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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC3427

Sampling Date: 03/13/23



Report to:

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Total number of pages in report: 654



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: FC3427-1: AF-RHMW04-WGN01LF-2303W2	7
4.2: FC3427-2: AF-RHMW12A-WGN01LF-2303W2	10
4.3: FC3427-3: AF-RHMW12A-WGFD01LF-2303W2	13
4.4: FC3427-4: AF-RHMW06-WGN01LF-2303W2	16
4.5: FC3427-5: AF-RHMW16-WGN01LF-2303W2	19
Section 5: Misc. Forms	22
5.1: Chain of Custody	23
5.2: QC Evaluation: DOD QSM5.x Limits	28
Section 6: MS Semi-volatiles - QC Data Summaries	29
6.1: Method Blank Summary	30
6.2: Blank Spike Summary	36
6.3: Matrix Spike Summary	40
6.4: Duplicate Summary	42
6.5: Injection Standard Area Summaries	44
6.6: TDCA Retention Time Checks	46
6.7: Ion Ratio Summaries	50
6.8: Isotope Dilution Standard Recovery Summaries	51
6.9: Initial and Continuing Calibration Summaries	54
6.10: Run Sequence Reports	68
Section 7: MS Semi-volatiles - Raw Data	71
7.1: Samples	72
7.2: Method Blanks	131
7.3: Blank Spikes	166
7.4: Matrix Spikes	210
7.5: Duplicates	232
7.6: Retention Time Markers	244
7.7: Initial and Continuing Calibrations	296
7.8: Instrument Run Logs	584
7.9: Standard Prep Logs	590
7.10: Sample Prep Logs	654



Sample Summary

AECOM, INC.

Job No: FC3427

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC3427-1	03/13/23	10:10 OS	03/14/23	AQ	Ground Water	AF-RHMW04-WGN01LF-2303W2
FC3427-2	03/13/23	11:10 GA	03/14/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2303W2
FC3427-3	03/13/23	11:10 GA	03/14/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2303W2
FC3427-4	03/13/23	12:25 OS	03/14/23	AQ	Ground Water	AF-RHMW06-WGN01LF-2303W2
FC3427-5	03/13/23	14:30 GA	03/14/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2303W2

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC3427

Site: N6274223F0104 RH Fire Suppression System

Report Date: 3/21/2023 4:46:04 PM

On 03/14/2023, 5 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 1.4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC3427 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: OP95927

Sample(s) FC3427-2MS, FC3427-3DUP were used as the QC samples indicated.

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: FC3427
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 03/13/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC3427-1 AF-RHMW04-WGN01LF-2303W2

No hits reported in this sample.

FC3427-2 AF-RHMW12A-WGN01LF-2303W2

Perfluoropentanoic acid	3.8 J	9.3	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.1 J	4.6	0.93	ng/l	EPA DRAFT 1633

FC3427-3 AF-RHMW12A-WGFD01LF-2303W2

Perfluoropentanoic acid	3.7 J	11	2.2	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	1.2 J	5.5	1.1	ng/l	EPA DRAFT 1633

FC3427-4 AF-RHMW06-WGN01LF-2303W2

No hits reported in this sample.

FC3427-5 AF-RHMW16-WGN01LF-2303W2

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW04-WGN01LF-2303W2		
Lab Sample ID:	FC3427-1	Date Sampled:	03/13/23
Matrix:	AQ - Ground Water	Date Received:	03/14/23
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	6Q15069.D	1	03/21/23 05:28	MV	03/16/23 10:00	OP95927	S6Q228
Run #2							

Run #	Initial Volume	Final Volume
Run #1	560 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	18	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	8.9	1.8	0.84	ng/l	
307-24-4	Perfluorohexanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.89 U	4.5	0.89	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	0.89 U	4.5	0.89	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	4.5	1.8	0.62	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.89 U	4.5	0.89	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.48	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.51	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	1.8	0.57	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	7.1 U	18	7.1	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.1	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.1 U	18	7.1	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	4.5	1.8	0.60	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.89	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	0.89	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-RHMW04-WGN01LF-2303W2	
Lab Sample ID:	FC3427-1	Date Sampled: 03/13/23
Matrix:	AQ - Ground Water	Date Received: 03/14/23
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	0.89	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	8.9 U	45	8.9	3.9	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.6	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.89	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	8.9	1.8	0.89	ng/l	
863090-89-5	PFMBA	3.6 U	8.9	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	8.9	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	8.9	1.8	0.70	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.9 U	22	8.9	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.8	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	110	18	7.0	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	106%		20-150%
	13C5-PFPeA	104%		20-150%
	13C5-PFHxA	102%		20-150%
	13C4-PFHpA	104%		20-150%
	13C8-PFOA	105%		20-150%
	13C9-PFNA	103%		20-150%
	13C6-PFDA	101%		20-150%
	13C7-PFUnDA	86%		20-150%
	13C2-PFDoDA	80%		20-150%
	13C2-PFTeDA	80%		20-150%
	13C3-PFBS	110%		20-150%
	13C3-PFHxS	111%		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-RHMW04-WGN01LF-2303W2		Date Sampled:	03/13/23
Lab Sample ID:	FC3427-1		Date Received:	03/14/23
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	93%		20-150%
	13C8-FOSA	98%		20-150%
	d3-MeFOSA	77%		20-150%
	d5-EtFOSA	76%		20-150%
	d3-MeFOSAA	92%		20-150%
	d5-EtFOSAA	84%		20-150%
	d7-MeFOSE	84%		20-150%
	d9-EtFOSE	86%		20-150%
	13C2-4:2FTS	114%		20-150%
	13C2-6:2FTS	124%		20-150%
	13C2-8:2FTS	117%		20-150%
	13C3-HFPO-DA	98%		20-150%

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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW12A-WGN01LF-2303W2		
Lab Sample ID:	FC3427-2	Date Sampled:	03/13/23
Matrix:	AQ - Ground Water	Date Received:	03/14/23
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	6Q15070.D	1	03/21/23 05:42	MV	03/16/23 10:00	OP95927	S6Q228
Run #2							

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

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

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2303W2		
Lab Sample ID:	FC3427-2	Date Sampled:	03/13/23
Matrix:	AQ - Ground Water	Date Received:	03/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	90%		20-150%
	13C5-PFPeA	107%		20-150%
	13C5-PFHxA	105%		20-150%
	13C4-PFHpA	107%		20-150%
	13C8-PFOA	106%		20-150%
	13C9-PFNA	100%		20-150%
	13C6-PFDA	95%		20-150%
	13C7-PFUnDA	88%		20-150%
	13C2-PFDoDA	72%		20-150%
	13C2-PFTeDA	62%		20-150%
	13C3-PFBS	110%		20-150%
	13C3-PFHxS	104%		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-RHMW12A-WGN01LF-2303W2		
Lab Sample ID:	FC3427-2	Date Sampled:	03/13/23
Matrix:	AQ - Ground Water	Date Received:	03/14/23
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	86%		20-150%
	13C8-FOSA	92%		20-150%
	d3-MeFOSA	61%		20-150%
	d5-EtFOSA	57%		20-150%
	d3-MeFOSAA	81%		20-150%
	d5-EtFOSAA	81%		20-150%
	d7-MeFOSE	62%		20-150%
	d9-EtFOSE	60%		20-150%
	13C2-4:2FTS	116%		20-150%
	13C2-6:2FTS	117%		20-150%
	13C2-8:2FTS	98%		20-150%
	13C3-HFPO-DA	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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW12A-WGFD01LF-2303W2		
Lab Sample ID:	FC3427-3	Date Sampled:	03/13/23
Matrix:	AQ - Ground Water	Date Received:	03/14/23
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	6Q15072.D	1.2	03/21/23 06:10	MV	03/16/23 10:00	OP95927	S6Q228
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	4.4 U	22	4.4	2.1	ng/l	
2706-90-3	Perfluoropentanoic acid	3.7	11	2.2	1.0	ng/l	J
307-24-4	Perfluorohexanoic acid	1.2	5.5	1.1	0.55	ng/l	J
375-85-9	Perfluoroheptanoic acid	1.1 U	5.5	1.1	0.55	ng/l	
335-67-1	Perfluorooctanoic acid	1.1 U	5.5	1.1	0.55	ng/l	
375-95-1	Perfluorononanoic acid	2.2 U	5.5	2.2	0.67	ng/l	
335-76-2	Perfluorodecanoic acid	1.1 U	5.5	1.1	0.55	ng/l	
2058-94-8	Perfluoroundecanoic acid	2.2 U	5.5	2.2	0.65	ng/l	
307-55-1	Perfluorododecanoic acid	2.2 U	5.5	2.2	0.65	ng/l	
72629-94-8	Perfluorotridecanoic acid	2.2 U	5.5	2.2	0.92	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.1 U	5.5	1.1	0.55	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.1 U	5.5	1.1	0.55	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	4.4 U	5.5	4.4	1.2	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2.2 U	5.5	2.2	0.76	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.1 U	5.5	1.1	0.55	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	2.2 U	5.5	2.2	0.59	ng/l	
68259-12-1	Perfluorononanesulfonic acid	2.2 U	5.5	2.2	0.62	ng/l	
335-77-3	Perfluorodecanesulfonic acid	2.2 U	5.5	2.2	0.70	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	4.4 U	5.5	4.4	1.2	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	8.7 U	22	8.7	3.5	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	8.7 U	22	8.7	3.8	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	8.7 U	22	8.7	4.5	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	2.2 U	5.5	2.2	0.73	ng/l	
31506-32-8	MeFOSA	2.2 U	5.5	2.2	1.1	ng/l	
4151-50-2	EtFOSA	2.2 U	5.5	2.2	1.1	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-RHMW12A-WGFD01LF-2303W2		
Lab Sample ID:	FC3427-3	Date Sampled:	03/13/23
Matrix:	AQ - Ground Water	Date Received:	03/14/23
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	4.4 U	5.5	4.4	1.1	ng/l	
2991-50-6	EtFOSAA	4.4 U	5.5	4.4	1.5	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	11 U	55	11	4.8	ng/l	
1691-99-2	EtFOSE	22 U	55	22	8.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	4.4 U	22	4.4	1.1	ng/l	
919005-14-4	ADONA	4.4 U	22	4.4	2.0	ng/l	
377-73-1	PFMPA	2.2 U	11	2.2	1.1	ng/l	
863090-89-5	PFMBA	4.4 U	11	4.4	1.2	ng/l	
151772-58-6	NFDHA	4.4 U	11	4.4	1.3	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	4.4 U	22	4.4	1.5	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.4 U	22	4.4	1.9	ng/l	
113507-82-7	PFEESA	2.2 U	11	2.2	0.85	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	11 U	27	11	4.9	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	22 U	140	22	9.5	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	22 U	140	22	8.6	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	85%		20-150%
	13C5-PFPeA	86%		20-150%
	13C5-PFHxA	85%		20-150%
	13C4-PFHpA	88%		20-150%
	13C8-PFOA	92%		20-150%
	13C9-PFNA	84%		20-150%
	13C6-PFDA	78%		20-150%
	13C7-PFUnDA	69%		20-150%
	13C2-PFDoDA	55%		20-150%
	13C2-PFTeDA	56%		20-150%
	13C3-PFBS	82%		20-150%
	13C3-PFHxS	81%		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-RHMW12A-WGFD01LF-2303W2	
Lab Sample ID:	FC3427-3	Date Sampled: 03/13/23
Matrix:	AQ - Ground Water	Date Received: 03/14/23
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	75%		20-150%
	13C8-FOSA	82%		20-150%
	d3-MeFOSA	62%		20-150%
	d5-EtFOSA	56%		20-150%
	d3-MeFOSAA	70%		20-150%
	d5-EtFOSAA	61%		20-150%
	d7-MeFOSE	60%		20-150%
	d9-EtFOSE	57%		20-150%
	13C2-4:2FTS	86%		20-150%
	13C2-6:2FTS	92%		20-150%
	13C2-8:2FTS	81%		20-150%
	13C3-HFPO-DA	85%		20-150%

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

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW06-WGN01LF-2303W2		
Lab Sample ID:	FC3427-4	Date Sampled:	03/13/23
Matrix:	AQ - Ground Water	Date Received:	03/14/23
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	6Q15074.D	1	03/21/23 06:38	MV	03/16/23 10:00	OP95927	S6Q228
Run #2							

Run #	Initial Volume	Final Volume
Run #1	570 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	3.5 U	18	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	8.8	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.4	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.4	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

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

FLUOROTELOMER SULFONIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDES

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

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2303W2		Date Sampled:	03/13/23
Lab Sample ID:	FC3427-4		Date Received:	03/14/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

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

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	98%		20-150%
	13C5-PFPeA	93%		20-150%
	13C5-PFHxA	93%		20-150%
	13C4-PFHpA	93%		20-150%
	13C8-PFOA	94%		20-150%
	13C9-PFNA	93%		20-150%
	13C6-PFDA	101%		20-150%
	13C7-PFUnDA	103%		20-150%
	13C2-PFDoDA	91%		20-150%
	13C2-PFTeDA	87%		20-150%
	13C3-PFBS	103%		20-150%
	13C3-PFHxS	104%		20-150%

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

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4

Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2303W2	
Lab Sample ID:	FC3427-4	Date Sampled: 03/13/23
Matrix:	AQ - Ground Water	Date Received: 03/14/23
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	99%		20-150%
	13C8-FOSA	96%		20-150%
	d3-MeFOSA	76%		20-150%
	d5-EtFOSA	78%		20-150%
	d3-MeFOSAA	88%		20-150%
	d5-EtFOSAA	93%		20-150%
	d7-MeFOSE	92%		20-150%
	d9-EtFOSE	93%		20-150%
	13C2-4:2FTS	114%		20-150%
	13C2-6:2FTS	120%		20-150%
	13C2-8:2FTS	111%		20-150%
	13C3-HFPO-DA	85%		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

4.4
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SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW16-WGN01LF-2303W2		
Lab Sample ID:	FC3427-5	Date Sampled:	03/13/23
Matrix:	AQ - Ground Water	Date Received:	03/14/23
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	6Q15075.D	1	03/21/23 06:52	MV	03/16/23 10:00	OP95927	S6Q228
Run #2							

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

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

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

PERFLUOROALKYL SULFONIC ACIDS

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

FLUOROTELOMER SULFONIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDES

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

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2303W2		Date Sampled:	03/13/23
Lab Sample ID:	FC3427-5		Date Received:	03/14/23
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	3.7 U	4.6	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	108%		20-150%
	13C5-PFPeA	104%		20-150%
	13C5-PFHxA	104%		20-150%
	13C4-PFHpA	103%		20-150%
	13C8-PFOA	103%		20-150%
	13C9-PFNA	107%		20-150%
	13C6-PFDA	104%		20-150%
	13C7-PFUnDA	91%		20-150%
	13C2-PFDoDA	84%		20-150%
	13C2-PFTeDA	76%		20-150%
	13C3-PFBS	107%		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

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2303W2	
Lab Sample ID:	FC3427-5	Date Sampled: 03/13/23
Matrix:	AQ - Ground Water	Date Received: 03/14/23
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	94%		20-150%
	13C8-FOSA	96%		20-150%
	d3-MeFOSA	75%		20-150%
	d5-EtFOSA	75%		20-150%
	d3-MeFOSAA	86%		20-150%
	d5-EtFOSAA	83%		20-150%
	d7-MeFOSE	85%		20-150%
	d9-EtFOSE	86%		20-150%
	13C2-4:2FTS	121%		20-150%
	13C2-6:2FTS	114%		20-150%
	13C2-8:2FTS	113%		20-150%
	13C3-HFPO-DA	106%		20-150%

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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



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Chain of Custody

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FC 3427

COC #: 2303W2AFSG08

SGS - ORLANDO JOB # :

PAGE 1 OF 1

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="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">PFAS EPA Draft 1633</div> <div style="font-size: 2em; font-weight: bold; opacity: 0.5;"> Oll 3/13/23 </div> </div>												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge 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 Tani Email: watson.tani@aecom.com			Fax #														
Phone #: 303-796-4624 / 808-954-4512			Client Purchase Order #														
Sampler(s) Name(s) (Printed) Sampler 1: <u>Oliver Shirkly</u> Sampler 2: <u>Mariana Degen</u>			CONTAINER INFORMATION		PFAS EPA Draft 1633												LAB USE ONLY
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONH	HCI	NH4I	HNOS	H2SO4	NH4H-ZNAC	DI WATER	MEDI		
	AF-RHMW04-WGN01LF-2303W2	3/13/23	10:10	OS/MS	GW	3	X										
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							
Rush T/A Data Available VIA Email or Lablink																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation							
1 Oliver Shirkly/AECOM		3/13/23 13:40		Katie Abbott/AECOM		3 Oliver Shirkly/AECOM		3/13/23 15:30		Katie Abbott/AECOM							
Relinquished by/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation							
5				6		7				8							
Lab Use Only: Cooler Temperature (s) Celsius (corrected):										http://www.sgs.com/en/terms-and-conditions							

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FC3427: Chain of Custody
Page 1 of 5



5.1 5



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FC3427

COC #: 2303W2AFSG05

SGS - ORLANDO JOB #:

PAGE 1 OF 1

Client / Reporting Information			Project Information				Analytical Information												Matrix Codes	
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System																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 Manager: Watson Tanji Email: watson.tanji@aecom.com Phone #: 303-796-4624 / 808-954-4512			Project # 60697810 Fax #																	
Sampler(s) Name(s) (Printed): <i>GABRIEL A. AECOM</i> Sampler 2: Sampler 1: <i>GABRIEL A. AECOM</i>			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	NOVE	HCl	NO3	NO2	HPO4	NAGH-ZMAC	DI WATER	MEDH					
2	AF-RHMMW12A-WGN01LF-2303W2	03/13/23	11:10	GA	GW	3		X								X				
3	AF-RHMMW12A-WGFD01LF-2303W2	03/13/23		GA	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 AFB 016-2761428J												
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		
1 GABRIEL AECOM			03/13/23			2 [Signature]			03/13/23			3 [Signature]			03/13/23			4 [Signature] SCS 14MAM 23		
5						6						7						8		
Lab Use Only : Cooler Temperature (s) Celsius (corrected):																				
http://www.sgs.com/en/terms-and-conditions																				

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FC3427: Chain of Custody

Page 2 of 5





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FC3427

COC #: 2303W2AFSG09

SGS - ORLANDO JOB # :

PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #		SKIFF #												
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System																
Address: 1001 Bishop St. Ste 1600		Street																
City: Honolulu	State: HI	Zip: 96813	City: Honolulu	State: Hawaii														
Project Contact: Katie Abbott Project Manager: Watson Tanji Phone #: 303-796-4624 / 808-954-4512		Email: katie.abbott@aecom.com Email: watson.tanji@aecom.com		Project # 60697810														
Sampler(s) Name(s) (Printed) Sampler 1: Olivia Shively		Sampler 2: M. Candice		Client Purchase Order #														
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION							PFAS EPA Draft: 1633	LAB USE ONLY					
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NADH	HNO3			H2SO4	NaOH-ZnAc	DI WATER	MEDI	
4	AF-RHMW06-WGN01LF-2303W2	3/13/23	1225	MSA	GW	3			X									
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														
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													
Olivia Shively/Aecom	3/13/23 1342	Katie Abbott/Aecom	Olivia Shively/Aecom	3/13/23 1530	Katie Abbott/Aecom	1608 Katie Abbott/SGS 14MAR23												
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation													
5		6	7		8													
Lab Use Only : Cooler Temperature (s) Celsius (corrected):		http://www.sgs.com/en/terms-and-conditions																

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COC #: 2303W2AFSG06

SGS - ORLANDO JOB # :

PAGE 1 OF 1

Client / Reporting Information		Project Information		SGS - ORLANDO Quote #												SKIFF #
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		Analytical Information												Matrix Codes
Address: 1001 Bishop St. Ste 1600		Street														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
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: GABRIEL ALLEN (COC)		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	NONE	HCl	NH3	HNO3	H2SO4	NH4OH-ZnAc	DI WATER	MECH	
5	AF-RHMMW16-WGN01LF-2303W2	03/13/23	1430	GA	GW	3			X							
Turnaround Time (Business days)				Data Deliverable Information				Comments / Remarks								
10 Day (Business)		Approved By: / Date:		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United ANB 016-27614285								
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 GABRIEL ALLEN / AECOM		Date Time: 03/13/23		Received By/Affiliation Katie Abbott AECOM		Date Time: 03/13/23		Relinquished By/Affiliation Katie Abbott AECOM		Date Time: 03/13/23		Received By/Affiliation Katie Abbott AECOM		Date Time: 03/13/23		
Relinquished by/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation		Date Time:		
5				6				7				8				
Lab Use Only : Cooler Temperature (s) Celsius (corrected):												http://www.sgs.com/en/terms-and-conditions				

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FC3427: Chain of Custody

Page 4 of 5



5.1
5

SGS Sample Receipt Summary

Job Number: FC3427

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 3/14/2023 4:00:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-27614285

Therm ID: IR 1;

Therm CF: 0.2;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.2);

Cooler Temps (Corrected) °C: Cooler 1: (1.4);

Cooler Information

Y or N

- | | | |
|-----------------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Temp criteria achieved | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Cooler temp verification | IR Gun | |
| 5. Cooler media | Ice (Bag) | |

Sample Information

Y or N N/A

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

Trip Blank Information

Y or N N/A

- | | | | |
|--------------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

W or S N/A

- | | | | |
|------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. Type Of TB Received | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|------------------------|--------------------------|--------------------------|-------------------------------------|

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 _____ 230315 _____ pH 10-12 _____ 219813A _____ Other: (Specify) _____
 Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: TORYW

Date: 3/14/2023 4:00:00 PM

Reviewer: CD

Date: 3/18/2023

FC3427: Chain of Custody

Page 5 of 5

QC Evaluation: DOD QSM5.x Limits

Job Number: FC3427
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 03/13/23

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 FC3427

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: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q228-IBLK	6Q15016.D	1	03/20/23	MV	n/a	n/a	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

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

Instrument Blank

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q228-IBLK	6Q15016.D	1	03/20/23	MV	n/a	n/a	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	97% 20-150%
	13C5-PFHxA	95% 20-150%
	13C4-PFHpA	96% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	104% 20-150%
	13C6-PFDA	117% 20-150%
	13C7-PFUnDA	119% 20-150%
	13C2-PFDoDA	112% 20-150%
	13C2-PFTeDA	118% 20-150%
	13C3-PFBS	104% 20-150%
	13C3-PFHxS	102% 20-150%
	13C8-PFOS	98% 20-150%
	13C8-FOSA	111% 20-150%
	d3-MeFOSA	106% 20-150%
	d5-EtFOSA	114% 20-150%
	d3-MeFOSAA	91% 20-150%
	d5-EtFOSAA	95% 20-150%
	d7-MeFOSE	118% 20-150%
	d9-EtFOSE	120% 20-150%
	13C2-4:2FTS	103% 20-150%
	13C2-6:2FTS	97% 20-150%
	13C2-8:2FTS	96% 20-150%
	13C3-HFPO-DA	92% 20-150%

6.1.1
6

Continuing Calibration Blank

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q228-ICCB	6Q15065.D	1	03/21/23	MV	n/a	n/a	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

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

Continuing Calibration Blank

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q228-ICCB	6Q15065.D	1	03/21/23	MV	n/a	n/a	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	97% 20-150%
	13C4-PFHpA	99% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	92% 20-150%
	13C6-PFDA	102% 20-150%
	13C7-PFUnDA	108% 20-150%
	13C2-PFDoDA	109% 20-150%
	13C2-PFTeDA	108% 20-150%
	13C3-PFBS	101% 20-150%
	13C3-PFHxS	93% 20-150%
	13C8-PFOS	96% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSA	97% 20-150%
	d5-EtFOSA	97% 20-150%
	d3-MeFOSAA	100% 20-150%
	d5-EtFOSAA	98% 20-150%
	d7-MeFOSE	105% 20-150%
	d9-EtFOSE	105% 20-150%
	13C2-4:2FTS	109% 20-150%
	13C2-6:2FTS	111% 20-150%
	13C2-8:2FTS	101% 20-150%
	13C3-HFPO-DA	95% 20-150%

Method Blank Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-MB	6Q15068.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

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

Method Blank Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-MB	6Q15068.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	109% 20-150%
	13C5-PFPeA	108% 20-150%
	13C5-PFHxA	105% 20-150%
	13C4-PFHpA	107% 20-150%
	13C8-PFOA	106% 20-150%
	13C9-PFNA	105% 20-150%
	13C6-PFDA	96% 20-150%
	13C7-PFUnDA	88% 20-150%
	13C2-PFDoDA	73% 20-150%
	13C2-PFTeDA	77% 20-150%
	13C3-PFBS	110% 20-150%
	13C3-PFHxS	108% 20-150%
	13C8-PFOS	93% 20-150%
	13C8-FOSA	93% 20-150%
	d3-MeFOSA	74% 20-150%
	d5-EtFOSA	73% 20-150%
	d3-MeFOSAA	85% 20-150%
	d5-EtFOSAA	78% 20-150%
	d7-MeFOSE	87% 20-150%
	d9-EtFOSE	89% 20-150%
	13C2-4:2FTS	121% 20-150%
	13C2-6:2FTS	125% 20-150%
	13C2-8:2FTS	106% 20-150%
	13C3-HFPO-DA	104% 20-150%

Blank Spike Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-LLBS	6Q15067.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.04	0.0336	84	40-150
2706-90-3	Perfluoropentanoic acid	0.02	0.0168	84	40-150
307-24-4	Perfluorohexanoic acid	0.01	0.0089	89	40-150
375-85-9	Perfluoroheptanoic acid	0.01	0.0089	89	40-150
335-67-1	Perfluorooctanoic acid	0.01	0.0087	87	40-150
375-95-1	Perfluorononanoic acid	0.01	0.0088	88	40-150
335-76-2	Perfluorodecanoic acid	0.01	0.0095	95	40-150
2058-94-8	Perfluoroundecanoic acid	0.01	0.0076	76	40-150
307-55-1	Perfluorododecanoic acid	0.01	0.0079	79	40-150
72629-94-8	Perfluorotridecanoic acid	0.01	0.0078	78	40-150
376-06-7	Perfluorotetradecanoic acid	0.01	0.0087	87	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00887	0.0073	82	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00941	0.0080	85	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00914	0.0079	86	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00953	0.0085	89	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00928	0.0081	87	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00962	0.0084	87	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00965	0.0082	85	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0097	0.0075	77	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0375	0.0321	86	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.038	0.0323	85	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0384	0.0426	111	40-150
754-91-6	PFOSA	0.01	0.0091	91	40-150
31506-32-8	MeFOSA	0.01	0.0082	82	40-150
4151-50-2	EtFOSA	0.01	0.0085	85	40-150
2355-31-9	MeFOSAA	0.01	0.0092	92	40-150
2991-50-6	EtFOSAA	0.01	0.0086	86	40-150
24448-09-7	MeFOSE	0.1	0.0842	84	40-150
1691-99-2	EtFOSE	0.1	0.0848	85	40-150
13252-13-6	HFPO-DA (GenX)	0.04	0.0343	86	40-150
919005-14-4	ADONA	0.0378	0.0337	89	40-150
377-73-1	PFMPA	0.02	0.0176	88	40-150
863090-89-5	PFMBA	0.02	0.0173	87	40-150
151772-58-6	NFDHA	0.02	0.0166	83	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0374	0.0312	83	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0378	0.0316	84	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-LLBS	6Q15067.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0178	0.0144	81	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.05	0.0391	78	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.25	0.224	90	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.25	0.226	90	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	113%	20-150%
	13C5-PFPeA	114%	20-150%
	13C5-PFHxA	113%	20-150%
	13C4-PFHpA	111%	20-150%
	13C8-PFOA	109%	20-150%
	13C9-PFNA	105%	20-150%
	13C6-PFDA	104%	20-150%
	13C7-PFUnDA	117%	20-150%
	13C2-PFDoDA	109%	20-150%
	13C2-PFTeDA	93%	20-150%
	13C3-PFBS	120%	20-150%
	13C3-PFHxS	115%	20-150%
	13C8-PFOS	109%	20-150%
	13C8-FOSA	109%	20-150%
	d3-MeFOSA	87%	20-150%
	d5-EtFOSA	84%	20-150%
	d3-MeFOSAA	106%	20-150%
	d5-EtFOSAA	105%	20-150%
	d7-MeFOSE	98%	20-150%
	d9-EtFOSE	97%	20-150%
	13C2-4:2FTS	128%	20-150%
	13C2-6:2FTS	128%	20-150%
	13C2-8:2FTS	116%	20-150%
	13C3-HFPO-DA	108%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-BS	6Q15066.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0789	79	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0387	77	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0200	80	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0201	80	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0193	77	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0190	76	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0212	85	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0199	80	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0189	76	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0188	75	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0218	87	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0171	77	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0192	82	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0182	80	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0186	78	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0186	80	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0195	81	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0194	80	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0178	73	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0756	81	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0820	86	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0946	99	40-150
754-91-6	PFOSA	0.025	0.0222	89	40-150
31506-32-8	MeFOSA	0.025	0.0223	89	40-150
4151-50-2	EtFOSA	0.025	0.0201	80	40-150
2355-31-9	MeFOSAA	0.025	0.0187	75	40-150
2991-50-6	EtFOSAA	0.025	0.0182	73	40-150
24448-09-7	MeFOSE	0.25	0.194	78	40-150
1691-99-2	EtFOSE	0.25	0.205	82	40-150
13252-13-6	HFPO-DA (GenX)	0.1	0.0789	79	40-150
919005-14-4	ADONA	0.0945	0.0821	87	40-150
377-73-1	PFMPA	0.05	0.0409	82	40-150
863090-89-5	PFMBA	0.05	0.0408	82	40-150
151772-58-6	NFDHA	0.05	0.0400	80	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0935	0.0731	78	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0945	0.0728	77	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-BS	6Q15066.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0363	82	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0890	71	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.529	85	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.555	89	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	85%	20-150%
	13C5-PFPeA	123%	20-150%
	13C5-PFHxA	120%	20-150%
	13C4-PFHpA	123%	20-150%
	13C8-PFOA	123%	20-150%
	13C9-PFNA	122%	20-150%
	13C6-PFDA	119%	20-150%
	13C7-PFUnDA	133%	20-150%
	13C2-PFDoDA	129%	20-150%
	13C2-PFTeDA	109%	20-150%
	13C3-PFBS	124%	20-150%
	13C3-PFHxS	118%	20-150%
	13C8-PFOS	126%	20-150%
	13C8-FOSA	121%	20-150%
	d3-MeFOSA	102%	20-150%
	d5-EtFOSA	104%	20-150%
	d3-MeFOSAA	116%	20-150%
	d5-EtFOSAA	115%	20-150%
	d7-MeFOSE	117%	20-150%
	d9-EtFOSE	117%	20-150%
	13C2-4:2FTS	131%	20-150%
	13C2-6:2FTS	129%	20-150%
	13C2-8:2FTS	123%	20-150%
	13C3-HFPO-DA	117%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-MS	6Q15071.D	1.6	03/21/23	MV	03/16/23	OP95927	S6Q228
FC3427-2	6Q15070.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

CAS No.	Compound	FC3427-2 ug/l	Spike Q	MS ug/l	MS %	Limits	
375-22-4	Perfluorobutanoic acid	0.019 U		0.0909	0.0848	93	40-150
2706-90-3	Perfluoropentanoic acid	0.0038 J		0.0455	0.0459	93	40-150
307-24-4	Perfluorohexanoic acid	0.0011 J		0.0227	0.0233	98	40-150
375-85-9	Perfluoroheptanoic acid	0.0046 U		0.0227	0.0229	101	40-150
335-67-1	Perfluorooctanoic acid	0.0046 U		0.0227	0.0215	95	40-150
375-95-1	Perfluorononanoic acid	0.0046 U		0.0227	0.0193	85	40-150
335-76-2	Perfluorodecanoic acid	0.0046 U		0.0227	0.0211	93	40-150
2058-94-8	Perfluoroundecanoic acid	0.0046 U		0.0227	0.0243	107	40-150
307-55-1	Perfluorododecanoic acid	0.0046 U		0.0227	0.0207	91	40-150
72629-94-8	Perfluorotridecanoic acid	0.0046 U		0.0227	0.0200	88	40-150
376-06-7	Perfluorotetradecanoic acid	0.0046 U		0.0227	0.0223	98	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0046 U		0.0202	0.0182	90	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0046 U		0.0214	0.0197	92	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0046 U		0.0208	0.0185	89	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0046 U		0.0217	0.0217	100	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0046 U		0.0211	0.0187	89	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0046 U		0.0219	0.0174	80	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0046 U		0.0219	0.0174	79	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0046 U		0.022	0.0174	79	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019 U		0.0852	0.0789	93	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U		0.0864	0.0833	96	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U		0.0873	0.0891	102	40-150
754-91-6	PFOSA	0.0046 U		0.0227	0.0223	98	40-150
31506-32-8	MeFOSA	0.0046 U		0.0227	0.0233	103	40-150
4151-50-2	EtFOSA	0.0046 U		0.0227	0.0215	95	40-150
2355-31-9	MeFOSAA	0.0046 U		0.0227	0.0219	96	40-150
2991-50-6	EtFOSAA	0.0046 U		0.0227	0.0214	94	40-150
24448-09-7	MeFOSE	0.046 U		0.227	0.211	93	40-150
1691-99-2	EtFOSE	0.046 U		0.227	0.207	91	40-150
13252-13-6	HFPO-DA (GenX)	0.019 U		0.0909	0.0838	92	40-150
919005-14-4	ADONA	0.019 U		0.0859	0.0880	102	40-150
377-73-1	PFMPA	0.0093 U		0.0455	0.0436	96	40-150
863090-89-5	PFMBA	0.0093 U		0.0455	0.0433	95	40-150
151772-58-6	NFDHA	0.0093 U		0.0455	0.0434	95	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.019 U		0.085	0.0743	87	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.019 U		0.0859	0.0643	75	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-MS	6Q15071.D	1.6	03/21/23	MV	03/16/23	OP95927	S6Q228
FC3427-2	6Q15070.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

CAS No.	Compound	FC3427-2 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0093 U	0.0405	0.0368	91	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.023 U	0.114	0.113	99	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.12 U	0.568	0.561	99	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.12 U	0.568	0.579	102	40-150

CAS No.	ID Standard Recoveries	MS	FC3427-2	Limits
	13C4-PFBA	96%	90%	20-150%
	13C5-PFPeA	104%	107%	20-150%
	13C5-PFHxA	101%	105%	20-150%
	13C4-PFHpA	100%	107%	20-150%
	13C8-PFOA	106%	106%	20-150%
	13C9-PFNA	96%	100%	20-150%
	13C6-PFDA	97%	95%	20-150%
	13C7-PFUnDA	85%	88%	20-150%
	13C2-PFDoDA	80%	72%	20-150%
	13C2-PFTeDA	76%	62%	20-150%
	13C3-PFBS	103%	110%	20-150%
	13C3-PFHxS	100%	104%	20-150%
	13C8-PFOS	98%	86%	20-150%
	13C8-FOSA	99%	92%	20-150%
	d3-MeFOSA	73%	61%	20-150%
	d5-EtFOSA	67%	57%	20-150%
	d3-MeFOSAA	91%	81%	20-150%
	d5-EtFOSAA	82%	81%	20-150%
	d7-MeFOSE	74%	62%	20-150%
	d9-EtFOSE	72%	60%	20-150%
	13C2-4:2FTS	109%	116%	20-150%
	13C2-6:2FTS	113%	117%	20-150%
	13C2-8:2FTS	104%	98%	20-150%
	13C3-HFPO-DA	95%	101%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-DUP	6Q15073.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228
FC3427-3	6Q15072.D	1.2	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

CAS No.	Compound	FC3427-3 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.022 U		ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0037 J		0.0039 J	J	5	30
307-24-4	Perfluorohexanoic acid	0.0012 J		0.0012 J	J	0	30
375-85-9	Perfluoroheptanoic acid	0.0055 U		ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0055 U		ND		nc	30
375-95-1	Perfluorononanoic acid	0.0055 U		ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0055 U		ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0055 U		ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0055 U		ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0055 U		ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0055 U		ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0055 U		ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0055 U		ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0055 U		ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0055 U		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0055 U		ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0055 U		ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0055 U		ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0055 U		ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.022 U		ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.022 U		ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.022 U		ND		nc	30
754-91-6	PFOSA	0.0055 U		ND		nc	30
31506-32-8	MeFOSA	0.0055 U		ND		nc	30
4151-50-2	EtFOSA	0.0055 U		ND		nc	30
2355-31-9	MeFOSAA	0.0055 U		ND		nc	30
2991-50-6	EtFOSAA	0.0055 U		ND		nc	30
24448-09-7	MeFOSE	0.055 U		ND		nc	30
1691-99-2	EtFOSE	0.055 U		ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.022 U		ND		nc	30
919005-14-4	ADONA	0.022 U		ND		nc	30
377-73-1	PFMPA	0.011 U		ND		nc	30
863090-89-5	PFMBA	0.011 U		ND		nc	30
151772-58-6	NFDHA	0.011 U		ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.022 U		ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.022 U		ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP95927-DUP	6Q15073.D	1	03/21/23	MV	03/16/23	OP95927	S6Q228
FC3427-3	6Q15072.D	1.2	03/21/23	MV	03/16/23	OP95927	S6Q228

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC3427-1, FC3427-2, FC3427-3, FC3427-4, FC3427-5

CAS No.	Compound	FC3427-3 ug/l	DUP Q ug/l	Q RPD	Limits
113507-82-7	PFEESA	0.011 U	ND	nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.027 U	ND	nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.14 U	ND	nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.14 U	ND	nc	30

CAS No.	ID Standard Recoveries	DUP	FC3427-3	Limits
	13C4-PFBA	83%	85%	20-150%
	13C5-PFPeA	99%	86%	20-150%
	13C5-PFHxA	99%	85%	20-150%
	13C4-PFHpA	100%	88%	20-150%
	13C8-PFOA	103%	92%	20-150%
	13C9-PFNA	96%	84%	20-150%
	13C6-PFDA	89%	78%	20-150%
	13C7-PFUnDA	80%	69%	20-150%
	13C2-PFDoDA	71%	55%	20-150%
	13C2-PFTeDA	66%	56%	20-150%
	13C3-PFBS	101%	82%	20-150%
	13C3-PFHxS	101%	81%	20-150%
	13C8-PFOS	83%	75%	20-150%
	13C8-FOSA	92%	82%	20-150%
	d3-MeFOSA	64%	62%	20-150%
	d5-EtFOSA	58%	56%	20-150%
	d3-MeFOSAA	87%	70%	20-150%
	d5-EtFOSAA	76%	61%	20-150%
	d7-MeFOSE	63%	60%	20-150%
	d9-EtFOSE	66%	57%	20-150%
	13C2-4:2FTS	112%	86%	20-150%
	13C2-6:2FTS	112%	92%	20-150%
	13C2-8:2FTS	105%	81%	20-150%
	13C3-HFPO-DA	91%	85%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q228-CC225	Injection Date:	03/21/23
Lab File ID:	6Q15064.D	Injection Time:	04:18
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	31481	2.95	30704	5.61	63632	7.19	17102	7.72	18901	8.20
Check Std ^c	36048	2.94	34790	5.58	71295	7.16	20488	7.69	22318	8.17
Upper Limit ^d	62962	3.34	61408	5.98	127264	7.56	34204	8.09	37802	8.57
Lower Limit ^e	9444	2.54	9211	5.18	19090	6.76	5131	7.29	5670	7.77

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
S6Q228-ICCB	35086	2.94	35367	5.57	70360	7.16	20028	7.69	20099	8.17	1
OP95927-BS	32375	2.98	31410	5.58	62386	7.16	17898	7.69	18920	8.17	1
OP95927-LLBS	32376	2.99	29985	5.58	66159	7.18	17238	7.69	19357	8.19	1
OP95927-MB	32668	2.98	31134	5.59	63825	7.18	17551	7.69	18849	8.17	1
FC3427-1	29992	2.98	28651	5.58	58645	7.18	16147	7.71	17754	8.19	1
FC3427-2	33187	2.98	31784	5.58	65912	7.18	17476	7.71	20124	8.17	1
OP95927-MS	56006	2.99	53790	5.58	106131	7.18	32555	7.71	32470	8.17	1.6
FC3427-3	39002	2.98	38288	5.58	75800	7.18	22412	7.71	23672	8.17	1.2
OP95927-DUP	31976	2.99	31515	5.59	64335	7.18	17376	7.71	20155	8.19	1
FC3427-4	34104	2.98	34029	5.59	68913	7.18	19345	7.71	19773	8.19	1
FC3427-5	30730	2.98	29509	5.59	61212	7.18	16239	7.71	18346	8.19	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: S6Q225-ICC225 6Q14853.D 03/15/23 22:28. 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: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q228-CC225	Injection Date:	03/21/23
Lab File ID:	6Q15064.D	Injection Time:	04:18
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5672	7.31	8840	8.36
Check Std ^c	6571	7.29	9533	8.34
Upper Limit ^d	11344	7.69	17680	8.74
Lower Limit ^e	1702	6.89	2652	7.94

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q228-ICCB	6149	7.28	9793	8.34	1
OP95927-BS	5642	7.29	8584	8.34	1
OP95927-LLBS	5380	7.29	8646	8.34	1
OP95927-MB	5449	7.30	8671	8.34	1
FC3427-1	5034	7.30	8147	8.35	1
FC3427-2	5749	7.29	9260	8.35	1
OP95927-MS	9835	7.29	14600	8.35	1.6
FC3427-3	7160	7.30	10352	8.34	1.2
OP95927-DUP	5562	7.30	8994	8.34	1
FC3427-4	5532	7.30	8754	8.35	1
FC3427-5	5358	7.30	8645	8.35	1

IS 6 = 1802-PFHXS
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q225-ICC225 6Q14853.D 03/15/23 22:28. 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

TDCA Retention Time Check

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q225-RT	Injection Date:	03/15/23
Lab File ID:	6Q14847.D	Injection Time:	21:04
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.374	--	--
TDCA	6.899	1.475	1.000
TCDCA	6.738	1.636	1.000
TUDCA	5.887	2.487	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
S6Q225-IC225	6Q14849.D	03/15/23	21:32	00:28	Mass Calibration Verification
S6Q225-IC225	6Q14850.D	03/15/23	21:46	00:42	Initial cal 1
S6Q225-IC225	6Q14851.D	03/15/23	22:00	00:56	Initial cal 2
S6Q225-IC225	6Q14852.D	03/15/23	22:14	01:10	Initial cal 3
S6Q225-ICC225	6Q14853.D	03/15/23	22:28	01:24	Initial cal 4
S6Q225-IC225	6Q14854.D	03/15/23	22:42	01:38	Initial cal 5
S6Q225-IC225	6Q14855.D	03/15/23	22:56	01:52	Initial cal 6
S6Q225-IC225	6Q14856.D	03/15/23	23:10	02:06	Initial cal 7
S6Q225-IC225	6Q14857.D	03/15/23	23:24	02:20	Initial cal 8
S6Q225-IBLK	6Q14858.D	03/15/23	23:38	02:34	Instrument Blank
S6Q225-ICV225	6Q14859.D	03/15/23	23:52	02:48	Initial cal verification 4
S6Q225-ICV225	6Q14860.D	03/16/23	00:06	03:02	Initial cal verification 20
S6Q225-CC225	6Q14861.D	03/16/23	00:20	03:16	Continuing cal 4
S6Q225-ECC225	6Q14862.D	03/16/23	00:33	03:29	Ending cal 1.0

TDCA Retention Time Check

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q228-RT	Injection Date:	03/20/23
Lab File ID:	6Q15013.D	Injection Time:	14:57
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.361	--	--
TDCA	6.874	1.487	1.000
TCDCA	6.725	1.636	1.000
TUDCA	5.862	2.499	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
S6Q228-IBLK	6Q15016.D	03/20/23	17:02	02:05	Instrument Blank
S6Q228-IBLK	6Q15016.D	03/20/23	17:02	02:05	Instrument Blank
S6Q228-CC225	6Q15017.D	03/20/23	17:21	02:24	Continuing cal 4
S6Q228-CC225	6Q15018.D	03/20/23	17:35	02:38	Continuing cal 1.0LL
ZZZZZZ	6Q15019.D	03/20/23	17:49	02:52	(unrelated sample)
FC3313-4	6Q15020.D	03/20/23	18:03	03:06	(used for QC only; not part of job FC3427)
OP95880-MS	6Q15021.D	03/20/23	18:17	03:20	Matrix Spike
OP95880-MSD	6Q15022.D	03/20/23	18:31	03:34	Matrix Spike Duplicate
ZZZZZZ	6Q15024.D	03/20/23	18:59	04:02	(unrelated sample)
ZZZZZZ	6Q15025.D	03/20/23	19:13	04:16	(unrelated sample)
ZZZZZZ	6Q15026.D	03/20/23	19:27	04:30	(unrelated sample)
ZZZZZZ	6Q15027.D	03/20/23	19:41	04:44	(unrelated sample)
S6Q228-CC225	6Q15029.D	03/20/23	20:09	05:12	Continuing cal 4
S6Q228-ICCB	6Q15030.D	03/20/23	20:23	05:26	Continuing Calibration Blank
ZZZZZZ	6Q15031.D	03/20/23	20:37	05:40	(unrelated sample)
ZZZZZZ	6Q15032.D	03/20/23	20:51	05:54	(unrelated sample)
JD61784-3	6Q15033.D	03/20/23	21:05	06:08	(used for QC only; not part of job FC3427)
OP95901-MS	6Q15034.D	03/20/23	21:19	06:22	Matrix Spike
OP95901-MSD	6Q15035.D	03/20/23	21:33	06:36	Matrix Spike Duplicate
ZZZZZZ	6Q15036.D	03/20/23	21:47	06:50	(unrelated sample)
ZZZZZZ	6Q15037.D	03/20/23	22:01	07:04	(unrelated sample)
ZZZZZZ	6Q15038.D	03/20/23	22:15	07:18	(unrelated sample)
ZZZZZZ	6Q15039.D	03/20/23	22:29	07:32	(unrelated sample)
ZZZZZZ	6Q15040.D	03/20/23	22:43	07:46	(unrelated sample)
S6Q228-CC225	6Q15041.D	03/20/23	22:57	08:00	Continuing cal 4
S6Q228-ICCB	6Q15042.D	03/20/23	23:11	08:14	Continuing Calibration Blank
ZZZZZZ	6Q15043.D	03/20/23	23:25	08:28	(unrelated sample)
ZZZZZZ	6Q15044.D	03/20/23	23:39	08:42	(unrelated sample)
ZZZZZZ	6Q15045.D	03/20/23	23:53	08:56	(unrelated sample)
ZZZZZZ	6Q15046.D	03/21/23	00:07	09:10	(unrelated sample)
ZZZZZZ	6Q15047.D	03/21/23	00:21	09:24	(unrelated sample)
ZZZZZZ	6Q15048.D	03/21/23	00:35	09:38	(unrelated sample)
ZZZZZZ	6Q15049.D	03/21/23	00:49	09:52	(unrelated sample)
ZZZZZZ	6Q15050.D	03/21/23	01:03	10:06	(unrelated sample)

TDCA Retention Time Check

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q228-RT	Injection Date:	03/20/23
Lab File ID:	6Q15013.D	Injection Time:	14:57
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q15051.D	03/21/23	01:17	10:20	(unrelated sample)
ZZZZZZ	6Q15052.D	03/21/23	01:31	10:34	(unrelated sample)
S6Q228-CC225	6Q15053.D	03/21/23	01:45	10:48	Continuing cal 4
S6Q228-CC225	6Q15054.D	03/21/23	01:59	11:02	Continuing cal 1.0LL
S6Q228-ICCB	6Q15055.D	03/21/23	02:13	11:16	Continuing Calibration Blank
ZZZZZZ	6Q15056.D	03/21/23	02:27	11:30	(unrelated sample)
ZZZZZZ	6Q15057.D	03/21/23	02:41	11:44	(unrelated sample)
ZZZZZZ	6Q15058.D	03/21/23	02:55	11:58	(unrelated sample)
ZZZZZZ	6Q15059.D	03/21/23	03:09	12:12	(unrelated sample)
JD61633-14	6Q15060.D	03/21/23	03:23	12:26	(used for QC only; not part of job FC3427)
OP95902-MS	6Q15061.D	03/21/23	03:36	12:39	Matrix Spike
OP95902-MSD	6Q15062.D	03/21/23	03:50	12:53	Matrix Spike Duplicate
S6Q228-CC225	6Q15064.D	03/21/23	04:18	13:21	Continuing cal 4
S6Q228-ICCB	6Q15065.D	03/21/23	04:32	13:35	Continuing Calibration Blank
OP95927-BS	6Q15066.D	03/21/23	04:46	13:49	Blank Spike
OP95927-LLBS	6Q15067.D	03/21/23	05:00	14:03	Blank Spike
OP95927-MB	6Q15068.D	03/21/23	05:14	14:17	Method Blank
FC3427-1	6Q15069.D	03/21/23	05:28	14:31	AF-RHMW04-WGN01LF-2303W2
FC3427-2	6Q15070.D	03/21/23	05:42	14:45	AF-RHMW12A-WGN01LF-2303W2
OP95927-MS	6Q15071.D	03/21/23	05:56	14:59	Matrix Spike
FC3427-3	6Q15072.D	03/21/23	06:10	15:13	AF-RHMW12A-WGFD01LF-2303W2
OP95927-DUP	6Q15073.D	03/21/23	06:24	15:27	Duplicate
FC3427-4	6Q15074.D	03/21/23	06:38	15:41	AF-RHMW06-WGN01LF-2303W2
FC3427-5	6Q15075.D	03/21/23	06:52	15:55	AF-RHMW16-WGN01LF-2303W2
S6Q228-CC225	6Q15076.D	03/21/23	07:06	16:09	Continuing cal 4
S6Q228-ICCB	6Q15077.D	03/21/23	07:20	16:23	Continuing Calibration Blank
ZZZZZZ	6Q15078.D	03/21/23	07:34	16:37	(unrelated sample)
ZZZZZZ	6Q15079.D	03/21/23	07:48	16:51	(unrelated sample)
OP95925-BS	6Q15080.D	03/21/23	08:02	17:05	Blank Spike
OP95925-LLBS	6Q15081.D	03/21/23	08:16	17:19	Blank Spike
OP95925-MB	6Q15082.D	03/21/23	08:30	17:33	Method Blank
JD61307-3	6Q15083.D	03/21/23	08:44	17:47	(used for QC only; not part of job FC3427)
OP95925-MS	6Q15084.D	03/21/23	08:58	18:01	Matrix Spike
ZZZZZZ	6Q15085.D	03/21/23	09:12	18:15	(unrelated sample)
S6Q228-CC225	6Q15086.D	03/21/23	09:26	18:29	Continuing cal 4
S6Q228-ICCB	6Q15087.D	03/21/23	09:40	18:43	Continuing Calibration Blank
OP95923-LBS	6Q15088.D	03/21/23	09:54	18:57	Blank Spike
OP95923-LLBS	6Q15089.D	03/21/23	10:08	19:11	Blank Spike
OP95923-LB	6Q15090.D	03/21/23	10:22	19:25	Leachate Blank
JD60842-10AR	6Q15091.D	03/21/23	10:36	19:39	(used for QC only; not part of job FC3427)
OP95923-MS	6Q15092.D	03/21/23	10:50	19:53	Matrix Spike
JD60940-11AR	6Q15093.D	03/21/23	11:04	20:07	(used for QC only; not part of job FC3427)
OP95923-DUP	6Q15094.D	03/21/23	11:18	20:21	Duplicate
ZZZZZZ	6Q15095.D	03/21/23	11:32	20:35	(unrelated sample)

6.6.2
6

TDCA Retention Time Check

Job Number: FC3427
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q228-RT	Injection Date: 03/20/23
Lab File ID: 6Q15013.D	Injection Time: 14:57
Instrument ID: GCMS6Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q228-ECC225	6Q15096.D	03/21/23	11:46	20:49	Ending cal 4
S6Q228-ICCB	6Q15097.D	03/21/23	12:00	21:03	Continuing Calibration Blank

6.6.2

6

Ion Ratio Summary

Job Number: FC3427
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q228	Method: EPA DRAFT 1633
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Lab Sample ID	Lab File ID	Ion Ratios	
		PFPeA	PFHxA
S6Q225-ICC225	6Q14853.D	0	4
FC3427-1	6Q15069.D		
FC3427-2	6Q15070.D	0	4.3
FC3427-3	6Q15072.D	0	6
FC3427-4	6Q15074.D		
FC3427-5	6Q15075.D		

6.7.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC3427
 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
FC3427-1	6Q15069.D	106	104	102	104	105	103	101	86
FC3427-2	6Q15070.D	90	107	105	107	106	100	95	88
FC3427-3	6Q15072.D	85	86	85	88	92	84	78	69
FC3427-4	6Q15074.D	98	93	93	93	94	93	101	103
FC3427-5	6Q15075.D	108	104	104	103	103	107	104	91
OP95927-BS	6Q15066.D	85	123	120	123	123	122	119	133
OP95927-DUP	6Q15073.D	83	99	99	100	103	96	89	80
OP95927-LLBS	6Q15067.D	113	114	113	111	109	105	104	117
OP95927-MB	6Q15068.D	109	108	105	107	106	105	96	88
OP95927-MS	6Q15071.D	96	104	101	100	106	96	97	85
S6Q228-IBLK	6Q15016.D	100	97	95	96	99	104	117	119
S6Q228-ICCB	6Q15065.D	100	98	97	99	100	92	102	108

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%

6.8.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC3427
 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
FC3427-1	6Q15069.D	80	80	110	111	93	98	77	76
FC3427-2	6Q15070.D	72	62	110	104	86	92	61	57
FC3427-3	6Q15072.D	55	56	82	81	75	82	62	56
FC3427-4	6Q15074.D	91	87	103	104	99	96	76	78
FC3427-5	6Q15075.D	84	76	107	105	94	96	75	75
OP95927-BS	6Q15066.D	129	109	124	118	126	121	102	104
OP95927-DUP	6Q15073.D	71	66	101	101	83	92	64	58
OP95927-LLBS	6Q15067.D	109	93	120	115	109	109	87	84
OP95927-MB	6Q15068.D	73	77	110	108	93	93	74	73
OP95927-MS	6Q15071.D	80	76	103	100	98	99	73	67
S6Q228-IBLK	6Q15016.D	112	118	104	102	98	111	106	114
S6Q228-ICCB	6Q15065.D	109	108	101	93	96	100	97	97

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: FC3427
 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
FC3427-1	6Q15069.D	92	84	84	86	114	124	117	98
FC3427-2	6Q15070.D	81	81	62	60	116	117	98	101
FC3427-3	6Q15072.D	70	61	60	57	86	92	81	85
FC3427-4	6Q15074.D	88	93	92	93	114	120	111	85
FC3427-5	6Q15075.D	86	83	85	86	121	114	113	106
OP95927-BS	6Q15066.D	116	115	117	117	131	129	123	117
OP95927-DUP	6Q15073.D	87	76	63	66	112	112	105	91
OP95927-LLBS	6Q15067.D	106	105	98	97	128	128	116	108
OP95927-MB	6Q15068.D	85	78	87	89	121	125	106	104
OP95927-MS	6Q15071.D	91	82	74	72	109	113	104	95
S6Q228-IBLK	6Q15016.D	91	95	118	120	103	97	96	92
S6Q228-ICCB	6Q15065.D	100	98	105	105	109	111	101	95

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

6.8.1

6

Initial Calibration Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q225-ICC225
 Lab FileID: 6Q14853.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods	Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
Method File	D:\MassHunter\Methods	1	D:\MassHunter\Data\031523_1633_S6Q225\6Q14850.d	Avg RF	0.2621	0.2501	0.2622	0.2470	0.2687	0.3020	0.2956	0.2956	0.2729	7.973
Batch Name	D:\MassHunter\Data\031523_1633_S6Q225\QuantResults\s6q225.batch.bin	2	D:\MassHunter\Data\031523_1633_S6Q225\6Q14851.d	Avg RF	0.3331	0.3080	0.3267	0.3127	0.3340	0.3780	0.3665	0.3696	0.3411	7.864
Last Calib Update	3/16/2023 9:45:41 AM	3	D:\MassHunter\Data\031523_1633_S6Q225\6Q14852.d	Avg RF	0.0595	0.0538	0.0578	0.0537	0.0589	0.0647	0.0631	0.0648	0.0595	7.473
		4	D:\MassHunter\Data\031523_1633_S6Q225\6Q14853.d	Avg RF	1.2132	1.1201	1.1535	1.0882	1.1861	1.3073	1.2578	1.1969	1.1904	5.985
		5	D:\MassHunter\Data\031523_1633_S6Q225\6Q14854.d	Avg RF	0.3672	0.3540	0.3683	0.3566	0.3748	0.4230	0.4166	0.4421	0.3878	8.779
		6	D:\MassHunter\Data\031523_1633_S6Q225\6Q14855.d	Avg RF	0.0776	0.0664	0.0637	0.0611	0.0648	0.0726	0.0667	0.0698	0.0678	7.840
		7	D:\MassHunter\Data\031523_1633_S6Q225\6Q14856.d	Avg RF	1.0679	1.0038	0.9930	0.9407	1.0653	1.1282	1.0617	1.1674	1.0535	6.977
		8	D:\MassHunter\Data\031523_1633_S6Q225\6Q14857.d	Avg RF	1.4813	1.4607	1.4332	1.3484	1.4551	1.5983	1.5619	1.5823	1.4902	5.720
				Avg RF	0.2096	0.2089	0.1987	0.1988	0.2085	0.2349	0.2190	0.2224	0.2126	5.777
				Avg RF	0.1113	0.0982	0.0963	0.0994	0.1064	0.1186	0.1196	0.1050	0.1069	8.436
				Avg RF	1.5698	1.4446	1.6498	1.4614	1.6658	1.6816	1.6488	1.7743	1.6120	7.009
				Avg RF	0.9846	1.0188	1.1750	1.1406	1.2009	1.3883	1.2635	1.2952	1.1834	11.503
				Avg RF	0.7317	0.8779	0.7962	0.9045	0.8489	1.0016	1.0151	0.9141	0.8863	10.829
				Avg RF	1.4014	1.4580	1.3991	1.4948	1.5768	1.7509	1.6712	1.6629	1.5519	8.605
				Avg RF	1.1533	0.9763	1.2819	1.1268	1.2212	1.2466	1.2628	1.1982	1.1834	8.367
				Avg RF										

Generated at 9:46 AM on 3/16/2023

Page 1 of 4

Initial Calibration Summary

Job Number: FC3427
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q225-ICC225
 Lab FileID: 6Q14853.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.1817	1.0759	1.0342	0.9240	1.0621	1.1869	1.0968	1.0533	1.0769	7.805
T PFTfDA	Avg RF	0.9998	0.9376	0.8854	0.8260	0.9731	1.0367	0.9333	1.0429	0.9544	7.821
I M2-PFTeDA	Avg RF	1.6209	1.5154	1.5915	1.4121	1.6900	1.6127	1.6067	1.5120	1.5702	5.484
T PFTeDA	Avg RF	0.9707	0.9698	1.0075	0.9213	0.9989	1.0734	1.0548	0.9962	0.9991	4.849
I M8-FOSA	Avg RF	1.0801	1.0094	1.0459	1.0928	1.1429	1.1990	1.1654	1.0734	1.1011	5.765
T FOSA	Avg RF	1.5798	1.4709	1.4814	1.2921	1.4230	1.7072	1.5639	1.5471	1.5082	8.137
I M3-PFBS	Avg RF	1.3718	1.0875	1.1873	1.0702	1.2108	1.4283	1.2957	1.3345	1.2482	10.490
T PFBS	Avg RF	1.1987	1.0915	1.1532	0.9605	1.1272	1.1754	1.1422	1.0656	1.1143	6.771
I M3-PFHxS	Avg RF	1.3991	1.1992	0.9992	0.9950	1.1402	1.2669	1.1529	1.2164	1.1711	11.450
T PFHxS	Avg RF	1.2253	1.2902	1.1161	1.0203	1.1008	1.3164	1.1959	1.1912	1.1820	8.400
I M8-PFOS	Avg RF	0.8502	0.8325	0.8221	0.7628	0.7508	0.8962	0.8515	0.7781	0.8180	6.139
T PFOS	Avg RF	0.4053	0.4972	0.4626	0.4379	0.4277	0.5275	0.4928	0.4884	0.4674	8.822
I M2-4:2FTS	Avg RF	11.80	11.05	12.79	10.07	11.59	12.16	12.05	11.02	11.57	7.258
T 4:2FTS	Avg RF	7.3656	8.1468	7.8248	7.4565	7.5475	7.6055	7.5931	5.8956	7.4294	8.957
I M2-6:2FTS	Avg RF	3.8925	3.1602	3.7441	3.6593	4.4424	4.2831	3.4977	2.7306	3.6762	15.248
T 6:2FTS	Avg RF	0.8794	0.9208	1.0390	1.0266	1.0442	1.1243	1.1816	1.1567	1.0466	10.255
I M2-8:2FTS	Avg RF	1.0886	0.9982	0.9967	0.9713	1.0302	1.1361	1.1509	1.0462	1.0523	6.342
T 8:2FTS	Avg RF	21.07	21.51	21.97	20.44	22.57	22.68	23.19	18.36	21.48	7.207
I M3-MeFOSAA	Avg RF	10.81	10.85	10.96	10.86	11.80	11.84	11.96	10.62	11.21	4.917
T MeFOSAA	Avg RF	5.8519	5.7765	6.0525	5.7001	6.3228	6.3841	6.7800	6.6270	6.1868	6.518
I M3-HFO-DA	Avg RF	1.0056	0.8662	0.8365	0.8396	0.8191	1.0299	0.9434	0.9260	0.9083	8.866
T HFO-DA	Avg RF	1.0378	0.9548	1.0062	0.9937	1.0415	1.1942	1.1538	1.0619	1.0555	7.668
I M7-MeFOSE	Avg RF	0.9821	0.9800	1.0049	0.8831	1.0289	1.0699	1.1140	1.0838	1.0183	7.185
T MeFOSE	Avg RF	0.9821	0.9800	1.0049	0.8831	1.0289	1.0699	1.1140	1.0838	1.0183	7.185

Generated at 9:46 AM on 3/16/2023

Page 2 of 4

Initial Calibration Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q225-ICC225
 Lab FileID: 6Q14853.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.1367	1.1683	1.2411	1.1328	1.1180	1.3144	1.2379	1.2619	1.2014	5.993
T EFOSA	Avg RF					ISTD					
I M3-MeFOSA		1.2463	1.1460	1.2488	1.1746	1.2160	1.2627	1.1795	1.1444	1.2023	3.945
T MeFOSA	Avg RF					ISTD					
I 13C4-PFOS		1.3075	1.2432	1.2616	1.1836	1.1657	1.2510	1.2104	0.9826	1.2007	8.247
S d3-MeFOSAA	Linear					ISTD					
S 13C8-PFOS	Linear	0.8352	0.8124	0.8662	0.8785	0.8146	0.8452	0.8657	0.9809	0.8483	3.013
S d5-EFOSAA	Linear	1.1654	1.0474	1.1658	1.0037	1.0045	1.0193	1.1094	0.9309	1.0558	7.951
S 13C8-FOSA	Linear	1.7791	1.7042	1.7747	1.7621	1.5374	1.7893	1.7327	1.7956	1.7344	4.915
S d7-MeFOSE	Linear	0.2508	0.2495	0.2533	0.2352	0.2213	0.2361	0.2356	0.2424	0.2405	4.428
S d3-MeFOSA	Linear	0.6298	0.6313	0.6328	0.5820	0.5717	0.6629	0.6530	0.7130	0.6346	7.061
S d9-EFOSE	Linear	0.1750	0.1692	0.1774	0.1795	0.1541	0.1749	0.1666	0.1614	0.1698	5.134
S d5-EFOSA	Linear	0.7352	0.6889	0.6949	0.6867	0.6800	0.7205	0.7105	0.6934	0.7013	2.710
I 13C3-PFBA		1.1531	1.1494	1.1580	1.1634	1.1509	1.1542	1.1580	1.0927	1.1475	1.968
S 13C4-PFBA	Linear					ISTD					
I 1802-PFHxS		0.1550	0.1391	0.1357	0.1604	0.1510	0.1498	0.1374	0.1192	0.1434	9.216
S 13C2-4:2FTS	Linear	2.1085	1.9538	2.1400	2.0621	2.1692	2.2347	2.1638	2.2980	2.1413	4.901
S 13C3-PFBS	Linear	0.2007	0.1713	0.1909	0.1825	0.1933	0.1907	0.1807	0.1758	0.1857	5.292
S 13C2-6:2FTS	Linear	1.3863	1.3481	1.3777	1.4864	1.4869	1.3355	1.4229	1.4480	1.4115	4.176
S 13C3-PFHxS	Linear	0.2003	0.2039	0.2036	0.2020	0.1881	0.1756	0.2065	0.2046	0.1981	5.410
S 13C2-8:2FTS	Linear					ISTD					
I 13C4-PFOA		0.8693	0.8388	0.8361	0.8647	0.8644	0.7938	0.8228	0.7869	0.8346	3.814
S 13C8-PFOA	Linear					ISTD					
I 13C2-PFDA		0.7839	0.7616	0.7723	0.7515	0.7586	0.7949	0.7568	0.6274	0.7509	6.930
S 13C6-PFDA	Linear	0.8280	0.8363	0.8196	0.8739	0.8151	0.8361	0.7801	0.6732	0.8078	7.466
S 13C7-PFUnDA	Linear	0.9434	0.9042	1.0167	1.0442	0.9967	1.0294	0.9947	0.8956	0.9781	5.807
S 13C2-PFDODA	Linear	0.5373	0.5335	0.5785	0.5677	0.4443	0.6148	0.5629	0.6240	0.5579	10.066
S 13C2-PFTeDA	Linear					ISTD					
I 13C5-PFNA		1.0581	0.9704	0.9647	0.9128	1.0250	0.9789	0.8708	0.9320	0.9641	6.220
S 13C9-PFNA	Linear					ISTD					
I 13C2-PFHxA		0.5788	0.5628	0.5684	0.5822	0.5710	0.5966	0.5737	0.5882	0.5777	1.917
S 13C5-PPeA	Linear	1.0110	0.9738	1.0372	1.0588	1.0038	1.0634	1.0274	0.9742	1.0187	3.381
S 13C5-PFHxA	Linear	0.1158	0.1056	0.1122	0.1148	0.1079	0.1213	0.1089	0.1170	0.1129	4.665
S 13C3-HPOD-A	Linear	1.0367	1.0096	0.9900	1.0496	0.9770	1.0825	1.0652	0.9706	1.0226	4.107
S 13C4-PFHpA	Linear					ISTD					

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

Initial Calibration Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q225-ICC225
 Lab FileID: 6Q14853.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 = 1.147469 * x	
S 13C5-PFPeA	Linear	y = 0.577710 * x	
S 13C2-4:2FTS	Linear	y = 0.143438 * x	
S 13C3-PFBS	Linear	y = 2.141266 * x	
S 13C5-PFHxA	Linear	y = 1.018727 * x	
S 13C3-HFPO-DA	Linear	y = 0.112945 * x	
S 13C4-PFHpA	Linear	y = 1.022650 * x	
S 13C2-6:2FTS	Linear	y = 0.185742 * x	
S 13C8-PFOA	Linear	y = 0.834600 * x	
S 13C3-PFHxS	Linear	y = 1.411496 * x	
S 13C9-PFNA	Linear	y = 0.964097 * x	
S 13C2-8:2FTS	Linear	y = 0.198059 * x	
S 13C6-PEDA	Linear	y = 0.750865 * x	
S d3-MeFOSAA	Linear	y = 1.200698 * x	
S 13C8-PFOS	Linear	y = 0.848342 * x	
S d5-EFOSAA	Linear	y = 1.055798 * x	
S 13C7-PFUridA	Linear	y = 0.807792 * x	
S 13C2-PFDODA	Linear	y = 0.978105 * x	
S 13C8-FOSA	Linear	y = 1.734378 * x	
S 13C2-PFTeDA	Linear	y = 0.557865 * x	
S d7-MeFOSE	Linear	y = 0.240504 * x	
S d3-MeFOSA	Linear	y = 0.634558 * x	
S d9-EFOSE	Linear	y = 0.169765 * x	
S d5-EFOSA	Linear	y = 0.701268 * x	

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

Initial Calibration Verification

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q225-ICV225
 Lab FileID: 6Q14859.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\031523_1633_S6Q225\s6q225.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\031523_1633_S6Q225\6Q14850.d
 2:D:\MassHunter\Data\031523_1633_S6Q225\6Q14851.d
 3:D:\MassHunter\Data\031523_1633_S6Q225\6Q14852.d
 4:D:\MassHunter\Data\031523_1633_S6Q225\6Q14853.d
 5:D:\MassHunter\Data\031523_1633_S6Q225\6Q14854.d
 6:D:\MassHunter\Data\031523_1633_S6Q225\6Q14855.d
 7:D:\MassHunter\Data\031523_1633_S6Q225\6Q14856.d
 8:D:\MassHunter\Data\031523_1633_S6Q225\6Q14857.d

Data File: 6Q14859
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.270	5.4	105.4
13C2-6:2FTS	5.000	5.234	4.7	104.7
13C2-8:2FTS	5.000	4.526	-9.5	90.5
13C2-PFDoDA	1.250	1.232	-1.4	98.6
13C2-PFTeDA	1.250	1.239	-0.9	99.1
13C3-PFBS	2.500	2.476	-1.0	99.0
13C3-PFHxS	2.500	2.438	-2.5	97.5
13C4-PFBA	10.000	10.121	1.2	101.2
13C4-PFHpA	2.500	2.482	-0.7	99.3
13C5-PFHxA	2.500	2.446	-2.2	97.8
13C5-PFPeA	5.000	4.802	-4.0	96.0
13C6-PFDA	1.250	1.249	-0.1	99.9
13C7-PFUnDA	1.250	1.220	-2.4	97.6
13C8-FOSA	2.500	2.591	3.6	103.6
13C8-PFOA	2.500	2.403	-3.9	96.1
13C8-PFOS	2.500	2.675	7.0	107.0
13C9-PFNA	1.250	1.187	-5.0	95.0
4:2FTS	9.375	9.340	-0.4	99.6
6:2FTS	9.500	9.286	-2.2	97.8
8:2FTS	9.600	11.843	23.4	123.4
d3-MeFOSAA	5.000	5.364	7.3	107.3
EtFOSAA	2.500	2.219	-11.2	88.8
FOSA	2.500	2.528	1.1	101.1
MeFOSAA	2.500	2.452	-1.9	98.1
PFBA	10.000	9.643	-3.6	96.4
PFBS	2.218	2.303	3.8	103.8
PFDA	2.500	2.355	-5.8	94.2
PFDoDA	2.500	2.410	-3.6	96.4
PFDS	2.413	2.368	-1.9	98.1
PFHpA	2.500	2.441	-2.4	97.6
PFHpS	2.383	2.272	-4.7	95.3
PFHxA	2.500	2.517	0.7	100.7
PFHxS	2.285	2.261	-1.0	99.0
PFNA	2.500	2.311	-7.5	92.5
PFNS	2.405	2.394	-0.4	99.6
PFOA	2.500	2.497	-0.1	99.9
PFOS	2.320	2.209	-4.8	95.2

Initial Calibration Verification

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q225-ICV225
 Lab FileID: 6Q14859.D

PFPeA	5.000	4.991	-0.2	99.8
PFPeS	2.353	2.394	1.8	101.8
PFTeDA	2.500	2.378	-4.9	95.1
PFTrDA	2.500	2.677	7.1	107.1
PFUnDA	2.500	2.472	-1.1	98.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	9.450	9.082	-3.9	96.1
13C3-HFPO-DA	10.000	9.961	-0.4	99.6
9C1-PF3ONS	9.350	9.007	-3.7	96.3
ADONA	9.450	9.284	-1.8	98.2
HFPO-DA	10.000	9.754	-2.5	97.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.173	-2.5	97.5
5:3FTCA	62.400	60.728	-2.7	97.3
7:3FTCA	62.400	60.347	-3.3	96.7
d3-MeFOSA	2.500	2.554	2.2	102.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.500	0.0	100.0
EtFOSE	25.000	24.388	-2.4	97.6
MeFOSA	2.500	2.596	3.8	103.8
MeFOSE	25.000	25.127	0.5	100.5
PFDoDS	2.425	2.482	2.4	102.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.754	15.1	115.1
d7-MeFOSE	25.000	26.522	6.1	106.1
d9-EtFOSE	25.000	27.481	9.9	109.9
d5-EtFOSA	2.500	2.624	5.0	105.0
NFDHA	5.000	4.983	-0.3	99.7
PFMBA	5.000	4.863	-2.7	97.3
PFMPA	5.000	4.985	-0.3	99.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.445	-0.1	99.9

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q225-ICV225
 Lab FileID: 6Q14860.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\031523_1633_S6Q225\s6q225.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\031523_1633_S6Q225\6Q14850.d
 2:D:\MassHunter\Data\031523_1633_S6Q225\6Q14851.d
 3:D:\MassHunter\Data\031523_1633_S6Q225\6Q14852.d
 4:D:\MassHunter\Data\031523_1633_S6Q225\6Q14853.d
 5:D:\MassHunter\Data\031523_1633_S6Q225\6Q14854.d
 6:D:\MassHunter\Data\031523_1633_S6Q225\6Q14855.d
 7:D:\MassHunter\Data\031523_1633_S6Q225\6Q14856.d
 8:D:\MassHunter\Data\031523_1633_S6Q225\6Q14857.d

Data File: 6Q14860
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.109	2.2	102.2
13C2-6:2FTS	5.000	5.114	2.3	102.3
13C2-8:2FTS	5.000	4.827	-3.5	96.5
13C2-PFDoDA	1.250	1.108	-11.4	88.6
13C2-PFTeDA	1.250	1.188	-5.0	95.0
13C3-PFBS	2.500	2.521	0.8	100.8
13C3-PFHxS	2.500	2.353	-5.9	94.1
13C4-PFBA	10.000	10.043	0.4	100.4
13C4-PFHpA	2.500	2.616	4.6	104.6
13C5-PFHxA	2.500	2.515	0.6	100.6
13C5-PFPeA	5.000	4.999	0.0	100.0
13C6-PFDA	1.250	1.199	-4.1	95.9
13C7-PFUnDA	1.250	1.137	-9.0	91.0
13C8-FOSA	2.500	2.503	0.1	100.1
13C8-PFOA	2.500	2.459	-1.7	98.3
13C8-PFOS	2.500	2.462	-1.5	98.5
13C9-PFNA	1.250	1.165	-6.8	93.2
4:2FTS	20.000	19.826	-0.9	99.1
6:2FTS	20.000	20.199	1.0	101.0
8:2FTS	20.000	20.953	4.8	104.8
d3-MeFOSAA	5.000	5.001	0.0	100.0
EtFOSAA	20.000	20.419	2.1	102.1
FOSA	20.000	21.232	6.2	106.2
MeFOSAA	20.000	20.106	0.5	100.5
PFBA	20.000	19.588	-2.1	97.9
PFBS	20.000	20.848	4.2	104.2
PFDA	20.000	21.263	6.3	106.3
PFDoDA	20.000	19.553	-2.2	97.8
PFDS	20.000	20.226	1.1	101.1
PFHpA	20.000	19.013	-4.9	95.1
PFHpS	20.000	20.821	4.1	104.1
PFHxA	20.000	21.448	7.2	107.2
PFHxS	20.000	21.326	6.6	106.6
PFNA	20.000	22.414	12.1	112.1
PFNS	20.000	20.754	3.8	103.8
PFOA	20.000	21.001	5.0	105.0
PFOS	20.000	17.696	-11.5	88.5

Initial Calibration Verification

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q225-ICV225
 Lab FileID: 6Q14860.D

PFPeA	20.000	22.080	10.4	110.4
PFPeS	20.000	21.355	6.8	106.8
PFTeDA	20.000	21.947	9.7	109.7
PFTTrDA	20.000	19.330	-3.3	96.7
PFUnDA	20.000	19.986	-0.1	99.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.443	2.2	102.2
13C3-HFPO-DA	10.000	10.952	9.5	109.5
9C1-PF3ONS	20.000	20.404	2.0	102.0
ADONA	20.000	20.494	2.5	102.5
HFPO-DA	20.000	18.202	-9.0	91.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.355	1.8	101.8
5:3FTCA	20.000	21.884	9.4	109.4
7:3FTCA	20.000	20.402	2.0	102.0
d3-MeFOSA	2.500	2.407	-3.7	96.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	19.889	-0.6	99.4
EtFOSE	100.000	97.827	-2.2	97.8
MeFOSA	20.000	20.143	0.7	100.7
MeFOSE	100.000	96.509	-3.5	96.5
PFDoDS	20.000	19.901	-0.5	99.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.765	-4.7	95.3
d7-MeFOSE	25.000	24.161	-3.4	96.6
d9-EtFOSE	25.000	24.681	-1.3	98.7
d5-EtFOSA	2.500	2.462	-1.5	98.5
NFDHA	20.000	20.298	1.5	101.5
PFMBA	20.000	20.939	4.7	104.7
PFMPA	20.000	20.814	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--		
PFEESA	20.000	18.255	-8.7	91.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q228-CC225
 Lab FileID: 6Q15054.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\032023_1633_S6Q228\s6q228.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\031523_1633_S6Q225\6Q14850.d
 2:D:\MassHunter\Data\031523_1633_S6Q225\6Q14851.d
 3:D:\MassHunter\Data\031523_1633_S6Q225\6Q14852.d
 4:D:\MassHunter\Data\031523_1633_S6Q225\6Q14853.d
 5:D:\MassHunter\Data\031523_1633_S6Q225\6Q14854.d
 6:D:\MassHunter\Data\031523_1633_S6Q225\6Q14855.d
 7:D:\MassHunter\Data\031523_1633_S6Q225\6Q14856.d
 8:D:\MassHunter\Data\031523_1633_S6Q225\6Q14857.d

Data File: 6Q15054
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.301	6.0	106.0
13C2-6:2FTS	5.000	5.091	1.8	101.8
13C2-8:2FTS	5.000	5.233	4.7	104.7
13C2-PFDoDA	1.250	1.251	0.1	100.1
13C2-PFTeDA	1.250	1.242	-0.6	99.4
13C3-PFBS	2.500	2.476	-1.0	99.0
13C3-PFHxS	2.500	2.486	-0.6	99.4
13C4-PFBA	10.000	10.096	1.0	101.0
13C4-PFHpA	2.500	2.437	-2.5	97.5
13C5-PFHxA	2.500	2.503	0.1	100.1
13C5-PFPeA	5.000	4.924	-1.5	98.5
13C6-PFDA	1.250	1.236	-1.1	98.9
13C7-PFUnDA	1.250	1.302	4.2	104.2
13C8-FOSA	2.500	2.515	0.6	100.6
13C8-PFOA	2.500	2.543	1.7	101.7
13C8-PFOS	2.500	2.442	-2.3	97.7
13C9-PFNA	1.250	1.218	-2.6	97.4
4:2FTS	0.750	0.714	-4.8	95.2
6:2FTS	0.760	0.808	6.4	106.4
8:2FTS	0.768	0.875	14.0	114.0
d3-MeFOSAA	5.000	4.655	-6.9	93.1
EtFOSAA	0.200	0.191	-4.3	95.7
FOSA	0.200	0.211	5.5	105.5
MeFOSAA	0.200	0.208	4.0	104.0
PFBA	0.800	0.749	-6.4	93.6
PFBS	0.177	0.168	-4.8	95.2
PFDA	0.200	0.176	-12.2	87.8
PFDoDA	0.200	0.197	-1.6	98.4
PFDS	0.193	0.204	5.7	105.7
PFHpA	0.200	0.191	-4.4	95.6
PFHpS	0.191	0.201	5.1	105.1
PFHxA	0.200	0.178	-10.8	89.2
PFHxS	0.183	0.174	-4.9	95.1
PFNA	0.200	0.239	19.3	119.3
PFNS	0.192	0.168	-12.6	87.4
PFOA	0.200	0.234	17.1	117.1
PFOS	0.186	0.189	1.5	101.5

Continuing Calibration Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q228-CC225
 Lab FileID: 6Q15054.D

PFPeA	0.400	0.402	0.5	100.5
PFPeS	0.188	0.160	-15.2	84.8
PFTeDA	0.200	0.210	5.1	105.1
PFTTrDA	0.200	0.205	2.5	102.5
PFUnDA	0.200	0.189	-5.5	94.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.756	0.817	8.1	108.1
13C3-HFPO-DA	10.000	9.209	-7.9	92.1
9C1-PF3ONS	0.748	0.760	1.6	101.6
ADONA	0.756	0.761	0.7	100.7
HFPO-DA	0.800	0.804	0.5	100.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.011	1.3	101.3
5:3FTCA	4.992	5.334	6.8	106.8
7:3FTCA	4.992	5.100	2.2	102.2
d3-MeFOSA	2.500	2.310	-7.6	92.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.200	0.172	-14.0	86.0
EtFOSE	2.000	1.998	-0.1	99.9
MeFOSA	0.200	0.206	3.0	103.0
MeFOSE	2.000	1.991	-0.4	99.6
PFDoDS	0.194	0.195	0.4	100.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.659	-6.8	93.2
d7-MeFOSE	25.000	25.753	3.0	103.0
d9-EtFOSE	25.000	25.854	3.4	103.4
d5-EtFOSA	2.500	2.516	0.6	100.6
NFDHA	0.400	0.348	-13.1	86.9
PFMBA	0.400	0.404	1.1	101.1
PFMPA	0.400	0.395	-1.4	98.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.320	-10.0	90.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q228-CC225
 Lab FileID: 6Q15064.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\032023_1633_S6Q228\s6q228.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\031523_1633_S6Q225\6Q14850.d
 2:D:\MassHunter\Data\031523_1633_S6Q225\6Q14851.d
 3:D:\MassHunter\Data\031523_1633_S6Q225\6Q14852.d
 4:D:\MassHunter\Data\031523_1633_S6Q225\6Q14853.d
 5:D:\MassHunter\Data\031523_1633_S6Q225\6Q14854.d
 6:D:\MassHunter\Data\031523_1633_S6Q225\6Q14855.d
 7:D:\MassHunter\Data\031523_1633_S6Q225\6Q14856.d
 8:D:\MassHunter\Data\031523_1633_S6Q225\6Q14857.d

Data File: 6Q15064
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.895	-2.1	97.9
13C2-6:2FTS	5.000	5.185	3.7	103.7
13C2-8:2FTS	5.000	4.965	-0.7	99.3
13C2-PFDoDA	1.250	1.317	5.3	105.3
13C2-PFTeDA	1.250	1.240	-0.8	99.2
13C3-PFBS	2.500	2.329	-6.8	93.2
13C3-PFHxS	2.500	2.388	-4.5	95.5
13C4-PFBA	10.000	10.004	0.0	100.0
13C4-PFHpA	2.500	2.420	-3.2	96.8
13C5-PFHxA	2.500	2.541	1.7	101.7
13C5-PFPeA	5.000	5.018	0.4	100.4
13C6-PFDA	1.250	1.166	-6.8	93.2
13C7-PFUnDA	1.250	1.245	-0.4	99.6
13C8-FOSA	2.500	2.632	5.3	105.3
13C8-PFOA	2.500	2.466	-1.4	98.6
13C8-PFOS	2.500	2.544	1.8	101.8
13C9-PFNA	1.250	1.234	-1.3	98.7
4:2FTS	9.375	9.654	3.0	103.0
6:2FTS	9.500	10.008	5.4	105.4
8:2FTS	9.600	11.414	18.9	118.9
d3-MeFOSAA	5.000	5.176	3.5	103.5
EtFOSAA	2.500	2.504	0.2	100.2
FOSA	2.500	2.459	-1.6	98.4
MeFOSAA	2.500	2.467	-1.3	98.7
PFBA	10.000	9.859	-1.4	98.6
PFBS	2.218	2.185	-1.5	98.5
PFDA	2.500	2.583	3.3	103.3
PFDoDA	2.500	2.195	-12.2	87.8
PFDS	2.413	2.394	-0.8	99.2
PFHpA	2.500	2.394	-4.2	95.8
PFHpS	2.383	2.503	5.0	105.0
PFHxA	2.500	2.331	-6.7	93.3
PFHxS	2.285	2.165	-5.3	94.7
PFNA	2.500	2.491	-0.4	99.6
PFNS	2.405	2.350	-2.3	97.7
PFOA	2.500	2.496	-0.2	99.8
PFOS	2.320	2.351	1.3	101.3

Continuing Calibration Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q228-CC225
 Lab FileID: 6Q15064.D

PFPeA	5.000	4.911	-1.8	98.2
PFPeS	2.353	2.323	-1.3	98.7
PFTeDA	2.500	2.485	-0.6	99.4
PFTTrDA	2.500	2.382	-4.7	95.3
PFUnDA	2.500	2.575	3.0	103.0
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	9.450	9.971	5.5	105.5
13C3-HFPO-DA	10.000	9.314	-6.9	93.1
9C1-PF3ONS	9.350	9.811	4.9	104.9
ADONA	9.450	9.931	5.1	105.1
HFPO-DA	10.000	9.831	-1.7	98.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	13.253	6.2	106.2
5:3FTCA	62.400	65.466	4.9	104.9
7:3FTCA	62.400	63.974	2.5	102.5
d3-MeFOSA	2.500	2.472	-1.1	98.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.525	1.0	101.0
EtFOSE	25.000	25.758	3.0	103.0
MeFOSA	2.500	2.546	1.9	101.9
MeFOSE	25.000	25.211	0.8	100.8
PFDoDS	2.425	2.286	-5.7	94.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.755	-4.9	95.1
d7-MeFOSE	25.000	26.670	6.7	106.7
d9-EtFOSE	25.000	26.845	7.4	107.4
d5-EtFOSA	2.500	2.467	-1.3	98.7
NFDHA	5.000	5.019	0.4	100.4
PFMBA	5.000	5.022	0.4	100.4
PFMPA	5.000	5.127	2.5	102.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	3.969	-10.8	89.2

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q228-CC225
 Lab FileID: 6Q15076.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\032023_1633_S6Q228\s6q228.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\031523_1633_S6Q225\6Q14850.d
 2:D:\MassHunter\Data\031523_1633_S6Q225\6Q14851.d
 3:D:\MassHunter\Data\031523_1633_S6Q225\6Q14852.d
 4:D:\MassHunter\Data\031523_1633_S6Q225\6Q14853.d
 5:D:\MassHunter\Data\031523_1633_S6Q225\6Q14854.d
 6:D:\MassHunter\Data\031523_1633_S6Q225\6Q14855.d
 7:D:\MassHunter\Data\031523_1633_S6Q225\6Q14856.d
 8:D:\MassHunter\Data\031523_1633_S6Q225\6Q14857.d

Data File: 6Q15076
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.649	13.0	113.0
13C2-6:2FTS	5.000	5.567	11.3	111.3
13C2-8:2FTS	5.000	5.501	10.0	110.0
13C2-PFDoDA	1.250	1.294	3.5	103.5
13C2-PFTeDA	1.250	1.258	0.6	100.6
13C3-PFBS	2.500	2.510	0.4	100.4
13C3-PFHxS	2.500	2.473	-1.1	98.9
13C4-PFBA	10.000	10.110	1.1	101.1
13C4-PFHpA	2.500	2.571	2.8	102.8
13C5-PFHxA	2.500	2.609	4.4	104.4
13C5-PFPeA	5.000	5.067	1.3	101.3
13C6-PFDA	1.250	1.180	-5.6	94.4
13C7-PFUnDA	1.250	1.298	3.9	103.9
13C8-FOSA	2.500	2.552	2.1	102.1
13C8-PFOA	2.500	2.534	1.4	101.4
13C8-PFOS	2.500	2.401	-3.9	96.1
13C9-PFNA	1.250	1.309	4.7	104.7
4:2FTS	9.375	9.108	-2.9	97.1
6:2FTS	9.500	9.654	1.6	101.6
8:2FTS	9.600	10.300	7.3	107.3
d3-MeFOSAA	5.000	4.902	-2.0	98.0
EtFOSAA	2.500	2.264	-9.5	90.5
FOSA	2.500	2.420	-3.2	96.8
MeFOSAA	2.500	2.402	-3.9	96.1
PFBA	10.000	9.768	-2.3	97.7
PFBS	2.218	2.062	-7.0	93.0
PFDA	2.500	2.671	6.8	106.8
PFDoDA	2.500	2.490	-0.4	99.6
PFDS	2.413	2.346	-2.8	97.2
PFHpA	2.500	2.403	-3.9	96.1
PFHpS	2.383	2.250	-5.6	94.4
PFHxA	2.500	2.345	-6.2	93.8
PFHxS	2.285	2.390	4.6	104.6
PFNA	2.500	2.289	-8.5	91.5
PFNS	2.405	2.345	-2.5	97.5
PFOA	2.500	2.450	-2.0	98.0
PFOS	2.320	2.238	-3.5	96.5

Continuing Calibration Summary

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q228-CC225
 Lab FileID: 6Q15076.D

PFPeA	5.000	4.903	-1.9	98.1
PFPeS	2.353	2.375	1.0	101.0
PFTeDA	2.500	2.724	9.0	109.0
PFTrDA	2.500	2.542	1.7	101.7
PFUnDA	2.500	2.481	-0.7	99.3
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11Cl-PF3OUdS	9.450	9.232	-2.3	97.7
13C3-HFPO-DA	10.000	9.957	-0.4	99.6
9Cl-PF3ONS	9.350	9.409	0.6	100.6
ADONA	9.450	9.651	2.1	102.1
HFPO-DA	10.000	9.339	-6.6	93.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	13.086	4.9	104.9
5:3FTCA	62.400	64.175	2.8	102.8
7:3FTCA	62.400	68.235	9.4	109.4
d3-MeFOSA	2.500	2.402	-3.9	96.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	2.500	2.512	0.5	100.5
EtFOSE	25.000	25.399	1.6	101.6
MeFOSA	2.500	2.476	-1.0	99.0
MeFOSE	25.000	24.154	-3.4	96.6
PFDoDS	2.425	2.351	-3.1	96.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.768	-4.6	95.4
d7-MeFOSE	25.000	25.876	3.5	103.5
d9-EtFOSE	25.000	25.047	0.2	100.2
d5-EtFOSA	2.500	2.389	-4.4	95.6
NFDHA	5.000	5.110	2.2	102.2
PFMBA	5.000	5.082	1.6	101.6
PFMPA	5.000	5.033	0.7	100.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.195	-5.7	94.3

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q225	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
S6Q225-RT	6Q14847.D	03/15/23 21:04	n/a	Retention Time Marker
S6Q225-RT	6Q14848.D	03/15/23 21:18	n/a	Retention Time Marker
S6Q225-IC225	6Q14849.D	03/15/23 21:32	n/a	Mass Calibration Verification
S6Q225-IC225	6Q14850.D	03/15/23 21:46	n/a	Initial cal 1
S6Q225-IC225	6Q14851.D	03/15/23 22:00	n/a	Initial cal 2
S6Q225-IC225	6Q14852.D	03/15/23 22:14	n/a	Initial cal 3
S6Q225-ICC225	6Q14853.D	03/15/23 22:28	n/a	Initial cal 4
S6Q225-IC225	6Q14854.D	03/15/23 22:42	n/a	Initial cal 5
S6Q225-IC225	6Q14855.D	03/15/23 22:56	n/a	Initial cal 6
S6Q225-IC225	6Q14856.D	03/15/23 23:10	n/a	Initial cal 7
S6Q225-IC225	6Q14857.D	03/15/23 23:24	n/a	Initial cal 8
S6Q225-IBLK	6Q14858.D	03/15/23 23:38	n/a	Instrument Blank
S6Q225-ICV225	6Q14859.D	03/15/23 23:52	n/a	Initial cal verification 4
S6Q225-ICV225	6Q14860.D	03/16/23 00:06	n/a	Initial cal verification 20
S6Q225-CC225	6Q14861.D	03/16/23 00:20	n/a	Continuing cal 4
S6Q225-ECC225	6Q14862.D	03/16/23 00:33	n/a	Ending cal 1.0

Run Sequence Report

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q228	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q228-RT	6Q15013.D	03/20/23 14:57	n/a	Retention Time Marker
S6Q228-RT	6Q15014.D	03/20/23 15:11	n/a	Retention Time Marker
S6Q228-IBLK	6Q15016.D	03/20/23 17:02	n/a	Instrument Blank
S6Q228-IBLK	6Q15016.D	03/20/23 17:02	n/a	Instrument Blank
S6Q228-CC225	6Q15017.D	03/20/23 17:21	n/a	Continuing cal 4
S6Q228-CC225	6Q15018.D	03/20/23 17:35	n/a	Continuing cal 1.0LL
ZZZZZZ	6Q15019.D	03/20/23 17:49	OP95880	(unrelated sample)
FC3313-4	6Q15020.D	03/20/23 18:03	OP95880	(used for QC only; not part of job FC3427)
OP95880-MS	6Q15021.D	03/20/23 18:17	OP95880	Matrix Spike
OP95880-MSD	6Q15022.D	03/20/23 18:31	OP95880	Matrix Spike Duplicate
ZZZZZZ	6Q15024.D	03/20/23 18:59	OP95880	(unrelated sample)
ZZZZZZ	6Q15025.D	03/20/23 19:13	OP95880	(unrelated sample)
ZZZZZZ	6Q15026.D	03/20/23 19:27	OP95880	(unrelated sample)
ZZZZZZ	6Q15027.D	03/20/23 19:41	OP95880	(unrelated sample)
S6Q228-CC225	6Q15029.D	03/20/23 20:09	n/a	Continuing cal 4
S6Q228-ICCB	6Q15030.D	03/20/23 20:23	n/a	Continuing Calibration Blank
ZZZZZZ	6Q15031.D	03/20/23 20:37	OP95880	(unrelated sample)
ZZZZZZ	6Q15032.D	03/20/23 20:51	OP95901	(unrelated sample)
JD61784-3	6Q15033.D	03/20/23 21:05	OP95901	(used for QC only; not part of job FC3427)
OP95901-MS	6Q15034.D	03/20/23 21:19	OP95901	Matrix Spike
OP95901-MSD	6Q15035.D	03/20/23 21:33	OP95901	Matrix Spike Duplicate
ZZZZZZ	6Q15036.D	03/20/23 21:47	OP95901	(unrelated sample)
ZZZZZZ	6Q15037.D	03/20/23 22:01	OP95901	(unrelated sample)
ZZZZZZ	6Q15038.D	03/20/23 22:15	OP95901	(unrelated sample)
ZZZZZZ	6Q15039.D	03/20/23 22:29	OP95901	(unrelated sample)
ZZZZZZ	6Q15040.D	03/20/23 22:43	OP95901	(unrelated sample)
S6Q228-CC225	6Q15041.D	03/20/23 22:57	n/a	Continuing cal 4
S6Q228-ICCB	6Q15042.D	03/20/23 23:11	n/a	Continuing Calibration Blank
ZZZZZZ	6Q15043.D	03/20/23 23:25	OP95901	(unrelated sample)
ZZZZZZ	6Q15044.D	03/20/23 23:39	OP95901	(unrelated sample)
ZZZZZZ	6Q15045.D	03/20/23 23:53	OP95901	(unrelated sample)
ZZZZZZ	6Q15046.D	03/21/23 00:07	OP95901	(unrelated sample)
ZZZZZZ	6Q15047.D	03/21/23 00:21	OP95902	(unrelated sample)
ZZZZZZ	6Q15048.D	03/21/23 00:35	OP95902	(unrelated sample)
ZZZZZZ	6Q15049.D	03/21/23 00:49	OP95902	(unrelated sample)
ZZZZZZ	6Q15050.D	03/21/23 01:03	OP95902	(unrelated sample)
ZZZZZZ	6Q15051.D	03/21/23 01:17	OP95902	(unrelated sample)
ZZZZZZ	6Q15052.D	03/21/23 01:31	OP95902	(unrelated sample)
S6Q228-CC225	6Q15053.D	03/21/23 01:45	n/a	Continuing cal 4
S6Q228-CC225	6Q15054.D	03/21/23 01:59	n/a	Continuing cal 1.0LL
S6Q228-ICCB	6Q15055.D	03/21/23 02:13	n/a	Continuing Calibration Blank
ZZZZZZ	6Q15056.D	03/21/23 02:27	OP95902	(unrelated sample)
ZZZZZZ	6Q15057.D	03/21/23 02:41	OP95902	(unrelated sample)
ZZZZZZ	6Q15058.D	03/21/23 02:55	OP95902	(unrelated sample)
ZZZZZZ	6Q15059.D	03/21/23 03:09	OP95902	(unrelated sample)
JD61633-14	6Q15060.D	03/21/23 03:23	OP95902	(used for QC only; not part of job FC3427)

Run Sequence Report

Job Number: FC3427
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q228	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
OP95902-MS	6Q15061.D	03/21/23 03:36	OP95902	Matrix Spike
OP95902-MSD	6Q15062.D	03/21/23 03:50	OP95902	Matrix Spike Duplicate
S6Q228-CC225	6Q15064.D	03/21/23 04:18	n/a	Continuing cal 4
S6Q228-ICCB	6Q15065.D	03/21/23 04:32	n/a	Continuing Calibration Blank
OP95927-BS	6Q15066.D	03/21/23 04:46	OP95927	Blank Spike
OP95927-LLBS	6Q15067.D	03/21/23 05:00	OP95927	Blank Spike
OP95927-MB	6Q15068.D	03/21/23 05:14	OP95927	Method Blank
FC3427-1	6Q15069.D	03/21/23 05:28	OP95927	AF-RHMW04-WGN01LF-2303W2
FC3427-2	6Q15070.D	03/21/23 05:42	OP95927	AF-RHMW12A-WGN01LF-2303W2
OP95927-MS	6Q15071.D	03/21/23 05:56	OP95927	Matrix Spike
FC3427-3	6Q15072.D	03/21/23 06:10	OP95927	AF-RHMW12A-WGFD01LF-2303W2
OP95927-DUP	6Q15073.D	03/21/23 06:24	OP95927	Duplicate
FC3427-4	6Q15074.D	03/21/23 06:38	OP95927	AF-RHMW06-WGN01LF-2303W2
FC3427-5	6Q15075.D	03/21/23 06:52	OP95927	AF-RHMW16-WGN01LF-2303W2
S6Q228-CC225	6Q15076.D	03/21/23 07:06	n/a	Continuing cal 4
S6Q228-ICCB	6Q15077.D	03/21/23 07:20	n/a	Continuing Calibration Blank
ZZZZZZ	6Q15078.D	03/21/23 07:34	OP95927	(unrelated sample)
ZZZZZZ	6Q15079.D	03/21/23 07:48	OP95927	(unrelated sample)
OP95925-BS	6Q15080.D	03/21/23 08:02	OP95925	Blank Spike
OP95925-LLBS	6Q15081.D	03/21/23 08:16	OP95925	Blank Spike
OP95925-MB	6Q15082.D	03/21/23 08:30	OP95925	Method Blank
JD61307-3	6Q15083.D	03/21/23 08:44	OP95925	(used for QC only; not part of job FC3427)
OP95925-MS	6Q15084.D	03/21/23 08:58	OP95925	Matrix Spike
ZZZZZZ	6Q15085.D	03/21/23 09:12	OP95925	(unrelated sample)
S6Q228-CC225	6Q15086.D	03/21/23 09:26	n/a	Continuing cal 4
S6Q228-ICCB	6Q15087.D	03/21/23 09:40	n/a	Continuing Calibration Blank
OP95923-LBS	6Q15088.D	03/21/23 09:54	OP95923	Blank Spike
OP95923-LLBS	6Q15089.D	03/21/23 10:08	OP95923	Blank Spike
OP95923-LB	6Q15090.D	03/21/23 10:22	OP95923	Leachate Blank
JD60842-10AR	6Q15091.D	03/21/23 10:36	OP95923	(used for QC only; not part of job FC3427)
OP95923-MS	6Q15092.D	03/21/23 10:50	OP95923	Matrix Spike
JD60940-11AR	6Q15093.D	03/21/23 11:04	OP95923	(used for QC only; not part of job FC3427)
OP95923-DUP	6Q15094.D	03/21/23 11:18	OP95923	Duplicate
ZZZZZZ	6Q15095.D	03/21/23 11:32	OP95923	(unrelated sample)
S6Q228-ECC225	6Q15096.D	03/21/23 11:46	n/a	Ending cal 4
S6Q228-ICCB	6Q15097.D	03/21/23 12:00	n/a	Continuing Calibration Blank

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15069.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 5:28:51 AM
 Sample Name : FC3427-1
 Vial : P2-E6
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,560,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	73161	10.00 µg/L	0.025
M5-PFPeA	4.382	268.3 -> 223.0	34452	5.00 µg/L	-0.012
M5-PFHxA	5.580	318.0 -> 273.0	29851	2.50 µg/L	-0.025
M4-PFHpA	6.532	367.1 -> 322.0	30394	2.50 µg/L	-0.012
M8-PFOA	7.187	421.1 -> 376.0	51150	2.50 µg/L	0.000
M9-PFNA	7.706	472.1 -> 427.0	15996	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	13469	1.25 µg/L	-0.012
M7-PFUnDA	8.627	570.0 -> 525.1	12275	1.25 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	13942	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	7946	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	13908	2.50 µg/L	-0.025
M3-PFBS	5.523	302.1 -> 79.9	11879	2.50 µg/L	-0.025
M3-PFHxS	7.302	402.1 -> 79.9	7885	2.50 µg/L	0.000
M8-PFOS	8.347	507.1 -> 79.9	6458	2.50 µg/L	-0.013
M2-4:2FTS	5.256	329.1 -> 80.9	1645	5.00 µg/L	-0.025
M2-6:2FTS	6.949	429.1 -> 80.9	2315	5.00 µg/L	-0.012
M2-8:2FTS	7.973	529.1 -> 80.9	2324	5.00 µg/L	-0.012
M3-MeFOSAA	8.231	573.2 -> 419.0	18030	5.00 µg/L	-0.012
M3-HFPO-DA	5.958	286.9 -> 168.9	12692	10.00 µg/L	-0.025
M5-EtFOSAA	8.438	589.2 -> 419.0	14383	5.00 µg/L	-0.012
M7-MeFOSE	10.656	623.2 -> 58.9	16514	25.00 µg/L	-0.025
M9-EtFOSE	10.901	639.2 -> 58.9	11928	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	4331	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	4006	2.50 µg/L	-0.012
13C4-PFOS	8.348	502.8 -> 79.9	8147	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	29992	5.00 µg/L	0.025
18O2-PFHxS	7.301	403.0 -> 83.9	5034	2.50 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	58645	2.50 µg/L	-0.012
13C2-PFDA	8.185	515.1 -> 470.1	17754	1.25 µg/L	-0.012
13C5-PFNA	7.706	468.0 -> 423.0	16147	1.25 µg/L	-0.012
13C2-PFHxA	5.581	315.1 -> 270.0	28651	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1645	5.70 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2315	6.19 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.8%		
13C2-8:2FTS	7.973	529.1 -> 80.9	2324	5.83 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.5%		
13C2-PFDoDA	9.057	615.1 -> 570.0	13942	1.00 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.3%		
13C2-PFTeDA	9.772	715.2 -> 670.0	7946	1.00 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.2%		
13C3-PFBS	5.523	302.1 -> 79.9	11879	2.76 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C3-PFHxS	7.302	402.1 -> 79.9	7885	2.77 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 = 111.0%	
13C4-PFBA	2.972	216.8 -> 171.9	73161	10.63 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C4-PFHpA	6.532	367.1 -> 322.0	30394	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFHxA	5.580	318.0 -> 273.0	29851	2.56 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFPeA	4.382	268.3 -> 223.0	34452	5.20 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C6-PFDA	8.185	519.1 -> 474.1	13469	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C7-PFUnDA	8.627	570.0 -> 525.1	12275	1.07 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 85.6%	
13C8-FOSA	9.645	506.1 -> 77.8	13908	2.46 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOA	7.187	421.1 -> 376.0	51150	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-PFOS	8.347	507.1 -> 79.9	6458	2.34 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C9-PFNA	7.706	472.1 -> 427.0	15996	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSAA	8.231	573.2 -> 419.0	18030	4.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C3-HFPO-DA	5.958	286.9 -> 168.9	12692	9.80 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSA	10.746	515.0 -> 219.0	4006	1.94 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.5%	
d5-EtFOSAA	8.438	589.2 -> 419.0	14383	4.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 83.6%	
d7-MeFOSE	10.656	623.2 -> 58.9	16514	21.07 µg/L	-0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 84.3%	
d9-EtFOSE	10.901	639.2 -> 58.9	11928	21.56 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.2%	
d5-EtFOSA	10.979	531.1 -> 219.0	4331	1.90 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.8%	

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	8.766	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	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	9.235	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.1
7

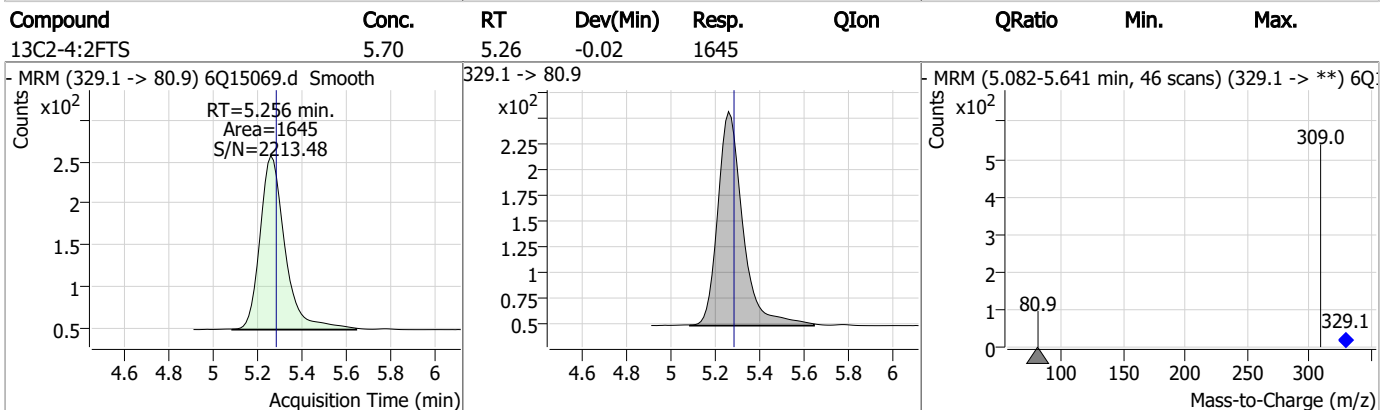
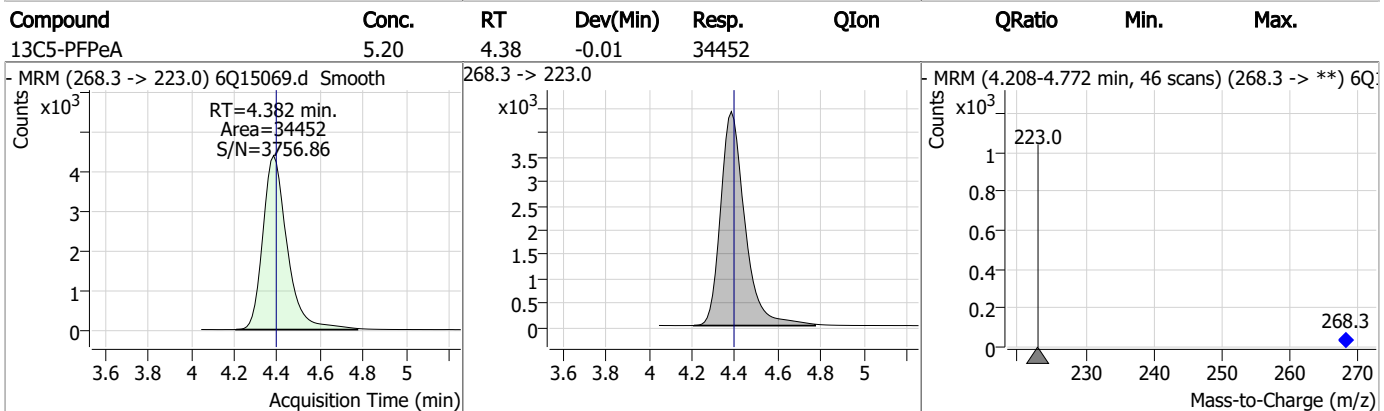
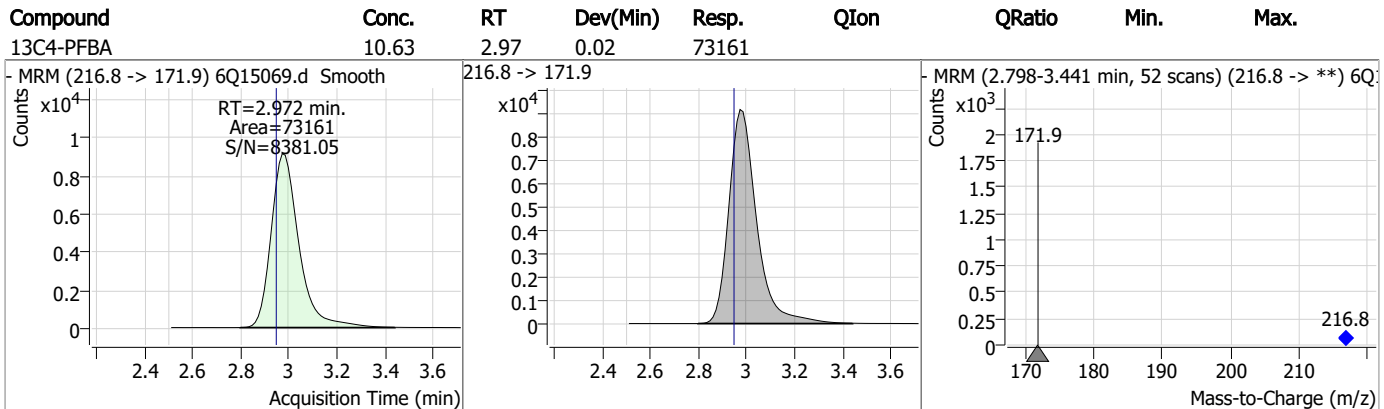
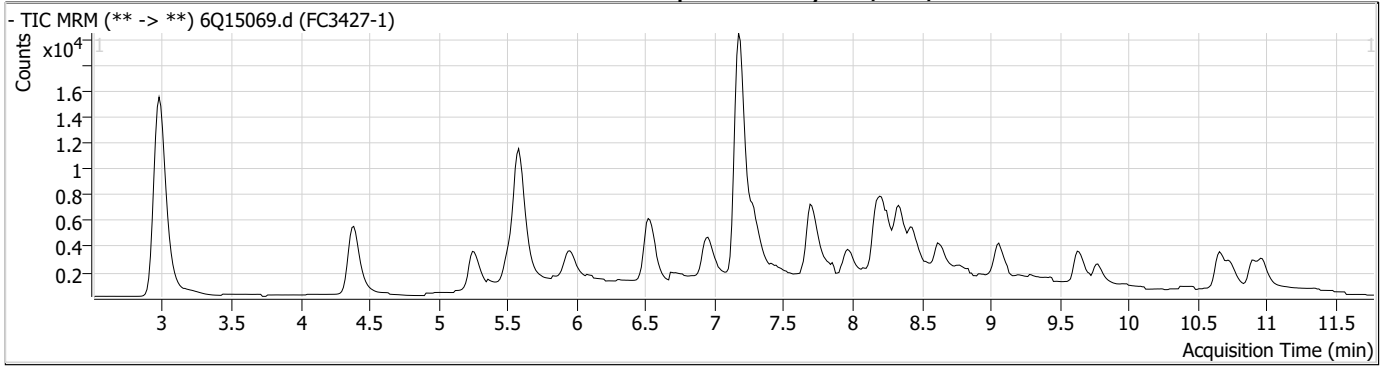
Perfluorinated Compounds by LC/MS/MS

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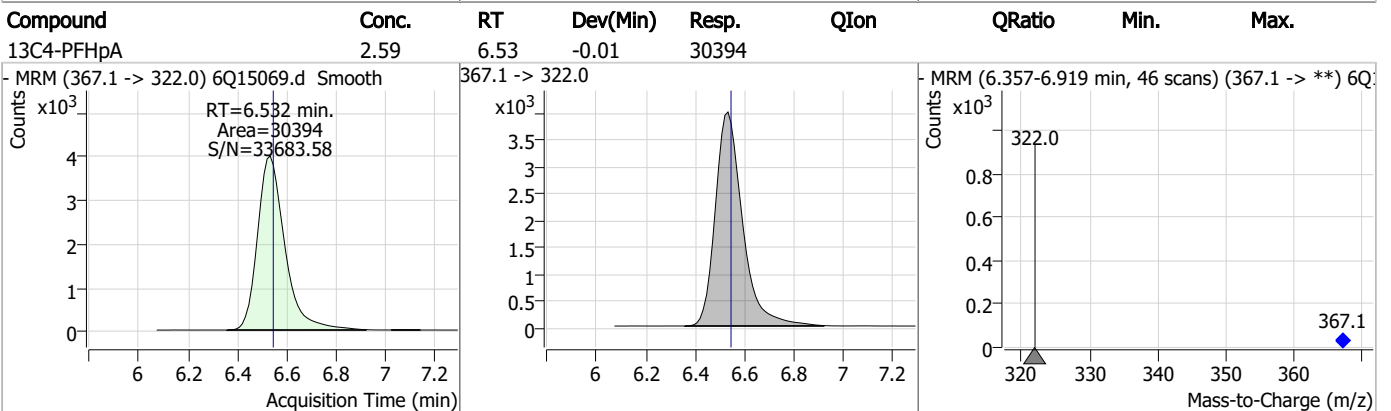
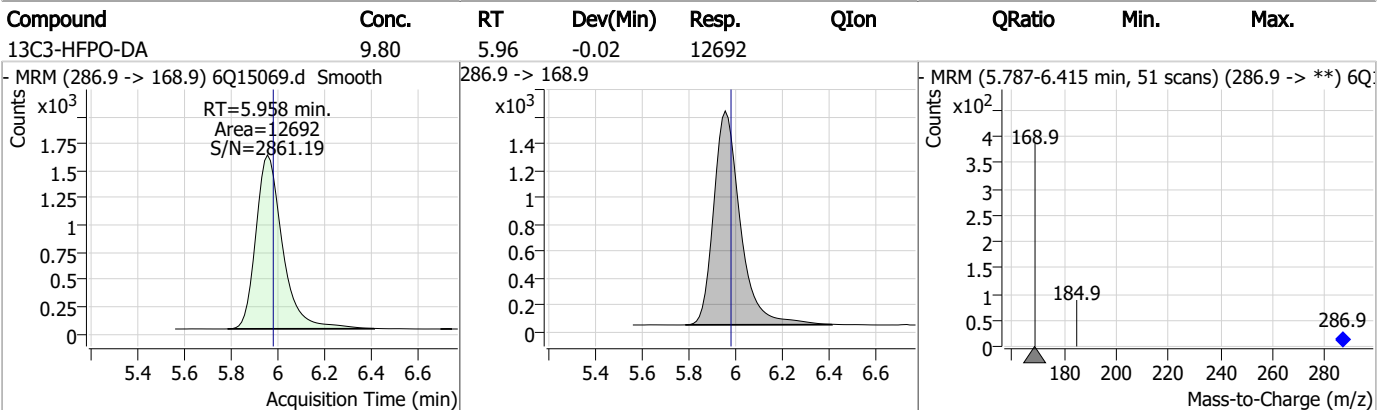
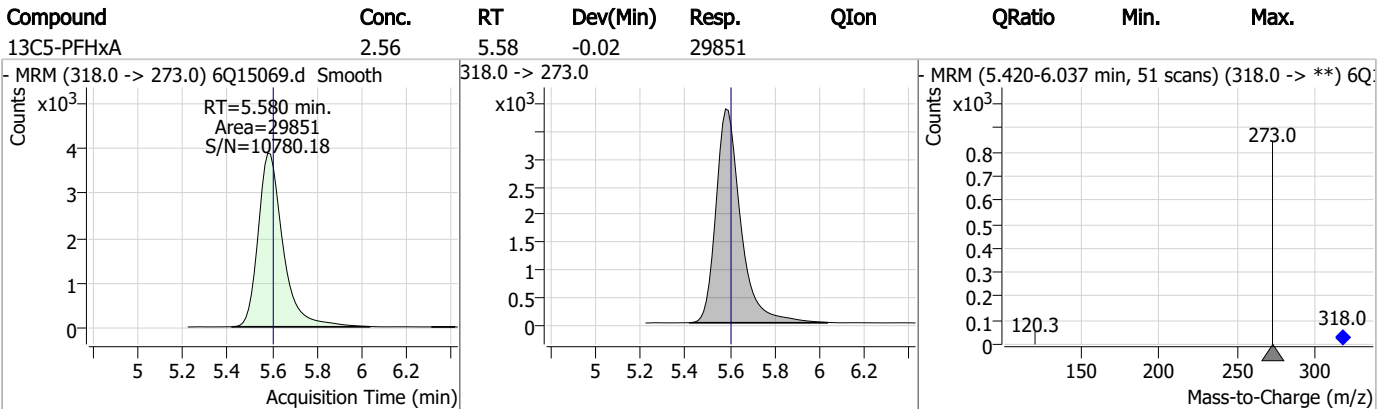
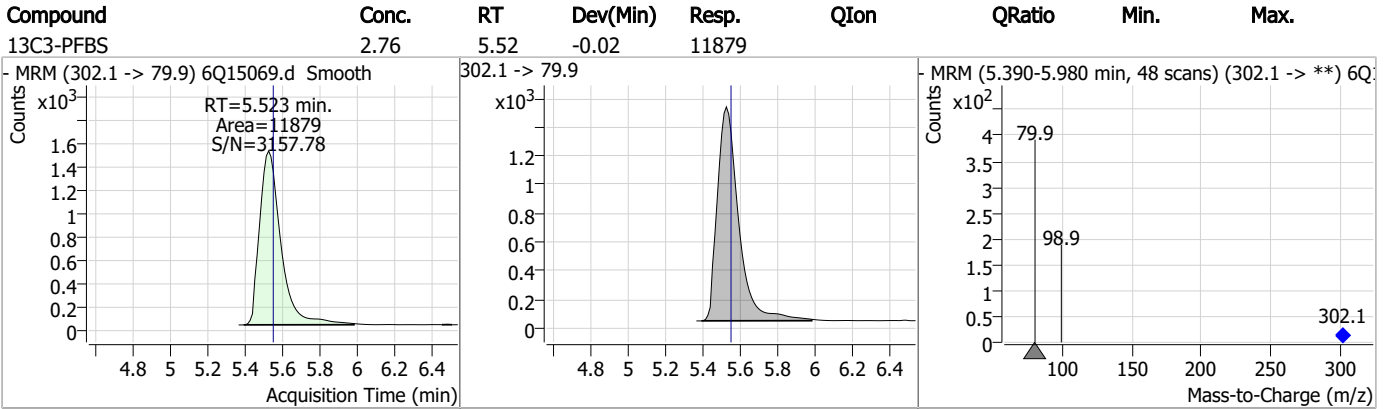
7.1.1
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Perfluorinated Compounds by LC/MS/MS

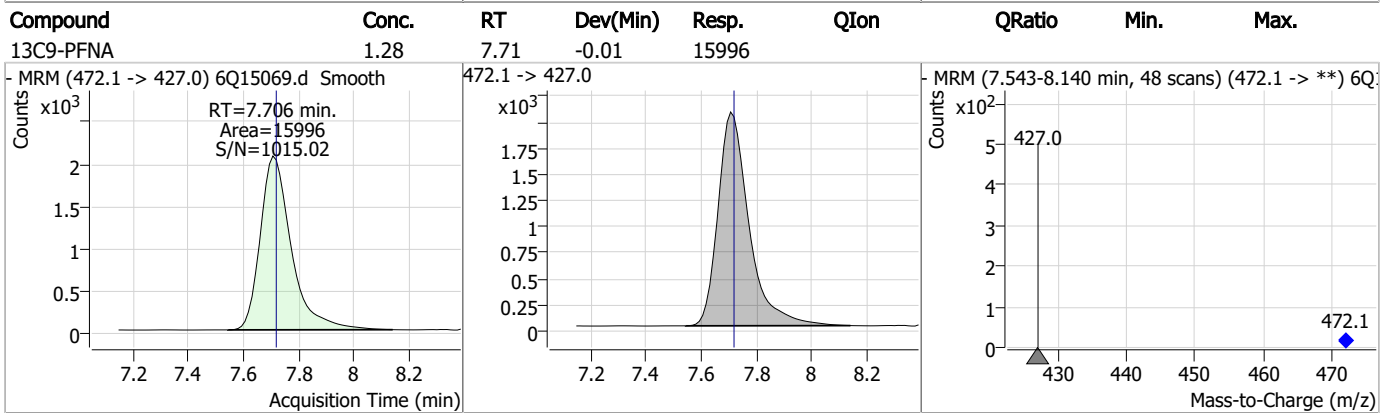
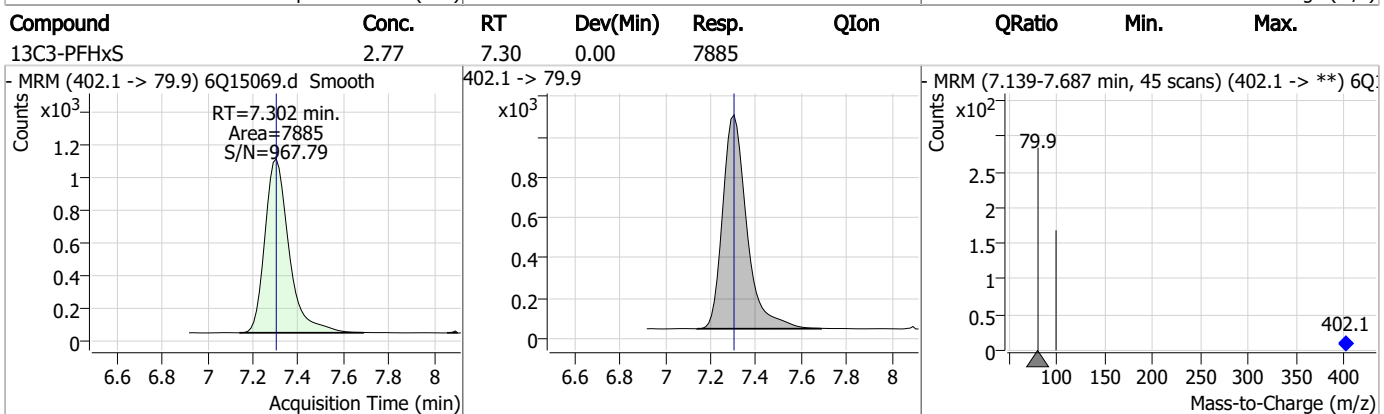
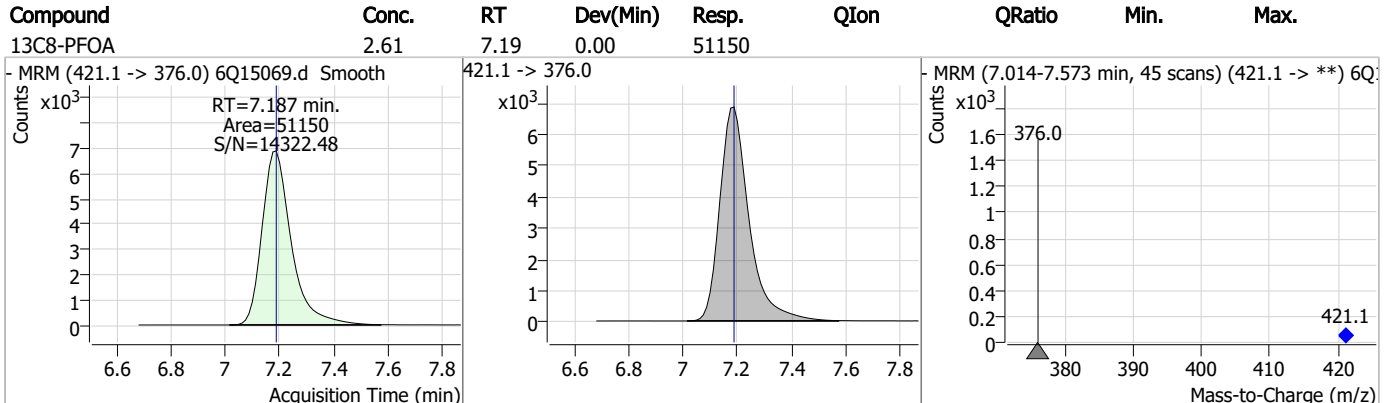
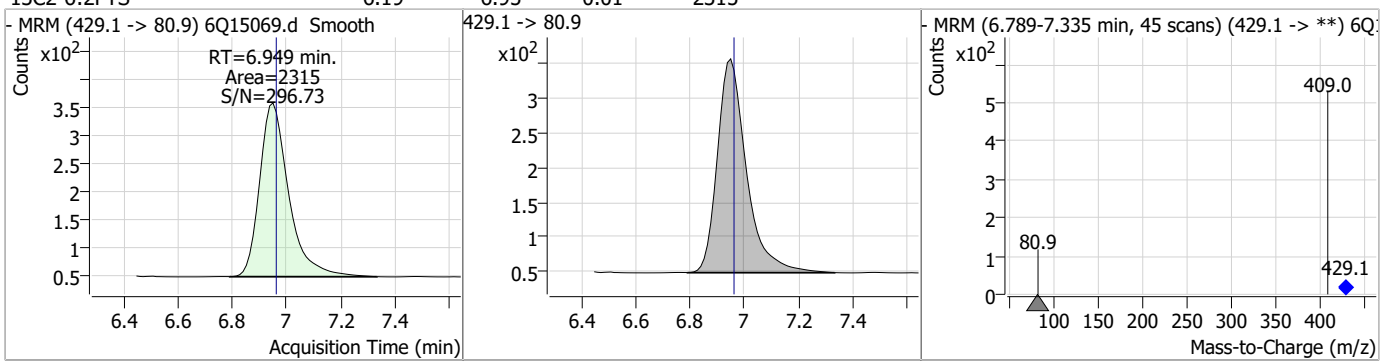


Perfluorinated Compounds by LC/MS/MS

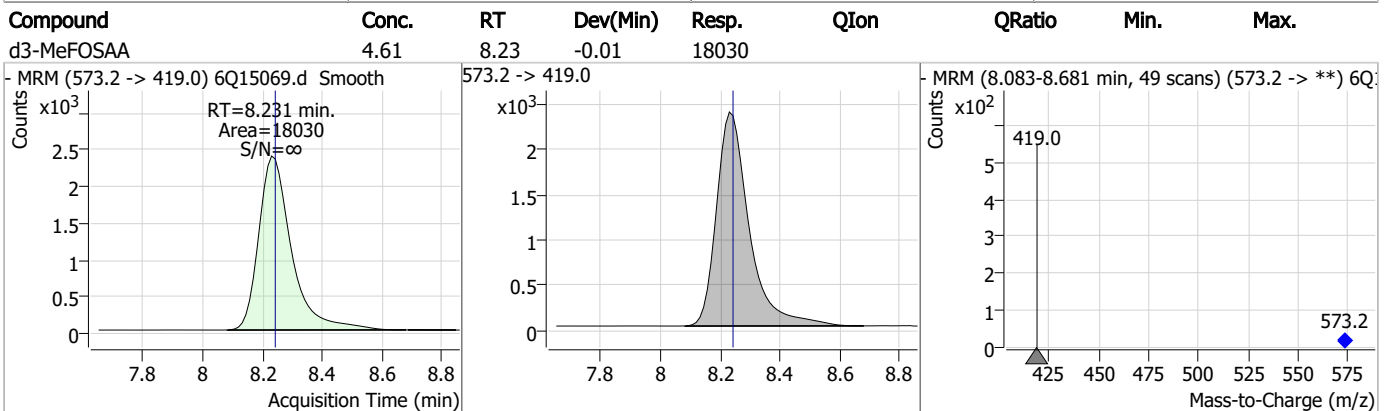
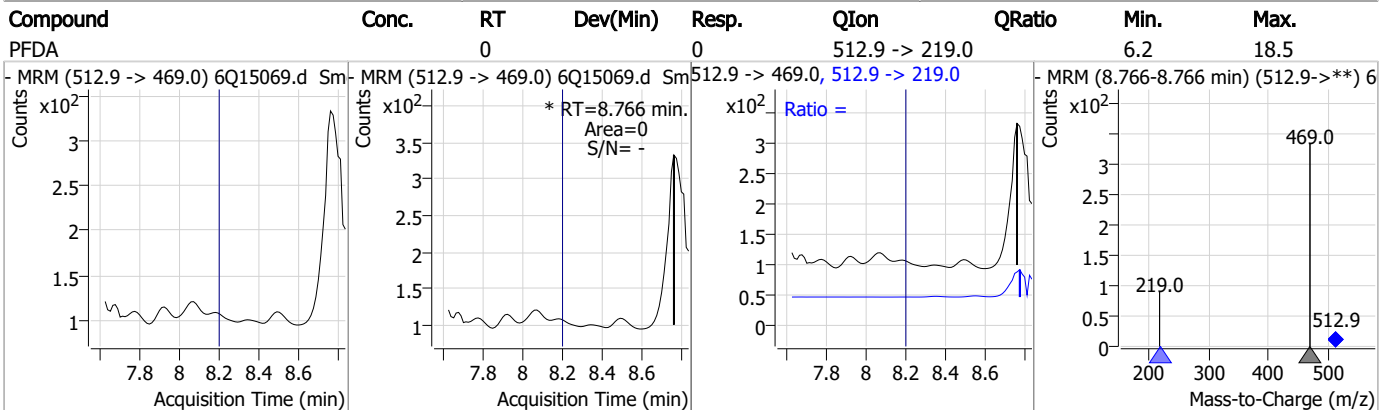
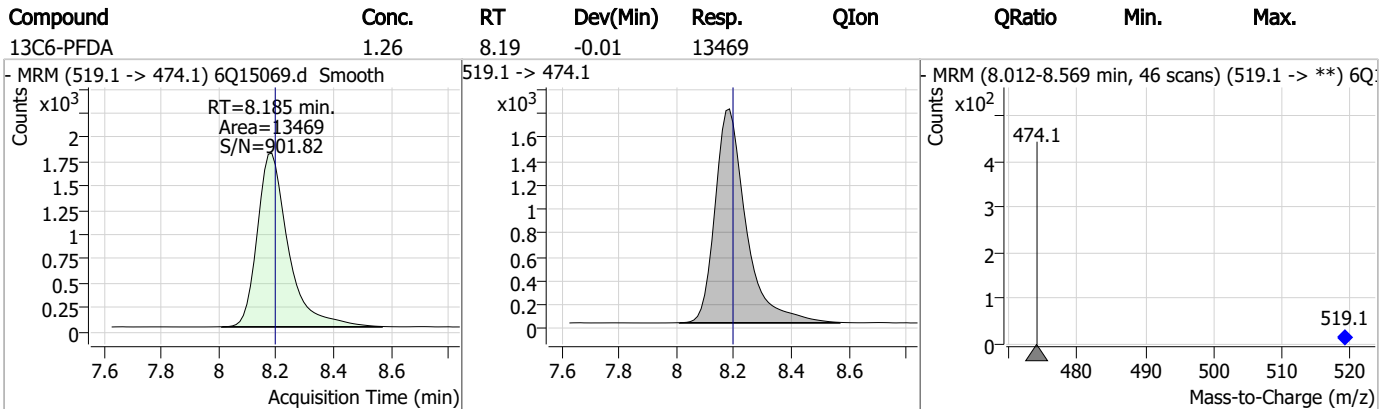
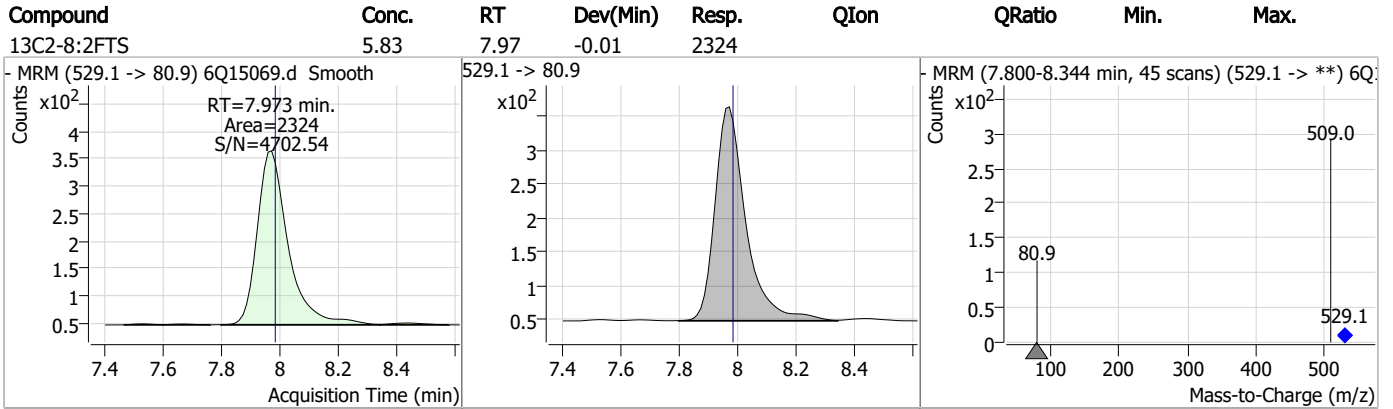


Perfluorinated Compounds by LC/MS/MS

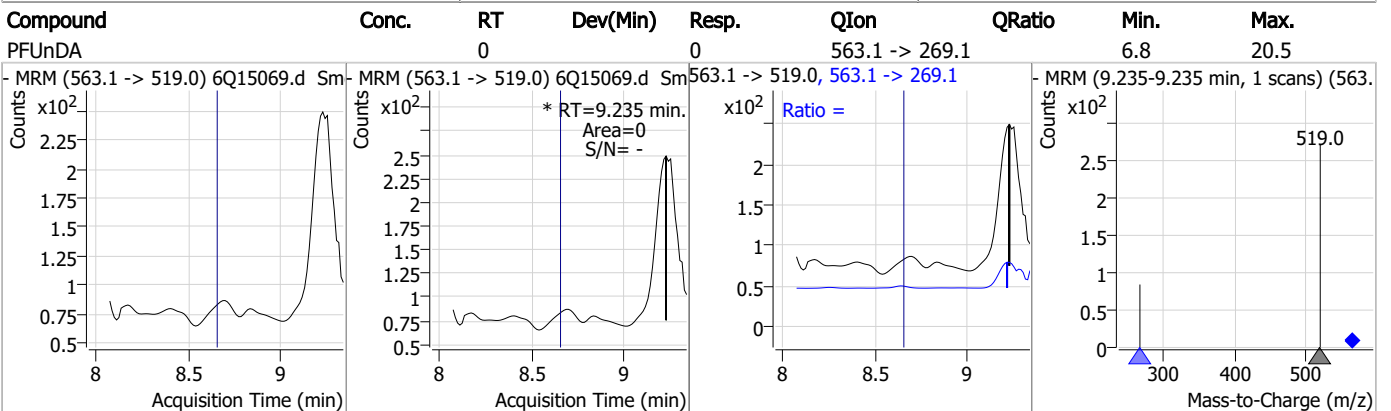
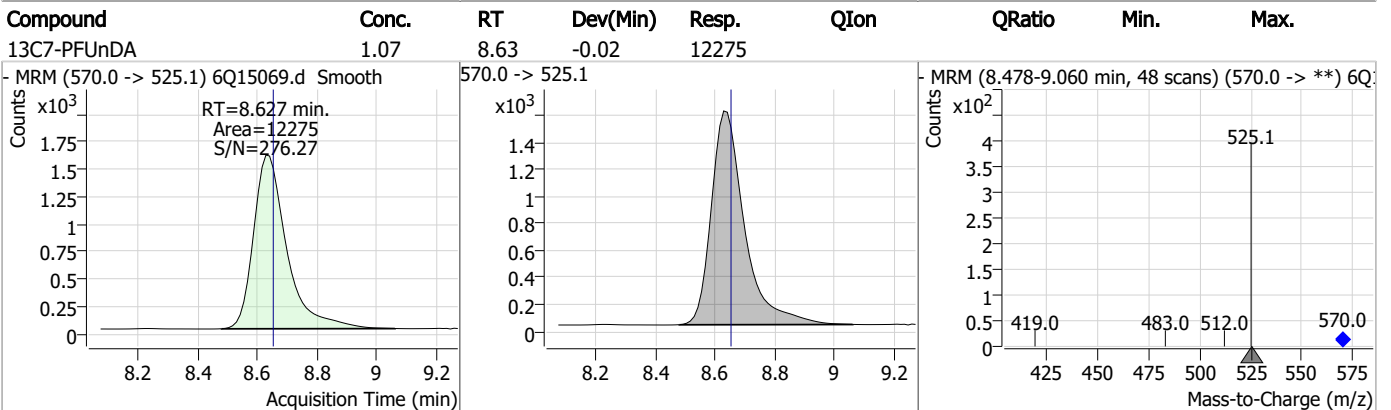
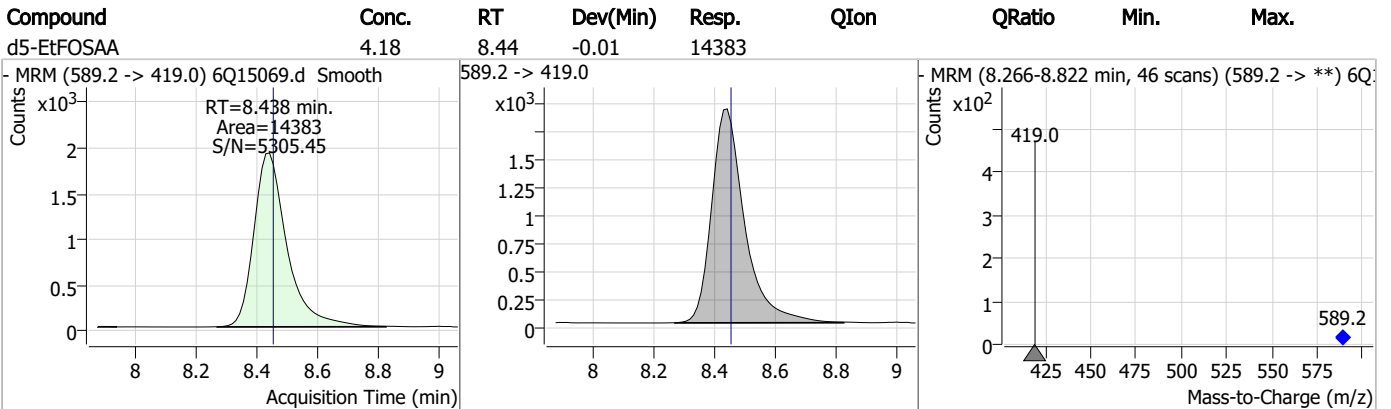
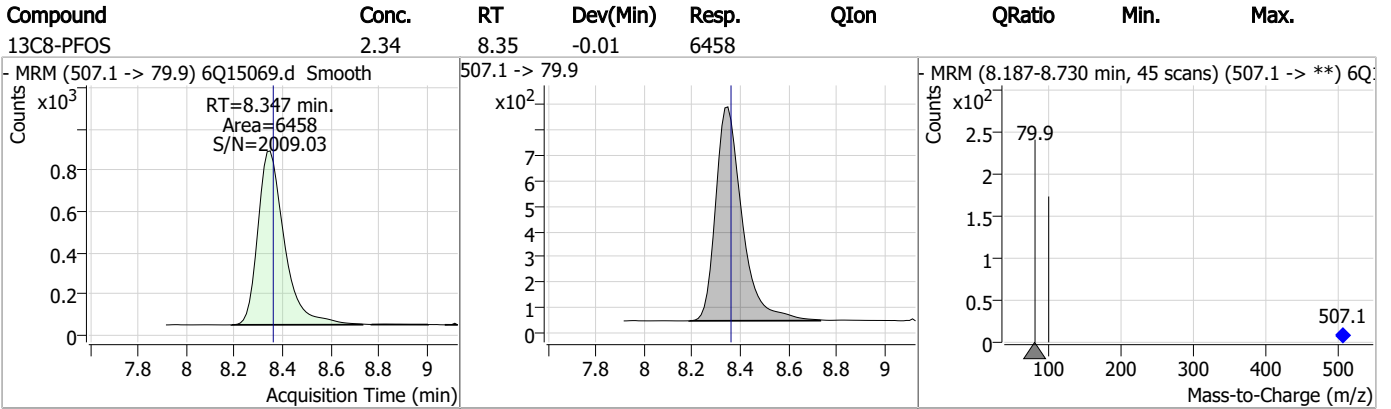
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Perfluorinated Compounds by LC/MS/MS



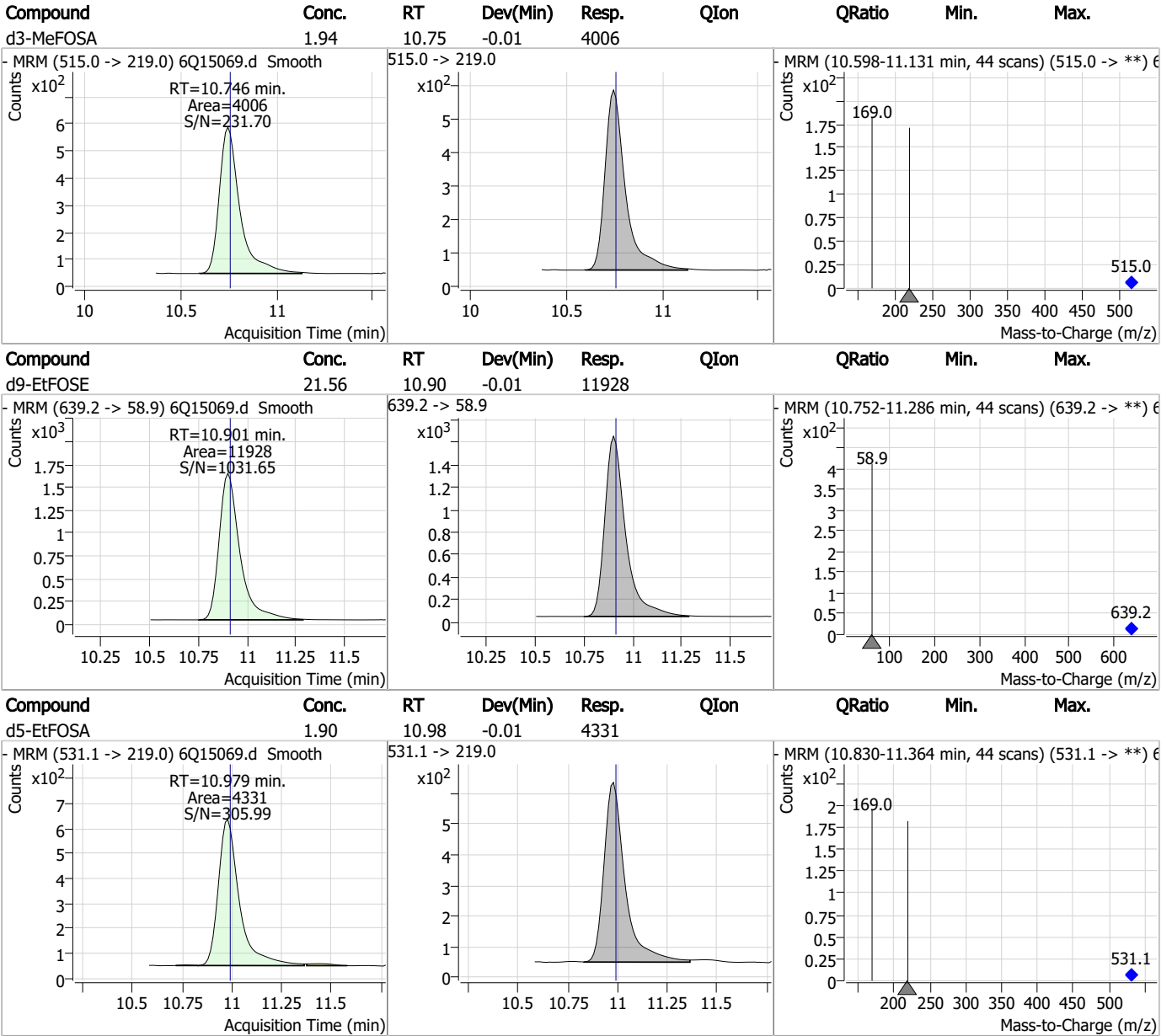
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.00	9.06	-0.03	13942				
13C8-FOSA	2.46	9.64	-0.02	13908				
13C2-PFTeDA	1.00	9.77	-0.02	7946				
d7-MeFOSE	21.07	10.66	-0.02	16514				

Perfluorinated Compounds by LC/MS/MS



7.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15070.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 5:42:51 AM
 Sample Name : FC3427-2
 Vial : P2-E7
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	68689	10.00 µg/L	0.037
M5-PFPeA	4.382	268.3 -> 223.0	39187	5.00 µg/L	-0.012
M5-PFHxA	5.580	318.0 -> 273.0	33873	2.50 µg/L	-0.025
M4-PFHpA	6.532	367.1 -> 322.0	34726	2.50 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	58130	2.50 µg/L	-0.012
M9-PFNA	7.706	472.1 -> 427.0	16922	1.25 µg/L	-0.012
M6-PFDA	8.173	519.1 -> 474.1	14412	1.25 µg/L	-0.025
M7-PFUnDA	8.627	570.0 -> 525.1	14310	1.25 µg/L	-0.025
M2-PFDoDA	9.069	615.1 -> 570.0	14118	1.25 µg/L	-0.012
M2-PFTeDA	9.772	715.2 -> 670.0	6960	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	14703	2.50 µg/L	-0.025
M3-PFBS	5.523	302.1 -> 79.9	13544	2.50 µg/L	-0.025
M3-PFHxS	7.289	402.1 -> 79.9	8423	2.50 µg/L	-0.013
M8-PFOS	8.335	507.1 -> 79.9	6752	2.50 µg/L	-0.025
M2-4:2FTS	5.256	329.1 -> 80.9	1918	5.00 µg/L	-0.025
M2-6:2FTS	6.937	429.1 -> 80.9	2504	5.00 µg/L	-0.025
M2-8:2FTS	7.973	529.1 -> 80.9	2241	5.00 µg/L	-0.012
M3-MeFOSAA	8.231	573.2 -> 419.0	18004	5.00 µg/L	-0.012
M3-HFPO-DA	5.958	286.9 -> 168.9	14564	10.00 µg/L	-0.025
M5-EtFOSAA	8.426	589.2 -> 419.0	15917	5.00 µg/L	-0.025
M7-MeFOSE	10.668	623.2 -> 58.9	13890	25.00 µg/L	-0.012
M9-EtFOSE	10.901	639.2 -> 58.9	9461	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	3691	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	3603	2.50 µg/L	-0.012
13C4-PFOS	8.348	502.8 -> 79.9	9260	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	33187	5.00 µg/L	0.025
18O2-PFHxS	7.288	403.0 -> 83.9	5749	2.50 µg/L	-0.026
13C4-PFOA	7.176	417.1 -> 372.0	65912	2.50 µg/L	-0.012
13C2-PFDA	8.173	515.1 -> 470.1	20124	1.25 µg/L	-0.025
13C5-PFNA	7.706	468.0 -> 423.0	17476	1.25 µg/L	-0.012
13C2-PFHxA	5.581	315.1 -> 270.0	31784	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1918	5.81 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.3%		
13C2-6:2FTS	6.937	429.1 -> 80.9	2504	5.86 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.3%		
13C2-8:2FTS	7.973	529.1 -> 80.9	2241	4.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C2-PFDoDA	9.069	615.1 -> 570.0	14118	0.90 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 71.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	6960	0.77 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 62.0%		
13C3-PFBS	5.523	302.1 -> 79.9	13544	2.75 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C3-PFHxS	7.289	402.1 -> 79.9	8423	2.60 µg/L	-0.013

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 = 103.8%		
13C4-PFBA	2.985	216.8 -> 171.9	68689	9.02 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C4-PFHpA	6.532	367.1 -> 322.0	34726	2.67 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C5-PFHxA	5.580	318.0 -> 273.0	33873	2.62 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C5-PFPeA	4.382	268.3 -> 223.0	39187	5.34 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C6-PFDA	8.173	519.1 -> 474.1	14412	1.19 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C7-PFUnDA	8.627	570.0 -> 525.1	14310	1.10 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.0%		
13C8-FOSA	9.645	506.1 -> 77.8	14703	2.29 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C8-PFOA	7.175	421.1 -> 376.0	58130	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C8-PFOS	8.335	507.1 -> 79.9	6752	2.15 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.0%		
13C9-PFNA	7.706	472.1 -> 427.0	16922	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
d3-MeFOSAA	8.231	573.2 -> 419.0	18004	4.05 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.0%		
13C3-HFPO-DA	5.958	286.9 -> 168.9	14564	10.14 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
d3-MeFOSA	10.746	515.0 -> 219.0	3603	1.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 61.3%		
d5-EtFOSAA	8.426	589.2 -> 419.0	15917	4.07 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.4%		
d7-MeFOSE	10.668	623.2 -> 58.9	13890	15.59 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 62.4%		
d9-EtFOSE	10.901	639.2 -> 58.9	9461	15.05 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 60.2%		
d5-EtFOSA	10.979	531.1 -> 219.0	3691	1.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 56.8%		

7.12
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	6.950	427.1 -> 407.0 427.1 -> 80.9	736 148	0.20 µg/L	97
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	8.791	512.9 -> 469.0 512.9 -> 219.0	0 0	µg/L m	1
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.	
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	5.595	449.0 -> 98.9	1722	0.12	µg/L	99
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	74	N.D.		
		398.7 -> 79.9				
PFNA	8.301	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	4.385	498.9 -> 98.8	3795	0.41	µg/L	100
		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	9.259	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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



7.1.2

7

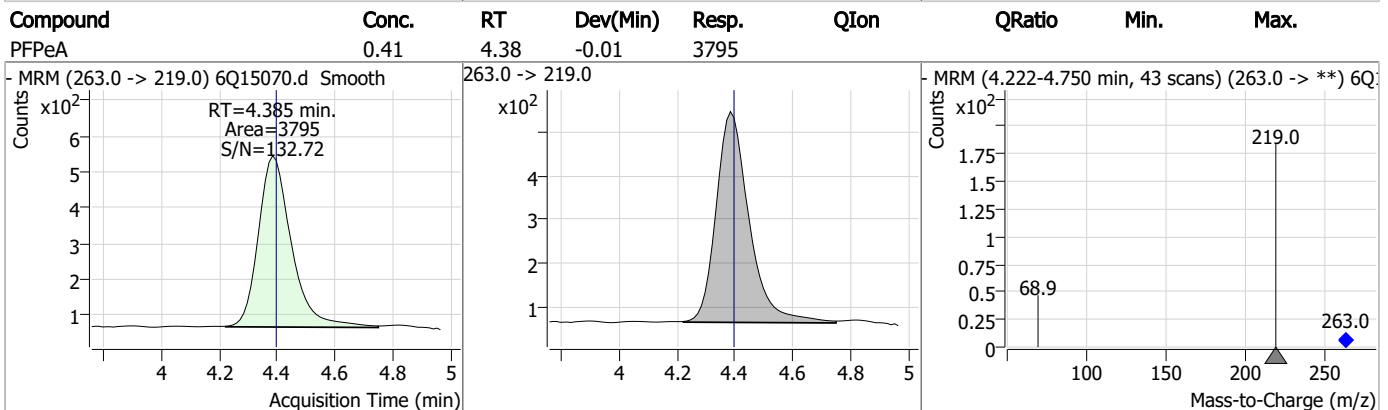
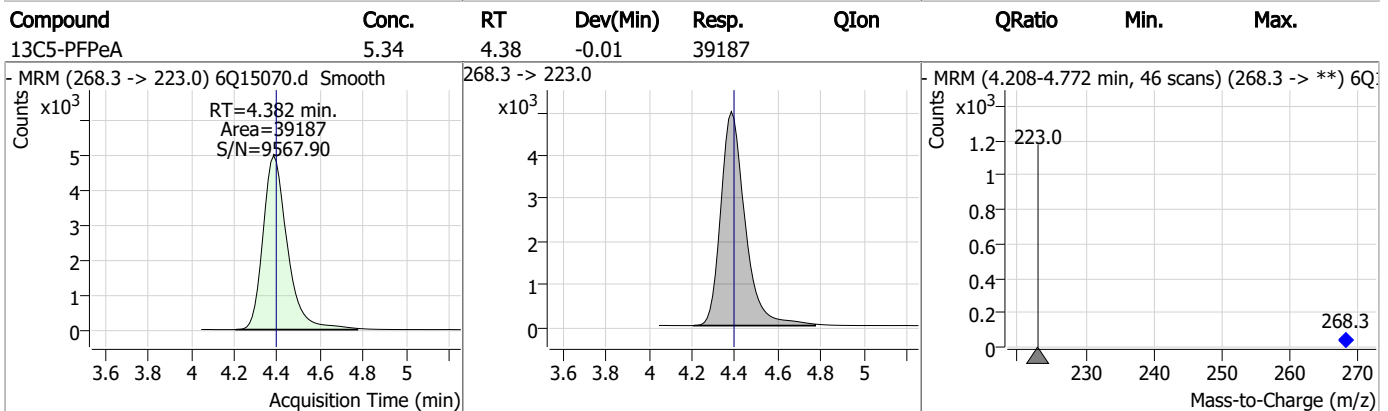
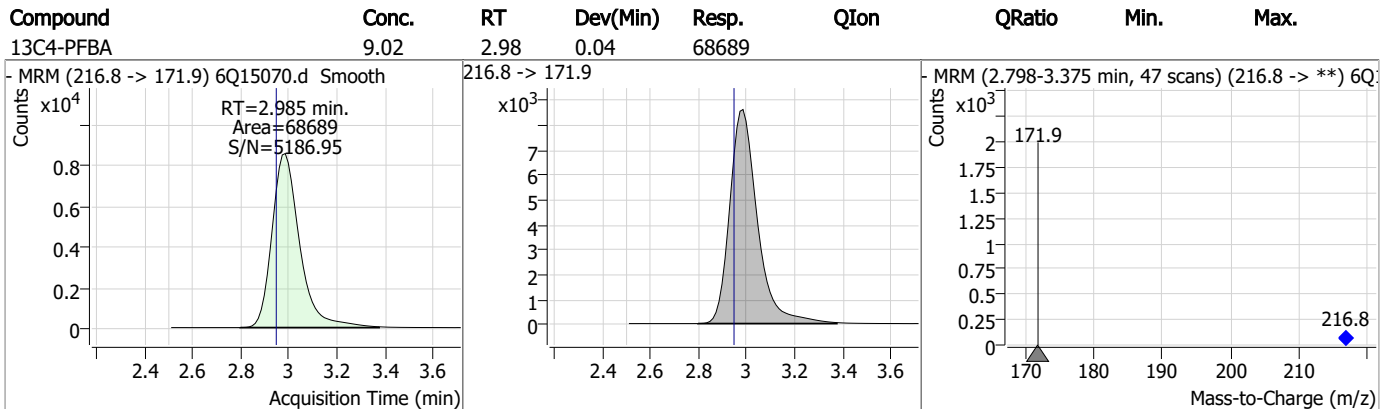
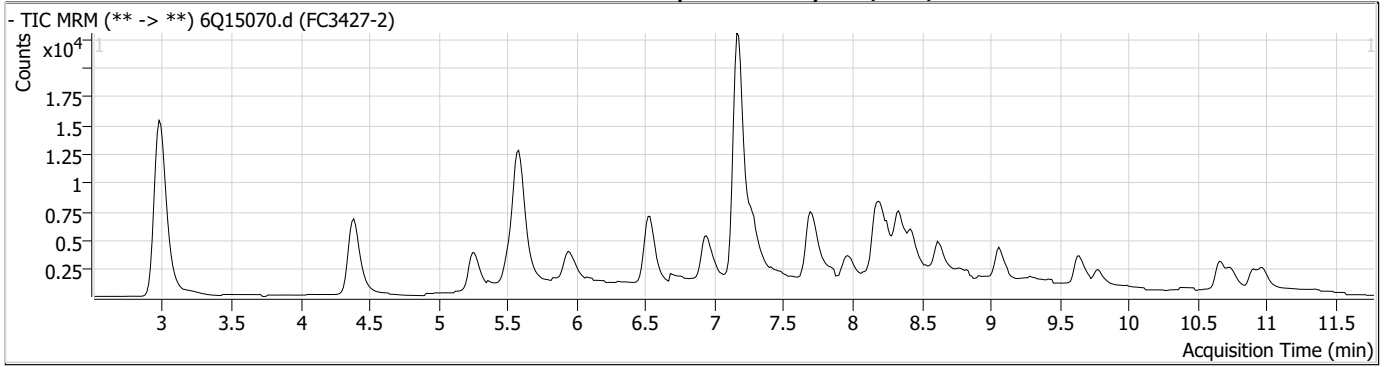
Perfluorinated Compounds by LC/MS/MS

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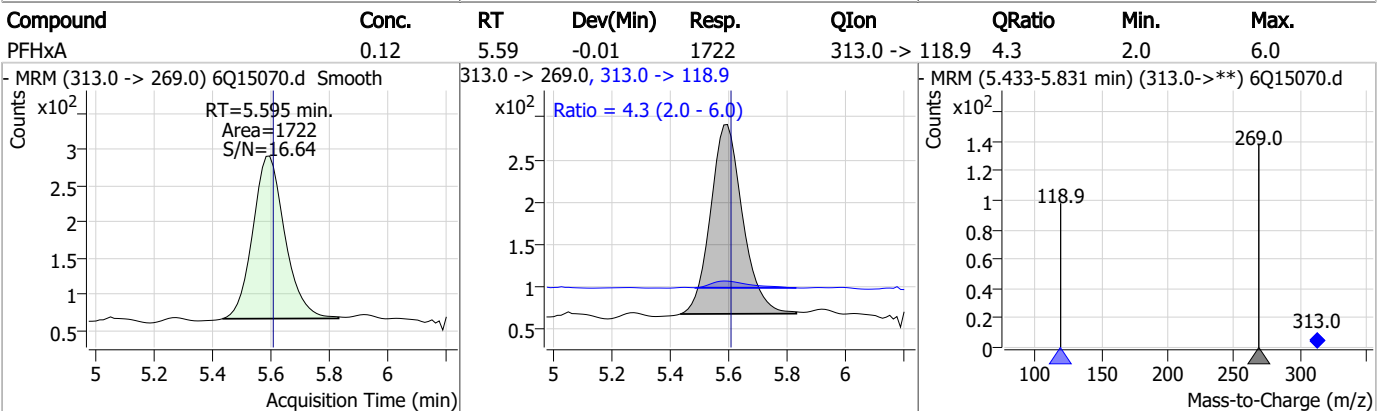
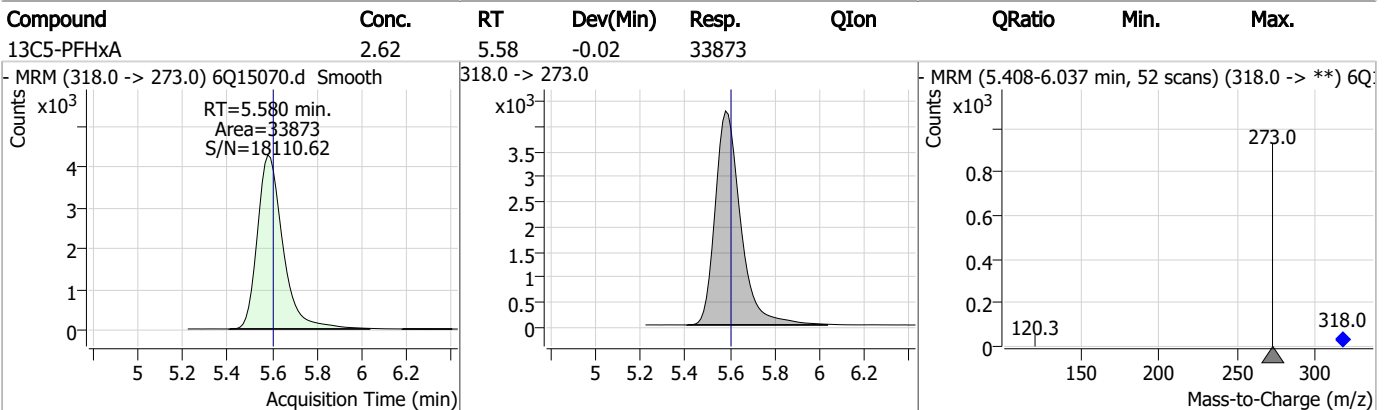
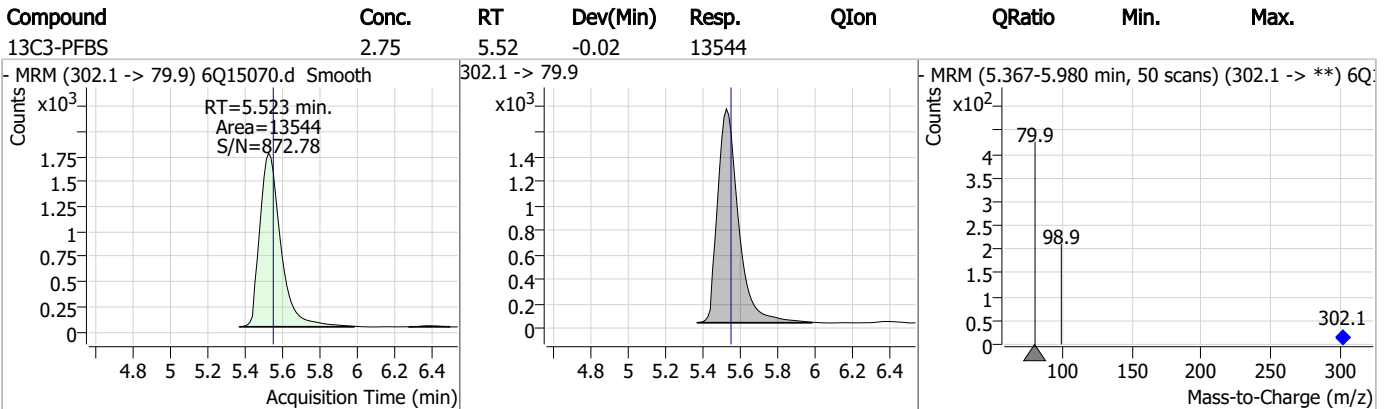
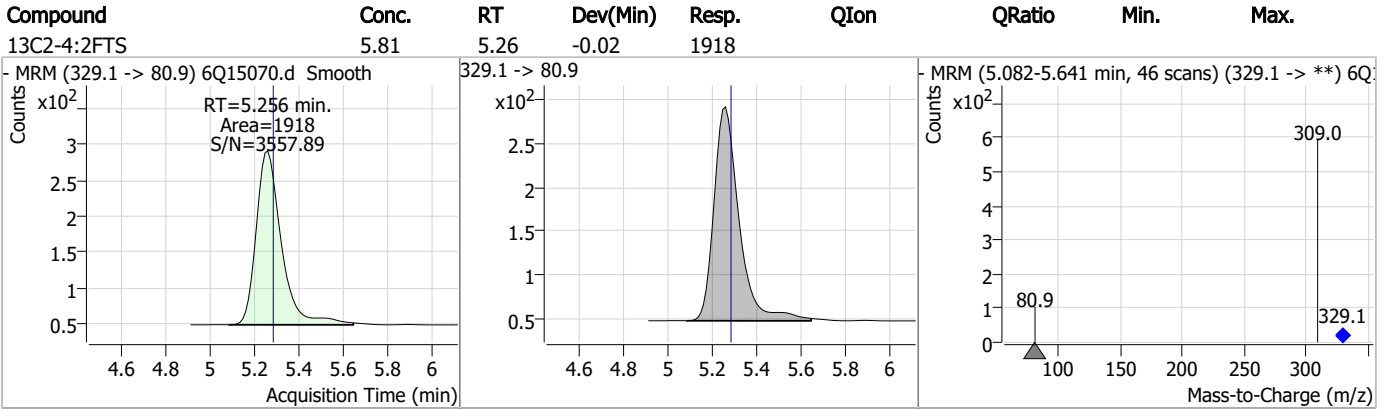
7.1.2
7



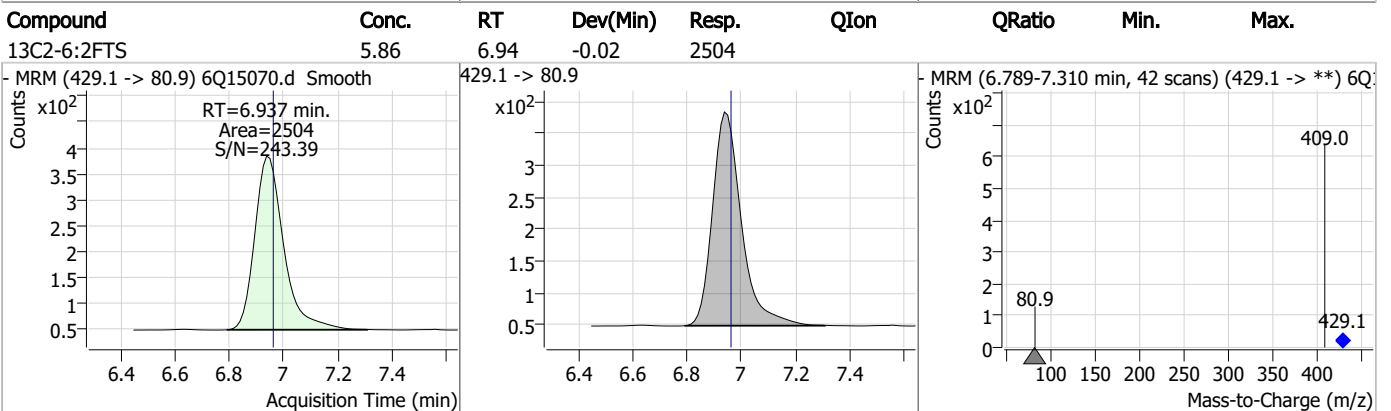
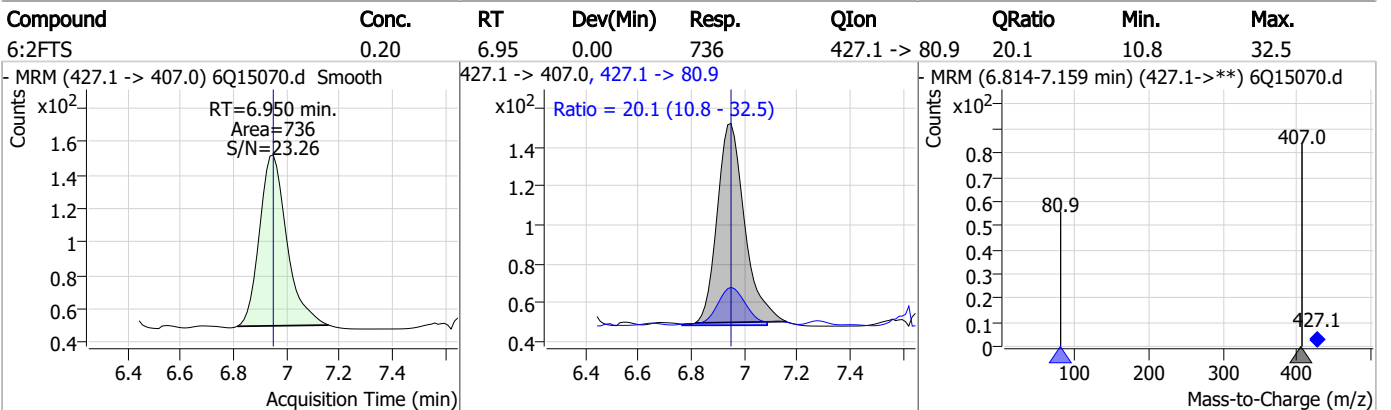
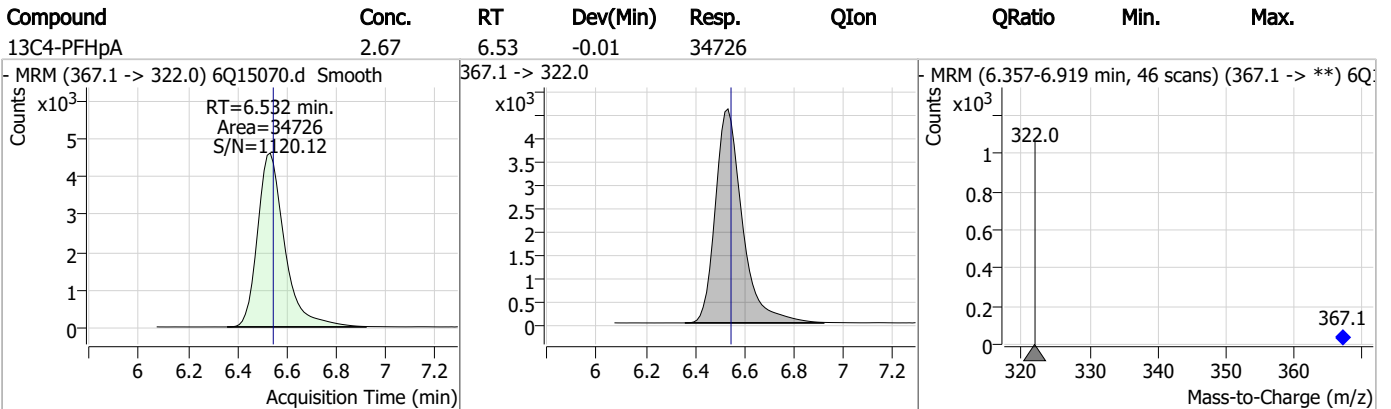
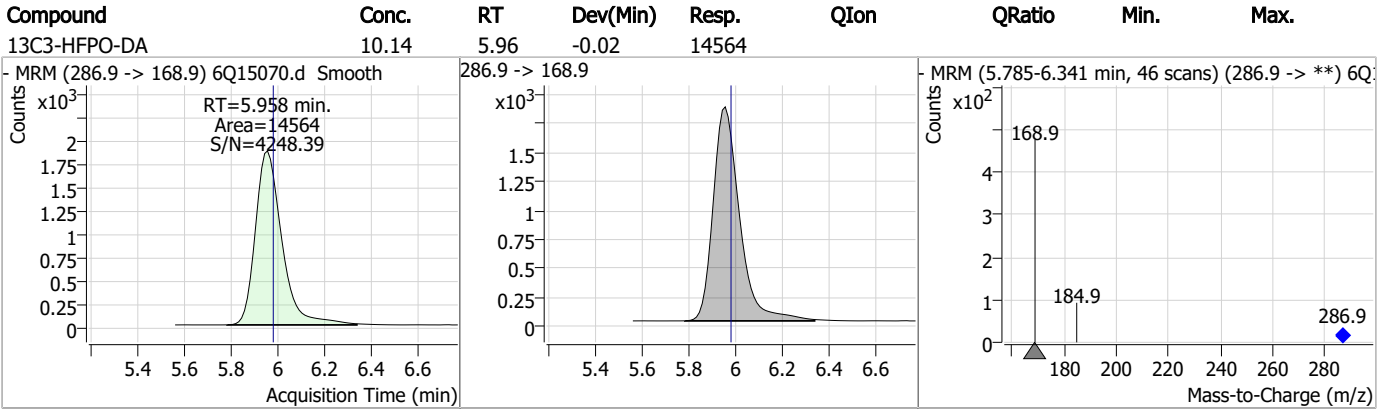
Perfluorinated Compounds by LC/MS/MS



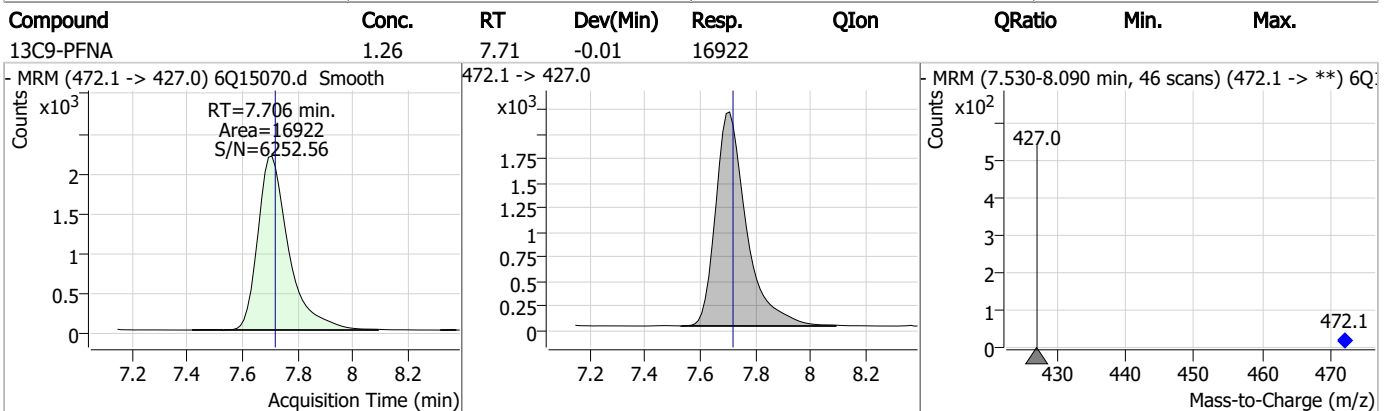
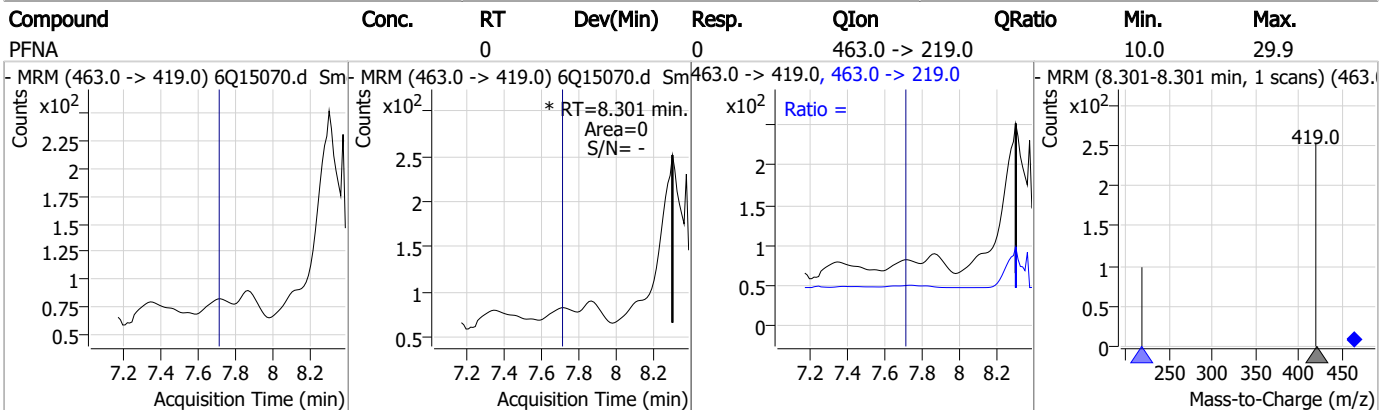
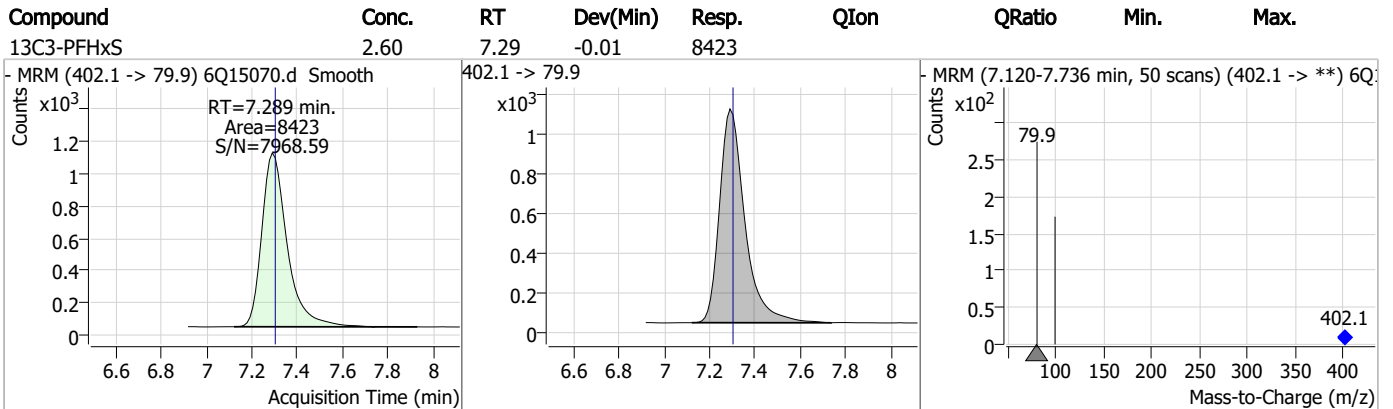
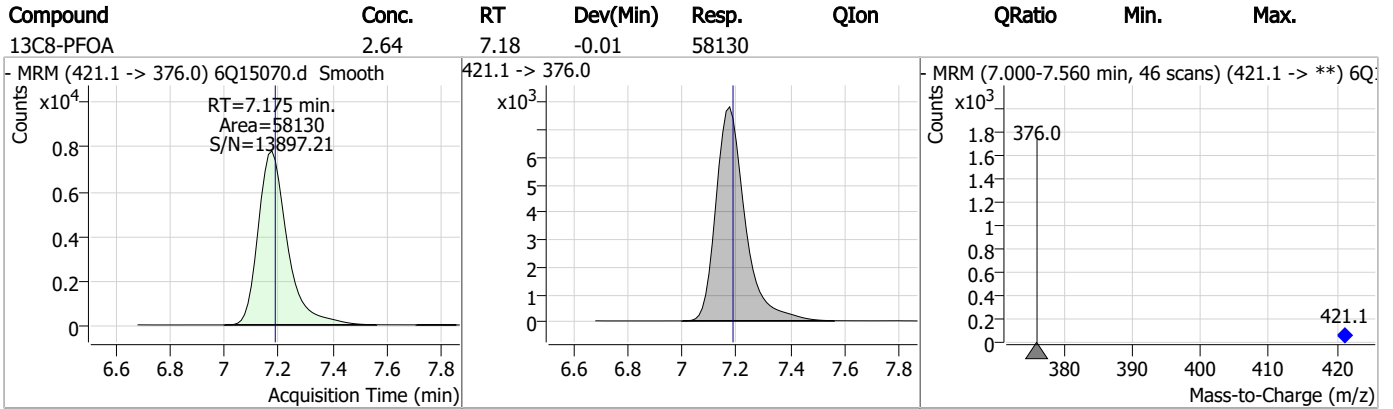
Perfluorinated Compounds by LC/MS/MS



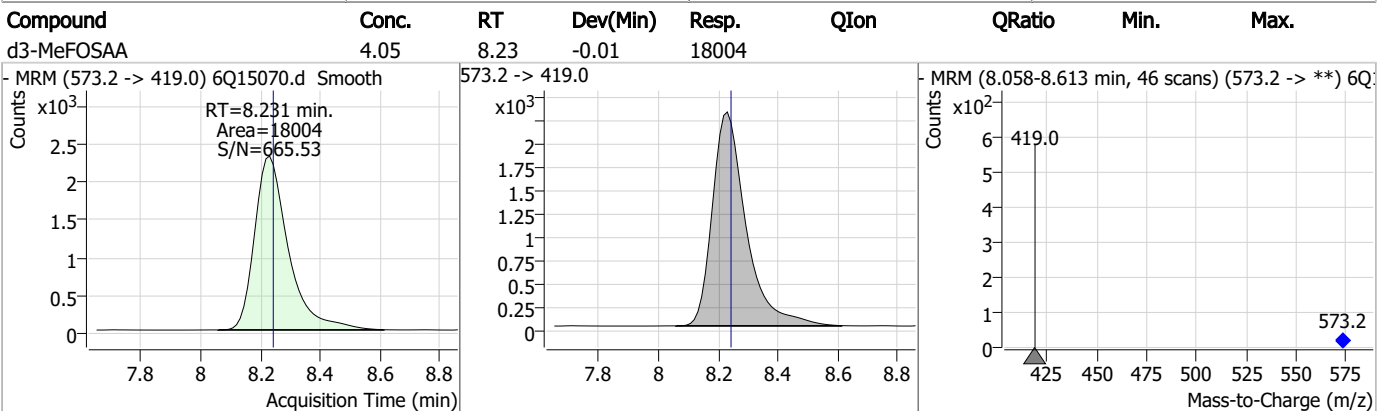
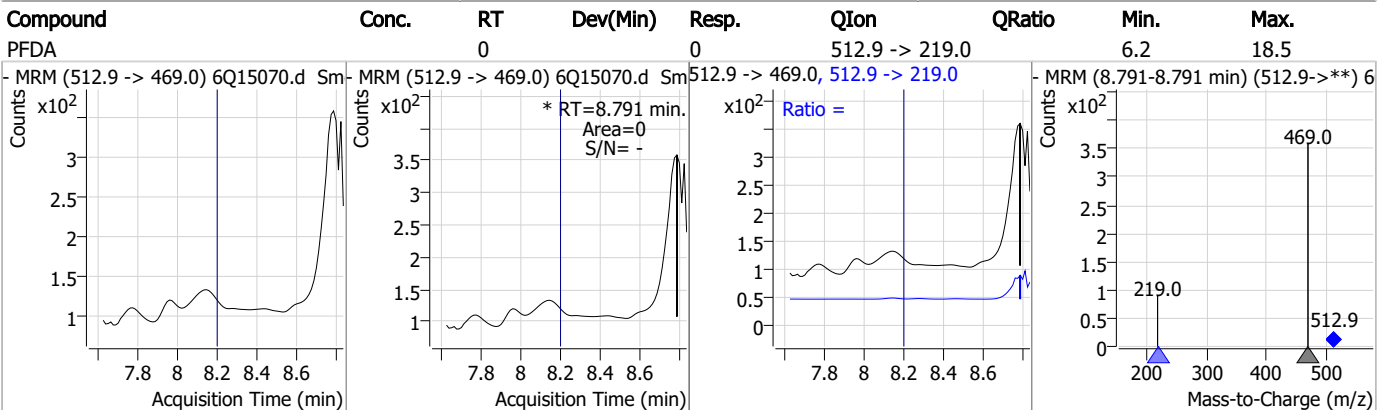
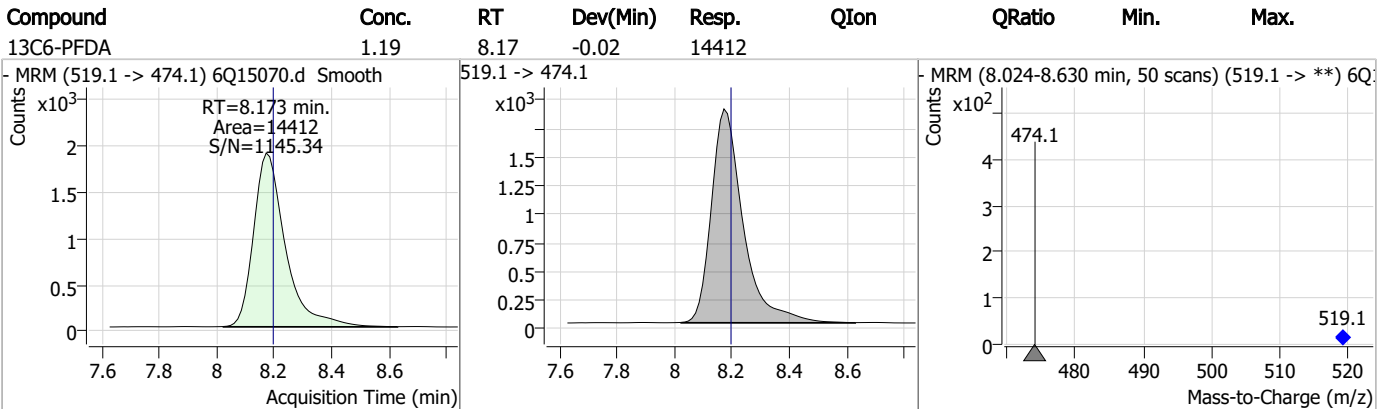
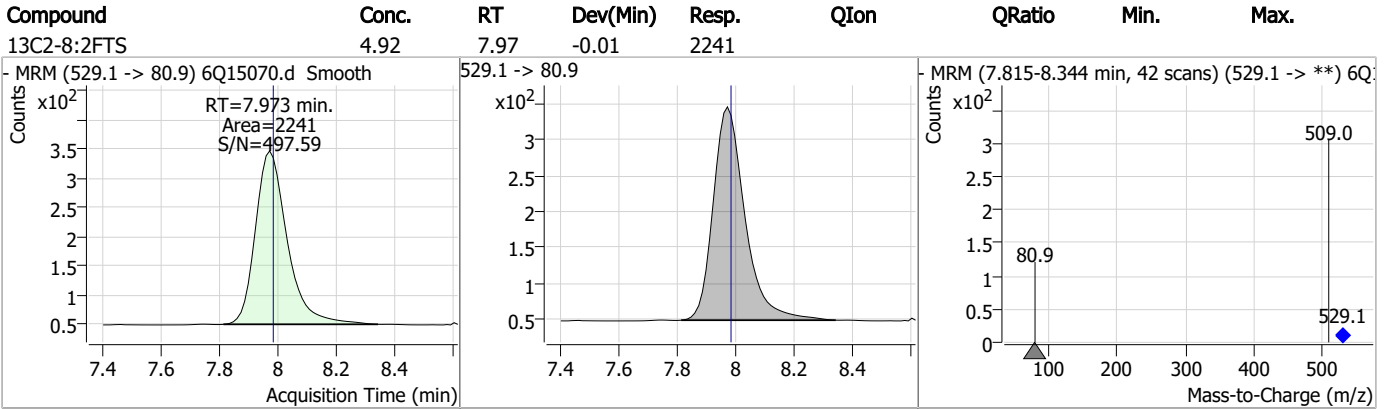
Perfluorinated Compounds by LC/MS/MS



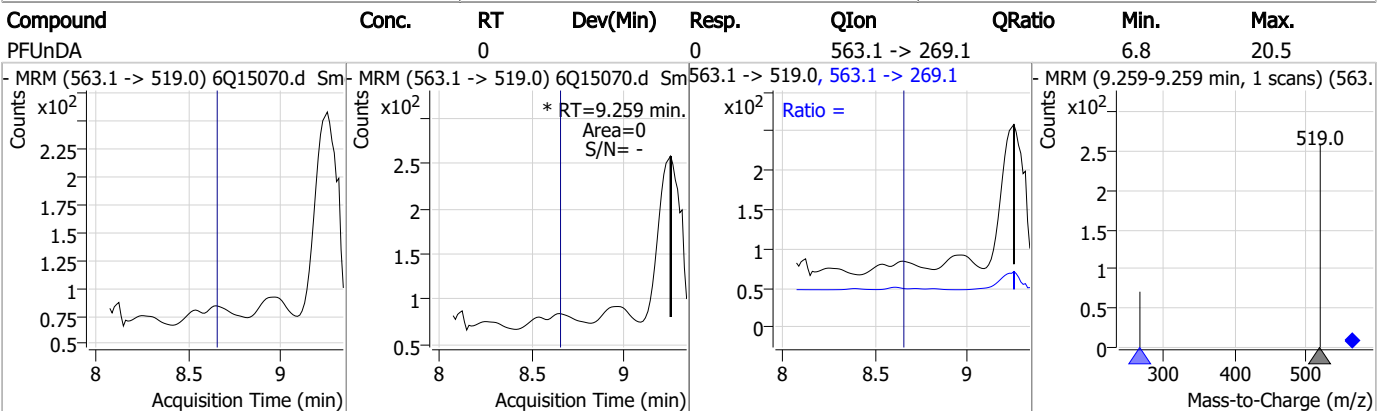
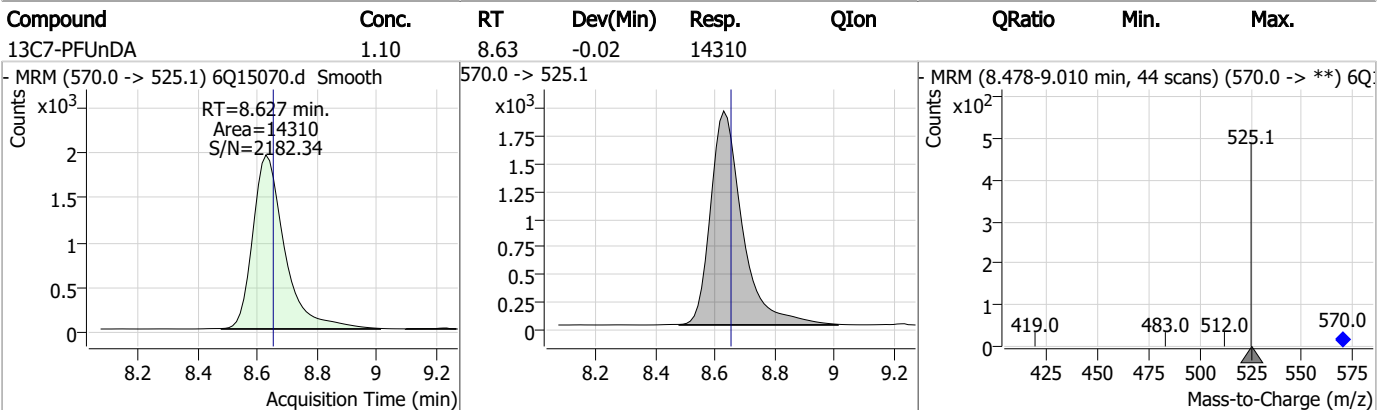
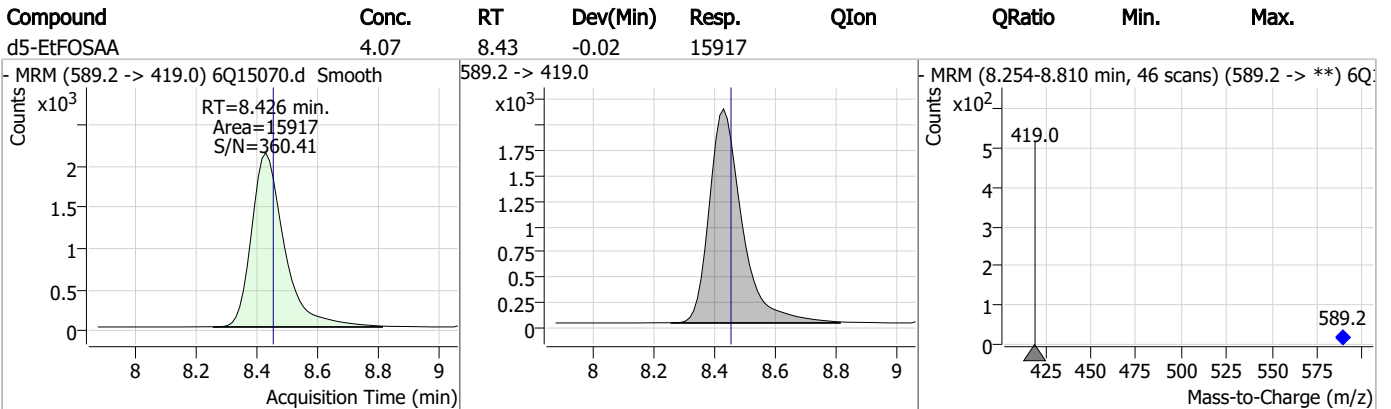
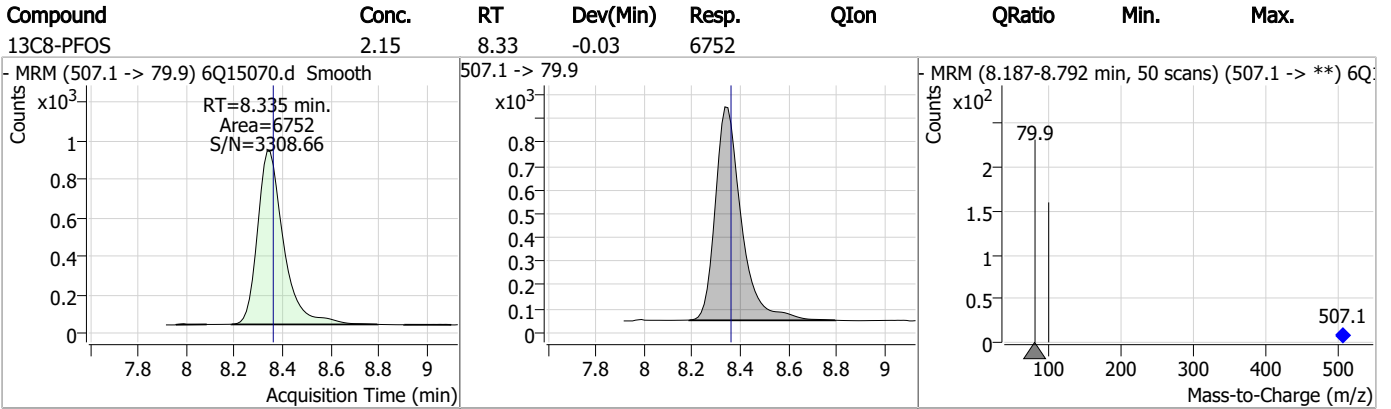
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



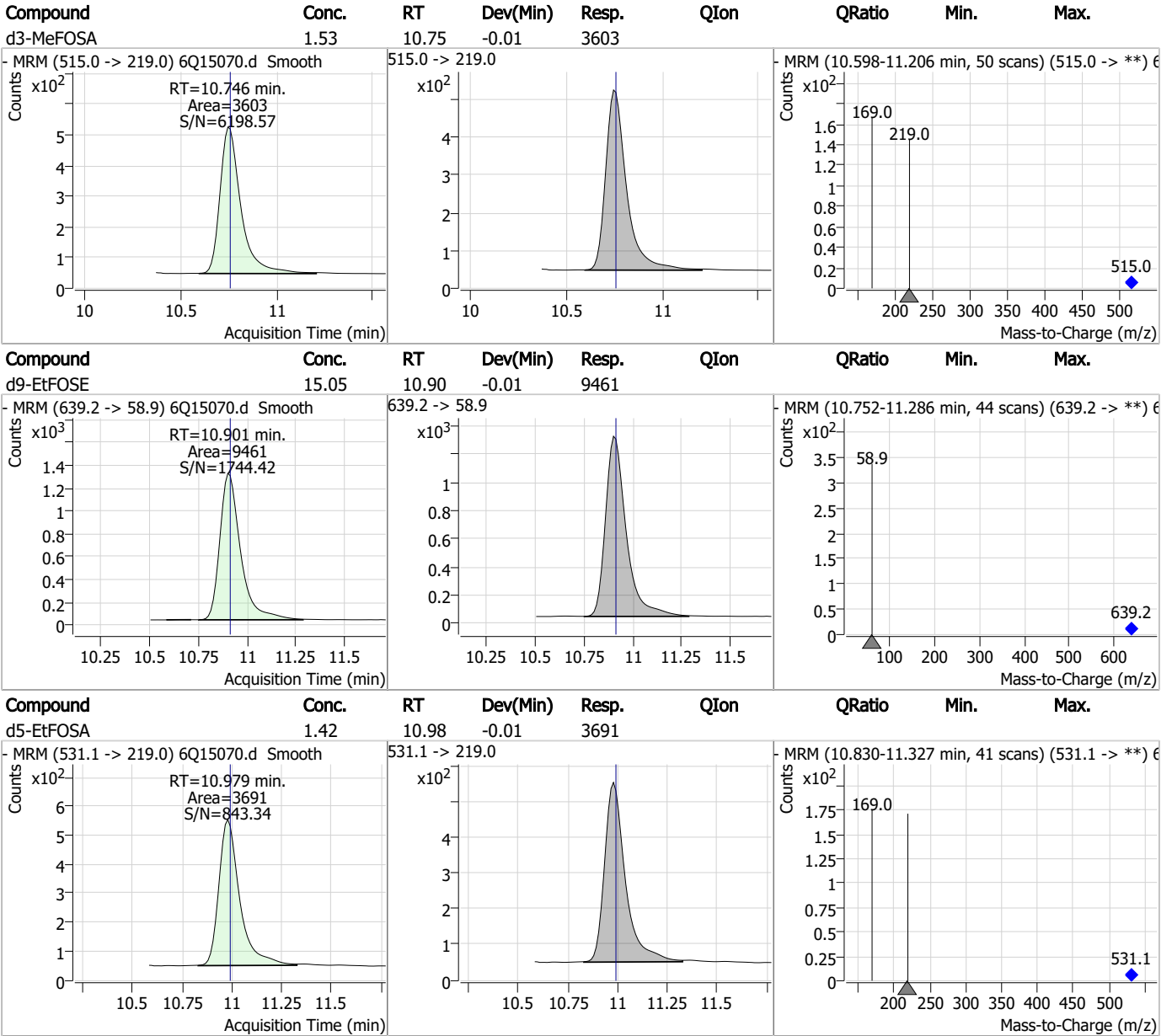
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	0.90	9.07	-0.01	14118				
13C8-FOSA	2.29	9.64	-0.02	14703				
13C2-PFTeDA	0.77	9.77	-0.02	6960				
d7-MeFOSE	15.59	10.67	-0.01	13890				

Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15072.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 6:10:49 AM
 Sample Name : FC3427-3
 Vial : P2-E9
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,550,,,5.0,1.2,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	63509	8.30 µg/L	0.037
M5-PFPeA	4.382	268.3 -> 223.0	31887	4.15 µg/L	-0.012
M5-PFHxA	5.593	318.0 -> 273.0	27623	2.08 µg/L	-0.012
M4-PFHpA	6.532	367.1 -> 322.0	28870	2.08 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	48802	2.08 µg/L	-0.012
M9-PFNA	7.706	472.1 -> 427.0	15231	1.04 µg/L	-0.012
M6-PFDA	8.173	519.1 -> 474.1	11657	1.04 µg/L	-0.025
M7-PFUnDA	8.627	570.0 -> 525.1	11053	1.04 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	10712	1.04 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	6229	1.04 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	12318	2.08 µg/L	-0.025
M3-PFBS	5.523	302.1 -> 79.9	10584	2.08 µg/L	-0.025
M3-PFHxS	7.289	402.1 -> 79.9	6846	2.08 µg/L	-0.013
M8-PFOS	8.347	507.1 -> 79.9	5499	2.08 µg/L	-0.013
M2-4:2FTS	5.256	329.1 -> 80.9	1481	4.15 µg/L	-0.025
M2-6:2FTS	6.937	429.1 -> 80.9	2057	4.15 µg/L	-0.025
M2-8:2FTS	7.973	529.1 -> 80.9	1922	4.15 µg/L	-0.012
M3-MeFOSAA	8.231	573.2 -> 419.0	14465	4.15 µg/L	-0.012
M3-HFPO-DA	5.958	286.9 -> 168.9	12342	8.30 µg/L	-0.025
M5-EtFOSAA	8.426	589.2 -> 419.0	11245	4.15 µg/L	-0.025
M7-MeFOSE	10.656	623.2 -> 58.9	12523	20.75 µg/L	-0.025
M9-EtFOSE	10.901	639.2 -> 58.9	8436	20.75 µg/L	-0.012
M5-EtFOSA	10.967	531.1 -> 219.0	3388	2.08 µg/L	-0.025
M3-MeFOSA	10.746	515.0 -> 219.0	3424	2.08 µg/L	-0.012
13C4-PFOS	8.335	502.8 -> 79.9	8627	2.08 µg/L	-0.025
13C3-PFBA	2.976	216.0 -> 172.0	32502	4.15 µg/L	0.025
18O2-PFHxS	7.301	403.0 -> 83.9	5967	2.08 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	63167	2.08 µg/L	-0.012
13C2-PFDA	8.173	515.1 -> 470.1	19727	1.04 µg/L	-0.025
13C5-PFNA	7.706	468.0 -> 423.0	18677	1.04 µg/L	-0.012
13C2-PFHxA	5.581	315.1 -> 270.0	31907	2.08 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1481	3.59 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 71.8%		
13C2-6:2FTS	6.937	429.1 -> 80.9	2057	3.85 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.0%		
13C2-8:2FTS	7.973	529.1 -> 80.9	1922	3.37 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 67.5%		
13C2-PFDoDA	9.057	615.1 -> 570.0	10712	0.58 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 46.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	6229	0.59 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 47.0%		
13C3-PFBS	5.523	302.1 -> 79.9	10584	1.72 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 68.7%		
13C3-PFHxS	7.289	402.1 -> 79.9	6846	1.69 µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.5%	
13C4-PFBA	2.985	216.8 -> 171.9	63509	7.07 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.7%	
13C4-PFHpA	6.532	367.1 -> 322.0	28870	1.84 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.4%	
13C5-PFHxA	5.593	318.0 -> 273.0	27623	1.76 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.5%	
13C5-PFPeA	4.382	268.3 -> 223.0	31887	3.59 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 71.8%	
13C6-PFDA	8.173	519.1 -> 474.1	11657	0.82 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 65.3%	
13C7-PFUnDA	8.627	570.0 -> 525.1	11053	0.72 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 57.6%	
13C8-FOSA	9.645	506.1 -> 77.8	12318	1.71 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 68.3%	
13C8-PFOA	7.175	421.1 -> 376.0	48802	1.92 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.8%	
13C8-PFOS	8.347	507.1 -> 79.9	5499	1.56 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 62.4%	
13C9-PFNA	7.706	472.1 -> 427.0	15231	0.88 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 70.2%	
d3-MeFOSAA	8.231	573.2 -> 419.0	14465	2.90 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 58.0%	
13C3-HFPO-DA	5.958	286.9 -> 168.9	12342	7.11 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.1%	
d3-MeFOSA	10.746	515.0 -> 219.0	3424	1.30 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 51.9%	
d5-EtFOSAA	8.426	589.2 -> 419.0	11245	2.56 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 51.2%	
d7-MeFOSE	10.656	623.2 -> 58.9	12523	12.52 µg/L	-0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 50.1%	
d9-EtFOSE	10.901	639.2 -> 58.9	8436	11.95 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 47.8%	
d5-EtFOSA	10.967	531.1 -> 219.0	3388	1.16 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 46.5%	

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	8.779	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	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	7.279	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.582	449.0 -> 98.9				
		313.0 -> 269.0	1495	0.11 µg/L	#m	94
PFHxS	-	313.0 -> 118.9	90			
		398.7 -> 79.9	-	N.D.		
PFNA	8.313	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.385	498.9 -> 98.8				
		263.0 -> 219.0	3066	0.34 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	9.259	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.3
7



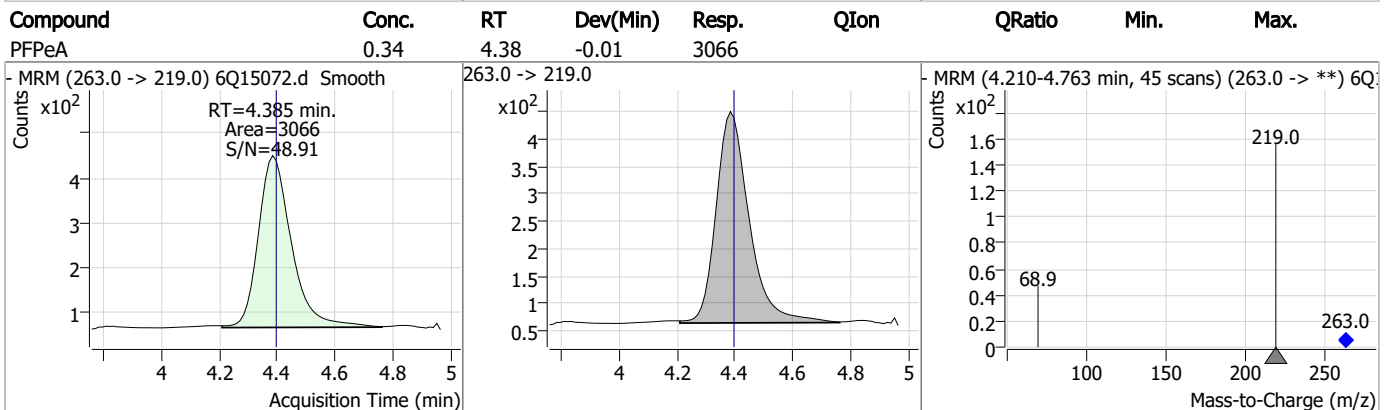
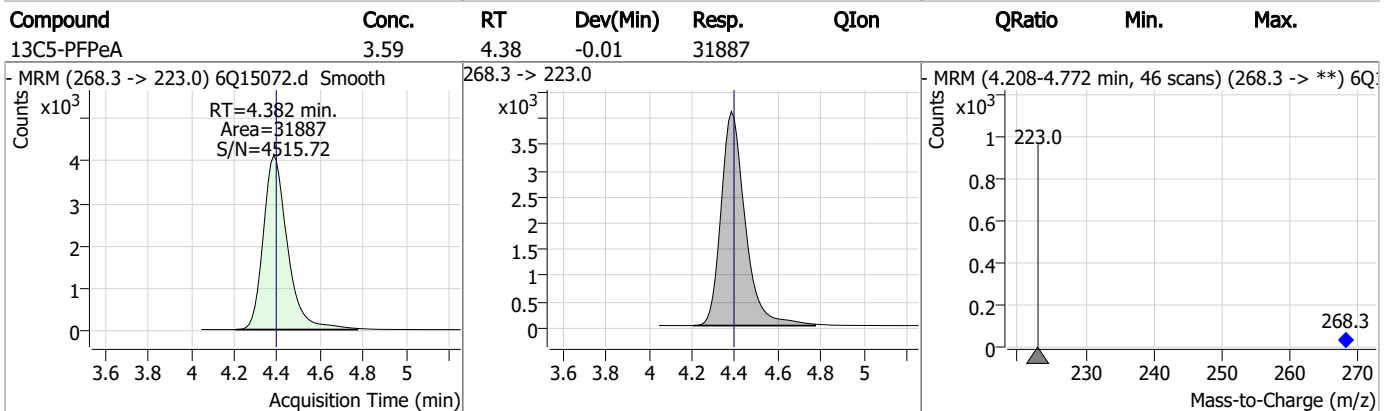
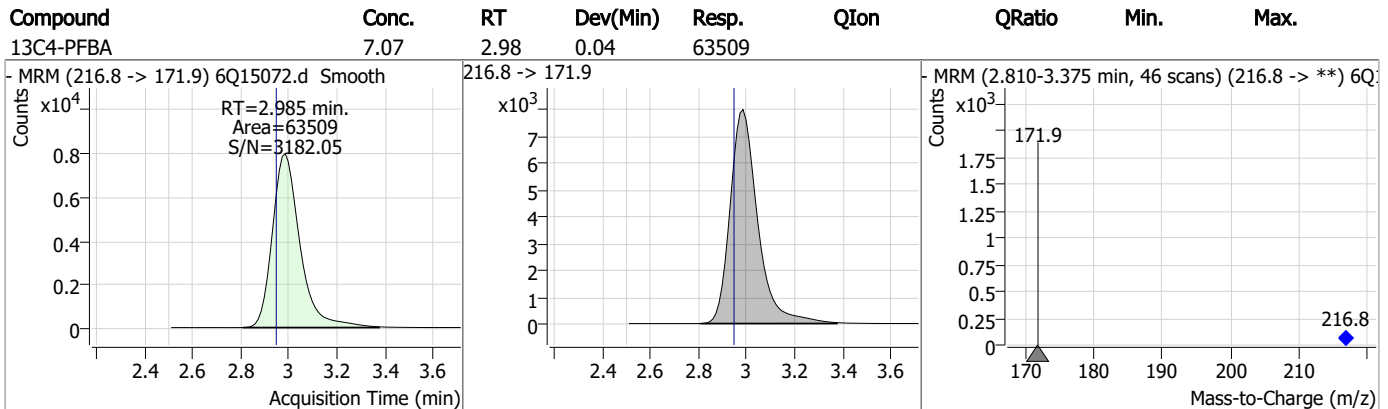
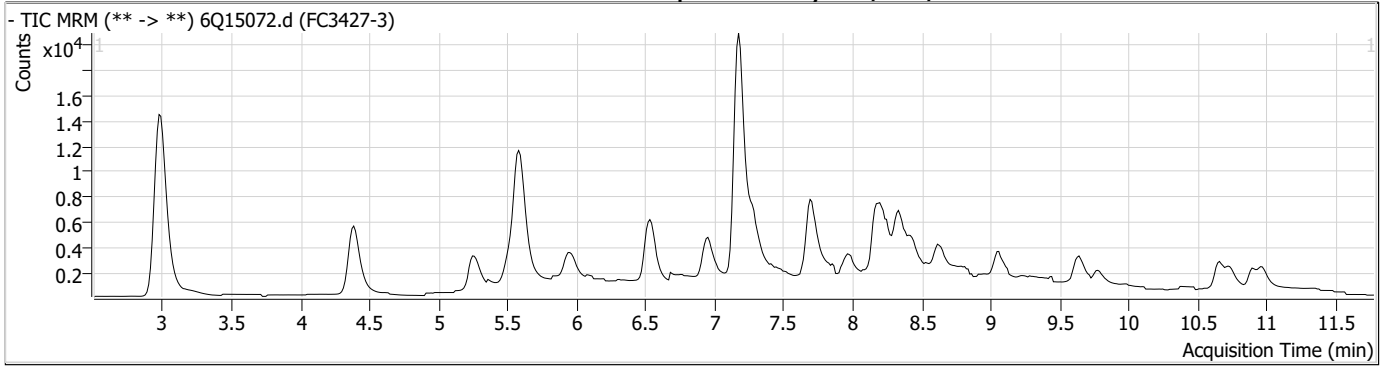
Perfluorinated Compounds by LC/MS/MS

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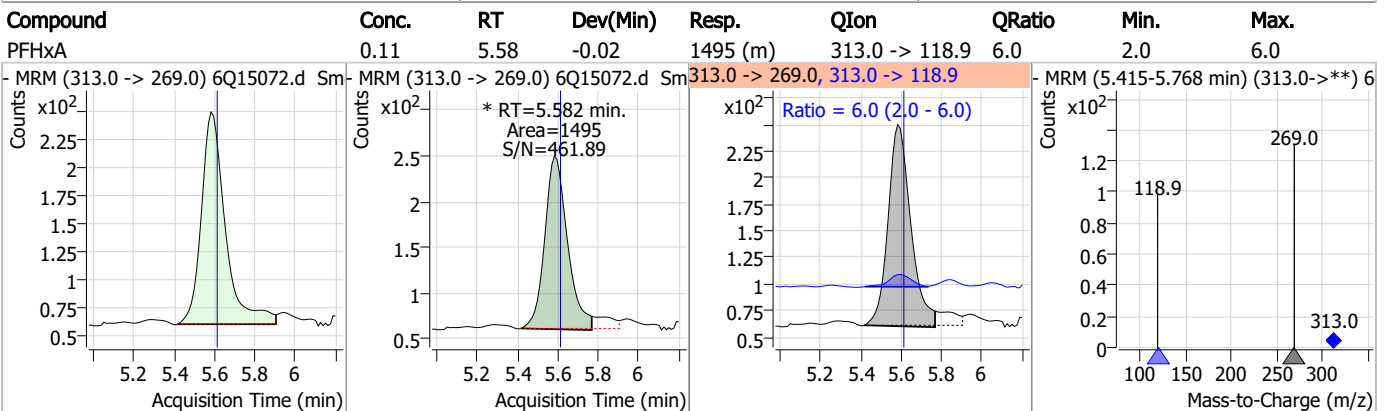
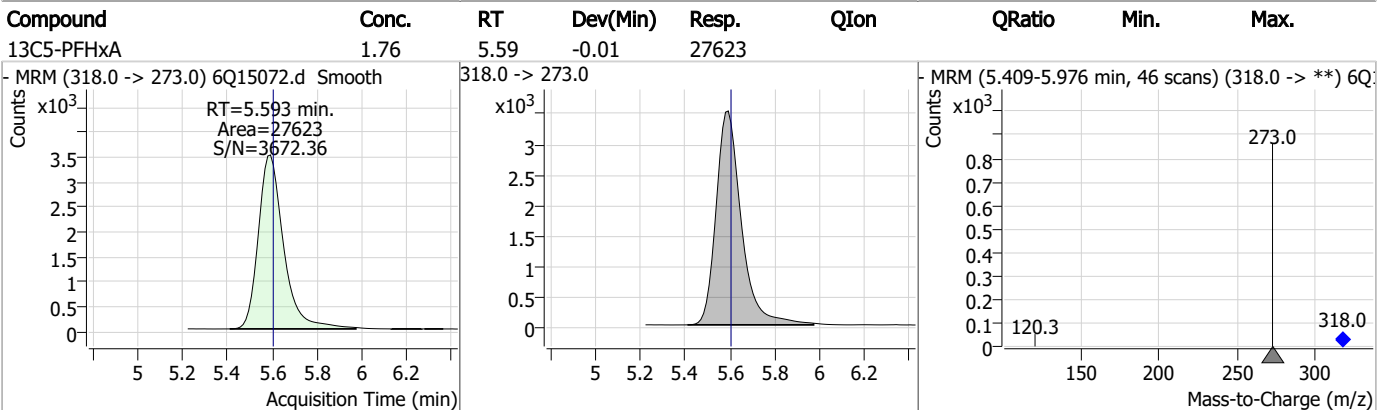
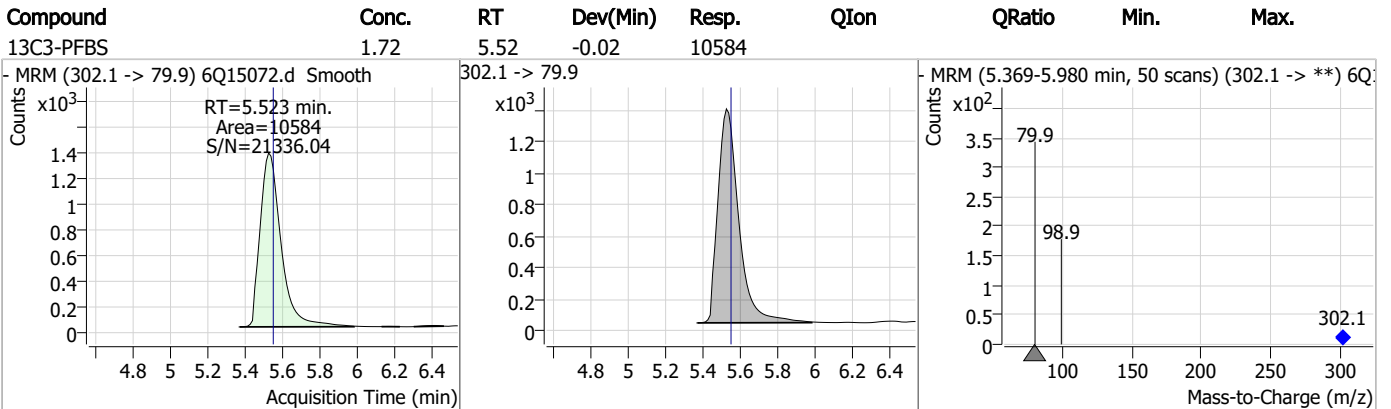
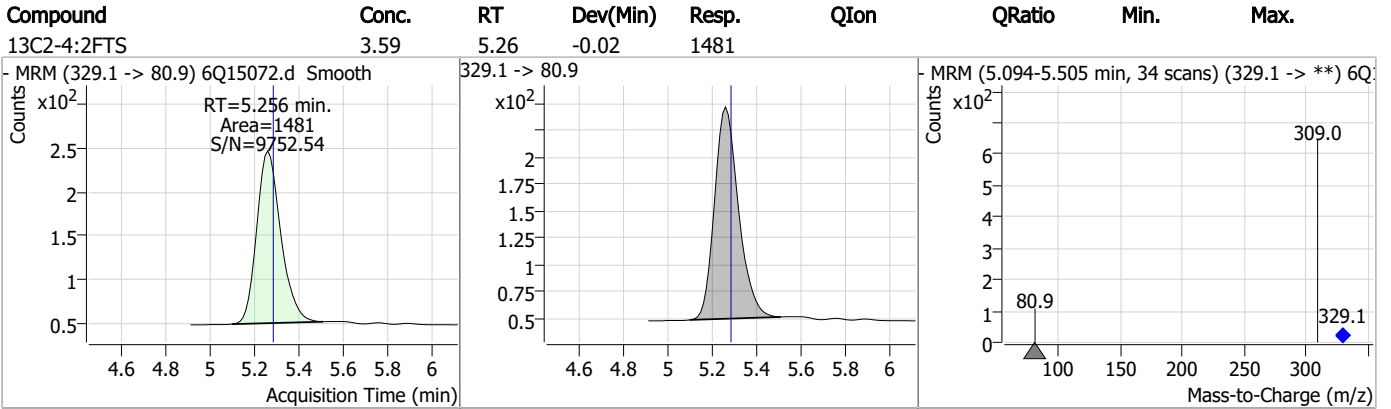
7.1.3
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Perfluorinated Compounds by LC/MS/MS

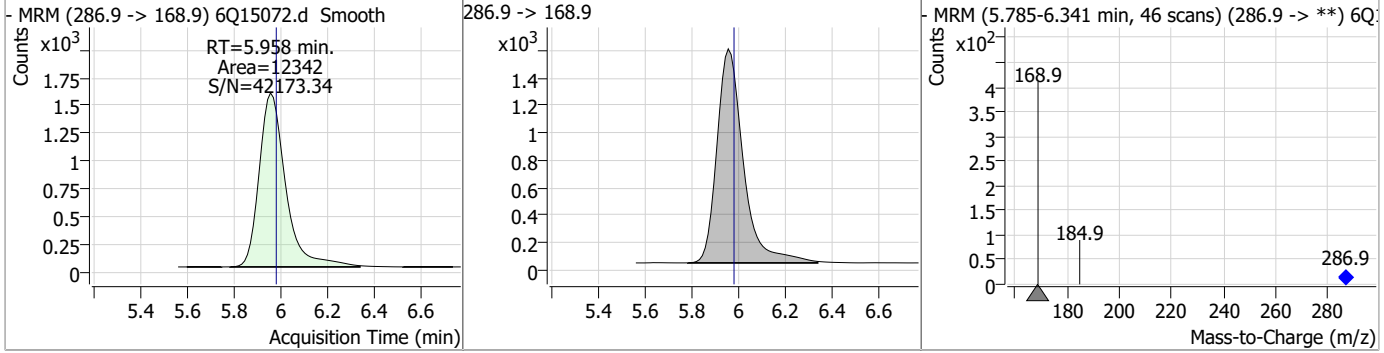


Perfluorinated Compounds by LC/MS/MS

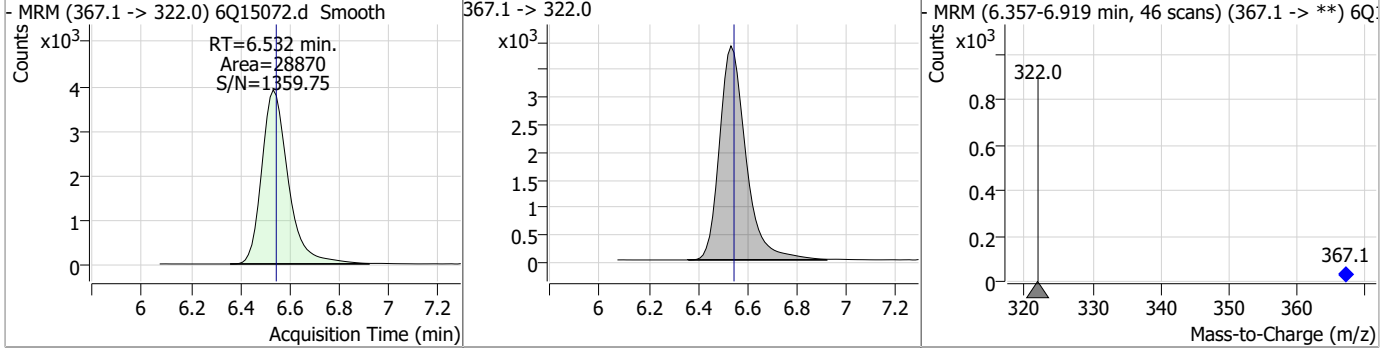


Perfluorinated Compounds by LC/MS/MS

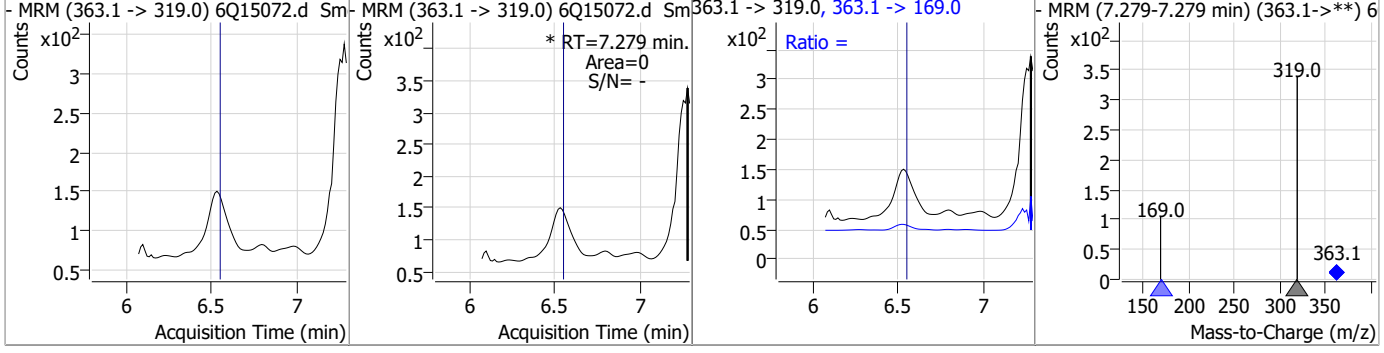
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.11	5.96	-0.02	12342				



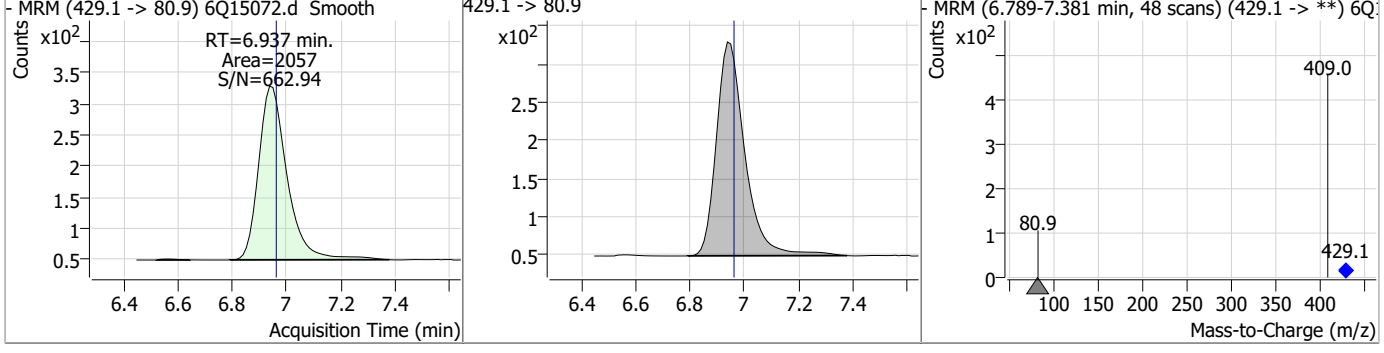
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	1.84	6.53	-0.01	28870				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0	0	0	0	363.1 -> 169.0		6.9	20.6

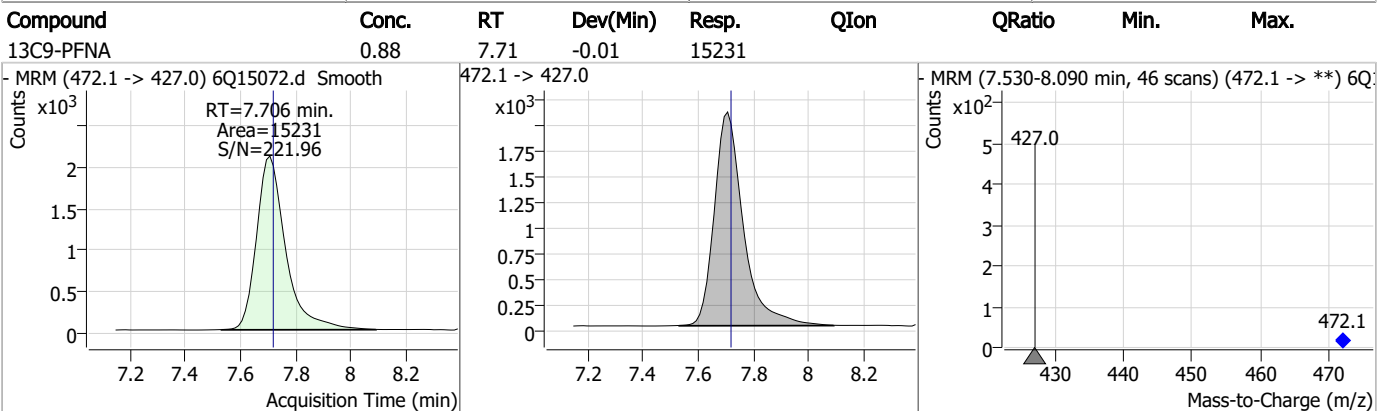
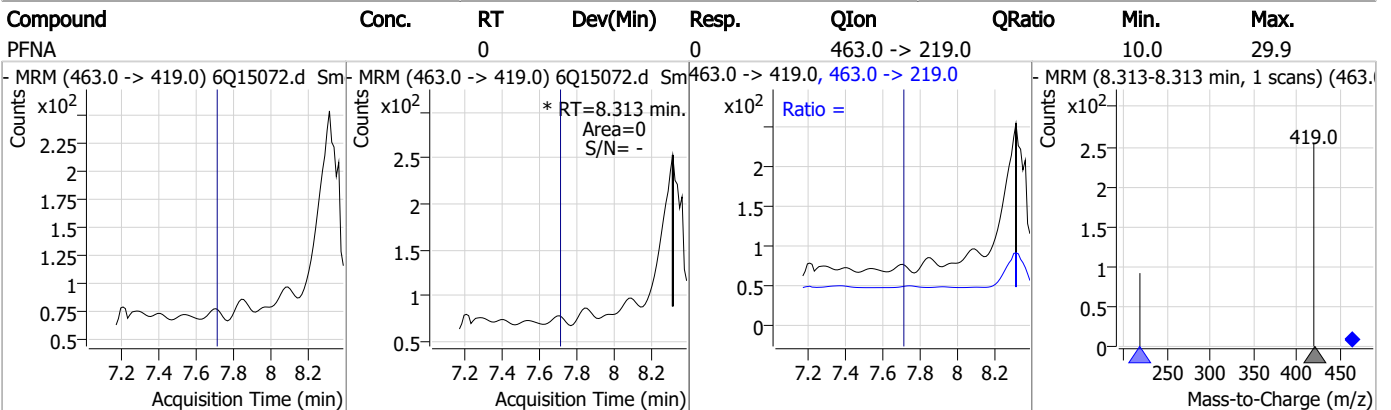
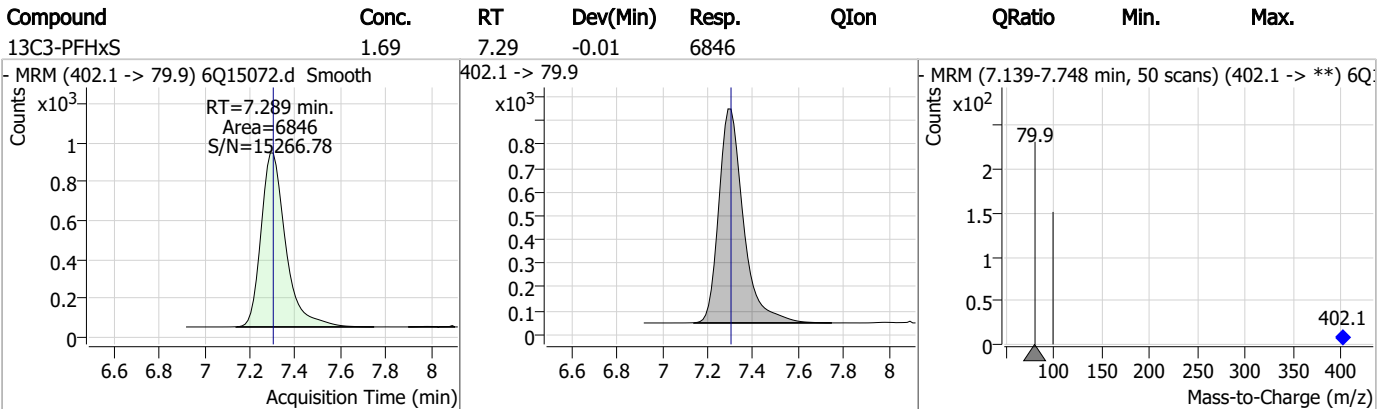
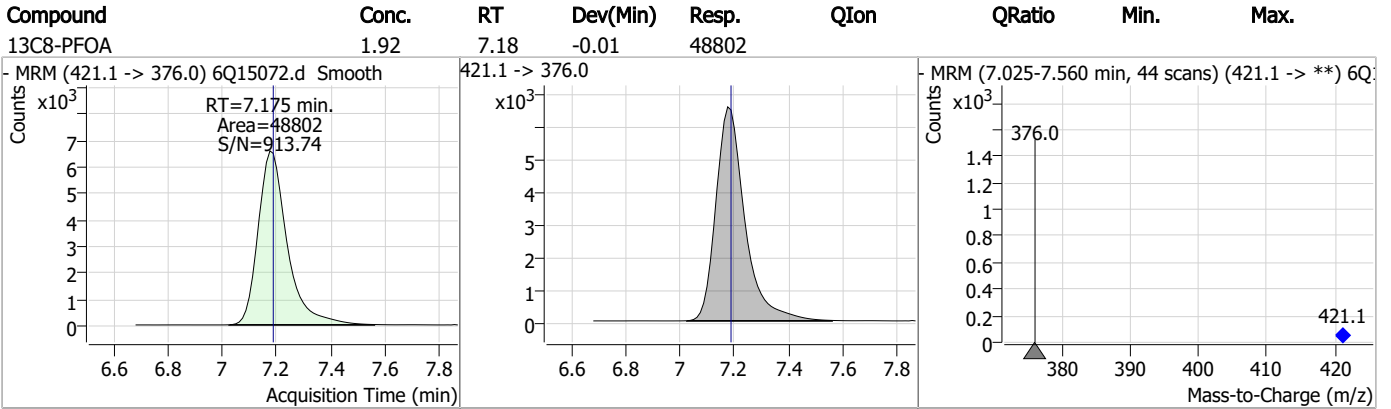


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	3.85	6.94	-0.02	2057				

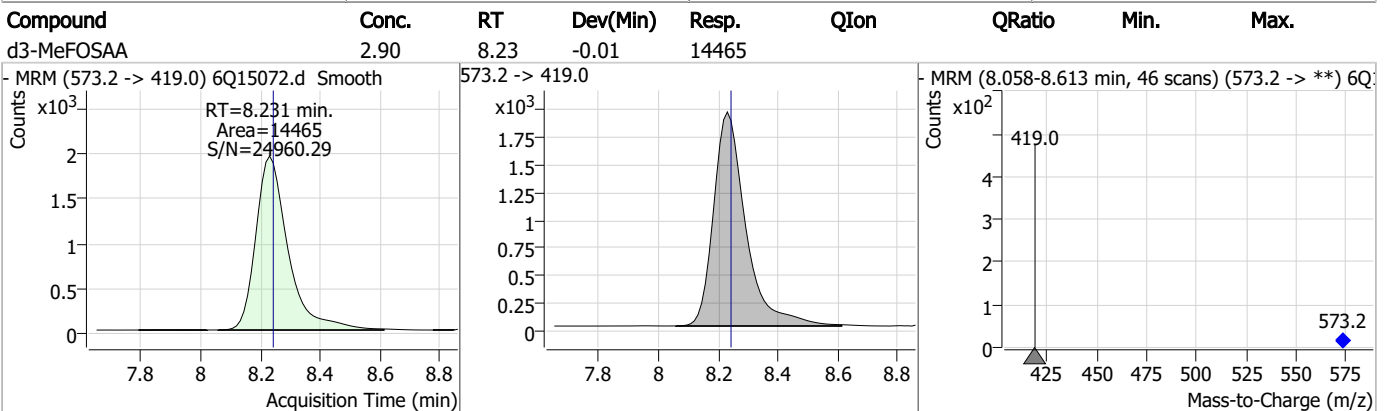
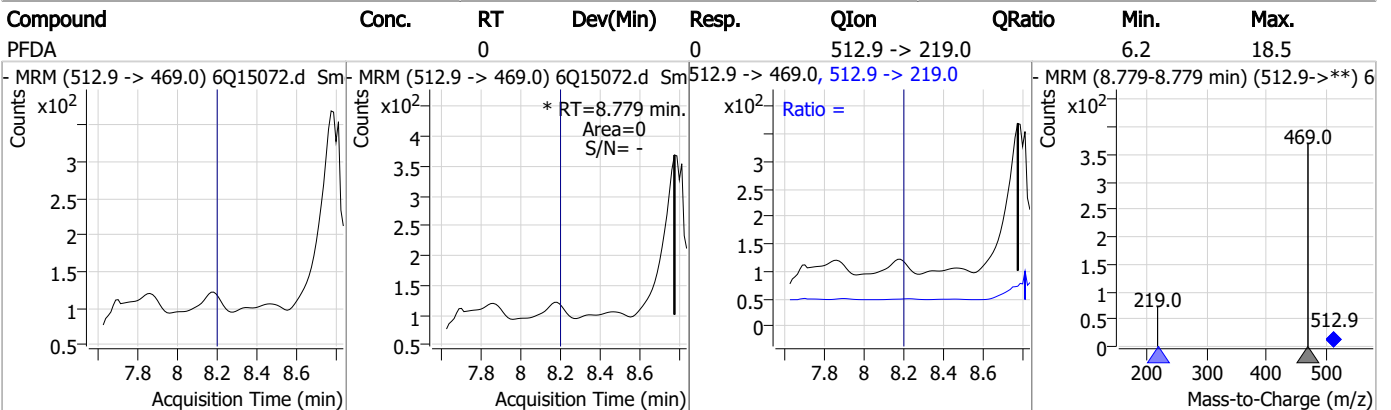
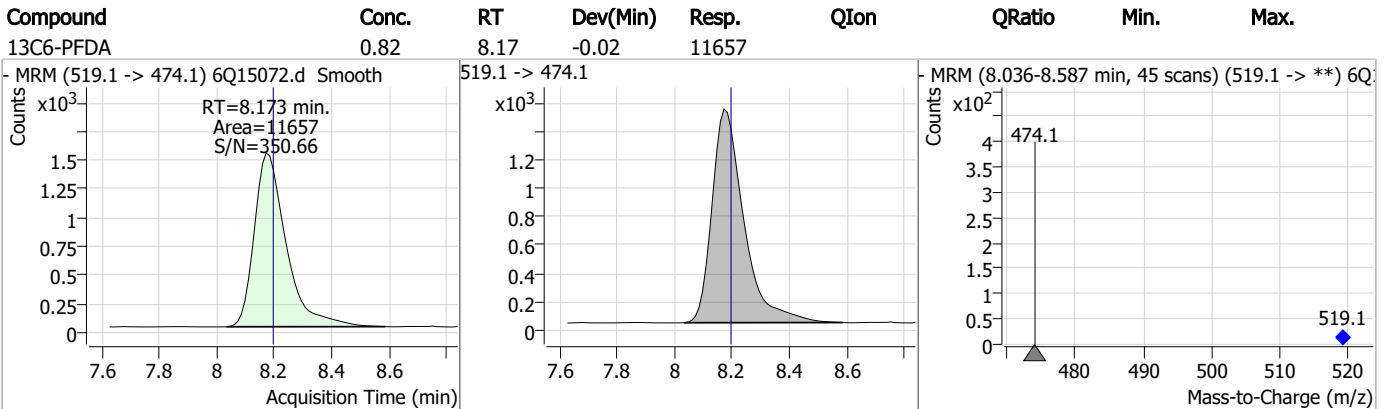
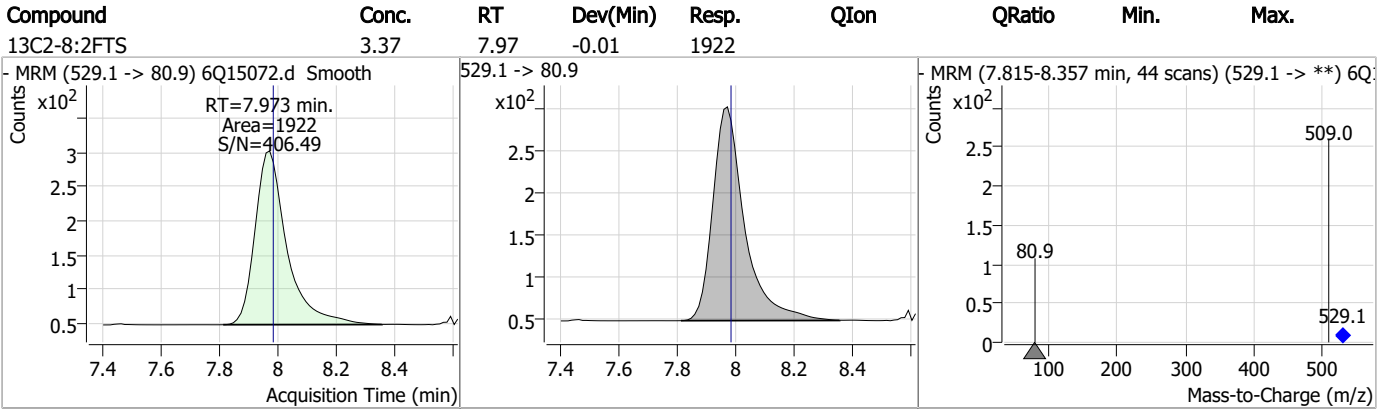


7.1.3
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Perfluorinated Compounds by LC/MS/MS



