.d Smooth 			515.0 -> 219.0 			- MRM (10.578-11.020 min, 36 scans) (515.0 -> **) 6Q17959.d Smooth 		

7.5.1

7

Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 05/16/23 09:33

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17735.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 11:31:59 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q268_TDCA.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

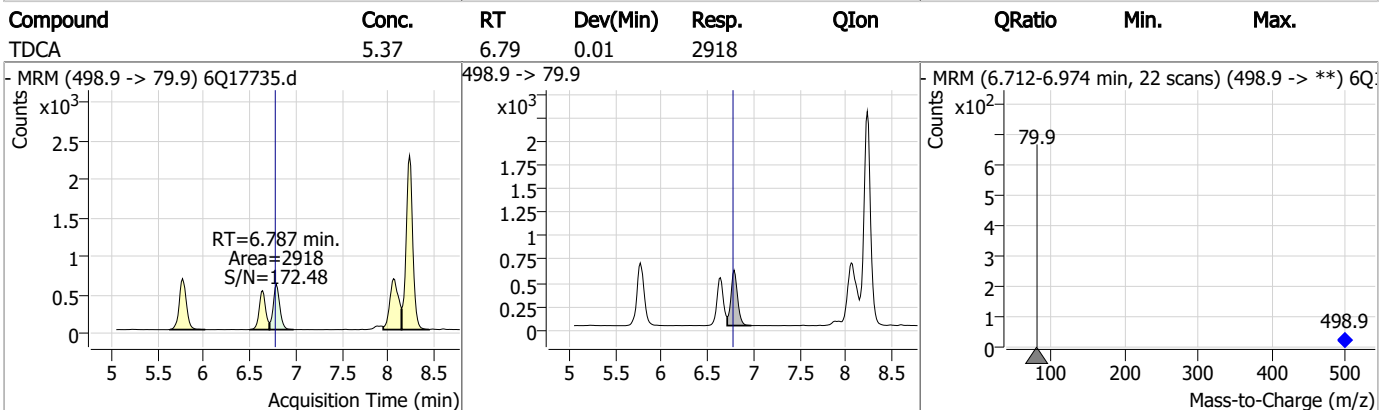
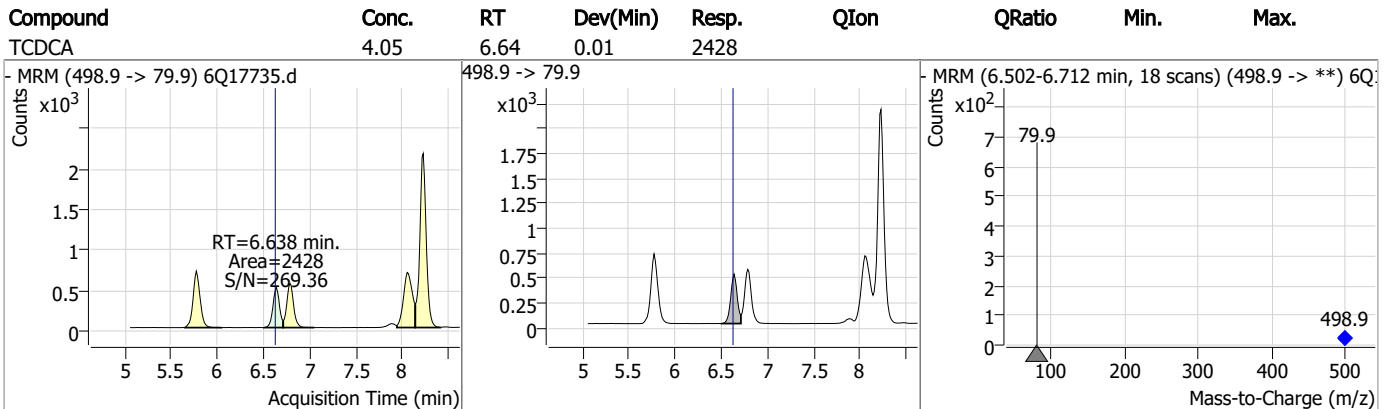
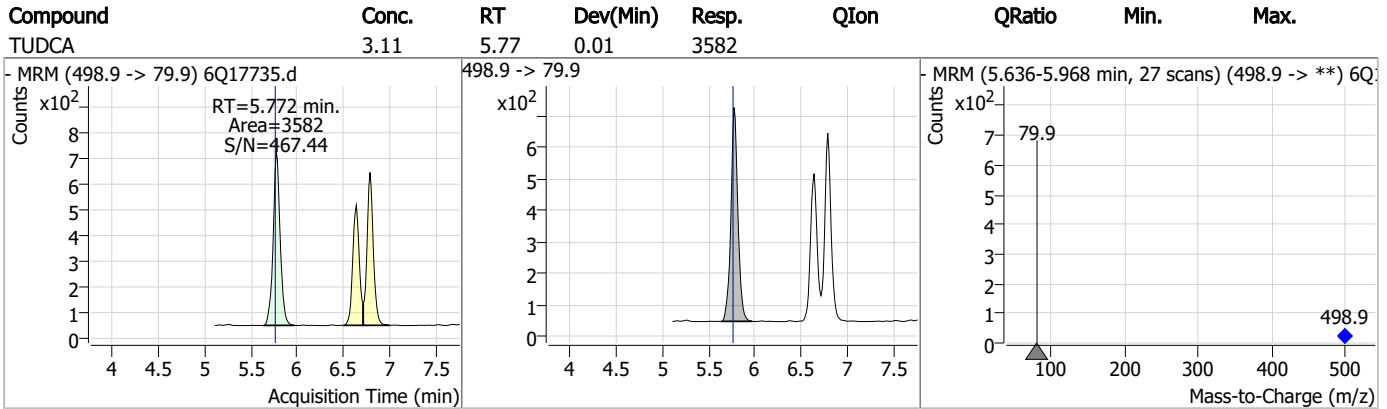
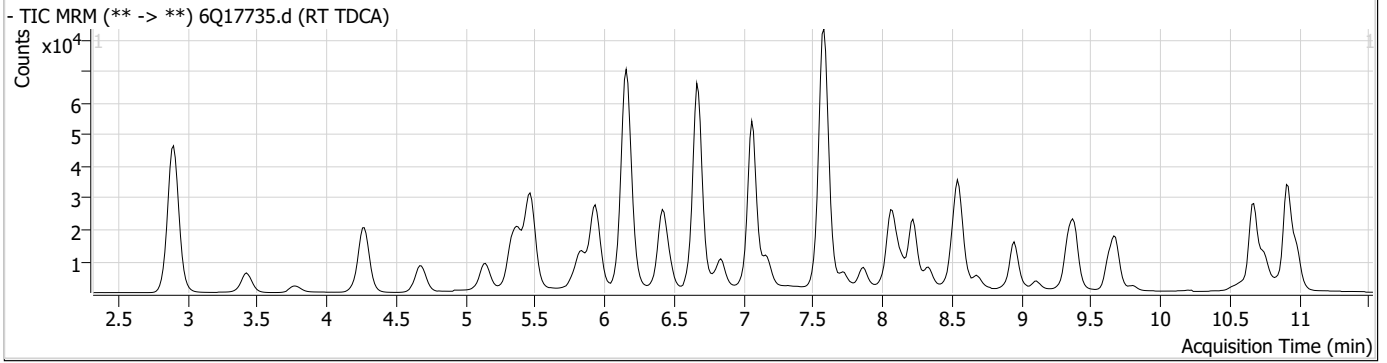
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.226	507.1 -> 79.9	13002	2.50	µg/L	-0.012	
13C4-PFOS	8.227	502.8 -> 79.9	18368	2.50	µg/L	-0.012	
System Monitoring Compounds							
13C8-PFOS	8.226	507.1 -> 79.9	13002	1.80	µg/L	-0.012	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 71.8%				
Target Compounds							
PFOS	8.228	498.9 -> 79.9 498.9 -> 98.8	16353 7613	3.68	µg/L m		76
TCDCa	6.638	498.9 -> 79.9	2428	4.05	ng/ml		100
TDCA	6.787	498.9 -> 79.9	2918	5.37	ng/ml		100
TUDCA	5.772	498.9 -> 79.9	3582	3.11	ng/ml		100

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

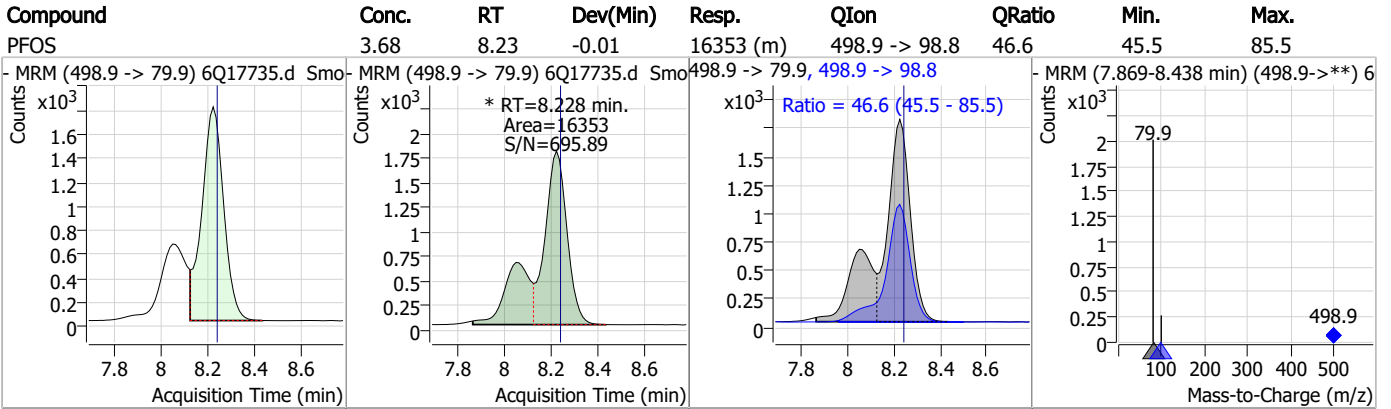
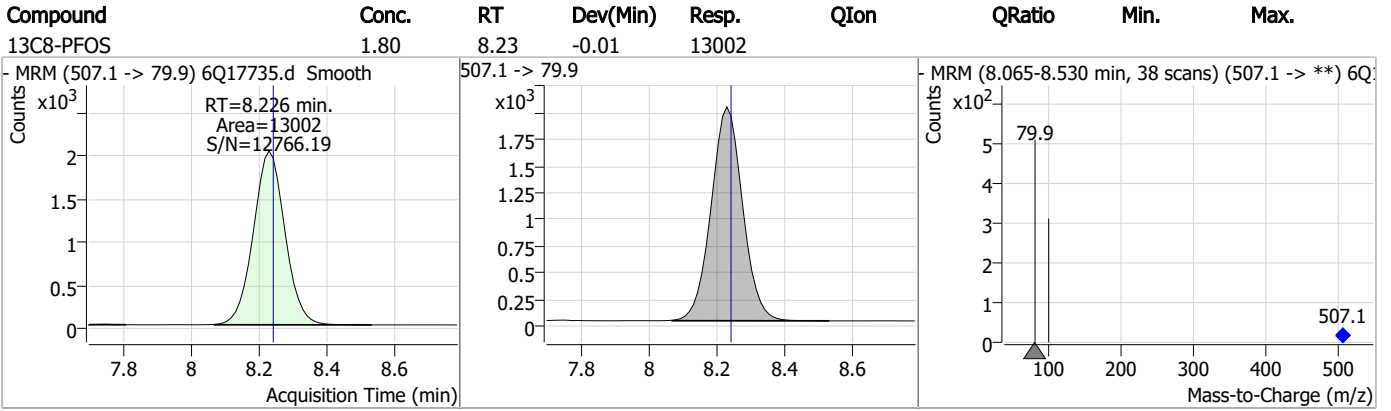
7.6.1
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.1
7



Manual Integration Approval Summary

Sample Number: S6Q268-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17735.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 11:31 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.6.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17736.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 11:46:27 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	151901	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49292	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	55451	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	48149	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	73350	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	23791	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	17361	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	22333	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22885	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14428	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	22123	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	17493	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10435	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9401	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	1651	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1878	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2208	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	21077	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	33282	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	17223	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	76265	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	85919	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8536	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7582	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13190	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	64589	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8619	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	73511	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20607	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	25781	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	46545	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1651	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1878	4.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2208	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22885	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14428	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C3-PFBS	5.397	302.1 -> 79.9	17493	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	10435	2.27 µg/L	0.012

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 = 90.9%	
13C4-PFBA	2.901	216.8 -> 171.9	151901	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.420	367.1 -> 322.0	48149	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFHxA	5.466	318.0 -> 273.0	55451	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C5-PFPeA	4.272	268.3 -> 223.0	49292	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C6-PFDA	8.064	519.1 -> 474.1	17361	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C7-PFUnDA	8.518	570.0 -> 525.1	22333	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-FOSA	9.648	506.1 -> 77.8	22123	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-PFOA	7.064	421.1 -> 376.0	73350	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C8-PFOS	8.226	507.1 -> 79.9	9401	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C9-PFNA	7.595	472.1 -> 427.0	23791	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
d3-MeFOSAA	8.133	573.2 -> 419.0	21077	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33282	9.77 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d3-MeFOSA	10.752	515.0 -> 219.0	7582	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
d5-EtFOSAA	8.329	589.2 -> 419.0	17223	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d7-MeFOSE	10.672	623.2 -> 58.9	76265	23.47 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d9-EtFOSE	10.907	639.2 -> 58.9	85919	21.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
d5-EtFOSA	10.984	531.1 -> 219.0	8536	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	109960	44.30 µg/L	98
		327.1 -> 80.9	42286		
6:2FTS	6.838	427.1 -> 407.0	109261	53.46 µg/L	96
		427.1 -> 80.9	33178		
8:2FTS	7.865	527.1 -> 507.0	63822	50.86 µg/L	90
		527.1 -> 80.8	22101		
EtFOSAA	8.330	584.2 -> 419.1	33290	10.38 µg/L	97
		584.2 -> 526.0	18241		
FOSA	9.639	498.1 -> 77.9	221944	26.80 µg/L	99
		498.1 -> 478.0	6584		
MeFOSAA	8.134	570.1 -> 419.0	47731	11.70 µg/L	97
		570.1 -> 483.0	8714		
PFBA	2.907	212.8 -> 168.9	267191	49.03 µg/L	100
PFBS	5.398	298.7 -> 79.9	96371	11.29 µg/L	94
		298.7 -> 98.8	38421		
PFDA	8.076	512.9 -> 469.0	277451	12.92 µg/L	96
		512.9 -> 219.0	41380		
PFDoDA	8.950	613.1 -> 569.0	211358	11.59 µg/L	100
		613.1 -> 319.0	28972		
PFDS	9.113	599.0 -> 79.9	36226	11.87 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	18185			
PFHpA	6.420	363.1 -> 319.0	308662	12.83	µg/L	97
		363.1 -> 169.0	45812			
PFHpS	7.735	449.0 -> 79.9	55966	11.16	µg/L	91
		449.0 -> 98.9	32838			
PFHxA	5.469	313.0 -> 269.0	271101	12.34	µg/L	99
		313.0 -> 118.9	12141			
PFHxS	7.180	398.7 -> 79.9	69332	12.00	µg/L	m 97
		398.7 -> 98.9	32923			
PFNA	7.458	463.0 -> 419.0	505392	28.59	µg/L	m 99
		463.0 -> 219.0	106848			
PFNS	8.693	548.8 -> 79.9	56617	12.45	µg/L	94
		548.8 -> 98.9	30333			
PFOA	7.066	413.0 -> 369.0	873695	23.94	µg/L	m 96
		413.0 -> 169.0	161757			
PFOS	8.228	498.9 -> 79.9	54356	11.03	µg/L	m 100
		498.9 -> 98.8	29145			
PFPeA	4.274	263.0 -> 219.0	353590	24.84	µg/L	100
PFPeS	6.471	349.1 -> 79.9	71332	12.45	µg/L	96
		349.1 -> 98.9	34051			
PFTeDA	9.677	713.1 -> 669.0	197921	13.40	µg/L	98
		713.1 -> 168.9	13431			
PFTrDA	9.333	663.0 -> 619.0	239049	11.31	µg/L	97
		663.0 -> 168.9	20831			
PFUnDA	8.518	563.1 -> 519.0	204895	12.63	µg/L	99
		563.1 -> 269.1	31124			
11CI-PF3OUdS	9.385	630.9 -> 450.9	301718	23.99	µg/L	96
		632.9 -> 452.9	90112			
9CI-PF3ONS	8.557	530.8 -> 351.0	481189	23.95	µg/L	97
		532.8 -> 353.0	145704			
ADONA	6.683	376.9 -> 250.9	1324425	24.99	µg/L	96
		376.9 -> 84.8	340401			
HFPO-DA	5.845	284.9 -> 168.9	79992	24.86	µg/L	99
		284.9 -> 184.9	10480			
3:3FTCA	3.777	241.0 -> 177.0	53627	60.80	µg/L	99
		241.0 -> 117.0	6872			
5:3FTCA	6.161	341.0 -> 237.1	1124444	295.46	µg/L	99
		341.0 -> 217.0	808988			
7:3FTCA	7.586	441.0 -> 316.9	530912	307.50	µg/L	97
		441.0 -> 336.9	1086300			
EtFOSA	10.986	526.0 -> 219.0	166534	45.07	µg/L	93
		526.0 -> 169.0	220424			
EtFOSE	10.932	630.0 -> 58.9	339000	90.54	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	149837	42.92	µg/L	m 99
		511.9 -> 169.0	197450			
MeFOSE	10.686	616.1 -> 58.9	291620	81.74	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	20588	12.76	µg/L	97
		699.1 -> 98.8	11201			
NFDHA	5.348	295.0 -> 201.0	59587	24.57	µg/L	97
		295.0 -> 84.9	15349			
PFMBA	4.675	279.0 -> 85.1	248378	24.45	µg/L	100
PFMPA	3.426	229.0 -> 84.9	180924	24.73	µg/L	100
PFEESA	5.938	314.8 -> 134.9	636876	21.59	µg/L	100
		314.8 -> 82.9	22478			

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

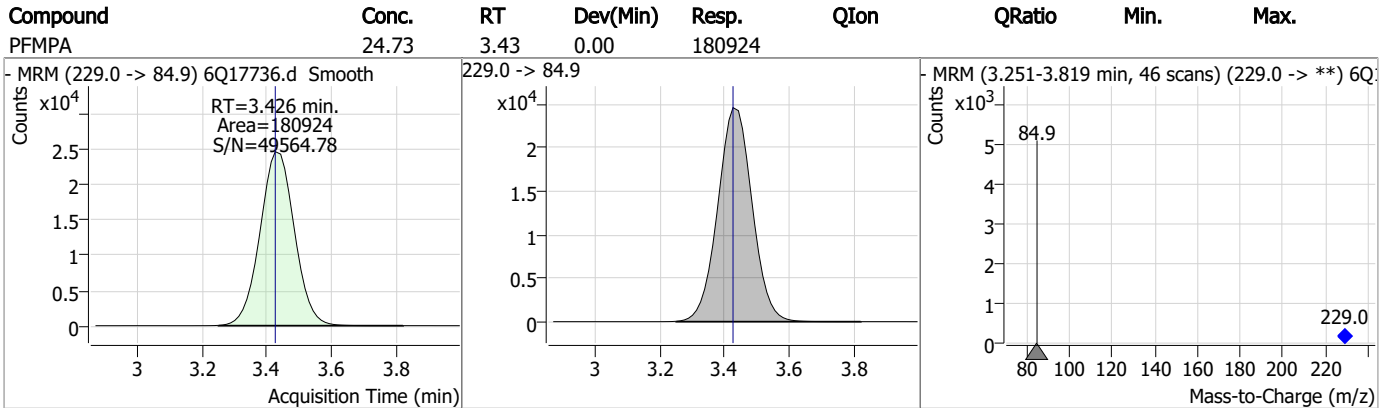
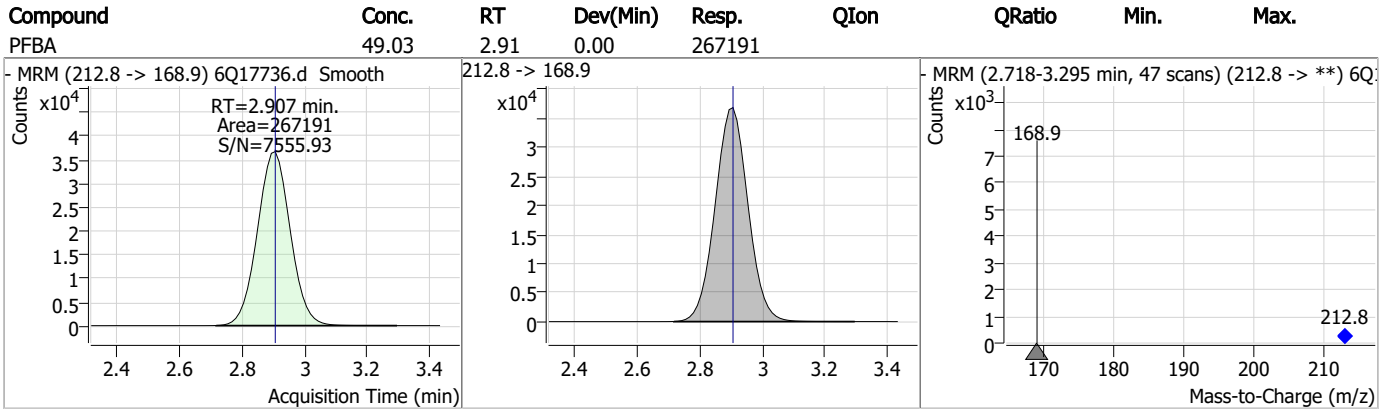
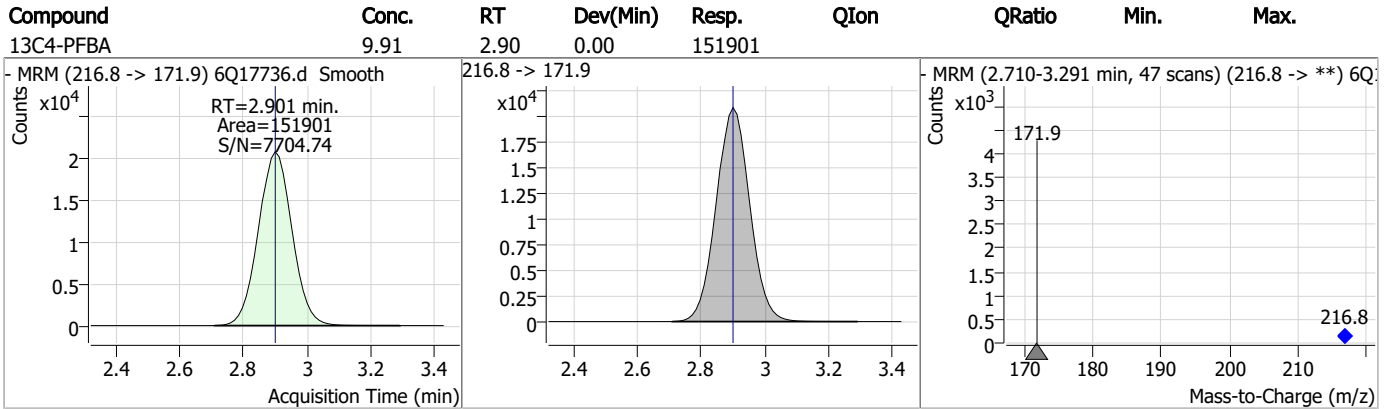
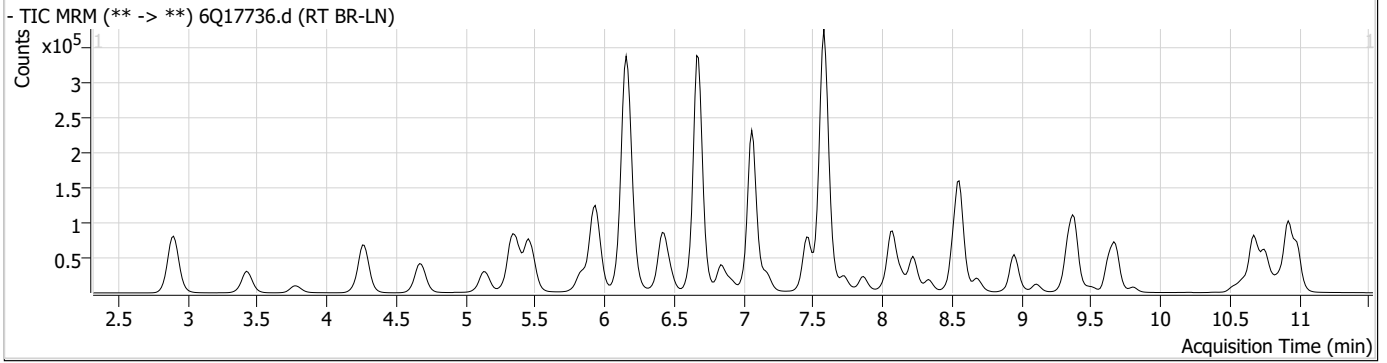
Perfluorinated Compounds by LC/MS/MS

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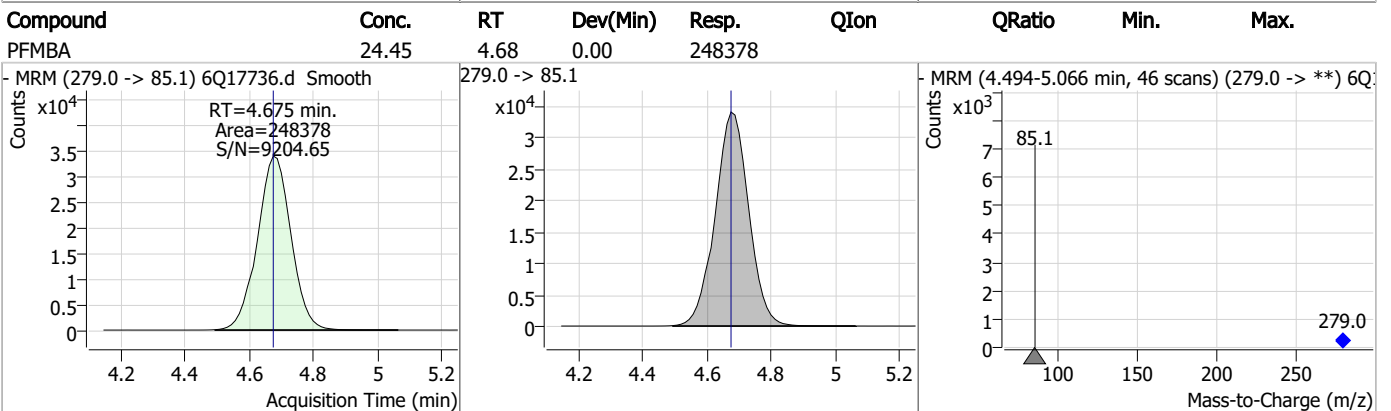
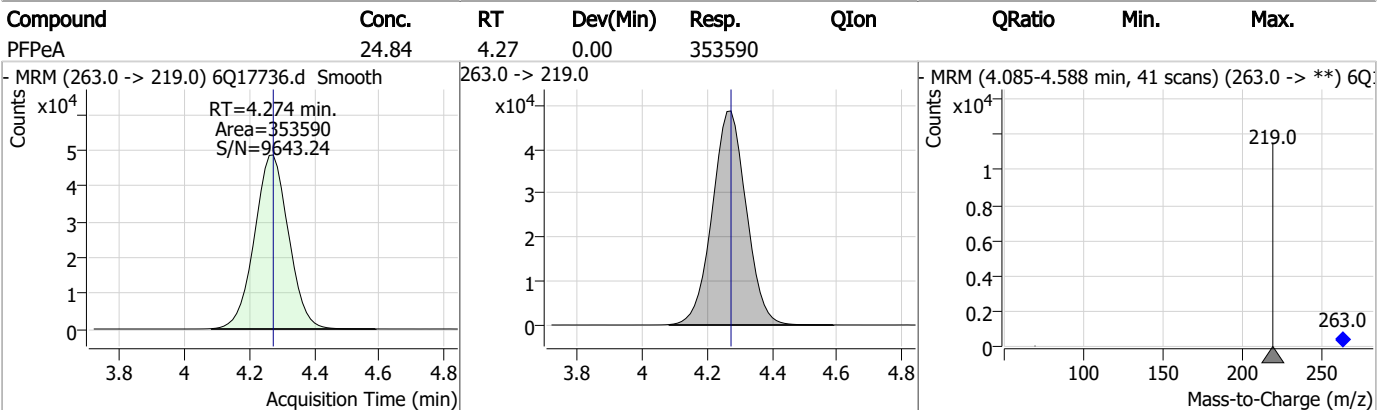
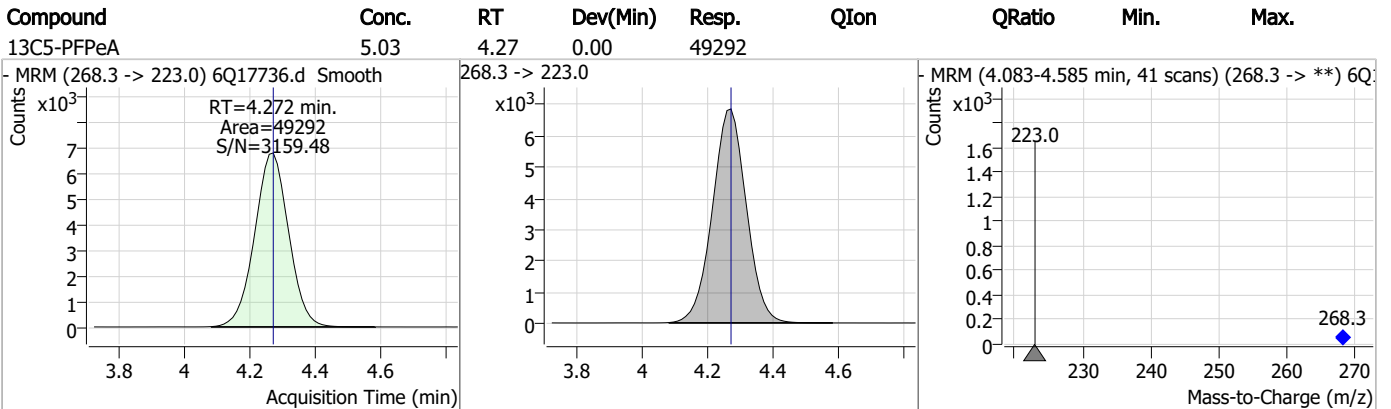
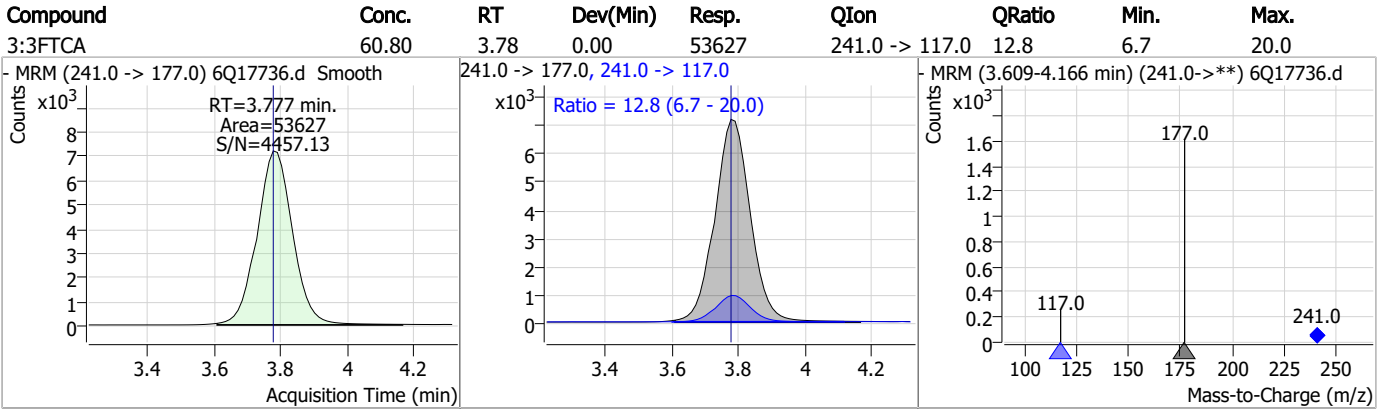
7.6.2

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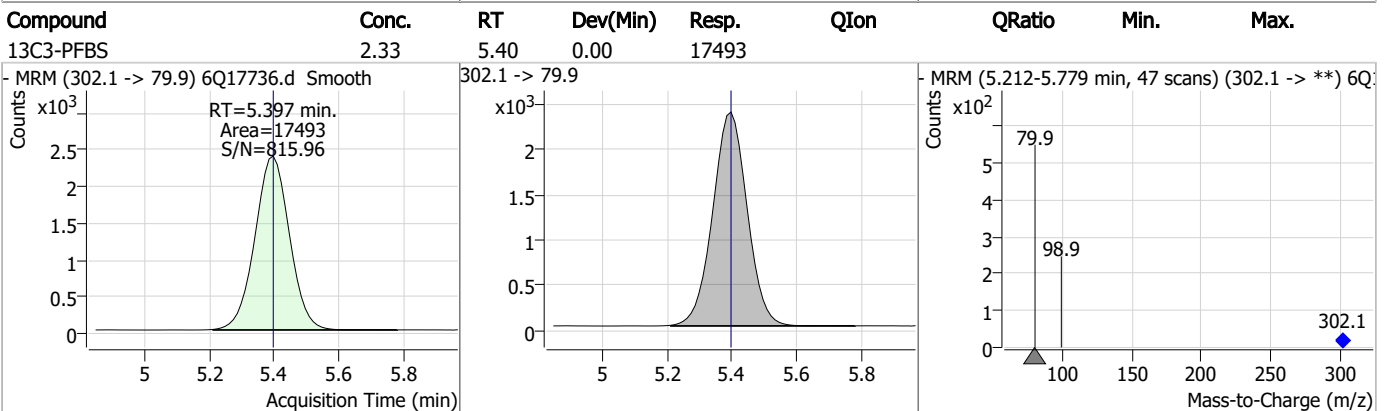
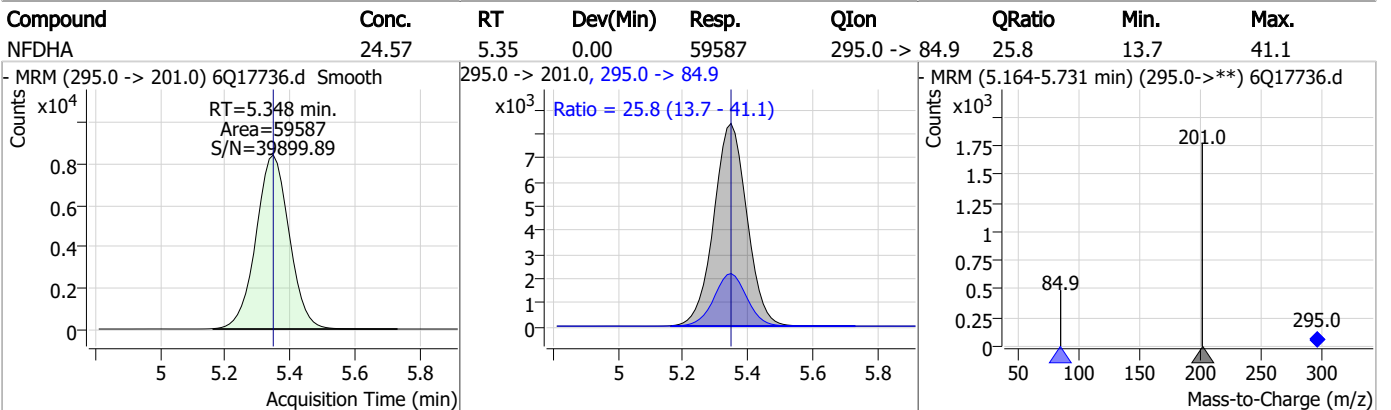
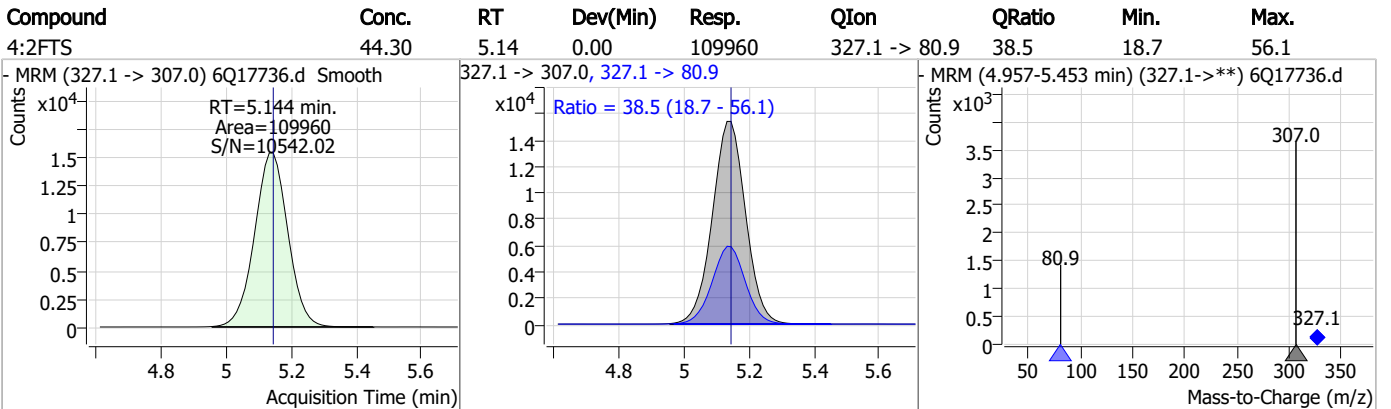
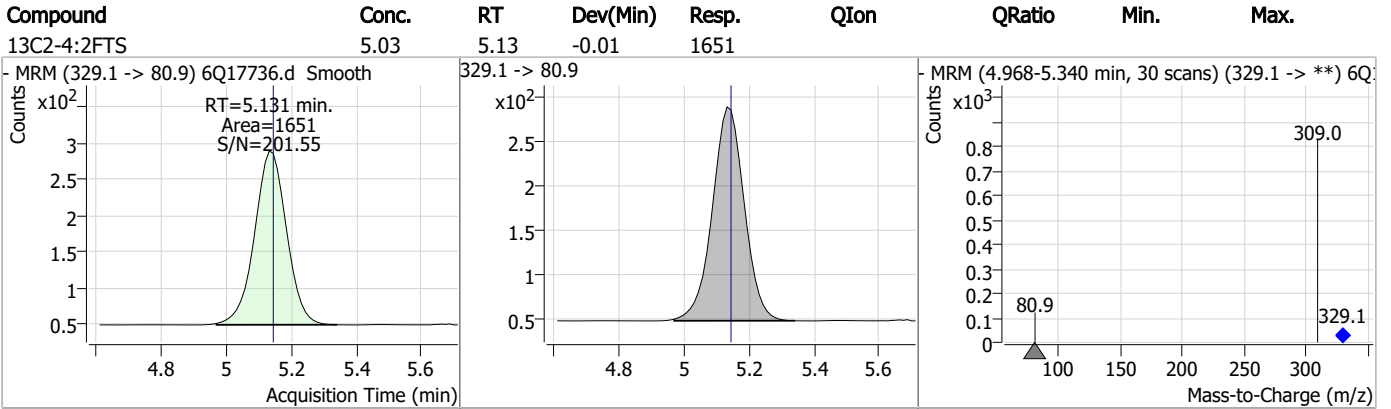
Perfluorinated Compounds by LC/MS/MS



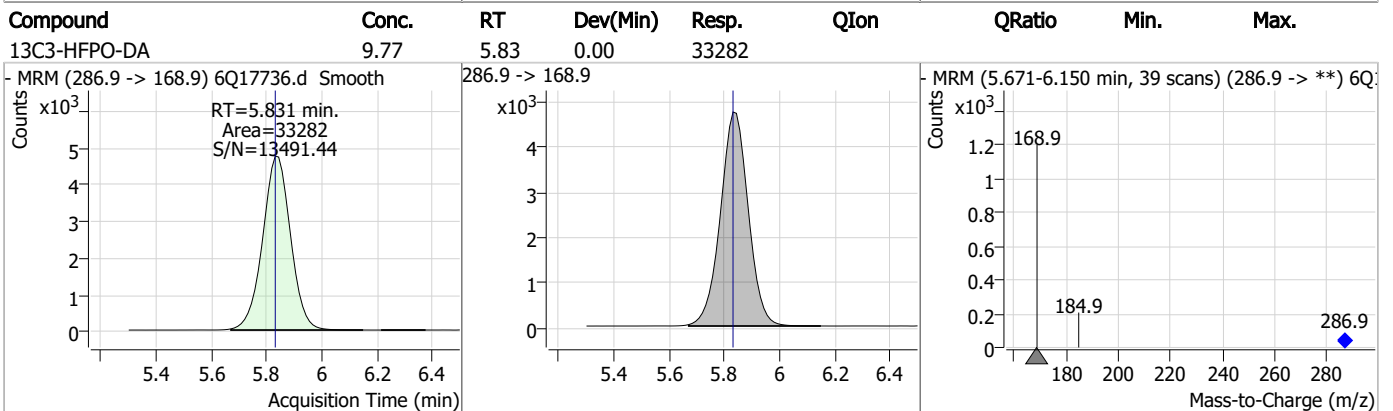
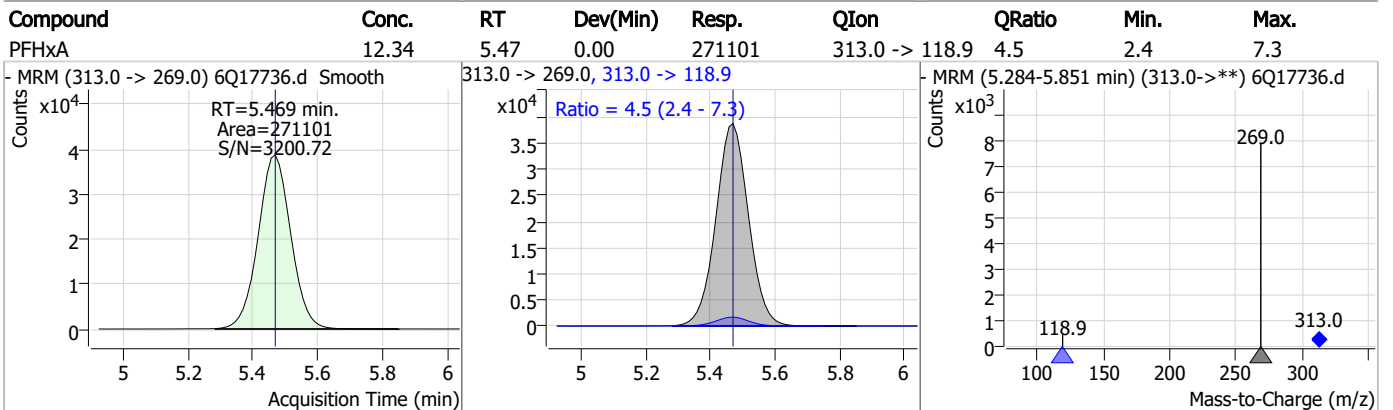
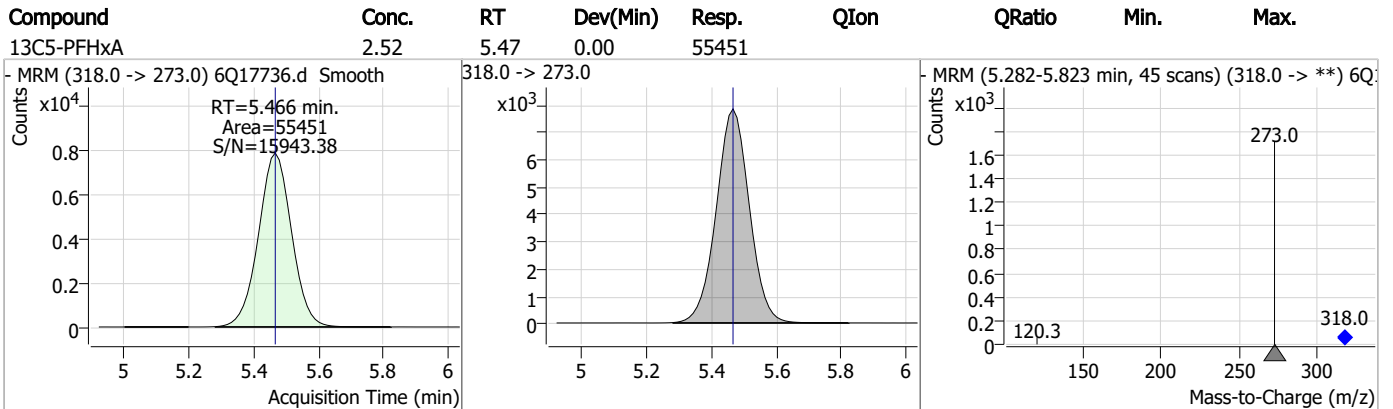
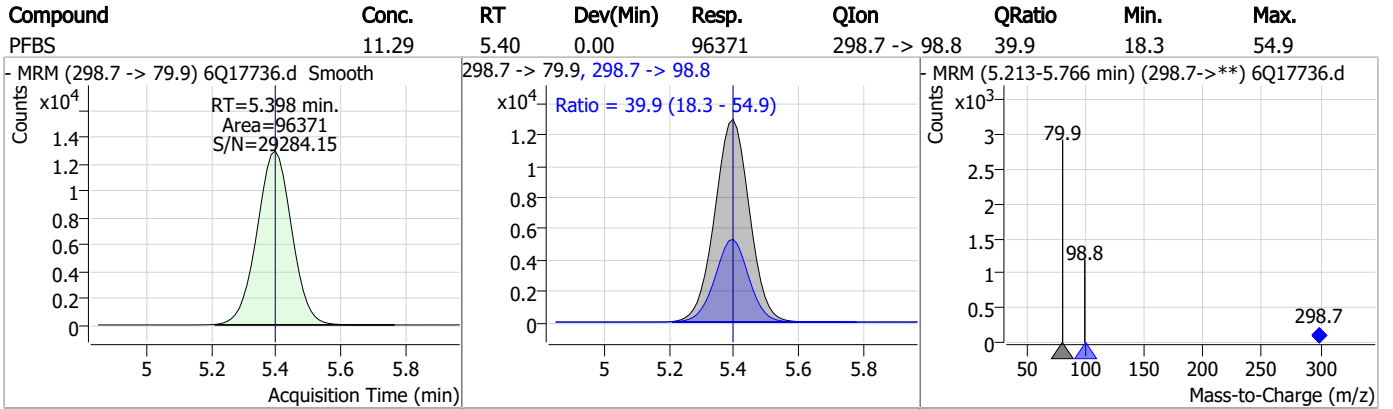
Perfluorinated Compounds by LC/MS/MS



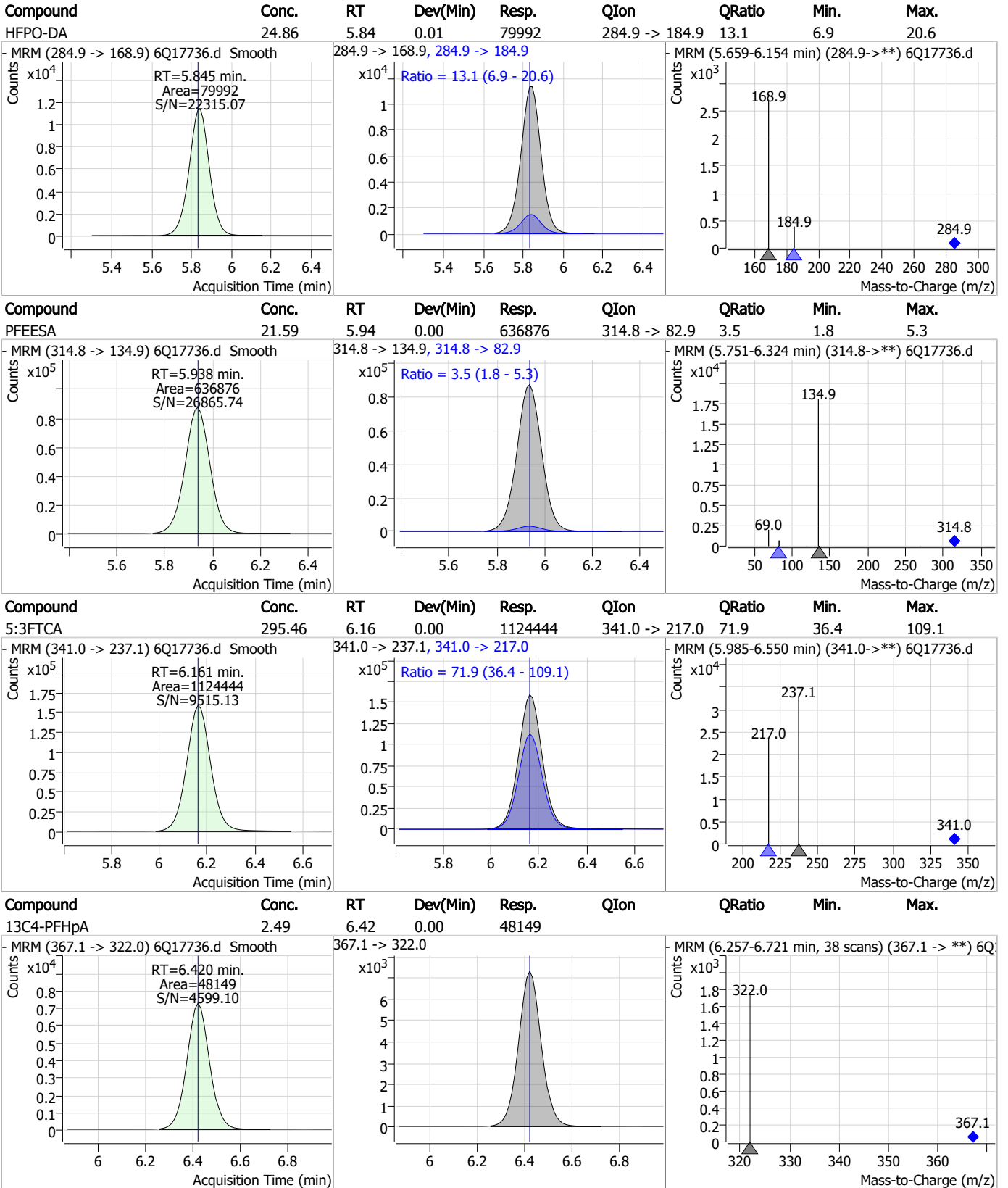
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



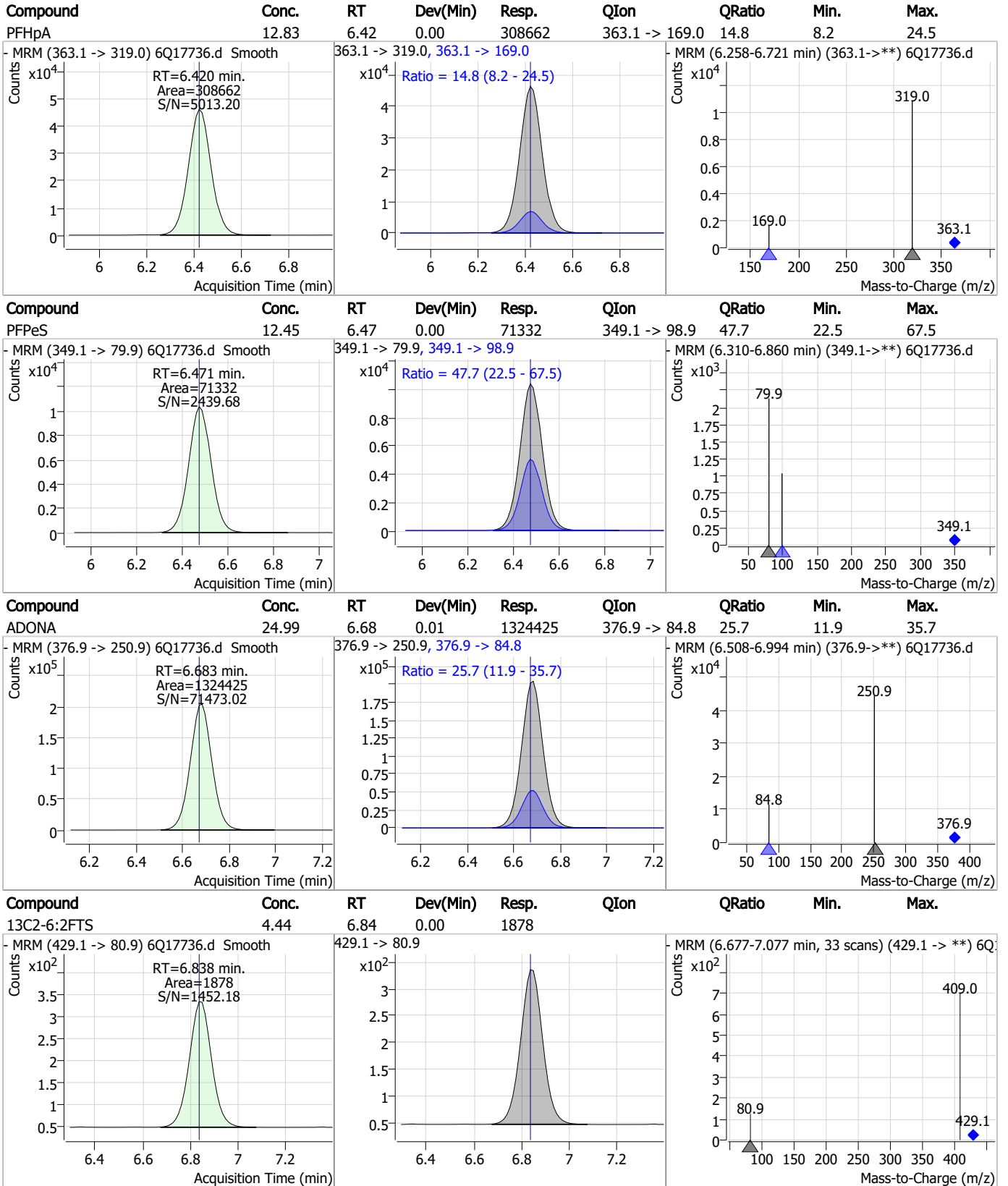
Perfluorinated Compounds by LC/MS/MS



7.6.2

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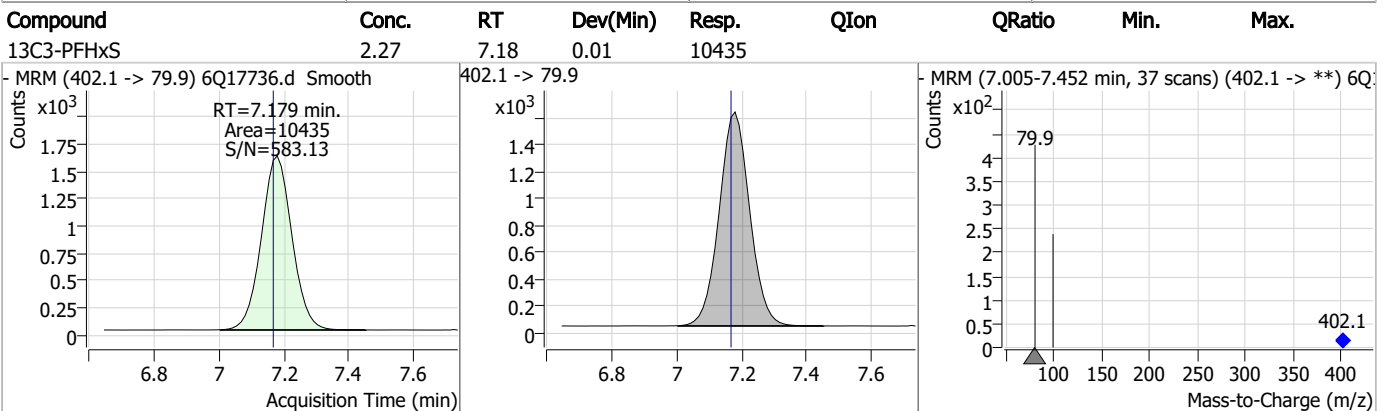
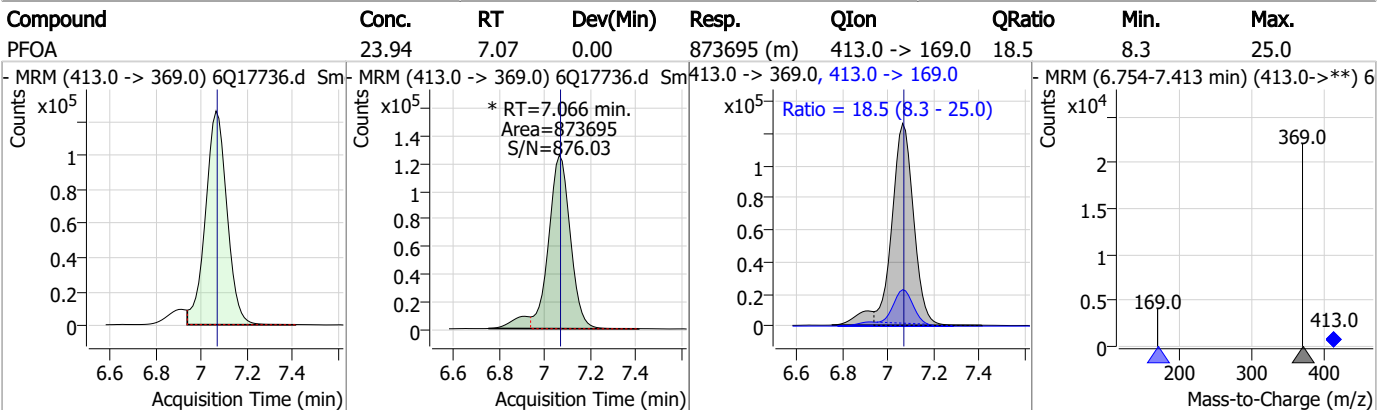
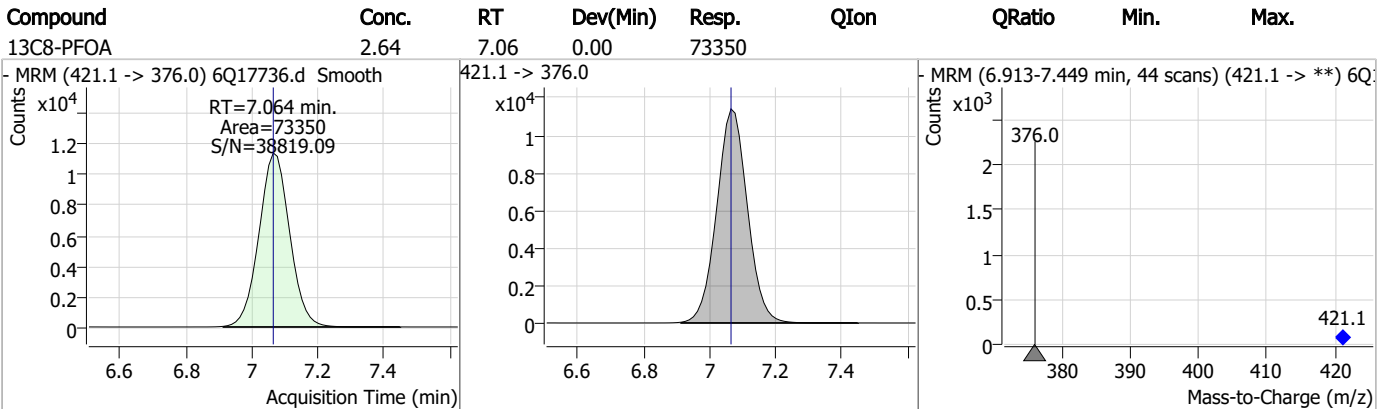
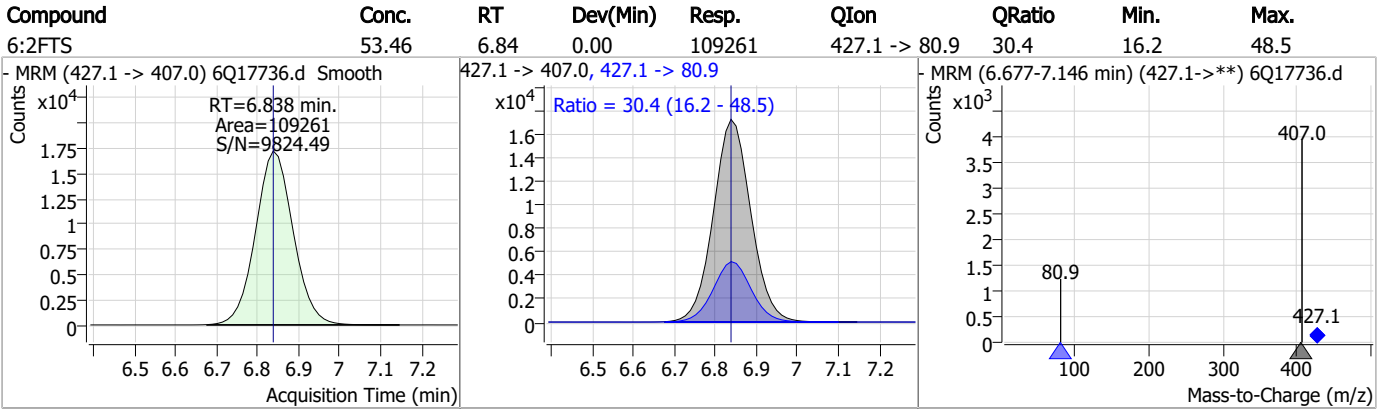
Perfluorinated Compounds by LC/MS/MS



7.6.2

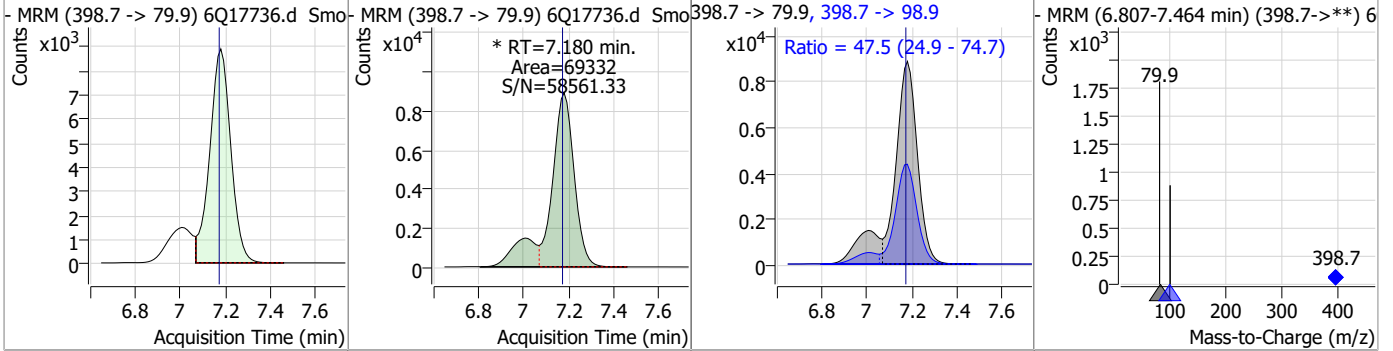
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Perfluorinated Compounds by LC/MS/MS

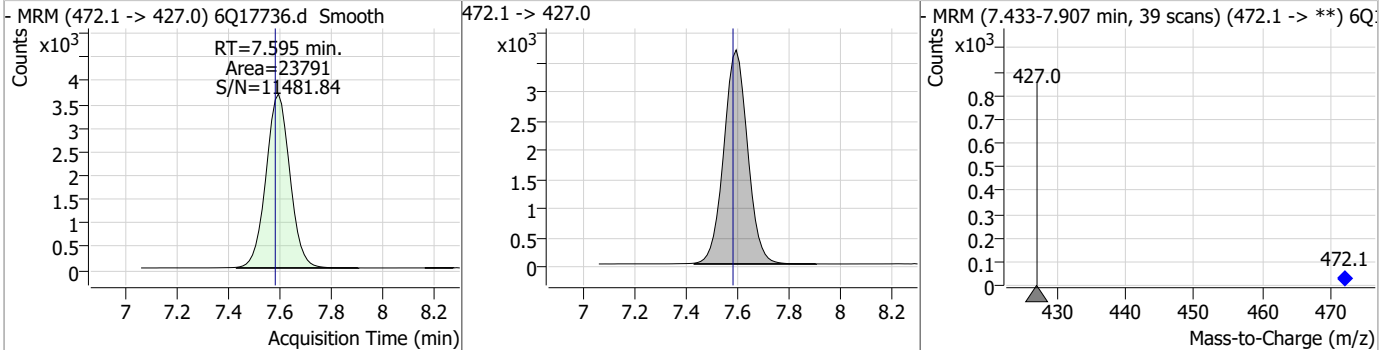


Perfluorinated Compounds by LC/MS/MS

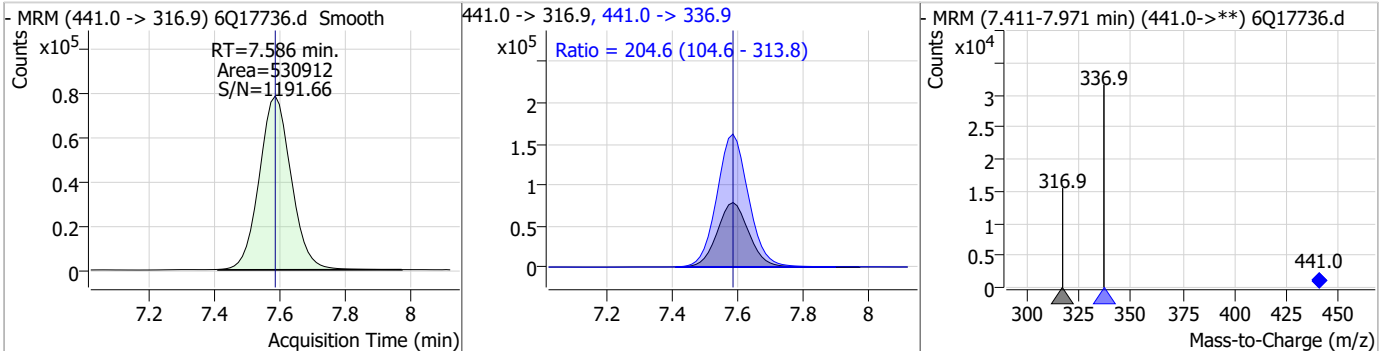
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	12.00	7.18	0.01	69332 (m)	398.7 -> 98.9	47.5	24.9	74.7



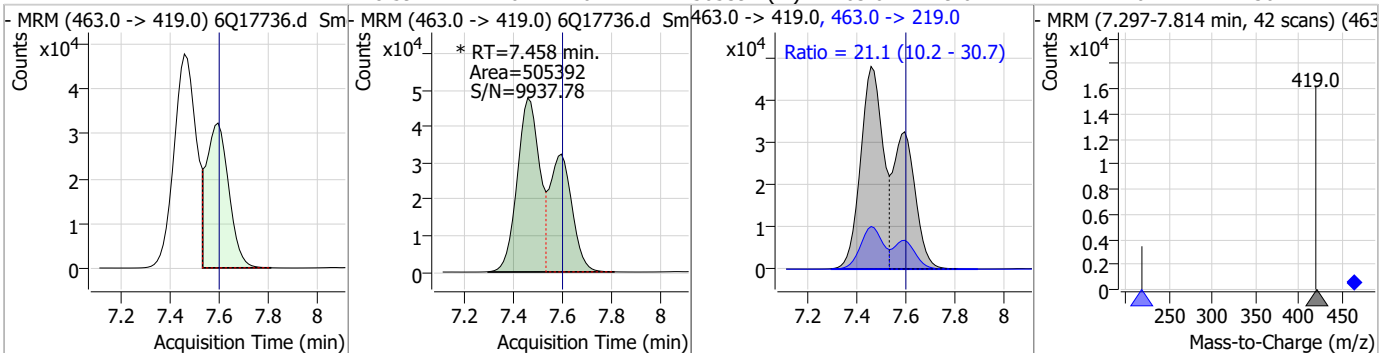
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.25	7.60	0.01	23791				



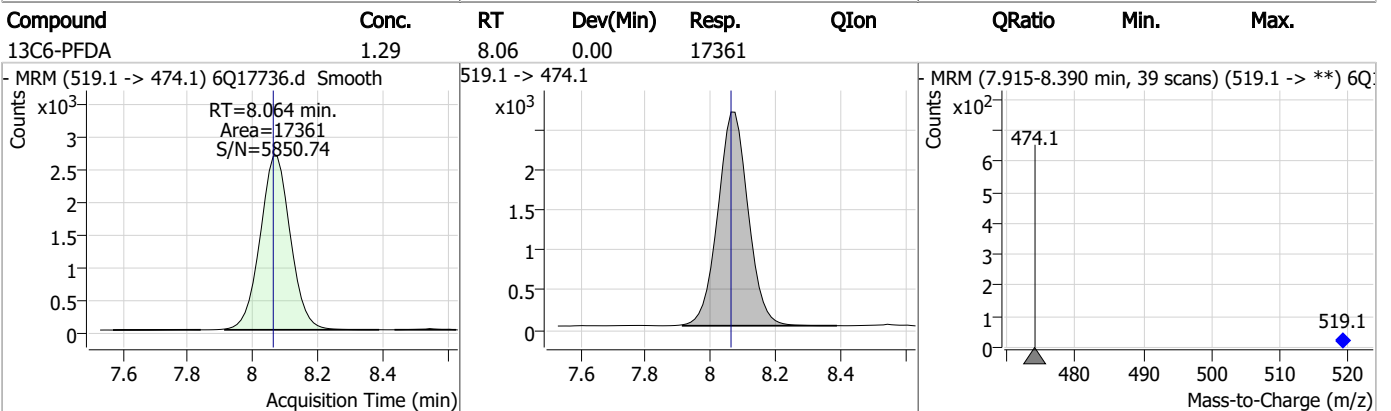
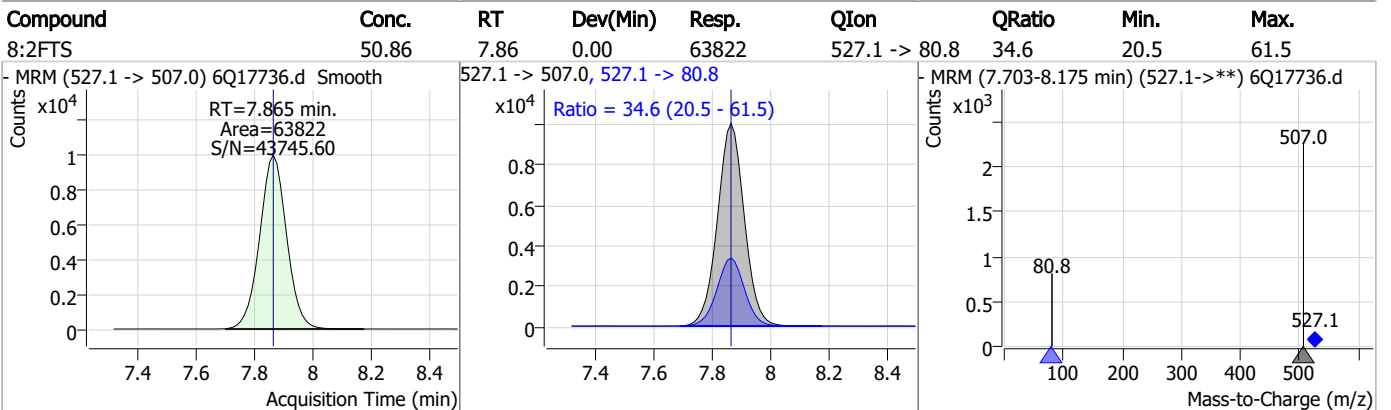
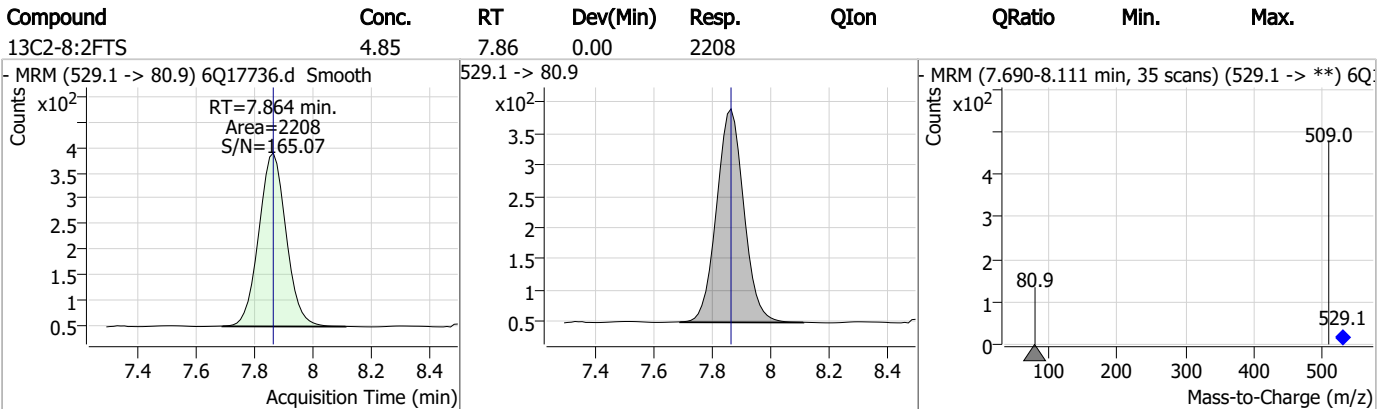
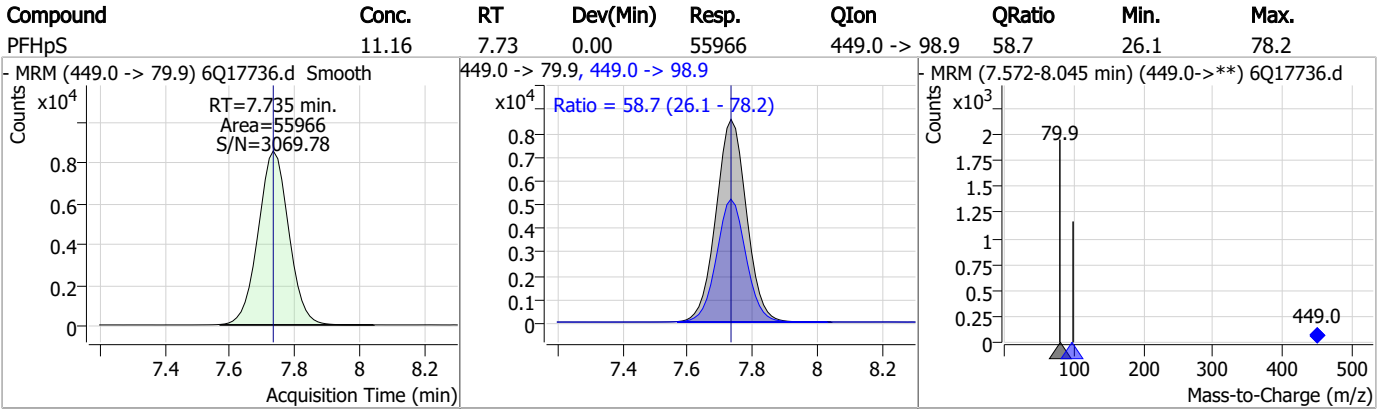
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	307.50	7.59	0.00	530912	441.0 -> 336.9	204.6	104.6	313.8



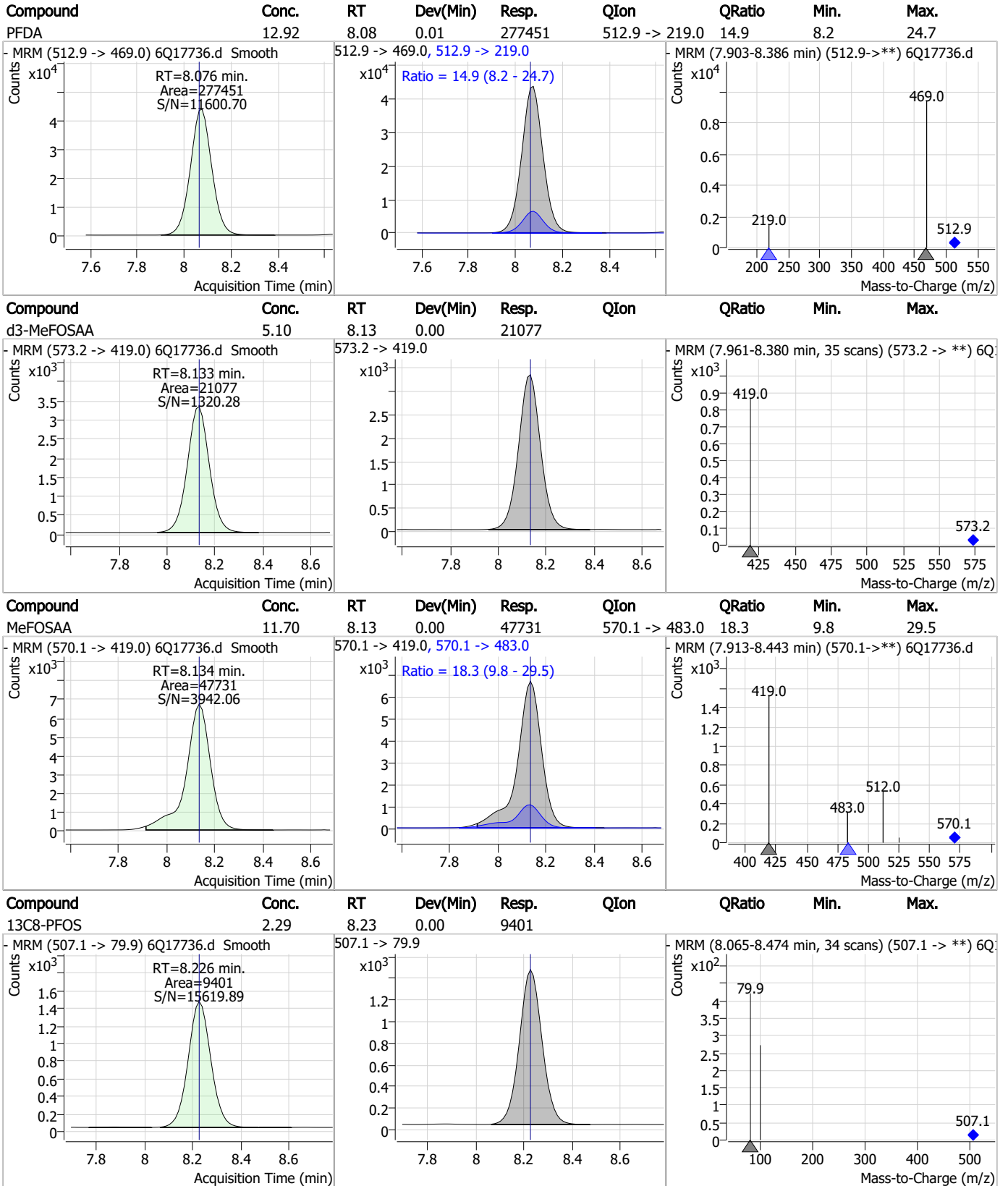
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	28.59	7.46	-0.14	505392 (m)	463.0 -> 219.0	21.1	10.2	30.7



Perfluorinated Compounds by LC/MS/MS



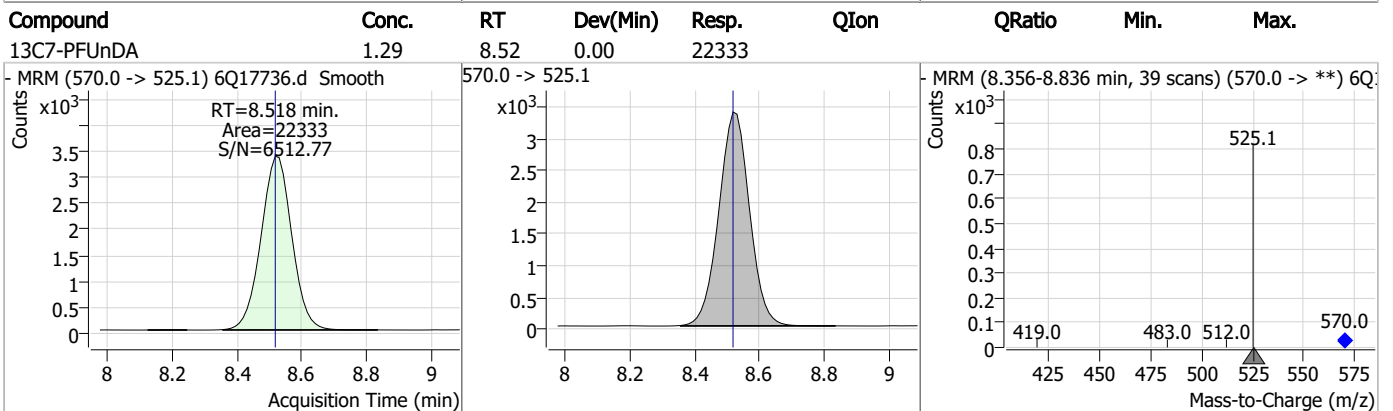
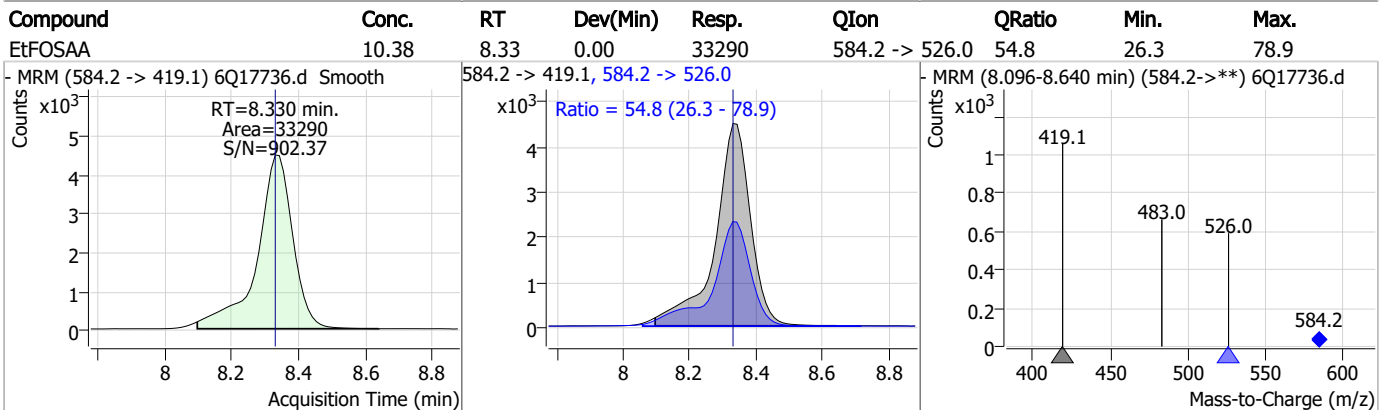
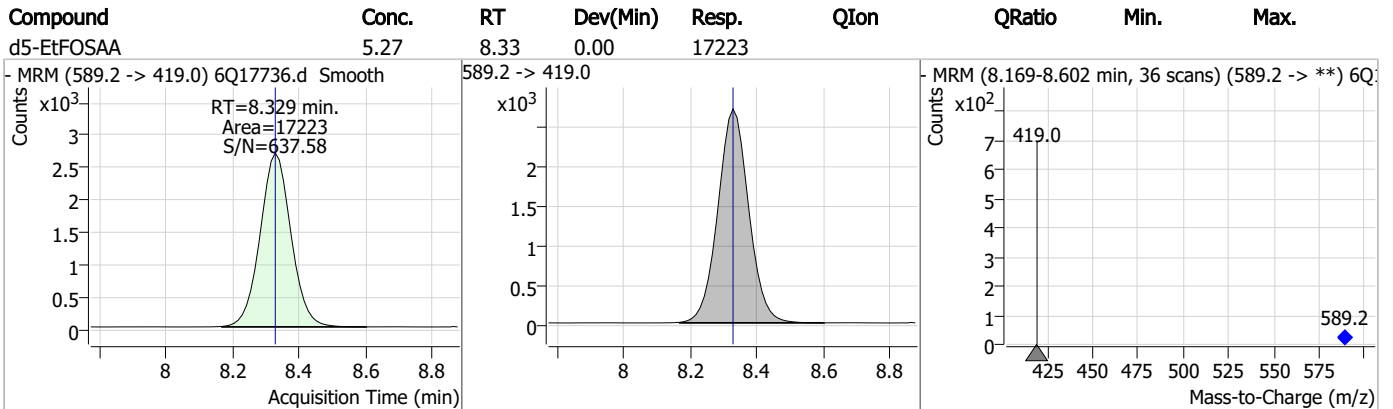
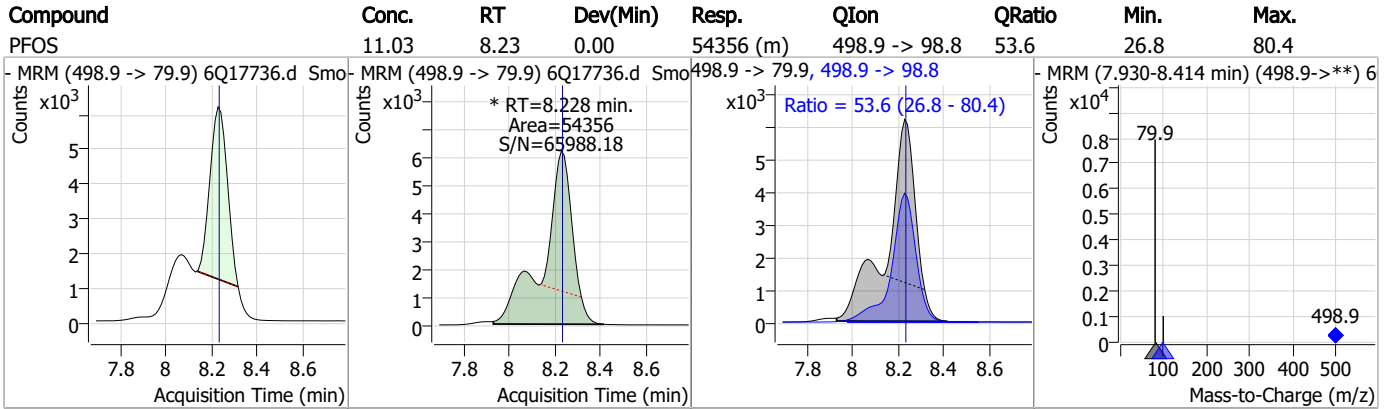
Perfluorinated Compounds by LC/MS/MS



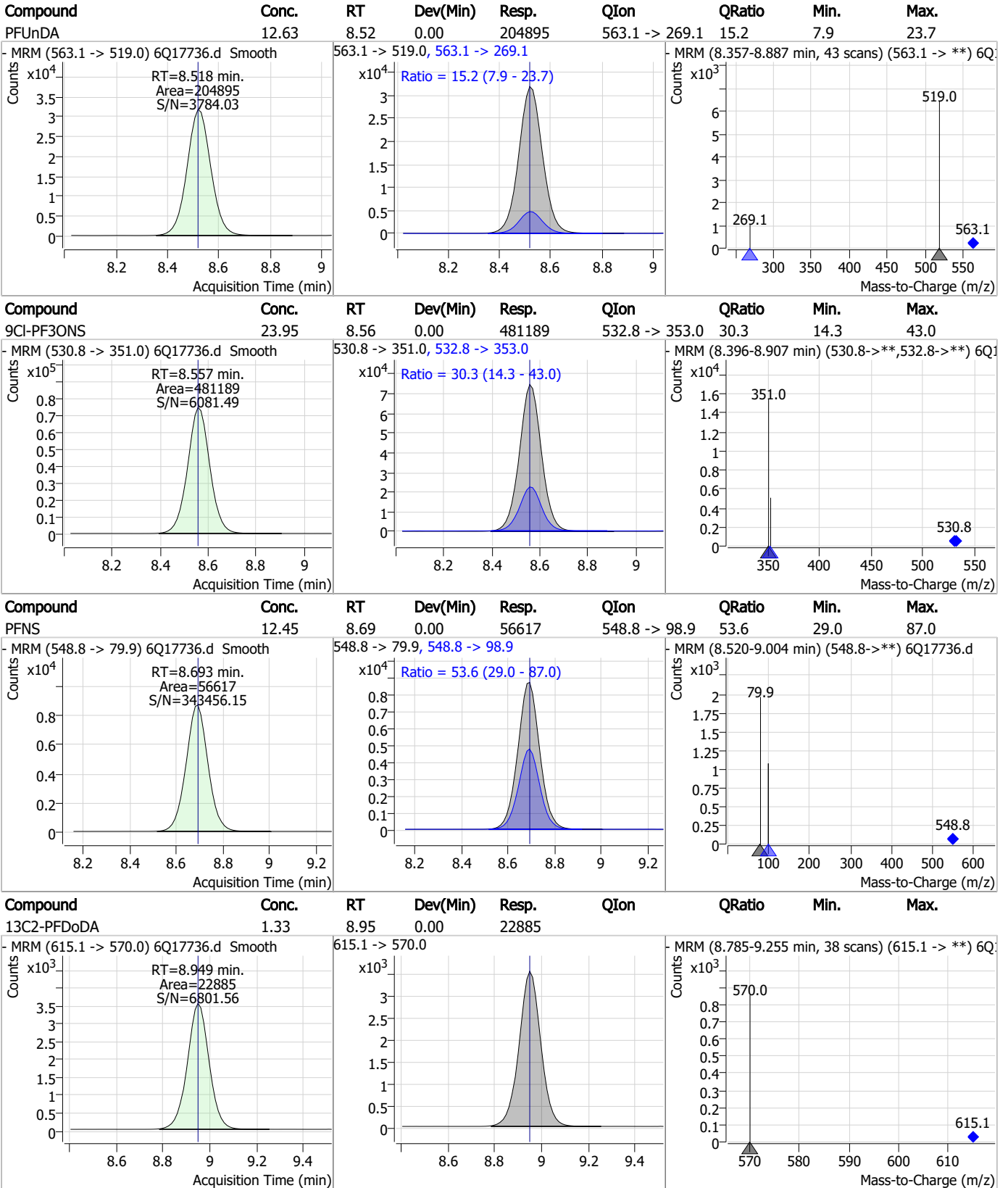
7.6.2

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Perfluorinated Compounds by LC/MS/MS



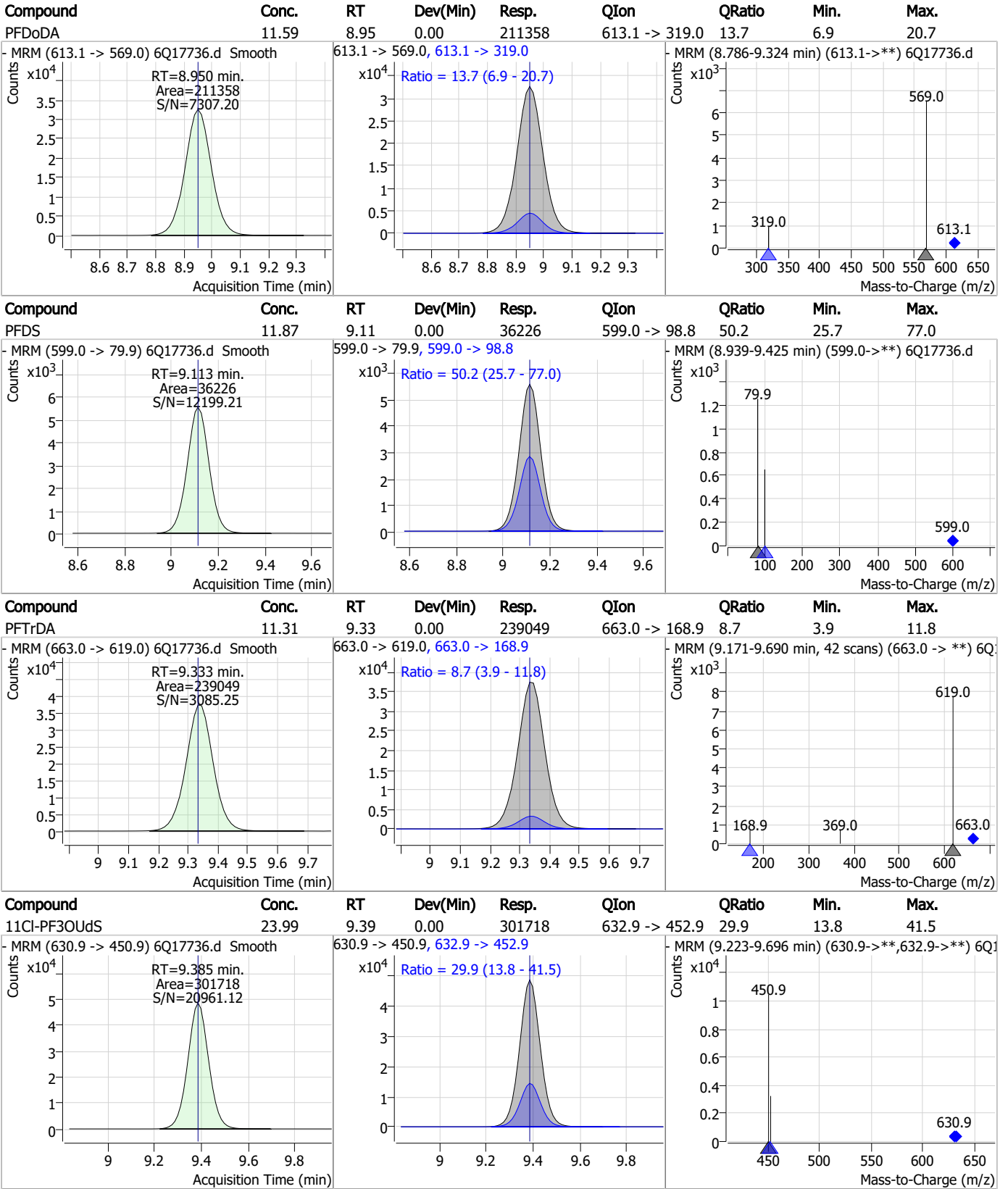
Perfluorinated Compounds by LC/MS/MS



7.6.2

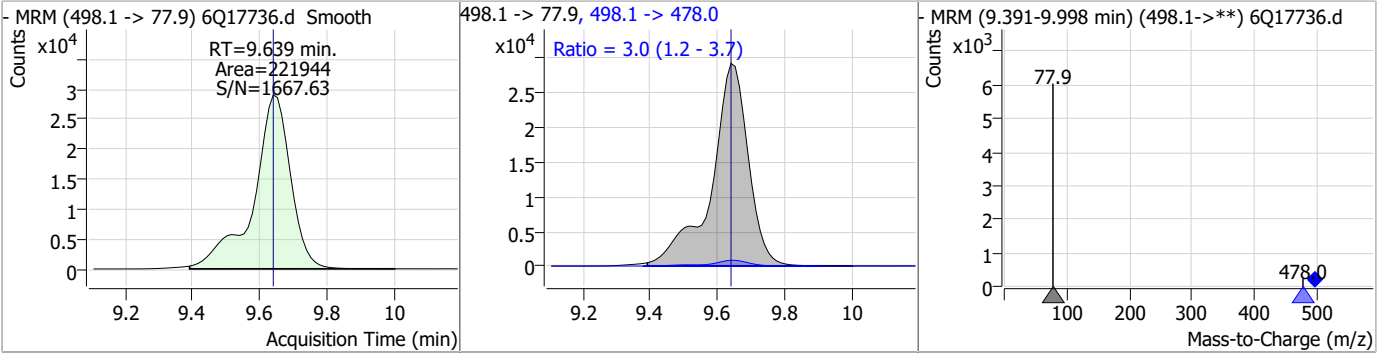
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Perfluorinated Compounds by LC/MS/MS

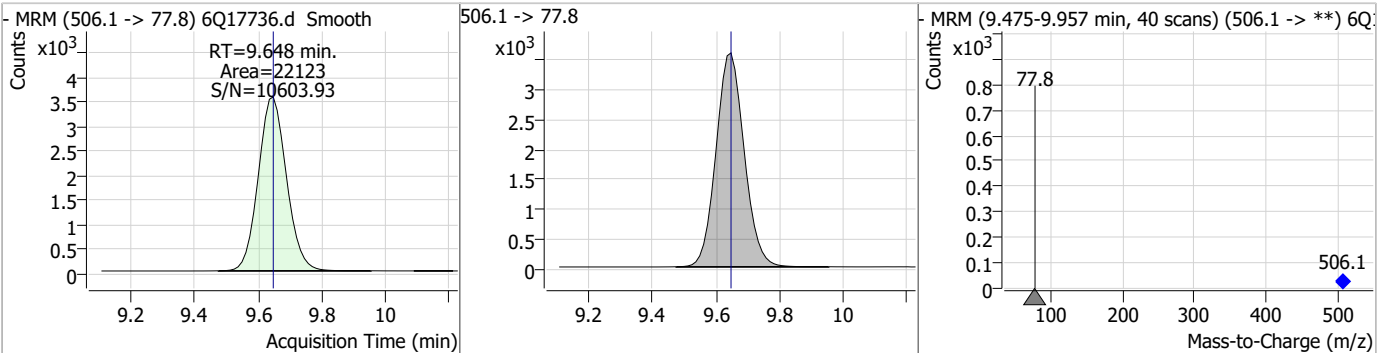


Perfluorinated Compounds by LC/MS/MS

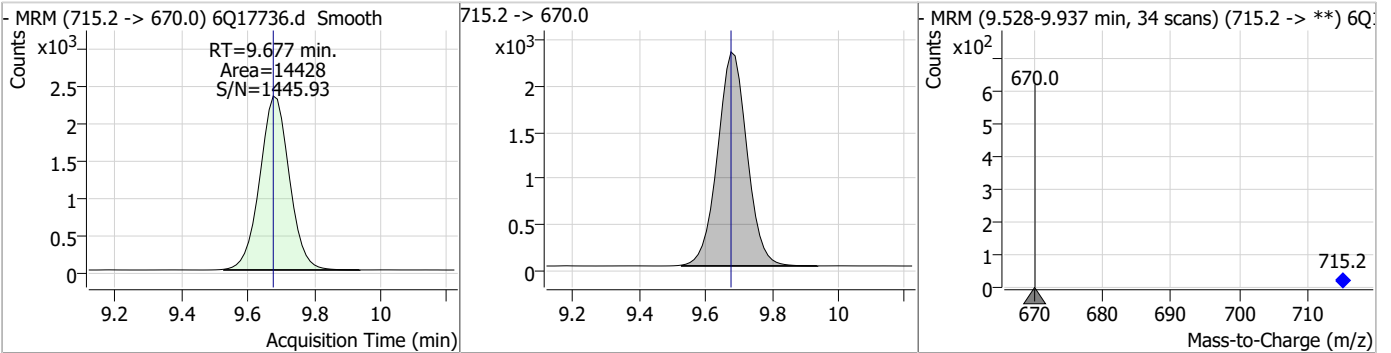
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	26.80	9.64	0.00	221944	498.1 -> 478.0	3.0	1.2	3.7



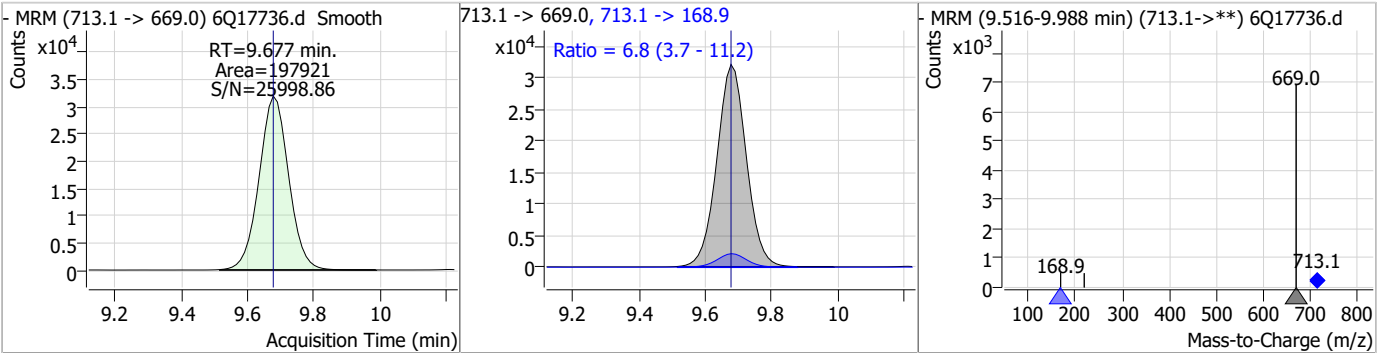
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.53	9.65	0.00	22123	506.1 -> 77.8	3.0	1.2	3.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.68	0.00	14428	715.2 -> 670.0	3.0	1.2	3.7

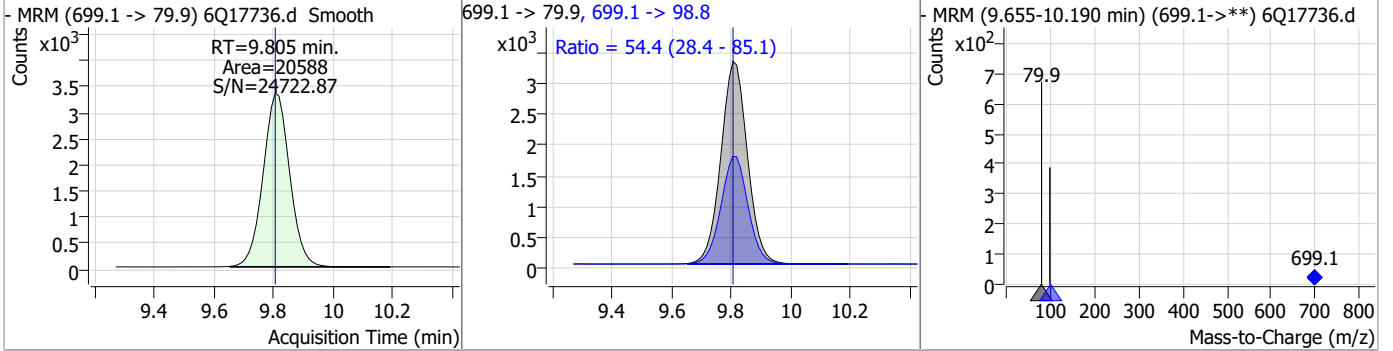


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.40	9.68	0.00	197921	713.1 -> 168.9	6.8	3.7	11.2

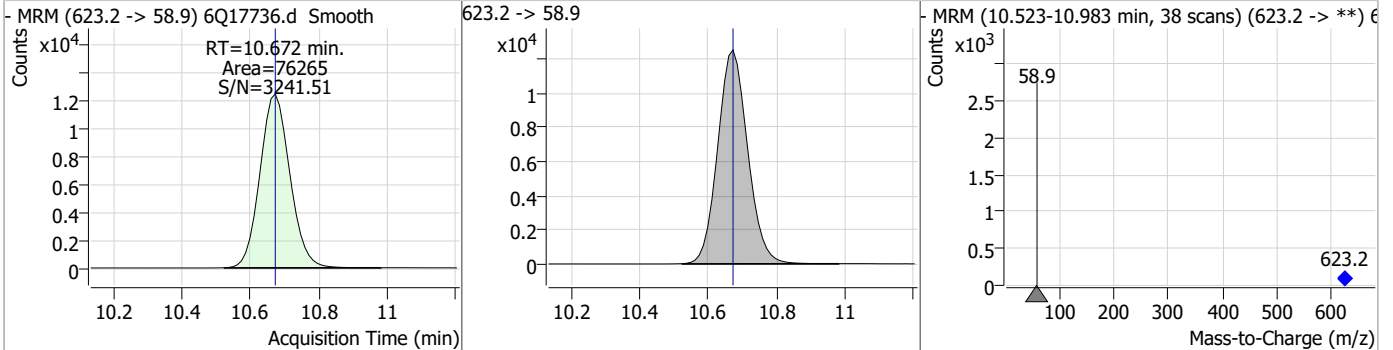


Perfluorinated Compounds by LC/MS/MS

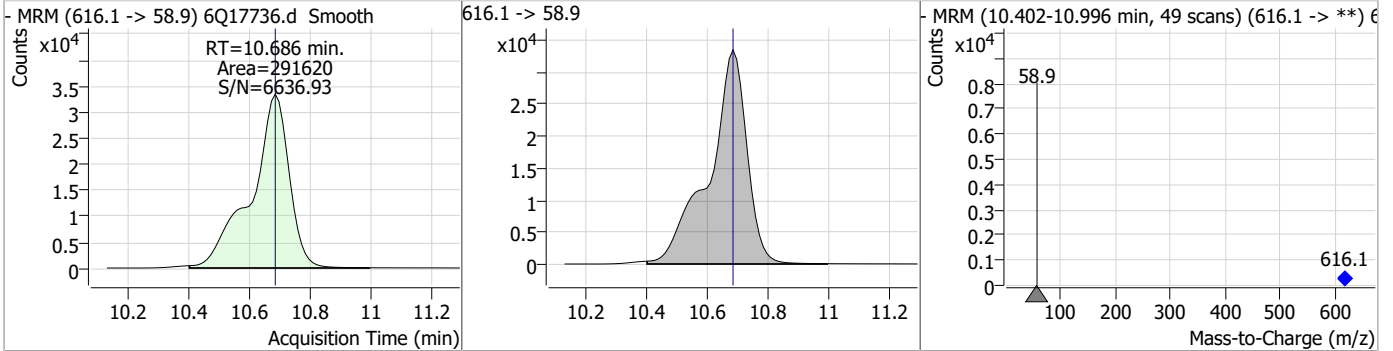
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.76	9.81	0.00	20588	699.1 -> 98.8	54.4	28.4	85.1



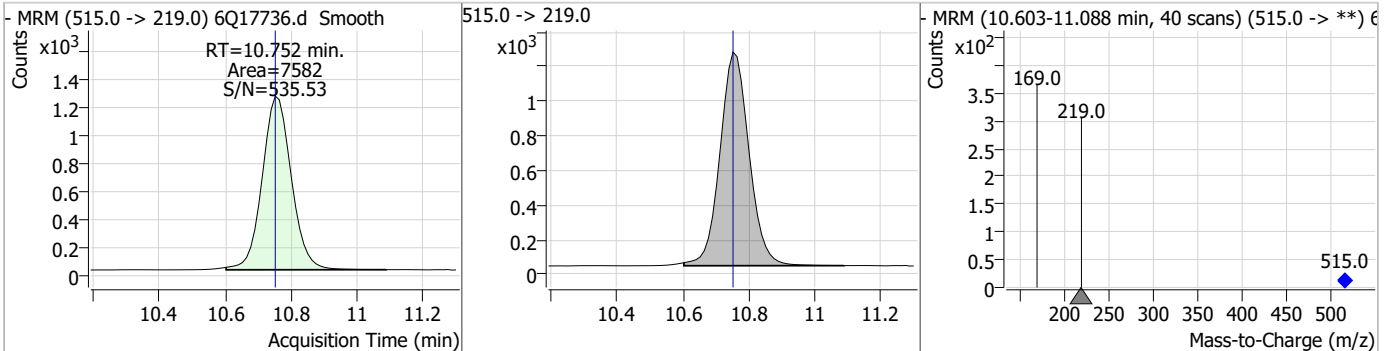
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.47	10.67	0.00	76265				



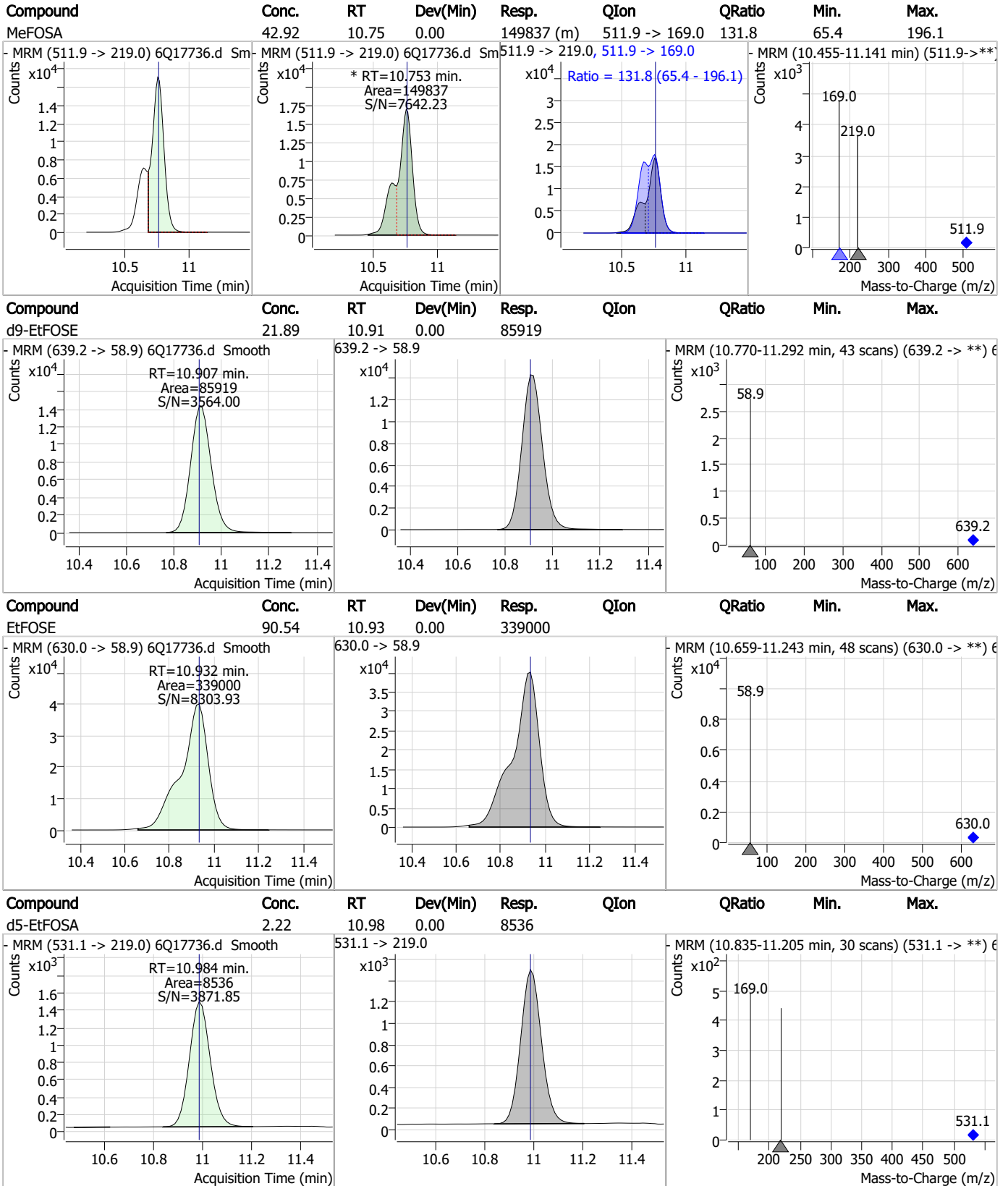
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	81.74	10.69	0.00	291620				



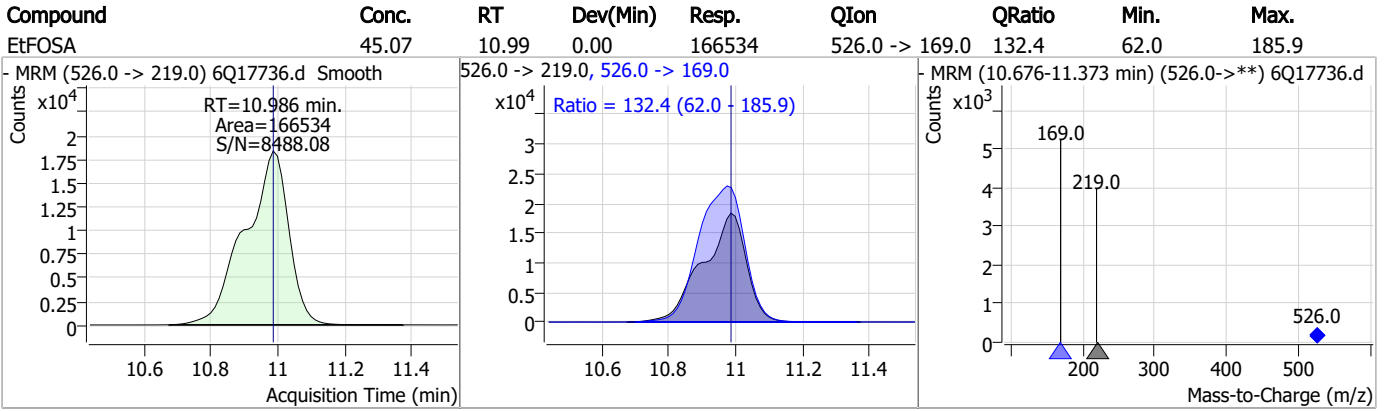
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.38	10.75	0.00	7582				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q268-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17736.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 11:46 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.07	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorononanoic acid	375-95-1		7.46	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.6.2.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 05/19/23 14:22

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17938.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 12:27:19 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : S6Q271 TDCA.batch.bin
 Sample Information : OP96663,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.226	507.1 -> 79.9	12558	2.50	µg/L	0.000	
13C4-PFOS	8.227	502.8 -> 79.9	16612	2.50	µg/L	0.000	
System Monitoring Compounds							
13C8-PFOS	8.226	507.1 -> 79.9	12558	1.92	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 76.7%				
Target Compounds							
PFOS	8.215	498.9 -> 79.9	14499	3.38	µg/L	m	83
		498.9 -> 98.8	7599				
TCDCa	6.625	498.9 -> 79.9	2404	4.15	ng/ml		100
TDCA	6.787	498.9 -> 79.9	2831	5.40	ng/ml		100
TUDCA	5.785	498.9 -> 79.9	3383	3.04	ng/ml		100

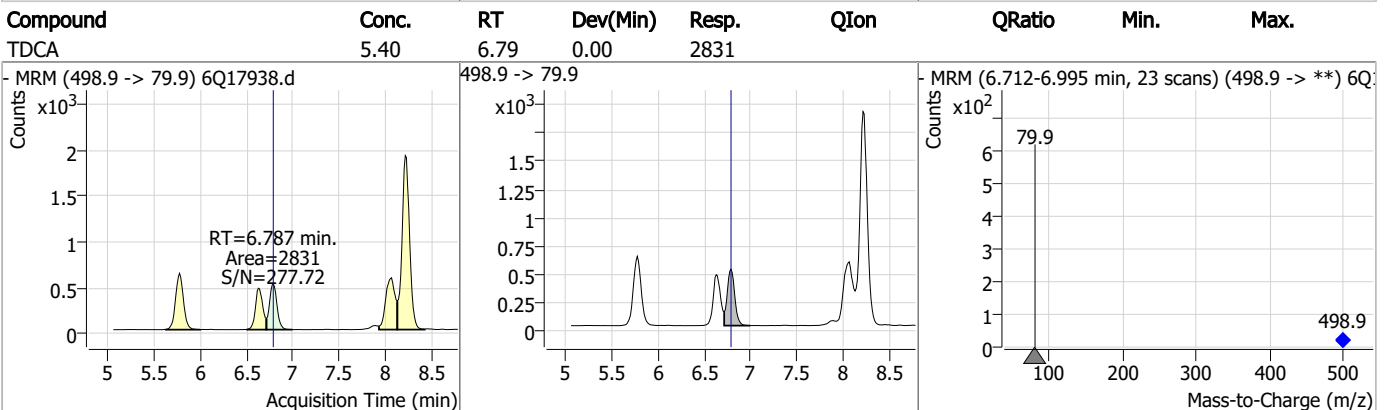
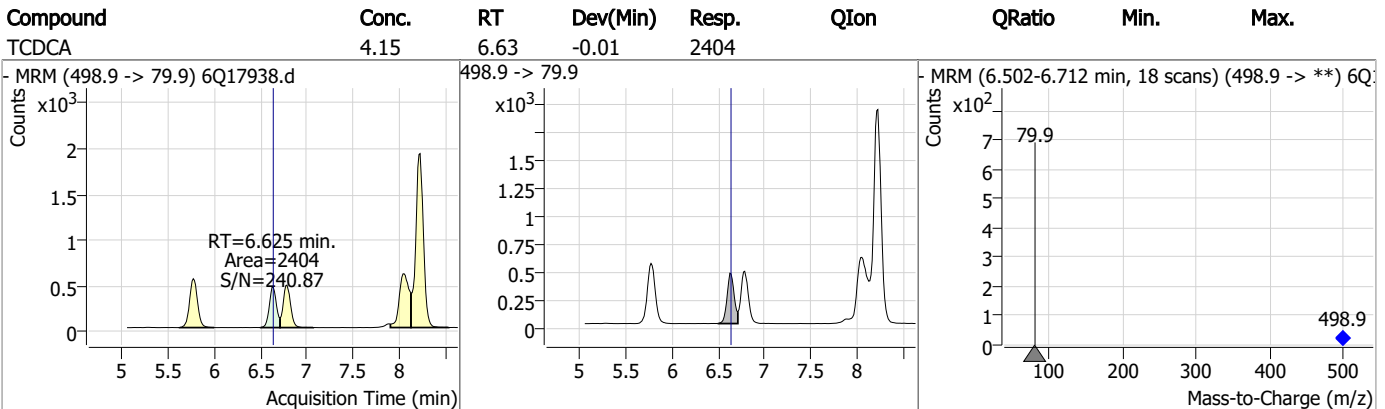
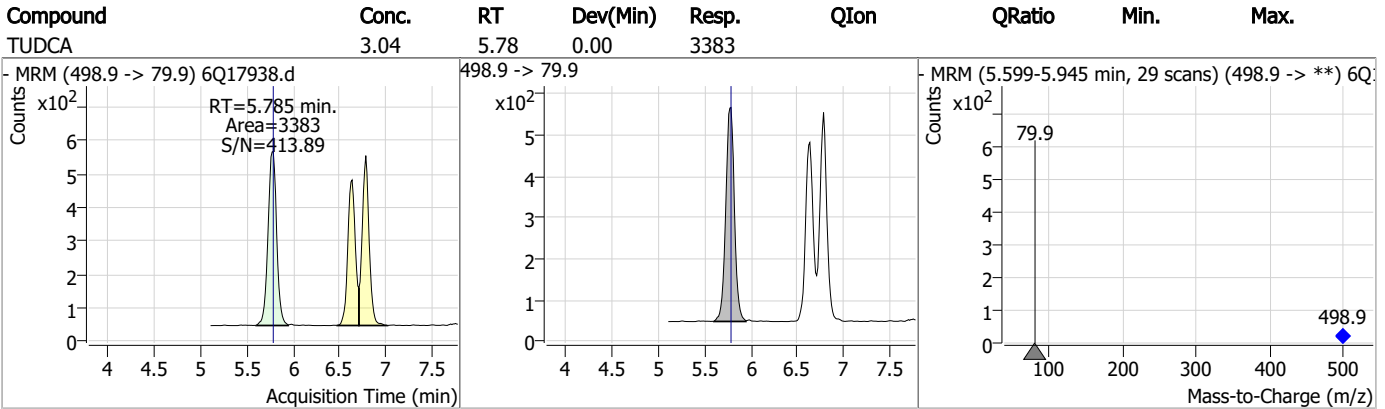
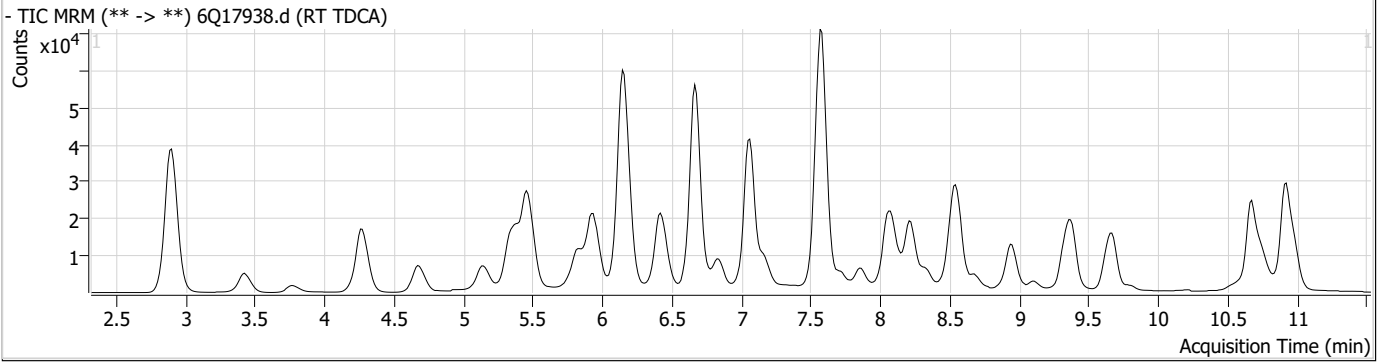
= Qualifier out of range, m = manually integrated, + = Area summed

7.6.3

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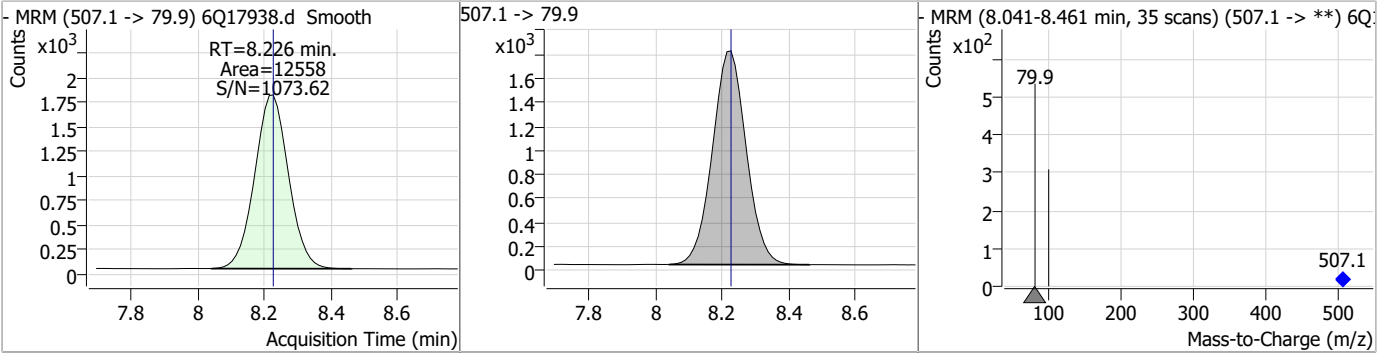


Perfluorinated Compounds by LC/MS/MS

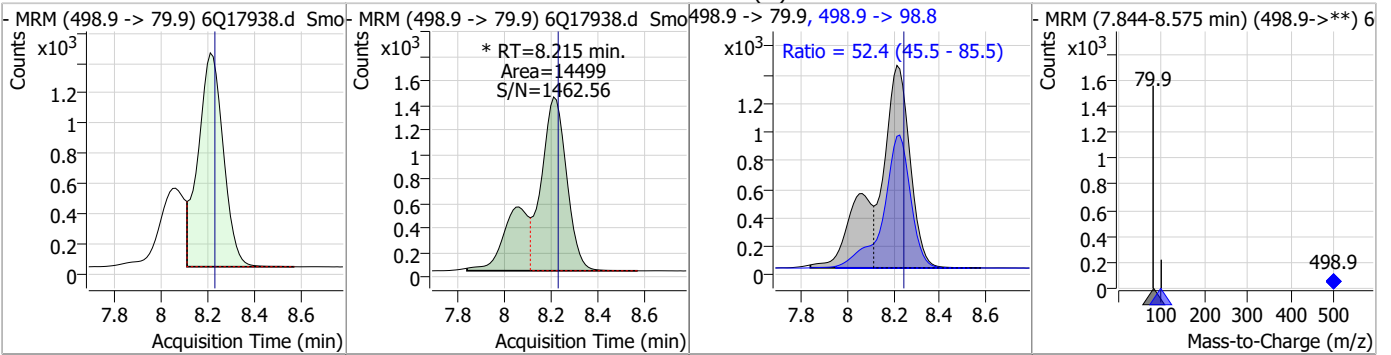


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	1.92	8.23	0.00	12558				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.38	8.22	-0.02	14499 (m)	498.9 -> 98.8	52.4	45.5	85.5



7.6.3

7



Manual Integration Approval Summary

Sample Number: S6Q271-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17938.D Analyst approved: 05/18/23 14:21 Martha Valls
Injection Time: 05/17/23 12:27 Supervisor approved: 05/19/23 14:22 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak

7.6.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17939.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 12:41:48 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96663,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	141524	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	45181	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	52147	2.50 µg/L	0.000
M4-PFHpA	6.407	367.1 -> 322.0	44024	2.50 µg/L	-0.012
M8-PFOA	7.064	421.1 -> 376.0	67996	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	21251	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	16748	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	23385	1.25 µg/L	-0.012
M2-PFDoDA	8.937	615.1 -> 570.0	21771	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	14155	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	21559	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	16798	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10456	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	9465	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1410	5.00 µg/L	-0.012
M2-6:2FTS	6.825	429.1 -> 80.9	1985	5.00 µg/L	-0.012
M2-8:2FTS	7.852	529.1 -> 80.9	2043	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	17429	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	32171	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	14461	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	76323	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	92719	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	8627	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7285	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	12635	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	59275	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	7830	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	66475	2.50 µg/L	-0.014
13C2-PFDA	8.052	515.1 -> 470.1	19261	1.25 µg/L	-0.012
13C5-PFNA	7.583	468.0 -> 423.0	22464	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	42534	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1410	4.72 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-6:2FTS	6.825	429.1 -> 80.9	1985	5.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-8:2FTS	7.852	529.1 -> 80.9	2043	4.94 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-PFDoDA	8.937	615.1 -> 570.0	21771	1.35 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-PFTeDA	9.664	715.2 -> 670.0	14155	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C3-PFBS	5.384	302.1 -> 79.9	16798	2.46 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFHxS	7.167	402.1 -> 79.9	10456	2.51 µg/L	0.000

7.6.4
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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 = 100.3%	
13C4-PFBA	2.901	216.8 -> 171.9	141524	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.407	367.1 -> 322.0	44024	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFHxA	5.466	318.0 -> 273.0	52147	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFPeA	4.259	268.3 -> 223.0	45181	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C6-PFDA	8.064	519.1 -> 474.1	16748	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C7-PFUnDA	8.506	570.0 -> 525.1	23385	1.44 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.5%	
13C8-FOSA	9.636	506.1 -> 77.8	21559	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-PFOA	7.064	421.1 -> 376.0	67996	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C8-PFOS	8.214	507.1 -> 79.9	9465	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C9-PFNA	7.583	472.1 -> 427.0	21251	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	17429	4.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	32171	10.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d3-MeFOSA	10.752	515.0 -> 219.0	7285	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
d5-EtFOSAA	8.316	589.2 -> 419.0	14461	4.62 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
d7-MeFOSE	10.660	623.2 -> 58.9	76323	24.52 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
d9-EtFOSE	10.907	639.2 -> 58.9	92719	24.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d5-EtFOSA	10.985	531.1 -> 219.0	8627	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
Target Compounds					QValue
4:2FTS	5.132	327.1 -> 307.0	99682	47.04 µg/L	99
		327.1 -> 80.9	37809		
6:2FTS	6.826	427.1 -> 407.0	93734	43.38 µg/L	97
		427.1 -> 80.9	32031		
8:2FTS	7.852	527.1 -> 507.0	53298	45.91 µg/L	98
		527.1 -> 80.8	22557		
EtFOSAA	8.318	584.2 -> 419.1	30912	11.48 µg/L	93
		584.2 -> 526.0	17702		
FOSA	9.639	498.1 -> 77.9	230867	28.61 µg/L	99
		498.1 -> 478.0	6527		
MeFOSAA	8.122	570.1 -> 419.0	38786	11.50 µg/L	98
		570.1 -> 483.0	8070		
PFBA	2.907	212.8 -> 168.9	249735	49.19 µg/L	100
PFBS	5.385	298.7 -> 79.9	92847	11.33 µg/L	99
		298.7 -> 98.8	34692		
PFDA	8.064	512.9 -> 469.0	233645	11.27 µg/L	100
		512.9 -> 219.0	38504		
PFDoDA	8.938	613.1 -> 569.0	207936	11.99 µg/L	99
		613.1 -> 319.0	27858		
PFDS	9.101	599.0 -> 79.9	36210	11.78 µg/L	97

7.6.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	17940	12.60	µg/L	98
		363.1 -> 319.0	277157			
PFHpS	7.723	363.1 -> 169.0	42727	10.64	µg/L	98
		449.0 -> 79.9	53720			
PFHxA	5.469	449.0 -> 98.9	27142	11.72	µg/L	100
		313.0 -> 269.0	241996			
PFHxS	7.168	313.0 -> 118.9	11814	11.07	µg/L	m
		398.7 -> 79.9	64084			
PFNA	7.446	398.7 -> 98.9	30524	30.97	µg/L	m
		463.0 -> 419.0	488949			
PFNS	8.681	463.0 -> 219.0	101609	12.50	µg/L	90
		548.8 -> 79.9	57193			
PFOA	7.052	548.8 -> 98.9	28988	24.45	µg/L	m
		413.0 -> 369.0	827260			
PFOS	8.215	413.0 -> 169.0	143351	11.30	µg/L	m
		498.9 -> 79.9	56055			
PFPeA	4.262	498.9 -> 98.8	28866	24.83	µg/L	100
		263.0 -> 219.0	323942			
PFPeS	6.459	349.1 -> 79.9	68793	11.99	µg/L	97
		349.1 -> 98.9	29697			
PFTeDA	9.665	713.1 -> 669.0	174522	12.04	µg/L	100
		713.1 -> 168.9	13382			
PFTrDA	9.333	663.0 -> 619.0	239279	11.90	µg/L	97
		663.0 -> 168.9	21084			
PFUnDA	8.506	563.1 -> 519.0	189188	11.14	µg/L	99
		563.1 -> 269.1	28701			
11Cl-PF3OUdS	9.373	630.9 -> 450.9	291531	23.98	µg/L	95
		632.9 -> 452.9	88406			
9Cl-PF3ONS	8.545	530.8 -> 351.0	424097	21.84	µg/L	92
		532.8 -> 353.0	139250			
ADONA	6.671	376.9 -> 250.9	1136368	22.18	µg/L	96
		376.9 -> 84.8	294905			
HFPO-DA	5.832	284.9 -> 168.9	74084	23.82	µg/L	99
		284.9 -> 184.9	10332			
3:3FTCA	3.777	241.0 -> 177.0	50964	63.04	µg/L	98
		241.0 -> 117.0	6434			
5:3FTCA	6.149	341.0 -> 237.1	1068039	298.42	µg/L	98
		341.0 -> 217.0	758855			
7:3FTCA	7.573	441.0 -> 316.9	495210	305.00	µg/L	86
		441.0 -> 336.9	1145742			
EtFOSA	10.986	526.0 -> 219.0	160168	42.89	µg/L	97
		526.0 -> 169.0	203042			
EtFOSE	10.920	630.0 -> 58.9	322772	79.88	µg/L	100
		511.9 -> 219.0	140639			
MeFOSA	10.753	511.9 -> 169.0	184408	41.92	µg/L	100
		616.1 -> 58.9	289393			
MeFOSE	10.673	699.1 -> 79.9	19030	81.05	µg/L	100
		699.1 -> 98.8	10919			
PFDoDS	9.805	295.0 -> 201.0	56993	11.72	µg/L	99
		295.0 -> 84.9	14593			
NFDHA	5.348	279.0 -> 85.1	230342	24.99	µg/L	97
		229.0 -> 84.9	167379			
PFMBA	4.675	314.8 -> 134.9	571450	24.74	µg/L	100
		314.8 -> 82.9	20185			
PFMPA	3.426			24.96	µg/L	100
PFEESA	5.926			20.60	µg/L	100

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

7.6.4
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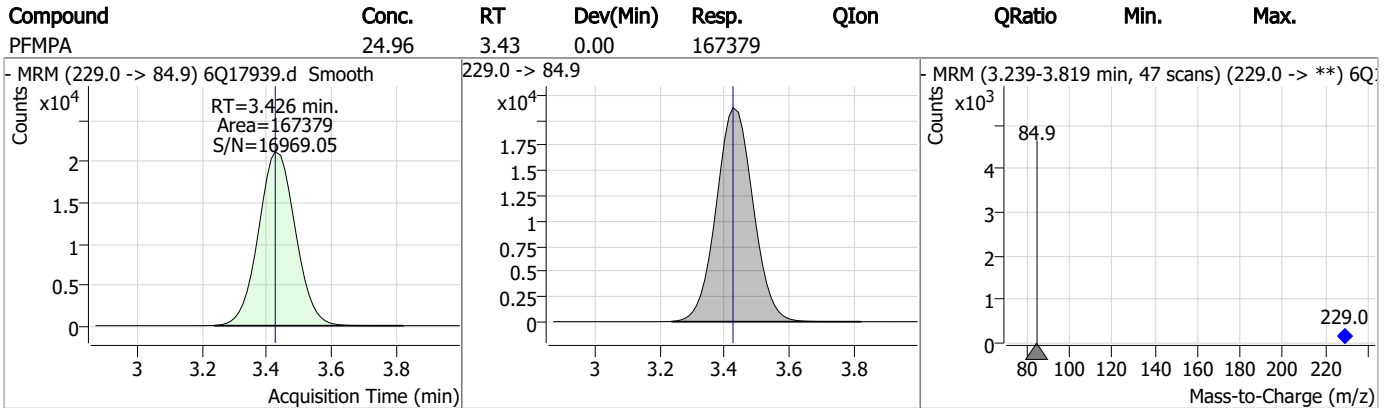
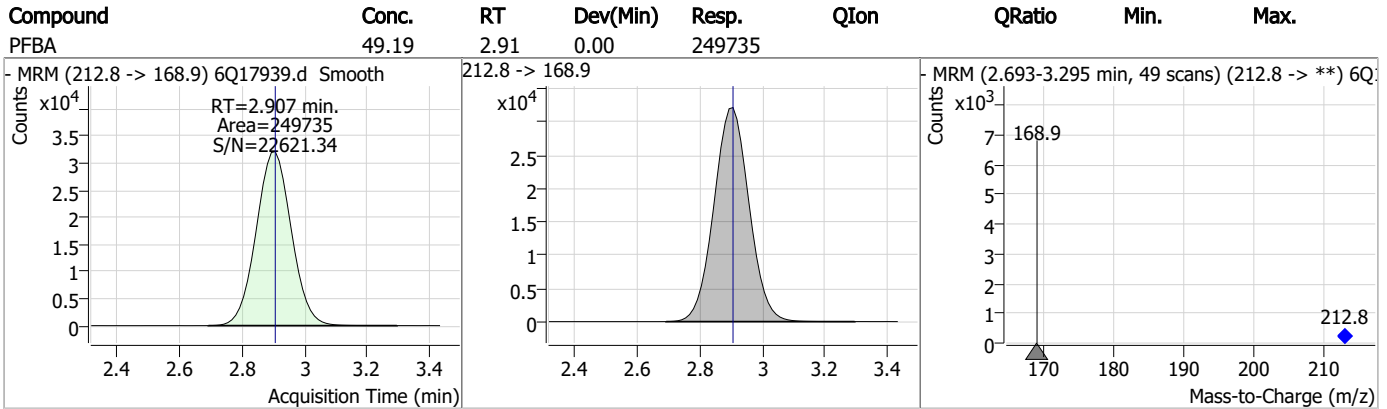
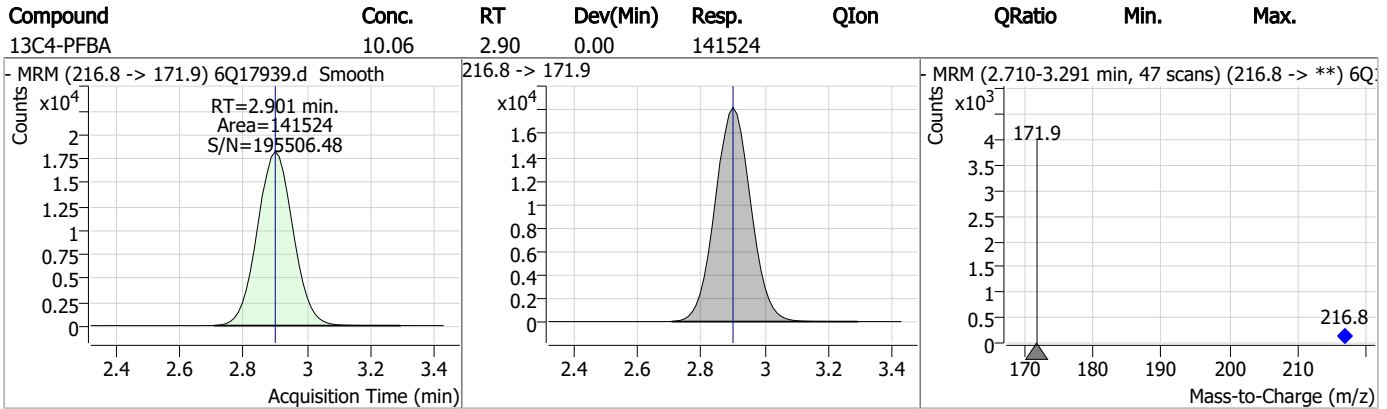
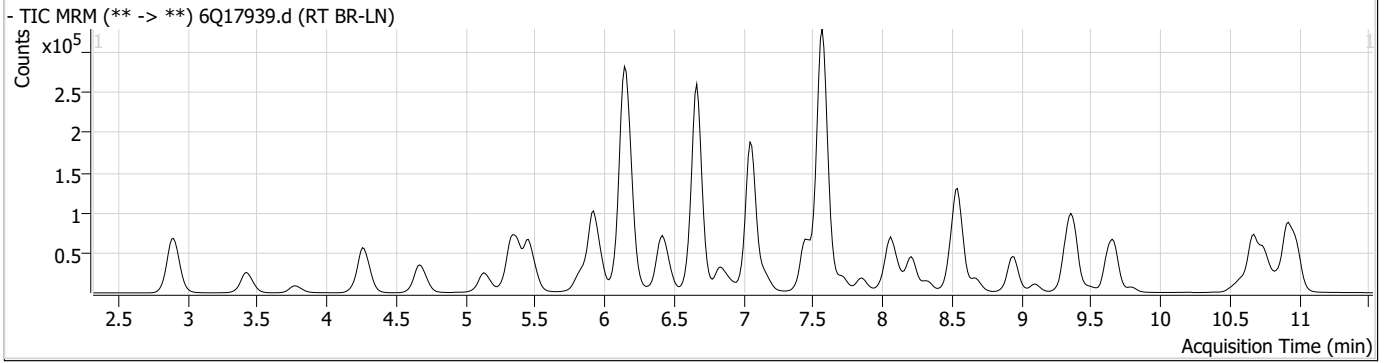
Perfluorinated Compounds by LC/MS/MS

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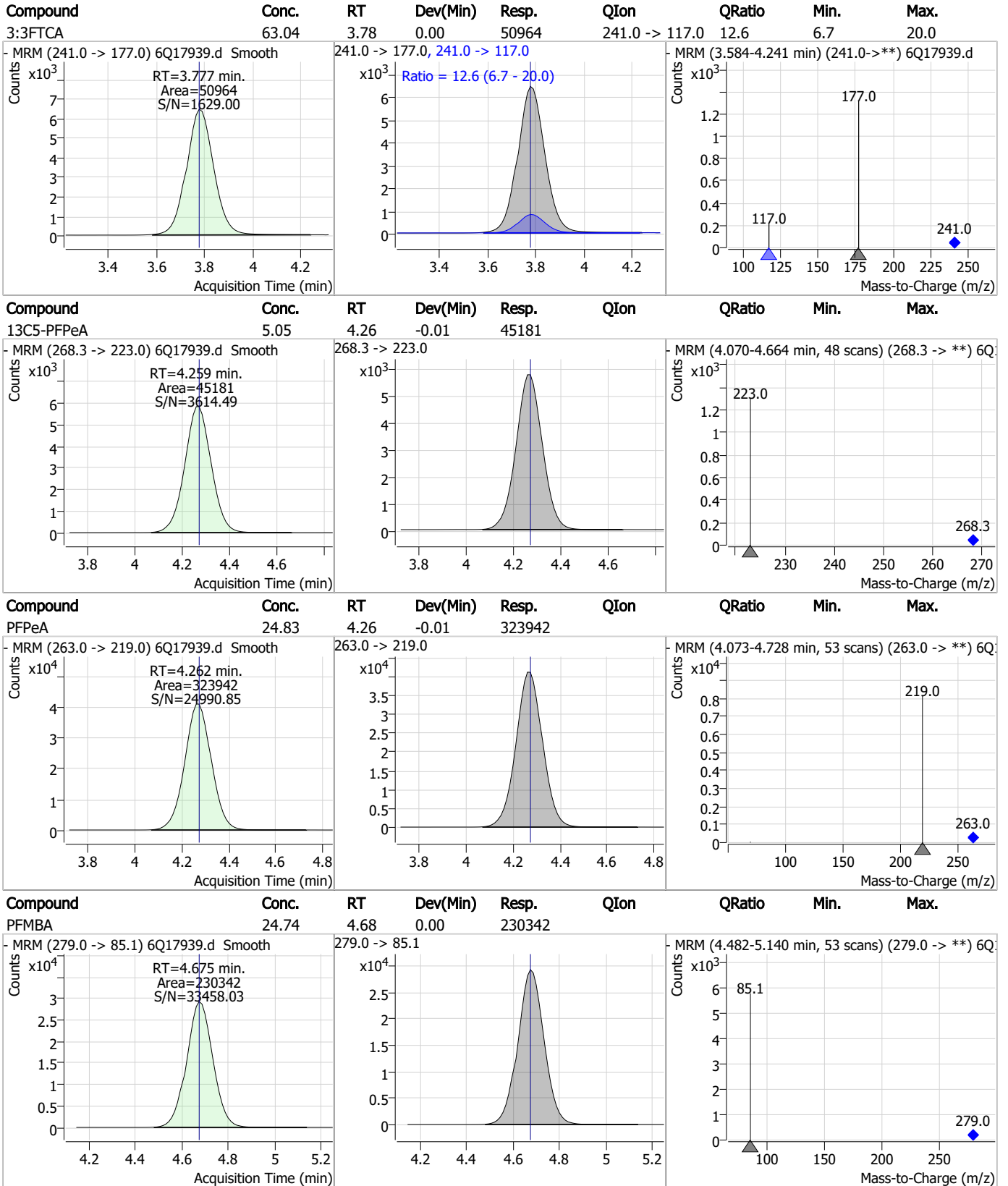
7.6.4

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Perfluorinated Compounds by LC/MS/MS



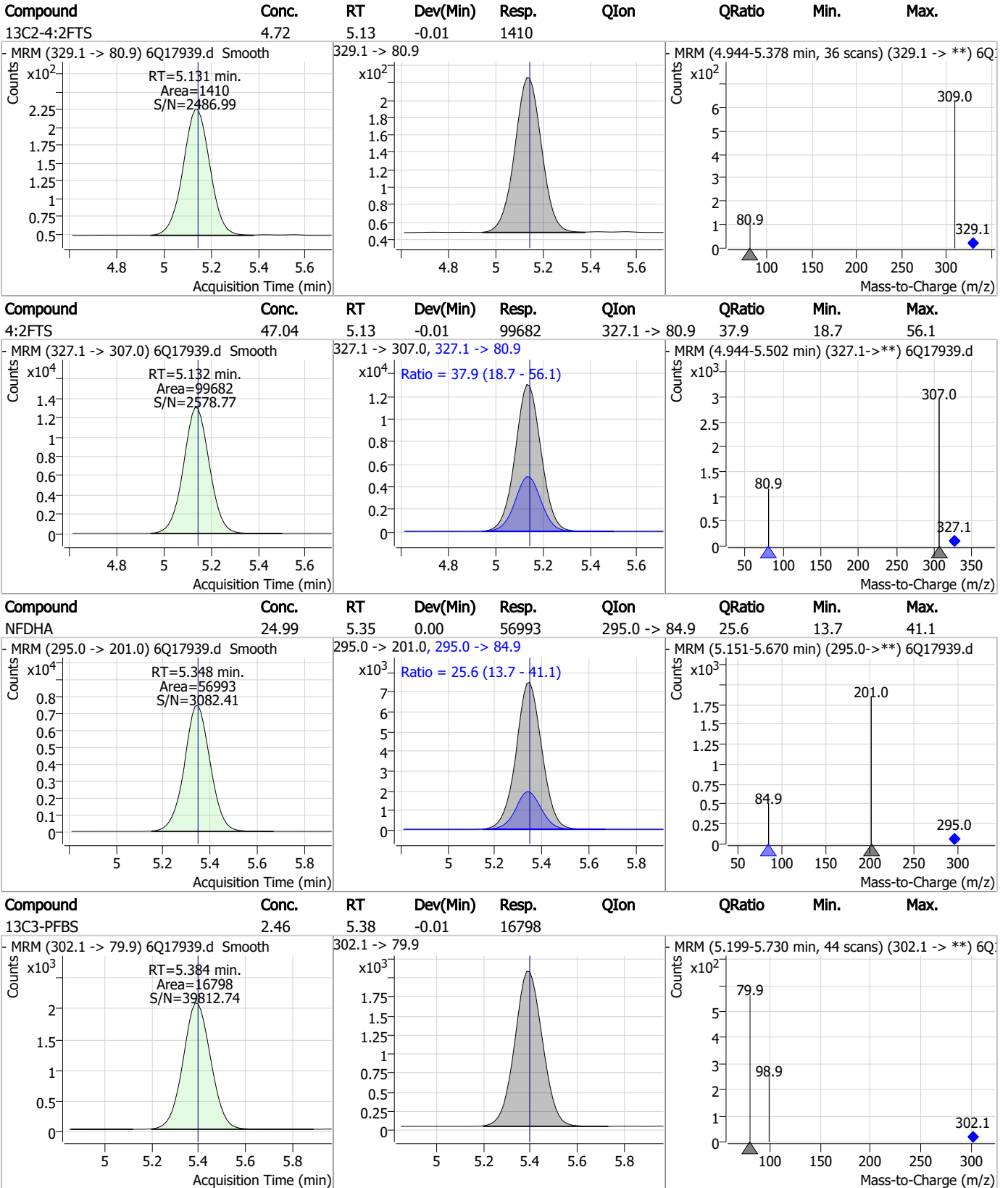
Perfluorinated Compounds by LC/MS/MS



7.6.4

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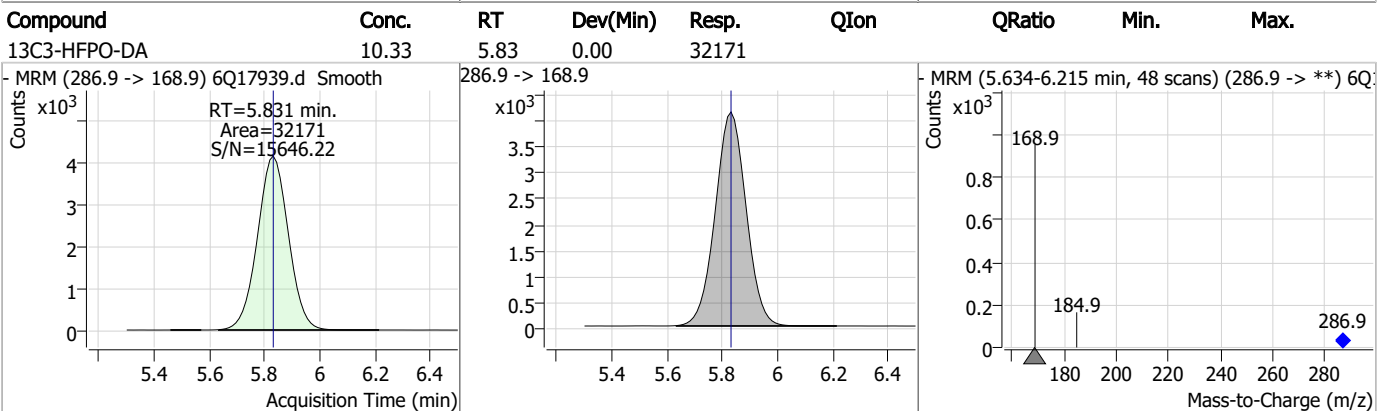
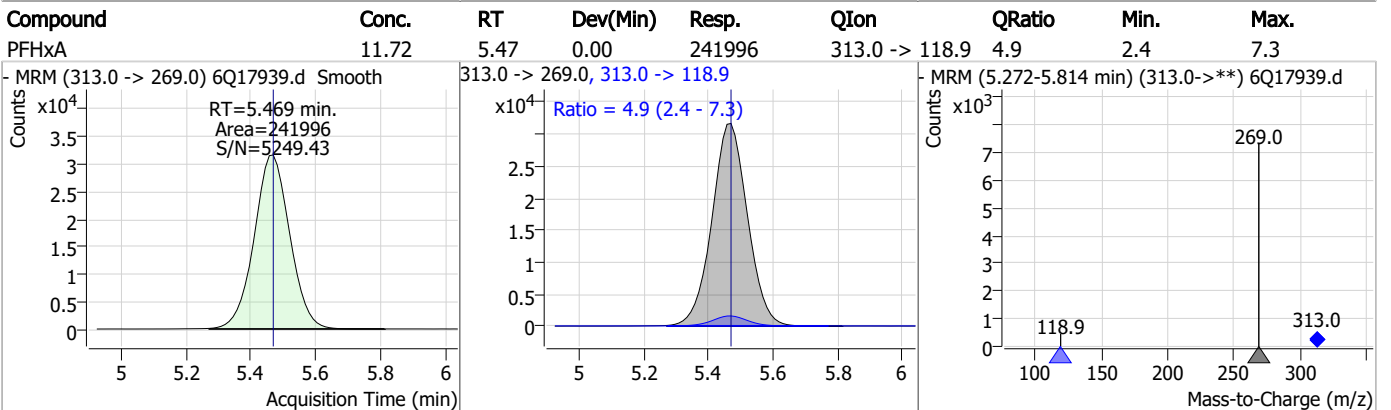
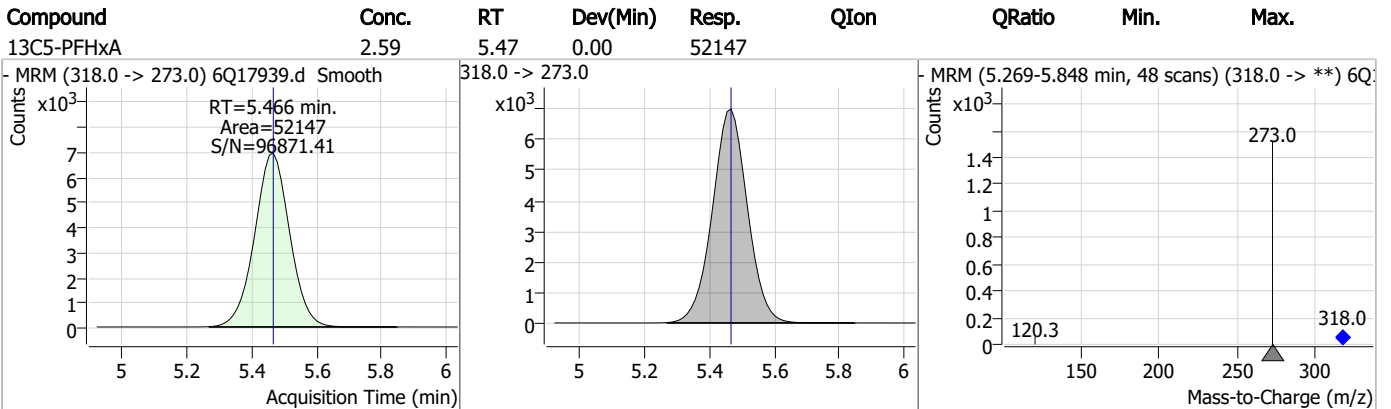
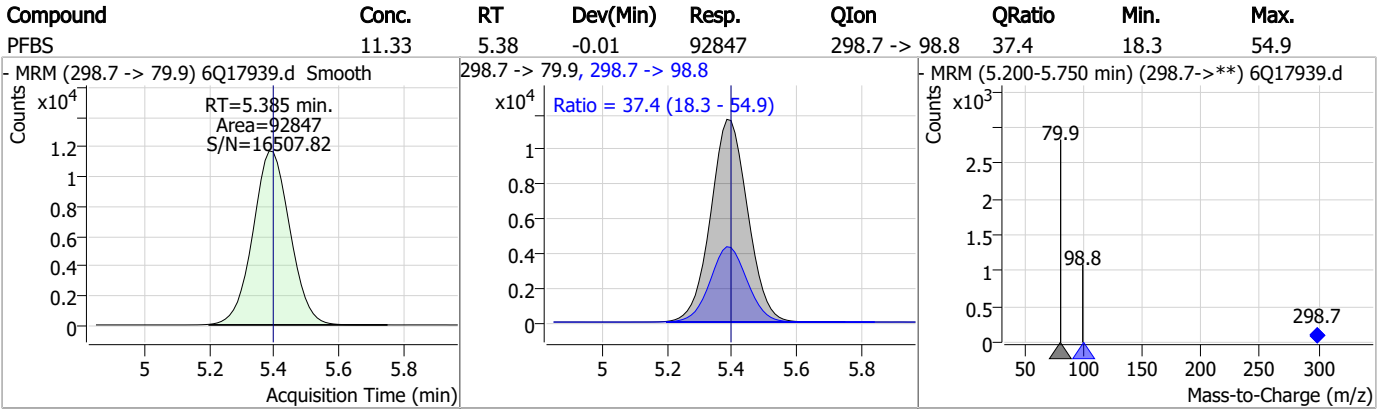
Perfluorinated Compounds by LC/MS/MS



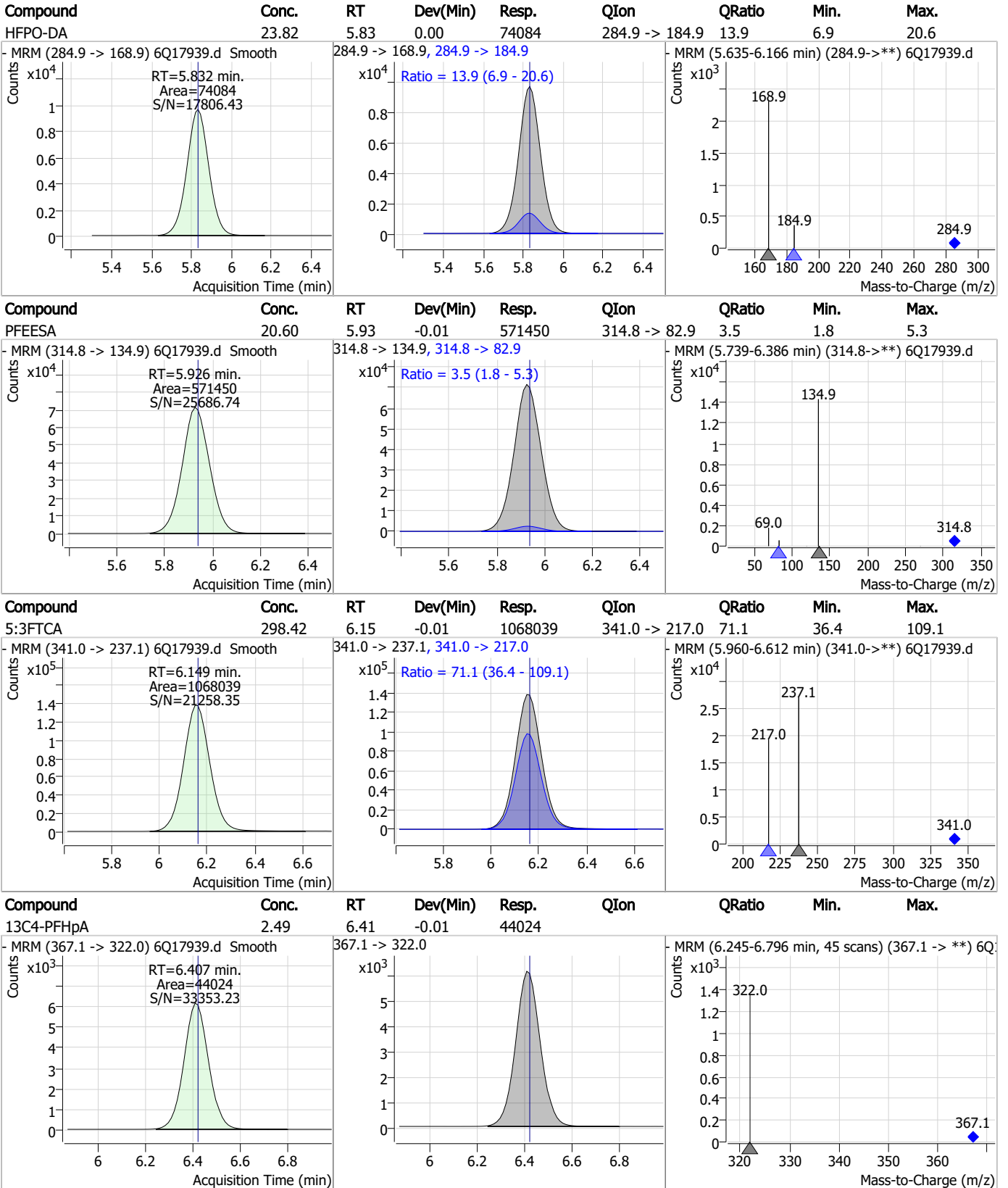
7.6.4

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Perfluorinated Compounds by LC/MS/MS



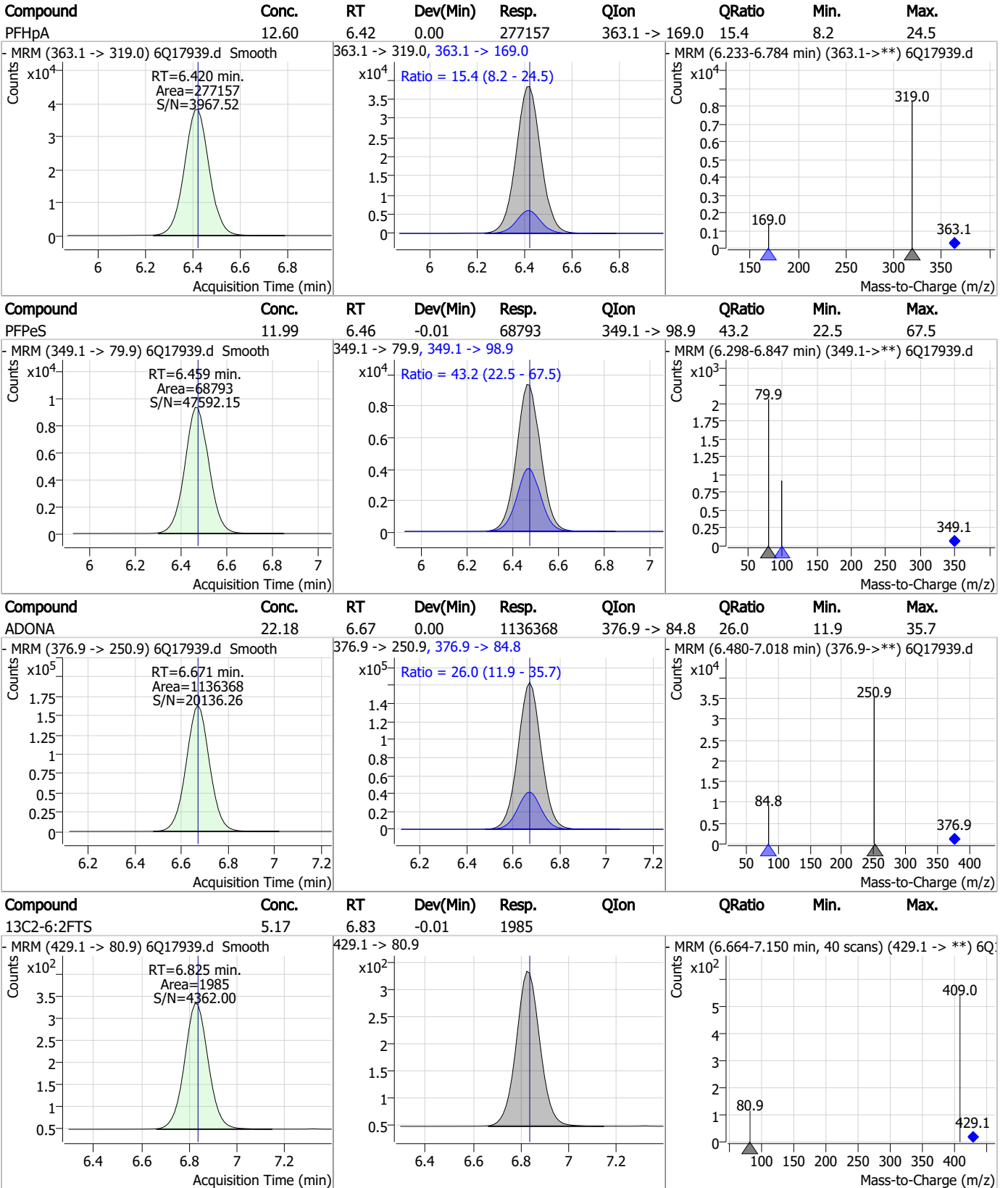
Perfluorinated Compounds by LC/MS/MS



7.6.4

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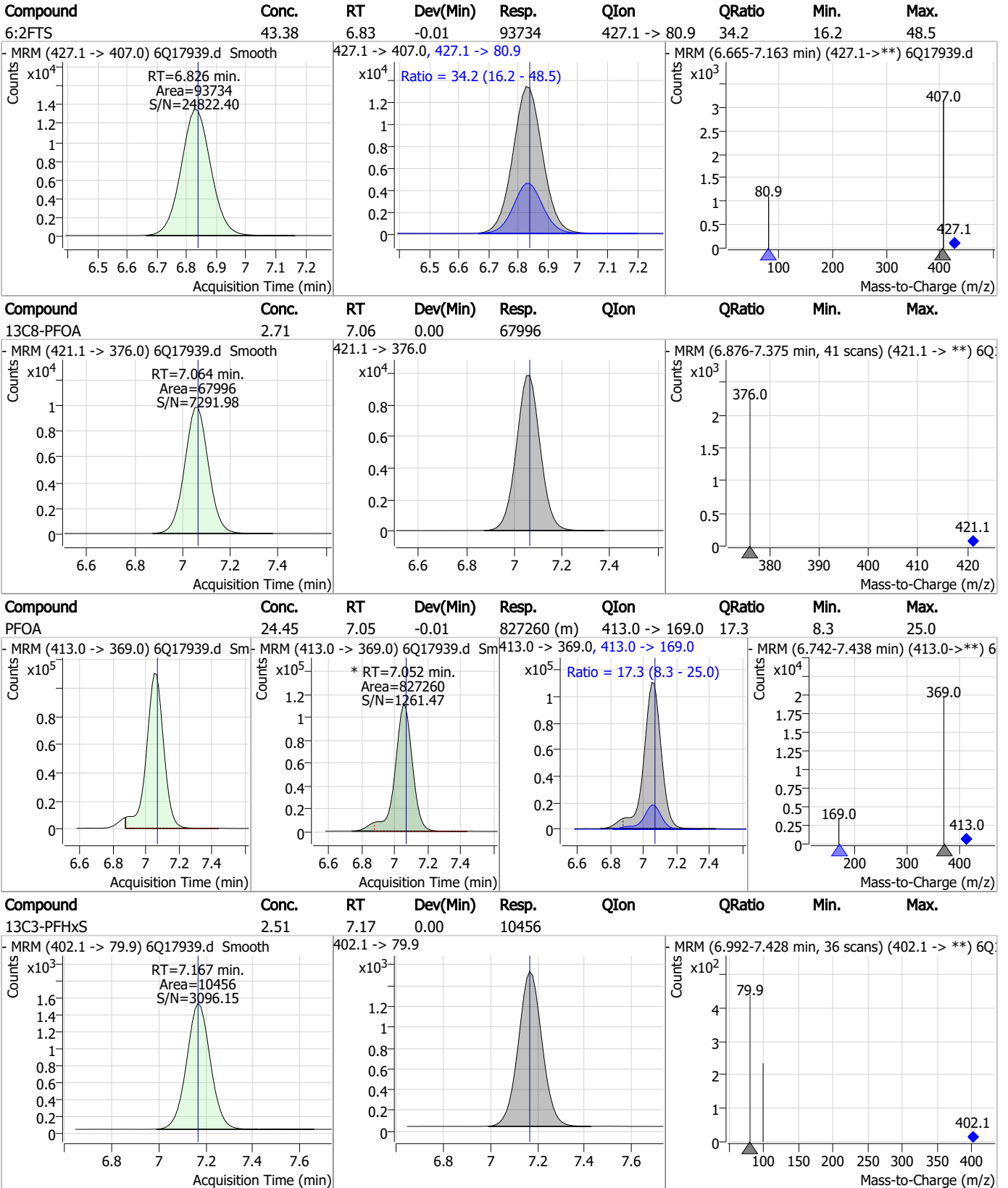
Perfluorinated Compounds by LC/MS/MS



7.6.4

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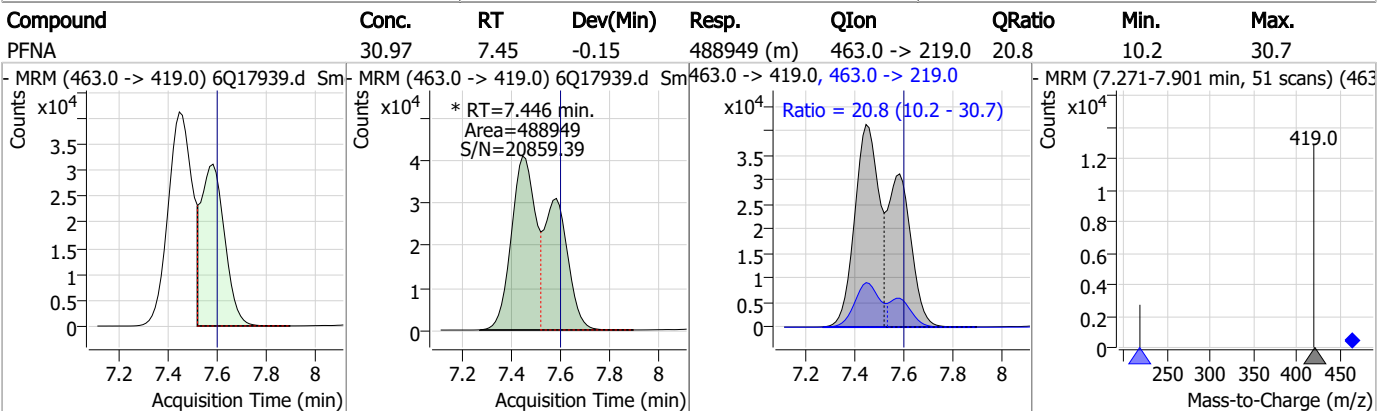
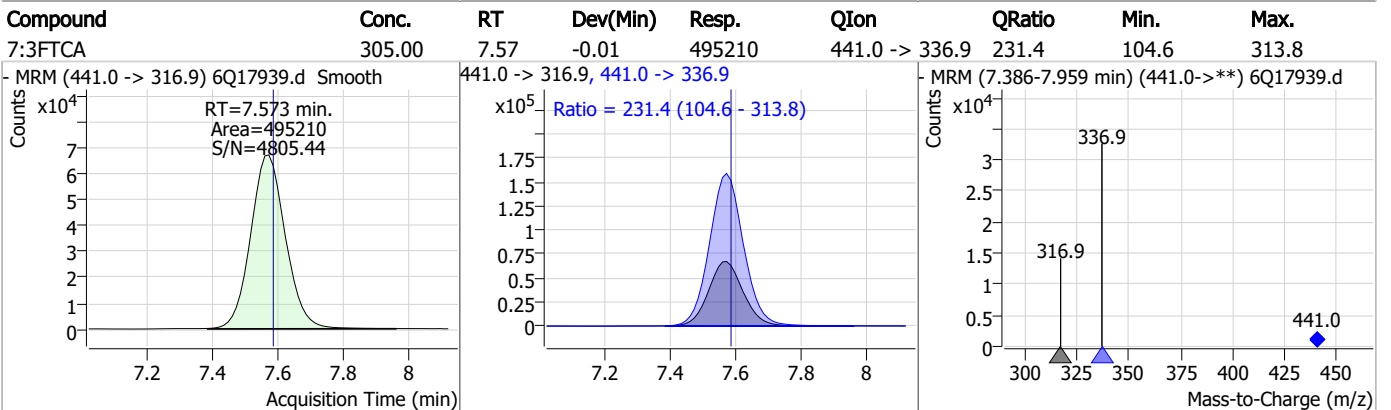
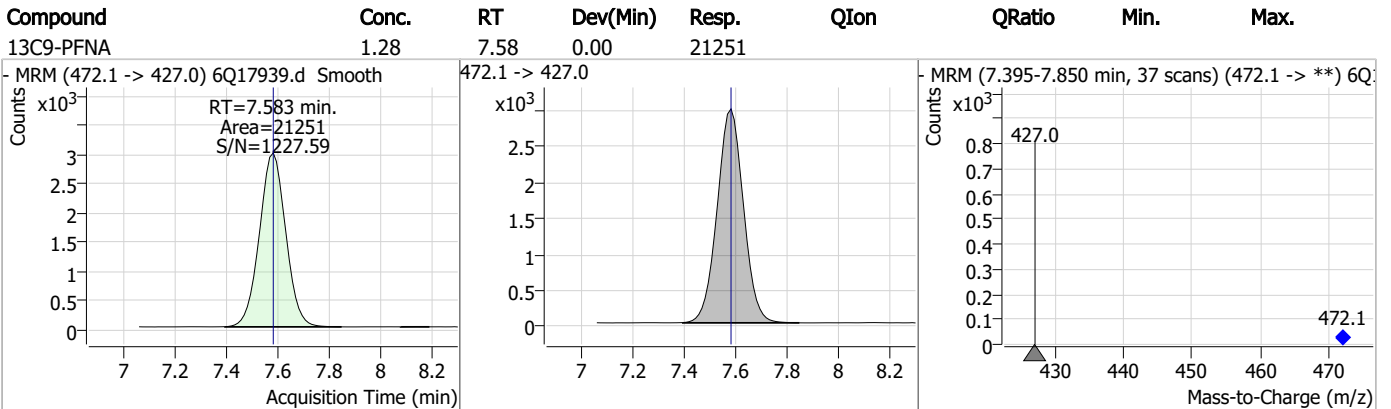
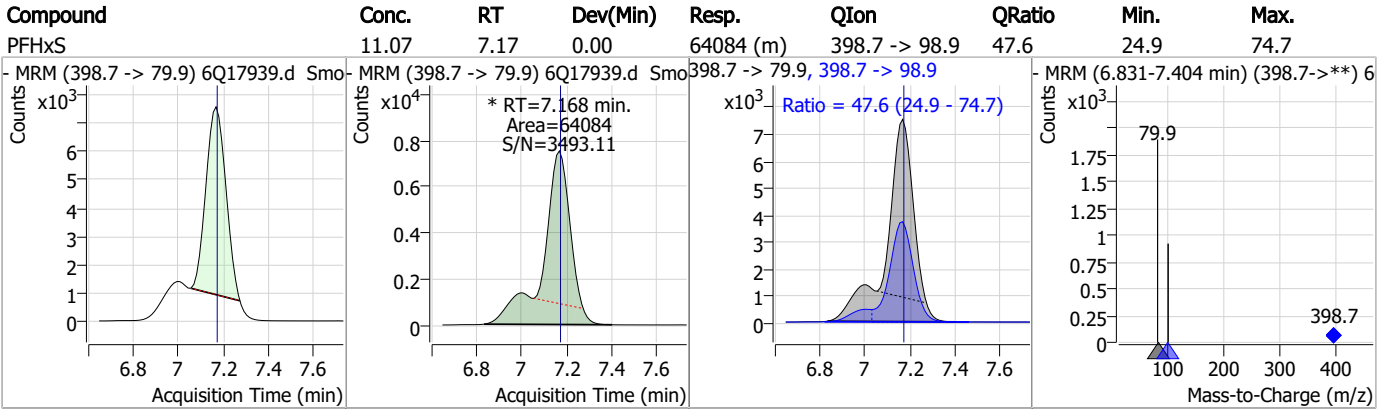
Perfluorinated Compounds by LC/MS/MS



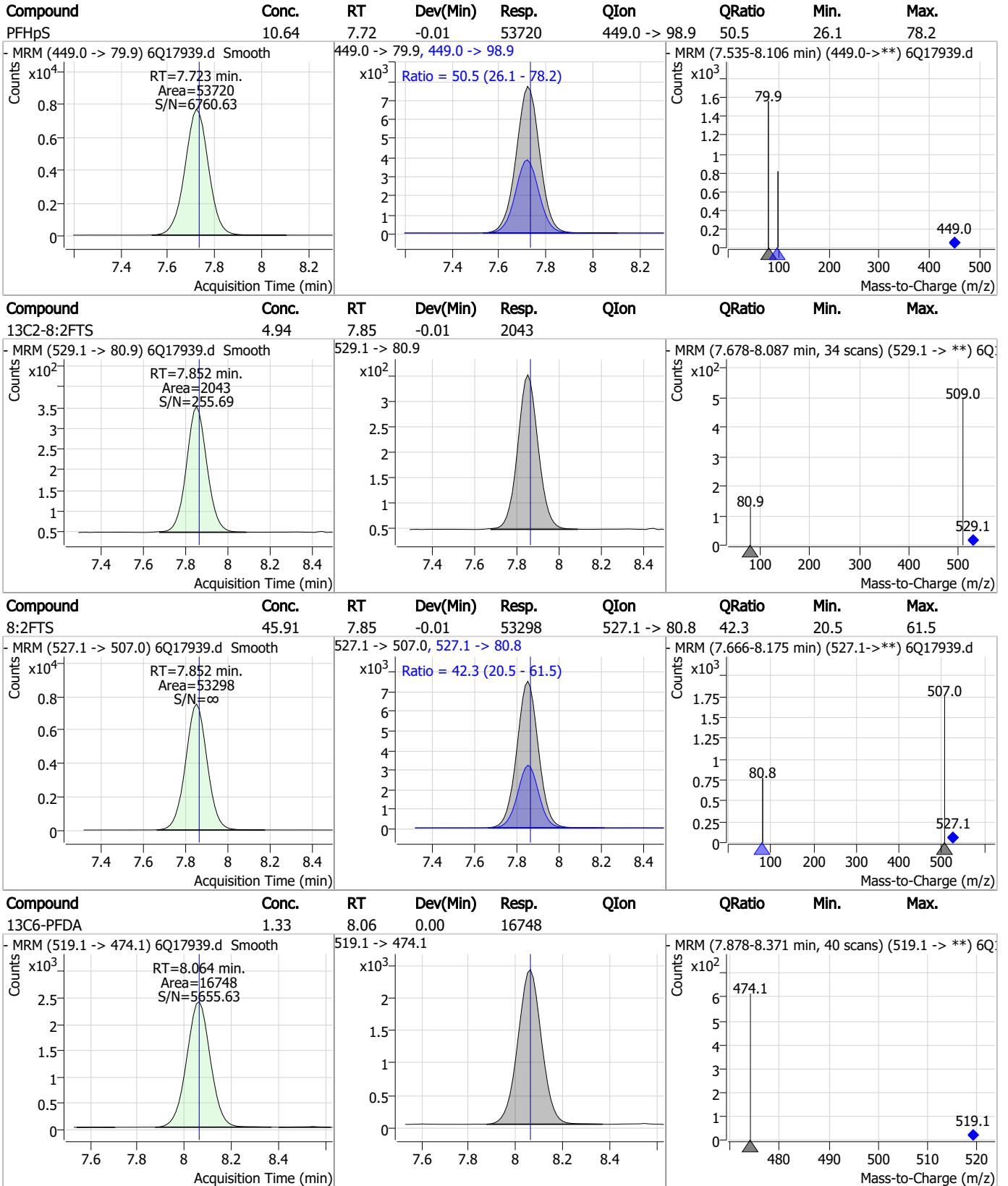
7.6.4

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Perfluorinated Compounds by LC/MS/MS



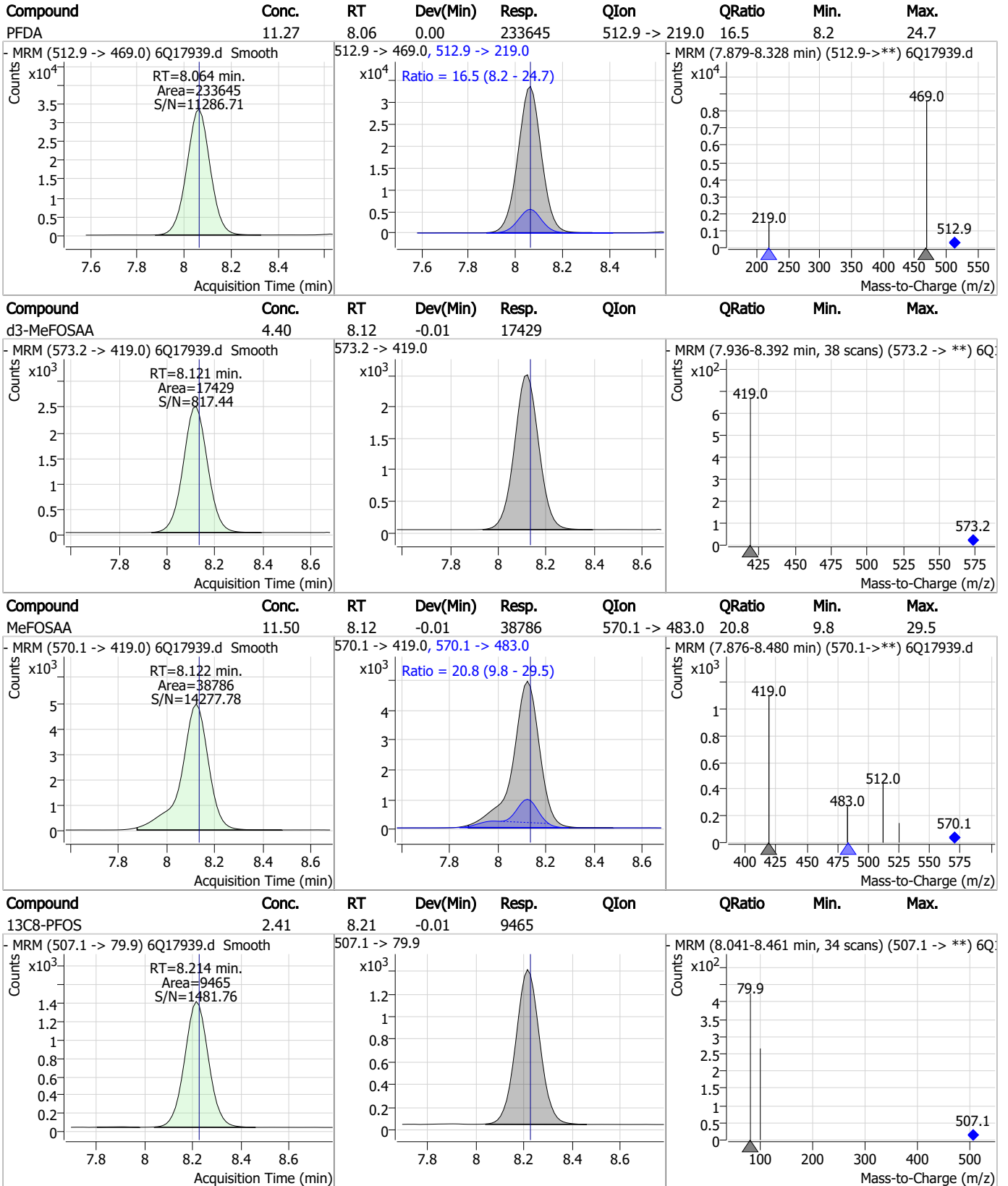
Perfluorinated Compounds by LC/MS/MS



7.6.4

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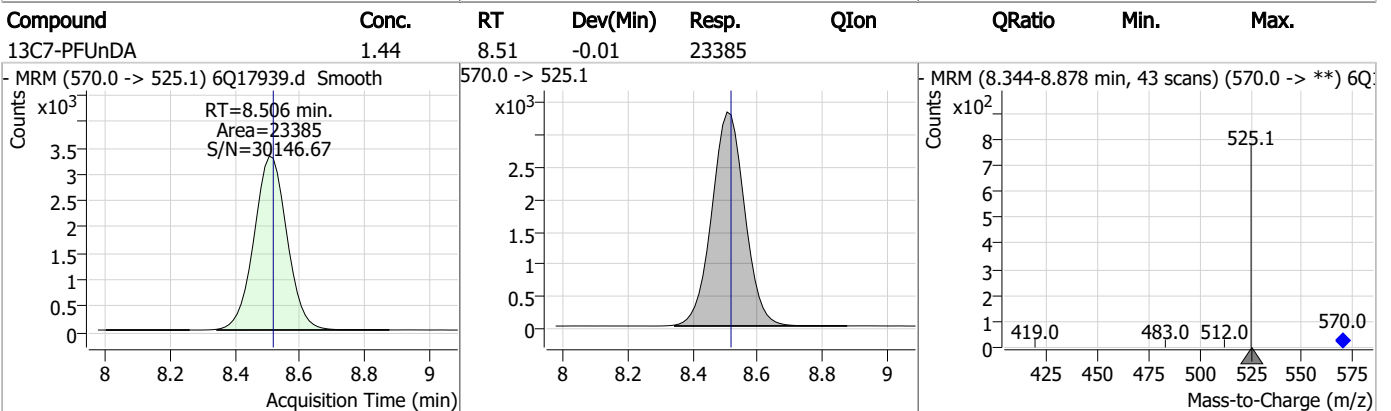
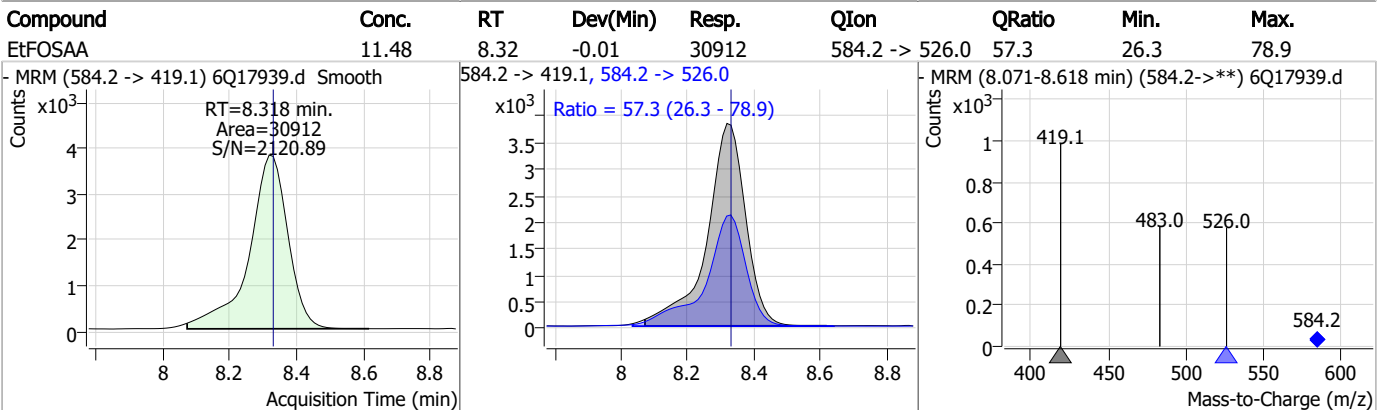
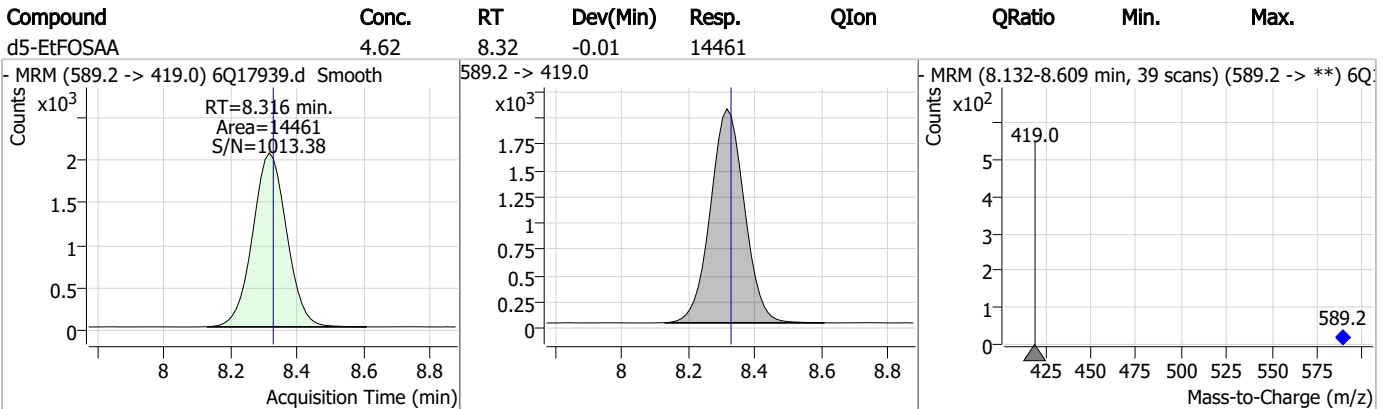
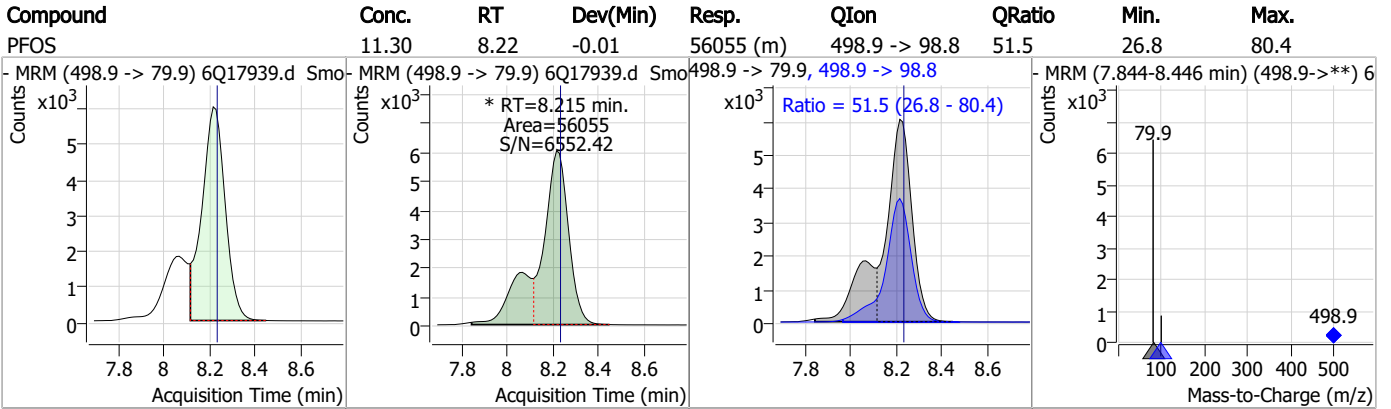
Perfluorinated Compounds by LC/MS/MS



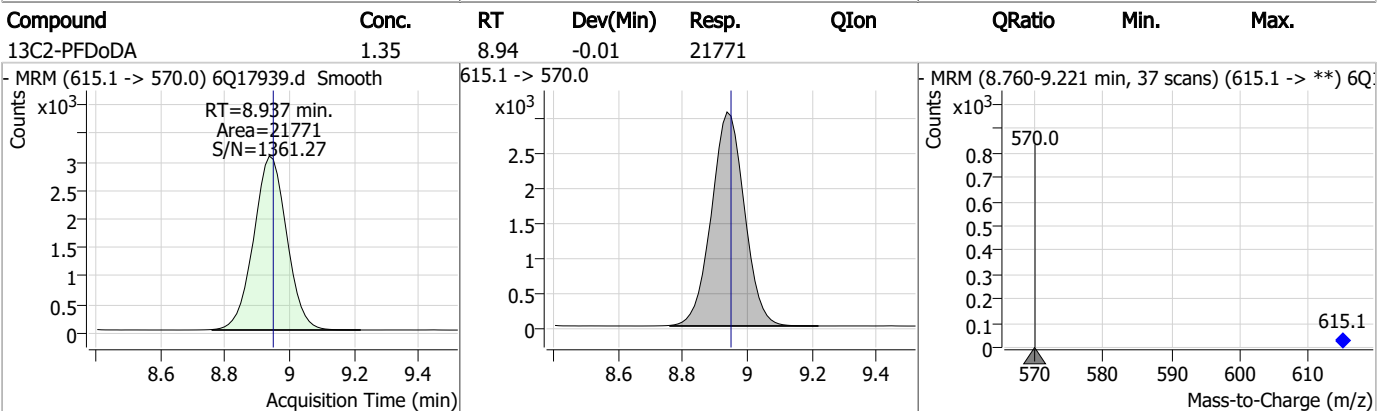
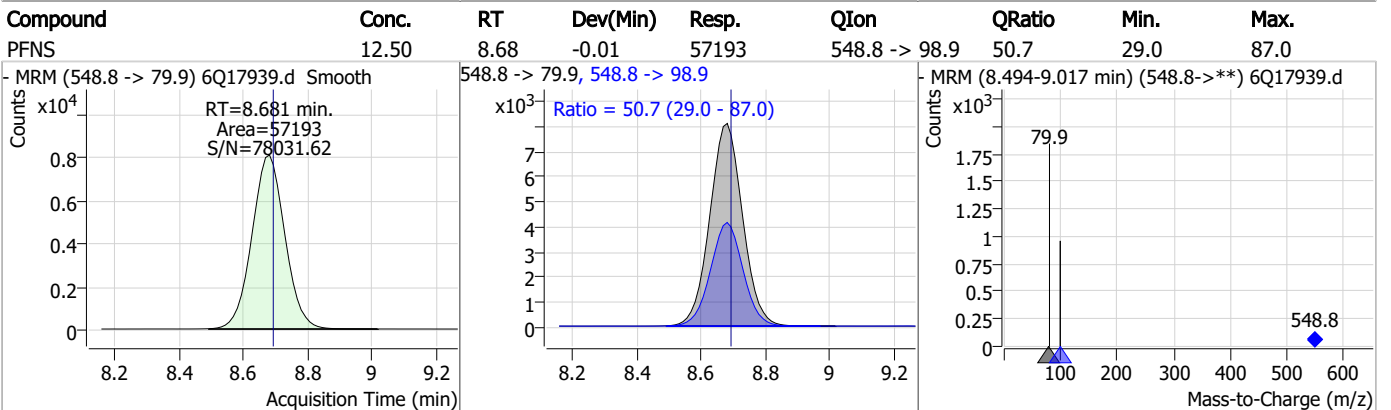
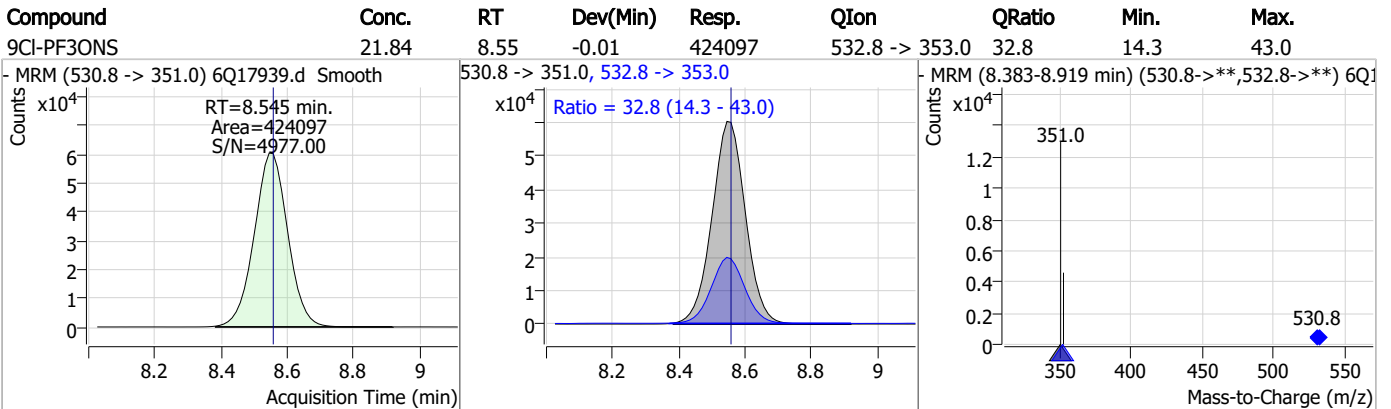
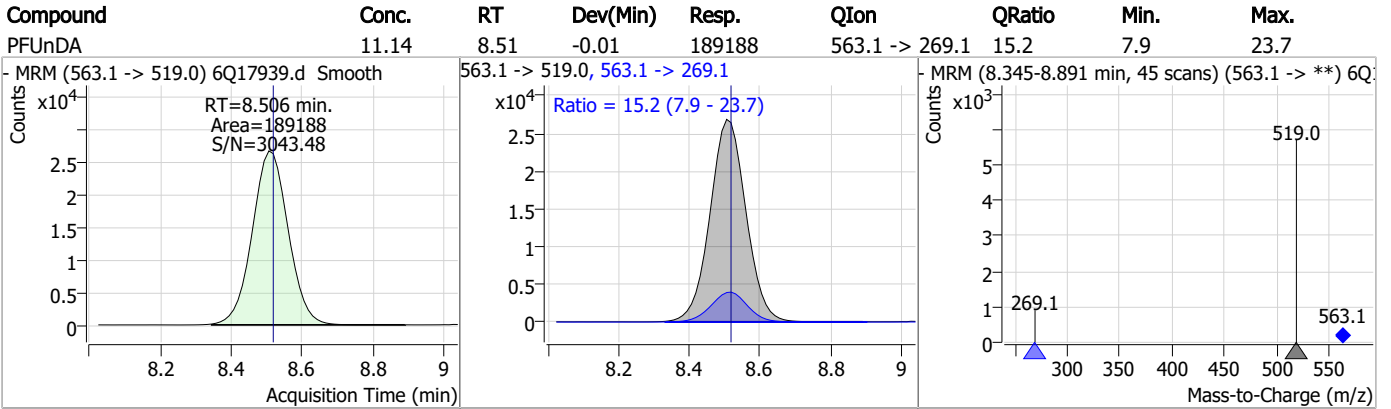
7.6.4

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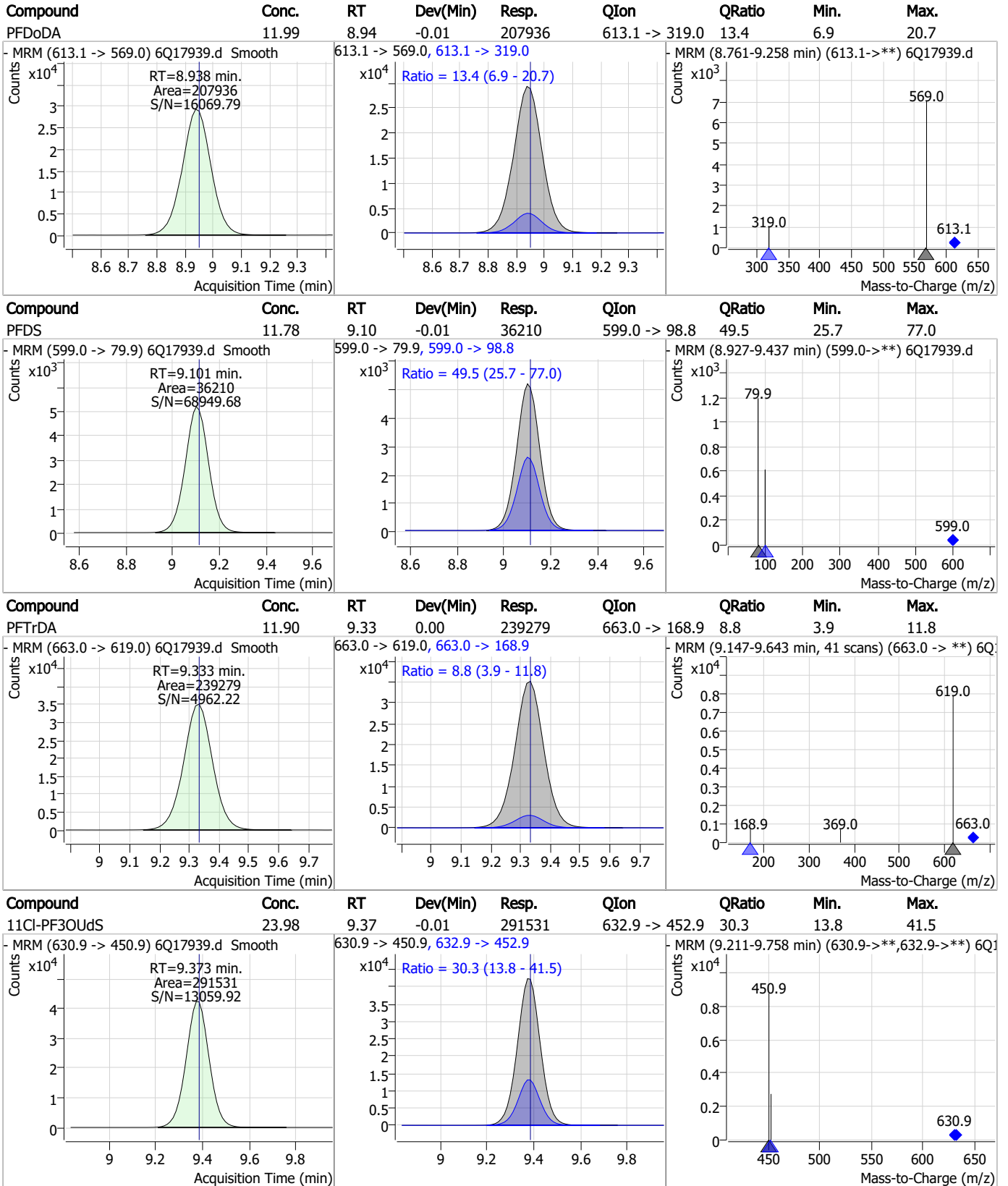
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

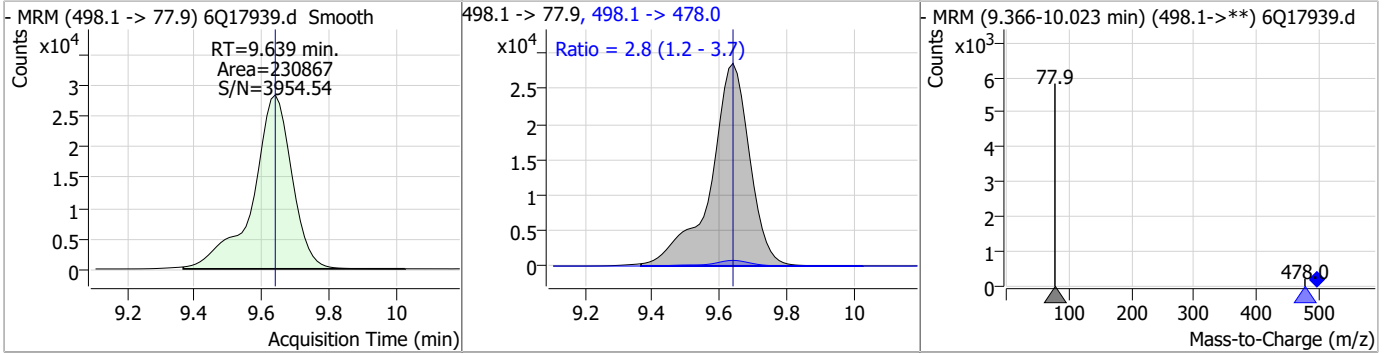


Perfluorinated Compounds by LC/MS/MS

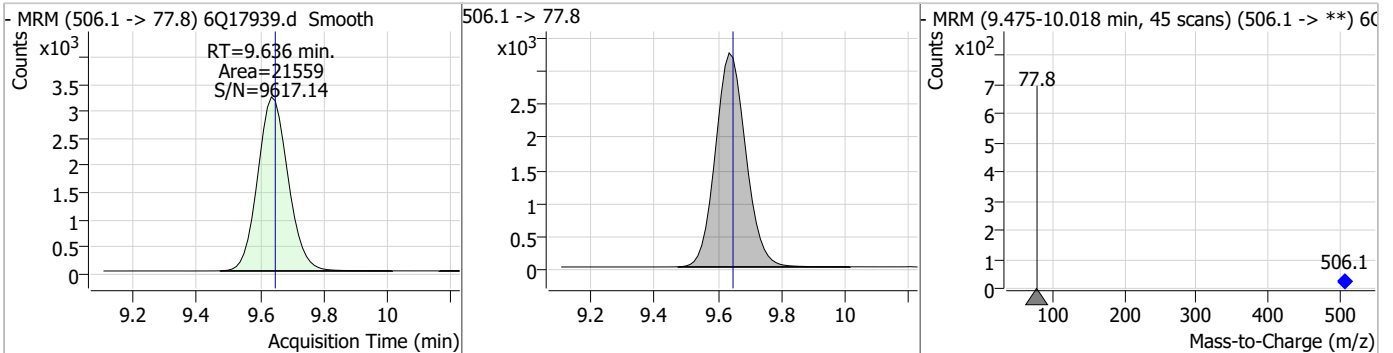


Perfluorinated Compounds by LC/MS/MS

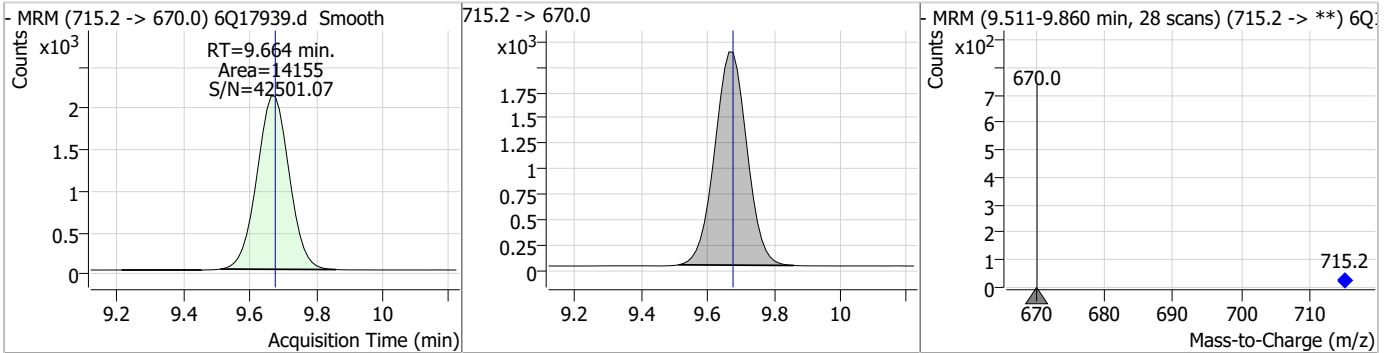
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	28.61	9.64	0.00	230867	498.1 -> 478.0	2.8	1.2	3.7



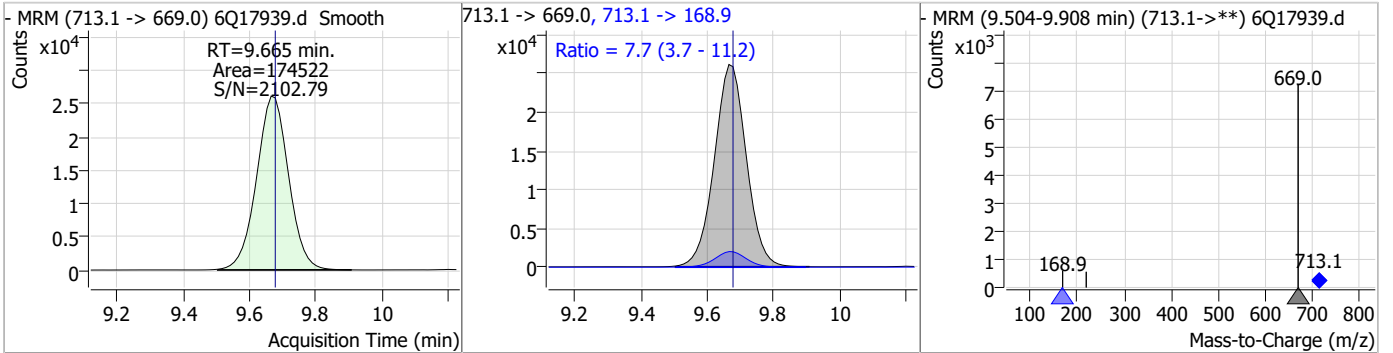
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.57	9.64	-0.01	21559				



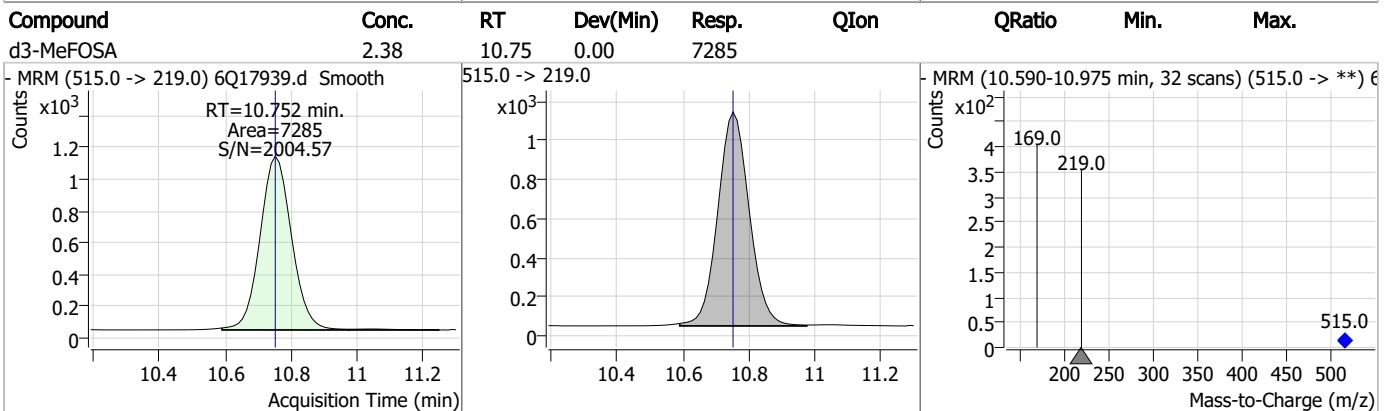
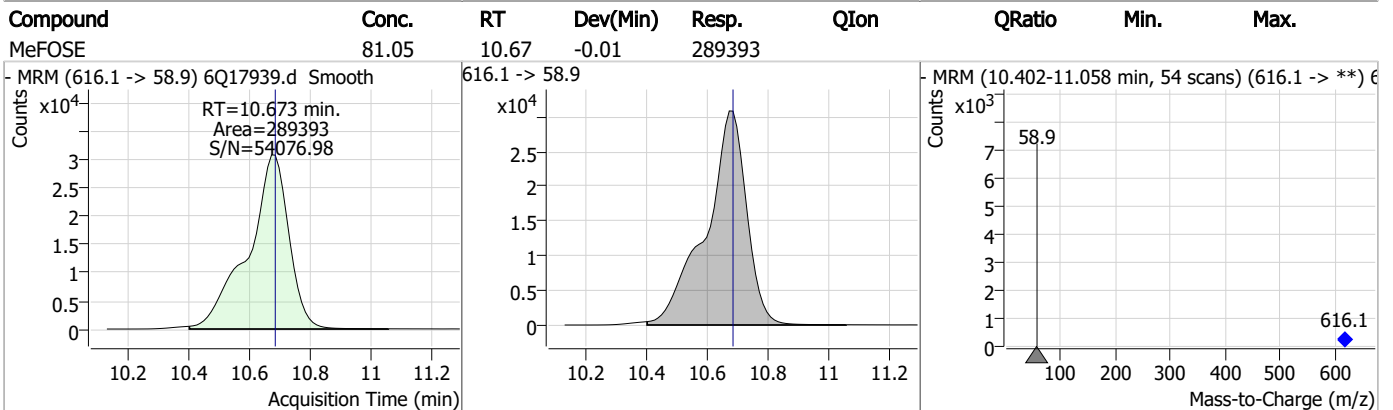
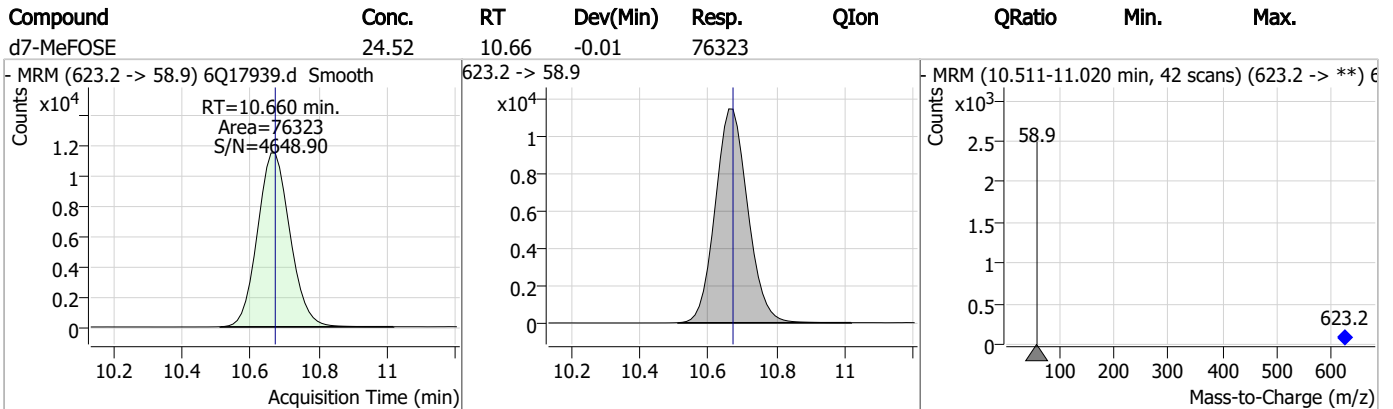
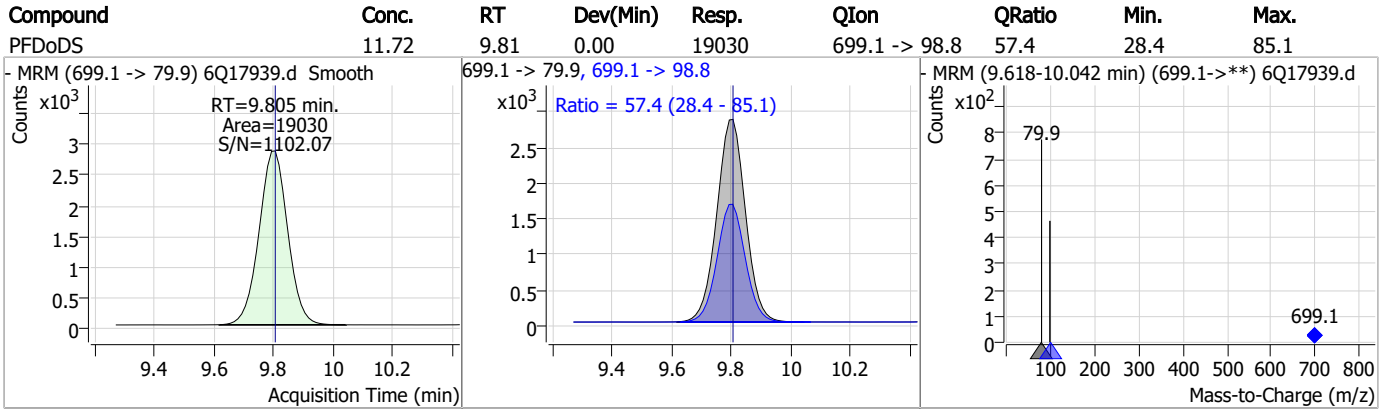
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.66	-0.01	14155				



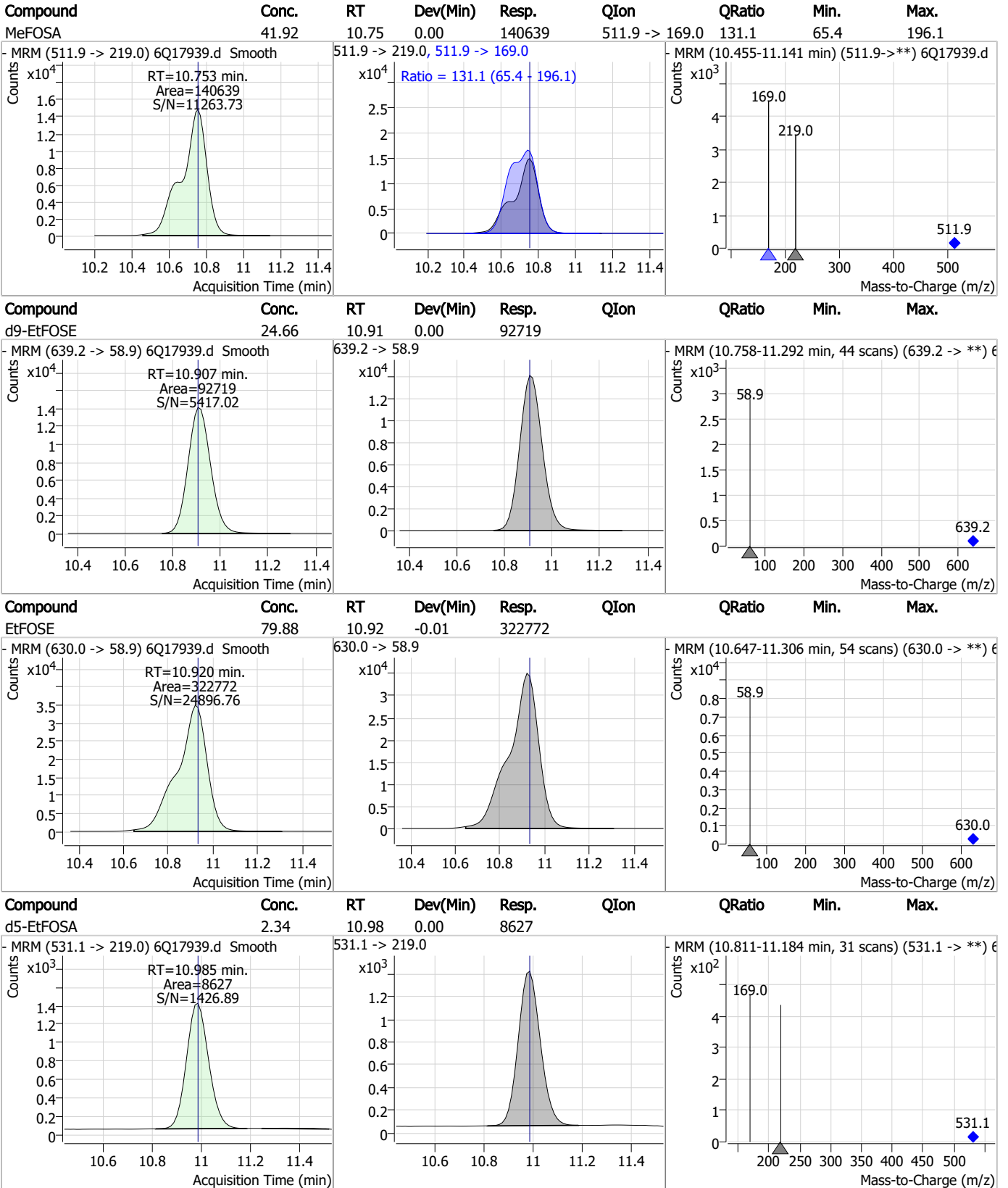
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.04	9.66	-0.01	174522	713.1 -> 168.9	7.7	3.7	11.2



Perfluorinated Compounds by LC/MS/MS



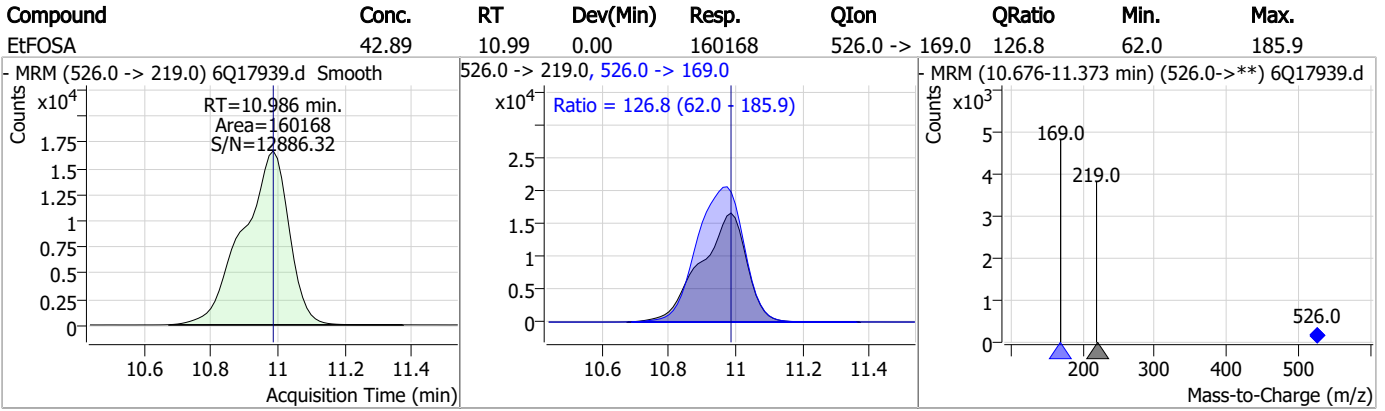
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S6Q271-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17939.D Analyst approved: 05/18/23 14:21 Martha Valls
Injection Time: 05/17/23 12:41 Supervisor approved: 05/19/23 14:22 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.05	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
Perfluorononanoic acid	375-95-1		7.45	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak

7.6.4.1
7

QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 08 May 2023 11:20:06
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.78E+0 [R] (Torr); 2.89E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	220
Gas Flow (l/min)	14
Nebulizer (psi)	20
Capillary (V)	3000
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	11

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	112.91	-0.08	Pass	0.70	0.72	0.02	Pass	516372
302.00	301.93	-0.07	Pass	0.70	0.70	0.00	Pass	1505403
601.98	601.91	-0.07	Pass	0.70	0.70	0.00	Pass	3546345
1033.99	1033.91	-0.08	Pass	0.70	0.67	-0.03	Pass	1119463
1633.95	1633.76	-0.19	Pass	0.70	0.66	-0.04	Pass	945818
2233.91	2233.62	-0.29	Pass	0.70	0.70	0.00	Pass	381101

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.02	0.02	Pass	0.70	0.72	0.02	Pass	135245
112.99	112.97	-0.02	Pass	0.70	0.75	0.05	Pass	523602
302.00	301.94	-0.06	Pass	0.70	0.65	-0.05	Pass	1126783
601.98	601.94	-0.04	Pass	0.70	0.62	-0.08	Pass	2605917
1033.99	1033.85	-0.14	Pass	0.70	0.76	0.06	Pass	662914
1633.95	1633.75	-0.20	Pass	0.70	0.77	0.07	Pass	773365
2233.91	2233.63	-0.28	Pass	0.70	0.79	0.09	Pass	309345

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.97	-0.02	Pass	1.20	1.32	0.12	Pass	599995
302.00	301.91	-0.09	Pass	1.20	1.48	0.28	Pass	1925067
601.98	601.92	-0.06	Pass	1.20	1.66	0.46	Pass	4768833
1033.99	1033.90	-0.09	Pass	1.20	1.53	0.33	Pass	1976669
1633.95	1633.66	-0.29	Pass	1.20	1.45	0.25	Pass	2196261
2233.91	2233.81	-0.10	Pass	1.20	1.63	0.43	Pass	1010126

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.06	0.06	Pass	1.20	1.15	-0.05	Pass	177581
112.99	113.01	0.02	Pass	1.20	1.23	0.03	Pass	689078
302.00	301.97	-0.03	Pass	1.20	1.24	0.04	Pass	1407633
601.98	601.98	0.00	Pass	1.20	1.43	0.23	Pass	4109819
1033.99	1033.91	-0.08	Pass	1.20	1.27	0.07	Pass	1290979
1633.95	1633.84	-0.11	Pass	1.20	1.31	0.11	Pass	1324536
2233.91	2233.64	-0.27	Pass	1.20	1.11	-0.09	Pass	557784

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.06	0.07	Pass	2.50	2.35	-0.15	Pass	635850
302.00	301.94	-0.06	Pass	2.50	2.42	-0.08	Pass	2094027
601.98	601.91	-0.07	Pass	2.50	2.45	-0.05	Pass	5897513
1033.99	1033.93	-0.06	Pass	2.50	2.26	-0.24	Pass	2763390
1633.95	1633.83	-0.12	Pass	2.50	2.06	-0.44	Pass	3082145
2233.91	2233.42	-0.49	Pass	2.50	1.78	-0.72	Pass	1770384

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.92	-0.08	Pass	2.50	2.48	-0.02	Pass	223632
112.99	112.90	-0.09	Pass	2.50	2.61	0.11	Pass	937832
302.00	301.95	-0.05	Pass	2.50	2.45	-0.05	Pass	2259618
601.98	601.93	-0.05	Pass	2.50	2.50	0.00	Pass	5449902
1033.99	1033.78	-0.21	Pass	2.50	2.36	-0.14	Pass	2075378
1633.95	1633.72	-0.23	Pass	2.50	2.40	-0.10	Pass	3128484
2233.91	2233.40	-0.51	Pass	2.50	2.09	-0.41	Pass	1513389

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17738.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 12:15:25 PM
 Sample Name : ic268-1
 Vial : P1-A2
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	161464	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	52007	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	58906	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	50693	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	68777	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	24320	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	17806	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	24685	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	23238	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	16444	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	22033	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	19040	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11863	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	10107	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1711	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2162	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2222	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	21829	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	34363	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	17237	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	80728	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	102609	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9635	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7390	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14169	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	68065	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8897	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	79996	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21648	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	28487	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	47474	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1711	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2162	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2222	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFDoDA	8.949	615.1 -> 570.0	23238	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-PFTeDA	9.677	715.2 -> 670.0	16444	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C3-PFBS	5.397	302.1 -> 79.9	19040	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	11863	2.50 µg/L	0.012

7.7.2
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 = 100.1%	
13C4-PFBA	2.901	216.8 -> 171.9	161464	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.420	367.1 -> 322.0	50693	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFHxA	5.466	318.0 -> 273.0	58906	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFPeA	4.272	268.3 -> 223.0	52007	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C6-PFDA	8.076	519.1 -> 474.1	17806	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	8.518	570.0 -> 525.1	24685	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C8-FOSA	9.648	506.1 -> 77.8	22033	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-PFOA	7.064	421.1 -> 376.0	68777	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C8-PFOS	8.226	507.1 -> 79.9	10107	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C9-PFNA	7.595	472.1 -> 427.0	24320	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	21829	4.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	34363	9.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
d3-MeFOSA	10.752	515.0 -> 219.0	7390	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.3%	
d5-EtFOSAA	8.329	589.2 -> 419.0	17237	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d7-MeFOSE	10.672	623.2 -> 58.9	80728	23.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	102609	24.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	9635	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	1822	0.71 µg/L	99
		327.1 -> 80.9	695		
6:2FTS	6.838	427.1 -> 407.0	1735	0.74 µg/L	98
		427.1 -> 80.9	579		
8:2FTS	7.865	527.1 -> 507.0	1107	0.88 µg/L	95
		527.1 -> 80.8	417		
EtFOSAA	8.330	584.2 -> 419.1	762	0.24 µg/L	m 87
		584.2 -> 526.0	333		
FOSA	9.639	498.1 -> 77.9	1622	0.20 µg/L	# 96
		498.1 -> 478.0	61		
MeFOSAA	8.134	570.1 -> 419.0	717	0.17 µg/L	96
		570.1 -> 483.0	154		
PFBA	2.907	212.8 -> 168.9	4409	0.76 µg/L	100
PFBS	5.398	298.7 -> 79.9	1596	0.17 µg/L	95
		298.7 -> 98.8	633		
PFDA	8.064	512.9 -> 469.0	4257	0.19 µg/L	96
		512.9 -> 219.0	626		
PFDODA	8.950	613.1 -> 569.0	3839	0.21 µg/L	98
		613.1 -> 319.0	495		
PFDS	9.113	599.0 -> 79.9	665	0.20 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	320			
PFHpA	6.420	363.1 -> 319.0	4990	0.20	µg/L	100
		363.1 -> 169.0	822			
PFHpS	7.735	449.0 -> 79.9	995	0.18	µg/L	88
		449.0 -> 98.9	602			
PFHxA	5.469	313.0 -> 269.0	4704	0.20	µg/L	100
		313.0 -> 118.9	231			
PFHxS	7.180	398.7 -> 79.9	1202	0.18	µg/L	m 94
		398.7 -> 98.9	545			
PFNA	7.584	463.0 -> 419.0	3536	0.20	µg/L	98
		463.0 -> 219.0	750			
PFNS	8.693	548.8 -> 79.9	966	0.20	µg/L	88
		548.8 -> 98.9	478			
PFOA	7.066	413.0 -> 369.0	6591	0.19	µg/L	99
		413.0 -> 169.0	1074			
PFOS	8.228	498.9 -> 79.9	955	0.18	µg/L	m 91
		498.9 -> 98.8	450			
PFPeA	4.274	263.0 -> 219.0	5732	0.38	µg/L	100
PFPeS	6.471	349.1 -> 79.9	1104	0.17	µg/L	99
		349.1 -> 98.9	506			
PFTeDA	9.677	713.1 -> 669.0	3323	0.20	µg/L	98
		713.1 -> 168.9	269			
PFTrDA	9.333	663.0 -> 619.0	3986	0.19	µg/L	95
		663.0 -> 168.9	385			
PFUnDA	8.518	563.1 -> 519.0	3179	0.18	µg/L	95
		563.1 -> 269.1	574			
11CI-PF3OUdS	9.385	630.9 -> 450.9	4649	0.36	µg/L	85
		632.9 -> 452.9	1650			
9CI-PF3ONS	8.557	530.8 -> 351.0	7138	0.34	µg/L	84
		532.8 -> 353.0	2652			
ADONA	6.671	376.9 -> 250.9	19995	0.37	µg/L	94
		376.9 -> 84.8	5300			
HFPO-DA	5.845	284.9 -> 168.9	1392	0.42	µg/L	98
		284.9 -> 184.9	204			
3:3FTCA	3.777	241.0 -> 177.0	894	0.96	µg/L	m 99
		241.0 -> 117.0	118			
5:3FTCA	6.161	341.0 -> 237.1	21287	5.27	µg/L	87
		341.0 -> 217.0	13178			
7:3FTCA	7.586	441.0 -> 316.9	8962	4.89	µg/L	97
		441.0 -> 336.9	19170			
EtFOSA	10.986	526.0 -> 219.0	1703	0.41	µg/L	98
		526.0 -> 169.0	2072			
EtFOSE	10.932	630.0 -> 58.9	4227	0.95	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	1441	0.42	µg/L	m 99
		511.9 -> 169.0	1907			
MeFOSE	10.686	616.1 -> 58.9	3843	1.02	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	306	0.18	µg/L	78
		699.1 -> 98.8	223			
NFDHA	5.348	295.0 -> 201.0	1028	0.40	µg/L	96
		295.0 -> 84.9	306			
PFMBA	4.688	279.0 -> 85.1	4050	0.38	µg/L	100
PFMPA	3.442	229.0 -> 84.9	2931	0.38	µg/L	100
PFEESA	5.938	314.8 -> 134.9	10632	0.34	µg/L	98
		314.8 -> 82.9	319			

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

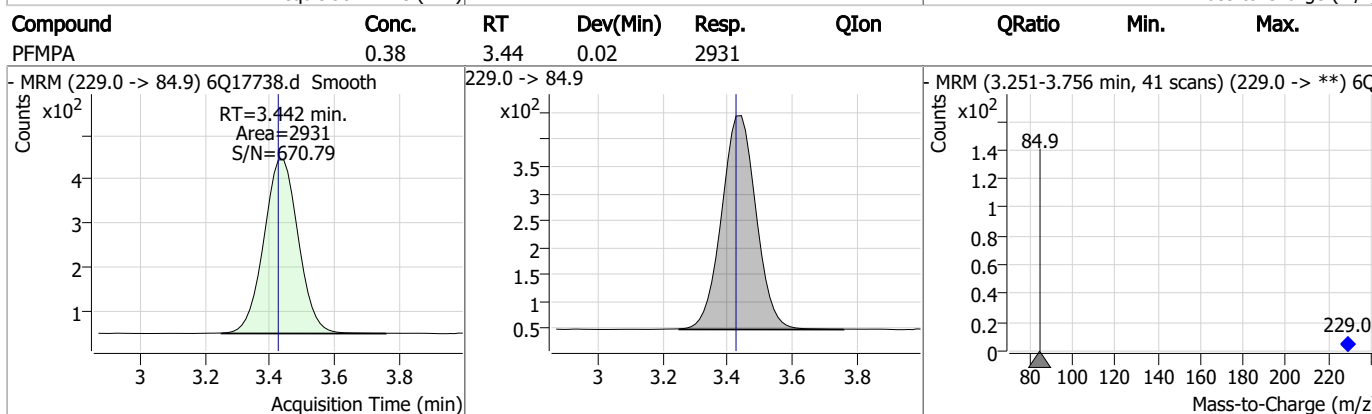
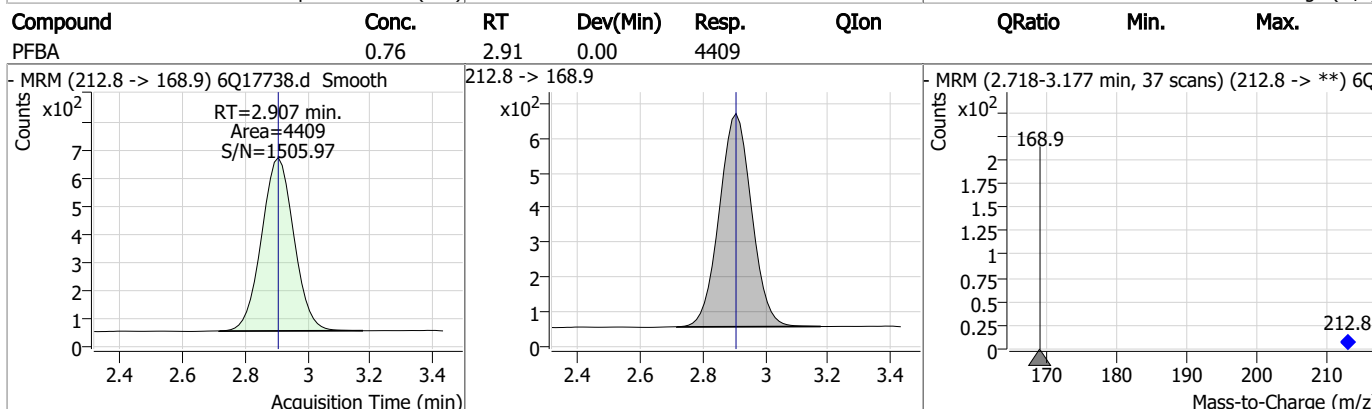
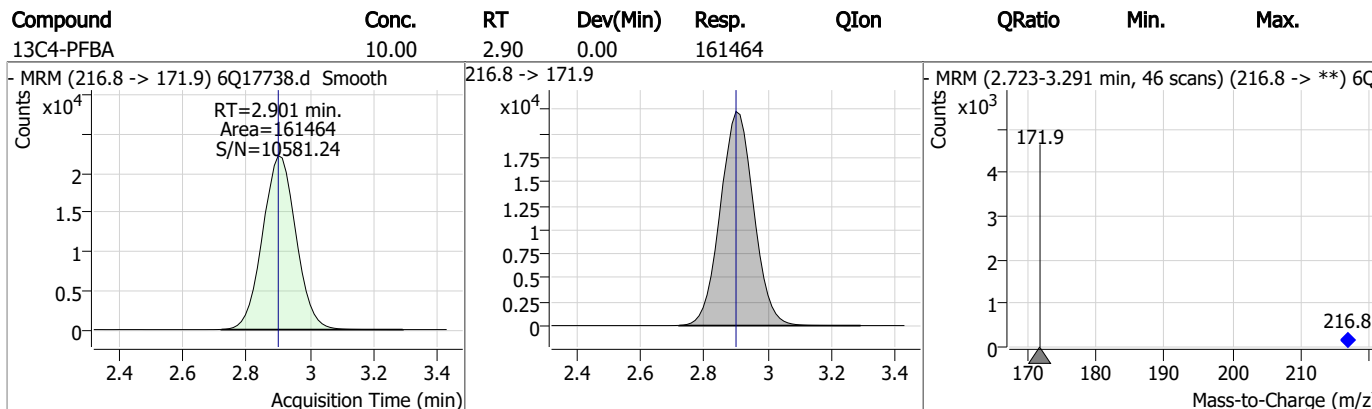
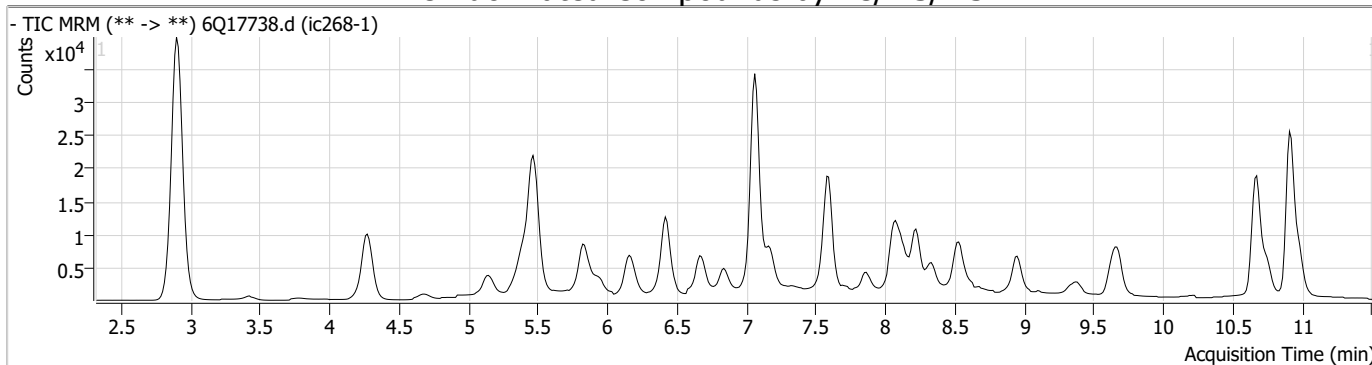
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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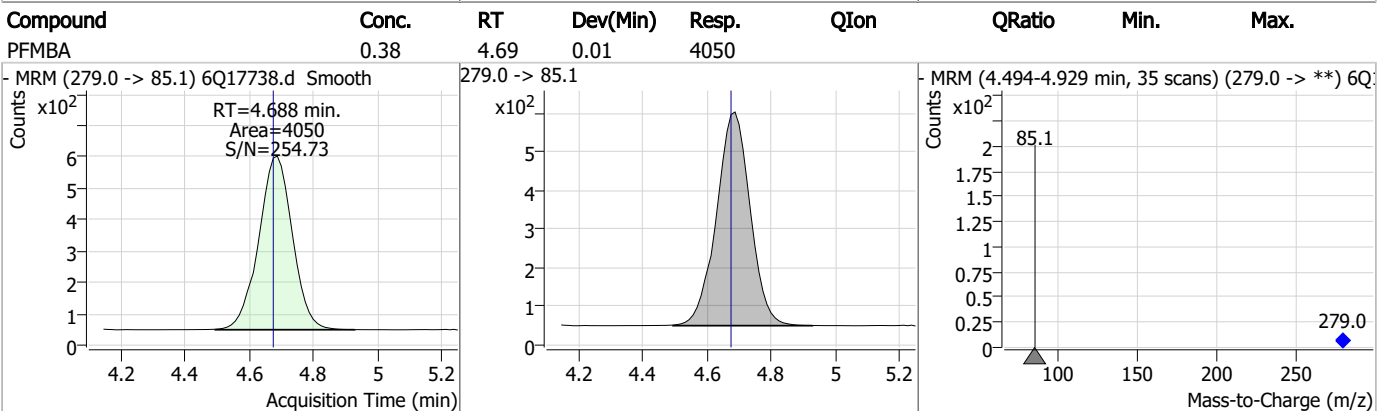
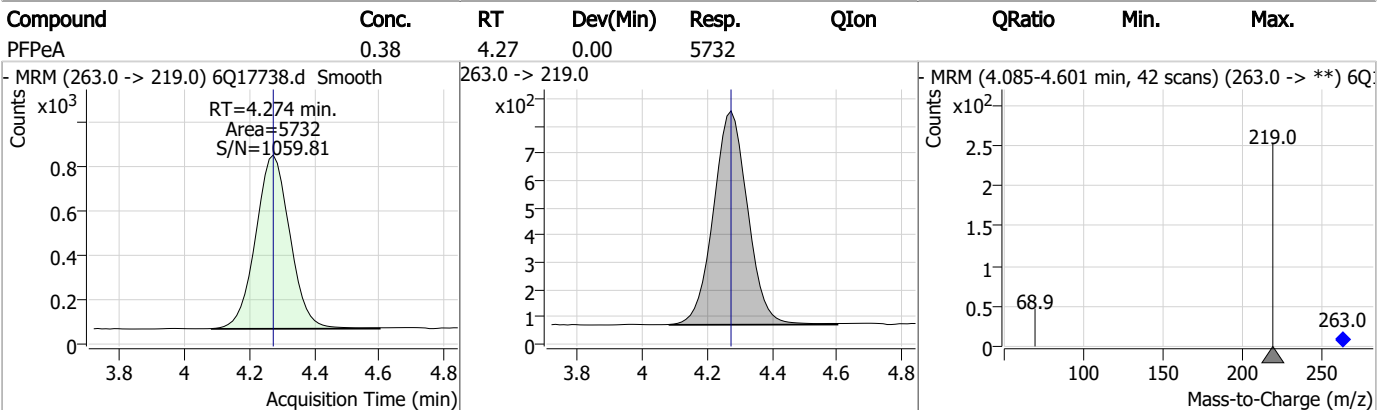
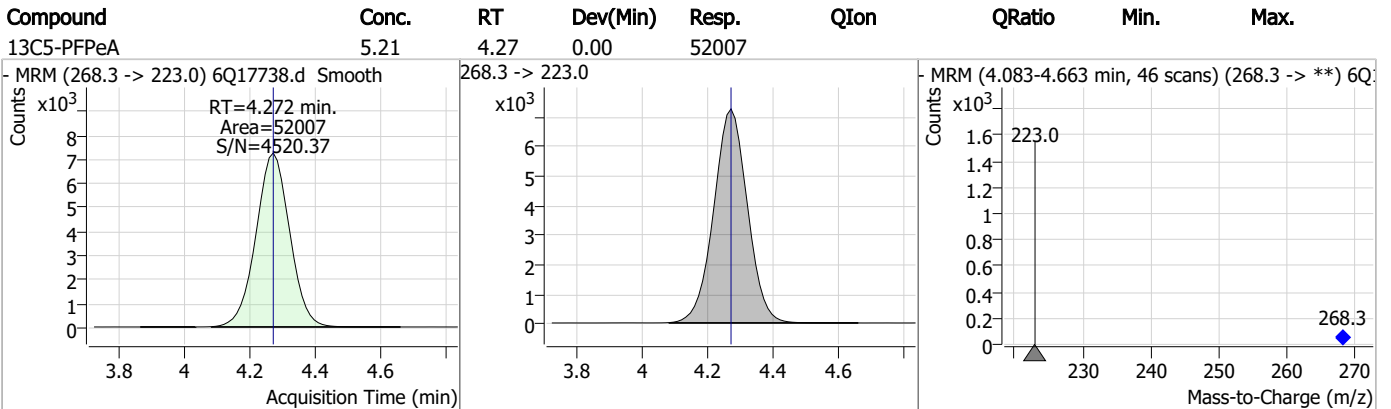
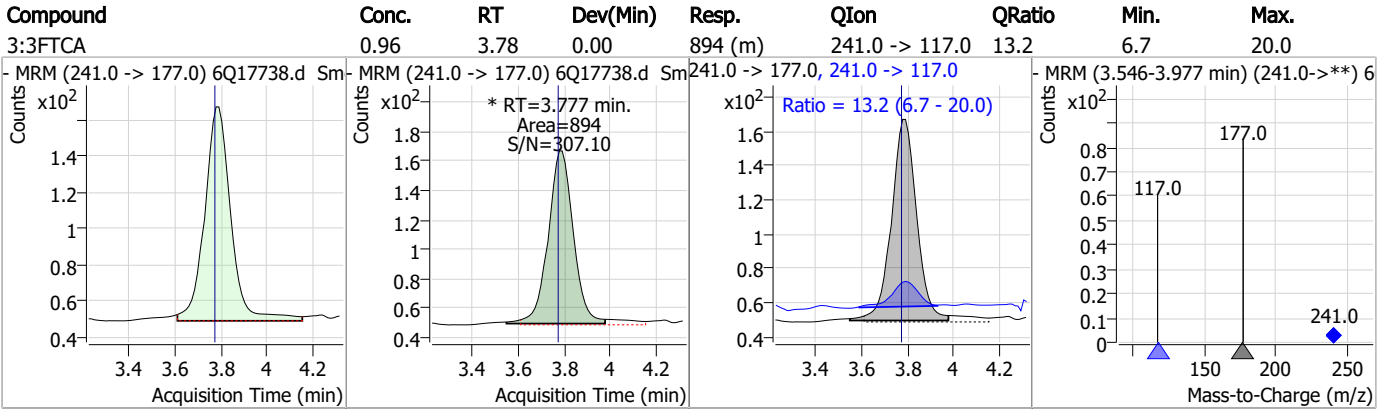
7.7.2
7



Perfluorinated Compounds by LC/MS/MS



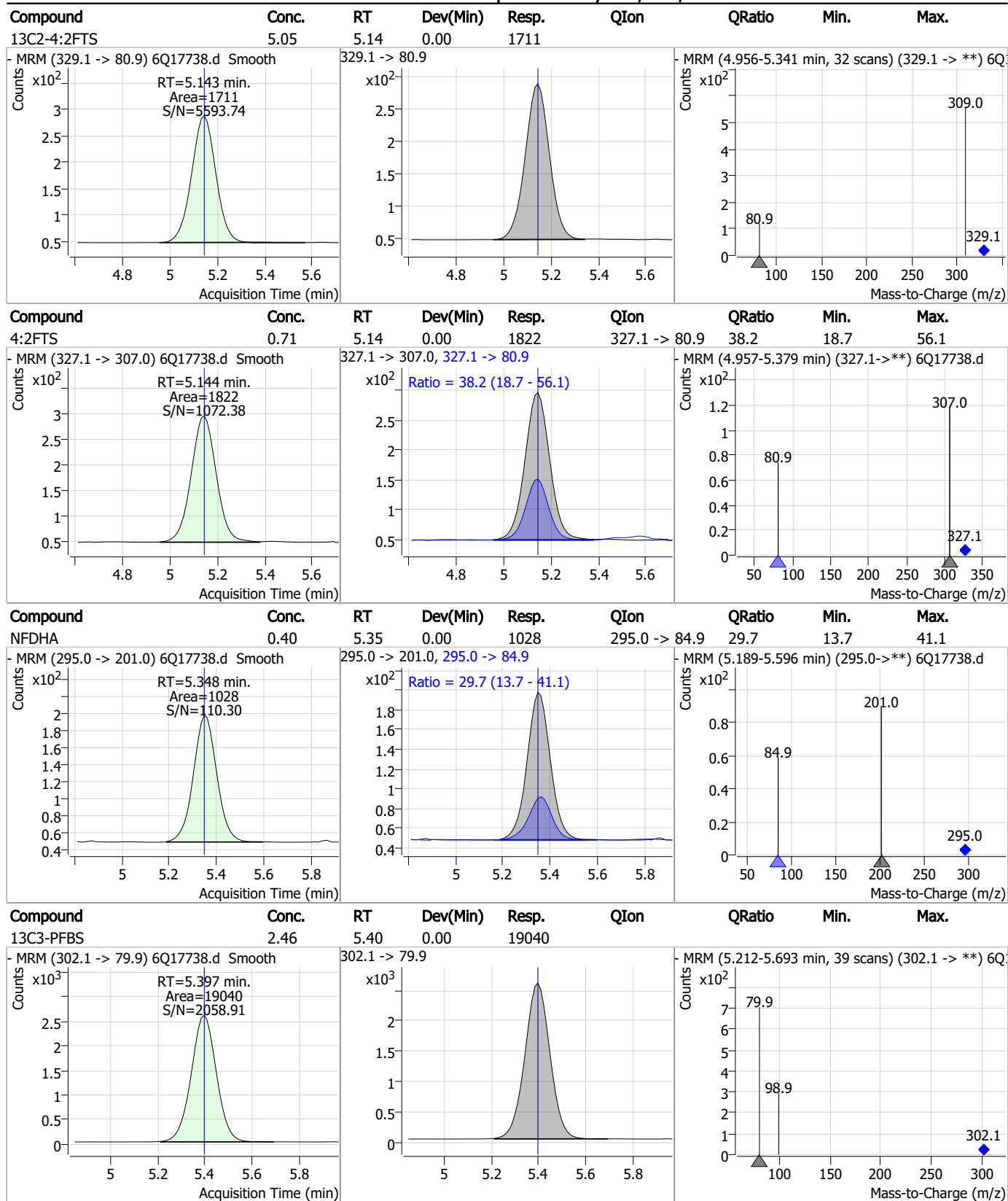
Perfluorinated Compounds by LC/MS/MS



7.7.2

7

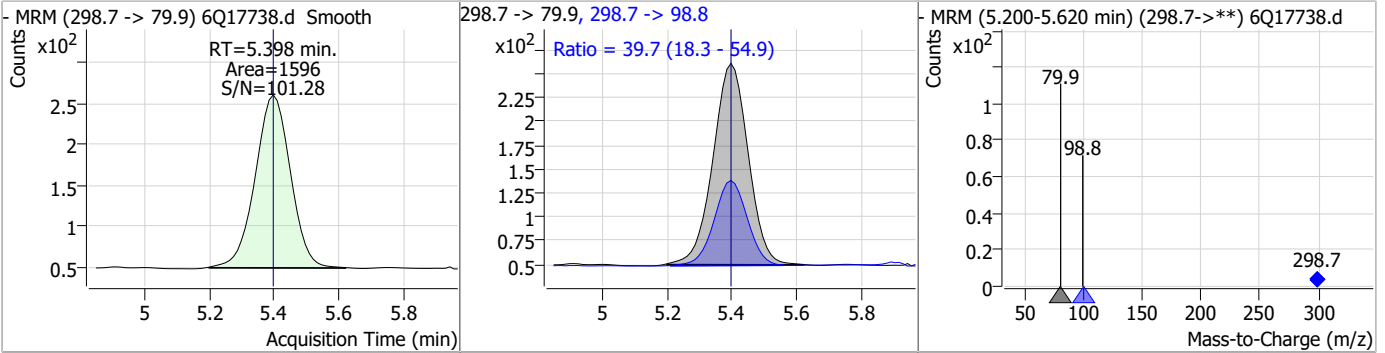
Perfluorinated Compounds by LC/MS/MS



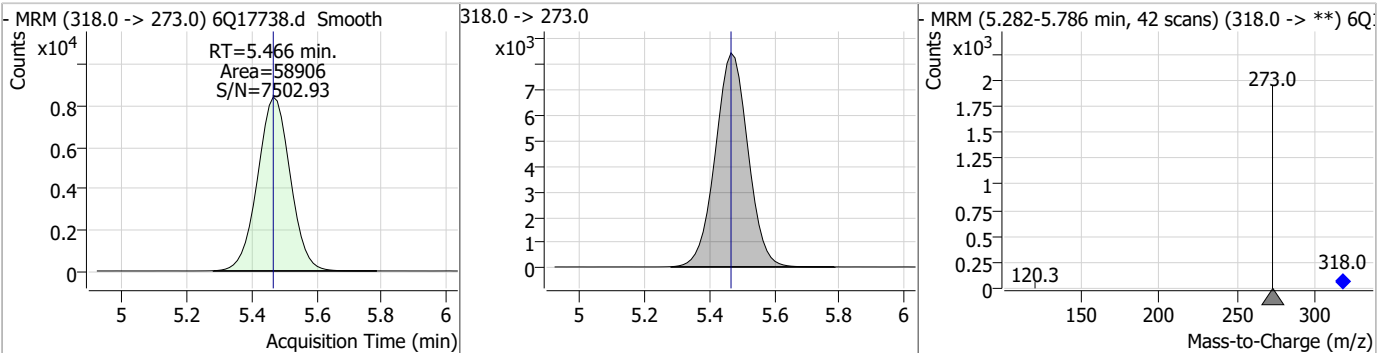
7.7.2
7

Perfluorinated Compounds by LC/MS/MS

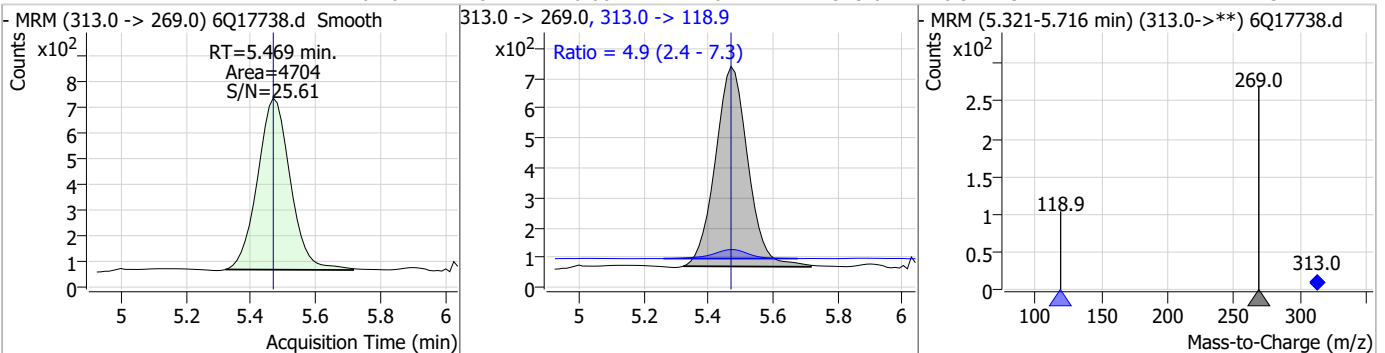
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.40	0.00	1596	298.7 -> 98.8	39.7	18.3	54.9



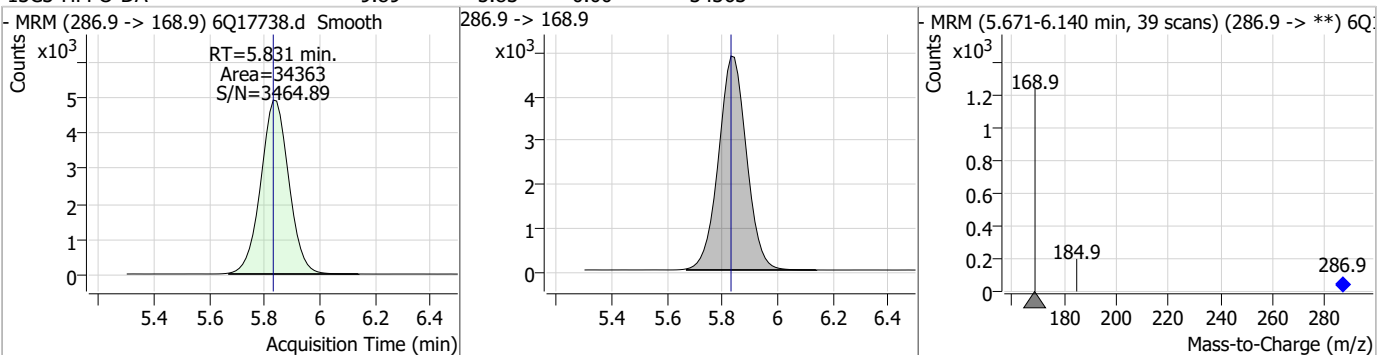
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.62	5.47	0.00	58906				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.20	5.47	0.00	4704	313.0 -> 118.9	4.9	2.4	7.3

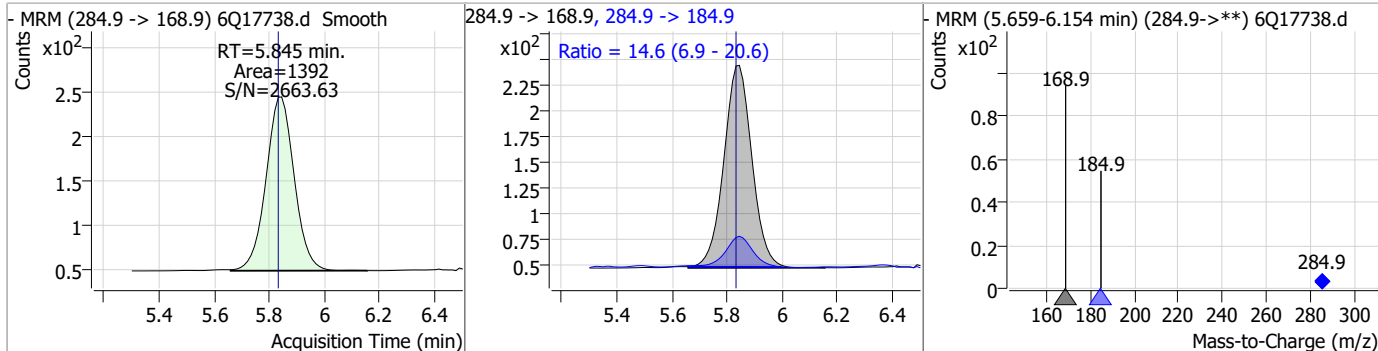


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.89	5.83	0.00	34363				

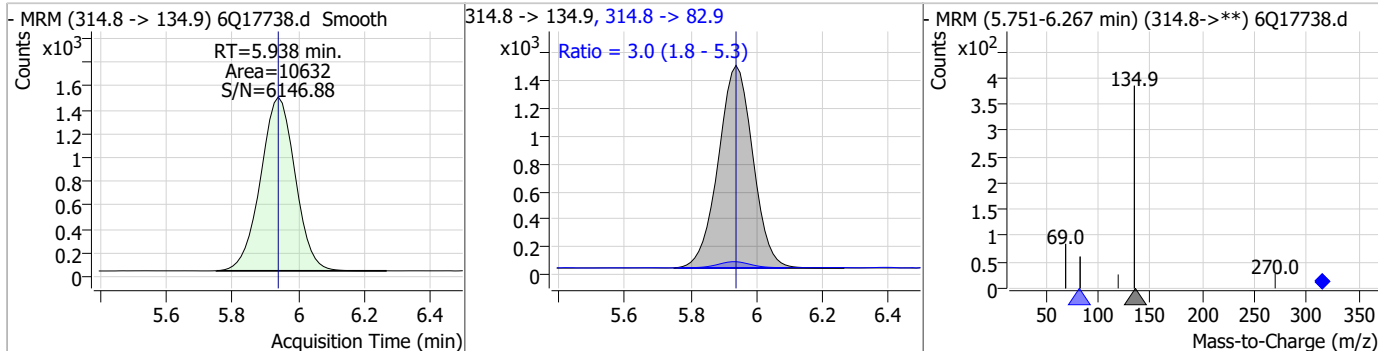


Perfluorinated Compounds by LC/MS/MS

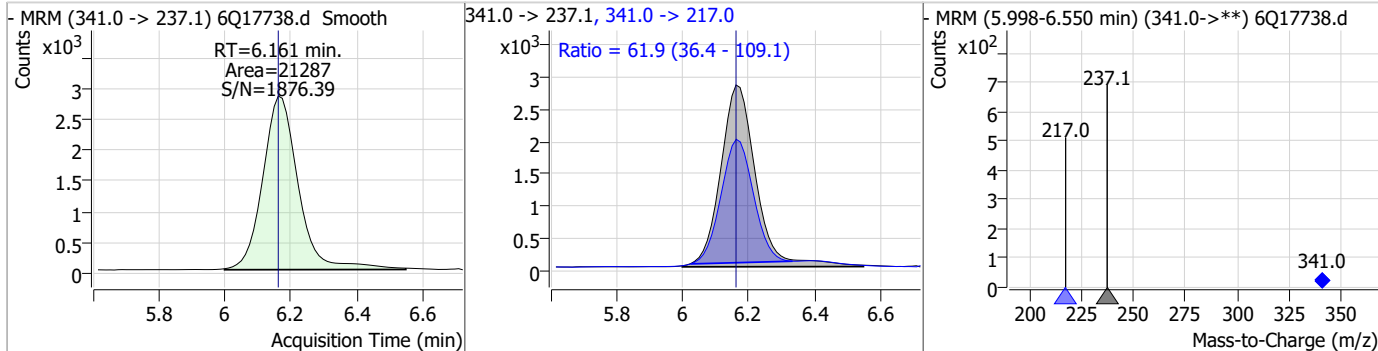
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.42	5.84	0.01	1392	284.9 -> 184.9	14.6	6.9	20.6



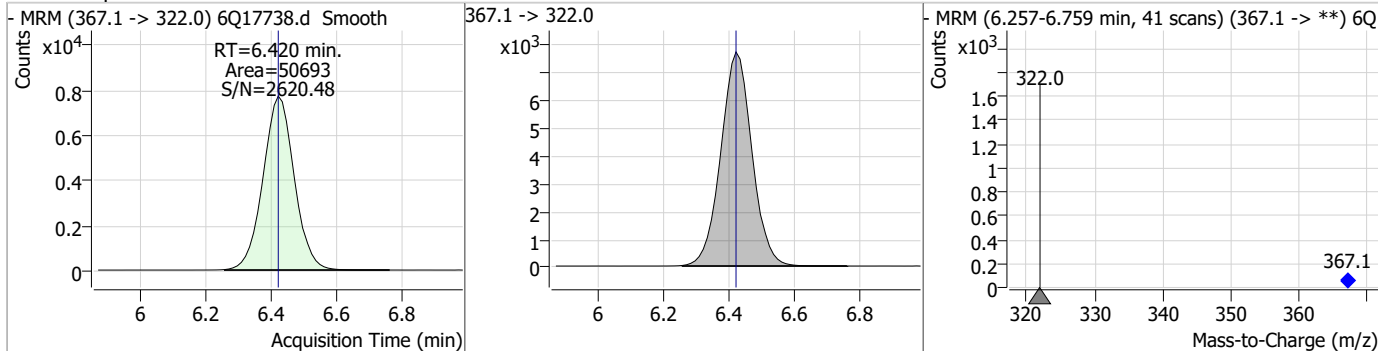
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.34	5.94	0.00	10632	314.8 -> 82.9	3.0	1.8	5.3



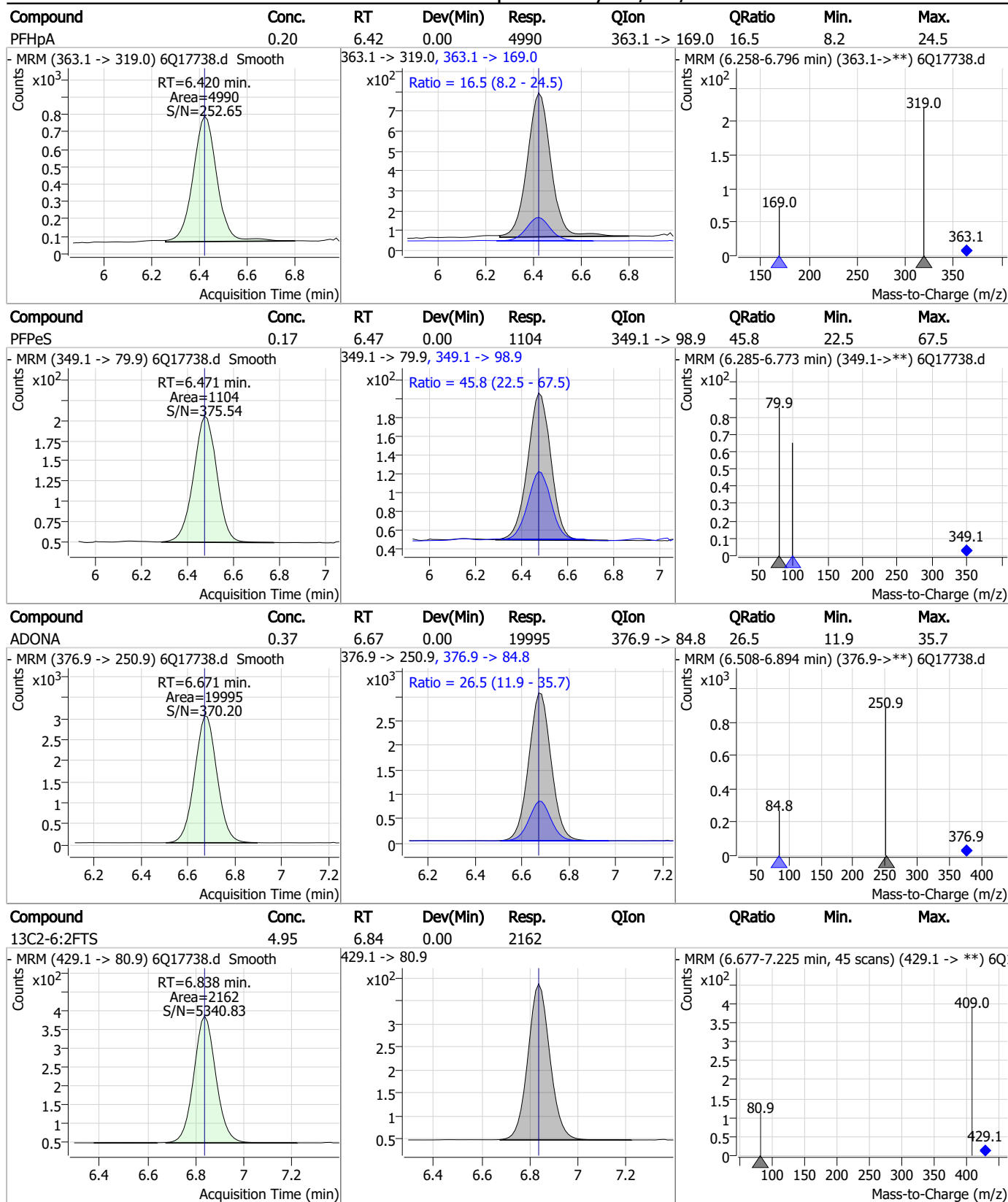
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.27	6.16	0.00	21287	341.0 -> 217.0	61.9	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.42	0.00	50693	367.1 -> 322.0			

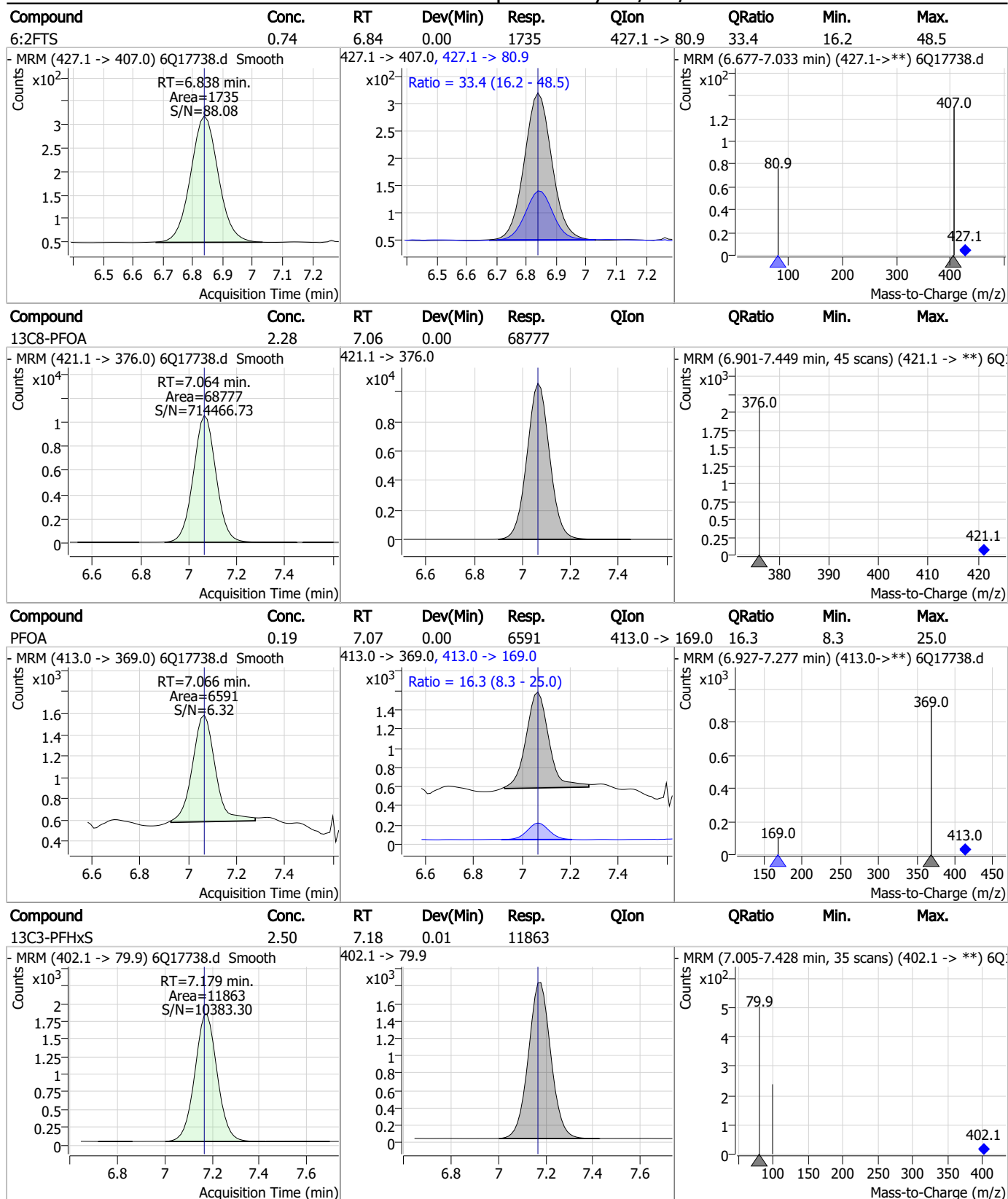


Perfluorinated Compounds by LC/MS/MS



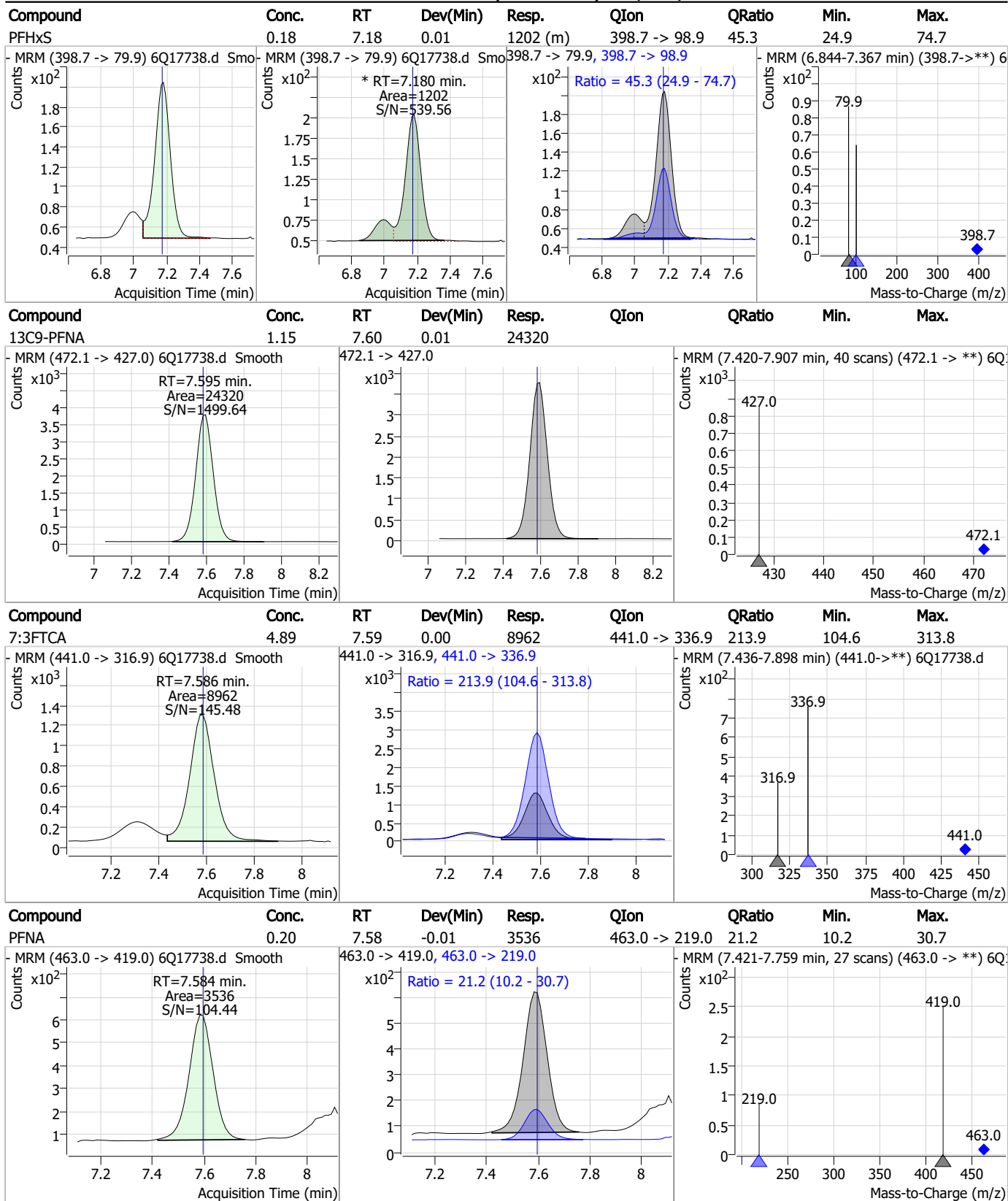
7.7.2
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Perfluorinated Compounds by LC/MS/MS



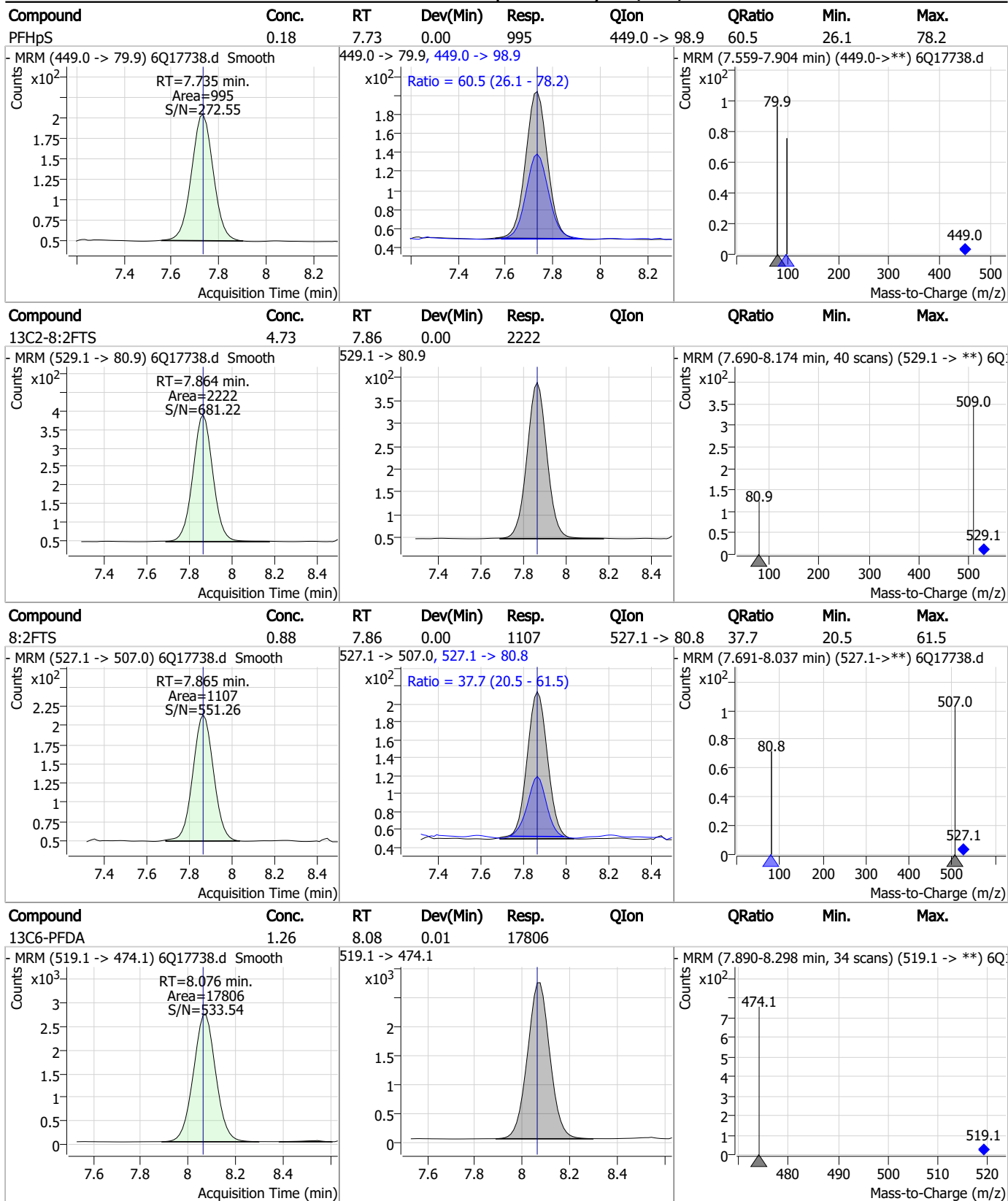
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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Perfluorinated Compounds by LC/MS/MS

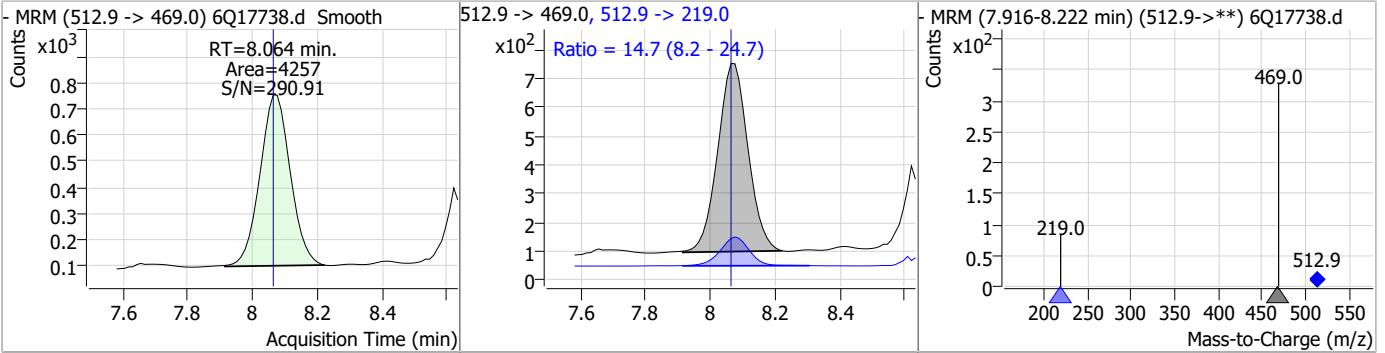


7.7.2
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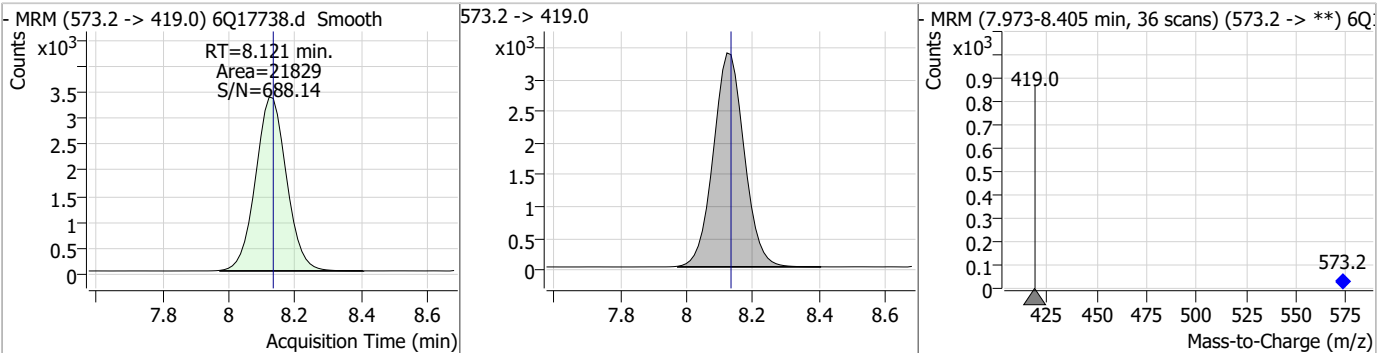


Perfluorinated Compounds by LC/MS/MS

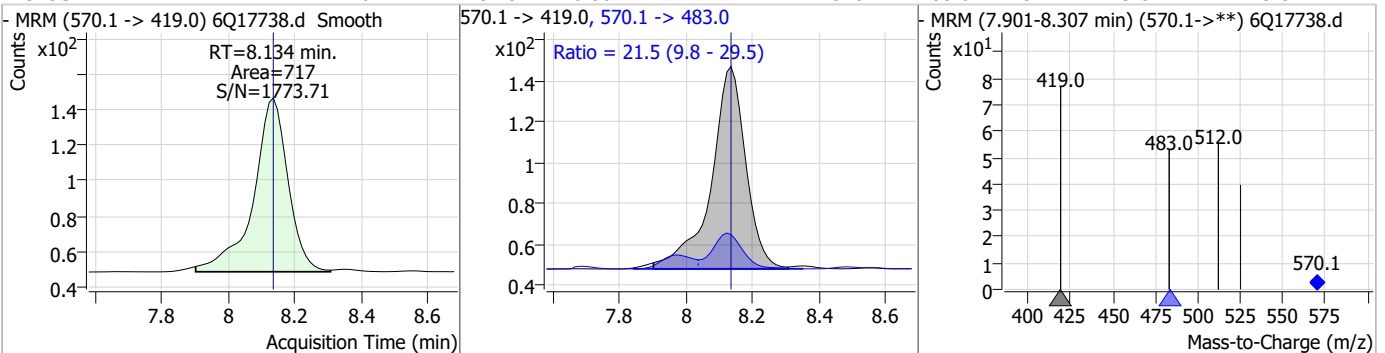
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.19	8.06	0.00	4257	512.9 -> 219.0	14.7	8.2	24.7



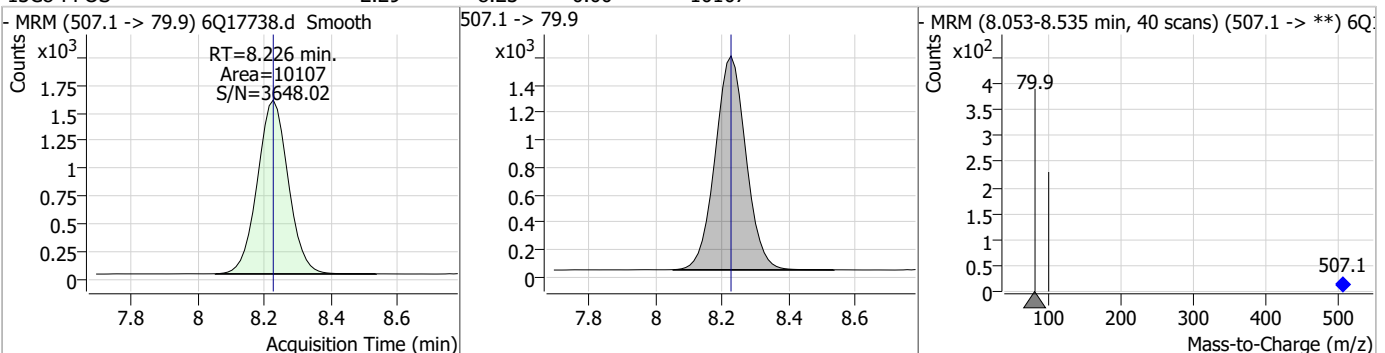
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.92	8.12	-0.01	21829				



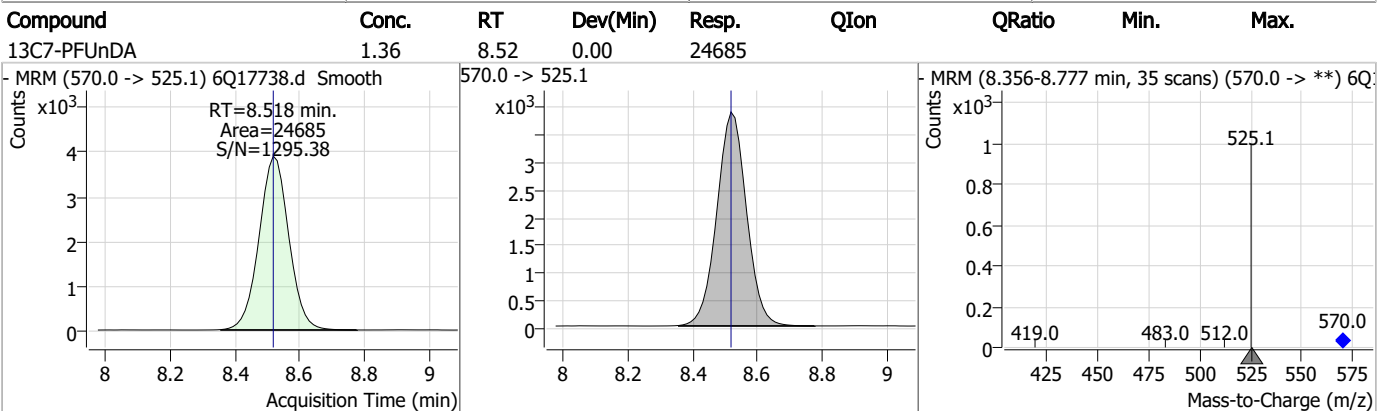
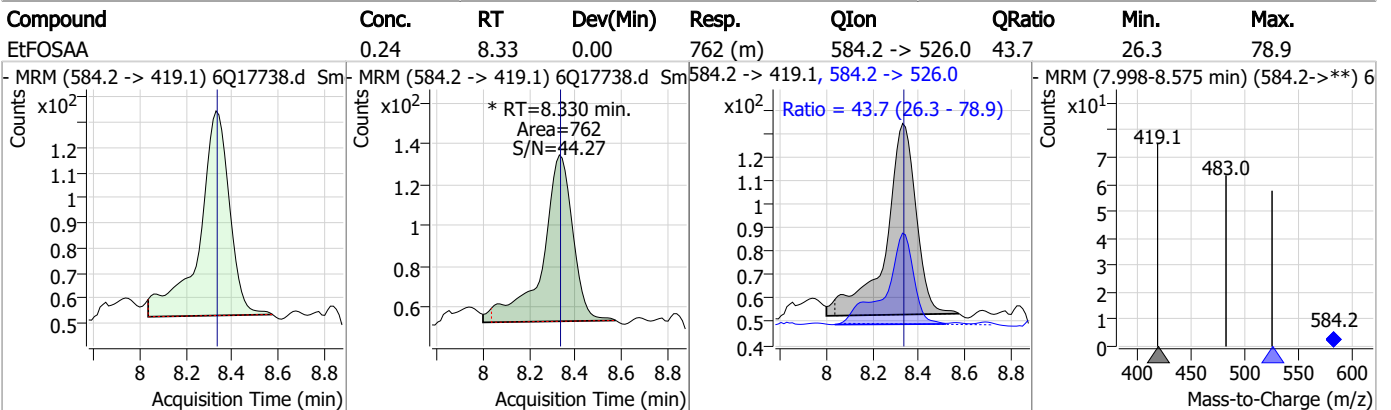
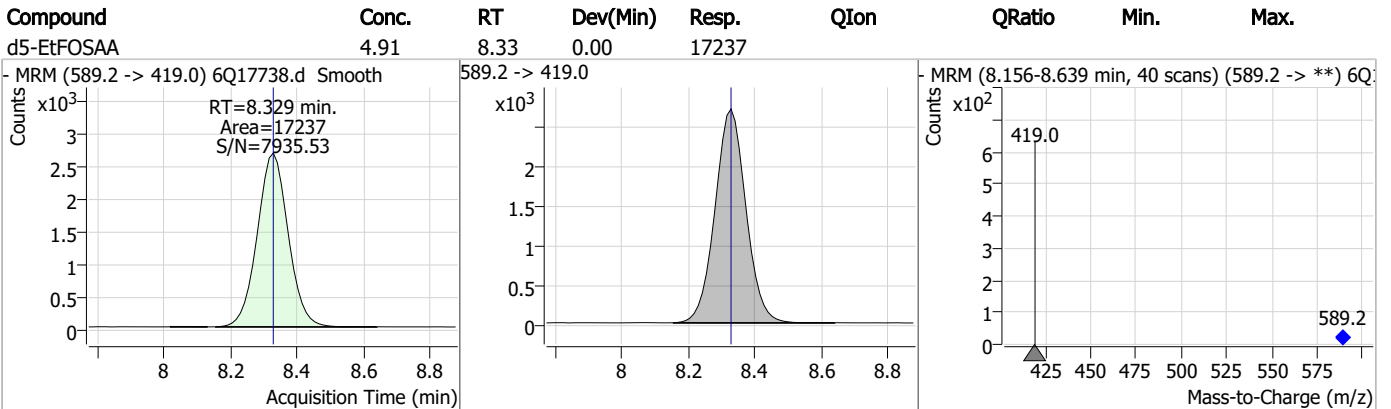
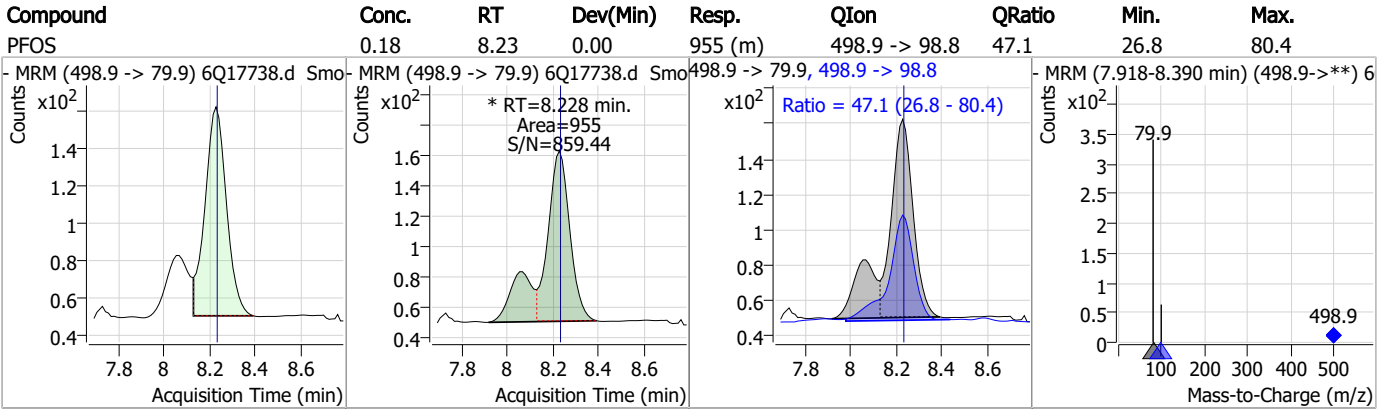
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.17	8.13	0.00	717	570.1 -> 483.0	21.5	9.8	29.5



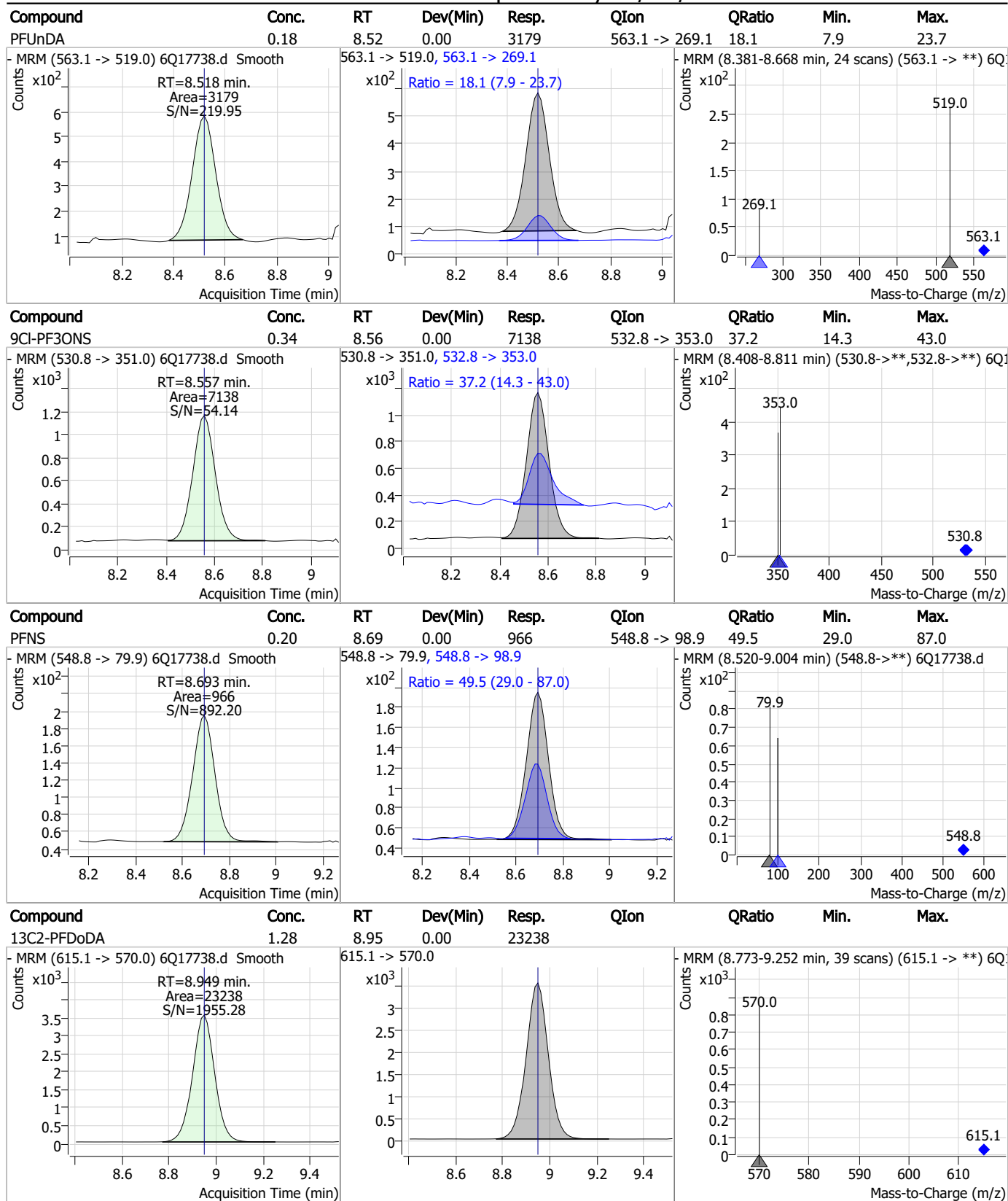
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.29	8.23	0.00	10107				



Perfluorinated Compounds by LC/MS/MS

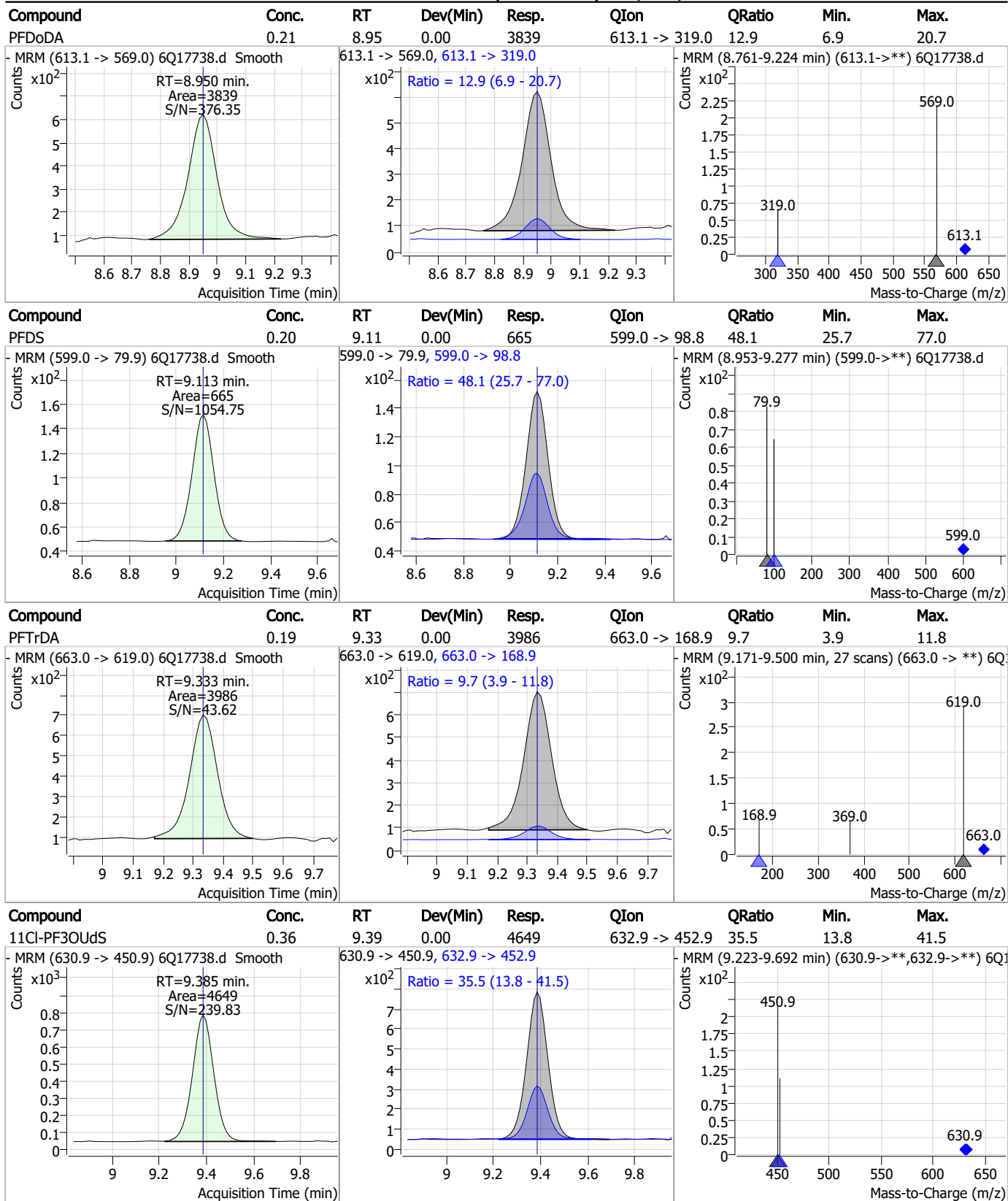


Perfluorinated Compounds by LC/MS/MS



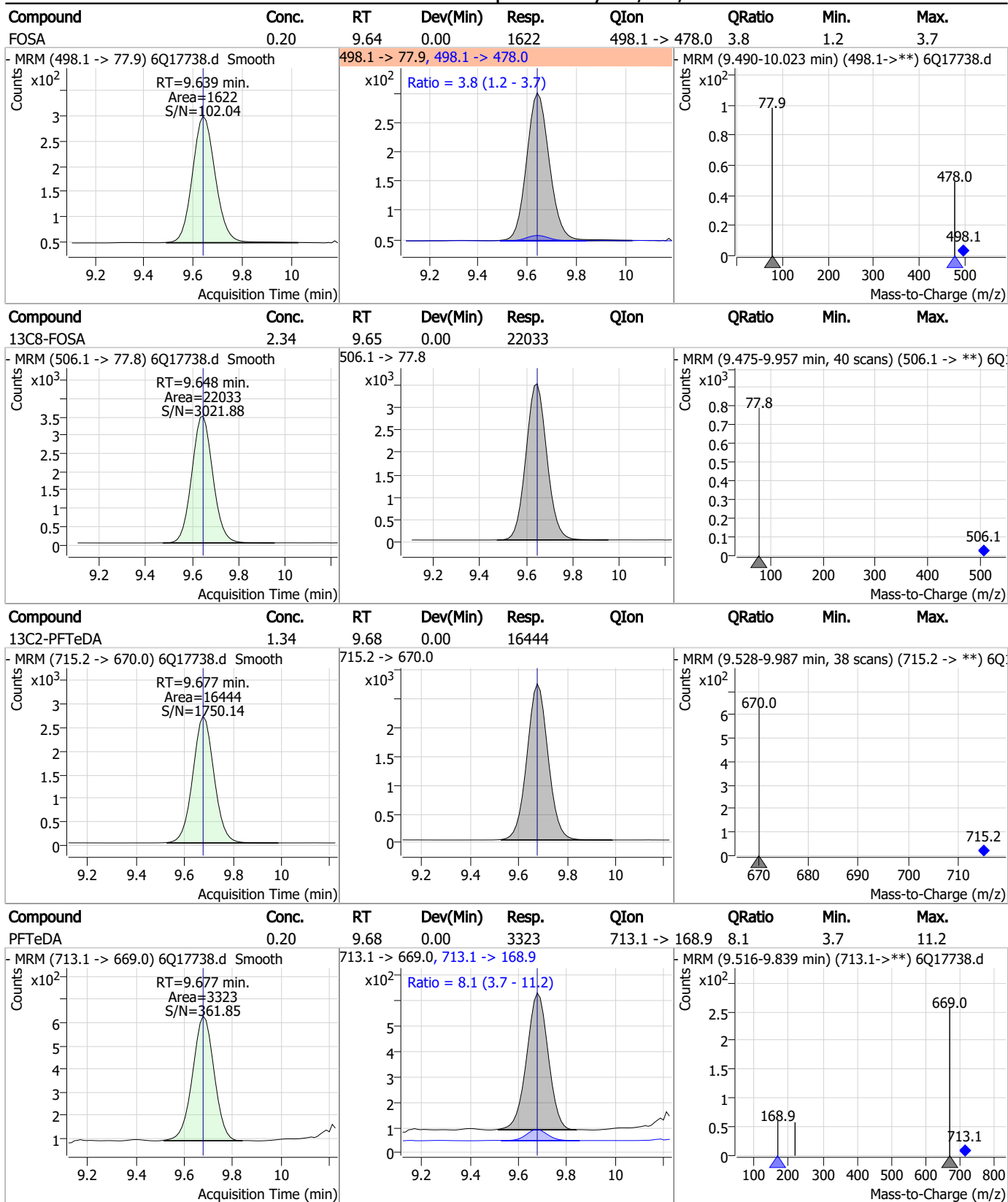
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
7

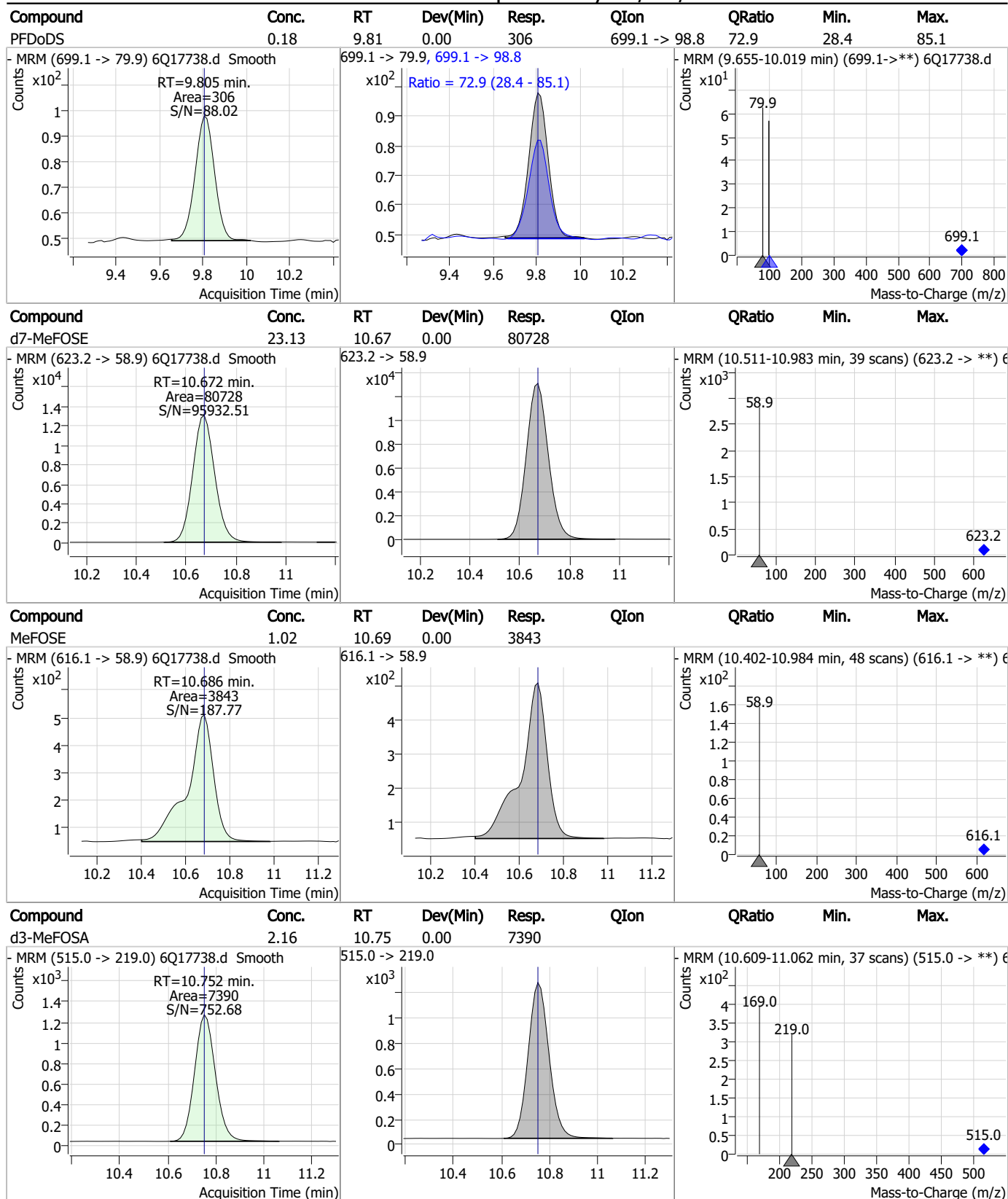
Perfluorinated Compounds by LC/MS/MS



7.7.2
7



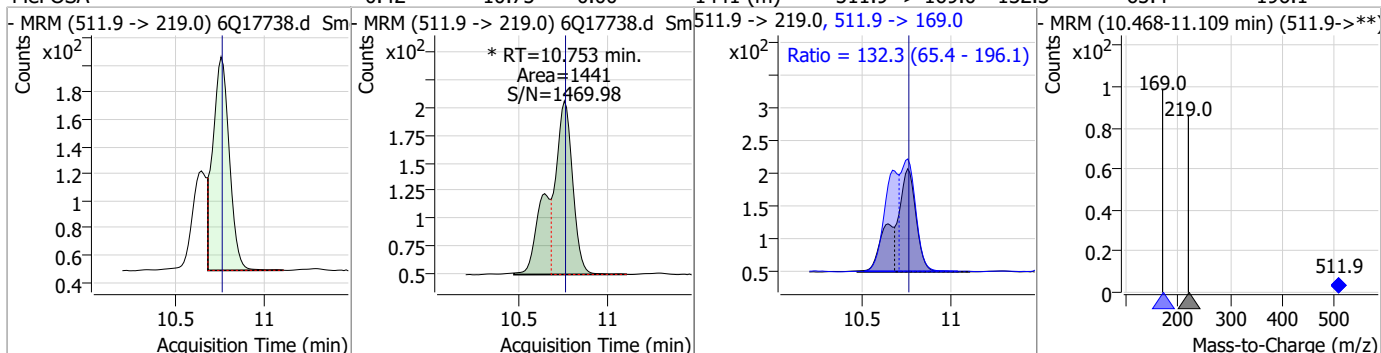
Perfluorinated Compounds by LC/MS/MS



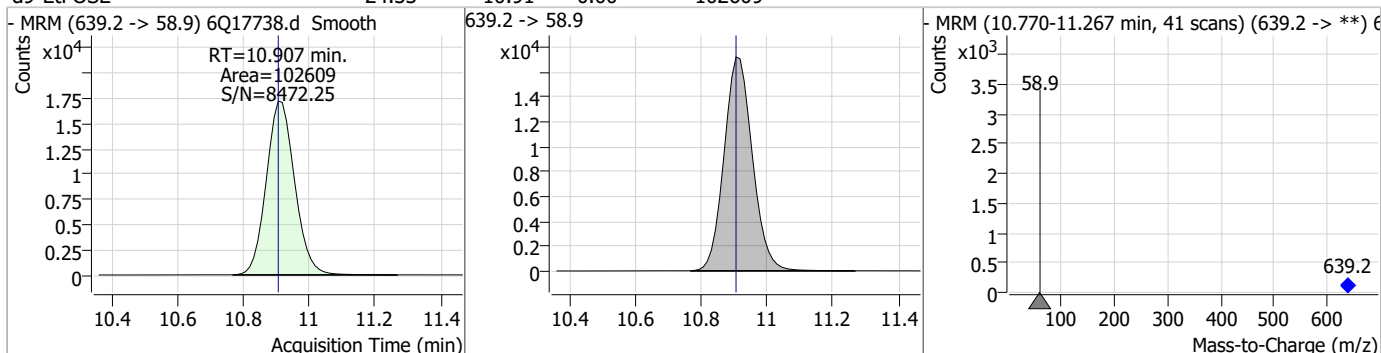
7.7.2
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Perfluorinated Compounds by LC/MS/MS

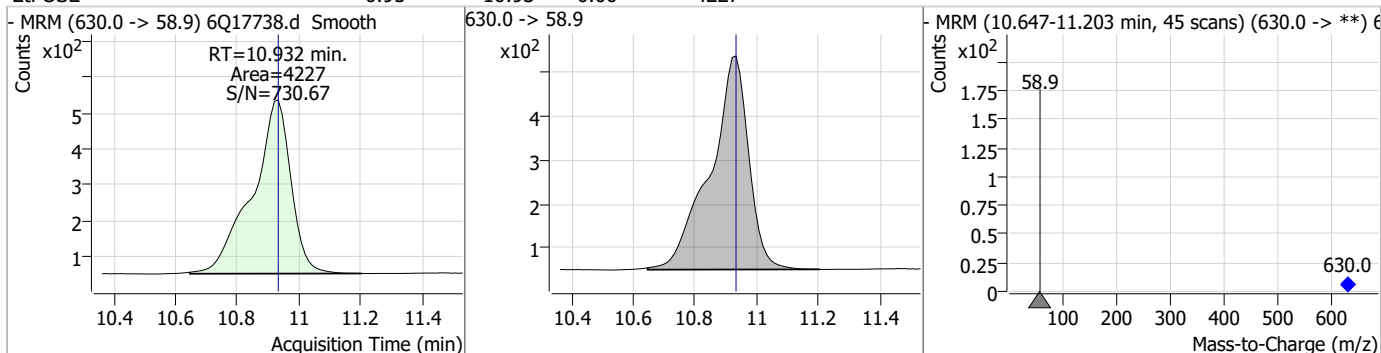
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.42	10.75	0.00	1441 (m)	511.9 -> 169.0	132.3	65.4	196.1



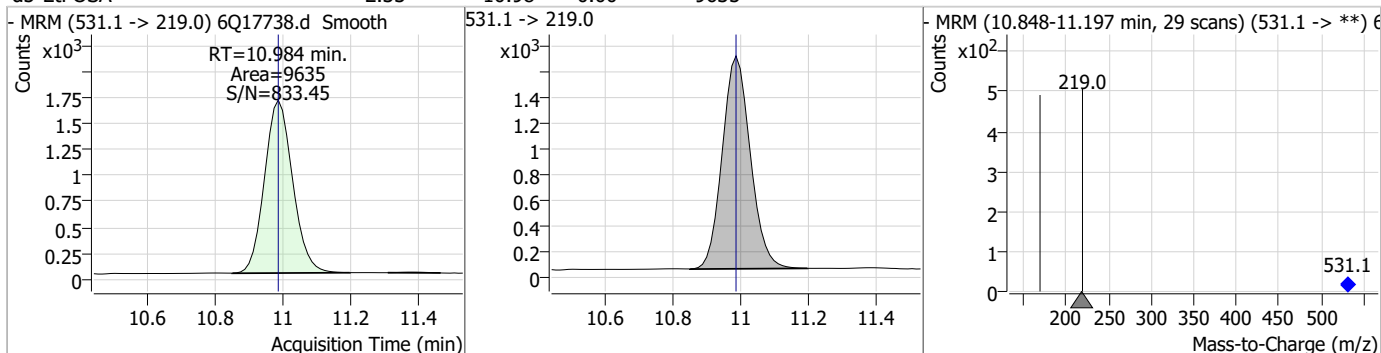
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.33	10.91	0.00	102609				



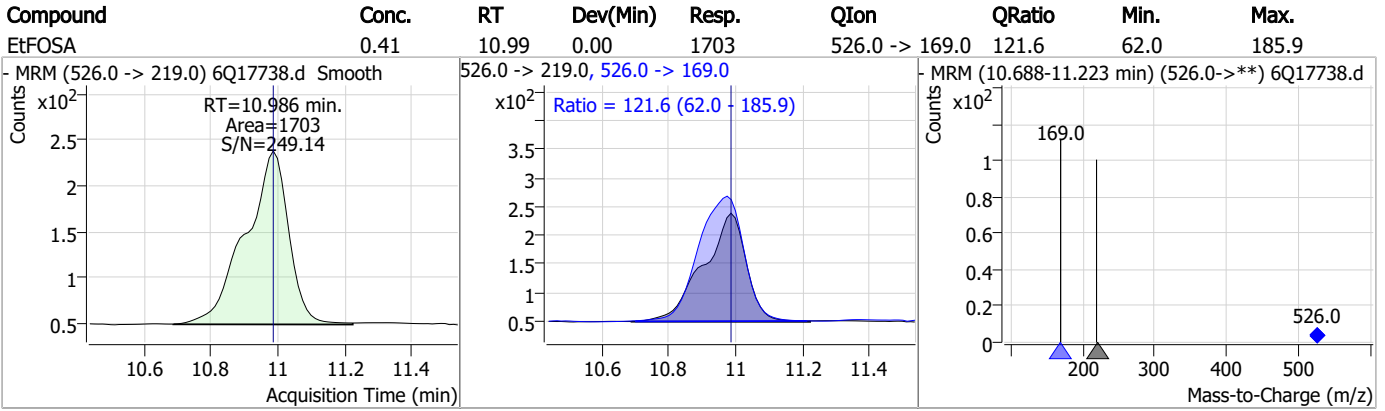
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.95	10.93	0.00	4227				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.33	10.98	0.00	9635				



Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S6Q268-IC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17738.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 12:15 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
3:3 Fluorotelomer carboxylate	356-02-5		3.78	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17739.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 12:29:54 PM
 Sample Name : ic268-2
 Vial : P1-A3
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	161988	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	51716	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	61571	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	50162	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	74494	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	25597	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	19626	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	23117	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	23515	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14776	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	22164	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	19763	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11570	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9725	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1732	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2229	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2402	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	21103	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	35535	10.00 µg/L	0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	17181	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	85281	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	106065	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9191	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7638	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12478	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	67951	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	9218	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	78010	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	21881	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	26380	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	47402	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1732	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2229	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2402	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-PFDoDA	8.949	615.1 -> 570.0	23515	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14776	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C3-PFBS	5.397	302.1 -> 79.9	19763	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	11570	2.36 µg/L	0.012

7.7.3
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 = 94.3%	
13C4-PFBA	2.901	216.8 -> 171.9	161988	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.420	367.1 -> 322.0	50162	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.466	318.0 -> 273.0	61571	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C5-PFPeA	4.272	268.3 -> 223.0	51716	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C6-PFDA	8.076	519.1 -> 474.1	19626	1.37 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.5%	
13C7-PFUnDA	8.518	570.0 -> 525.1	23117	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-FOSA	9.648	506.1 -> 77.8	22164	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C8-PFOA	7.064	421.1 -> 376.0	74494	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.226	507.1 -> 79.9	9725	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.595	472.1 -> 427.0	25597	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
d3-MeFOSAA	8.133	573.2 -> 419.0	21103	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	35535	10.24 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	7638	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
d5-EtFOSAA	8.329	589.2 -> 419.0	17181	5.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.1%	
d7-MeFOSE	10.672	623.2 -> 58.9	85281	27.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 111.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	106065	28.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
d5-EtFOSA	10.984	531.1 -> 219.0	9191	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	3807	1.46 µg/L	91
		327.1 -> 80.9	1633		
6:2FTS	6.838	427.1 -> 407.0	3700	1.53 µg/L	95
		427.1 -> 80.9	1295		
8:2FTS	7.865	527.1 -> 507.0	2023	1.48 µg/L	94
		527.1 -> 80.8	755		
EtFOSAA	8.330	584.2 -> 419.1	1123	0.35 µg/L	99
		584.2 -> 526.0	600		
FOSA	9.639	498.1 -> 77.9	3092	0.37 µg/L	98
		498.1 -> 478.0	99		
MeFOSAA	8.134	570.1 -> 419.0	1525	0.37 µg/L	97
		570.1 -> 483.0	321		
PFBA	2.907	212.8 -> 168.9	8849	1.52 µg/L	100
PFBS	5.398	298.7 -> 79.9	3315	0.34 µg/L	92
		298.7 -> 98.8	1365		
PFDA	8.076	512.9 -> 469.0	7808	0.32 µg/L	99
		512.9 -> 219.0	1244		
PFDODA	8.950	613.1 -> 569.0	7542	0.40 µg/L	97
		613.1 -> 319.0	942		
PFDS	9.113	599.0 -> 79.9	1320	0.42 µg/L	88

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	567			
PFHpA	6.420	363.1 -> 319.0	10070	0.40	µg/L	97
		363.1 -> 169.0	1508			
PFHpS	7.735	449.0 -> 79.9	2131	0.41	µg/L	95
		449.0 -> 98.9	1028			
PFHxA	5.469	313.0 -> 269.0	9102	0.37	µg/L	99
		313.0 -> 118.9	480			
PFHxS	7.180	398.7 -> 79.9	2332	0.36	µg/L	m 98
		398.7 -> 98.9	1123			
PFNA	7.596	463.0 -> 419.0	6533	0.34	µg/L	100
		463.0 -> 219.0	1343			
PFNS	8.693	548.8 -> 79.9	1943	0.41	µg/L	92
		548.8 -> 98.9	1009			
PFOA	7.066	413.0 -> 369.0	16807	0.45	µg/L	95
		413.0 -> 169.0	2479			
PFOS	8.228	498.9 -> 79.9	1949	0.38	µg/L	m 94
		498.9 -> 98.8	1130			
PFPeA	4.274	263.0 -> 219.0	11488	0.77	µg/L	100
PFPeS	6.471	349.1 -> 79.9	2370	0.37	µg/L	92
		349.1 -> 98.9	1189			
PFTeDA	9.677	713.1 -> 669.0	6067	0.40	µg/L	97
		713.1 -> 168.9	521			
PFTrDA	9.346	663.0 -> 619.0	8408	0.39	µg/L	99
		663.0 -> 168.9	697			
PFUnDA	8.518	563.1 -> 519.0	6566	0.39	µg/L	99
		563.1 -> 269.1	1053			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	10283	0.77	µg/L	96
		632.9 -> 452.9	3057			
9Cl-PF3ONS	8.557	530.8 -> 351.0	15052	0.70	µg/L	90
		532.8 -> 353.0	5090			
ADONA	6.683	376.9 -> 250.9	40018	0.71	µg/L	92
		376.9 -> 84.8	11196			
HFPO-DA	5.845	284.9 -> 168.9	2669	0.78	µg/L	97
		284.9 -> 184.9	335			
3:3FTCA	3.790	241.0 -> 177.0	1754	1.90	µg/L	100
		241.0 -> 117.0	235			
5:3FTCA	6.161	341.0 -> 237.1	38920	9.21	µg/L	97
		341.0 -> 217.0	29283			
7:3FTCA	7.586	441.0 -> 316.9	18360	9.58	µg/L	100
		441.0 -> 336.9	38417			
EtFOSA	10.986	526.0 -> 219.0	3361	0.84	µg/L	100
		526.0 -> 169.0	4168			
EtFOSE	10.932	630.0 -> 58.9	8534	1.85	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	2963	0.84	µg/L	m 94
		511.9 -> 169.0	4087			
MeFOSE	10.686	616.1 -> 58.9	7510	1.88	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	718	0.43	µg/L	93
		699.1 -> 98.8	369			
NFDHA	5.348	295.0 -> 201.0	2012	0.75	µg/L	97
		295.0 -> 84.9	519			
PFMBA	4.675	279.0 -> 85.1	8317	0.78	µg/L	100
PFMPA	3.426	229.0 -> 84.9	5863	0.76	µg/L	100
PFEESA	5.938	314.8 -> 134.9	21078	0.64	µg/L	100
		314.8 -> 82.9	752			

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

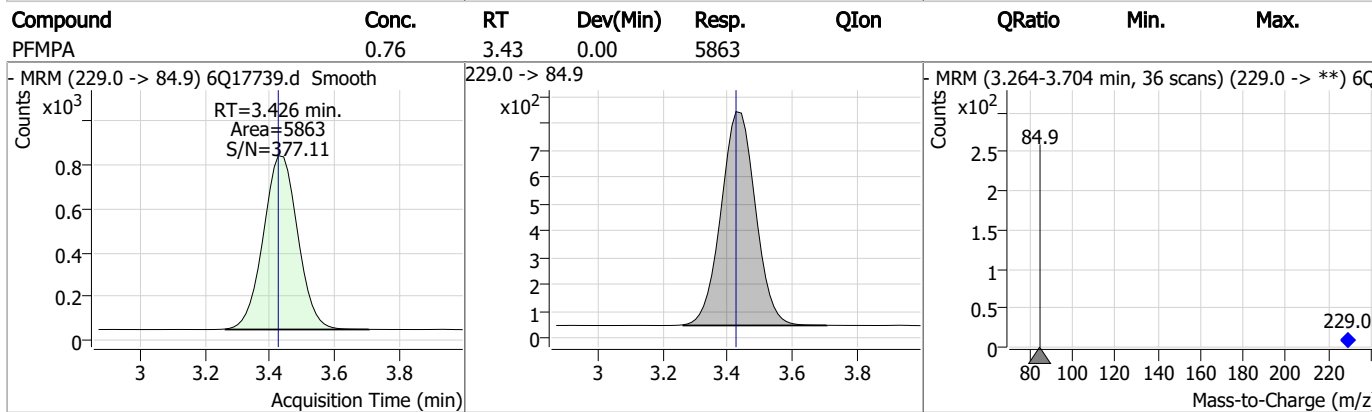
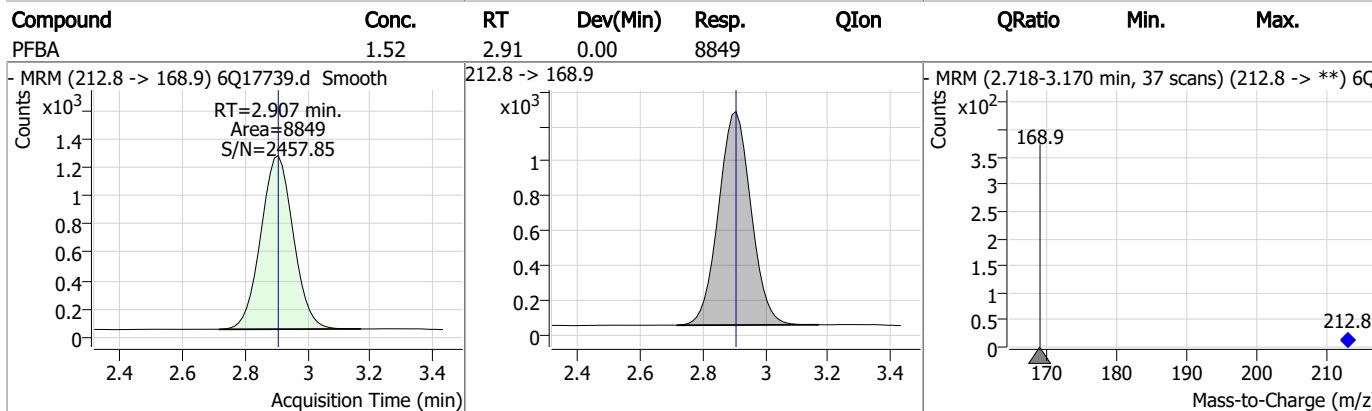
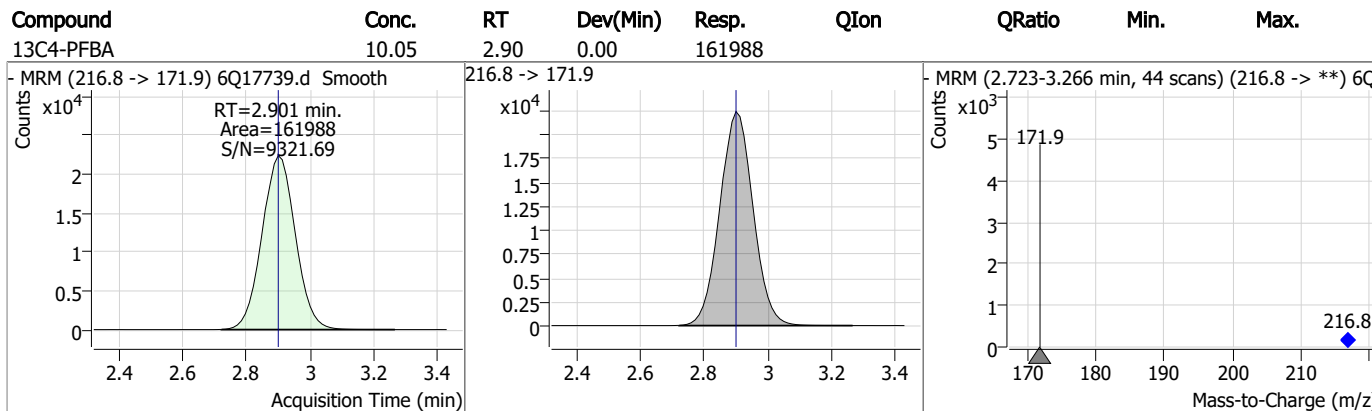
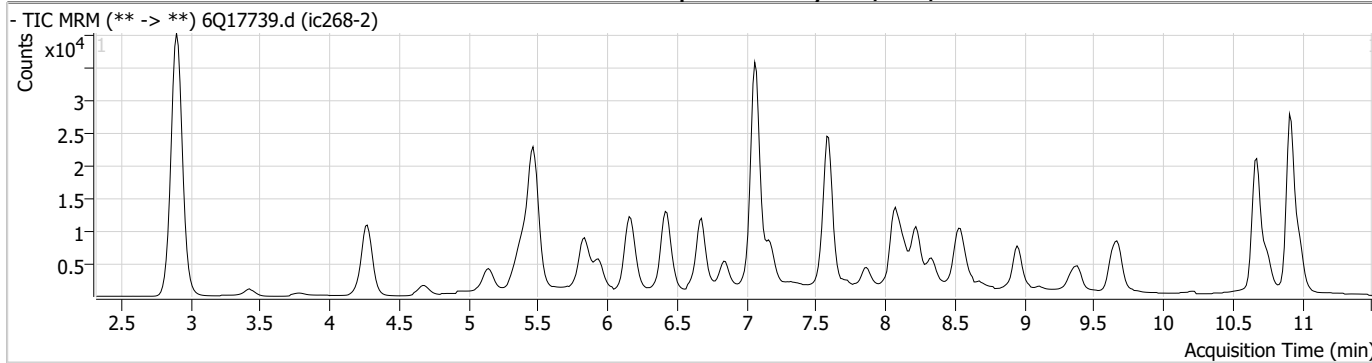
Perfluorinated Compounds by LC/MS/MS

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

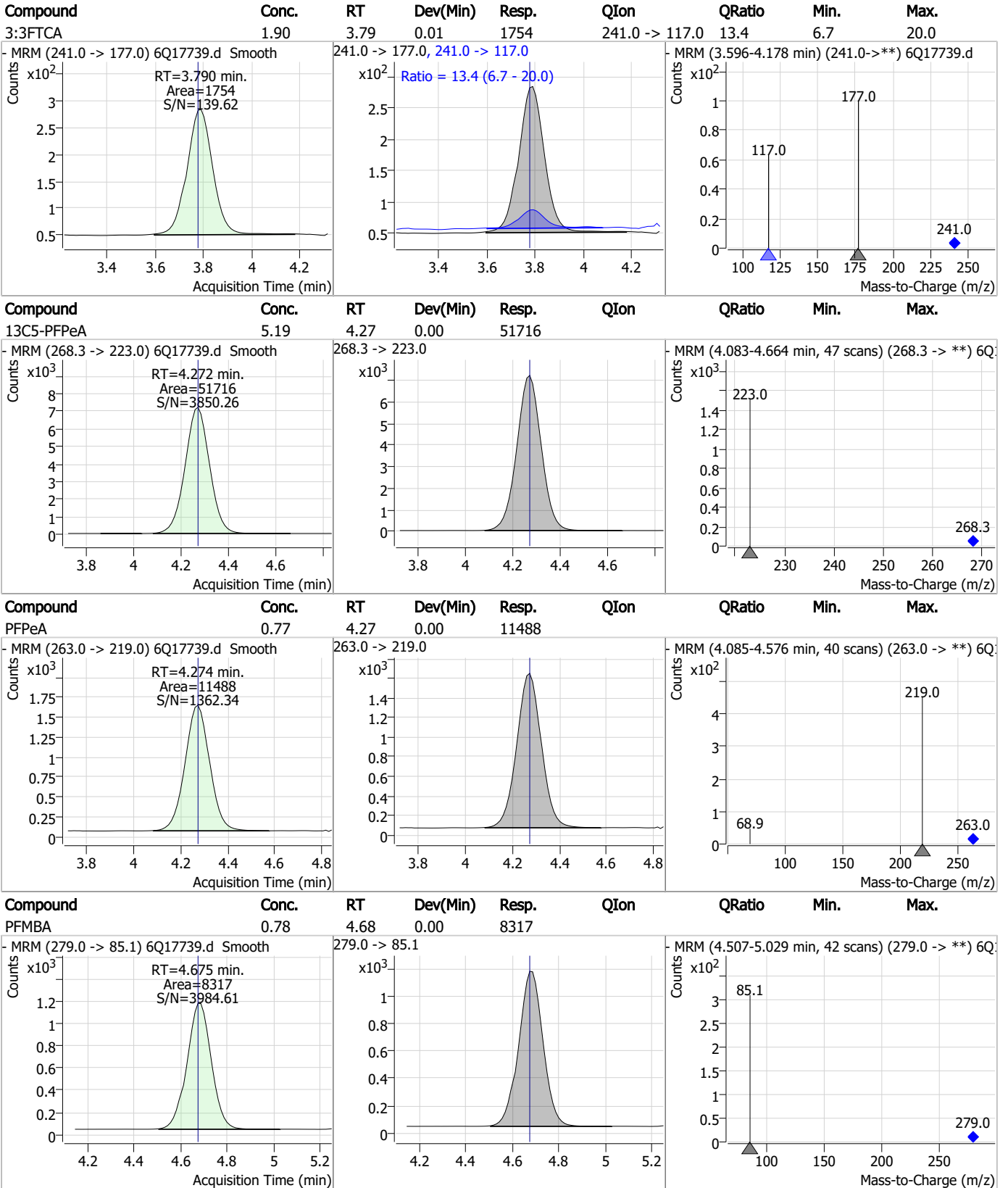
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Perfluorinated Compounds by LC/MS/MS

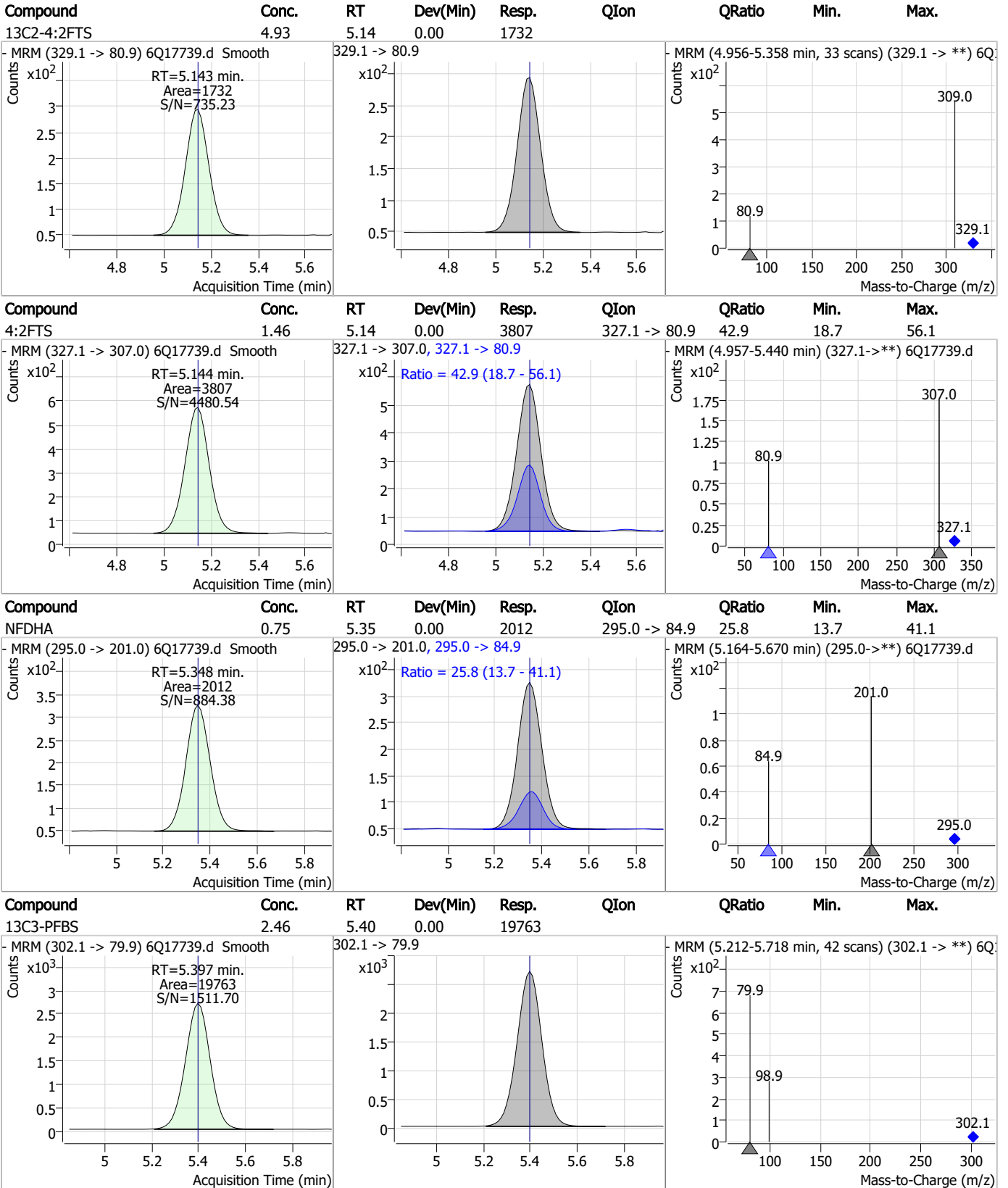


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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

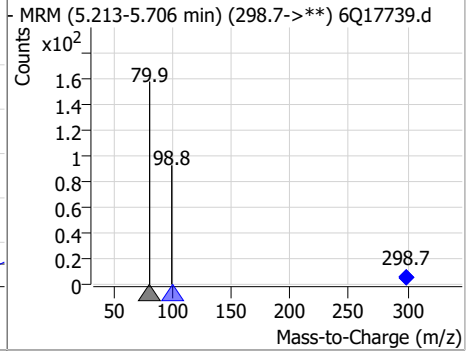
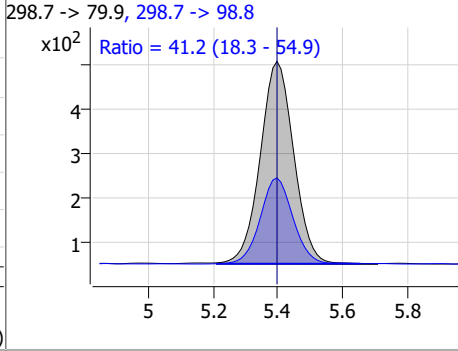
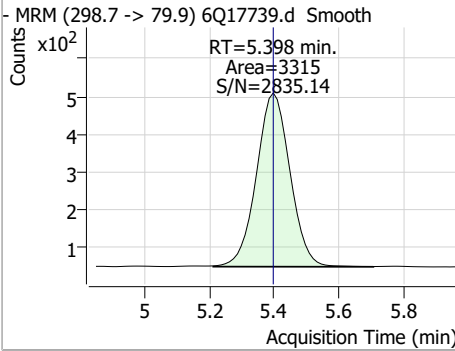


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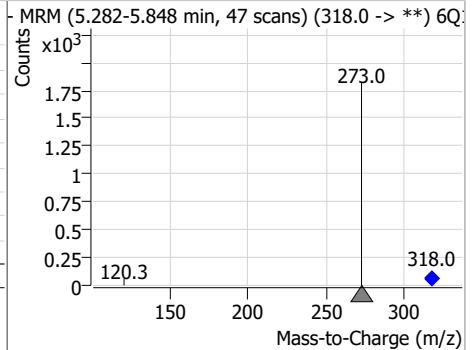
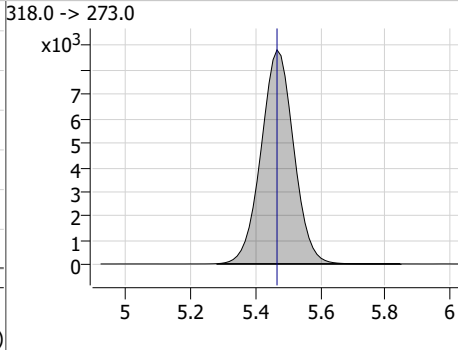
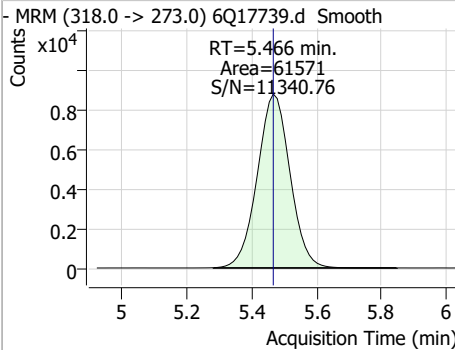
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Perfluorinated Compounds by LC/MS/MS

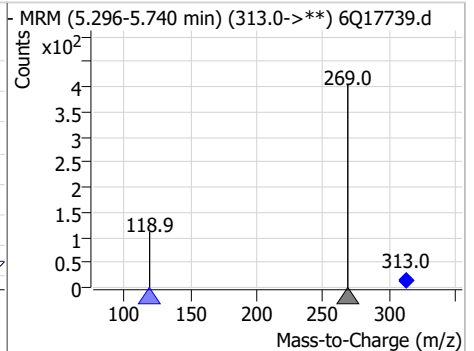
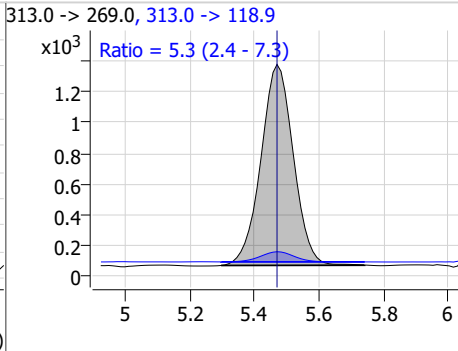
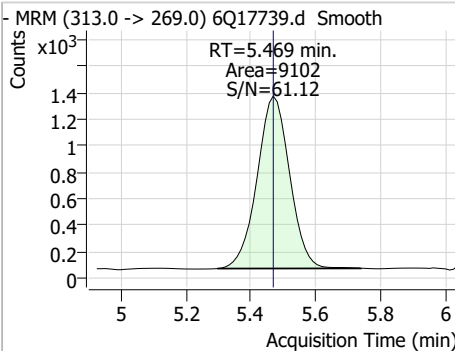
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.34	5.40	0.00	3315	298.7 -> 98.8	41.2	18.3	54.9



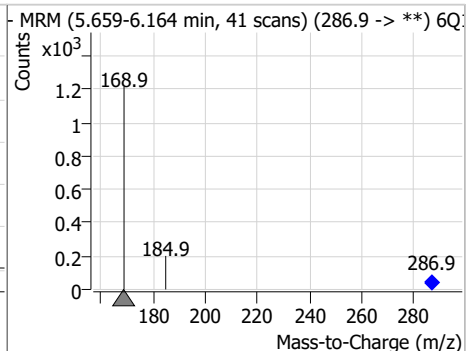
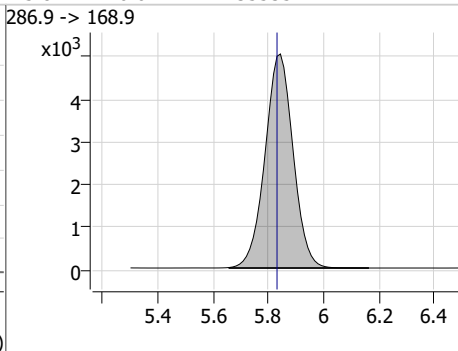
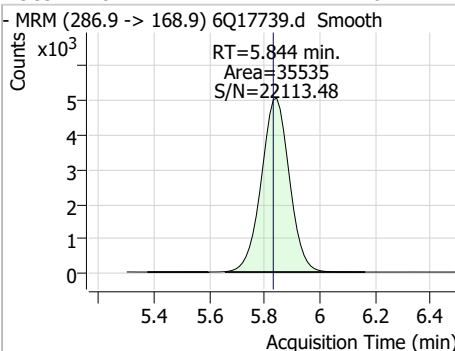
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.75	5.47	0.00	61571	318.0 -> 273.0	5.3	2.4	7.3



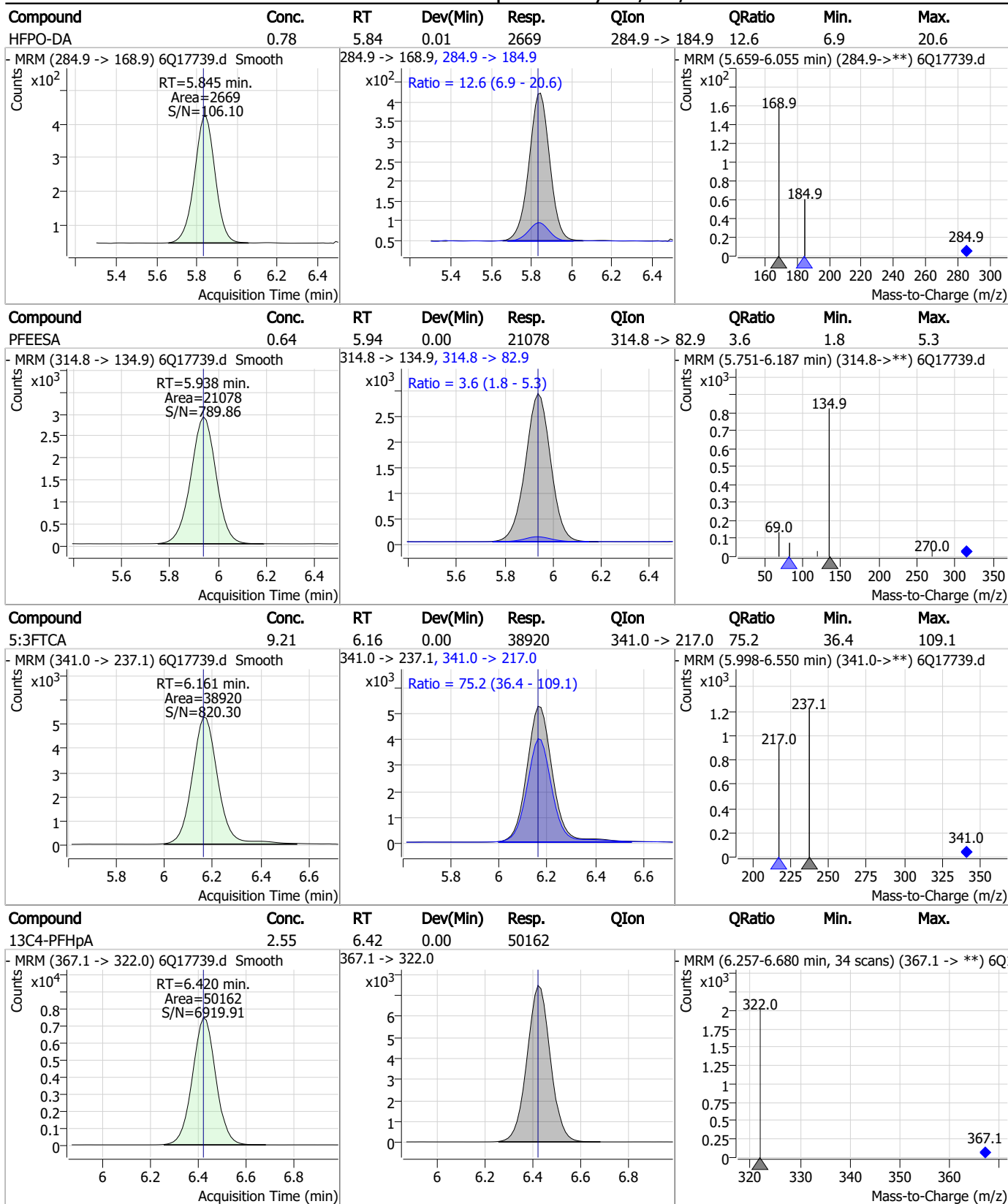
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.37	5.47	0.00	9102	313.0 -> 118.9	5.3	2.4	7.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.24	5.84	0.01	35535	286.9 -> 168.9	5.3	2.4	7.3

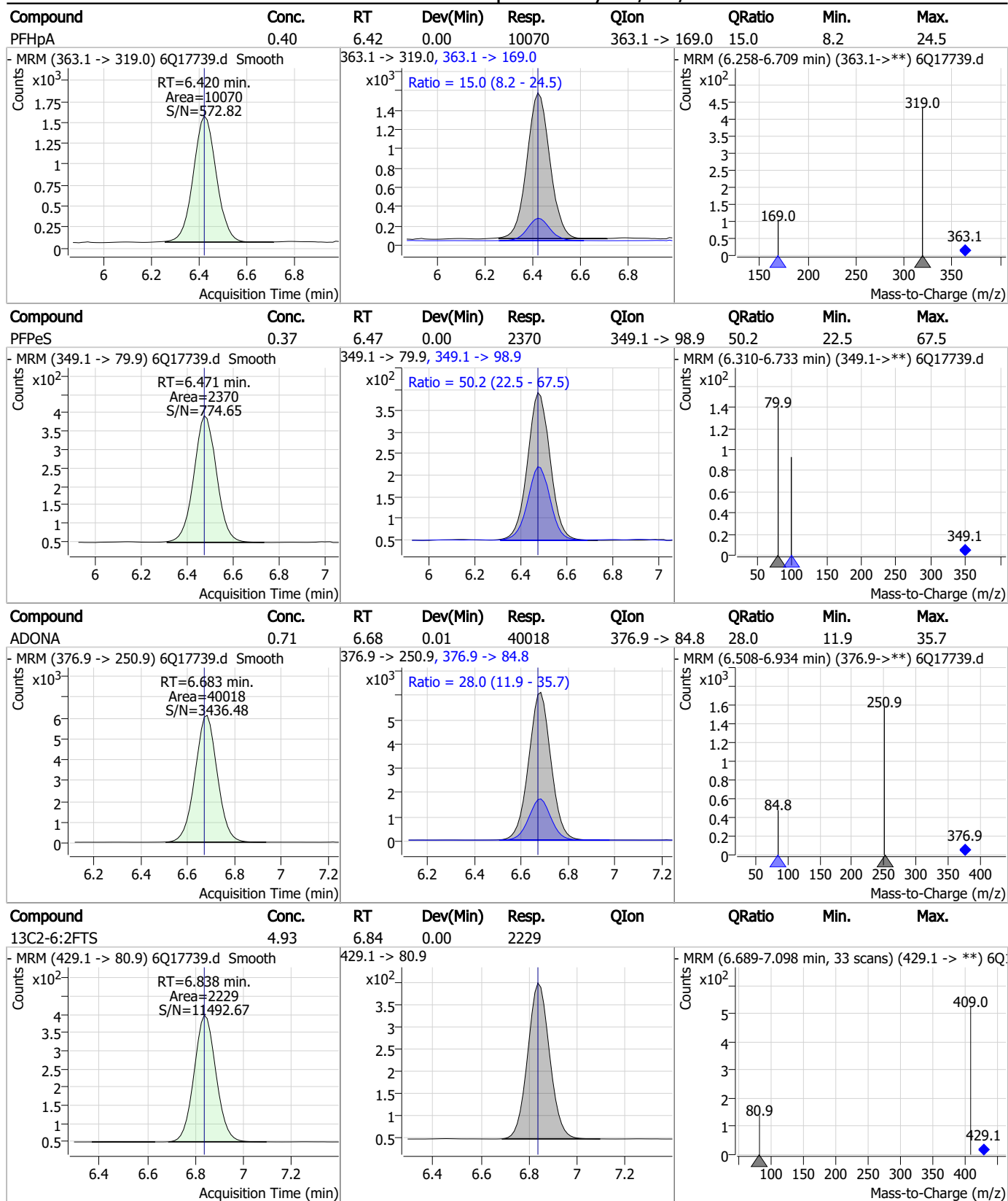


Perfluorinated Compounds by LC/MS/MS



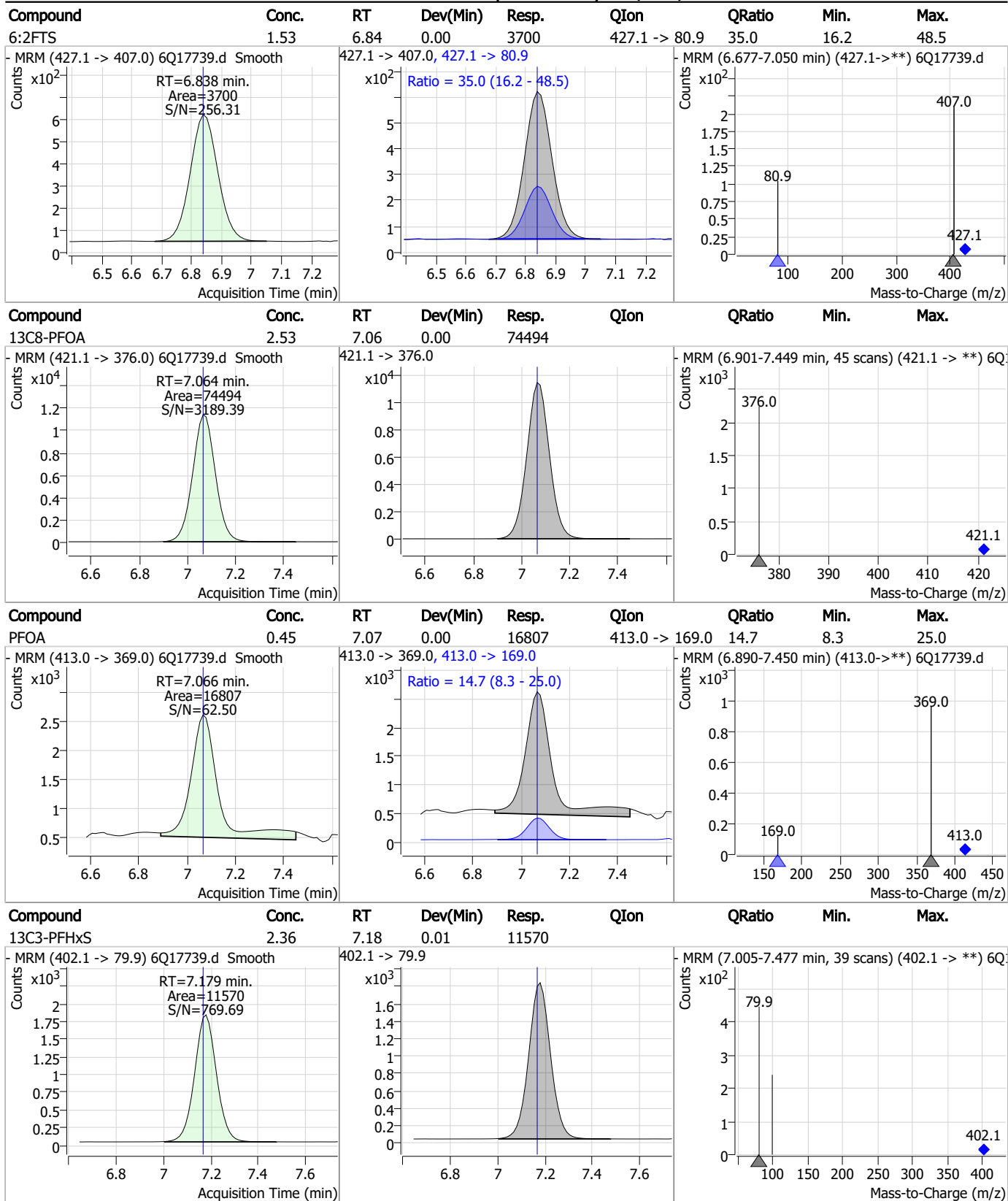
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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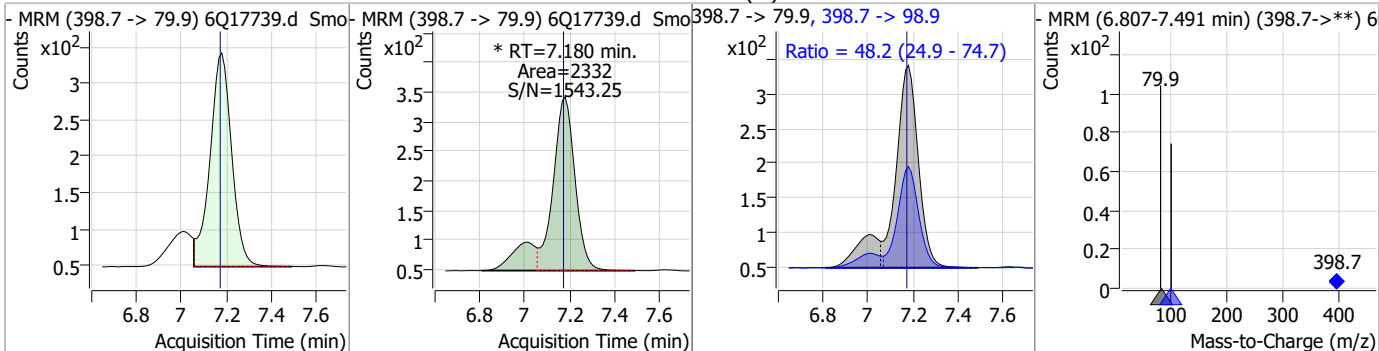
Perfluorinated Compounds by LC/MS/MS



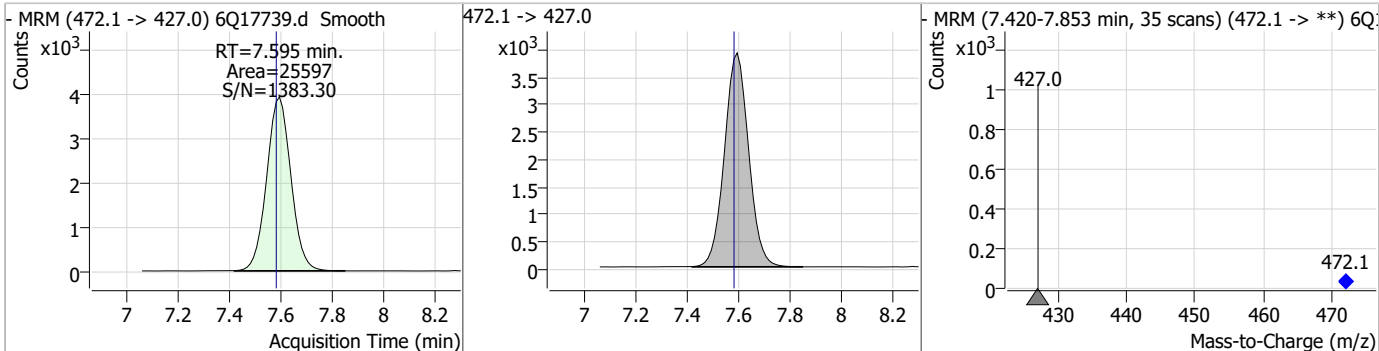
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Perfluorinated Compounds by LC/MS/MS

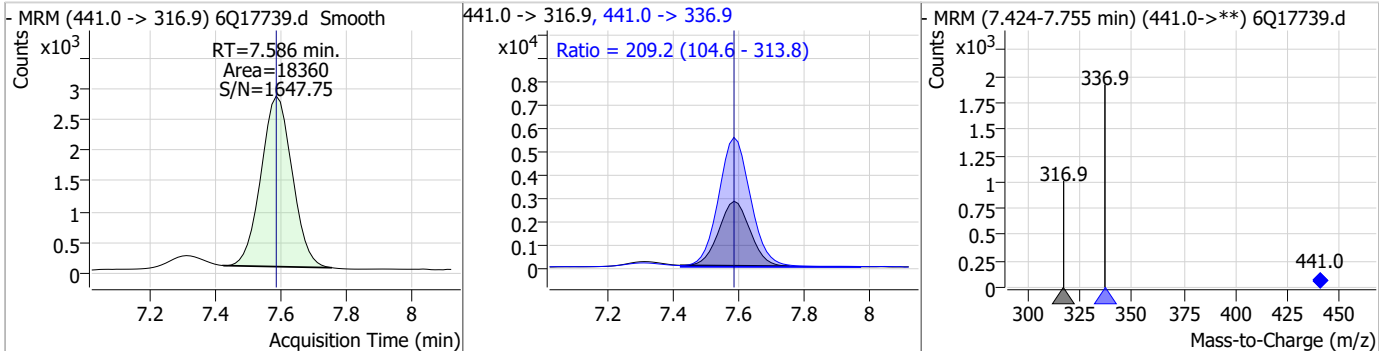
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.36	7.18	0.01	2332 (m)	398.7 -> 98.9	48.2	24.9	74.7



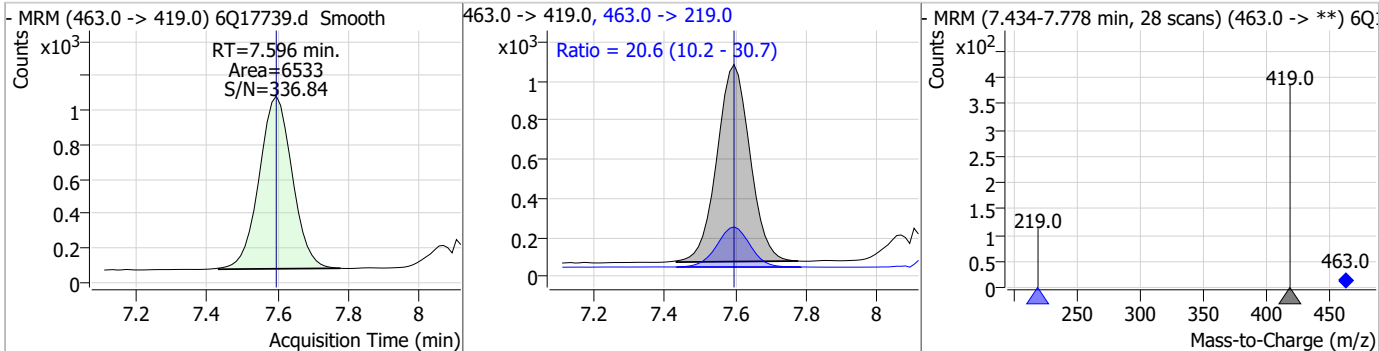
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.31	7.60	0.01	25597				



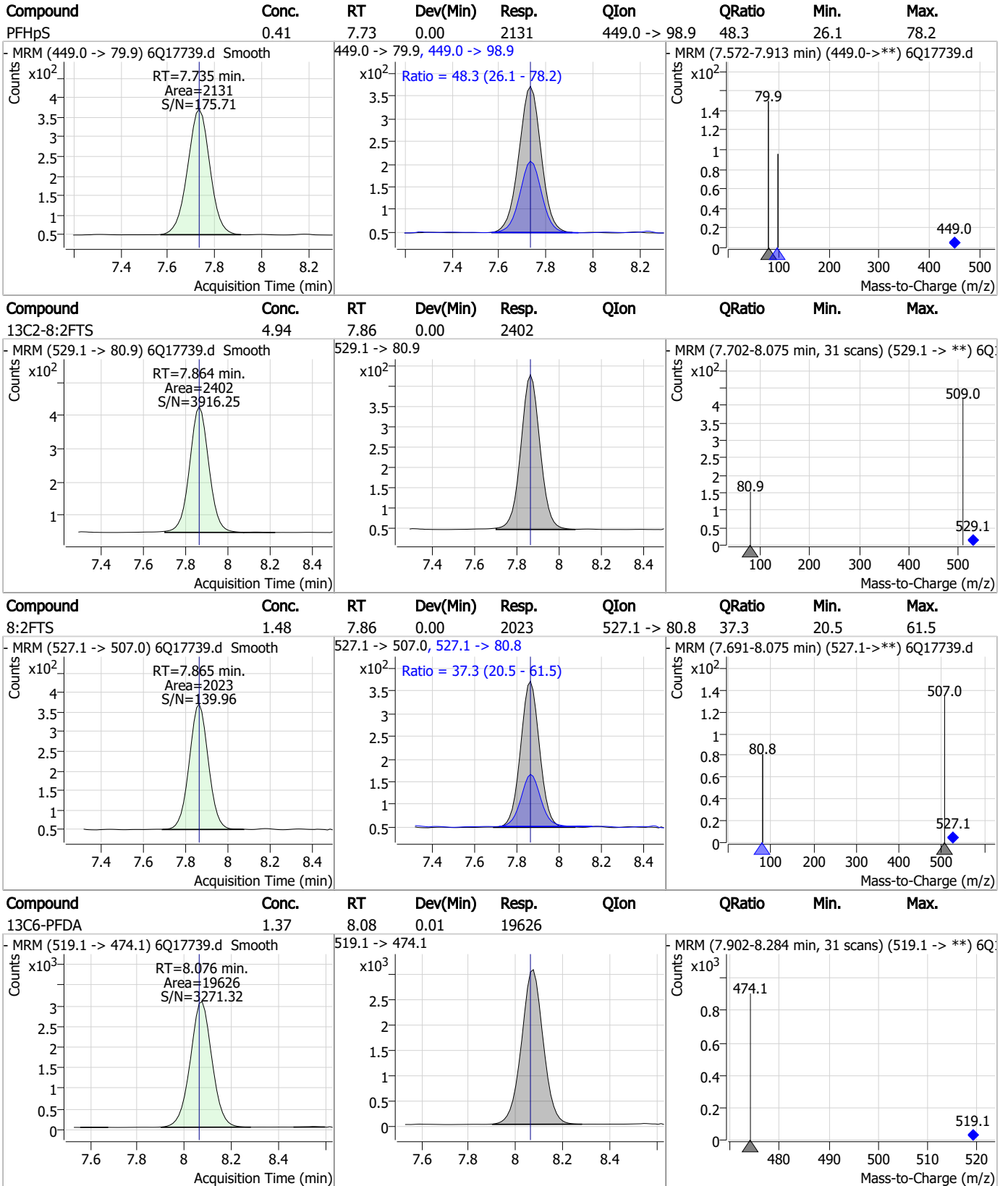
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	9.58	7.59	0.00	18360	441.0 -> 336.9	209.2	104.6	313.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.34	7.60	0.00	6533	463.0 -> 219.0	20.6	10.2	30.7



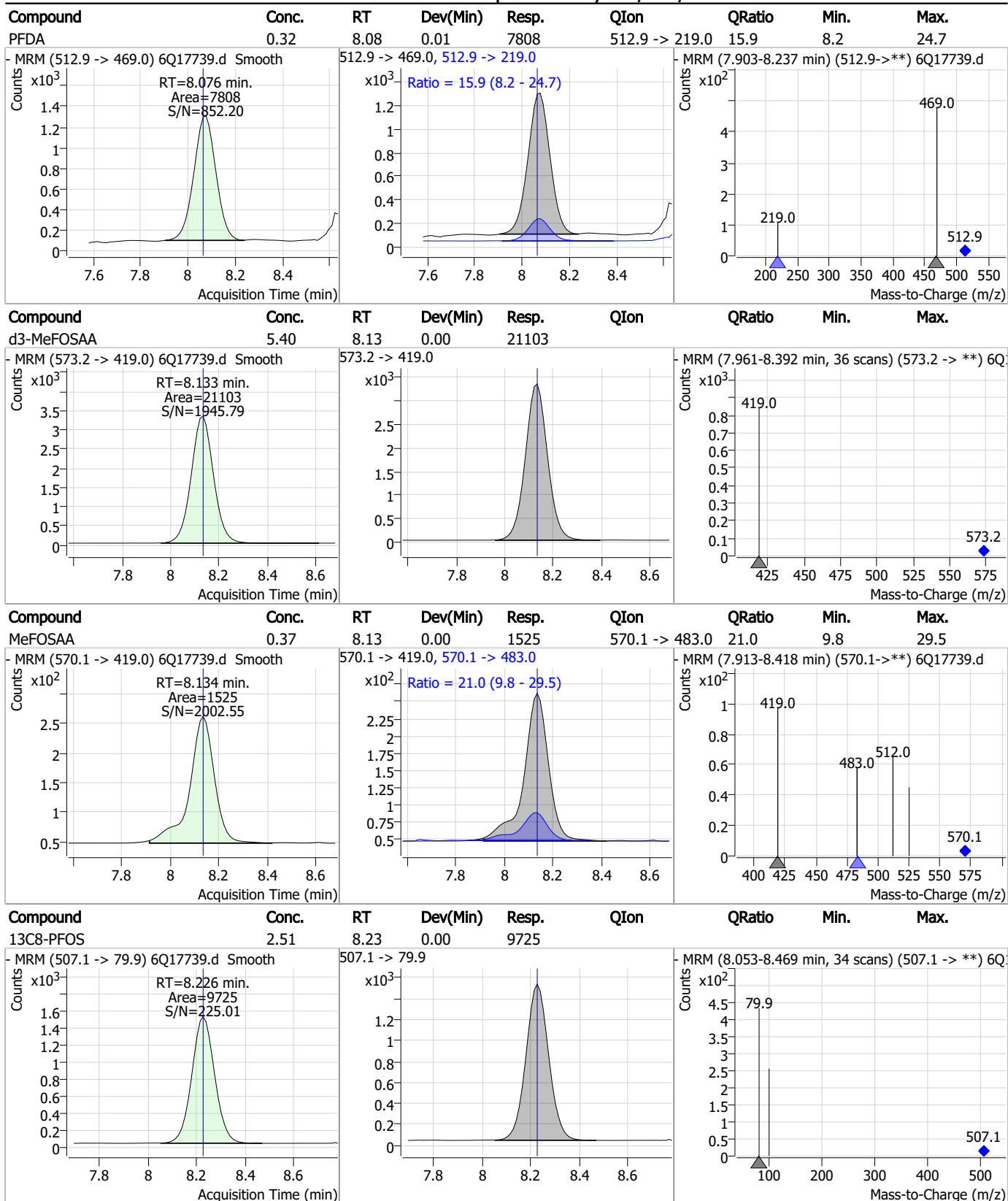
Perfluorinated Compounds by LC/MS/MS



7.7.3

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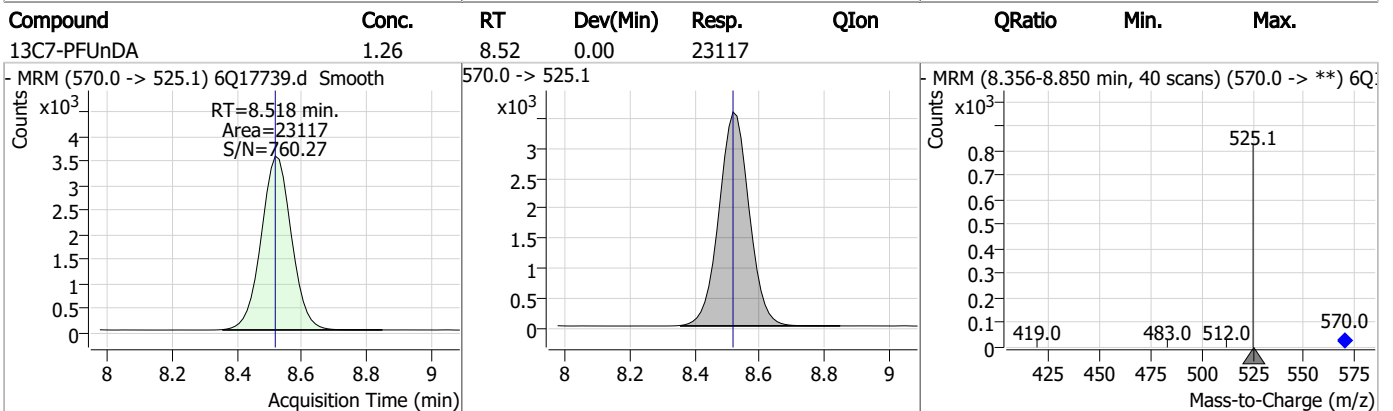
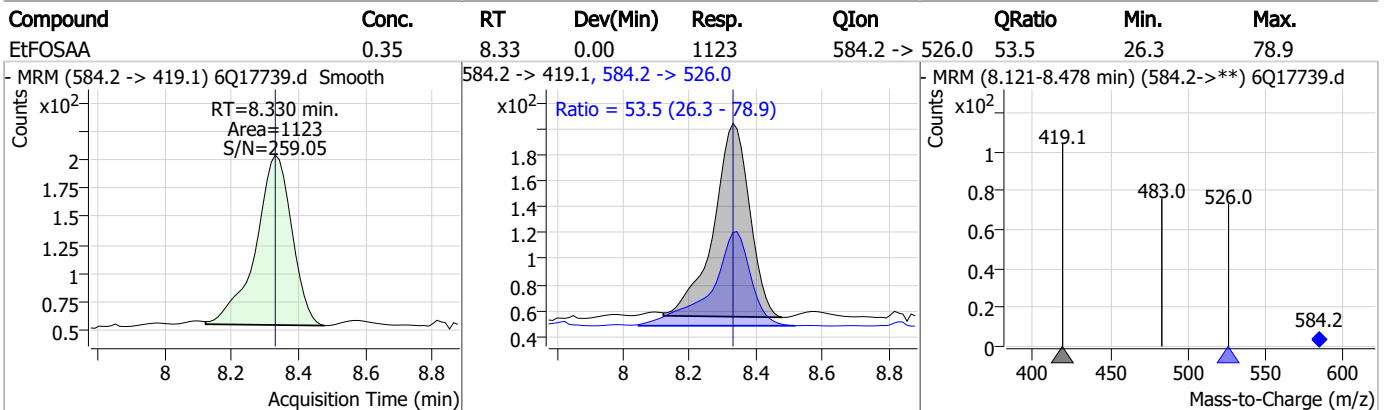
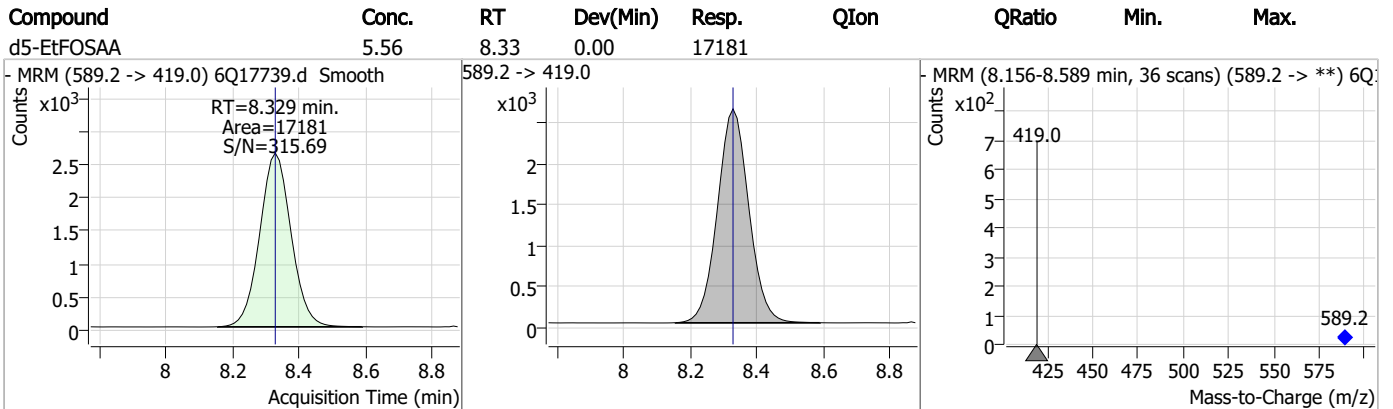
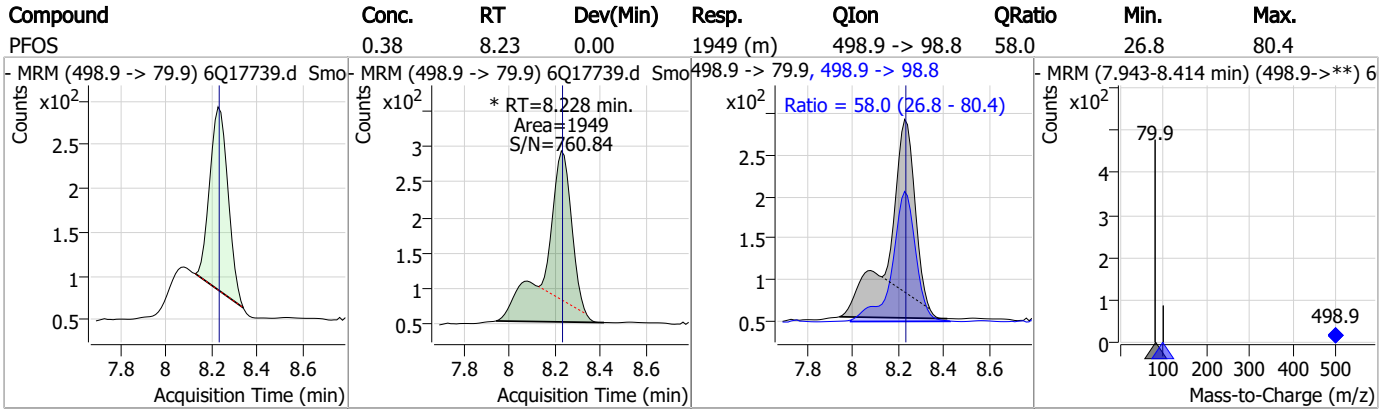
Perfluorinated Compounds by LC/MS/MS



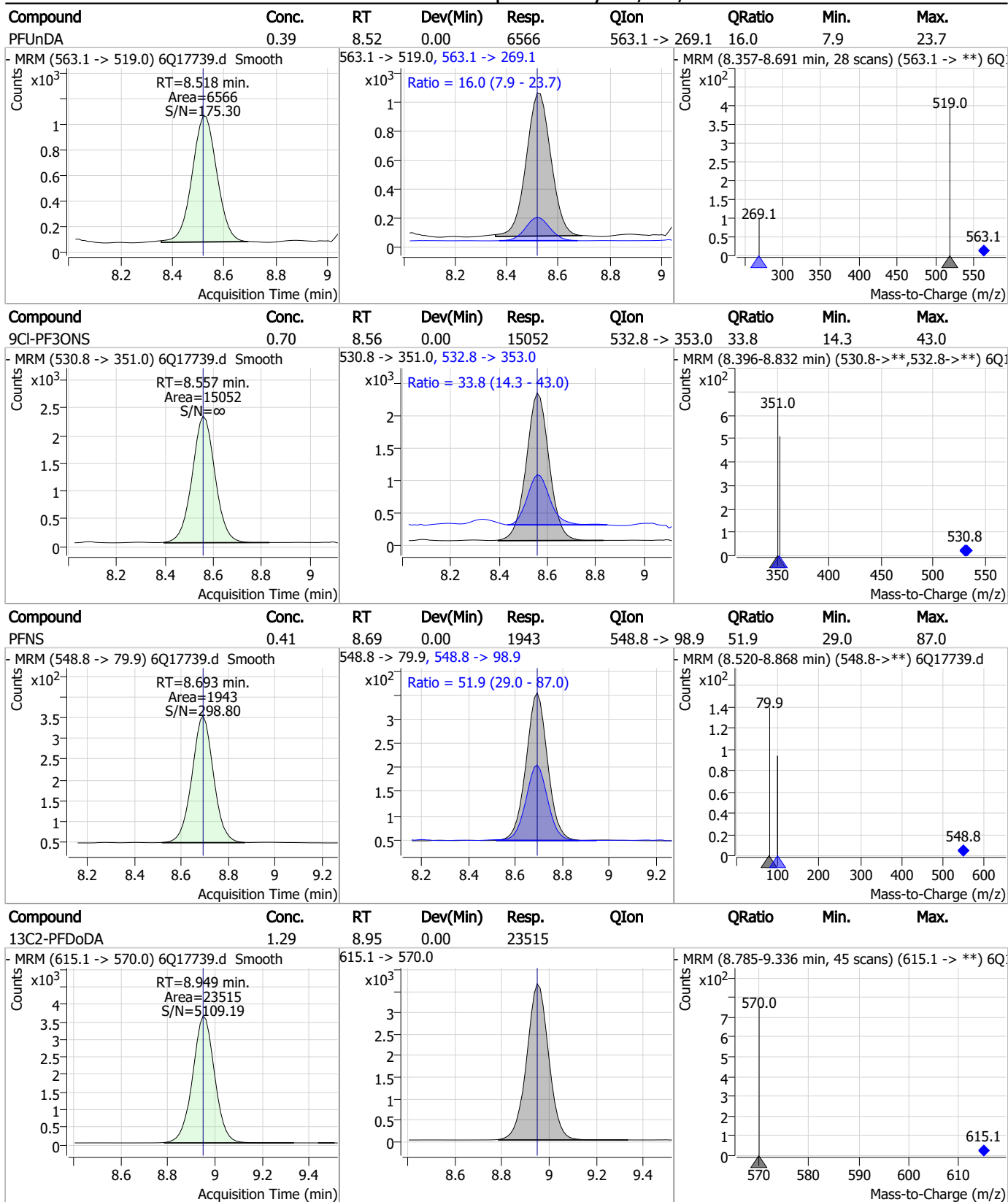
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Perfluorinated Compounds by LC/MS/MS



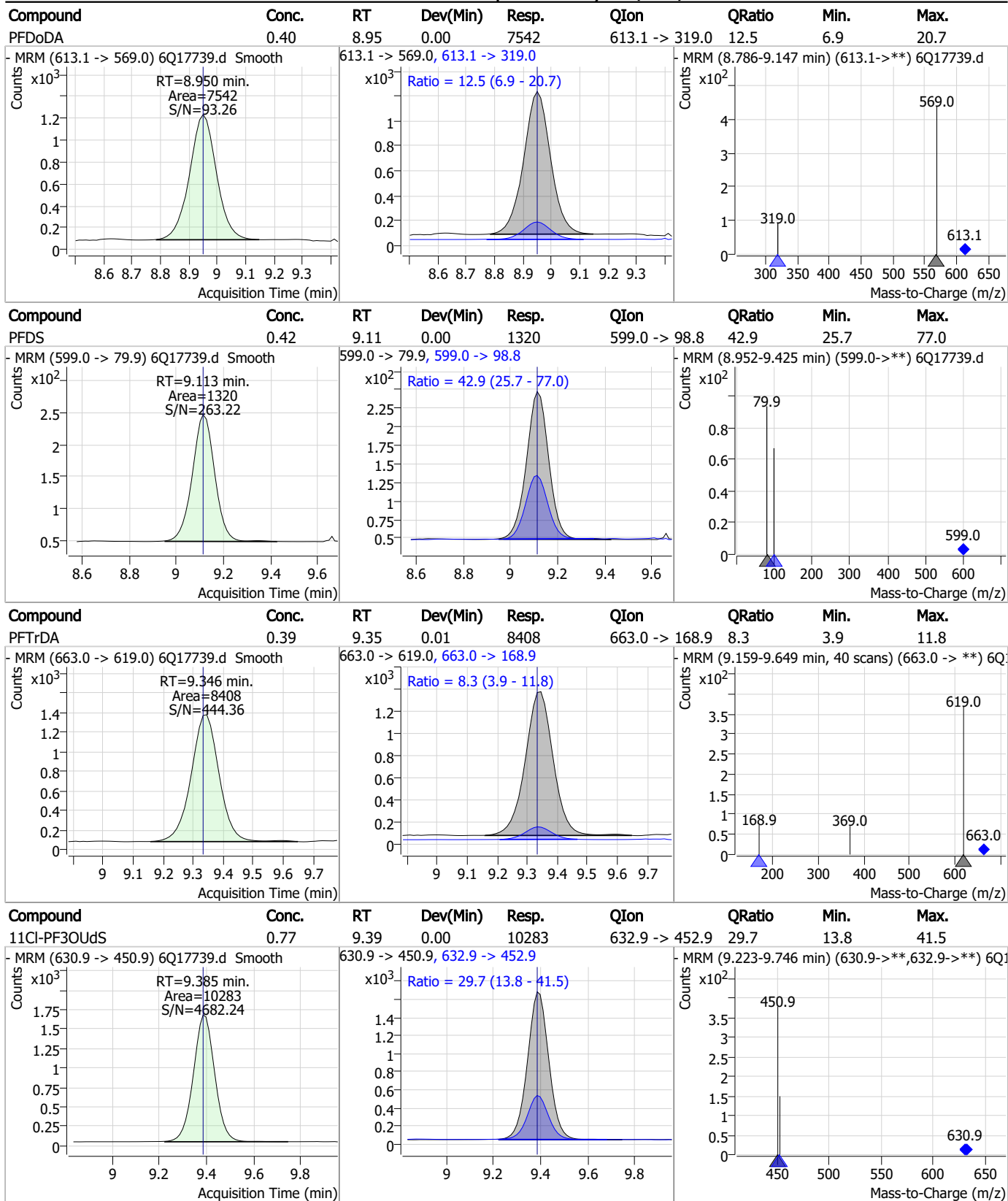
Perfluorinated Compounds by LC/MS/MS



7.7.3

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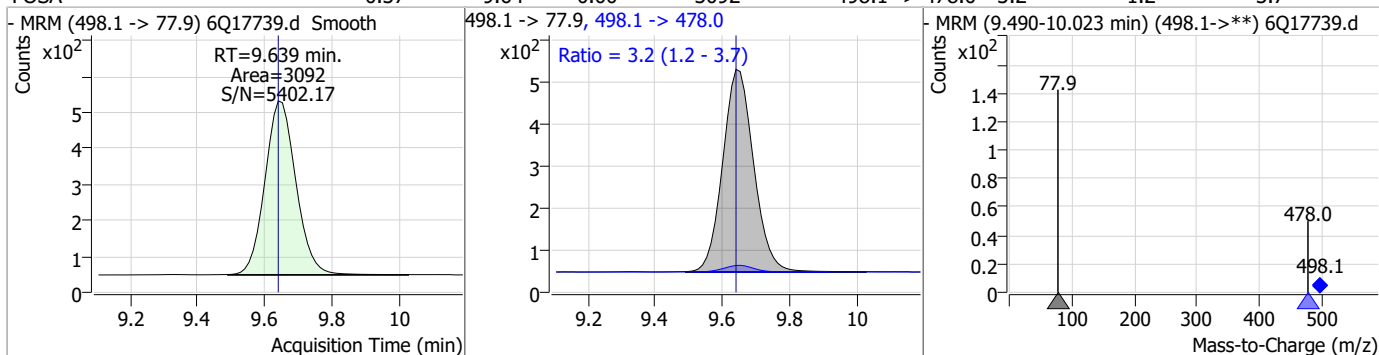
Perfluorinated Compounds by LC/MS/MS



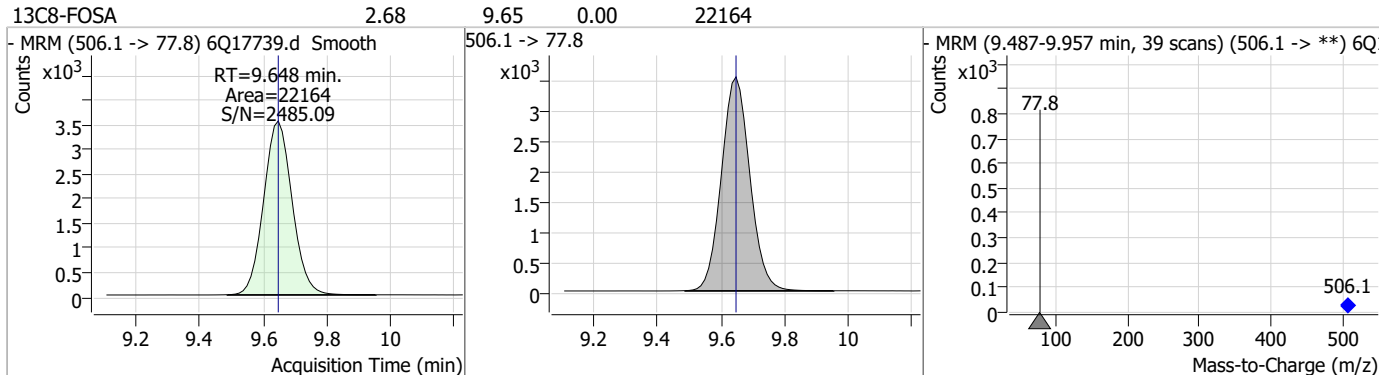
7.7.3
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Perfluorinated Compounds by LC/MS/MS