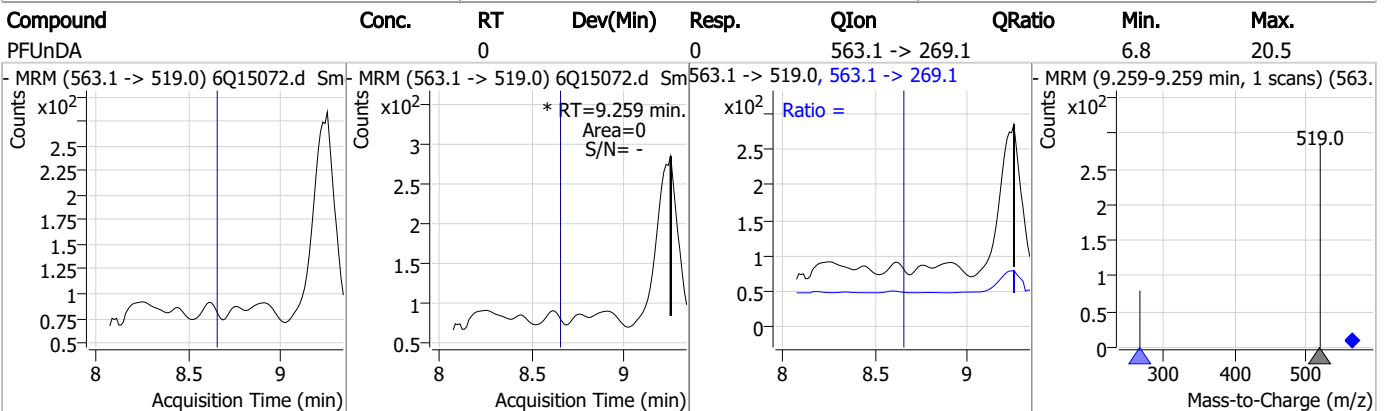
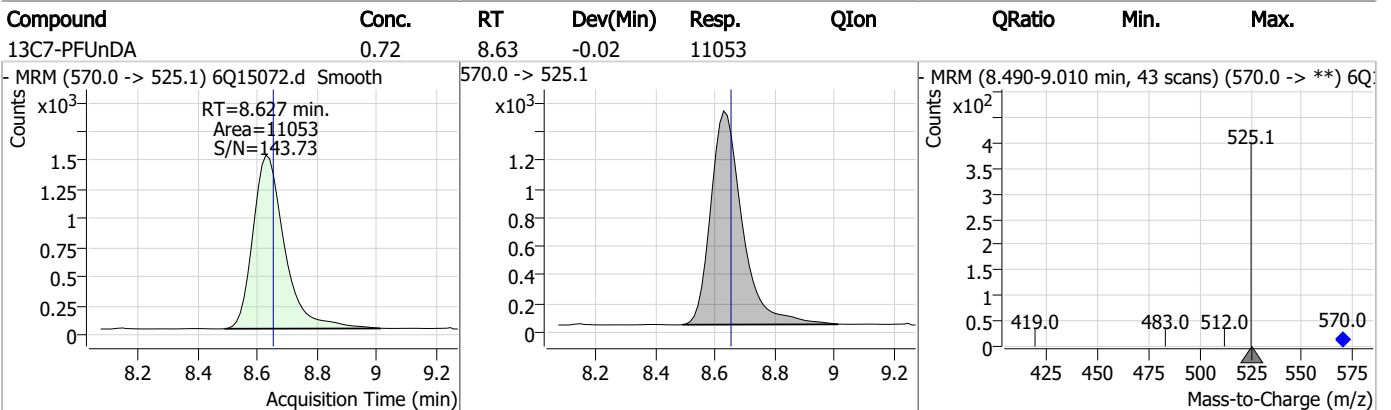
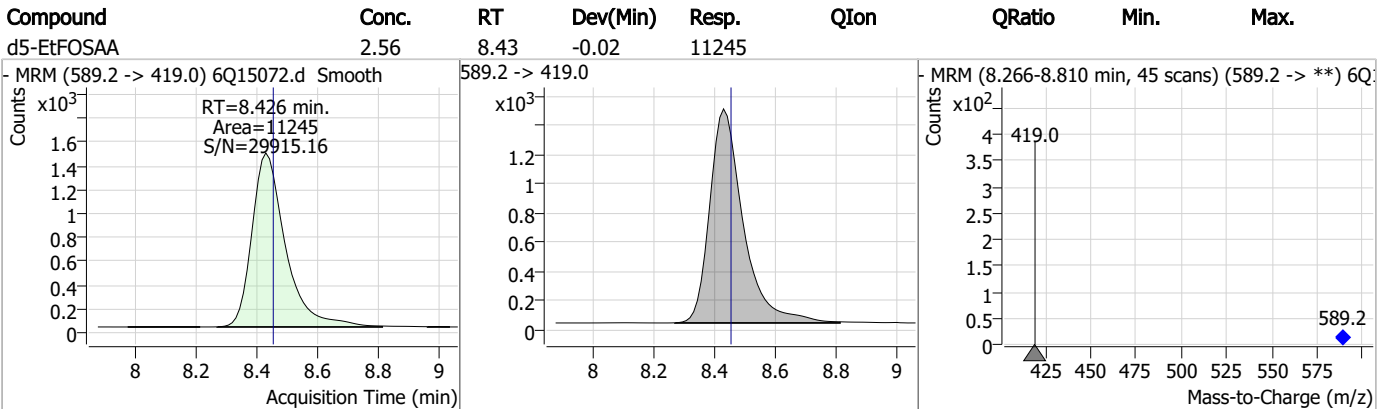
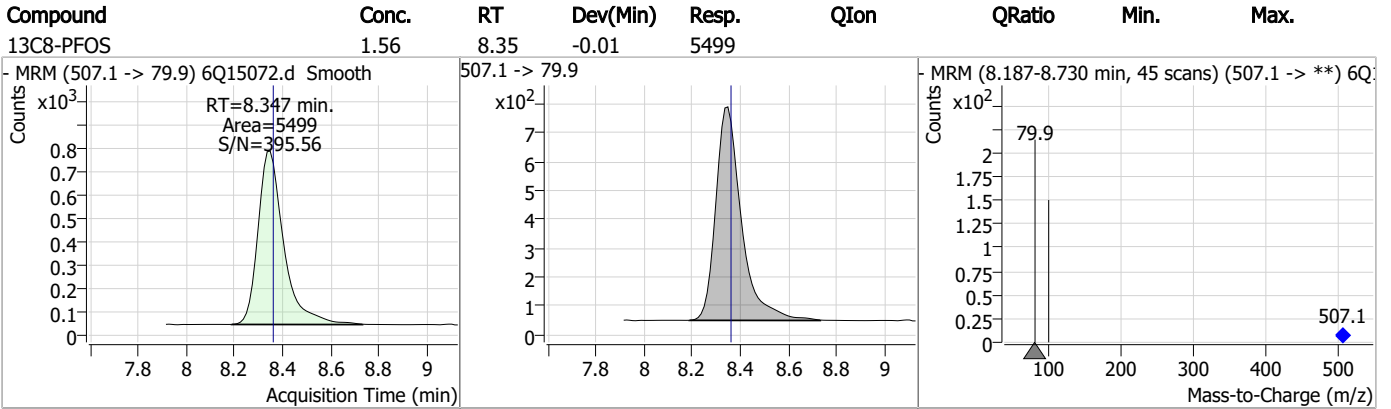
Perfluorinated Compounds by LC/MS/MS



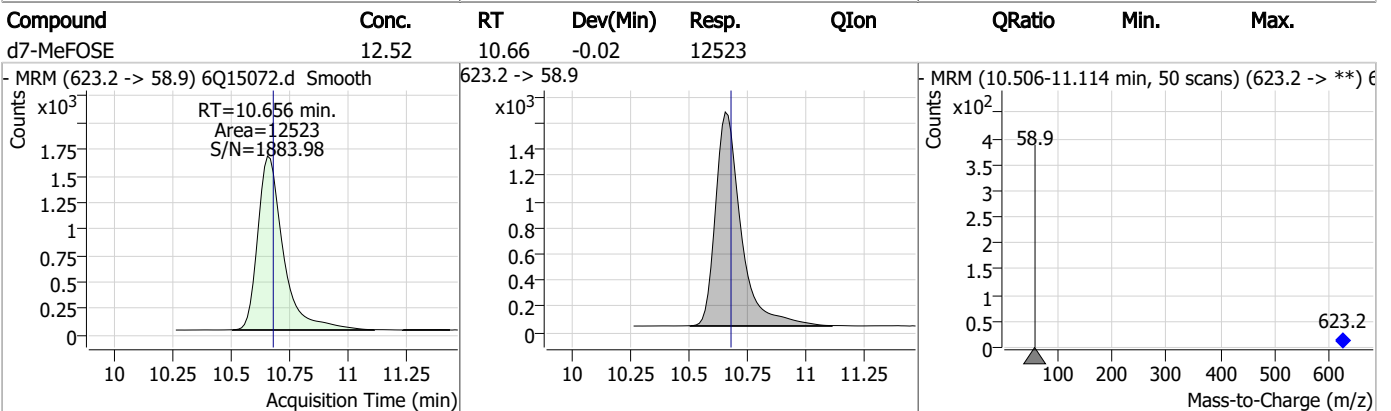
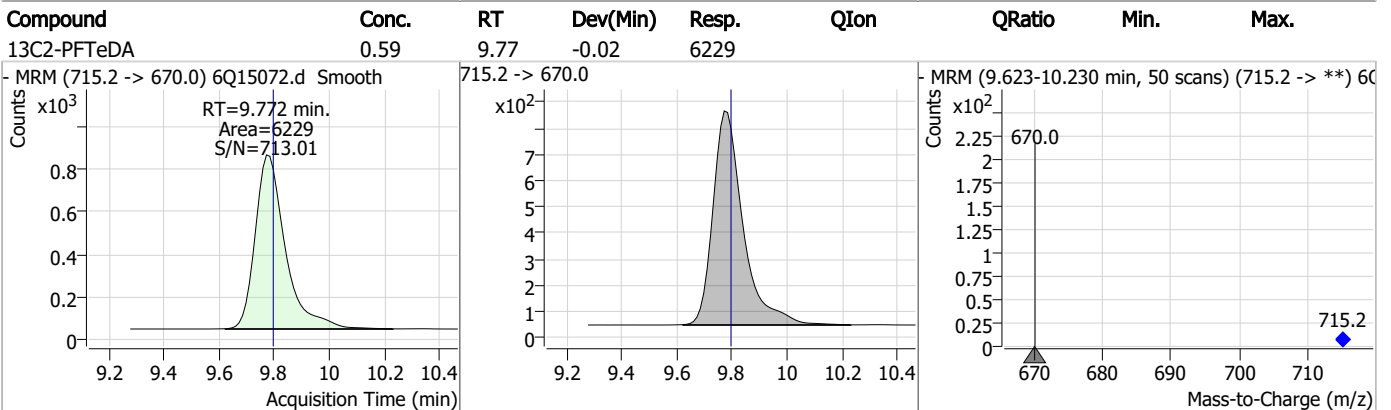
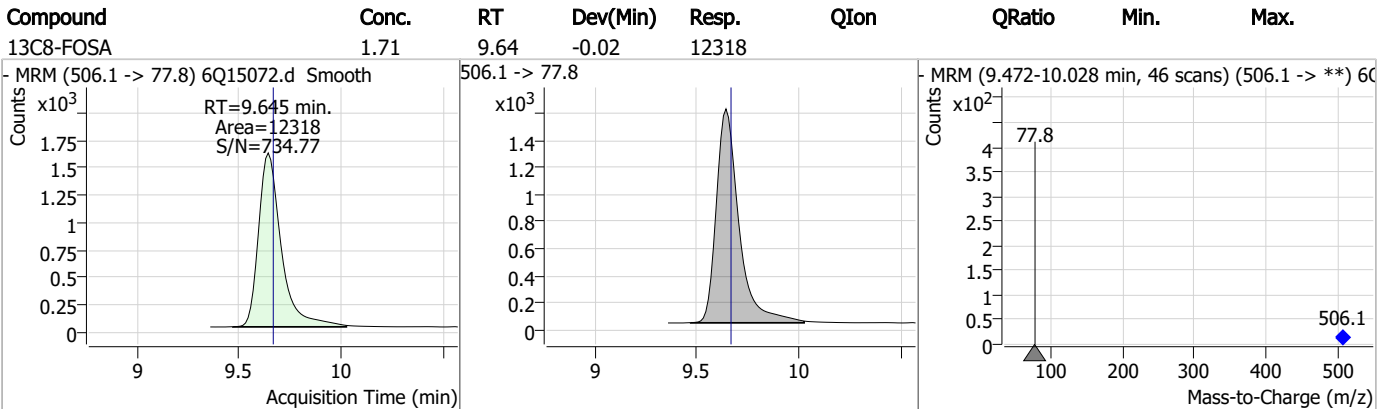
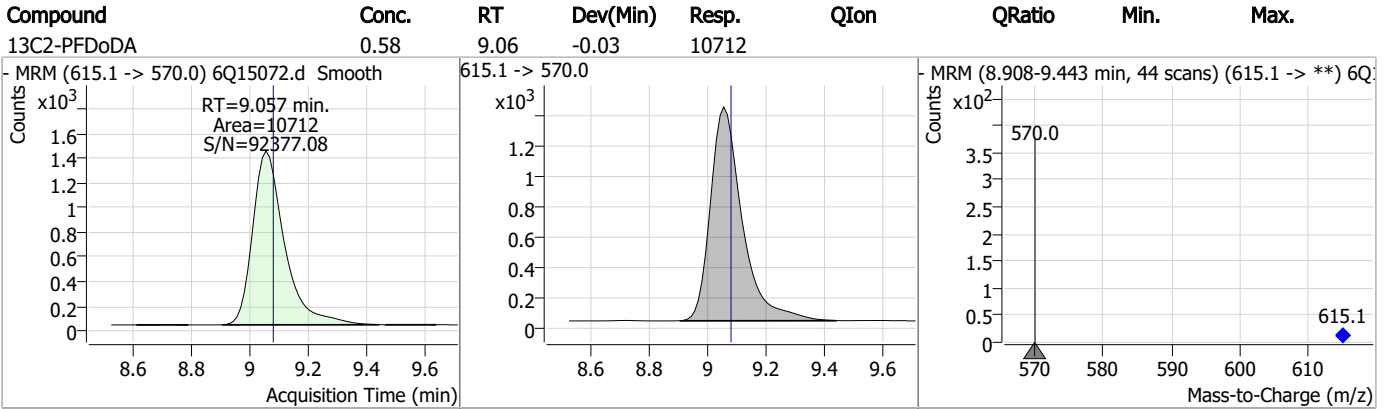
7.1.3

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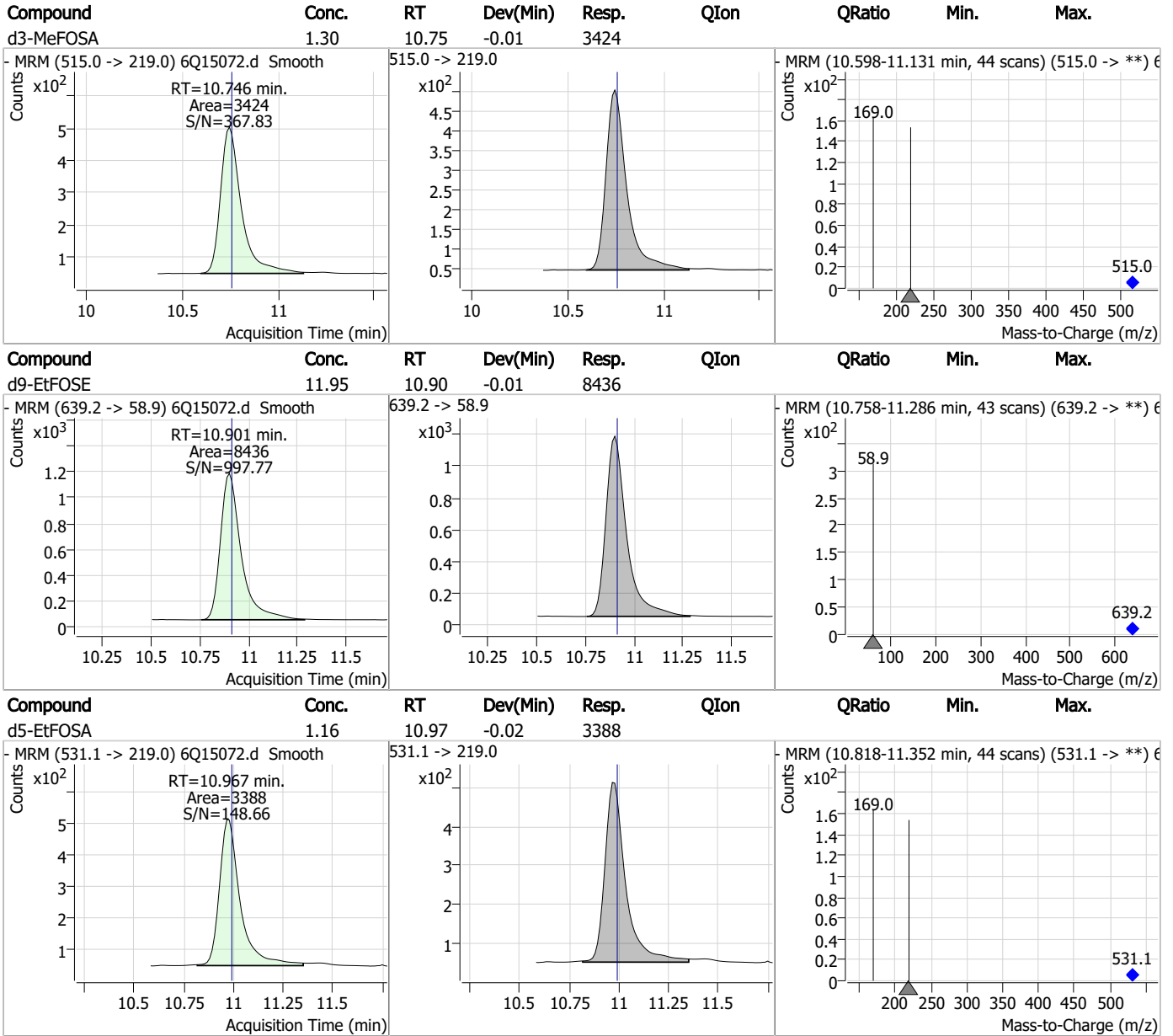
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Manual Integration Approval Summary

Sample Number: FC3427-3 Method: EPA DRAFT 1633
Lab FileID: 6Q15072.D Analyst approved: 03/21/23 13:35 Martha Valls
Injection Time: 03/21/23 06:10 Supervisor approved: 03/21/23 16:12 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanoic acid	307-24-4		5.58	Split peak

7.1.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15074.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 6:38:47 AM
 Sample Name : FC3427-4
 Vial : P2-F2
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	76363	10.00 µg/L	0.037
M5-PFPeA	4.382	268.3 -> 223.0	36552	5.00 µg/L	-0.012
M5-PFHxA	5.593	318.0 -> 273.0	32289	2.50 µg/L	-0.012
M4-PFHpA	6.532	367.1 -> 322.0	32193	2.50 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	54112	2.50 µg/L	-0.012
M9-PFNA	7.706	472.1 -> 427.0	17295	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	14953	1.25 µg/L	-0.012
M7-PFUnDA	8.627	570.0 -> 525.1	16420	1.25 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	17533	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	9619	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	14543	2.50 µg/L	-0.025
M3-PFBS	5.536	302.1 -> 79.9	12197	2.50 µg/L	-0.012
M3-PFHxS	7.302	402.1 -> 79.9	8093	2.50 µg/L	0.000
M8-PFOS	8.347	507.1 -> 79.9	7367	2.50 µg/L	-0.013
M2-4:2FTS	5.256	329.1 -> 80.9	1817	5.00 µg/L	-0.025
M2-6:2FTS	6.949	429.1 -> 80.9	2460	5.00 µg/L	-0.012
M2-8:2FTS	7.973	529.1 -> 80.9	2429	5.00 µg/L	-0.012
M3-MeFOSAA	8.231	573.2 -> 419.0	18572	5.00 µg/L	-0.012
M3-HFPO-DA	5.958	286.9 -> 168.9	13124	10.00 µg/L	-0.025
M5-EtFOSAA	8.426	589.2 -> 419.0	17195	5.00 µg/L	-0.025
M7-MeFOSE	10.656	623.2 -> 58.9	19374	25.00 µg/L	-0.025
M9-EtFOSE	10.901	639.2 -> 58.9	13753	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	4809	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	4219	2.50 µg/L	-0.012
13C4-PFOS	8.348	502.8 -> 79.9	8754	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	34104	5.00 µg/L	0.025
18O2-PFHxS	7.301	403.0 -> 83.9	5532	2.50 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	68913	2.50 µg/L	-0.012
13C2-PFDA	8.185	515.1 -> 470.1	19773	1.25 µg/L	-0.012
13C5-PFNA	7.706	468.0 -> 423.0	19345	1.25 µg/L	-0.012
13C2-PFHxA	5.594	315.1 -> 270.0	34029	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1817	5.72 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.5%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2460	5.98 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.7%		
13C2-8:2FTS	7.973	529.1 -> 80.9	2429	5.54 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.8%		
13C2-PFDoDA	9.057	615.1 -> 570.0	17533	1.13 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	9619	1.09 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.2%		
13C3-PFBS	5.536	302.1 -> 79.9	12197	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C3-PFHxS	7.302	402.1 -> 79.9	8093	2.59 µg/L	0.000

7.14
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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 = 103.6%	
13C4-PFBA	2.985	216.8 -> 171.9	76363	9.76 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C4-PFHpA	6.532	367.1 -> 322.0	32193	2.31 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C5-PFHxA	5.593	318.0 -> 273.0	32289	2.33 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C5-PFPeA	4.382	268.3 -> 223.0	36552	4.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C6-PFDA	8.185	519.1 -> 474.1	14953	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C7-PFUnDA	8.627	570.0 -> 525.1	16420	1.29 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C8-FOSA	9.645	506.1 -> 77.8	14543	2.39 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOA	7.175	421.1 -> 376.0	54112	2.35 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C8-PFOS	8.347	507.1 -> 79.9	7367	2.48 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C9-PFNA	7.706	472.1 -> 427.0	17295	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.7%	
d3-MeFOSAA	8.231	573.2 -> 419.0	18572	4.42 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.3%	
13C3-HFPO-DA	5.958	286.9 -> 168.9	13124	8.54 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.4%	
d3-MeFOSA	10.746	515.0 -> 219.0	4219	1.90 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.9%	
d5-EtFOSAA	8.426	589.2 -> 419.0	17195	4.65 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d7-MeFOSE	10.656	623.2 -> 58.9	19374	23.01 µg/L	-0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.0%	
d9-EtFOSE	10.901	639.2 -> 58.9	13753	23.14 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
d5-EtFOSA	10.979	531.1 -> 219.0	4809	1.96 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.3%	

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	8.766	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	7.254	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	8.313	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		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	9.222	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		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				
PFEESA	-					

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

7.1.4
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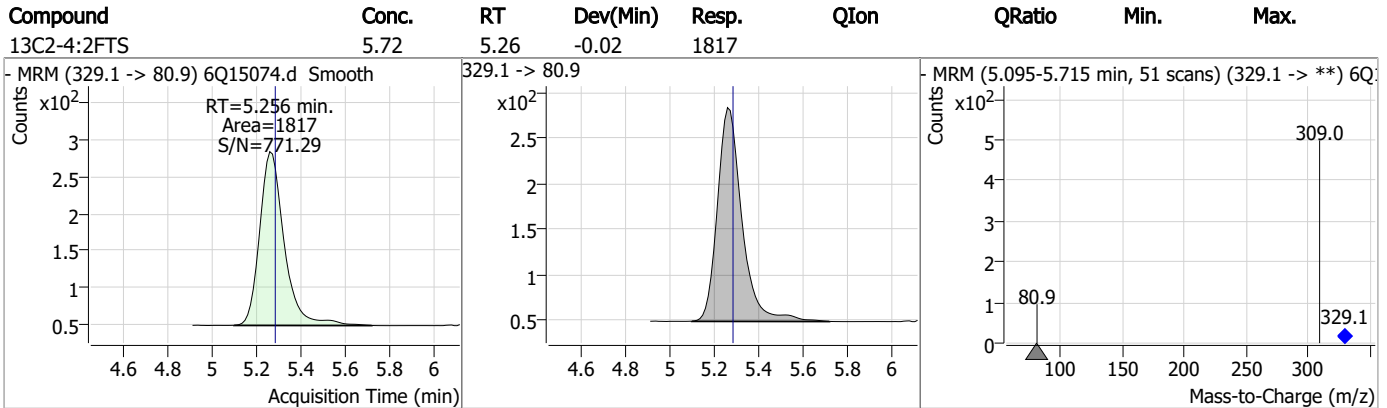
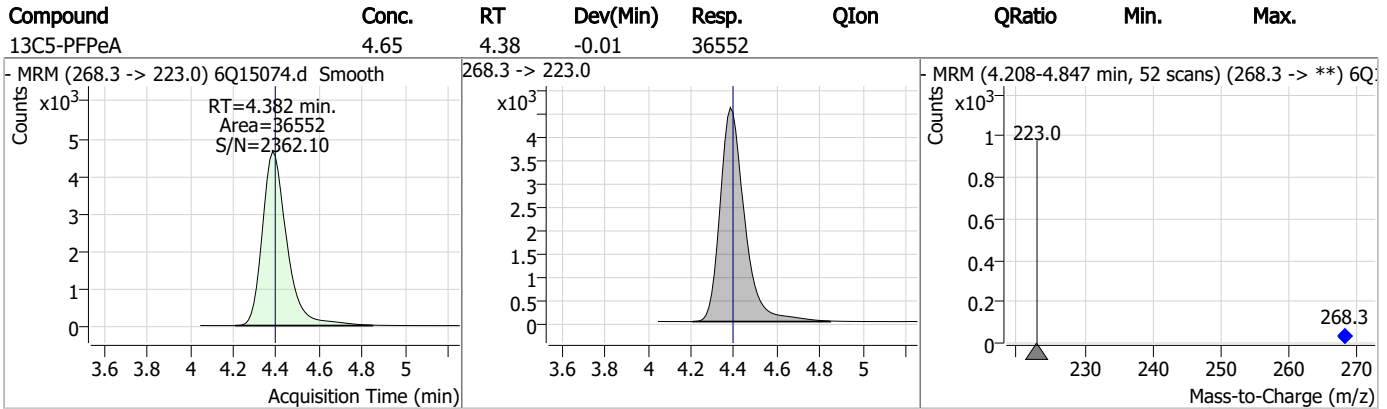
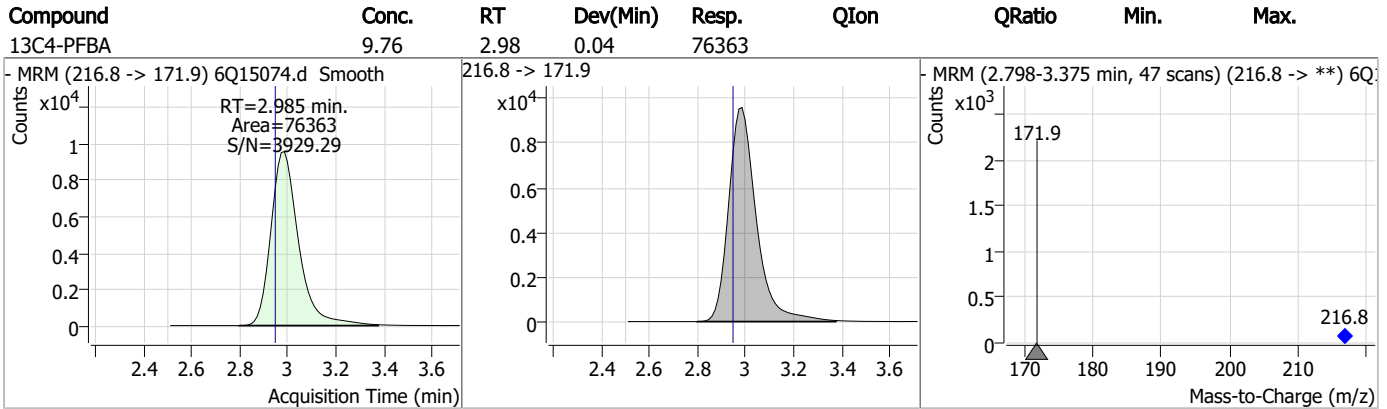
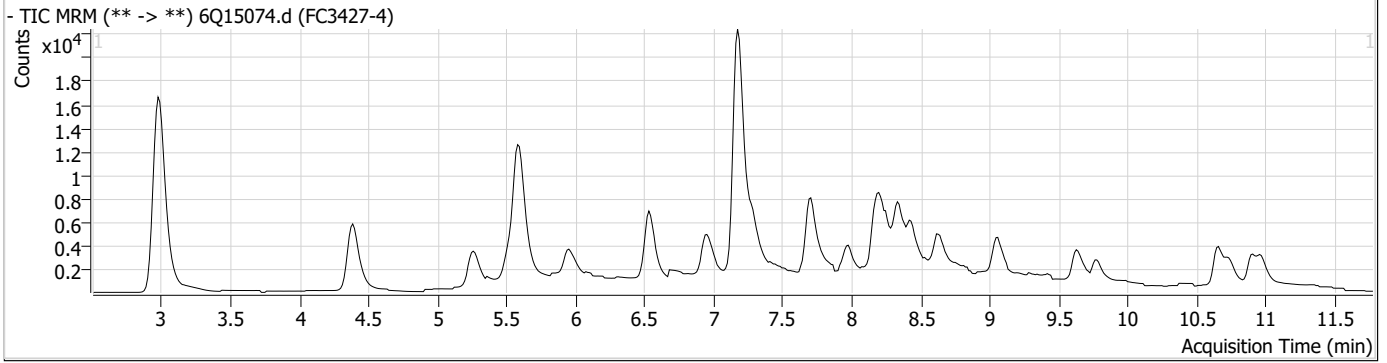
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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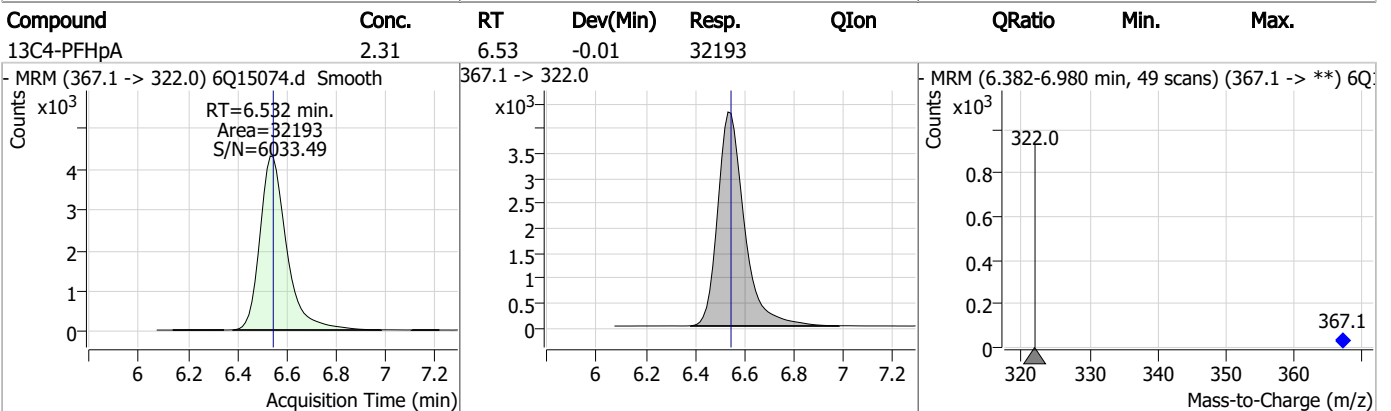
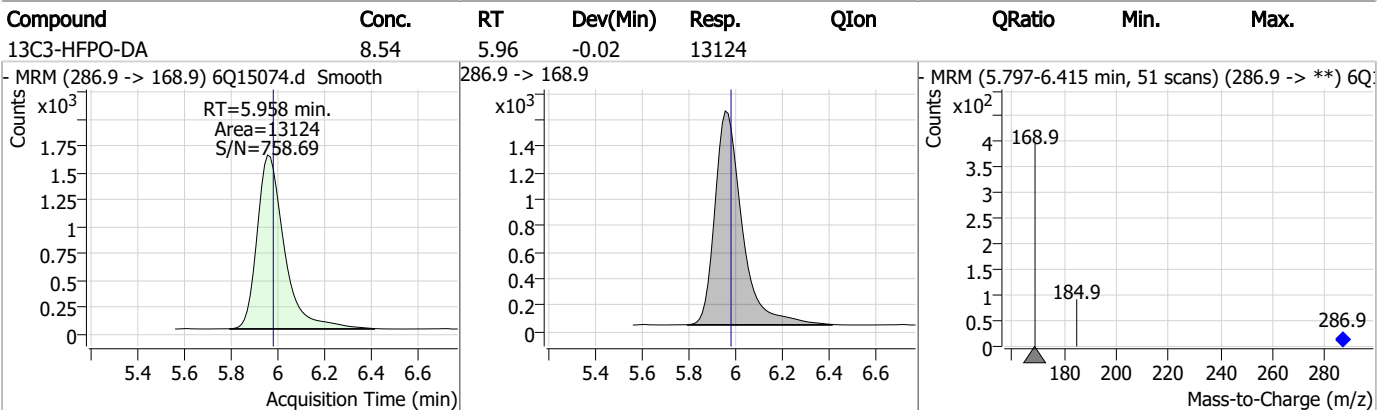
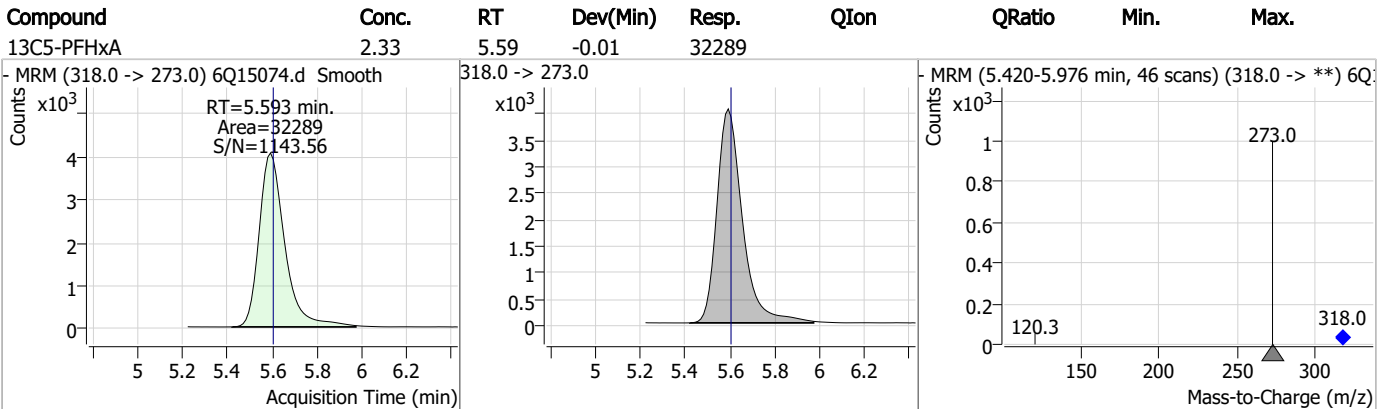
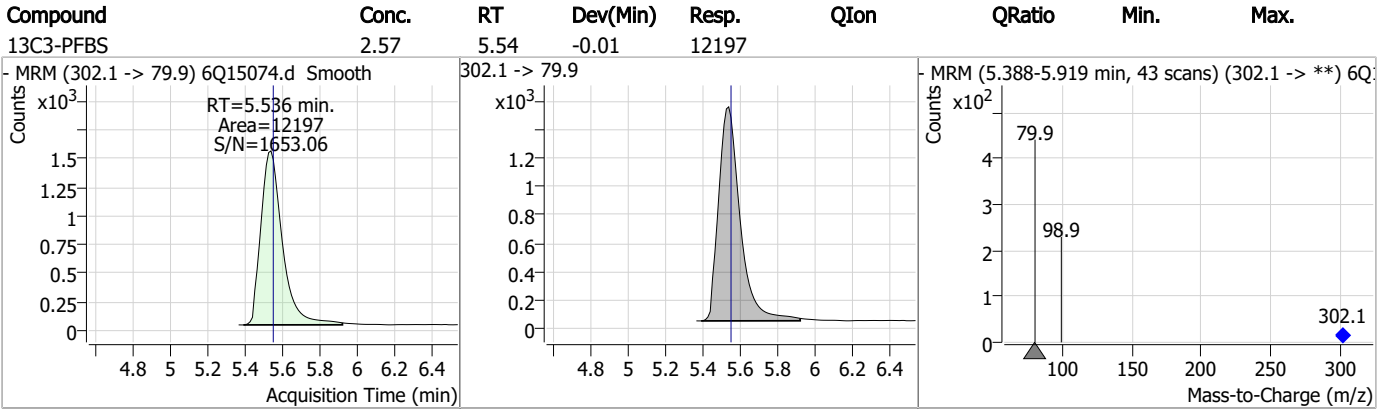
7.1.4

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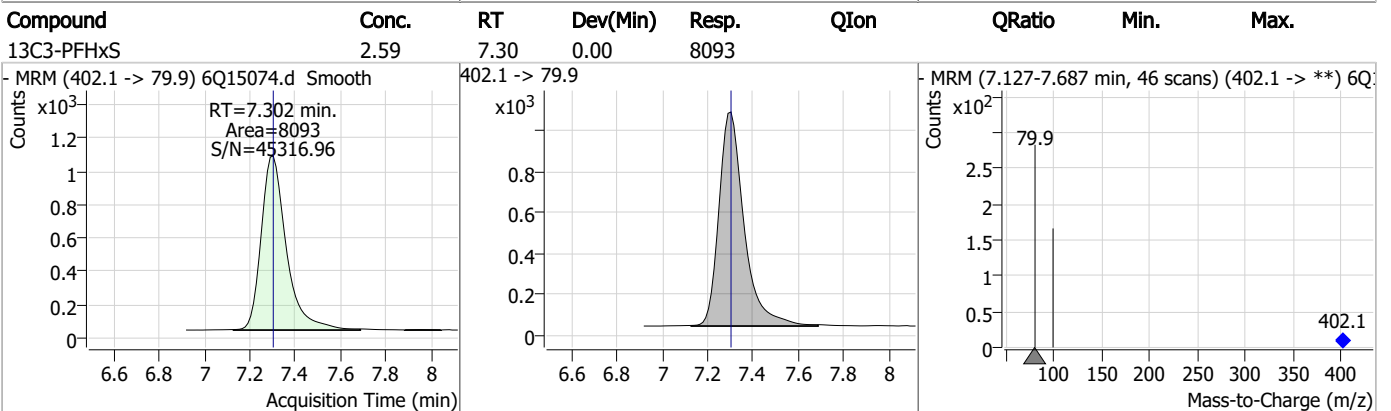
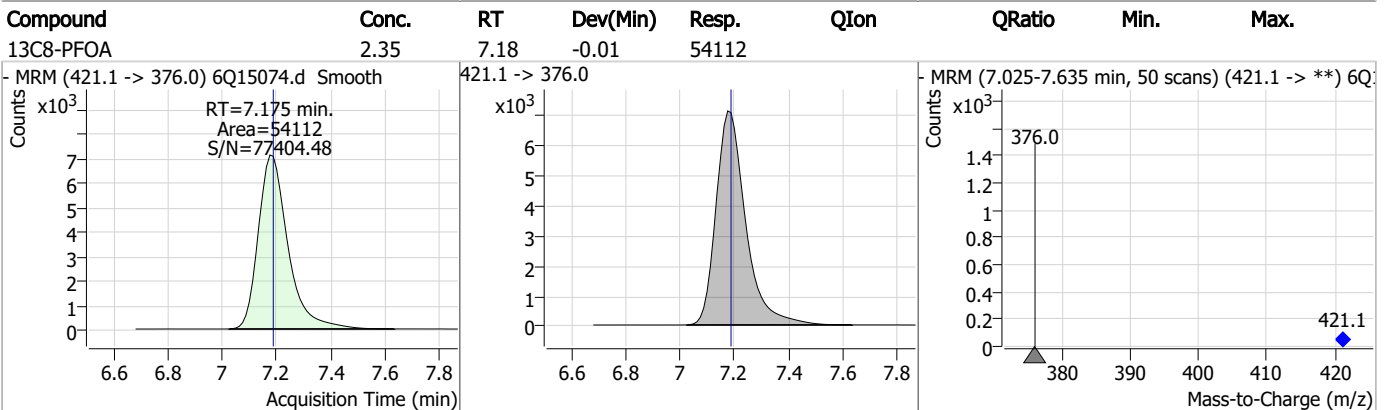
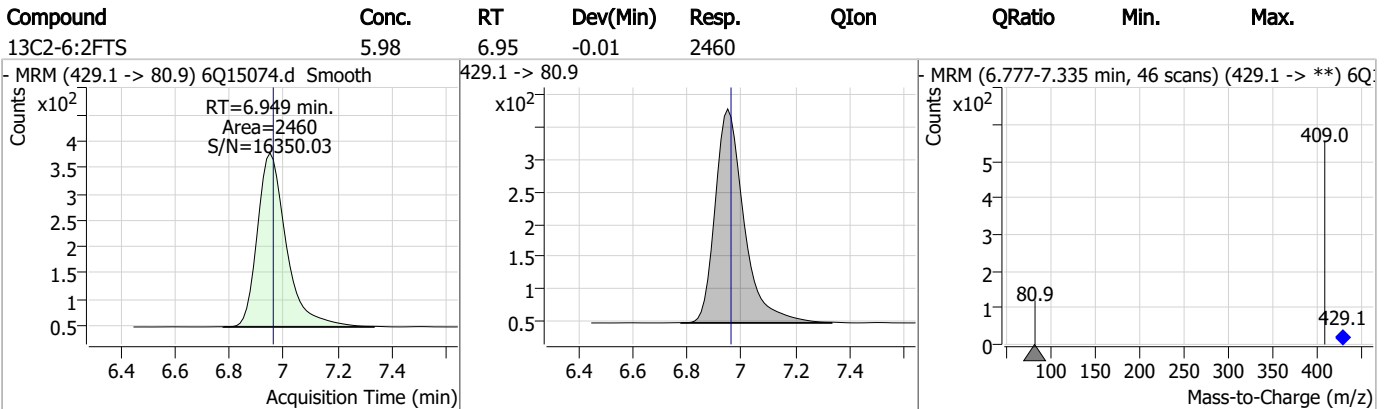
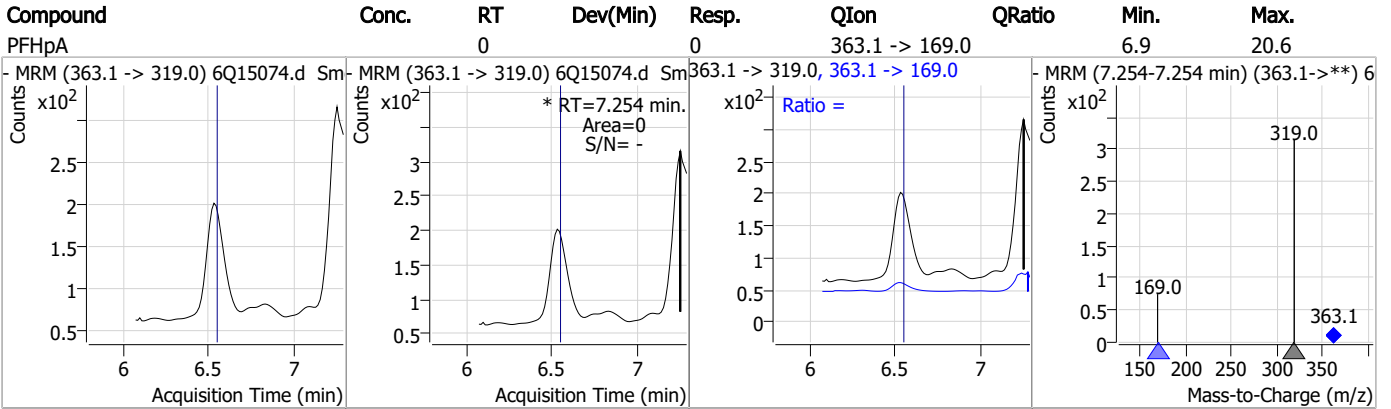
Perfluorinated Compounds by LC/MS/MS



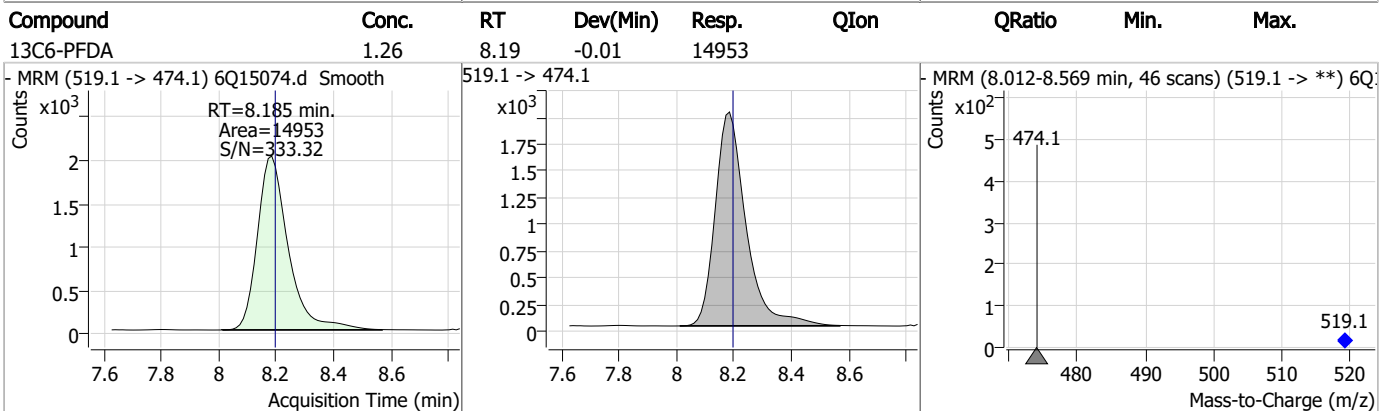
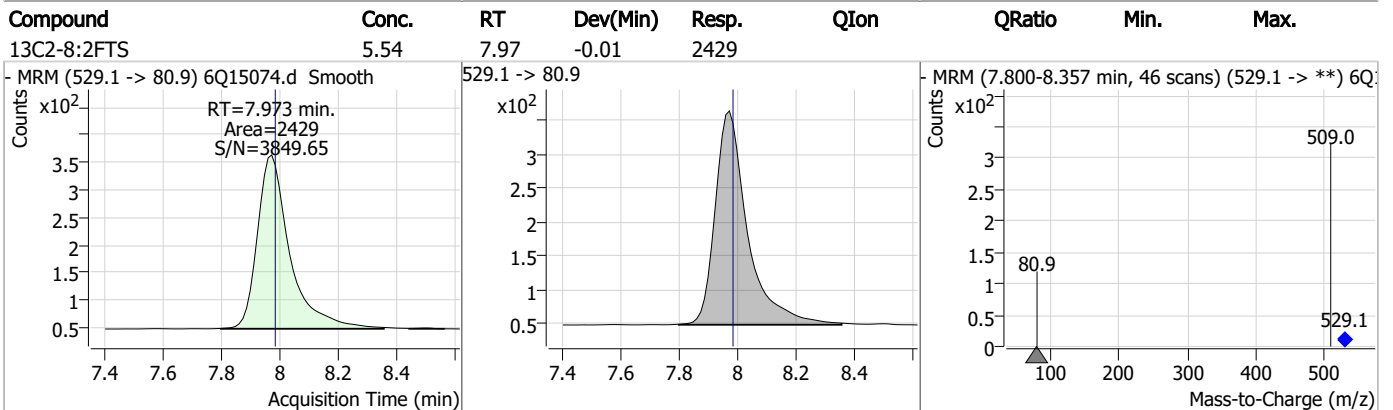
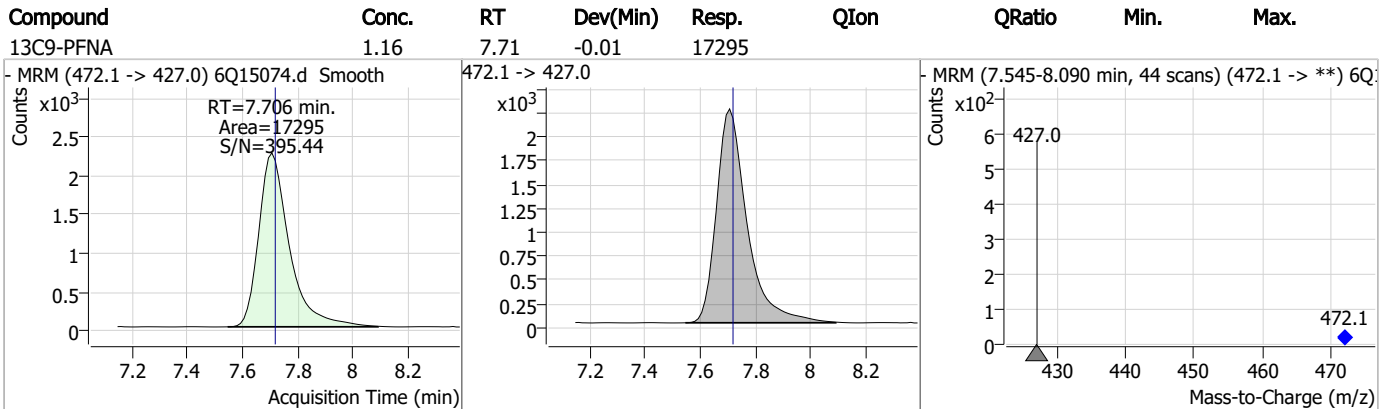
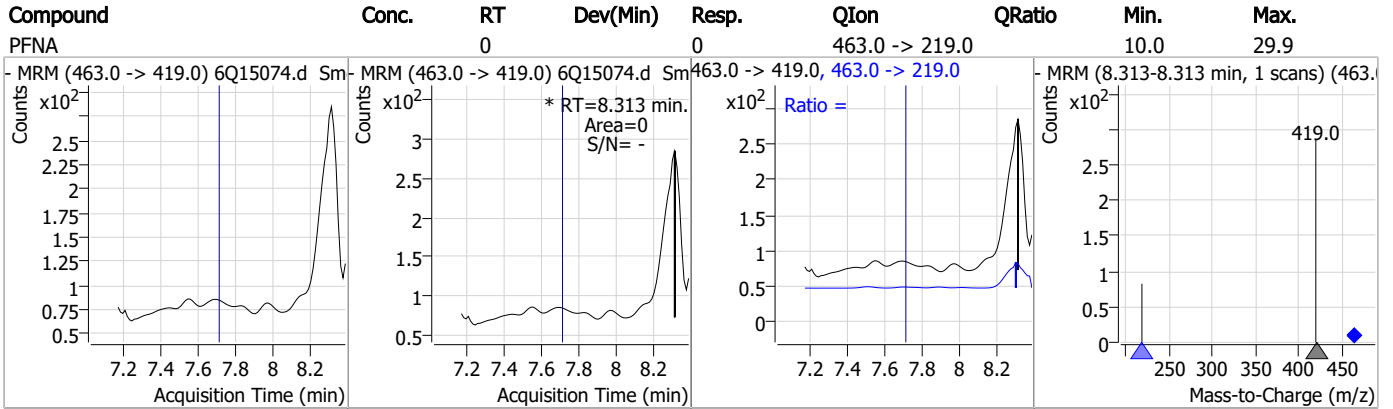
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

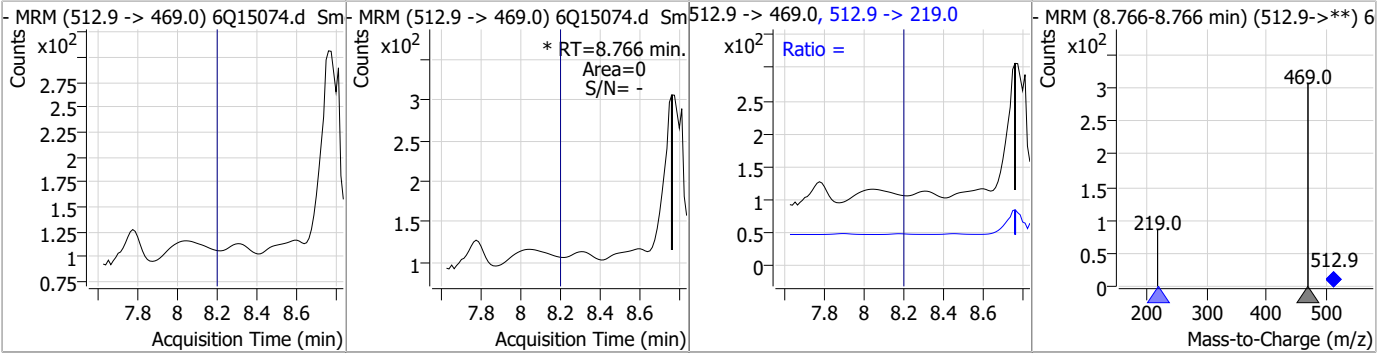


Perfluorinated Compounds by LC/MS/MS

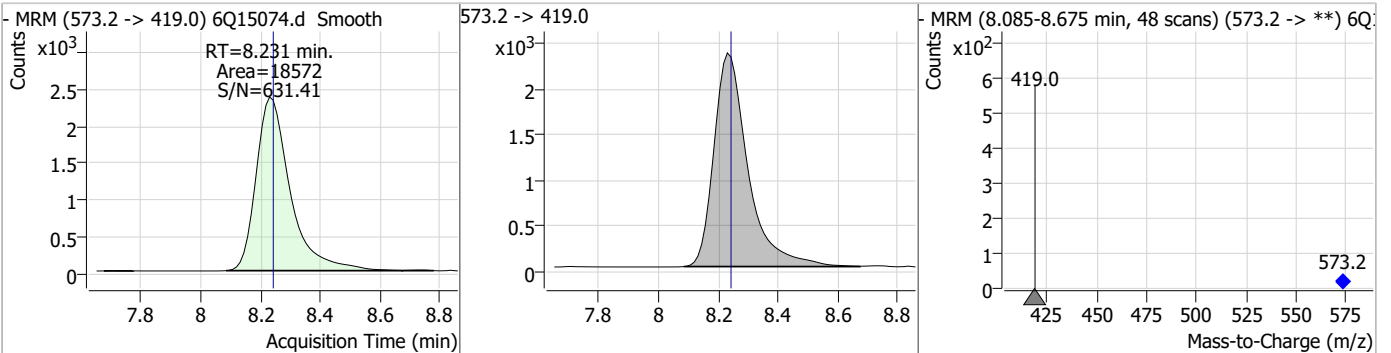


Perfluorinated Compounds by LC/MS/MS

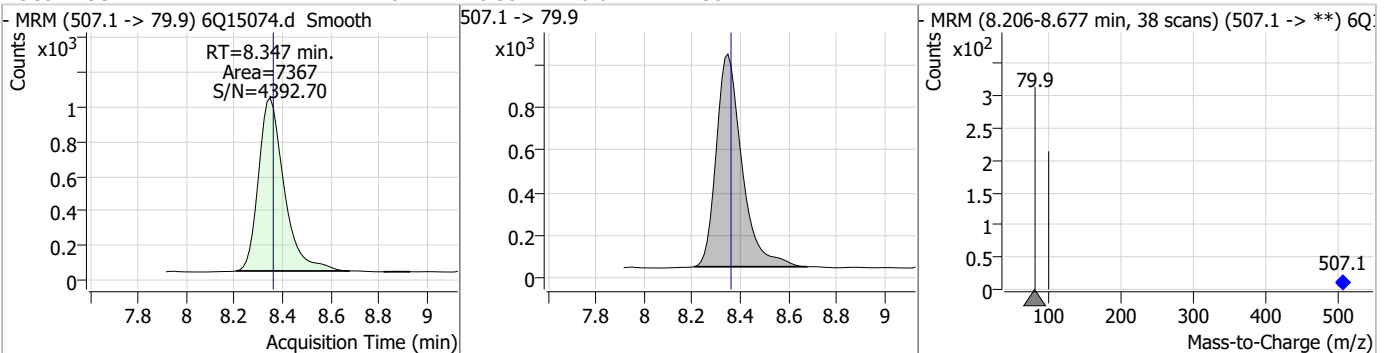
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0	0		0	512.9 -> 219.0		6.2	18.5



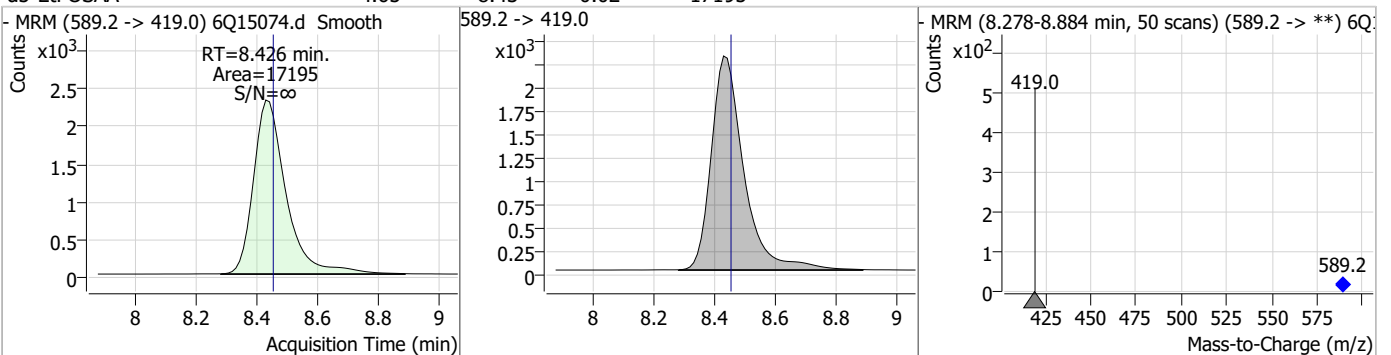
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.42	8.23	-0.01	18572				



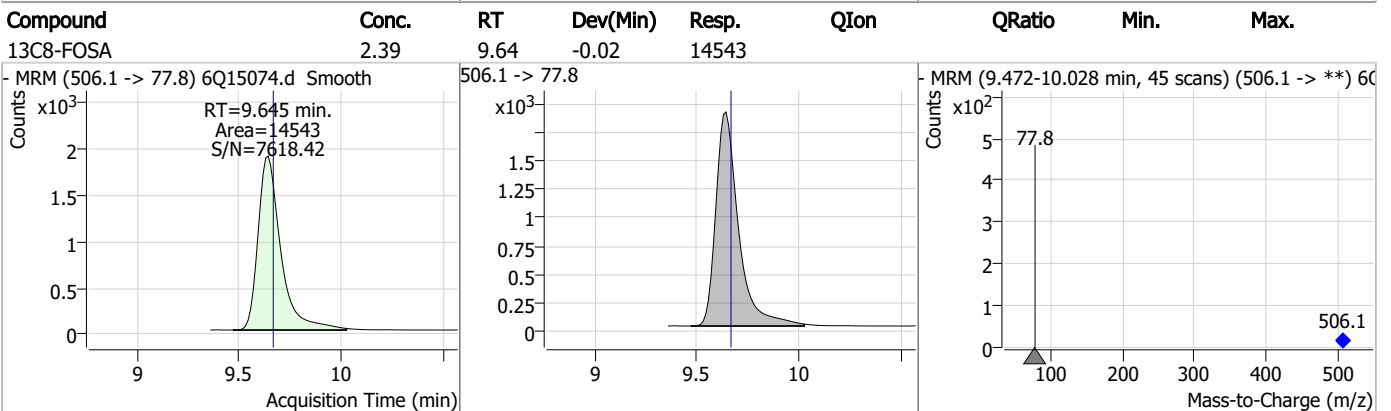
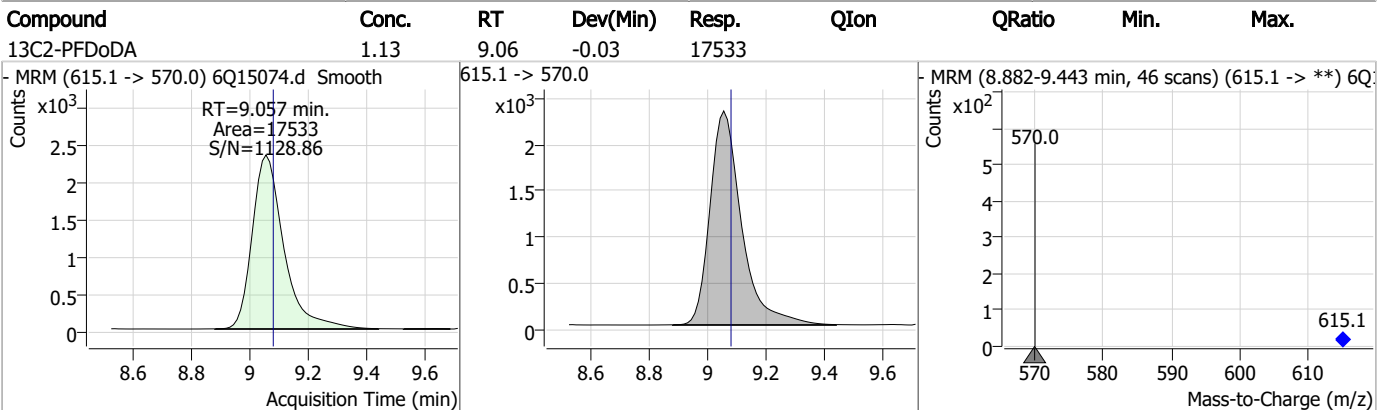
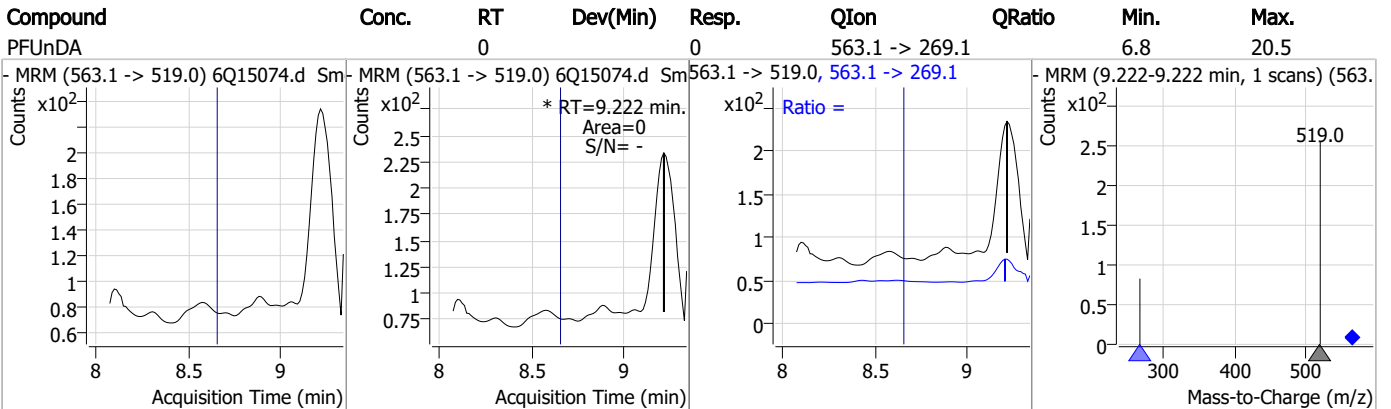
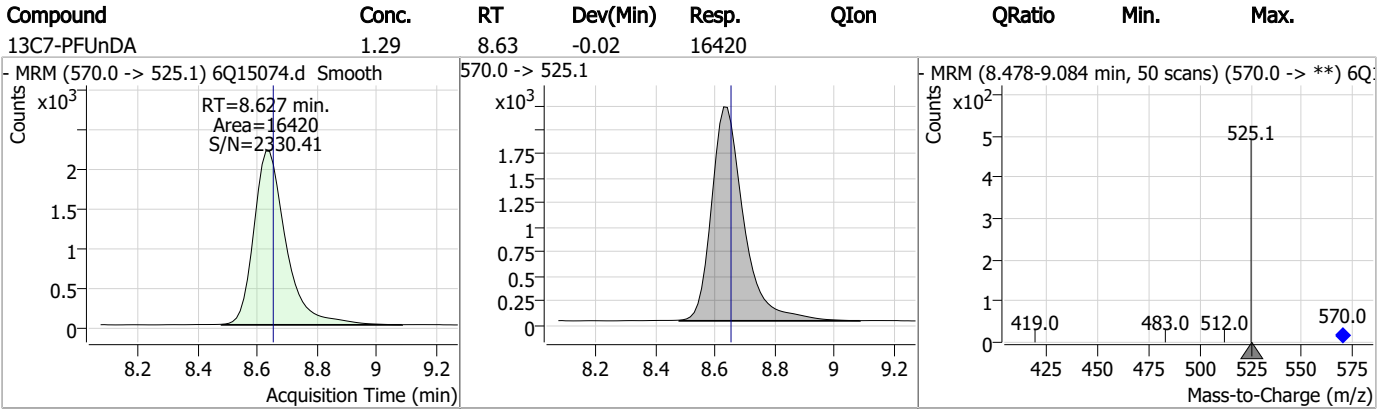
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.48	8.35	-0.01	7367				



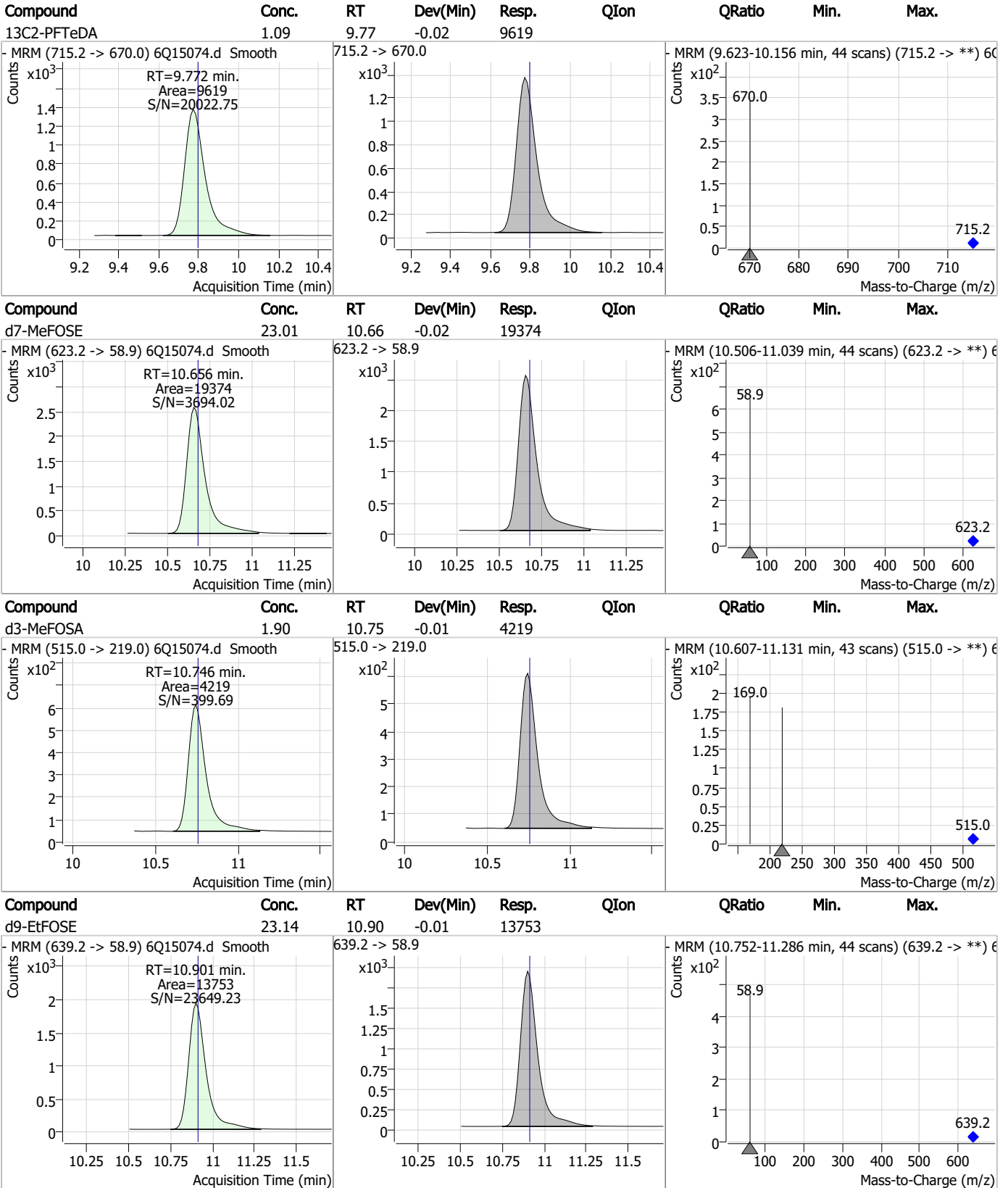
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.65	8.43	-0.02	17195				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

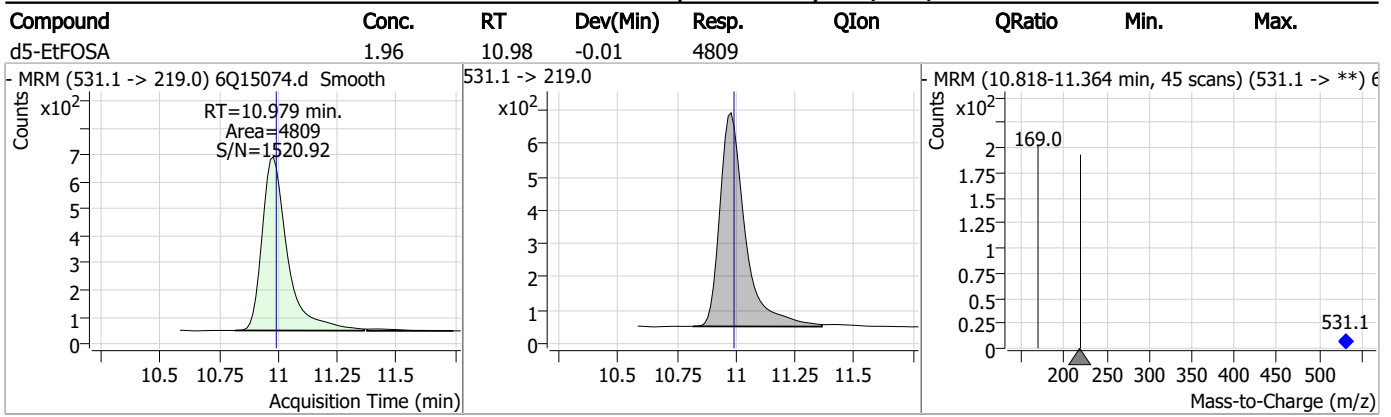


7.1.4

7



Perfluorinated Compounds by LC/MS/MS



7.1.4
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15075.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 6:52:45 AM
 Sample Name : FC3427-5
 Vial : P2-F3
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	76343	10.00 µg/L	0.025
M5-PFPeA	4.382	268.3 -> 223.0	35314	5.00 µg/L	-0.012
M5-PFHxA	5.593	318.0 -> 273.0	31225	2.50 µg/L	-0.012
M4-PFHpA	6.532	367.1 -> 322.0	31137	2.50 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	52483	2.50 µg/L	-0.012
M9-PFNA	7.706	472.1 -> 427.0	16674	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	14351	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	13463	1.25 µg/L	-0.012
M2-PFDoDA	9.057	615.1 -> 570.0	15145	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	7797	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	14468	2.50 µg/L	-0.025
M3-PFBS	5.523	302.1 -> 79.9	12318	2.50 µg/L	-0.025
M3-PFHxS	7.302	402.1 -> 79.9	7906	2.50 µg/L	0.000
M8-PFOS	8.347	507.1 -> 79.9	6897	2.50 µg/L	-0.013
M2-4:2FTS	5.256	329.1 -> 80.9	1855	5.00 µg/L	-0.025
M2-6:2FTS	6.949	429.1 -> 80.9	2271	5.00 µg/L	-0.012
M2-8:2FTS	7.973	529.1 -> 80.9	2404	5.00 µg/L	-0.012
M3-MeFOSAA	8.231	573.2 -> 419.0	17848	5.00 µg/L	-0.012
M3-HFPO-DA	5.958	286.9 -> 168.9	14124	10.00 µg/L	-0.025
M5-EtFOSAA	8.438	589.2 -> 419.0	15206	5.00 µg/L	-0.012
M7-MeFOSE	10.668	623.2 -> 58.9	17755	25.00 µg/L	-0.012
M9-EtFOSE	10.901	639.2 -> 58.9	12562	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	4555	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	4118	2.50 µg/L	-0.012
13C4-PFOS	8.348	502.8 -> 79.9	8645	2.50 µg/L	-0.013
13C3-PFBA	2.976	216.0 -> 172.0	30730	5.00 µg/L	0.025
18O2-PFHxS	7.301	403.0 -> 83.9	5358	2.50 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	61212	2.50 µg/L	-0.012
13C2-PFDA	8.185	515.1 -> 470.1	18346	1.25 µg/L	-0.012
13C5-PFNA	7.706	468.0 -> 423.0	16239	1.25 µg/L	-0.012
13C2-PFHxA	5.594	315.1 -> 270.0	29509	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1855	6.03 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.7%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2271	5.71 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.1%		
13C2-8:2FTS	7.973	529.1 -> 80.9	2404	5.66 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C2-PFDoDA	9.057	615.1 -> 570.0	15145	1.06 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.4%		
13C2-PFTeDA	9.772	715.2 -> 670.0	7797	0.95 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 76.2%		
13C3-PFBS	5.523	302.1 -> 79.9	12318	2.68 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C3-PFHxS	7.302	402.1 -> 79.9	7906	2.61 µg/L	0.000

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 = 104.5%		
13C4-PFBA	2.972	216.8 -> 171.9	76343	10.83 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C4-PFHpA	6.532	367.1 -> 322.0	31137	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C5-PFHxA	5.593	318.0 -> 273.0	31225	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C5-PFPeA	4.382	268.3 -> 223.0	35314	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C6-PFDA	8.185	519.1 -> 474.1	14351	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C7-PFUnDA	8.639	570.0 -> 525.1	13463	1.14 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.8%		
13C8-FOSA	9.645	506.1 -> 77.8	14468	2.41 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C8-PFOA	7.175	421.1 -> 376.0	52483	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C8-PFOS	8.347	507.1 -> 79.9	6897	2.35 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C9-PFNA	7.706	472.1 -> 427.0	16674	1.33 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.5%		
d3-MeFOSAA	8.231	573.2 -> 419.0	17848	4.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.0%		
13C3-HFPO-DA	5.958	286.9 -> 168.9	14124	10.59 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 105.9%		
d3-MeFOSA	10.746	515.0 -> 219.0	4118	1.88 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 75.1%		
d5-EtFOSAA	8.438	589.2 -> 419.0	15206	4.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.3%		
d7-MeFOSE	10.668	623.2 -> 58.9	17755	21.35 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 85.4%		
d9-EtFOSE	10.901	639.2 -> 58.9	12562	21.40 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 85.6%		
d5-EtFOSA	10.979	531.1 -> 219.0	4555	1.88 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 75.1%		

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	8.779	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.15

7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	8.313	398.7 -> 98.9	0	µg/L	m	1
		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	9.235	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.1.5
7

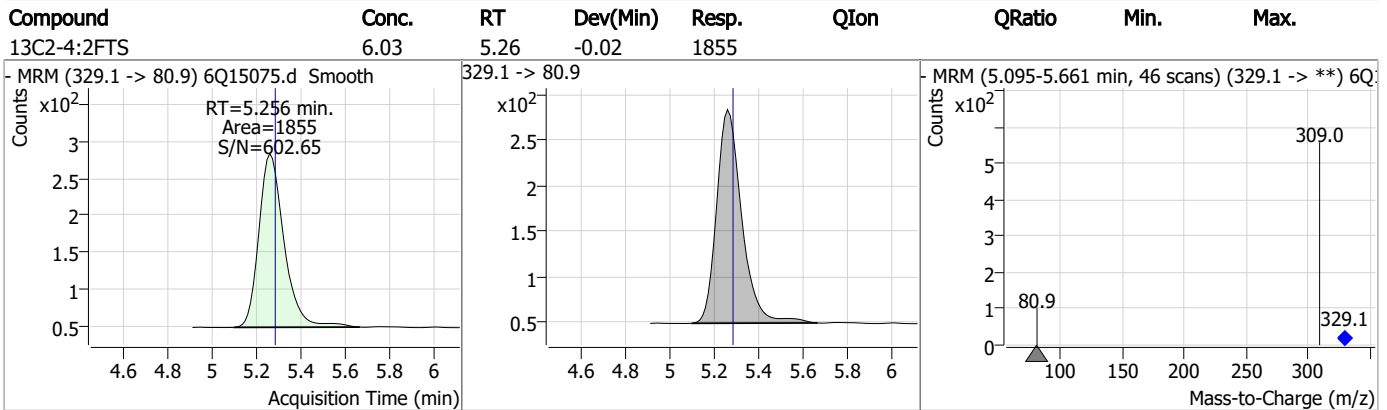
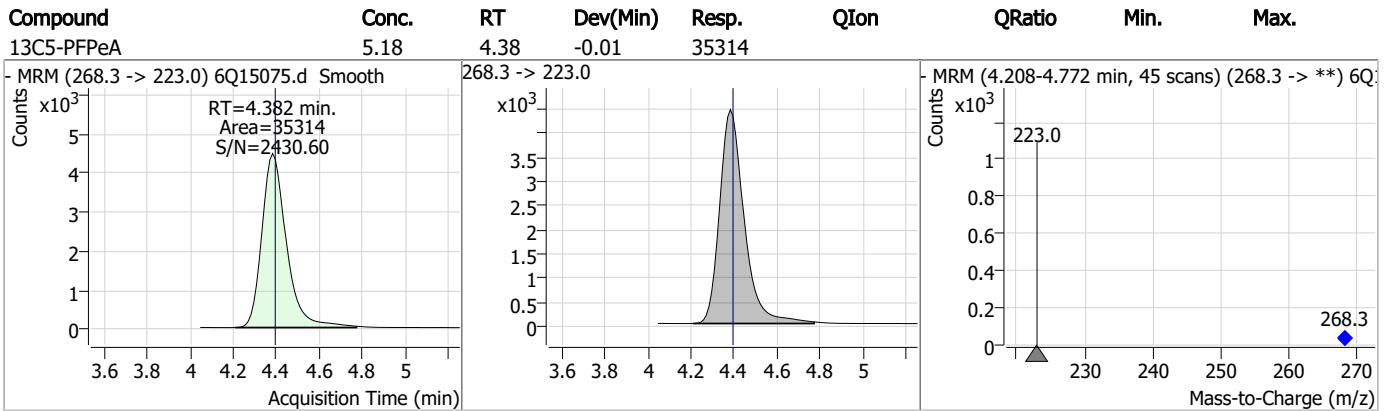
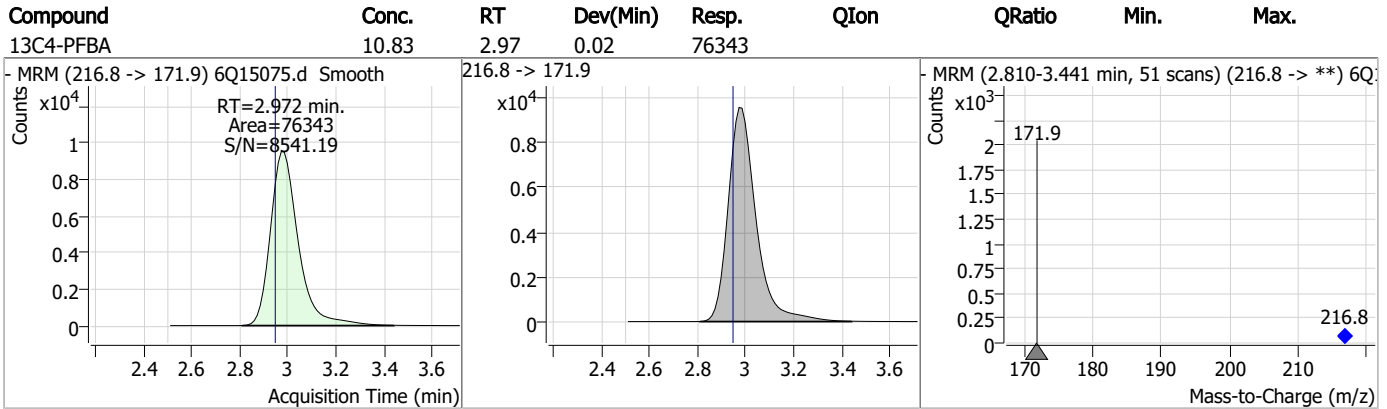
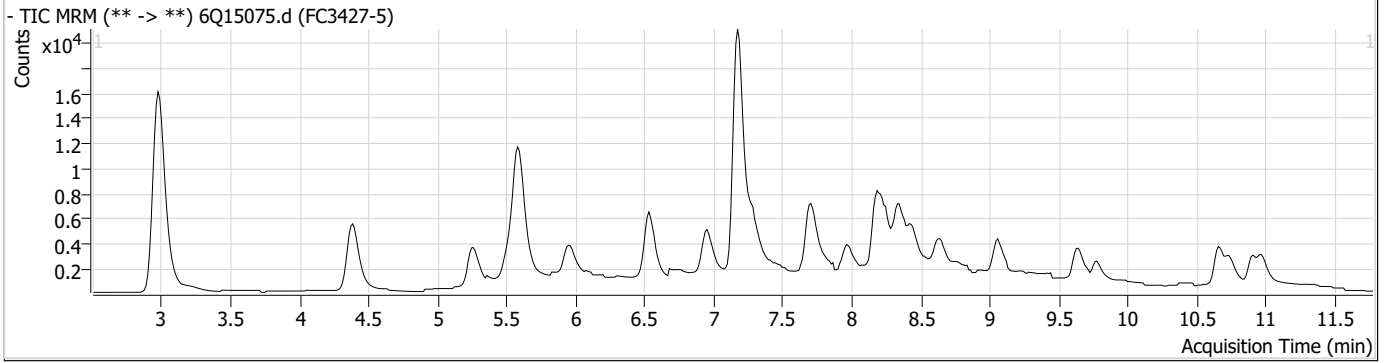
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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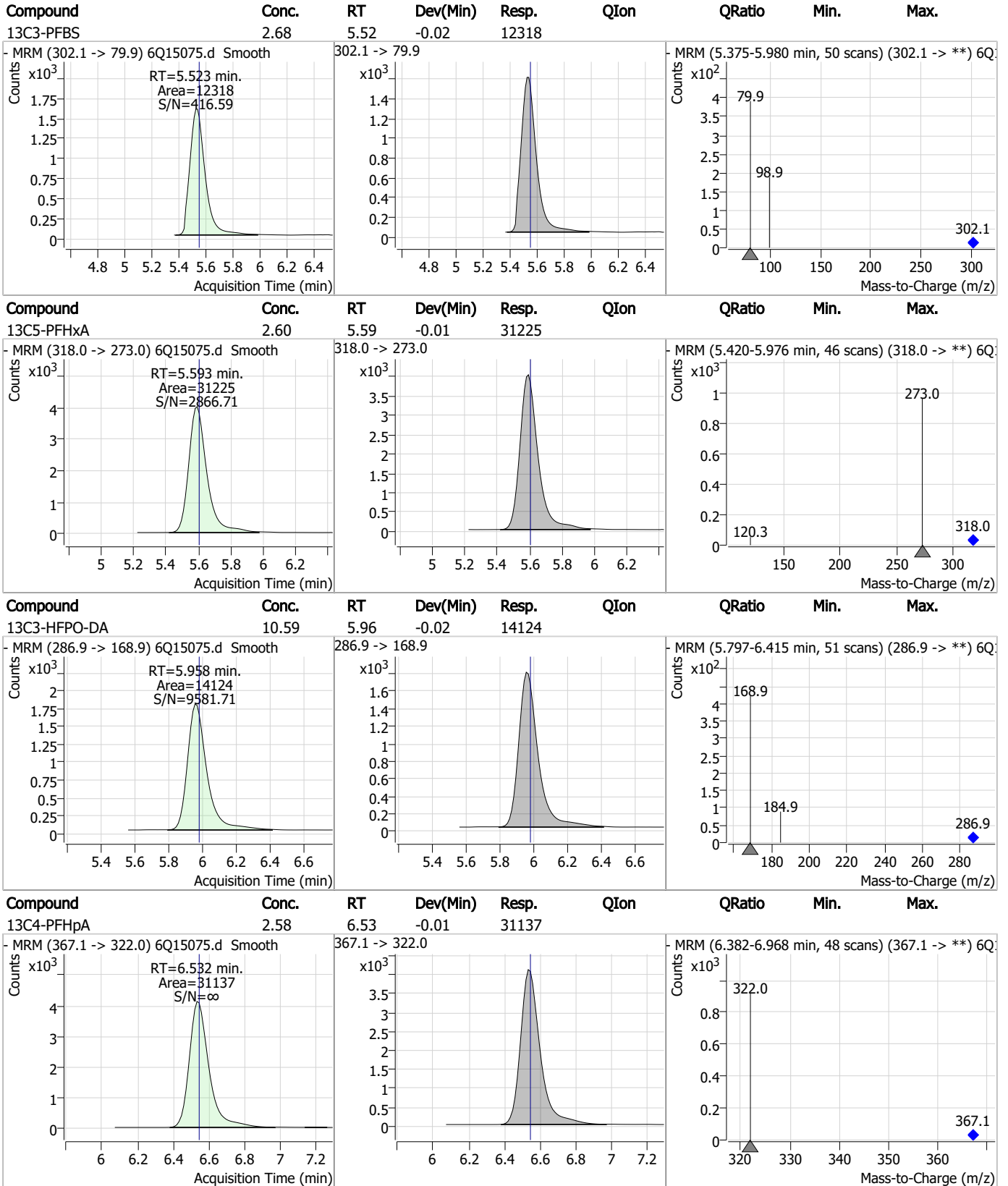
7.1.5
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

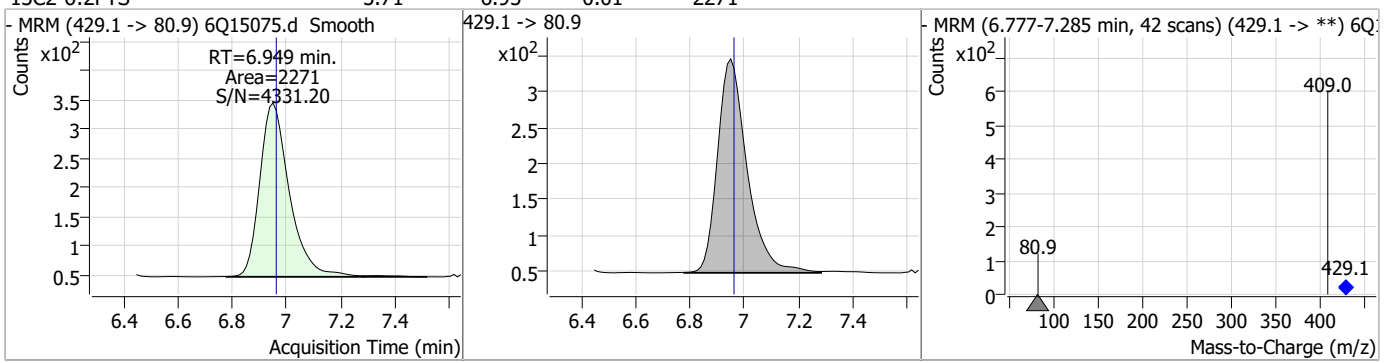


7.1.5

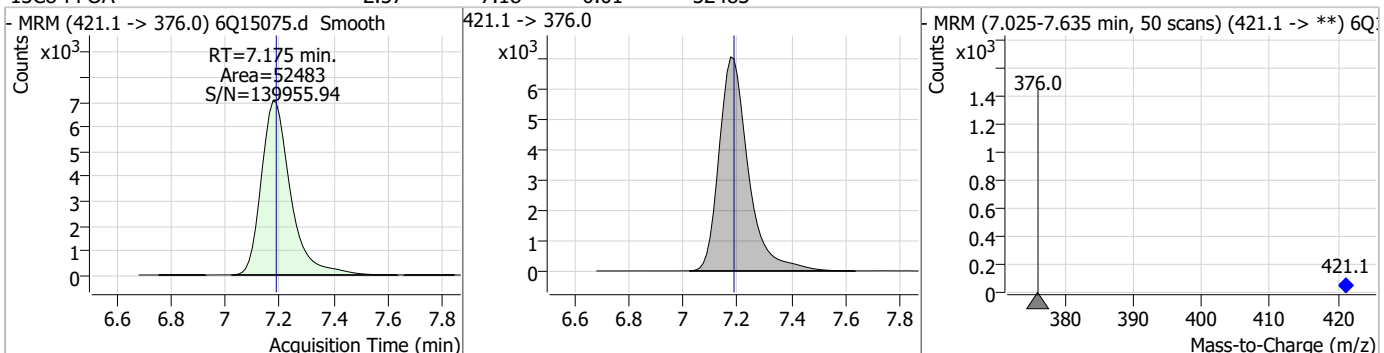
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Perfluorinated Compounds by LC/MS/MS

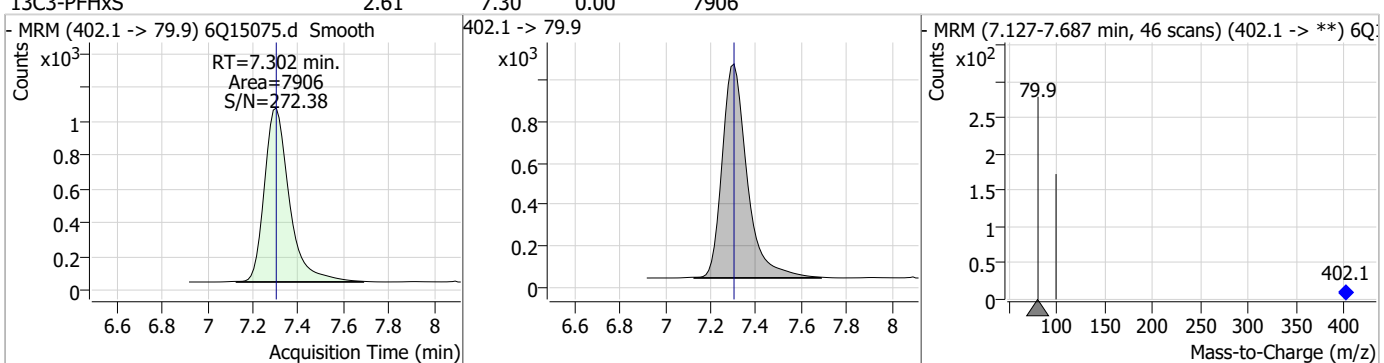
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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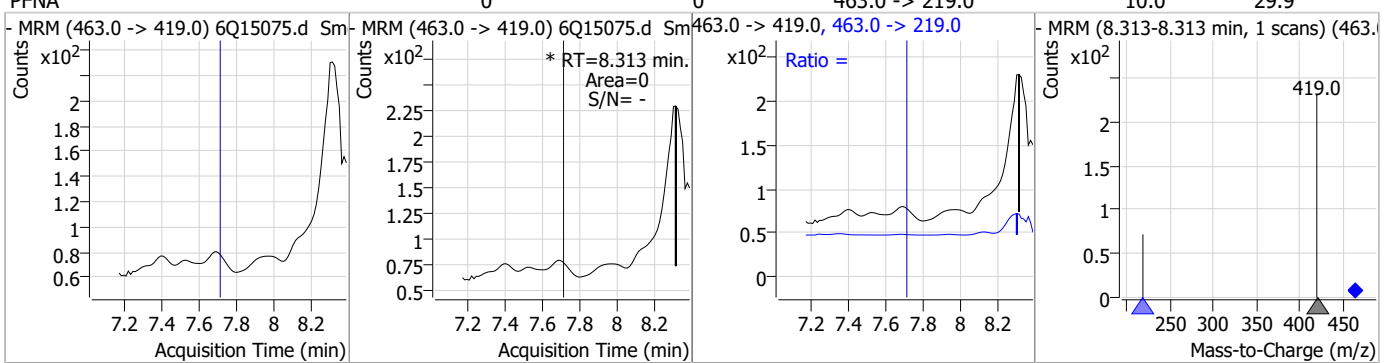
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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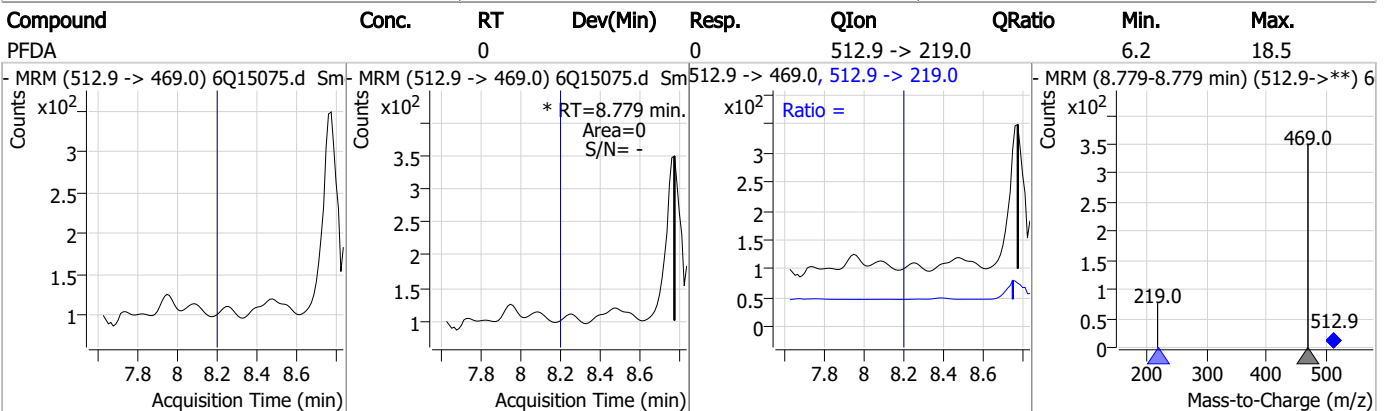
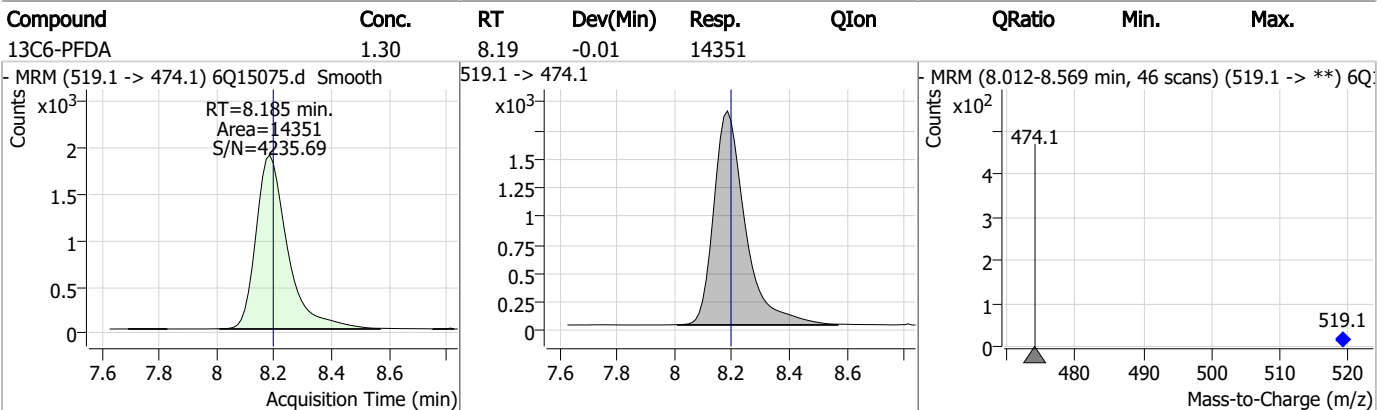
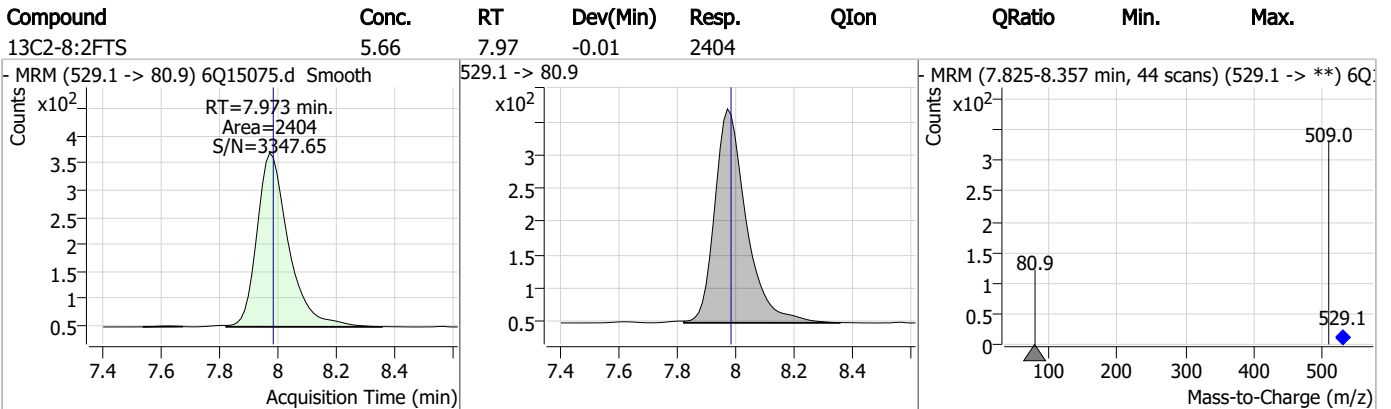
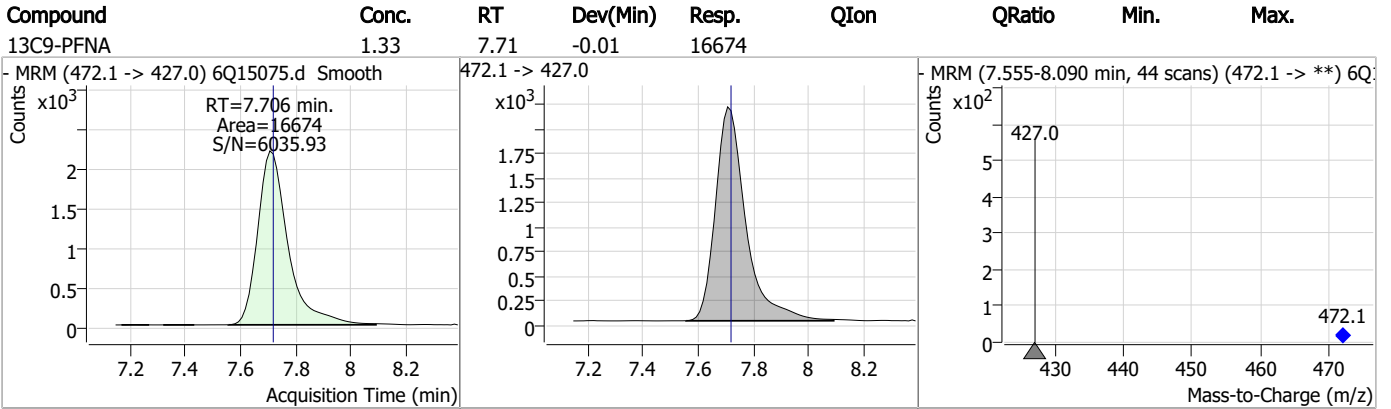


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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7.15
7

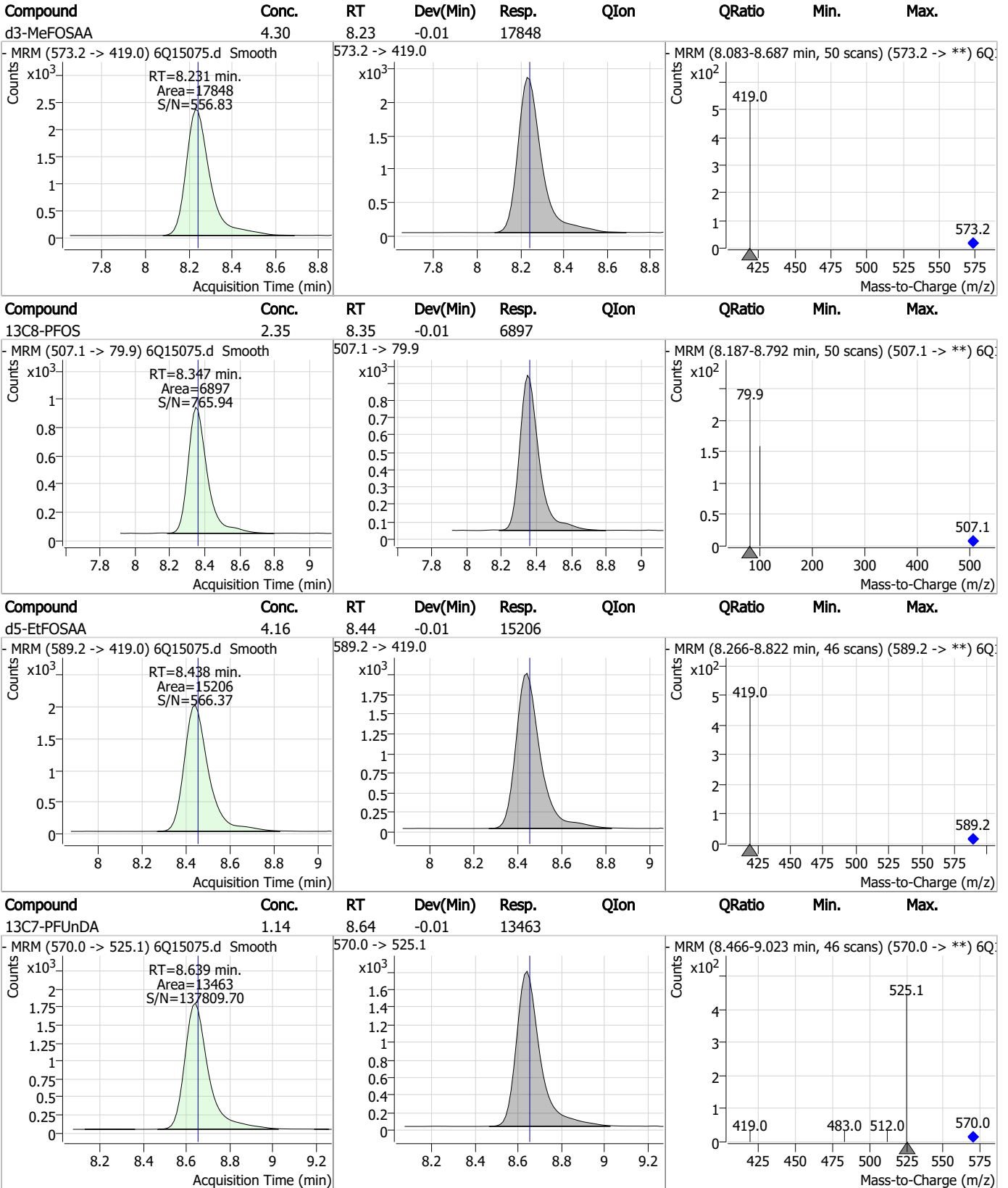
Perfluorinated Compounds by LC/MS/MS



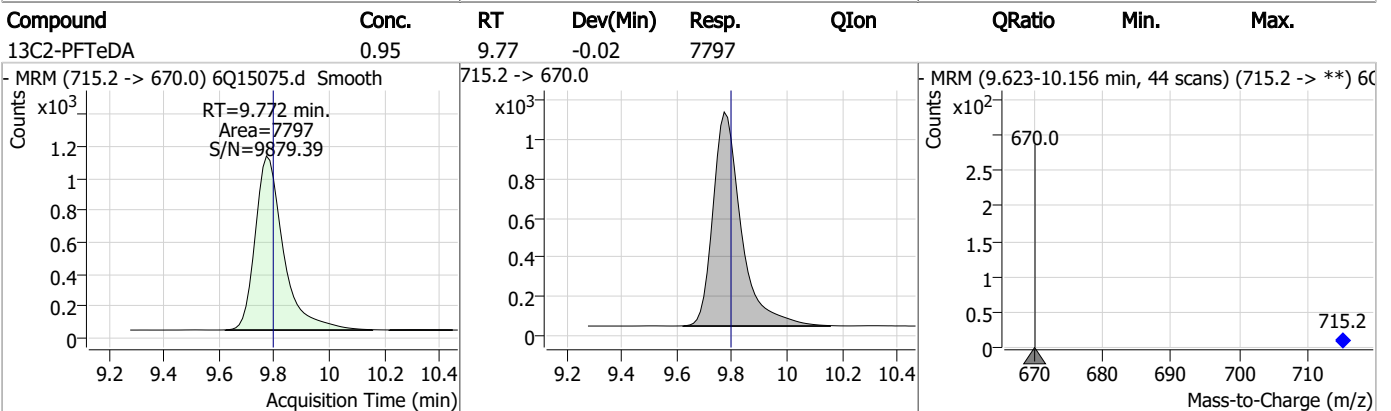
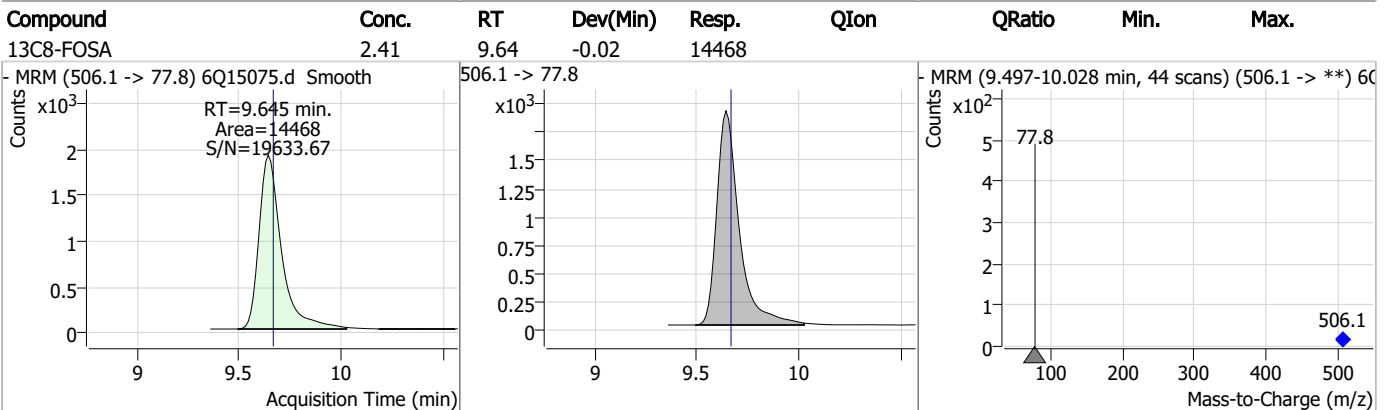
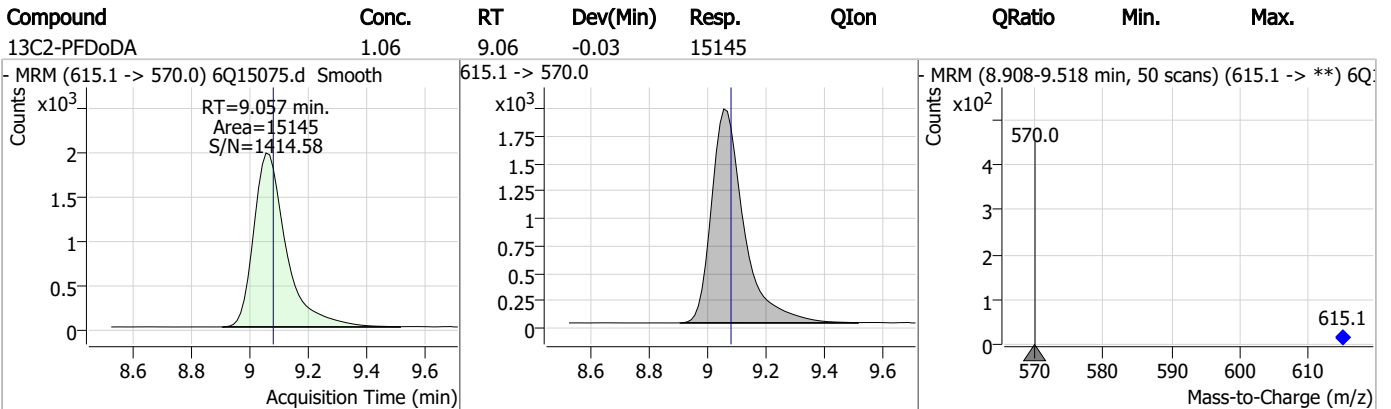
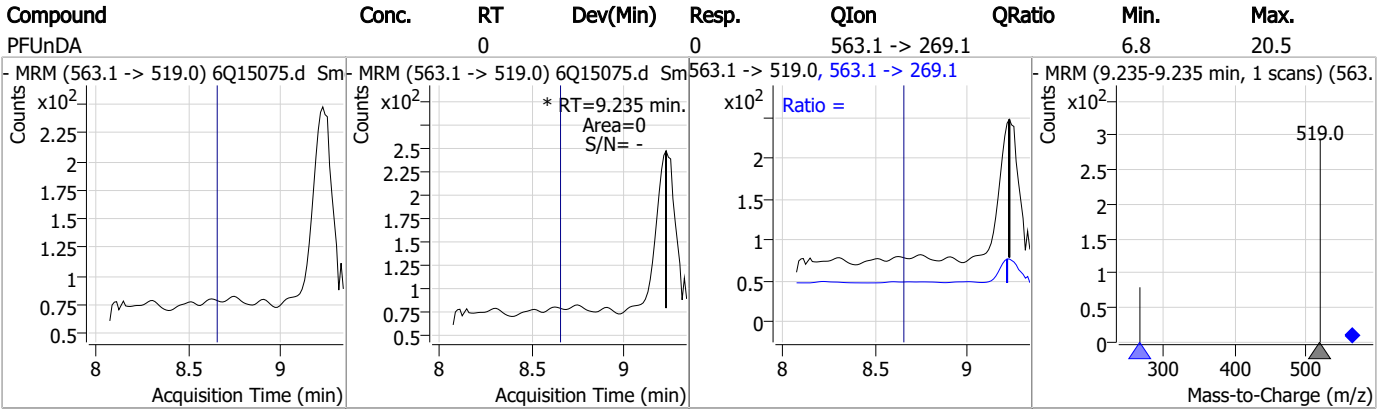
7.1.5

7

Perfluorinated Compounds by LC/MS/MS



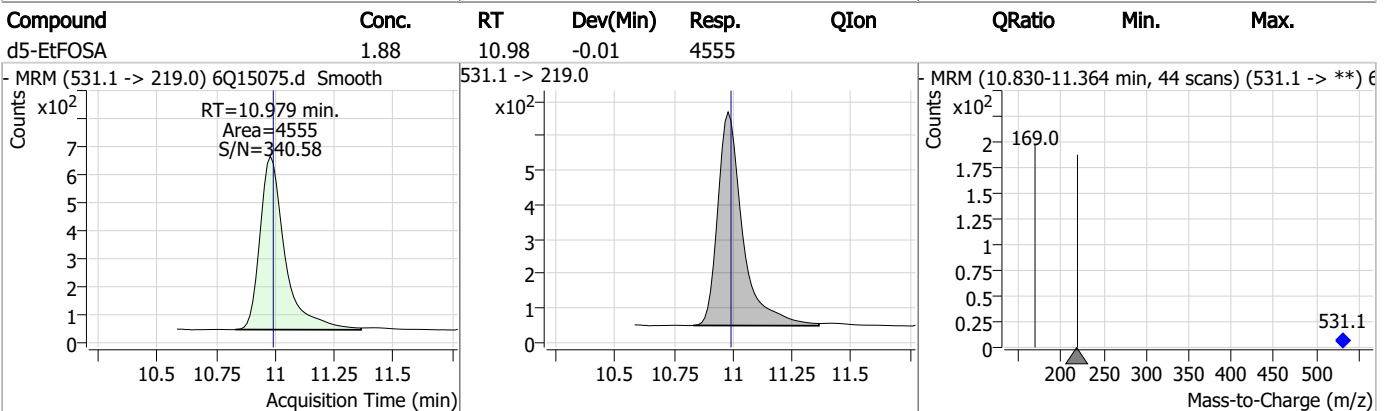
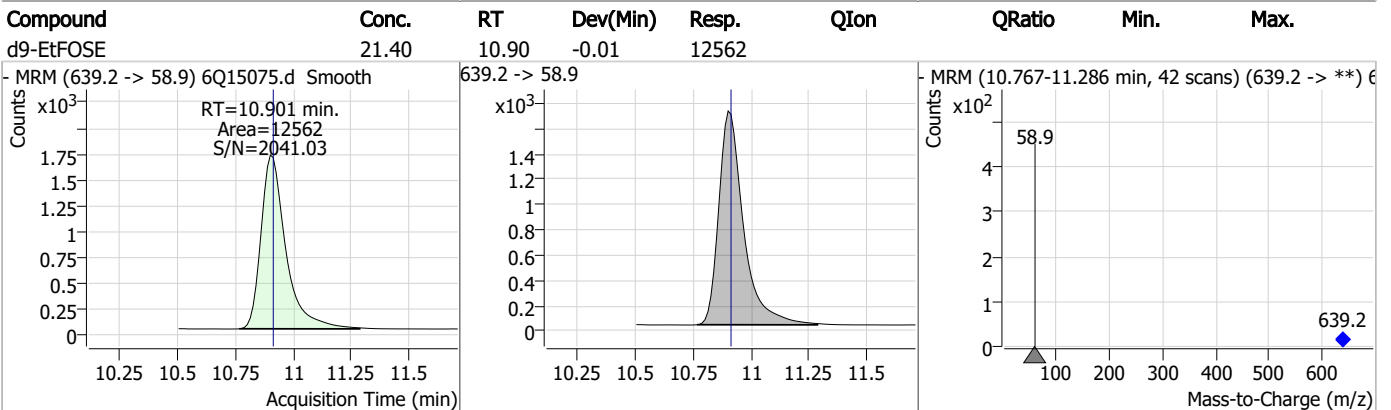
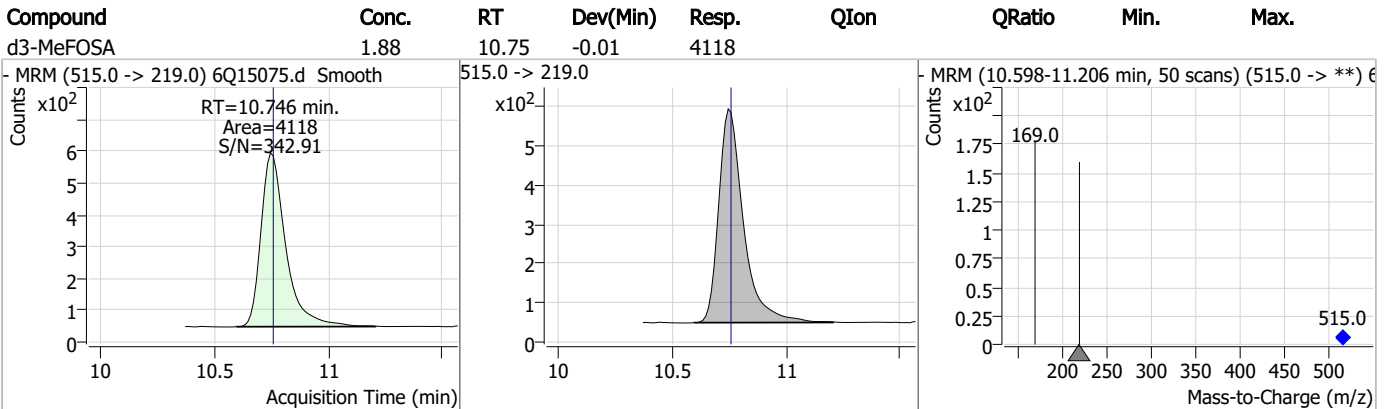
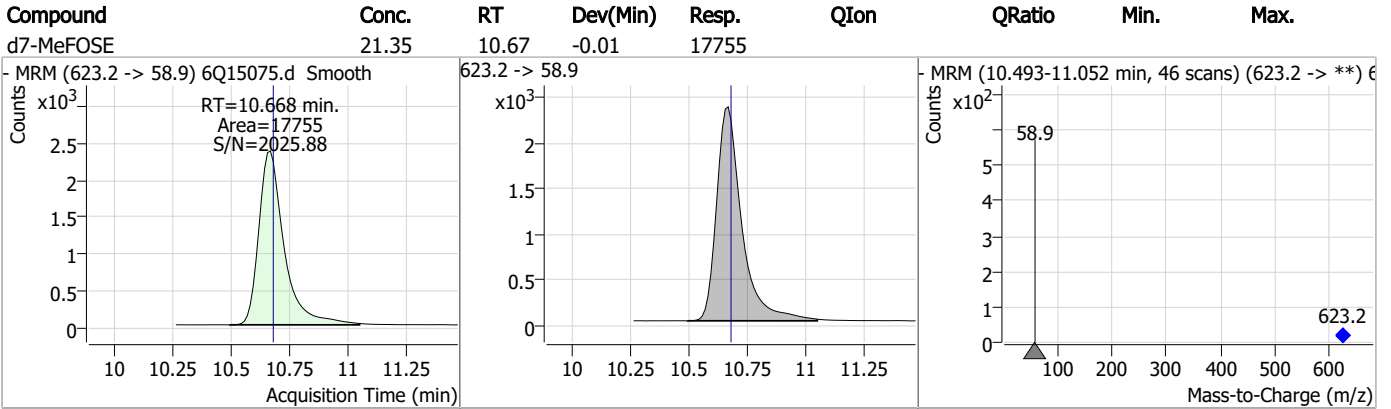
Perfluorinated Compounds by LC/MS/MS



7.1.5

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15068.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 5:14:53 AM
 Sample Name : op95927-mb
 Vial : P2-E5
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	81798	10.00 µg/L	0.037
M5-PFPeA	4.382	268.3 -> 223.0	38755	5.00 µg/L	-0.012
M5-PFHxA	5.593	318.0 -> 273.0	33207	2.50 µg/L	-0.012
M4-PFHpA	6.532	367.1 -> 322.0	33953	2.50 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	56362	2.50 µg/L	-0.012
M9-PFNA	7.693	472.1 -> 427.0	17783	1.25 µg/L	-0.025
M6-PFDA	8.173	519.1 -> 474.1	13576	1.25 µg/L	-0.025
M7-PFUnDA	8.627	570.0 -> 525.1	13421	1.25 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	13519	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	8111	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	13967	2.50 µg/L	-0.025
M3-PFBS	5.536	302.1 -> 79.9	12846	2.50 µg/L	-0.012
M3-PFHxS	7.289	402.1 -> 79.9	8289	2.50 µg/L	-0.013
M8-PFOS	8.335	507.1 -> 79.9	6828	2.50 µg/L	-0.025
M2-4:2FTS	5.256	329.1 -> 80.9	1897	5.00 µg/L	-0.025
M2-6:2FTS	6.949	429.1 -> 80.9	2529	5.00 µg/L	-0.012
M2-8:2FTS	7.961	529.1 -> 80.9	2285	5.00 µg/L	-0.025
M3-MeFOSAA	8.218	573.2 -> 419.0	17768	5.00 µg/L	-0.025
M3-HFPO-DA	5.958	286.9 -> 168.9	14560	10.00 µg/L	-0.025
M5-EtFOSAA	8.426	589.2 -> 419.0	14231	5.00 µg/L	-0.025
M7-MeFOSE	10.656	623.2 -> 58.9	18167	25.00 µg/L	-0.025
M9-EtFOSE	10.901	639.2 -> 58.9	13058	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	4418	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	4061	2.50 µg/L	-0.012
13C4-PFOS	8.335	502.8 -> 79.9	8671	2.50 µg/L	-0.025
13C3-PFBA	2.976	216.0 -> 172.0	32668	5.00 µg/L	0.025
18O2-PFHxS	7.301	403.0 -> 83.9	5449	2.50 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	63825	2.50 µg/L	-0.012
13C2-PFDA	8.173	515.1 -> 470.1	18849	1.25 µg/L	-0.025
13C5-PFNA	7.694	468.0 -> 423.0	17551	1.25 µg/L	-0.025
13C2-PFHxA	5.594	315.1 -> 270.0	31134	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1897	6.07 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.3%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2529	6.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.9%		
13C2-8:2FTS	7.961	529.1 -> 80.9	2285	5.29 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C2-PFDoDA	9.057	615.1 -> 570.0	13519	0.92 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.3%		
13C2-PFTeDA	9.772	715.2 -> 670.0	8111	0.96 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.1%		
13C3-PFBS	5.536	302.1 -> 79.9	12846	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C3-PFHxS	7.289	402.1 -> 79.9	8289	2.69 µg/L	-0.013

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 = 107.8%		
13C4-PFBA	2.985	216.8 -> 171.9	81798	10.91 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 109.1%		
13C4-PFHpA	6.532	367.1 -> 322.0	33953	2.67 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C5-PFHxA	5.593	318.0 -> 273.0	33207	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C5-PFPeA	4.382	268.3 -> 223.0	38755	5.39 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C6-PFDA	8.173	519.1 -> 474.1	13576	1.20 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C7-PFUnDA	8.627	570.0 -> 525.1	13421	1.10 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.1%		
13C8-FOSA	9.645	506.1 -> 77.8	13967	2.32 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C8-PFOA	7.175	421.1 -> 376.0	56362	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C8-PFOS	8.335	507.1 -> 79.9	6828	2.32 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C9-PFNA	7.693	472.1 -> 427.0	17783	1.31 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.1%		
d3-MeFOSAA	8.218	573.2 -> 419.0	17768	4.27 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.3%		
13C3-HFPO-DA	5.958	286.9 -> 168.9	14560	10.35 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
d3-MeFOSA	10.746	515.0 -> 219.0	4061	1.85 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 73.8%		
d5-EtFOSAA	8.426	589.2 -> 419.0	14231	3.89 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.7%		
d7-MeFOSE	10.656	623.2 -> 58.9	18167	21.78 µg/L	-0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 87.1%		
d9-EtFOSE	10.901	639.2 -> 58.9	13058	22.18 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 88.7%		
d5-EtFOSA	10.979	531.1 -> 219.0	4418	1.82 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 72.7%		

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	8.779	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	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)
PFHpA	7.267	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	8.313	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		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	9.222	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		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				
PFMBA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMPA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFEESA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		

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

7.2.1
7

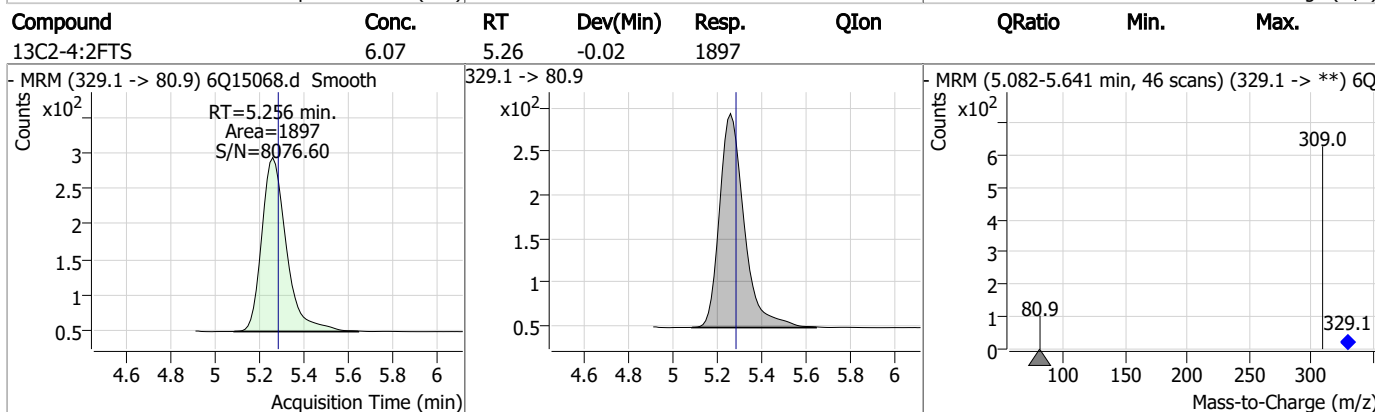
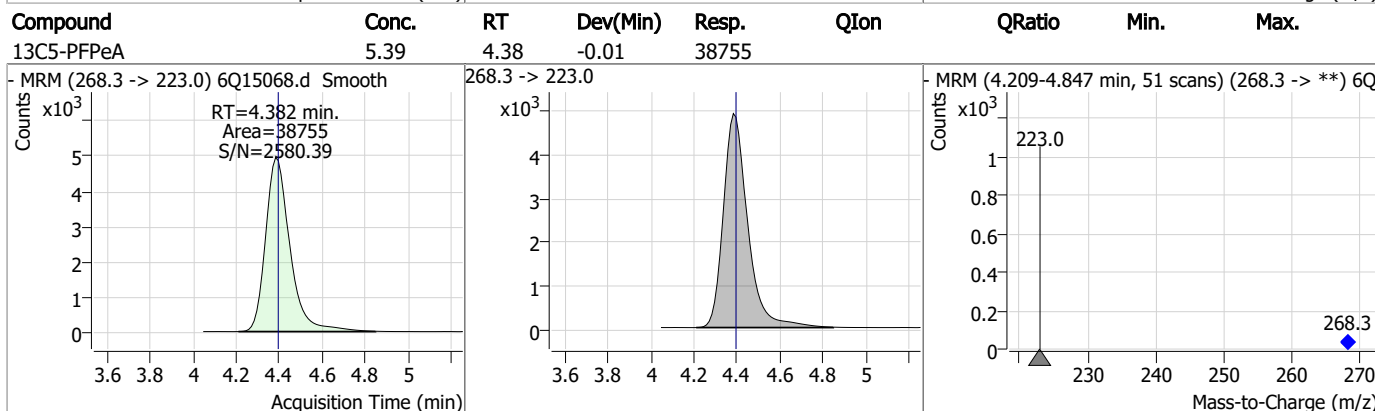
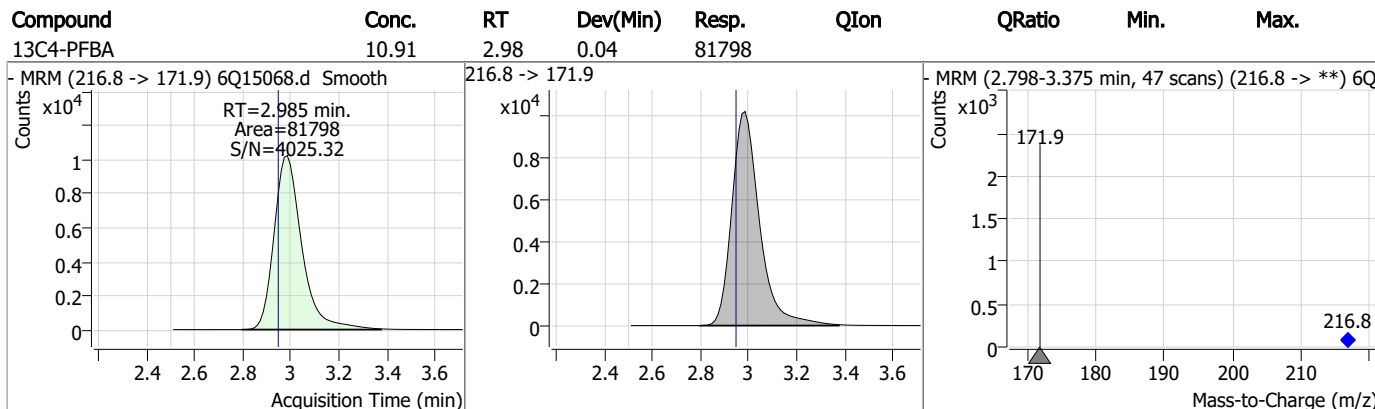
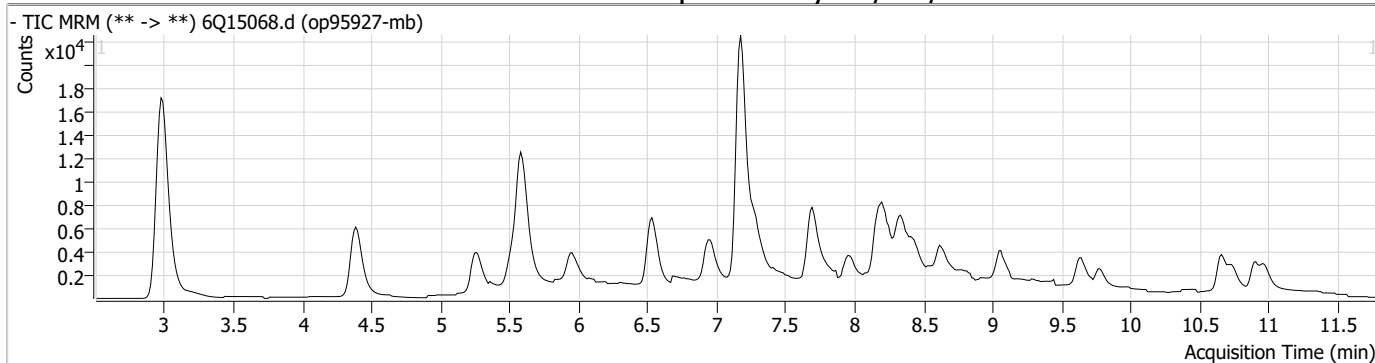
Perfluorinated Compounds by LC/MS/MS

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

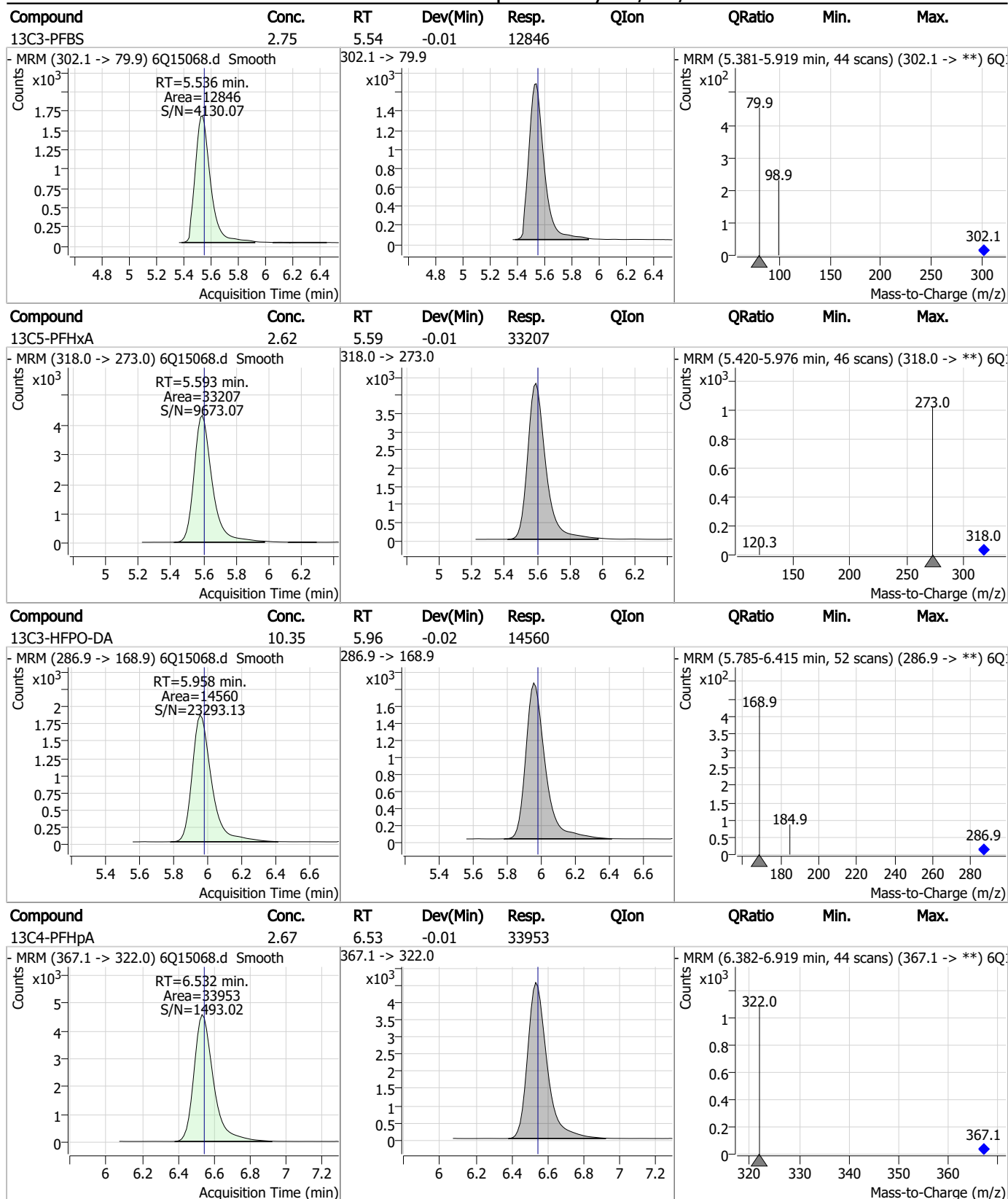
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS

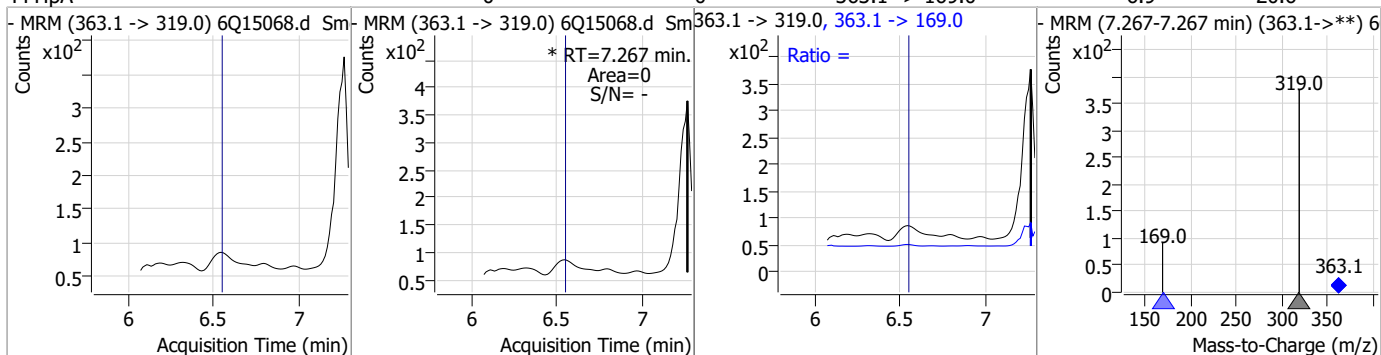


7.2.1
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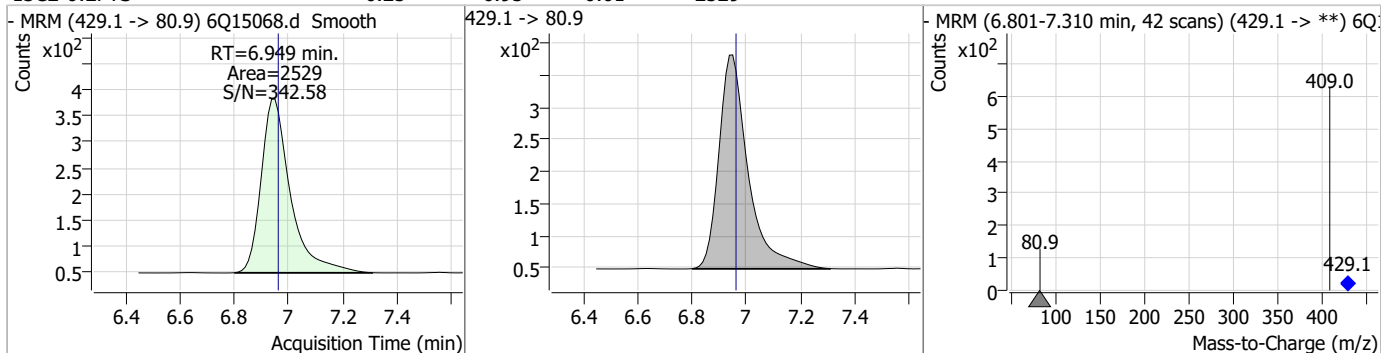


Perfluorinated Compounds by LC/MS/MS

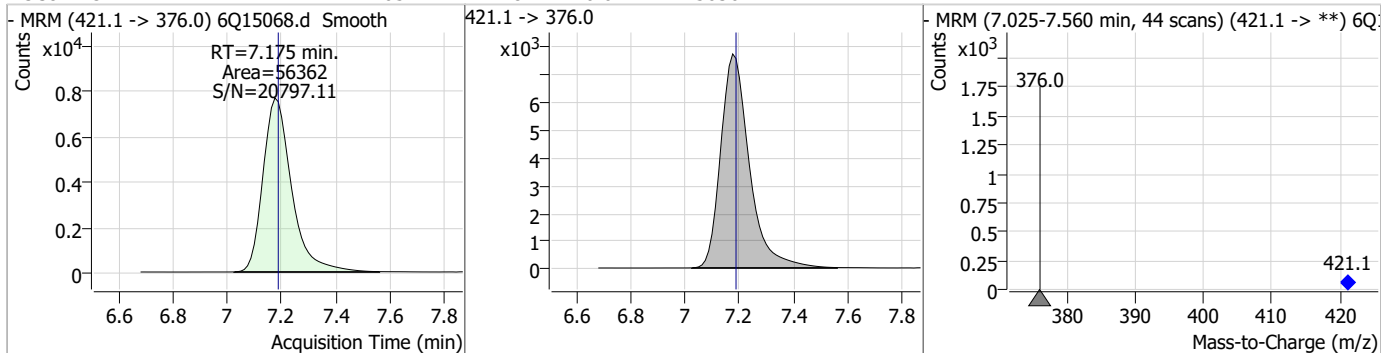
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0	0		0	363.1 -> 169.0		6.9	20.6



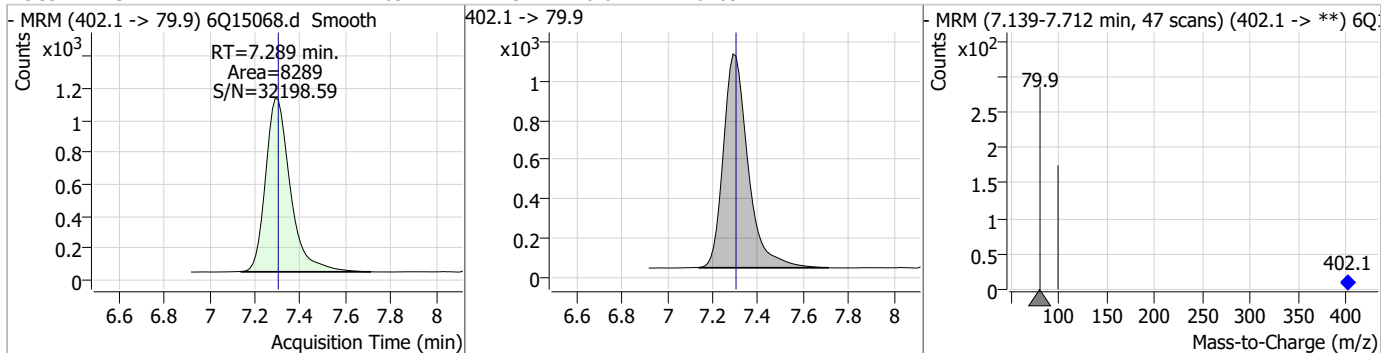
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	6.25	6.95	-0.01	2529				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.65	7.18	-0.01	56362				

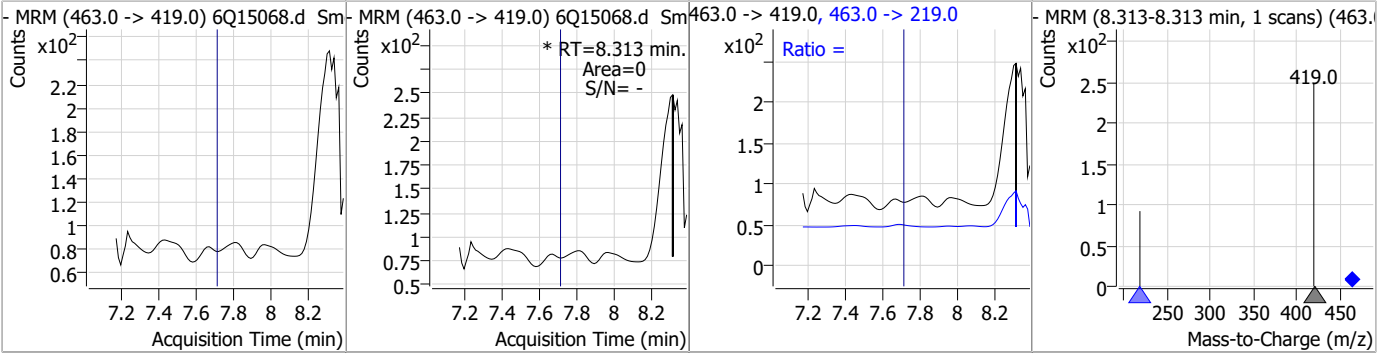


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.69	7.29	-0.01	8289				

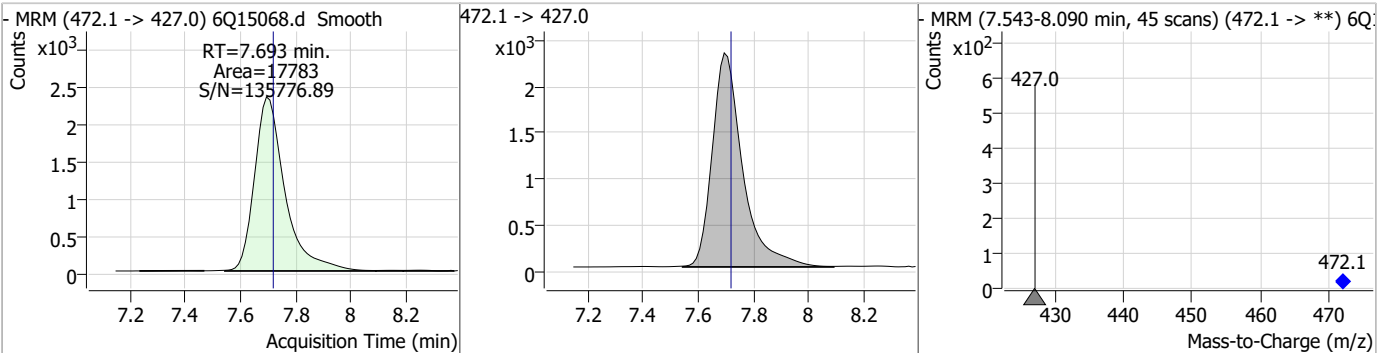


Perfluorinated Compounds by LC/MS/MS

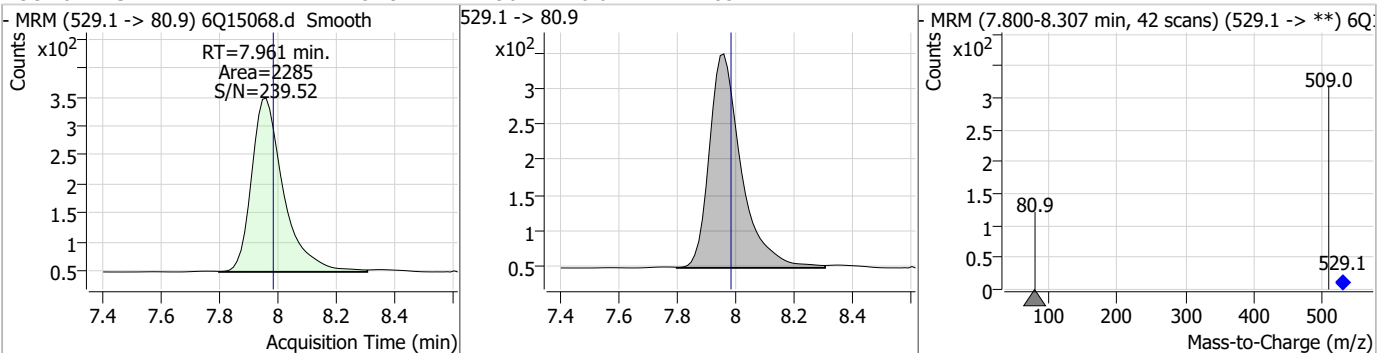
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0	0		0	463.0 -> 219.0		10.0	29.9



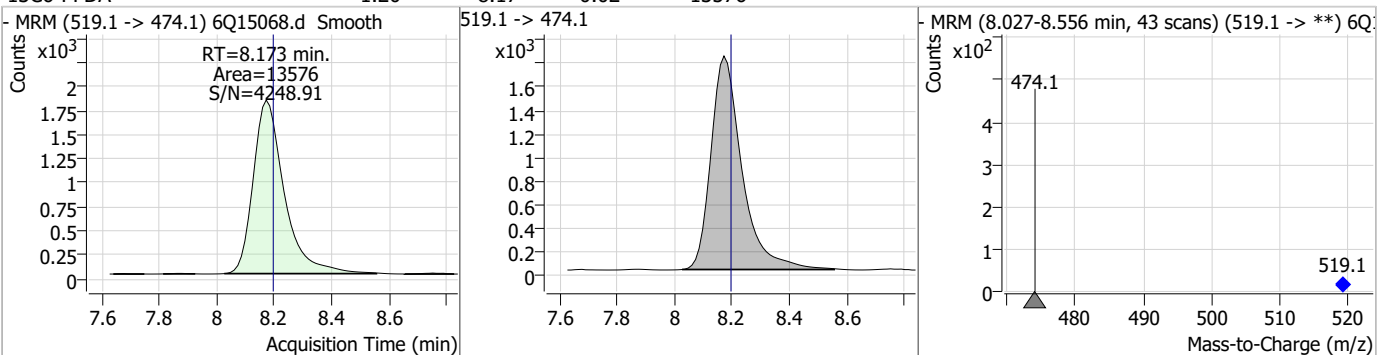
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.31	7.69	-0.02	17783				



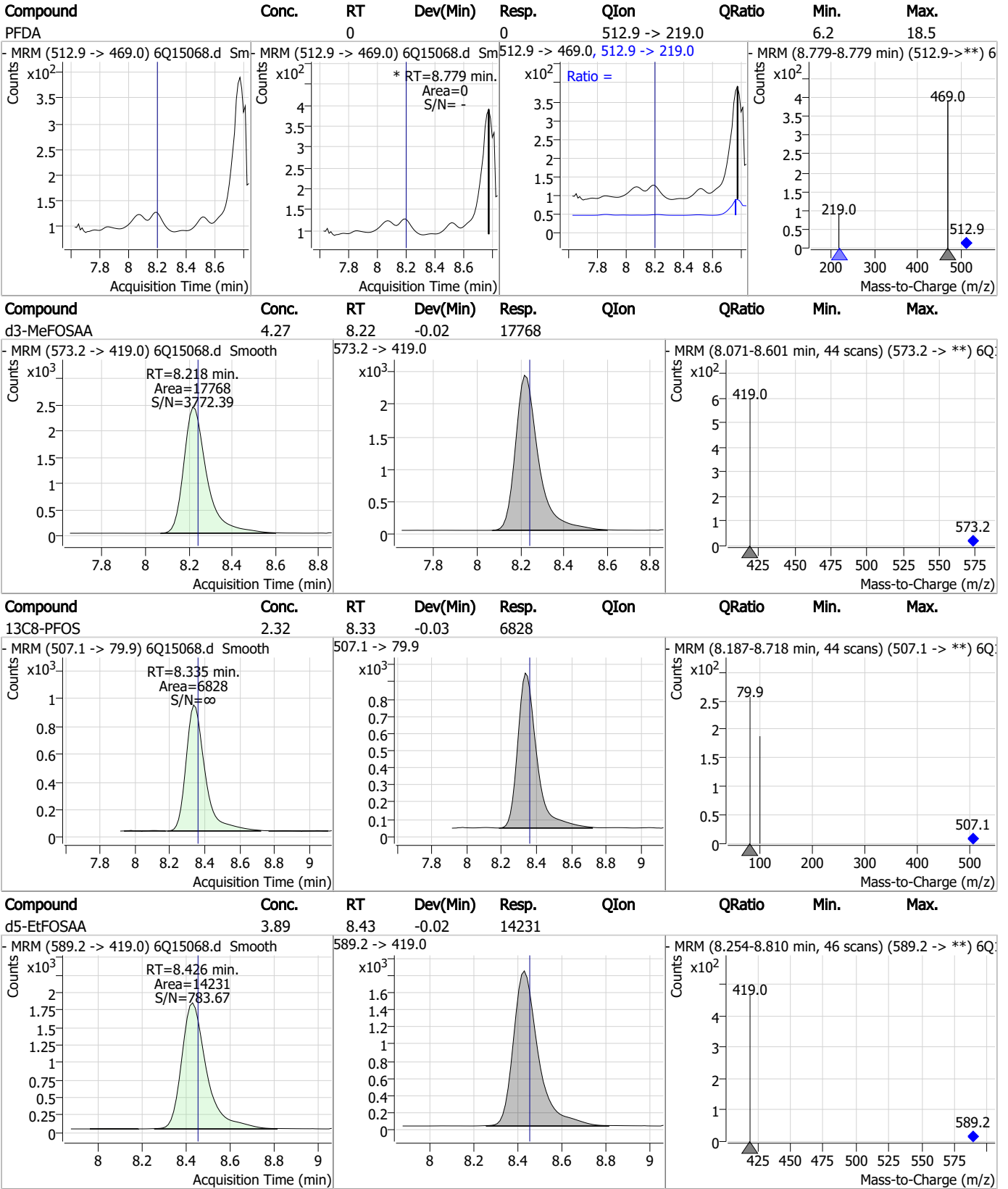
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.29	7.96	-0.02	2285				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.20	8.17	-0.02	13576				



Perfluorinated Compounds by LC/MS/MS

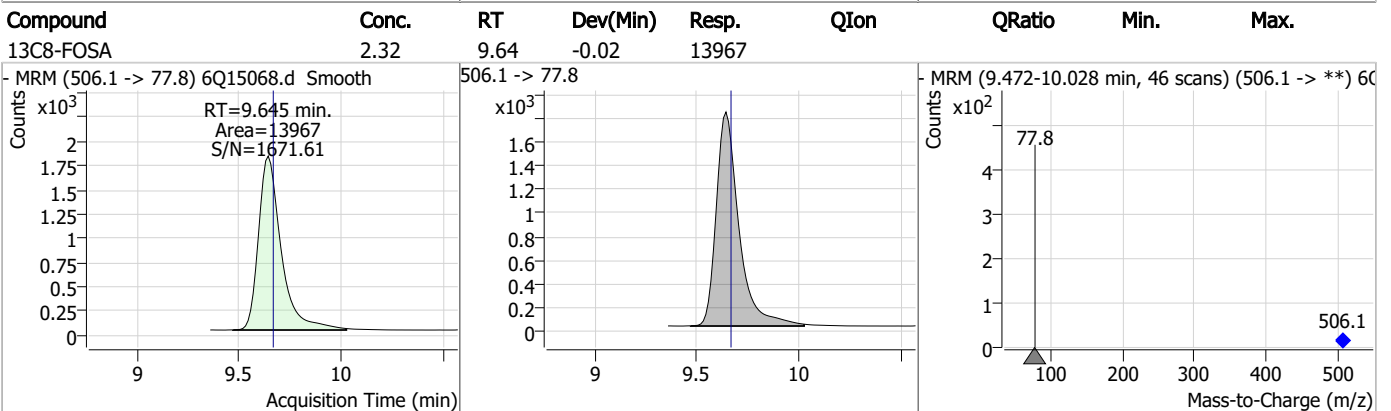
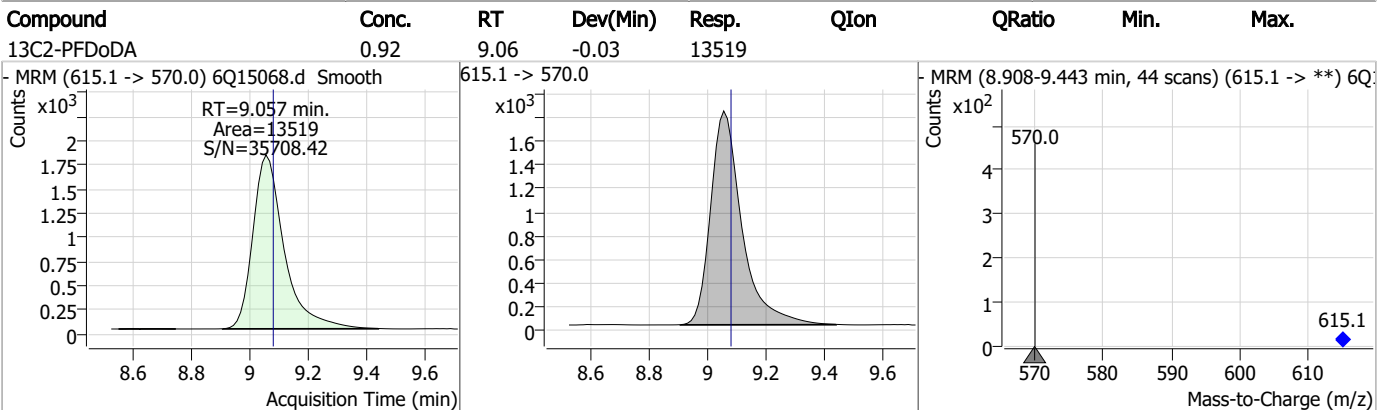
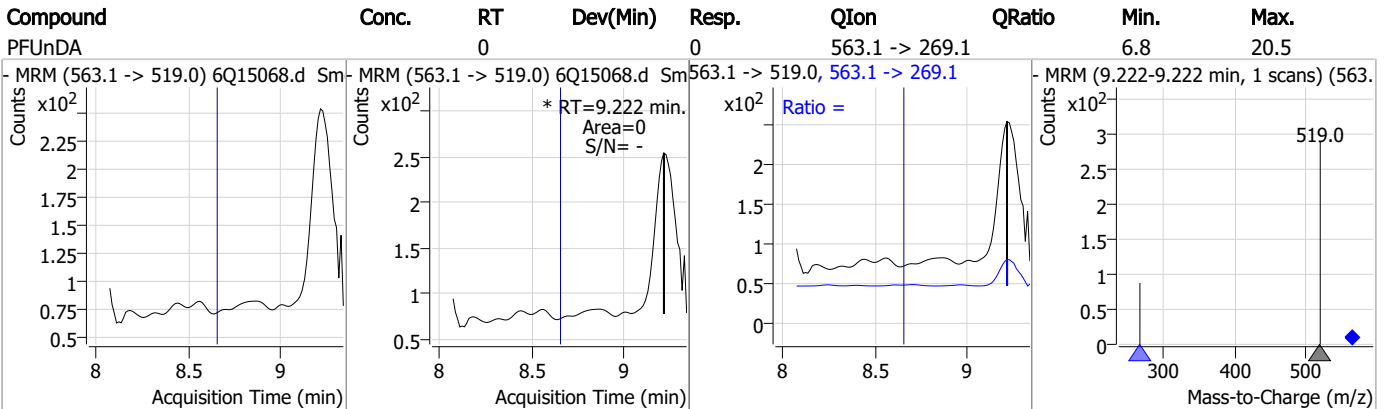
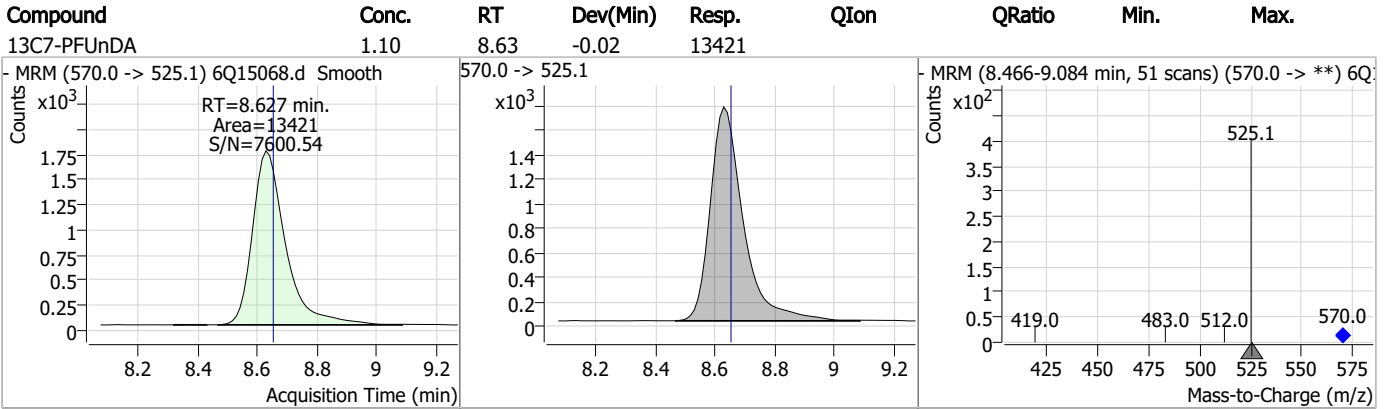


7.2.1

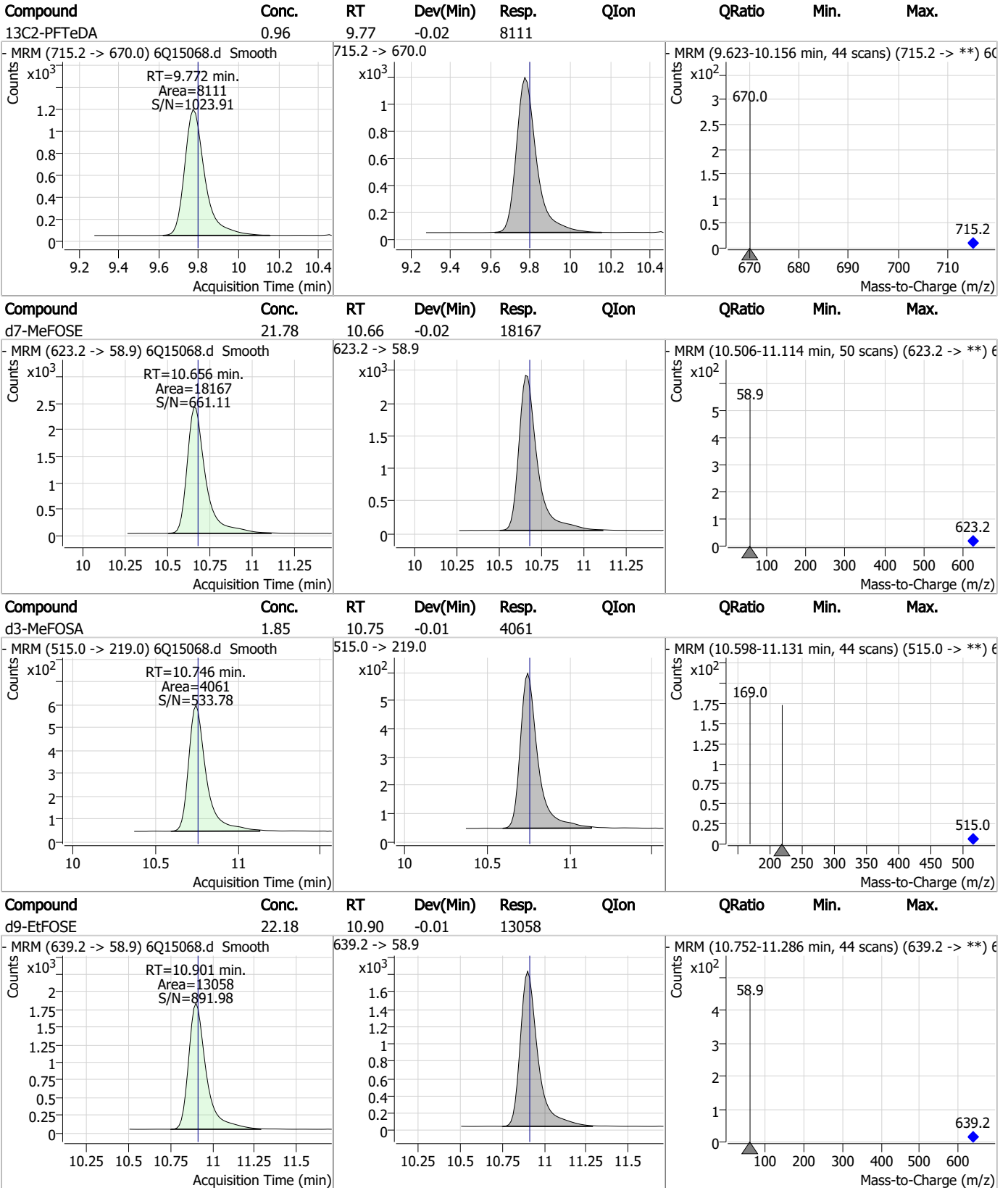
7



Perfluorinated Compounds by LC/MS/MS



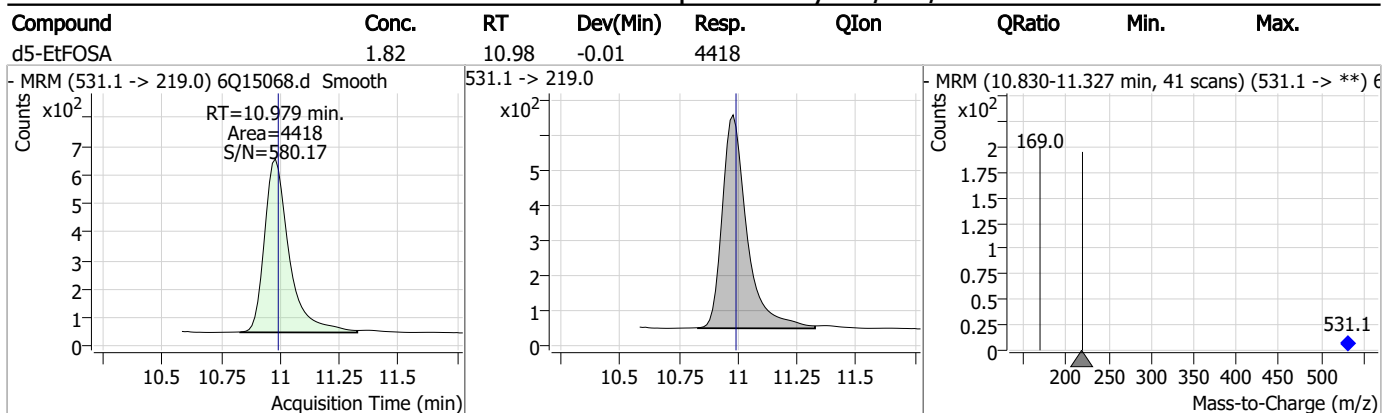
Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15016.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/20/2023 5:02:25 PM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95881,S6Q228,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	73777	10.00 µg/L	0.025
M5-PFPeA	4.382	268.3 -> 223.0	38196	5.00 µg/L	-0.012
M5-PFHxA	5.580	318.0 -> 273.0	32902	2.50 µg/L	-0.025
M4-PFHpA	6.519	367.1 -> 322.0	33258	2.50 µg/L	-0.025
M8-PFOA	7.175	421.1 -> 376.0	53545	2.50 µg/L	-0.012
M9-PFNA	7.706	472.1 -> 427.0	18209	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	15428	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	16940	1.25 µg/L	-0.012
M2-PFDoDA	9.069	615.1 -> 570.0	19207	1.25 µg/L	-0.012
M2-PFTeDA	9.784	715.2 -> 670.0	11598	1.25 µg/L	-0.012
M8-FOSA	9.657	506.1 -> 77.8	16955	2.50 µg/L	-0.012
M3-PFBS	5.523	302.1 -> 79.9	12819	2.50 µg/L	-0.025
M3-PFHxS	7.289	402.1 -> 79.9	8313	2.50 µg/L	-0.013
M8-PFOS	8.347	507.1 -> 79.9	7331	2.50 µg/L	-0.013
M2-4:2FTS	5.256	329.1 -> 80.9	1699	5.00 µg/L	-0.025
M2-6:2FTS	6.937	429.1 -> 80.9	2082	5.00 µg/L	-0.025
M2-8:2FTS	7.973	529.1 -> 80.9	2189	5.00 µg/L	-0.012
M3-MeFOSAA	8.231	573.2 -> 419.0	19203	5.00 µg/L	-0.012
M3-HFPO-DA	5.958	286.9 -> 168.9	14044	10.00 µg/L	-0.025
M5-EtFOSAA	8.438	589.2 -> 419.0	17650	5.00 µg/L	-0.012
M7-MeFOSE	10.668	623.2 -> 58.9	24875	25.00 µg/L	-0.012
M9-EtFOSE	10.914	639.2 -> 58.9	17926	25.00 µg/L	0.000
M5-EtFOSA	10.979	531.1 -> 219.0	7006	2.50 µg/L	-0.012
M3-MeFOSA	10.759	515.0 -> 219.0	5888	2.50 µg/L	0.000
13C4-PFOS	8.348	502.8 -> 79.9	8788	2.50 µg/L	-0.013
13C3-PFBA	2.964	216.0 -> 172.0	32212	5.00 µg/L	0.012
18O2-PFHxS	7.288	403.0 -> 83.9	5777	2.50 µg/L	-0.026
13C4-PFOA	7.176	417.1 -> 372.0	64978	2.50 µg/L	-0.012
13C2-PFDA	8.185	515.1 -> 470.1	17605	1.25 µg/L	-0.012
13C5-PFNA	7.706	468.0 -> 423.0	18099	1.25 µg/L	-0.012
13C2-PFHxA	5.581	315.1 -> 270.0	33912	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1699	5.12 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-6:2FTS	6.937	429.1 -> 80.9	2082	4.85 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-8:2FTS	7.973	529.1 -> 80.9	2189	4.78 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-PFDoDA	9.069	615.1 -> 570.0	19207	1.39 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.5%		
13C2-PFTeDA	9.784	715.2 -> 670.0	11598	1.48 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 118.1%		
13C3-PFBS	5.523	302.1 -> 79.9	12819	2.59 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C3-PFHxS	7.289	402.1 -> 79.9	8313	2.55 µg/L	-0.013

7.22
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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 = 101.9%		
13C4-PFBA	2.972	216.8 -> 171.9	73777	9.98	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C4-PFHpA	6.519	367.1 -> 322.0	33258	2.40	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%		
13C5-PFHxA	5.580	318.0 -> 273.0	32902	2.38	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%		
13C5-PFPeA	4.382	268.3 -> 223.0	38196	4.87	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.5%		
13C6-PFDA	8.185	519.1 -> 474.1	15428	1.46	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 116.7%		
13C7-PFUnDA	8.639	570.0 -> 525.1	16940	1.49	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.1%		
13C8-FOSA	9.657	506.1 -> 77.8	16955	2.78	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.2%		
13C8-PFOA	7.175	421.1 -> 376.0	53545	2.47	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C8-PFOS	8.347	507.1 -> 79.9	7331	2.46	µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C9-PFNA	7.706	472.1 -> 427.0	18209	1.30	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%		
d3-MeFOSAA	8.231	573.2 -> 419.0	19203	4.55	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.0%		
13C3-HFPO-DA	5.958	286.9 -> 168.9	14044	9.17	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.7%		
d3-MeFOSA	10.759	515.0 -> 219.0	5888	2.64	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.6%		
d5-EtFOSAA	8.438	589.2 -> 419.0	17650	4.76	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
d7-MeFOSE	10.668	623.2 -> 58.9	24875	29.42	µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 117.7%		
d9-EtFOSE	10.914	639.2 -> 58.9	17926	30.04	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 120.2%		
d5-EtFOSA	10.979	531.1 -> 219.0	7006	2.84	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.7%		

7.22
7

Target Compounds

QValue

4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.		
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.		
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.		
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.		
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.		
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.		
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.		
PFDA	8.828	512.9 -> 469.0 512.9 -> 219.0	0 0	µg/L	m	1
PFDODA	9.655	613.1 -> 569.0 613.1 -> 319.0	0 0	µg/L	m	1
PFDS	-	599.0 -> 79.9	-	N.D.		

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	7.267	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	8.313	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.424	548.8 -> 98.9				
		413.0 -> 369.0	0	µg/L	m	1
PFOS	-	413.0 -> 169.0	0			
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		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	9.259	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		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				
PFMBA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMPA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFEESA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		

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

7.2.2
7

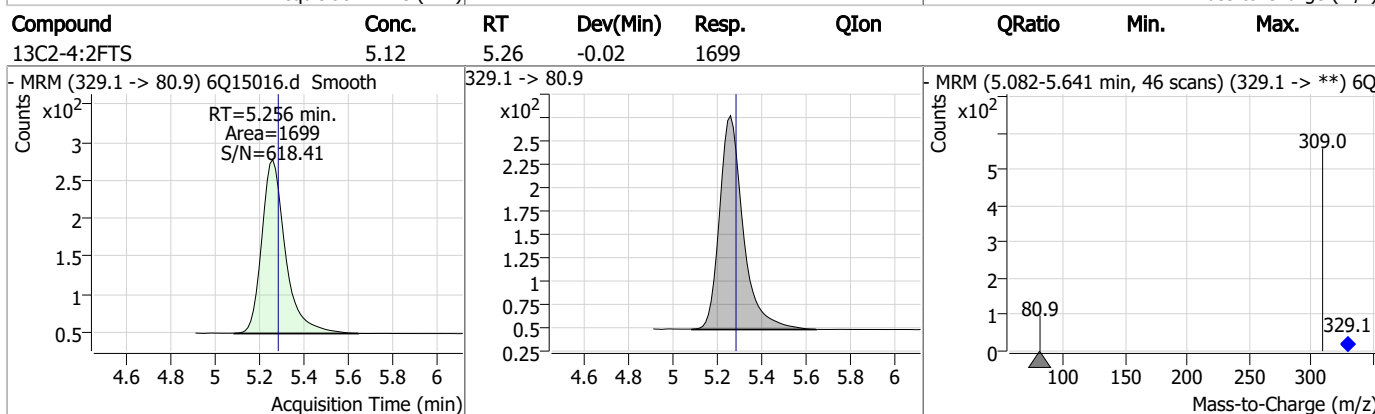
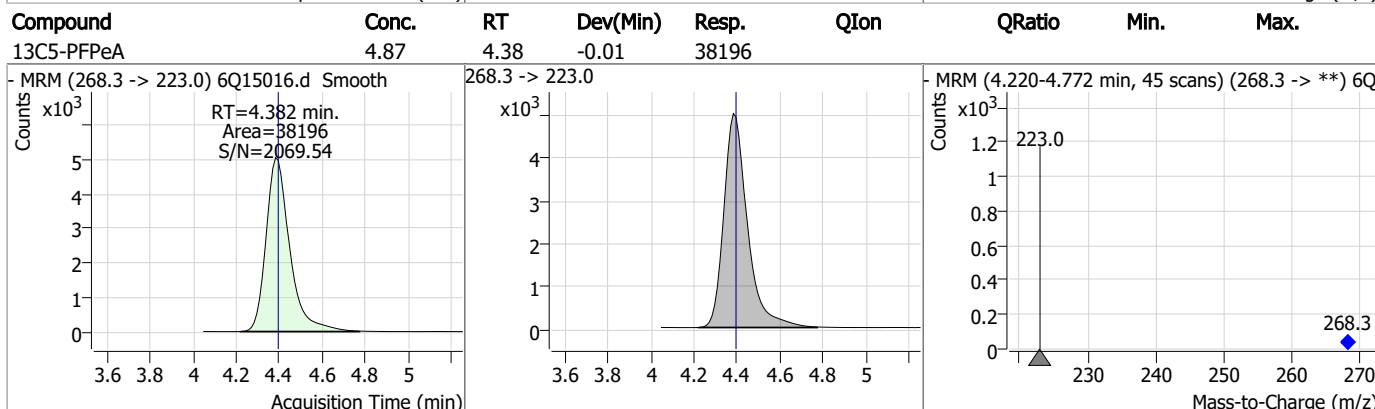
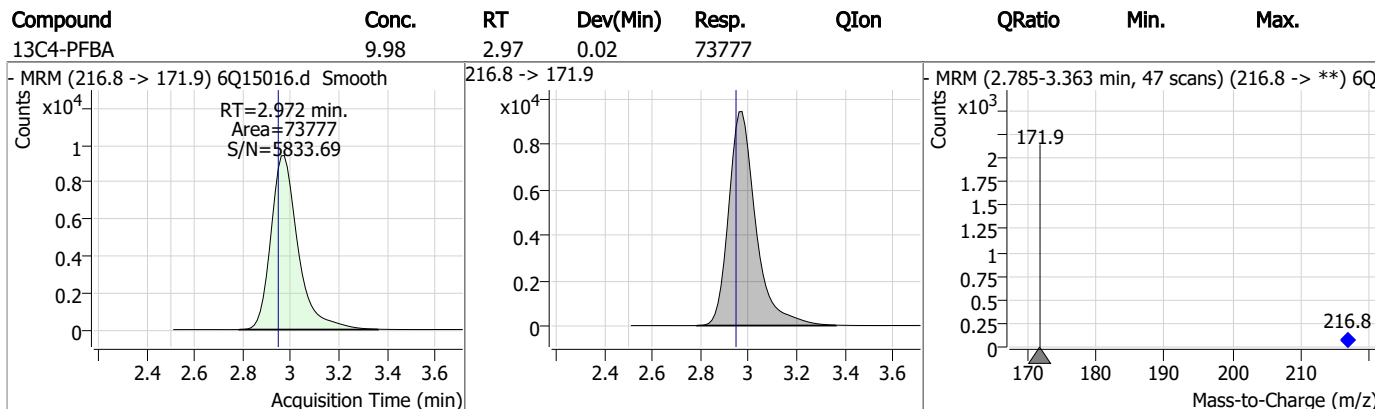
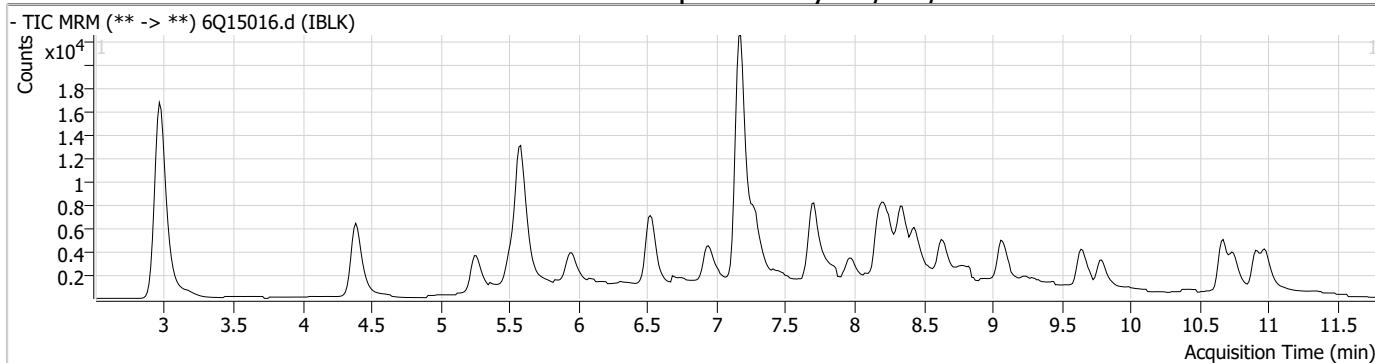
Perfluorinated Compounds by LC/MS/MS

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

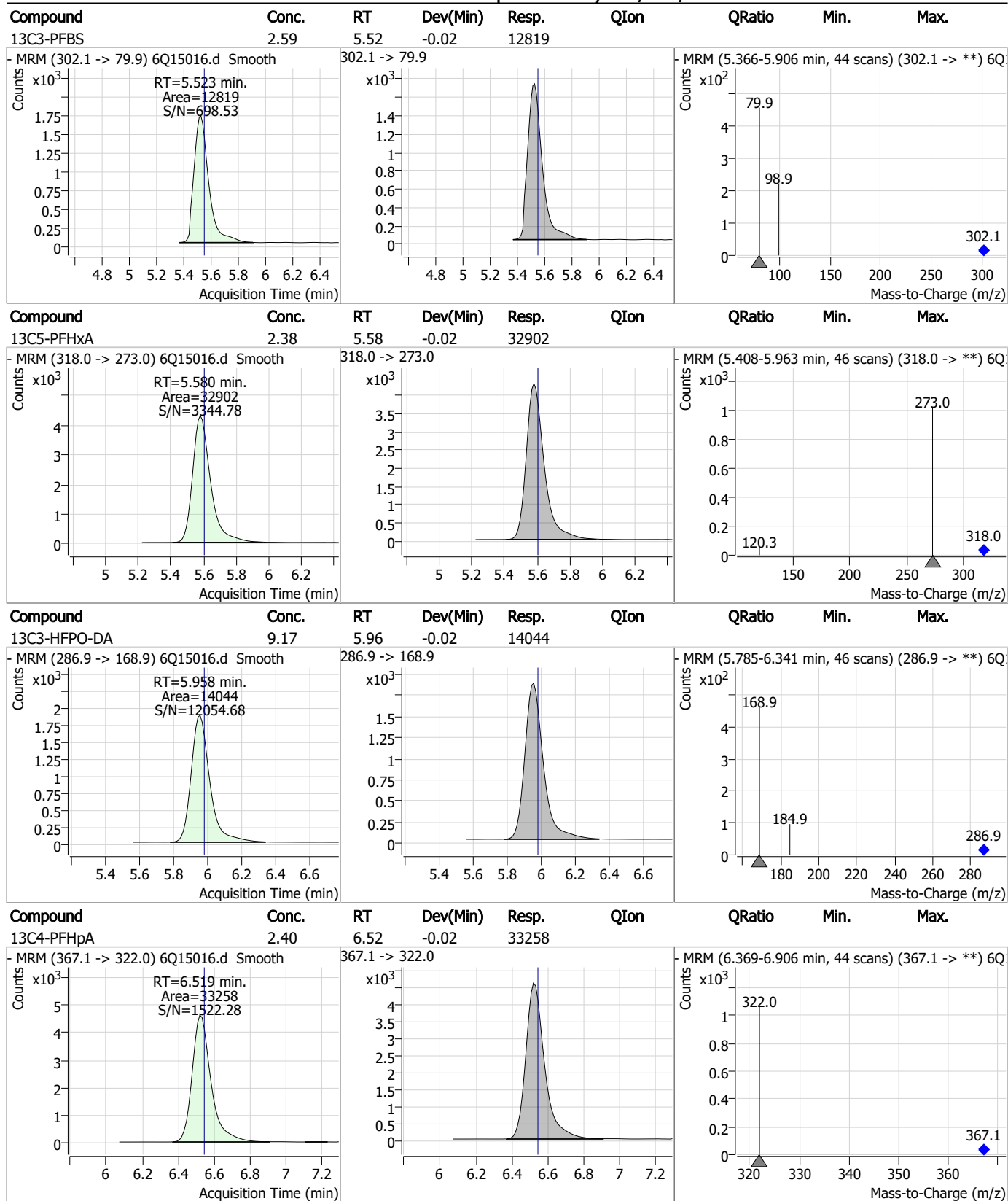
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Perfluorinated Compounds by LC/MS/MS



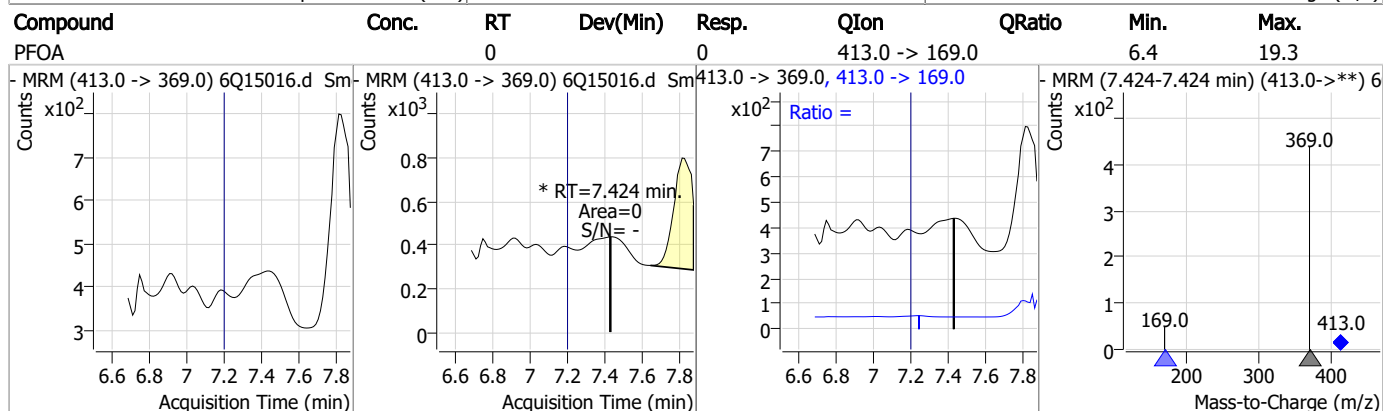
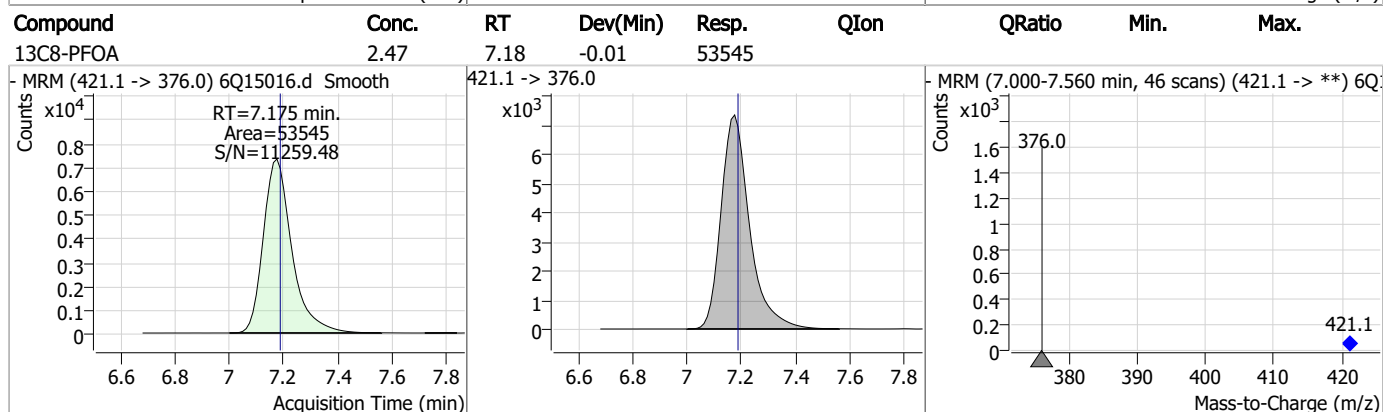
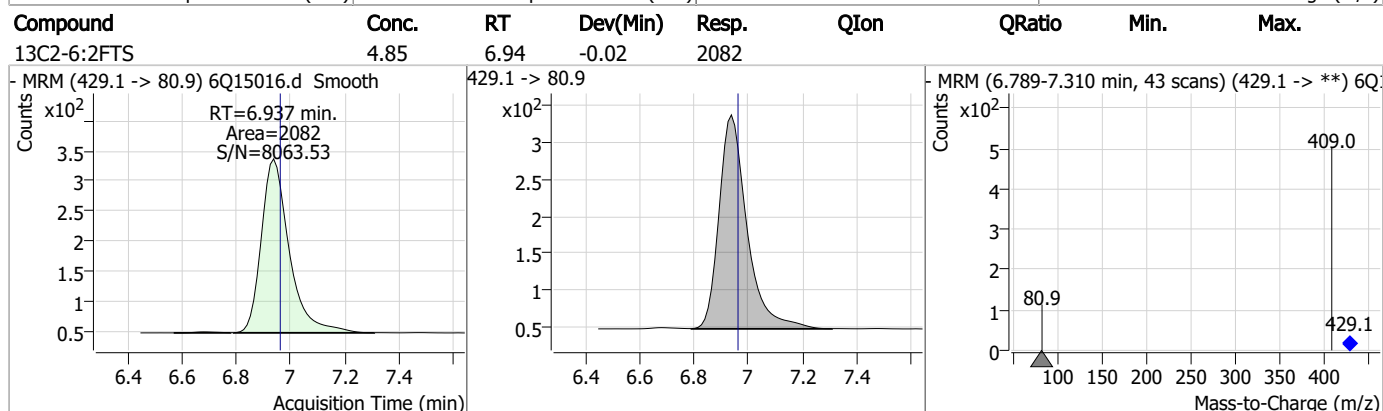
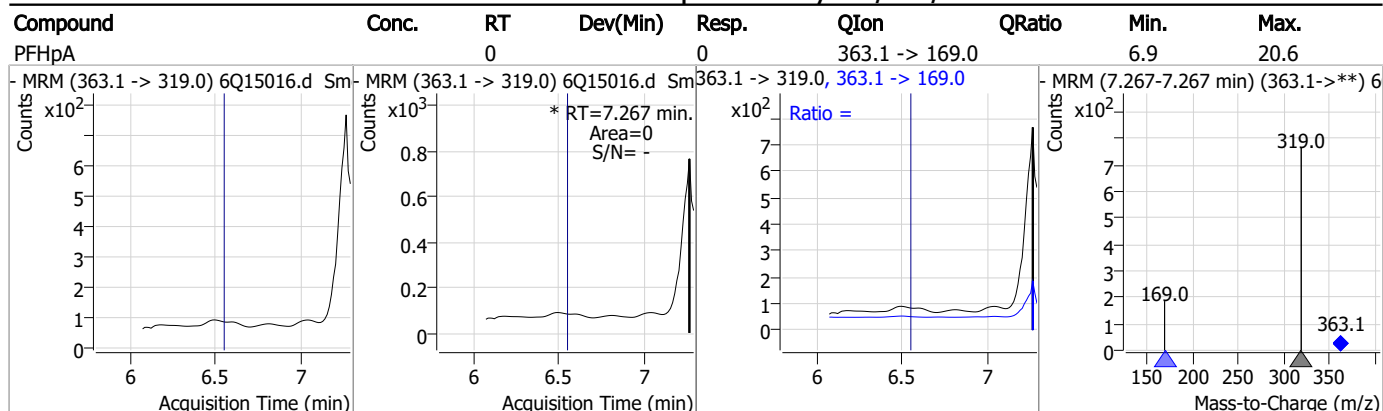
7.2.2
7

Perfluorinated Compounds by LC/MS/MS



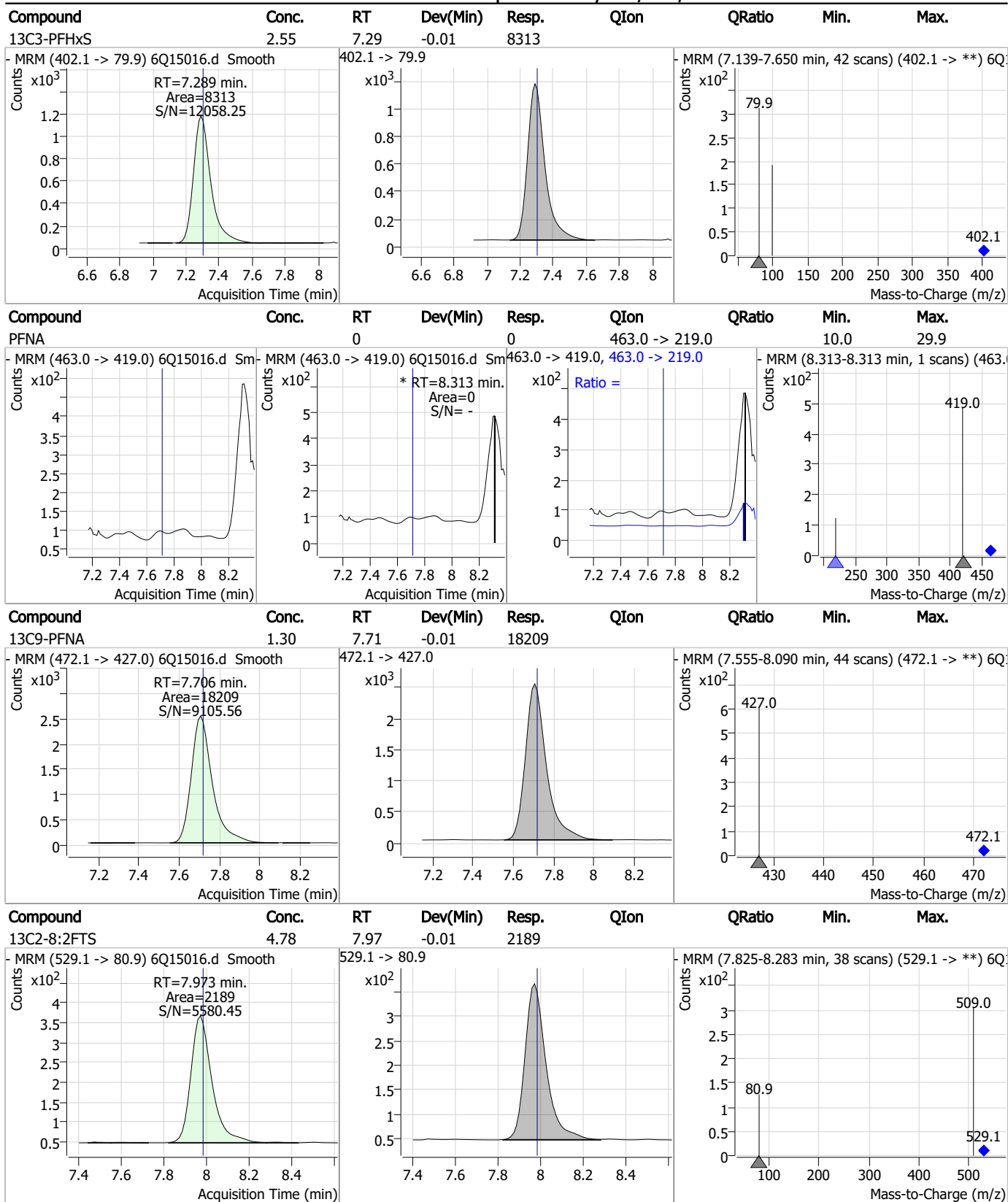
7.2.2
7

Perfluorinated Compounds by LC/MS/MS



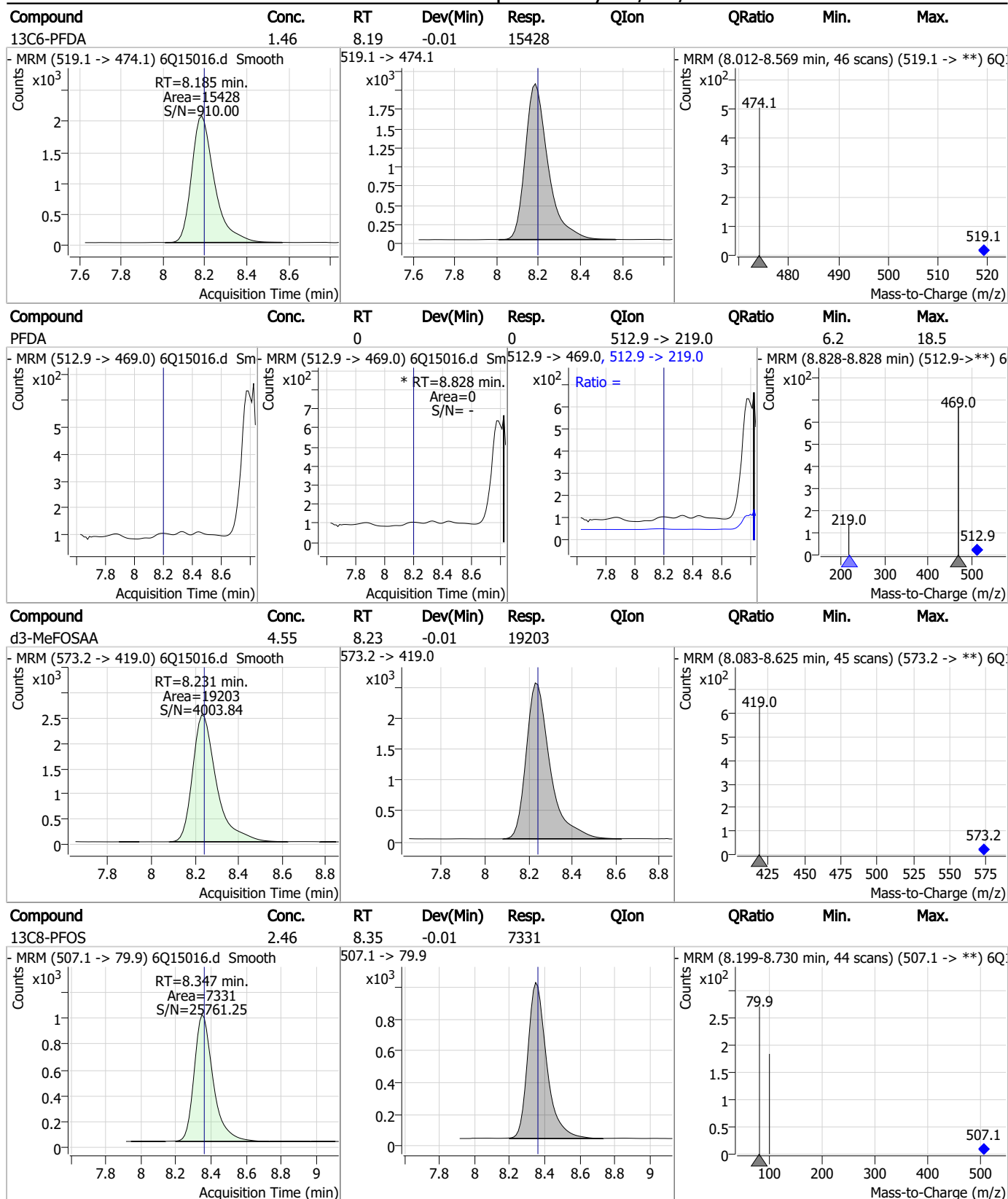
7.22
7

Perfluorinated Compounds by LC/MS/MS



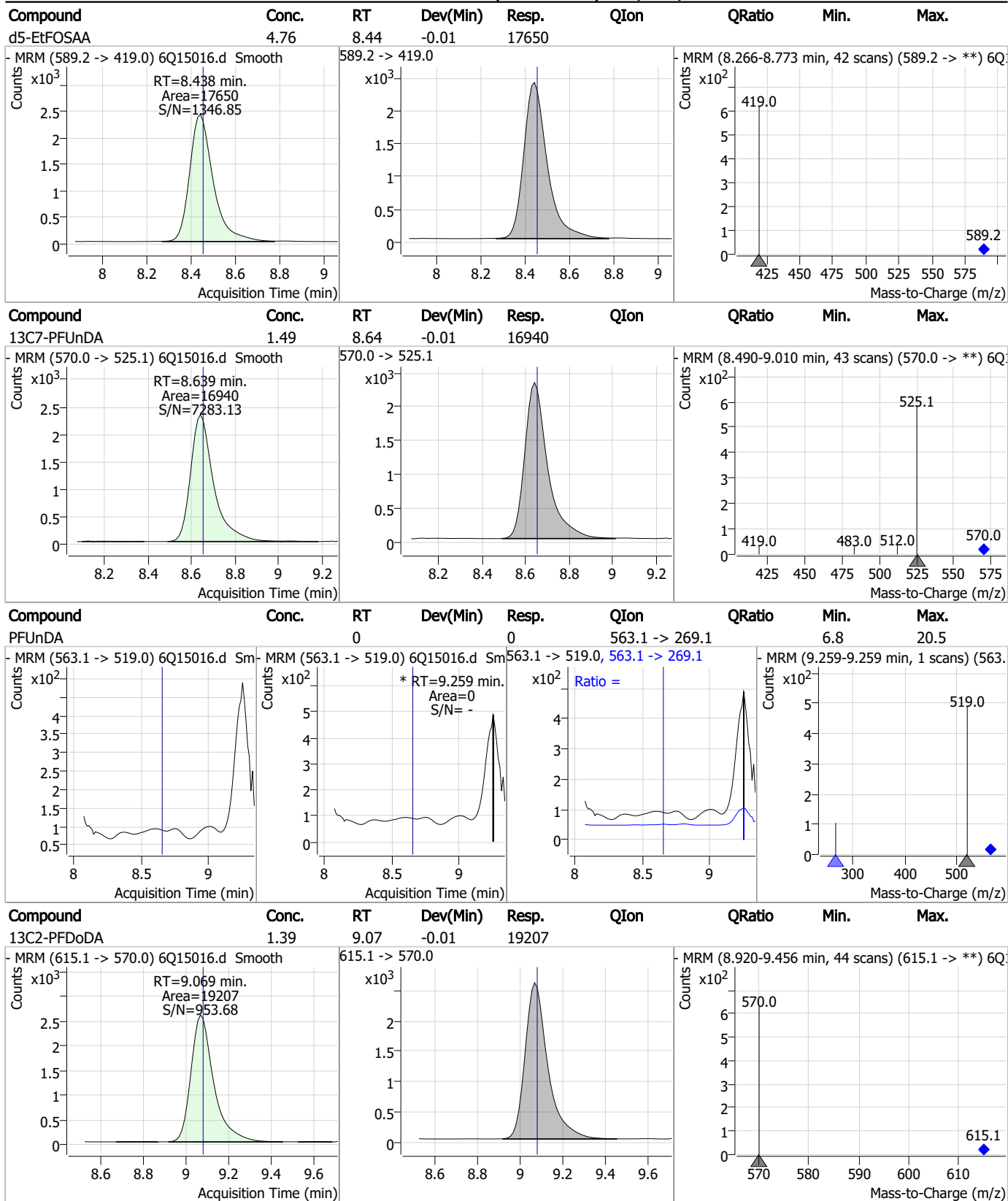
7.2.2
7

Perfluorinated Compounds by LC/MS/MS



7.2.2
7

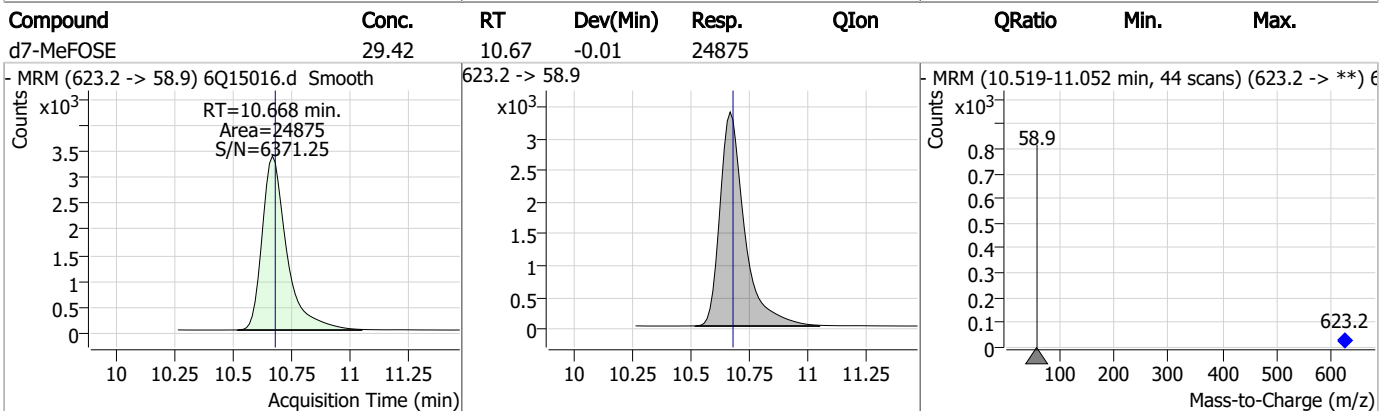
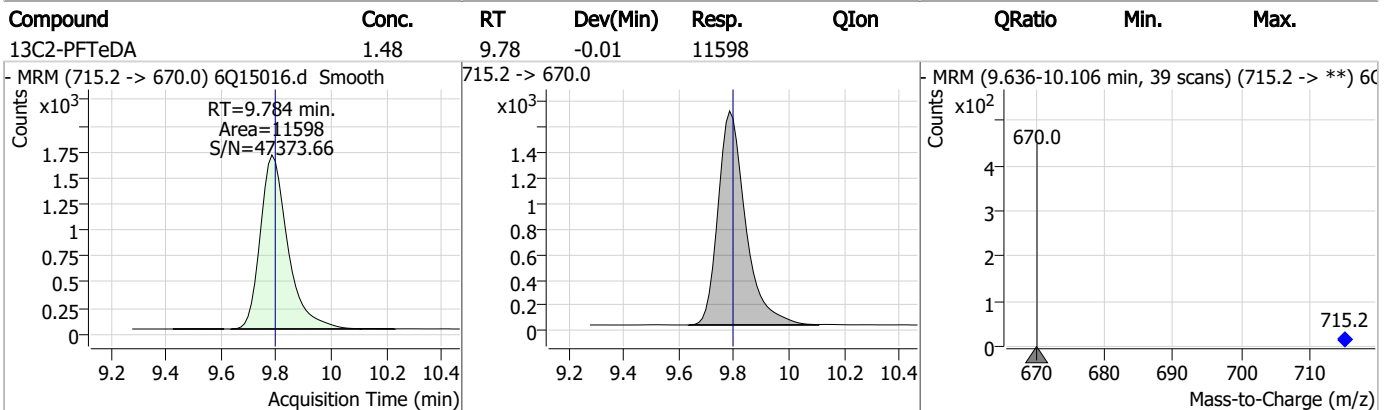
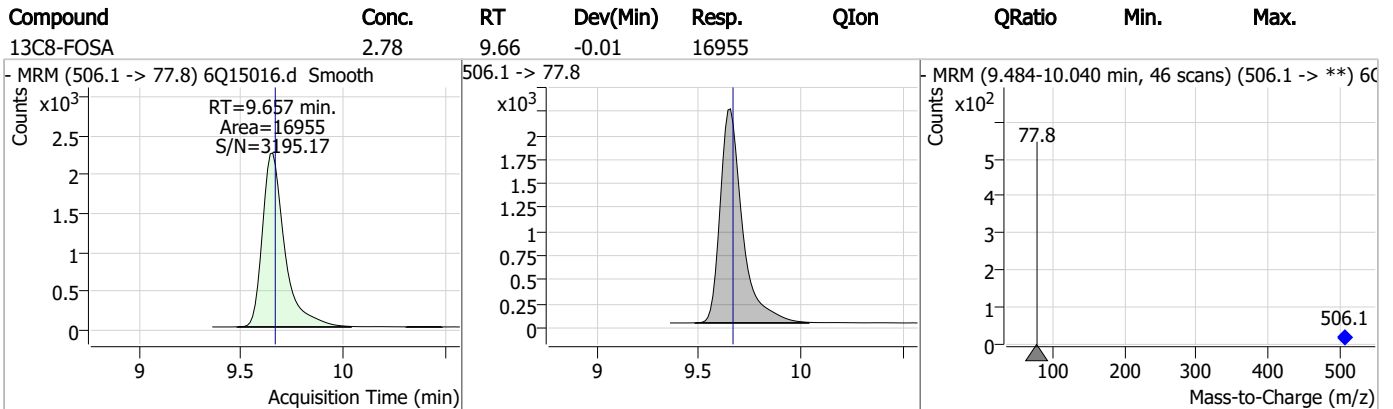
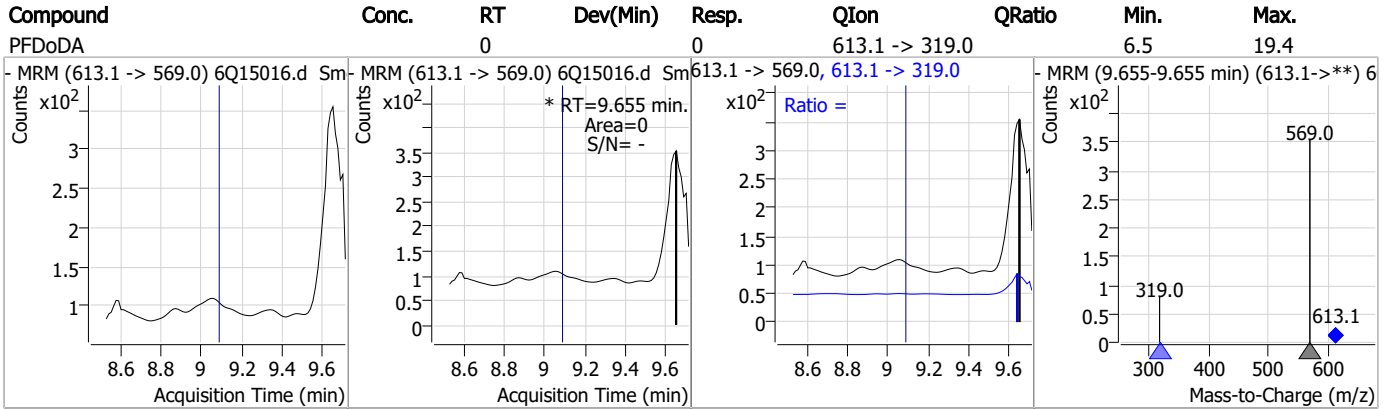
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS

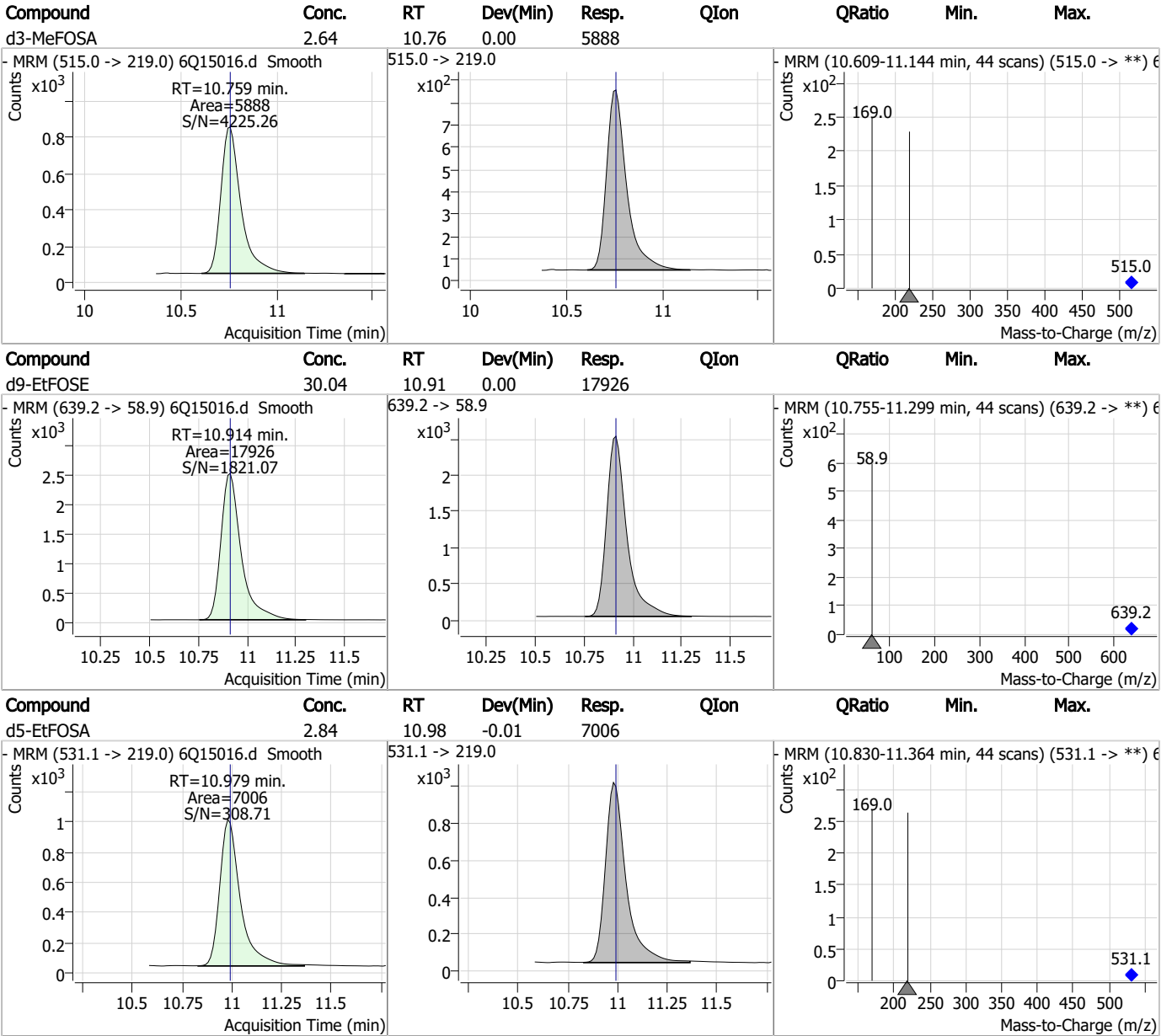


7.2.2

7



Perfluorinated Compounds by LC/MS/MS



7.2.2

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15065.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 4:32:54 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95881,S6Q228,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.935	216.8 -> 171.9	80865	10.00 µg/L	-0.012
M5-PFPeA	4.370	268.3 -> 223.0	40005	5.00 µg/L	-0.025
M5-PFHxA	5.580	318.0 -> 273.0	34814	2.50 µg/L	-0.025
M4-PFHpA	6.519	367.1 -> 322.0	35901	2.50 µg/L	-0.025
M8-PFOA	7.162	421.1 -> 376.0	58524	2.50 µg/L	-0.025
M9-PFNA	7.693	472.1 -> 427.0	17829	1.25 µg/L	-0.025
M6-PFDA	8.173	519.1 -> 474.1	15365	1.25 µg/L	-0.025
M7-PFUnDA	8.627	570.0 -> 525.1	17517	1.25 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	21361	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	12069	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	16900	2.50 µg/L	-0.025
M3-PFBS	5.511	302.1 -> 79.9	13278	2.50 µg/L	-0.037
M3-PFHxS	7.277	402.1 -> 79.9	8044	2.50 µg/L	-0.026
M8-PFOS	8.335	507.1 -> 79.9	8004	2.50 µg/L	-0.025
M2-4:2FTS	5.243	329.1 -> 80.9	1918	5.00 µg/L	-0.037
M2-6:2FTS	6.937	429.1 -> 80.9	2529	5.00 µg/L	-0.025
M2-8:2FTS	7.961	529.1 -> 80.9	2458	5.00 µg/L	-0.025
M3-MeFOSAA	8.218	573.2 -> 419.0	23442	5.00 µg/L	-0.025
M3-HFPO-DA	5.946	286.9 -> 168.9	15221	10.00 µg/L	-0.037
M5-EtFOSAA	8.426	589.2 -> 419.0	20232	5.00 µg/L	-0.025
M7-MeFOSE	10.668	623.2 -> 58.9	24815	25.00 µg/L	-0.012
M9-EtFOSE	10.901	639.2 -> 58.9	17461	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	6637	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	6045	2.50 µg/L	-0.012
13C4-PFOS	8.335	502.8 -> 79.9	9793	2.50 µg/L	-0.025
13C3-PFBA	2.939	216.0 -> 172.0	35086	5.00 µg/L	-0.013
18O2-PFHxS	7.276	403.0 -> 83.9	6149	2.50 µg/L	-0.038
13C4-PFOA	7.163	417.1 -> 372.0	70360	2.50 µg/L	-0.025
13C2-PFDA	8.173	515.1 -> 470.1	20099	1.25 µg/L	-0.025
13C5-PFNA	7.694	468.0 -> 423.0	20028	1.25 µg/L	-0.025
13C2-PFHxA	5.569	315.1 -> 270.0	35367	2.50 µg/L	-0.037
System Monitoring Compounds					
13C2-4:2FTS	5.243	329.1 -> 80.9	1918	5.44 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-6:2FTS	6.937	429.1 -> 80.9	2529	5.54 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C2-8:2FTS	7.961	529.1 -> 80.9	2458	5.05 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFDoDA	9.057	615.1 -> 570.0	21361	1.36 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.7%		
13C2-PFTeDA	9.772	715.2 -> 670.0	12069	1.35 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C3-PFBS	5.511	302.1 -> 79.9	13278	2.52 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFHxS	7.277	402.1 -> 79.9	8044	2.32 µg/L	-0.026



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%		
13C4-PFBA	2.935	216.8 -> 171.9	80865	10.04	µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C4-PFHpA	6.519	367.1 -> 322.0	35901	2.48	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C5-PFHxA	5.580	318.0 -> 273.0	34814	2.42	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C5-PFPeA	4.370	268.3 -> 223.0	40005	4.90	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C6-PFDA	8.173	519.1 -> 474.1	15365	1.27	µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C7-PFUnDA	8.627	570.0 -> 525.1	17517	1.35	µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.9%		
13C8-FOSA	9.645	506.1 -> 77.8	16900	2.49	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C8-PFOA	7.162	421.1 -> 376.0	58524	2.49	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C8-PFOS	8.335	507.1 -> 79.9	8004	2.41	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C9-PFNA	7.693	472.1 -> 427.0	17829	1.15	µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.3%		
d3-MeFOSAA	8.218	573.2 -> 419.0	23442	4.98	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C3-HFPO-DA	5.946	286.9 -> 168.9	15221	9.53	µg/L	-0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.3%		
d3-MeFOSA	10.746	515.0 -> 219.0	6045	2.43	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%		
d5-EtFOSAA	8.426	589.2 -> 419.0	20232	4.89	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
d7-MeFOSE	10.668	623.2 -> 58.9	24815	26.34	µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
d9-EtFOSE	10.901	639.2 -> 58.9	17461	26.26	µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
d5-EtFOSA	10.979	531.1 -> 219.0	6637	2.42	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%		

Target Compounds

Compound	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	8.791	512.9 -> 469.0	0	µg/L	m	1
		512.9 -> 219.0	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	8.313	398.7 -> 98.9	0	µg/L	m	1
		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	9.235	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.3
7

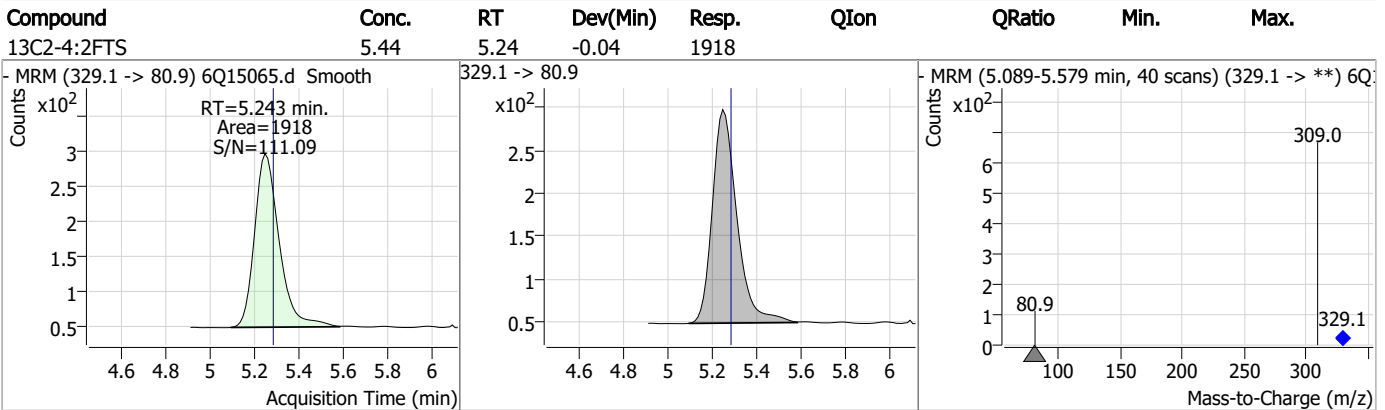
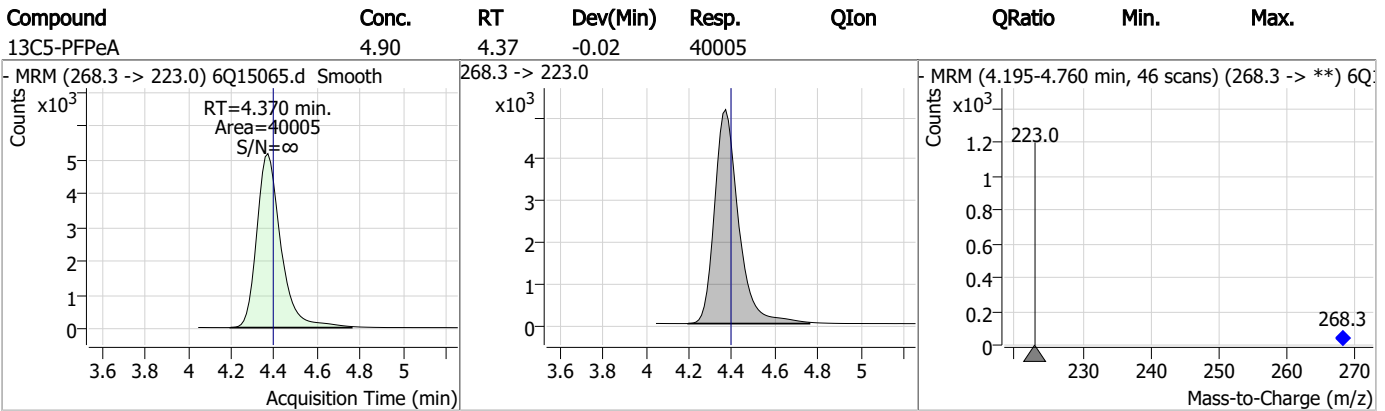
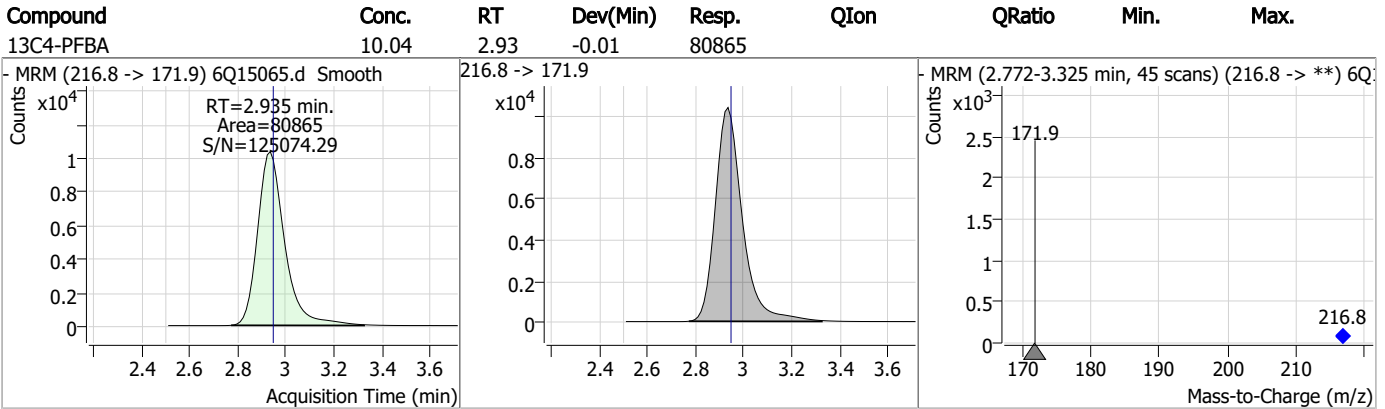
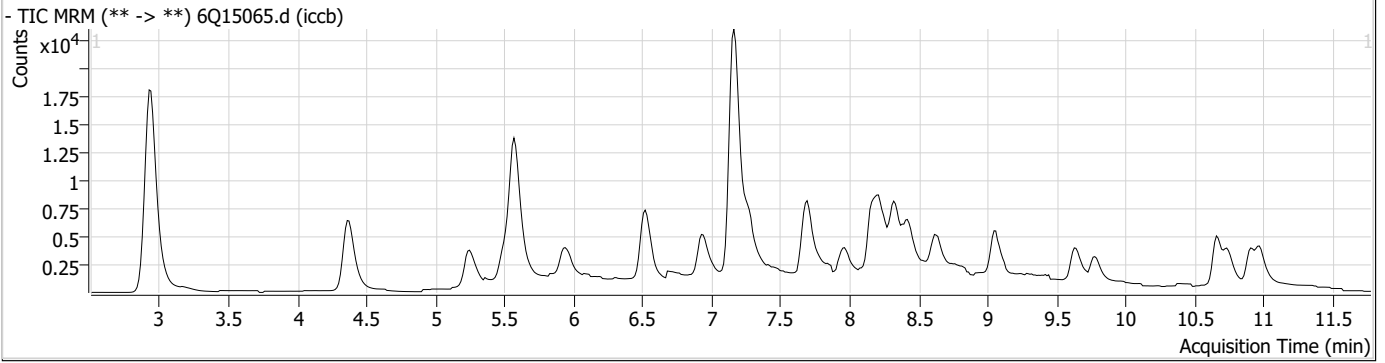
Perfluorinated Compounds by LC/MS/MS

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

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Perfluorinated Compounds by LC/MS/MS

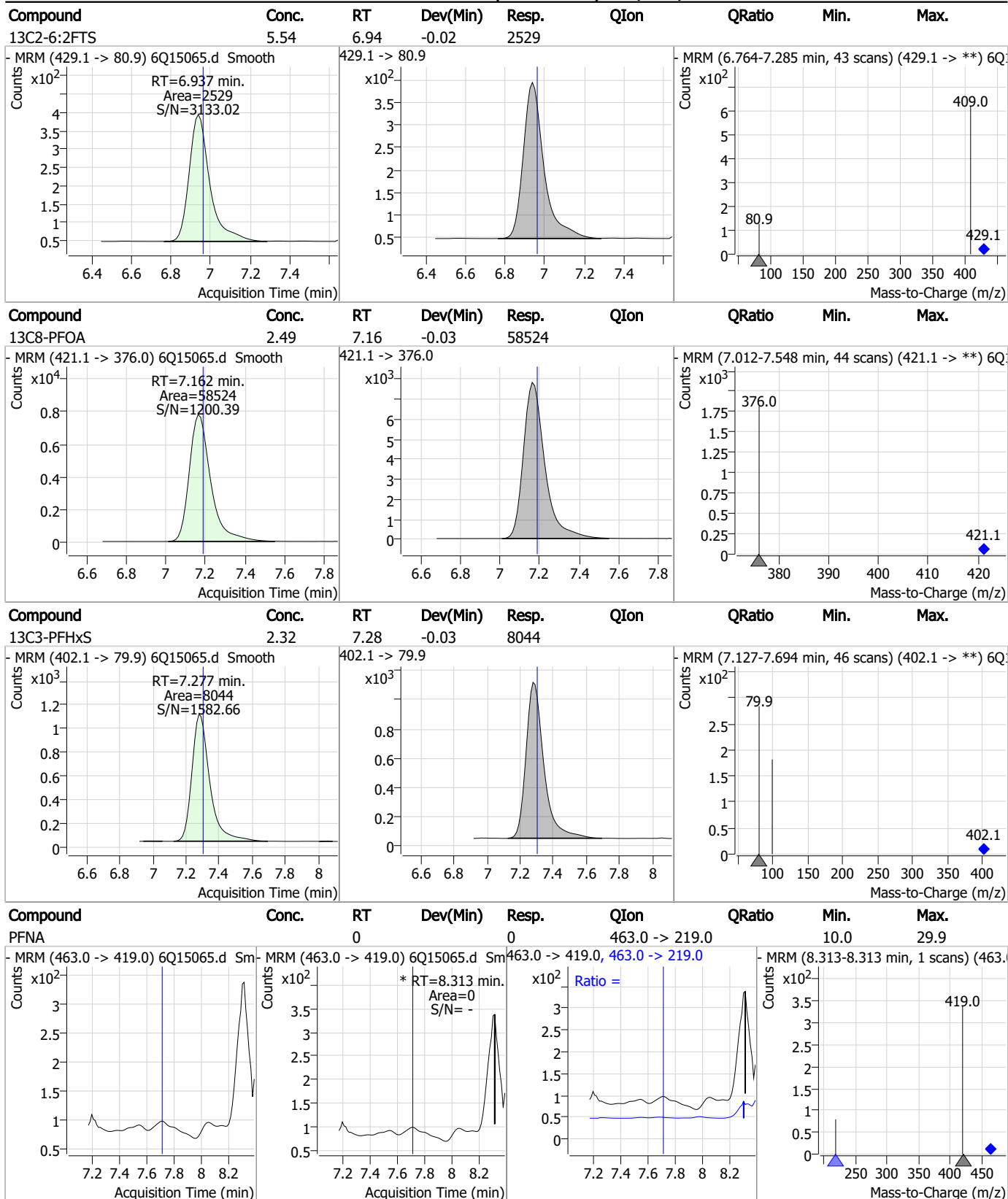


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.52	5.51	-0.04	13278				
13C5-PFHxA	2.42	5.58	-0.02	34814				
13C3-HFPO-DA	9.53	5.95	-0.04	15221				
13C4-PFHpA	2.48	6.52	-0.02	35901				

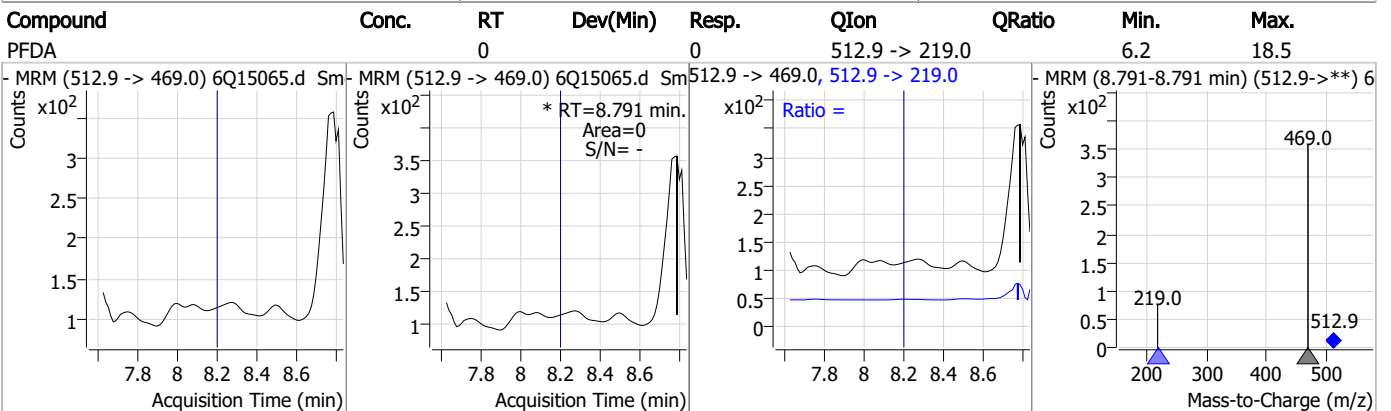
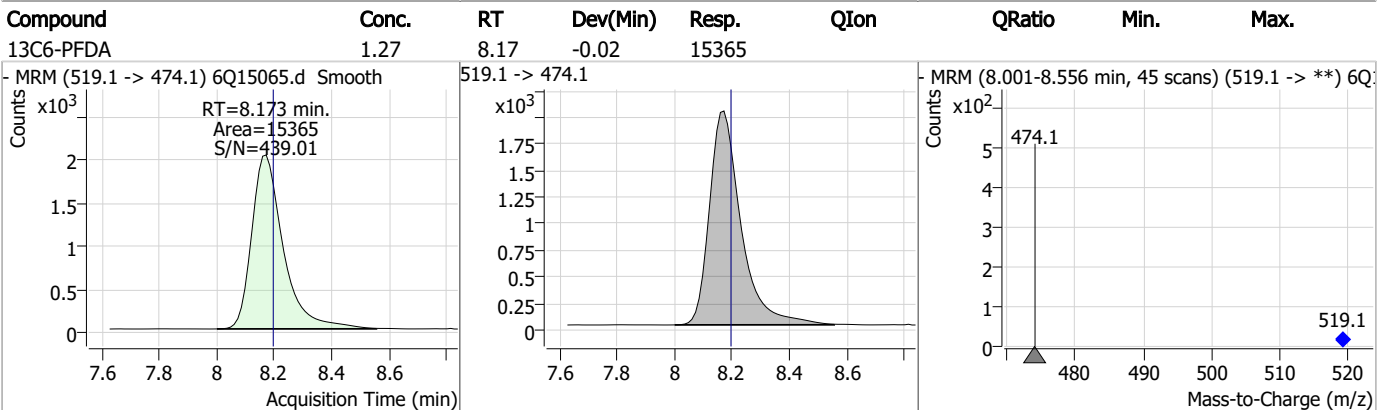
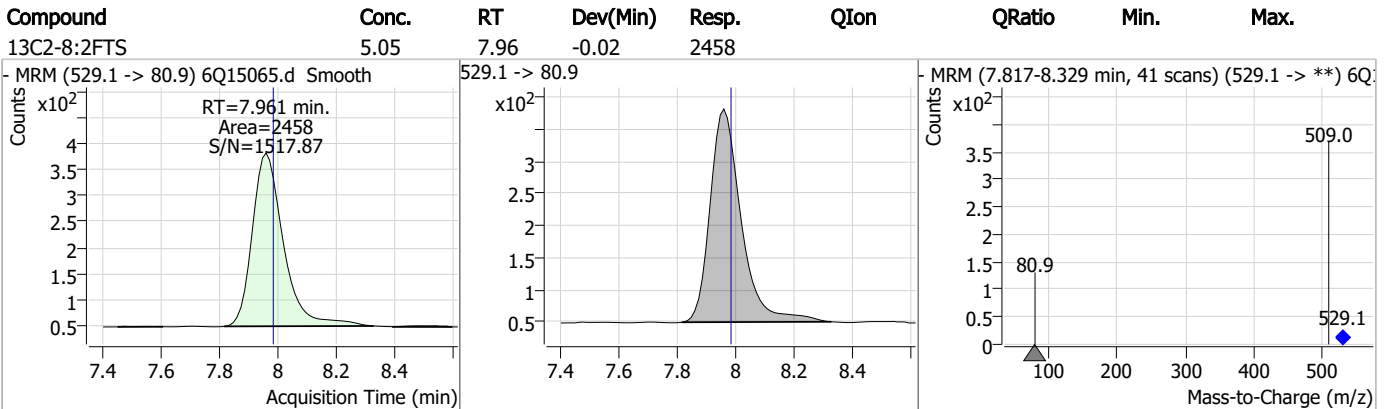
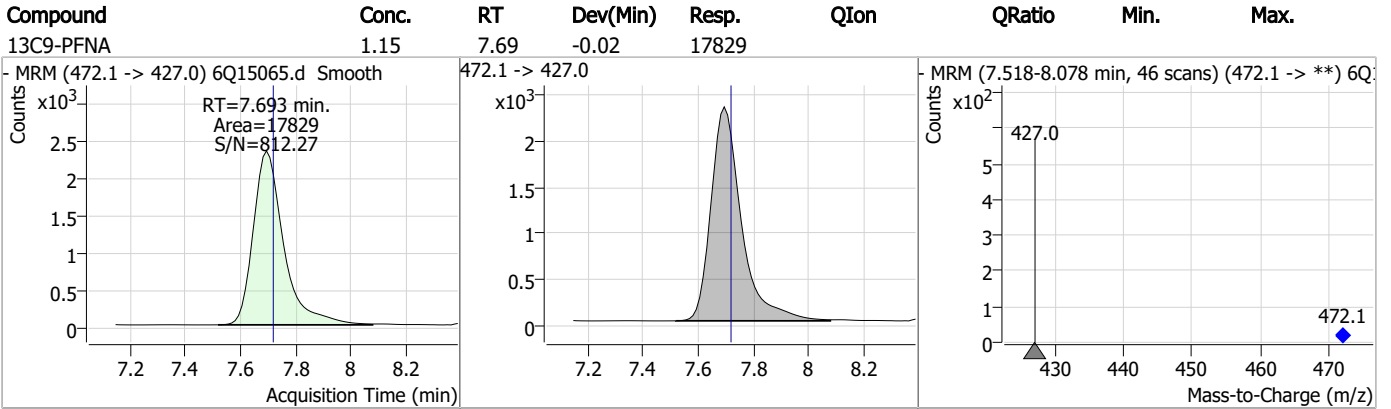
7.2.3
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Perfluorinated Compounds by LC/MS/MS



7.2.3
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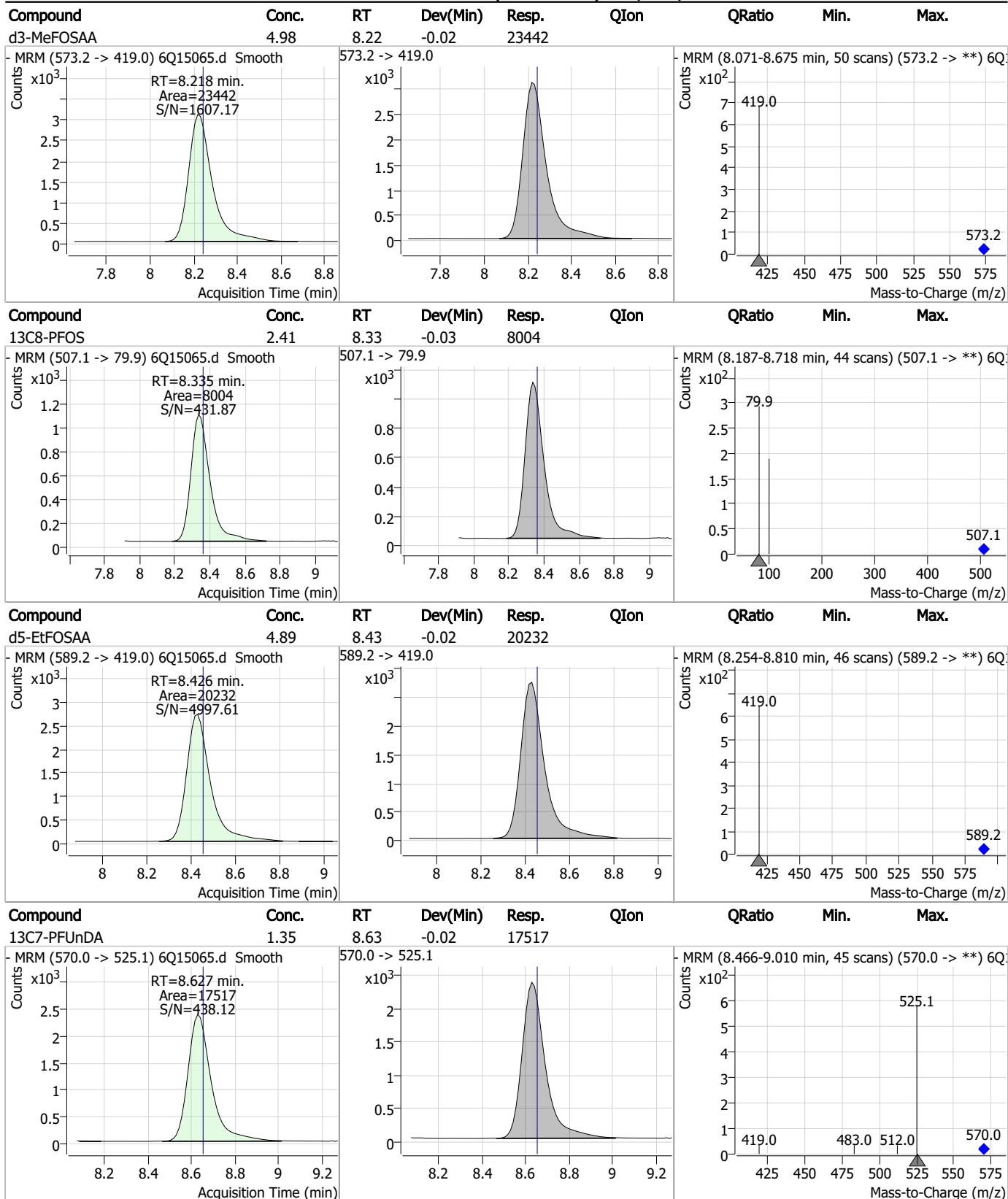
Perfluorinated Compounds by LC/MS/MS