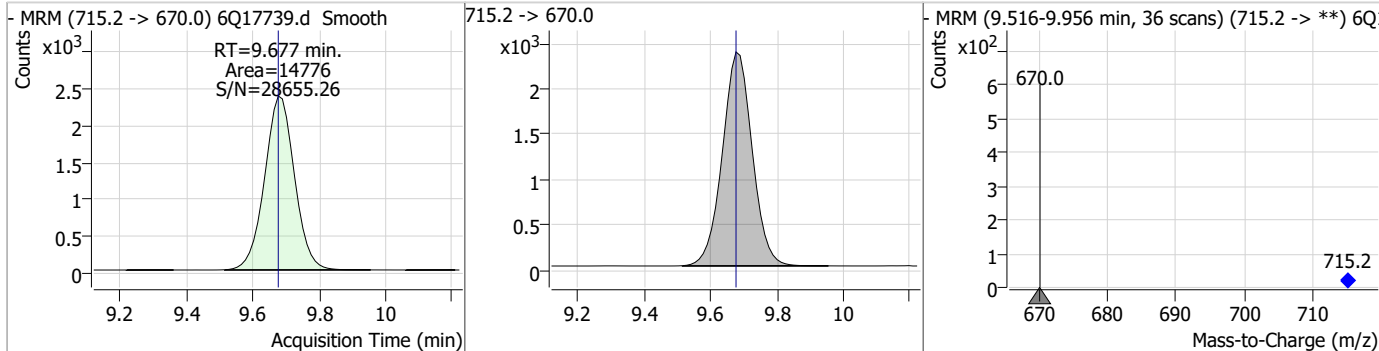
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.37	9.64	0.00	3092	498.1 -> 478.0	3.2	1.2	3.7



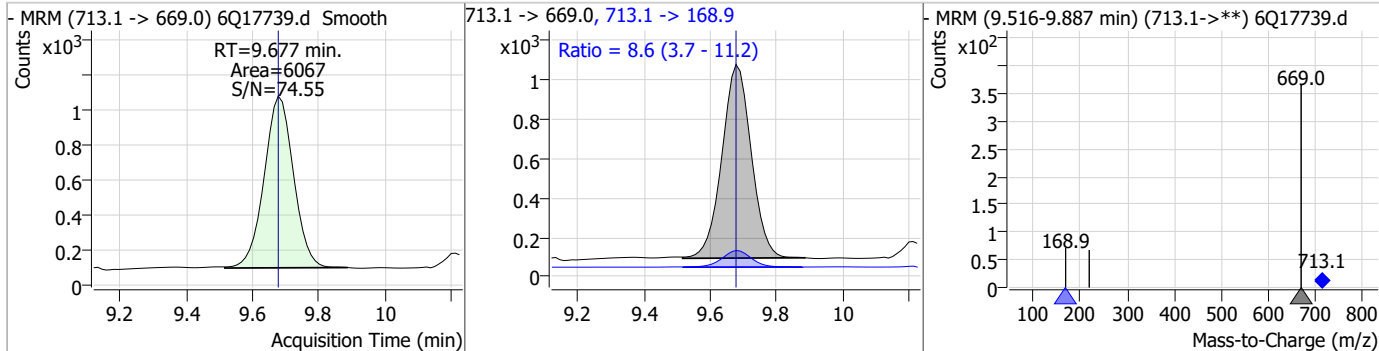
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.68	9.65	0.00	22164				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.19	9.68	0.00	14776				

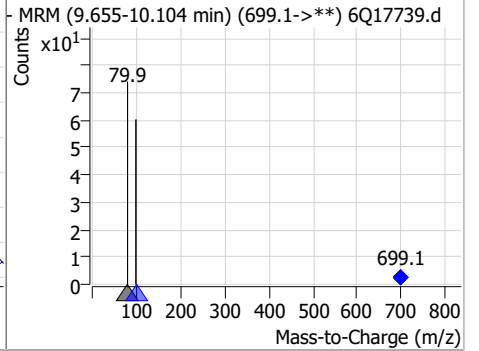
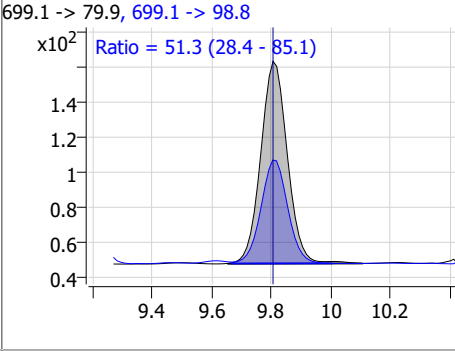
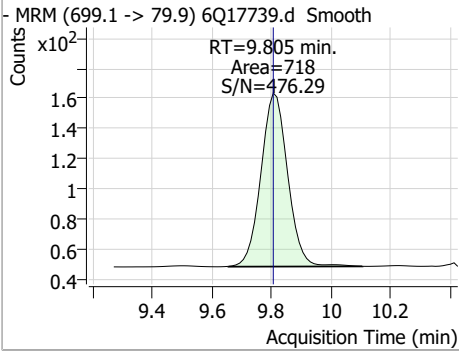


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.40	9.68	0.00	6067	713.1 -> 168.9	8.6	3.7	11.2

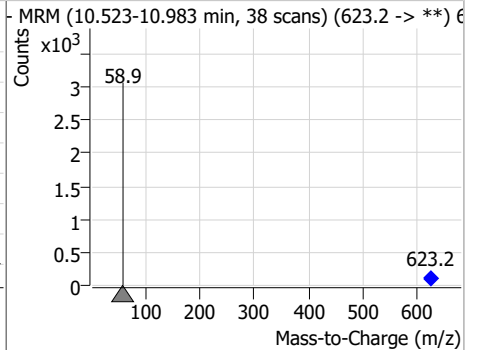
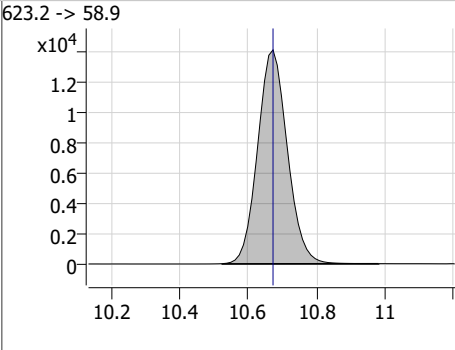
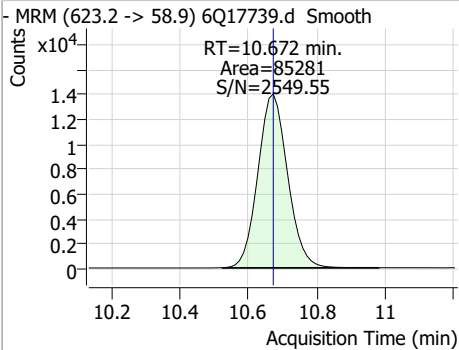


Perfluorinated Compounds by LC/MS/MS

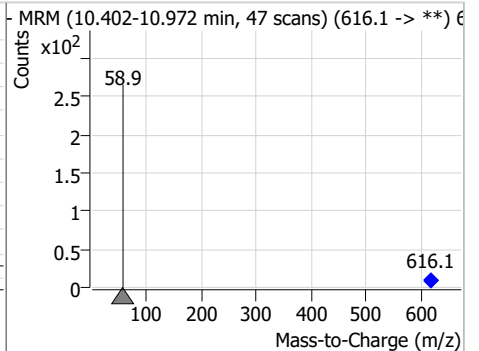
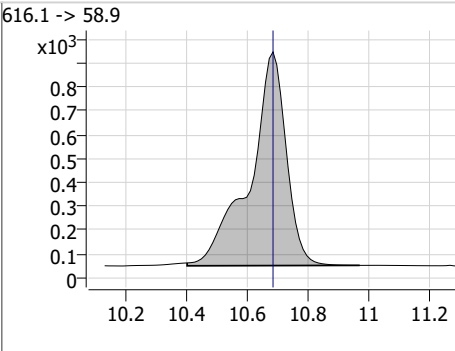
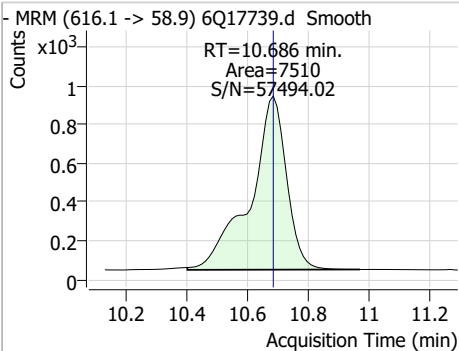
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.43	9.81	0.00	718	699.1 -> 98.8	51.3	28.4	85.1



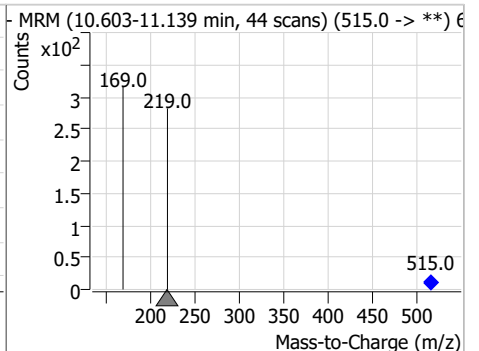
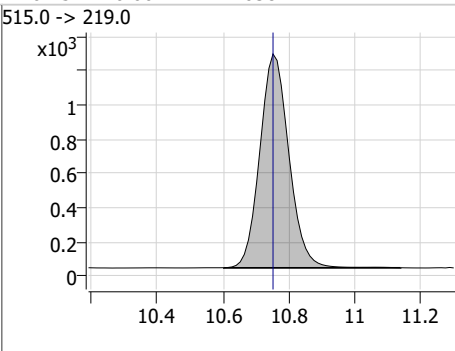
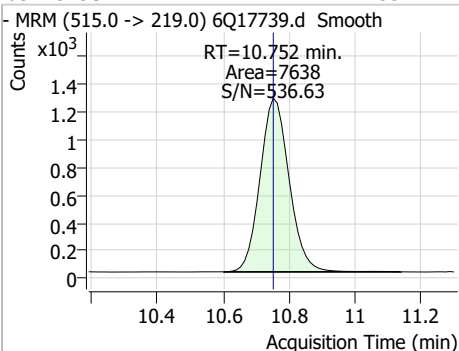
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.74	10.67	0.00	85281				



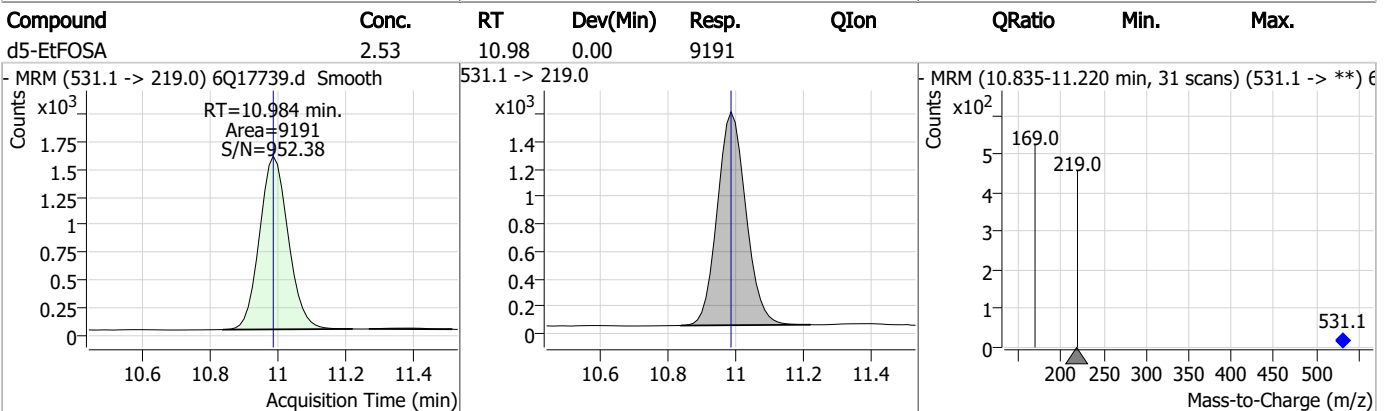
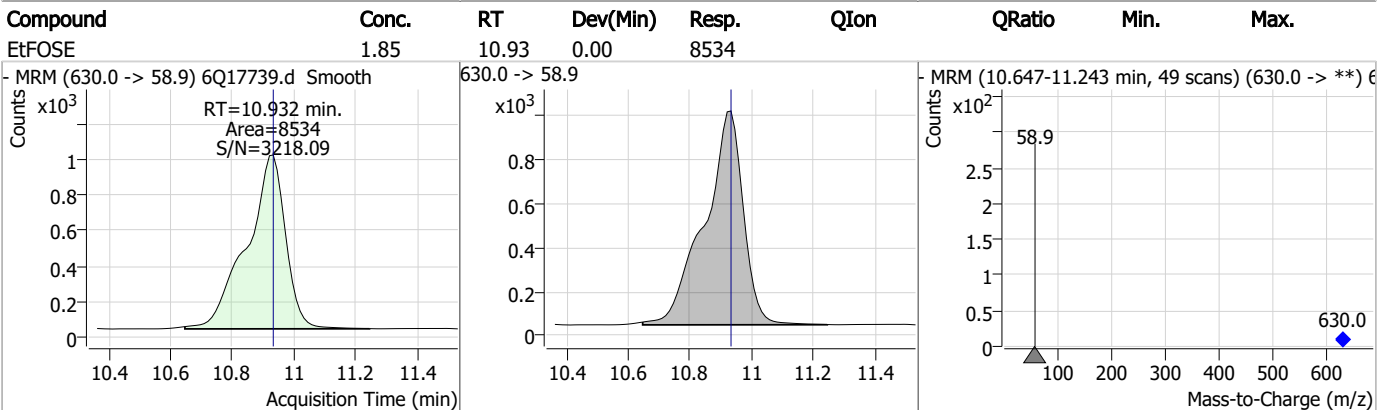
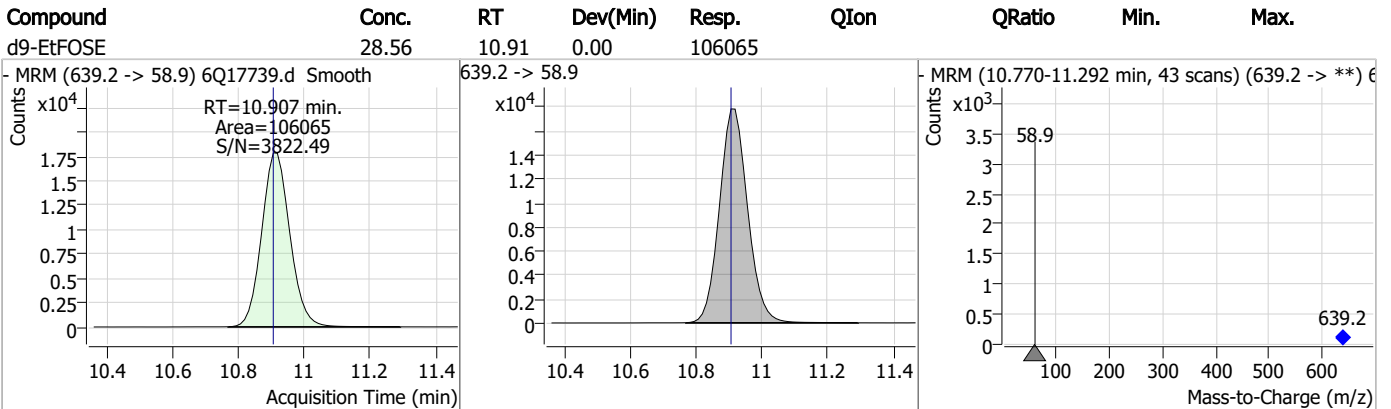
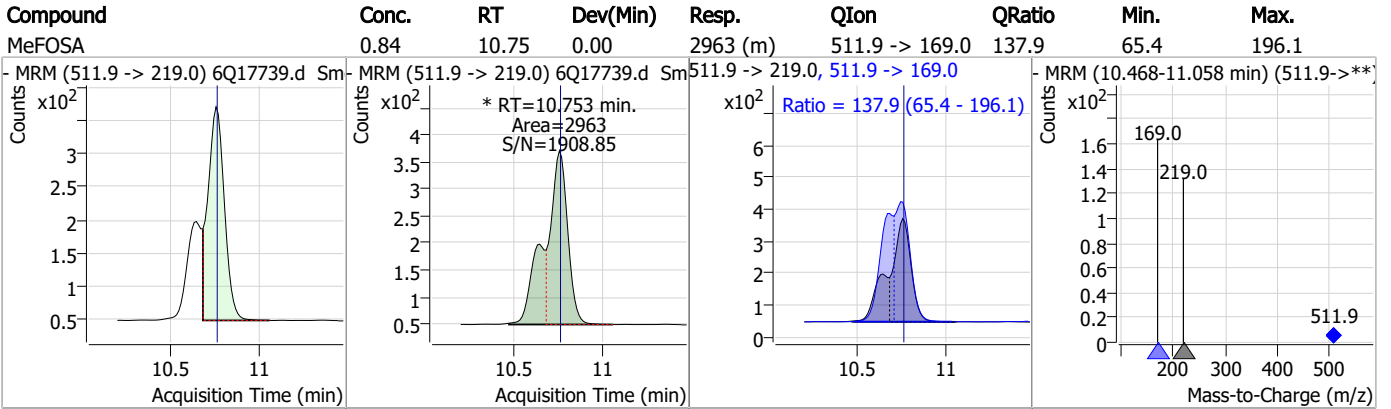
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.88	10.69	0.00	7510				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.53	10.75	0.00	7638				



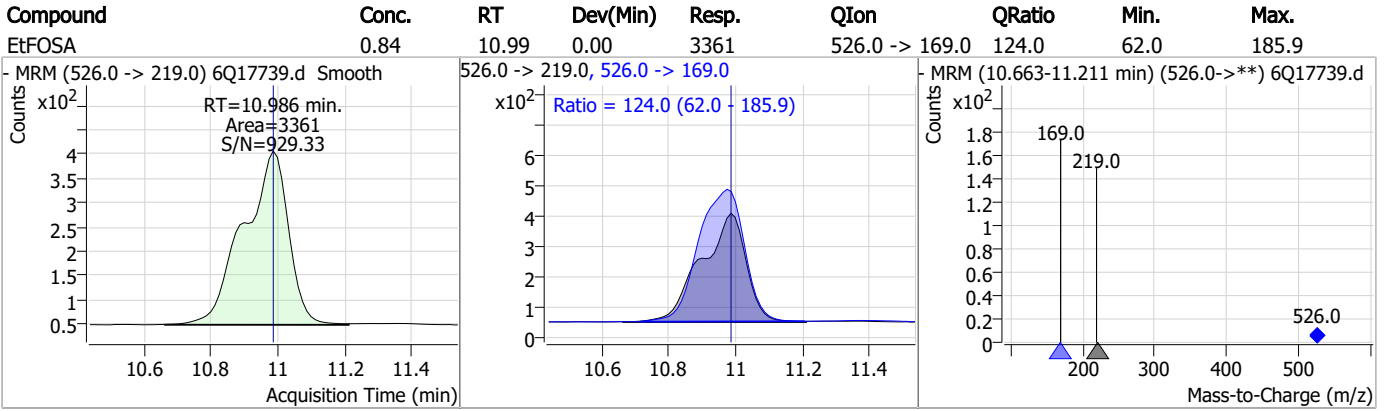
Perfluorinated Compounds by LC/MS/MS



7.7.3

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Perfluorinated Compounds by LC/MS/MS



7.7.3

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Manual Integration Approval Summary

Sample Number: S6Q268-IC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17739.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 12:29 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17740.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 12:44:26 PM
 Sample Name : ic268-3
 Vial : P1-A4
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	160561	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	51573	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	56374	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	51124	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	70967	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	22586	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	17688	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	21481	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22513	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	16017	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21589	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	19483	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10989	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	10801	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1632	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2120	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2338	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	20728	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	34873	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	15397	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	81971	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	98955	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9744	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	8192	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13924	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	67840	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8679	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	77139	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	19854	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	26164	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	47955	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1632	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2120	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2338	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22513	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-PFTeDA	9.677	715.2 -> 670.0	16017	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.8%		
13C3-PFBS	5.397	302.1 -> 79.9	19483	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	10989	2.38 µg/L	0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C4-PFBA	2.901	216.8 -> 171.9	160561	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.420	367.1 -> 322.0	51124	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C5-PFHxA	5.466	318.0 -> 273.0	56374	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C5-PFPeA	4.272	268.3 -> 223.0	51573	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C6-PFDA	8.064	519.1 -> 474.1	17688	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C7-PFUnDA	8.518	570.0 -> 525.1	21481	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C8-FOSA	9.648	506.1 -> 77.8	21589	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.5%		
13C8-PFOA	7.064	421.1 -> 376.0	70967	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C8-PFOS	8.226	507.1 -> 79.9	10801	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C9-PFNA	7.583	472.1 -> 427.0	22586	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.4%		
d3-MeFOSAA	8.121	573.2 -> 419.0	20728	4.75 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C3-HFPO-DA	5.831	286.9 -> 168.9	34873	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
d3-MeFOSA	10.752	515.0 -> 219.0	8192	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.3%		
d5-EtFOSAA	8.329	589.2 -> 419.0	15397	4.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.3%		
d7-MeFOSE	10.672	623.2 -> 58.9	81971	23.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
d9-EtFOSE	10.907	639.2 -> 58.9	98955	23.88 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 95.5%		
d5-EtFOSA	10.984	531.1 -> 219.0	9744	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.0%		
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	11443	4.66 µg/L	93
		327.1 -> 80.9	4755		
6:2FTS	6.838	427.1 -> 407.0	11291	4.89 µg/L	97
		427.1 -> 80.9	3866		
8:2FTS	7.865	527.1 -> 507.0	5893	4.44 µg/L	91
		527.1 -> 80.8	2753		
EtFOSAA	8.330	584.2 -> 419.1	3550	1.24 µg/L	93
		584.2 -> 526.0	2042		
FOSA	9.639	498.1 -> 77.9	9772	1.21 µg/L	98
		498.1 -> 478.0	305		
MeFOSAA	8.134	570.1 -> 419.0	5363	1.34 µg/L	95
		570.1 -> 483.0	944		
PFBA	2.907	212.8 -> 168.9	27878	4.84 µg/L	100
PFBS	5.398	298.7 -> 79.9	10353	1.09 µg/L	99
		298.7 -> 98.8	3723		
PFDA	8.064	512.9 -> 469.0	28654	1.31 µg/L	97
		512.9 -> 219.0	4337		
PFDODA	8.950	613.1 -> 569.0	22608	1.26 µg/L	99
		613.1 -> 319.0	3042		
PFDS	9.113	599.0 -> 79.9	3829	1.09 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2059			
PFHpA	6.420	363.1 -> 319.0	29724	1.16	µg/L	99
		363.1 -> 169.0	5019			
PFHpS	7.735	449.0 -> 79.9	6165	1.07	µg/L	99
		449.0 -> 98.9	3250			
PFHxA	5.469	313.0 -> 269.0	26239	1.17	µg/L	99
		313.0 -> 118.9	1317			
PFHxS	7.168	398.7 -> 79.9	7075	1.16	µg/L	m 98
		398.7 -> 98.9	3633			
PFNA	7.584	463.0 -> 419.0	21002	1.25	µg/L	100
		463.0 -> 219.0	4315			
PFNS	8.693	548.8 -> 79.9	5897	1.13	µg/L	93
		548.8 -> 98.9	3092			
PFOA	7.066	413.0 -> 369.0	45111	1.28	µg/L	99
		413.0 -> 169.0	7401			
PFOS	8.228	498.9 -> 79.9	6210	1.10	µg/L	m 94
		498.9 -> 98.8	3066			
PFPeA	4.274	263.0 -> 219.0	35988	2.42	µg/L	100
PFPeS	6.471	349.1 -> 79.9	7402	1.23	µg/L	97
		349.1 -> 98.9	3480			
PFTeDA	9.677	713.1 -> 669.0	19101	1.16	µg/L	100
		713.1 -> 168.9	1426			
PFTrDA	9.333	663.0 -> 619.0	26856	1.29	µg/L	98
		663.0 -> 168.9	2289			
PFUnDA	8.518	563.1 -> 519.0	21308	1.37	µg/L	98
		563.1 -> 269.1	3197			
11CI-PF3OUdS	9.385	630.9 -> 450.9	30662	2.33	µg/L	91
		632.9 -> 452.9	9976			
9CI-PF3ONS	8.557	530.8 -> 351.0	50546	2.40	µg/L	95
		532.8 -> 353.0	15818			
ADONA	6.671	376.9 -> 250.9	132264	2.38	µg/L	95
		376.9 -> 84.8	34712			
HFPO-DA	5.832	284.9 -> 168.9	8273	2.45	µg/L	97
		284.9 -> 184.9	1220			
3:3FTCA	3.790	241.0 -> 177.0	5511	5.97	µg/L	99
		241.0 -> 117.0	722			
5:3FTCA	6.161	341.0 -> 237.1	117640	30.40	µg/L	98
		341.0 -> 217.0	83266			
7:3FTCA	7.586	441.0 -> 316.9	55568	31.66	µg/L	97
		441.0 -> 336.9	113851			
EtFOSA	10.986	526.0 -> 219.0	9637	2.28	µg/L	86
		526.0 -> 169.0	13426			
EtFOSE	10.920	630.0 -> 58.9	26175	6.07	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	8644	2.29	µg/L	m 87
		511.9 -> 169.0	12581			
MeFOSE	10.686	616.1 -> 58.9	22674	5.91	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	2186	1.18	µg/L	99
		699.1 -> 98.8	1227			
NFDHA	5.348	295.0 -> 201.0	6034	2.45	µg/L	99
		295.0 -> 84.9	1684			
PFMBA	4.675	279.0 -> 85.1	25376	2.39	µg/L	100
PFMPA	3.426	229.0 -> 84.9	18401	2.40	µg/L	100
PFEESA	5.938	314.8 -> 134.9	66798	2.23	µg/L	100
		314.8 -> 82.9	2263			

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

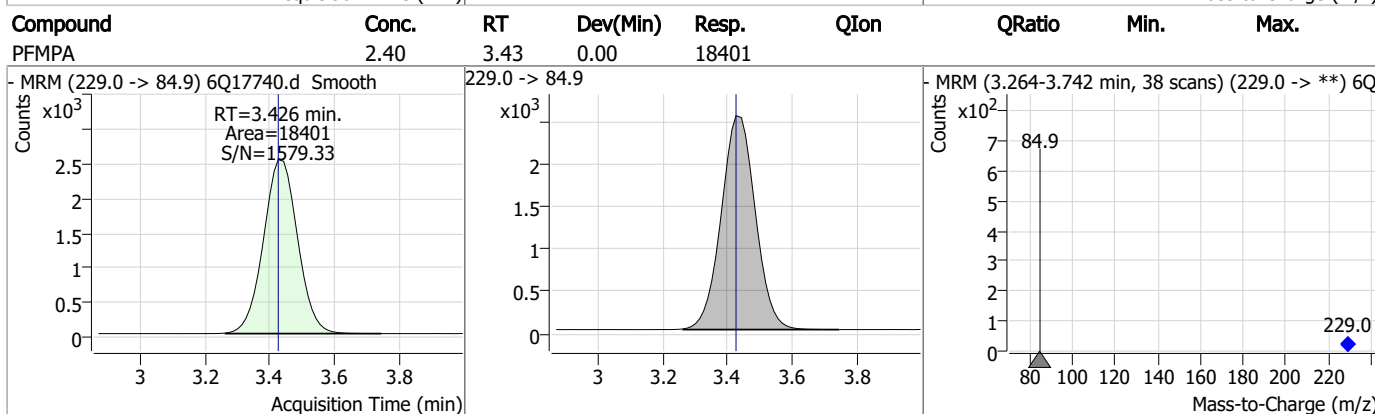
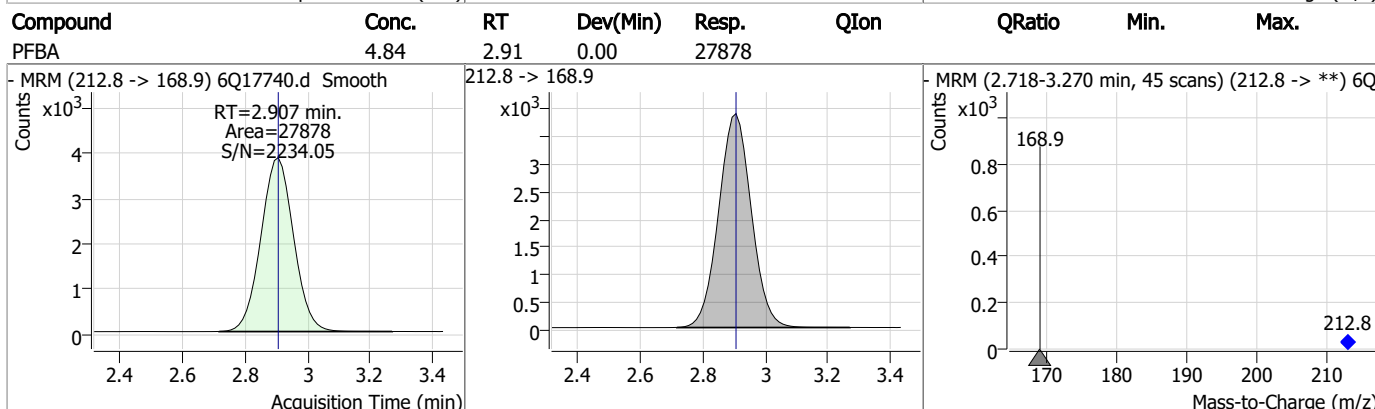
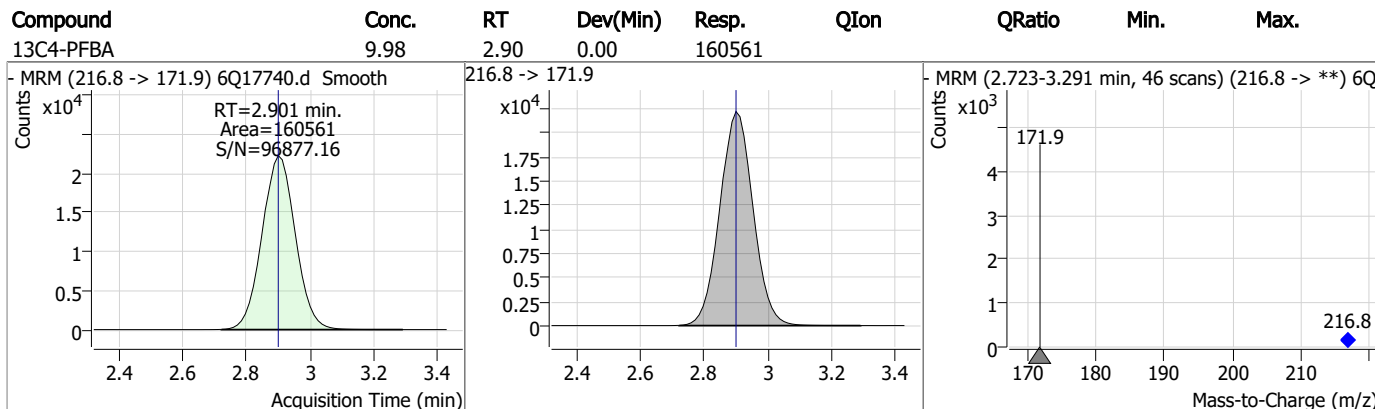
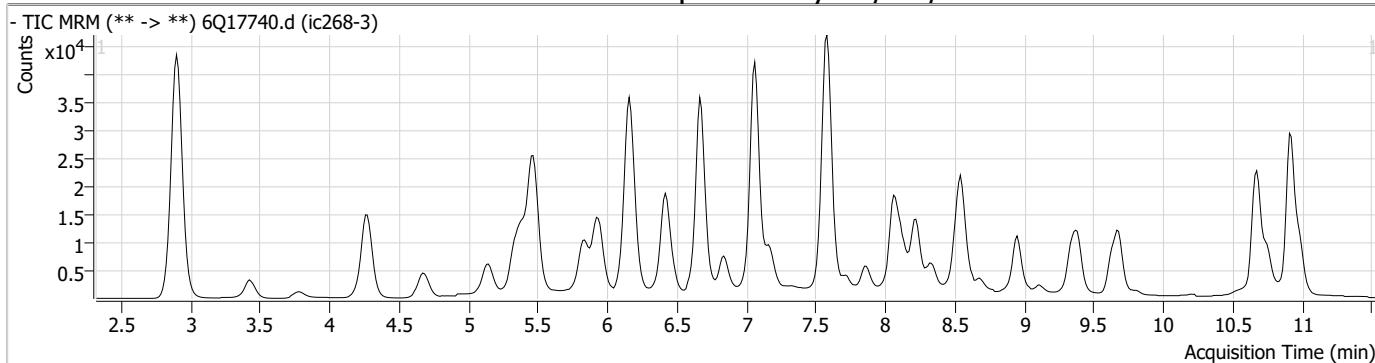
Perfluorinated Compounds by LC/MS/MS

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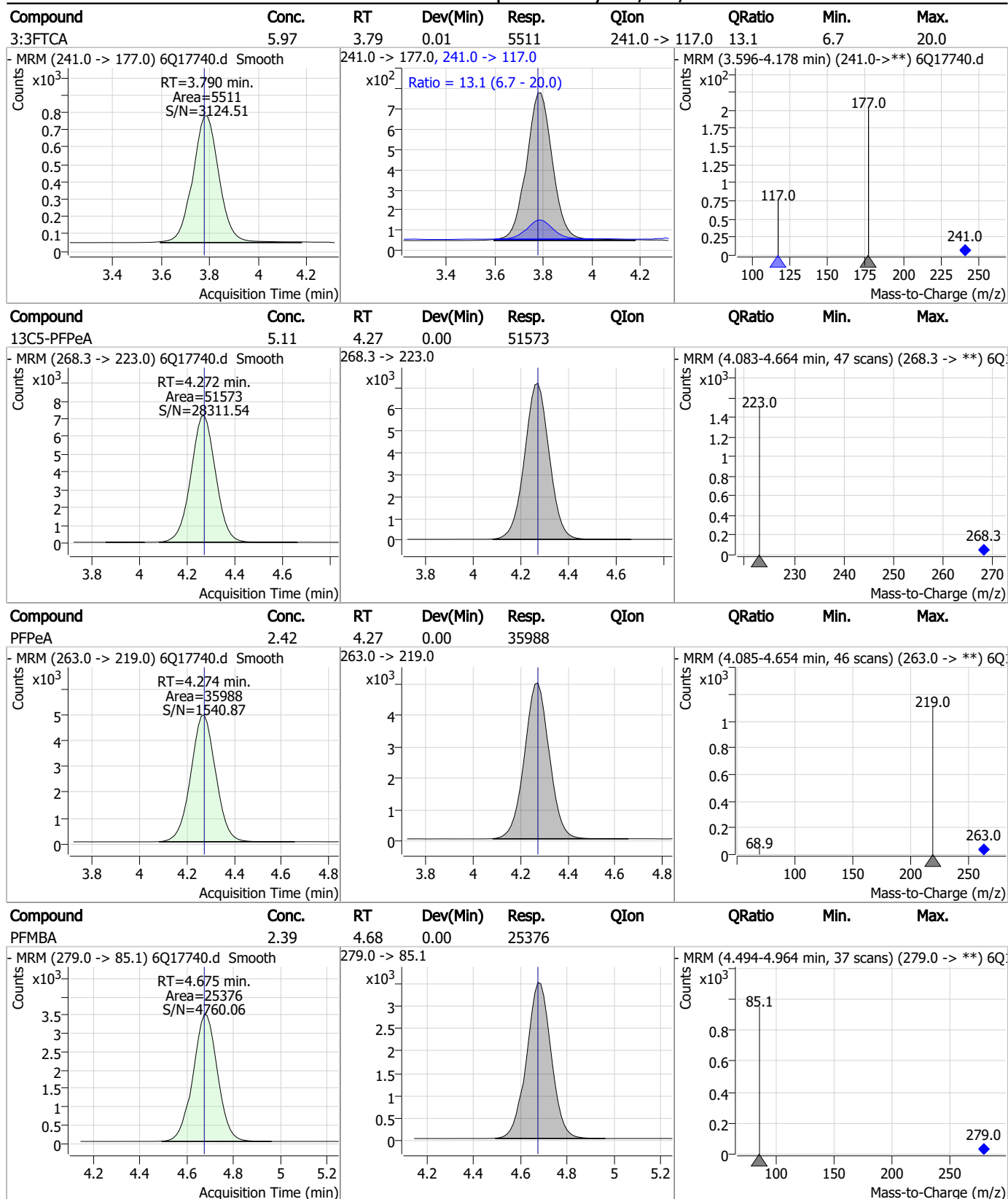
7.7.4

7

Perfluorinated Compounds by LC/MS/MS

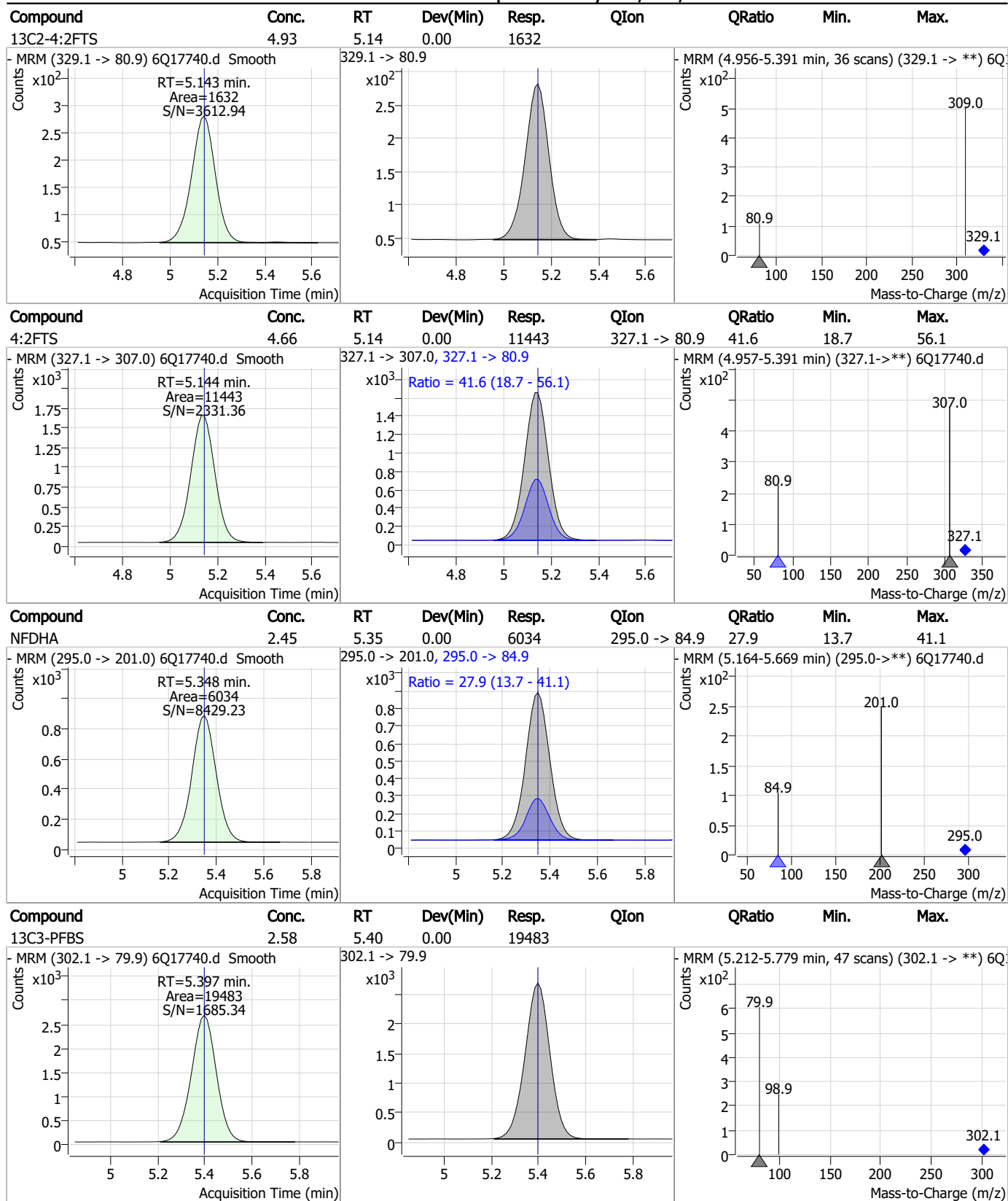


Perfluorinated Compounds by LC/MS/MS



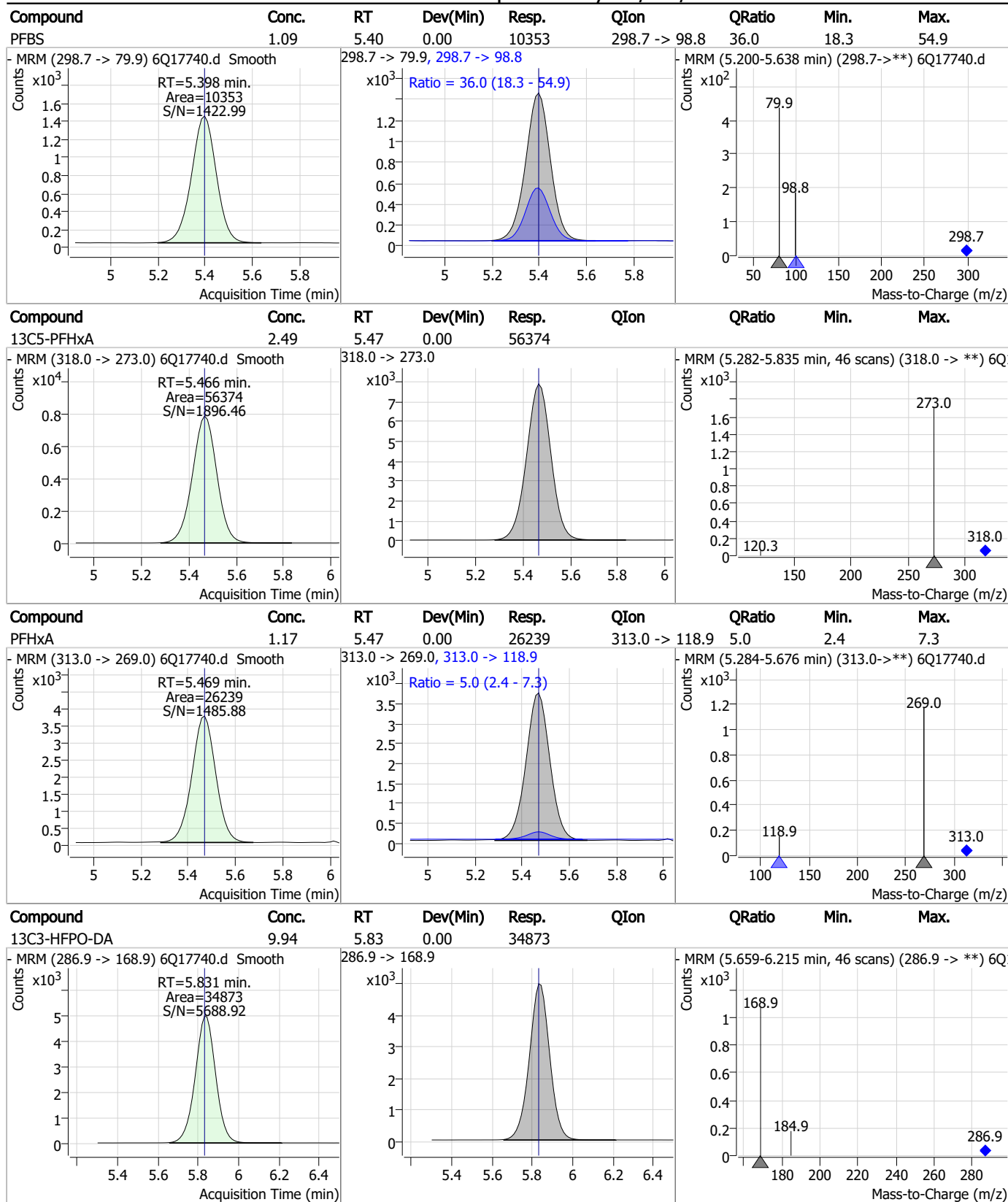
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

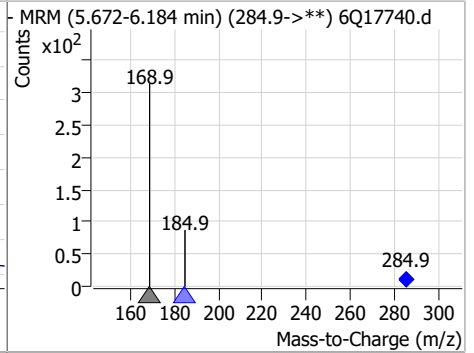
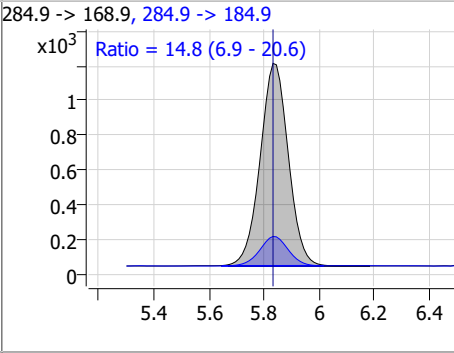
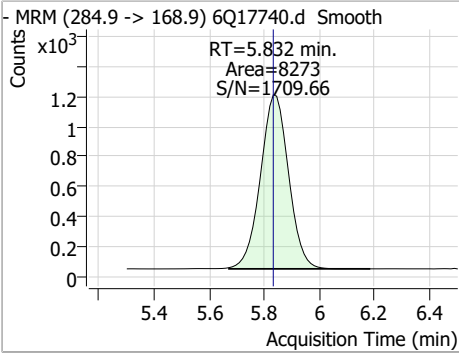
Perfluorinated Compounds by LC/MS/MS



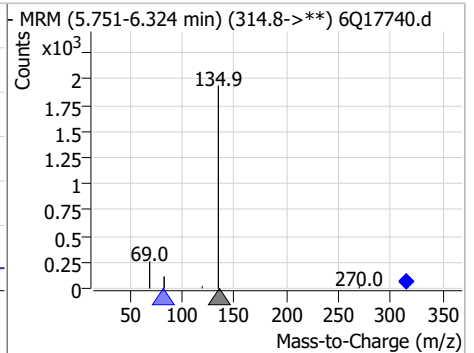
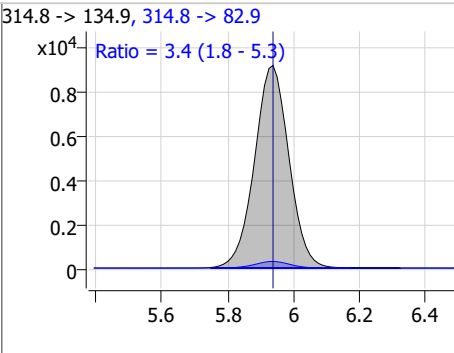
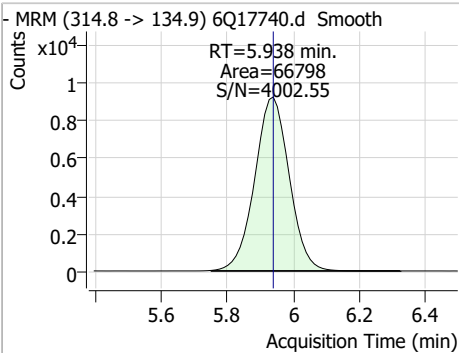
7.7.4

Perfluorinated Compounds by LC/MS/MS

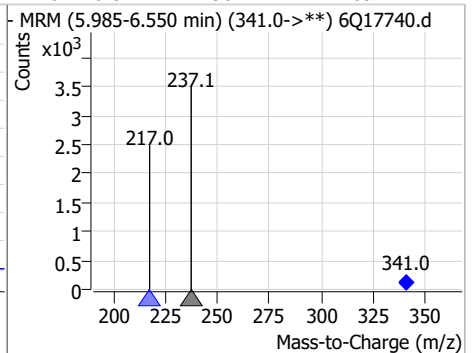
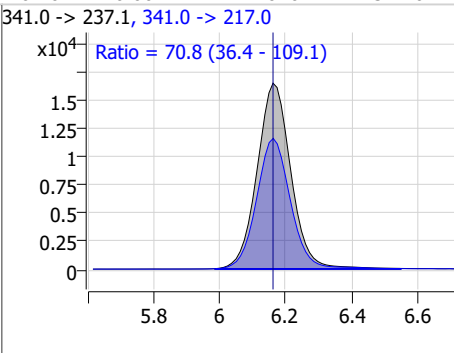
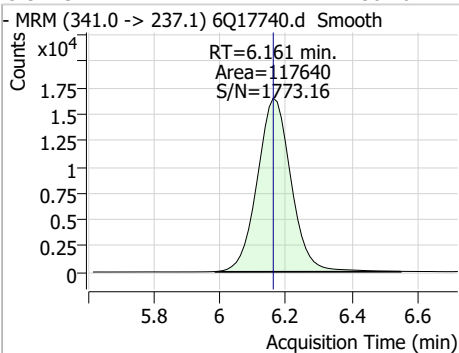
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.45	5.83	0.00	8273	284.9 -> 184.9	14.8	6.9	20.6



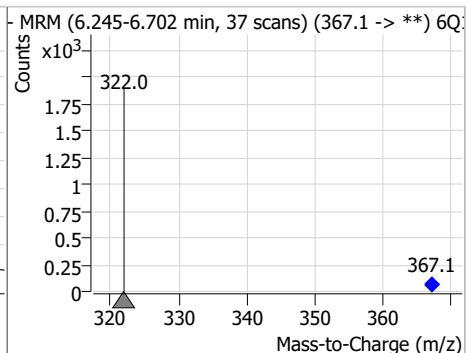
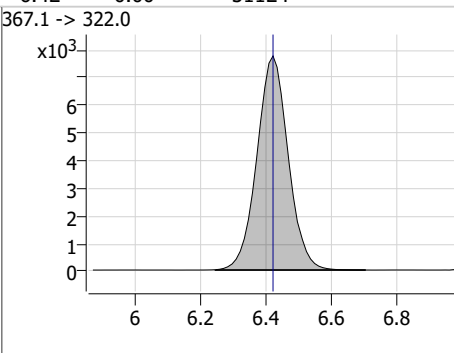
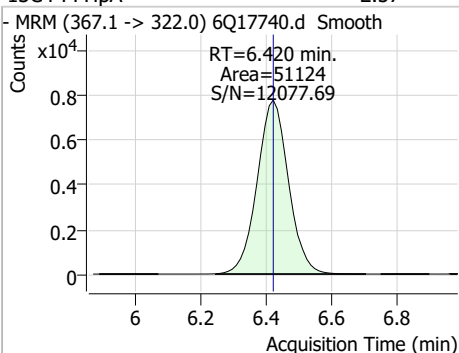
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.23	5.94	0.00	66798	314.8 -> 82.9	3.4	1.8	5.3



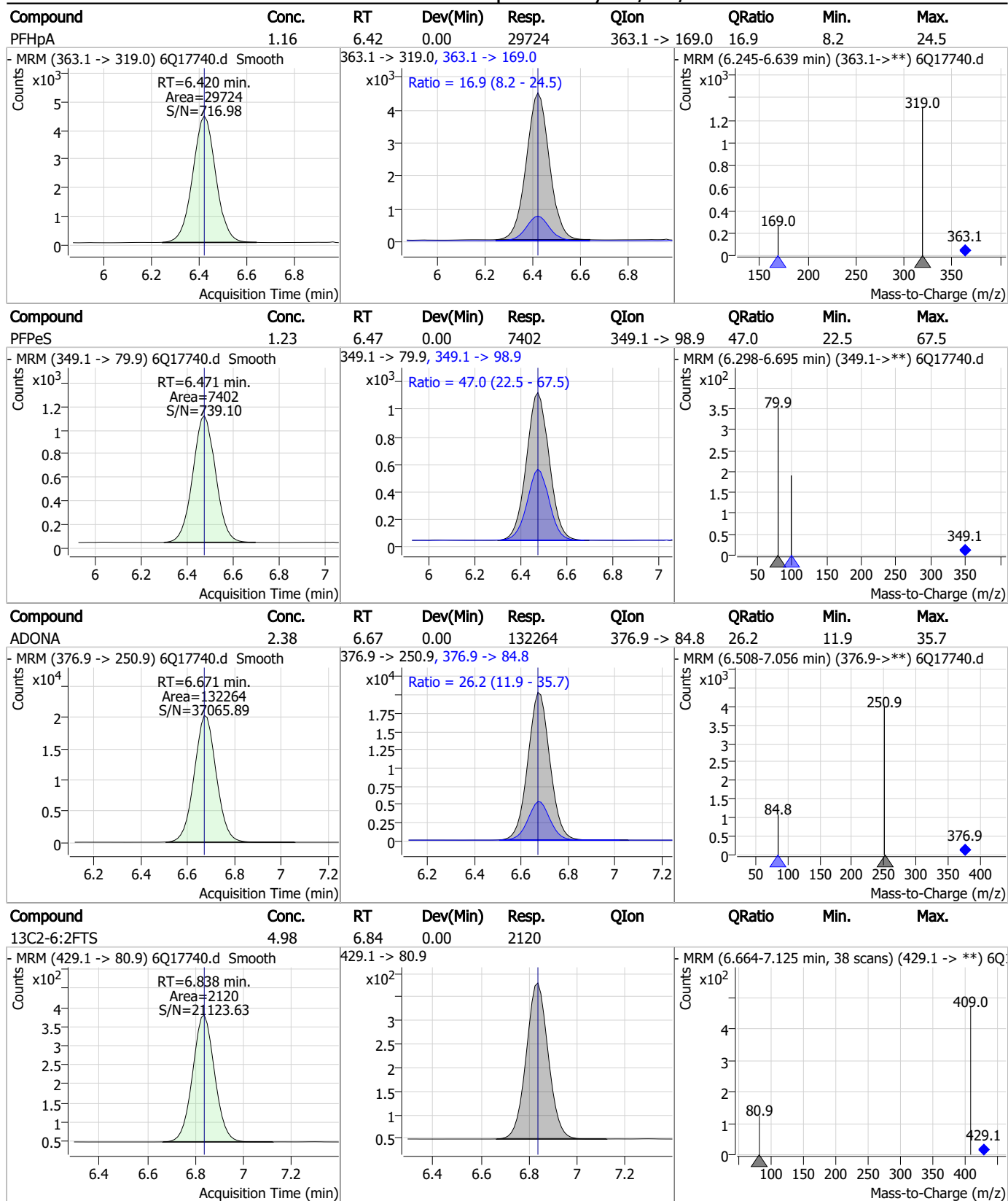
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	30.40	6.16	0.00	117640	341.0 -> 217.0	70.8	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.57	6.42	0.00	51124	367.1 -> 322.0			



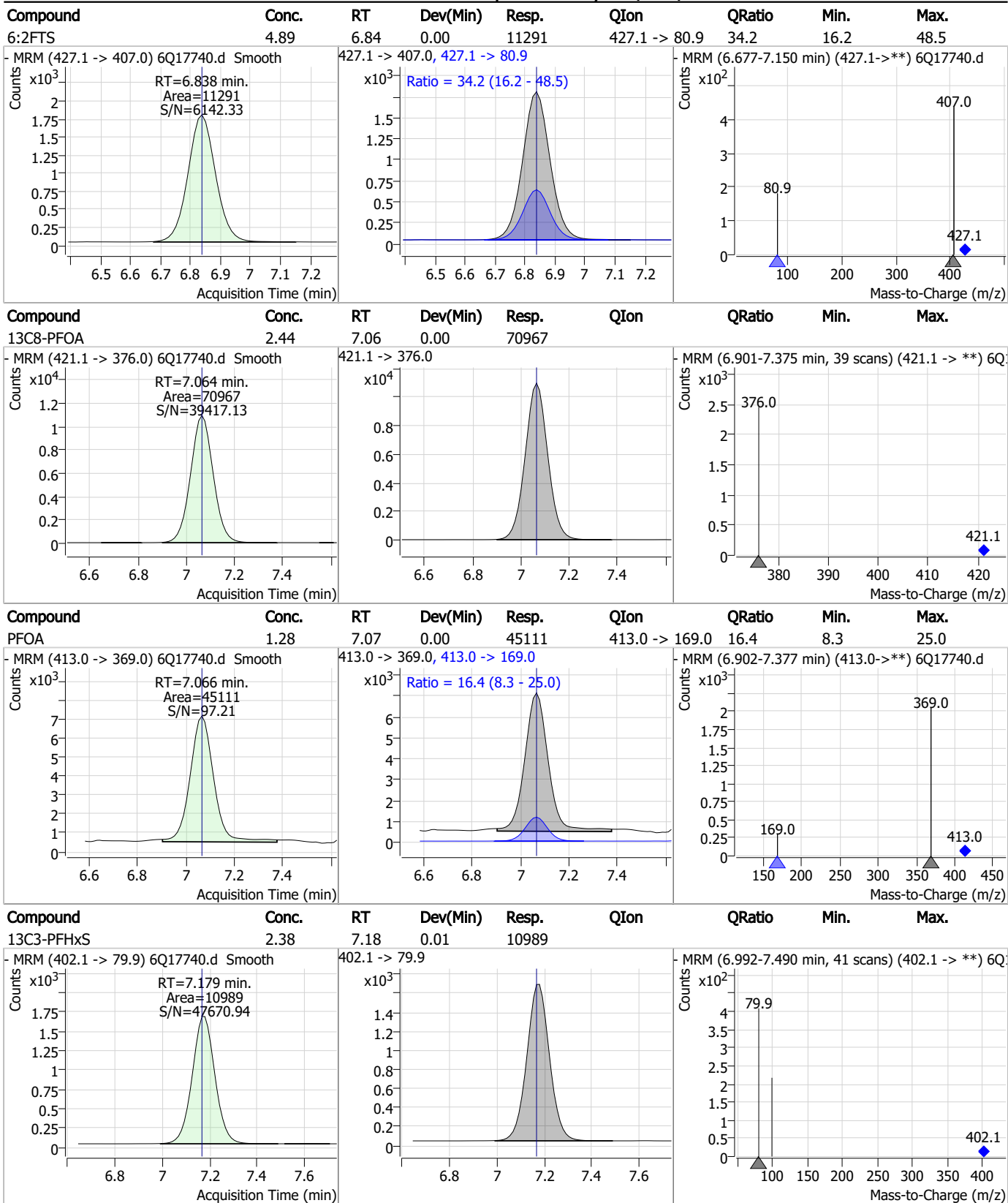
Perfluorinated Compounds by LC/MS/MS



7.7.4

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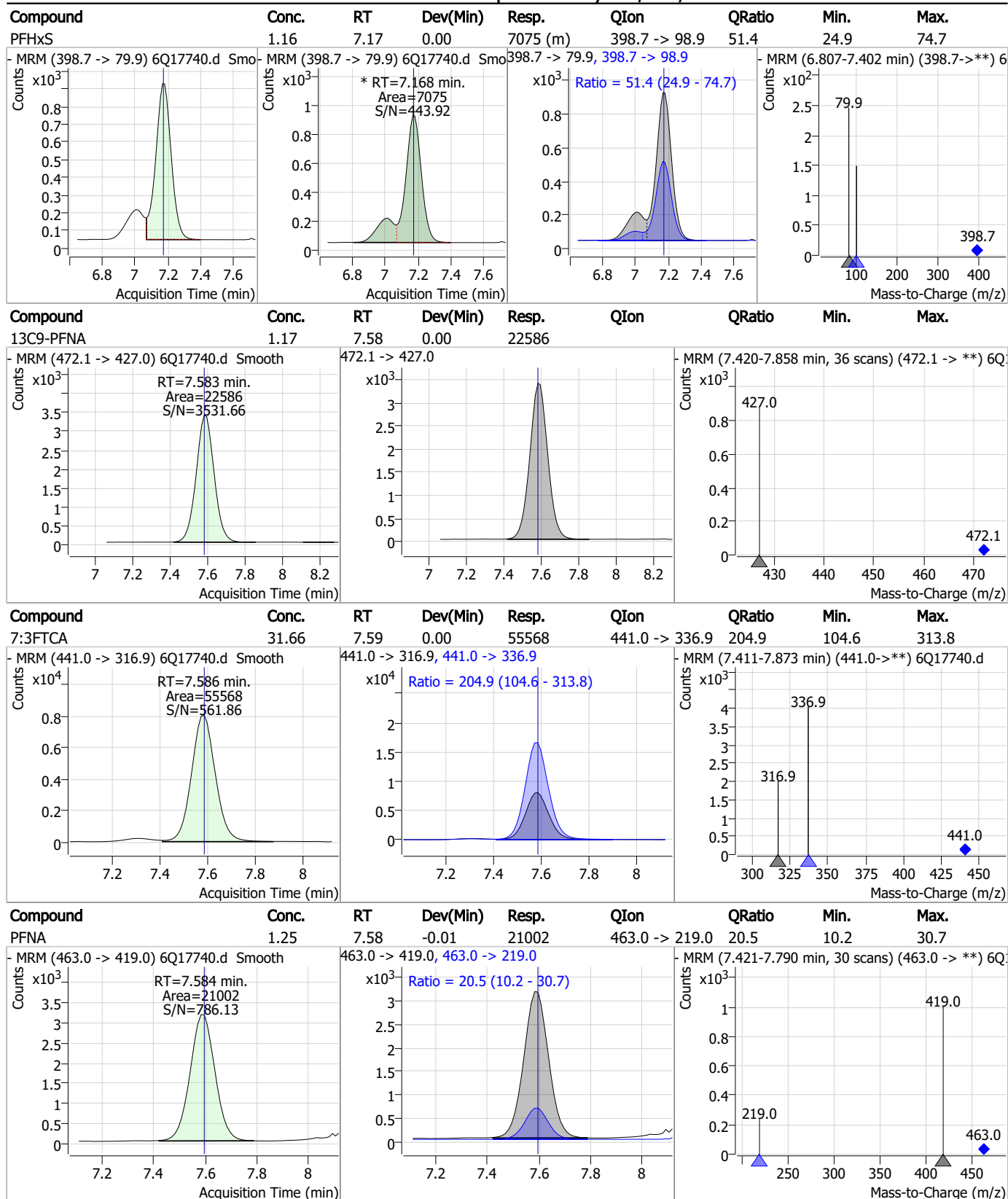
Perfluorinated Compounds by LC/MS/MS



7.7.4
7

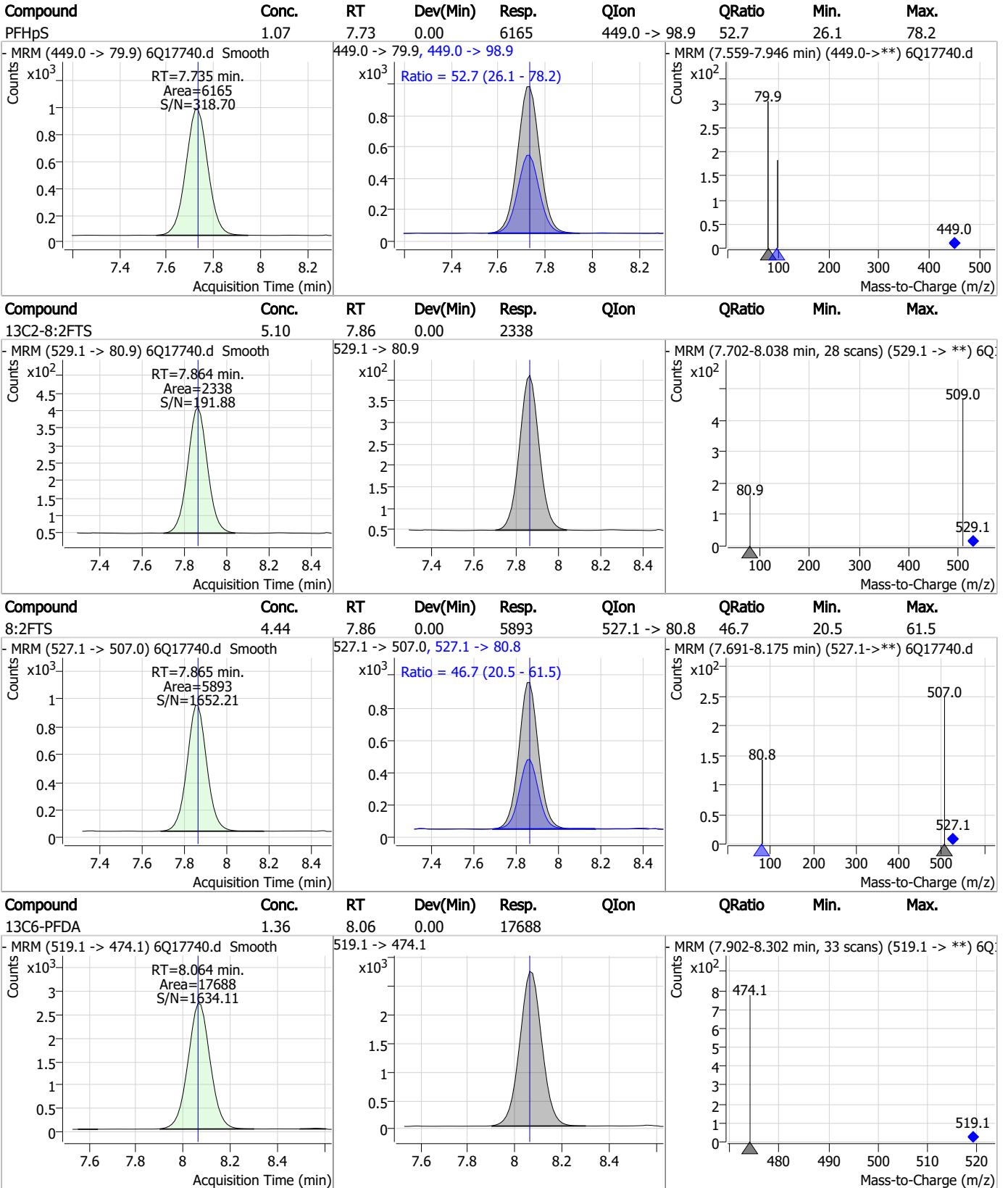


Perfluorinated Compounds by LC/MS/MS



7.7.4
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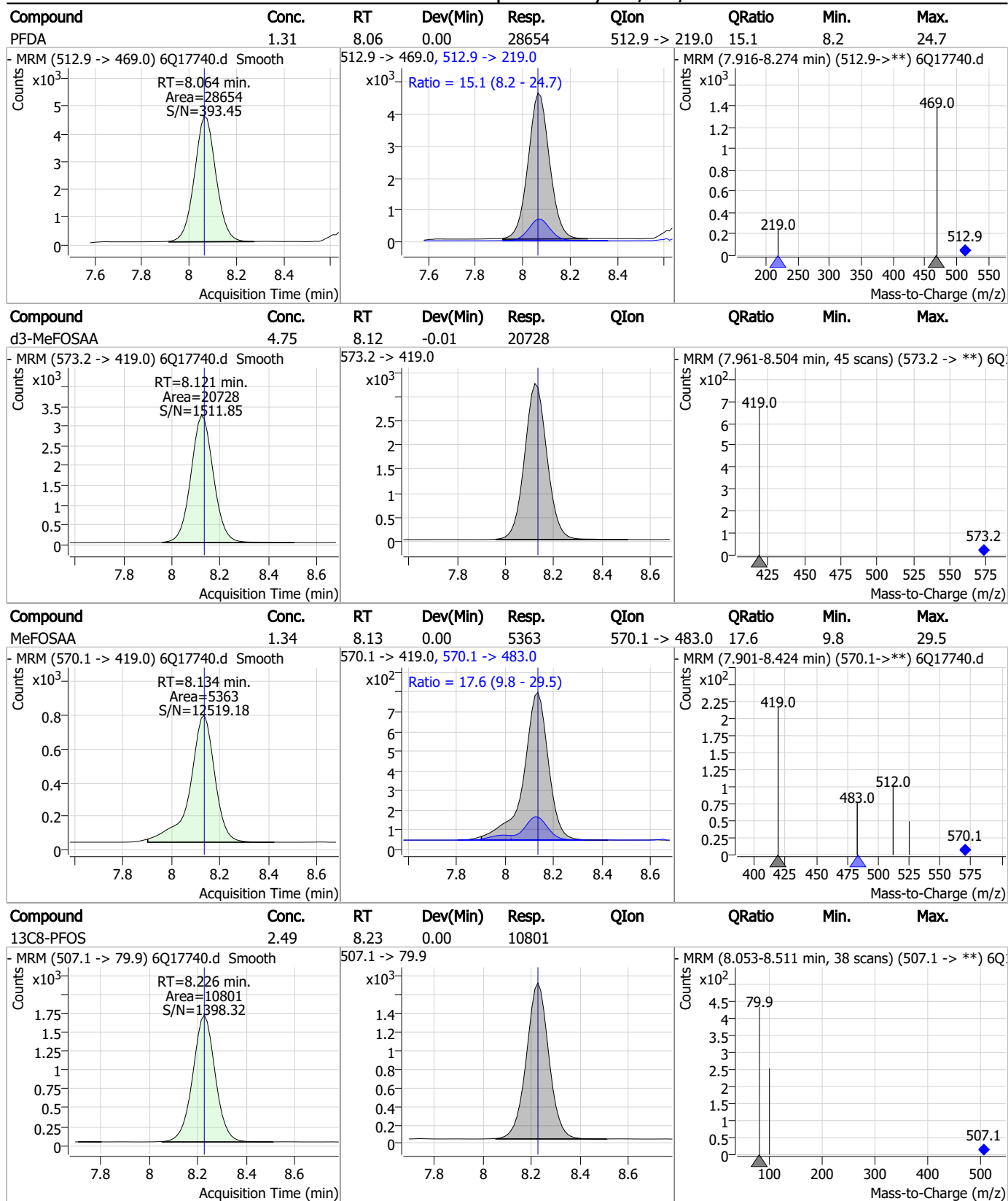
Perfluorinated Compounds by LC/MS/MS



7.7.4

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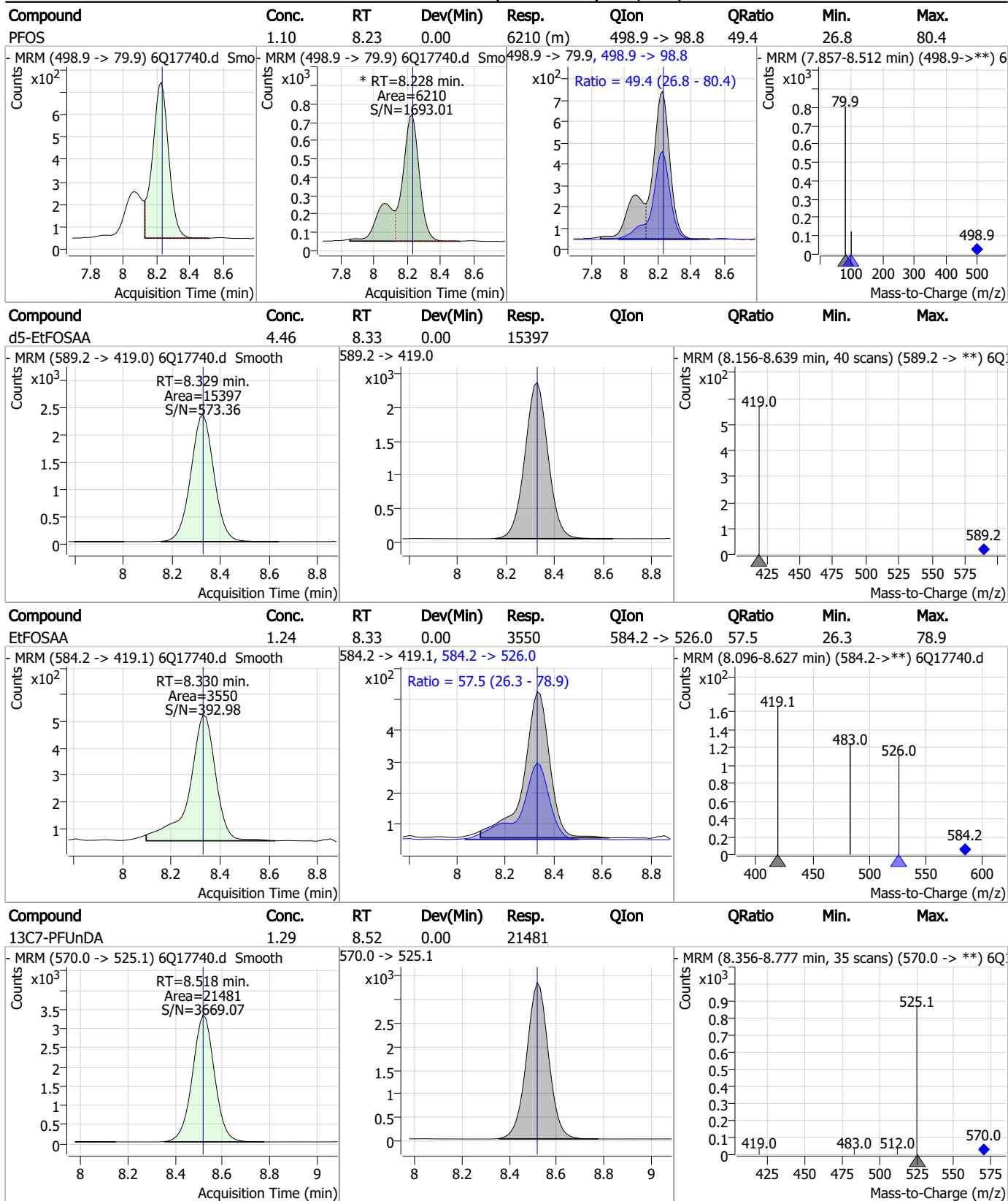
Perfluorinated Compounds by LC/MS/MS



7.7.4

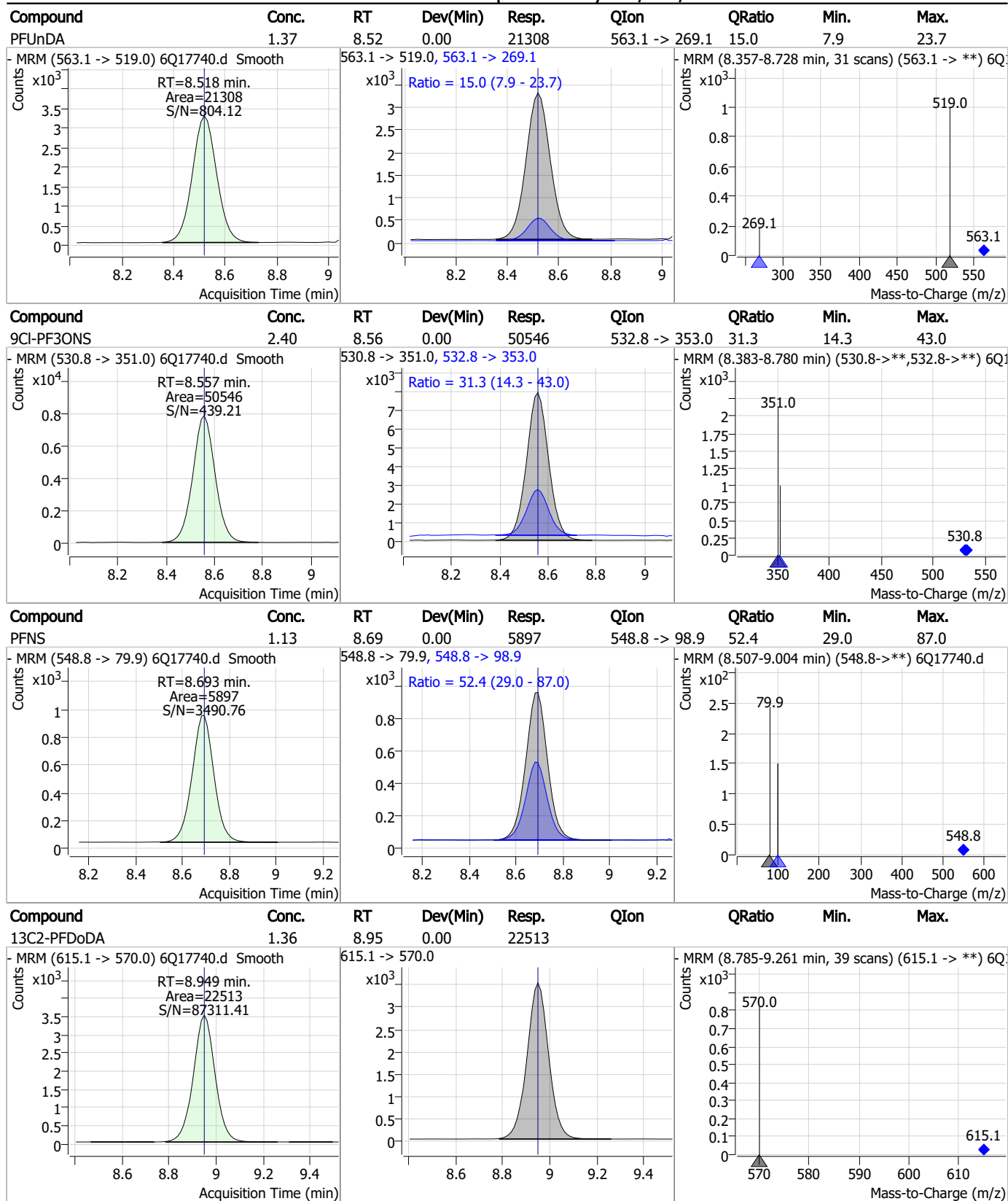
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Perfluorinated Compounds by LC/MS/MS



7.7.4
7

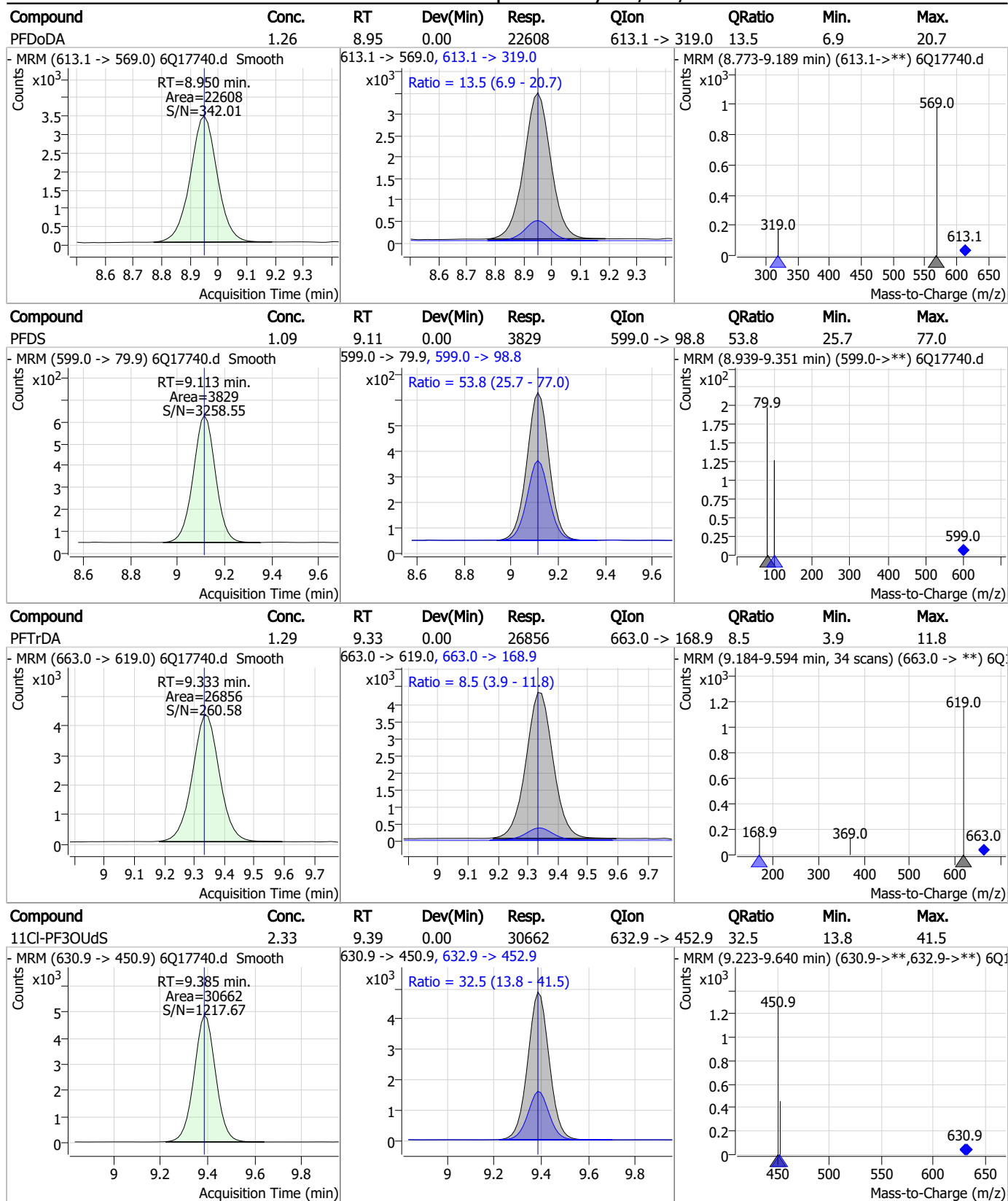
Perfluorinated Compounds by LC/MS/MS



7.7.4

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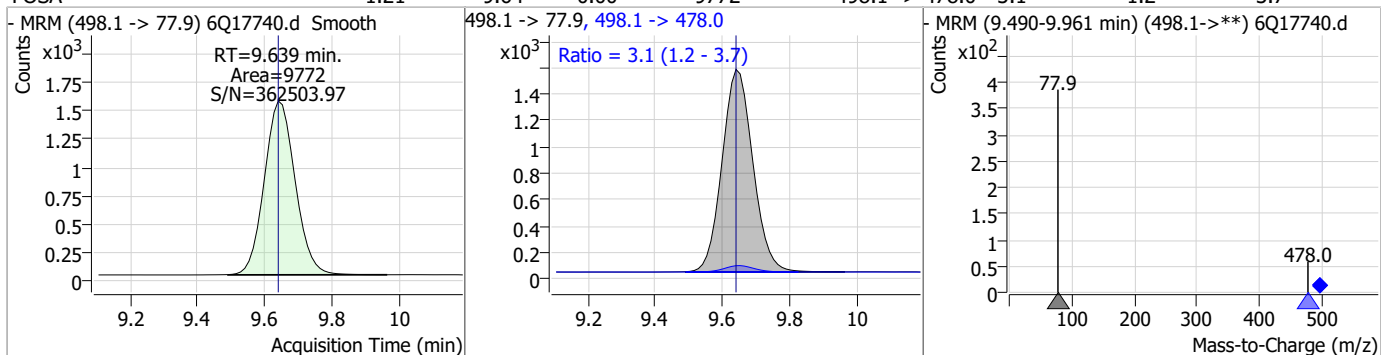
Perfluorinated Compounds by LC/MS/MS



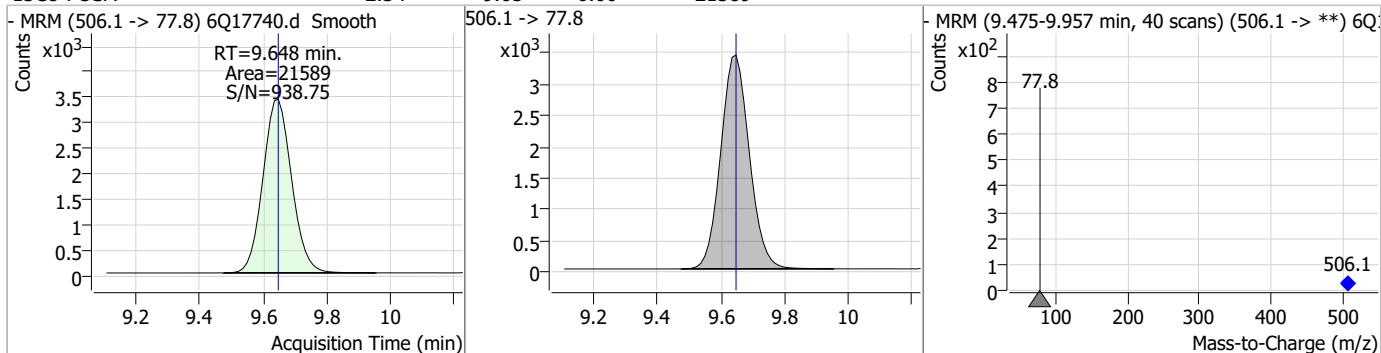
7.7.4
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Perfluorinated Compounds by LC/MS/MS

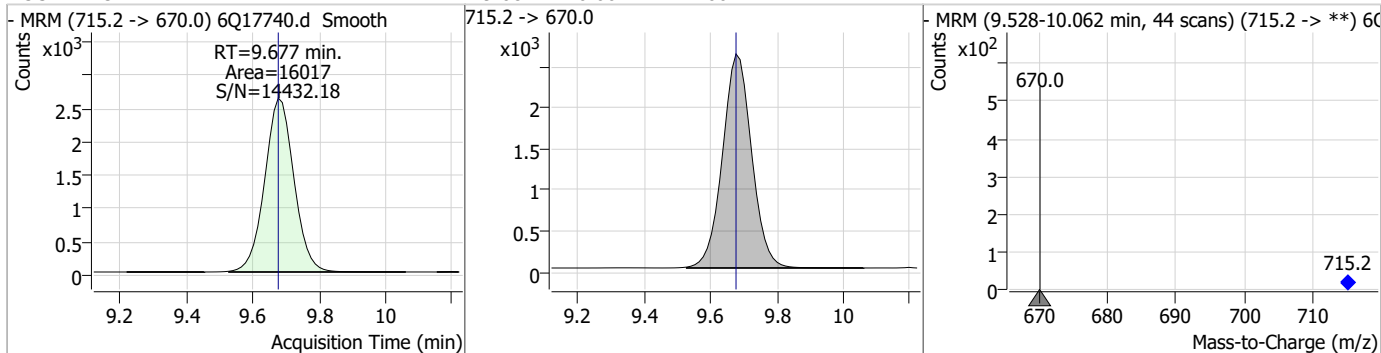
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.21	9.64	0.00	9772	498.1 -> 478.0	3.1	1.2	3.7



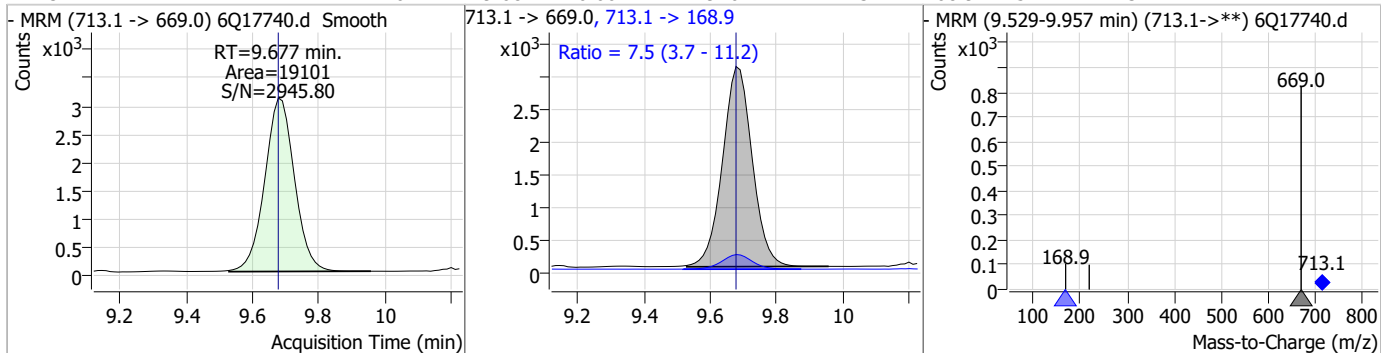
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.34	9.65	0.00	21589				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.42	9.68	0.00	16017				

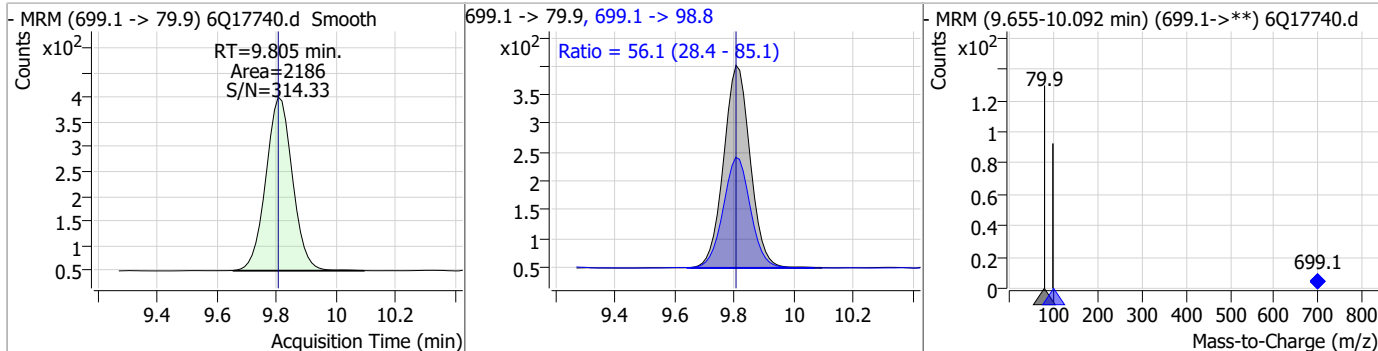


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.16	9.68	0.00	19101	713.1 -> 168.9	7.5	3.7	11.2

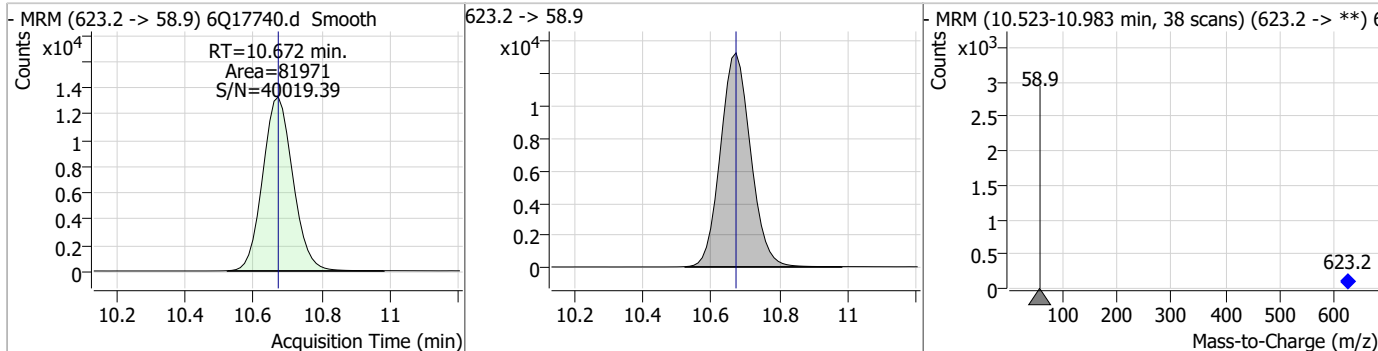


Perfluorinated Compounds by LC/MS/MS

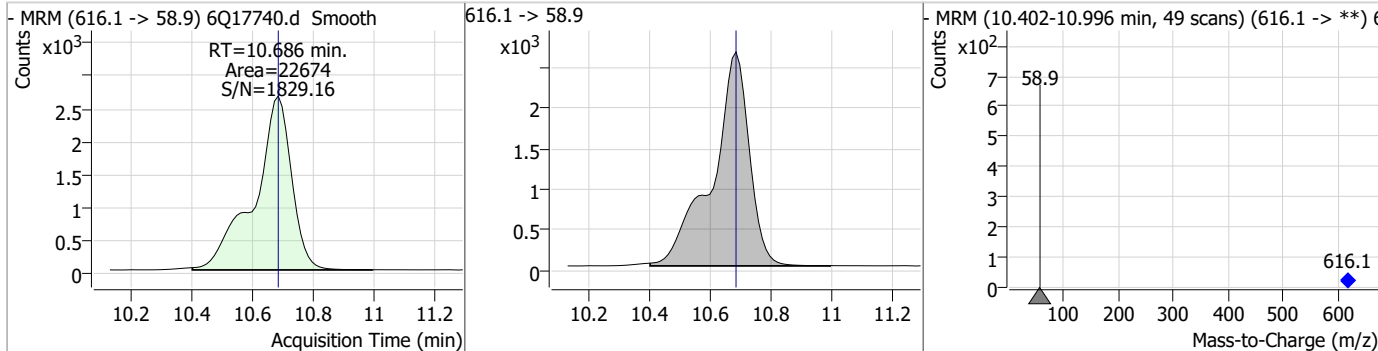
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.18	9.81	0.00	2186	699.1 -> 98.8	56.1	28.4	85.1



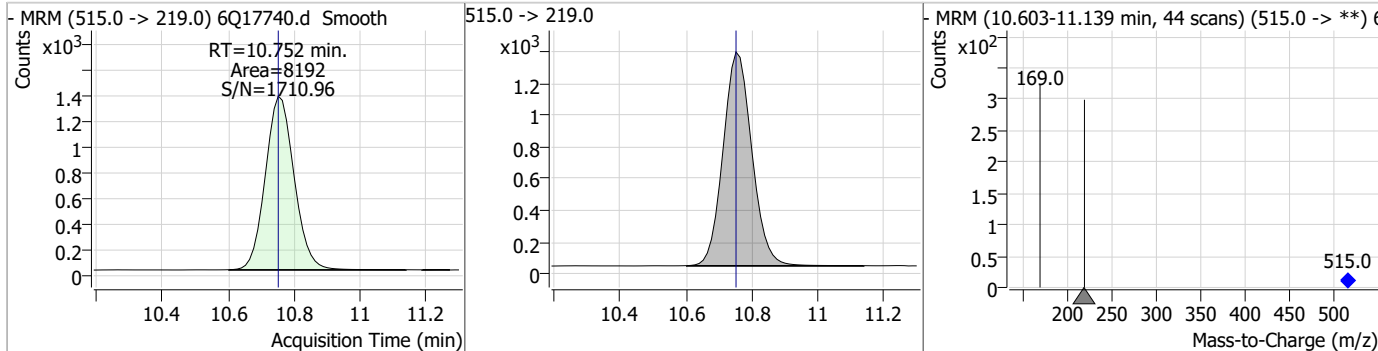
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.90	10.67	0.00	81971				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	5.91	10.69	0.00	22674				

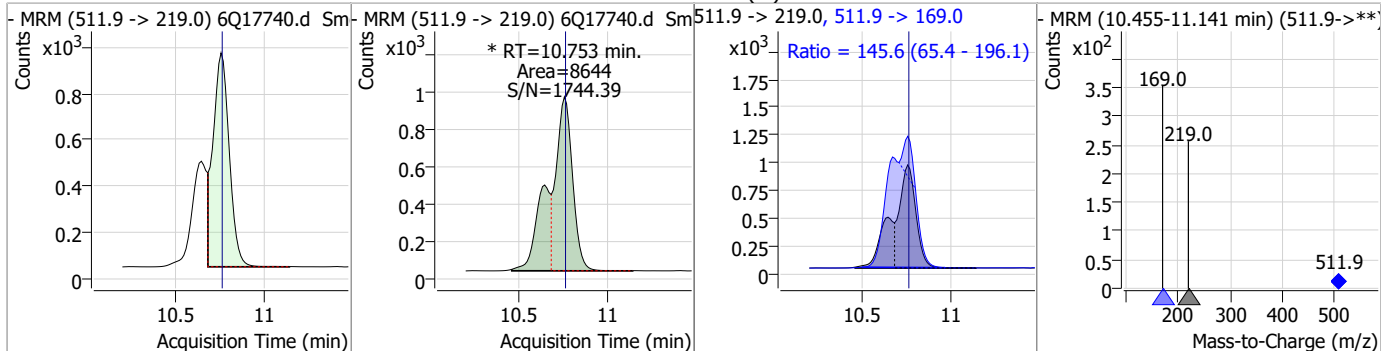


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	10.75	0.00	8192				

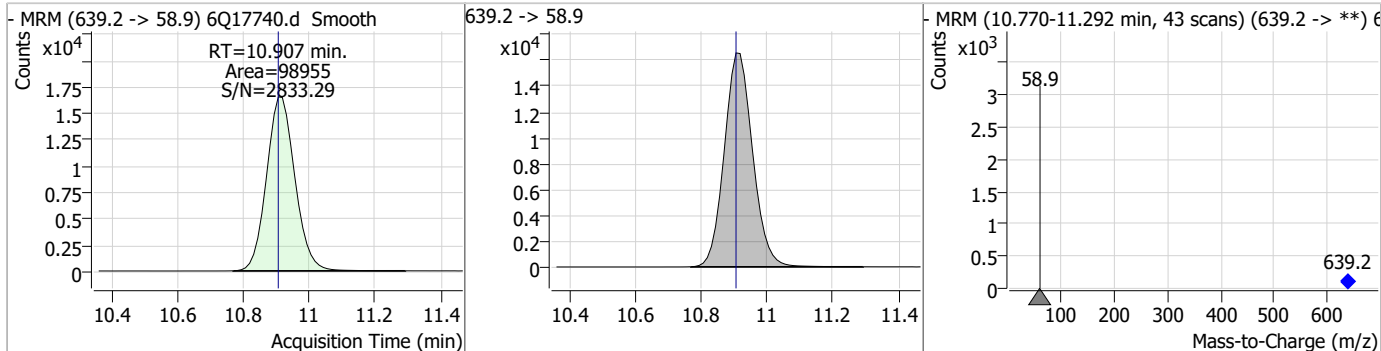


Perfluorinated Compounds by LC/MS/MS

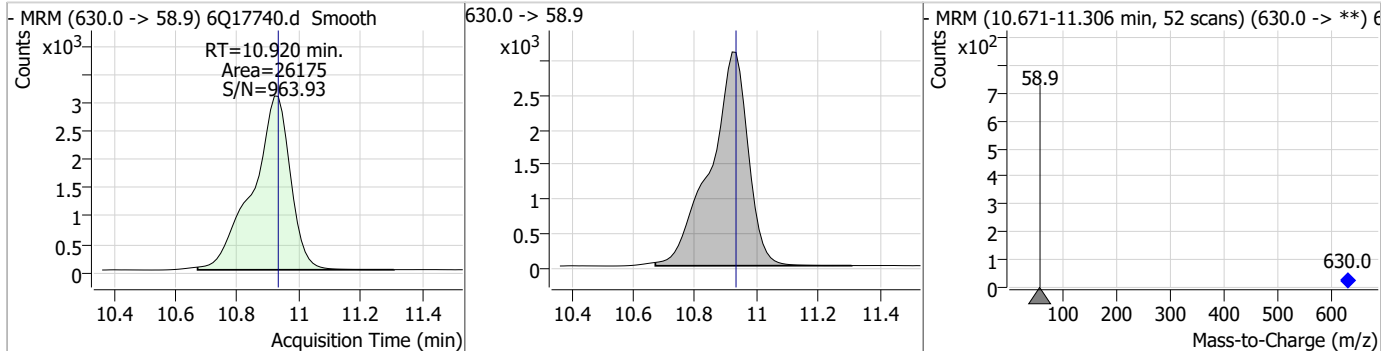
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.29	10.75	0.00	8644 (m)	511.9 -> 169.0	145.6	65.4	196.1



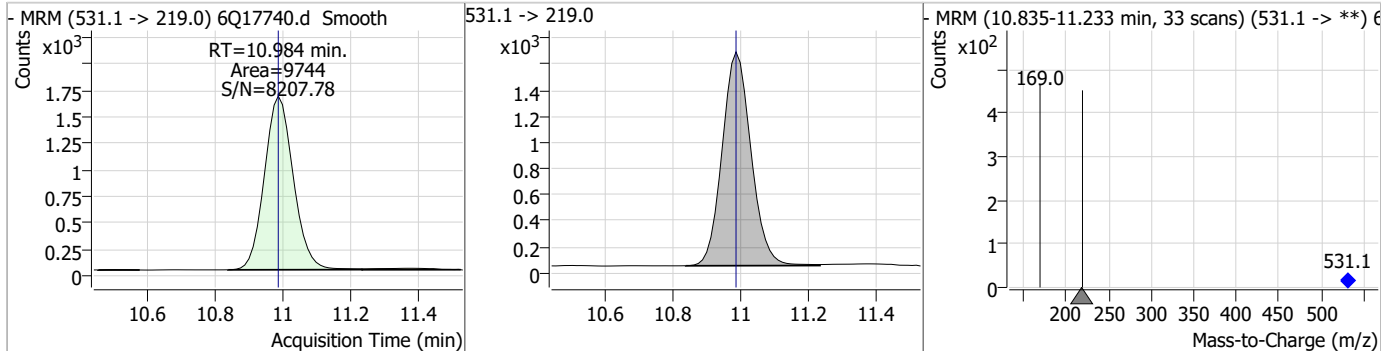
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.88	10.91	0.00	98955				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	6.07	10.92	-0.01	26175				

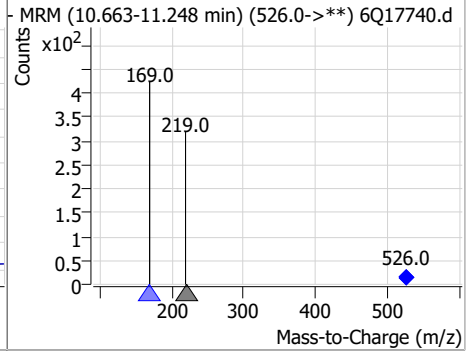
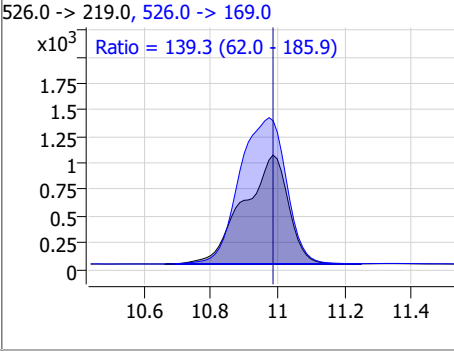
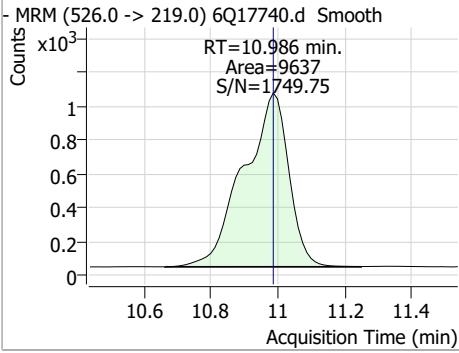


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.40	10.98	0.00	9744				



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	2.28	10.99	0.00	9637	526.0 -> 169.0	139.3	62.0	185.9



7.7.4
7

Manual Integration Approval Summary

Sample Number: S6Q268-IC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17740.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 12:44 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17741.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 12:58:55 PM
 Sample Name : icc268-4
 Vial : P1-A5
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	159107	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	50197	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	55453	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	50653	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	73845	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	22325	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	18873	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	24468	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	23277	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	15804	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21412	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18722	2.50 µg/L	0.000
M3-PFHxS	7.167	402.1 -> 79.9	11888	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10531	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1640	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2242	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2051	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	20391	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	33885	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	16070	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	80163	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	99980	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9595	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	8130	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12722	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	66168	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	8564	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	77104	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	22066	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	24847	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	51206	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1640	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2242	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2051	4.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C2-PFDoDA	8.949	615.1 -> 570.0	23277	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFTeDA	9.677	715.2 -> 670.0	15804	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFBS	5.397	302.1 -> 79.9	18722	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.167	402.1 -> 79.9	11888	2.61 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 = 104.2%	
13C4-PFBA	2.901	216.8 -> 171.9	159107	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFHpA	6.420	367.1 -> 322.0	50653	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C5-PFHxA	5.466	318.0 -> 273.0	55453	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C5-PFPeA	4.272	268.3 -> 223.0	50197	4.66 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C6-PFDA	8.064	519.1 -> 474.1	18873	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C7-PFUnDA	8.518	570.0 -> 525.1	24468	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C8-FOSA	9.648	506.1 -> 77.8	21412	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOA	7.064	421.1 -> 376.0	73845	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOS	8.226	507.1 -> 79.9	10531	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C9-PFNA	7.583	472.1 -> 427.0	22325	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSAA	8.133	573.2 -> 419.0	20391	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33885	9.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 90.4%	
d3-MeFOSA	10.752	515.0 -> 219.0	8130	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
d5-EtFOSAA	8.329	589.2 -> 419.0	16070	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d7-MeFOSE	10.672	623.2 -> 58.9	80163	25.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
d9-EtFOSE	10.907	639.2 -> 58.9	99980	26.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
d5-EtFOSA	10.984	531.1 -> 219.0	9595	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	23394	9.49 µg/L	100
		327.1 -> 80.9	8755		
6:2FTS	6.838	427.1 -> 407.0	21921	8.98 µg/L	100
		427.1 -> 80.9	7092		
8:2FTS	7.865	527.1 -> 507.0	12129	10.41 µg/L	100
		527.1 -> 80.8	4971		
EtFOSAA	8.330	584.2 -> 419.1	7227	2.42 µg/L	100
		584.2 -> 526.0	3804		
FOSA	9.639	498.1 -> 77.9	20458	2.55 µg/L	100
		498.1 -> 478.0	510		
MeFOSAA	8.134	570.1 -> 419.0	9691	2.46 µg/L	100
		570.1 -> 483.0	1908		
PFBA	2.907	212.8 -> 168.9	54996	9.64 µg/L	100
PFBS	5.398	298.7 -> 79.9	20024	2.19 µg/L	100
		298.7 -> 98.8	7331		
PFDA	8.064	512.9 -> 469.0	51596	2.21 µg/L	100
		512.9 -> 219.0	8498		
PFDODA	8.950	613.1 -> 569.0	43839	2.36 µg/L	100
		613.1 -> 319.0	6062		
PFDS	9.113	599.0 -> 79.9	7319	2.14 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3755			
PFHpA	6.420	363.1 -> 319.0	60123	2.37	µg/L	100
		363.1 -> 169.0	9818			
PFHpS	7.735	449.0 -> 79.9	12344	2.20	µg/L	100
		449.0 -> 98.9	6434			
PFHxA	5.469	313.0 -> 269.0	50888	2.32	µg/L	100
		313.0 -> 118.9	2461			
PFHxS	7.168	398.7 -> 79.9	13619	2.07	µg/L	m 100
		398.7 -> 98.9	6780			
PFNA	7.596	463.0 -> 419.0	40955	2.47	µg/L	100
		463.0 -> 219.0	8388			
PFNS	8.693	548.8 -> 79.9	10822	2.13	µg/L	100
		548.8 -> 98.9	6278			
PFOA	7.066	413.0 -> 369.0	83569	2.27	µg/L	100
		413.0 -> 169.0	13951			
PFOS	8.228	498.9 -> 79.9	11765	2.13	µg/L	m 100
		498.9 -> 98.8	6303			
PFPeA	4.274	263.0 -> 219.0	70914	4.89	µg/L	100
PFPeS	6.471	349.1 -> 79.9	14740	2.26	µg/L	100
		349.1 -> 98.9	6632			
PFTeDA	9.677	713.1 -> 669.0	36435	2.25	µg/L	100
		713.1 -> 168.9	2721			
PFTrDA	9.333	663.0 -> 619.0	54198	2.52	µg/L	100
		663.0 -> 168.9	4252			
PFUnDA	8.518	563.1 -> 519.0	40846	2.30	µg/L	100
		563.1 -> 269.1	6449			
11CI-PF3OUdS	9.385	630.9 -> 450.9	64170	5.01	µg/L	100
		632.9 -> 452.9	17748			
9CI-PF3ONS	8.557	530.8 -> 351.0	101218	4.95	µg/L	100
		532.8 -> 353.0	29000			
ADONA	6.671	376.9 -> 250.9	262341	4.86	µg/L	100
		376.9 -> 84.8	62519			
HFPO-DA	5.832	284.9 -> 168.9	15379	4.69	µg/L	100
		284.9 -> 184.9	2108			
3:3FTCA	3.777	241.0 -> 177.0	10659	11.87	µg/L	100
		241.0 -> 117.0	1424			
5:3FTCA	6.161	341.0 -> 237.1	231848	60.92	µg/L	100
		341.0 -> 217.0	168573			
7:3FTCA	7.586	441.0 -> 316.9	108613	62.91	µg/L	100
		441.0 -> 336.9	227192			
EtFOSA	10.986	526.0 -> 219.0	19221	4.63	µg/L	100
		526.0 -> 169.0	23822			
EtFOSE	10.932	630.0 -> 58.9	52051	11.95	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	17460	4.66	µg/L	m 100
		511.9 -> 169.0	22823			
MeFOSE	10.686	616.1 -> 58.9	43365	11.56	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	4119	2.28	µg/L	100
		699.1 -> 98.8	2337			
NFDHA	5.348	295.0 -> 201.0	11990	4.94	µg/L	100
		295.0 -> 84.9	3289			
PFMBA	4.675	279.0 -> 85.1	50472	4.88	µg/L	100
PFMPA	3.426	229.0 -> 84.9	36012	4.83	µg/L	100
PFEESA	5.938	314.8 -> 134.9	127223	4.31	µg/L	100
		314.8 -> 82.9	4504			

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

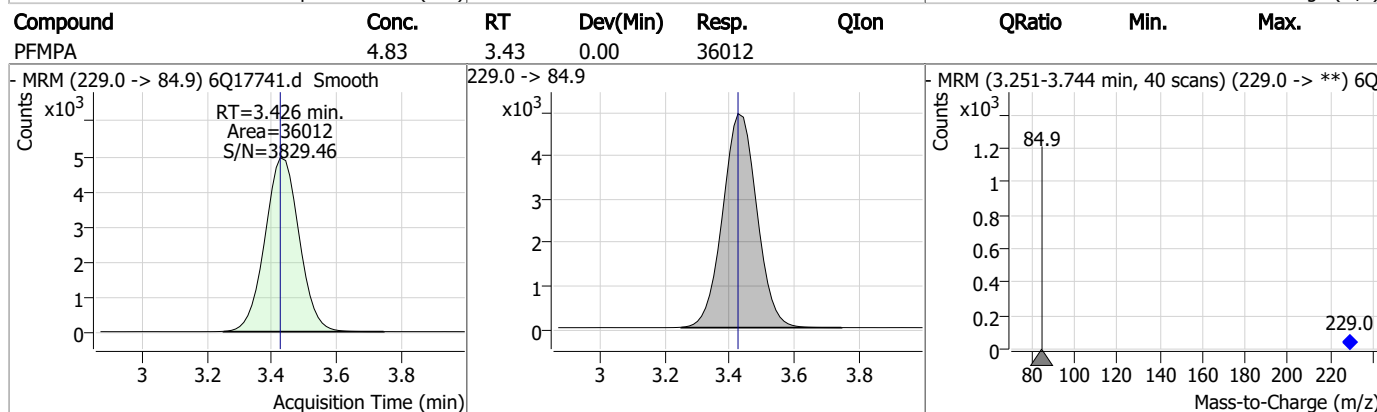
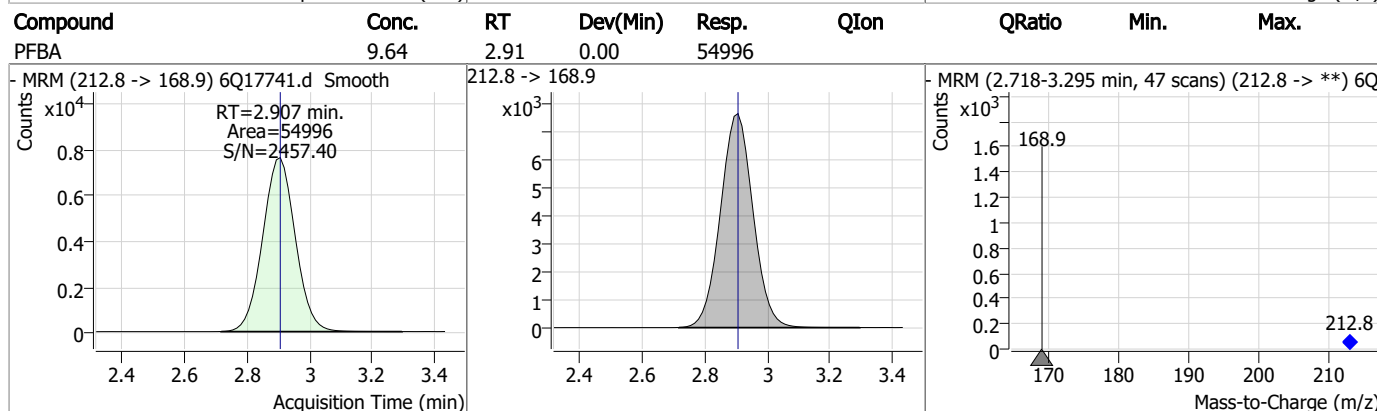
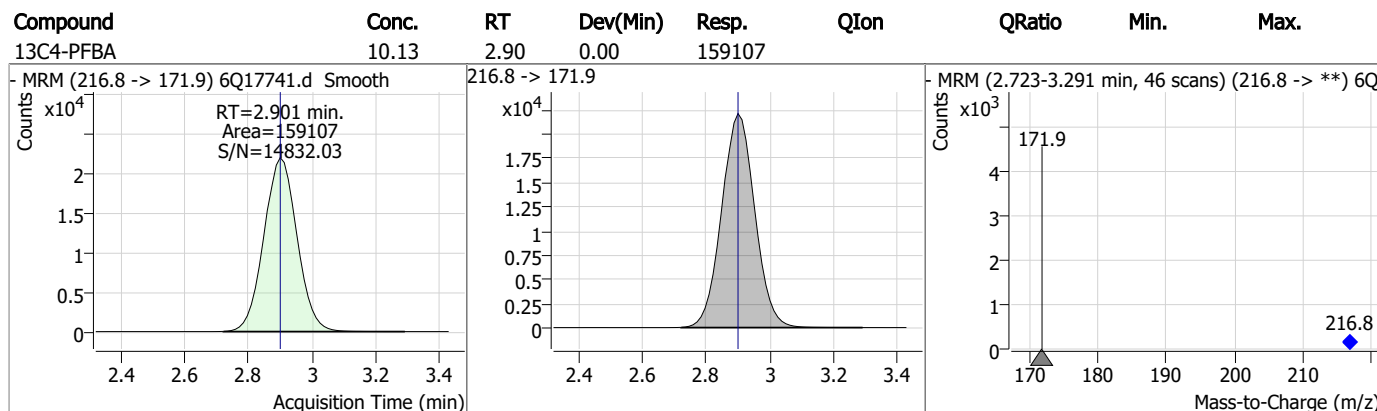
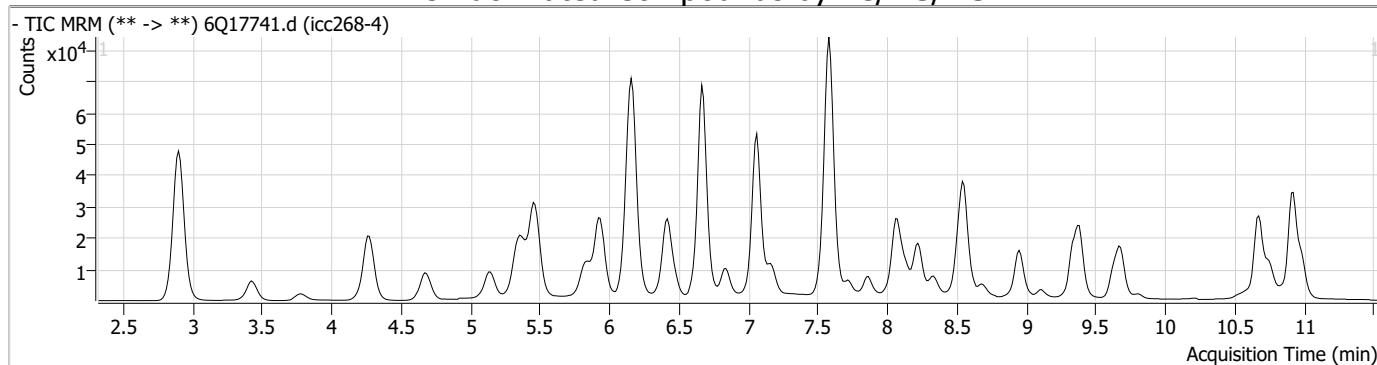
Perfluorinated Compounds by LC/MS/MS

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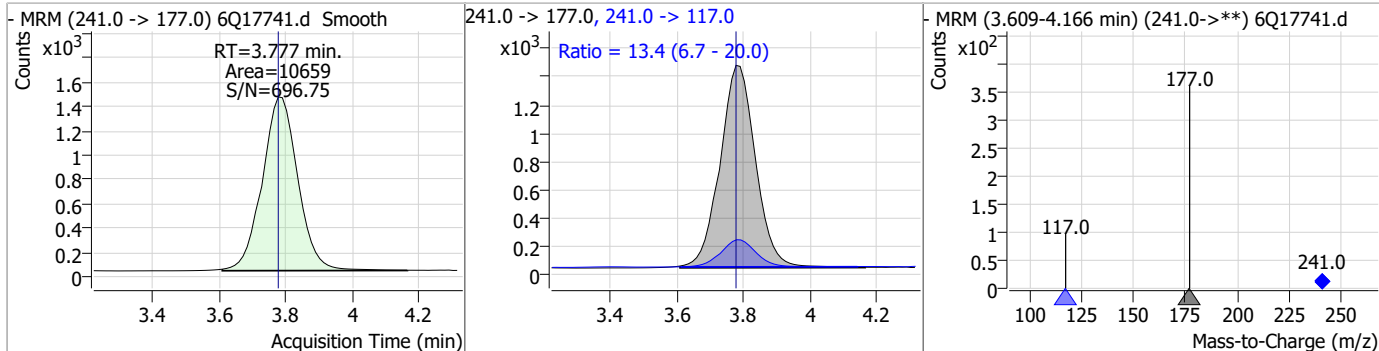


Perfluorinated Compounds by LC/MS/MS

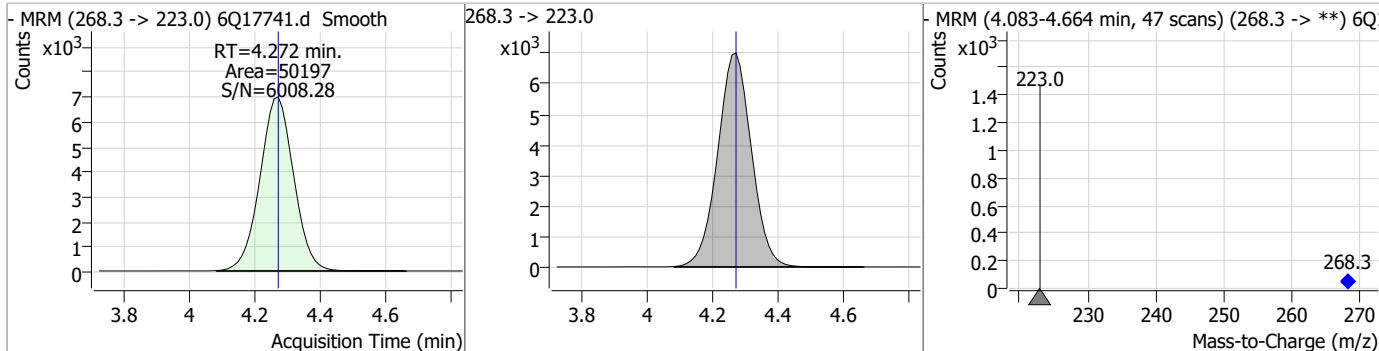


Perfluorinated Compounds by LC/MS/MS

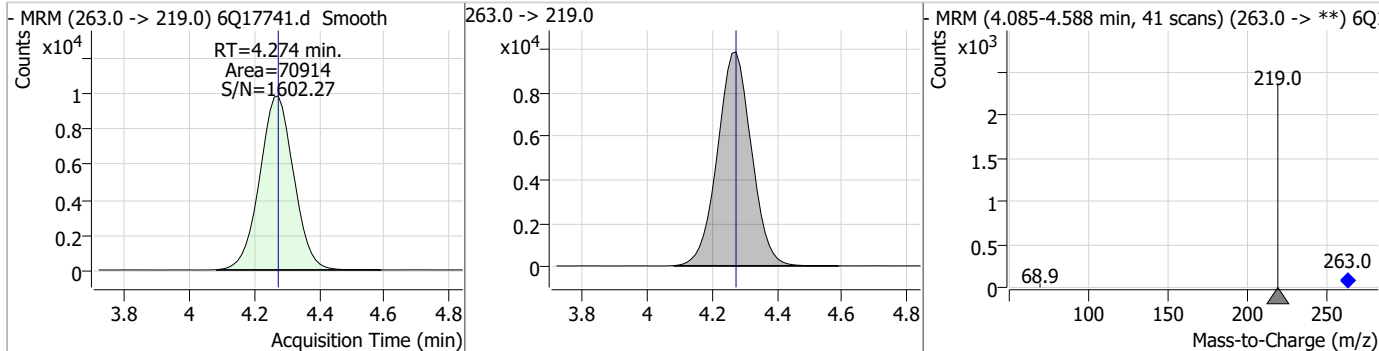
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.87	3.78	0.00	10659	241.0 -> 117.0	13.4	6.7	20.0



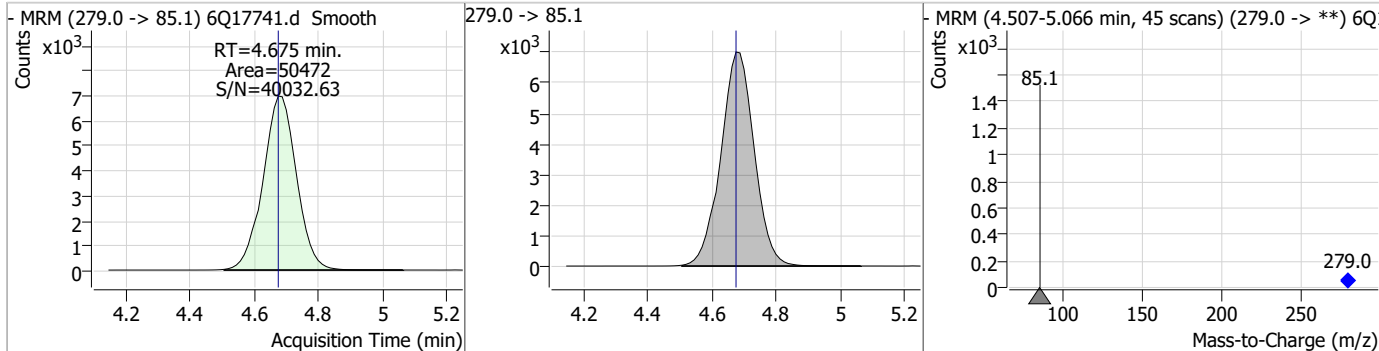
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.66	4.27	0.00	50197				



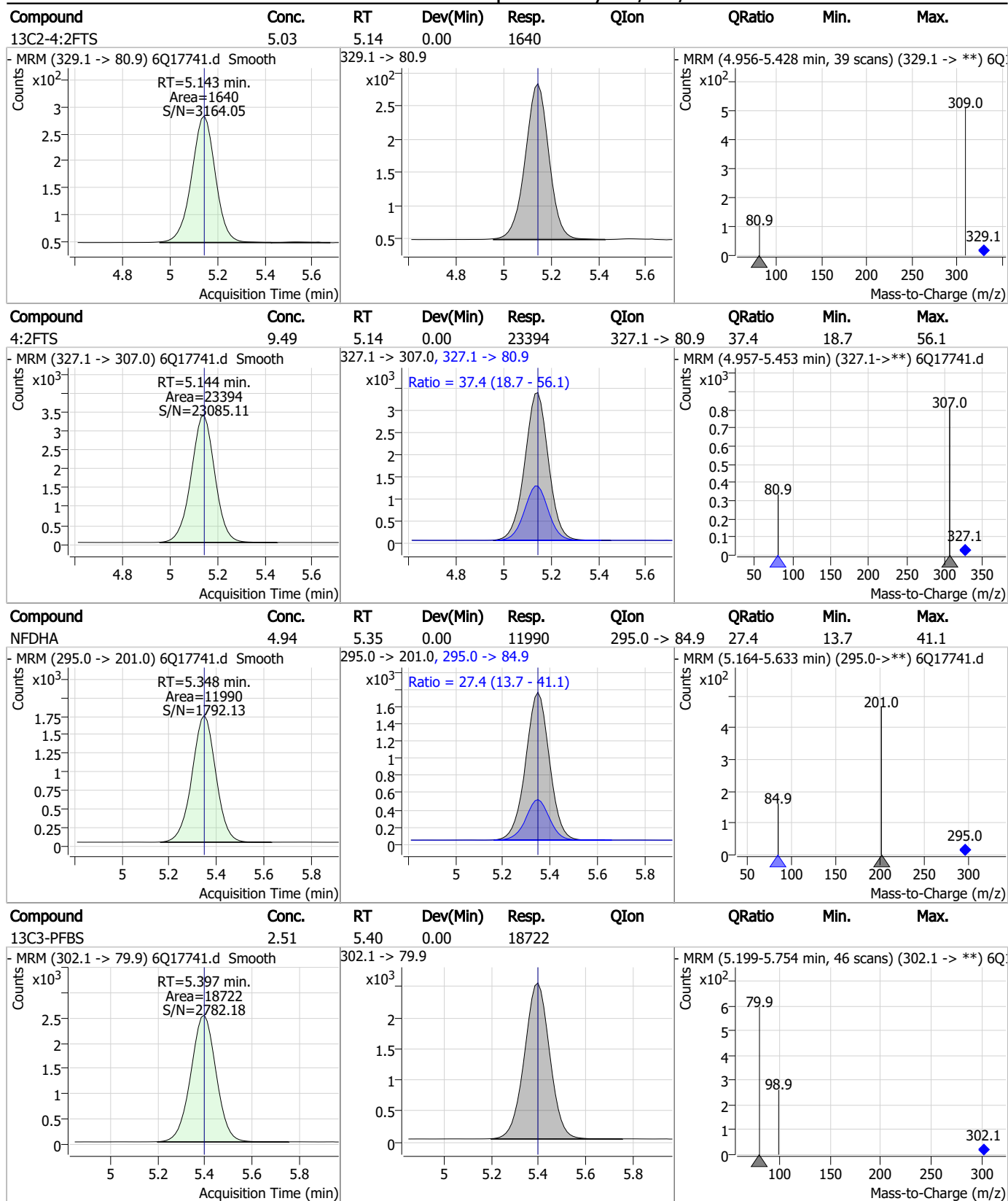
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.89	4.27	0.00	70914				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.88	4.68	0.00	50472				

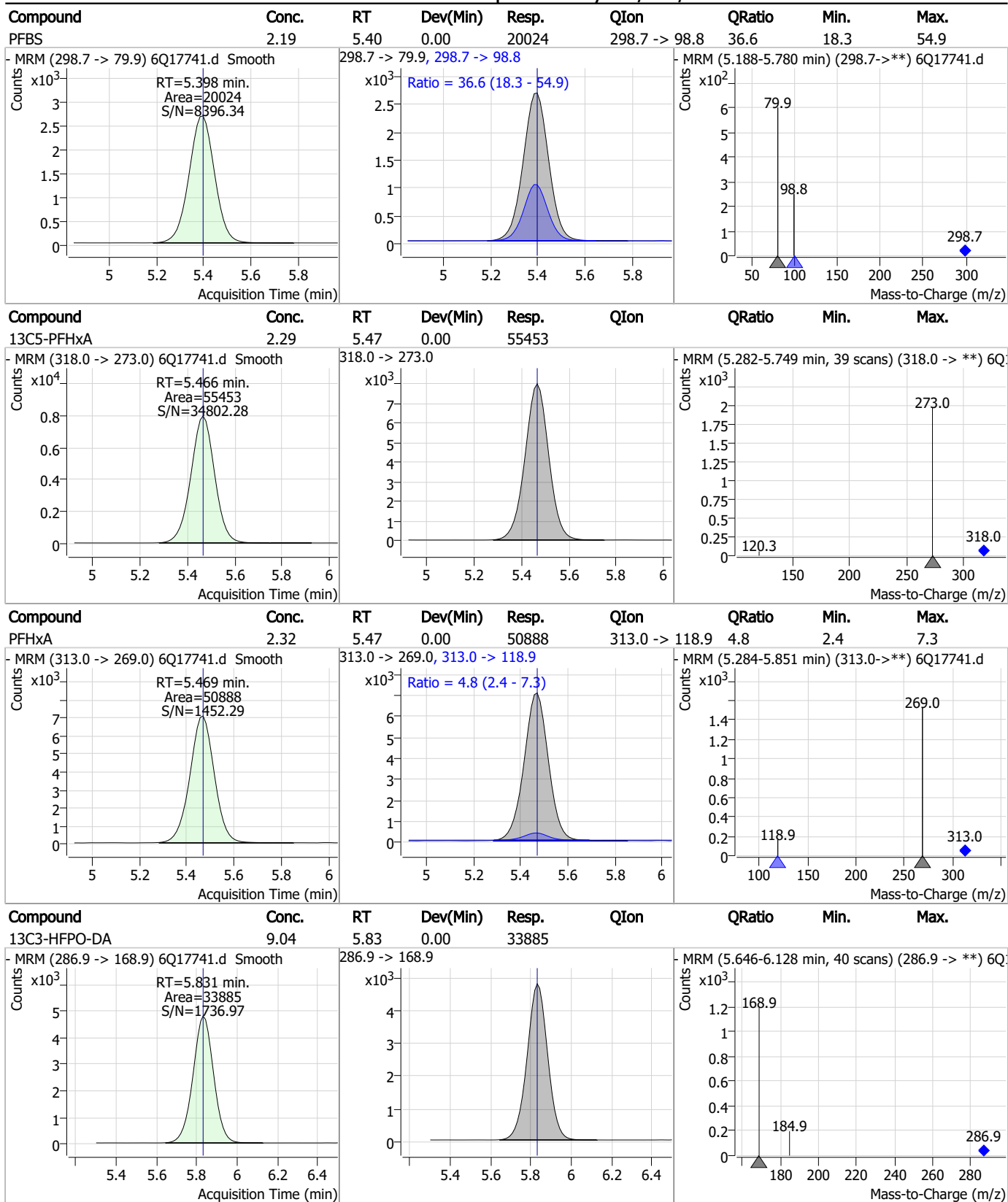


Perfluorinated Compounds by LC/MS/MS



7.7.5
7

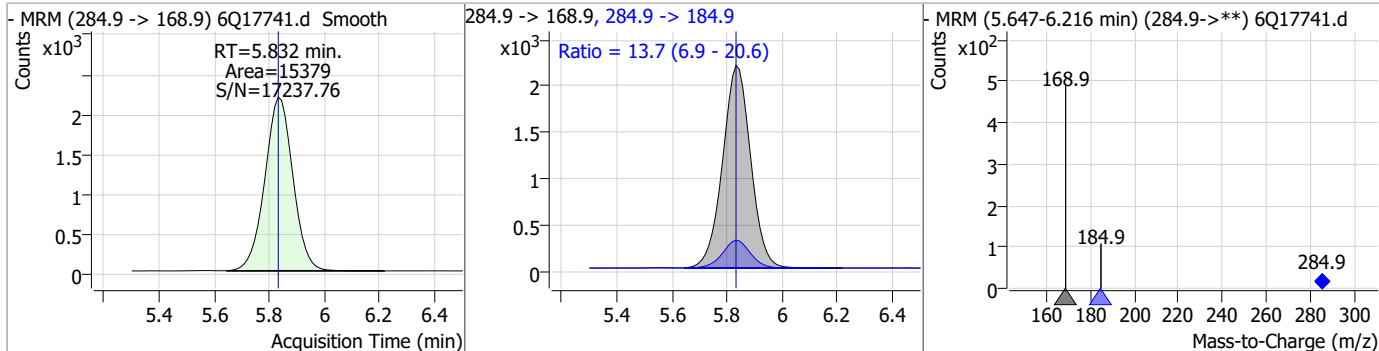
Perfluorinated Compounds by LC/MS/MS



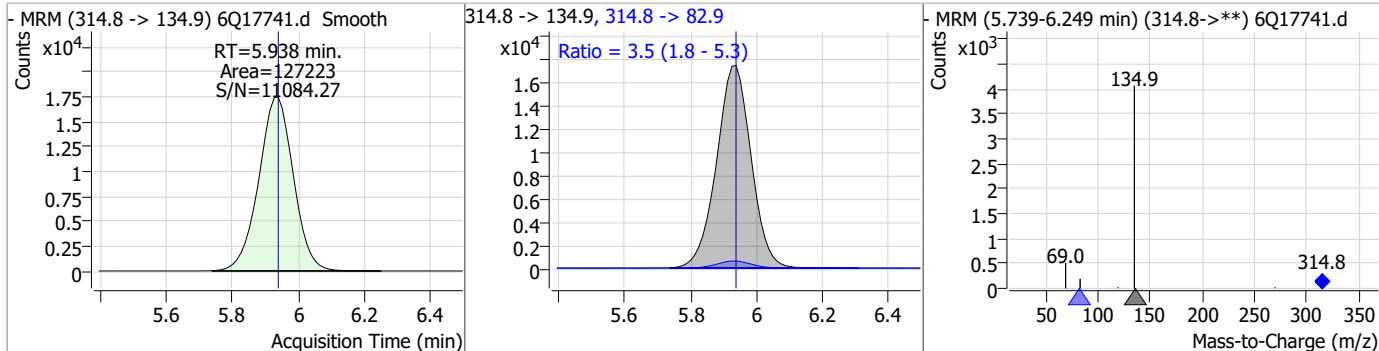
7.7.5
7

Perfluorinated Compounds by LC/MS/MS

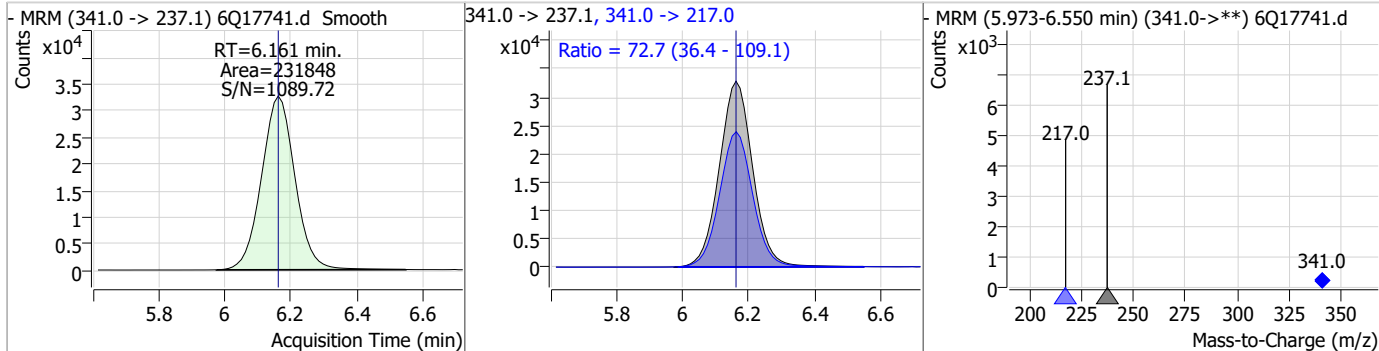
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.69	5.83	0.00	15379	284.9 -> 184.9	13.7	6.9	20.6



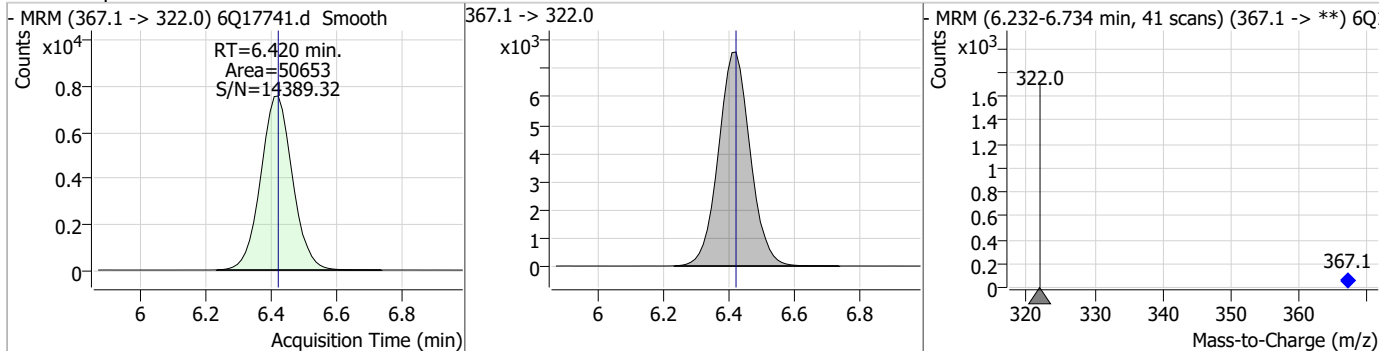
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.31	5.94	0.00	127223	314.8 -> 82.9	3.5	1.8	5.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	60.92	6.16	0.00	231848	341.0 -> 217.0	72.7	36.4	109.1

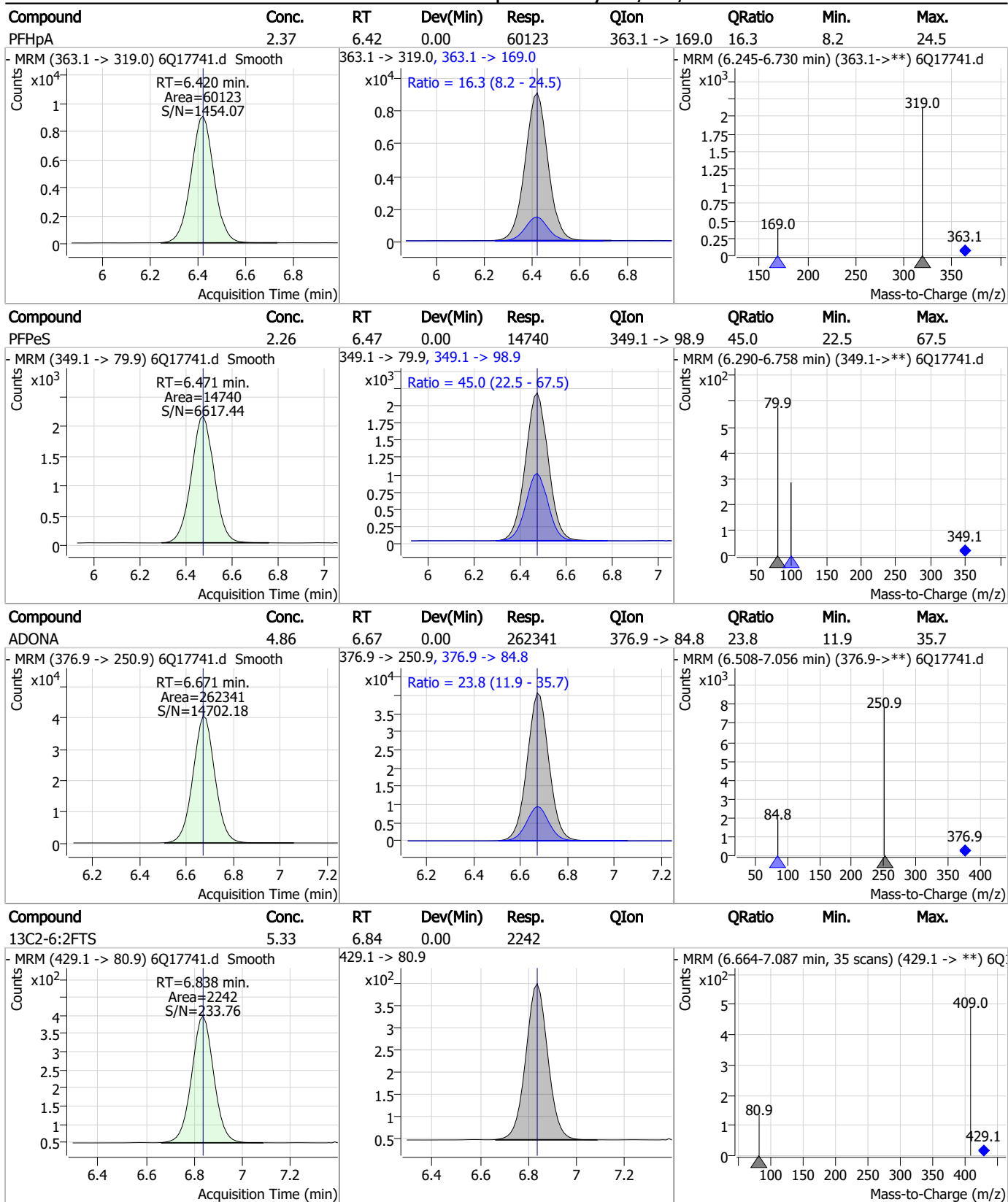


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.38	6.42	0.00	50653	367.1 -> 322.0			



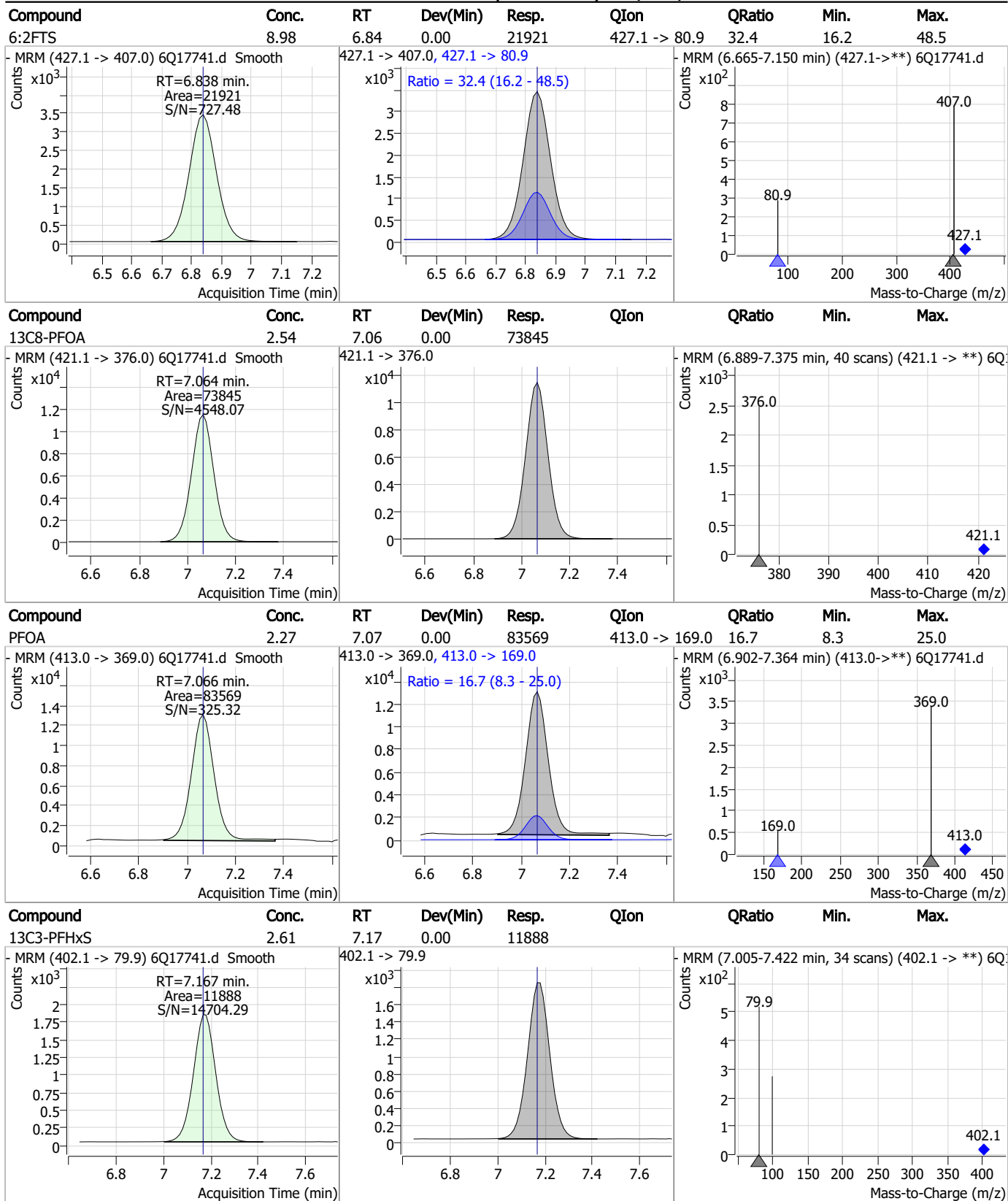
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



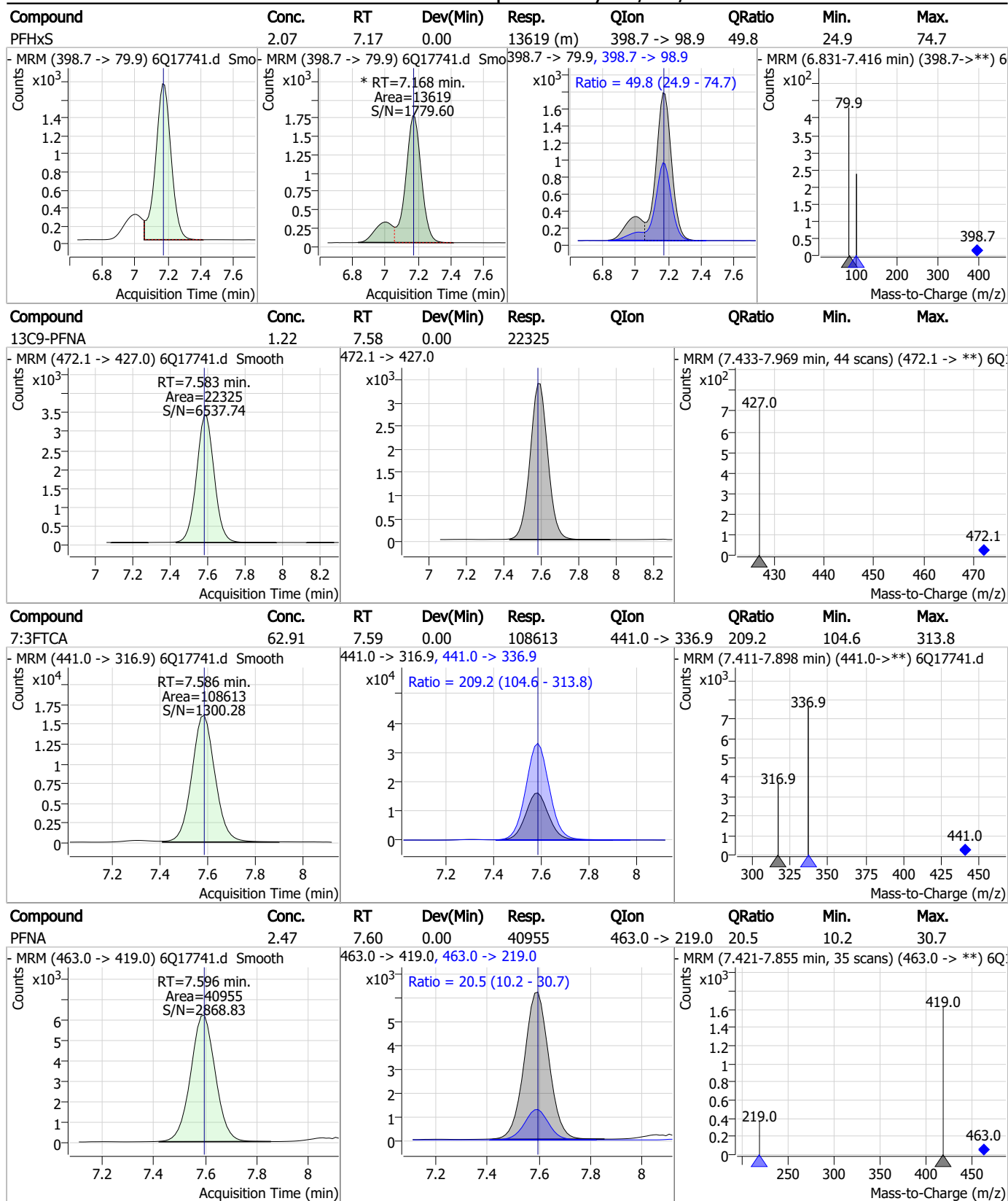
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



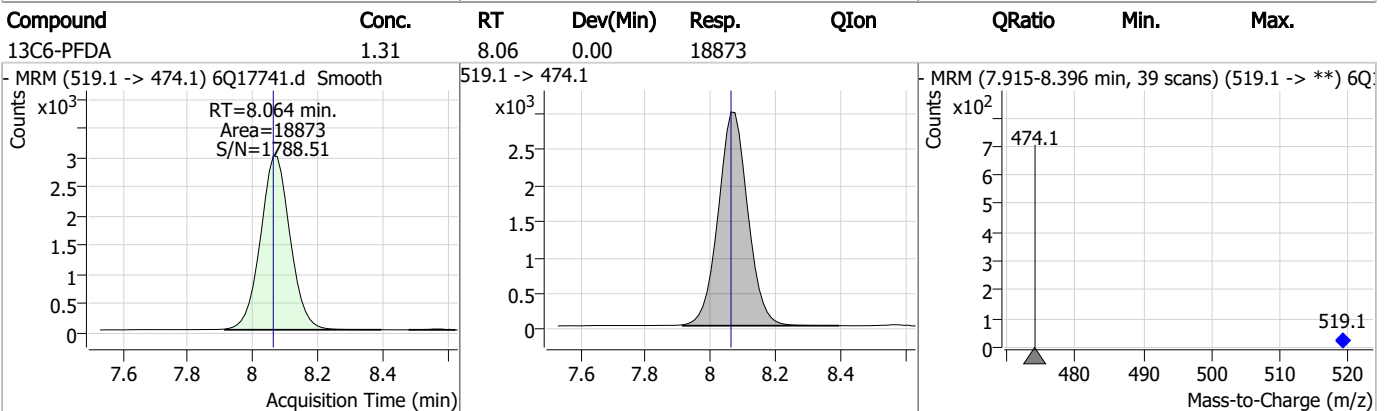
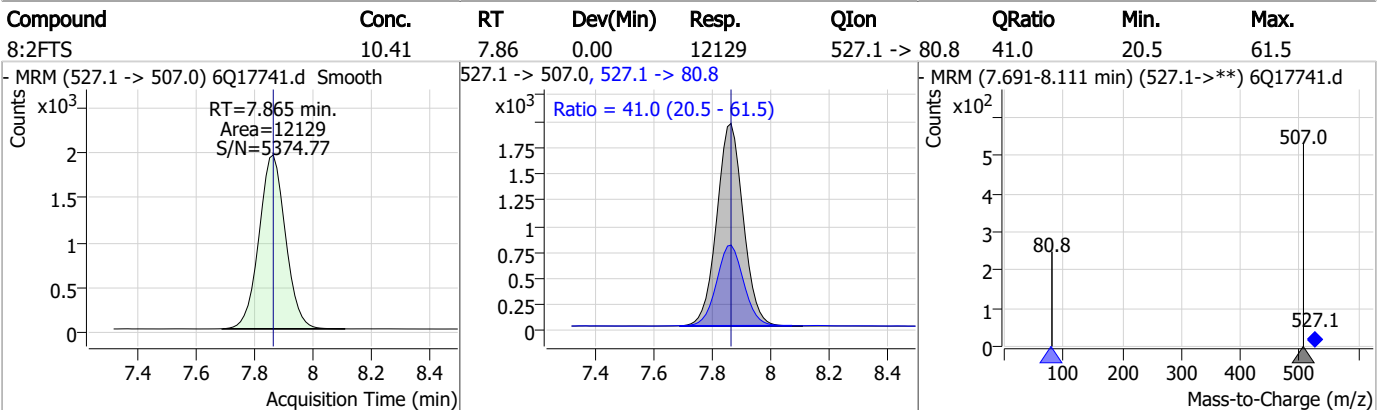
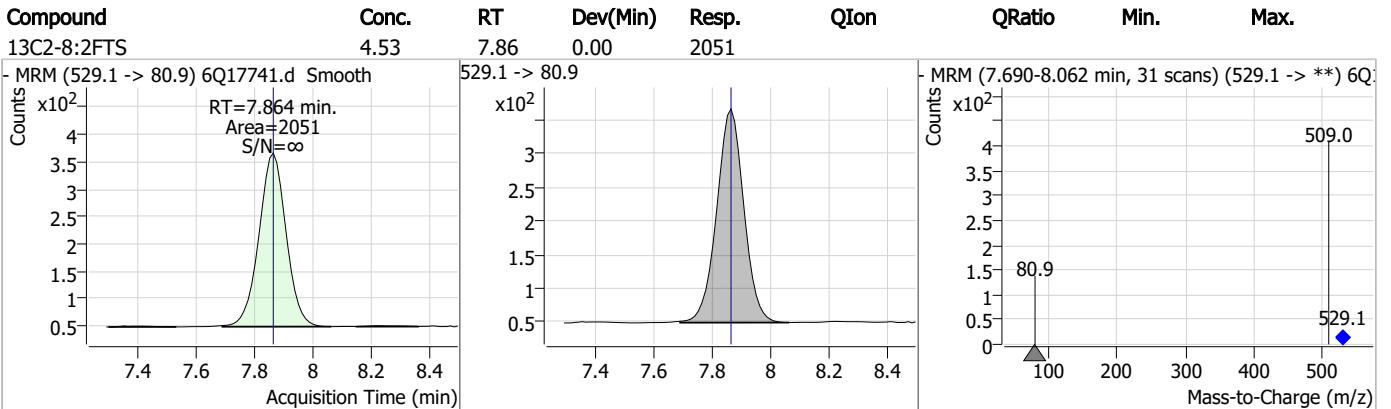
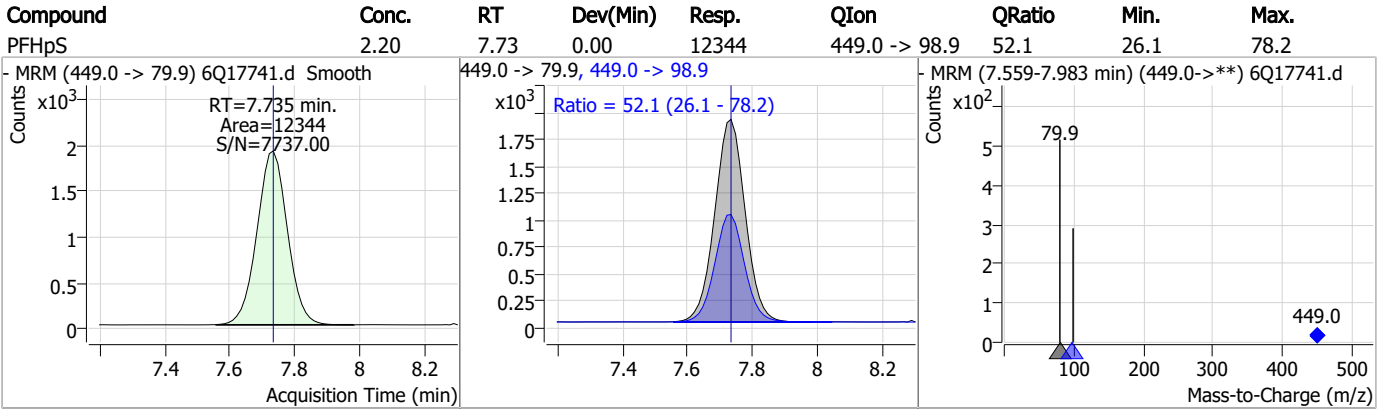
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

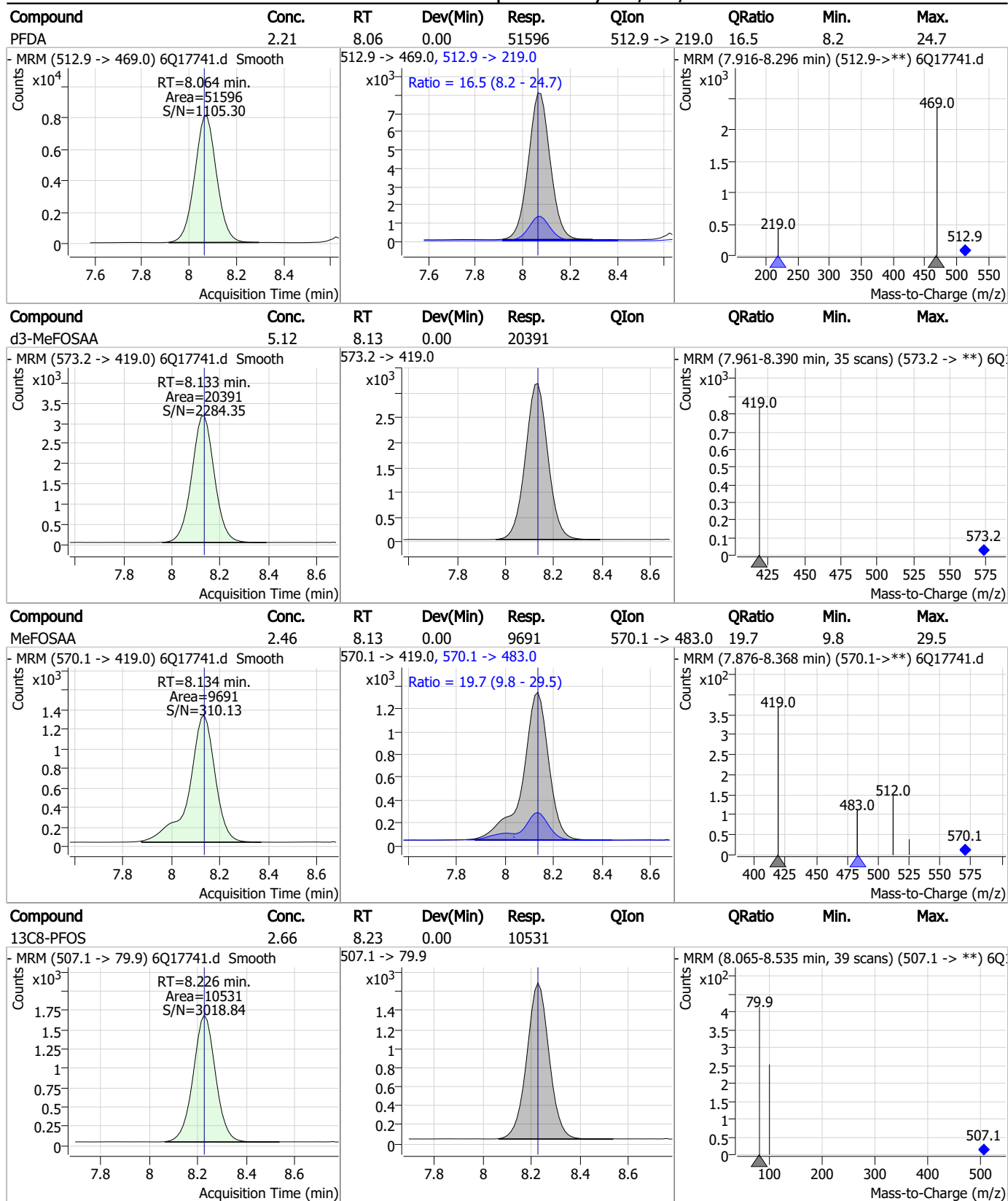
Perfluorinated Compounds by LC/MS/MS



7.7.5

7

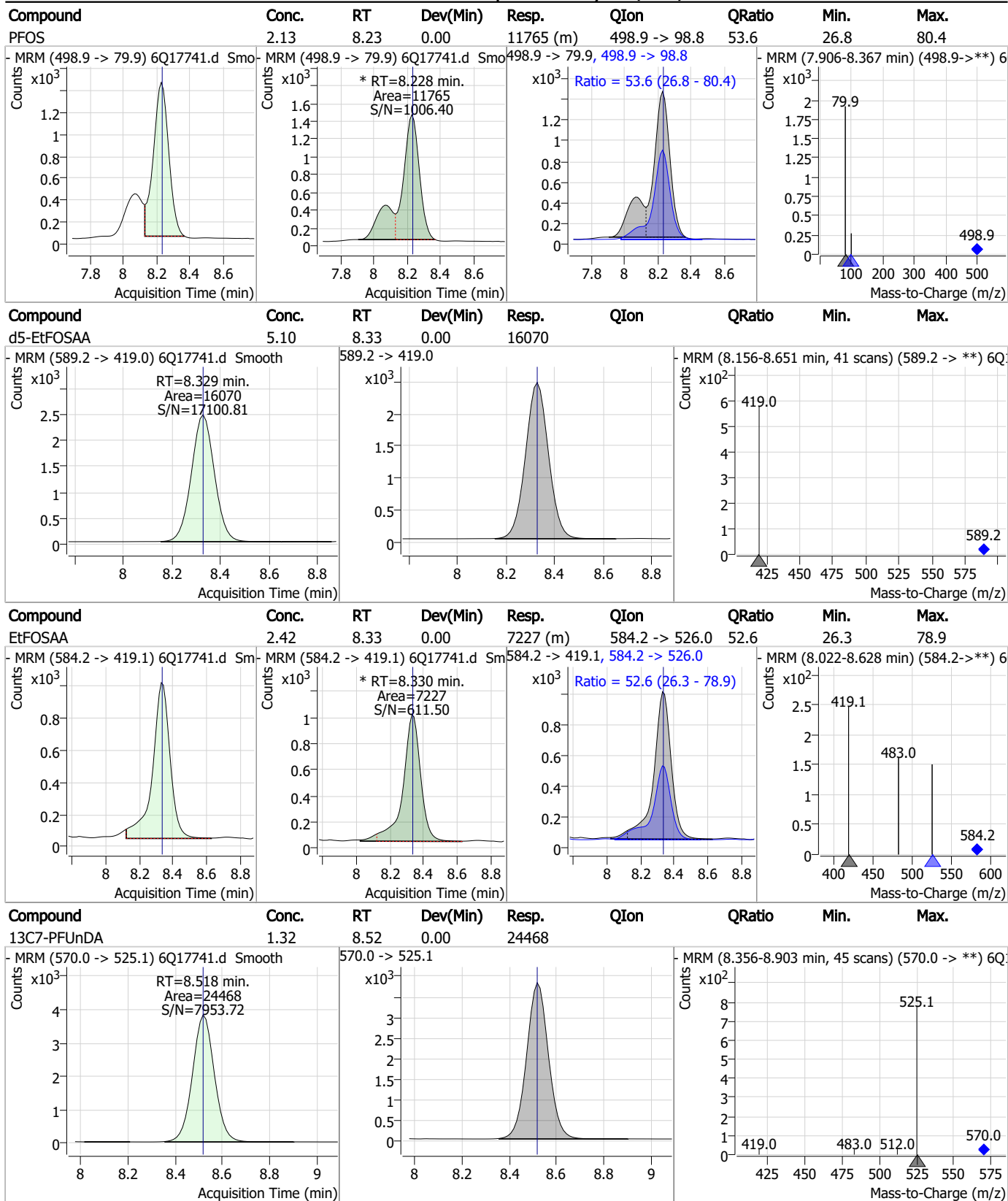
Perfluorinated Compounds by LC/MS/MS



7.7.5

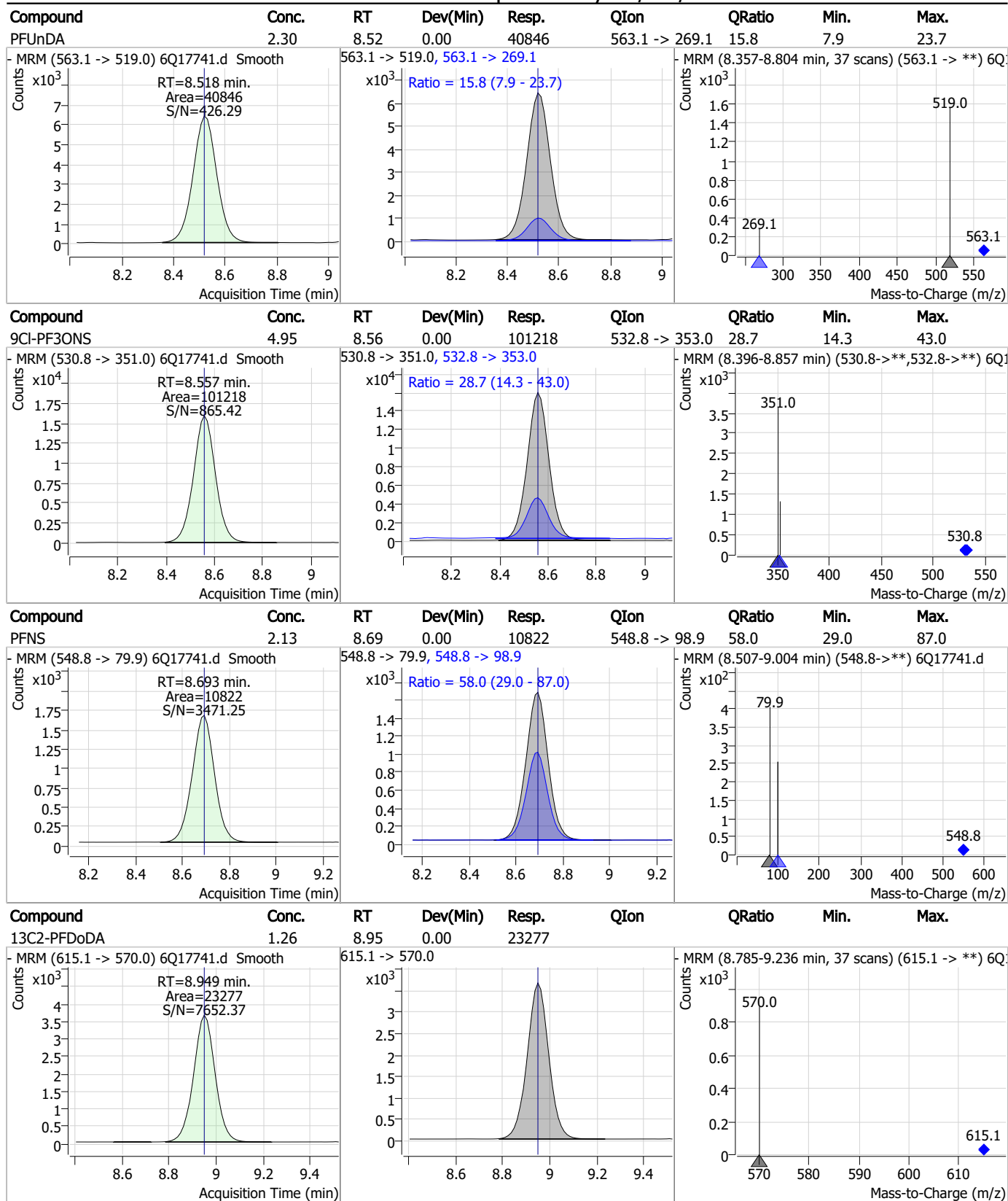
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Perfluorinated Compounds by LC/MS/MS



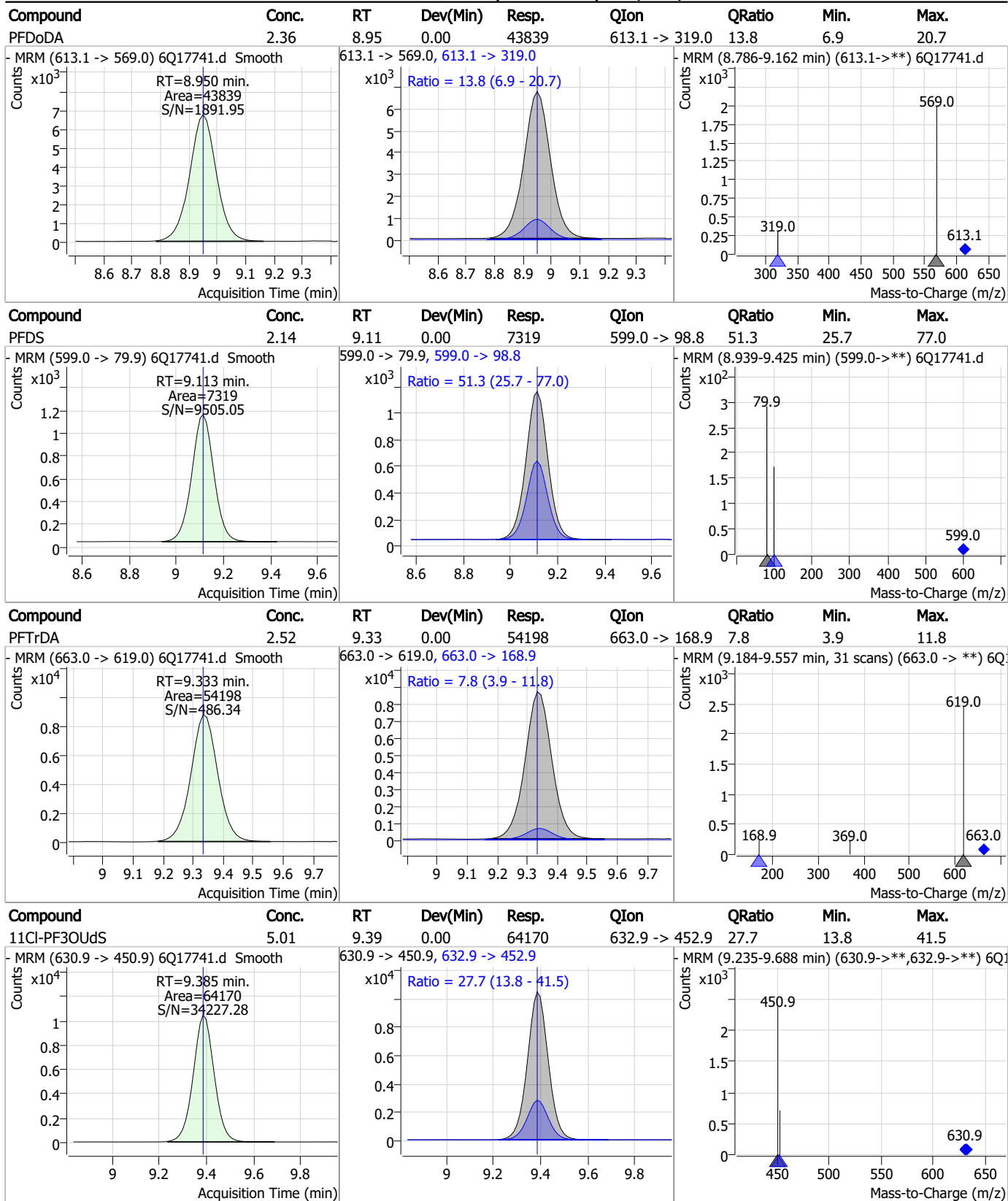
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

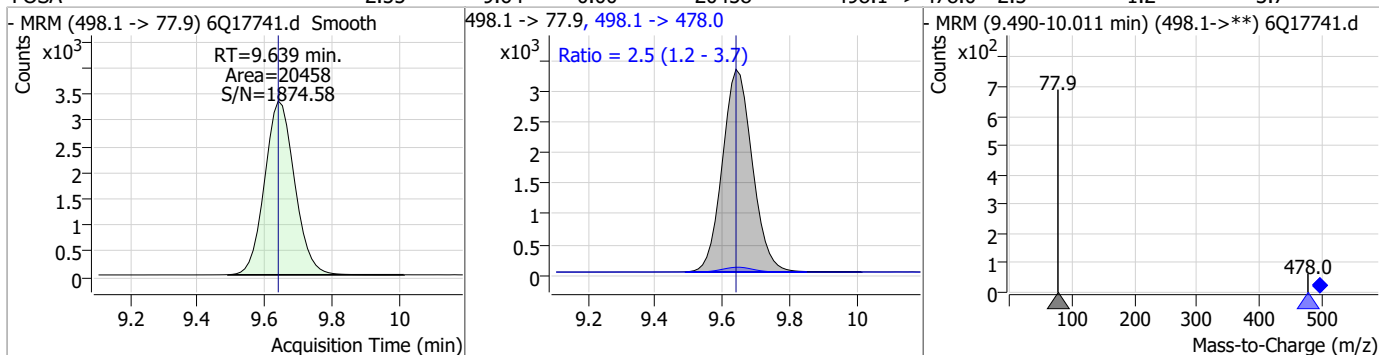
Perfluorinated Compounds by LC/MS/MS



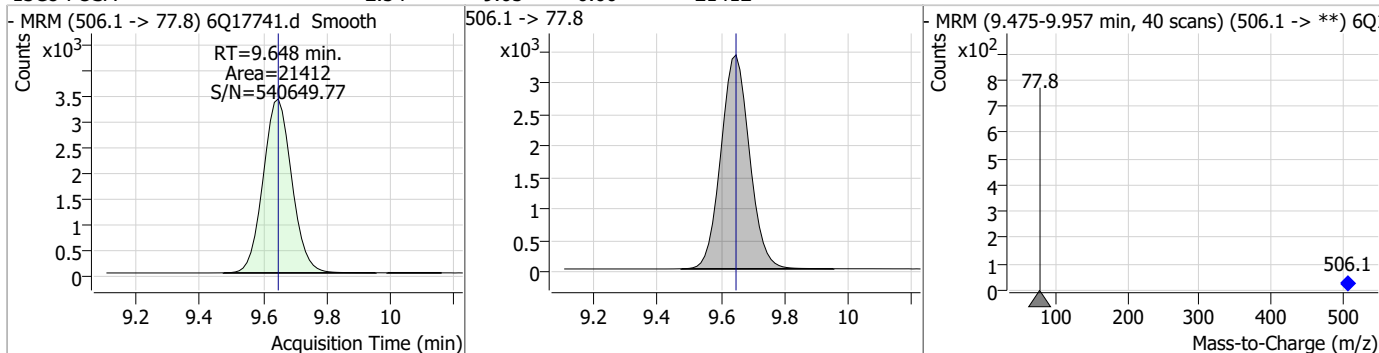
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Perfluorinated Compounds by LC/MS/MS

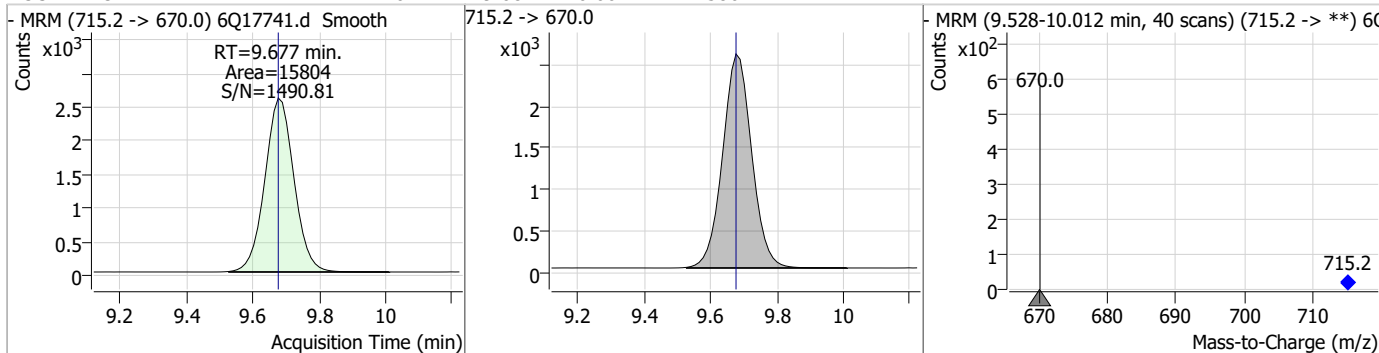
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.55	9.64	0.00	20458	498.1 -> 478.0	2.5	1.2	3.7



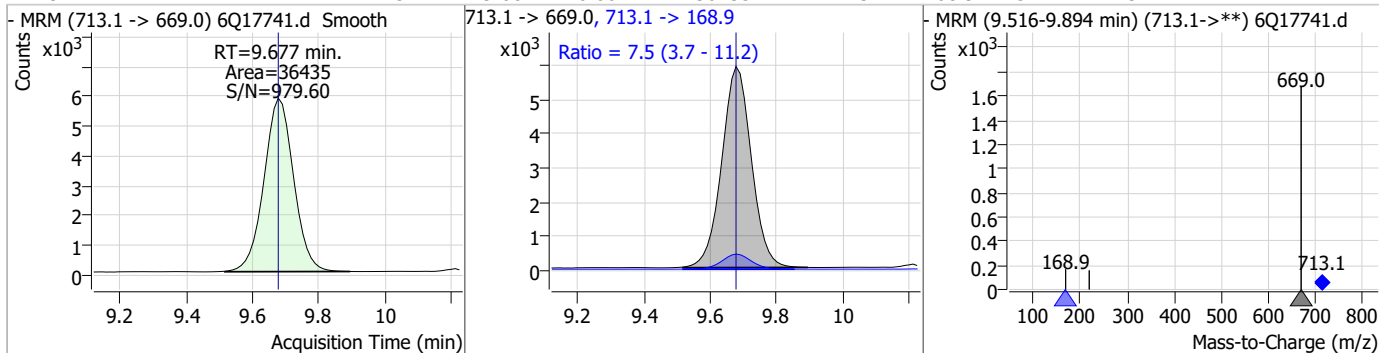
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.54	9.65	0.00	21412				



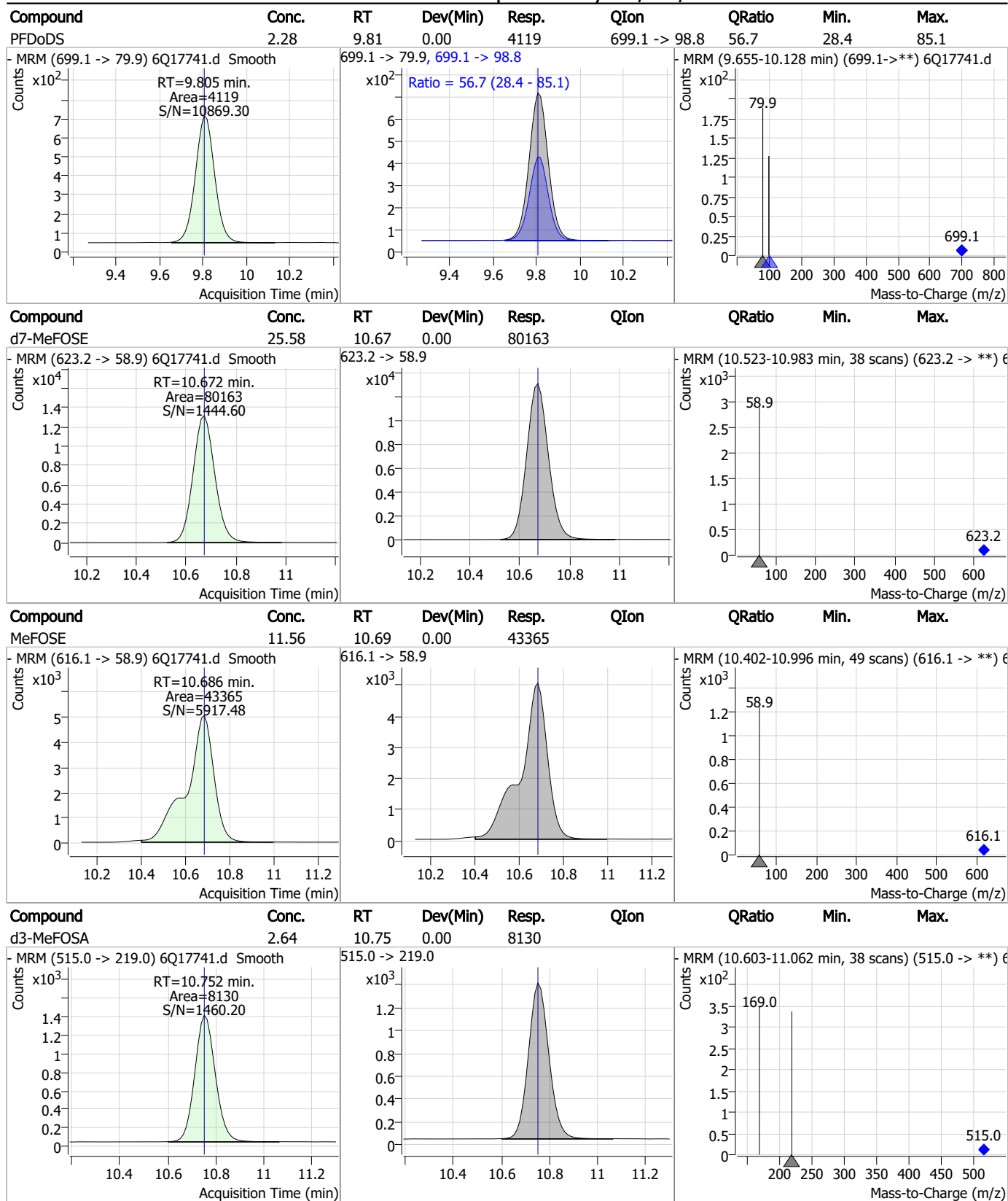
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.68	0.00	15804				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.25	9.68	0.00	36435	713.1 -> 168.9	7.5	3.7	11.2

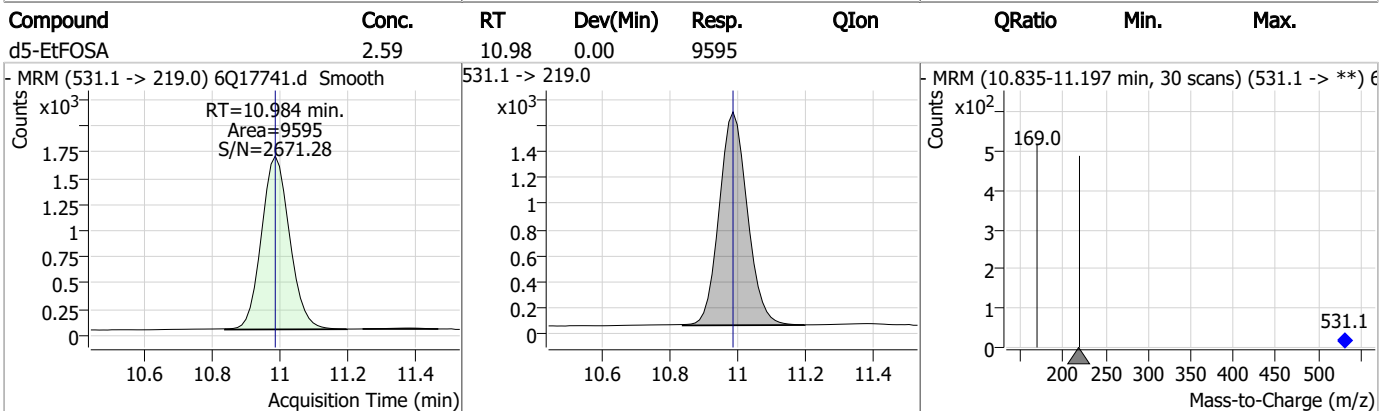
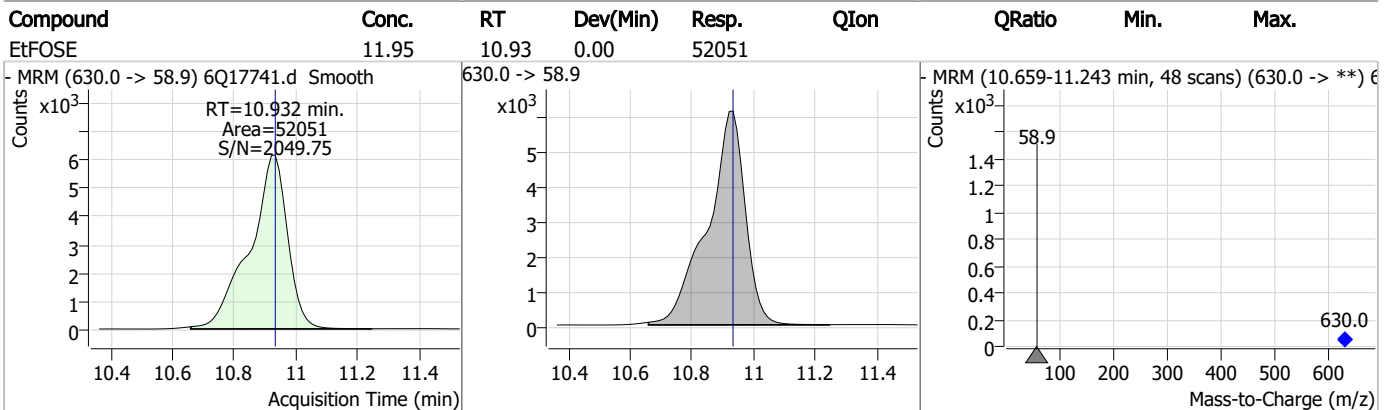
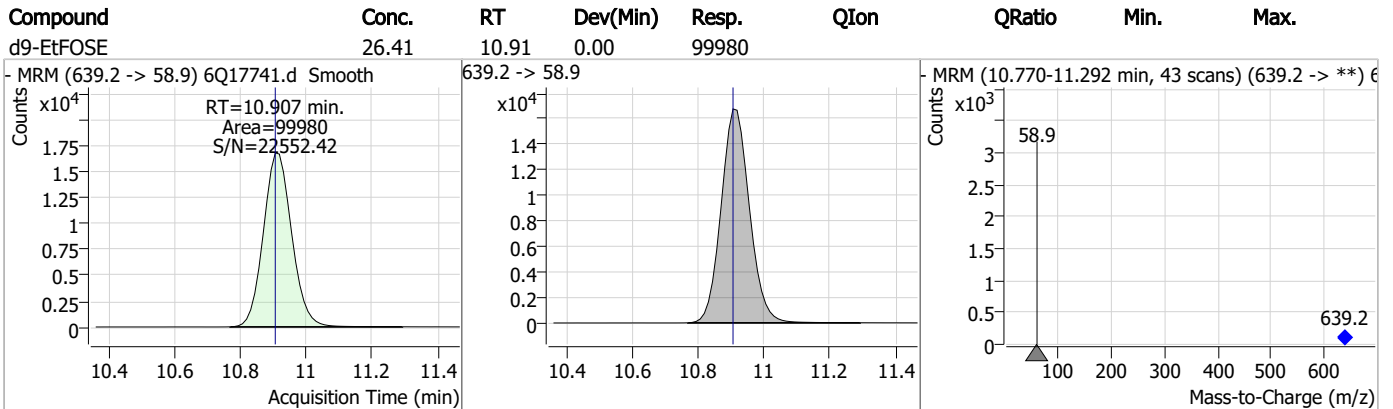
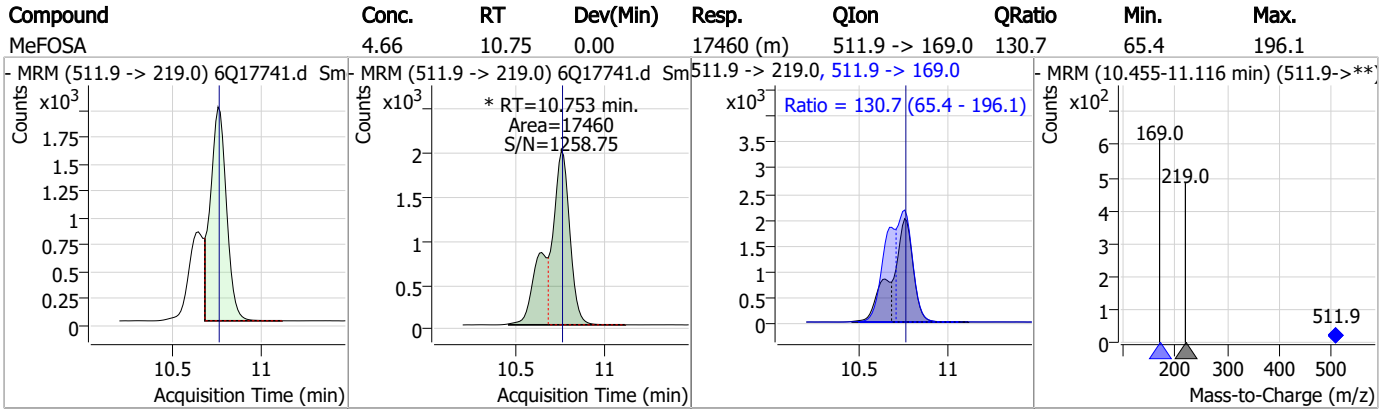


Perfluorinated Compounds by LC/MS/MS



7.7.5
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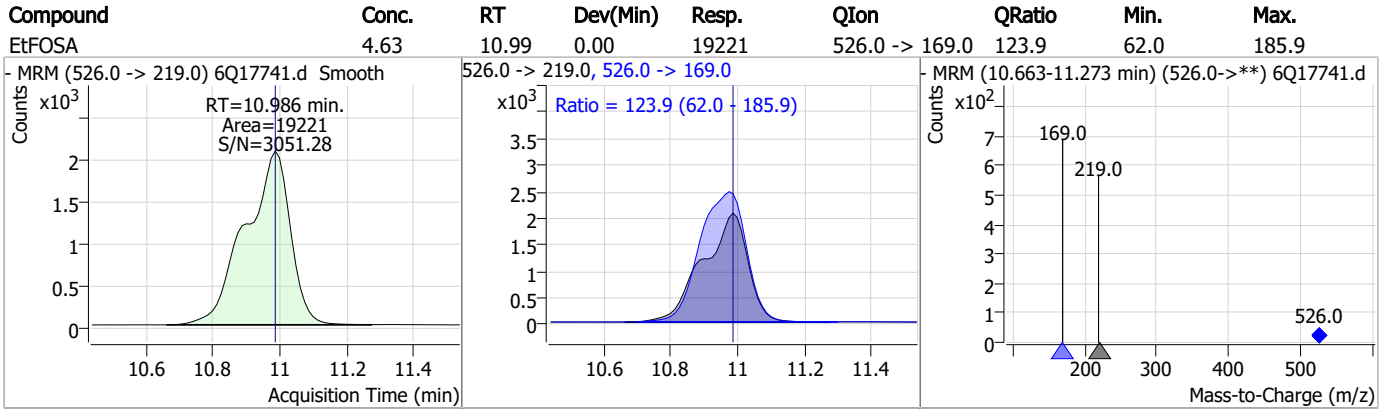
Perfluorinated Compounds by LC/MS/MS



7.7.5

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Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S6Q268-ICC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17741.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 12:58 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17742.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 1:13:23 PM
 Sample Name : ic268-5
 Vial : P1-A6
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	154979	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49652	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	56080	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	47814	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	70761	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22087	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	16704	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	23286	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22026	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14624	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21051	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18944	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11385	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9861	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1625	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2105	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2209	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	20168	5.00 µg/L	-0.012
M3-HFPO-DA	5.844	286.9 -> 168.9	33470	10.00 µg/L	0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	15713	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	81306	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	93296	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8862	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7580	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12734	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	64783	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8613	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	71510	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	21963	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	26438	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	45411	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1625	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2105	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2209	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22026	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14624	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C3-PFBS	5.397	302.1 -> 79.9	18944	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	11385	2.48 µg/L	0.012

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	2.901	216.8 -> 171.9	154979	10.08 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C4-PFHpA	6.420	367.1 -> 322.0	47814	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C5-PFHxA	5.466	318.0 -> 273.0	56080	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C5-PFPeA	4.272	268.3 -> 223.0	49652	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C6-PFDA	8.064	519.1 -> 474.1	16704	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C7-PFUnDA	8.518	570.0 -> 525.1	23286	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-FOSA	9.648	506.1 -> 77.8	21051	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOA	7.064	421.1 -> 376.0	70761	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C8-PFOS	8.226	507.1 -> 79.9	9861	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C9-PFNA	7.595	472.1 -> 427.0	22087	1.13 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	20168	5.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C3-HFPO-DA	5.844	286.9 -> 168.9	33470	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d3-MeFOSA	10.752	515.0 -> 219.0	7580	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15713	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d7-MeFOSE	10.672	623.2 -> 58.9	81306	25.92 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	93296	24.62 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d5-EtFOSA	10.984	531.1 -> 219.0	8862	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	46464	19.01 µg/L	96
		327.1 -> 80.9	18442		
6:2FTS	6.838	427.1 -> 407.0	45907	20.04 µg/L	98
		427.1 -> 80.9	15427		
8:2FTS	7.865	527.1 -> 507.0	25595	20.39 µg/L	97
		527.1 -> 80.8	10085		
EtFOSAA	8.330	584.2 -> 419.1	14404	4.92 µg/L	98
		584.2 -> 526.0	7826		
FOSA	9.639	498.1 -> 77.9	40782	5.18 µg/L	99
		498.1 -> 478.0	1202		
MeFOSAA	8.134	570.1 -> 419.0	20449	5.24 µg/L	94
		570.1 -> 483.0	3498		
PFBA	2.907	212.8 -> 168.9	117567	21.15 µg/L	100
PFBS	5.398	298.7 -> 79.9	42082	4.55 µg/L	99
		298.7 -> 98.8	15763		
PFDA	8.064	512.9 -> 469.0	122031	5.90 µg/L	94
		512.9 -> 219.0	17166		
PFDODA	8.950	613.1 -> 569.0	88721	5.06 µg/L	99
		613.1 -> 319.0	12530		
PFDS	9.113	599.0 -> 79.9	16397	5.12 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	7725			
PFHpA	6.420	363.1 -> 319.0	129162	5.41	µg/L	99
		363.1 -> 169.0	21414			
PFHpS	7.735	449.0 -> 79.9	26529	5.04	µg/L	91
		449.0 -> 98.9	12200			
PFHxA	5.469	313.0 -> 269.0	111647	5.03	µg/L	99
		313.0 -> 118.9	5629			
PFHxS	7.168	398.7 -> 79.9	30746	4.88	µg/L	m 93
		398.7 -> 98.9	13867			
PFNA	7.596	463.0 -> 419.0	91442	5.57	µg/L	99
		463.0 -> 219.0	18250			
PFNS	8.693	548.8 -> 79.9	23308	4.89	µg/L	97
		548.8 -> 98.9	13048			
PFOA	7.066	413.0 -> 369.0	184090	5.23	µg/L	100
		413.0 -> 169.0	30371			
PFOS	8.228	498.9 -> 79.9	26487	5.12	µg/L	m 93
		498.9 -> 98.8	12809			
PFPeA	4.274	263.0 -> 219.0	152376	10.63	µg/L	100
PFPeS	6.471	349.1 -> 79.9	29887	4.78	µg/L	95
		349.1 -> 98.9	14517			
PFTeDA	9.677	713.1 -> 669.0	83618	5.58	µg/L	99
		713.1 -> 168.9	5857			
PFTrDA	9.333	663.0 -> 619.0	112031	5.51	µg/L	98
		663.0 -> 168.9	9557			
PFUnDA	8.518	563.1 -> 519.0	89058	5.27	µg/L	97
		563.1 -> 269.1	12942			
11CI-PF3OUdS	9.385	630.9 -> 450.9	127693	10.10	µg/L	93
		632.9 -> 452.9	40305			
9CI-PF3ONS	8.557	530.8 -> 351.0	206005	10.20	µg/L	98
		532.8 -> 353.0	61324			
ADONA	6.671	376.9 -> 250.9	560569	10.52	µg/L	98
		376.9 -> 84.8	138528			
HFPO-DA	5.845	284.9 -> 168.9	34922	10.79	µg/L	100
		284.9 -> 184.9	4757			
3:3FTCA	3.790	241.0 -> 177.0	23041	25.93	µg/L	100
		241.0 -> 117.0	3048			
5:3FTCA	6.161	341.0 -> 237.1	502344	130.51	µg/L	96
		341.0 -> 217.0	346578			
7:3FTCA	7.586	441.0 -> 316.9	220712	126.40	µg/L	95
		441.0 -> 336.9	479959			
EtFOSA	10.986	526.0 -> 219.0	40843	10.65	µg/L	94
		526.0 -> 169.0	53457			
EtFOSE	10.920	630.0 -> 58.9	104491	25.70	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	37768	10.82	µg/L	m 96
		511.9 -> 169.0	50953			
MeFOSE	10.686	616.1 -> 58.9	96015	25.24	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	8719	5.15	µg/L	96
		699.1 -> 98.8	4713			
NFDHA	5.348	295.0 -> 201.0	25308	10.32	µg/L	99
		295.0 -> 84.9	6739			
PFMBA	4.675	279.0 -> 85.1	109014	10.65	µg/L	100
PFMPA	3.426	229.0 -> 84.9	78625	10.67	µg/L	100
PFEESA	5.938	314.8 -> 134.9	284595	9.54	µg/L	100
		314.8 -> 82.9	9680			

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

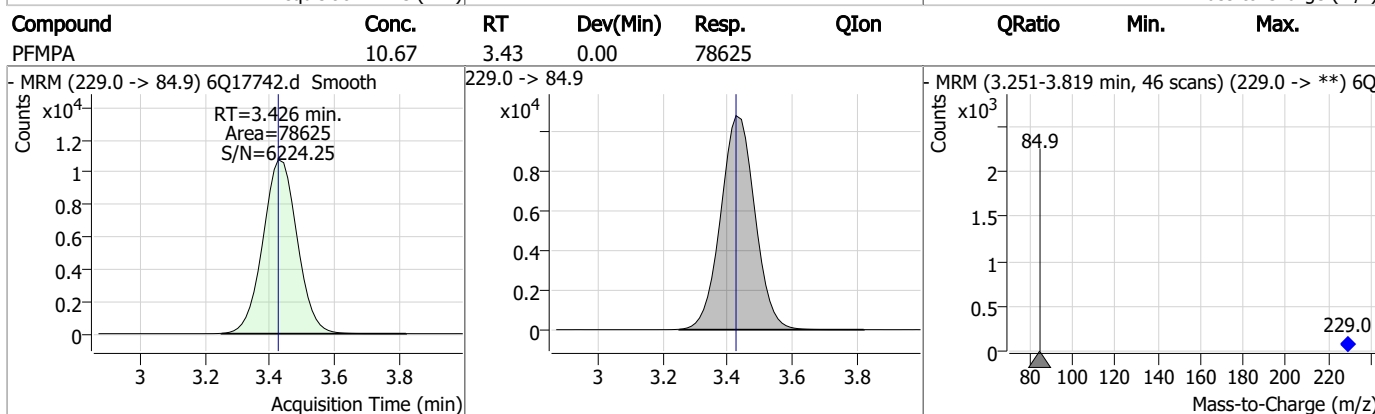
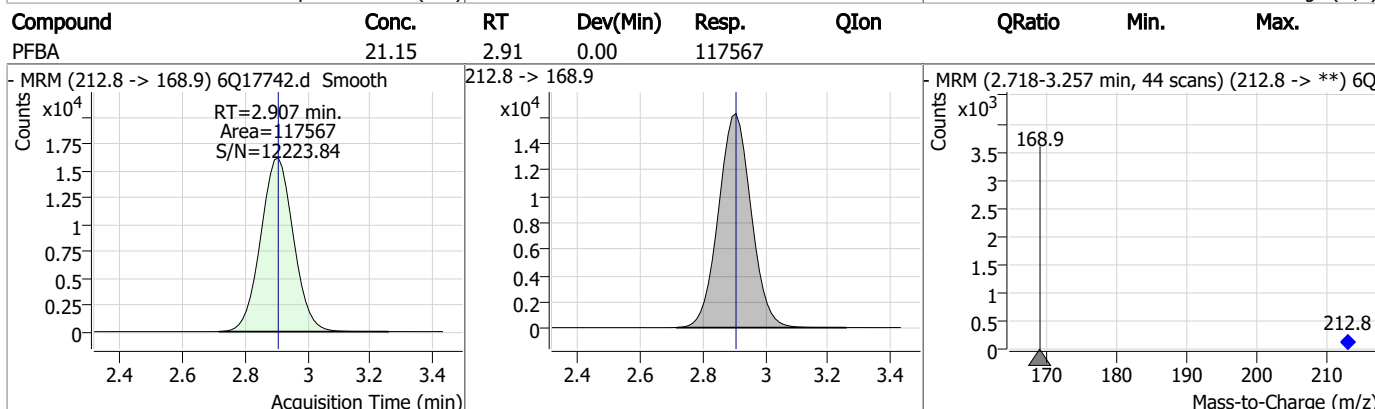
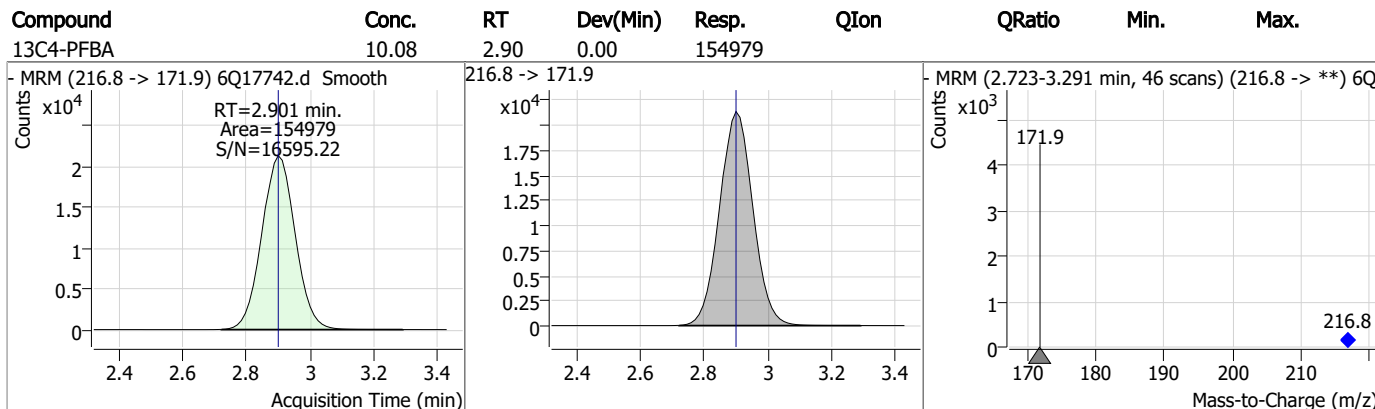
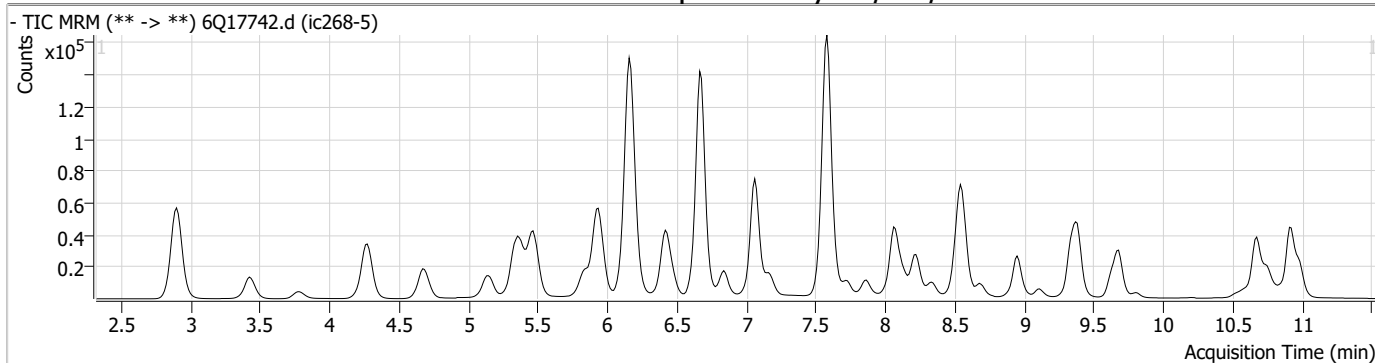
Perfluorinated Compounds by LC/MS/MS

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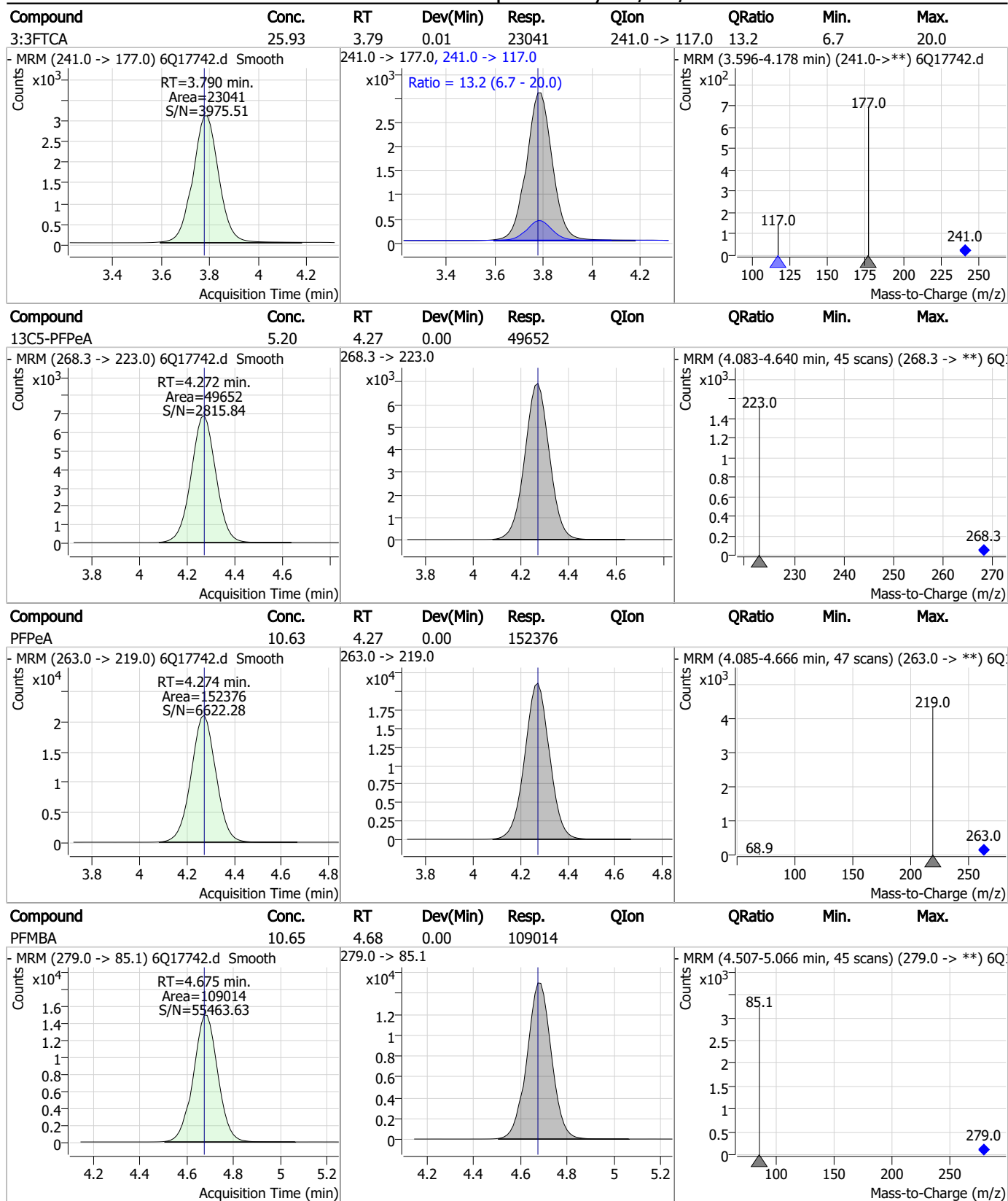
7.7.6

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Perfluorinated Compounds by LC/MS/MS

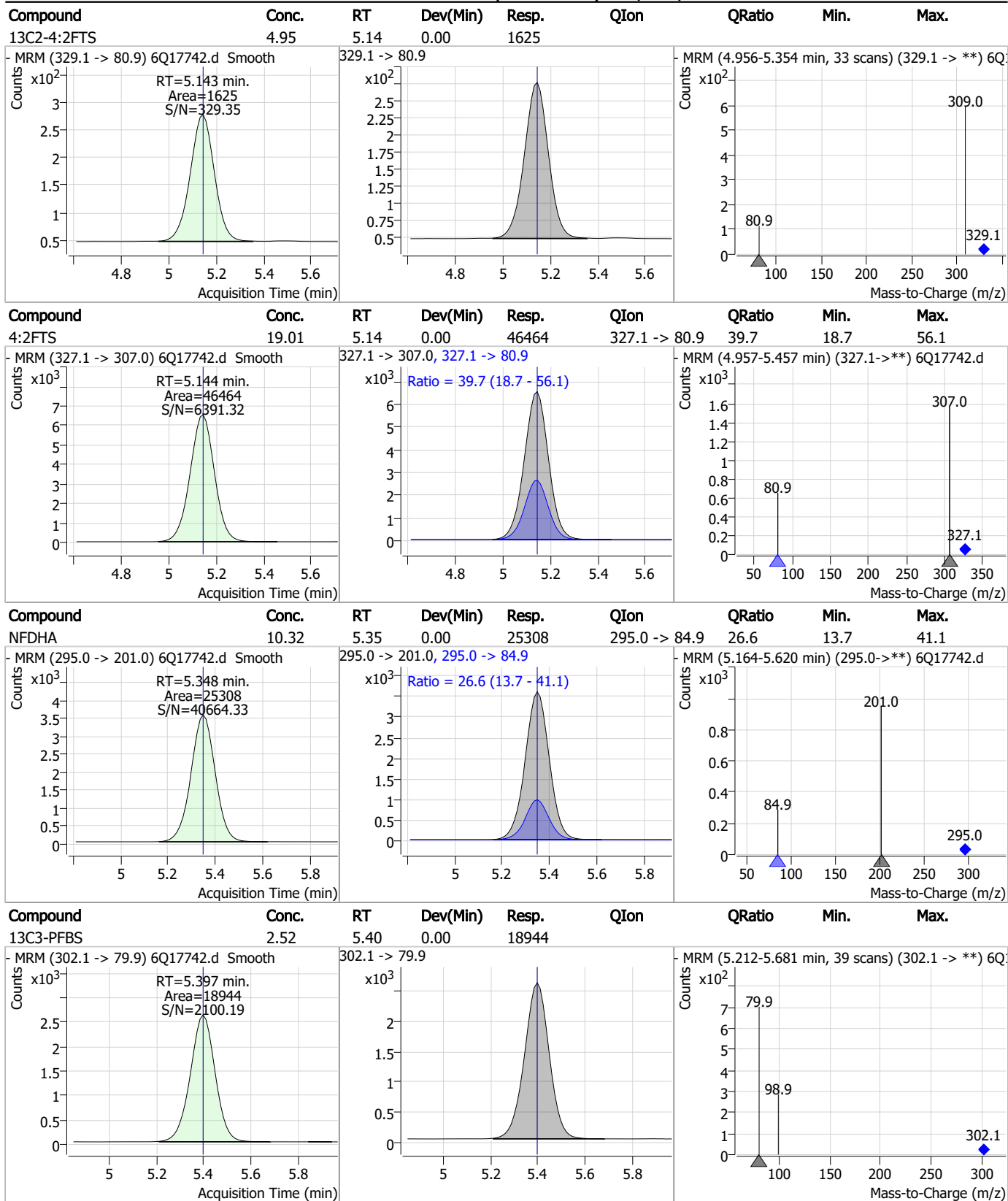


Perfluorinated Compounds by LC/MS/MS



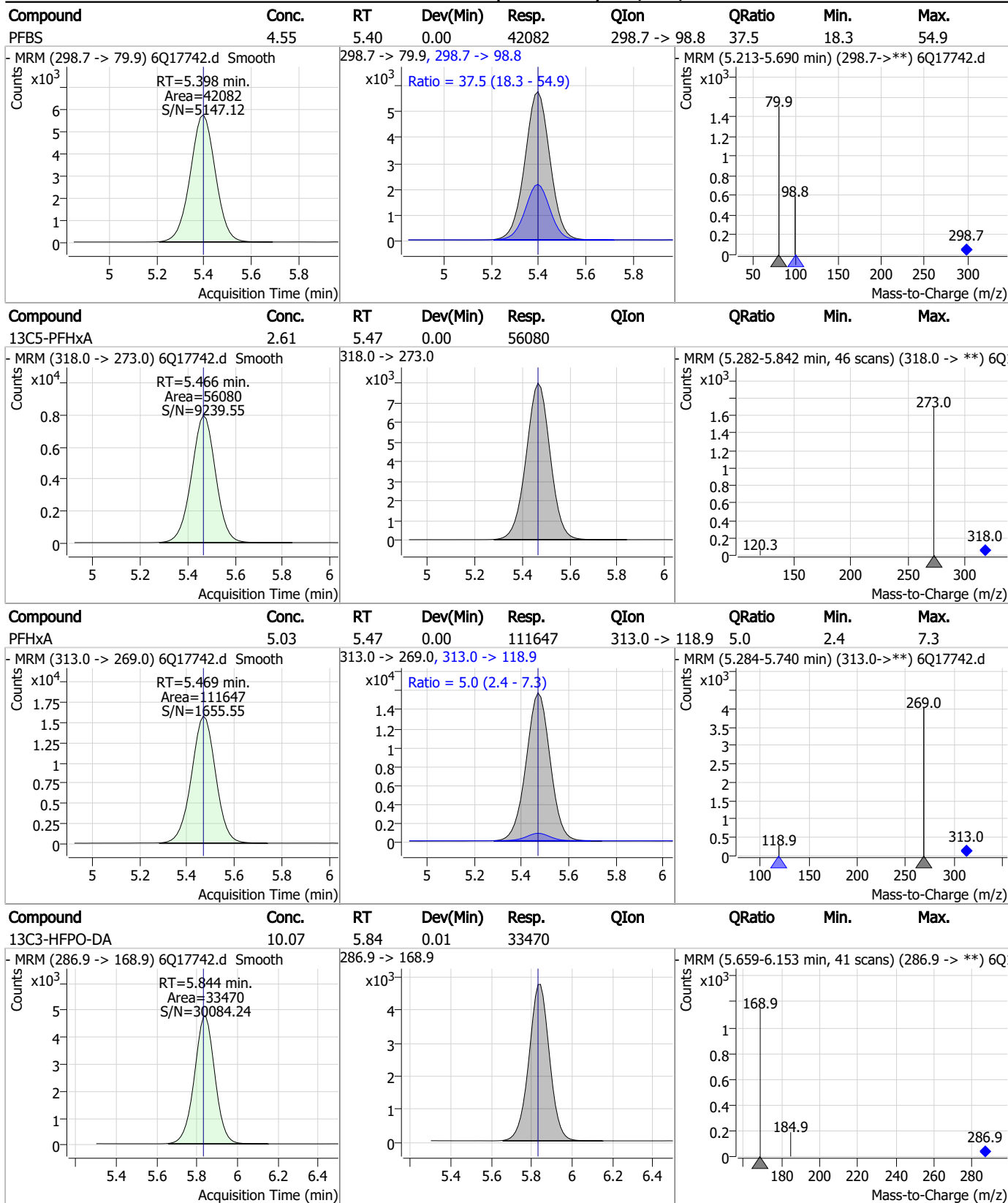
7.7.6
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Perfluorinated Compounds by LC/MS/MS



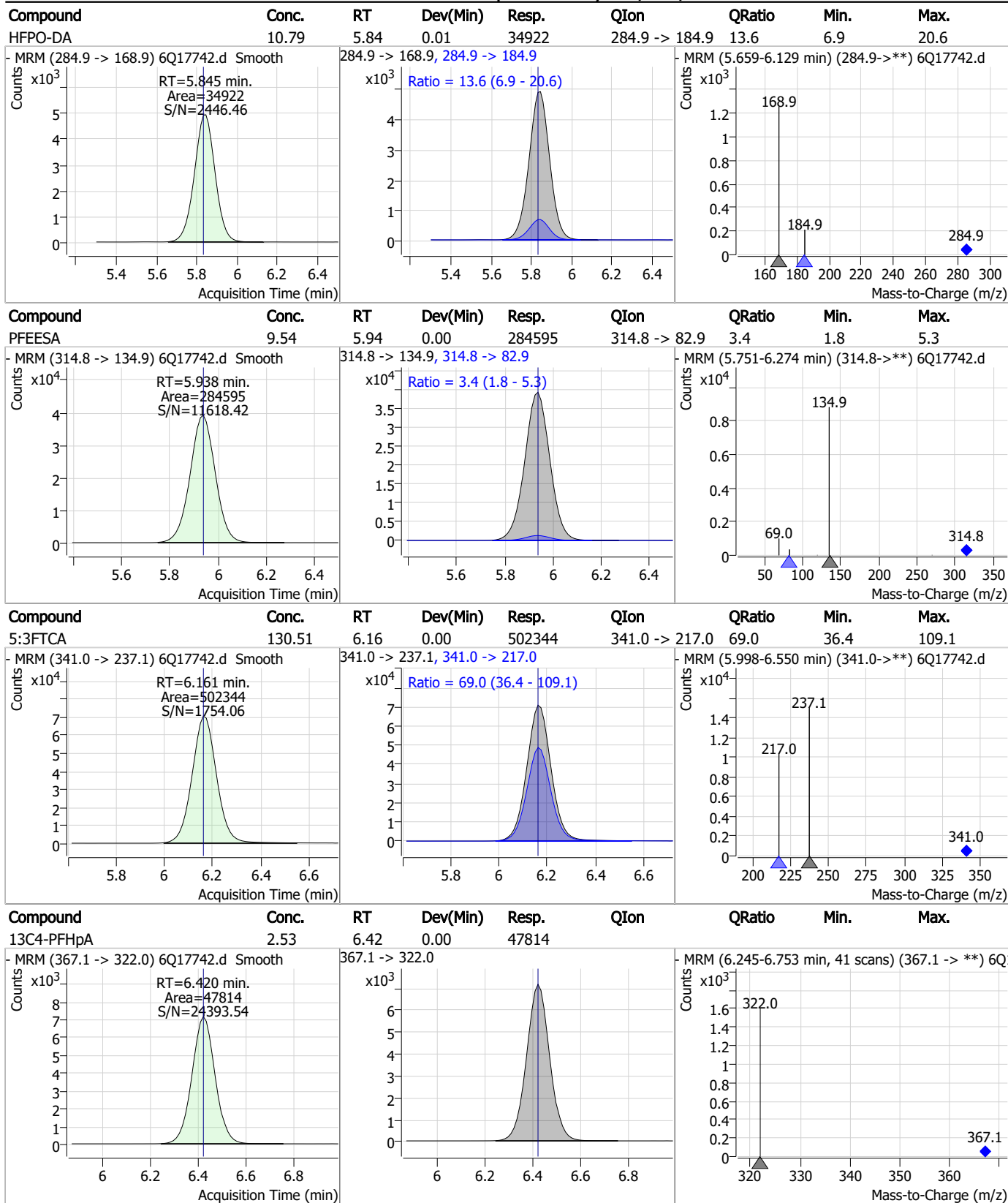
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



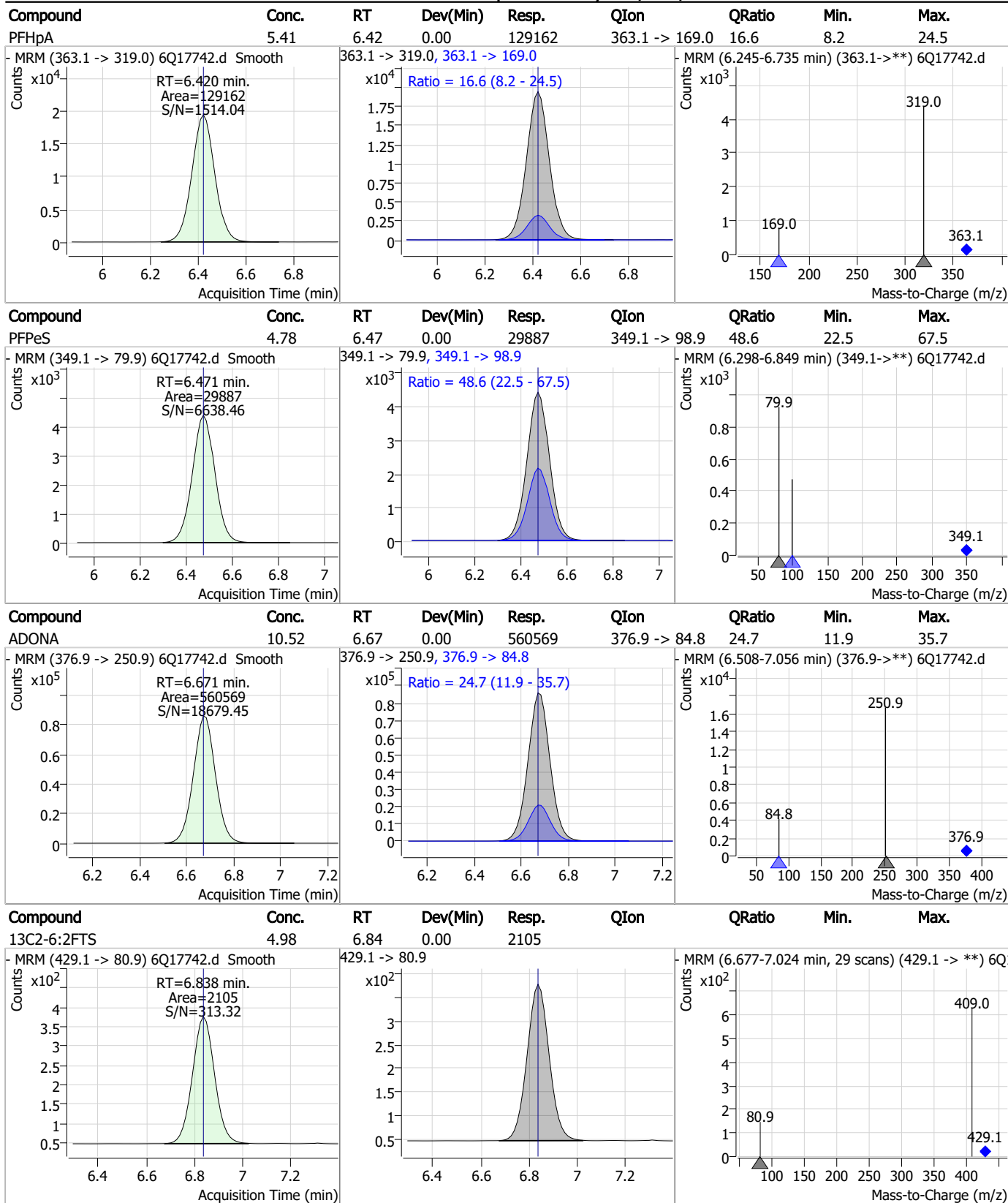
7.7.6
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Perfluorinated Compounds by LC/MS/MS



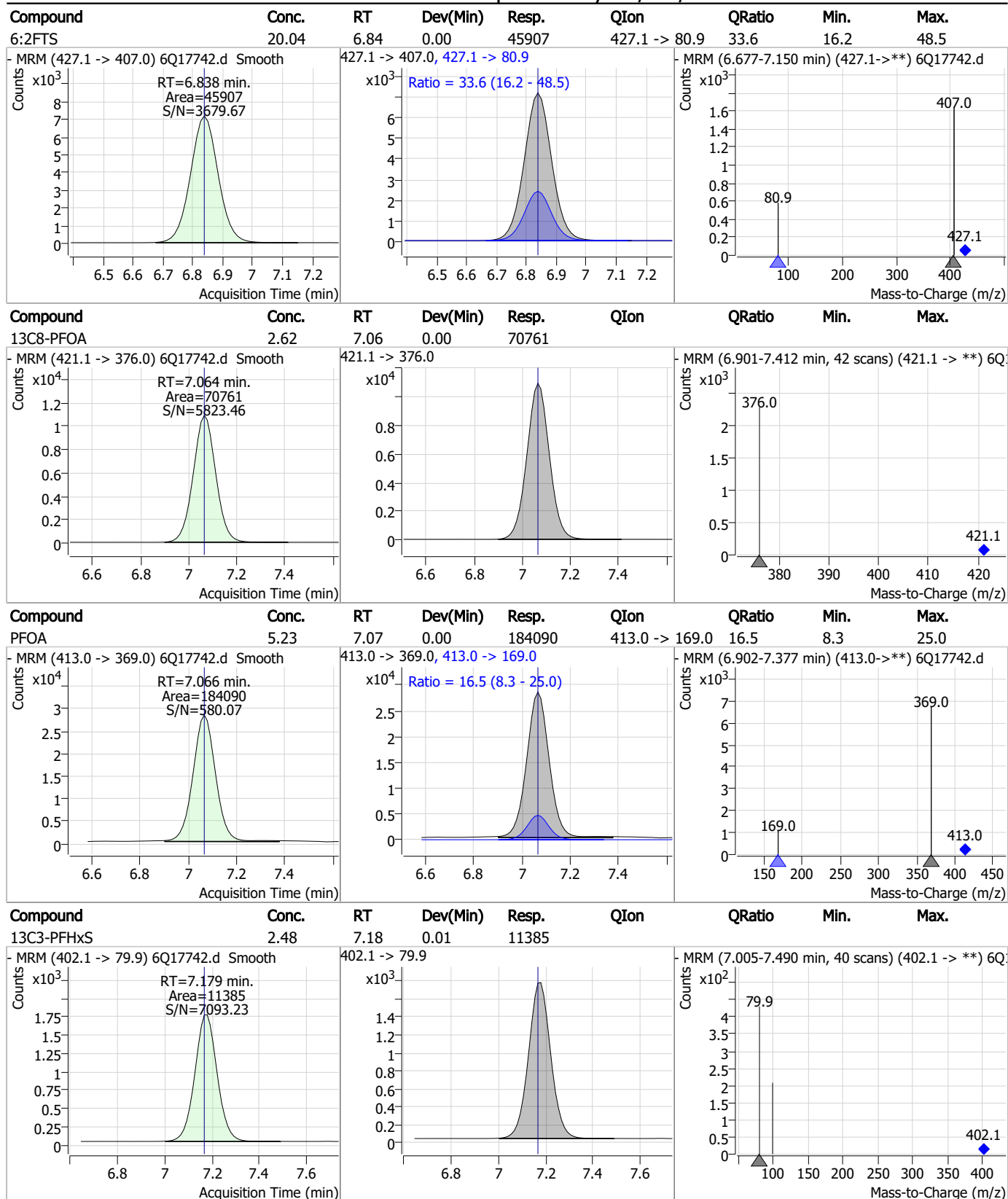
7.7.6
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Perfluorinated Compounds by LC/MS/MS



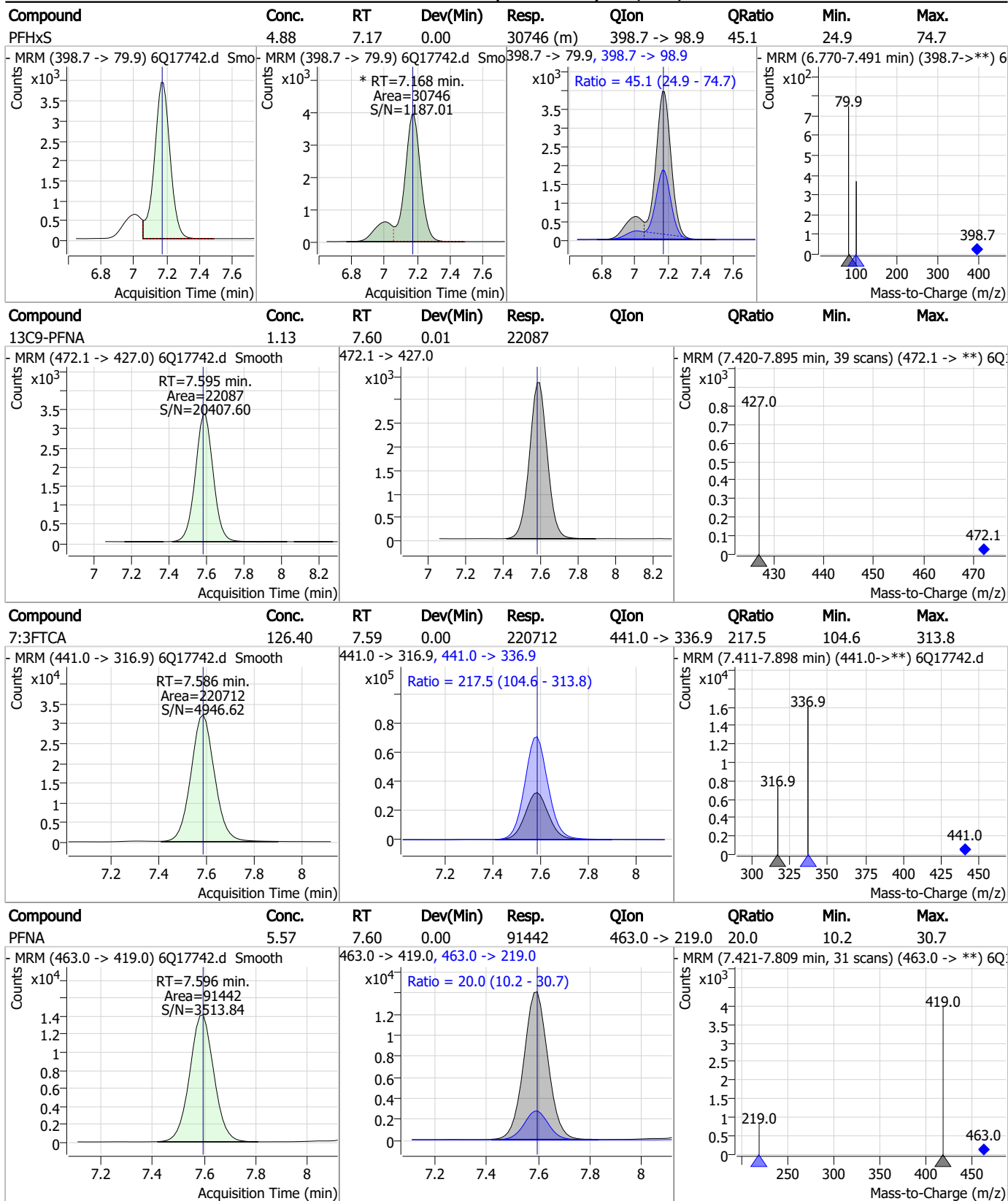
7.7.6
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Perfluorinated Compounds by LC/MS/MS



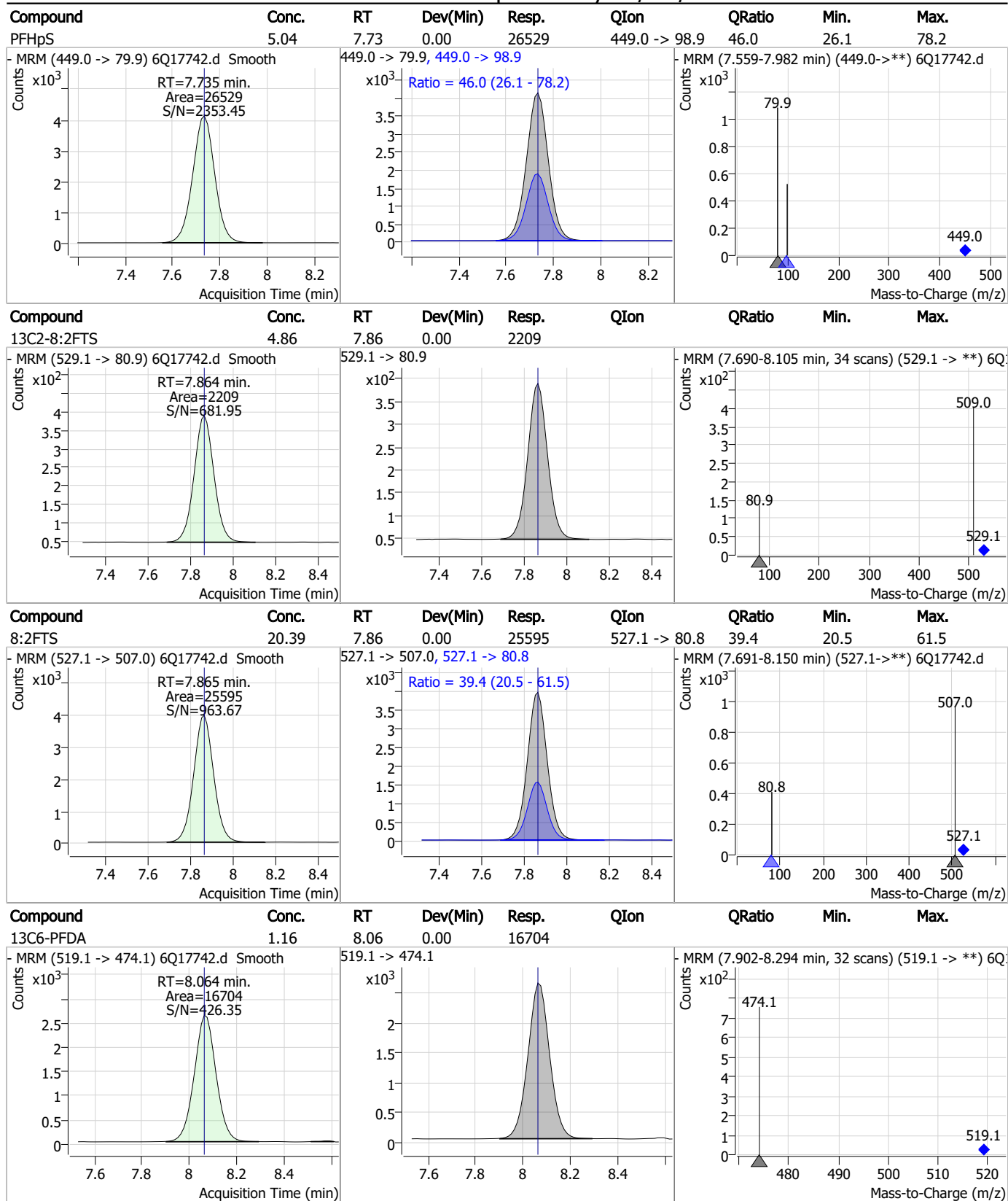
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



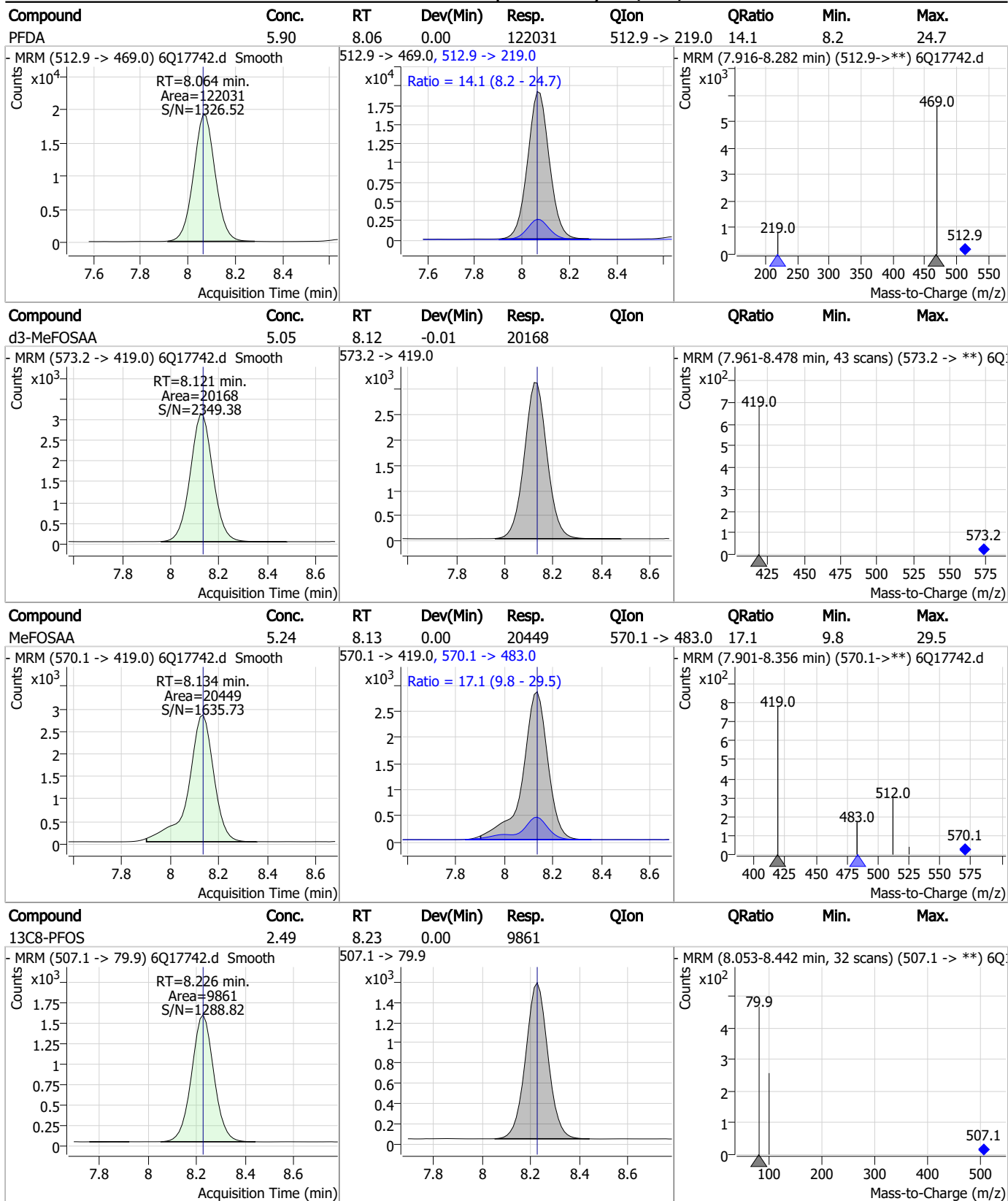
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6
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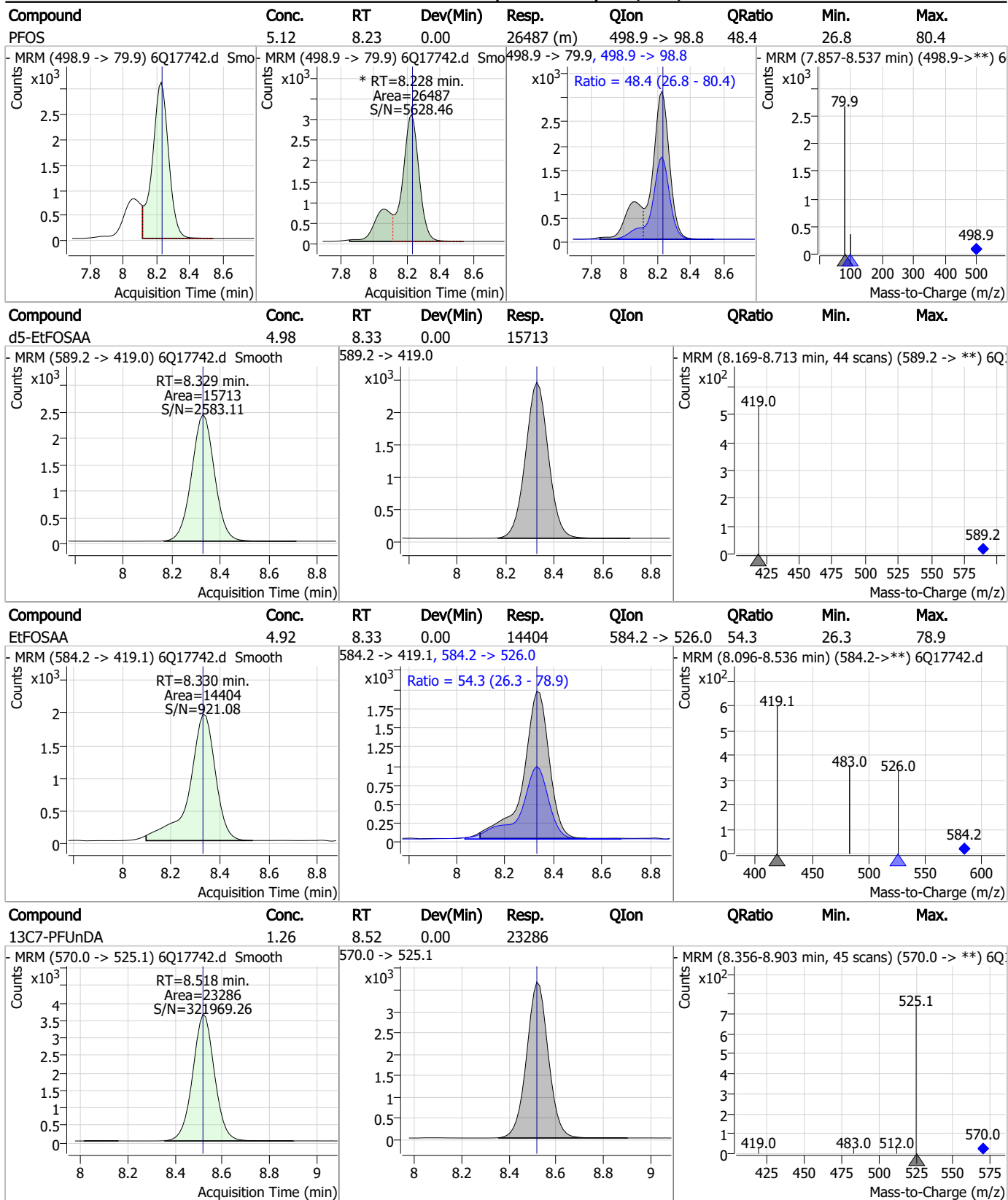
Perfluorinated Compounds by LC/MS/MS



7.7.6

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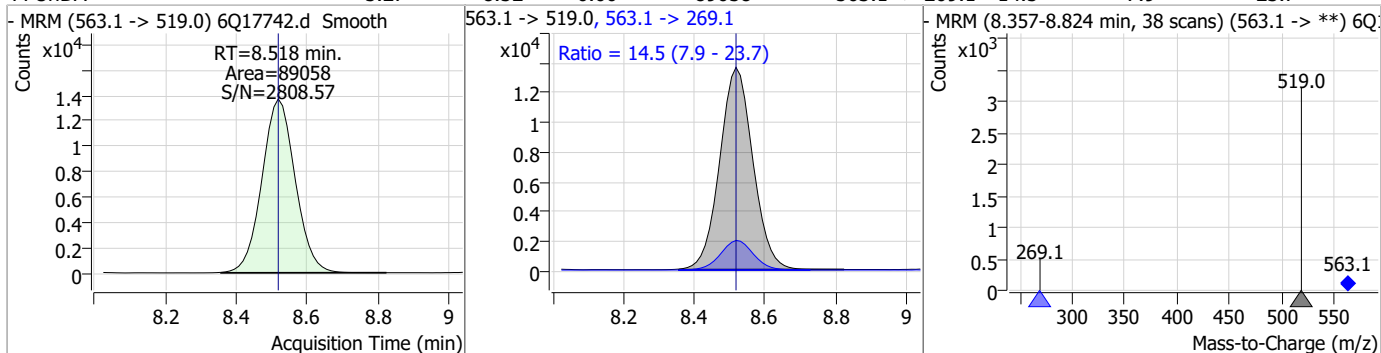
Perfluorinated Compounds by LC/MS/MS



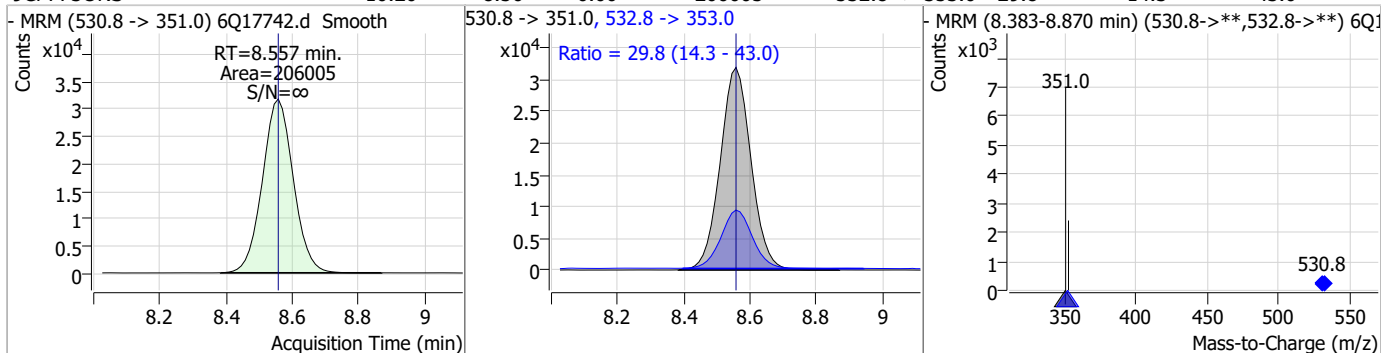
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Perfluorinated Compounds by LC/MS/MS

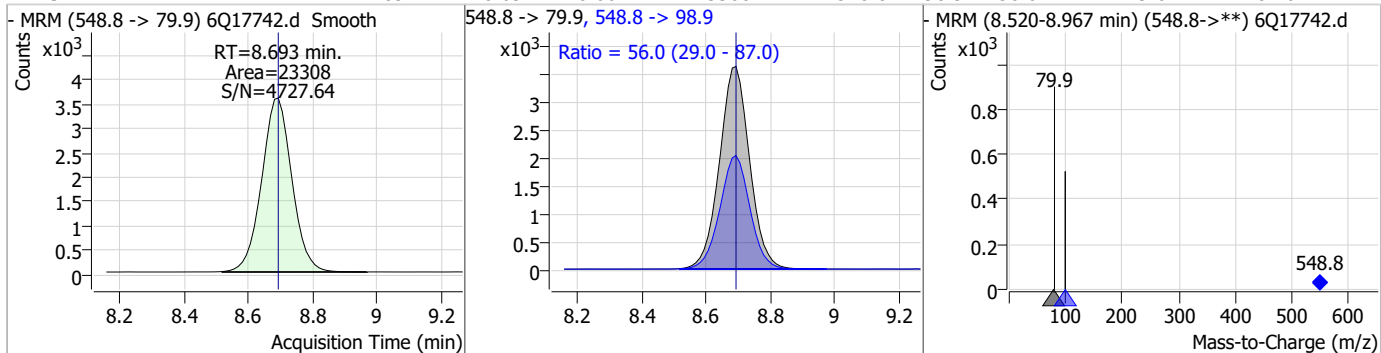
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	5.27	8.52	0.00	89058	563.1 -> 269.1	14.5	7.9	23.7



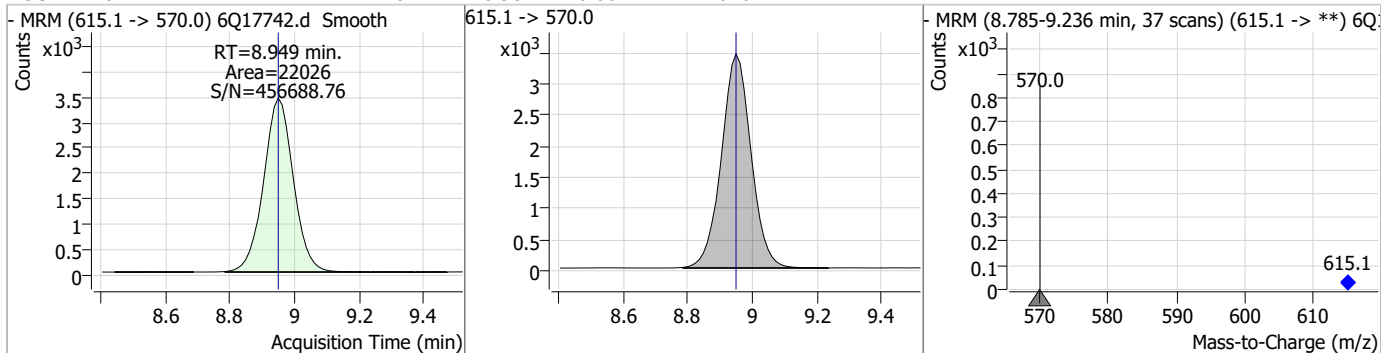
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	10.20	8.56	0.00	206005	532.8 -> 353.0	29.8	14.3	43.0



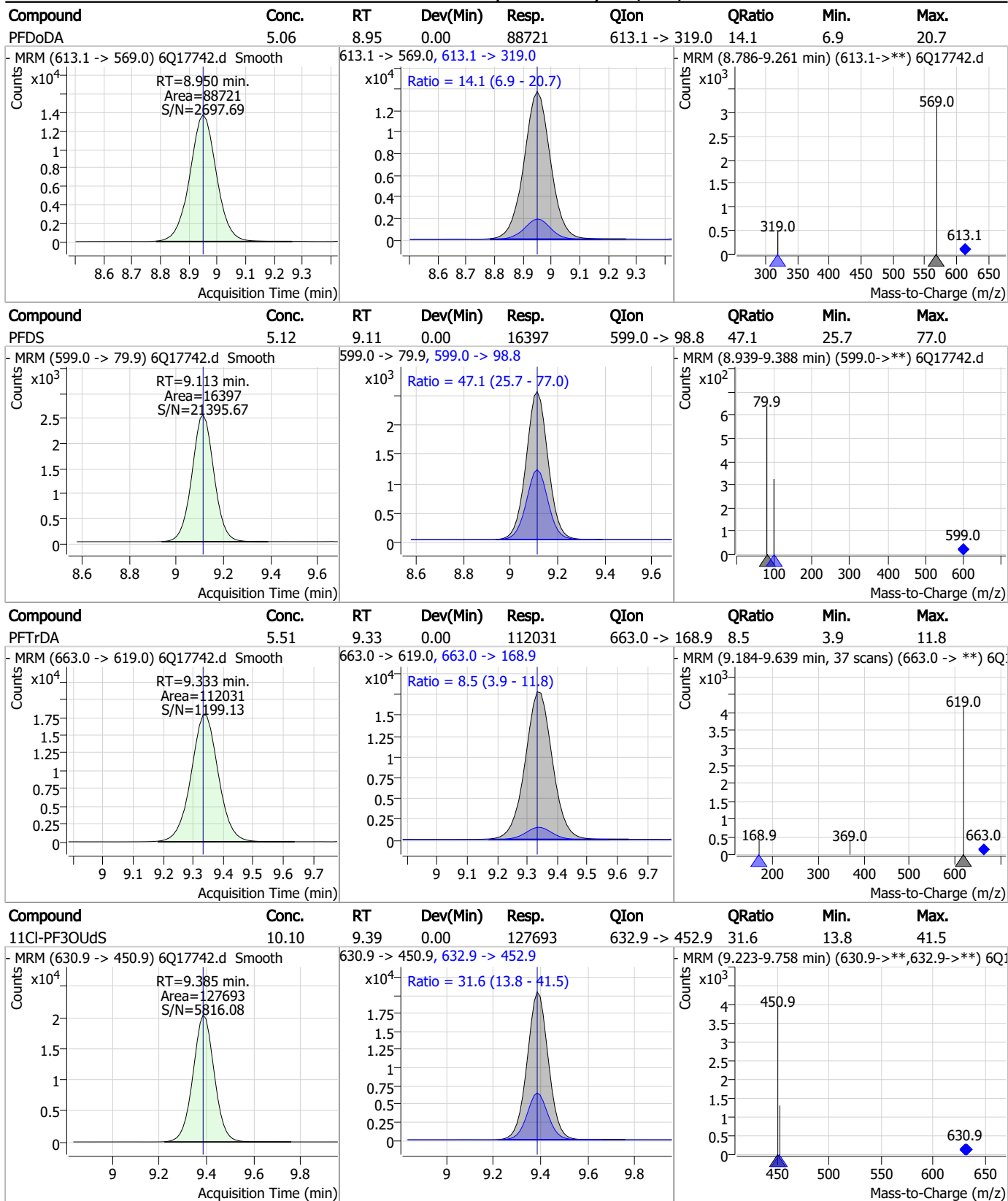
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	4.89	8.69	0.00	23308	548.8 -> 98.9	56.0	29.0	87.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.20	8.95	0.00	22026	615.1 -> 570.0			

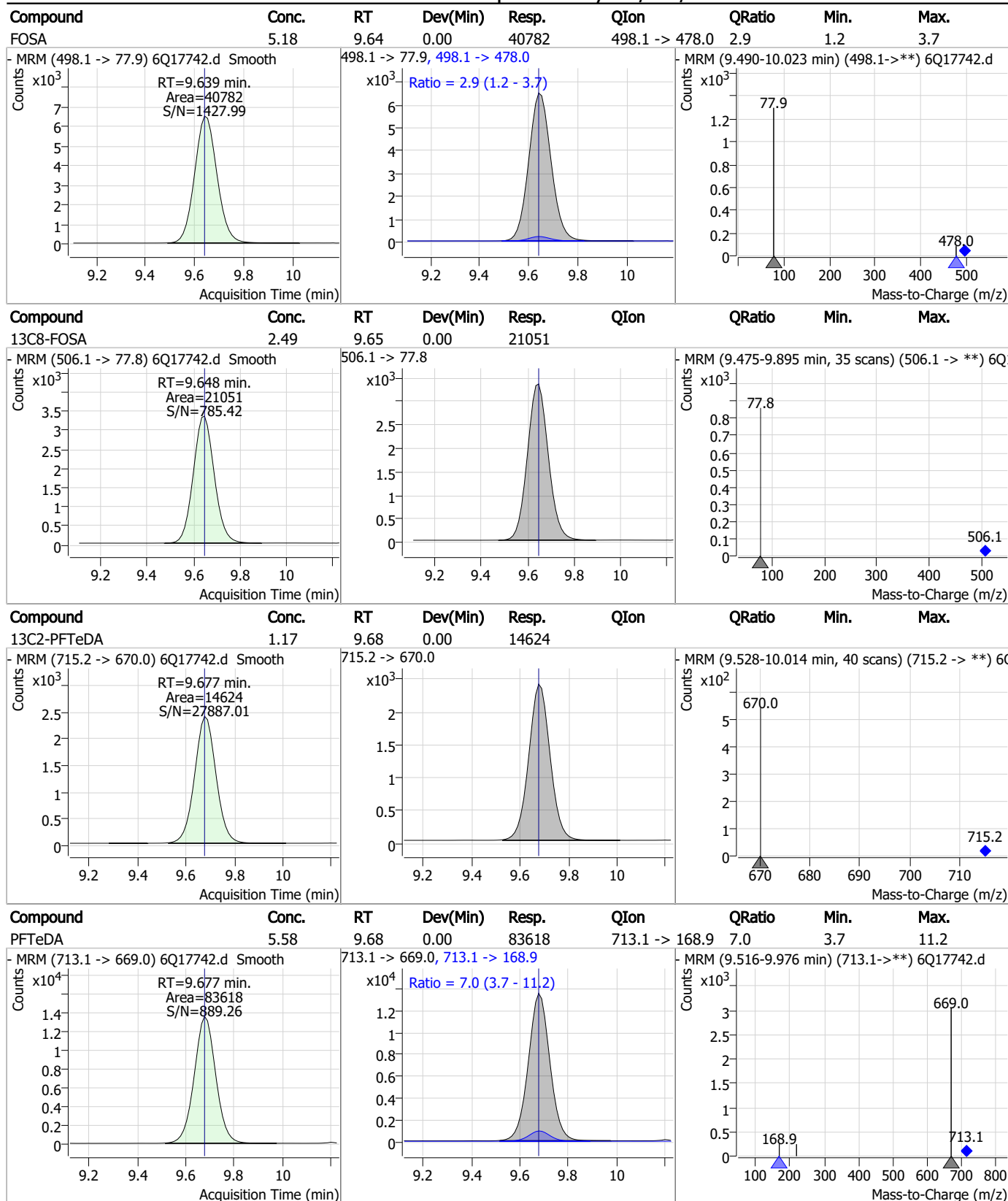


Perfluorinated Compounds by LC/MS/MS



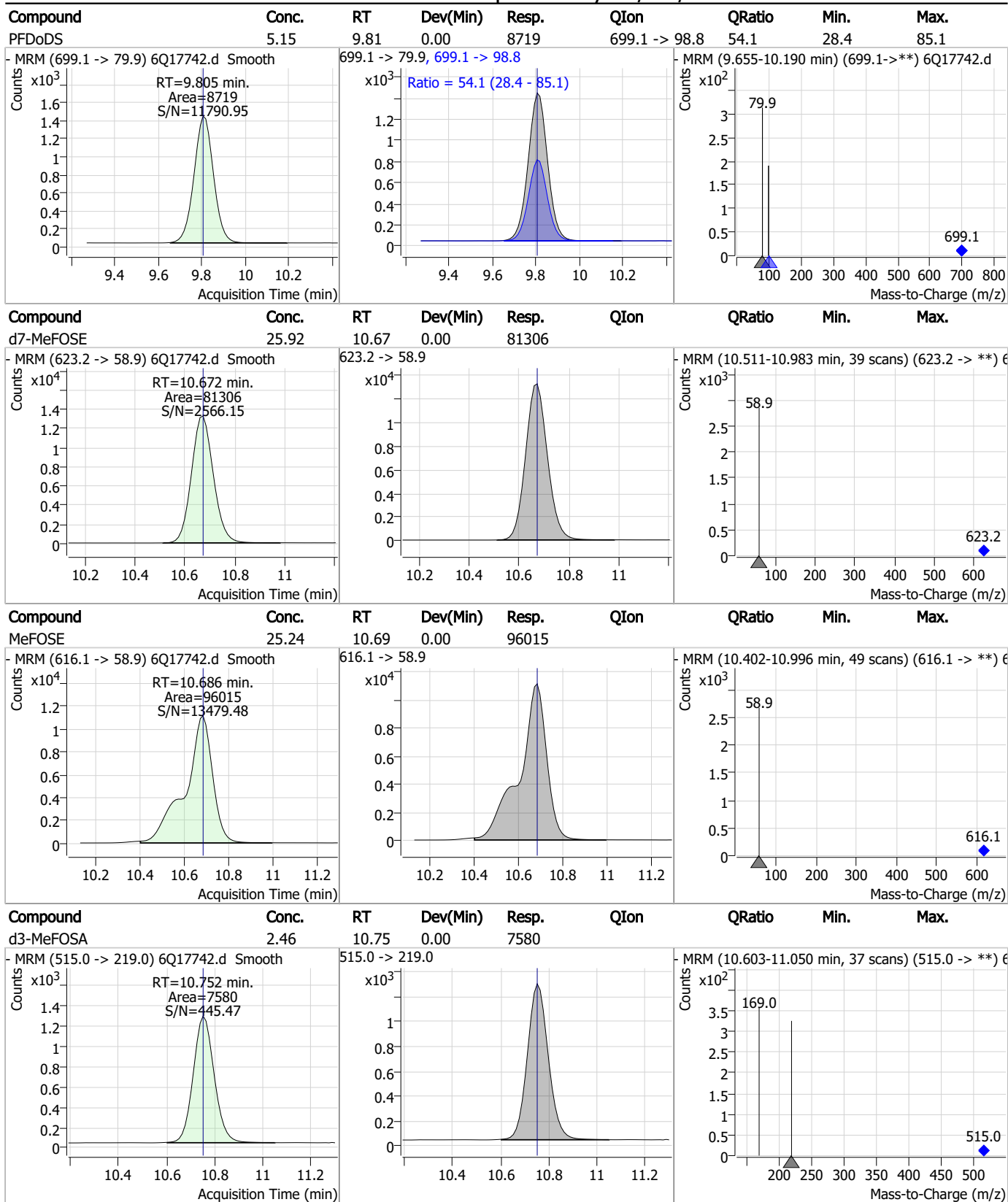
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Perfluorinated Compounds by LC/MS/MS



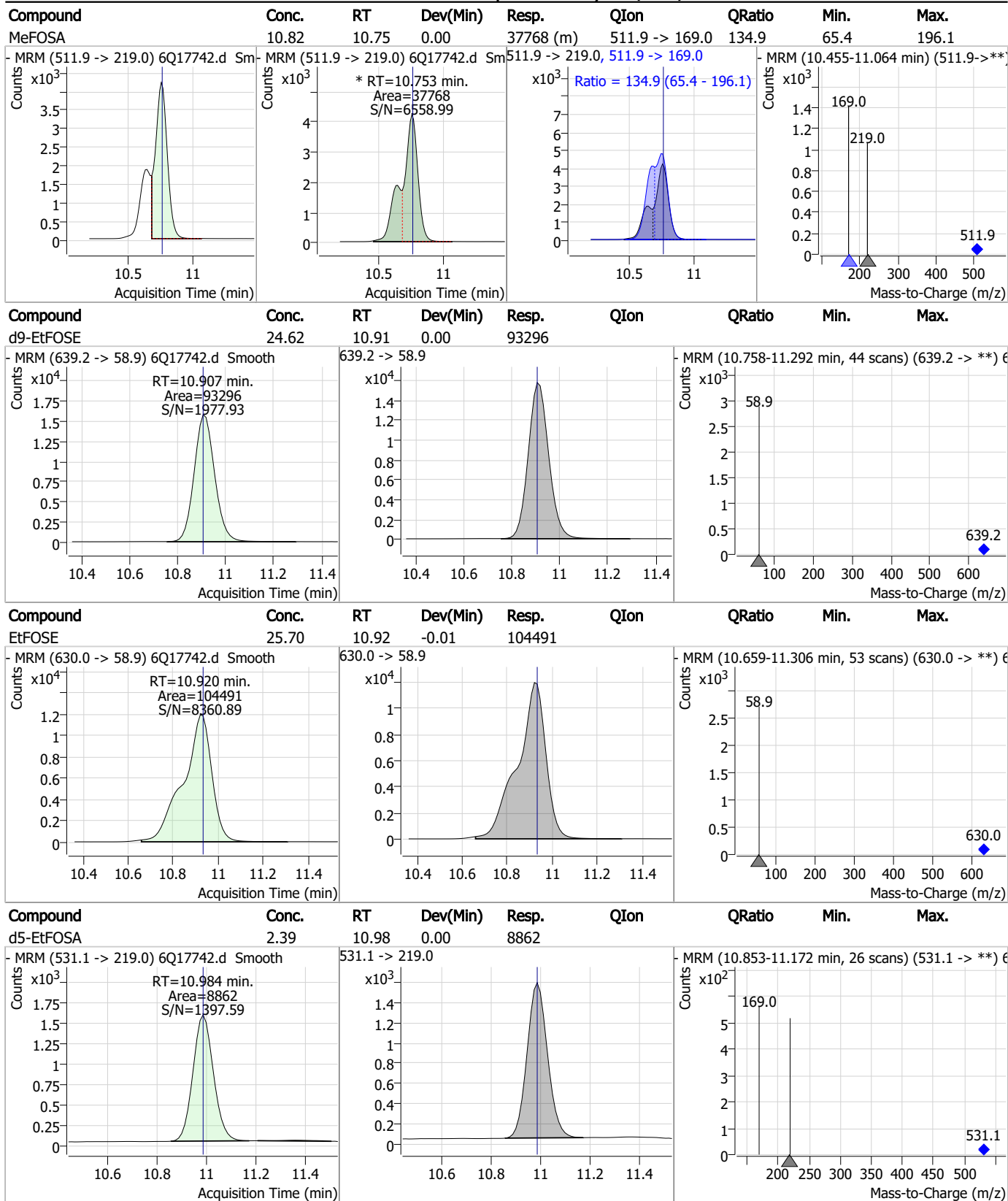
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Perfluorinated Compounds by LC/MS/MS



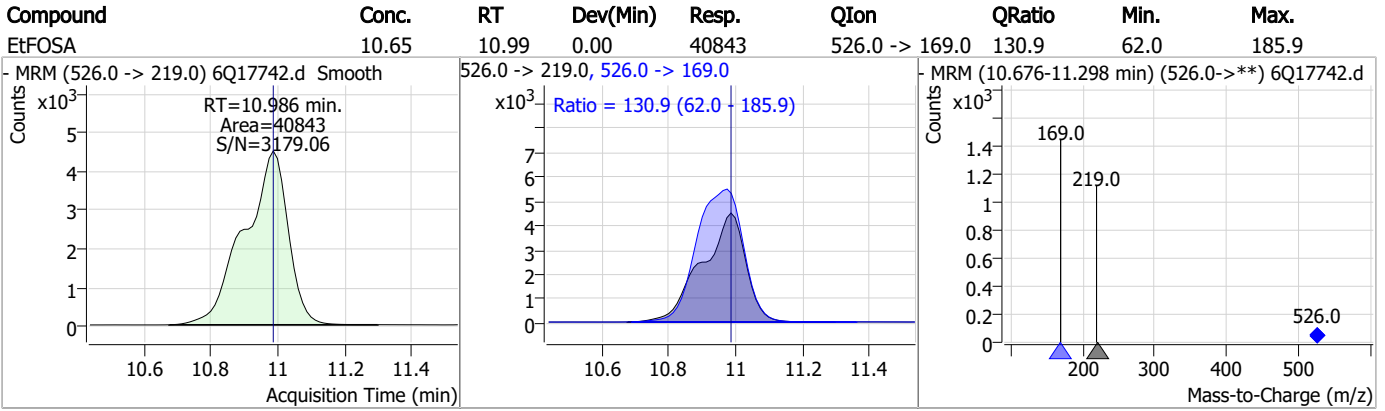
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6

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Manual Integration Approval Summary

Sample Number: S6Q268-IC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17742.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 13:13 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17743.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 1:27:52 PM
 Sample Name : ic268-6
 Vial : P1-A7
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	144328	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	46920	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	52694	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	46592	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	66712	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22402	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	16992	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	20744	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	20356	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	13532	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	20157	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	17779	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11339	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9204	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1583	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	1958	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2235	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	18661	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	32779	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	14793	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	75882	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	88028	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9139	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	6959	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11774	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	61115	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7769	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	67677	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21632	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	22287	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	44392	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1583	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1958	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2235	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20356	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	13532	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.2%		
13C3-PFBS	5.397	302.1 -> 79.9	17779	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	11339	2.74 µg/L	0.012

7.7.7
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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 = 109.6%	
13C4-PFBA	2.901	216.8 -> 171.9	144328	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.420	367.1 -> 322.0	46592	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFHxA	5.466	318.0 -> 273.0	52694	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.272	268.3 -> 223.0	46920	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.064	519.1 -> 474.1	16992	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C7-PFUnDA	8.518	570.0 -> 525.1	20744	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C8-FOSA	9.648	506.1 -> 77.8	20157	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-PFOA	7.064	421.1 -> 376.0	66712	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-PFOS	8.226	507.1 -> 79.9	9204	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C9-PFNA	7.595	472.1 -> 427.0	22402	1.36 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
d3-MeFOSAA	8.133	573.2 -> 419.0	18661	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	32779	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d3-MeFOSA	10.752	515.0 -> 219.0	6959	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
d5-EtFOSAA	8.329	589.2 -> 419.0	14793	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d7-MeFOSE	10.672	623.2 -> 58.9	75882	26.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	88028	25.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
d5-EtFOSA	10.984	531.1 -> 219.0	9139	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	113779	47.80 µg/L	98
		327.1 -> 80.9	41057		
6:2FTS	6.838	427.1 -> 407.0	108590	50.96 µg/L	100
		427.1 -> 80.9	35396		
8:2FTS	7.865	527.1 -> 507.0	60260	47.45 µg/L	96
		527.1 -> 80.8	26164		
EtFOSAA	8.330	584.2 -> 419.1	35373	12.84 µg/L	97
		584.2 -> 526.0	19332		
FOSA	9.639	498.1 -> 77.9	97191	12.88 µg/L	99
		498.1 -> 478.0	2890		
MeFOSAA	8.134	570.1 -> 419.0	47536	13.16 µg/L	96
		570.1 -> 483.0	8463		
PFBA	2.907	212.8 -> 168.9	271819	52.50 µg/L	100
PFBS	5.398	298.7 -> 79.9	95381	10.99 µg/L	95
		298.7 -> 98.8	37505		
PFDA	8.064	512.9 -> 469.0	250887	11.93 µg/L	100
		512.9 -> 219.0	41119		
PFDoDA	8.950	613.1 -> 569.0	215309	13.28 µg/L	98
		613.1 -> 319.0	31127		
PFDS	9.113	599.0 -> 79.9	38234	12.79 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	18657			
PFHpA	6.420	363.1 -> 319.0	302664	13.00	µg/L	99
		363.1 -> 169.0	47461			
PFHpS	7.723	449.0 -> 79.9	62613	12.75	µg/L	94
		449.0 -> 98.9	30195			
PFHxA	5.469	313.0 -> 269.0	264948	12.69	µg/L	100
		313.0 -> 118.9	12368			
PFHxS	7.180	398.7 -> 79.9	69961	11.15	µg/L	m 95
		398.7 -> 98.9	32563			
PFNA	7.596	463.0 -> 419.0	213821	12.85	µg/L	96
		463.0 -> 219.0	39829			
PFNS	8.693	548.8 -> 79.9	57259	12.86	µg/L	91
		548.8 -> 98.9	29324			
PFOA	7.066	413.0 -> 369.0	423077	12.75	µg/L	100
		413.0 -> 169.0	71366			
PFOS	8.228	498.9 -> 79.9	60109	12.46	µg/L	m 95
		498.9 -> 98.8	30220			
PFPeA	4.274	263.0 -> 219.0	349471	25.79	µg/L	100
PFPeS	6.471	349.1 -> 79.9	71730	11.53	µg/L	97
		349.1 -> 98.9	33565			
PFTeDA	9.677	713.1 -> 669.0	187285	13.52	µg/L	99
		713.1 -> 168.9	13652			
PFTrDA	9.333	663.0 -> 619.0	257028	13.67	µg/L	98
		663.0 -> 168.9	21614			
PFUnDA	8.518	563.1 -> 519.0	198126	13.15	µg/L	98
		563.1 -> 269.1	32749			
11CI-PF3OUdS	9.385	630.9 -> 450.9	300037	24.22	µg/L	88
		632.9 -> 452.9	102145			
9CI-PF3ONS	8.557	530.8 -> 351.0	481733	24.35	µg/L	97
		532.8 -> 353.0	146642			
ADONA	6.671	376.9 -> 250.9	1262550	24.19	µg/L	95
		376.9 -> 84.8	330623			
HFPO-DA	5.832	284.9 -> 168.9	78784	24.86	µg/L	99
		284.9 -> 184.9	10994			
3:3FTCA	3.777	241.0 -> 177.0	53826	64.11	µg/L	98
		241.0 -> 117.0	6786			
5:3FTCA	6.161	341.0 -> 237.1	1129573	312.33	µg/L	100
		341.0 -> 217.0	824681			
7:3FTCA	7.573	441.0 -> 316.9	513398	312.91	µg/L	94
		441.0 -> 336.9	1124128			
EtFOSA	10.986	526.0 -> 219.0	100215	25.33	µg/L	98
		526.0 -> 169.0	122290			
EtFOSE	10.920	630.0 -> 58.9	257156	67.04	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	85915	26.81	µg/L	m 93
		511.9 -> 169.0	119466			
MeFOSE	10.686	616.1 -> 58.9	229541	64.66	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	19656	12.44	µg/L	98
		699.1 -> 98.8	10843			
NFDHA	5.348	295.0 -> 201.0	60493	26.25	µg/L	96
		295.0 -> 84.9	15215			
PFMBA	4.675	279.0 -> 85.1	252941	26.16	µg/L	100
PFMPA	3.426	229.0 -> 84.9	180948	25.99	µg/L	100
PFEESA	5.938	314.8 -> 134.9	655961	23.41	µg/L	100
		314.8 -> 82.9	22549			

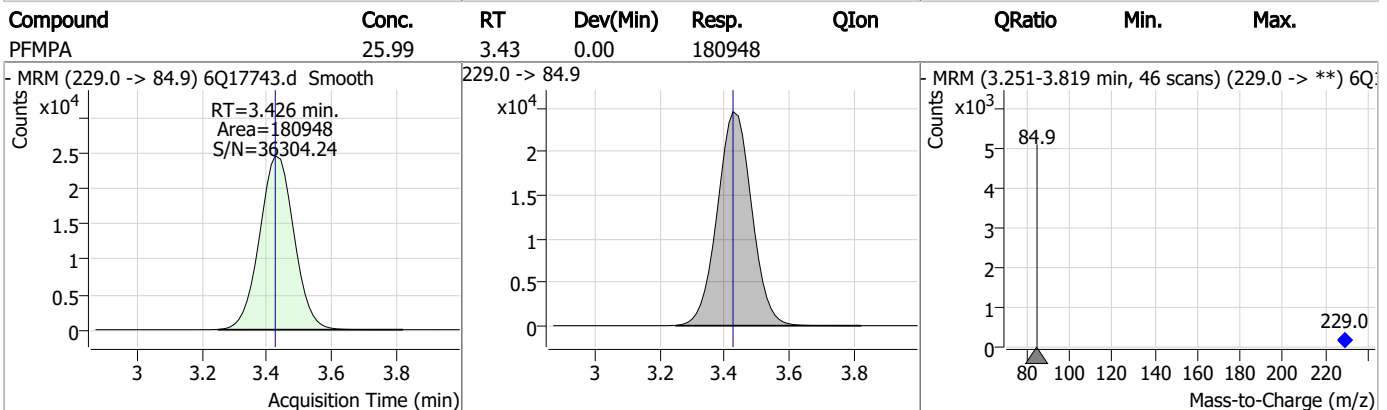
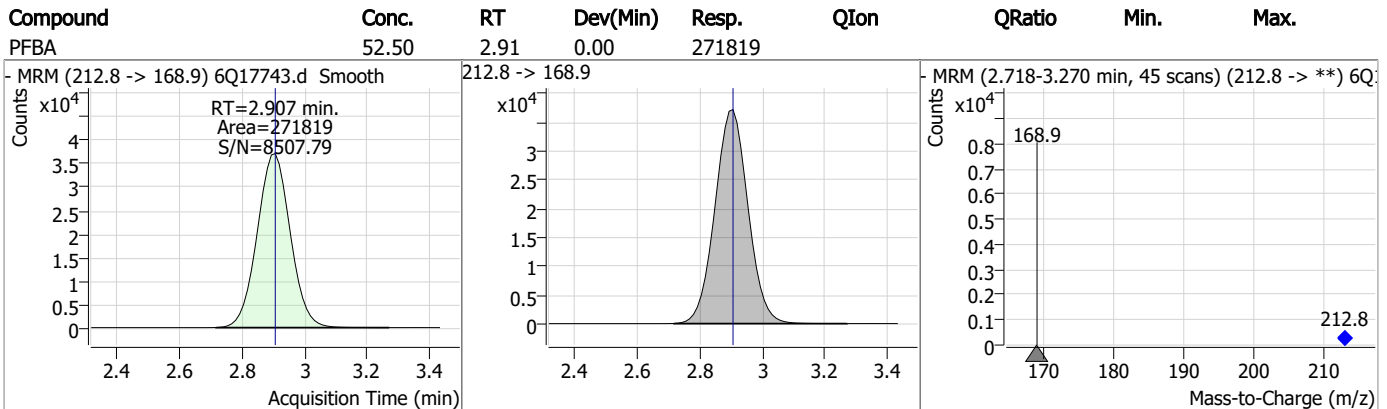
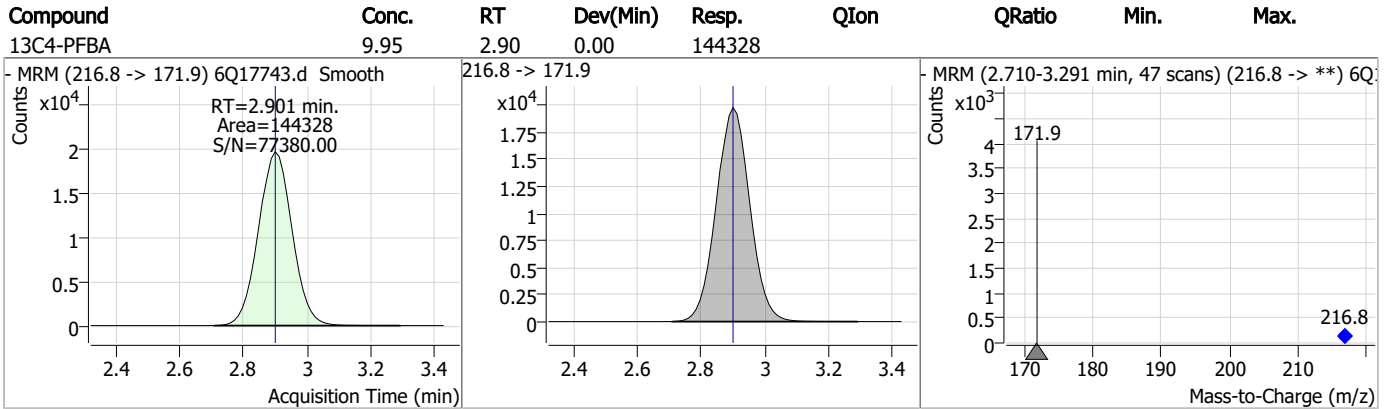
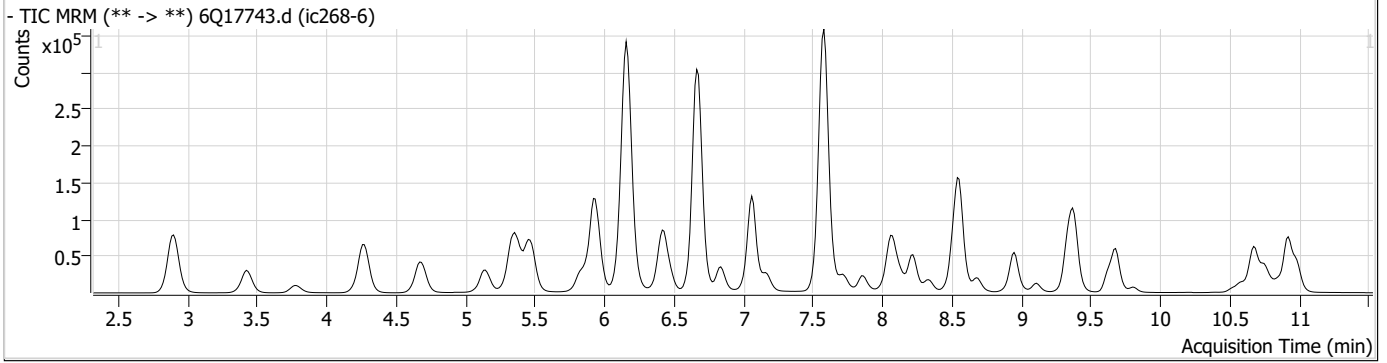
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

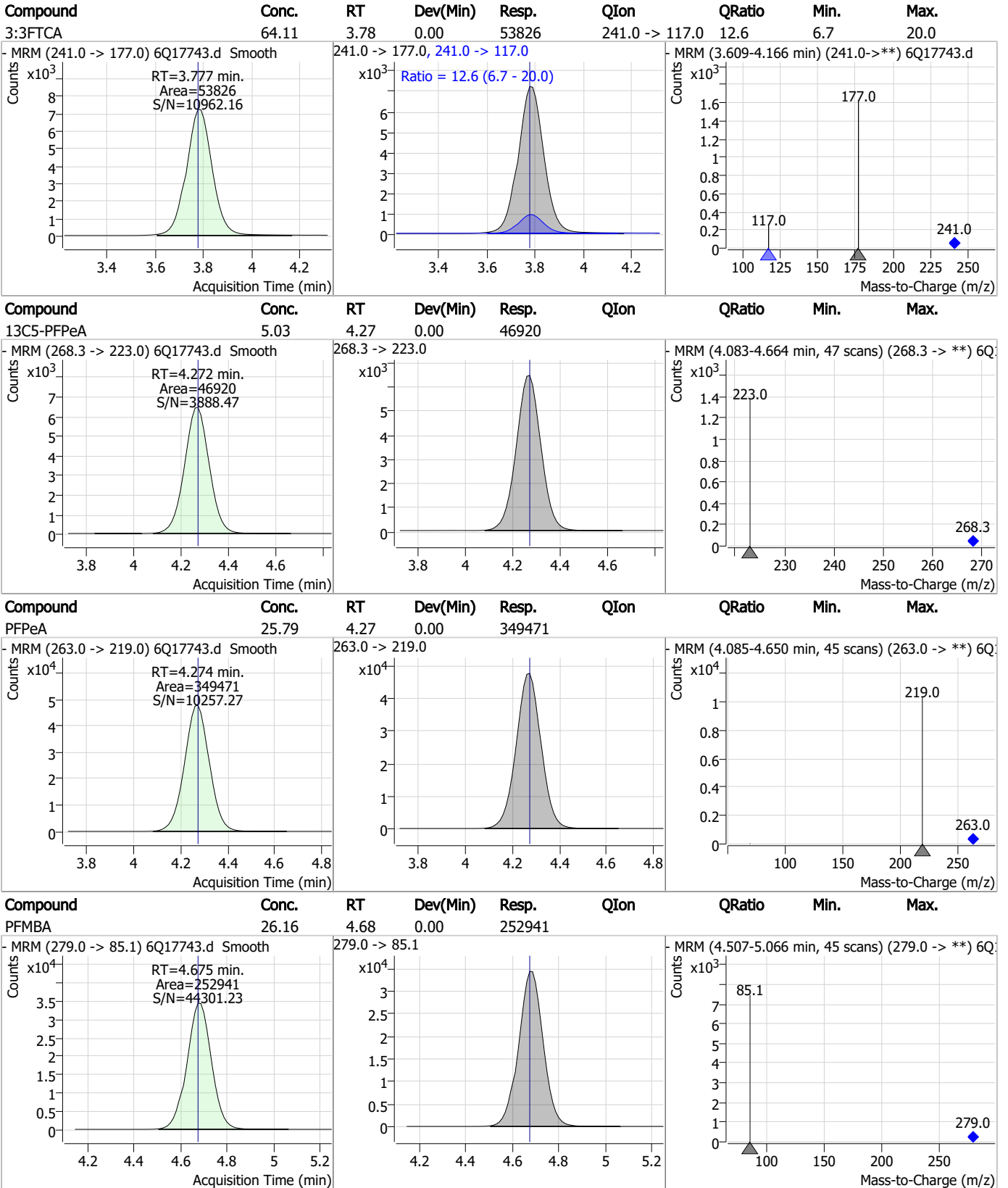
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.7
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Perfluorinated Compounds by LC/MS/MS



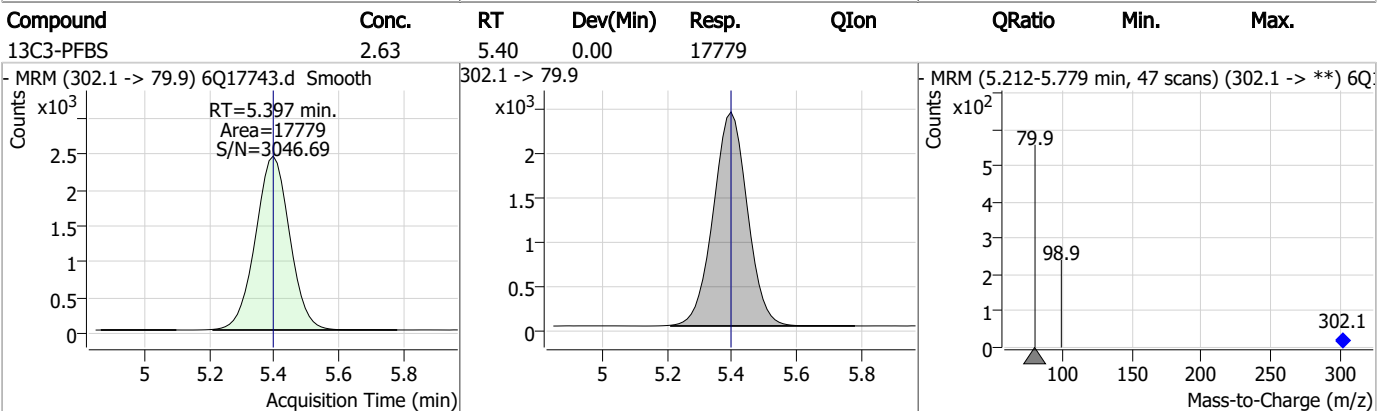
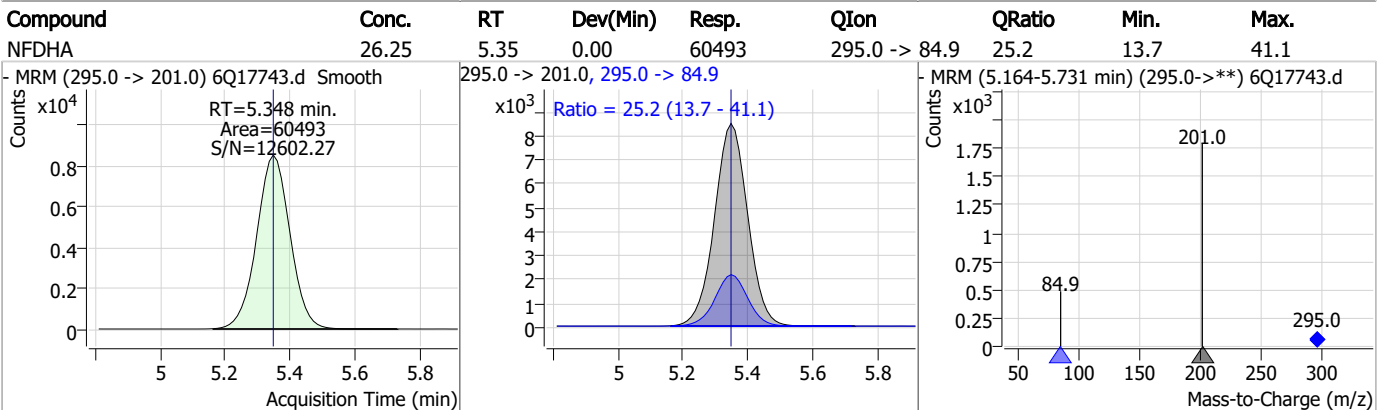
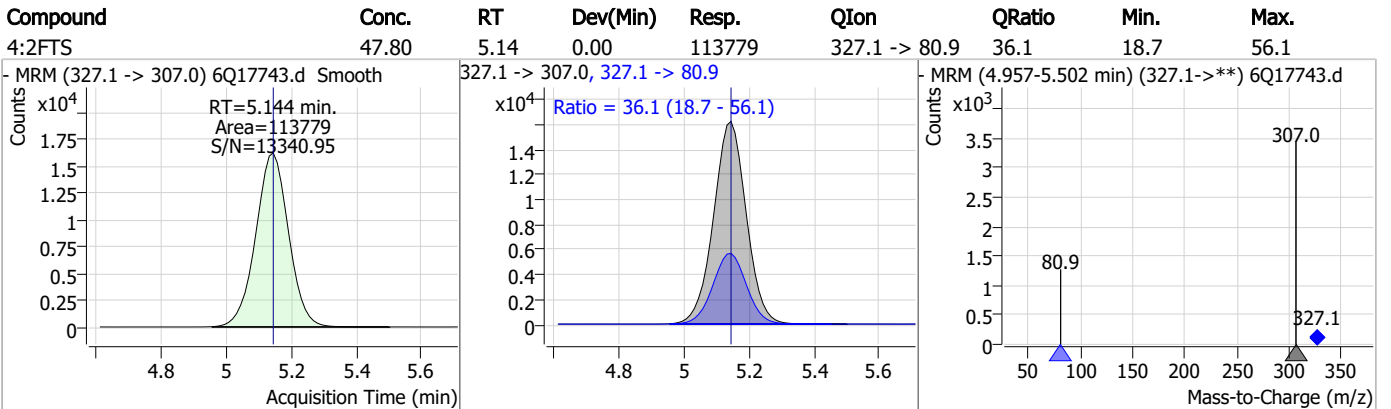
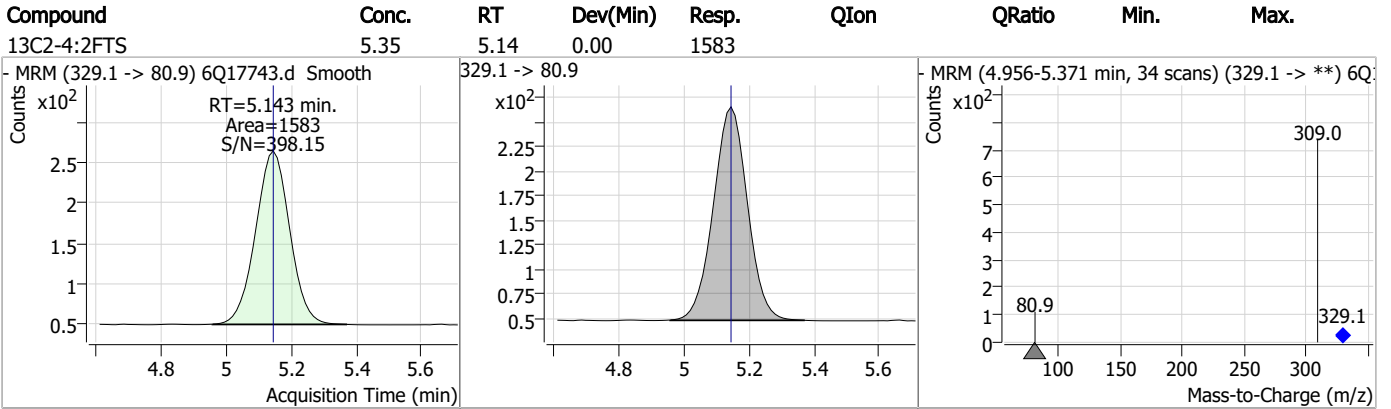
Perfluorinated Compounds by LC/MS/MS



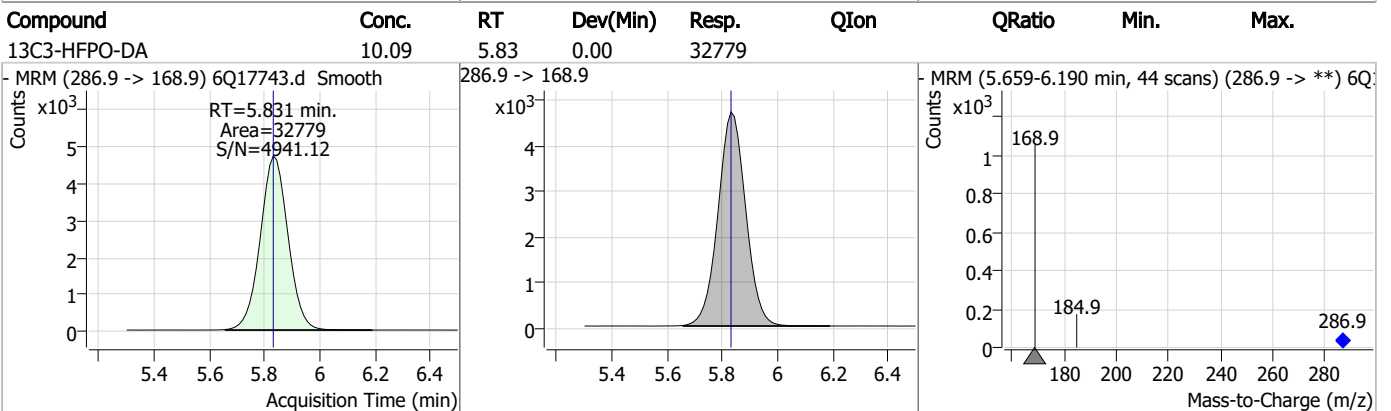
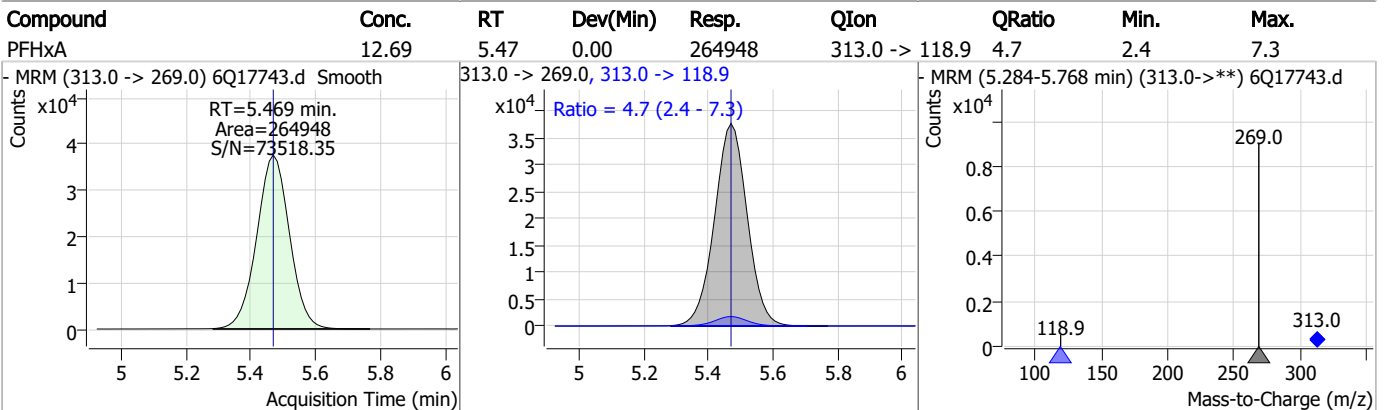
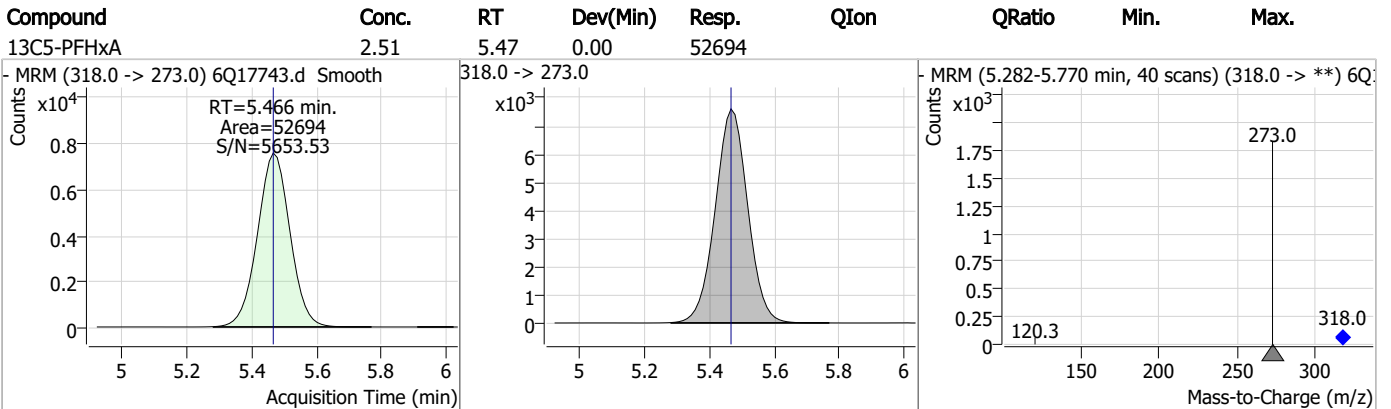
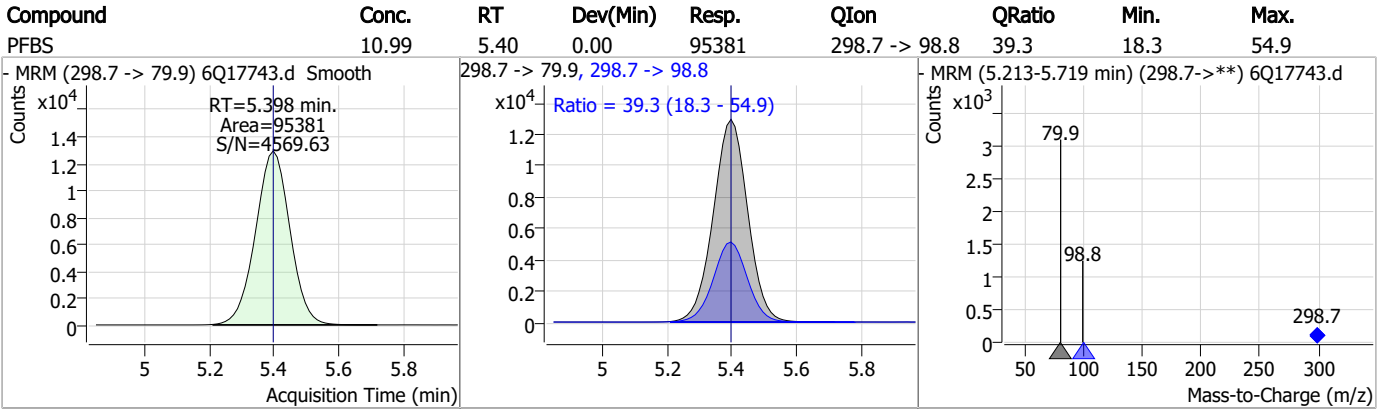
7.7.7

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Perfluorinated Compounds by LC/MS/MS

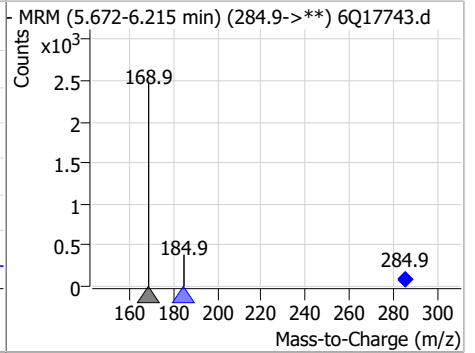
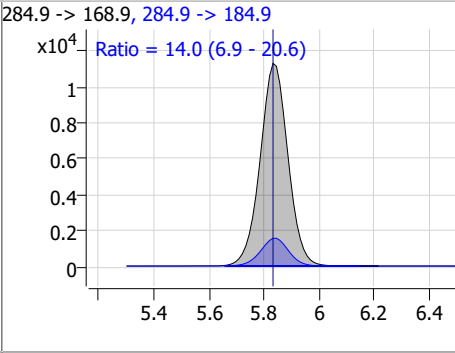
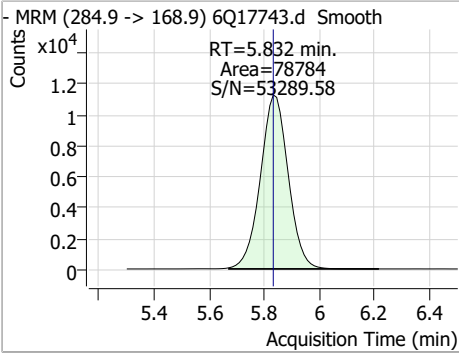


Perfluorinated Compounds by LC/MS/MS

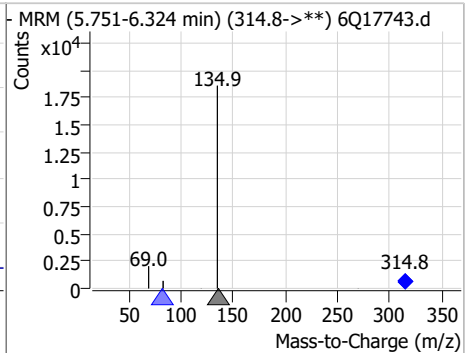
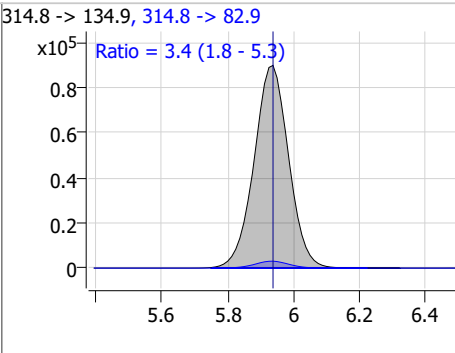
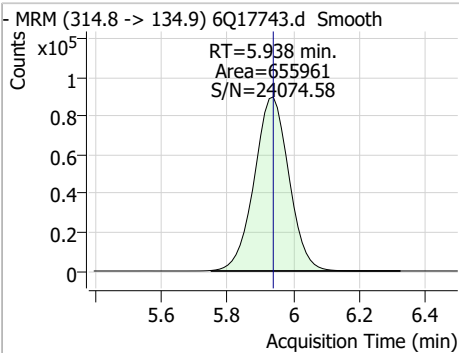


Perfluorinated Compounds by LC/MS/MS

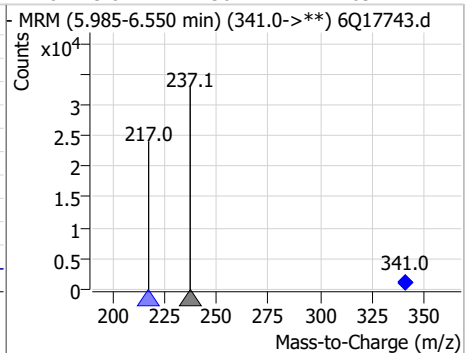
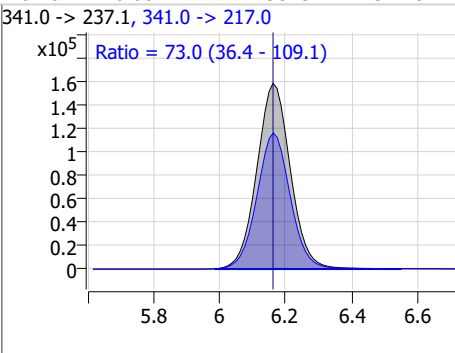
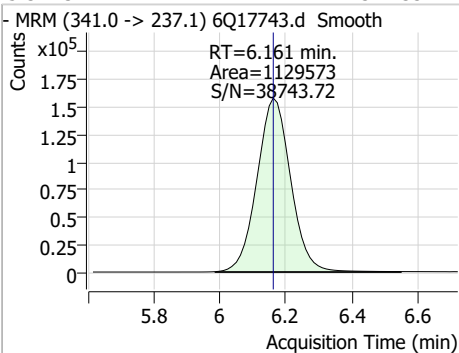
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	24.86	5.83	0.00	78784	284.9 -> 184.9	14.0	6.9	20.6



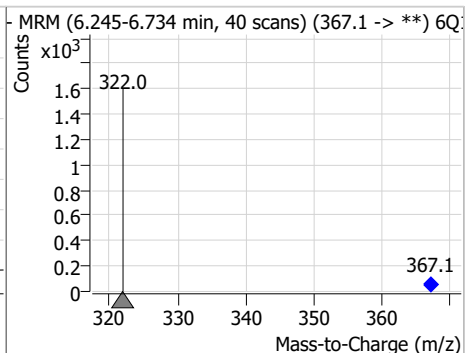
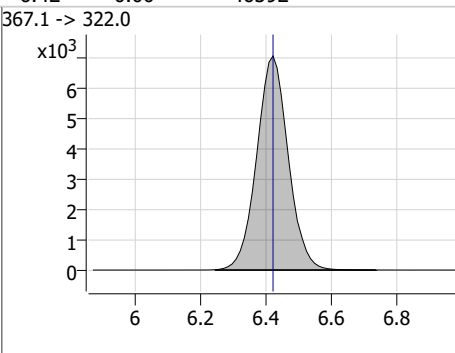
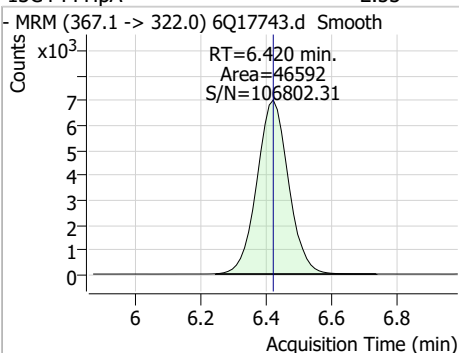
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.41	5.94	0.00	655961	314.8 -> 82.9	3.4	1.8	5.3



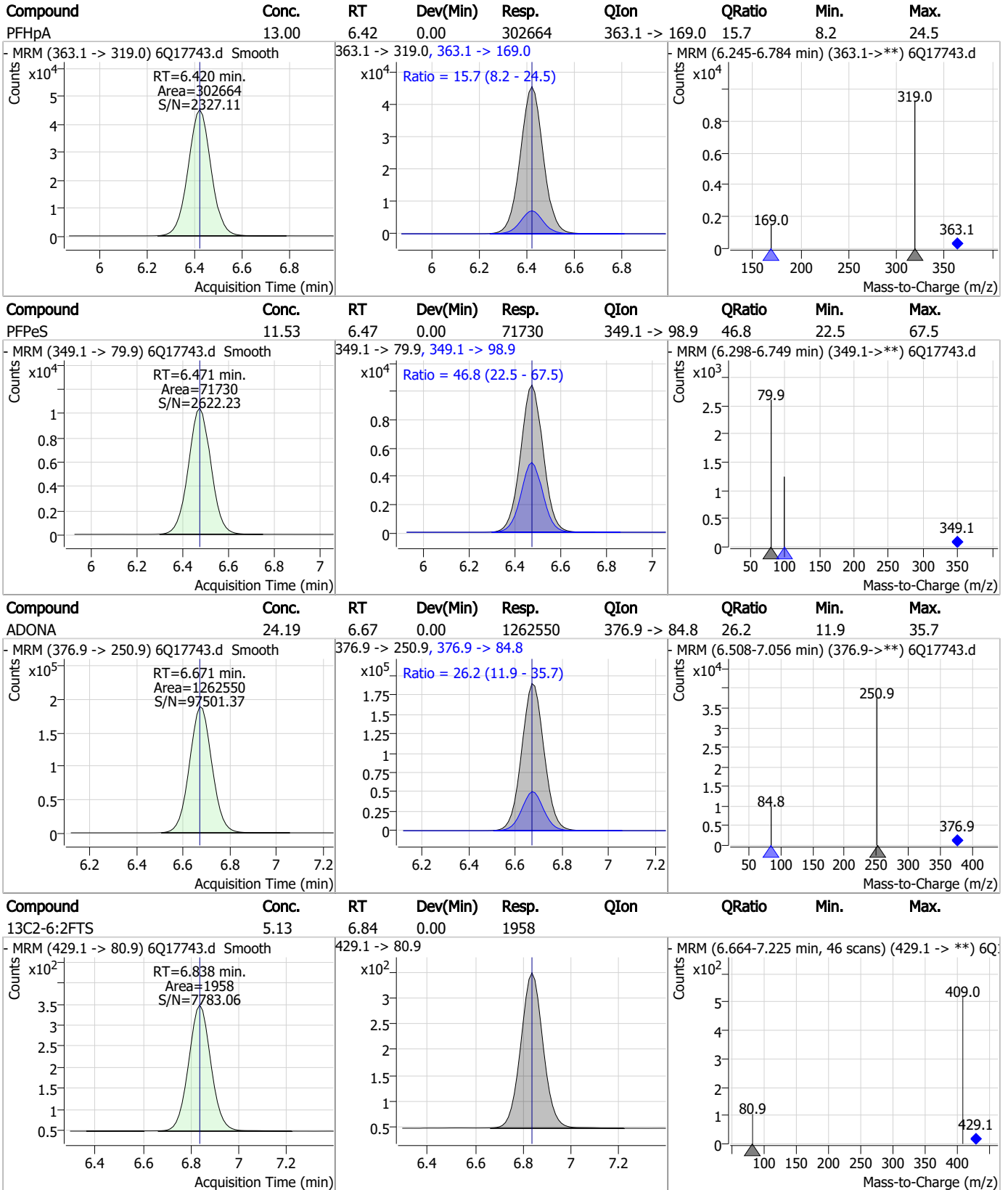
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	312.33	6.16	0.00	1129573	341.0 -> 217.0	73.0	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.53	6.42	0.00	46592	367.1 -> 322.0			



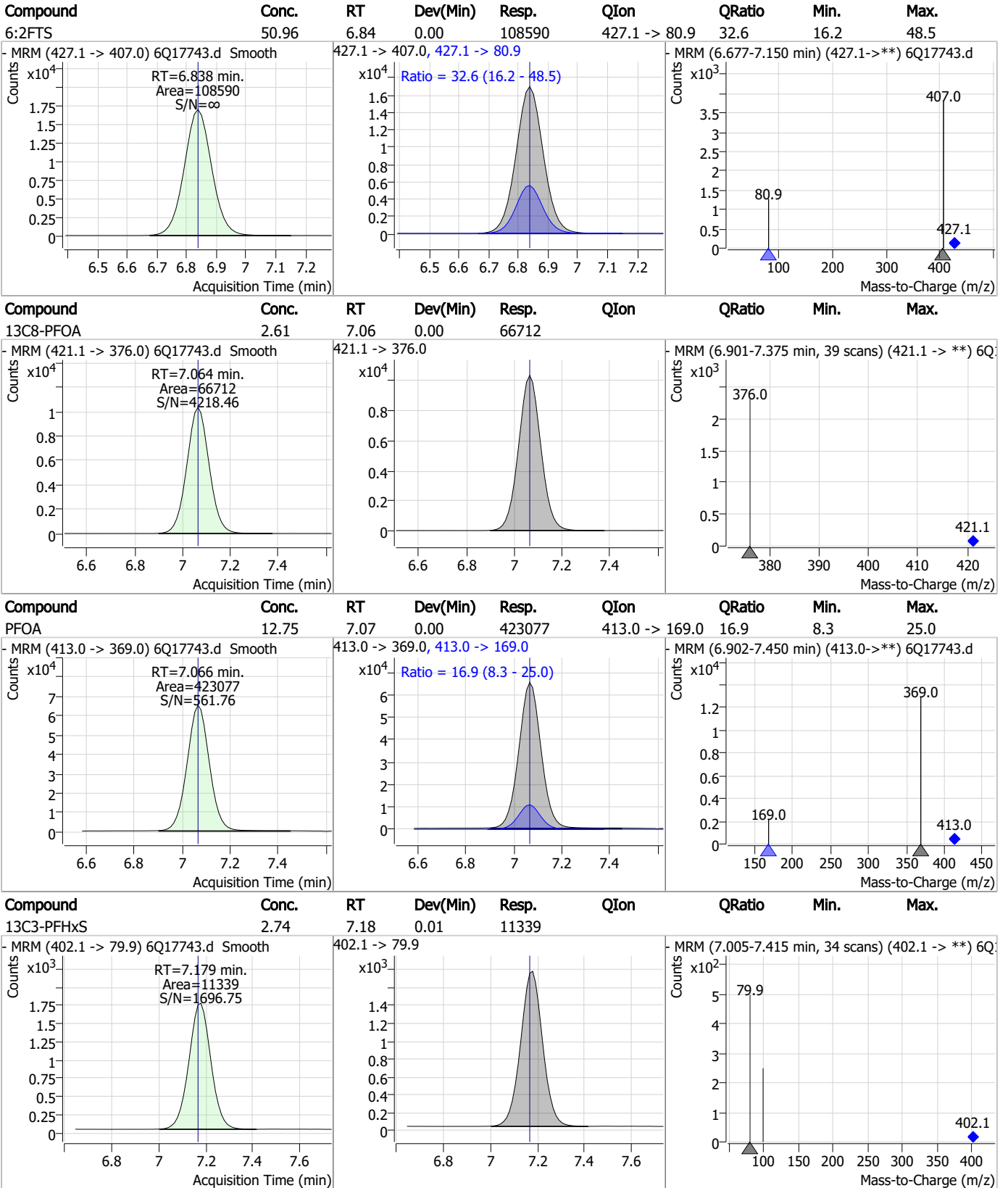
Perfluorinated Compounds by LC/MS/MS



7.7.7

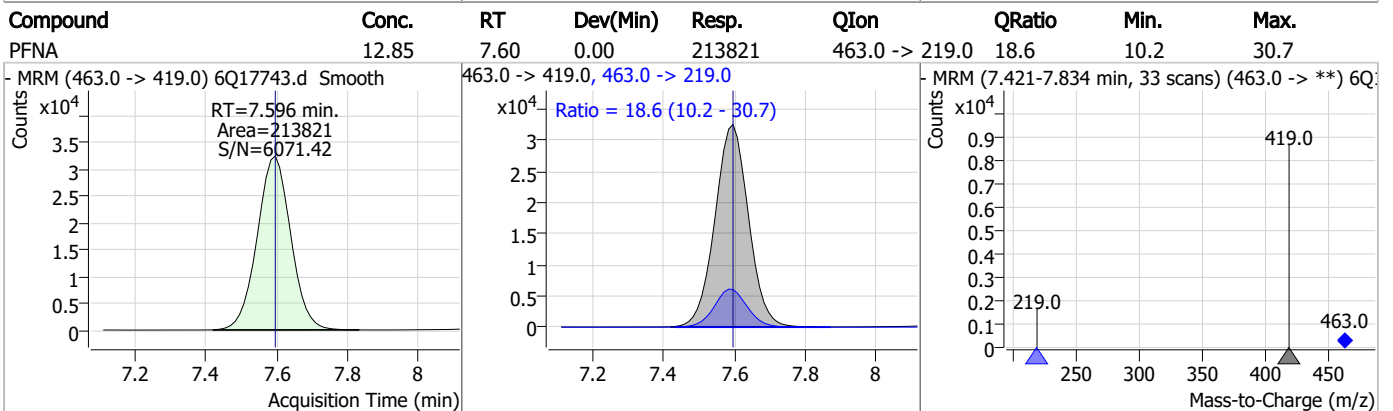
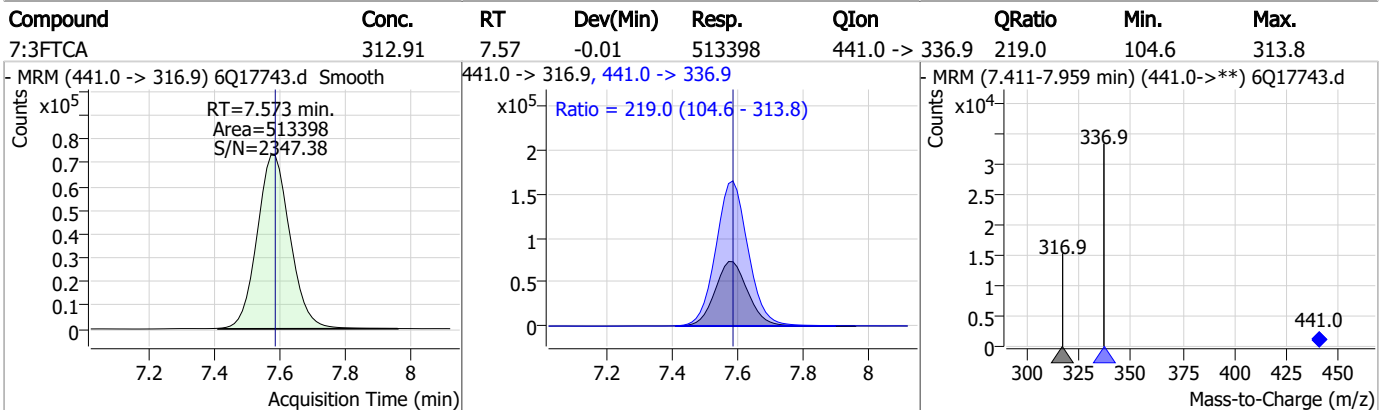
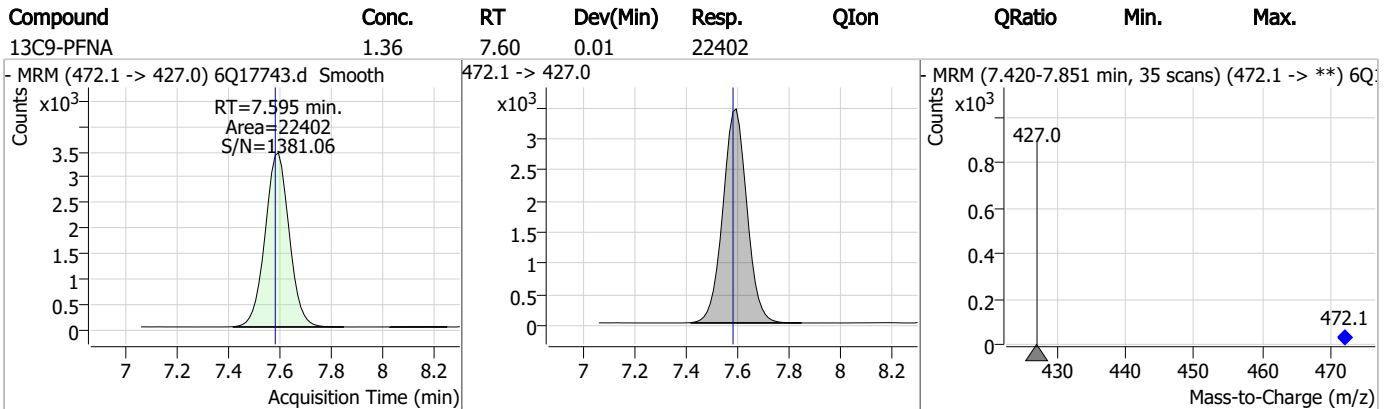
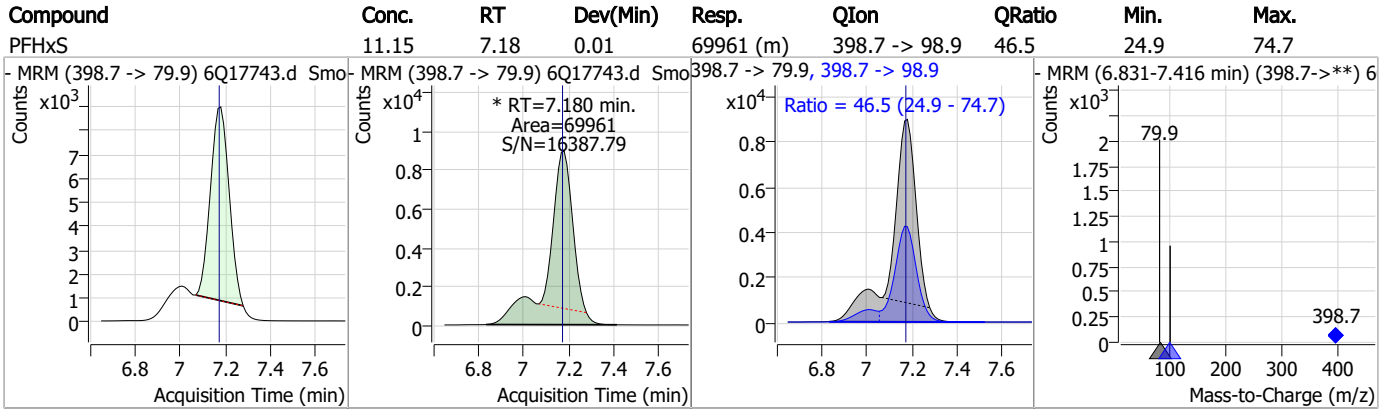
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Perfluorinated Compounds by LC/MS/MS

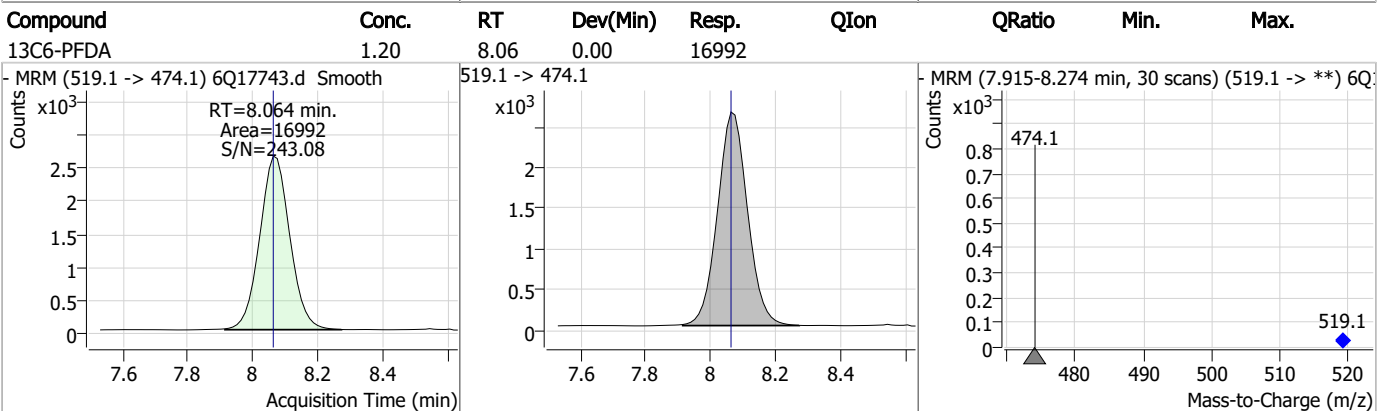
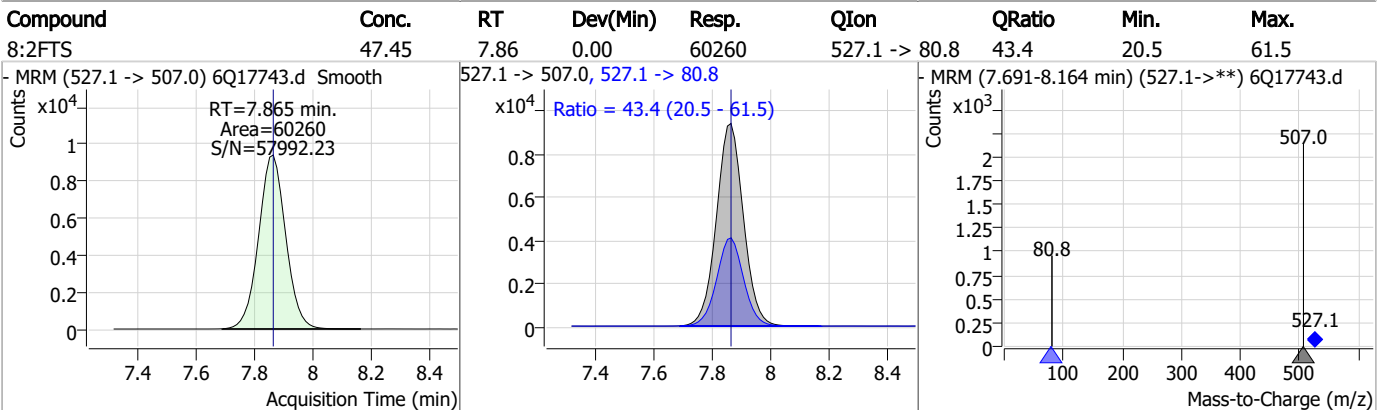
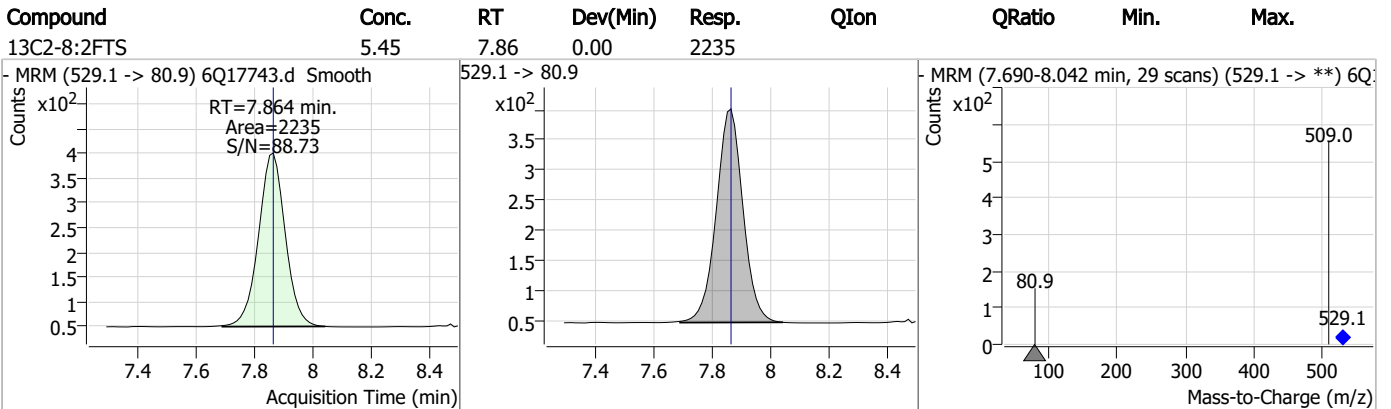
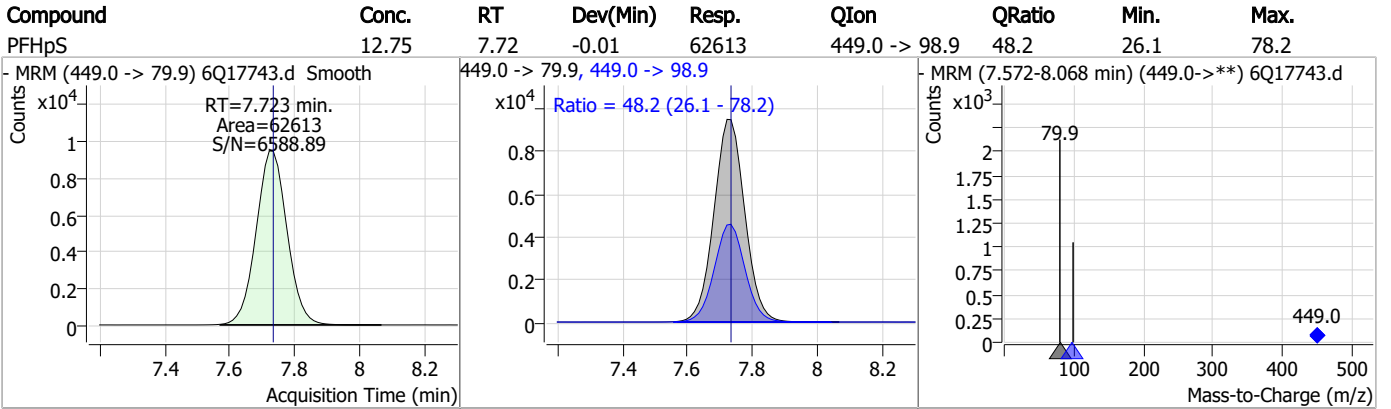


7.7.7
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Perfluorinated Compounds by LC/MS/MS

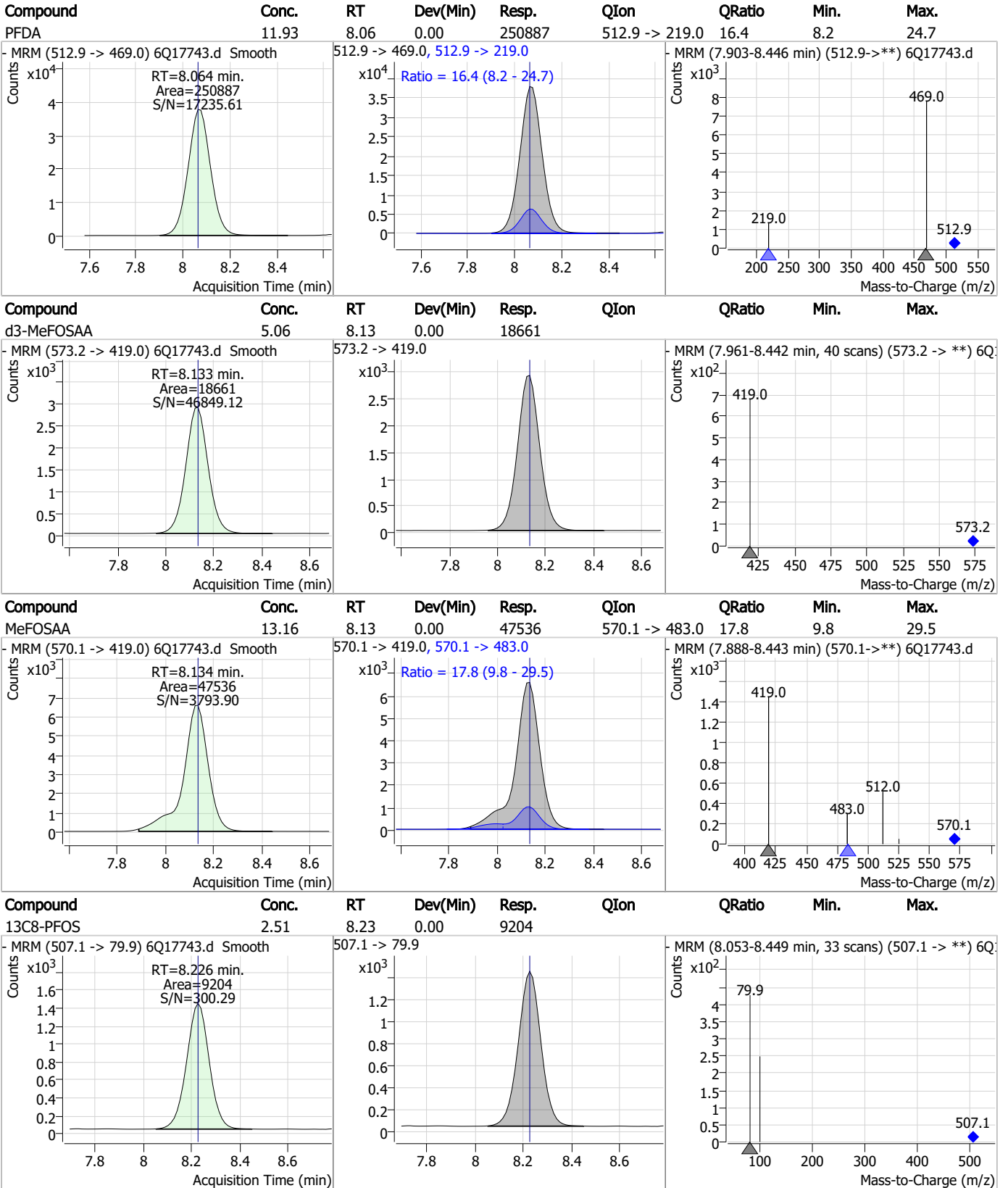


Perfluorinated Compounds by LC/MS/MS



7.7.7

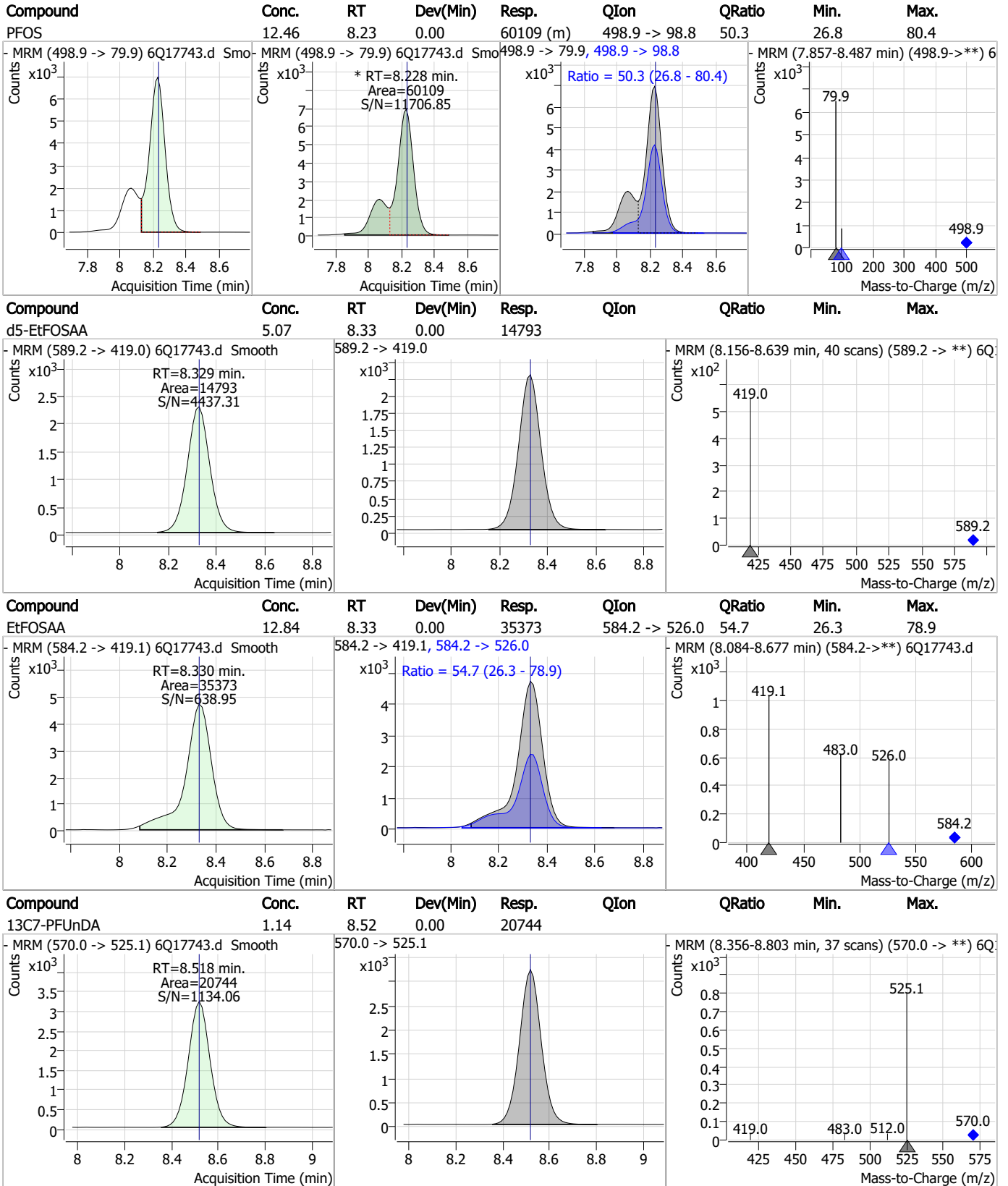
Perfluorinated Compounds by LC/MS/MS



7.7.7

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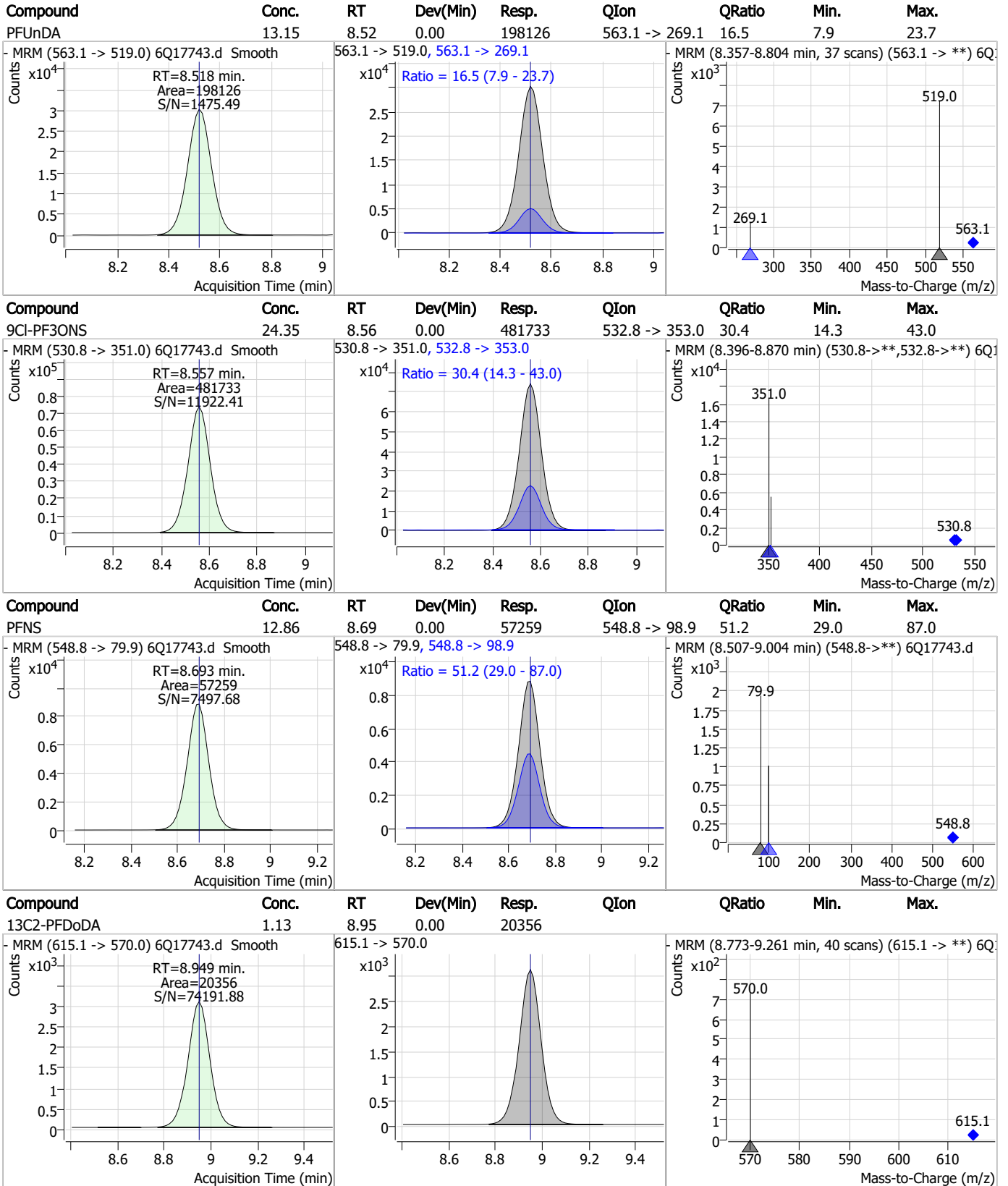
Perfluorinated Compounds by LC/MS/MS



7.7.7

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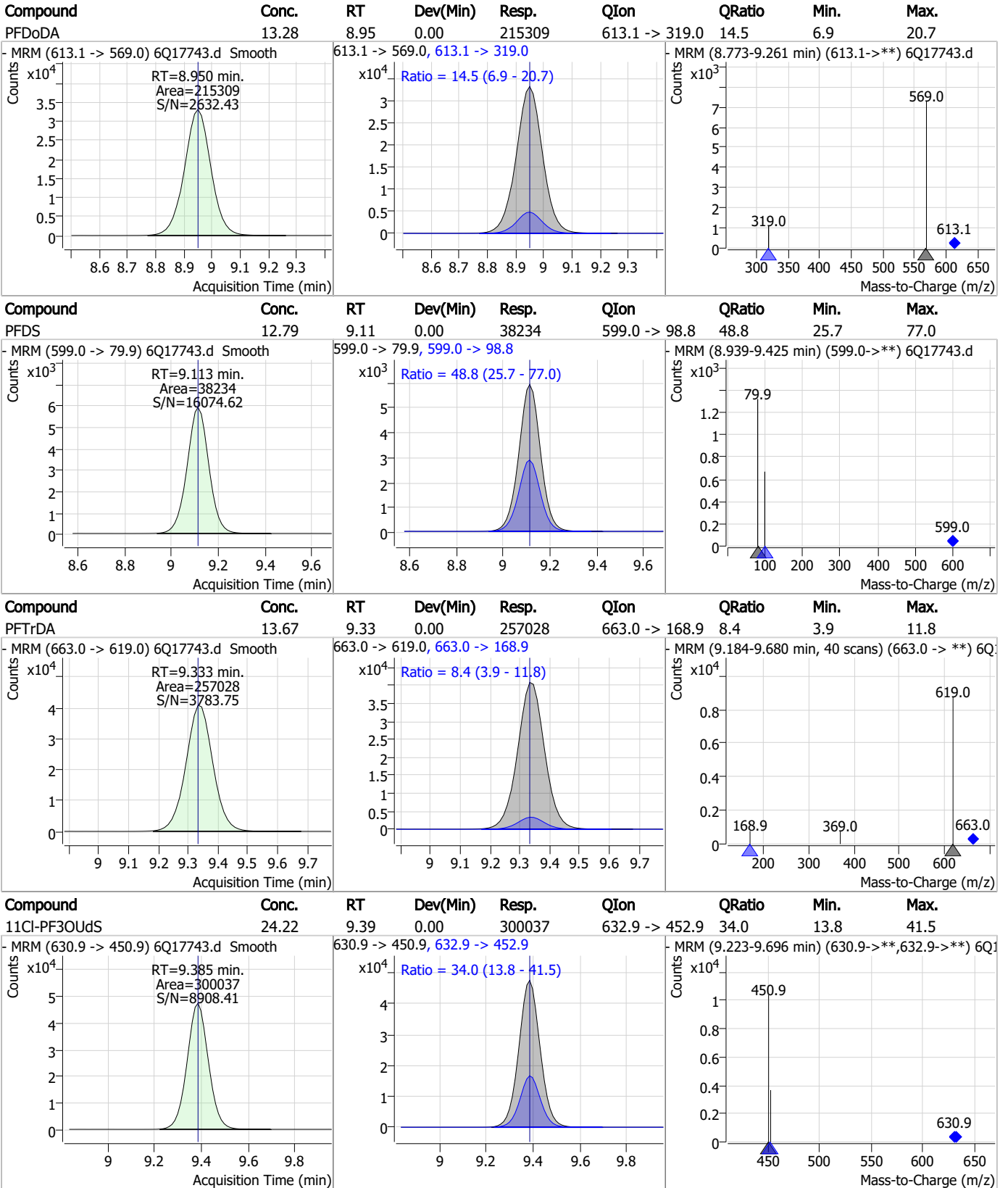
Perfluorinated Compounds by LC/MS/MS



7.7.7

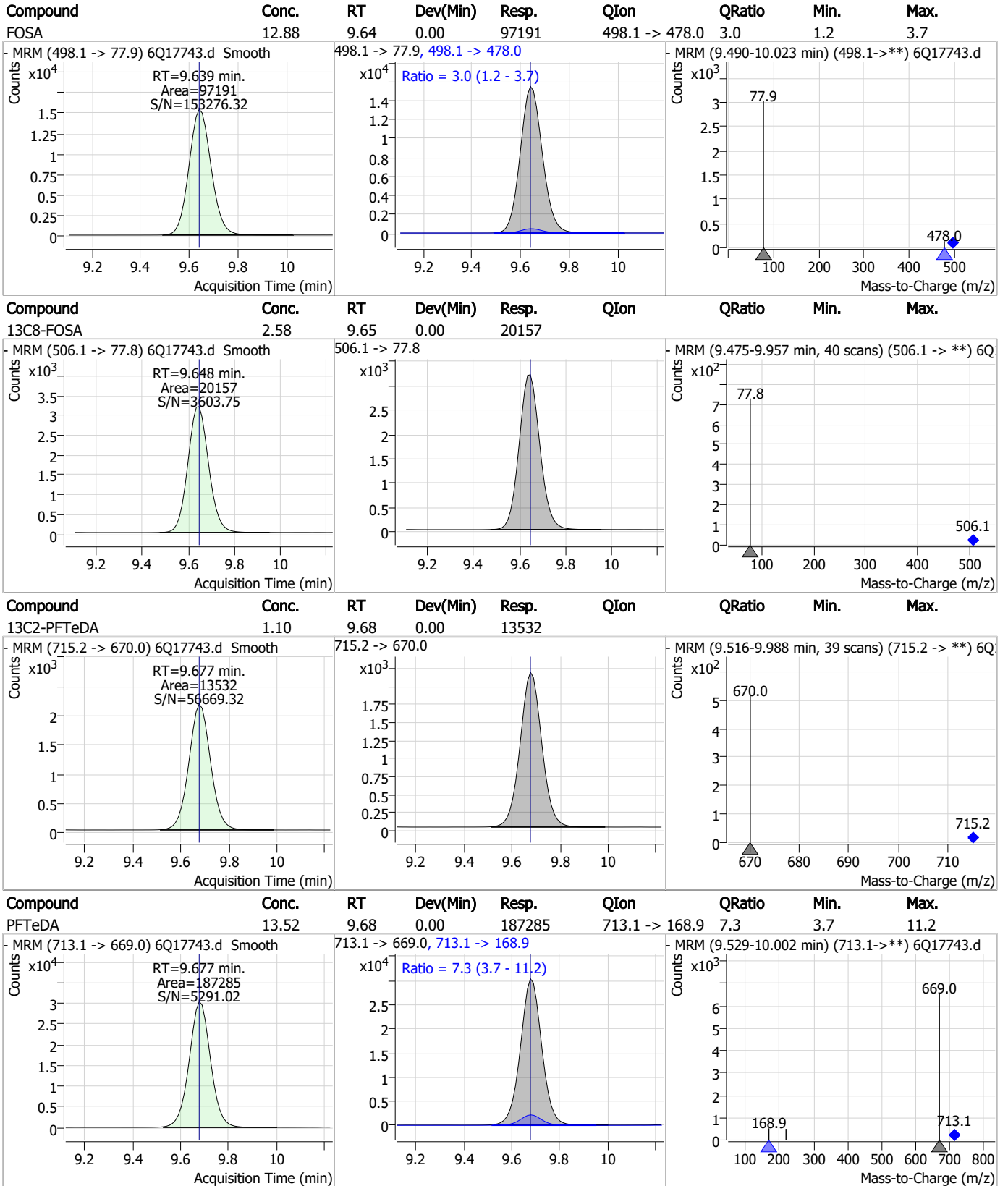
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Perfluorinated Compounds by LC/MS/MS



7.7.7
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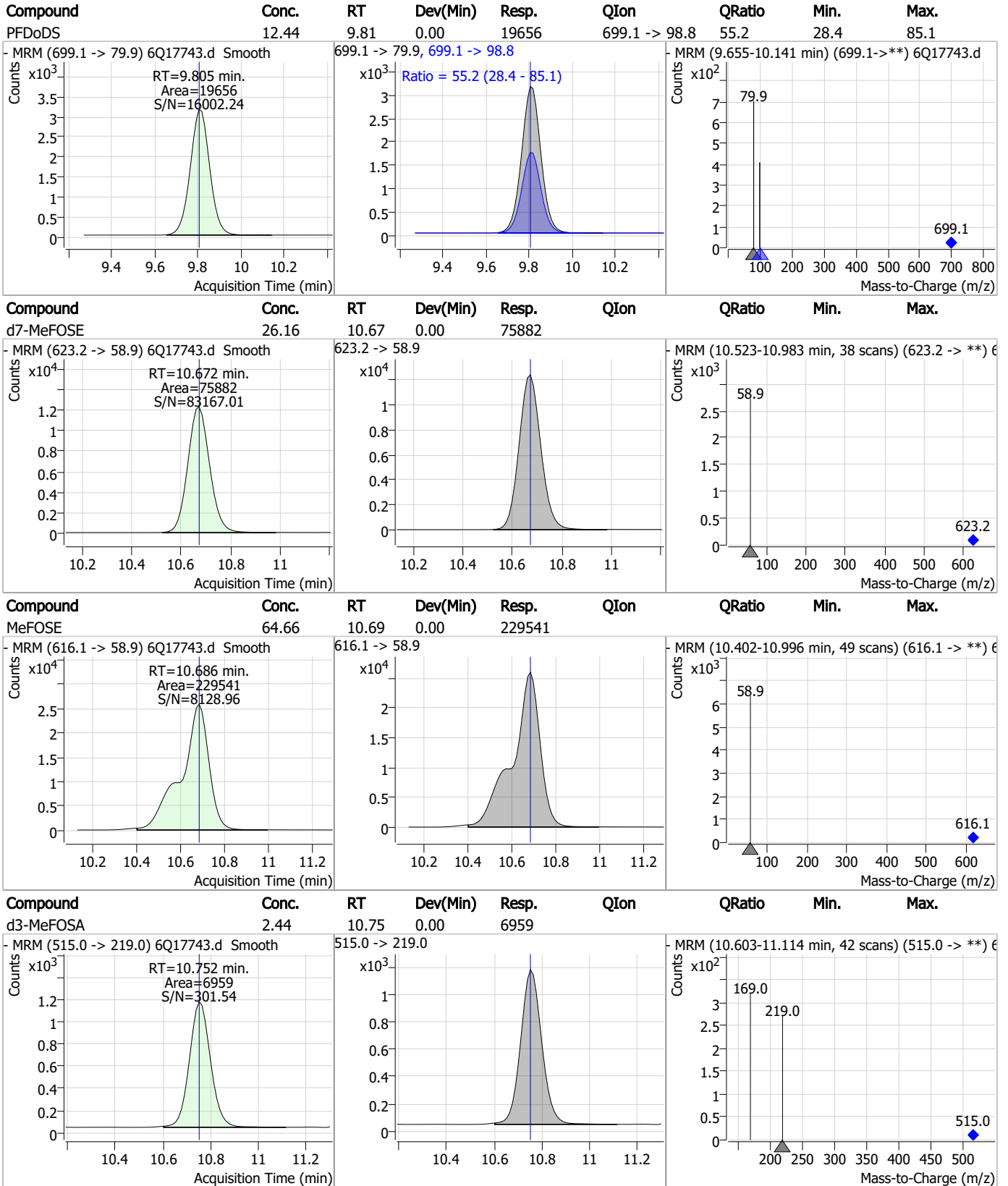
Perfluorinated Compounds by LC/MS/MS



7.7.7

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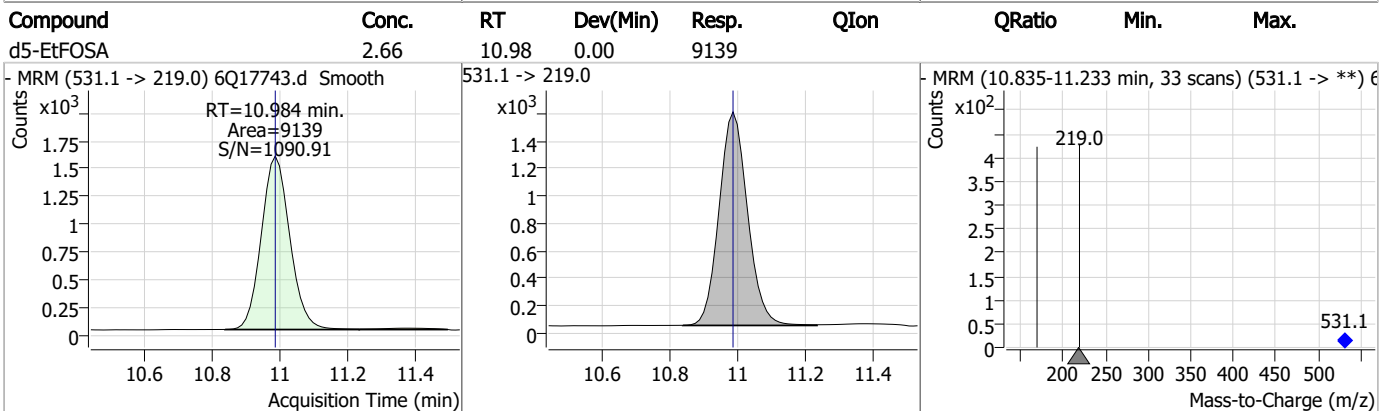
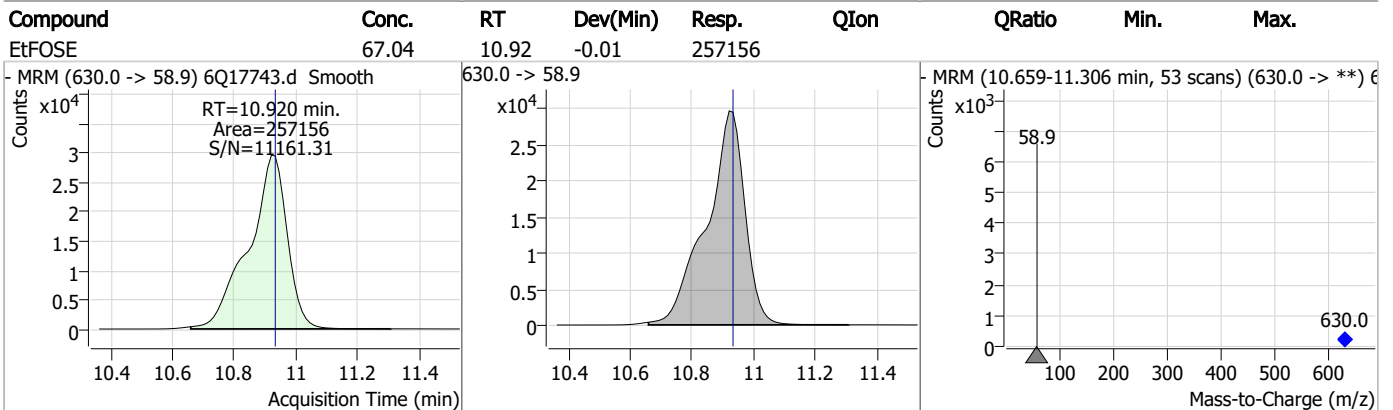
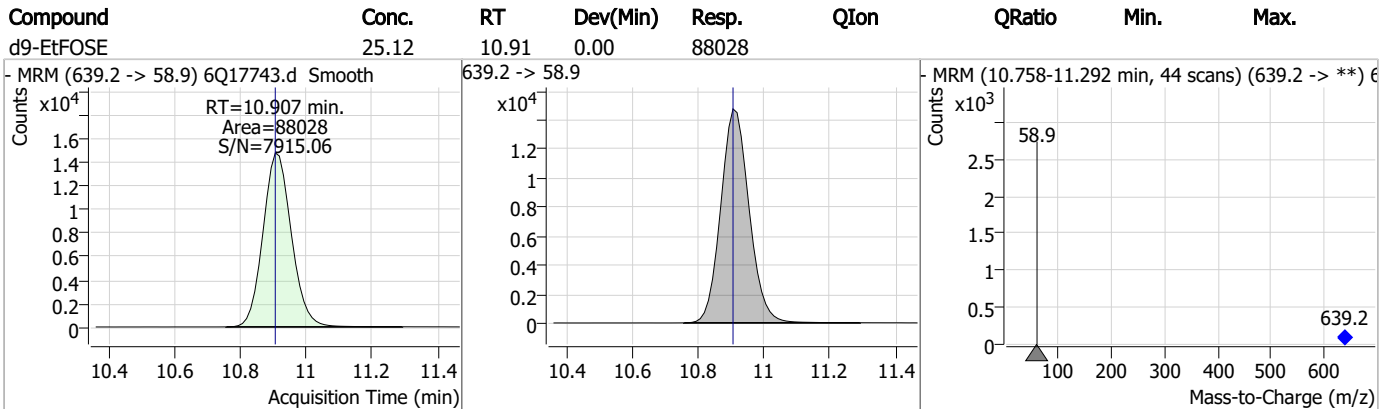
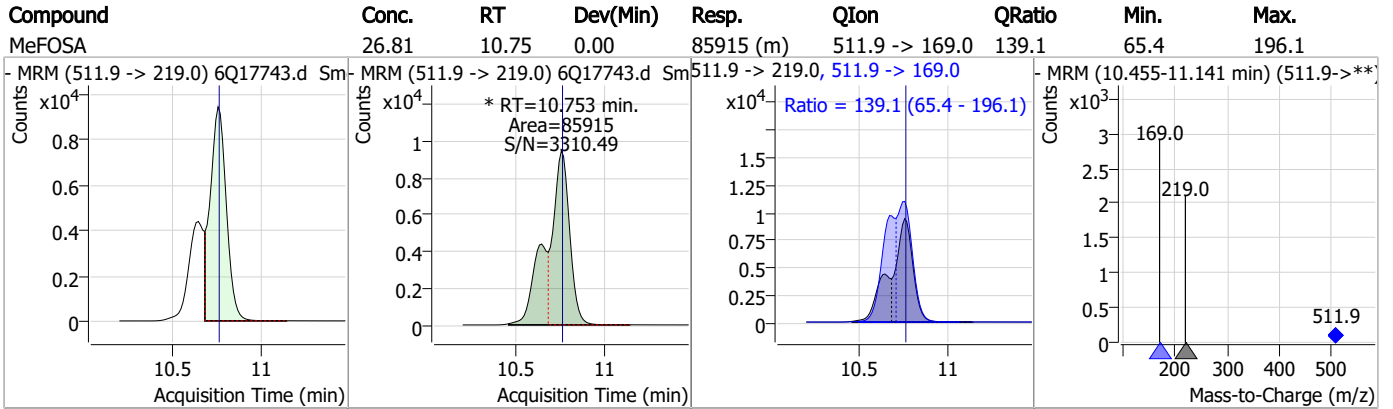
Perfluorinated Compounds by LC/MS/MS



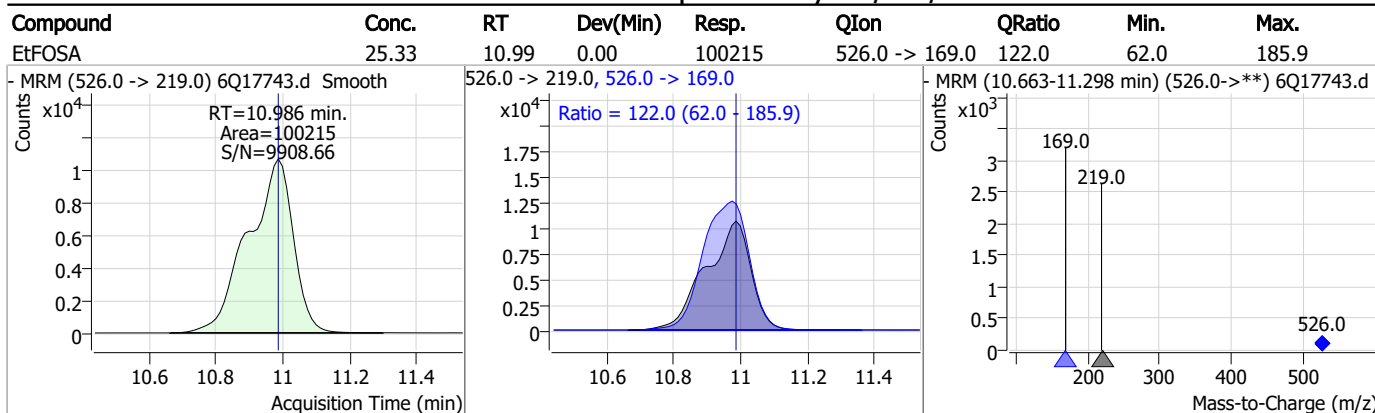
7.7.7

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.7
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Manual Integration Approval Summary

Sample Number: S6Q268-IC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17743.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 13:27 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 05/16/23 09:33

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17744.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 1:42:21 PM
 Sample Name : ic268-7
 Vial : P1-A8
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	137182	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	44819	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	50550	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	45443	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	69241	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	22152	1.25 µg/L	0.012
M6-PFDA	8.064	519.1 -> 474.1	15553	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	21998	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	21688	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14541	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	19986	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	17585	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10459	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9901	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1562	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	1816	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2056	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	19068	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	33086	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	15266	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	74091	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	89291	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8863	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7410	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12478	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	58309	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	7766	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	71142	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	20343	1.25 µg/L	0.000
13C5-PFNA	7.596	468.0 -> 423.0	21332	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	43894	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1562	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1816	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2056	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-PFDoDA	8.949	615.1 -> 570.0	21688	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14541	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFBS	5.397	302.1 -> 79.9	17585	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	10459	2.53 µg/L	0.012

7.7.8
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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 = 101.1%	
13C4-PFBA	2.901	216.8 -> 171.9	137182	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C4-PFHpA	6.420	367.1 -> 322.0	45443	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFHxA	5.466	318.0 -> 273.0	50550	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C5-PFPeA	4.272	268.3 -> 223.0	44819	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C6-PFDA	8.064	519.1 -> 474.1	15553	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C7-PFUnDA	8.518	570.0 -> 525.1	21998	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-FOSA	9.648	506.1 -> 77.8	19986	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C8-PFOA	7.064	421.1 -> 376.0	69241	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C8-PFOS	8.226	507.1 -> 79.9	9901	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C9-PFNA	7.595	472.1 -> 427.0	22152	1.40 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	19068	4.88 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33086	10.30 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSA	10.752	515.0 -> 219.0	7410	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
d5-EtFOSAA	8.329	589.2 -> 419.0	15266	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d7-MeFOSE	10.672	623.2 -> 58.9	74091	24.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d9-EtFOSE	10.907	639.2 -> 58.9	89291	24.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d5-EtFOSA	10.984	531.1 -> 219.0	8863	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	224885	95.79 µg/L	96
		327.1 -> 80.9	79093		
6:2FTS	6.838	427.1 -> 407.0	199712	101.04 µg/L	97
		427.1 -> 80.9	67791		
8:2FTS	7.865	527.1 -> 507.0	119478	102.30 µg/L	97
		527.1 -> 80.8	46818		
EtFOSAA	8.330	584.2 -> 419.1	71393	25.12 µg/L	m 97
		584.2 -> 526.0	36019		
FOSA	9.639	498.1 -> 77.9	195651	26.15 µg/L	99
		498.1 -> 478.0	5405		
MeFOSAA	8.134	570.1 -> 419.0	94349	25.57 µg/L	97
		570.1 -> 483.0	17376		
PFBA	2.907	212.8 -> 168.9	511180	103.87 µg/L	100
PFBS	5.398	298.7 -> 79.9	198391	23.12 µg/L	96
		298.7 -> 98.8	76841		
PFDA	8.064	512.9 -> 469.0	506238	26.31 µg/L	99
		512.9 -> 219.0	80664		
PFDoDA	8.950	613.1 -> 569.0	414049	23.97 µg/L	97
		613.1 -> 319.0	62812		
PFDS	9.113	599.0 -> 79.9	73360	22.82 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	36042			
PFHpA	6.420	363.1 -> 319.0	578802	25.48	µg/L	99
		363.1 -> 169.0	96366			
PFHpS	7.735	449.0 -> 79.9	117935	22.33	µg/L	94
		449.0 -> 98.9	66804			
PFHxA	5.469	313.0 -> 269.0	530861	26.51	µg/L	99
		313.0 -> 118.9	24120			
PFHxS	7.180	398.7 -> 79.9	136702	23.61	µg/L	m 98
		398.7 -> 98.9	66009			
PFNA	7.596	463.0 -> 419.0	416537	25.31	µg/L	100
		463.0 -> 219.0	85704			
PFNS	8.693	548.8 -> 79.9	108047	22.57	µg/L	96
		548.8 -> 98.9	59142			
PFOA	7.066	413.0 -> 369.0	806699	23.41	µg/L	99
		413.0 -> 169.0	139830			
PFOS	8.228	498.9 -> 79.9	113729	21.91	µg/L	m 97
		498.9 -> 98.8	58374			
PFPeA	4.274	263.0 -> 219.0	687931	53.15	µg/L	100
PFPeS	6.471	349.1 -> 79.9	147387	25.67	µg/L	96
		349.1 -> 98.9	62680			
PFTeDA	9.677	713.1 -> 669.0	371936	24.98	µg/L	99
		713.1 -> 168.9	26426			
PFTrDA	9.333	663.0 -> 619.0	480250	23.98	µg/L	96
		663.0 -> 168.9	43633			
PFUnDA	8.518	563.1 -> 519.0	386419	24.19	µg/L	99
		563.1 -> 269.1	62457			
11CI-PF3OUdS	9.385	630.9 -> 450.9	564837	45.18	µg/L	90
		632.9 -> 452.9	185837			
9CI-PF3ONS	8.557	530.8 -> 351.0	961377	48.14	µg/L	100
		532.8 -> 353.0	273734			
ADONA	6.671	376.9 -> 250.9	2480089	47.07	µg/L	96
		376.9 -> 84.8	640339			
HFPO-DA	5.832	284.9 -> 168.9	165277	51.67	µg/L	98
		284.9 -> 184.9	21400			
3:3FTCA	3.777	241.0 -> 177.0	107068	133.50	µg/L	98
		241.0 -> 117.0	13439			
5:3FTCA	6.161	341.0 -> 237.1	2116542	610.06	µg/L	95
		341.0 -> 217.0	1631222			
7:3FTCA	7.586	441.0 -> 316.9	988688	628.17	µg/L	92
		441.0 -> 336.9	2194148			
EtFOSA	10.986	526.0 -> 219.0	202563	52.80	µg/L	98
		526.0 -> 169.0	247317			
EtFOSE	10.932	630.0 -> 58.9	510030	131.08	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	174067	51.02	µg/L	m 89
		511.9 -> 169.0	249004			
MeFOSE	10.686	616.1 -> 58.9	459983	132.71	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	40306	23.72	µg/L	100
		699.1 -> 98.8	22918			
NFDHA	5.348	295.0 -> 201.0	113127	51.17	µg/L	98
		295.0 -> 84.9	30010			
PFMBA	4.675	279.0 -> 85.1	476472	51.59	µg/L	100
PFMPA	3.426	229.0 -> 84.9	353125	53.09	µg/L	100
PFEESA	5.938	314.8 -> 134.9	1223978	45.53	µg/L	100
		314.8 -> 82.9	43766			

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

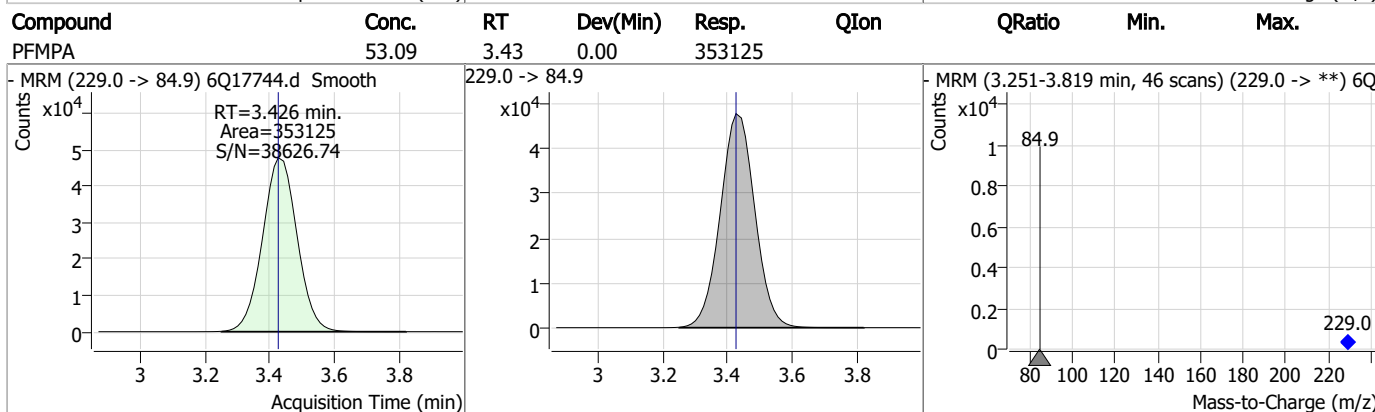
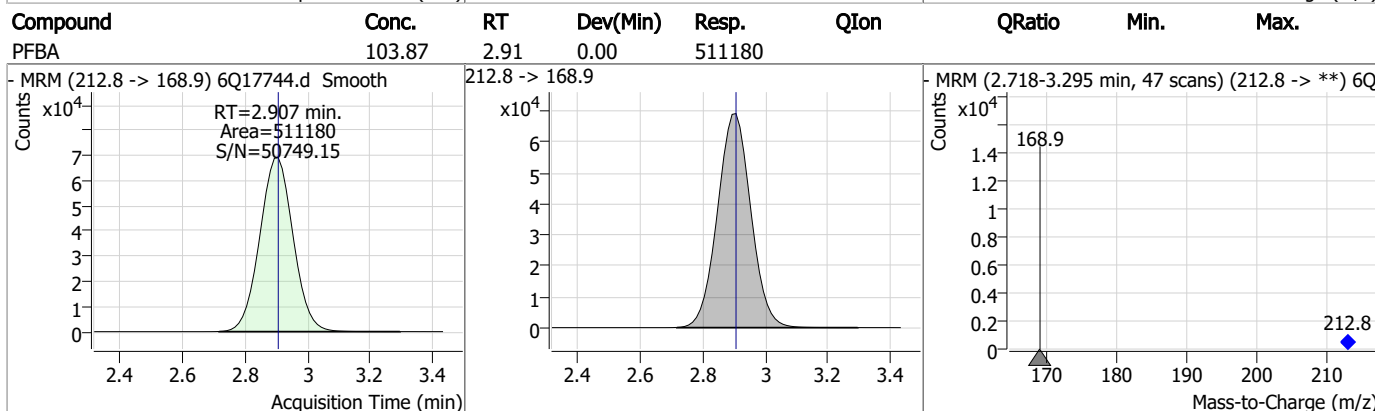
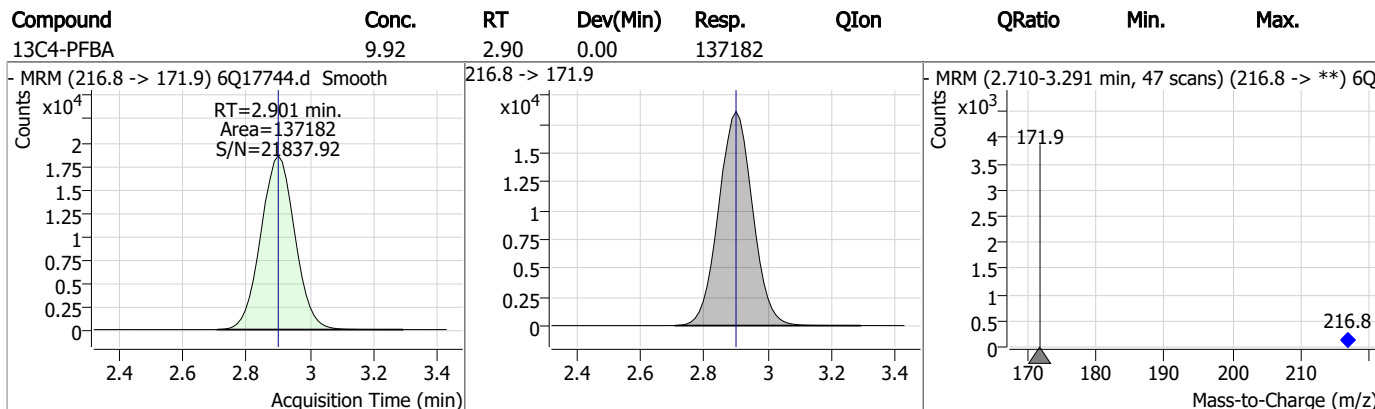
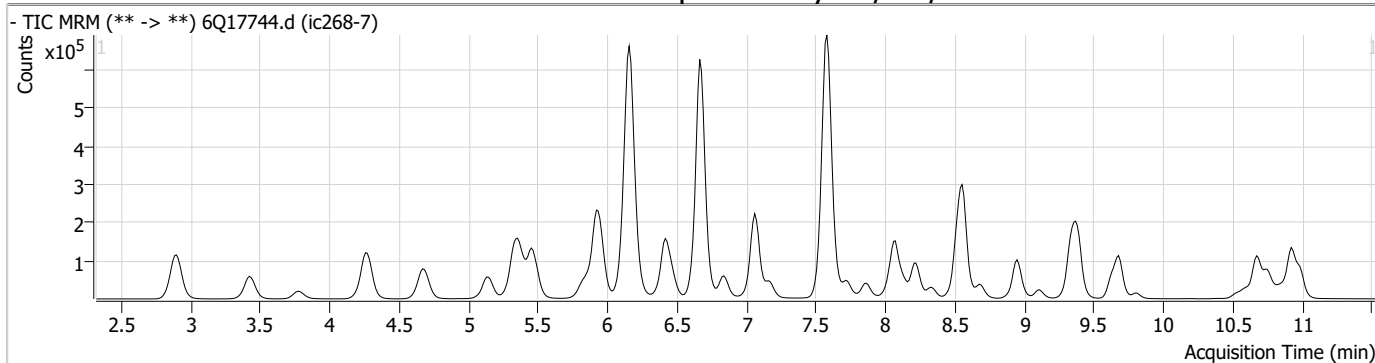
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.8
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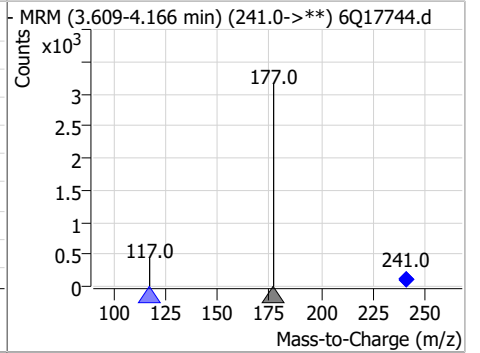
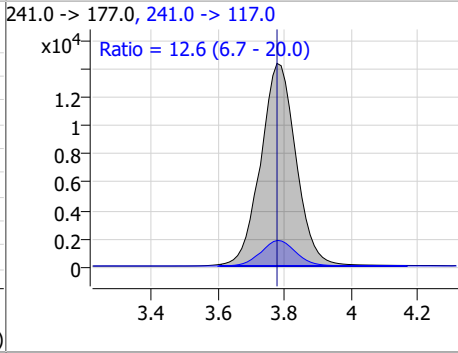
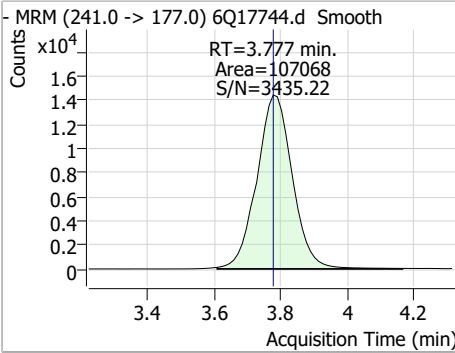


Perfluorinated Compounds by LC/MS/MS

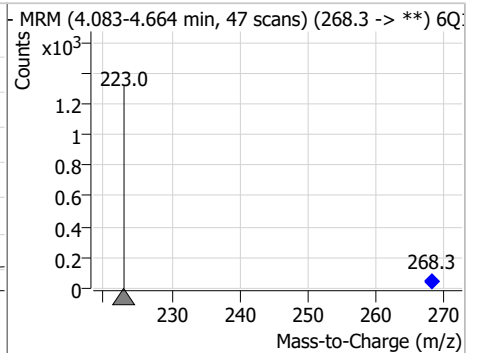
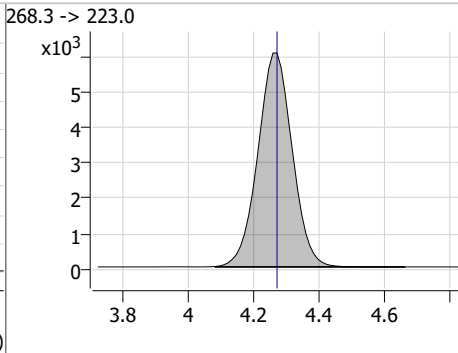
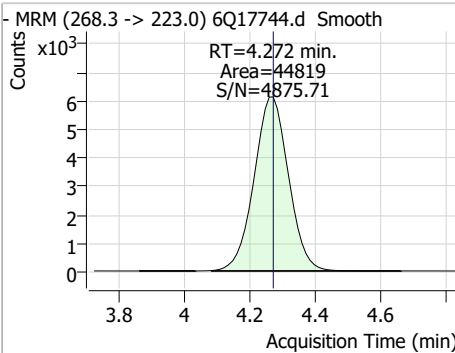


Perfluorinated Compounds by LC/MS/MS

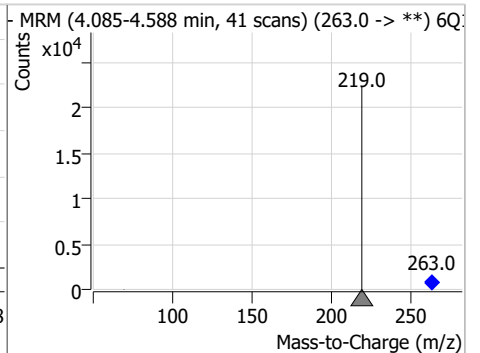
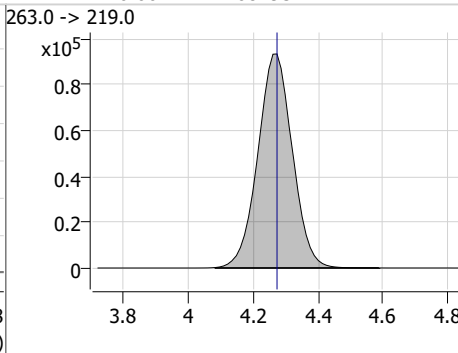
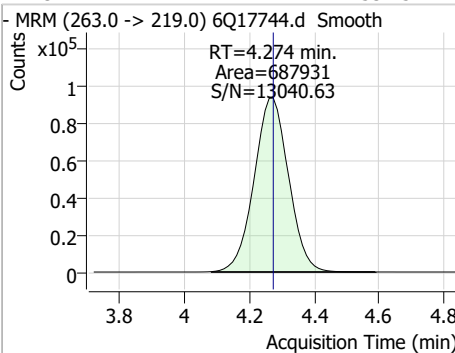
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	133.50	3.78	0.00	107068	241.0 -> 117.0	12.6	6.7	20.0



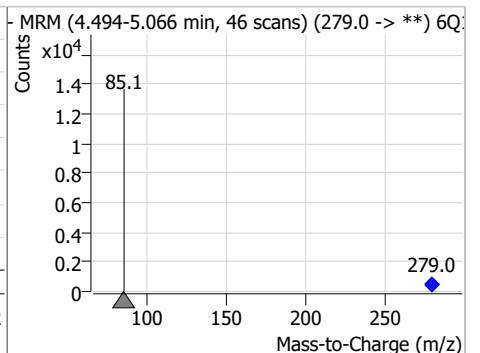
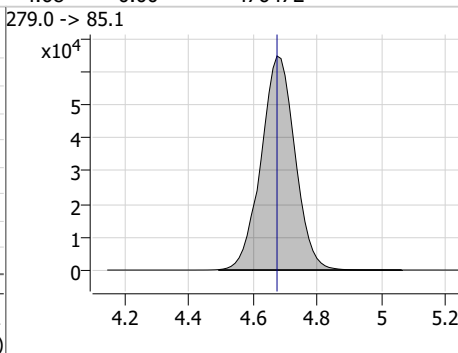
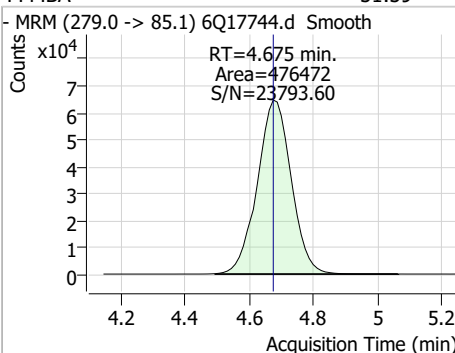
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.85	4.27	0.00	44819				



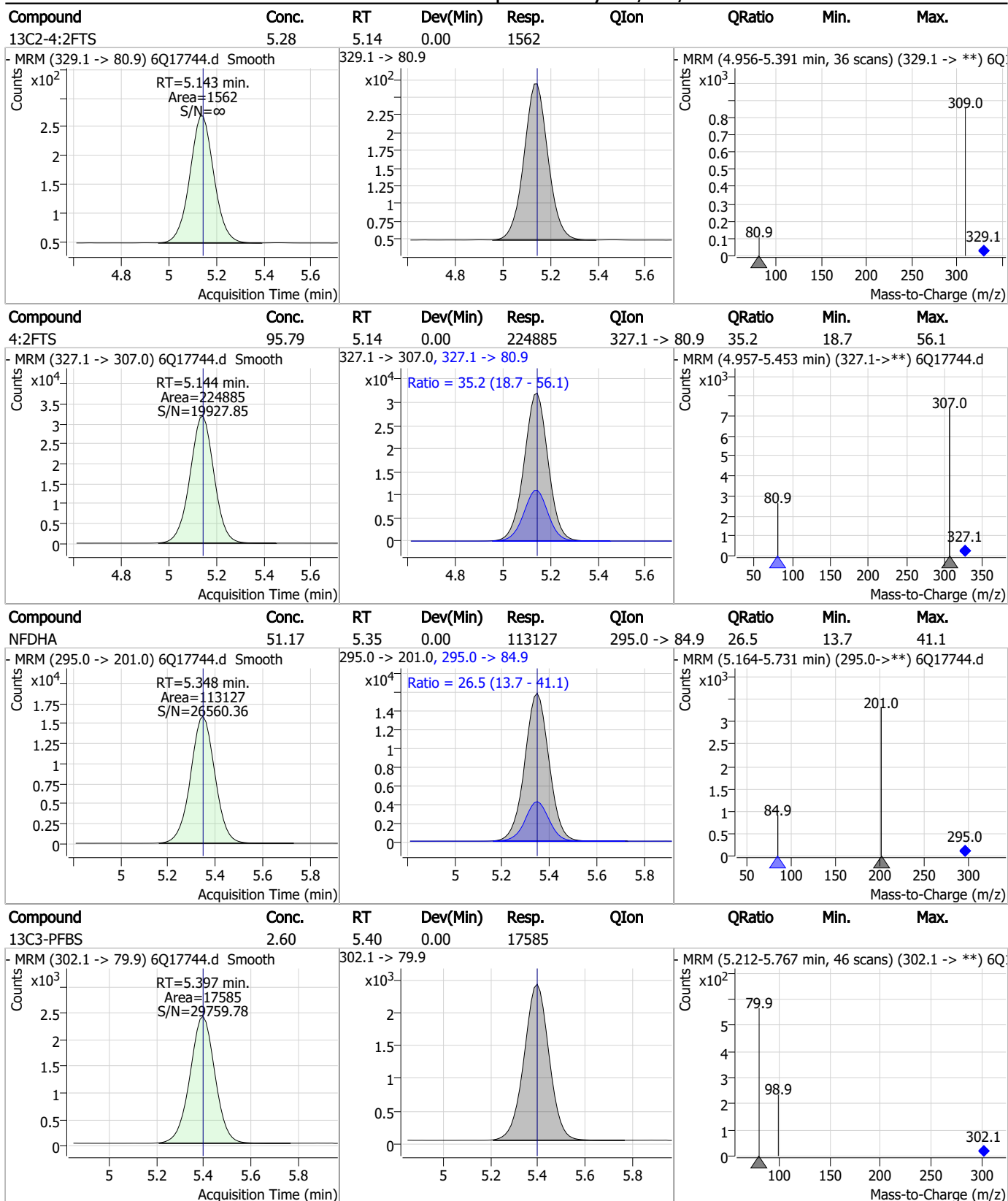
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	53.15	4.27	0.00	687931				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	51.59	4.68	0.00	476472				