7.2.3

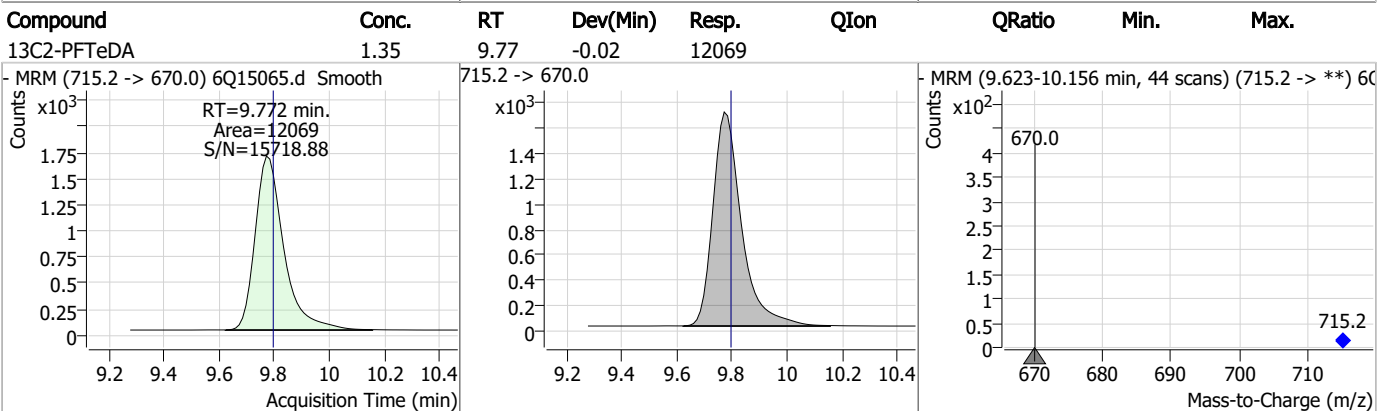
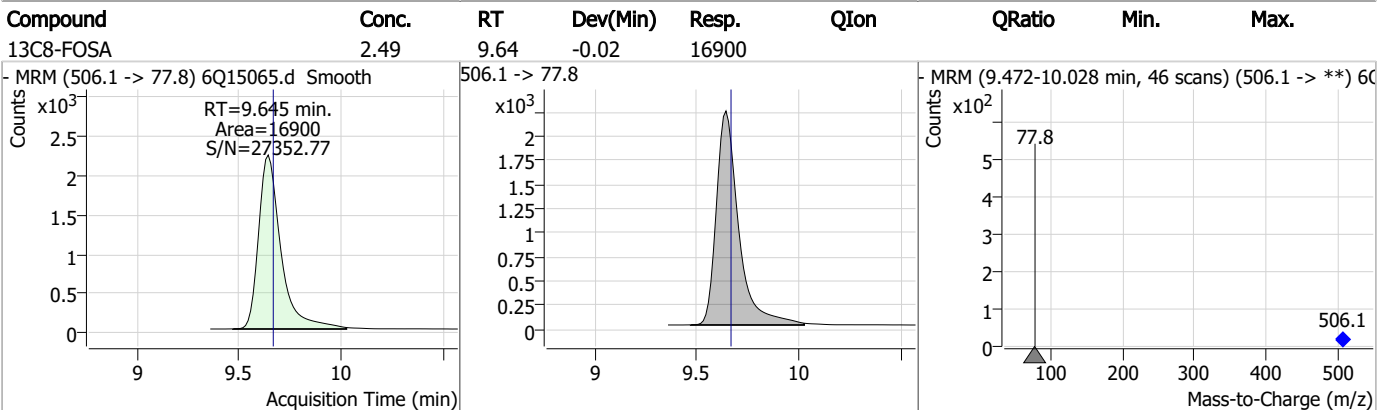
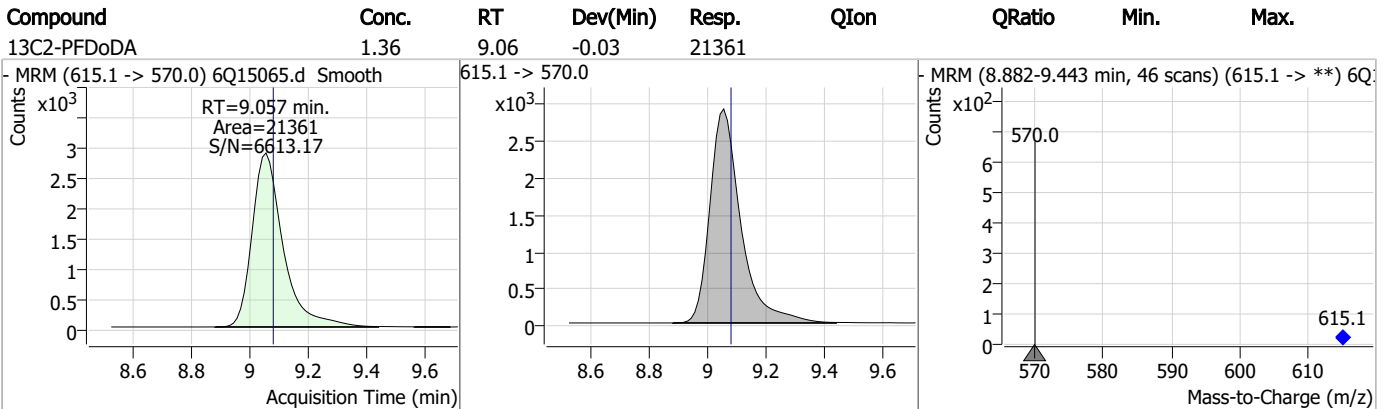
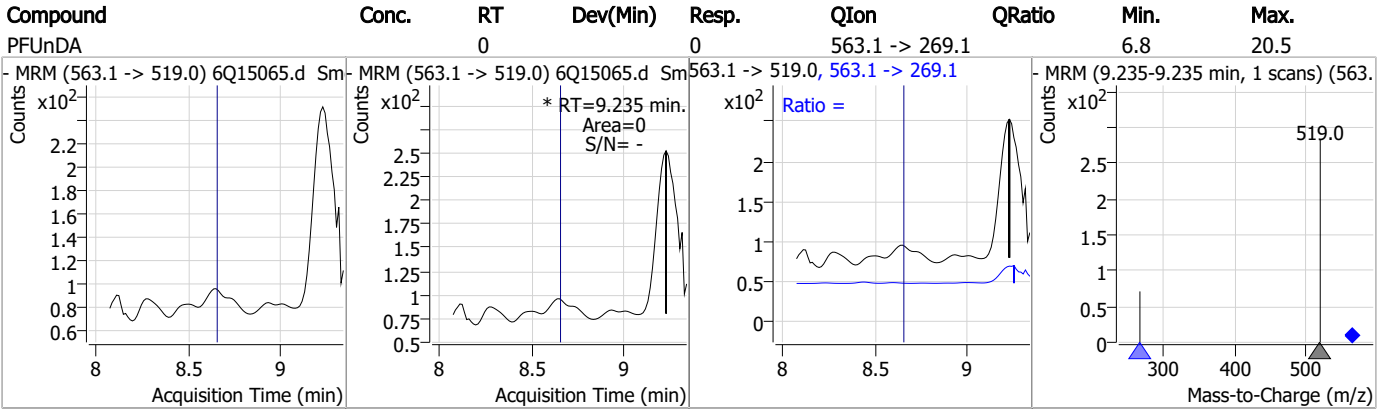
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Perfluorinated Compounds by LC/MS/MS

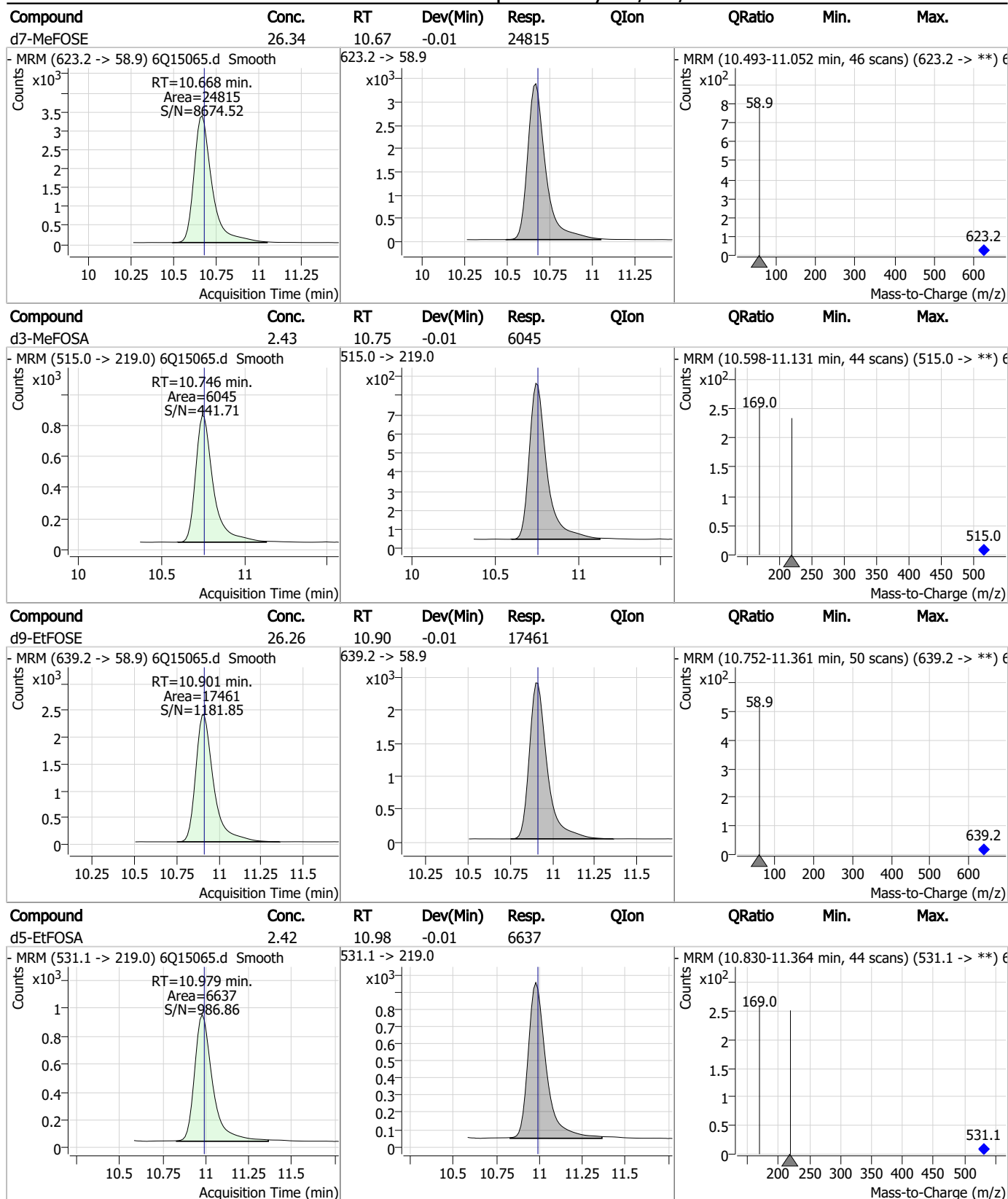


7.2.3
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.2.3

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Perfluorinated Compounds by LC/MS/MS

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 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 4:46:52 AM
 Sample Name : op95927-bs
 Vial : P2-E3
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.972	216.8 -> 171.9	63389	10.00 µg/L	0.025
M5-PFPeA	4.382	268.3 -> 223.0	44574	5.00 µg/L	-0.012
M5-PFHxA	5.580	318.0 -> 273.0	38238	2.50 µg/L	-0.025
M4-PFHpA	6.519	367.1 -> 322.0	39362	2.50 µg/L	-0.025
M8-PFOA	7.162	421.1 -> 376.0	64212	2.50 µg/L	-0.025
M9-PFNA	7.693	472.1 -> 427.0	21085	1.25 µg/L	-0.025
M6-PFDA	8.173	519.1 -> 474.1	16895	1.25 µg/L	-0.025
M7-PFUnDA	8.627	570.0 -> 525.1	20312	1.25 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	23887	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	11468	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	17942	2.50 µg/L	-0.025
M3-PFBS	5.524	302.1 -> 79.9	14927	2.50 µg/L	-0.025
M3-PFHxS	7.277	402.1 -> 79.9	9365	2.50 µg/L	-0.026
M8-PFOS	8.335	507.1 -> 79.9	9148	2.50 µg/L	-0.025
M2-4:2FTS	5.256	329.1 -> 80.9	2114	5.00 µg/L	-0.025
M2-6:2FTS	6.937	429.1 -> 80.9	2707	5.00 µg/L	-0.025
M2-8:2FTS	7.961	529.1 -> 80.9	2759	5.00 µg/L	-0.025
M3-MeFOSAA	8.218	573.2 -> 419.0	23970	5.00 µg/L	-0.025
M3-HFPO-DA	5.958	286.9 -> 168.9	16604	10.00 µg/L	-0.025
M5-EtFOSAA	8.426	589.2 -> 419.0	20823	5.00 µg/L	-0.025
M7-MeFOSE	10.668	623.2 -> 58.9	24053	25.00 µg/L	-0.012
M9-EtFOSE	10.901	639.2 -> 58.9	17098	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	6266	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	5549	2.50 µg/L	-0.012
13C4-PFOS	8.335	502.8 -> 79.9	8584	2.50 µg/L	-0.025
13C3-PFBA	2.976	216.0 -> 172.0	32375	5.00 µg/L	0.025
18O2-PFHxS	7.288	403.0 -> 83.9	5642	2.50 µg/L	-0.026
13C4-PFOA	7.163	417.1 -> 372.0	62386	2.50 µg/L	-0.025
13C2-PFDA	8.173	515.1 -> 470.1	18920	1.25 µg/L	-0.025
13C5-PFNA	7.694	468.0 -> 423.0	17898	1.25 µg/L	-0.025
13C2-PFHxA	5.581	315.1 -> 270.0	31410	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	2114	6.53 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.6%		
13C2-6:2FTS	6.937	429.1 -> 80.9	2707	6.46 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.2%		
13C2-8:2FTS	7.961	529.1 -> 80.9	2759	6.17 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.4%		
13C2-PFDoDA	9.057	615.1 -> 570.0	23887	1.61 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 129.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	11468	1.36 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.7%		
13C3-PFBS	5.524	302.1 -> 79.9	14927	3.09 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 123.6%		
13C3-PFHxS	7.277	402.1 -> 79.9	9365	2.94 µg/L	-0.026

7.31
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.6%		
13C4-PFBA	2.972	216.8 -> 171.9	63389	8.53 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 85.3%		
13C4-PFHpA	6.519	367.1 -> 322.0	39362	3.06 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 122.5%		
13C5-PFHxA	5.580	318.0 -> 273.0	38238	2.99 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.5%		
13C5-PFPeA	4.382	268.3 -> 223.0	44574	6.14 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.8%		
13C6-PFDA	8.173	519.1 -> 474.1	16895	1.49 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 118.9%		
13C7-PFUnDA	8.627	570.0 -> 525.1	20312	1.66 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 132.9%		
13C8-FOSA	9.645	506.1 -> 77.8	17942	3.01 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 120.5%		
13C8-PFOA	7.162	421.1 -> 376.0	64212	3.08 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 123.3%		
13C8-PFOS	8.335	507.1 -> 79.9	9148	3.14 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 125.6%		
13C9-PFNA	7.693	472.1 -> 427.0	21085	1.53 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 122.2%		
d3-MeFOSAA	8.218	573.2 -> 419.0	23970	5.81 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.3%		
13C3-HFPO-DA	5.958	286.9 -> 168.9	16604	11.70 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 117.0%		
d3-MeFOSA	10.746	515.0 -> 219.0	5549	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
d5-EtFOSAA	8.426	589.2 -> 419.0	20823	5.74 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.9%		
d7-MeFOSE	10.668	623.2 -> 58.9	24053	29.13 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 116.5%		
d9-EtFOSE	10.901	639.2 -> 58.9	17098	29.33 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 117.3%		
d5-EtFOSA	10.979	531.1 -> 219.0	6266	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
Target Compounds					QValue
4:2FTS	5.256	327.1 -> 307.0	36958	7.56 µg/L	99
		327.1 -> 80.9	9225		
6:2FTS	6.937	427.1 -> 407.0	32993	8.20 µg/L	99
		427.1 -> 80.9	7247		
8:2FTS	7.962	527.1 -> 507.0	19195	9.46 µg/L	99
		527.1 -> 80.8	5204		
EtFOSAA	8.427	584.2 -> 419.1	6886	1.82 µg/L	m 91
		584.2 -> 526.0	4206		
FOSA	9.635	498.1 -> 77.9	15918	2.22 µg/L	100
		498.1 -> 478.0	621		
MeFOSAA	8.219	570.1 -> 419.0	9379	1.87 µg/L	99
		570.1 -> 483.0	1681		
PFBA	2.981	212.8 -> 168.9	13657	7.89 µg/L	100
PFBS	5.525	298.7 -> 79.9	11226	1.71 µg/L	99
		298.7 -> 98.8	5026		
PFDA	8.174	512.9 -> 469.0	44487	2.12 µg/L	96
		512.9 -> 219.0	6112		
PFDoDA	9.057	613.1 -> 569.0	38934	1.89 µg/L	99
		613.1 -> 319.0	4872		
PFDS	9.221	599.0 -> 79.9	5797	1.94 µg/L	99

7.3.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.532	599.0 -> 98.8	2842	2.01	µg/L	99
		363.1 -> 319.0	50913			
PFHpS	7.843	363.1 -> 169.0	7201	1.86	µg/L	90
		449.0 -> 79.9	7592			
PFHxA	5.582	449.0 -> 98.9	3956	2.00	µg/L	99
		313.0 -> 269.0	32214			
PFHxS	7.290	313.0 -> 118.9	1385	1.82	µg/L	m
		398.7 -> 79.9	8509			
PFNA	7.694	398.7 -> 98.9	4646	1.90	µg/L	98
		463.0 -> 419.0	28393			
PFNS	8.802	463.0 -> 219.0	5948	1.95	µg/L	92
		548.8 -> 79.9	8426			
PFOA	7.163	548.8 -> 98.9	4401	1.93	µg/L	94
		413.0 -> 369.0	58650			
PFOS	8.336	413.0 -> 169.0	8891	1.86	µg/L	m
		498.9 -> 79.9	7977			
PFPeA	4.385	498.9 -> 98.8	4704	3.87	µg/L	100
		263.0 -> 219.0	41075			
PFPeS	6.584	349.1 -> 79.9	10857	1.92	µg/L	93
		349.1 -> 98.9	5222			
PFTeDA	9.772	713.1 -> 669.0	31423	2.18	µg/L	99
		713.1 -> 168.9	2087			
PFTrDA	9.440	663.0 -> 619.0	34242	1.88	µg/L	99
		663.0 -> 168.9	2810			
PFUnDA	8.627	563.1 -> 519.0	38351	1.99	µg/L	98
		563.1 -> 269.1	5492			
11CI-PF3OUdS	9.493	630.9 -> 450.9	74780	7.28	µg/L	99
		632.9 -> 452.9	23404			
9CI-PF3ONS	8.666	530.8 -> 351.0	136142	7.31	µg/L	95
		532.8 -> 353.0	46090			
ADONA	6.781	376.9 -> 250.9	292644	8.21	µg/L	99
		376.9 -> 84.8	64253			
HFPO-DA	5.959	284.9 -> 168.9	13780	7.89	µg/L	99
		284.9 -> 184.9	1758			
3:3FTCA	3.863	241.0 -> 177.0	4723	8.90	µg/L	99
		241.0 -> 117.0	685			
5:3FTCA	6.246	341.0 -> 237.1	172139	52.94	µg/L	97
		341.0 -> 217.0	147910			
7:3FTCA	7.659	441.0 -> 316.9	90735	55.51	µg/L	98
		441.0 -> 336.9	164009			
EtFOSA	10.981	526.0 -> 219.0	6044	2.01	µg/L	98
		526.0 -> 169.0	5872			
EtFOSE	10.927	630.0 -> 58.9	14266	20.48	µg/L	100
		511.9 -> 219.0	5947			
MeFOSA	10.748	511.9 -> 169.0	6005	2.23	µg/L	94
		616.1 -> 58.9	19741			
MeFOSE	10.681	699.1 -> 79.9	3046	19.44	µg/L	100
		699.1 -> 98.8	1841			
PFDoDS	9.911	295.0 -> 201.0	4154	4.00	µg/L	97
		295.0 -> 84.9	1938			
NFDHA	5.463	279.0 -> 85.1	14103	4.08	µg/L	100
		229.0 -> 84.9	12451			
PFMBA	3.526	314.8 -> 134.9	82687	4.09	µg/L	100
		314.8 -> 82.9	2194			
PFEESA	6.064			3.63	µg/L	99

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



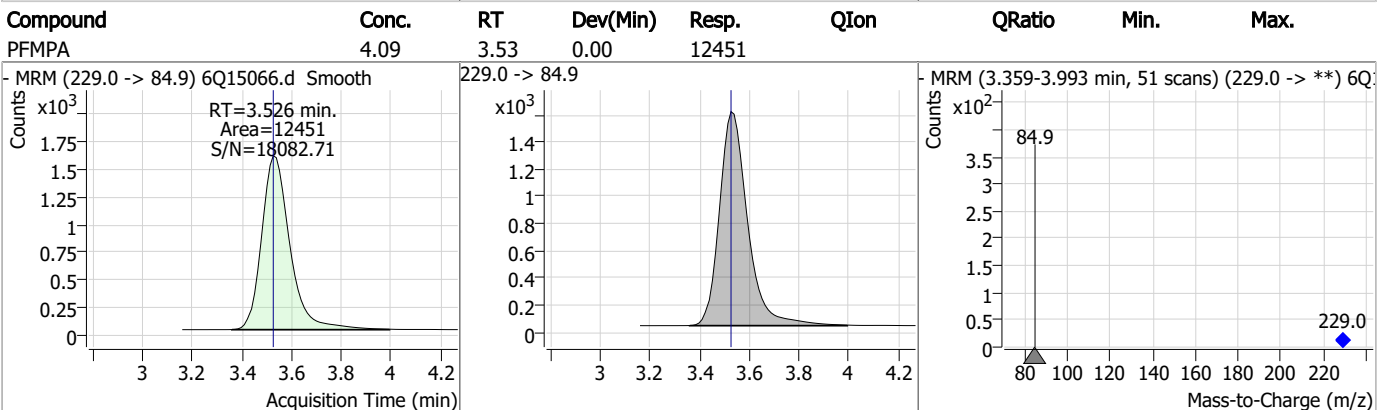
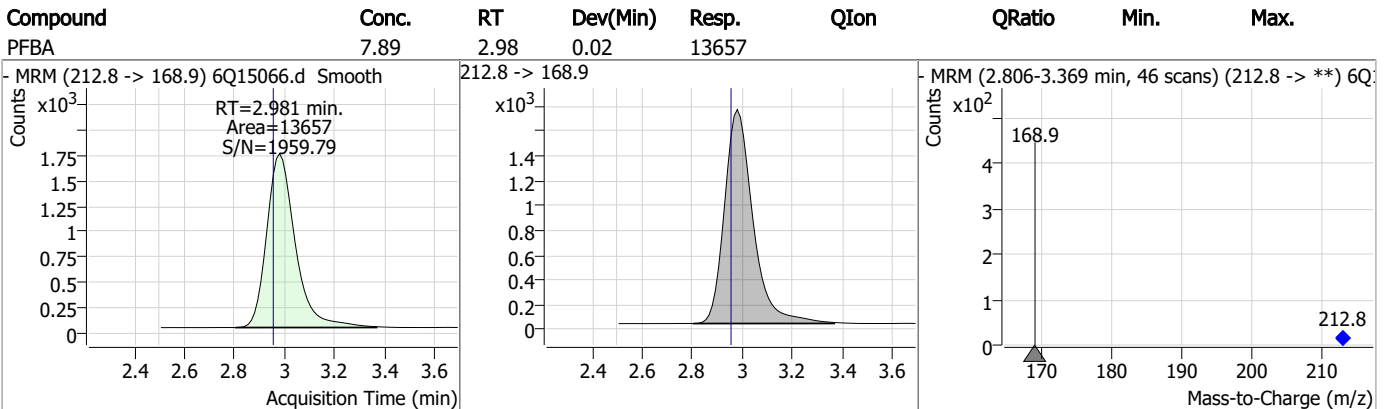
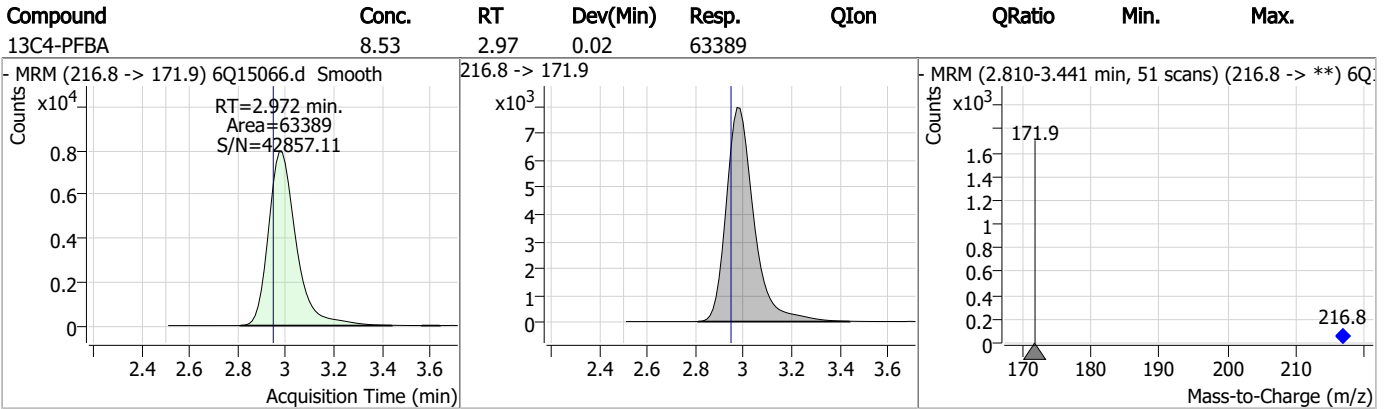
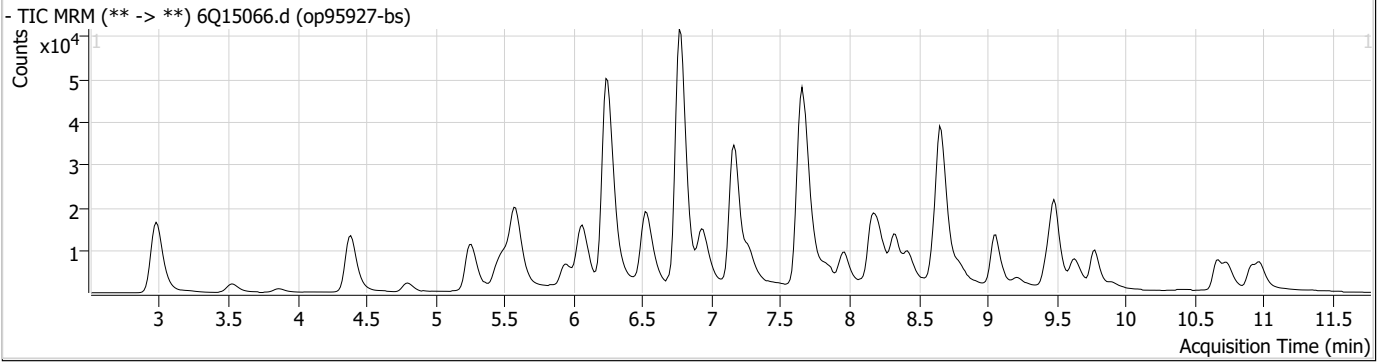
Perfluorinated Compounds by LC/MS/MS

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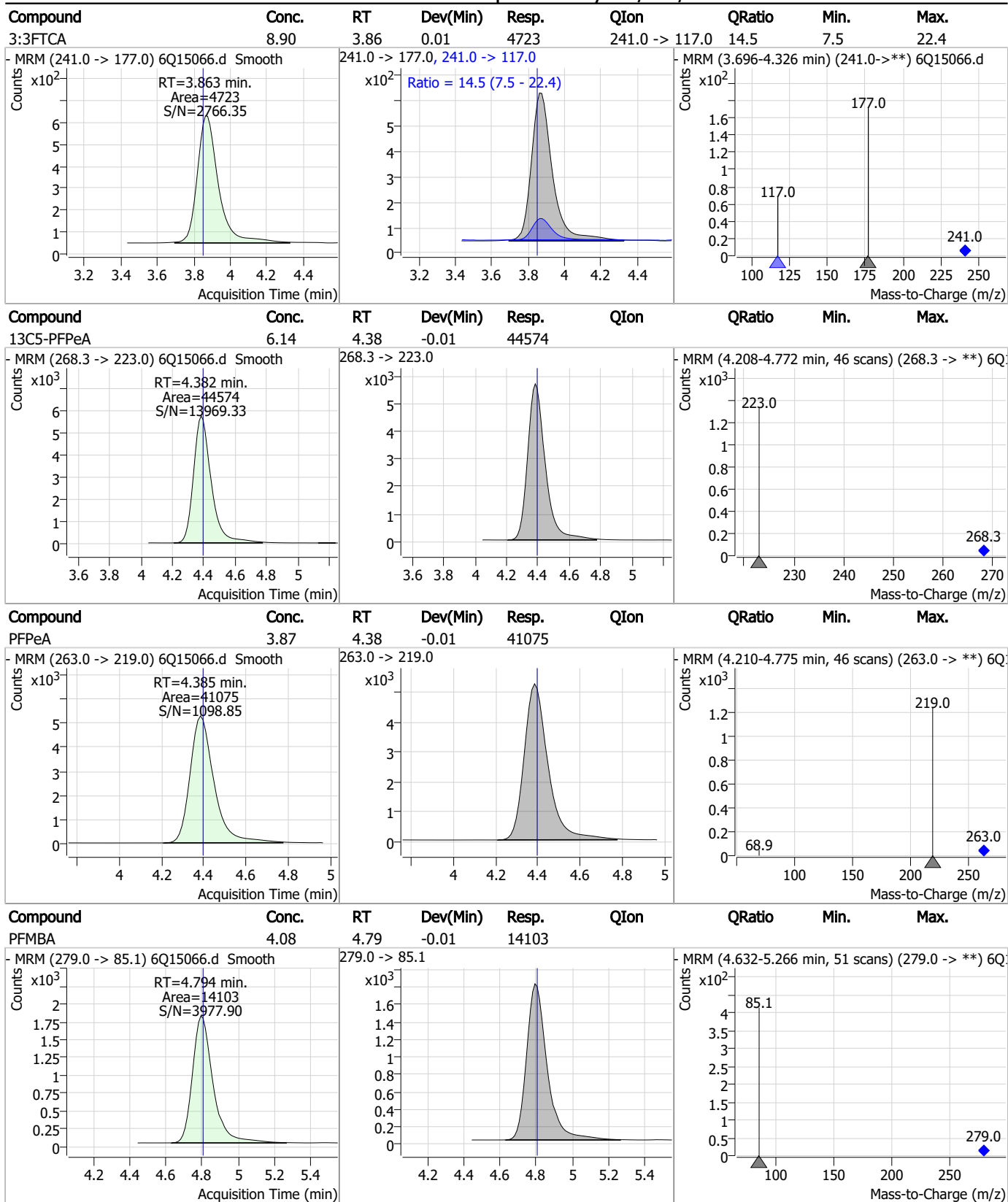
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Perfluorinated Compounds by LC/MS/MS

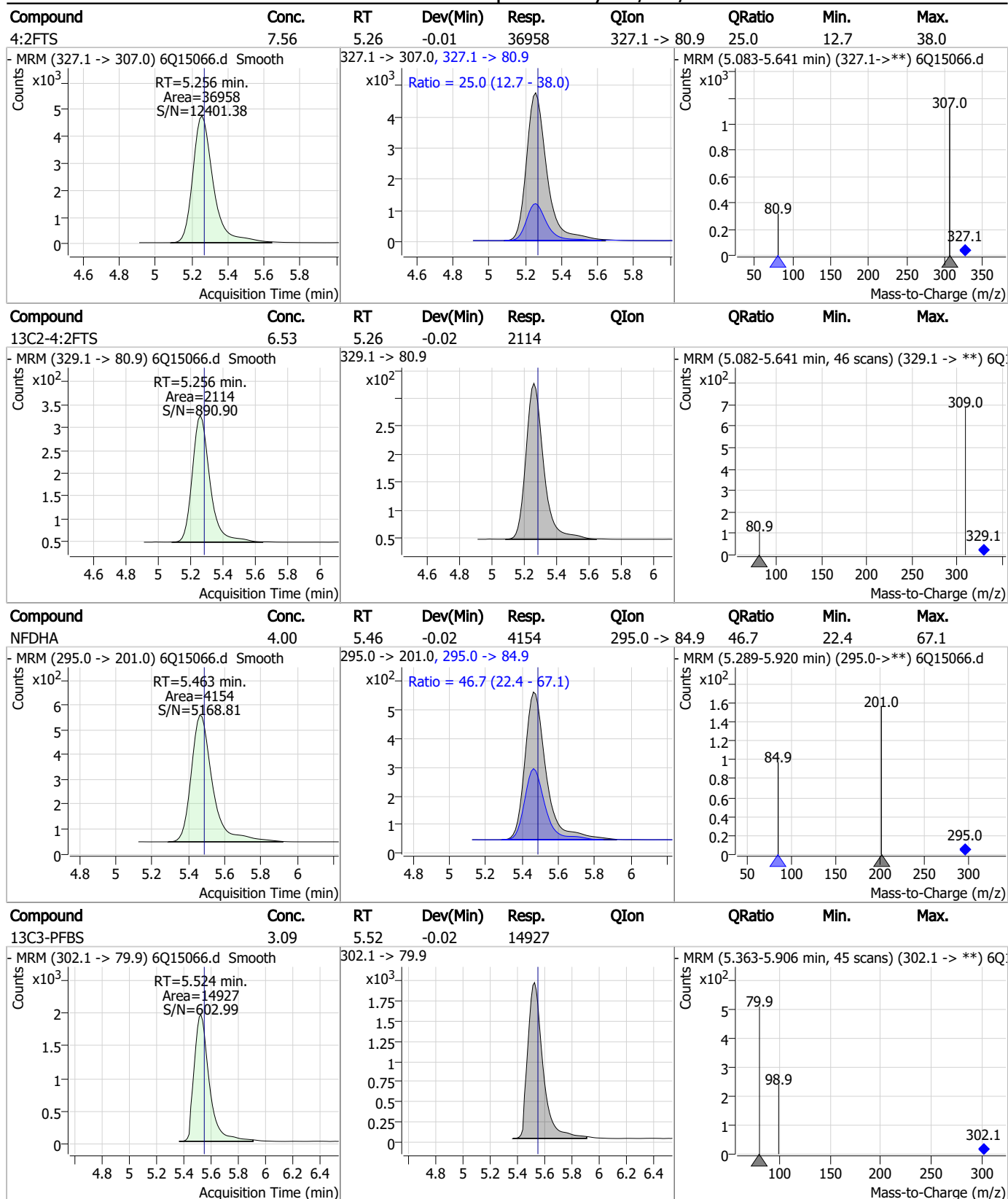


Perfluorinated Compounds by LC/MS/MS



7.3.1
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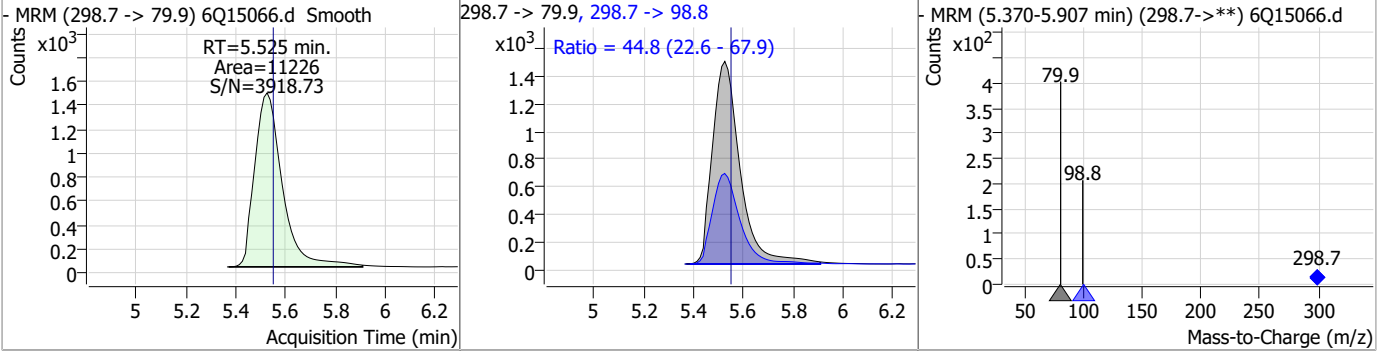
Perfluorinated Compounds by LC/MS/MS



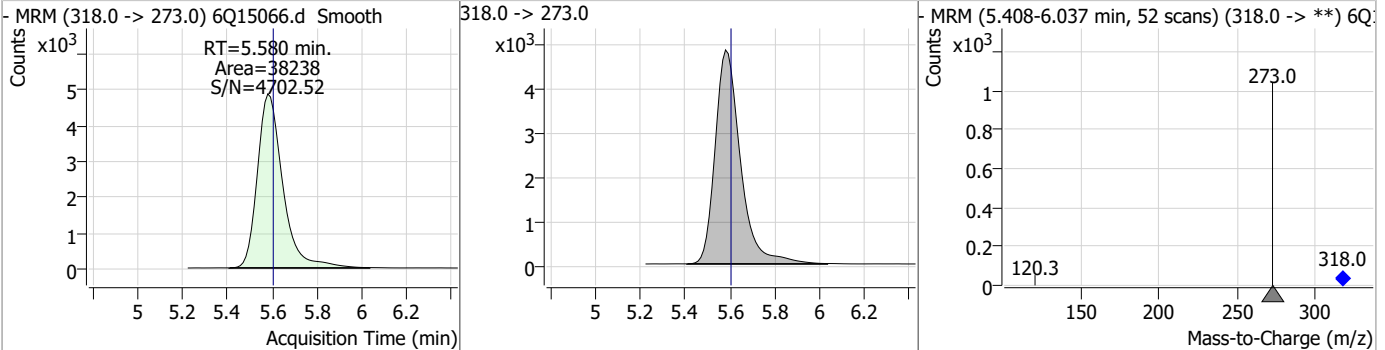
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Perfluorinated Compounds by LC/MS/MS

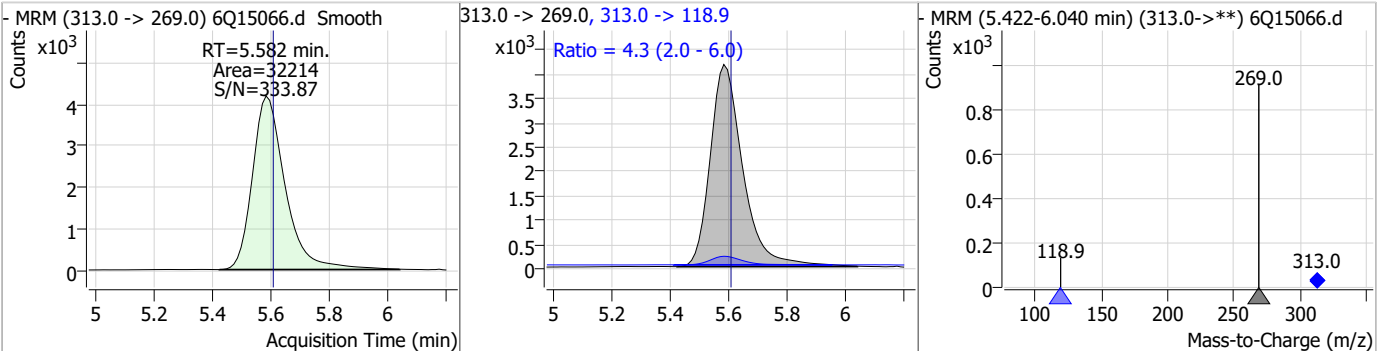
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.71	5.52	-0.02	11226	298.7 -> 98.8	44.8	22.6	67.9



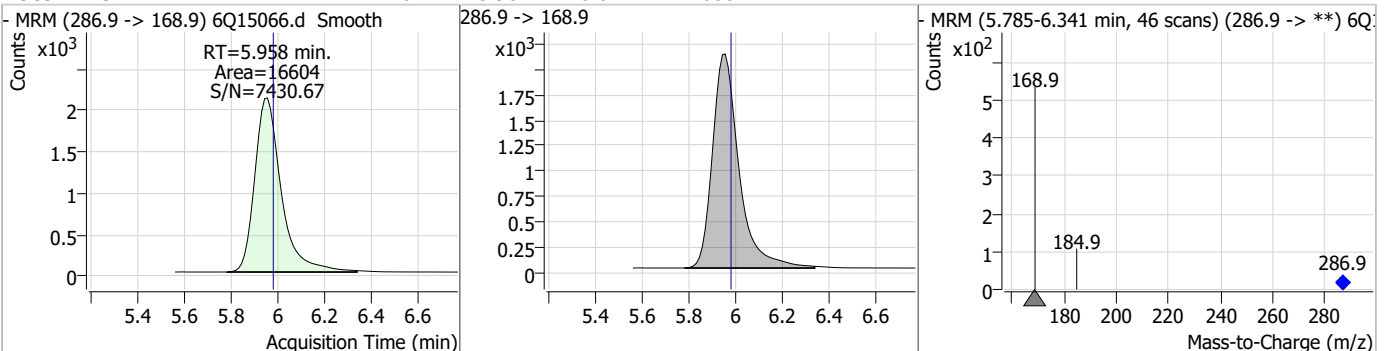
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.99	5.58	-0.02	38238				



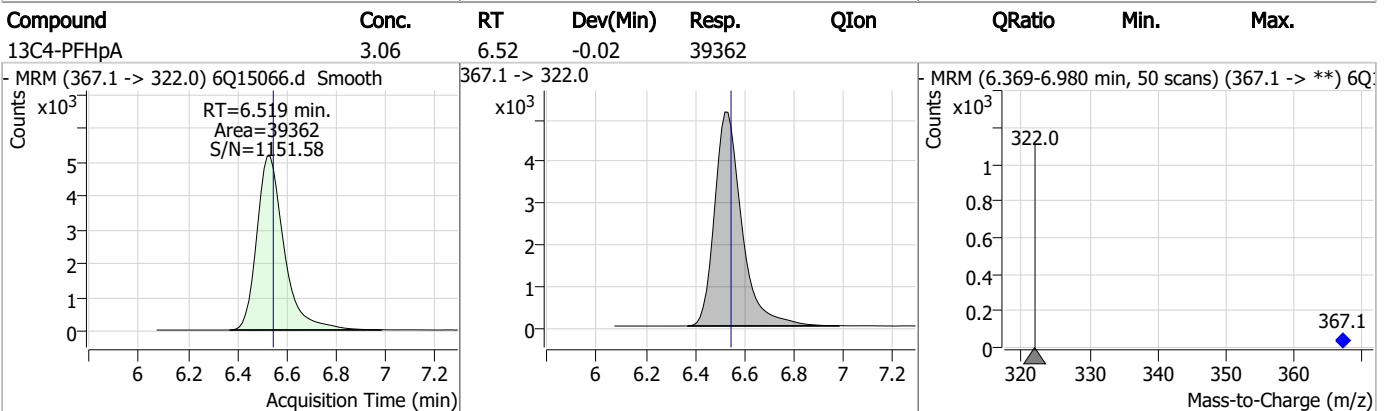
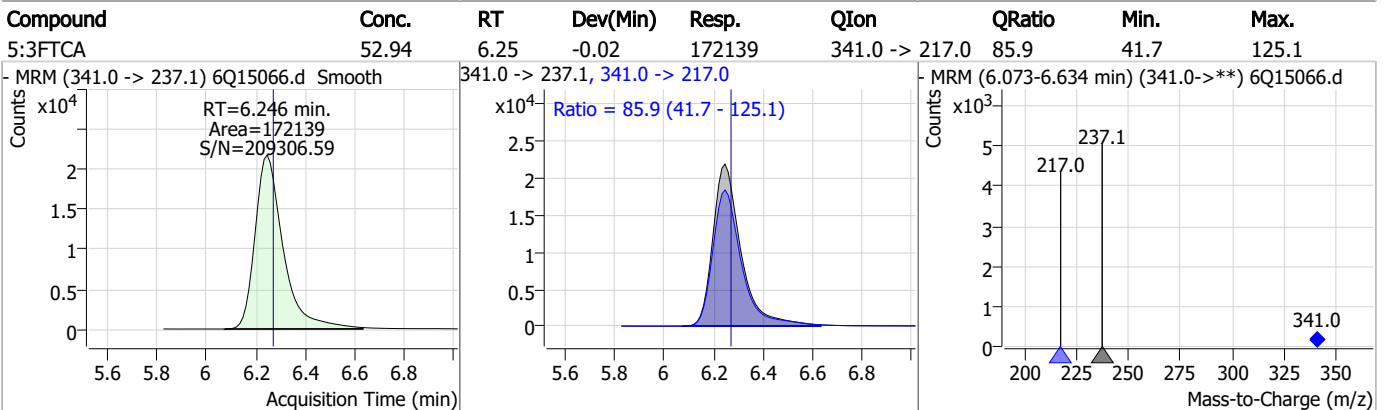
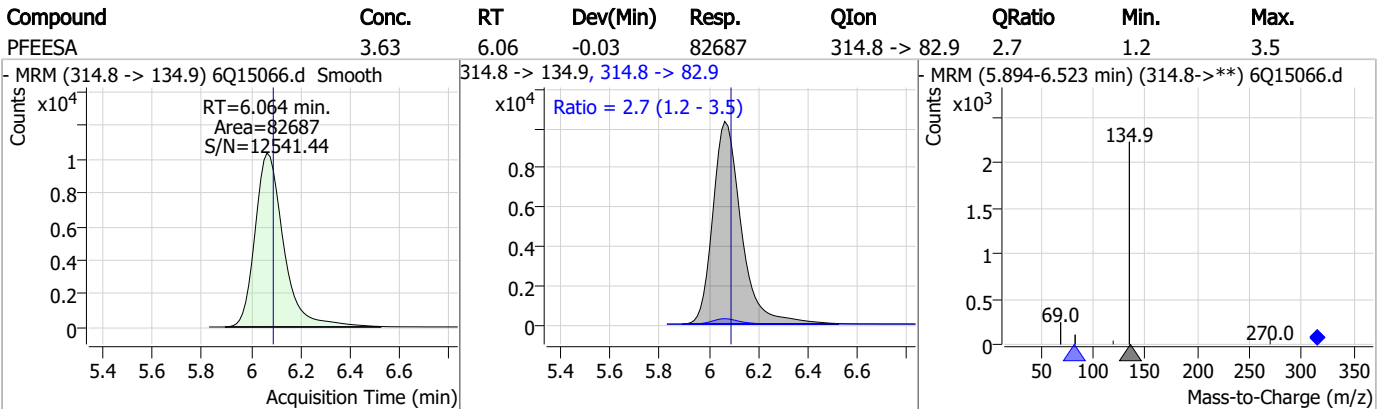
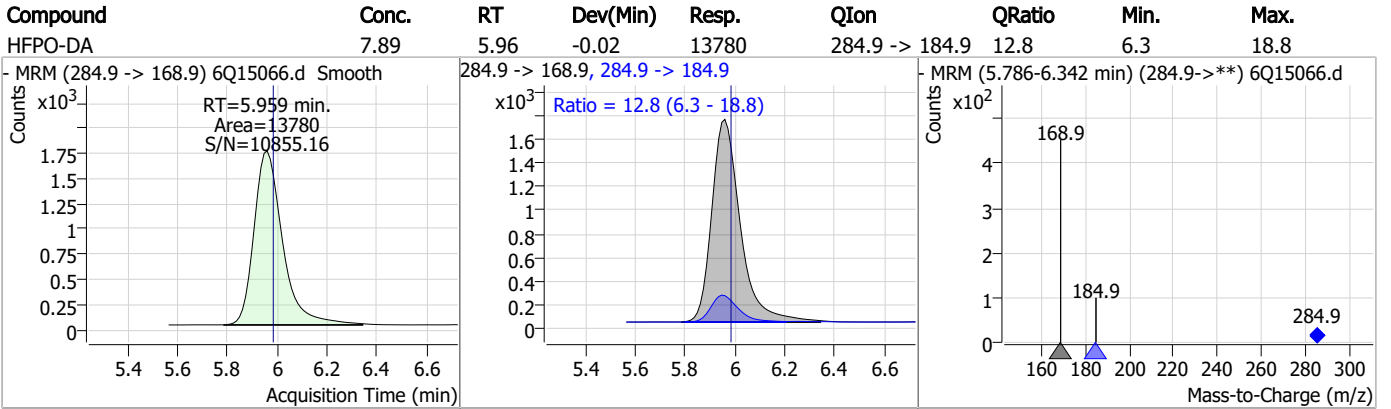
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.00	5.58	-0.02	32214	313.0 -> 118.9	4.3	2.0	6.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.70	5.96	-0.02	16604				



Perfluorinated Compounds by LC/MS/MS

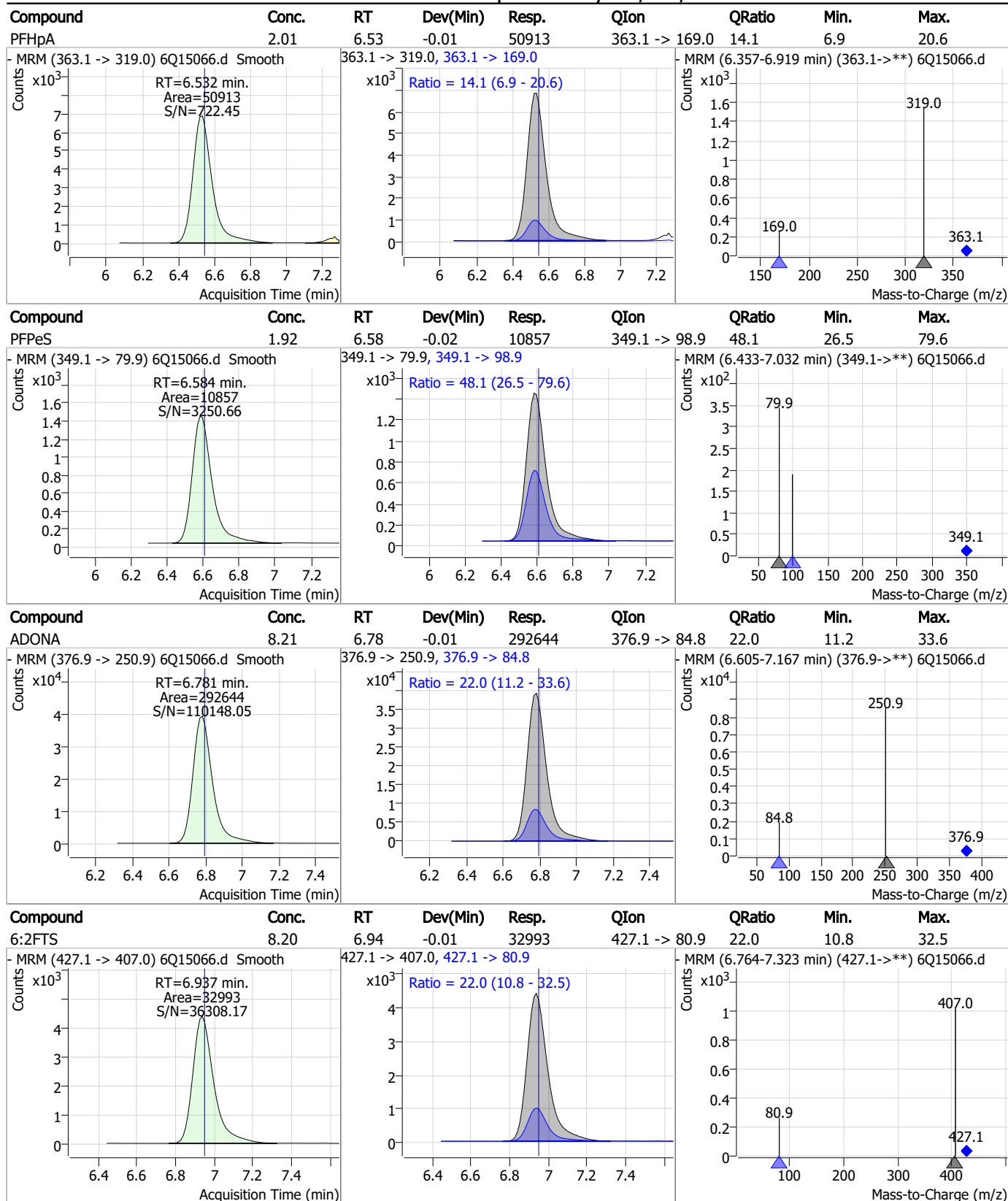


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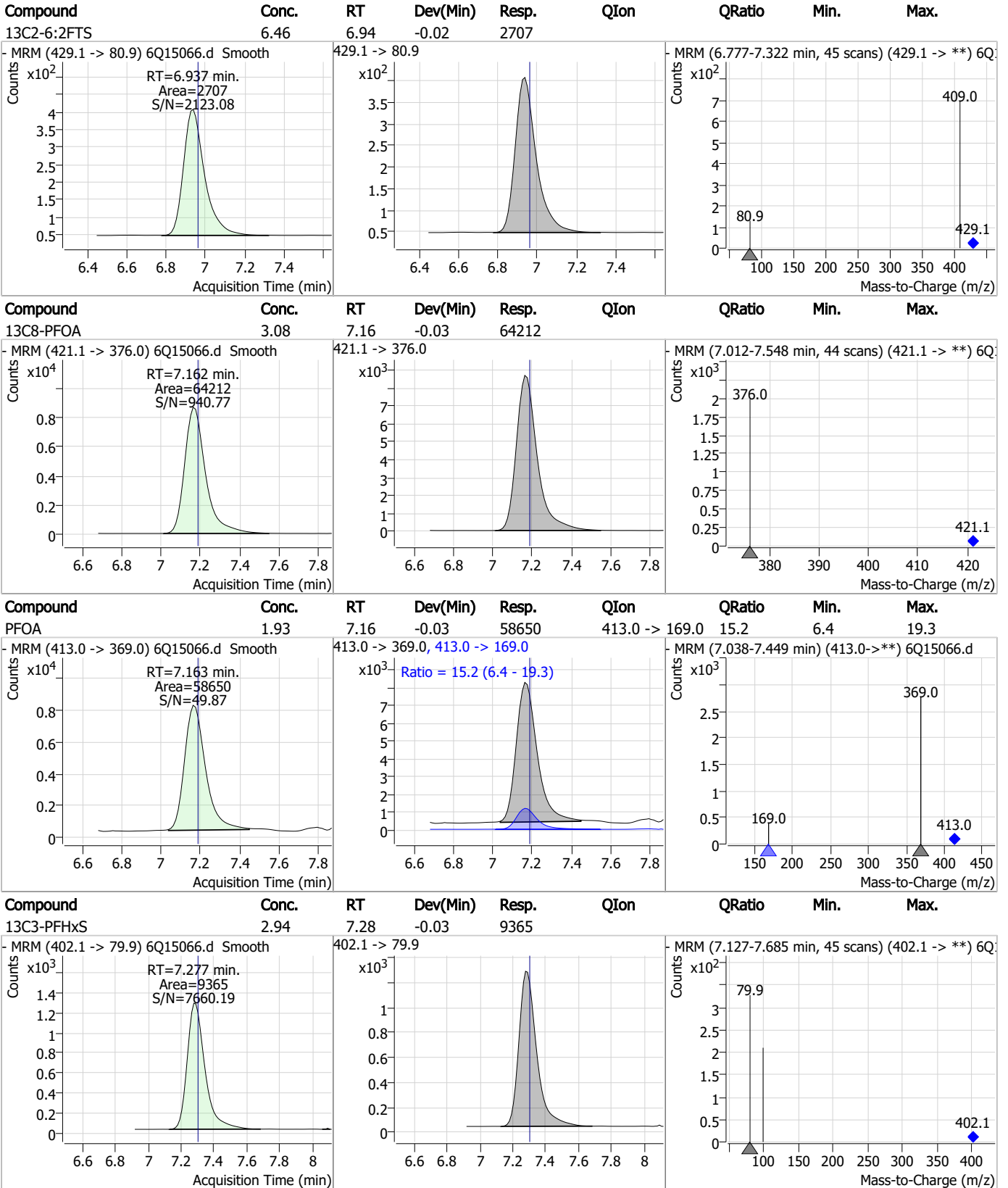
Perfluorinated Compounds by LC/MS/MS



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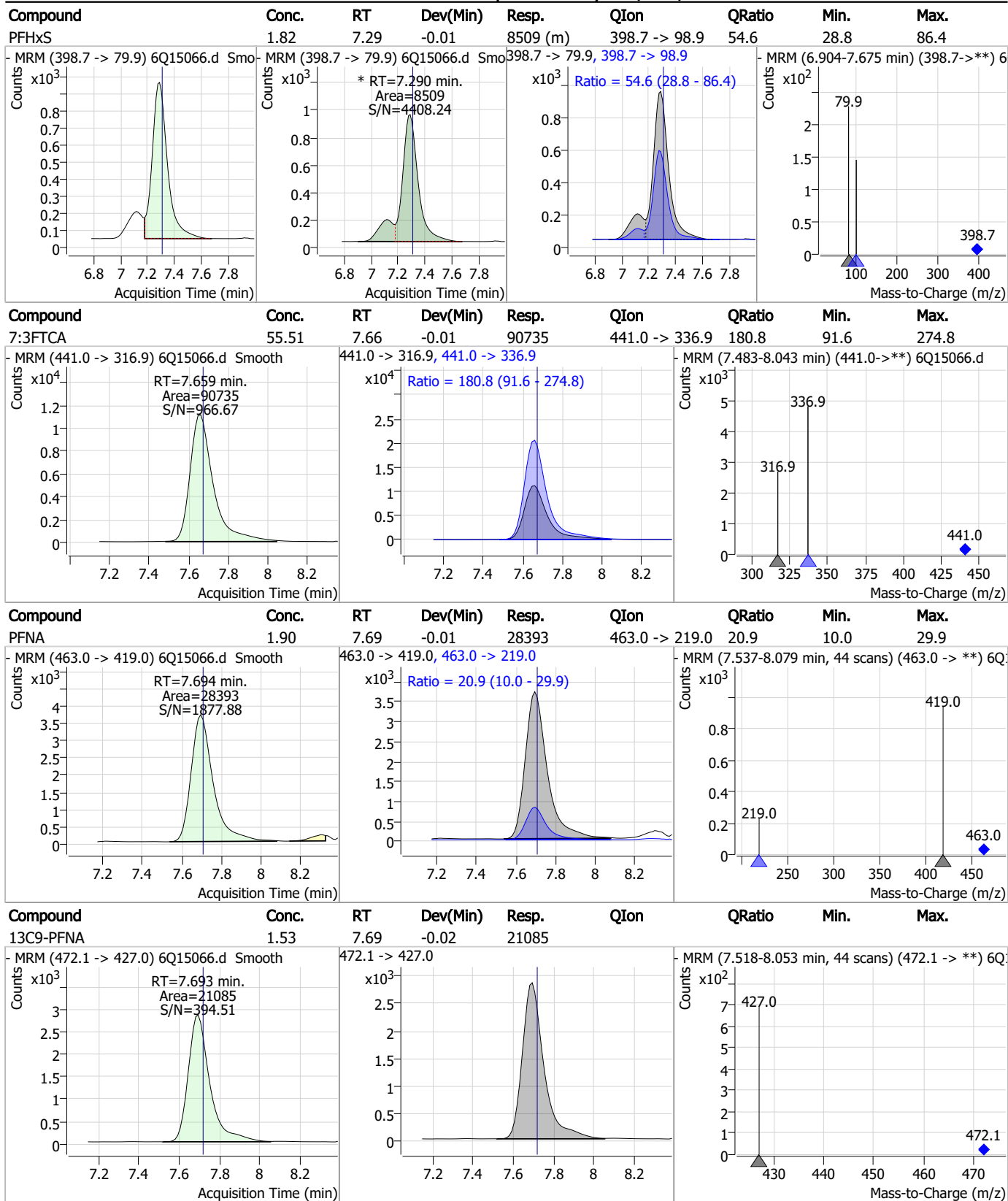
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7.3.1

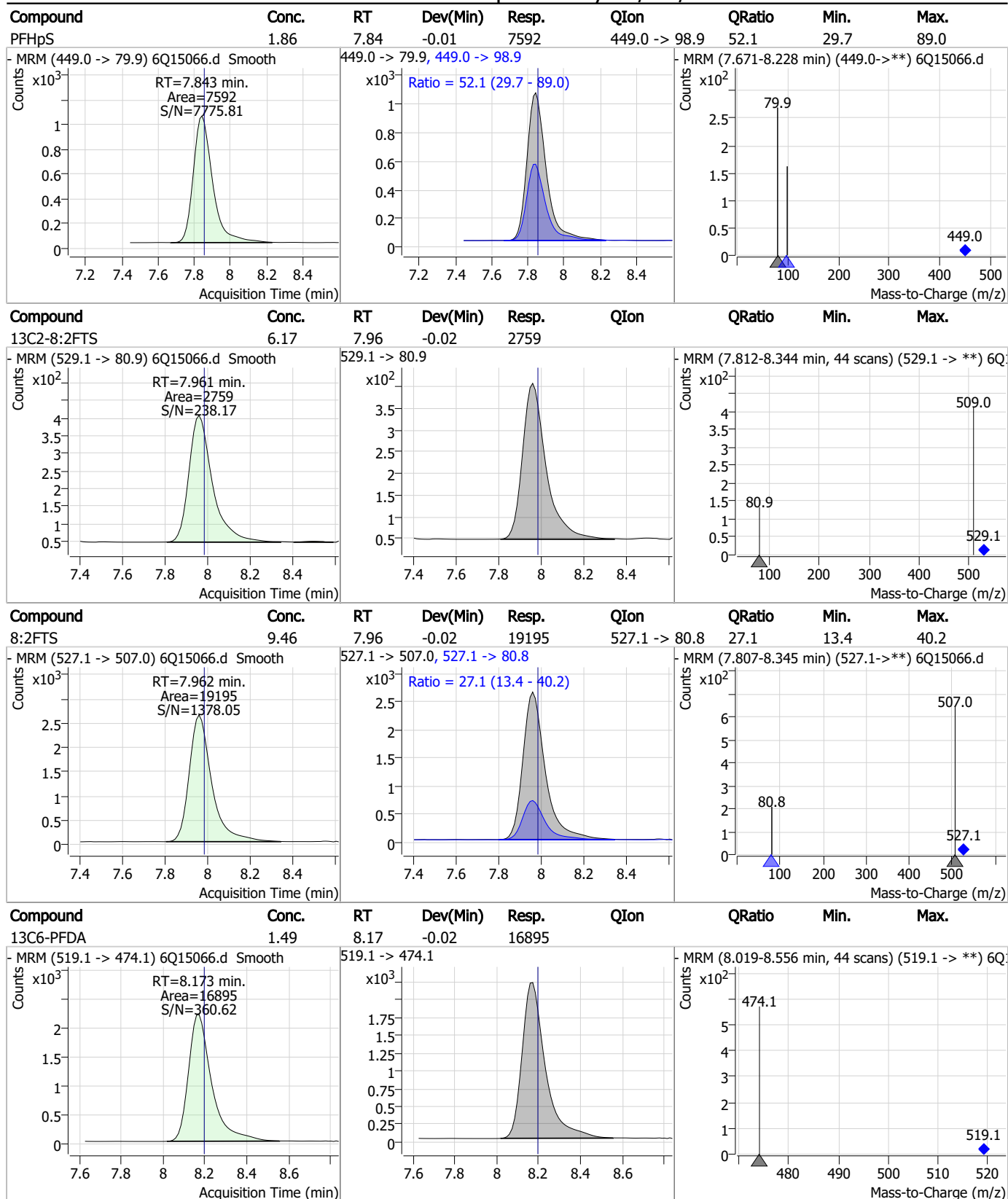
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Perfluorinated Compounds by LC/MS/MS



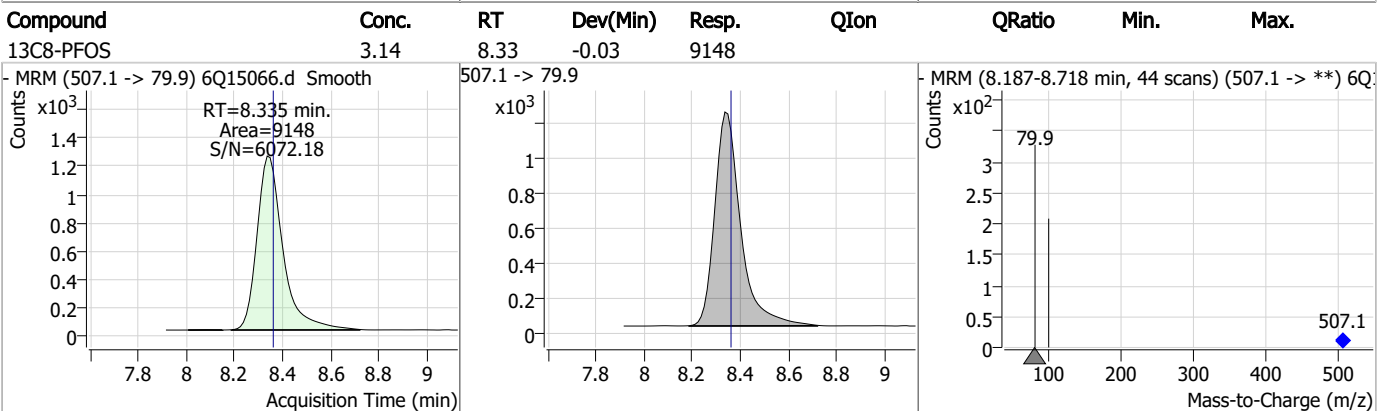
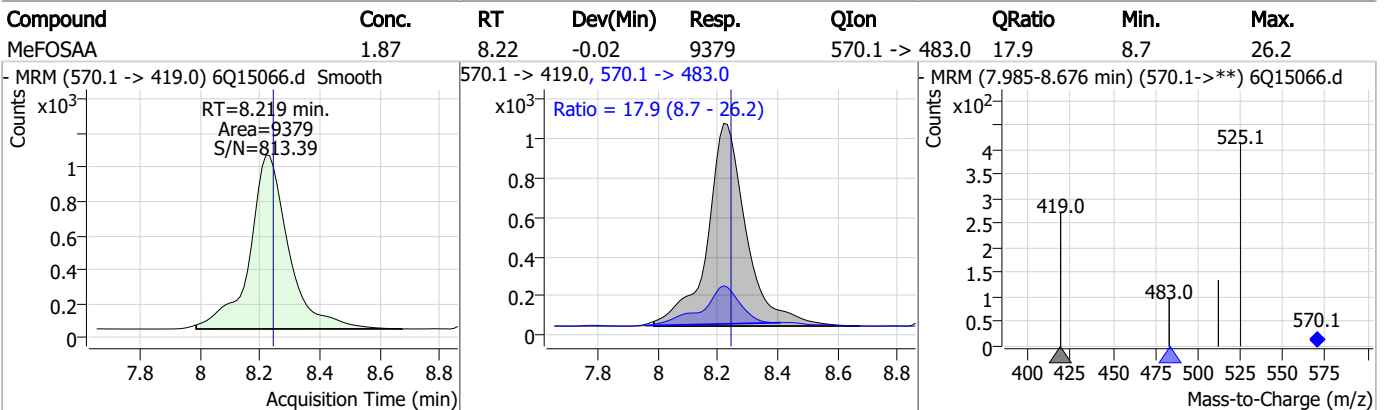
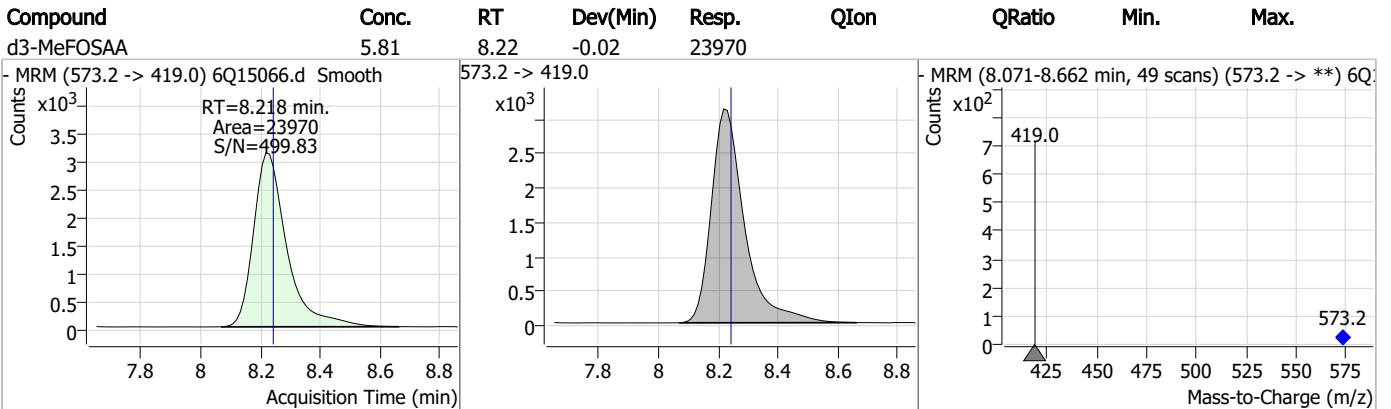
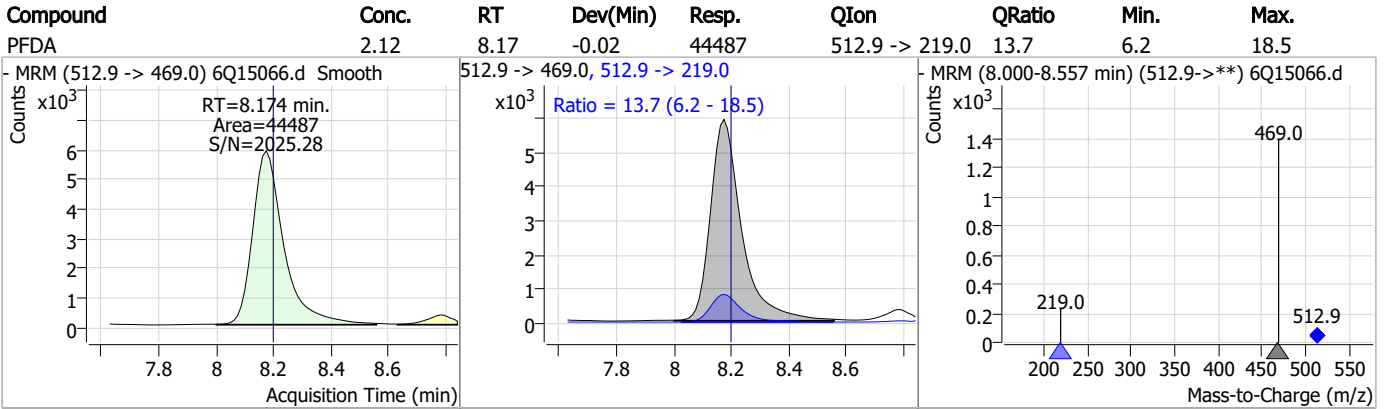
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Perfluorinated Compounds by LC/MS/MS



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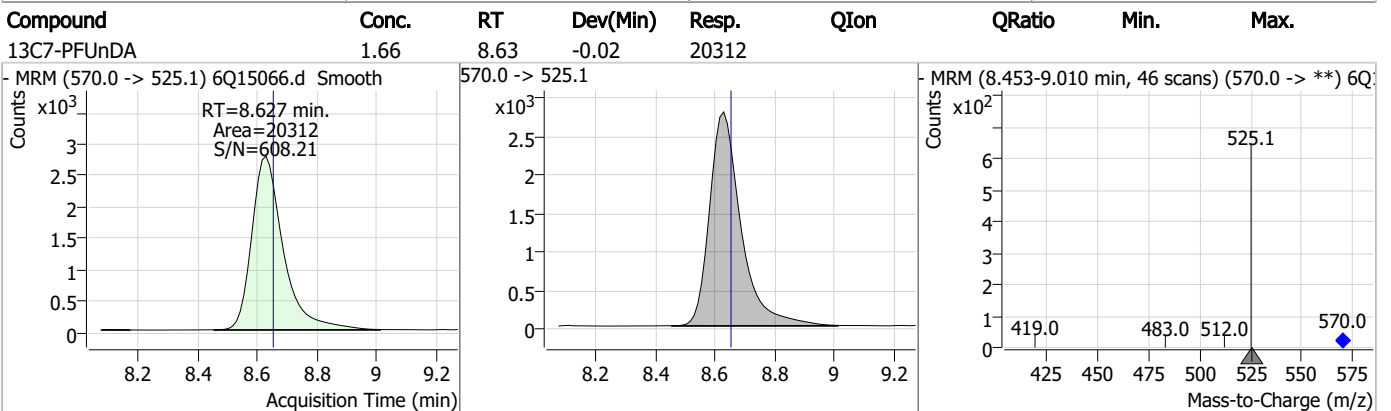
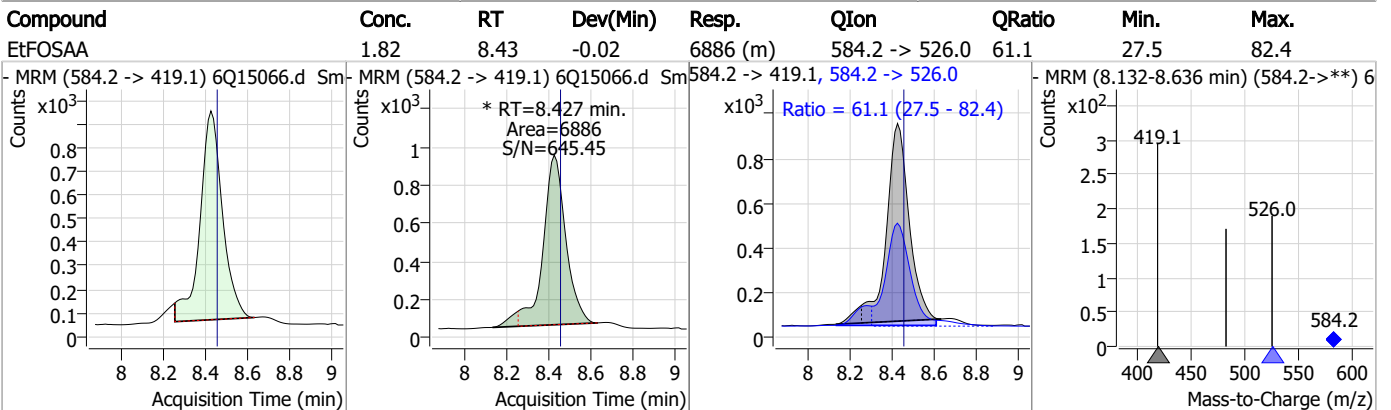
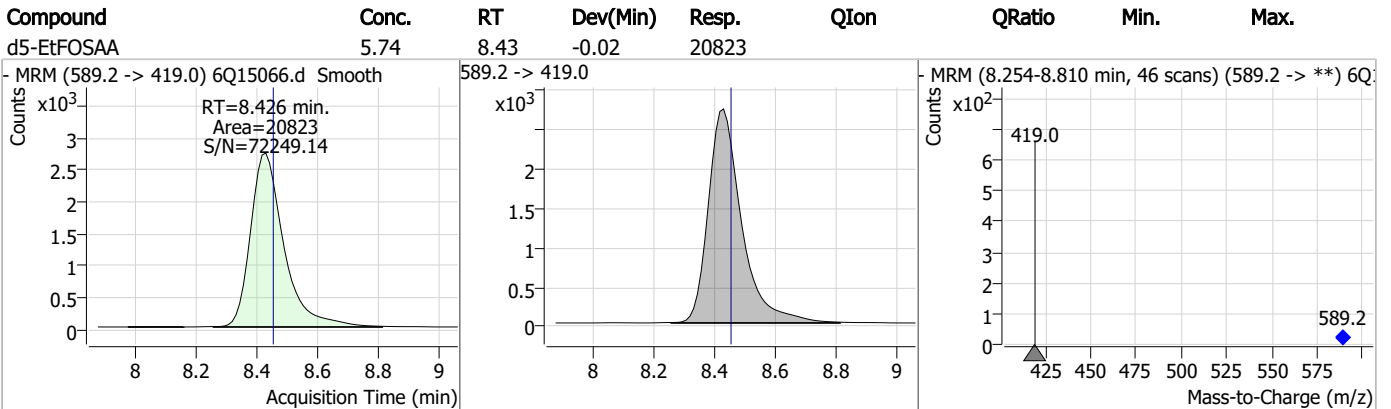
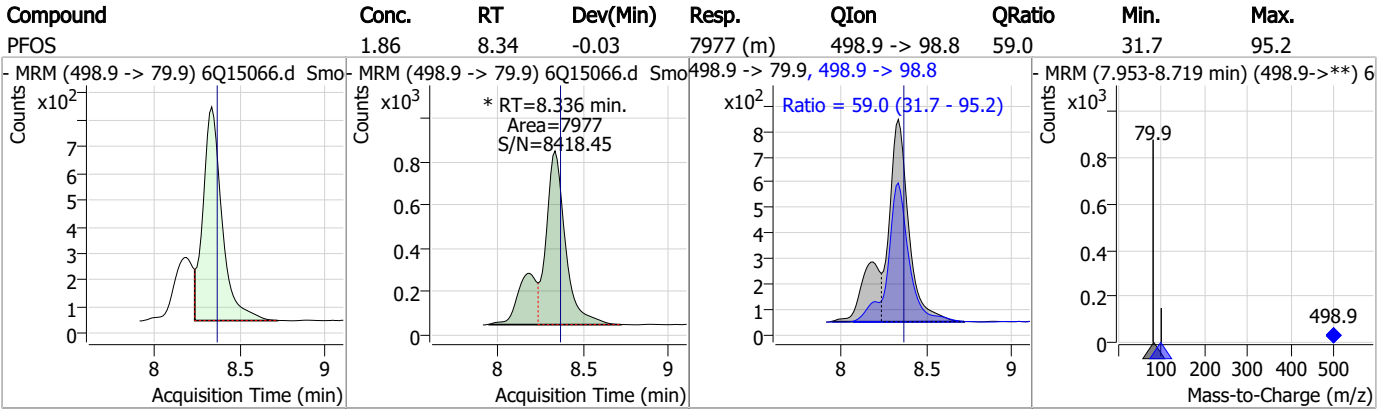
Perfluorinated Compounds by LC/MS/MS



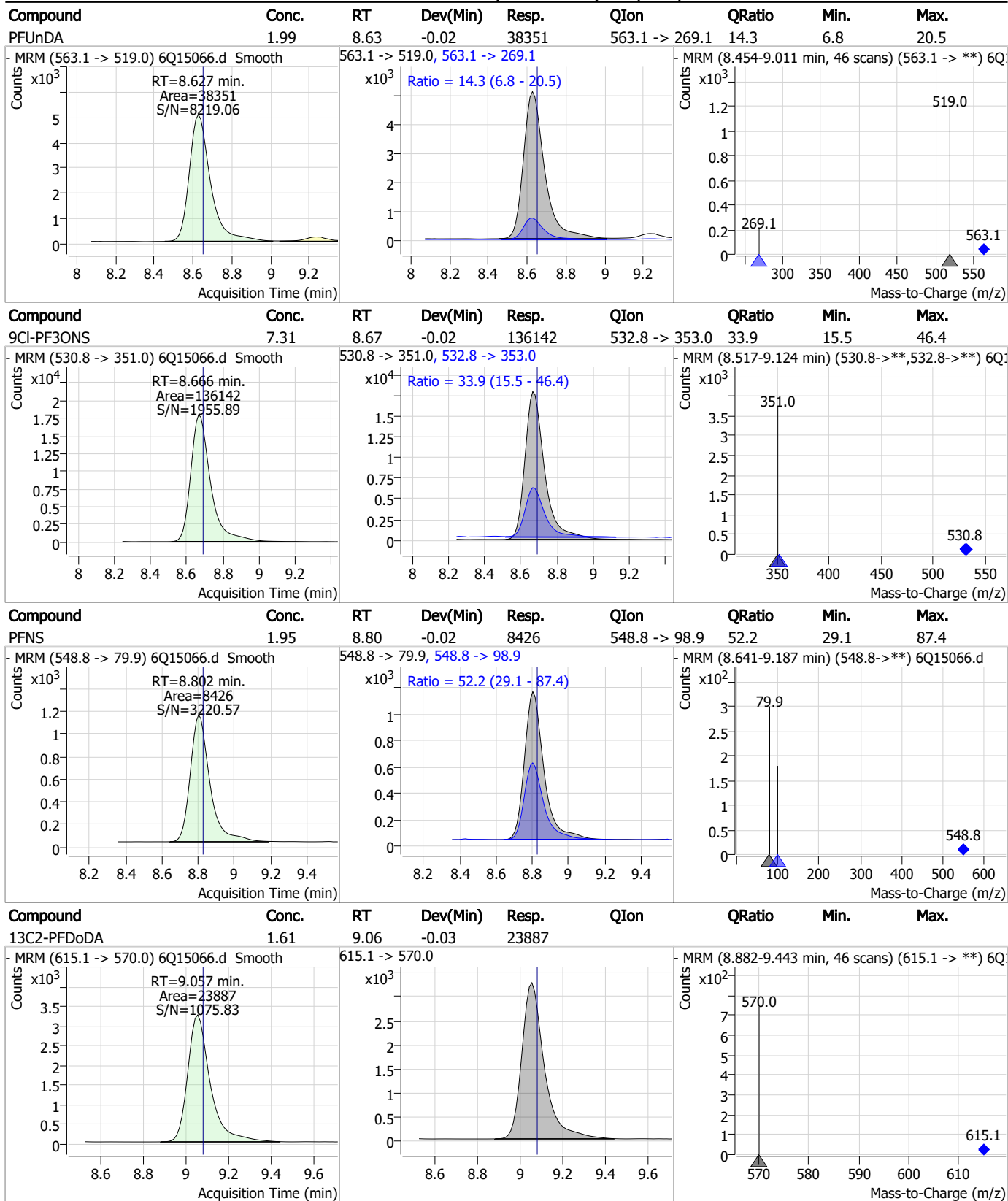
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Perfluorinated Compounds by LC/MS/MS

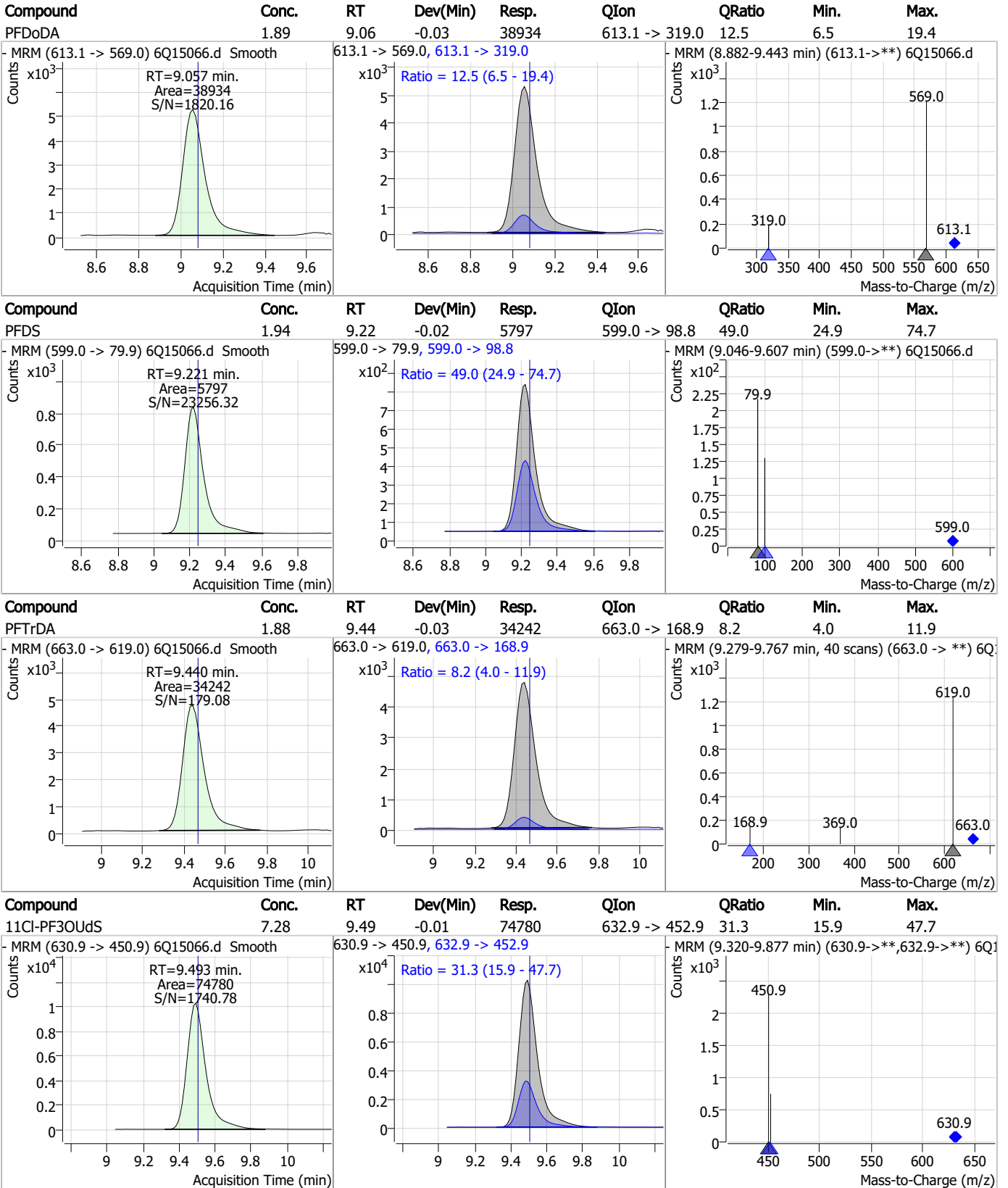


Perfluorinated Compounds by LC/MS/MS



7.3.1
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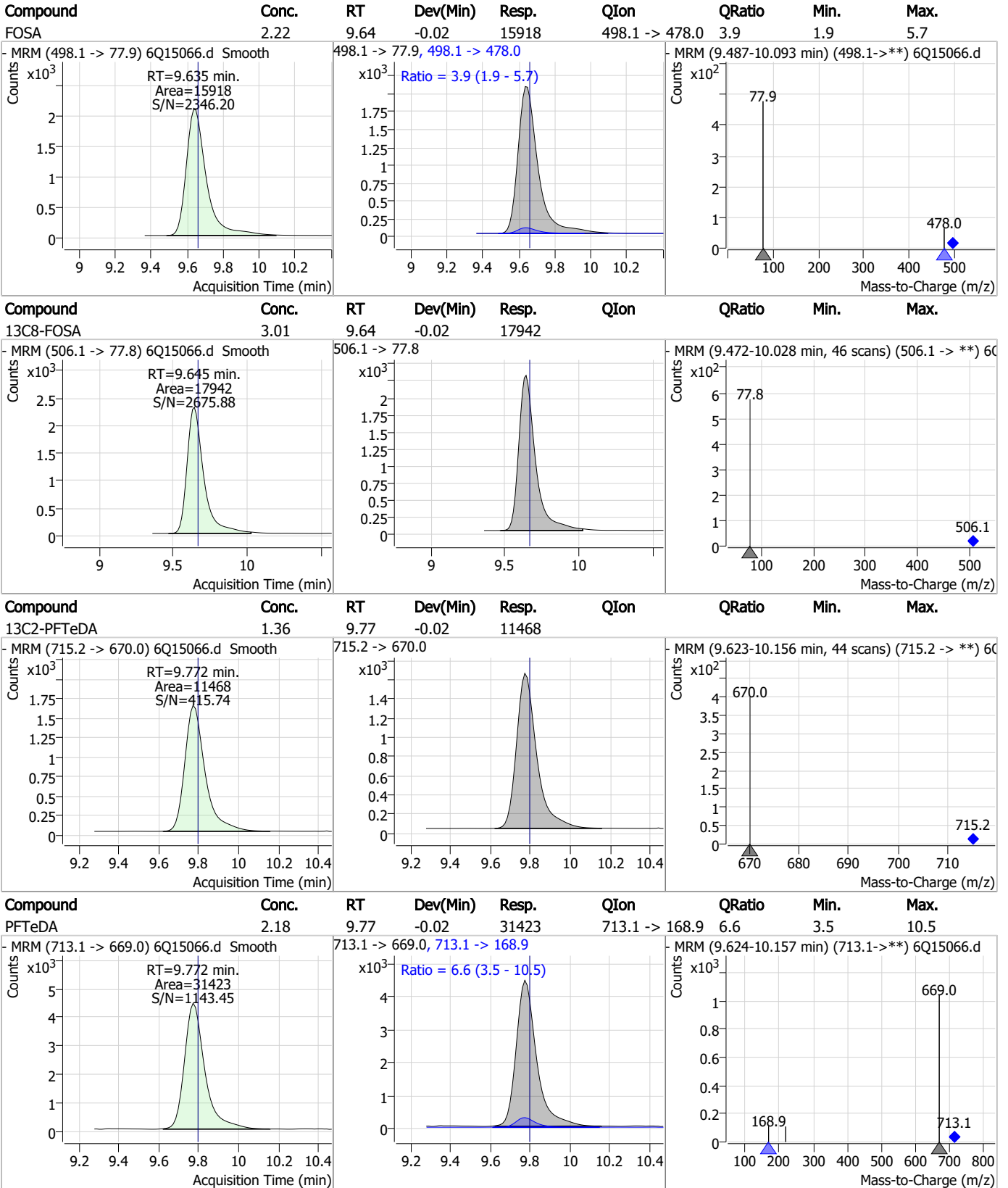
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

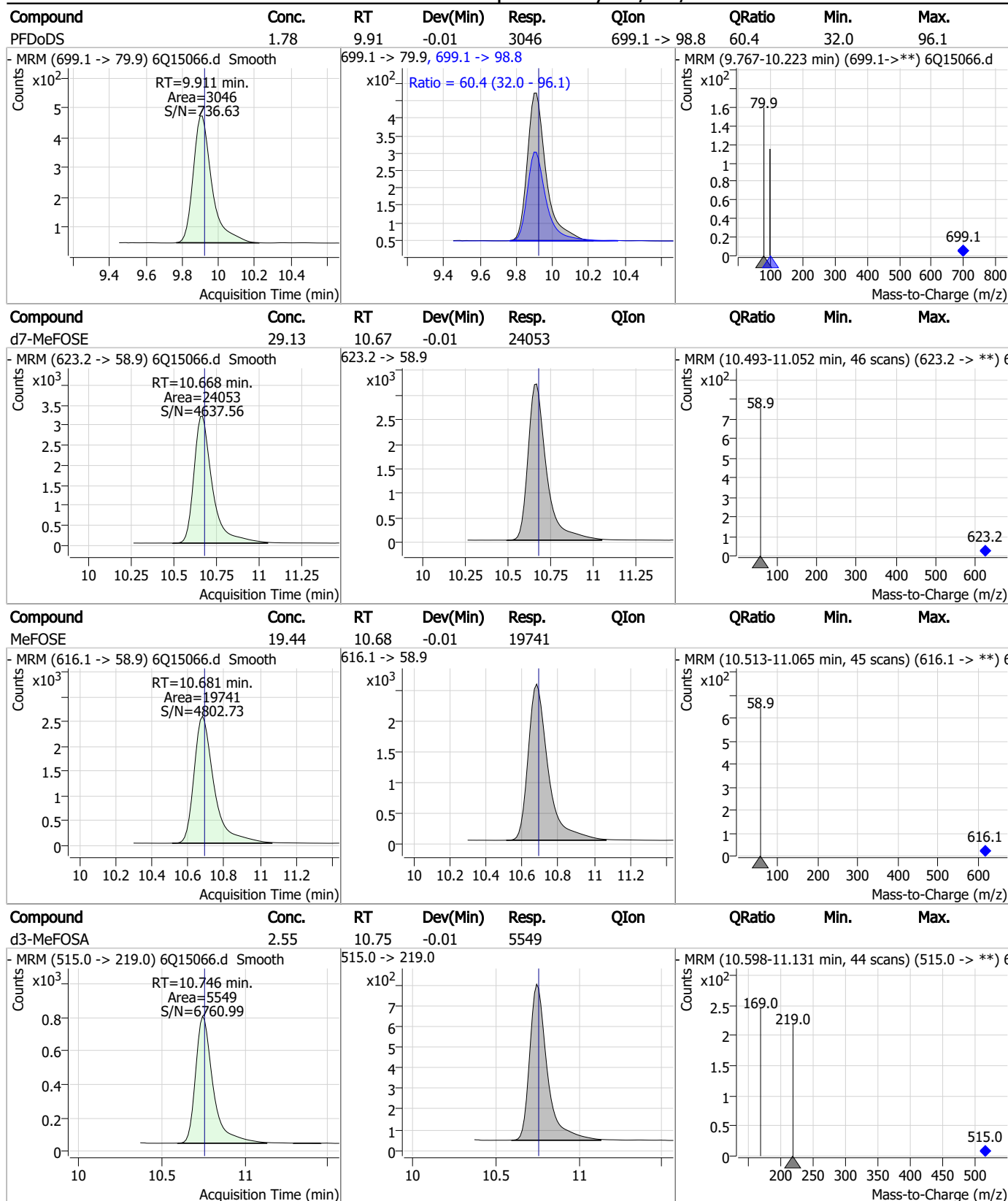


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Perfluorinated Compounds by LC/MS/MS

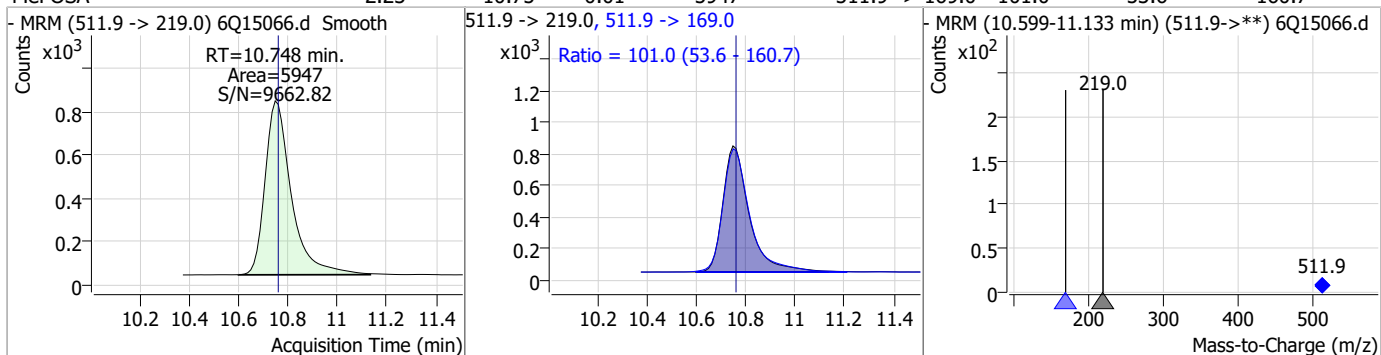


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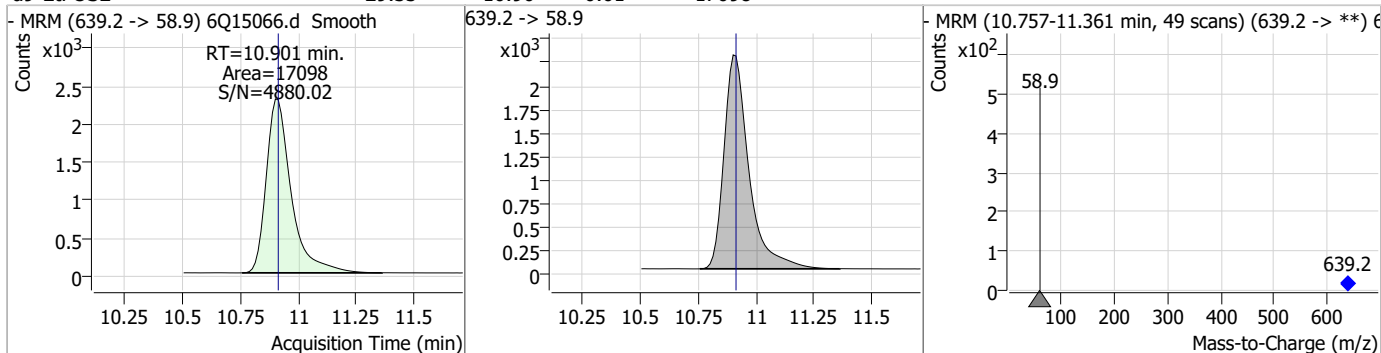


Perfluorinated Compounds by LC/MS/MS

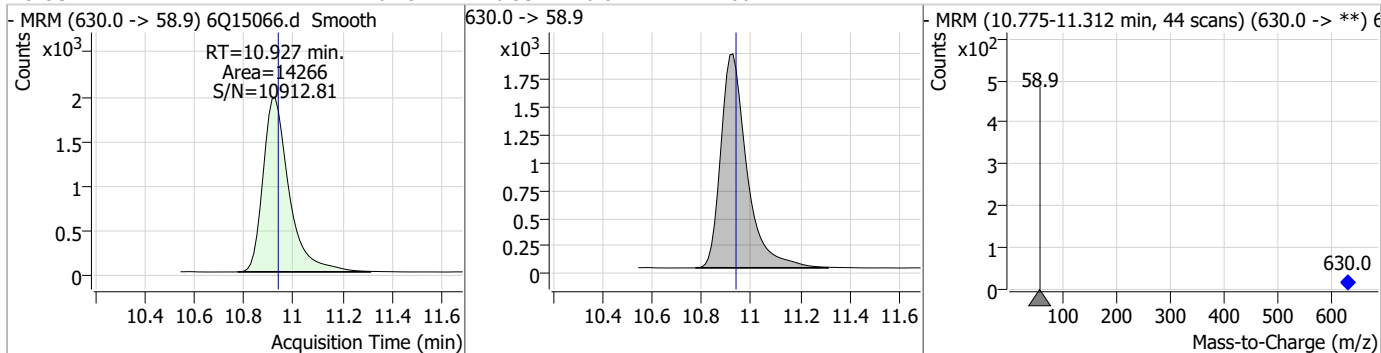
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.23	10.75	-0.01	5947	511.9 -> 169.0	101.0	53.6	160.7



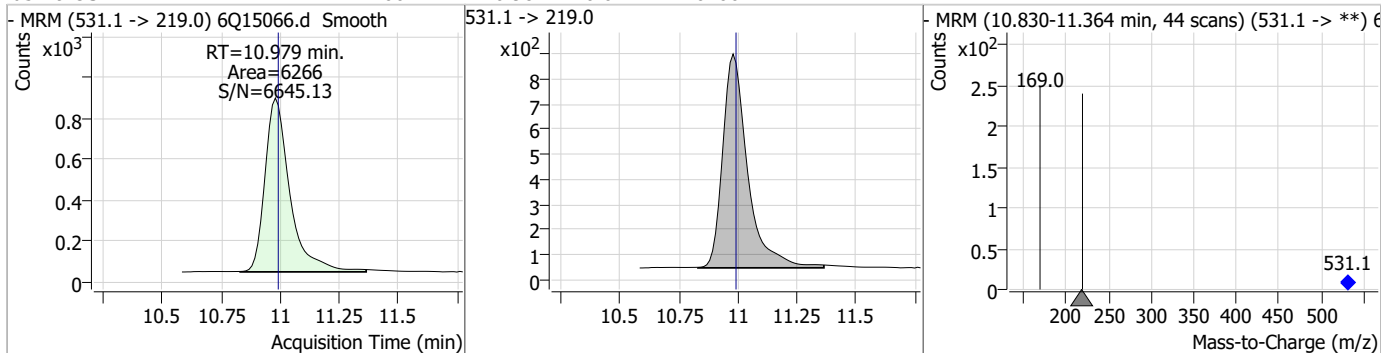
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	29.33	10.90	-0.01	17098				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	20.48	10.93	-0.01	14266				

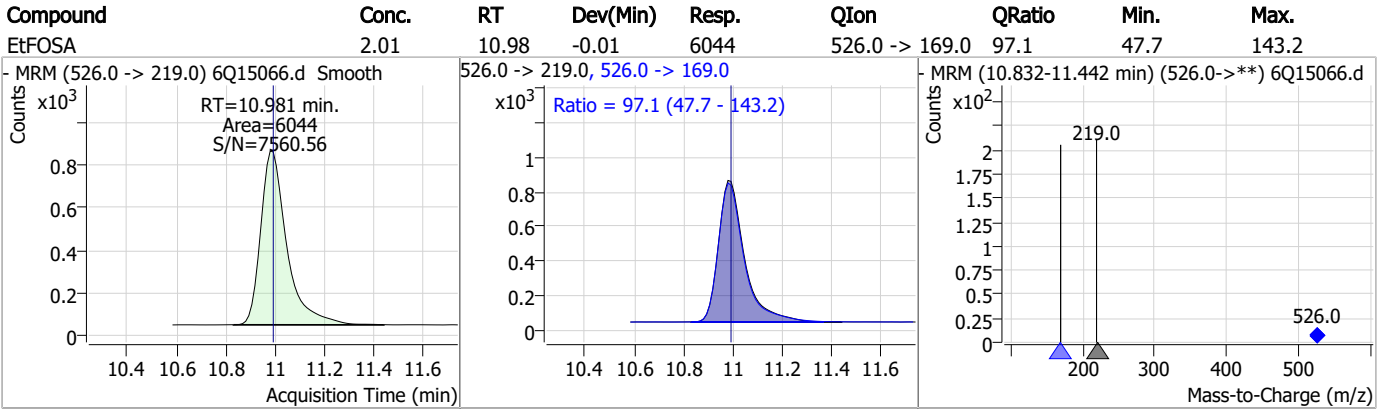


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.60	10.98	-0.01	6266				



7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1

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Manual Integration Approval Summary

Sample Number: OP95927-BS Method: EPA DRAFT 1633
Lab FileID: 6Q15066.D Analyst approved: 03/21/23 13:24 Martha Valls
Injection Time: 03/21/23 04:46 Supervisor approved: 03/21/23 16:12 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.43	Split peak

7.3.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15067.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 5:00:54 AM
 Sample Name : op95927-llbs:3
 Vial : P2-E4
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	84006	10.00 µg/L	0.037
M5-PFPeA	4.382	268.3 -> 223.0	39462	5.00 µg/L	-0.012
M5-PFHxA	5.593	318.0 -> 273.0	34512	2.50 µg/L	-0.012
M4-PFHpA	6.532	367.1 -> 322.0	34035	2.50 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	60131	2.50 µg/L	-0.012
M9-PFNA	7.693	472.1 -> 427.0	17415	1.25 µg/L	-0.025
M6-PFDA	8.185	519.1 -> 474.1	15086	1.25 µg/L	-0.012
M7-PFUnDA	8.627	570.0 -> 525.1	18351	1.25 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	20725	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	10066	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	16337	2.50 µg/L	-0.025
M3-PFBS	5.524	302.1 -> 79.9	13779	2.50 µg/L	-0.025
M3-PFHxS	7.289	402.1 -> 79.9	8722	2.50 µg/L	-0.013
M8-PFOS	8.335	507.1 -> 79.9	8023	2.50 µg/L	-0.025
M2-4:2FTS	5.256	329.1 -> 80.9	1972	5.00 µg/L	-0.025
M2-6:2FTS	6.949	429.1 -> 80.9	2559	5.00 µg/L	-0.012
M2-8:2FTS	7.961	529.1 -> 80.9	2475	5.00 µg/L	-0.025
M3-MeFOSAA	8.231	573.2 -> 419.0	21931	5.00 µg/L	-0.012
M3-HFPO-DA	5.958	286.9 -> 168.9	14607	10.00 µg/L	-0.025
M5-EtFOSAA	8.426	589.2 -> 419.0	19124	5.00 µg/L	-0.025
M7-MeFOSE	10.668	623.2 -> 58.9	20424	25.00 µg/L	-0.012
M9-EtFOSE	10.901	639.2 -> 58.9	14307	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	5080	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	4766	2.50 µg/L	-0.012
13C4-PFOS	8.335	502.8 -> 79.9	8646	2.50 µg/L	-0.025
13C3-PFBA	2.989	216.0 -> 172.0	32376	5.00 µg/L	0.037
18O2-PFHxS	7.288	403.0 -> 83.9	5380	2.50 µg/L	-0.026
13C4-PFOA	7.176	417.1 -> 372.0	66159	2.50 µg/L	-0.012
13C2-PFDA	8.185	515.1 -> 470.1	19357	1.25 µg/L	-0.012
13C5-PFNA	7.694	468.0 -> 423.0	17238	1.25 µg/L	-0.025
13C2-PFHxA	5.581	315.1 -> 270.0	29985	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1972	6.39 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.8%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2559	6.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 128.1%		
13C2-8:2FTS	7.961	529.1 -> 80.9	2475	5.81 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
13C2-PFDoDA	9.057	615.1 -> 570.0	20725	1.37 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C2-PFTeDA	9.772	715.2 -> 670.0	10066	1.17 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C3-PFBS	5.524	302.1 -> 79.9	13779	2.99 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 119.6%		
13C3-PFHxS	7.289	402.1 -> 79.9	8722	2.87 µg/L	-0.013

7.32
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 = 114.9%		
13C4-PFBA	2.985	216.8 -> 171.9	84006	11.31 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C4-PFHpA	6.532	367.1 -> 322.0	34035	2.77 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.0%		
13C5-PFHxA	5.593	318.0 -> 273.0	34512	2.82 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C5-PFPeA	4.382	268.3 -> 223.0	39462	5.70 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%		
13C6-PFDA	8.185	519.1 -> 474.1	15086	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C7-PFUnDA	8.627	570.0 -> 525.1	18351	1.47 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C8-FOSA	9.645	506.1 -> 77.8	16337	2.72 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C8-PFOA	7.175	421.1 -> 376.0	60131	2.72 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C8-PFOS	8.335	507.1 -> 79.9	8023	2.73 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.4%		
13C9-PFNA	7.693	472.1 -> 427.0	17415	1.31 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
d3-MeFOSAA	8.231	573.2 -> 419.0	21931	5.28 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C3-HFPO-DA	5.958	286.9 -> 168.9	14607	10.78 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
d3-MeFOSA	10.746	515.0 -> 219.0	4766	2.17 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.9%		
d5-EtFOSAA	8.426	589.2 -> 419.0	19124	5.24 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
d7-MeFOSE	10.668	623.2 -> 58.9	20424	24.56 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
d9-EtFOSE	10.901	639.2 -> 58.9	14307	24.37 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
d5-EtFOSA	10.979	531.1 -> 219.0	5080	2.09 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 83.8%		
Target Compounds					QValue
4:2FTS	5.256	327.1 -> 307.0	14641	3.21 µg/L	97
		327.1 -> 80.9	3473		
6:2FTS	6.937	427.1 -> 407.0	12279	3.23 µg/L	100
		427.1 -> 80.9	2676		
8:2FTS	7.962	527.1 -> 507.0	7758	4.26 µg/L	94
		527.1 -> 80.8	1840		
EtFOSAA	8.427	584.2 -> 419.1	2999	0.86 µg/L	m 94
		584.2 -> 526.0	1513		
FOSA	9.635	498.1 -> 77.9	5923	0.91 µg/L	99
		498.1 -> 478.0	243		
MeFOSAA	8.232	570.1 -> 419.0	4233	0.92 µg/L	m 95
		570.1 -> 483.0	644		
PFBA	2.981	212.8 -> 168.9	7710	3.36 µg/L	100
PFBS	5.525	298.7 -> 79.9	4416	0.73 µg/L	97
		298.7 -> 98.8	1910		
PFDA	8.174	512.9 -> 469.0	17827	0.95 µg/L	98
		512.9 -> 219.0	2307		
PFDODA	9.057	613.1 -> 569.0	14134	0.79 µg/L	100
		613.1 -> 319.0	1802		
PFDS	9.221	599.0 -> 79.9	2147	0.82 µg/L	94

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.532	599.0 -> 98.8	1154	0.89	µg/L	98
		363.1 -> 319.0	19578			
PFHpS	7.843	363.1 -> 169.0	2522	0.85	µg/L	96
		449.0 -> 79.9	3048			
PFHxA	5.595	449.0 -> 98.9	1903	0.89	µg/L	100
		313.0 -> 269.0	12914			
PFHxS	7.290	313.0 -> 118.9	533	0.79	µg/L	96
		398.7 -> 79.9	3435			
PFNA	7.694	398.7 -> 98.9	1888	0.88	µg/L	98
		463.0 -> 419.0	10864			
PFNS	8.802	463.0 -> 219.0	2085	0.84	µg/L	90
		548.8 -> 79.9	3183			
PFOA	7.176	548.8 -> 98.9	1616	0.87	µg/L	96
		413.0 -> 369.0	24798			
PFOS	8.348	413.0 -> 169.0	3546	0.81	µg/L	91
		498.9 -> 79.9	3043			
PFPeA	4.385	498.9 -> 98.8	1717	1.68	µg/L	100
		263.0 -> 219.0	15824			
PFPeS	6.596	349.1 -> 79.9	4206	0.80	µg/L	95
		349.1 -> 98.9	2084			
PFTeDA	9.772	713.1 -> 669.0	11038	0.87	µg/L	99
		713.1 -> 168.9	727			
PFTrDA	9.440	663.0 -> 619.0	12268	0.78	µg/L	98
		663.0 -> 168.9	1040			
PFUnDA	8.627	563.1 -> 519.0	13278	0.76	µg/L	89
		563.1 -> 269.1	2389			
11CI-PF3OUdS	9.493	630.9 -> 450.9	28526	3.16	µg/L	97
		632.9 -> 452.9	8587			
9CI-PF3ONS	8.666	530.8 -> 351.0	51136	3.12	µg/L	94
		532.8 -> 353.0	17460			
ADONA	6.781	376.9 -> 250.9	105648	3.37	µg/L	96
		376.9 -> 84.8	25454			
HFPO-DA	5.959	284.9 -> 168.9	5272	3.43	µg/L	99
		284.9 -> 184.9	673			
3:3FTCA	3.876	241.0 -> 177.0	1835	3.90	µg/L	94
		241.0 -> 117.0	230			
5:3FTCA	6.259	341.0 -> 237.1	65869	22.44	µg/L	96
		341.0 -> 217.0	57418			
7:3FTCA	7.659	441.0 -> 316.9	33304	22.57	µg/L	98
		441.0 -> 336.9	61818			
EtFOSA	10.981	526.0 -> 219.0	2066	0.85	µg/L	98
		526.0 -> 169.0	2008			
EtFOSE	10.927	630.0 -> 58.9	4939	8.48	µg/L	100
		511.9 -> 219.0	1869			
MeFOSA	10.748	511.9 -> 169.0	2019	0.82	µg/L	99
		616.1 -> 58.9	7263			
MeFOSE	10.681	699.1 -> 79.9	1125	8.42	µg/L	100
		699.1 -> 98.8	633			
PFDoDS	9.911	295.0 -> 201.0	1555	0.75	µg/L	90
		295.0 -> 84.9	804			
NFDHA	5.476	279.0 -> 85.1	5305	1.66	µg/L	89
		229.0 -> 84.9	4736			
PFMBA	4.806	314.8 -> 134.9	29645	1.73	µg/L	100
		314.8 -> 82.9	884			
PFMPA	3.538			1.76	µg/L	100
PFEESA	6.077			1.44	µg/L	98

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

7.3.2
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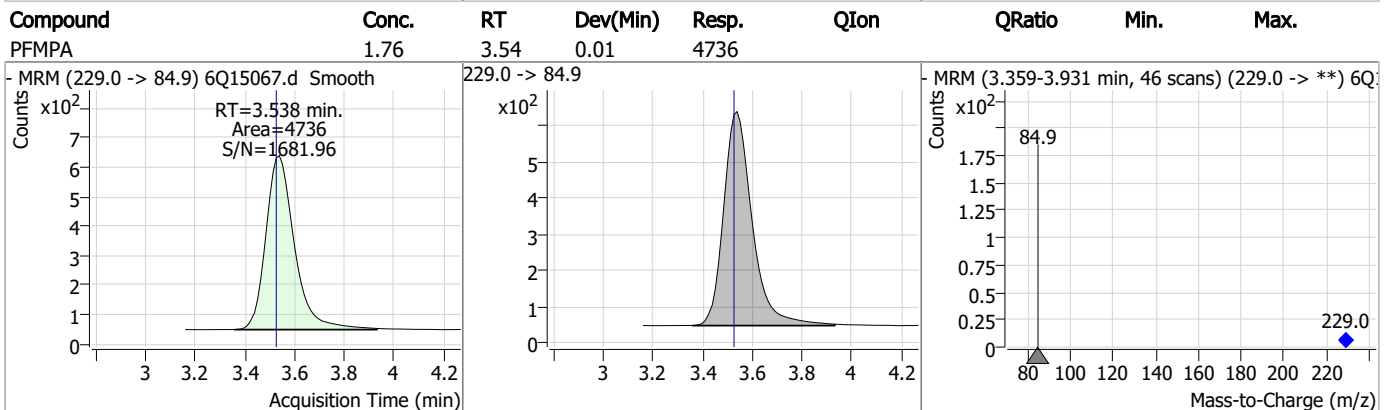
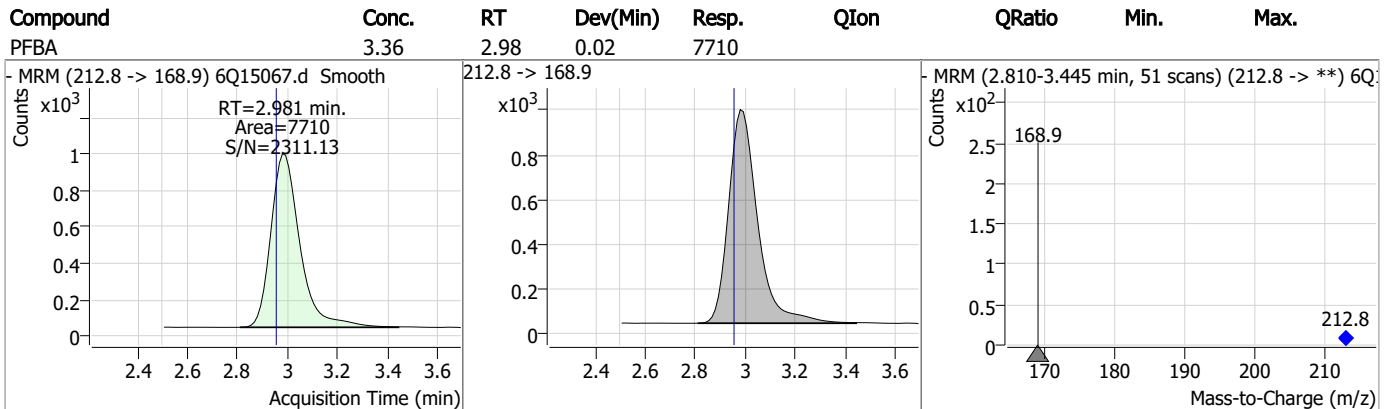
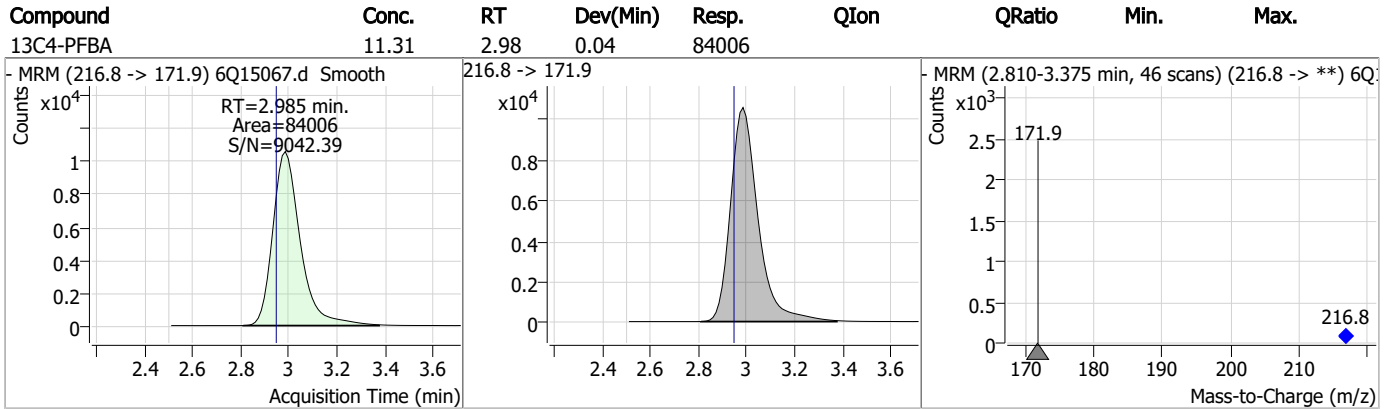
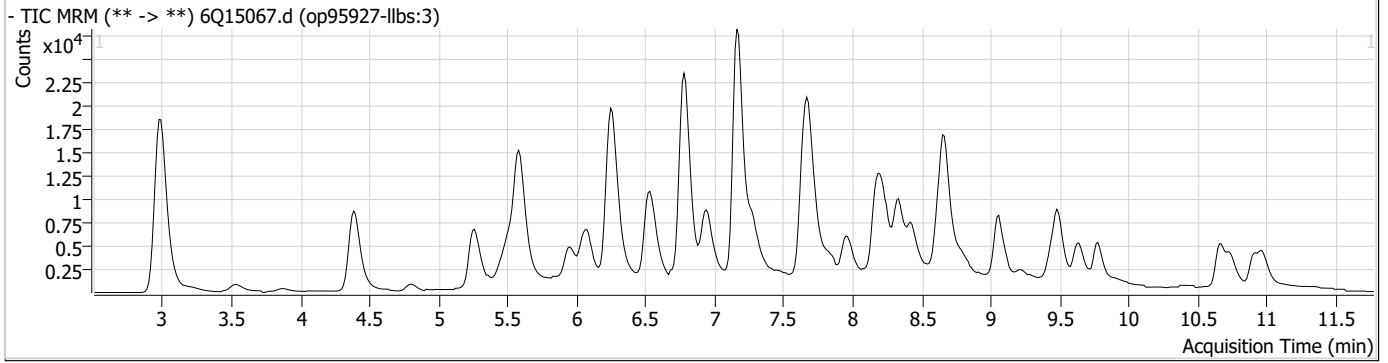
Perfluorinated Compounds by LC/MS/MS

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

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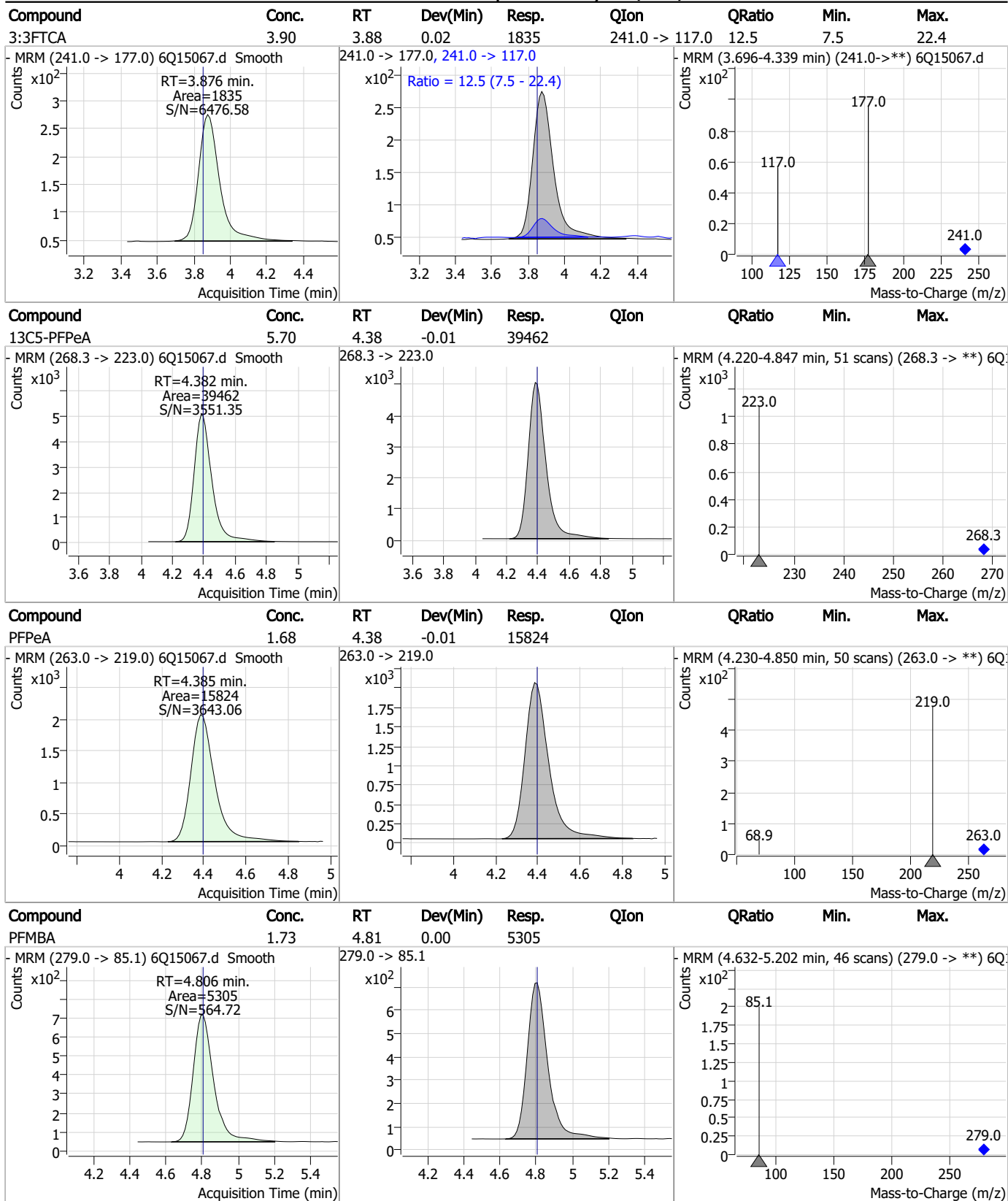
Perfluorinated Compounds by LC/MS/MS



7.3.2

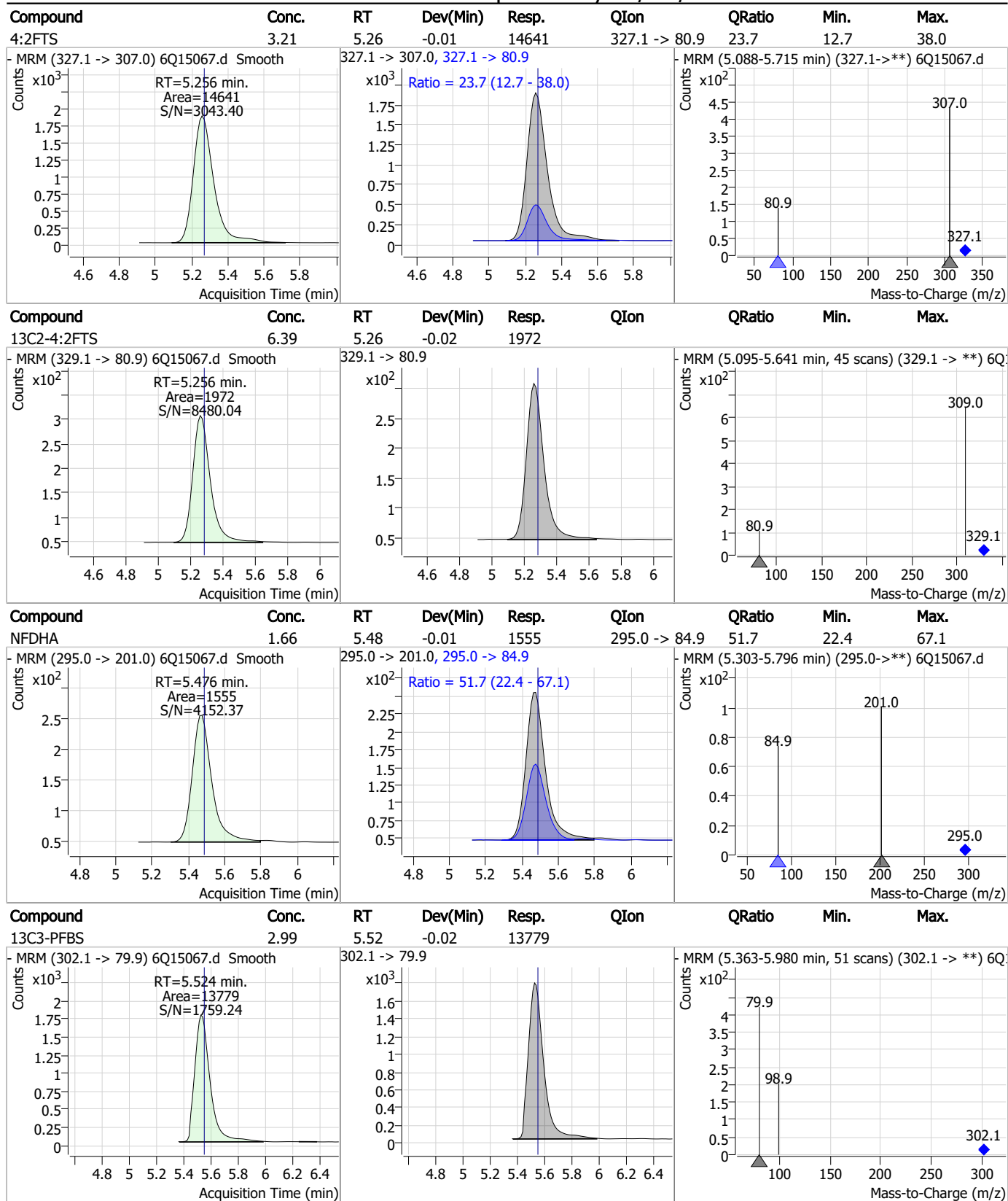
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

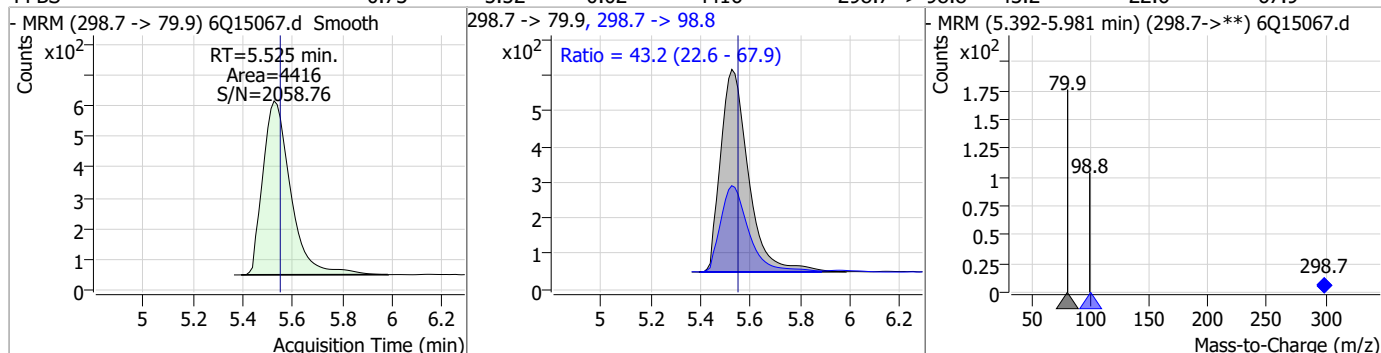
Perfluorinated Compounds by LC/MS/MS



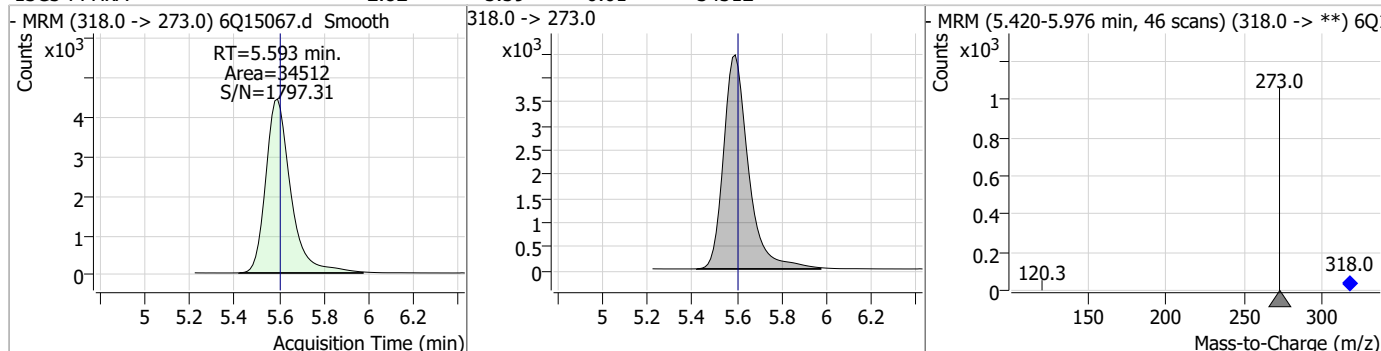
7.3.2
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Perfluorinated Compounds by LC/MS/MS

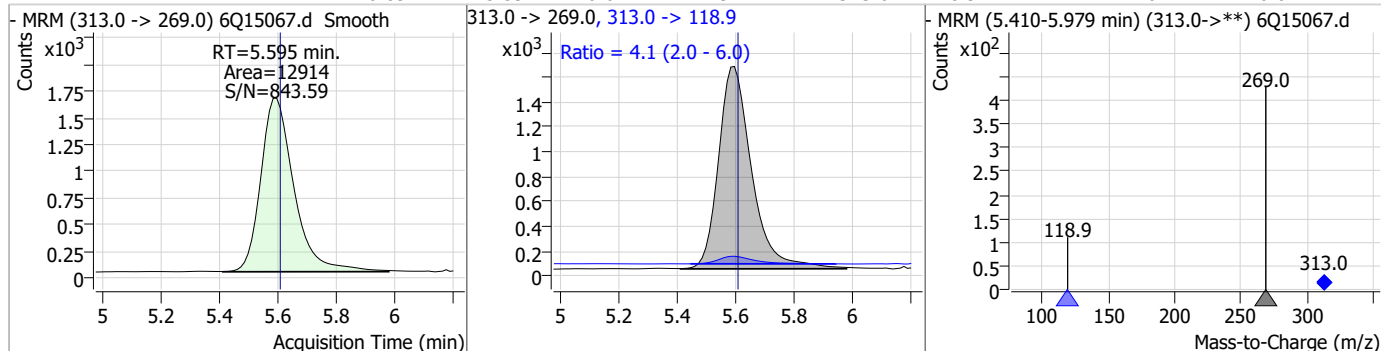
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.73	5.52	-0.02	4416	298.7 -> 98.8	43.2	22.6	67.9



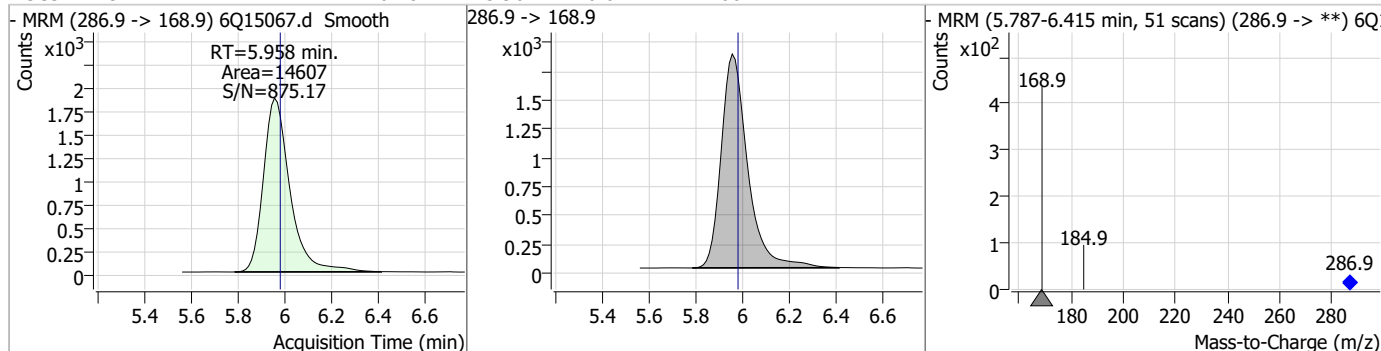
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.82	5.59	-0.01	34512				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.89	5.59	-0.01	12914	313.0 -> 118.9	4.1	2.0	6.0

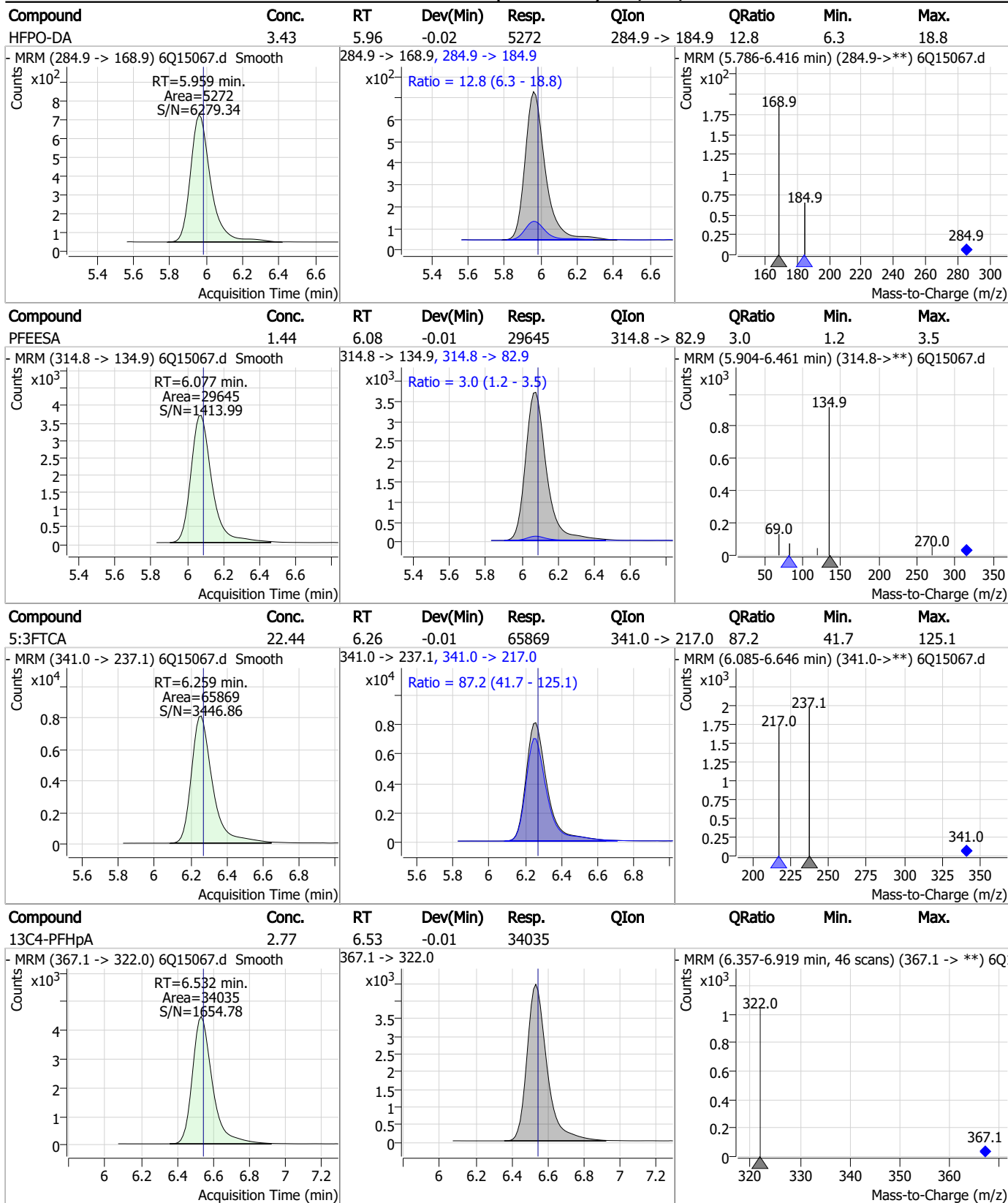


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.78	5.96	-0.02	14607				



7.3.2
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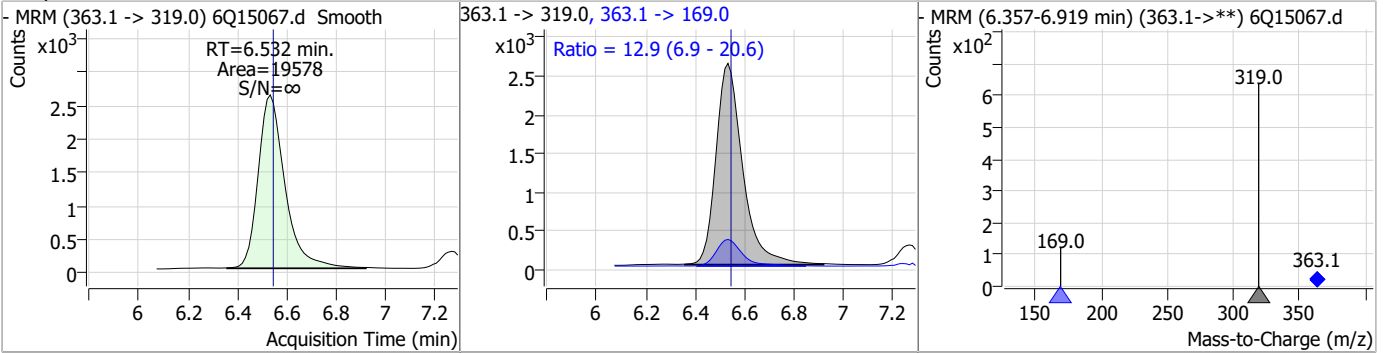
Perfluorinated Compounds by LC/MS/MS



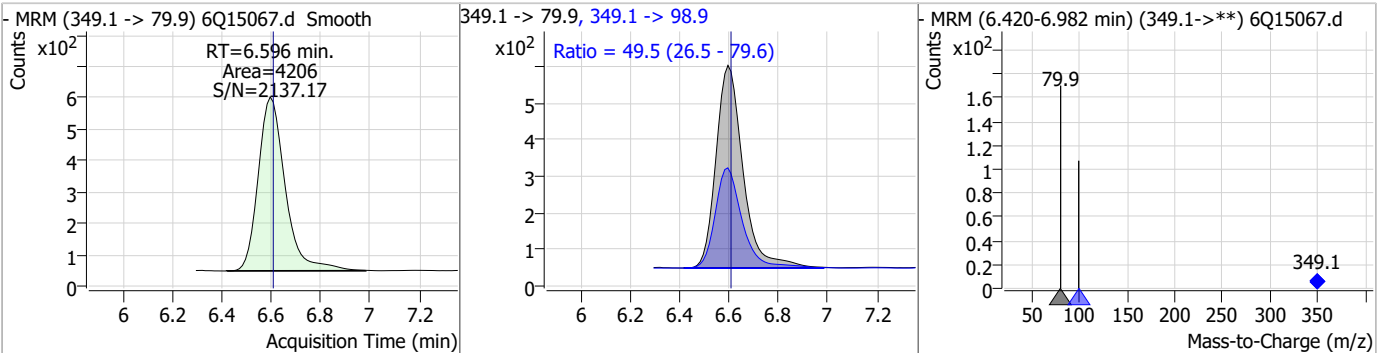
7.3.2
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Perfluorinated Compounds by LC/MS/MS

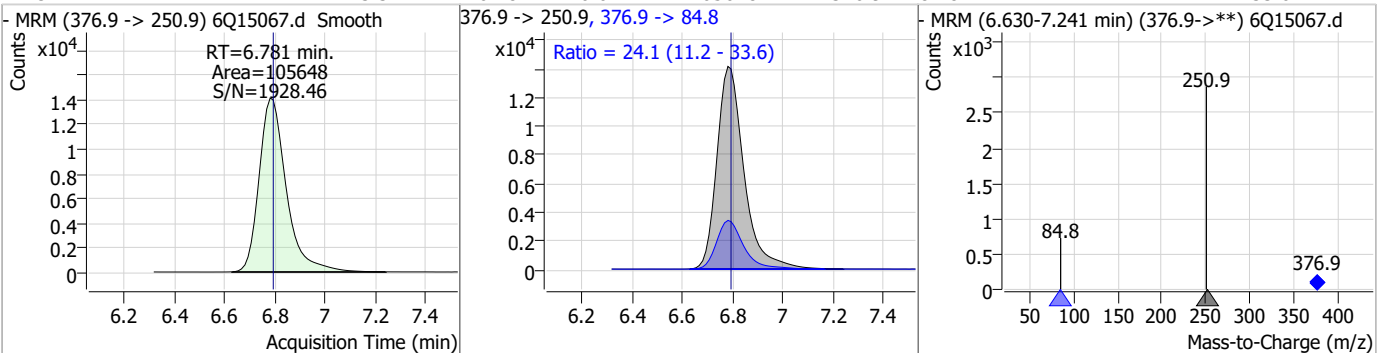
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.89	6.53	-0.01	19578	363.1 -> 169.0	12.9	6.9	20.6



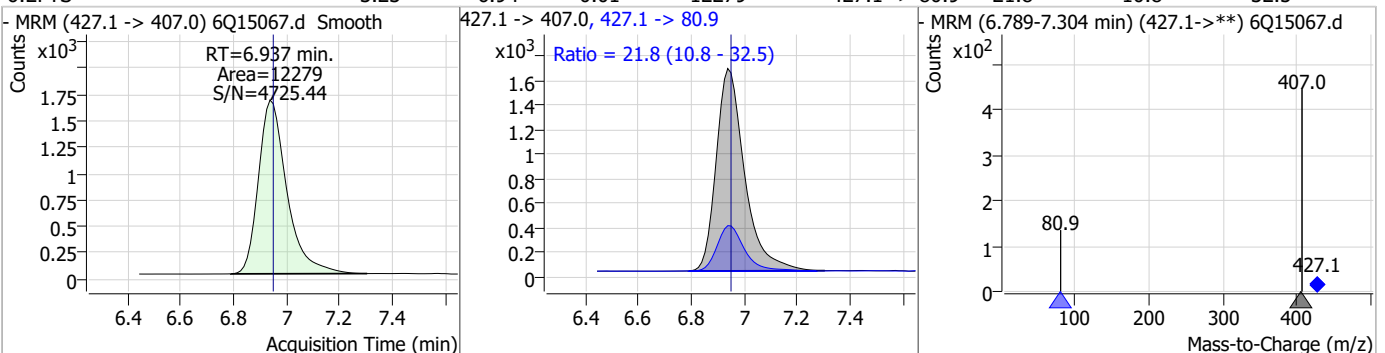
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.80	6.60	-0.01	4206	349.1 -> 98.9	49.5	26.5	79.6



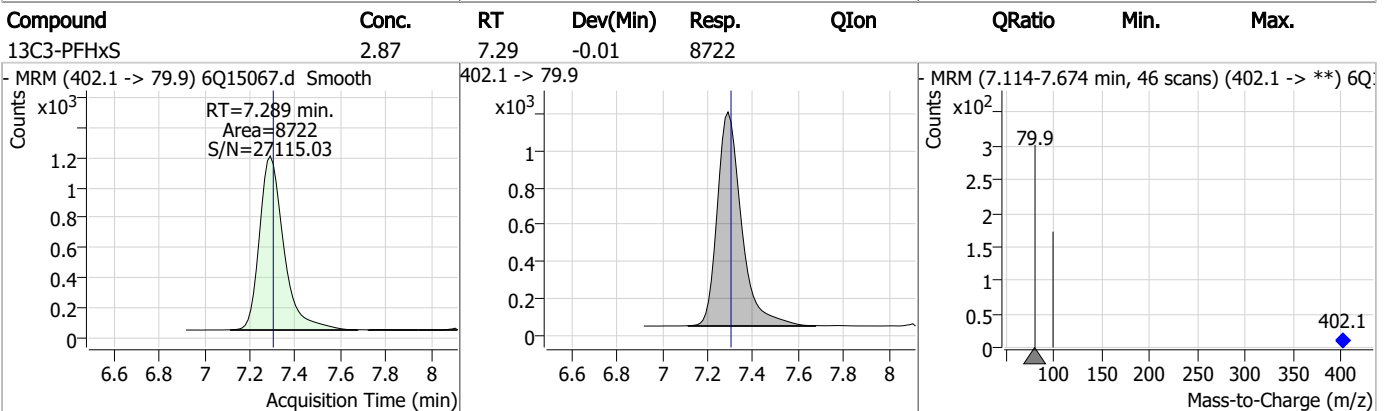
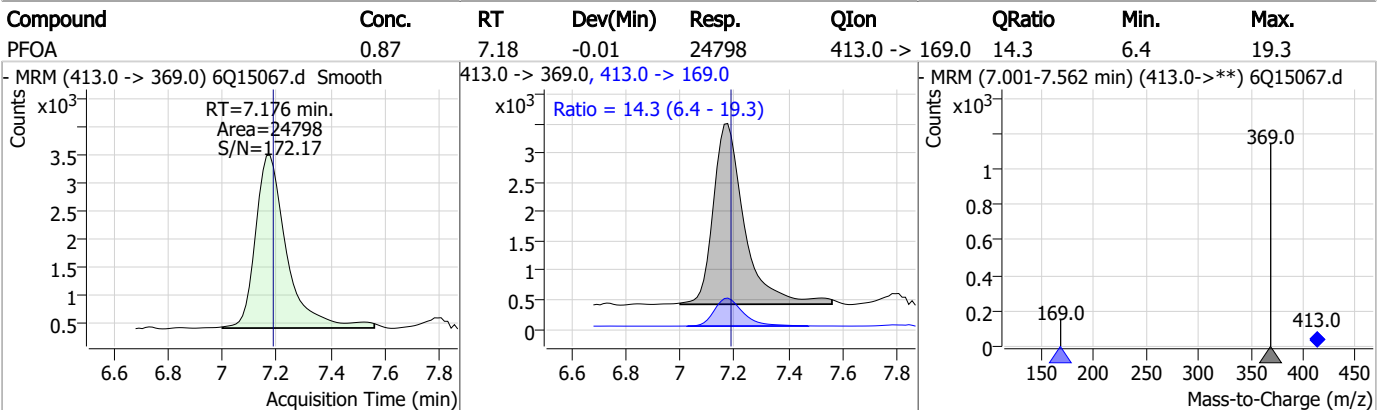
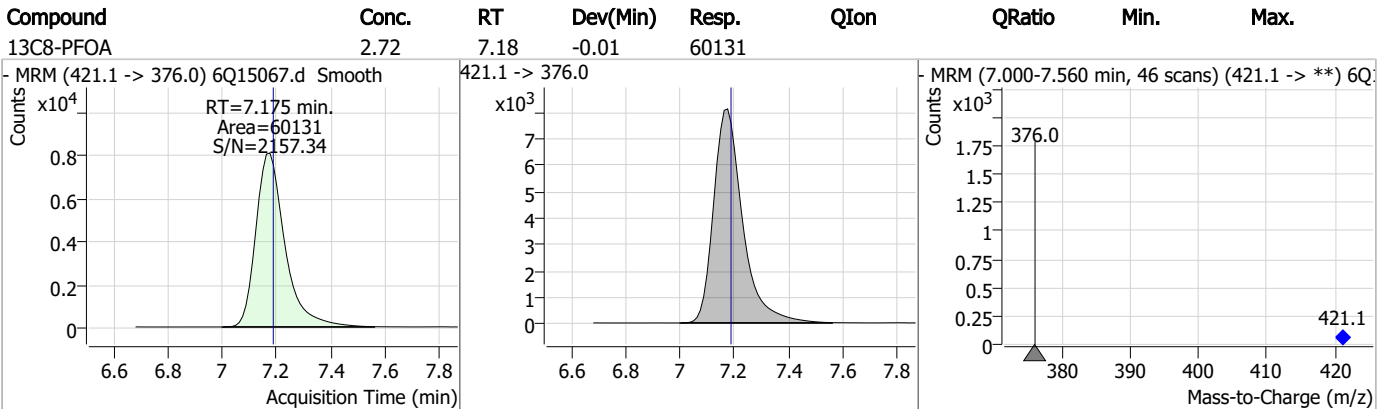
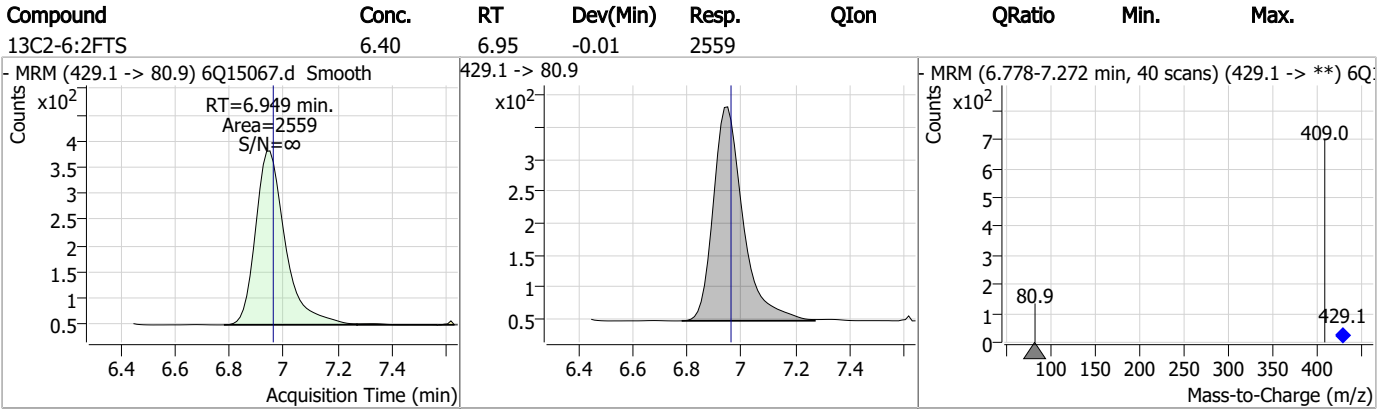
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	3.37	6.78	-0.01	105648	376.9 -> 84.8	24.1	11.2	33.6



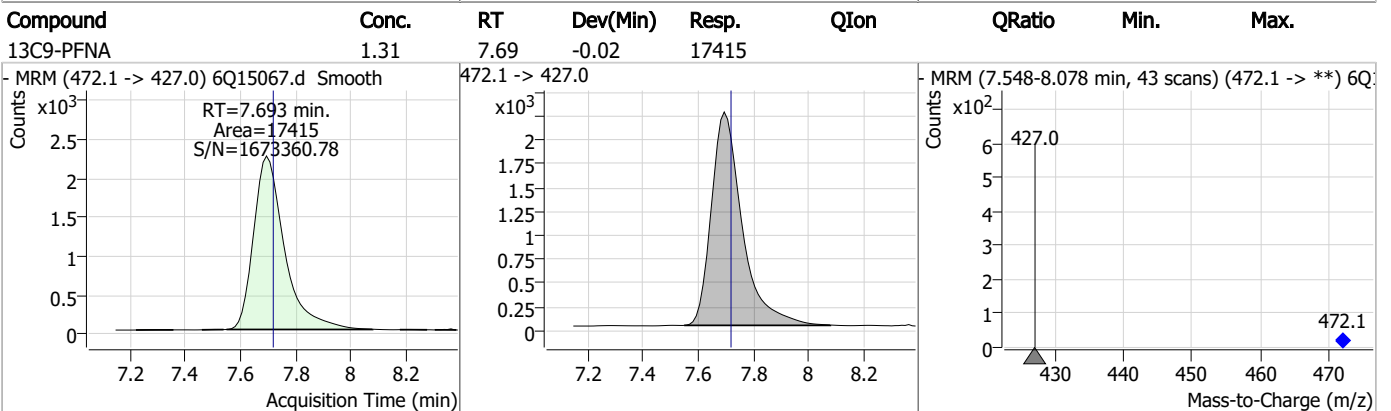
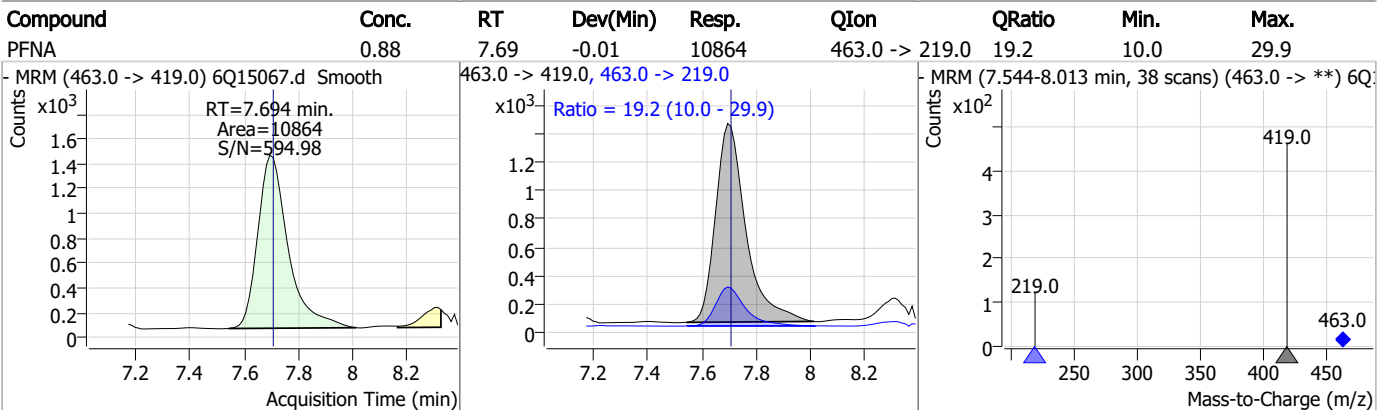
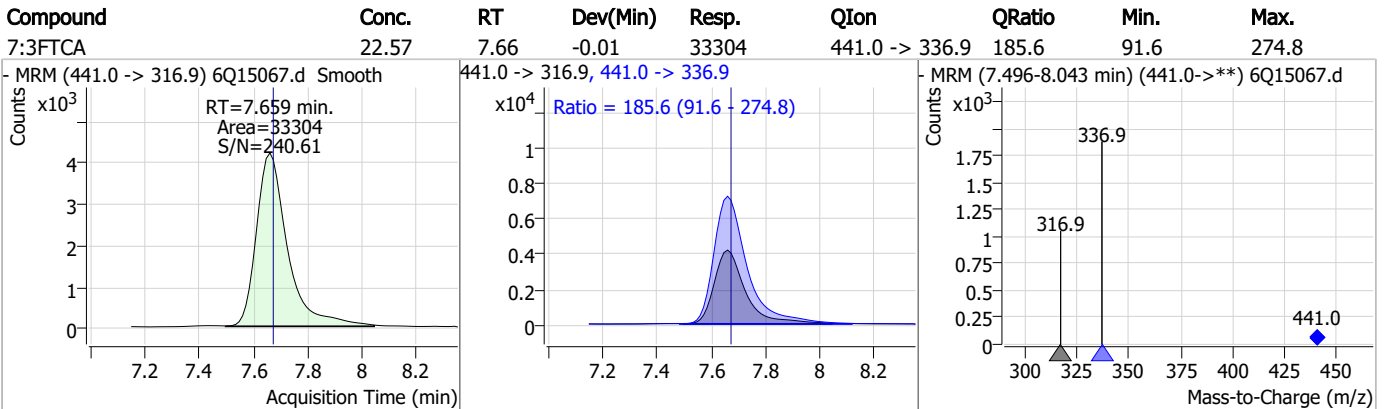
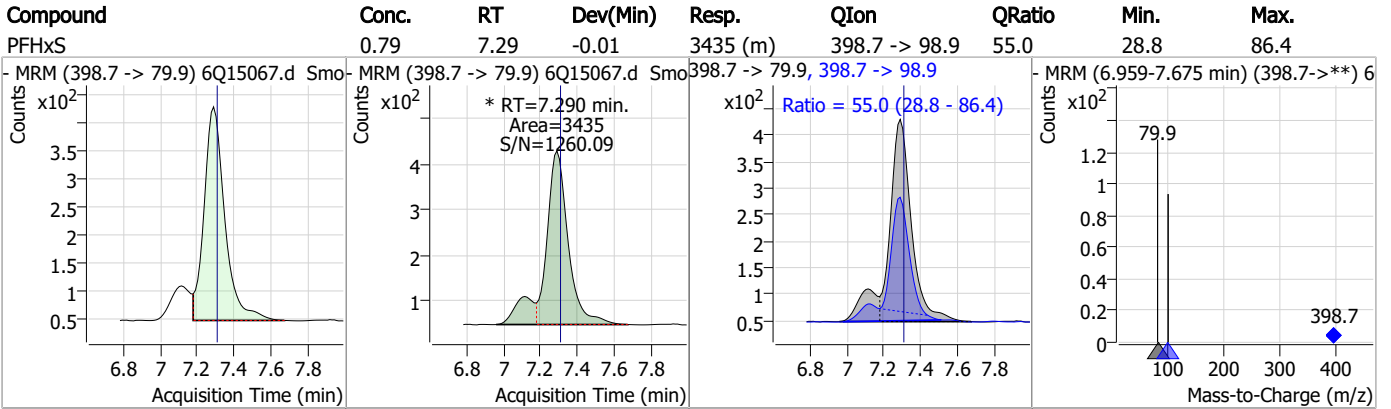
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	3.23	6.94	-0.01	12279	427.1 -> 80.9	21.8	10.8	32.5



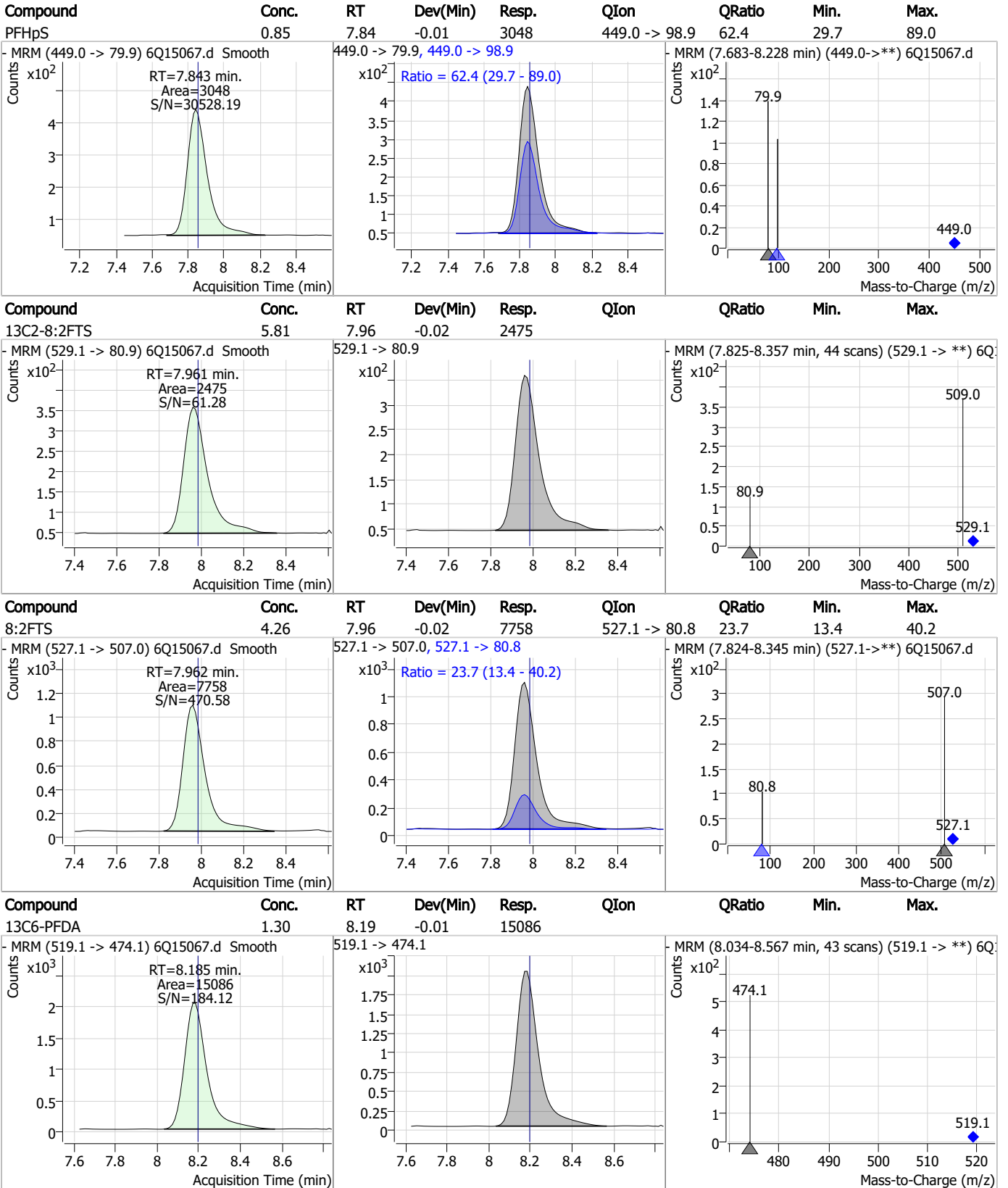
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

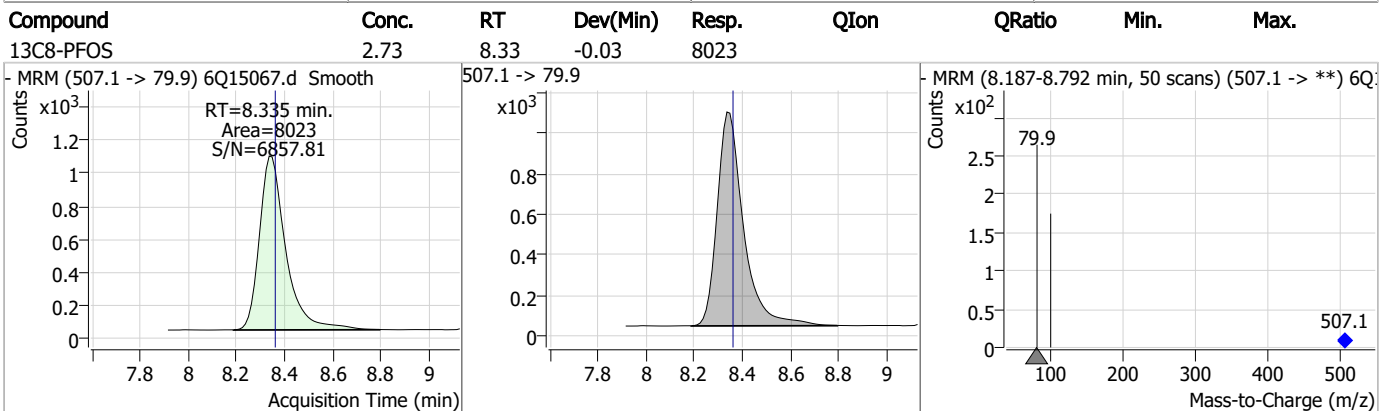
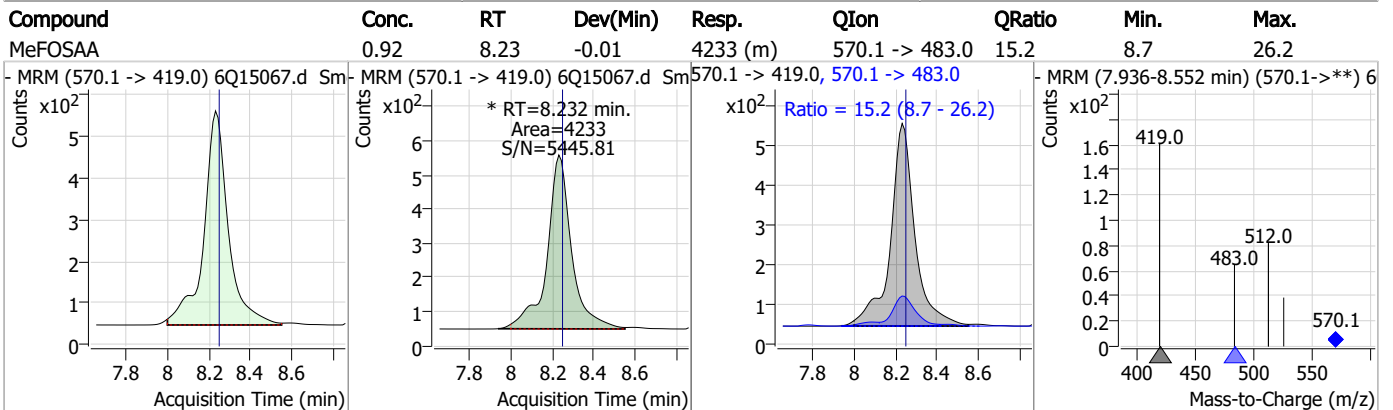
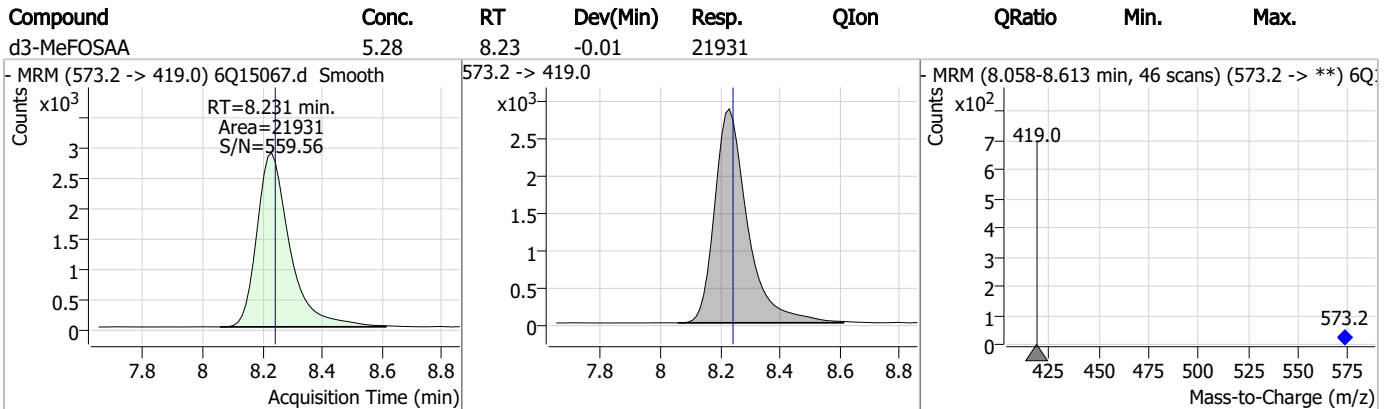
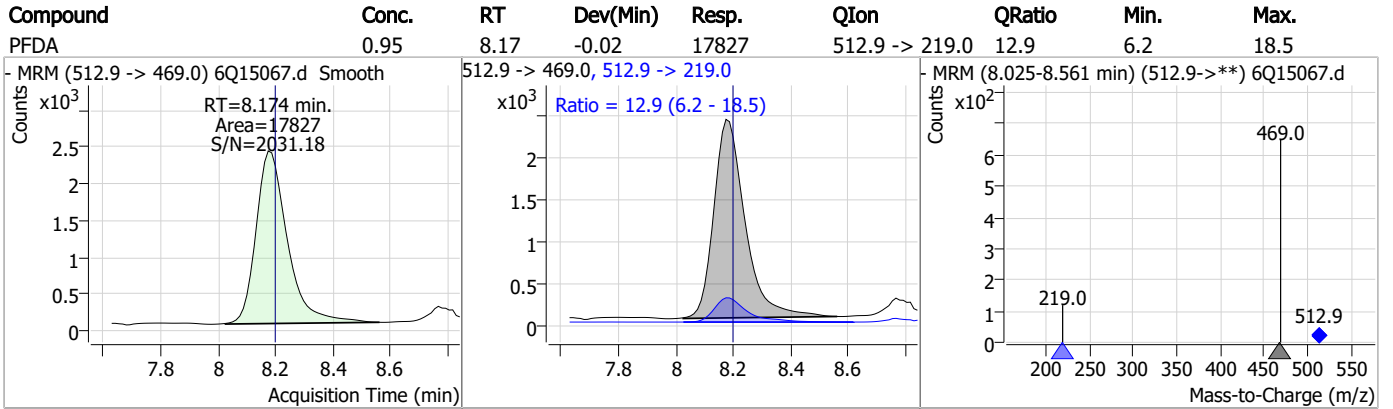


7.3.2

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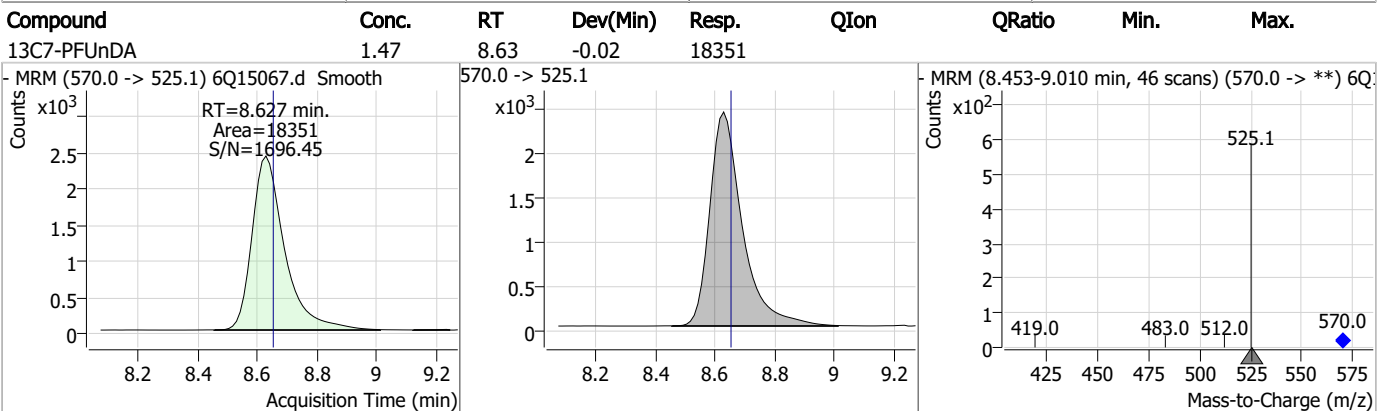
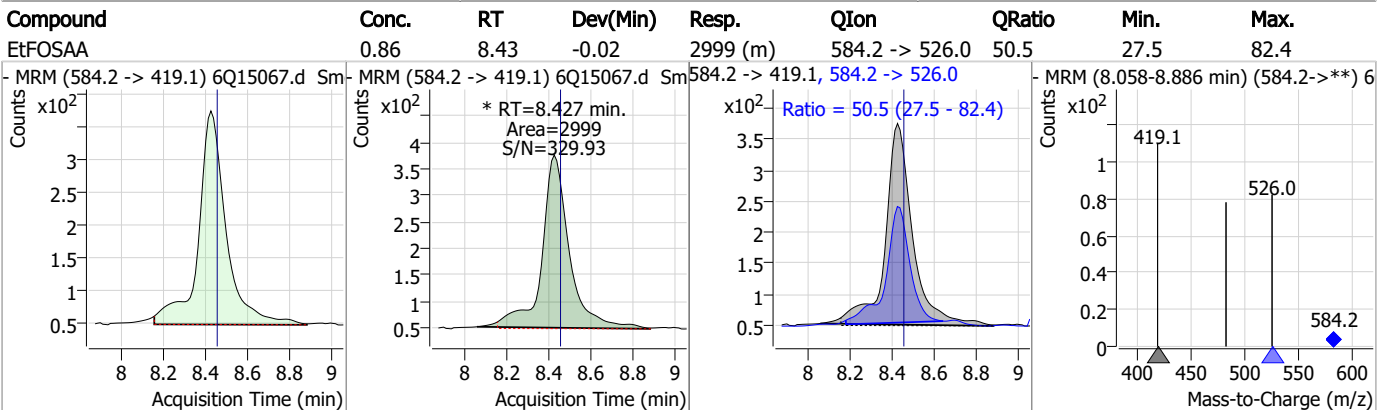
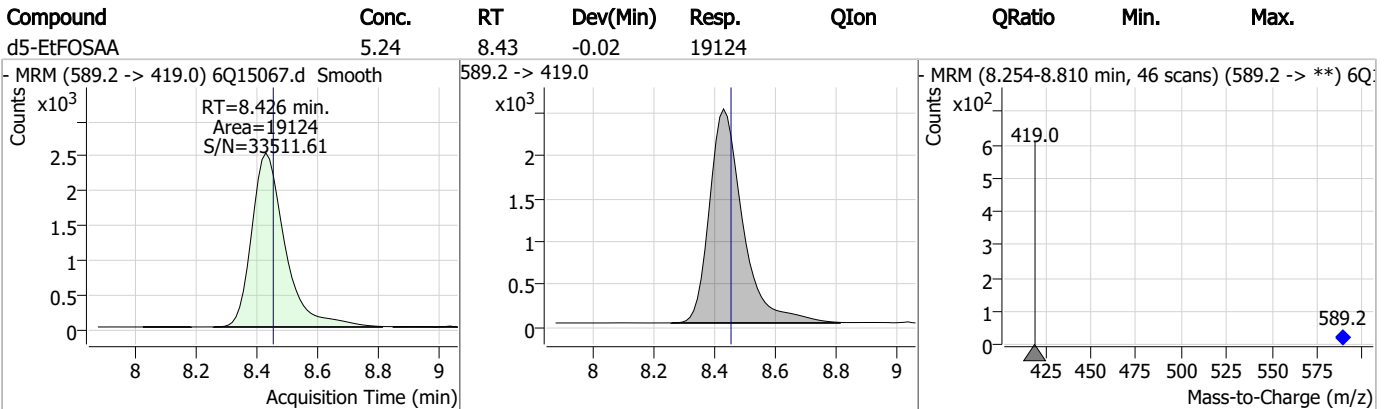
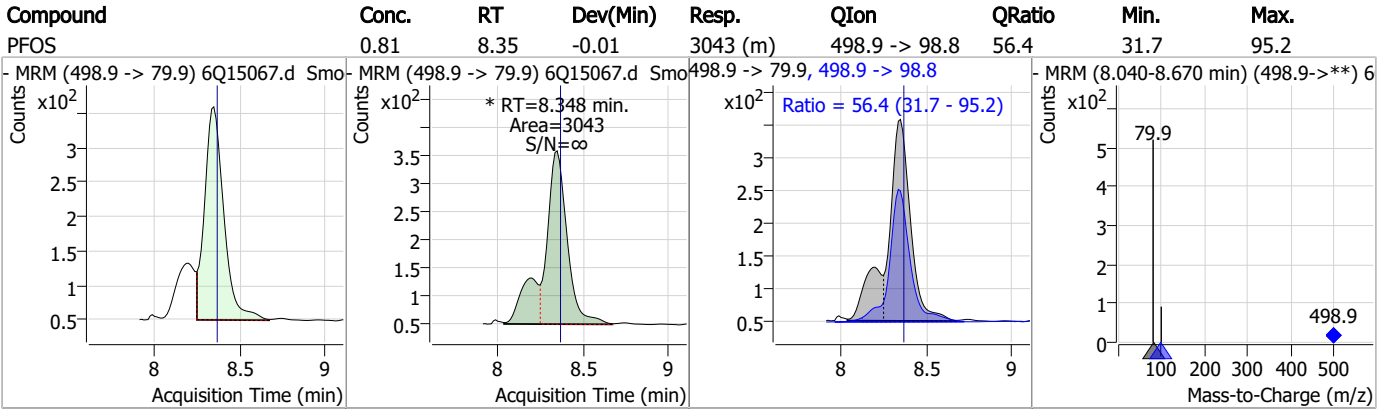
Perfluorinated Compounds by LC/MS/MS



7.3.2

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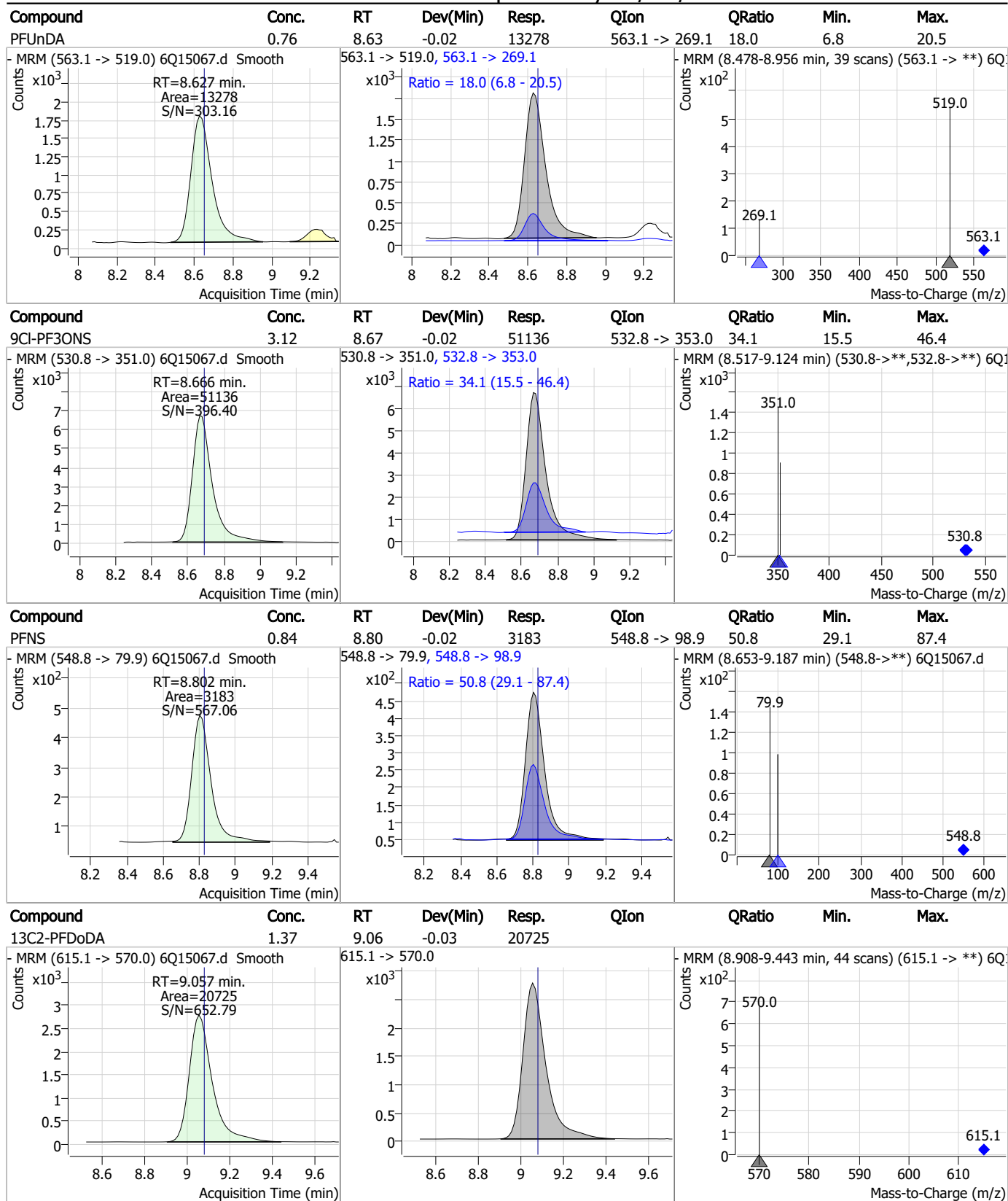
Perfluorinated Compounds by LC/MS/MS



7.3.2

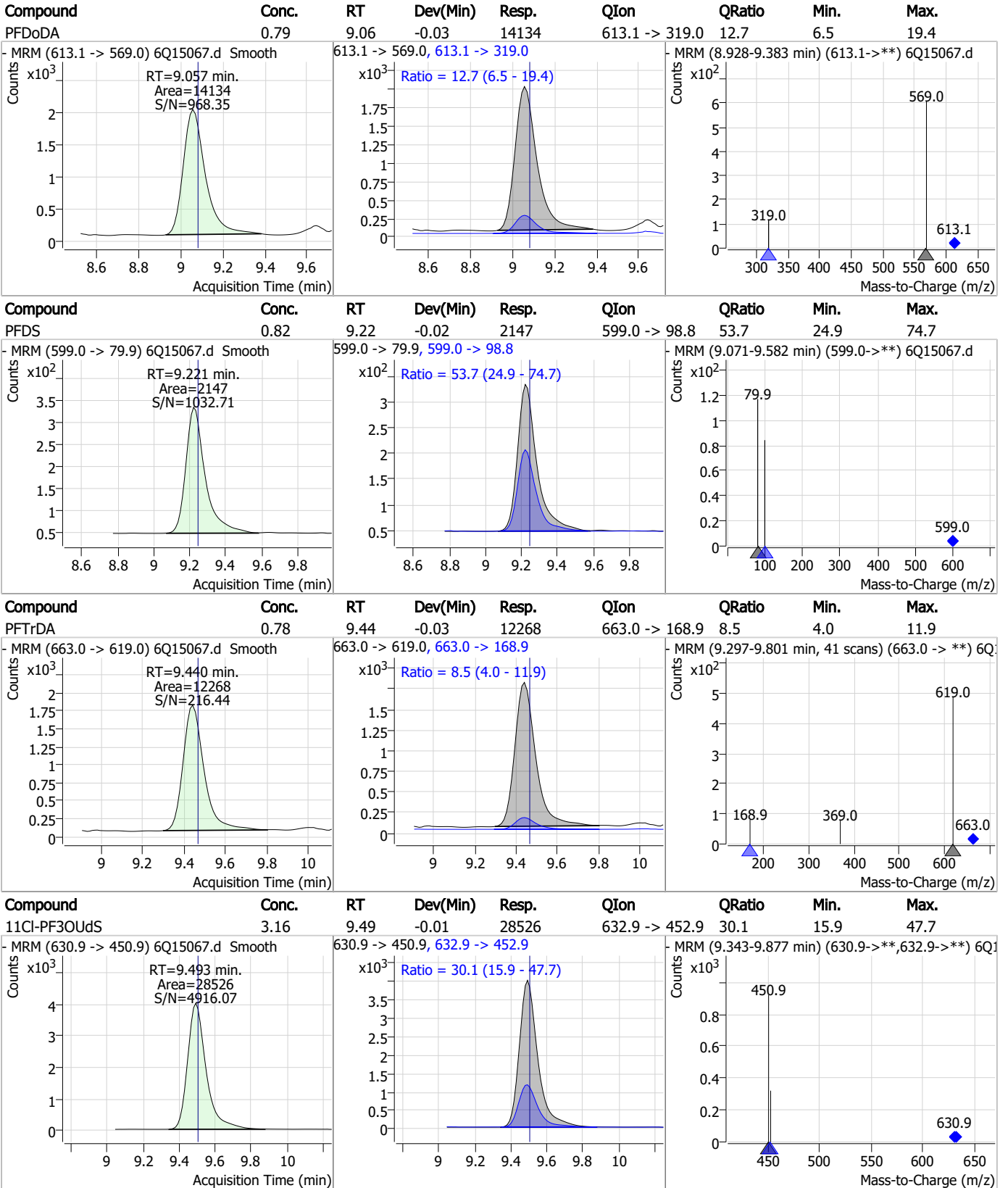
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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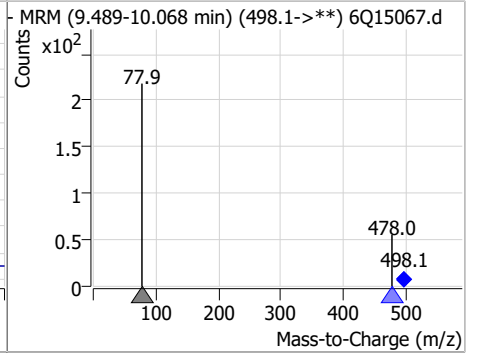
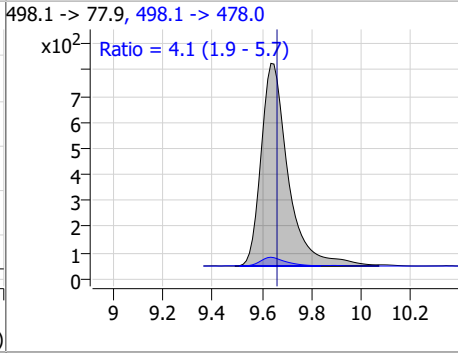
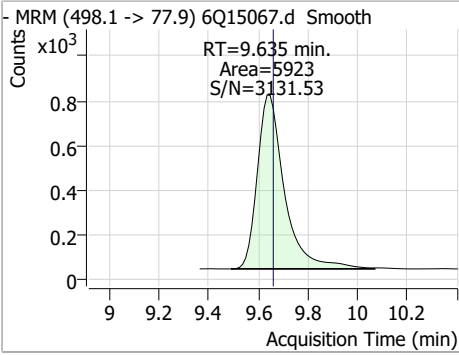
Perfluorinated Compounds by LC/MS/MS



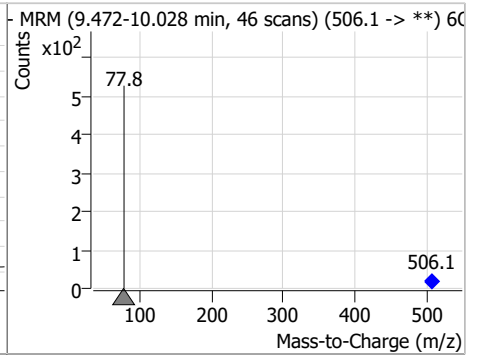
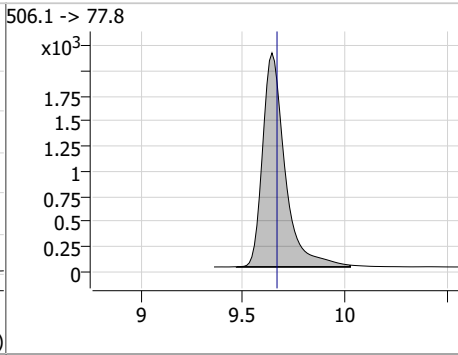
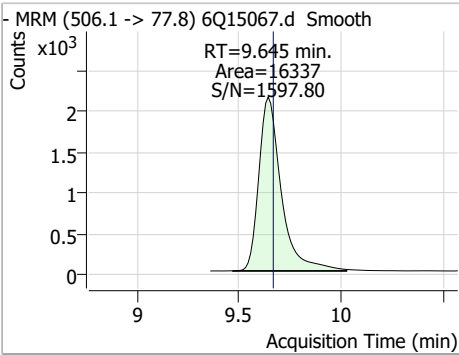
7.3.2
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Perfluorinated Compounds by LC/MS/MS

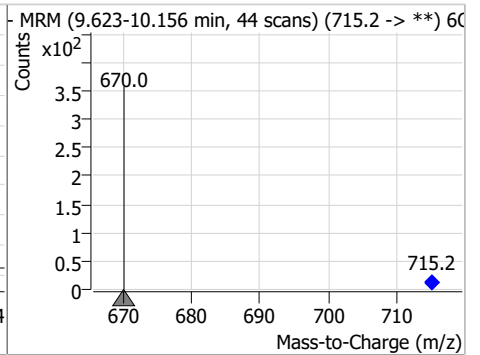
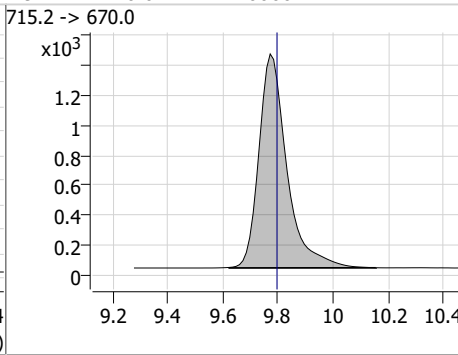
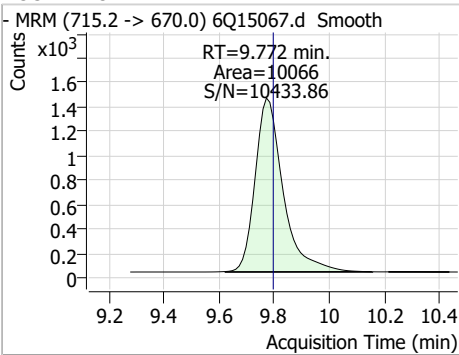
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.91	9.64	-0.02	5923	498.1 -> 478.0	4.1	1.9	5.7



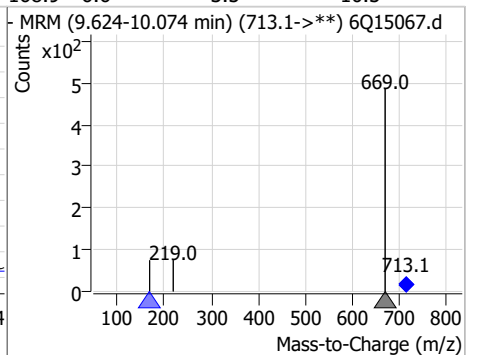
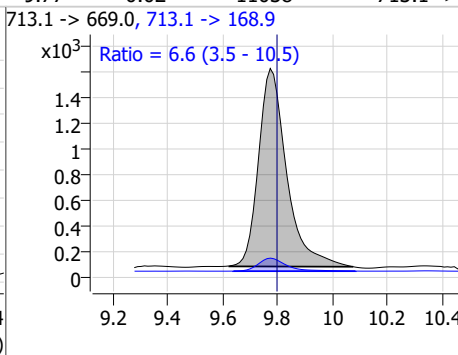
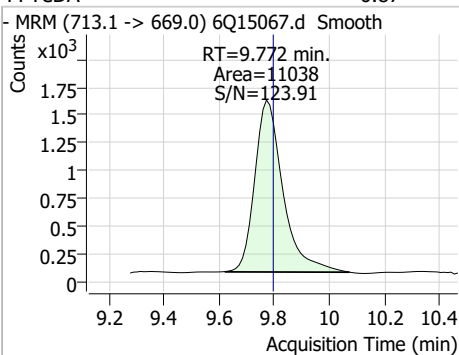
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.72	9.64	-0.02	16337				



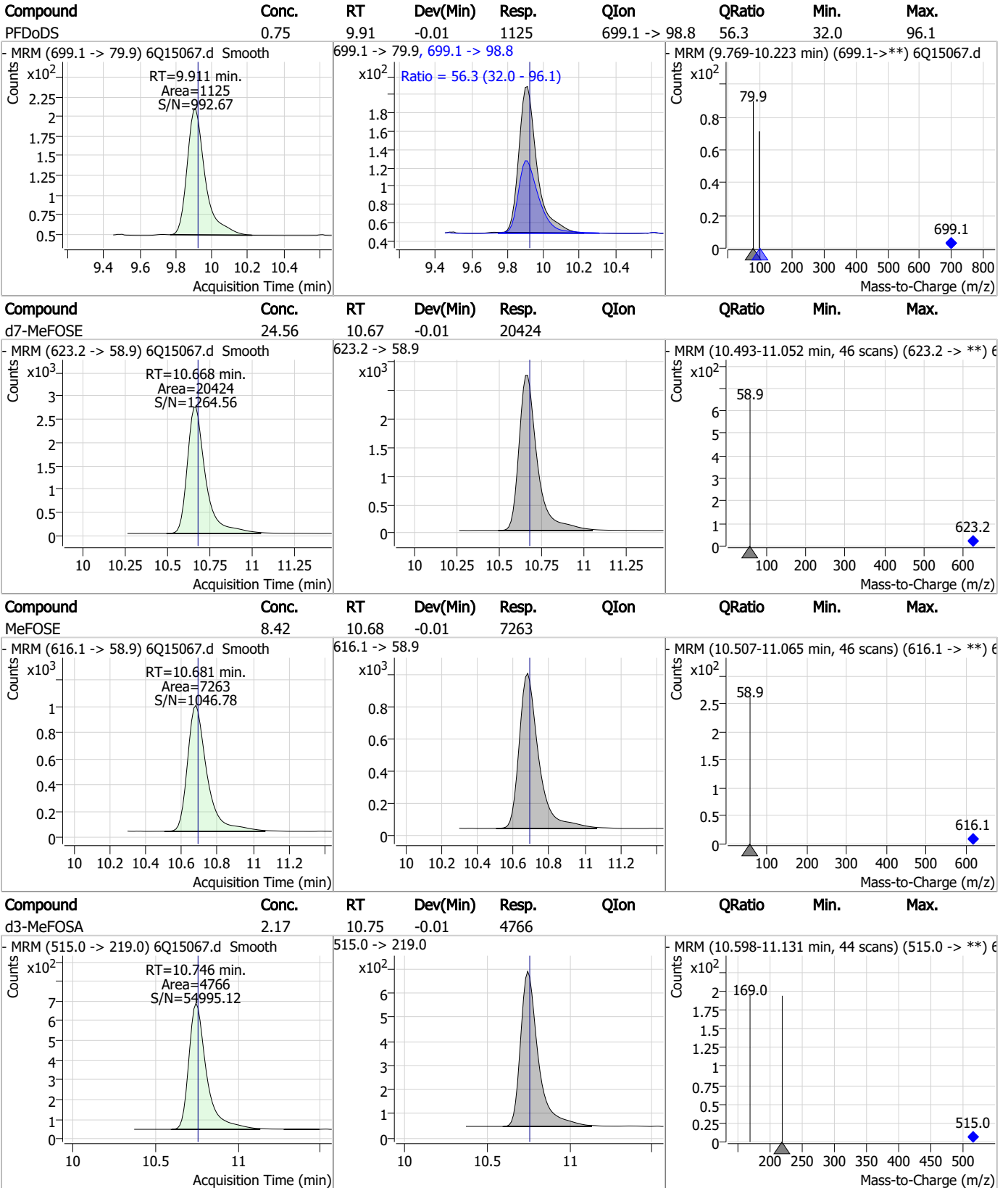
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.77	-0.02	10066				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.87	9.77	-0.02	11038	713.1 -> 168.9	6.6	3.5	10.5



Perfluorinated Compounds by LC/MS/MS

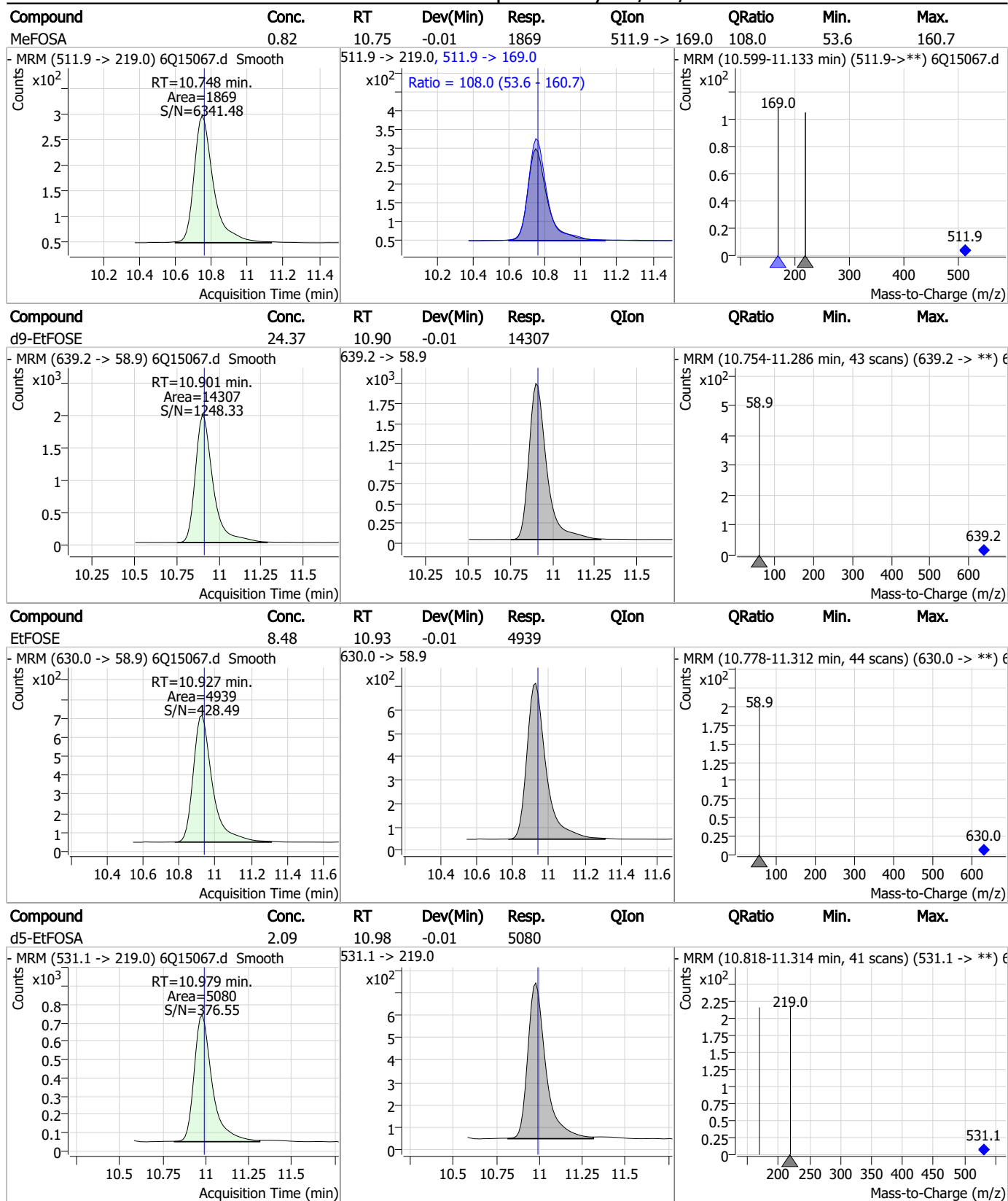


7.3.2

7

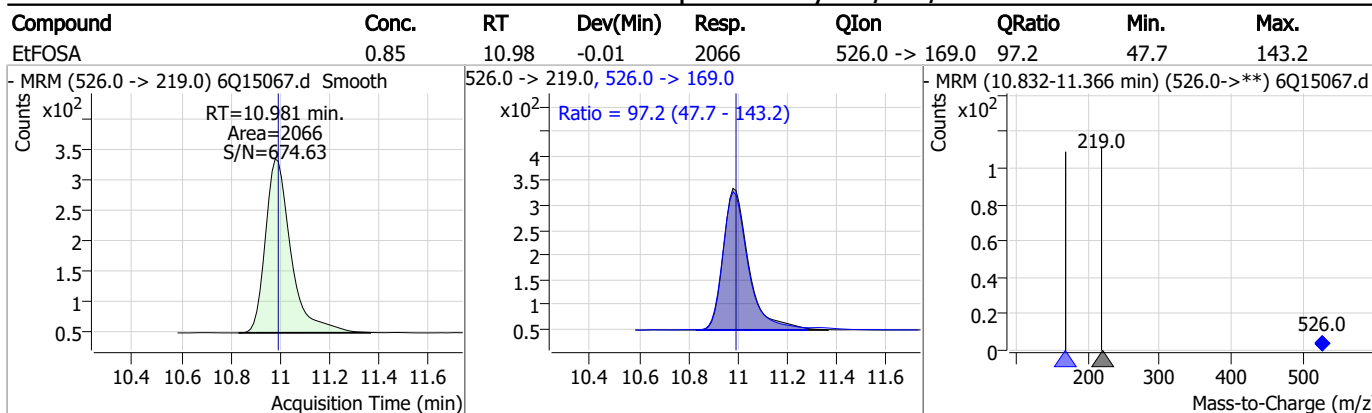


Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP95927-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q15067.D Analyst approved: 03/21/23 13:24 Martha Valls
Injection Time: 03/21/23 05:00 Supervisor approved: 03/21/23 16:12 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.43	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15071.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 5:56:51 AM
 Sample Name : op95927-ms
 Vial : P2-E8
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,550,,,5.0,1.6,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	76682	6.30 µg/L	0.037
M5-PFPeA	4.382	268.3 -> 223.0	39899	3.15 µg/L	-0.012
M5-PFHxA	5.580	318.0 -> 273.0	34151	1.58 µg/L	-0.025
M4-PFHpA	6.532	367.1 -> 322.0	34030	1.58 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	58452	1.58 µg/L	-0.012
M9-PFNA	7.706	472.1 -> 427.0	18662	0.79 µg/L	-0.012
M6-PFDA	8.173	519.1 -> 474.1	14628	0.79 µg/L	-0.025
M7-PFUnDA	8.627	570.0 -> 525.1	13885	0.79 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	15794	0.79 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	8579	0.79 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	15488	1.58 µg/L	-0.025
M3-PFBS	5.524	302.1 -> 79.9	13510	1.58 µg/L	-0.025
M3-PFHxS	7.289	402.1 -> 79.9	8621	1.58 µg/L	-0.013
M8-PFOS	8.335	507.1 -> 79.9	7496	1.58 µg/L	-0.025
M2-4:2FTS	5.256	329.1 -> 80.9	1913	3.15 µg/L	-0.025
M2-6:2FTS	6.937	429.1 -> 80.9	2549	3.15 µg/L	-0.025
M2-8:2FTS	7.973	529.1 -> 80.9	2513	3.15 µg/L	-0.012
M3-MeFOSAA	8.231	573.2 -> 419.0	19850	3.15 µg/L	-0.012
M3-HFPO-DA	5.958	286.9 -> 168.9	14291	6.30 µg/L	-0.025
M5-EtFOSAA	8.426	589.2 -> 419.0	15730	3.15 µg/L	-0.025
M7-MeFOSE	10.668	623.2 -> 58.9	16114	15.75 µg/L	-0.012
M9-EtFOSE	10.901	639.2 -> 58.9	11020	15.75 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	4240	1.58 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	4182	1.58 µg/L	-0.012
13C4-PFOS	8.348	502.8 -> 79.9	9125	1.58 µg/L	-0.013
13C3-PFBA	2.989	216.0 -> 172.0	35004	3.15 µg/L	0.037
18O2-PFHxS	7.288	403.0 -> 83.9	6147	1.58 µg/L	-0.026
13C4-PFOA	7.176	417.1 -> 372.0	66332	1.58 µg/L	-0.012
13C2-PFDA	8.173	515.1 -> 470.1	20294	0.79 µg/L	-0.025
13C5-PFNA	7.706	468.0 -> 423.0	20347	0.79 µg/L	-0.012
13C2-PFHxA	5.581	315.1 -> 270.0	33619	1.58 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1913	3.42 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 68.4%		
13C2-6:2FTS	6.937	429.1 -> 80.9	2549	3.52 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 70.3%		
13C2-8:2FTS	7.973	529.1 -> 80.9	2513	3.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 65.0%		
13C2-PFDoDA	9.057	615.1 -> 570.0	15794	0.63 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 50.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	8579	0.60 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 47.7%		
13C3-PFBS	5.524	302.1 -> 79.9	13510	1.62 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 64.7%		
13C3-PFHxS	7.289	402.1 -> 79.9	8621	1.57 µg/L	-0.013

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 = 62.6%		
13C4-PFBA	2.985	216.8 -> 171.9	76682	6.01 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 60.1%		
13C4-PFHpA	6.532	367.1 -> 322.0	34030	1.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 62.4%		
13C5-PFHxA	5.580	318.0 -> 273.0	34151	1.57 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 62.8%		
13C5-PFPeA	4.382	268.3 -> 223.0	39899	3.24 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 64.7%		
13C6-PFDA	8.173	519.1 -> 474.1	14628	0.76 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 60.5%		
13C7-PFUnDA	8.627	570.0 -> 525.1	13885	0.67 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 53.4%		
13C8-FOSA	9.645	506.1 -> 77.8	15488	1.54 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 61.7%		
13C8-PFOA	7.175	421.1 -> 376.0	58452	1.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 66.5%		
13C8-PFOS	8.335	507.1 -> 79.9	7496	1.53 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 61.0%		
13C9-PFNA	7.706	472.1 -> 427.0	18662	0.75 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 59.9%		
d3-MeFOSAA	8.231	573.2 -> 419.0	19850	2.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 57.1%		
13C3-HFPO-DA	5.958	286.9 -> 168.9	14291	5.93 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 59.3%		
d3-MeFOSA	10.746	515.0 -> 219.0	4182	1.14 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 45.5%		
d5-EtFOSAA	8.426	589.2 -> 419.0	15730	2.57 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 51.4%		
d7-MeFOSE	10.668	623.2 -> 58.9	16114	11.57 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 46.3%		
d9-EtFOSE	10.901	639.2 -> 58.9	11020	11.21 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 44.8%		
d5-EtFOSA	10.979	531.1 -> 219.0	4240	1.04 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 41.7%		
Target Compounds					QValue
4:2FTS	5.256	327.1 -> 307.0	38124	5.43 µg/L	100
		327.1 -> 80.9	9561		
6:2FTS	6.937	427.1 -> 407.0	34447	5.73 µg/L	97
		427.1 -> 80.9	7912		
8:2FTS	7.974	527.1 -> 507.0	17960	6.12 µg/L	98
		527.1 -> 80.8	4658		
EtFOSAA	8.427	584.2 -> 419.1	6673	1.47 µg/L	m 97
		584.2 -> 526.0	3807		
FOSA	9.647	498.1 -> 77.9	15079	1.53 µg/L	100
		498.1 -> 478.0	586		
MeFOSAA	8.232	570.1 -> 419.0	9942	1.51 µg/L	93
		570.1 -> 483.0	2045		
PFBA	2.993	212.8 -> 168.9	19375	5.83 µg/L	100
PFBS	5.525	298.7 -> 79.9	11824	1.25 µg/L	98
		298.7 -> 98.8	5179		
PFDA	8.174	512.9 -> 469.0	41898	1.45 µg/L	96
		512.9 -> 219.0	5863		
PFDODA	9.057	613.1 -> 569.0	30725	1.42 µg/L	100
		613.1 -> 319.0	3970		
PFDS	9.221	599.0 -> 79.9	4667	1.20 µg/L	95

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.532	599.0 -> 98.8	2493	1.58	µg/L	100
		363.1 -> 319.0	54917			
PFHpS	7.843	363.1 -> 169.0	7572	1.49	µg/L	94
		449.0 -> 79.9	7913			
PFHxA	5.582	449.0 -> 98.9	4354	1.60	µg/L	100
		313.0 -> 269.0	36529			
PFHxS	7.290	313.0 -> 118.9	1483	1.27	µg/L	99
		398.7 -> 79.9	8696			
PFNA	7.707	398.7 -> 98.9	5087	1.33	µg/L	98
		463.0 -> 419.0	27918			
PFNS	8.802	463.0 -> 219.0	5838	1.20	µg/L	100
		548.8 -> 79.9	6741			
PFOA	7.176	548.8 -> 98.9	3936	1.48	µg/L	98
		413.0 -> 369.0	64888			
PFOS	8.336	413.0 -> 169.0	8998	1.28	µg/L	98
		498.9 -> 79.9	7157			
PFPeA	4.385	498.9 -> 98.8	4424	3.15	µg/L	100
		263.0 -> 219.0	47552			
PFPeS	6.596	349.1 -> 79.9	11156	1.35	µg/L	97
		349.1 -> 98.9	6201			
PFTeDA	9.772	713.1 -> 669.0	26195	1.53	µg/L	100
		713.1 -> 168.9	1866			
PFTrDA	9.440	663.0 -> 619.0	26354	1.38	µg/L	98
		663.0 -> 168.9	2288			
PFUnDA	8.627	563.1 -> 519.0	34842	1.67	µg/L	98
		563.1 -> 269.1	5096			
11CI-PF3OUdS	9.493	630.9 -> 450.9	62066	4.42	µg/L	100
		632.9 -> 452.9	19864			
9CI-PF3ONS	8.678	530.8 -> 351.0	129938	5.11	µg/L	99
		532.8 -> 353.0	41180			
ADONA	6.781	376.9 -> 250.9	294868	6.05	µg/L	97
		376.9 -> 84.8	70666			
HFPO-DA	5.959	284.9 -> 168.9	13754	5.76	µg/L	97
		284.9 -> 184.9	1878			
3:3FTCA	3.876	241.0 -> 177.0	5866	7.78	µg/L	97
		241.0 -> 117.0	799			
5:3FTCA	6.246	341.0 -> 237.1	177896	38.59	µg/L	93
		341.0 -> 217.0	159226			
7:3FTCA	7.659	441.0 -> 316.9	92164	39.77	µg/L	98
		441.0 -> 336.9	166155			
EtFOSA	10.981	526.0 -> 219.0	4788	1.48	µg/L	88
		526.0 -> 169.0	5114			
EtFOSE	10.927	630.0 -> 58.9	10163	14.26	µg/L	100
		511.9 -> 219.0	5113			
MeFOSA	10.748	511.9 -> 169.0	5118	1.60	µg/L	93
		616.1 -> 58.9	15670			
MeFOSE	10.681	699.1 -> 79.9	2654	14.51	µg/L	100
		699.1 -> 98.8	1477			
PFDoDS	9.911	295.0 -> 201.0	4390	1.19	µg/L	89
		295.0 -> 84.9	1986			
NFDHA	5.463	279.0 -> 85.1	14634	2.98	µg/L	100
		229.0 -> 84.9	12961			
PFMBA	4.794	314.8 -> 134.9	81814	3.00	µg/L	100
		314.8 -> 82.9	2302			
PFMPA	3.538			2.53	µg/L	99
PFEESA	6.064					

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

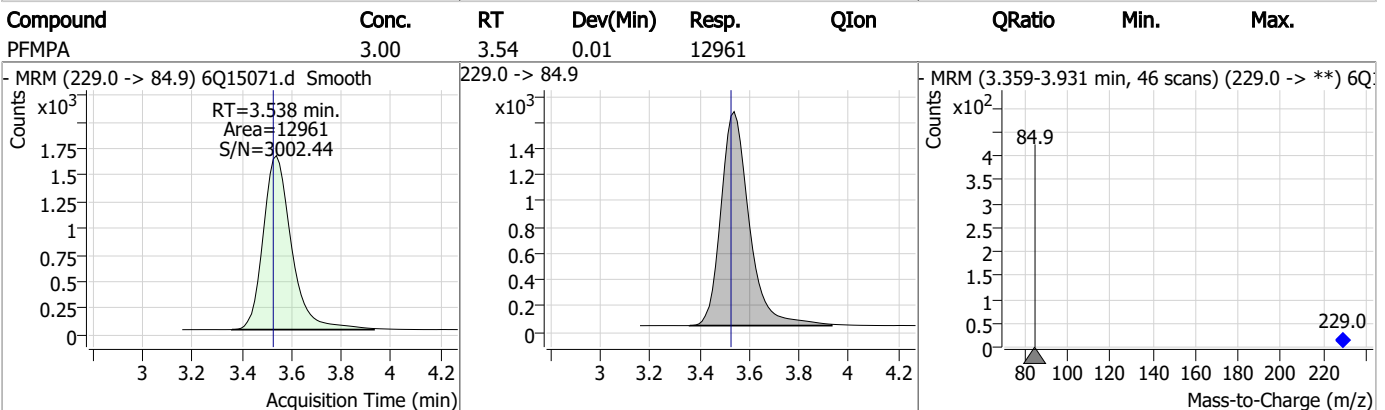
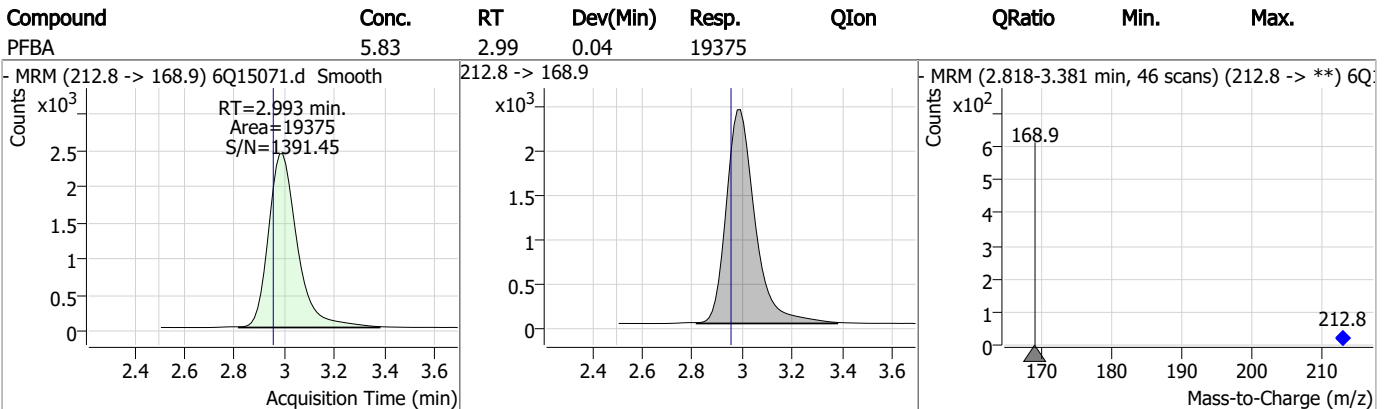
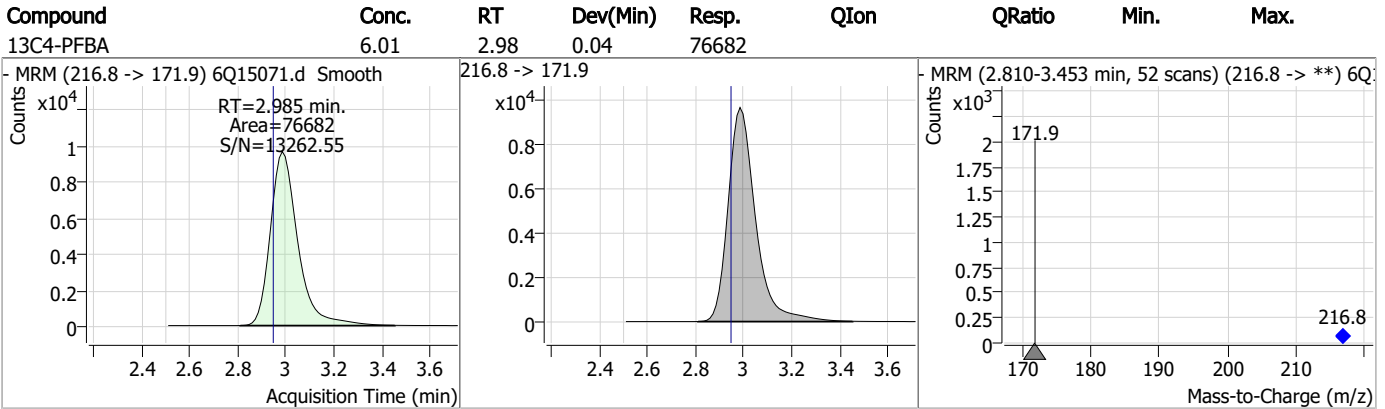
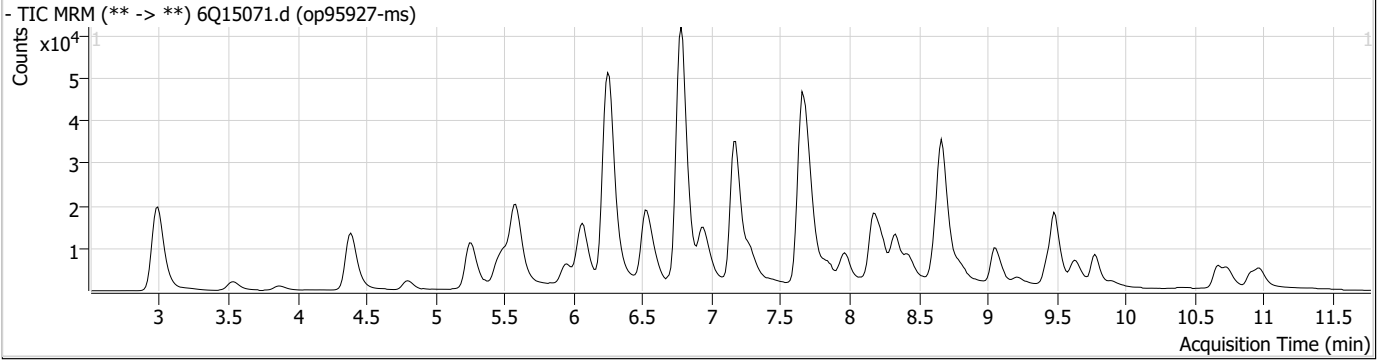
Perfluorinated Compounds by LC/MS/MS

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

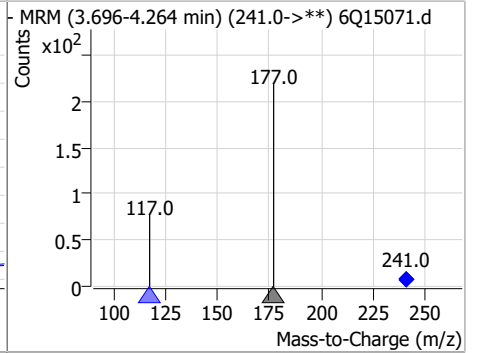
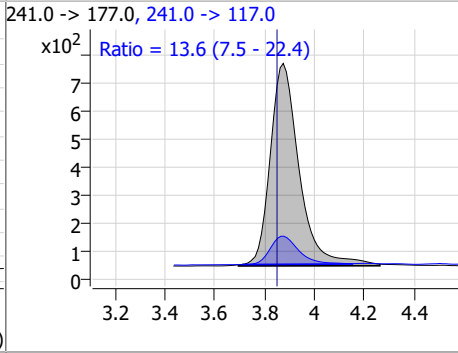
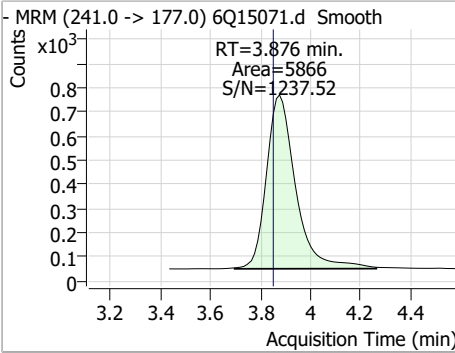
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Perfluorinated Compounds by LC/MS/MS

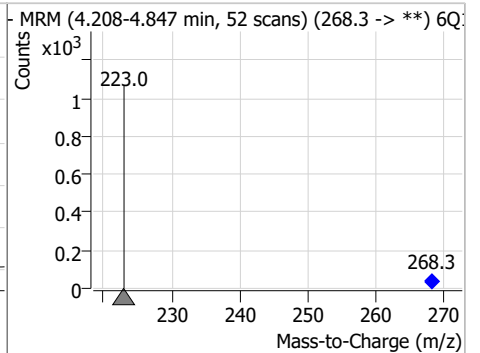
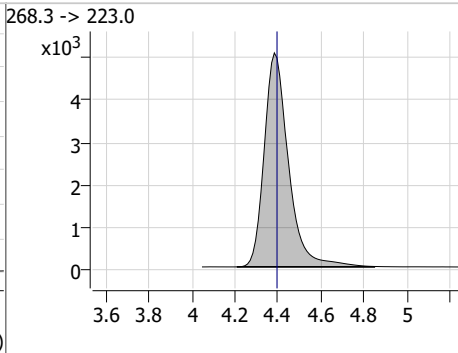
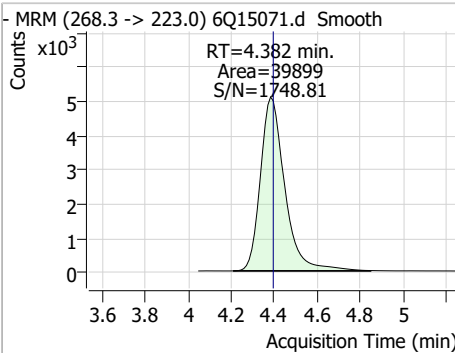


Perfluorinated Compounds by LC/MS/MS

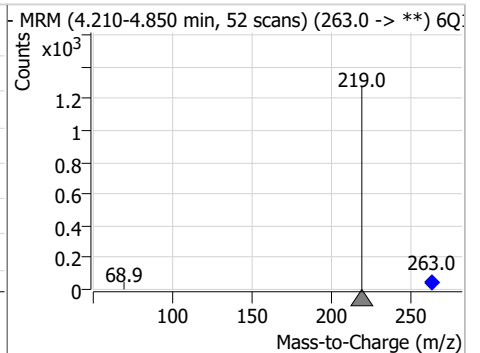
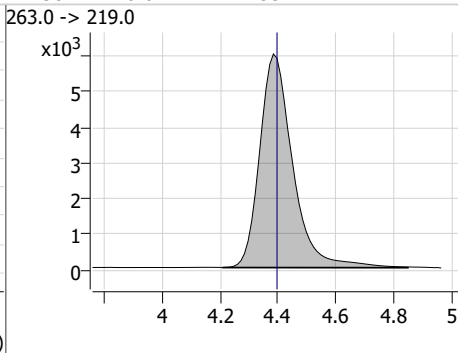
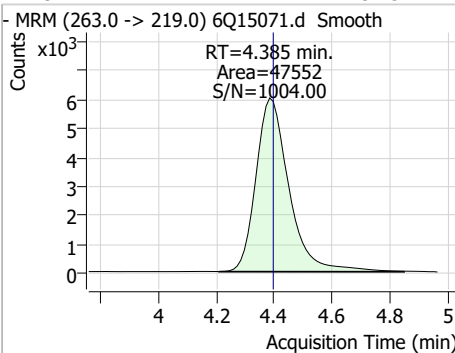
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	7.78	3.88	0.02	5866	241.0 -> 117.0	13.6	7.5	22.4



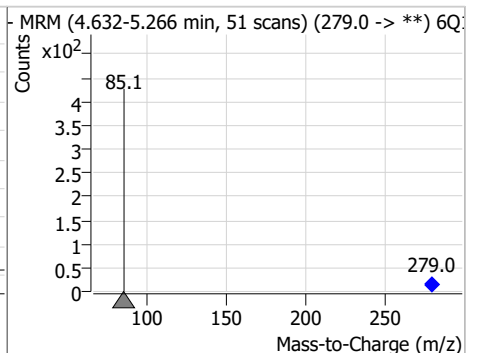
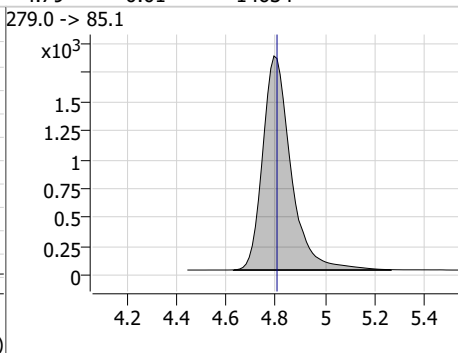
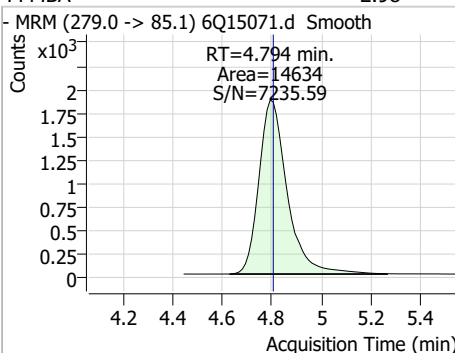
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	3.24	4.38	-0.01	39899				



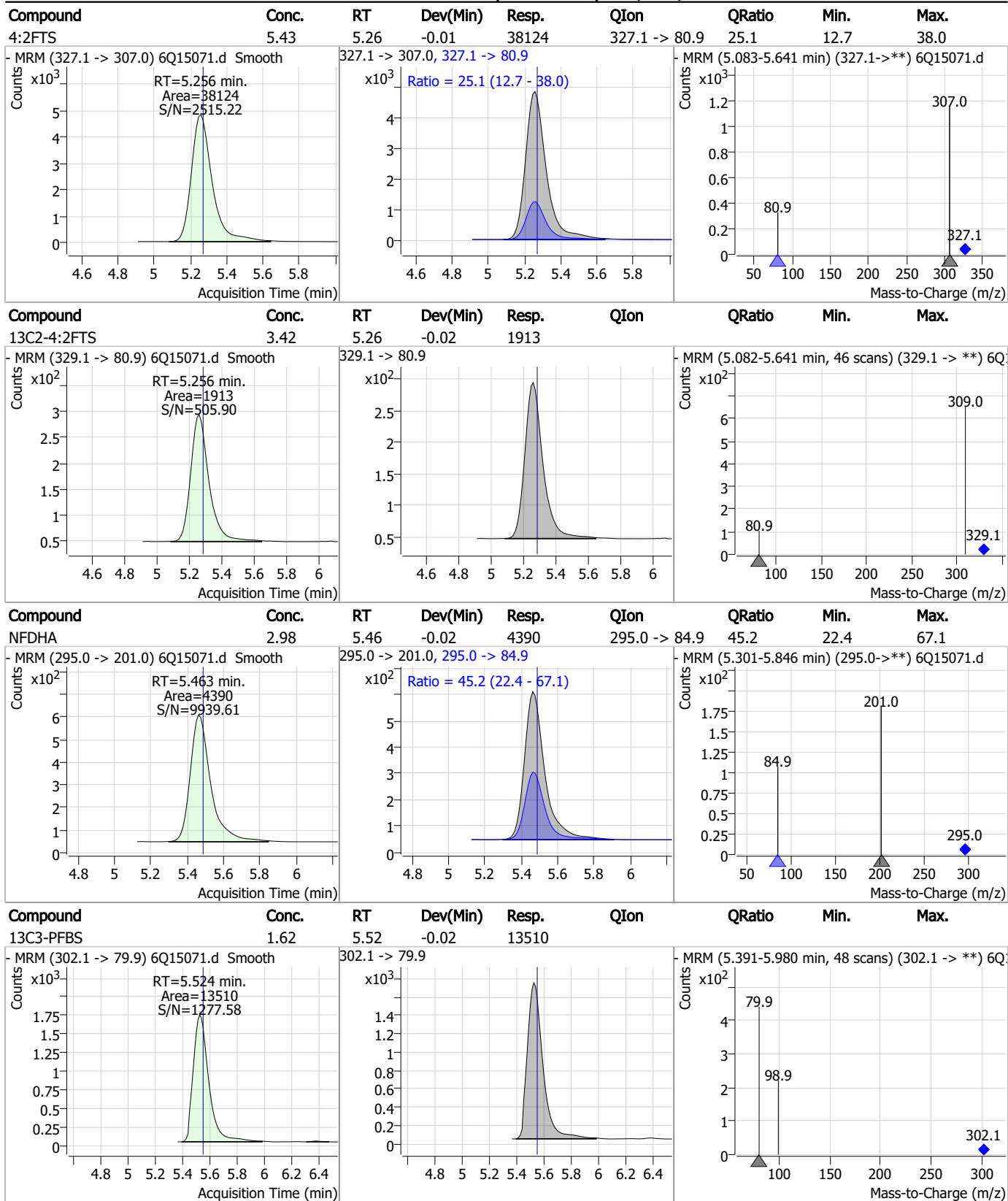
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	3.15	4.38	-0.01	47552				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.98	4.79	-0.01	14634				



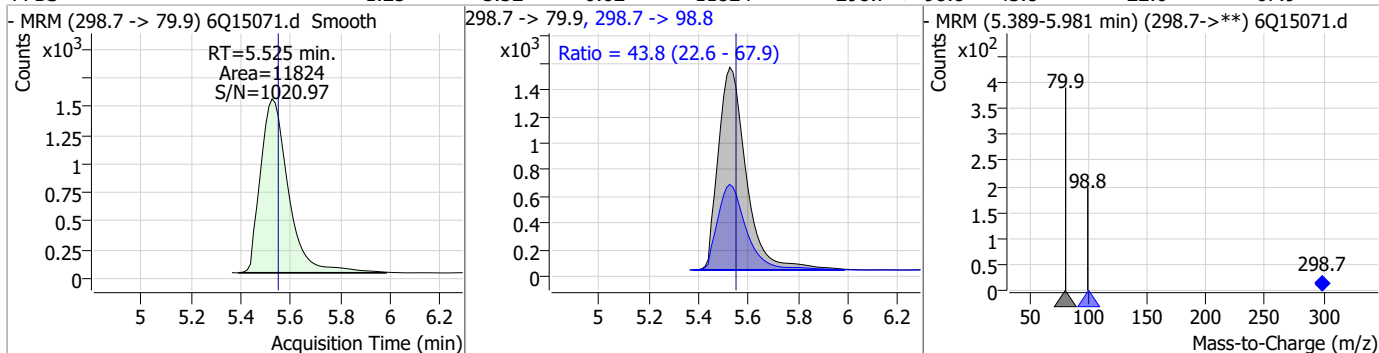
Perfluorinated Compounds by LC/MS/MS



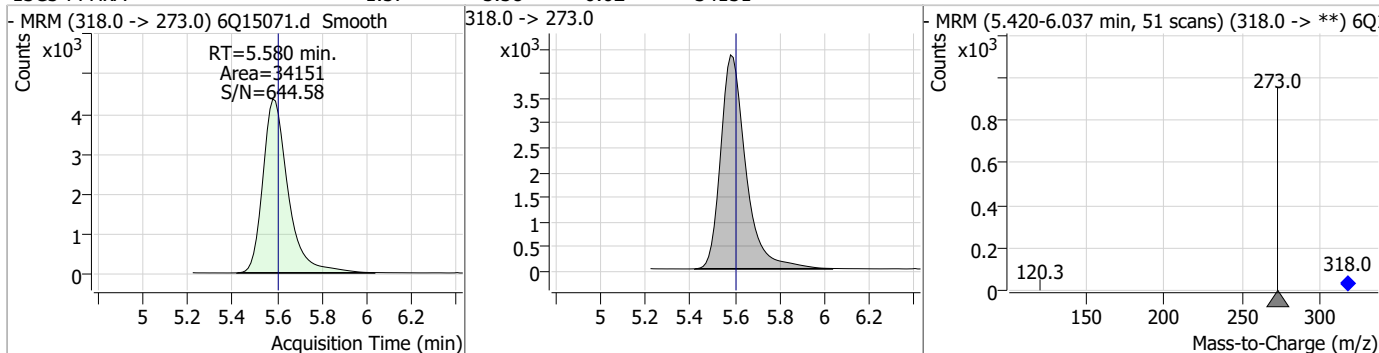
7.4.1
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Perfluorinated Compounds by LC/MS/MS

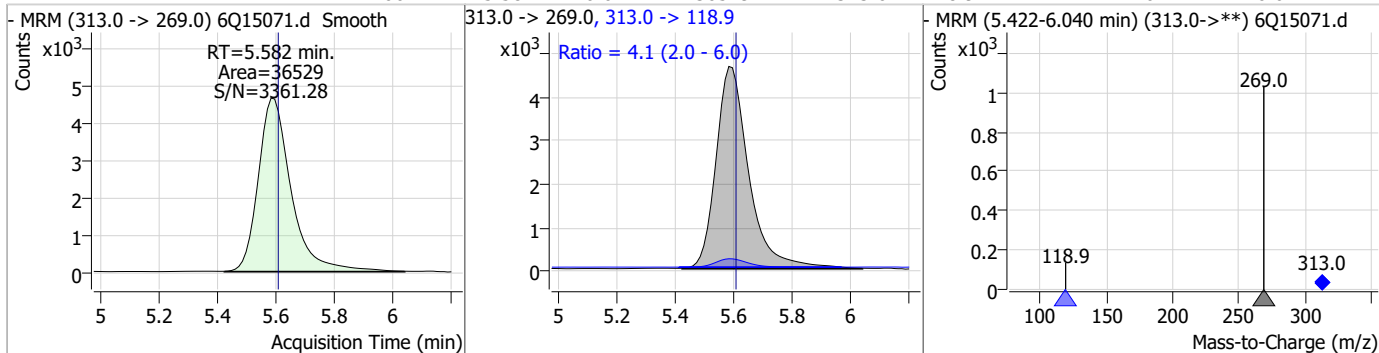
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.25	5.52	-0.02	11824	298.7 -> 98.8	43.8	22.6	67.9



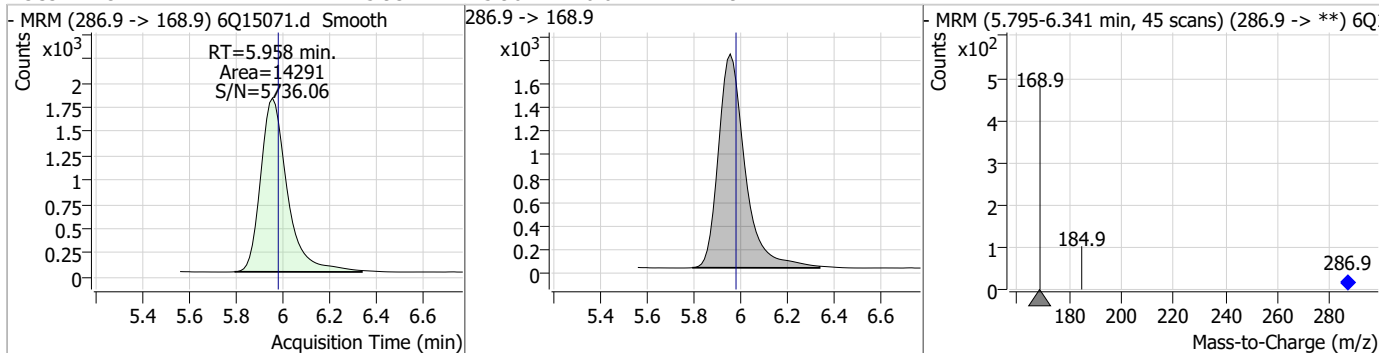
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	1.57	5.58	-0.02	34151	318.0 -> 273.0			



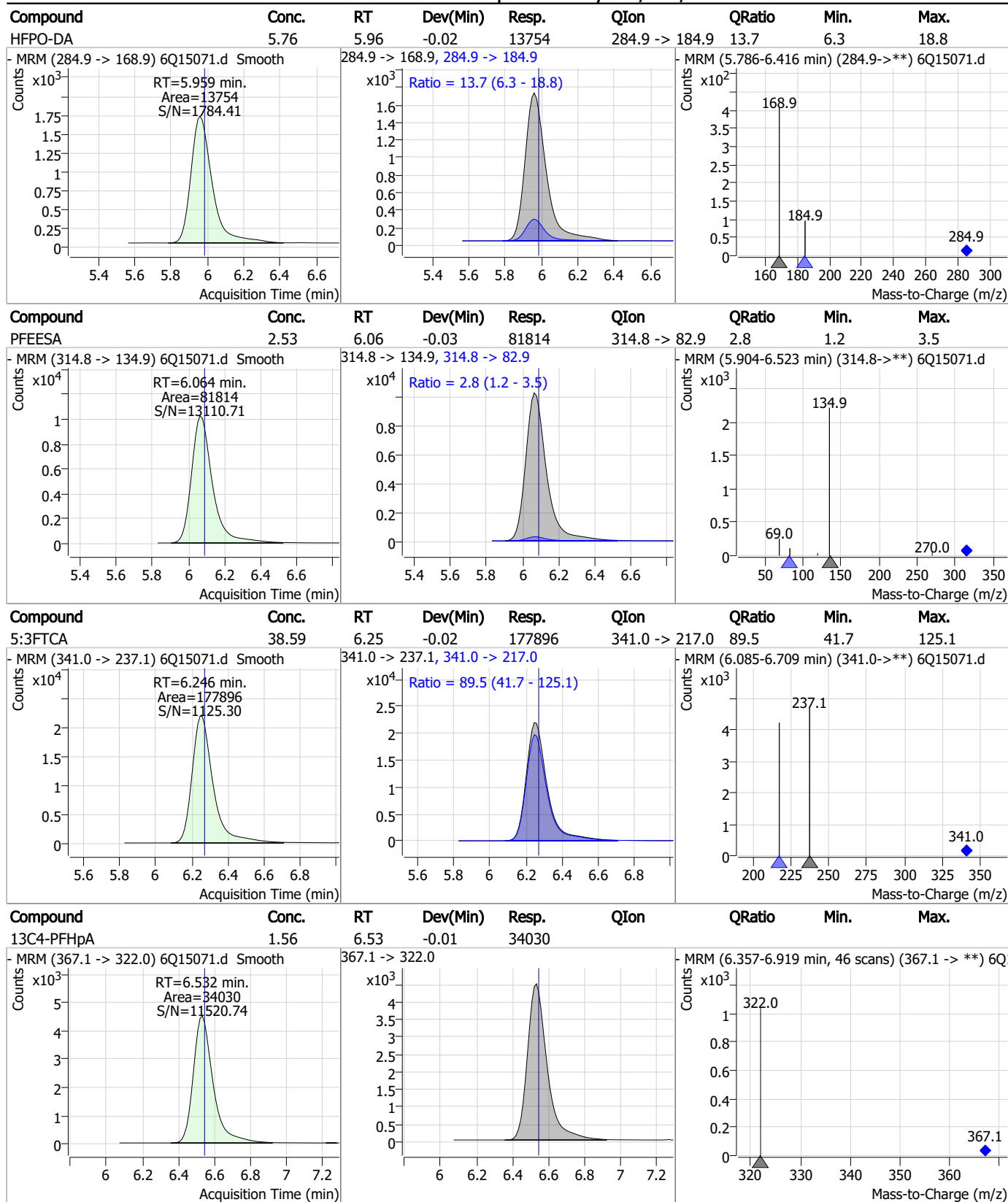
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.60	5.58	-0.02	36529	313.0 -> 118.9	4.1	2.0	6.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	5.93	5.96	-0.02	14291	286.9 -> 168.9			

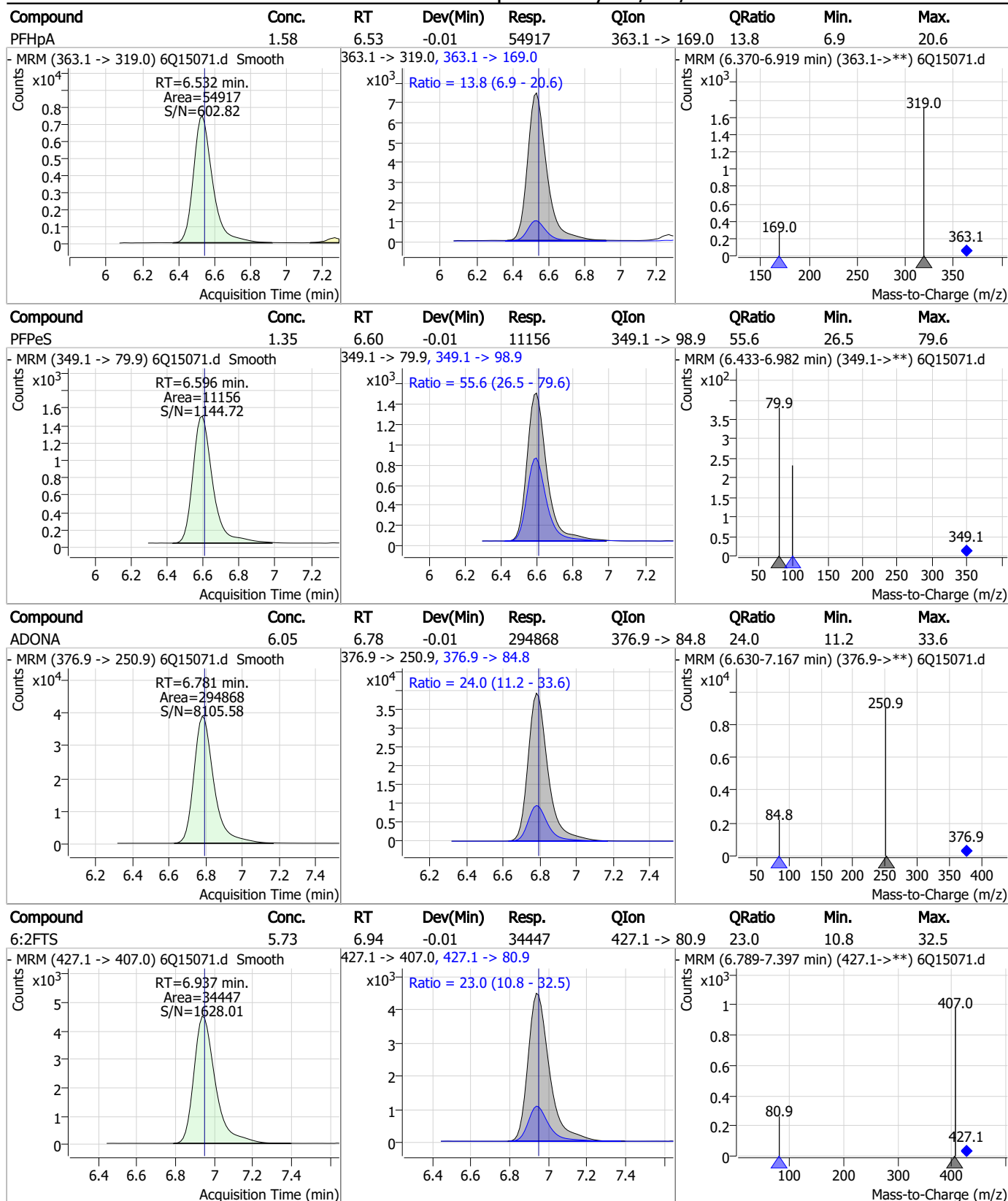


Perfluorinated Compounds by LC/MS/MS



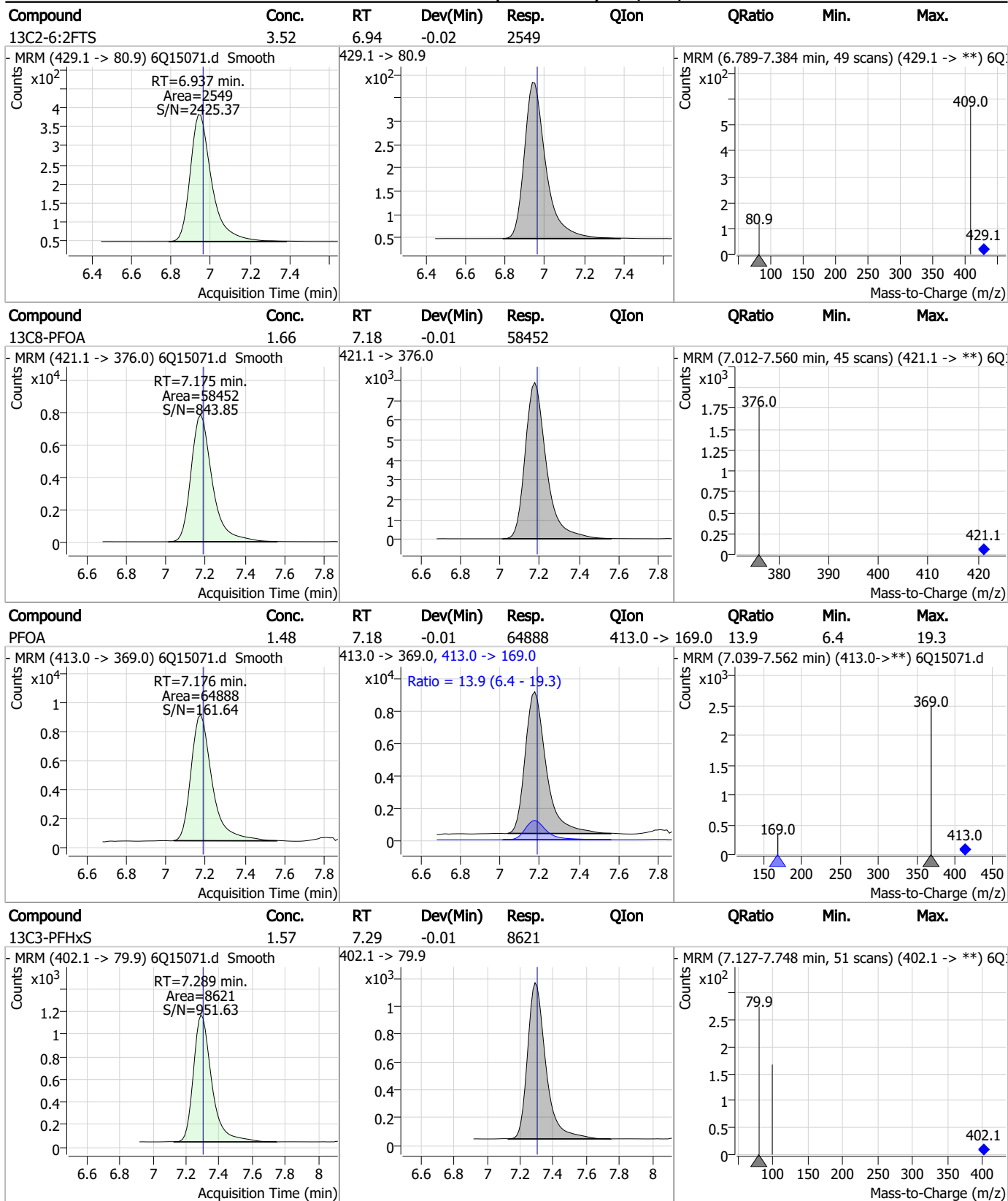
7.4.1
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Perfluorinated Compounds by LC/MS/MS



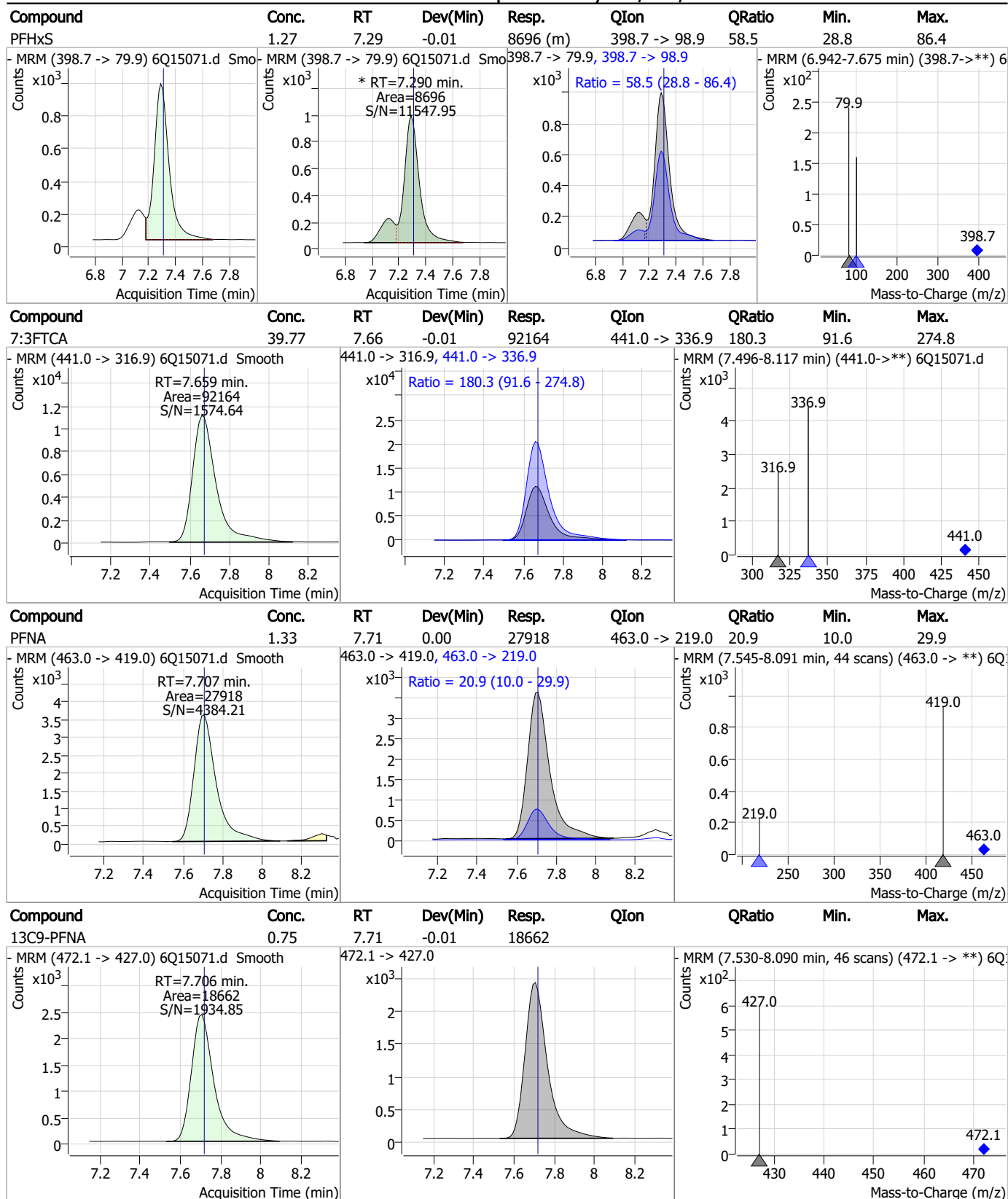
7.4.1
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Perfluorinated Compounds by LC/MS/MS



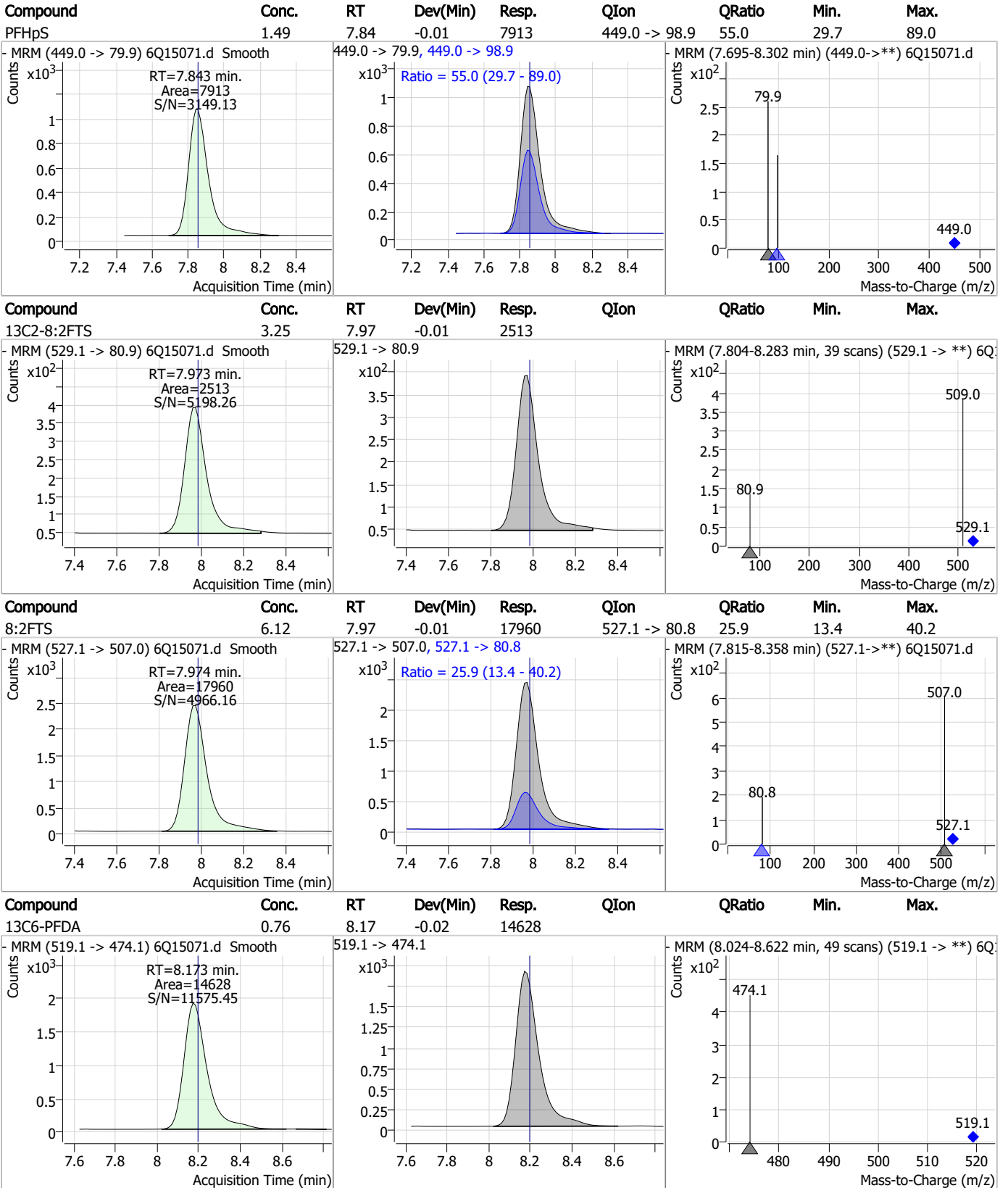
7.4.1
7

Perfluorinated Compounds by LC/MS/MS



7.4.1
7

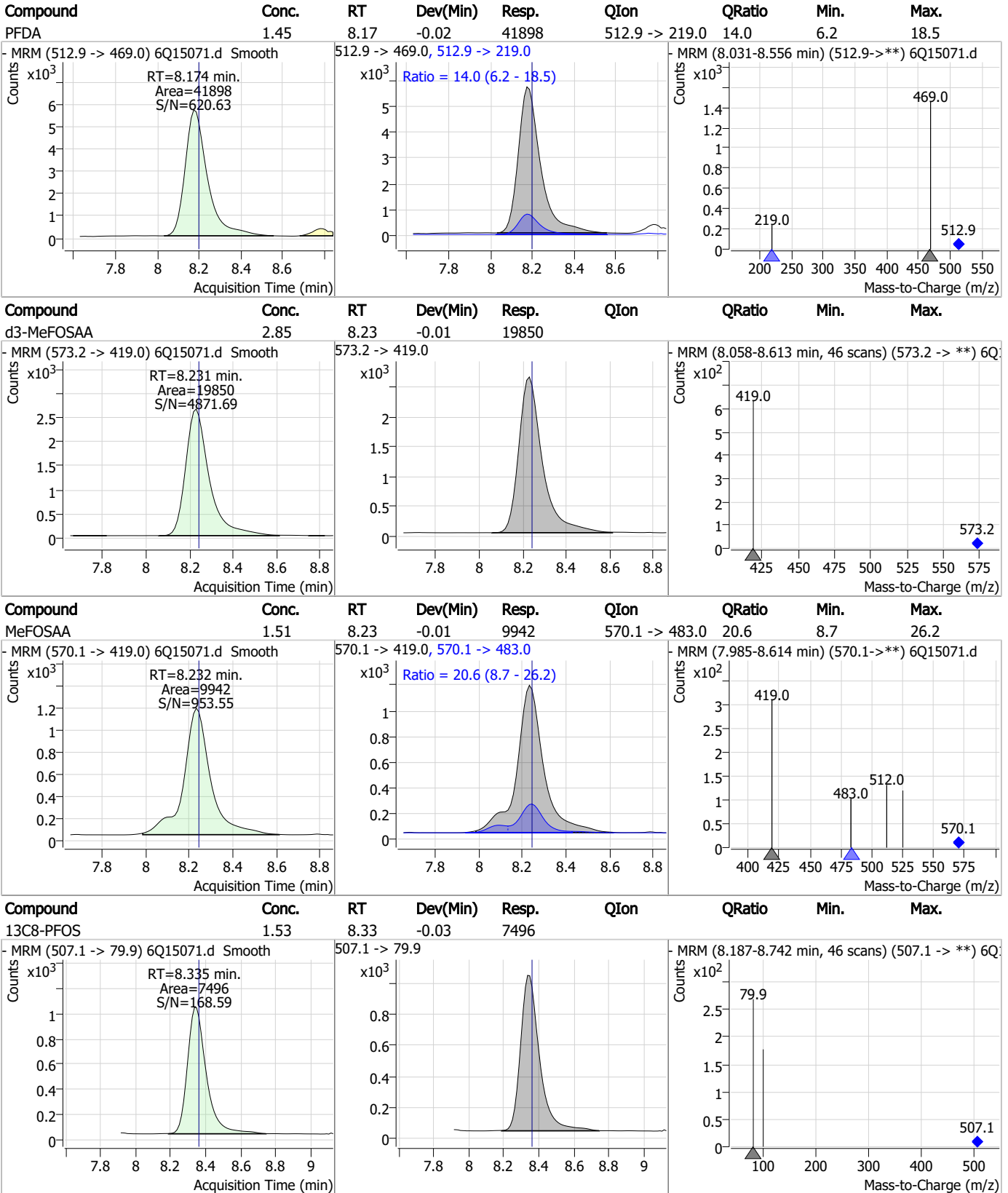
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

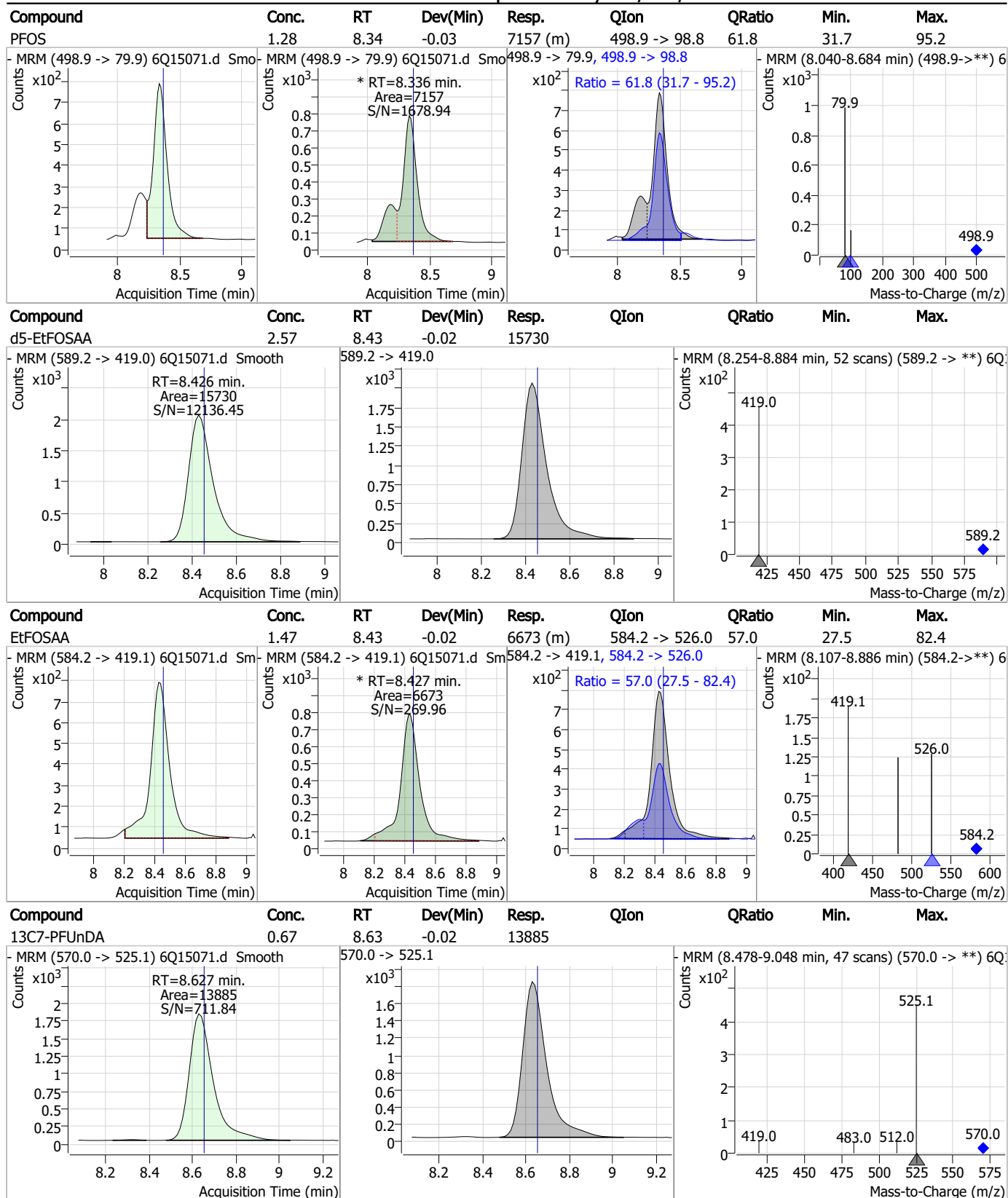
Perfluorinated Compounds by LC/MS/MS



7.4.1

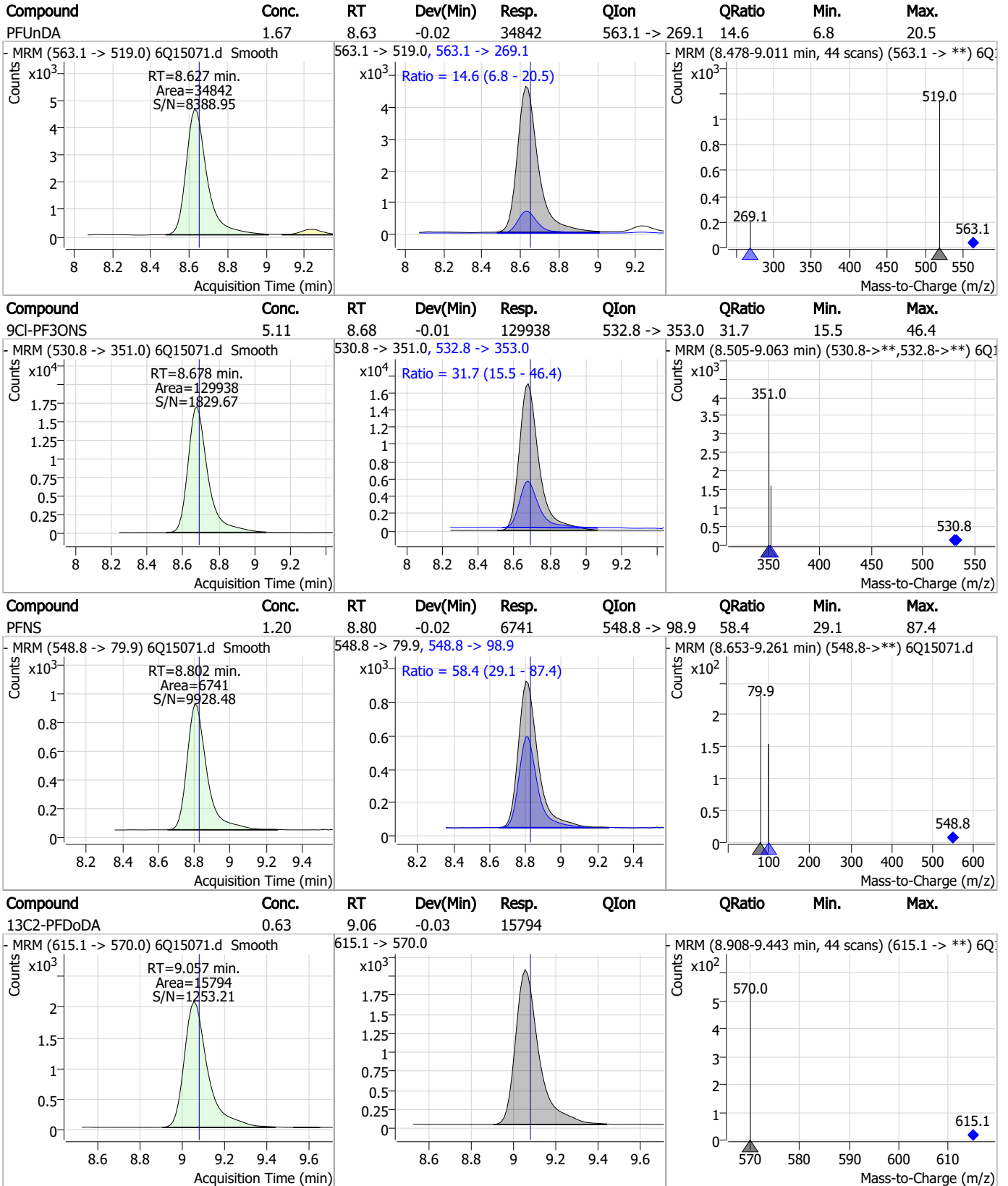
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Perfluorinated Compounds by LC/MS/MS



7.4.1
7

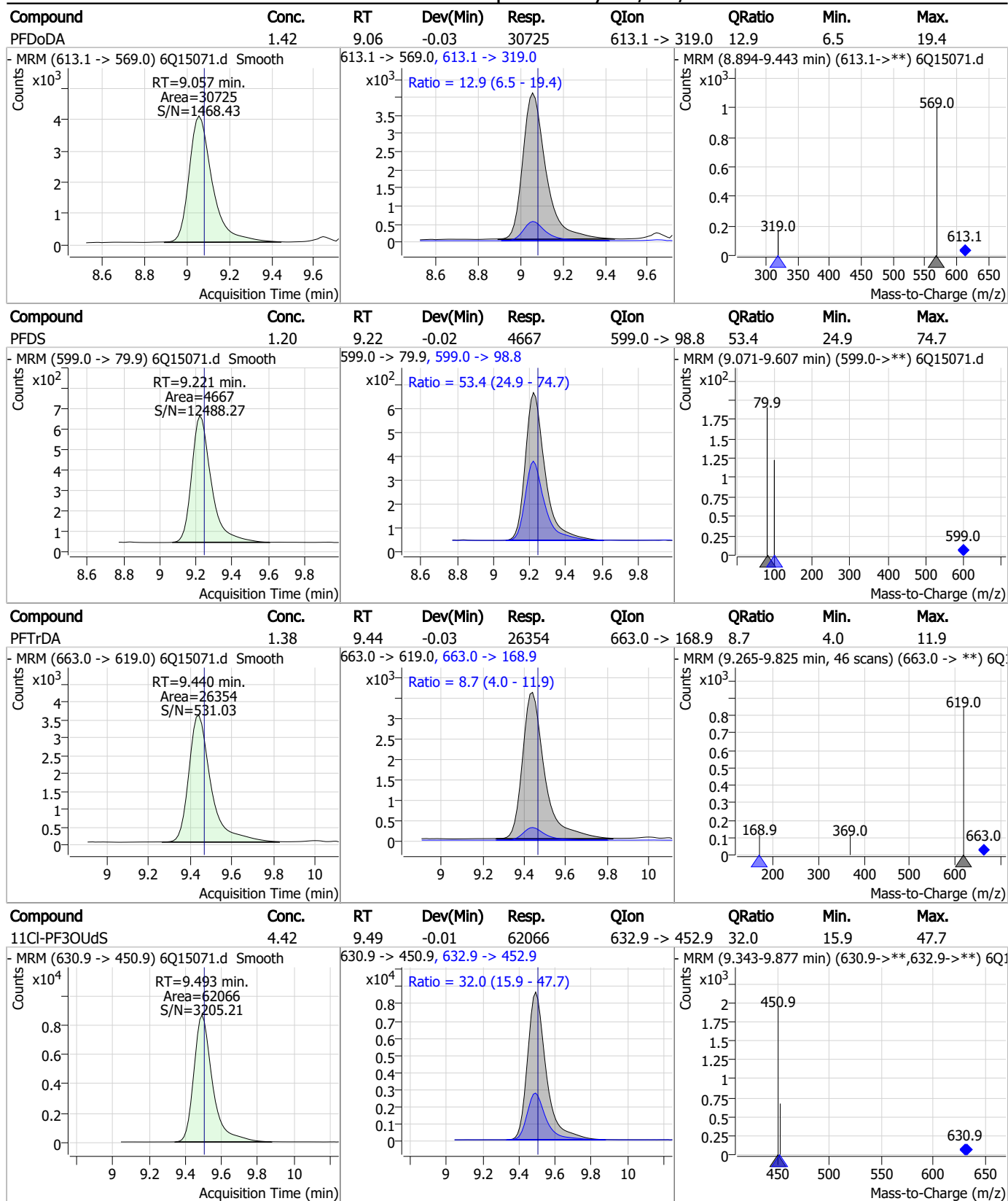
Perfluorinated Compounds by LC/MS/MS



7.4.1

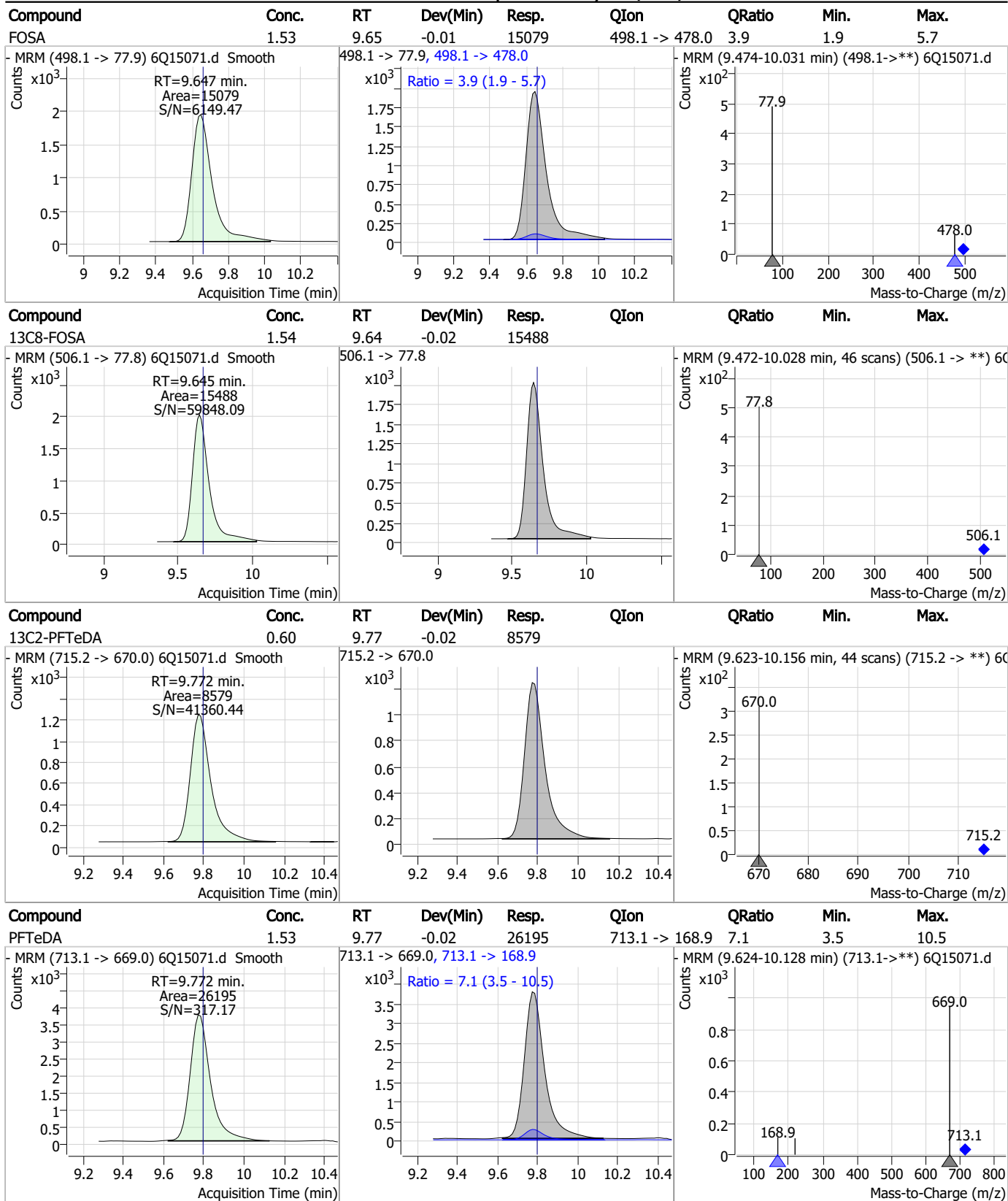
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Perfluorinated Compounds by LC/MS/MS



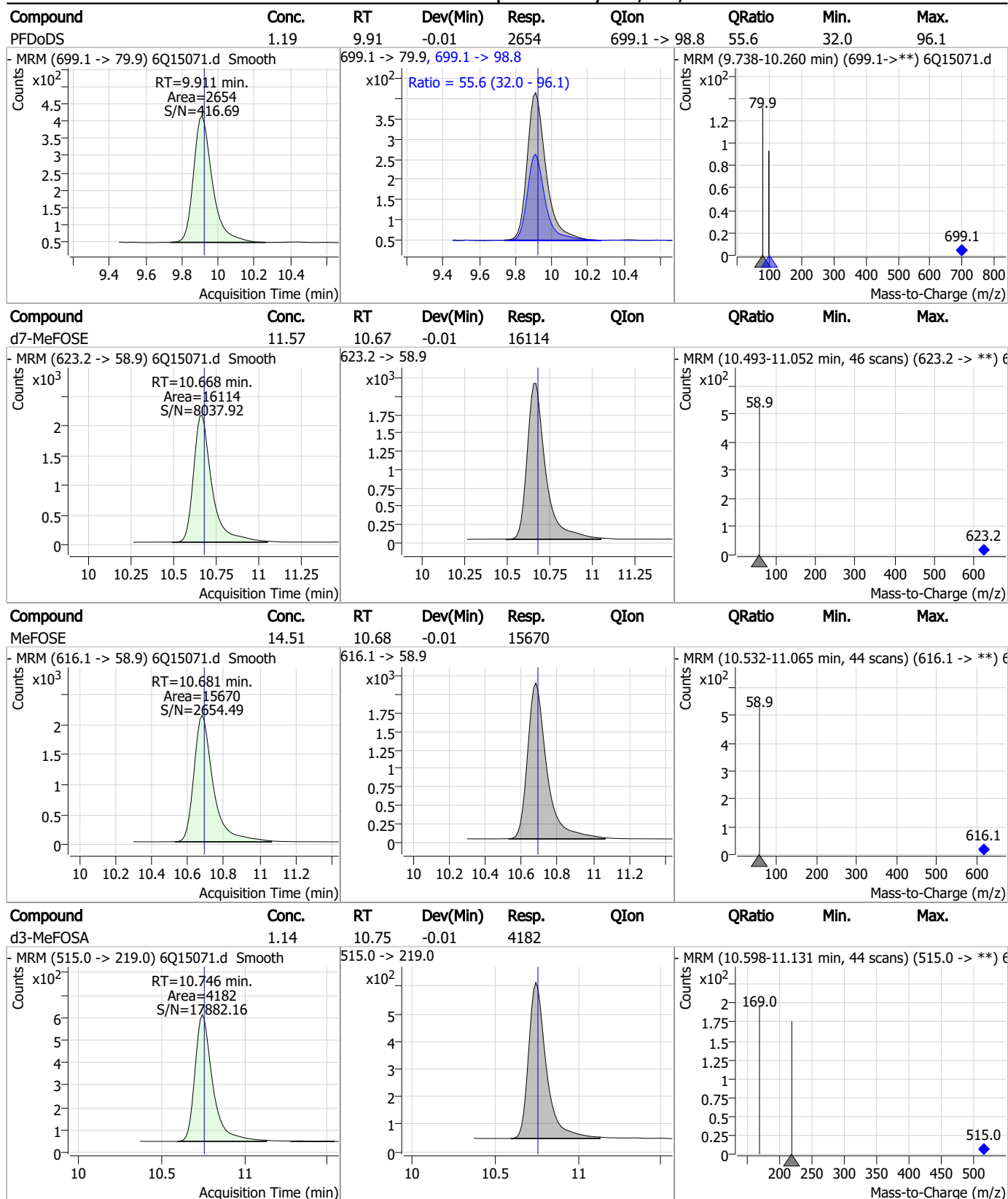
7.4.1
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Perfluorinated Compounds by LC/MS/MS



7.4.1
7

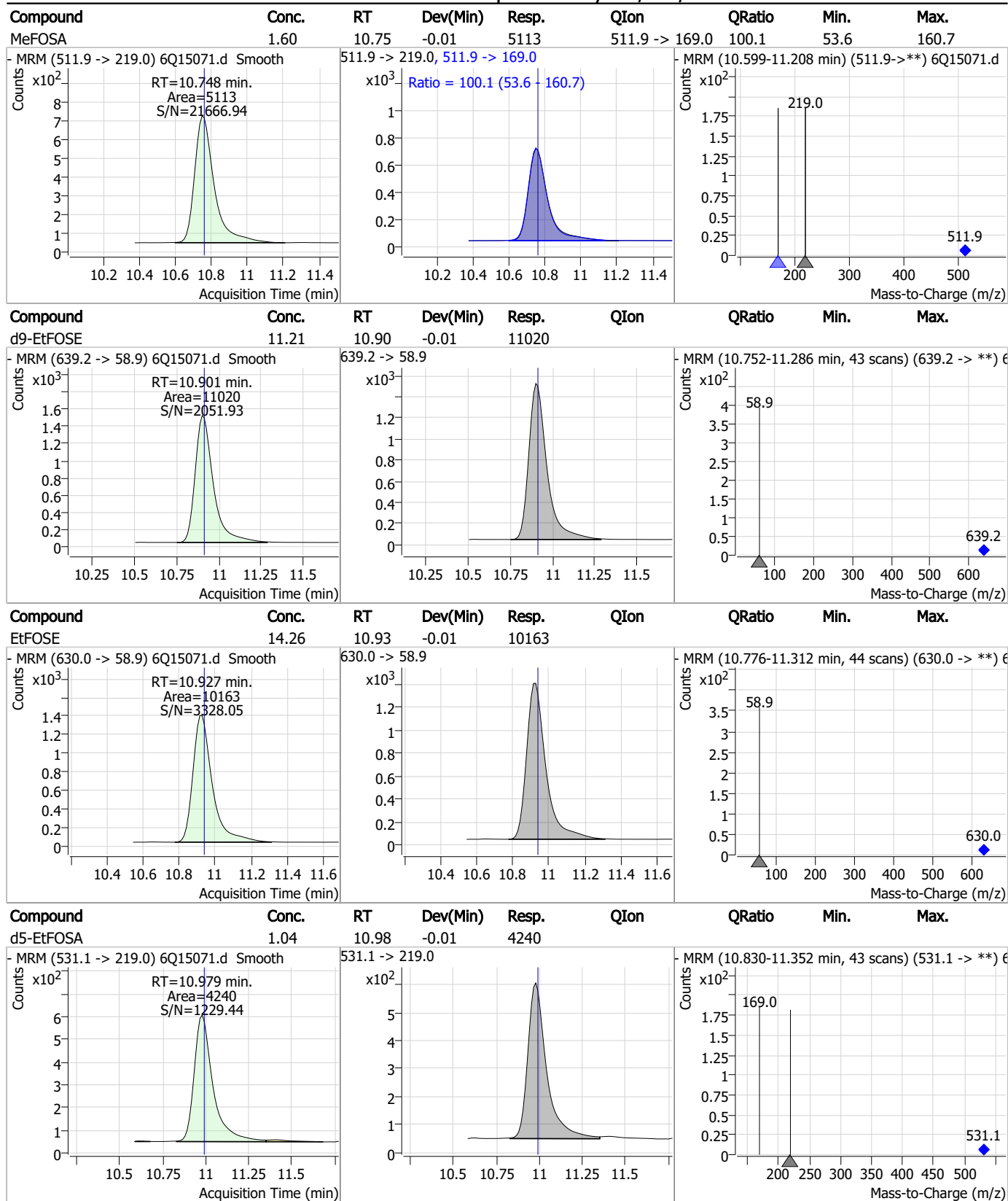
Perfluorinated Compounds by LC/MS/MS



7.4.1
7



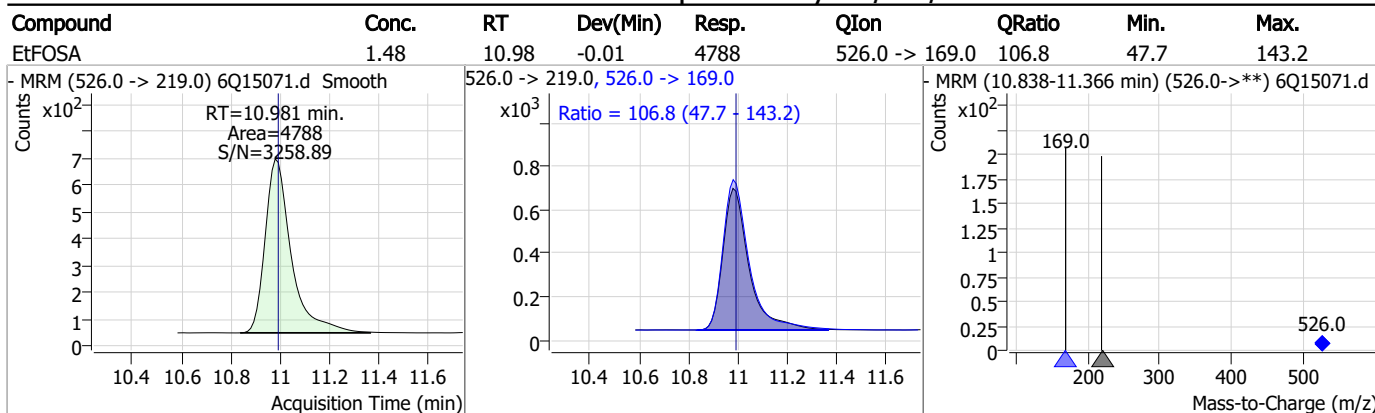
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Perfluorinated Compounds by LC/MS/MS



7.4.1
7



Manual Integration Approval Summary

Sample Number: OP95927-MS Method: EPA DRAFT 1633
Lab FileID: 6Q15071.D Analyst approved: 03/21/23 13:35 Martha Valls
Injection Time: 03/21/23 05:56 Supervisor approved: 03/21/23 16:12 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.43	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15073.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 6:24:48 AM
 Sample Name : op95927-dup
 Vial : P2-F1
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95927,S6Q228,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	60779	10.00 µg/L	0.037
M5-PFPeA	4.382	268.3 -> 223.0	36211	5.00 µg/L	-0.012
M5-PFHxA	5.593	318.0 -> 273.0	31828	2.50 µg/L	-0.012
M4-PFHpA	6.532	367.1 -> 322.0	32294	2.50 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	55234	2.50 µg/L	-0.012
M9-PFNA	7.706	472.1 -> 427.0	16041	1.25 µg/L	-0.012
M6-PFDA	8.173	519.1 -> 474.1	13509	1.25 µg/L	-0.025
M7-PFUnDA	8.627	570.0 -> 525.1	12968	1.25 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	13918	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	7433	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	14360	2.50 µg/L	-0.025
M3-PFBS	5.524	302.1 -> 79.9	12058	2.50 µg/L	-0.025
M3-PFHxS	7.302	402.1 -> 79.9	7903	2.50 µg/L	0.000
M8-PFOS	8.335	507.1 -> 79.9	6301	2.50 µg/L	-0.025
M2-4:2FTS	5.256	329.1 -> 80.9	1792	5.00 µg/L	-0.025
M2-6:2FTS	6.949	429.1 -> 80.9	2307	5.00 µg/L	-0.012
M2-8:2FTS	7.961	529.1 -> 80.9	2311	5.00 µg/L	-0.025
M3-MeFOSAA	8.231	573.2 -> 419.0	18731	5.00 µg/L	-0.012
M3-HFPO-DA	5.971	286.9 -> 168.9	12989	10.00 µg/L	-0.012
M5-EtFOSAA	8.426	589.2 -> 419.0	14375	5.00 µg/L	-0.025
M7-MeFOSE	10.656	623.2 -> 58.9	13583	25.00 µg/L	-0.025
M9-EtFOSE	10.901	639.2 -> 58.9	10068	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	3660	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	3656	2.50 µg/L	-0.012
13C4-PFOS	8.335	502.8 -> 79.9	8994	2.50 µg/L	-0.025
13C3-PFBA	2.989	216.0 -> 172.0	31976	5.00 µg/L	0.037
18O2-PFHxS	7.301	403.0 -> 83.9	5562	2.50 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	64335	2.50 µg/L	-0.012
13C2-PFDA	8.185	515.1 -> 470.1	20155	1.25 µg/L	-0.012
13C5-PFNA	7.706	468.0 -> 423.0	17376	1.25 µg/L	-0.012
13C2-PFHxA	5.594	315.1 -> 270.0	31515	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.256	329.1 -> 80.9	1792	5.62 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.3%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2307	5.58 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C2-8:2FTS	7.961	529.1 -> 80.9	2311	5.25 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-PFDoDA	9.057	615.1 -> 570.0	13918	0.88 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.6%		
13C2-PFTeDA	9.772	715.2 -> 670.0	7433	0.83 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 66.1%		
13C3-PFBS	5.524	302.1 -> 79.9	12058	2.53 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.302	402.1 -> 79.9	7903	2.52 µg/L	0.000

7.5.1
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 = 100.7%	
13C4-PFBA	2.985	216.8 -> 171.9	60779	8.28 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.8%	
13C4-PFHpA	6.532	367.1 -> 322.0	32294	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C5-PFHxA	5.593	318.0 -> 273.0	31828	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.382	268.3 -> 223.0	36211	4.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.173	519.1 -> 474.1	13509	1.12 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.3%	
13C7-PFUnDA	8.627	570.0 -> 525.1	12968	1.00 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 79.7%	
13C8-FOSA	9.645	506.1 -> 77.8	14360	2.30 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C8-PFOA	7.175	421.1 -> 376.0	55234	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C8-PFOS	8.335	507.1 -> 79.9	6301	2.06 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.6%	
13C9-PFNA	7.706	472.1 -> 427.0	16041	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.8%	
d3-MeFOSAA	8.231	573.2 -> 419.0	18731	4.34 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.7%	
13C3-HFPO-DA	5.971	286.9 -> 168.9	12989	9.12 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.2%	
d3-MeFOSA	10.746	515.0 -> 219.0	3656	1.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 64.1%	
d5-EtFOSAA	8.426	589.2 -> 419.0	14375	3.78 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 75.7%	
d7-MeFOSE	10.656	623.2 -> 58.9	13583	15.70 µg/L	-0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 62.8%	
d9-EtFOSE	10.901	639.2 -> 58.9	10068	16.48 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 65.9%	
d5-EtFOSA	10.979	531.1 -> 219.0	3660	1.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 58.0%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.937	427.1 -> 407.0	628	0.18 µg/L	98
		427.1 -> 80.9	142		
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	8.791	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.5.1
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	5.595	449.0 -> 98.9	1743	0.13	µg/L	96
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	46	N.D.		
		398.7 -> 79.9				
PFNA	8.313	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	4.385	498.9 -> 98.8	3596	0.42	µg/L	100
		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	9.235	563.1 -> 519.0	0	µg/L	m	1
		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

7.5.1
7

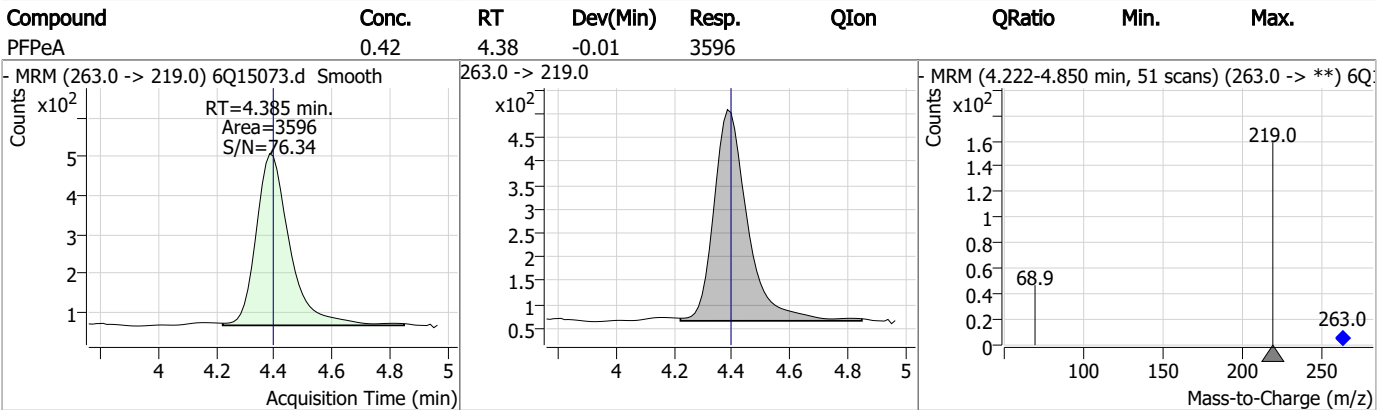
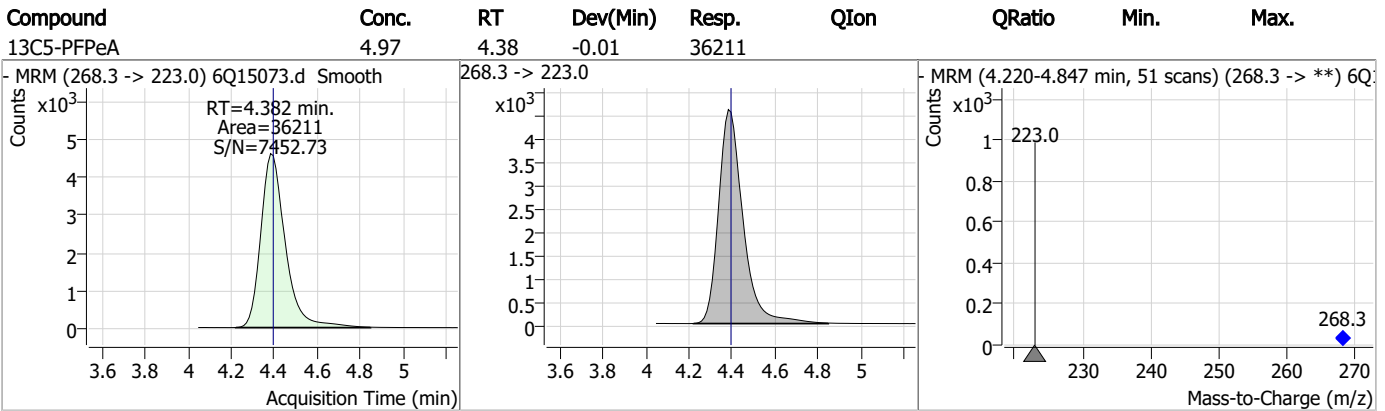
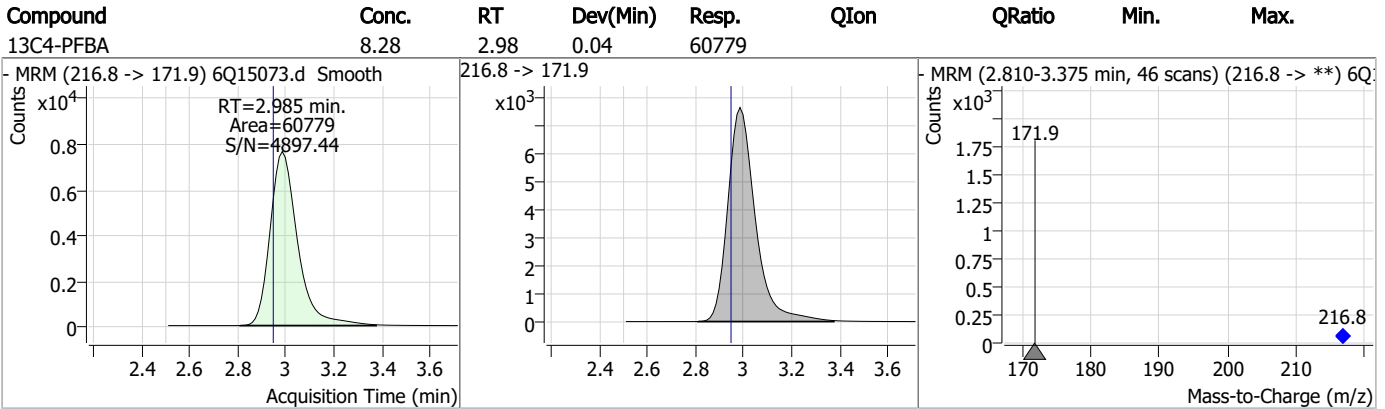
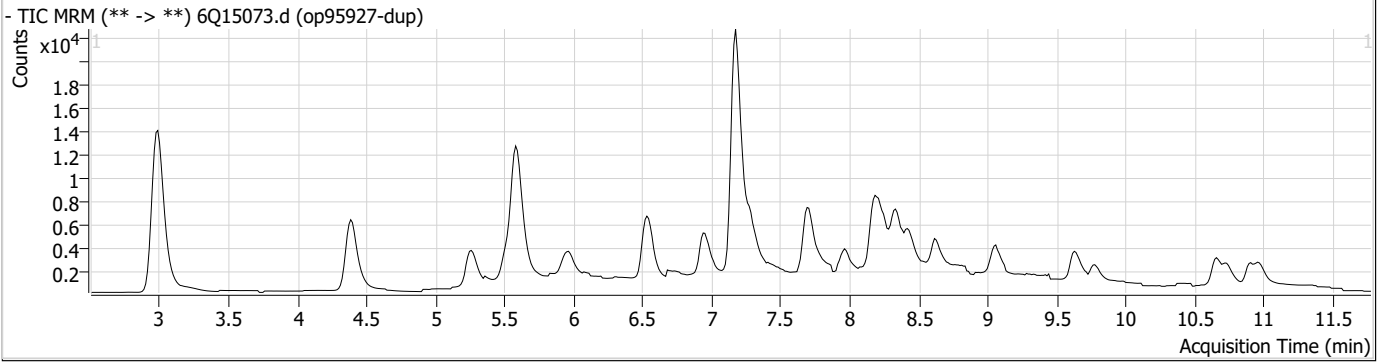
Perfluorinated Compounds by LC/MS/MS

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

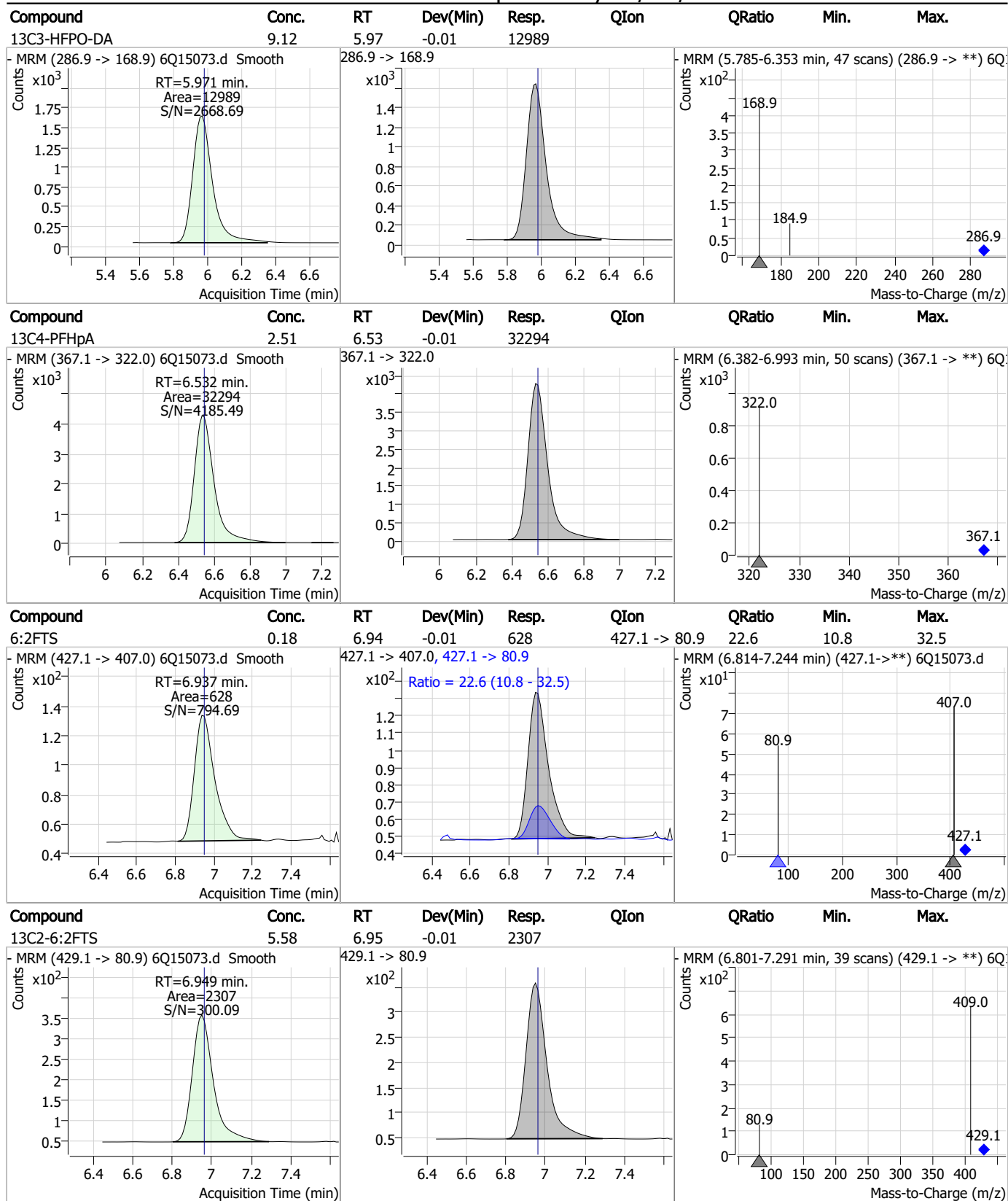


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.62	5.26	-0.02	1792				
13C3-PFBS	2.53	5.52	-0.02	12058				
13C5-PFHxA	2.48	5.59	-0.01	31828				
PFHxA	0.13	5.59	-0.01	1743	313.0 -> 118.9	2.7	2.0	6.0

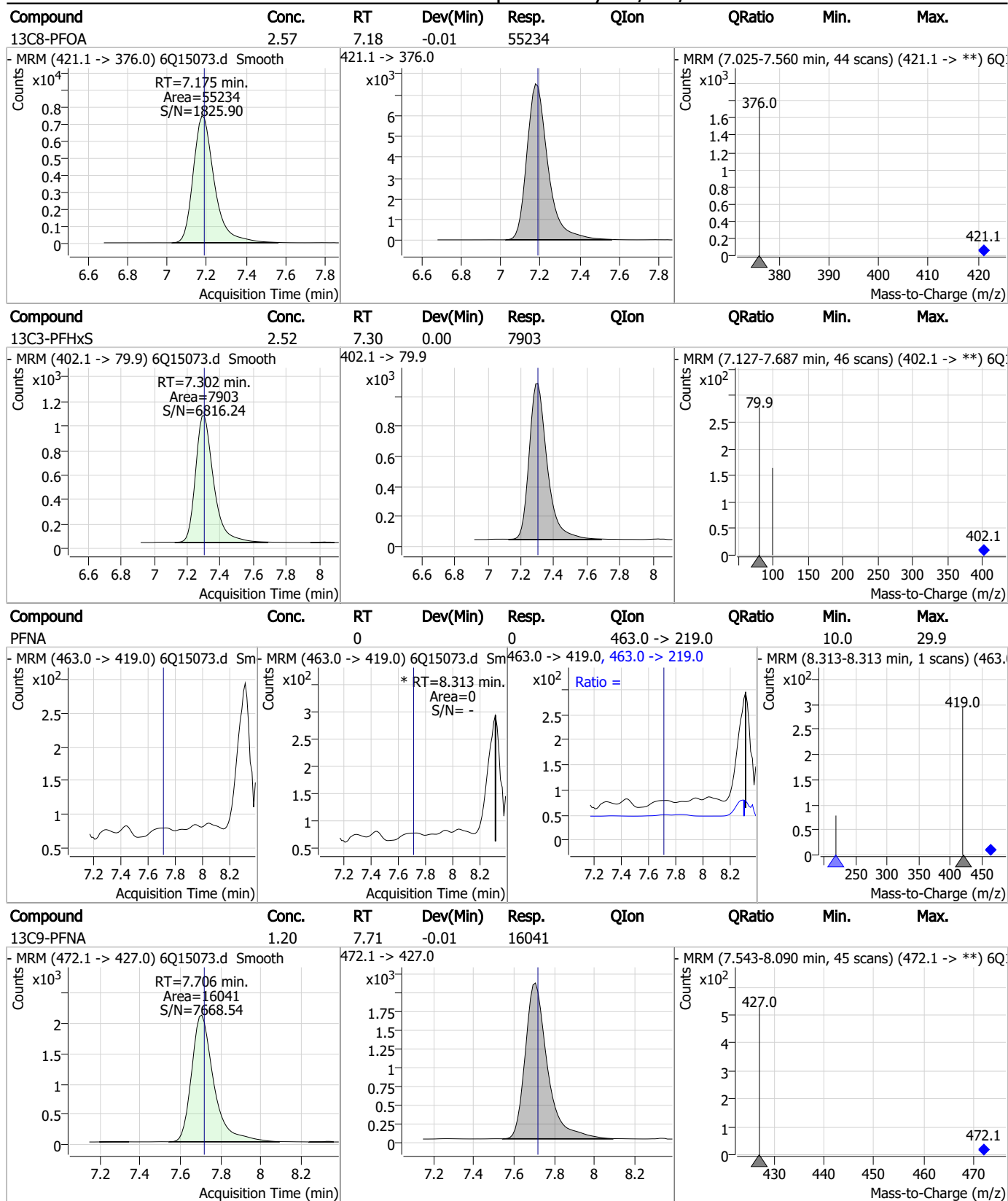
7.5.1
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Perfluorinated Compounds by LC/MS/MS



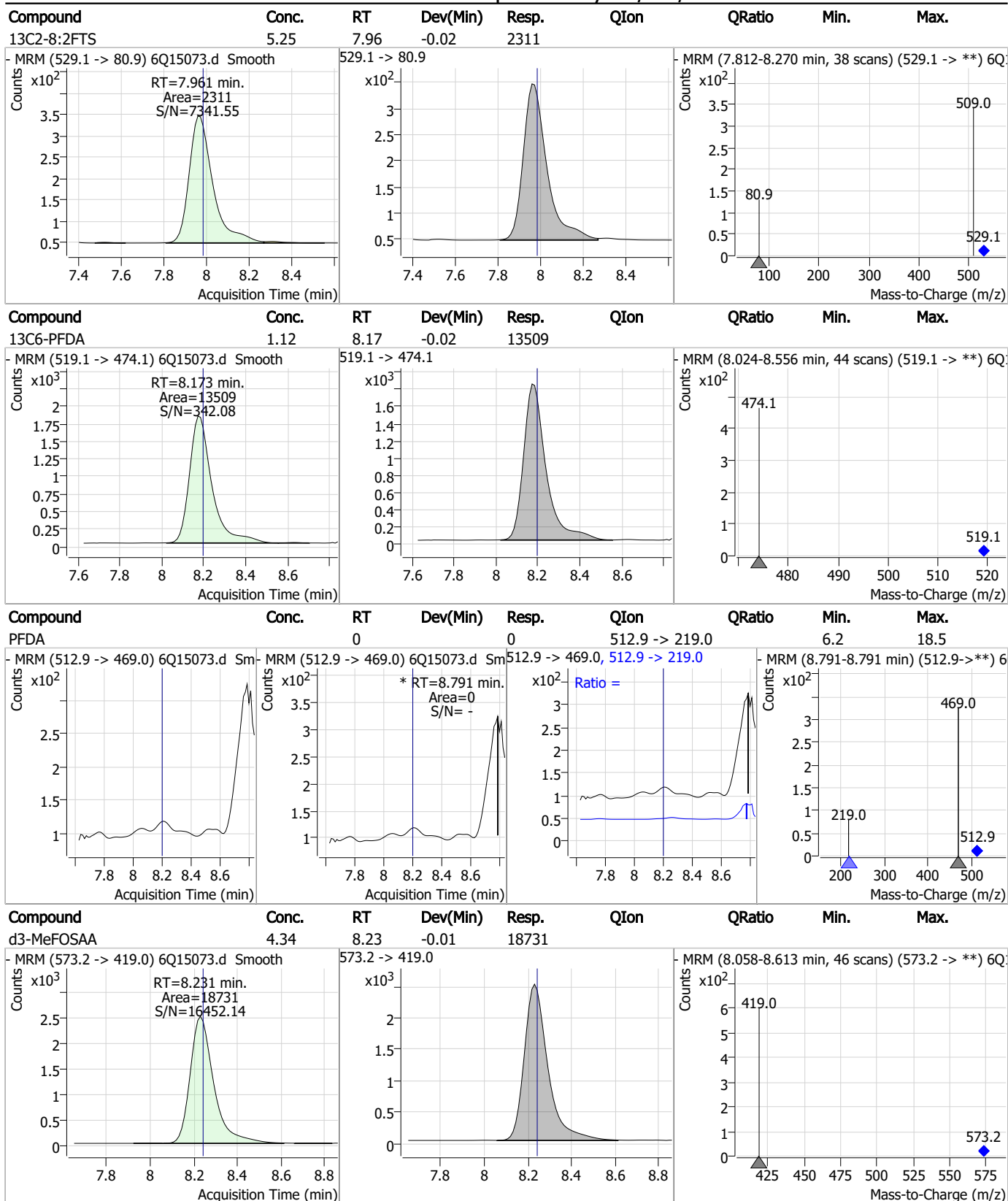
7.5.1
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Perfluorinated Compounds by LC/MS/MS



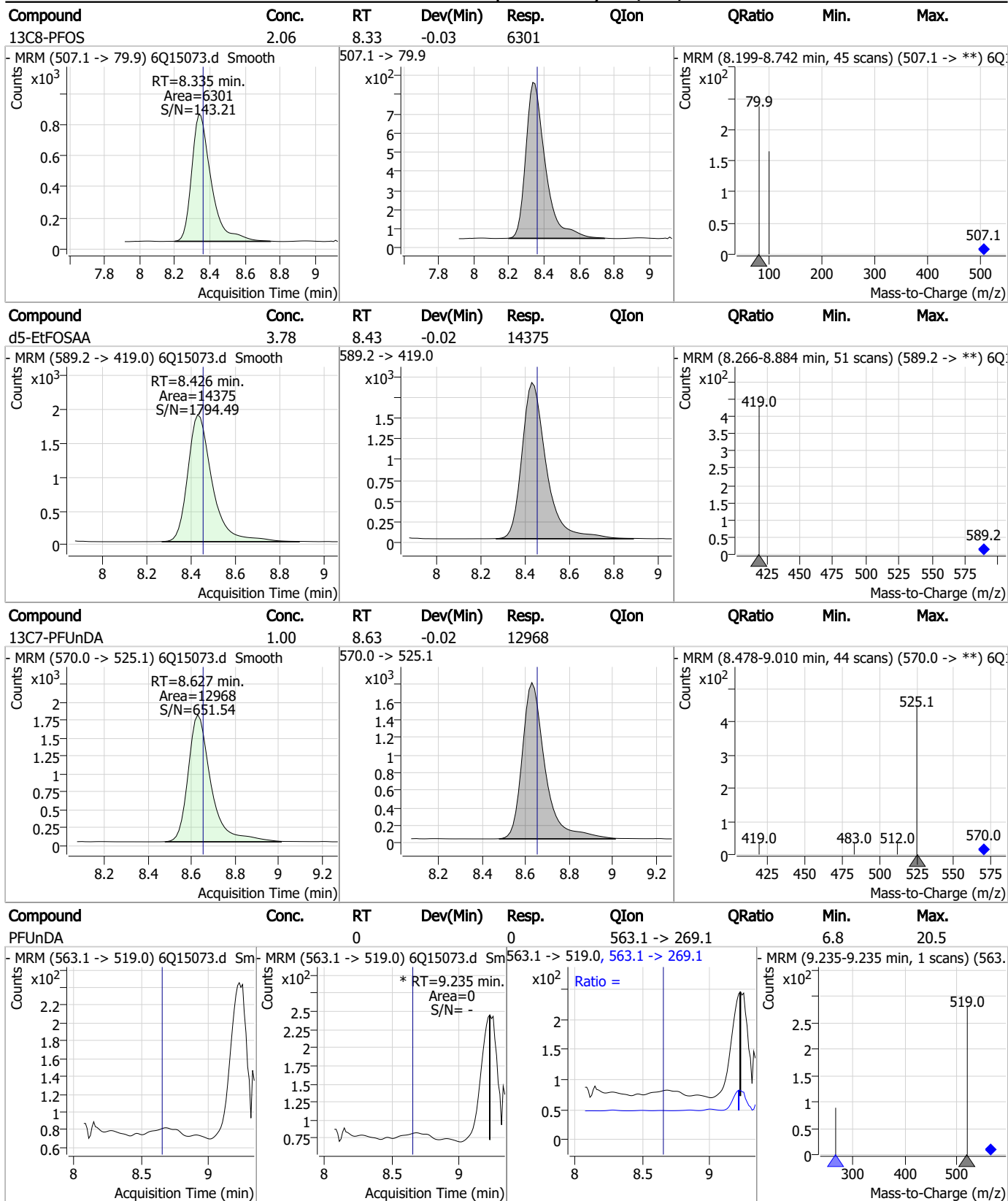
7.5.1
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Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Perfluorinated Compounds by LC/MS/MS



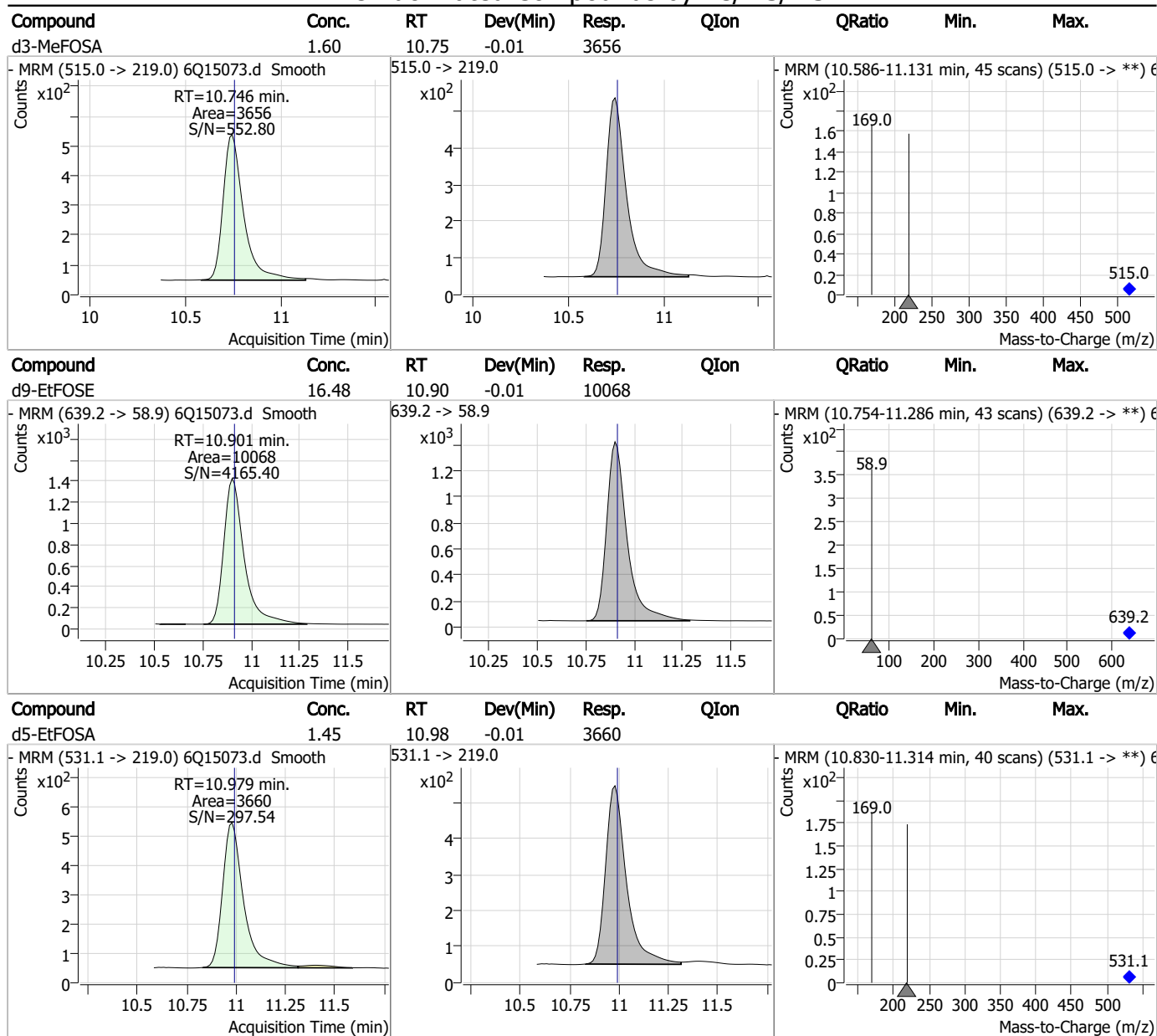
7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	0.88	9.06	-0.03	13918				
13C8-FOSA	2.30	9.64	-0.02	14360				
13C2-PFTeDA	0.83	9.77	-0.02	7433				
d7-MeFOSE	15.70	10.66	-0.02	13583				

7.5.1
7

Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 03/16/23 16:23

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14847.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 9:04:15 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q225 TDCA.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

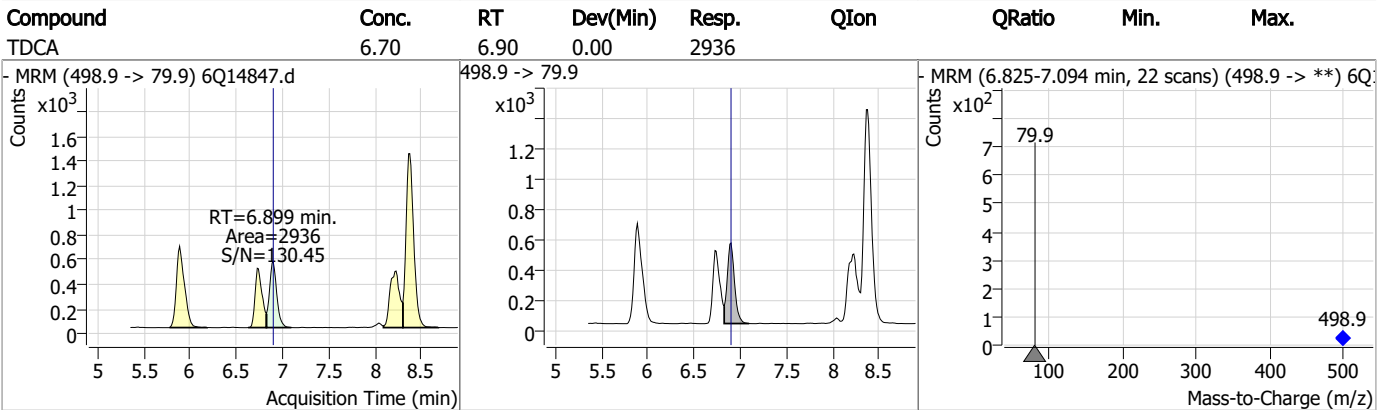
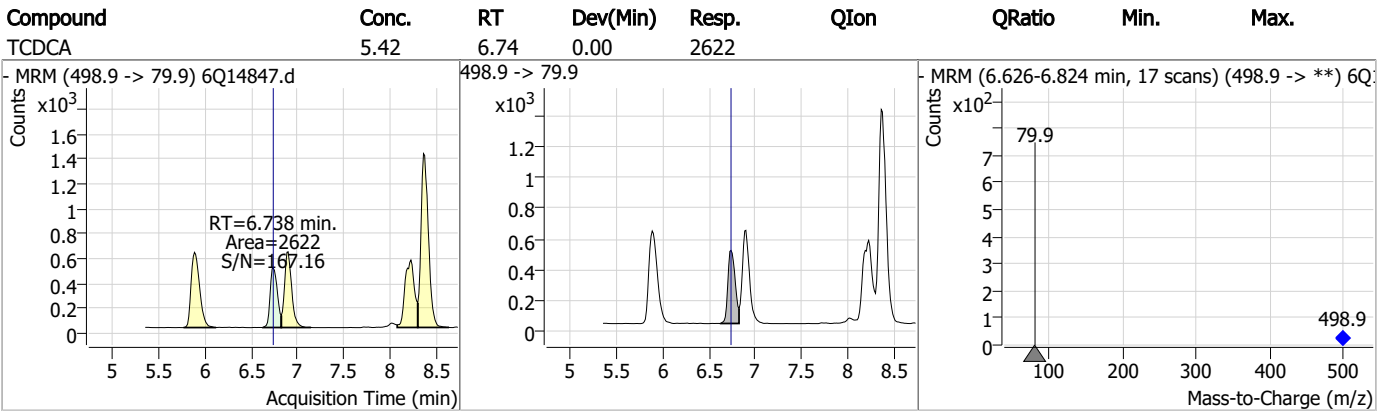
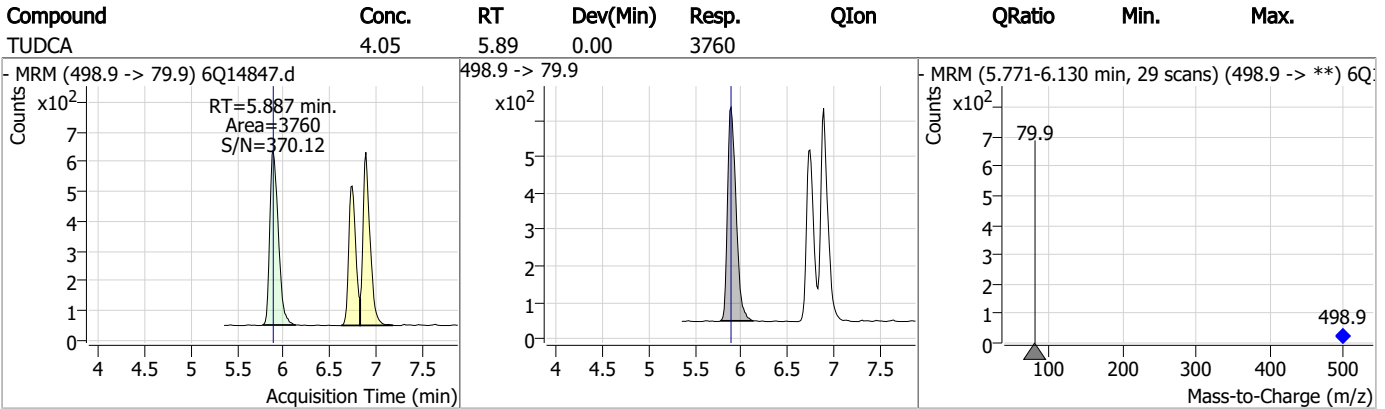
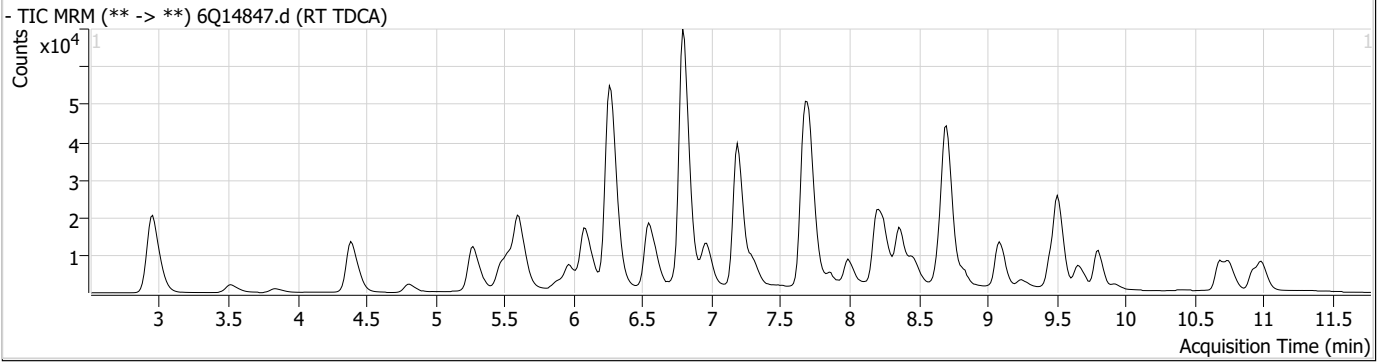
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.372	507.1 -> 79.9	10480	2.50	µg/L	0.000	
13C4-PFOS	8.373	502.8 -> 79.9	12932	2.50	µg/L	0.000	
System Monitoring Compounds							
13C8-PFOS	8.372	507.1 -> 79.9	10480	2.06	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 82.2%				
Target Compounds							
PFOS	8.374	498.9 -> 79.9 498.9 -> 98.8	10963 6517	3.06	µg/L	m	80
TCDCa	6.738	498.9 -> 79.9	2622	5.42	ng/ml		100
TDCA	6.899	498.9 -> 79.9	2936	6.70	ng/ml		100
TUDCA	5.887	498.9 -> 79.9	3760	4.05	ng/ml		100

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

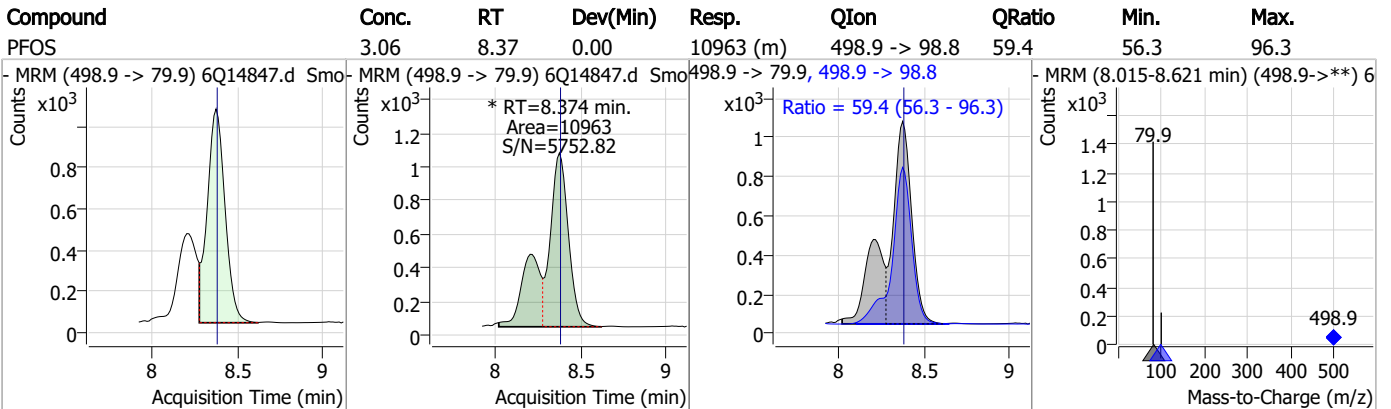
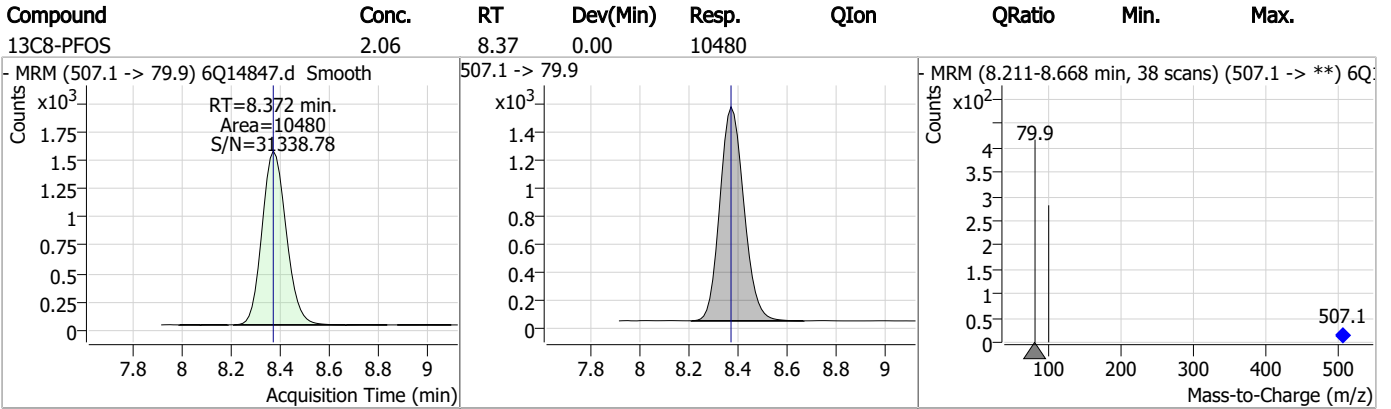
7.6.1

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.1
7



Manual Integration Approval Summary

Sample Number: S6Q225-RT Method: EPA DRAFT 1633
Lab FileID: 6Q14847.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 21:04 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak

7.6.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14848.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 9:18:14 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.947	216.8 -> 171.9	71646	10.00 µg/L	0.000
M5-PFPeA	4.395	268.3 -> 223.0	34791	5.00 µg/L	0.000
M5-PFHxA	5.605	318.0 -> 273.0	30400	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	31894	2.50 µg/L	0.000
M8-PFOA	7.187	421.1 -> 376.0	53403	2.50 µg/L	0.000
M9-PFNA	7.718	472.1 -> 427.0	15870	1.25 µg/L	0.000
M6-PFDA	8.197	519.1 -> 474.1	14541	1.25 µg/L	0.000
M7-PFUnDA	8.664	570.0 -> 525.1	14598	1.25 µg/L	0.012
M2-PFDoDA	9.094	615.1 -> 570.0	18195	1.25 µg/L	0.012
M2-PFTeDA	9.797	715.2 -> 670.0	10643	1.25 µg/L	0.000
M8-FOSA	9.669	506.1 -> 77.8	15498	2.50 µg/L	0.000
M3-PFBS	5.536	302.1 -> 79.9	12131	2.50 µg/L	-0.012
M3-PFHxS	7.302	402.1 -> 79.9	7735	2.50 µg/L	0.000
M8-PFOS	8.372	507.1 -> 79.9	7211	2.50 µg/L	0.012
M2-4:2FTS	5.268	329.1 -> 80.9	1542	5.00 µg/L	-0.012
M2-6:2FTS	6.949	429.1 -> 80.9	1993	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	1990	5.00 µg/L	0.000
M3-MeFOSAA	8.255	573.2 -> 419.0	19531	5.00 µg/L	0.012
M3-HFPO-DA	5.971	286.9 -> 168.9	13271	10.00 µg/L	-0.012
M5-EtFOSAA	8.451	589.2 -> 419.0	19271	5.00 µg/L	0.000
M7-MeFOSE	10.680	623.2 -> 58.9	20731	25.00 µg/L	0.000
M9-EtFOSE	10.926	639.2 -> 58.9	15016	25.00 µg/L	0.012
M5-EtFOSA	10.991	531.1 -> 219.0	6128	2.50 µg/L	0.000
M3-MeFOSA	10.771	515.0 -> 219.0	5706	2.50 µg/L	0.012
13C4-PFOS	8.373	502.8 -> 79.9	7632	2.50 µg/L	0.012
13C3-PFBA	2.952	216.0 -> 172.0	30908	5.00 µg/L	0.000
18O2-PFHxS	7.301	403.0 -> 83.9	5830	2.50 µg/L	-0.012
13C4-PFOA	7.188	417.1 -> 372.0	58957	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	18429	1.25 µg/L	0.000
13C5-PFNA	7.718	468.0 -> 423.0	16819	1.25 µg/L	0.000
13C2-PFHxA	5.606	315.1 -> 270.0	30086	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.268	329.1 -> 80.9	1542	4.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C2-6:2FTS	6.949	429.1 -> 80.9	1993	4.60 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C2-8:2FTS	7.986	529.1 -> 80.9	1990	4.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.2%		
13C2-PFDoDA	9.094	615.1 -> 570.0	18195	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFTeDA	9.797	715.2 -> 670.0	10643	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C3-PFBS	5.536	302.1 -> 79.9	12131	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C3-PFHxS	7.302	402.1 -> 79.9	7735	2.35 µg/L	0.000

7.6.2

7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C4-PFBA	2.947	216.8 -> 171.9	71646	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.544	367.1 -> 322.0	31894	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C5-PFHxA	5.605	318.0 -> 273.0	30400	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.395	268.3 -> 223.0	34791	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C6-PFDA	8.197	519.1 -> 474.1	14541	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C7-PFUnDA	8.664	570.0 -> 525.1	14598	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-FOSA	9.669	506.1 -> 77.8	15498	2.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.1%	
13C8-PFOA	7.187	421.1 -> 376.0	53403	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C8-PFOS	8.372	507.1 -> 79.9	7211	2.78 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.4%	
13C9-PFNA	7.718	472.1 -> 427.0	15870	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.9%	
d3-MeFOSAA	8.255	573.2 -> 419.0	19531	5.33 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C3-HFPO-DA	5.971	286.9 -> 168.9	13271	9.76 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
d3-MeFOSA	10.771	515.0 -> 219.0	5706	2.95 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 117.8%	
d5-EtFOSAA	8.451	589.2 -> 419.0	19271	5.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.6%	
d7-MeFOSE	10.680	623.2 -> 58.9	20731	28.24 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 112.9%	
d9-EtFOSE	10.926	639.2 -> 58.9	15016	28.97 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 115.9%	
d5-EtFOSA	10.991	531.1 -> 219.0	6128	2.86 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.5%	
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	171173	48.00 µg/L	95
		327.1 -> 80.9	38783		
6:2FTS	6.950	427.1 -> 407.0	143524	48.48 µg/L	100
		427.1 -> 80.9	30724		
8:2FTS	7.986	527.1 -> 507.0	75718	51.75 µg/L	99
		527.1 -> 80.8	19829		
EtFOSAA	8.464	584.2 -> 419.1	39601	11.31 µg/L	m 99
		584.2 -> 526.0	21483		
FOSA	9.672	498.1 -> 77.9	174538	28.18 µg/L	100
		498.1 -> 478.0	6807		
MeFOSAA	8.256	570.1 -> 419.0	57189	13.99 µg/L	100
		570.1 -> 483.0	10055		
PFBA	2.956	212.8 -> 168.9	100887	51.60 µg/L	100
PFBS	5.537	298.7 -> 79.9	59094	11.06 µg/L	99
		298.7 -> 98.8	26330		
PFDA	8.198	512.9 -> 469.0	209009	11.58 µg/L	93
		512.9 -> 219.0	31558		
PFDoDA	9.094	613.1 -> 569.0	206944	13.20 µg/L	98
		613.1 -> 319.0	25245		
PFDS	9.258	599.0 -> 79.9	27532	11.67 µg/L	93

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.544	599.0 -> 98.8	14965	12.05	µg/L	98
		363.1 -> 319.0	247796			
PFHpS	7.868	363.1 -> 169.0	35818	11.68	µg/L	95
		449.0 -> 79.9	37538			
PFHxA	5.607	449.0 -> 98.9	20988	12.94	µg/L	100
		313.0 -> 269.0	165826			
PFHxS	7.303	313.0 -> 118.9	6746	11.19	µg/L	98
		398.7 -> 79.9	43232			
PFNA	7.581	398.7 -> 98.9	24131	26.35	µg/L	99
		463.0 -> 419.0	296432			
PFNS	8.839	463.0 -> 219.0	60915	11.90	µg/L	97
		548.8 -> 79.9	40576			
PFOA	7.189	548.8 -> 98.9	22846	26.79	µg/L	97
		413.0 -> 369.0	677266			
PFOS	8.361	413.0 -> 169.0	94126	11.88	µg/L	96
		498.9 -> 79.9	40137			
PFPeA	4.397	498.9 -> 98.8	24111	25.52	µg/L	100
		263.0 -> 219.0	211368			
PFPeS	6.609	349.1 -> 79.9	54401	11.66	µg/L	98
		349.1 -> 98.9	28176			
PFTeDA	9.797	713.1 -> 669.0	176077	13.17	µg/L	99
		713.1 -> 168.9	11599			
PFTrDA	9.466	663.0 -> 619.0	179159	12.90	µg/L	100
		663.0 -> 168.9	13897			
PFUnDA	8.652	563.1 -> 519.0	182917	13.24	µg/L	96
		563.1 -> 269.1	28340			
11CI-PF3OUdS	9.517	630.9 -> 450.9	407030	49.57	µg/L	97
		632.9 -> 452.9	122622			
9CI-PF3ONS	8.703	530.8 -> 351.0	716827	48.17	µg/L	100
		532.8 -> 353.0	220759			
ADONA	6.794	376.9 -> 250.9	1355289	47.55	µg/L	98
		376.9 -> 84.8	314537			
HFPO-DA	5.971	284.9 -> 168.9	72887	52.19	µg/L	98
		284.9 -> 184.9	8453			
3:3FTCA	3.851	241.0 -> 177.0	26417	63.77	µg/L	99
		241.0 -> 117.0	3838			
5:3FTCA	6.259	341.0 -> 237.1	836251	323.47	µg/L	98
		341.0 -> 217.0	715848			
7:3FTCA	7.684	441.0 -> 316.9	442277	340.34	µg/L	96
		441.0 -> 336.9	786732			
EtFOSA	10.993	526.0 -> 219.0	88552	30.07	µg/L	77
		526.0 -> 169.0	103988			
EtFOSE	10.939	630.0 -> 58.9	83402	136.36	µg/L	100
		511.9 -> 219.0	80006			
MeFOSA	10.773	511.9 -> 169.0	96308	29.15	µg/L	87
		616.1 -> 58.9	128007			
MeFOSE	10.692	699.1 -> 79.9	16794	146.25	µg/L	100
		699.1 -> 98.8	10079			
PFDoDS	9.936	295.0 -> 201.0	20981	12.46	µg/L	95
		295.0 -> 84.9	9371			
NFDHA	5.476	279.0 -> 85.1	67593	25.44	µg/L	100
		229.0 -> 84.9	60300			
PFMBA	4.806	314.8 -> 134.9	415397	25.05	µg/L	100
		314.8 -> 82.9	10044			
PFMPA	3.526			25.41	µg/L	100
PFEESA	6.089			22.92	µg/L	100

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

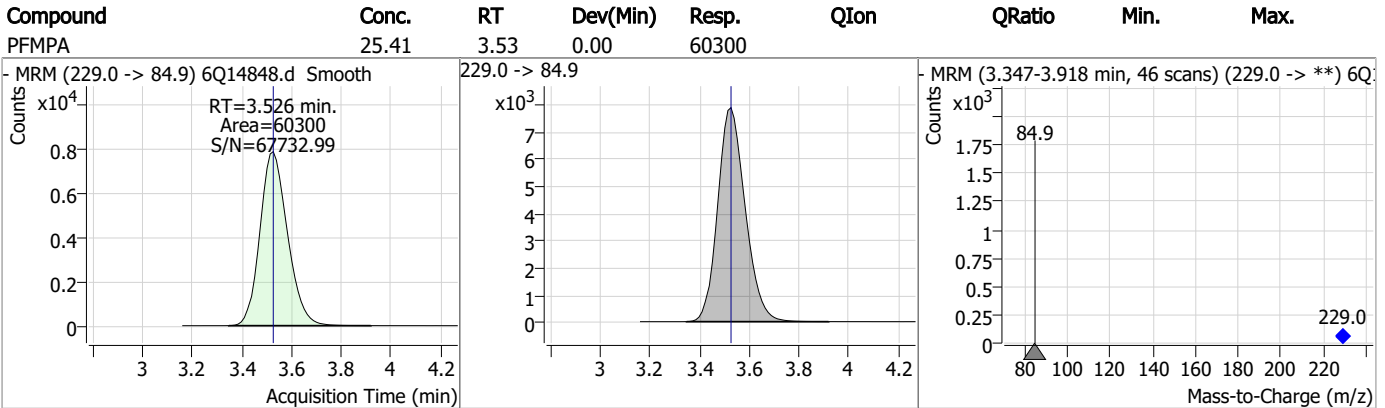
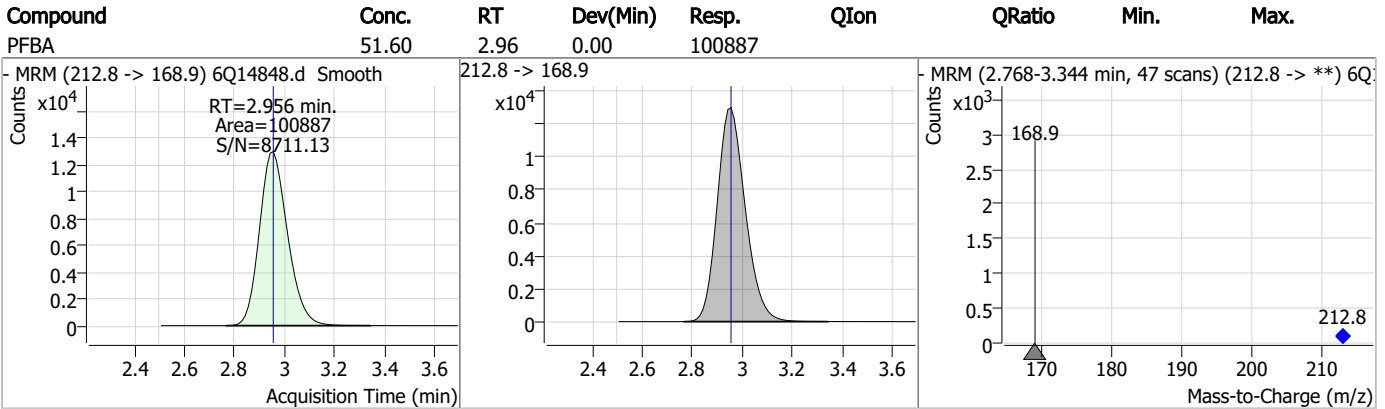
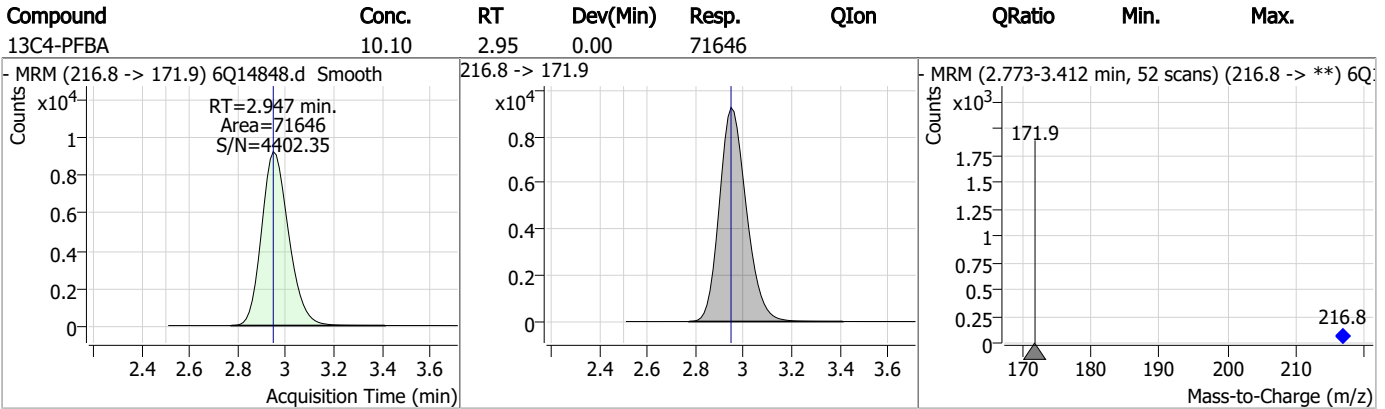
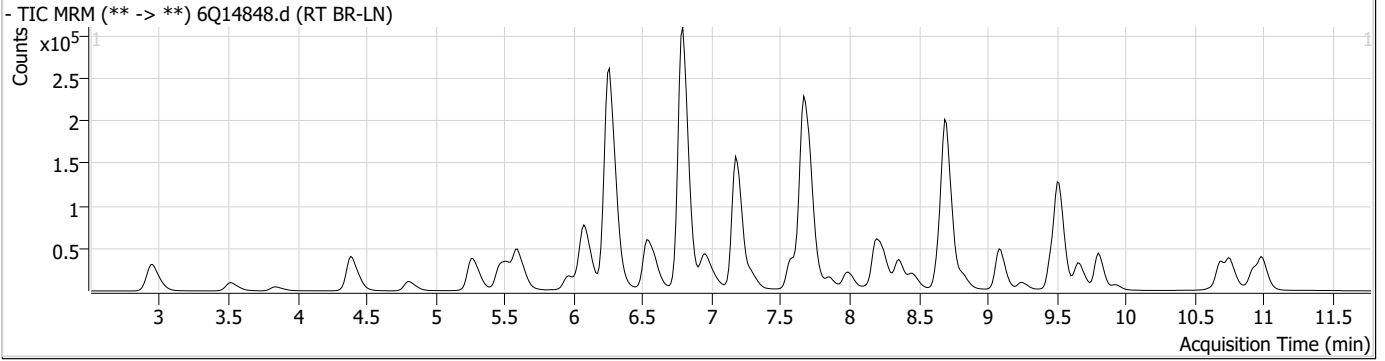
Perfluorinated Compounds by LC/MS/MS

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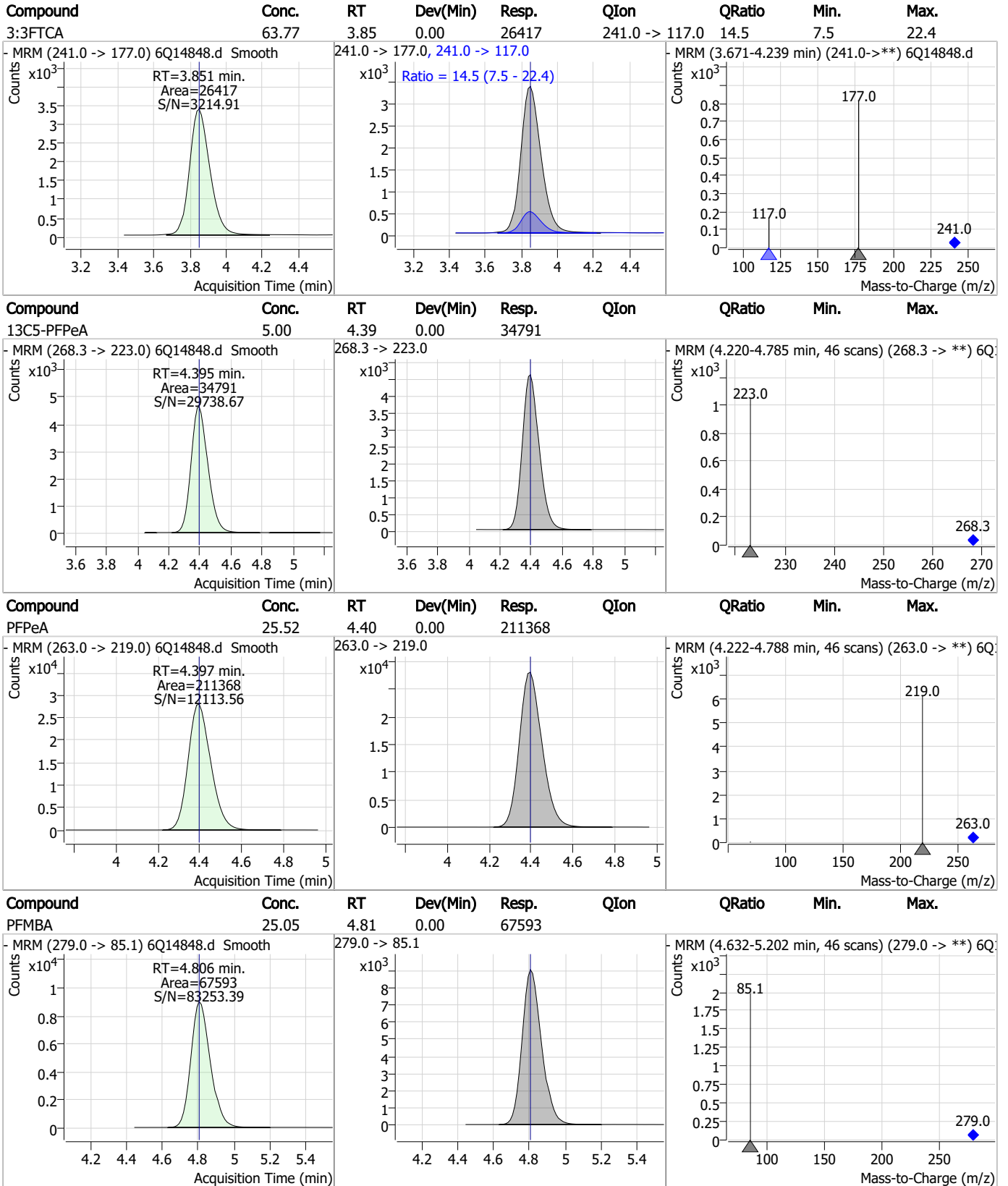
7.6.2

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Perfluorinated Compounds by LC/MS/MS



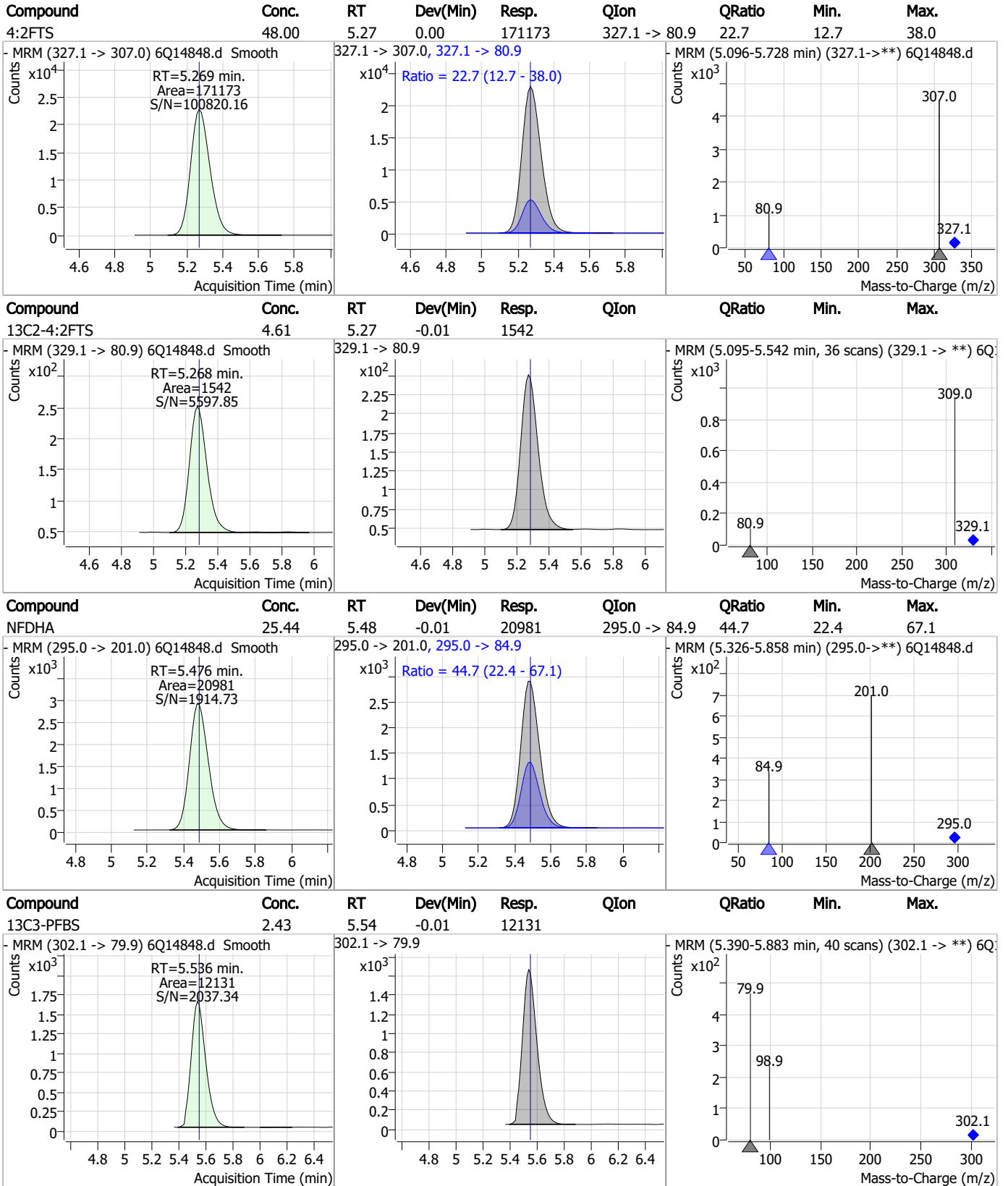
Perfluorinated Compounds by LC/MS/MS



7.6.2

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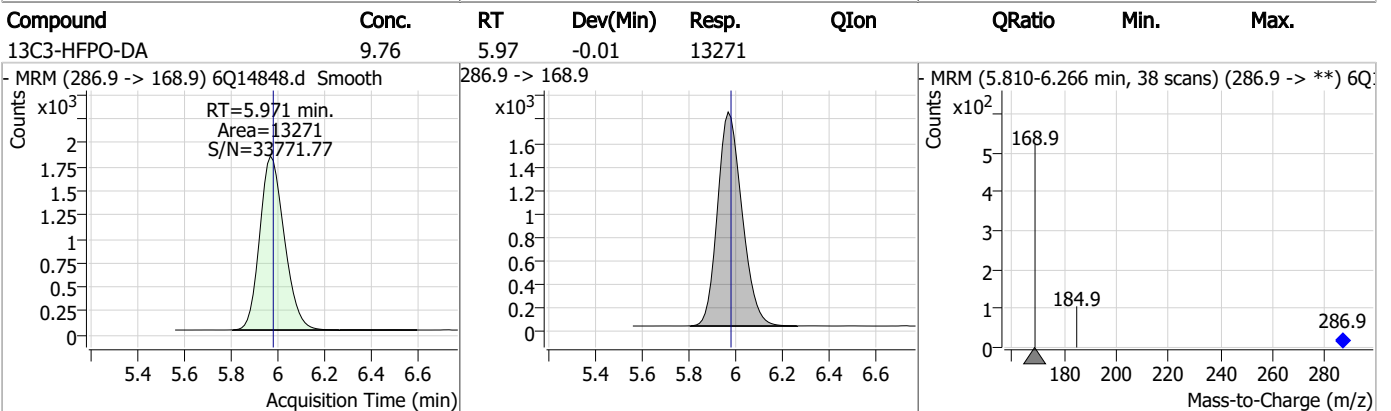
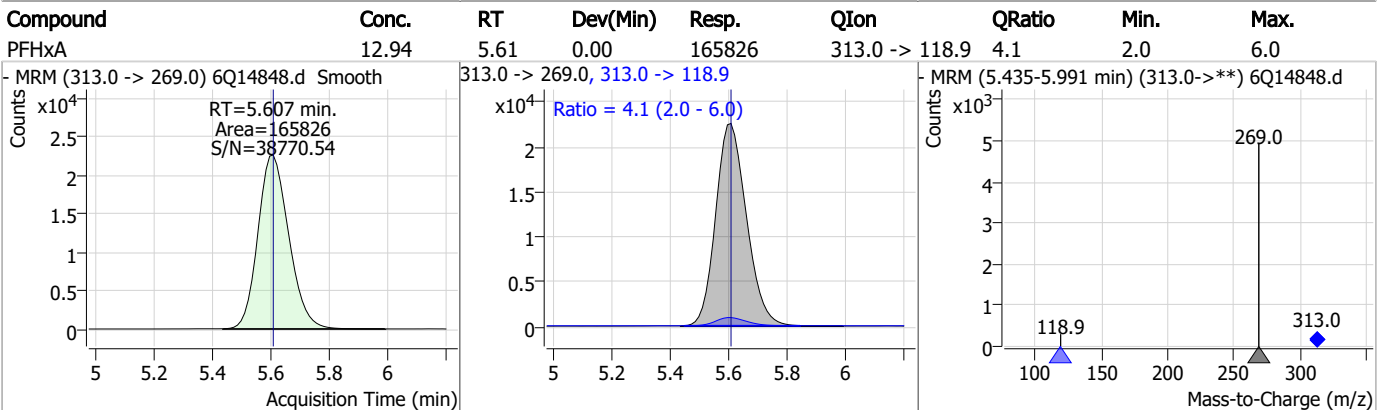
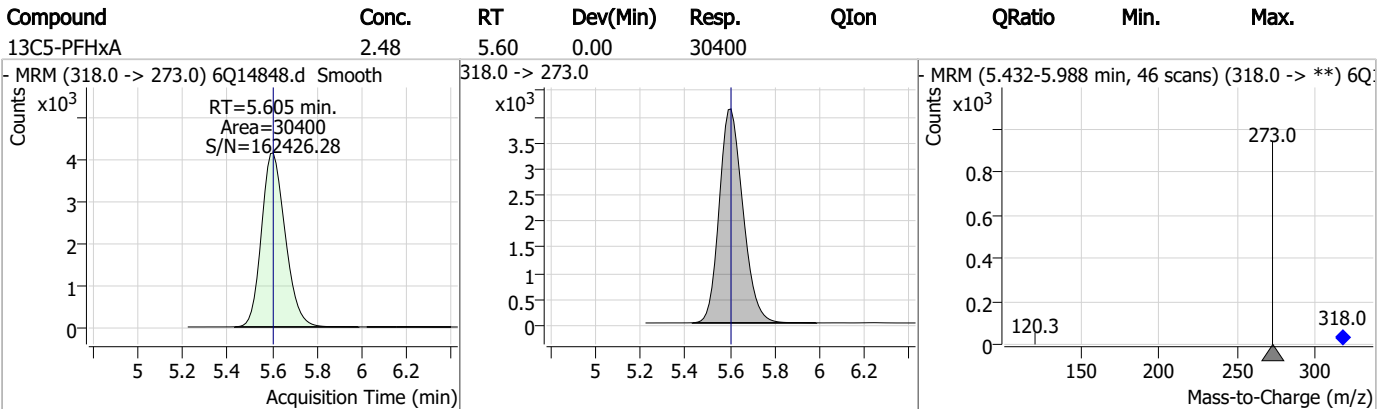
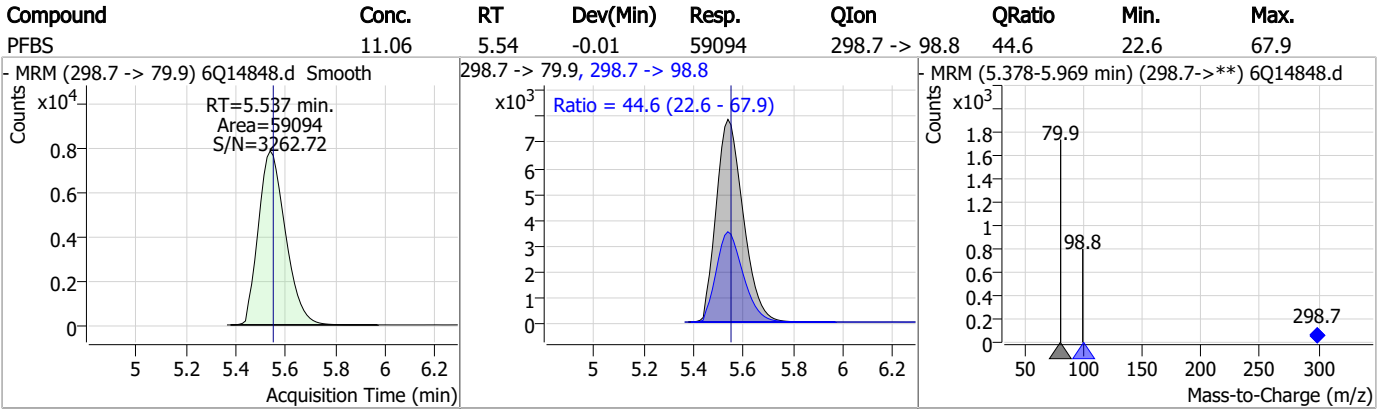
Perfluorinated Compounds by LC/MS/MS



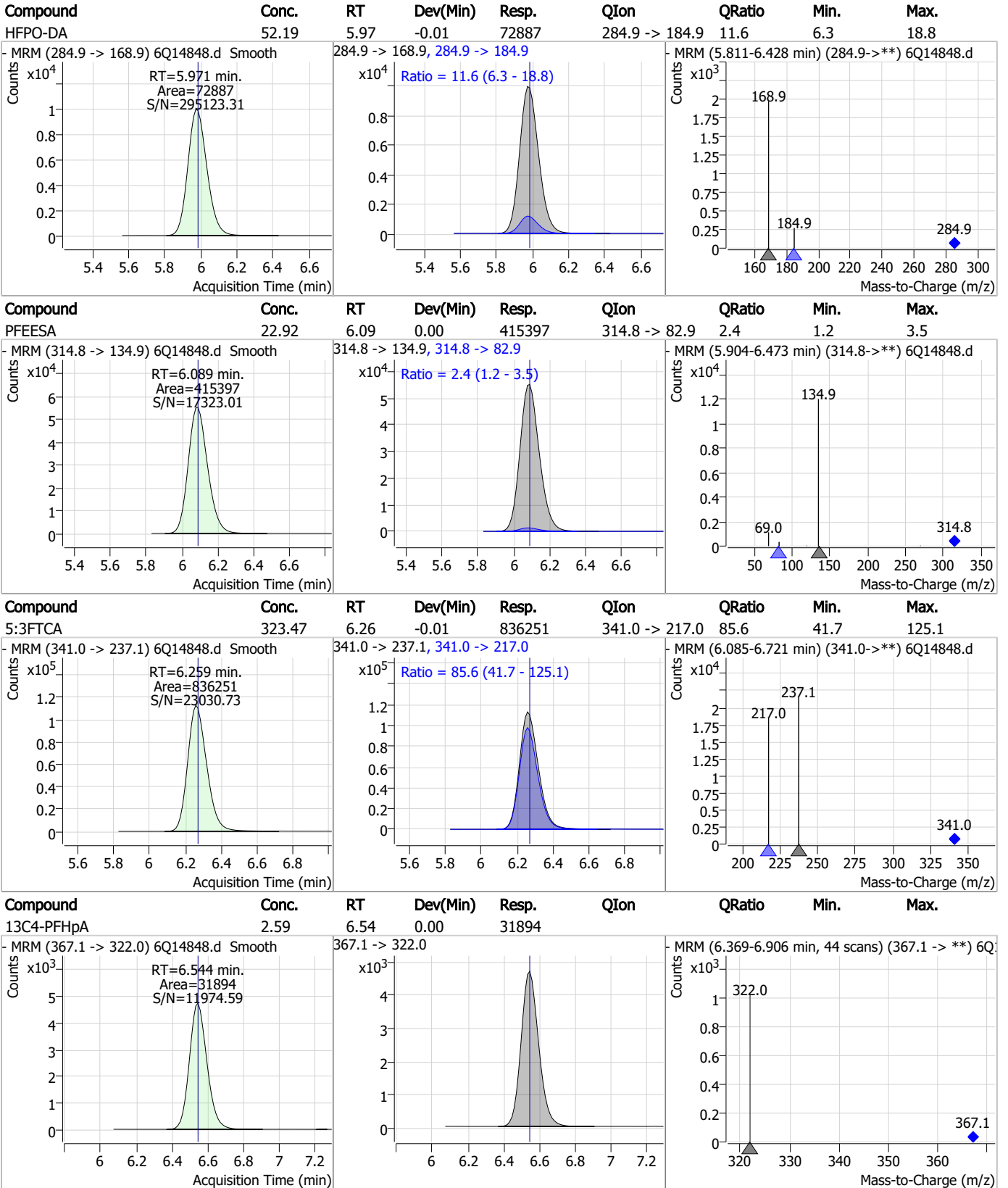
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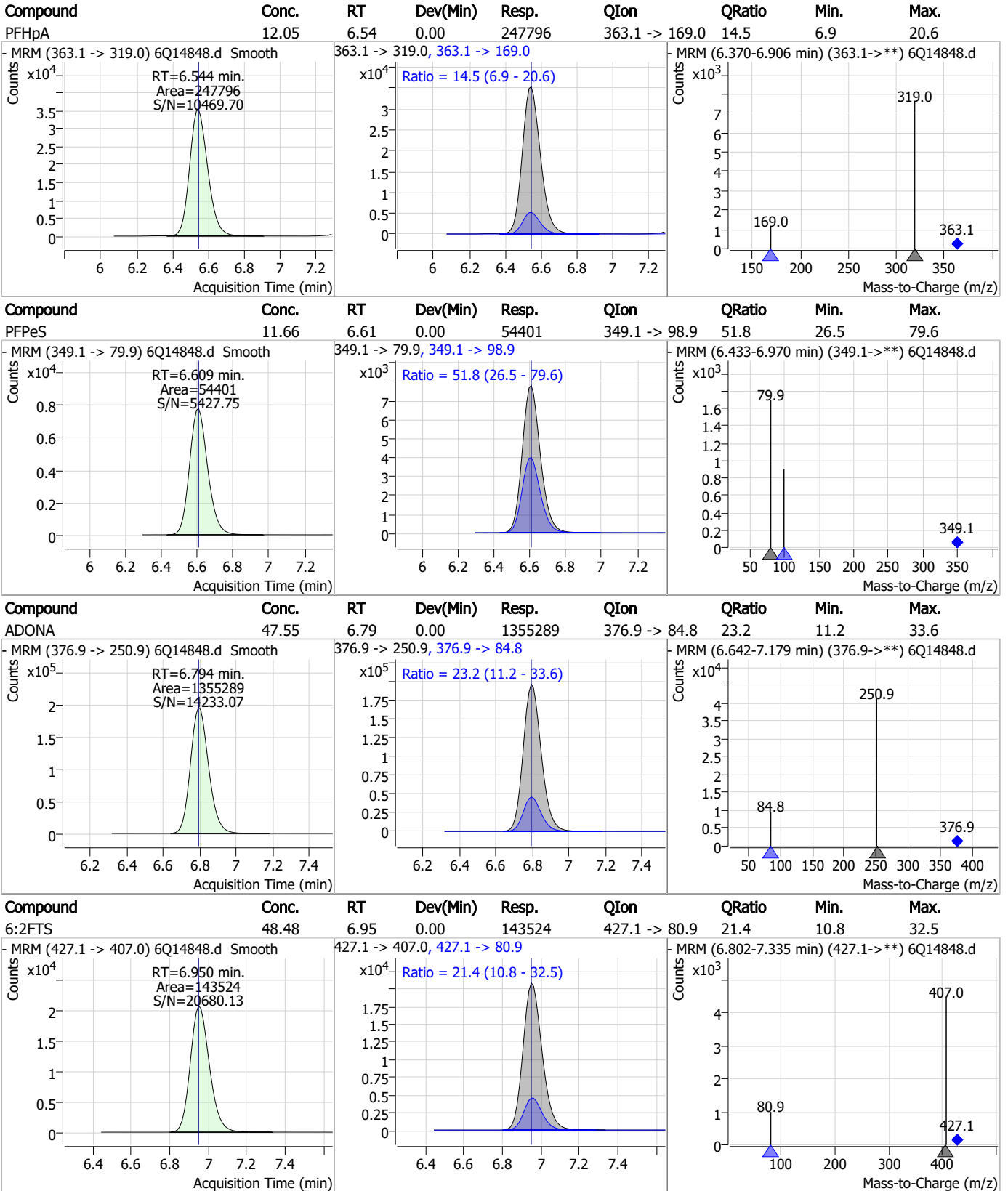
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



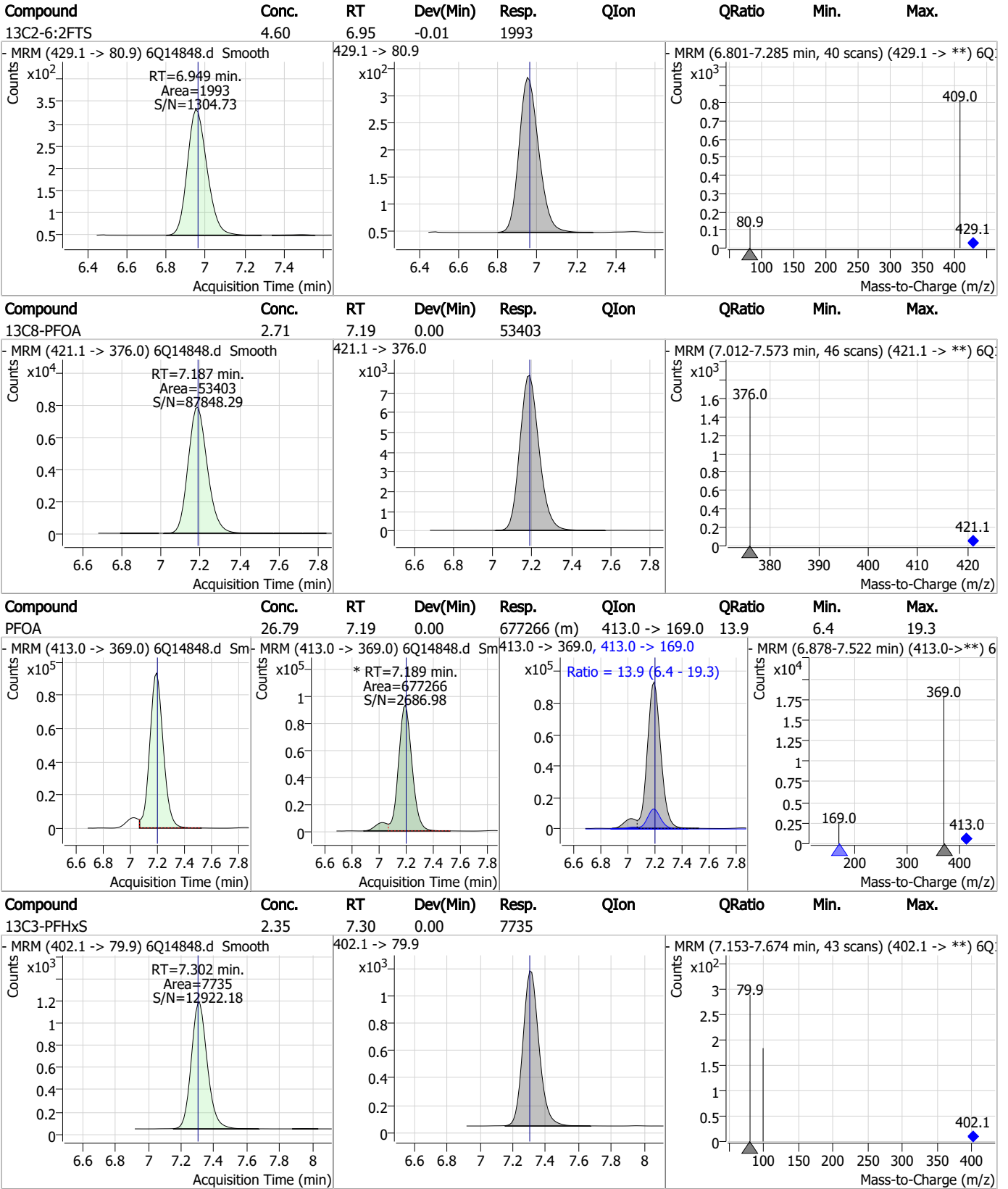
Perfluorinated Compounds by LC/MS/MS



7.6.2

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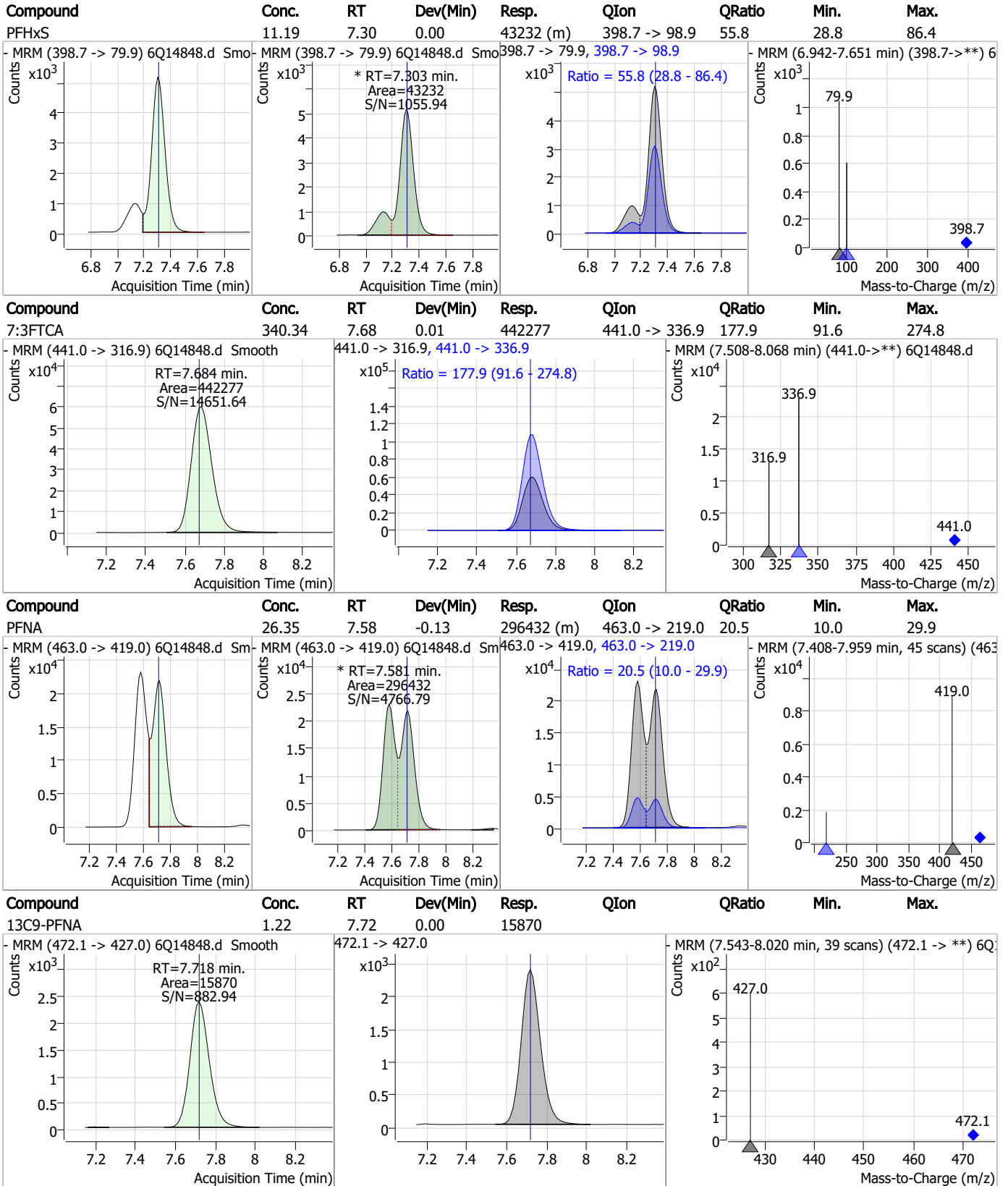
Perfluorinated Compounds by LC/MS/MS



7.6.2

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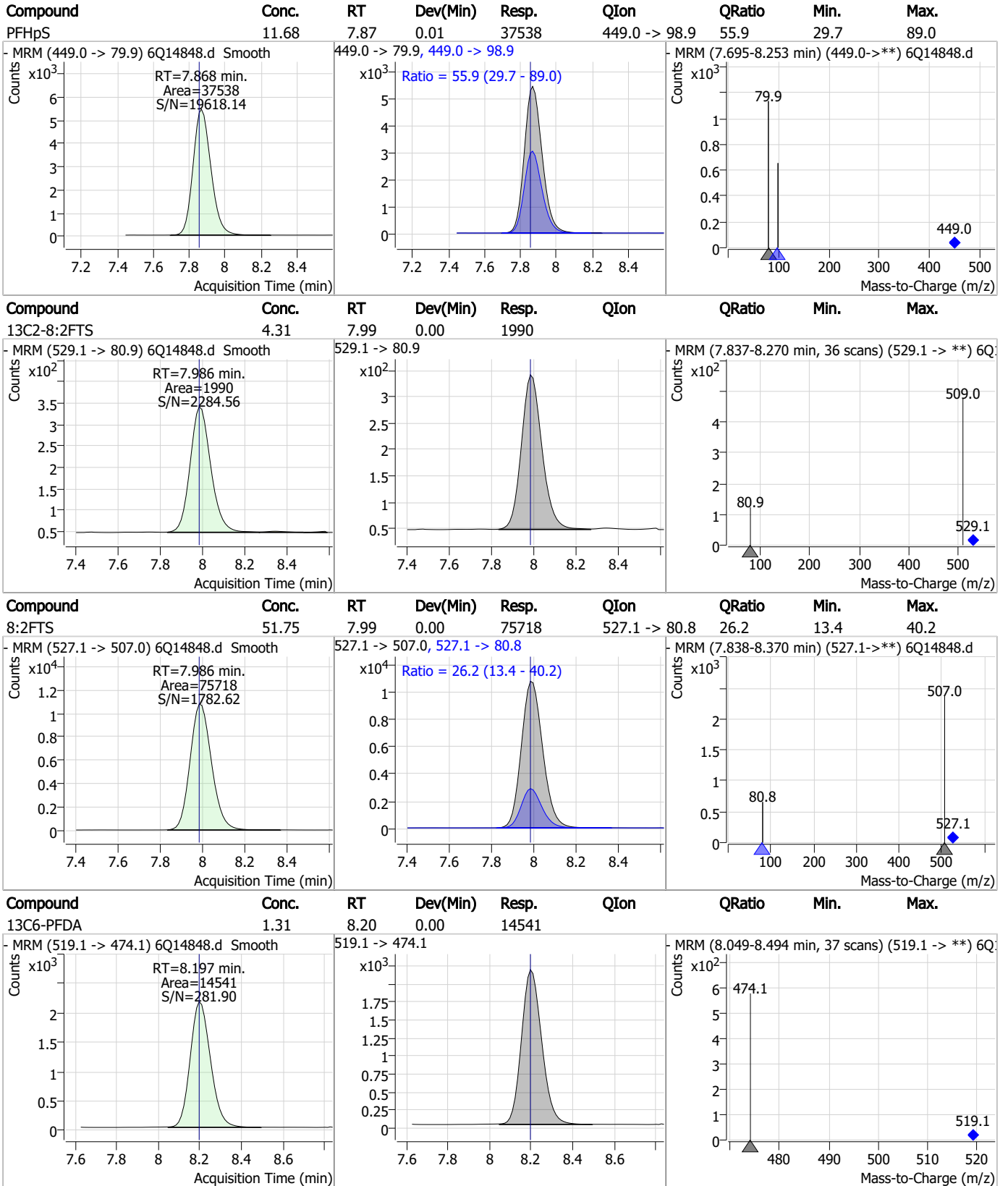
Perfluorinated Compounds by LC/MS/MS



7.6.2

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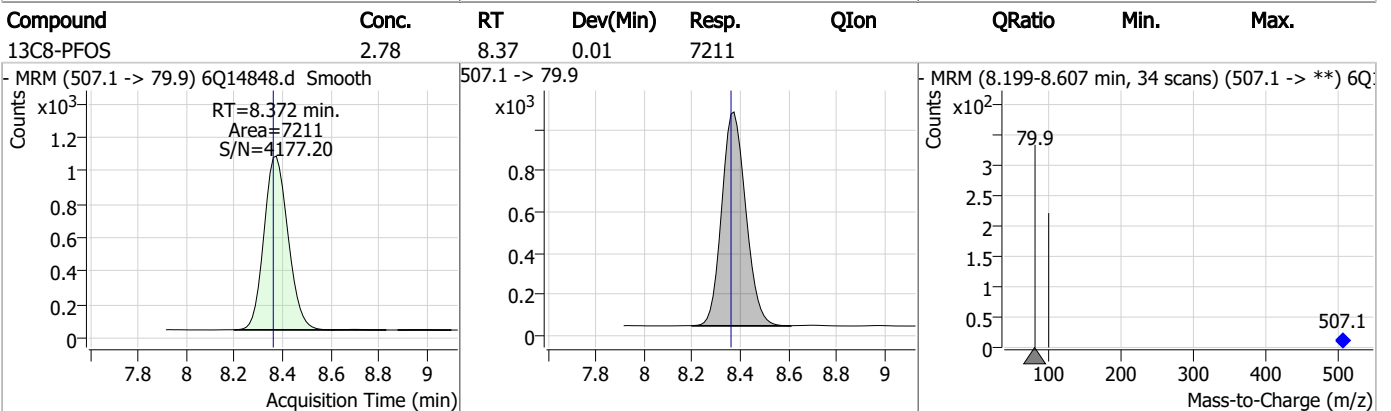
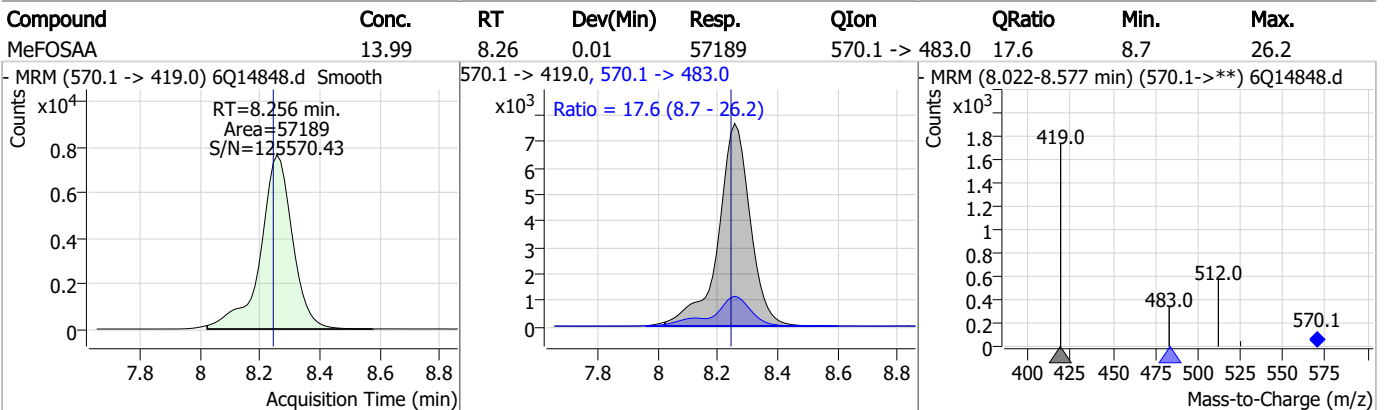
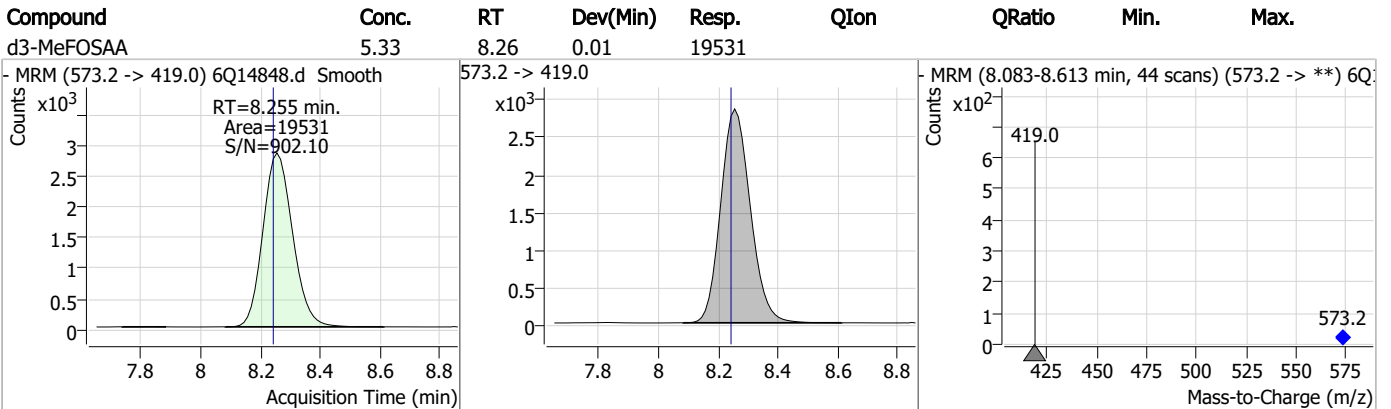
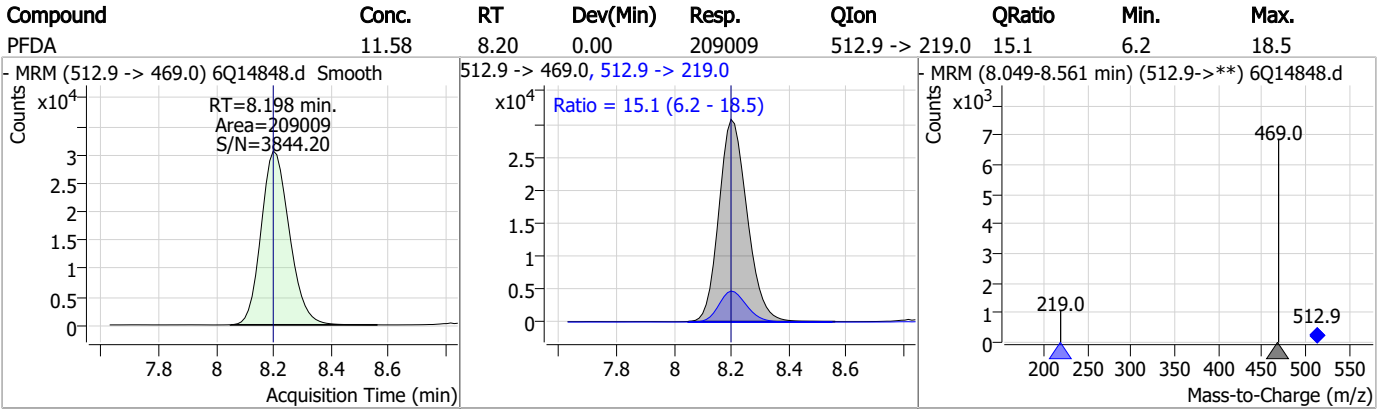
Perfluorinated Compounds by LC/MS/MS



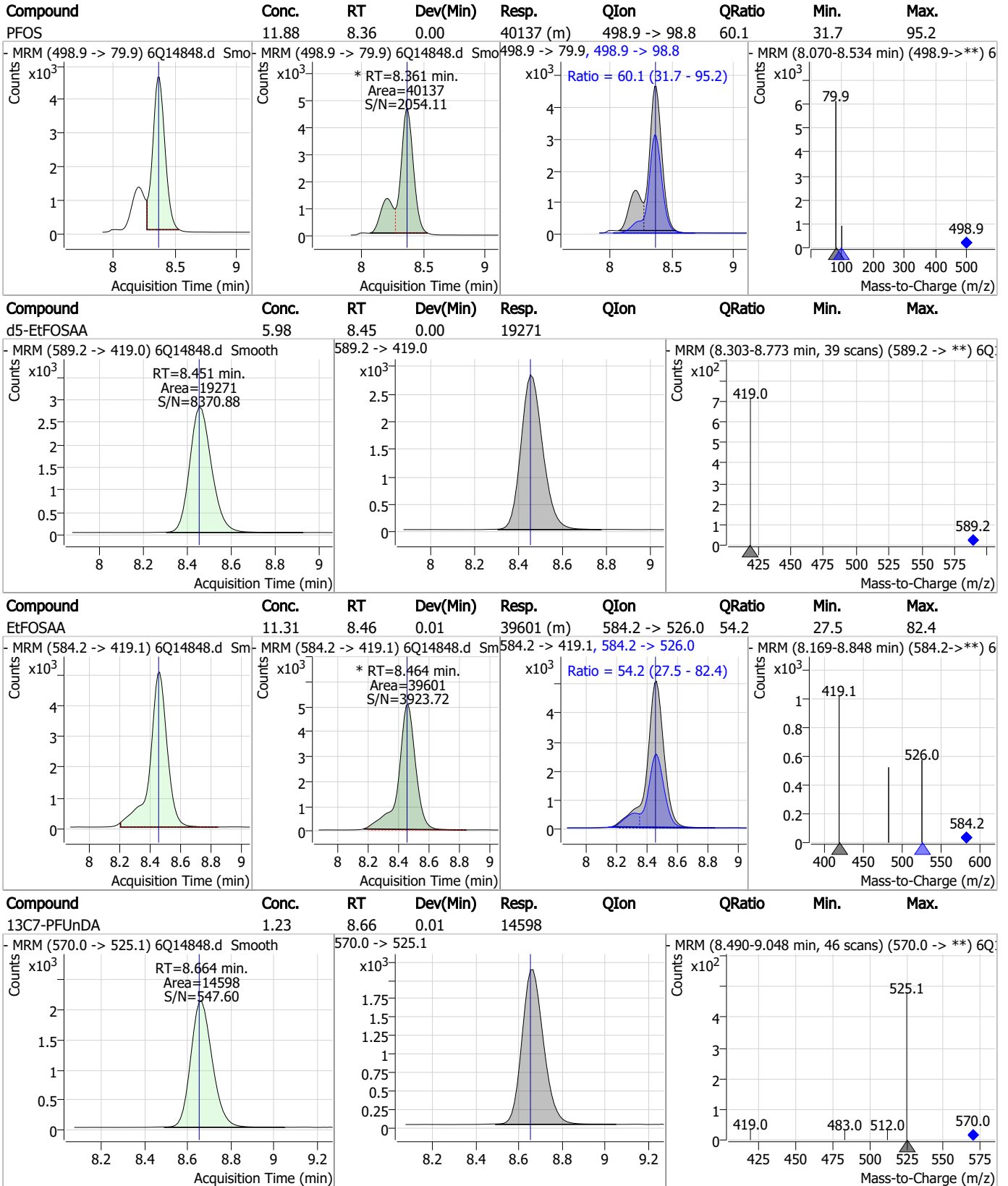
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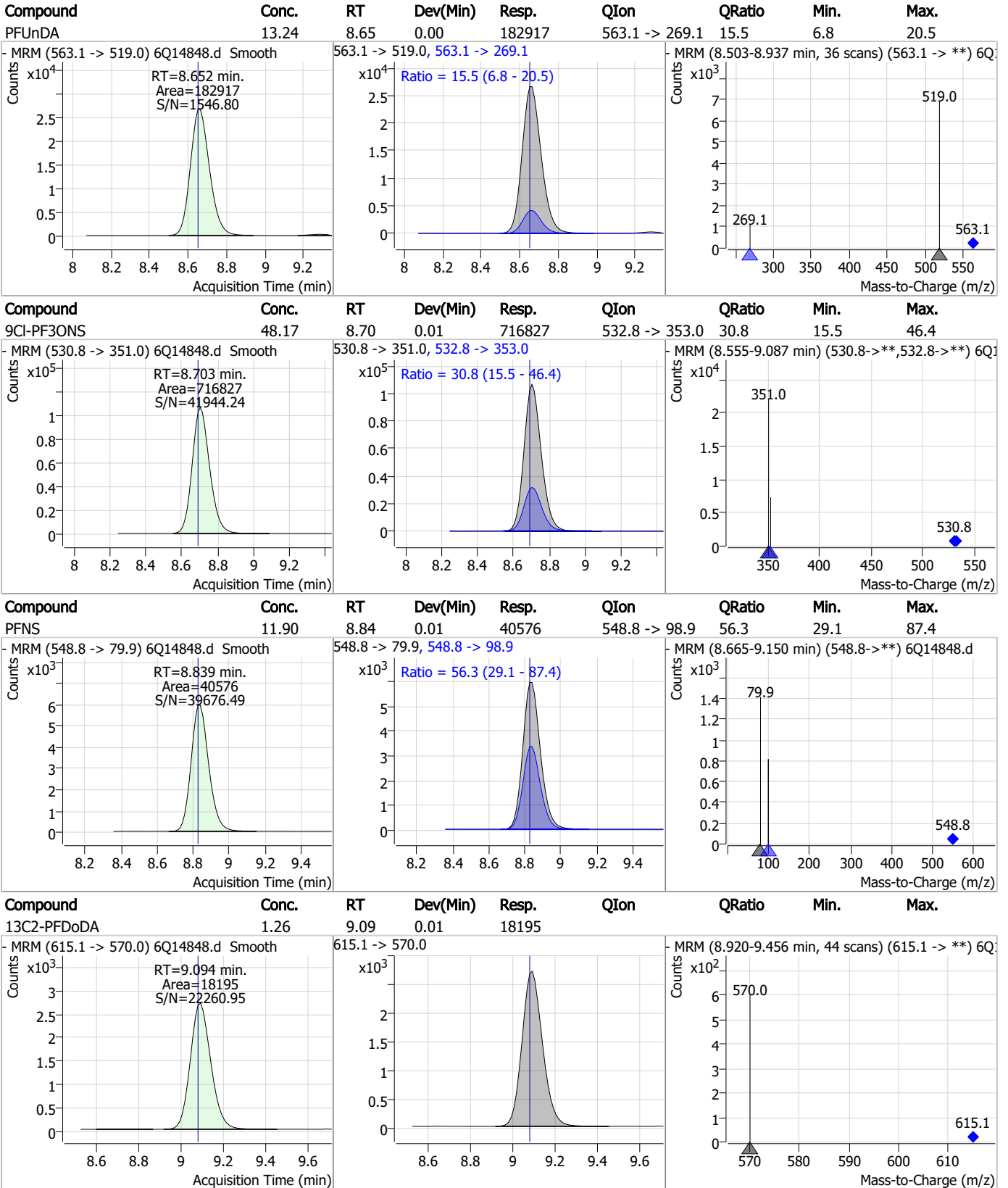
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

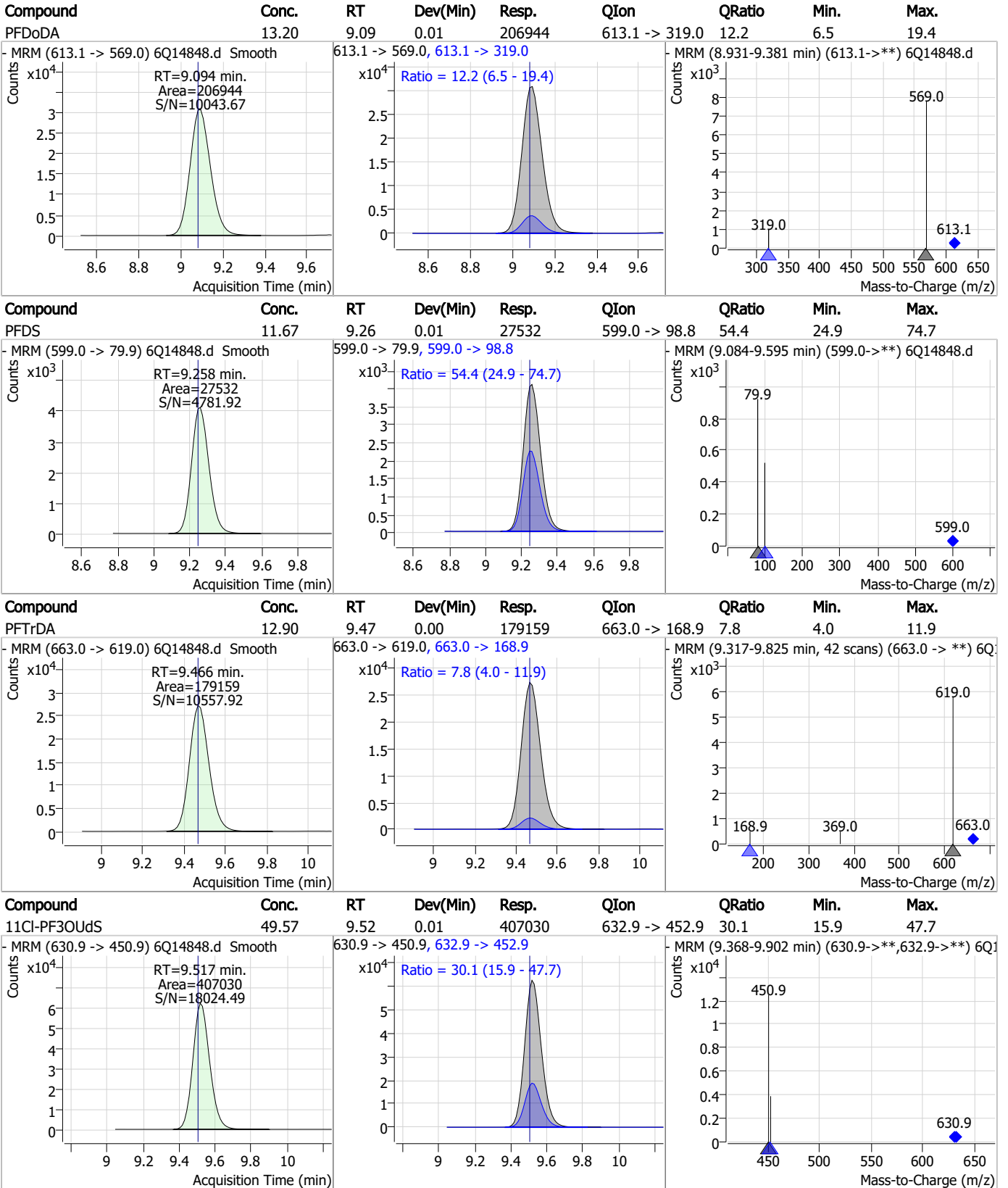


7.6.2

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Perfluorinated Compounds by LC/MS/MS



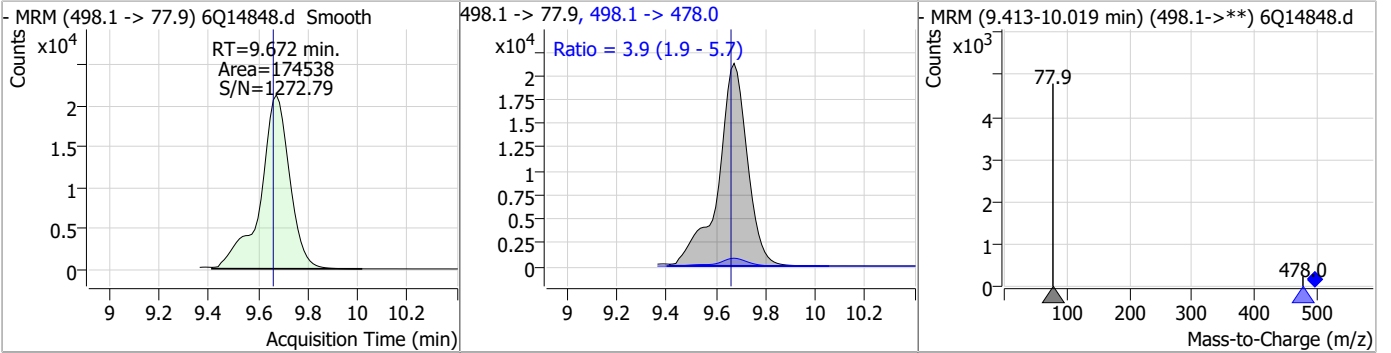
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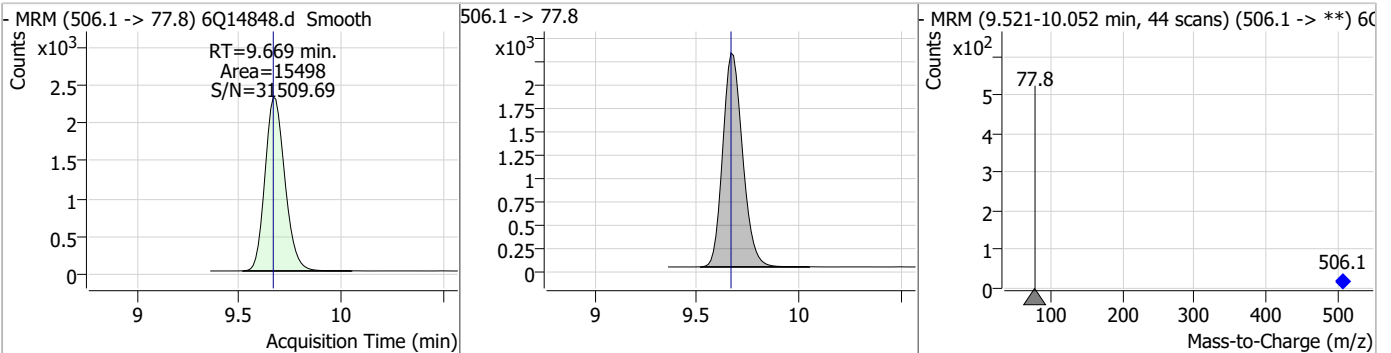


Perfluorinated Compounds by LC/MS/MS

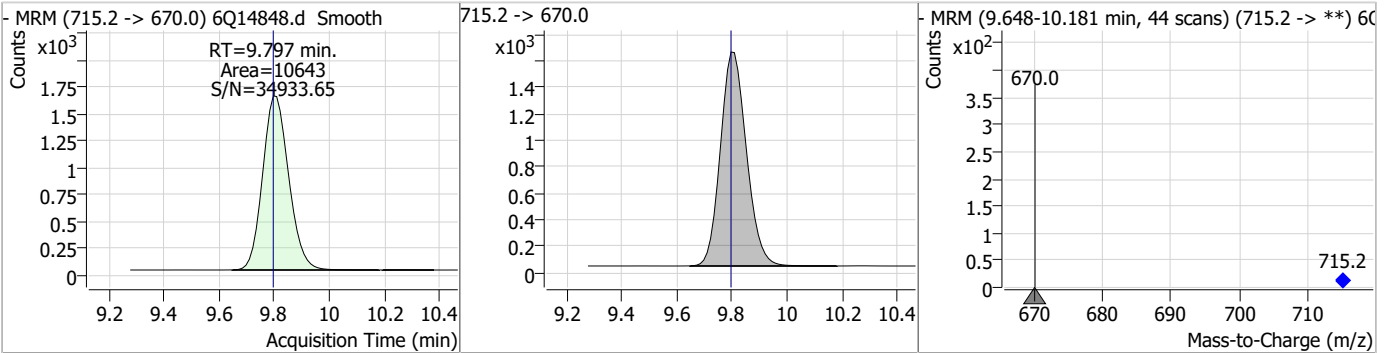
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	28.18	9.67	0.01	174538	498.1 -> 478.0	3.9	1.9	5.7



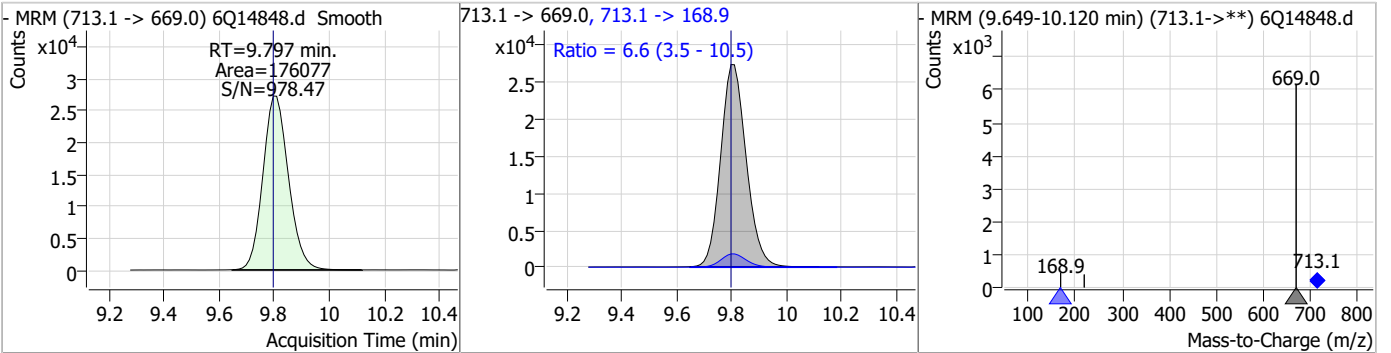
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.93	9.67	0.00	15498				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.29	9.80	0.00	10643				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.17	9.80	0.00	176077	713.1 -> 168.9	6.6	3.5	10.5



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.46	9.94	0.01	16794	699.1 -> 98.8	60.0	32.0	96.1
d7-MeFOSE	28.24	10.68	0.00	20731	623.2 -> 58.9	60.0	32.0	96.1
MeFOSE	146.25	10.69	0.00	128007	616.1 -> 58.9	60.0	32.0	96.1
d3-MeFOSA	2.95	10.77	0.01	5706	515.0 -> 219.0	60.0	32.0	96.1

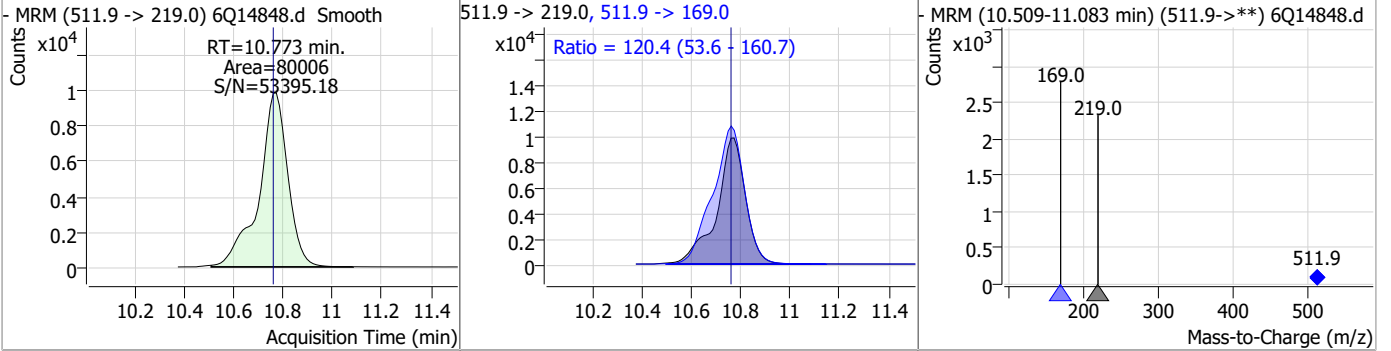
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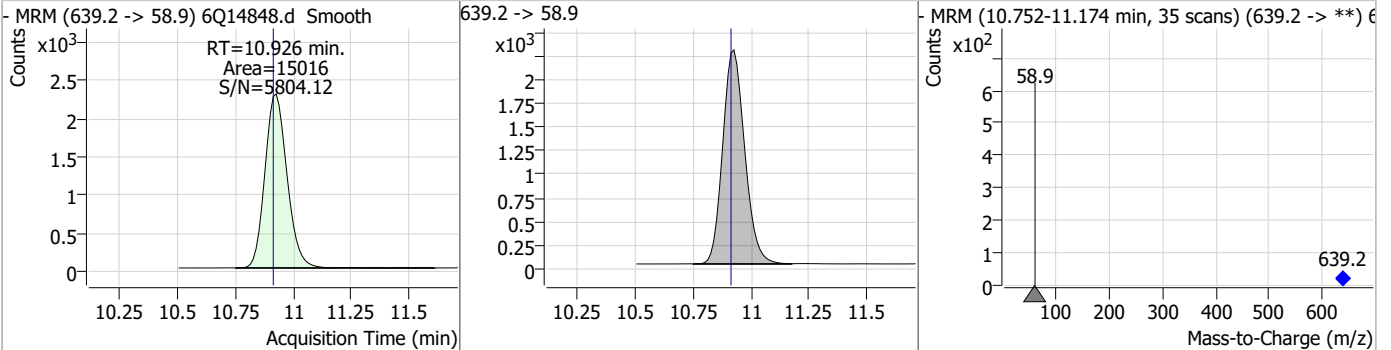


Perfluorinated Compounds by LC/MS/MS

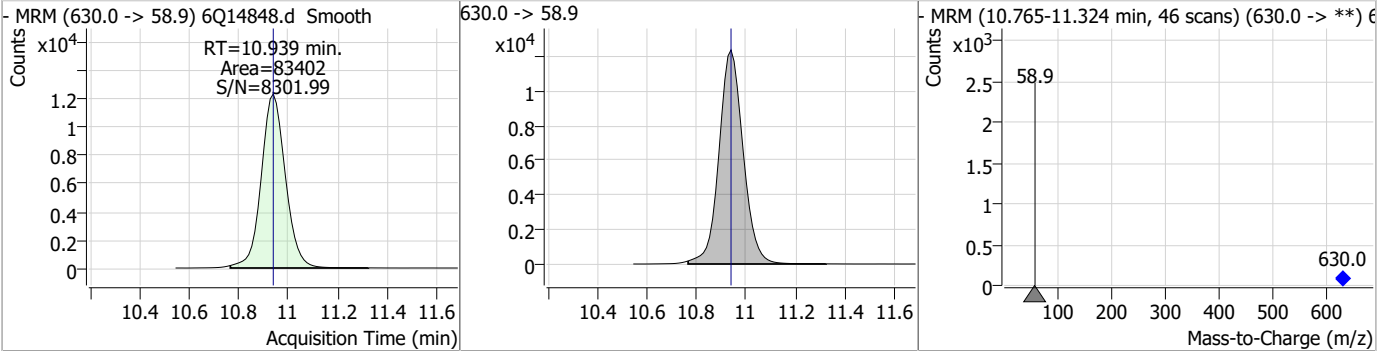
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	29.15	10.77	0.01	80006	511.9 -> 169.0	120.4	53.6	160.7



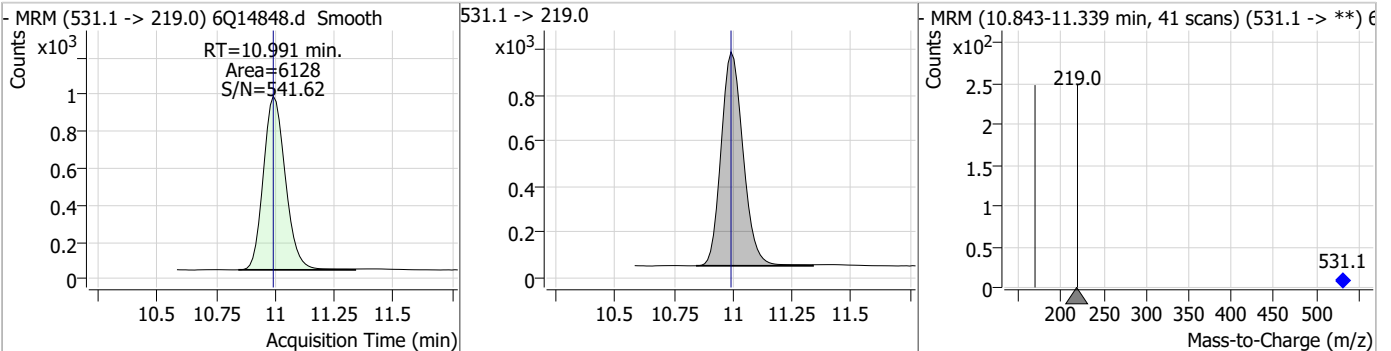
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	28.97	10.93	0.01	15016	639.2 -> 58.9			



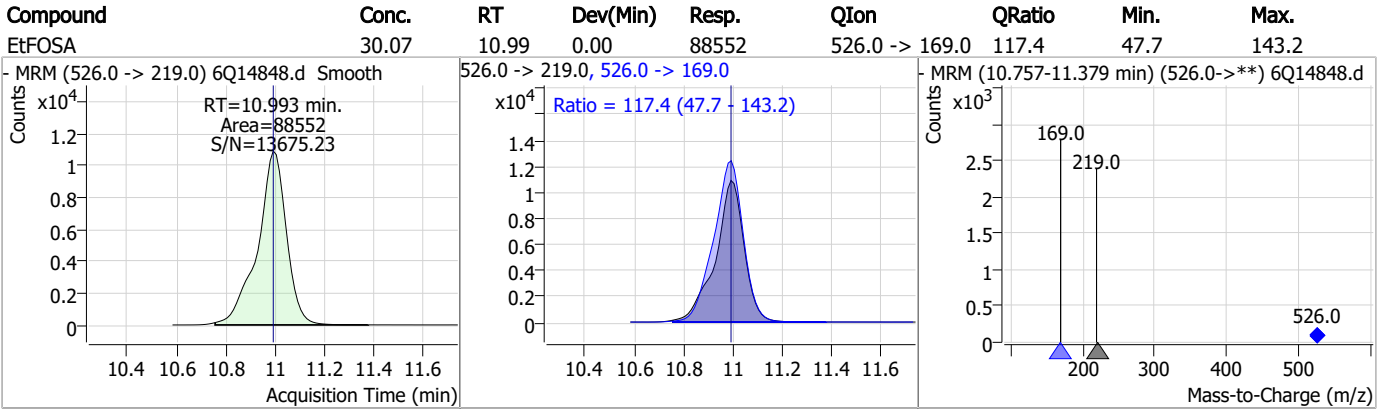
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	136.36	10.94	0.00	83402	630.0 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.86	10.99	0.00	6128	531.1 -> 219.0			



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q225-RT Method: EPA DRAFT 1633
Lab FileID: 6Q14848.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 21:18 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.19	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorononanoic acid	375-95-1		7.58	Poor instrument integration
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.6.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15013.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/20/2023 2:57:57 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q228 TDCA.batch.bin
 Sample Information : OP95881,S6Q228,500,,,5.0,1,water

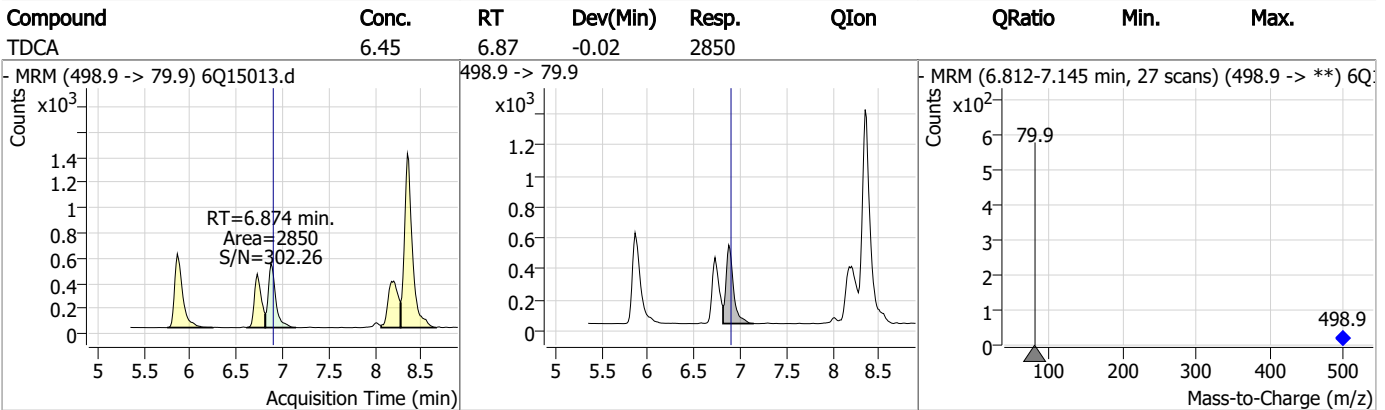
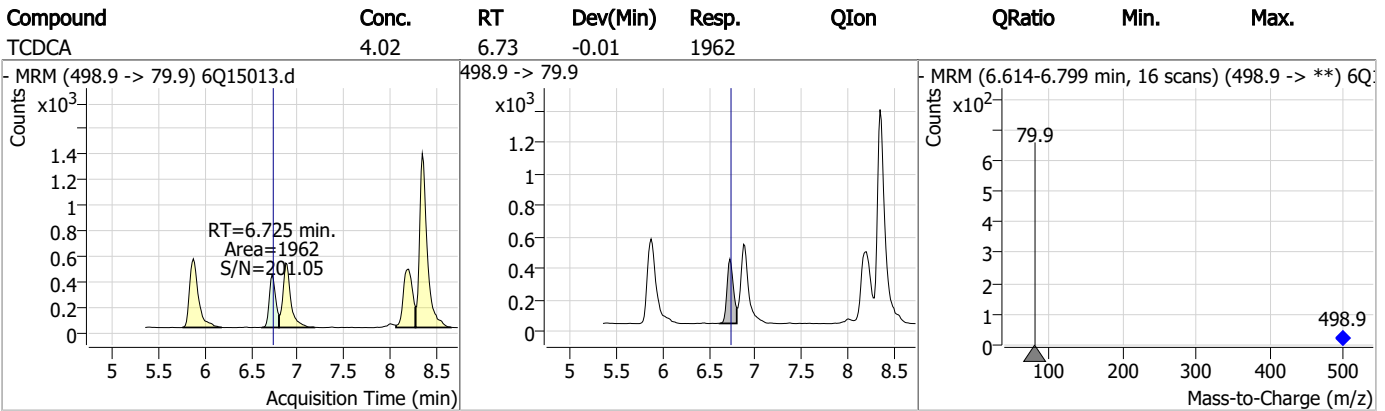
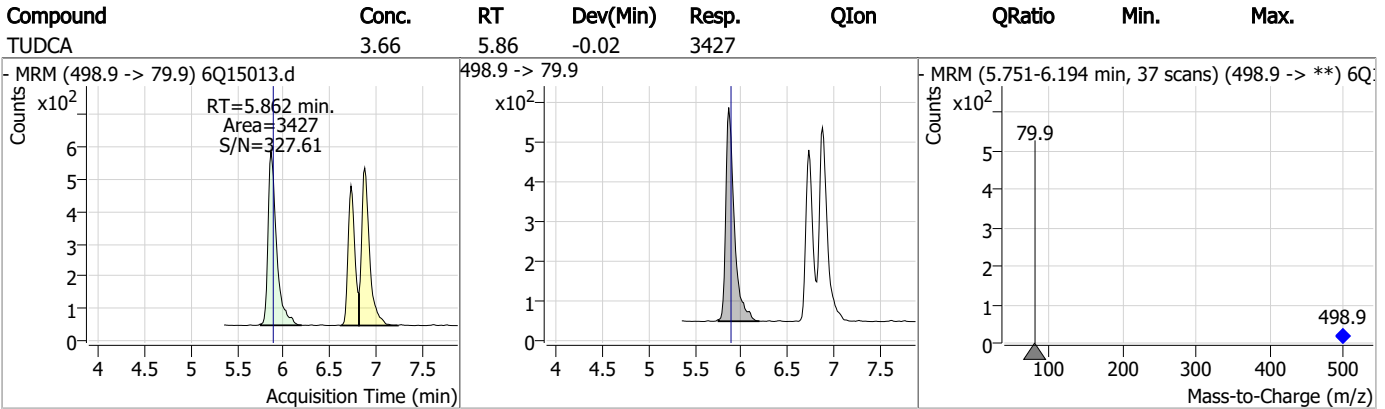
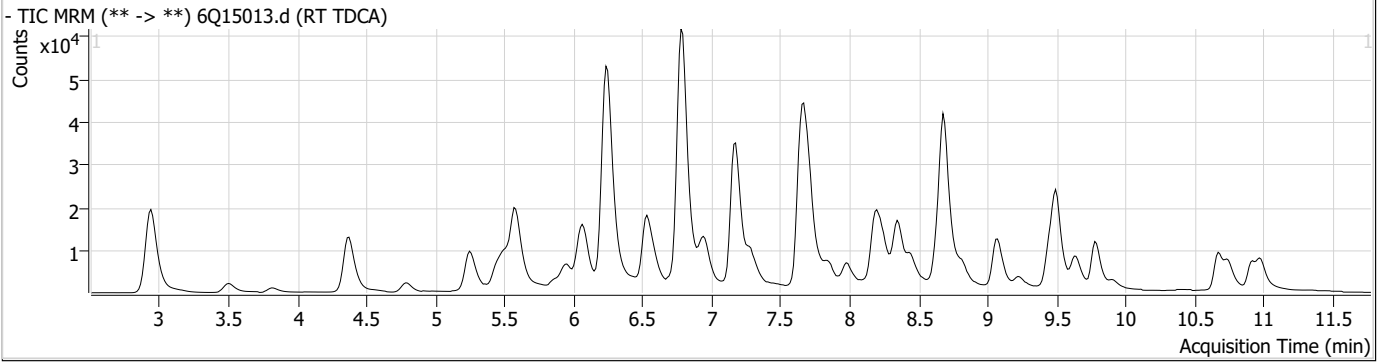
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.360	507.1 -> 79.9	10574	2.50	µg/L	-0.012	
13C4-PFOS	8.361	502.8 -> 79.9	12223	2.50	µg/L	-0.012	
System Monitoring Compounds							
13C8-PFOS	8.360	507.1 -> 79.9	10574	2.19	µg/L	-0.012	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 87.8%				
Target Compounds							
PFOS	8.361	498.9 -> 79.9 498.9 -> 98.8	10510 6335	2.91	µg/L m		81
TCDCa	6.725	498.9 -> 79.9	1962	4.02	ng/ml		100
TDCA	6.874	498.9 -> 79.9	2850	6.45	ng/ml		100
TUDCA	5.862	498.9 -> 79.9	3427	3.66	ng/ml		100

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

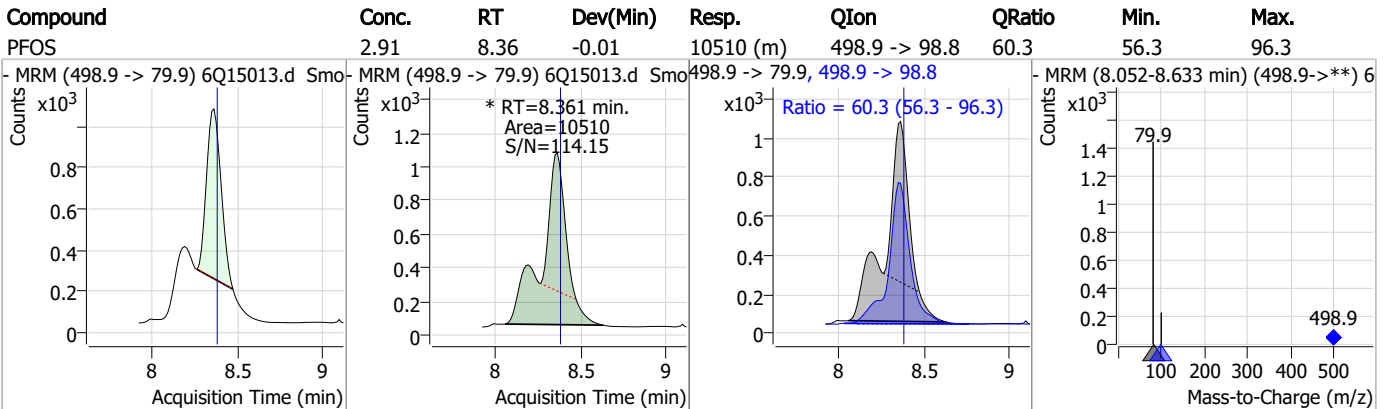
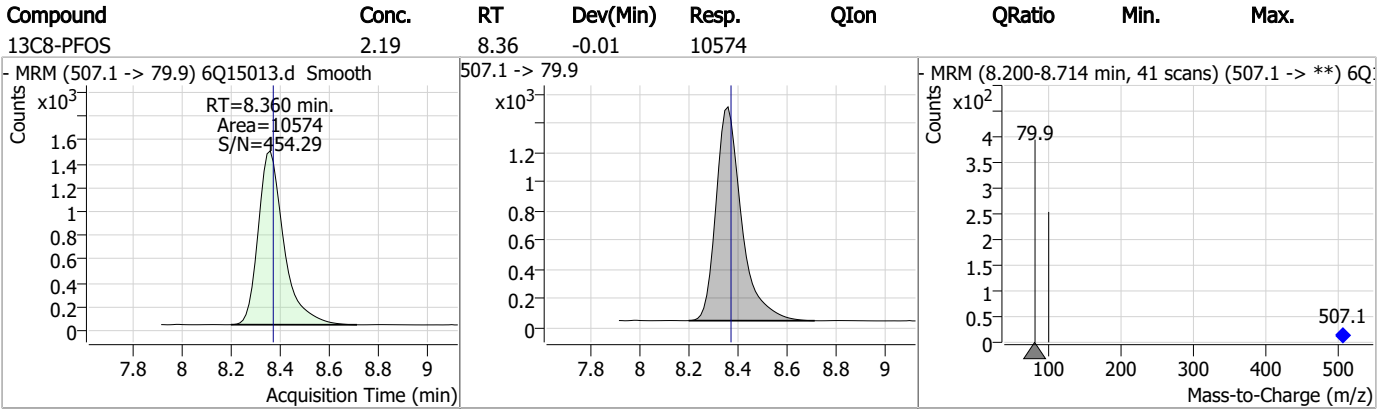
7.6.3

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.3
7



Manual Integration Approval Summary

Sample Number: S6Q228-RT Method: EPA DRAFT 1633
Lab FileID: 6Q15013.D Analyst approved: 03/21/23 13:24 Martha Valls
Injection Time: 03/20/23 14:57 Supervisor approved: 03/21/23 16:12 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15014.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/20/2023 3:11:55 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95881,S6Q228,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.935	216.8 -> 171.9	69782	10.00 µg/L	-0.012
M5-PFPeA	4.370	268.3 -> 223.0	35793	5.00 µg/L	-0.025
M5-PFHxA	5.580	318.0 -> 273.0	31287	2.50 µg/L	-0.025
M4-PFHpA	6.532	367.1 -> 322.0	28863	2.50 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	51050	2.50 µg/L	-0.012
M9-PFNA	7.706	472.1 -> 427.0	16970	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	13833	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	15427	1.25 µg/L	-0.012
M2-PFDoDA	9.069	615.1 -> 570.0	19527	1.25 µg/L	-0.012
M2-PFTeDA	9.784	715.2 -> 670.0	11052	1.25 µg/L	-0.012
M8-FOSA	9.657	506.1 -> 77.8	15164	2.50 µg/L	-0.012
M3-PFBS	5.511	302.1 -> 79.9	11411	2.50 µg/L	-0.037
M3-PFHxS	7.302	402.1 -> 79.9	7579	2.50 µg/L	0.000
M8-PFOS	8.347	507.1 -> 79.9	7591	2.50 µg/L	-0.013
M2-4:2FTS	5.243	329.1 -> 80.9	1398	5.00 µg/L	-0.037
M2-6:2FTS	6.949	429.1 -> 80.9	1764	5.00 µg/L	-0.012
M2-8:2FTS	7.973	529.1 -> 80.9	1672	5.00 µg/L	-0.012
M3-MeFOSAA	8.231	573.2 -> 419.0	16967	5.00 µg/L	-0.012
M3-HFPO-DA	5.946	286.9 -> 168.9	14161	10.00 µg/L	-0.037
M5-EtFOSAA	8.438	589.2 -> 419.0	15383	5.00 µg/L	-0.012
M7-MeFOSE	10.668	623.2 -> 58.9	24092	25.00 µg/L	-0.012
M9-EtFOSE	10.914	639.2 -> 58.9	17536	25.00 µg/L	0.000
M5-EtFOSA	10.979	531.1 -> 219.0	6016	2.50 µg/L	-0.012
M3-MeFOSA	10.759	515.0 -> 219.0	5775	2.50 µg/L	0.000
13C4-PFOS	8.348	502.8 -> 79.9	8239	2.50 µg/L	-0.013
13C3-PFBA	2.939	216.0 -> 172.0	30526	5.00 µg/L	-0.013
18O2-PFHxS	7.301	403.0 -> 83.9	5314	2.50 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	58582	2.50 µg/L	-0.012
13C2-PFDA	8.185	515.1 -> 470.1	19797	1.25 µg/L	-0.012
13C5-PFNA	7.706	468.0 -> 423.0	17659	1.25 µg/L	-0.012
13C2-PFHxA	5.581	315.1 -> 270.0	28816	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.243	329.1 -> 80.9	1398	4.59 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C2-6:2FTS	6.949	429.1 -> 80.9	1764	4.47 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.3%		
13C2-8:2FTS	7.973	529.1 -> 80.9	1672	3.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.4%		
13C2-PFDoDA	9.069	615.1 -> 570.0	19527	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-PFTeDA	9.784	715.2 -> 670.0	11052	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFBS	5.511	302.1 -> 79.9	11411	2.51 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C3-PFHxS	7.302	402.1 -> 79.9	7579	2.53 µg/L	0.000

7.6.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFBA	2.935	216.8 -> 171.9	69782	9.96 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C4-PFHpA	6.532	367.1 -> 322.0	28863	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFHxA	5.580	318.0 -> 273.0	31287	2.66 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C5-PFPeA	4.370	268.3 -> 223.0	35793	5.38 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
13C6-PFDA	8.185	519.1 -> 474.1	13833	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C7-PFUnDA	8.639	570.0 -> 525.1	15427	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C8-FOSA	9.657	506.1 -> 77.8	15164	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C8-PFOA	7.175	421.1 -> 376.0	51050	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOS	8.347	507.1 -> 79.9	7591	2.72 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.6%	
13C9-PFNA	7.706	472.1 -> 427.0	16970	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
d3-MeFOSAA	8.231	573.2 -> 419.0	16967	4.29 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.8%	
13C3-HFPO-DA	5.946	286.9 -> 168.9	14161	10.88 µg/L	-0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
d3-MeFOSA	10.759	515.0 -> 219.0	5775	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.5%	
d5-EtFOSAA	8.438	589.2 -> 419.0	15383	4.42 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
d7-MeFOSE	10.668	623.2 -> 58.9	24092	30.40 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 121.6%	
d9-EtFOSE	10.914	639.2 -> 58.9	17536	31.34 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 125.4%	
d5-EtFOSA	10.979	531.1 -> 219.0	6016	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
Target Compounds					QValue
4:2FTS	5.244	327.1 -> 307.0	144513	44.68 µg/L	98
		327.1 -> 80.9	35461		
6:2FTS	6.950	427.1 -> 407.0	120670	46.05 µg/L	99
		427.1 -> 80.9	25777		
8:2FTS	7.974	527.1 -> 507.0	67420	54.85 µg/L	94
		527.1 -> 80.8	15945		
EtFOSAA	8.439	584.2 -> 419.1	33911	12.14 µg/L	m 98
		584.2 -> 526.0	19015		
FOSA	9.647	498.1 -> 77.9	188911	31.17 µg/L	99
		498.1 -> 478.0	6478		
MeFOSAA	8.244	570.1 -> 419.0	47191	13.29 µg/L	98
		570.1 -> 483.0	8671		
PFBA	2.931	212.8 -> 168.9	99714	52.36 µg/L	100
PFBS	5.512	298.7 -> 79.9	58667	11.67 µg/L	98
		298.7 -> 98.8	25723		
PFDA	8.186	512.9 -> 469.0	216077	12.58 µg/L	96
		512.9 -> 219.0	29661		
PFDoDA	9.070	613.1 -> 569.0	204994	12.19 µg/L	97
		613.1 -> 319.0	24341		
PFDS	9.233	599.0 -> 79.9	28428	11.45 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.532	599.0 -> 98.8	15128	13.72	µg/L	100
		363.1 -> 319.0	255414			
PFHpS	7.855	363.1 -> 169.0	35207	11.43	µg/L	98
		449.0 -> 79.9	38681			
PFHxA	5.582	449.0 -> 98.9	22475	12.51	µg/L	100
		313.0 -> 269.0	164916			
PFHxS	7.290	313.0 -> 118.9	6604	11.64	µg/L	m
		398.7 -> 79.9	44031			
PFNA	7.568	398.7 -> 98.9	24177	25.22	µg/L	m
		463.0 -> 419.0	303430			
PFNS	8.814	463.0 -> 219.0	60061	11.60	µg/L	93
		548.8 -> 79.9	41629			
PFOA	7.176	548.8 -> 98.9	21947	28.04	µg/L	m
		413.0 -> 369.0	677547			
PFOS	8.348	413.0 -> 169.0	93291	11.01	µg/L	m
		498.9 -> 79.9	39146			
PFPeA	4.372	498.9 -> 98.8	23765	24.91	µg/L	100
		263.0 -> 219.0	212307			
PFPeS	6.596	349.1 -> 79.9	56307	12.32	µg/L	95
		349.1 -> 98.9	27964			
PFTeDA	9.785	713.1 -> 669.0	182623	13.15	µg/L	99
		713.1 -> 168.9	11946			
PFTrDA	9.453	663.0 -> 619.0	180988	12.14	µg/L	99
		663.0 -> 168.9	14977			
PFUnDA	8.640	563.1 -> 519.0	186722	12.78	µg/L	98
		563.1 -> 269.1	26817			
11CI-PF3OUdS	9.505	630.9 -> 450.9	420567	48.00	µg/L	98
		632.9 -> 452.9	129616			
9CI-PF3ONS	8.678	530.8 -> 351.0	733485	46.20	µg/L	100
		532.8 -> 353.0	225161			
ADONA	6.781	376.9 -> 250.9	1373527	45.17	µg/L	99
		376.9 -> 84.8	317522			
HFPO-DA	5.959	284.9 -> 168.9	67035	44.99	µg/L	99
		284.9 -> 184.9	8047			
3:3FTCA	3.826	241.0 -> 177.0	28921	67.87	µg/L	98
		241.0 -> 117.0	4043			
5:3FTCA	6.234	341.0 -> 237.1	883239	331.95	µg/L	99
		341.0 -> 217.0	730543			
7:3FTCA	7.659	441.0 -> 316.9	445067	332.77	µg/L	98
		441.0 -> 336.9	826045			
EtFOSA	10.993	526.0 -> 219.0	93361	32.29	µg/L	80
		526.0 -> 169.0	106899			
EtFOSE	10.927	630.0 -> 58.9	101295	141.81	µg/L	100
		511.9 -> 219.0	81997			
MeFOSA	10.760	511.9 -> 169.0	100600	29.53	µg/L	85
		616.1 -> 58.9	143285			
MeFOSE	10.681	699.1 -> 79.9	17654	140.87	µg/L	100
		699.1 -> 98.8	10594			
PFDoDS	9.911	295.0 -> 201.0	20334	12.44	µg/L	95
		295.0 -> 84.9	8824			
NFDHA	5.463	279.0 -> 85.1	72153	23.95	µg/L	98
		229.0 -> 84.9	63289			
PFMBA	4.781	314.8 -> 134.9	419278	25.99	µg/L	100
		314.8 -> 82.9	9942			
PFMPA	3.501			25.92	µg/L	100
PFEESA	6.064			22.48	µg/L	100

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

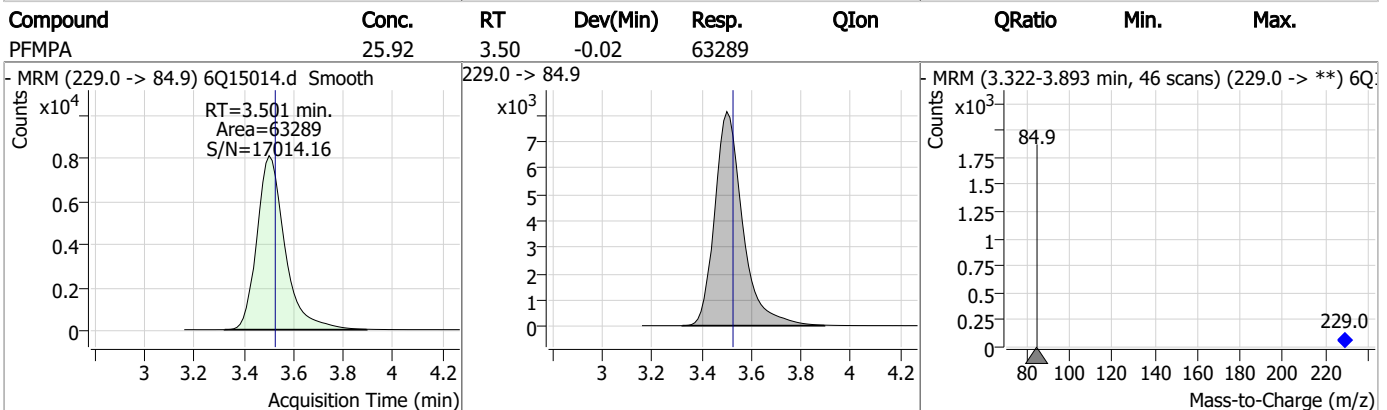
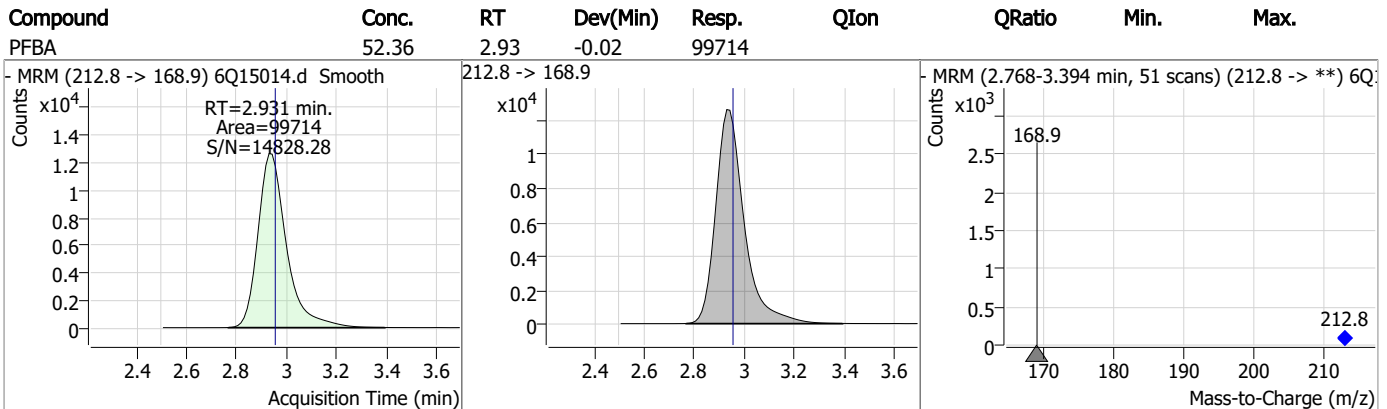
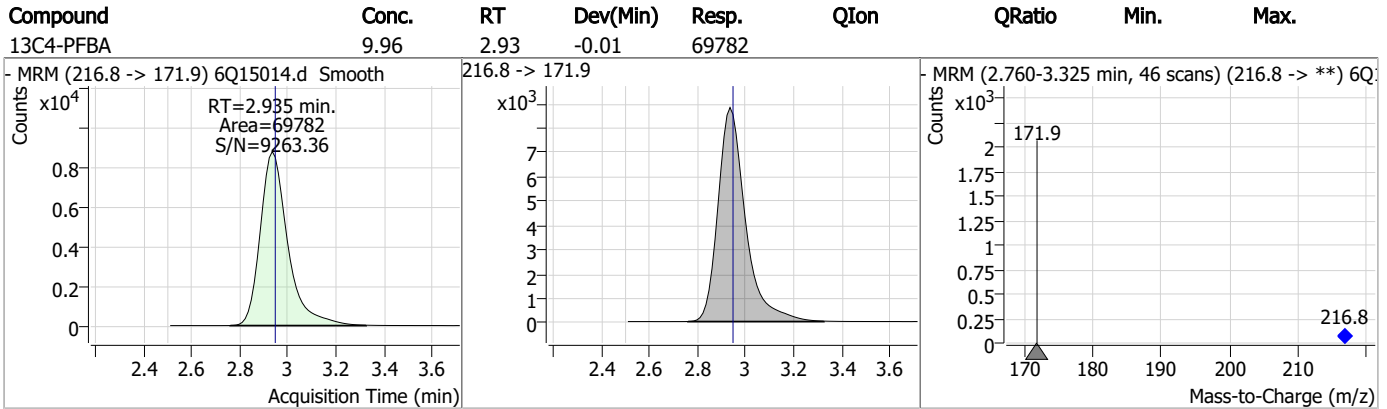
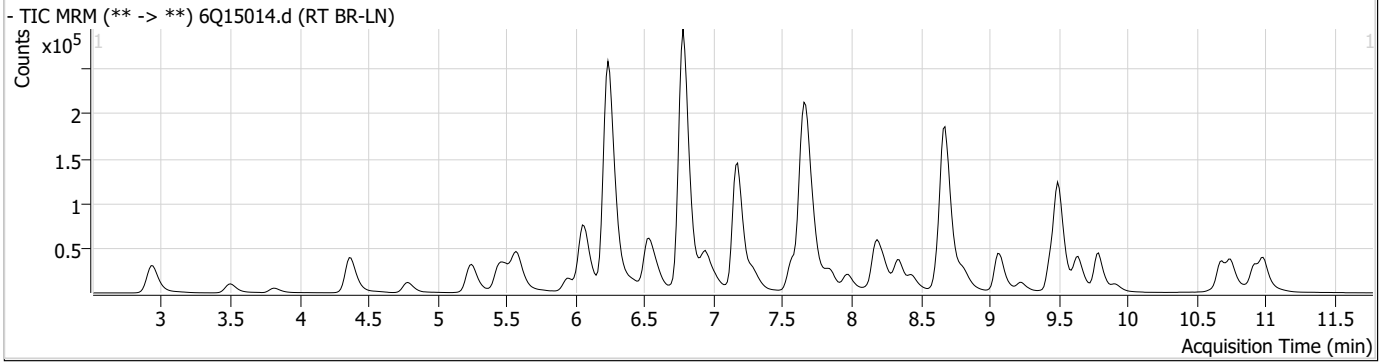
Perfluorinated Compounds by LC/MS/MS

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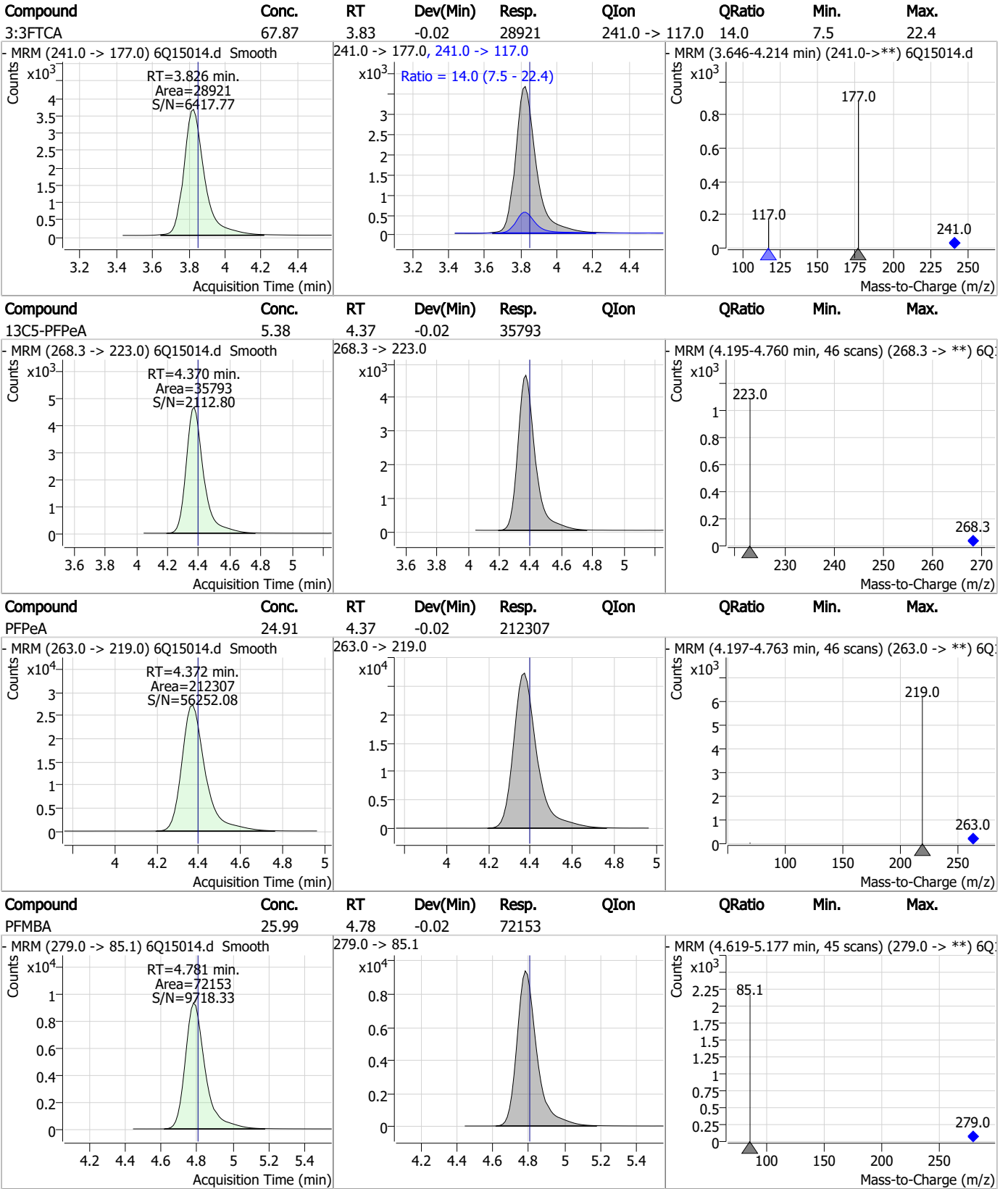
7.6.4

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Perfluorinated Compounds by LC/MS/MS



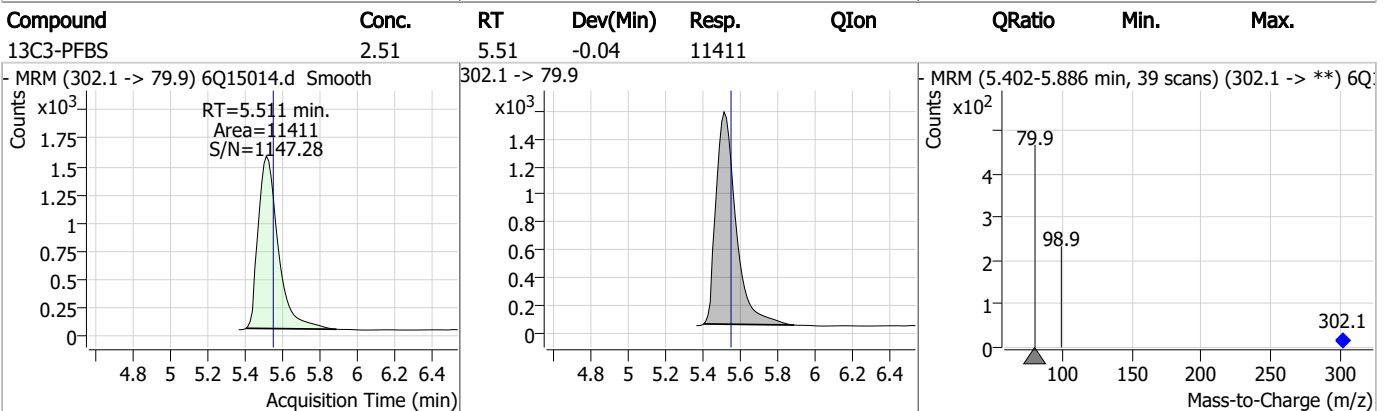
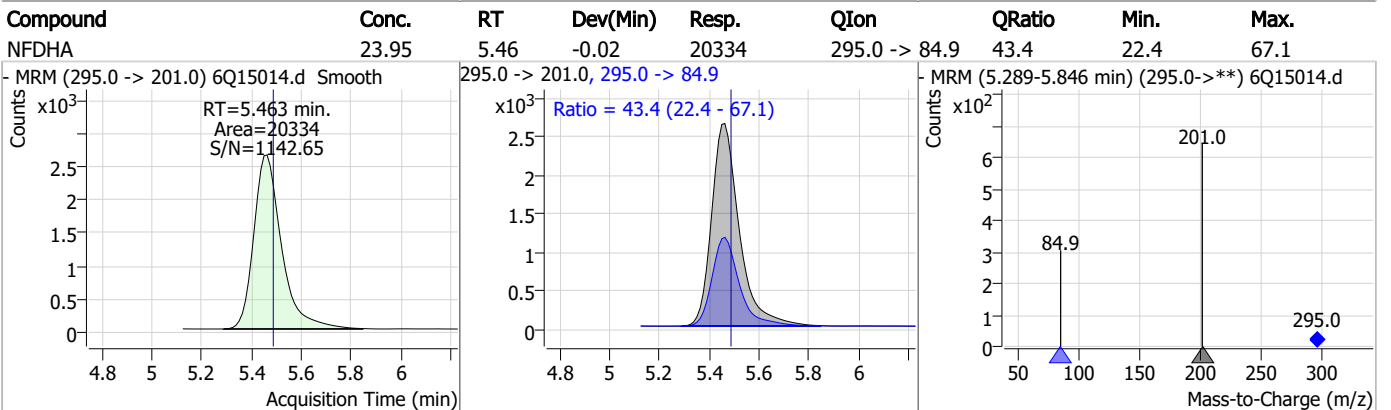
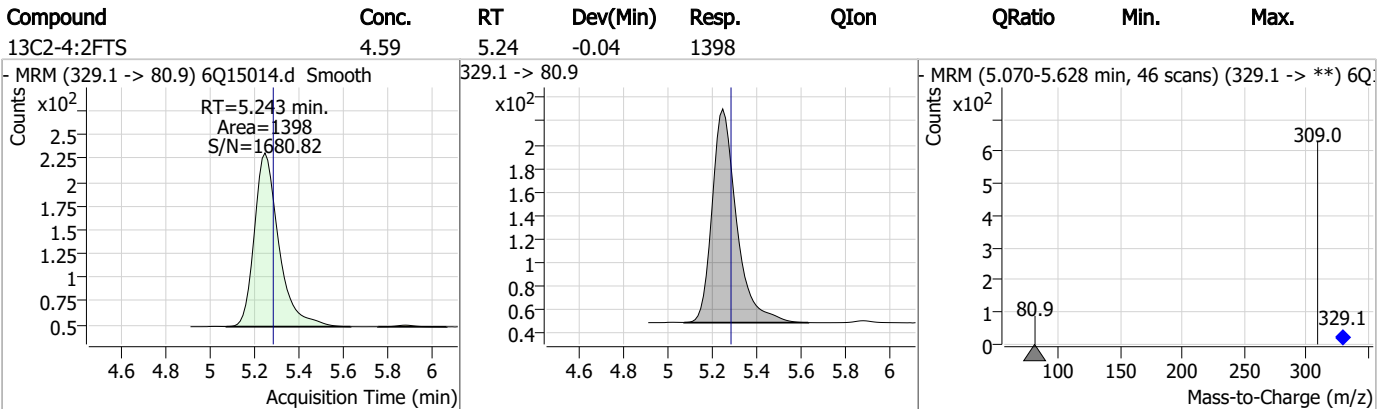
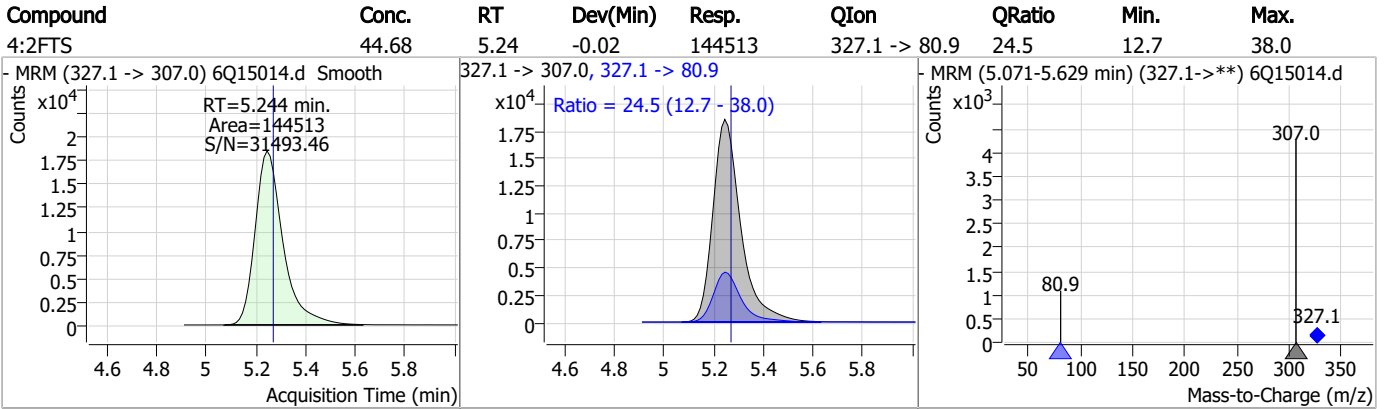
Perfluorinated Compounds by LC/MS/MS



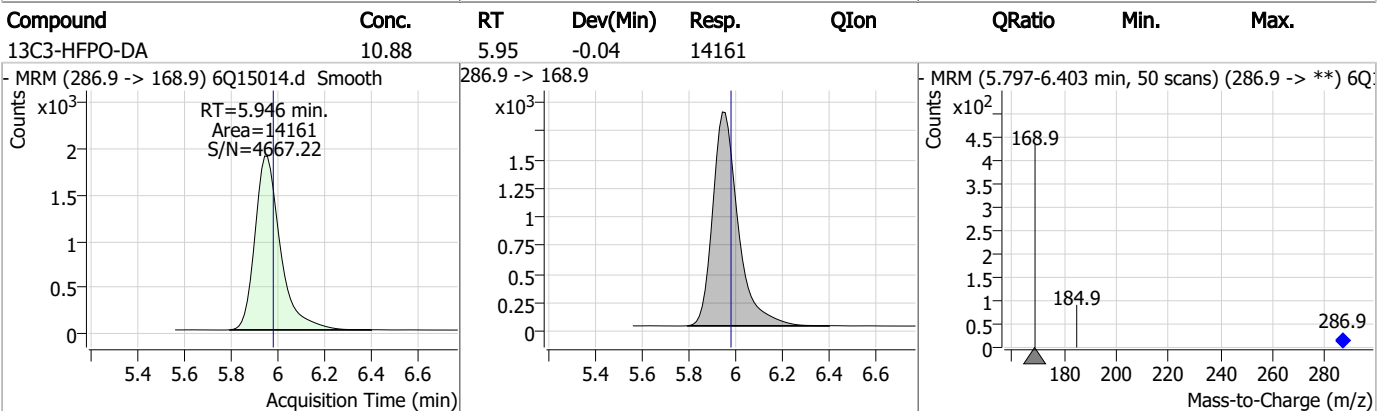
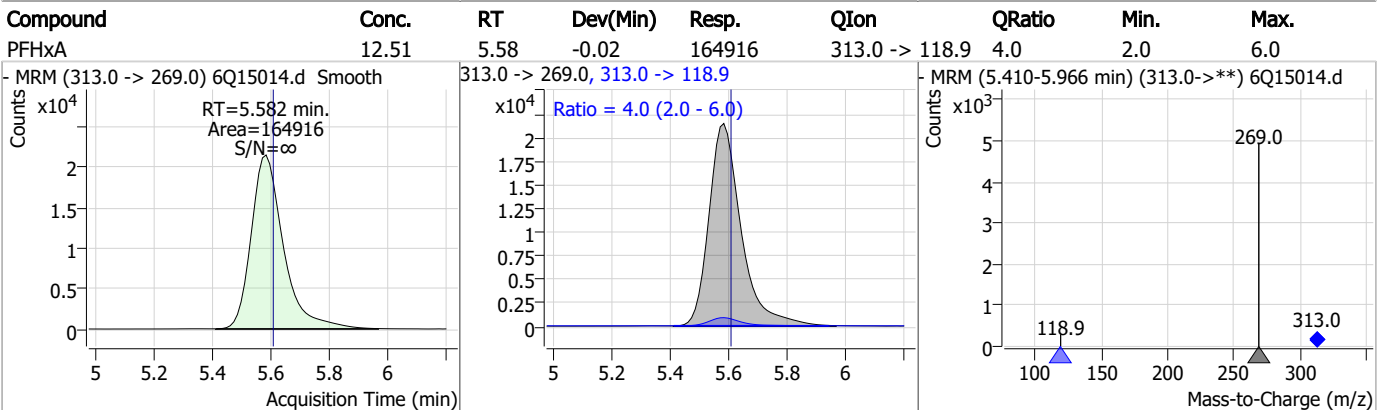
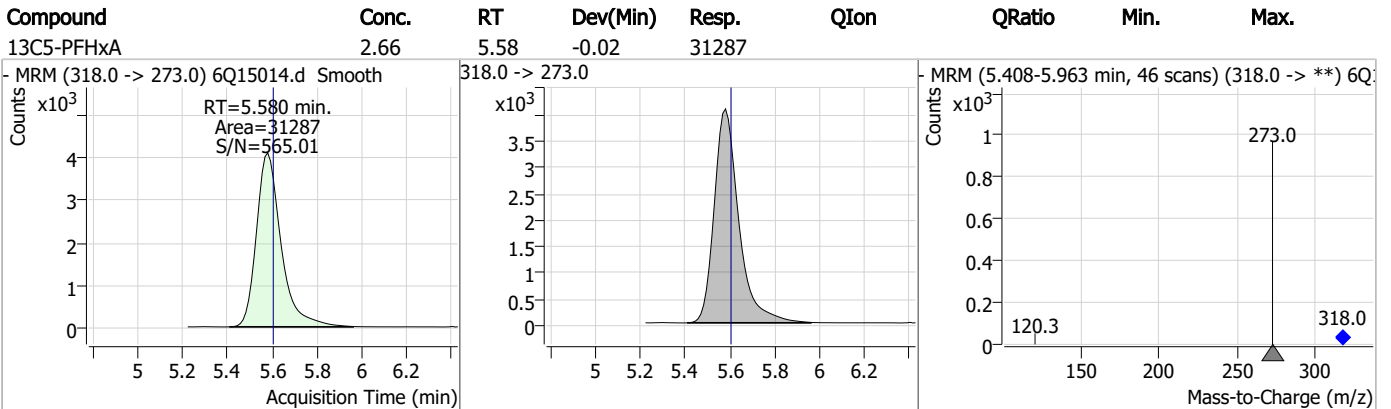
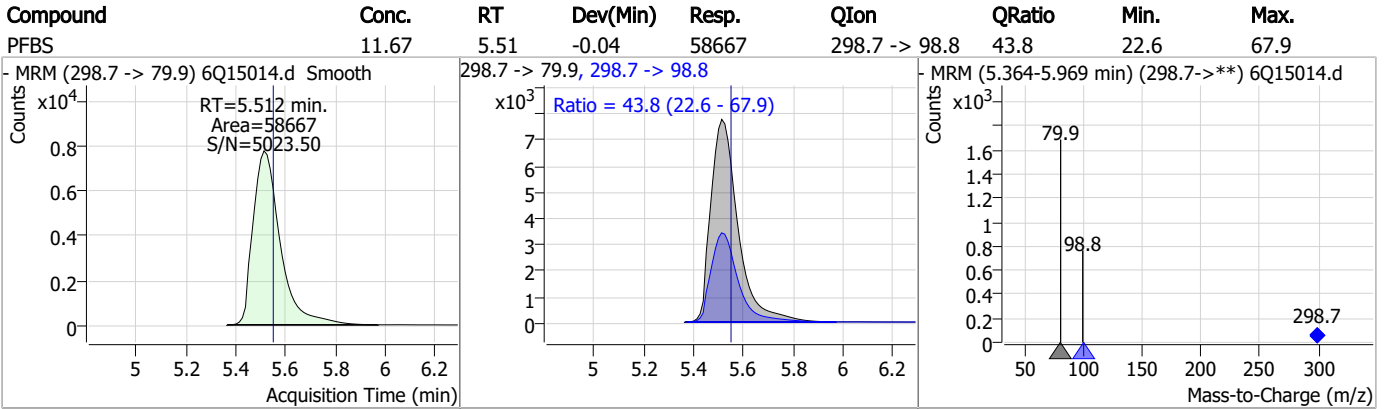
7.6.4

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Perfluorinated Compounds by LC/MS/MS

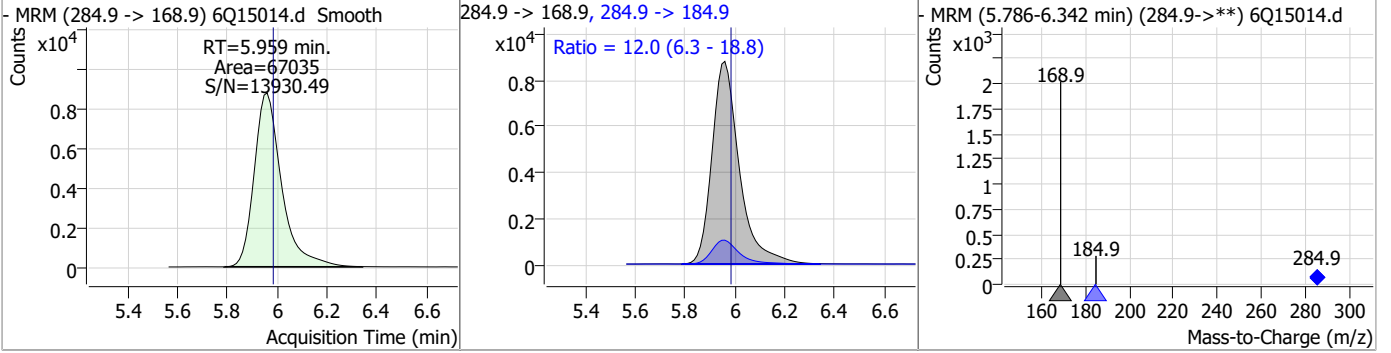


Perfluorinated Compounds by LC/MS/MS

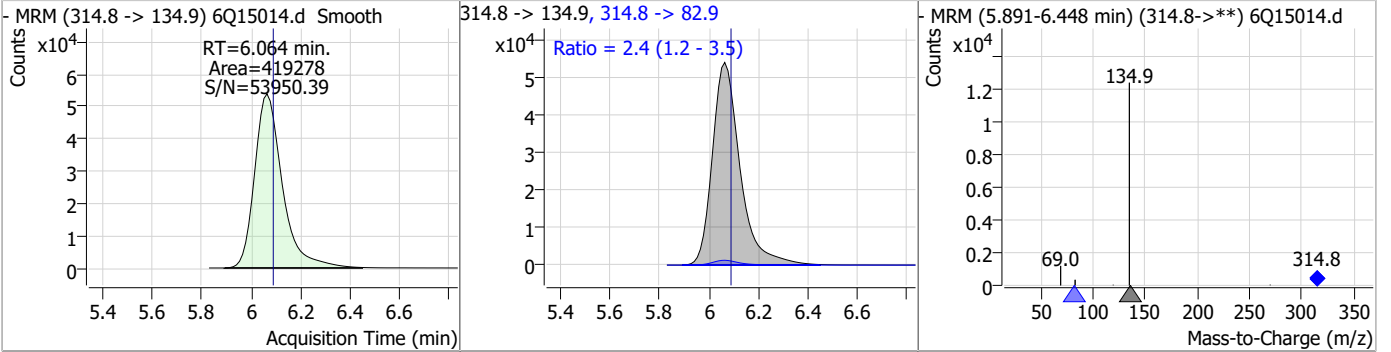


Perfluorinated Compounds by LC/MS/MS

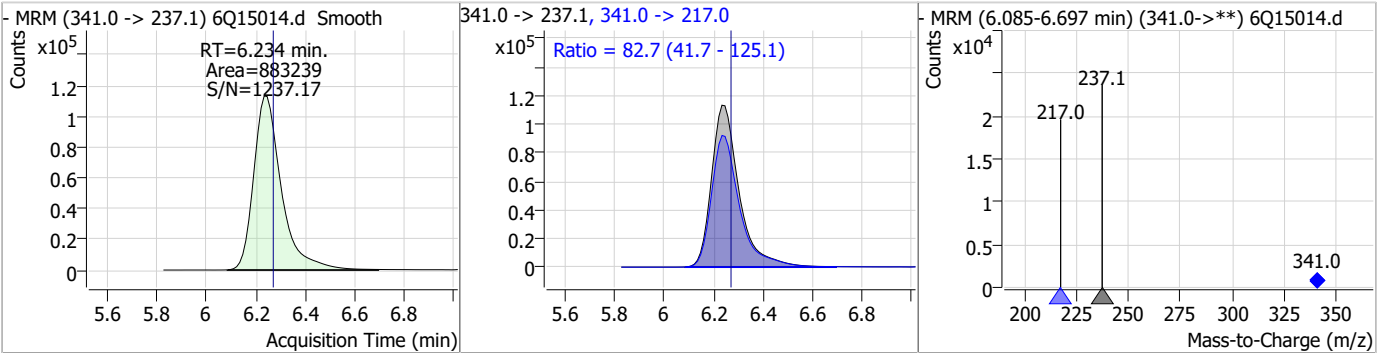
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	44.99	5.96	-0.02	67035	284.9 -> 184.9	12.0	6.3	18.8



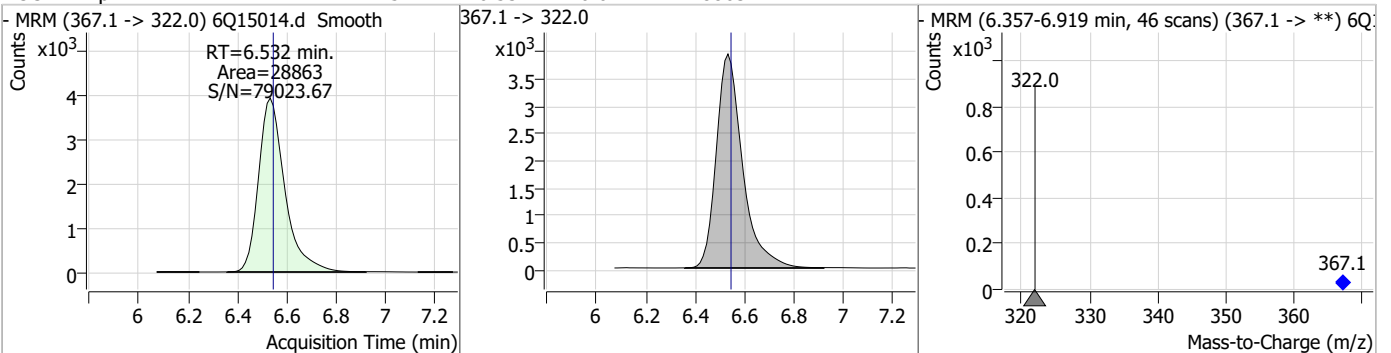
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	22.48	6.06	-0.03	419278	314.8 -> 82.9	2.4	1.2	3.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	331.95	6.23	-0.04	883239	341.0 -> 217.0	82.7	41.7	125.1

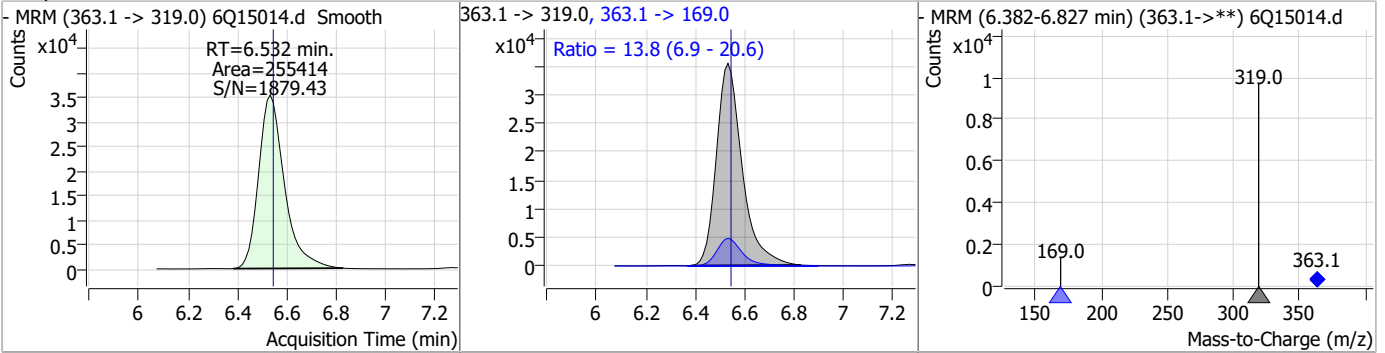


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.45	6.53	-0.01	28863	367.1 -> 322.0	-	-	-

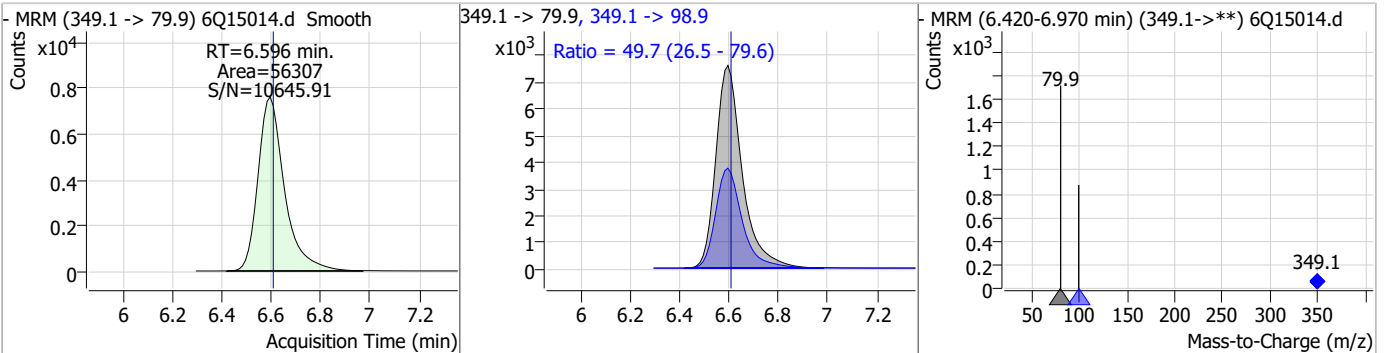


Perfluorinated Compounds by LC/MS/MS

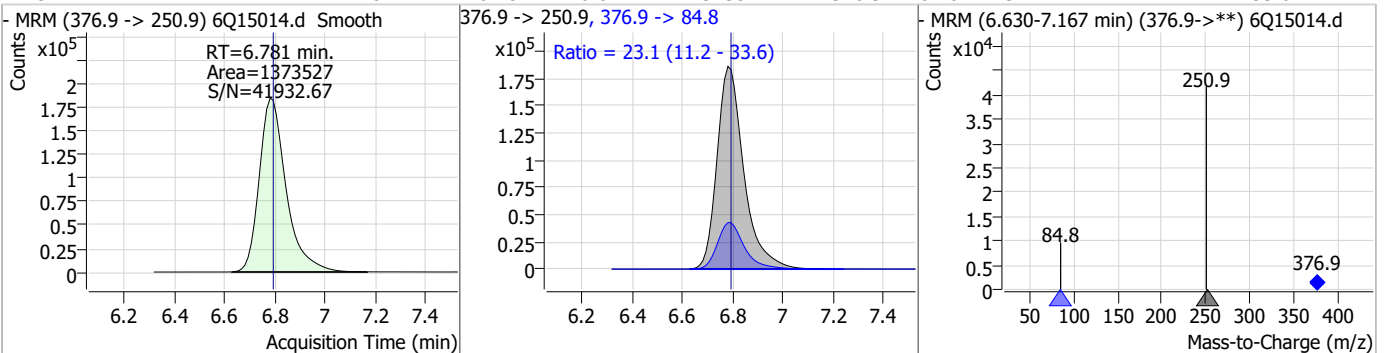
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	13.72	6.53	-0.01	255414	363.1 -> 169.0	13.8	6.9	20.6



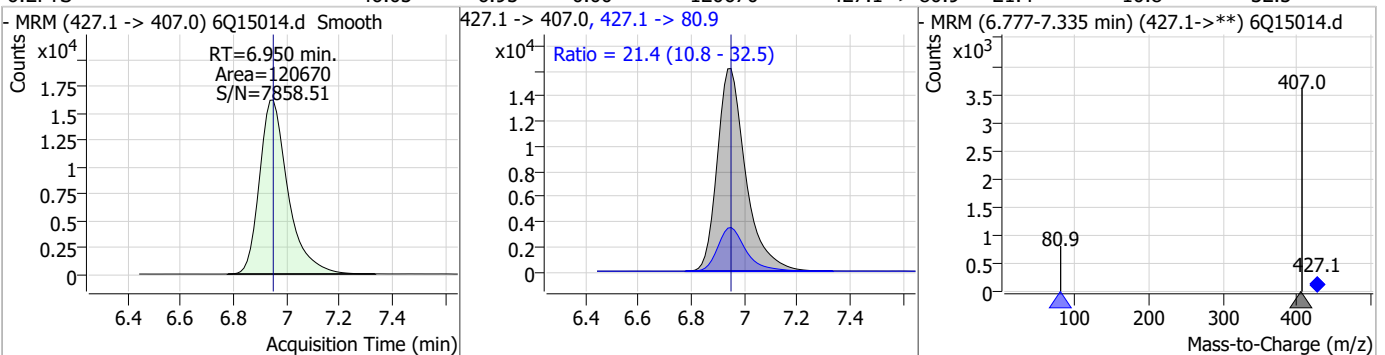
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	12.32	6.60	-0.01	56307	349.1 -> 98.9	49.7	26.5	79.6



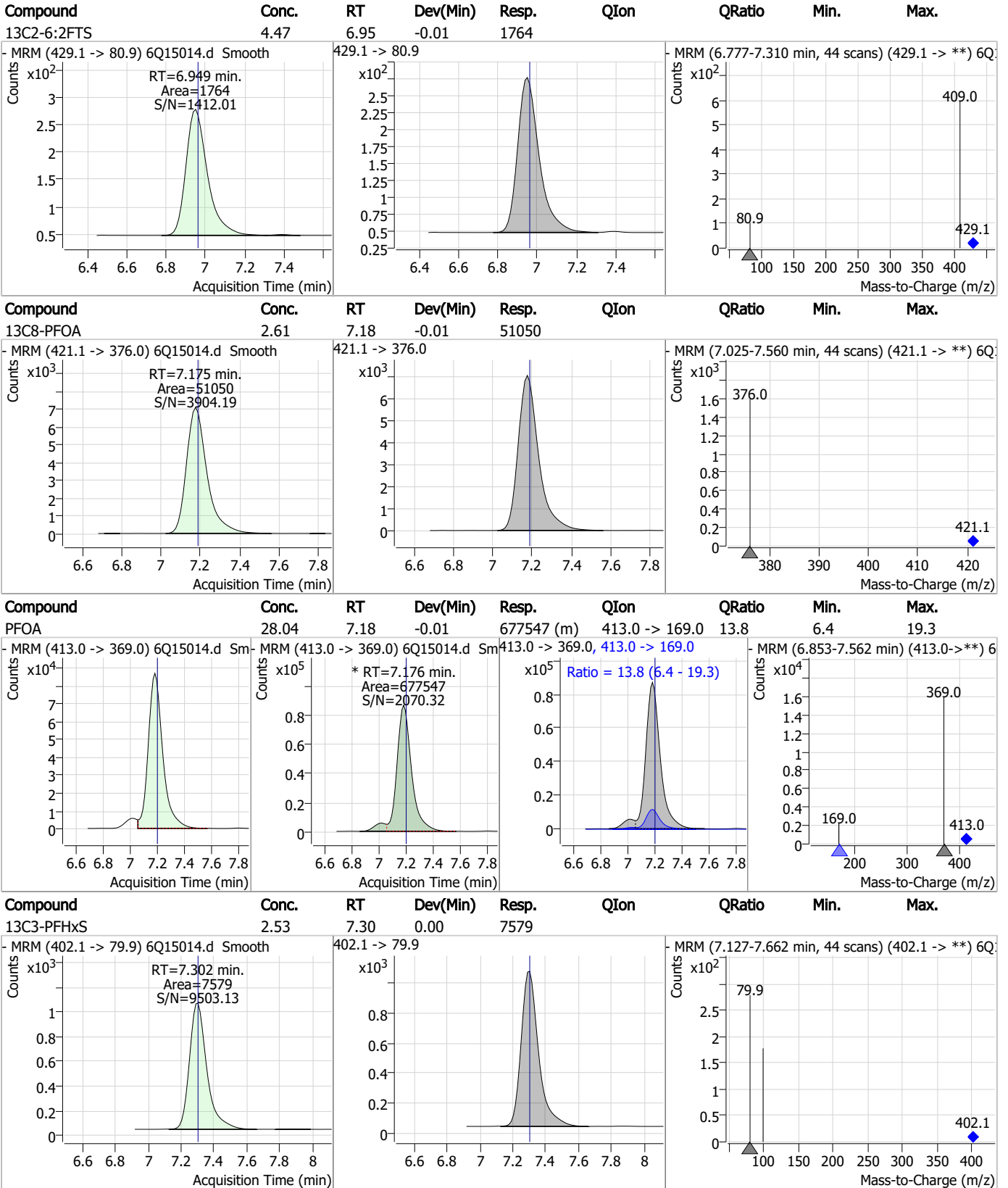
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	45.17	6.78	-0.01	1373527	376.9 -> 84.8	23.1	11.2	33.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2F7S	46.05	6.95	0.00	120670	427.1 -> 80.9	21.4	10.8	32.5



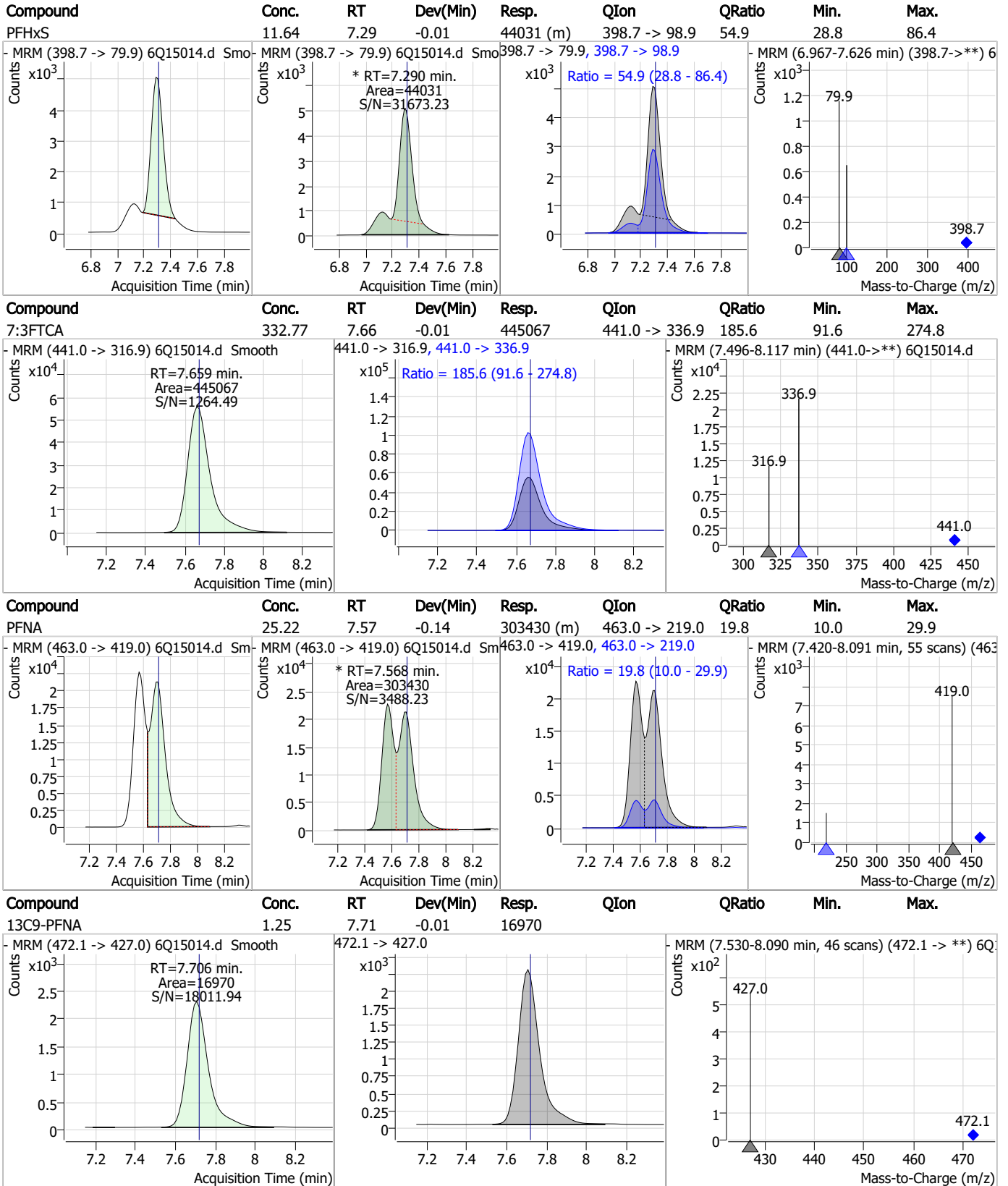
Perfluorinated Compounds by LC/MS/MS



7.6.4

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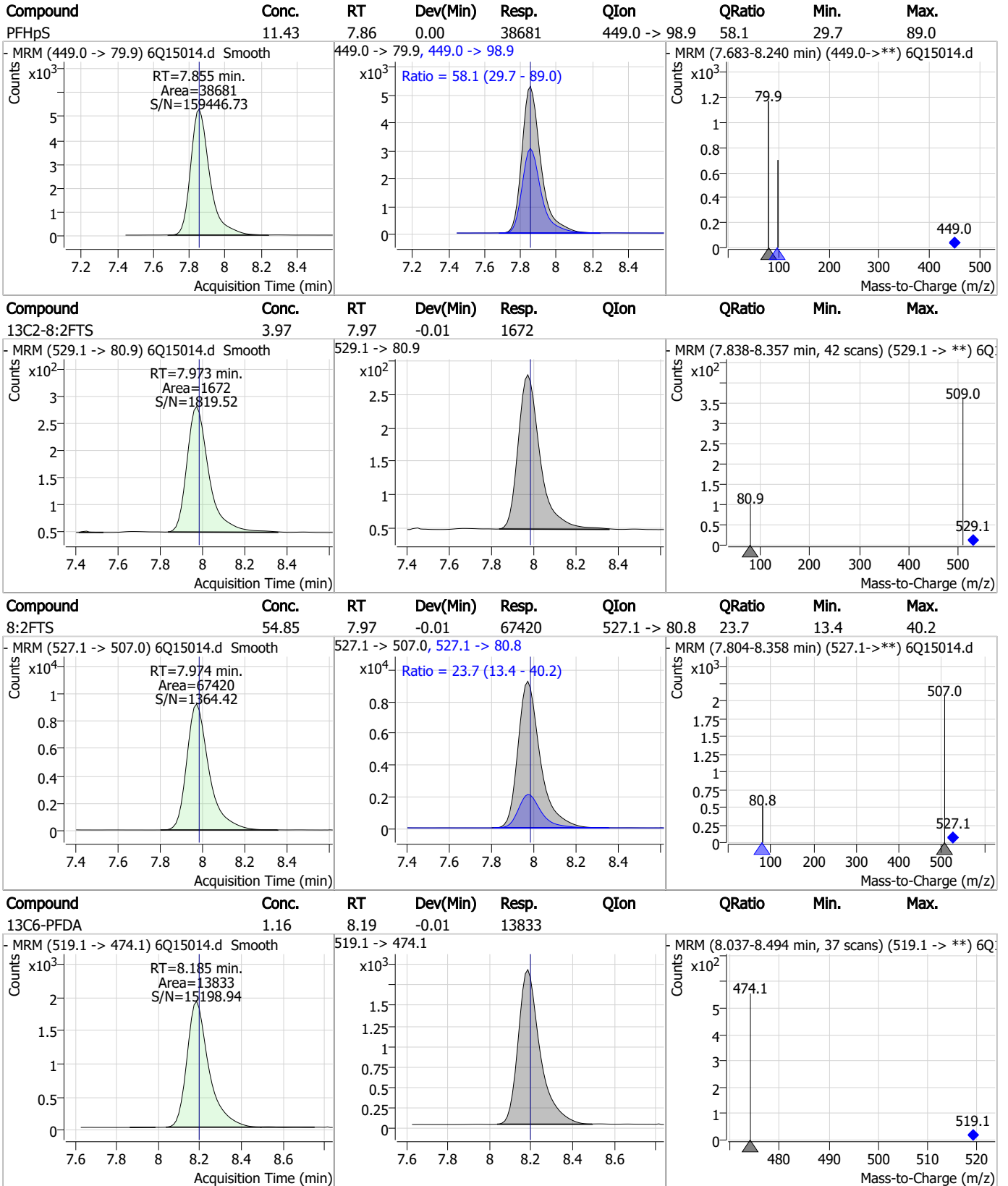
Perfluorinated Compounds by LC/MS/MS