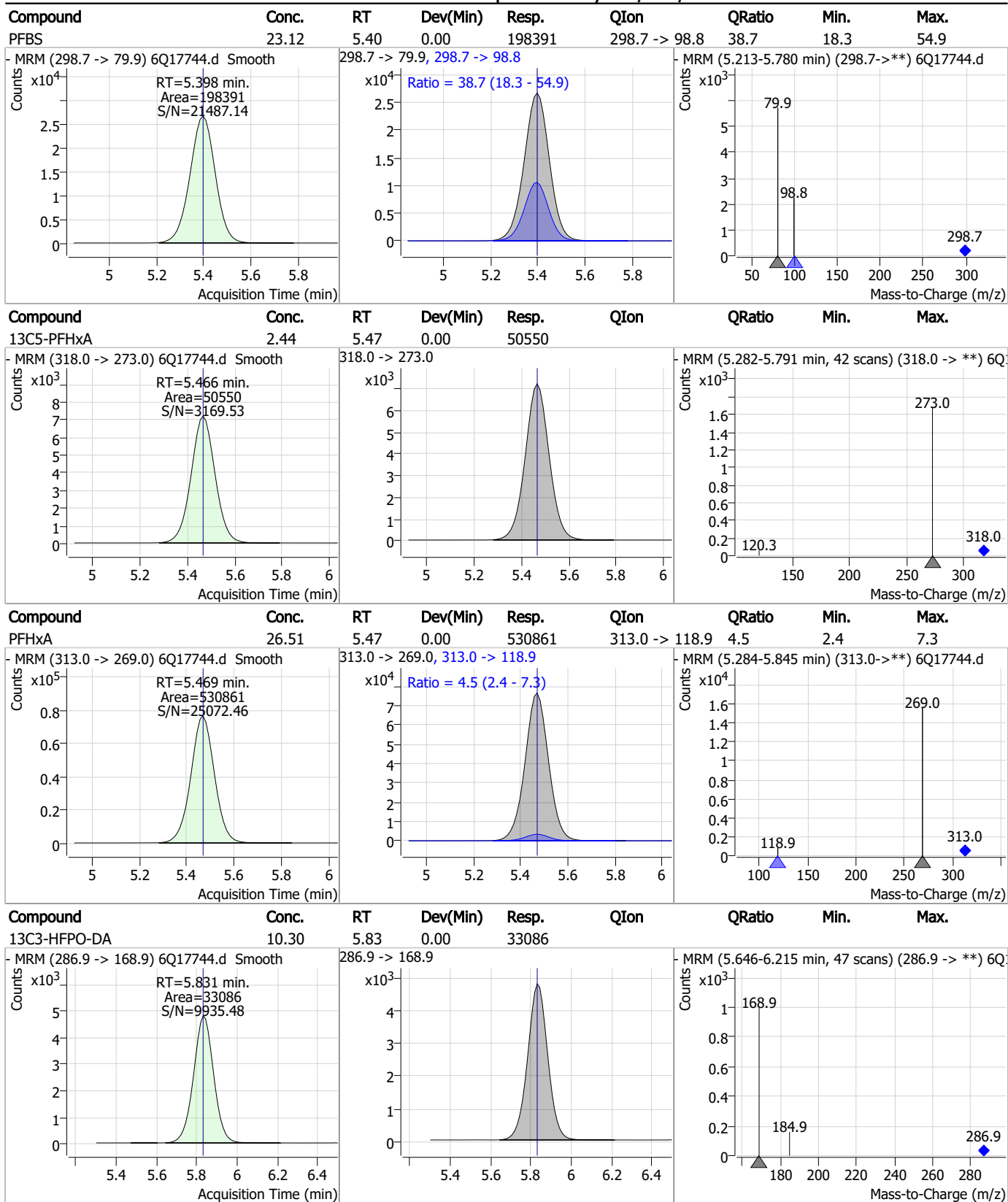


Perfluorinated Compounds by LC/MS/MS



7.7.8
7

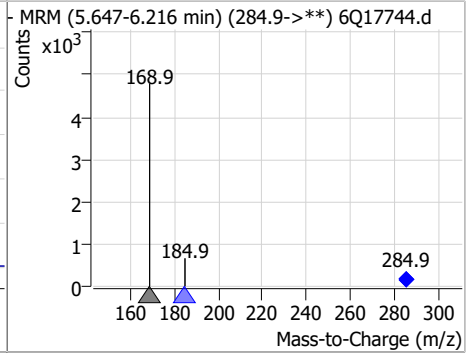
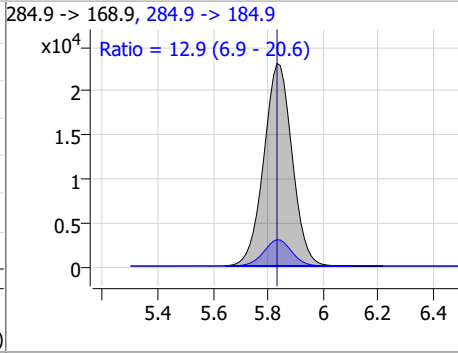
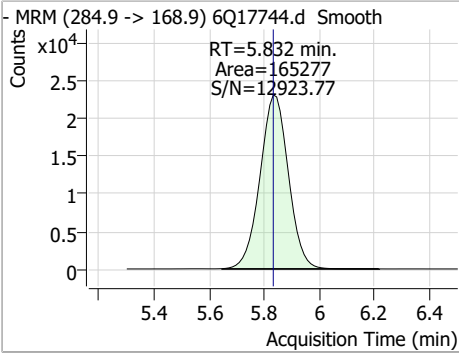
Perfluorinated Compounds by LC/MS/MS



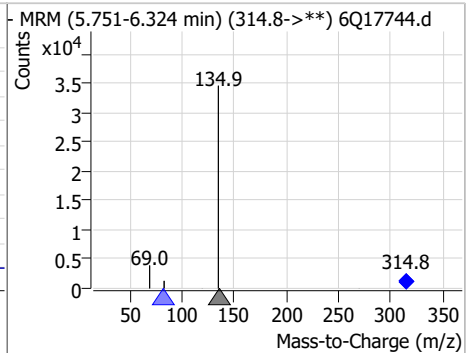
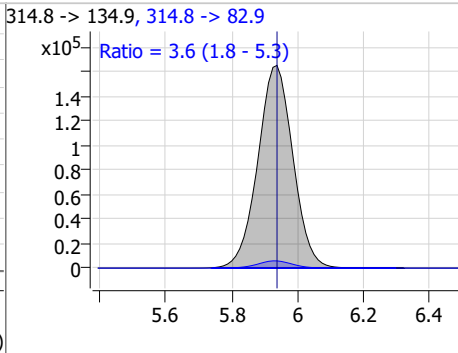
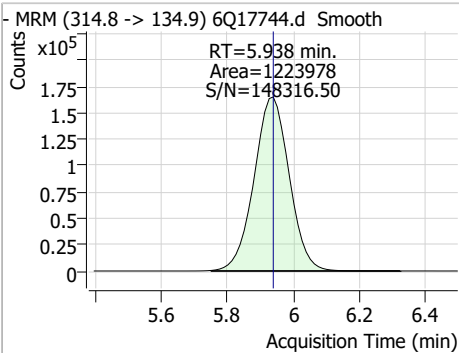
7.7.8
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Perfluorinated Compounds by LC/MS/MS

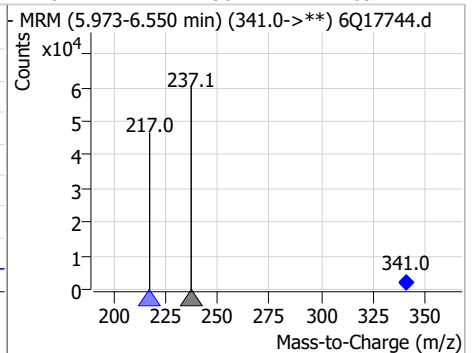
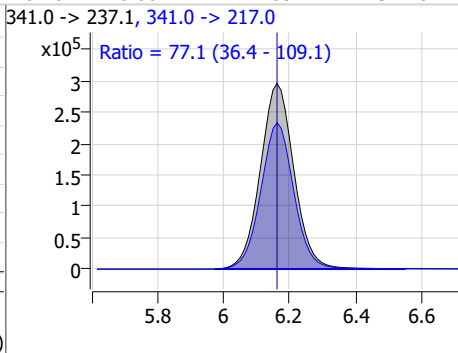
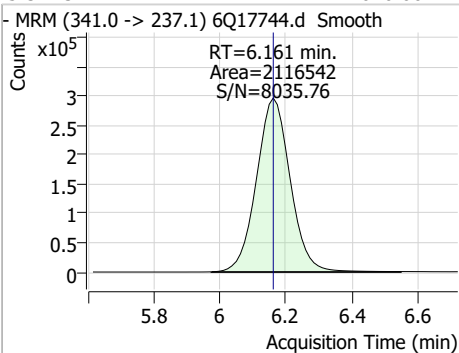
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	51.67	5.83	0.00	165277	284.9 -> 184.9	12.9	6.9	20.6



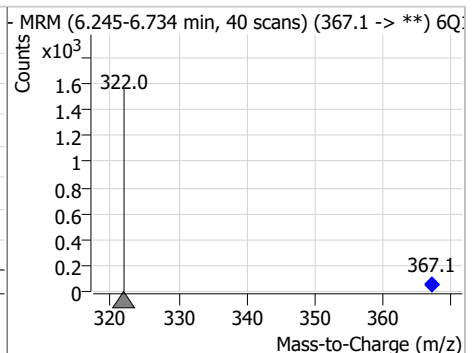
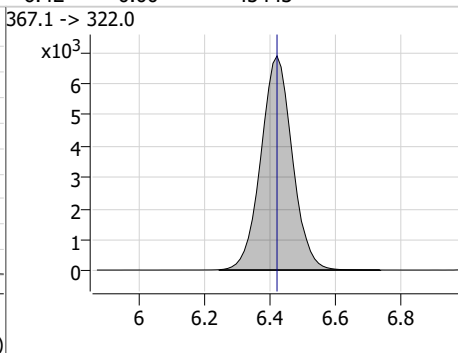
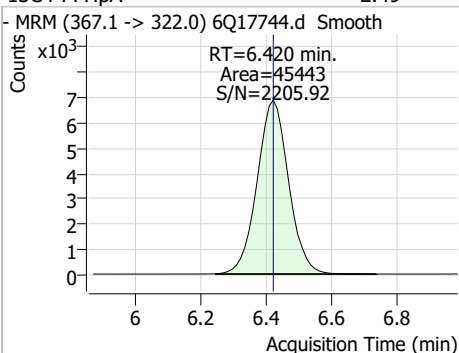
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	45.53	5.94	0.00	1223978	314.8 -> 82.9	3.6	1.8	5.3



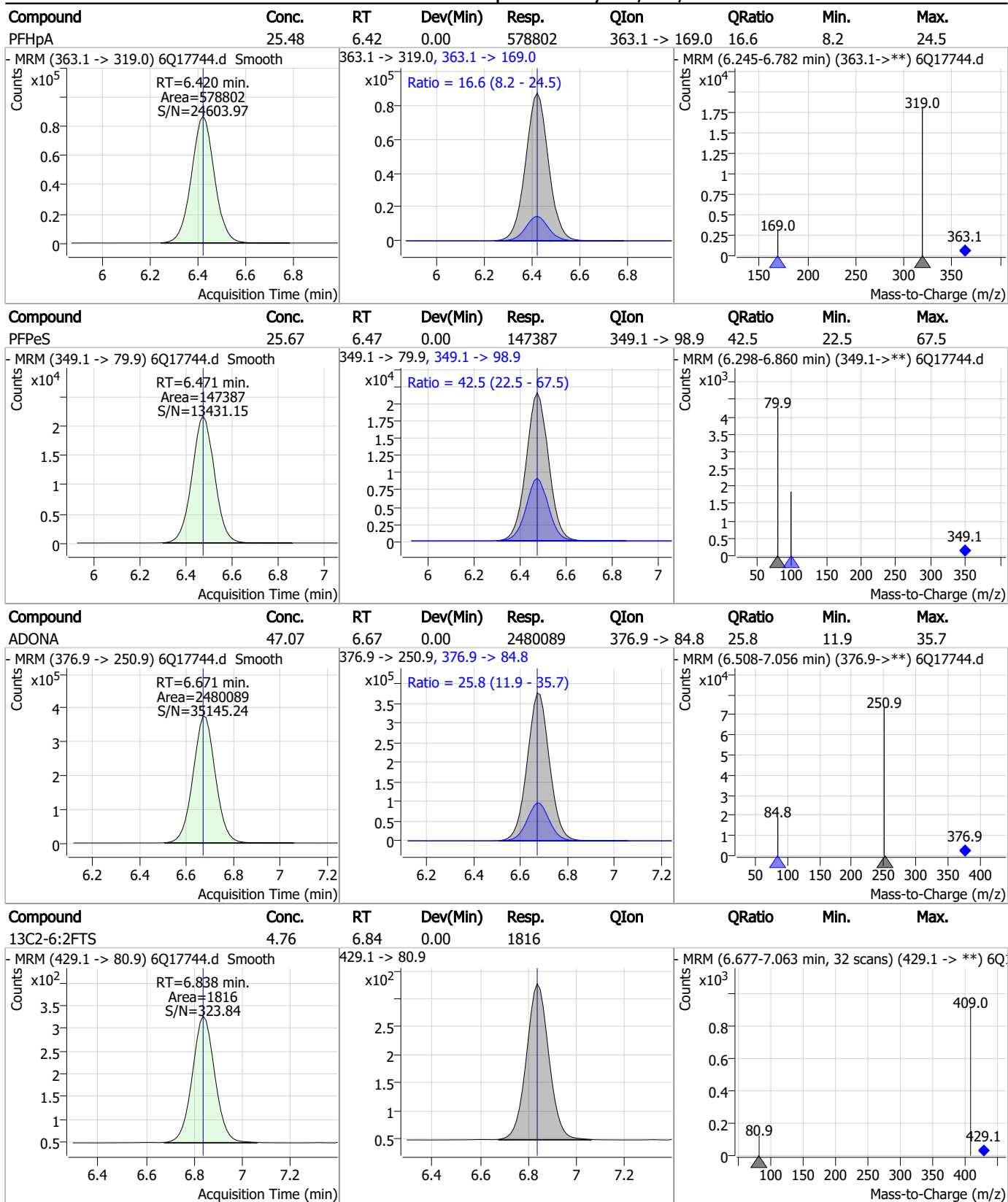
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	610.06	6.16	0.00	2116542	341.0 -> 217.0	77.1	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.49	6.42	0.00	45443	367.1 -> 322.0			

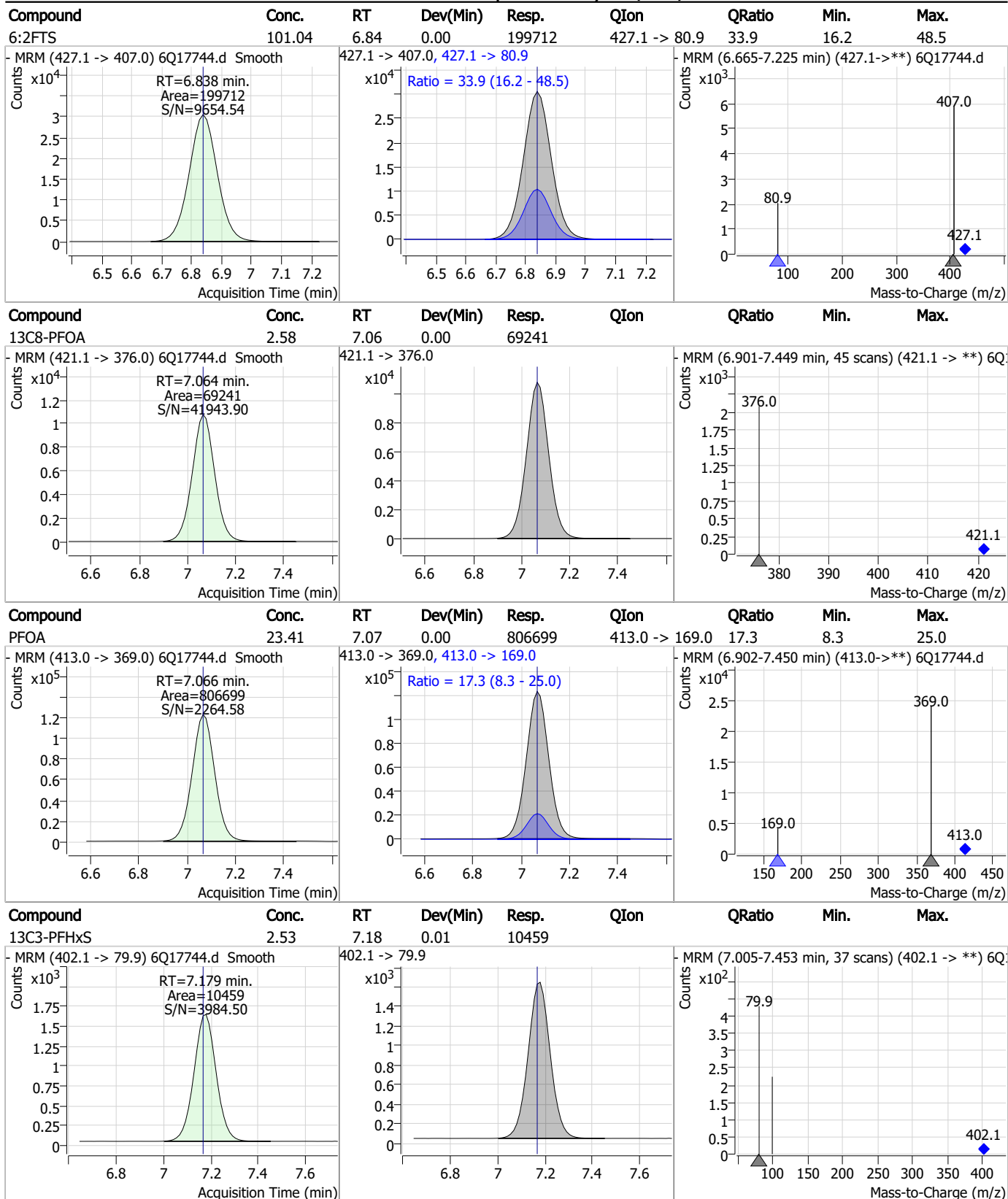


Perfluorinated Compounds by LC/MS/MS



7.7.8
7

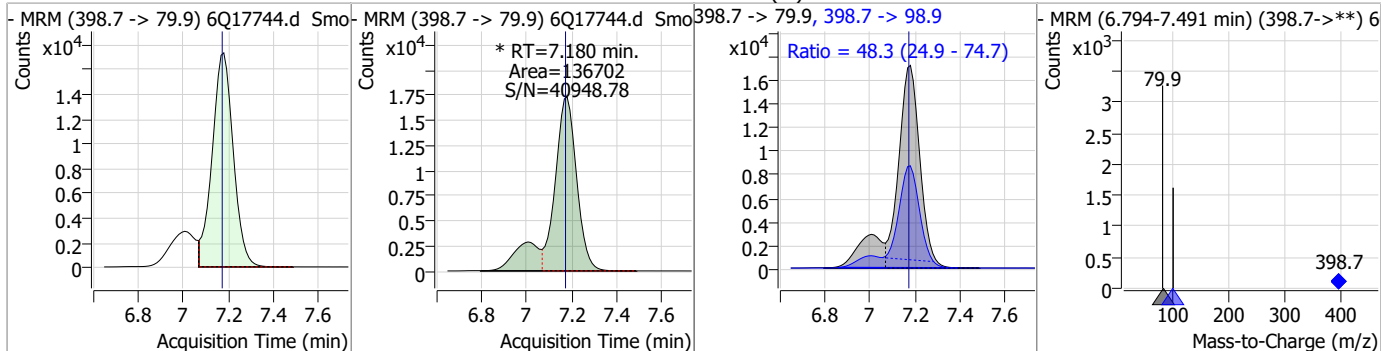
Perfluorinated Compounds by LC/MS/MS



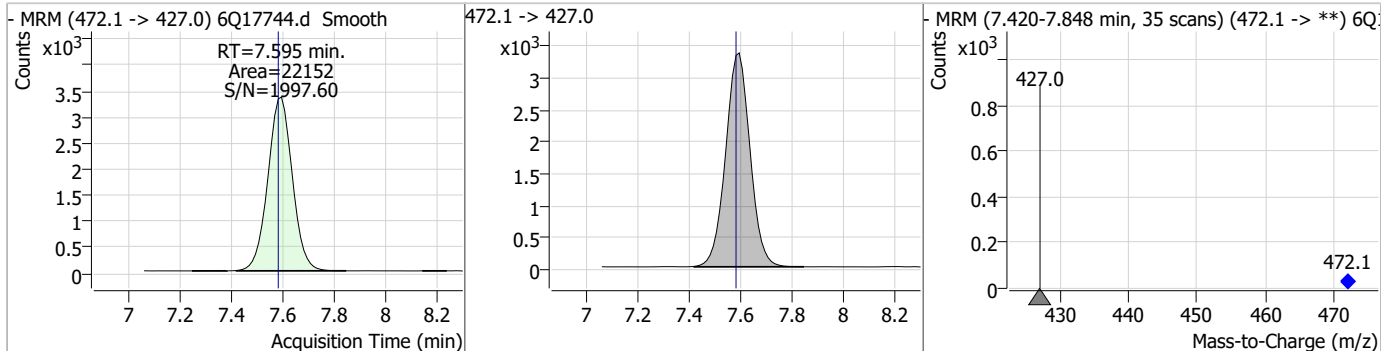
7.7.8
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Perfluorinated Compounds by LC/MS/MS

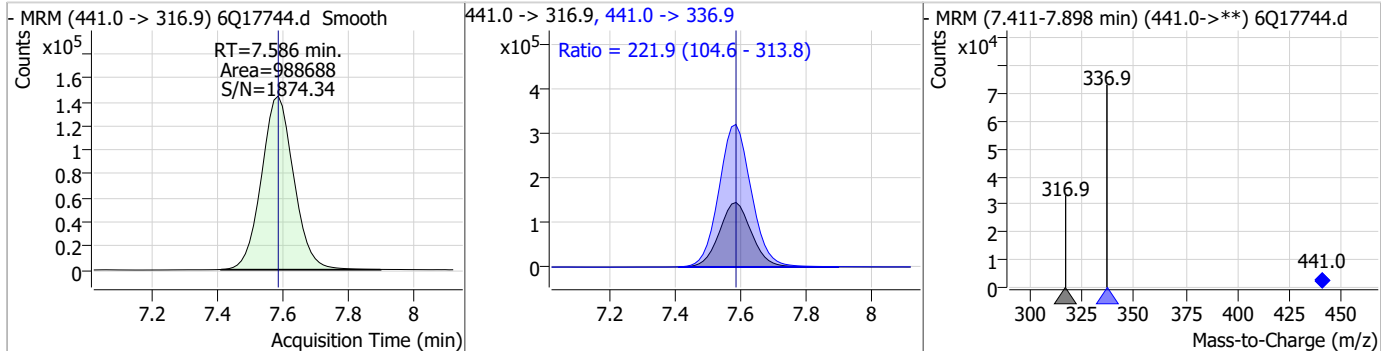
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	23.61	7.18	0.01	136702 (m)	398.7 -> 98.9	48.3	24.9	74.7



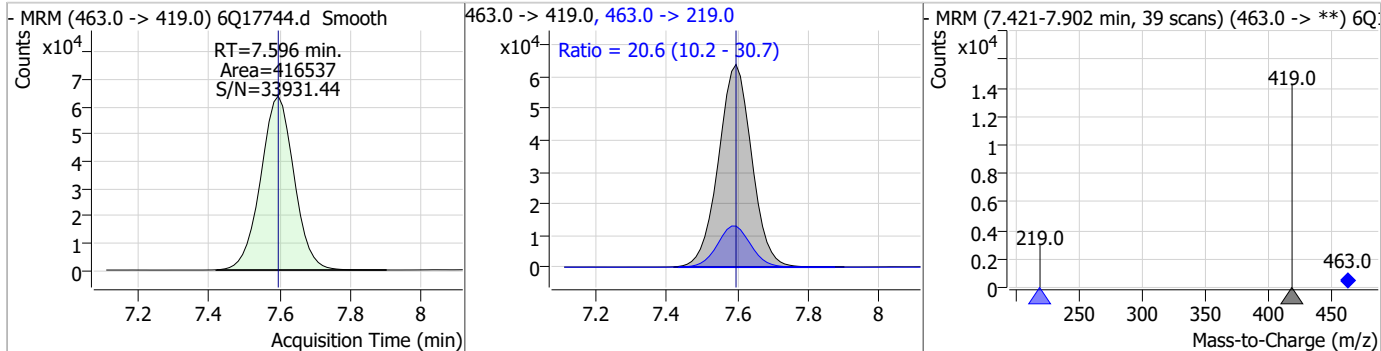
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.40	7.60	0.01	22152				



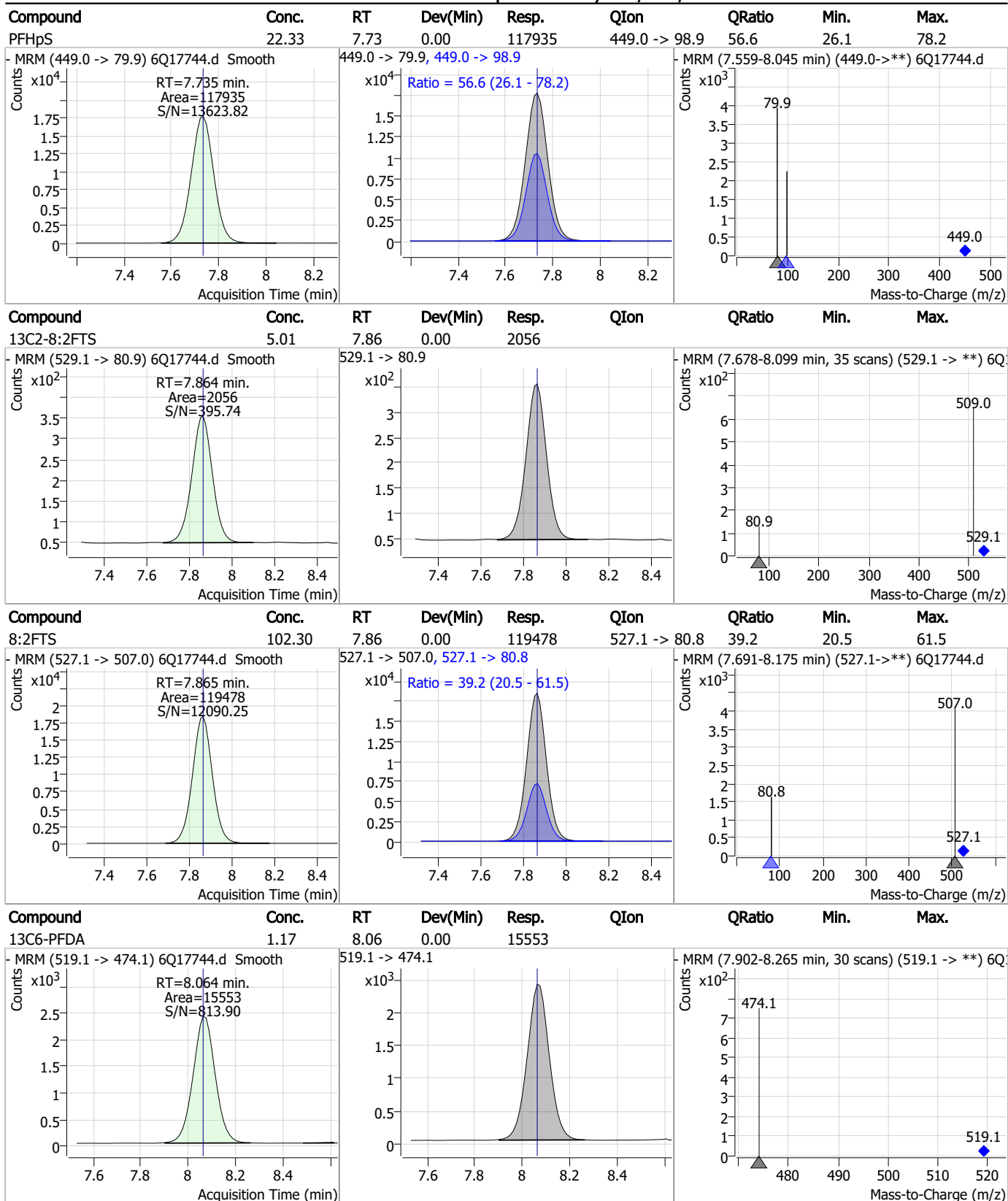
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	628.17	7.59	0.00	988688	441.0 -> 336.9	221.9	104.6	313.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	25.31	7.60	0.00	416537	463.0 -> 219.0	20.6	10.2	30.7

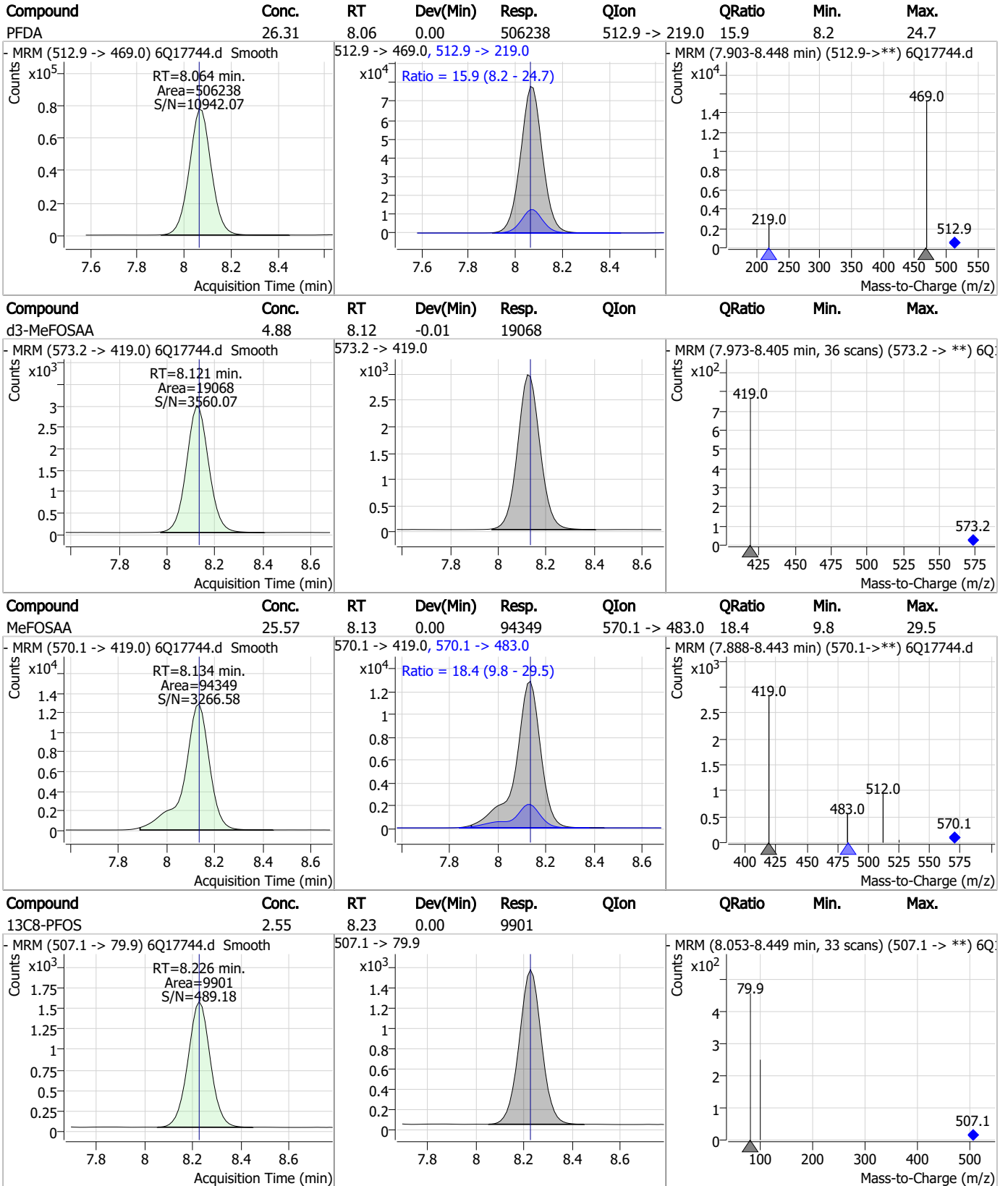


Perfluorinated Compounds by LC/MS/MS



7.7.8
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Perfluorinated Compounds by LC/MS/MS

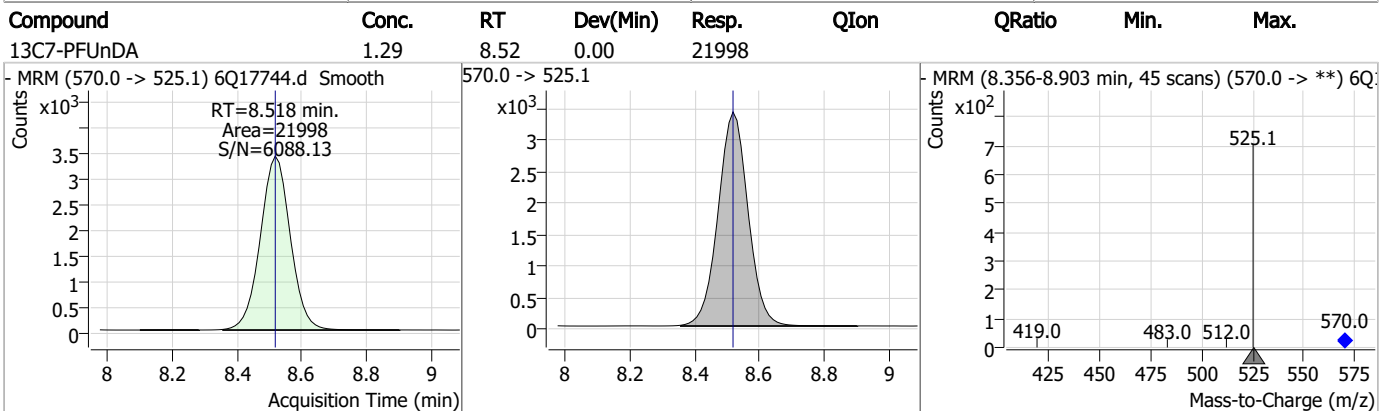
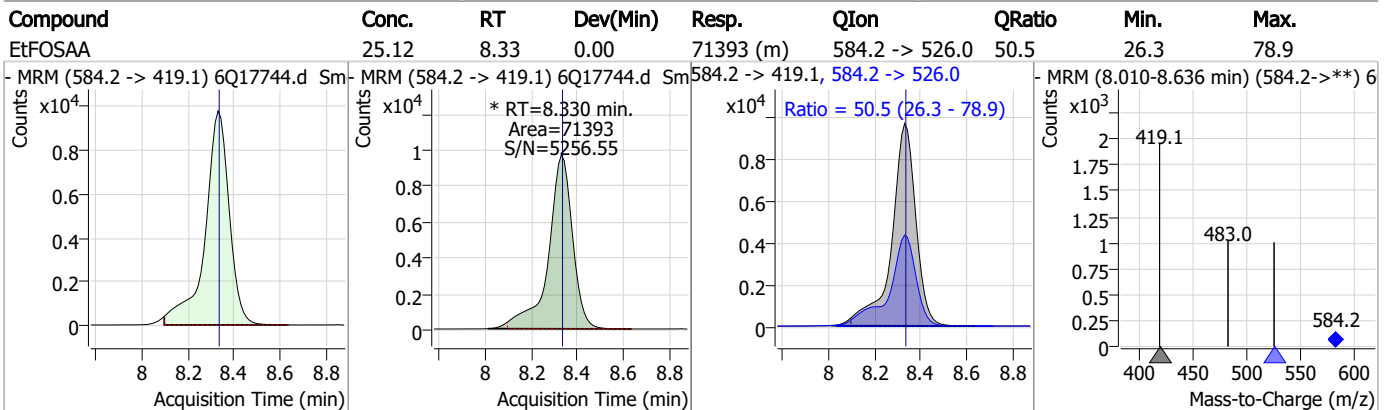
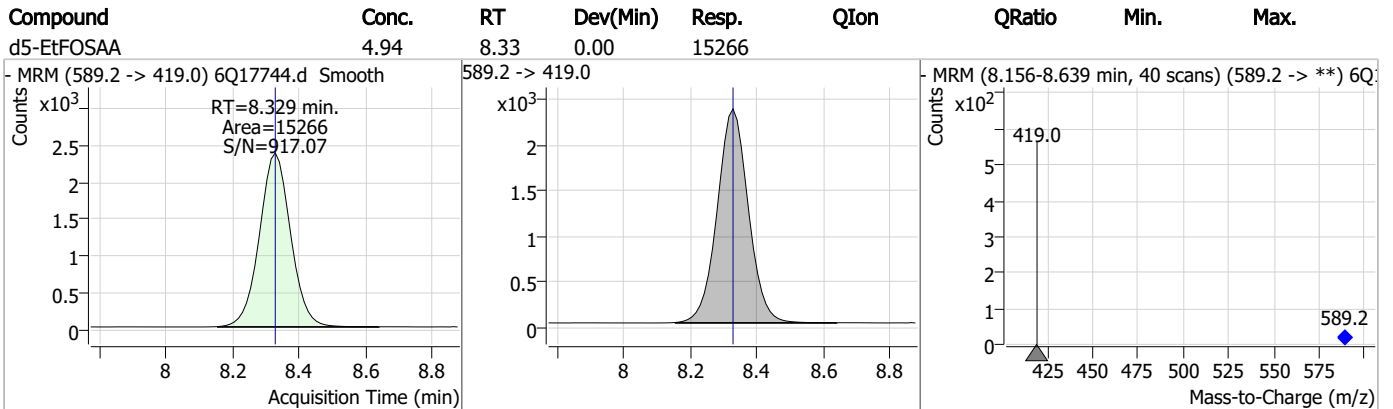
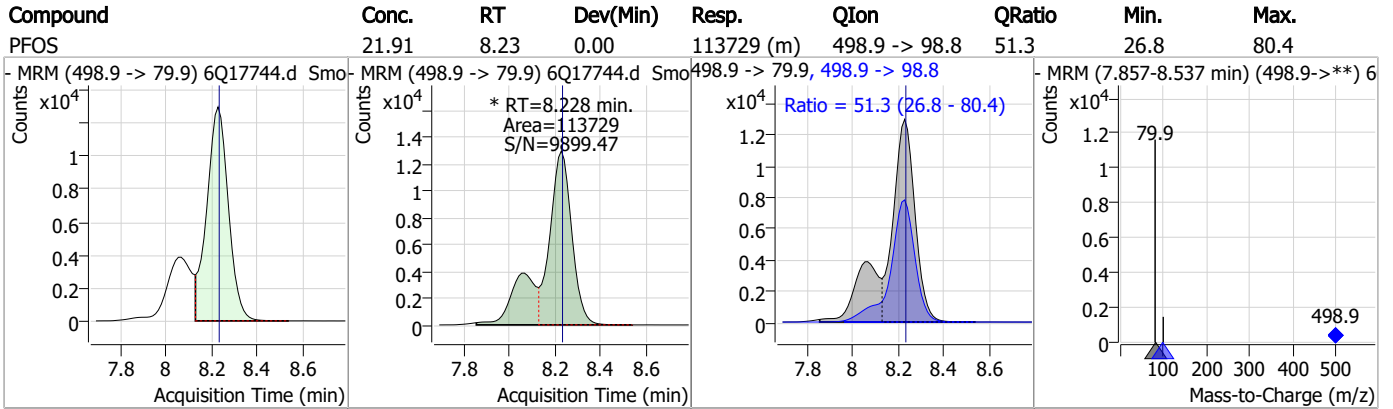


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Perfluorinated Compounds by LC/MS/MS

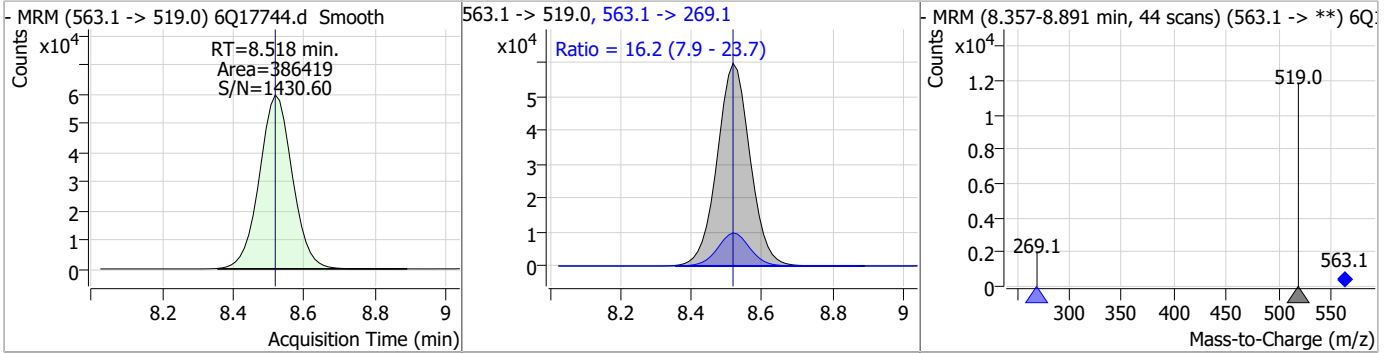


7.7.8

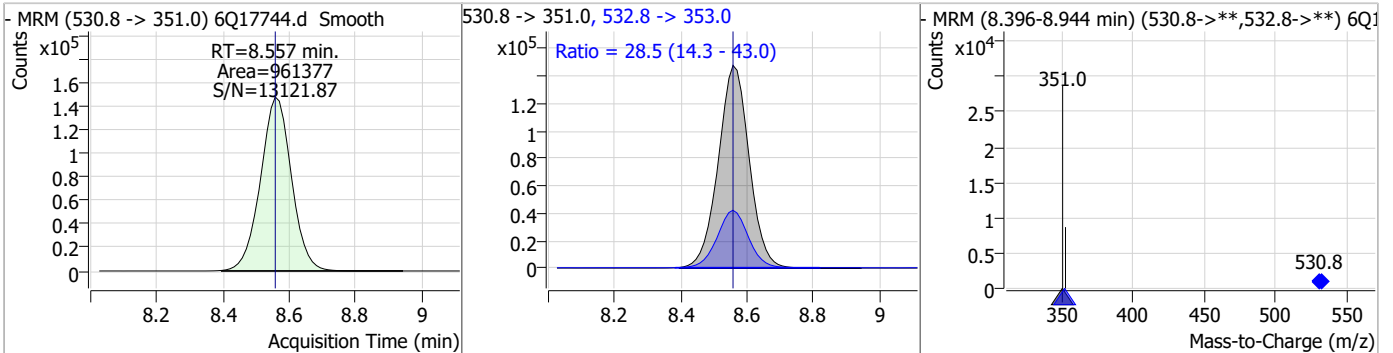
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Perfluorinated Compounds by LC/MS/MS

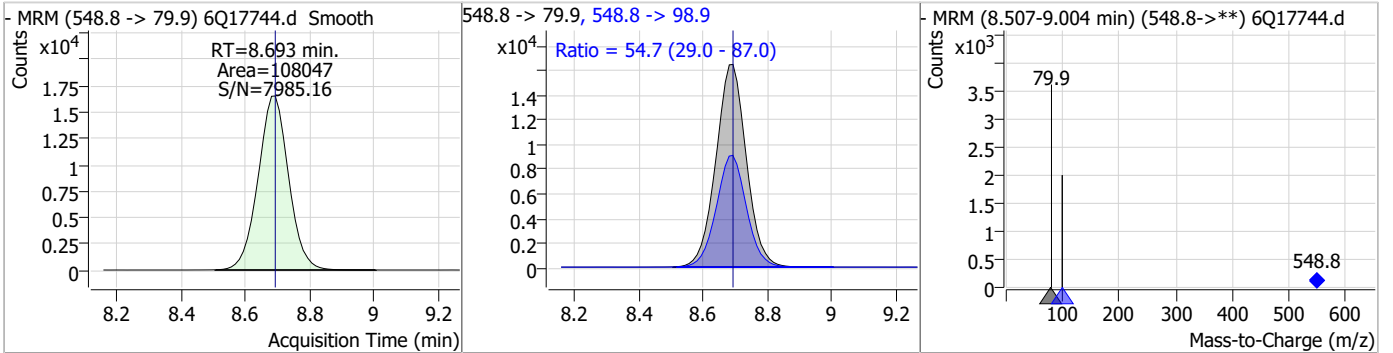
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	24.19	8.52	0.00	386419	563.1 -> 269.1	16.2	7.9	23.7



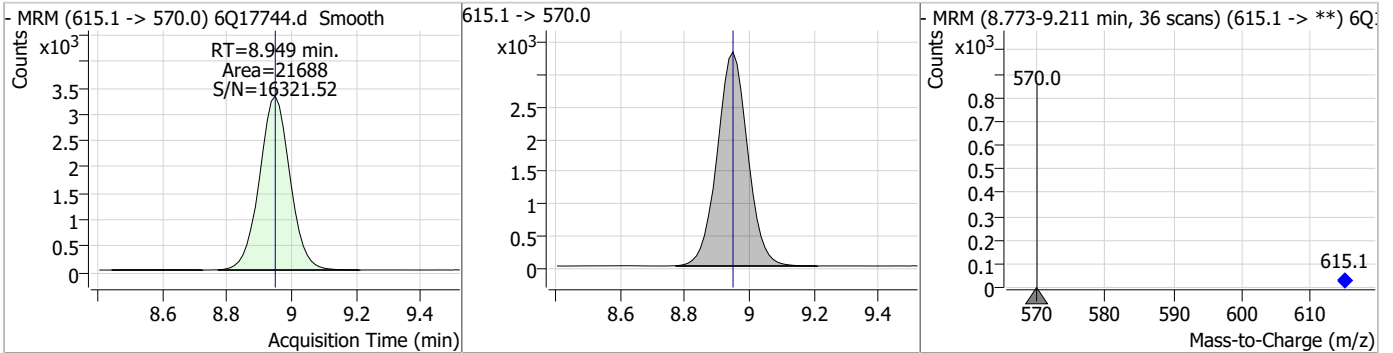
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	48.14	8.56	0.00	961377	532.8 -> 353.0	28.5	14.3	43.0



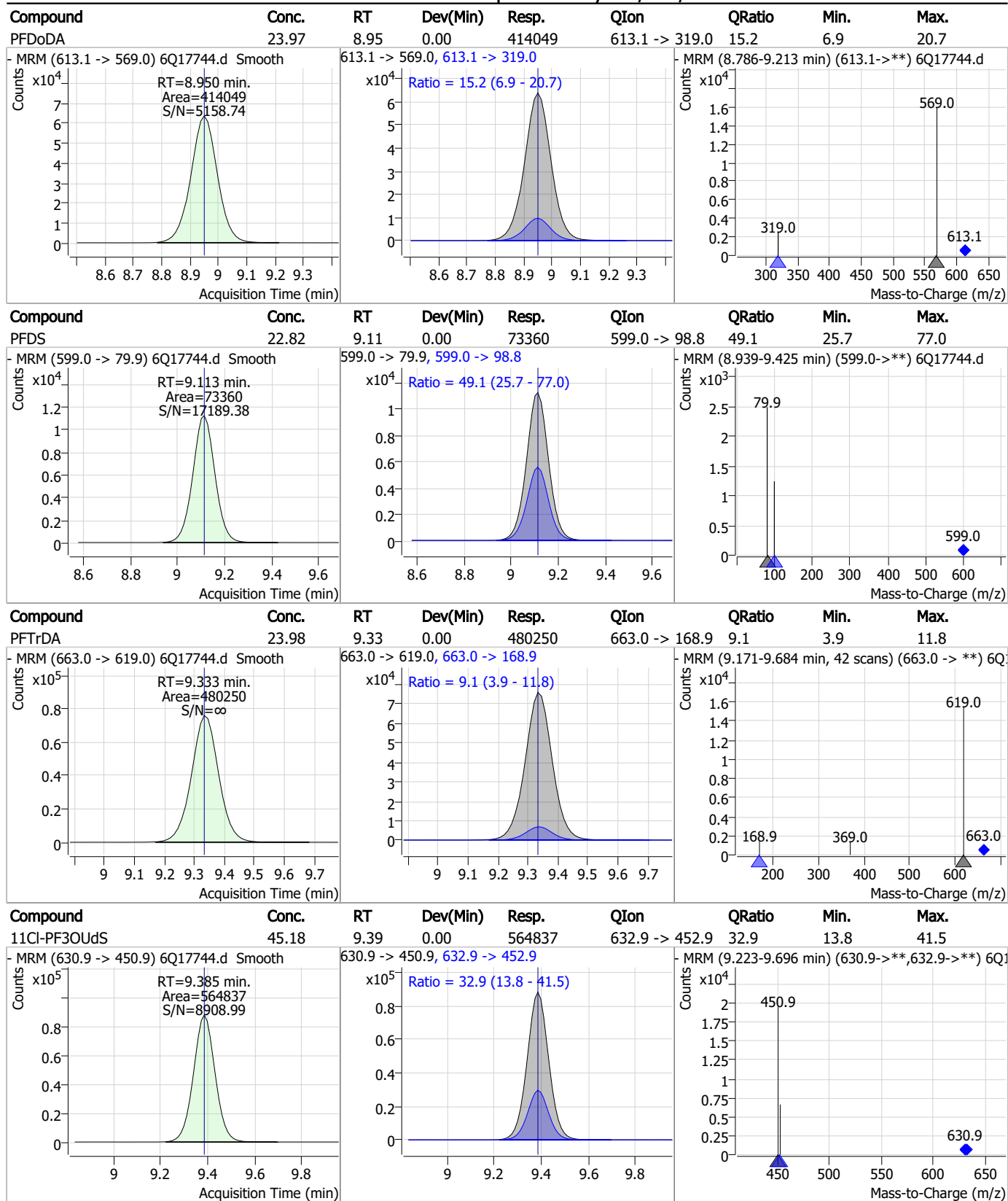
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	22.57	8.69	0.00	108047	548.8 -> 98.9	54.7	29.0	87.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.27	8.95	0.00	21688	615.1 -> 570.0			



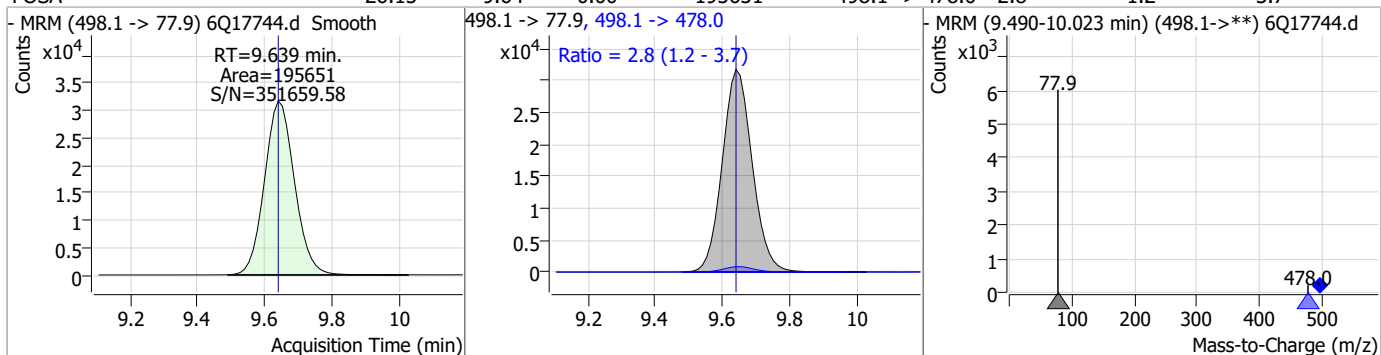
Perfluorinated Compounds by LC/MS/MS



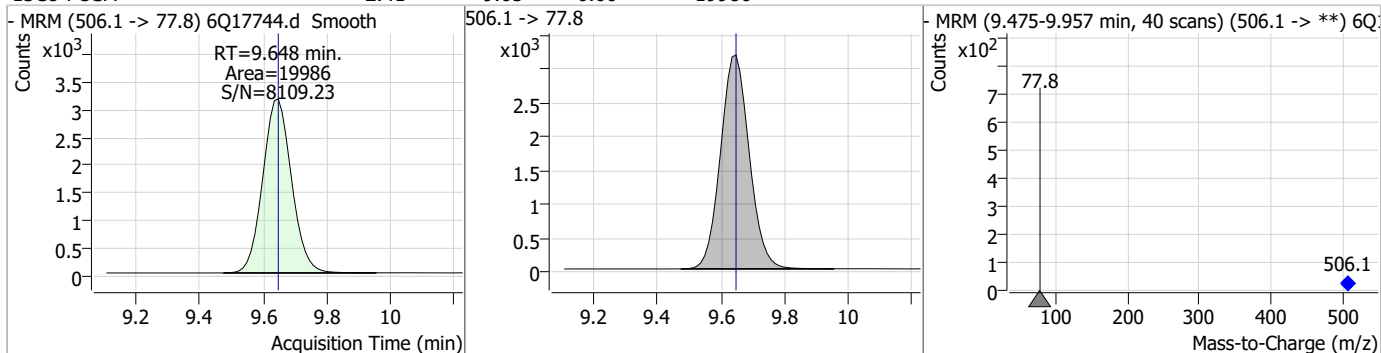
7.7.8
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Perfluorinated Compounds by LC/MS/MS

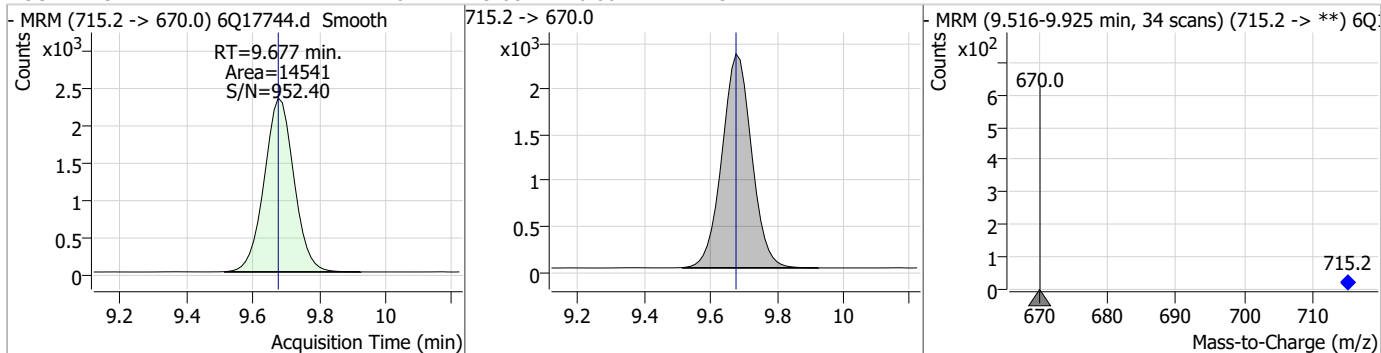
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	26.15	9.64	0.00	195651	498.1 -> 478.0	2.8	1.2	3.7



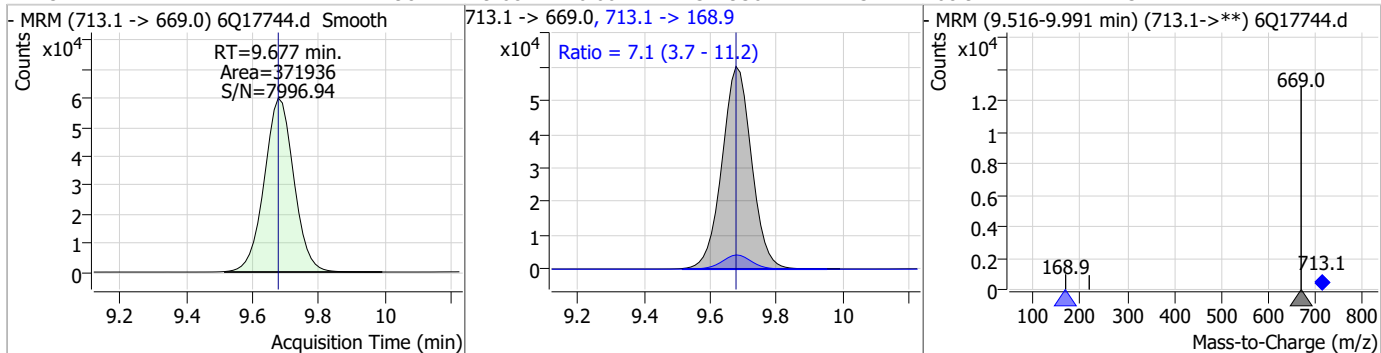
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.41	9.65	0.00	19986				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.68	0.00	14541				



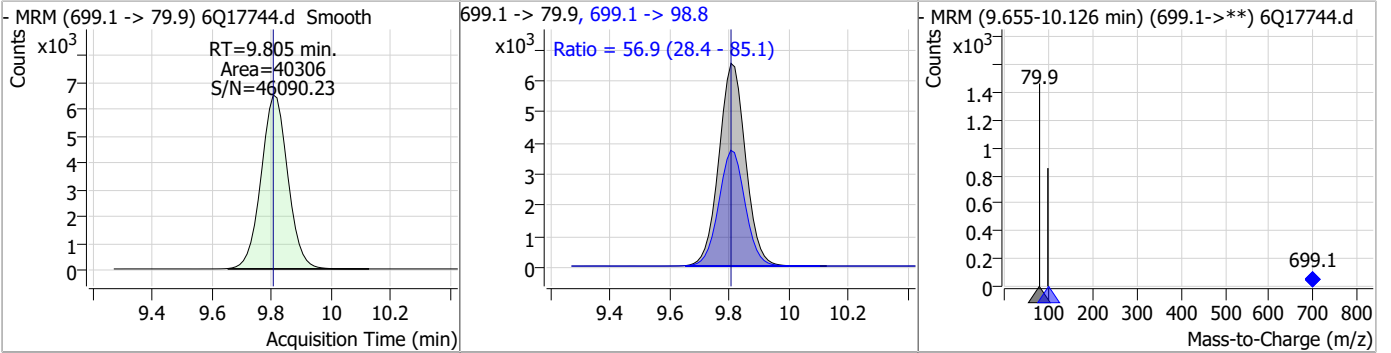
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	24.98	9.68	0.00	371936	713.1 -> 168.9	7.1	3.7	11.2



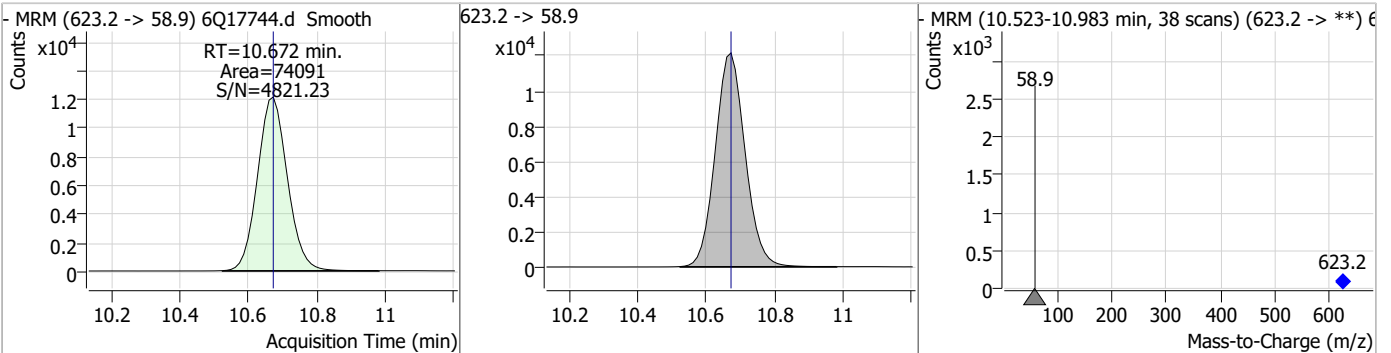
7.7.8
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Perfluorinated Compounds by LC/MS/MS

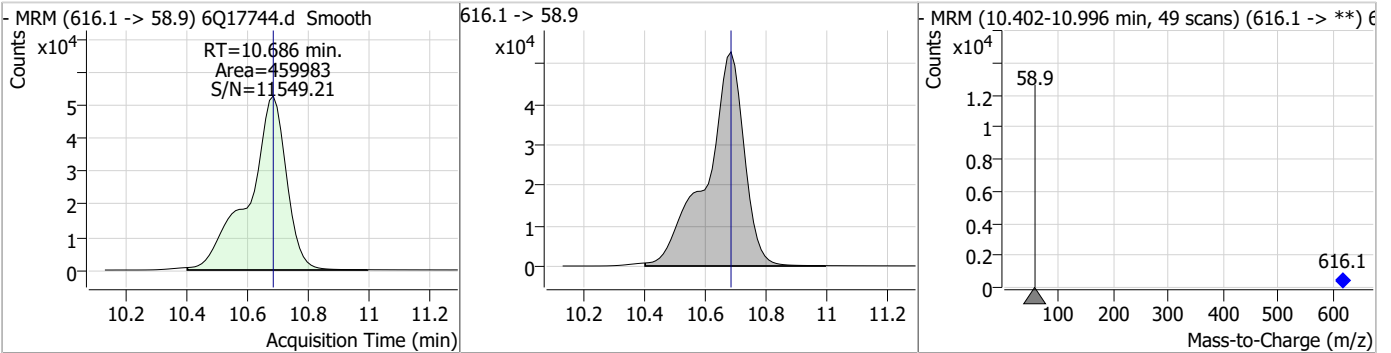
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	23.72	9.81	0.00	40306	699.1 -> 98.8	56.9	28.4	85.1



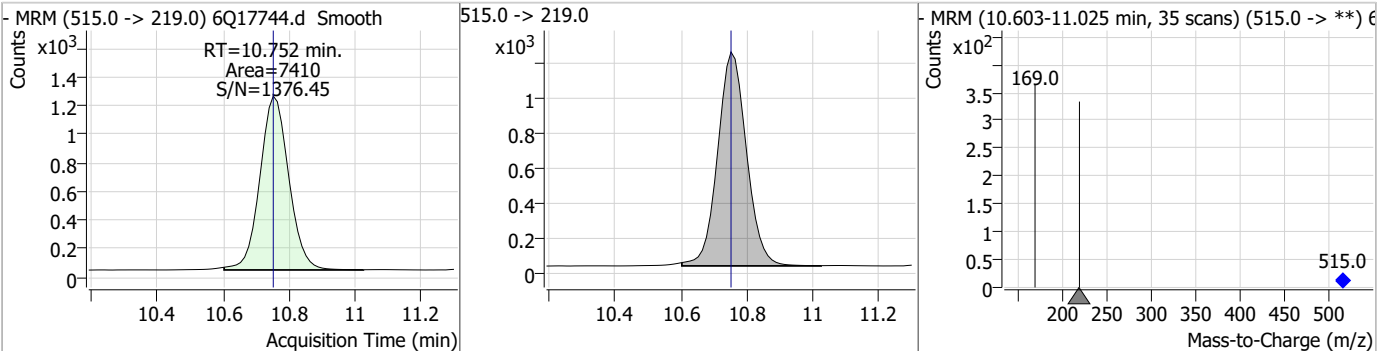
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.10	10.67	0.00	74091				



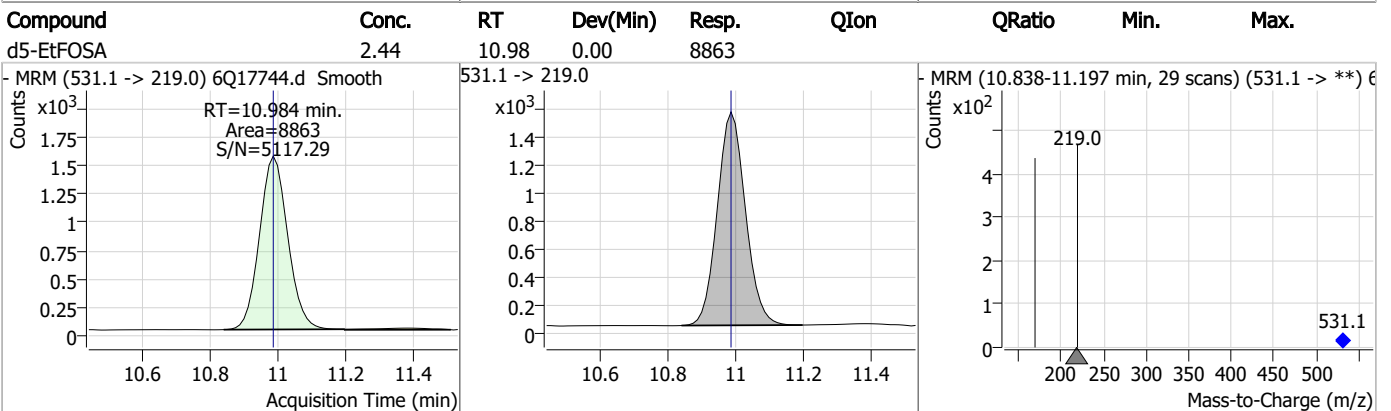
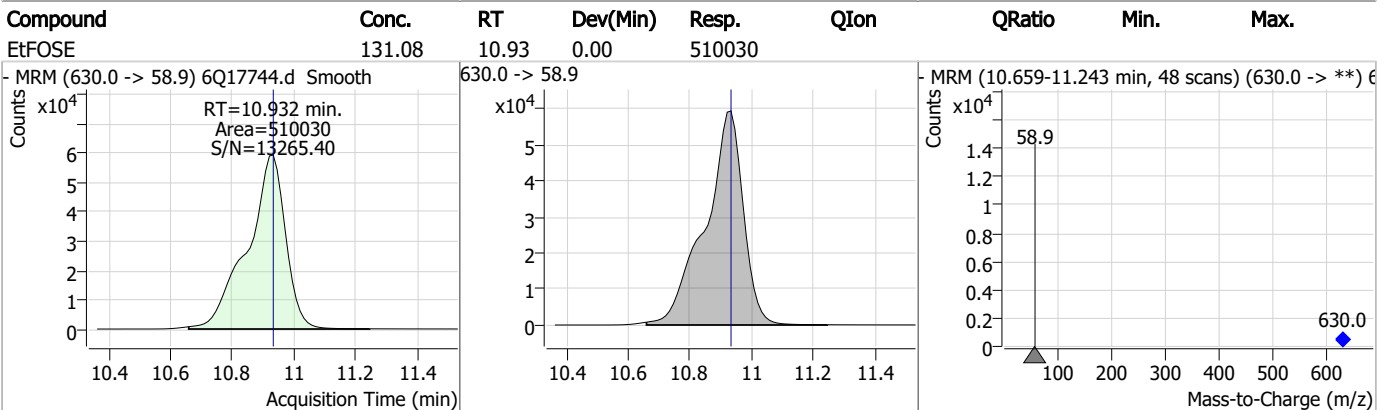
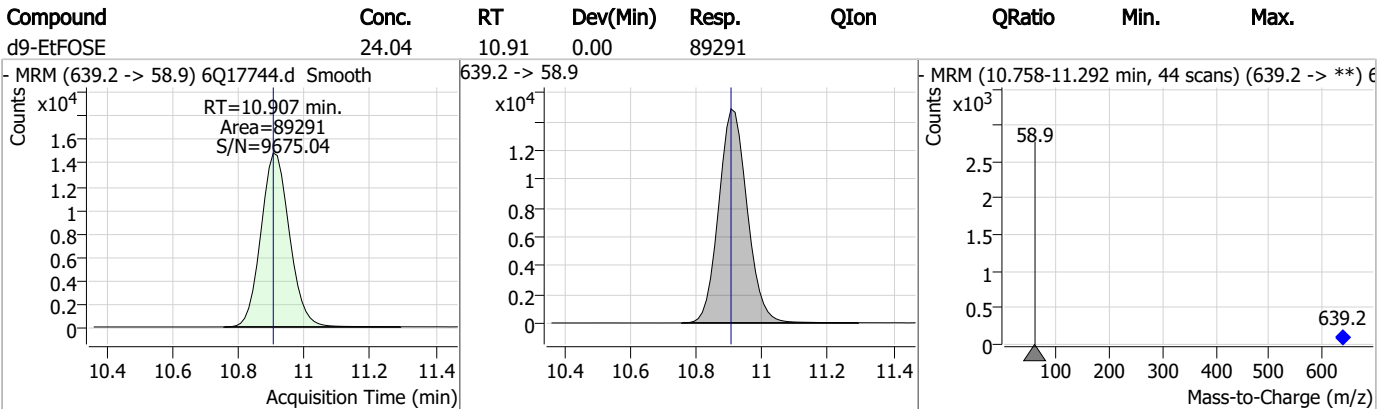
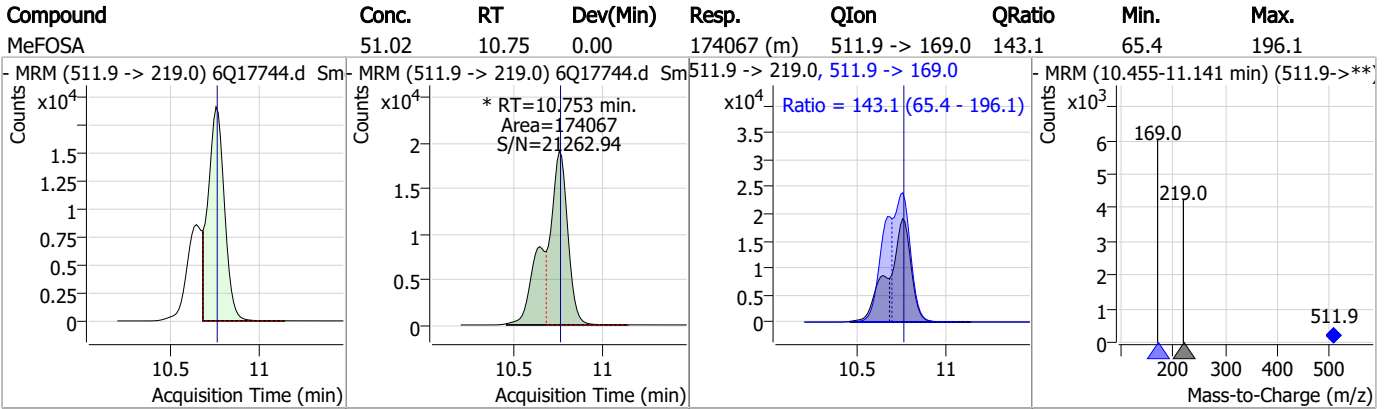
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	132.71	10.69	0.00	459983				



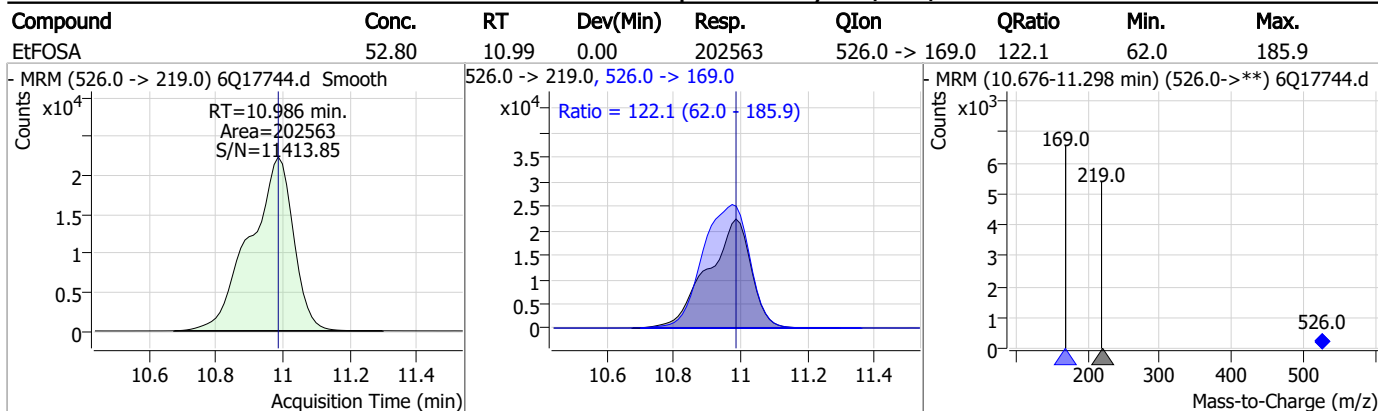
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.75	0.00	7410				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.8
7

Manual Integration Approval Summary

Sample Number: S6Q268-IC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17744.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 13:42 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.8.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17745.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 1:56:51 PM
 Sample Name : ic268-8
 Vial : P1-A9
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.888	216.8 -> 171.9	122002	10.00 µg/L	-0.012
M5-PFPeA	4.272	268.3 -> 223.0	43862	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	47612	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	43396	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	62434	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	20280	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	16011	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	19016	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	20928	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14554	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	20351	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	15923	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	10449	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9091	2.50 µg/L	0.000
M2-4:2FTS	5.131	329.1 -> 80.9	1391	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1975	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2315	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	17730	5.00 µg/L	0.000
M3-HFPO-DA	5.831	286.9 -> 168.9	33485	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	14467	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	67690	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	80315	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	9138	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	8146	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	11712	2.50 µg/L	0.000
13C3-PFBA	2.891	216.0 -> 172.0	51974	5.00 µg/L	-0.012
18O2-PFHxS	7.178	403.0 -> 83.9	8150	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	68901	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	20599	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	21845	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	43874	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1391	4.48 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1975	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2315	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C2-PFDoDA	8.949	615.1 -> 570.0	20928	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14554	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C3-PFBS	5.397	302.1 -> 79.9	15923	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 89.7%		
13C3-PFHxS	7.179	402.1 -> 79.9	10449	2.41 µg/L	0.012



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 = 96.3%	
13C4-PFBA	2.888	216.8 -> 171.9	122002	9.89 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFHpA	6.420	367.1 -> 322.0	43396	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C5-PFHxA	5.466	318.0 -> 273.0	47612	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C5-PFPeA	4.272	268.3 -> 223.0	43862	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C6-PFDA	8.076	519.1 -> 474.1	16011	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C7-PFUnDA	8.518	570.0 -> 525.1	19016	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.8%	
13C8-FOSA	9.648	506.1 -> 77.8	20351	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-PFOA	7.064	421.1 -> 376.0	62434	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C8-PFOS	8.226	507.1 -> 79.9	9091	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C9-PFNA	7.595	472.1 -> 427.0	20280	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
d3-MeFOSAA	8.133	573.2 -> 419.0	17730	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33485	10.43 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
d3-MeFOSA	10.752	515.0 -> 219.0	8146	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.0%	
d5-EtFOSAA	8.329	589.2 -> 419.0	14467	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d7-MeFOSE	10.672	623.2 -> 58.9	67690	23.46 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d9-EtFOSE	10.907	639.2 -> 58.9	80315	23.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
d5-EtFOSA	10.985	531.1 -> 219.0	9138	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	499063	238.63 µg/L	98
		327.1 -> 80.9	181220		
6:2FTS	6.838	427.1 -> 407.0	438658	204.02 µg/L	99
		427.1 -> 80.9	145739		
8:2FTS	7.865	527.1 -> 507.0	242846	184.61 µg/L	99
		527.1 -> 80.8	98583		
EtFOSAA	8.330	584.2 -> 419.1	162035	60.15 µg/L	99
		584.2 -> 526.0	86241		
FOSA	9.639	498.1 -> 77.9	469173	61.59 µg/L	99
		498.1 -> 478.0	12926		
MeFOSAA	8.134	570.1 -> 419.0	223254	65.08 µg/L	96
		570.1 -> 483.0	40199		
PFBA	2.894	212.8 -> 168.9	1115112	254.79 µg/L	100
PFBS	5.398	298.7 -> 79.9	444156	57.16 µg/L	95
		298.7 -> 98.8	174835		
PFDA	8.076	512.9 -> 469.0	1375915	69.45 µg/L	93
		512.9 -> 219.0	184224		
PFDoDA	8.950	613.1 -> 569.0	1010195	60.60 µg/L	99
		613.1 -> 319.0	142616		
PFDS	9.113	599.0 -> 79.9	179294	60.74 µg/L	94

7.7.9
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	84157			
PFHpA	6.420	363.1 -> 319.0	1342085	61.88	µg/L	100
		363.1 -> 169.0	218427			
PFHpS	7.735	449.0 -> 79.9	309088	63.72	µg/L	88
		449.0 -> 98.9	134109			
PFHxA	5.469	313.0 -> 269.0	1310023	69.46	µg/L	99
		313.0 -> 118.9	57308			
PFHxS	7.180	398.7 -> 79.9	332050	57.41	µg/L	m 96
		398.7 -> 98.9	156323			
PFNA	7.596	463.0 -> 419.0	958944	63.65	µg/L	94
		463.0 -> 219.0	170841			
PFNS	8.693	548.8 -> 79.9	277903	63.21	µg/L	89
		548.8 -> 98.9	139491			
PFOA	7.066	413.0 -> 369.0	1882721	60.61	µg/L	98
		413.0 -> 169.0	329213			
PFOS	8.228	498.9 -> 79.9	280382	58.82	µg/L	m 98
		498.9 -> 98.8	145333			
PFPeA	4.274	263.0 -> 219.0	1555403	122.79	µg/L	100
PFPeS	6.471	349.1 -> 79.9	342152	59.66	µg/L	94
		349.1 -> 98.9	140603			
PFTeDA	9.677	713.1 -> 669.0	914711	61.37	µg/L	99
		713.1 -> 168.9	64885			
PFTrDA	9.333	663.0 -> 619.0	1095527	56.68	µg/L	95
		663.0 -> 168.9	103206			
PFUnDA	8.518	563.1 -> 519.0	907437	65.70	µg/L	100
		563.1 -> 269.1	142513			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	1411767	111.57	µg/L	96
		632.9 -> 452.9	422811			
9Cl-PF3ONS	8.557	530.8 -> 351.0	2072978	102.56	µg/L	93
		532.8 -> 353.0	676656			
ADONA	6.683	376.9 -> 250.9	5840896	109.55	µg/L	97
		376.9 -> 84.8	1468837			
HFPO-DA	5.832	284.9 -> 168.9	385658	119.14	µg/L	98
		284.9 -> 184.9	49494			
3:3FTCA	3.777	241.0 -> 177.0	256127	326.34	µg/L	98
		241.0 -> 117.0	32563			
5:3FTCA	6.161	341.0 -> 237.1	5309644	1624.84	µg/L	93
		341.0 -> 217.0	3541835			
7:3FTCA	7.586	441.0 -> 316.9	2336953	1576.39	µg/L	95
		441.0 -> 336.9	4716304			
EtFOSA	10.986	526.0 -> 219.0	469501	118.69	µg/L	100
		526.0 -> 169.0	581549			
EtFOSE	10.920	630.0 -> 58.9	1154315	329.81	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	404958	107.96	µg/L	m 97
		511.9 -> 169.0	541497			
MeFOSE	10.686	616.1 -> 58.9	1052658	332.43	µg/L	100
PFDoS	9.805	699.1 -> 79.9	94773	60.74	µg/L	98
		699.1 -> 98.8	55425			
NFDHA	5.348	295.0 -> 201.0	259065	124.42	µg/L	98
		295.0 -> 84.9	67988			
PFMBA	4.675	279.0 -> 85.1	1135631	125.64	µg/L	100
PFMPA	3.426	229.0 -> 84.9	812979	124.89	µg/L	100
PFEESA	5.938	314.8 -> 134.9	2888050	114.05	µg/L	100
		314.8 -> 82.9	102105			

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

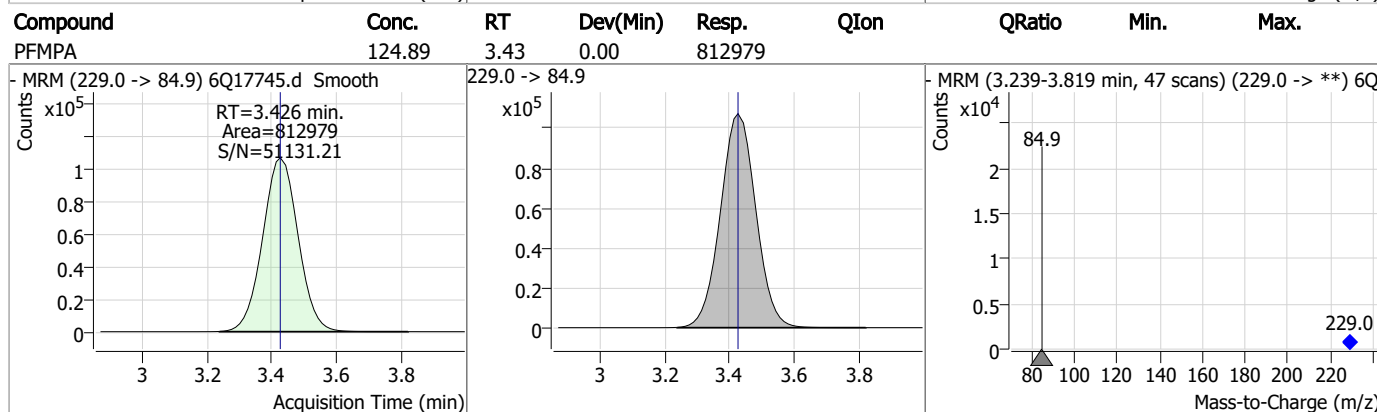
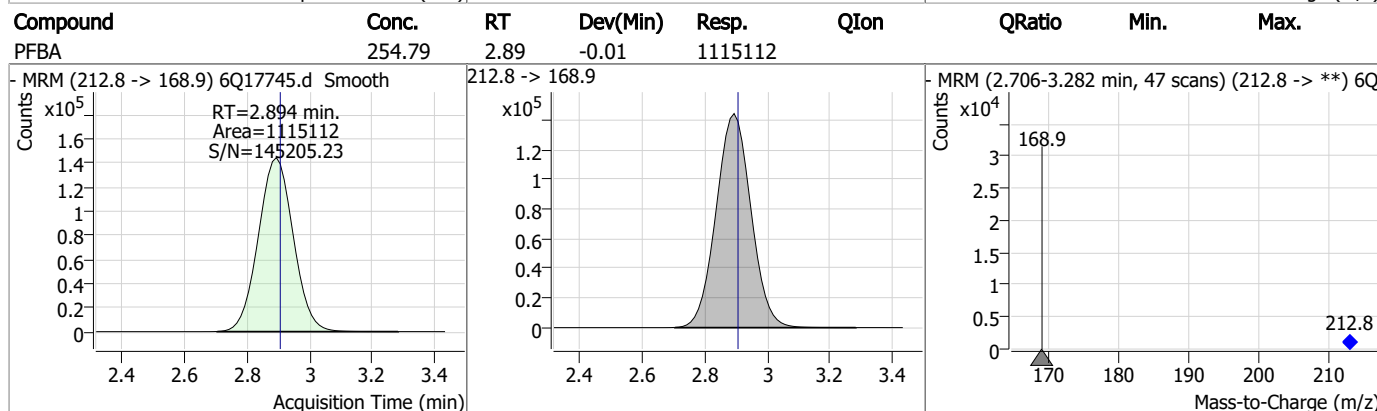
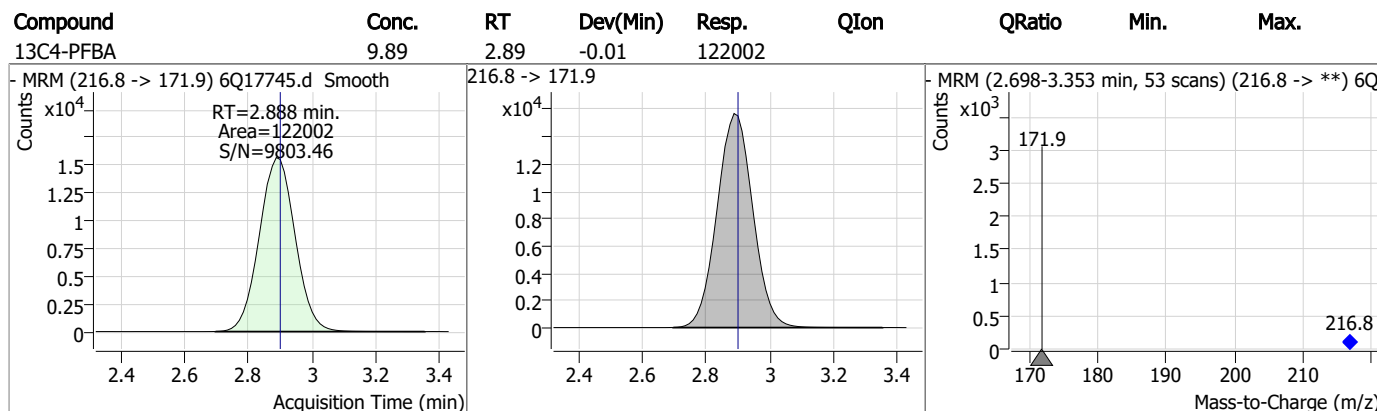
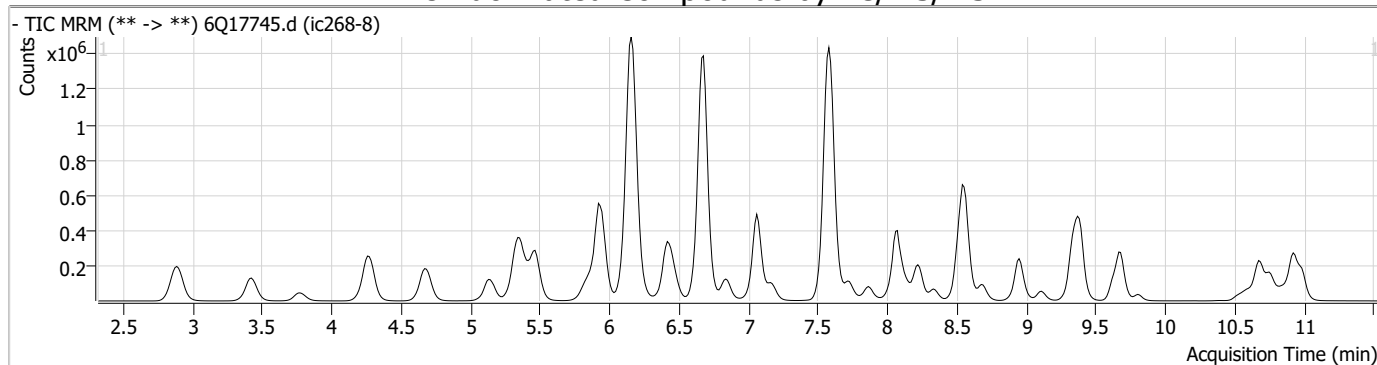
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.9

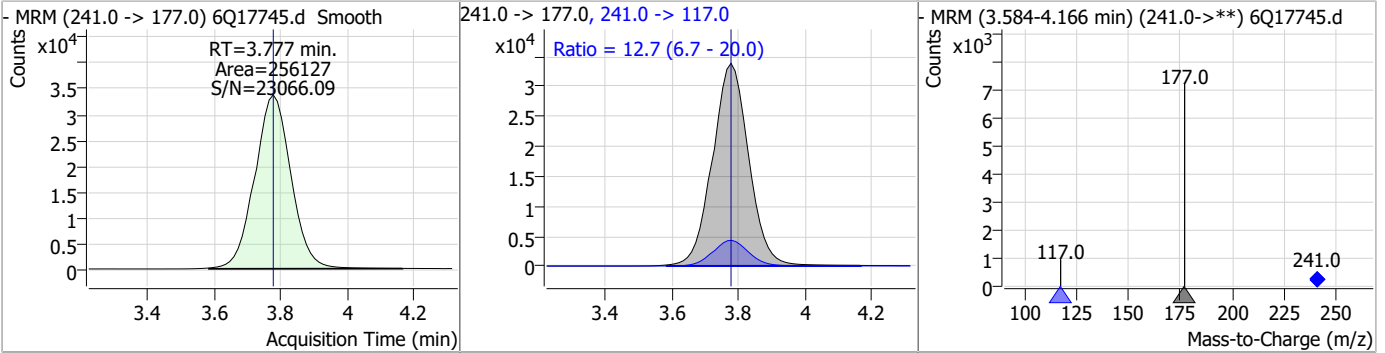
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Perfluorinated Compounds by LC/MS/MS

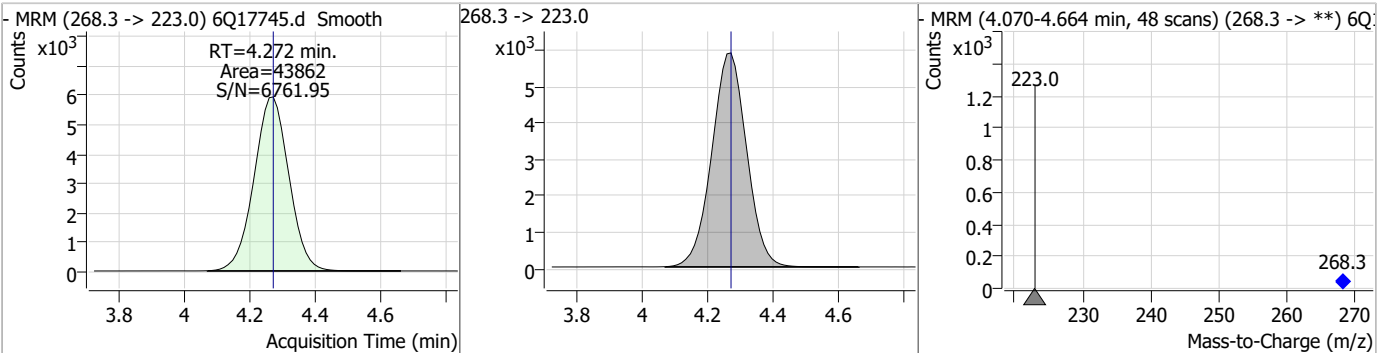


Perfluorinated Compounds by LC/MS/MS

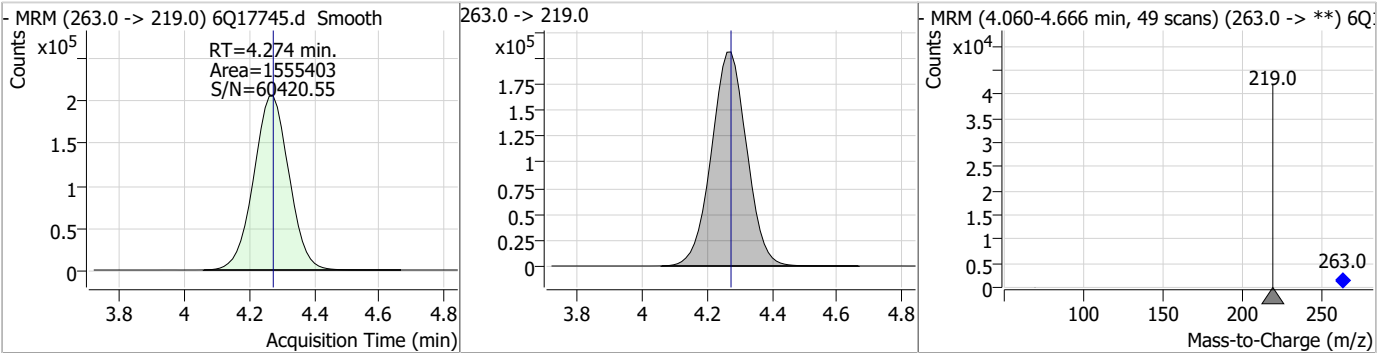
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	326.34	3.78	0.00	256127	241.0 -> 117.0	12.7	6.7	20.0



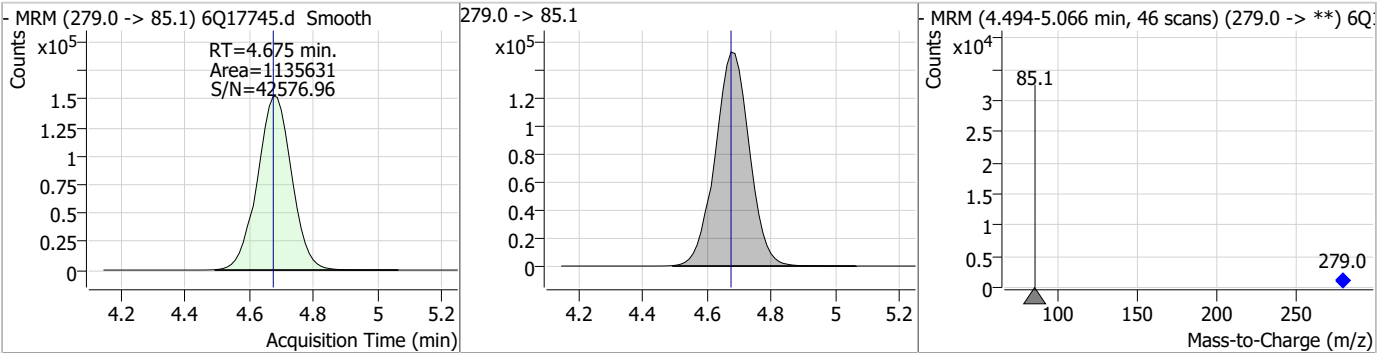
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.75	4.27	0.00	43862				



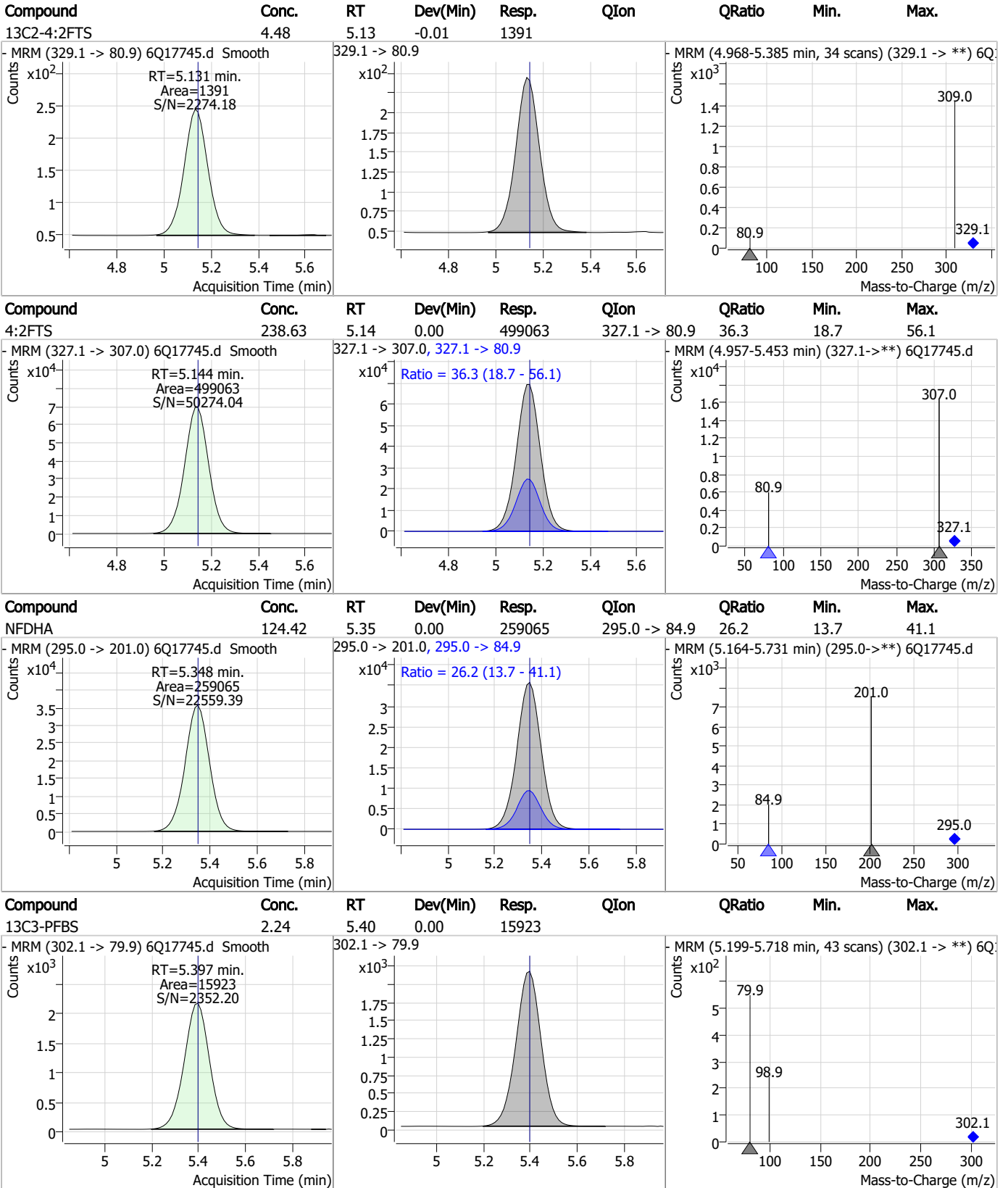
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	122.79	4.27	0.00	1555403				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	125.64	4.68	0.00	1135631				



Perfluorinated Compounds by LC/MS/MS

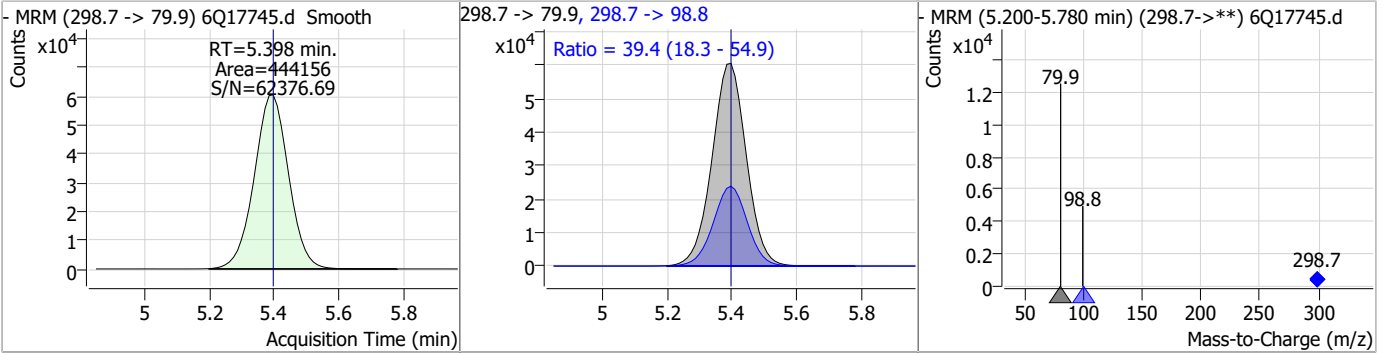


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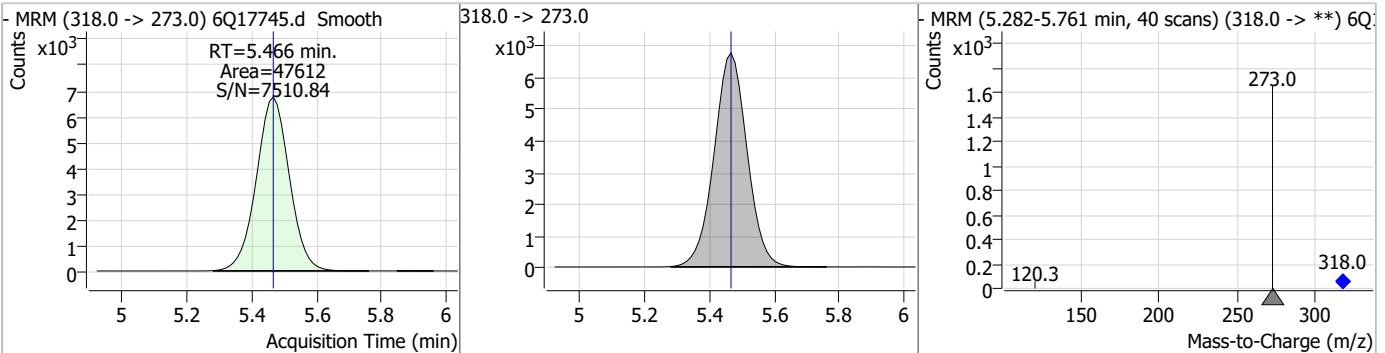
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Perfluorinated Compounds by LC/MS/MS

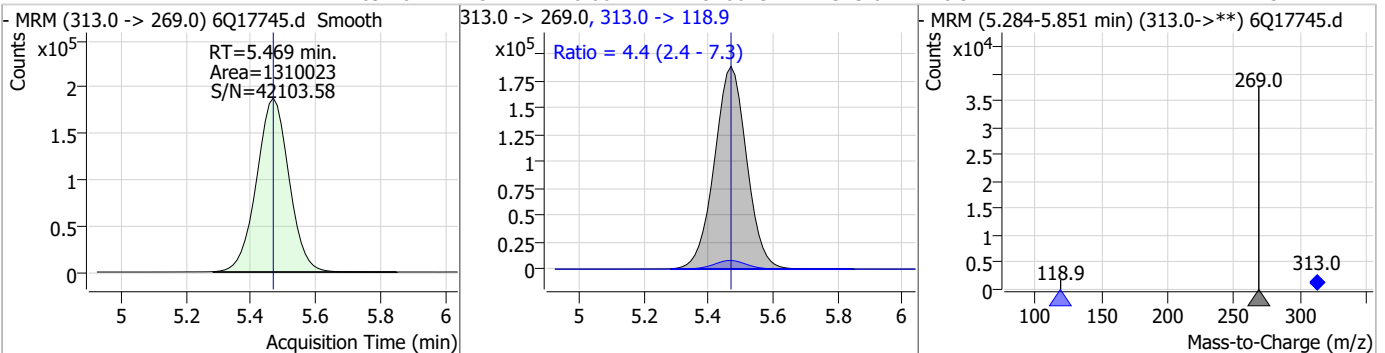
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	57.16	5.40	0.00	444156	298.7 -> 98.8	39.4	18.3	54.9



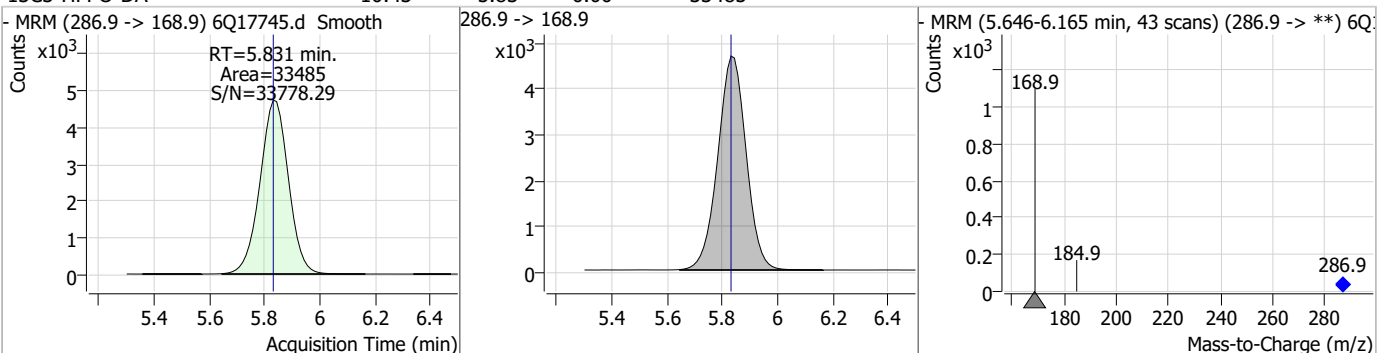
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.30	5.47	0.00	47612				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	69.46	5.47	0.00	1310023	313.0 -> 118.9	4.4	2.4	7.3

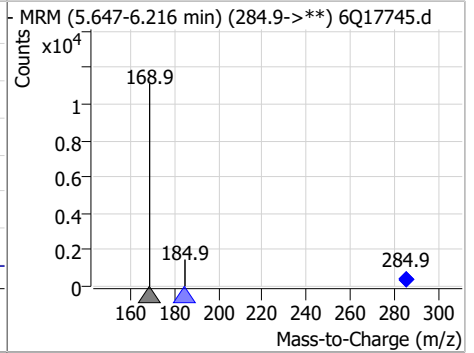
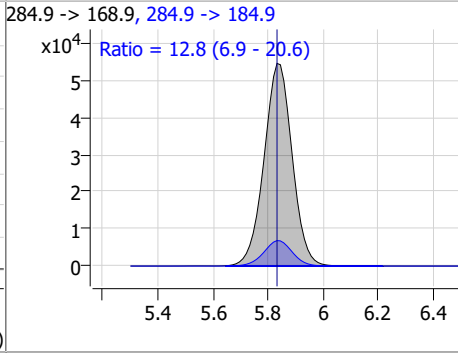
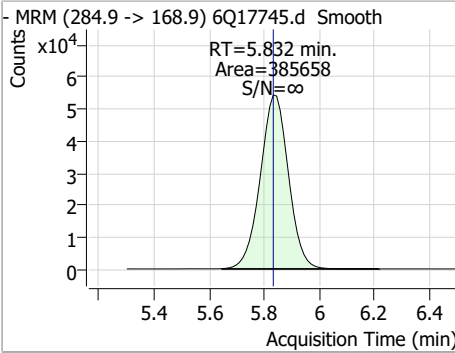


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.43	5.83	0.00	33485				

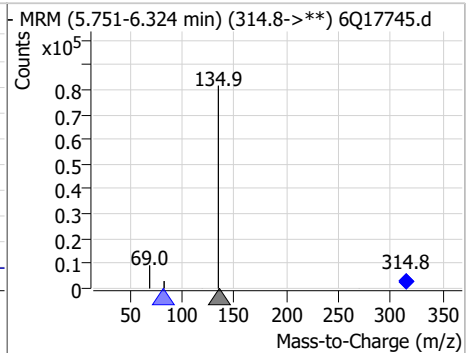
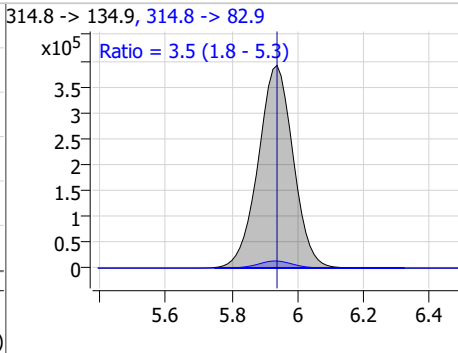
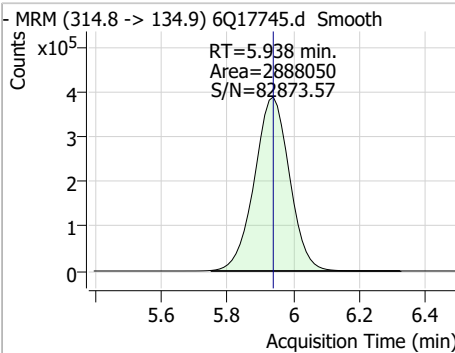


Perfluorinated Compounds by LC/MS/MS

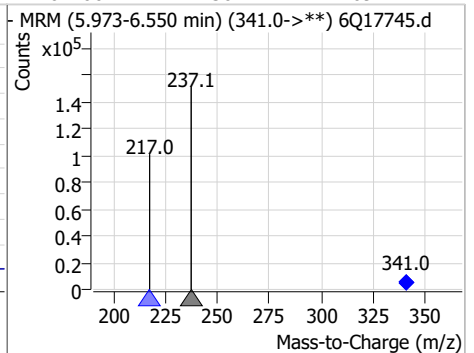
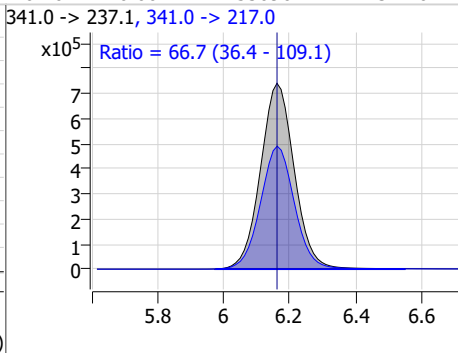
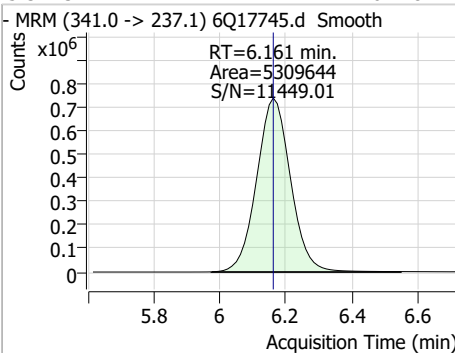
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	119.14	5.83	0.00	385658	284.9 -> 184.9	12.8	6.9	20.6



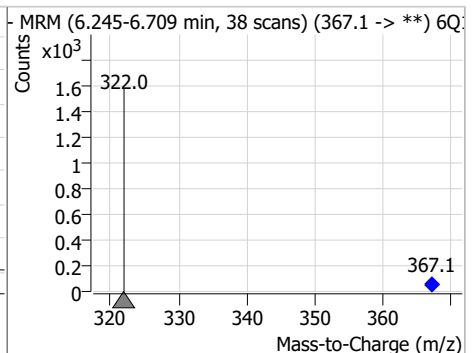
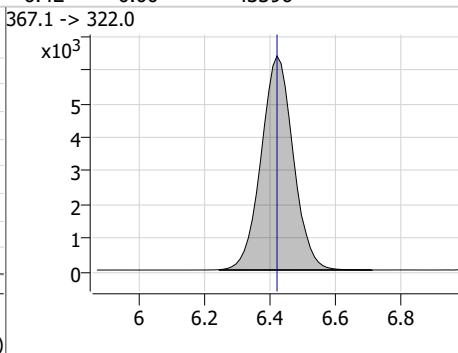
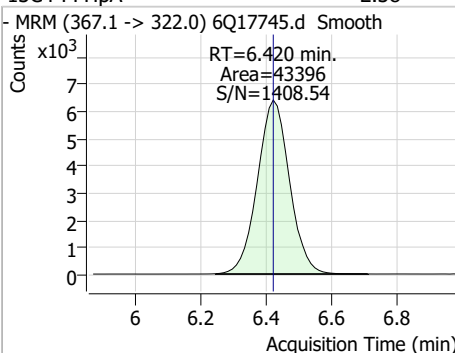
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	114.05	5.94	0.00	2888050	314.8 -> 82.9	3.5	1.8	5.3



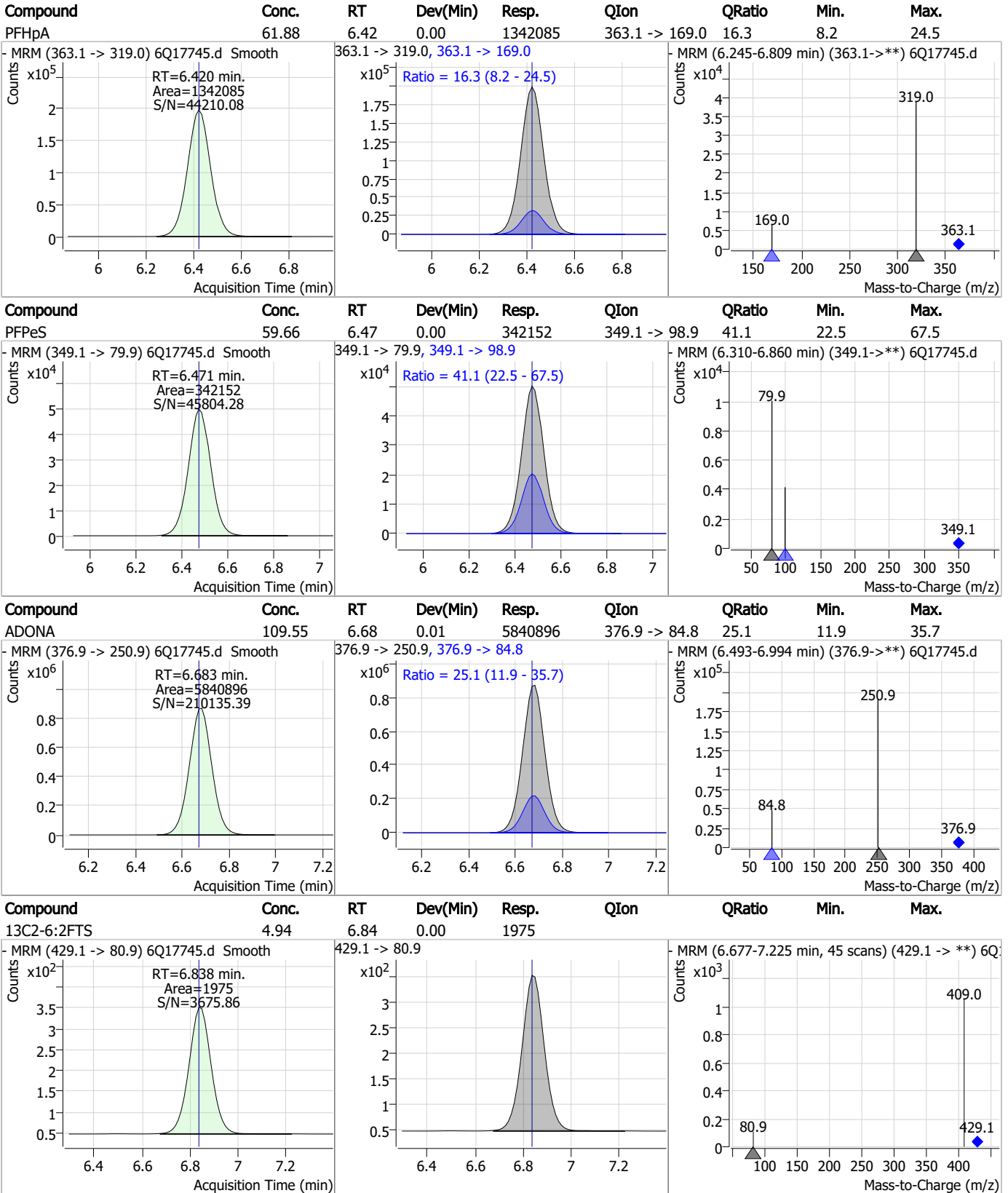
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1624.84	6.16	0.00	5309644	341.0 -> 217.0	66.7	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.38	6.42	0.00	43396	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

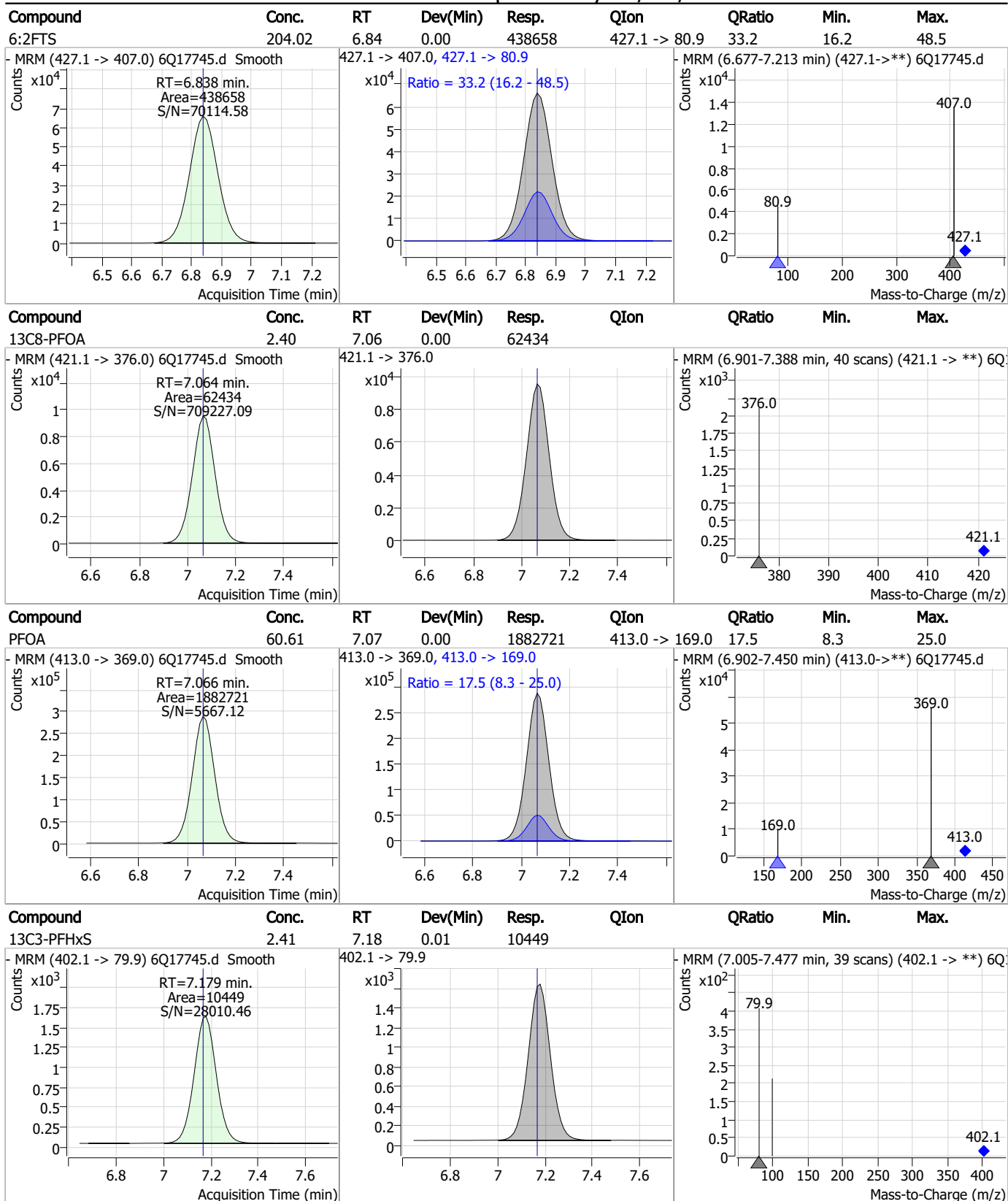


7.7.9

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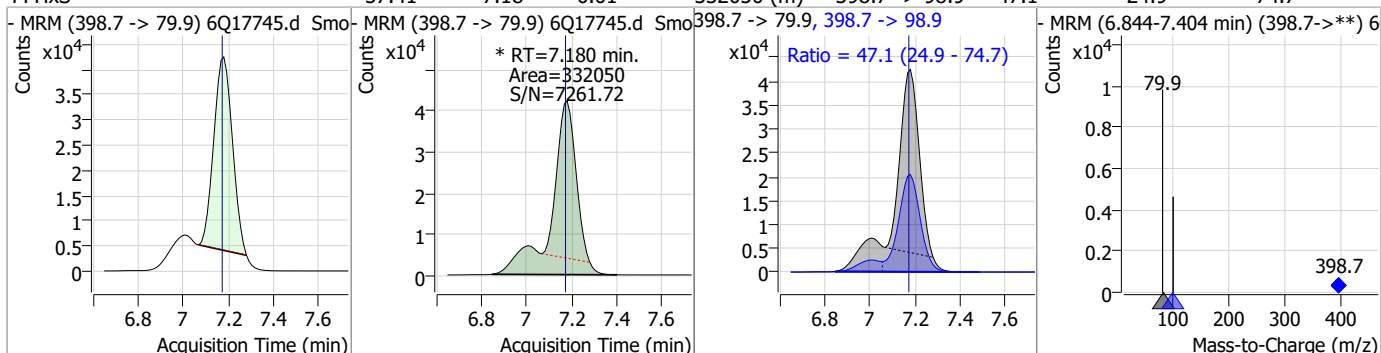
Perfluorinated Compounds by LC/MS/MS



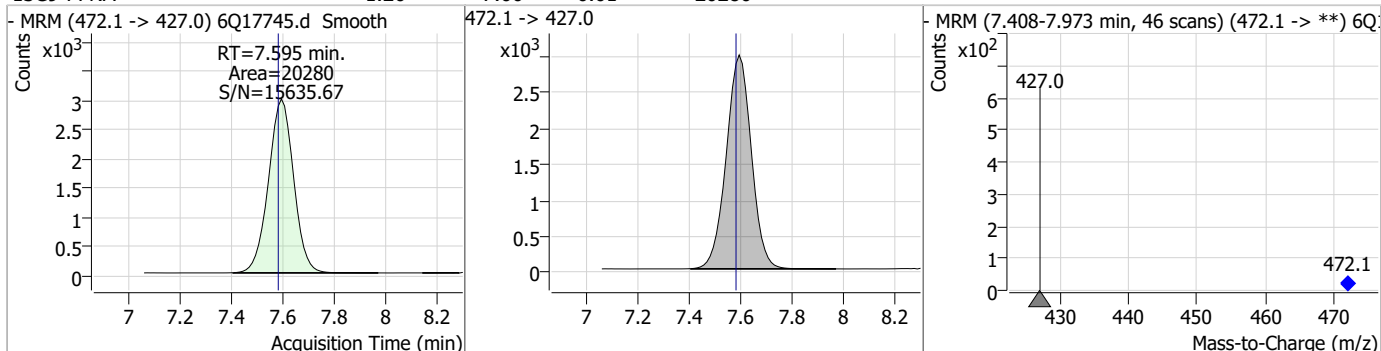
7.7.9
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Perfluorinated Compounds by LC/MS/MS

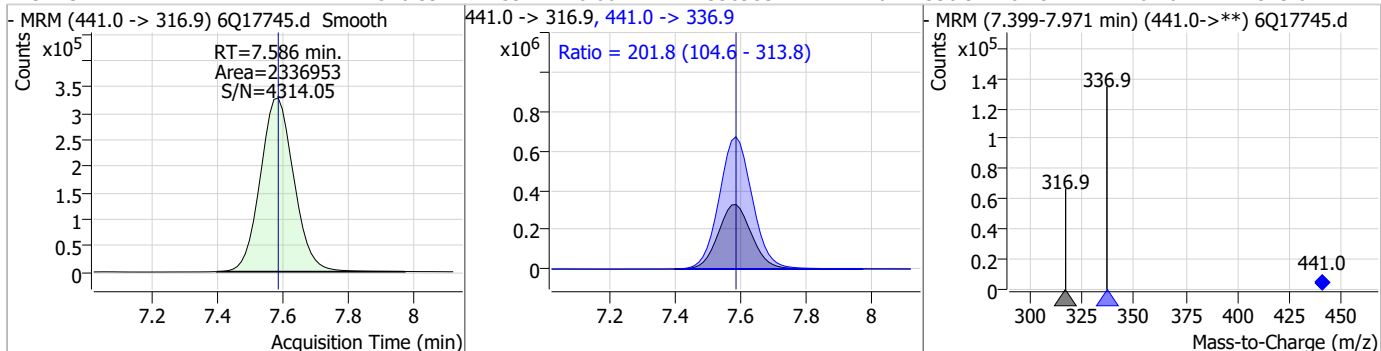
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	57.41	7.18	0.01	332050 (m)	398.7 -> 98.9	47.1	24.9	74.7



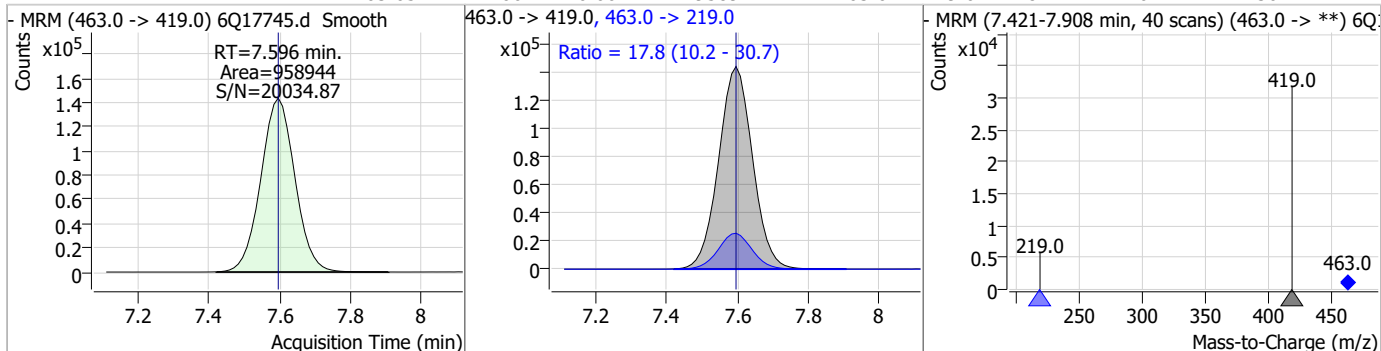
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.60	0.01	20280				



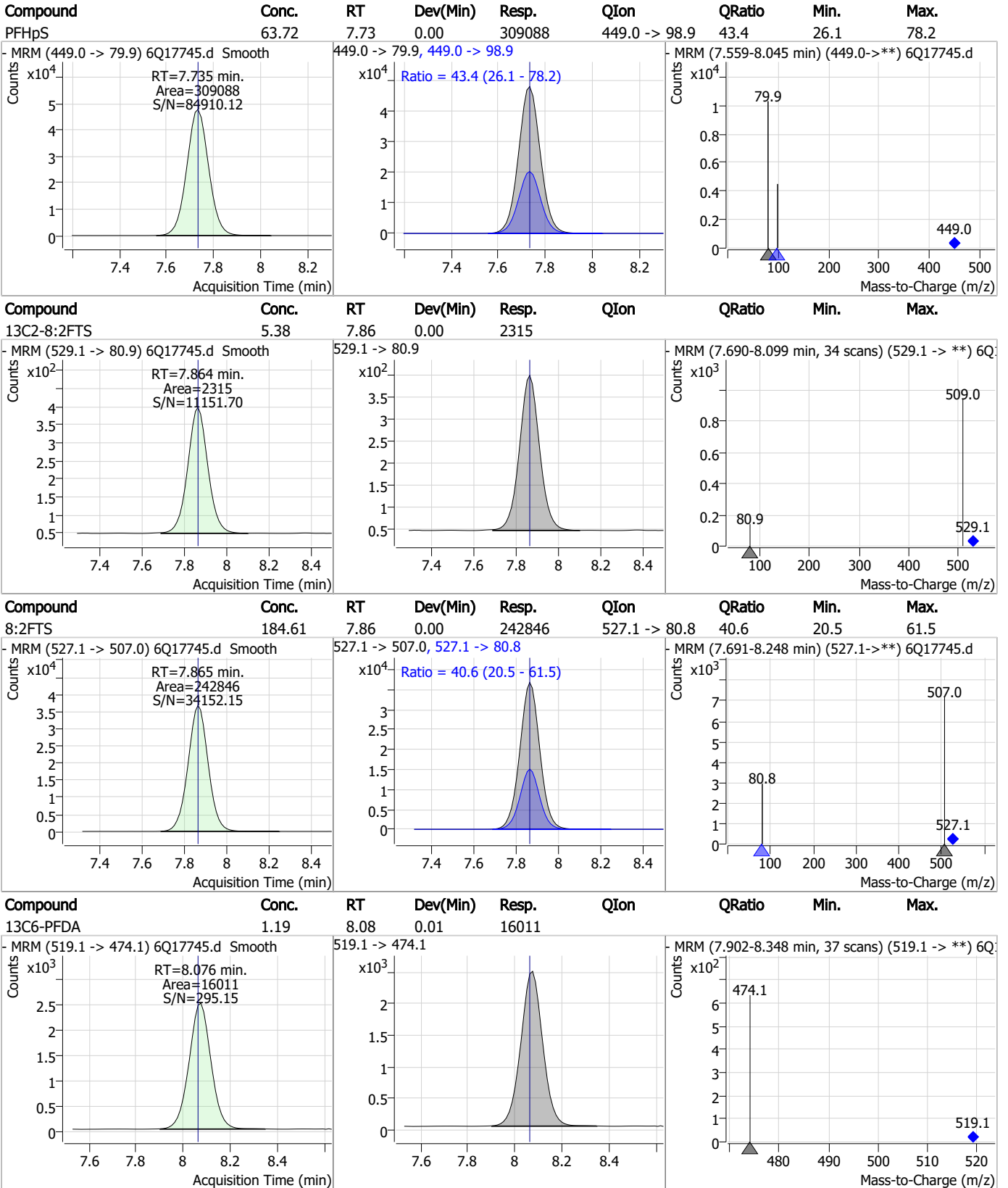
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	1576.39	7.59	0.00	2336953	441.0 -> 336.9	201.8	104.6	313.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	63.65	7.60	0.00	958944	463.0 -> 219.0	17.8	10.2	30.7



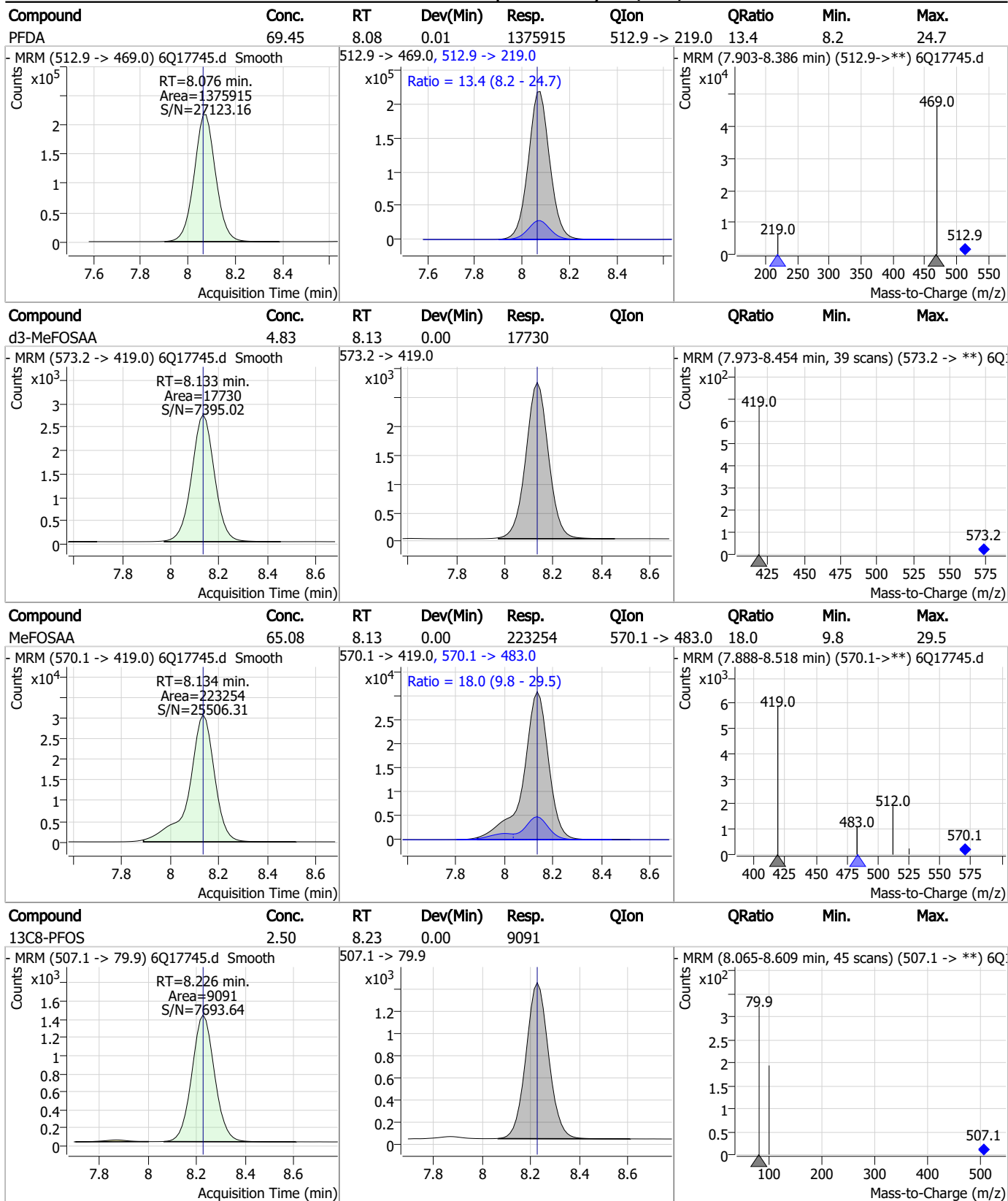
Perfluorinated Compounds by LC/MS/MS



7.7.9

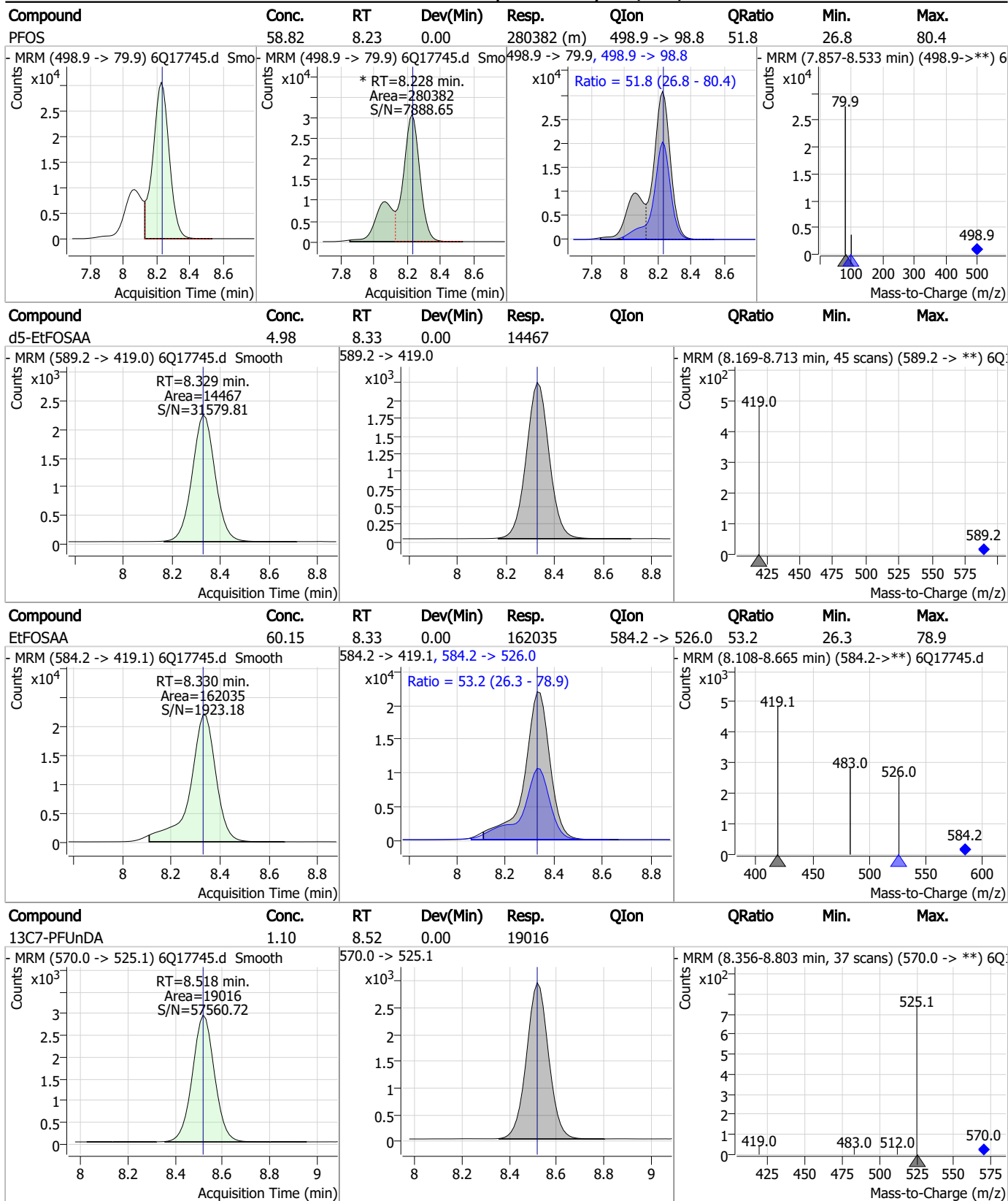
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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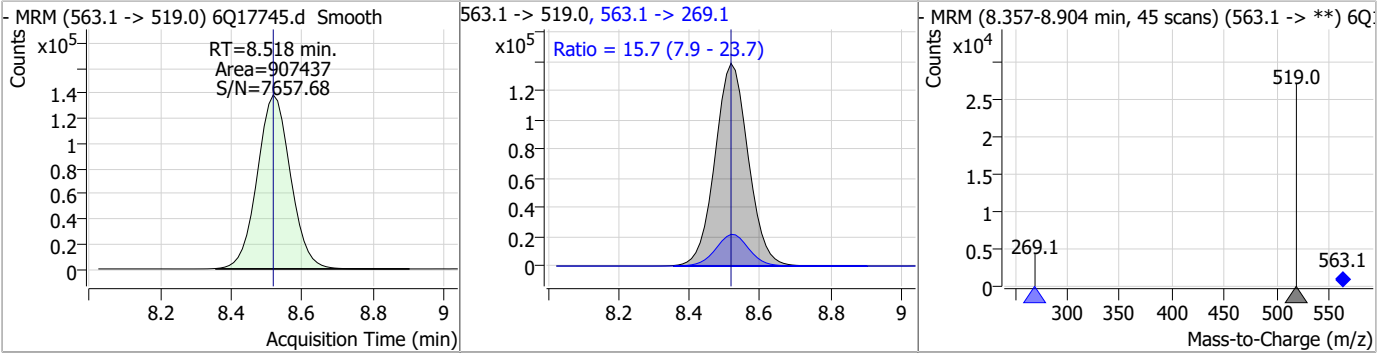
Perfluorinated Compounds by LC/MS/MS



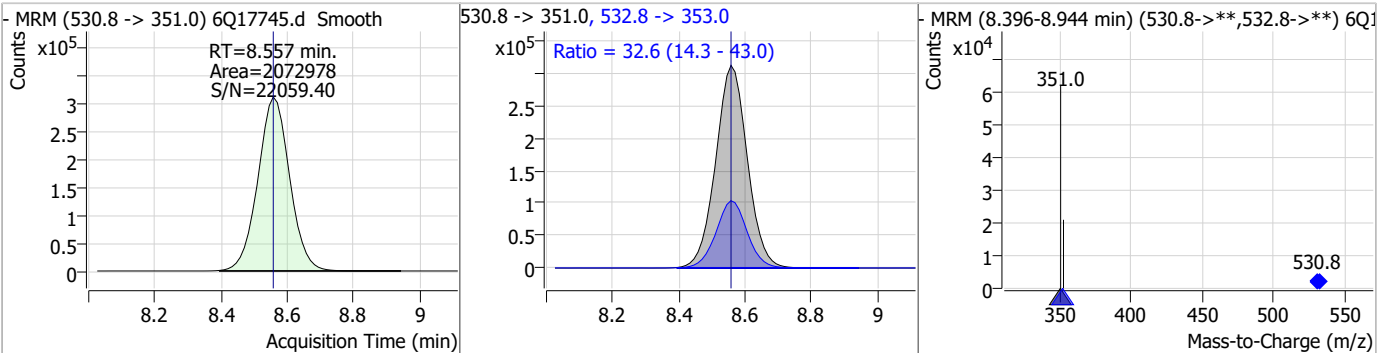
7.7.9
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Perfluorinated Compounds by LC/MS/MS

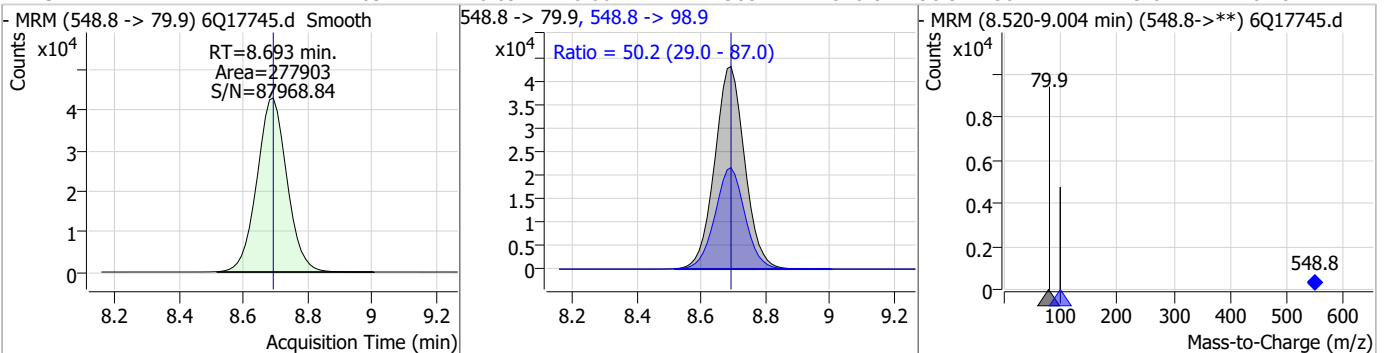
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	65.70	8.52	0.00	907437	563.1 -> 269.1	15.7	7.9	23.7



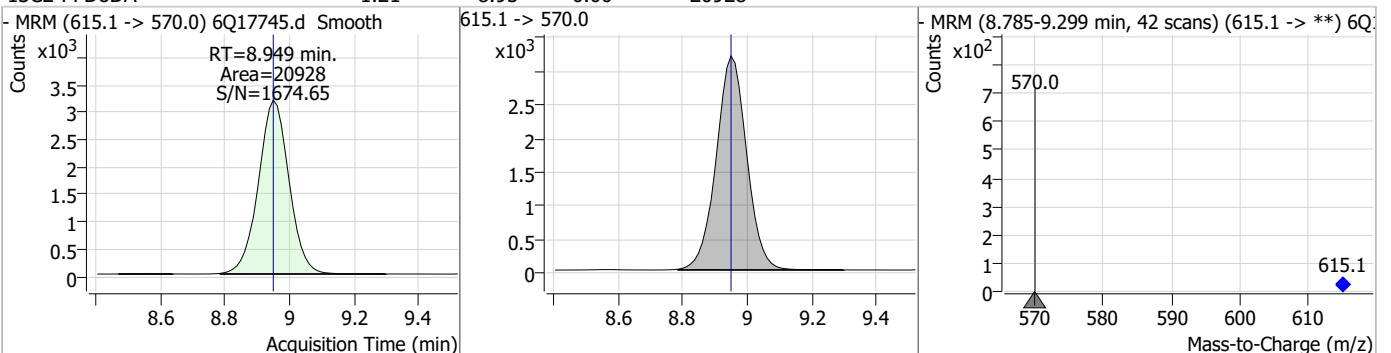
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	102.56	8.56	0.00	2072978	532.8 -> 353.0	32.6	14.3	43.0



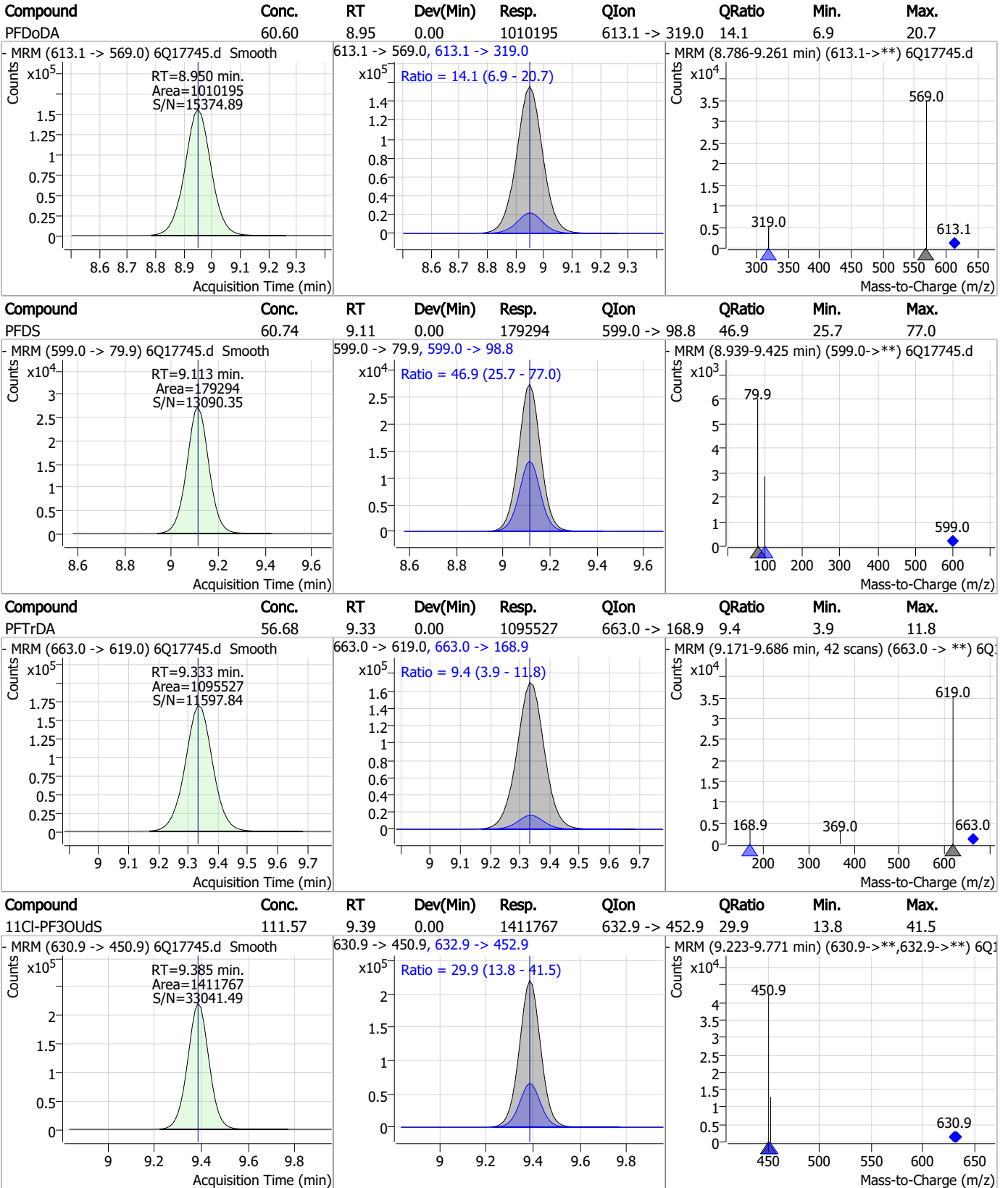
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	63.21	8.69	0.00	277903	548.8 -> 98.9	50.2	29.0	87.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.21	8.95	0.00	20928	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS



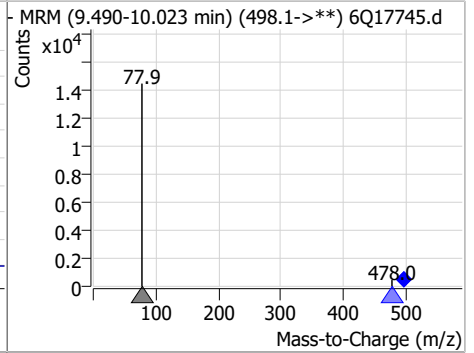
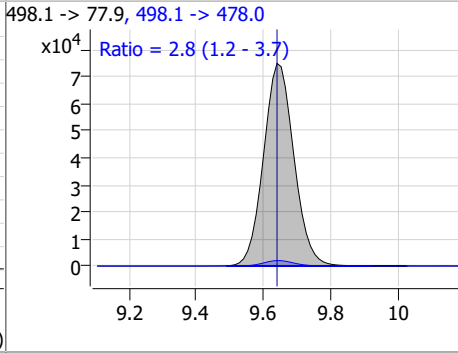
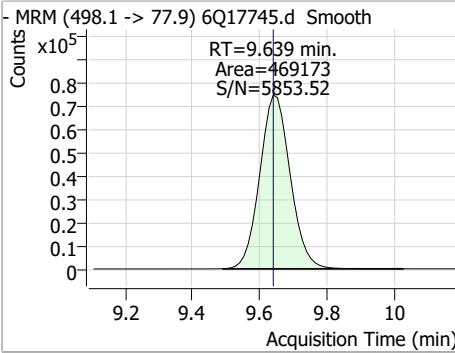
7.7.9

7

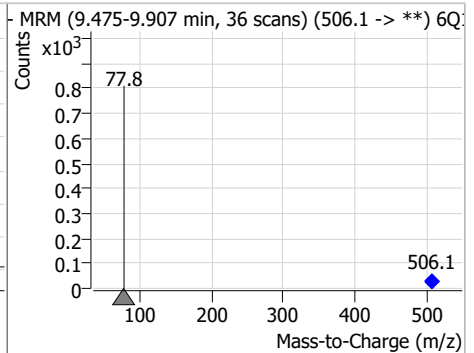
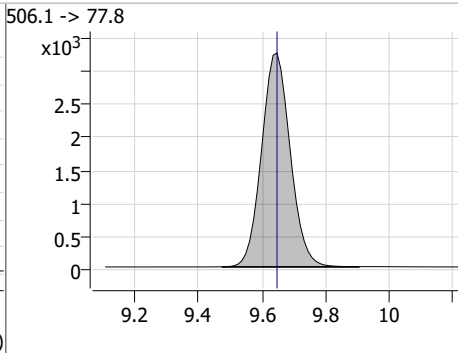
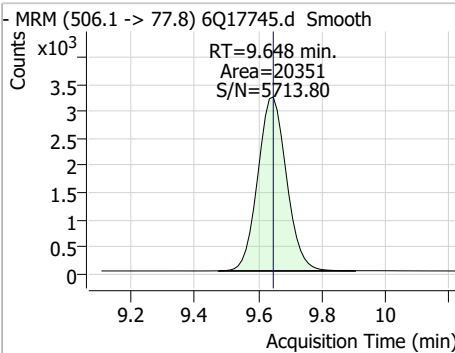


Perfluorinated Compounds by LC/MS/MS

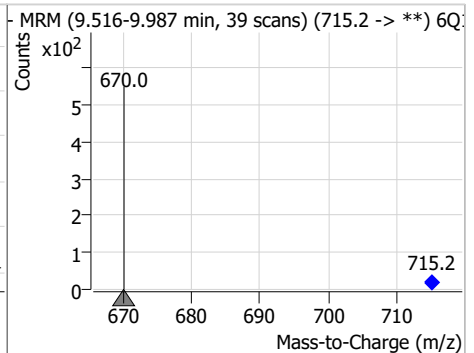
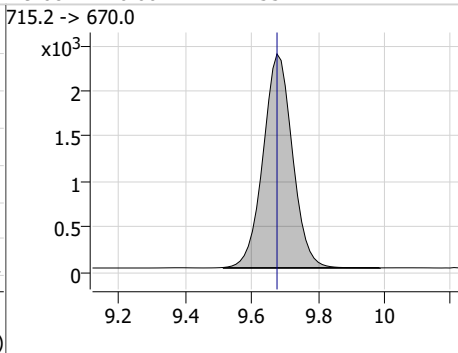
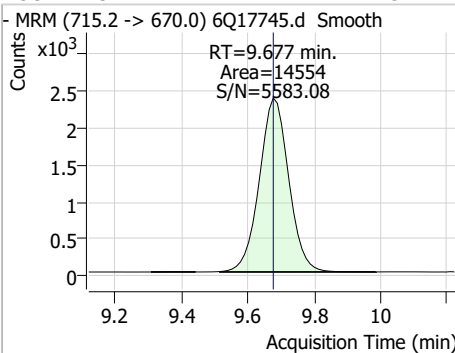
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	61.59	9.64	0.00	469173	498.1 -> 478.0	2.8	1.2	3.7



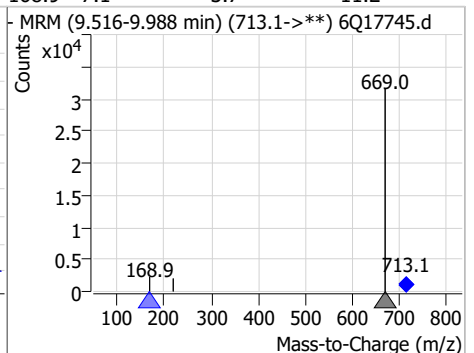
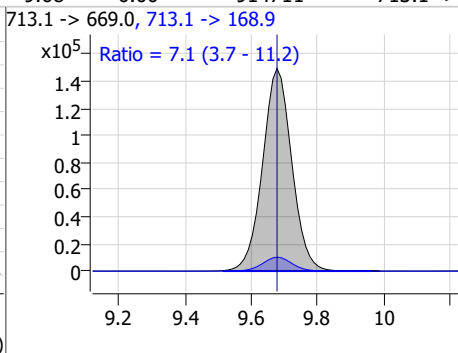
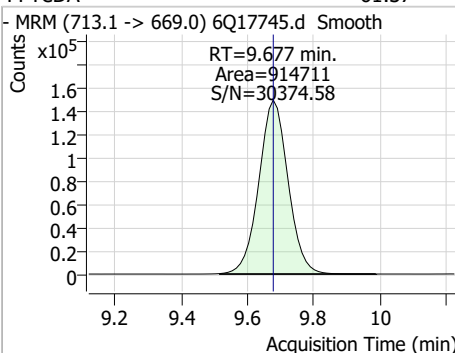
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.62	9.65	0.00	20351				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.25	9.68	0.00	14554				

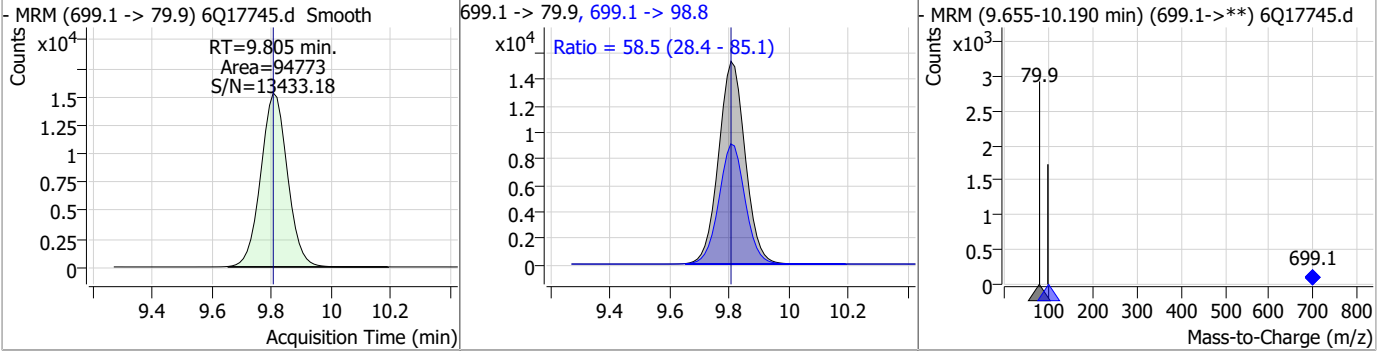


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	61.37	9.68	0.00	914711	713.1 -> 168.9	7.1	3.7	11.2

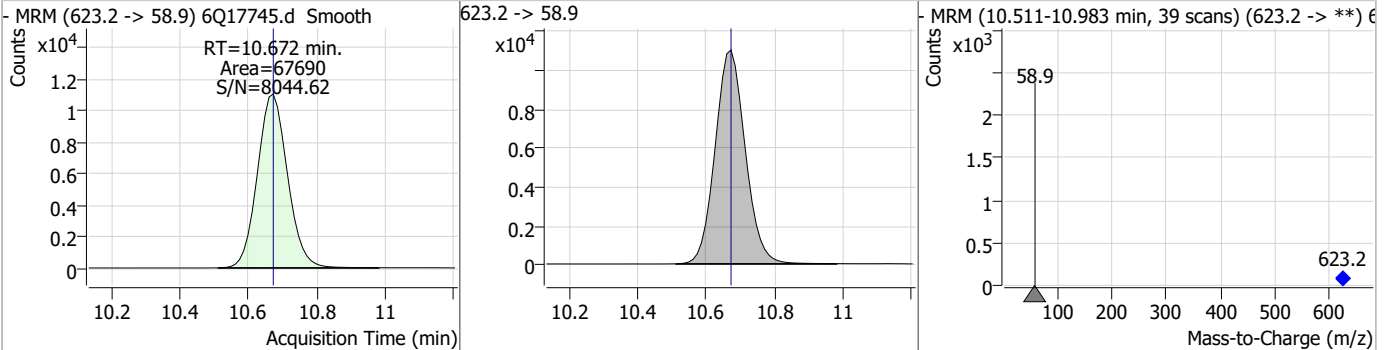


Perfluorinated Compounds by LC/MS/MS

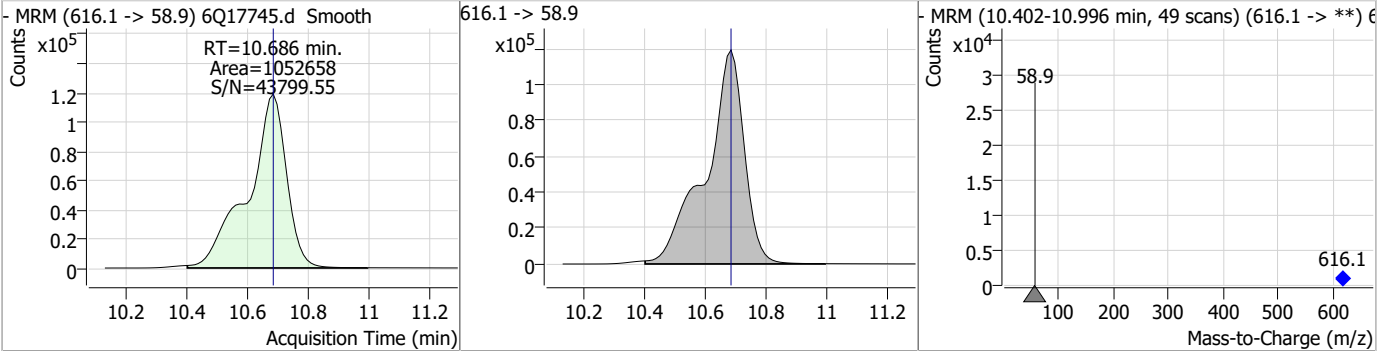
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	60.74	9.81	0.00	94773	699.1 -> 98.8	58.5	28.4	85.1



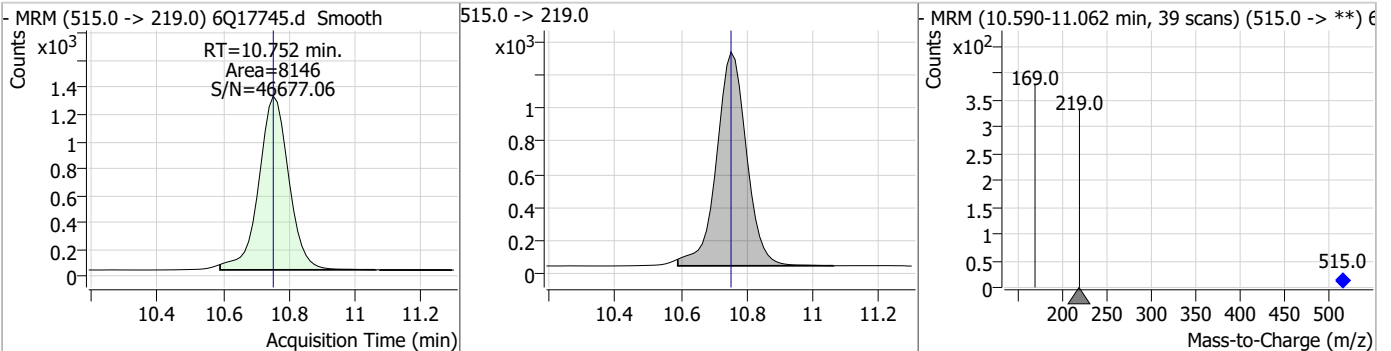
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.46	10.67	0.00	67690				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	332.43	10.69	0.00	1052658				

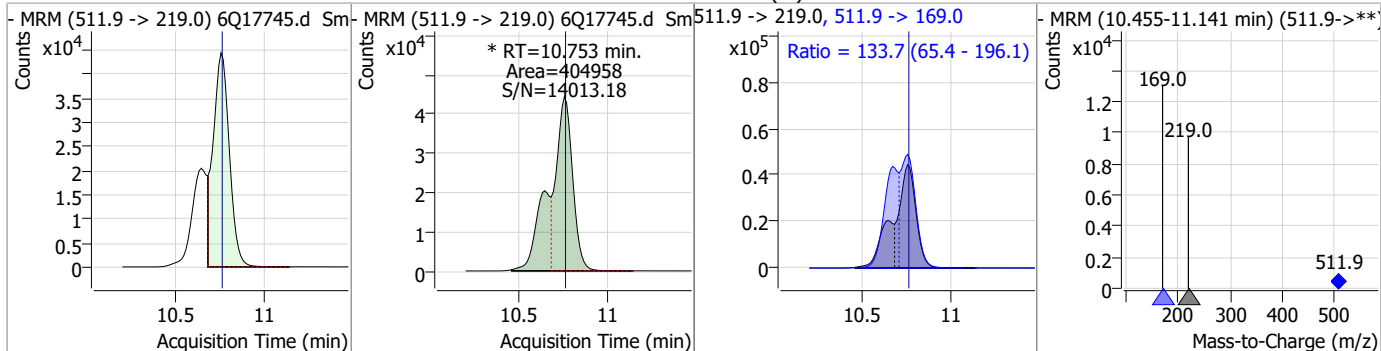


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.88	10.75	0.00	8146				

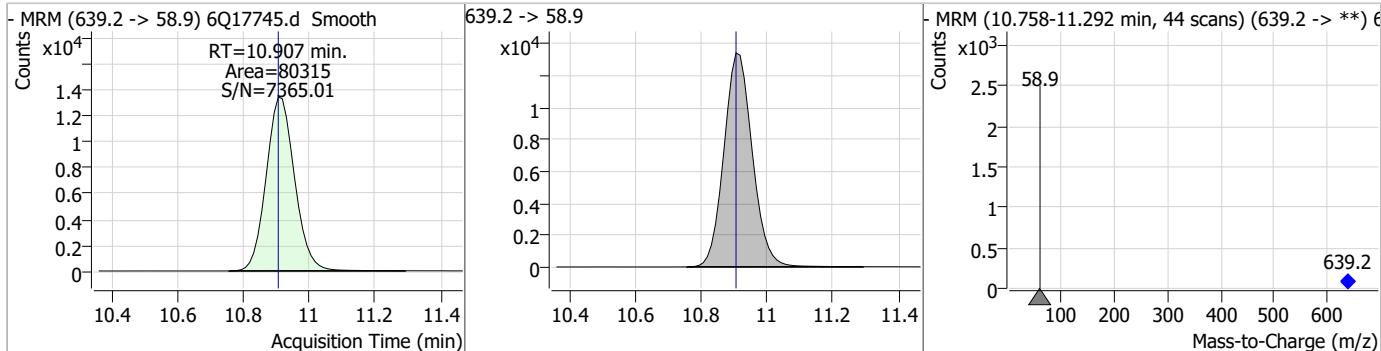


Perfluorinated Compounds by LC/MS/MS

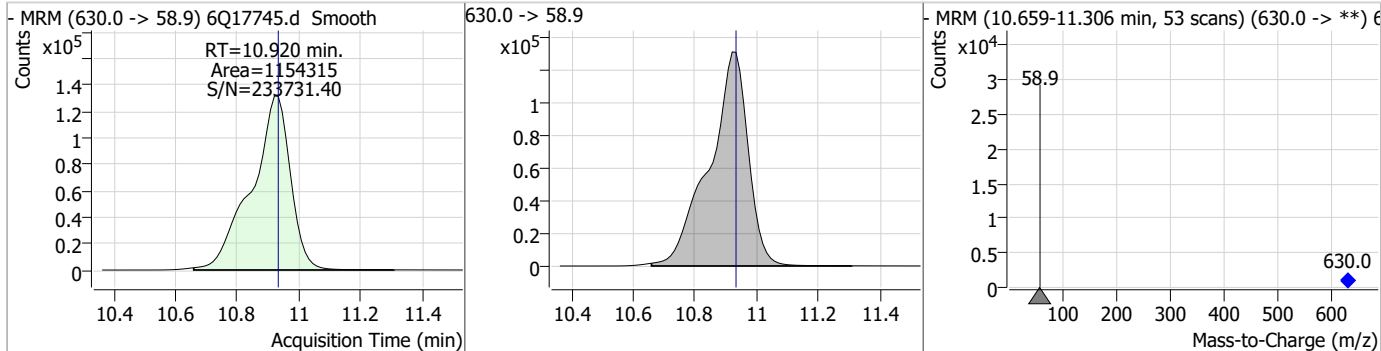
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	107.96	10.75	0.00	404958 (m)	511.9 -> 169.0	133.7	65.4	196.1



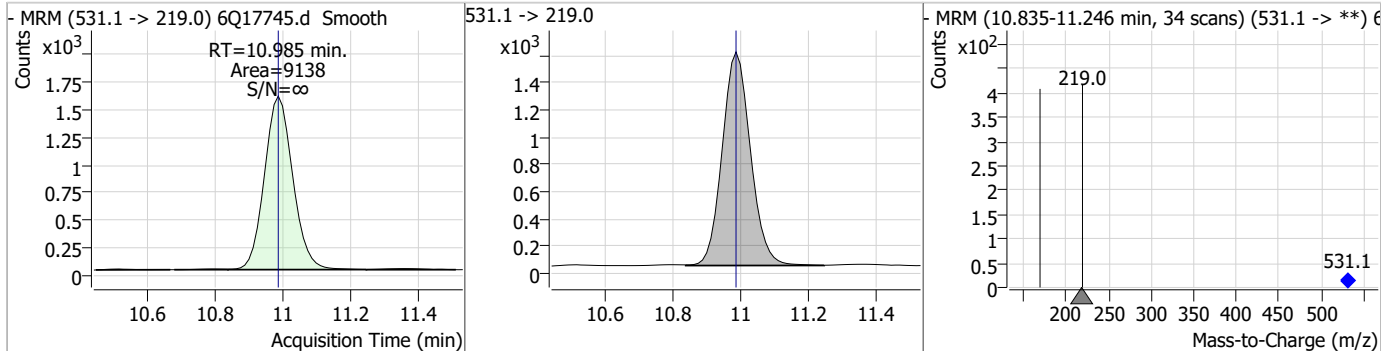
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.04	10.91	0.00	80315				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	329.81	10.92	-0.01	1154315				

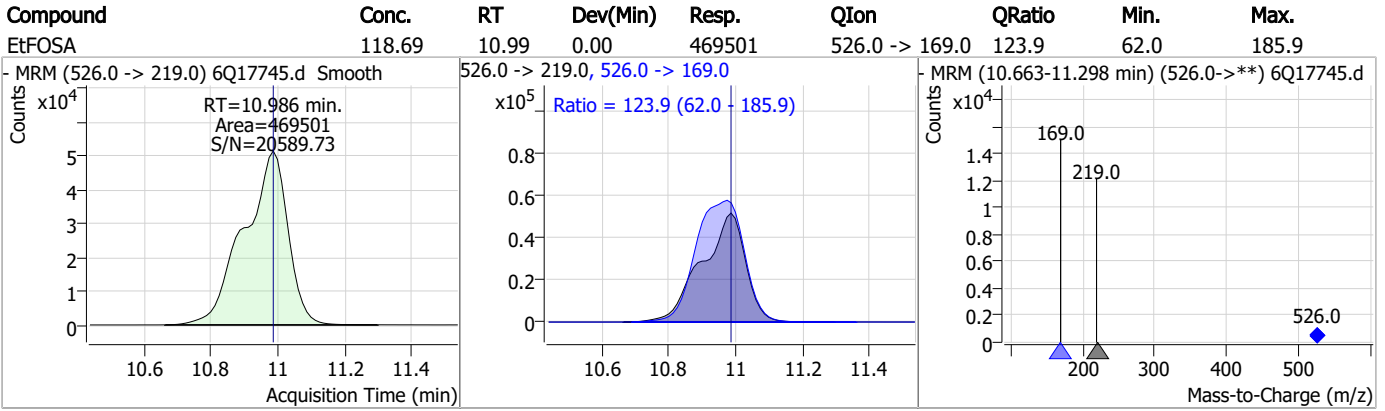


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.68	10.98	0.00	9138				



7.7.9
7

Perfluorinated Compounds by LC/MS/MS



7.7.9

7

Manual Integration Approval Summary

Sample Number: S6Q268-IC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17745.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 13:56 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.9.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17747.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 2:25:48 PM
 Sample Name : icv268-4
 Vial : P1-B1
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	157793	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	49124	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	56815	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	48361	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	70593	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	25116	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	16036	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	23458	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	22805	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	14383	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	21336	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	18481	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11322	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	9961	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1510	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2142	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2123	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	20167	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	33862	10.00 µg/L	0.000
M5-EtFOSAA	8.329	589.2 -> 419.0	16059	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	78245	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	94746	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	9021	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7755	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12097	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	66700	5.00 µg/L	0.000
18O2-PFHxS	7.178	403.0 -> 83.9	8658	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	77916	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	21444	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	24536	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	47258	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1510	4.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2142	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2123	4.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-PFDoDA	8.949	615.1 -> 570.0	22805	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.677	715.2 -> 670.0	14383	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFBS	5.397	302.1 -> 79.9	18481	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	11322	2.45 µg/L	0.012

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 = 98.2%	
13C4-PFBA	2.901	216.8 -> 171.9	157793	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.420	367.1 -> 322.0	48361	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFHxA	5.466	318.0 -> 273.0	56815	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFPeA	4.272	268.3 -> 223.0	49124	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C6-PFDA	8.064	519.1 -> 474.1	16036	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C7-PFUnDA	8.518	570.0 -> 525.1	23458	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-FOSA	9.648	506.1 -> 77.8	21336	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C8-PFOA	7.064	421.1 -> 376.0	70593	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C8-PFOS	8.226	507.1 -> 79.9	9961	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C9-PFNA	7.583	472.1 -> 427.0	25116	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.8%	
d3-MeFOSAA	8.121	573.2 -> 419.0	20167	5.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33862	9.79 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d3-MeFOSA	10.752	515.0 -> 219.0	7755	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
d5-EtFOSAA	8.329	589.2 -> 419.0	16059	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.1%	
d7-MeFOSE	10.672	623.2 -> 58.9	78245	26.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d9-EtFOSE	10.907	639.2 -> 58.9	94746	26.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
d5-EtFOSA	10.984	531.1 -> 219.0	9021	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	22950	10.11 µg/L	98
		327.1 -> 80.9	8288		
6:2FTS	6.838	427.1 -> 407.0	21472	9.21 µg/L	98
		427.1 -> 80.9	7176		
8:2FTS	7.865	527.1 -> 507.0	12764	10.58 µg/L	99
		527.1 -> 80.8	5168		
EtFOSAA	8.330	584.2 -> 419.1	7500	2.51 µg/L	92
		584.2 -> 526.0	3499		
FOSA	9.639	498.1 -> 77.9	18882	2.36 µg/L	99
		498.1 -> 478.0	540		
MeFOSAA	8.134	570.1 -> 419.0	9520	2.44 µg/L	94
		570.1 -> 483.0	1632		
PFBA	2.907	212.8 -> 168.9	55301	9.77 µg/L	100
PFBS	5.398	298.7 -> 79.9	19811	2.20 µg/L	94
		298.7 -> 98.8	7987		
PFDA	8.064	512.9 -> 469.0	54604	2.75 µg/L	97
		512.9 -> 219.0	8340		
PFDoDA	8.950	613.1 -> 569.0	42572	2.34 µg/L	97
		613.1 -> 319.0	6421		
PFDS	9.113	599.0 -> 79.9	7802	2.41 µg/L	95

7.7.10
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3720			
PFHpA	6.420	363.1 -> 319.0	63119	2.61	µg/L	97
		363.1 -> 169.0	9413			
PFHpS	7.735	449.0 -> 79.9	11714	2.20	µg/L	94
		449.0 -> 98.9	5632			
PFHxA	5.469	313.0 -> 269.0	56061	2.49	µg/L	99
		313.0 -> 118.9	2596			
PFHxS	7.180	398.7 -> 79.9	13974	2.23	µg/L	m 98
		398.7 -> 98.9	6739			
PFNA	7.596	463.0 -> 419.0	42196	2.26	µg/L	99
		463.0 -> 219.0	8543			
PFNS	8.681	548.8 -> 79.9	11671	2.42	µg/L	94
		548.8 -> 98.9	6247			
PFOA	7.066	413.0 -> 369.0	87008	2.48	µg/L	99
		413.0 -> 169.0	14291			
PFOS	8.228	498.9 -> 79.9	12550	2.40	µg/L	m 92
		498.9 -> 98.8	6054			
PFPeA	4.274	263.0 -> 219.0	71212	5.02	µg/L	100
PFPeS	6.471	349.1 -> 79.9	14338	2.31	µg/L	98
		349.1 -> 98.9	6598			
PFTeDA	9.677	713.1 -> 669.0	38604	2.62	µg/L	98
		713.1 -> 168.9	2639			
PFTrDA	9.333	663.0 -> 619.0	49815	2.37	µg/L	97
		663.0 -> 168.9	4406			
PFUnDA	8.518	563.1 -> 519.0	40894	2.40	µg/L	97
		563.1 -> 269.1	6014			
11CI-PF3OUdS	9.385	630.9 -> 450.9	58683	4.59	µg/L	87
		632.9 -> 452.9	20290			
9CI-PF3ONS	8.557	530.8 -> 351.0	94320	4.61	µg/L	97
		532.8 -> 353.0	28382			
ADONA	6.671	376.9 -> 250.9	249225	4.62	µg/L	93
		376.9 -> 84.8	67794			
HFPO-DA	5.832	284.9 -> 168.9	16929	5.17	µg/L	97
		284.9 -> 184.9	2081			
3:3FTCA	3.777	241.0 -> 177.0	10798	12.28	µg/L	100
		241.0 -> 117.0	1440			
5:3FTCA	6.161	341.0 -> 237.1	226576	58.11	µg/L	97
		341.0 -> 217.0	171261			
7:3FTCA	7.586	441.0 -> 316.9	108717	61.46	µg/L	95
		441.0 -> 336.9	236679			
EtFOSA	10.986	526.0 -> 219.0	20068	5.14	µg/L	97
		526.0 -> 169.0	24143			
EtFOSE	10.920	630.0 -> 58.9	49050	11.88	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	17371	4.86	µg/L	m 92
		511.9 -> 169.0	24234			
MeFOSE	10.686	616.1 -> 58.9	45883	12.54	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	4310	2.52	µg/L	95
		699.1 -> 98.8	2301			
NFDHA	5.348	295.0 -> 201.0	12022	4.84	µg/L	98
		295.0 -> 84.9	3190			
PFMBA	4.675	279.0 -> 85.1	50744	5.01	µg/L	100
PFMPA	3.426	229.0 -> 84.9	36440	5.00	µg/L	100
PFEESA	5.938	314.8 -> 134.9	129453	4.28	µg/L	100
		314.8 -> 82.9	4721			

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

7.7.10
7

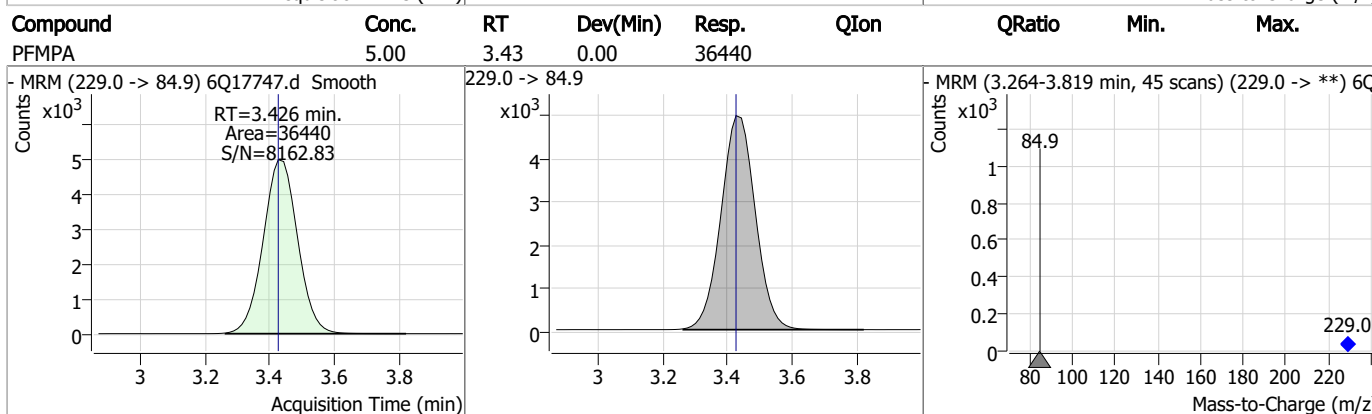
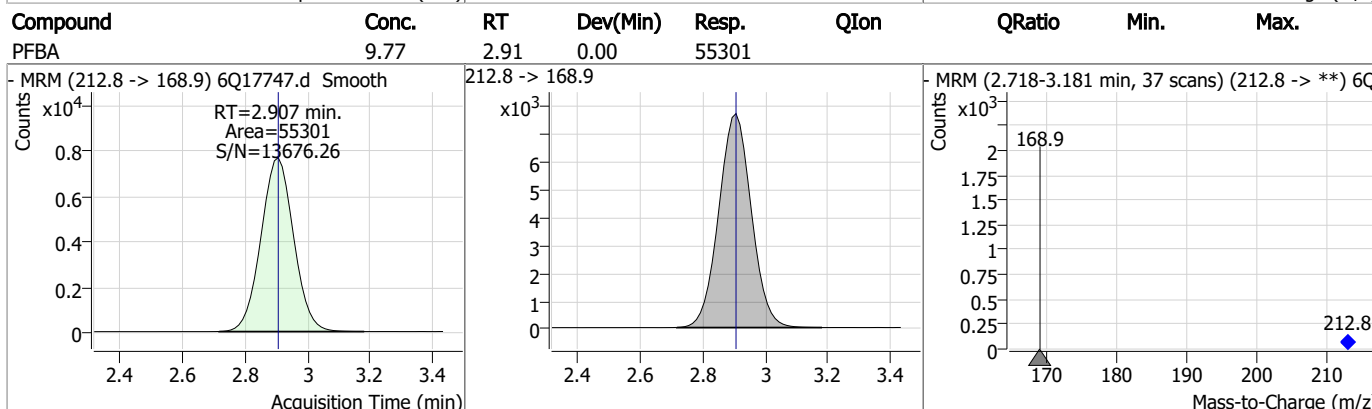
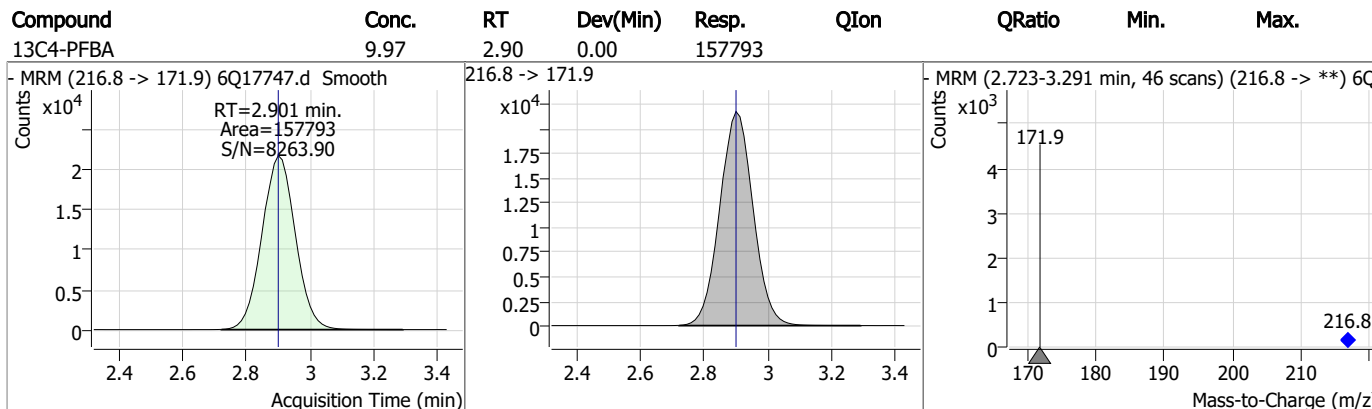
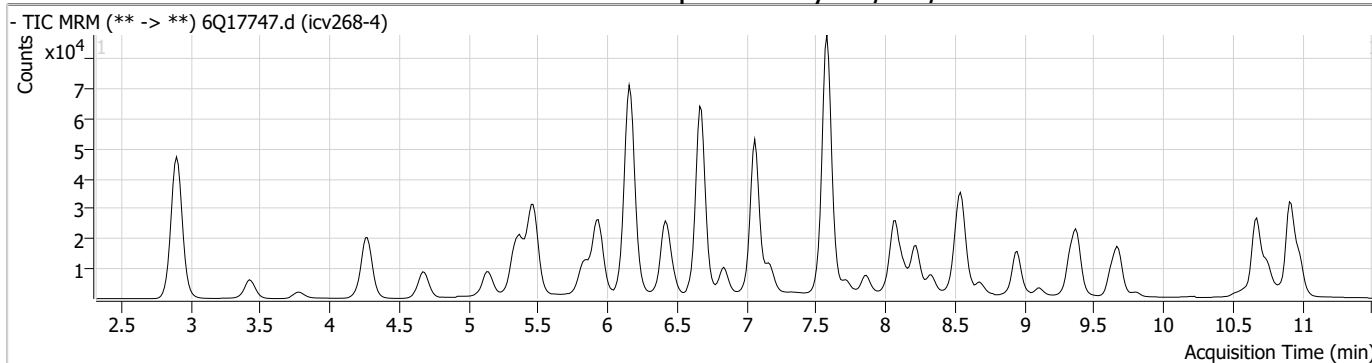
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.10

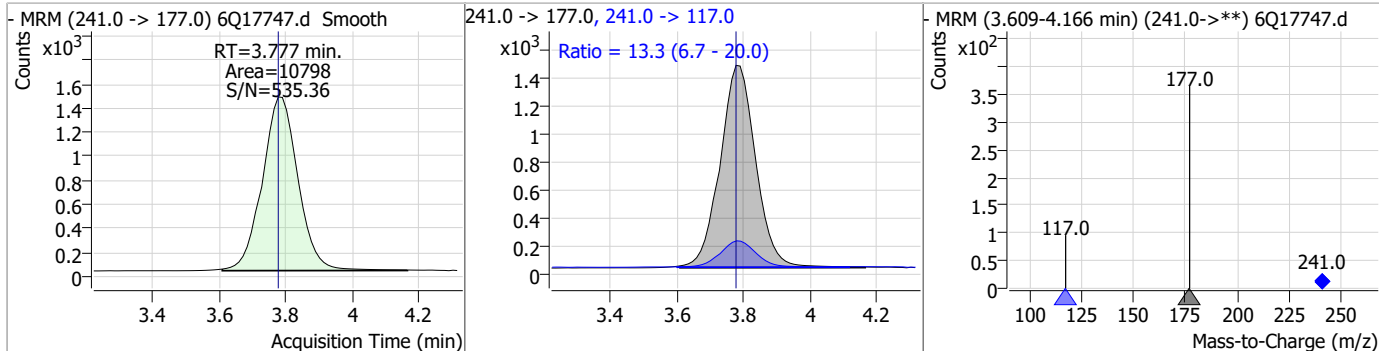
7

Perfluorinated Compounds by LC/MS/MS

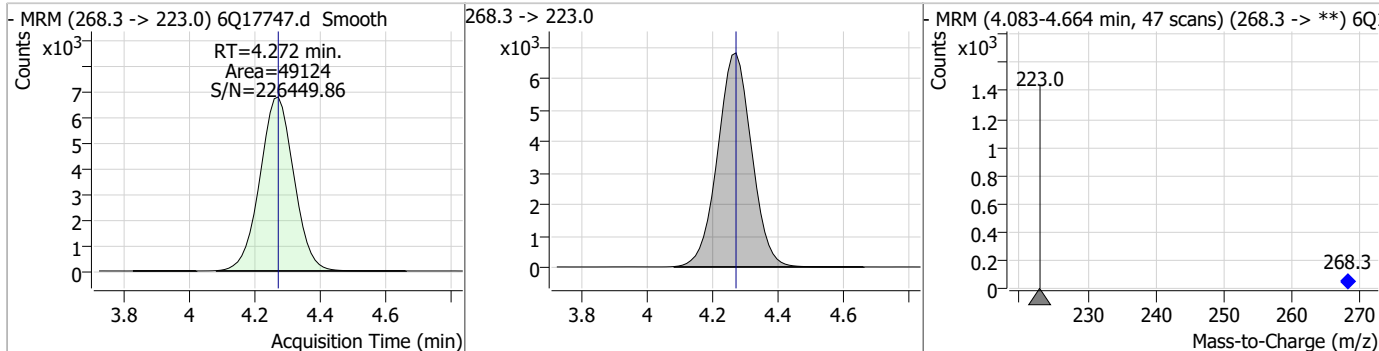


Perfluorinated Compounds by LC/MS/MS

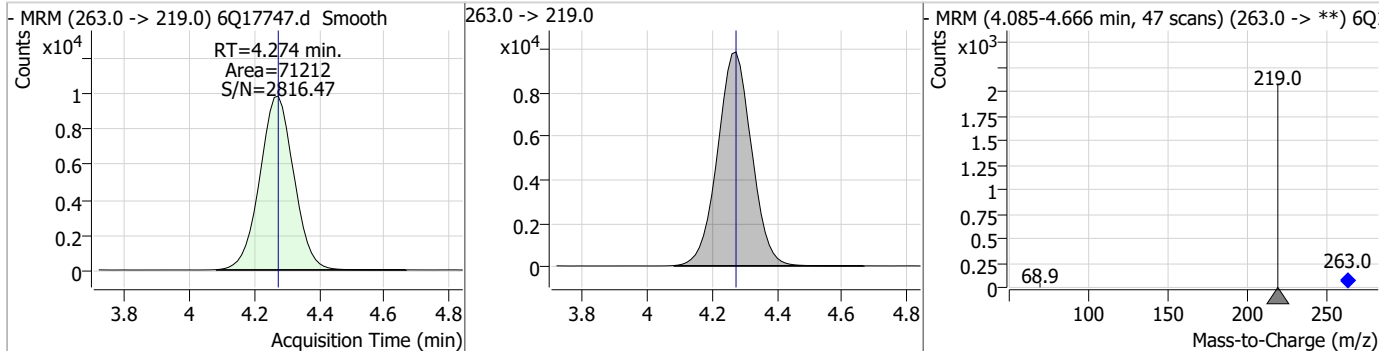
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.28	3.78	0.00	10798	241.0 -> 117.0	13.3	6.7	20.0



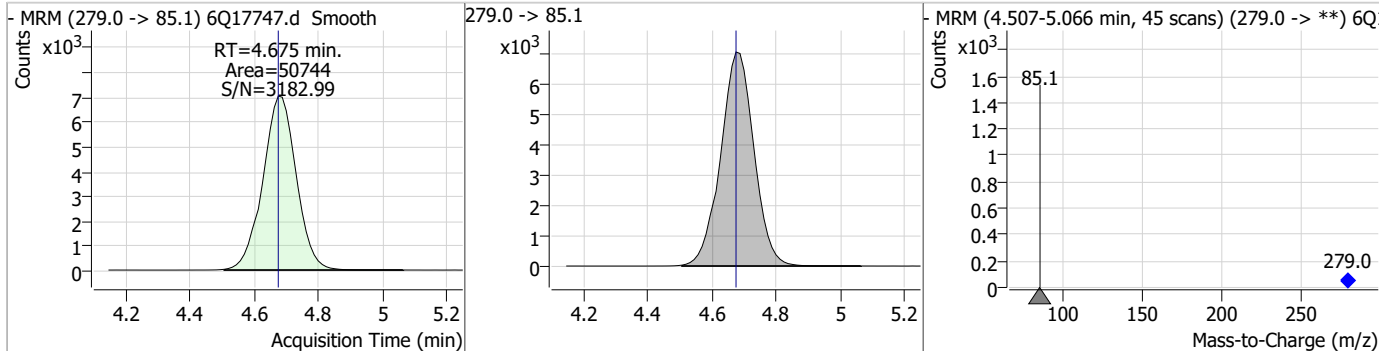
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.94	4.27	0.00	49124				



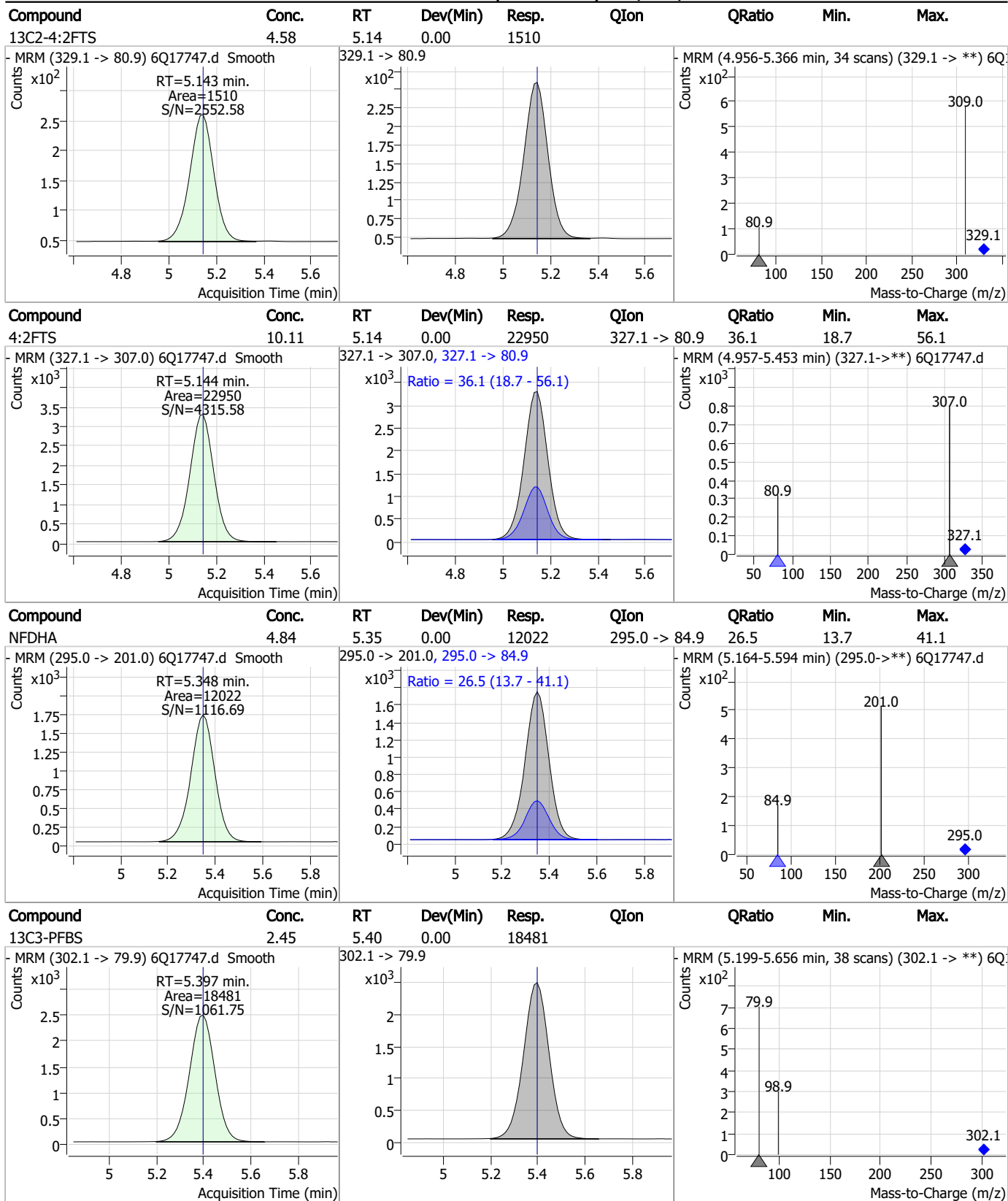
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.02	4.27	0.00	71212				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.01	4.68	0.00	50744				