7.6.4

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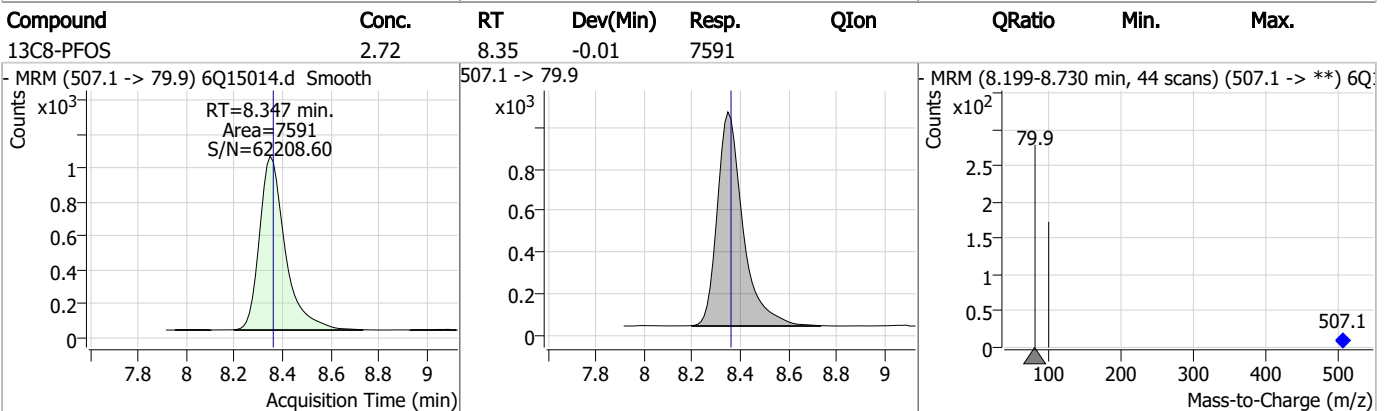
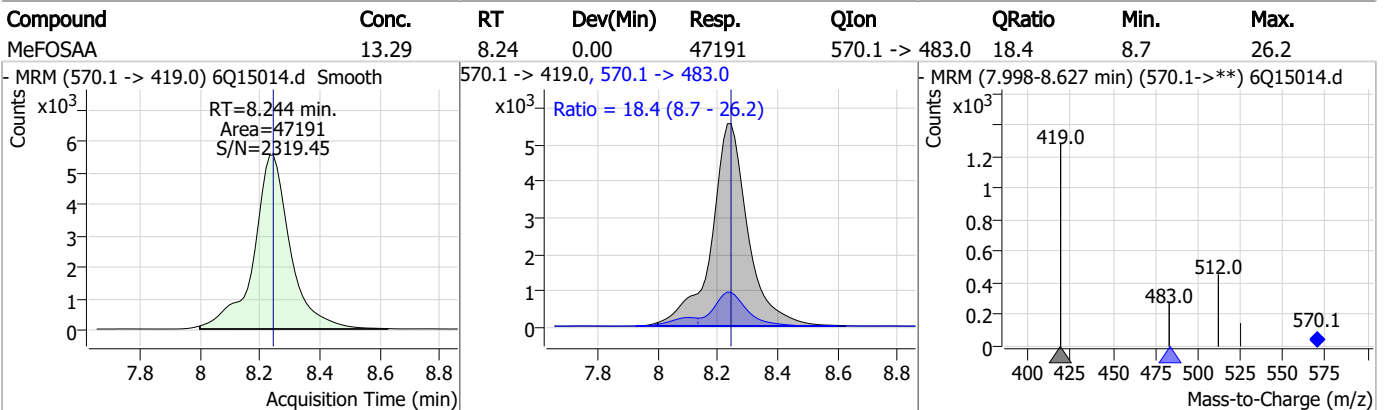
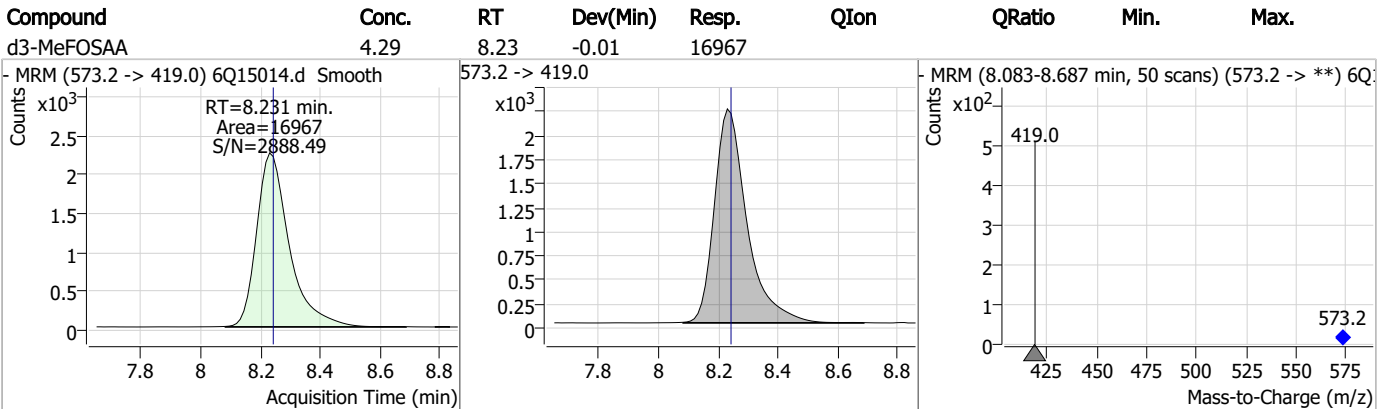
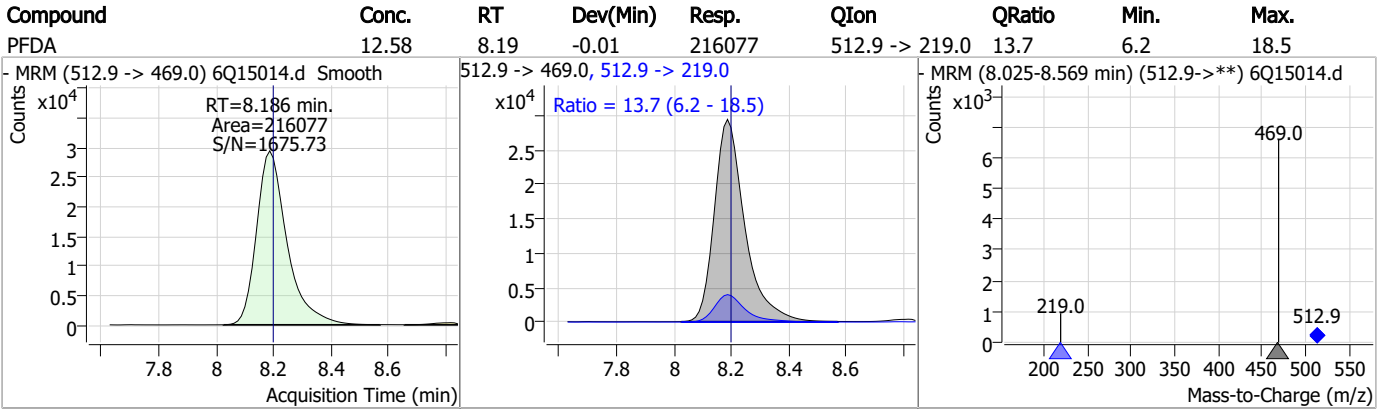
Perfluorinated Compounds by LC/MS/MS



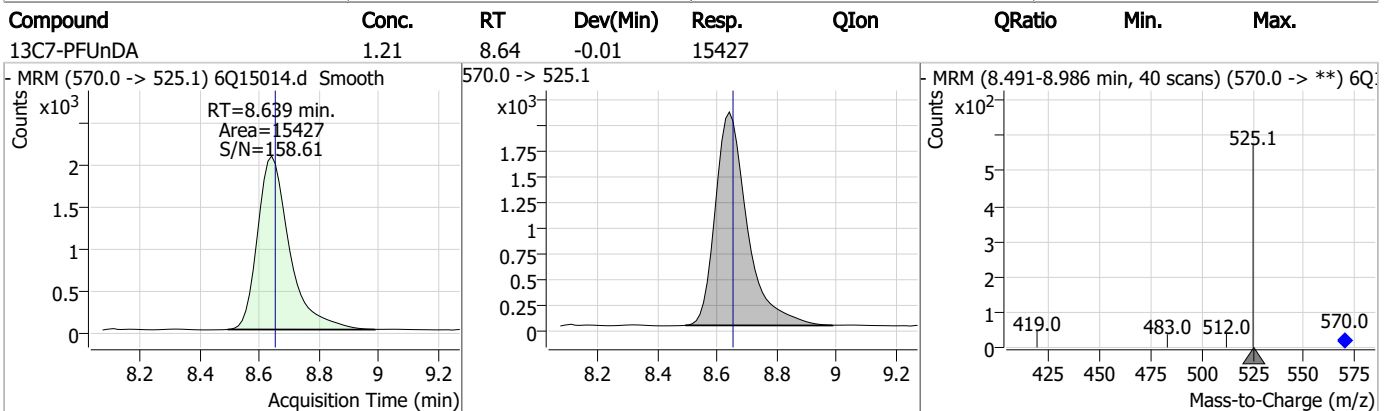
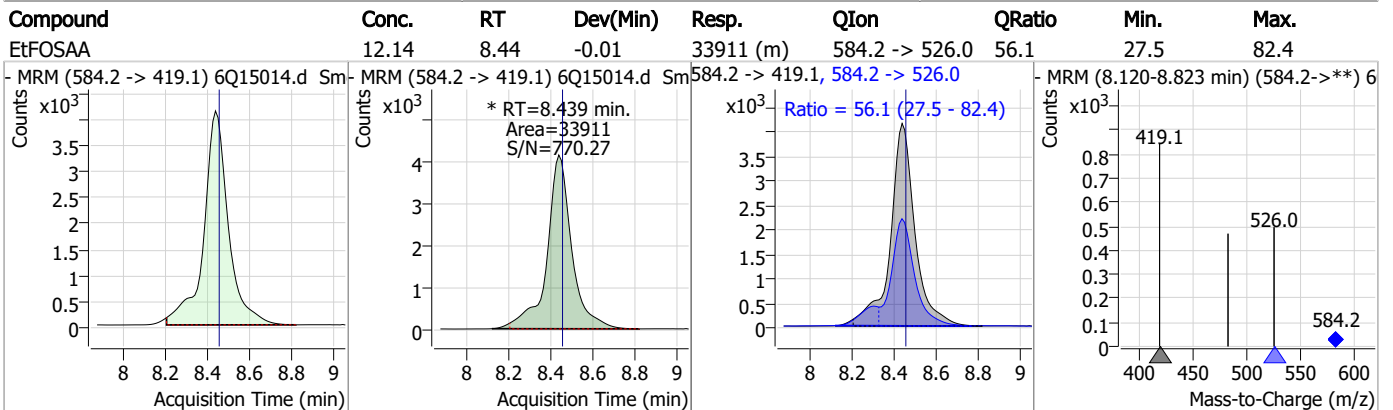
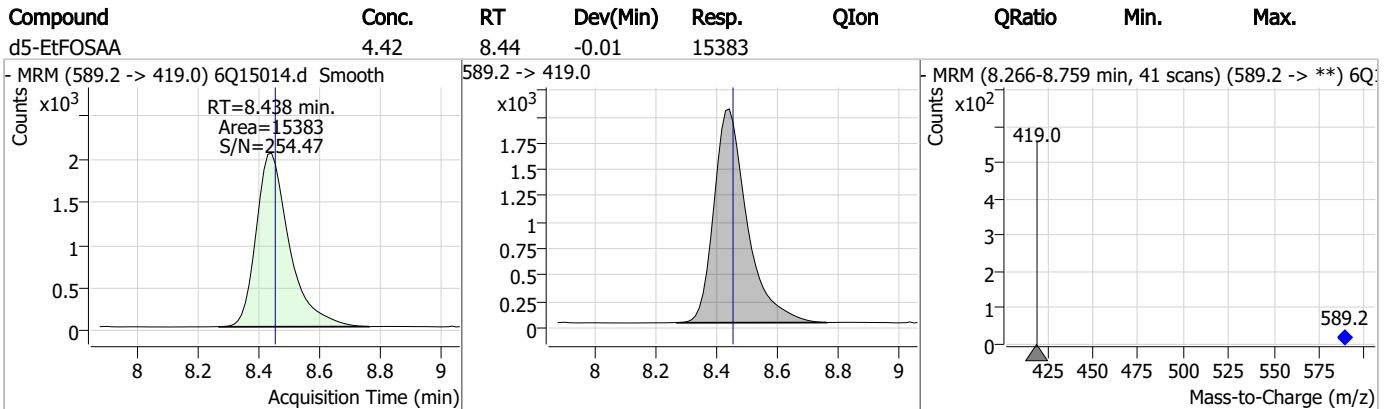
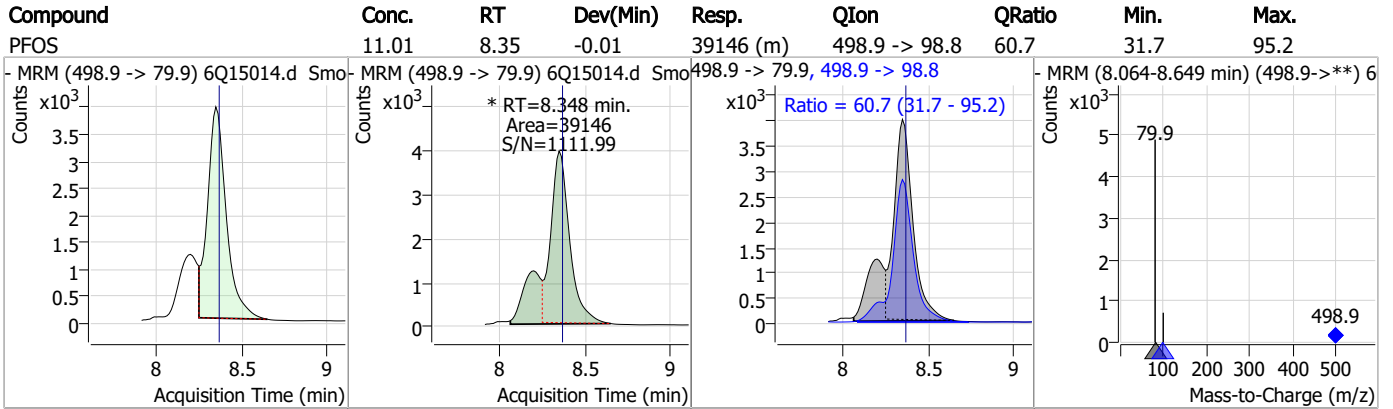
7.6.4

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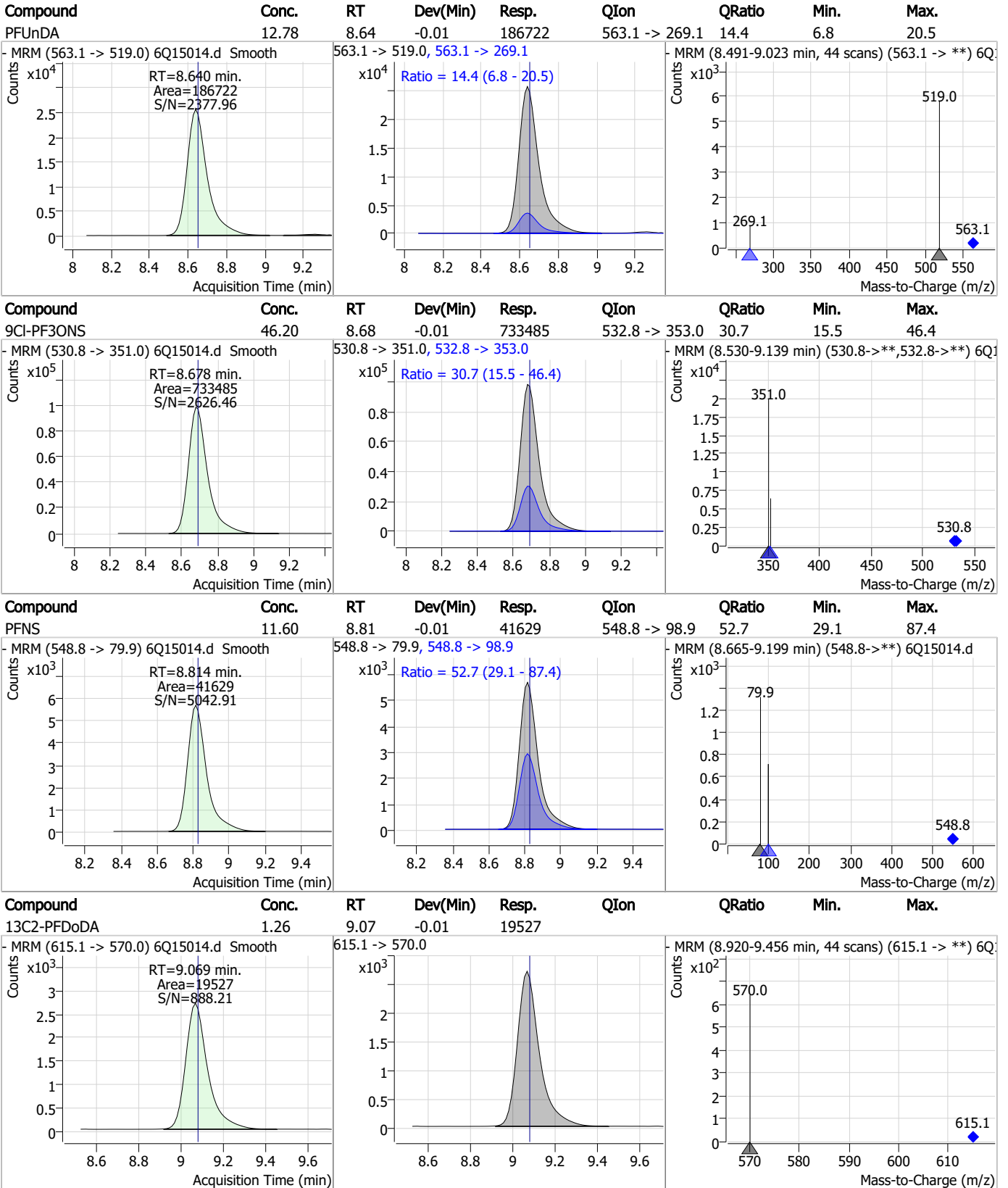
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

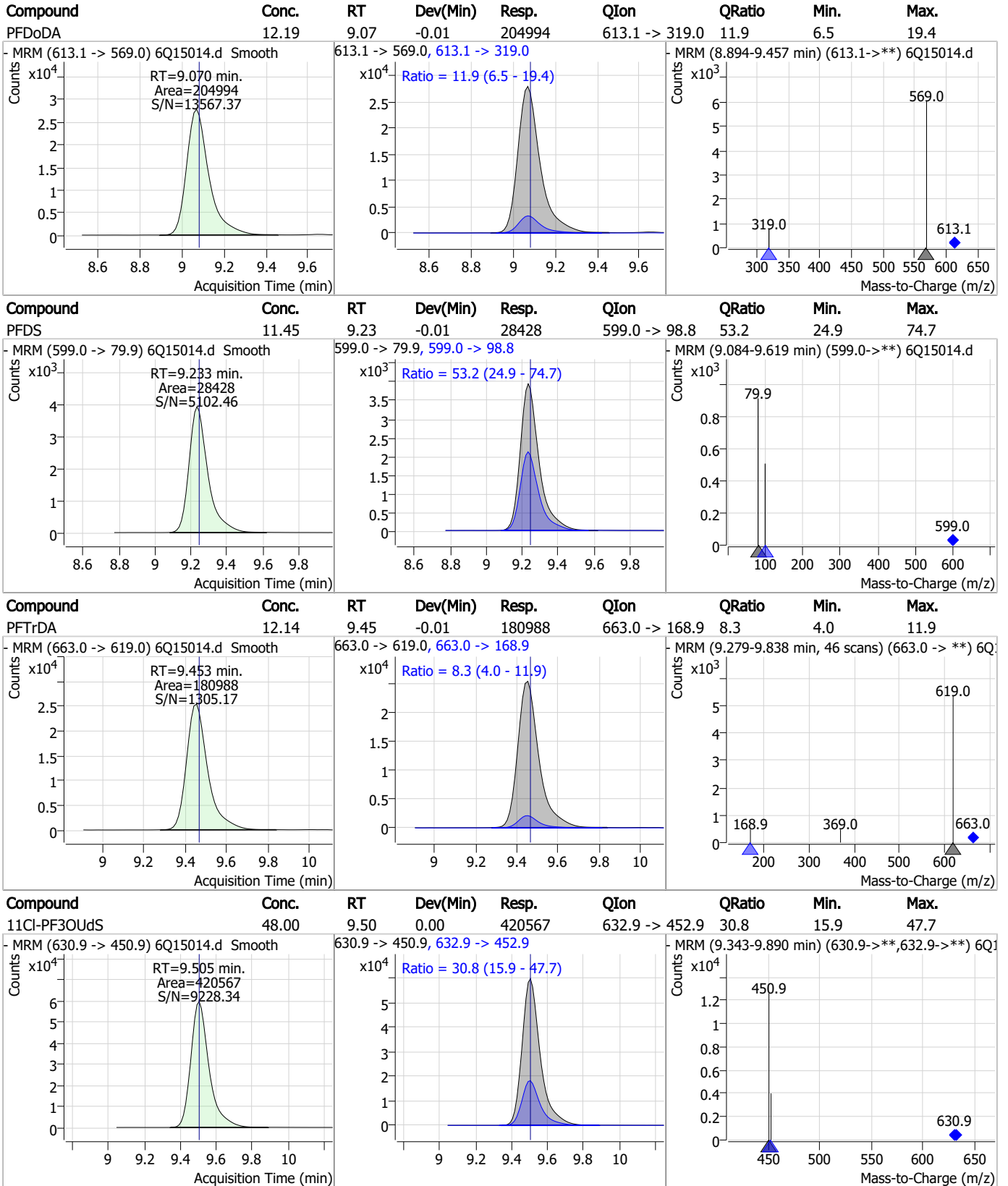


7.6.4

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Perfluorinated Compounds by LC/MS/MS

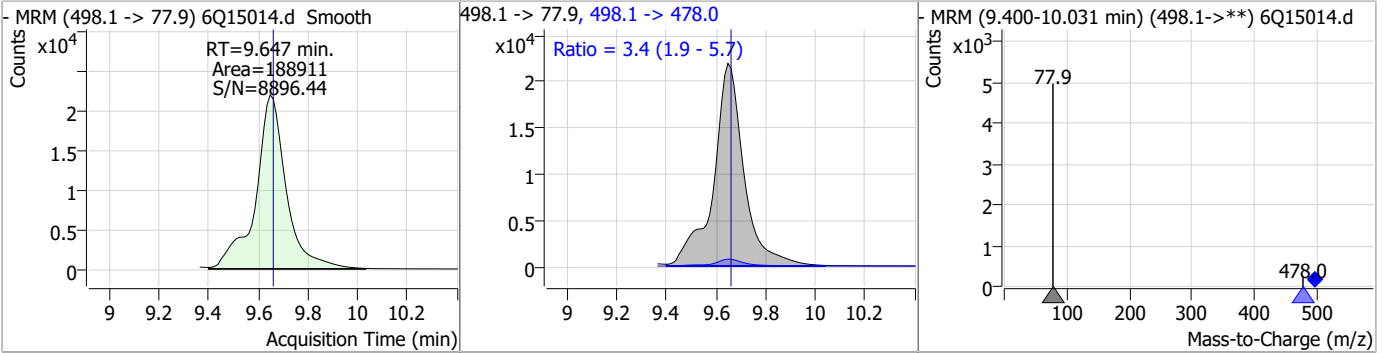


7.6.4

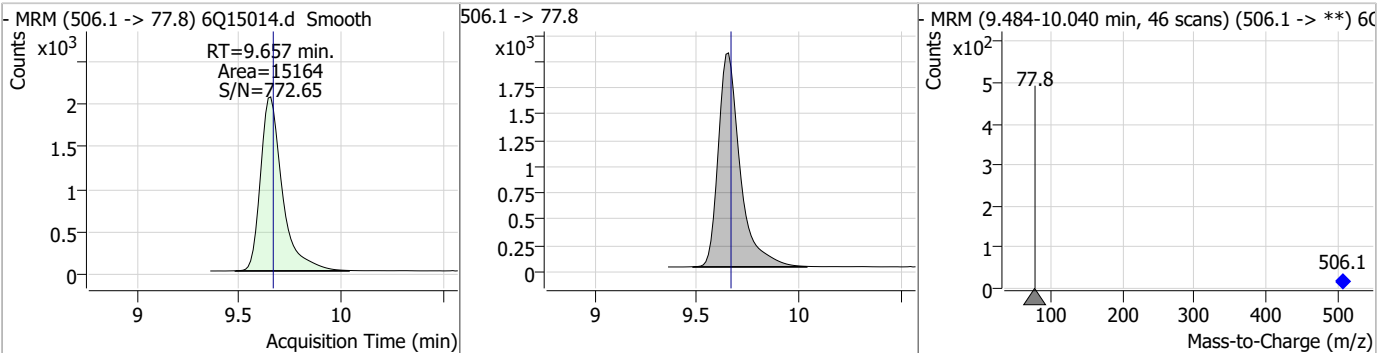
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Perfluorinated Compounds by LC/MS/MS

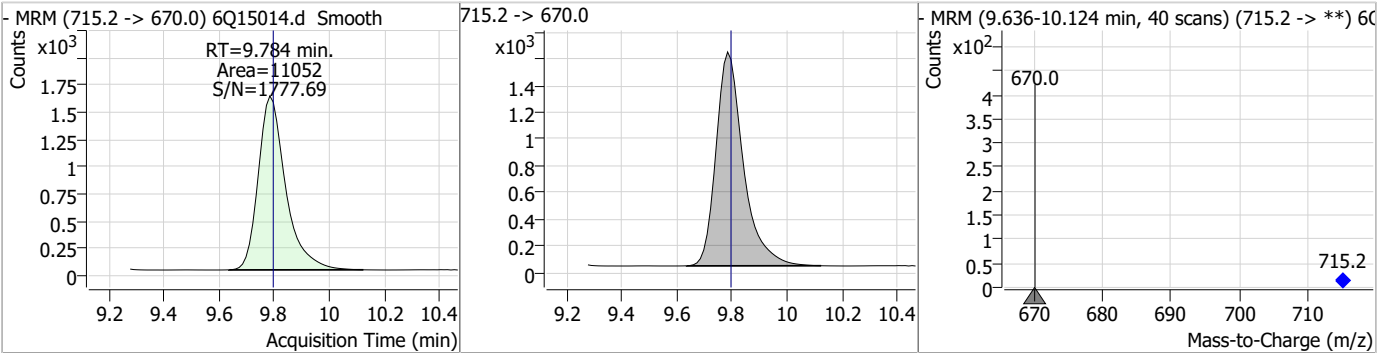
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	31.17	9.65	-0.01	188911	498.1 -> 478.0	3.4	1.9	5.7



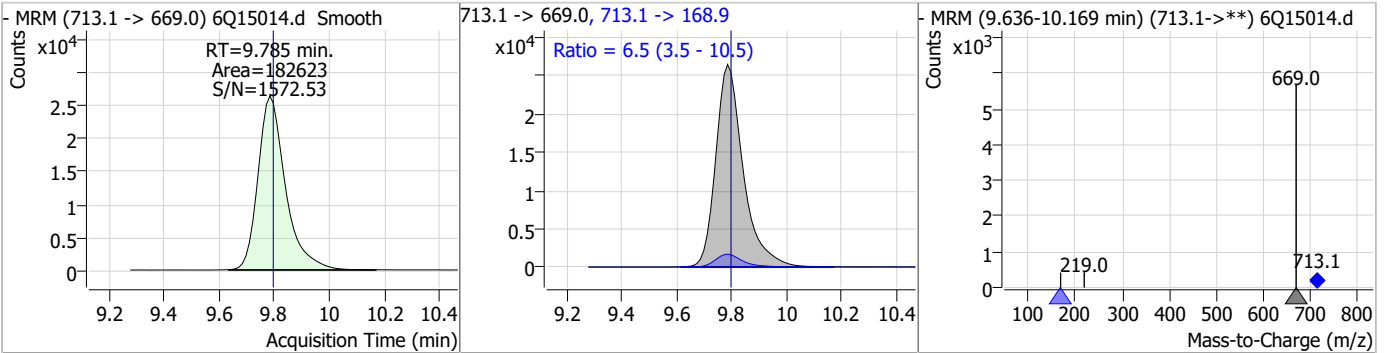
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.65	9.66	-0.01	15164				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.25	9.78	-0.01	11052				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.15	9.78	-0.01	182623	713.1 -> 168.9	6.5	3.5	10.5



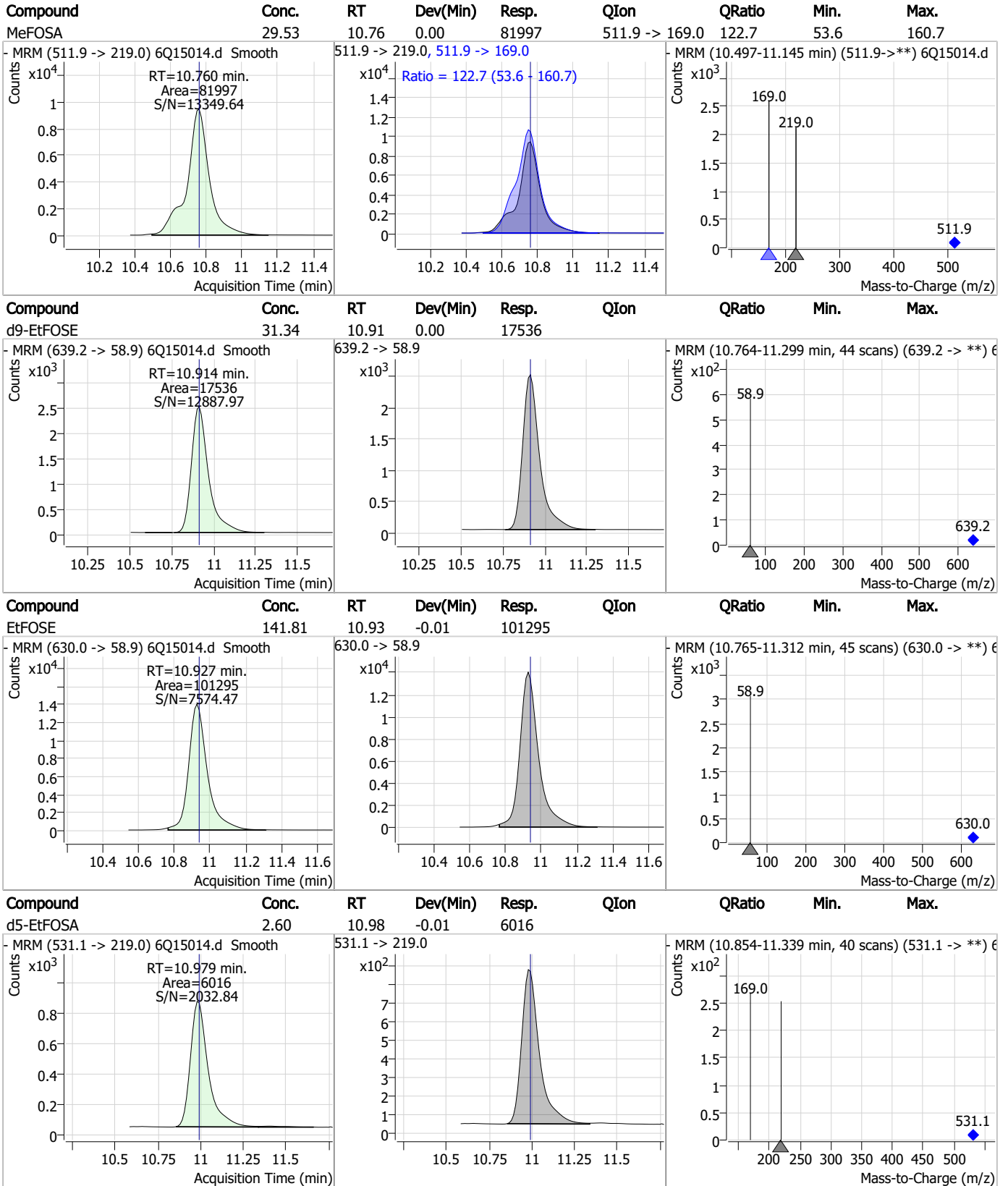
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.44	9.91	-0.01	17654	699.1 -> 98.8	60.0	32.0	96.1
d7-MeFOSE	30.40	10.67	-0.01	24092				
MeFOSE	140.87	10.68	-0.01	143285				
d3-MeFOSA	2.76	10.76	0.00	5775				

7.6.4

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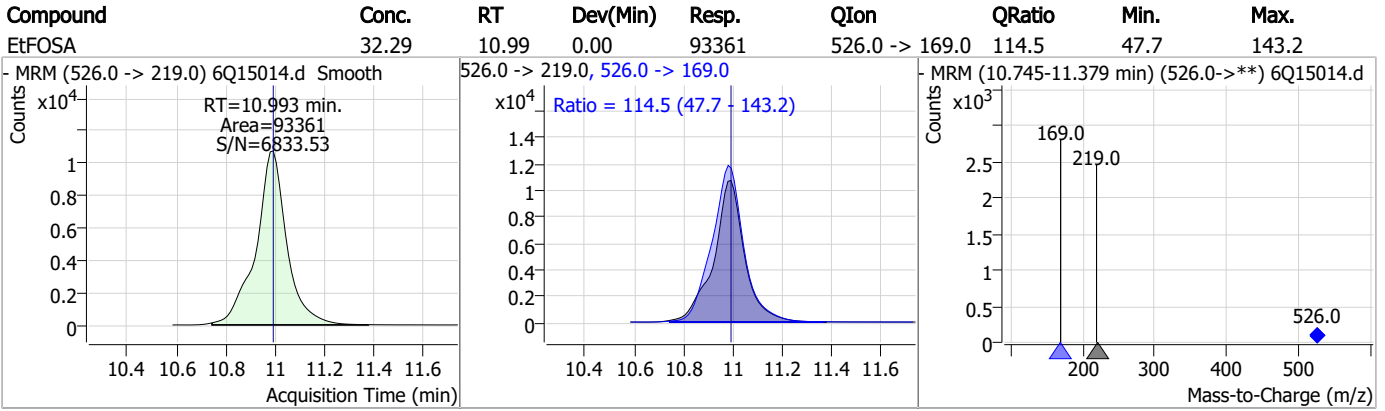
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS



7.6.4

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Manual Integration Approval Summary

Sample Number: S6Q228-RT Method: EPA DRAFT 1633
Lab FileID: 6Q15014.D Analyst approved: 03/21/23 13:24 Martha Valls
Injection Time: 03/20/23 15:11 Supervisor approved: 03/21/23 16:12 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.18	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
Perfluorononanoic acid	375-95-1		7.57	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.44	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 13 March 2023 11:23:24
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.tune.xml
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.81E+0 [R] (Torr); 2.91E-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

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.91	-0.08	Pass	0.70	0.72	0.02	Pass	112958
302.00	301.99	-0.01	Pass	0.70	0.80	0.10	Pass	857108
601.98	601.98	0.00	Pass	0.70	0.69	-0.01	Pass	2358756
1033.99	1033.92	-0.07	Pass	0.70	0.79	0.09	Pass	827940
1633.95	1633.91	-0.04	Pass	0.70	0.80	0.10	Pass	634845
2233.91	2233.91	0.00	Pass	0.70	0.70	0.00	Pass	223943

Analyzer: MS2 Polarity: Negative Width: Unit

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.04	0.04	Pass	0.70	0.63	-0.07	Pass	68068
112.99	112.99	0.00	Pass	0.70	0.70	0.00	Pass	152356
302.00	301.99	-0.01	Pass	0.70	0.66	-0.04	Pass	671838
601.98	601.95	-0.03	Pass	0.70	0.72	0.02	Pass	1618687
1033.99	1033.96	-0.03	Pass	0.70	0.72	0.02	Pass	1260991
1633.95	1633.92	-0.03	Pass	0.70	0.72	0.02	Pass	907037
2233.91	2233.86	-0.05	Pass	0.70	0.73	0.03	Pass	297747

Analyzer: MS1 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.93	-0.06	Pass	1.20	1.39	0.19	Pass	141724
302.00	301.96	-0.04	Pass	1.20	1.58	0.38	Pass	975368
601.98	601.91	-0.07	Pass	1.20	1.67	0.47	Pass	2909723
1033.99	1033.85	-0.14	Pass	1.20	1.55	0.35	Pass	1263912
1633.95	1633.87	-0.08	Pass	1.20	1.52	0.32	Pass	940563
2233.91	2233.88	-0.03	Pass	1.20	1.38	0.18	Pass	342810

Analyzer: MS2 Polarity: Negative Width: Wide

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.01	0.01	Pass	1.20	1.15	-0.05	Pass	98007
112.99	112.94	-0.05	Pass	1.20	1.20	0.00	Pass	235523
302.00	302.05	0.05	Pass	1.20	1.15	-0.05	Pass	981409
601.98	602.02	0.04	Pass	1.20	1.36	0.16	Pass	3188222
1033.99	1033.98	-0.01	Pass	1.20	1.33	0.13	Pass	2611650
1633.95	1633.87	-0.08	Pass	1.20	1.46	0.26	Pass	2218199
2233.91	2233.91	0.00	Pass	1.20	1.35	0.15	Pass	841303

Analyzer: MS1 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
112.99	112.91	-0.08	Pass	2.50	2.67	0.17	Pass	155519
302.00	301.82	-0.18	Pass	2.50	2.79	0.29	Pass	1155561
601.98	601.75	-0.23	Pass	2.50	2.96	0.46	Pass	3661259
1033.99	1033.82	-0.17	Pass	2.50	2.77	0.27	Pass	2008983
1633.95	1633.79	-0.16	Pass	2.50	2.61	0.11	Pass	2014992
2233.91	2233.64	-0.27	Pass	2.50	2.53	0.03	Pass	915405

Analyzer: MS2 Polarity: Negative Width: Widest

m/z	m/z	Delta	Result	FWHM	FWHM	Delta	Result	Abundance
Expected	Measured			Expected	Measured			
69.00	69.01	0.01	Pass	2.50	2.50	0.00	Pass	122032
112.99	113.01	0.02	Pass	2.50	2.62	0.12	Pass	300191
302.00	302.00	0.00	Pass	2.50	2.64	0.14	Pass	1546717
601.98	601.96	-0.02	Pass	2.50	2.87	0.37	Pass	4376968
1033.99	1033.93	-0.06	Pass	2.50	2.75	0.25	Pass	4079531
1633.95	1634.00	0.05	Pass	2.50	2.84	0.34	Pass	4211015
2233.91	2233.80	-0.11	Pass	2.50	2.55	0.05	Pass	2041050

7.7.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14850.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 9:46:11 PM
 Sample Name : ic225-1
 Vial : P1-A2
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.947	216.8 -> 171.9	73078	10.00 µg/L	0.000
M5-PFPeA	4.395	268.3 -> 223.0	35265	5.00 µg/L	0.000
M5-PFHxA	5.593	318.0 -> 273.0	30799	2.50 µg/L	-0.012
M4-PFHpA	6.532	367.1 -> 322.0	31581	2.50 µg/L	-0.012
M8-PFOA	7.175	421.1 -> 376.0	54978	2.50 µg/L	-0.012
M9-PFNA	7.718	472.1 -> 427.0	17382	1.25 µg/L	0.000
M6-PFDA	8.185	519.1 -> 474.1	14837	1.25 µg/L	-0.012
M7-PFUnDA	8.652	570.0 -> 525.1	15672	1.25 µg/L	0.000
M2-PFDoDA	9.082	615.1 -> 570.0	17855	1.25 µg/L	0.000
M2-PFTeDA	9.797	715.2 -> 670.0	10171	1.25 µg/L	0.000
M8-FOSA	9.669	506.1 -> 77.8	15310	2.50 µg/L	0.000
M3-PFBS	5.536	302.1 -> 79.9	12001	2.50 µg/L	-0.012
M3-PFHxS	7.302	402.1 -> 79.9	7891	2.50 µg/L	0.000
M8-PFOS	8.360	507.1 -> 79.9	7187	2.50 µg/L	0.000
M2-4:2FTS	5.268	329.1 -> 80.9	1765	5.00 µg/L	-0.012
M2-6:2FTS	6.949	429.1 -> 80.9	2285	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	2280	5.00 µg/L	0.000
M3-MeFOSAA	8.243	573.2 -> 419.0	22502	5.00 µg/L	0.000
M3-HFPO-DA	5.971	286.9 -> 168.9	14110	10.00 µg/L	-0.012
M5-EtFOSAA	8.438	589.2 -> 419.0	20057	5.00 µg/L	-0.012
M7-MeFOSE	10.680	623.2 -> 58.9	21578	25.00 µg/L	0.000
M9-EtFOSE	10.926	639.2 -> 58.9	15055	25.00 µg/L	0.012
M5-EtFOSA	10.991	531.1 -> 219.0	6327	2.50 µg/L	0.000
M3-MeFOSA	10.759	515.0 -> 219.0	5419	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	8605	2.50 µg/L	0.000
13C3-PFBA	2.952	216.0 -> 172.0	31687	5.00 µg/L	0.000
18O2-PFHxS	7.301	403.0 -> 83.9	5692	2.50 µg/L	-0.012
13C4-PFOA	7.176	417.1 -> 372.0	63244	2.50 µg/L	-0.012
13C2-PFDA	8.185	515.1 -> 470.1	18927	1.25 µg/L	-0.012
13C5-PFNA	7.706	468.0 -> 423.0	16427	1.25 µg/L	-0.012
13C2-PFHxA	5.594	315.1 -> 270.0	30463	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.268	329.1 -> 80.9	1765	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2285	5.40 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-8:2FTS	7.986	529.1 -> 80.9	2280	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C2-PFDoDA	9.082	615.1 -> 570.0	17855	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-PFTeDA	9.797	715.2 -> 670.0	10171	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.536	302.1 -> 79.9	12001	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFHxS	7.302	402.1 -> 79.9	7891	2.46 µg/L	0.000

7.7.2
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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 = 98.2%		
13C4-PFBA	2.947	216.8 -> 171.9	73078	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C4-PFHpA	6.532	367.1 -> 322.0	31581	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C5-PFHxA	5.593	318.0 -> 273.0	30799	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C5-PFPeA	4.395	268.3 -> 223.0	35265	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C6-PFDA	8.185	519.1 -> 474.1	14837	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C7-PFUnDA	8.652	570.0 -> 525.1	15672	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C8-FOSA	9.669	506.1 -> 77.8	15310	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C8-PFOA	7.175	421.1 -> 376.0	54978	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C8-PFOS	8.360	507.1 -> 79.9	7187	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C9-PFNA	7.718	472.1 -> 427.0	17382	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.8%		
d3-MeFOSAA	8.243	573.2 -> 419.0	22502	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C3-HFPO-DA	5.971	286.9 -> 168.9	14110	10.25 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
d3-MeFOSA	10.759	515.0 -> 219.0	5419	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
d5-EtFOSAA	8.438	589.2 -> 419.0	20057	5.52 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.4%		
d7-MeFOSE	10.680	623.2 -> 58.9	21578	26.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
d9-EtFOSE	10.926	639.2 -> 58.9	15055	25.76 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
d5-EtFOSA	10.991	531.1 -> 219.0	6327	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.8%		
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	3123	0.76 µg/L	93
		327.1 -> 80.9	675		
6:2FTS	6.950	427.1 -> 407.0	2558	0.75 µg/L	100
		427.1 -> 80.9	558		
8:2FTS	7.974	527.1 -> 507.0	1363	0.81 µg/L	94
		527.1 -> 80.8	321		
EtFOSAA	8.452	584.2 -> 419.1	807	0.22 µg/L	m 81
		584.2 -> 526.0	333		
FOSA	9.672	498.1 -> 77.9	1189	0.19 µg/L	98
		498.1 -> 478.0	53		
MeFOSAA	8.244	570.1 -> 419.0	792	0.17 µg/L	97
		570.1 -> 483.0	147		
PFBA	2.956	212.8 -> 168.9	1533	0.77 µg/L	100
PFBS	5.537	298.7 -> 79.9	918	0.17 µg/L	94
		298.7 -> 98.8	382		
PFDA	8.198	512.9 -> 469.0	3327	0.18 µg/L	97
		512.9 -> 219.0	449		
PFDODA	9.082	613.1 -> 569.0	3376	0.22 µg/L	97
		613.1 -> 319.0	402		
PFDS	9.246	599.0 -> 79.9	472	0.20 µg/L	68

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	337			
PFHpA	6.544	363.1 -> 319.0	3966	0.19	µg/L	95
		363.1 -> 169.0	625			
PFHpS	7.855	449.0 -> 79.9	658	0.21	µg/L	97
		449.0 -> 98.9	375			
PFHxA	5.607	313.0 -> 269.0	2631	0.20	µg/L	98
		313.0 -> 118.9	85			
PFHxS	7.303	398.7 -> 79.9	792	0.20	µg/L	m 92
		398.7 -> 98.9	412			
PFNA	7.707	463.0 -> 419.0	2035	0.17	µg/L	87
		463.0 -> 219.0	522			
PFNS	8.826	548.8 -> 79.9	676	0.20	µg/L	87
		548.8 -> 98.9	330			
PFOA	7.176	413.0 -> 369.0	4331	0.17	µg/L	96
		413.0 -> 169.0	635			
PFOS	8.361	498.9 -> 79.9	748	0.22	µg/L	m 84
		498.9 -> 98.8	379			
PFPeA	4.397	263.0 -> 219.0	3423	0.41	µg/L	100
PFPeS	6.596	349.1 -> 79.9	937	0.20	µg/L	100
		349.1 -> 98.9	495			
PFTeDA	9.797	713.1 -> 669.0	2638	0.21	µg/L	98
		713.1 -> 168.9	170			
PFTrDA	9.466	663.0 -> 619.0	2856	0.21	µg/L	98
		663.0 -> 168.9	201			
PFUnDA	8.652	563.1 -> 519.0	2892	0.19	µg/L	96
		563.1 -> 269.1	348			
11Cl-PF3OUdS	9.517	630.9 -> 450.9	6242	0.72	µg/L	97
		632.9 -> 452.9	2086			
9Cl-PF3ONS	8.703	530.8 -> 351.0	11408	0.72	µg/L	88
		532.8 -> 353.0	4248			
ADONA	6.794	376.9 -> 250.9	22471	0.74	µg/L	99
		376.9 -> 84.8	5104			
HFPO-DA	5.971	284.9 -> 168.9	1229	0.83	µg/L	90
		284.9 -> 184.9	107			
3:3FTCA	3.851	241.0 -> 177.0	419	1.00	µg/L	87
		241.0 -> 117.0	39			
5:3FTCA	6.259	341.0 -> 237.1	12893	4.92	µg/L	99
		341.0 -> 217.0	10848			
7:3FTCA	7.672	441.0 -> 316.9	6847	5.20	µg/L	91
		441.0 -> 336.9	11696			
EtFOSA	10.993	526.0 -> 219.0	575	0.19	µg/L	85
		526.0 -> 169.0	632			
EtFOSE	10.939	630.0 -> 58.9	1183	1.93	µg/L	100
MeFOSA	10.773	511.9 -> 219.0	540	0.21	µg/L	89
		511.9 -> 169.0	520			
MeFOSE	10.692	616.1 -> 58.9	1791	1.97	µg/L	100
PFDoDS	9.924	699.1 -> 79.9	226	0.17	µg/L	68
		699.1 -> 98.8	201			
NFDHA	5.476	295.0 -> 201.0	383	0.46	µg/L	81
		295.0 -> 84.9	124			
PFMBA	4.806	279.0 -> 85.1	1036	0.38	µg/L	100
PFMPA	3.526	229.0 -> 84.9	940	0.39	µg/L	100
PFEESA	6.077	314.8 -> 134.9	6497	0.35	µg/L	100
		314.8 -> 82.9	148			

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

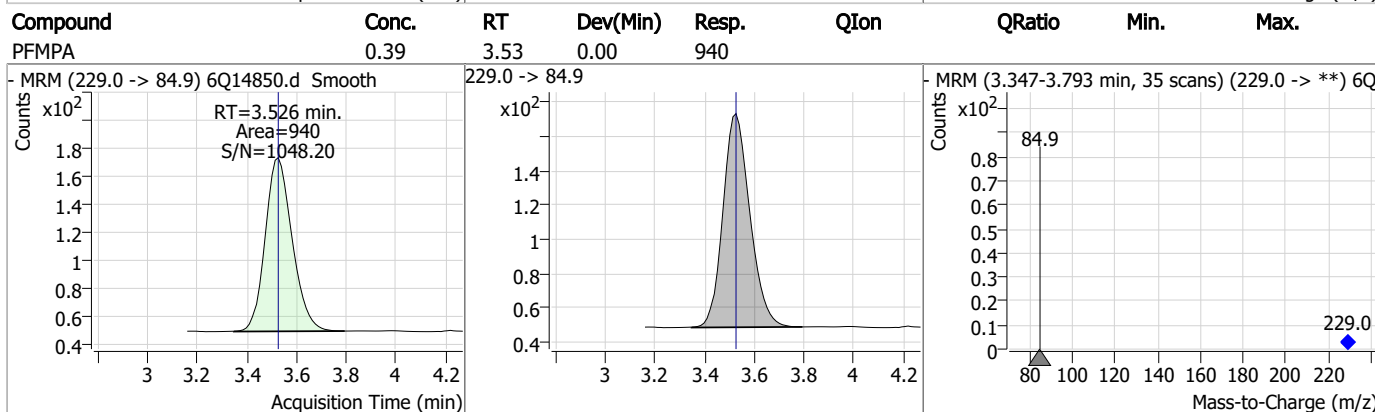
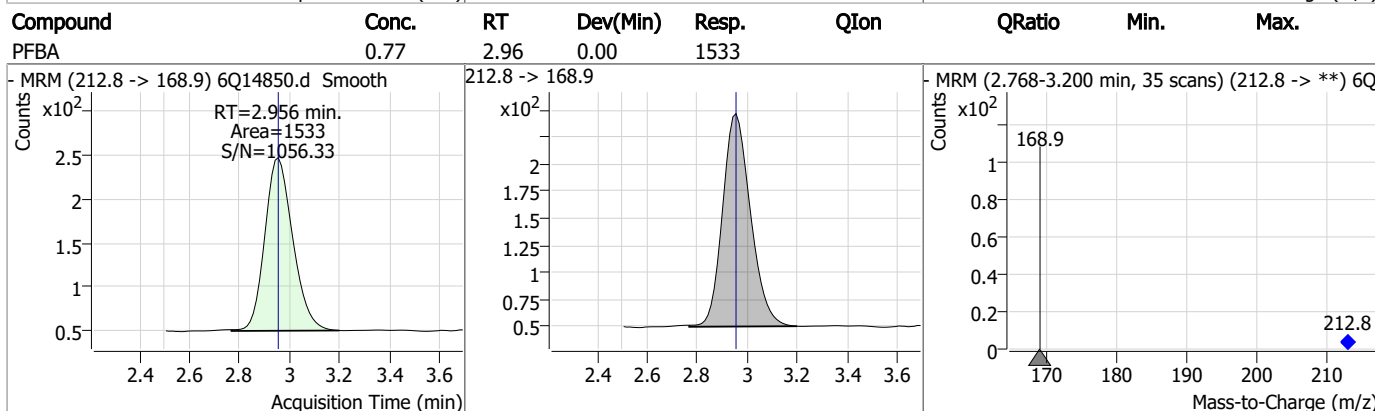
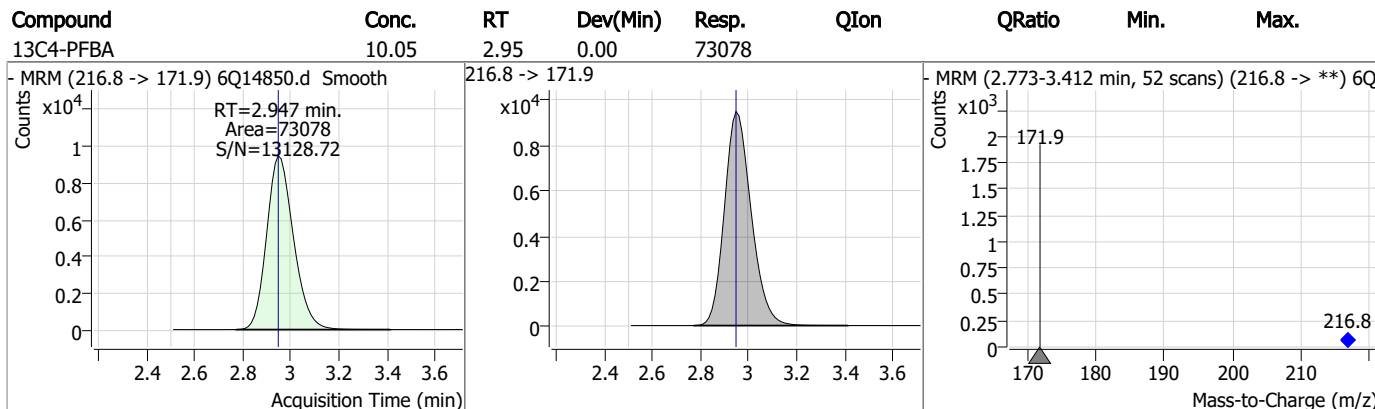
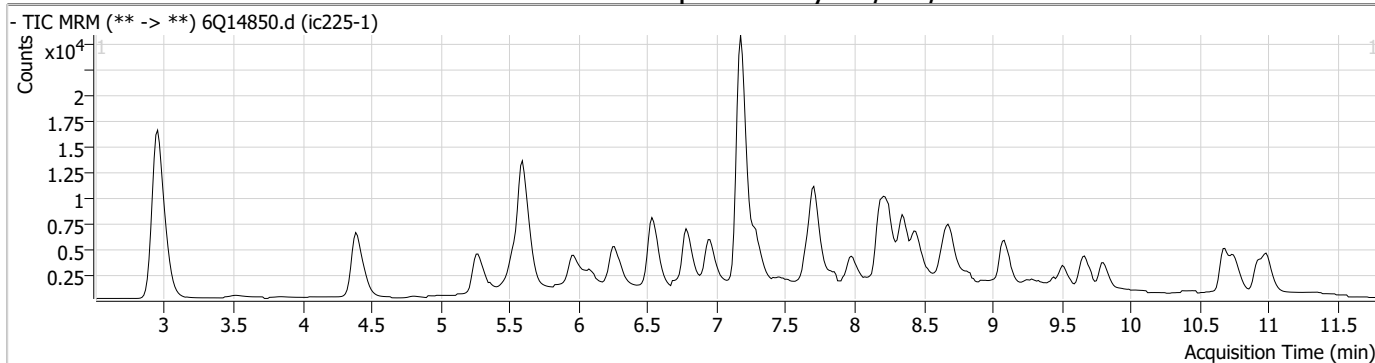
Perfluorinated Compounds by LC/MS/MS

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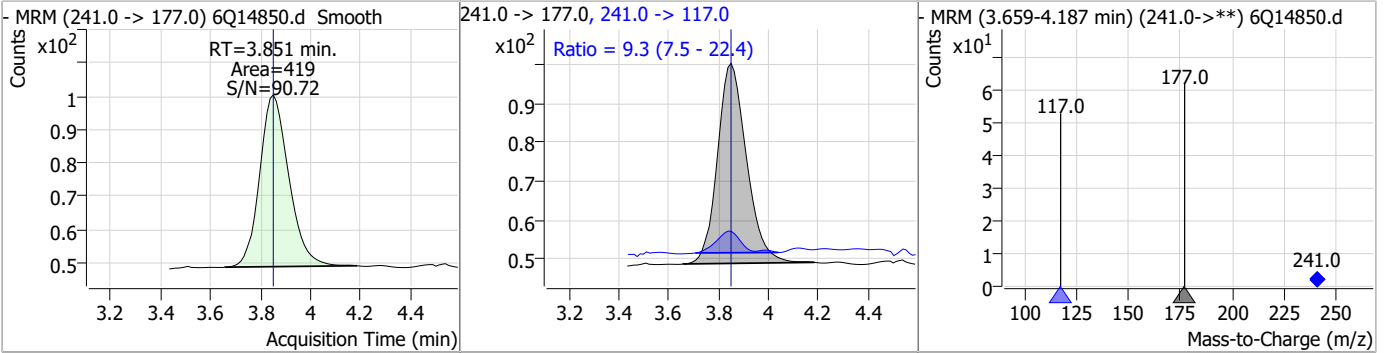


Perfluorinated Compounds by LC/MS/MS

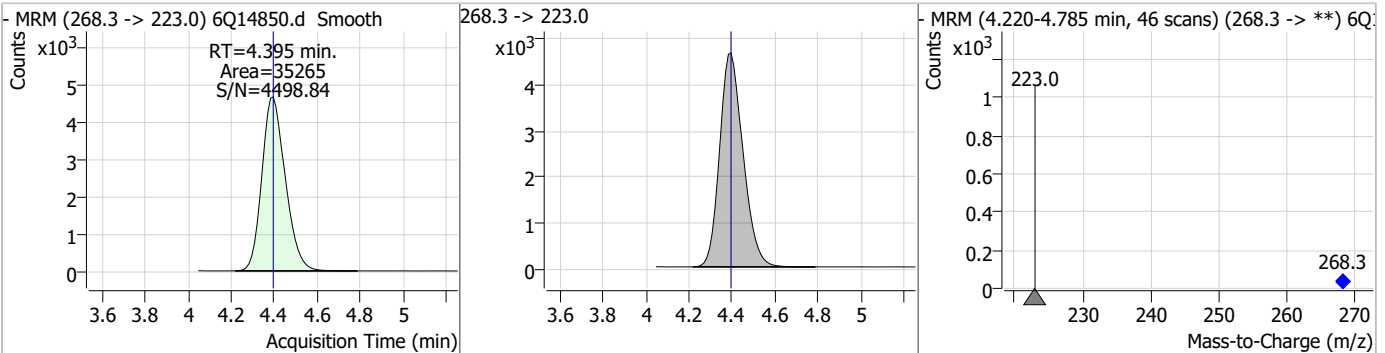


Perfluorinated Compounds by LC/MS/MS

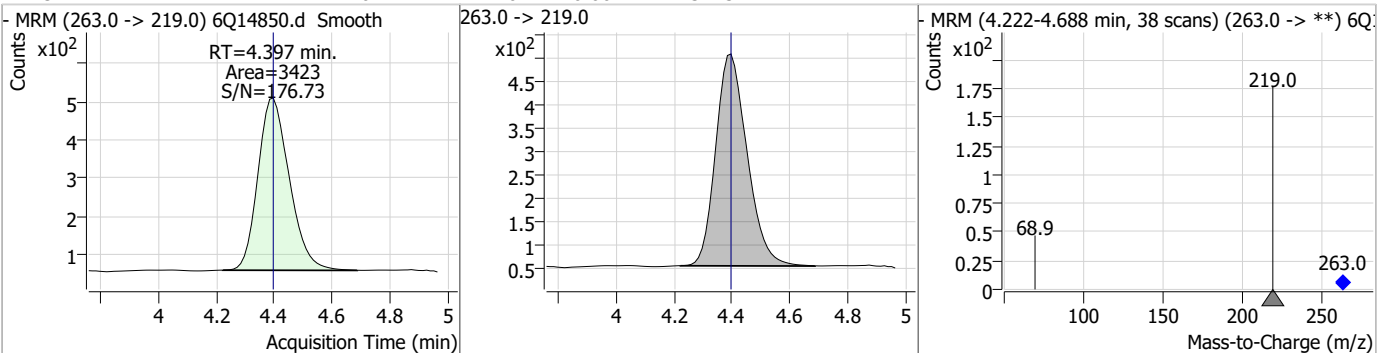
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.00	3.85	0.00	419	241.0 -> 117.0	9.3	7.5	22.4



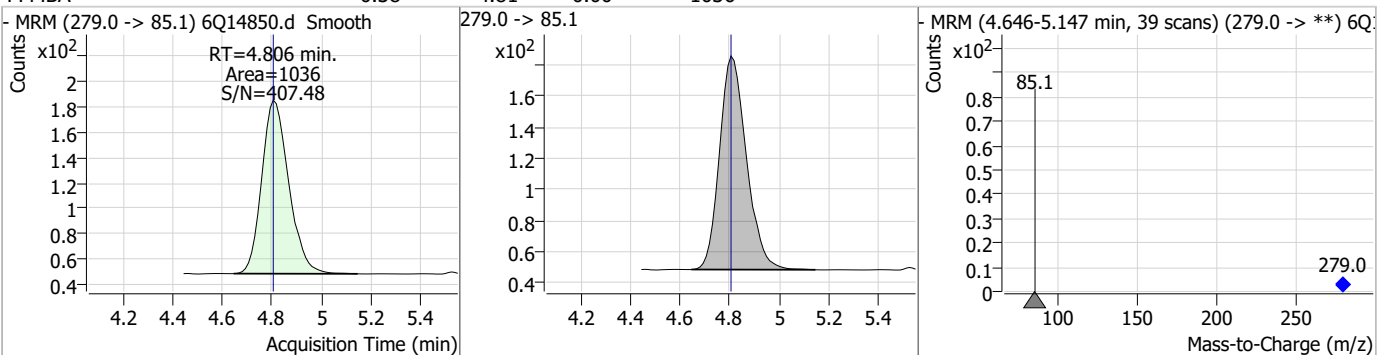
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.01	4.39	0.00	35265				



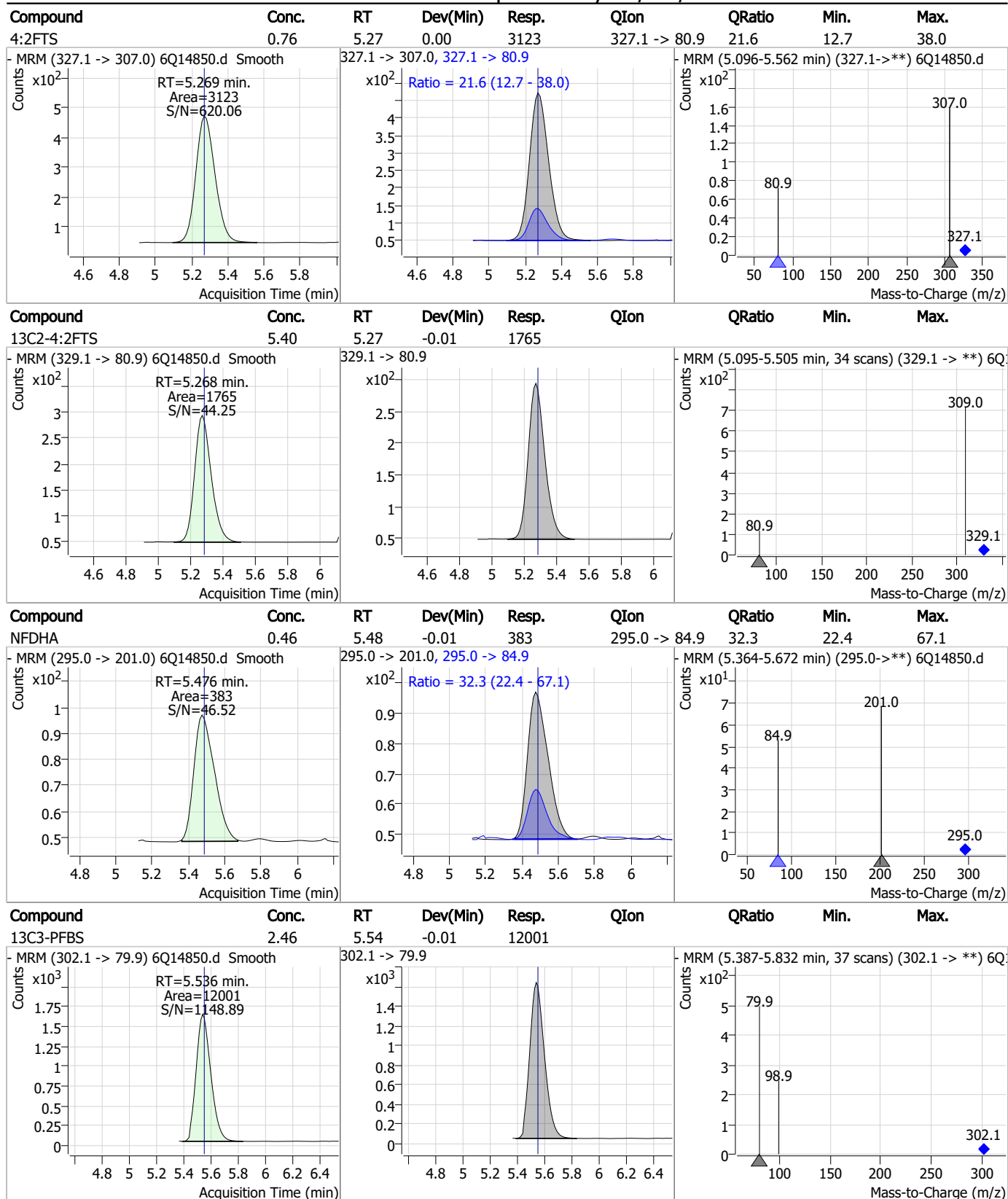
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.41	4.40	0.00	3423				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.38	4.81	0.00	1036				



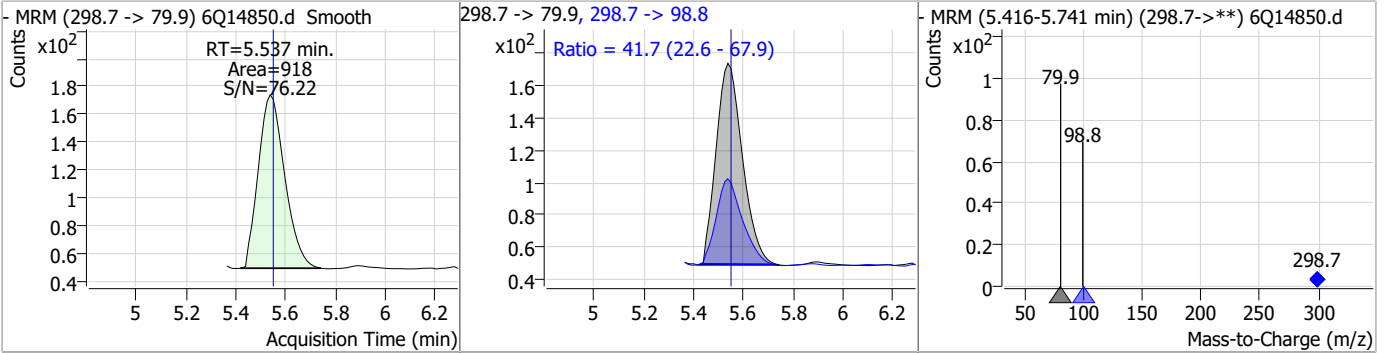
Perfluorinated Compounds by LC/MS/MS



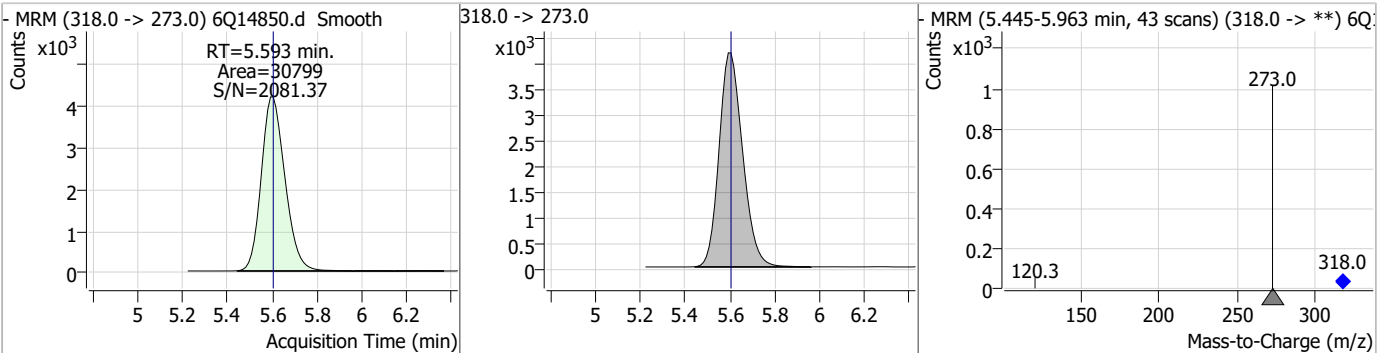
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Perfluorinated Compounds by LC/MS/MS

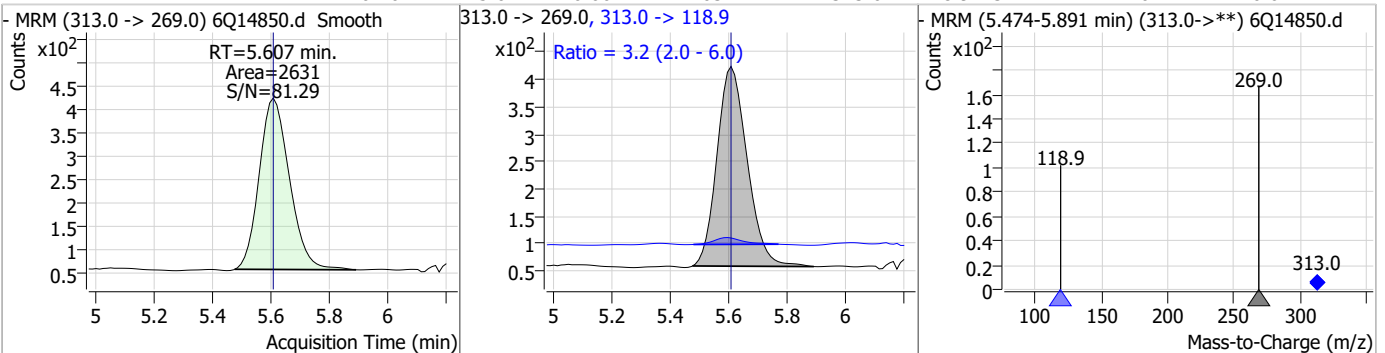
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.54	-0.01	918	298.7 -> 98.8	41.7	22.6	67.9



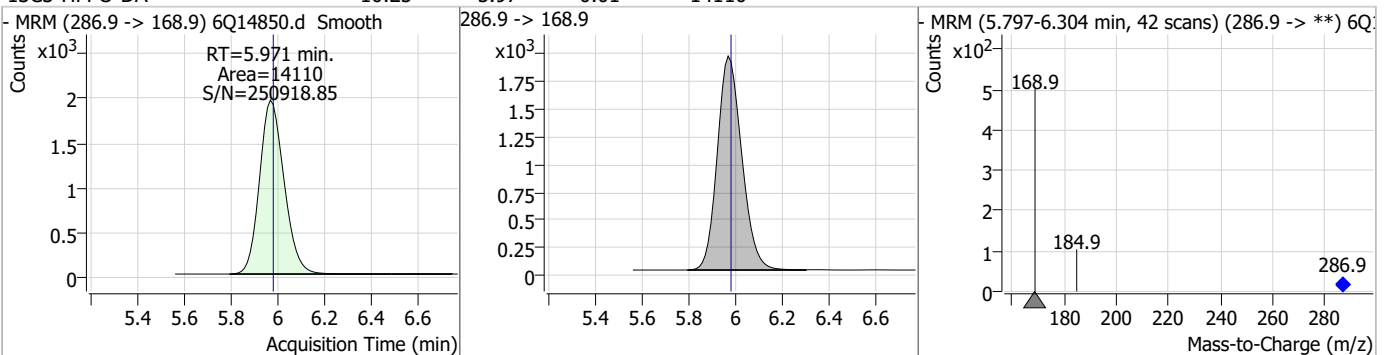
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.59	-0.01	30799				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.20	5.61	0.00	2631	313.0 -> 118.9	3.2	2.0	6.0

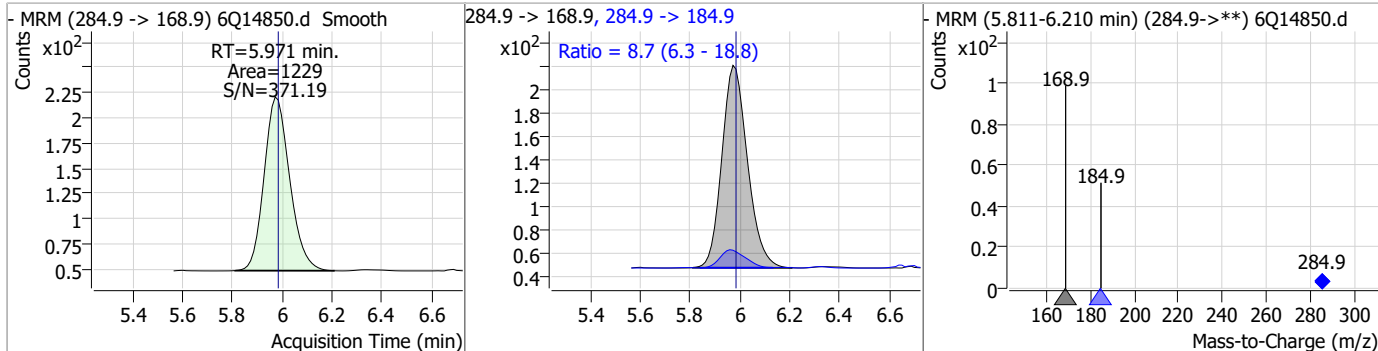


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.25	5.97	-0.01	14110				

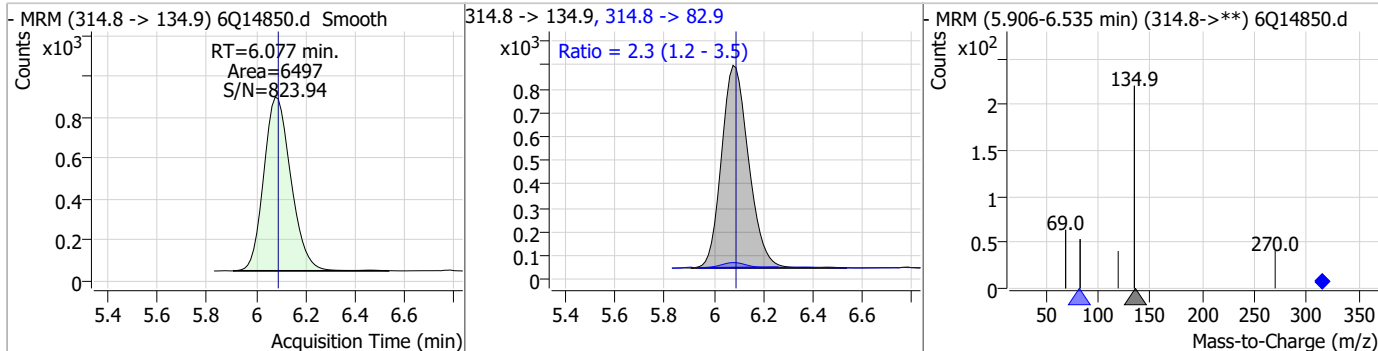


Perfluorinated Compounds by LC/MS/MS

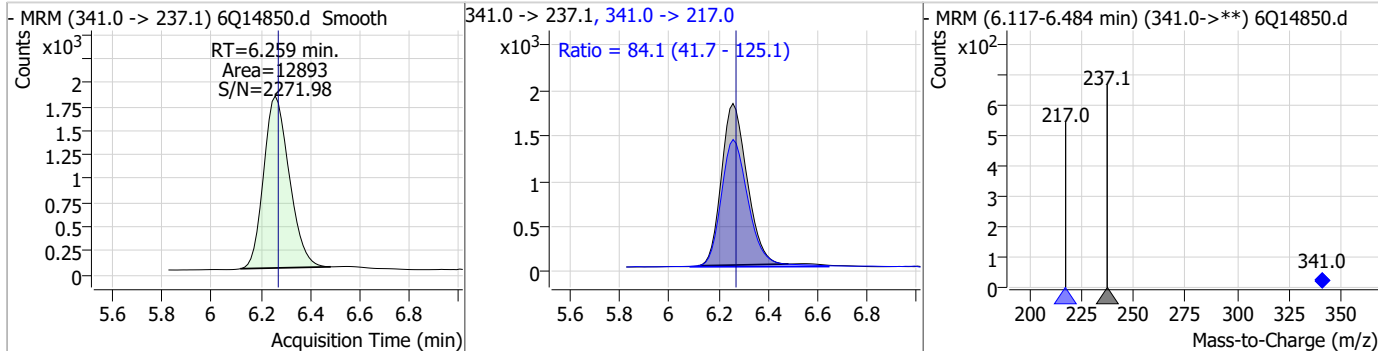
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.83	5.97	-0.01	1229	284.9 -> 184.9	8.7	6.3	18.8



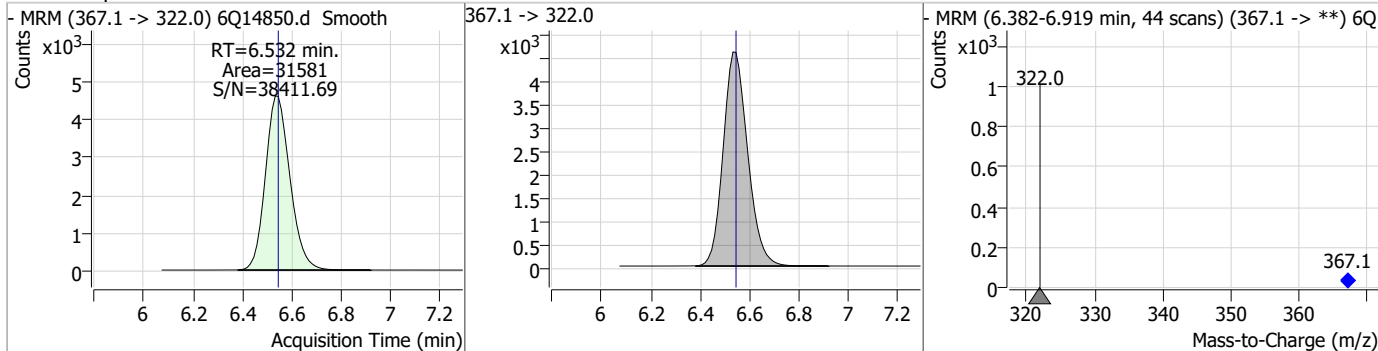
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.35	6.08	-0.01	6497	314.8 -> 82.9	2.3	1.2	3.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.92	6.26	-0.01	12893	341.0 -> 217.0	84.1	41.7	125.1

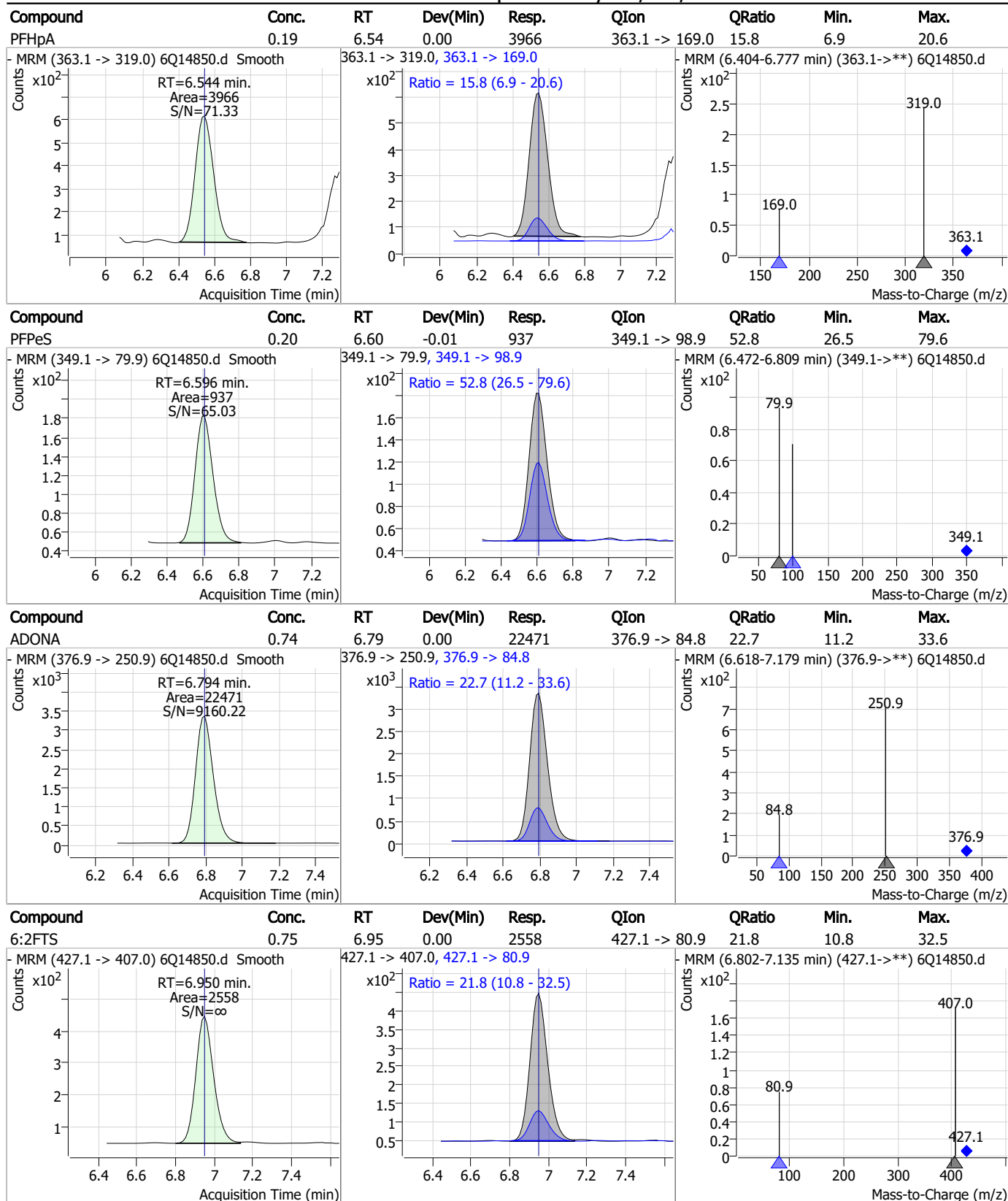


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.53	6.53	-0.01	31581				



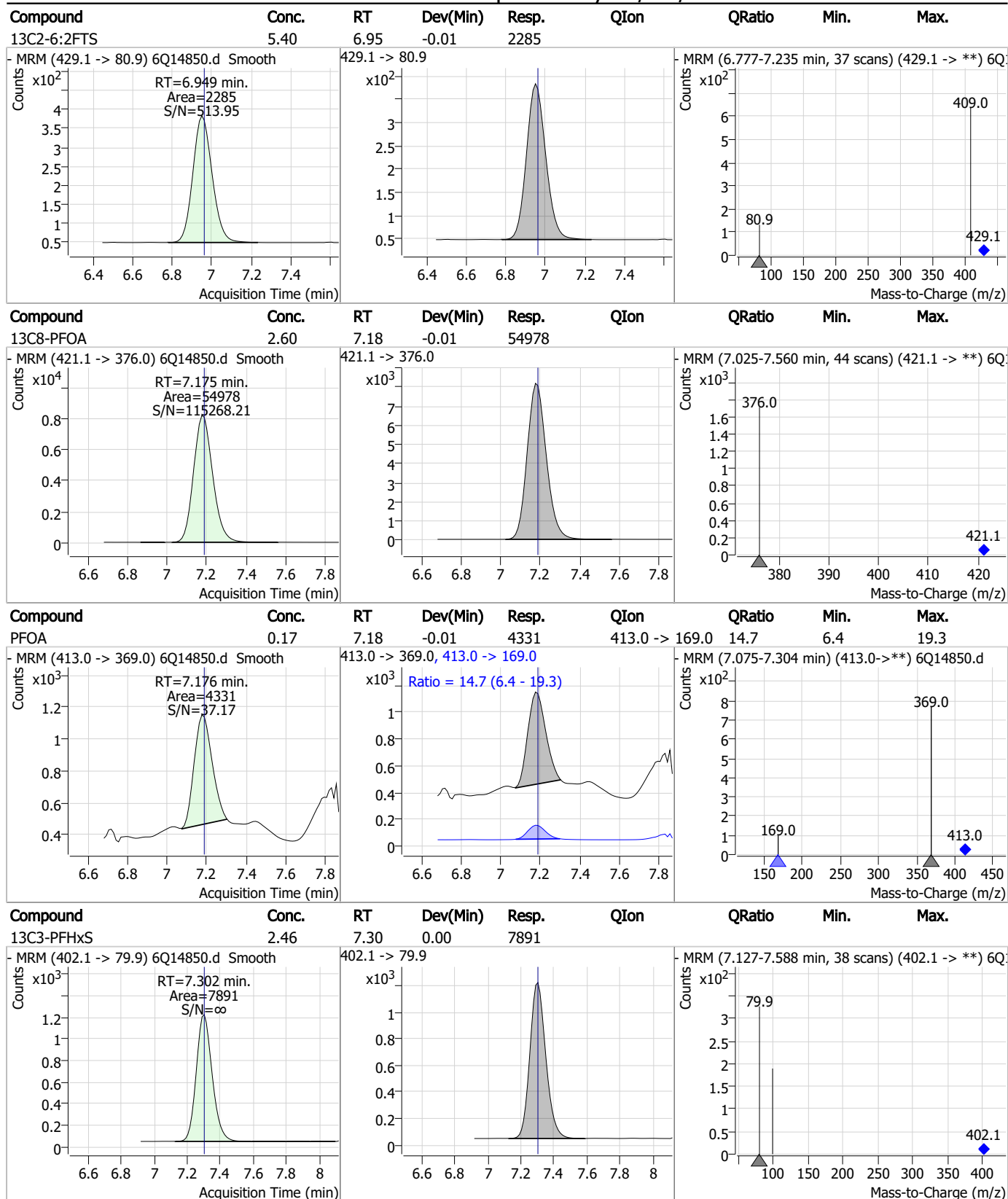
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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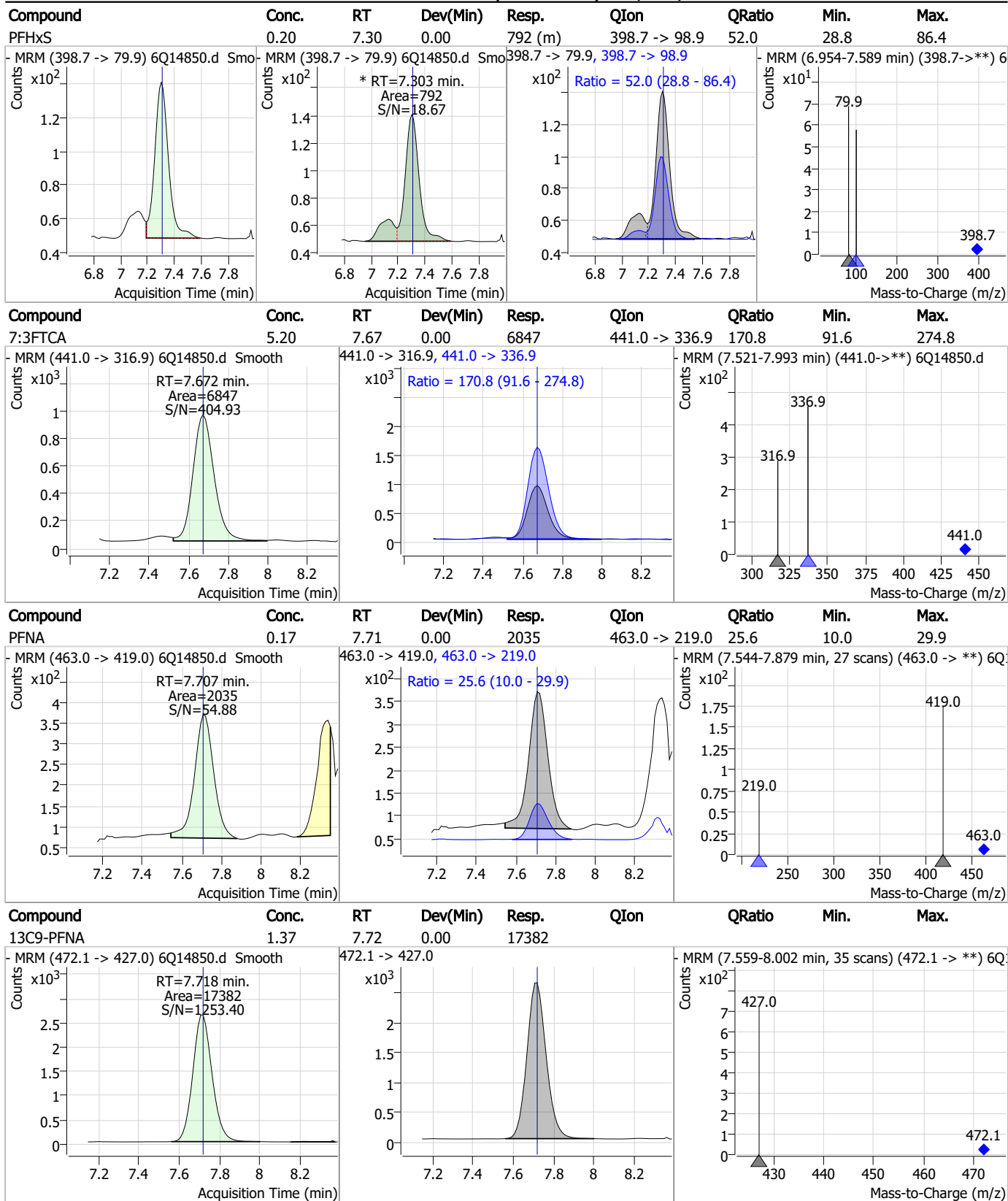
Perfluorinated Compounds by LC/MS/MS



7.7.2
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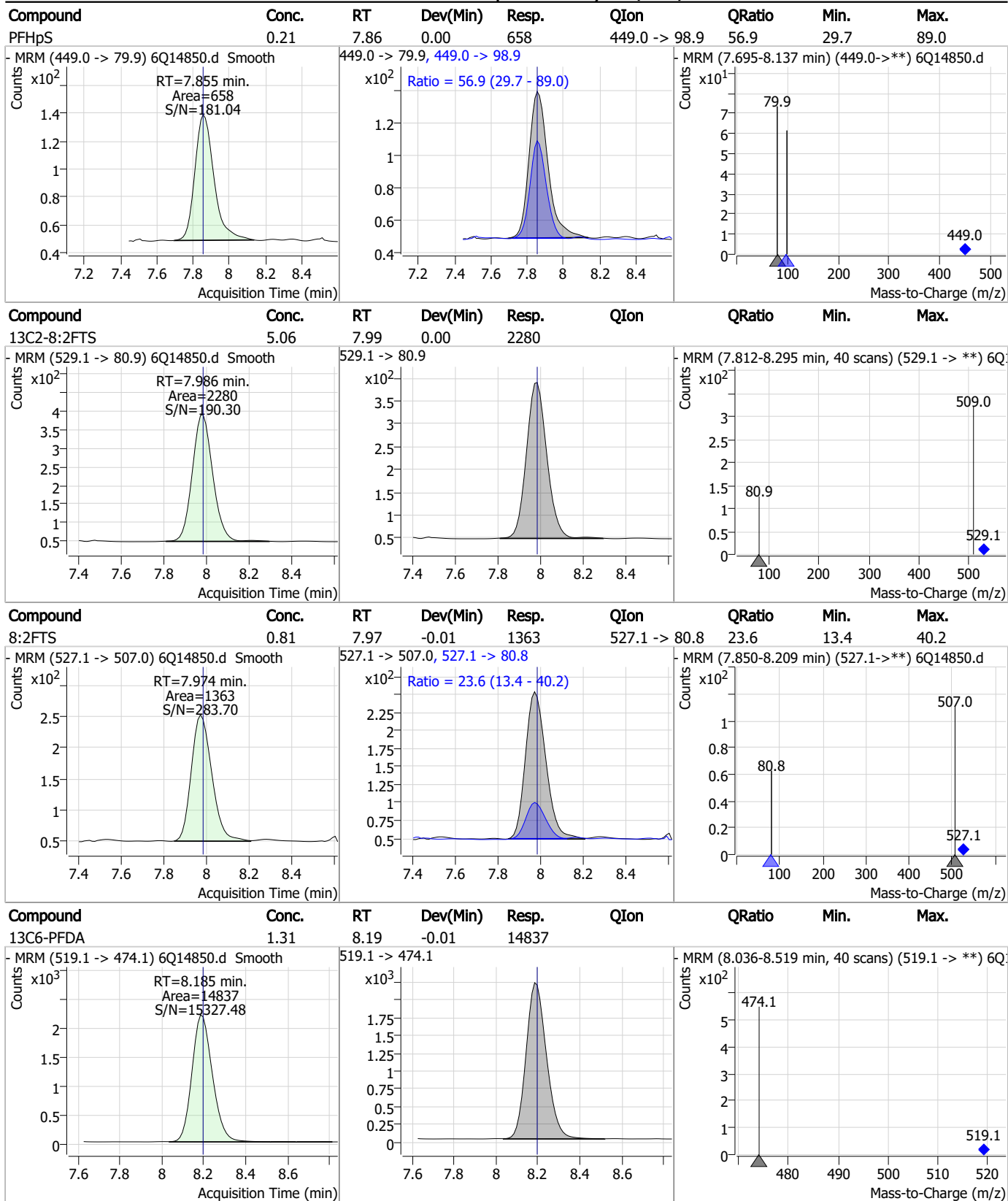


Perfluorinated Compounds by LC/MS/MS



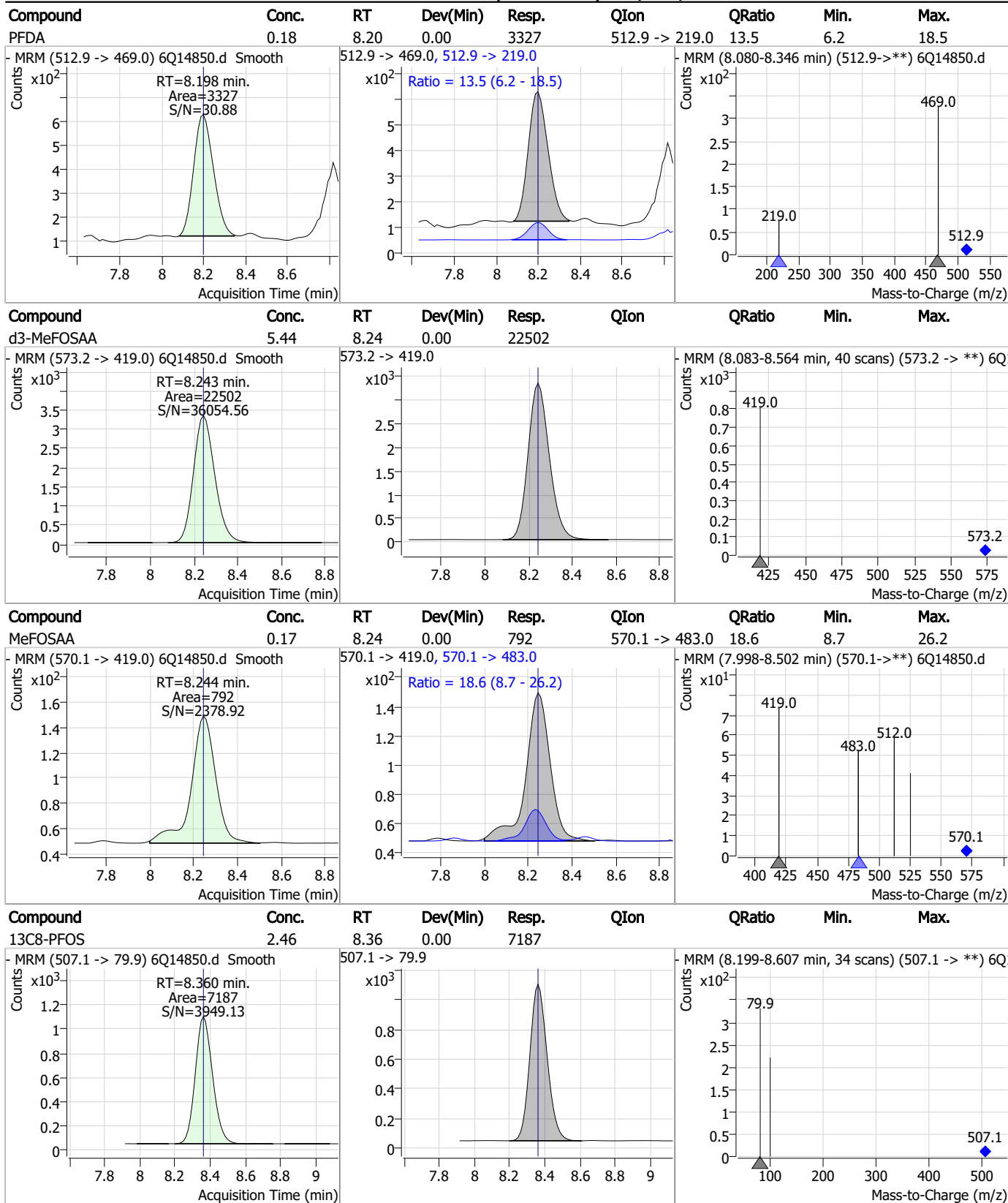
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Perfluorinated Compounds by LC/MS/MS



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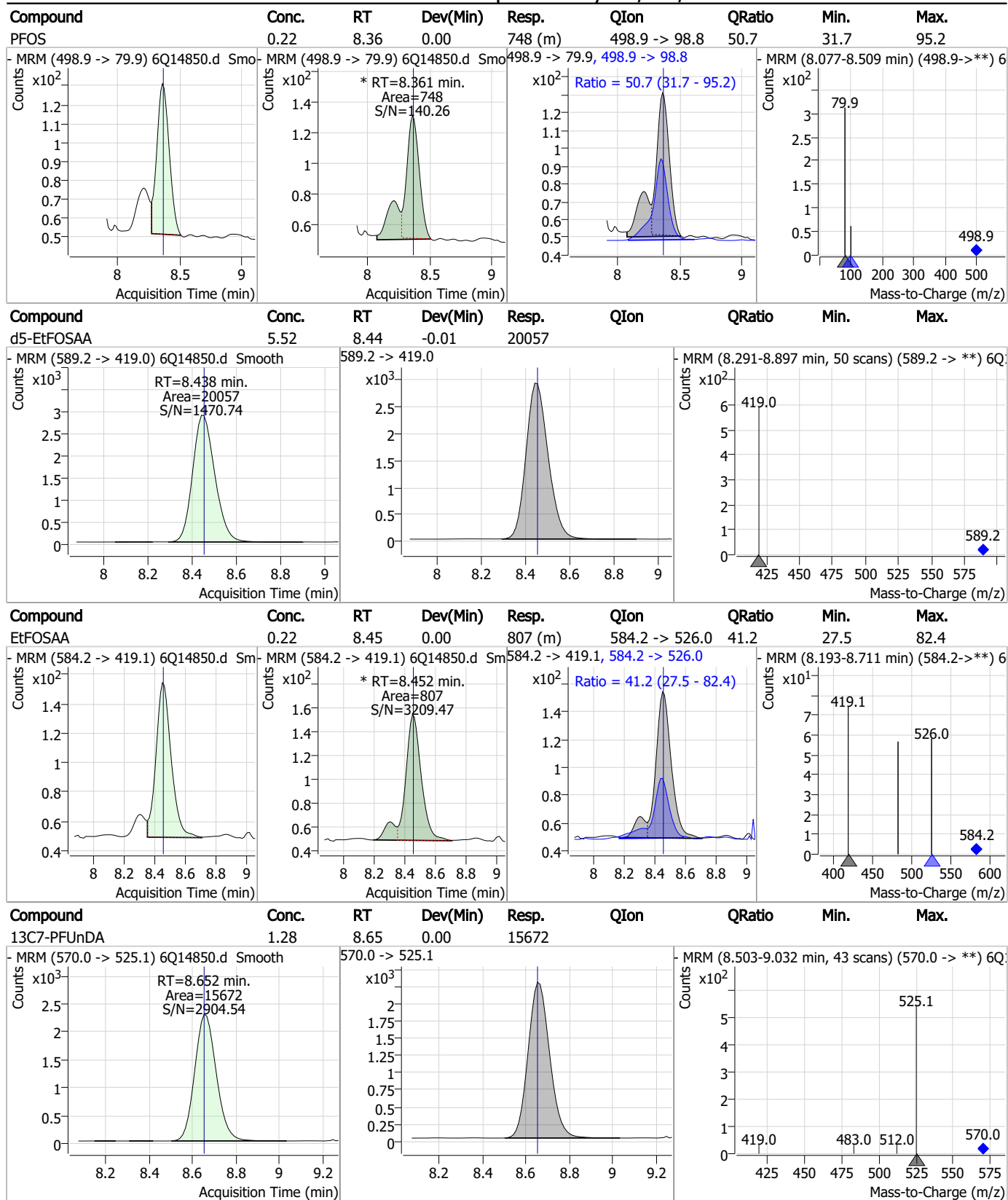
Perfluorinated Compounds by LC/MS/MS



7.7.2
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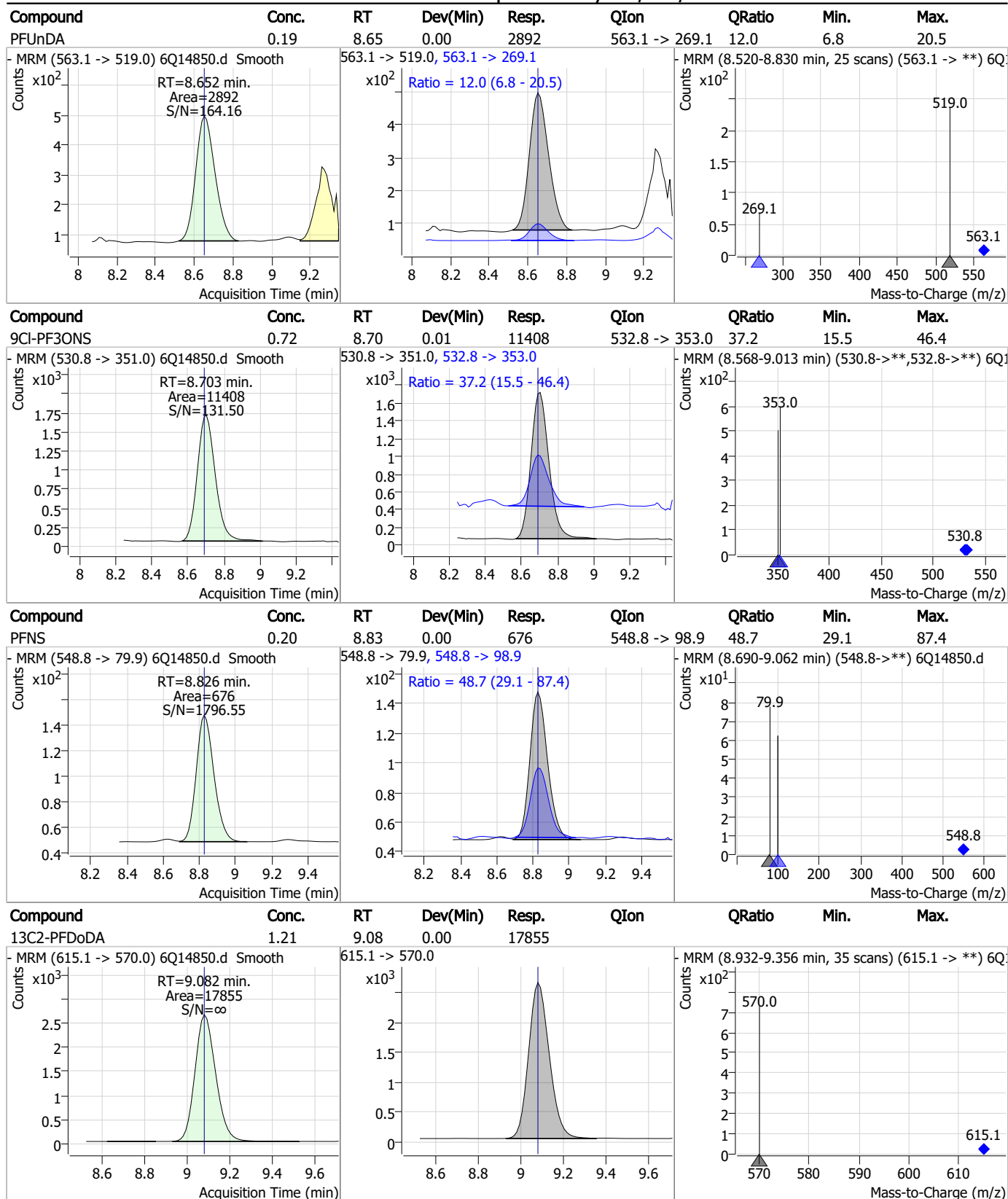
Perfluorinated Compounds by LC/MS/MS



7.7.2
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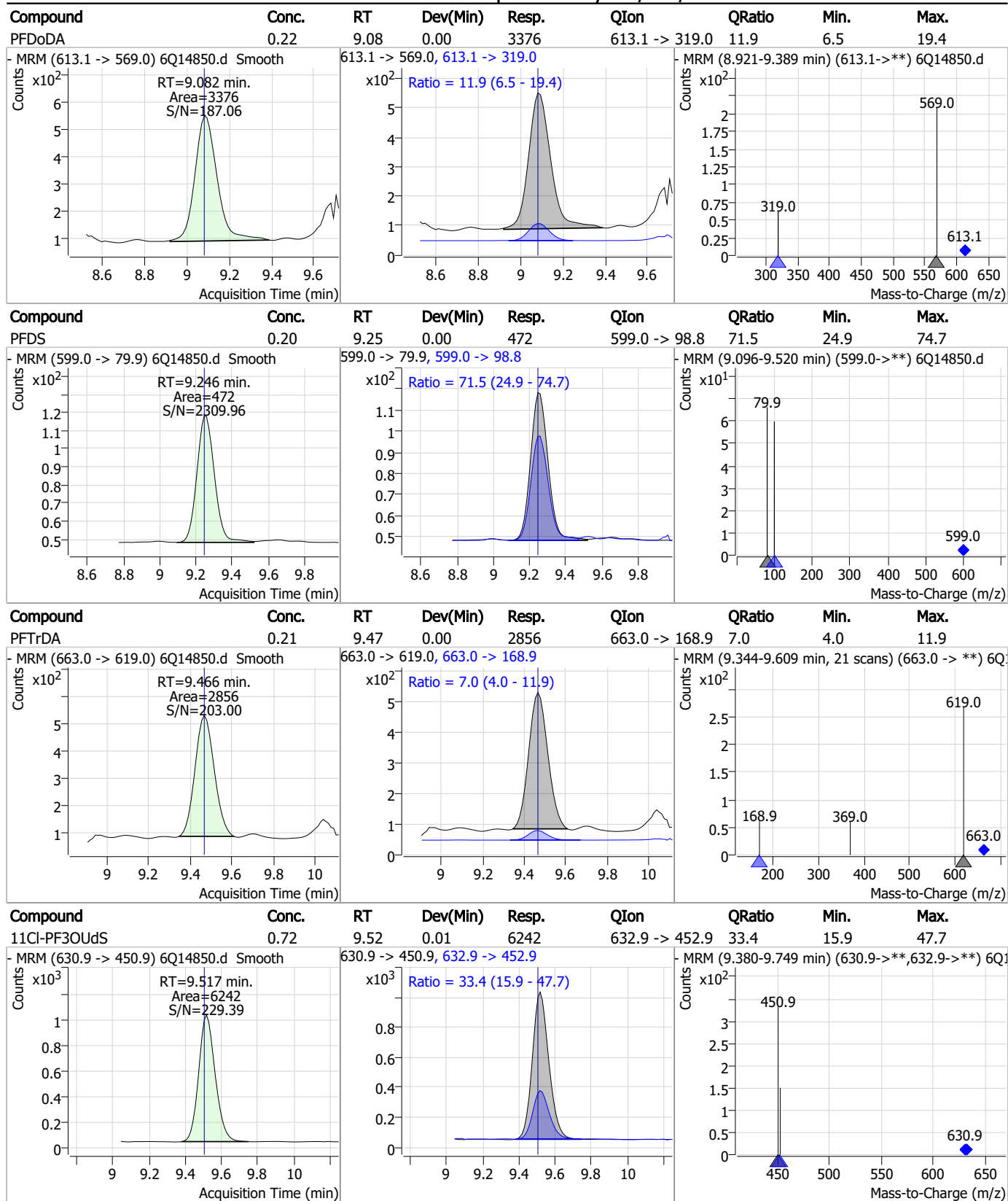


Perfluorinated Compounds by LC/MS/MS



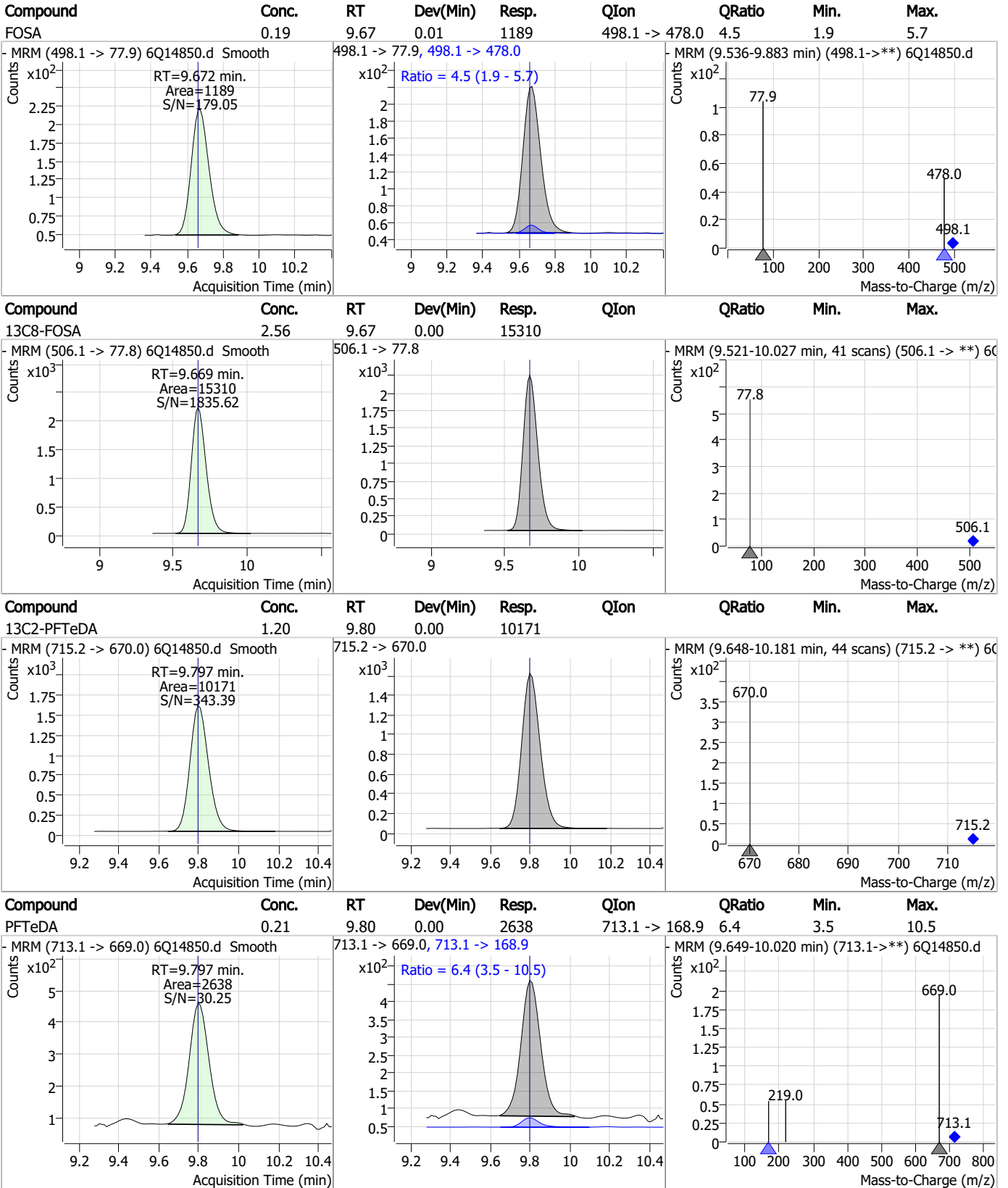
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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Perfluorinated Compounds by LC/MS/MS

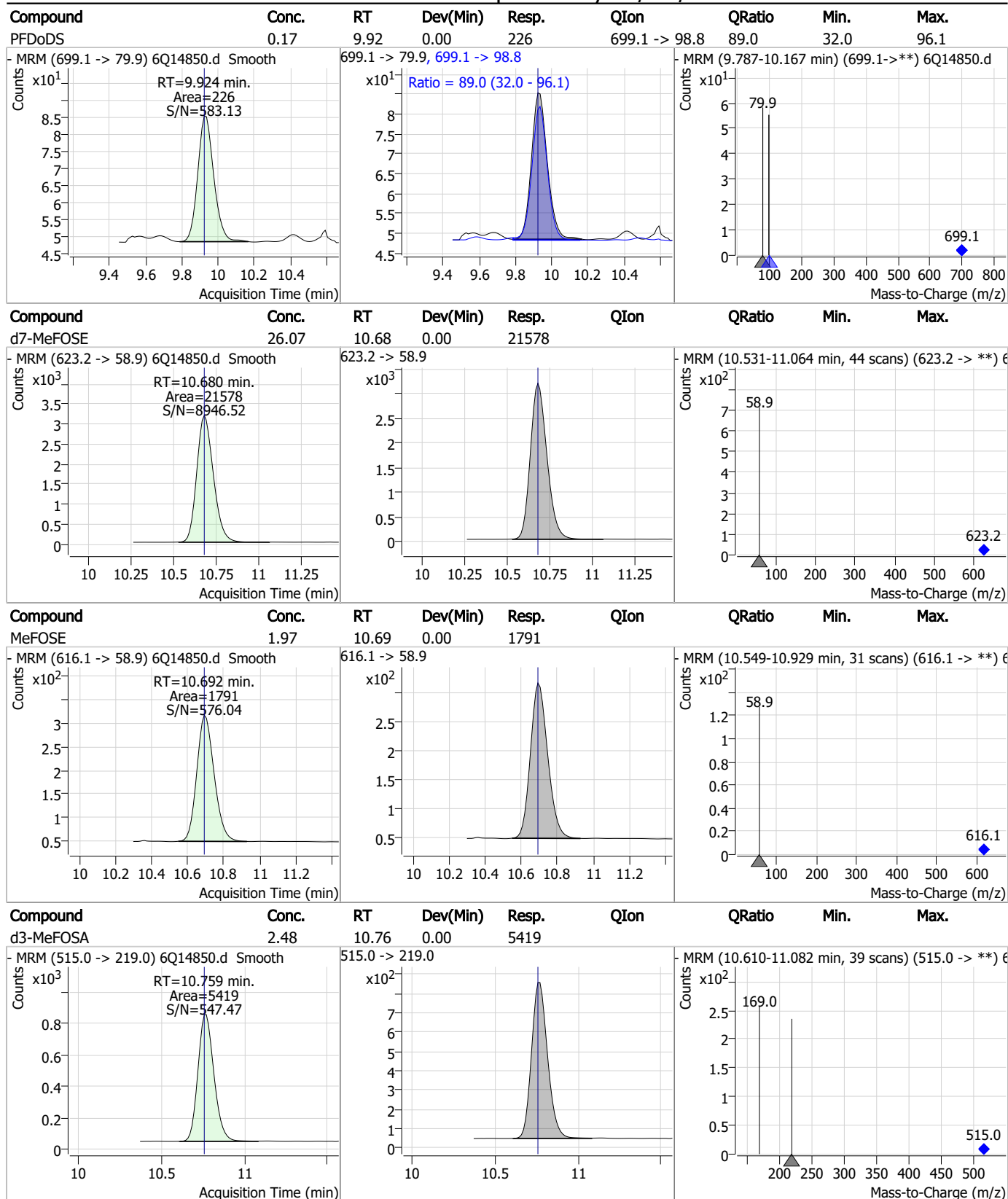


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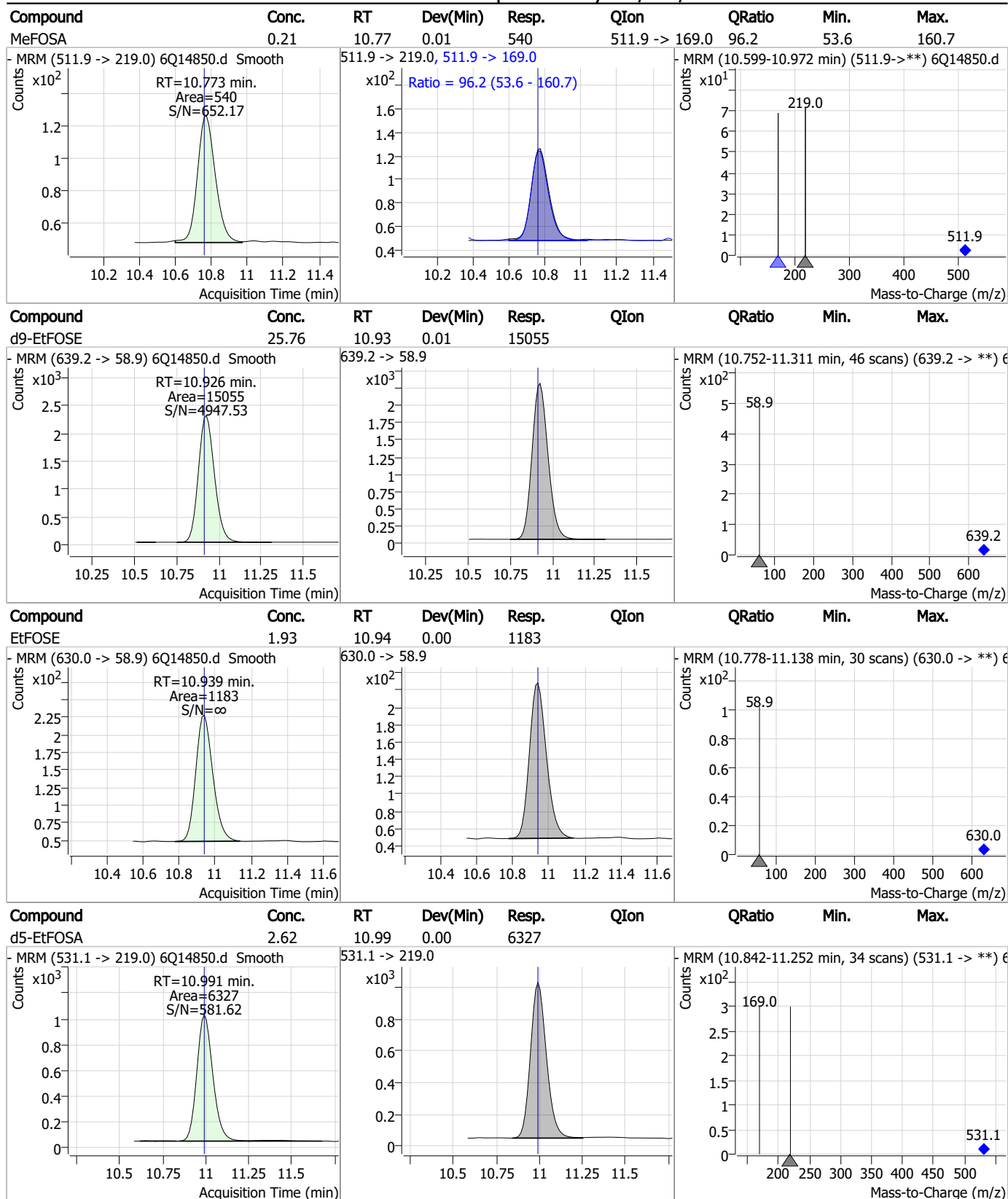
Perfluorinated Compounds by LC/MS/MS



7.7.2

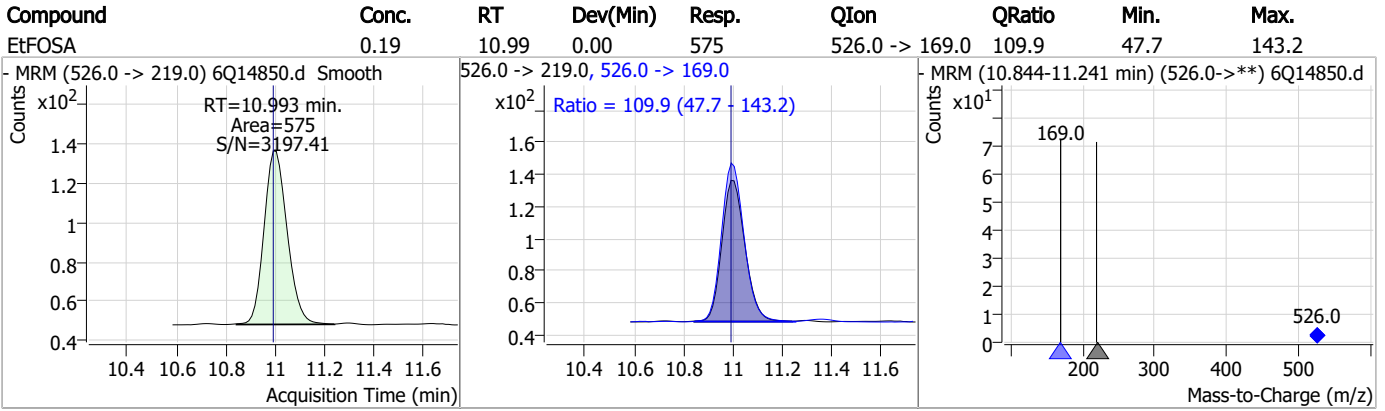
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2

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Manual Integration Approval Summary

Sample Number: S6Q225-IC225 Method: EPA DRAFT 1633
Lab FileID: 6Q14850.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 21:46 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14851.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 10:00:11 PM
 Sample Name : ic225-2
 Vial : P1-A3
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.947	216.8 -> 171.9	76731	10.00 µg/L	0.000
M5-PFPeA	4.395	268.3 -> 223.0	37352	5.00 µg/L	0.000
M5-PFHxA	5.605	318.0 -> 273.0	32317	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	33504	2.50 µg/L	0.000
M8-PFOA	7.187	421.1 -> 376.0	57565	2.50 µg/L	0.000
M9-PFNA	7.706	472.1 -> 427.0	16867	1.25 µg/L	-0.012
M6-PFDA	8.197	519.1 -> 474.1	15530	1.25 µg/L	0.000
M7-PFUnDA	8.652	570.0 -> 525.1	17052	1.25 µg/L	0.000
M2-PFDoDA	9.082	615.1 -> 570.0	18437	1.25 µg/L	0.000
M2-PFTeDA	9.797	715.2 -> 670.0	10878	1.25 µg/L	0.000
M8-FOSA	9.669	506.1 -> 77.8	15771	2.50 µg/L	0.000
M3-PFBS	5.536	302.1 -> 79.9	12373	2.50 µg/L	-0.012
M3-PFHxS	7.302	402.1 -> 79.9	8537	2.50 µg/L	0.000
M8-PFOS	8.360	507.1 -> 79.9	7518	2.50 µg/L	0.000
M2-4:2FTS	5.268	329.1 -> 80.9	1761	5.00 µg/L	-0.012
M2-6:2FTS	6.949	429.1 -> 80.9	2170	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	2583	5.00 µg/L	0.000
M3-MeFOSAA	8.243	573.2 -> 419.0	23009	5.00 µg/L	0.000
M3-HFPO-DA	5.971	286.9 -> 168.9	14013	10.00 µg/L	-0.012
M5-EtFOSAA	8.438	589.2 -> 419.0	19386	5.00 µg/L	-0.012
M7-MeFOSE	10.680	623.2 -> 58.9	23089	25.00 µg/L	0.000
M9-EtFOSE	10.926	639.2 -> 58.9	15658	25.00 µg/L	0.012
M5-EtFOSA	10.991	531.1 -> 219.0	6375	2.50 µg/L	0.000
M3-MeFOSA	10.759	515.0 -> 219.0	5842	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	9254	2.50 µg/L	0.000
13C3-PFBA	2.952	216.0 -> 172.0	33378	5.00 µg/L	0.000
18O2-PFHxS	7.301	403.0 -> 83.9	6333	2.50 µg/L	-0.012
13C4-PFOA	7.188	417.1 -> 372.0	68629	2.50 µg/L	0.000
13C2-PFDA	8.185	515.1 -> 470.1	20391	1.25 µg/L	-0.012
13C5-PFNA	7.706	468.0 -> 423.0	17382	1.25 µg/L	-0.012
13C2-PFHxA	5.606	315.1 -> 270.0	33187	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.268	329.1 -> 80.9	1761	4.85 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2170	4.61 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.2%		
13C2-8:2FTS	7.986	529.1 -> 80.9	2583	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFDoDA	9.082	615.1 -> 570.0	18437	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.4%		
13C2-PFTeDA	9.797	715.2 -> 670.0	10878	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-PFBS	5.536	302.1 -> 79.9	12373	2.28 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.2%		
13C3-PFHxS	7.302	402.1 -> 79.9	8537	2.39 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 = 95.5%		
13C4-PFBA	2.947	216.8 -> 171.9	76731	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C4-PFHpA	6.544	367.1 -> 322.0	33504	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C5-PFHxA	5.605	318.0 -> 273.0	32317	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C5-PFPeA	4.395	268.3 -> 223.0	37352	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C6-PFDA	8.197	519.1 -> 474.1	15530	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C7-PFUnDA	8.652	570.0 -> 525.1	17052	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C8-FOSA	9.669	506.1 -> 77.8	15771	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C8-PFOA	7.187	421.1 -> 376.0	57565	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C8-PFOS	8.360	507.1 -> 79.9	7518	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C9-PFNA	7.706	472.1 -> 427.0	16867	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
d3-MeFOSAA	8.243	573.2 -> 419.0	23009	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C3-HFPO-DA	5.971	286.9 -> 168.9	14013	9.35 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 93.5%		
d3-MeFOSA	10.759	515.0 -> 219.0	5842	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%		
d5-EtFOSAA	8.438	589.2 -> 419.0	19386	4.96 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
d7-MeFOSE	10.680	623.2 -> 58.9	23089	25.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
d9-EtFOSE	10.926	639.2 -> 58.9	15658	24.92 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.7%		
d5-EtFOSA	10.991	531.1 -> 219.0	6375	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	7297	1.79 µg/L	98
		327.1 -> 80.9	1779		
6:2FTS	6.950	427.1 -> 407.0	6717	2.08 µg/L	96
		427.1 -> 80.9	1312		
8:2FTS	7.974	527.1 -> 507.0	3134	1.65 µg/L	86
		527.1 -> 80.8	1064		
EtFOSAA	8.452	584.2 -> 419.1	1679	0.48 µg/L	98
		584.2 -> 526.0	894		
FOSA	9.660	498.1 -> 77.9	3059	0.49 µg/L	99
		498.1 -> 478.0	122		
MeFOSAA	8.244	570.1 -> 419.0	2119	0.44 µg/L	96
		570.1 -> 483.0	410		
PFBA	2.956	212.8 -> 168.9	3838	1.83 µg/L	100
PFBS	5.537	298.7 -> 79.9	2218	0.41 µg/L	96
		298.7 -> 98.8	1066		
PFDA	8.198	512.9 -> 469.0	9057	0.47 µg/L	97
		512.9 -> 219.0	1207		
PFDODA	9.082	613.1 -> 569.0	7935	0.50 µg/L	98
		613.1 -> 319.0	952		
PFDS	9.246	599.0 -> 79.9	1209	0.49 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	580			
PFHpA	6.544	363.1 -> 319.0	9680	0.45	µg/L	100
		363.1 -> 169.0	1338			
PFHpS	7.855	449.0 -> 79.9	1566	0.47	µg/L	97
		449.0 -> 98.9	897			
PFHxA	5.607	313.0 -> 269.0	6488	0.48	µg/L	99
		313.0 -> 118.9	281			
PFHxS	7.303	398.7 -> 79.9	1697	0.40	µg/L	m 97
		398.7 -> 98.9	1011			
PFNA	7.707	463.0 -> 419.0	5923	0.50	µg/L	98
		463.0 -> 219.0	1132			
PFNS	8.826	548.8 -> 79.9	1866	0.53	µg/L	90
		548.8 -> 98.9	951			
PFOA	7.189	413.0 -> 369.0	11730	0.43	µg/L	96
		413.0 -> 169.0	1719			
PFOS	8.348	498.9 -> 79.9	1673	0.48	µg/L	m 100
		498.9 -> 98.8	1059			
PFPeA	4.397	263.0 -> 219.0	8367	0.94	µg/L	100
PFPeS	6.609	349.1 -> 79.9	2366	0.46	µg/L	98
		349.1 -> 98.9	1283			
PFTeDA	9.797	713.1 -> 669.0	6594	0.48	µg/L	99
		713.1 -> 168.9	442			
PFTrDA	9.466	663.0 -> 619.0	6915	0.49	µg/L	98
		663.0 -> 168.9	588			
PFUnDA	8.652	563.1 -> 519.0	6660	0.41	µg/L	91
		563.1 -> 269.1	1165			
11CI-PF3OUdS	9.517	630.9 -> 450.9	15299	1.76	µg/L	96
		632.9 -> 452.9	5167			
9CI-PF3ONS	8.691	530.8 -> 351.0	28438	1.81	µg/L	96
		532.8 -> 353.0	9334			
ADONA	6.794	376.9 -> 250.9	56968	1.89	µg/L	100
		376.9 -> 84.8	12679			
HFPO-DA	5.971	284.9 -> 168.9	2798	1.90	µg/L	99
		284.9 -> 184.9	342			
3:3FTCA	3.851	241.0 -> 177.0	1003	2.26	µg/L	98
		241.0 -> 117.0	143			
5:3FTCA	6.259	341.0 -> 237.1	33707	12.26	µg/L	96
		341.0 -> 217.0	29254			
7:3FTCA	7.672	441.0 -> 316.9	15844	11.47	µg/L	85
		441.0 -> 336.9	32451			
EtFOSA	10.993	526.0 -> 219.0	1489	0.49	µg/L	98
		526.0 -> 169.0	1457			
EtFOSE	10.939	630.0 -> 58.9	3069	4.81	µg/L	100
MeFOSA	10.773	511.9 -> 219.0	1339	0.48	µg/L	96
		511.9 -> 169.0	1488			
MeFOSE	10.692	616.1 -> 58.9	4409	4.52	µg/L	100
PFDoDS	9.924	699.1 -> 79.9	725	0.52	µg/L	93
		699.1 -> 98.8	423			
NFDHA	5.488	295.0 -> 201.0	858	0.98	µg/L	98
		295.0 -> 84.9	371			
PFMBA	4.806	279.0 -> 85.1	2644	0.91	µg/L	100
PFMPA	3.526	229.0 -> 84.9	2301	0.90	µg/L	100
PFEESA	6.089	314.8 -> 134.9	16806	0.87	µg/L	99
		314.8 -> 82.9	444			

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

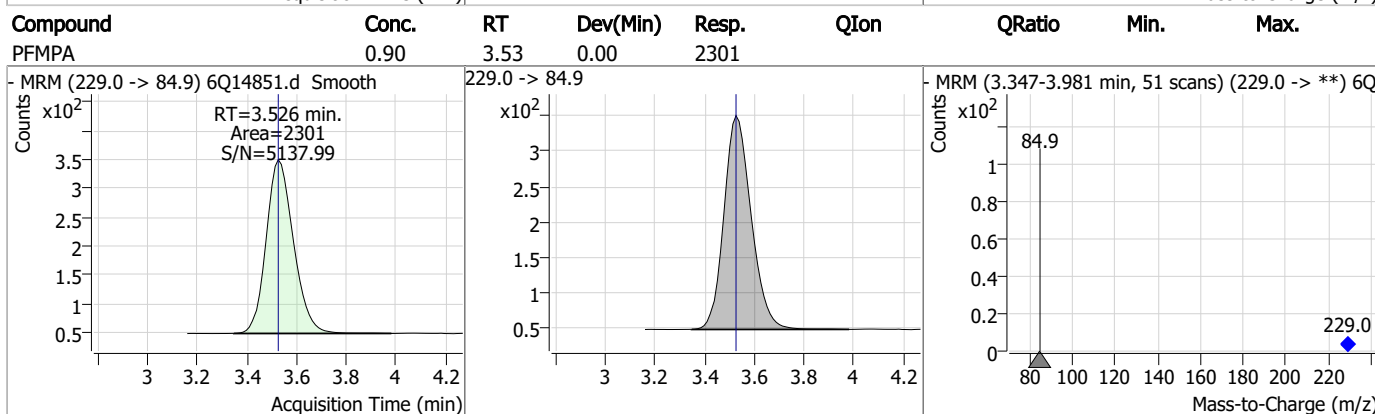
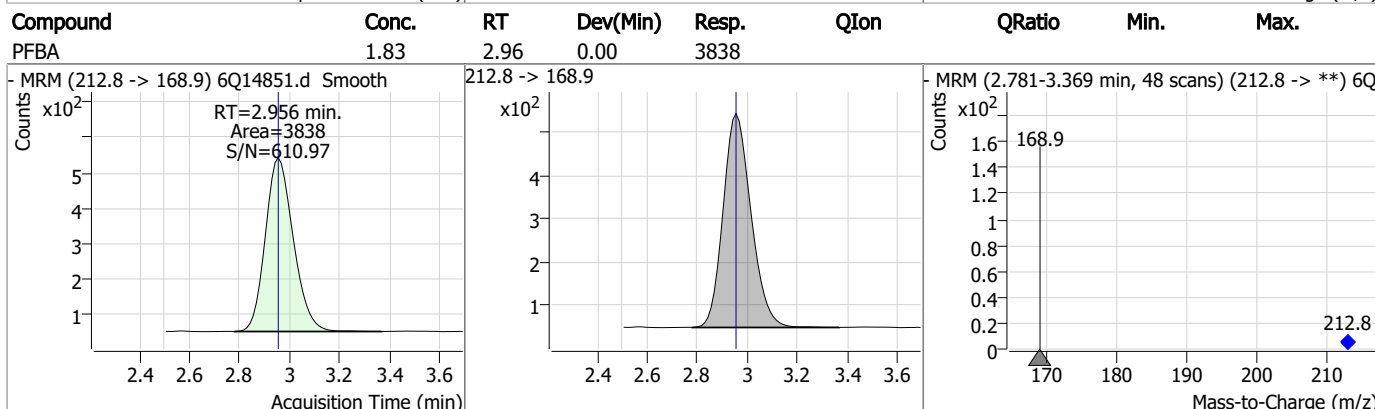
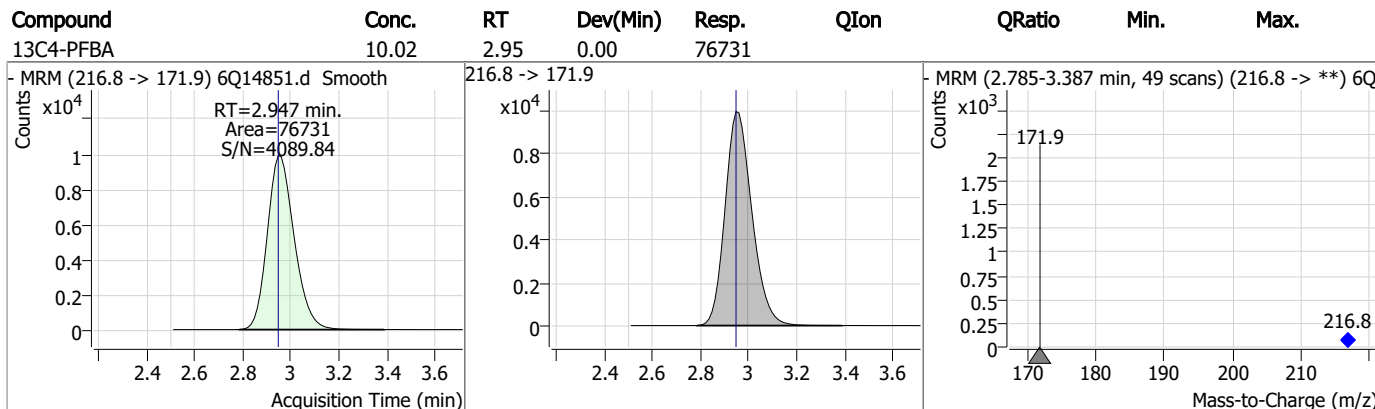
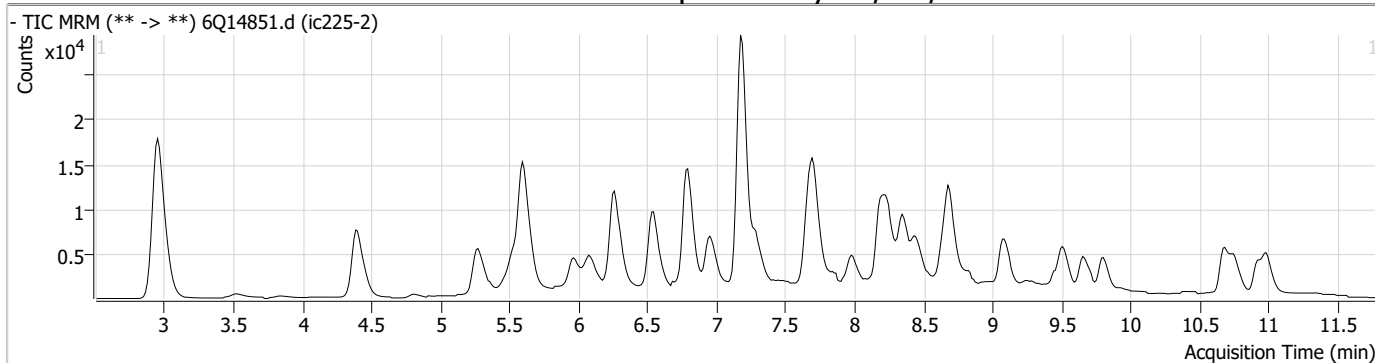
Perfluorinated Compounds by LC/MS/MS

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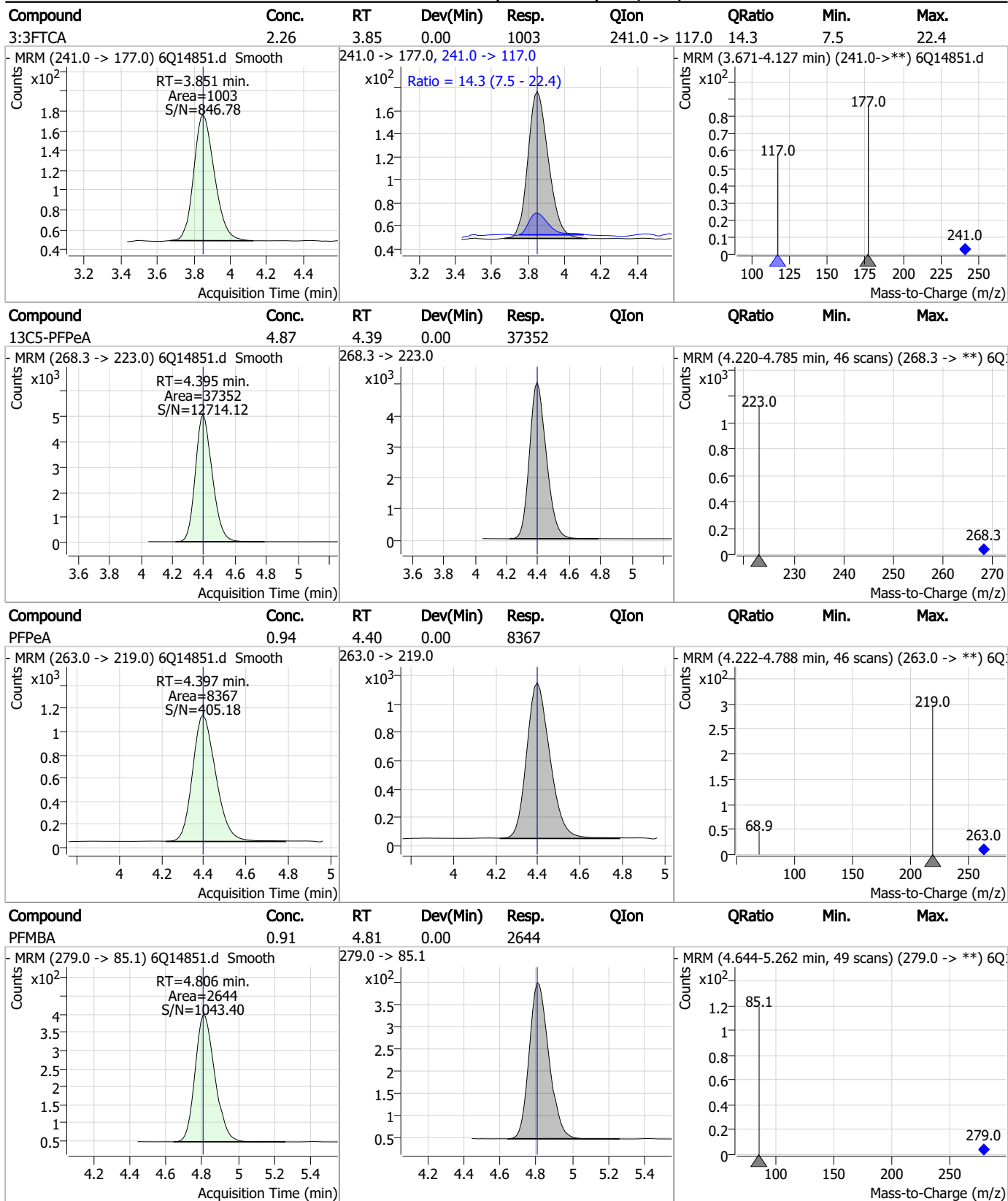
7.7.3

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Perfluorinated Compounds by LC/MS/MS



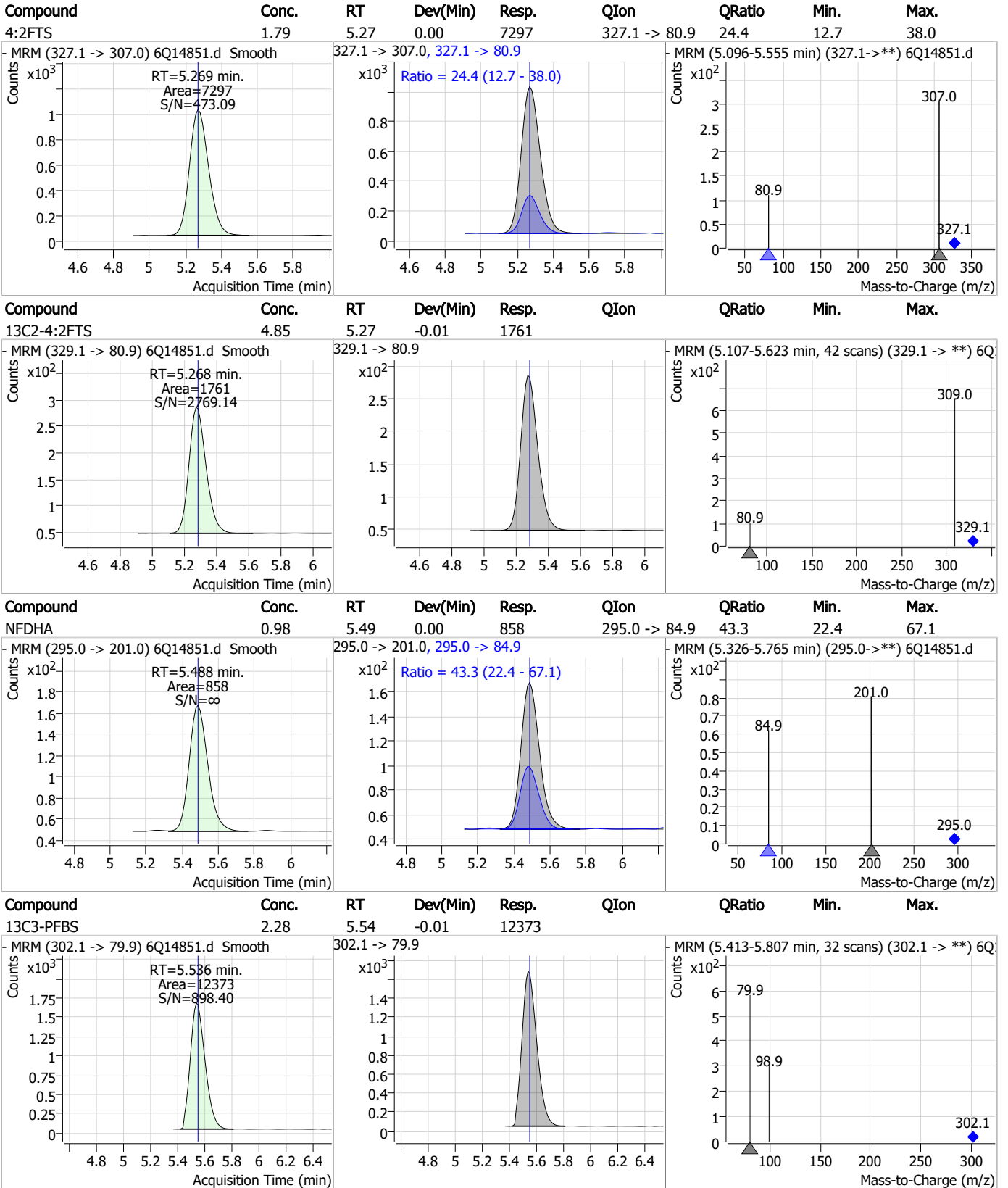
Perfluorinated Compounds by LC/MS/MS



7.7.3

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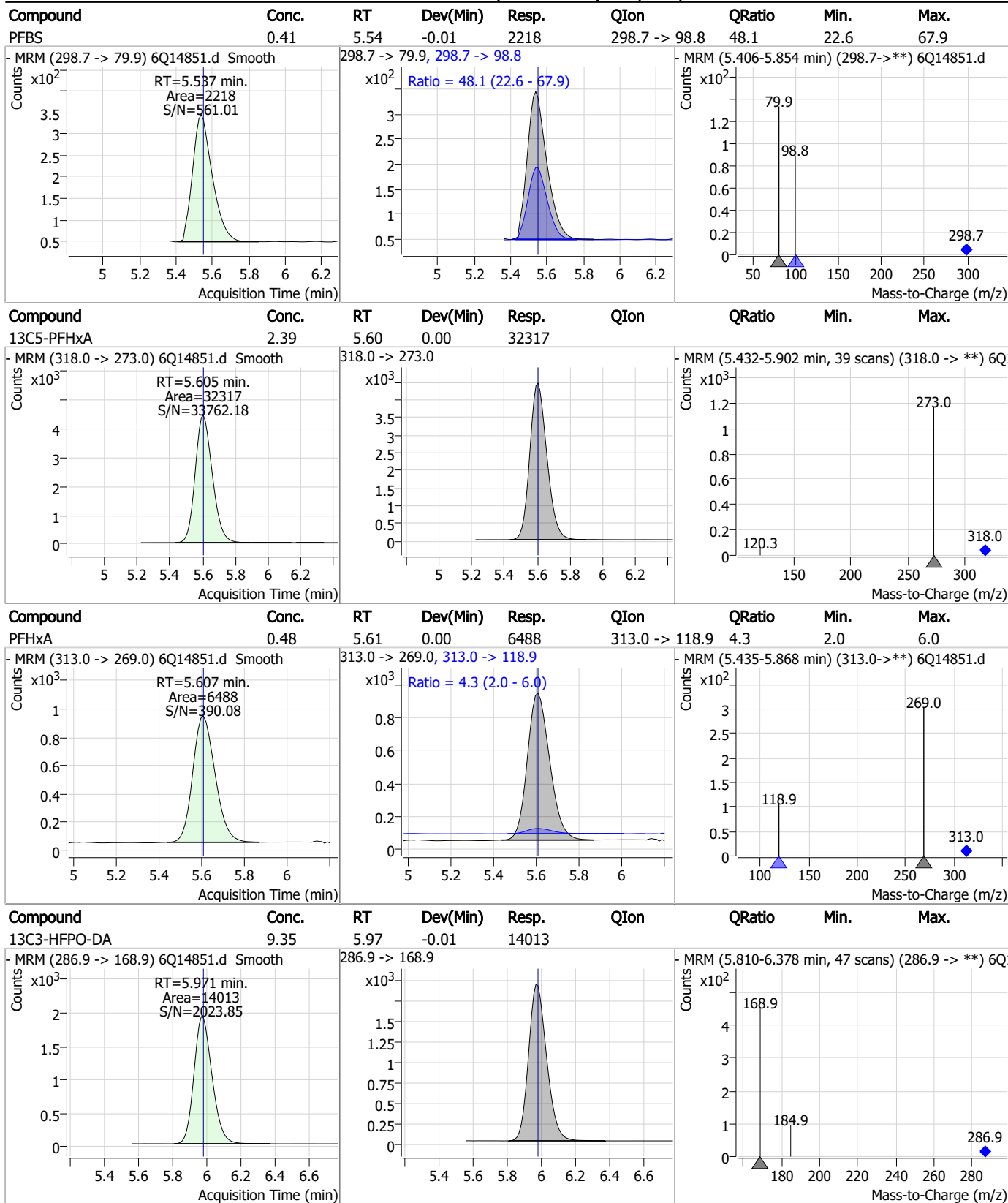
Perfluorinated Compounds by LC/MS/MS



7.7.3

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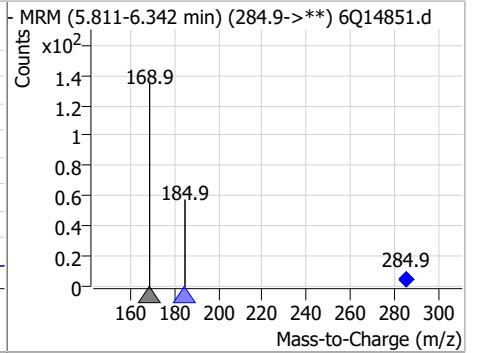
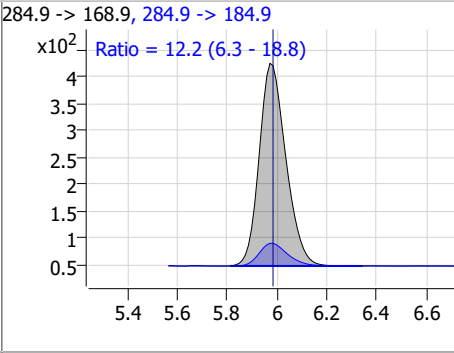
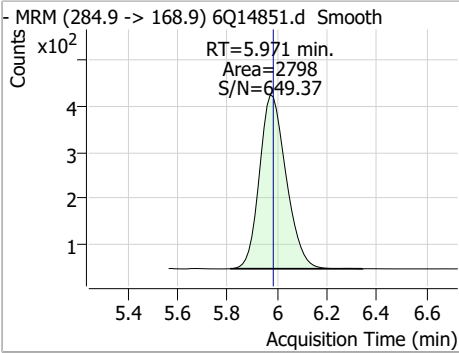
Perfluorinated Compounds by LC/MS/MS



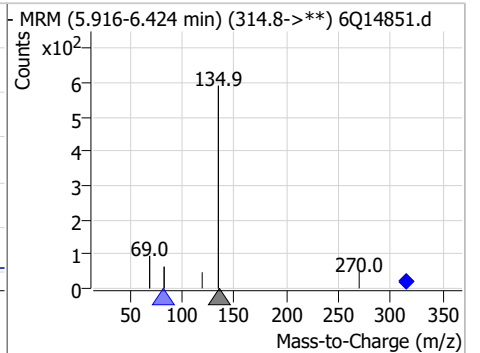
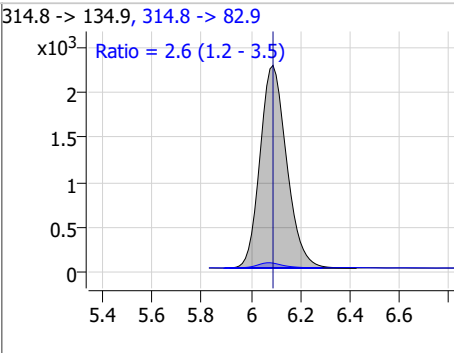
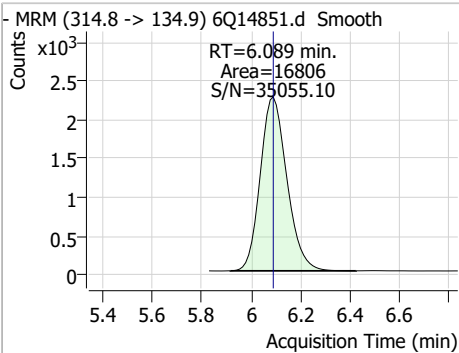
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Perfluorinated Compounds by LC/MS/MS

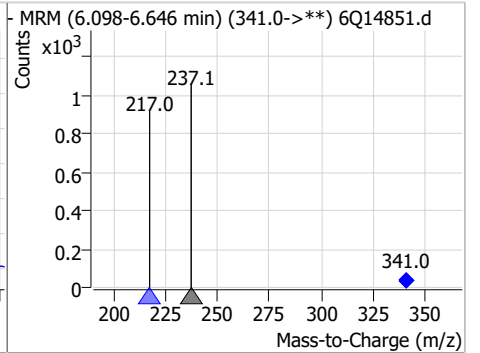
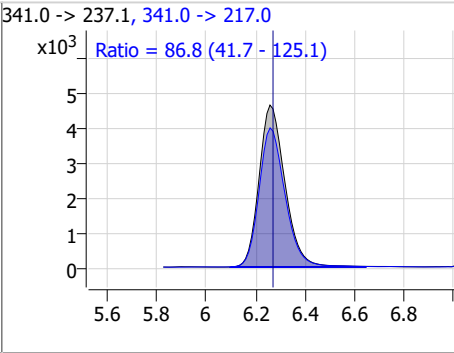
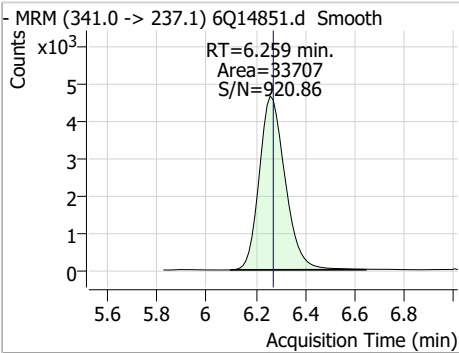
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	1.90	5.97	-0.01	2798	284.9 -> 184.9	12.2	6.3	18.8



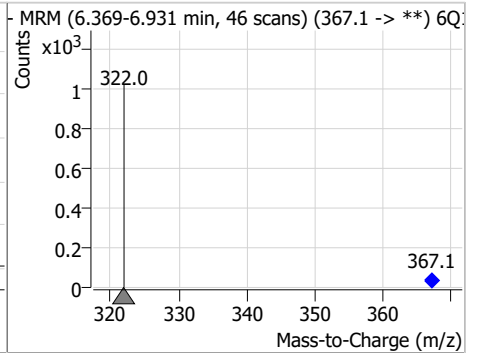
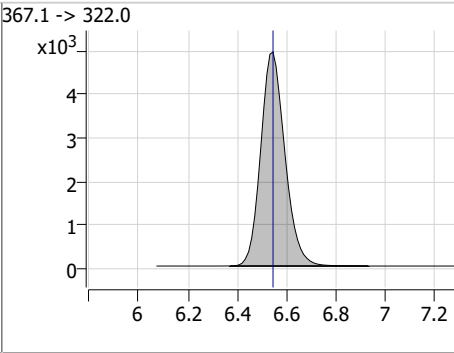
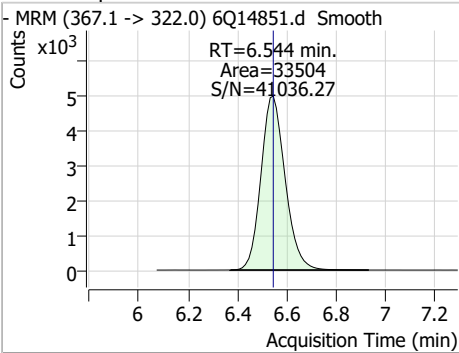
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.87	6.09	0.00	16806	314.8 -> 82.9	2.6	1.2	3.5



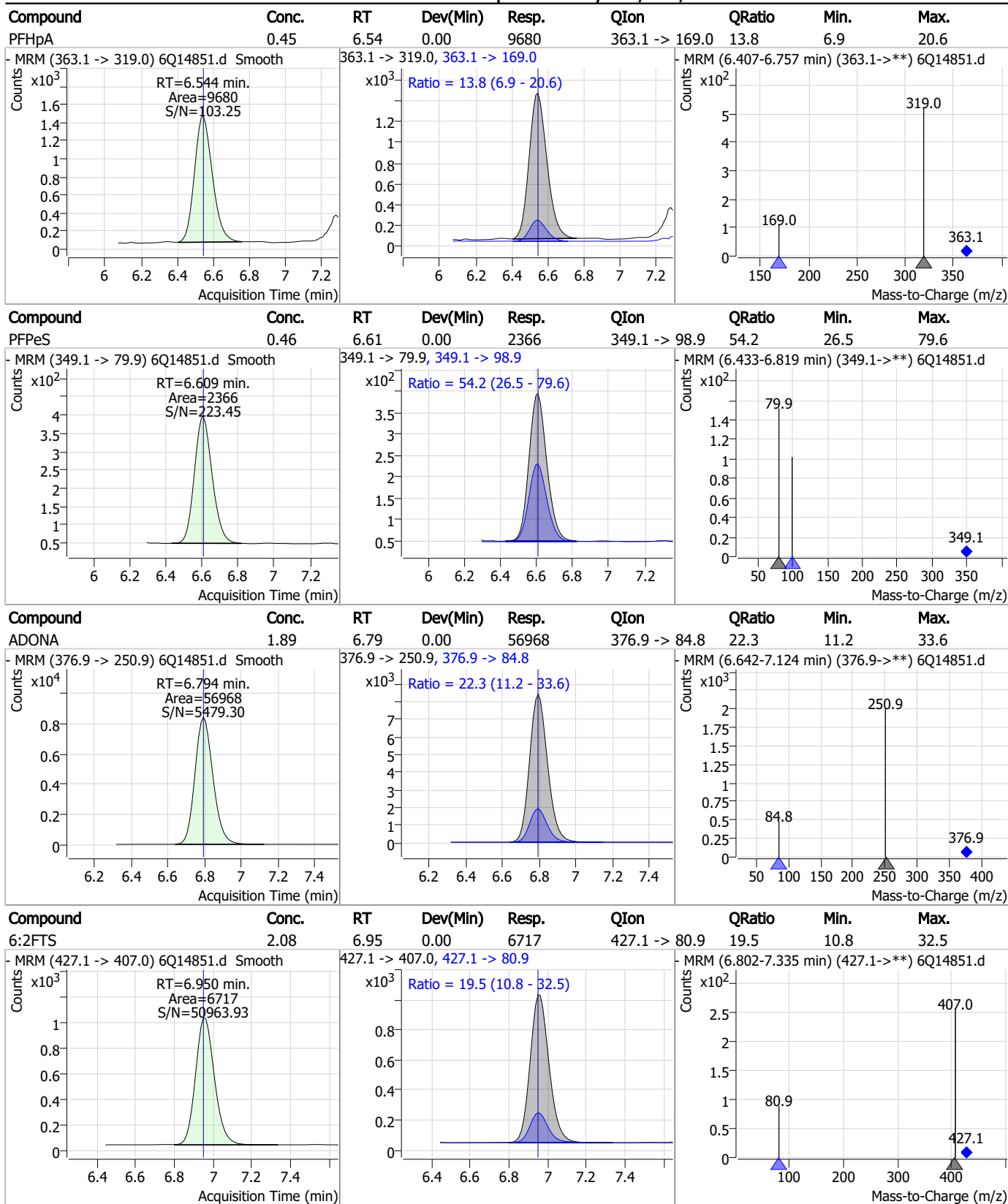
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	12.26	6.26	-0.01	33707	341.0 -> 217.0	86.8	41.7	125.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.54	0.00	33504	367.1 -> 322.0			

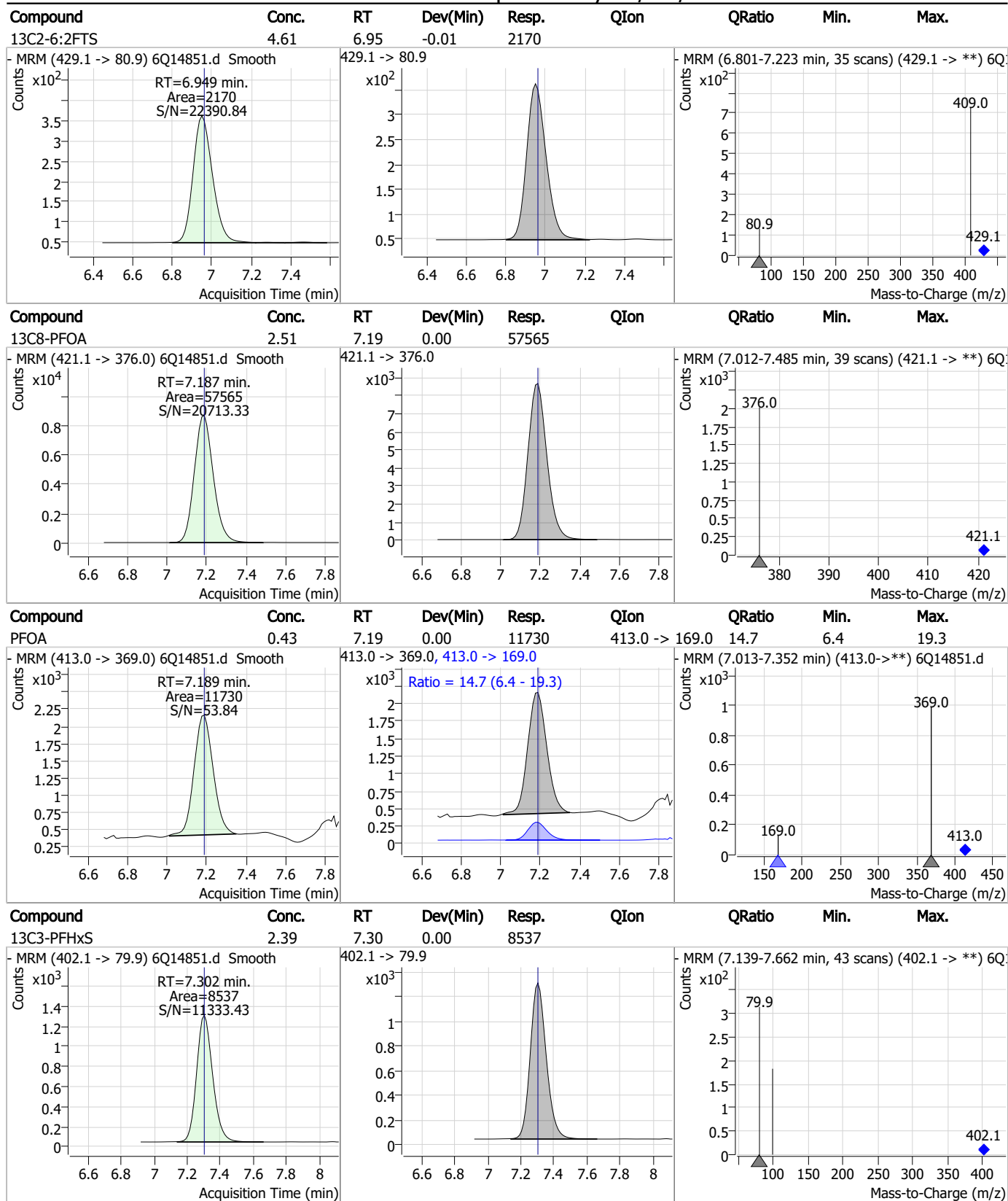


Perfluorinated Compounds by LC/MS/MS



7.7.3
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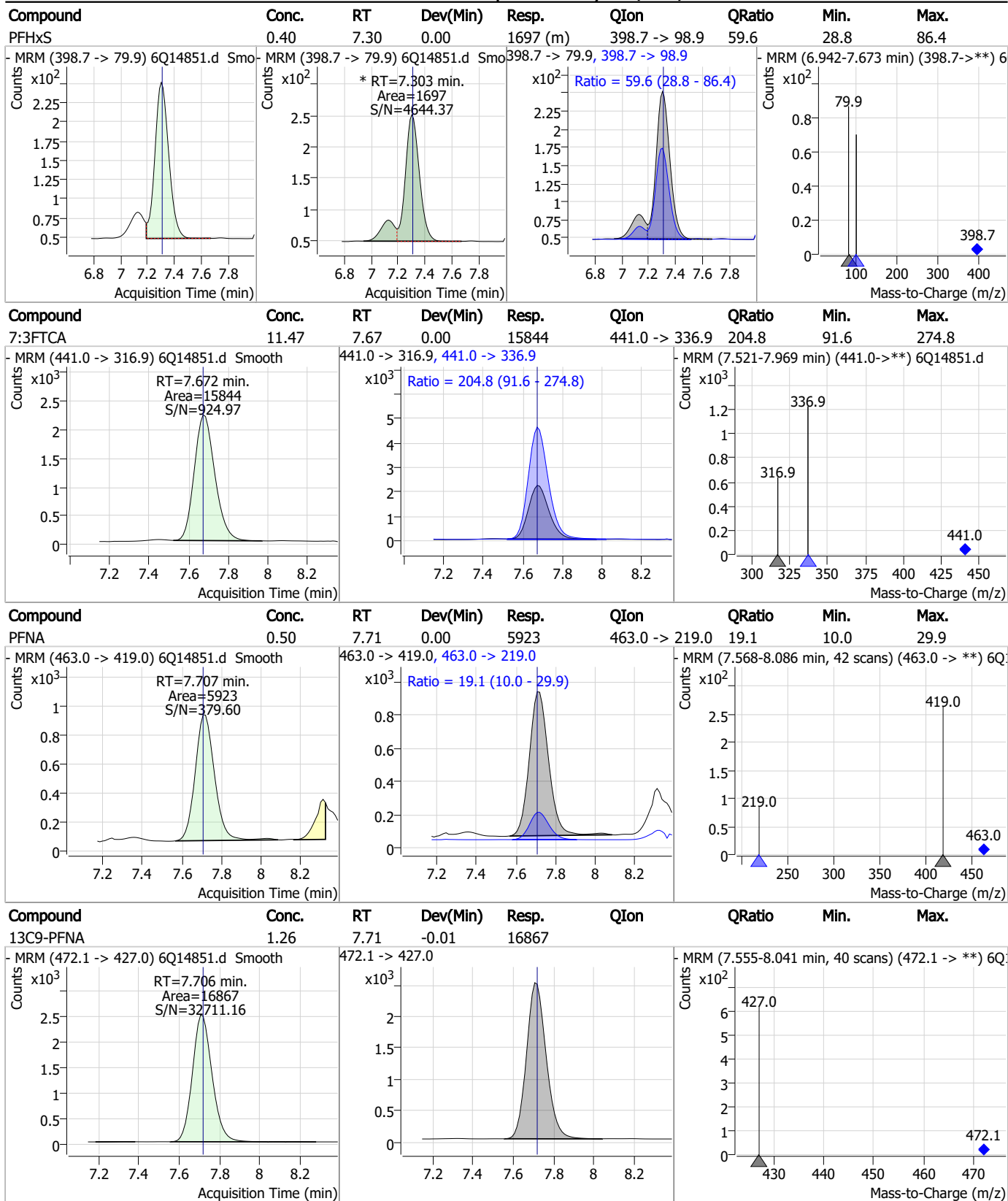
Perfluorinated Compounds by LC/MS/MS



7.7.3
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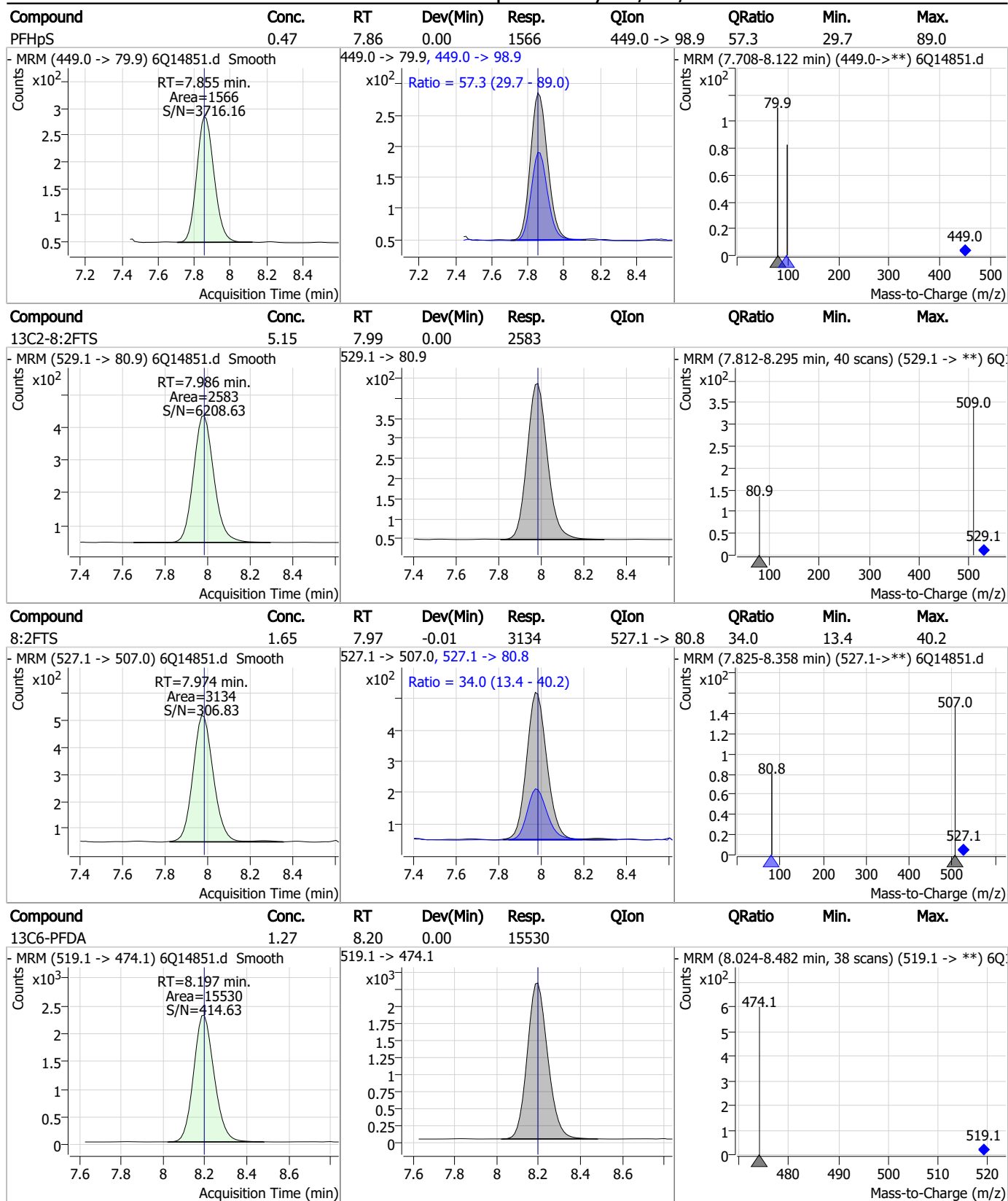


Perfluorinated Compounds by LC/MS/MS



7.7.3
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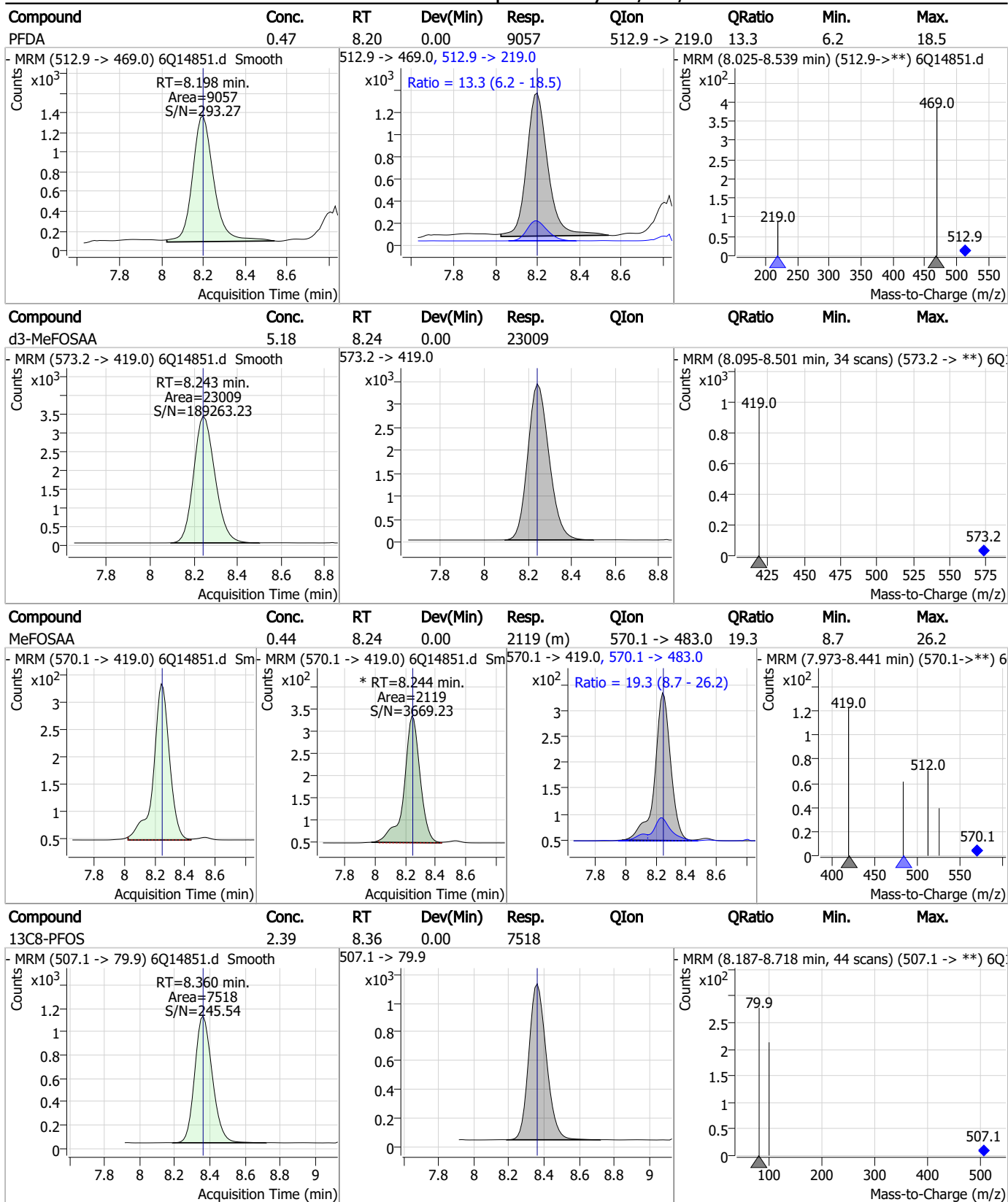
Perfluorinated Compounds by LC/MS/MS



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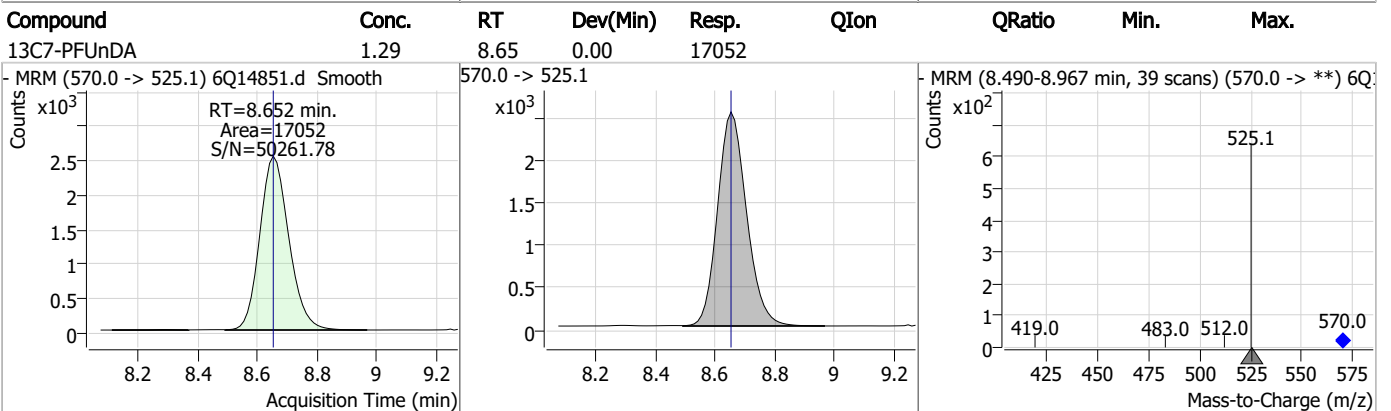
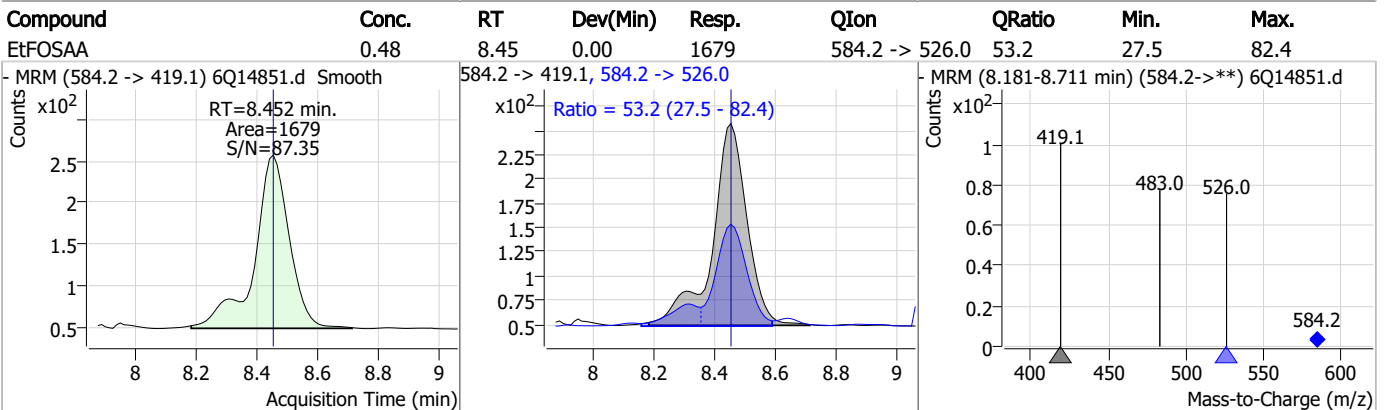
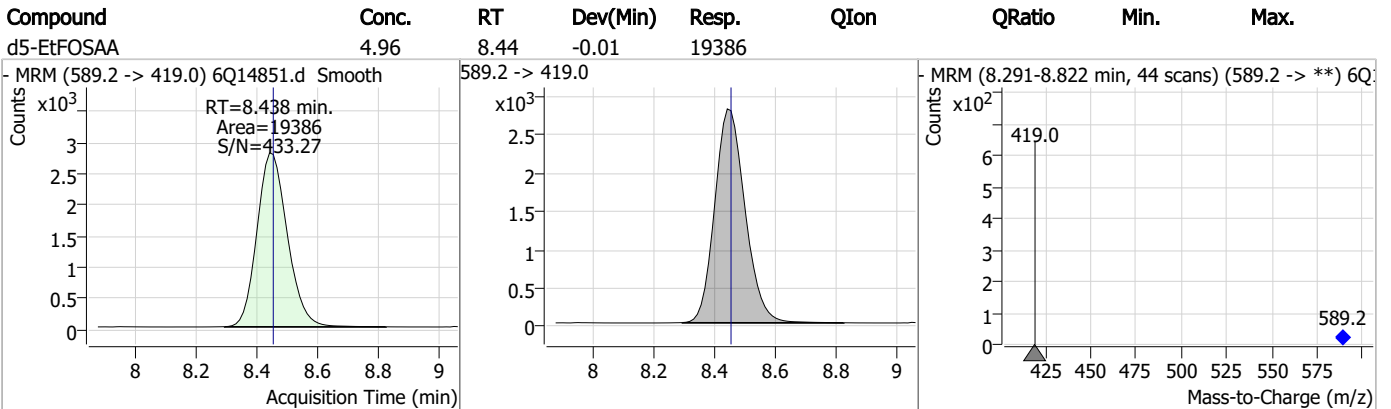
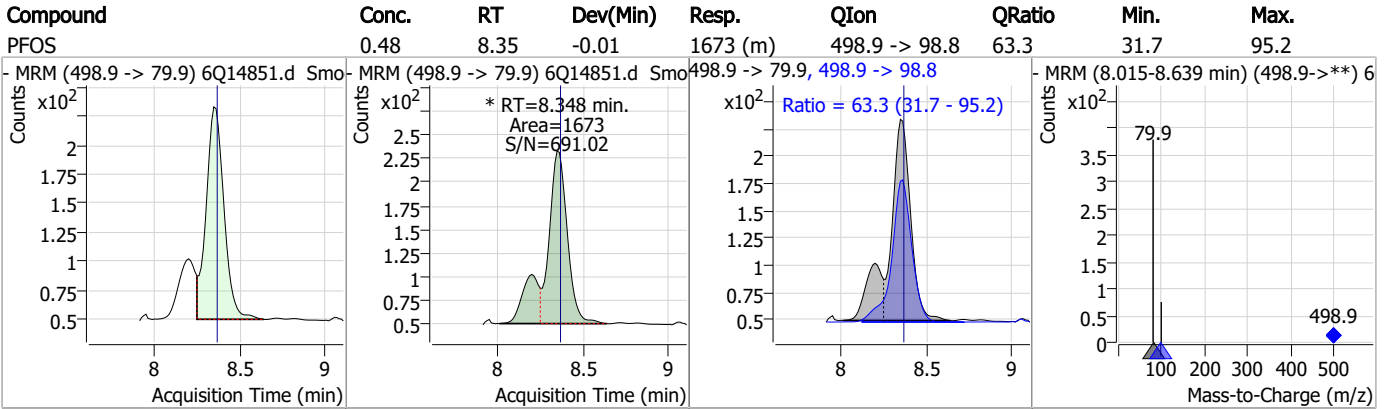
Perfluorinated Compounds by LC/MS/MS



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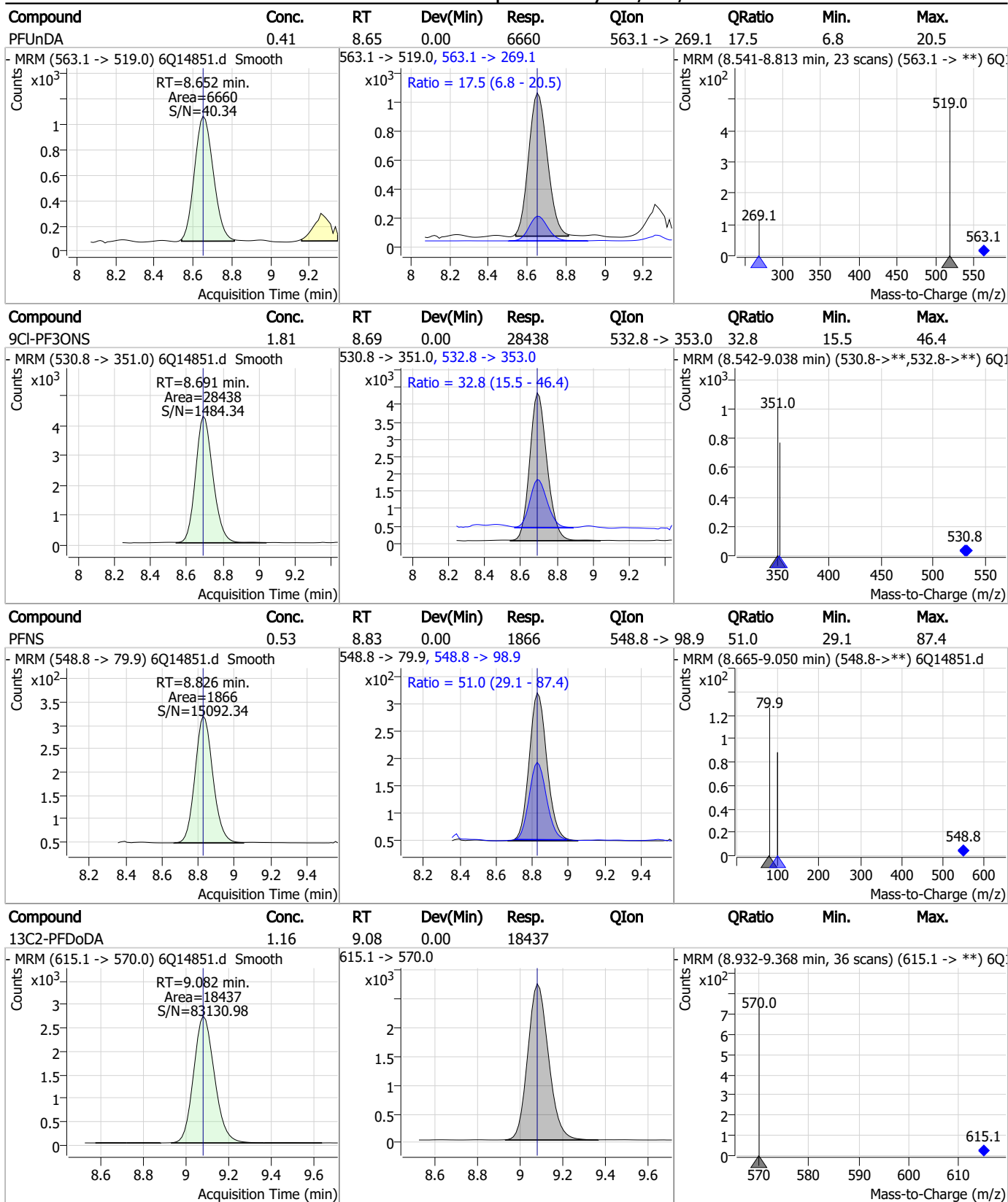
Perfluorinated Compounds by LC/MS/MS



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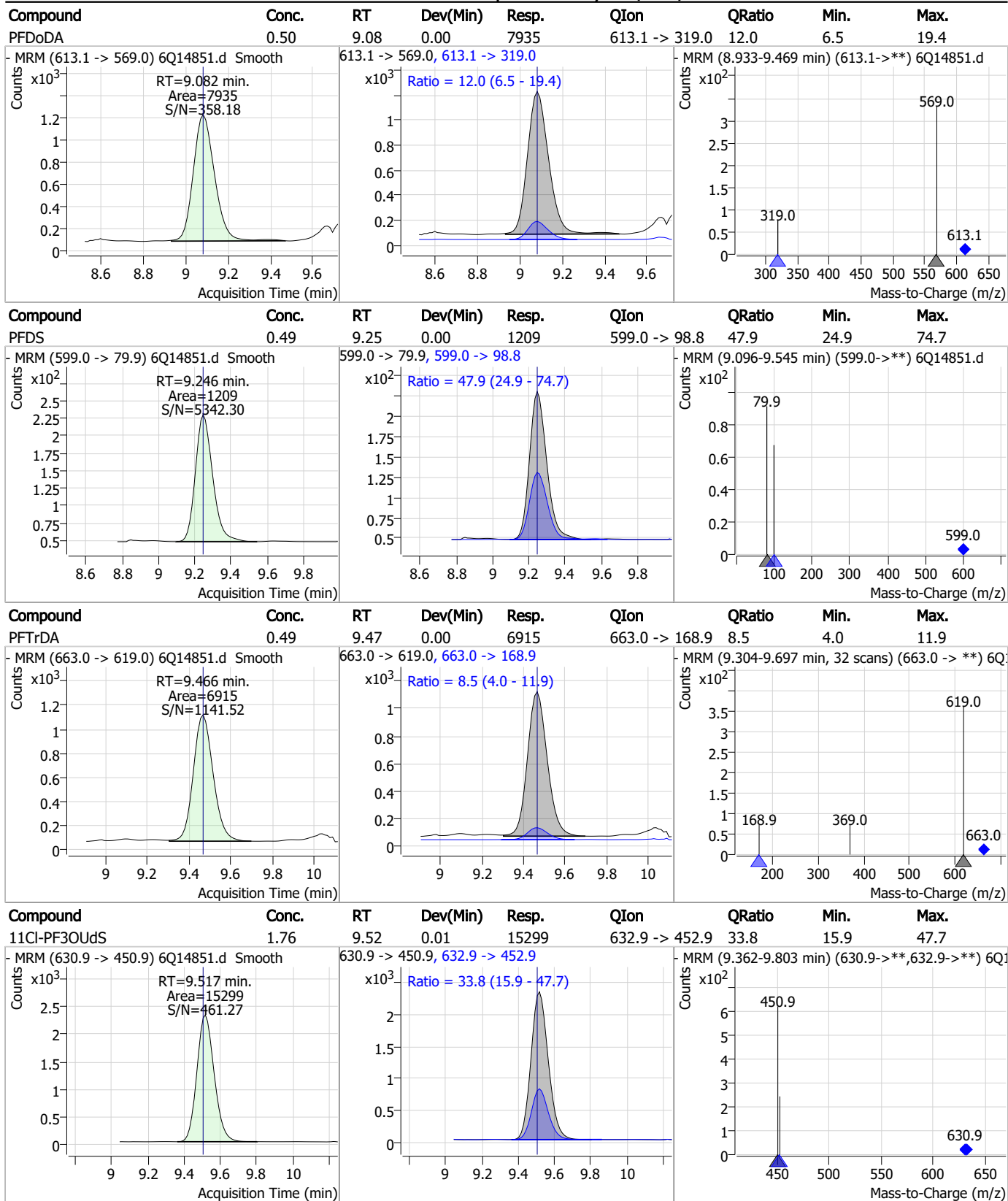
Perfluorinated Compounds by LC/MS/MS



7.7.3

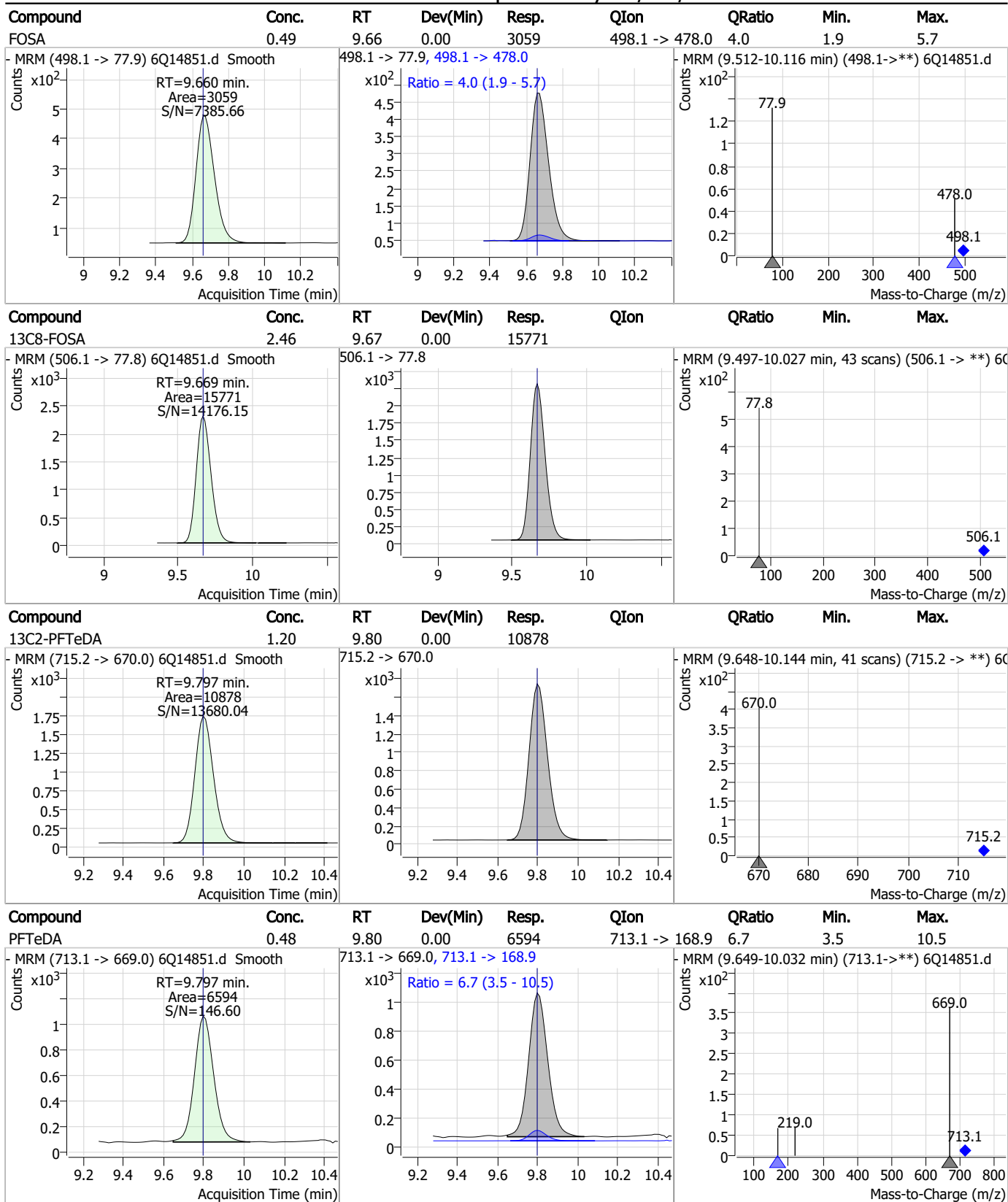
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Perfluorinated Compounds by LC/MS/MS



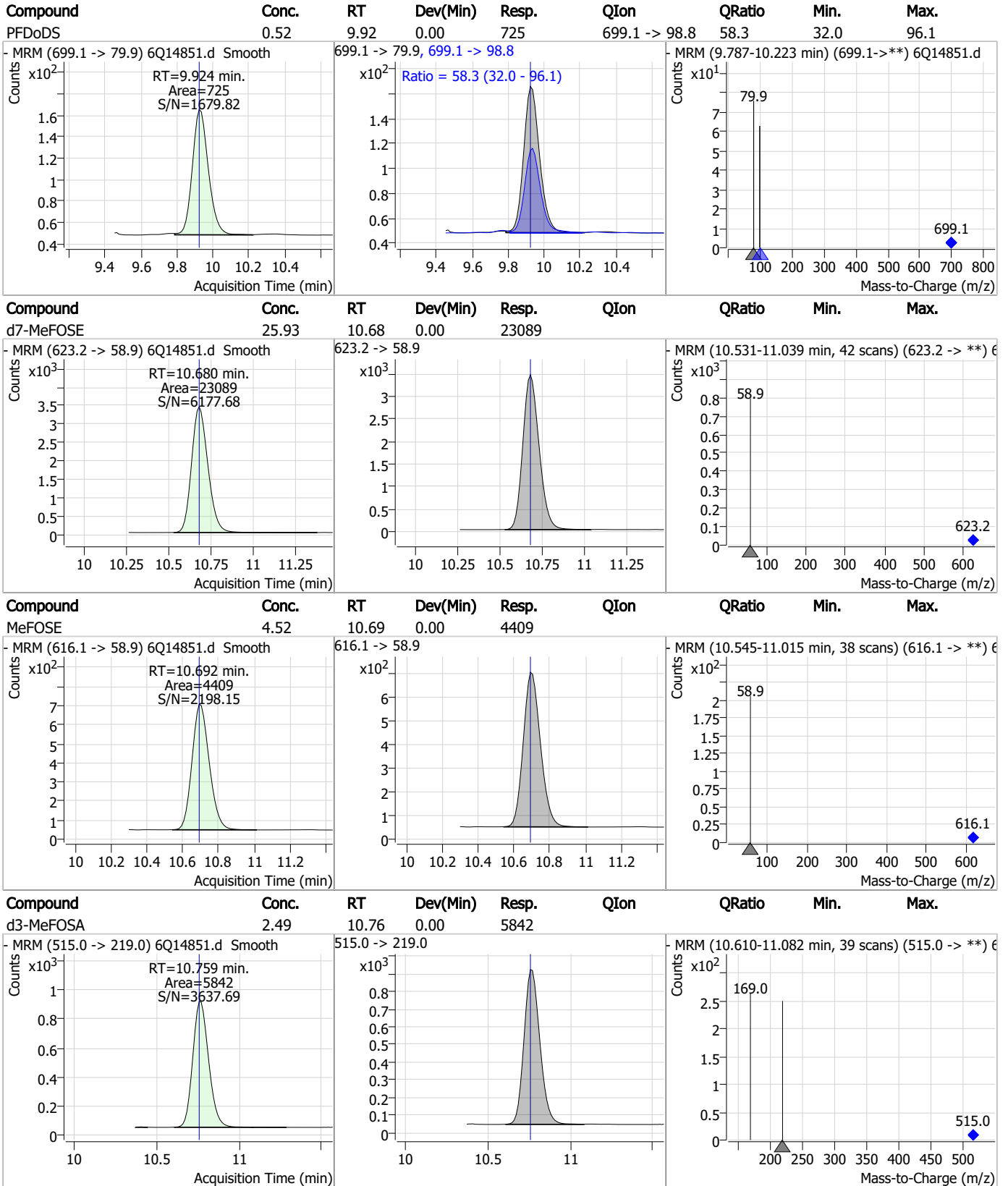
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3

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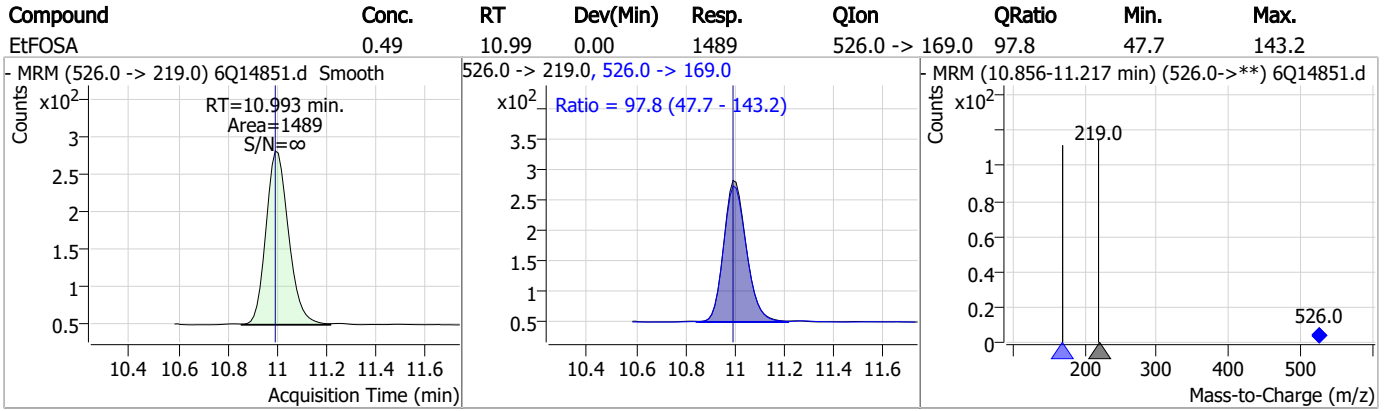
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	0.48	10.77	0.01	1339	511.9 -> 169.0	111.2	53.6	160.7
- MRM (511.9 -> 219.0) 6Q14851.d Smooth			511.9 -> 219.0, 511.9 -> 169.0		- MRM (10.648-10.972 min) (511.9->**) 6Q14851.d			
d9-EtFOSE	24.92	10.93	0.01	15658				
- MRM (639.2 -> 58.9) 6Q14851.d Smooth			639.2 -> 58.9		- MRM (10.772-11.237 min, 38 scans) (639.2 -> **) 6Q14851.d			
EtFOSE	4.81	10.94	0.00	3069				
- MRM (630.0 -> 58.9) 6Q14851.d Smooth			630.0 -> 58.9		- MRM (10.791-11.324 min, 43 scans) (630.0 -> **) 6Q14851.d			
d5-EtFOFA	2.46	10.99	0.00	6375				
- MRM (531.1 -> 219.0) 6Q14851.d Smooth			531.1 -> 219.0		- MRM (10.842-11.252 min, 34 scans) (531.1 -> **) 6Q14851.d			

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: S6Q225-IC225 Method: EPA DRAFT 1633
Lab FileID: 6Q14851.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 22:00 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak

7.7.3.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14852.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 10:14:09 PM
 Sample Name : ic225-3
 Vial : P1-A4
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.947	216.8 -> 171.9	79922	10.00 µg/L	0.000
M5-PFPeA	4.395	268.3 -> 223.0	38751	5.00 µg/L	0.000
M5-PFHxA	5.605	318.0 -> 273.0	35355	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	33747	2.50 µg/L	0.000
M8-PFOA	7.175	421.1 -> 376.0	57967	2.50 µg/L	-0.012
M9-PFNA	7.718	472.1 -> 427.0	19090	1.25 µg/L	0.000
M6-PFDA	8.197	519.1 -> 474.1	15511	1.25 µg/L	0.000
M7-PFUnDA	8.652	570.0 -> 525.1	16460	1.25 µg/L	0.000
M2-PFDoDA	9.082	615.1 -> 570.0	20420	1.25 µg/L	0.000
M2-PFTeDA	9.797	715.2 -> 670.0	11618	1.25 µg/L	0.000
M8-FOSA	9.669	506.1 -> 77.8	16305	2.50 µg/L	0.000
M3-PFBS	5.548	302.1 -> 79.9	13216	2.50 µg/L	0.000
M3-PFHxS	7.302	402.1 -> 79.9	8509	2.50 µg/L	0.000
M8-PFOS	8.360	507.1 -> 79.9	7958	2.50 µg/L	0.000
M2-4:2FTS	5.268	329.1 -> 80.9	1676	5.00 µg/L	-0.012
M2-6:2FTS	6.949	429.1 -> 80.9	2359	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	2515	5.00 µg/L	0.000
M3-MeFOSAA	8.243	573.2 -> 419.0	23182	5.00 µg/L	0.000
M3-HFPO-DA	5.983	286.9 -> 168.9	15298	10.00 µg/L	0.000
M5-EtFOSAA	8.451	589.2 -> 419.0	21422	5.00 µg/L	0.000
M7-MeFOSE	10.680	623.2 -> 58.9	23268	25.00 µg/L	0.000
M9-EtFOSE	10.914	639.2 -> 58.9	16297	25.00 µg/L	0.000
M5-EtFOSA	10.991	531.1 -> 219.0	6385	2.50 µg/L	0.000
M3-MeFOSA	10.759	515.0 -> 219.0	5814	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	9188	2.50 µg/L	0.000
13C3-PFBA	2.952	216.0 -> 172.0	34509	5.00 µg/L	0.000
18O2-PFHxS	7.301	403.0 -> 83.9	6176	2.50 µg/L	-0.012
13C4-PFOA	7.188	417.1 -> 372.0	69331	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	20084	1.25 µg/L	0.000
13C5-PFNA	7.706	468.0 -> 423.0	19789	1.25 µg/L	-0.012
13C2-PFHxA	5.606	315.1 -> 270.0	34087	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.268	329.1 -> 80.9	1676	4.73 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2359	5.14 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-8:2FTS	7.986	529.1 -> 80.9	2515	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
13C2-PFDoDA	9.082	615.1 -> 570.0	20420	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-PFTeDA	9.797	715.2 -> 670.0	11618	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C3-PFBS	5.548	302.1 -> 79.9	13216	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFHxS	7.302	402.1 -> 79.9	8509	2.44 µg/L	0.000

7.7.4
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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 = 97.6%		
13C4-PFBA	2.947	216.8 -> 171.9	79922	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C4-PFHpA	6.544	367.1 -> 322.0	33747	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C5-PFHxA	5.605	318.0 -> 273.0	35355	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C5-PFPeA	4.395	268.3 -> 223.0	38751	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C6-PFDA	8.197	519.1 -> 474.1	15511	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C7-PFUnDA	8.652	570.0 -> 525.1	16460	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C8-FOSA	9.669	506.1 -> 77.8	16305	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C8-PFOA	7.175	421.1 -> 376.0	57967	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C8-PFOS	8.360	507.1 -> 79.9	7958	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C9-PFNA	7.718	472.1 -> 427.0	19090	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
d3-MeFOSAA	8.243	573.2 -> 419.0	23182	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-HFPO-DA	5.983	286.9 -> 168.9	15298	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
d3-MeFOSA	10.759	515.0 -> 219.0	5814	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
d5-EtFOSAA	8.451	589.2 -> 419.0	21422	5.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.4%		
d7-MeFOSE	10.680	623.2 -> 58.9	23268	26.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
d9-EtFOSE	10.914	639.2 -> 58.9	16297	26.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
d5-EtFOSA	10.991	531.1 -> 219.0	6385	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	20093	5.18 µg/L	98
		327.1 -> 80.9	4882		
6:2FTS	6.950	427.1 -> 407.0	17532	5.00 µg/L	99
		427.1 -> 80.9	3866		
8:2FTS	7.986	527.1 -> 507.0	9038	4.89 µg/L	96
		527.1 -> 80.8	2231		
EtFOSAA	8.452	584.2 -> 419.1	4480	1.15 µg/L	96
		584.2 -> 526.0	2589		
FOSA	9.660	498.1 -> 77.9	8214	1.26 µg/L	100
		498.1 -> 478.0	310		
MeFOSAA	8.244	570.1 -> 419.0	6022	1.24 µg/L	99
		570.1 -> 483.0	1063		
PFBA	2.956	212.8 -> 168.9	10476	4.80 µg/L	100
PFBS	5.537	298.7 -> 79.9	6132	1.05 µg/L	100
		298.7 -> 98.8	2759		
PFDA	8.186	512.9 -> 469.0	21702	1.13 µg/L	93
		512.9 -> 219.0	3280		
PFDODA	9.082	613.1 -> 569.0	21118	1.20 µg/L	100
		613.1 -> 319.0	2700		
PFDS	9.246	599.0 -> 79.9	3156	1.21 µg/L	92

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1739			
PFHpA	6.544	363.1 -> 319.0	27839	1.28	µg/L	99
		363.1 -> 169.0	3918			
PFHpS	7.855	449.0 -> 79.9	4372	1.23	µg/L	95
		449.0 -> 98.9	2424			
PFHxA	5.607	313.0 -> 269.0	17554	1.18	µg/L	98
		313.0 -> 118.9	615			
PFHxS	7.303	398.7 -> 79.9	4619	1.09	µg/L	m 99
		398.7 -> 98.9	2686			
PFNA	7.707	463.0 -> 419.0	15199	1.12	µg/L	95
		463.0 -> 219.0	2694			
PFNS	8.826	548.8 -> 79.9	4274	1.14	µg/L	100
		548.8 -> 98.9	2505			
PFOA	7.176	413.0 -> 369.0	34056	1.24	µg/L	99
		413.0 -> 169.0	4586			
PFOS	8.361	498.9 -> 79.9	3690	0.99	µg/L	m 91
		498.9 -> 98.8	2613			
PFPeA	4.397	263.0 -> 219.0	22350	2.42	µg/L	100
PFPeS	6.609	349.1 -> 79.9	5929	1.16	µg/L	94
		349.1 -> 98.9	2898			
PFTeDA	9.797	713.1 -> 669.0	18490	1.27	µg/L	98
		713.1 -> 168.9	1157			
PFTrDA	9.466	663.0 -> 619.0	18080	1.16	µg/L	99
		663.0 -> 168.9	1511			
PFUnDA	8.652	563.1 -> 519.0	21100	1.35	µg/L	98
		563.1 -> 269.1	3084			
11CI-PF3OUdS	9.517	630.9 -> 450.9	43750	4.62	µg/L	99
		632.9 -> 452.9	13551			
9CI-PF3ONS	8.691	530.8 -> 351.0	78400	4.57	µg/L	93
		532.8 -> 353.0	27374			
ADONA	6.794	376.9 -> 250.9	158826	4.83	µg/L	100
		376.9 -> 84.8	35632			
HFPO-DA	5.984	284.9 -> 168.9	7624	4.74	µg/L	98
		284.9 -> 184.9	899			
3:3FTCA	3.851	241.0 -> 177.0	2794	6.06	µg/L	98
		241.0 -> 117.0	440			
5:3FTCA	6.259	341.0 -> 237.1	87662	29.16	µg/L	92
		341.0 -> 217.0	79754			
7:3FTCA	7.672	441.0 -> 316.9	42472	28.10	µg/L	99
		441.0 -> 336.9	77292			
EtFOSA	10.993	526.0 -> 219.0	3962	1.29	µg/L	91
		526.0 -> 169.0	4137			
EtFOSE	10.939	630.0 -> 58.9	8188	12.34	µg/L	100
MeFOSA	10.760	511.9 -> 219.0	3630	1.30	µg/L	97
		511.9 -> 169.0	3760			
MeFOSE	10.692	616.1 -> 58.9	11706	11.92	µg/L	100
PFDoDS	9.924	699.1 -> 79.9	1786	1.20	µg/L	94
		699.1 -> 98.8	1221			
NFDHA	5.488	295.0 -> 201.0	2251	2.35	µg/L	99
		295.0 -> 84.9	1024			
PFMBA	4.819	279.0 -> 85.1	7137	2.37	µg/L	100
PFMPA	3.526	229.0 -> 84.9	6331	2.39	µg/L	100
PFEESA	6.089	314.8 -> 134.9	45097	2.14	µg/L	100
		314.8 -> 82.9	1123			

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

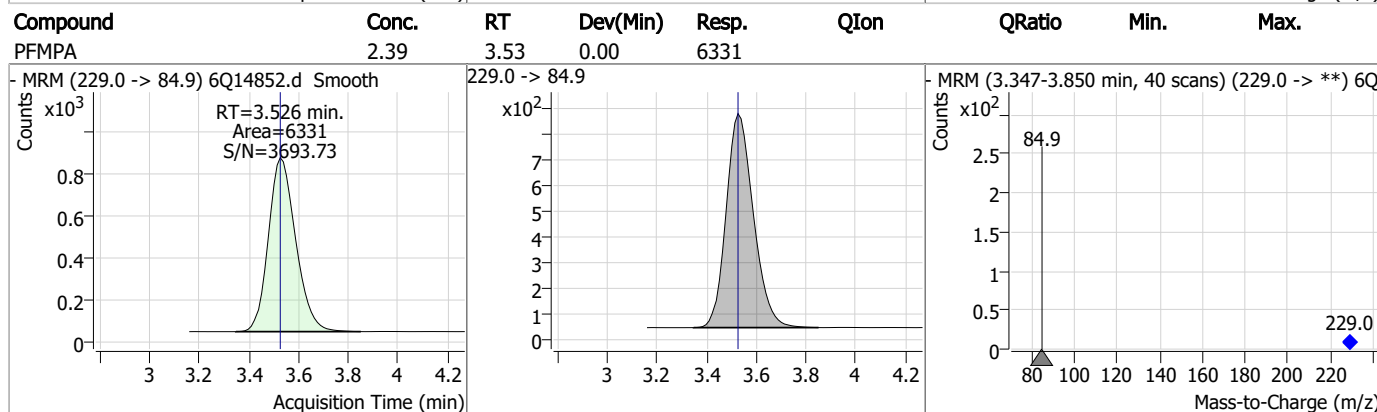
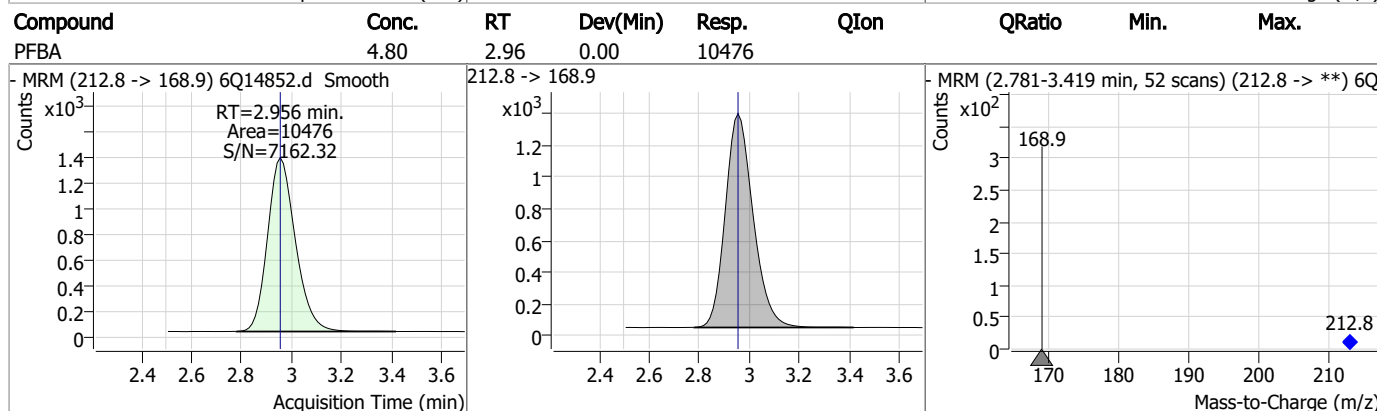
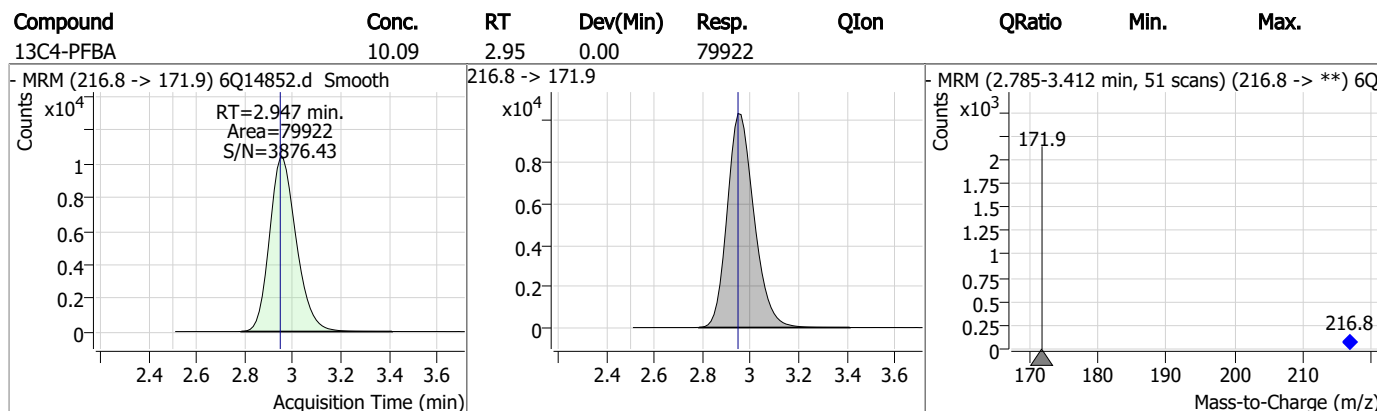
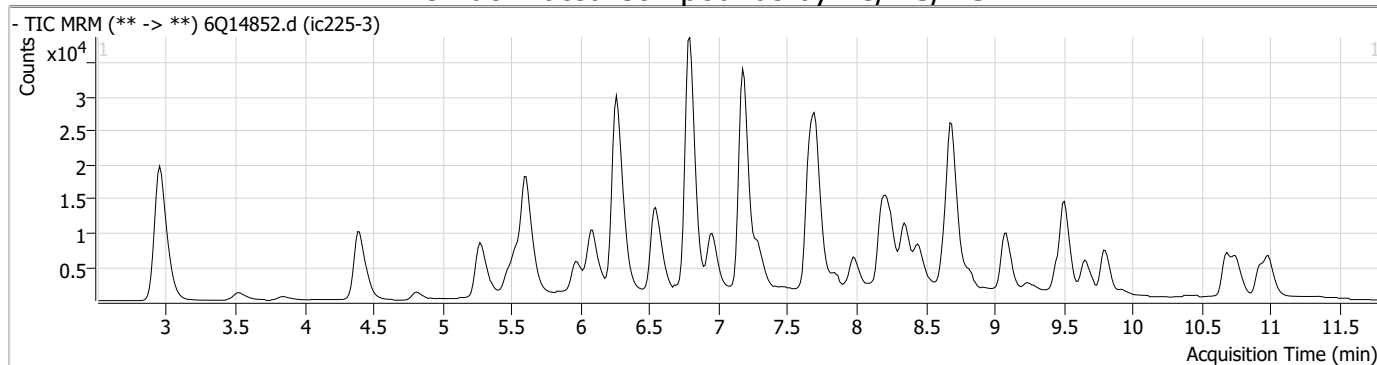
Perfluorinated Compounds by LC/MS/MS

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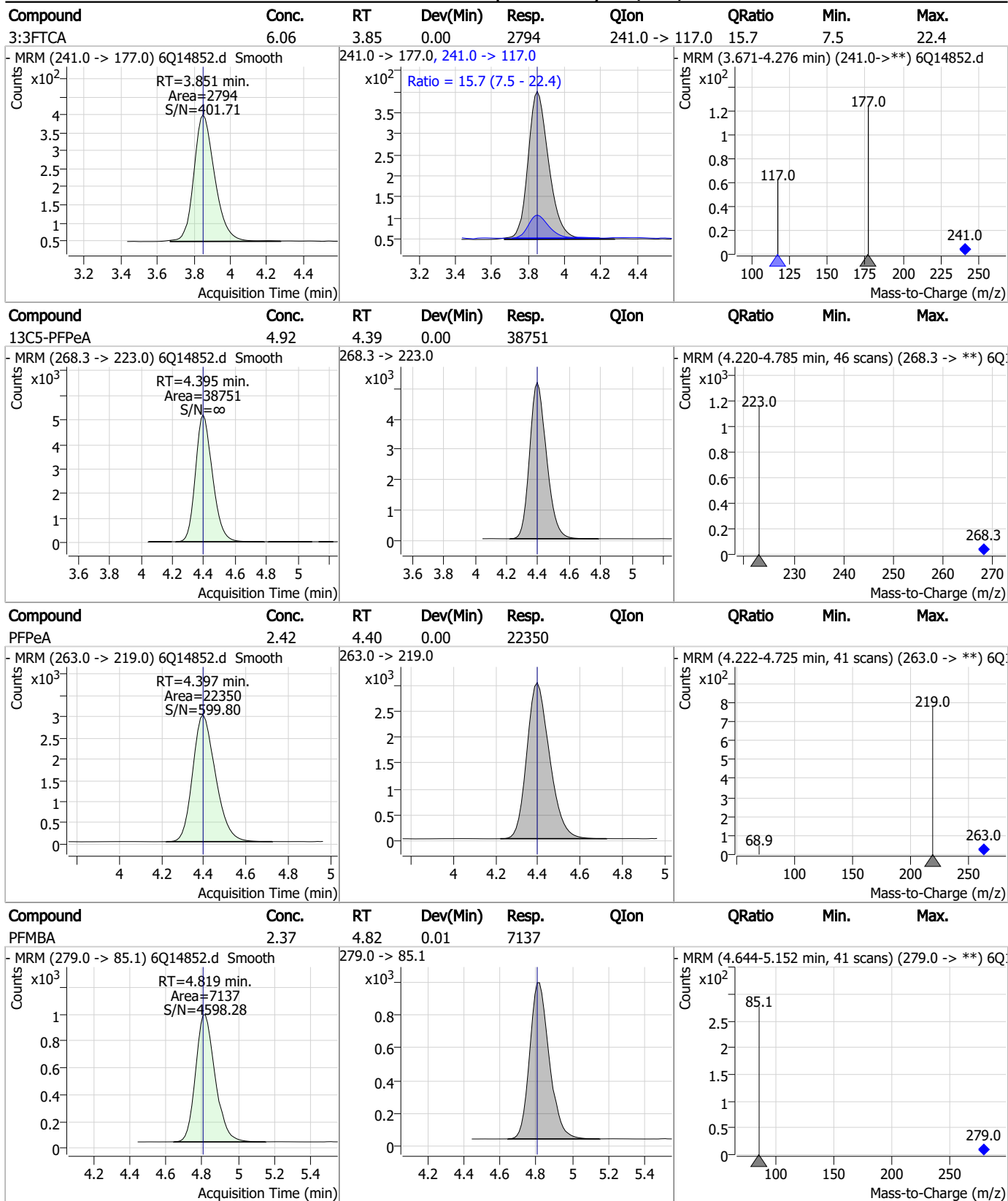
7.7.4

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Perfluorinated Compounds by LC/MS/MS



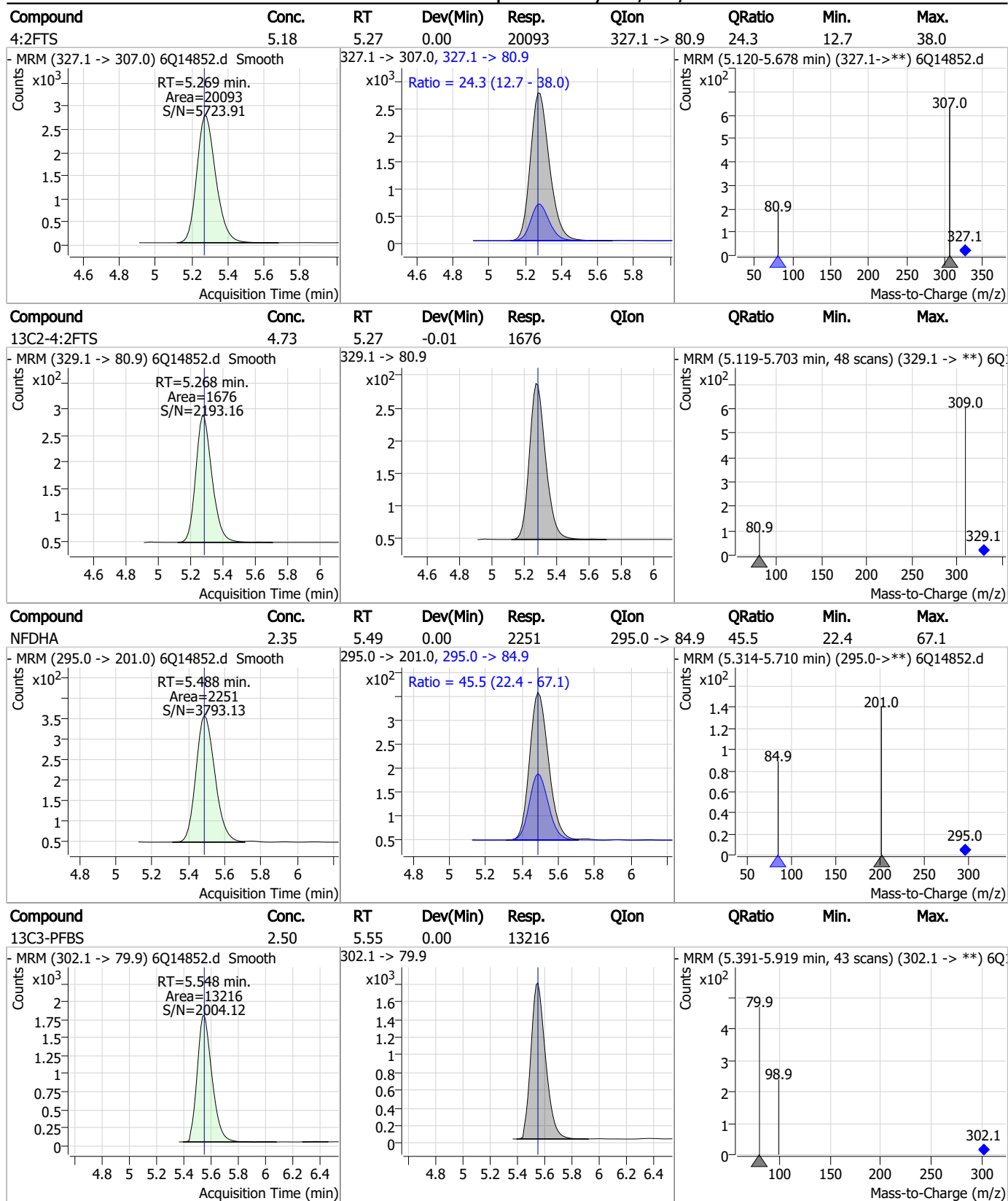
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS

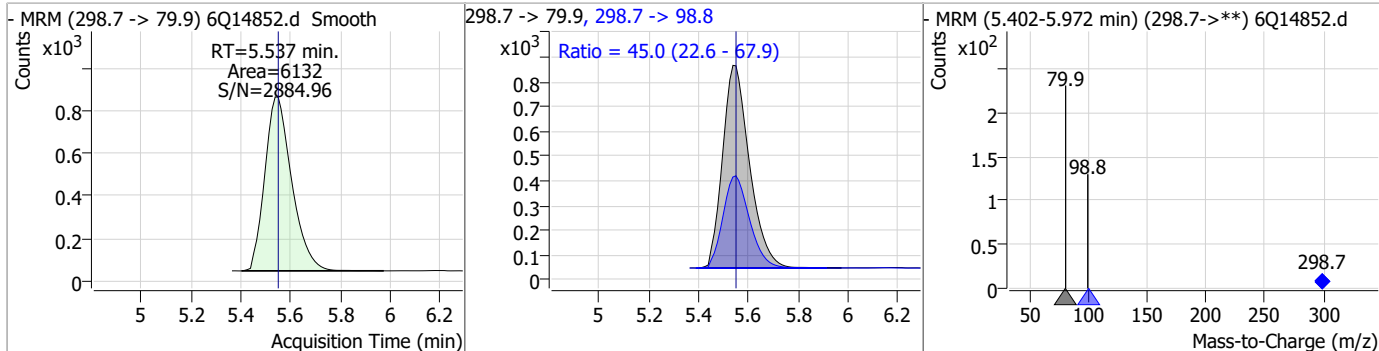


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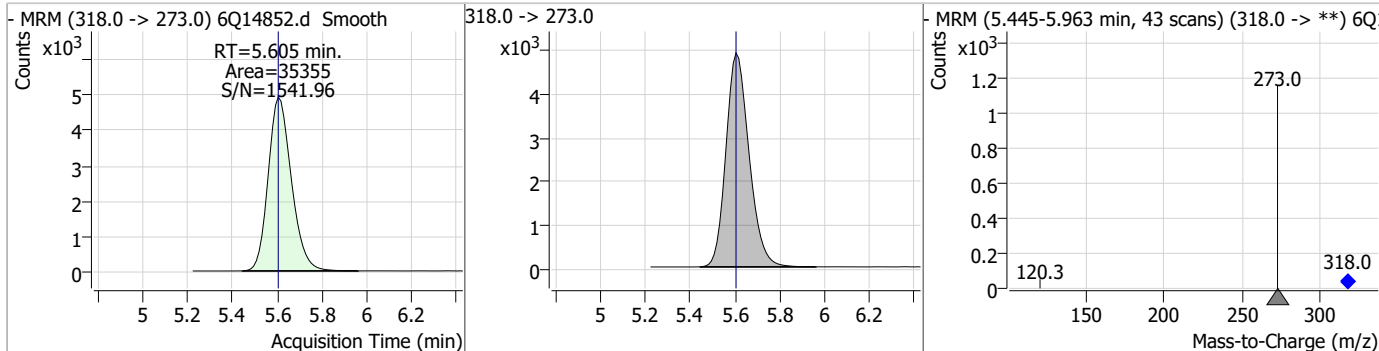
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Perfluorinated Compounds by LC/MS/MS

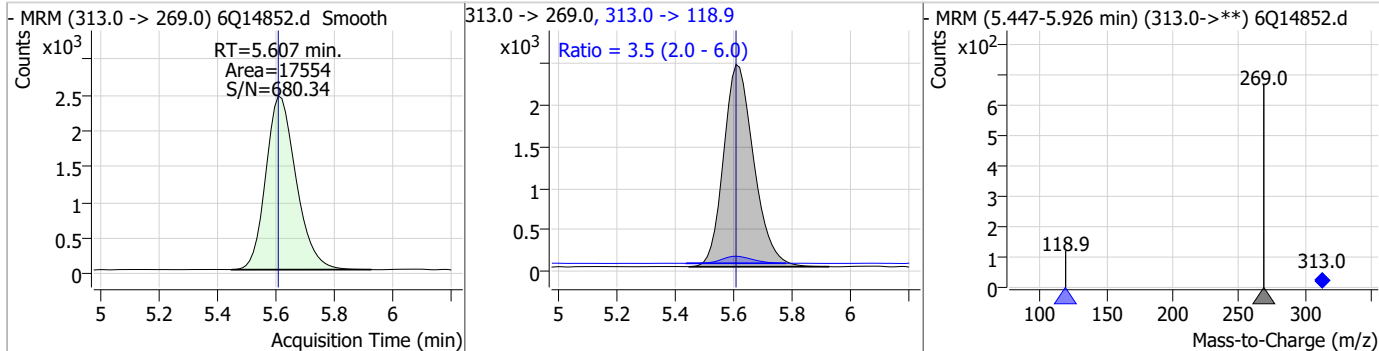
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.05	5.54	-0.01	6132	298.7 -> 98.8	45.0	22.6	67.9



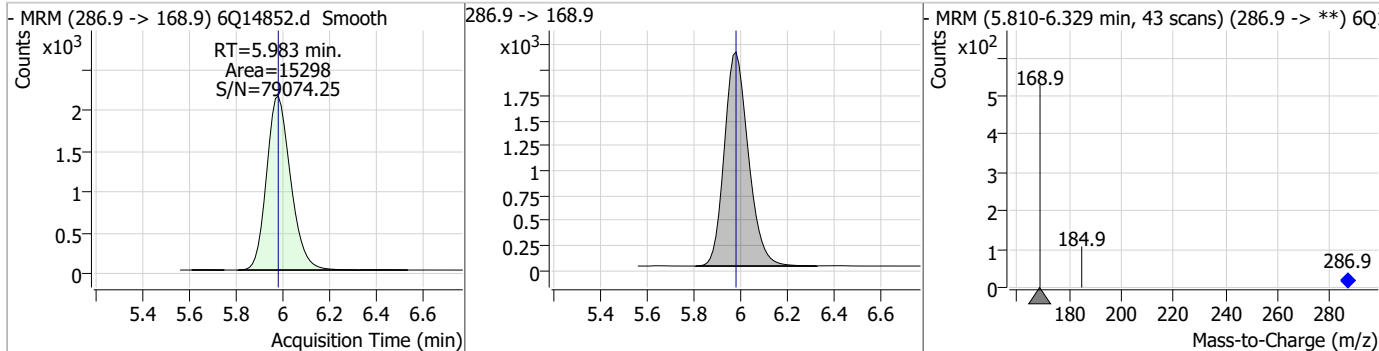
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.60	0.00	35355				



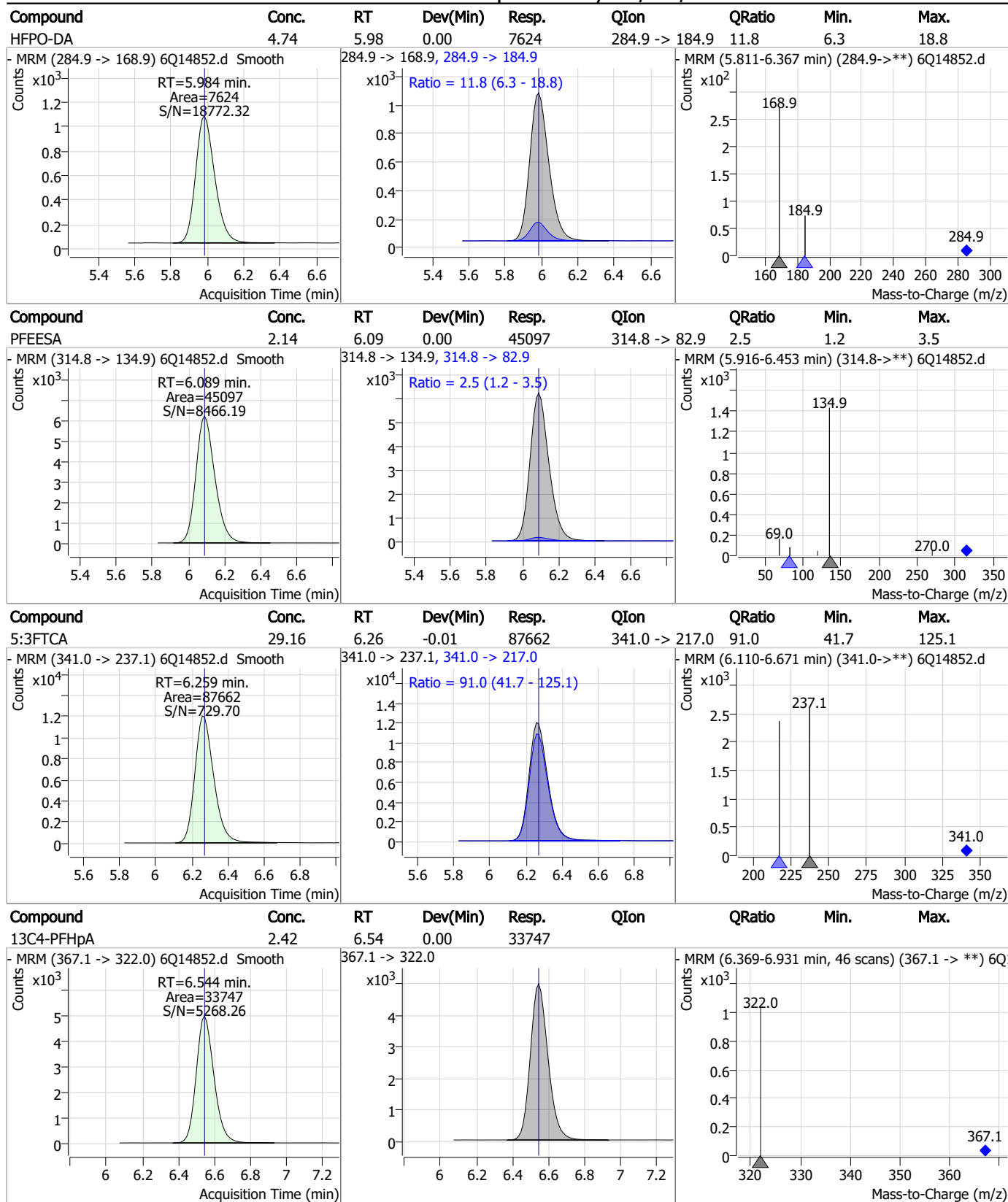
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.18	5.61	0.00	17554	313.0 -> 118.9	3.5	2.0	6.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.93	5.98	0.00	15298				



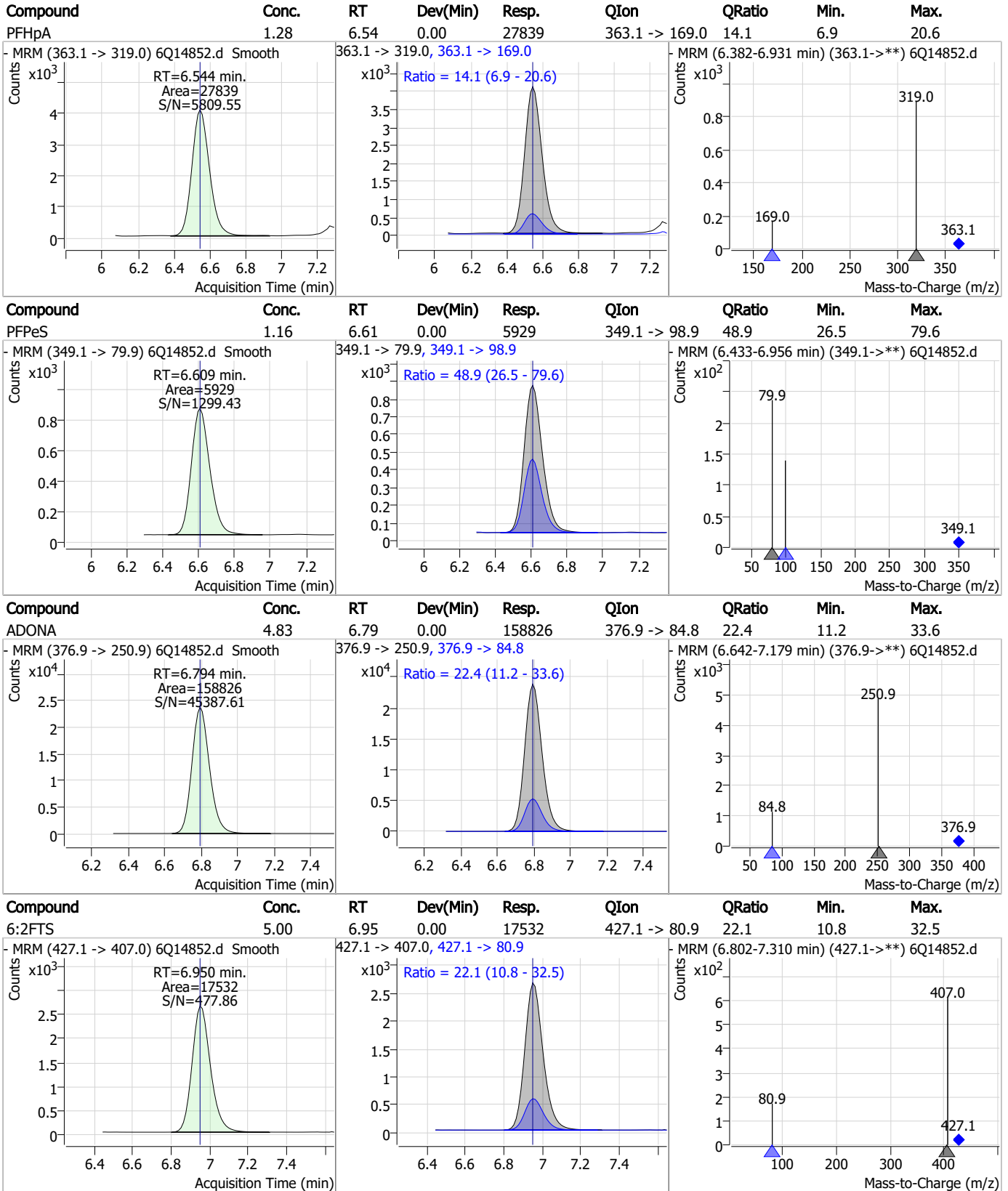
Perfluorinated Compounds by LC/MS/MS



7.7.4

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Perfluorinated Compounds by LC/MS/MS

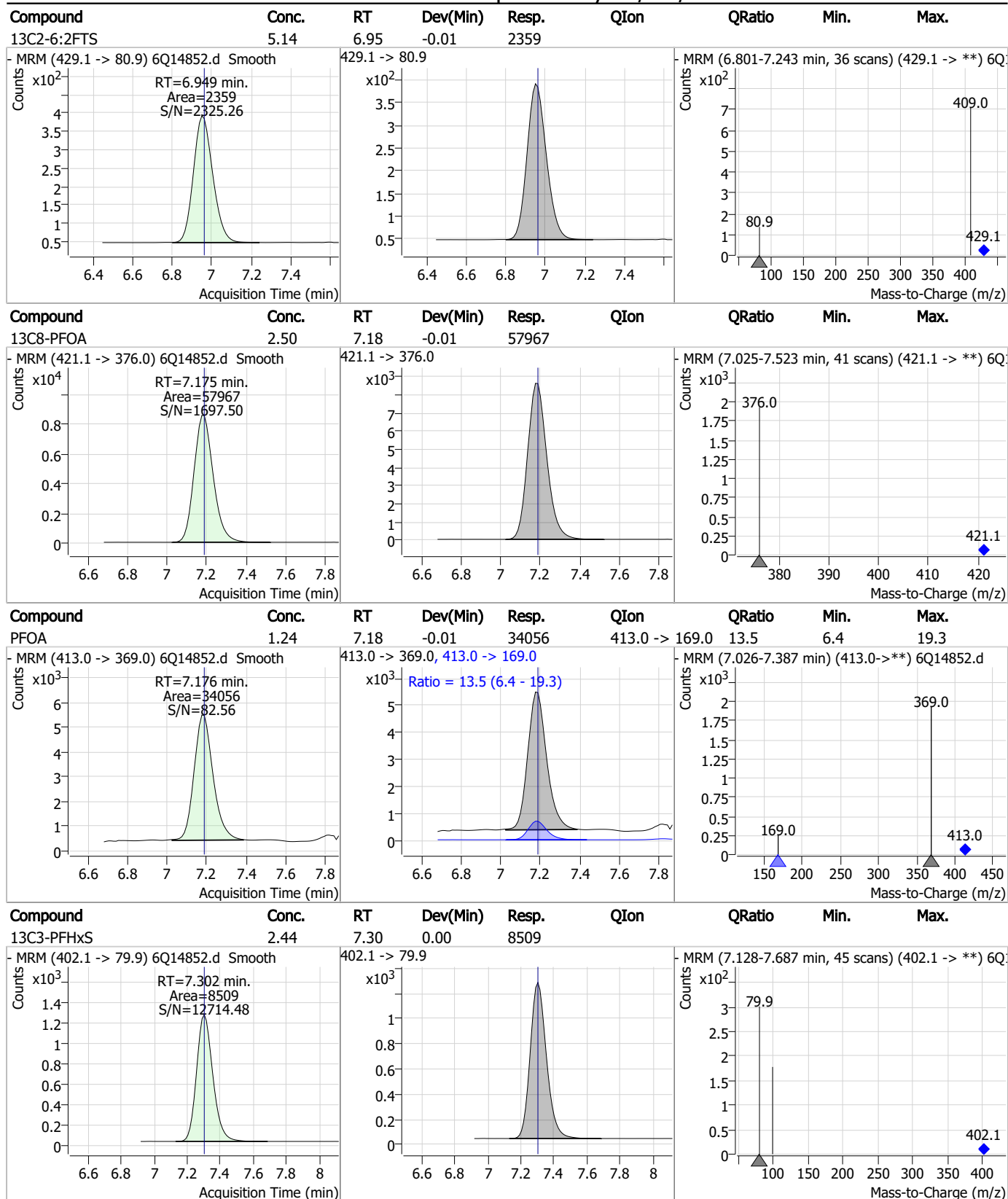


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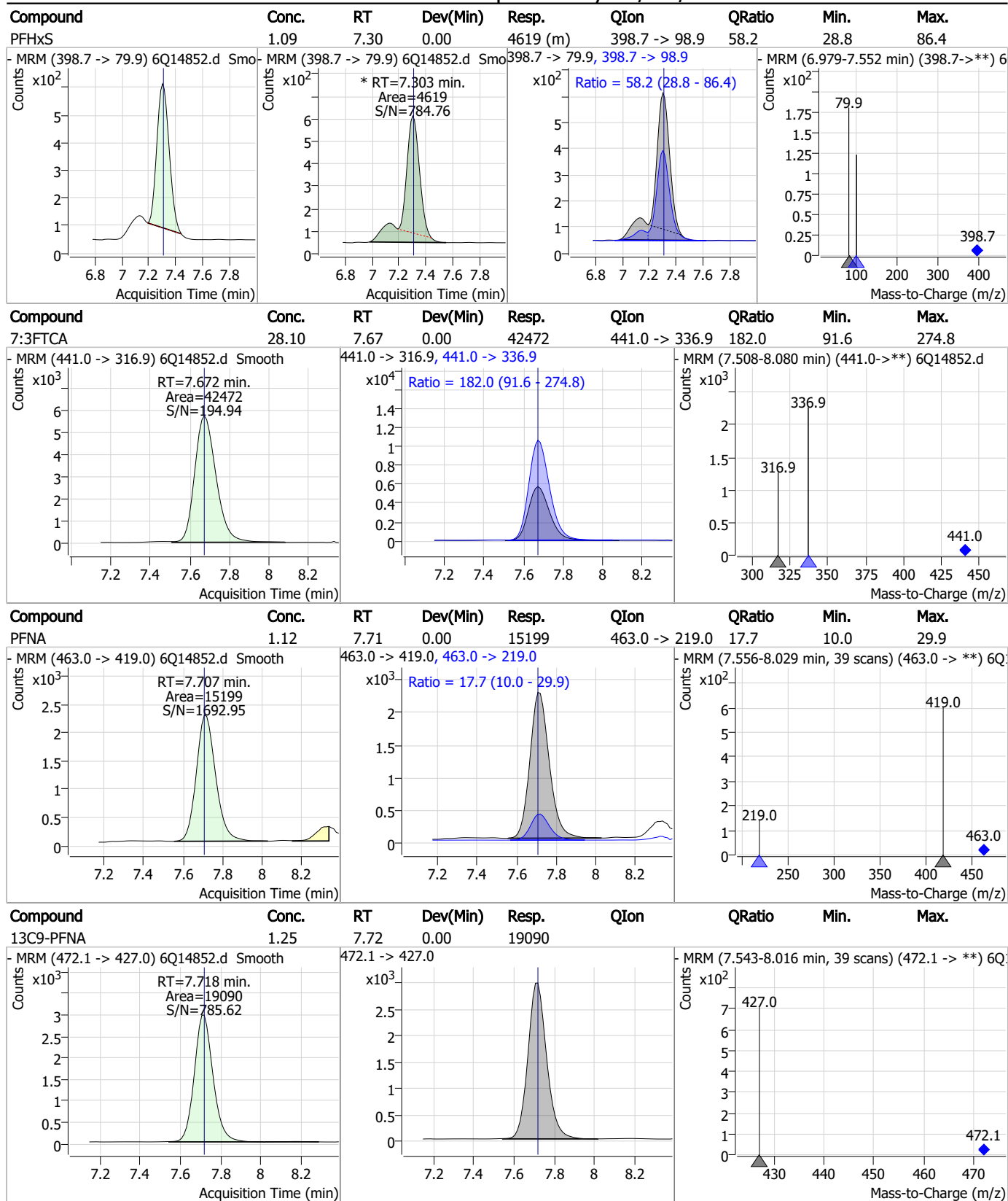
Perfluorinated Compounds by LC/MS/MS



7.7.4

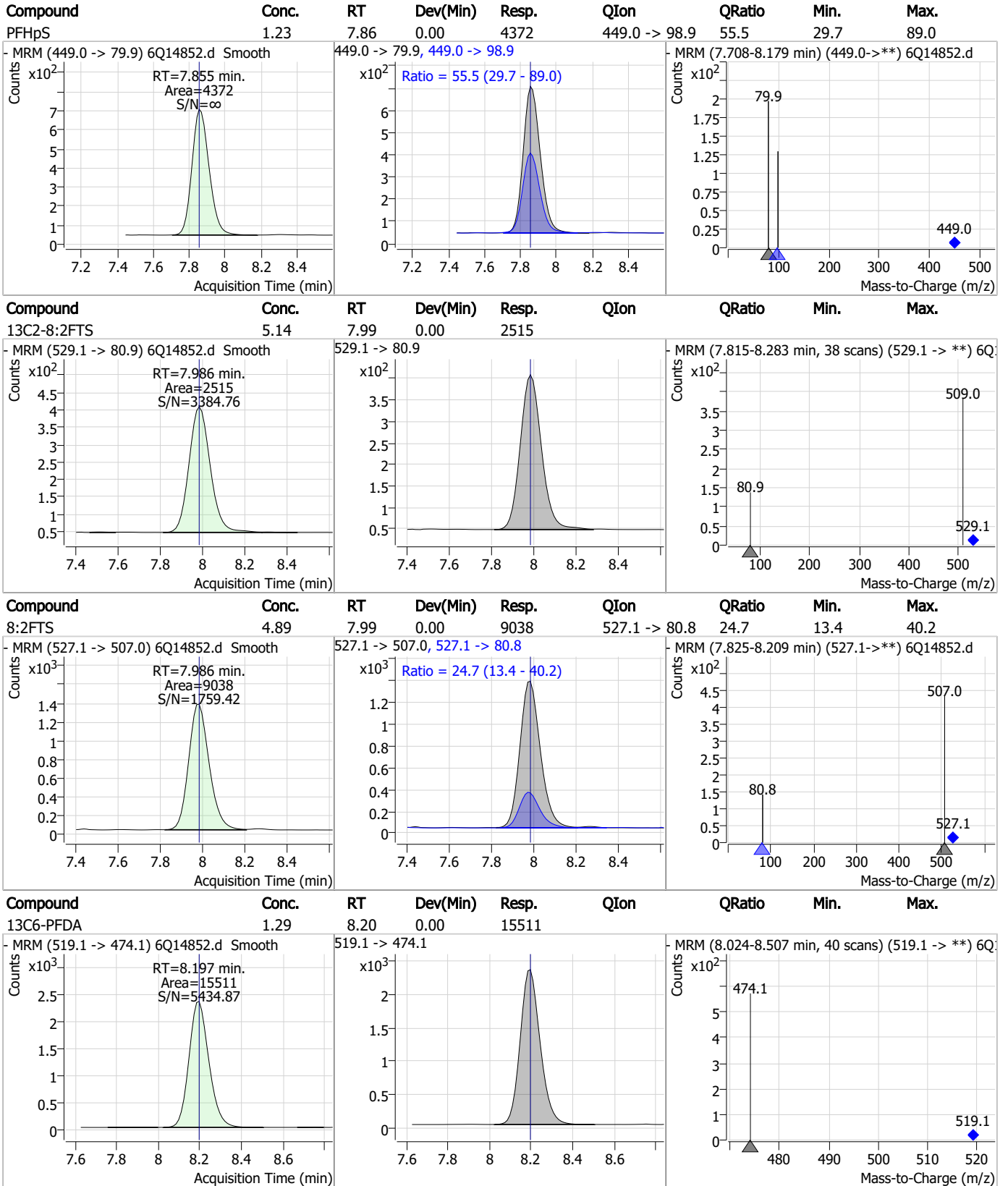
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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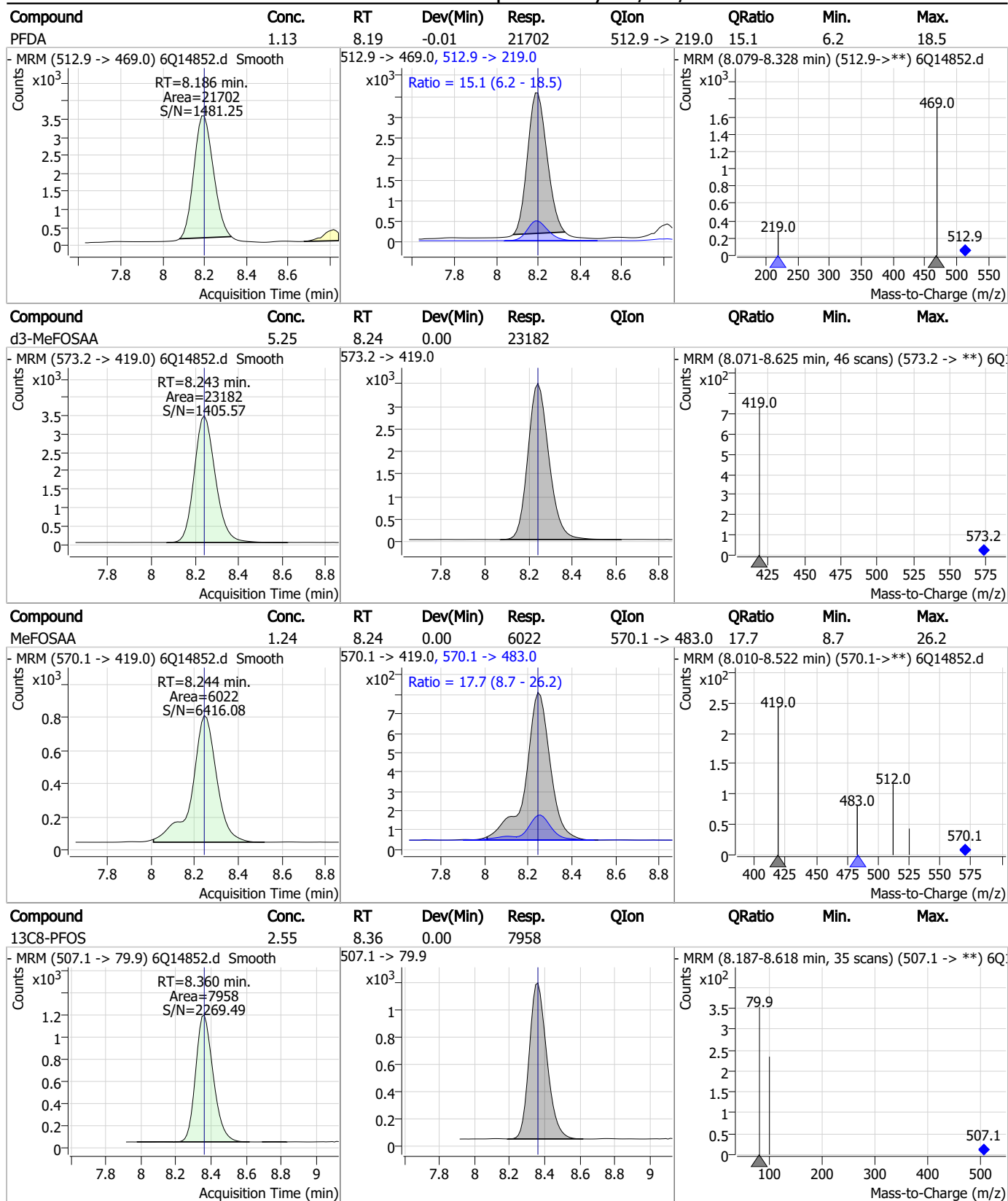
Perfluorinated Compounds by LC/MS/MS



7.7.4

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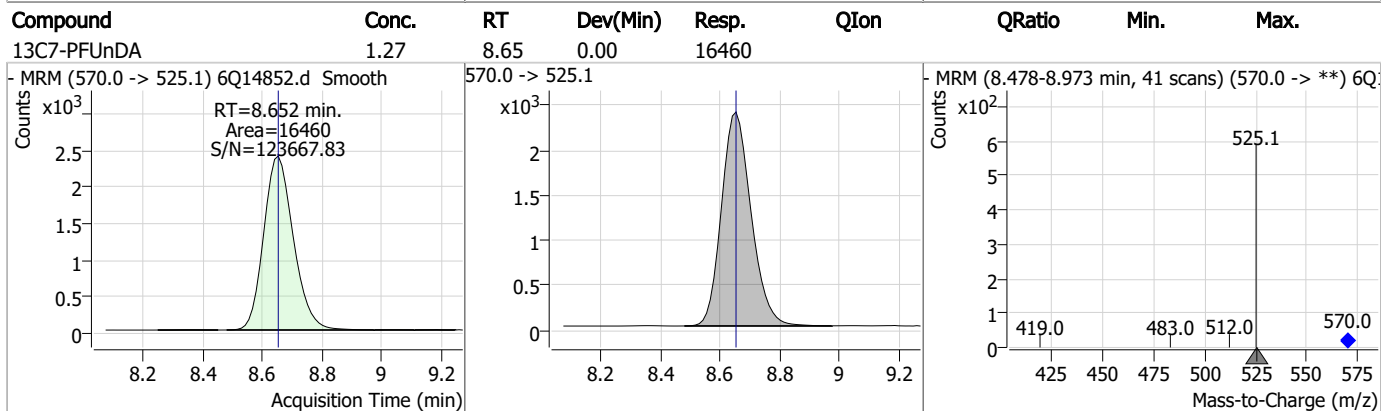
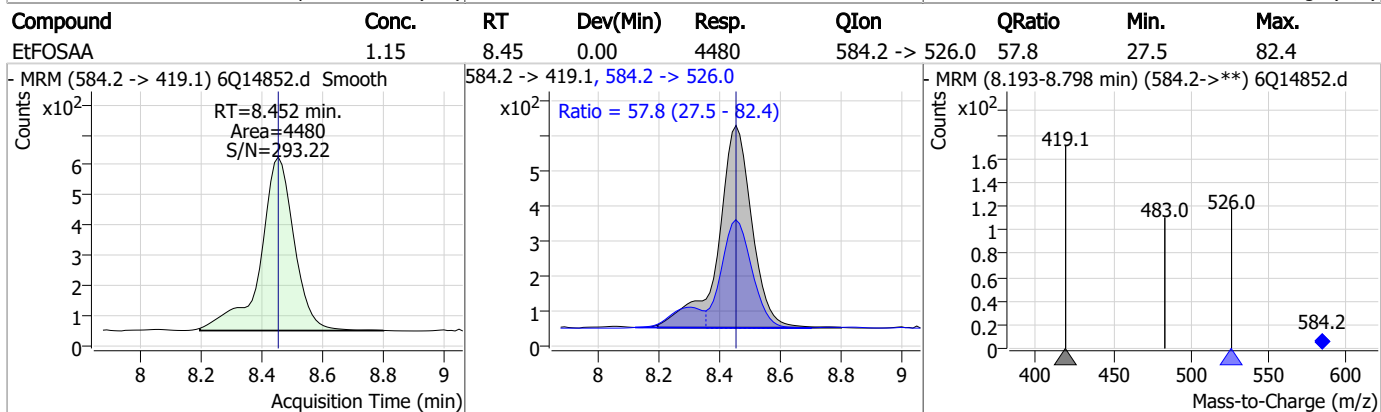
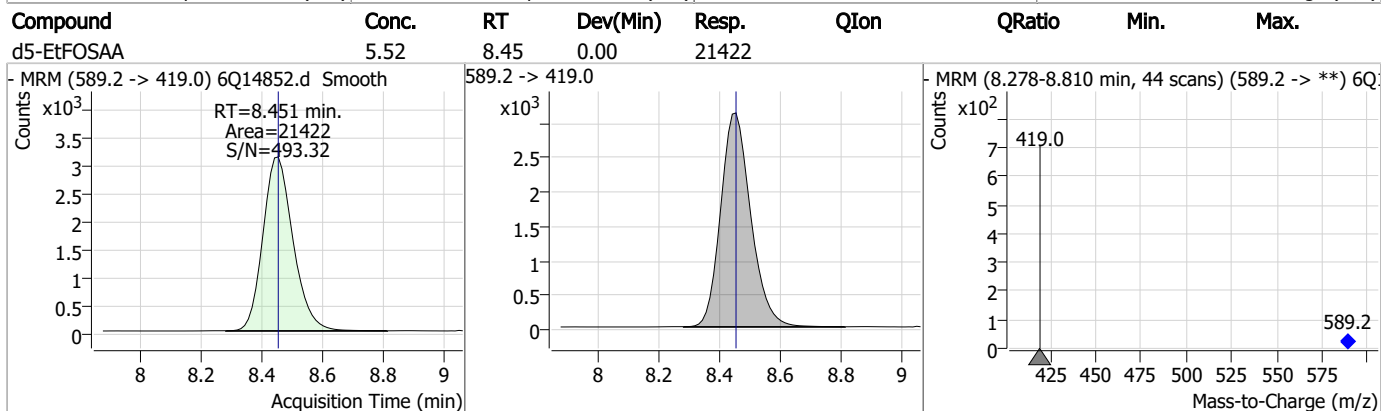
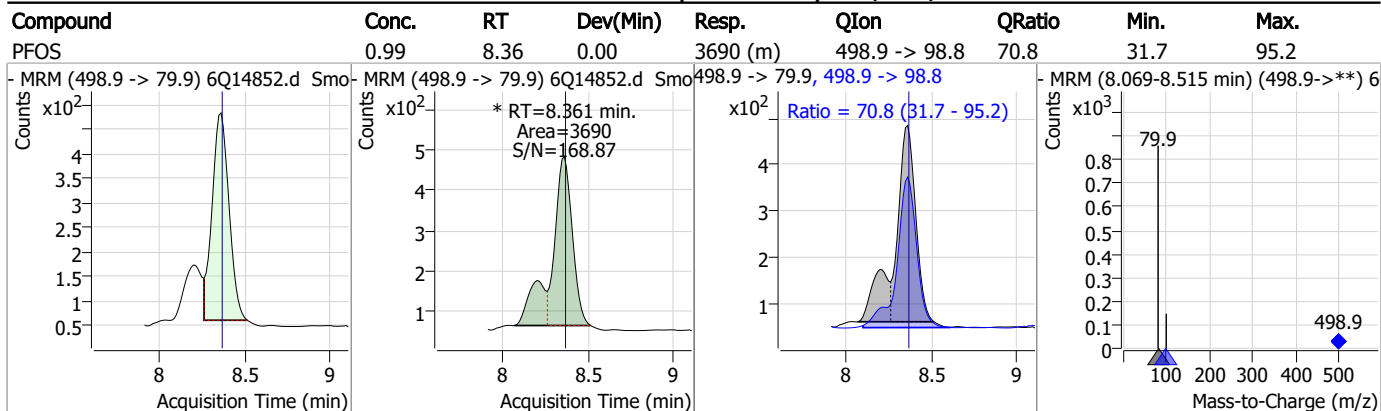
Perfluorinated Compounds by LC/MS/MS



7.7.4

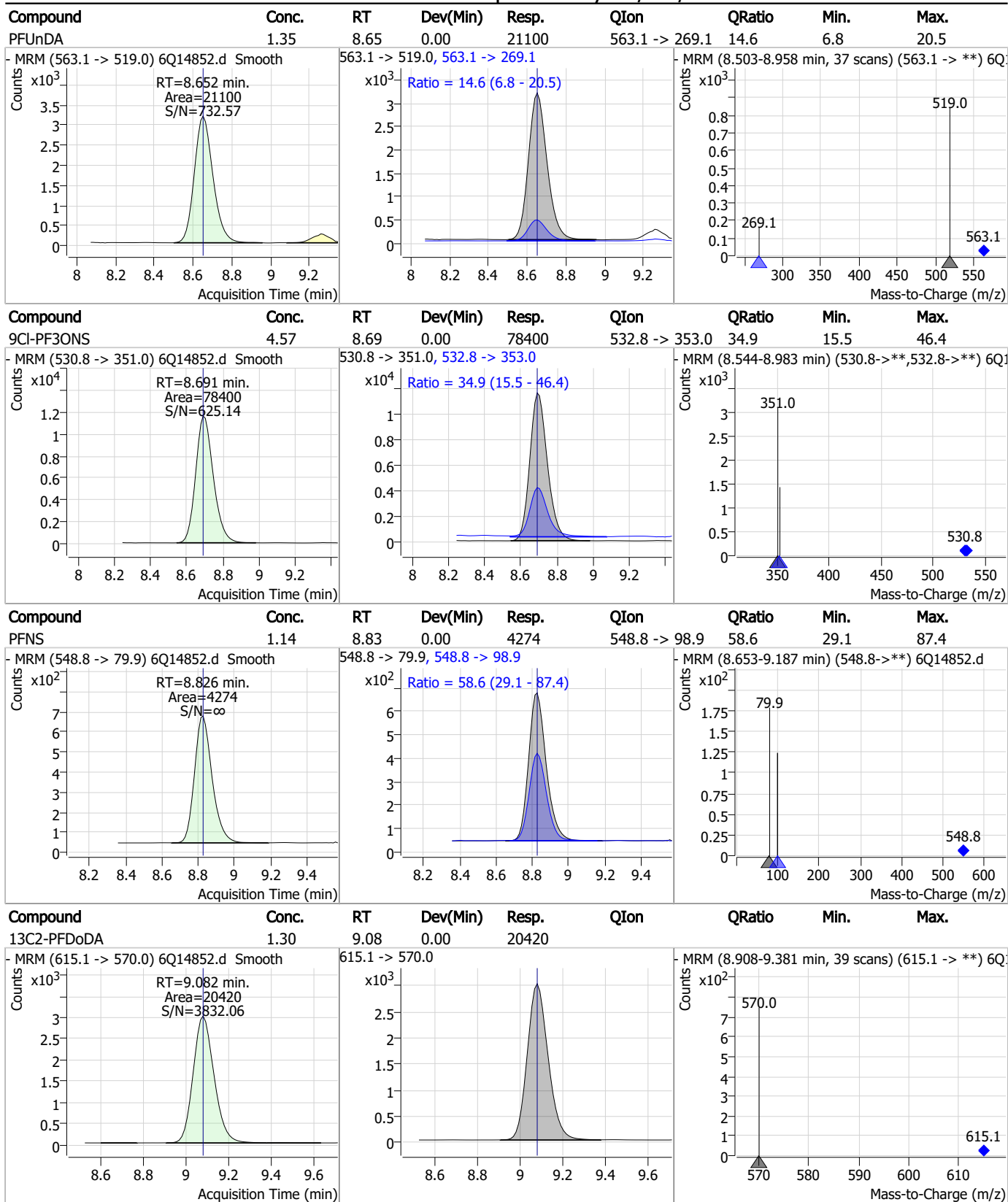
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Perfluorinated Compounds by LC/MS/MS



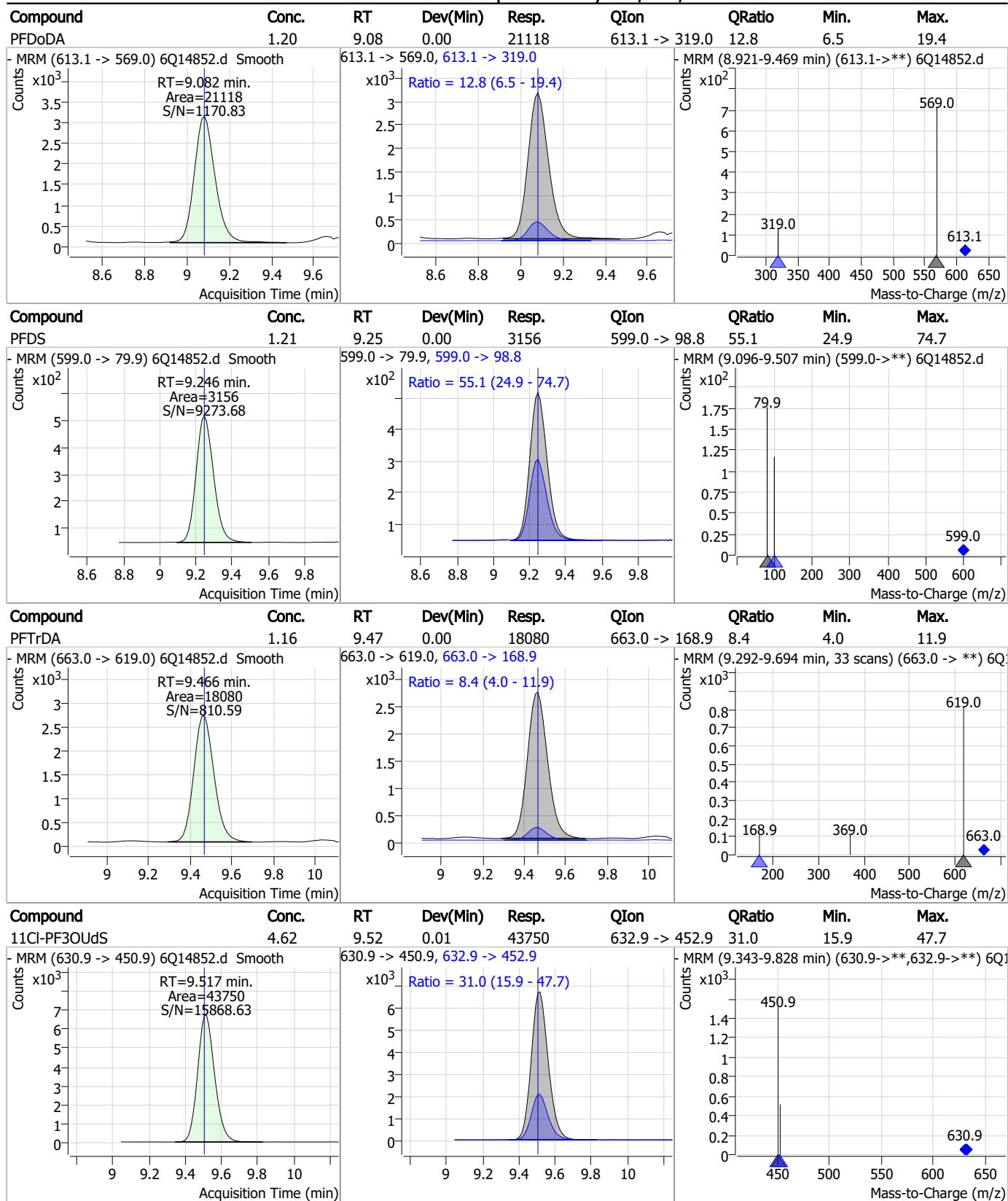
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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Perfluorinated Compounds by LC/MS/MS

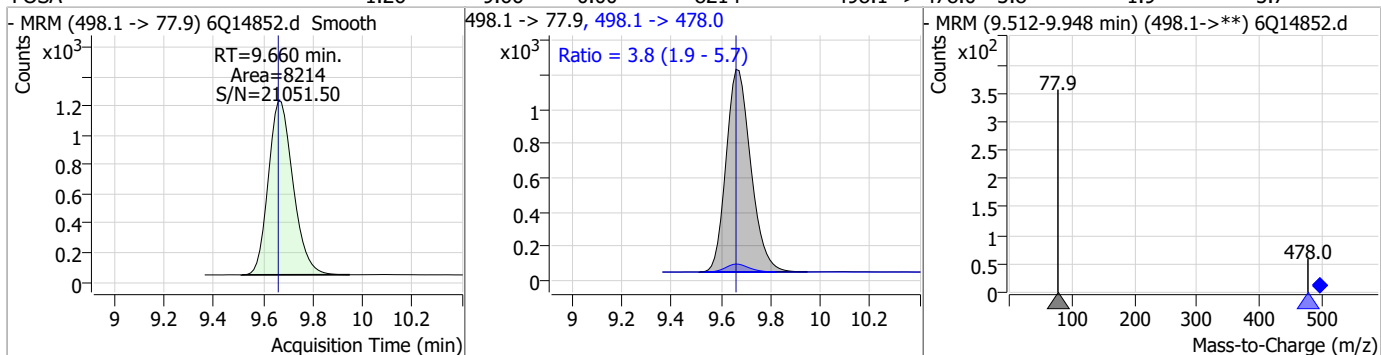


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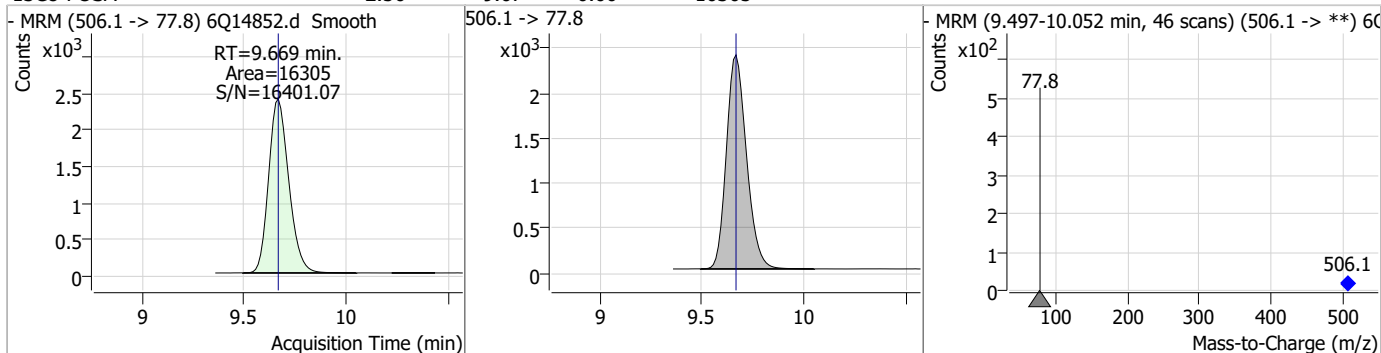
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Perfluorinated Compounds by LC/MS/MS

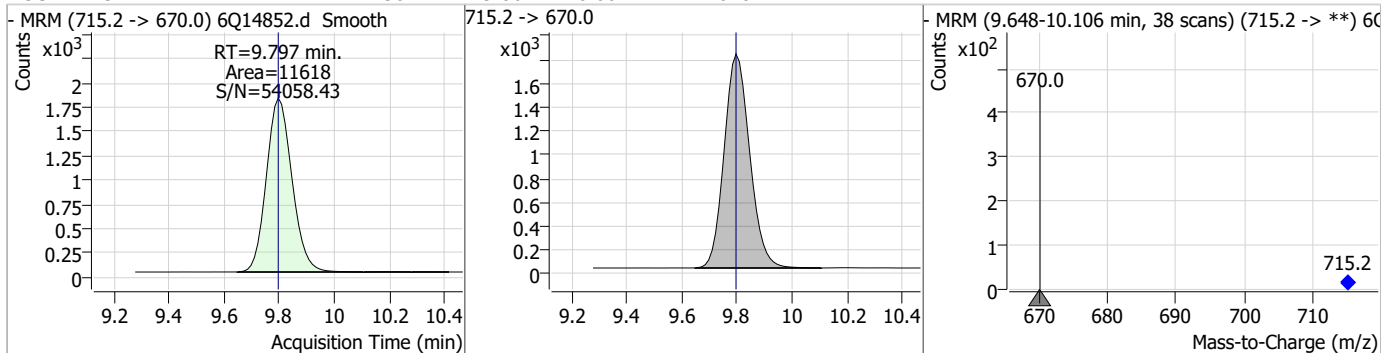
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.26	9.66	0.00	8214	498.1 -> 478.0	3.8	1.9	5.7



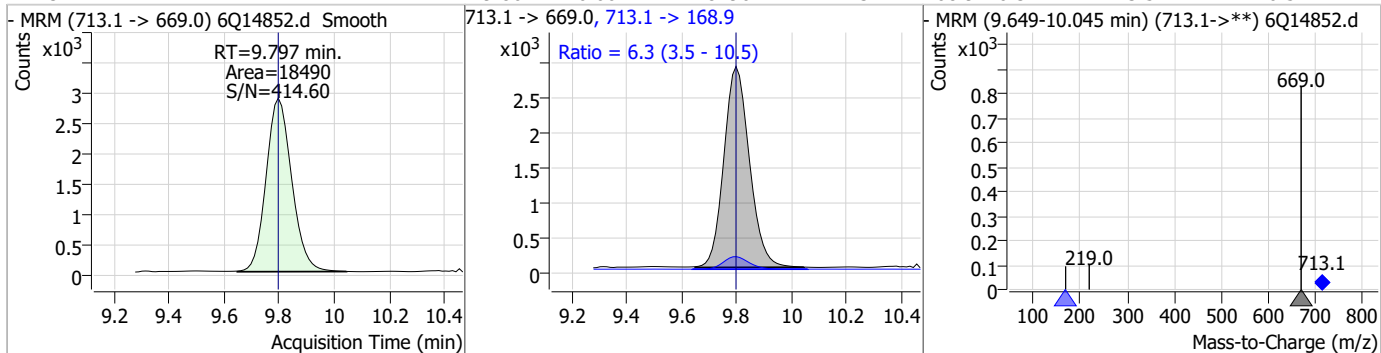
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.56	9.67	0.00	16305				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.80	0.00	11618				

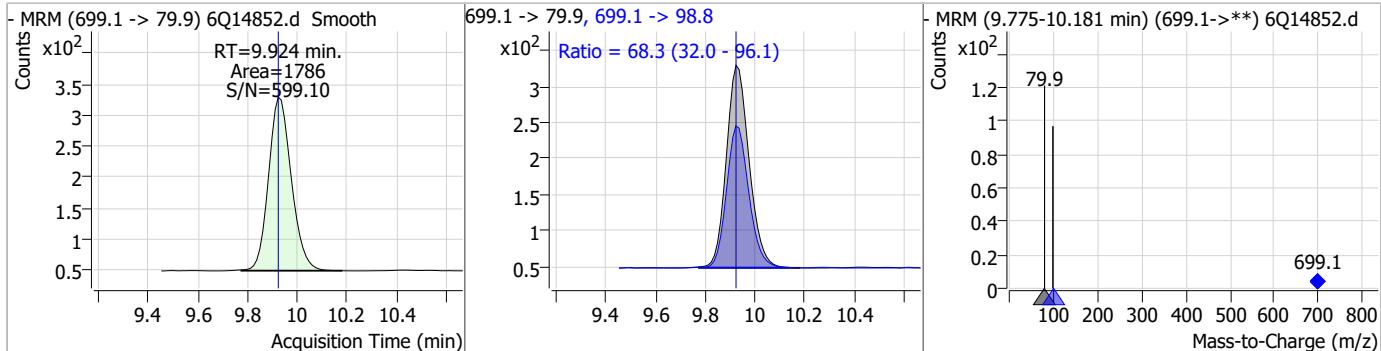


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.27	9.80	0.00	18490	713.1 -> 168.9	6.3	3.5	10.5

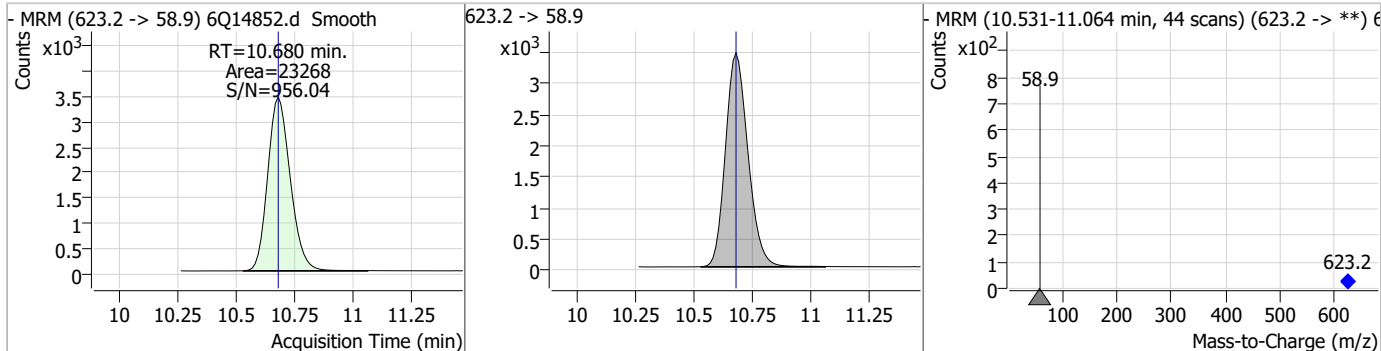


Perfluorinated Compounds by LC/MS/MS

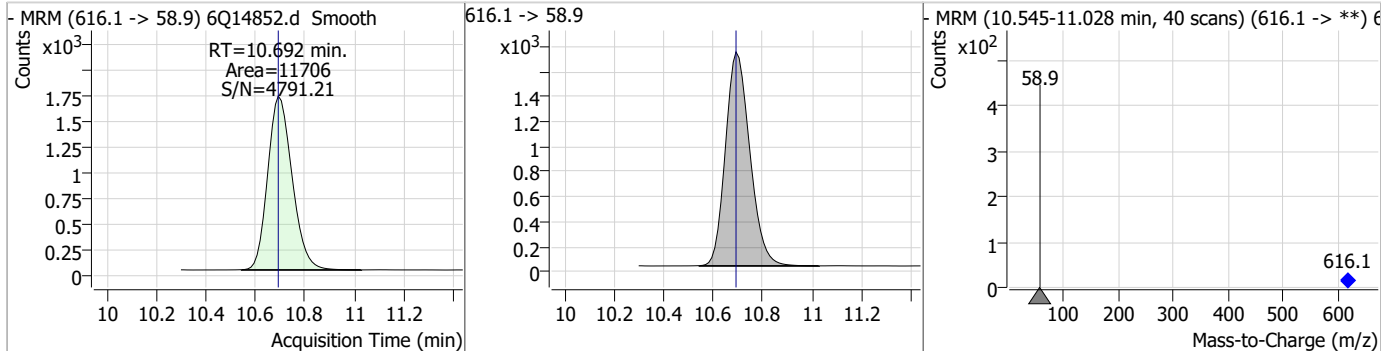
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.20	9.92	0.00	1786	699.1 -> 98.8	68.3	32.0	96.1



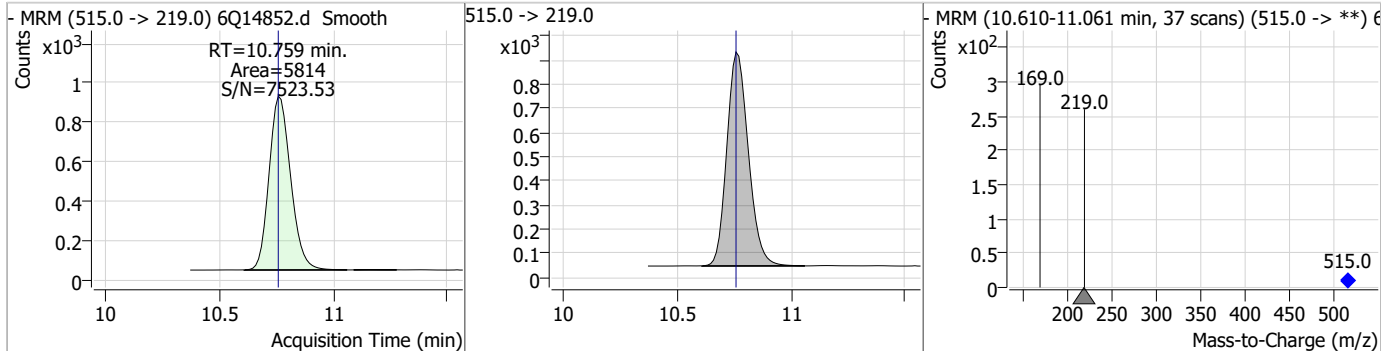
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.32	10.68	0.00	23268				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.92	10.69	0.00	11706				

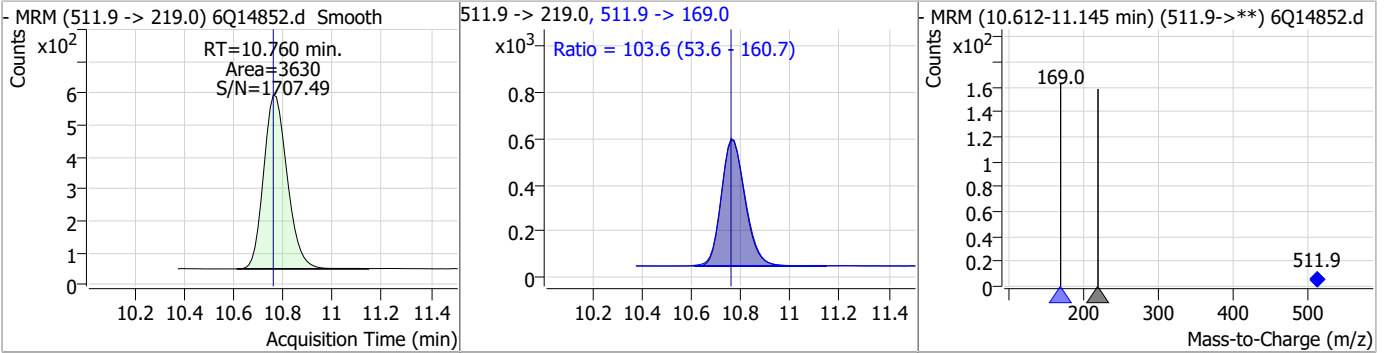


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.49	10.76	0.00	5814				

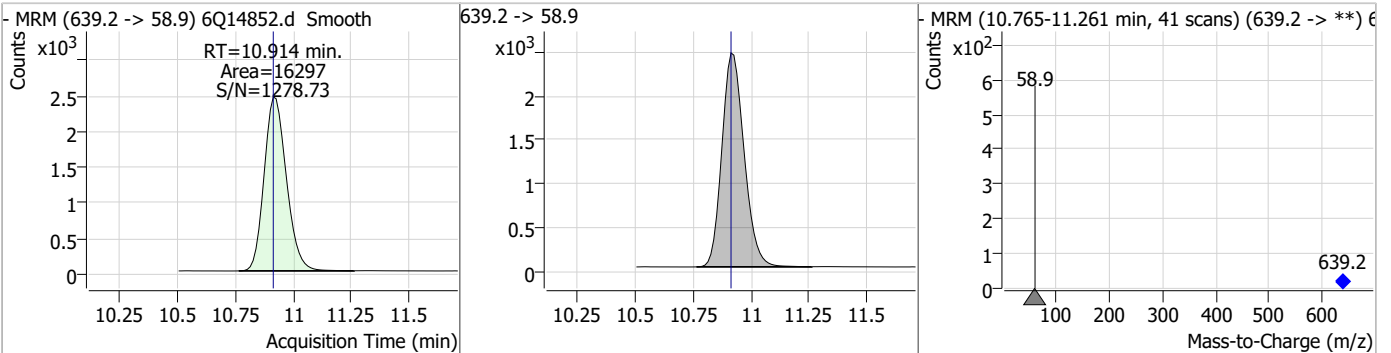


Perfluorinated Compounds by LC/MS/MS

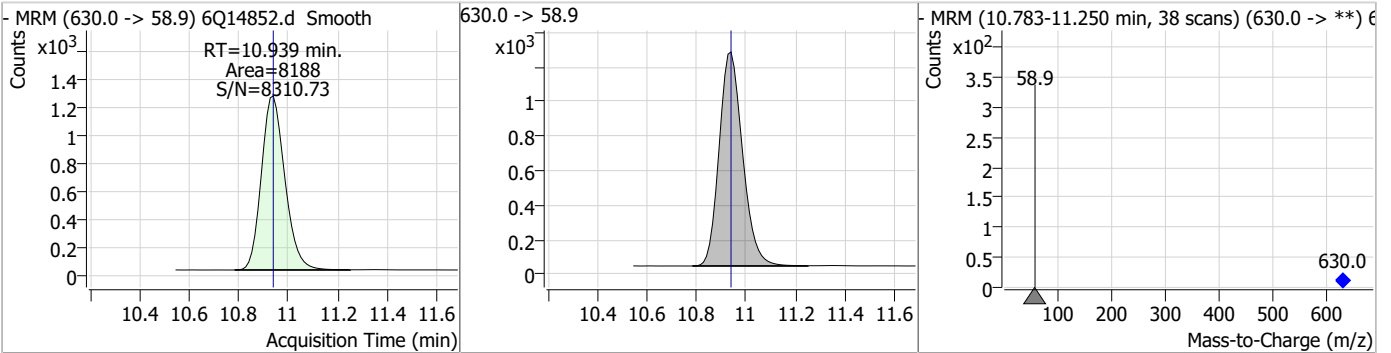
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	1.30	10.76	0.00	3630	511.9 -> 169.0	103.6	53.6	160.7



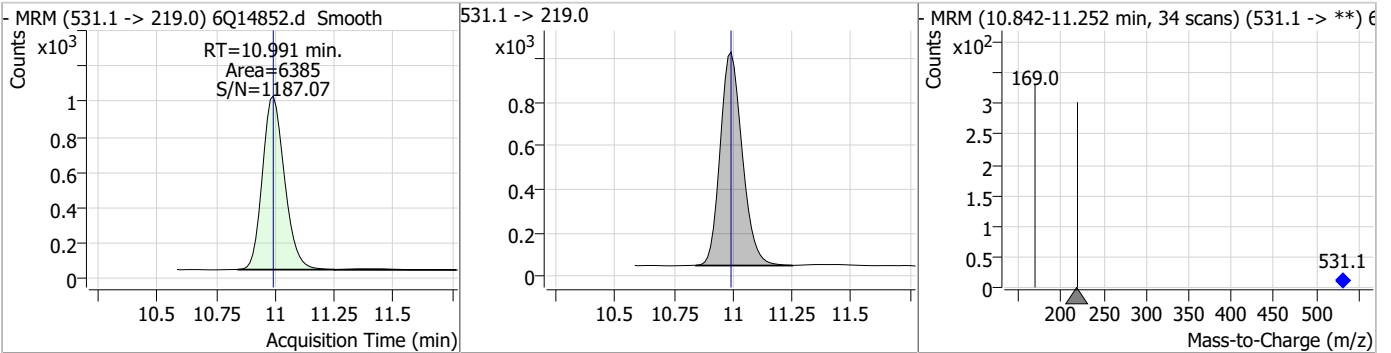
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.12	10.91	0.00	16297				



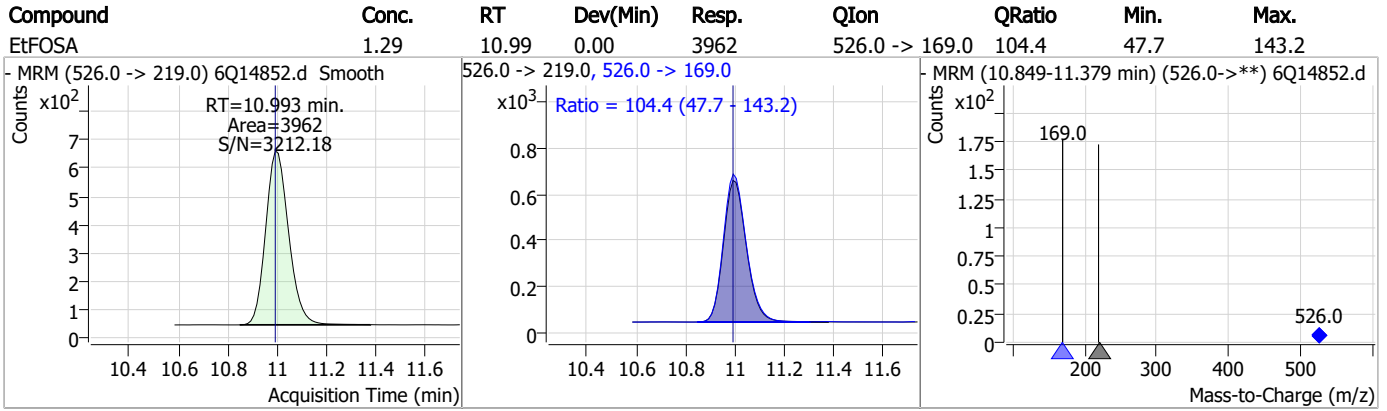
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.34	10.94	0.00	8188				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.48	10.99	0.00	6385				



Perfluorinated Compounds by LC/MS/MS



7.7.4

7

Manual Integration Approval Summary

Sample Number: S6Q225-IC225 Method: EPA DRAFT 1633
Lab FileID: 6Q14852.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 22:14 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.7.4.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 03/16/23 16:23

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14853.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 10:28:08 PM
 Sample Name : icc225-4
 Vial : P1-A5
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.947	216.8 -> 171.9	80052	10.00 µg/L	0.000
M5-PFPeA	4.395	268.3 -> 223.0	38376	5.00 µg/L	0.000
M5-PFHxA	5.605	318.0 -> 273.0	34900	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	34597	2.50 µg/L	0.000
M8-PFOA	7.187	421.1 -> 376.0	57295	2.50 µg/L	0.000
M9-PFNA	7.718	472.1 -> 427.0	16481	1.25 µg/L	0.000
M6-PFDA	8.197	519.1 -> 474.1	15063	1.25 µg/L	0.000
M7-PFUnDA	8.652	570.0 -> 525.1	17517	1.25 µg/L	0.000
M2-PFDoDA	9.082	615.1 -> 570.0	20931	1.25 µg/L	0.000
M2-PFTeDA	9.797	715.2 -> 670.0	11380	1.25 µg/L	0.000
M8-FOSA	9.669	506.1 -> 77.8	16809	2.50 µg/L	0.000
M3-PFBS	5.548	302.1 -> 79.9	12572	2.50 µg/L	0.000
M3-PFHxS	7.302	402.1 -> 79.9	9062	2.50 µg/L	0.000
M8-PFOS	8.360	507.1 -> 79.9	8380	2.50 µg/L	0.000
M2-4:2FTS	5.280	329.1 -> 80.9	1956	5.00 µg/L	0.000
M2-6:2FTS	6.962	429.1 -> 80.9	2225	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	2463	5.00 µg/L	0.000
M3-MeFOSAA	8.243	573.2 -> 419.0	22582	5.00 µg/L	0.000
M3-HFPO-DA	5.983	286.9 -> 168.9	15139	10.00 µg/L	0.000
M5-EtFOSAA	8.451	589.2 -> 419.0	19149	5.00 µg/L	0.000
M7-MeFOSE	10.680	623.2 -> 58.9	22436	25.00 µg/L	0.000
M9-EtFOSE	10.914	639.2 -> 58.9	17124	25.00 µg/L	0.000
M5-EtFOSA	10.991	531.1 -> 219.0	6550	2.50 µg/L	0.000
M3-MeFOSA	10.759	515.0 -> 219.0	5552	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	9539	2.50 µg/L	0.000
13C3-PFBA	2.952	216.0 -> 172.0	34405	5.00 µg/L	0.000
18O2-PFHxS	7.314	403.0 -> 83.9	6097	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	66262	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	20045	1.25 µg/L	0.000
13C5-PFNA	7.718	468.0 -> 423.0	18056	1.25 µg/L	0.000
13C2-PFHxA	5.606	315.1 -> 270.0	32960	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.280	329.1 -> 80.9	1956	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C2-6:2FTS	6.962	429.1 -> 80.9	2225	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-8:2FTS	7.986	529.1 -> 80.9	2463	5.10 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFDoDA	9.082	615.1 -> 570.0	20931	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFTeDA	9.797	715.2 -> 670.0	11380	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C3-PFBS	5.548	302.1 -> 79.9	12572	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFHxS	7.302	402.1 -> 79.9	9062	2.63 µg/L	0.000

7.7.5
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C4-PFBA	2.947	216.8 -> 171.9	80052	10.14 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C4-PFHpA	6.544	367.1 -> 322.0	34597	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C5-PFHxA	5.605	318.0 -> 273.0	34900	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C5-PFPeA	4.395	268.3 -> 223.0	38376	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C6-PFDA	8.197	519.1 -> 474.1	15063	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C7-PFUnDA	8.652	570.0 -> 525.1	17517	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C8-FOSA	9.669	506.1 -> 77.8	16809	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C8-PFOA	7.187	421.1 -> 376.0	57295	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C8-PFOS	8.360	507.1 -> 79.9	8380	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C9-PFNA	7.718	472.1 -> 427.0	16481	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.7%		
d3-MeFOSAA	8.243	573.2 -> 419.0	22582	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-HFPO-DA	5.983	286.9 -> 168.9	15139	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
d3-MeFOSA	10.759	515.0 -> 219.0	5552	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.7%		
d5-EtFOSAA	8.451	589.2 -> 419.0	19149	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
d7-MeFOSE	10.680	623.2 -> 58.9	22436	24.45 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
d9-EtFOSE	10.914	639.2 -> 58.9	17124	26.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.7%		
d5-EtFOSA	10.991	531.1 -> 219.0	6550	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	36939	8.16 µg/L	100
		327.1 -> 80.9	9359		
6:2FTS	6.950	427.1 -> 407.0	31522	9.53 µg/L	100
		427.1 -> 80.9	6822		
8:2FTS	7.986	527.1 -> 507.0	17303	9.56 µg/L	100
		527.1 -> 80.8	4635		
EtFOSAA	8.452	584.2 -> 419.1	8039	2.31 µg/L	100
		584.2 -> 526.0	4416	m	
FOSA	9.660	498.1 -> 77.9	15485	2.31 µg/L	100
		498.1 -> 478.0	587		
MeFOSAA	8.244	570.1 -> 419.0	11591	2.45 µg/L	100
		570.1 -> 483.0	2022		
PFBA	2.956	212.8 -> 168.9	19774	9.05 µg/L	100
PFBS	5.549	298.7 -> 79.9	12189	2.20 µg/L	100
		298.7 -> 98.8	5517		
PFDA	8.198	512.9 -> 469.0	45034	2.41 µg/L	100
		512.9 -> 219.0	5552		
PFDODA	9.082	613.1 -> 569.0	38682	2.15 µg/L	100
		613.1 -> 319.0	5000		
PFDS	9.246	599.0 -> 79.9	6170	2.25 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.544	599.0 -> 98.8	3071	2.27	µg/L	100
		363.1 -> 319.0	50561			
PFHpS	7.855	363.1 -> 169.0	6933	2.05	µg/L	100
		449.0 -> 79.9	7672			
PFHxA	5.607	449.0 -> 98.9	4551	2.23	µg/L	100
		313.0 -> 269.0	32829			
PFHxS	7.303	313.0 -> 118.9	1312	1.96	µg/L	100
		398.7 -> 79.9	8864			
PFNA	7.707	398.7 -> 98.9	5103	2.55	µg/L	100
		463.0 -> 419.0	29816			
PFNS	8.826	463.0 -> 219.0	5937	2.08	µg/L	100
		548.8 -> 79.9	8225			
PFOA	7.189	548.8 -> 98.9	4791	2.41	µg/L	100
		413.0 -> 369.0	65349			
PFOS	8.361	413.0 -> 169.0	8411	1.97	µg/L	100
		498.9 -> 79.9	7737			
PFPeA	4.397	498.9 -> 98.8	4912	4.57	µg/L	100
		263.0 -> 219.0	41763			
PFPeS	6.609	349.1 -> 79.9	11020	2.02	µg/L	100
		349.1 -> 98.9	5851			
PFTeDA	9.797	713.1 -> 669.0	32140	2.25	µg/L	100
		713.1 -> 168.9	2258			
PFTrDA	9.466	663.0 -> 619.0	34578	2.16	µg/L	100
		663.0 -> 168.9	2748			
PFUnDA	8.652	563.1 -> 519.0	39477	2.38	µg/L	100
		563.1 -> 269.1	5406			
11CI-PF3OUdS	9.505	630.9 -> 450.9	81544	8.71	µg/L	100
		632.9 -> 452.9	25929			
9CI-PF3ONS	8.691	530.8 -> 351.0	153678	9.05	µg/L	100
		532.8 -> 353.0	47525			
ADONA	6.794	376.9 -> 250.9	292473	9.00	µg/L	100
		376.9 -> 84.8	65525			
HFPO-DA	5.984	284.9 -> 168.9	14704	9.23	µg/L	100
		284.9 -> 184.9	1838			
3:3FTCA	3.851	241.0 -> 177.0	5143	11.26	µg/L	100
		241.0 -> 117.0	767			
5:3FTCA	6.271	341.0 -> 237.1	173180	58.35	µg/L	100
		341.0 -> 217.0	144485			
7:3FTCA	7.672	441.0 -> 316.9	86567	58.02	µg/L	100
		441.0 -> 336.9	158577			
EtFOSA	10.993	526.0 -> 219.0	7420	2.36	µg/L	100
		526.0 -> 169.0	7082			
EtFOSE	10.939	630.0 -> 58.9	15122	21.68	µg/L	100
		511.9 -> 219.0	6521			
MeFOSA	10.760	511.9 -> 169.0	6988	2.44	µg/L	100
		616.1 -> 58.9	22295			
MeFOSE	10.692	699.1 -> 79.9	3559	23.54	µg/L	100
		699.1 -> 98.8	2279			
PFDoDS	9.924	295.0 -> 201.0	4263	2.27	µg/L	100
		295.0 -> 84.9	1906			
NFDHA	5.488	279.0 -> 85.1	13685	4.50	µg/L	100
		229.0 -> 84.9	12002			
PFMBA	4.806	314.8 -> 134.9	83763	4.60	µg/L	100
		314.8 -> 82.9	1974			
PFMPA	3.526			4.58	µg/L	100
PFEESA	6.089			4.03	µg/L	100

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

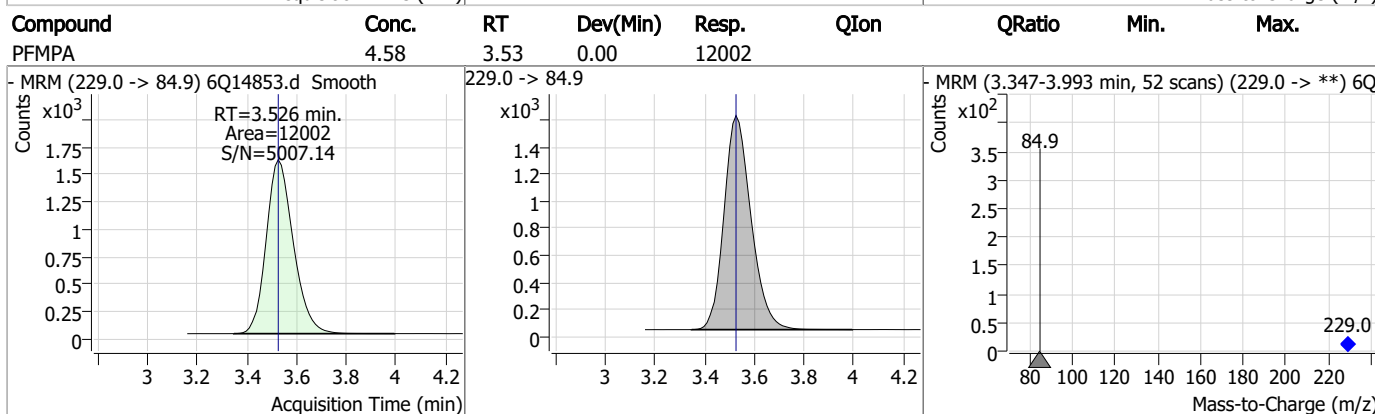
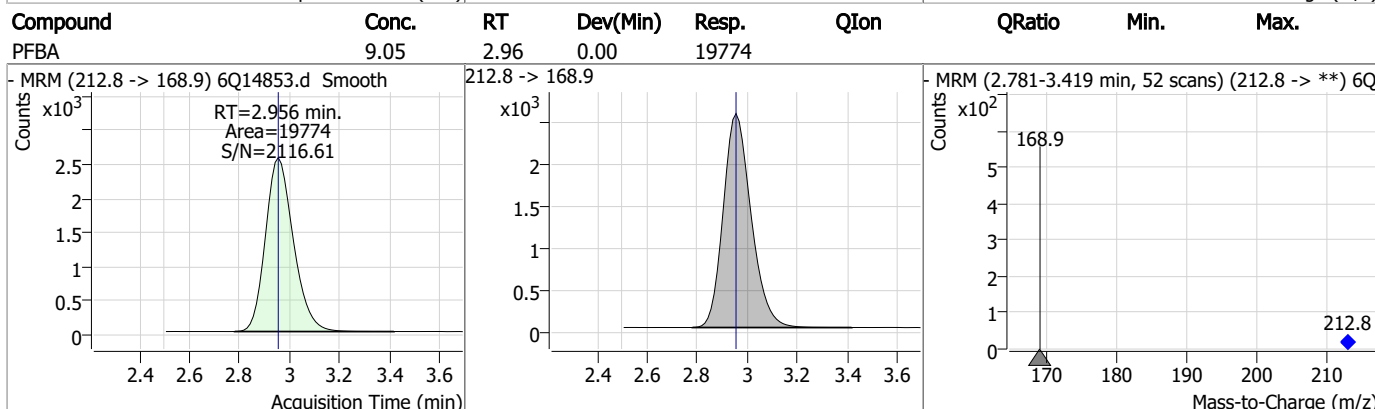
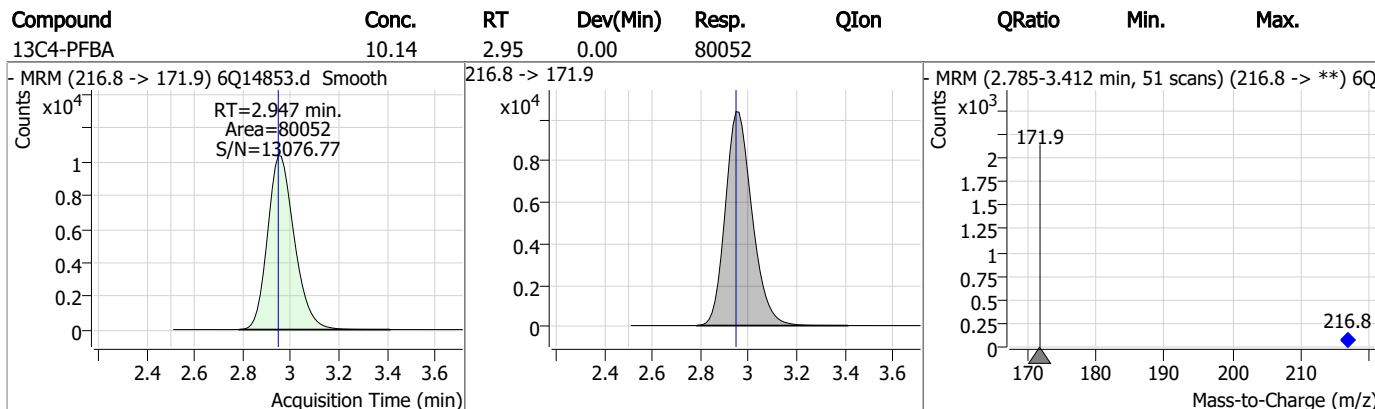
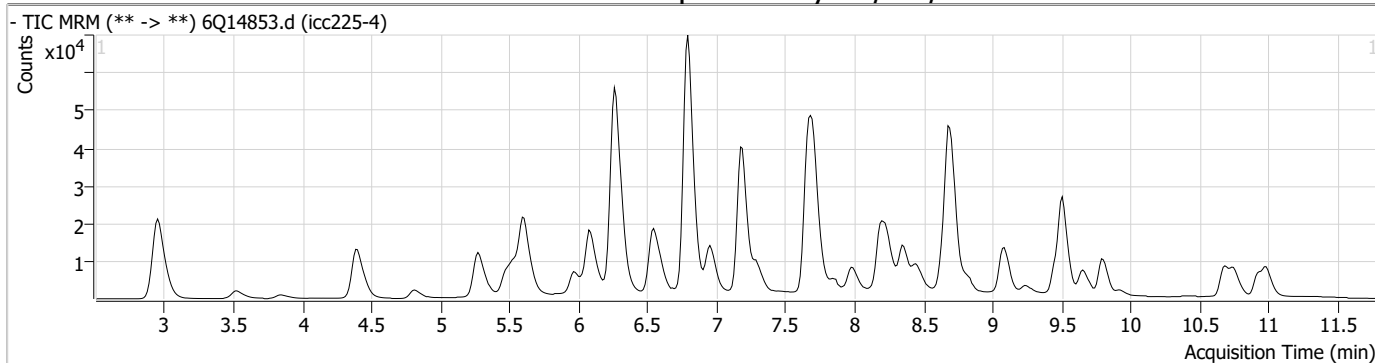
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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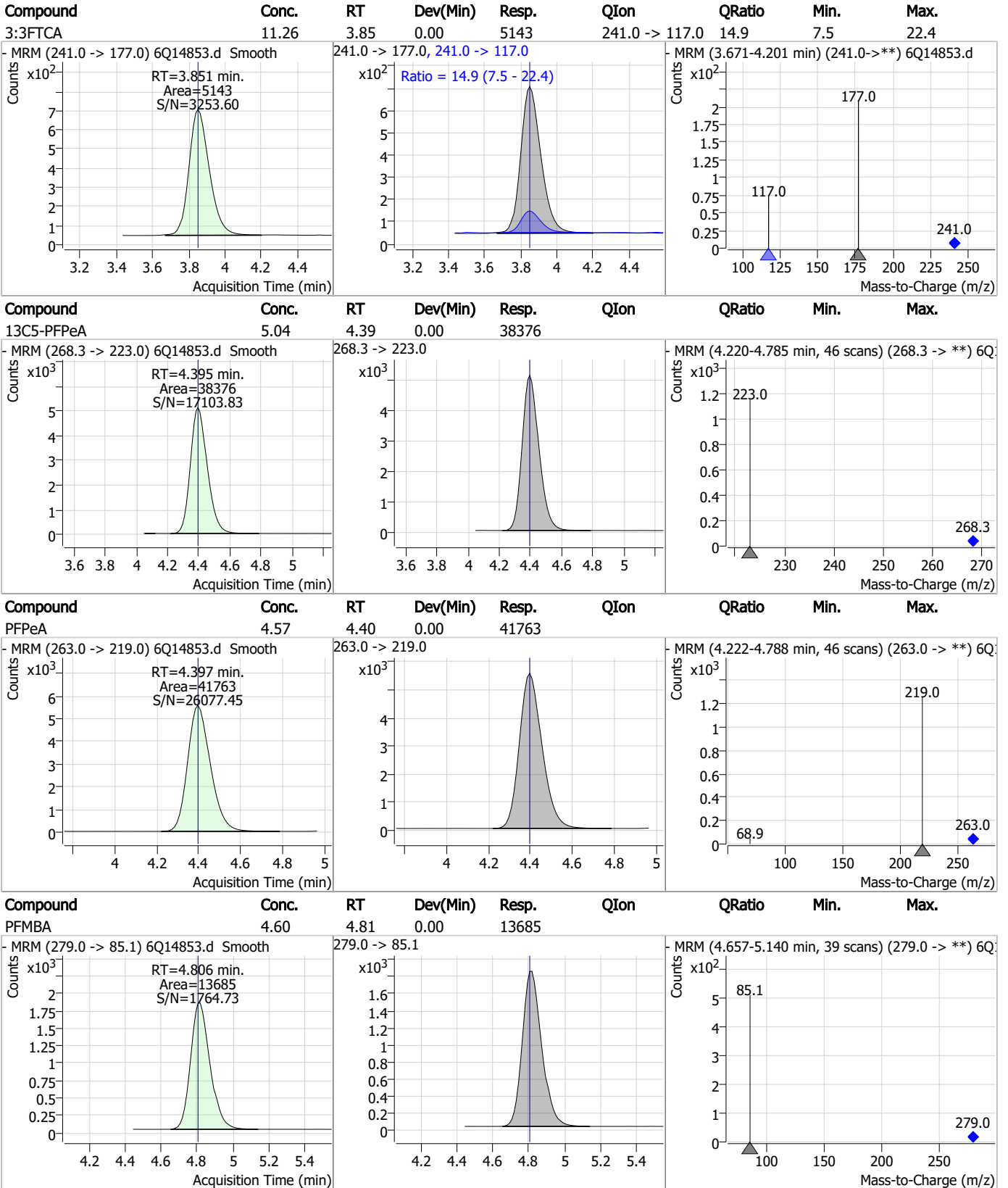
7.7.5
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



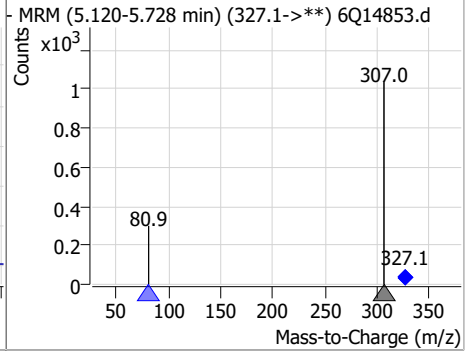
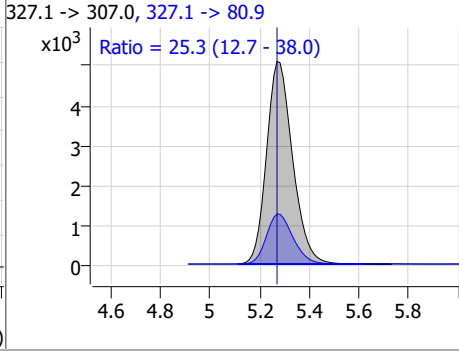
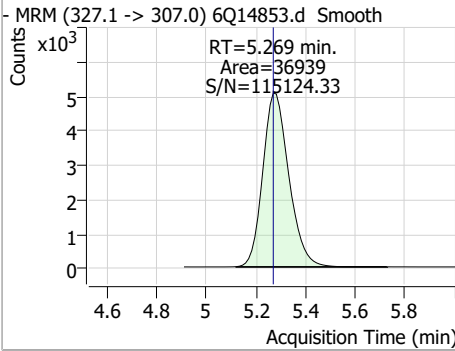
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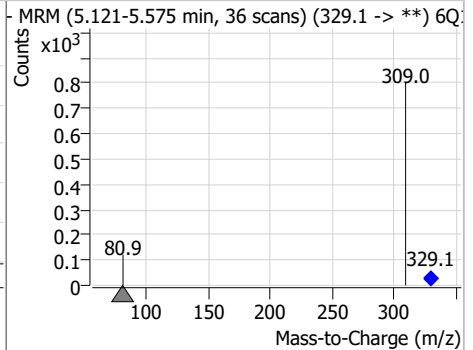
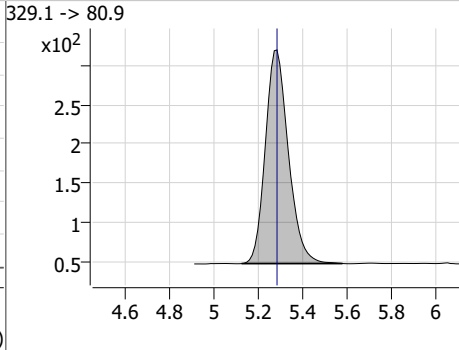
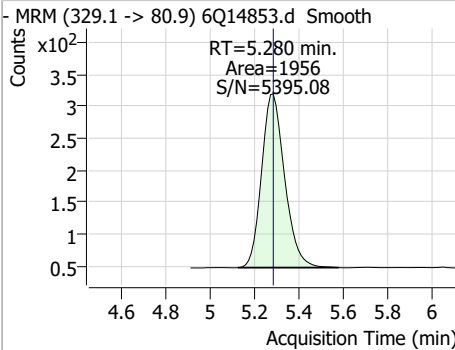


Perfluorinated Compounds by LC/MS/MS

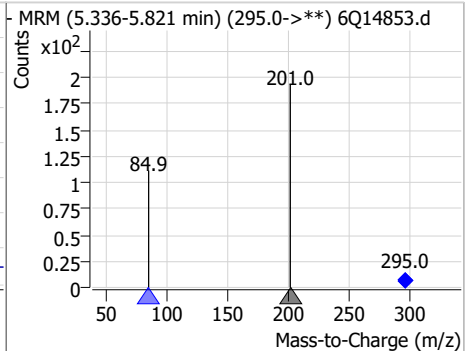
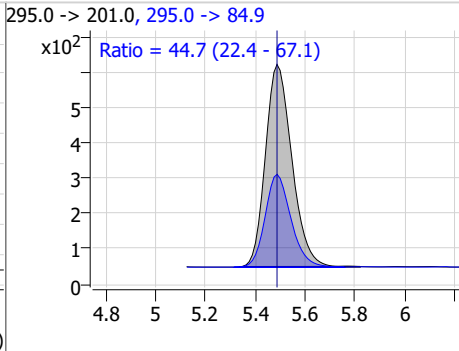
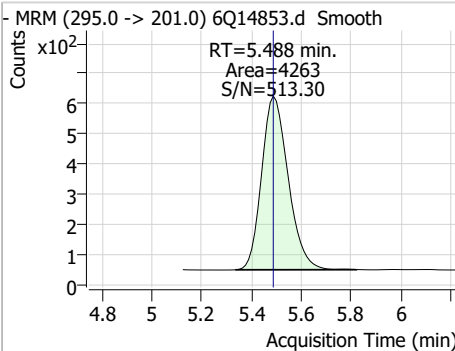
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	8.16	5.27	0.00	36939	327.1 -> 80.9	25.3	12.7	38.0



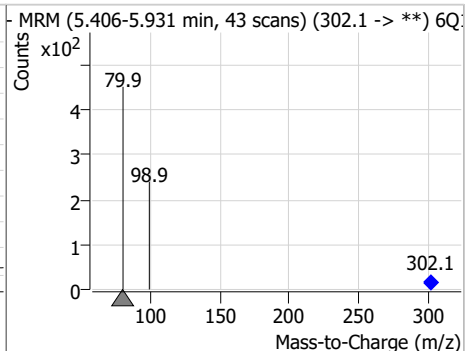
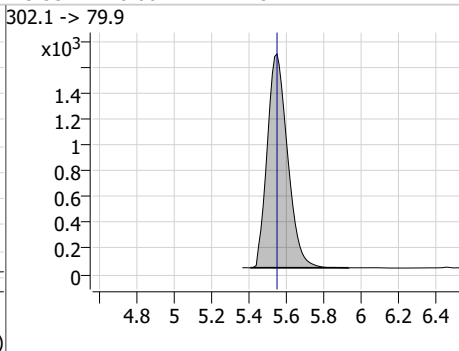
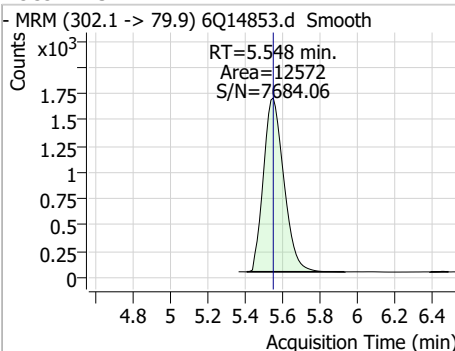
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.59	5.28	0.00	1956	329.1 -> 80.9			



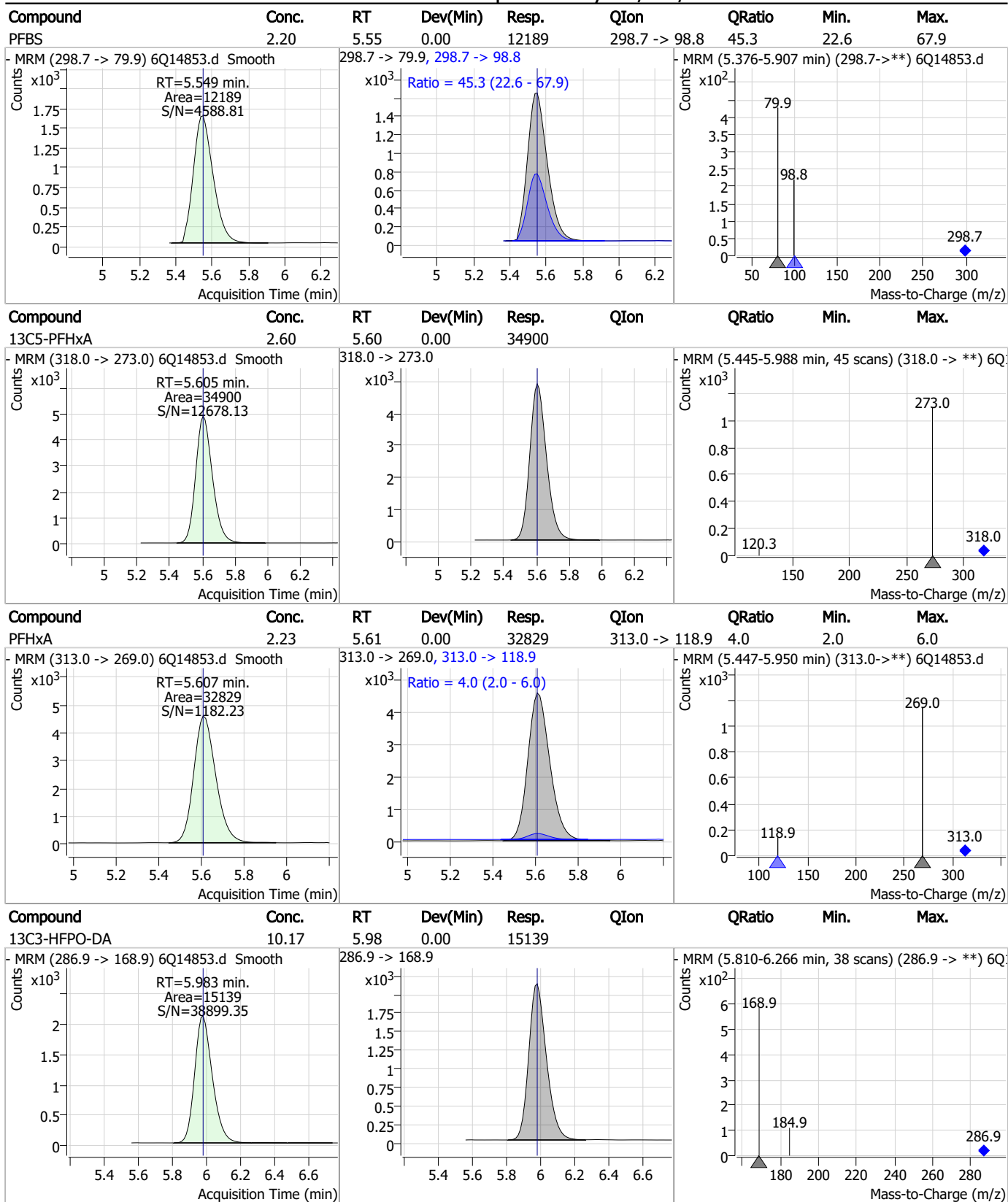
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	4.50	5.49	0.00	4263	295.0 -> 84.9	44.7	22.4	67.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.41	5.55	0.00	12572	302.1 -> 79.9			

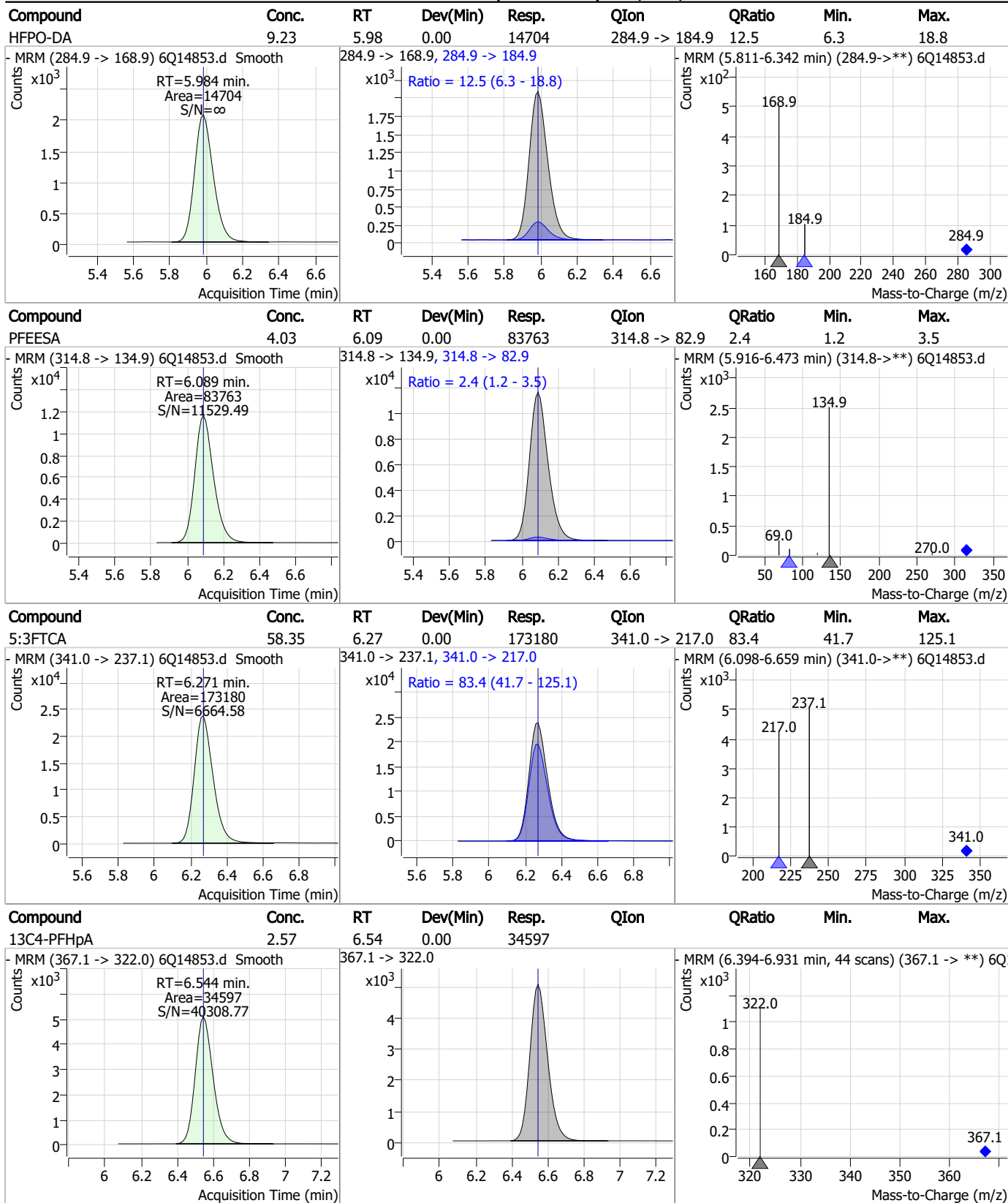


Perfluorinated Compounds by LC/MS/MS



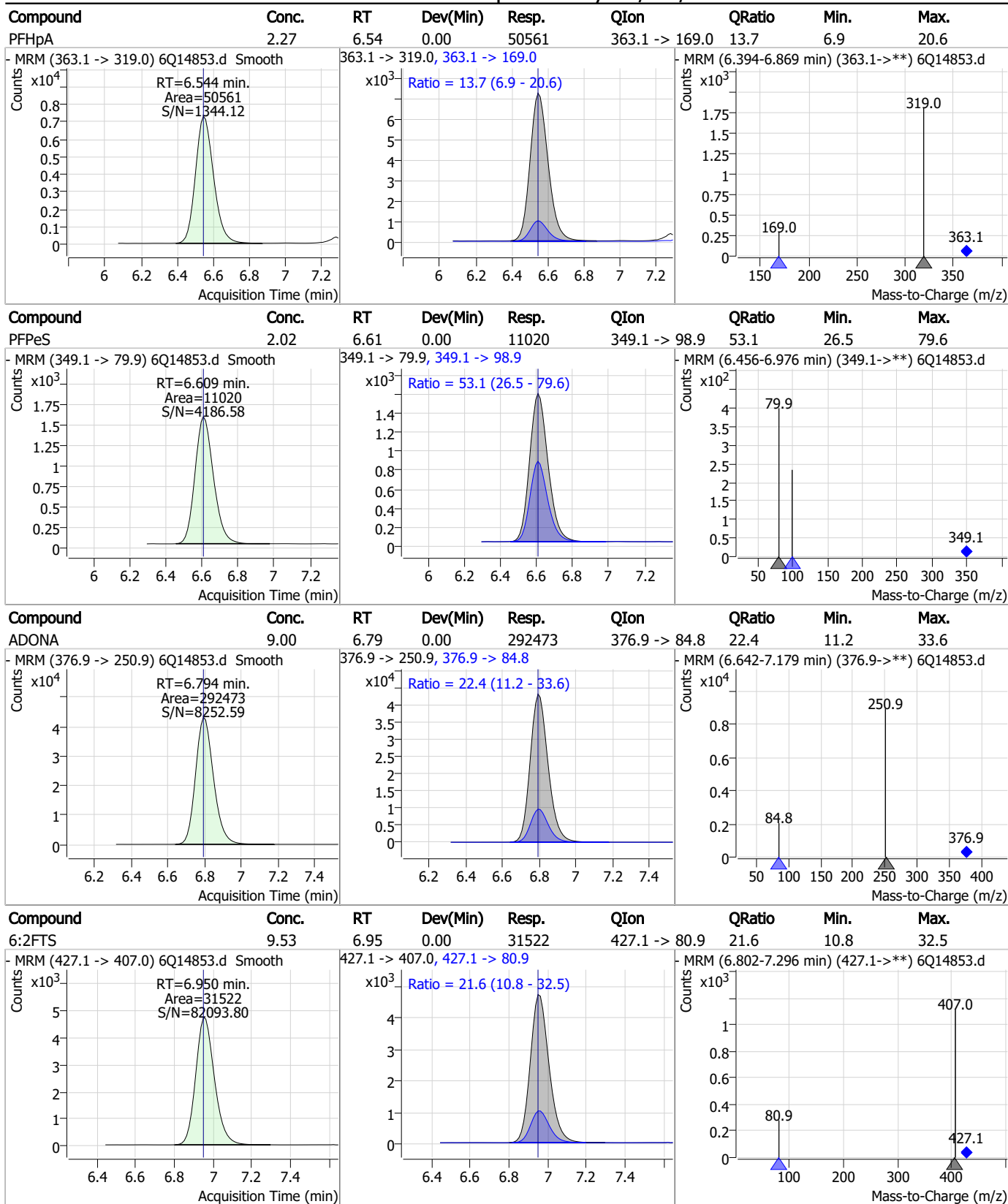
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Perfluorinated Compounds by LC/MS/MS



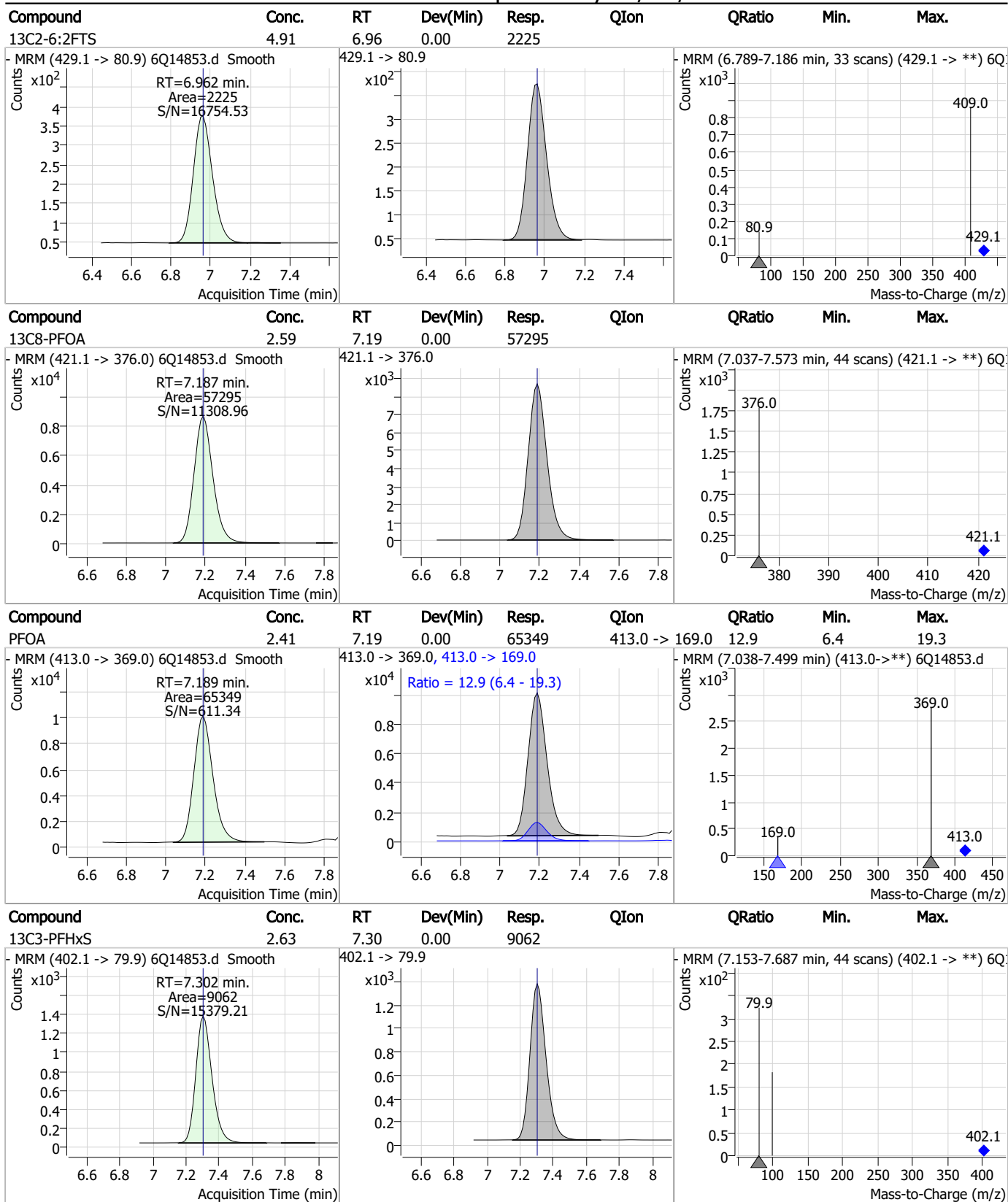
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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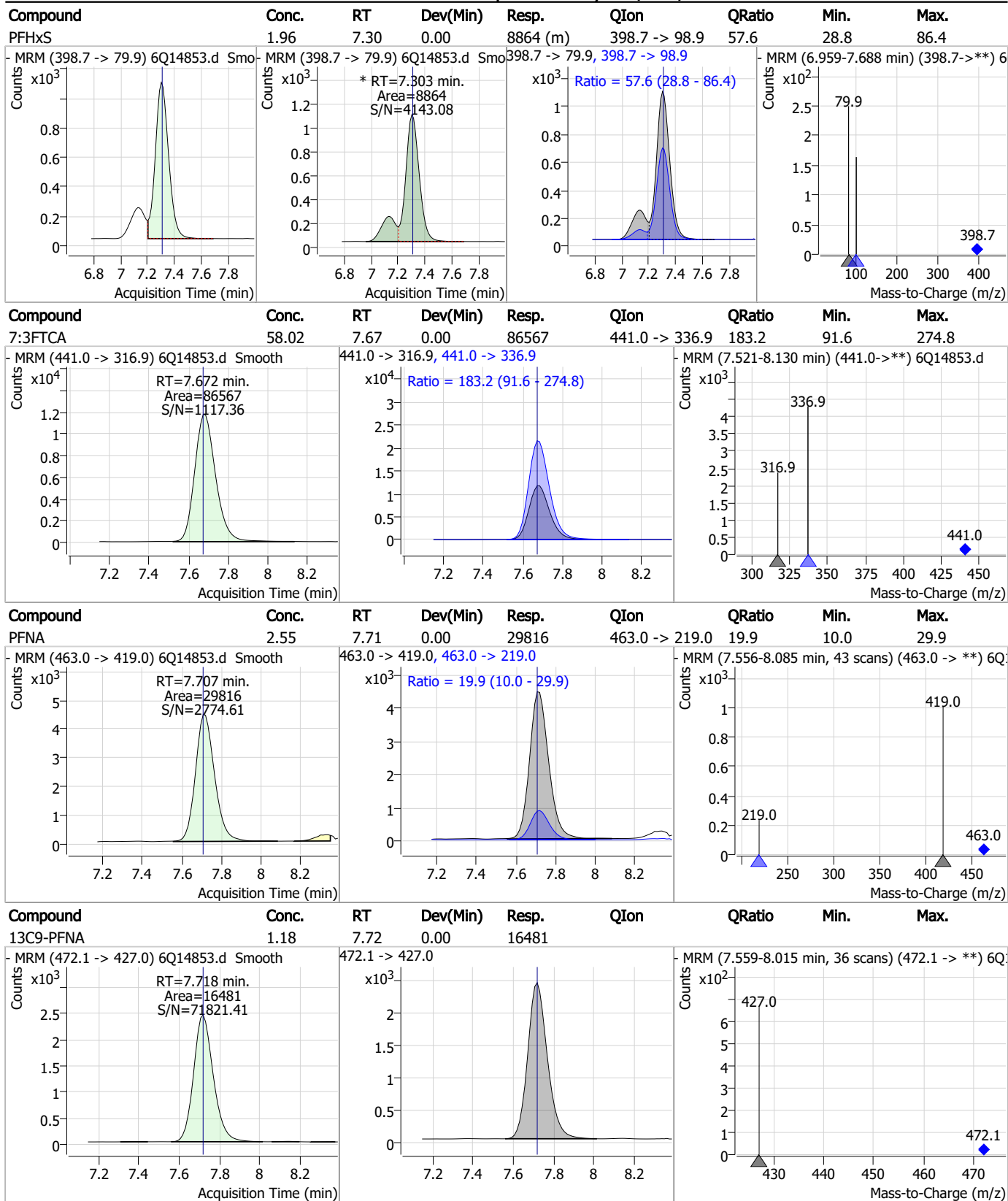
Perfluorinated Compounds by LC/MS/MS



7.7.5

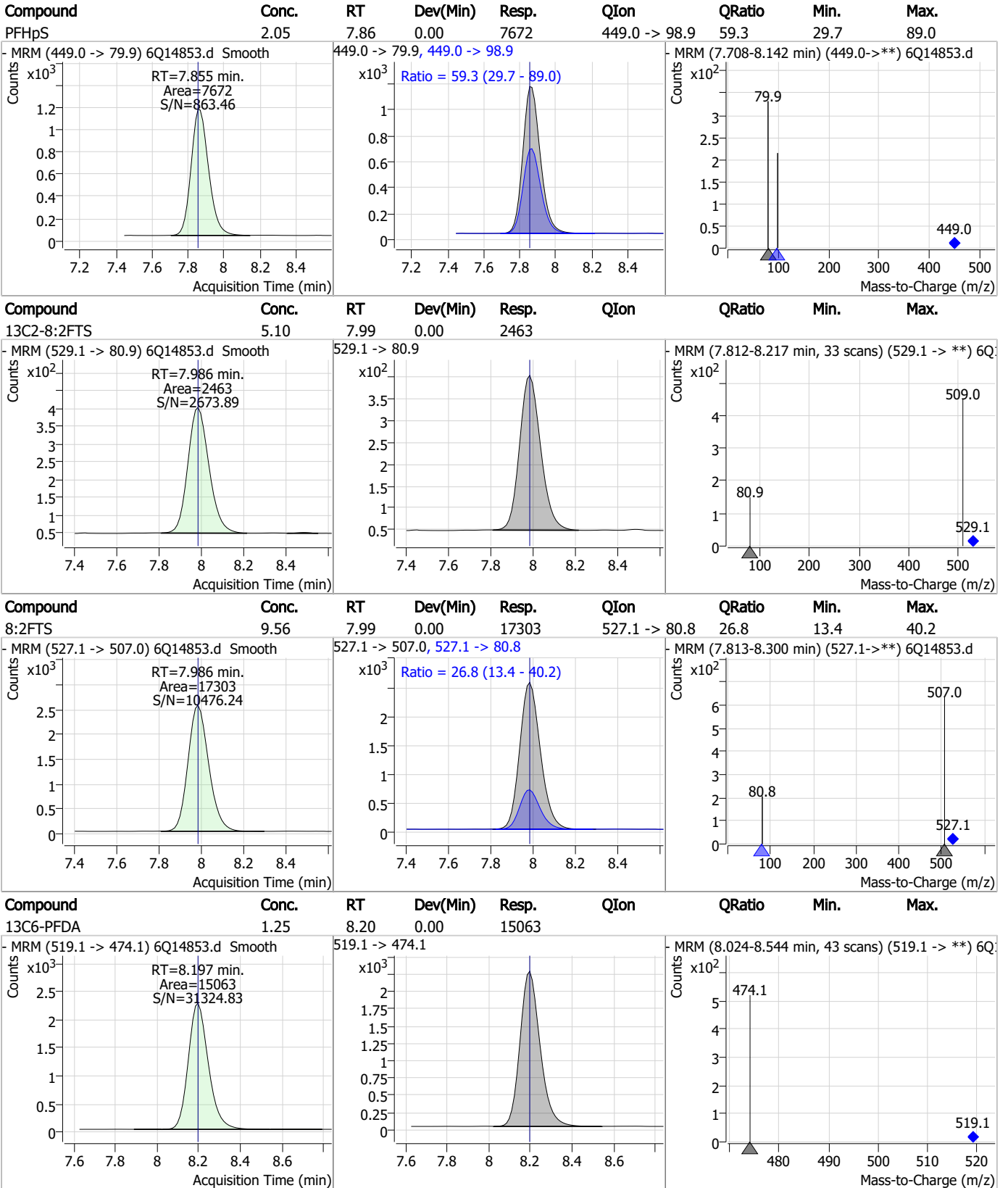
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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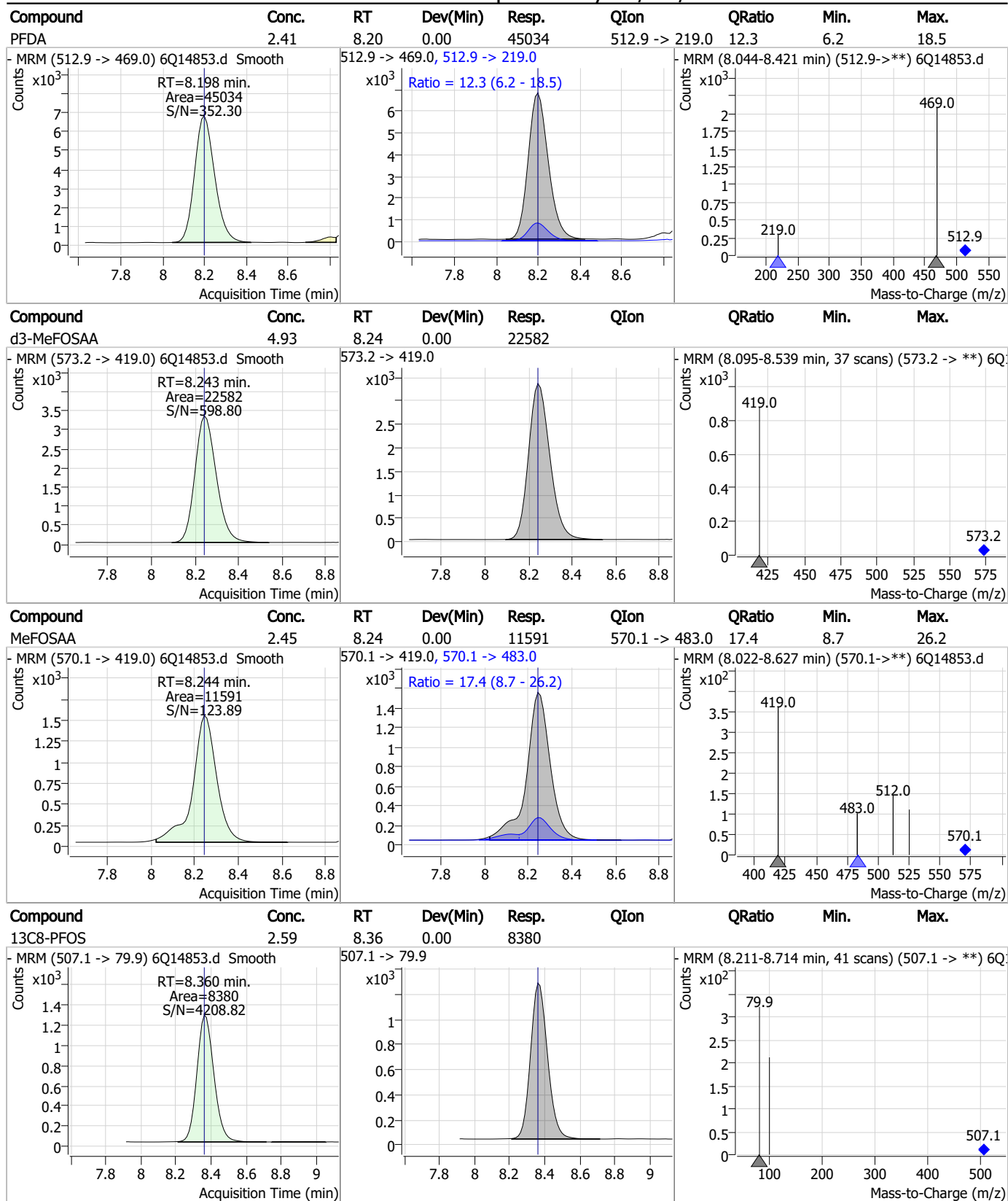
Perfluorinated Compounds by LC/MS/MS



7.7.5

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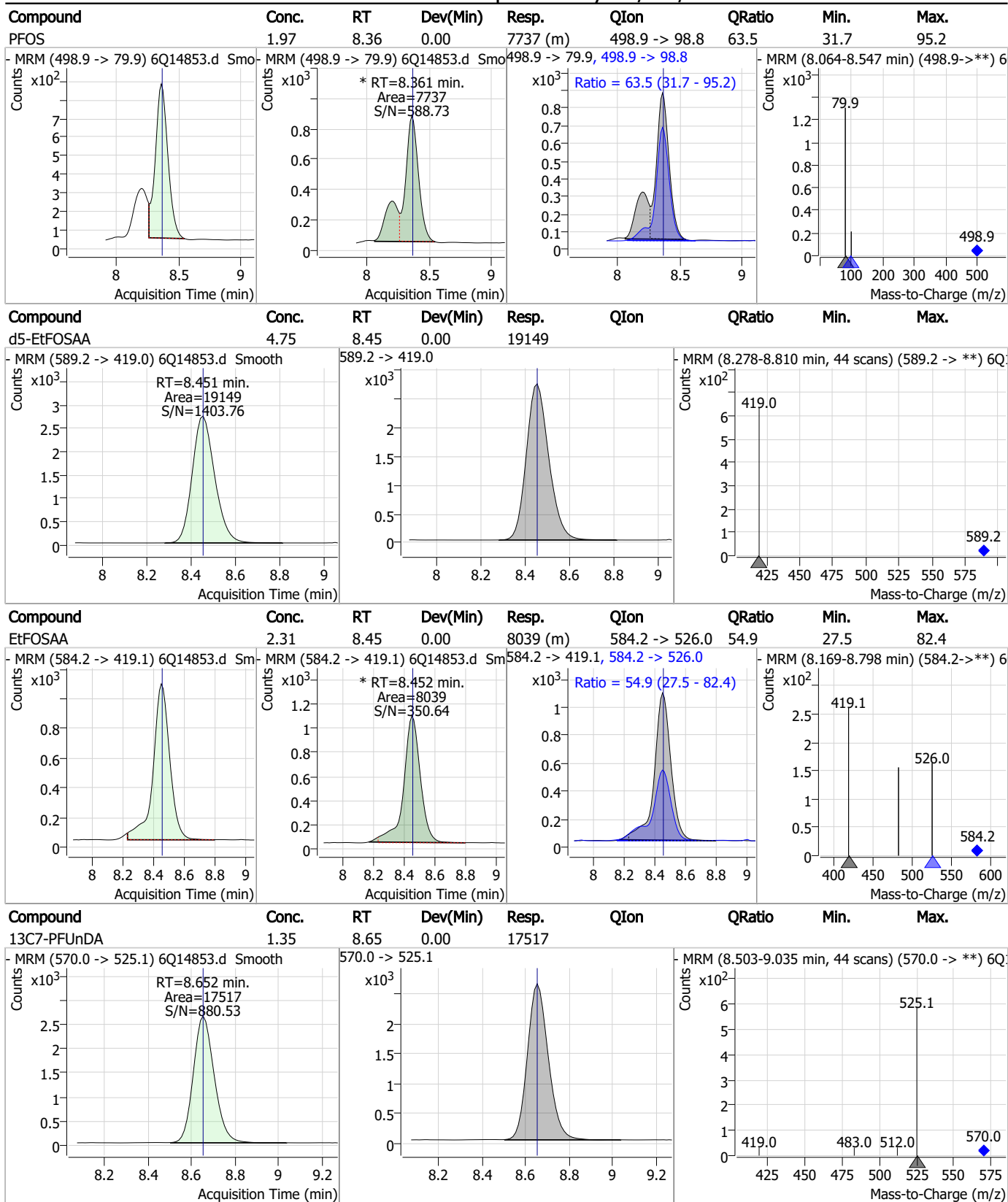
Perfluorinated Compounds by LC/MS/MS



7.7.5

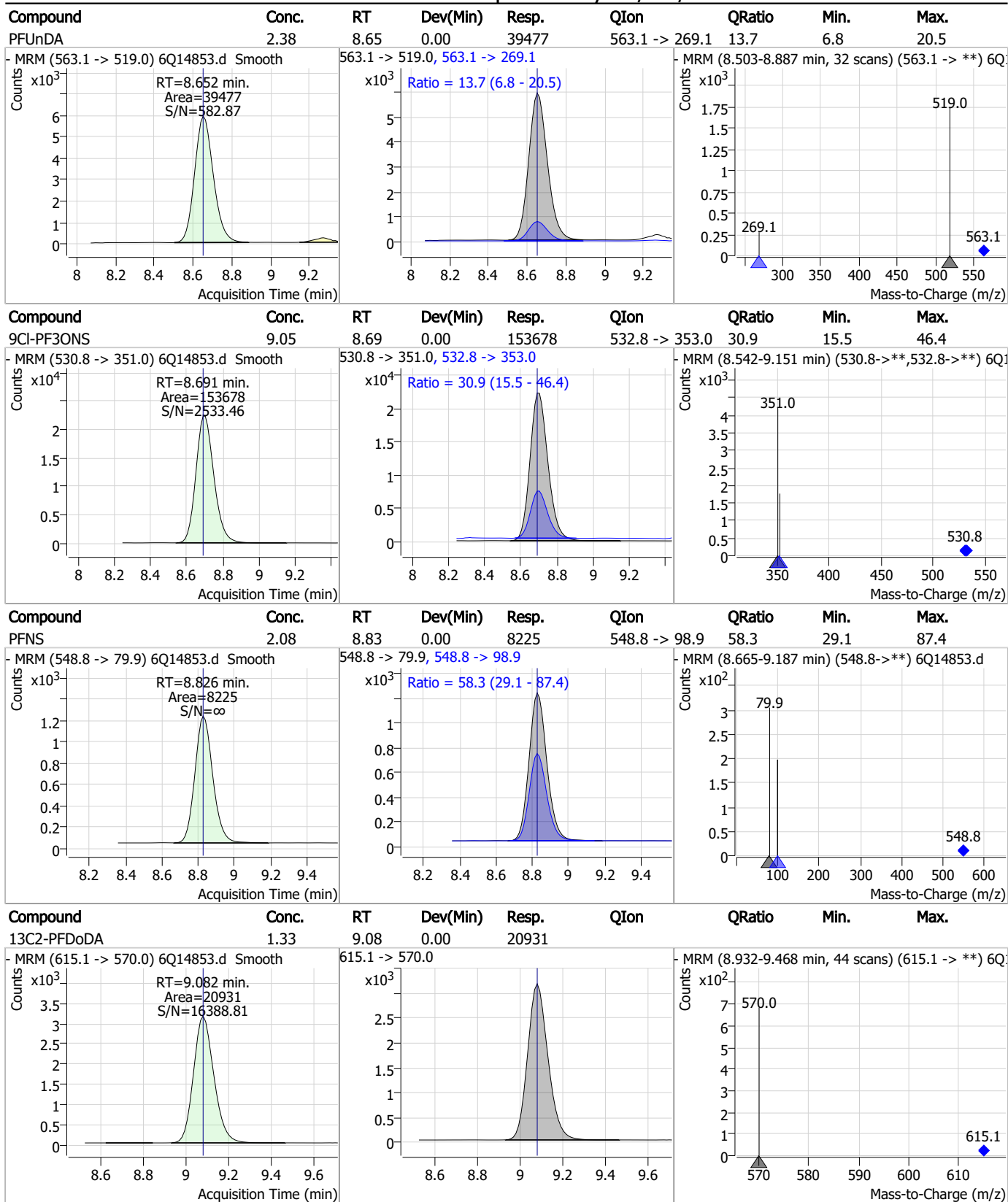
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Perfluorinated Compounds by LC/MS/MS



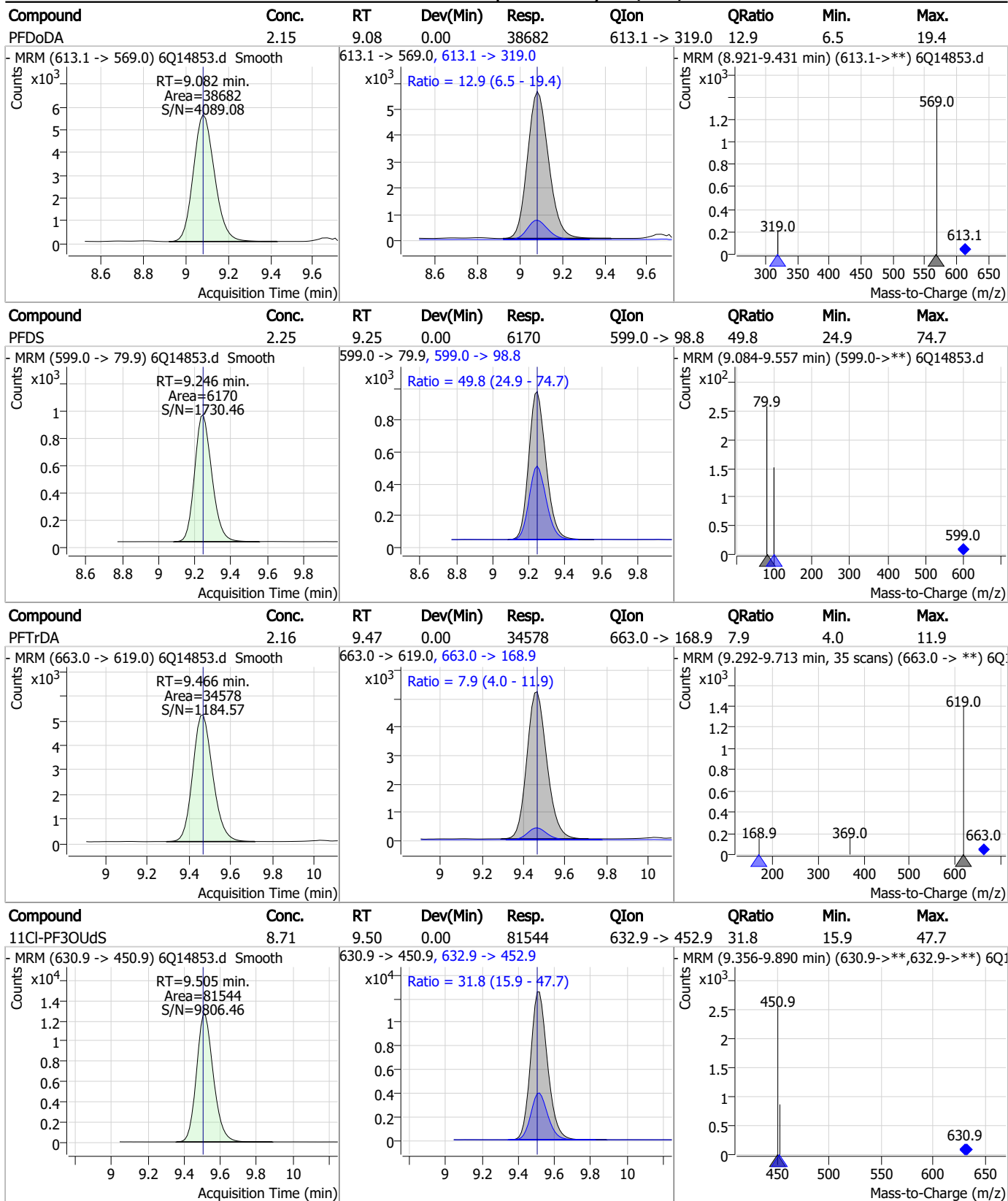
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Perfluorinated Compounds by LC/MS/MS



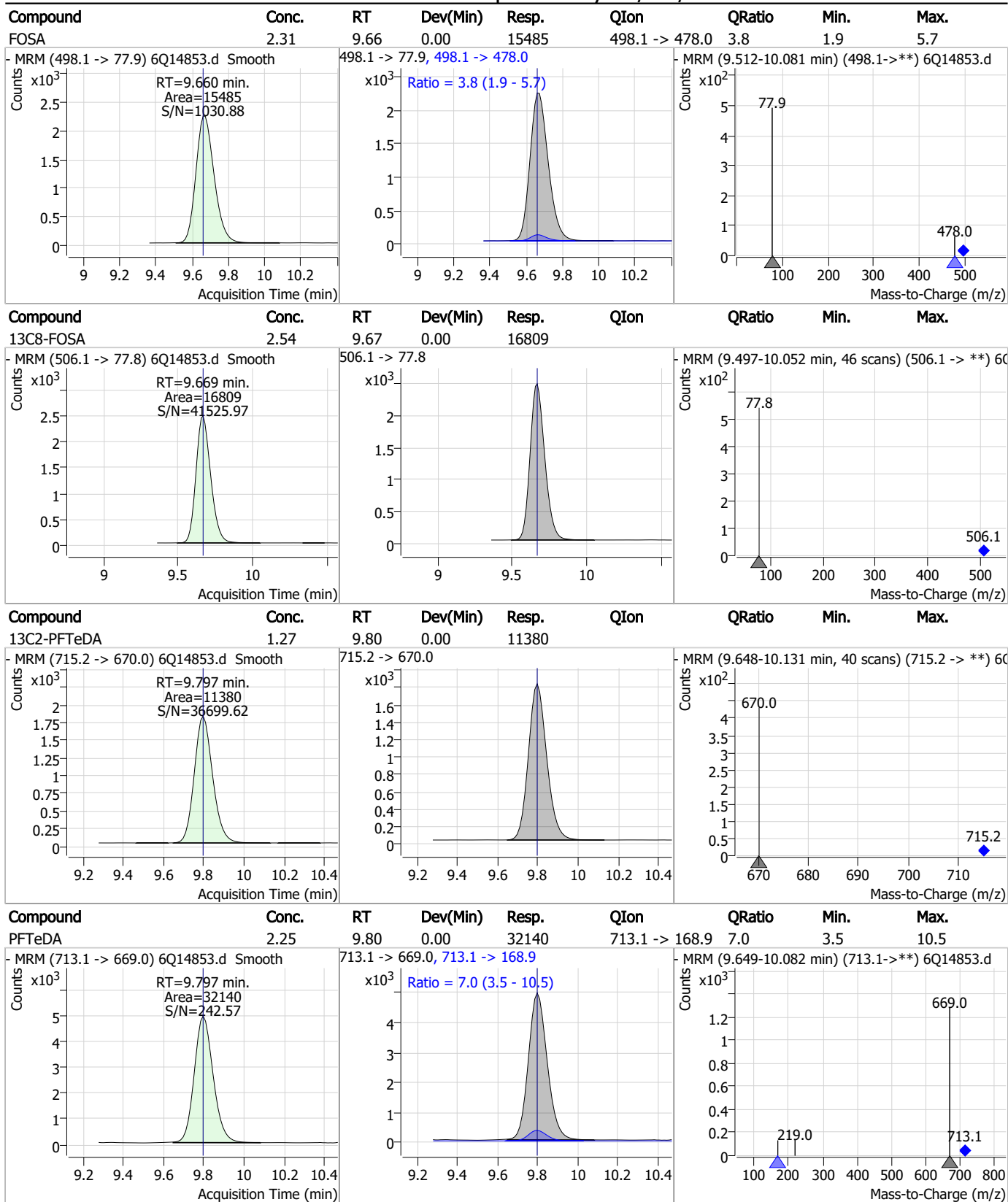
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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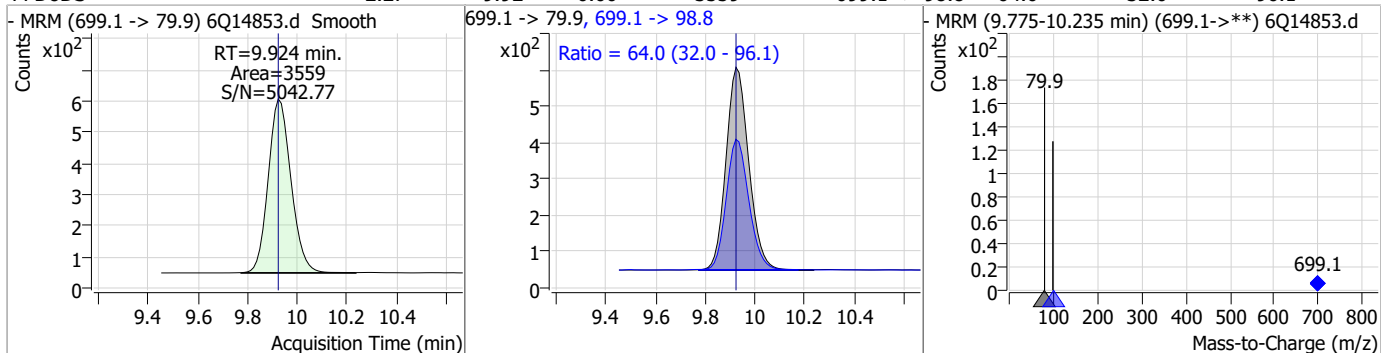
Perfluorinated Compounds by LC/MS/MS



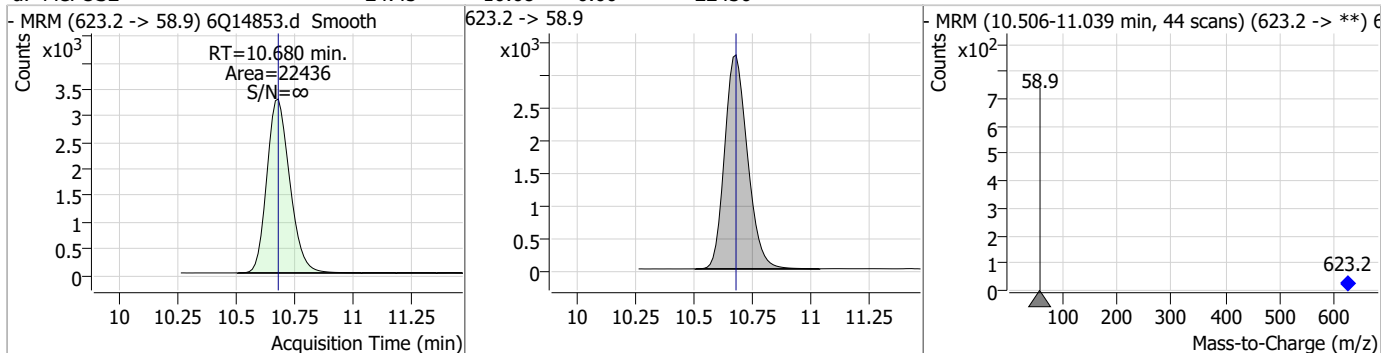
7.7.5
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Perfluorinated Compounds by LC/MS/MS

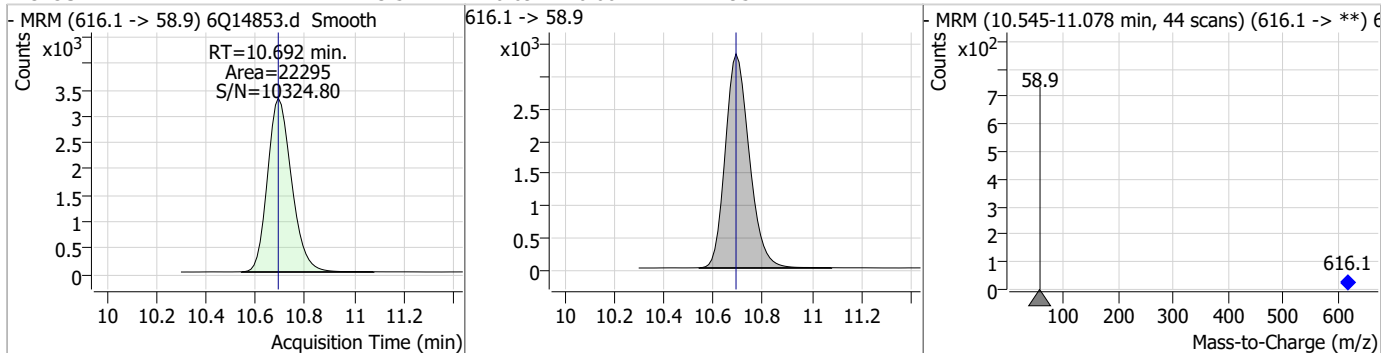
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.27	9.92	0.00	3559	699.1 -> 98.8	64.0	32.0	96.1



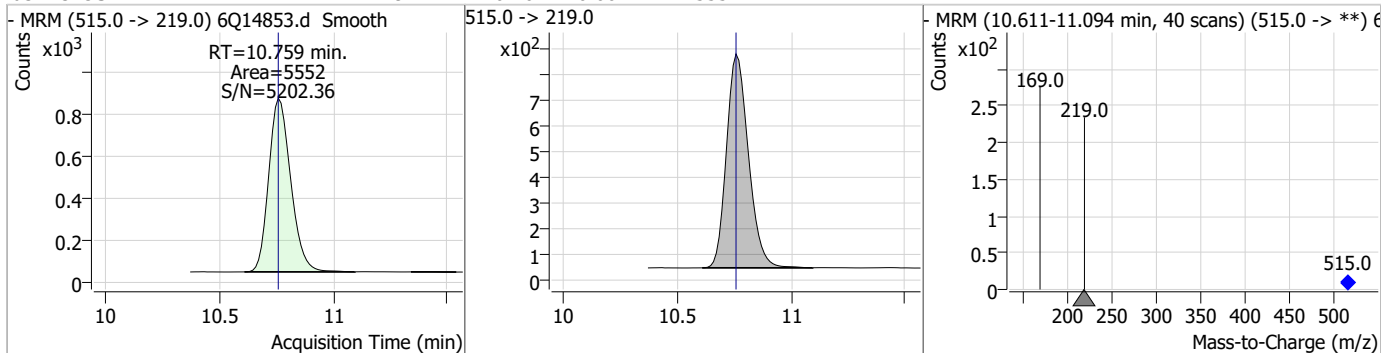
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.45	10.68	0.00	22436				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.54	10.69	0.00	22295				

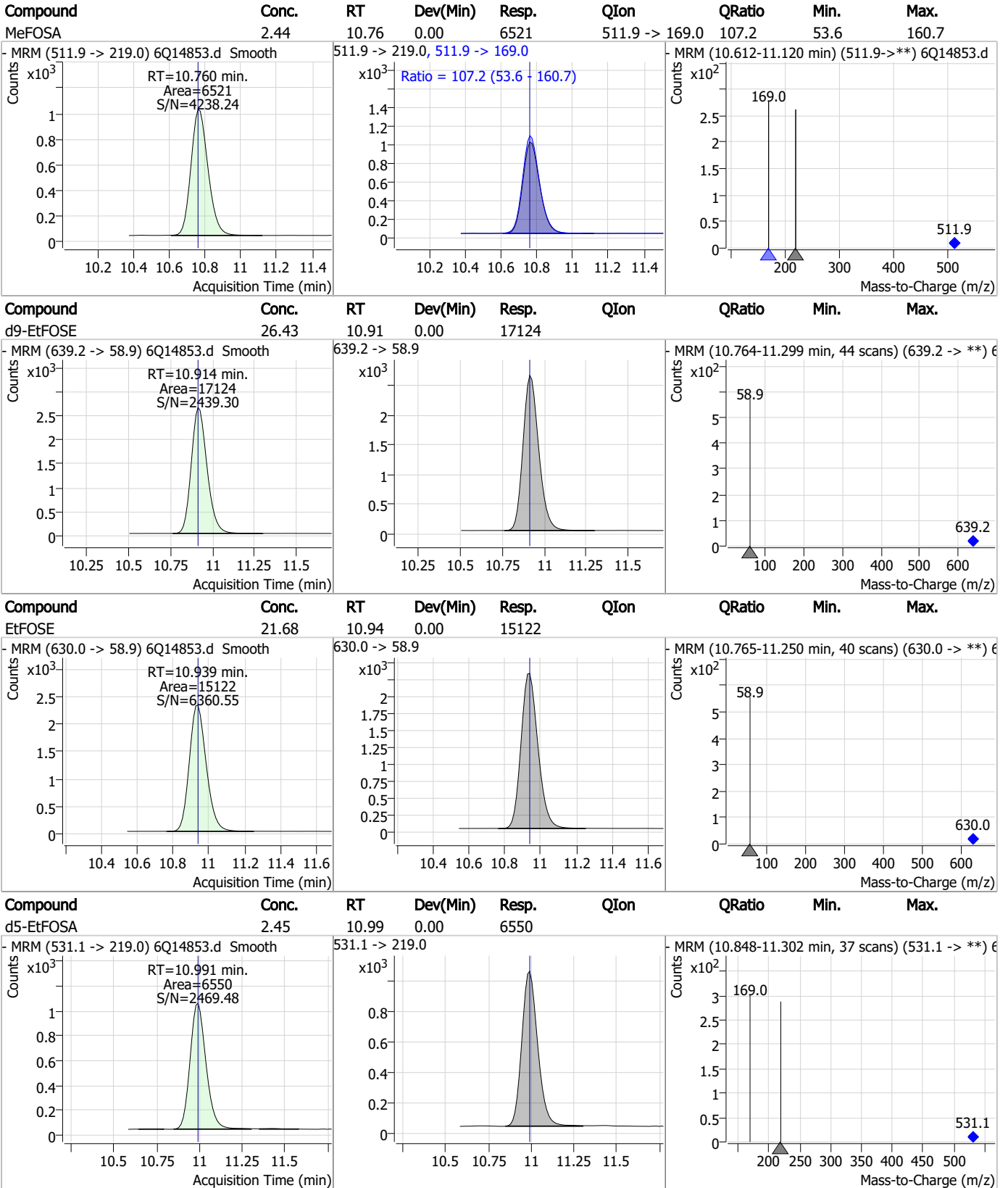


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.29	10.76	0.00	5552				



7.7.5
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Perfluorinated Compounds by LC/MS/MS

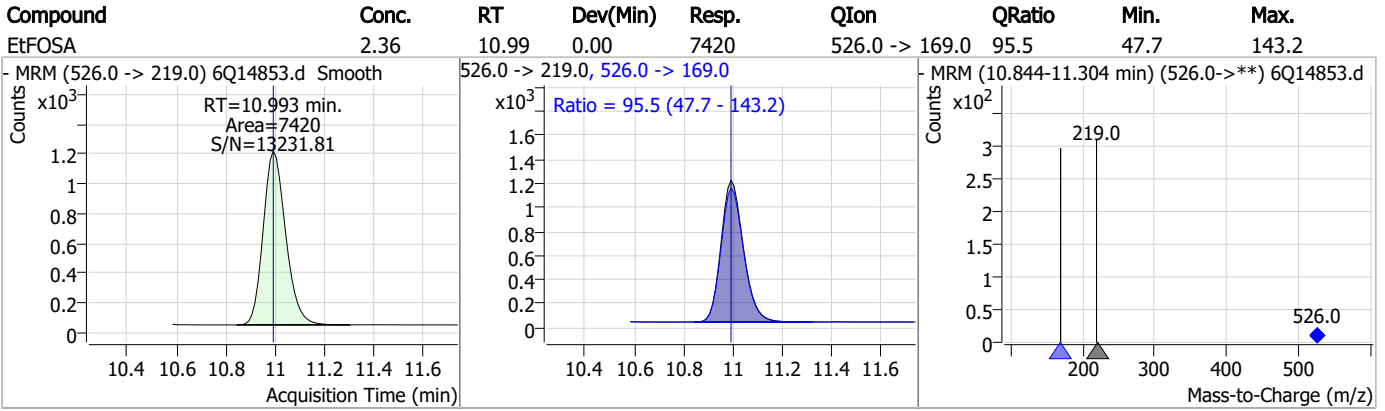


7.7.5

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Perfluorinated Compounds by LC/MS/MS



7.7.5

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Manual Integration Approval Summary

Sample Number: S6Q225-ICC225 Method: EPA DRAFT 1633
Lab FileID: 6Q14853.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 22:28 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.5.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14854.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 10:42:10 PM
 Sample Name : ic225-5
 Vial : P1-A6
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.947	216.8 -> 171.9	74395	10.00 µg/L	0.000
M5-PFPeA	4.395	268.3 -> 223.0	35941	5.00 µg/L	0.000
M5-PFHxA	5.605	318.0 -> 273.0	31592	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	30746	2.50 µg/L	0.000
M8-PFOA	7.187	421.1 -> 376.0	54758	2.50 µg/L	0.000
M9-PFNA	7.718	472.1 -> 427.0	17240	1.25 µg/L	0.000
M6-PFDA	8.197	519.1 -> 474.1	14313	1.25 µg/L	0.000
M7-PFUnDA	8.652	570.0 -> 525.1	15380	1.25 µg/L	0.000
M2-PFDoDA	9.082	615.1 -> 570.0	18806	1.25 µg/L	0.000
M2-PFTeDA	9.797	715.2 -> 670.0	8383	1.25 µg/L	0.000
M8-FOSA	9.669	506.1 -> 77.8	14528	2.50 µg/L	0.000
M3-PFBS	5.536	302.1 -> 79.9	12096	2.50 µg/L	-0.012
M3-PFHxS	7.302	402.1 -> 79.9	8291	2.50 µg/L	0.000
M8-PFOS	8.360	507.1 -> 79.9	7697	2.50 µg/L	0.000
M2-4:2FTS	5.268	329.1 -> 80.9	1684	5.00 µg/L	-0.012
M2-6:2FTS	6.962	429.1 -> 80.9	2156	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	2098	5.00 µg/L	0.000
M3-MeFOSAA	8.255	573.2 -> 419.0	22030	5.00 µg/L	0.012
M3-HFPO-DA	5.983	286.9 -> 168.9	13586	10.00 µg/L	0.000
M5-EtFOSAA	8.451	589.2 -> 419.0	18984	5.00 µg/L	0.000
M7-MeFOSE	10.680	623.2 -> 58.9	20909	25.00 µg/L	0.000
M9-EtFOSE	10.914	639.2 -> 58.9	14562	25.00 µg/L	0.000
M5-EtFOSA	10.991	531.1 -> 219.0	6426	2.50 µg/L	0.000
M3-MeFOSA	10.759	515.0 -> 219.0	5402	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	9449	2.50 µg/L	0.000
13C3-PFBA	2.952	216.0 -> 172.0	32320	5.00 µg/L	0.000
18O2-PFHxS	7.314	403.0 -> 83.9	5576	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	63347	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	18868	1.25 µg/L	0.000
13C5-PFNA	7.718	468.0 -> 423.0	16819	1.25 µg/L	0.000
13C2-PFHxA	5.606	315.1 -> 270.0	31471	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.268	329.1 -> 80.9	1684	5.26 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-6:2FTS	6.962	429.1 -> 80.9	2156	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-8:2FTS	7.986	529.1 -> 80.9	2098	4.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C2-PFDoDA	9.082	615.1 -> 570.0	18806	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-PFTeDA	9.797	715.2 -> 670.0	8383	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.6%		
13C3-PFBS	5.536	302.1 -> 79.9	12096	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFHxS	7.302	402.1 -> 79.9	8291	2.63 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 = 105.3%	
13C4-PFBA	2.947	216.8 -> 171.9	74395	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.544	367.1 -> 322.0	30746	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C5-PFHxA	5.605	318.0 -> 273.0	31592	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFPeA	4.395	268.3 -> 223.0	35941	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C6-PFDA	8.197	519.1 -> 474.1	14313	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C7-PFUnDA	8.652	570.0 -> 525.1	15380	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-FOSA	9.669	506.1 -> 77.8	14528	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.6%	
13C8-PFOA	7.187	421.1 -> 376.0	54758	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C8-PFOS	8.360	507.1 -> 79.9	7697	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C9-PFNA	7.718	472.1 -> 427.0	17240	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.3%	
d3-MeFOSAA	8.255	573.2 -> 419.0	22030	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C3-HFPO-DA	5.983	286.9 -> 168.9	13586	9.56 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
d3-MeFOSA	10.759	515.0 -> 219.0	5402	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.1%	
d5-EtFOSAA	8.451	589.2 -> 419.0	18984	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d7-MeFOSE	10.680	623.2 -> 58.9	20909	23.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.0%	
d9-EtFOSE	10.914	639.2 -> 58.9	14562	22.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
d5-EtFOSA	10.991	531.1 -> 219.0	6426	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	73161	18.78 µg/L	96
		327.1 -> 80.9	17052		
6:2FTS	6.962	427.1 -> 407.0	61824	19.30 µg/L	99
		427.1 -> 80.9	13129		
8:2FTS	7.986	527.1 -> 507.0	35782	23.20 µg/L	96
		527.1 -> 80.8	8763		
EtFOSAA	8.452	584.2 -> 419.1	15549	4.51 µg/L	m 99
		584.2 -> 526.0	8680		
FOSA	9.672	498.1 -> 77.9	29023	5.00 µg/L	100
		498.1 -> 478.0	1065		
MeFOSAA	8.256	570.1 -> 419.0	23004	4.99 µg/L	m 97
		570.1 -> 483.0	3709		
PFBA	2.956	212.8 -> 168.9	39978	19.69 µg/L	100
PFBS	5.537	298.7 -> 79.9	24524	4.60 µg/L	98
		298.7 -> 98.8	10859		
PFDA	8.198	512.9 -> 469.0	90276	5.08 µg/L	94
		512.9 -> 219.0	13177		
PFDODA	9.082	613.1 -> 569.0	79896	4.93 µg/L	98
		613.1 -> 319.0	9586		
PFDS	9.246	599.0 -> 79.9	11154	4.43 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	5992			
PFHpA	6.544	363.1 -> 319.0	102437	5.17	µg/L	98
		363.1 -> 169.0	14808			
PFHpS	7.868	449.0 -> 79.9	16537	4.82	µg/L	90
		449.0 -> 98.9	8516			
PFHxA	5.607	313.0 -> 269.0	67308	5.06	µg/L	100
		313.0 -> 118.9	2619			
PFHxS	7.303	398.7 -> 79.9	18351	4.43	µg/L	m 93
		398.7 -> 98.9	9568			
PFNA	7.719	463.0 -> 419.0	58545	4.79	µg/L	98
		463.0 -> 219.0	11054			
PFNS	8.826	548.8 -> 79.9	16302	4.48	µg/L	99
		548.8 -> 98.9	9649			
PFOA	7.189	413.0 -> 369.0	131519	5.07	µg/L	98
		413.0 -> 169.0	18222			
PFOS	8.361	498.9 -> 79.9	16289	4.52	µg/L	m 97
		498.9 -> 98.8	10745			
PFPeA	4.397	263.0 -> 219.0	85257	9.96	µg/L	100
PFPeS	6.609	349.1 -> 79.9	22204	4.44	µg/L	100
		349.1 -> 98.9	11775			
PFTeDA	9.797	713.1 -> 669.0	56667	5.38	µg/L	97
		713.1 -> 168.9	4491			
PFTrDA	9.466	663.0 -> 619.0	73202	5.10	µg/L	100
		663.0 -> 168.9	5757			
PFUnDA	8.652	563.1 -> 519.0	75124	5.16	µg/L	97
		563.1 -> 269.1	11075			
11CI-PF3OUdS	9.517	630.9 -> 450.9	162357	19.32	µg/L	99
		632.9 -> 452.9	50697			
9CI-PF3ONS	8.703	530.8 -> 351.0	299766	19.68	µg/L	99
		532.8 -> 353.0	90728			
ADONA	6.794	376.9 -> 250.9	579566	19.86	µg/L	99
		376.9 -> 84.8	125795			
HFPO-DA	5.984	284.9 -> 168.9	27992	19.58	µg/L	97
		284.9 -> 184.9	3819			
3:3FTCA	3.851	241.0 -> 177.0	10560	24.68	µg/L	98
		241.0 -> 117.0	1504			
5:3FTCA	6.271	341.0 -> 237.1	328887	122.42	µg/L	92
		341.0 -> 217.0	297590			
7:3FTCA	7.684	441.0 -> 316.9	167862	124.30	µg/L	92
		441.0 -> 336.9	325691			
EtFOSA	10.993	526.0 -> 219.0	14368	4.65	µg/L	94
		526.0 -> 169.0	14580			
EtFOSE	10.939	630.0 -> 58.9	29967	50.52	µg/L	100
MeFOSA	10.760	511.9 -> 219.0	13139	5.06	µg/L	98
		511.9 -> 169.0	13771			
MeFOSE	10.692	616.1 -> 58.9	43552	49.34	µg/L	100
PFDoDS	9.924	699.1 -> 79.9	6387	4.44	µg/L	100
		699.1 -> 98.8	4099			
NFDHA	5.488	295.0 -> 201.0	8187	9.55	µg/L	100
		295.0 -> 84.9	3685			
PFMBA	4.806	279.0 -> 85.1	26942	9.66	µg/L	100
PFMPA	3.526	229.0 -> 84.9	24005	9.79	µg/L	100
PFEESA	6.089	314.8 -> 134.9	163646	8.69	µg/L	99
		314.8 -> 82.9	4271			

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

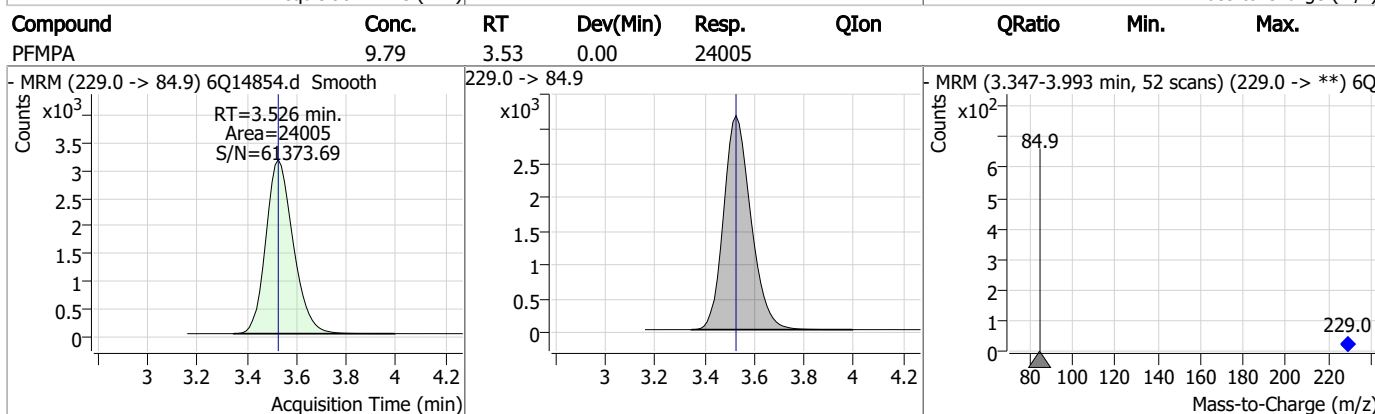
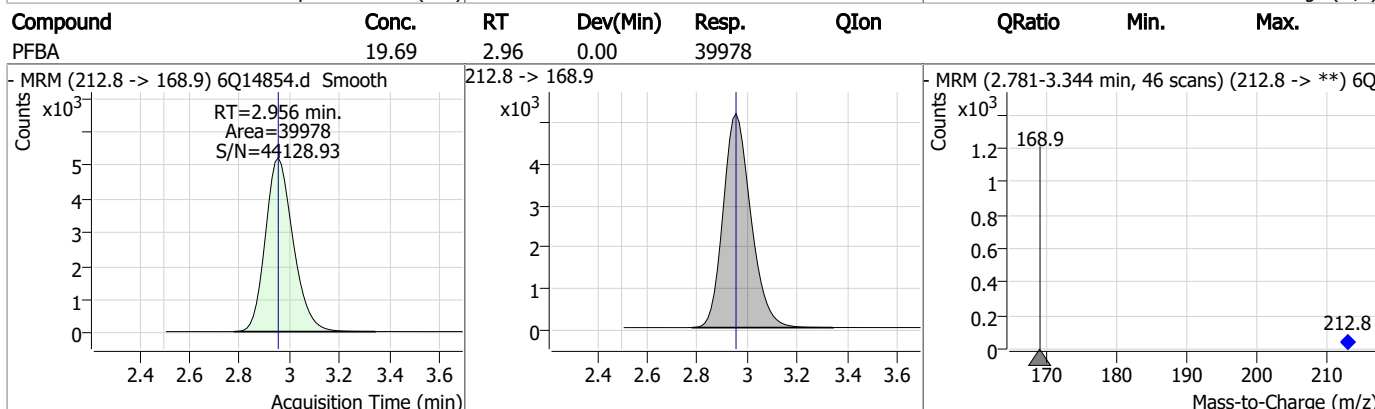
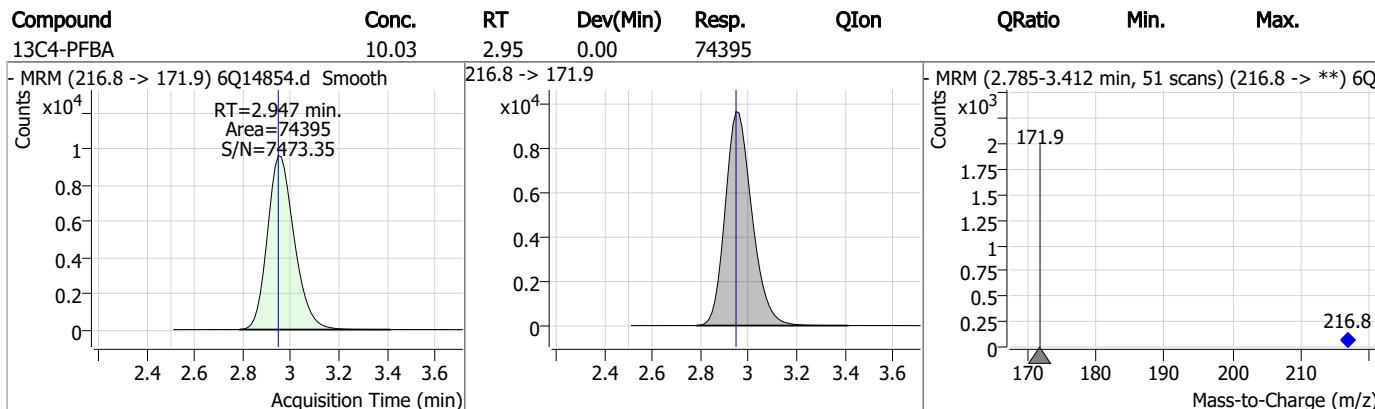
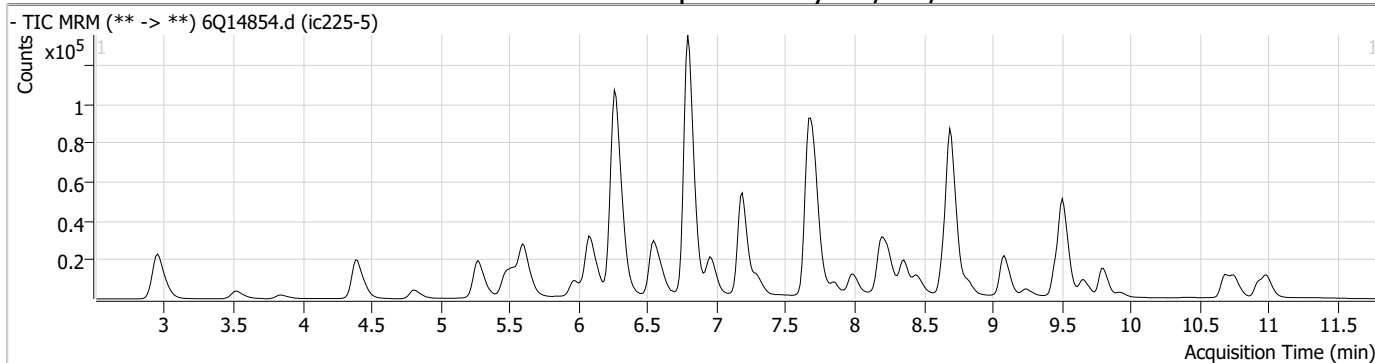
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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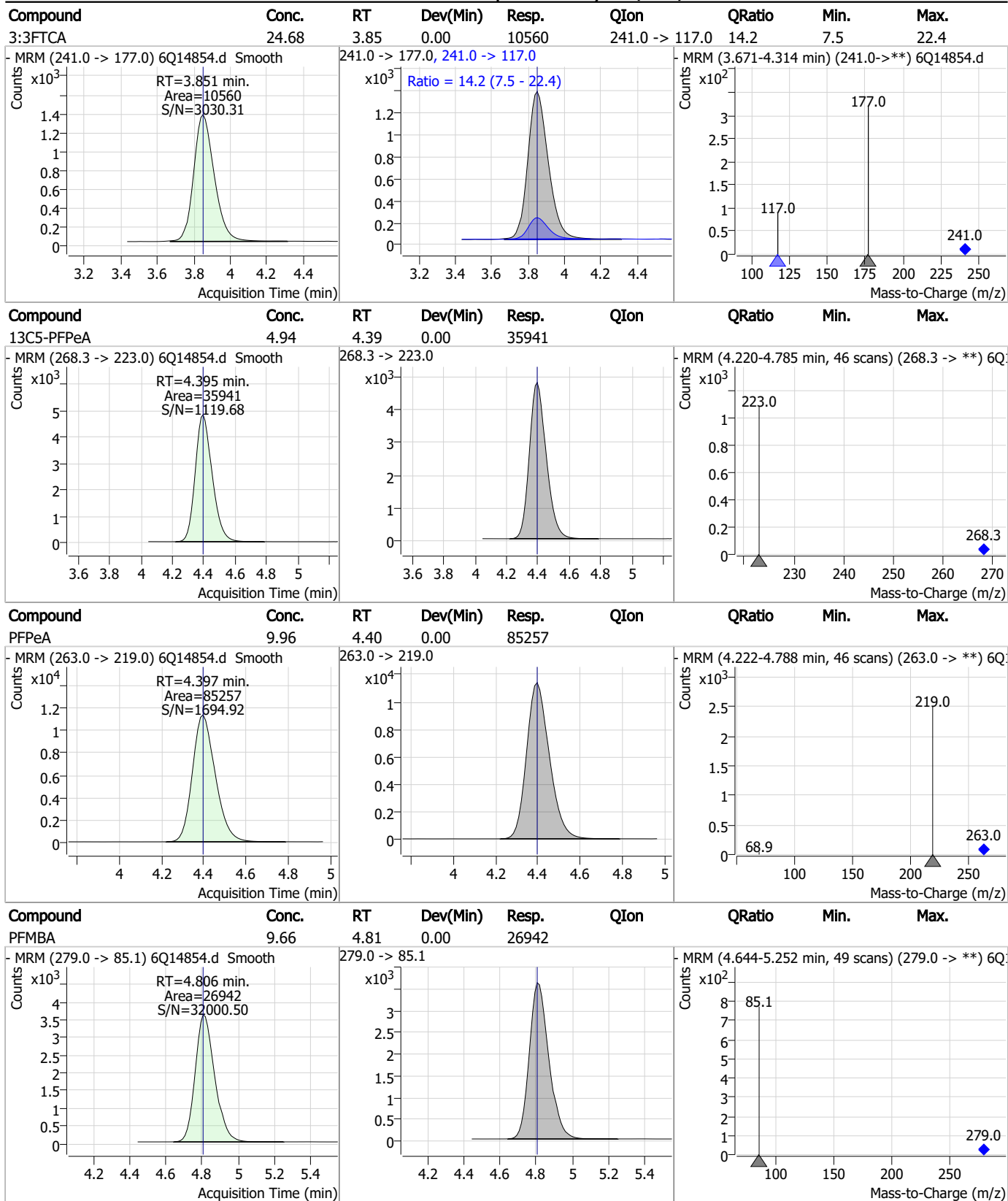
7.7.6
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Perfluorinated Compounds by LC/MS/MS

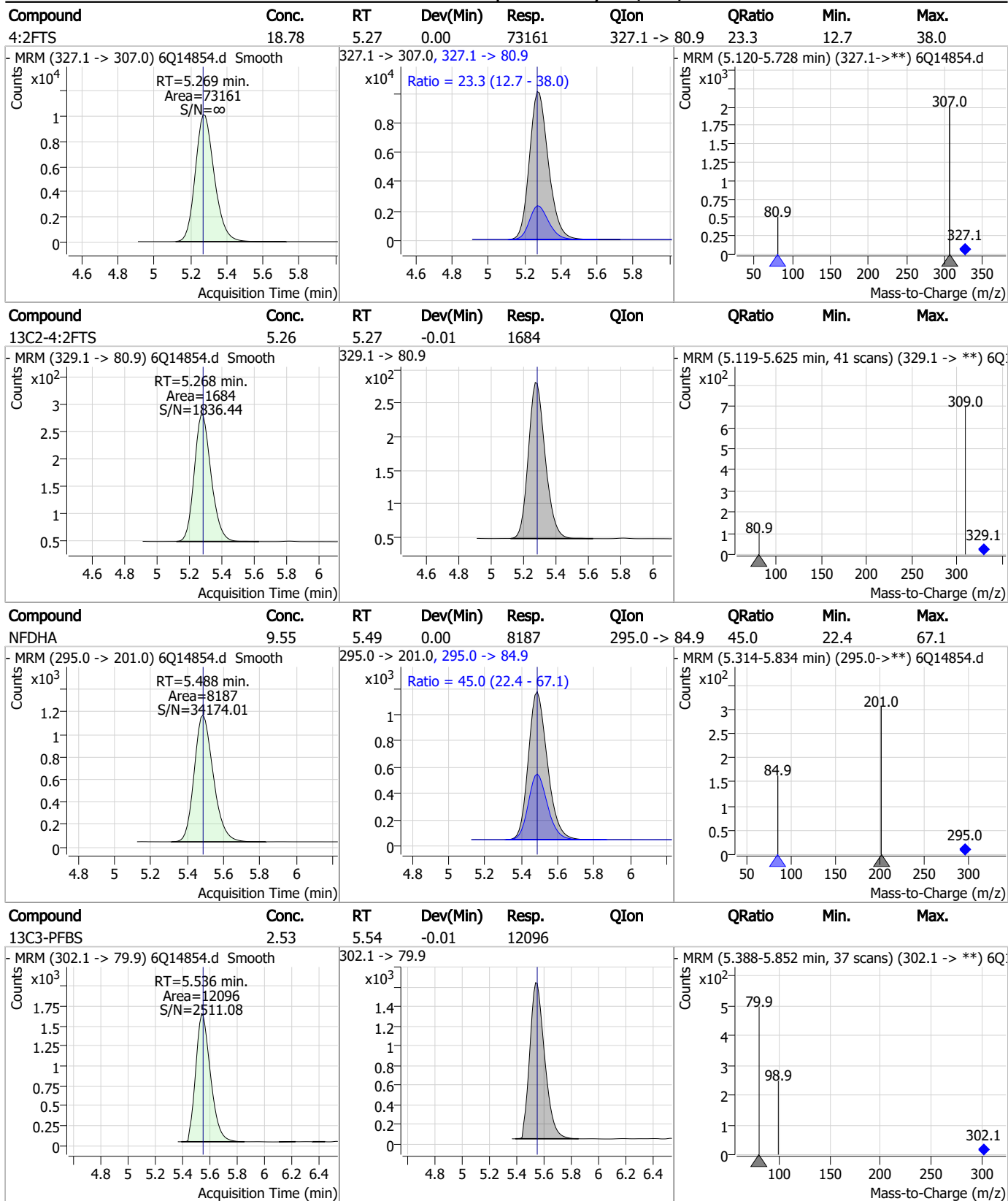


Perfluorinated Compounds by LC/MS/MS



7.7.6
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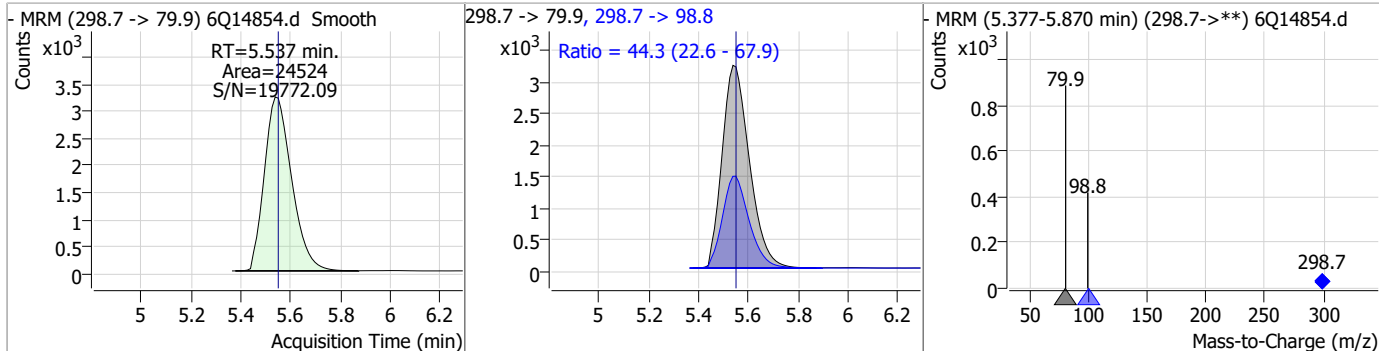
Perfluorinated Compounds by LC/MS/MS



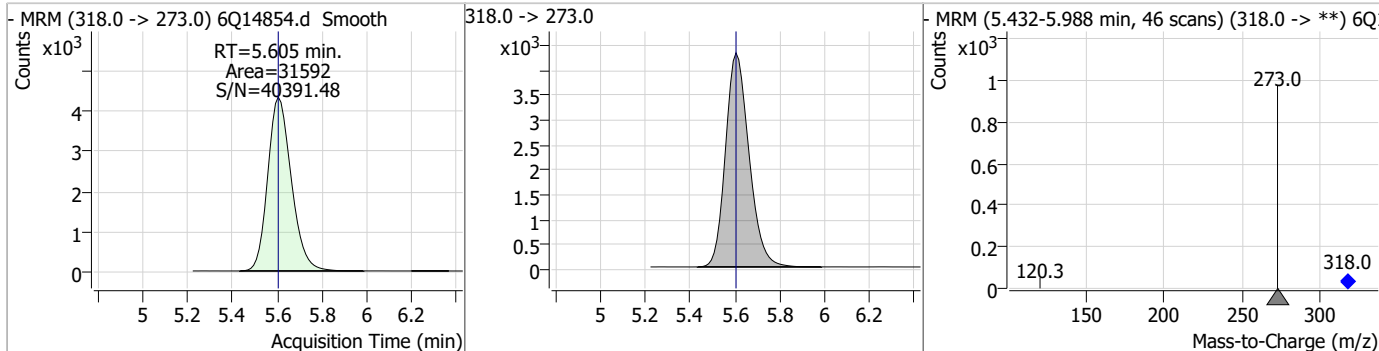
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Perfluorinated Compounds by LC/MS/MS

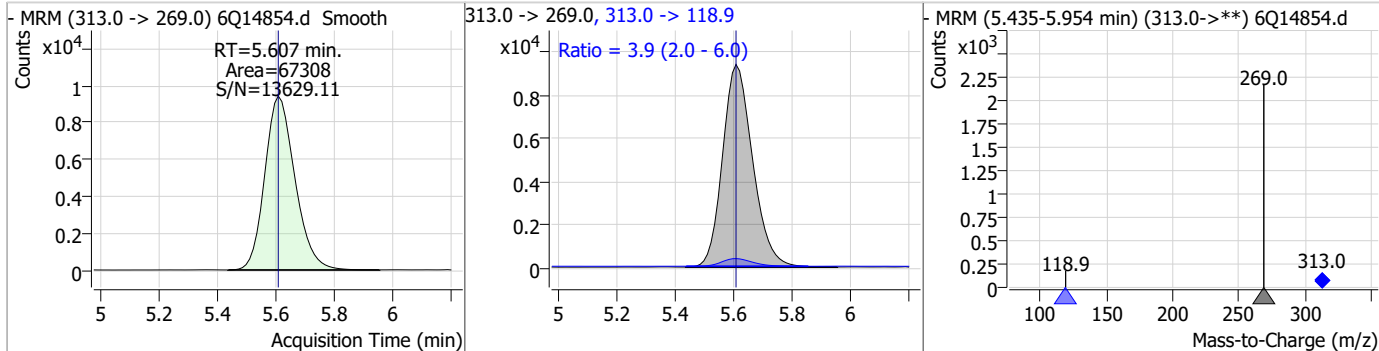
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.60	5.54	-0.01	24524	298.7 -> 98.8	44.3	22.6	67.9



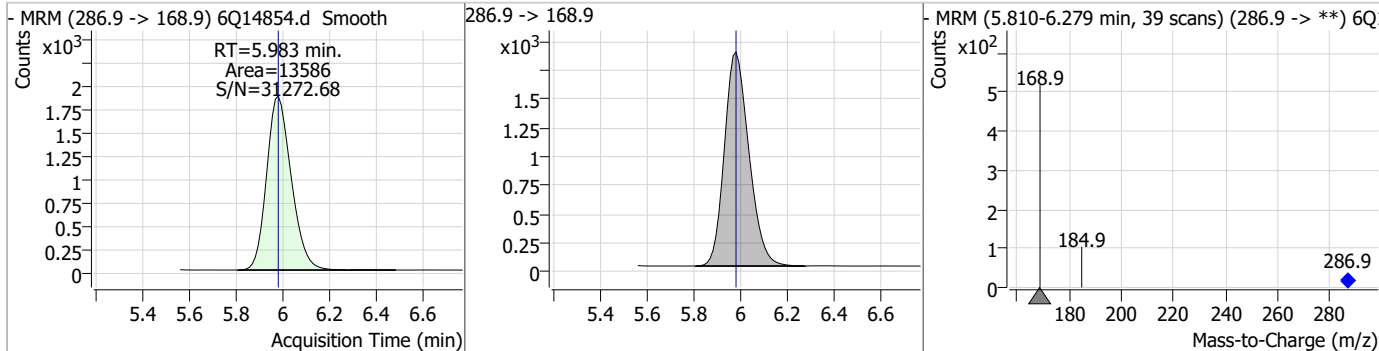
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.60	0.00	31592	318.0 -> 273.0	3.9	2.0	6.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	5.06	5.61	0.00	67308	313.0 -> 118.9	3.9	2.0	6.0

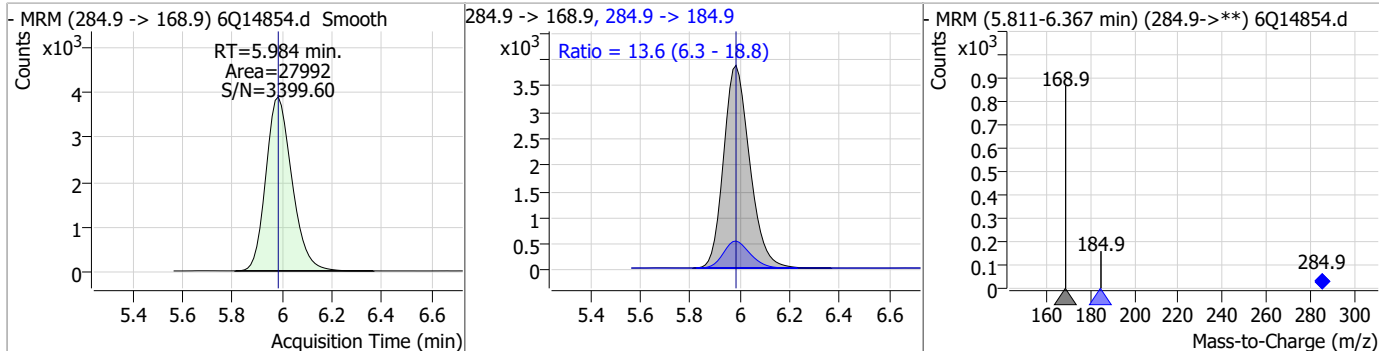


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.56	5.98	0.00	13586	286.9 -> 168.9	3.9	2.0	6.0

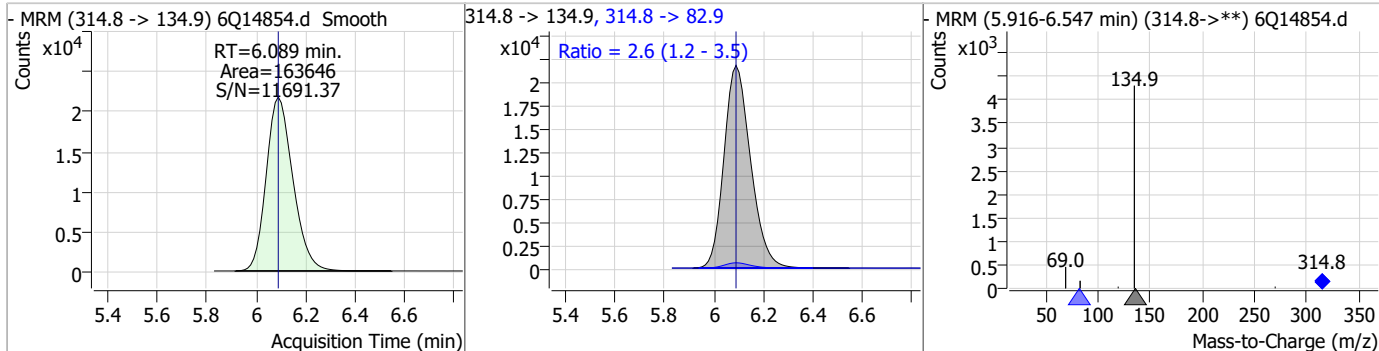


Perfluorinated Compounds by LC/MS/MS

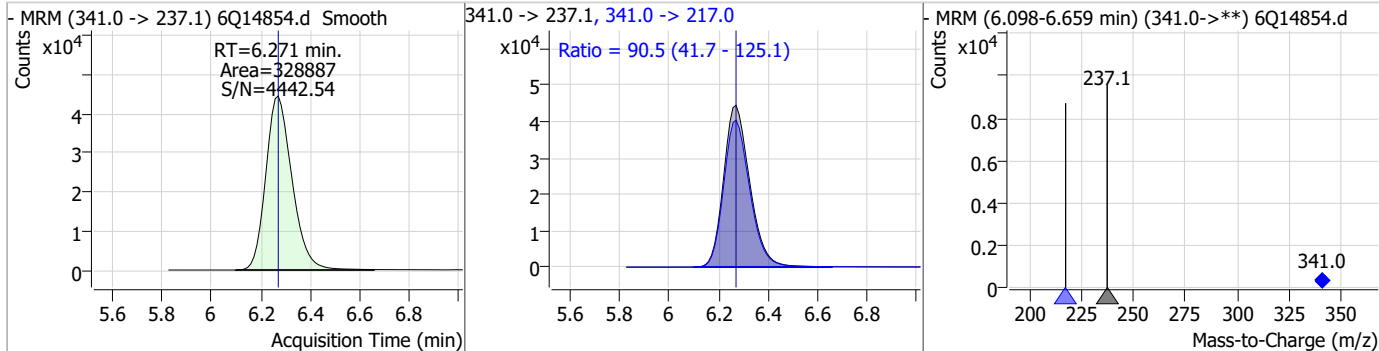
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.58	5.98	0.00	27992	284.9 -> 184.9	13.6	6.3	18.8



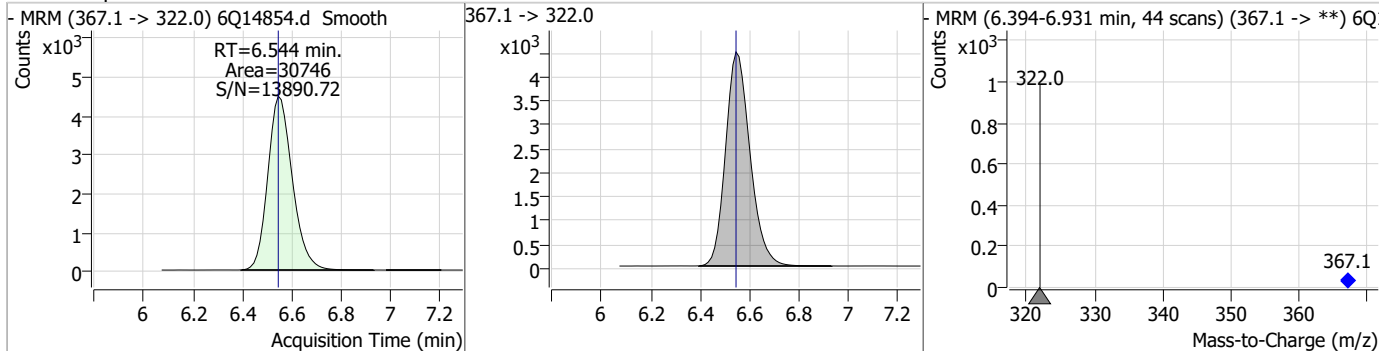
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.69	6.09	0.00	163646	314.8 -> 82.9	2.6	1.2	3.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	122.42	6.27	0.00	328887	341.0 -> 217.0	90.5	41.7	125.1

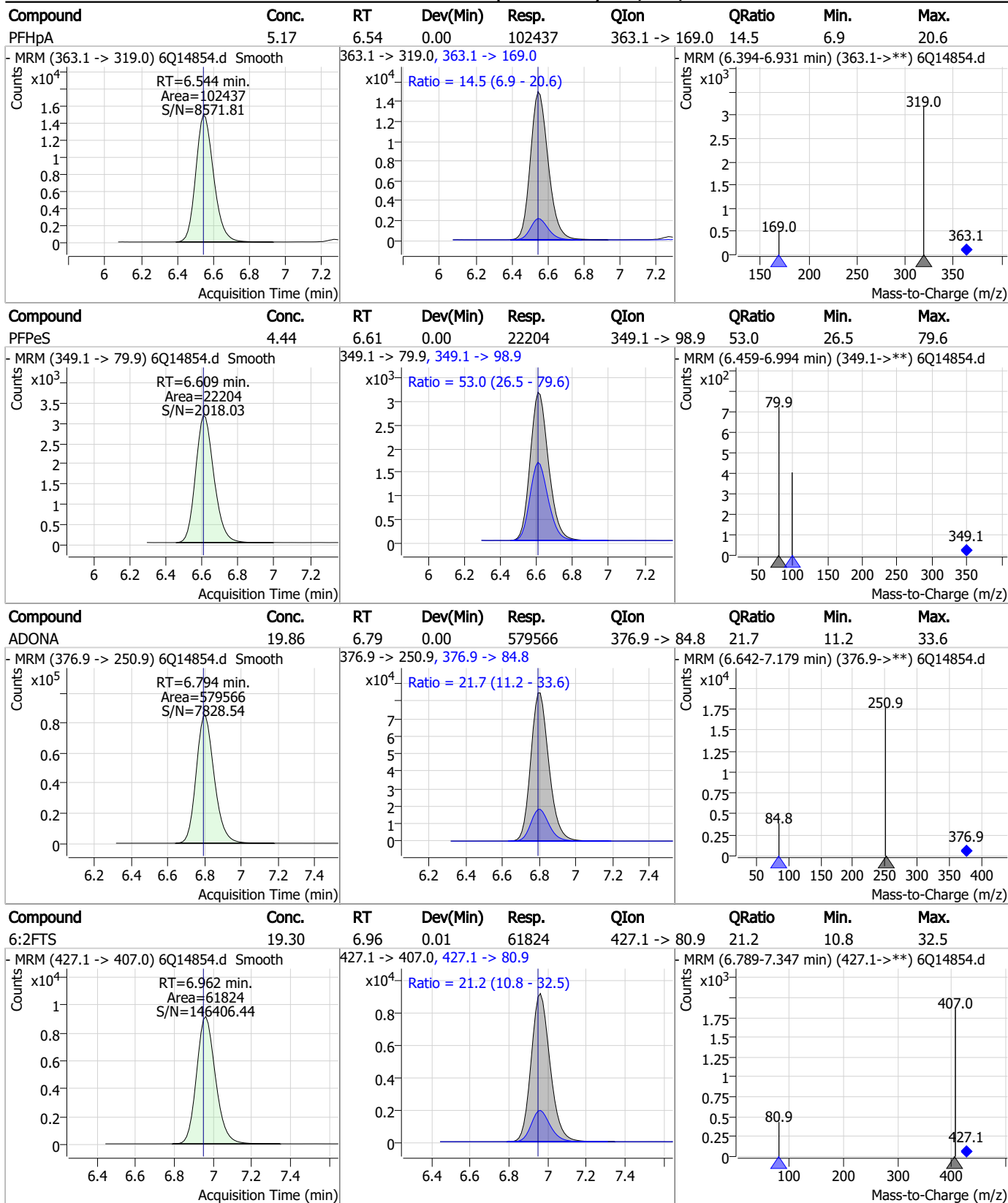


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.39	6.54	0.00	30746	367.1 -> 322.0			



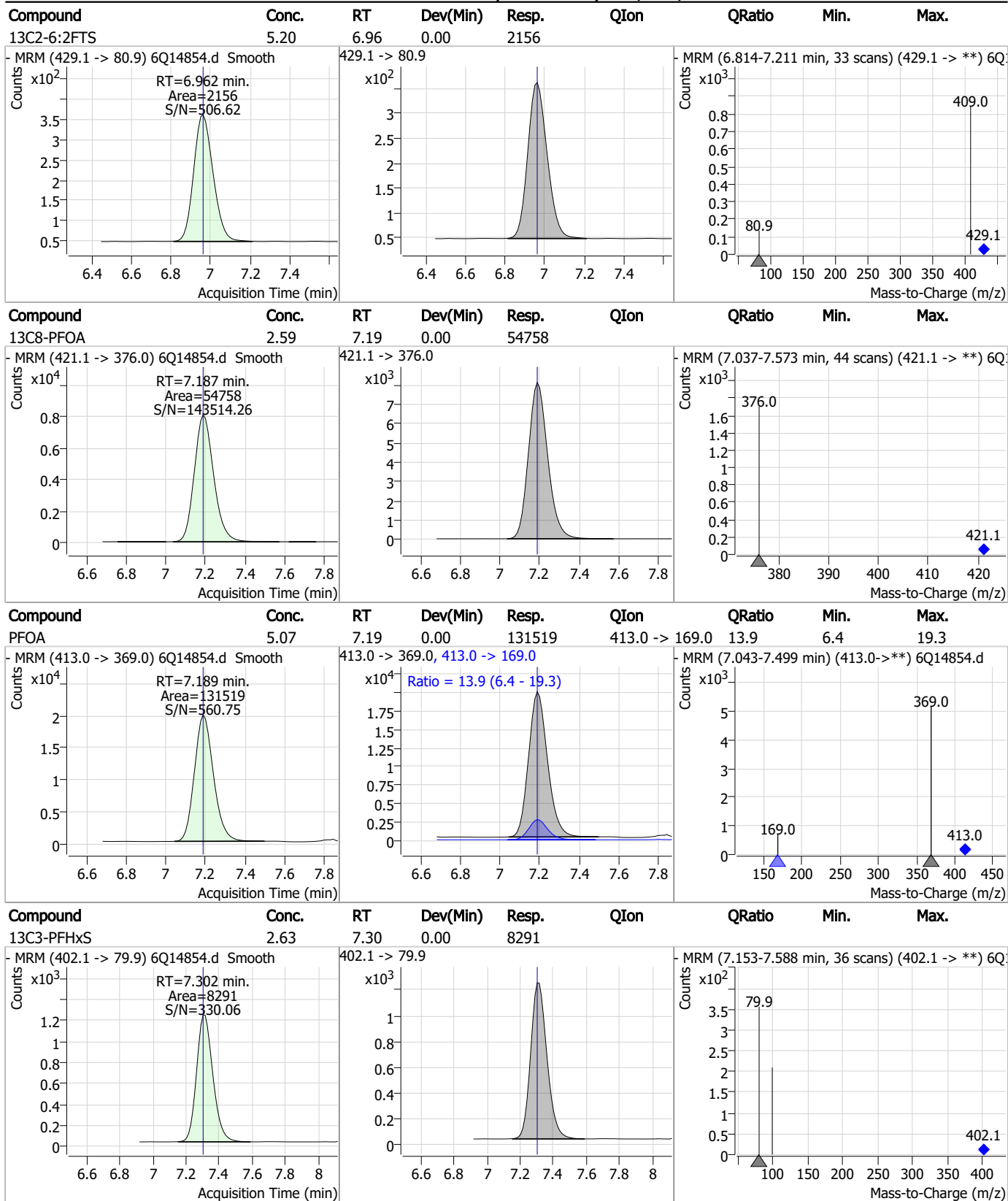
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Perfluorinated Compounds by LC/MS/MS



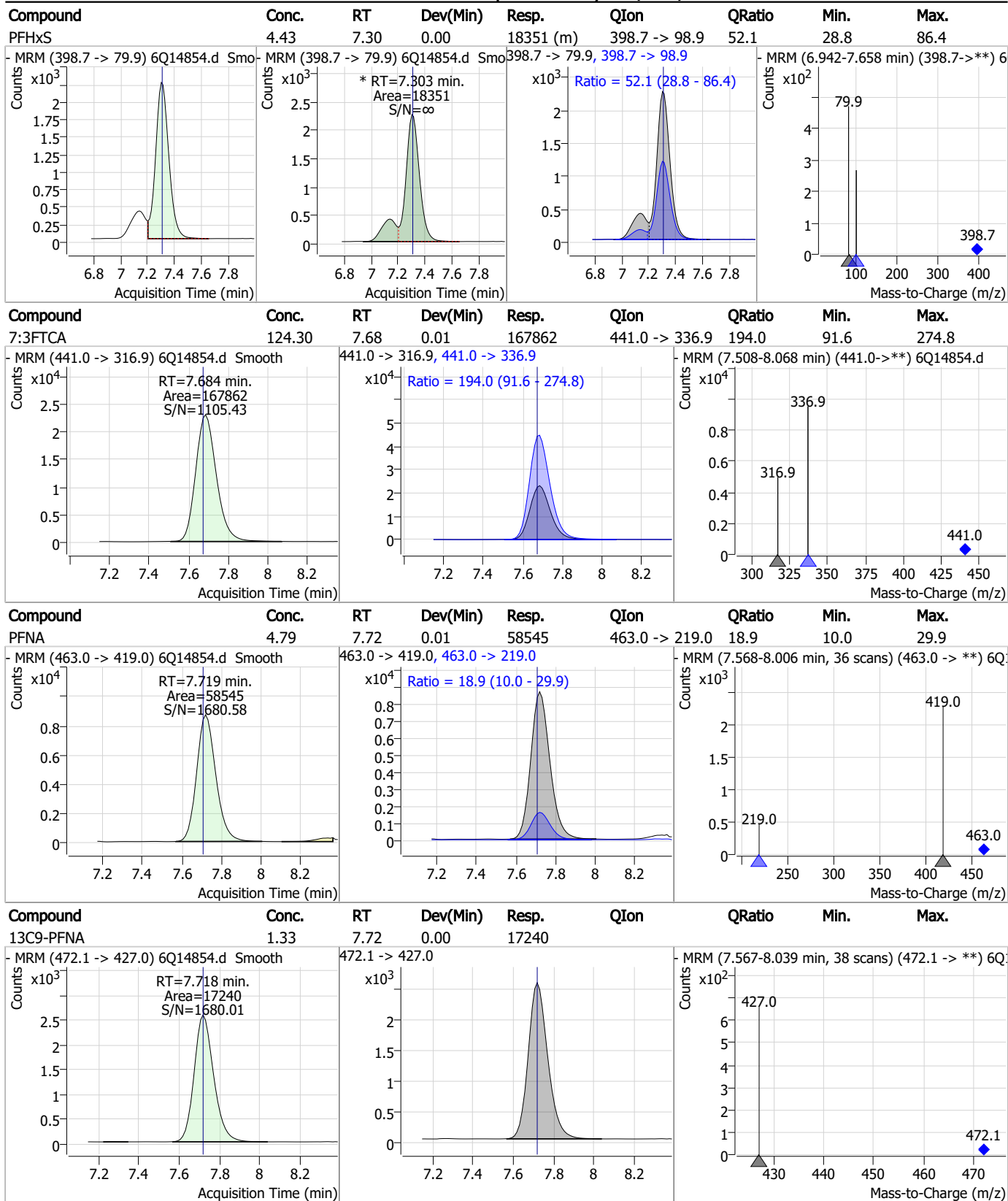
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Perfluorinated Compounds by LC/MS/MS



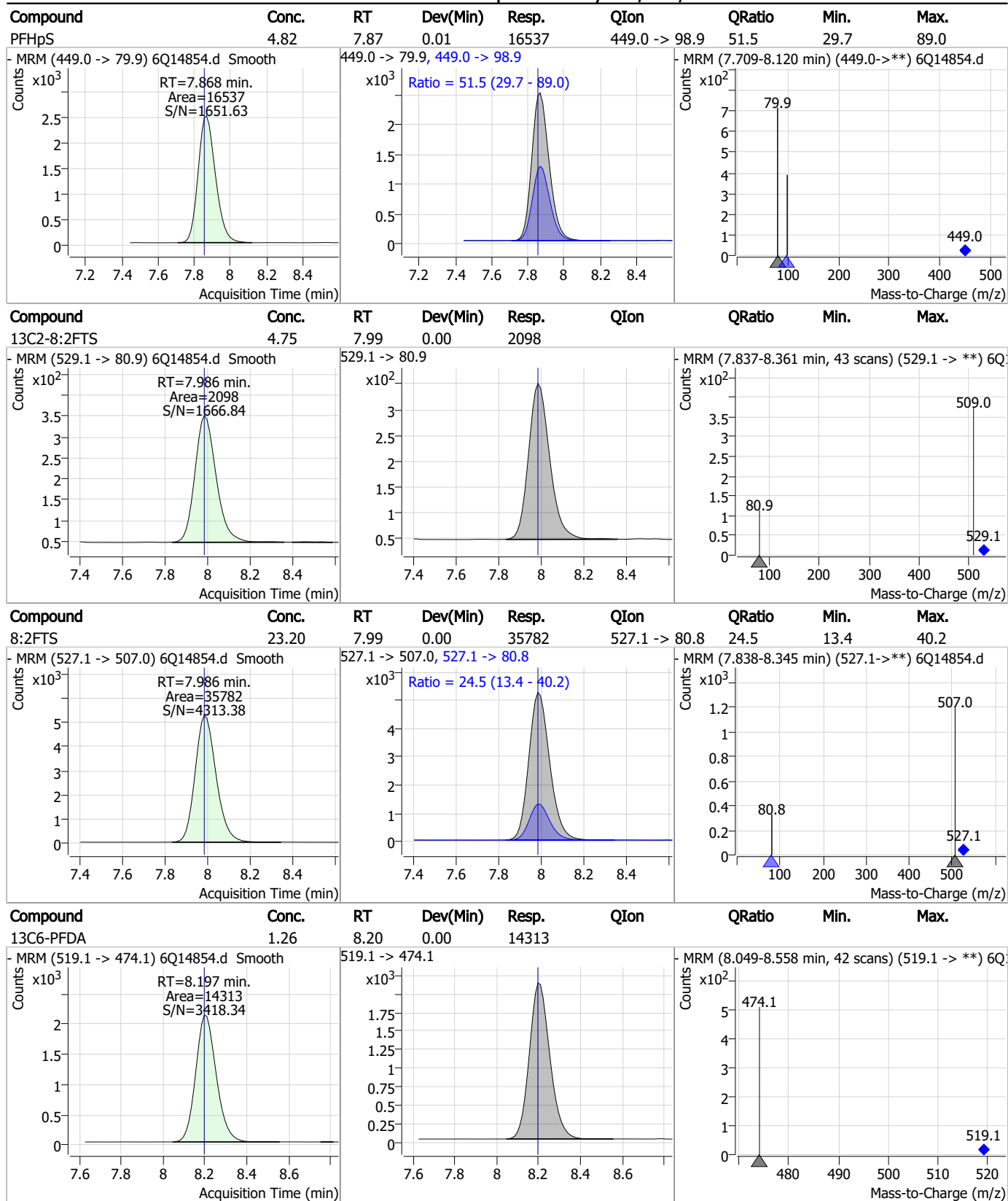
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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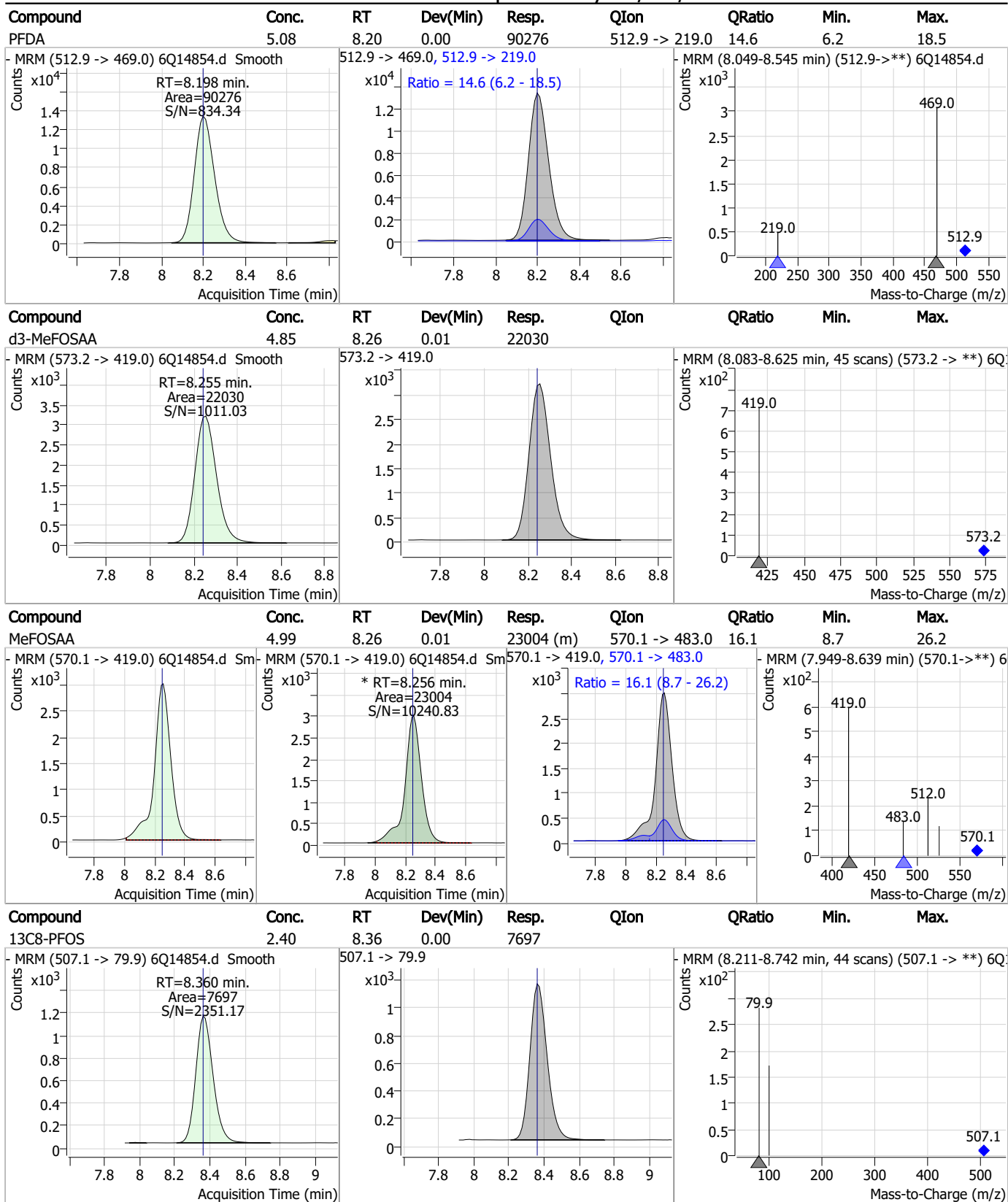
Perfluorinated Compounds by LC/MS/MS



7.7.6

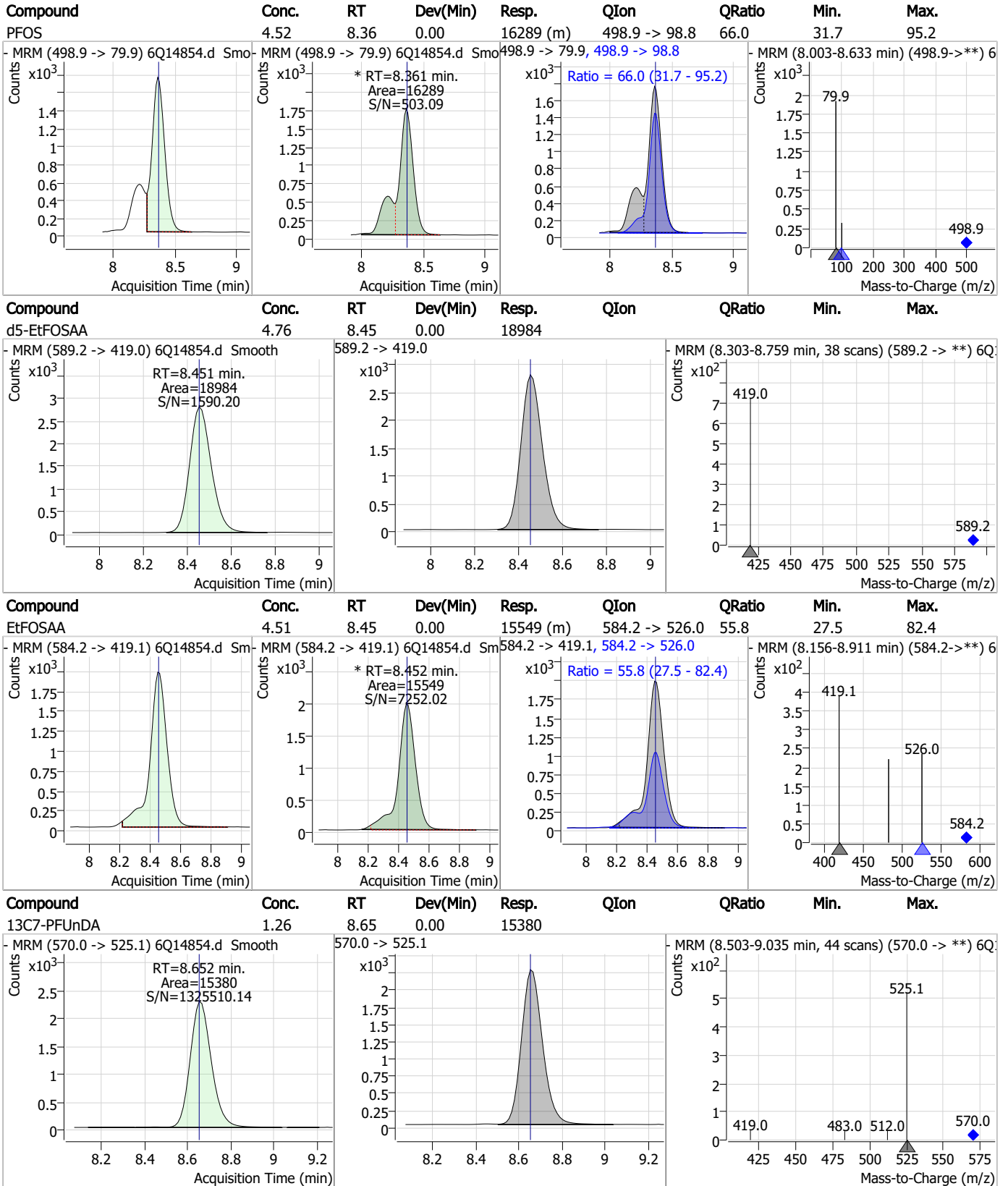
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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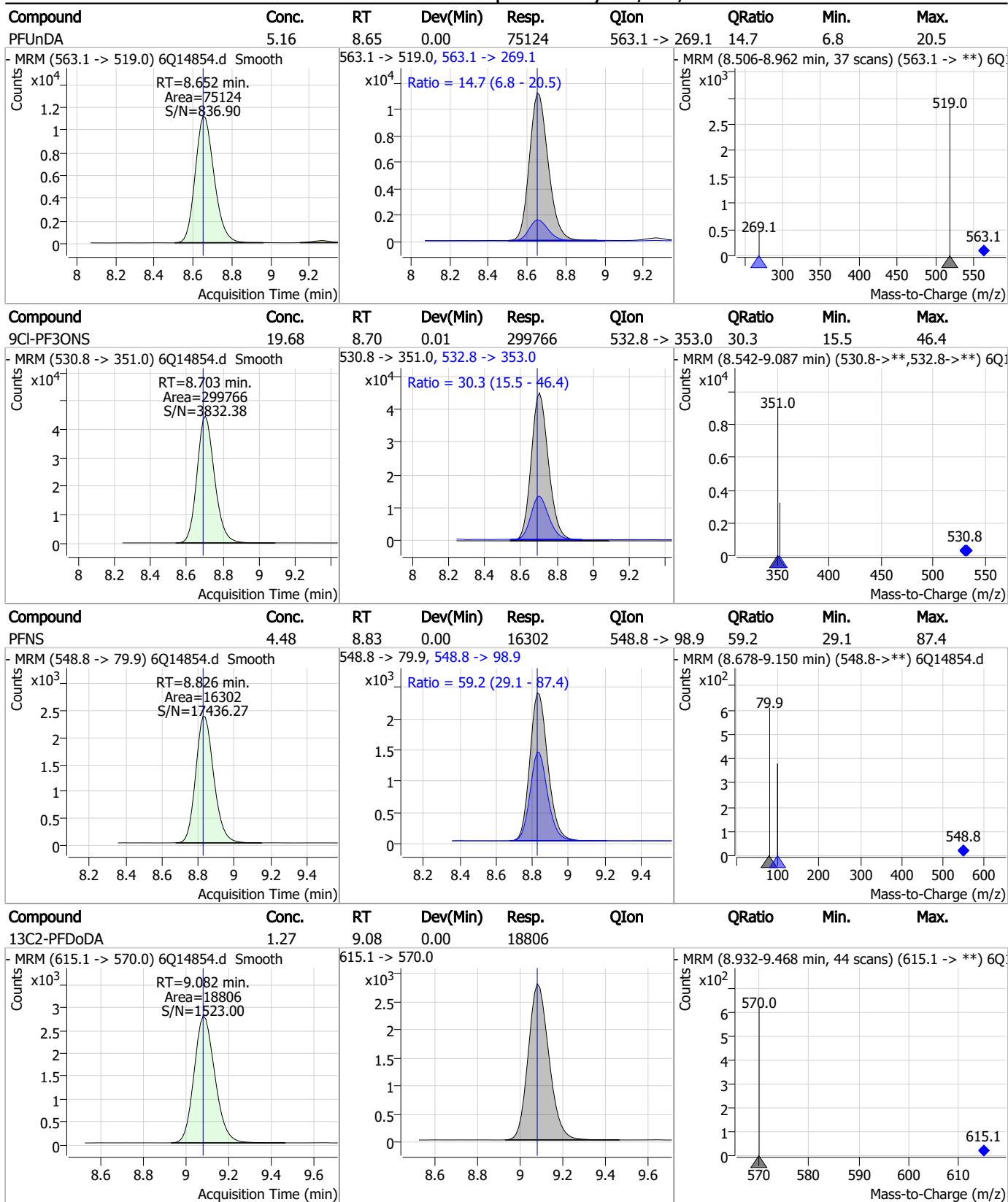
Perfluorinated Compounds by LC/MS/MS



7.7.6

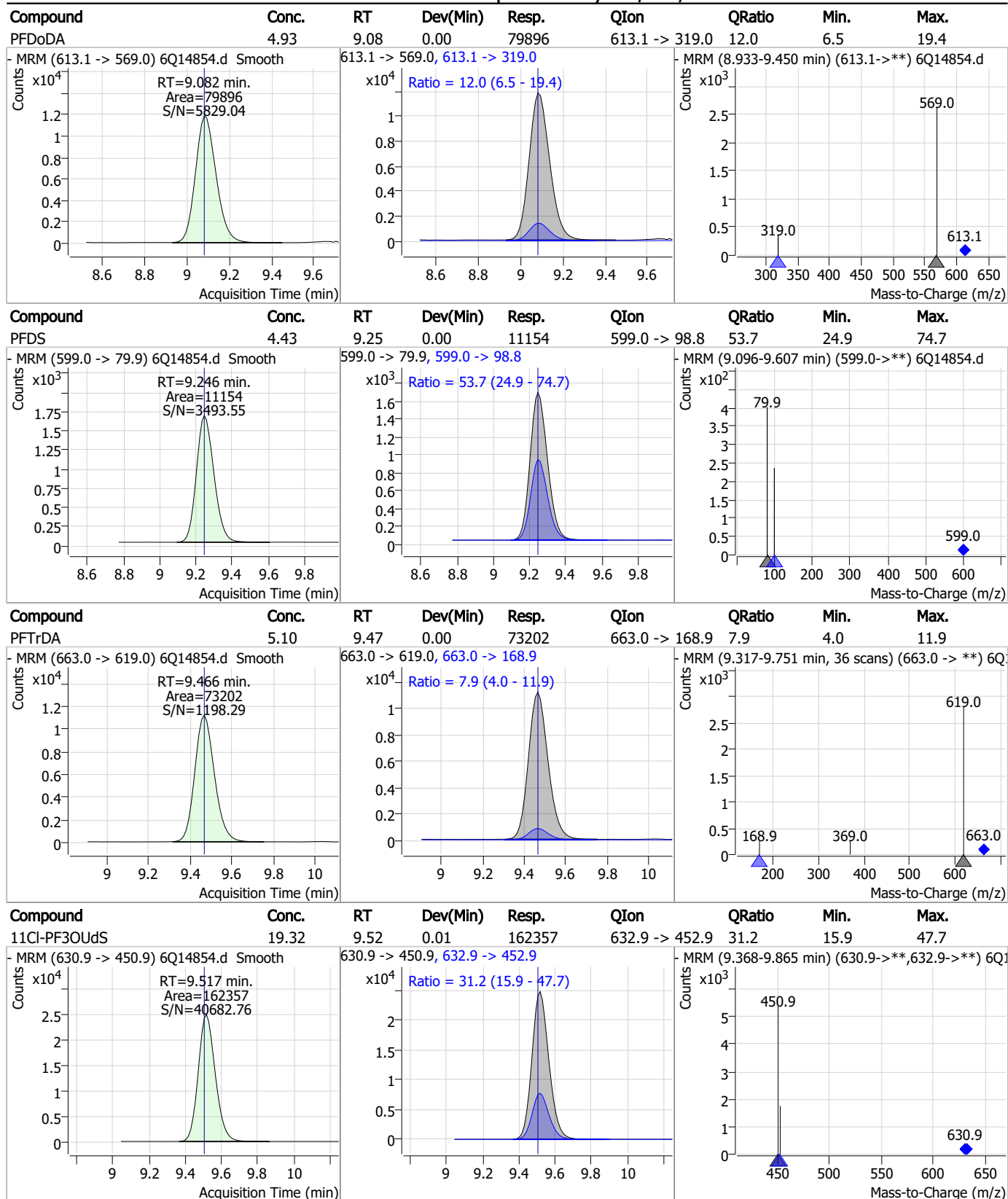
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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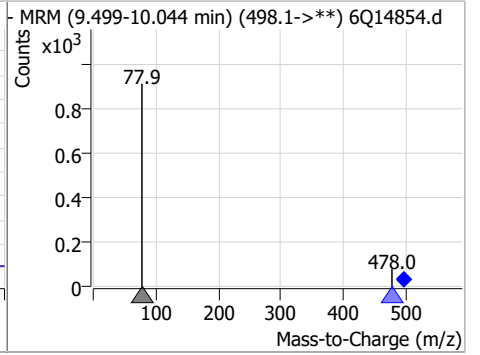
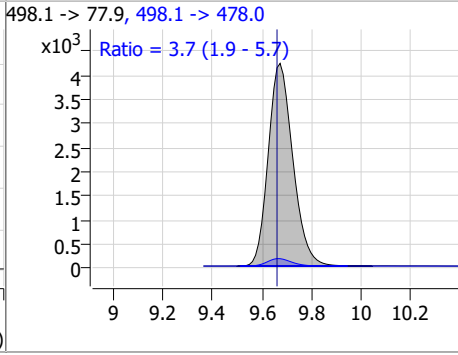
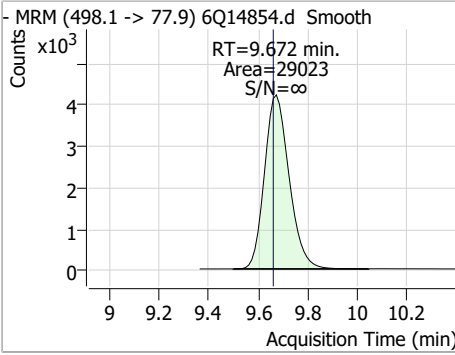
Perfluorinated Compounds by LC/MS/MS



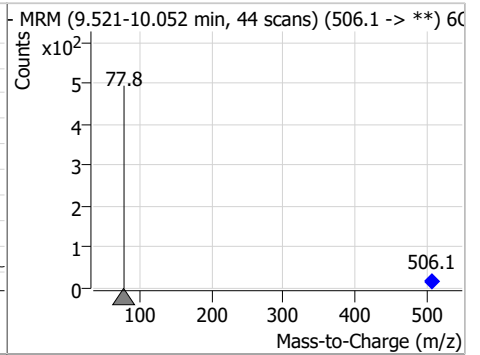
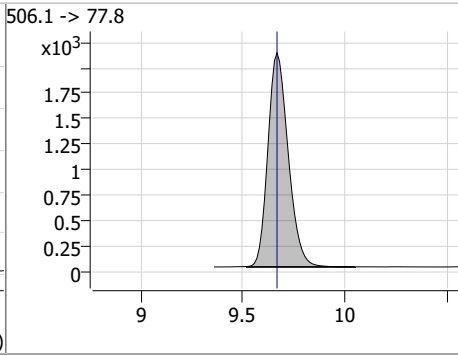
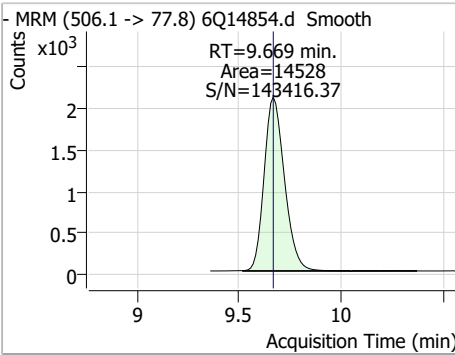
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Perfluorinated Compounds by LC/MS/MS

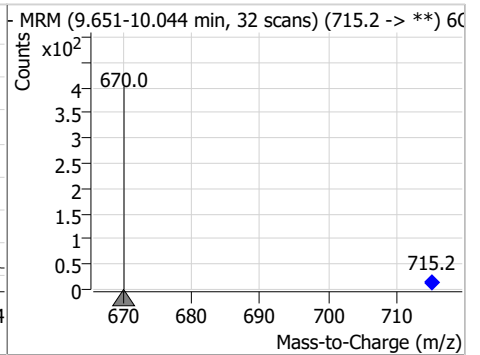
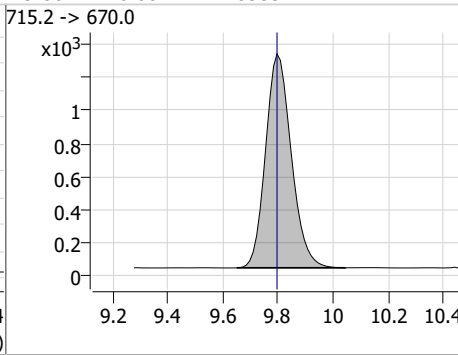
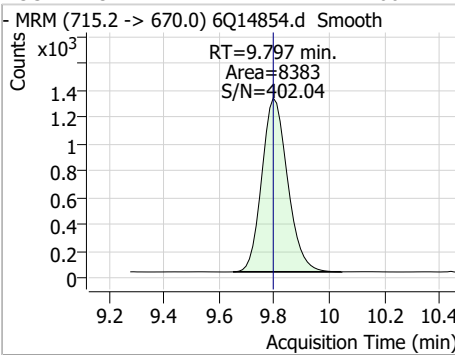
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	5.00	9.67	0.01	29023	498.1 -> 478.0	3.7	1.9	5.7



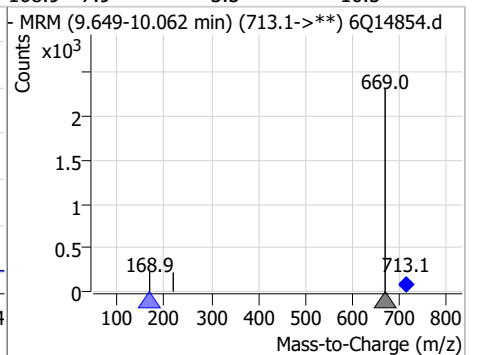
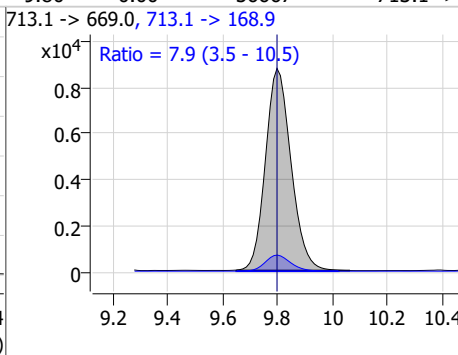
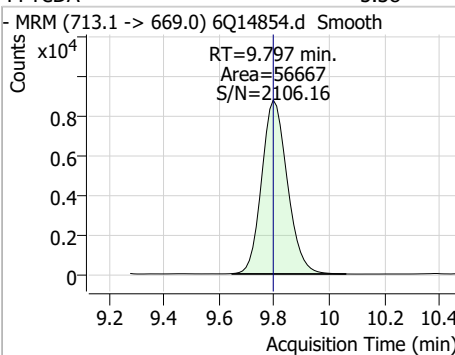
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.22	9.67	0.00	14528				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.00	9.80	0.00	8383				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	5.38	9.80	0.00	56667	713.1 -> 168.9	7.9	3.5	10.5



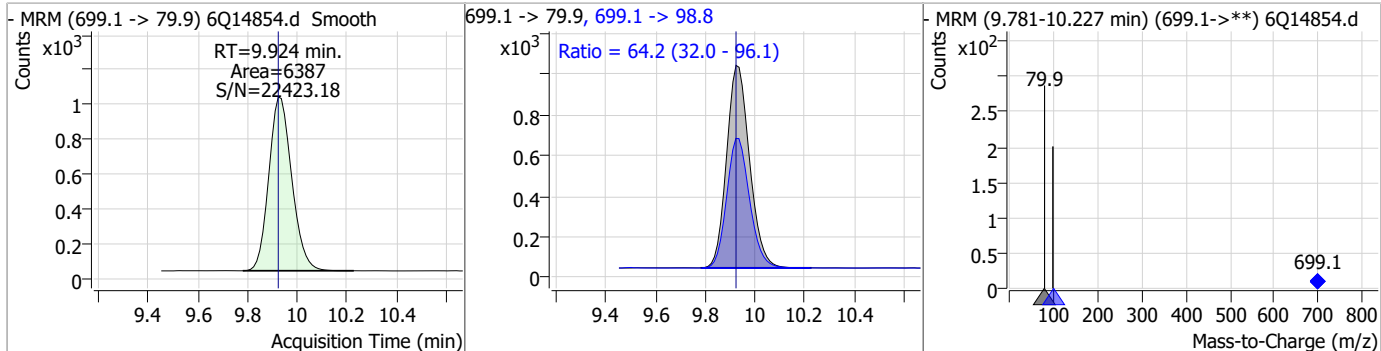
7.7.6

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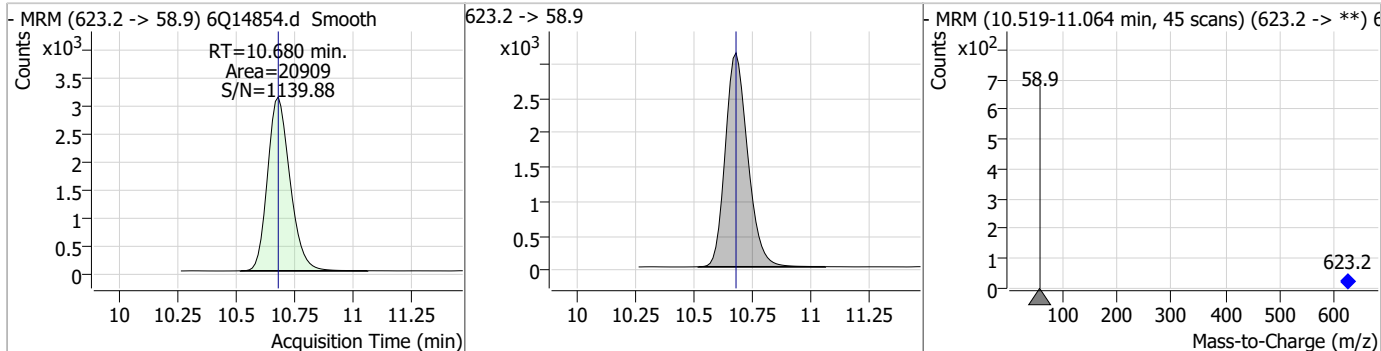


Perfluorinated Compounds by LC/MS/MS

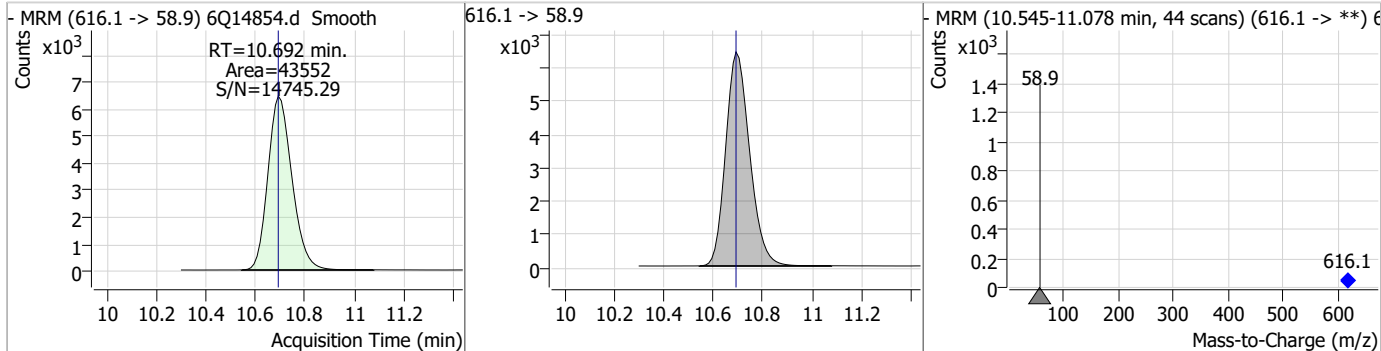
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	4.44	9.92	0.00	6387	699.1 -> 98.8	64.2	32.0	96.1



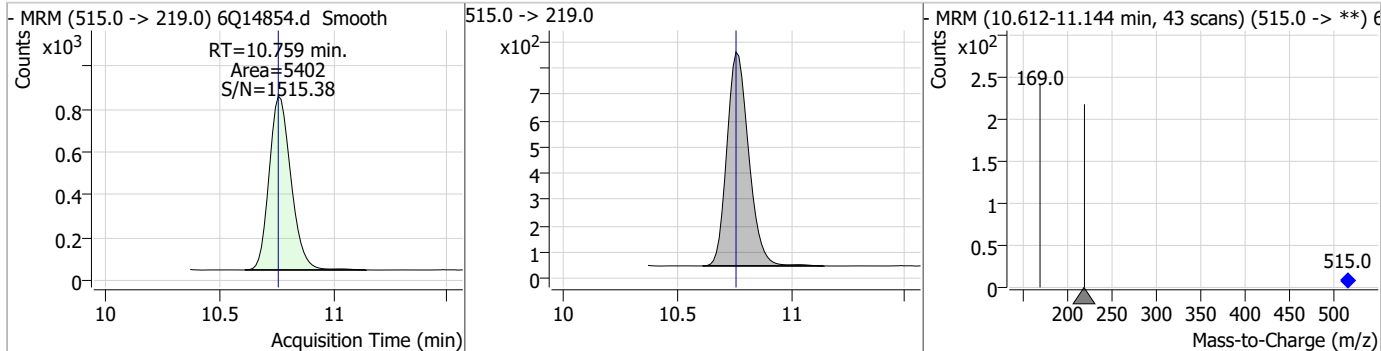
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.00	10.68	0.00	20909				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	49.34	10.69	0.00	43552				

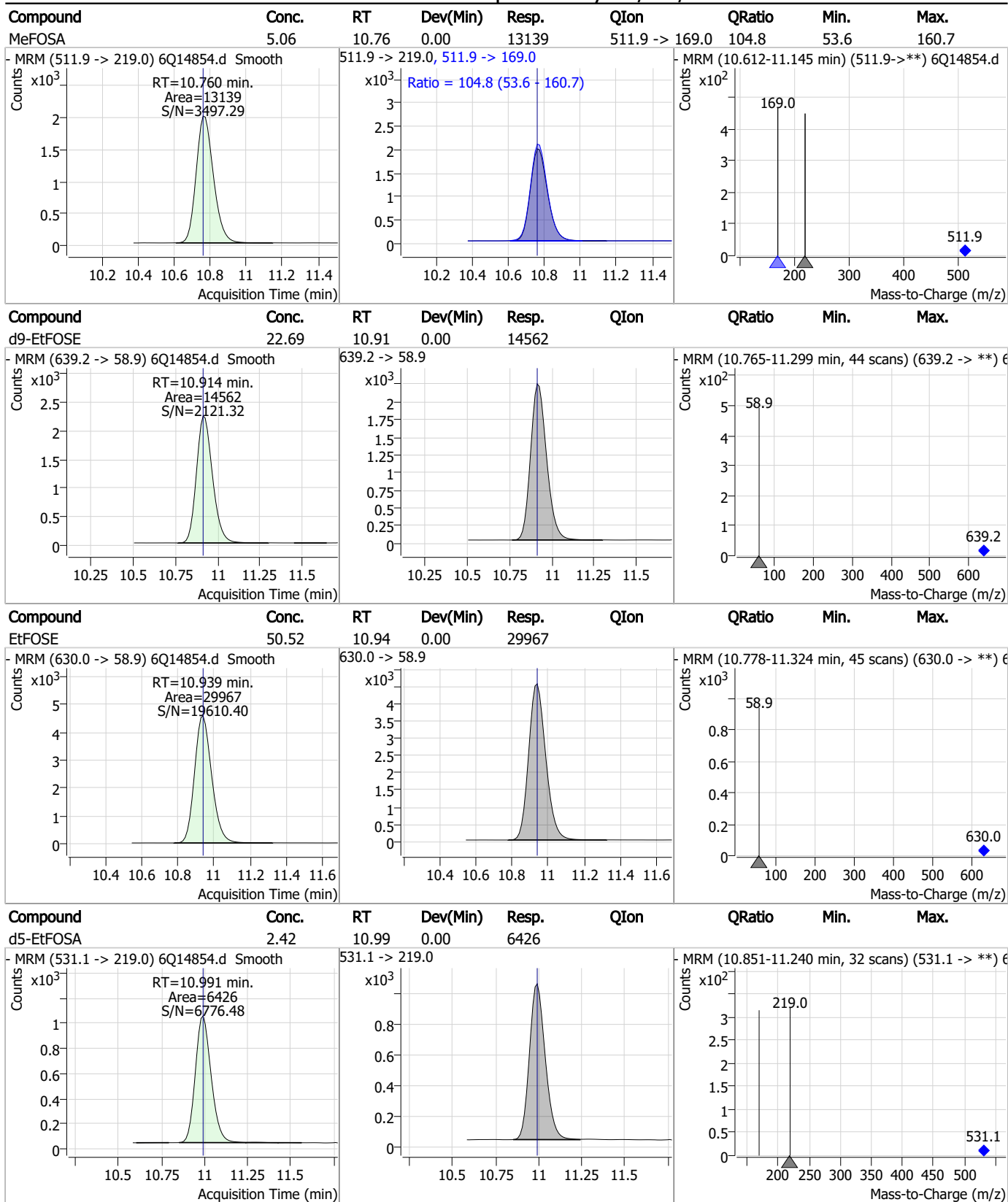


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.25	10.76	0.00	5402				



7.7.6
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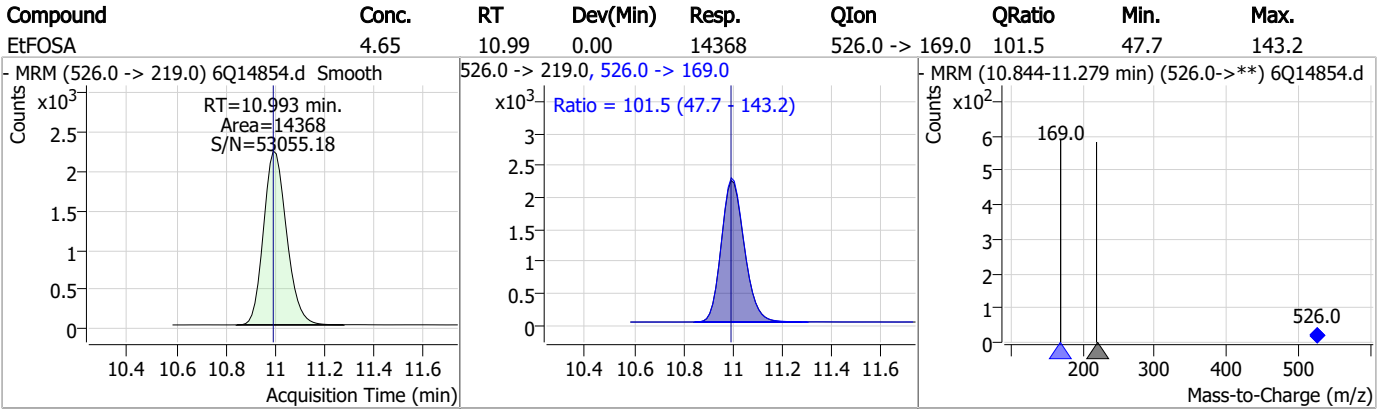
Perfluorinated Compounds by LC/MS/MS



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: S6Q225-IC225 Method: EPA DRAFT 1633
Lab FileID: 6Q14854.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 22:42 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.6.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 03/16/23 16:23

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14855.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 10:56:08 PM
 Sample Name : ic225-6
 Vial : P1-A7
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.947	216.8 -> 171.9	70828	10.00 µg/L	0.000
M5-PFPeA	4.395	268.3 -> 223.0	34475	5.00 µg/L	0.000
M5-PFHxA	5.605	318.0 -> 273.0	30727	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	31279	2.50 µg/L	0.000
M8-PFOA	7.187	421.1 -> 376.0	49642	2.50 µg/L	0.000
M9-PFNA	7.718	472.1 -> 427.0	16256	1.25 µg/L	0.000
M6-PFDA	8.197	519.1 -> 474.1	14185	1.25 µg/L	0.000
M7-PFUnDA	8.652	570.0 -> 525.1	14921	1.25 µg/L	0.000
M2-PFDoDA	9.082	615.1 -> 570.0	18370	1.25 µg/L	0.000
M2-PFTeDA	9.797	715.2 -> 670.0	10970	1.25 µg/L	0.000
M8-FOSA	9.669	506.1 -> 77.8	15038	2.50 µg/L	0.000
M3-PFBS	5.536	302.1 -> 79.9	12179	2.50 µg/L	-0.012
M3-PFHxS	7.302	402.1 -> 79.9	7279	2.50 µg/L	0.000
M8-PFOS	8.360	507.1 -> 79.9	7103	2.50 µg/L	0.000
M2-4:2FTS	5.268	329.1 -> 80.9	1632	5.00 µg/L	-0.012
M2-6:2FTS	6.949	429.1 -> 80.9	2079	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	1914	5.00 µg/L	0.000
M3-MeFOSAA	8.255	573.2 -> 419.0	21028	5.00 µg/L	0.012
M3-HFPO-DA	5.983	286.9 -> 168.9	14021	10.00 µg/L	0.000
M5-EtFOSAA	8.451	589.2 -> 419.0	17133	5.00 µg/L	0.000
M7-MeFOSE	10.680	623.2 -> 58.9	19840	25.00 µg/L	0.000
M9-EtFOSE	10.914	639.2 -> 58.9	14702	25.00 µg/L	0.000
M5-EtFOSA	10.991	531.1 -> 219.0	6056	2.50 µg/L	0.000
M3-MeFOSA	10.759	515.0 -> 219.0	5572	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	8404	2.50 µg/L	0.000
13C3-PFBA	2.952	216.0 -> 172.0	30682	5.00 µg/L	0.000
18O2-PFHxS	7.301	403.0 -> 83.9	5450	2.50 µg/L	-0.012
13C4-PFOA	7.188	417.1 -> 372.0	62538	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	17845	1.25 µg/L	0.000
13C5-PFNA	7.718	468.0 -> 423.0	16607	1.25 µg/L	0.000
13C2-PFHxA	5.606	315.1 -> 270.0	28894	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.268	329.1 -> 80.9	1632	5.22 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2079	5.13 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-8:2FTS	7.986	529.1 -> 80.9	1914	4.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.6%		
13C2-PFDoDA	9.082	615.1 -> 570.0	18370	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-PFTeDA	9.797	715.2 -> 670.0	10970	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C3-PFBS	5.536	302.1 -> 79.9	12179	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C3-PFHxS	7.302	402.1 -> 79.9	7279	2.37 µg/L	0.000

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 = 94.6%		
13C4-PFBA	2.947	216.8 -> 171.9	70828	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C4-PFHpA	6.544	367.1 -> 322.0	31279	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C5-PFHxA	5.605	318.0 -> 273.0	30727	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C5-PFPeA	4.395	268.3 -> 223.0	34475	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C6-PFDA	8.197	519.1 -> 474.1	14185	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C7-PFUnDA	8.652	570.0 -> 525.1	14921	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C8-FOSA	9.669	506.1 -> 77.8	15038	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.2%		
13C8-PFOA	7.187	421.1 -> 376.0	49642	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C8-PFOS	8.360	507.1 -> 79.9	7103	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C9-PFNA	7.718	472.1 -> 427.0	16256	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
d3-MeFOSAA	8.255	573.2 -> 419.0	21028	5.21 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C3-HFPO-DA	5.983	286.9 -> 168.9	14021	10.74 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 107.4%		
d3-MeFOSA	10.759	515.0 -> 219.0	5572	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
d5-EtFOSAA	8.451	589.2 -> 419.0	17133	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
d7-MeFOSE	10.680	623.2 -> 58.9	19840	24.54 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
d9-EtFOSE	10.914	639.2 -> 58.9	14702	25.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
d5-EtFOSA	10.991	531.1 -> 219.0	6056	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	186069	49.28 µg/L	96
		327.1 -> 80.9	42857		
6:2FTS	6.950	427.1 -> 407.0	150179	48.63 µg/L	99
		427.1 -> 80.9	33481		
8:2FTS	7.986	527.1 -> 507.0	78691	55.92 µg/L	93
		527.1 -> 80.8	23966		
EtFOSAA	8.464	584.2 -> 419.1	44112	14.17 µg/L	m 97
		584.2 -> 526.0	23177		
FOSA	9.672	498.1 -> 77.9	80710	13.43 µg/L	99
		498.1 -> 478.0	2744		
MeFOSAA	8.256	570.1 -> 419.0	59103	13.43 µg/L	m 97
		570.1 -> 483.0	11175		
PFBA	2.956	212.8 -> 168.9	106957	55.33 µg/L	100
PFBS	5.537	298.7 -> 79.9	64770	12.07 µg/L	99
		298.7 -> 98.8	28897		
PFDA	8.198	512.9 -> 469.0	248379	14.10 µg/L	98
		512.9 -> 219.0	32173		
PFDoDA	9.082	613.1 -> 569.0	218038	13.78 µg/L	98
		613.1 -> 319.0	26403		
PFDS	9.246	599.0 -> 79.9	30717	13.22 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	15772			
PFHpA	6.544	363.1 -> 319.0	262994	13.04	µg/L	98
		363.1 -> 169.0	38370			
PFHpS	7.868	449.0 -> 79.9	39783	12.57	µg/L	99
		449.0 -> 98.9	23381			
PFHxA	5.607	313.0 -> 269.0	173334	13.39	µg/L	100
		313.0 -> 118.9	6950			
PFHxS	7.303	398.7 -> 79.9	47511	13.07	µg/L	m 96
		398.7 -> 98.9	25785			
PFNA	7.719	463.0 -> 419.0	162816	14.13	µg/L	98
		463.0 -> 219.0	31150			
PFNS	8.839	548.8 -> 79.9	44976	13.39	µg/L	94
		548.8 -> 98.9	24162			
PFOA	7.189	413.0 -> 369.0	344591	14.66	µg/L	98
		413.0 -> 169.0	47679			
PFOS	8.361	498.9 -> 79.9	41755	12.55	µg/L	m 99
		498.9 -> 98.8	26766			
PFPeA	4.397	263.0 -> 219.0	225353	27.46	µg/L	100
PFPeS	6.609	349.1 -> 79.9	58468	13.32	µg/L	99
		349.1 -> 98.9	30748			
PFTeDA	9.797	713.1 -> 669.0	176916	12.84	µg/L	100
		713.1 -> 168.9	12424			
PFTrDA	9.466	663.0 -> 619.0	190442	13.58	µg/L	98
		663.0 -> 168.9	16468			
PFUnDA	8.652	563.1 -> 519.0	186002	13.17	µg/L	93
		563.1 -> 269.1	30811			
11Cl-PF3OUdS	9.517	630.9 -> 450.9	422937	48.76	µg/L	99
		632.9 -> 452.9	137144			
9Cl-PF3ONS	8.703	530.8 -> 351.0	776138	49.37	µg/L	98
		532.8 -> 353.0	246770			
ADONA	6.794	376.9 -> 250.9	1502711	49.91	µg/L	100
		376.9 -> 84.8	338856			
HFPO-DA	5.984	284.9 -> 168.9	79646	53.98	µg/L	98
		284.9 -> 184.9	9337			
3:3FTCA	3.851	241.0 -> 177.0	27841	67.83	µg/L	100
		241.0 -> 117.0	4115			
5:3FTCA	6.259	341.0 -> 237.1	900774	344.71	µg/L	97
		341.0 -> 217.0	724425			
7:3FTCA	7.672	441.0 -> 316.9	454987	346.38	µg/L	100
		441.0 -> 336.9	832431			
EtFOSA	10.993	526.0 -> 219.0	39797	13.68	µg/L	95
		526.0 -> 169.0	39826			
EtFOSE	10.939	630.0 -> 58.9	78650	131.33	µg/L	100
MeFOSA	10.773	511.9 -> 219.0	35177	13.13	µg/L	94
		511.9 -> 169.0	35442			
MeFOSE	10.692	616.1 -> 58.9	118470	141.43	µg/L	100
PFDoS	9.936	699.1 -> 79.9	18171	13.68	µg/L	97
		699.1 -> 98.8	11166			
NFDHA	5.488	295.0 -> 201.0	22298	26.75	µg/L	99
		295.0 -> 84.9	9789			
PFMBA	4.806	279.0 -> 85.1	72915	27.27	µg/L	100
PFMPA	3.526	229.0 -> 84.9	65156	27.71	µg/L	100
PFEESA	6.089	314.8 -> 134.9	437099	23.87	µg/L	100
		314.8 -> 82.9	10739			

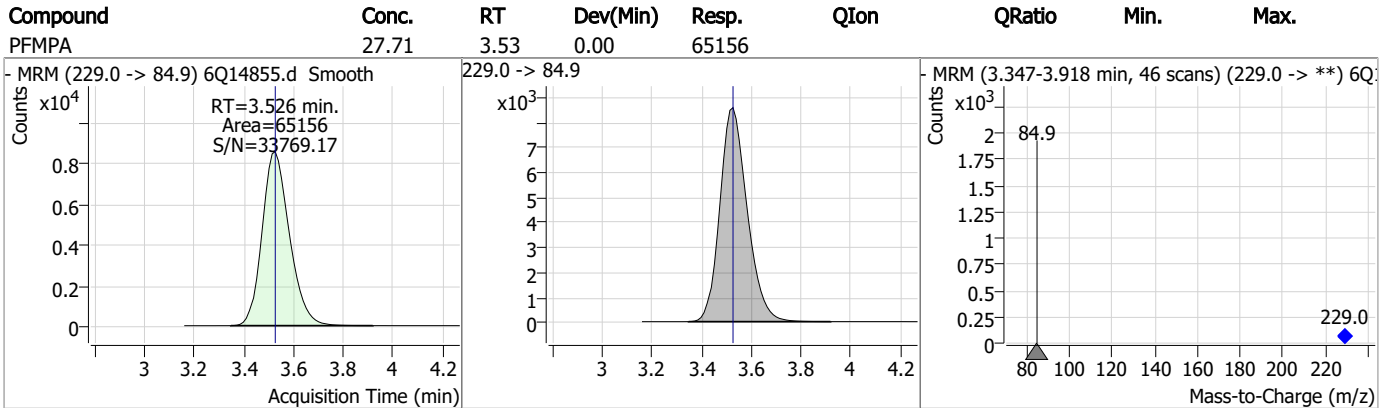
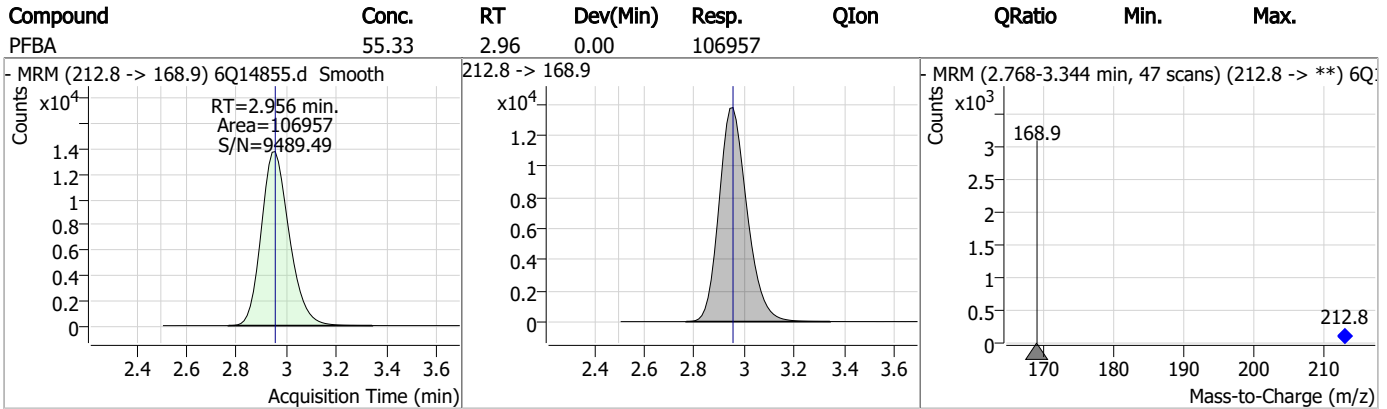
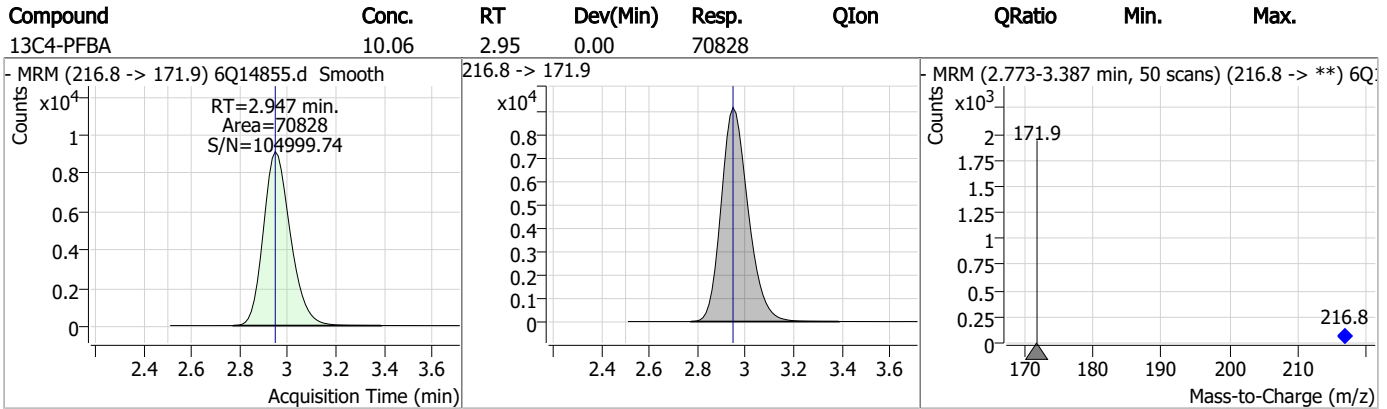
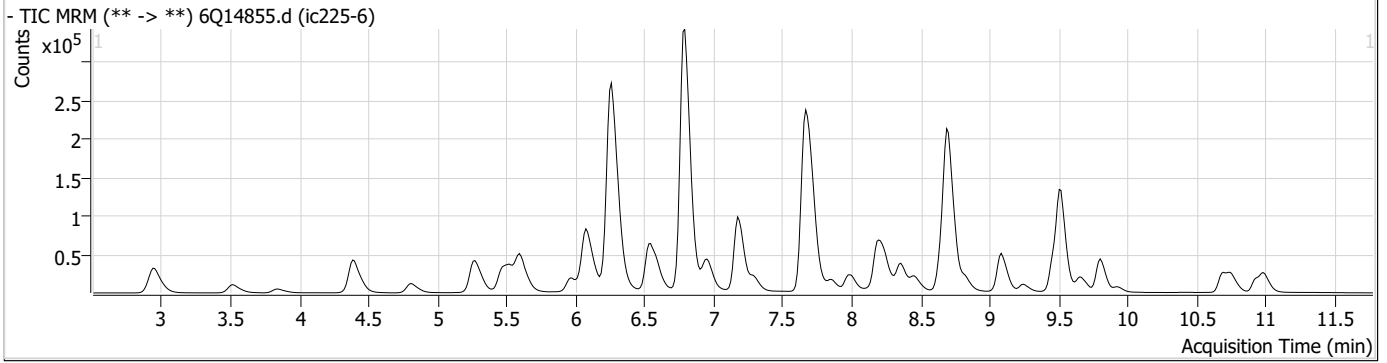
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

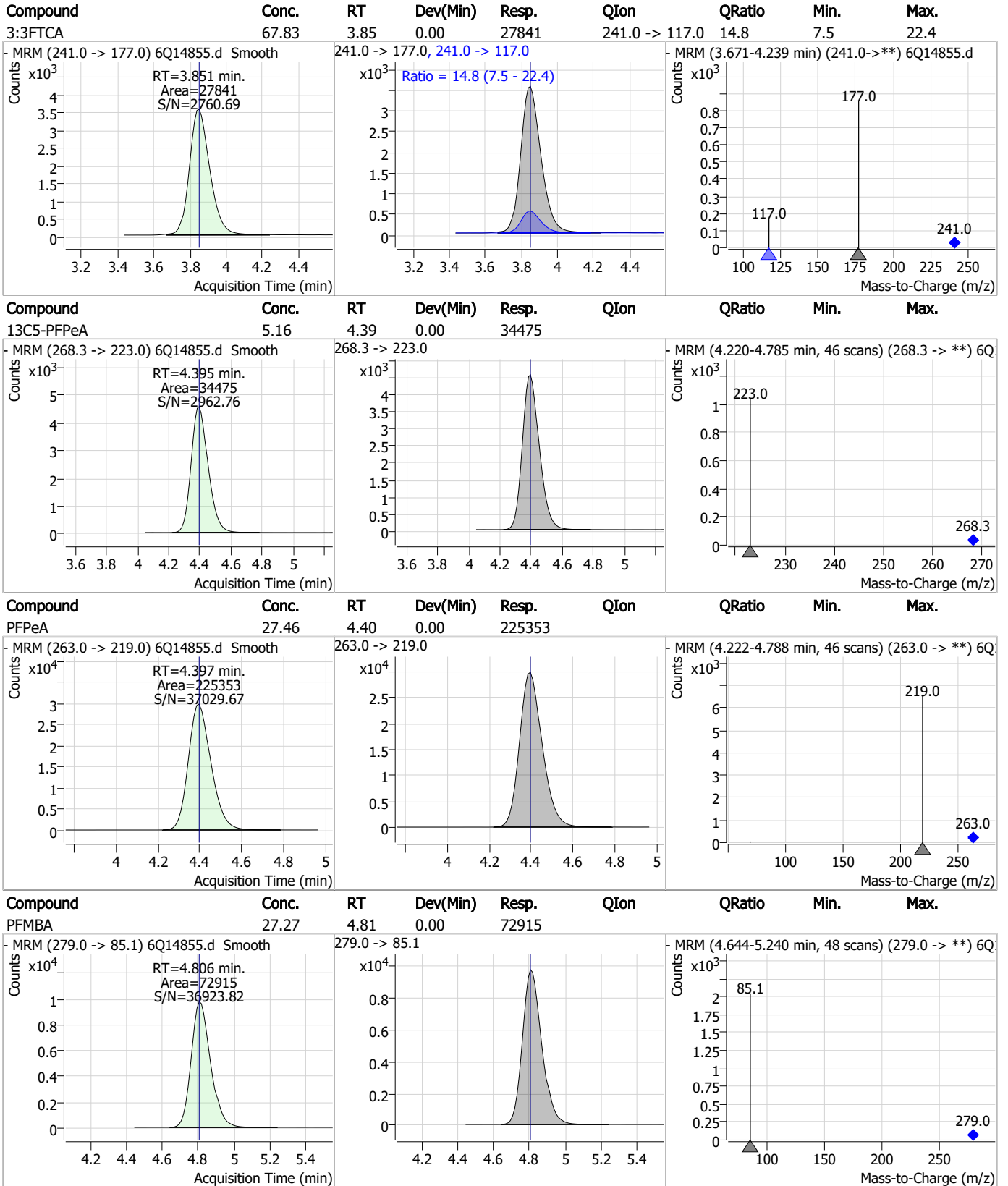
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



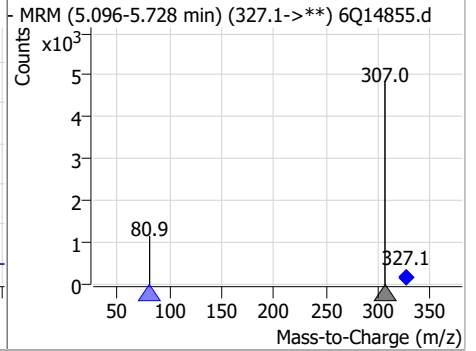
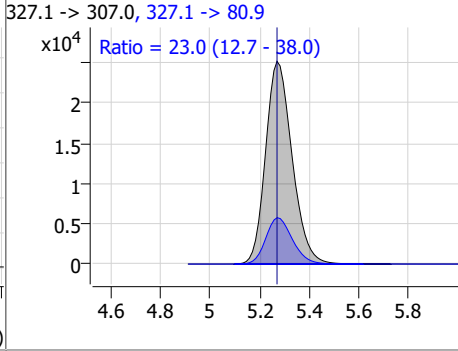
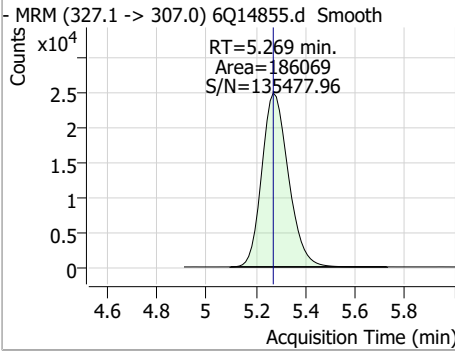
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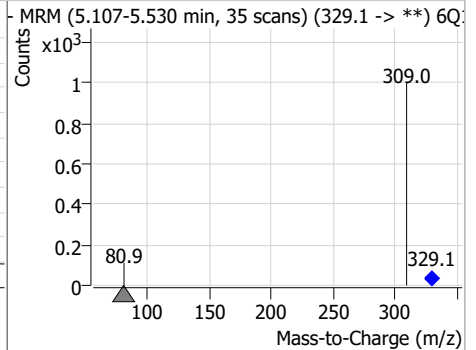
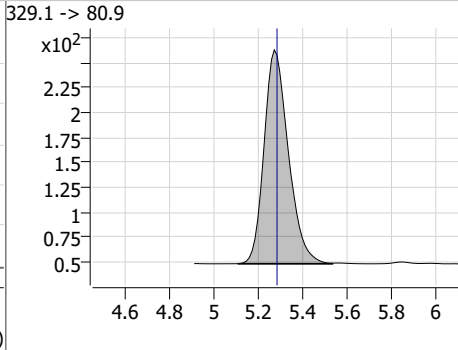
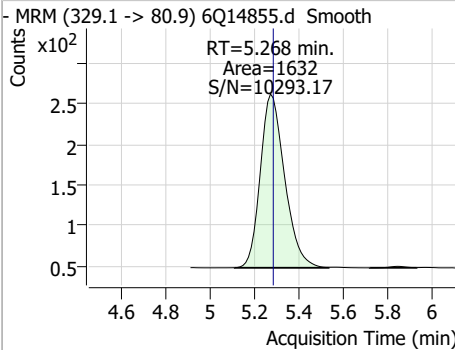