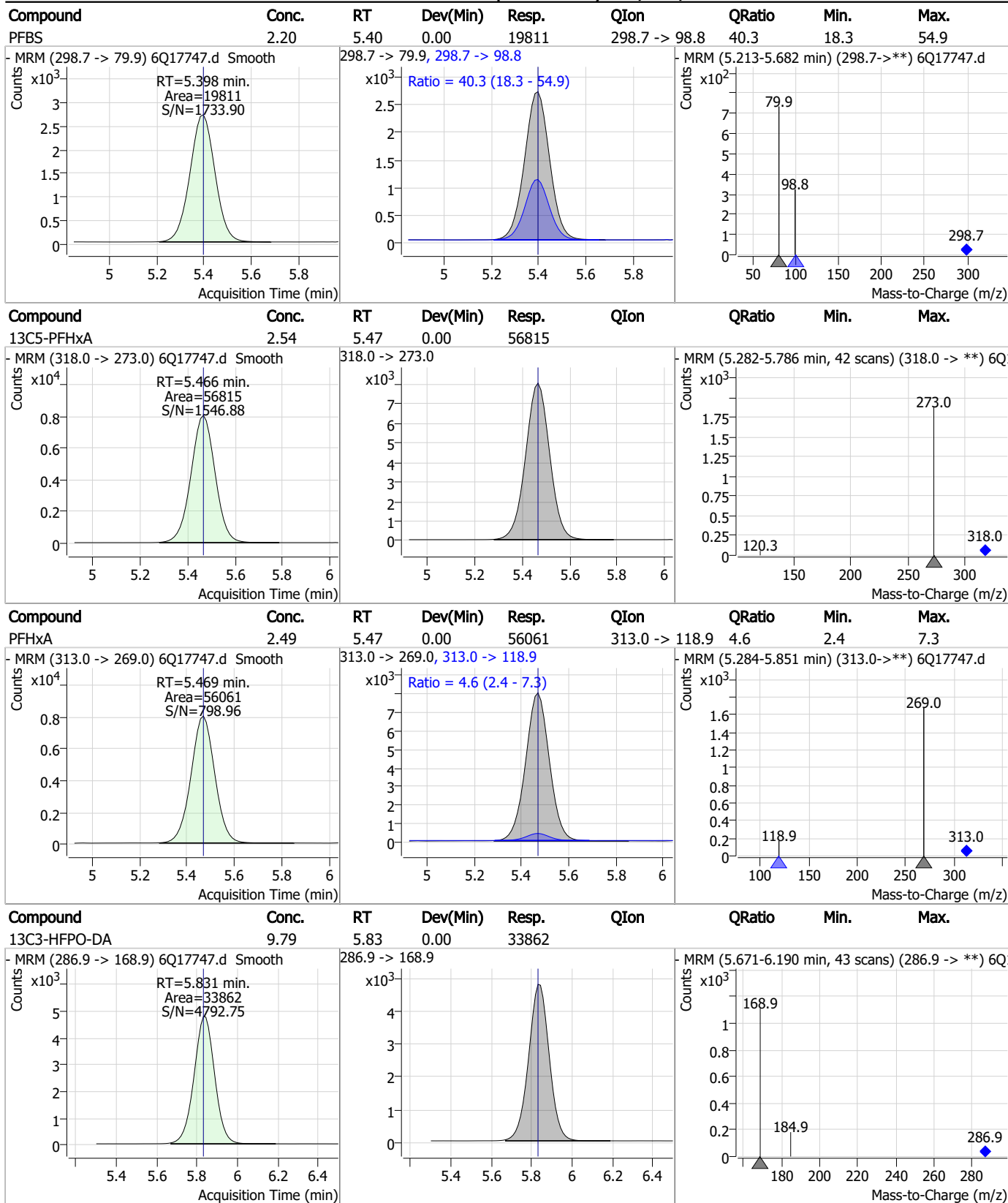


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

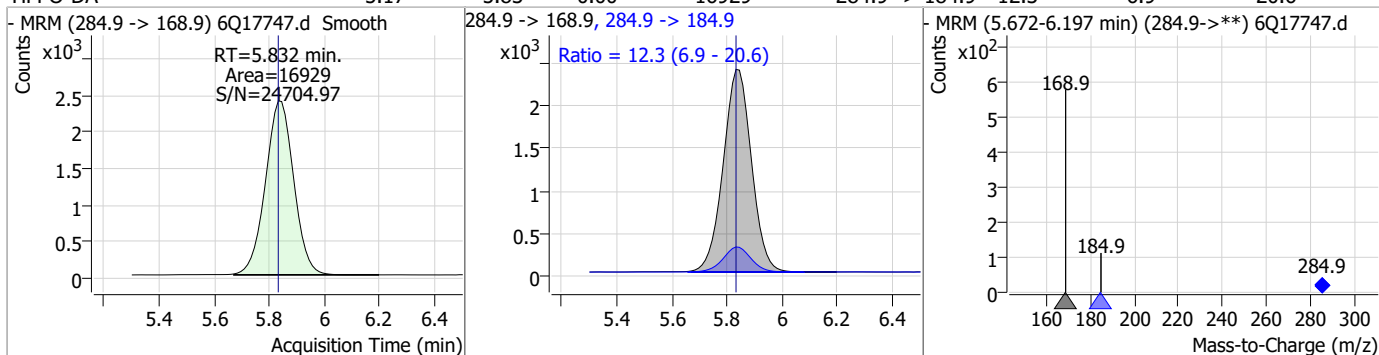
Perfluorinated Compounds by LC/MS/MS



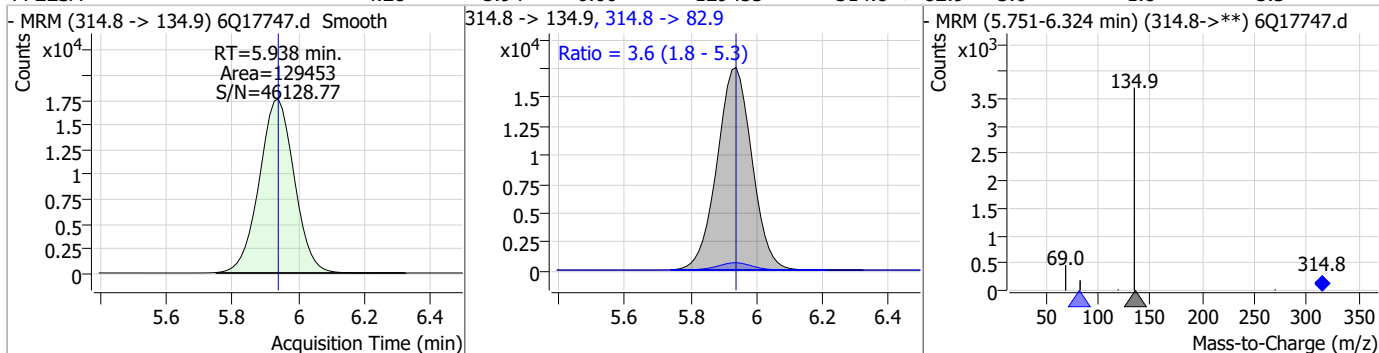
7.7.10
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Perfluorinated Compounds by LC/MS/MS

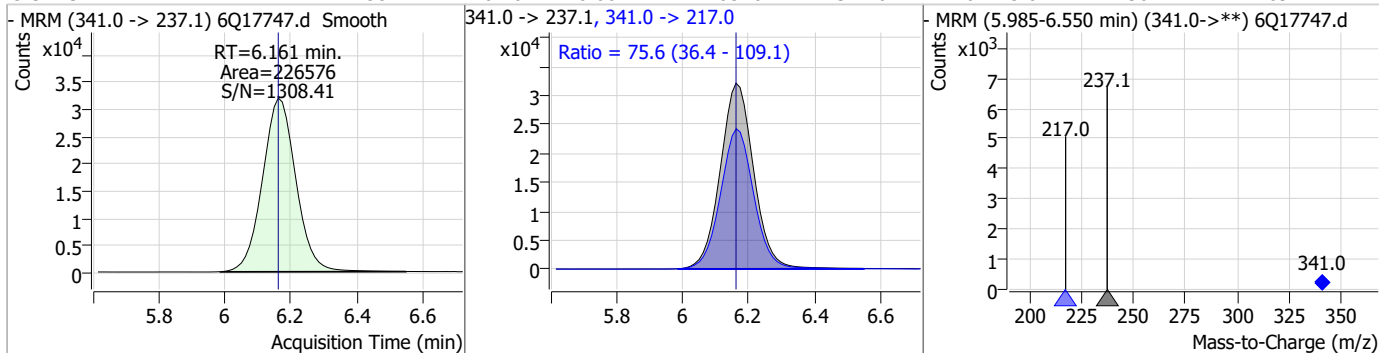
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.17	5.83	0.00	16929	284.9 -> 184.9	12.3	6.9	20.6



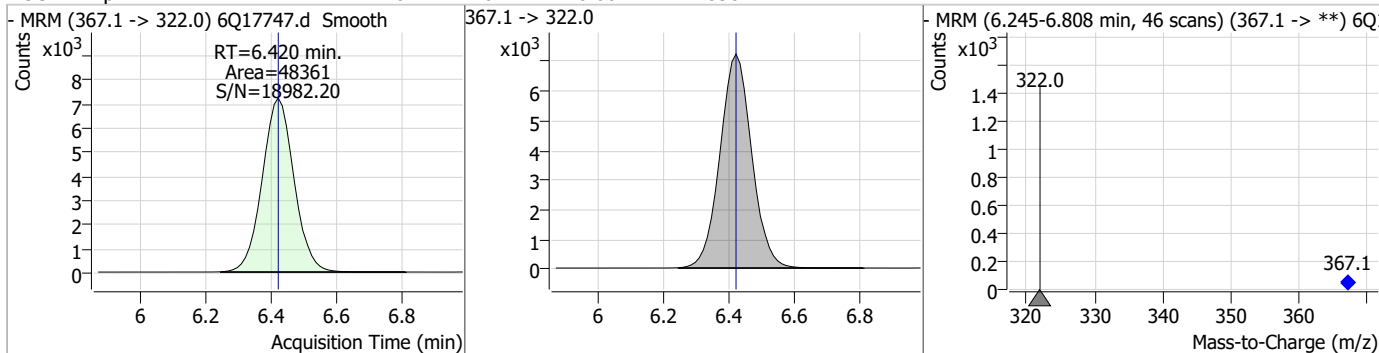
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.28	5.94	0.00	129453	314.8 -> 82.9	3.6	1.8	5.3



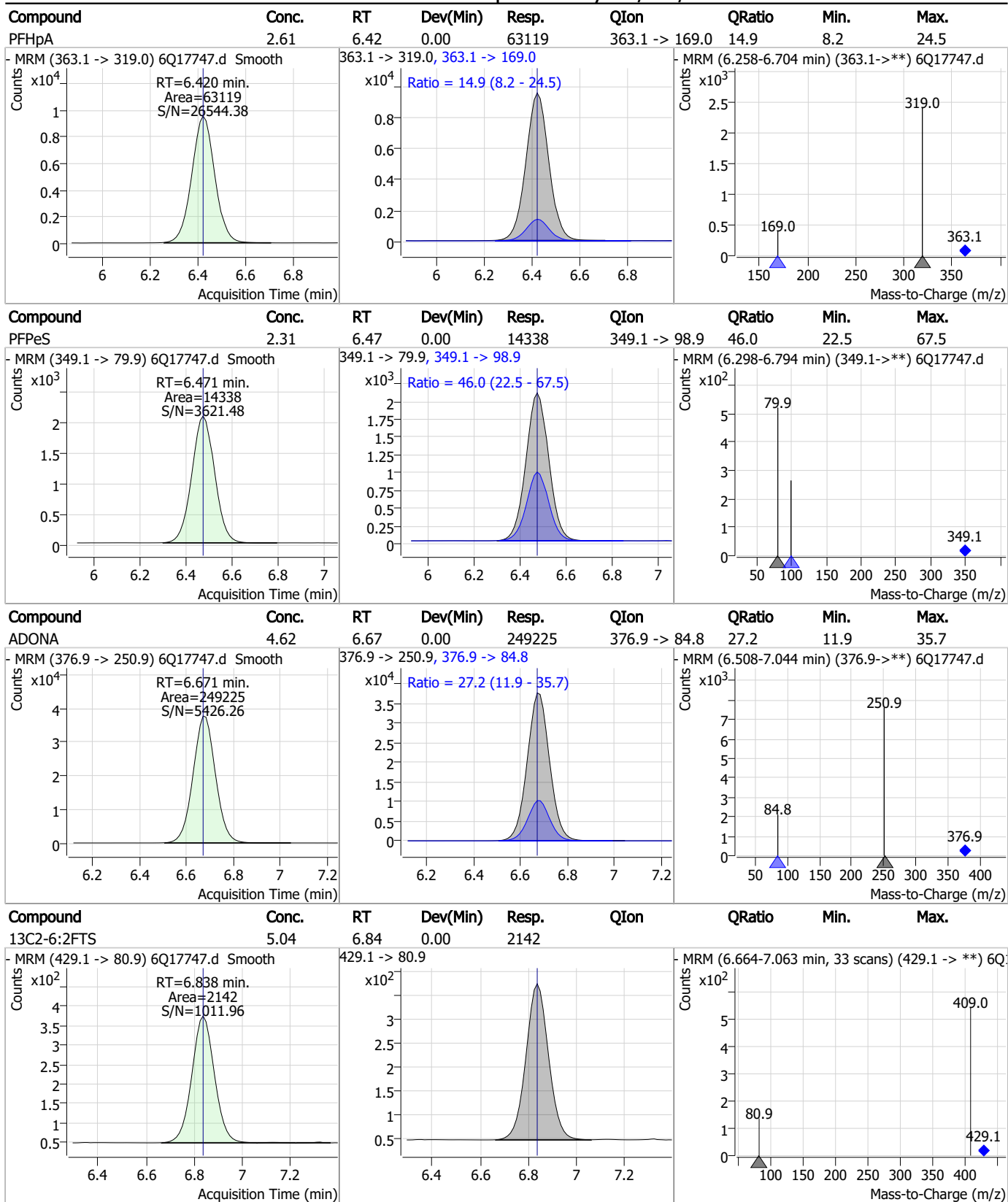
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.11	6.16	0.00	226576	341.0 -> 217.0	75.6	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.42	0.00	48361	367.1 -> 322.0			



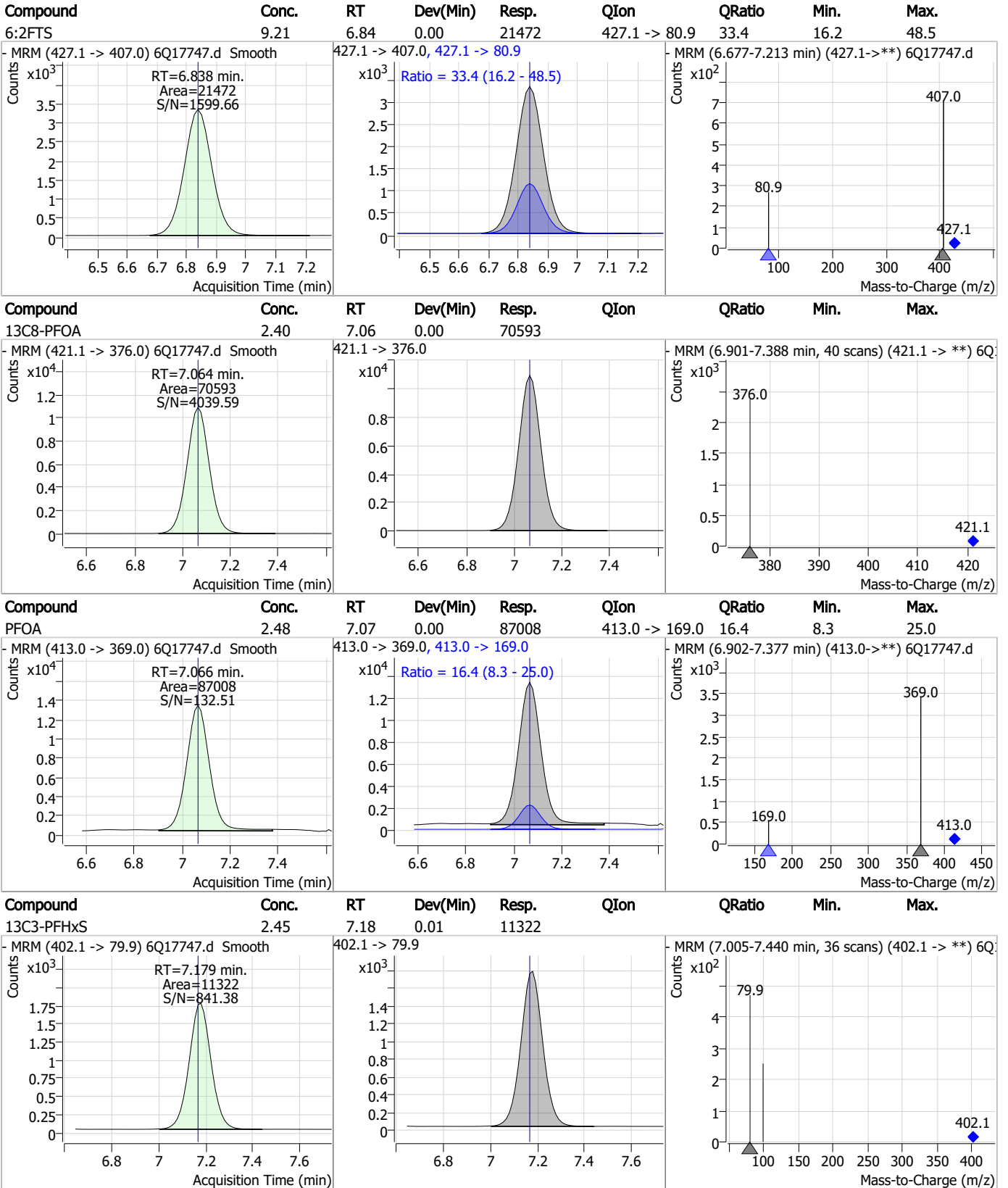
Perfluorinated Compounds by LC/MS/MS



7.7.10
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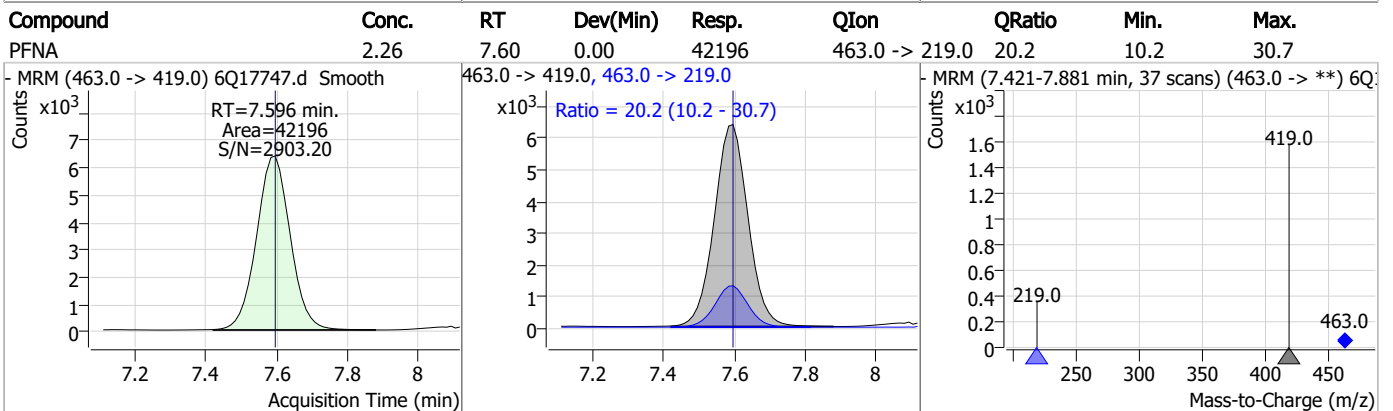
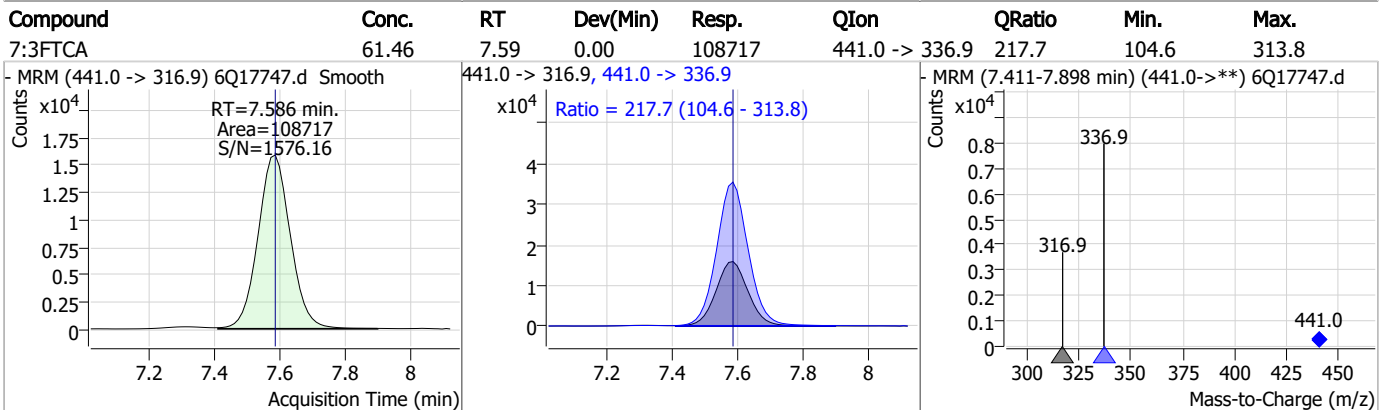
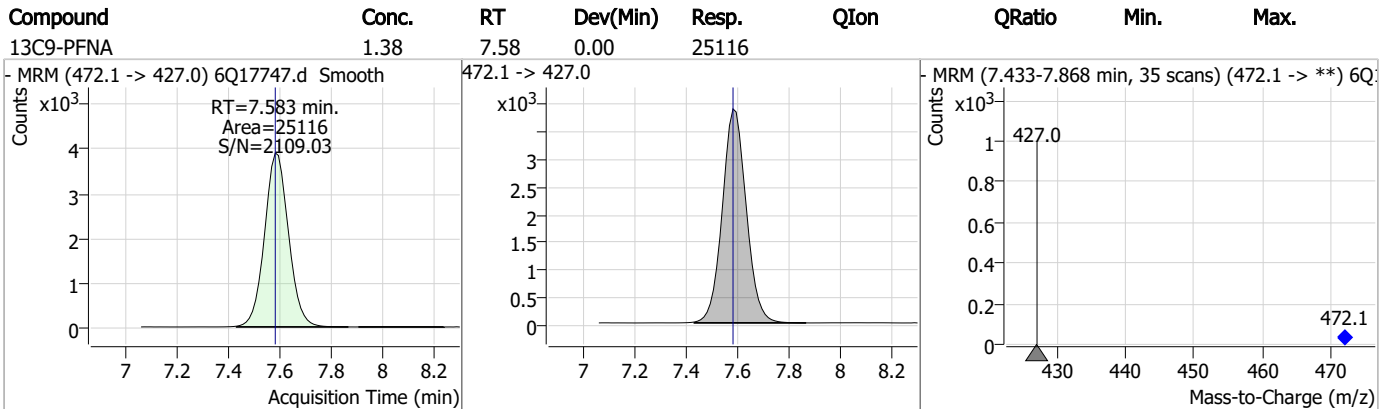
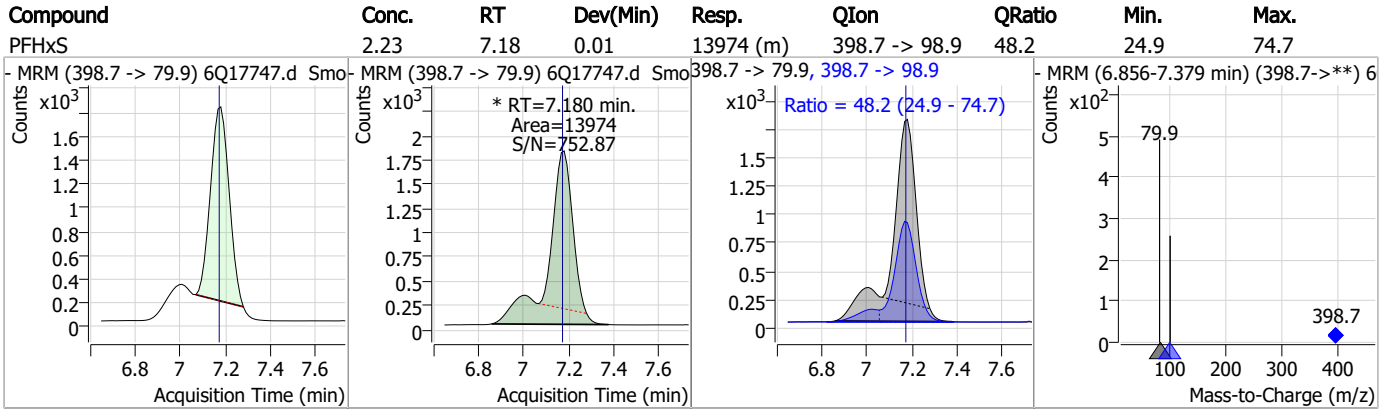


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

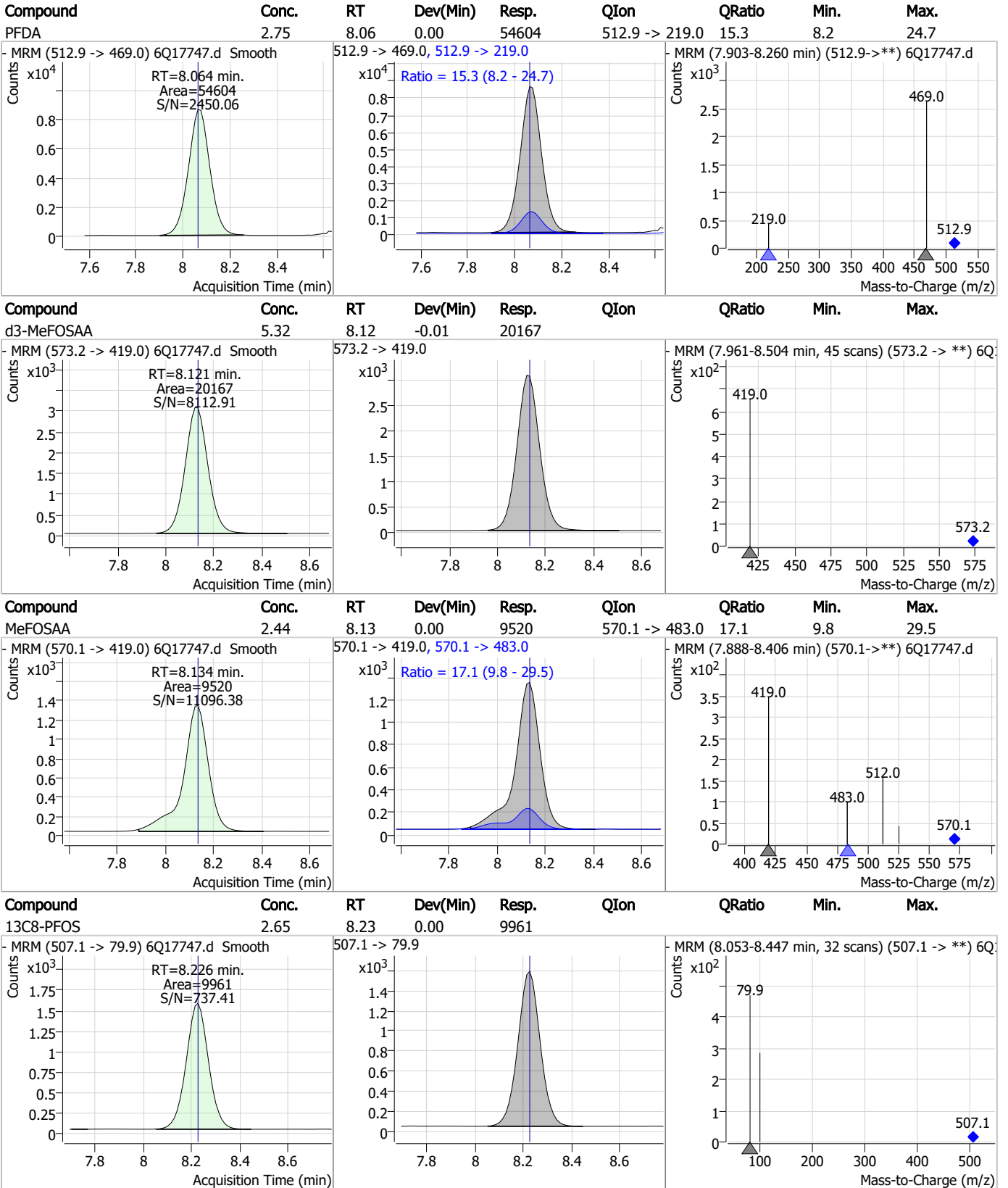
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.20	7.73	0.00	11714	449.0 -> 98.9	48.1	26.1	78.2
13C2-8:2FTS	4.64	7.86	0.00	2123	529.1 -> 80.9	40.5	20.5	61.5
8:2FTS	10.58	7.86	0.00	12764	527.1 -> 80.8	40.5	20.5	61.5
13C6-PFDA	1.14	8.06	0.00	16036	519.1 -> 474.1	40.5	20.5	61.5

7.7.10 7



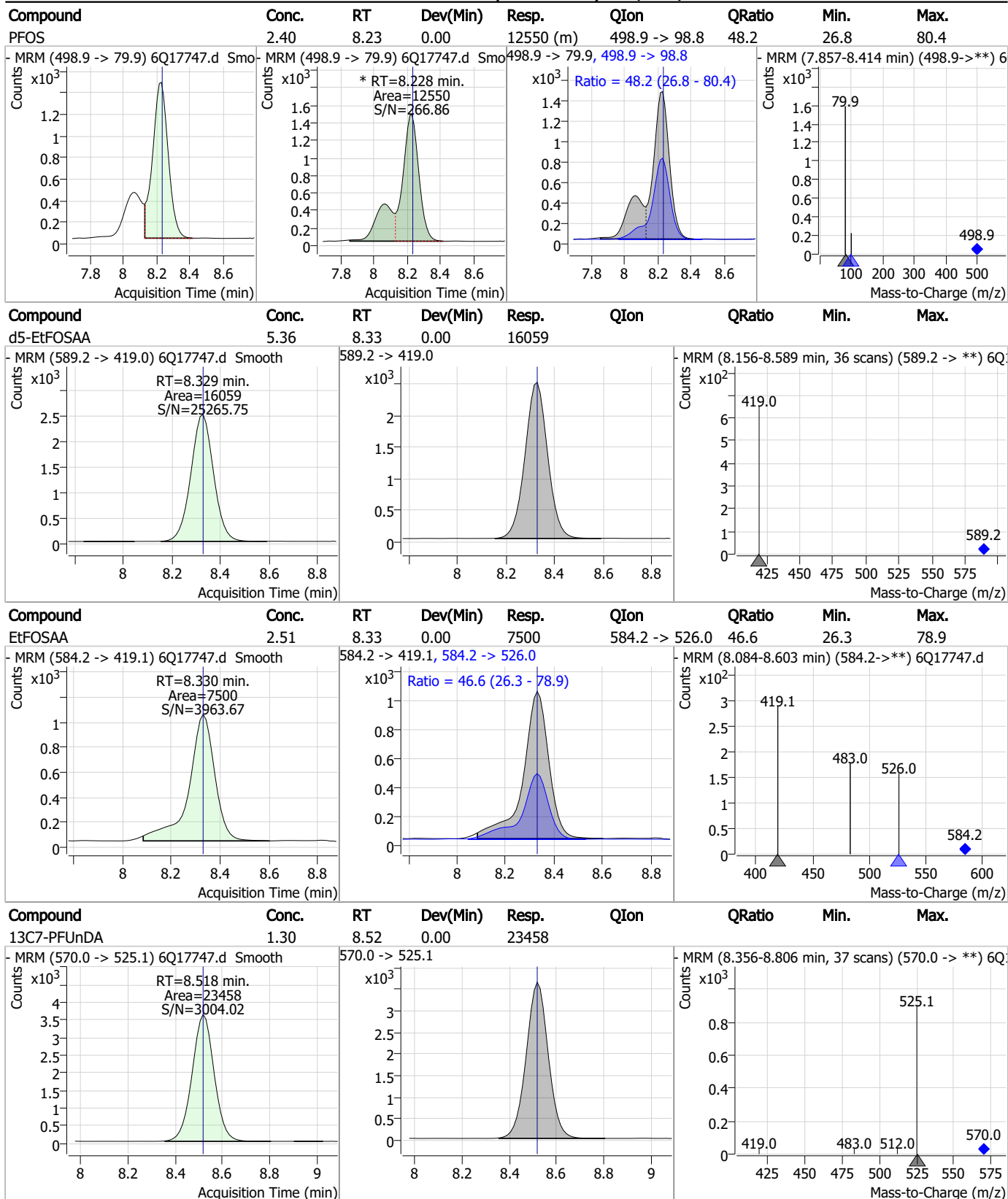
Perfluorinated Compounds by LC/MS/MS



7.7.10 7

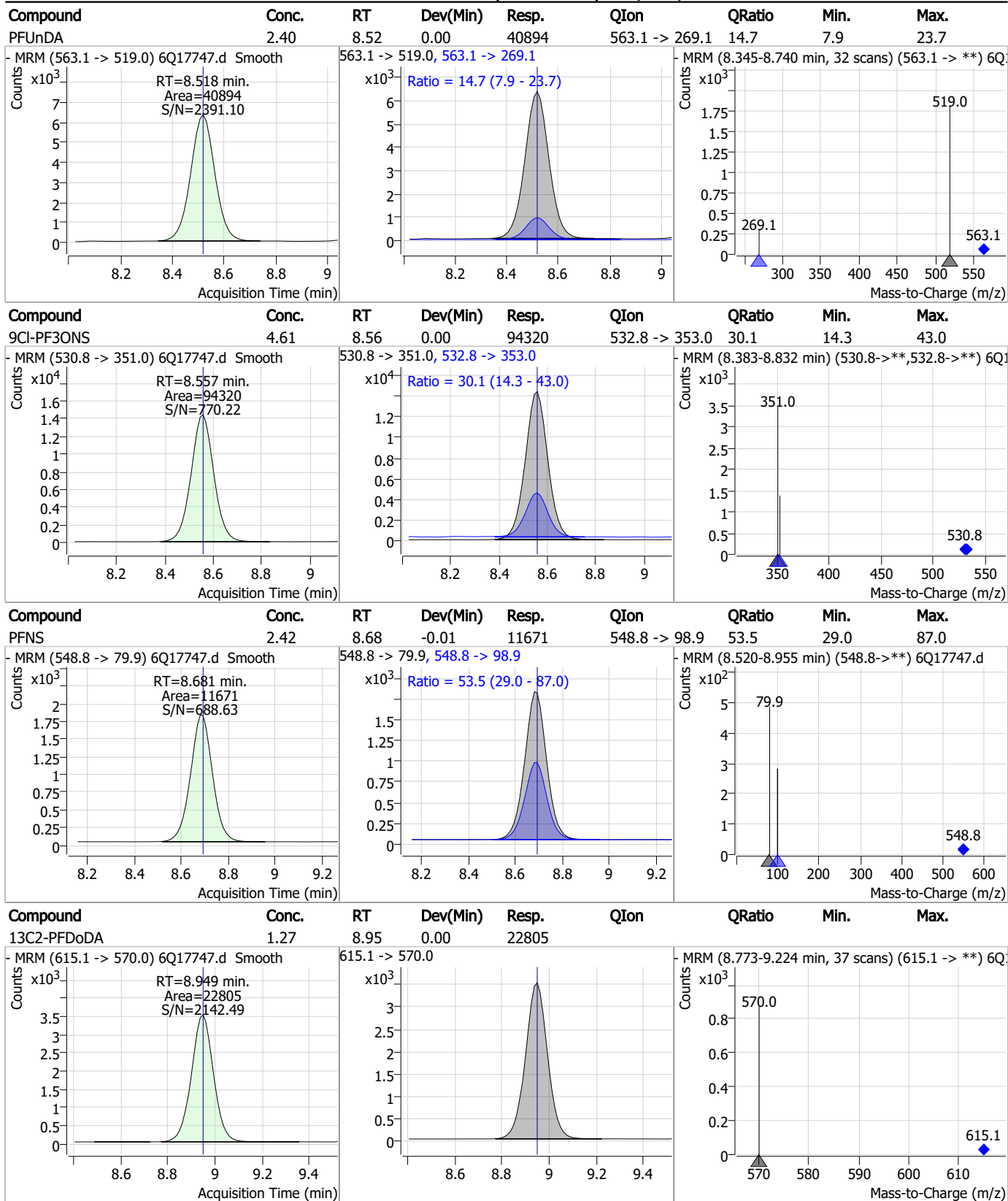


Perfluorinated Compounds by LC/MS/MS



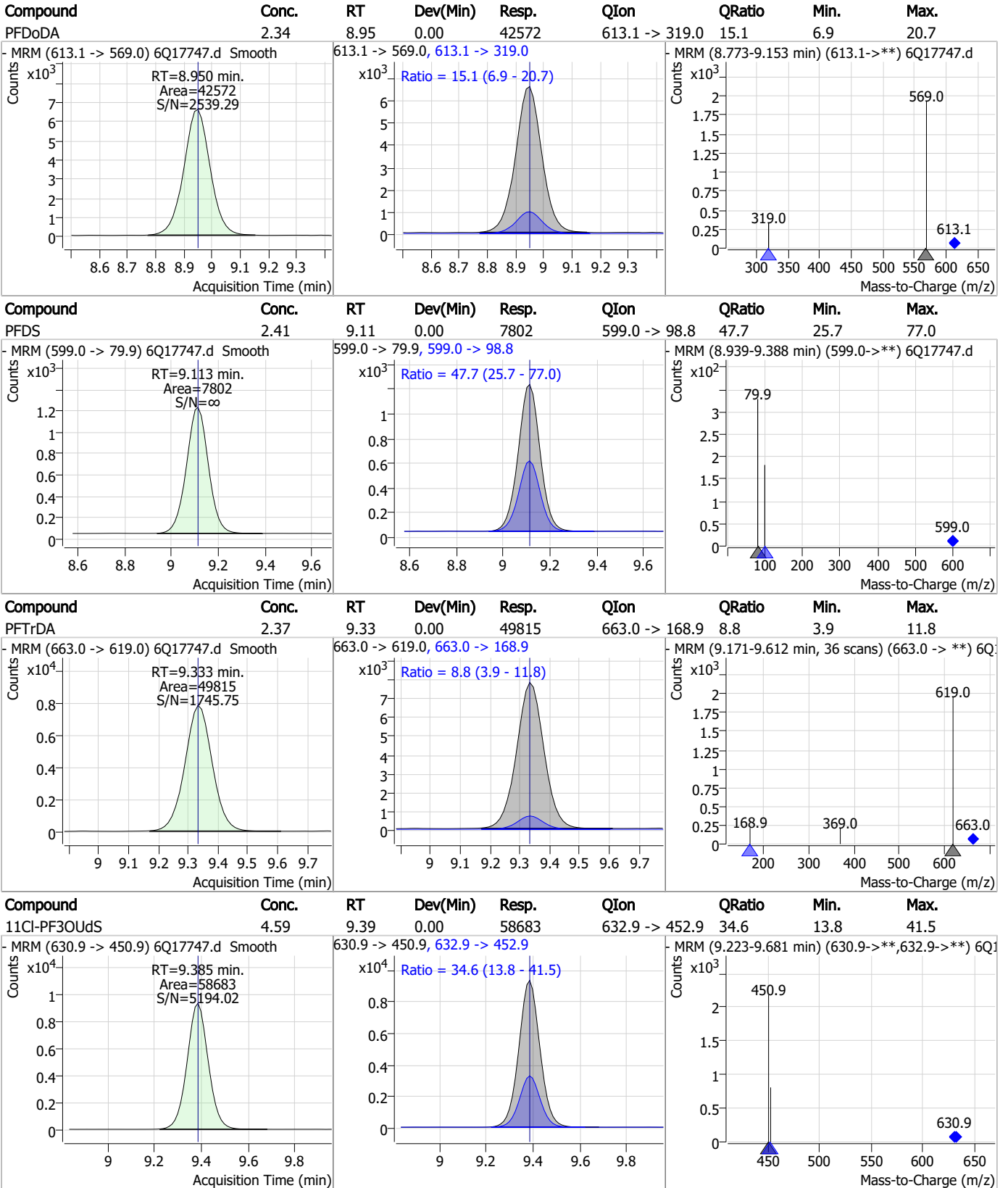
7.7.10
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Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS

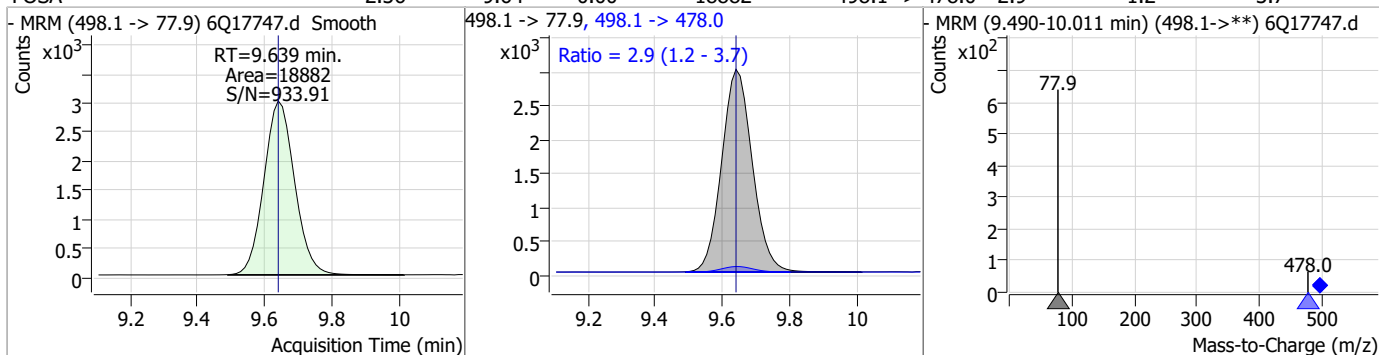


7.7.10 7

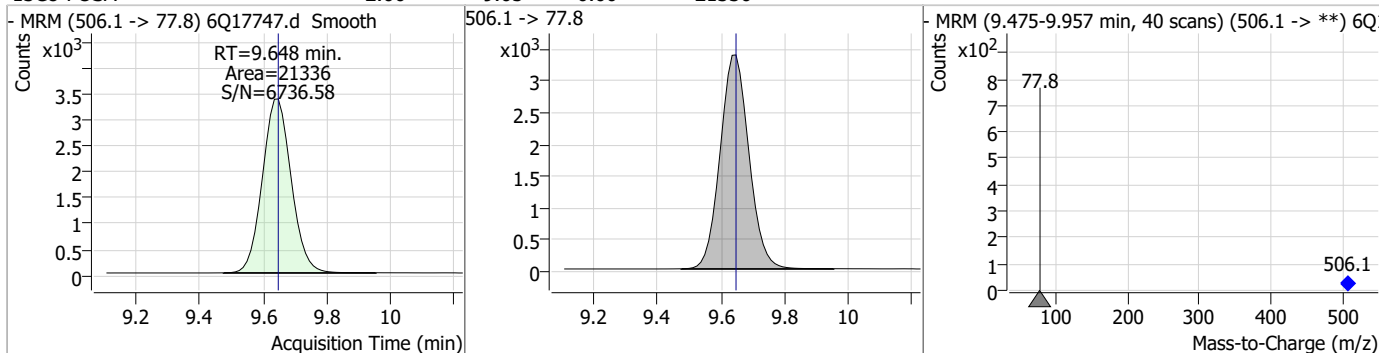


Perfluorinated Compounds by LC/MS/MS

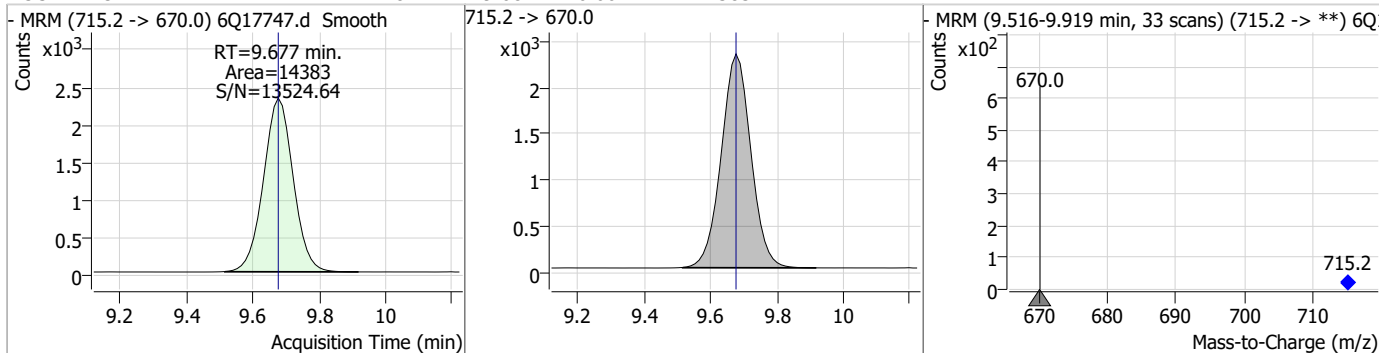
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.36	9.64	0.00	18882	498.1 -> 478.0	2.9	1.2	3.7



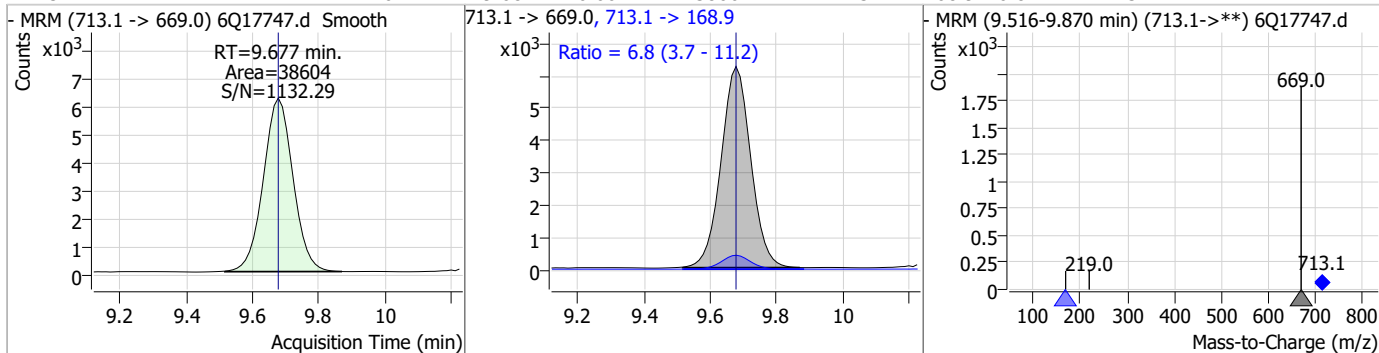
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.66	9.65	0.00	21336				



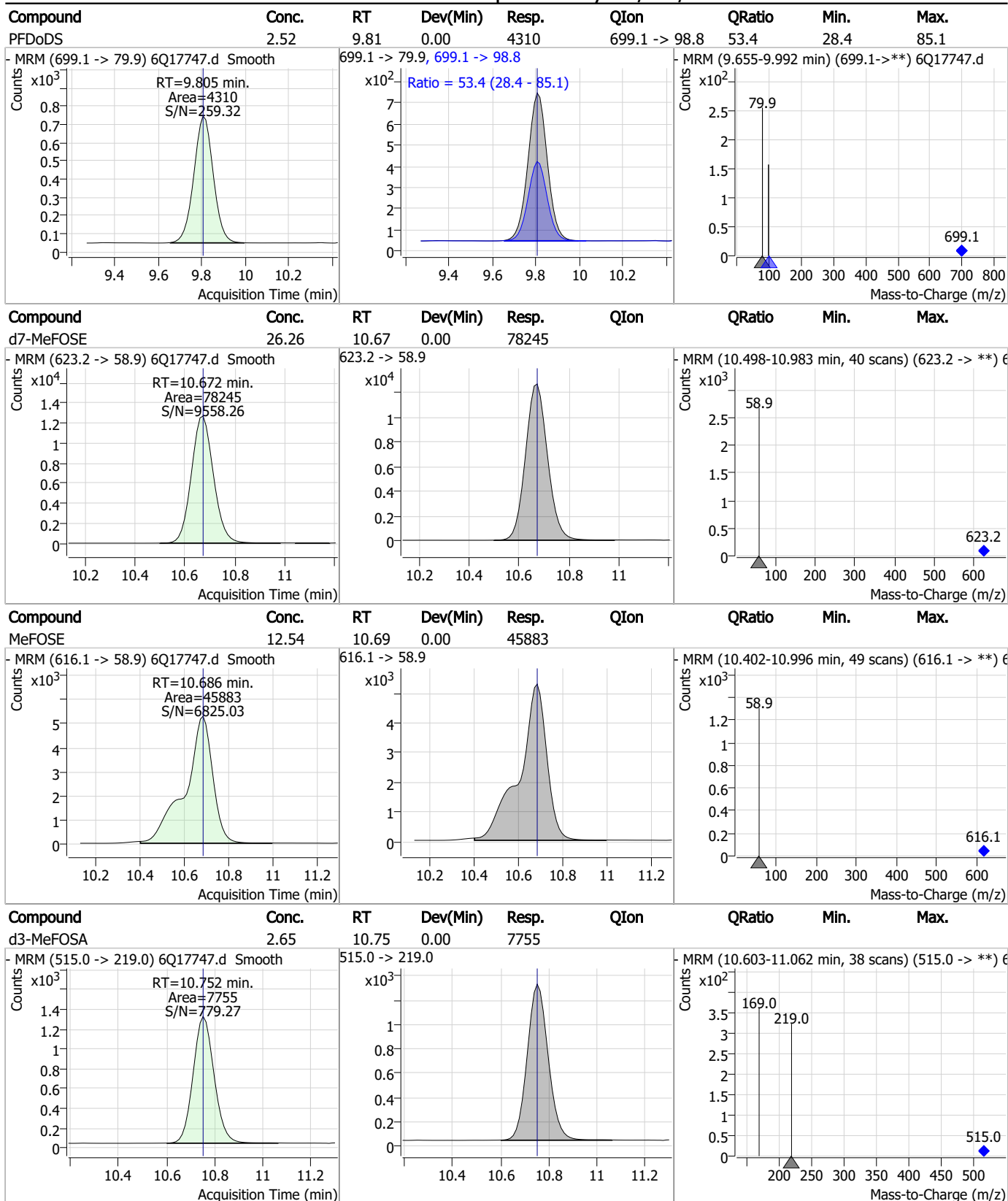
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.18	9.68	0.00	14383				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.62	9.68	0.00	38604	713.1 -> 168.9	6.8	3.7	11.2



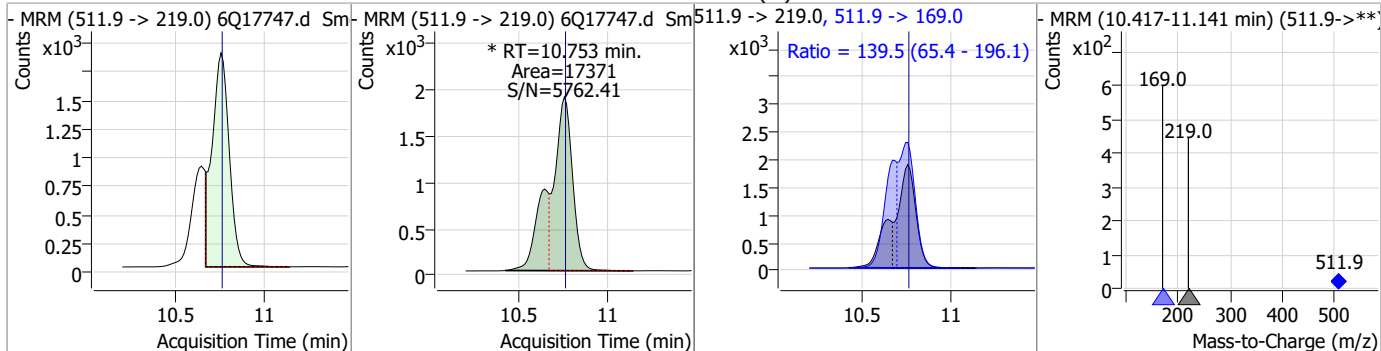
Perfluorinated Compounds by LC/MS/MS



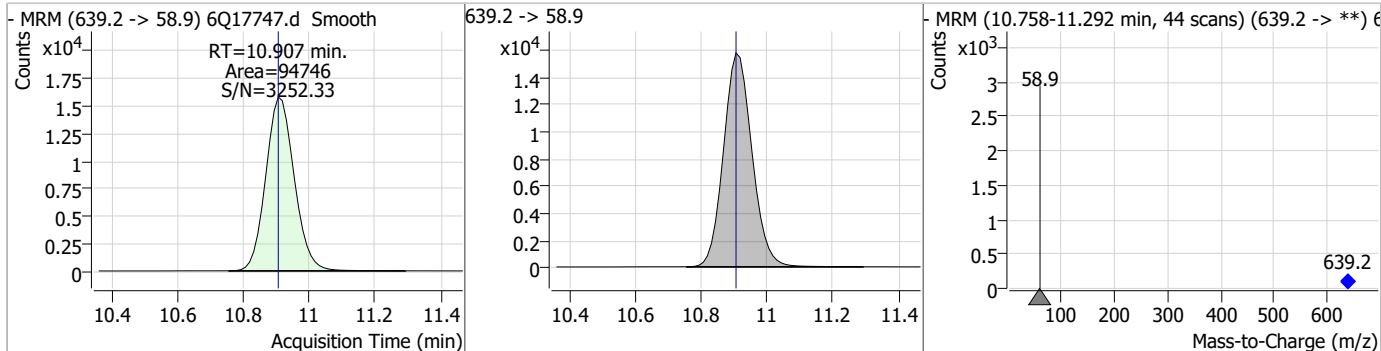
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

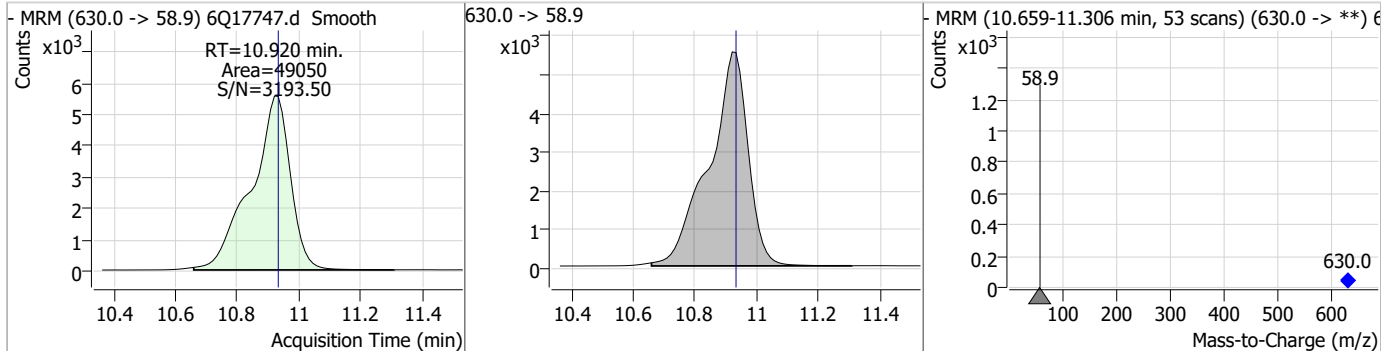
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.86	10.75	0.00	17371 (m)	511.9 -> 169.0	139.5	65.4	196.1



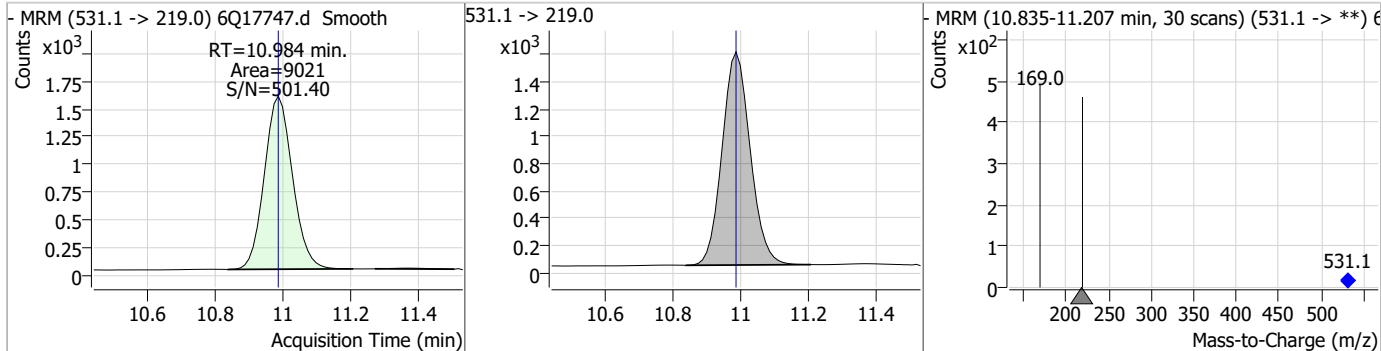
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.31	10.91	0.00	94746				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.88	10.92	-0.01	49050				

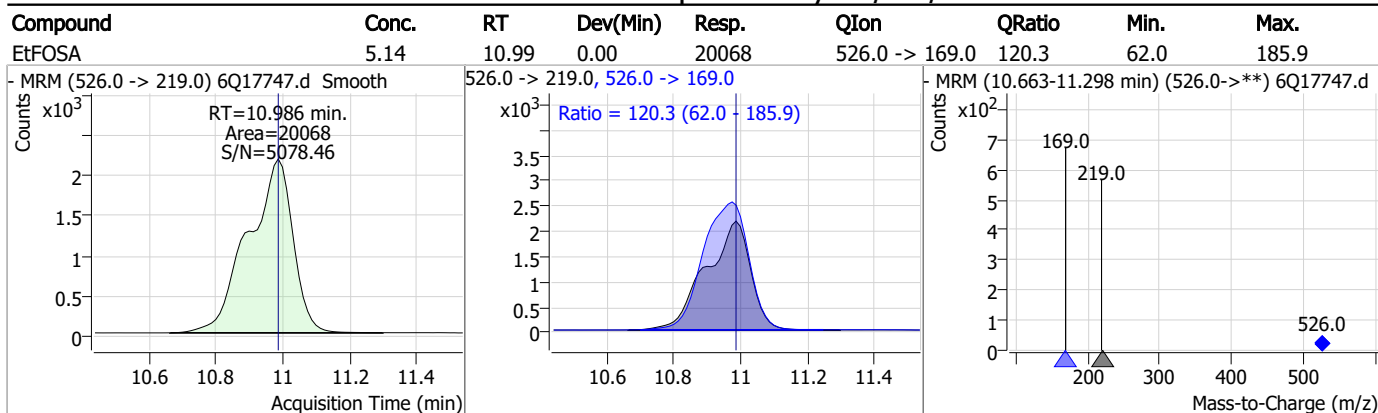


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.56	10.98	0.00	9021				



7.7.10
7

Perfluorinated Compounds by LC/MS/MS



7.7.10
7

Manual Integration Approval Summary

Sample Number: S6Q268-ICV268 Method: EPA DRAFT 1633
Lab FileID: 6Q17747.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 14:25 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.75	Split peak

7.7.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17748.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/12/2023 2:40:17 PM
 Sample Name : icv268-20
 Vial : P1-B2
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q268.batch.bin
 Sample Information : OP96663,S6Q268,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	134228	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	41658	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	48748	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	41967	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	60991	2.50 µg/L	0.000
M9-PFNA	7.595	472.1 -> 427.0	20539	1.25 µg/L	0.012
M6-PFDA	8.076	519.1 -> 474.1	15727	1.25 µg/L	0.012
M7-PFUnDA	8.518	570.0 -> 525.1	19149	1.25 µg/L	0.000
M2-PFDoDA	8.949	615.1 -> 570.0	19311	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	12965	1.25 µg/L	0.000
M8-FOSA	9.648	506.1 -> 77.8	17056	2.50 µg/L	0.000
M3-PFBS	5.397	302.1 -> 79.9	16809	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	9328	2.50 µg/L	0.012
M8-PFOS	8.226	507.1 -> 79.9	8539	2.50 µg/L	0.000
M2-4:2FTS	5.143	329.1 -> 80.9	1526	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	1830	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	1818	5.00 µg/L	0.000
M3-MeFOSAA	8.133	573.2 -> 419.0	16595	5.00 µg/L	0.000
M3-HFPO-DA	5.844	286.9 -> 168.9	29817	10.00 µg/L	0.012
M5-EtFOSAA	8.329	589.2 -> 419.0	14034	5.00 µg/L	0.000
M7-MeFOSE	10.672	623.2 -> 58.9	61723	25.00 µg/L	0.000
M9-EtFOSE	10.907	639.2 -> 58.9	78299	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	7340	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	6515	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	10046	2.50 µg/L	0.000
13C3-PFBA	2.891	216.0 -> 172.0	56729	5.00 µg/L	-0.012
18O2-PFHxS	7.178	403.0 -> 83.9	7085	2.50 µg/L	0.012
13C4-PFOA	7.065	417.1 -> 372.0	64436	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	17341	1.25 µg/L	0.012
13C5-PFNA	7.596	468.0 -> 423.0	22326	1.25 µg/L	0.012
13C2-PFHxA	5.467	315.1 -> 270.0	37254	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1526	5.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1830	5.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-8:2FTS	7.864	529.1 -> 80.9	1818	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFDoDA	8.949	615.1 -> 570.0	19311	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-PFTeDA	9.677	715.2 -> 670.0	12965	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C3-PFBS	5.397	302.1 -> 79.9	16809	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	9328	2.47 µg/L	0.012

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 = 98.9%		
13C4-PFBA	2.901	216.8 -> 171.9	134228	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C4-PFHpA	6.420	367.1 -> 322.0	41967	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C5-PFHxA	5.466	318.0 -> 273.0	48748	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C5-PFPeA	4.259	268.3 -> 223.0	41658	5.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C6-PFDA	8.076	519.1 -> 474.1	15727	1.38 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C7-PFUnDA	8.518	570.0 -> 525.1	19149	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C8-FOSA	9.648	506.1 -> 77.8	17056	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C8-PFOA	7.064	421.1 -> 376.0	60991	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C8-PFOS	8.226	507.1 -> 79.9	8539	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C9-PFNA	7.595	472.1 -> 427.0	20539	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
d3-MeFOSAA	8.133	573.2 -> 419.0	16595	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-HFPO-DA	5.844	286.9 -> 168.9	29817	10.94 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 109.4%		
d3-MeFOSA	10.752	515.0 -> 219.0	6515	2.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.3%		
d5-EtFOSAA	8.329	589.2 -> 419.0	14034	5.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.8%		
d7-MeFOSE	10.672	623.2 -> 58.9	61723	24.94 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
d9-EtFOSE	10.907	639.2 -> 58.9	78299	26.19 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
d5-EtFOSA	10.984	531.1 -> 219.0	7340	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	46955	20.47 µg/L	99
		327.1 -> 80.9	17359		
6:2FTS	6.838	427.1 -> 407.0	43329	21.76 µg/L	97
		427.1 -> 80.9	13273		
8:2FTS	7.865	527.1 -> 507.0	22843	22.12 µg/L	97
		527.1 -> 80.8	9727		
EtFOSAA	8.330	584.2 -> 419.1	49331	18.88 µg/L	95
		584.2 -> 526.0	27704		
FOSA	9.639	498.1 -> 77.9	146681	22.97 µg/L	99
		498.1 -> 478.0	4288		
MeFOSAA	8.134	570.1 -> 419.0	73972	23.04 µg/L	95
		570.1 -> 483.0	13034		
PFBA	2.894	212.8 -> 168.9	101686	21.12 µg/L	100
PFBS	5.398	298.7 -> 79.9	173909	21.20 µg/L	99
		298.7 -> 98.8	64979		
PFDA	8.076	512.9 -> 469.0	416281	21.39 µg/L	96
		512.9 -> 219.0	61482		
PFDoDA	8.950	613.1 -> 569.0	309033	20.09 µg/L	98
		613.1 -> 319.0	39520		
PFDS	9.113	599.0 -> 79.9	60387	21.78 µg/L	92

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	27733	21.33	µg/L	98
		363.1 -> 319.0	447334			
PFHpS	7.735	363.1 -> 169.0	69085	21.42	µg/L	97
		449.0 -> 79.9	97568			
PFHxA	5.469	449.0 -> 98.9	48905	20.34	µg/L	100
		313.0 -> 269.0	392860			
PFHxS	7.180	313.0 -> 118.9	19063	23.66	µg/L	92
		398.7 -> 79.9	122164			
PFNA	7.596	398.7 -> 98.9	53968	24.84	µg/L	91
		463.0 -> 419.0	379013			
PFNS	8.681	463.0 -> 219.0	61428	23.00	µg/L	88
		548.8 -> 79.9	94985			
PFOA	7.066	548.8 -> 98.9	46685	20.01	µg/L	98
		413.0 -> 369.0	607139			
PFOS	8.228	413.0 -> 169.0	106004	16.36	µg/L	97
		498.9 -> 79.9	73233			
PFPeA	4.262	498.9 -> 98.8	40594	23.58	µg/L	100
		263.0 -> 219.0	283724			
PFPeS	6.471	349.1 -> 79.9	119990	23.44	µg/L	97
		349.1 -> 98.9	56205			
PFTeDA	9.677	713.1 -> 669.0	298228	22.46	µg/L	99
		713.1 -> 168.9	21389			
PFTrDA	9.333	663.0 -> 619.0	328675	18.43	µg/L	97
		663.0 -> 168.9	29298			
PFUnDA	8.518	563.1 -> 519.0	289958	20.85	µg/L	97
		563.1 -> 269.1	41676			
11Cl-PF3OUdS	9.385	630.9 -> 450.9	257330	22.84	µg/L	99
		632.9 -> 452.9	73270			
9Cl-PF3ONS	8.557	530.8 -> 351.0	368637	20.48	µg/L	92
		532.8 -> 353.0	121331			
ADONA	6.683	376.9 -> 250.9	986876	20.79	µg/L	93
		376.9 -> 84.8	266947			
HFPO-DA	5.845	284.9 -> 168.9	59984	20.81	µg/L	99
		284.9 -> 184.9	8440			
3:3FTCA	3.790	241.0 -> 177.0	15808	21.21	µg/L	99
		241.0 -> 117.0	2062			
5:3FTCA	6.161	341.0 -> 237.1	71771	21.45	µg/L	99
		341.0 -> 217.0	52629			
7:3FTCA	7.586	441.0 -> 316.9	30530	20.11	µg/L	95
		441.0 -> 336.9	66281			
EtFOSA	10.986	526.0 -> 219.0	66958	21.07	µg/L	91
		526.0 -> 169.0	75827			
EtFOSE	10.932	630.0 -> 58.9	420300	123.18	µg/L	100
		511.9 -> 219.0	62290			
MeFOSA	10.753	511.9 -> 169.0	65153	20.76	µg/L	78
		616.1 -> 58.9	329621			
MeFOSE	10.686	699.1 -> 79.9	28807	114.16	µg/L	100
		699.1 -> 98.8	15636			
PFDoDS	9.805	295.0 -> 201.0	44922	19.66	µg/L	97
		295.0 -> 84.9	11491			
NFDHA	5.348	279.0 -> 85.1	188295	21.07	µg/L	97
		229.0 -> 84.9	137337			
PFMBA	4.675	314.8 -> 134.9	475035	21.93	µg/L	100
		314.8 -> 82.9	17118			
PFMPA	3.426			22.21	µg/L	100
PFEESA	5.938			18.32	µg/L	100

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



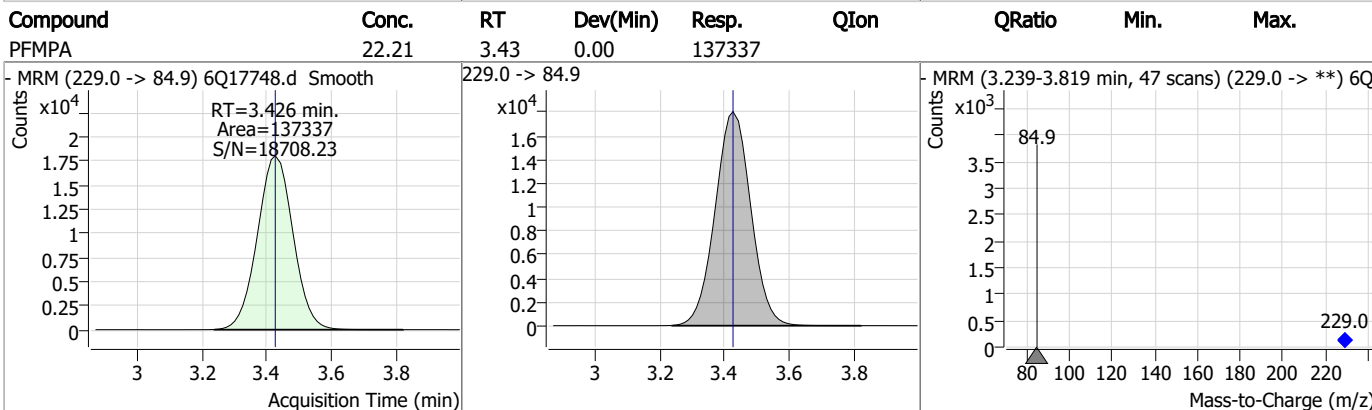
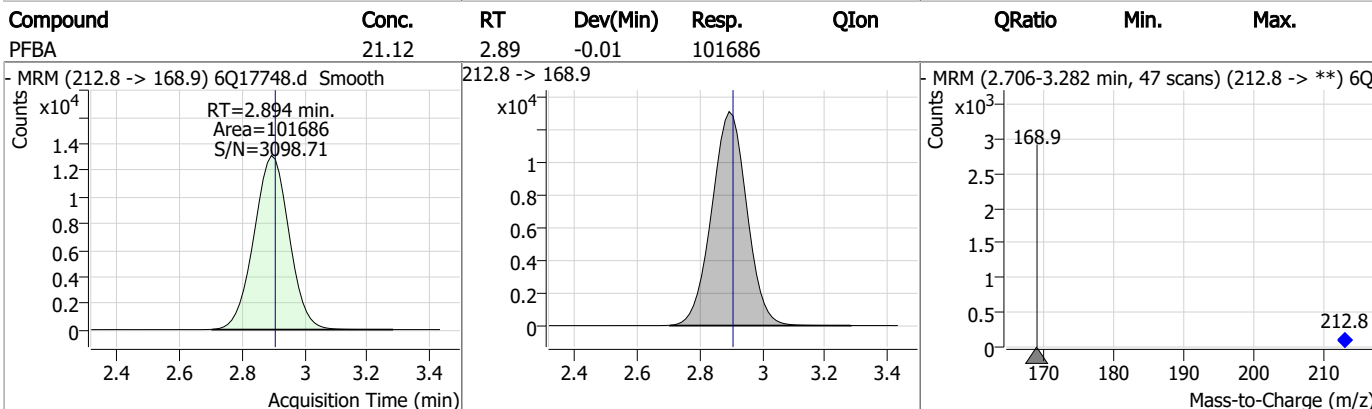
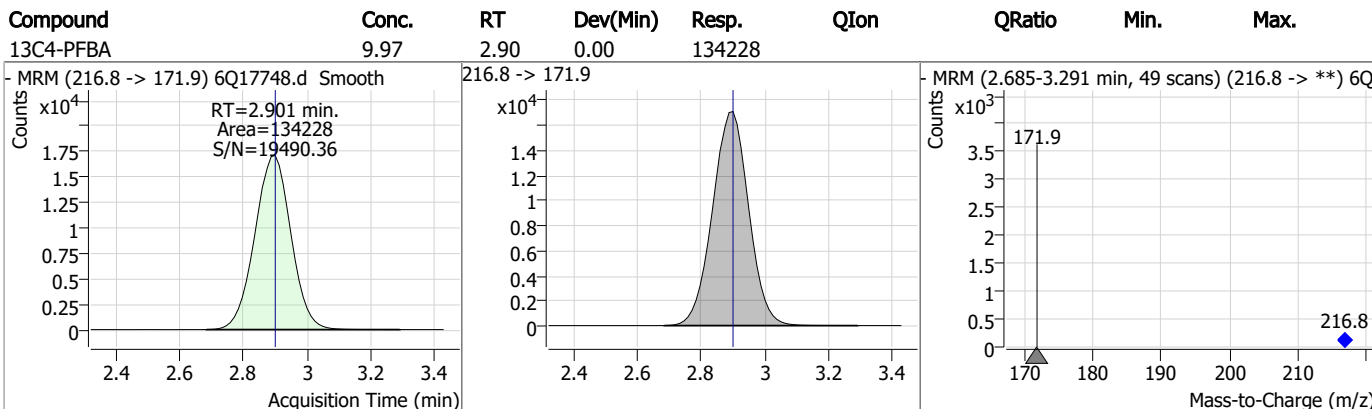
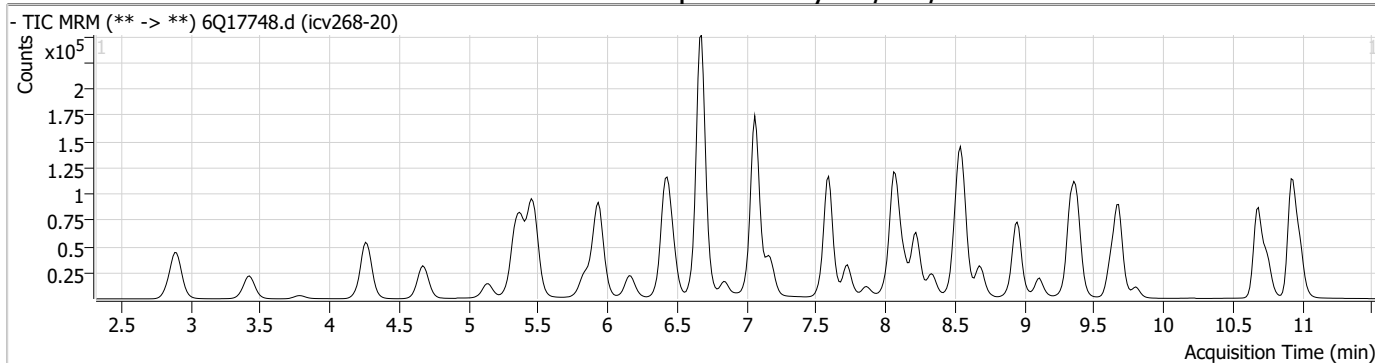
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.11

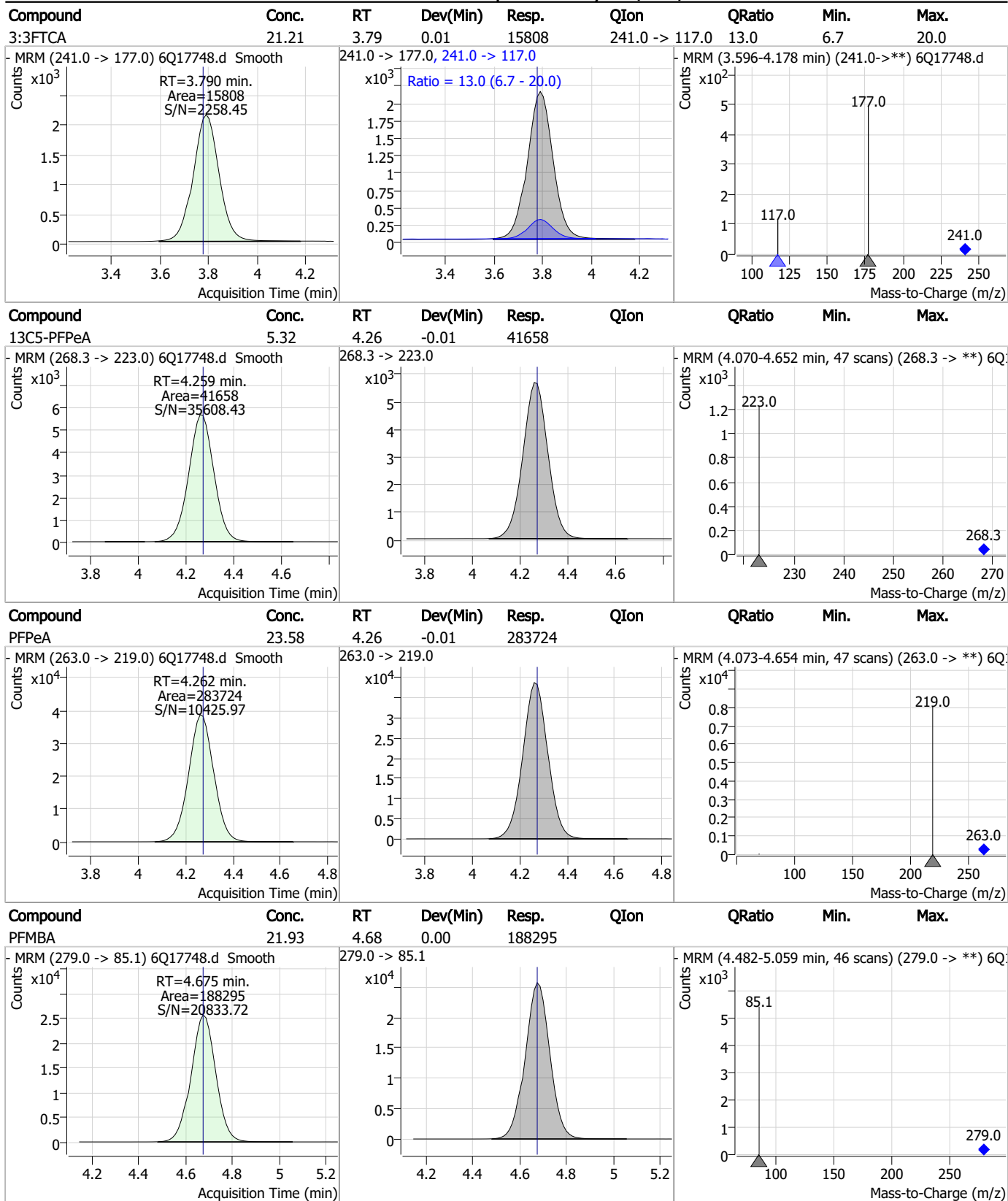
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Perfluorinated Compounds by LC/MS/MS



7.7.11
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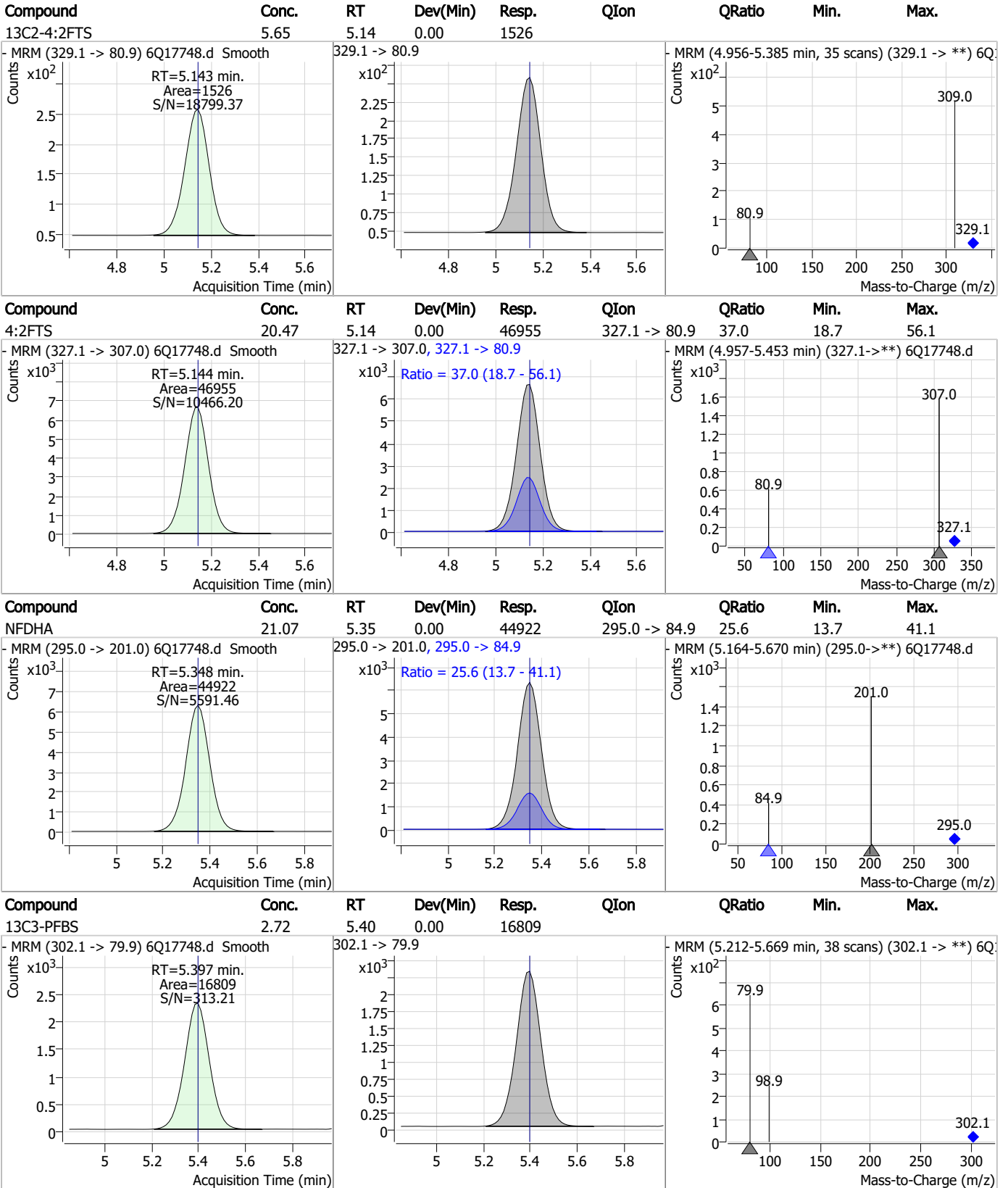
Perfluorinated Compounds by LC/MS/MS



7.7.11

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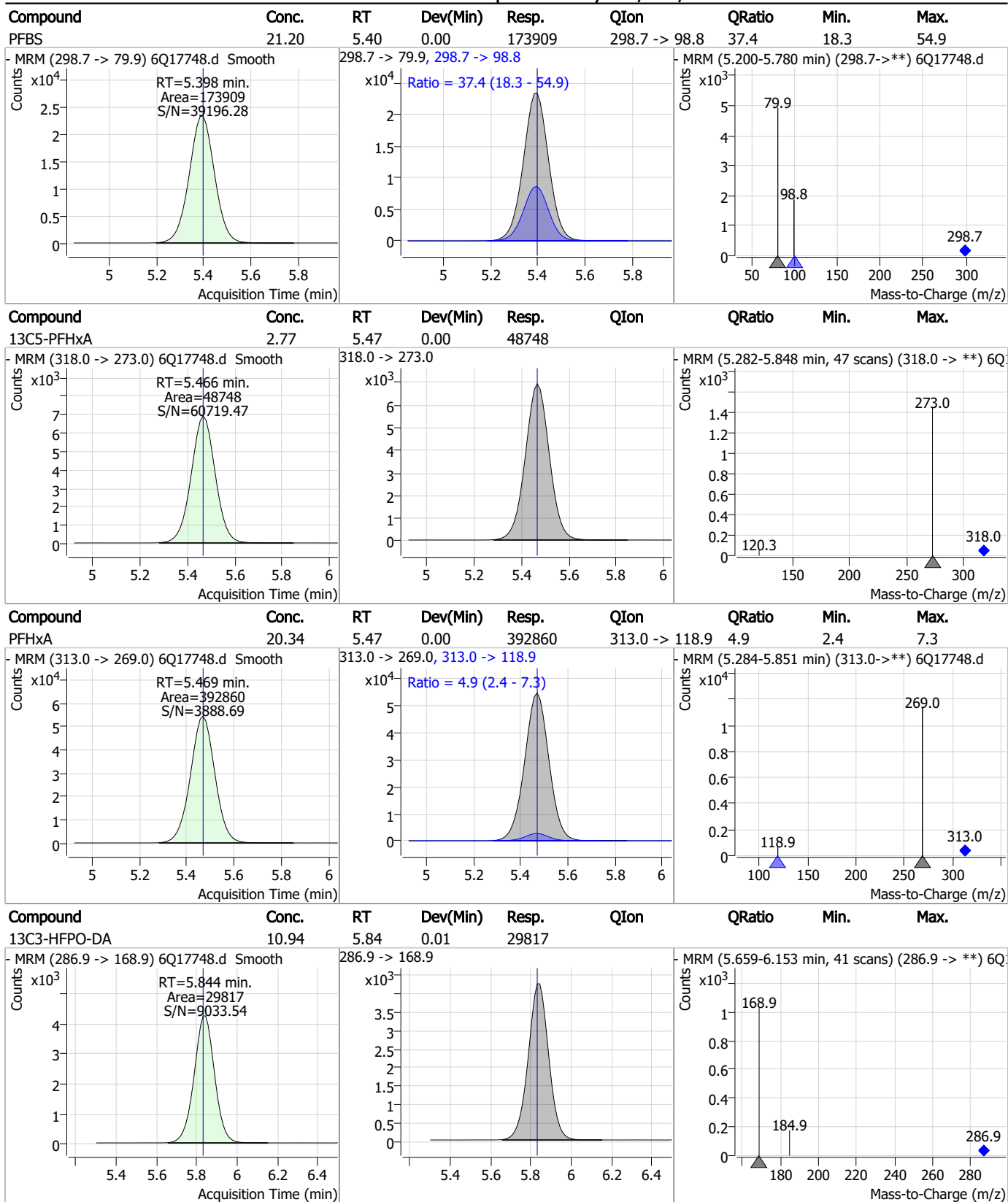
Perfluorinated Compounds by LC/MS/MS



7.7.11

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Perfluorinated Compounds by LC/MS/MS

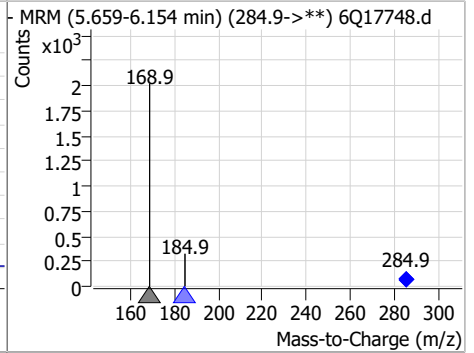
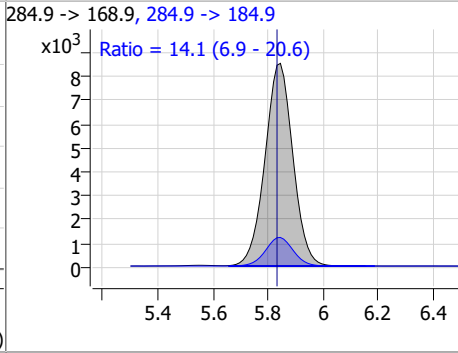
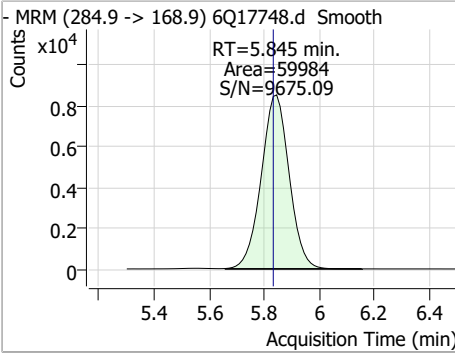


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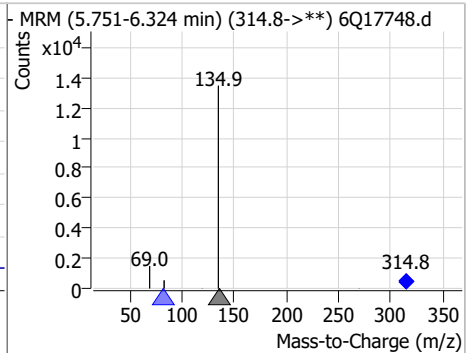
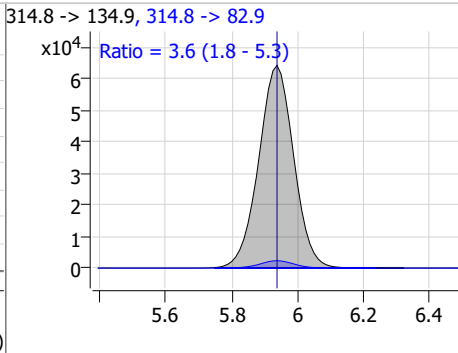
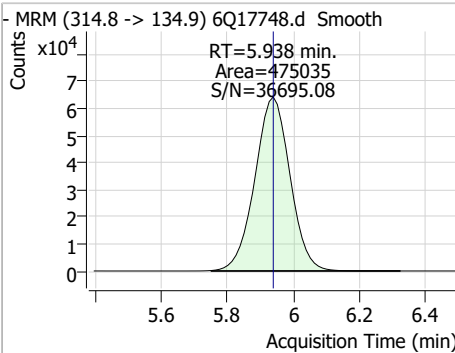
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Perfluorinated Compounds by LC/MS/MS

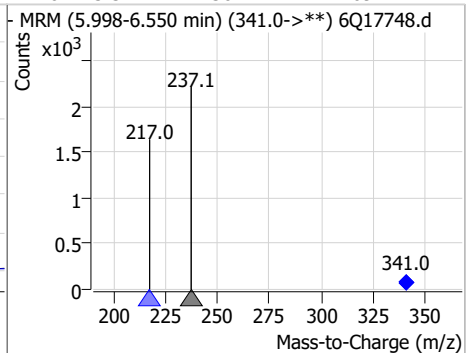
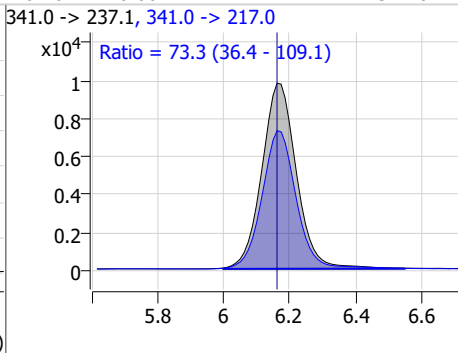
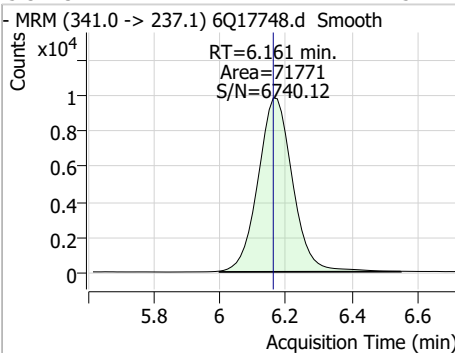
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	20.81	5.84	0.01	59984	284.9 -> 184.9	14.1	6.9	20.6



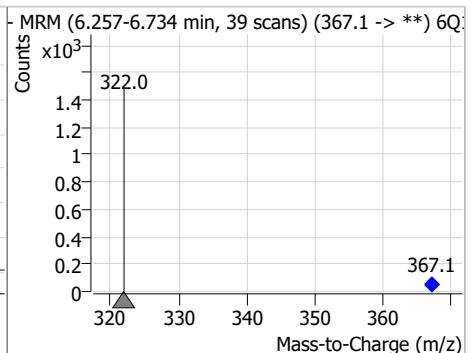
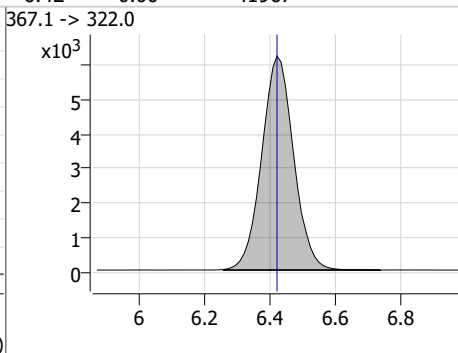
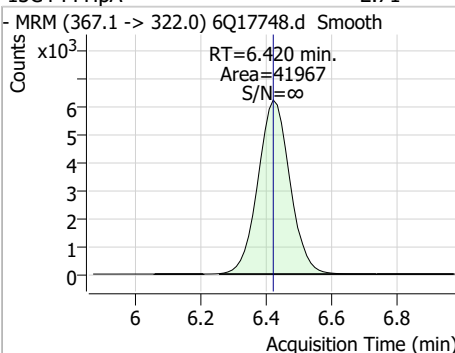
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.32	5.94	0.00	475035	314.8 -> 82.9	3.6	1.8	5.3



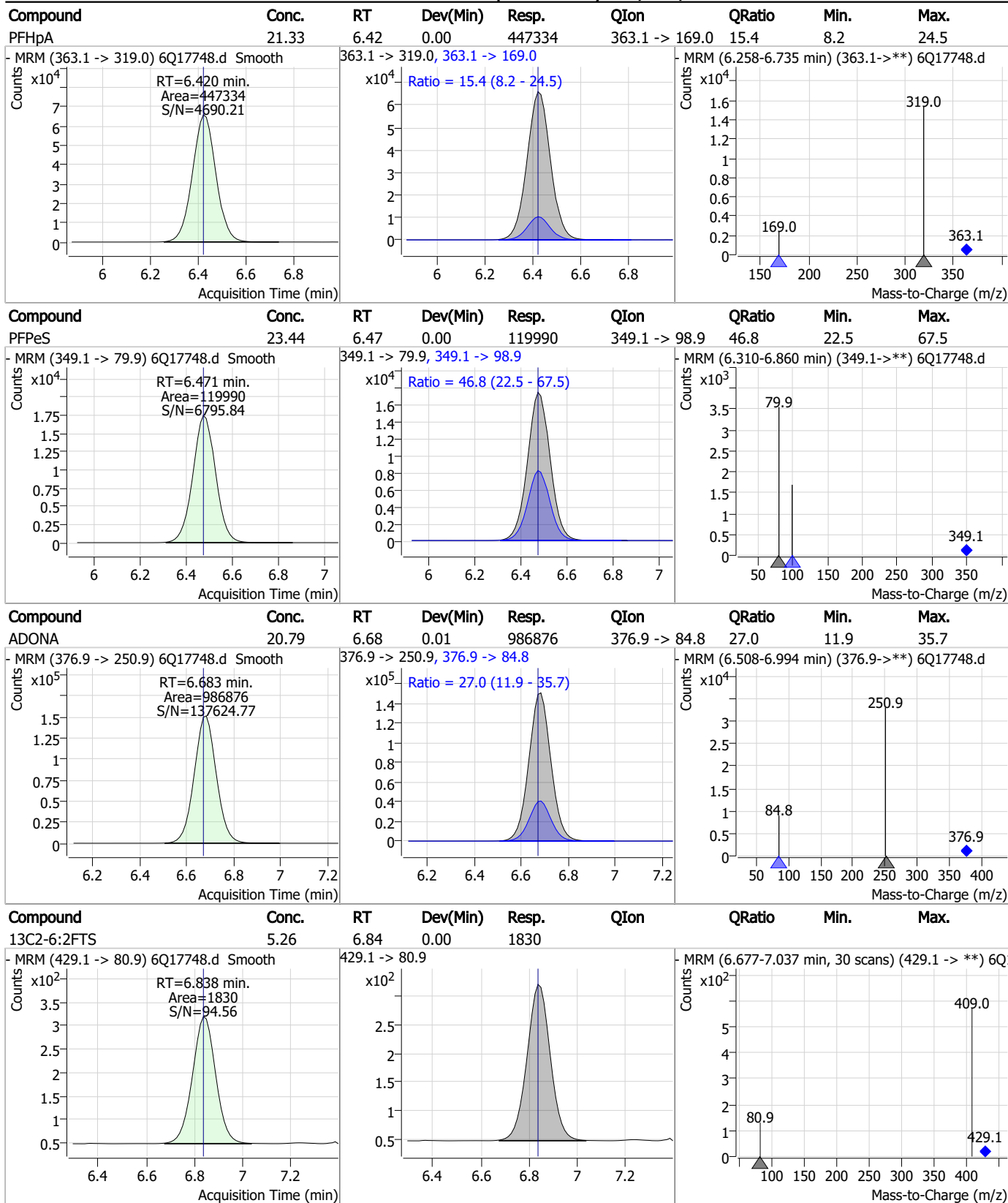
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	21.45	6.16	0.00	71771	341.0 -> 217.0	73.3	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.71	6.42	0.00	41967	367.1 -> 322.0	-	-	-



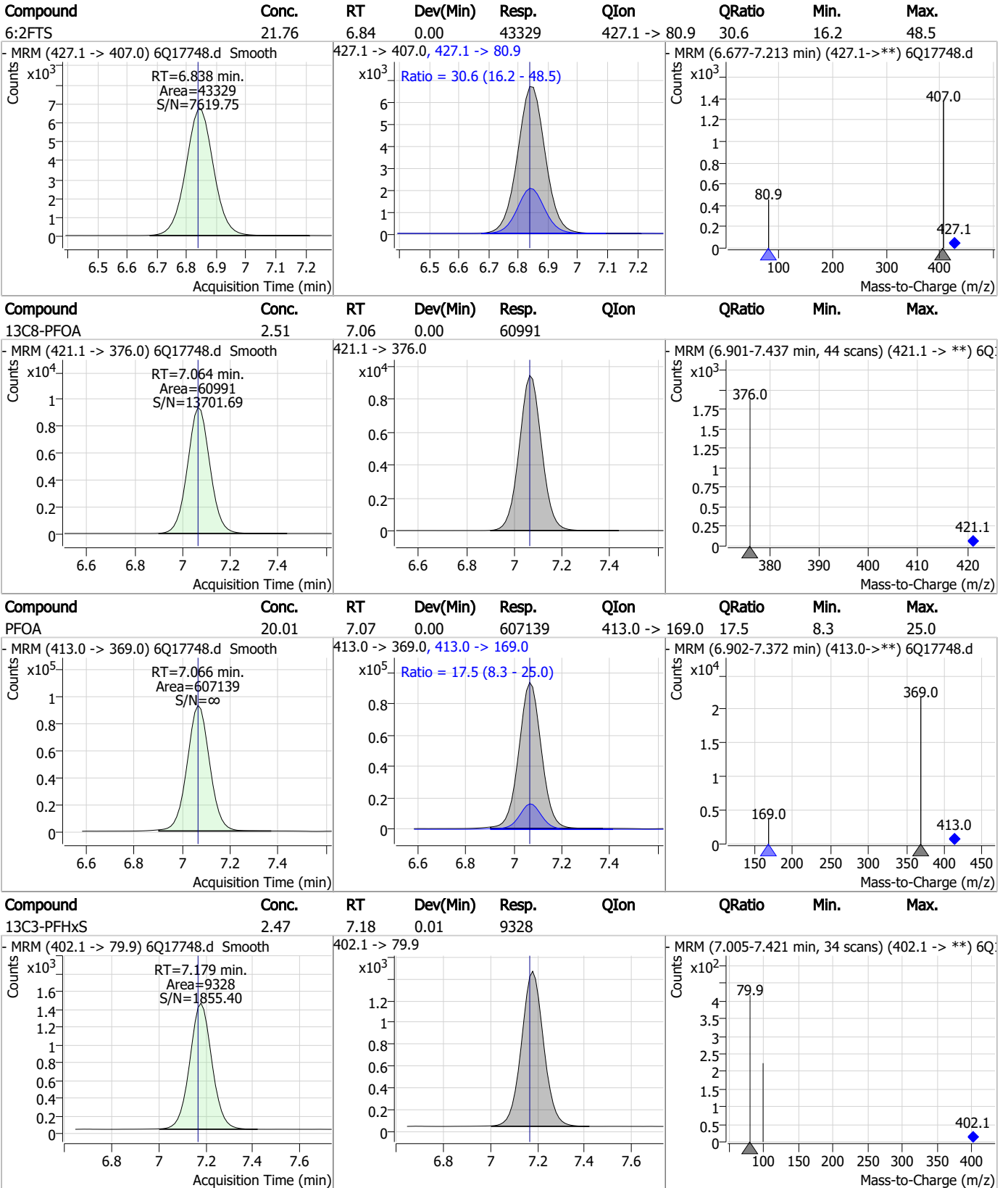
Perfluorinated Compounds by LC/MS/MS



7.7.11
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Perfluorinated Compounds by LC/MS/MS



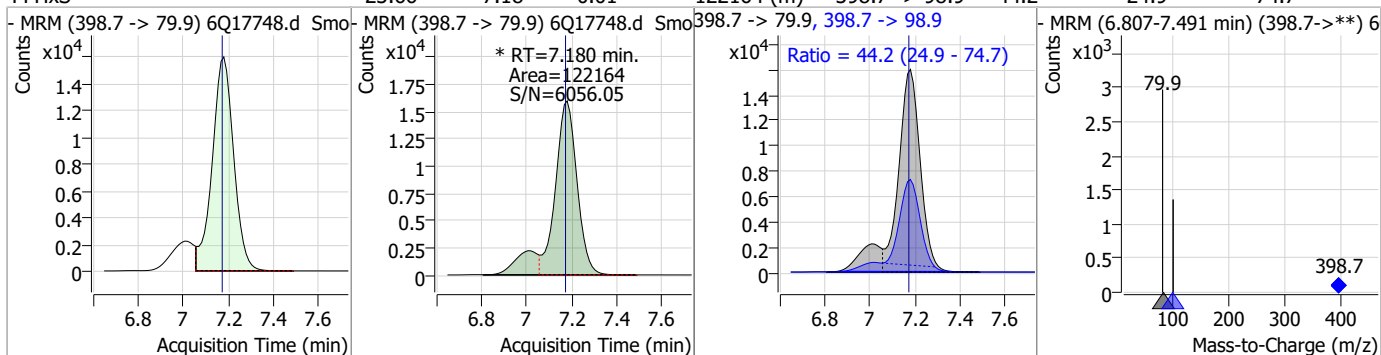
7.7.11

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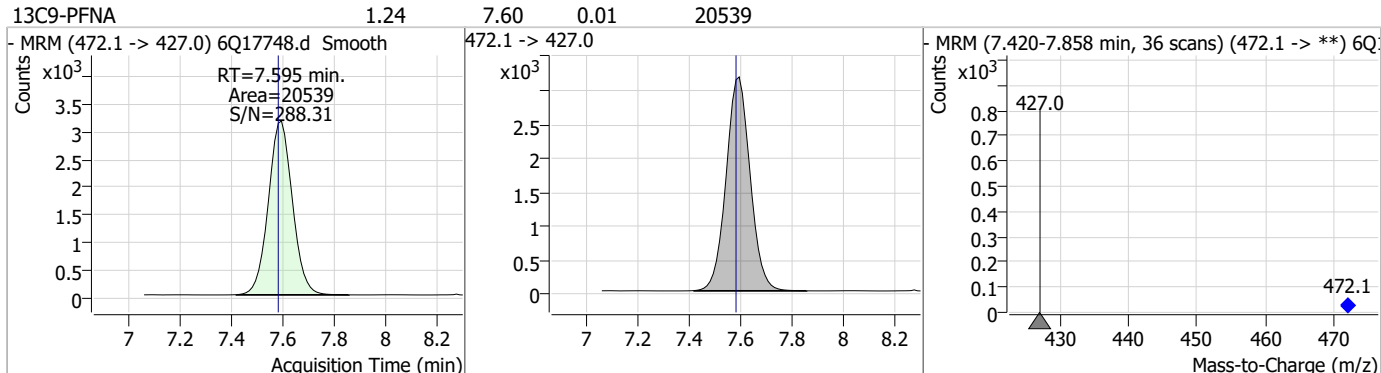


Perfluorinated Compounds by LC/MS/MS

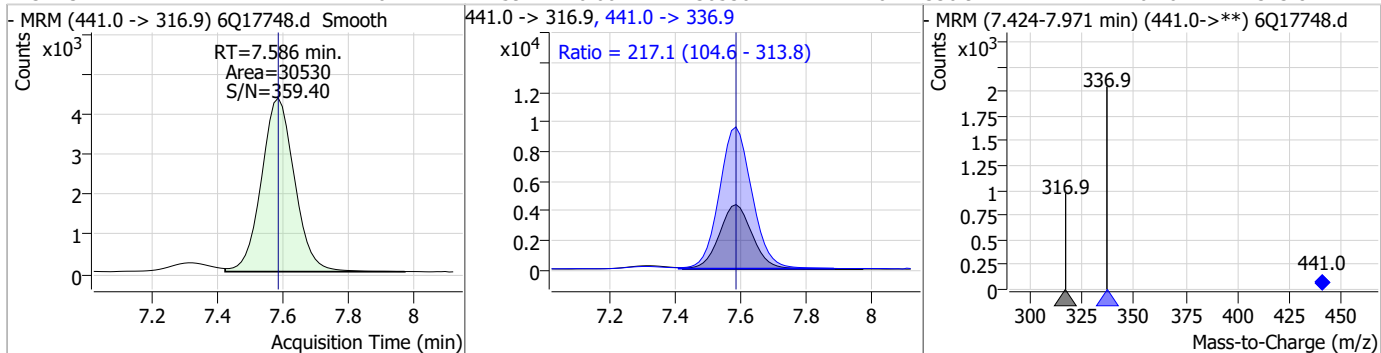
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	23.66	7.18	0.01	122164 (m)	398.7 -> 98.9	44.2	24.9	74.7



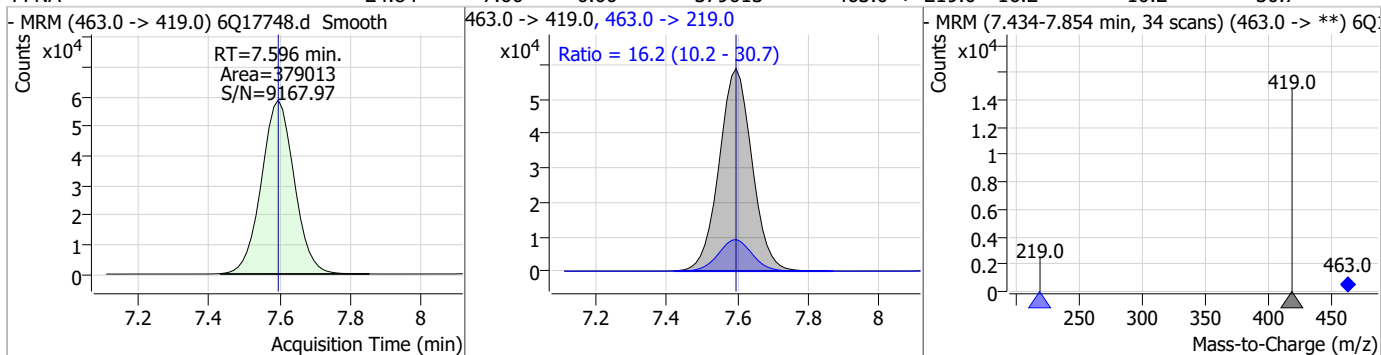
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.24	7.60	0.01	20539				



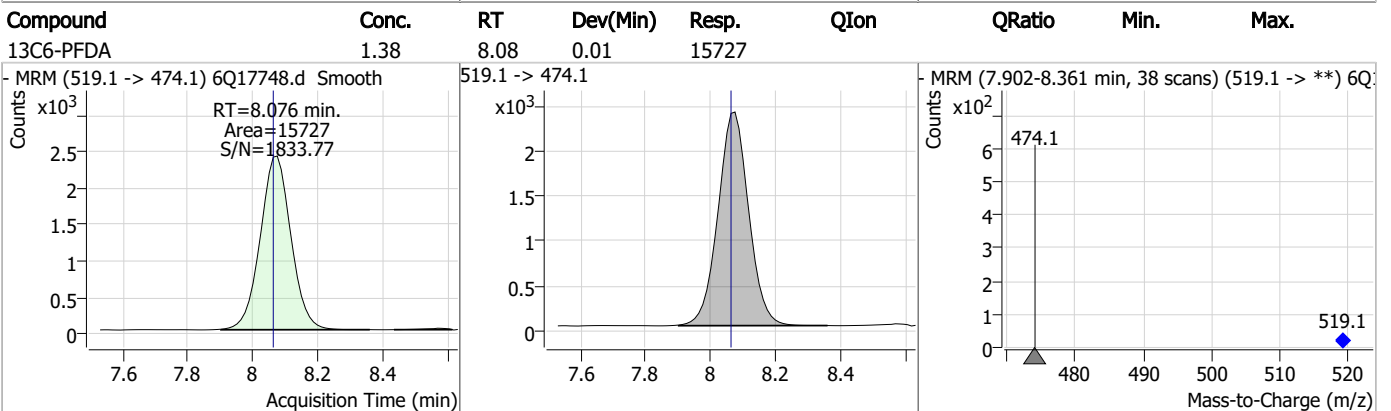
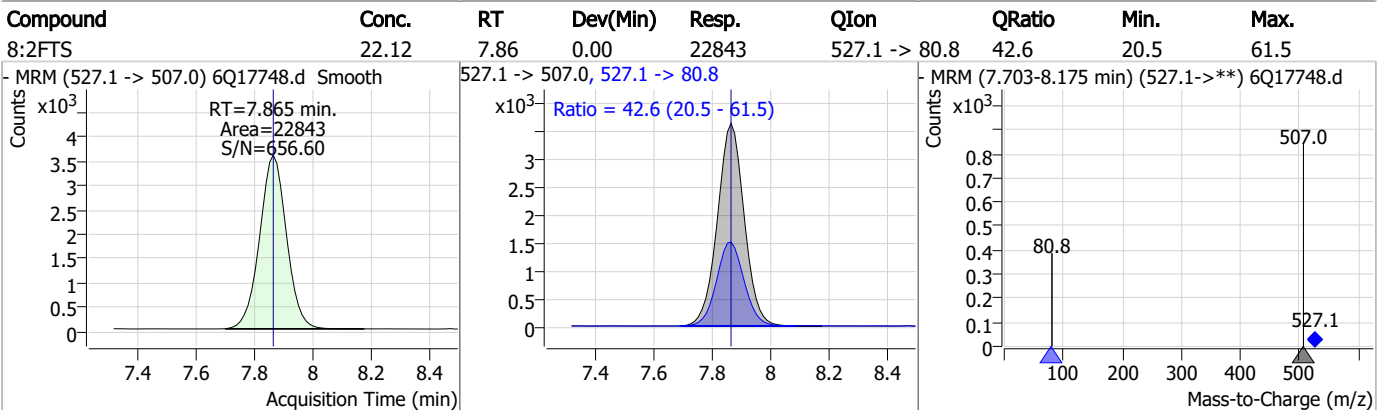
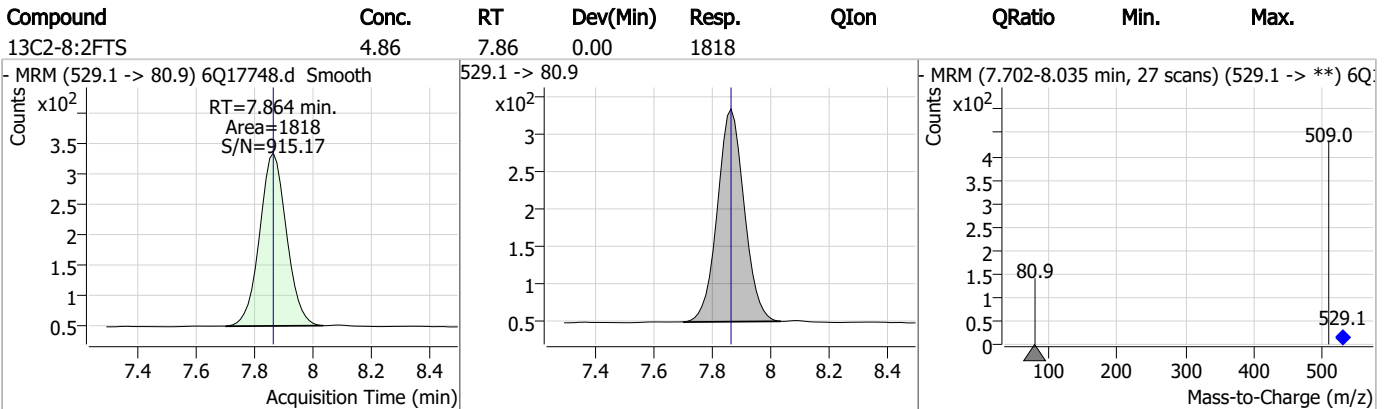
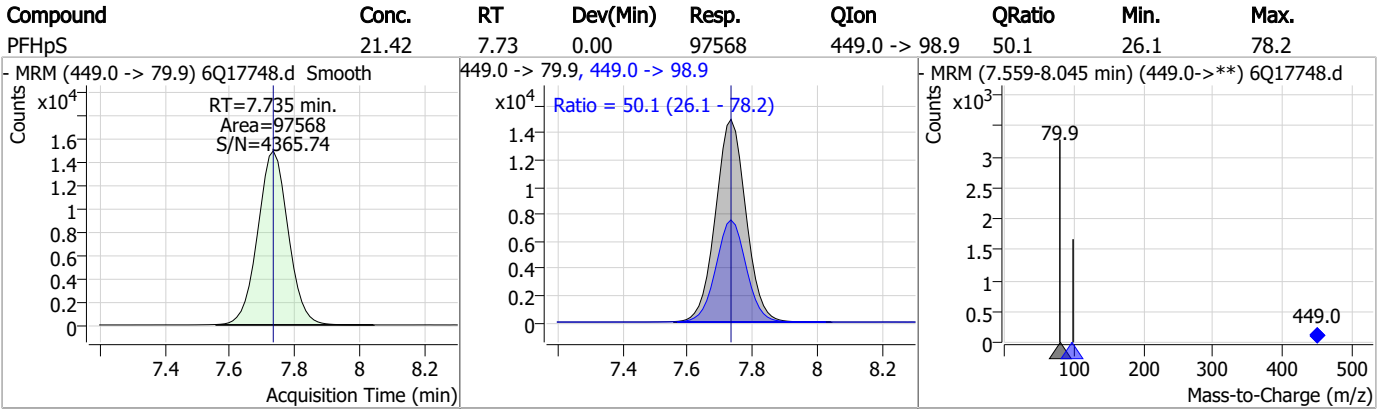
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	20.11	7.59	0.00	30530	441.0 -> 336.9	217.1	104.6	313.8



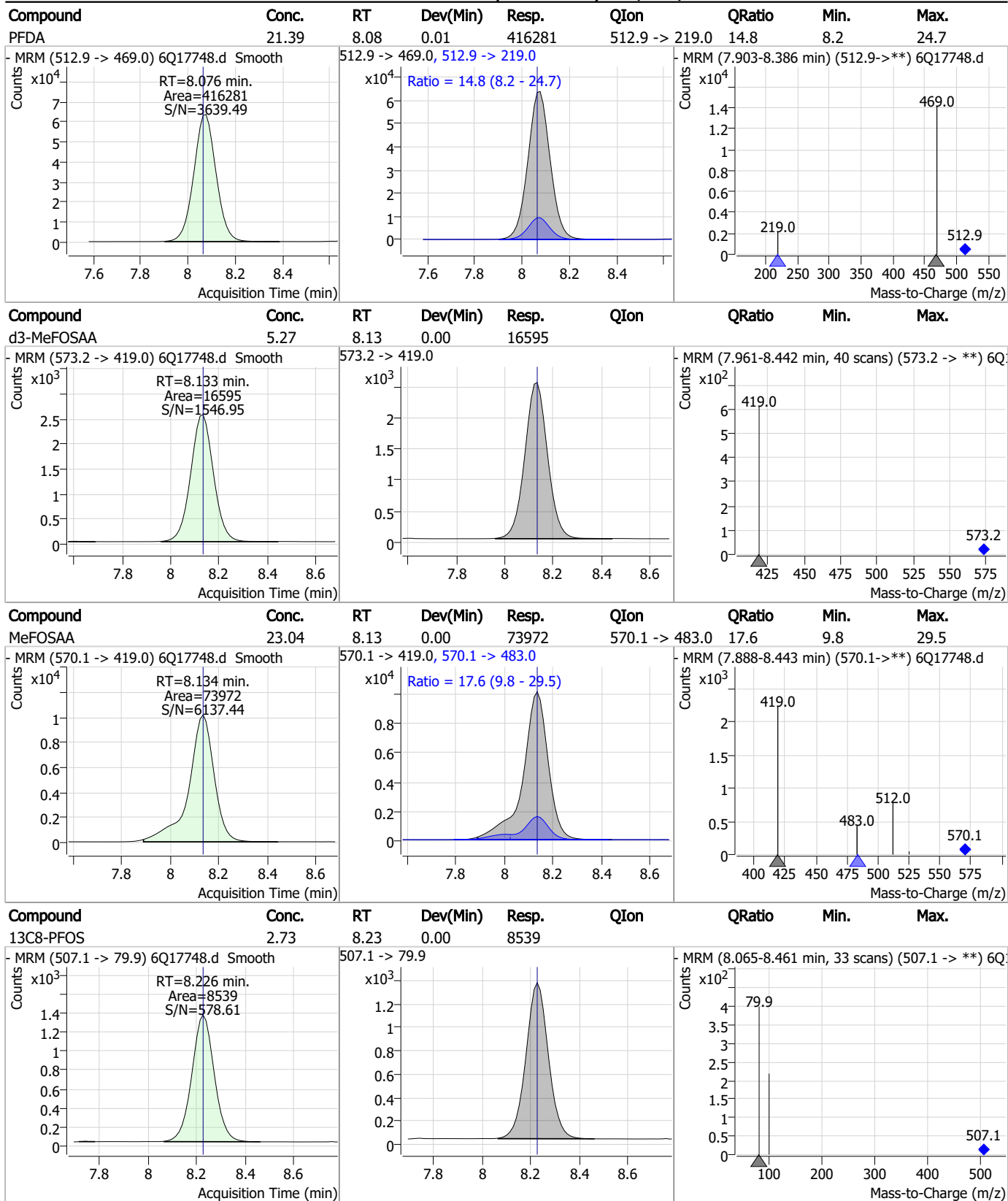
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	24.84	7.60	0.00	379013	463.0 -> 219.0	16.2	10.2	30.7



Perfluorinated Compounds by LC/MS/MS

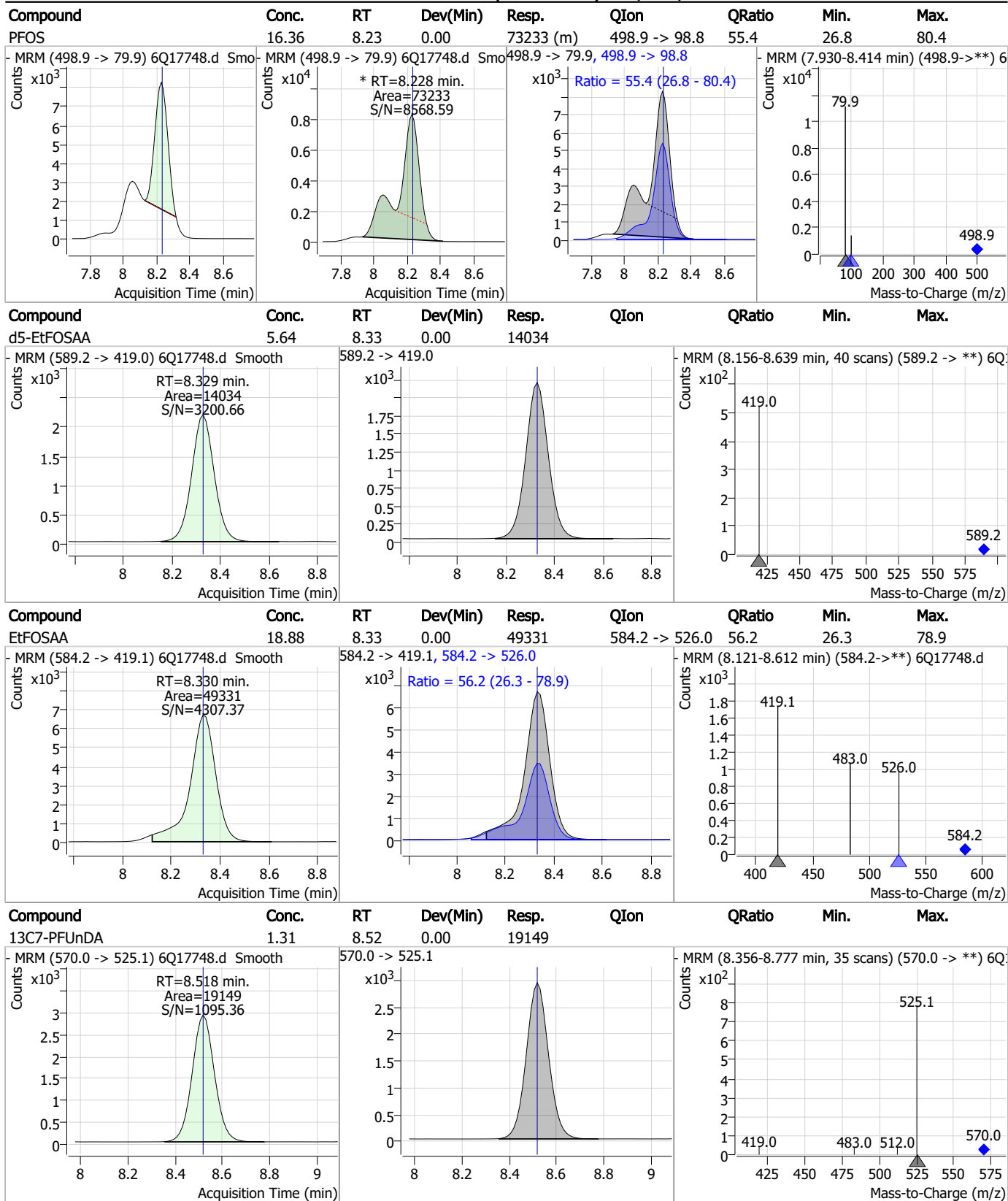


Perfluorinated Compounds by LC/MS/MS



7.7.11
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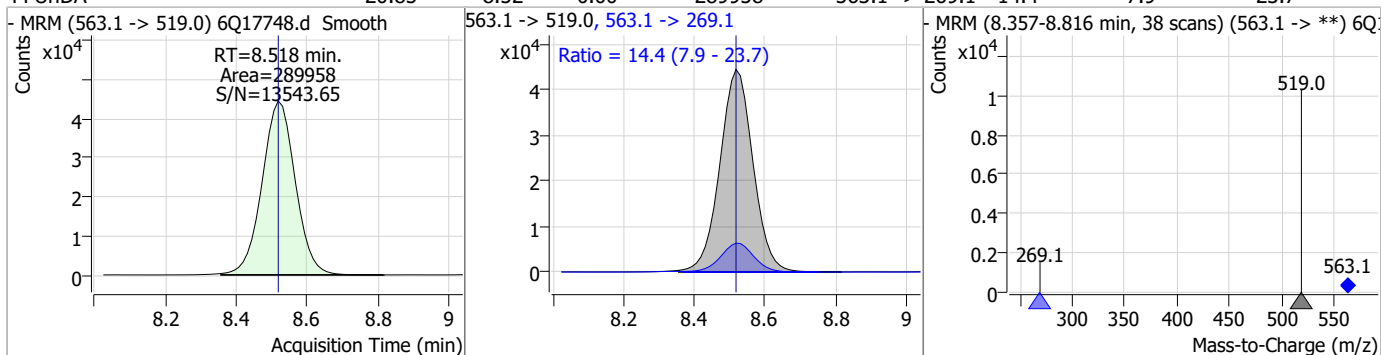
Perfluorinated Compounds by LC/MS/MS



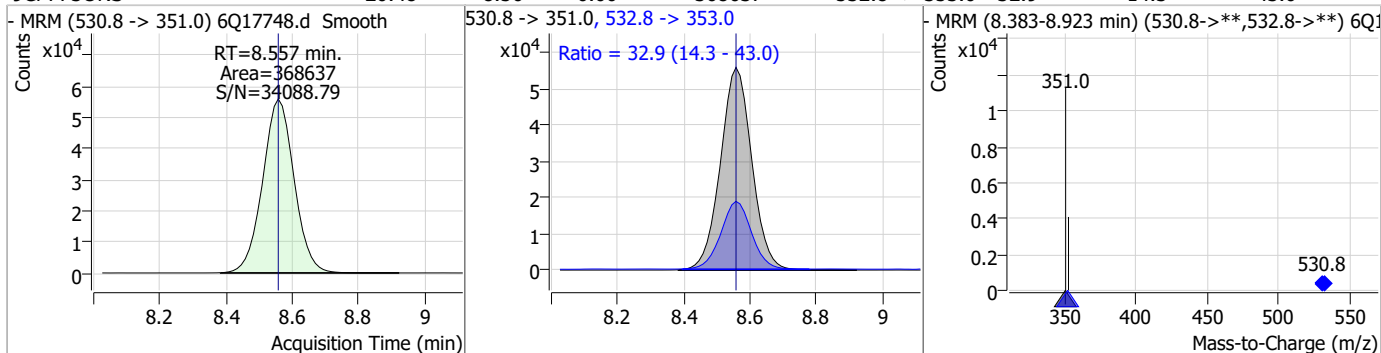
7.7.11
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Perfluorinated Compounds by LC/MS/MS

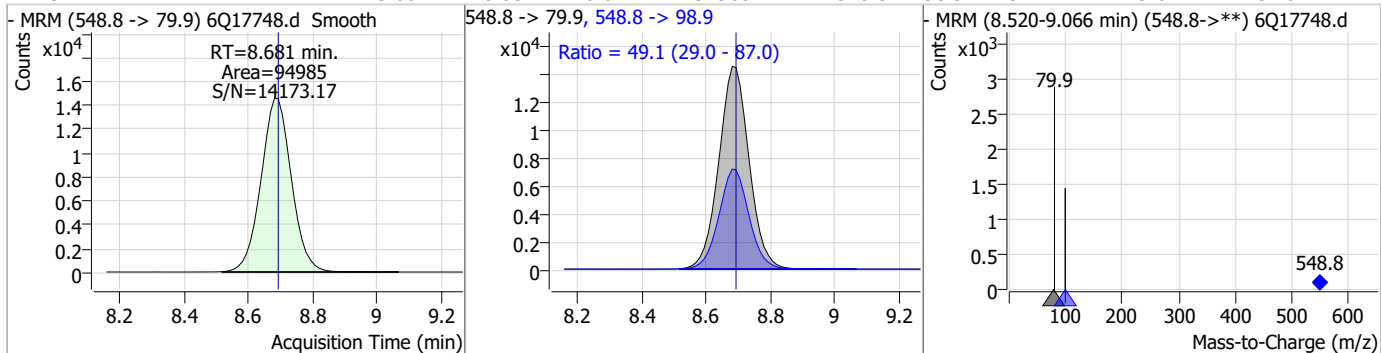
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.85	8.52	0.00	289958	563.1 -> 269.1	14.4	7.9	23.7



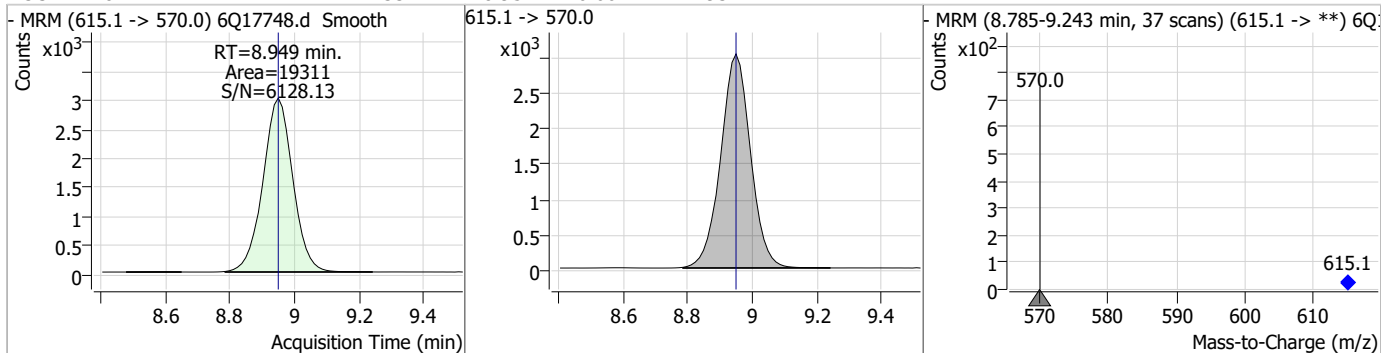
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	20.48	8.56	0.00	368637	532.8 -> 353.0	32.9	14.3	43.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	23.00	8.68	-0.01	94985	548.8 -> 98.9	49.1	29.0	87.0

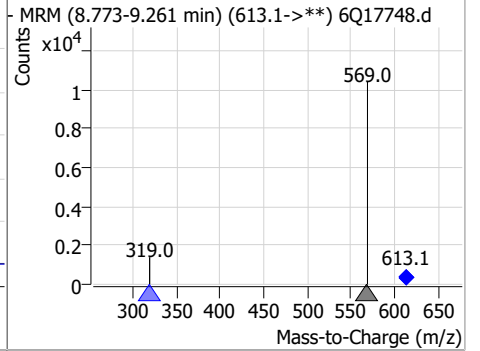
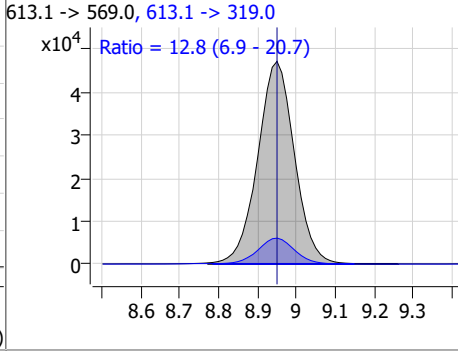
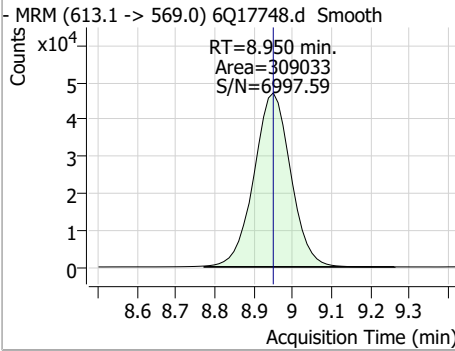


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.33	8.95	0.00	19311	615.1 -> 570.0			

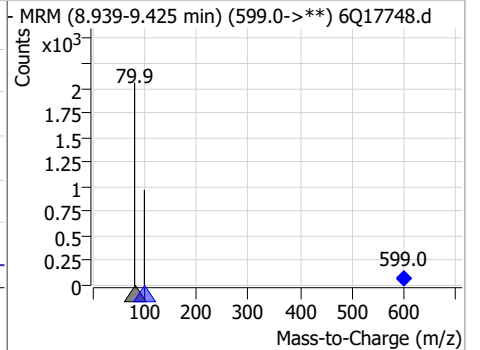
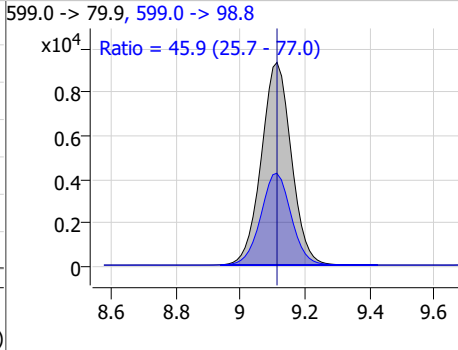
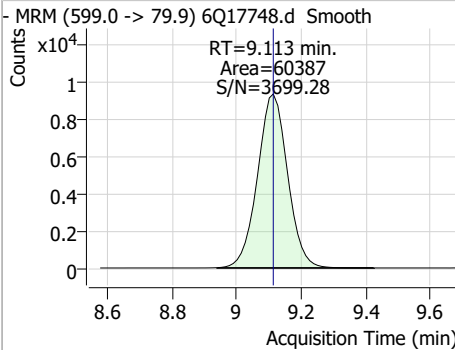


Perfluorinated Compounds by LC/MS/MS

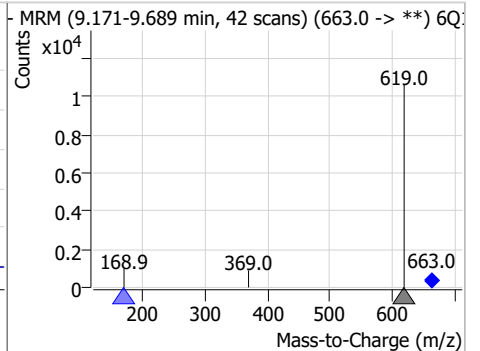
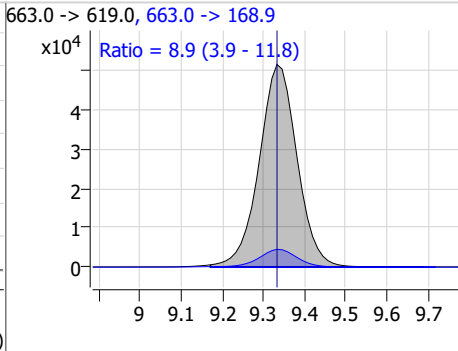
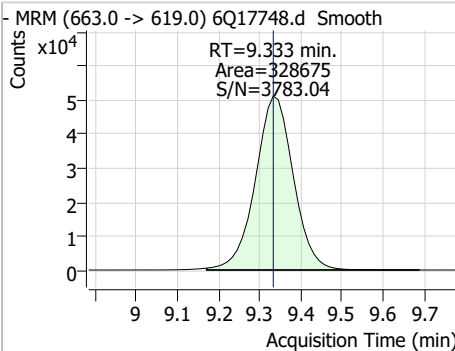
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	20.09	8.95	0.00	309033	613.1 -> 319.0	12.8	6.9	20.7



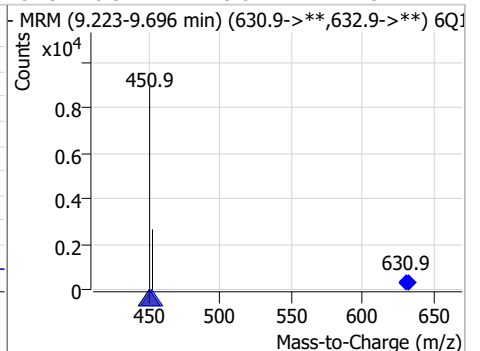
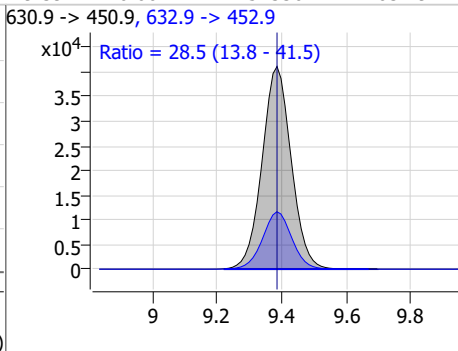
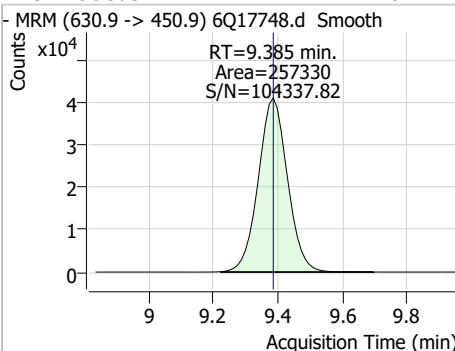
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	21.78	9.11	0.00	60387	599.0 -> 98.8	45.9	25.7	77.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	18.43	9.33	0.00	328675	663.0 -> 168.9	8.9	3.9	11.8



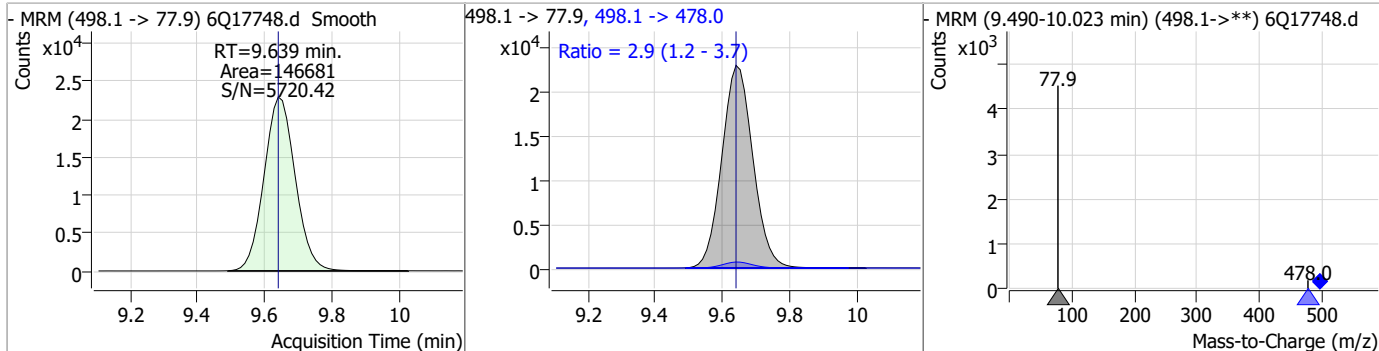
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	22.84	9.39	0.00	257330	632.9 -> 452.9	28.5	13.8	41.5



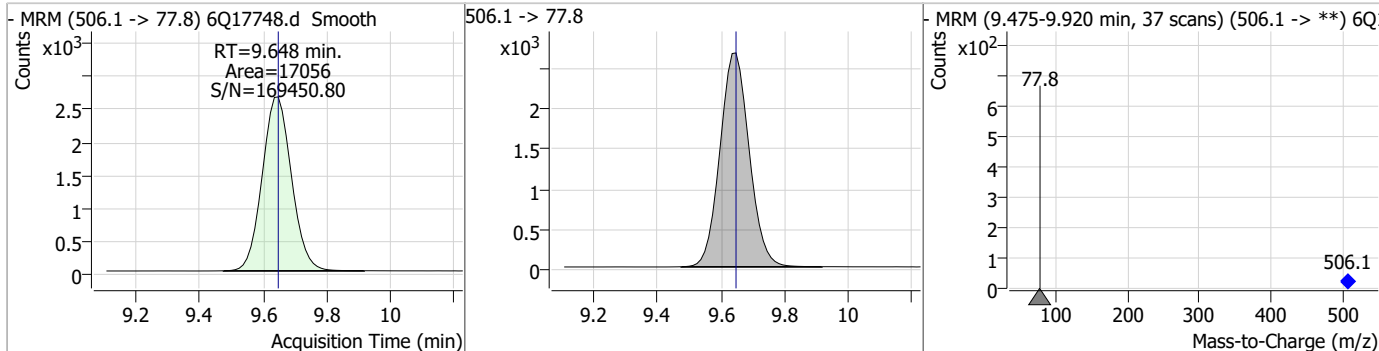
7.7.11
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Perfluorinated Compounds by LC/MS/MS

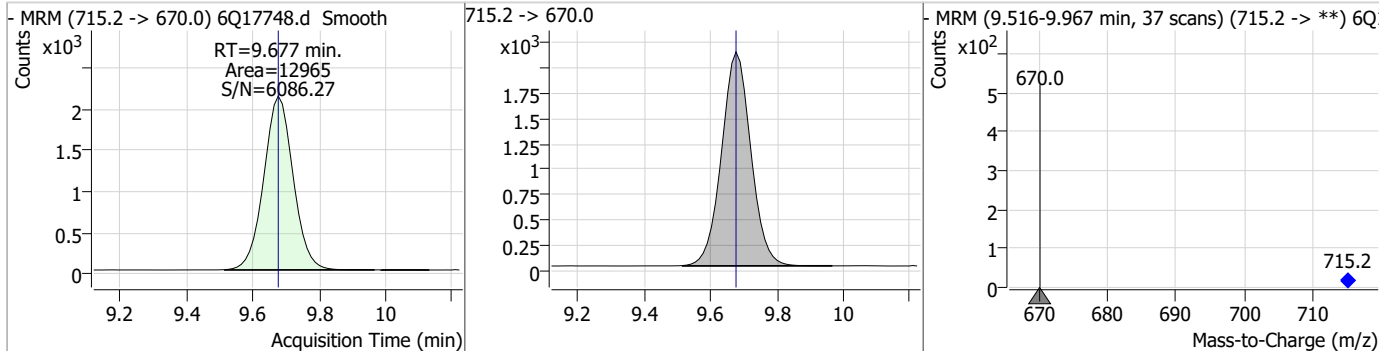
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	22.97	9.64	0.00	146681	498.1 -> 478.0	2.9	1.2	3.7



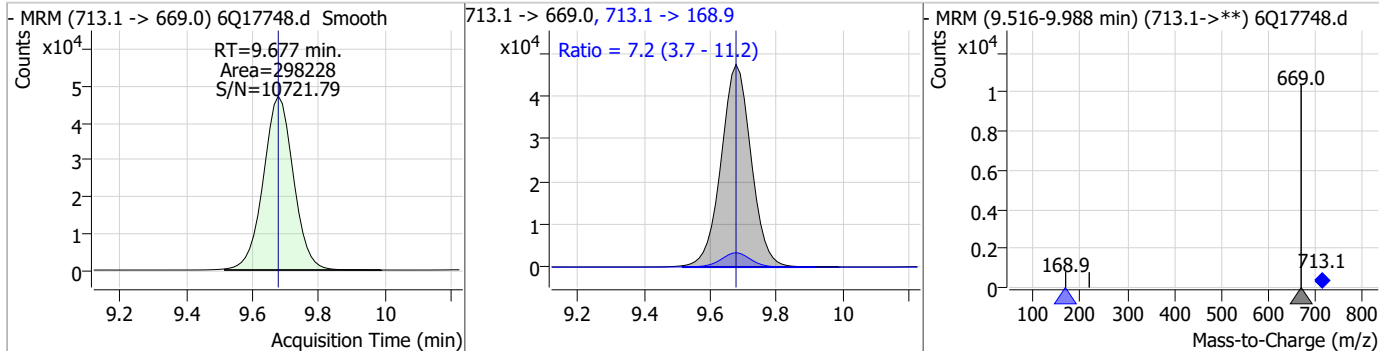
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.56	9.65	0.00	17056	506.1 -> 77.8			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.32	9.68	0.00	12965	715.2 -> 670.0			

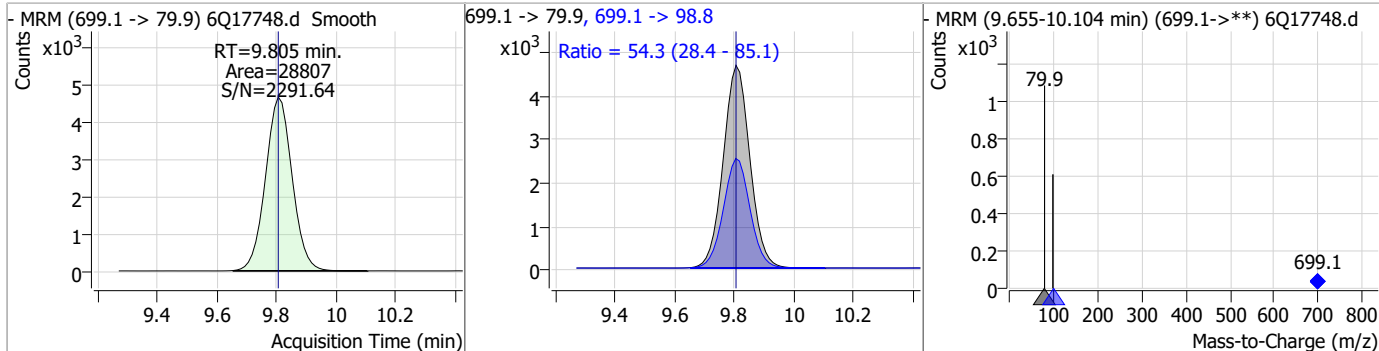


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	22.46	9.68	0.00	298228	713.1 -> 168.9	7.2	3.7	11.2

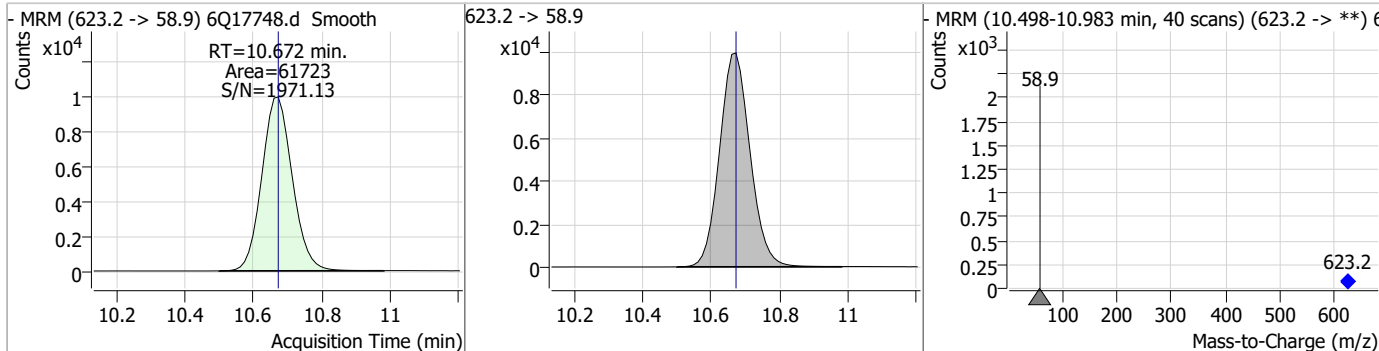


Perfluorinated Compounds by LC/MS/MS

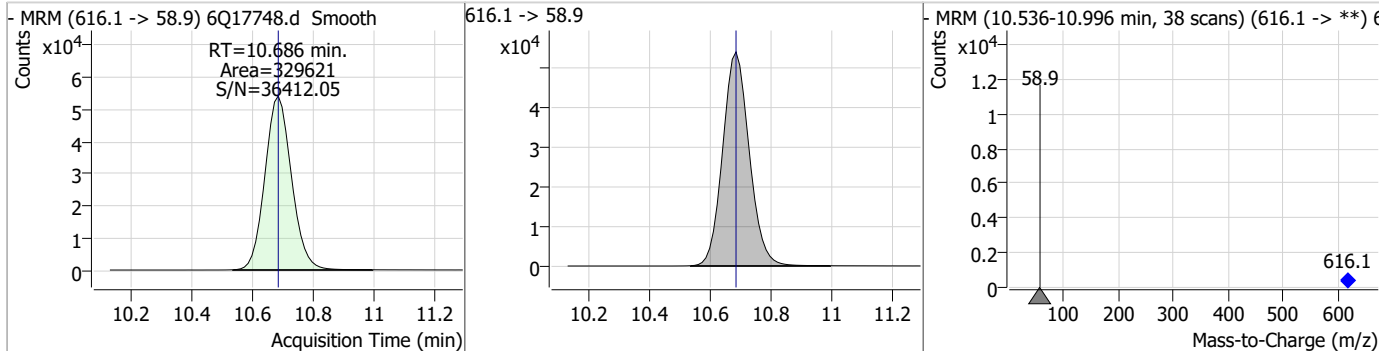
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	19.66	9.81	0.00	28807	699.1 -> 98.8	54.3	28.4	85.1



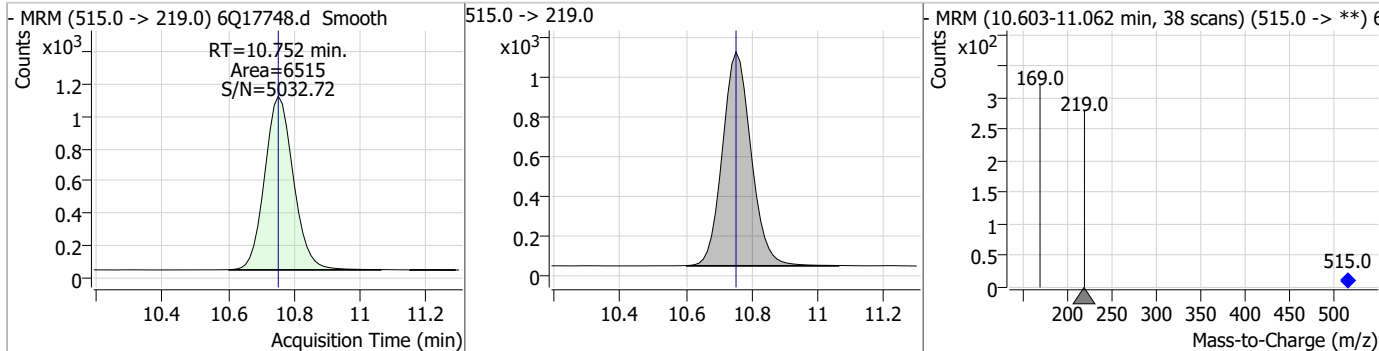
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.94	10.67	0.00	61723				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	114.16	10.69	0.00	329621				

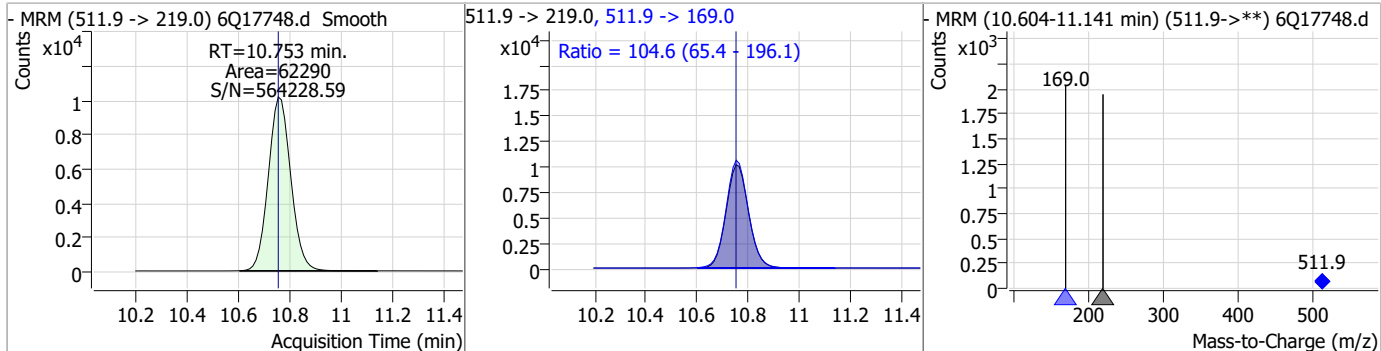


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.68	10.75	0.00	6515				

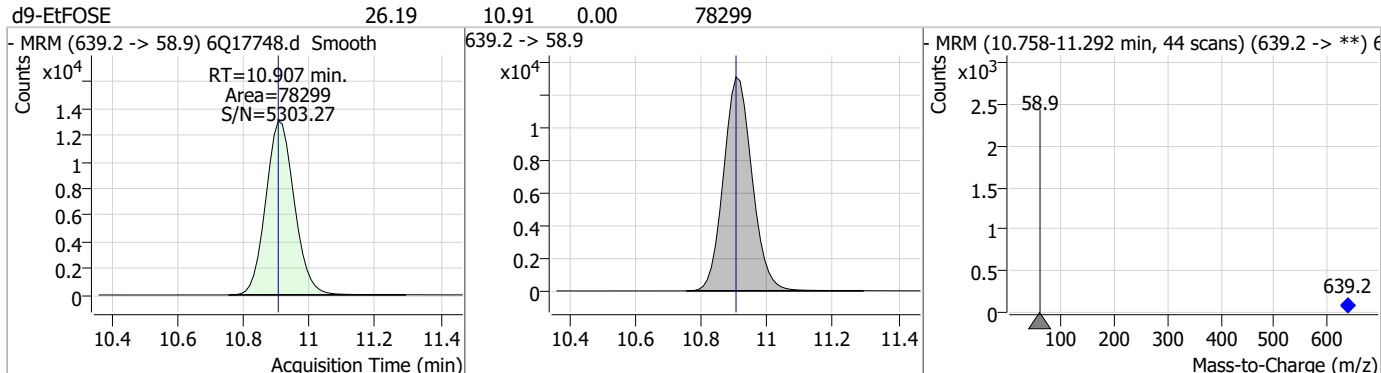


Perfluorinated Compounds by LC/MS/MS

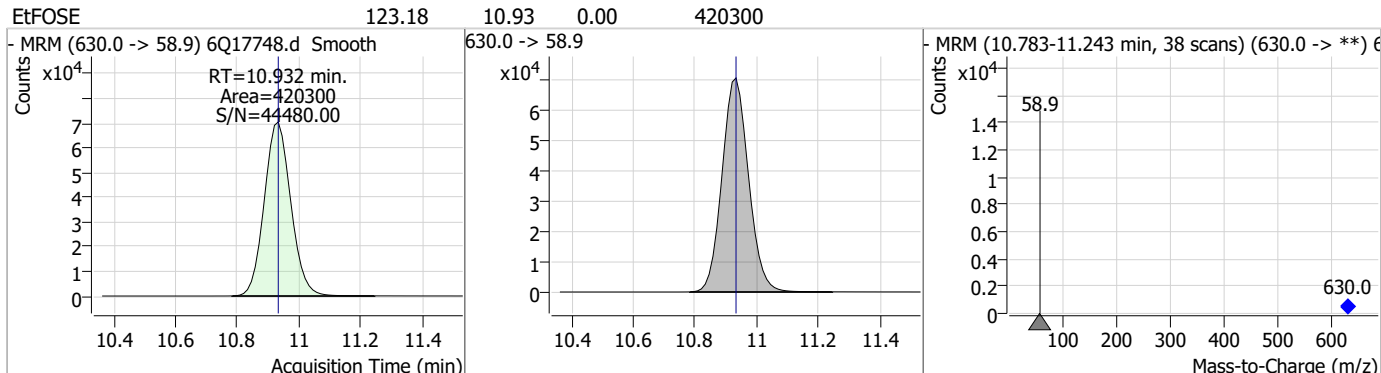
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	20.76	10.75	0.00	62290	511.9 -> 169.0	104.6	65.4	196.1



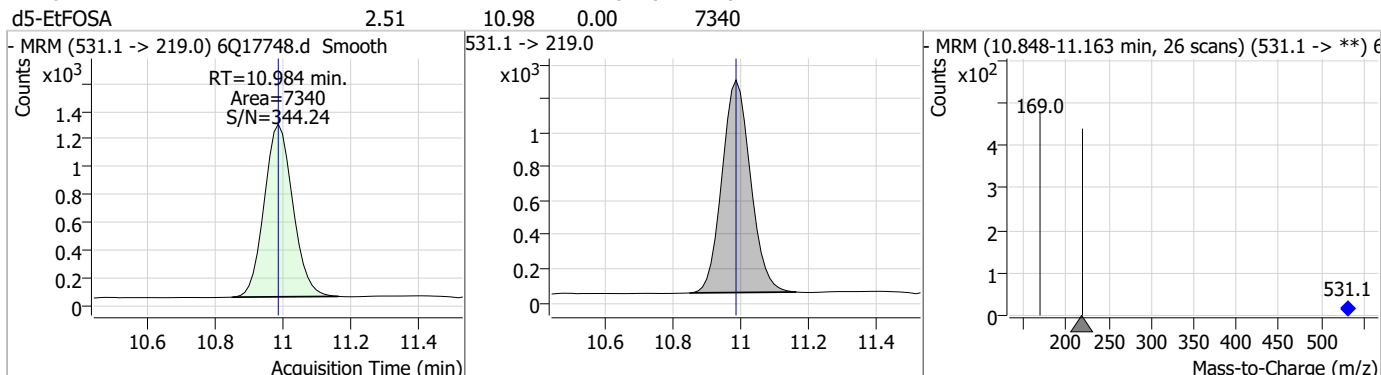
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.19	10.91	0.00	78299				



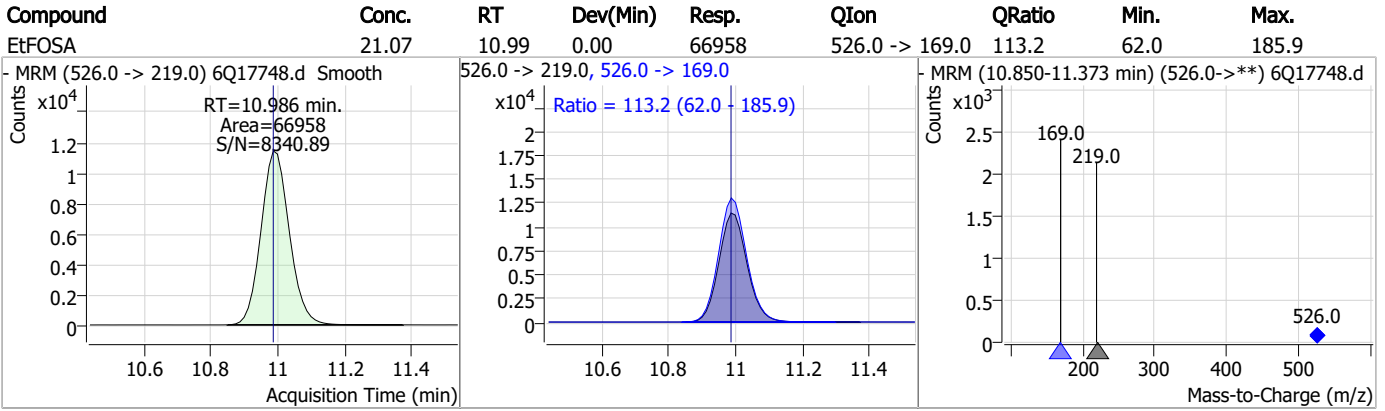
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	123.18	10.93	0.00	420300				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.51	10.98	0.00	7340				



Perfluorinated Compounds by LC/MS/MS



7.7.11

7

Manual Integration Approval Summary

Sample Number: S6Q268-ICV268 Method: EPA DRAFT 1633
Lab FileID: 6Q17748.D Analyst approved: 05/15/23 12:43 Martha Valls
Injection Time: 05/12/23 14:40 Supervisor approved: 05/16/23 09:33 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.11.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17942.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 1:25:18 PM
 Sample Name : cc268-4
 Vial : P1-A5
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96663,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	147069	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	46295	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	52604	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	45799	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	67463	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	23955	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	17482	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	22986	1.25 µg/L	-0.012
M2-PFDoDA	8.937	615.1 -> 570.0	20831	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	15270	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	21571	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	17775	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10596	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	9492	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1446	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1916	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2132	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	18702	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	32850	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	16156	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	82045	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	100610	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8832	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7607	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	12275	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	61252	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	8079	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	72543	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	20443	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	26132	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	44214	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1446	4.70 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1916	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2132	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFDoDA	8.937	615.1 -> 570.0	20831	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFTeDA	9.664	715.2 -> 670.0	15270	1.32 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C3-PFBS	5.384	302.1 -> 79.9	17775	2.53 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.167	402.1 -> 79.9	10596	2.46 µg/L	0.000

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 = 98.5%	
13C4-PFBA	2.901	216.8 -> 171.9	147069	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.420	367.1 -> 322.0	45799	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFHxA	5.466	318.0 -> 273.0	52604	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFPeA	4.272	268.3 -> 223.0	46295	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C6-PFDA	8.064	519.1 -> 474.1	17482	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C7-PFUnDA	8.506	570.0 -> 525.1	22986	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C8-FOSA	9.636	506.1 -> 77.8	21571	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C8-PFOA	7.064	421.1 -> 376.0	67463	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOS	8.214	507.1 -> 79.9	9492	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C9-PFNA	7.583	472.1 -> 427.0	23955	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSAA	8.121	573.2 -> 419.0	18702	4.86 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	32850	10.15 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
d3-MeFOSA	10.752	515.0 -> 219.0	7607	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
d5-EtFOSAA	8.316	589.2 -> 419.0	16156	5.31 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
d7-MeFOSE	10.660	623.2 -> 58.9	82045	27.13 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
d9-EtFOSE	10.907	639.2 -> 58.9	100610	27.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.2%	
d5-EtFOSA	10.984	531.1 -> 219.0	8832	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
Target Compounds					QValue
4:2FTS	5.132	327.1 -> 307.0	20587	9.47 µg/L	96
		327.1 -> 80.9	8132		
6:2FTS	6.838	427.1 -> 407.0	20491	9.83 µg/L	99
		427.1 -> 80.9	6697		
8:2FTS	7.852	527.1 -> 507.0	11771	9.72 µg/L	95
		527.1 -> 80.8	5163		
EtFOSAA	8.318	584.2 -> 419.1	6200	2.06 µg/L	99
		584.2 -> 526.0	3323		
FOSA	9.639	498.1 -> 77.9	19259	2.39 µg/L	98
		498.1 -> 478.0	589		
MeFOSAA	8.122	570.1 -> 419.0	9030	2.50 µg/L	99
		570.1 -> 483.0	1834		
PFBA	2.907	212.8 -> 168.9	51249	9.71 µg/L	100
PFBS	5.385	298.7 -> 79.9	17423	2.01 µg/L	93
		298.7 -> 98.8	7070		
PFDA	8.064	512.9 -> 469.0	50701	2.34 µg/L	96
		512.9 -> 219.0	7387		
PFDoDA	8.938	613.1 -> 569.0	41749	2.52 µg/L	100
		613.1 -> 319.0	5734		
PFDS	9.101	599.0 -> 79.9	7195	2.33 µg/L	100

7.7.12
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	3674	2.48	µg/L	98
		363.1 -> 319.0	56784			
PFHpS	7.723	363.1 -> 169.0	8721	2.20	µg/L	99
		449.0 -> 79.9	11122			
PFHxA	5.457	449.0 -> 98.9	5717	2.46	µg/L	99
		313.0 -> 269.0	51330			
PFHxS	7.168	313.0 -> 118.9	2245	2.22	µg/L	98
		398.7 -> 79.9	13019			
PFNA	7.584	398.7 -> 98.9	6311	2.20	µg/L	97
		463.0 -> 419.0	39092			
PFNS	8.681	463.0 -> 219.0	8517	2.49	µg/L	91
		548.8 -> 79.9	11431			
PFOA	7.066	548.8 -> 98.9	5841	2.21	µg/L	98
		413.0 -> 369.0	74146			
PFOS	8.215	413.0 -> 169.0	12894	2.35	µg/L	94
		498.9 -> 79.9	11717			
PFPeA	4.262	498.9 -> 98.8	5818	4.86	µg/L	100
		263.0 -> 219.0	64921			
PFPeS	6.471	349.1 -> 79.9	13759	2.37	µg/L	97
		349.1 -> 98.9	5932			
PFTeDA	9.665	713.1 -> 669.0	38047	2.43	µg/L	98
		713.1 -> 168.9	2651			
PFTrDA	9.333	663.0 -> 619.0	48419	2.52	µg/L	97
		663.0 -> 168.9	4355			
PFUnDA	8.518	563.1 -> 519.0	37999	2.28	µg/L	99
		563.1 -> 269.1	5799			
11Cl-PF3OUdS	9.373	630.9 -> 450.9	57752	4.65	µg/L	90
		632.9 -> 452.9	19090			
9Cl-PF3ONS	8.545	530.8 -> 351.0	90440	4.56	µg/L	96
		532.8 -> 353.0	27908			
ADONA	6.671	376.9 -> 250.9	249020	4.76	µg/L	96
		376.9 -> 84.8	64010			
HFPO-DA	5.832	284.9 -> 168.9	15573	4.90	µg/L	99
		284.9 -> 184.9	2061			
3:3FTCA	3.777	241.0 -> 177.0	10137	12.24	µg/L	99
		241.0 -> 117.0	1311			
5:3FTCA	6.161	341.0 -> 237.1	215609	59.72	µg/L	98
		341.0 -> 217.0	161128			
7:3FTCA	7.573	441.0 -> 316.9	108764	66.40	µg/L	97
		441.0 -> 336.9	221792			
EtFOSA	10.986	526.0 -> 219.0	18704	4.89	µg/L	96
		526.0 -> 169.0	24036			
EtFOSE	10.920	630.0 -> 58.9	54125	12.34	µg/L	100
		511.9 -> 219.0	16712			
MeFOSA	10.753	511.9 -> 169.0	22645	4.77	µg/L	96
		616.1 -> 58.9	46611			
MeFOSE	10.673	699.1 -> 79.9	3992	12.14	µg/L	100
		699.1 -> 98.8	2142			
PFDoDS	9.805	295.0 -> 201.0	11331	2.45	µg/L	96
		295.0 -> 84.9	3026			
NFDHA	5.348	279.0 -> 85.1	46436	4.93	µg/L	99
		229.0 -> 84.9	34321			
PFMBA	4.675	314.8 -> 134.9	117568	5.00	µg/L	100
		314.8 -> 82.9	4253			
PFMPA	3.426			4.20	µg/L	100
PFEESA	5.926			4.20	µg/L	100

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

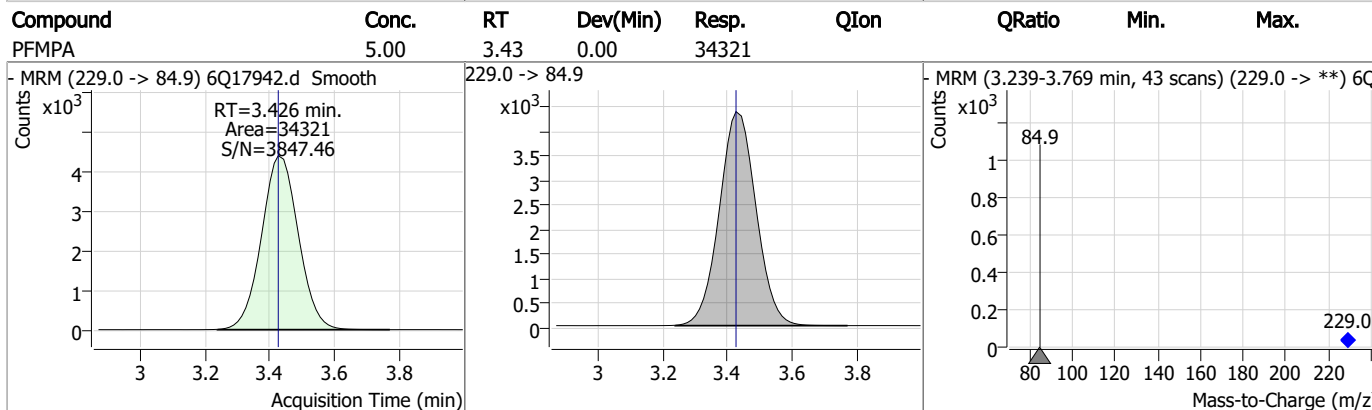
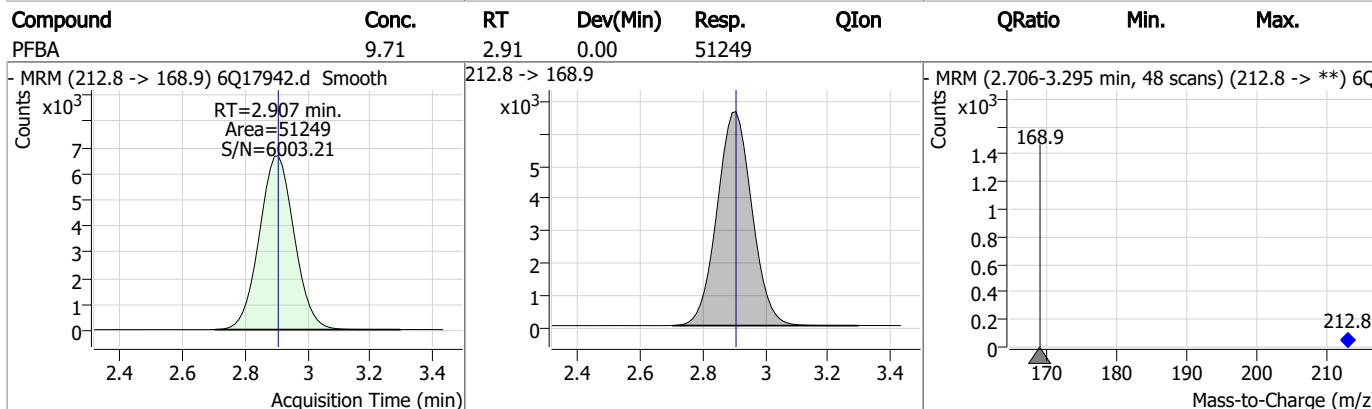
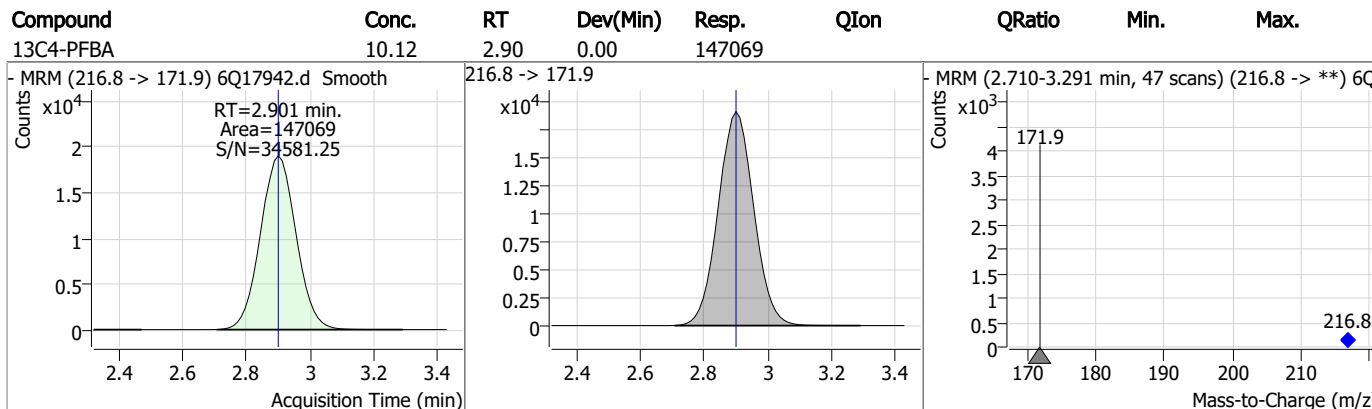
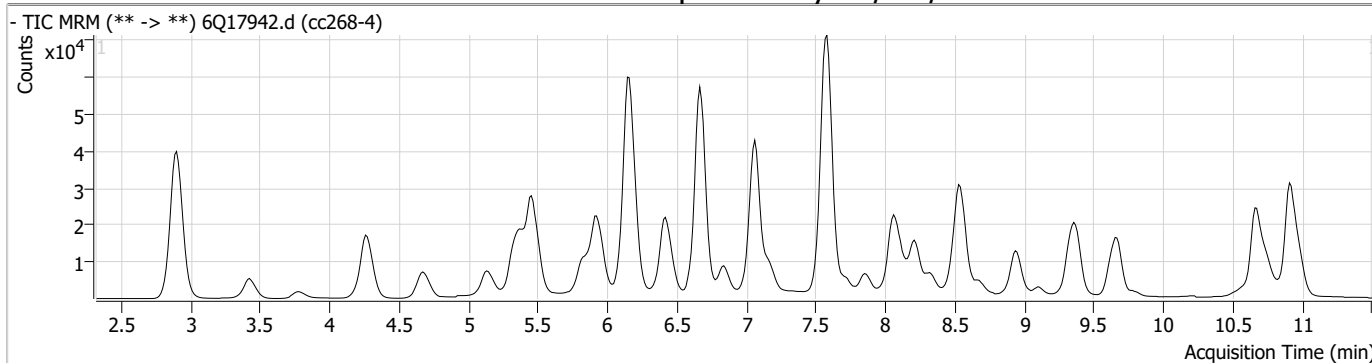


Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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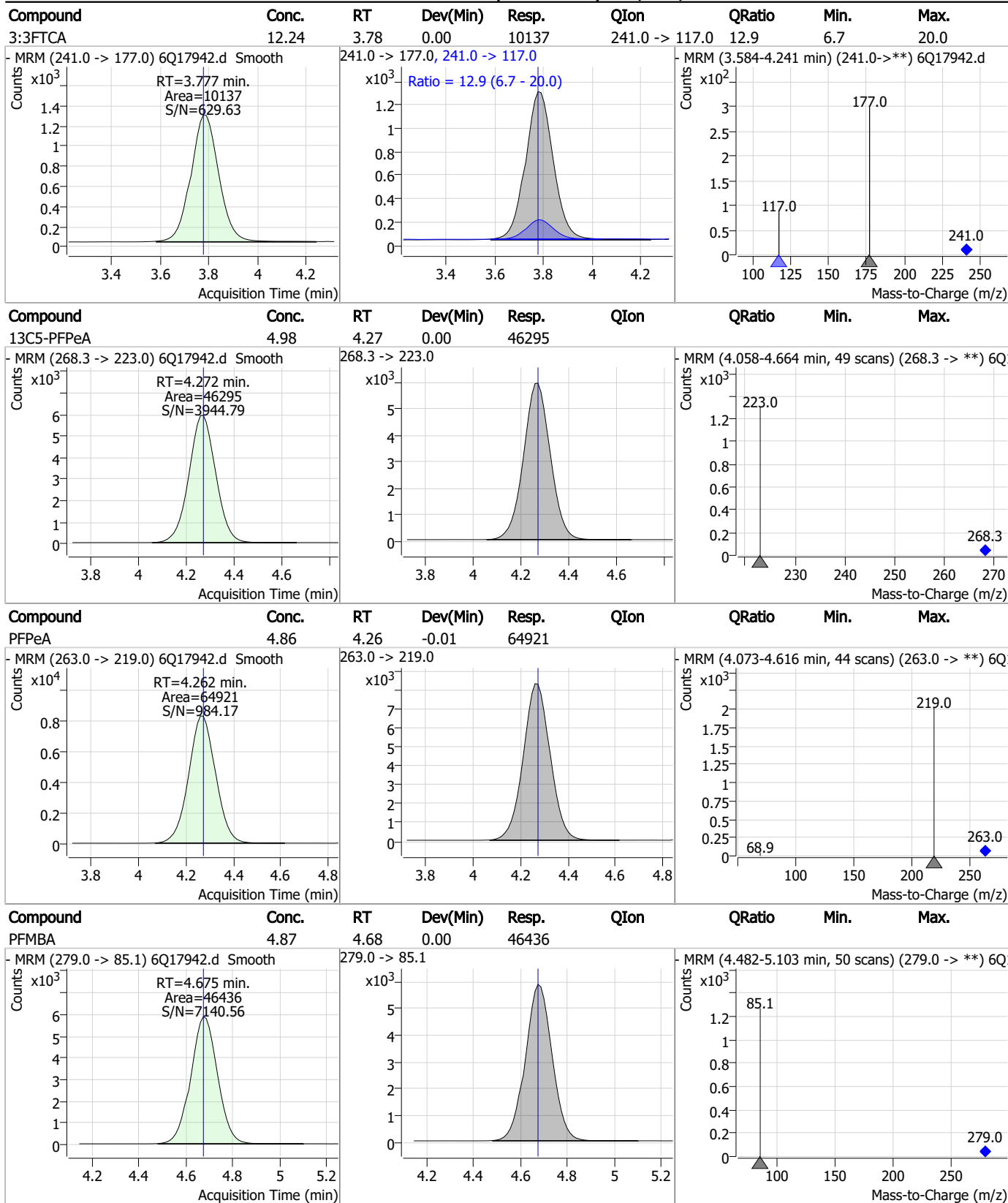
7.7.12
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Perfluorinated Compounds by LC/MS/MS



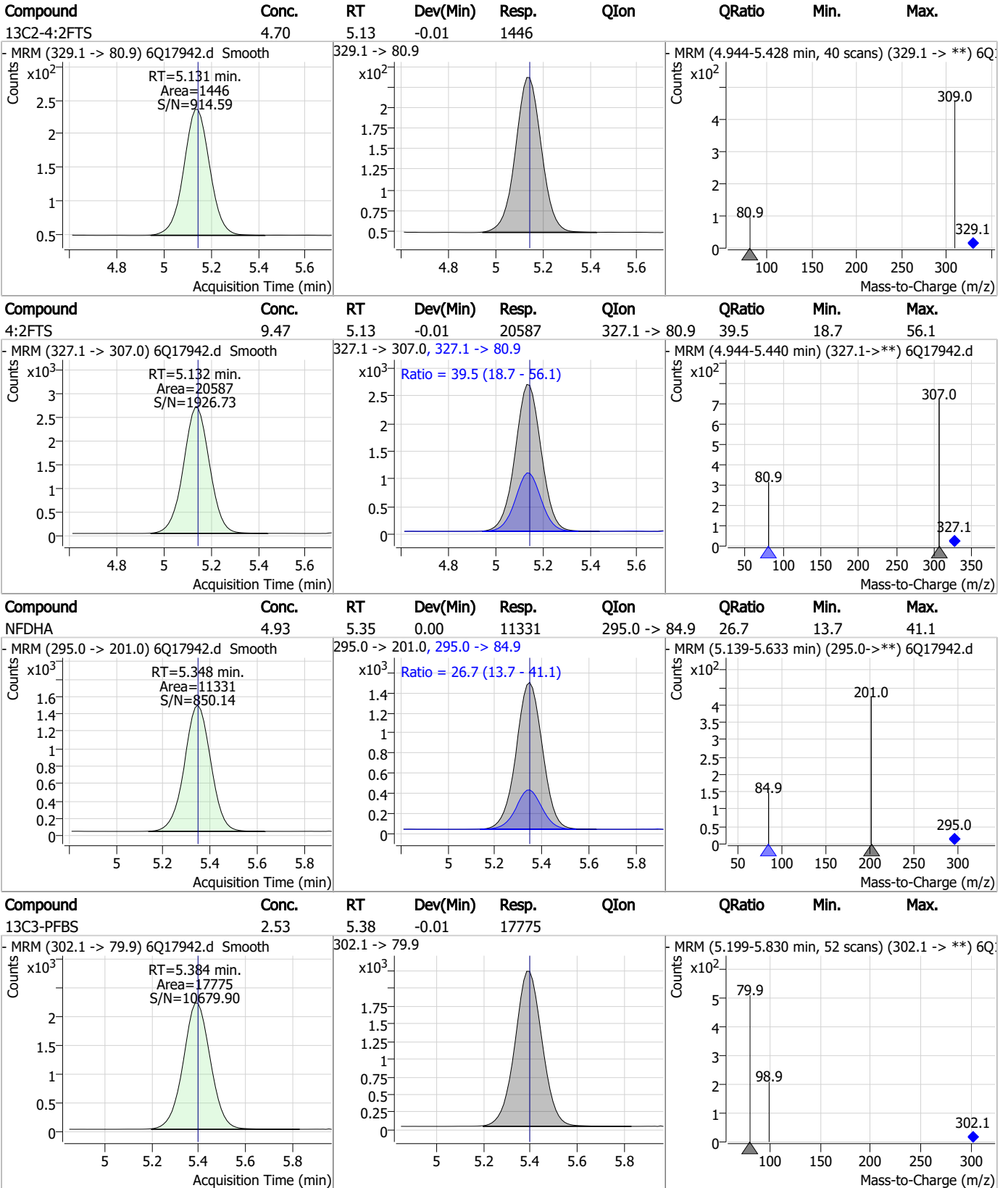
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Perfluorinated Compounds by LC/MS/MS



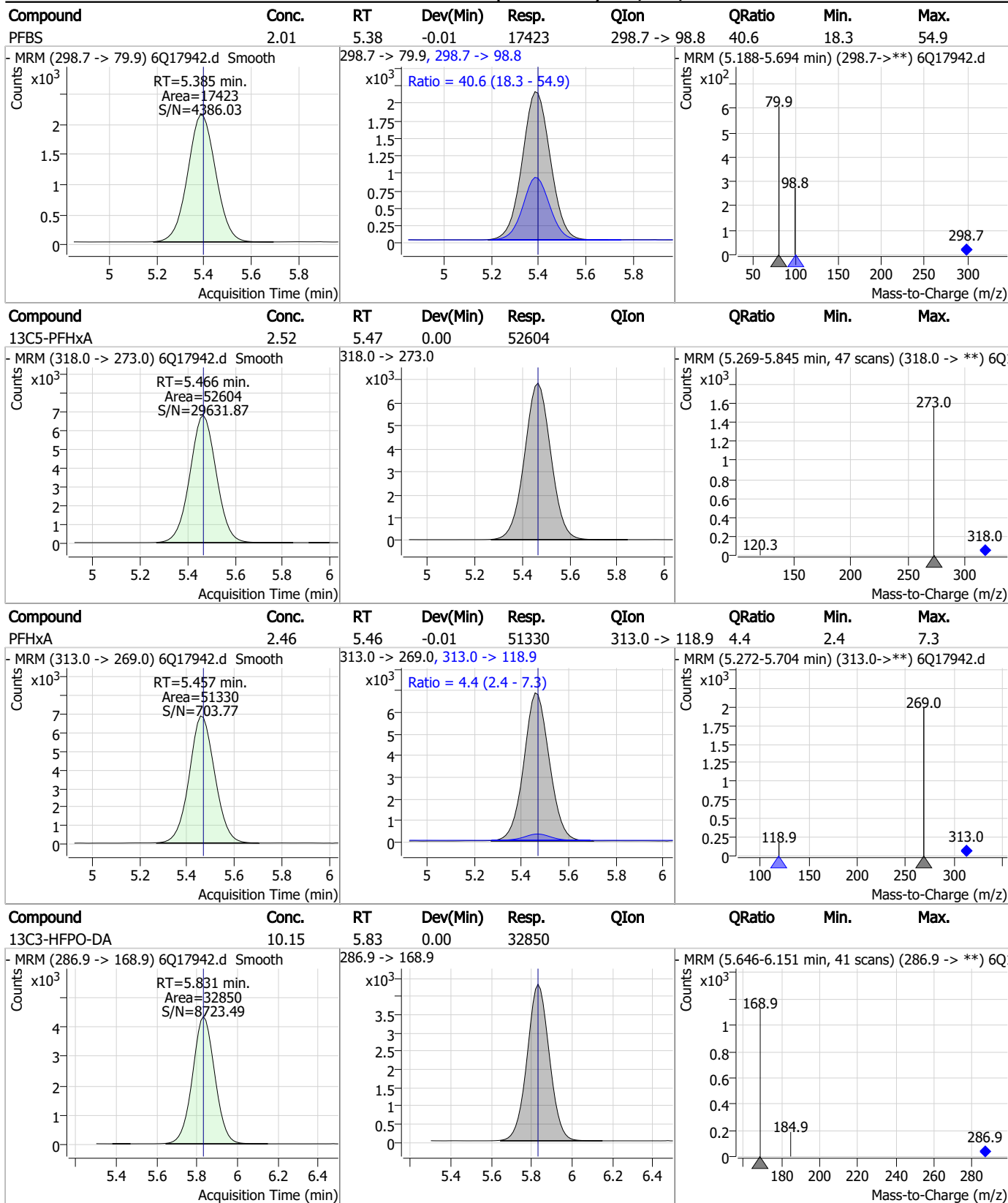
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Perfluorinated Compounds by LC/MS/MS



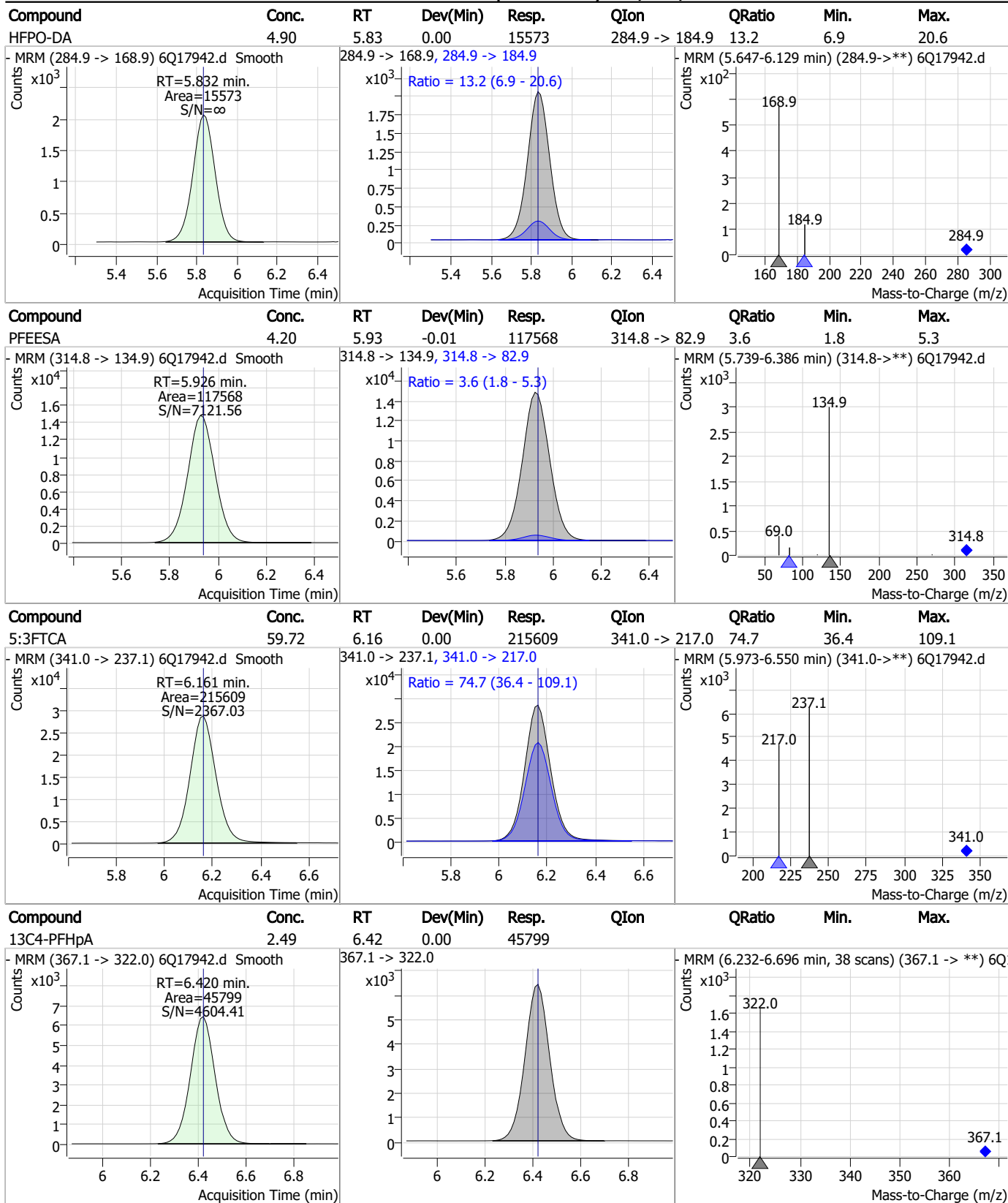
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Perfluorinated Compounds by LC/MS/MS



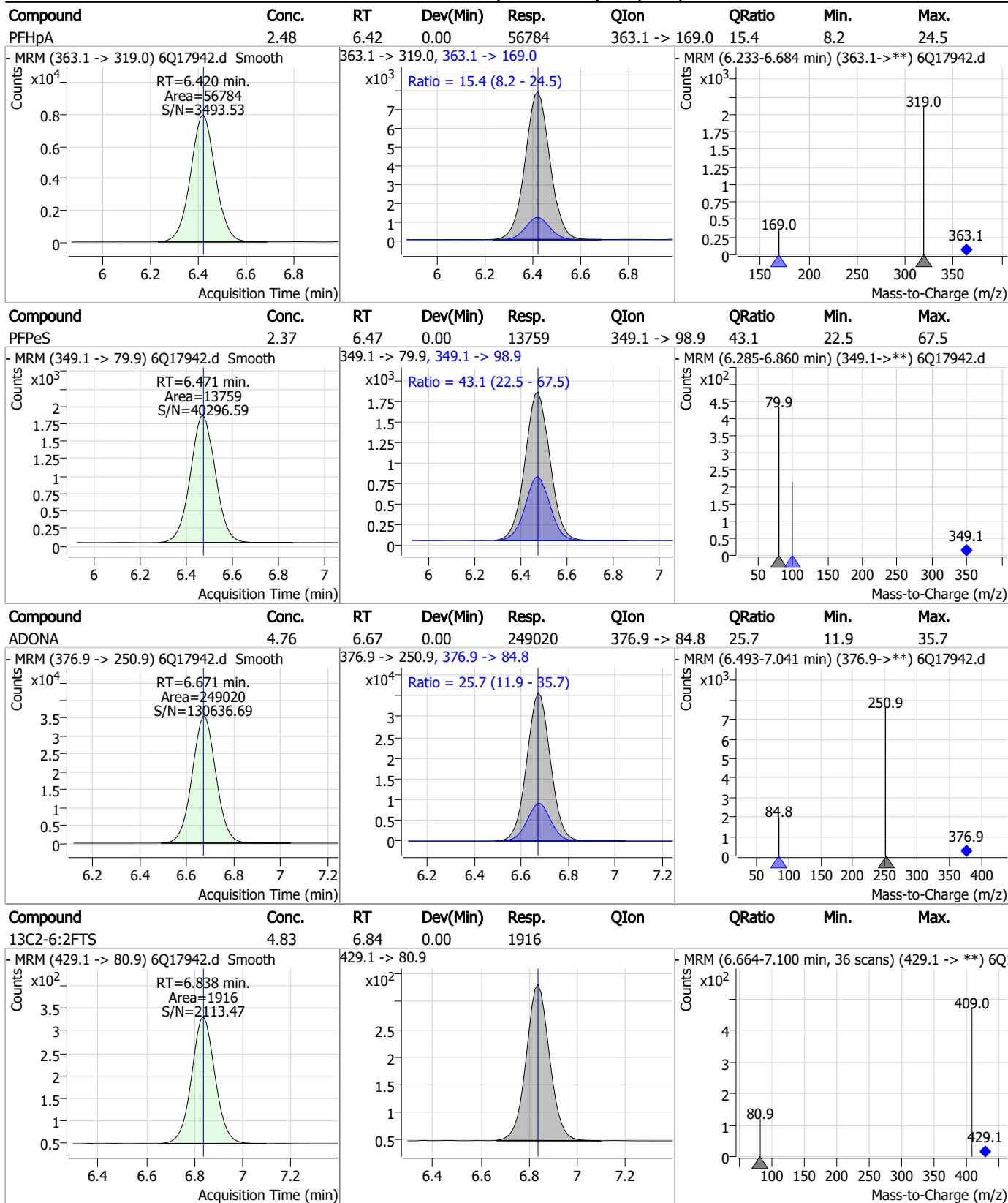
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Perfluorinated Compounds by LC/MS/MS