Perfluorinated Compounds by LC/MS/MS

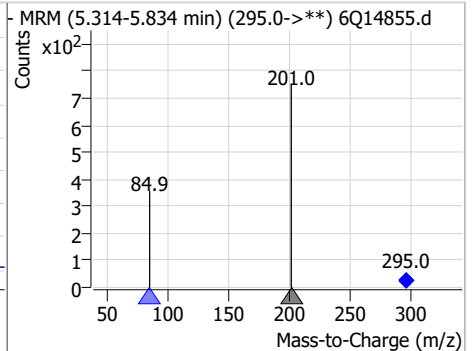
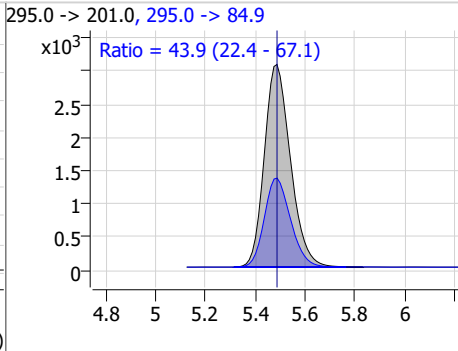
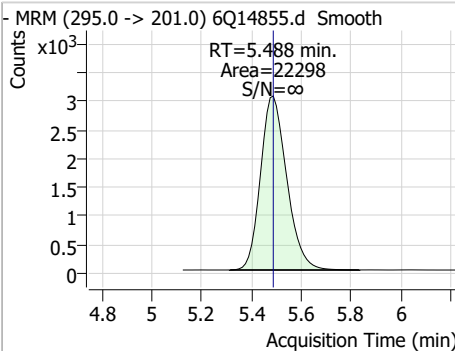
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	49.28	5.27	0.00	186069	327.1 -> 80.9	23.0	12.7	38.0



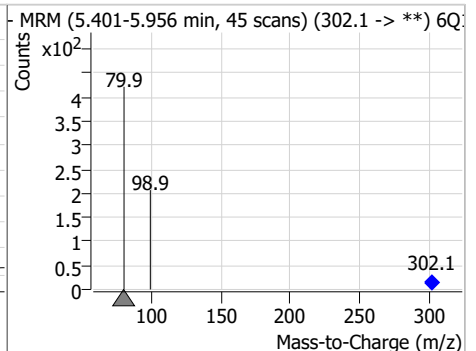
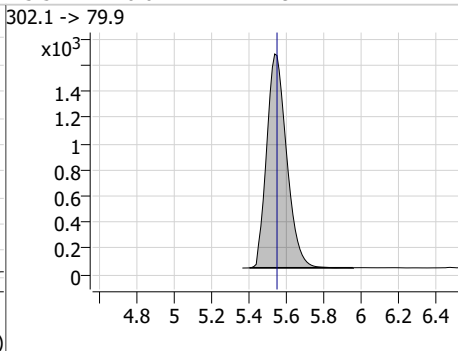
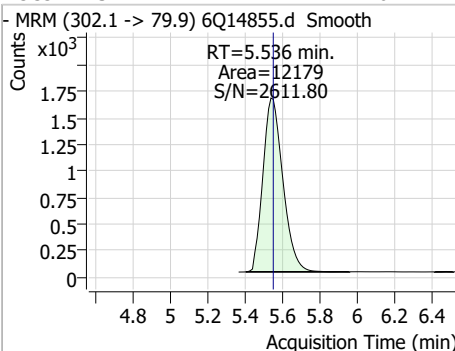
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	5.22	5.27	-0.01	1632	329.1 -> 80.9			



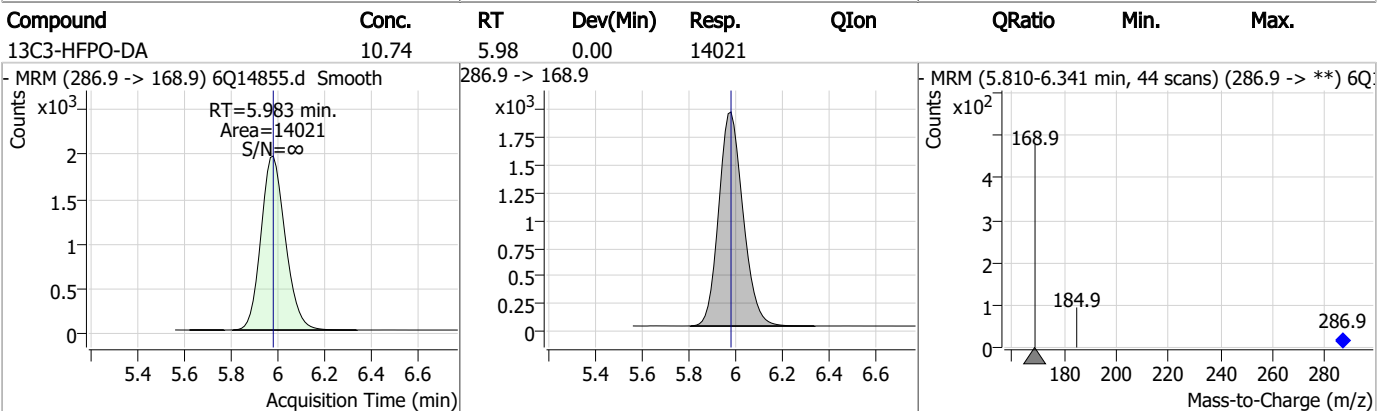
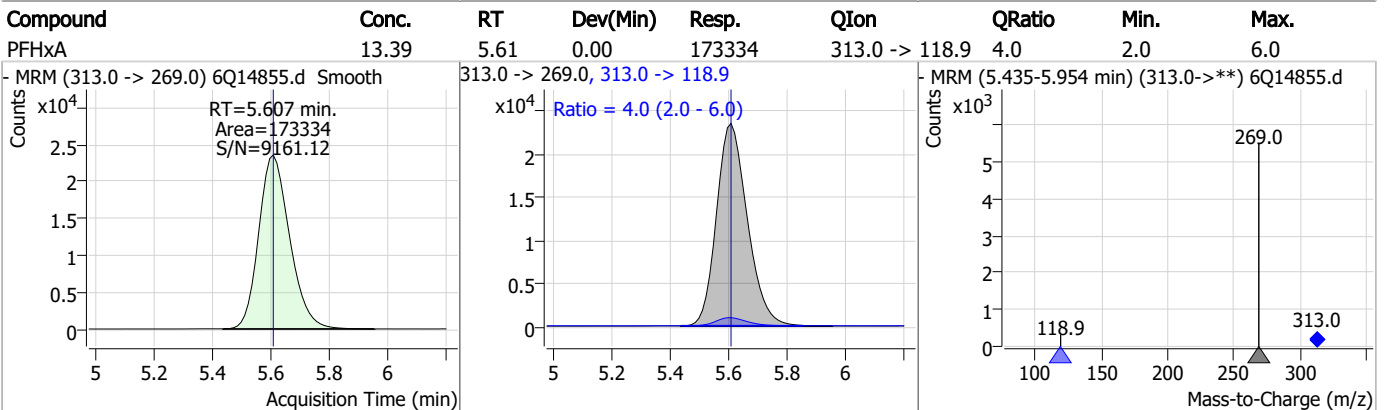
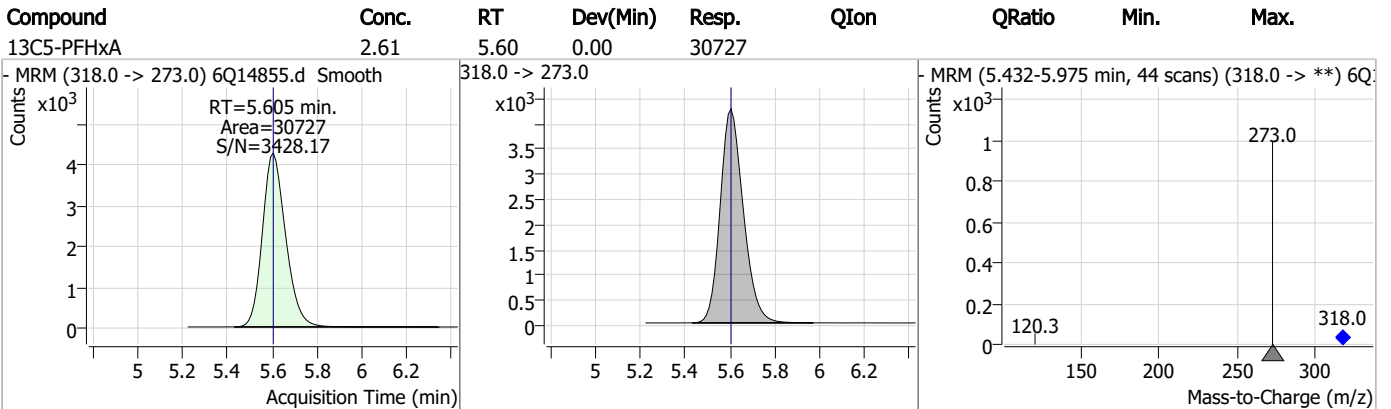
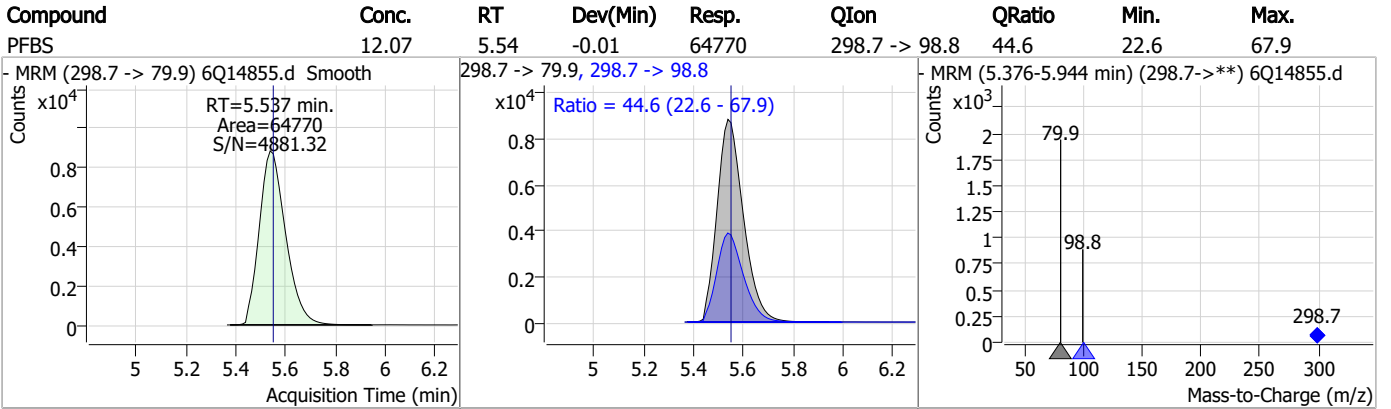
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	26.75	5.49	0.00	22298	295.0 -> 84.9	43.9	22.4	67.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.61	5.54	-0.01	12179	302.1 -> 79.9			

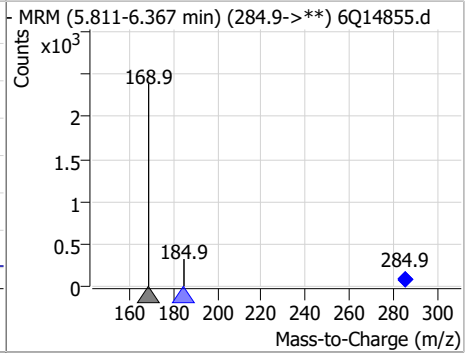
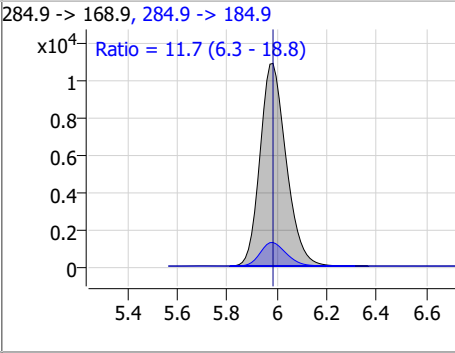
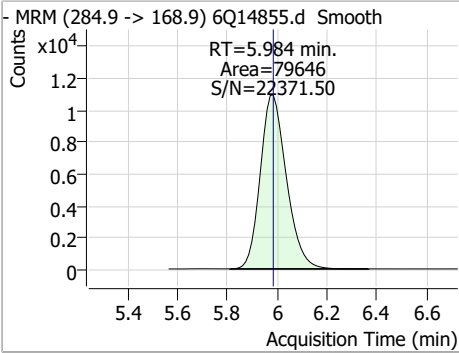


Perfluorinated Compounds by LC/MS/MS

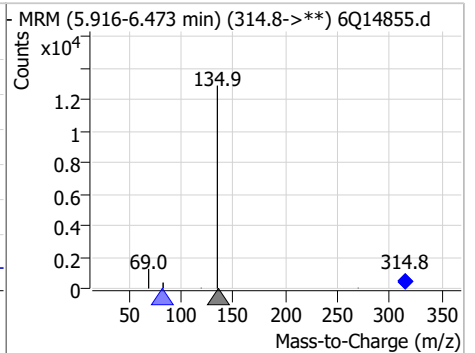
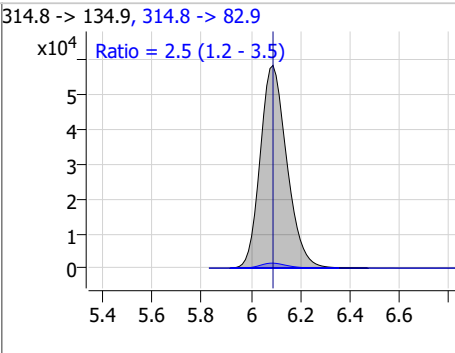
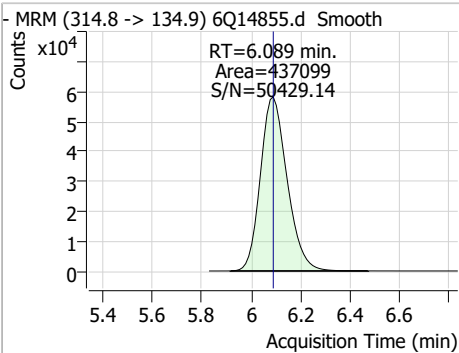


Perfluorinated Compounds by LC/MS/MS

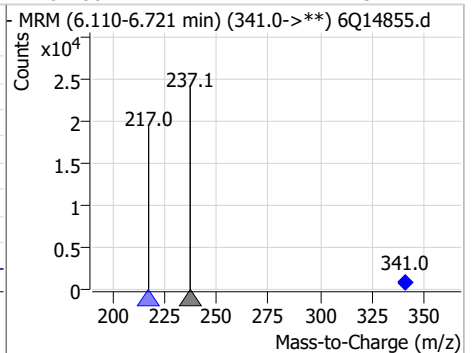
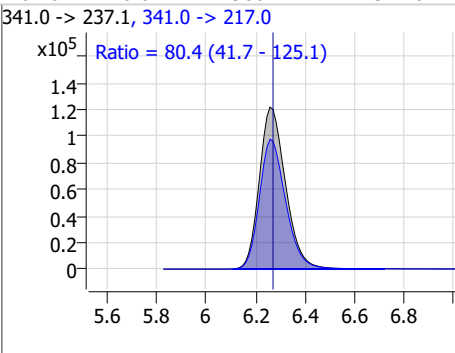
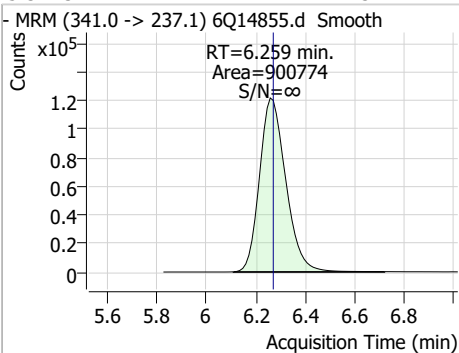
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	53.98	5.98	0.00	79646	284.9 -> 184.9	11.7	6.3	18.8



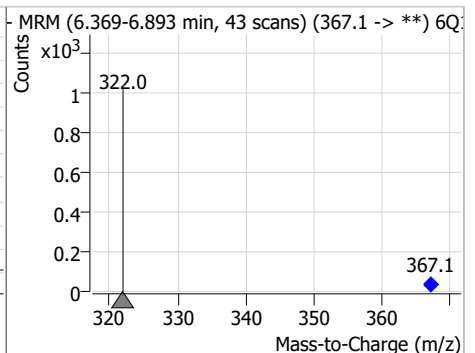
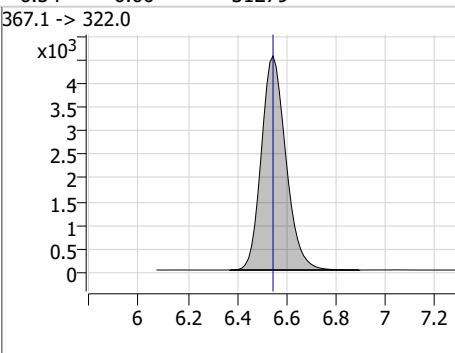
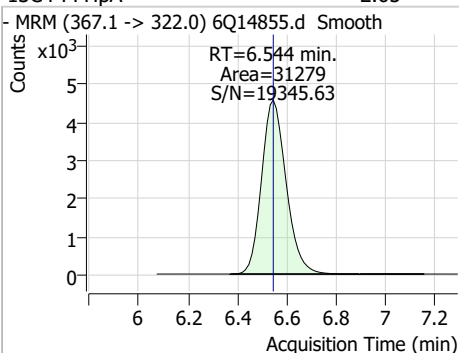
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.87	6.09	0.00	437099	314.8 -> 82.9	2.5	1.2	3.5



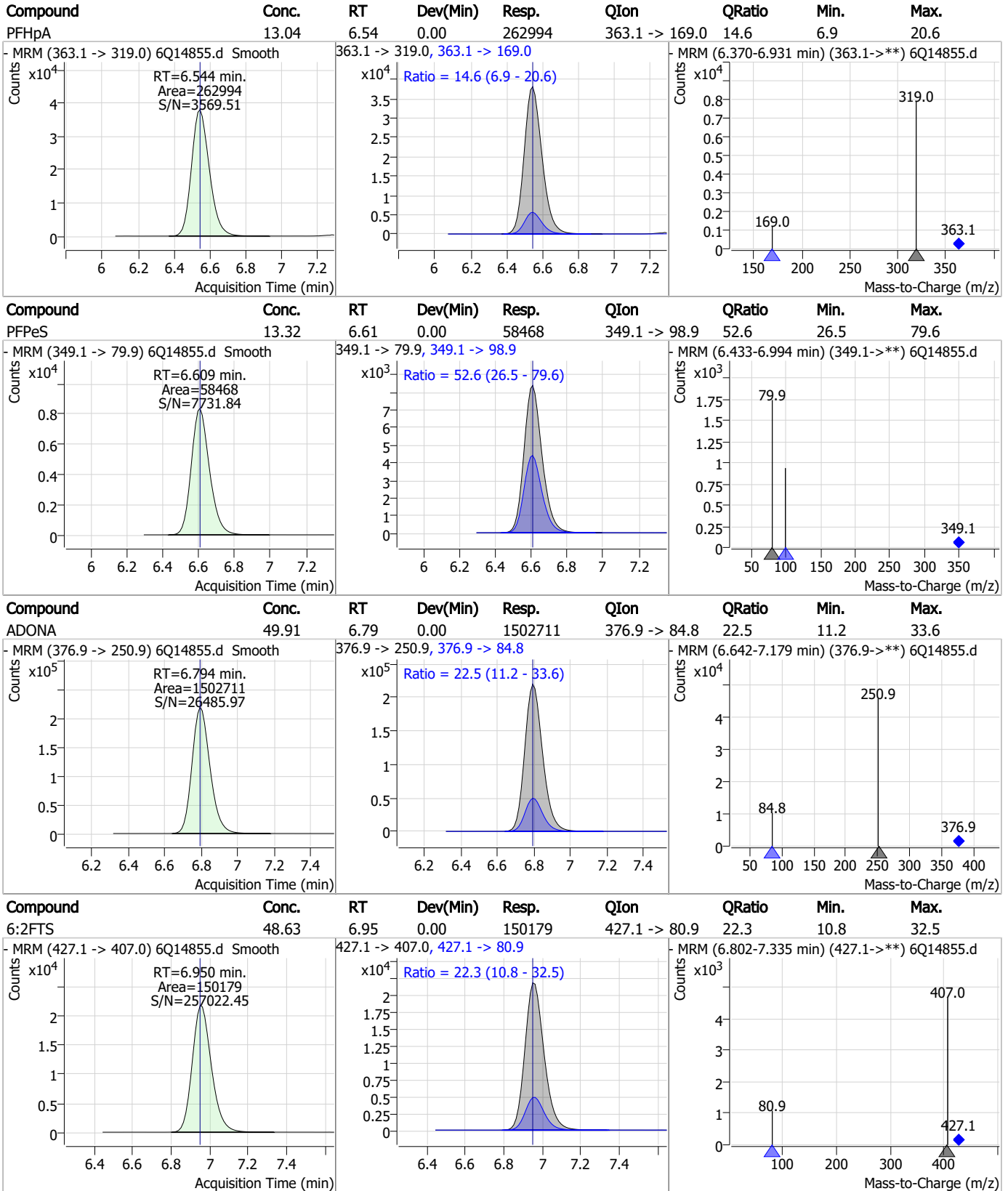
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	344.71	6.26	-0.01	900774	341.0 -> 217.0	80.4	41.7	125.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.65	6.54	0.00	31279	367.1 -> 322.0			



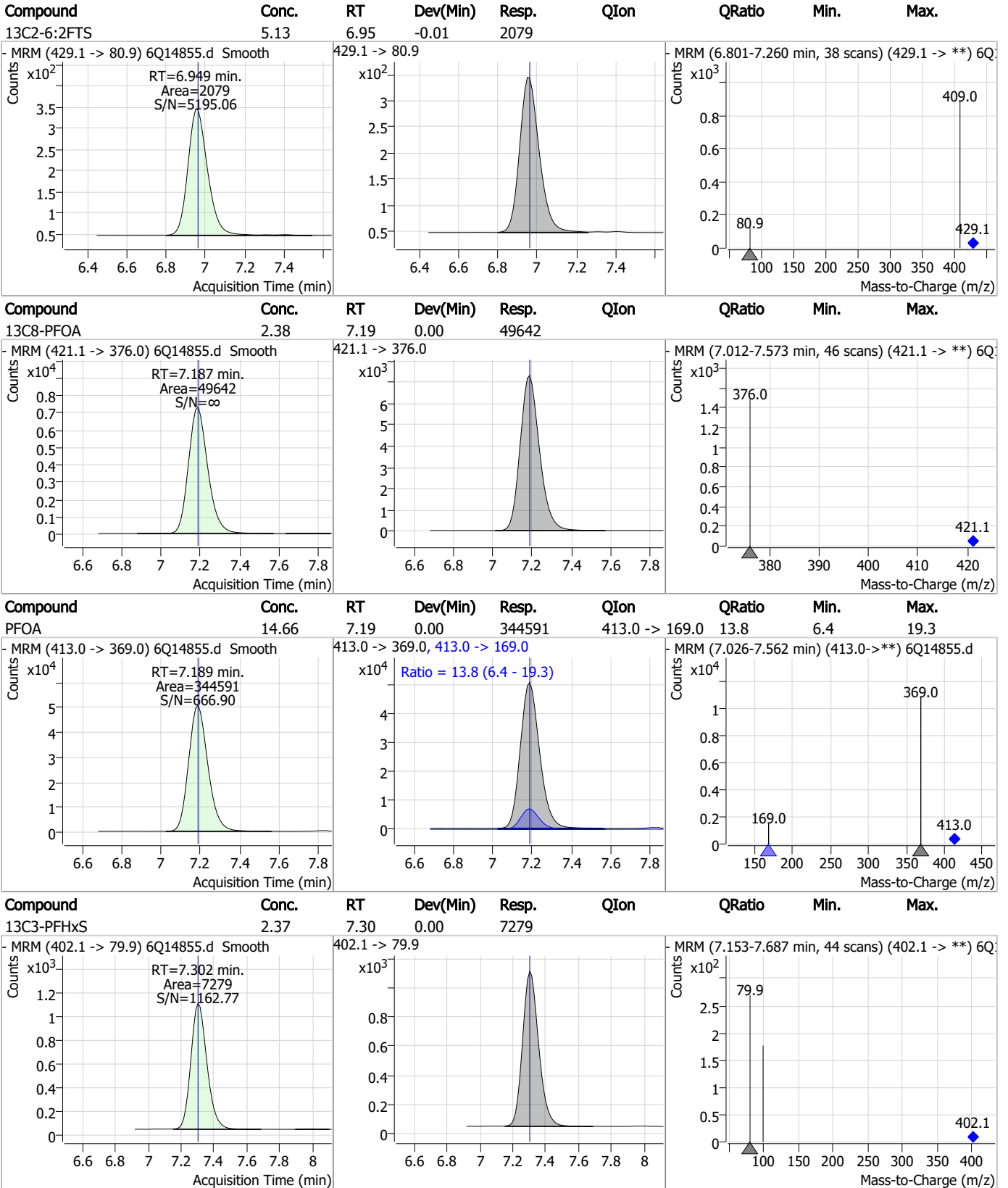
Perfluorinated Compounds by LC/MS/MS



7.7.7

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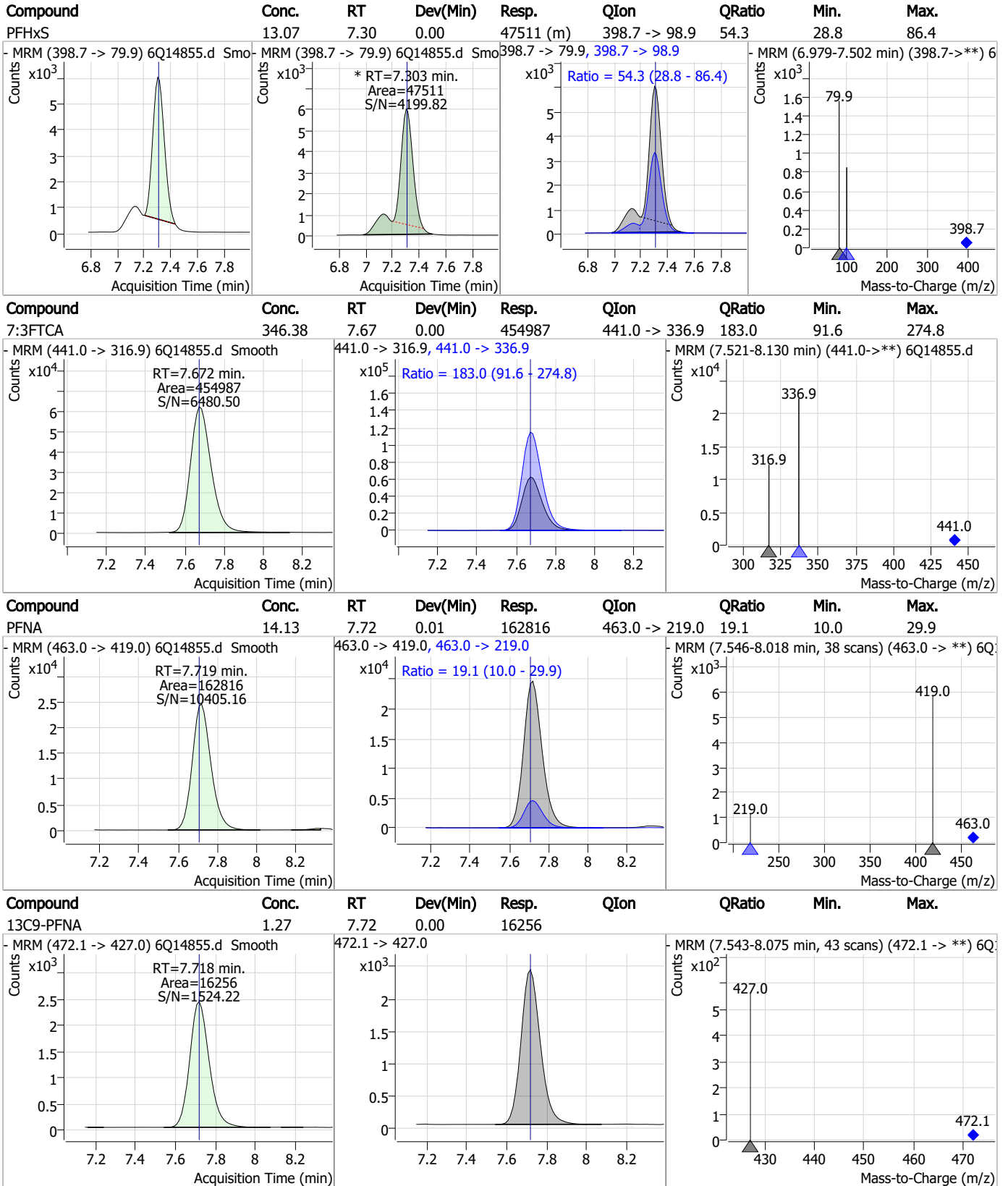
Perfluorinated Compounds by LC/MS/MS



7.7.7

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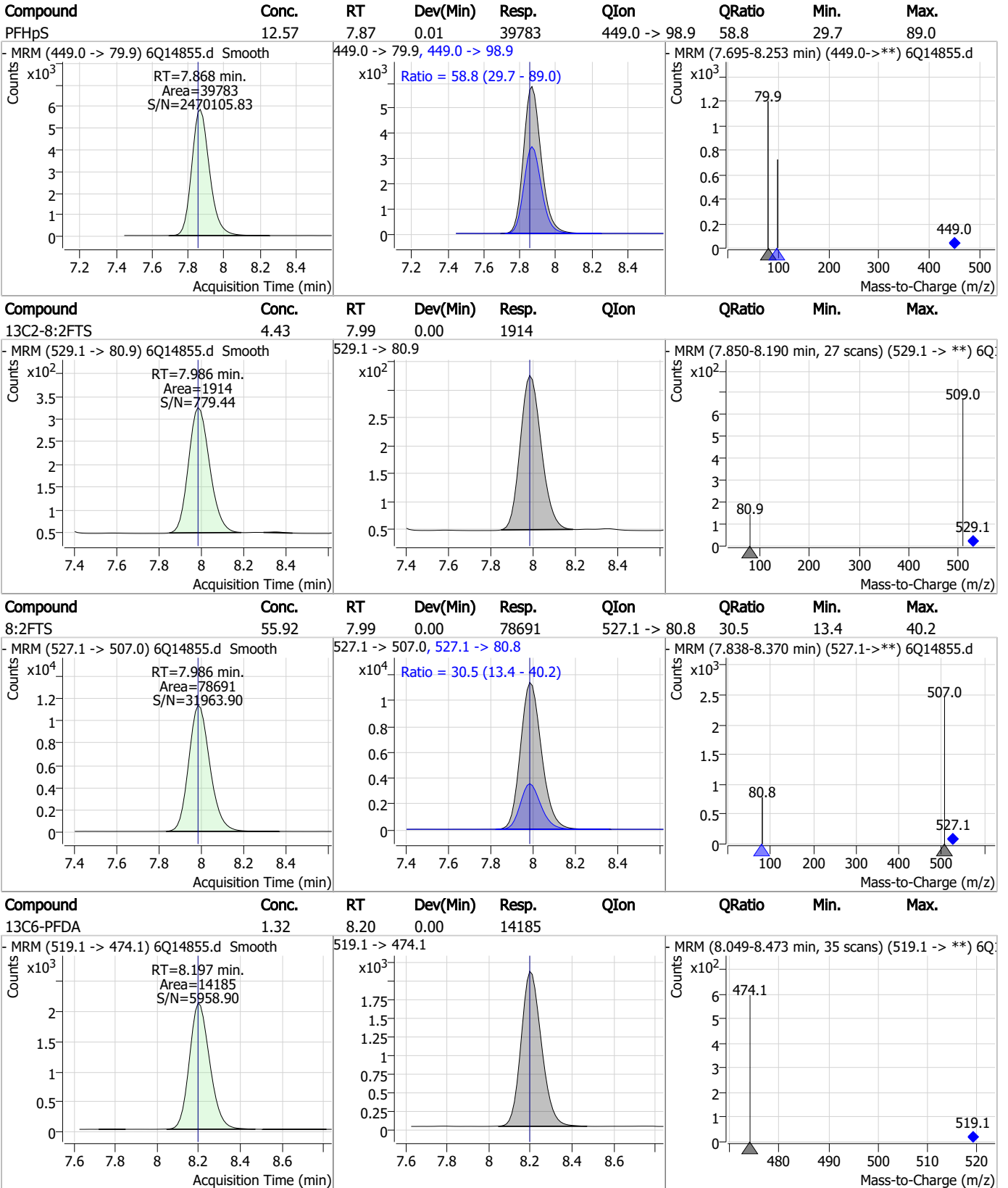
Perfluorinated Compounds by LC/MS/MS



7.7.7

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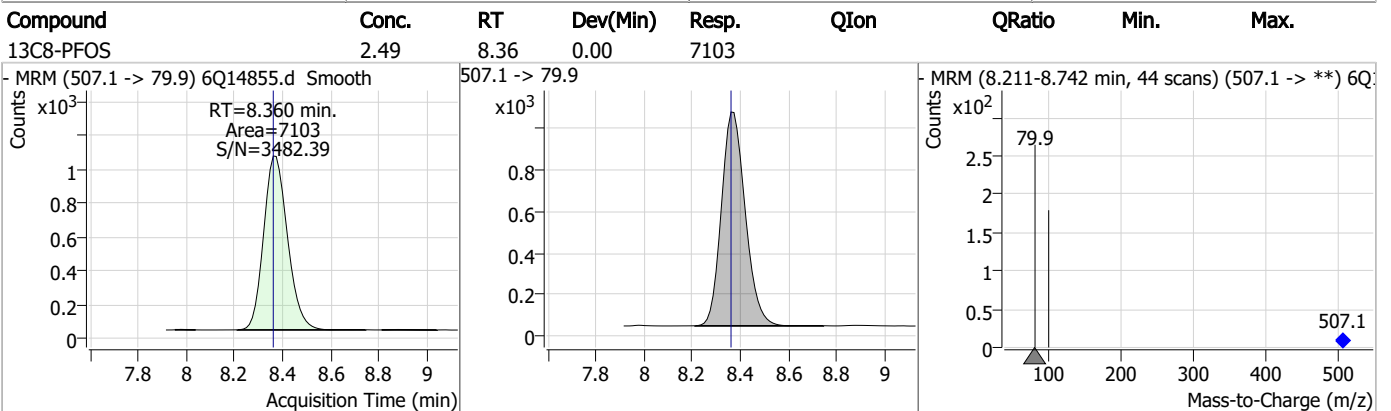
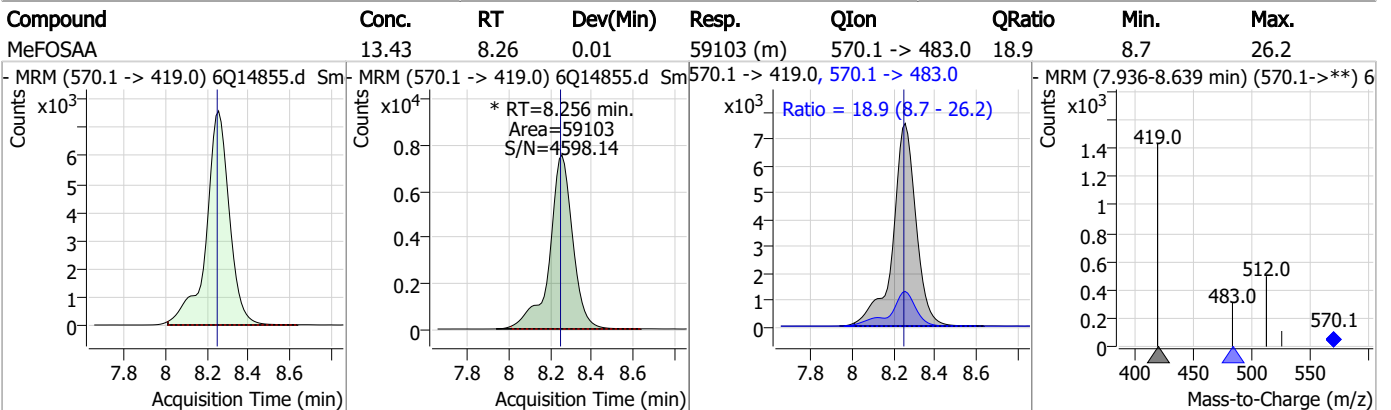
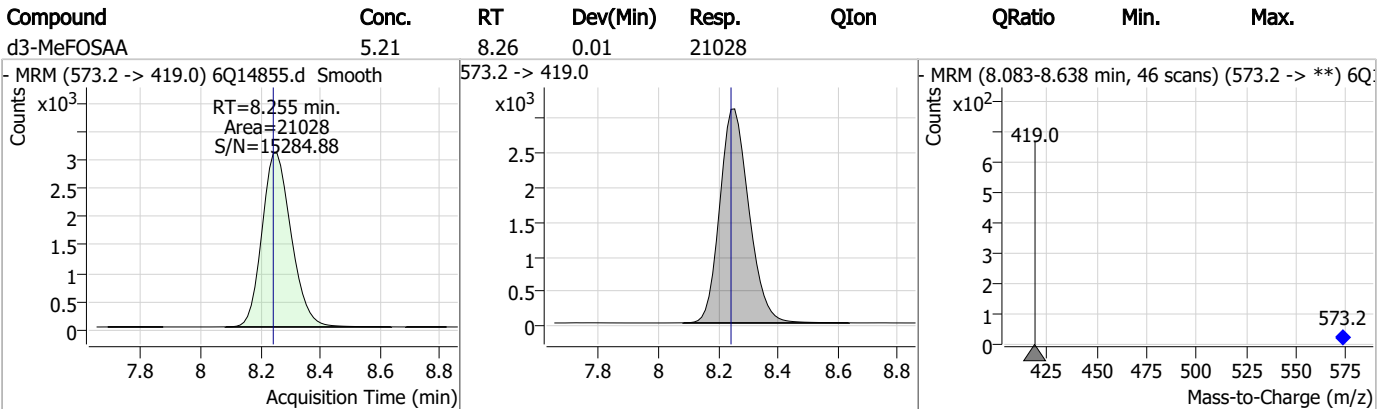
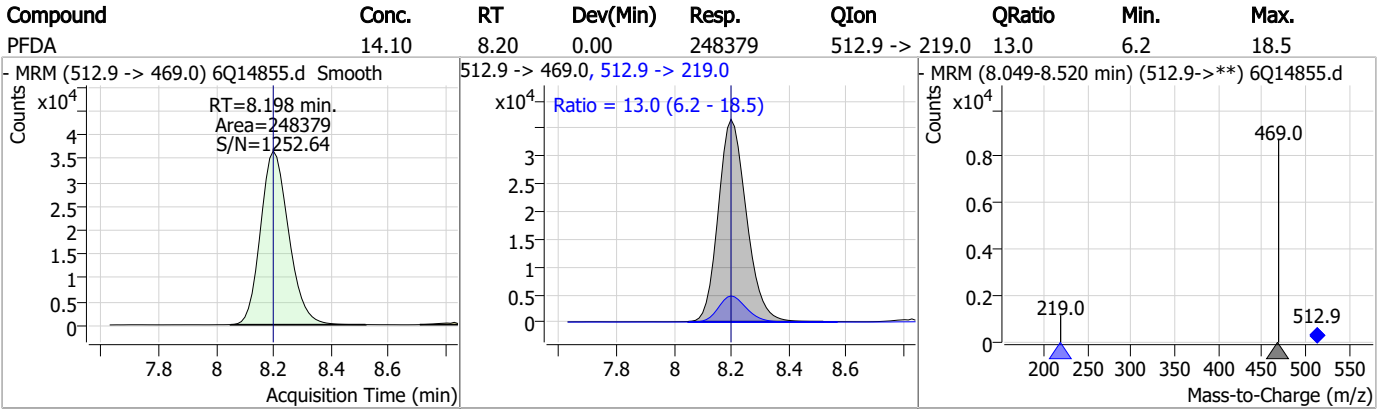
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS

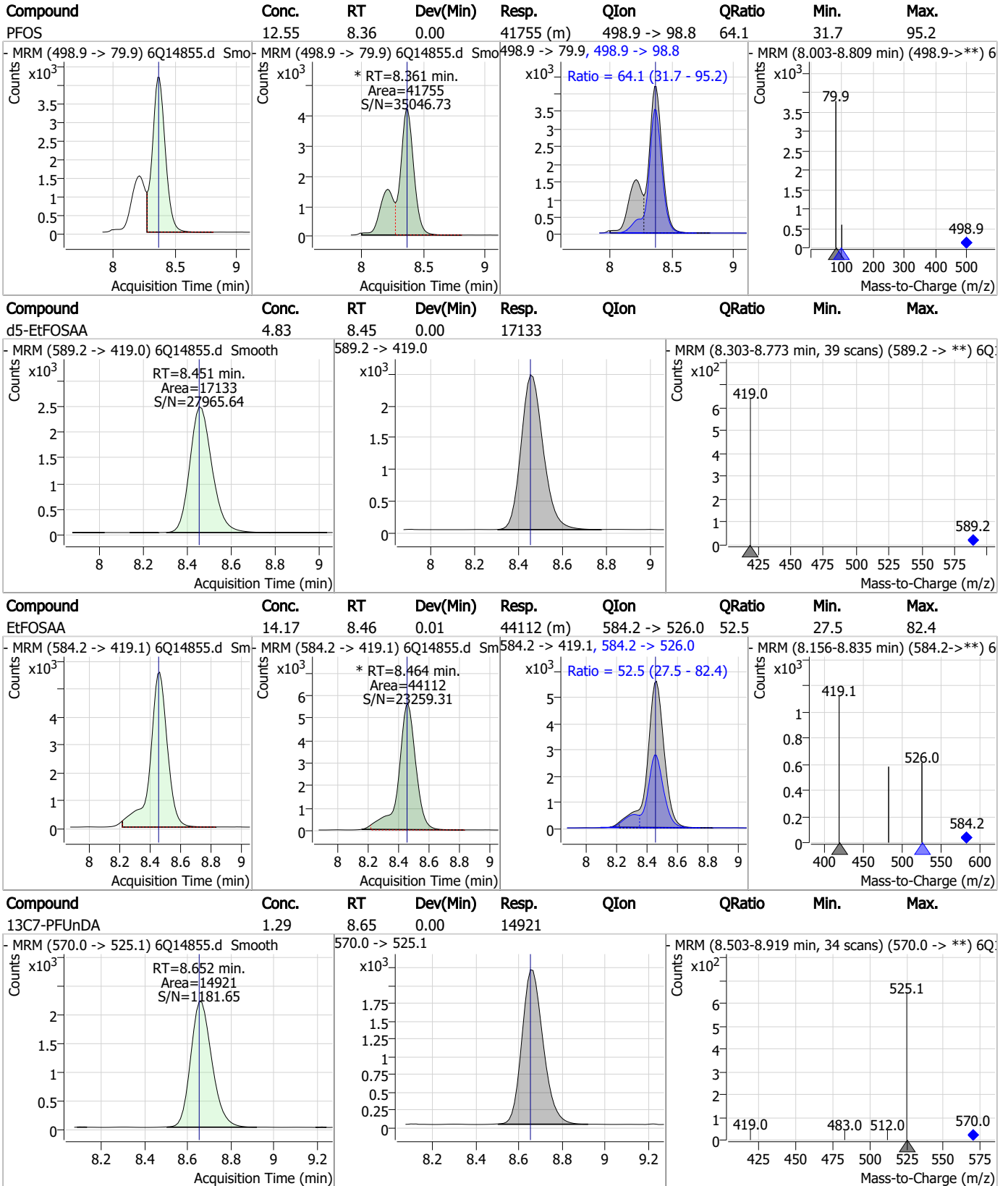


7.7.7

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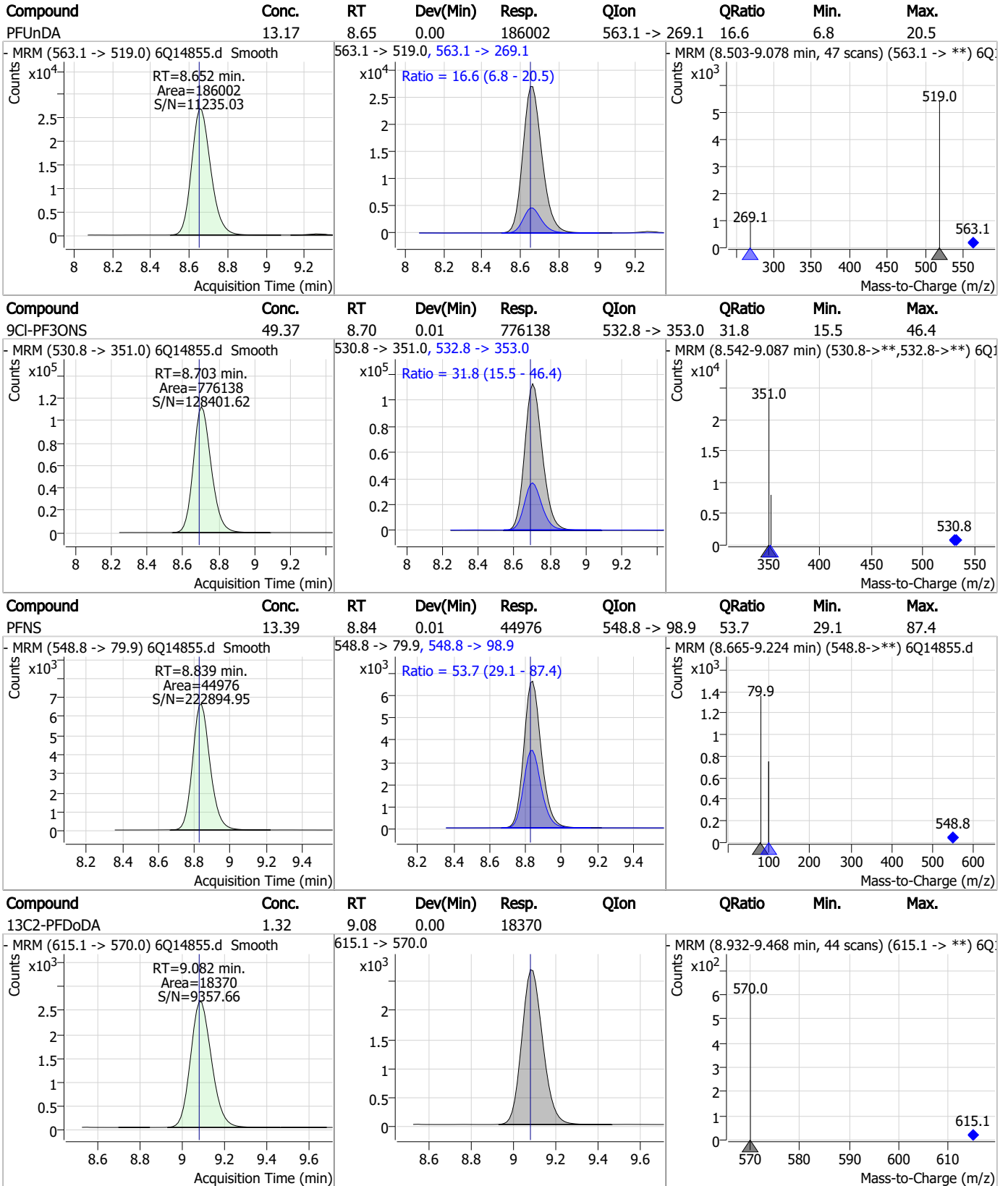
Perfluorinated Compounds by LC/MS/MS



7.7.7

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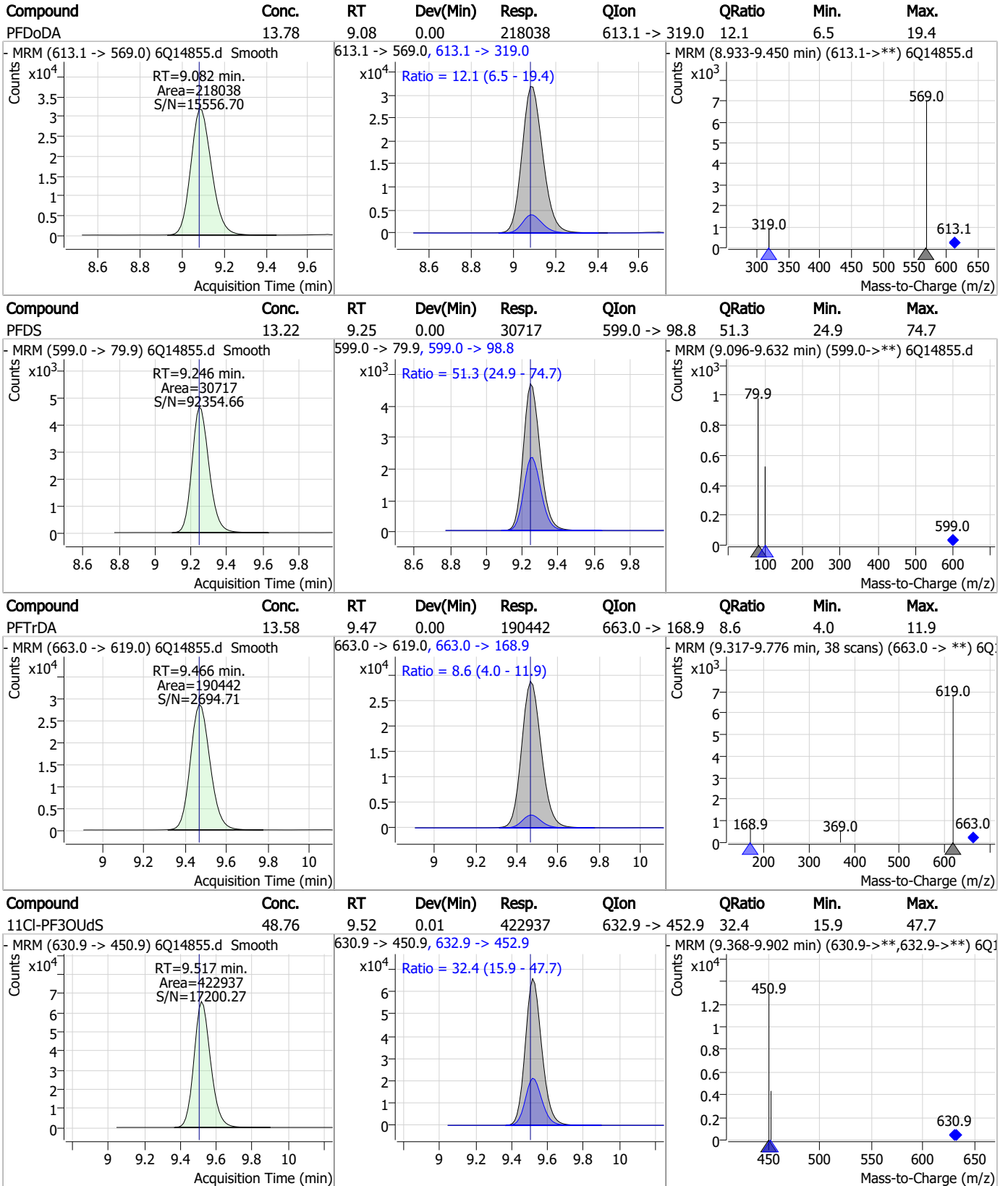
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS

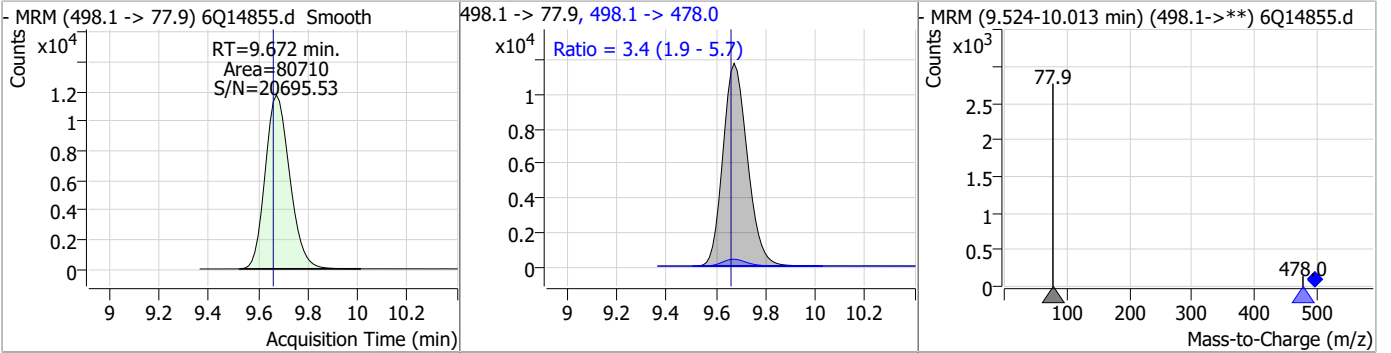


7.7.7
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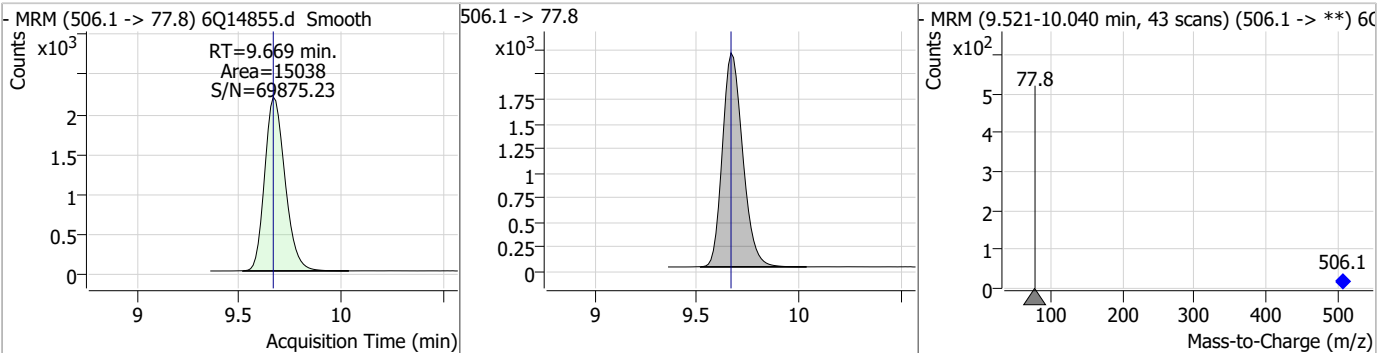


Perfluorinated Compounds by LC/MS/MS

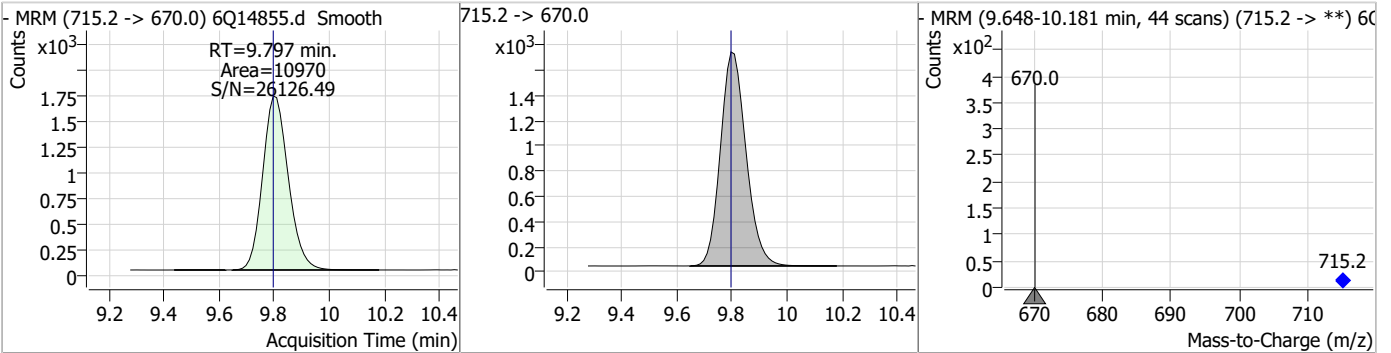
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	13.43	9.67	0.01	80710	498.1 -> 478.0	3.4	1.9	5.7



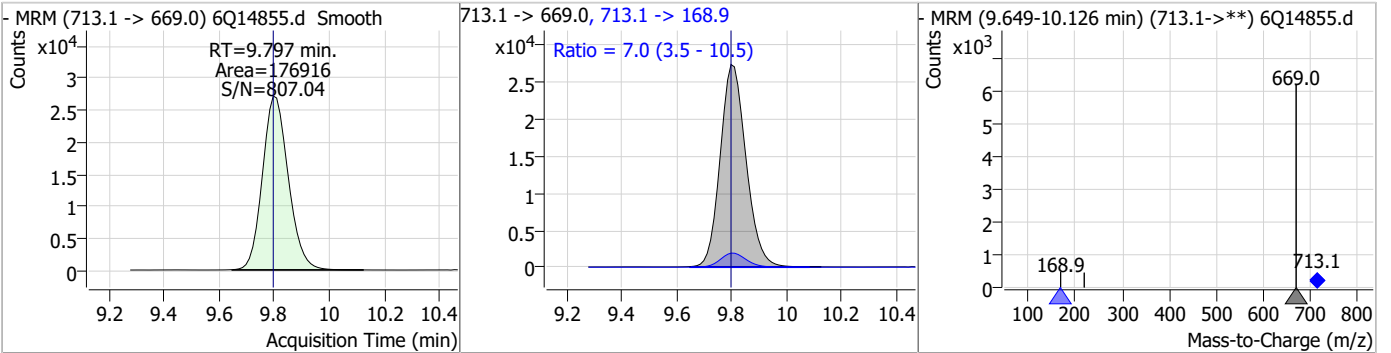
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.58	9.67	0.00	15038				



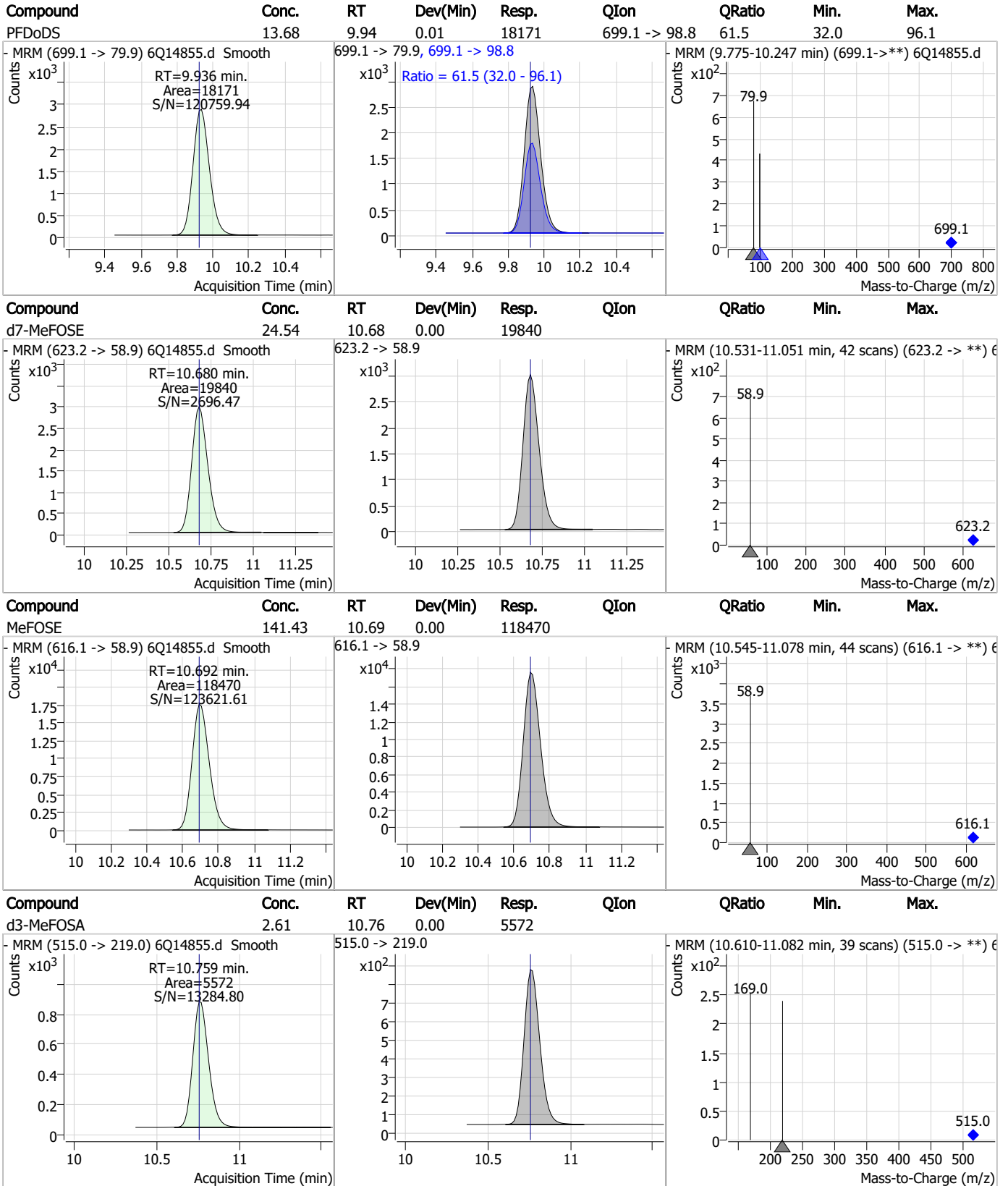
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.38	9.80	0.00	10970				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.84	9.80	0.00	176916	713.1 -> 168.9	7.0	3.5	10.5



Perfluorinated Compounds by LC/MS/MS



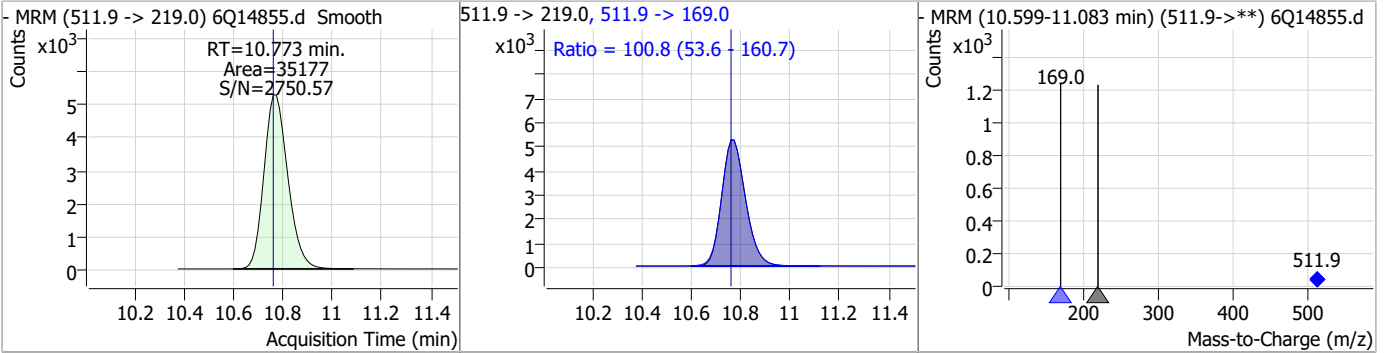
7.7.7

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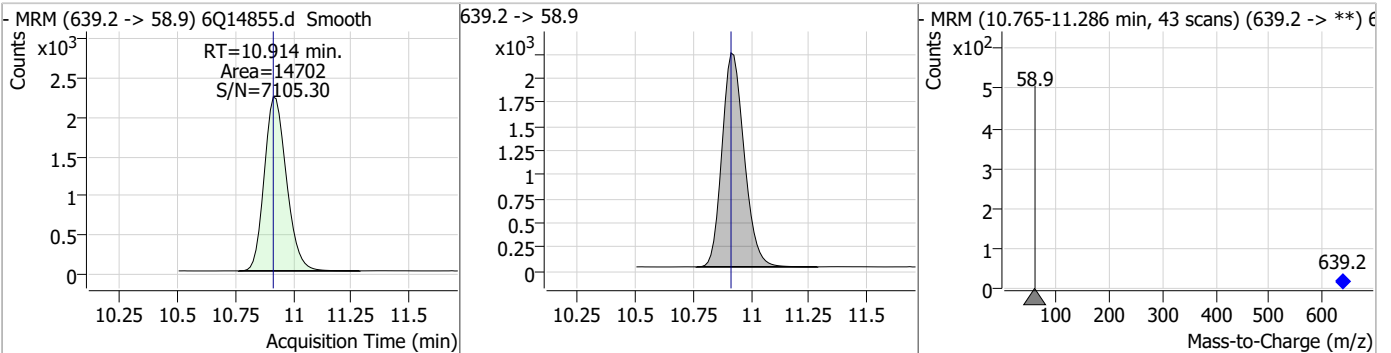


Perfluorinated Compounds by LC/MS/MS

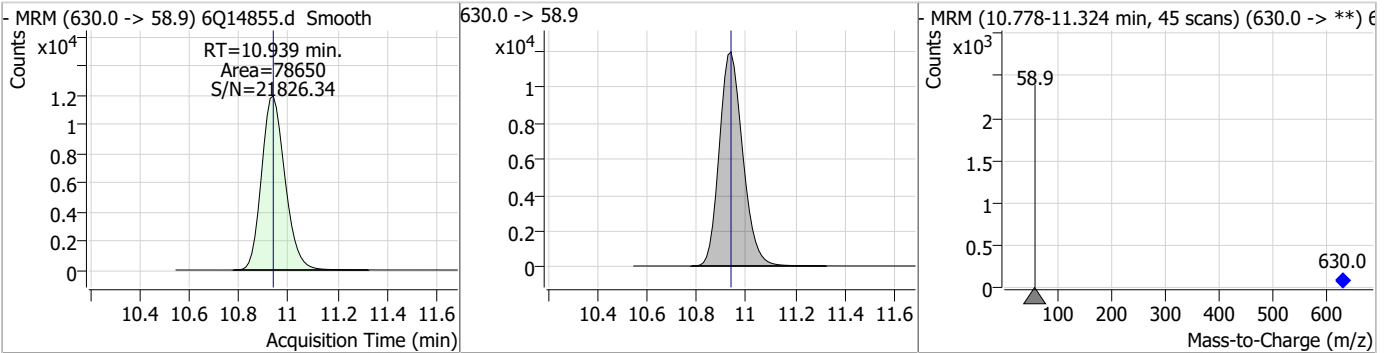
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	13.13	10.77	0.01	35177	511.9 -> 169.0	100.8	53.6	160.7



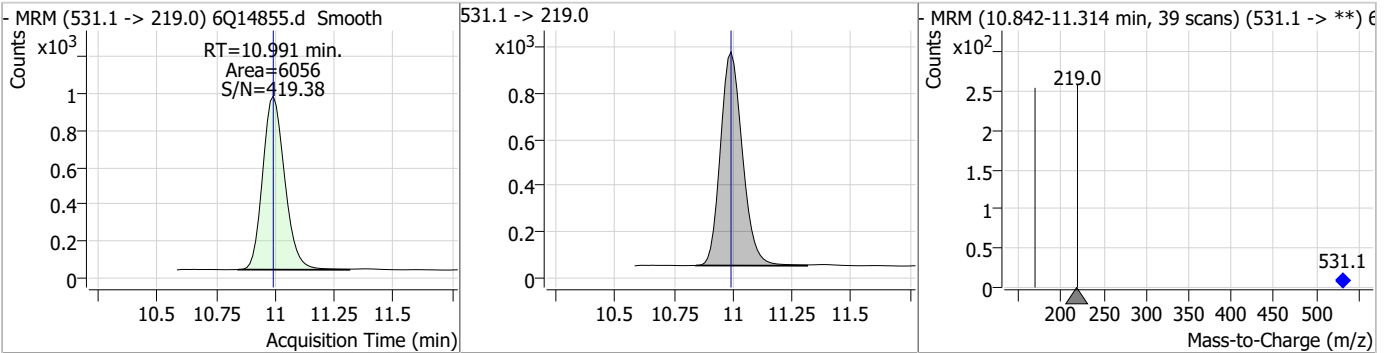
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.76	10.91	0.00	14702				



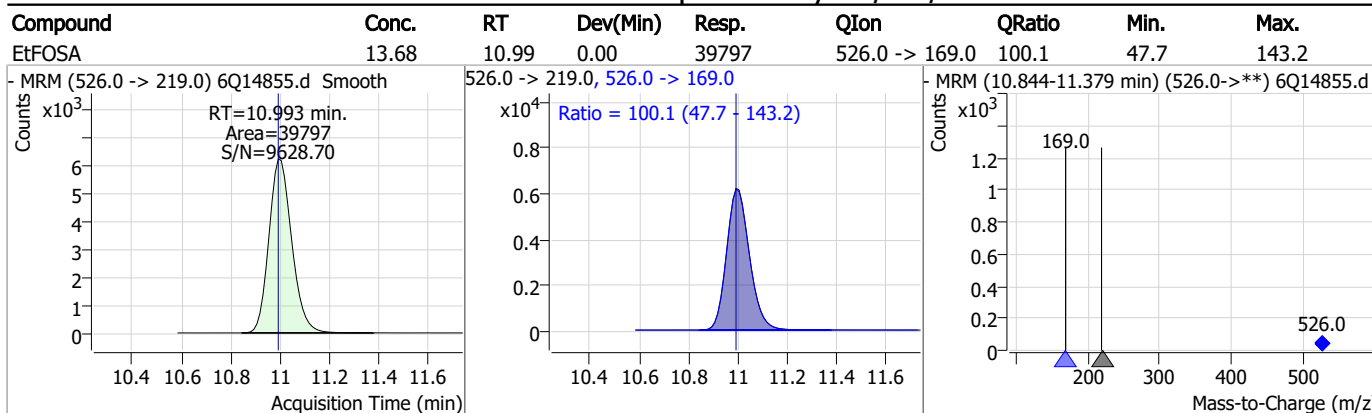
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	131.33	10.94	0.00	78650				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.57	10.99	0.00	6056				



Perfluorinated Compounds by LC/MS/MS



7.7.7
7

Manual Integration Approval Summary

Sample Number: S6Q225-IC225 Method: EPA DRAFT 1633
Lab FileID: 6Q14855.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 22:56 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.7.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 03/16/23 16:23

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14856.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 11:10:07 PM
 Sample Name : ic225-7
 Vial : P1-A8
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.947	216.8 -> 171.9	68462	10.00 µg/L	0.000
M5-PFPeA	4.382	268.3 -> 223.0	33559	5.00 µg/L	-0.012
M5-PFHxA	5.605	318.0 -> 273.0	30051	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	31154	2.50 µg/L	0.000
M8-PFOA	7.187	421.1 -> 376.0	51435	2.50 µg/L	0.000
M9-PFNA	7.718	472.1 -> 427.0	14922	1.25 µg/L	0.000
M6-PFDA	8.197	519.1 -> 474.1	13770	1.25 µg/L	0.000
M7-PFUnDA	8.652	570.0 -> 525.1	14195	1.25 µg/L	0.000
M2-PFDoDA	9.082	615.1 -> 570.0	18100	1.25 µg/L	0.000
M2-PFTeDA	9.797	715.2 -> 670.0	10242	1.25 µg/L	0.000
M8-FOSA	9.669	506.1 -> 77.8	14287	2.50 µg/L	0.000
M3-PFBS	5.536	302.1 -> 79.9	11368	2.50 µg/L	-0.012
M3-PFHxS	7.315	402.1 -> 79.9	7475	2.50 µg/L	0.012
M8-PFOS	8.360	507.1 -> 79.9	7139	2.50 µg/L	0.000
M2-4:2FTS	5.268	329.1 -> 80.9	1443	5.00 µg/L	-0.012
M2-6:2FTS	6.962	429.1 -> 80.9	1899	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	2169	5.00 µg/L	0.000
M3-MeFOSAA	8.255	573.2 -> 419.0	19962	5.00 µg/L	0.012
M3-HFPO-DA	5.983	286.9 -> 168.9	12747	10.00 µg/L	0.000
M5-EtFOSAA	8.451	589.2 -> 419.0	18296	5.00 µg/L	0.000
M7-MeFOSE	10.680	623.2 -> 58.9	19428	25.00 µg/L	0.000
M9-EtFOSE	10.926	639.2 -> 58.9	13741	25.00 µg/L	0.012
M5-EtFOSA	10.991	531.1 -> 219.0	5859	2.50 µg/L	0.000
M3-MeFOSA	10.759	515.0 -> 219.0	5384	2.50 µg/L	0.000
13C4-PFOS	8.373	502.8 -> 79.9	8246	2.50 µg/L	0.012
13C3-PFBA	2.952	216.0 -> 172.0	29560	5.00 µg/L	0.000
18O2-PFHxS	7.314	403.0 -> 83.9	5253	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	62509	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	18197	1.25 µg/L	0.000
13C5-PFNA	7.718	468.0 -> 423.0	17135	1.25 µg/L	0.000
13C2-PFHxA	5.606	315.1 -> 270.0	29249	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.268	329.1 -> 80.9	1443	4.79 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C2-6:2FTS	6.962	429.1 -> 80.9	1899	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-8:2FTS	7.986	529.1 -> 80.9	2169	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-PFDoDA	9.082	615.1 -> 570.0	18100	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.797	715.2 -> 670.0	10242	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFBS	5.536	302.1 -> 79.9	11368	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C3-PFHxS	7.315	402.1 -> 79.9	7475	2.52 µg/L	0.012

7.7.8
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 = 100.8%		
13C4-PFBA	2.947	216.8 -> 171.9	68462	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C4-PFHpA	6.544	367.1 -> 322.0	31154	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C5-PFHxA	5.605	318.0 -> 273.0	30051	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C5-PFPeA	4.382	268.3 -> 223.0	33559	4.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C6-PFDA	8.197	519.1 -> 474.1	13770	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C7-PFUnDA	8.652	570.0 -> 525.1	14195	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C8-FOSA	9.669	506.1 -> 77.8	14287	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C8-PFOA	7.187	421.1 -> 376.0	51435	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C8-PFOS	8.360	507.1 -> 79.9	7139	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C9-PFNA	7.718	472.1 -> 427.0	14922	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.3%		
d3-MeFOSAA	8.255	573.2 -> 419.0	19962	5.04 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-HFPO-DA	5.983	286.9 -> 168.9	12747	9.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
d3-MeFOSA	10.759	515.0 -> 219.0	5384	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
d5-EtFOSAA	8.451	589.2 -> 419.0	18296	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%		
d7-MeFOSE	10.680	623.2 -> 58.9	19428	24.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.0%		
d9-EtFOSE	10.926	639.2 -> 58.9	13741	24.54 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
d5-EtFOSA	10.991	531.1 -> 219.0	5859	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.3%		
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	326258	97.71 µg/L	95
		327.1 -> 80.9	73740		
6:2FTS	6.962	427.1 -> 407.0	273919	97.09 µg/L	98
		427.1 -> 80.9	56986		
8:2FTS	7.986	527.1 -> 507.0	145682	91.34 µg/L	98
		527.1 -> 80.8	37488		
EtFOSAA	8.452	584.2 -> 419.1	86302	25.97 µg/L	m 97
		584.2 -> 526.0	45411		
FOSA	9.672	498.1 -> 77.9	150703	26.39 µg/L	100
		498.1 -> 478.0	5483		
MeFOSAA	8.256	570.1 -> 419.0	117937	28.23 µg/L	m 97
		570.1 -> 483.0	18734		
PFBA	2.956	212.8 -> 168.9	202349	108.30 µg/L	100
PFBS	5.537	298.7 -> 79.9	117506	23.47 µg/L	100
		298.7 -> 98.8	53351		
PFDA	8.198	512.9 -> 469.0	460268	26.92 µg/L	97
		512.9 -> 219.0	62155		
PFDoDA	9.082	613.1 -> 569.0	397035	25.46 µg/L	100
		613.1 -> 319.0	51043		
PFDS	9.246	599.0 -> 79.9	58656	25.11 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	28761			
PFHpA	6.544	363.1 -> 319.0	513674	25.57	µg/L	100
		363.1 -> 169.0	70885			
PFHpS	7.868	449.0 -> 79.9	77707	24.42	µg/L	98
		449.0 -> 98.9	44915			
PFHxA	5.607	313.0 -> 269.0	319037	25.19	µg/L	100
		313.0 -> 118.9	13197			
PFHxS	7.315	398.7 -> 79.9	88527	23.72	µg/L	m 95
		398.7 -> 98.9	47789			
PFNA	7.719	463.0 -> 419.0	302940	28.63	µg/L	100
		463.0 -> 219.0	60491			
PFNS	8.826	548.8 -> 79.9	82125	24.33	µg/L	97
		548.8 -> 98.9	46040			
PFOA	7.189	413.0 -> 369.0	649872	26.69	µg/L	99
		413.0 -> 169.0	87091			
PFOS	8.374	498.9 -> 79.9	76376	22.84	µg/L	m 98
		498.9 -> 98.8	49436			
PFPeA	4.385	263.0 -> 219.0	422087	52.83	µg/L	100
PFPeS	6.609	349.1 -> 79.9	110011	24.39	µg/L	98
		349.1 -> 98.9	57169			
PFTeDA	9.797	713.1 -> 669.0	329131	25.58	µg/L	100
		713.1 -> 168.9	22809			
PFTrDA	9.466	663.0 -> 619.0	337841	24.45	µg/L	99
		663.0 -> 168.9	27593			
PFUnDA	8.652	563.1 -> 519.0	358508	26.68	µg/L	98
		563.1 -> 269.1	51845			
11Cl-PF3OUdS	9.517	630.9 -> 450.9	816678	103.56	µg/L	97
		632.9 -> 452.9	273515			
9Cl-PF3ONS	8.703	530.8 -> 351.0	1425410	99.73	µg/L	98
		532.8 -> 353.0	456949			
ADONA	6.806	376.9 -> 250.9	2793912	102.06	µg/L	98
		376.9 -> 84.8	599913			
HFPO-DA	5.984	284.9 -> 168.9	146703	109.37	µg/L	99
		284.9 -> 184.9	18849			
3:3FTCA	3.851	241.0 -> 177.0	52893	132.38	µg/L	100
		241.0 -> 117.0	7844			
5:3FTCA	6.271	341.0 -> 237.1	1642329	642.64	µg/L	94
		341.0 -> 217.0	1455239			
7:3FTCA	7.684	441.0 -> 316.9	897365	698.55	µg/L	91
		441.0 -> 336.9	1529633			
EtFOSA	11.005	526.0 -> 219.0	72527	25.76	µg/L	97
		526.0 -> 169.0	71508			
EtFOSE	10.939	630.0 -> 58.9	153070	273.48	µg/L	100
MeFOSA	10.773	511.9 -> 219.0	63510	24.53	µg/L	98
		511.9 -> 169.0	69665			
MeFOSE	10.692	616.1 -> 58.9	224161	273.29	µg/L	100
PFDoDS	9.924	699.1 -> 79.9	34123	25.57	µg/L	98
		699.1 -> 98.8	21226			
NFDHA	5.488	295.0 -> 201.0	40080	49.16	µg/L	99
		295.0 -> 84.9	18234			
PFMBA	4.806	279.0 -> 85.1	139791	53.71	µg/L	100
PFMPA	3.526	229.0 -> 84.9	122998	53.73	µg/L	100
PFEESA	6.089	314.8 -> 134.9	835484	46.64	µg/L	100
		314.8 -> 82.9	19392			

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

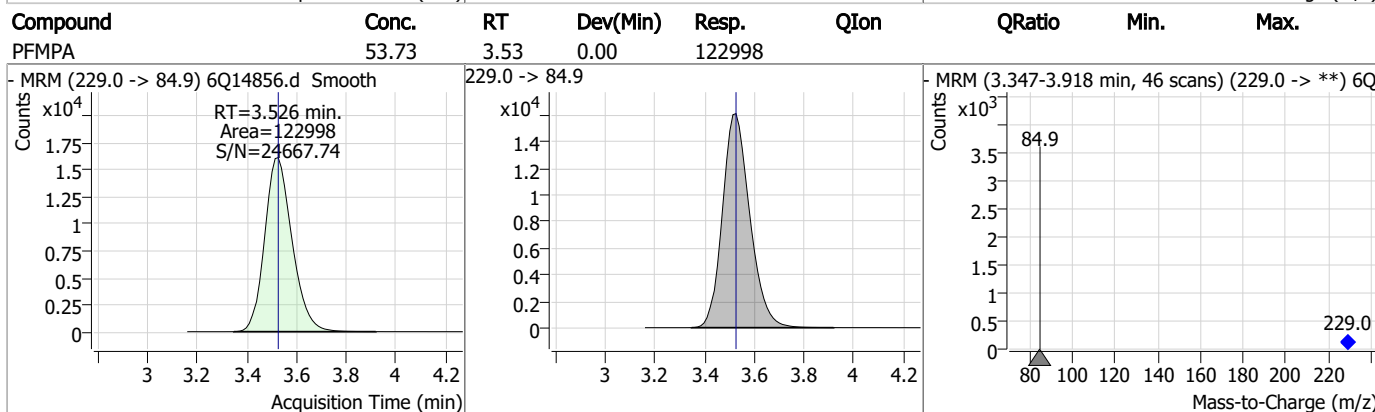
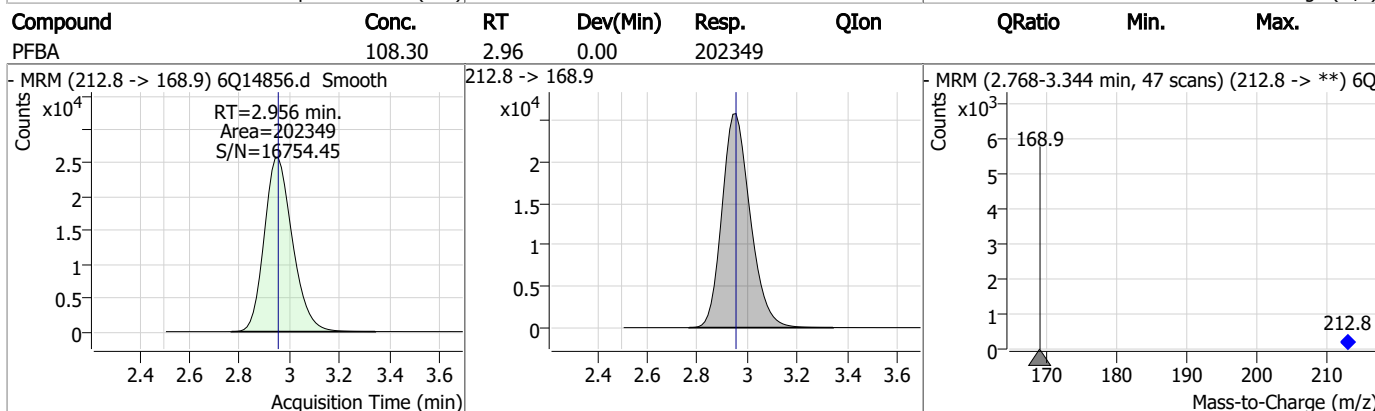
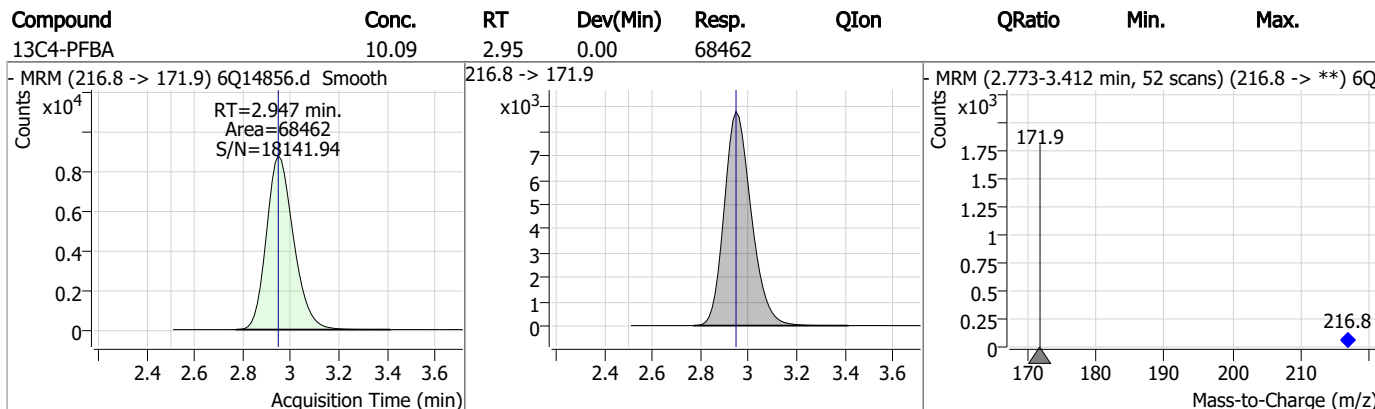
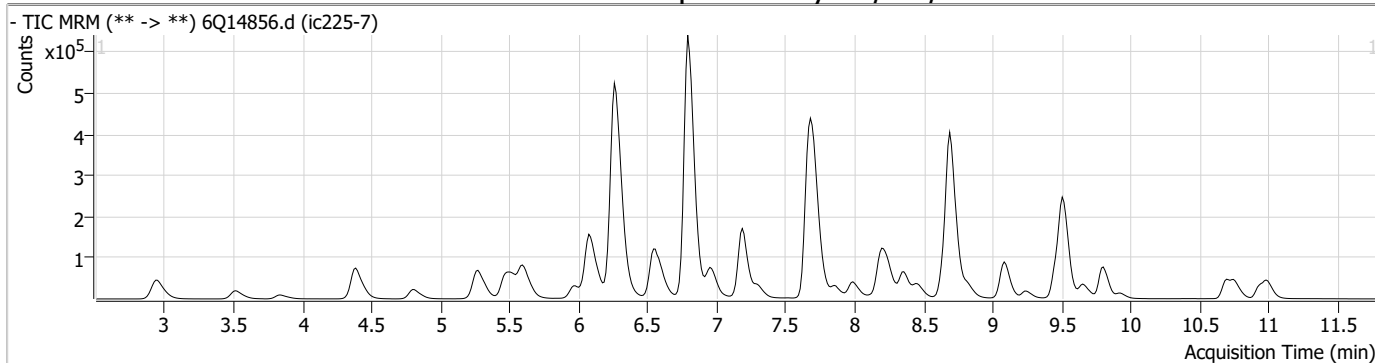
Perfluorinated Compounds by LC/MS/MS

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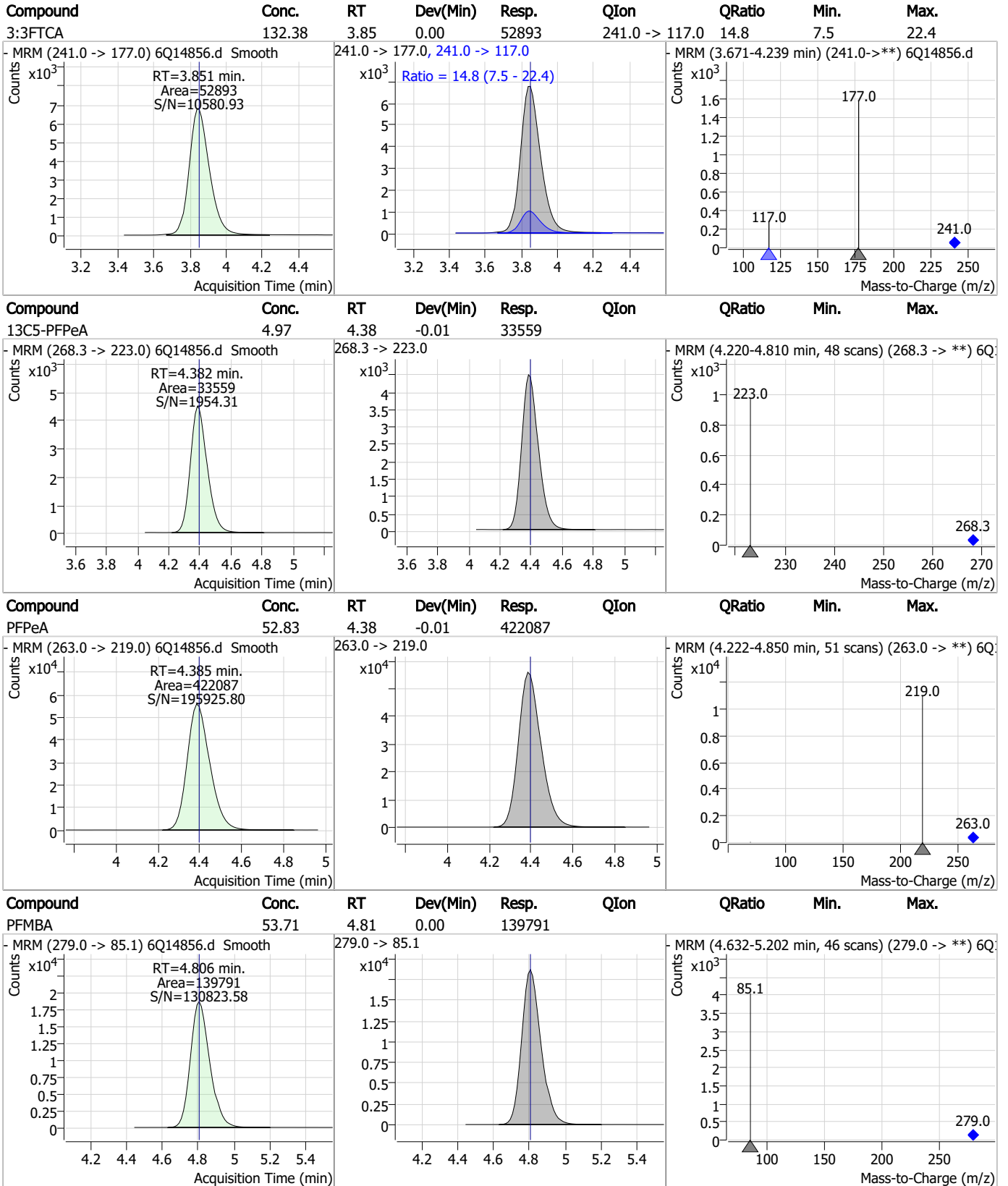


Perfluorinated Compounds by LC/MS/MS



7.7.8
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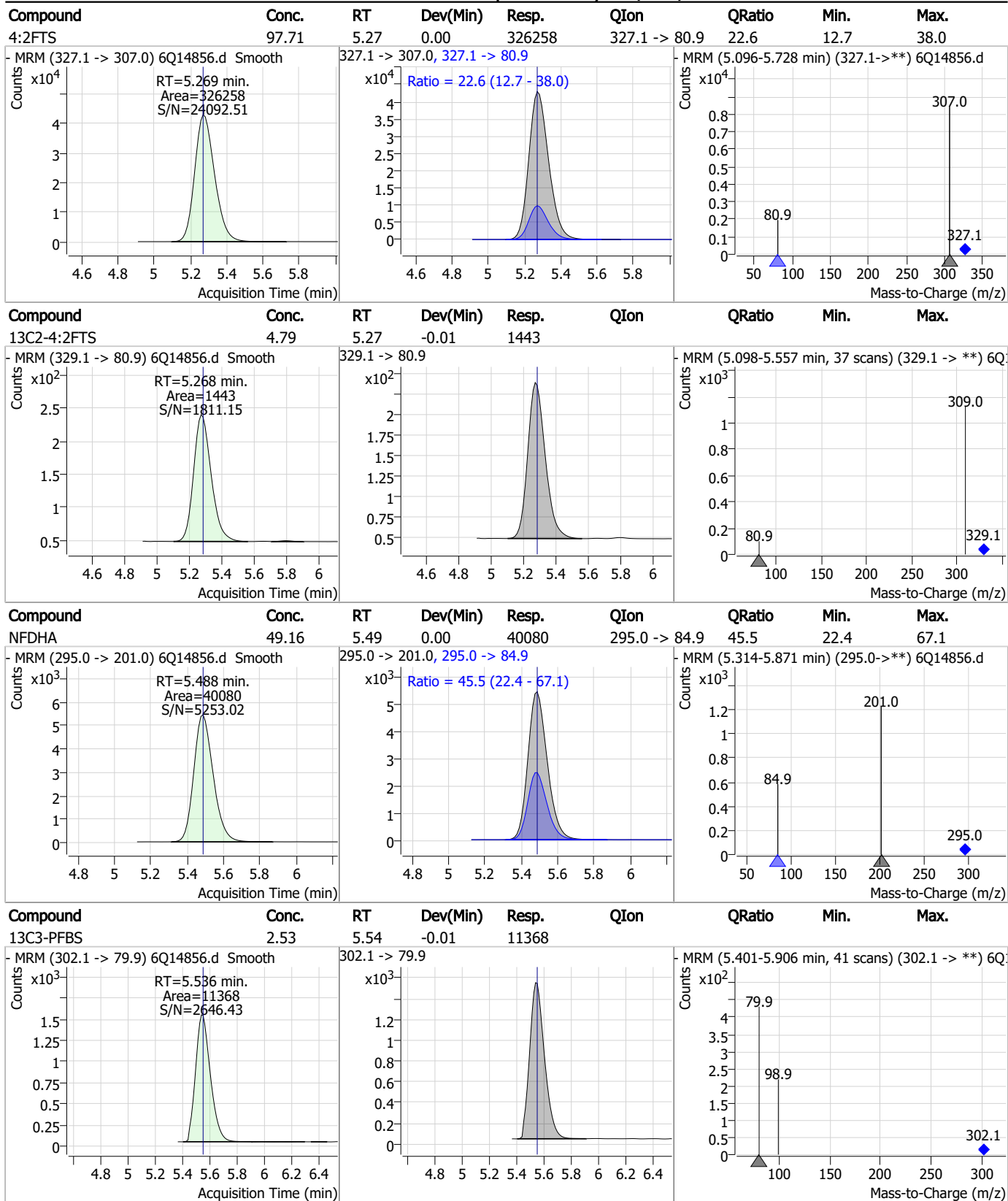
Perfluorinated Compounds by LC/MS/MS



7.7.8

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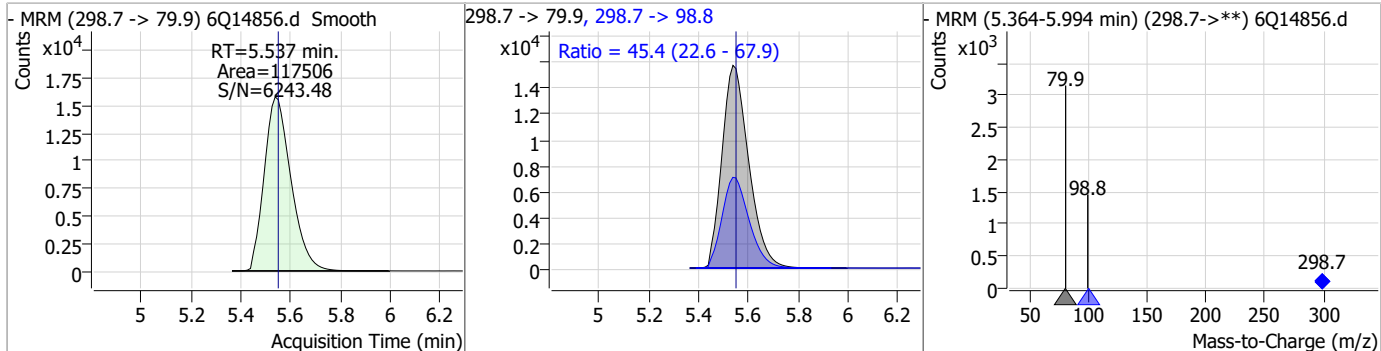
Perfluorinated Compounds by LC/MS/MS



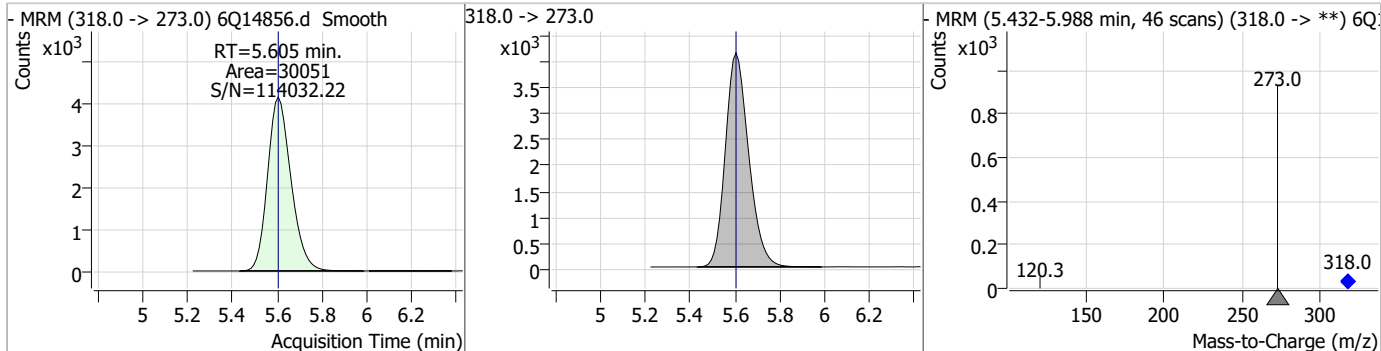
7.7.8
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Perfluorinated Compounds by LC/MS/MS

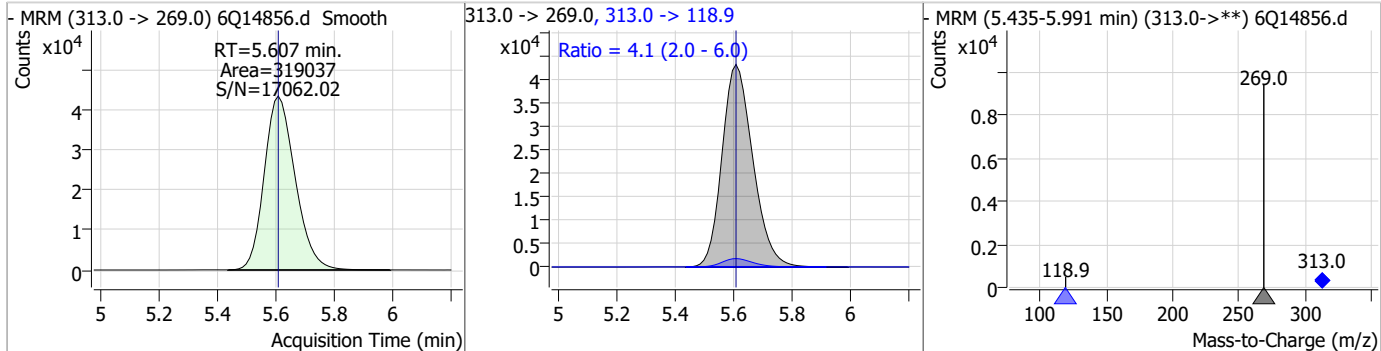
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.47	5.54	-0.01	117506	298.7 -> 98.8	45.4	22.6	67.9



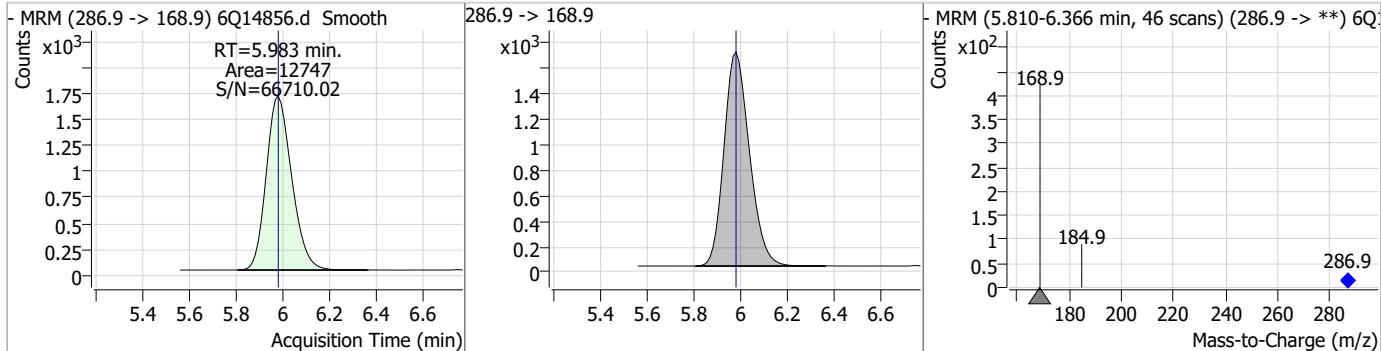
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.60	0.00	30051				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	25.19	5.61	0.00	319037	313.0 -> 118.9	4.1	2.0	6.0



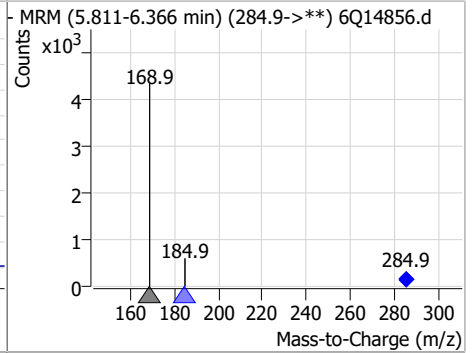
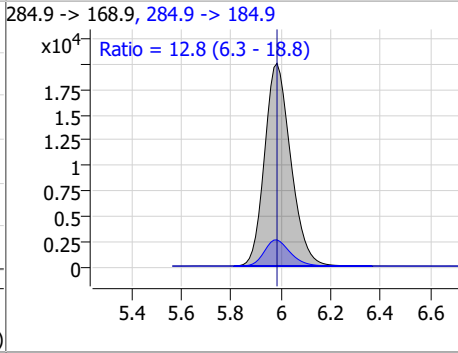
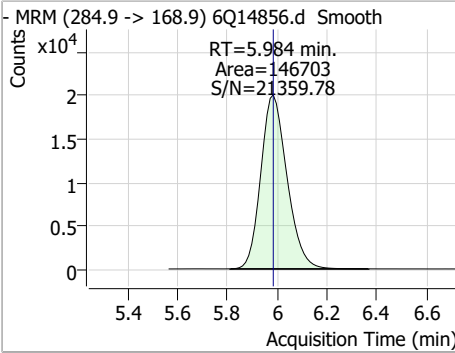
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.65	5.98	0.00	12747				



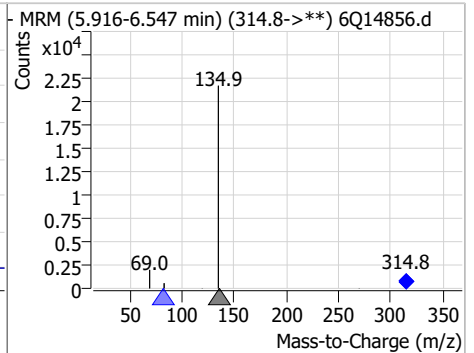
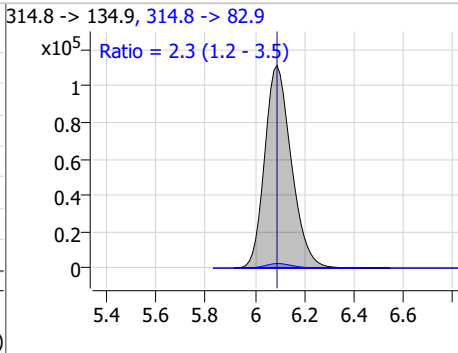
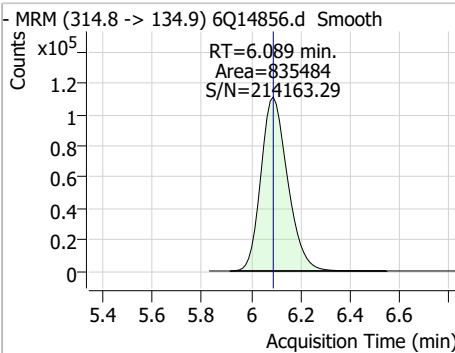
7.7.8
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Perfluorinated Compounds by LC/MS/MS

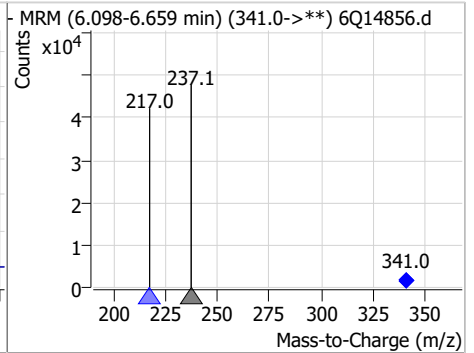
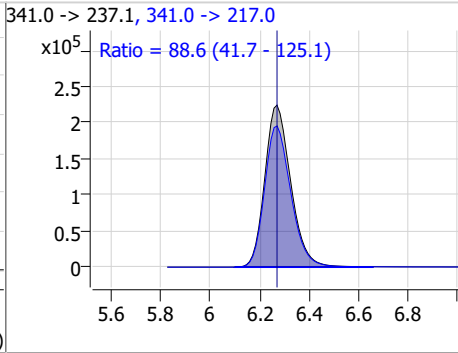
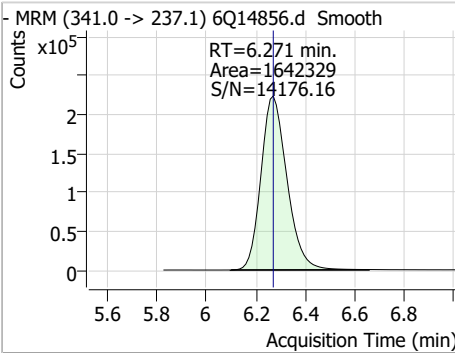
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	109.37	5.98	0.00	146703	284.9 -> 184.9	12.8	6.3	18.8



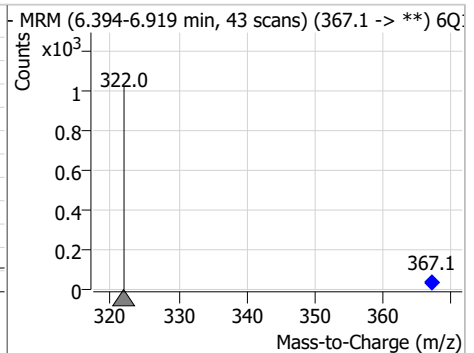
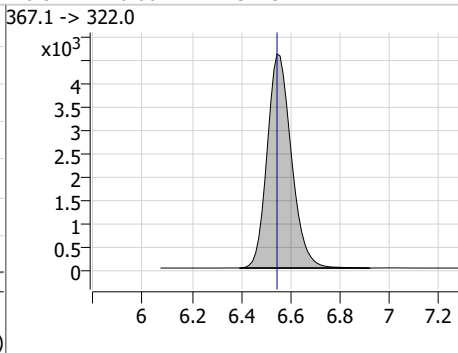
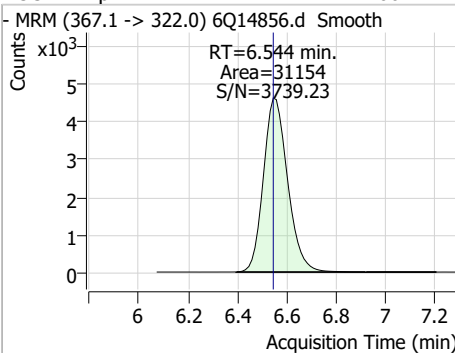
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	46.64	6.09	0.00	835484	314.8 -> 82.9	2.3	1.2	3.5



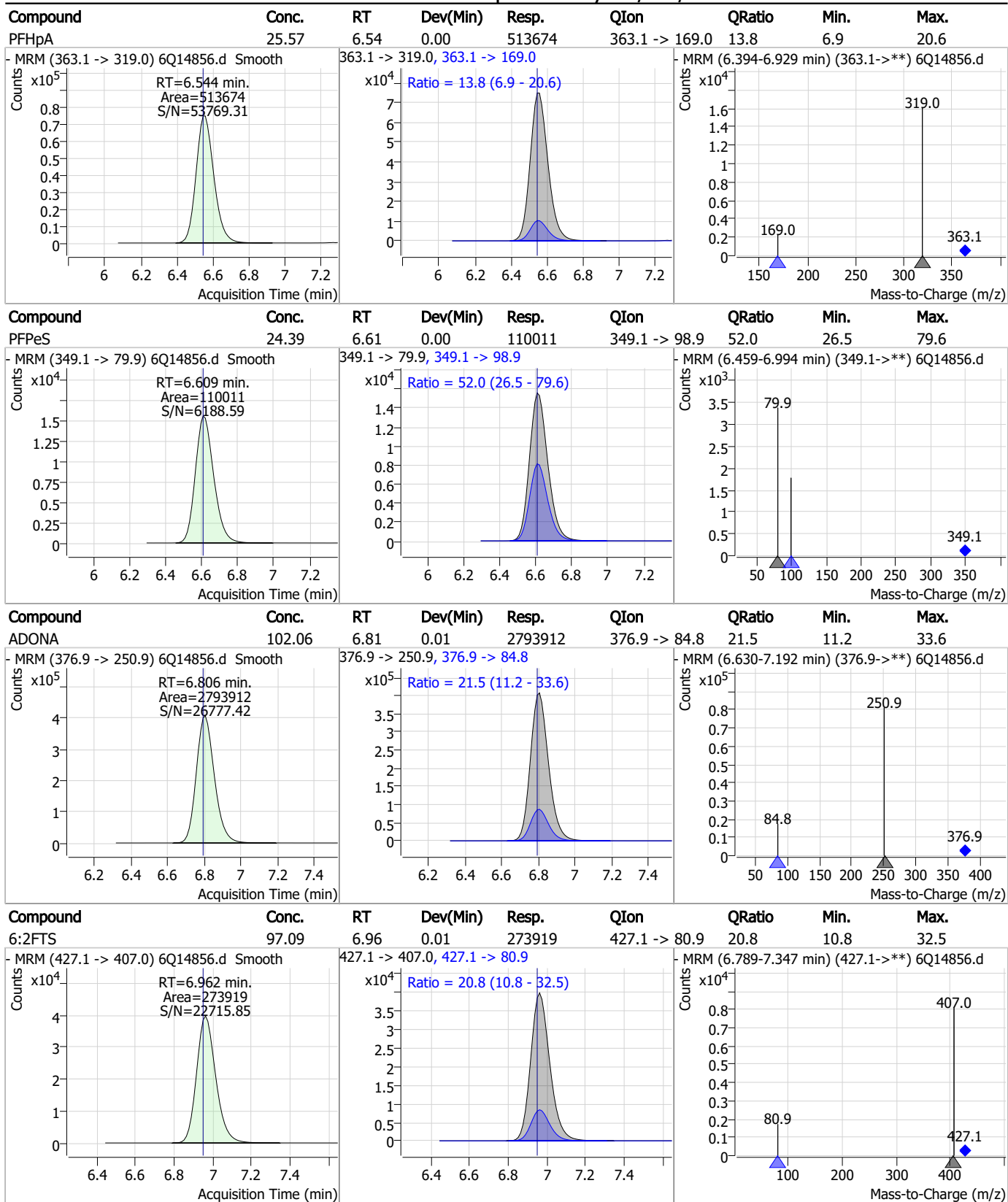
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	642.64	6.27	0.00	1642329	341.0 -> 217.0	88.6	41.7	125.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.60	6.54	0.00	31154	367.1 -> 322.0			

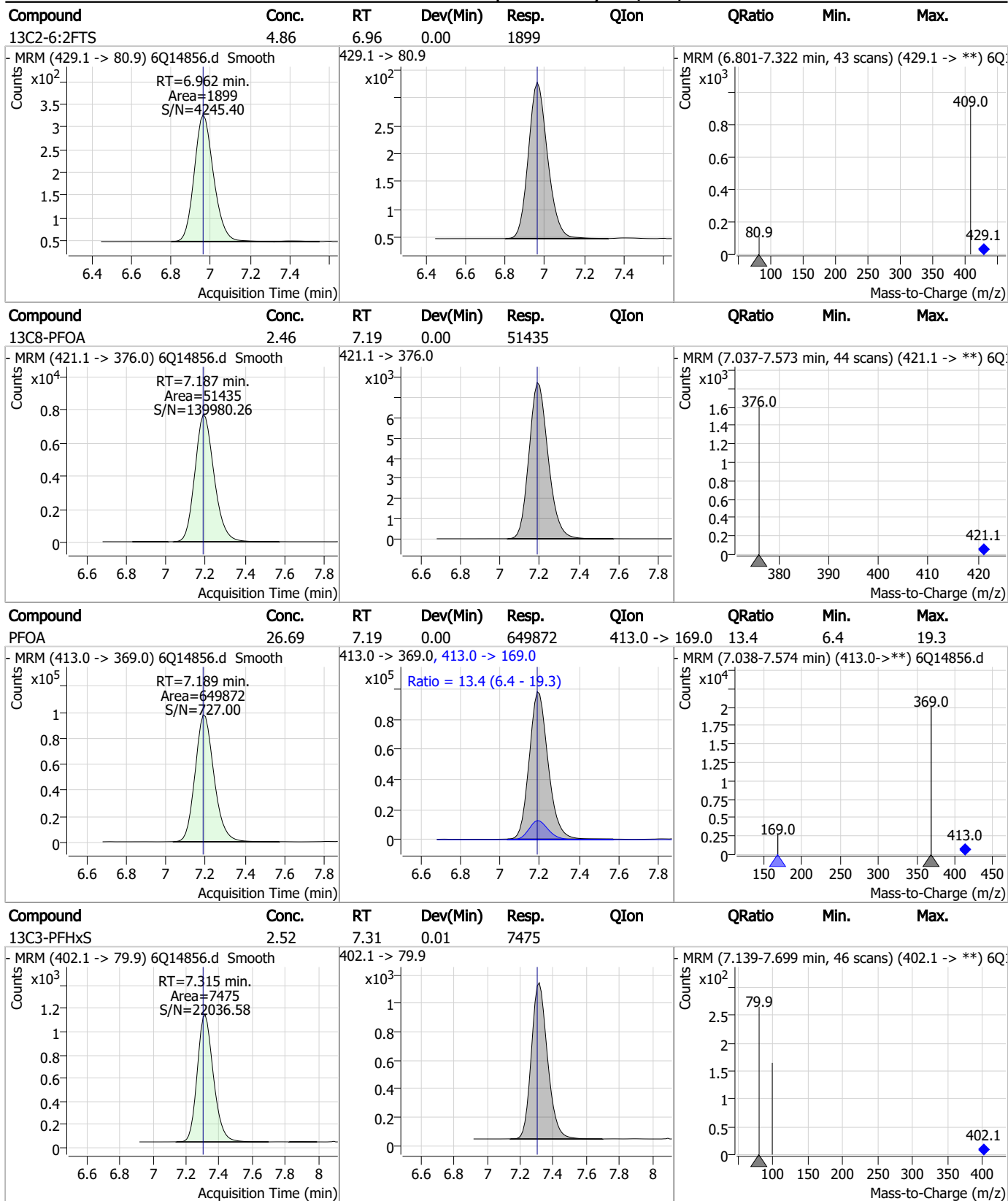


Perfluorinated Compounds by LC/MS/MS



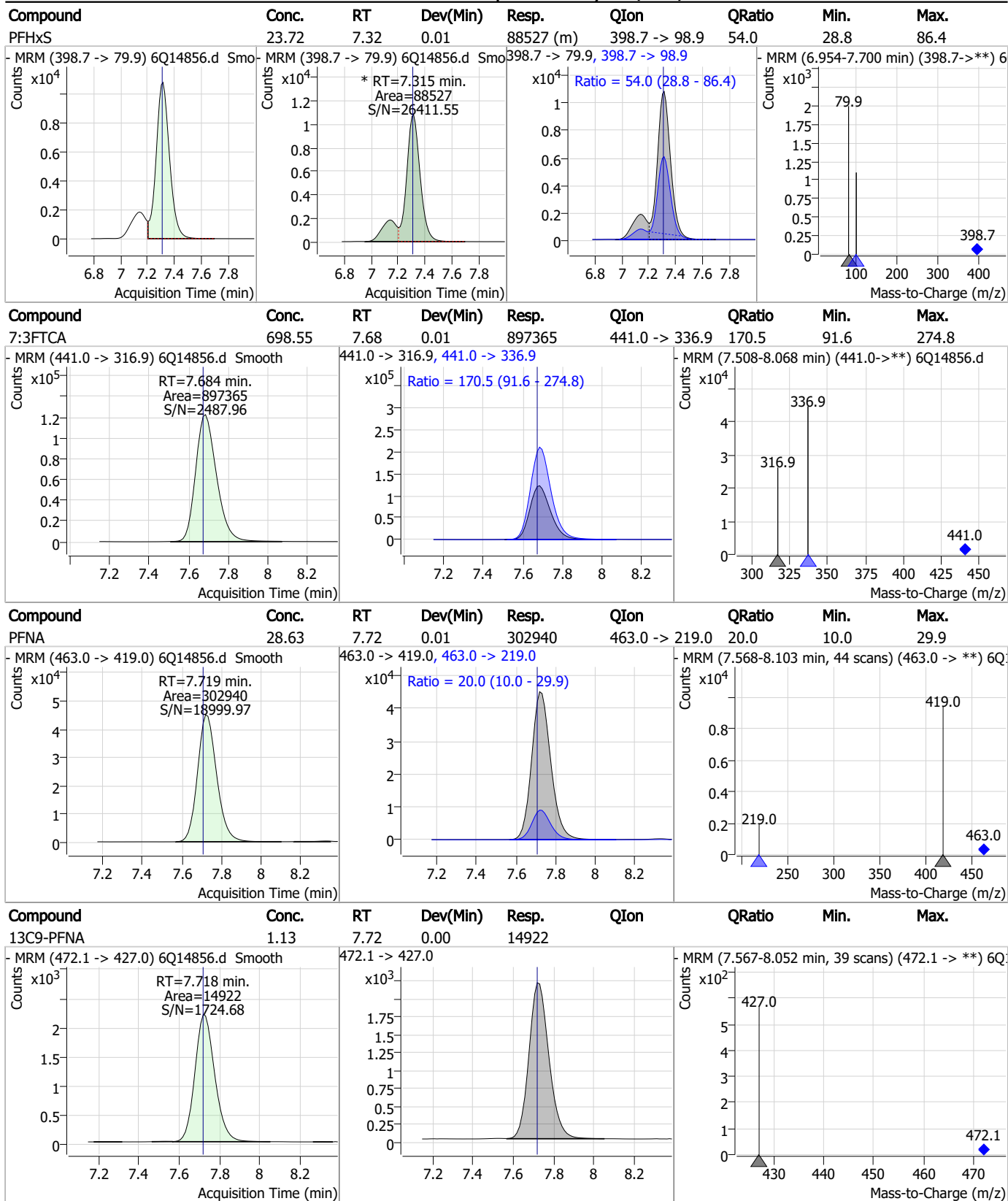
7.7.8
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Perfluorinated Compounds by LC/MS/MS



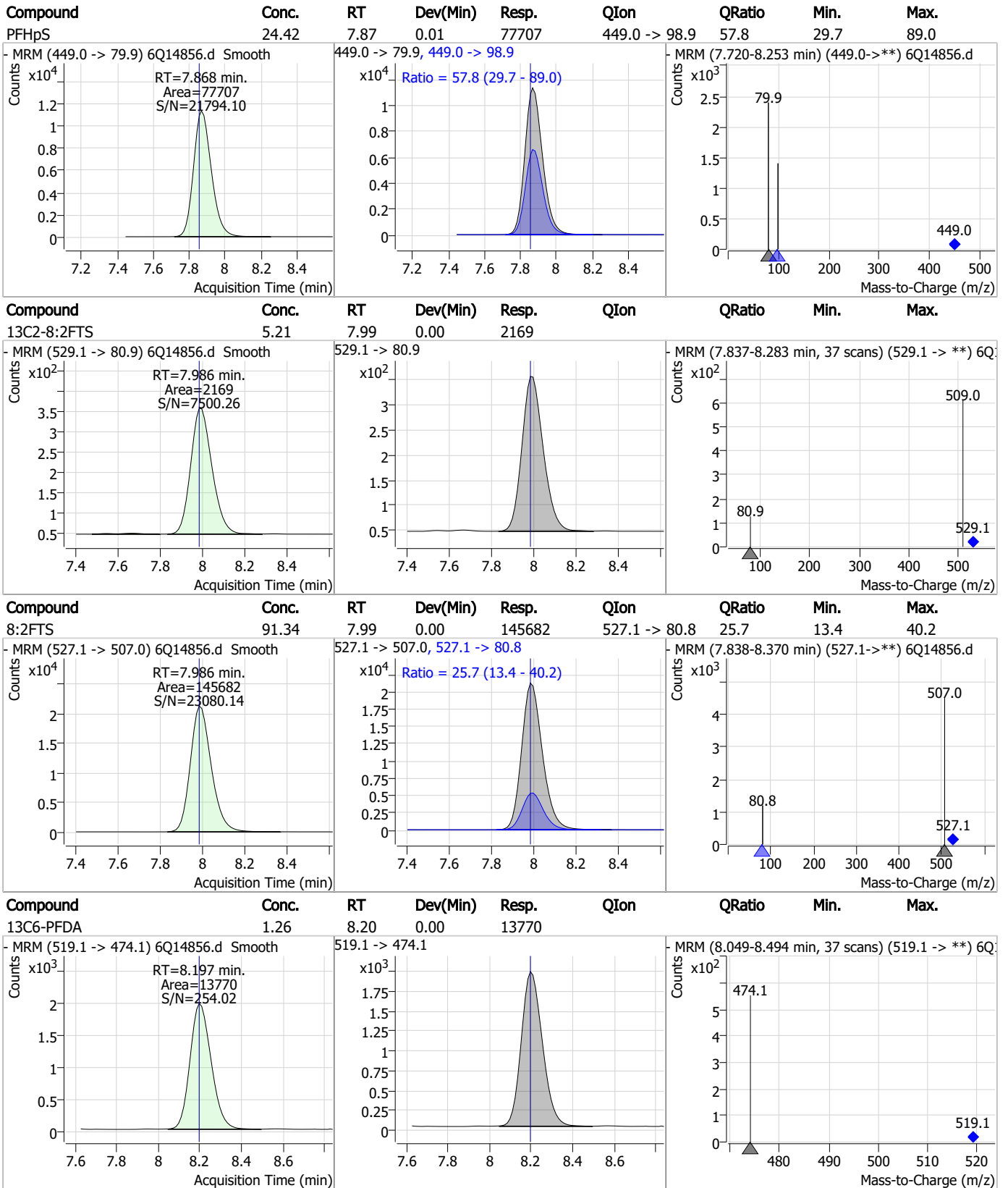
7.7.8
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Perfluorinated Compounds by LC/MS/MS



7.7.8
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Perfluorinated Compounds by LC/MS/MS

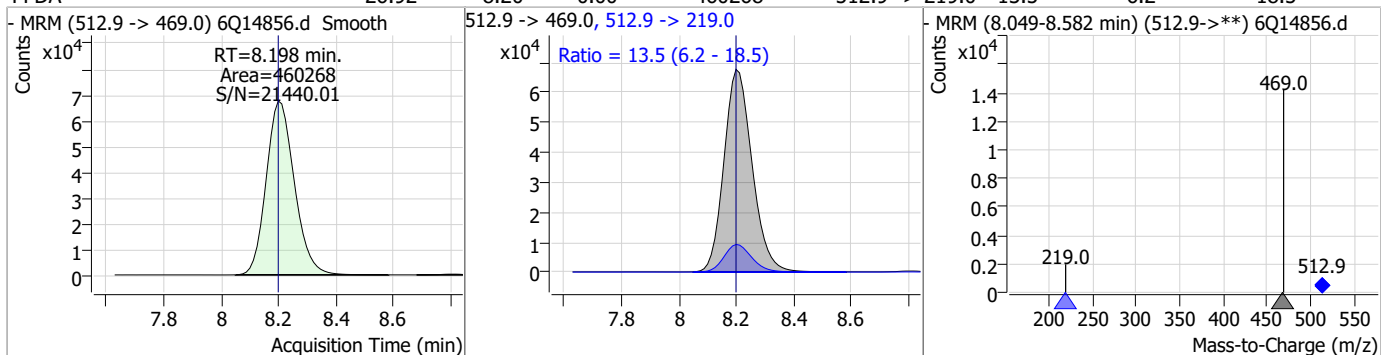


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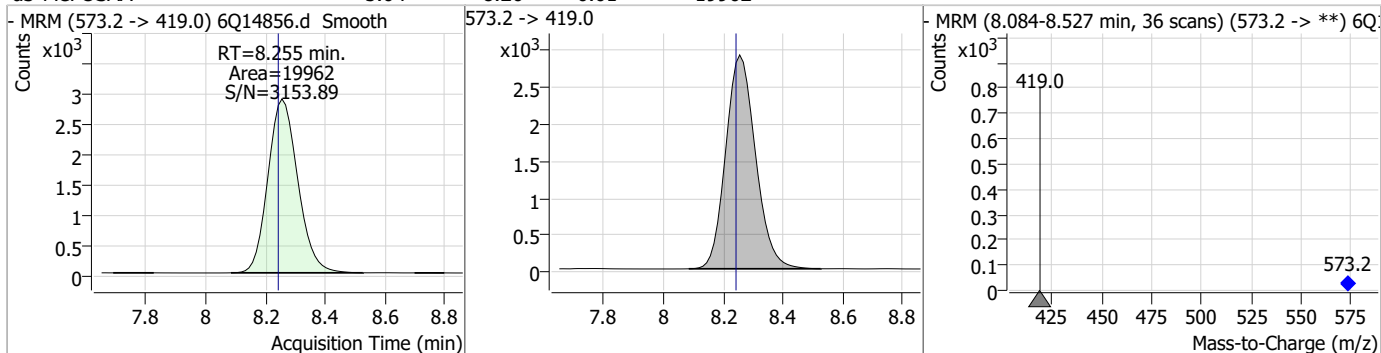
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Perfluorinated Compounds by LC/MS/MS

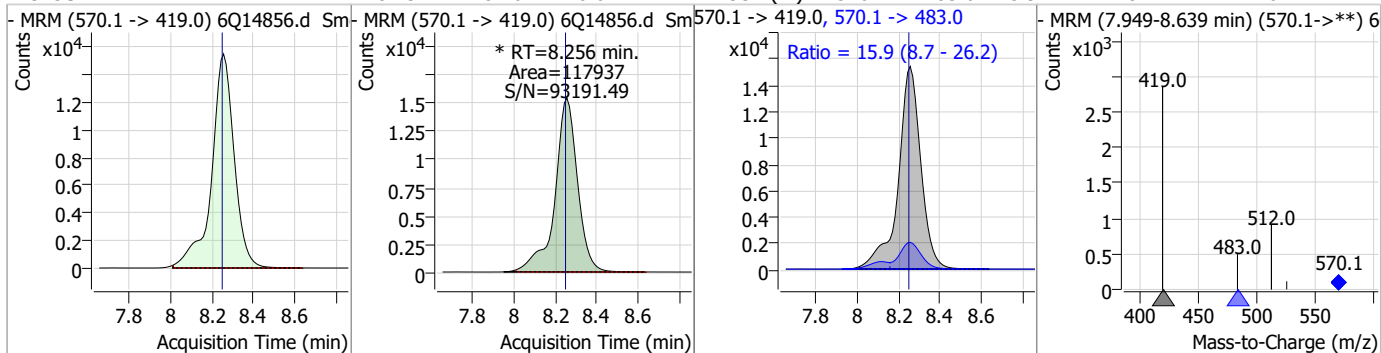
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	26.92	8.20	0.00	460268	512.9 -> 219.0	13.5	6.2	18.5



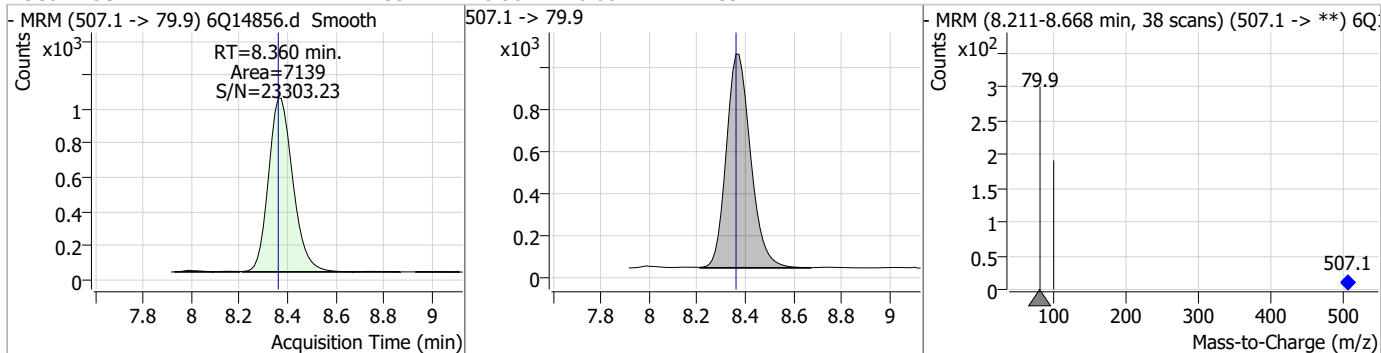
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.04	8.26	0.01	19962				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	28.23	8.26	0.01	117937 (m)	570.1 -> 483.0	15.9	8.7	26.2

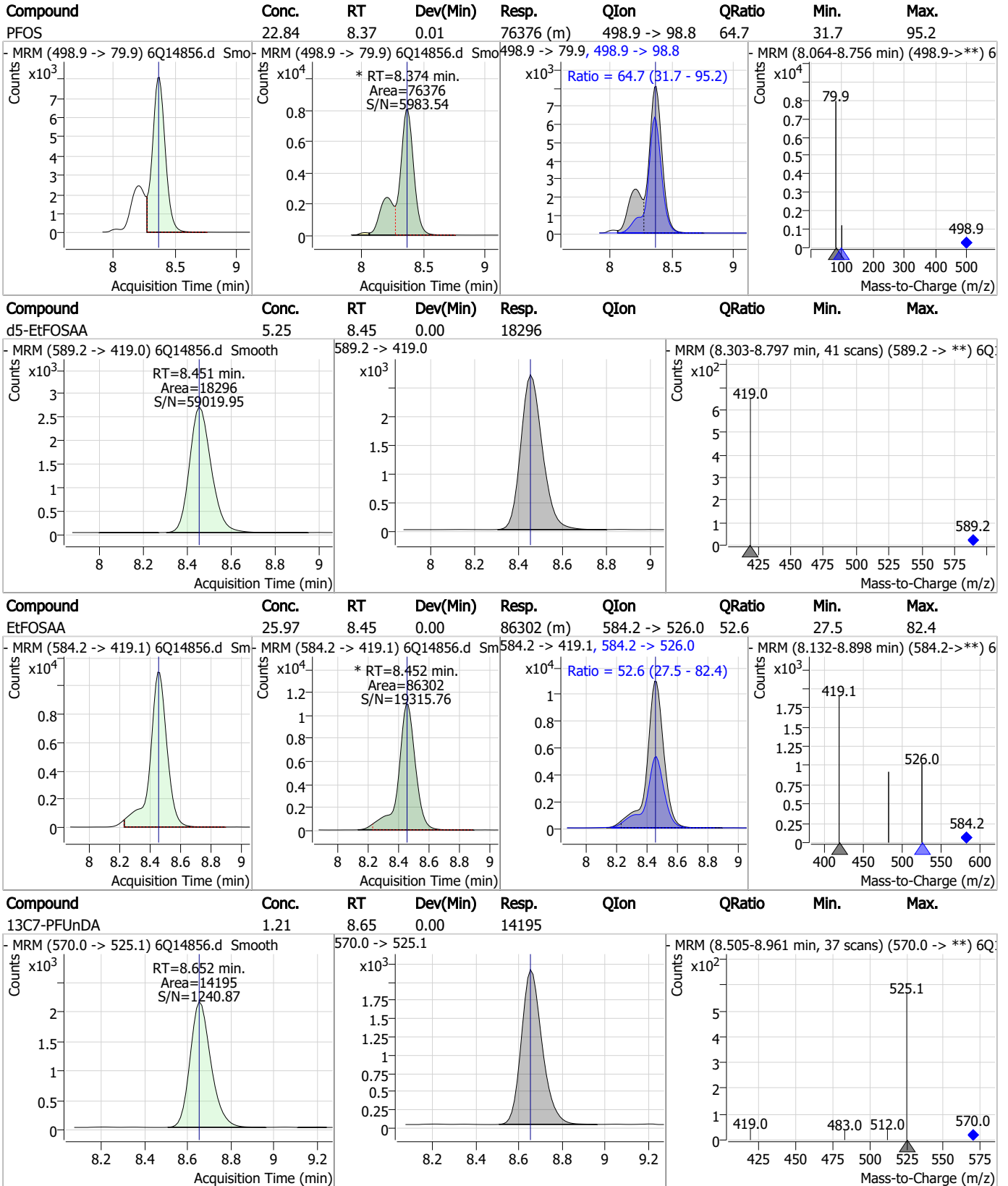


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.55	8.36	0.00	7139				



7.7.8
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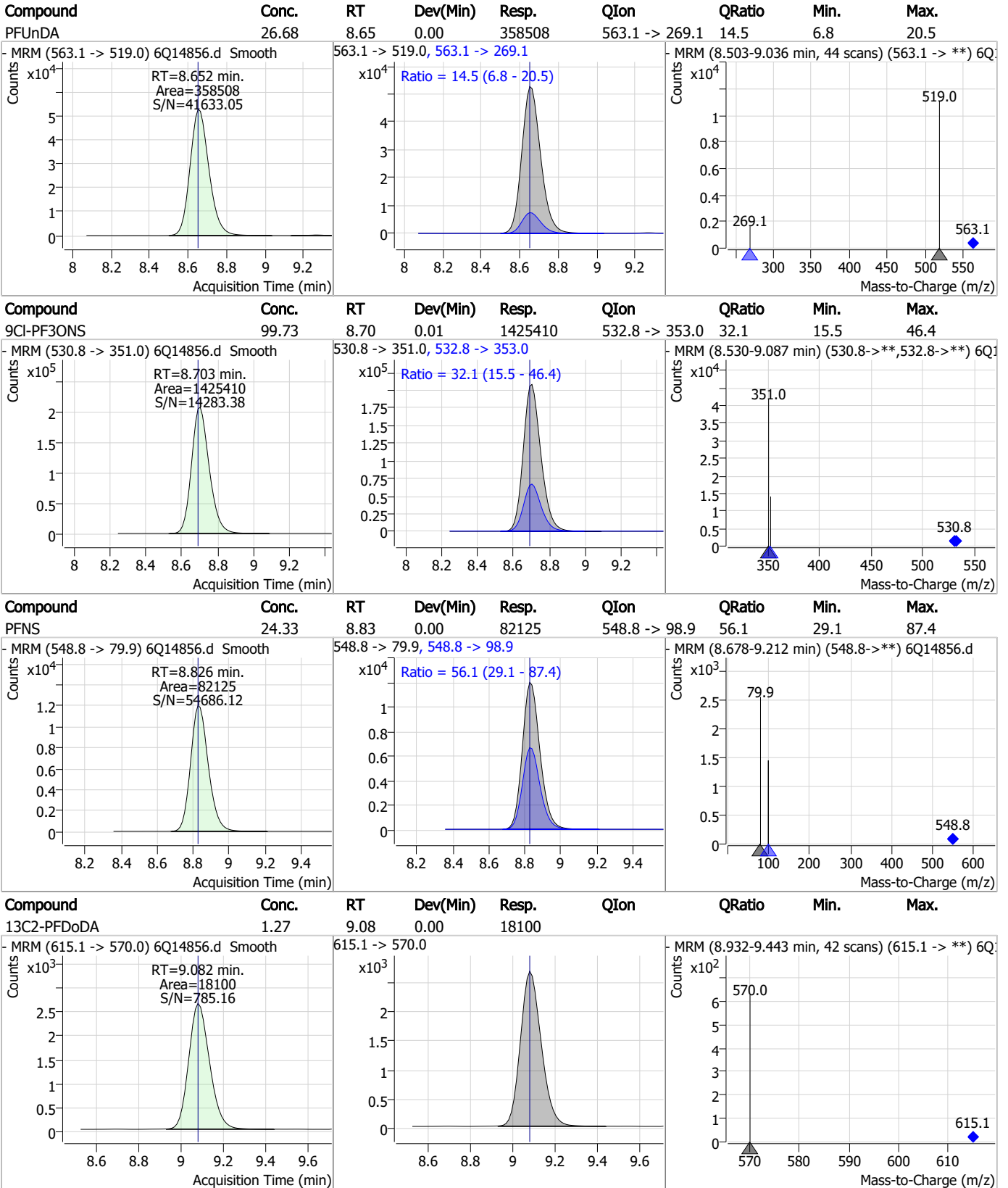
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

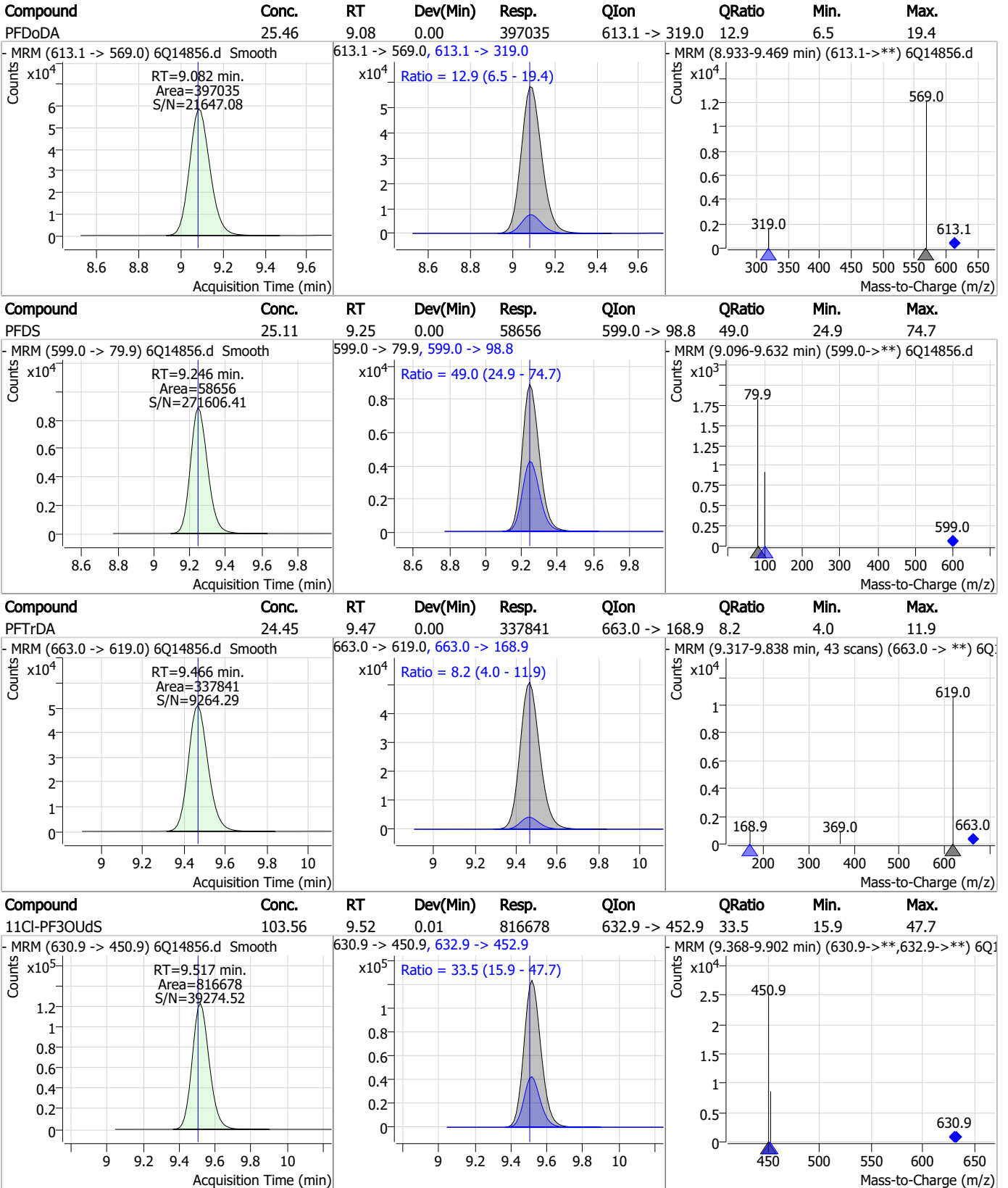


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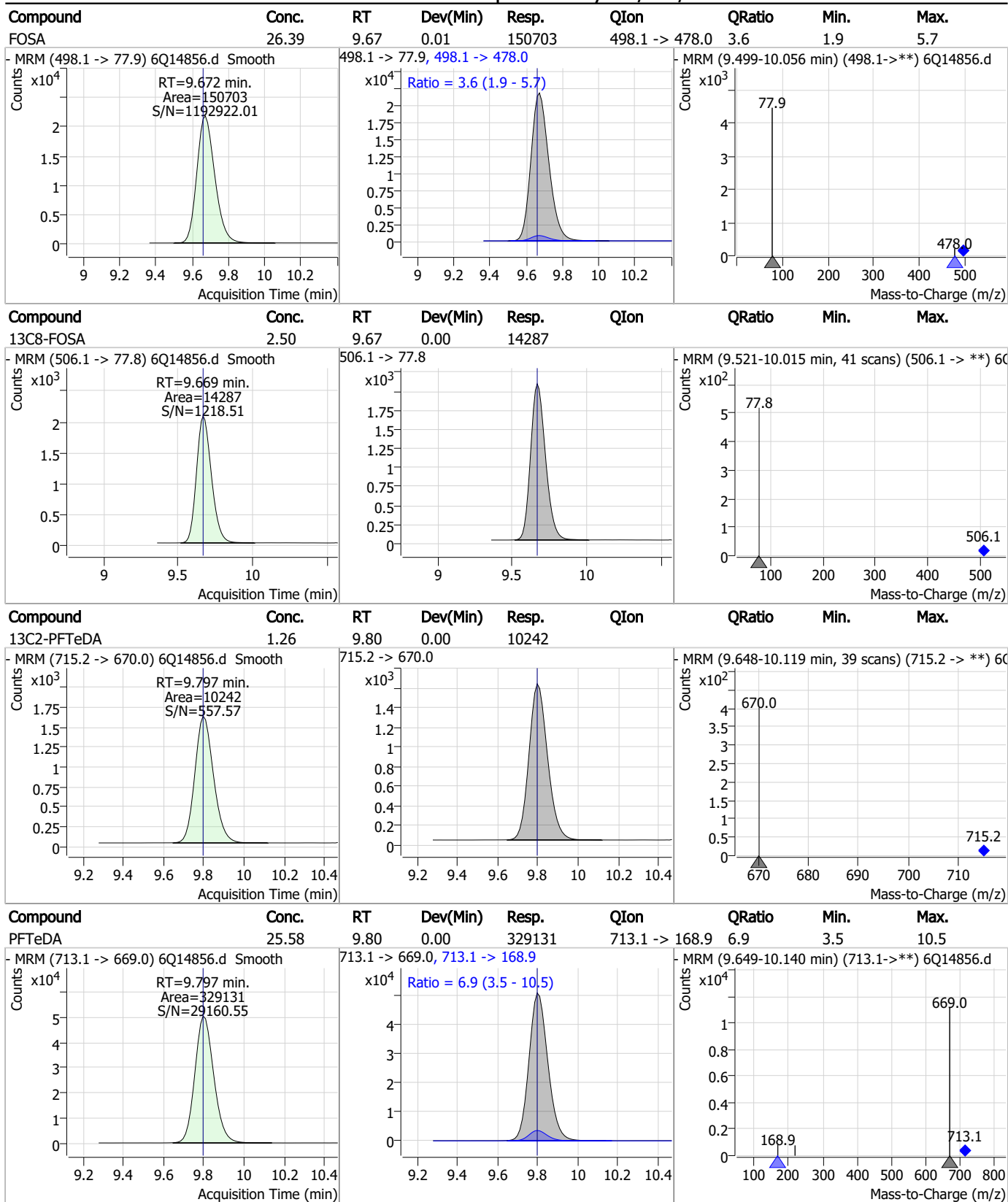


Perfluorinated Compounds by LC/MS/MS



7.7.8
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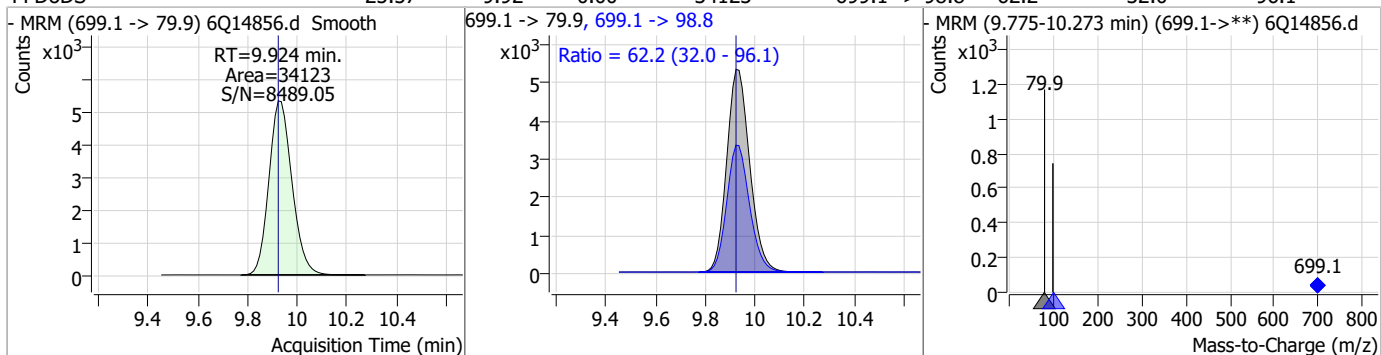
Perfluorinated Compounds by LC/MS/MS



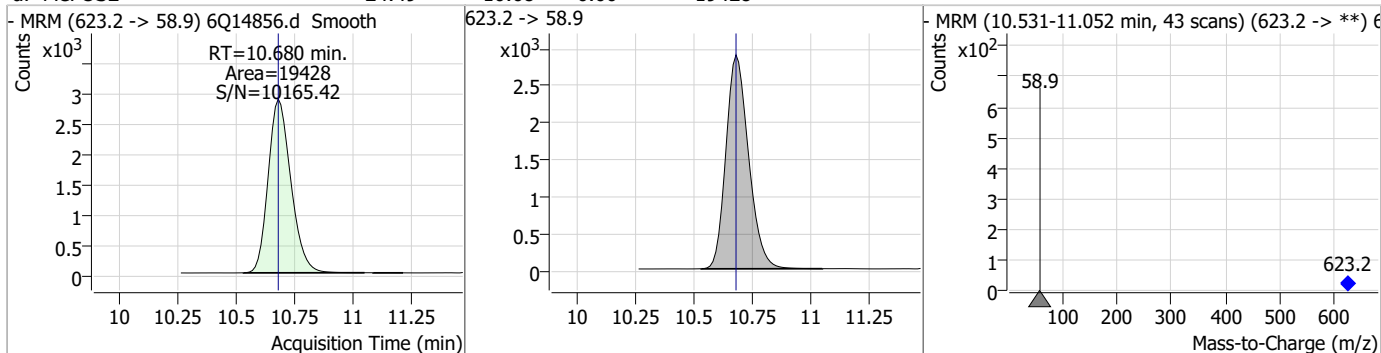
7.7.8
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Perfluorinated Compounds by LC/MS/MS

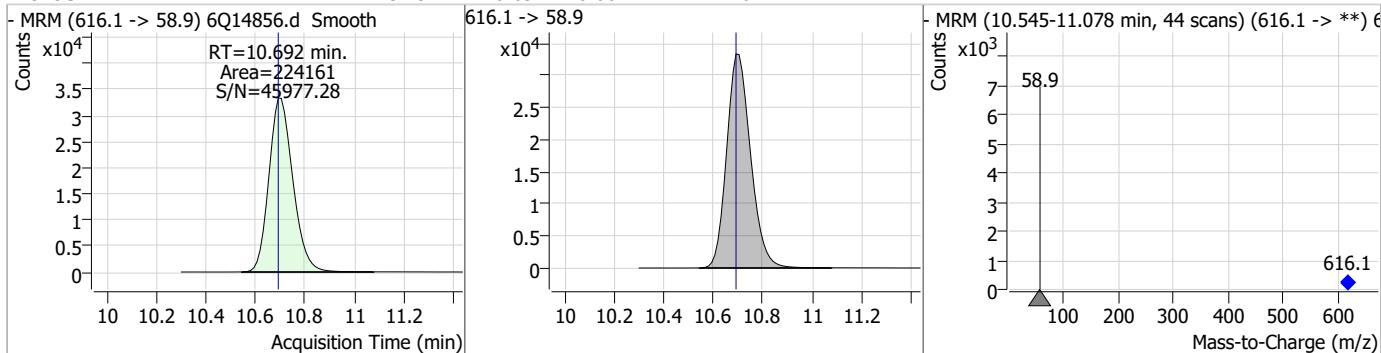
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	25.57	9.92	0.00	34123	699.1 -> 98.8	62.2	32.0	96.1



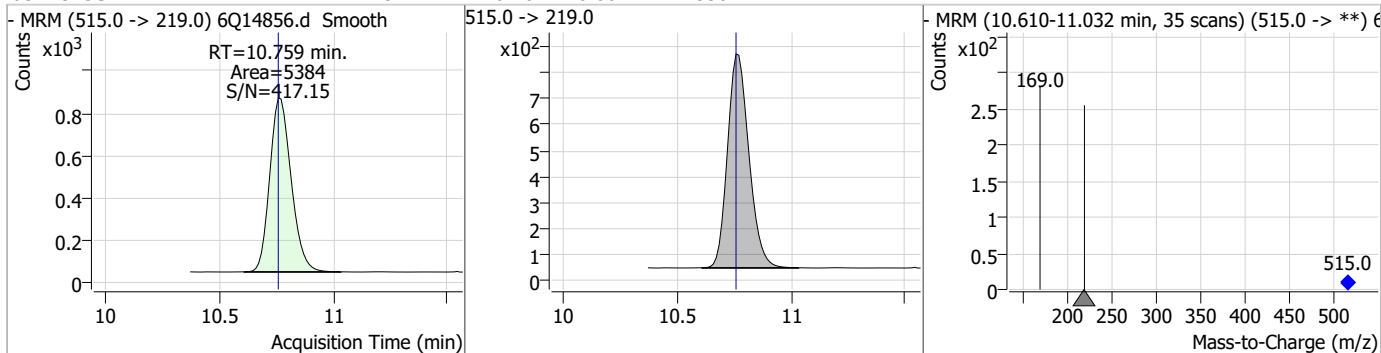
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.49	10.68	0.00	19428				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	273.29	10.69	0.00	224161				



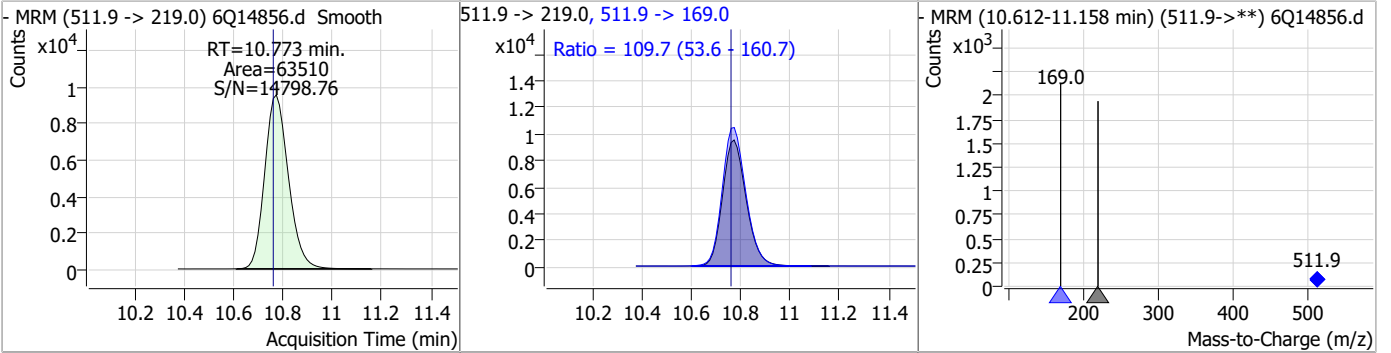
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.57	10.76	0.00	5384				



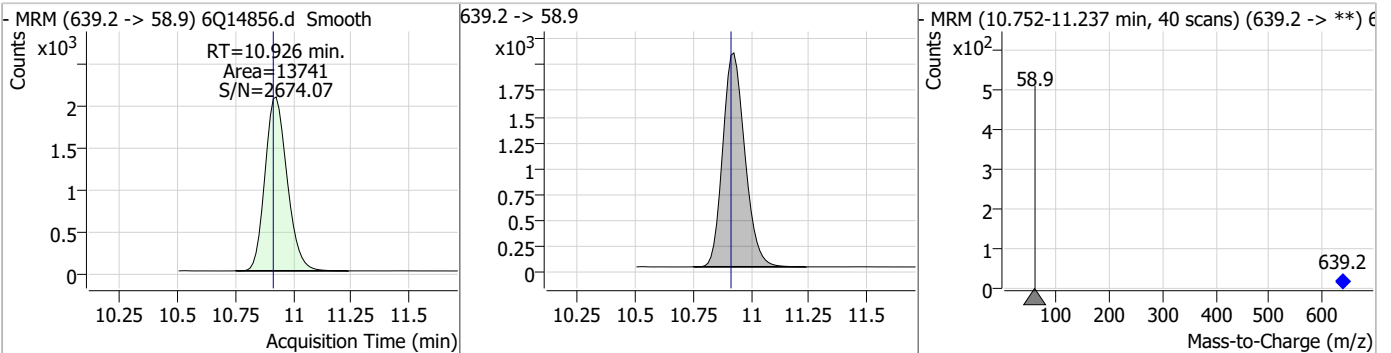
7.7.8
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Perfluorinated Compounds by LC/MS/MS

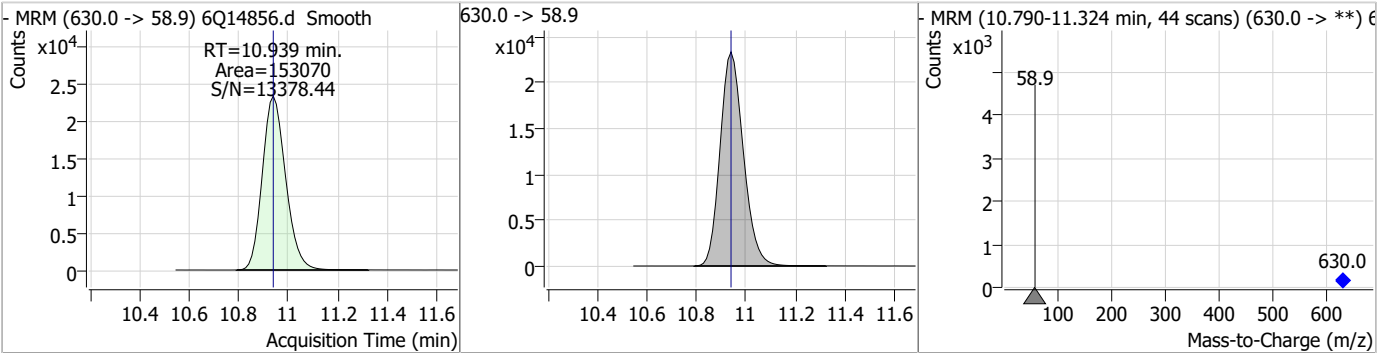
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	24.53	10.77	0.01	63510	511.9 -> 169.0	109.7	53.6	160.7



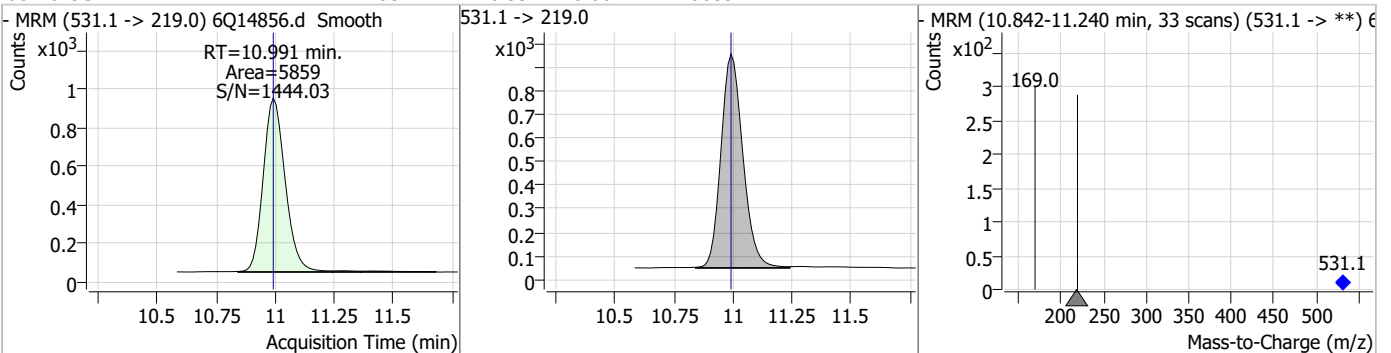
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.54	10.93	0.01	13741				



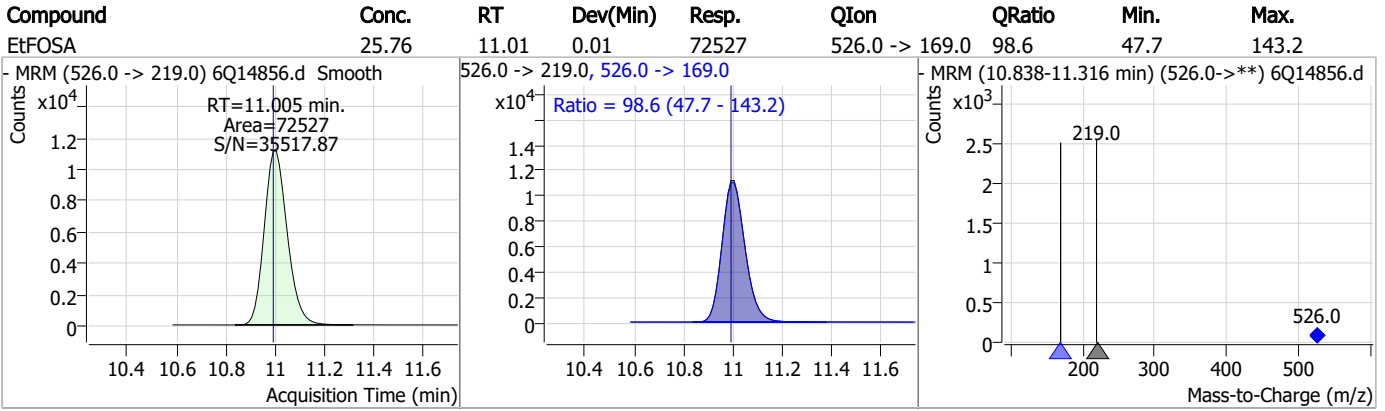
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	273.48	10.94	0.00	153070				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.53	10.99	0.00	5859				



Perfluorinated Compounds by LC/MS/MS



7.7.8

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Manual Integration Approval Summary

Sample Number: S6Q225-IC225 Method: EPA DRAFT 1633
Lab FileID: 6Q14856.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 23:10 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.32	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.8.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14857.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 11:24:06 PM
 Sample Name : ic225-8
 Vial : P1-A9
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.960	216.8 -> 171.9	55297	10.00 µg/L	0.012
M5-PFPeA	4.395	268.3 -> 223.0	29785	5.00 µg/L	0.000
M5-PFHxA	5.605	318.0 -> 273.0	24665	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	24573	2.50 µg/L	0.000
M8-PFOA	7.187	421.1 -> 376.0	41859	2.50 µg/L	0.000
M9-PFNA	7.706	472.1 -> 427.0	13605	1.25 µg/L	-0.012
M6-PFDA	8.197	519.1 -> 474.1	10573	1.25 µg/L	0.000
M7-PFUnDA	8.652	570.0 -> 525.1	11346	1.25 µg/L	0.000
M2-PFDoDA	9.094	615.1 -> 570.0	15094	1.25 µg/L	0.012
M2-PFTeDA	9.809	715.2 -> 670.0	10516	1.25 µg/L	0.012
M8-FOSA	9.669	506.1 -> 77.8	14429	2.50 µg/L	0.000
M3-PFBS	5.536	302.1 -> 79.9	11029	2.50 µg/L	-0.012
M3-PFHxS	7.302	402.1 -> 79.9	6950	2.50 µg/L	0.000
M8-PFOS	8.360	507.1 -> 79.9	6983	2.50 µg/L	0.000
M2-4:2FTS	5.268	329.1 -> 80.9	1144	5.00 µg/L	-0.012
M2-6:2FTS	6.962	429.1 -> 80.9	1687	5.00 µg/L	0.000
M2-8:2FTS	7.973	529.1 -> 80.9	1964	5.00 µg/L	-0.012
M3-MeFOSAA	8.243	573.2 -> 419.0	15791	5.00 µg/L	0.000
M3-HFPO-DA	5.971	286.9 -> 168.9	11848	10.00 µg/L	-0.012
M5-EtFOSAA	8.451	589.2 -> 419.0	14961	5.00 µg/L	0.000
M7-MeFOSE	10.680	623.2 -> 58.9	19477	25.00 µg/L	0.000
M9-EtFOSE	10.914	639.2 -> 58.9	12970	25.00 µg/L	0.000
M5-EtFOSA	10.991	531.1 -> 219.0	5572	2.50 µg/L	0.000
M3-MeFOSA	10.771	515.0 -> 219.0	5730	2.50 µg/L	0.012
13C4-PFOS	8.361	502.8 -> 79.9	8035	2.50 µg/L	0.000
13C3-PFBA	2.952	216.0 -> 172.0	25303	5.00 µg/L	0.000
18O2-PFHxS	7.301	403.0 -> 83.9	4800	2.50 µg/L	-0.012
13C4-PFOA	7.188	417.1 -> 372.0	53193	2.50 µg/L	0.000
13C2-PFDA	8.185	515.1 -> 470.1	16853	1.25 µg/L	-0.012
13C5-PFNA	7.706	468.0 -> 423.0	14598	1.25 µg/L	-0.012
13C2-PFHxA	5.606	315.1 -> 270.0	25317	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.268	329.1 -> 80.9	1144	4.16 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.1%		
13C2-6:2FTS	6.962	429.1 -> 80.9	1687	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-8:2FTS	7.973	529.1 -> 80.9	1964	5.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-PFDoDA	9.094	615.1 -> 570.0	15094	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C2-PFTeDA	9.809	715.2 -> 670.0	10516	1.40 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C3-PFBS	5.536	302.1 -> 79.9	11029	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C3-PFHxS	7.302	402.1 -> 79.9	6950	2.56 µg/L	0.000

7.7.9
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C4-PFBA	2.960	216.8 -> 171.9	55297	9.52 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C4-PFHpA	6.544	367.1 -> 322.0	24573	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C5-PFHxA	5.605	318.0 -> 273.0	24665	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C5-PFPeA	4.395	268.3 -> 223.0	29785	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C6-PFDA	8.197	519.1 -> 474.1	10573	1.04 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.6%	
13C7-PFUnDA	8.652	570.0 -> 525.1	11346	1.04 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.3%	
13C8-FOSA	9.669	506.1 -> 77.8	14429	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOA	7.187	421.1 -> 376.0	41859	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-PFOS	8.360	507.1 -> 79.9	6983	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C9-PFNA	7.706	472.1 -> 427.0	13605	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.7%	
d3-MeFOSAA	8.243	573.2 -> 419.0	15791	4.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.8%	
13C3-HFPO-DA	5.971	286.9 -> 168.9	11848	10.36 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
d3-MeFOSA	10.771	515.0 -> 219.0	5730	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.4%	
d5-EtFOSAA	8.451	589.2 -> 419.0	14961	4.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.2%	
d7-MeFOSE	10.680	623.2 -> 58.9	19477	25.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
d9-EtFOSE	10.914	639.2 -> 58.9	12970	23.77 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d5-EtFOSA	10.991	531.1 -> 219.0	5572	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	591317	223.40 µg/L	99
		327.1 -> 80.9	146098		
6:2FTS	6.962	427.1 -> 407.0	472543	188.47 µg/L	94
		427.1 -> 80.9	115530		
8:2FTS	7.974	527.1 -> 507.0	257438	178.26 µg/L	100
		527.1 -> 80.8	69215		
EtFOSAA	8.452	584.2 -> 419.1	173165	63.72 µg/L	m 90
		584.2 -> 526.0	82880		
FOSA	9.672	498.1 -> 77.9	359331	62.32 µg/L	100
		498.1 -> 478.0	13852		
MeFOSAA	8.244	570.1 -> 419.0	228313	69.07 µg/L	m 96
		570.1 -> 483.0	35616		
PFBA	2.956	212.8 -> 168.9	408590	270.76 µg/L	100
PFBS	5.537	298.7 -> 79.9	262520	54.04 µg/L	97
		298.7 -> 98.8	113144		
PFDA	8.198	512.9 -> 469.0	879088	66.97 µg/L	91
		512.9 -> 219.0	140635		
PFDoDA	9.094	613.1 -> 569.0	794950	61.13 µg/L	98
		613.1 -> 319.0	107695		
PFDS	9.258	599.0 -> 79.9	131088	57.37 µg/L	89

7.7.9
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.544	599.0 -> 98.8	75116	68.79	µg/L	100
		363.1 -> 319.0	1089985			
PFHpS	7.855	363.1 -> 169.0	149034	56.96	µg/L	98
		449.0 -> 79.9	177297			
PFHxA	5.607	449.0 -> 98.9	107669	69.26	µg/L	100
		313.0 -> 269.0	719835			
PFHxS	7.303	313.0 -> 118.9	28141	61.07	µg/L	95
		398.7 -> 79.9	211921			
PFNA	7.707	398.7 -> 98.9	114408	64.47	µg/L	99
		463.0 -> 419.0	621853			
PFNS	8.826	463.0 -> 219.0	120795	60.59	µg/L	91
		548.8 -> 79.9	200069			
PFOA	7.189	548.8 -> 98.9	102933	68.41	µg/L	97
		413.0 -> 369.0	1355409			
PFOS	8.361	413.0 -> 169.0	191342	60.24	µg/L	89
		498.9 -> 79.9	197071			
PFPeA	4.397	498.9 -> 98.8	108914	125.69	µg/L	100
		263.0 -> 219.0	891269			
PFPeS	6.609	349.1 -> 79.9	252945	60.33	µg/L	97
		349.1 -> 98.9	129244			
PFTeDA	9.810	713.1 -> 669.0	795049	60.18	µg/L	99
		713.1 -> 168.9	51853			
PFTrDA	9.466	663.0 -> 619.0	787115	68.30	µg/L	100
		663.0 -> 168.9	63262			
PFUnDA	8.652	563.1 -> 519.0	679768	63.28	µg/L	95
		563.1 -> 269.1	106468			
11Cl-PF3OUdS	9.517	630.9 -> 450.9	1854960	253.06	µg/L	97
		632.9 -> 452.9	559263			
9Cl-PF3ONS	8.703	530.8 -> 351.0	2941682	221.43	µg/L	100
		532.8 -> 353.0	901430			
ADONA	6.806	376.9 -> 250.9	5140398	202.02	µg/L	96
		376.9 -> 84.8	1246062			
HFPO-DA	5.971	284.9 -> 168.9	309900	248.56	µg/L	98
		284.9 -> 184.9	36345			
3:3FTCA	3.851	241.0 -> 177.0	120487	339.76	µg/L	99
		241.0 -> 117.0	17544			
5:3FTCA	6.259	341.0 -> 237.1	3422610	1631.71	µg/L	90
		341.0 -> 217.0	3155407			
7:3FTCA	7.672	441.0 -> 316.9	1616804	1533.42	µg/L	95
		441.0 -> 336.9	3089371			
EtFOSA	10.993	526.0 -> 219.0	175778	65.65	µg/L	94
		526.0 -> 169.0	177409			
EtFOSE	10.939	630.0 -> 58.9	351431	665.19	µg/L	100
		511.9 -> 219.0	163930			
MeFOSA	10.773	511.9 -> 169.0	159577	59.49	µg/L	91
		616.1 -> 58.9	517058			
MeFOSE	10.692	699.1 -> 79.9	82703	628.80	µg/L	100
		699.1 -> 98.8	50995			
PFDoDS	9.936	295.0 -> 201.0	86123	63.34	µg/L	97
		295.0 -> 84.9	38901			
NFDHA	5.488	279.0 -> 85.1	329238	128.69	µg/L	99
		229.0 -> 84.9	275192			
PFMBA	4.806	314.8 -> 134.9	1736725	142.51	µg/L	100
		314.8 -> 82.9	46989			
PFMPA	3.526			135.44	µg/L	100
PFEESA	6.089			118.13	µg/L	99

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

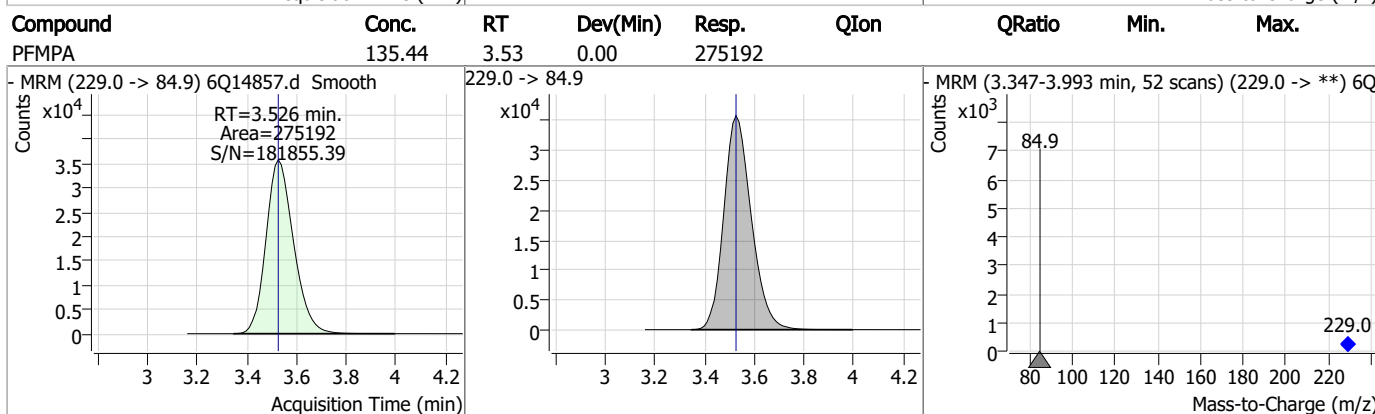
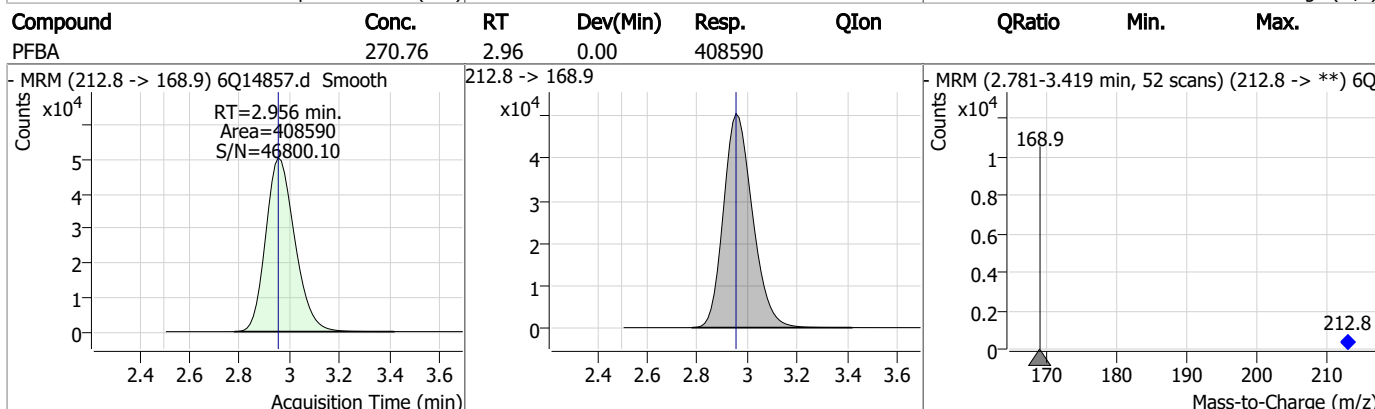
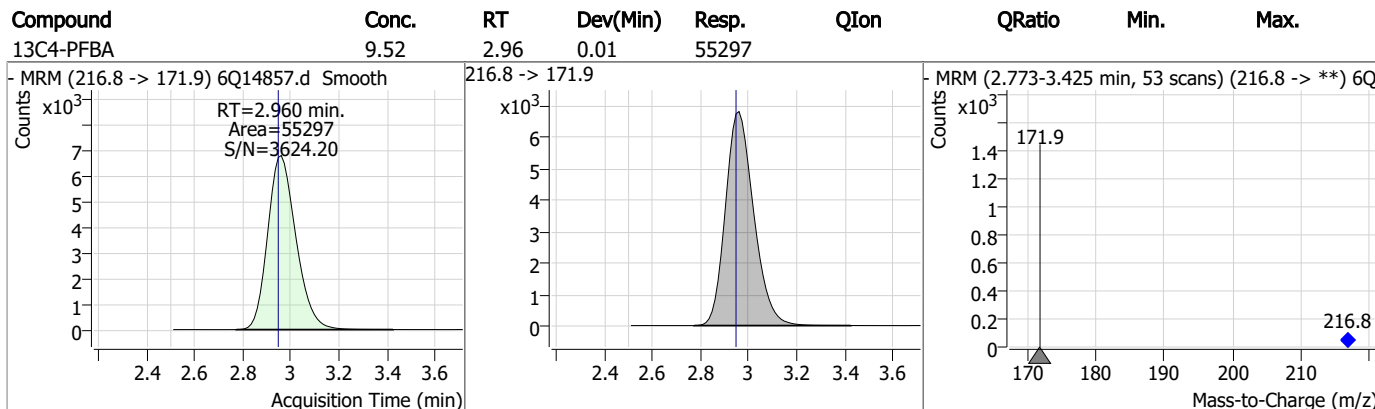
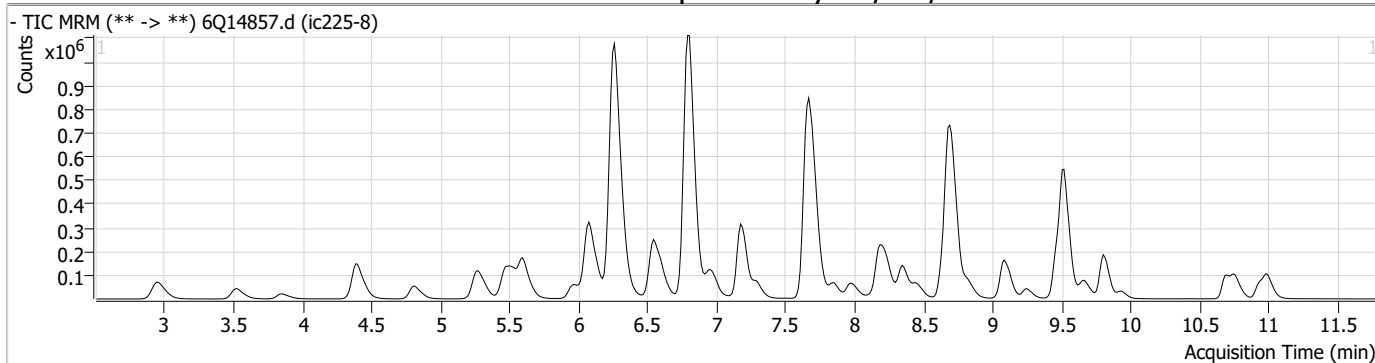
Perfluorinated Compounds by LC/MS/MS

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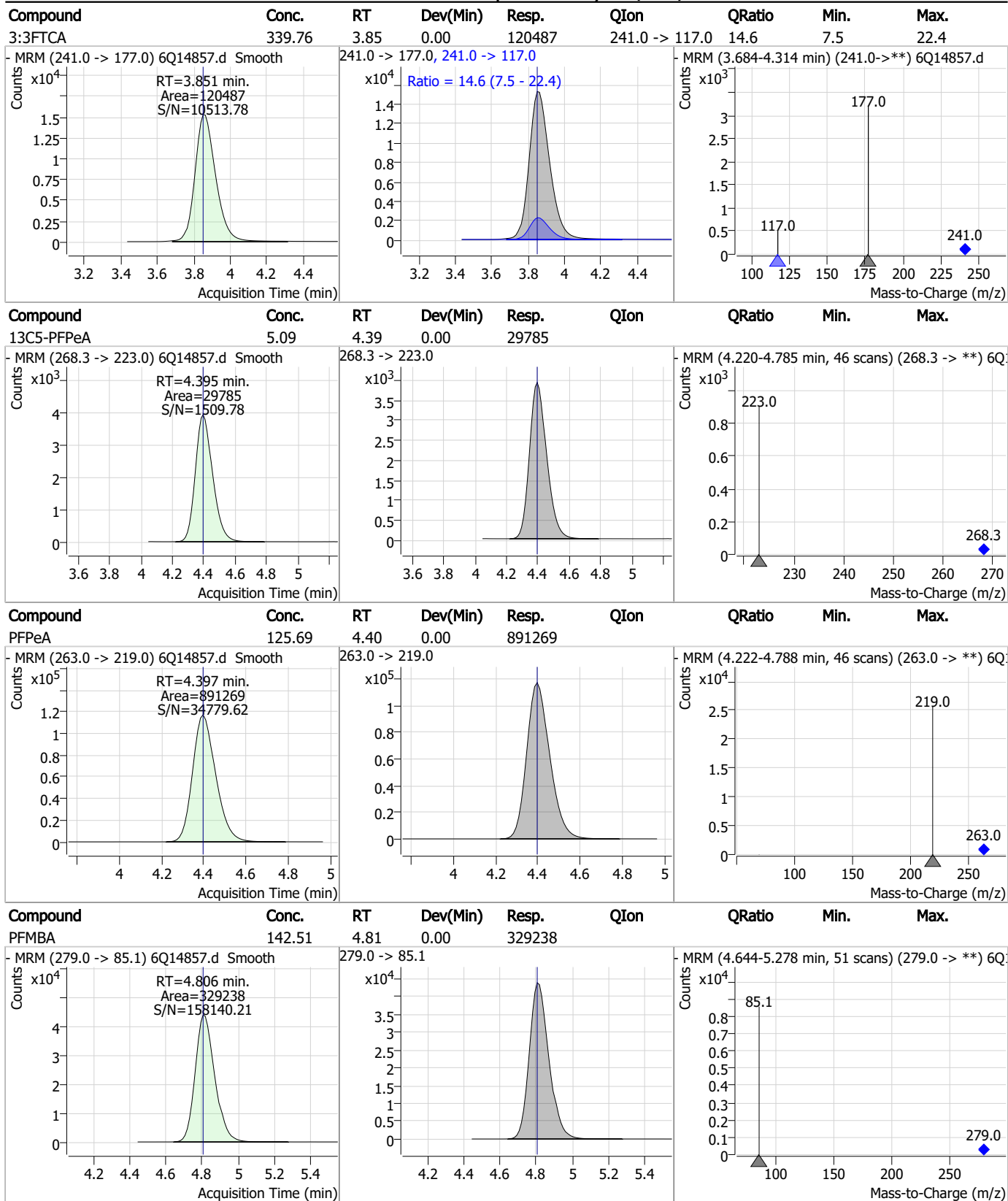
7.7.9

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Perfluorinated Compounds by LC/MS/MS

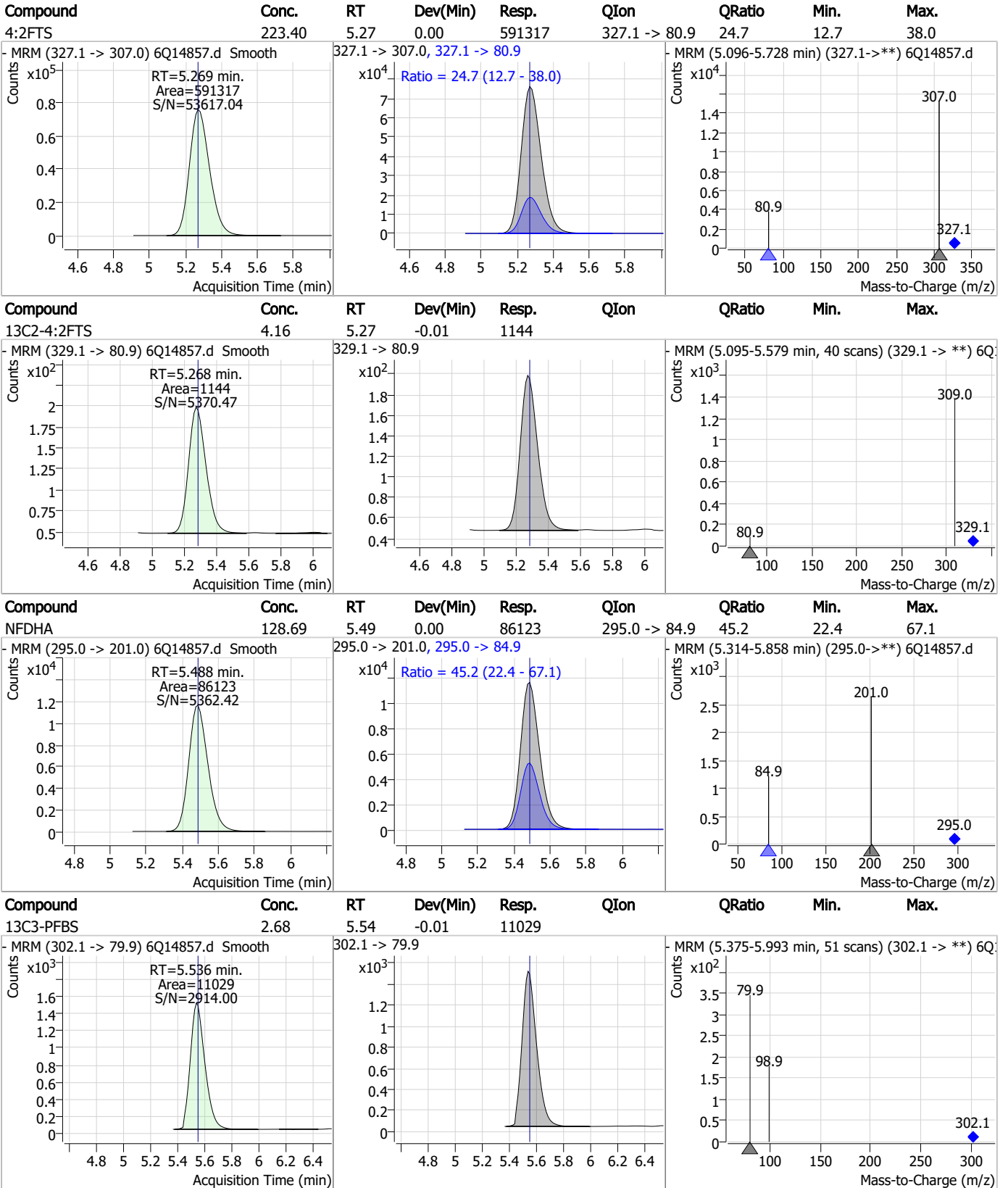


Perfluorinated Compounds by LC/MS/MS



7.7.9
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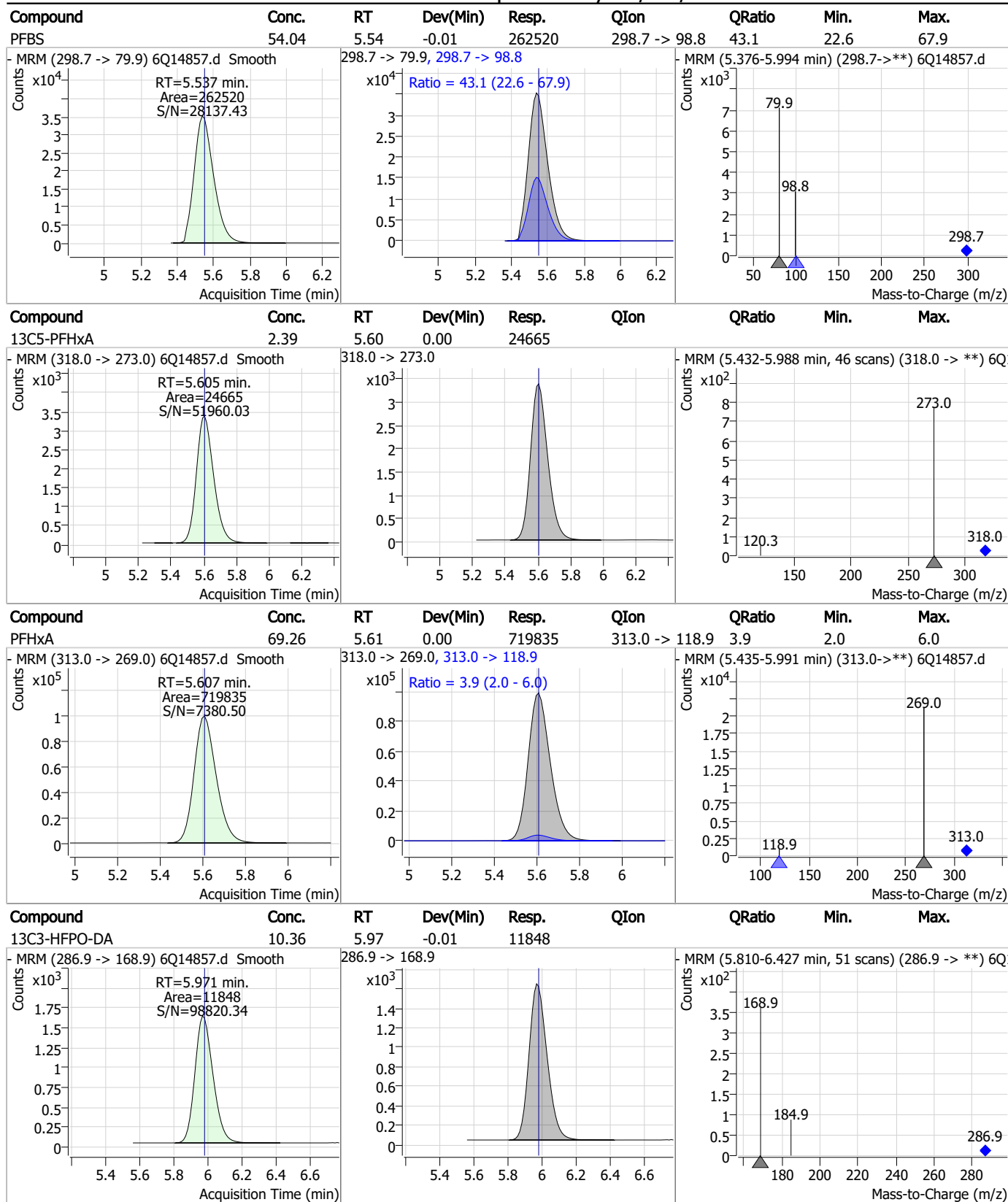
Perfluorinated Compounds by LC/MS/MS



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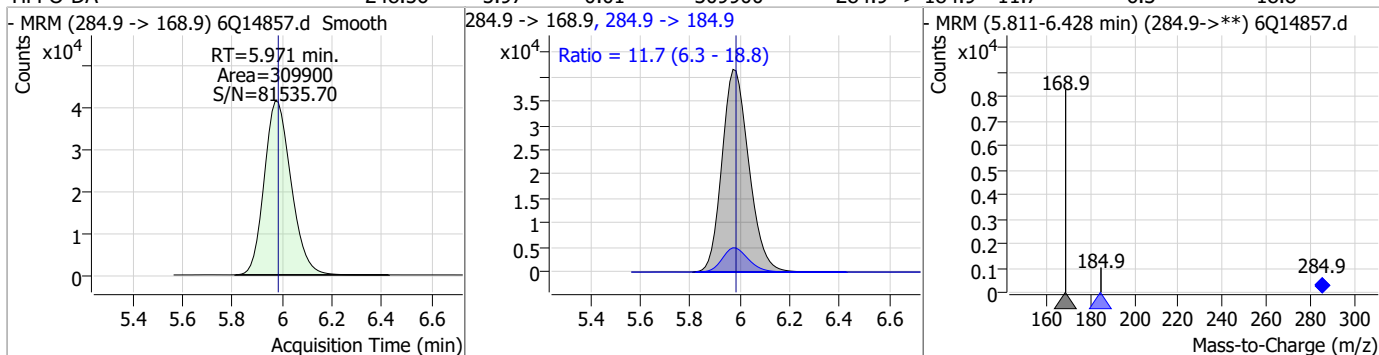
Perfluorinated Compounds by LC/MS/MS



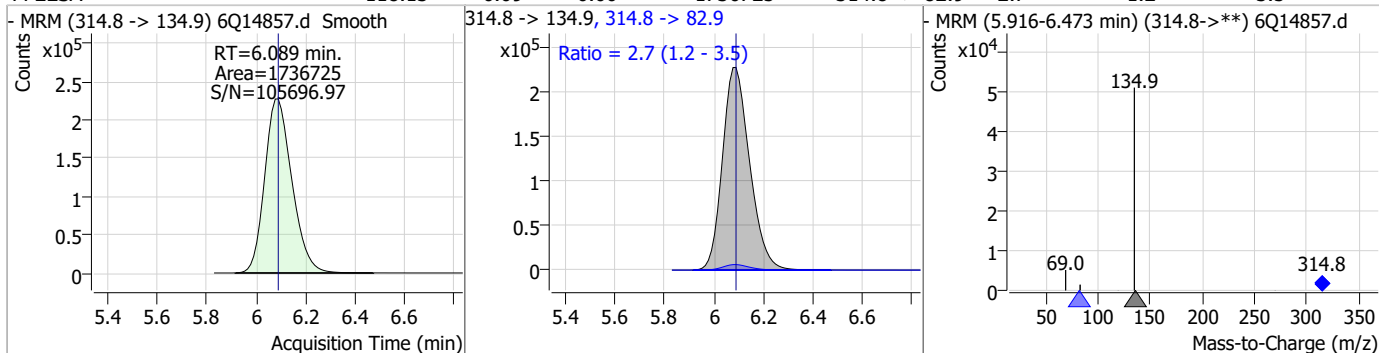
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Perfluorinated Compounds by LC/MS/MS

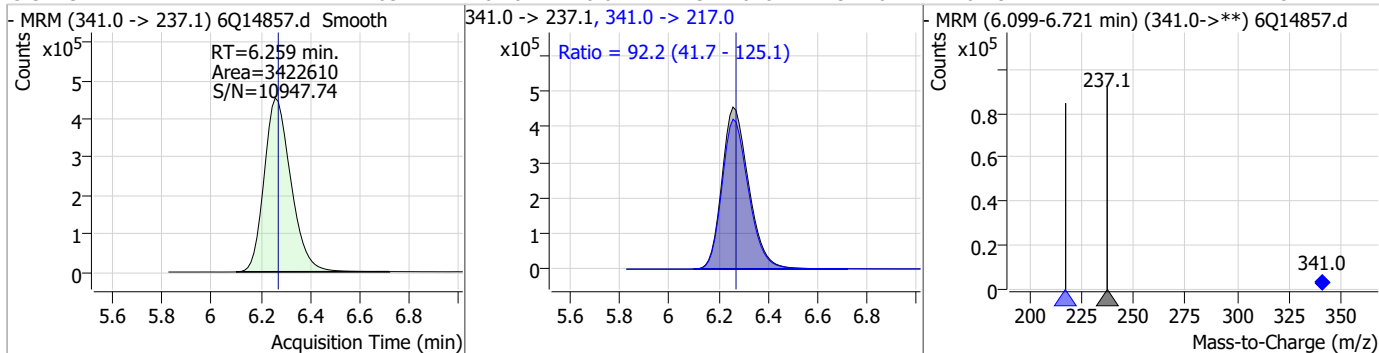
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	248.56	5.97	-0.01	309900	284.9 -> 184.9	11.7	6.3	18.8



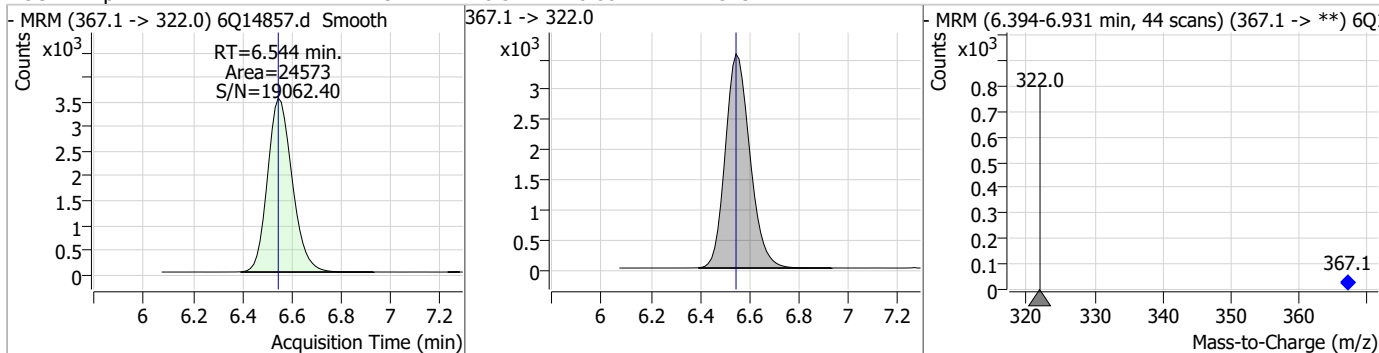
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	118.13	6.09	0.00	1736725	314.8 -> 82.9	2.7	1.2	3.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1631.71	6.26	-0.01	3422610	341.0 -> 217.0	92.2	41.7	125.1

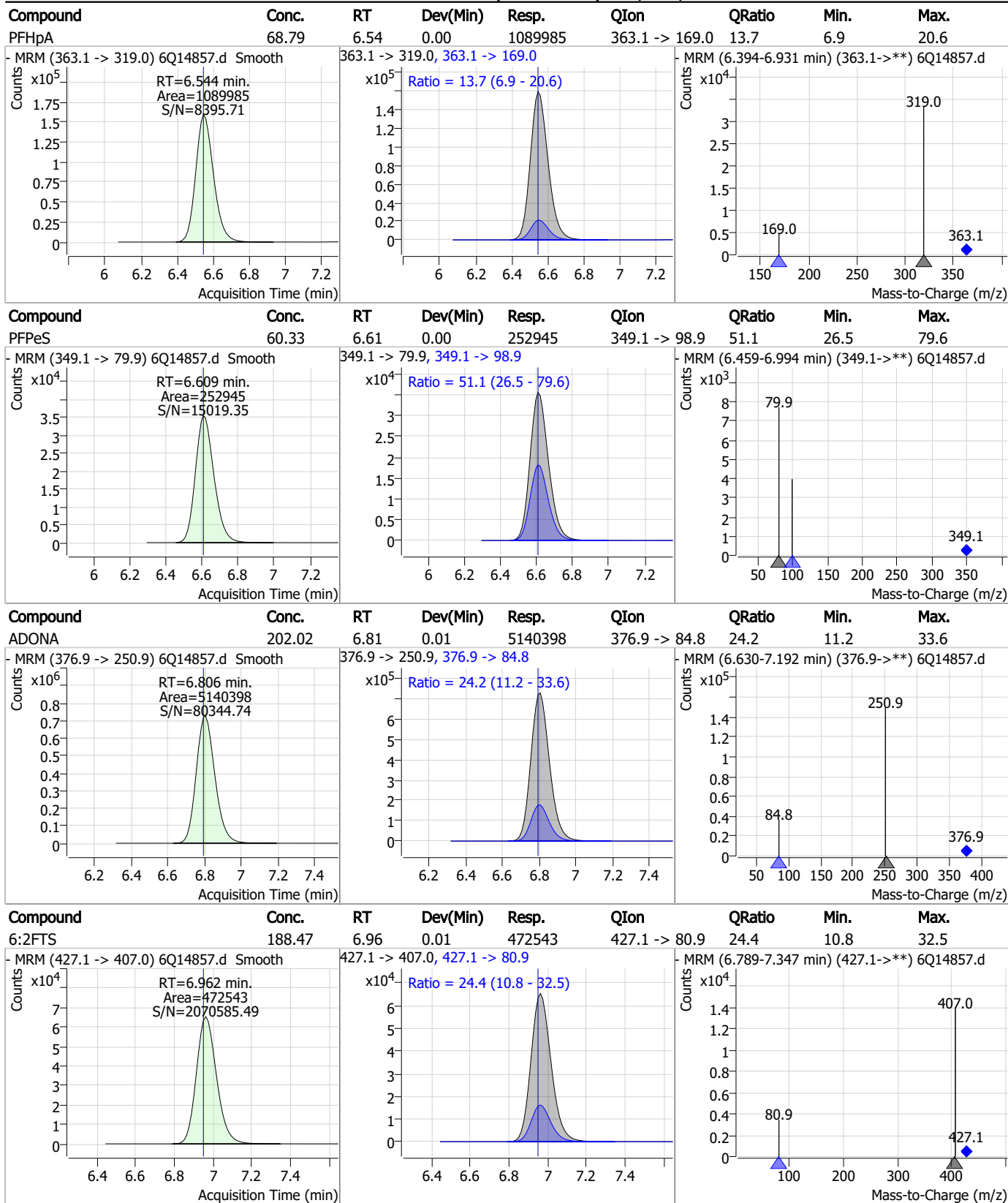


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.37	6.54	0.00	24573	367.1 -> 322.0			



7.7.9
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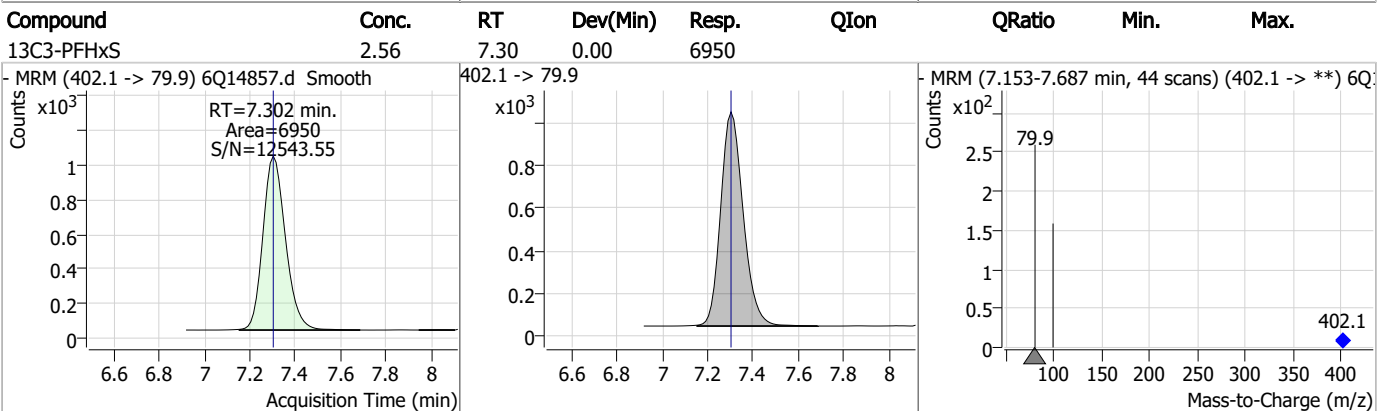
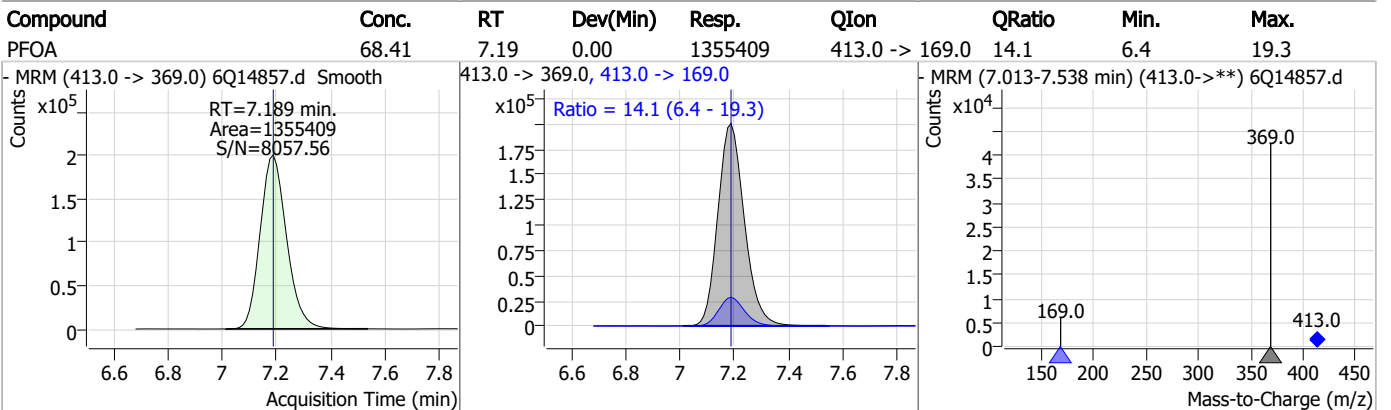
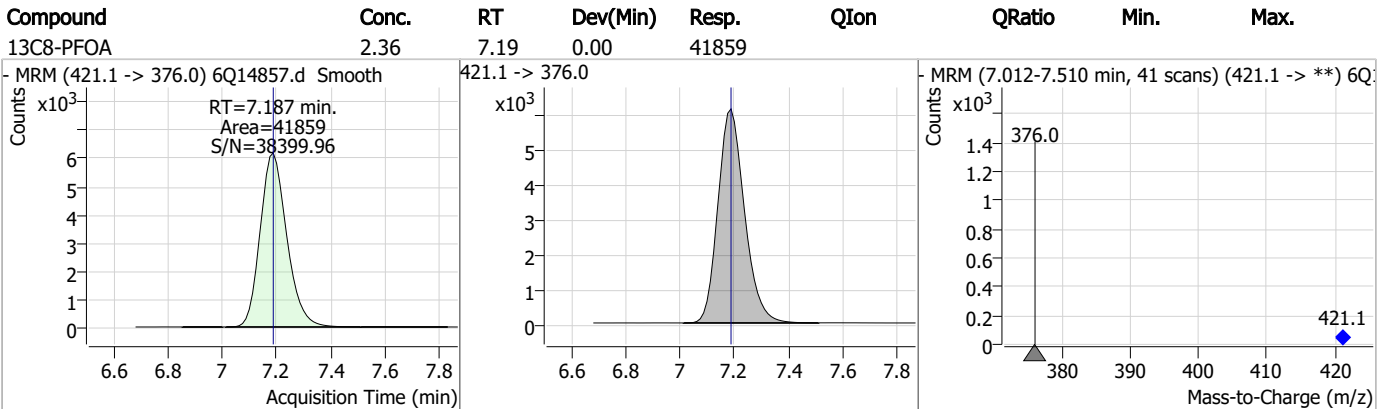
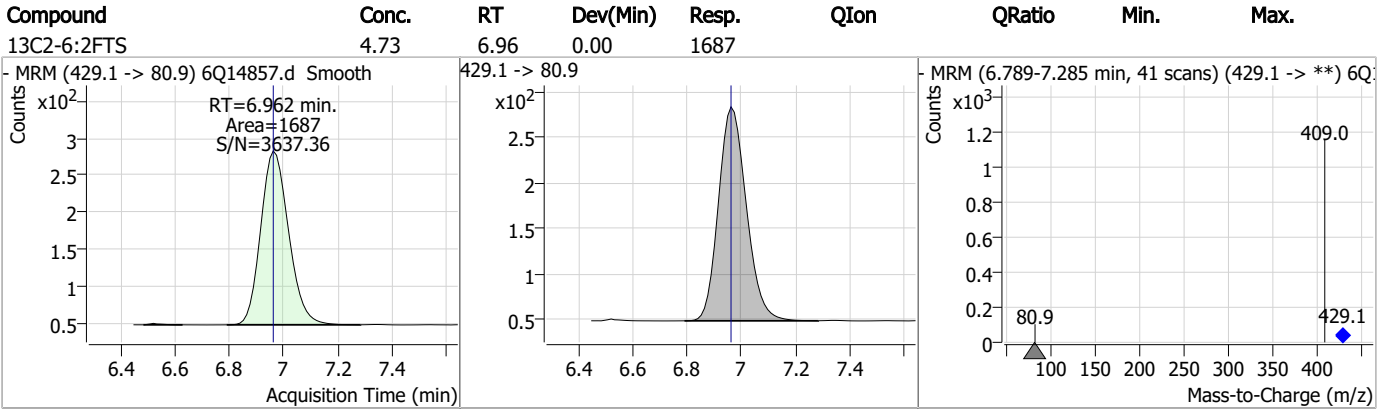
Perfluorinated Compounds by LC/MS/MS



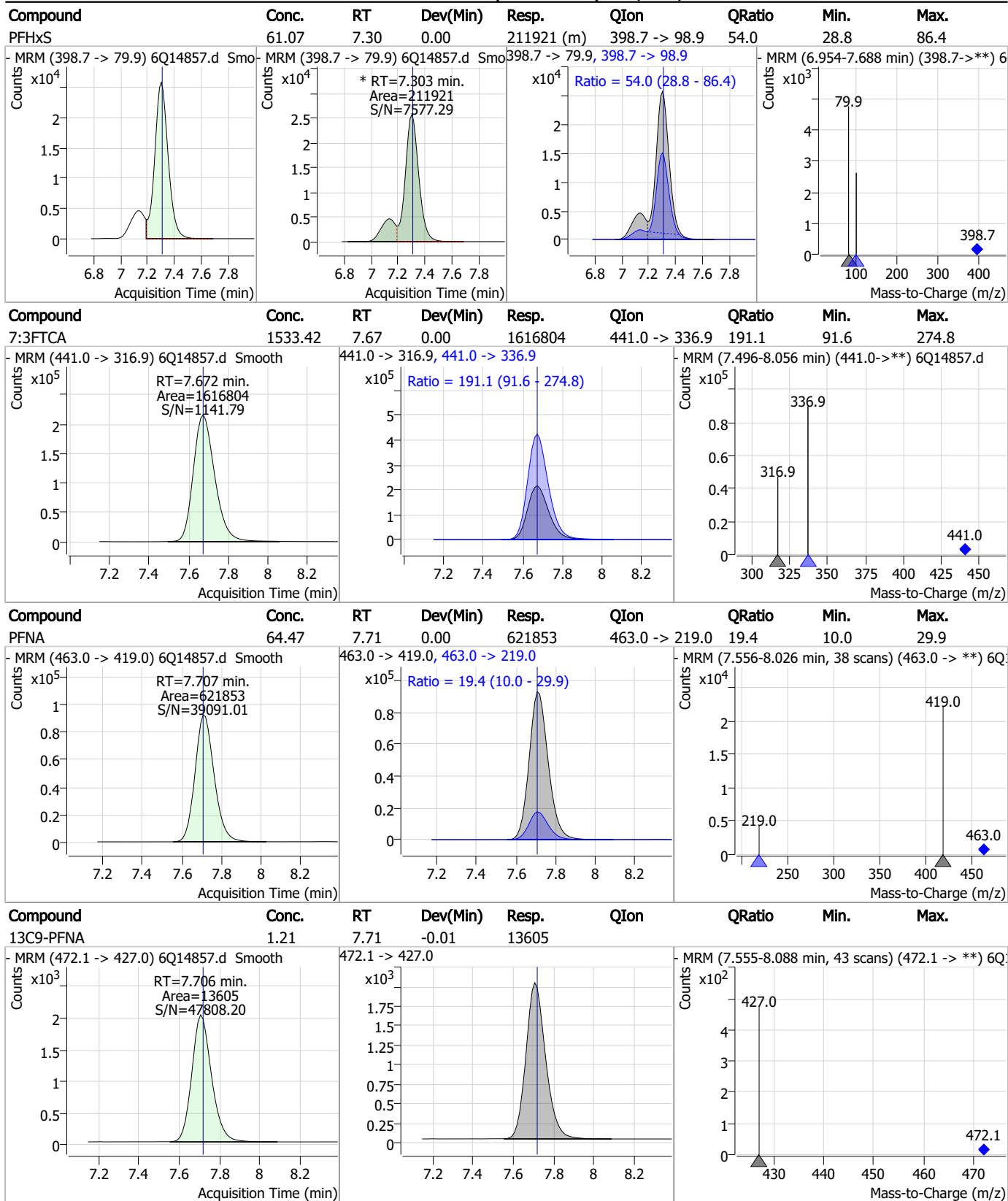
7.7.9
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Perfluorinated Compounds by LC/MS/MS

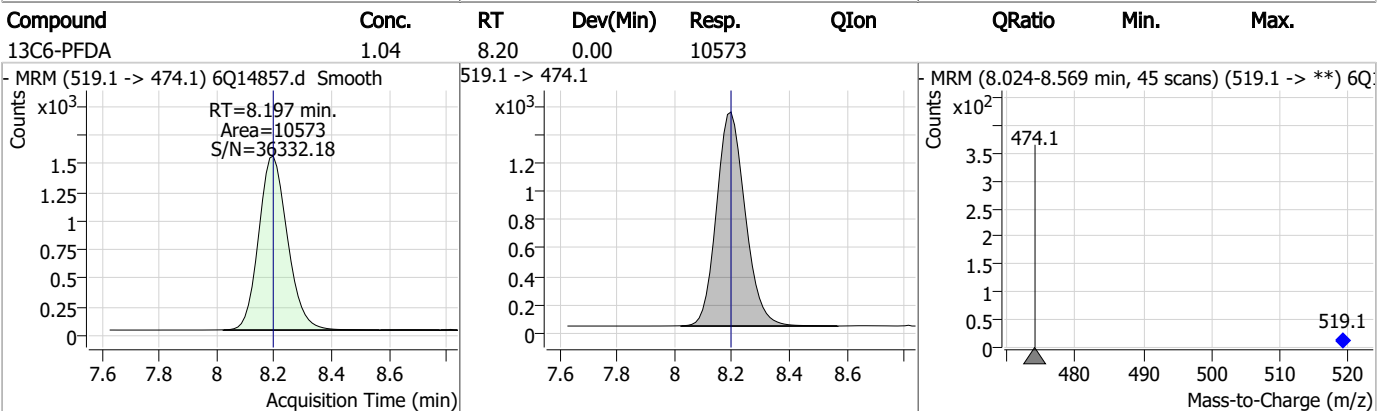
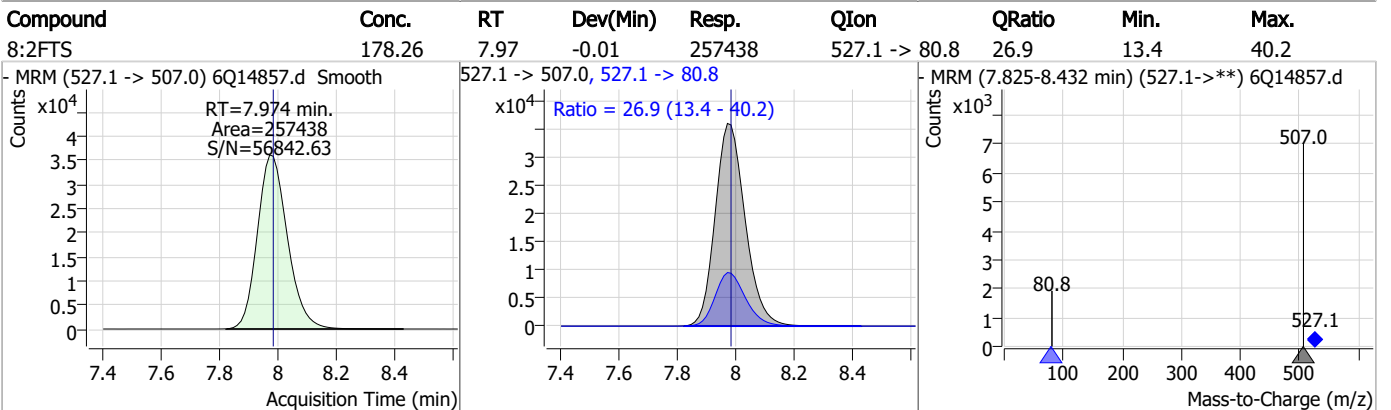
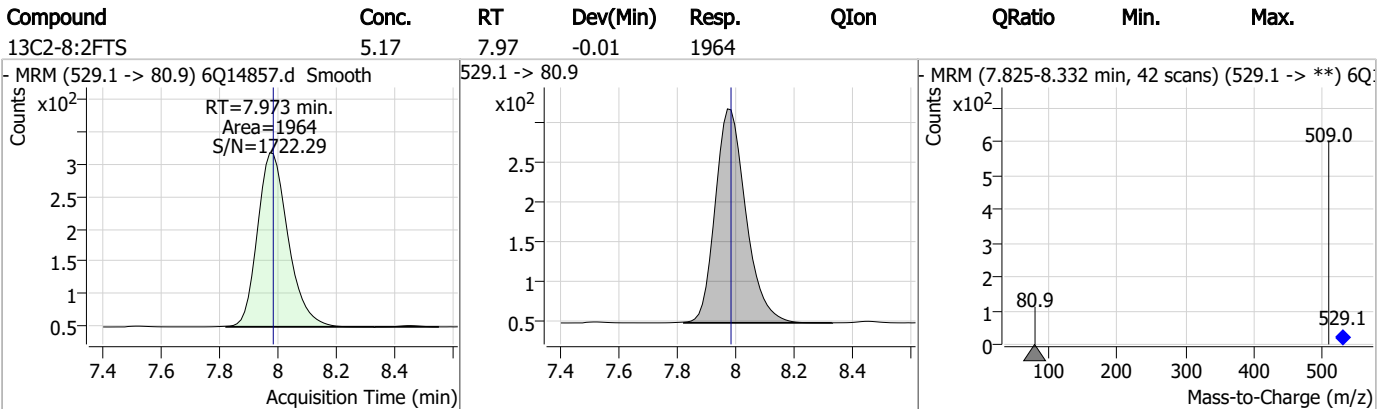
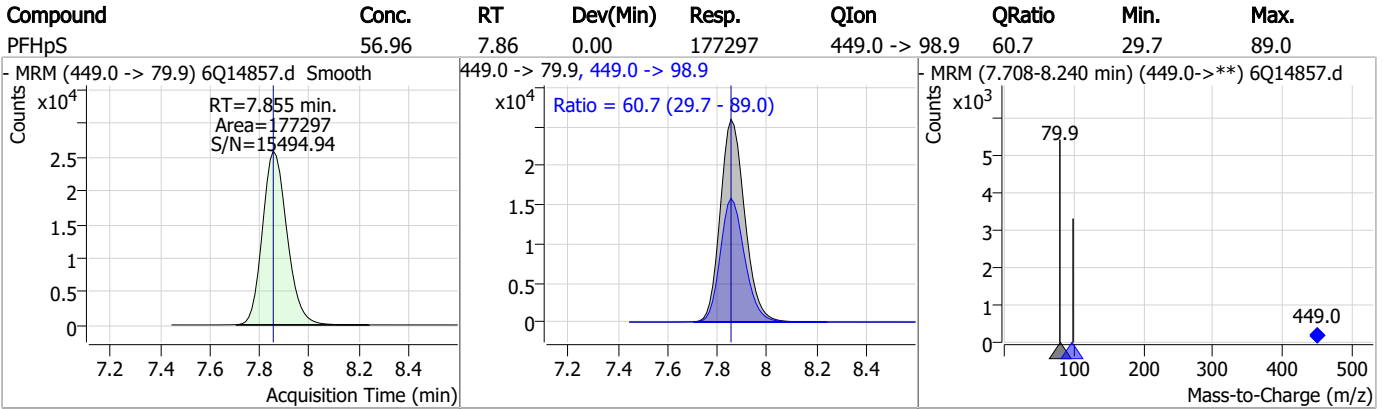


Perfluorinated Compounds by LC/MS/MS

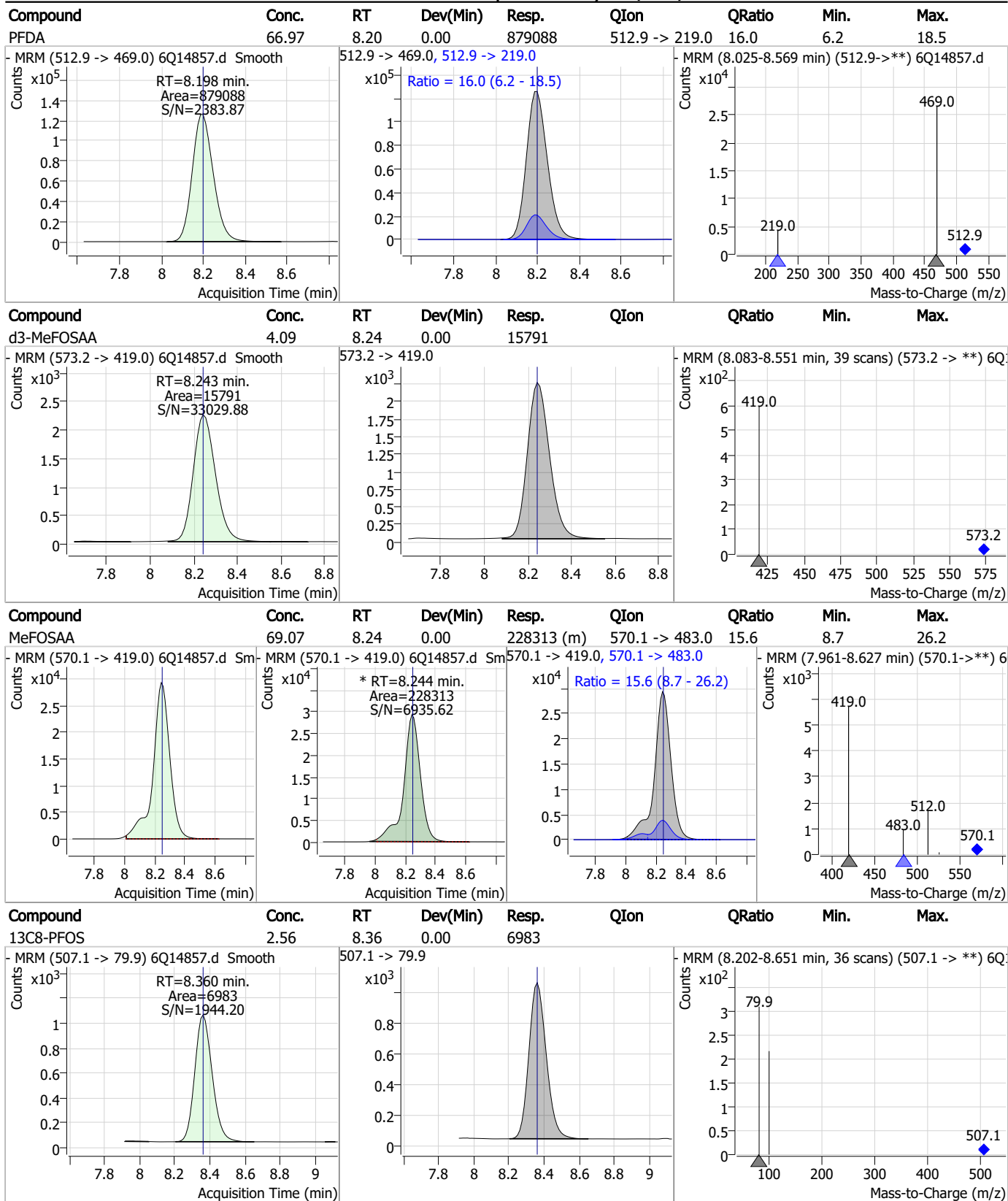


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Perfluorinated Compounds by LC/MS/MS



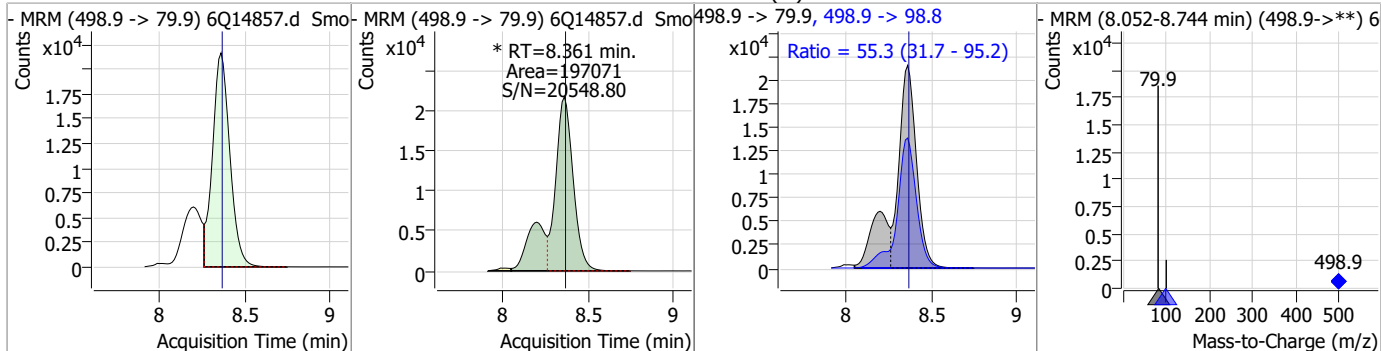
Perfluorinated Compounds by LC/MS/MS



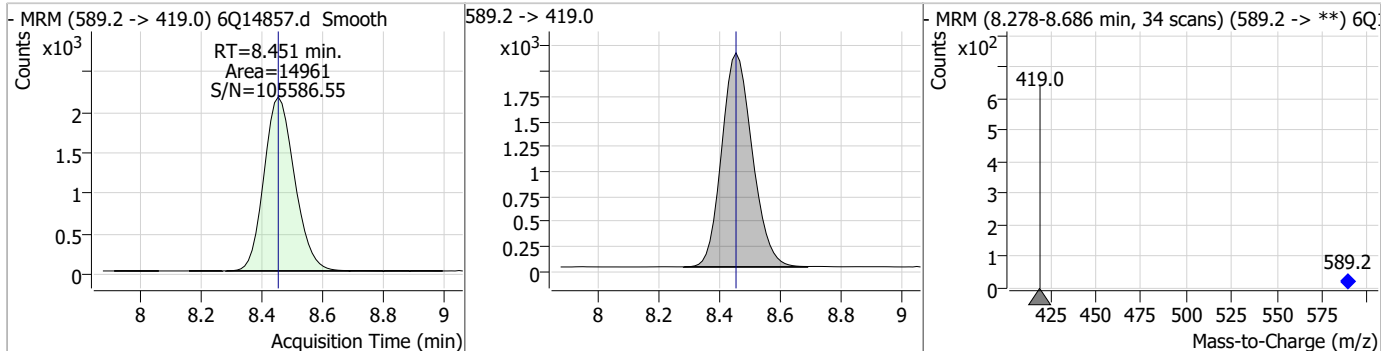
7.7.9
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Perfluorinated Compounds by LC/MS/MS

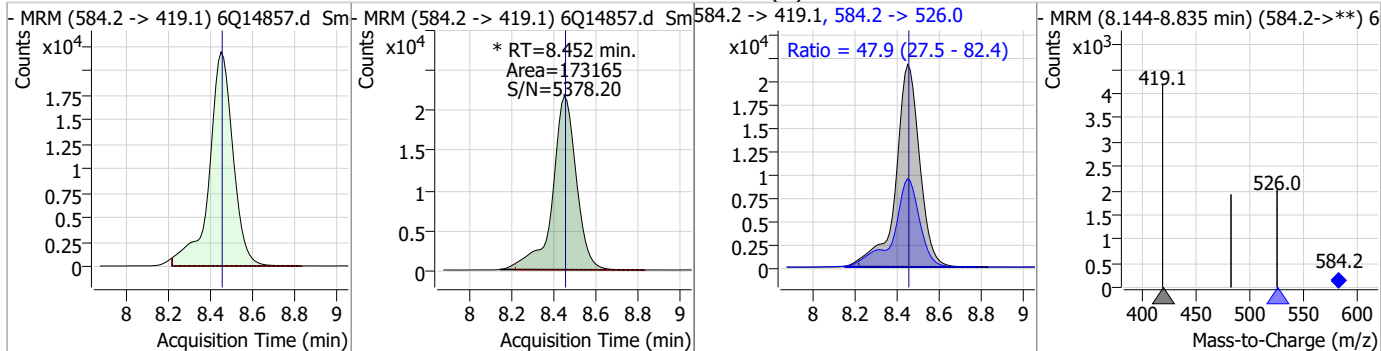
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	60.24	8.36	0.00	197071 (m)	498.9 -> 98.8	55.3	31.7	95.2



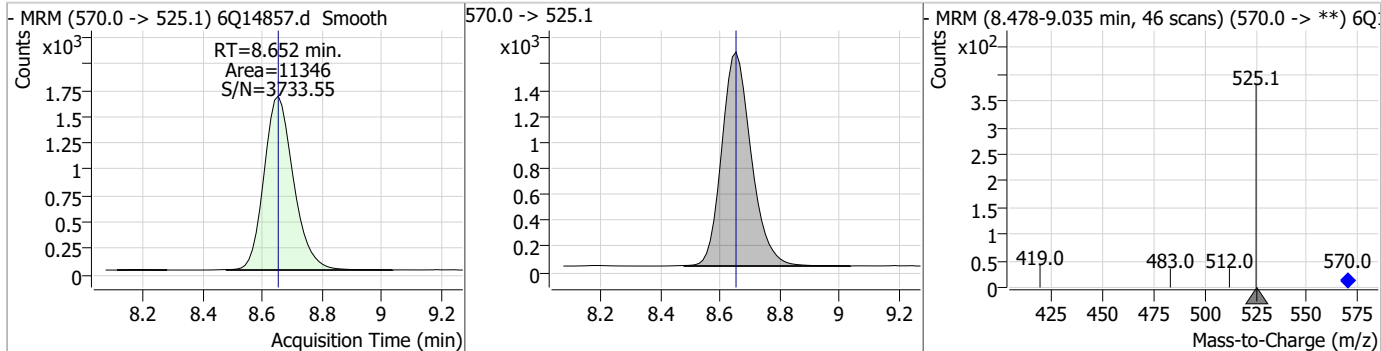
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.41	8.45	0.00	14961				



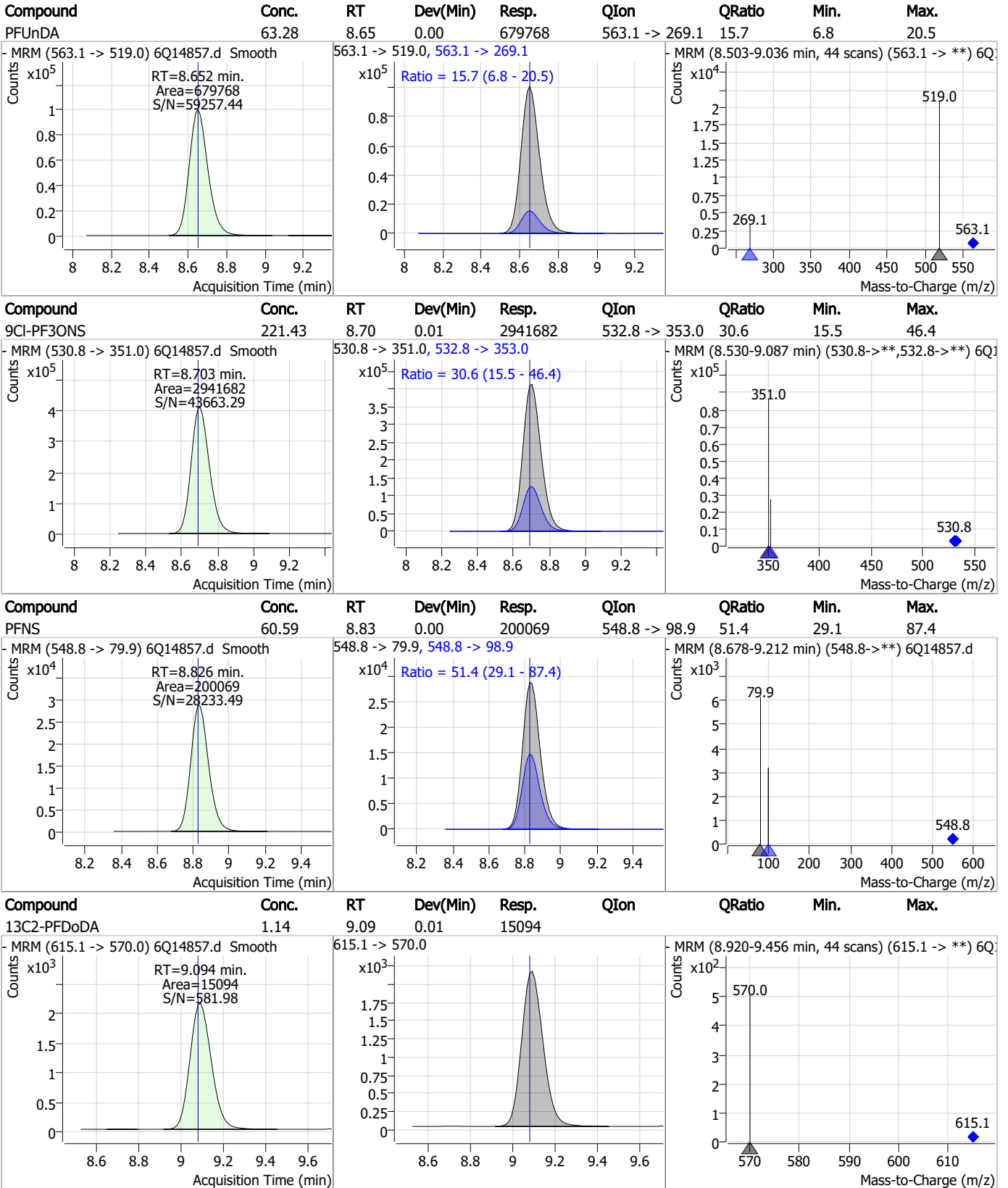
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	63.72	8.45	0.00	173165 (m)	584.2 -> 526.0	47.9	27.5	82.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.04	8.65	0.00	11346				



Perfluorinated Compounds by LC/MS/MS

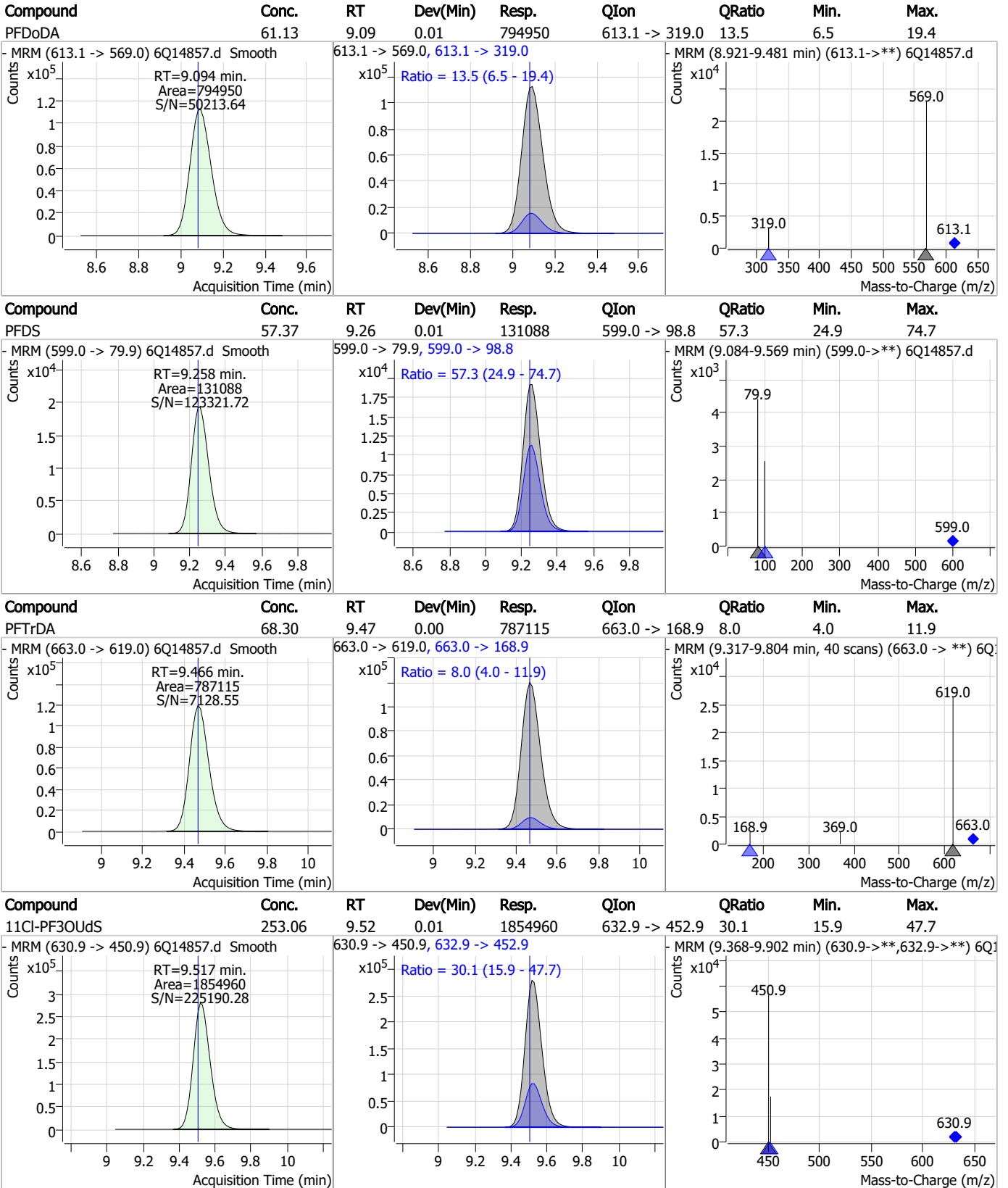


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Perfluorinated Compounds by LC/MS/MS



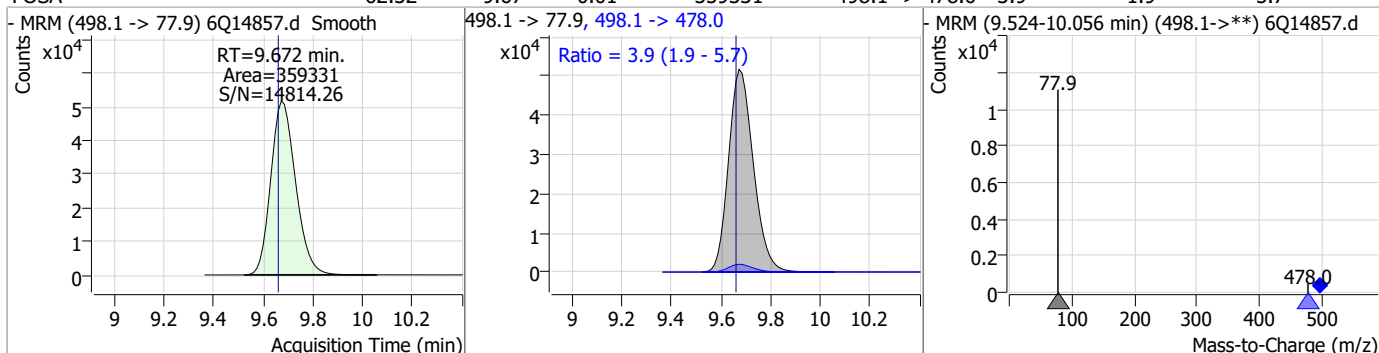
7.7.9

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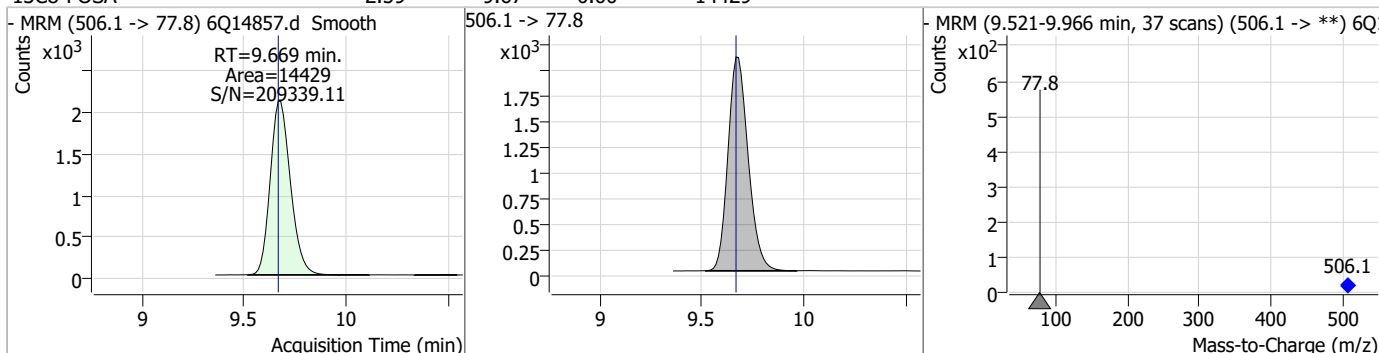


Perfluorinated Compounds by LC/MS/MS

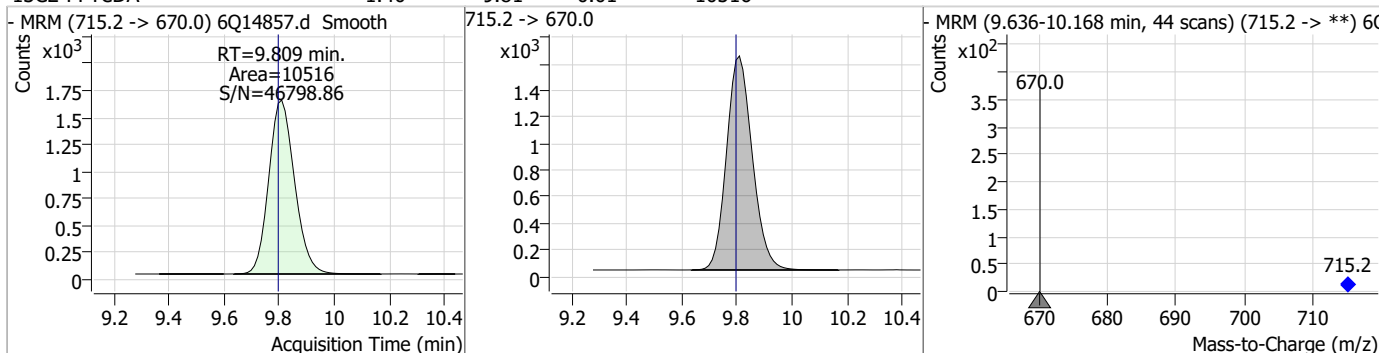
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	62.32	9.67	0.01	359331	498.1 -> 478.0	3.9	1.9	5.7