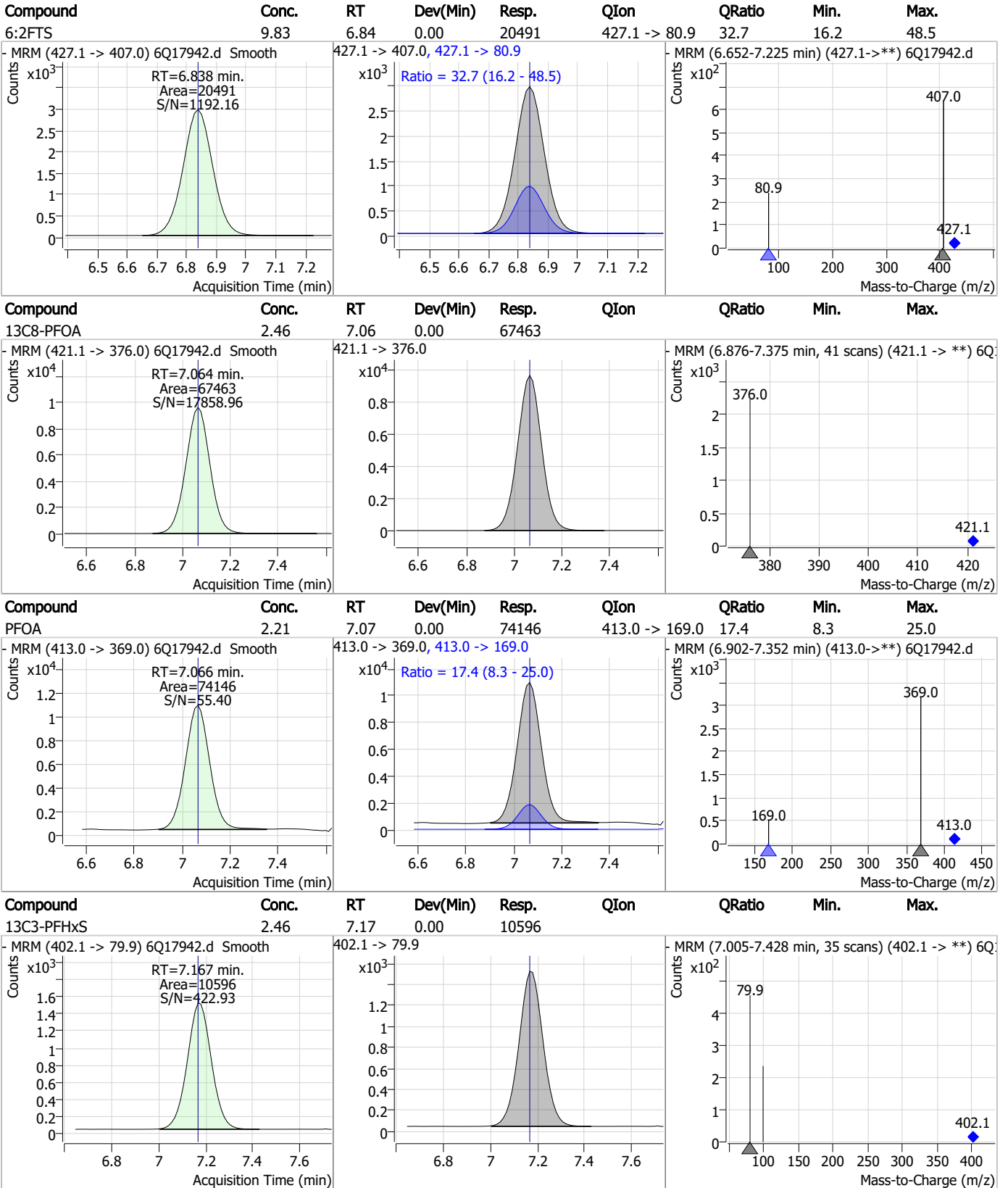
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Perfluorinated Compounds by LC/MS/MS



7.7.12
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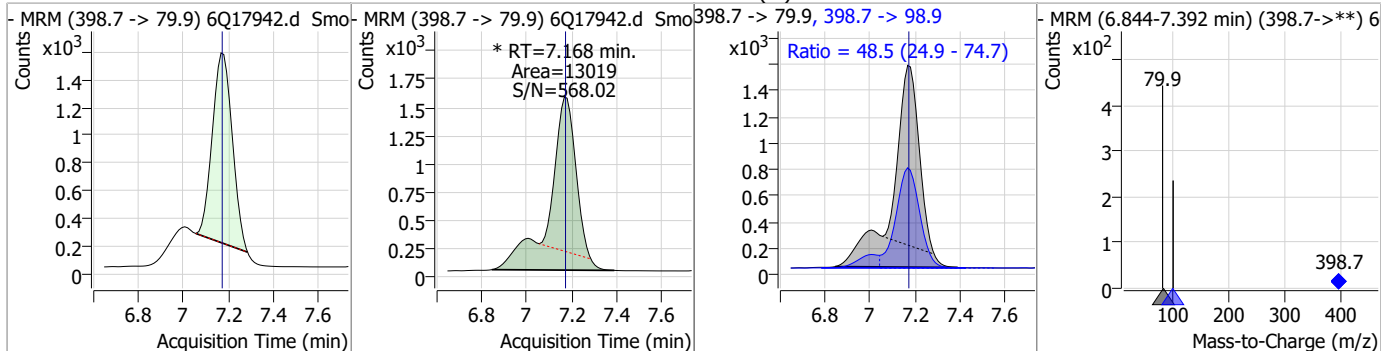
Perfluorinated Compounds by LC/MS/MS



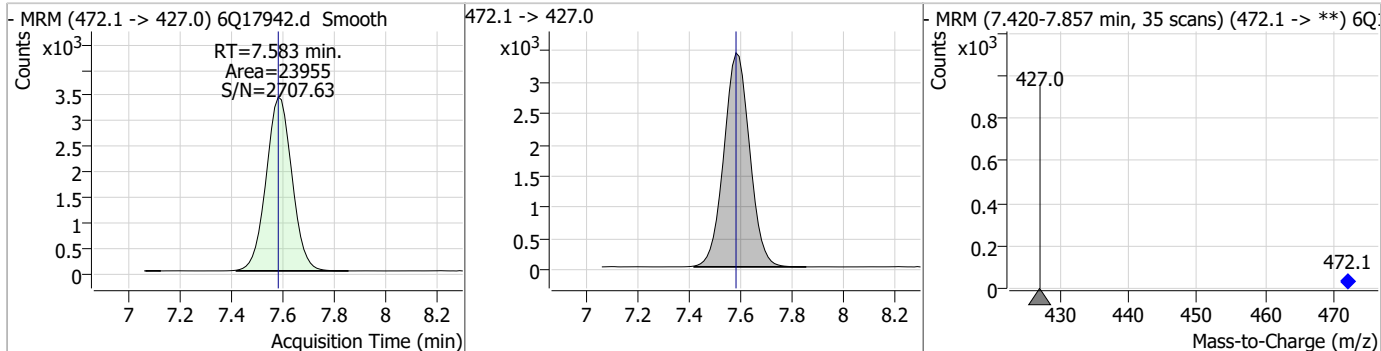
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Perfluorinated Compounds by LC/MS/MS

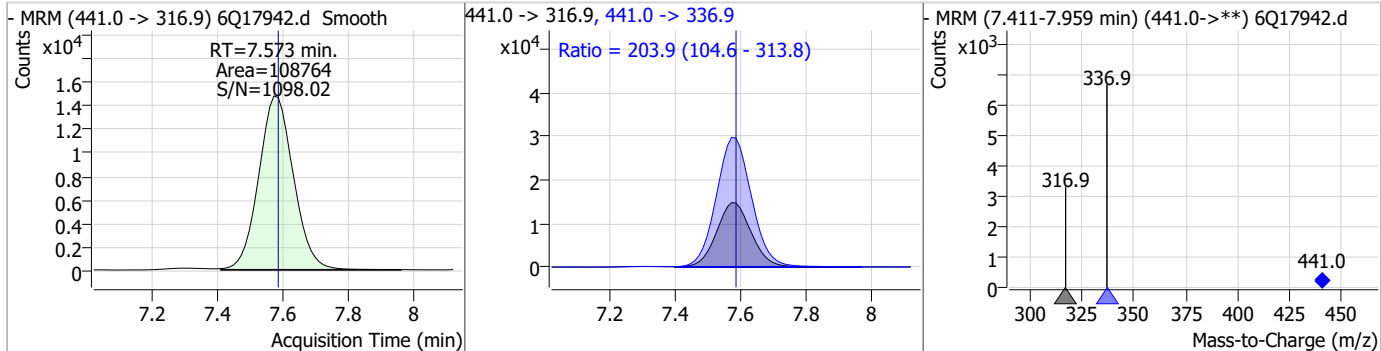
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.22	7.17	0.00	13019 (m)	398.7 -> 98.9	48.5	24.9	74.7



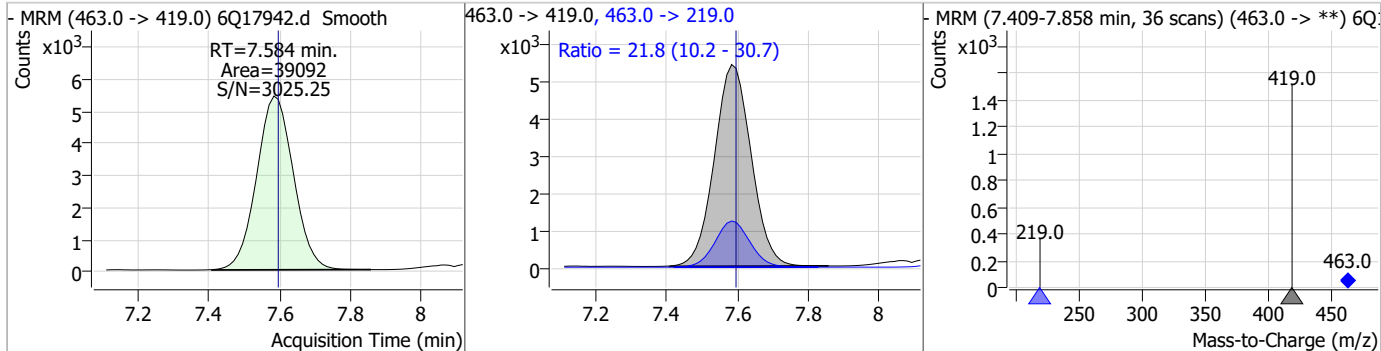
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.24	7.58	0.00	23955				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	66.40	7.57	-0.01	108764	441.0 -> 336.9	203.9	104.6	313.8

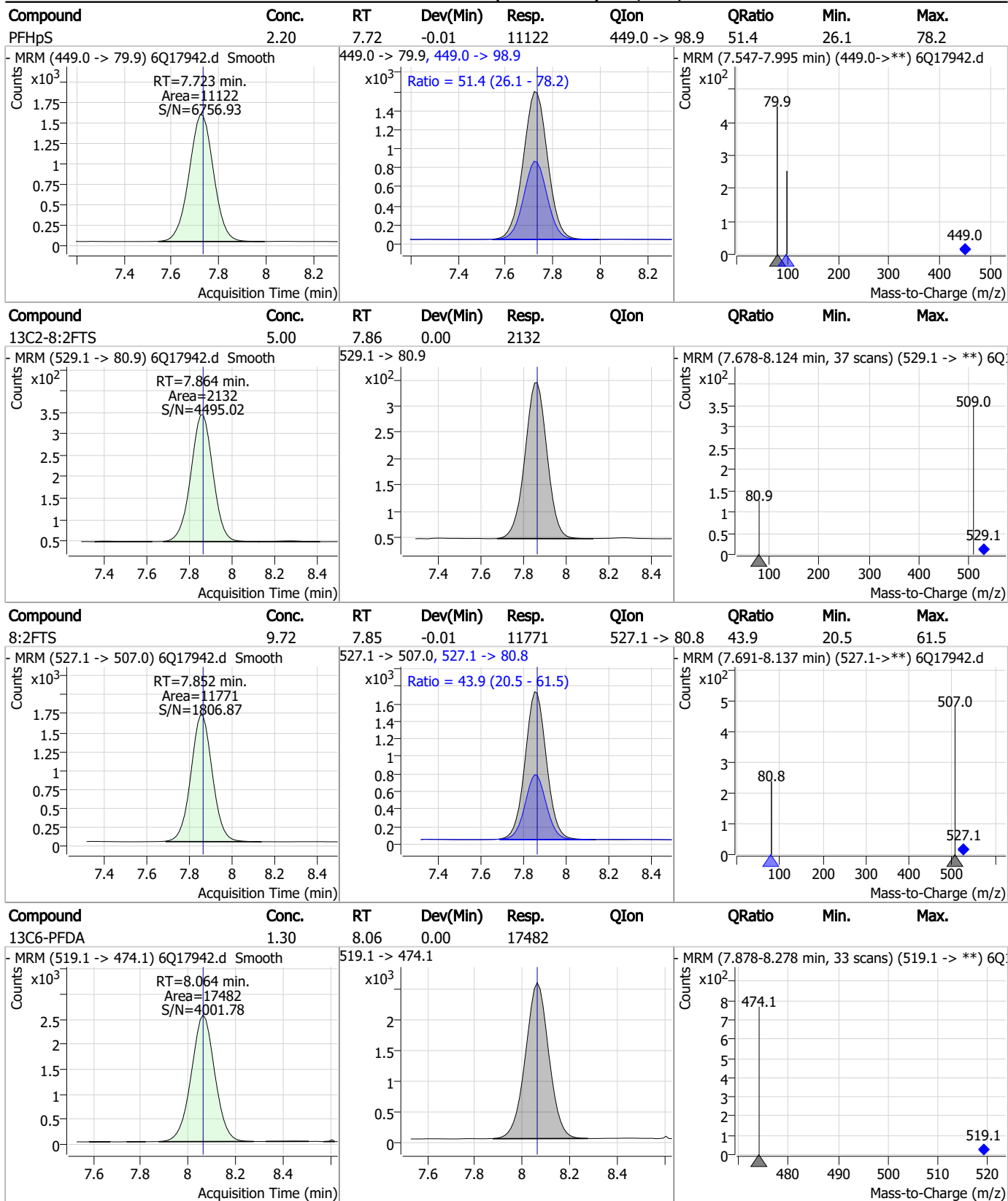


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.20	7.58	-0.01	39092	463.0 -> 219.0	21.8	10.2	30.7



7.7.12
7

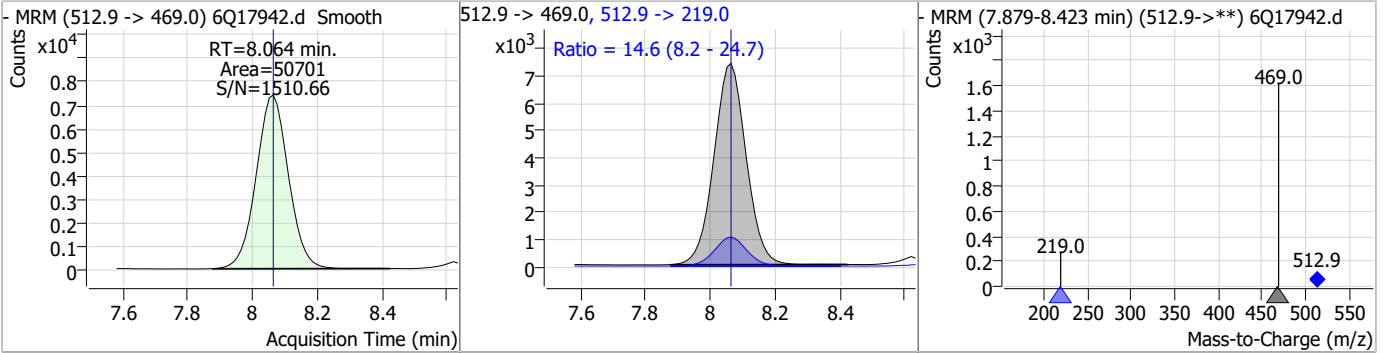
Perfluorinated Compounds by LC/MS/MS



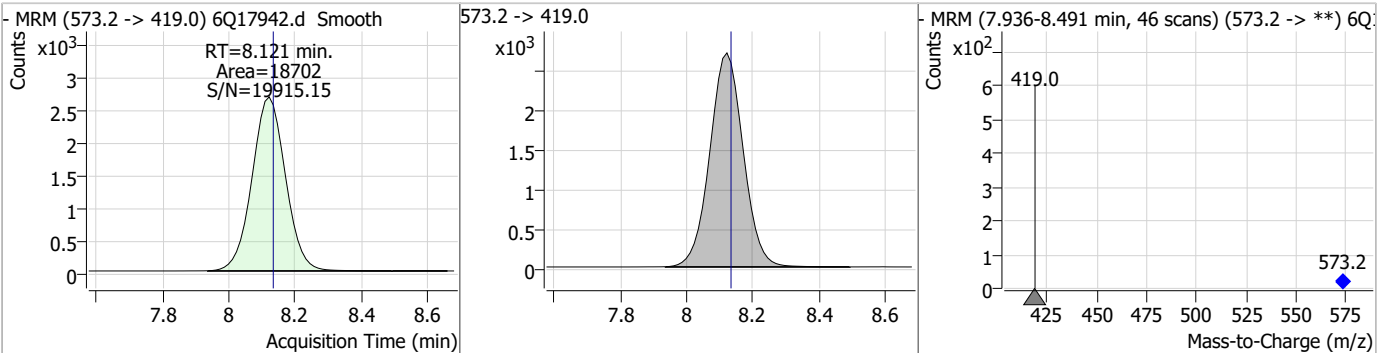
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Perfluorinated Compounds by LC/MS/MS

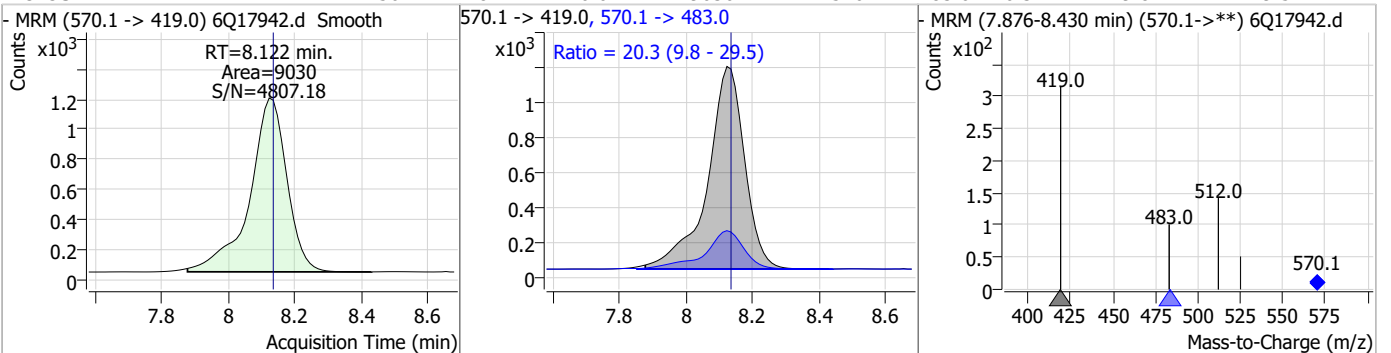
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.34	8.06	0.00	50701	512.9 -> 219.0	14.6	8.2	24.7



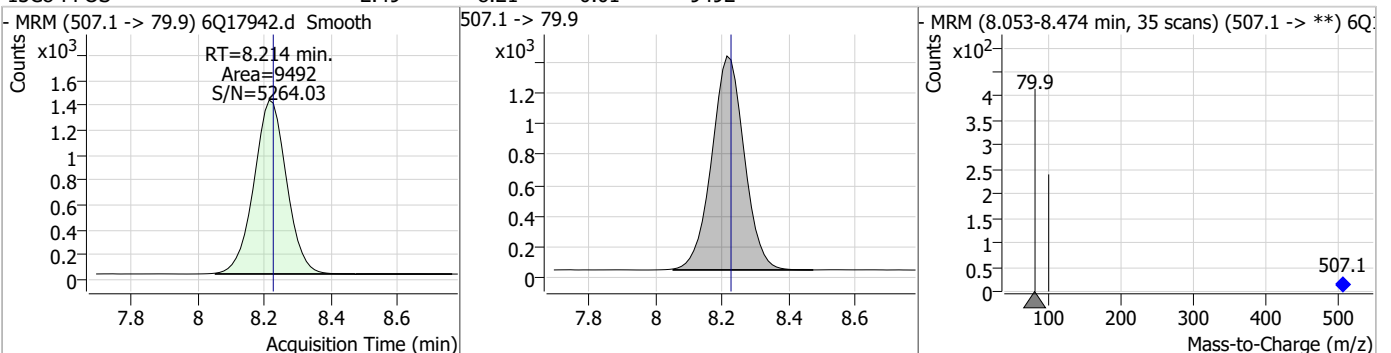
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.86	8.12	-0.01	18702				



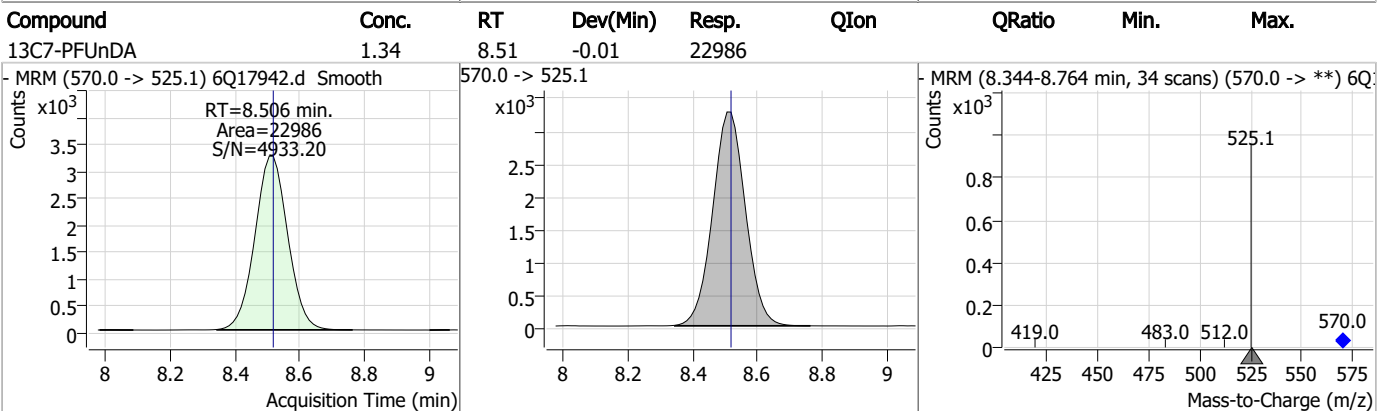
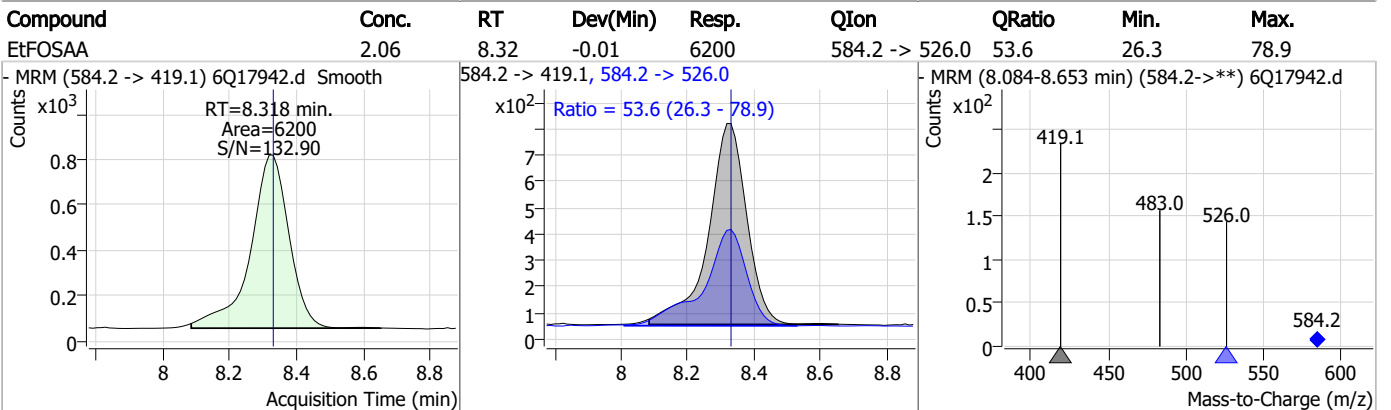
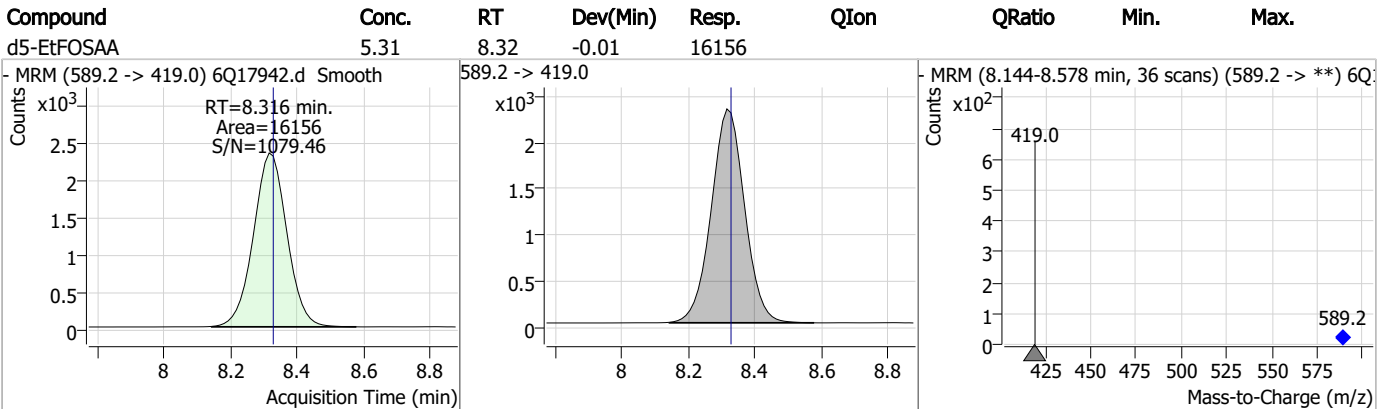
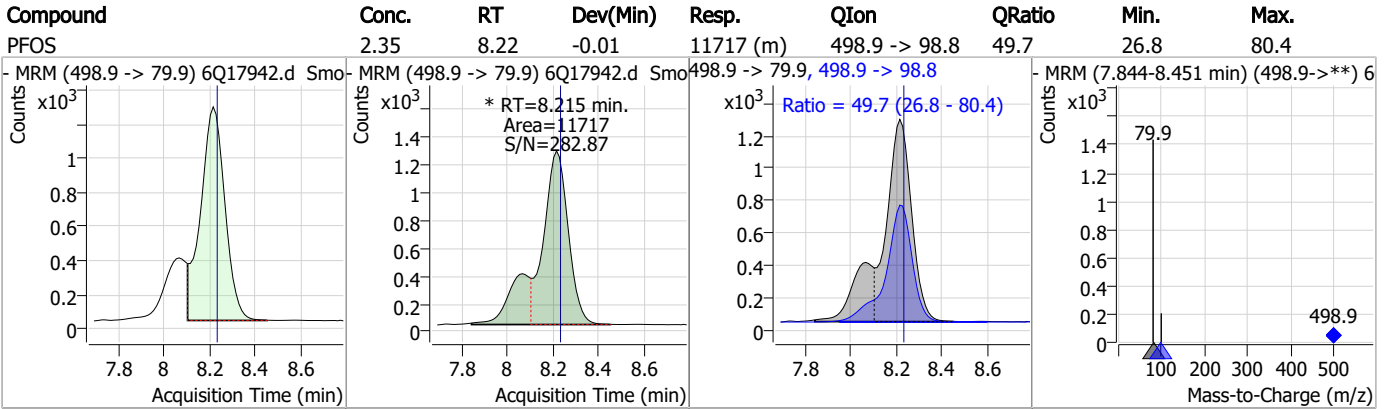
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.50	8.12	-0.01	9030	570.1 -> 483.0	20.3	9.8	29.5



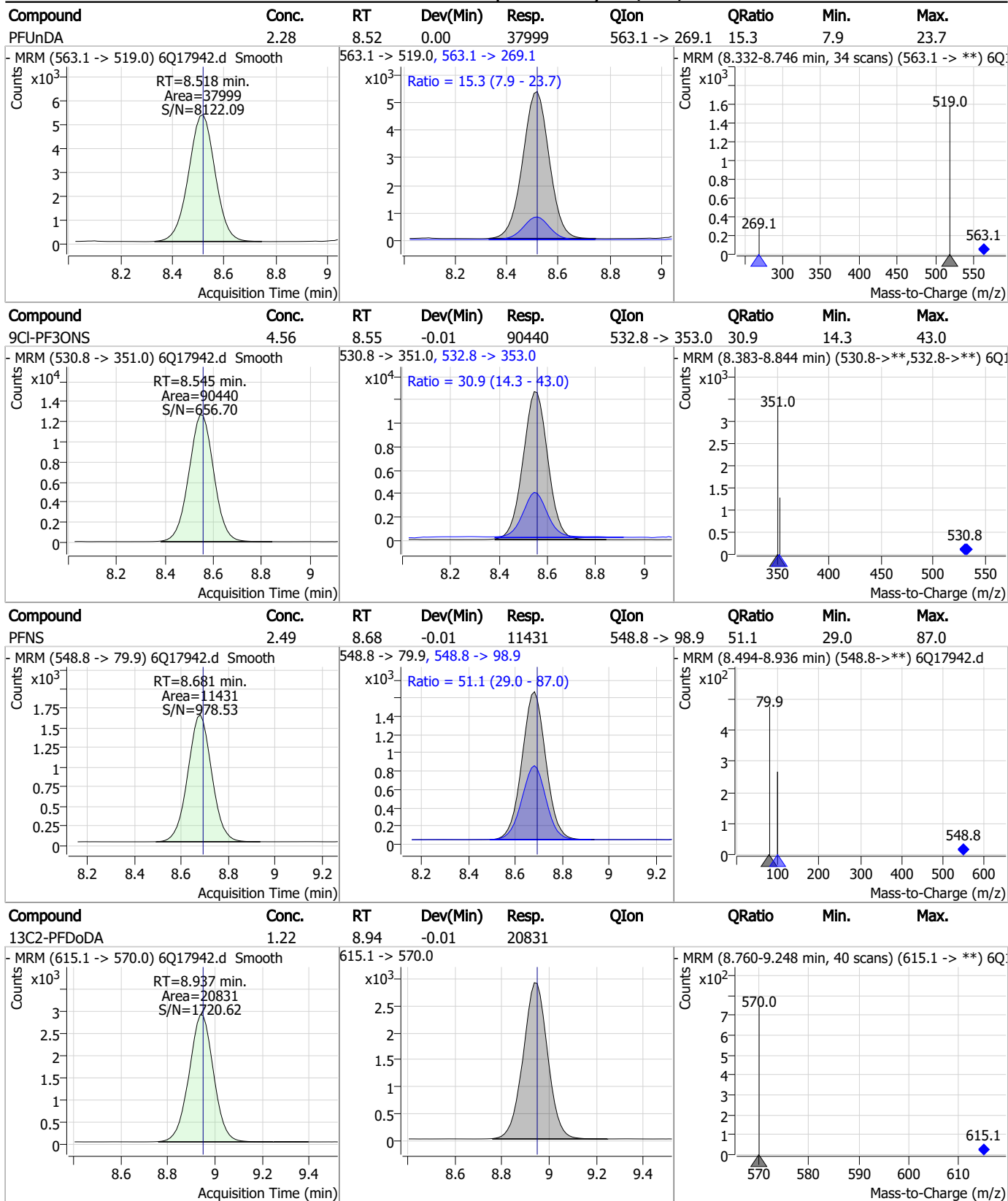
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.21	-0.01	9492				



Perfluorinated Compounds by LC/MS/MS

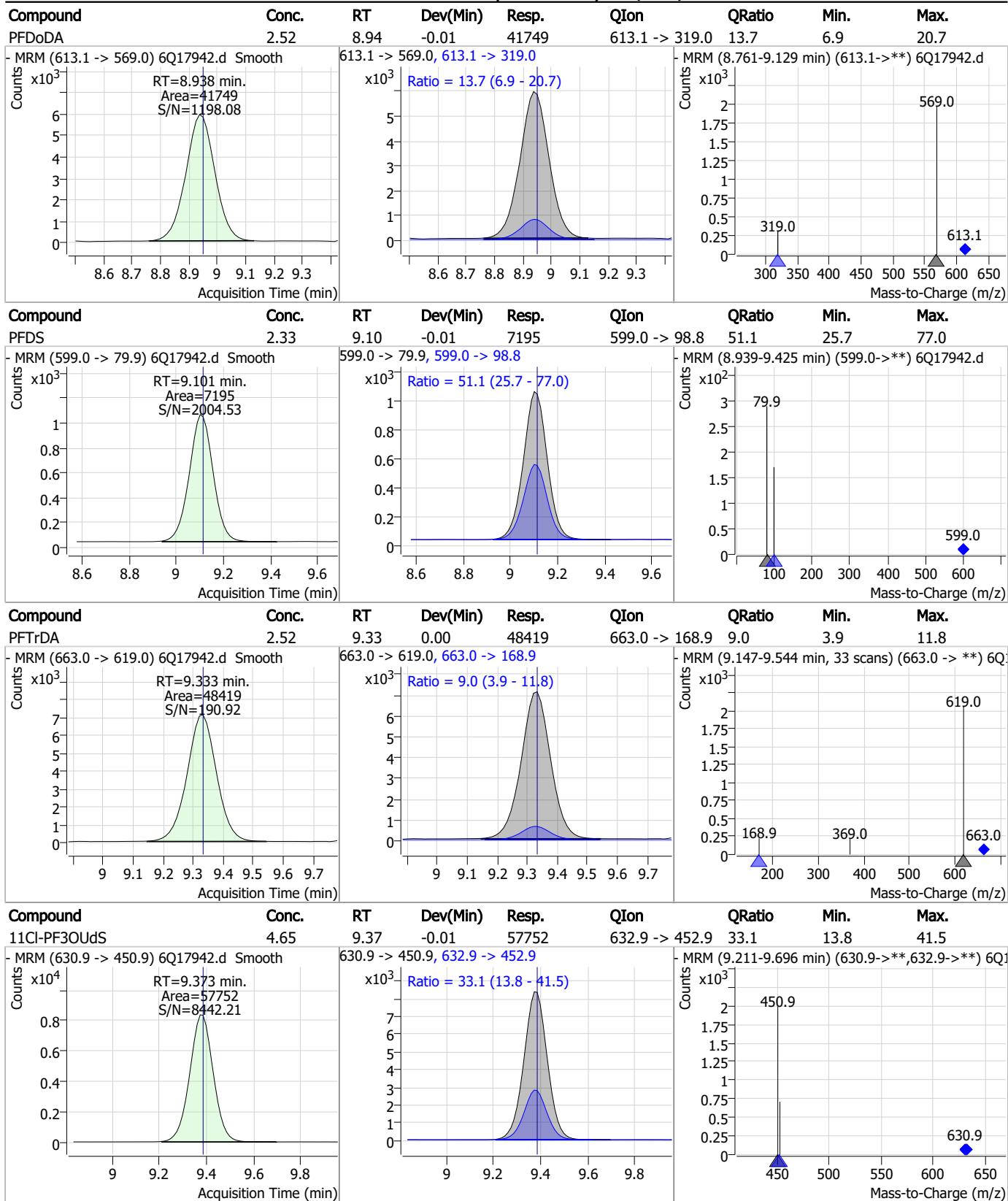


Perfluorinated Compounds by LC/MS/MS



7.7.12
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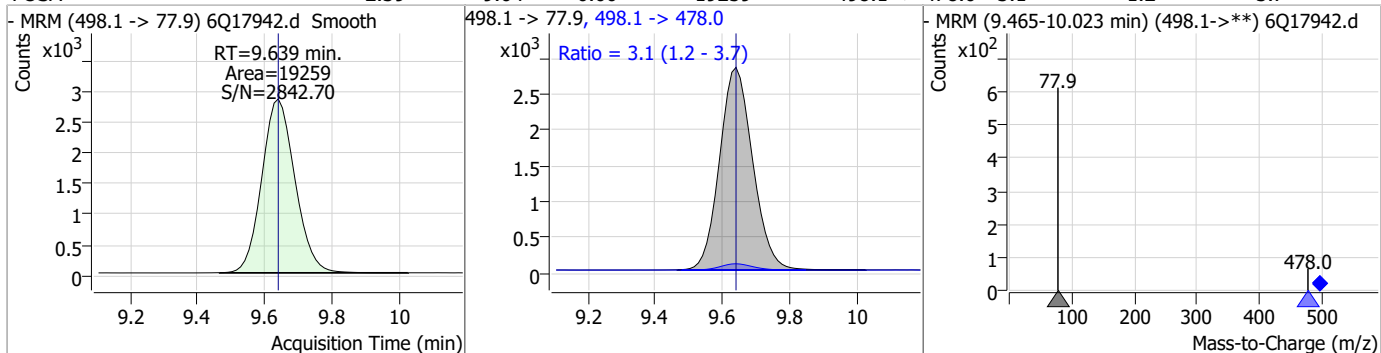
Perfluorinated Compounds by LC/MS/MS



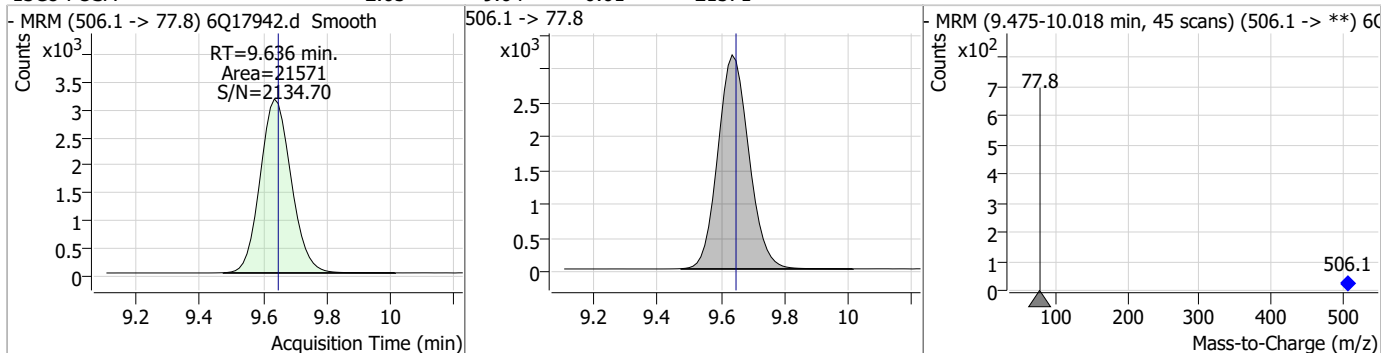
7.7.12
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Perfluorinated Compounds by LC/MS/MS

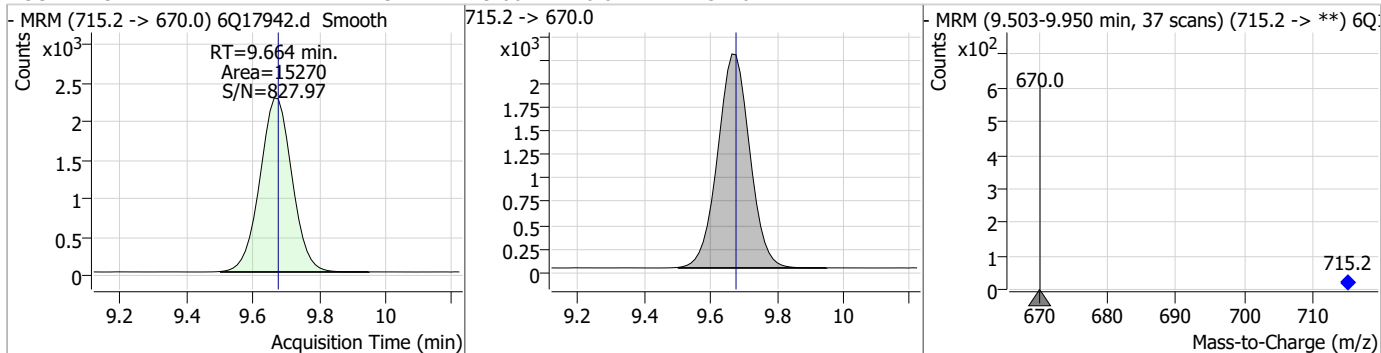
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.39	9.64	0.00	19259	498.1 -> 478.0	3.1	1.2	3.7



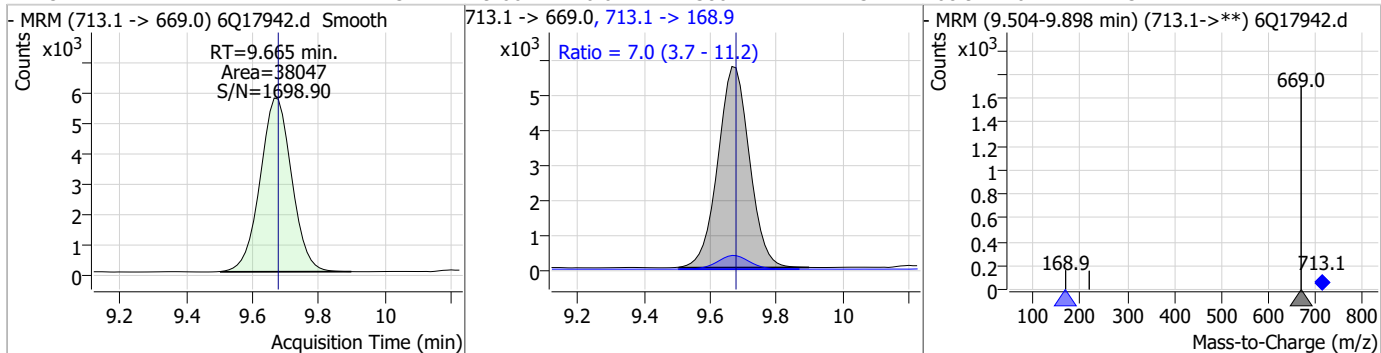
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.65	9.64	-0.01	21571				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.32	9.66	-0.01	15270				

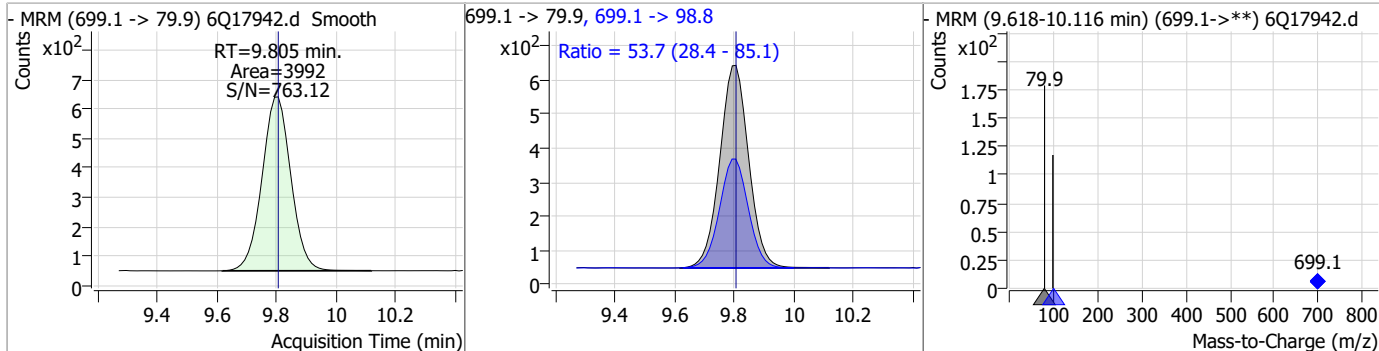


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.43	9.66	-0.01	38047	713.1 -> 168.9	7.0	3.7	11.2

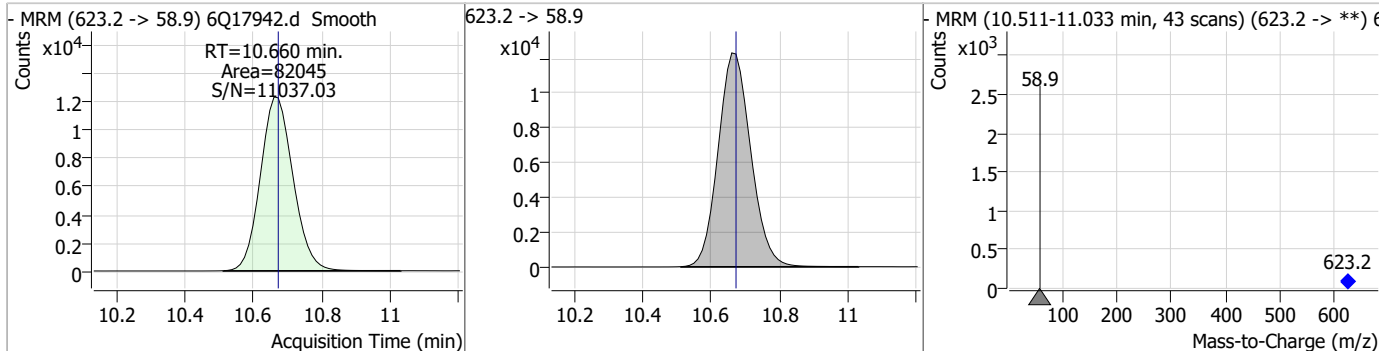


Perfluorinated Compounds by LC/MS/MS

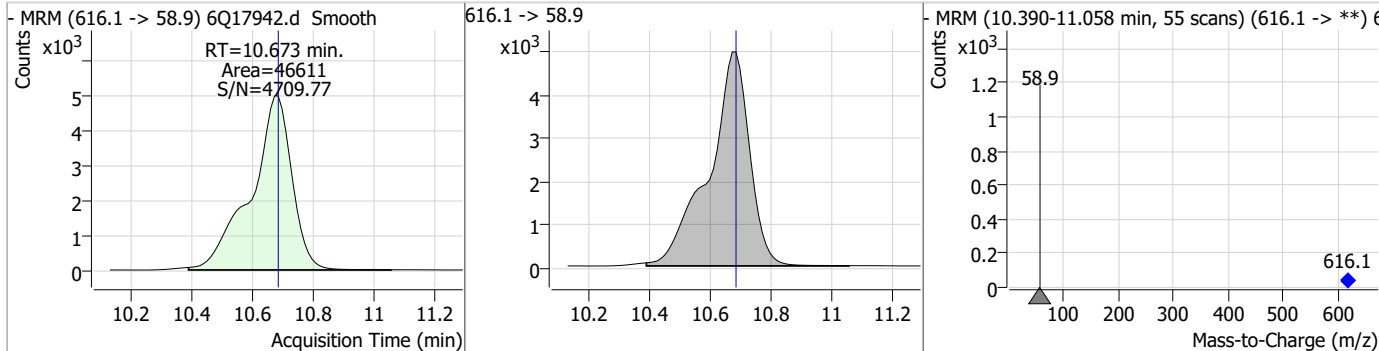
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.45	9.81	0.00	3992	699.1 -> 98.8	53.7	28.4	85.1



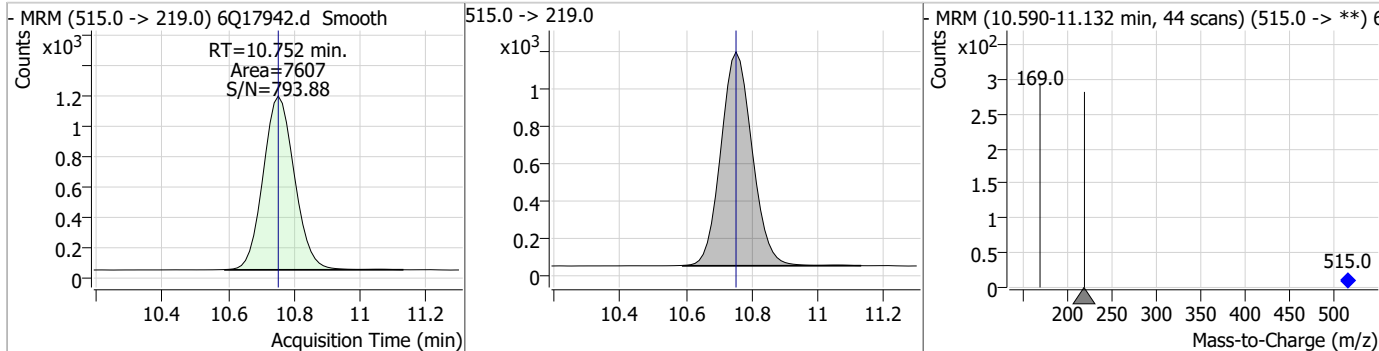
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.13	10.66	-0.01	82045				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.14	10.67	-0.01	46611				

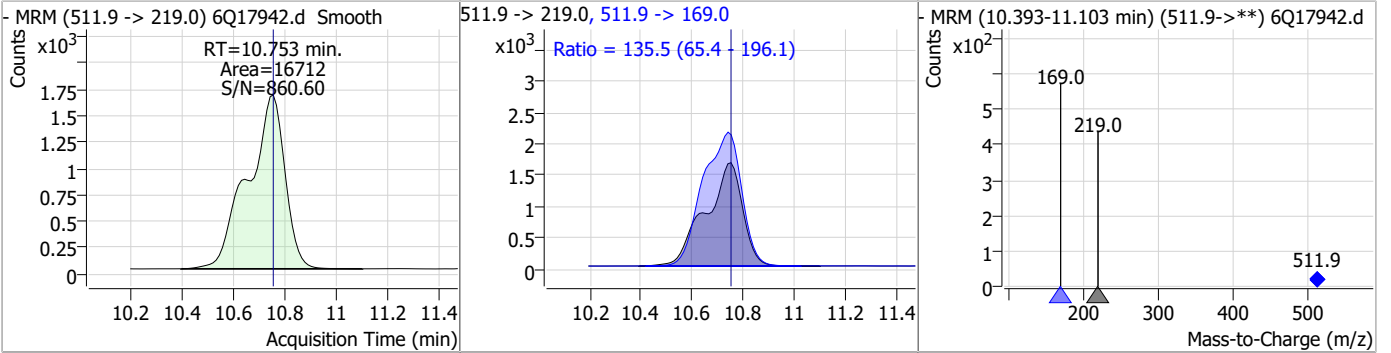


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.56	10.75	0.00	7607				

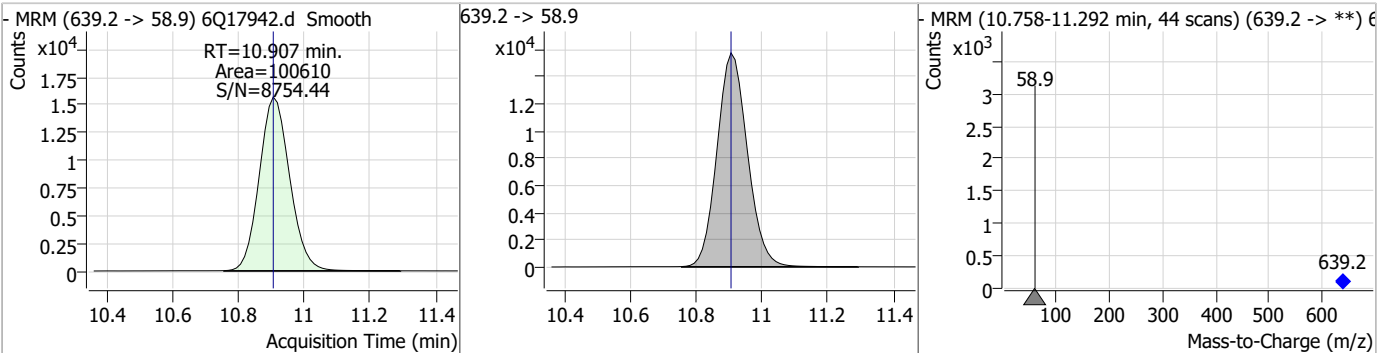


Perfluorinated Compounds by LC/MS/MS

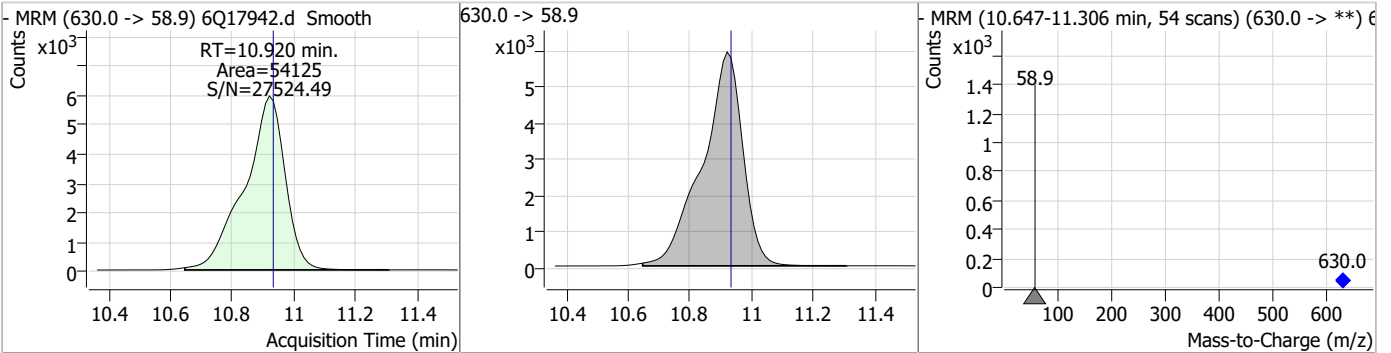
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.77	10.75	0.00	16712	511.9 -> 169.0	135.5	65.4	196.1



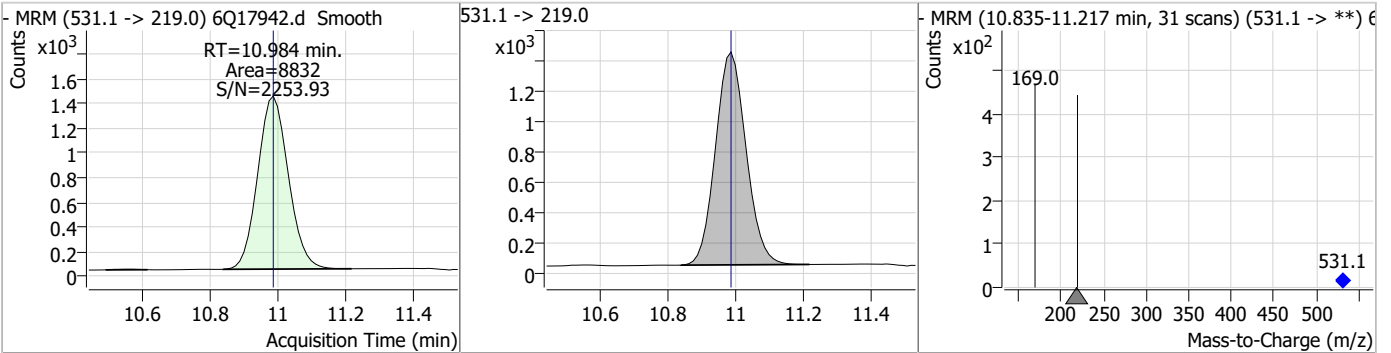
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.54	10.91	0.00	100610				



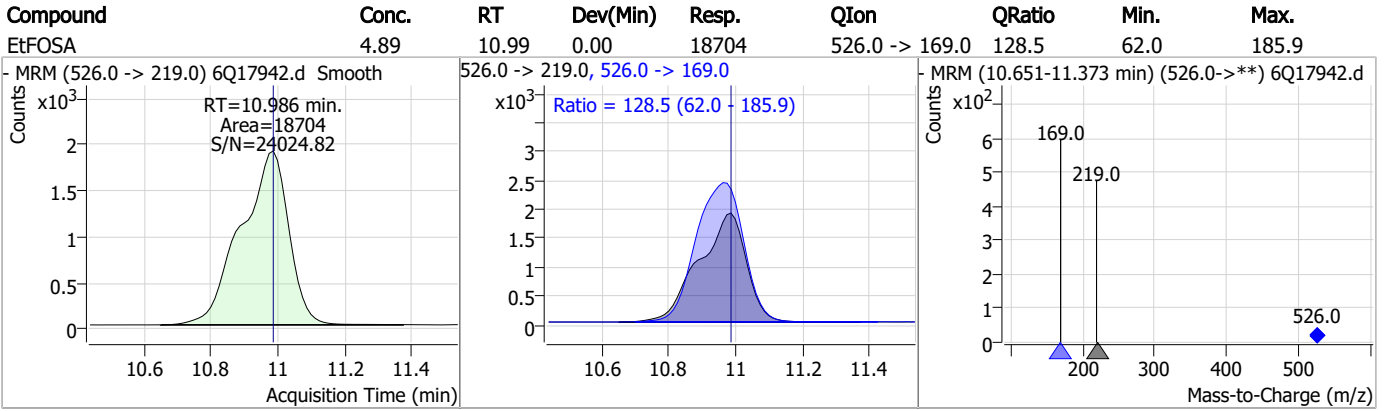
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.34	10.92	-0.01	54125				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.47	10.98	0.00	8832				



Perfluorinated Compounds by LC/MS/MS



7.7.12

7

Manual Integration Approval Summary

Sample Number: S6Q271-CC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17942.D Analyst approved: 05/18/23 14:21 Martha Valls
Injection Time: 05/17/23 13:25 Supervisor approved: 05/19/23 14:22 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak

7.7.12.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17943.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 1:39:47 PM
 Sample Name : cc268-1.0LL
 Vial : P1-A2
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96663,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	145582	10.00 µg/L	0.000
M5-PFPeA	4.272	268.3 -> 223.0	45303	5.00 µg/L	0.000
M5-PFHxA	5.466	318.0 -> 273.0	52285	2.50 µg/L	0.000
M4-PFHpA	6.420	367.1 -> 322.0	46417	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	70267	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	22230	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	16434	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	20473	1.25 µg/L	0.000
M2-PFDoDA	8.937	615.1 -> 570.0	21077	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	14946	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	22911	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	17937	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10767	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	9749	2.50 µg/L	-0.012
M2-4:2FTS	5.143	329.1 -> 80.9	1486	5.00 µg/L	0.000
M2-6:2FTS	6.838	429.1 -> 80.9	2022	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2184	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	19068	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	32313	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	15599	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	83462	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	99385	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8854	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7718	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	12347	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	60810	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	8272	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	66999	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	20296	1.25 µg/L	0.000
13C5-PFNA	7.583	468.0 -> 423.0	24201	1.25 µg/L	0.000
13C2-PFHxA	5.467	315.1 -> 270.0	42373	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.143	329.1 -> 80.9	1486	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2022	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2184	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-PFDoDA	8.937	615.1 -> 570.0	21077	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-PFTeDA	9.664	715.2 -> 670.0	14946	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C3-PFBS	5.384	302.1 -> 79.9	17937	2.49 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-PFHxS	7.167	402.1 -> 79.9	10767	2.44 µg/L	0.000

7.7.13
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 = 97.8%	
13C4-PFBA	2.901	216.8 -> 171.9	145582	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	6.420	367.1 -> 322.0	46417	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.5%	
13C5-PFHxA	5.466	318.0 -> 273.0	52285	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFPeA	4.272	268.3 -> 223.0	45303	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C6-PFDA	8.064	519.1 -> 474.1	16434	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C7-PFUnDA	8.518	570.0 -> 525.1	20473	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C8-FOSA	9.636	506.1 -> 77.8	22911	2.80 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.9%	
13C8-PFOA	7.064	421.1 -> 376.0	70267	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C8-PFOS	8.214	507.1 -> 79.9	9749	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C9-PFNA	7.583	472.1 -> 427.0	22230	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSAA	8.121	573.2 -> 419.0	19068	4.93 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	32313	10.42 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
d3-MeFOSA	10.752	515.0 -> 219.0	7718	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
d5-EtFOSAA	8.316	589.2 -> 419.0	15599	5.10 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d7-MeFOSE	10.660	623.2 -> 58.9	83462	27.44 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
d9-EtFOSE	10.907	639.2 -> 58.9	99385	27.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
d5-EtFOSA	10.984	531.1 -> 219.0	8854	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
Target Compounds					QValue
4:2FTS	5.144	327.1 -> 307.0	1593	0.71 µg/L	99
		327.1 -> 80.9	588		
6:2FTS	6.838	427.1 -> 407.0	1614	0.73 µg/L	89
		427.1 -> 80.9	622		
8:2FTS	7.852	527.1 -> 507.0	825	0.66 µg/L	86
		527.1 -> 80.8	408		
EtFOSAA	8.318	584.2 -> 419.1	508	0.18 µg/L	m 79
		584.2 -> 526.0	343		
FOSA	9.639	498.1 -> 77.9	1429	0.17 µg/L	97
		498.1 -> 478.0	52		
MeFOSAA	8.122	570.1 -> 419.0	677	0.18 µg/L	m 91
		570.1 -> 483.0	163		
PFBA	2.907	212.8 -> 168.9	3964	0.76 µg/L	100
PFBS	5.398	298.7 -> 79.9	1468	0.17 µg/L	99
		298.7 -> 98.8	527		
PFDA	8.064	512.9 -> 469.0	4428	0.22 µg/L	95
		512.9 -> 219.0	641		
PFDODA	8.938	613.1 -> 569.0	3650	0.22 µg/L	100
		613.1 -> 319.0	505		
PFDS	9.101	599.0 -> 79.9	567	0.18 µg/L	99

7.7.13
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	287			
PFHpA	6.420	363.1 -> 319.0	4606	0.20	µg/L	98
		363.1 -> 169.0	702			
PFHpS	7.735	449.0 -> 79.9	930	0.18	µg/L	91
		449.0 -> 98.9	427			
PFHxA	5.469	313.0 -> 269.0	4166	0.20	µg/L	98
		313.0 -> 118.9	221			
PFHxS	7.168	398.7 -> 79.9	1112	0.19	µg/L	m 94
		398.7 -> 98.9	511			
PFNA	7.584	463.0 -> 419.0	3094	0.19	µg/L	96
		463.0 -> 219.0	580			
PFNS	8.681	548.8 -> 79.9	864	0.18	µg/L	86
		548.8 -> 98.9	413			
PFOA	7.066	413.0 -> 369.0	6967	0.20	µg/L	m 98
		413.0 -> 169.0	1097			
PFOS	8.215	498.9 -> 79.9	891	0.17	µg/L	m 97
		498.9 -> 98.8	457			
PFPeA	4.262	263.0 -> 219.0	5112	0.39	µg/L	100
PFPeS	6.471	349.1 -> 79.9	1126	0.19	µg/L	96
		349.1 -> 98.9	534			
PFTeDA	9.665	713.1 -> 669.0	2914	0.19	µg/L	99
		713.1 -> 168.9	207			
PFTrDA	9.333	663.0 -> 619.0	3793	0.19	µg/L	99
		663.0 -> 168.9	315			
PFUnDA	8.518	563.1 -> 519.0	3014	0.20	µg/L	96
		563.1 -> 269.1	425			
11Cl-PF3OUdS	9.373	630.9 -> 450.9	4603	0.38	µg/L	92
		632.9 -> 452.9	1471			
9Cl-PF3ONS	8.557	530.8 -> 351.0	7333	0.38	µg/L	91
		532.8 -> 353.0	2447			
ADONA	6.671	376.9 -> 250.9	18036	0.35	µg/L	92
		376.9 -> 84.8	4997			
HFPO-DA	5.832	284.9 -> 168.9	1184	0.38	µg/L	98
		284.9 -> 184.9	152			
3:3FTCA	3.777	241.0 -> 177.0	795	0.98	µg/L	91
		241.0 -> 117.0	136			
5:3FTCA	6.161	341.0 -> 237.1	19008	5.30	µg/L	99
		341.0 -> 217.0	13607			
7:3FTCA	7.572	441.0 -> 316.9	9461	5.81	µg/L	93
		441.0 -> 336.9	18751			
EtFOSA	10.974	526.0 -> 219.0	1464	0.38	µg/L	99
		526.0 -> 169.0	1832			
EtFOSE	10.920	630.0 -> 58.9	4228	0.98	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	1396	0.39	µg/L	96
		511.9 -> 169.0	1759			
MeFOSE	10.673	616.1 -> 58.9	3533	0.90	µg/L	100
PFDoDS	9.805	699.1 -> 79.9	335	0.20	µg/L	94
		699.1 -> 98.8	175			
NFDHA	5.336	295.0 -> 201.0	828	0.36	µg/L	95
		295.0 -> 84.9	248			
PFMBA	4.675	279.0 -> 85.1	3616	0.39	µg/L	100
PFMPA	3.426	229.0 -> 84.9	2800	0.42	µg/L	100
PFEESA	5.938	314.8 -> 134.9	9553	0.34	µg/L	98
		314.8 -> 82.9	383			

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

7.7.13
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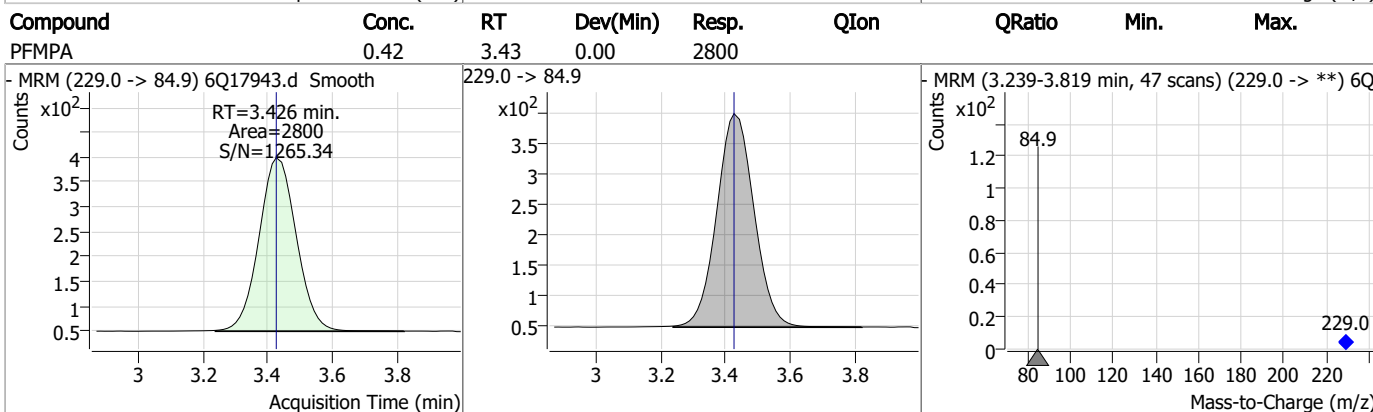
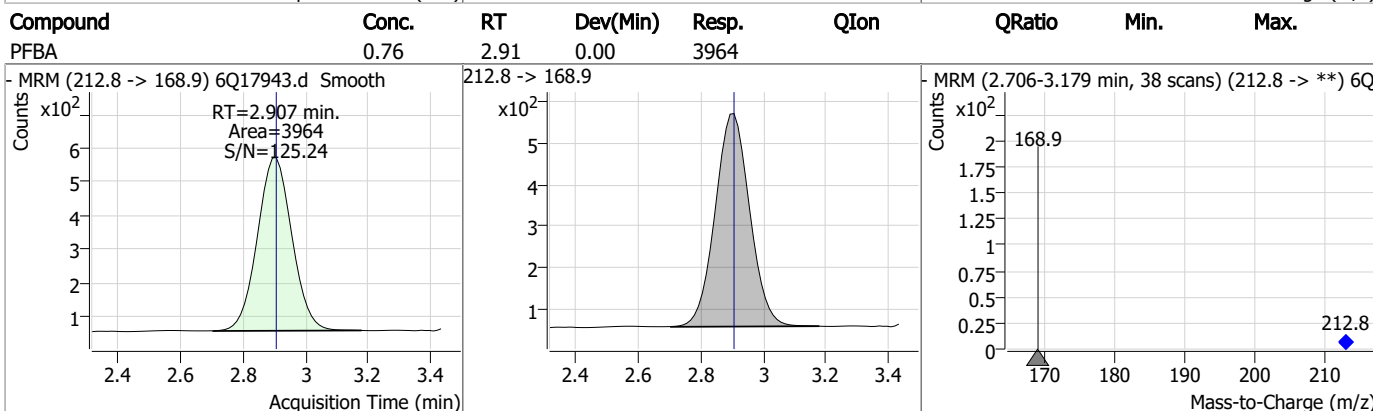
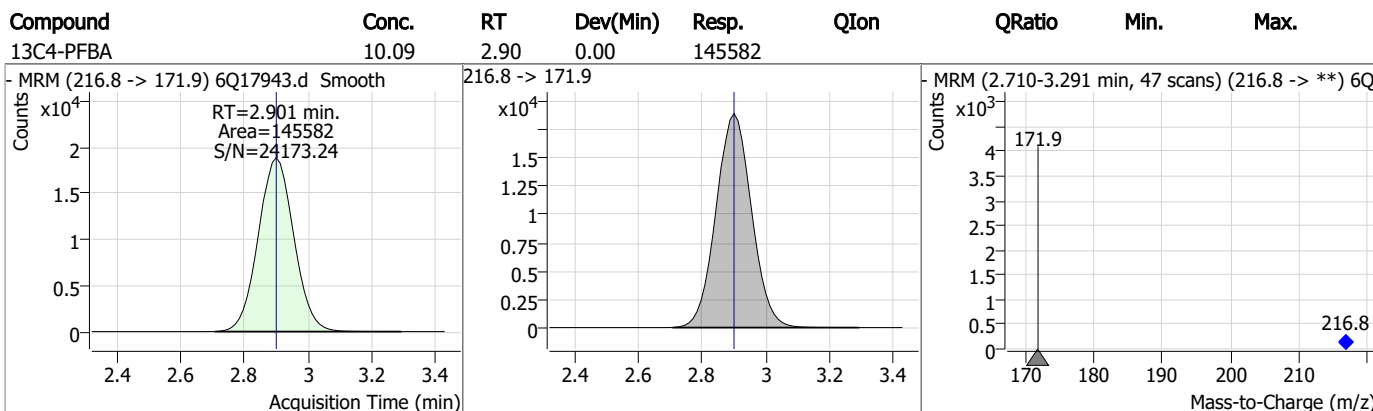
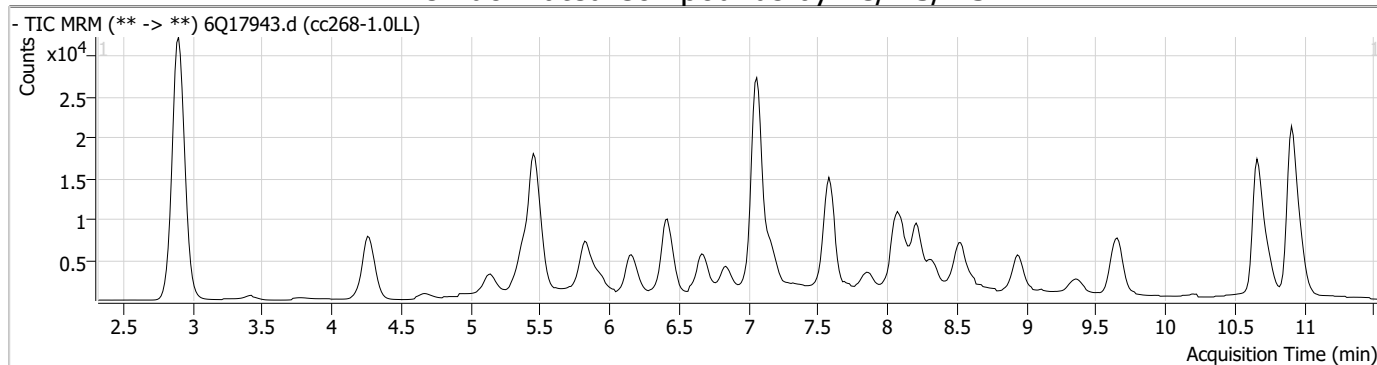
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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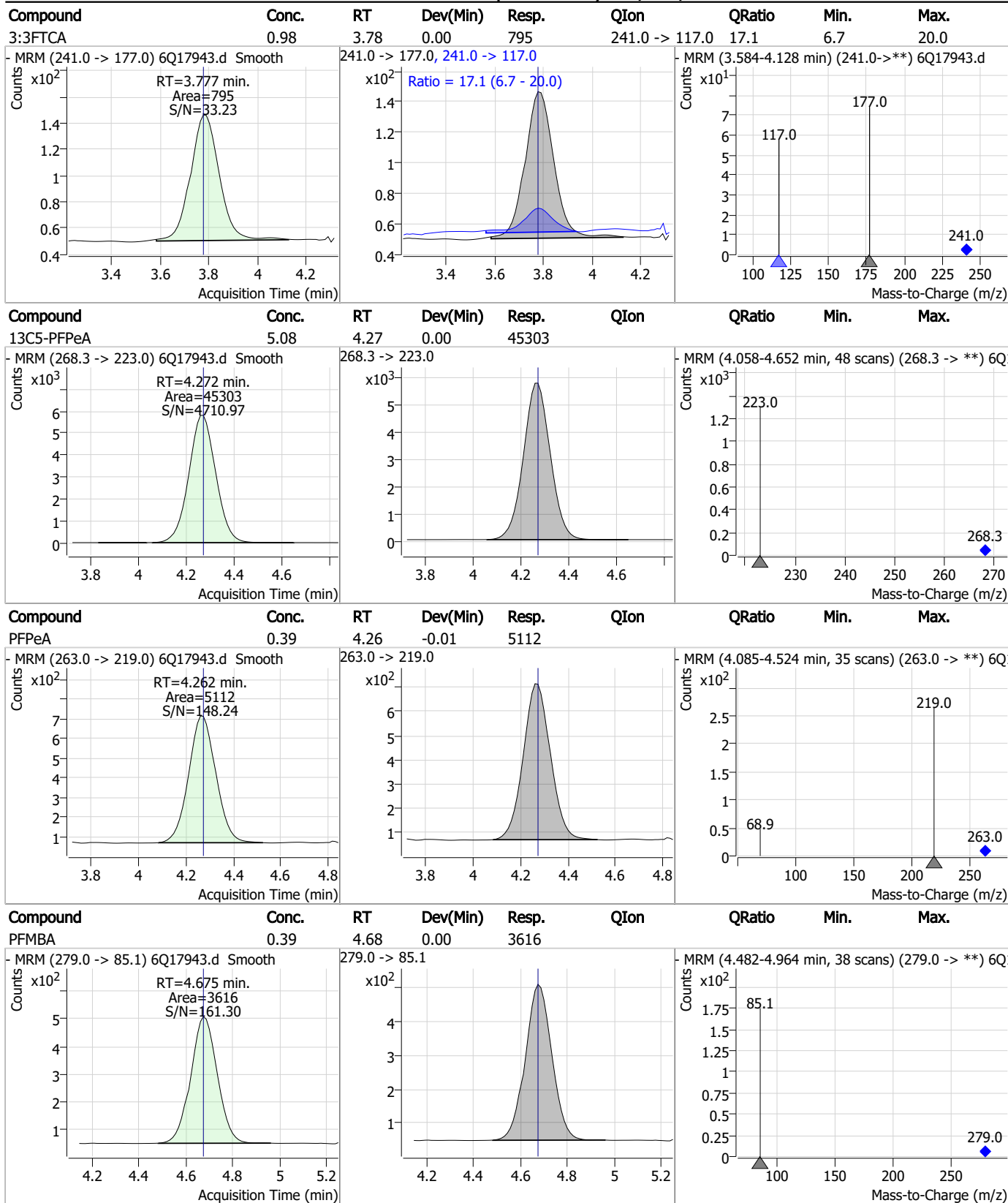
7.7.13

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Perfluorinated Compounds by LC/MS/MS

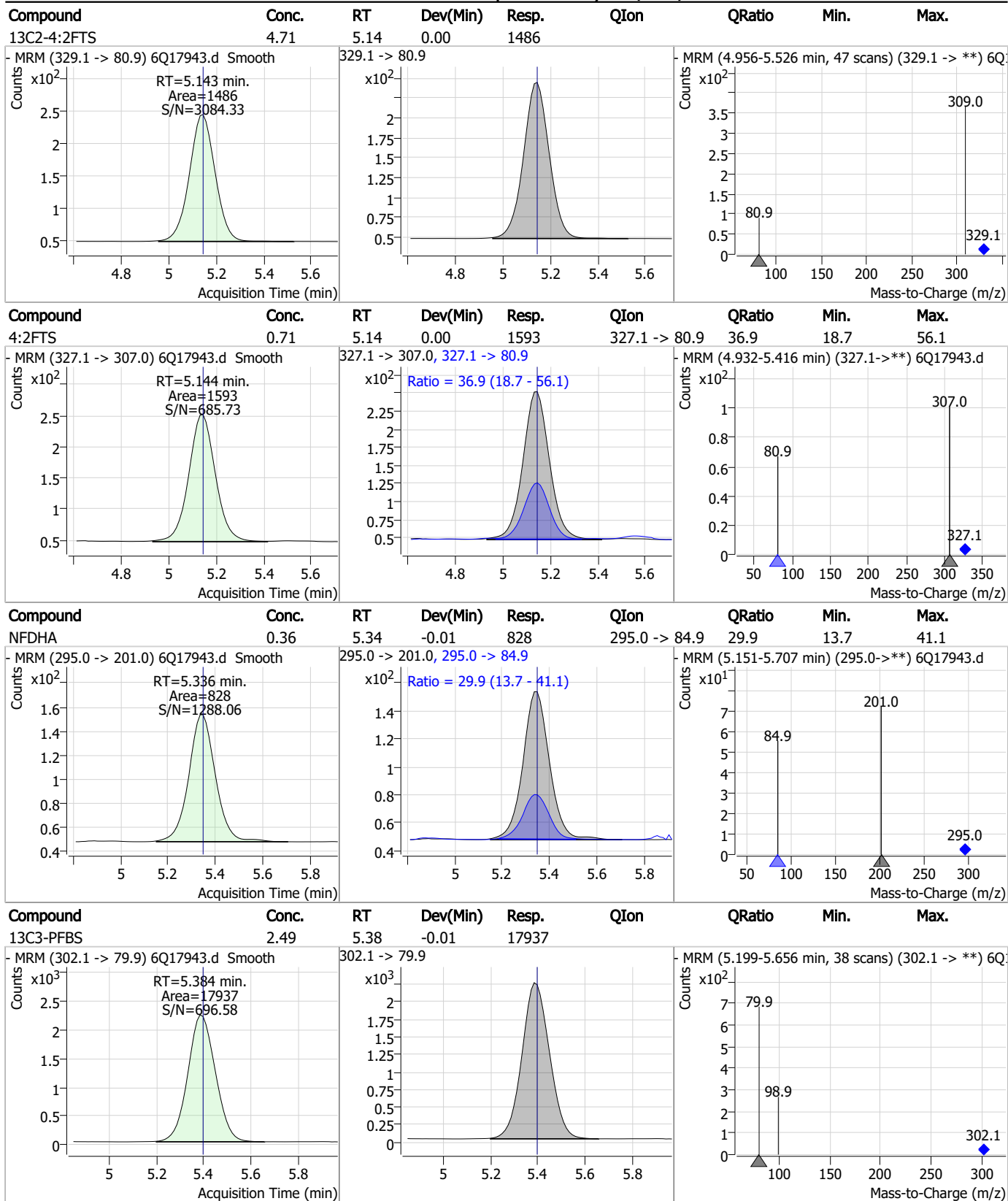


Perfluorinated Compounds by LC/MS/MS



7.7.13
7

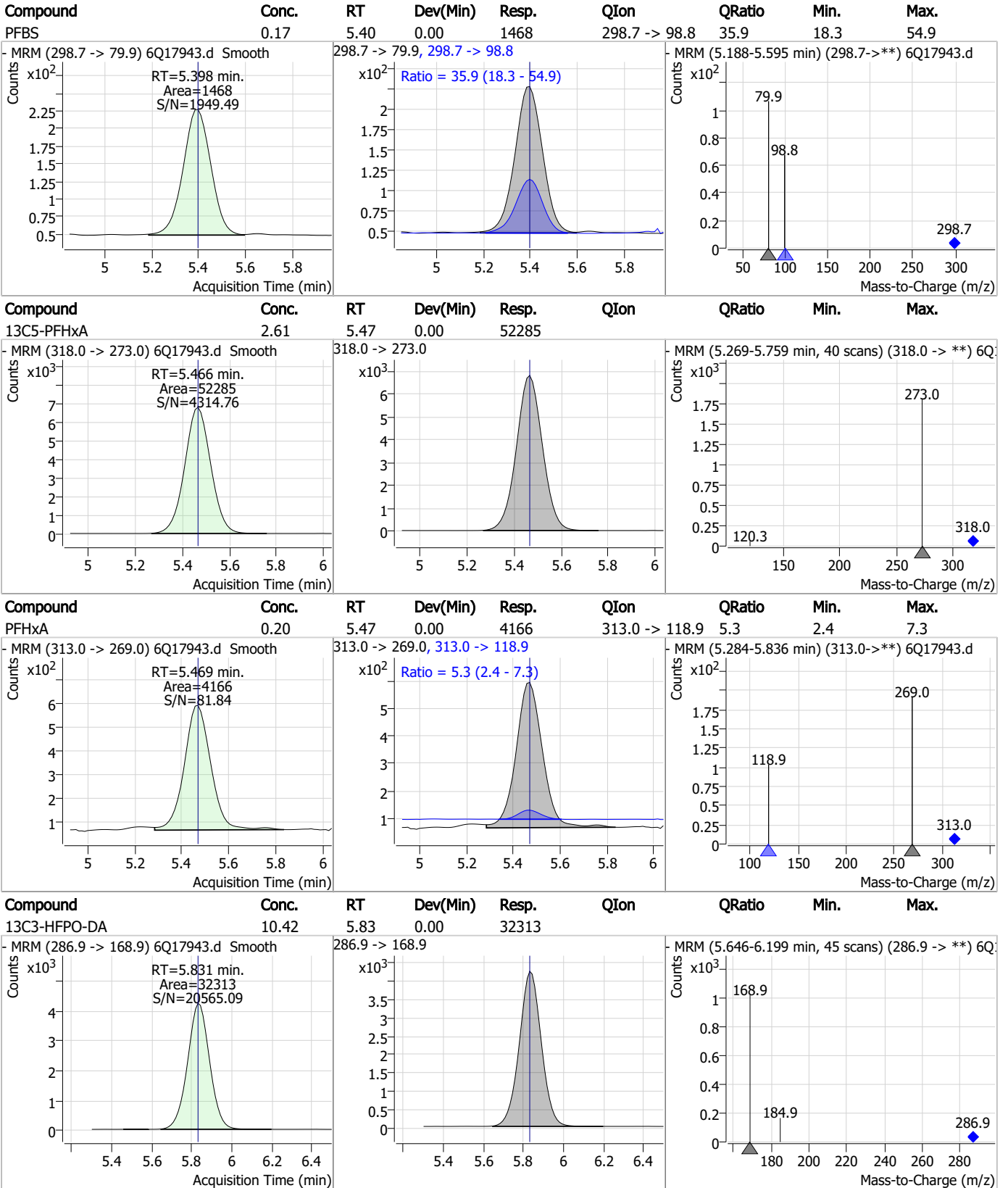
Perfluorinated Compounds by LC/MS/MS



7.7.13

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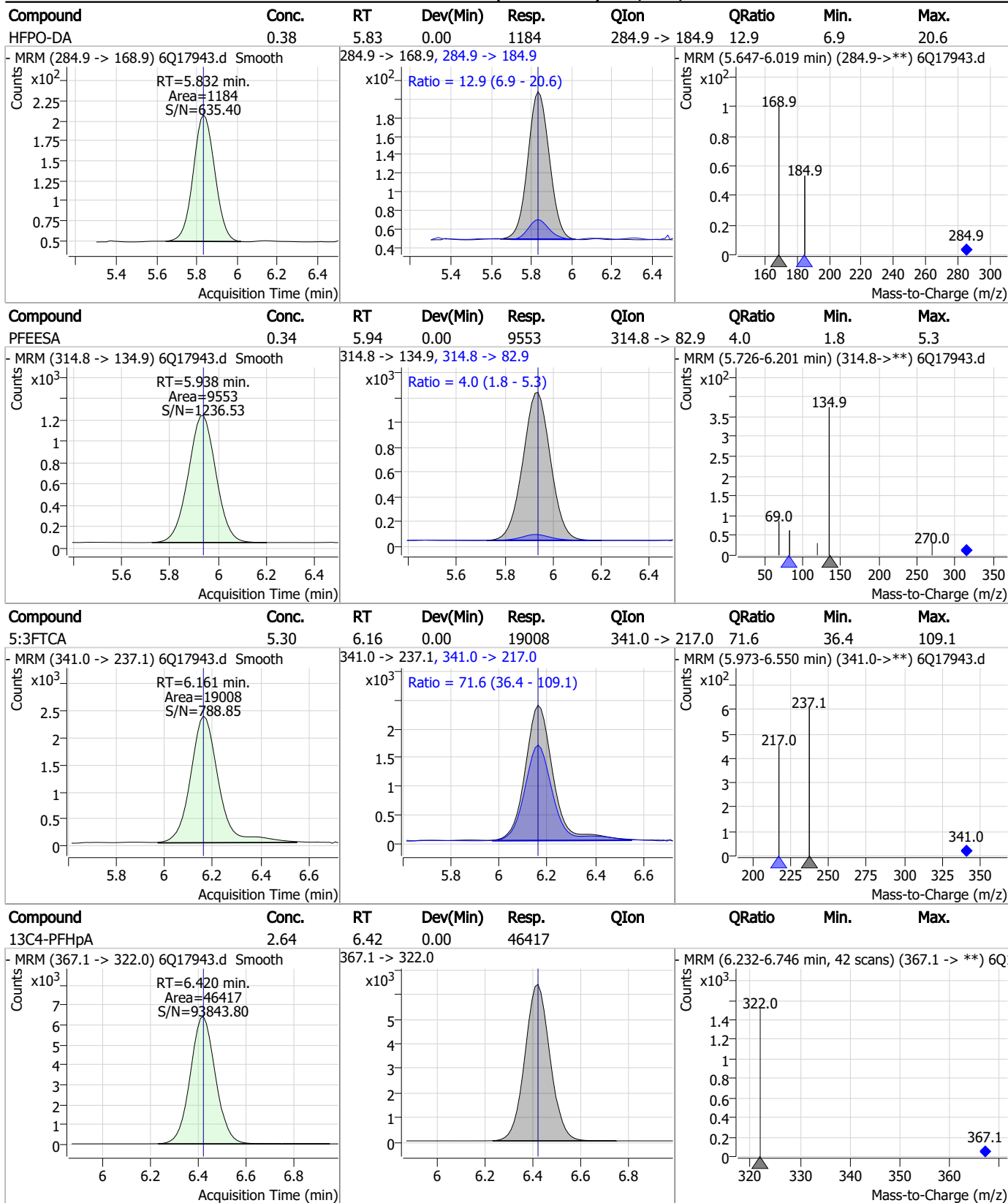
Perfluorinated Compounds by LC/MS/MS



7.7.13

7

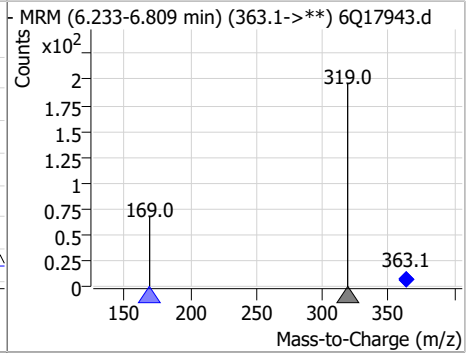
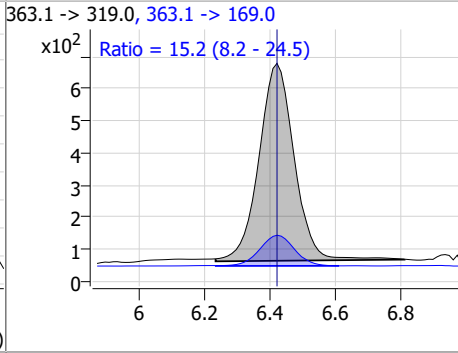
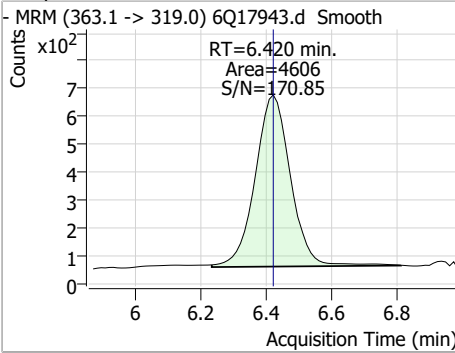
Perfluorinated Compounds by LC/MS/MS



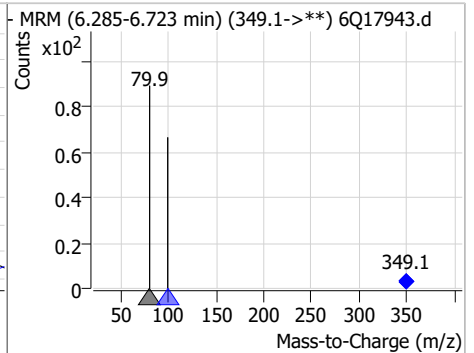
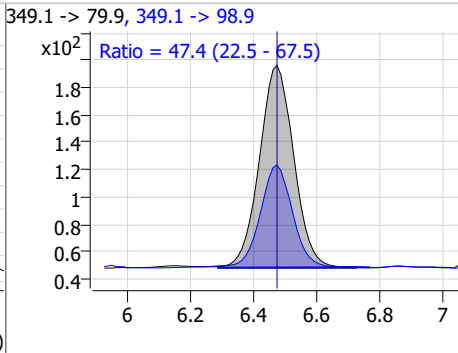
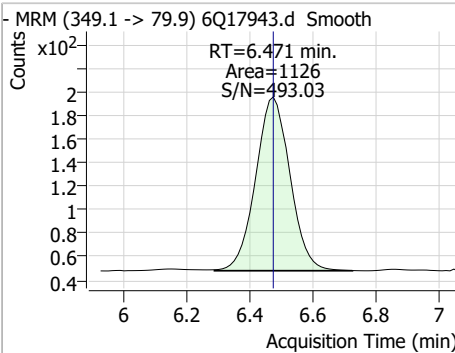
7.7.13
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Perfluorinated Compounds by LC/MS/MS

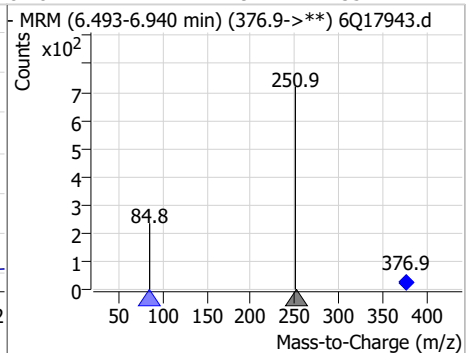
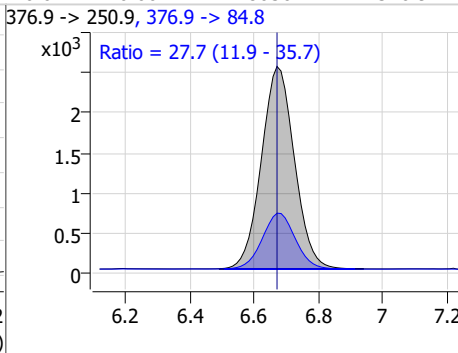
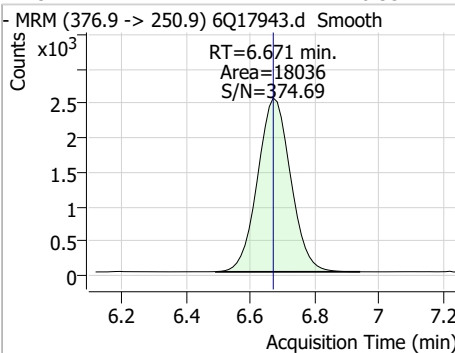
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.20	6.42	0.00	4606	363.1 -> 169.0	15.2	8.2	24.5



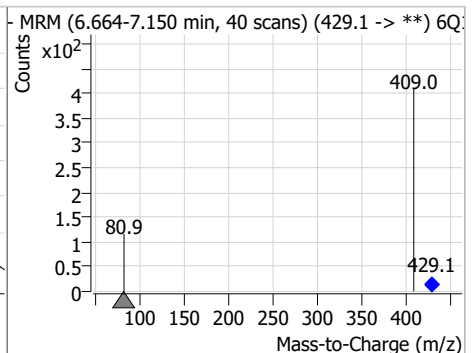
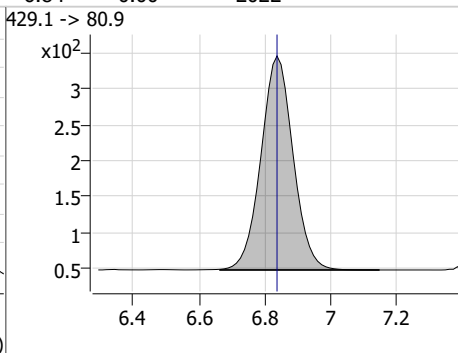
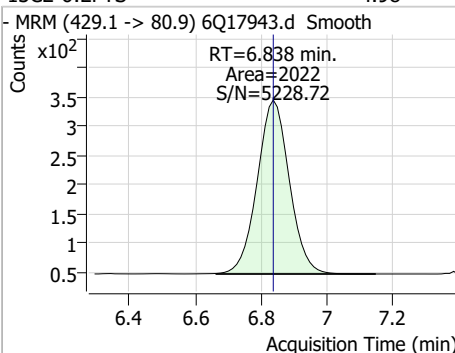
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.19	6.47	0.00	1126	349.1 -> 98.9	47.4	22.5	67.5



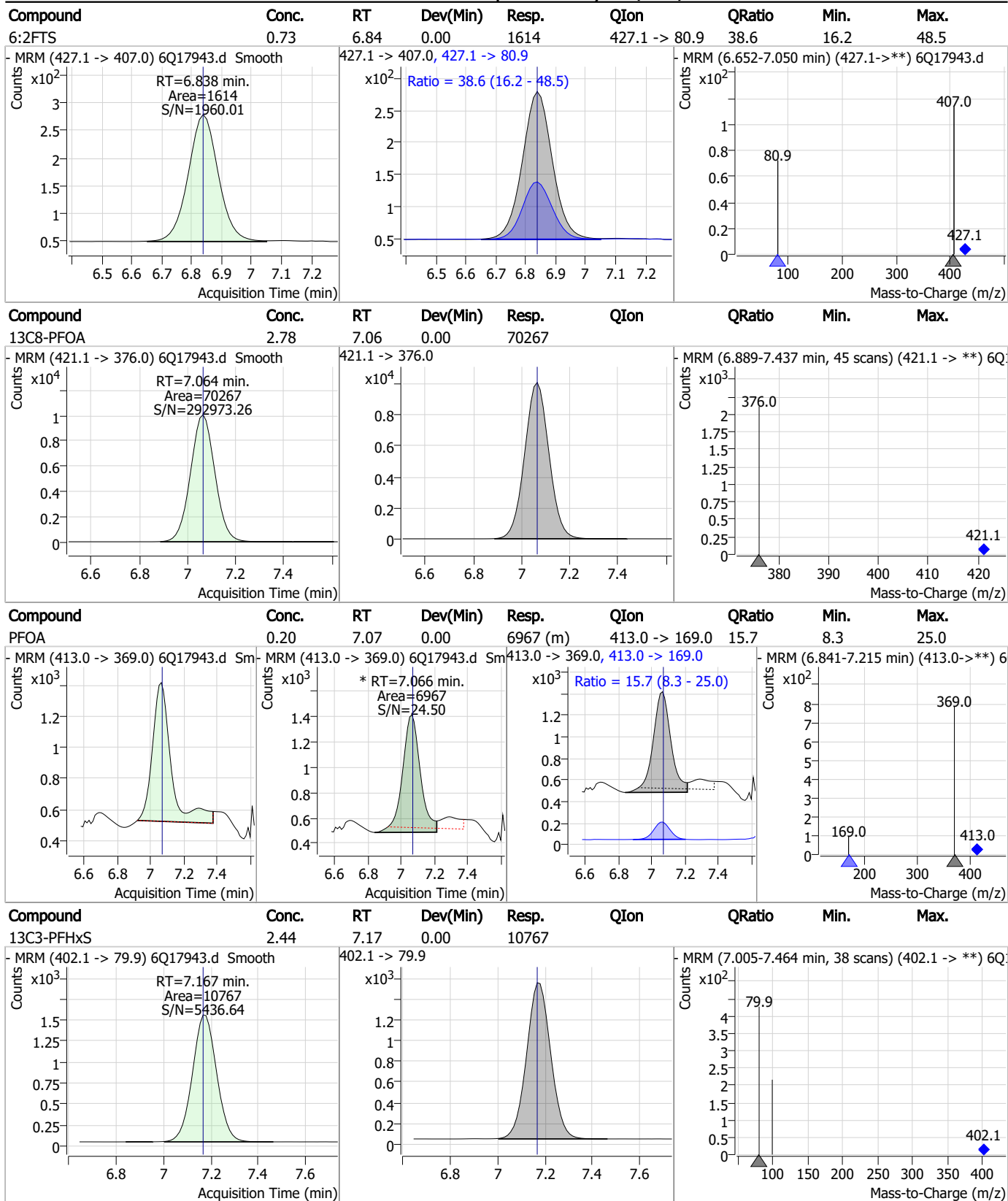
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.35	6.67	0.00	18036	376.9 -> 84.8	27.7	11.9	35.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.98	6.84	0.00	2022	429.1 -> 80.9			



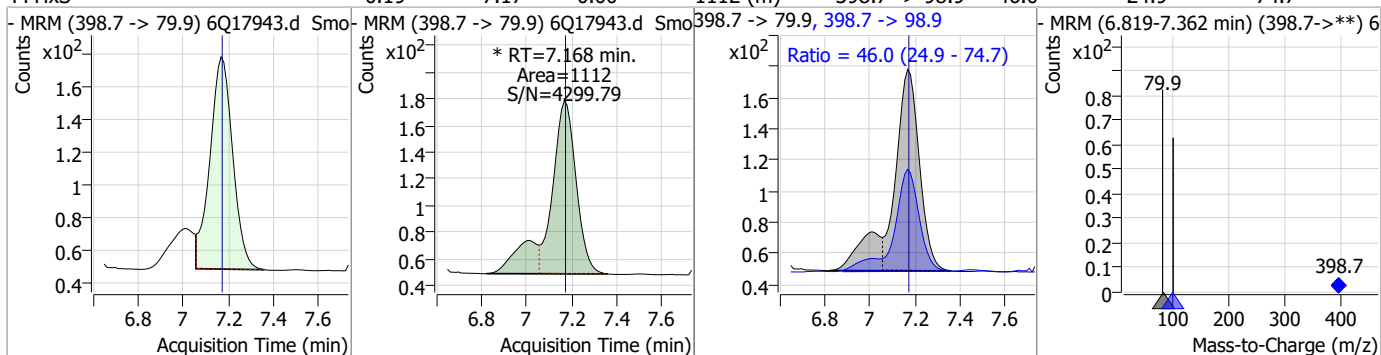
Perfluorinated Compounds by LC/MS/MS



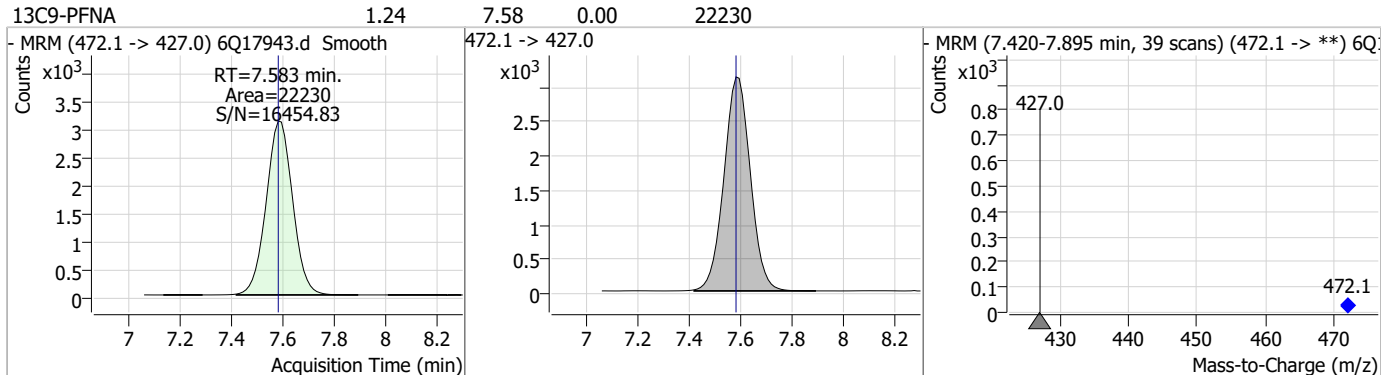
7.7.13

Perfluorinated Compounds by LC/MS/MS

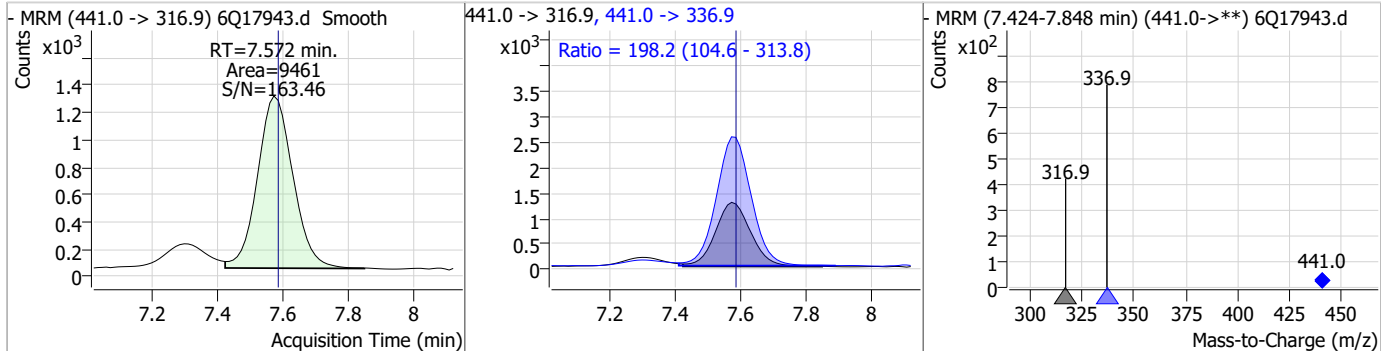
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.19	7.17	0.00	1112 (m)	398.7 -> 98.9	46.0	24.9	74.7



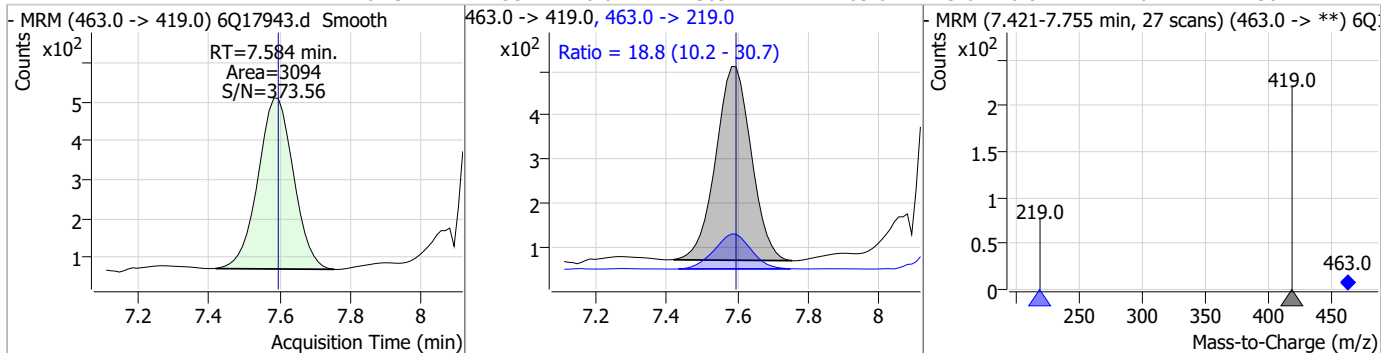
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.24	7.58	0.00	22230				



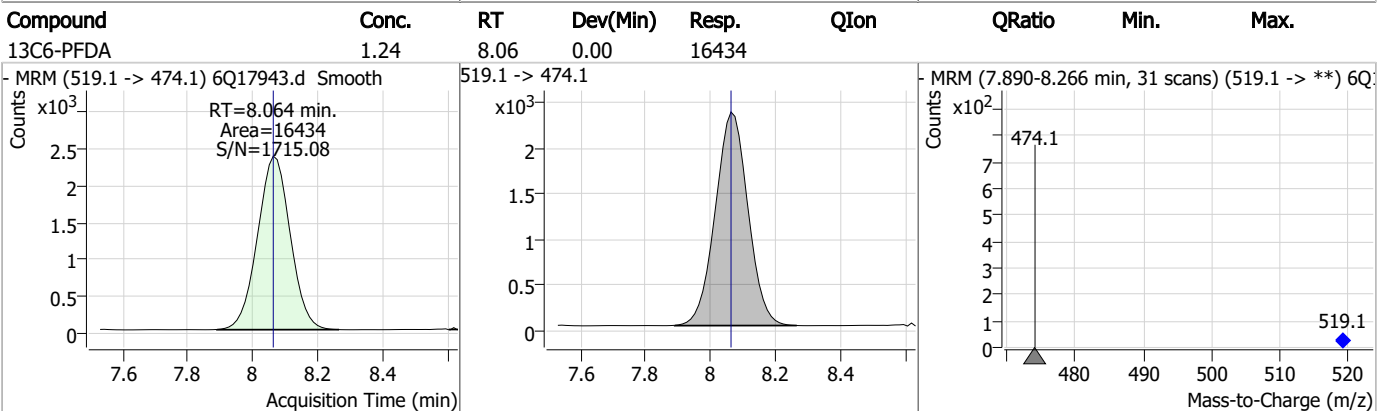
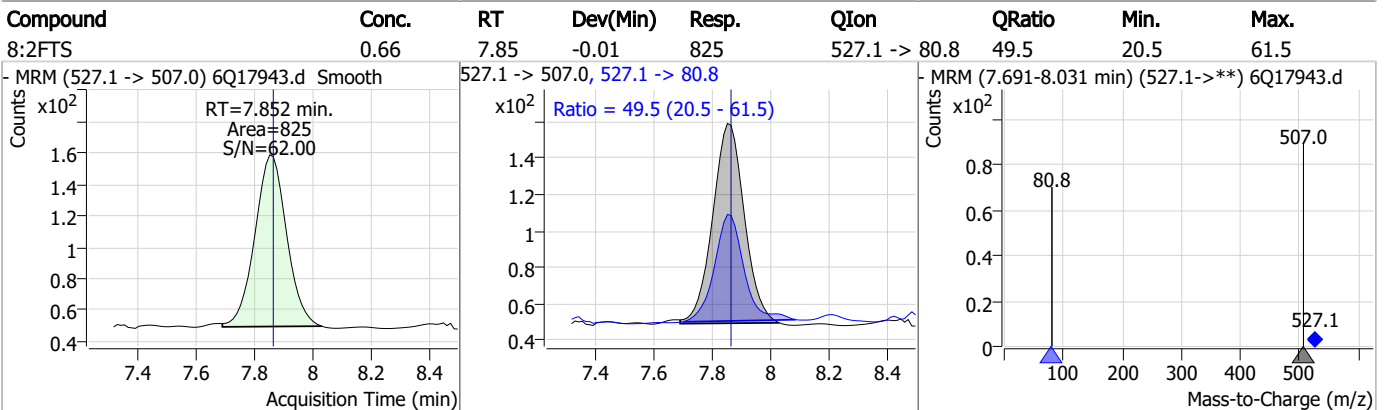
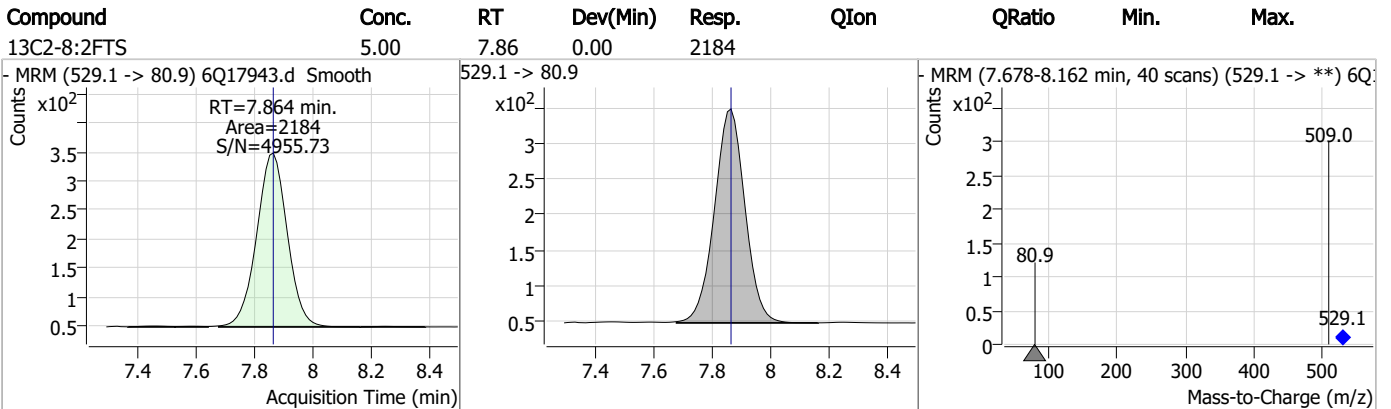
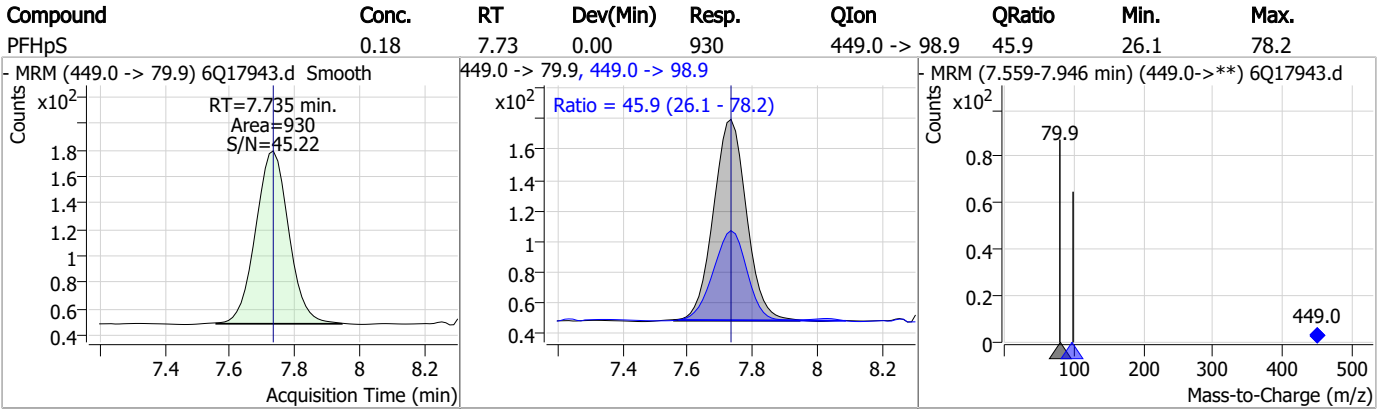
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	5.81	7.57	-0.01	9461	441.0 -> 336.9	198.2	104.6	313.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.19	7.58	-0.01	3094	463.0 -> 219.0	18.8	10.2	30.7



Perfluorinated Compounds by LC/MS/MS

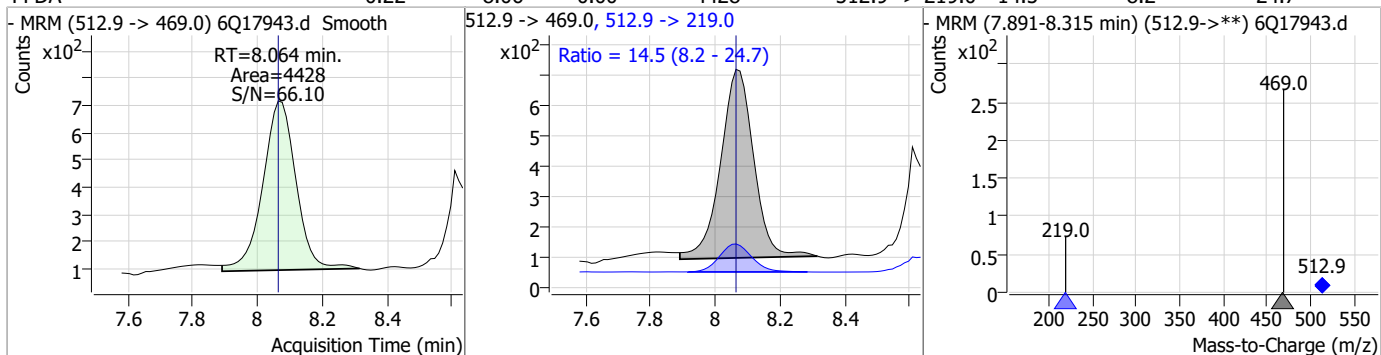


7.7.13
7

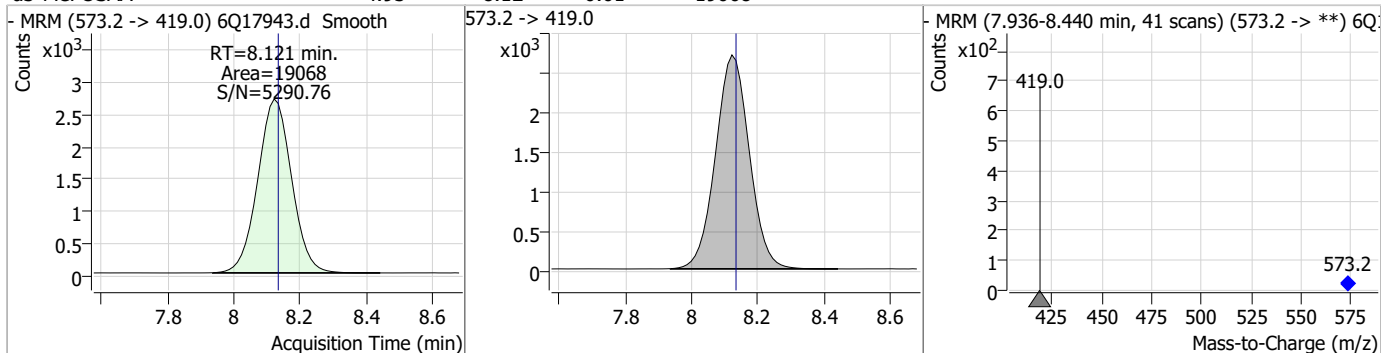


Perfluorinated Compounds by LC/MS/MS

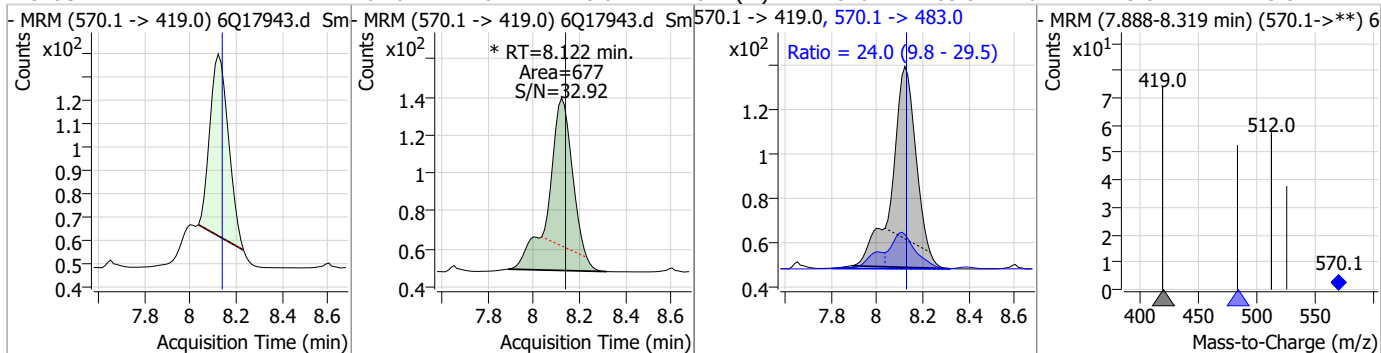
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.22	8.06	0.00	4428	512.9 -> 219.0	14.5	8.2	24.7



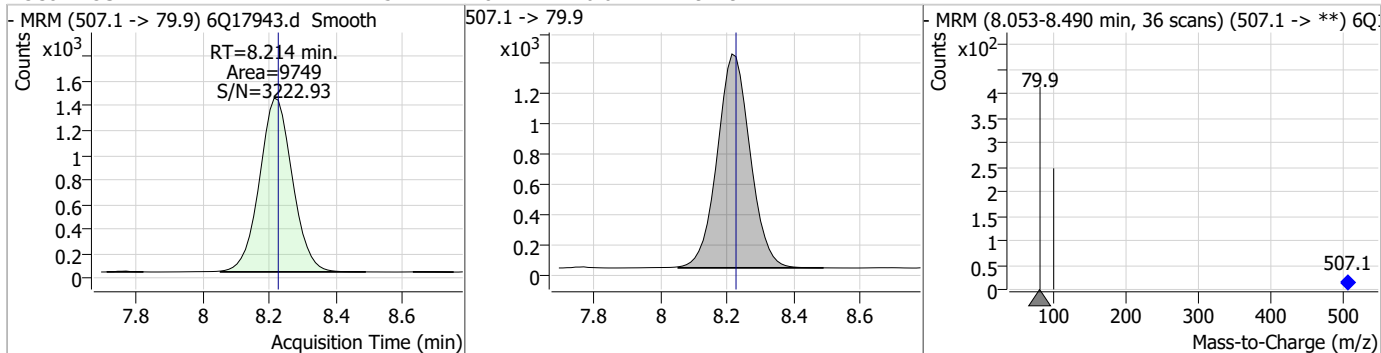
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.93	8.12	-0.01	19068				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.18	8.12	-0.01	677 (m)	570.1 -> 483.0	24.0	9.8	29.5

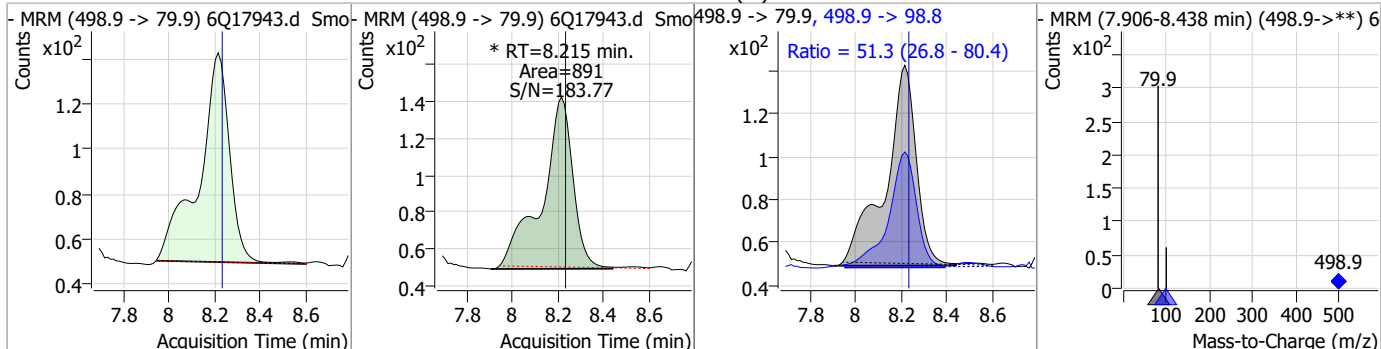


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.21	-0.01	9749				

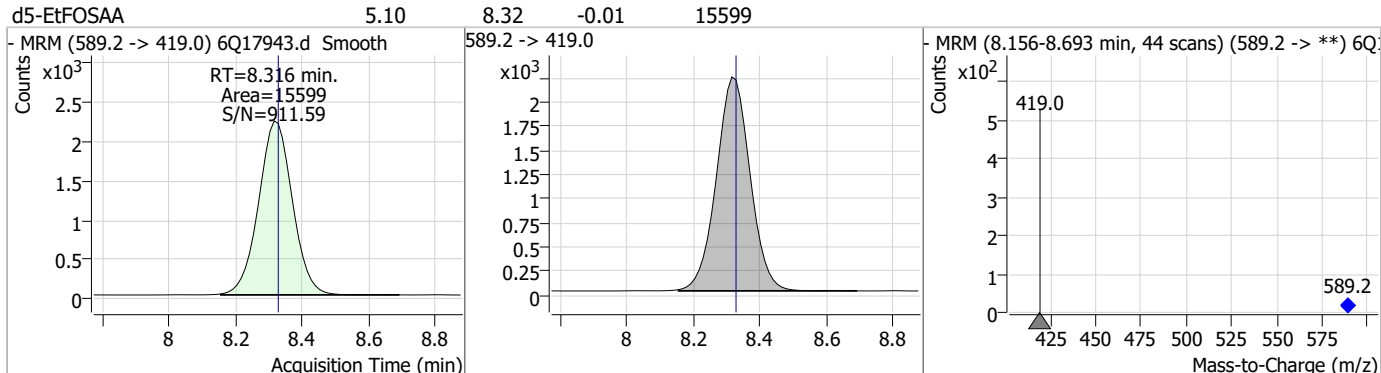


Perfluorinated Compounds by LC/MS/MS

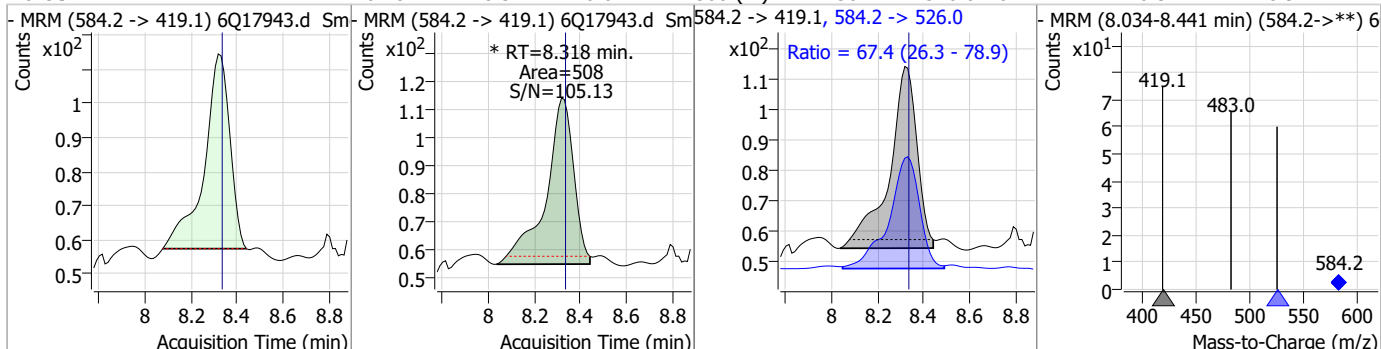
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.17	8.22	-0.01	891 (m)	498.9 -> 98.8	51.3	26.8	80.4



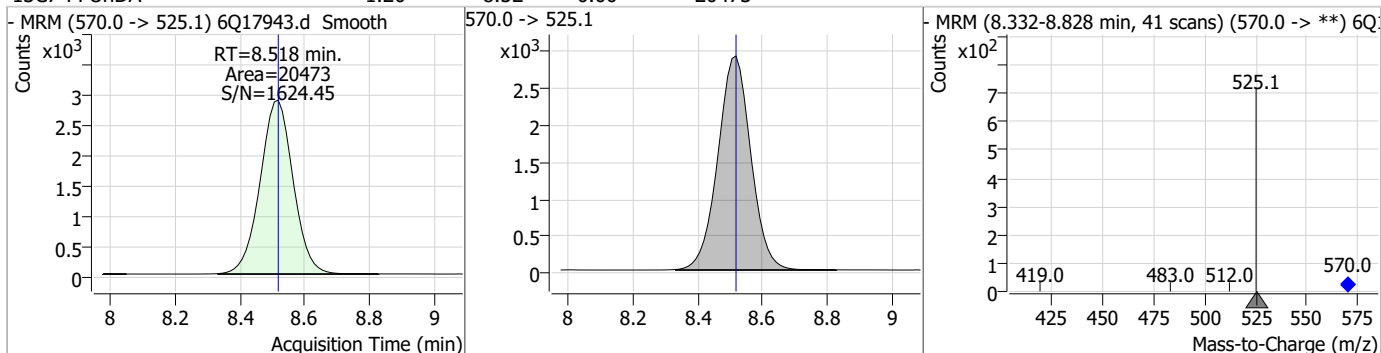
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.10	8.32	-0.01	15599				



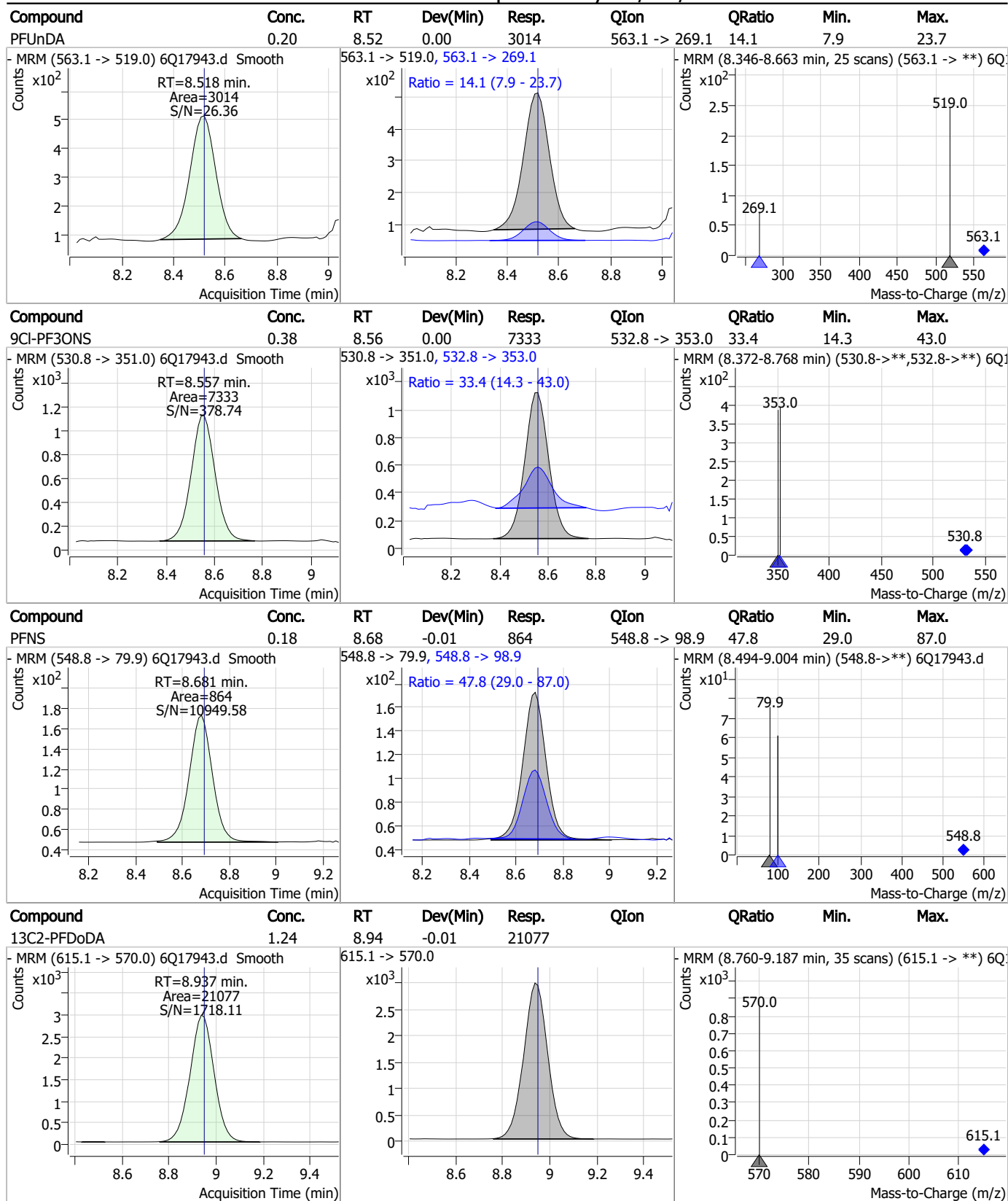
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.18	8.32	-0.01	508 (m)	584.2 -> 526.0	67.4	26.3	78.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.20	8.52	0.00	20473				

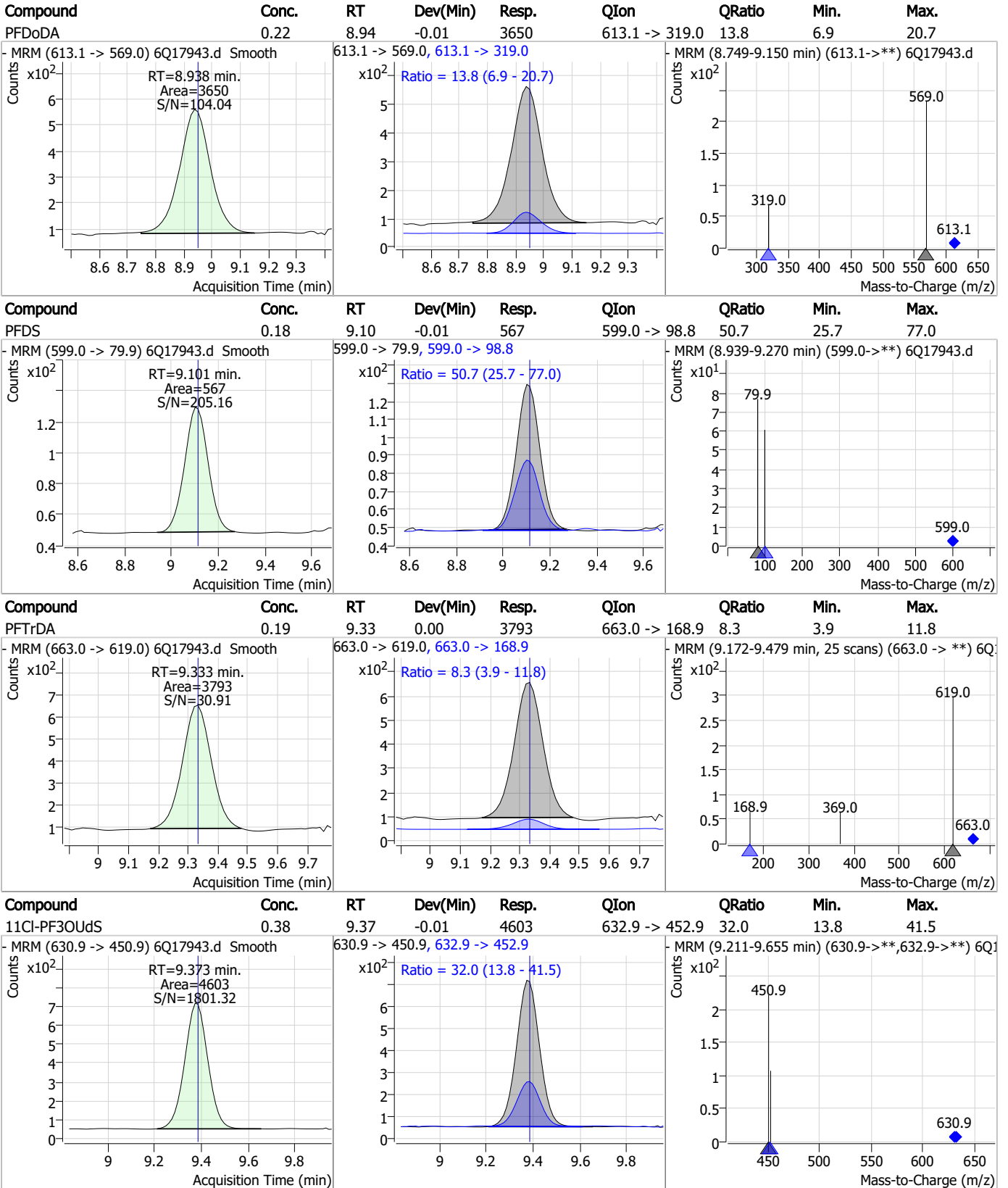


Perfluorinated Compounds by LC/MS/MS



7.7.13
7

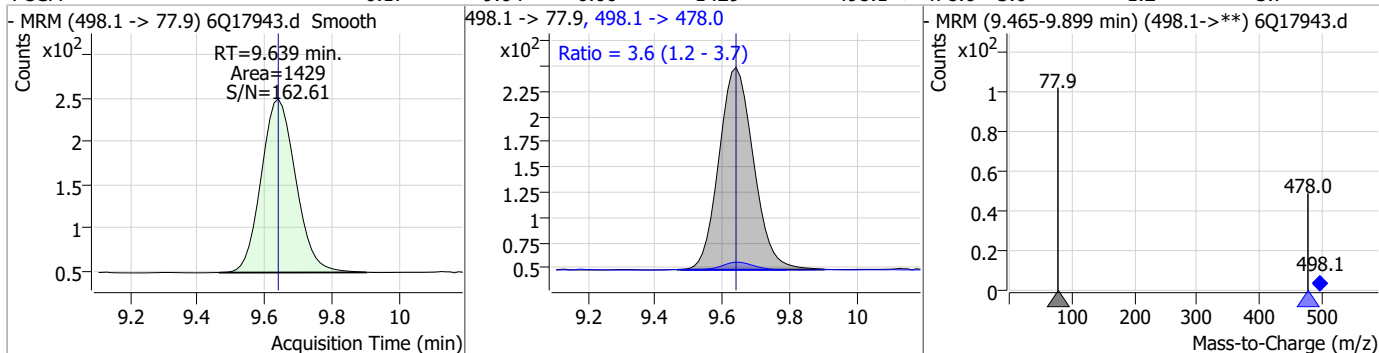
Perfluorinated Compounds by LC/MS/MS



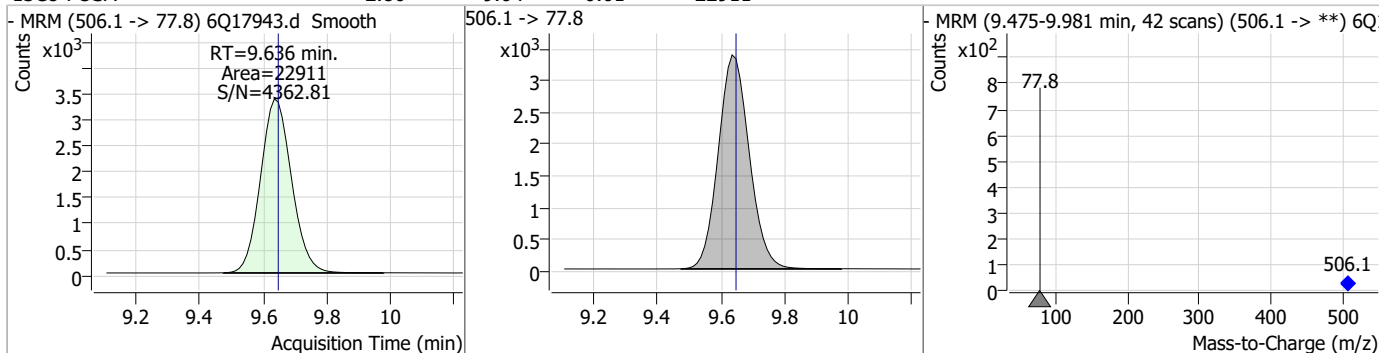
7.7.13
7

Perfluorinated Compounds by LC/MS/MS

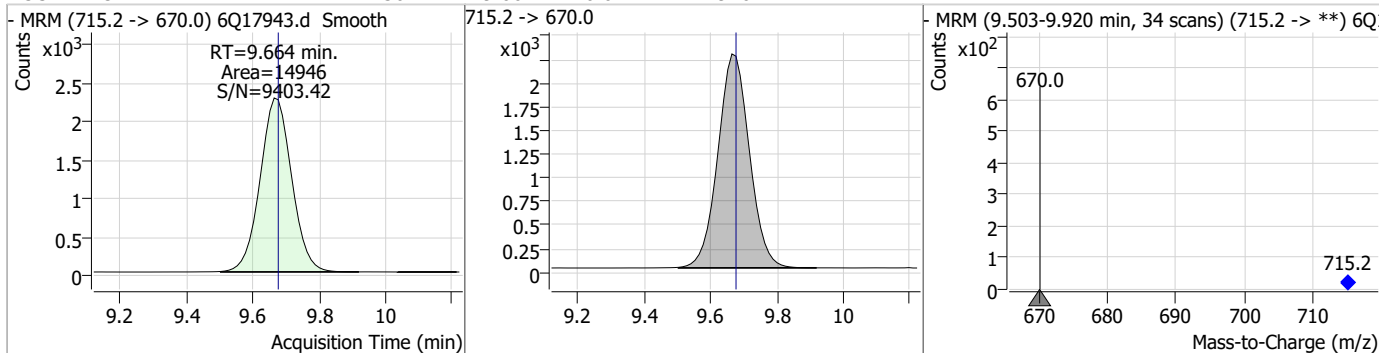
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.17	9.64	0.00	1429	498.1 -> 478.0	3.6	1.2	3.7



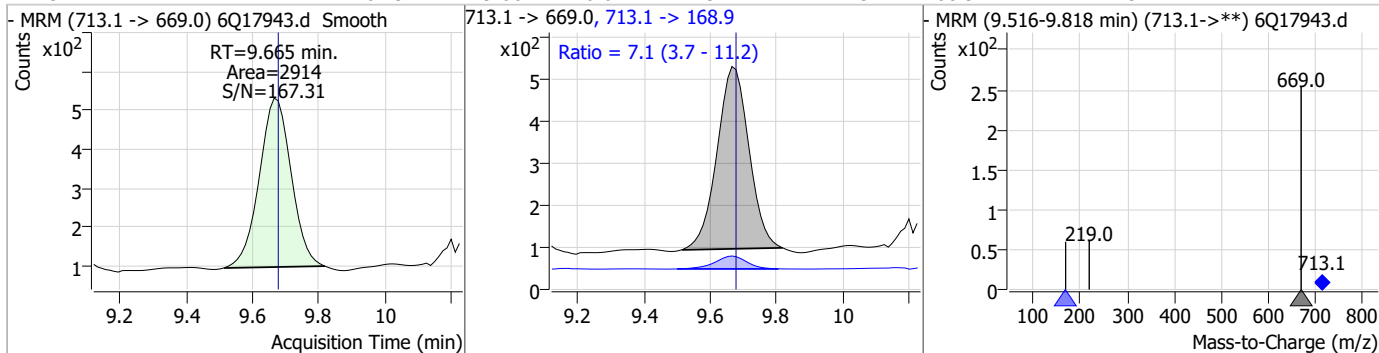
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.80	9.64	-0.01	22911				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.66	-0.01	14946				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.66	-0.01	2914	713.1 -> 168.9	7.1	3.7	11.2

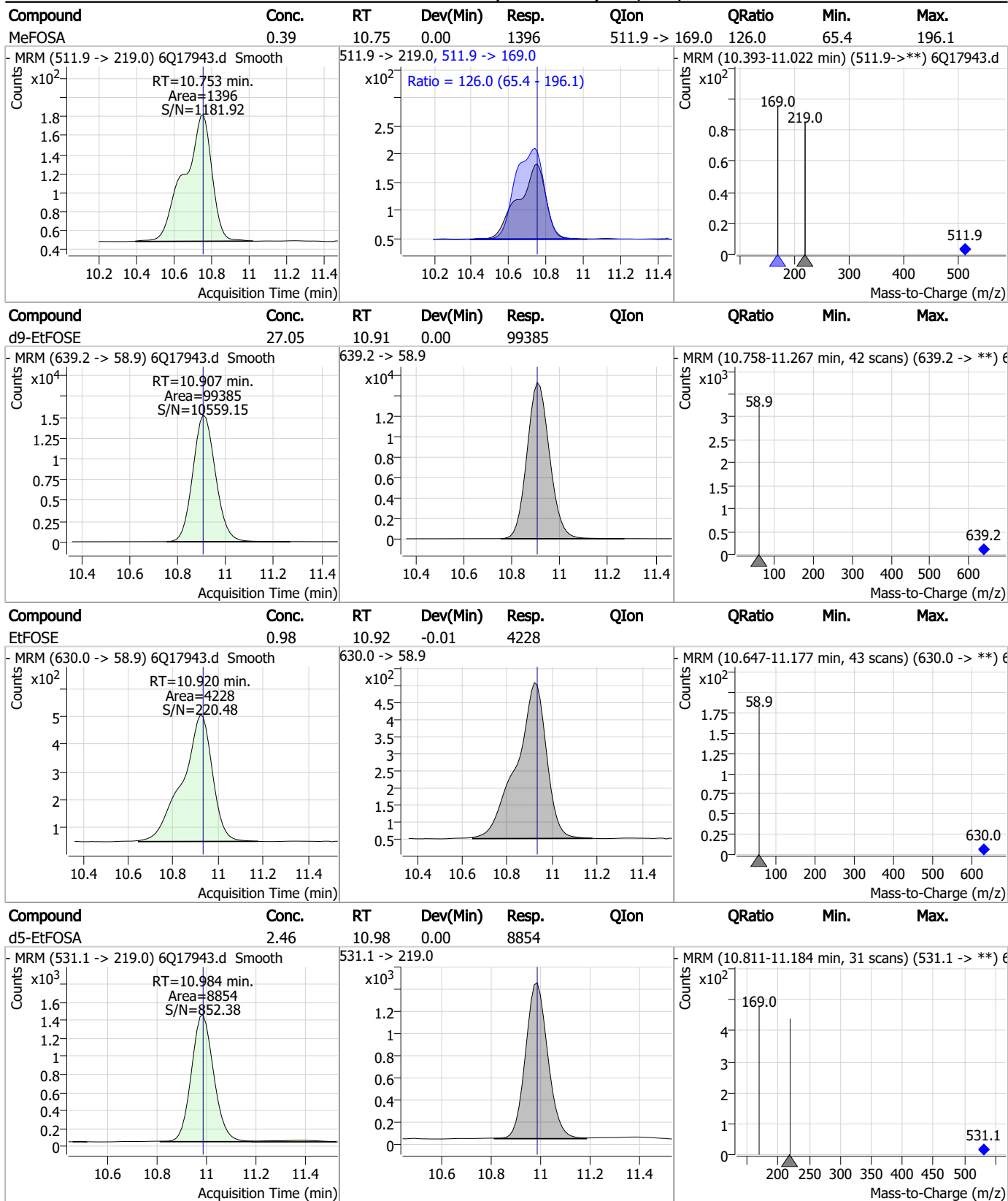


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.20	9.81	0.00	335	699.1 -> 98.8	52.2	28.4	85.1
d7-MeFOSE	27.44	10.66	-0.01	83462				
MeFOSE	0.90	10.67	-0.01	3533				
d3-MeFOSA	2.58	10.75	0.00	7718				

7.7.13
7

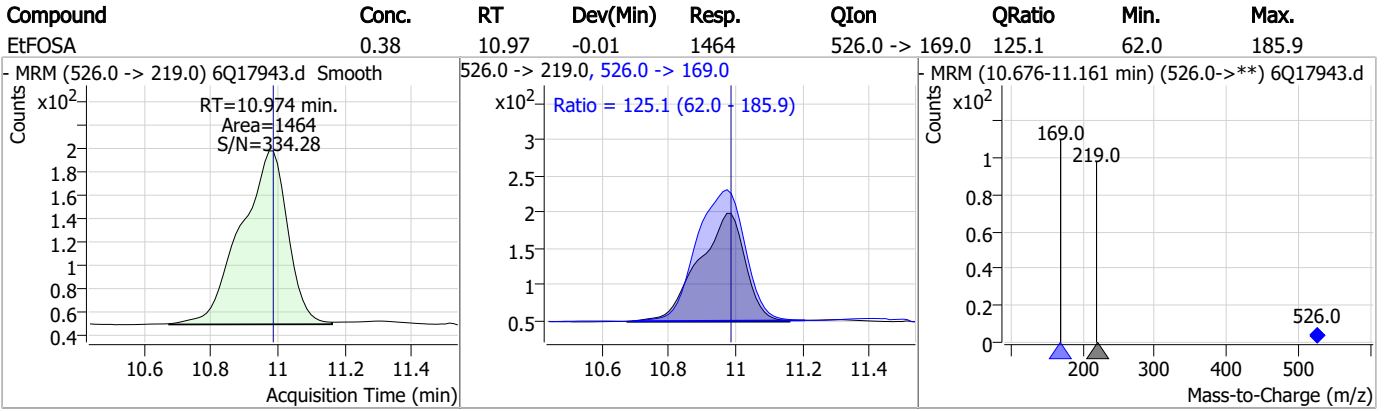
Perfluorinated Compounds by LC/MS/MS



7.7.13
7



Perfluorinated Compounds by LC/MS/MS



7.7.13
7



Manual Integration Approval Summary

Sample Number: S6Q271-CC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17943.D Analyst approved: 05/18/23 14:21 Martha Valls
Injection Time: 05/17/23 13:39 Supervisor approved: 05/19/23 14:22 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.07	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
MeFOSAA	2355-31-9		8.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak
EtFOSAA	2991-50-6		8.32	Split peak

7.7.13.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17954.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 4:19:09 PM
 Sample Name : cc268-4
 Vial : P1-A5
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96663,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	150469	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	46281	5.00 µg/L	-0.012
M5-PFHxA	5.454	318.0 -> 273.0	54409	2.50 µg/L	-0.012
M4-PFHpA	6.420	367.1 -> 322.0	46088	2.50 µg/L	0.000
M8-PFOA	7.064	421.1 -> 376.0	66653	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	22599	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	18233	1.25 µg/L	0.000
M7-PFUnDA	8.518	570.0 -> 525.1	23729	1.25 µg/L	0.000
M2-PFDoDA	8.937	615.1 -> 570.0	22149	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	14339	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	23039	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	18228	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10954	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	10451	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1532	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	2062	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2054	5.00 µg/L	0.000
M3-MeFOSAA	8.121	573.2 -> 419.0	19572	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	32331	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	15841	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	85582	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	103091	25.00 µg/L	0.000
M5-EtFOSA	10.984	531.1 -> 219.0	8981	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7338	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	12196	2.50 µg/L	0.000
13C3-PFBA	2.904	216.0 -> 172.0	62331	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	8384	2.50 µg/L	0.000
13C4-PFOA	7.065	417.1 -> 372.0	73782	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	20715	1.25 µg/L	0.000
13C5-PFNA	7.584	468.0 -> 423.0	25159	1.25 µg/L	0.000
13C2-PFHxA	5.454	315.1 -> 270.0	43449	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1532	4.80 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-6:2FTS	6.838	429.1 -> 80.9	2062	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2054	4.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C2-PFDoDA	8.937	615.1 -> 570.0	22149	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFTeDA	9.664	715.2 -> 670.0	14339	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.384	302.1 -> 79.9	18228	2.50 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C3-PFHxS	7.167	402.1 -> 79.9	10954	2.45 µg/L	0.000

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 = 98.1%	
13C4-PFBA	2.901	216.8 -> 171.9	150469	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C4-PFHpA	6.420	367.1 -> 322.0	46088	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFHxA	5.454	318.0 -> 273.0	54409	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C5-PFPeA	4.259	268.3 -> 223.0	46281	5.06 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.064	519.1 -> 474.1	18233	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C7-PFUnDA	8.518	570.0 -> 525.1	23729	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C8-FOSA	9.636	506.1 -> 77.8	23039	2.85 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C8-PFOA	7.064	421.1 -> 376.0	66653	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOS	8.214	507.1 -> 79.9	10451	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C9-PFNA	7.583	472.1 -> 427.0	22599	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSAA	8.121	573.2 -> 419.0	19572	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	32331	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d3-MeFOSA	10.752	515.0 -> 219.0	7338	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
d5-EtFOSAA	8.316	589.2 -> 419.0	15841	5.24 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
d7-MeFOSE	10.660	623.2 -> 58.9	85582	28.49 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.9%	
d9-EtFOSE	10.907	639.2 -> 58.9	103091	28.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 113.6%	
d5-EtFOSA	10.984	531.1 -> 219.0	8981	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
Target Compounds					QValue
4:2FTS	5.132	327.1 -> 307.0	20591	8.94 µg/L	98
		327.1 -> 80.9	7981		
6:2FTS	6.838	427.1 -> 407.0	20798	9.27 µg/L	96
		427.1 -> 80.9	7258		
8:2FTS	7.852	527.1 -> 507.0	12370	10.60 µg/L	98
		527.1 -> 80.8	4912		
EtFOSAA	8.318	584.2 -> 419.1	6239	2.12 µg/L	91
		584.2 -> 526.0	3662		
FOSA	9.639	498.1 -> 77.9	19365	2.25 µg/L	99
		498.1 -> 478.0	562		
MeFOSAA	8.122	570.1 -> 419.0	9070	2.40 µg/L	99
		570.1 -> 483.0	1751		
PFBA	2.894	212.8 -> 168.9	52961	9.81 µg/L	100
PFBS	5.385	298.7 -> 79.9	18810	2.11 µg/L	95
		298.7 -> 98.8	7496		
PFDA	8.064	512.9 -> 469.0	52327	2.32 µg/L	96
		512.9 -> 219.0	7712		
PFDODA	8.938	613.1 -> 569.0	41211	2.34 µg/L	97
		613.1 -> 319.0	6216		
PFDS	9.101	599.0 -> 79.9	7395	2.18 µg/L	99

7.7.14
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	3756	2.51	µg/L	98
		363.1 -> 319.0	57796			
PFHpS	7.723	363.1 -> 169.0	9007	2.10	µg/L	100
		449.0 -> 79.9	11733			
PFHxA	5.457	449.0 -> 98.9	6152	2.35	µg/L	100
		313.0 -> 269.0	50642			
PFHxS	7.168	313.0 -> 118.9	2388	2.33	µg/L	95
		398.7 -> 79.9	14149			
PFNA	7.584	398.7 -> 98.9	6594	2.38	µg/L	97
		463.0 -> 419.0	40009			
PFNS	8.681	463.0 -> 219.0	7650	2.34	µg/L	88
		548.8 -> 79.9	11842			
PFOA	7.066	548.8 -> 98.9	5808	2.41	µg/L	100
		413.0 -> 369.0	79923			
PFOS	8.215	413.0 -> 169.0	13250	2.04	µg/L	99
		498.9 -> 79.9	11159			
PFPeA	4.262	498.9 -> 98.8	5863	5.06	µg/L	100
		263.0 -> 219.0	67598			
PFPeS	6.471	349.1 -> 79.9	14185	2.36	µg/L	100
		349.1 -> 98.9	6406			
PFTeDA	9.665	713.1 -> 669.0	36904	2.51	µg/L	98
		713.1 -> 168.9	3006			
PFTrDA	9.333	663.0 -> 619.0	47032	2.30	µg/L	96
		663.0 -> 168.9	4363			
PFUnDA	8.506	563.1 -> 519.0	41344	2.40	µg/L	99
		563.1 -> 269.1	6283			
11CI-PF3OUdS	9.373	630.9 -> 450.9	57859	4.74	µg/L	91
		632.9 -> 452.9	18851			
9CI-PF3ONS	8.545	530.8 -> 351.0	96483	4.94	µg/L	97
		532.8 -> 353.0	26282			
ADONA	6.671	376.9 -> 250.9	233242	4.53	µg/L	91
		376.9 -> 84.8	66043			
HFPO-DA	5.832	284.9 -> 168.9	16109	5.15	µg/L	98
		284.9 -> 184.9	2086			
3:3FTCA	3.777	241.0 -> 177.0	10406	12.56	µg/L	99
		241.0 -> 117.0	1349			
5:3FTCA	6.161	341.0 -> 237.1	211959	56.76	µg/L	95
		341.0 -> 217.0	162307			
7:3FTCA	7.573	441.0 -> 316.9	103059	60.83	µg/L	91
		441.0 -> 336.9	229873			
EtFOSA	10.986	526.0 -> 219.0	18938	4.87	µg/L	97
		526.0 -> 169.0	22914			
EtFOSE	10.920	630.0 -> 58.9	53242	11.85	µg/L	100
		511.9 -> 219.0	16754			
MeFOSA	10.753	511.9 -> 169.0	23190	4.96	µg/L	93
		616.1 -> 58.9	47134			
MeFOSE	10.673	699.1 -> 79.9	4242	11.77	µg/L	100
		699.1 -> 98.8	2244			
PFDoDS	9.793	295.0 -> 201.0	11196	2.36	µg/L	95
		295.0 -> 84.9	2959			
NFDHA	5.336	279.0 -> 85.1	48222	4.71	µg/L	98
		229.0 -> 84.9	34400			
PFMBA	4.675	314.8 -> 134.9	122843	5.01	µg/L	100
		314.8 -> 82.9	4304			
PFMPA	3.426			4.25	µg/L	100
PFEESA	5.926			4.25	µg/L	100

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



7.7.14
7

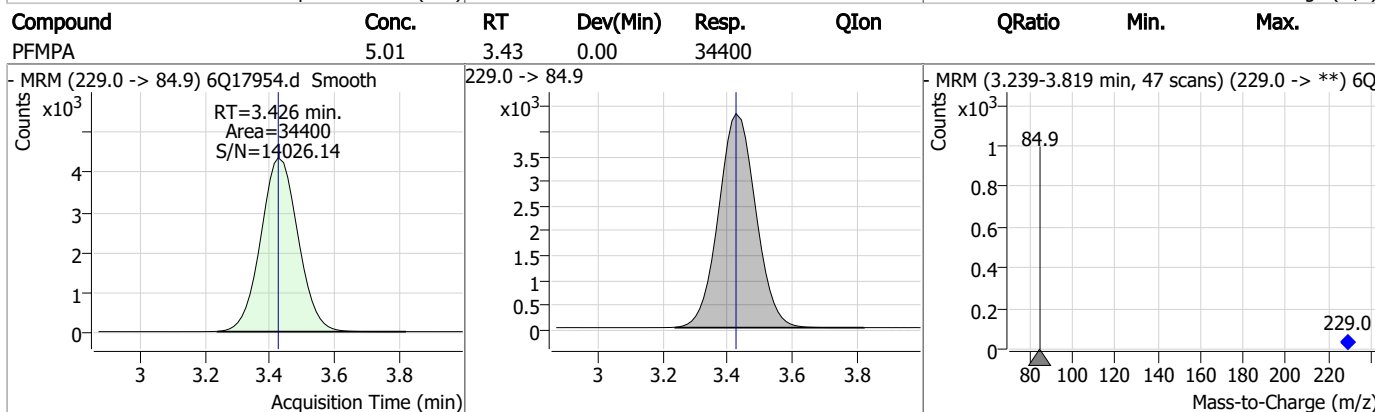
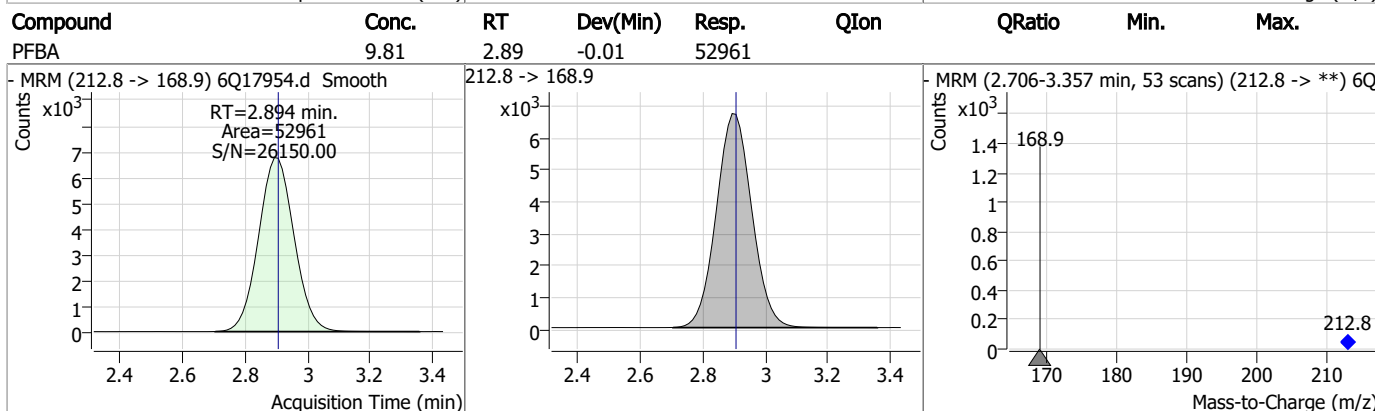
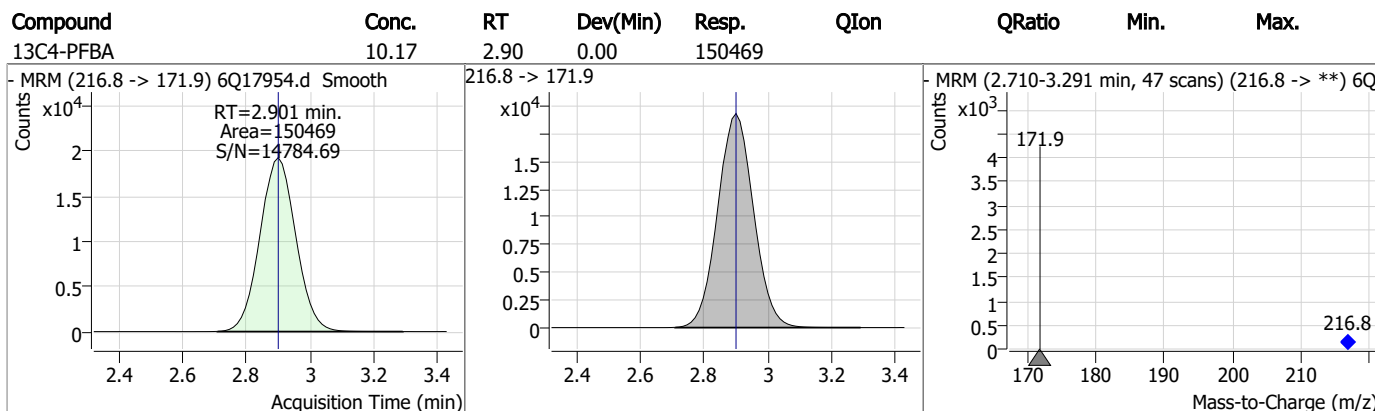
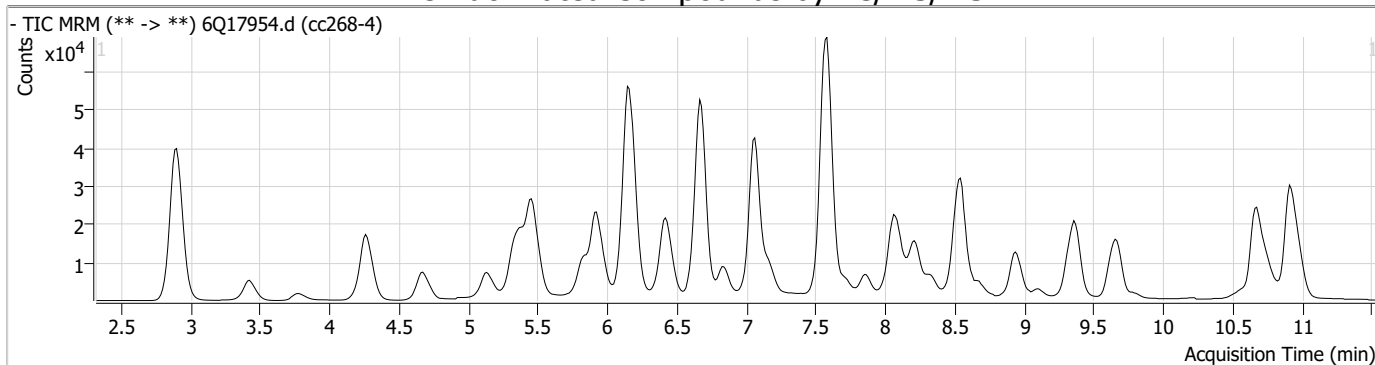
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.14

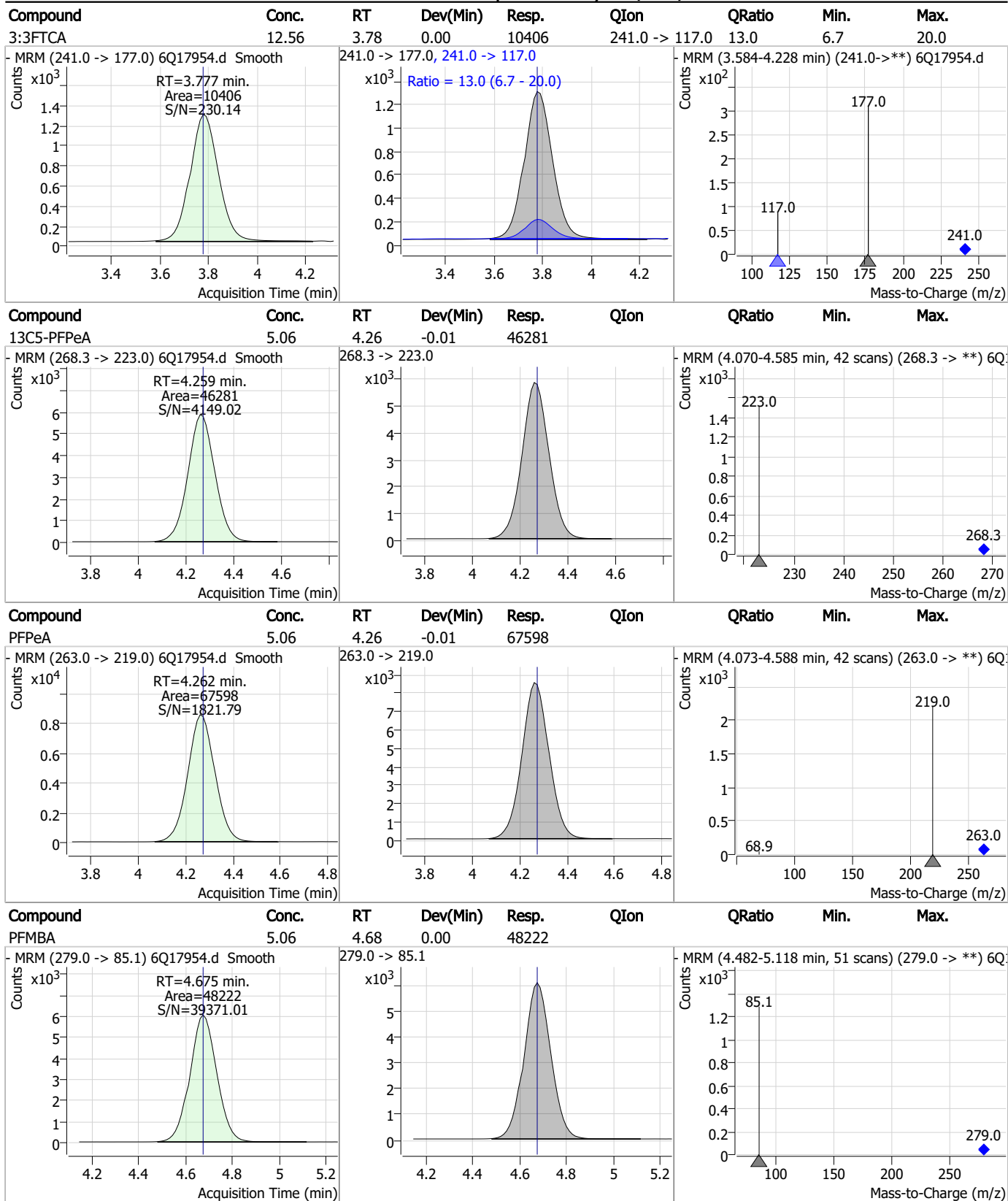
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Perfluorinated Compounds by LC/MS/MS



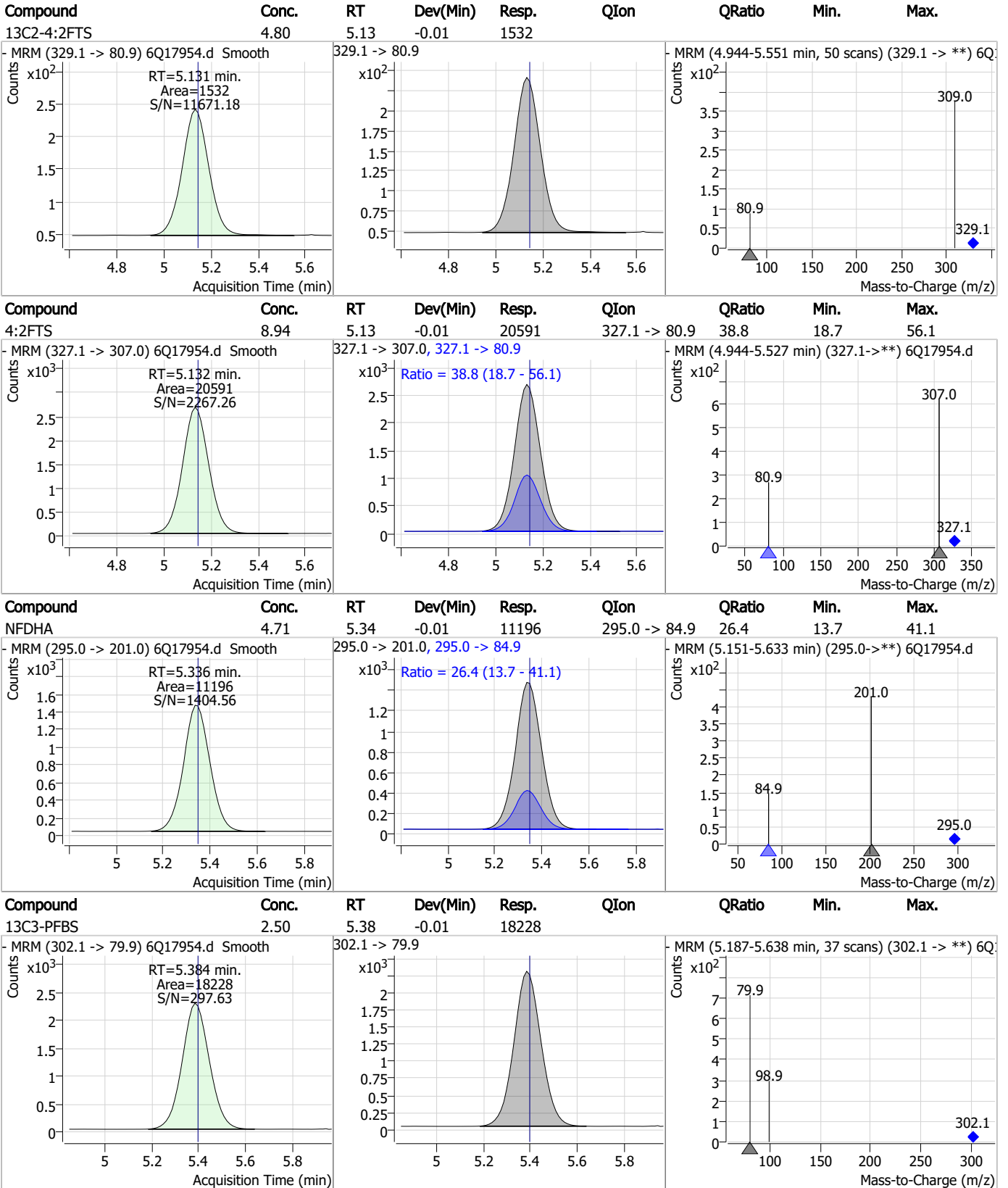
7.7.14
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Perfluorinated Compounds by LC/MS/MS



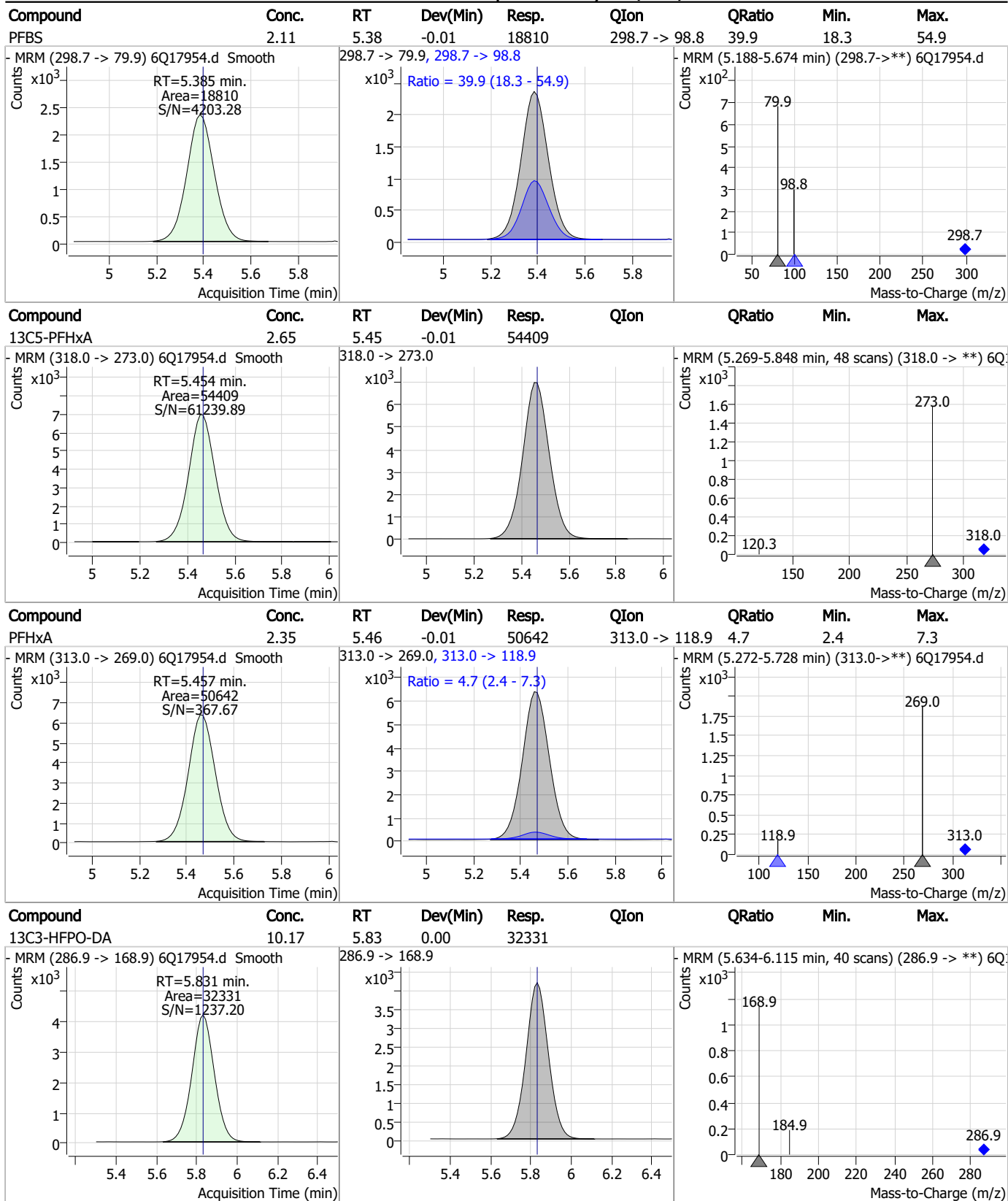
7.7.14

Perfluorinated Compounds by LC/MS/MS



7.7.14

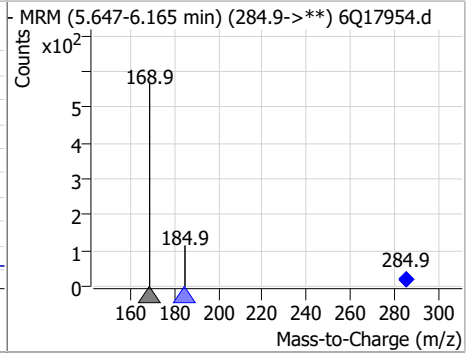
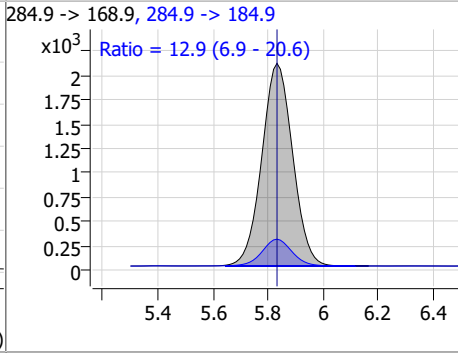
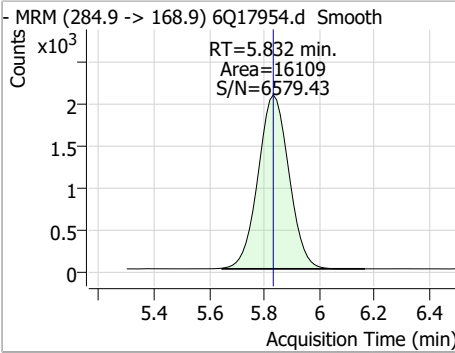
Perfluorinated Compounds by LC/MS/MS



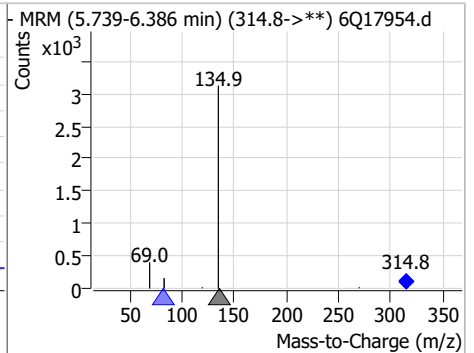
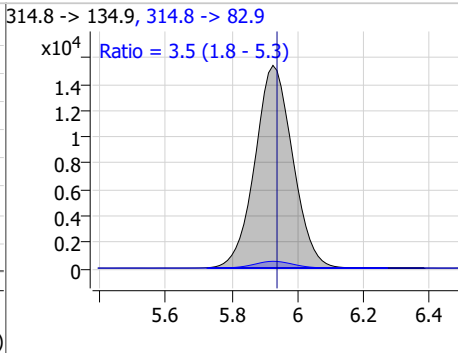
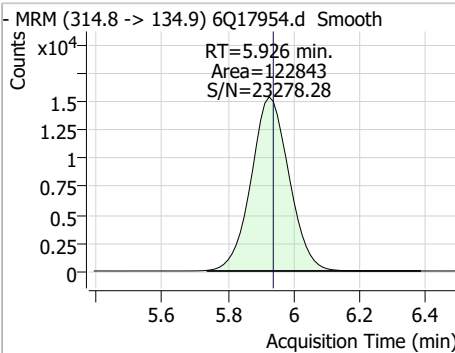
7.7.14

Perfluorinated Compounds by LC/MS/MS

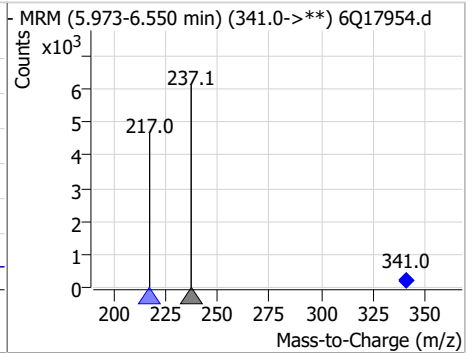
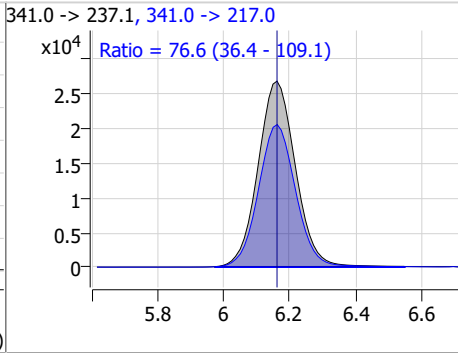
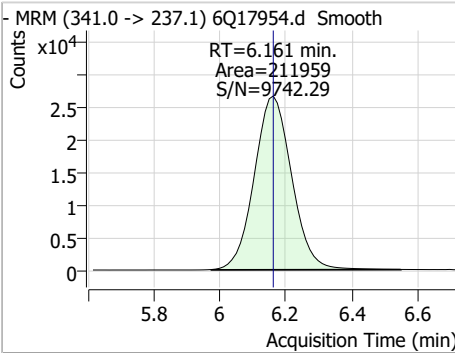
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.15	5.83	0.00	16109	284.9 -> 184.9	12.9	6.9	20.6



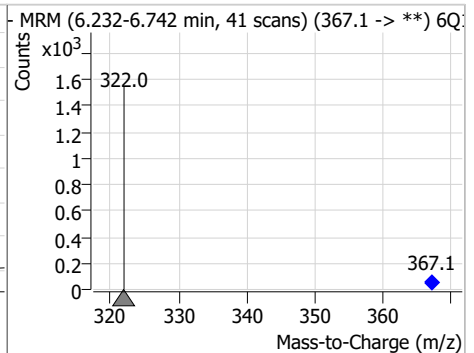
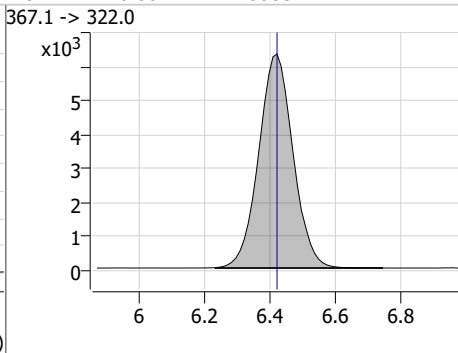
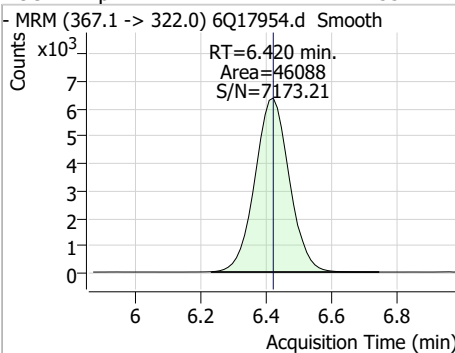
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.25	5.93	-0.01	122843	314.8 -> 82.9	3.5	1.8	5.3



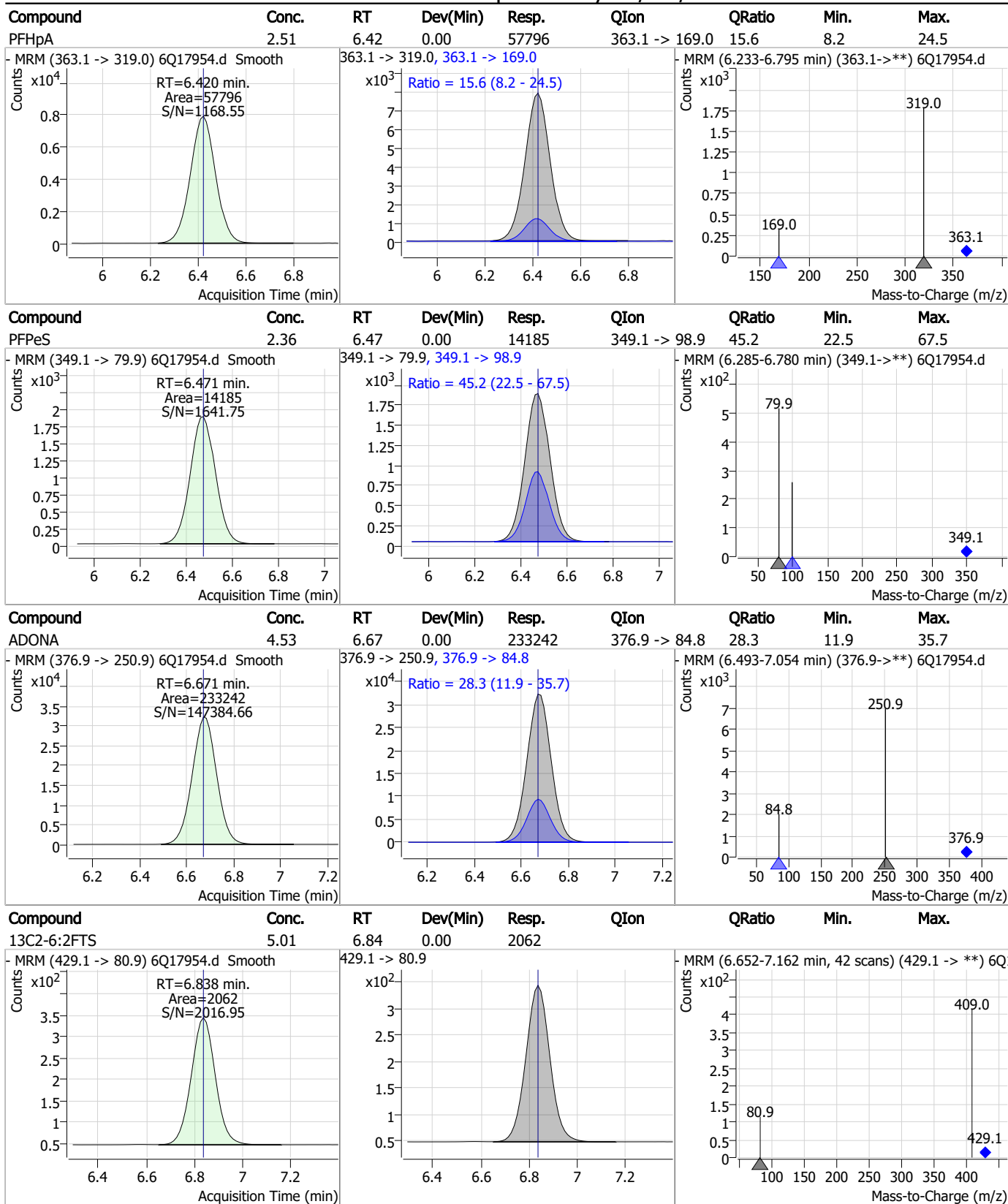
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	56.76	6.16	0.00	211959	341.0 -> 217.0	76.6	36.4	109.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.55	6.42	0.00	46088	367.1 -> 322.0			

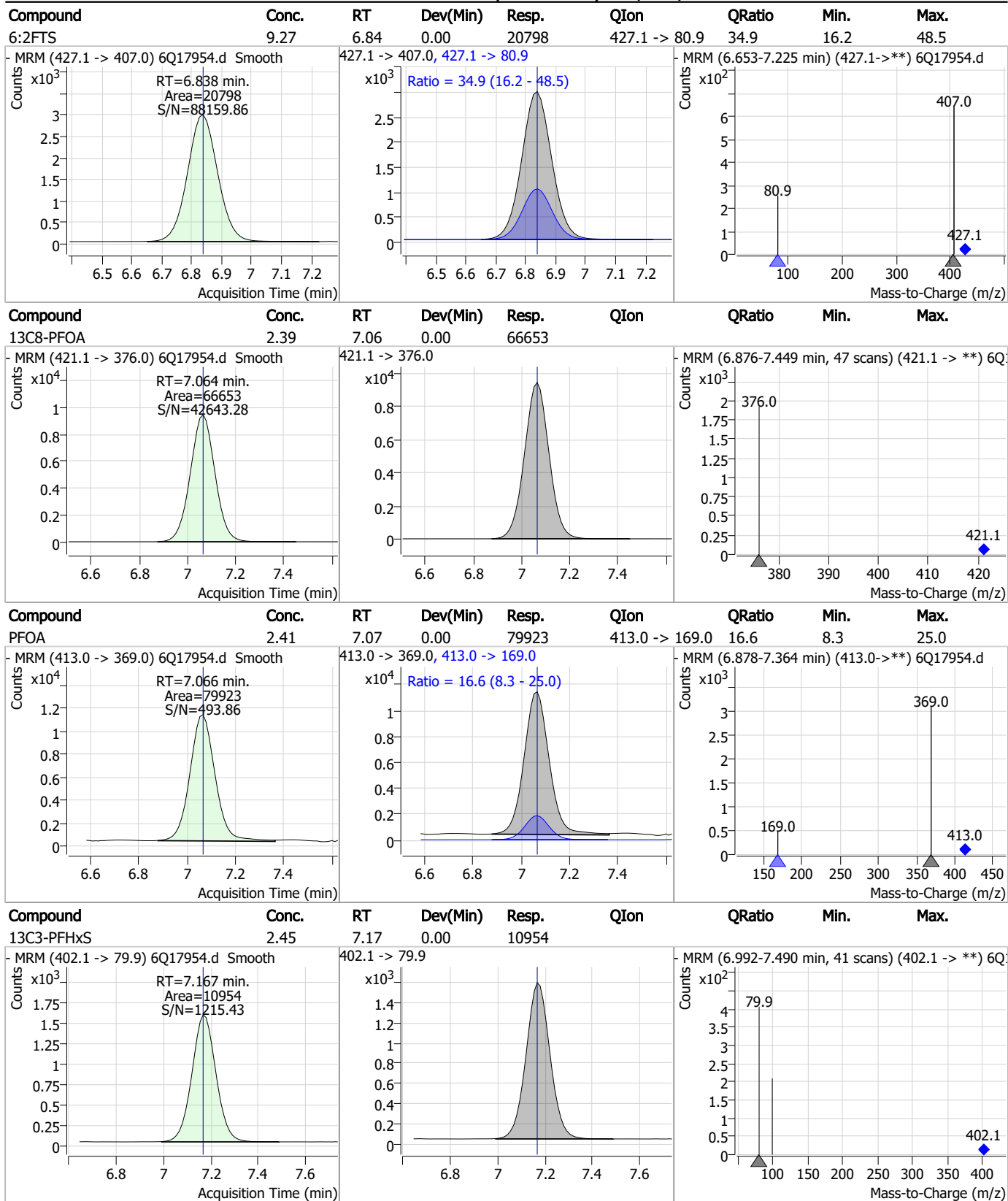


Perfluorinated Compounds by LC/MS/MS



7.7.14
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Perfluorinated Compounds by LC/MS/MS

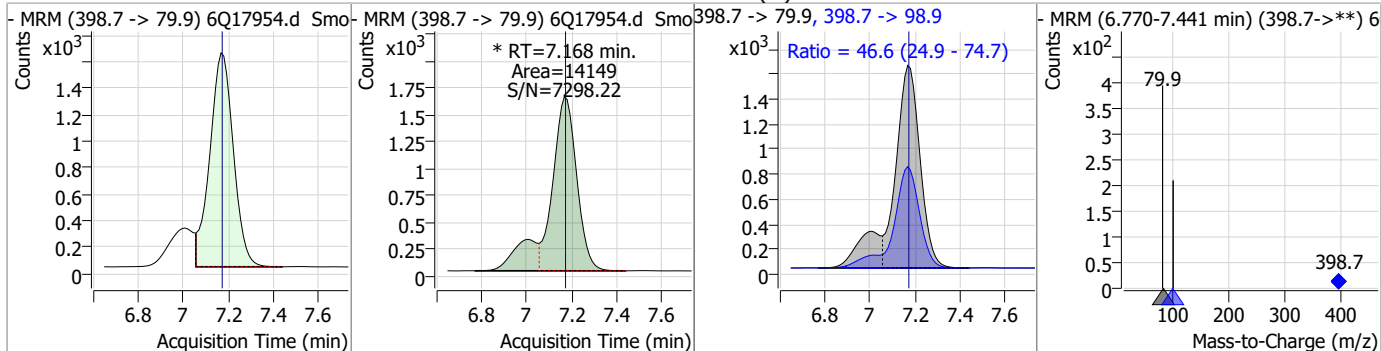


7.7.14

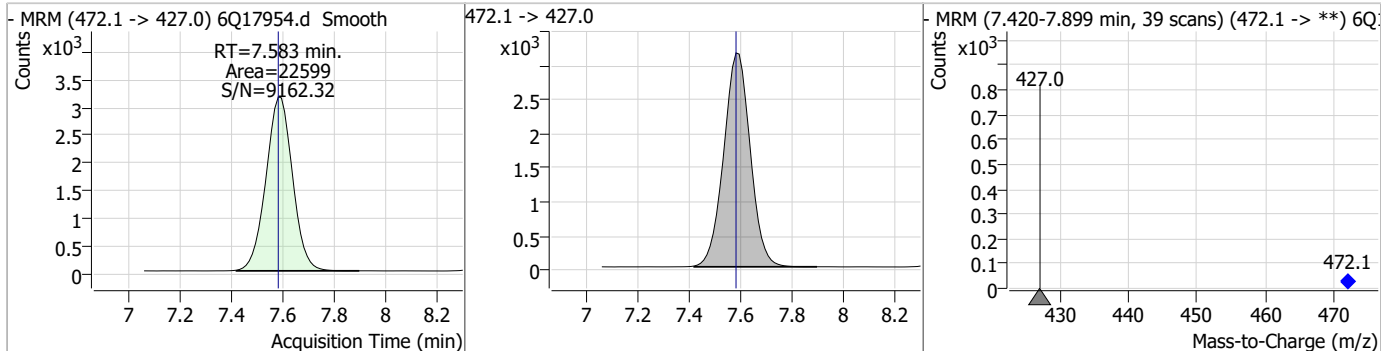
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Perfluorinated Compounds by LC/MS/MS

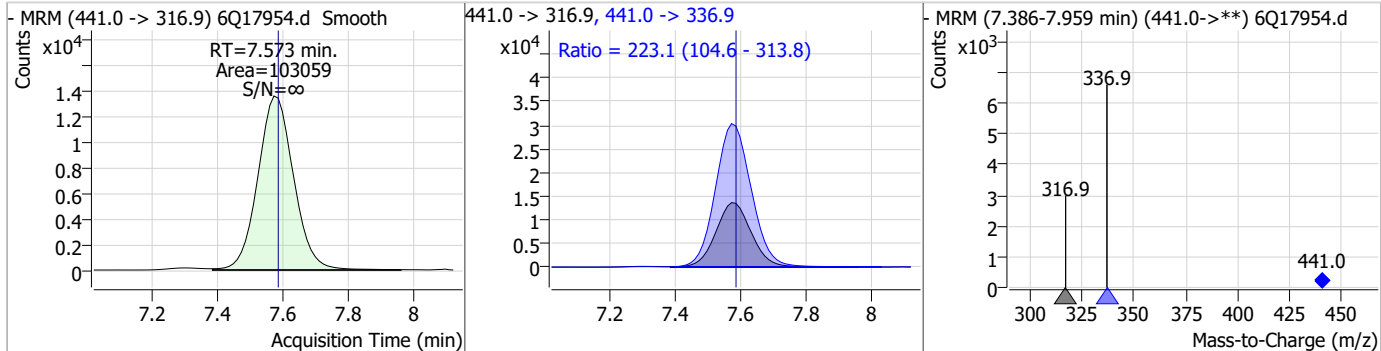
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.33	7.17	0.00	14149 (m)	398.7 -> 98.9	46.6	24.9	74.7



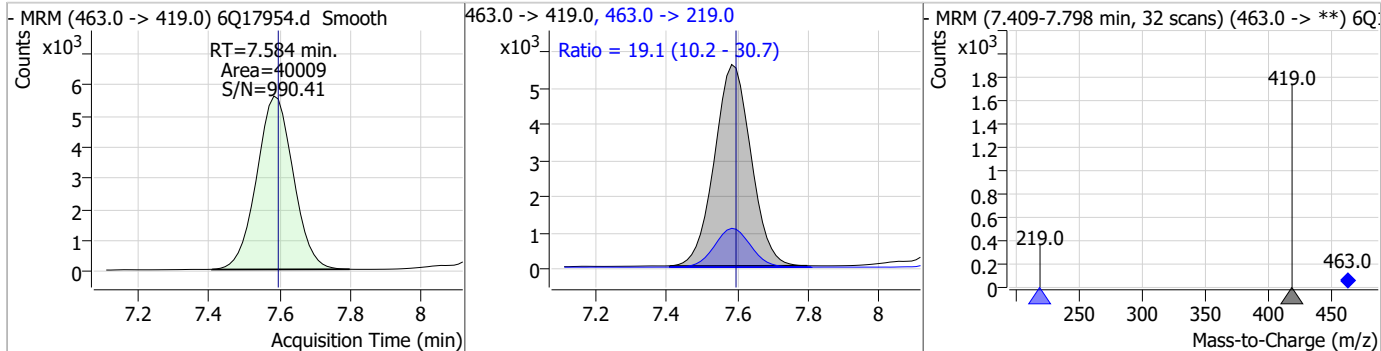
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.21	7.58	0.00	22599				



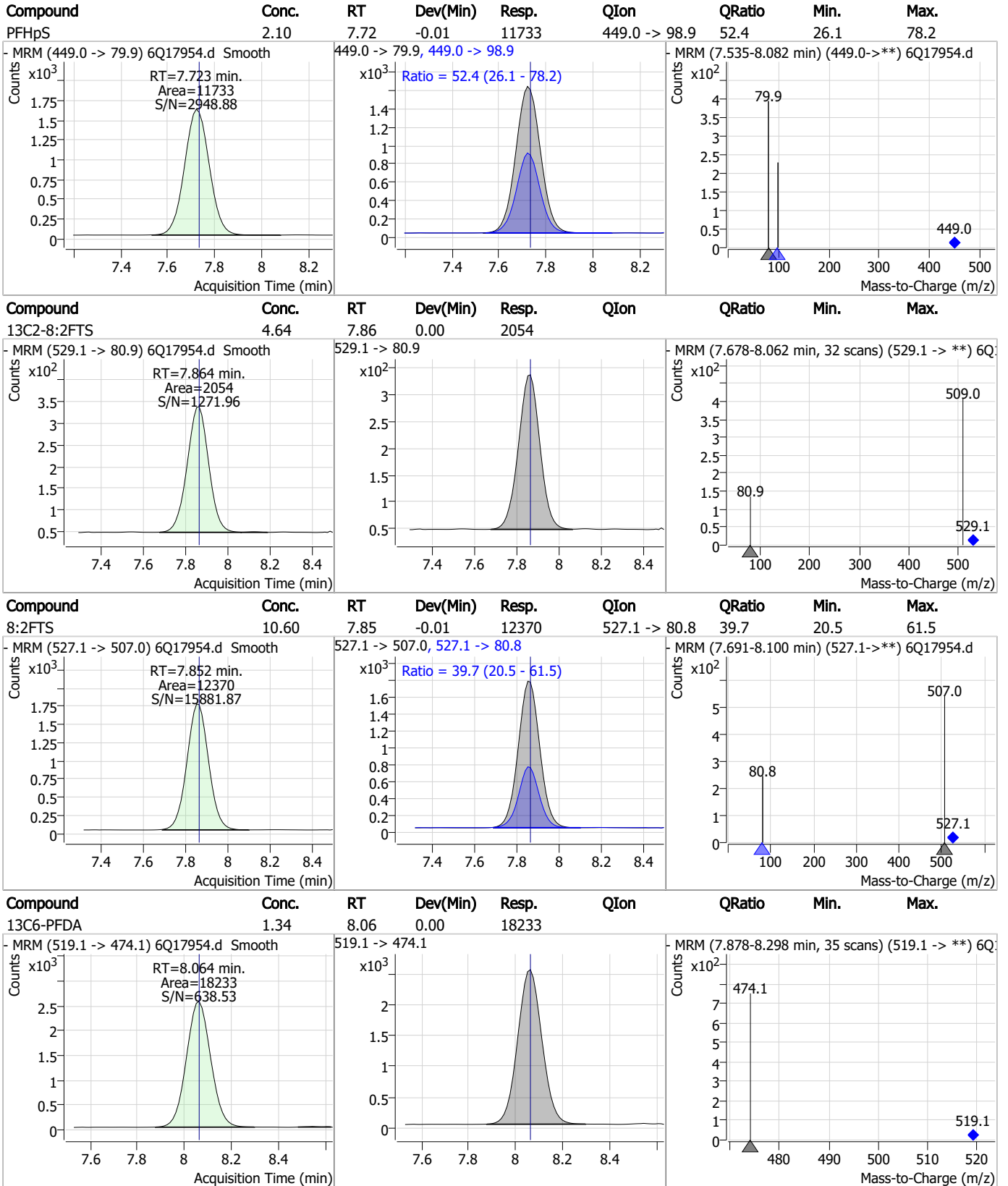
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	60.83	7.57	-0.01	103059	441.0 -> 336.9	223.1	104.6	313.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.38	7.58	-0.01	40009	463.0 -> 219.0	19.1	10.2	30.7



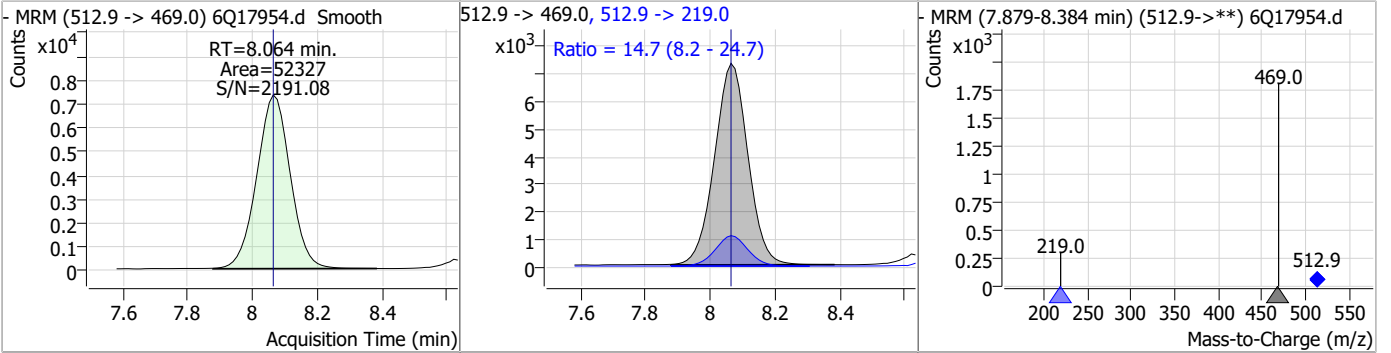
Perfluorinated Compounds by LC/MS/MS



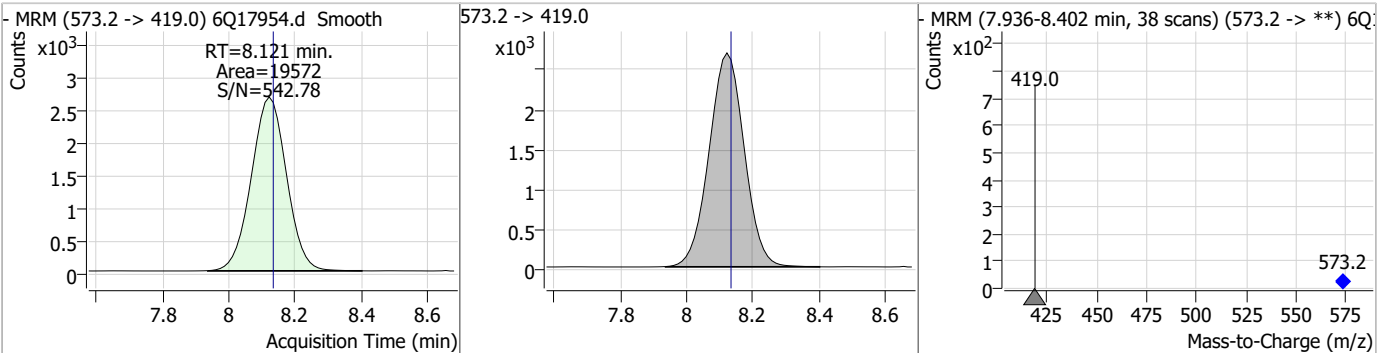
7.7.14

Perfluorinated Compounds by LC/MS/MS

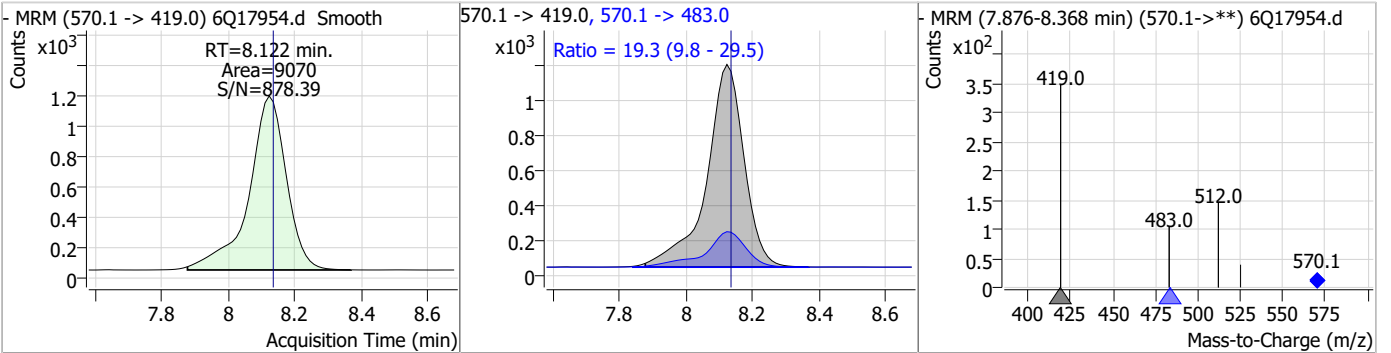
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.32	8.06	0.00	52327	512.9 -> 219.0	14.7	8.2	24.7



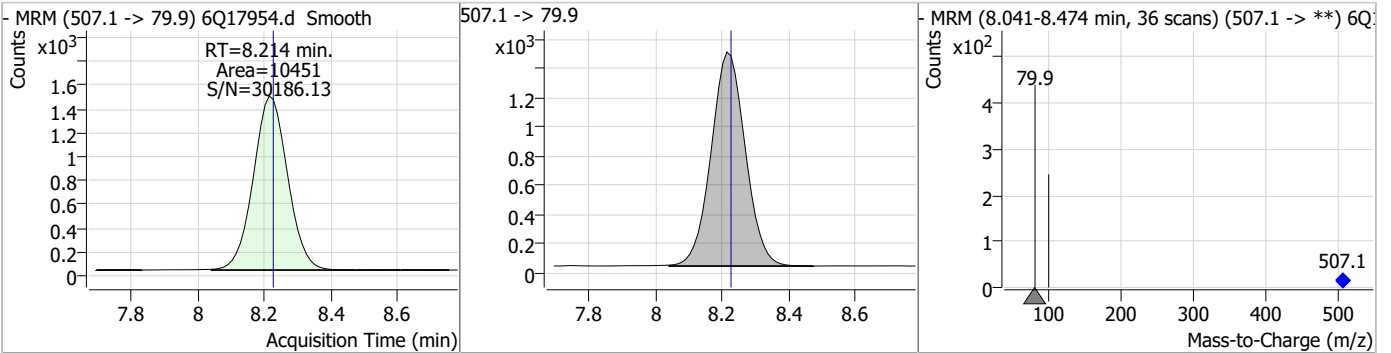
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.12	8.12	-0.01	19572				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.40	8.12	-0.01	9070	570.1 -> 483.0	19.3	9.8	29.5

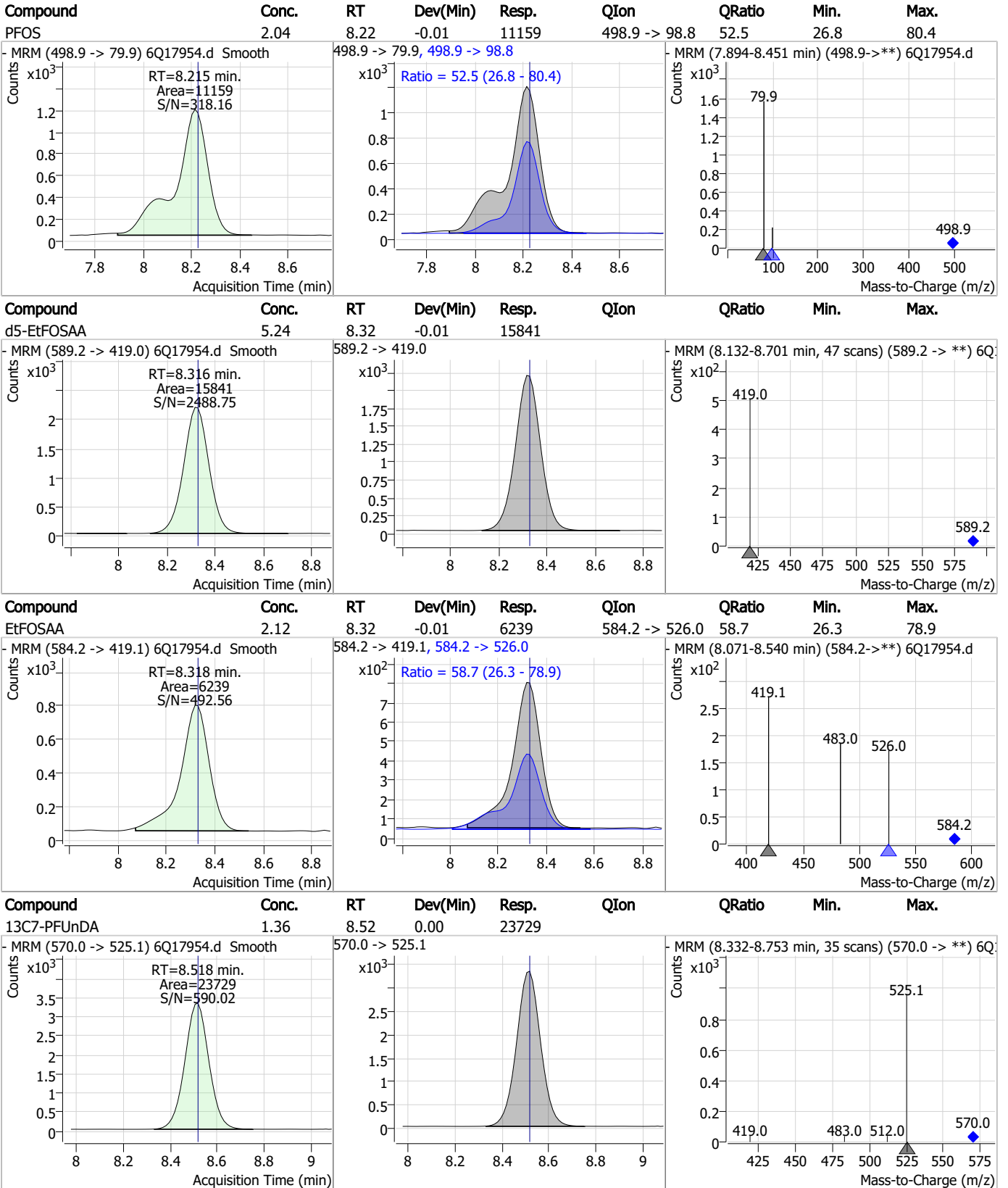


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.75	8.21	-0.01	10451				



7.7.14

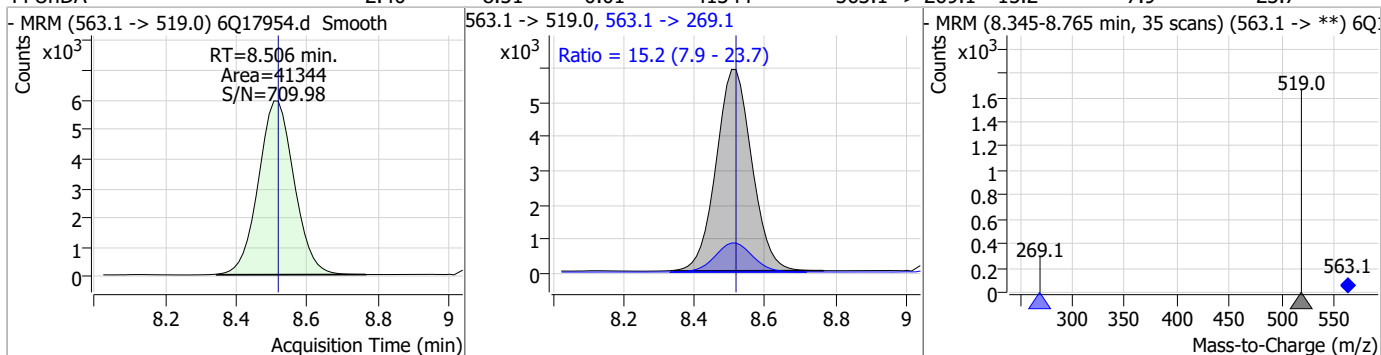
Perfluorinated Compounds by LC/MS/MS



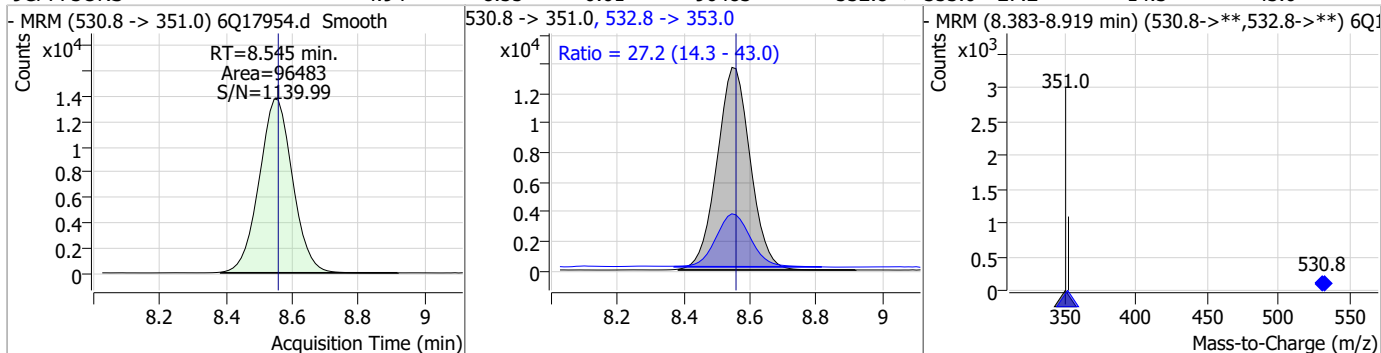
7.7.14

Perfluorinated Compounds by LC/MS/MS

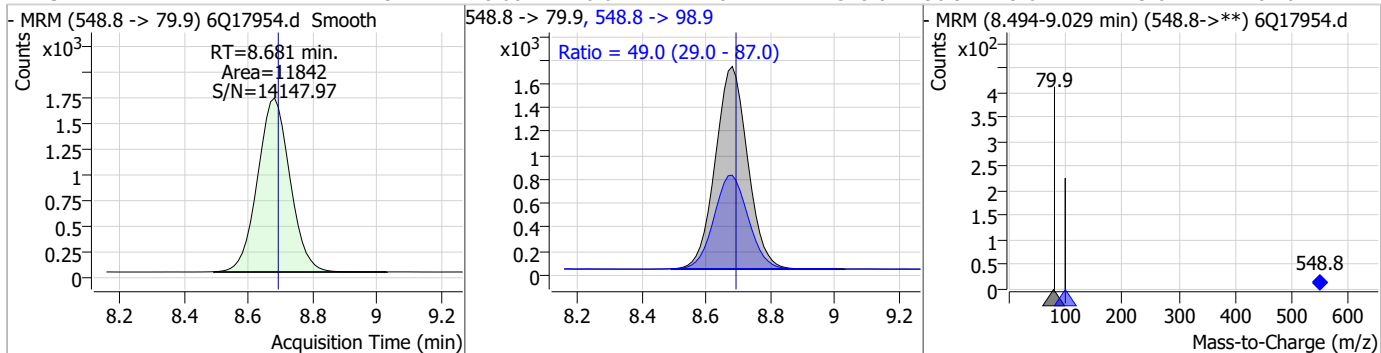
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.40	8.51	-0.01	41344	563.1 -> 269.1	15.2	7.9	23.7



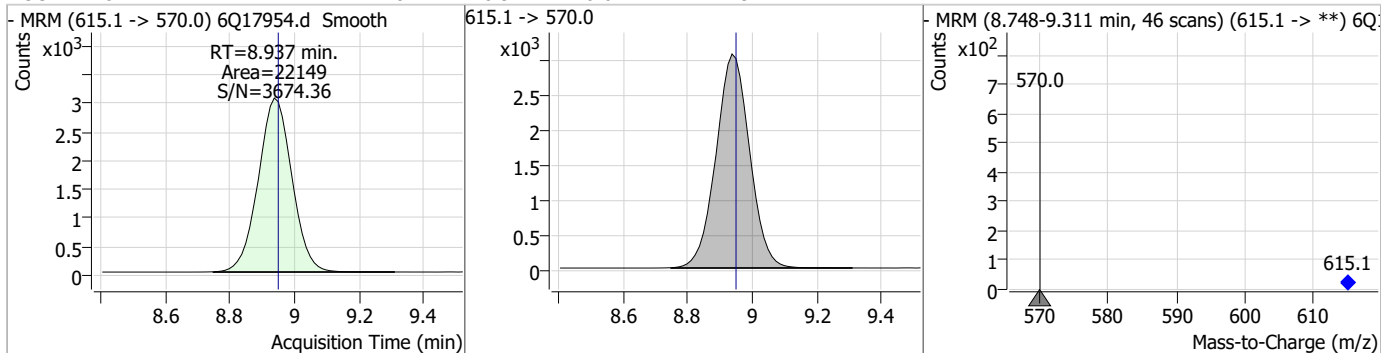
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.94	8.55	-0.01	96483	532.8 -> 353.0	27.2	14.3	43.0



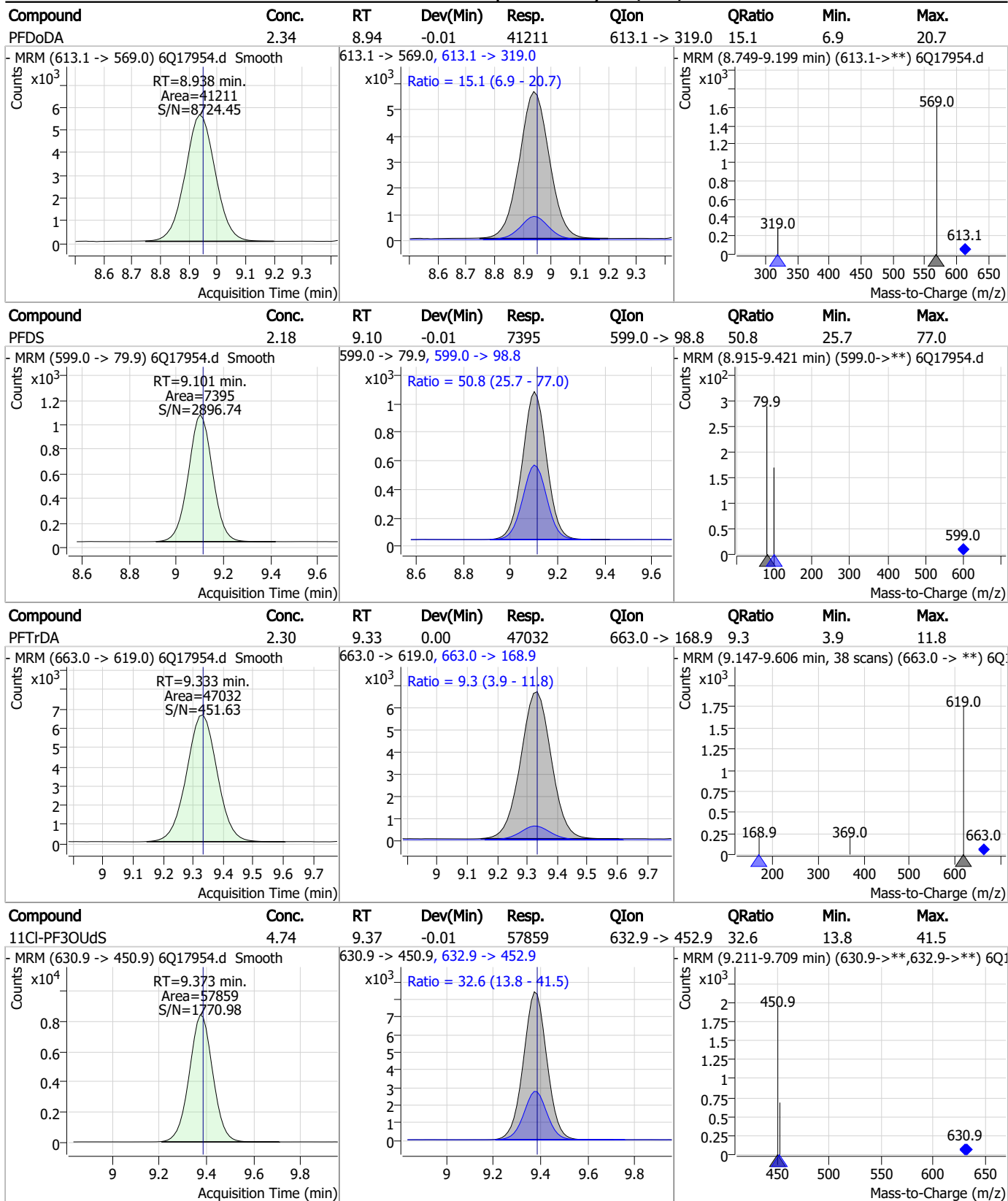
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.34	8.68	-0.01	11842	548.8 -> 98.9	49.0	29.0	87.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.28	8.94	-0.01	22149	615.1 -> 570.0			



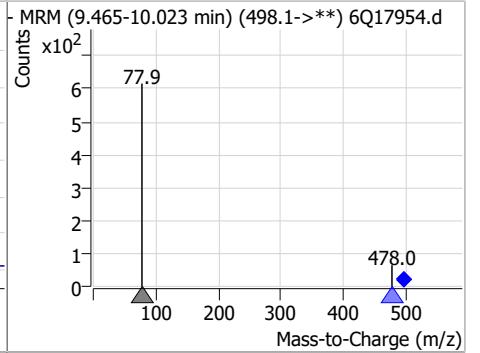
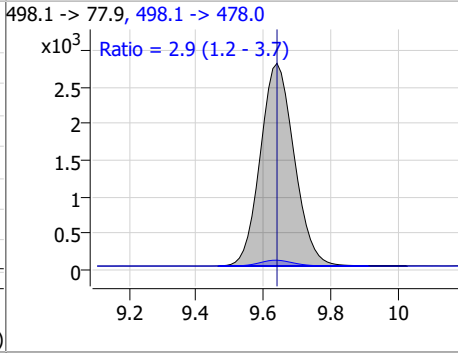
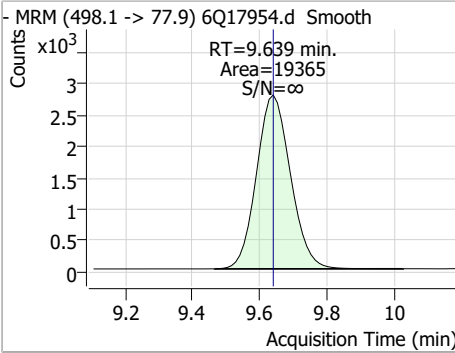
Perfluorinated Compounds by LC/MS/MS



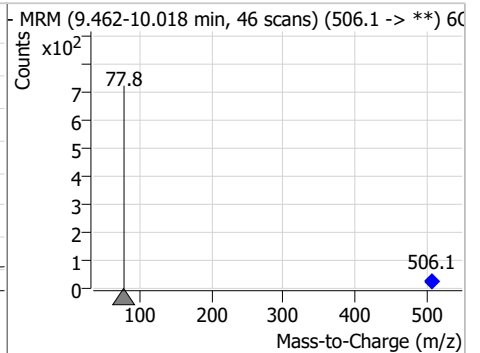
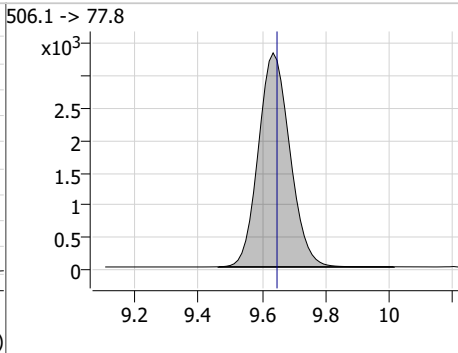
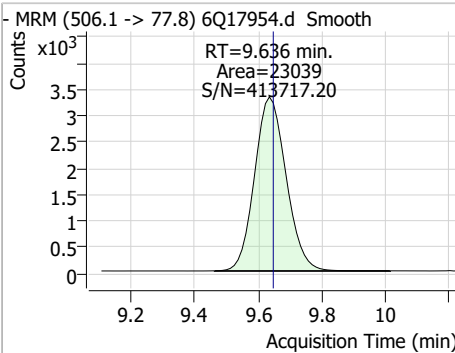
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Perfluorinated Compounds by LC/MS/MS

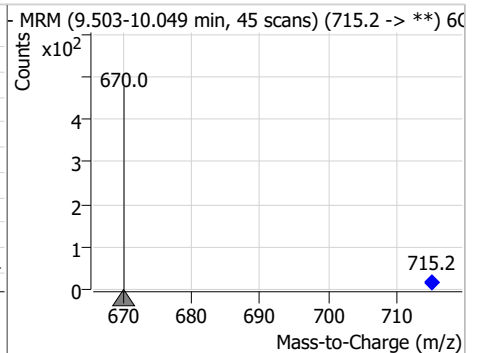
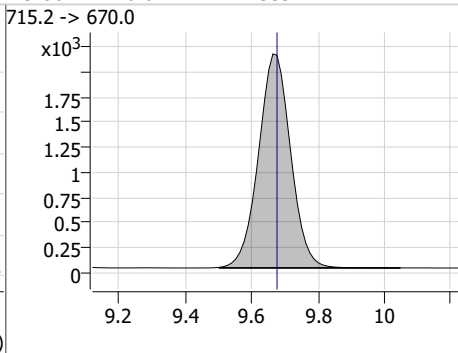
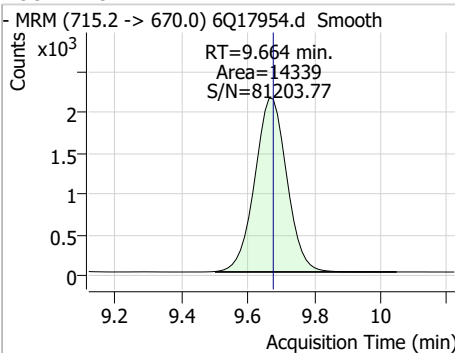
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.25	9.64	0.00	19365	498.1 -> 478.0	2.9	1.2	3.7



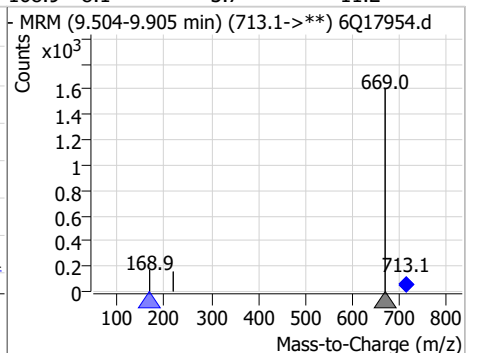
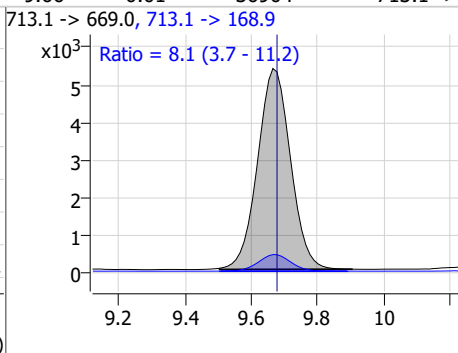
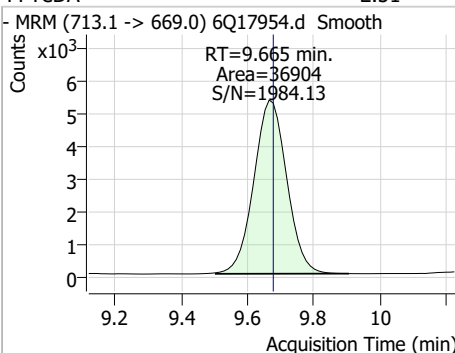
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.85	9.64	-0.01	23039				



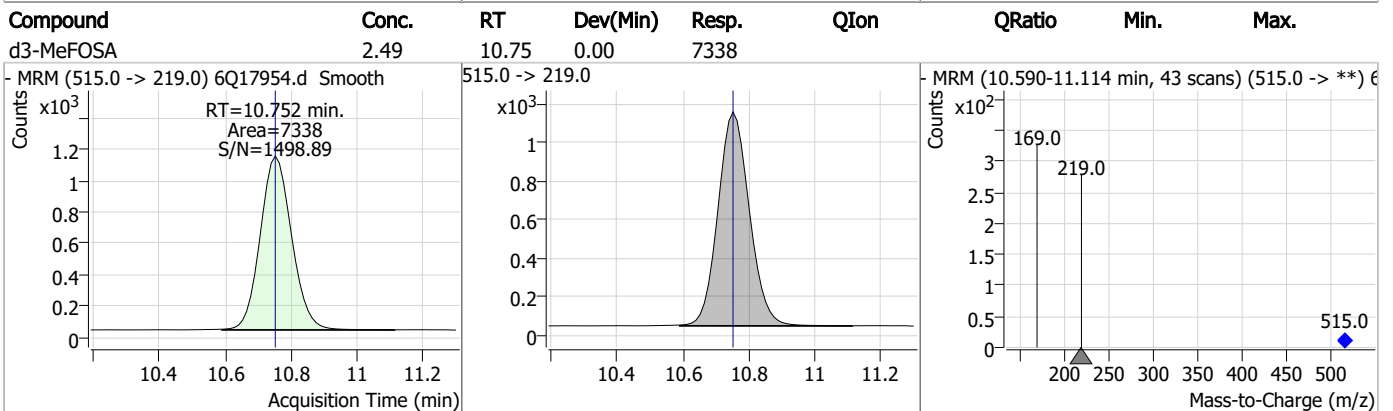
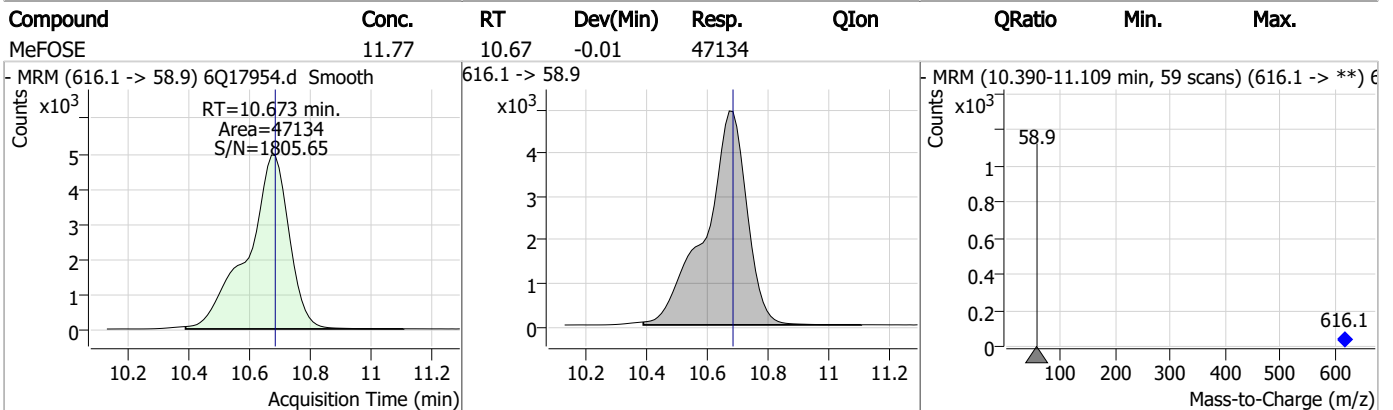
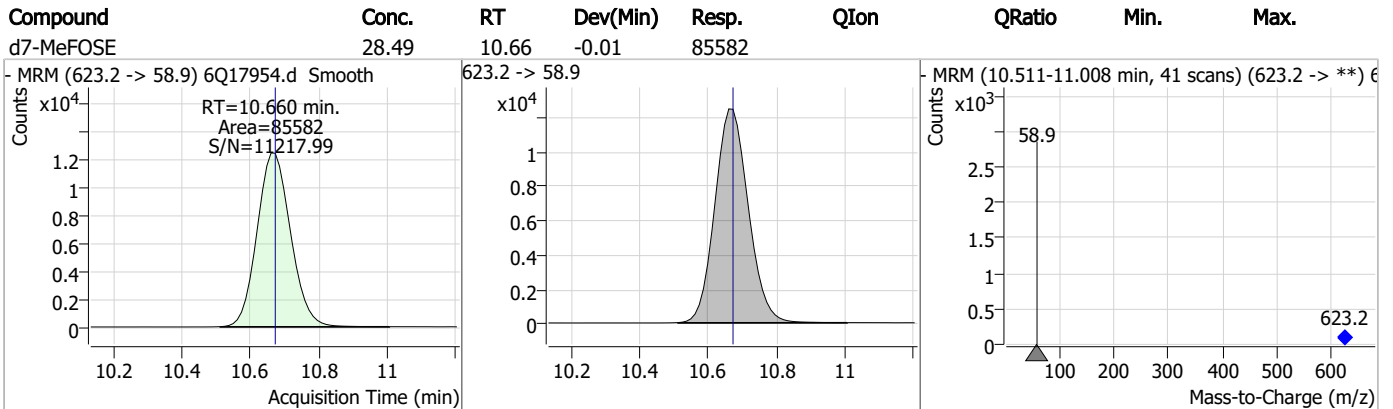
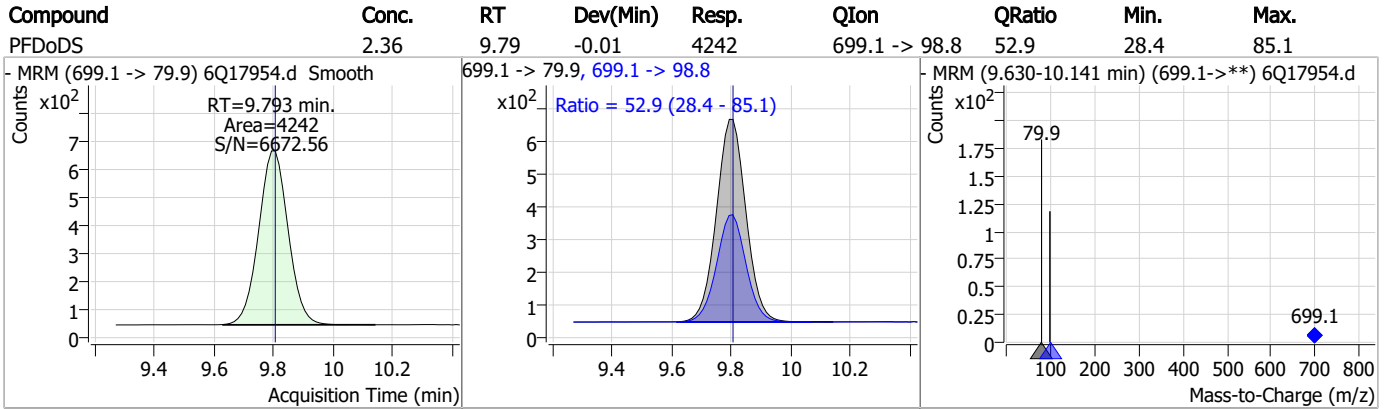
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.66	-0.01	14339				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.51	9.66	-0.01	36904	713.1 -> 168.9	8.1	3.7	11.2



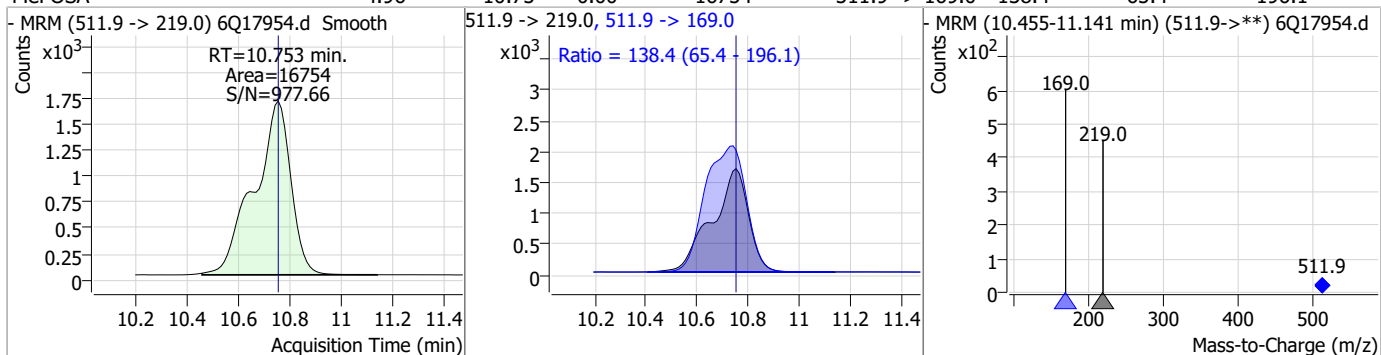
Perfluorinated Compounds by LC/MS/MS



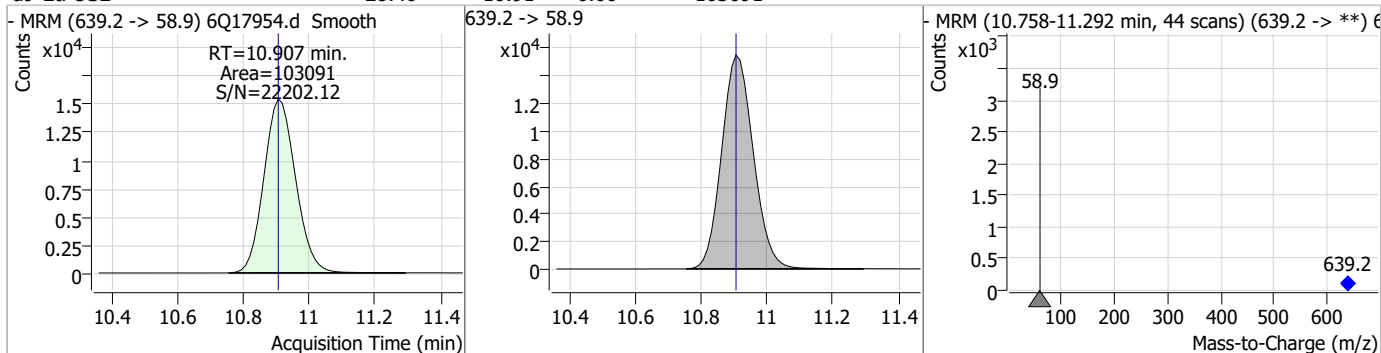
7.7.14
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Perfluorinated Compounds by LC/MS/MS

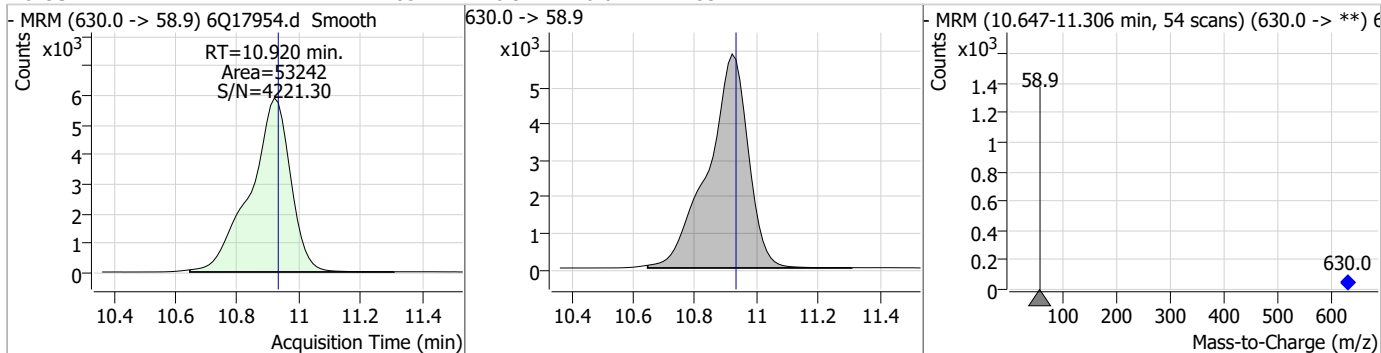
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.96	10.75	0.00	16754	511.9 -> 169.0	138.4	65.4	196.1



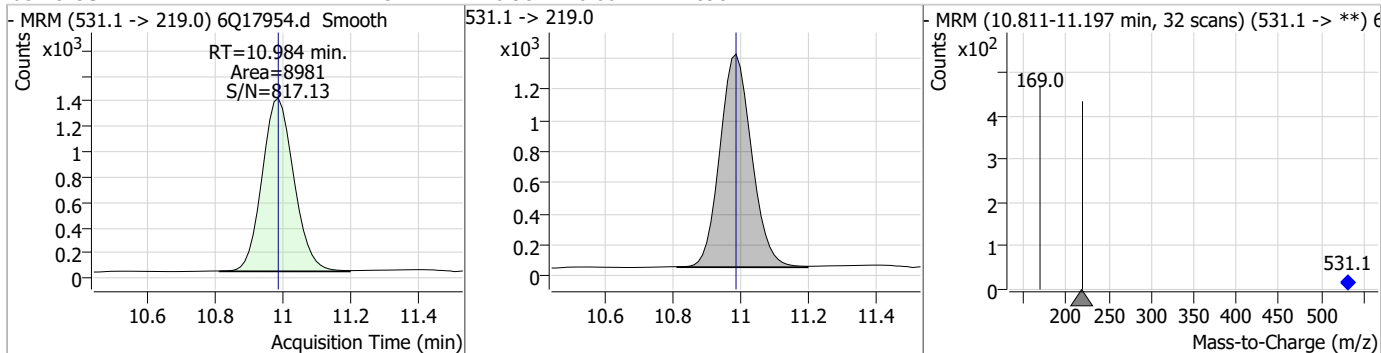
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	28.40	10.91	0.00	103091				



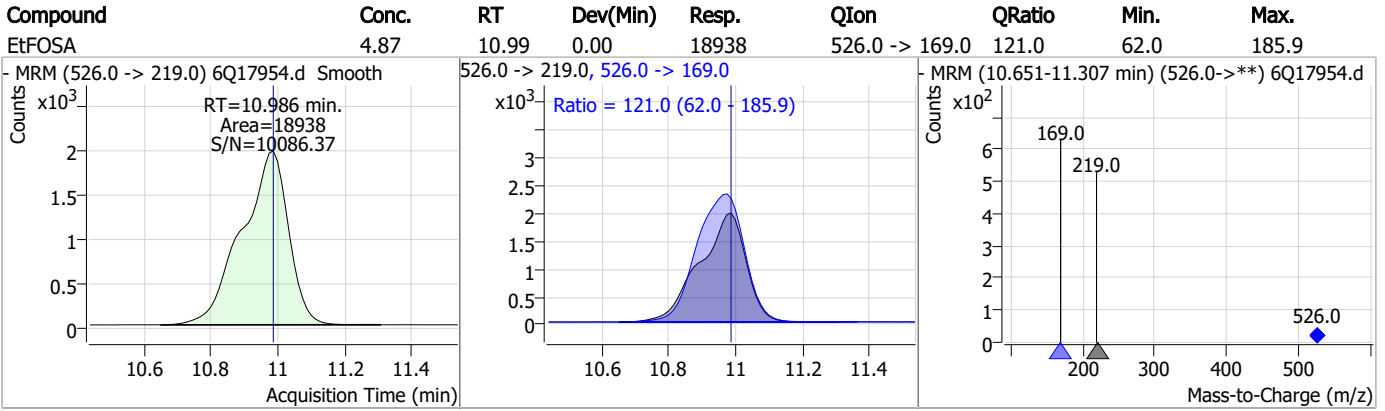
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.85	10.92	-0.01	53242				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.52	10.98	0.00	8981				



Perfluorinated Compounds by LC/MS/MS



7.7.14
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Manual Integration Approval Summary

Sample Number: S6Q271-CC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17954.D Analyst approved: 05/18/23 14:21 Martha Valls
Injection Time: 05/17/23 16:19 Supervisor approved: 05/19/23 14:22 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak

7.7.14.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17966.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 5/17/2023 7:13:04 PM
 Sample Name : cc268-4
 Vial : P1-A5
 DA Method File : 1633_051223_S6Q268.quantmethod.xml
 Batch Name : s6q271.batch.bin
 Sample Information : OP96663,S6Q271,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.901	216.8 -> 171.9	150720	10.00 µg/L	0.000
M5-PFPeA	4.259	268.3 -> 223.0	46528	5.00 µg/L	-0.012
M5-PFHxA	5.466	318.0 -> 273.0	52018	2.50 µg/L	0.000
M4-PFHpA	6.407	367.1 -> 322.0	46892	2.50 µg/L	-0.012
M8-PFOA	7.064	421.1 -> 376.0	70366	2.50 µg/L	0.000
M9-PFNA	7.583	472.1 -> 427.0	24152	1.25 µg/L	0.000
M6-PFDA	8.064	519.1 -> 474.1	17387	1.25 µg/L	0.000
M7-PFUnDA	8.506	570.0 -> 525.1	22223	1.25 µg/L	-0.012
M2-PFDoDA	8.937	615.1 -> 570.0	22267	1.25 µg/L	-0.012
M2-PFTeDA	9.664	715.2 -> 670.0	14575	1.25 µg/L	-0.012
M8-FOSA	9.636	506.1 -> 77.8	22361	2.50 µg/L	-0.012
M3-PFBS	5.384	302.1 -> 79.9	17590	2.50 µg/L	-0.013
M3-PFHxS	7.167	402.1 -> 79.9	10958	2.50 µg/L	0.000
M8-PFOS	8.214	507.1 -> 79.9	10067	2.50 µg/L	-0.012
M2-4:2FTS	5.131	329.1 -> 80.9	1497	5.00 µg/L	-0.012
M2-6:2FTS	6.838	429.1 -> 80.9	1897	5.00 µg/L	0.000
M2-8:2FTS	7.852	529.1 -> 80.9	2249	5.00 µg/L	-0.012
M3-MeFOSAA	8.121	573.2 -> 419.0	18989	5.00 µg/L	-0.012
M3-HFPO-DA	5.831	286.9 -> 168.9	33118	10.00 µg/L	0.000
M5-EtFOSAA	8.316	589.2 -> 419.0	15420	5.00 µg/L	-0.012
M7-MeFOSE	10.660	623.2 -> 58.9	82221	25.00 µg/L	-0.012
M9-EtFOSE	10.907	639.2 -> 58.9	98112	25.00 µg/L	0.000
M5-EtFOSA	10.985	531.1 -> 219.0	8717	2.50 µg/L	0.000
M3-MeFOSA	10.752	515.0 -> 219.0	7136	2.50 µg/L	0.000
13C4-PFOS	8.215	502.8 -> 79.9	12634	2.50 µg/L	-0.012
13C3-PFBA	2.904	216.0 -> 172.0	62745	5.00 µg/L	0.000
18O2-PFHxS	7.166	403.0 -> 83.9	8546	2.50 µg/L	0.000
13C4-PFOA	7.051	417.1 -> 372.0	70863	2.50 µg/L	-0.013
13C2-PFDA	8.052	515.1 -> 470.1	19851	1.25 µg/L	-0.012
13C5-PFNA	7.584	468.0 -> 423.0	24764	1.25 µg/L	0.000
13C2-PFHxA	5.454	315.1 -> 270.0	43148	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.131	329.1 -> 80.9	1497	4.60 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-6:2FTS	6.838	429.1 -> 80.9	1897	4.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C2-8:2FTS	7.852	529.1 -> 80.9	2249	4.98 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C2-PFDoDA	8.937	615.1 -> 570.0	22267	1.34 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C2-PFTeDA	9.664	715.2 -> 670.0	14575	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C3-PFBS	5.384	302.1 -> 79.9	17590	2.36 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C3-PFHxS	7.167	402.1 -> 79.9	10958	2.41 µg/L	0.000

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 = 96.3%	
13C4-PFBA	2.901	216.8 -> 171.9	150720	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.407	367.1 -> 322.0	46892	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C5-PFHxA	5.466	318.0 -> 273.0	52018	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.259	268.3 -> 223.0	46528	5.13 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C6-PFDA	8.064	519.1 -> 474.1	17387	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C7-PFUnDA	8.506	570.0 -> 525.1	22223	1.33 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C8-FOSA	9.636	506.1 -> 77.8	22361	2.67 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C8-PFOA	7.064	421.1 -> 376.0	70366	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C8-PFOS	8.214	507.1 -> 79.9	10067	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C9-PFNA	7.583	472.1 -> 427.0	24152	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.5%	
d3-MeFOSAA	8.121	573.2 -> 419.0	18989	4.80 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C3-HFPO-DA	5.831	286.9 -> 168.9	33118	10.49 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d3-MeFOSA	10.752	515.0 -> 219.0	7136	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
d5-EtFOSAA	8.316	589.2 -> 419.0	15420	4.93 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d7-MeFOSE	10.660	623.2 -> 58.9	82221	26.42 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
d9-EtFOSE	10.907	639.2 -> 58.9	98112	26.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
d5-EtFOSA	10.985	531.1 -> 219.0	8717	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
Target Compounds					QValue
4:2FTS	5.132	327.1 -> 307.0	20057	8.91 µg/L	94
		327.1 -> 80.9	8180		
6:2FTS	6.838	427.1 -> 407.0	21155	10.24 µg/L	100
		427.1 -> 80.9	6892		
8:2FTS	7.852	527.1 -> 507.0	12172	9.53 µg/L	98
		527.1 -> 80.8	5172		
EtFOSAA	8.318	584.2 -> 419.1	6576	2.29 µg/L	96
		584.2 -> 526.0	3654		
FOSA	9.639	498.1 -> 77.9	18736	2.24 µg/L	99
		498.1 -> 478.0	534		
MeFOSAA	8.122	570.1 -> 419.0	9363	2.55 µg/L	100
		570.1 -> 483.0	1838		
PFBA	2.907	212.8 -> 168.9	52806	9.77 µg/L	100
PFBS	5.385	298.7 -> 79.9	18853	2.20 µg/L	97
		298.7 -> 98.8	7197		
PFDA	8.064	512.9 -> 469.0	52734	2.45 µg/L	96
		512.9 -> 219.0	7884		
PFDODA	8.938	613.1 -> 569.0	43463	2.45 µg/L	99
		613.1 -> 319.0	5891		
PFDS	9.101	599.0 -> 79.9	7714	2.36 µg/L	96

7.7.15
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3766			
PFHpA	6.408	363.1 -> 319.0	57170	2.44	µg/L	99
		363.1 -> 169.0	9169			
PFHpS	7.723	449.0 -> 79.9	11026	2.05	µg/L	100
		449.0 -> 98.9	5762			
PFHxA	5.457	313.0 -> 269.0	51469	2.50	µg/L	100
		313.0 -> 118.9	2538			
PFHxS	7.168	398.7 -> 79.9	13177	2.17	µg/L	m 99
		398.7 -> 98.9	6633			
PFNA	7.584	463.0 -> 419.0	44158	2.46	µg/L	94
		463.0 -> 219.0	7737			
PFNS	8.681	548.8 -> 79.9	11849	2.43	µg/L	93
		548.8 -> 98.9	6254			
PFOA	7.052	413.0 -> 369.0	78396	2.24	µg/L	97
		413.0 -> 169.0	14063			
PFOS	8.215	498.9 -> 79.9	11549	2.19	µg/L	m 98
		498.9 -> 98.8	6037			
PFPeA	4.262	263.0 -> 219.0	66744	4.97	µg/L	100
PFPeS	6.459	349.1 -> 79.9	13974	2.32	µg/L	98
		349.1 -> 98.9	6446			
PFTeDA	9.665	713.1 -> 669.0	37318	2.50	µg/L	99
		713.1 -> 168.9	2701			
PFTrDA	9.321	663.0 -> 619.0	51659	2.51	µg/L	98
		663.0 -> 168.9	4342			
PFUnDA	8.506	563.1 -> 519.0	39609	2.45	µg/L	100
		563.1 -> 269.1	6338			
11CI-PF3OUdS	9.373	630.9 -> 450.9	56536	4.52	µg/L	88
		632.9 -> 452.9	19081			
9CI-PF3ONS	8.545	530.8 -> 351.0	92254	4.61	µg/L	98
		532.8 -> 353.0	27700			
ADONA	6.671	376.9 -> 250.9	236513	4.48	µg/L	93
		376.9 -> 84.8	64780			
HFPO-DA	5.832	284.9 -> 168.9	16095	5.03	µg/L	99
		284.9 -> 184.9	2126			
3:3FTCA	3.777	241.0 -> 177.0	10355	12.44	µg/L	99
		241.0 -> 117.0	1336			
5:3FTCA	6.161	341.0 -> 237.1	218390	61.17	µg/L	100
		341.0 -> 217.0	158287			
7:3FTCA	7.573	441.0 -> 316.9	106169	65.55	µg/L	91
		441.0 -> 336.9	236290			
EtFOSA	10.986	526.0 -> 219.0	18989	5.03	µg/L	99
		526.0 -> 169.0	23382			
EtFOSE	10.920	630.0 -> 58.9	54465	12.74	µg/L	100
MeFOSA	10.753	511.9 -> 219.0	17354	5.28	µg/L	96
		511.9 -> 169.0	23477			
MeFOSE	10.673	616.1 -> 58.9	47160	12.26	µg/L	100
PFDoDS	9.793	699.1 -> 79.9	3958	2.29	µg/L	97
		699.1 -> 98.8	2148			
NFDHA	5.348	295.0 -> 201.0	11977	5.26	µg/L	97
		295.0 -> 84.9	3106			
PFMBA	4.675	279.0 -> 85.1	47541	4.96	µg/L	100
PFMPA	3.426	229.0 -> 84.9	34475	4.99	µg/L	100
PFEESA	5.926	314.8 -> 134.9	122419	4.42	µg/L	100
		314.8 -> 82.9	4130			

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



7.7.15
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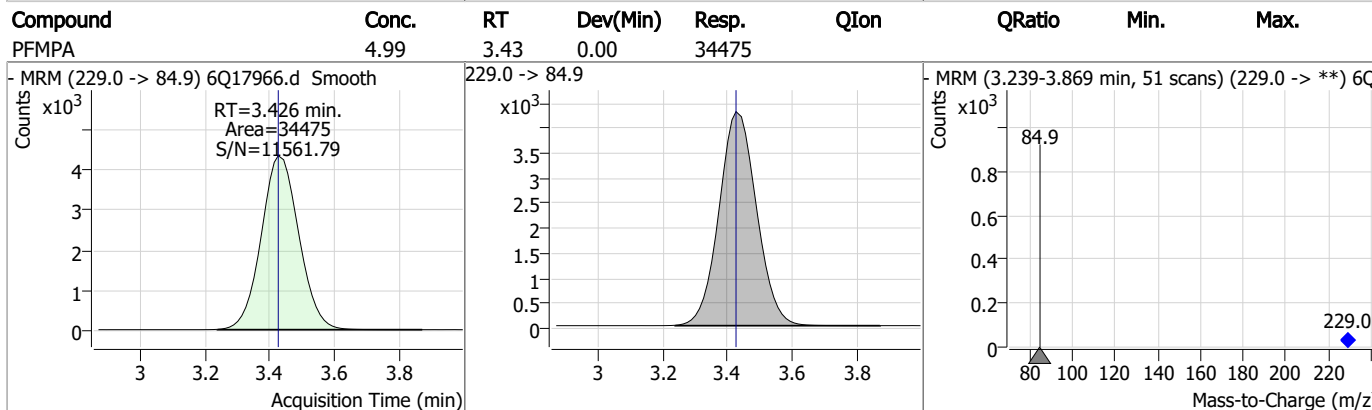
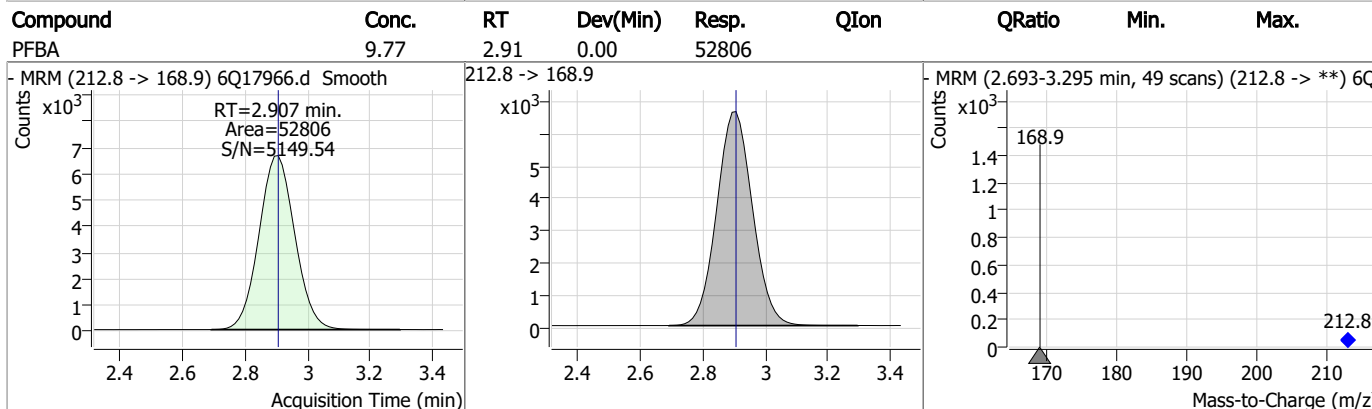
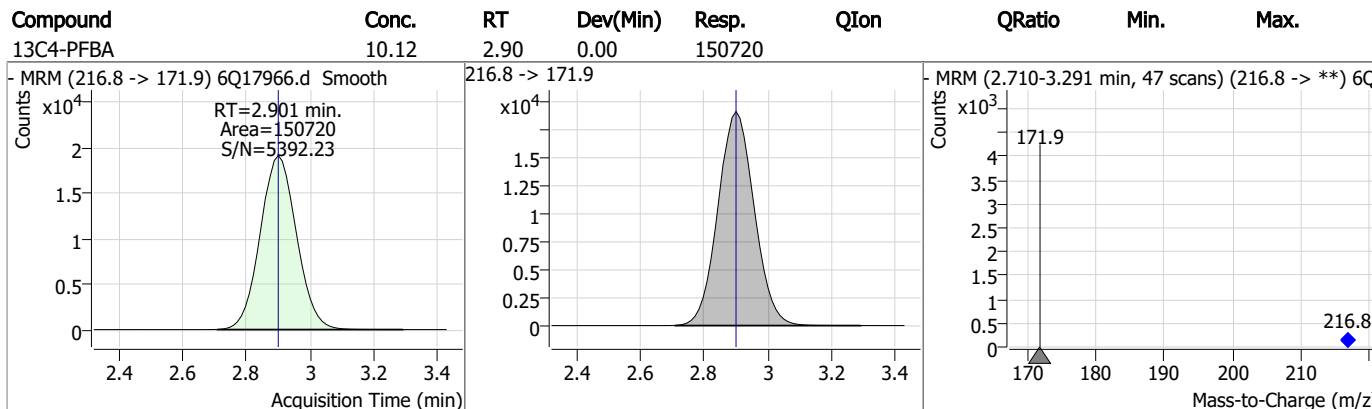
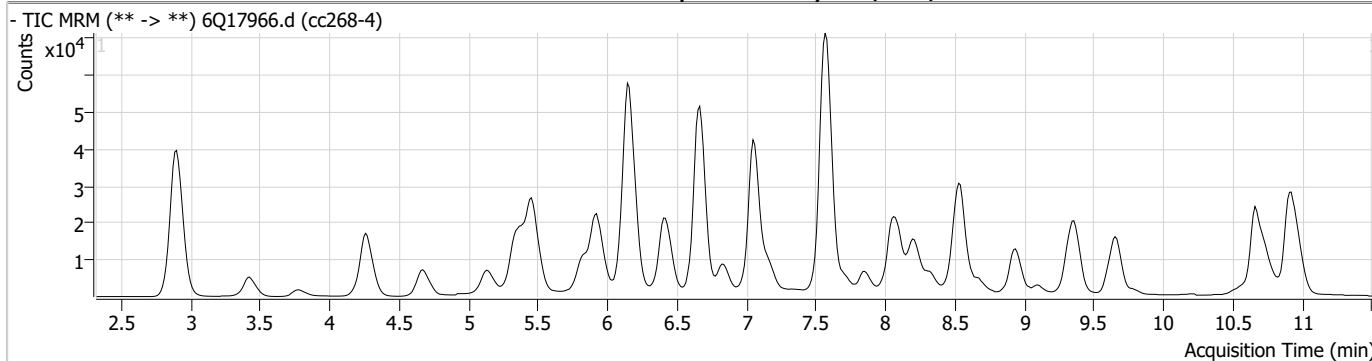
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.15

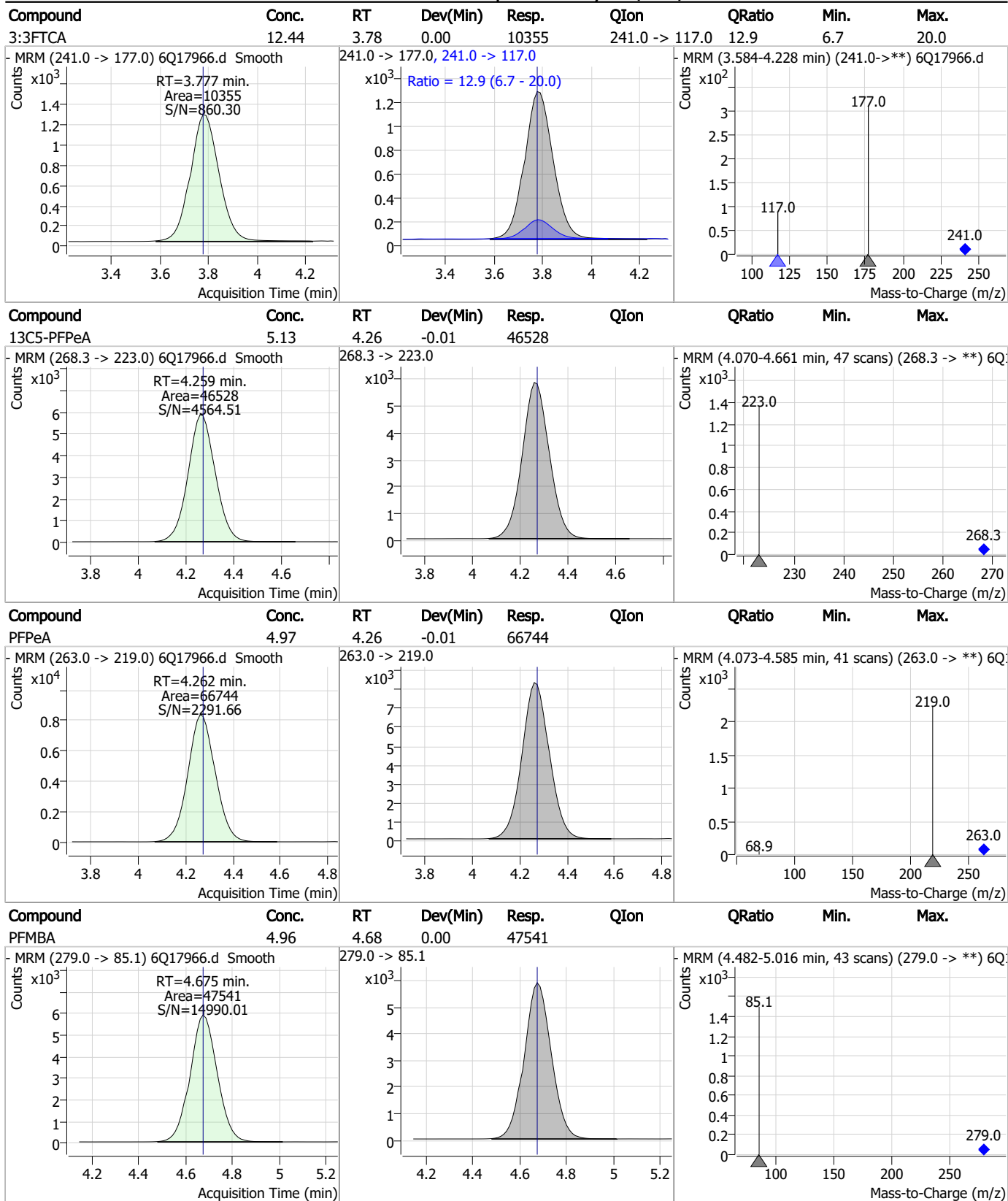
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Perfluorinated Compounds by LC/MS/MS



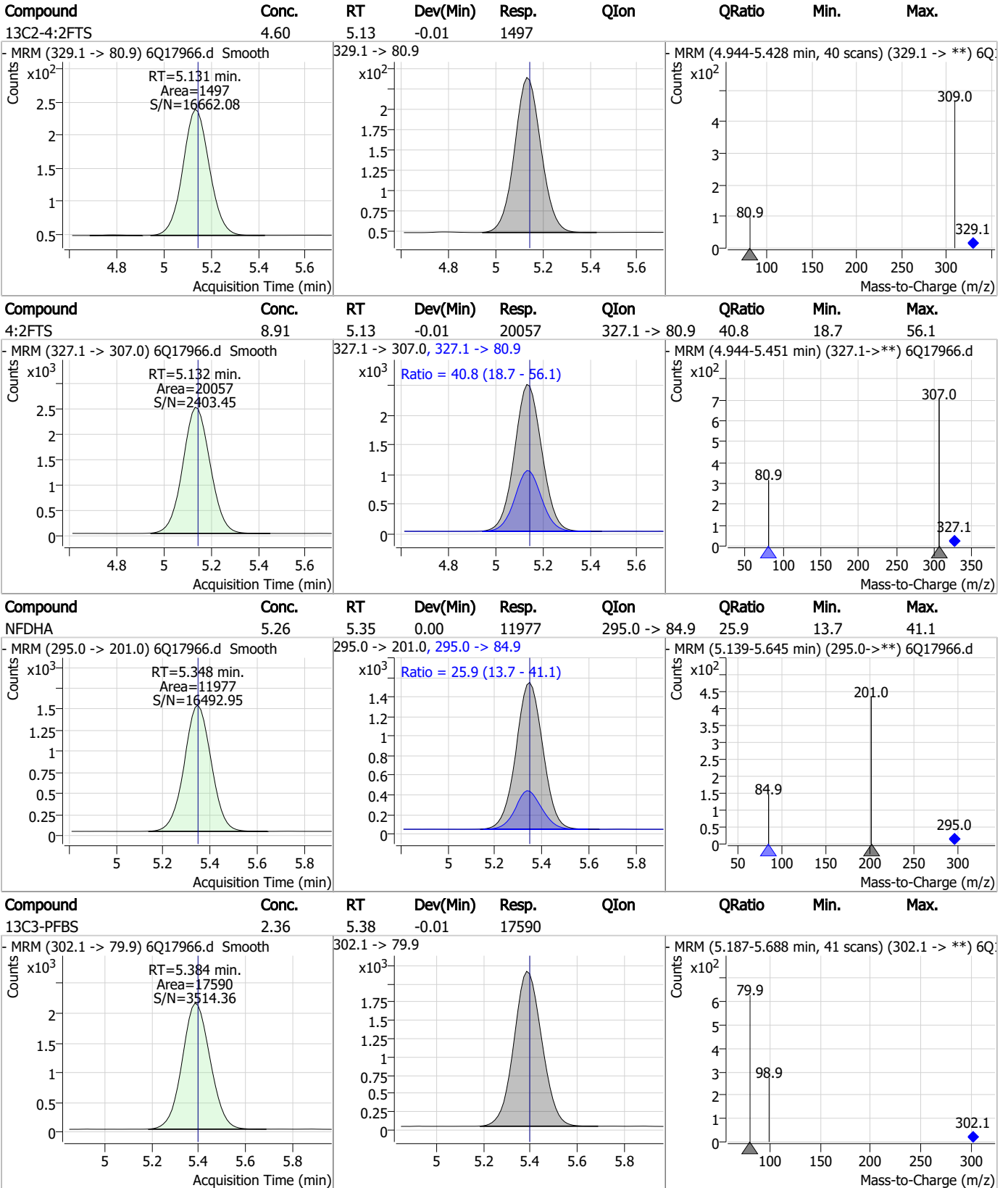
7.7.15
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Perfluorinated Compounds by LC/MS/MS



7.7.15
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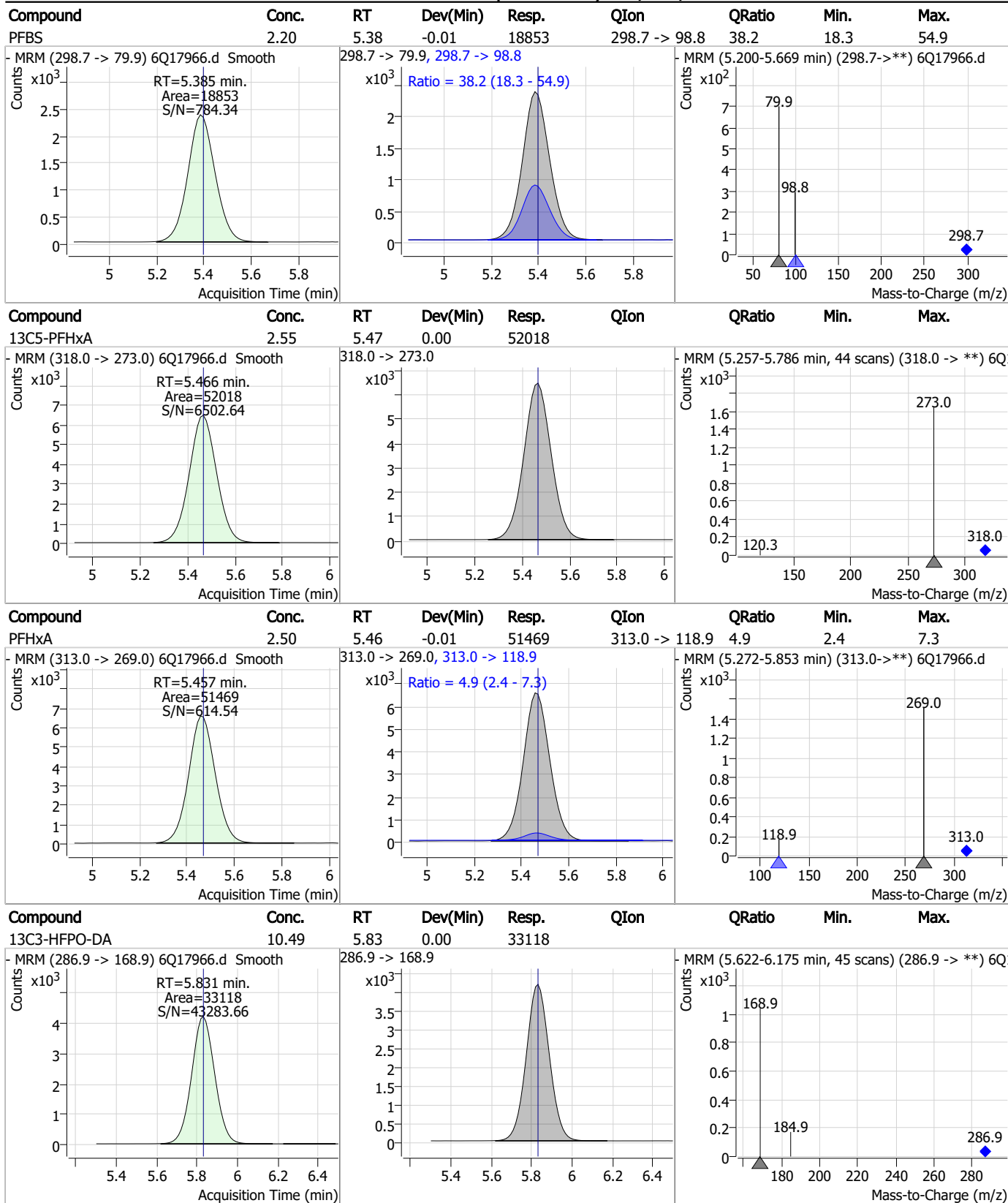
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



Perfluorinated Compounds by LC/MS/MS

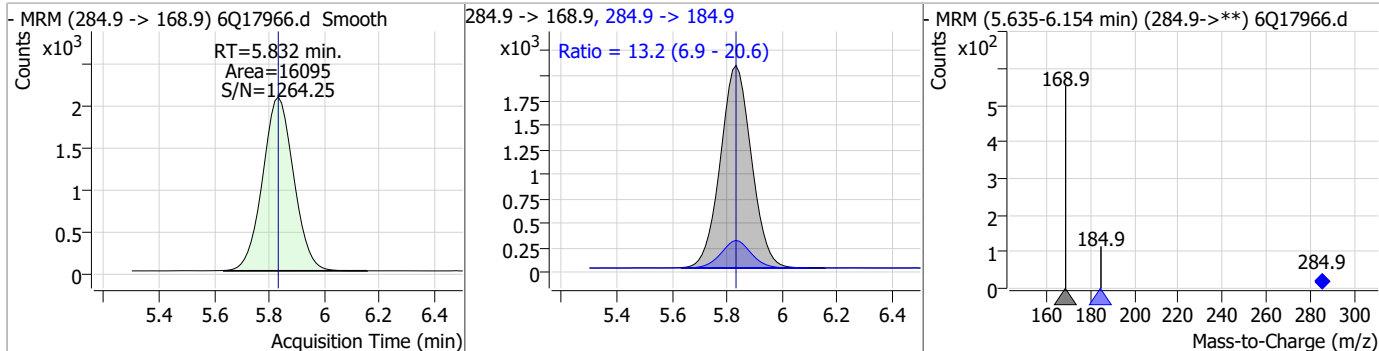


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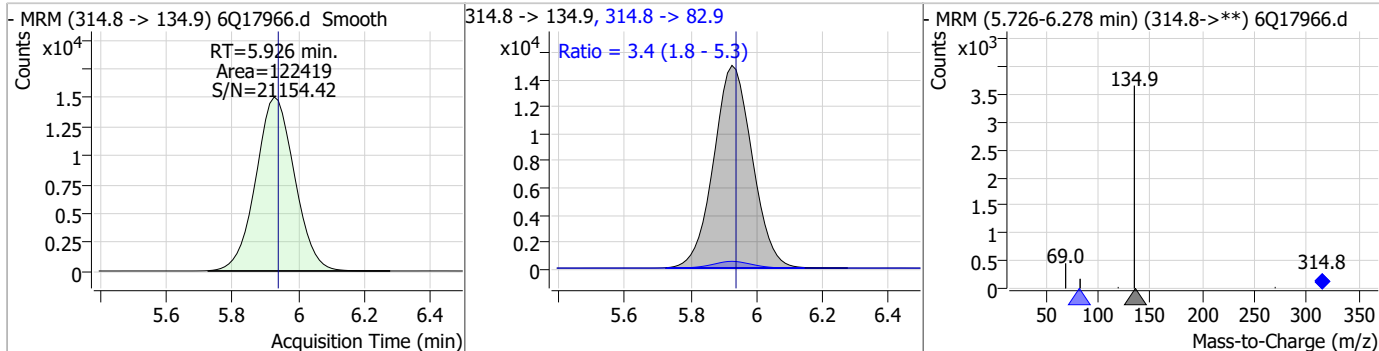
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Perfluorinated Compounds by LC/MS/MS

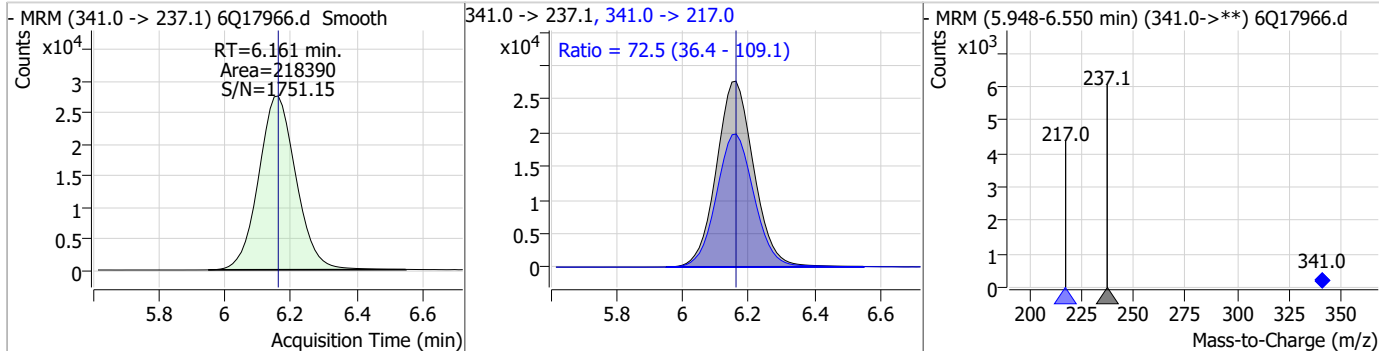
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.03	5.83	0.00	16095	284.9 -> 184.9	13.2	6.9	20.6



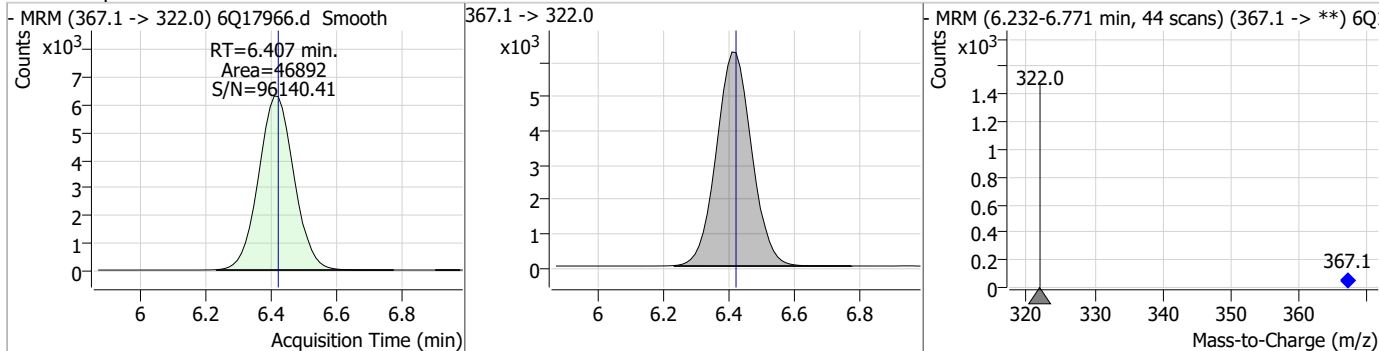
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.42	5.93	-0.01	122419	314.8 -> 82.9	3.4	1.8	5.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	61.17	6.16	0.00	218390	341.0 -> 217.0	72.5	36.4	109.1

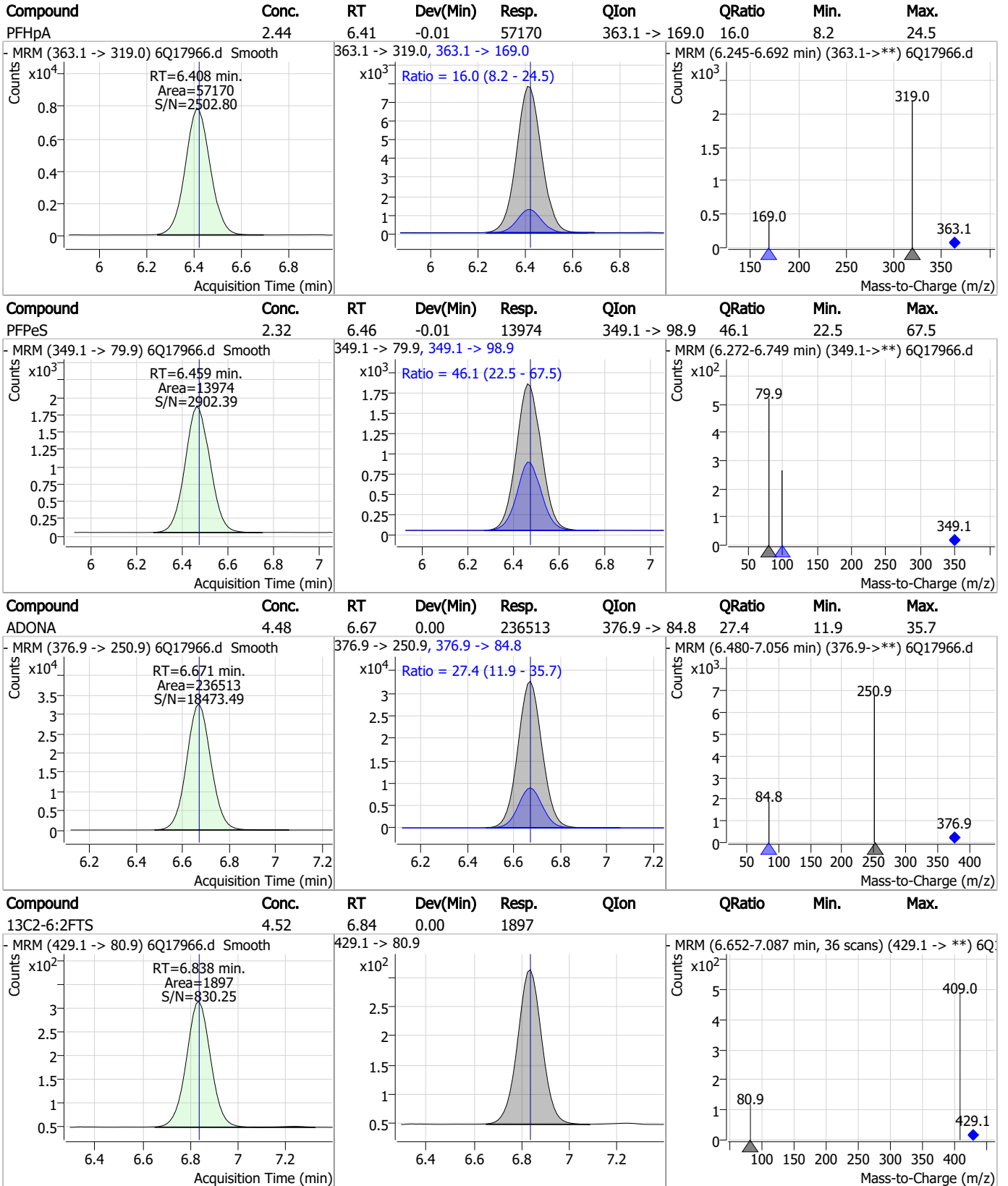


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.62	6.41	-0.01	46892	367.1 -> 322.0			



7.7.15
7

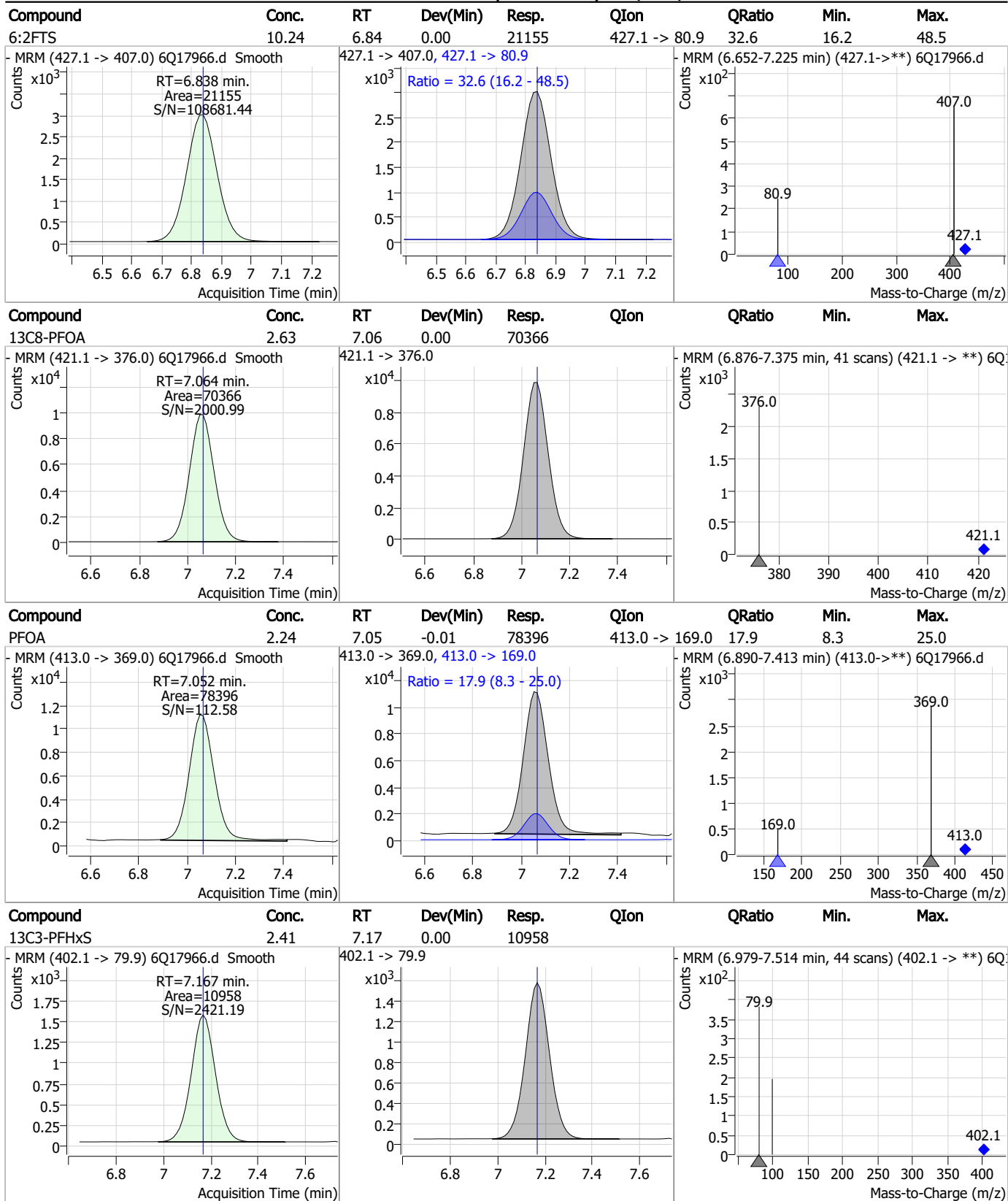
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



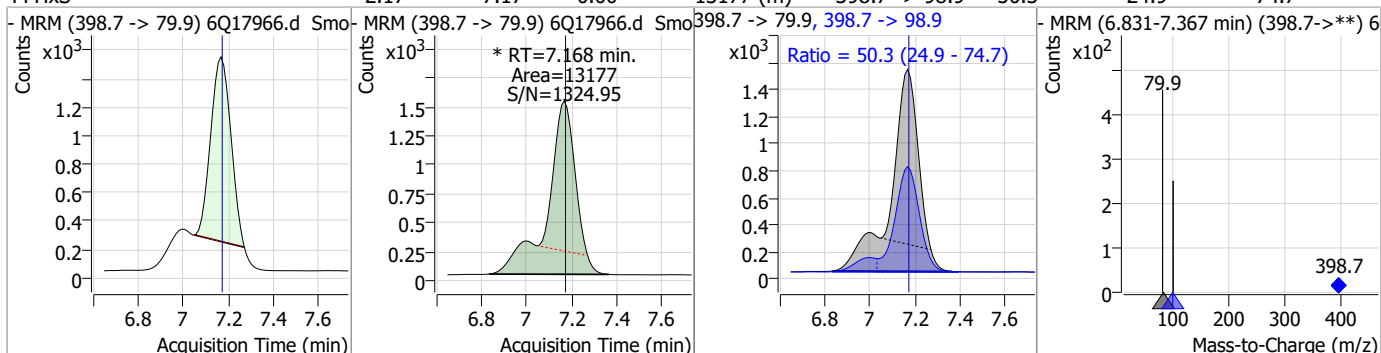
Perfluorinated Compounds by LC/MS/MS



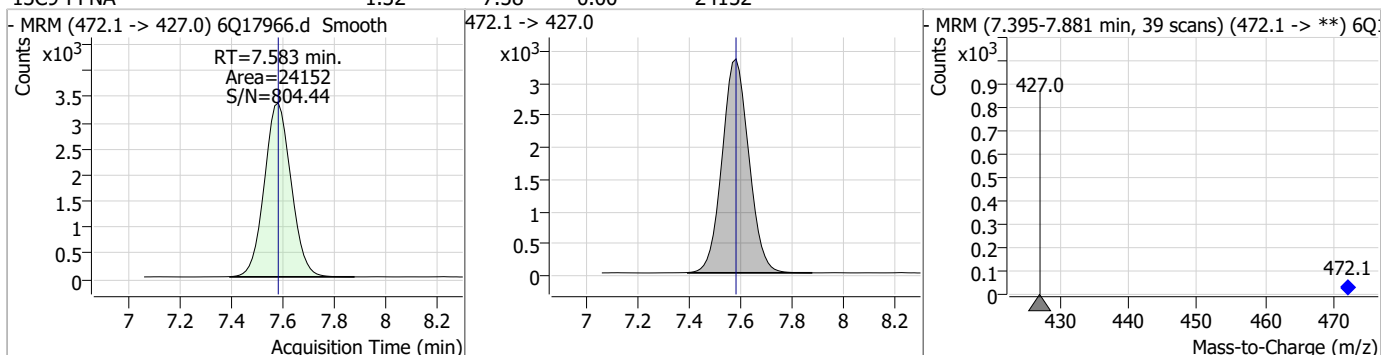
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Perfluorinated Compounds by LC/MS/MS

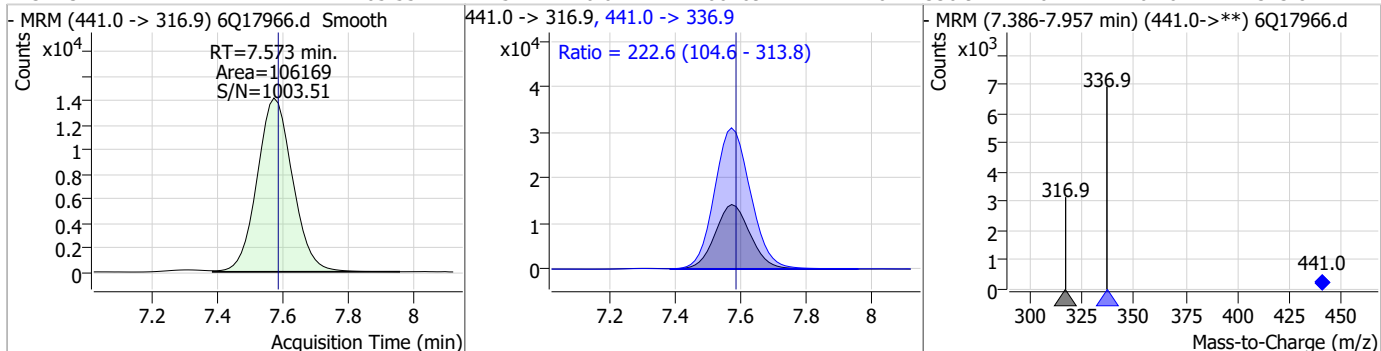
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.17	7.17	0.00	13177 (m)	398.7 -> 98.9	50.3	24.9	74.7



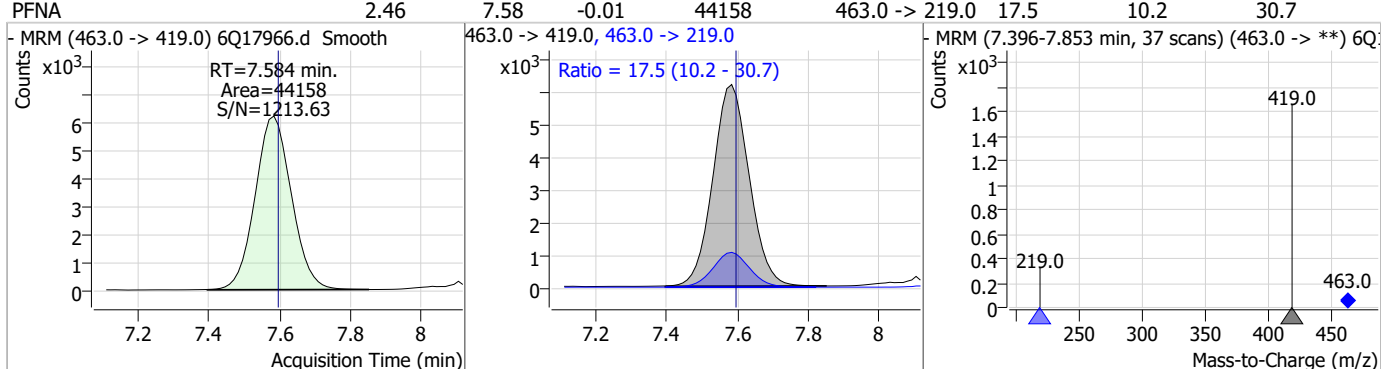
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.32	7.58	0.00	24152				



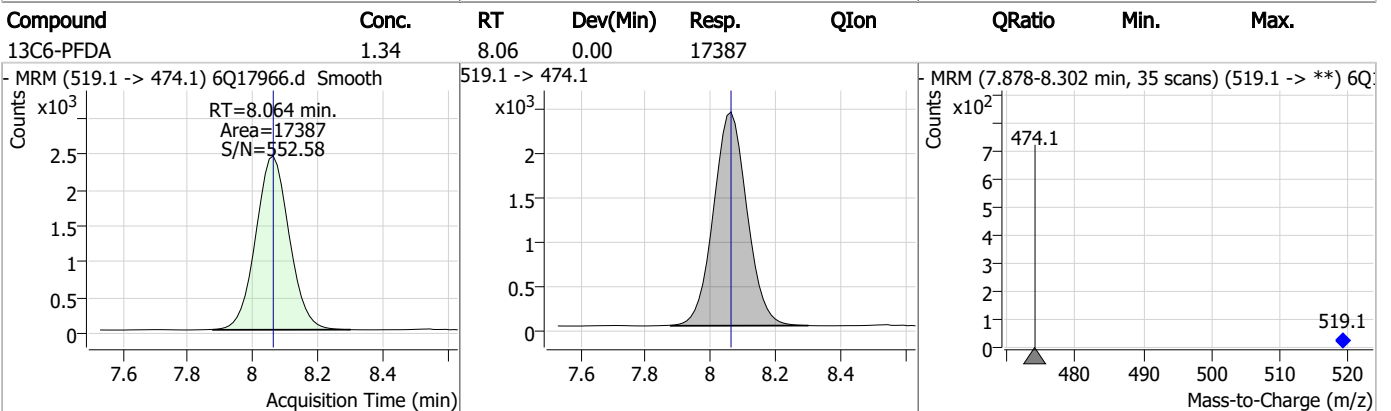
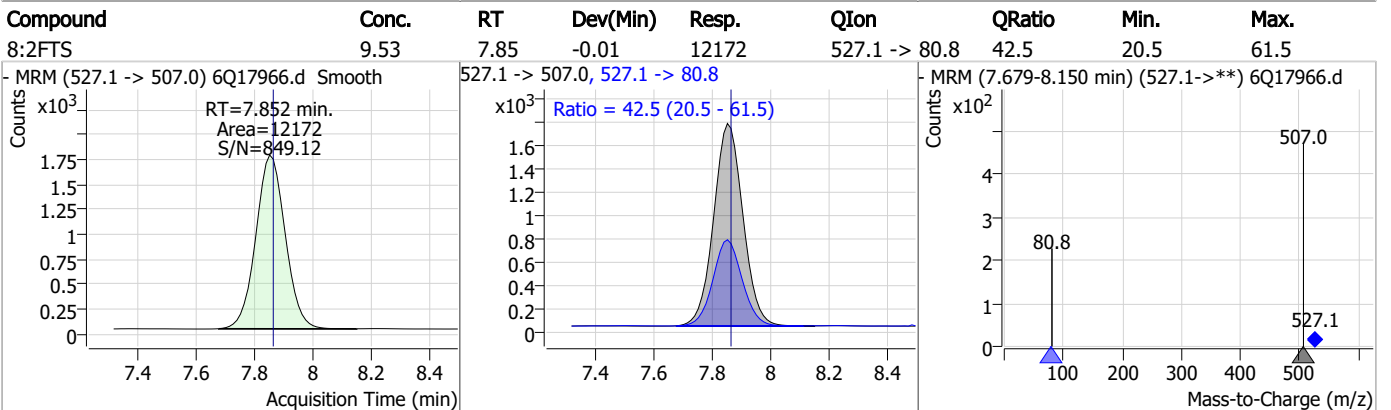
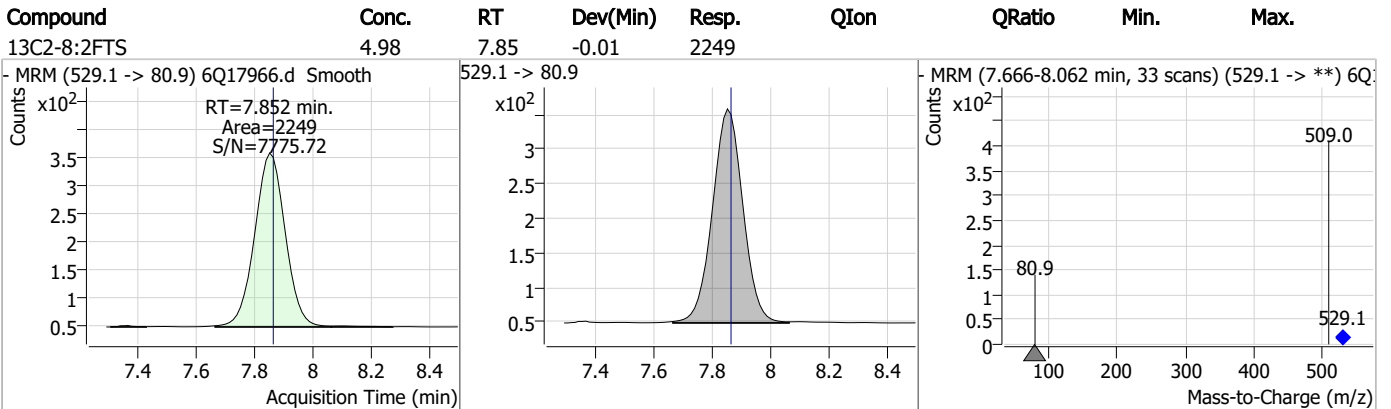
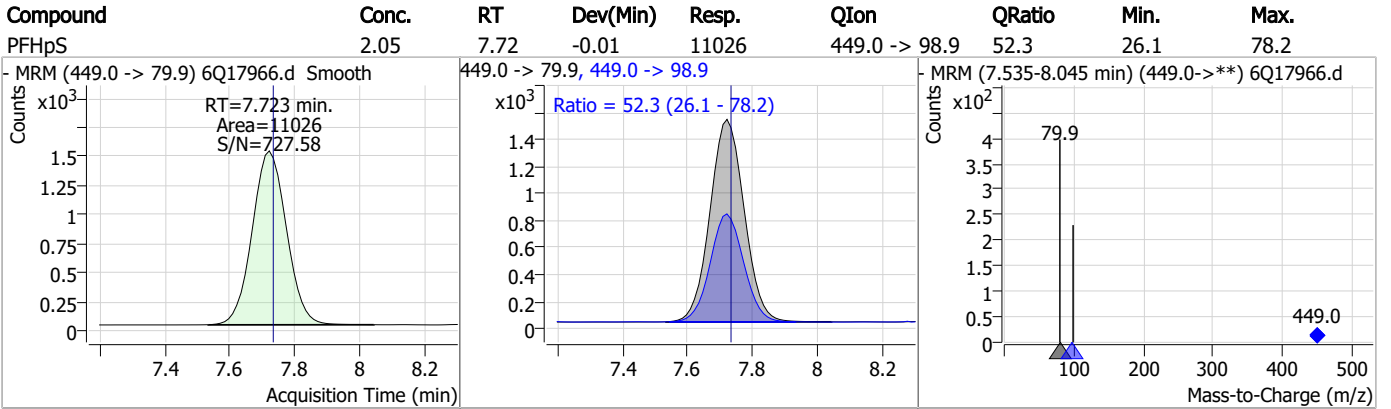
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	65.55	7.57	-0.01	106169	441.0 -> 336.9	222.6	104.6	313.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.46	7.58	-0.01	44158	463.0 -> 219.0	17.5	10.2	30.7



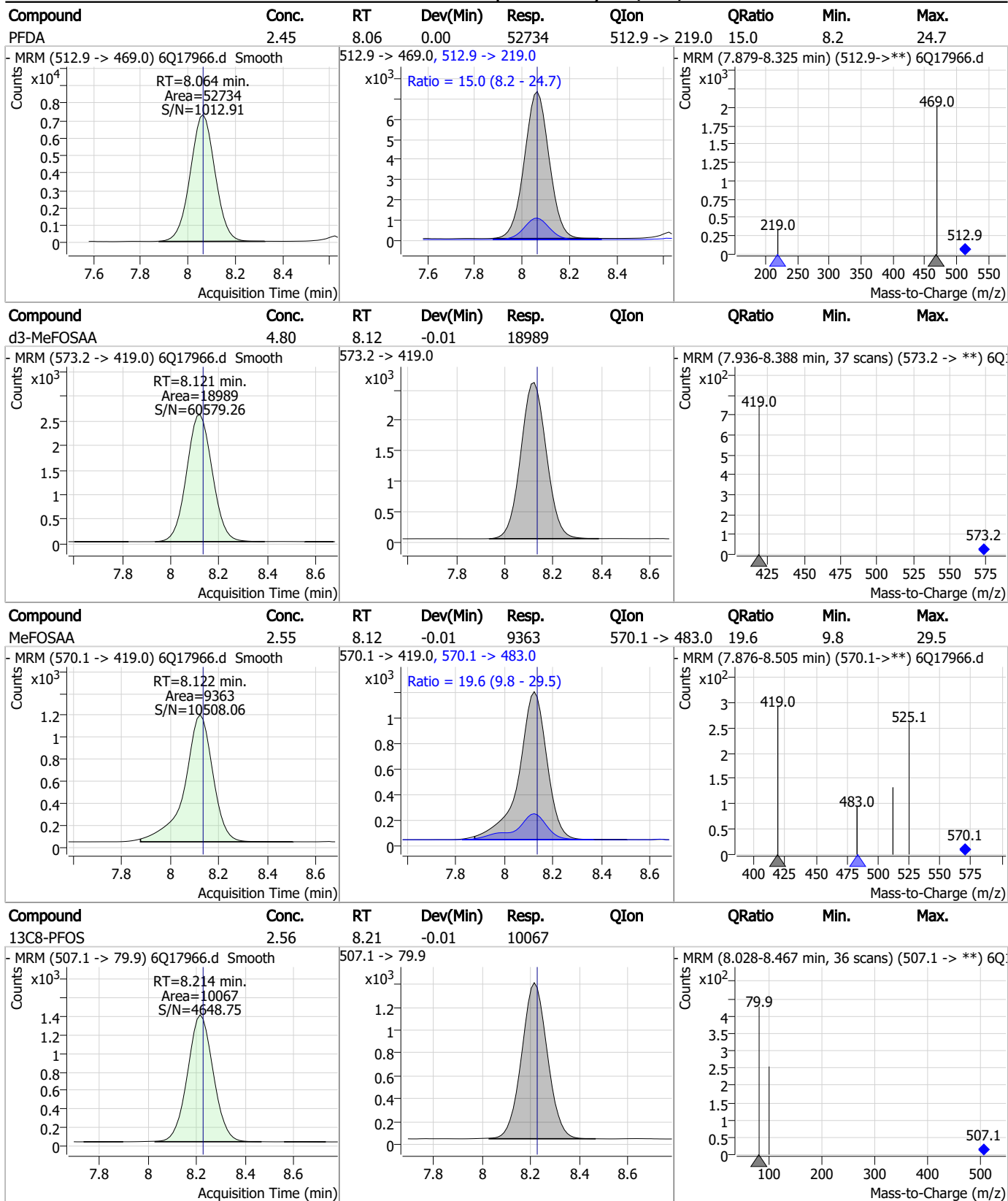
Perfluorinated Compounds by LC/MS/MS



7.7.15



Perfluorinated Compounds by LC/MS/MS

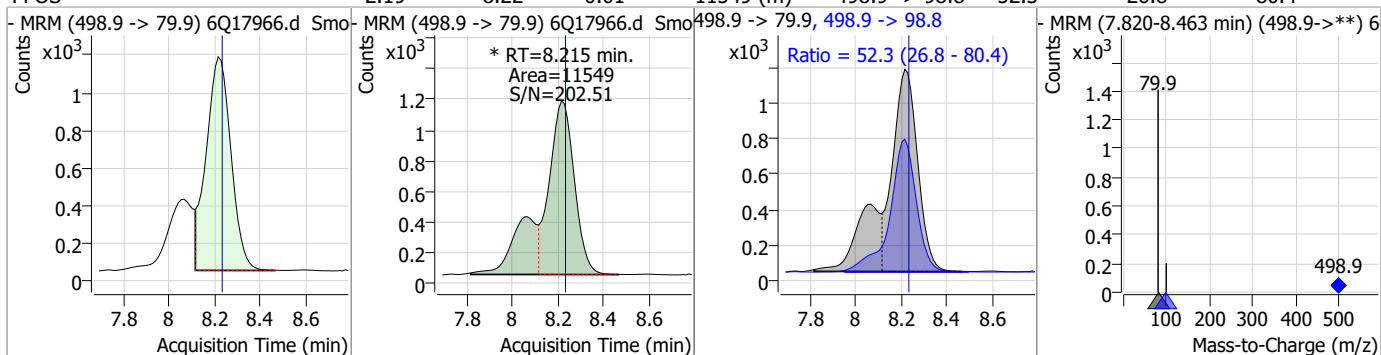


7.7.15
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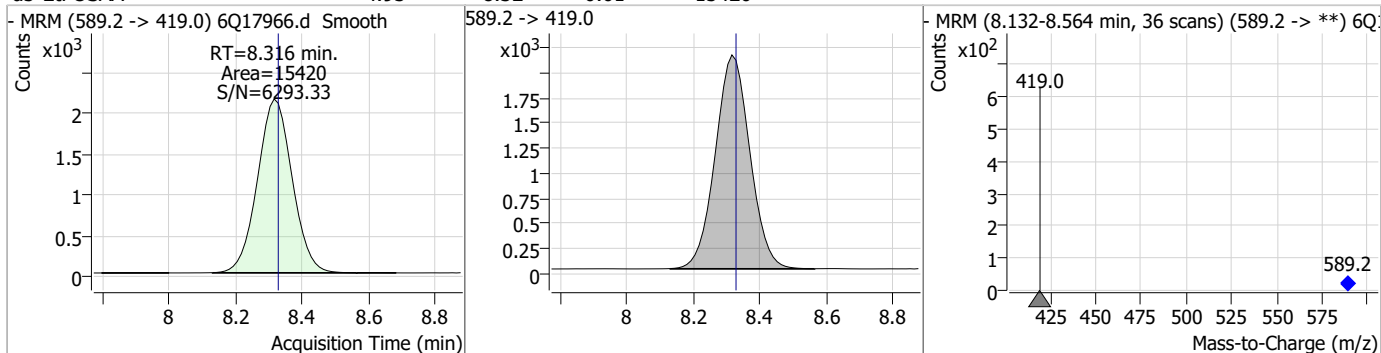


Perfluorinated Compounds by LC/MS/MS

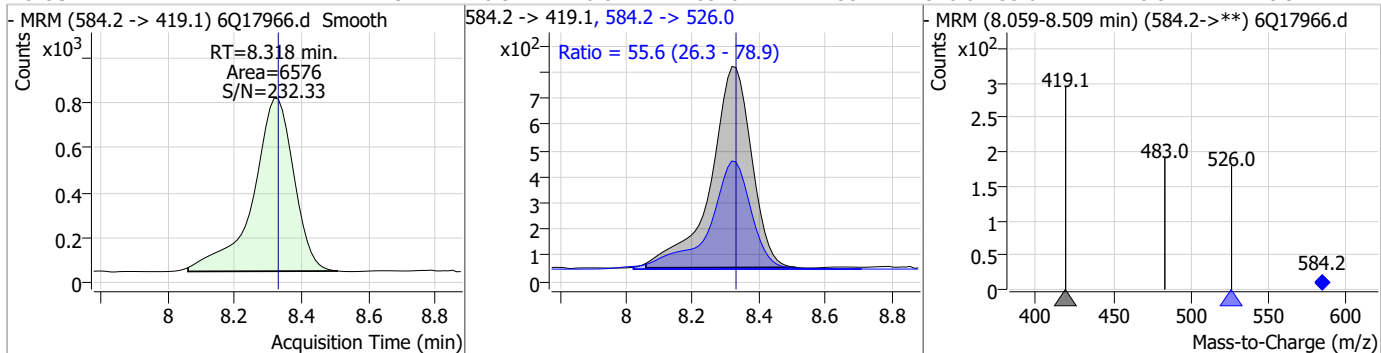
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.19	8.22	-0.01	11549 (m)	498.9 -> 98.8	52.3	26.8	80.4



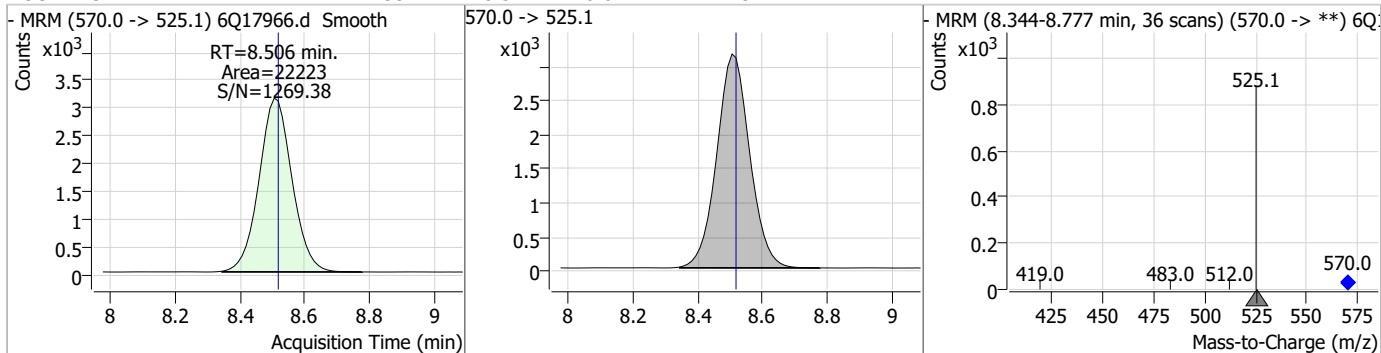
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.93	8.32	-0.01	15420				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.29	8.32	-0.01	6576	584.2 -> 526.0	55.6	26.3	78.9

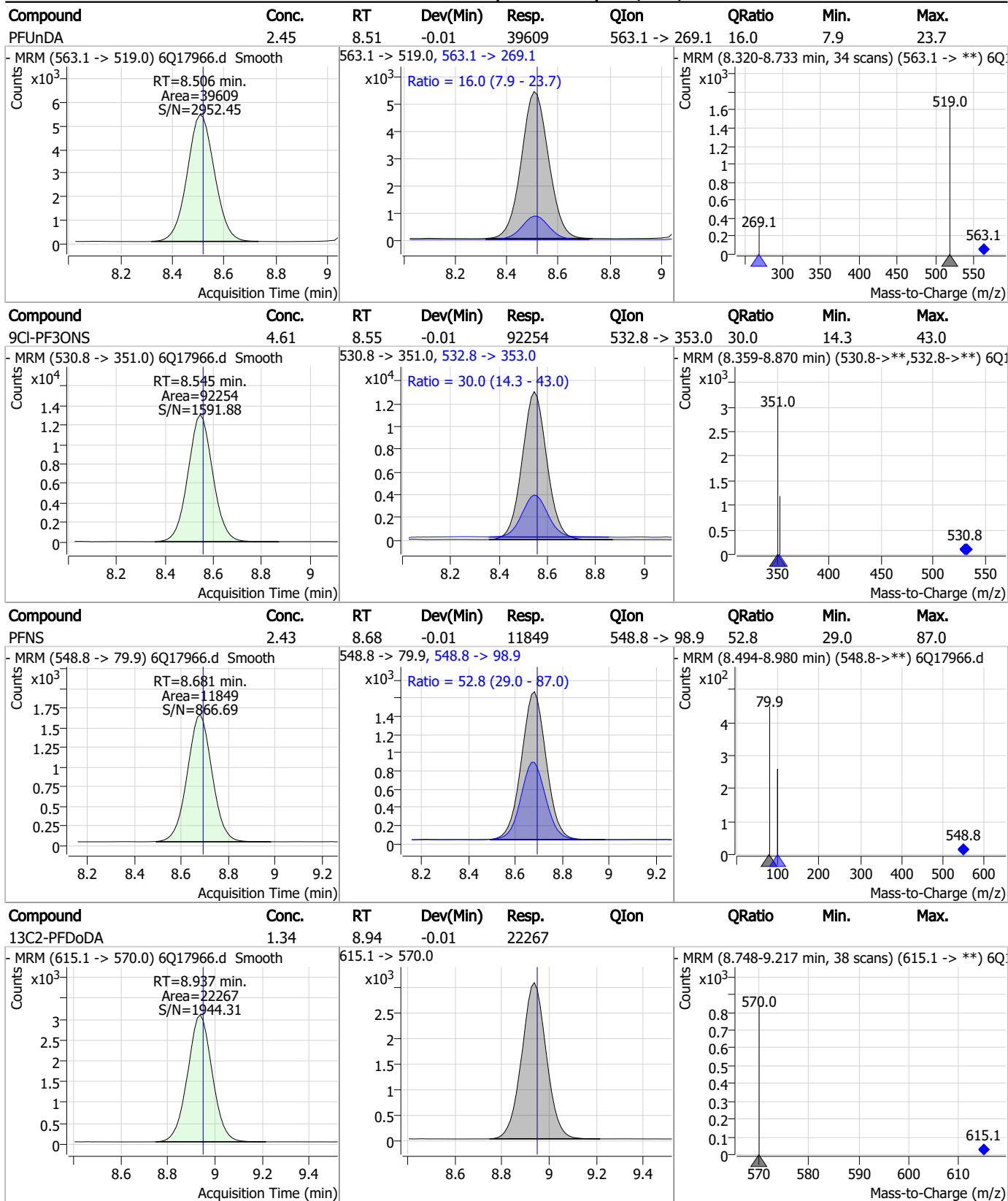


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.33	8.51	-0.01	22223				



7.7.15
7

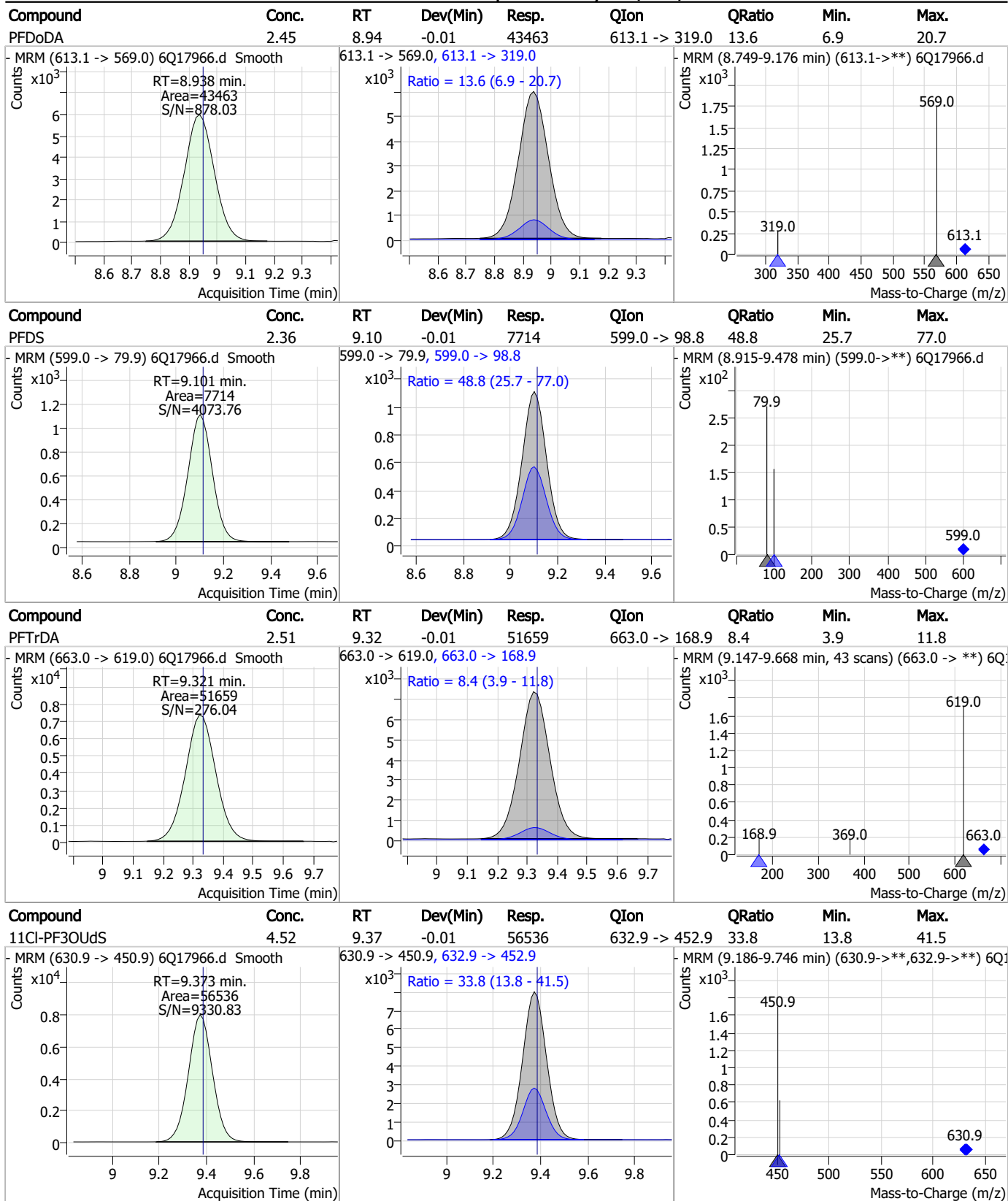
Perfluorinated Compounds by LC/MS/MS



7.7.15
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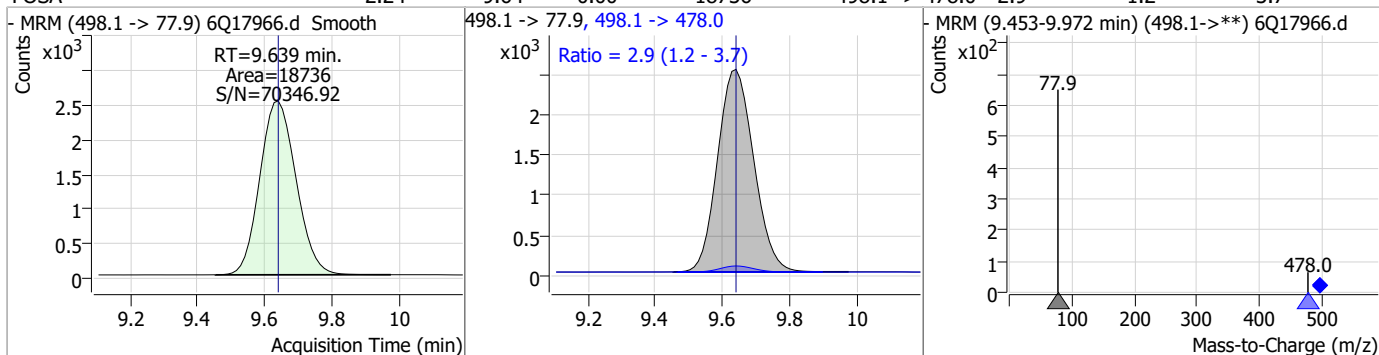
Perfluorinated Compounds by LC/MS/MS



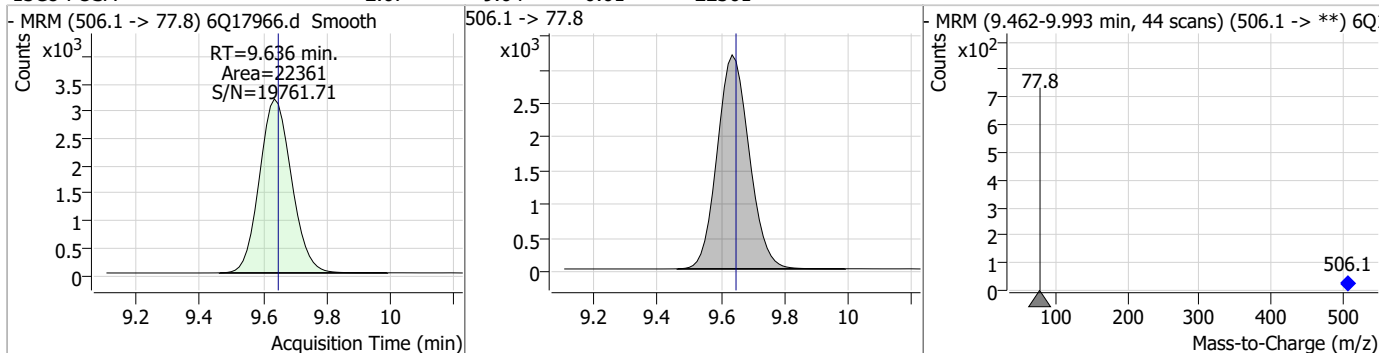
7.7.15
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Perfluorinated Compounds by LC/MS/MS

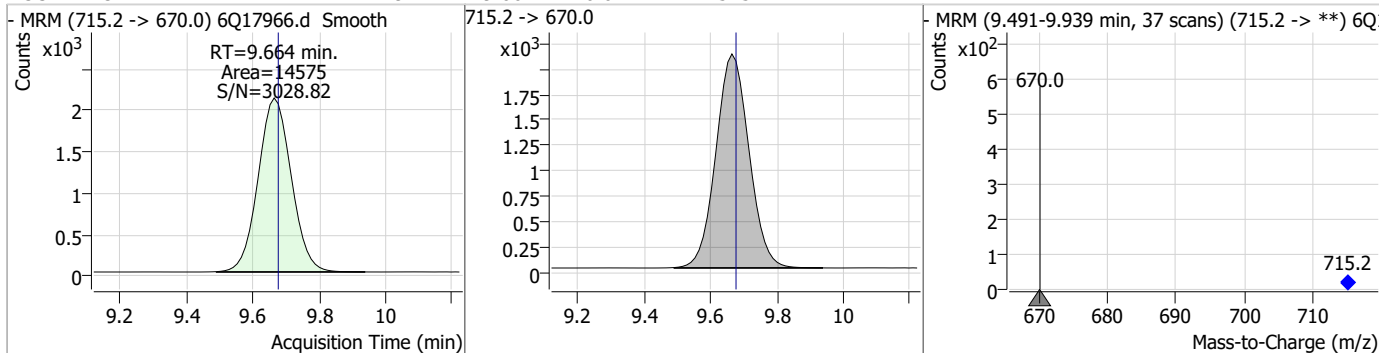
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.24	9.64	0.00	18736	498.1 -> 478.0	2.9	1.2	3.7



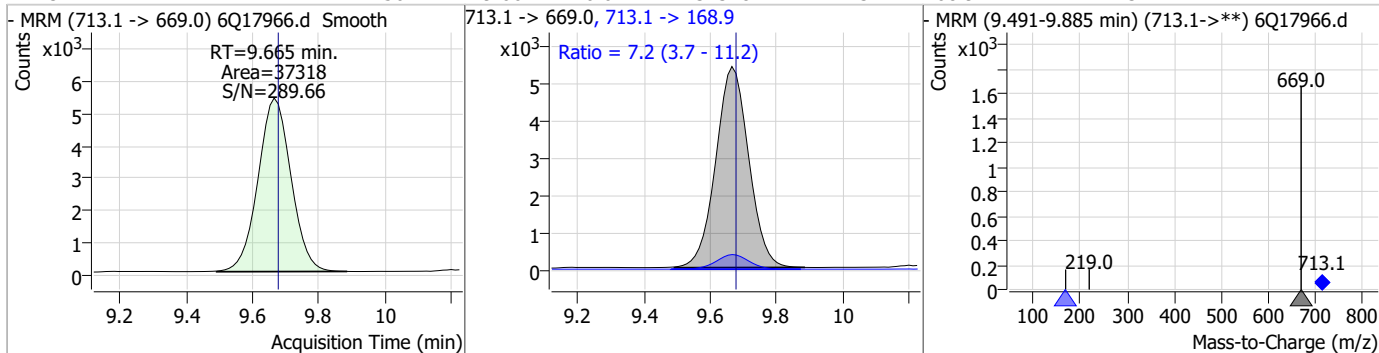
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.67	9.64	-0.01	22361				



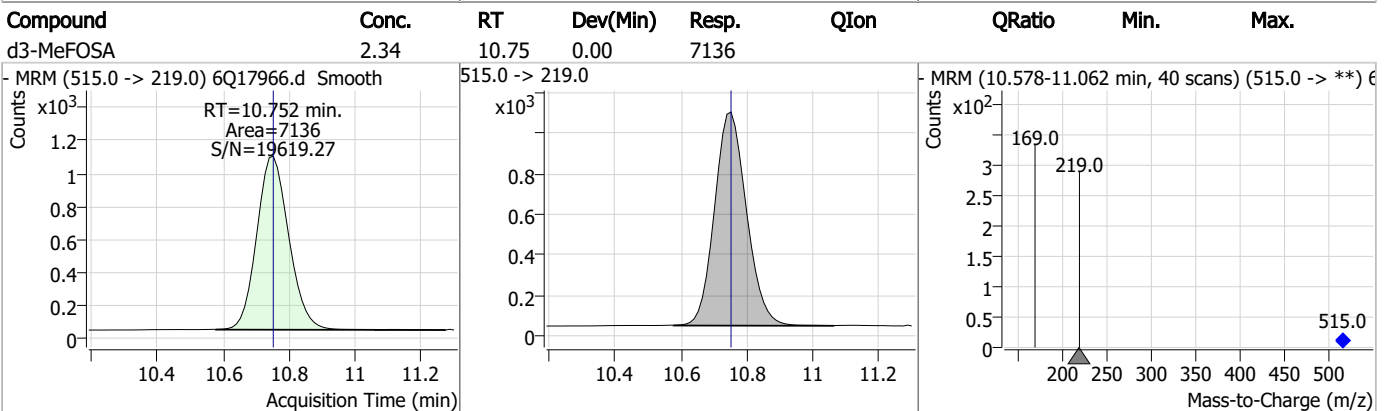
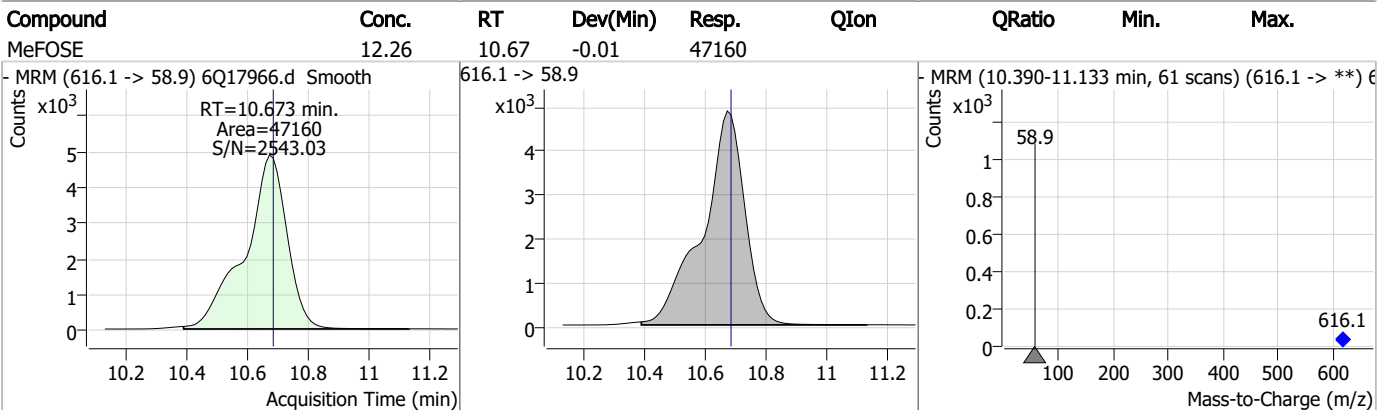
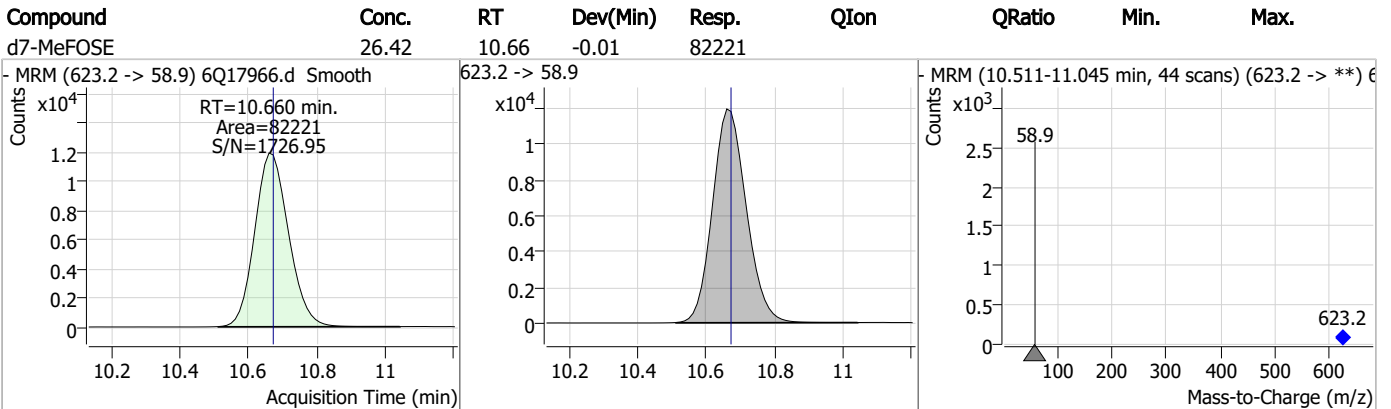
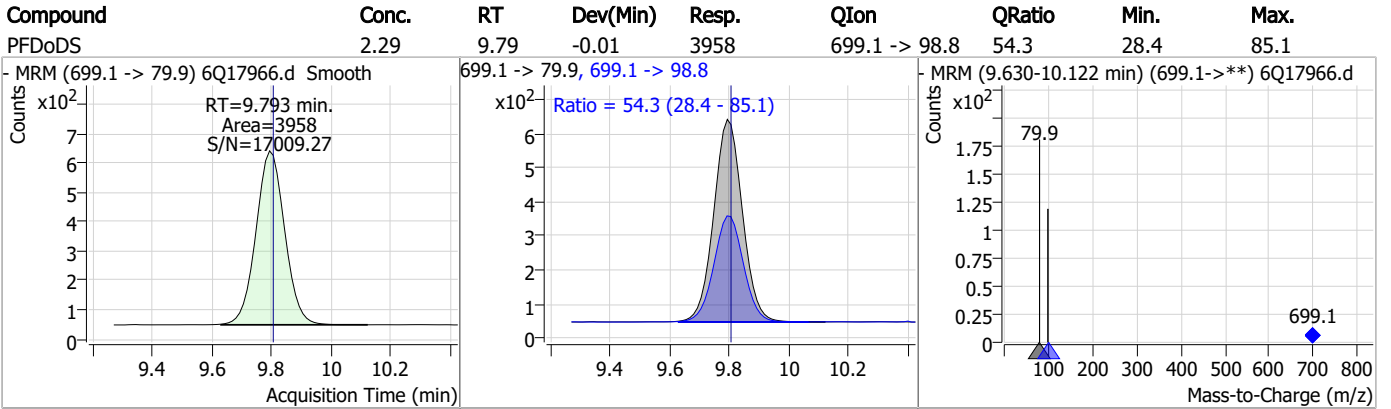
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.29	9.66	-0.01	14575				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.50	9.66	-0.01	37318	713.1 -> 168.9	7.2	3.7	11.2

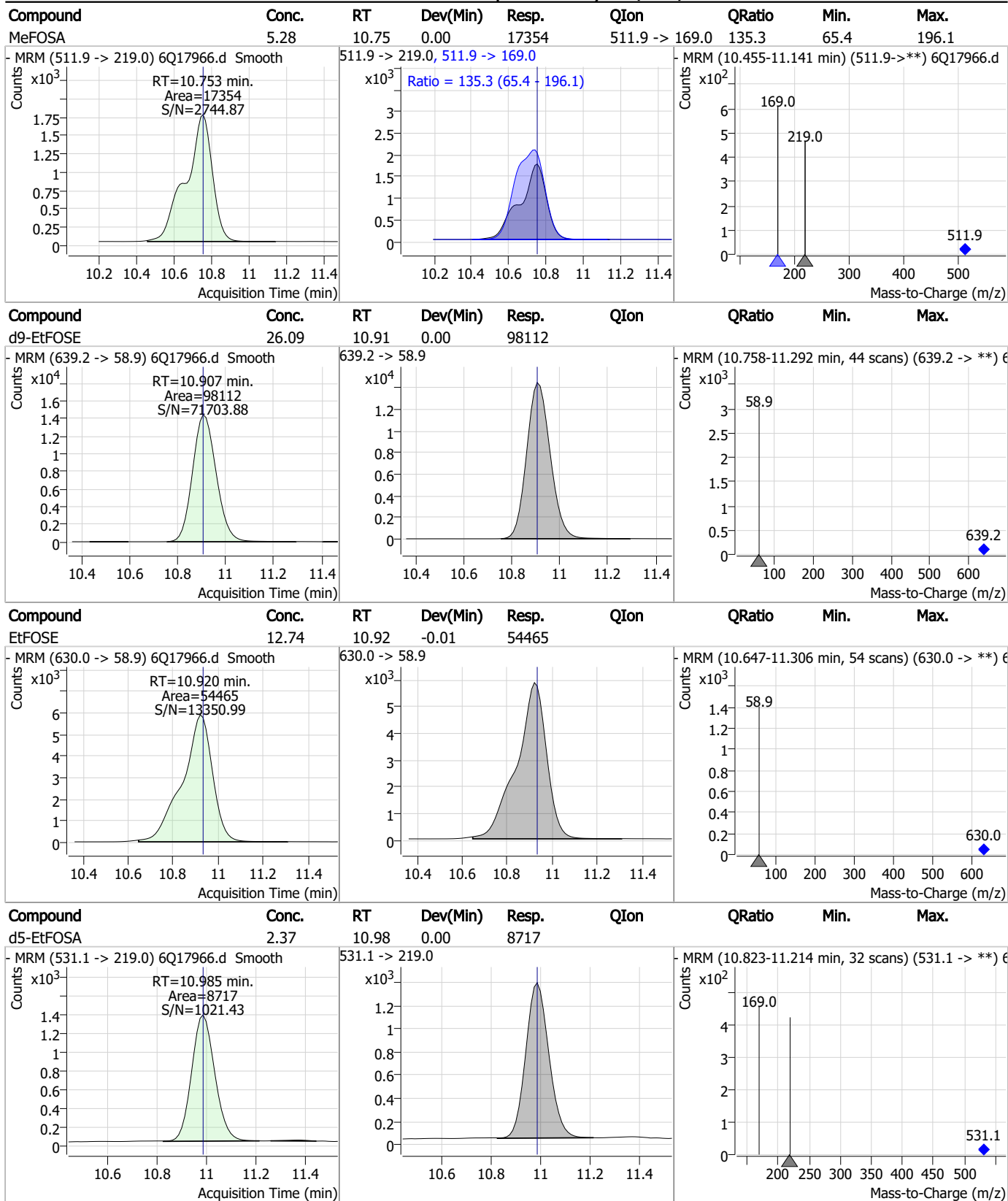


Perfluorinated Compounds by LC/MS/MS



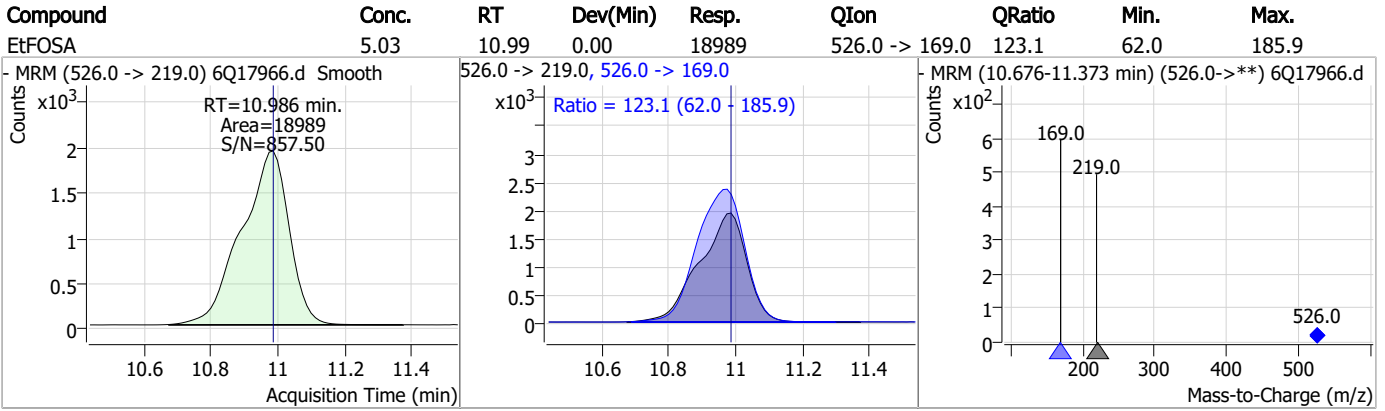
7.7.15 7

Perfluorinated Compounds by LC/MS/MS



7.7.15
7

Perfluorinated Compounds by LC/MS/MS



7.7.15
7



Manual Integration Approval Summary

Sample Number: S6Q271-CC268 Method: EPA DRAFT 1633
Lab FileID: 6Q17966.D Analyst approved: 05/18/23 14:21 Martha Valls
Injection Time: 05/17/23 19:13 Supervisor approved: 05/19/23 14:22 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.21	Split peak

7.7.15.1

7

SGS ORLANDO

DATE:	05/12/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050823_S6Q265
CAL DATE:	05/08/23
ANALYST:	M. Valls
RUN BATCH:	S6Q268

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W5% ACN 220225 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2107C
ICV STD LOT #:	LCMS 2107C/2100B
ISTD/ID STD LOT #:	11765/11764

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q17732.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1,,water	✓
2	6Q17733.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1,,water	✓
3	6Q17734.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1,,water	✓
4	6Q17735.d	P1-B3	RT TDCA	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1,,water	✓
5	6Q17736.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1,,water	✓
6	6Q17737.d	P1-A1	ic268-0	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1,,water	✓
7	6Q17738.d	P1-A2	ic268-1	1633full.m	Calibration	1.6/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
8	6Q17739.d	P1-A3	ic268-2	1633full.m	Calibration	3.2/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
9	6Q17740.d	P1-A4	ic268-3	1633full.m	Calibration	10/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
10	6Q17741.d	P1-A5	icc268-4	1633full.m	Calibration	20/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
11	6Q17742.d	P1-A6	ic268-5	1633full.m	Calibration	40/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
12	6Q17743.d	P1-A7	ic268-6	1633full.m	Calibration	100/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
13	6Q17744.d	P1-A8	ic268-7	1633full.m	Calibration	200/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
14	6Q17745.d	P1-A9	ic268-8	1633full.m	Calibration	1x	OP96663.S6Q268.500,,,5.0,1,,water	✓
15	6Q17746.d	P1-A1	iblk	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1,,water	✓
16	6Q17747.d	P1-B1	icv268-4	1633full.m	QC	20/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
17	6Q17748.d	P1-B2	icv268-20	1633full.m	QC	100/500	OP96663.S6Q268.500,,,5.0,1,,water	made icv20 (NG)
18	6Q17749.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
19	6Q17750.d	P1-A2	cc268-1.0LL	1633full.m	QC	1.6/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
20	6Q17751.d	P4-A1	op96784-mb	1633full.m	Sample		OP96784.S6Q268.500,,,5.0,1,,water	✓
21	6Q17752.d	P4-A2	fc5890-1	1633full.m	Sample		OP96784.S6Q268.550,,,5.0,1,,water	✓
22	6Q17753.d	P4-A3	fc5890-1	1633full.m	Sample	50/500	OP96784.S6Q268.550,,,5.0,5,,water	✓
23	6Q17754.d	P4-A4	op96784-ms	1633full.m	Sample	50/500	OP96784.S6Q268.550,,,5.0,5,,water	✓
24	6Q17755.d	P4-A5	fc5890-2	1633full.m	Sample		OP96784.S6Q268.550,,,5.0,1,,water	✓
25	6Q17756.d	P4-A6	fc5890-2	1633full.m	Sample	50/500	OP96784.S6Q268.550,,,5.0,5,,water	✓
26	6Q17757.d	P4-A7	op96784-dup	1633full.m	Sample		OP96784.S6Q268.550,,,5.0,1,,water	✓
27	6Q17758.d	P4-A8	op96784-dup	1633full.m	Sample	50/500	OP96784.S6Q268.550,,,5.0,5,,water	✓
28	6Q17759.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
29	6Q17760.d	P1-A1	iccb	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1,,water	✓
30	6Q17761.d	P4-B1	FC5481-3	1633full.m	Sample	50/500	OP96723.S6Q268.60,,,5.0,5,,water	✓
31	6Q17762.d	P4-B2	op96723-ms	1633full.m	Sample	50/500	OP96723.S6Q268.60,,,5.0,5,,water	✓
32	6Q17763.d	P4-B3	op96723-msd	1633full.m	Sample	50/500	OP96723.S6Q268.60,,,5.0,5,,water	✓
33	6Q17764.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q268.500,,,5.0,1,,water	✓
34	6Q17765.d	P1-A1	iccb	1633full.m	Sample		OP96663.S6Q268.500,,,5.0,1,,water	✓
35	6Q17766.d	P4-B4	op96842-bs	1633full.m	Sample		OP96842.S6Q268.500,,,5.0,1,,water	✓



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q17767.d	P4-B5	op96842-llbs:3	1633full.m	Sample	OP96842,S6Q268,500,,,5.0,1,water	✓
37	6Q17768.d	P4-B6	op96842-mb	1633full.m	Sample	OP96842,S6Q268,500,,,5.0,1,water	✓
38	6Q17769.d	P4-B7	FC5443-1	1633full.m	Sample	OP96842,S6Q268,560,,,5.0,1,water	✓
39	6Q17770.d	P4-B8	FC5443-2	1633full.m	Sample	OP96842,S6Q268,570,,,5.0,1,water	✓
40	6Q17771.d	P4-B9	FC5443-3	1633full.m	Sample	OP96842,S6Q268,550,,,5.0,1,water	✓
41	6Q17772.d	P4-C1	FC5443-4	1633full.m	Sample	OP96842,S6Q268,540,,,5.0,1,water	RR2X
42	6Q17773.d	P4-C2	op96842-ms	1633full.m	Sample	OP96842,S6Q268,550,,,5.0,1,water	RR2X
43	6Q17774.d	P4-C3	op96842-msd	1633full.m	Sample	OP96842,S6Q268,540,,,5.0,1,water	RR2X
44	6Q17775.d	P4-C4	FC5443-5	1633full.m	Sample	OP96842,S6Q268,550,,,5.0,1,water	RR2X
45	6Q17776.d	P4-C5	FC5818-3	1633full.m	Sample	OP96842,S6Q268,60,,,5.0,1,water	✓
46	6Q17777.d	P1-A5	ecc268-4	1633full.m	QC	20/500	✓
47	6Q17778.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q268,500,,,5.0,1,water	✓

SGS ORLANDO

DATE:	05/17/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050823_S6Q265
CAL DATE:	05/08/23
ANALYST:	M. Valls
RUN BATCH:	S6Q271

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W15% ACN 220225 2mlM AMAC: 11387
IC/CC STD LOT #:	LCMS 2107C
ICV STD LOT #:	LCMS 2107C/2100B
ISTD/ID STD LOT #:	11765/11764

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q17936.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q270.500,,,5.0,1.,water	✓
2	6Q17937.d	P1-B9	CCB	1633full.m	Sample		OP96663.S6Q270.500,,,5.0,1.,water	✓
3	6Q17938.d	P1-B3	RT TDCA	1633full.m	Sample		OP96663.S6Q271.500,,,5.0,1.,water	✓
4	6Q17939.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96663.S6Q271.500,,,5.0,1.,water	✓
5	6Q17940.d	P1-A9	High Std	1633full.m	Sample		OP96663.S6Q271.500,,,5.0,1.,water	✓
6	6Q17941.d	P1-A1	iblk	1633full.m	Sample		OP96663.S6Q271.500,,,5.0,1.,water	✓
7	6Q17942.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q271.500,,,5.0,1.,water	✓
8	6Q17943.d	P1-A2	cc268-1.0LL	1633full.m	QC	1.6/500	OP96663.S6Q271.500,,,5.0,1.,water	✓
9	6Q17944.d	P1-F9	FC5480-1	1633full.m	Sample	250/500	OP96847.S6Q271.60,,,5.0,2.,water	✓
10	6Q17945.d	P2-A1	op96892-bs	1633full.m	Sample		OP96892.S6Q271.500,,,5.0,1.,water	✓
11	6Q17946.d	P2-A2	op96892-llbs:3	1633full.m	Sample		OP96892.S6Q271.500,,,5.0,1.,water	✓
12	6Q17947.d	P2-A3	op96892-mb	1633full.m	Sample		OP96892.S6Q271.500,,,5.0,1.,water	✓
13	6Q17948.d	P2-A4	FC6033-1	1633full.m	Sample		OP96892.S6Q271.550,,,5.0,1.,water	✓
14	6Q17949.d	P2-A5	FC6033-2	1633full.m	Sample		OP96892.S6Q271.550,,,5.0,1.,water	✓
15	6Q17950.d	P2-A6	FC6033-3	1633full.m	Sample		OP96892.S6Q271.570,,,5.0,1.,water	✓
16	6Q17951.d	P2-A7	FC6066-1	1633full.m	Sample		OP96892.S6Q271.550,,,5.0,1.,water	✓
17	6Q17952.d	P2-A9	FC6066-3	1633full.m	Sample		OP96892.S6Q271.520,,,5.0,1.,water	✓
18	6Q17953.d	P2-B1	op96892-ms	1633full.m	Sample		OP96892.S6Q271.530,,,5.0,1.,water	✓
19	6Q17954.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q271.500,,,5.0,1.,water	✓
20	6Q17955.d	P1-A1	iccb	1633full.m	Sample		OP96663.S6Q271.500,,,5.0,1.,water	✓
21	6Q17956.d	P2-A8	FC6066-2	1633full.m	Sample		OP96892.S6Q271.520,,,5.0,1.,water	✓
22	6Q17957.d	P2-B2	FC6066-4	1633full.m	Sample		OP96892.S6Q271.530,,,5.0,1.,water	✓
23	6Q17958.d	P2-B3	FC6066-5	1633full.m	Sample		OP96892.S6Q271.550,,,5.0,1.,water	✓
24	6Q17959.d	P2-B4	op96892-dup	1633full.m	Sample		OP96892.S6Q271.550,,,5.0,1.,water	✓
25	6Q17960.d	P2-B5	op96916-bs	1633full.m	Sample		OP96916.S6Q271.500,,,5.0,1.,water	✓
26	6Q17961.d	P2-B6	op96916-llbs:3	1633full.m	Sample		OP96916.S6Q271.500,,,5.0,1.,water	✓
27	6Q17962.d	P2-B7	op96916-mb	1633full.m	Sample		OP96916.S6Q271.500,,,5.0,1.,water	✓
28	6Q17963.d	P2-B8	FC5501-1	1633full.m	Sample		OP96916.S6Q271.2.5,,,5.0,1.,water	RR5X Pfoa
29	6Q17964.d	P2-B9	FC5501-2	1633full.m	Sample		OP96916.S6Q271.5,,,5.0,1.,water	RR5X Pfoa, HxS
30	6Q17965.d	P2-C1	FC5501-3	1633full.m	Sample		OP96916.S6Q271.5,,,5.0,1.,water	RR5X Pfoa, HxS
31	6Q17966.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663.S6Q271.500,,,5.0,1.,water	✓
32	6Q17967.d	P1-A1	iccb	1633full.m	Sample		OP96663.S6Q271.500,,,5.0,1.,water	✓
33	6Q17968.d	P2-C2	FC5501-4	1633full.m	Sample		OP96916.S6Q271.500,,,5.0,1.,water	RR5X Pfoa, HxS
34	6Q17969.d	P2-C3	op96916-ms	1633full.m	Sample		OP96916.S6Q271.500,,,5.0,1.,water	RR5X Pfoa, HxS
35	6Q17970.d	P2-C4	FC5501-5	1633full.m	Sample		OP96916.S6Q271.50,,,5.0,1.,water	RR5X Pfoa

LCMS6-6Q ANALYSIS LOG

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36	6Q17971.d	P2-C5	FC5501-6	1633full.m	Sample	OP96916,S6Q271,10,,,5.0,1,water	RR5X Pfoa, HxS
37	6Q17972.d	P2-C6	FC5501-7	1633full.m	Sample	OP96916,S6Q271,10,,,5.0,1,water	✓
38	6Q17973.d	P2-C7	FC5501-8	1633full.m	Sample	OP96916,S6Q271,10,,,5.0,1,water	RR5X Pfoa
39	6Q17974.d	P2-C8	FC5501-9	1633full.m	Sample	OP96916,S6Q271,5,,,5.0,1,water	✓
40	6Q17975.d	P2-C9	FC5501-10	1633full.m	Sample	OP96916,S6Q271,2.5,,,5.0,1,water	RR5X Pfoa, Pfos
41	6Q17976.d	P2-D1	FC5501-11	1633full.m	Sample	OP96916,S6Q271,2.5,,,5.0,1,water	RR5X Pfoa
42	6Q17977.d	P1-A5	cc268-4	1633full.m	QC	20/500	✓
43	6Q17978.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	✓
44	6Q17979.d	P2-D2	op96916-dup	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	✓
45	6Q17980.d	P2-D3	FC5501-12	1633full.m	Sample	OP96916,S6Q271,500,,,5.0,1,water	✓
46	6Q17981.d	P2-D4	FC5501-13	1633full.m	Sample	OP96916,S6Q271,500,,,5.0,1,water	RR5X Pfos
47	6Q17982.d	P2-D5	FC5501-14	1633full.m	Sample	OP96916,S6Q271,10,,,5.0,1,water	✓
48	6Q17983.d	P2-D6	FC5501-15	1633full.m	Sample	OP96916,S6Q271,100,,,5.0,1,water	no surr.
49	6Q17984.d	P1-A5	cc268-4	1633full.m	QC	20/500	✓
50	6Q17985.d	P1-A2	cc268-1.0LL	1633full.m	QC	1.6/500	✓
51	6Q17986.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	✓
52	6Q17987.d	P2-D7	op96917-bs	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	✓
53	6Q17988.d	P2-D8	op96917-llbs:3	1633full.m	Sample	OP96917,S6Q271,500,,,5.0,1,water	✓
54	6Q17989.d	P2-D9	op96917-mb	1633full.m	Sample	OP96917,S6Q271,500,,,5.0,1,water	✓
55	6Q17990.d	P2-E1	FC5542-1	1633full.m	Sample	OP96917,S6Q271,5,,,5.0,1,water	✓
56	6Q17991.d	P2-E2	FC5542-2	1633full.m	Sample	OP96917,S6Q271,10,,,5.0,1,water	RR5X HxS
57	6Q17992.d	P2-E3	FC5542-3	1633full.m	Sample	OP96917,S6Q271,2.5,,,5.0,1,water	RR5X Pfoa
58	6Q17993.d	P2-E4	FC5542-4	1633full.m	Sample	OP96917,S6Q271,1,,,5.0,1,water	✓
59	6Q17994.d	P2-E5	FC5542-5	1633full.m	Sample	OP96917,S6Q271,200,,,5.0,1,water	RR5X HxS, Pfoa, Pfos
60	6Q17995.d	P2-E6	FC5542-6	1633full.m	Sample	OP96917,S6Q271,5,,,5.0,1,water	RR5X Pfoa
61	6Q17996.d	P2-E7	op96917-dup	1633full.m	Sample	OP96917,S6Q271,5,,,5.0,1,water	RR5X Pfoa
62	6Q17997.d	P1-A5	cc268-4	1633full.m	QC	20/500	✓
63	6Q17998.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	✓
64	6Q17999.d	P2-E8	FC5542-7	1633full.m	Sample	OP96917,S6Q271,1,,,5.0,1,water	✓
65	6Q18000.d	P2-E9	FC5542-9	1633full.m	Sample	OP96917,S6Q271,500,,,5.0,1,water	✓
66	6Q18001.d	P2-F1	FC5542-10	1633full.m	Sample	OP96917,S6Q271,1,,,5.0,1,water	✓
67	6Q18002.d	P2-F2	FC5565-1	1633full.m	Sample	OP96917,S6Q271,1,,,5.0,1,water	RR5X HxS, Pfoa
68	6Q18003.d	P2-F3	FC5565-2	1633full.m	Sample	OP96917,S6Q271,5,,,5.0,1,water	RR5X HxS, Pfos
69	6Q18004.d	P2-F4	FC5565-3	1633full.m	Sample	OP96917,S6Q271,2.5,,,5.0,1,water	RR5X Pfoa
70	6Q18005.d	P2-F5	FC5565-5	1633full.m	Sample	OP96917,S6Q271,500,,,5.0,1,water	✓
71	6Q18006.d	P2-F6	Test	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	Test only
72	6Q18007.d	P2-F7	Test	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	Test only
73	6Q18008.d	P2-F8	Test	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	Test only
74	6Q18009.d	P1-A5	cc268-4	1633full.m	Sample	20/500	✓
75	6Q18010.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	✓
76	6Q18011.d	P3-A1	op96918-bs	1633full.m	Sample	OP96918,S6Q271,500,,,5.0,1,water	✓
77	6Q18012.d	P3-A2	op96918-llbs:2	1633full.m	Sample	OP96918,S6Q271,500,,,5.0,1,water	✓
78	6Q18013.d	P3-A3	op96918-mb	1633full.m	Sample	OP96918,S6Q271,500,,,5.0,1,water	✓

LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

79	6Q18014.d	P3-A4	JD64582-1A	1633full.m	Sample	OP96918,S6Q271,545,,,5.0,1,water	✓	
80	6Q18015.d	P3-A5	op96918-ms	1633full.m	Sample	OP96918,S6Q271,500,,,5.0,1,water	✓	
81	6Q18016.d	P3-A6	JD64649-2	1633full.m	Sample	OP96918,S6Q271,565,,,5.0,1,water	✓	
82	6Q18017.d	P3-A7	JD64738-1	1633full.m	Sample	OP96918,S6Q271,540,,,5.0,1,water	✓	
83	6Q18018.d	P3-A8	op96918-dup	1633full.m	Sample	OP96918,S6Q271,500,,,5.0,1,water	✓	
84	6Q18019.d	P3-A9	JD64738-2	1633full.m	Sample	OP96918,S6Q271,525,,,5.0,1,water	✓	
85	6Q18020.d	P3-B1	JD65440-1	1633full.m	Sample	OP96918,S6Q271,535,,,5.0,1,water	rr10x + Redo lower volume	
86	6Q18021.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663,S6Q271,500,,,5.0,1,water	✓
87	6Q18022.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	✓	
88	6Q18023.d	P3-B2	JD65440-2	1633full.m	Sample	OP96918,S6Q271,545,,,5.0,1,water	✓	
89	6Q18024.d	P3-B3	FC5603-1	1633full.m	Sample	OP96918,S6Q271,585,,,5.0,1,water	✓	
90	6Q18025.d	P3-B4	FC5608-1	1633full.m	Sample	OP96918,S6Q271,255,,,5.0,1,water	✓	
91	6Q18026.d	P3-B5	FC5608-2	1633full.m	Sample	OP96918,S6Q271,155,,,5.0,1,water	✓	
92	6Q18027.d	P3-B6	FC5608-3	1633full.m	Sample	OP96918,S6Q271,255,,,5.0,1,water	✓	
93	6Q18028.d	P3-B7	FC5608-4	1633full.m	Sample	OP96918,S6Q271,255,,,5.0,1,water	✓	
94	6Q18029.d	P3-B8	FC5608-5	1633full.m	Sample	OP96918,S6Q271,255,,,5.0,1,water	✓	
95	6Q18030.d	P3-B9	FC5608-6	1633full.m	Sample	OP96918,S6Q271,250,,,5.0,1,water	✓	
96	6Q18031.d	P3-C1	FC5608-7	1633full.m	Sample	OP96918,S6Q271,250,,,5.0,1,water	✓	
97	6Q18032.d	P3-C2	FC5608-8	1633full.m	Sample	OP96918,S6Q271,250,,,5.0,1,water	✓	
98	6Q18033.d	P1-A5	cc268-4	1633full.m	QC	20/500	OP96663,S6Q271,500,,,5.0,1,water	✓
99	6Q18034.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q271,500,,,5.0,1,water	✓	
100	6Q18035.d	P3-C3	FC6019-1	1633full.m	Sample	OP96918,S6Q271,500,,,5.0,1,water	✓	
101	6Q18036.d	P1-A5	ecc268-4	1633full.m	QC	20/500	OP96663,S6Q271,500,,,5.0,1,water	✓
102	6Q18037.d	P1-A1	iccb	1633full.m	Sample	OP96663,S6Q271,500,,,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 2106A-B	PFC SPIKE	11653	PFOA-DOD (28 comps)	Absolute Wellington Labs	11/08/27	10/18/24	1.0ppm	2mL	5mL	400ppb	MS/MNH 5/14/20	01/18/23	10/18/23	NG
		11432	N-He-FOSA-m	Wellington Labs	02/18/27	03/13/24	50ppm	40uL						NG
		11513	FBSA-1		11/10/26	04/18/24								NG
		11514	FHSA-1		12/19/26	04/18/24								NG
		11332	PFERHS		03/18/27	10/18/24								NG
LCMS 2107A-C	1633-OPiKE Cal Std.	11734	PFAC MxH	Wellington	8/8/27	4/14/24	1-4 ppm	250uL	4mL	62.5 125 250ppb	1633 MIX	4/19/23	10/19/23	MV
		11736	PFAC MxH	Wellington	11/11/25	4/14/24	2ppm	250uL		125ppb	2688mL			
		11676	PFAC MxG		12/11/27	4/11/24	2ppm	250uL		125ppb				
		11689	PFAC MxJ		9/11/26	4/19/24	4-20 ppm	250uL		125ppb				
LCMS 2108A-O	10PPb PFC ID SURT	11763	MPFAC-24-ES	Wellington Labs	01/18/28	04/18/24	1.0ppm	2.4mL	~50mL	312uL	95/MNH 5/14/20			
		11635A	M3HFO-DA		11/08/28	04/18/24	50ppm	48uL				04/24/23	10/24/23	NG
		11431	d-N-MADOSAM		05/06/27	03/13/24	50ppm	48uL						NG
LCMS-2109	537.1 DW STD.	11653	PFOA-DOD (28 comps)	Absolute	11/09/27	04/18/24	1.0ug/mL	4mL	100ppb	100ppb	90% MeOH 4/24/23	09/10/23	09/10/23	JR
		2080	DW SURT.		07/06/23		1.0/2.0 PPM	400uL	100/200 ppb					JR

* based on date opened as specified in each SGS - Orlando SOP.



* tested & passed

* tested & passed on glass

* tested & passed on glass

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 20915A-E	(10ppb) PFC ID SURR	A-5 11669	PFAC-2YES	Wilmington Labs	01/16/18	03/18/24	1.0ppm	2.4mL	~50mL	0.5ppm	151mech 51.420	03/18/23	09/18/23	NS
↓	↓	11585	MTHRO-DA	↓	11/08/15	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-METOSAN	↓	05/10/07	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 20916A-B	1033 spike Cal w/d.	11672	PFAC-MxH	Wilmington	8/8/17	3/23/24	1-4 ppm	250uL	4mL	02.5 125 250ppb	1033 MIX	3/30/23	9/18/23	MU
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	02.5 0.25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxI	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxI	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11660	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 PPb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11672B	PFAC-MxJ	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 PPb	↓	↓	↓	↓
LCMS 2097A-B	BR-LN metel for 1033	11497	br-N metosa	Wilmington	08/23/17	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/16/23	10/28/23	MU
↓	↓	11498	br-N Effosa	↓	10/07/17	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11495	br-N metosa	↓	10/07/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N effosa	↓	10/07/17	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/16/23								

* tested & used on 3/30/24

* 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 2098A	1033 spike Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 250ppb	1033 mix	4/6/23	10/6/23	MW
		LCMS 2097	Br-1n Et-Me	SGS Labo	NA	10/28/23	3ppm 5ppm	250uL		125ppb 312.5ppb				
		11674B	PFAC Mx F	Wellington	1/11/25	3/30/24	2ppm	250uL 500uL		125ppb				
		11675	PFAC Mx G		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11672B	PFAC Mx J		9/14/26	3/23/24	4-20 ppm	312uL		312/100 ppb				
LCMS 2099	(Fumeral) 537.1 Du std.	11670	M3P-PEA	Wellington Labs	07/08/25	04/06/24	50ppm	80uL	4mL	1.0ppm	0.10 MESH 41. H2O	04/06/23	05/15/23	NG
		10436A	Mx 2		11/05/25	04/06/24		80uL		1.0ppm				NG
		10522B	d3-N-NECSAA		10/22/25	05/15/23		160uL		2.0ppm				NG
		10498A	M1FOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M2RFA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (90) List 40 spike (50)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O	4/11/23	7/24/23	MW
		LCMS 2067	40 List ADD #1	SGS Add.		8/23/23	1.0ppm	400uL			(2,40021)			
		LCMS 2070	40 List ADD #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	F055 Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 2101	F055 std.	11336	N-et F055	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 f055		5/13/27	9/19/23	50ppm	200uL						

* based on date opened as specified in each SGS - Orlando SOP. (1,000)

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

* recheck & tested on 10/23/23
are normal

* recheck & tested on 10/23/23

LCMS 2100 91B
recheck & tested on 10/23/23



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	10720A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth 5% H2O	2/8/23	3/21/23 8/23/23	MV
		10840	L- PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N- MCFOSA		8/3/26	8/23/23								
		10837	N- E-FOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFOA		5/7/26	10/18/23								
		11116B	3:3FTCA PFAPA		2/3/27	2/8/24								
		10685A	5:3FTCA PFAPA		11/1/25	8/23/23								
		11116A	7:3FTCA FHPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA		3/31/25	10/18/23								
		10764	PFMFA PF40eA		3/31/25	2/8/24								
		10765B	NFHDA 3.6-OPAPA		3/31/25	10/18/23								
					NG 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 Sid. #	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 2074 A-B	PFC SPIKE	11613	PROA-DOD CASCOMP	Absolute Wellington Labs	11/09/23	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		10829	N-Me-PBSA-M	Wellington Labs	08/23/26	08/23/23	50ppm	40uL						NG
		11250	PBSA-1		11/10/26	11/08/23								NG
		11249	PHSA-1		12/29/26	11/03/23								NG
		11322	PFCHS		02/28/27	10/18/23								NG
LCMS 2075A-F	(10 PPB) PFC ID SURF	11639	MPPAC-24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		11585	N2HFO-DA	Wellington Labs	11/08/26	01/26/24	50ppm	48uL						NG
		11385	B-N-NACOSA-M	Wellington Labs	05/10/27	01/01/24	50ppm	48uL						NG
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	2/27/23	5/2/26	MW
		11249	FHSA-1		2/29/26	11/3/23	50ppm	80uL						
		11140	L-PFRG		7/12/26	5/26/23	50ppm	80uL						
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Sulfate Acetate drich	Wellington Labs		1/25/24	99.9%	0.62g	4L	2mM	95% MeOH 5% H2O	2/28/23	4/28/23	MW
		224870	HPLC water	Fisher		2/28/23		3,800ml		95%				
		220225	Acetoni trile			2/20/24		200mL		5%				
						aka new 2/28/23								
						Continue next page #1								

* added 2/23/23
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* 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	PFOA DOP 28	SGS Standards	11/9/27	11/10/24	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		—	4/18/23	1.0 ppm	400 nL						
		LCMS 2054	Fose std.		—	7/7/23	5.0 ppm	400 nL		500 ppb				
LCMS 2054	Fose 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	2.50 nL	4 mL	62.5 ppb	1633 MIX	1/24/23	7/24/23	MV
		10853J	PFAC MXI		9/14/26	1/11/24	1-10 ppm	2.50 nL		125 ppb				
		11549B	PFAC MXF		11/1/25	1/24/24	2 ppm	500 nL		62.5 ppb				
		10854J	PFAC MXG		3/4/25	1/11/24	2 ppm	250 nL		250 ppb				
		11492	PFAC MXJ		9/14/26	1/11/24	4-20 ppm	312 nL		312/100 ppb				
		11603												

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819

11494



WELLINGTON LABORATORIES

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).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

brNMeFOSE0922 (1 of 7)
rev1

7.9.1

7

11495



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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**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

brNEtFOSE1022 (1 of 7)
rev1

7.9.1

7

11497



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSA
<u>LOT NUMBER:</u>	brNMeFOSA0822
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/18/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/23/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/23/2027
<u>RECOMMENDED STORAGE:</u>	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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Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

brNMeFOSA0822 (1 of 6)
rev1

7.9.1

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WELLINGTON LABORATORIES

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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Form#:13, Issued 2004-11-10
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brNEtFOSA0922 (1 of 6)
rev1

7.9.1

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11676
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	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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Table A: PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/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
(mm/dd/yyyy)

11688
rec'd 103/03/23



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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Revision#:9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

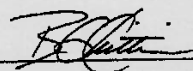
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Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-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: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

11689
rec'd: 03/03/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	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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Revision#: 9, Revised 2020-12-23

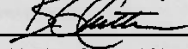
PFACMXJ0921 (1 of 5)
rev1

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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
(mm/dd/yyyy)

11734
rec'd: 03/29/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXH
<u>LOT NUMBER:</u>	PFACMXH0822
<u>SOLVENT(S):</u>	Methanol/Isopropanol (2%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/05/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/08/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/08/2027
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₈, 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

PFACMXH3822 11 of 11
rev0

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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	PFTrDA	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 ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
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.

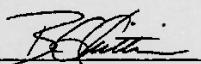
^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^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)

11736
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXF
<u>LOT NUMBER:</u>	PFACMXF0122
<u>SOLVENT(S):</u>	Methanol / Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	01/10/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	01/11/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	01/11/2025
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-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# 3, Revised 2020-12-23

PFACMXF0122 (1 of 5)
rev0

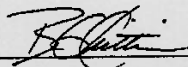
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

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-dioxanonoate	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)

11737
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture

PRODUCT CODE: PFAC-MXG
LOT NUMBER: PFACMXG1122
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/30/2022
LAST TESTED: (mm/dd/yyyy) 12/01/2022
EXPIRY DATE: (mm/dd/yyyy) 12/01/2027
RECOMMENDED STORAGE: 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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Revision# 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

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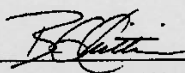
Table A:

PFAC-MXG; 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-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:



B.G. Chittim, General Manager

Date: 12/09/2022

(mm/dd/yyyy)

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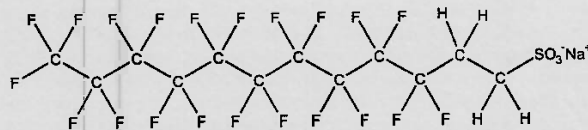


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CERTIFICATE OF ANALYSIS DOCUMENTATION

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

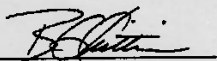
DOCUMENTATION/ DATA ATTACHED:

- 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.

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Certified By:  **Date:** 03/05/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

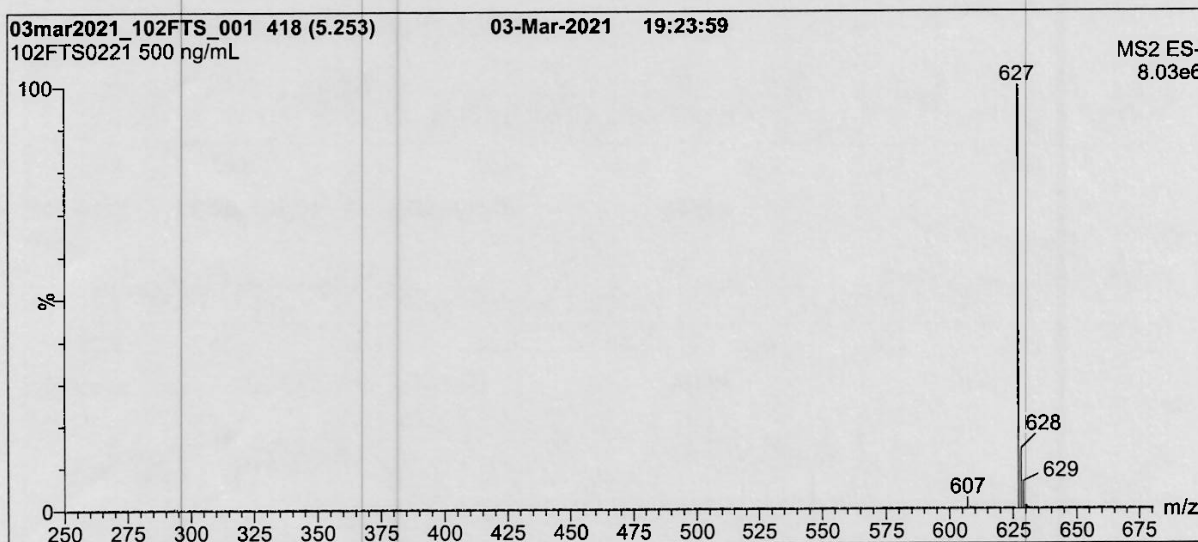
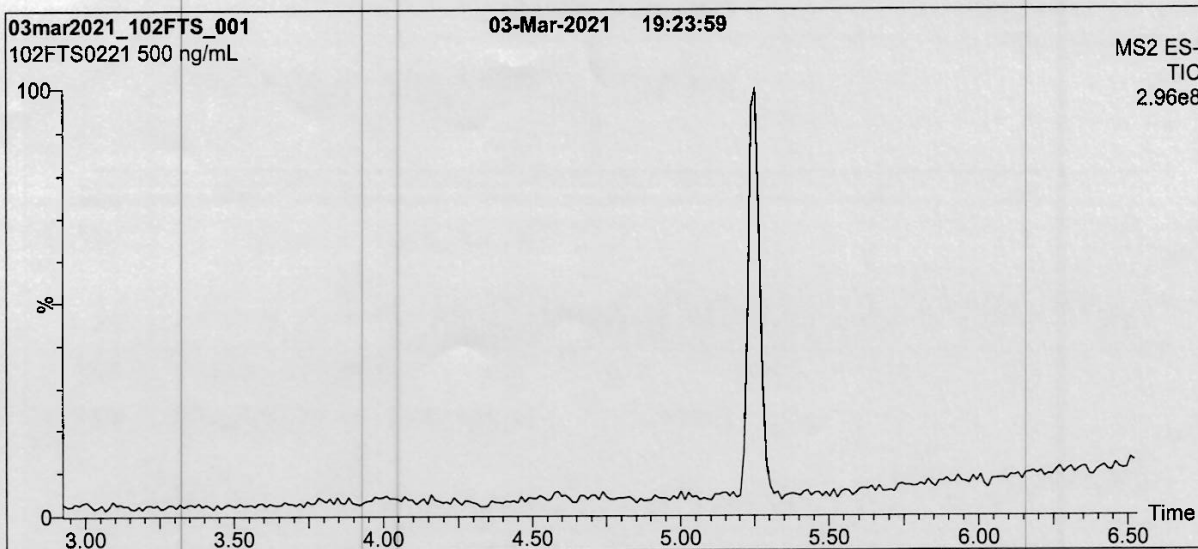
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

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 μm, 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 μL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 25.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

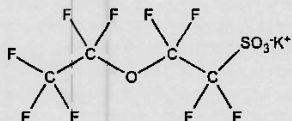
10762 A-B



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate
STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
 44.6 ± 2.2 µg/ml (PFEESA acid)
 44.5 ± 2.2 µg/ml (PFEESA anion)
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

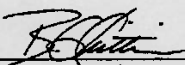
DOCUMENTATION/ DATA ATTACHED:

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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 Revision#:7, Revised 2020-01-09

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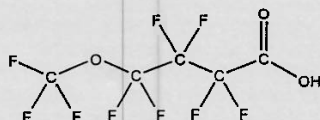
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

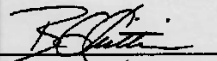
DOCUMENTATION/ DATA ATTACHED:

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:  **Date:** 12/21/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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7

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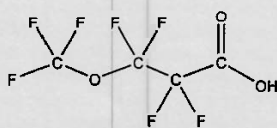
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

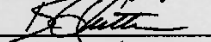
DOCUMENTATION/ DATA ATTACHED:

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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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

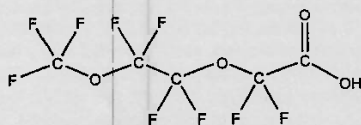
COMPOUND:

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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10829



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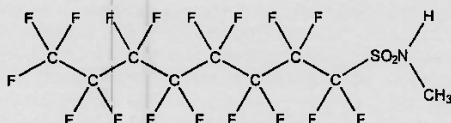
CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₉H₄F₁₇NO₂S
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

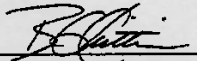
DOCUMENTATION/ DATA ATTACHED:

- 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.

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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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

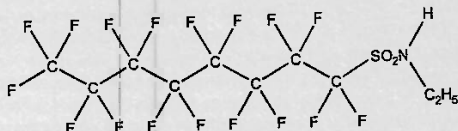
10837

LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:



MOLECULAR FORMULA:

C₁₀H₈F₁₇NO₂S

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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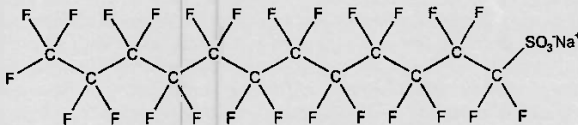
10840

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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CERTIFICATE OF ANALYSIS DOCUMENTATION

10847 NS 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

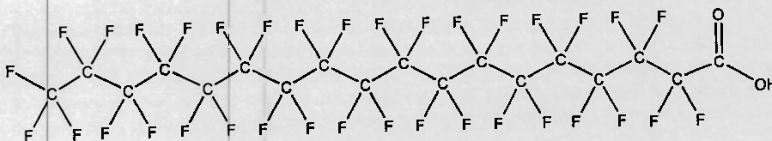
COMPOUND:

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 ampoules 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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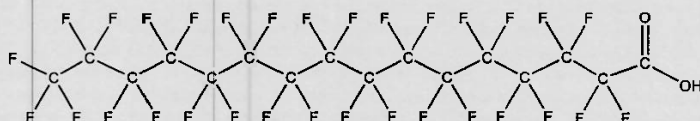
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

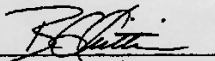
DOCUMENTATION/ DATA ATTACHED:

- 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:  **Date:** 05/25/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFHxDA0421 (1 of 4)
 rev0

7.9.1

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1116B on the back NW



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

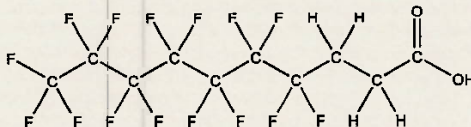
COMPOUND:

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

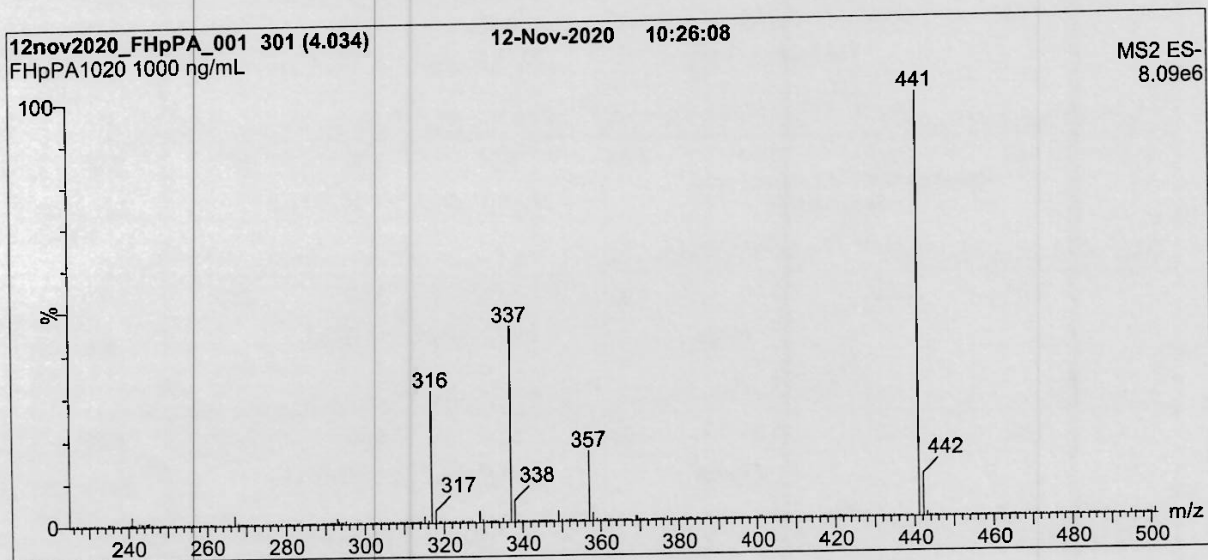
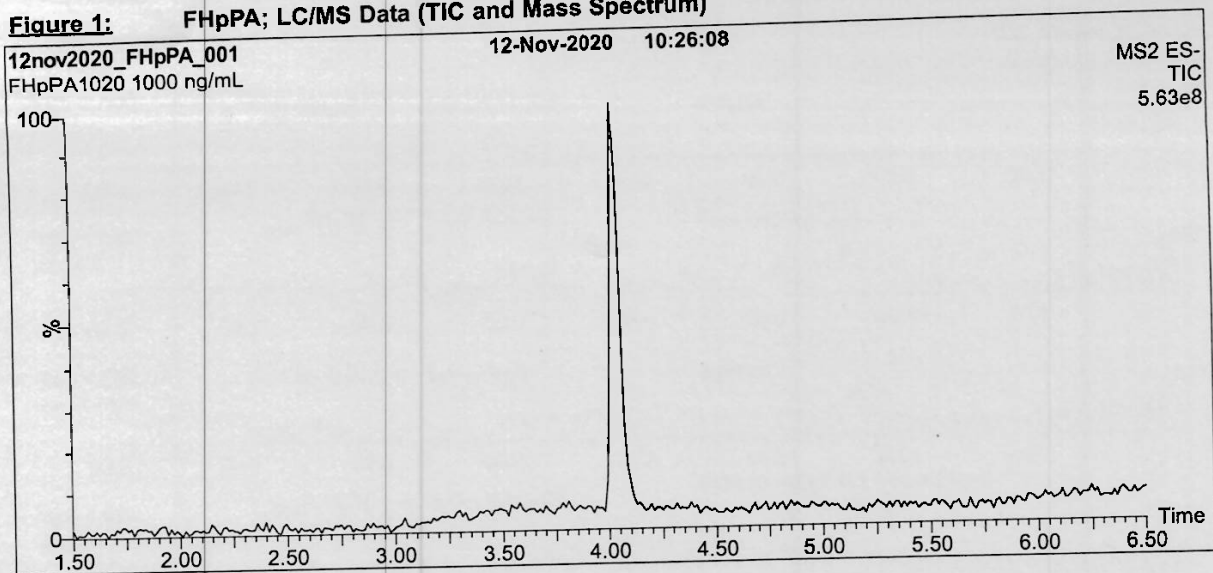
(mm/dd/yyyy)

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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

Form#:27, Issued 2004-11-10
Revision#:8, Revised 2020-09-10

FHpPA1020 (3 of 4)
rev0

FPrPA(3:3FTEA) 1116 B



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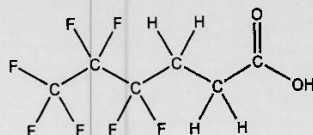
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

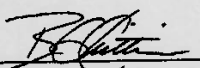
DOCUMENTATION/ DATA ATTACHED:

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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11332



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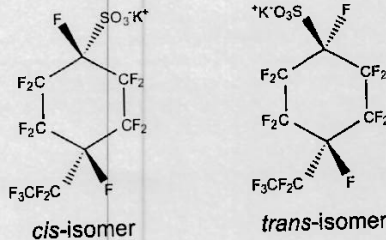
CERTIFICATE OF ANALYSIS DOCUMENTATION

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*).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022
(mm/dd/yyyy)

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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 (PTTDA)	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	LPFN1021	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-oxanonane-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).



11140



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

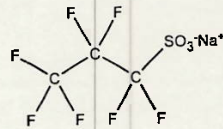
COMPOUND:

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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11252 11249
7/1/22 KA



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

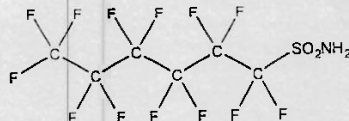
COMPOUND:

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:

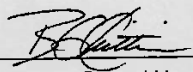
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

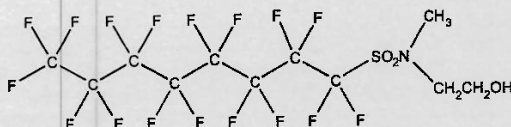
NMeFOSE0522M

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11764 A-5
rec'd: 04/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled PFAS Injection
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-IS
LQT 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 (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). 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 ≥99% per ¹³C or >94% per ¹⁸O.

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

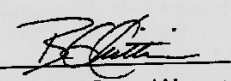
MPFACHIFIS1122 (1 of 5)
rev0

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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:  Date: 12/05/2022
(mm/dd/yyyy)
R.G. Chittim, General Manager

11765 A-J
Rec'd: 04/20/23



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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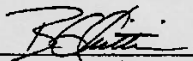
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFES1022 (1 of 7)
rev0

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 ₂)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₃)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₅)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₆)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₇)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₇)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₈)undecanoic acid	M7PFUDA	250		18
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDcA	250		19
Perfluoro-n-(1,2- ¹³ C ₂)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 ₂ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₇)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 Started 05/16/23 11:00

Method: EPA 1633 Draft (QSM) Lst 40

Date/Time Finished 5/17/23 11:53

Balance ID _____

Batch# OP96892 Ext. By: GH

Conc By: _____ Vialed 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 96892 MB	/	500	7	N/A	25		5	A4	
OP 96892 BS	/	500	7	N/A		200			
OP 96892 LBS	/	500	7	N/A		100			
FC6033-1	2	550	6						
	2	550	6						
	3	570	6						
FC6066-1	2	550	6						
	2	520	6						
	3	520	7						
	4	530	6	↓	↓		↓	↓	
	5	550	6	N/A	25		5	A4	
OP FC6066-3MS	3	530	7	N/A	25	200	5	A4	
OP MSD									
OP FC6066-5DUP	3	550	6	N/A	25		5	A4	

Comments:

EIS (SURR) ID 11777EJ Conc: 250-5000 ng/mL Exp Date 5/9/24 Inj. By: GH Ver By: AG
 SPIKE 1 ID LMS2122A Conc: VARIED Exp Date 10/28/23 Inj. By: GH Ver By: AG
 SPIKE 2 ID: _____ Conc: _____ Exp Date: _____ Inj. By: _____ Ver By: _____
 NIS (ISTD) ID 11789AB Conc: 250-1000 ng/mL Exp Date 5/16/24 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 PF397 SPE Lot # 6723930-02
 Water Lot# OP96255 0.3M Formic Acid PF398 398 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 21322
 0.1M Formic PF393 5% Formic Acid _____ Carbon Lot# 99687

Relinquished By: *John Miller*
 Accepted By: *MW*

Date 05/16/23
 Date 5/17/23

7.10.1 7