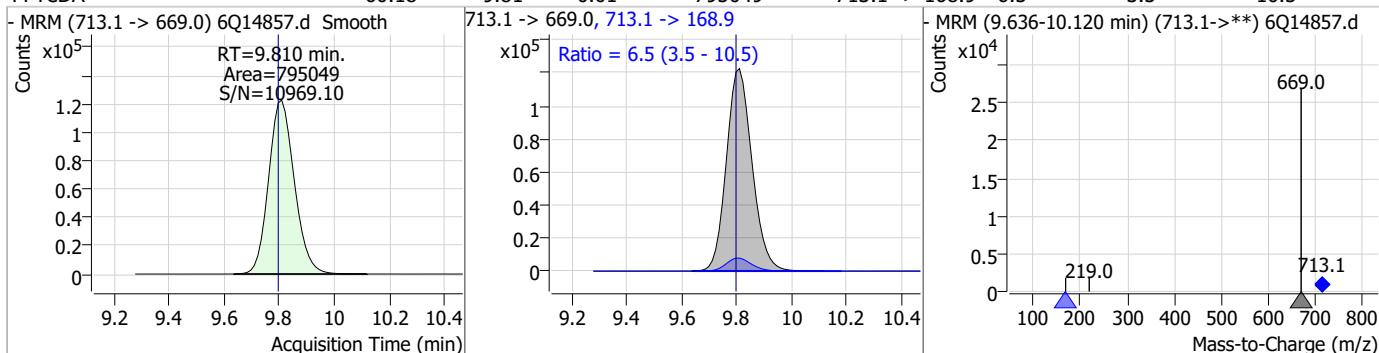
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.59	9.67	0.00	14429				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.40	9.81	0.01	10516				



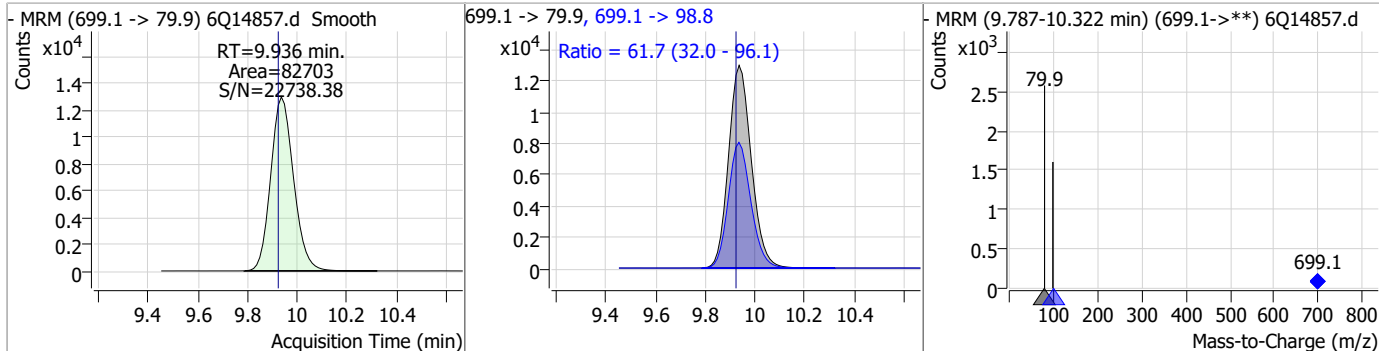
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	60.18	9.81	0.01	795049	713.1 -> 168.9	6.5	3.5	10.5



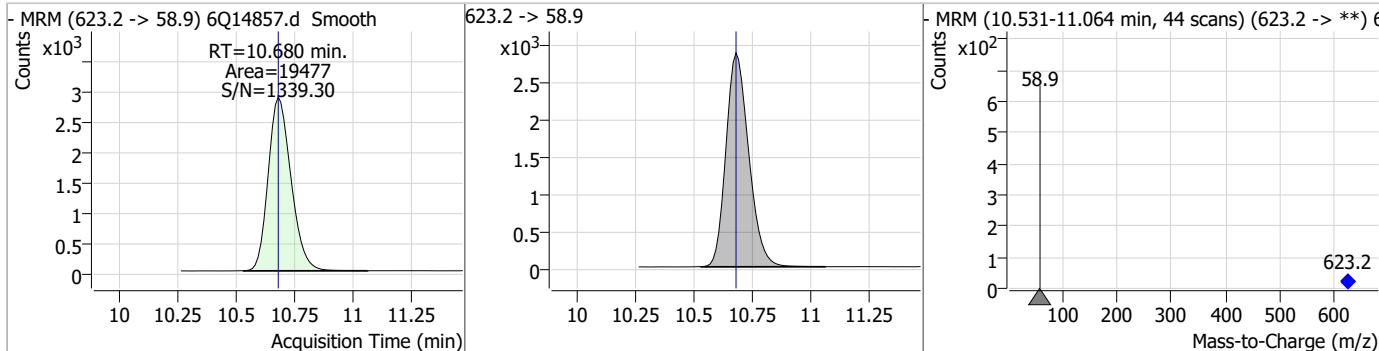
7.7.9
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Perfluorinated Compounds by LC/MS/MS

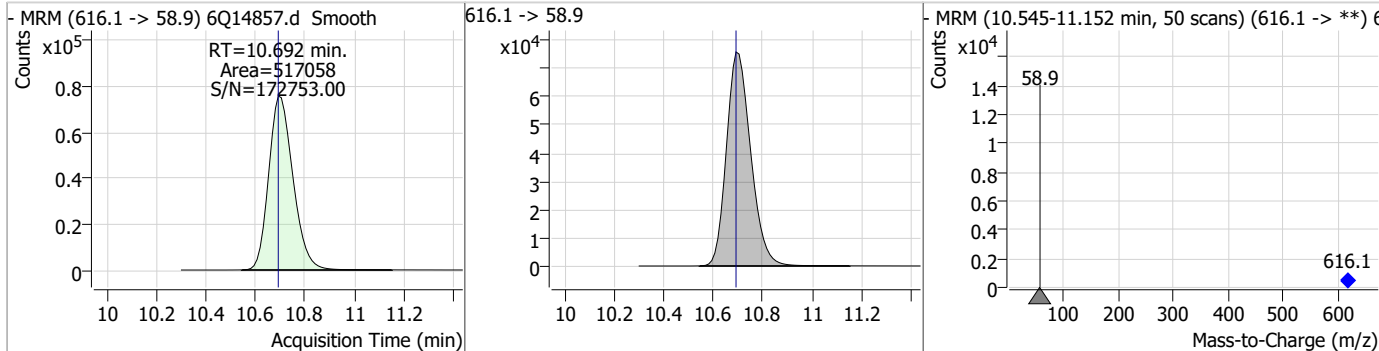
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	63.34	9.94	0.01	82703	699.1 -> 98.8	61.7	32.0	96.1



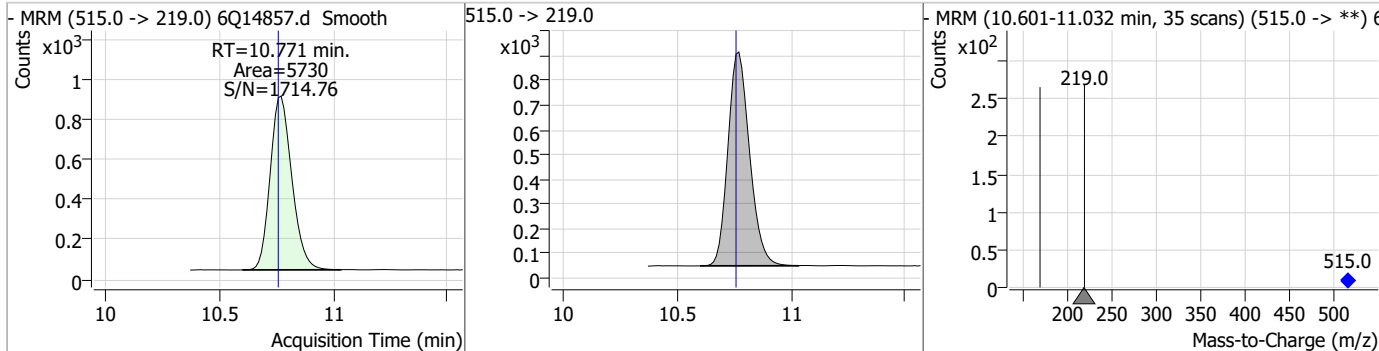
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.20	10.68	0.00	19477				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	628.80	10.69	0.00	517058				



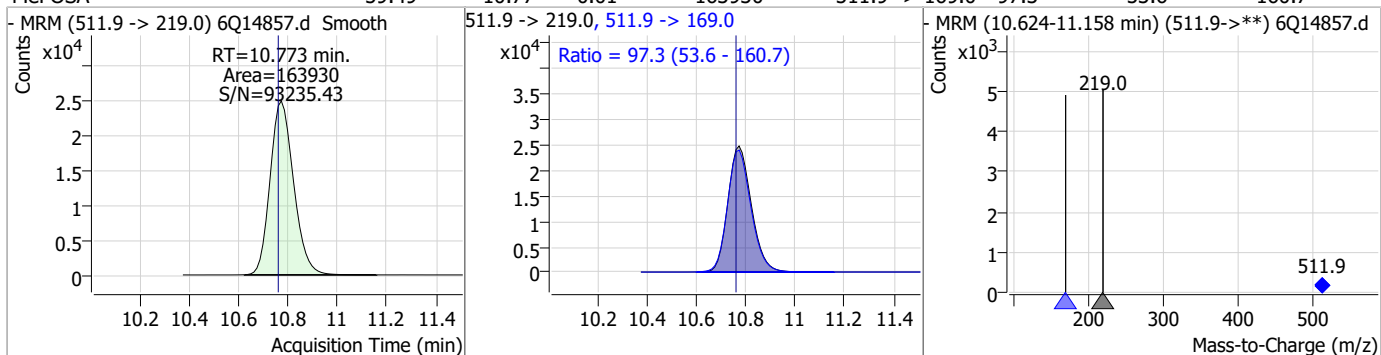
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.81	10.77	0.01	5730				



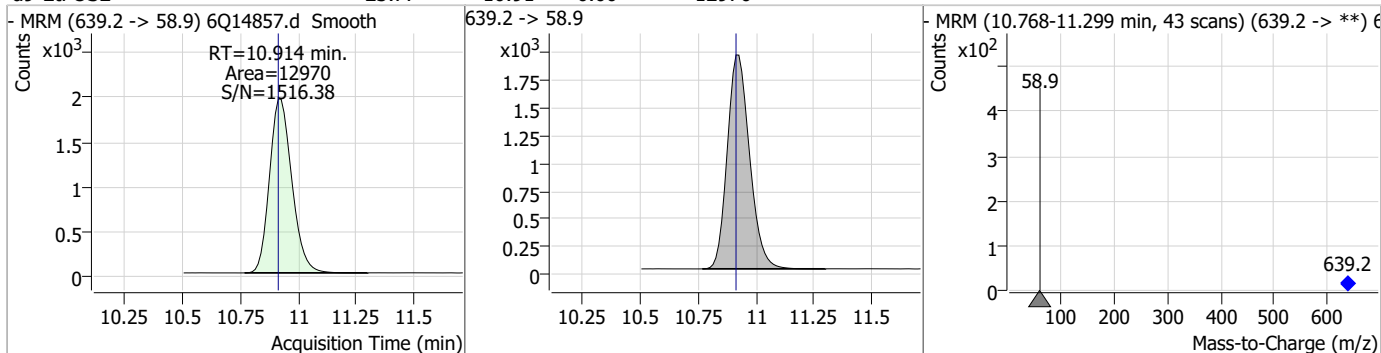
7.7.9
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Perfluorinated Compounds by LC/MS/MS

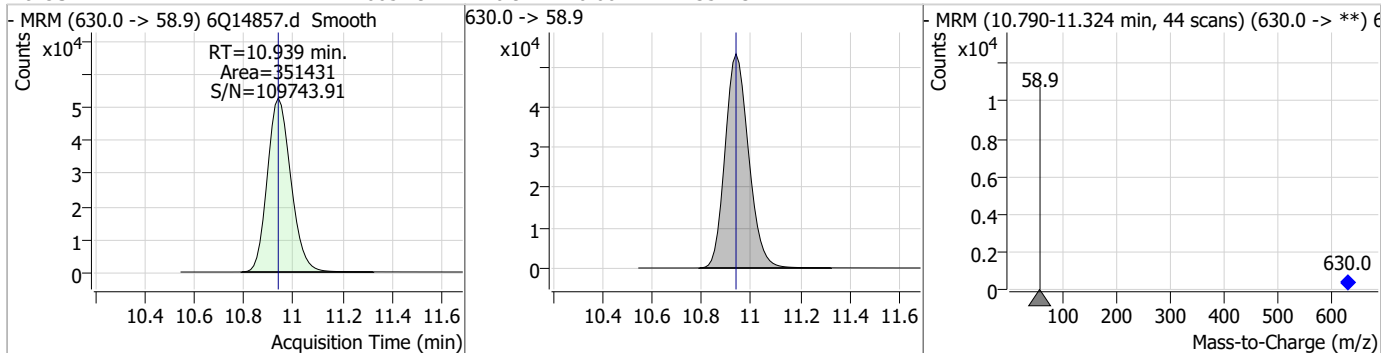
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	59.49	10.77	0.01	163930	511.9 -> 169.0	97.3	53.6	160.7



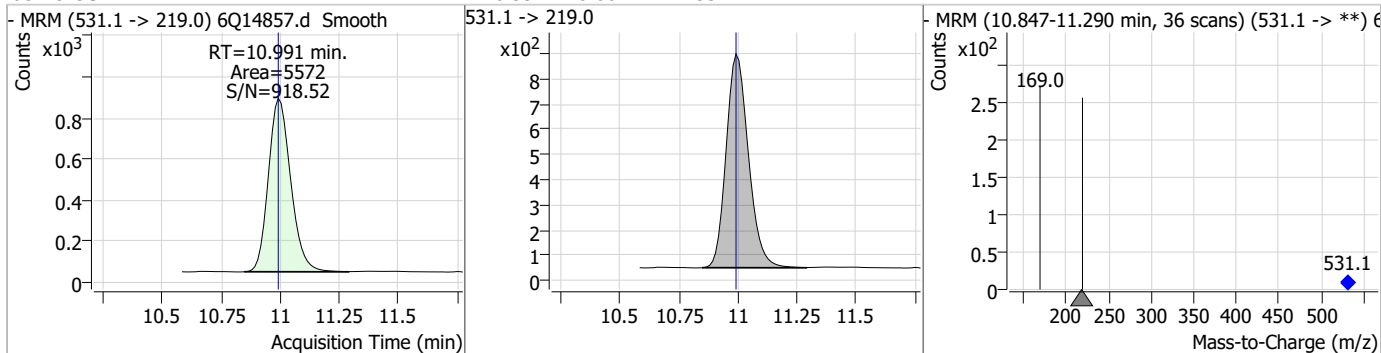
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.77	10.91	0.00	12970				



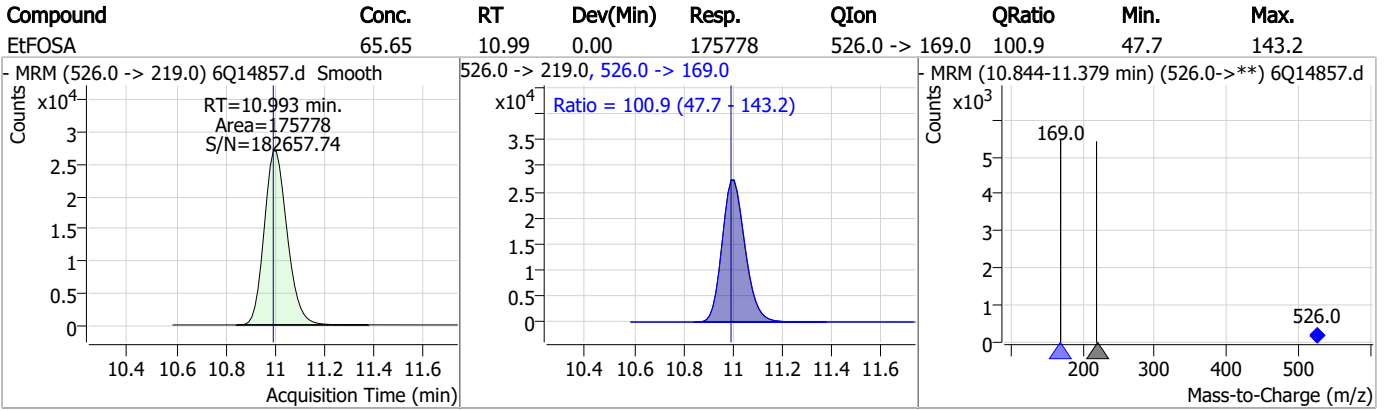
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	665.19	10.94	0.00	351431				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.47	10.99	0.00	5572				



Perfluorinated Compounds by LC/MS/MS



7.7.9

7

Manual Integration Approval Summary

Sample Number: S6Q225-IC225 Method: EPA DRAFT 1633
Lab FileID: 6Q14857.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 23:24 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.9.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14859.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/15/2023 11:52:03 PM
 Sample Name : icv225-4
 Vial : P1-B1
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.947	216.8 -> 171.9	75881	10.00 µg/L	0.000
M5-PFPeA	4.395	268.3 -> 223.0	36411	5.00 µg/L	0.000
M5-PFHxA	5.605	318.0 -> 273.0	32708	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	33311	2.50 µg/L	0.000
M8-PFOA	7.187	421.1 -> 376.0	54217	2.50 µg/L	0.000
M9-PFNA	7.718	472.1 -> 427.0	16870	1.25 µg/L	0.000
M6-PFDA	8.197	519.1 -> 474.1	15214	1.25 µg/L	0.000
M7-PFUnDA	8.652	570.0 -> 525.1	15988	1.25 µg/L	0.000
M2-PFDoDA	9.082	615.1 -> 570.0	19546	1.25 µg/L	0.000
M2-PFTeDA	9.797	715.2 -> 670.0	11210	1.25 µg/L	0.000
M8-FOSA	9.669	506.1 -> 77.8	15284	2.50 µg/L	0.000
M3-PFBS	5.536	302.1 -> 79.9	12491	2.50 µg/L	-0.012
M3-PFHxS	7.302	402.1 -> 79.9	8108	2.50 µg/L	0.000
M8-PFOS	8.360	507.1 -> 79.9	7720	2.50 µg/L	0.000
M2-4:2FTS	5.268	329.1 -> 80.9	1781	5.00 µg/L	-0.012
M2-6:2FTS	6.949	429.1 -> 80.9	2291	5.00 µg/L	-0.012
M2-8:2FTS	7.986	529.1 -> 80.9	2112	5.00 µg/L	0.000
M3-MeFOSAA	8.255	573.2 -> 419.0	21909	5.00 µg/L	0.012
M3-HFPO-DA	5.983	286.9 -> 168.9	14767	10.00 µg/L	0.000
M5-EtFOSAA	8.451	589.2 -> 419.0	20666	5.00 µg/L	0.000
M7-MeFOSE	10.680	623.2 -> 58.9	21699	25.00 µg/L	0.000
M9-EtFOSE	10.926	639.2 -> 58.9	15870	25.00 µg/L	0.012
M5-EtFOSA	10.991	531.1 -> 219.0	6260	2.50 µg/L	0.000
M3-MeFOSA	10.759	515.0 -> 219.0	5514	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	8504	2.50 µg/L	0.000
13C3-PFBA	2.952	216.0 -> 172.0	32669	5.00 µg/L	0.000
18O2-PFHxS	7.314	403.0 -> 83.9	5891	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	67597	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	20276	1.25 µg/L	0.000
13C5-PFNA	7.718	468.0 -> 423.0	18425	1.25 µg/L	0.000
13C2-PFHxA	5.606	315.1 -> 270.0	32815	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.268	329.1 -> 80.9	1781	5.27 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C2-6:2FTS	6.949	429.1 -> 80.9	2291	5.23 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-8:2FTS	7.986	529.1 -> 80.9	2112	4.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C2-PFDoDA	9.082	615.1 -> 570.0	19546	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.797	715.2 -> 670.0	11210	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C3-PFBS	5.536	302.1 -> 79.9	12491	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFHxS	7.302	402.1 -> 79.9	8108	2.44 µg/L	0.000

7.7.10
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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 = 97.5%		
13C4-PFBA	2.947	216.8 -> 171.9	75881	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C4-PFHpA	6.544	367.1 -> 322.0	33311	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C5-PFHxA	5.605	318.0 -> 273.0	32708	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C5-PFPeA	4.395	268.3 -> 223.0	36411	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C6-PFDA	8.197	519.1 -> 474.1	15214	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C7-PFUnDA	8.652	570.0 -> 525.1	15988	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C8-FOSA	9.669	506.1 -> 77.8	15284	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C8-PFOA	7.187	421.1 -> 376.0	54217	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C8-PFOS	8.360	507.1 -> 79.9	7720	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C9-PFNA	7.718	472.1 -> 427.0	16870	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.0%		
d3-MeFOSAA	8.255	573.2 -> 419.0	21909	5.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.3%		
13C3-HFPO-DA	5.983	286.9 -> 168.9	14767	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
d3-MeFOSA	10.759	515.0 -> 219.0	5514	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
d5-EtFOSAA	8.451	589.2 -> 419.0	20666	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
d7-MeFOSE	10.680	623.2 -> 58.9	21699	26.52 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
d9-EtFOSE	10.926	639.2 -> 58.9	15870	27.48 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
d5-EtFOSA	10.991	531.1 -> 219.0	6260	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.0%		
Target Compounds					QValue
4:2FTS	5.269	327.1 -> 307.0	38481	9.34 µg/L	96
		327.1 -> 80.9	9051		
6:2FTS	6.950	427.1 -> 407.0	31606	9.29 µg/L	97
		427.1 -> 80.9	7212		
8:2FTS	7.986	527.1 -> 507.0	18394	11.84 µg/L	98
		527.1 -> 80.8	4774		
EtFOSAA	8.464	584.2 -> 419.1	8331	2.22 µg/L	m 93
		584.2 -> 526.0	4996		
FOSA	9.660	498.1 -> 77.9	15440	2.53 µg/L	99
		498.1 -> 478.0	547		
MeFOSAA	8.256	570.1 -> 419.0	11247	2.45 µg/L	m 97
		570.1 -> 483.0	2108		
PFBA	2.956	212.8 -> 168.9	19970	9.64 µg/L	100
PFBS	5.537	298.7 -> 79.9	12670	2.30 µg/L	94
		298.7 -> 98.8	5230		
PFDA	8.198	512.9 -> 469.0	44489	2.36 µg/L	98
		512.9 -> 219.0	5899		
PFDODA	9.082	613.1 -> 569.0	40576	2.41 µg/L	98
		613.1 -> 319.0	4847		
PFDS	9.246	599.0 -> 79.9	5981	2.37 µg/L	93

7.7.10
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.544	599.0 -> 98.8	3250	2.44	µg/L	99
		363.1 -> 319.0	52431			
PFHpS	7.868	363.1 -> 169.0	7378	2.27	µg/L	96
		449.0 -> 79.9	7817			
PFHxA	5.607	449.0 -> 98.9	4897	2.52	µg/L	99
		313.0 -> 269.0	34686			
PFHxS	7.303	313.0 -> 118.9	1309	2.26	µg/L	98
		398.7 -> 79.9	9155			
PFNA	7.719	398.7 -> 98.9	5135	2.31	µg/L	97
		463.0 -> 419.0	27648			
PFNS	8.826	463.0 -> 219.0	5901	2.39	µg/L	99
		548.8 -> 79.9	8739			
PFOA	7.189	548.8 -> 98.9	5021	2.50	µg/L	95
		413.0 -> 369.0	64093			
PFOS	8.361	413.0 -> 169.0	9474	2.21	µg/L	86
		498.9 -> 79.9	7987			
PFPeA	4.397	498.9 -> 98.8	5927	4.99	µg/L	100
		263.0 -> 219.0	43268			
PFPeS	6.609	349.1 -> 79.9	11710	2.39	µg/L	99
		349.1 -> 98.9	6133			
PFTeDA	9.797	713.1 -> 669.0	33490	2.38	µg/L	99
		713.1 -> 168.9	2411			
PFTrDA	9.453	663.0 -> 619.0	39954	2.68	µg/L	98
		663.0 -> 168.9	2935			
PFUnDA	8.652	563.1 -> 519.0	37409	2.47	µg/L	95
		563.1 -> 269.1	5877			
11CI-PF3OUdS	9.505	630.9 -> 450.9	82977	9.08	µg/L	98
		632.9 -> 452.9	27226			
9CI-PF3ONS	8.703	530.8 -> 351.0	149137	9.01	µg/L	98
		532.8 -> 353.0	47312			
ADONA	6.794	376.9 -> 250.9	294431	9.28	µg/L	99
		376.9 -> 84.8	64794			
HFPO-DA	5.984	284.9 -> 168.9	15158	9.75	µg/L	98
		284.9 -> 184.9	1748			
3:3FTCA	3.851	241.0 -> 177.0	5277	12.17	µg/L	100
		241.0 -> 117.0	790			
5:3FTCA	6.259	341.0 -> 237.1	168918	60.73	µg/L	88
		341.0 -> 217.0	158862			
7:3FTCA	7.684	441.0 -> 316.9	84378	60.35	µg/L	97
		441.0 -> 336.9	157824			
EtFOSA	10.993	526.0 -> 219.0	7520	2.50	µg/L	100
		526.0 -> 169.0	7179			
EtFOSE	10.939	630.0 -> 58.9	15766	24.39	µg/L	100
		511.9 -> 219.0	6883			
MeFOSA	10.760	511.9 -> 169.0	7095	2.60	µg/L	96
		616.1 -> 58.9	23019			
MeFOSE	10.692	699.1 -> 79.9	3582	25.13	µg/L	100
		699.1 -> 98.8	2274			
PFDoDS	9.924	295.0 -> 201.0	4422	2.48	µg/L	99
		295.0 -> 84.9	2003			
NFDHA	5.488	279.0 -> 85.1	13733	4.98	µg/L	99
		229.0 -> 84.9	12382			
PFMBA	4.806	314.8 -> 134.9	86664	4.86	µg/L	100
		314.8 -> 82.9	2024			
PFMPA	3.526			4.99	µg/L	100
PFEESA	6.089			4.45	µg/L	100

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

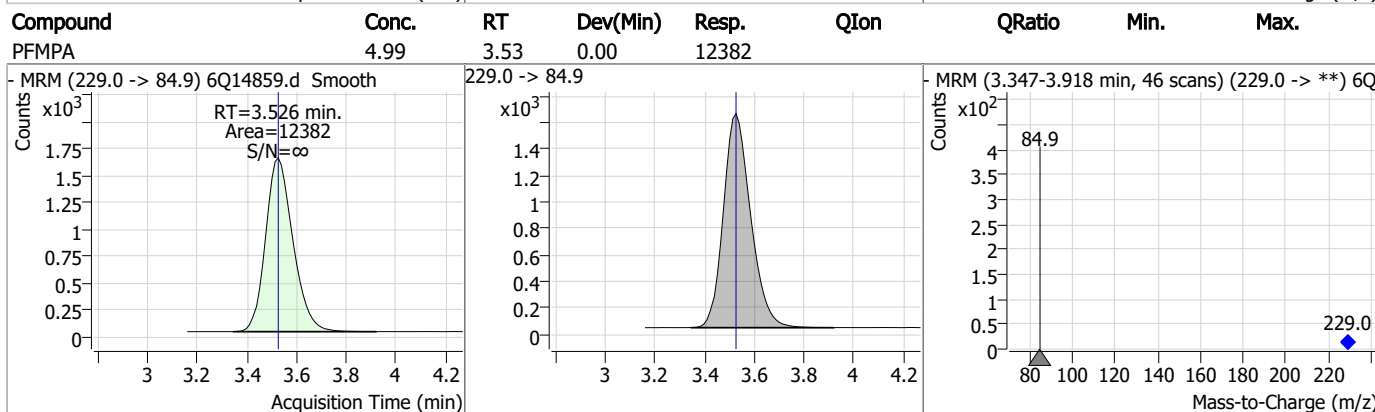
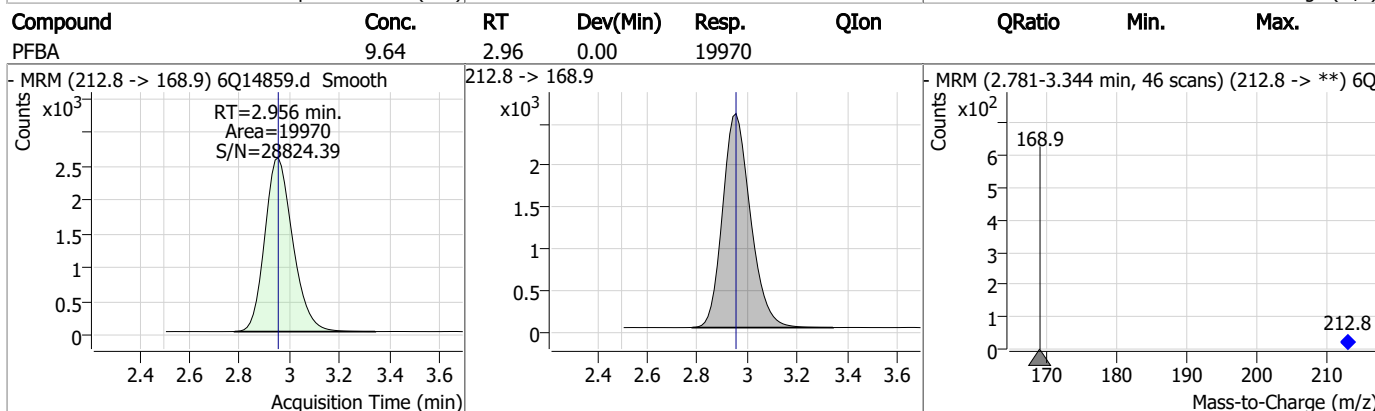
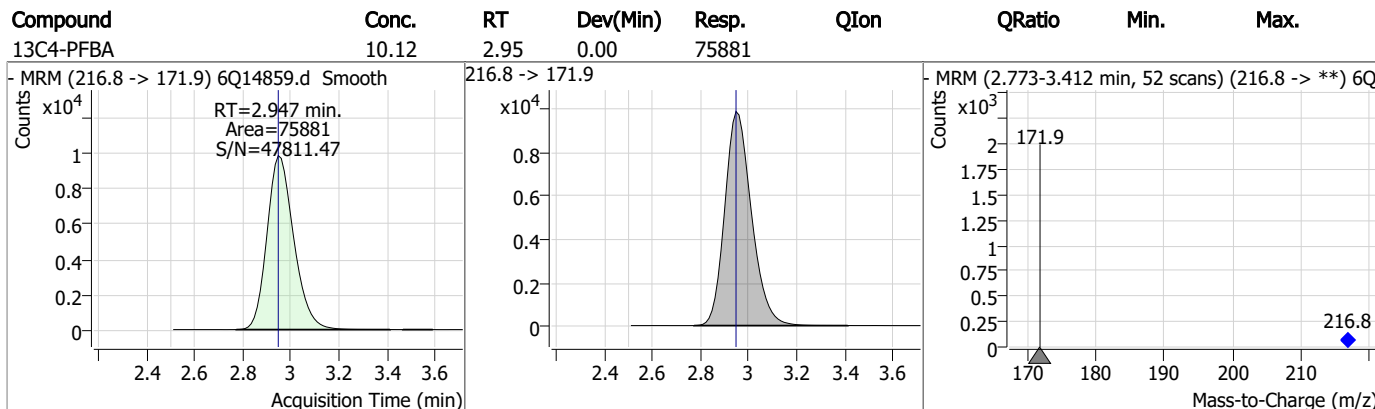
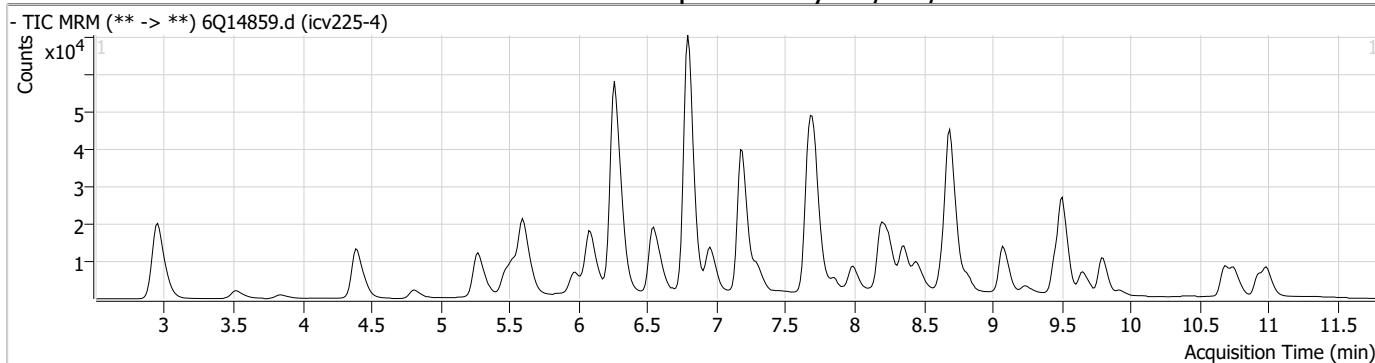
Perfluorinated Compounds by LC/MS/MS

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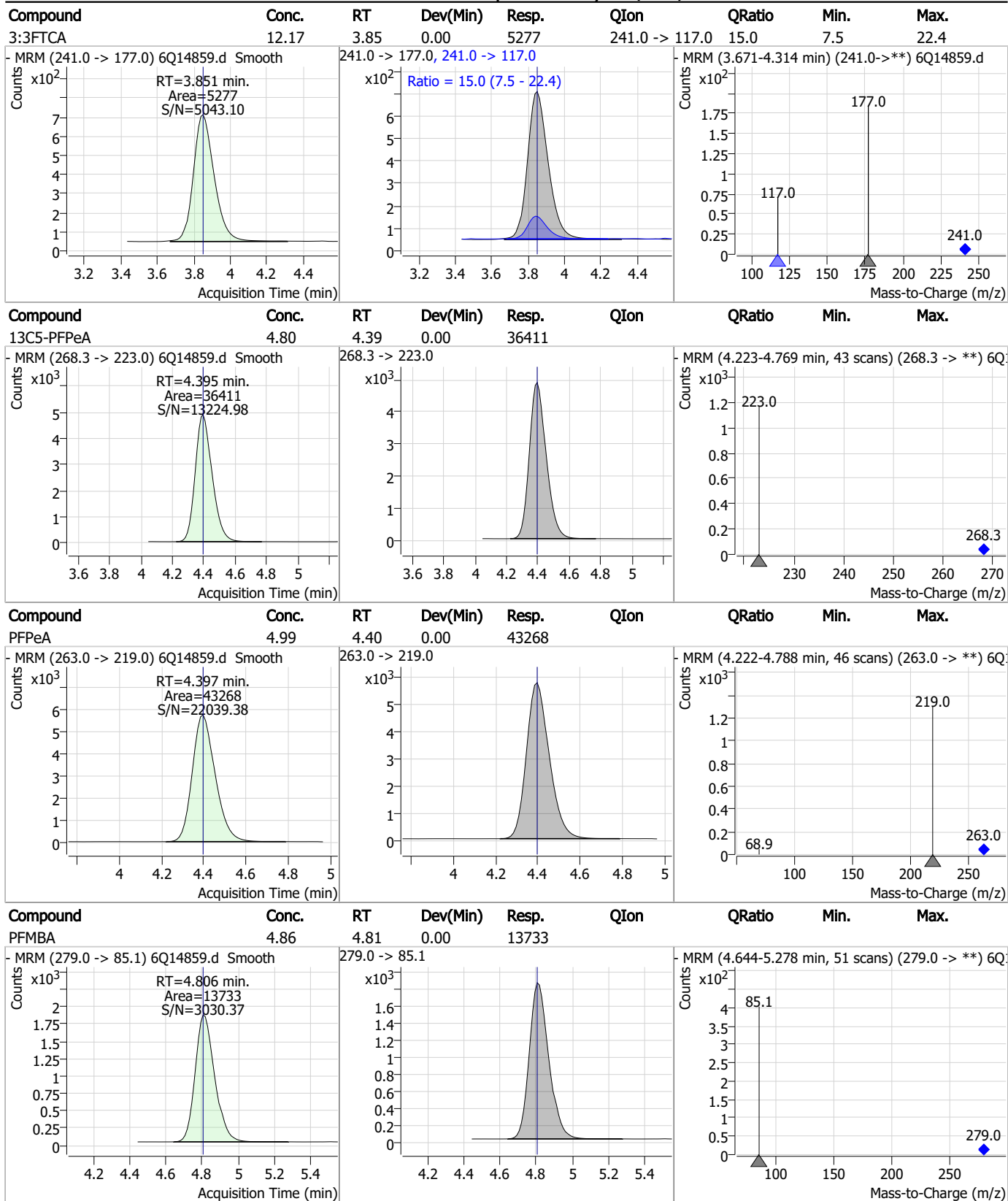
7.7.10

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Perfluorinated Compounds by LC/MS/MS

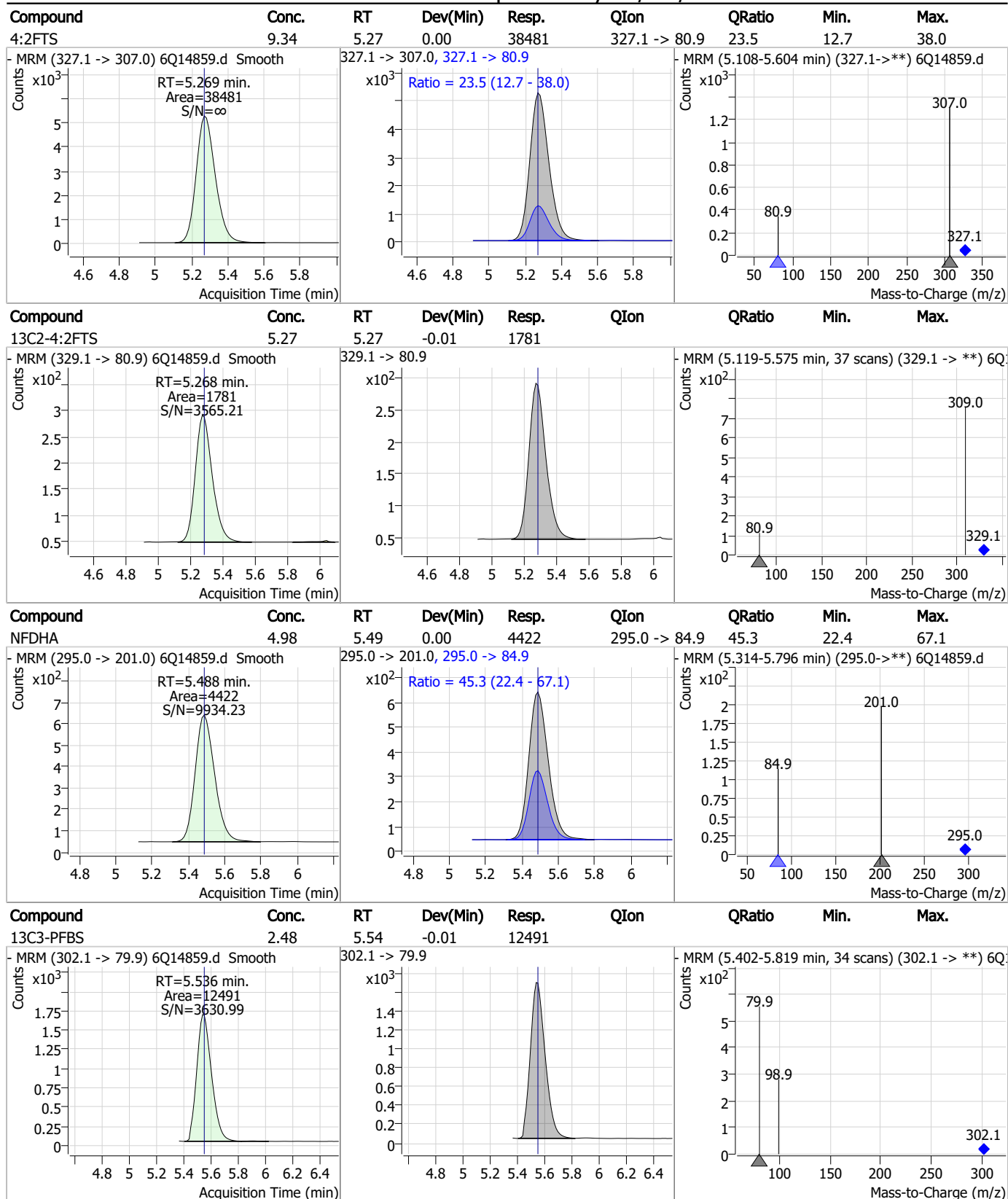


Perfluorinated Compounds by LC/MS/MS



7.7.10
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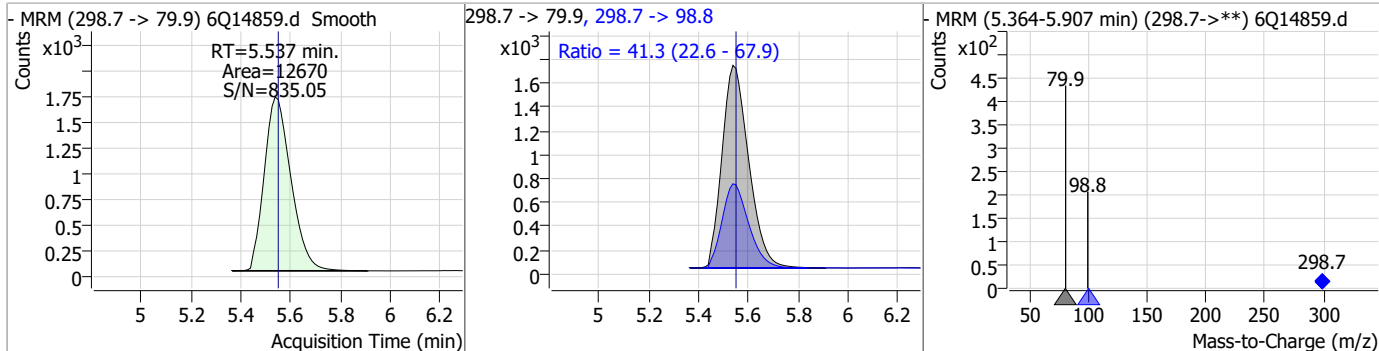
Perfluorinated Compounds by LC/MS/MS



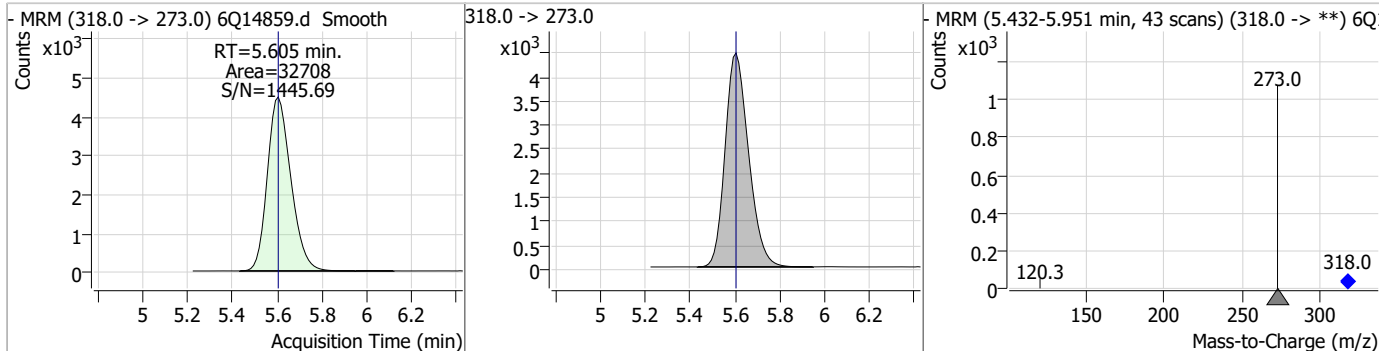
7.7.10
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Perfluorinated Compounds by LC/MS/MS

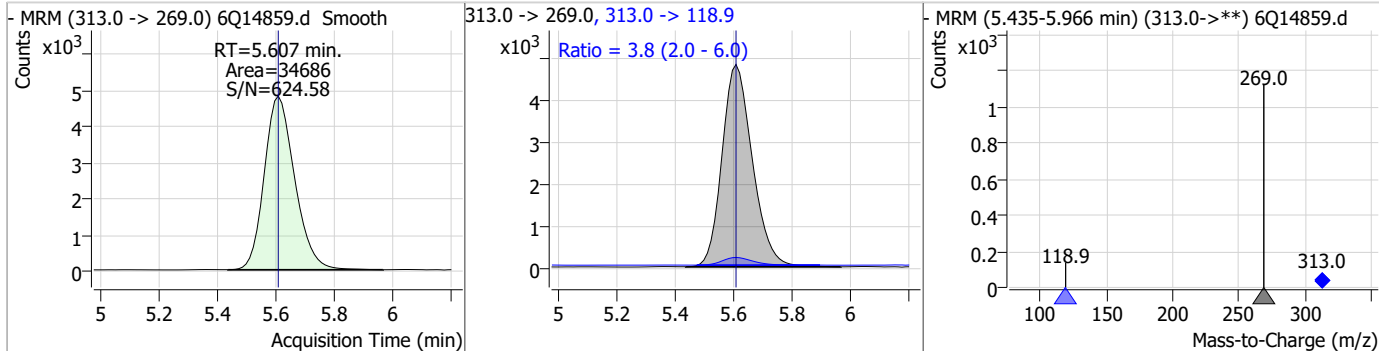
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.30	5.54	-0.01	12670	298.7 -> 98.8	41.3	22.6	67.9



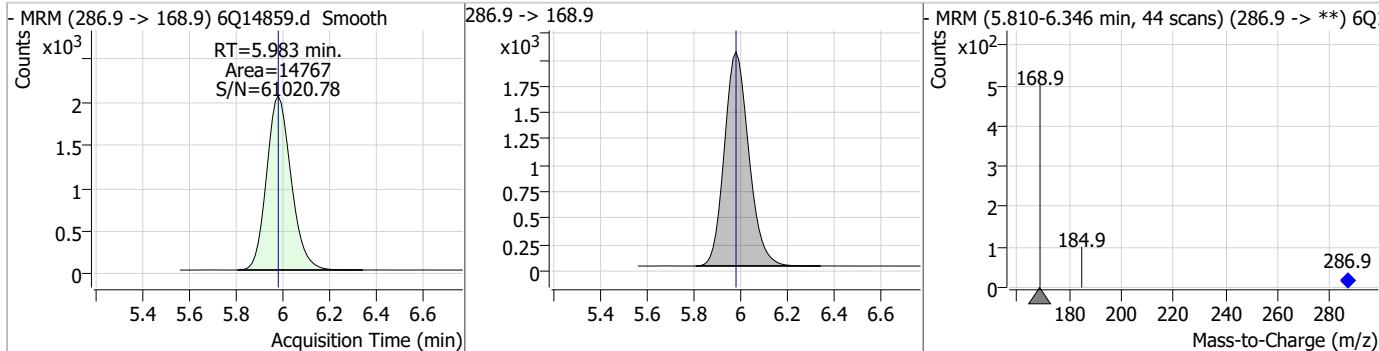
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.45	5.60	0.00	32708				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.52	5.61	0.00	34686	313.0 -> 118.9	3.8	2.0	6.0



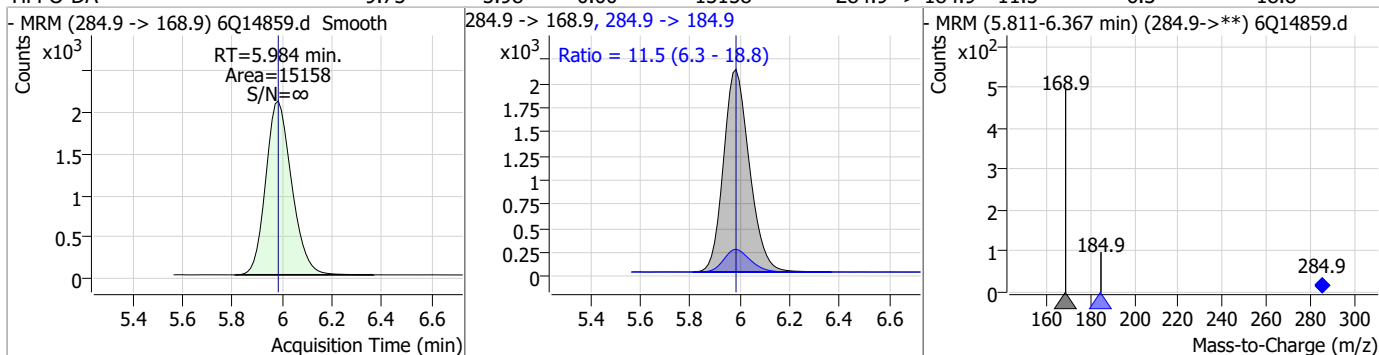
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.96	5.98	0.00	14767				



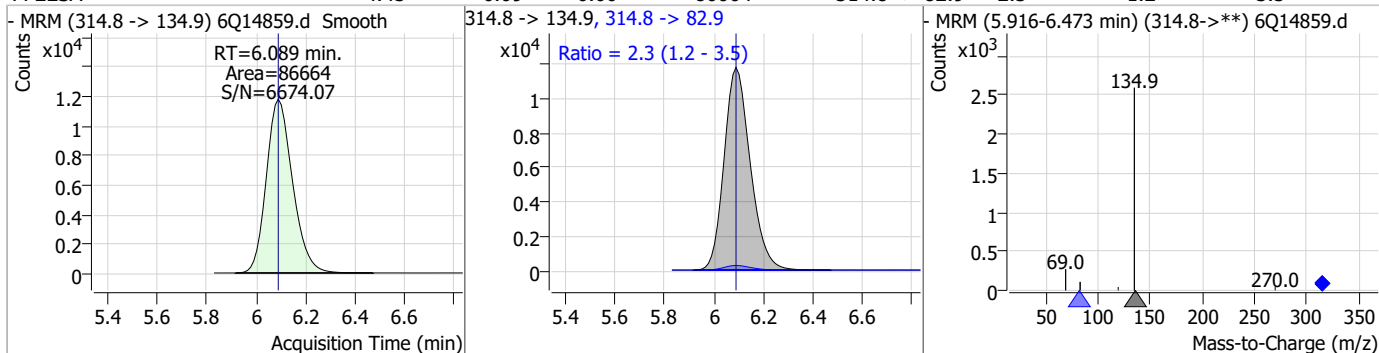
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

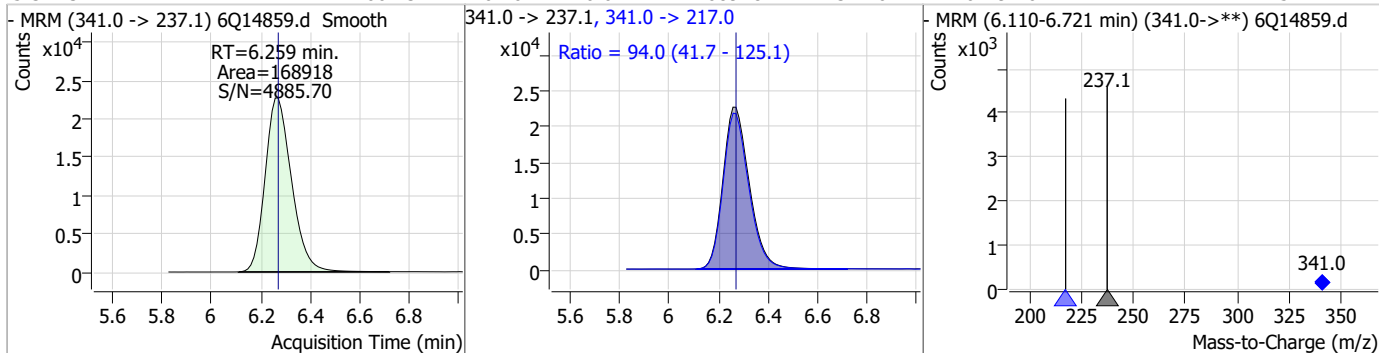
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.75	5.98	0.00	15158	284.9 -> 184.9	11.5	6.3	18.8



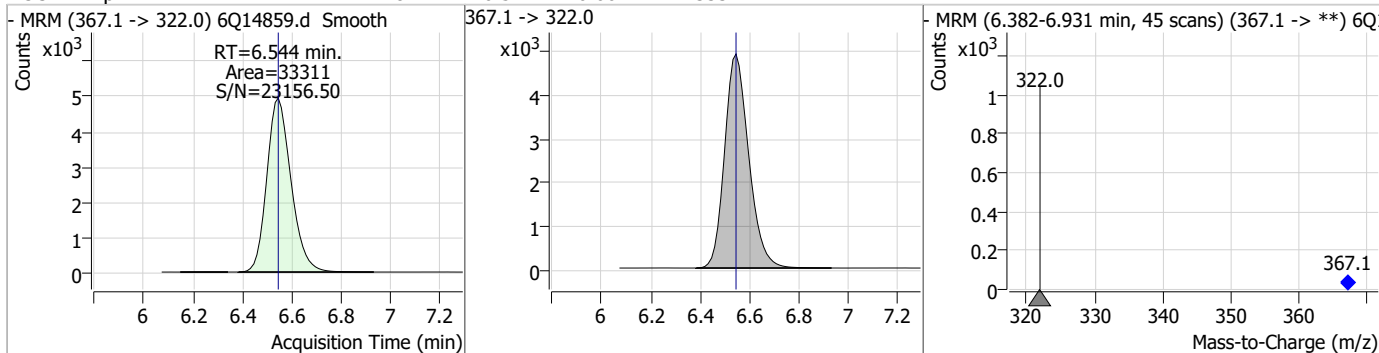
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.45	6.09	0.00	86664	314.8 -> 82.9	2.3	1.2	3.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	60.73	6.26	-0.01	168918	341.0 -> 217.0	94.0	41.7	125.1

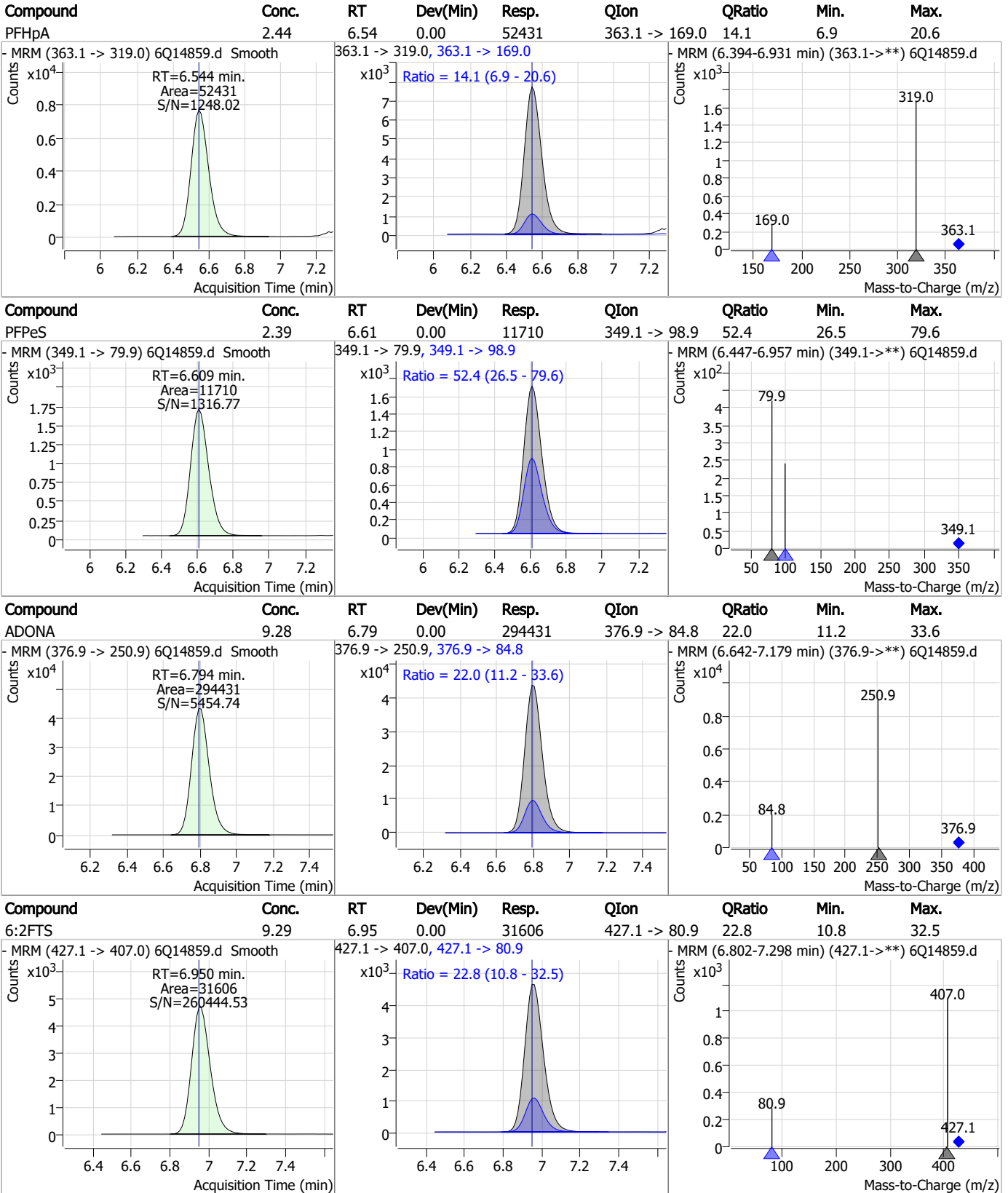


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.48	6.54	0.00	33311	367.1 -> 322.0			



7.7.10 7

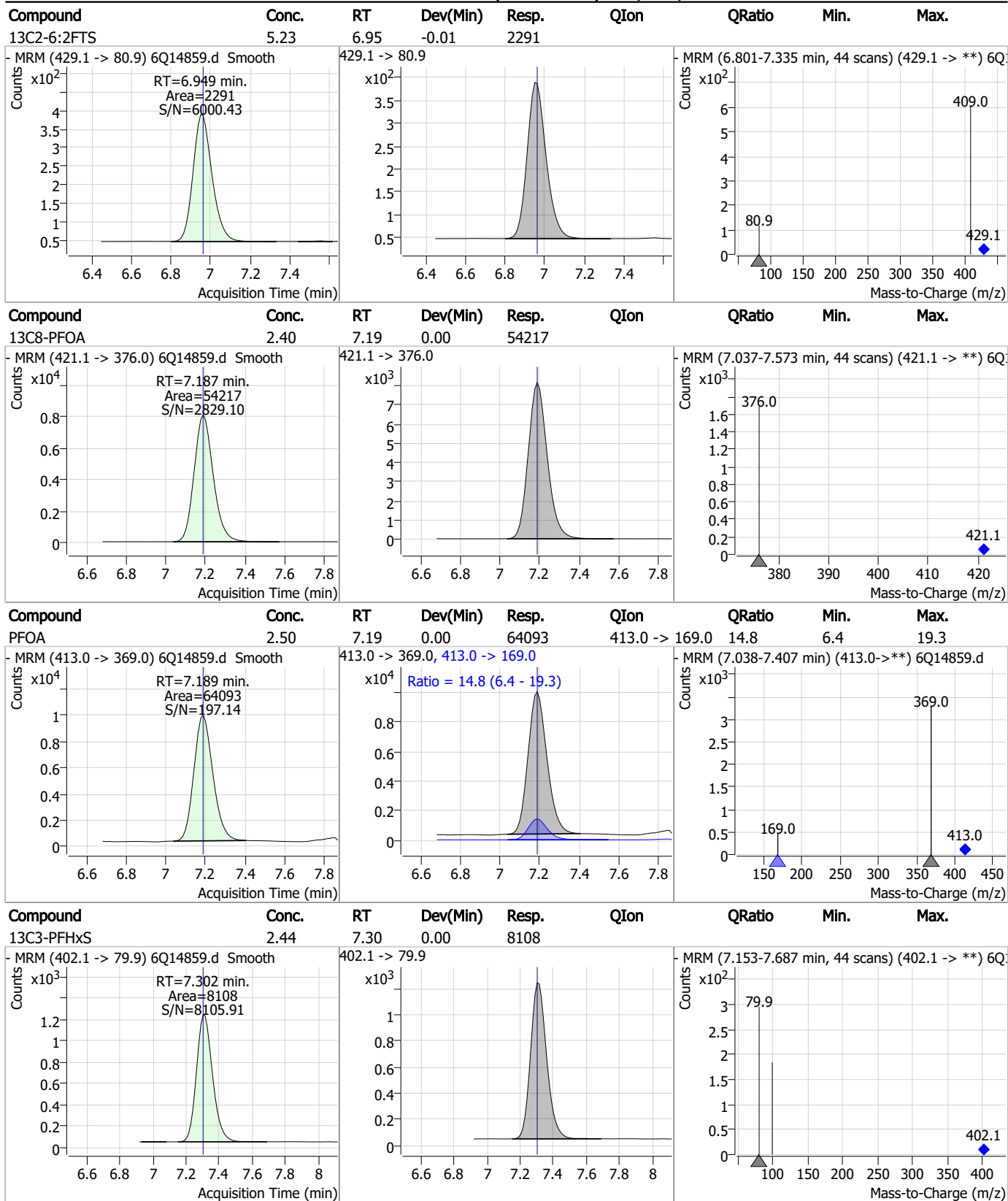
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



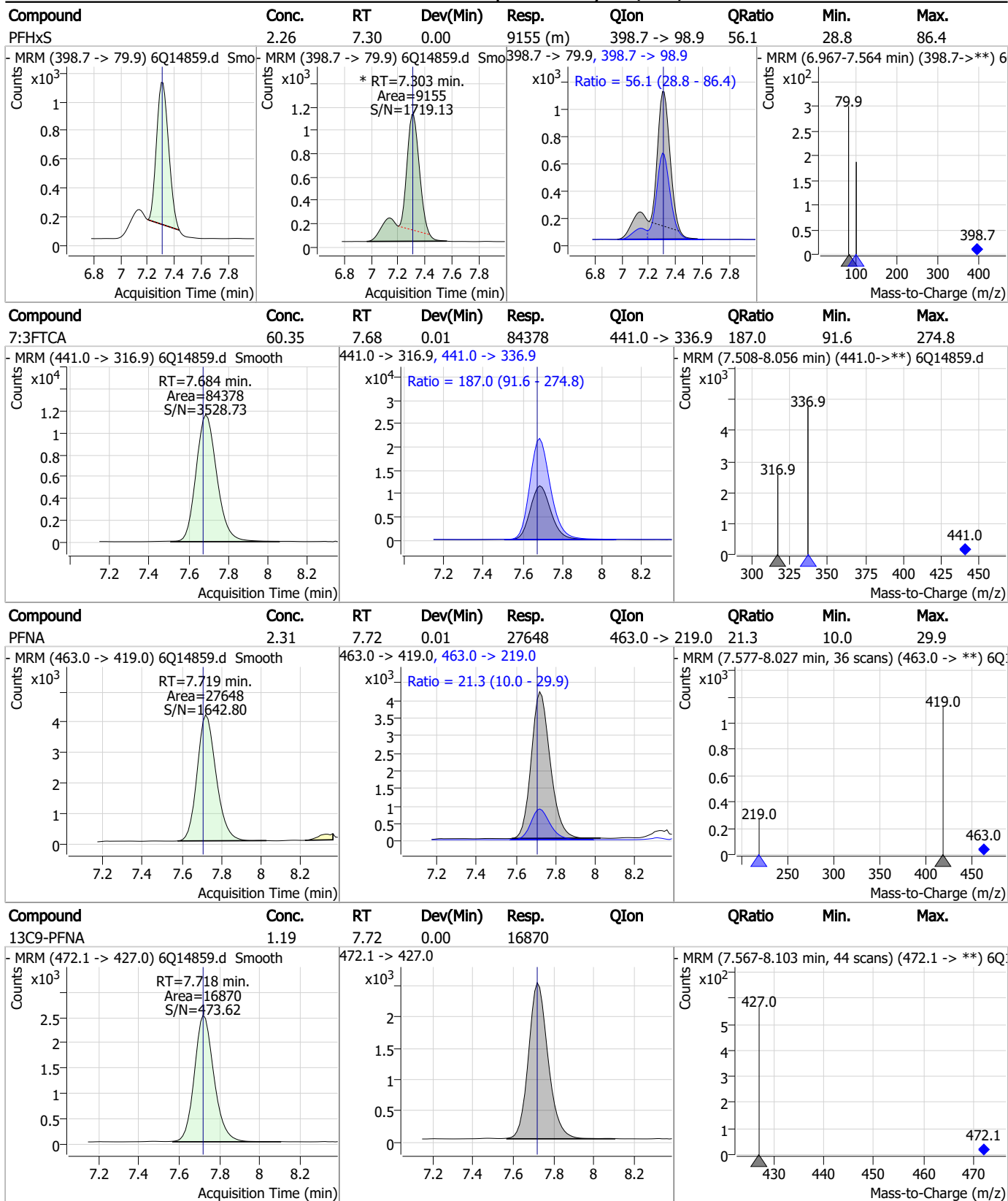
Perfluorinated Compounds by LC/MS/MS



7.7.10
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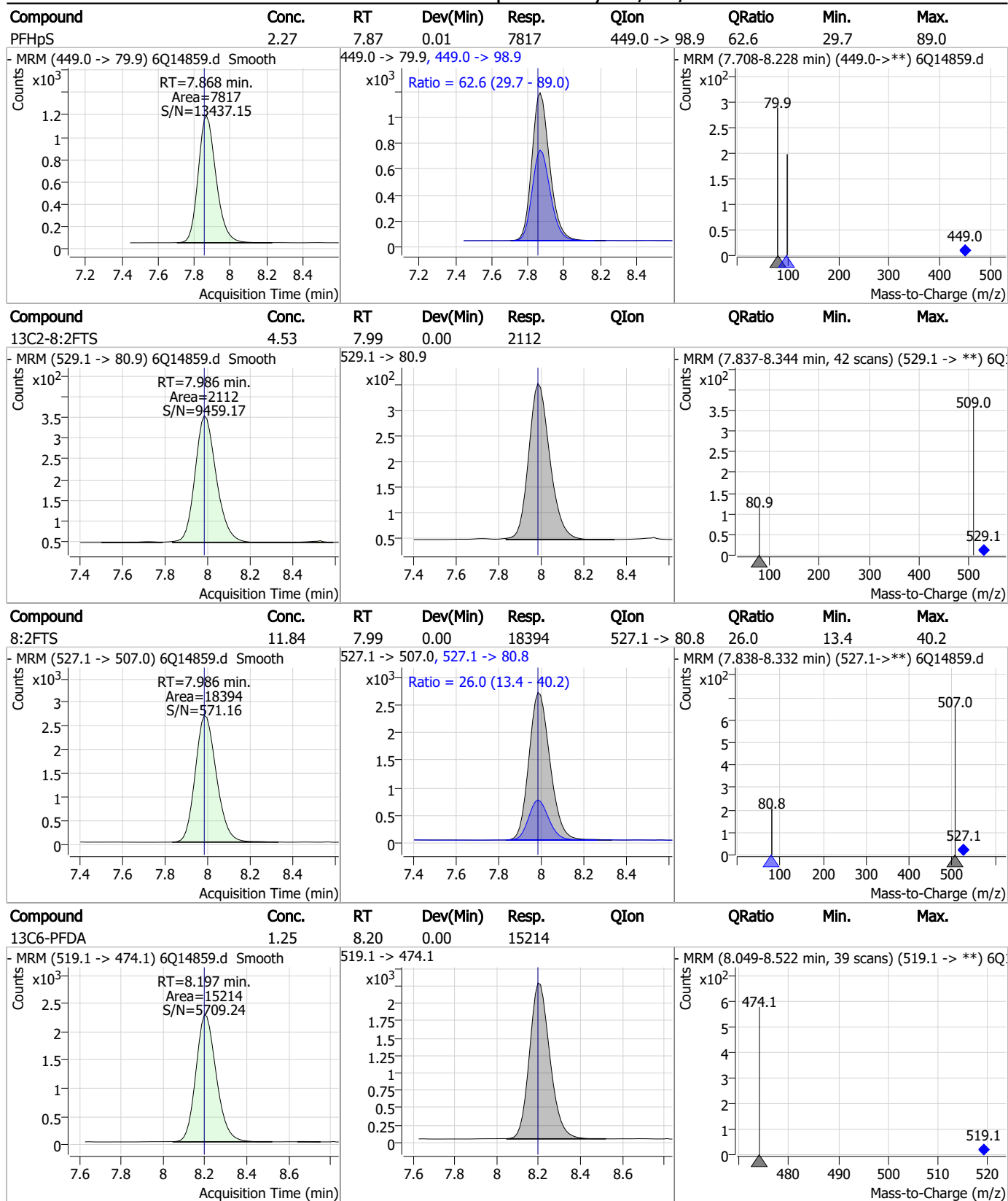


Perfluorinated Compounds by LC/MS/MS



7.7.10
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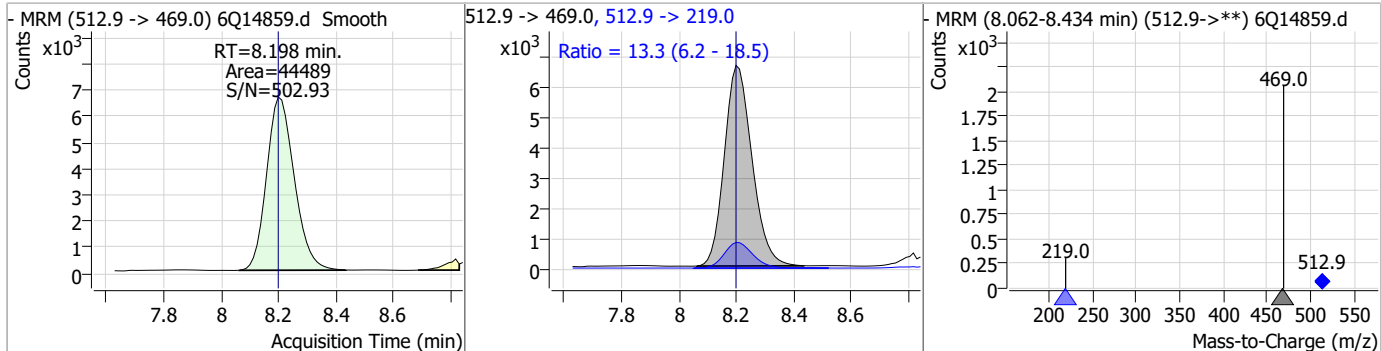
Perfluorinated Compounds by LC/MS/MS



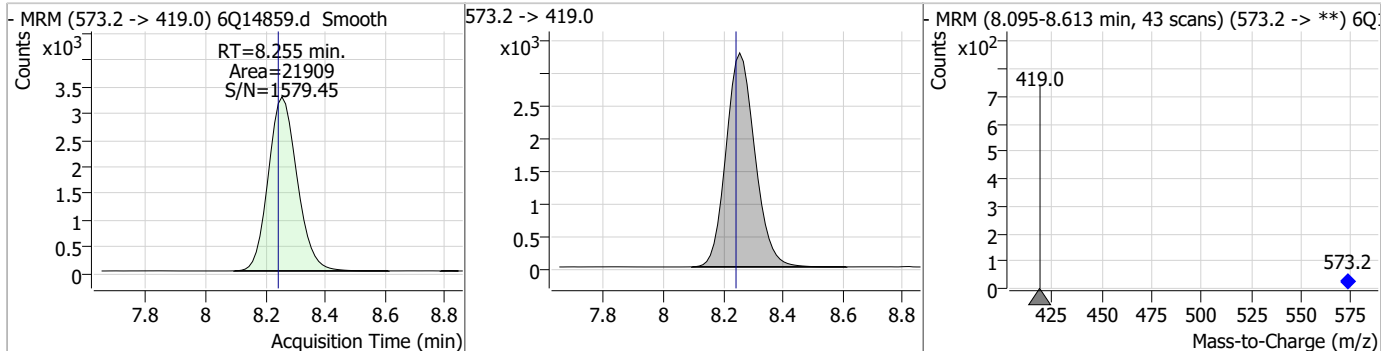
7.7.10
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Perfluorinated Compounds by LC/MS/MS

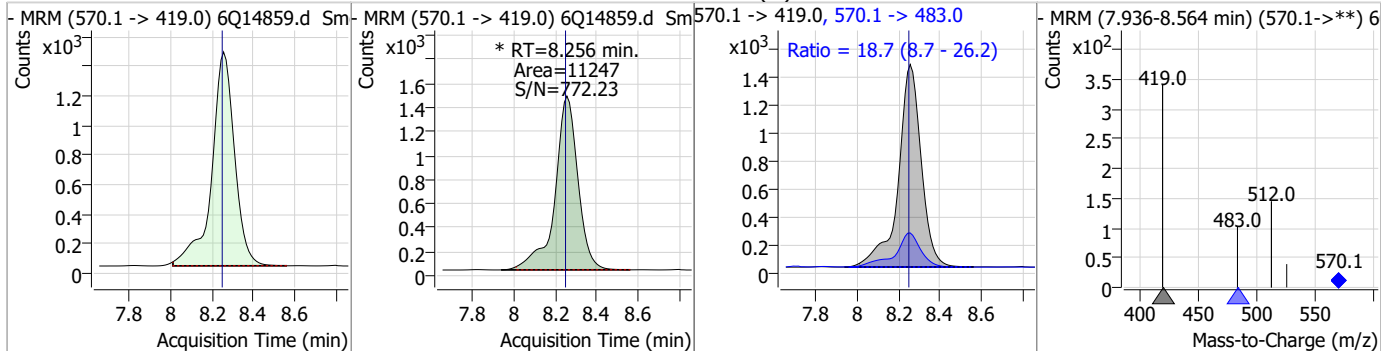
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.36	8.20	0.00	44489	512.9 -> 219.0	13.3	6.2	18.5



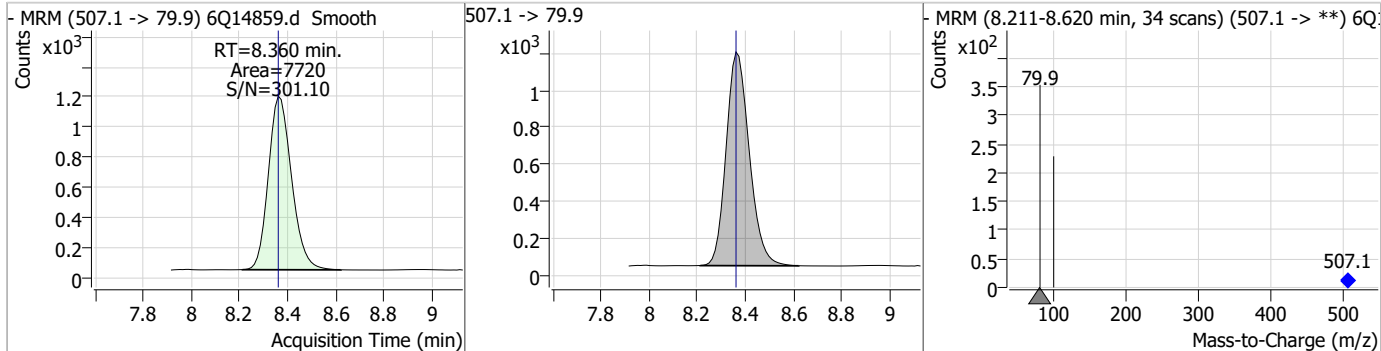
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.36	8.26	0.01	21909				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.45	8.26	0.01	11247 (m)	570.1 -> 483.0	18.7	8.7	26.2



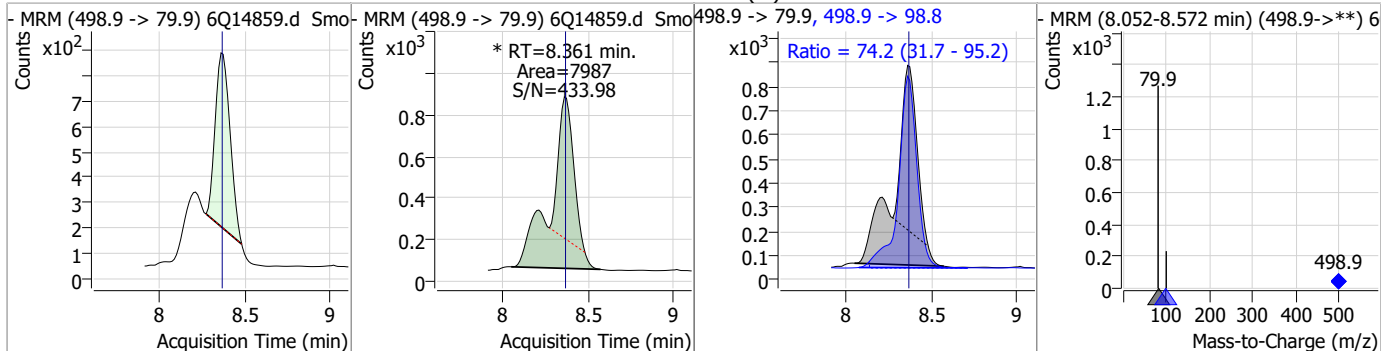
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.67	8.36	0.00	7720				



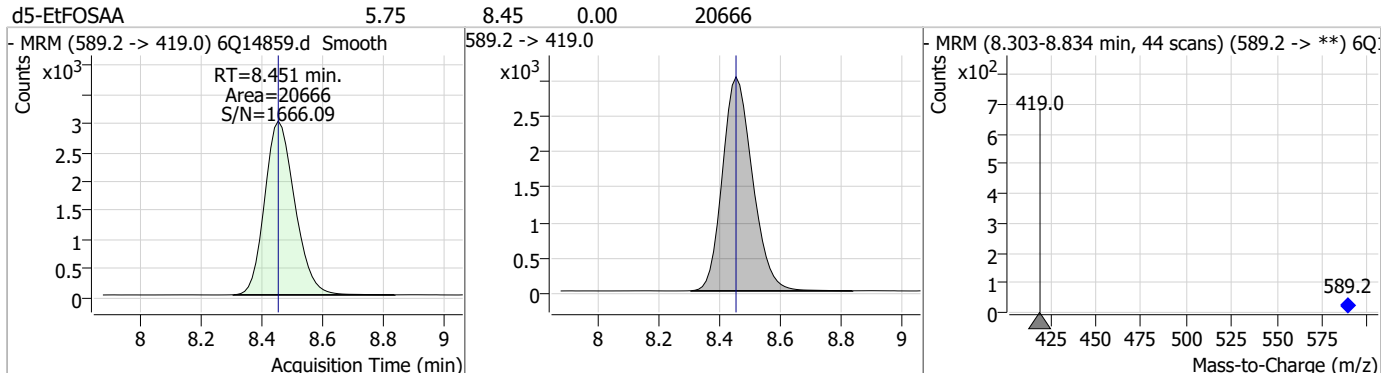
7.7.10
7

Perfluorinated Compounds by LC/MS/MS

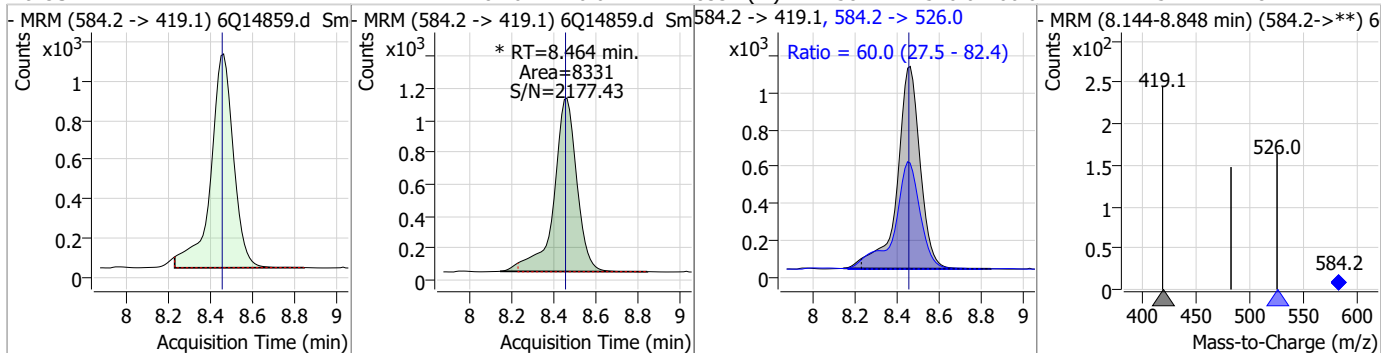
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.21	8.36	0.00	7987 (m)	498.9 -> 98.8	74.2	31.7	95.2



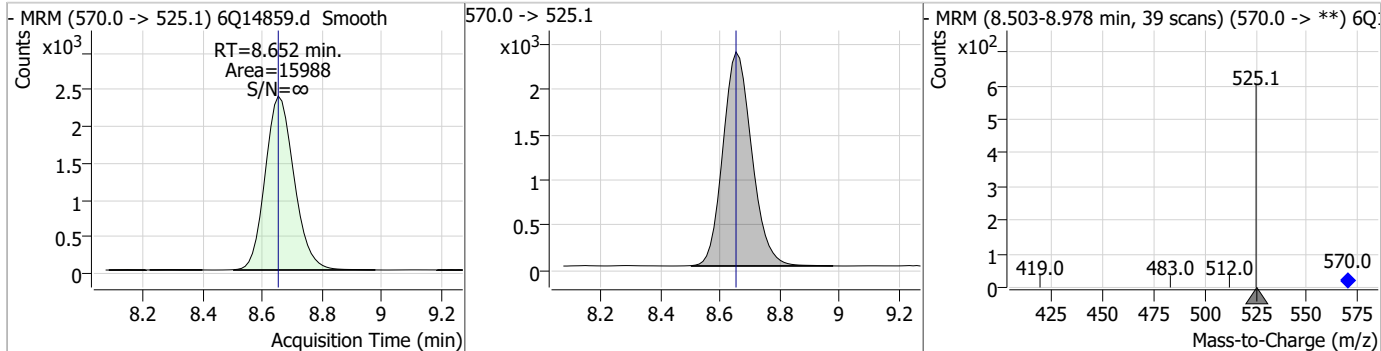
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.75	8.45	0.00	20666				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.22	8.46	0.01	8331 (m)	584.2 -> 526.0	60.0	27.5	82.4

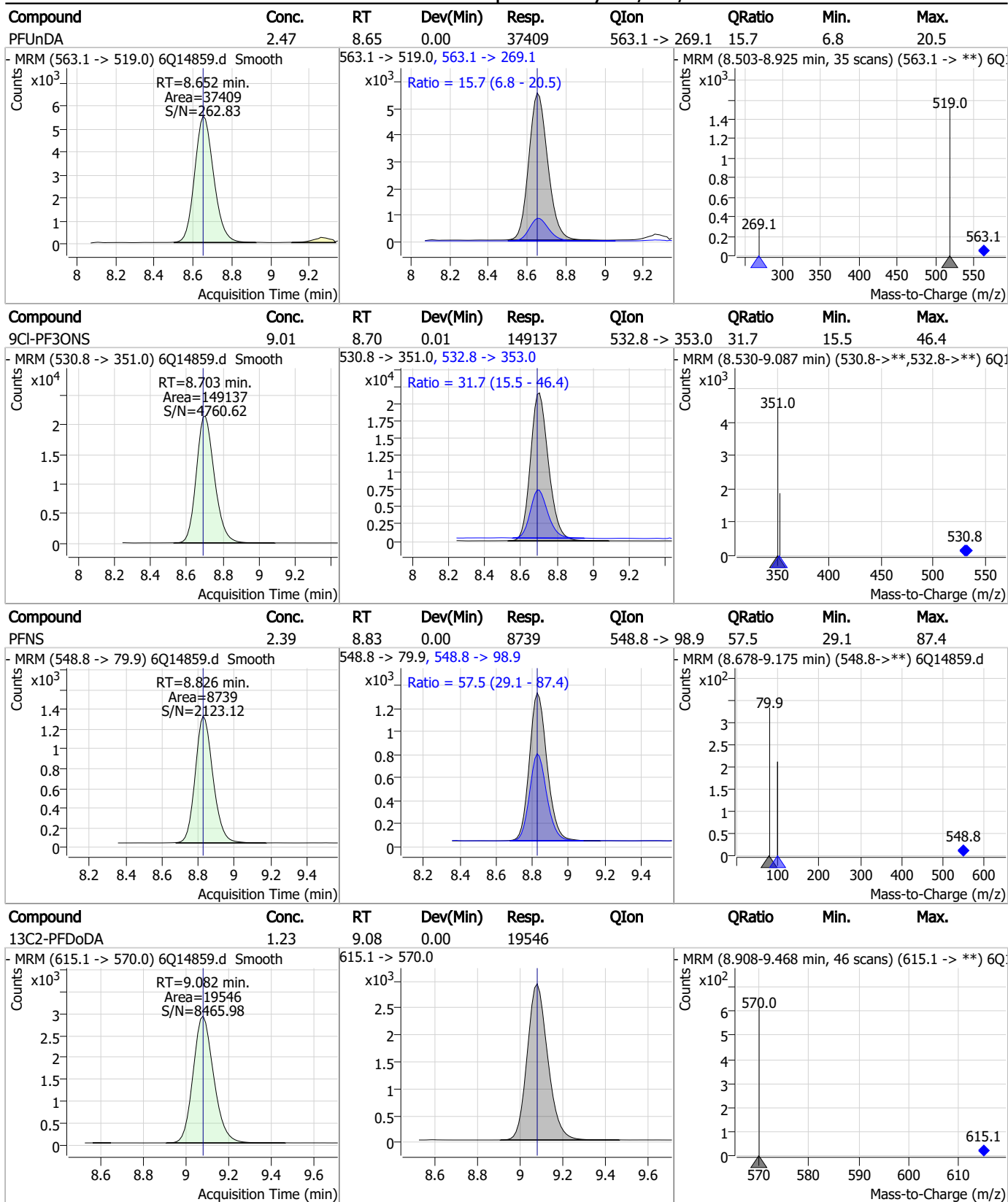


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.22	8.65	0.00	15988				



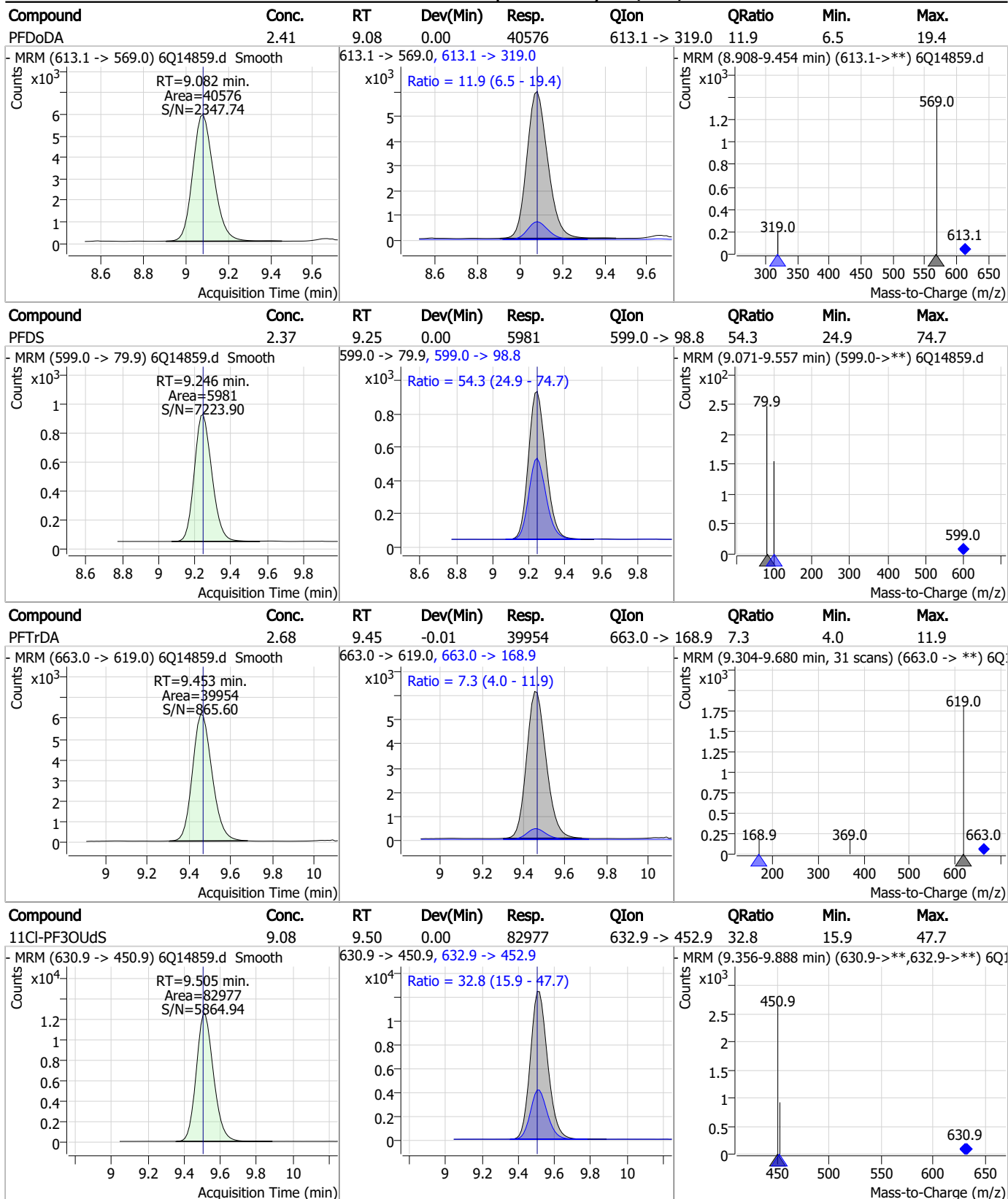
7.7.10
7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

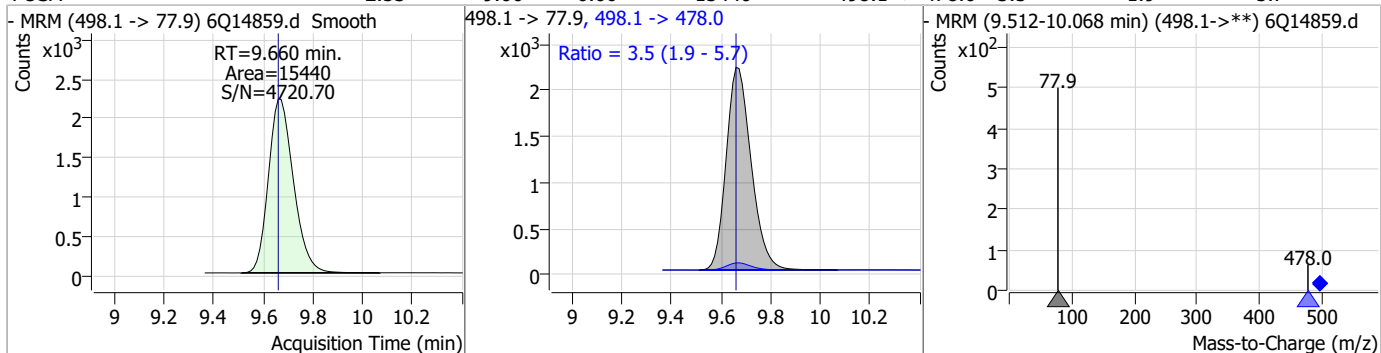
Perfluorinated Compounds by LC/MS/MS



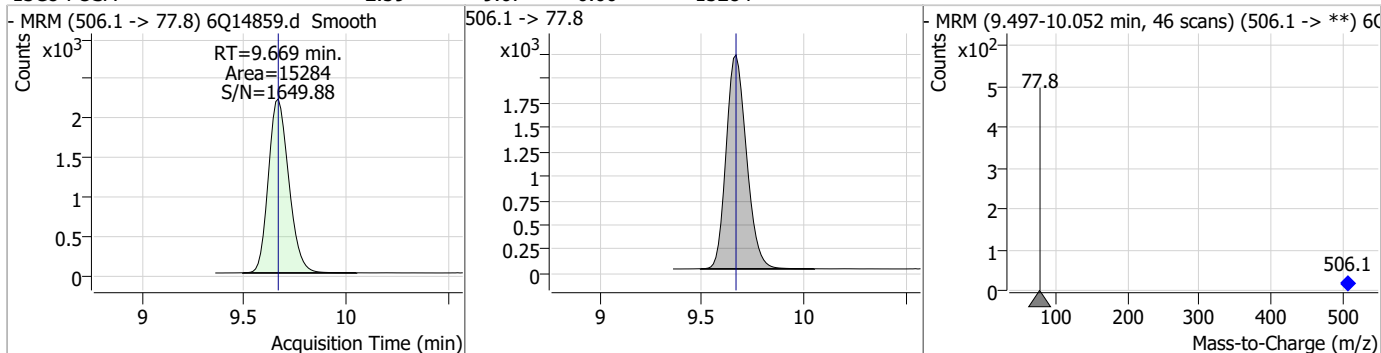
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

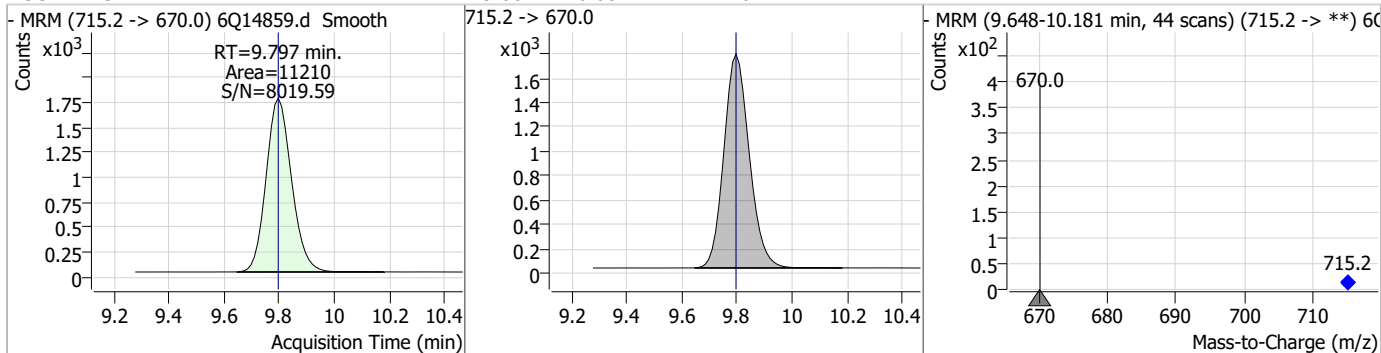
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.53	9.66	0.00	15440	498.1 -> 478.0	3.5	1.9	5.7



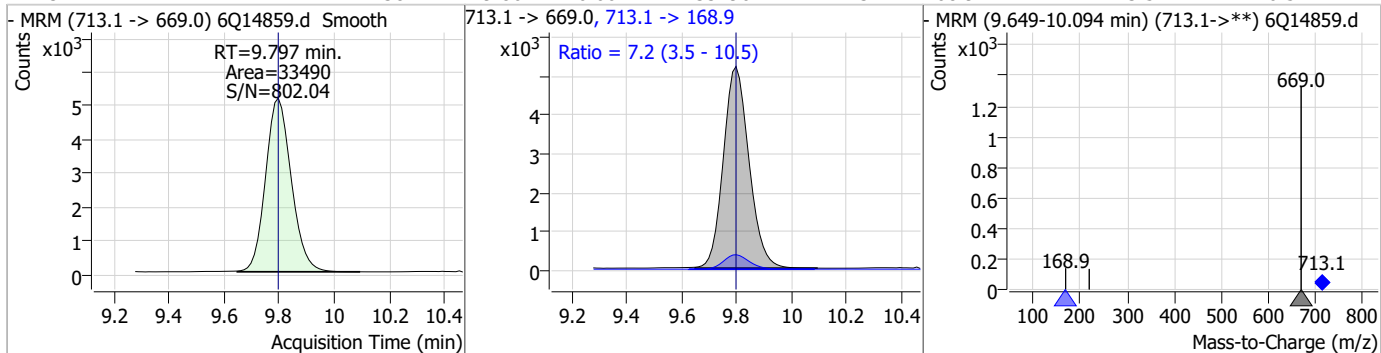
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.59	9.67	0.00	15284				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.80	0.00	11210				

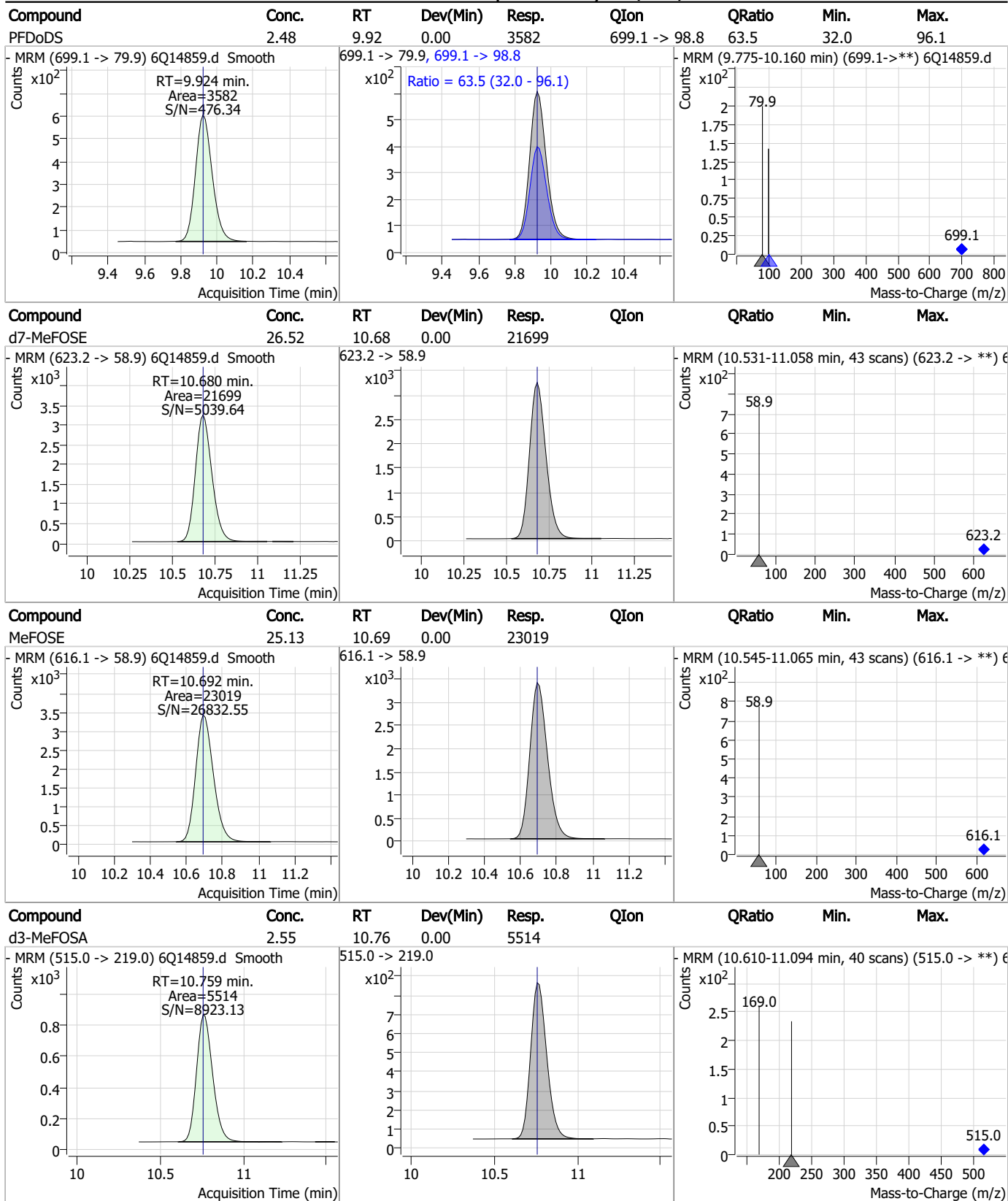


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.38	9.80	0.00	33490	713.1 -> 168.9	7.2	3.5	10.5



7.7.10
7

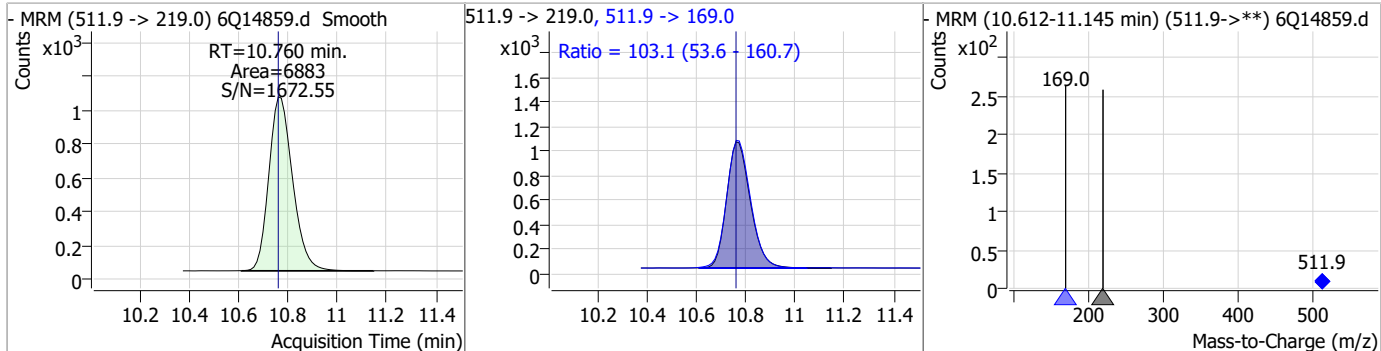
Perfluorinated Compounds by LC/MS/MS



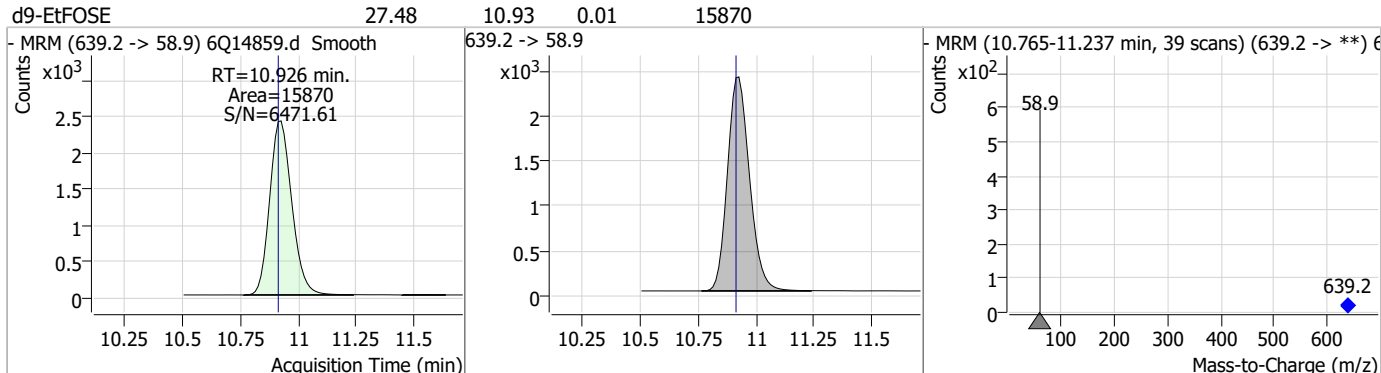
7.7.10
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Perfluorinated Compounds by LC/MS/MS

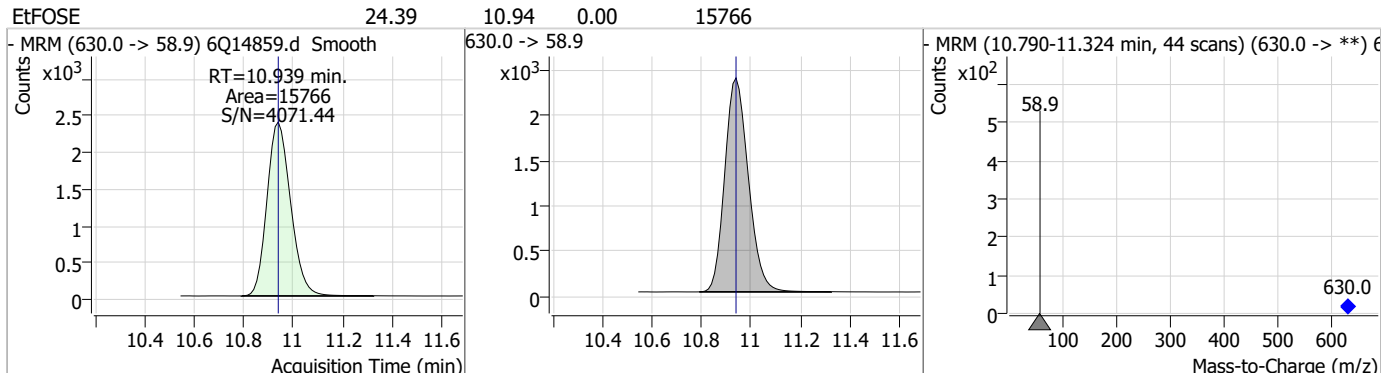
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.60	10.76	0.00	6883	511.9 -> 169.0	103.1	53.6	160.7



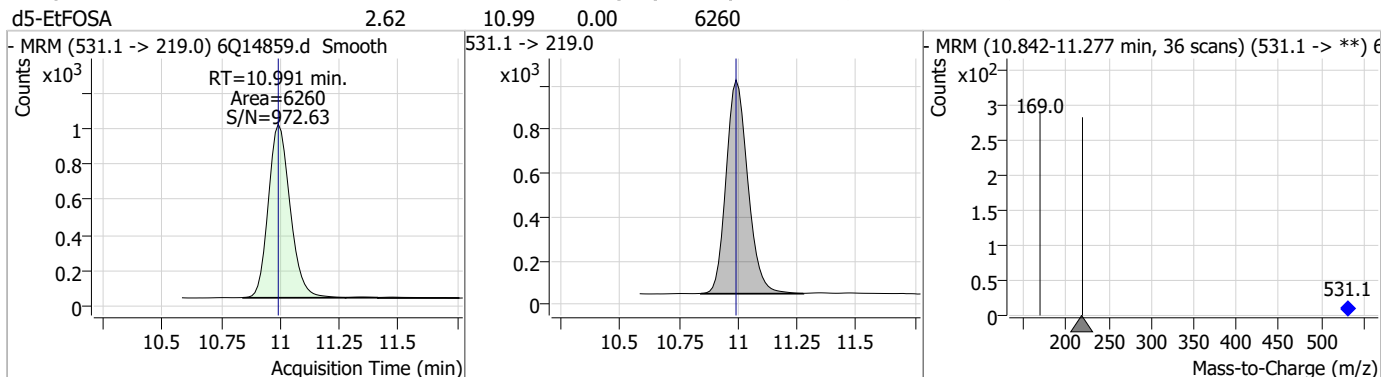
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.48	10.93	0.01	15870				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	24.39	10.94	0.00	15766				

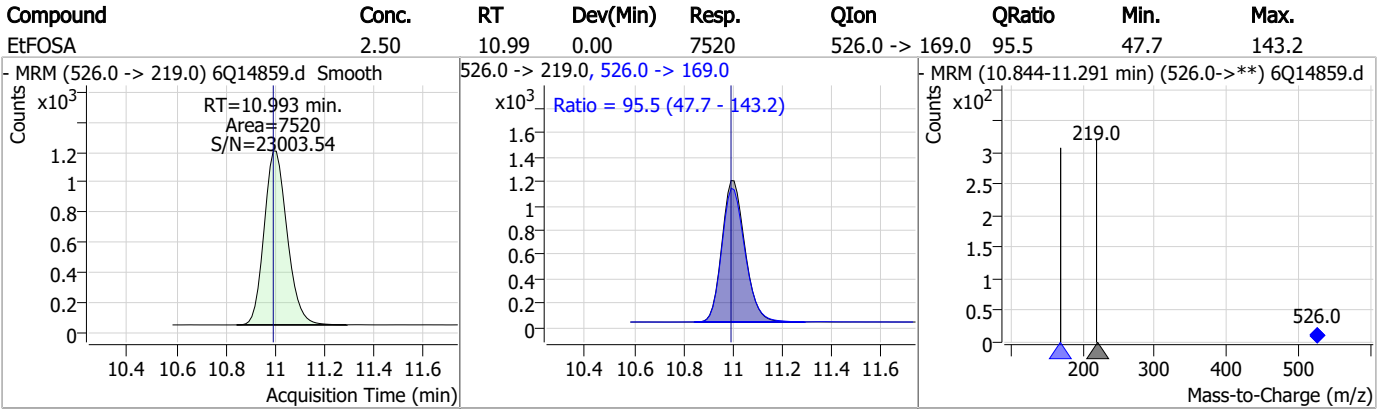


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.62	10.99	0.00	6260				



7.7.10
7

Perfluorinated Compounds by LC/MS/MS



7.7.10
7



Manual Integration Approval Summary

Sample Number: S6Q225-ICV225 Method: EPA DRAFT 1633
Lab FileID: 6Q14859.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/15/23 23:52 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.7.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q14860.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/16/2023 12:06:01 AM
 Sample Name : icv225-20
 Vial : P1-B2
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q225.batch.bin
 Sample Information : OP95881,S6Q225,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.960	216.8 -> 171.9	71936	10.00 µg/L	0.012
M5-PFPeA	4.395	268.3 -> 223.0	33788	5.00 µg/L	0.000
M5-PFHxA	5.605	318.0 -> 273.0	29973	2.50 µg/L	0.000
M4-PFHpA	6.544	367.1 -> 322.0	31302	2.50 µg/L	0.000
M8-PFOA	7.187	421.1 -> 376.0	52084	2.50 µg/L	0.000
M9-PFNA	7.718	472.1 -> 427.0	15245	1.25 µg/L	0.000
M6-PFDA	8.197	519.1 -> 474.1	14103	1.25 µg/L	0.000
M7-PFUnDA	8.652	570.0 -> 525.1	14390	1.25 µg/L	0.000
M2-PFDoDA	9.069	615.1 -> 570.0	16980	1.25 µg/L	-0.012
M2-PFTeDA	9.784	715.2 -> 670.0	10384	1.25 µg/L	-0.012
M8-FOSA	9.657	506.1 -> 77.8	15002	2.50 µg/L	-0.012
M3-PFBS	5.548	302.1 -> 79.9	12248	2.50 µg/L	0.000
M3-PFHxS	7.315	402.1 -> 79.9	7537	2.50 µg/L	0.012
M8-PFOS	8.360	507.1 -> 79.9	7220	2.50 µg/L	0.000
M2-4:2FTS	5.280	329.1 -> 80.9	1663	5.00 µg/L	0.000
M2-6:2FTS	6.962	429.1 -> 80.9	2156	5.00 µg/L	0.000
M2-8:2FTS	7.986	529.1 -> 80.9	2170	5.00 µg/L	0.000
M3-MeFOSAA	8.243	573.2 -> 419.0	20754	5.00 µg/L	0.000
M3-HFPO-DA	5.983	286.9 -> 168.9	14472	10.00 µg/L	0.000
M5-EtFOSAA	8.451	589.2 -> 419.0	17391	5.00 µg/L	0.000
M7-MeFOSE	10.680	623.2 -> 58.9	20084	25.00 µg/L	0.000
M9-EtFOSE	10.914	639.2 -> 58.9	14482	25.00 µg/L	0.000
M5-EtFOSA	10.991	531.1 -> 219.0	5968	2.50 µg/L	0.000
M3-MeFOSA	10.759	515.0 -> 219.0	5278	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	8641	2.50 µg/L	0.000
13C3-PFBA	2.964	216.0 -> 172.0	31213	5.00 µg/L	0.012
18O2-PFHxS	7.314	403.0 -> 83.9	5674	2.50 µg/L	0.000
13C4-PFOA	7.188	417.1 -> 372.0	63455	2.50 µg/L	0.000
13C2-PFDA	8.198	515.1 -> 470.1	19584	1.25 µg/L	0.000
13C5-PFNA	7.718	468.0 -> 423.0	16963	1.25 µg/L	0.000
13C2-PFHxA	5.606	315.1 -> 270.0	29250	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.280	329.1 -> 80.9	1663	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-6:2FTS	6.962	429.1 -> 80.9	2156	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-8:2FTS	7.986	529.1 -> 80.9	2170	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C2-PFDoDA	9.069	615.1 -> 570.0	16980	1.11 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.6%		
13C2-PFTeDA	9.784	715.2 -> 670.0	10384	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.0%		
13C3-PFBS	5.548	302.1 -> 79.9	12248	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFHxS	7.315	402.1 -> 79.9	7537	2.35 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 = 94.1%		
13C4-PFBA	2.960	216.8 -> 171.9	71936	10.04 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C4-PFHpA	6.544	367.1 -> 322.0	31302	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C5-PFHxA	5.605	318.0 -> 273.0	29973	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C5-PFPeA	4.395	268.3 -> 223.0	33788	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C6-PFDA	8.197	519.1 -> 474.1	14103	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C7-PFUnDA	8.652	570.0 -> 525.1	14390	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.0%		
13C8-FOSA	9.657	506.1 -> 77.8	15002	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C8-PFOA	7.187	421.1 -> 376.0	52084	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C8-PFOS	8.360	507.1 -> 79.9	7220	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C9-PFNA	7.718	472.1 -> 427.0	15245	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
d3-MeFOSAA	8.243	573.2 -> 419.0	20754	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C3-HFPO-DA	5.983	286.9 -> 168.9	14472	10.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 109.5%		
d3-MeFOSA	10.759	515.0 -> 219.0	5278	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
d5-EtFOSAA	8.451	589.2 -> 419.0	17391	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
d7-MeFOSE	10.680	623.2 -> 58.9	20084	24.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
d9-EtFOSE	10.914	639.2 -> 58.9	14482	24.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
d5-EtFOSA	10.991	531.1 -> 219.0	5968	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
Target Compounds					QValue
4:2FTS	5.281	327.1 -> 307.0	76279	19.83 µg/L	98
		327.1 -> 80.9	18529		
6:2FTS	6.962	427.1 -> 407.0	64704	20.20 µg/L	96
		427.1 -> 80.9	15096		
8:2FTS	7.986	527.1 -> 507.0	33425	20.95 µg/L	100
		527.1 -> 80.8	9002		
EtFOSAA	8.452	584.2 -> 419.1	64505	20.42 µg/L	m 97
		584.2 -> 526.0	36587		
FOSA	9.660	498.1 -> 77.9	127294	21.23 µg/L	99
		498.1 -> 478.0	4530		
MeFOSAA	8.244	570.1 -> 419.0	87344	20.11 µg/L	m 98
		570.1 -> 483.0	15908		
PFBA	2.956	212.8 -> 168.9	38454	19.59 µg/L	100
PFBS	5.549	298.7 -> 79.9	112470	20.85 µg/L	96
		298.7 -> 98.8	48349		
PFDA	8.198	512.9 -> 469.0	372296	21.26 µg/L	97
		512.9 -> 219.0	49663		
PFDoDA	9.070	613.1 -> 569.0	286035	19.55 µg/L	97
		613.1 -> 319.0	33771		
PFDS	9.233	599.0 -> 79.9	47785	20.23 µg/L	95

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.544	599.0 -> 98.8	25453	19.01	µg/L	97
		363.1 -> 319.0	383744			
PFHpS	7.868	363.1 -> 169.0	57753	20.82	µg/L	95
		449.0 -> 79.9	67004			
PFHxA	5.607	449.0 -> 98.9	36991	21.45	µg/L	100
		313.0 -> 269.0	270899			
PFHxS	7.303	313.0 -> 118.9	10892	21.33	µg/L	99
		398.7 -> 79.9	80254			
PFNA	7.719	398.7 -> 98.9	45782	22.41	µg/L	98
		463.0 -> 419.0	242266			
PFNS	8.826	463.0 -> 219.0	50230	20.75	µg/L	96
		548.8 -> 79.9	70851			
PFOA	7.189	548.8 -> 98.9	39452	21.00	µg/L	98
		413.0 -> 369.0	517751			
PFOS	8.361	413.0 -> 169.0	70887	17.70	µg/L	97
		498.9 -> 79.9	59853			
PFPeA	4.397	498.9 -> 98.8	36724	22.08	µg/L	100
		263.0 -> 219.0	177618			
PFPeS	6.609	349.1 -> 79.9	97096	21.35	µg/L	100
		349.1 -> 98.9	51547			
PFTeDA	9.785	713.1 -> 669.0	286267	21.95	µg/L	98
		713.1 -> 168.9	17960			
PFTrDA	9.453	663.0 -> 619.0	250602	19.33	µg/L	99
		663.0 -> 168.9	20816			
PFUnDA	8.652	563.1 -> 519.0	272262	19.99	µg/L	94
		563.1 -> 269.1	43540			
11CI-PF3OUdS	9.505	630.9 -> 450.9	183038	20.44	µg/L	97
		632.9 -> 452.9	55327			
9CI-PF3ONS	8.691	530.8 -> 351.0	331100	20.40	µg/L	100
		532.8 -> 353.0	102732			
ADONA	6.794	376.9 -> 250.9	636966	20.49	µg/L	100
		376.9 -> 84.8	141589			
HFPO-DA	5.984	284.9 -> 168.9	27719	18.20	µg/L	99
		284.9 -> 184.9	3398			
3:3FTCA	3.863	241.0 -> 177.0	8188	20.35	µg/L	100
		241.0 -> 117.0	1214			
5:3FTCA	6.271	341.0 -> 237.1	55781	21.88	µg/L	99
		341.0 -> 217.0	47199			
7:3FTCA	7.684	441.0 -> 316.9	26140	20.40	µg/L	95
		441.0 -> 336.9	49669			
EtFOSA	10.993	526.0 -> 219.0	57038	19.89	µg/L	97
		526.0 -> 169.0	56071			
EtFOSE	10.939	630.0 -> 58.9	57709	97.83	µg/L	100
		511.9 -> 219.0	51133			
MeFOSA	10.760	511.9 -> 169.0	53612	20.14	µg/L	98
		616.1 -> 58.9	81834			
MeFOSE	10.692	699.1 -> 79.9	26865	96.51	µg/L	100
		699.1 -> 98.8	17466			
PFDoDS	9.924	295.0 -> 201.0	16507	19.90	µg/L	99
		295.0 -> 84.9	7901			
NFDHA	5.488	279.0 -> 85.1	54877	20.30	µg/L	95
		229.0 -> 84.9	47974			
PFMBA	4.819	314.8 -> 134.9	326131	20.94	µg/L	100
		314.8 -> 82.9	8057			
PFMPA	3.526			20.81	µg/L	100
PFEESA	6.089			18.25	µg/L	100

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



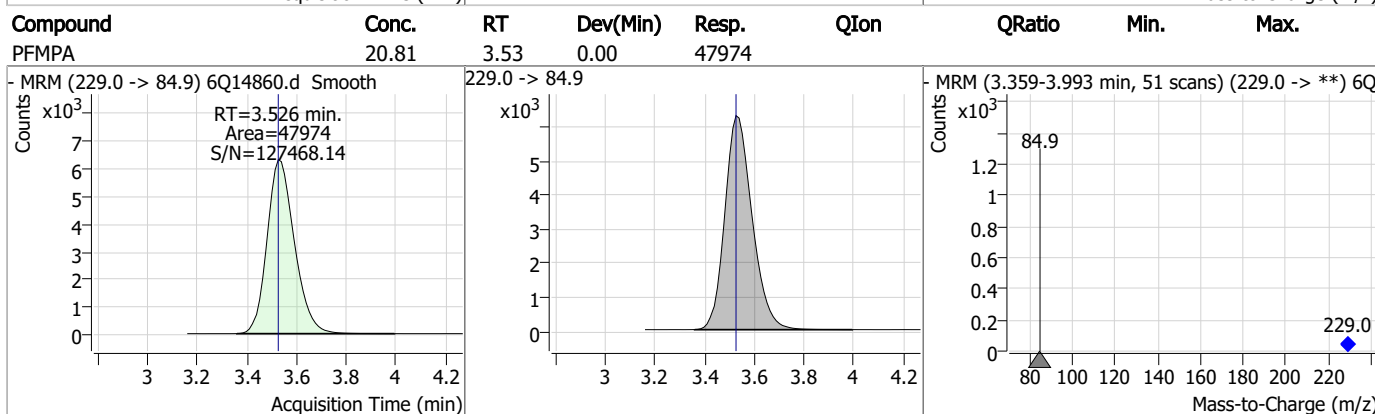
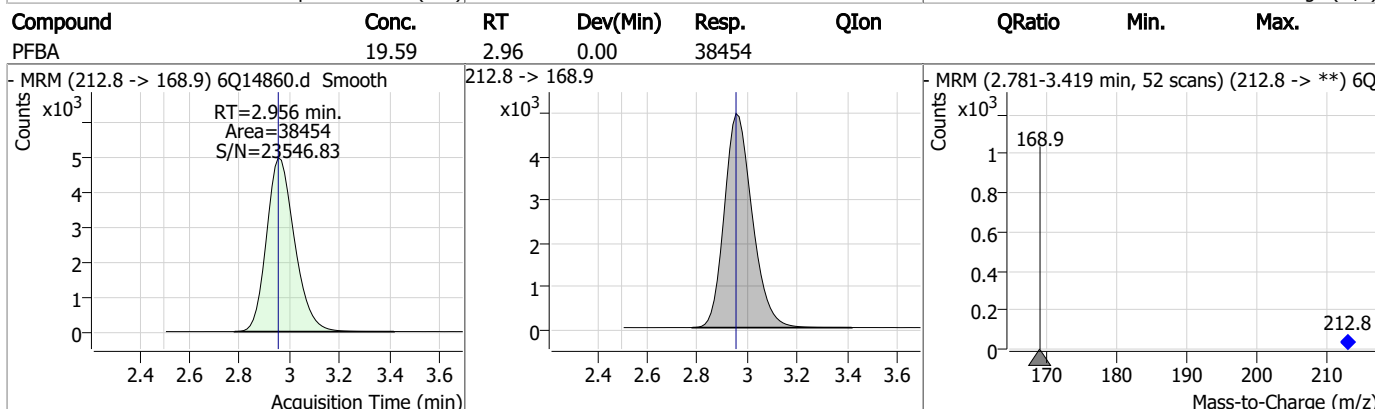
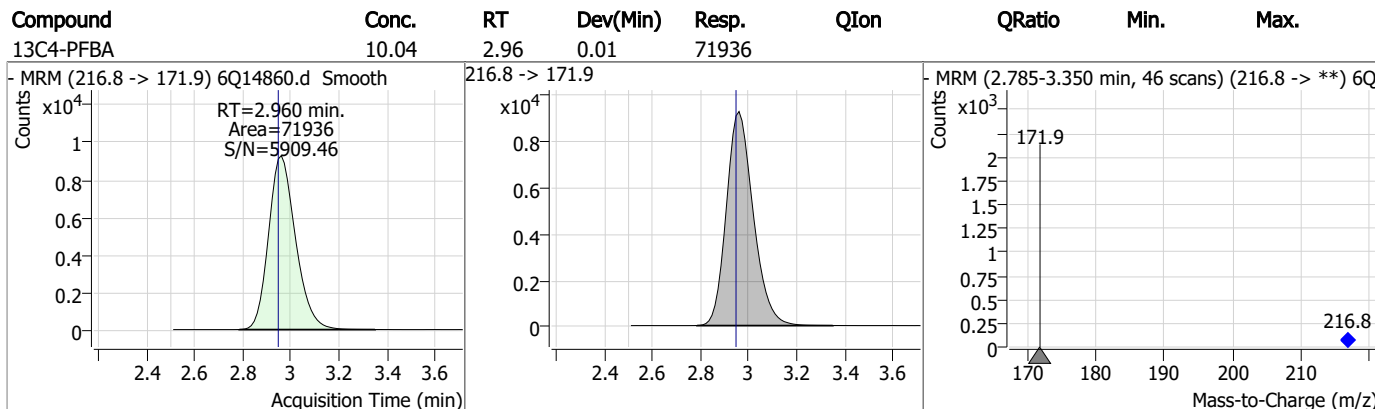
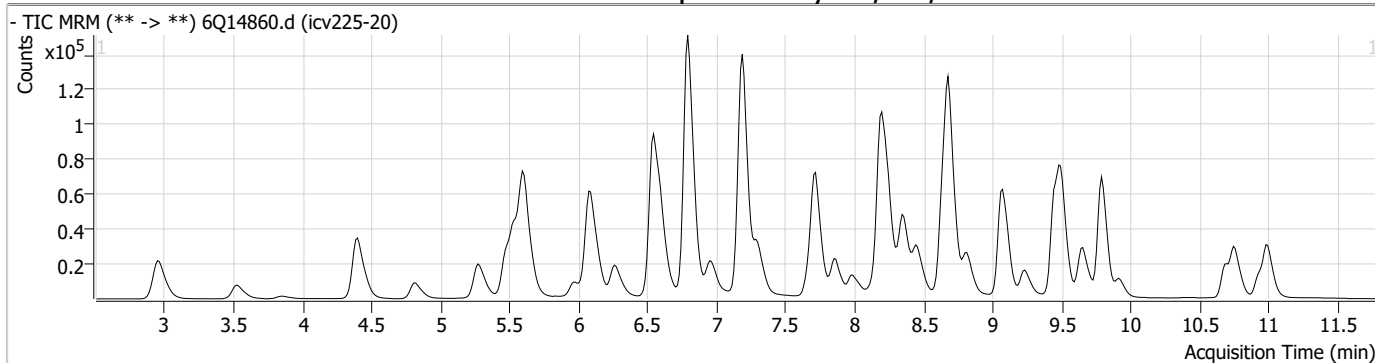
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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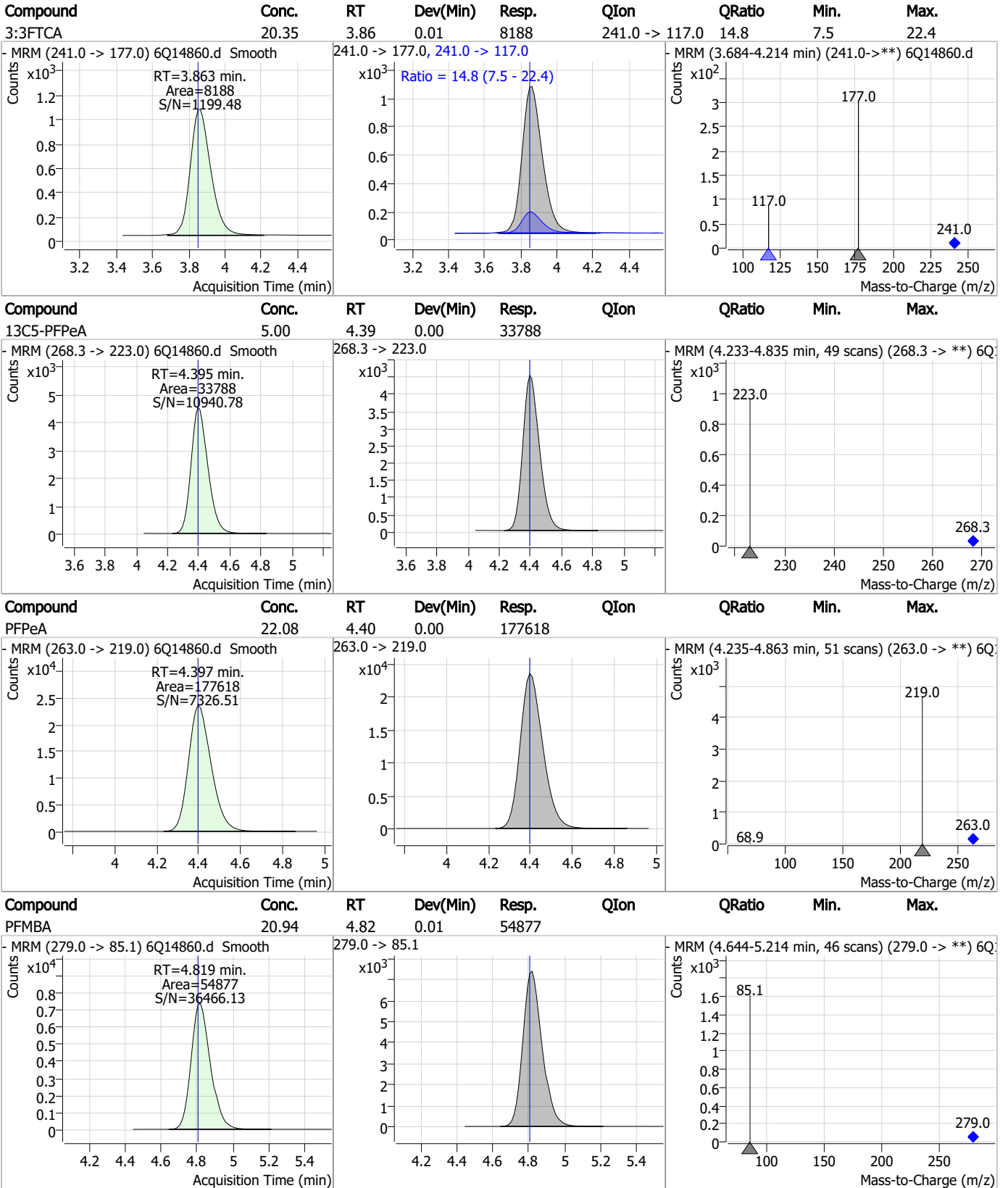
7:7:11

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Perfluorinated Compounds by LC/MS/MS



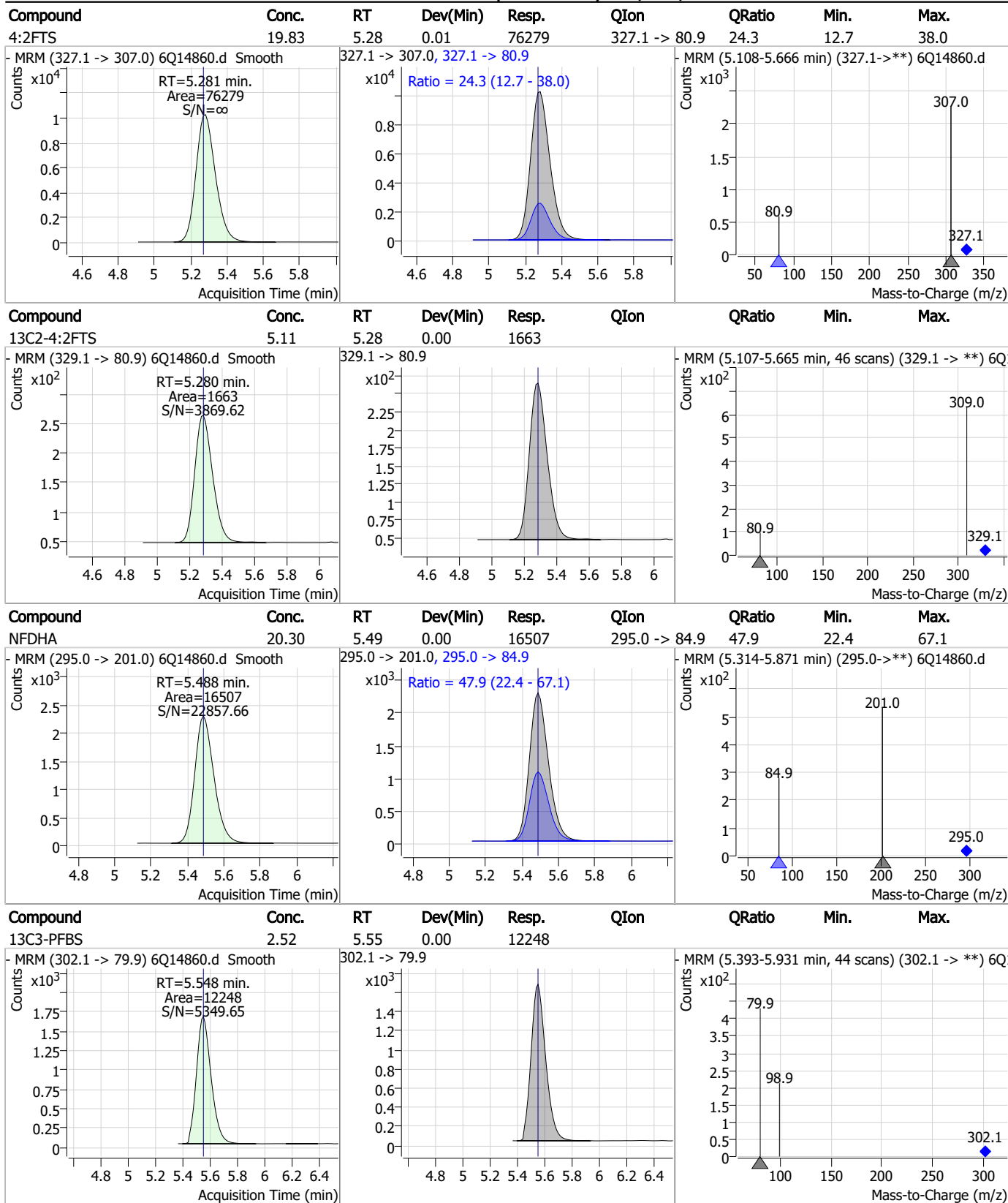
Perfluorinated Compounds by LC/MS/MS



7.7.11



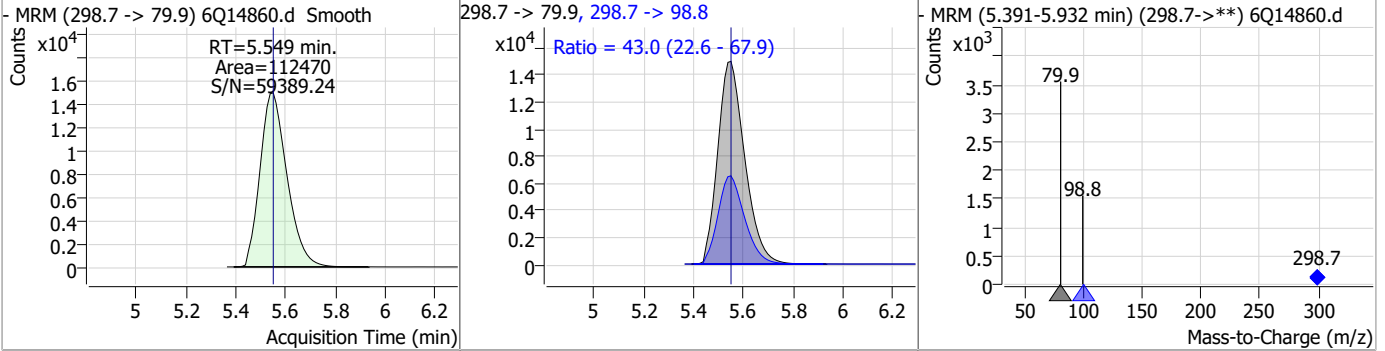
Perfluorinated Compounds by LC/MS/MS



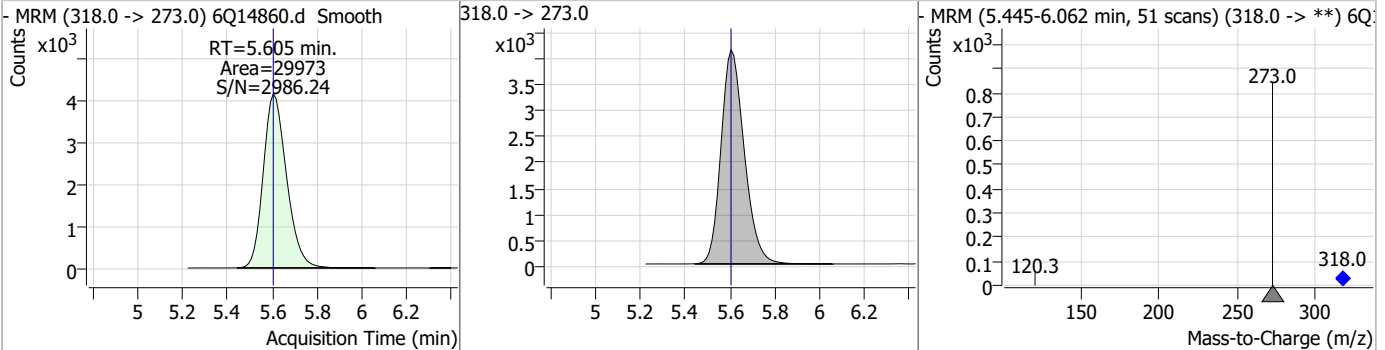
7.7.11
7

Perfluorinated Compounds by LC/MS/MS

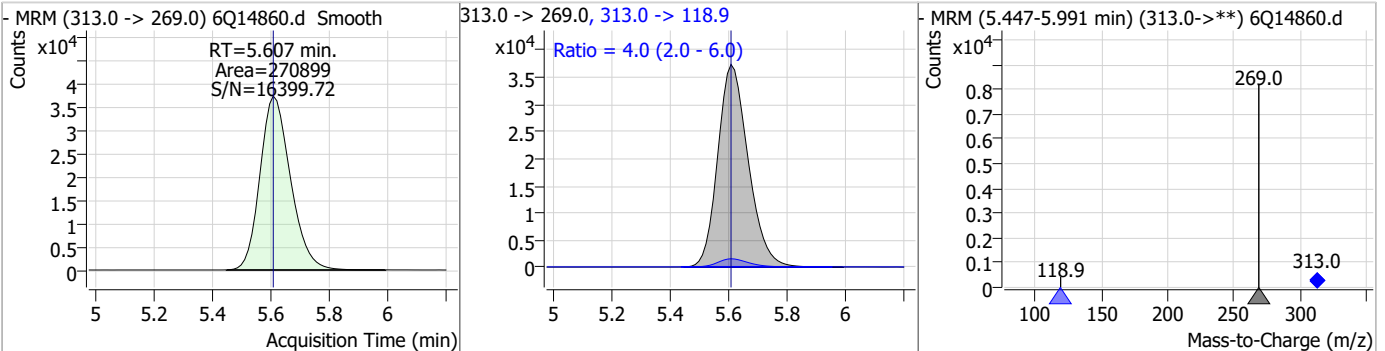
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.85	5.55	0.00	112470	298.7 -> 98.8	43.0	22.6	67.9



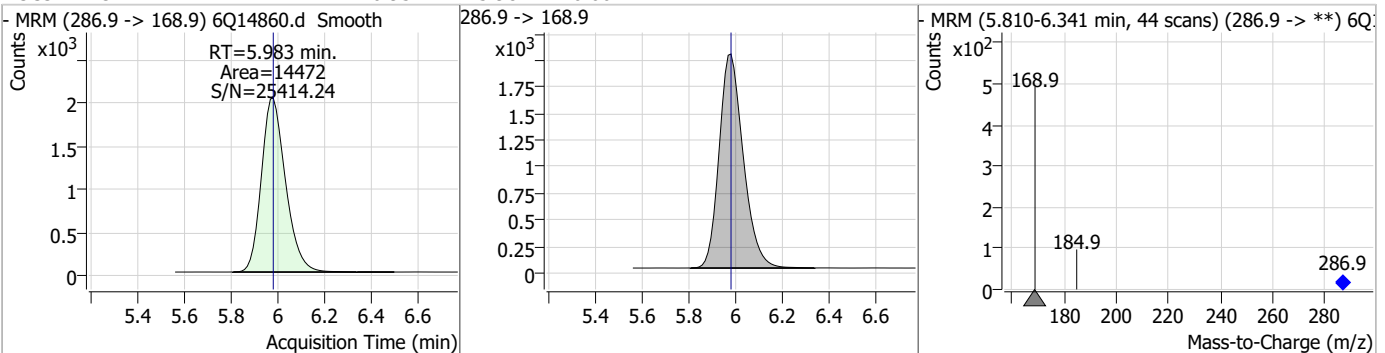
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.60	0.00	29973				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.45	5.61	0.00	270899	313.0 -> 118.9	4.0	2.0	6.0

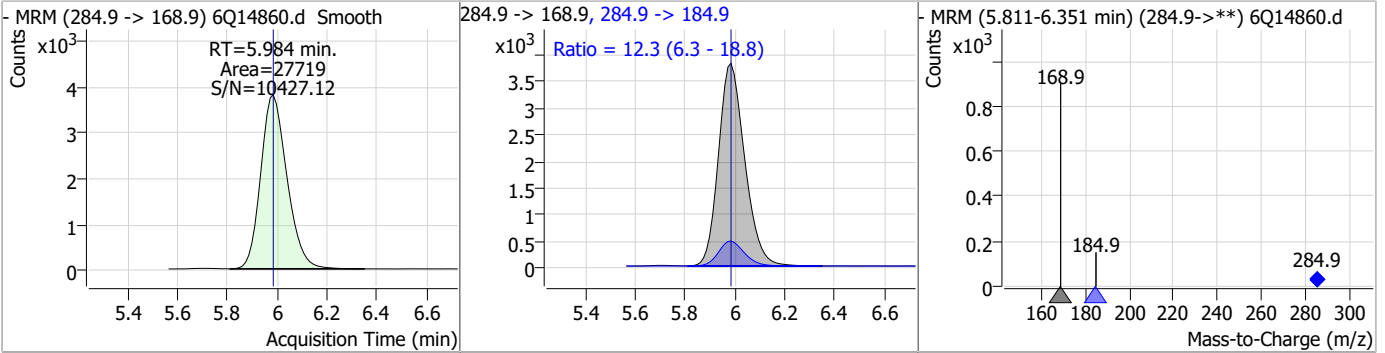


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.95	5.98	0.00	14472				

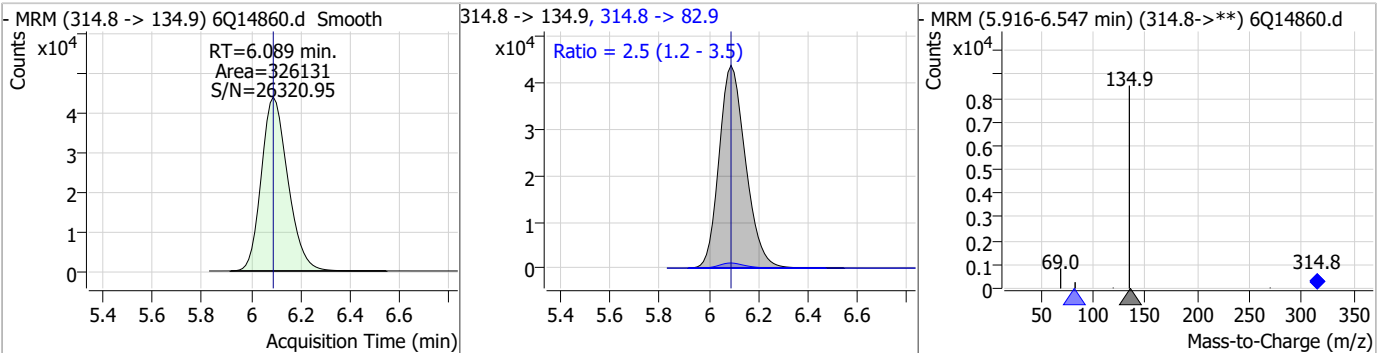


Perfluorinated Compounds by LC/MS/MS

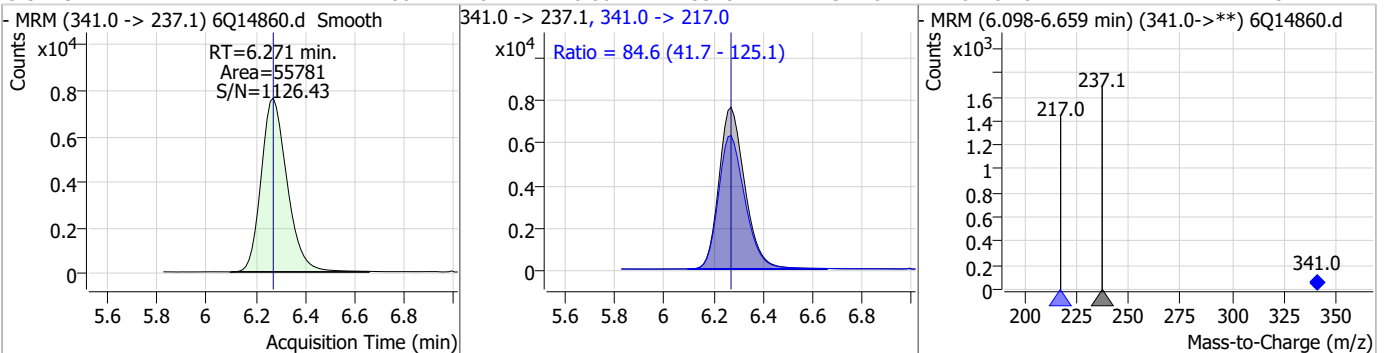
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.20	5.98	0.00	27719	284.9 -> 184.9	12.3	6.3	18.8



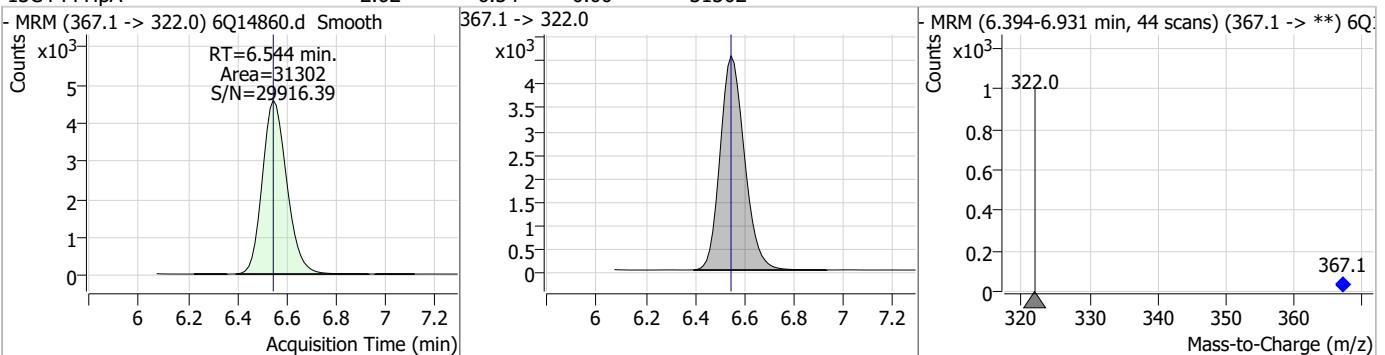
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	18.25	6.09	0.00	326131	314.8 -> 82.9	2.5	1.2	3.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	21.88	6.27	0.00	55781	341.0 -> 217.0	84.6	41.7	125.1

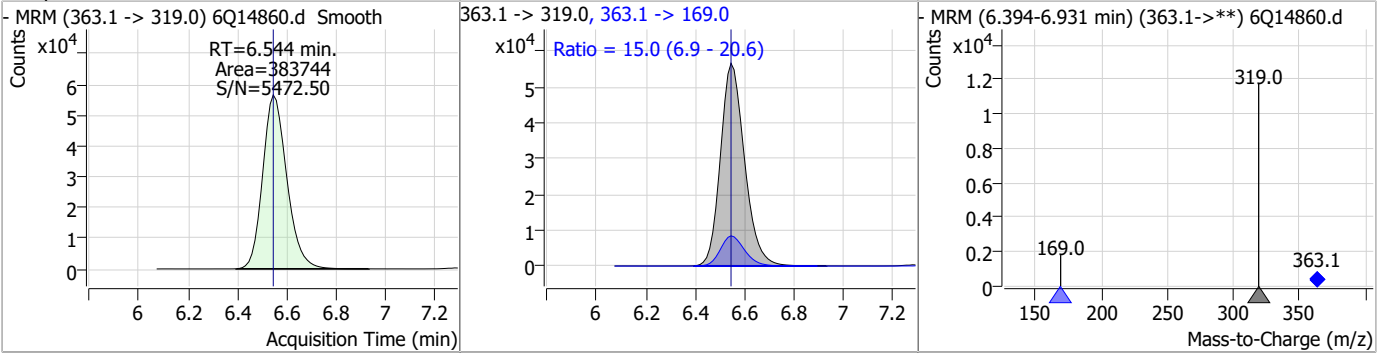


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.62	6.54	0.00	31302	367.1 -> 322.0	-	-	-

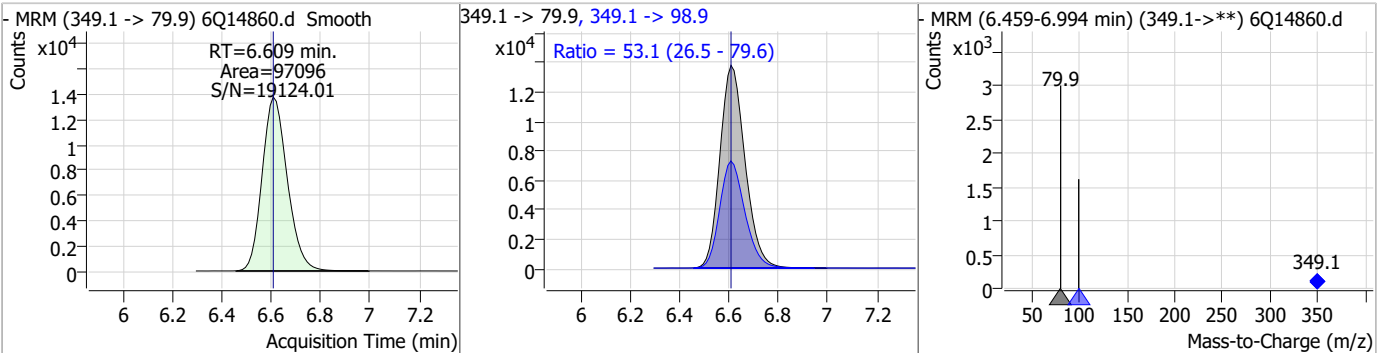


Perfluorinated Compounds by LC/MS/MS

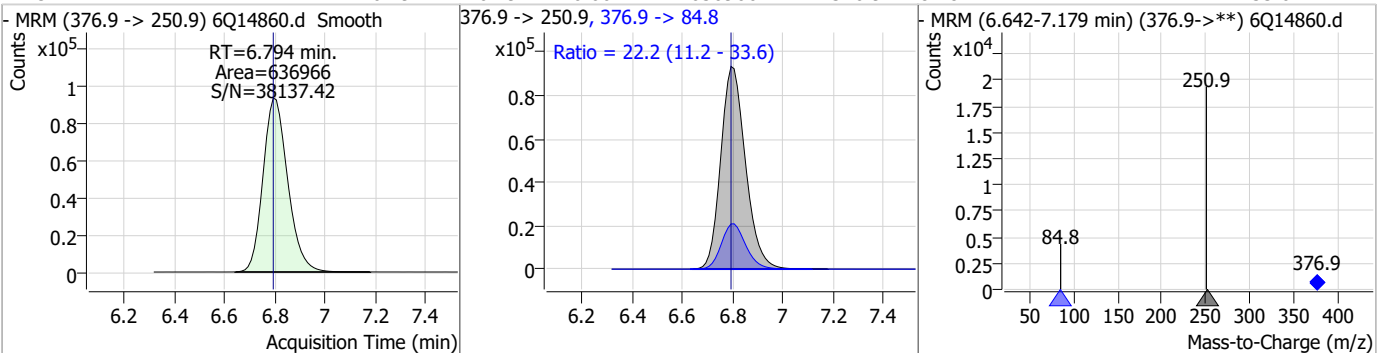
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.01	6.54	0.00	383744	363.1 -> 169.0	15.0	6.9	20.6



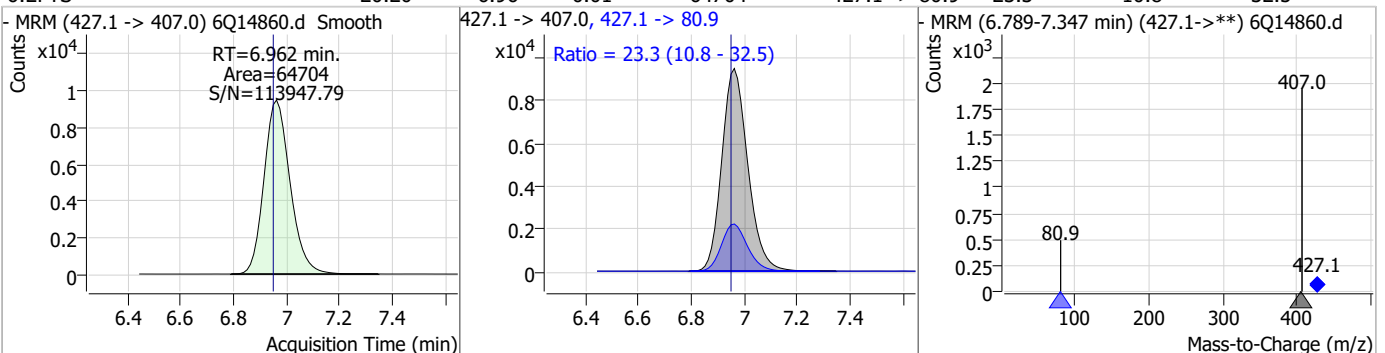
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	21.35	6.61	0.00	97096	349.1 -> 98.9	53.1	26.5	79.6



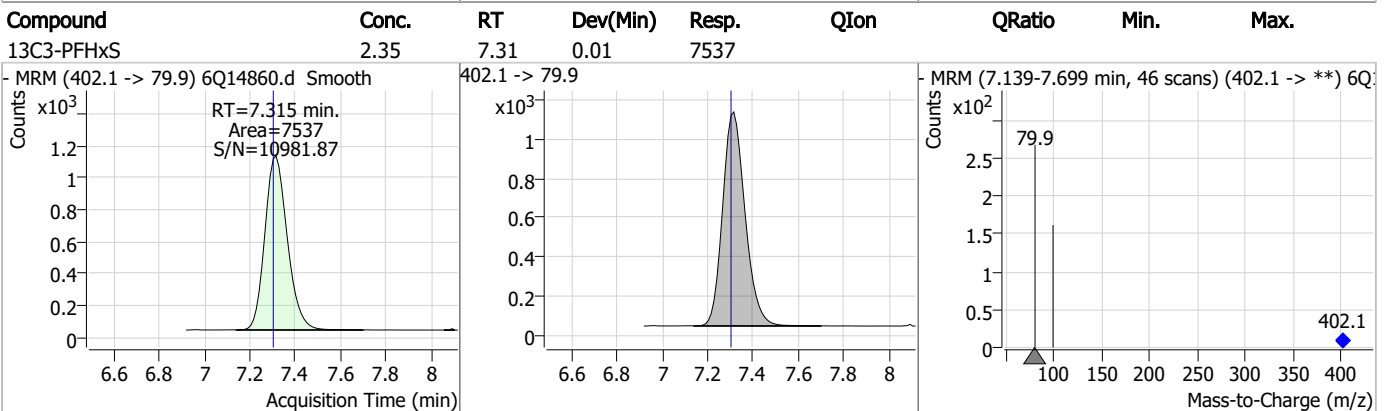
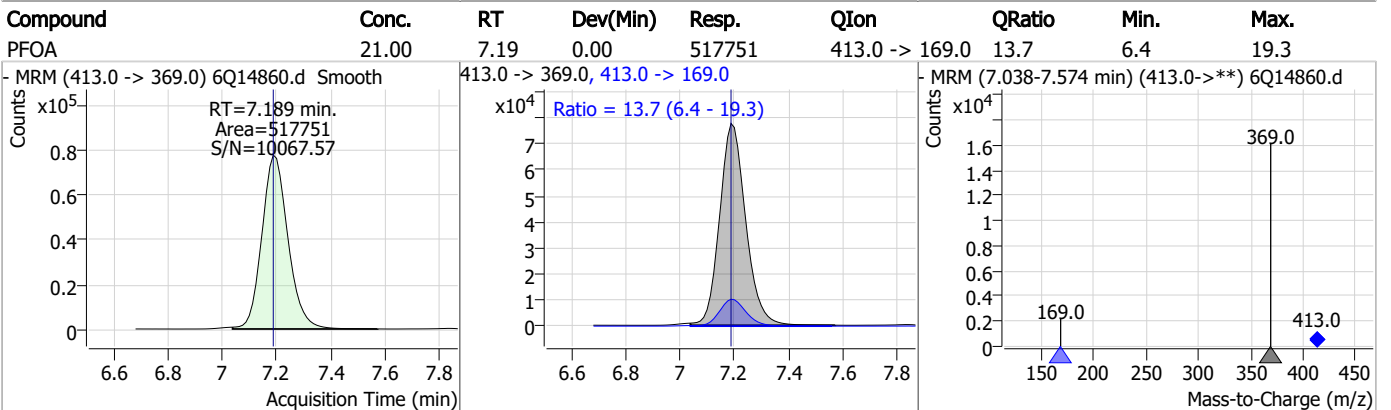
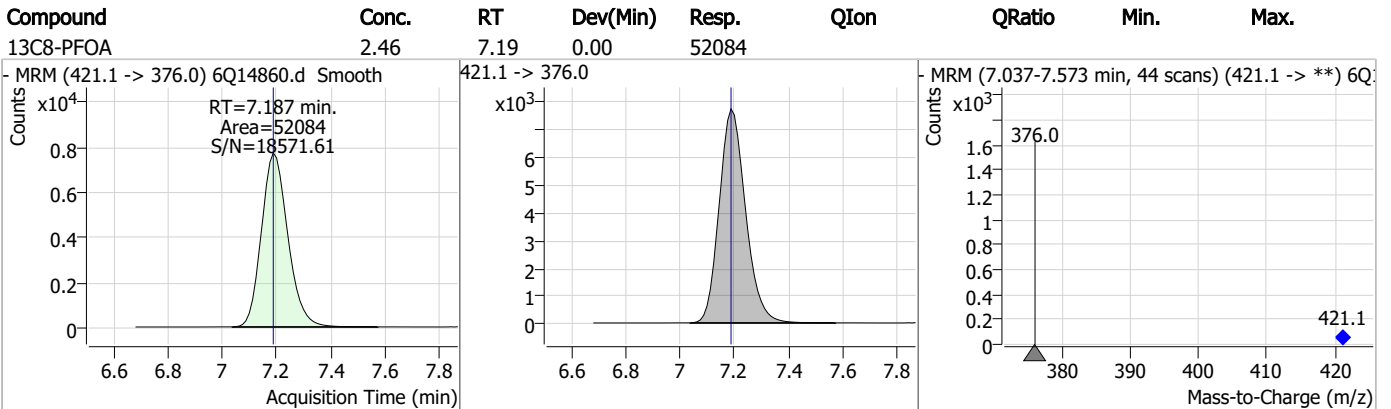
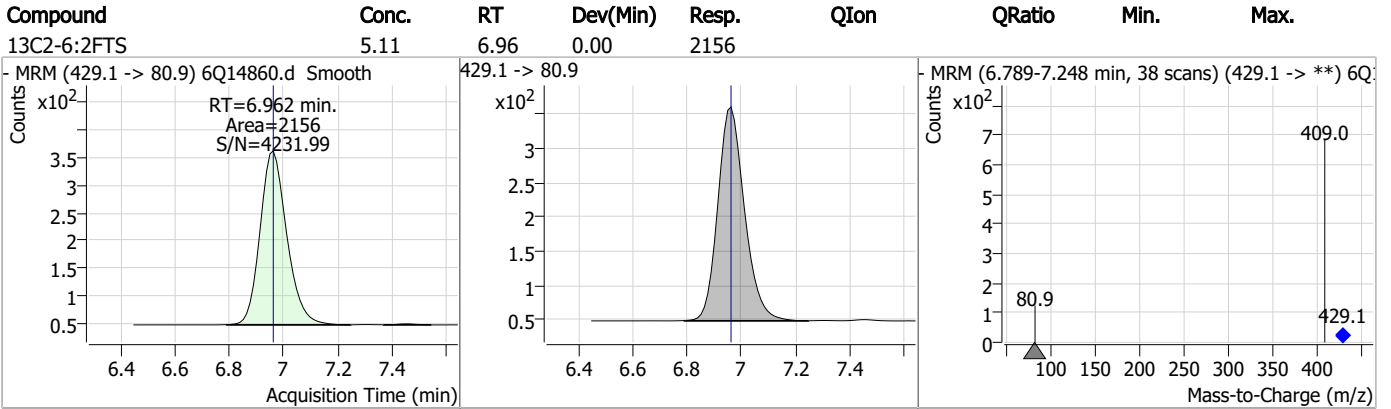
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.49	6.79	0.00	636966	376.9 -> 84.8	22.2	11.2	33.6



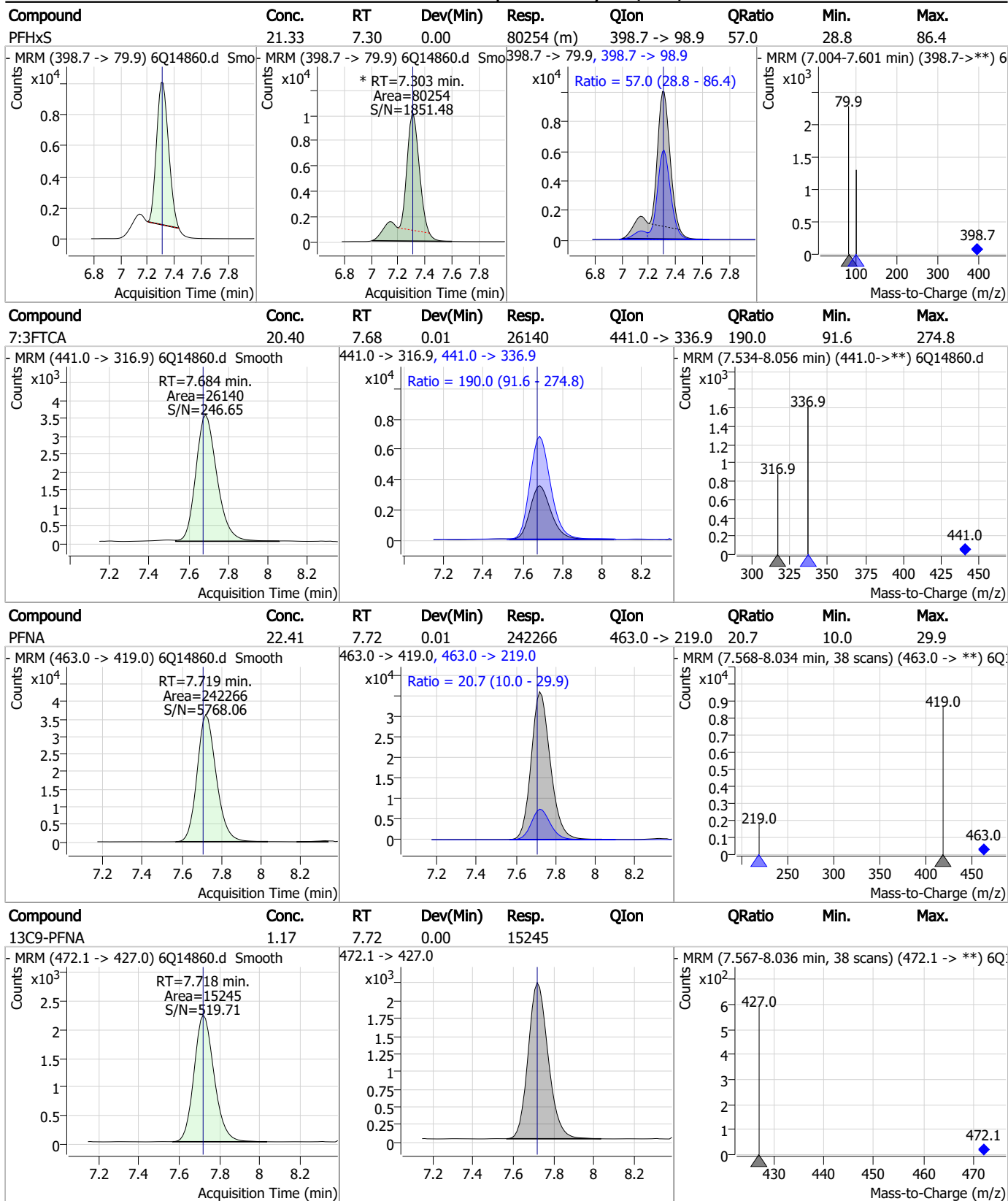
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.20	6.96	0.01	64704	427.1 -> 80.9	23.3	10.8	32.5



Perfluorinated Compounds by LC/MS/MS

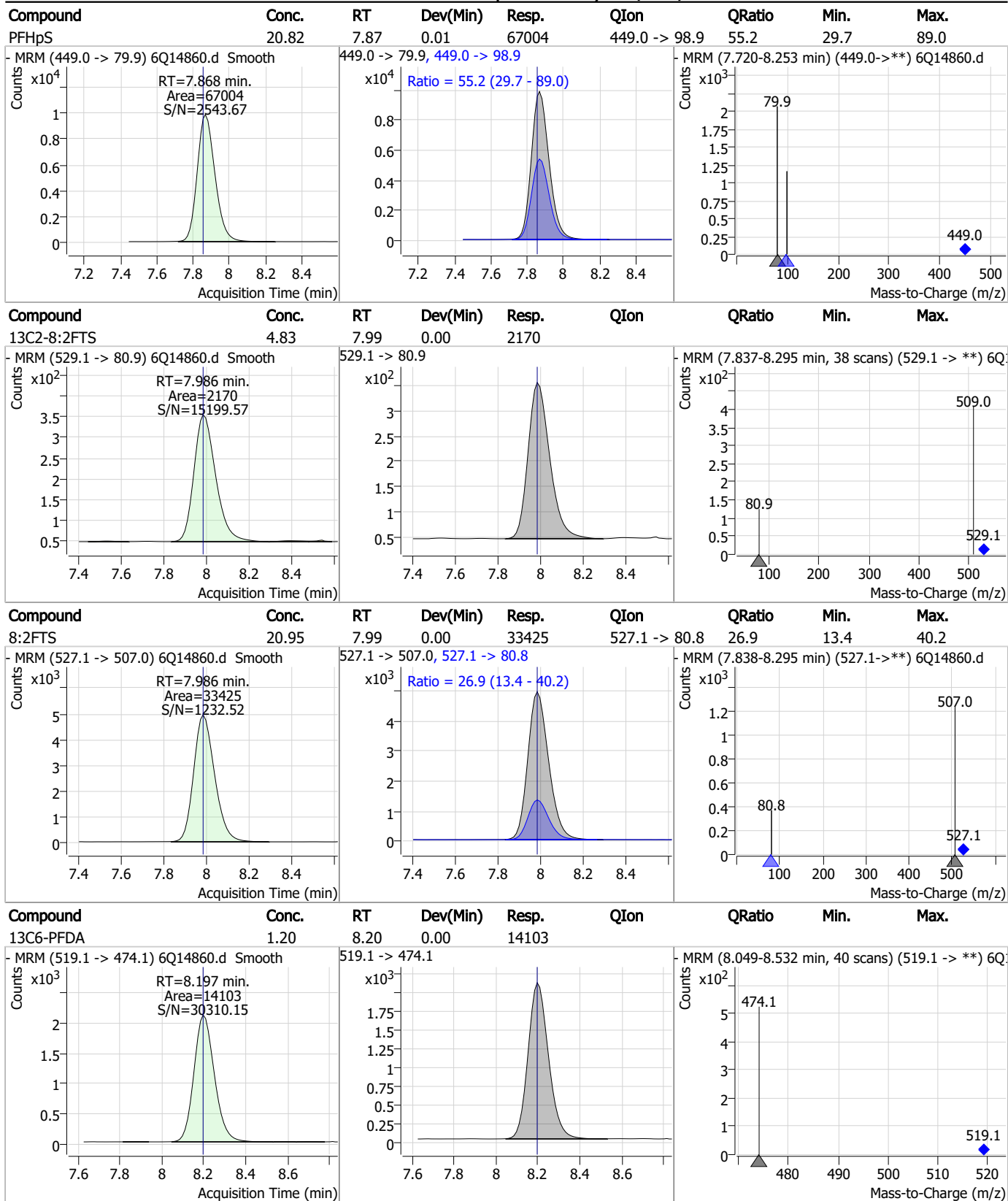


Perfluorinated Compounds by LC/MS/MS



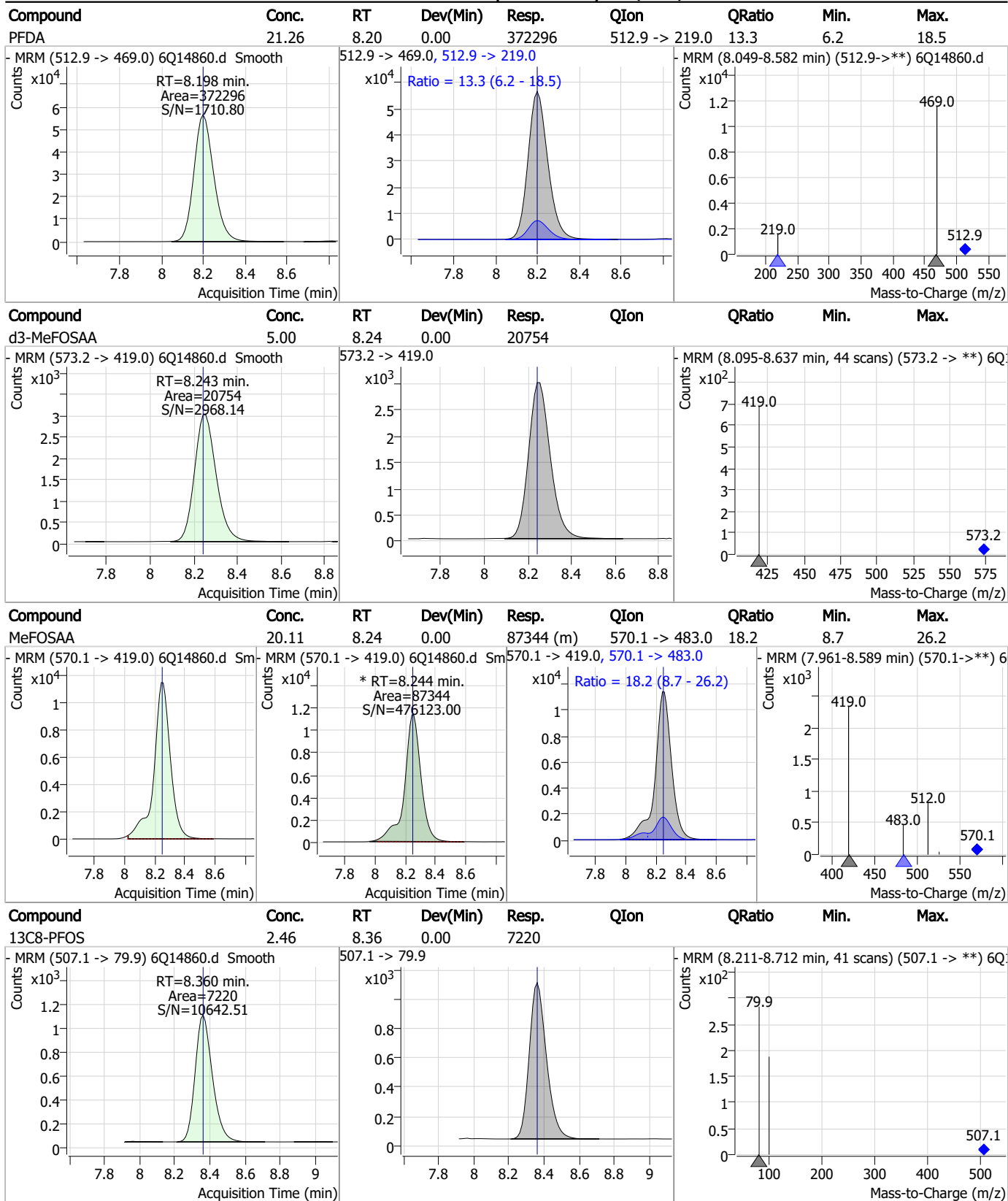
7.7.11
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Perfluorinated Compounds by LC/MS/MS



7.7.11
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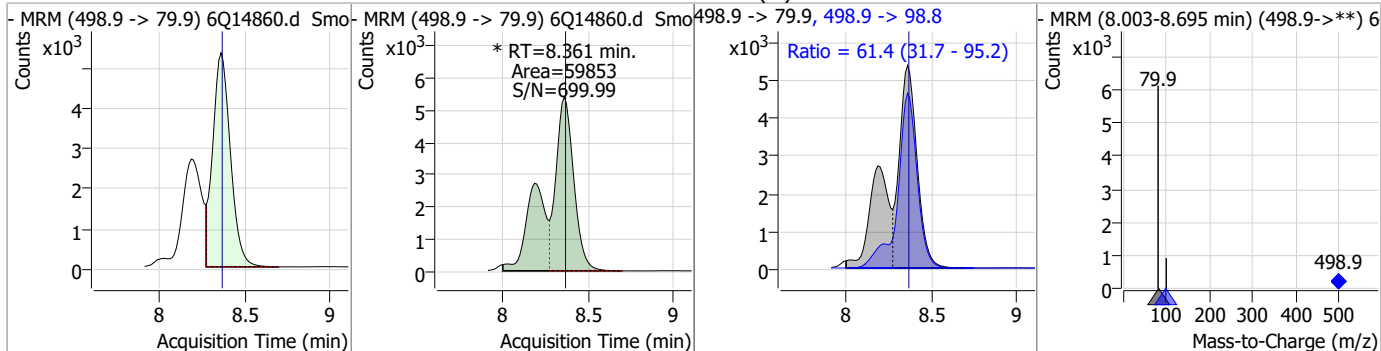
Perfluorinated Compounds by LC/MS/MS



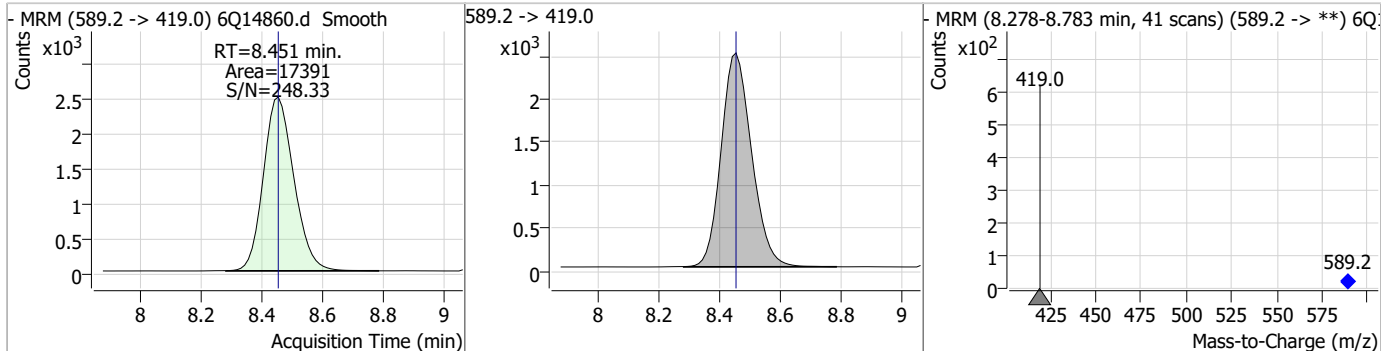
7.7.11
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Perfluorinated Compounds by LC/MS/MS

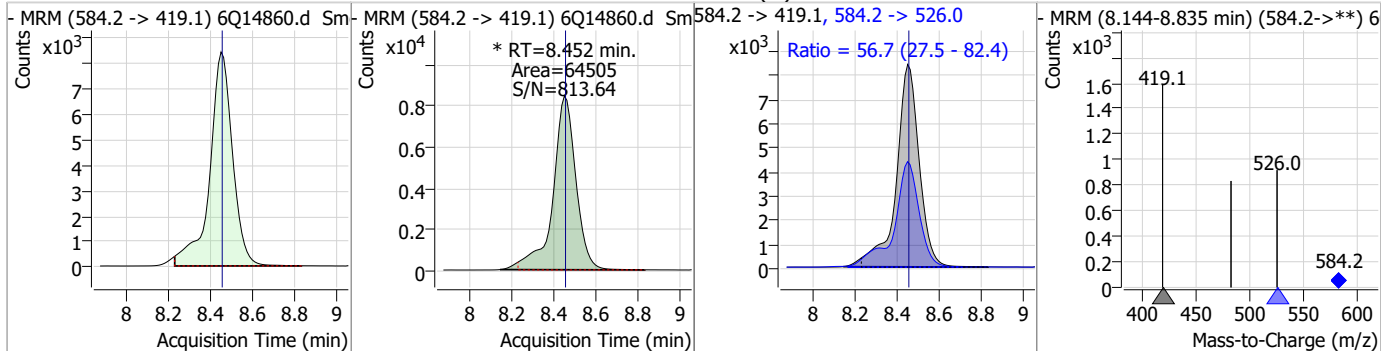
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.70	8.36	0.00	59853 (m)	498.9 -> 98.8	61.4	31.7	95.2



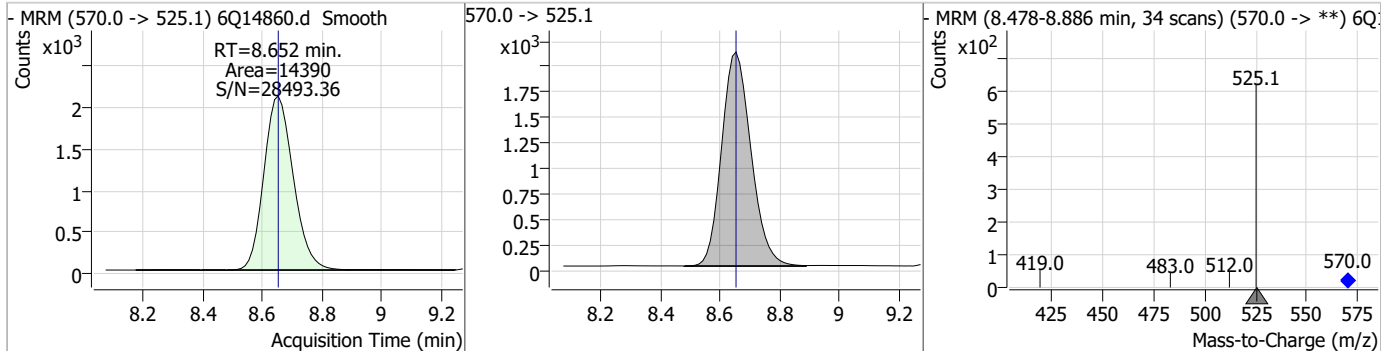
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.77	8.45	0.00	17391				



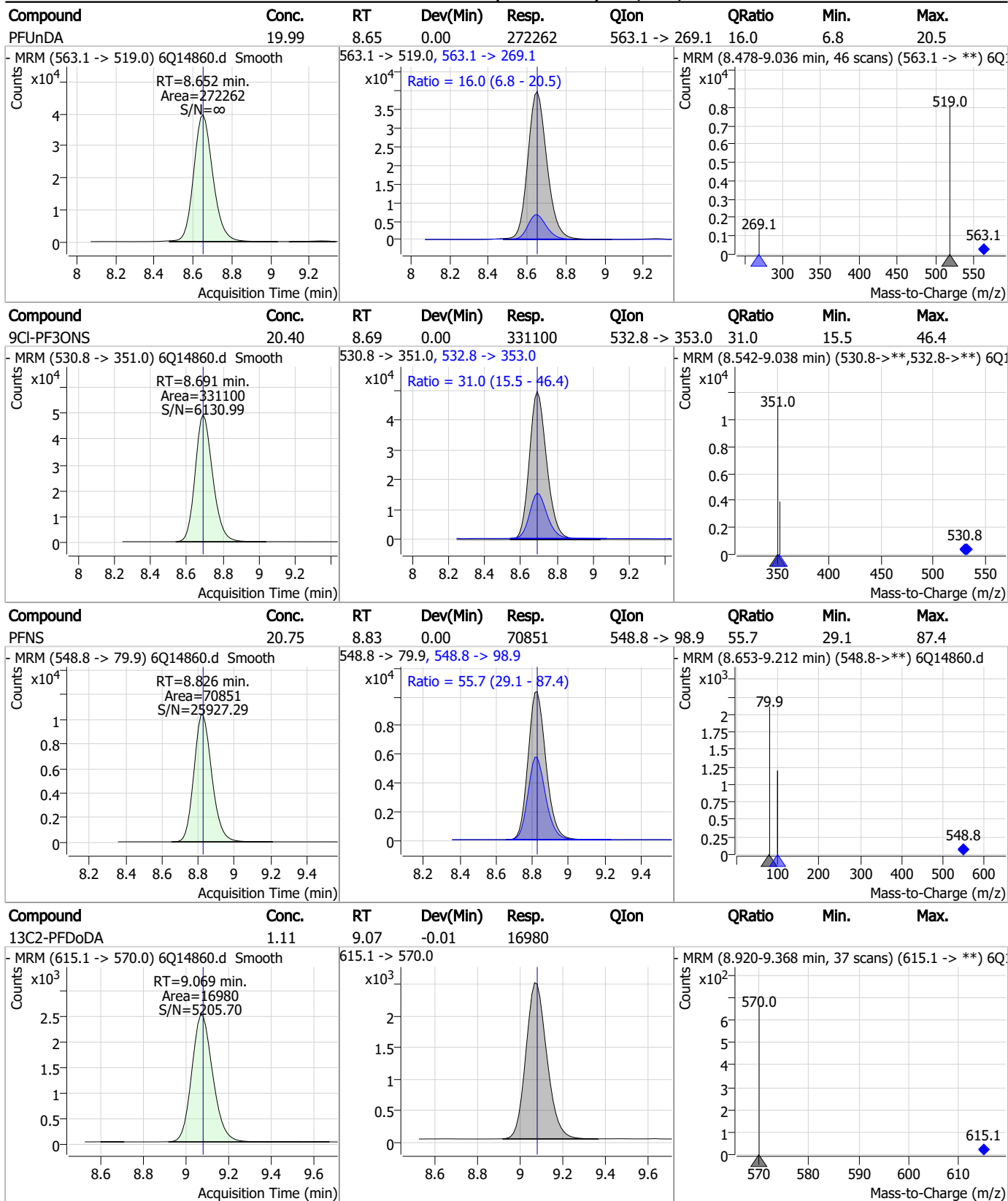
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.42	8.45	0.00	64505 (m)	584.2 -> 526.0	56.7	27.5	82.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.14	8.65	0.00	14390				

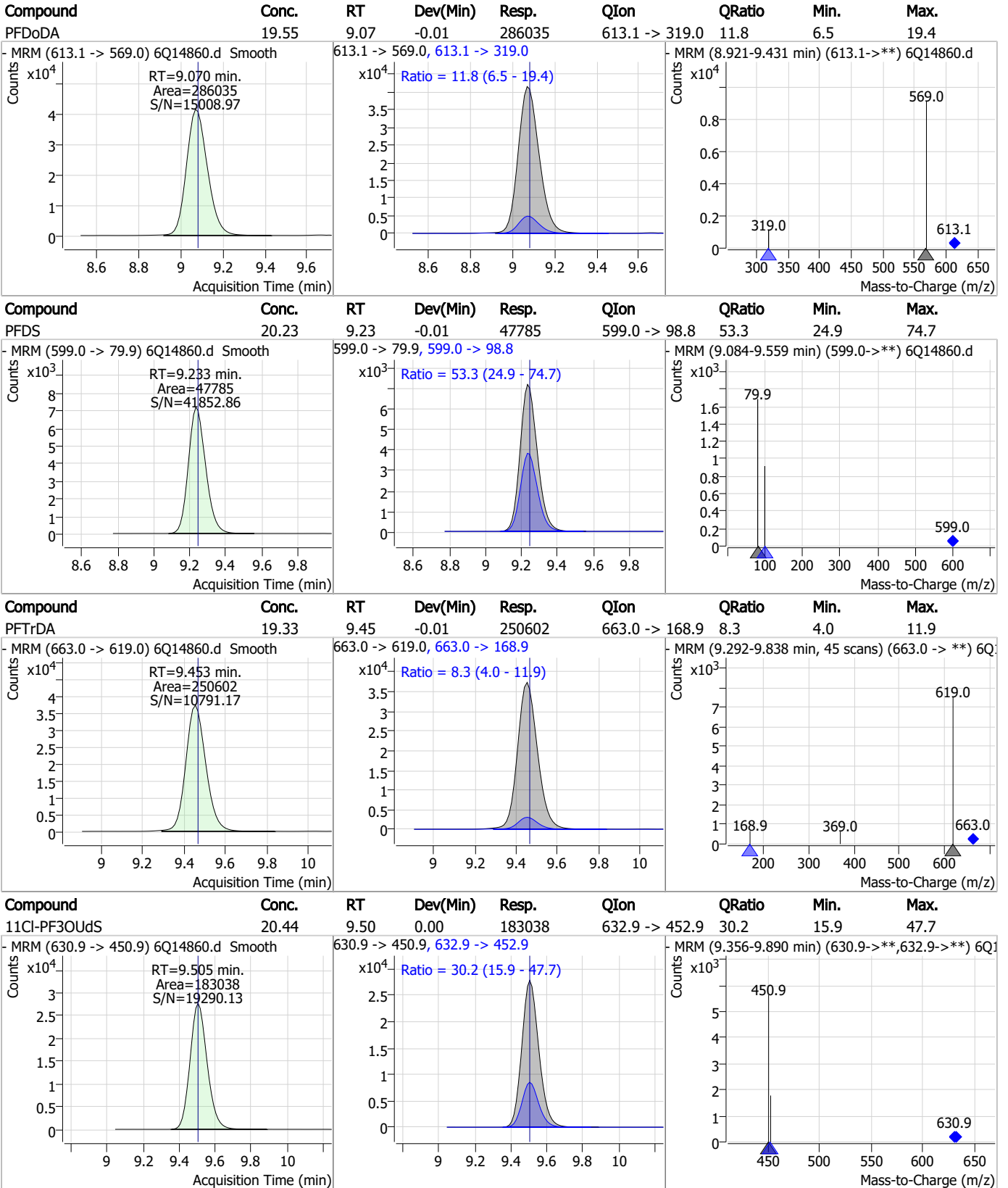


Perfluorinated Compounds by LC/MS/MS



7.7.11
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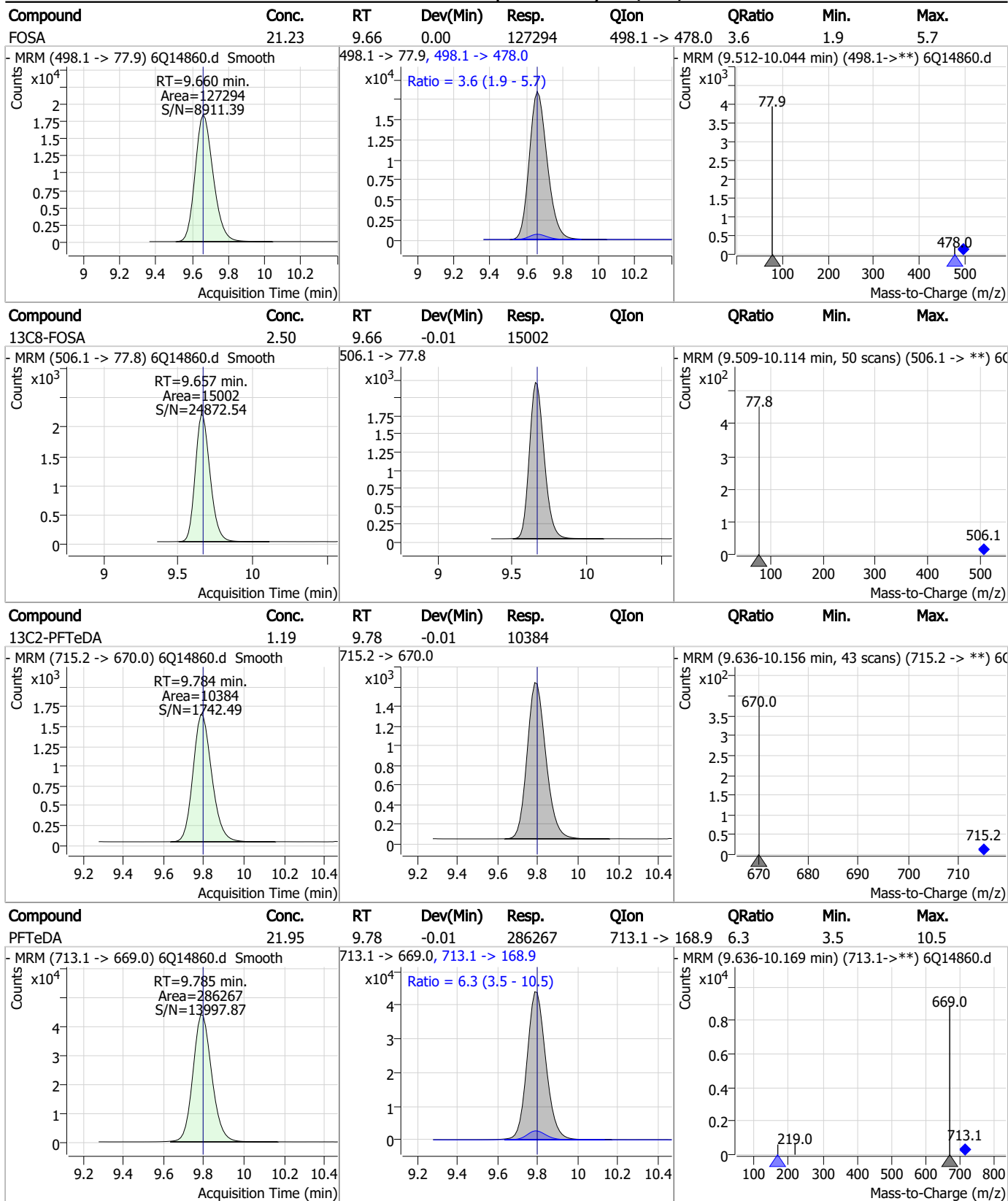
Perfluorinated Compounds by LC/MS/MS



7.7.11
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Perfluorinated Compounds by LC/MS/MS



7.7.11
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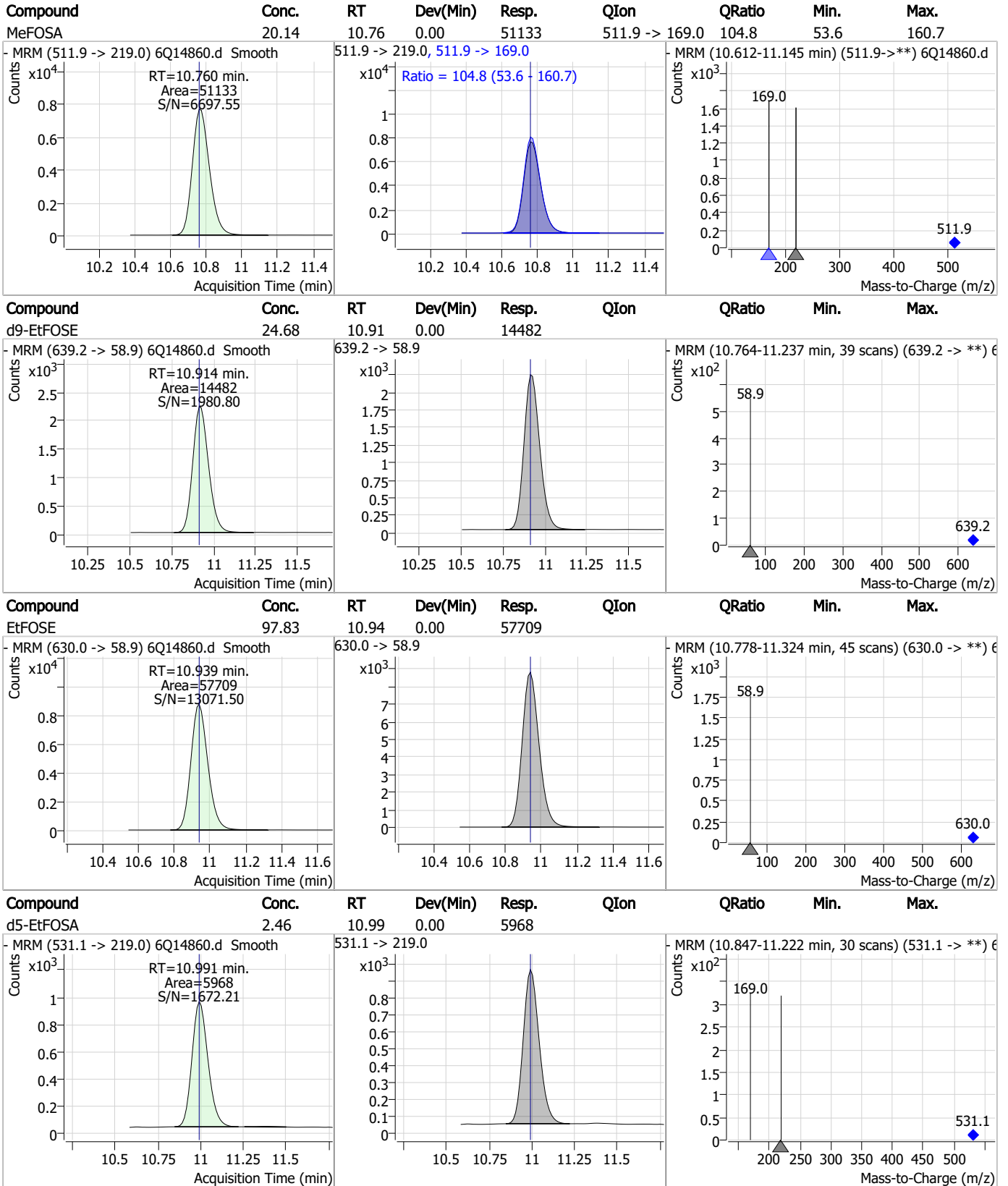
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	19.90	9.92	0.00	26865	699.1 -> 98.8	65.0	32.0	96.1
- MRM (699.1 -> 79.9) 6Q14860.d Smooth Counts x10 ³ RT=9.924 min. Area=26865 S/N=2226.61 Acquisition Time (min)			699.1 -> 79.9, 699.1 -> 98.8 Counts x10 ³ Ratio = 65.0 (32.0 - 96.1) Acquisition Time (min)			- MRM (9.775-10.310 min) (699.1->**) 6Q14860.d Counts x10 ³ 79.9 699.1 Mass-to-Charge (m/z)		
d7-MeFOSE	24.16	10.68	0.00	20084				
- MRM (623.2 -> 58.9) 6Q14860.d Smooth Counts x10 ³ RT=10.680 min. Area=20084 S/N=379.68 Acquisition Time (min)			623.2 -> 58.9 Counts x10 ³ Acquisition Time (min)			- MRM (10.531-10.952 min, 35 scans) (623.2 -> **) 6Q14860.d Counts x10 ³ 58.9 623.2 Mass-to-Charge (m/z)		
MeFOSE	96.51	10.69	0.00	81834				
- MRM (616.1 -> 58.9) 6Q14860.d Smooth Counts x10 ⁴ RT=10.692 min. Area=81834 S/N=54713.93 Acquisition Time (min)			616.1 -> 58.9 Counts x10 ⁴ Acquisition Time (min)			- MRM (10.545-11.053 min, 42 scans) (616.1 -> **) 6Q14860.d Counts x10 ³ 58.9 616.1 Mass-to-Charge (m/z)		
d3-MeFOSA	2.41	10.76	0.00	5278				
- MRM (515.0 -> 219.0) 6Q14860.d Smooth Counts x10 ³ RT=10.759 min. Area=5278 S/N=391.93 Acquisition Time (min)			515.0 -> 219.0 Counts x10 ² Acquisition Time (min)			- MRM (10.610-11.082 min, 39 scans) (515.0 -> **) 6Q14860.d Counts x10 ² 169.0 515.0 Mass-to-Charge (m/z)		

7.7.11
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Perfluorinated Compounds by LC/MS/MS



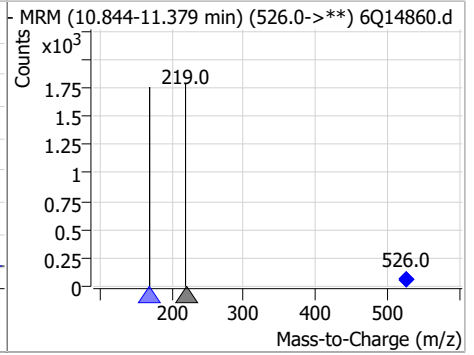
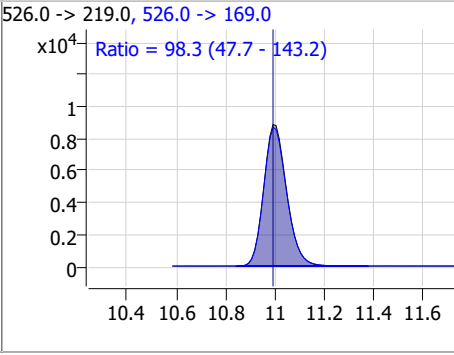
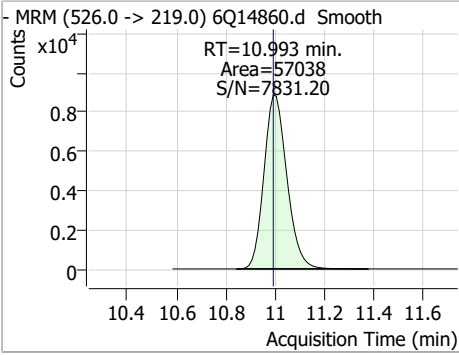
7.7.11

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	19.89	10.99	0.00	57038	526.0 -> 169.0	98.3	47.7	143.2



7.7.11

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Manual Integration Approval Summary

Sample Number: S6Q225-ICV225 Method: EPA DRAFT 1633
Lab FileID: 6Q14860.D Analyst approved: 03/16/23 10:03 Natasha Gumtie
Injection Time: 03/16/23 00:06 Supervisor approved: 03/16/23 16:23 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.30	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.45	Split peak

7.7.11.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15054.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 1:59:04 AM
 Sample Name : cc225-1.0LL
 Vial : P1-A2
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95881,S6Q228,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.935	216.8 -> 171.9	76658	10.00 µg/L	-0.012
M5-PFPeA	4.370	268.3 -> 223.0	37310	5.00 µg/L	-0.025
M5-PFHxA	5.580	318.0 -> 273.0	33451	2.50 µg/L	-0.025
M4-PFHpA	6.519	367.1 -> 322.0	32690	2.50 µg/L	-0.025
M8-PFOA	7.162	421.1 -> 376.0	55265	2.50 µg/L	-0.025
M9-PFNA	7.693	472.1 -> 427.0	16807	1.25 µg/L	-0.025
M6-PFDA	8.173	519.1 -> 474.1	15078	1.25 µg/L	-0.025
M7-PFUnDA	8.627	570.0 -> 525.1	17094	1.25 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	19887	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	11257	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	16249	2.50 µg/L	-0.025
M3-PFBS	5.511	302.1 -> 79.9	12711	2.50 µg/L	-0.037
M3-PFHxS	7.289	402.1 -> 79.9	8414	2.50 µg/L	-0.013
M8-PFOS	8.335	507.1 -> 79.9	7720	2.50 µg/L	-0.025
M2-4:2FTS	5.243	329.1 -> 80.9	1823	5.00 µg/L	-0.037
M2-6:2FTS	6.937	429.1 -> 80.9	2267	5.00 µg/L	-0.025
M2-8:2FTS	7.961	529.1 -> 80.9	2485	5.00 µg/L	-0.025
M3-MeFOSAA	8.231	573.2 -> 419.0	20823	5.00 µg/L	-0.012
M3-HFPO-DA	5.958	286.9 -> 168.9	13642	10.00 µg/L	-0.025
M5-EtFOSAA	8.426	589.2 -> 419.0	18328	5.00 µg/L	-0.025
M7-MeFOSE	10.668	623.2 -> 58.9	23076	25.00 µg/L	-0.012
M9-EtFOSE	10.901	639.2 -> 58.9	16353	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	6574	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	5462	2.50 µg/L	-0.012
13C4-PFOS	8.335	502.8 -> 79.9	9315	2.50 µg/L	-0.025
13C3-PFBA	2.939	216.0 -> 172.0	33086	5.00 µg/L	-0.013
18O2-PFHxS	7.288	403.0 -> 83.9	5994	2.50 µg/L	-0.026
13C4-PFOA	7.163	417.1 -> 372.0	65093	2.50 µg/L	-0.025
13C2-PFDA	8.173	515.1 -> 470.1	20309	1.25 µg/L	-0.025
13C5-PFNA	7.694	468.0 -> 423.0	17891	1.25 µg/L	-0.025
13C2-PFHxA	5.581	315.1 -> 270.0	32790	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.243	329.1 -> 80.9	1823	5.30 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-6:2FTS	6.937	429.1 -> 80.9	2267	5.09 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-8:2FTS	7.961	529.1 -> 80.9	2485	5.23 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-PFDoDA	9.057	615.1 -> 570.0	19887	1.25 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.772	715.2 -> 670.0	11257	1.24 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-PFBS	5.511	302.1 -> 79.9	12711	2.48 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C3-PFHxS	7.289	402.1 -> 79.9	8414	2.49 µg/L	-0.013

7.7.12
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C4-PFBA	2.935	216.8 -> 171.9	76658	10.10 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C4-PFHpA	6.519	367.1 -> 322.0	32690	2.44 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C5-PFHxA	5.580	318.0 -> 273.0	33451	2.50 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C5-PFPeA	4.370	268.3 -> 223.0	37310	4.92 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C6-PFDA	8.173	519.1 -> 474.1	15078	1.24 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C7-PFUnDA	8.627	570.0 -> 525.1	17094	1.30 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C8-FOSA	9.645	506.1 -> 77.8	16249	2.51 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C8-PFOA	7.162	421.1 -> 376.0	55265	2.54 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C8-PFOS	8.335	507.1 -> 79.9	7720	2.44 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C9-PFNA	7.693	472.1 -> 427.0	16807	1.22 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.4%		
d3-MeFOSAA	8.231	573.2 -> 419.0	20823	4.65 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C3-HFPO-DA	5.958	286.9 -> 168.9	13642	9.21 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 92.1%		
d3-MeFOSA	10.746	515.0 -> 219.0	5462	2.31 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.4%		
d5-EtFOSAA	8.426	589.2 -> 419.0	18328	4.66 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.2%		
d7-MeFOSE	10.668	623.2 -> 58.9	23076	25.75 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
d9-EtFOSE	10.901	639.2 -> 58.9	16353	25.85 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.4%		
d5-EtFOSA	10.979	531.1 -> 219.0	6574	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
Target Compounds					QValue
4:2FTS	5.244	327.1 -> 307.0	3011	0.71 µg/L	99
		327.1 -> 80.9	740		
6:2FTS	6.937	427.1 -> 407.0	2723	0.81 µg/L	99
		427.1 -> 80.9	598		
8:2FTS	7.962	527.1 -> 507.0	1600	0.88 µg/L	99
		527.1 -> 80.8	437		
EtFOSAA	8.427	584.2 -> 419.1	638	0.19 µg/L	m 79
		584.2 -> 526.0	253		
FOSA	9.647	498.1 -> 77.9	1370	0.21 µg/L	100
		498.1 -> 478.0	50		
MeFOSAA	8.232	570.1 -> 419.0	906	0.21 µg/L	m 99
		570.1 -> 483.0	163		
PFBA	2.943	212.8 -> 168.9	1566	0.75 µg/L	100
PFBS	5.512	298.7 -> 79.9	943	0.17 µg/L	96
		298.7 -> 98.8	402		
PFDA	8.174	512.9 -> 469.0	3288	0.18 µg/L	90
		512.9 -> 219.0	535		
PFDODA	9.057	613.1 -> 569.0	3373	0.20 µg/L	99
		613.1 -> 319.0	447		
PFDS	9.221	599.0 -> 79.9	515	0.20 µg/L	96

7.7.12
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.520	599.0 -> 98.8	242	0.19	µg/L	99
		363.1 -> 319.0	4030			
PFHpS	7.843	363.1 -> 169.0	572	0.20	µg/L	80
		449.0 -> 79.9	691			
PFHxA	5.582	449.0 -> 98.9	308	0.18	µg/L	97
		313.0 -> 269.0	2516			
PFHxS	7.290	313.0 -> 118.9	123	0.17	µg/L	90
		398.7 -> 79.9	731			
PFNA	7.694	398.7 -> 98.9	475	0.24	µg/L	92
		463.0 -> 419.0	2843			
PFNS	8.802	463.0 -> 219.0	462	0.17	µg/L	79
		548.8 -> 79.9	613			
PFOA	7.163	548.8 -> 98.9	455	0.23	µg/L	98
		413.0 -> 369.0	6125			
PFOS	8.348	413.0 -> 169.0	737	0.19	µg/L	90
		498.9 -> 79.9	683			
PFPeA	4.372	498.9 -> 98.8	382	0.40	µg/L	100
		263.0 -> 219.0	3572			
PFPeS	6.584	349.1 -> 79.9	810	0.16	µg/L	98
		349.1 -> 98.9	441			
PFTeDA	9.772	713.1 -> 669.0	2973	0.21	µg/L	98
		713.1 -> 168.9	185			
PFTrDA	9.440	663.0 -> 619.0	3114	0.21	µg/L	100
		663.0 -> 168.9	244			
PFUnDA	8.627	563.1 -> 519.0	3059	0.19	µg/L	94
		563.1 -> 269.1	494			
11Cl-PF3OUdS	9.493	630.9 -> 450.9	6898	0.82	µg/L	96
		632.9 -> 452.9	2036			
9Cl-PF3ONS	8.678	530.8 -> 351.0	11625	0.76	µg/L	94
		532.8 -> 353.0	3984			
ADONA	6.781	376.9 -> 250.9	22301	0.76	µg/L	93
		376.9 -> 84.8	5777			
HFPO-DA	5.959	284.9 -> 168.9	1154	0.80	µg/L	98
		284.9 -> 184.9	152			
3:3FTCA	3.826	241.0 -> 177.0	449	1.01	µg/L	90
		241.0 -> 117.0	86			
5:3FTCA	6.234	341.0 -> 237.1	15173	5.33	µg/L	98
		341.0 -> 217.0	12395			
7:3FTCA	7.659	441.0 -> 316.9	7293	5.10	µg/L	98
		441.0 -> 336.9	13118			
EtFOSA	10.981	526.0 -> 219.0	543	0.17	µg/L	99
		526.0 -> 169.0	514			
EtFOSE	10.927	630.0 -> 58.9	1331	2.00	µg/L	100
		511.9 -> 219.0	541			
MeFOSA	10.748	511.9 -> 169.0	561	0.21	µg/L	97
		616.1 -> 58.9	1940			
MeFOSE	10.681	699.1 -> 79.9	281	1.99	µg/L	100
		699.1 -> 98.8	224			
PFDoDS	9.899	295.0 -> 201.0	315	0.19	µg/L	80
		295.0 -> 84.9	162			
NFDHA	5.451	279.0 -> 85.1	1170	0.35	µg/L	90
		229.0 -> 84.9	1004			
PFMBA	4.781	314.8 -> 134.9	6390	0.39	µg/L	100
		314.8 -> 82.9	223			
PFMPA	3.501			0.32	µg/L	97
PFEESA	6.051					

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



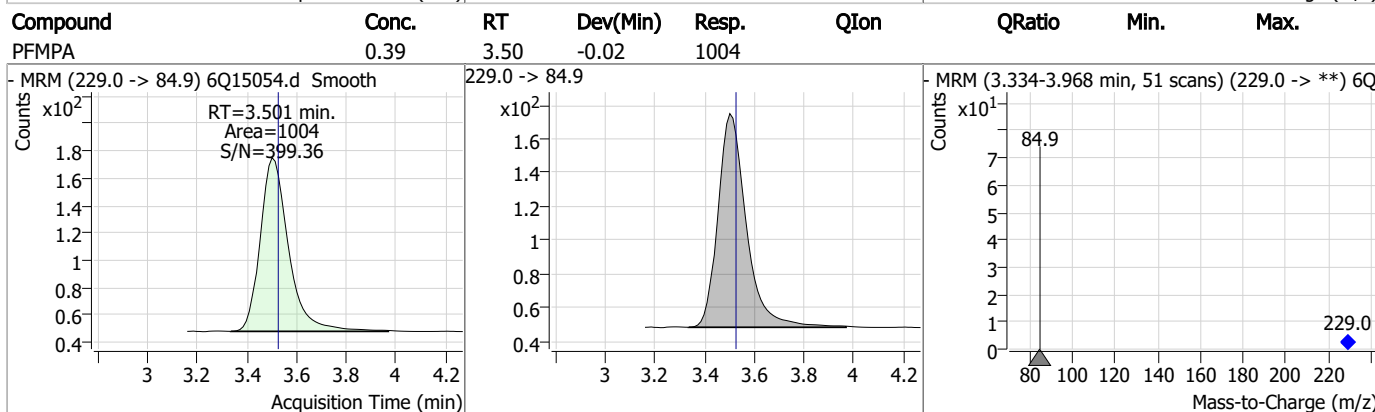
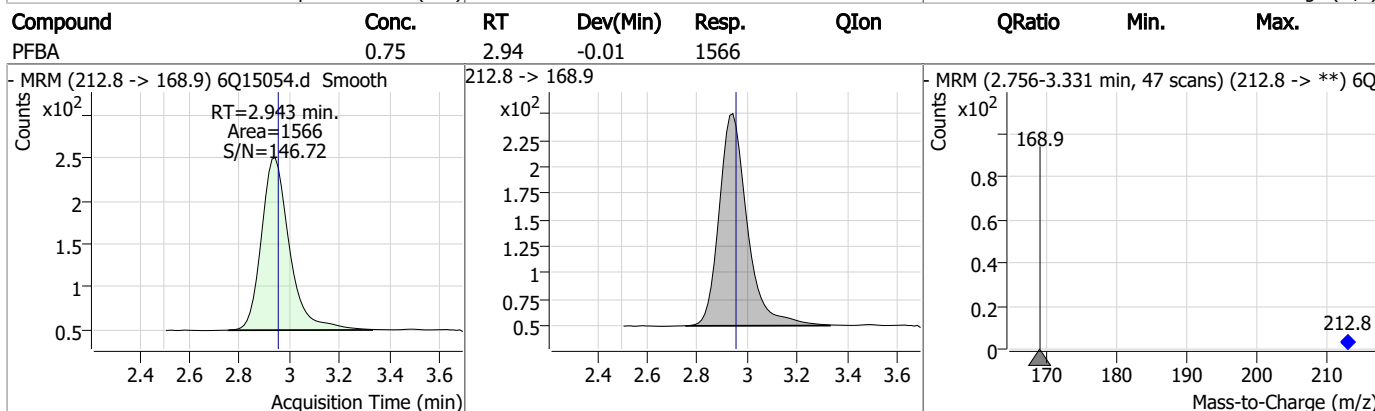
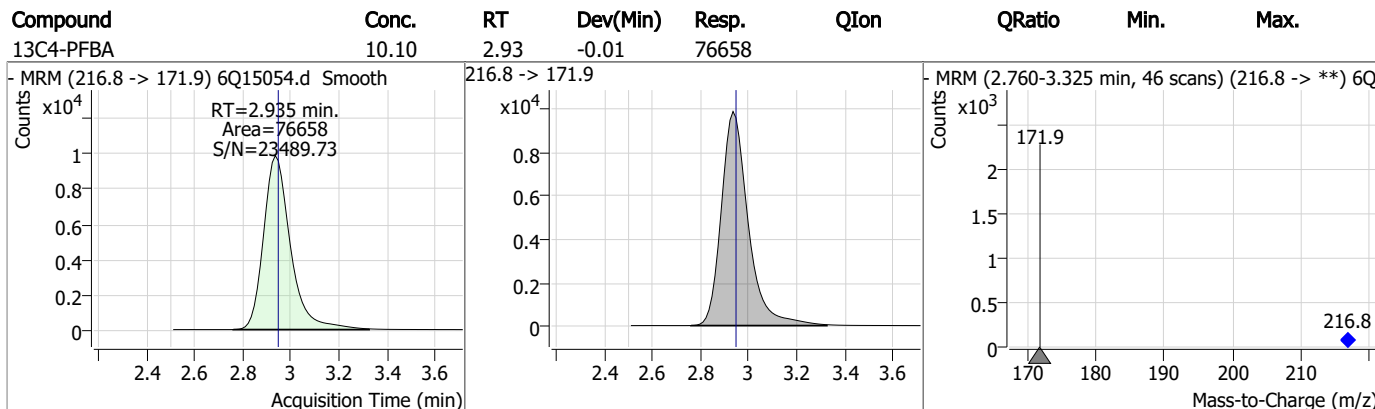
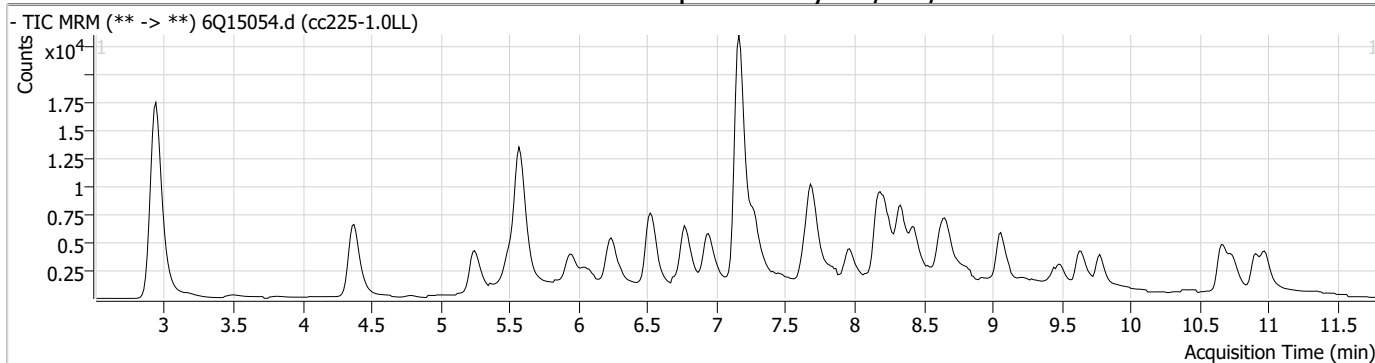
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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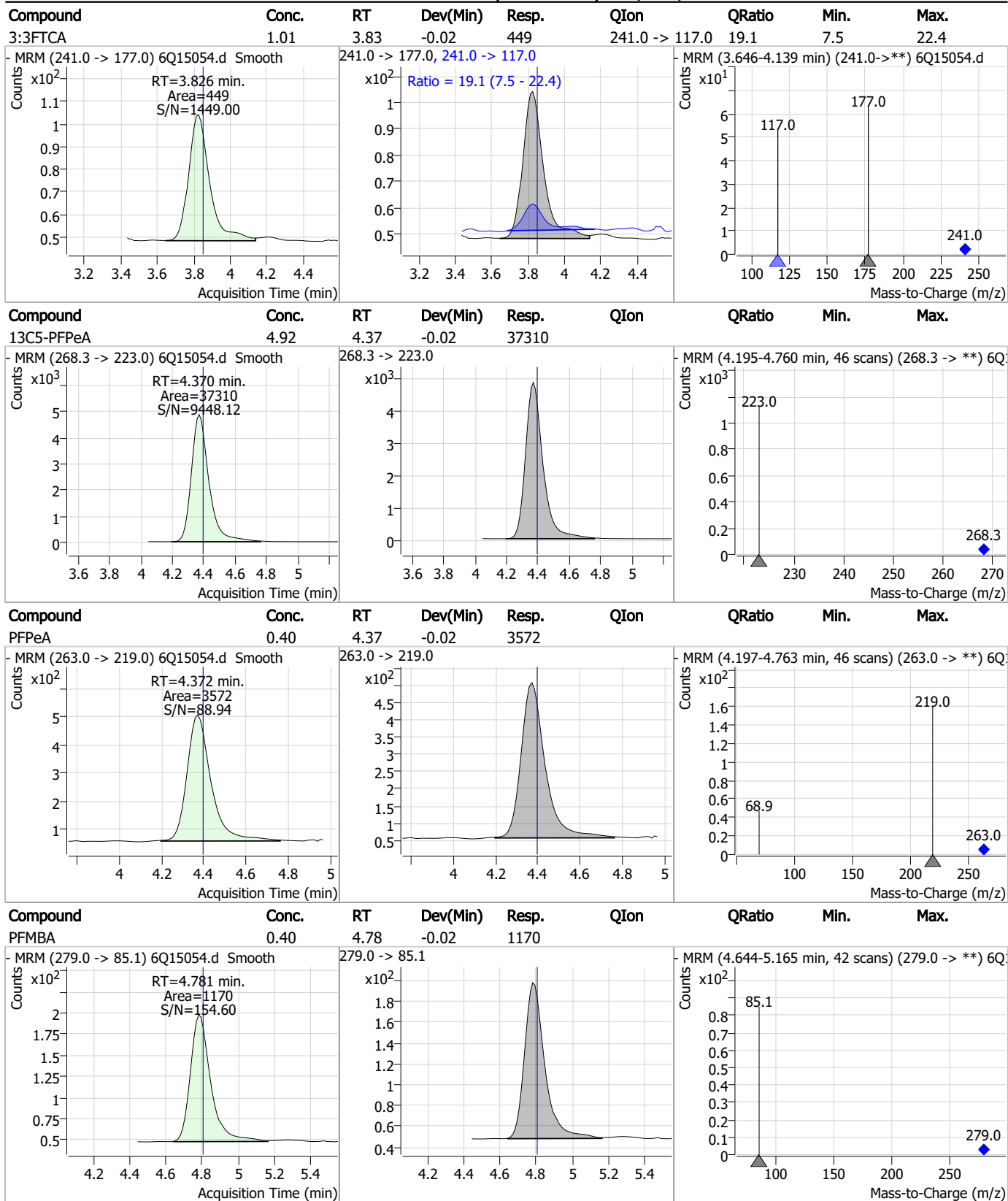
7.7.12

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Perfluorinated Compounds by LC/MS/MS

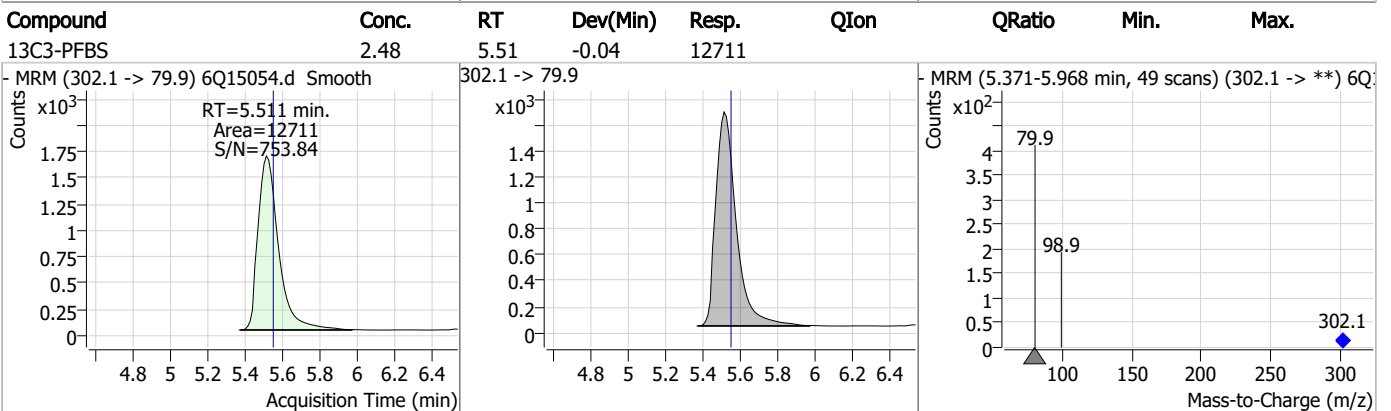
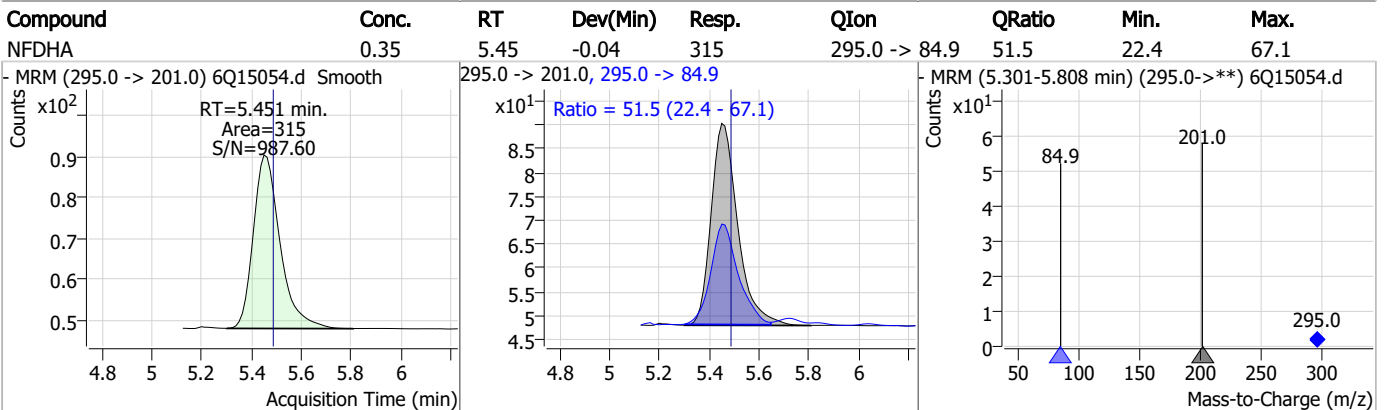
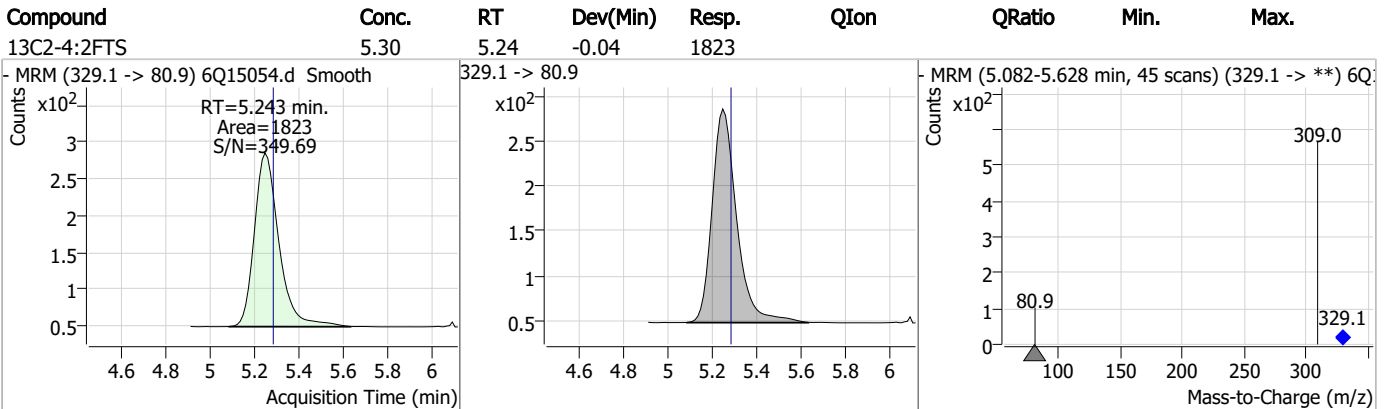
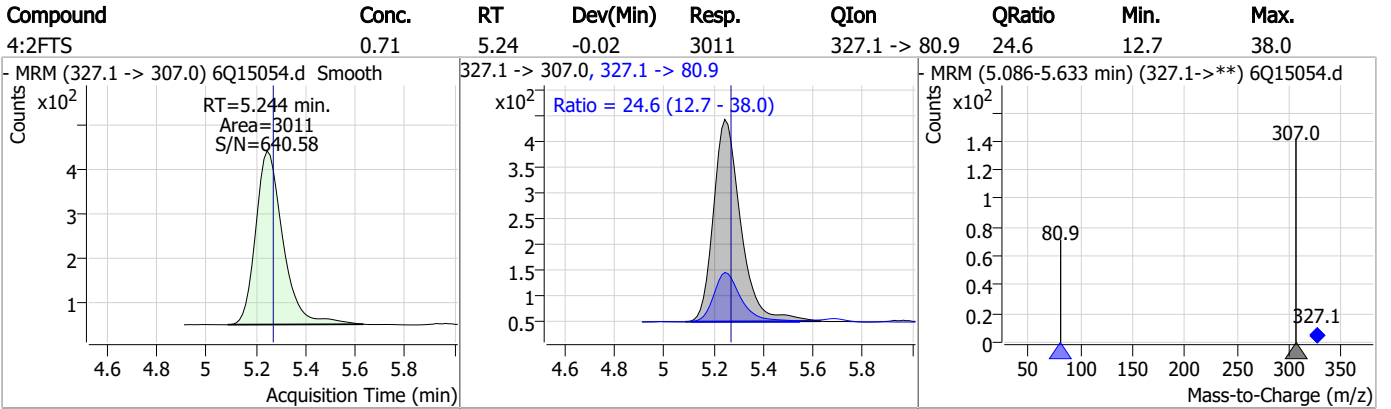


Perfluorinated Compounds by LC/MS/MS



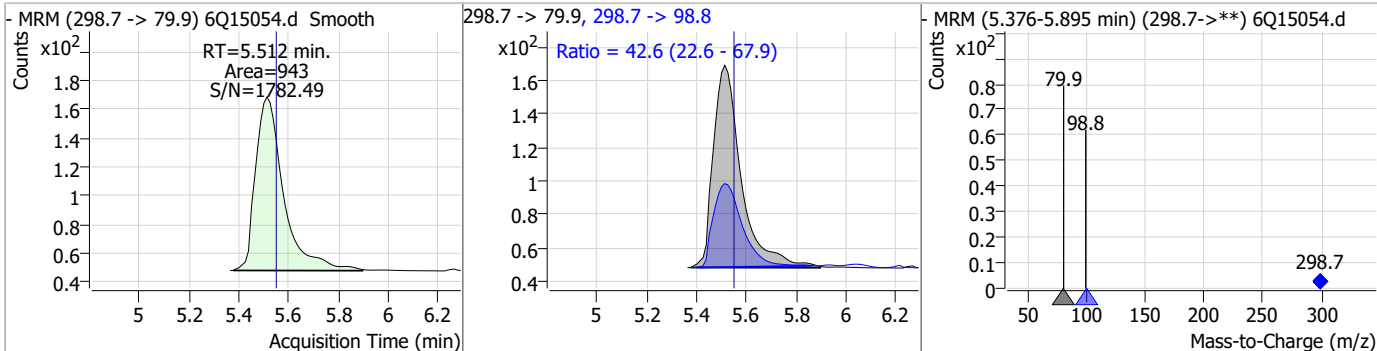
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Perfluorinated Compounds by LC/MS/MS

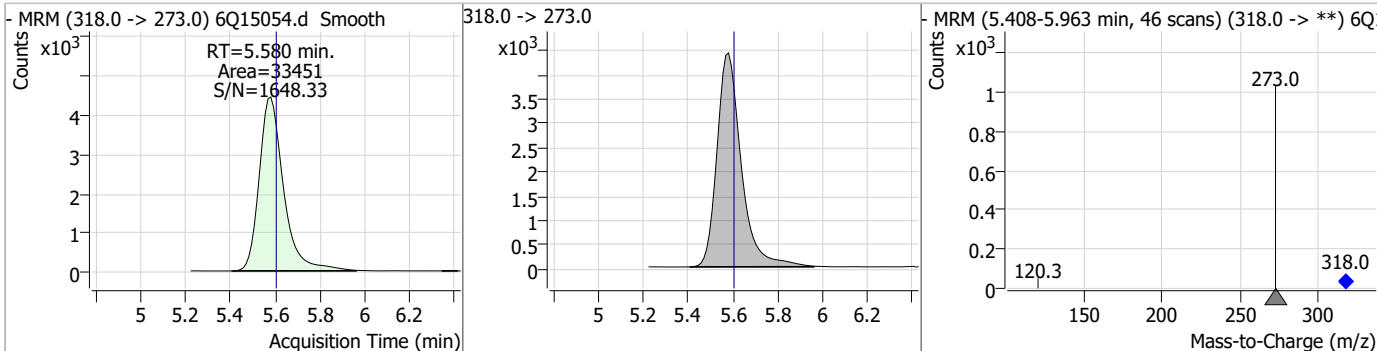


Perfluorinated Compounds by LC/MS/MS

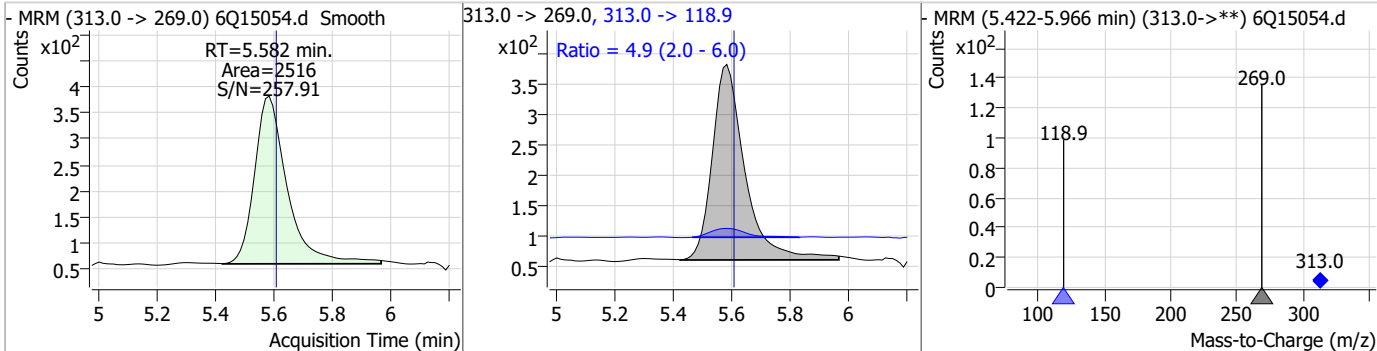
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.51	-0.04	943	298.7 -> 98.8	42.6	22.6	67.9



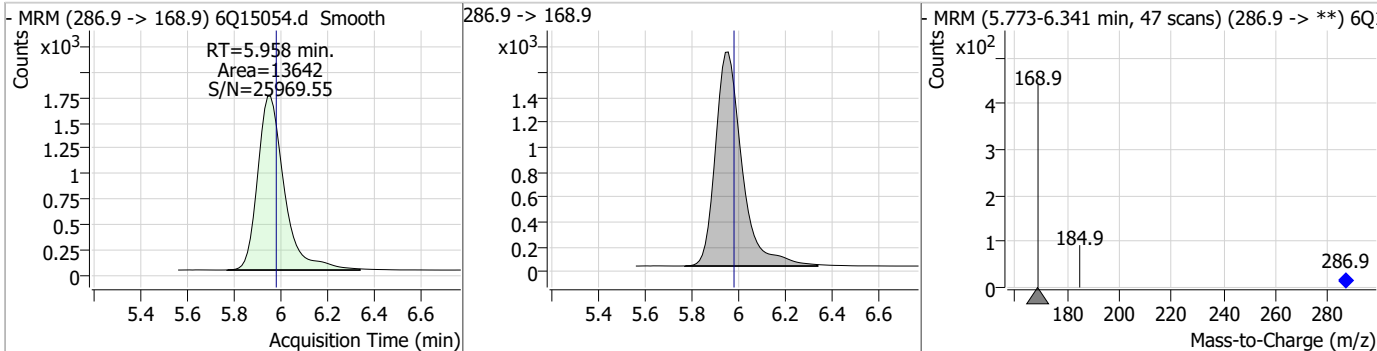
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.58	-0.02	33451				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.18	5.58	-0.02	2516	313.0 -> 118.9	4.9	2.0	6.0



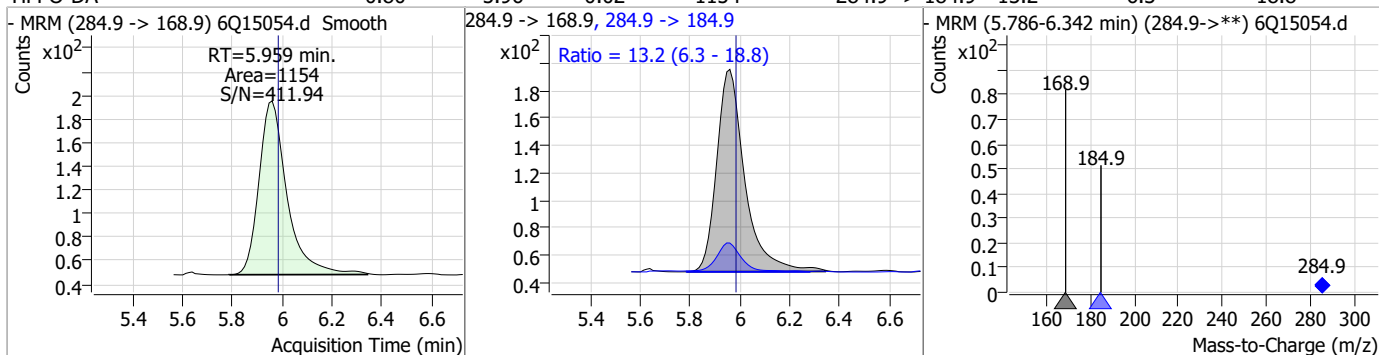
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.21	5.96	-0.02	13642				



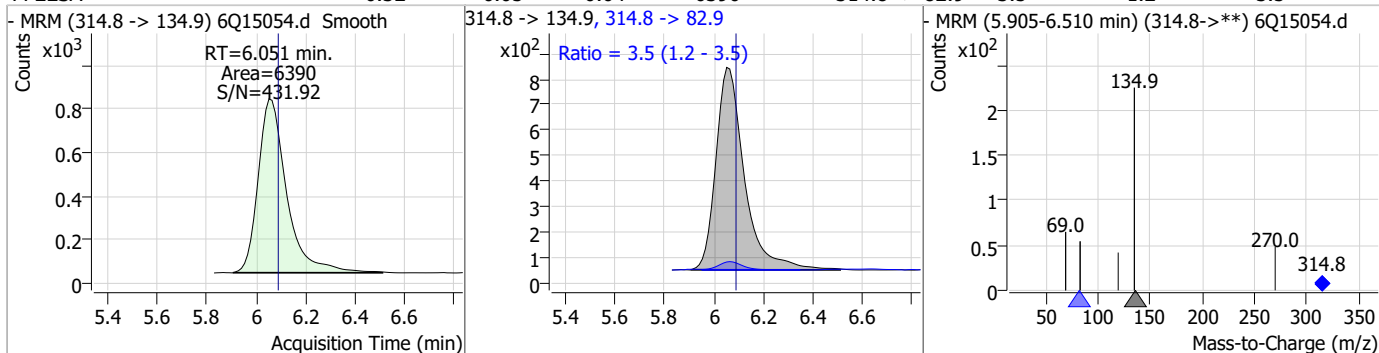
7.7.12
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Perfluorinated Compounds by LC/MS/MS

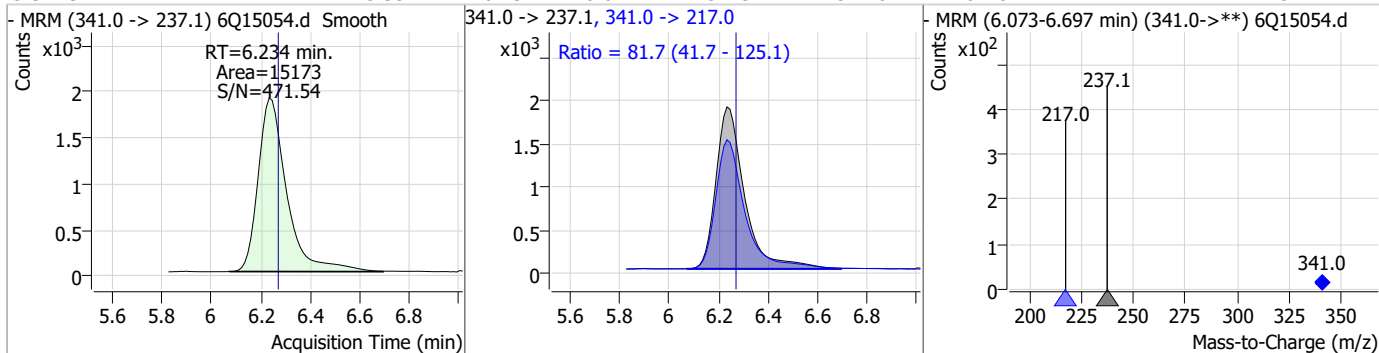
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.80	5.96	-0.02	1154	284.9 -> 184.9	13.2	6.3	18.8



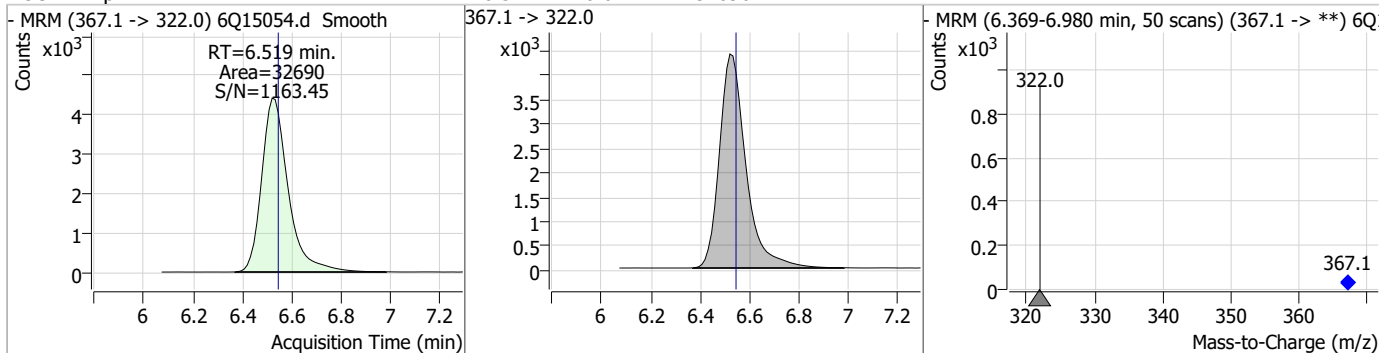
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.32	6.05	-0.04	6390	314.8 -> 82.9	3.5	1.2	3.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.33	6.23	-0.04	15173	341.0 -> 217.0	81.7	41.7	125.1

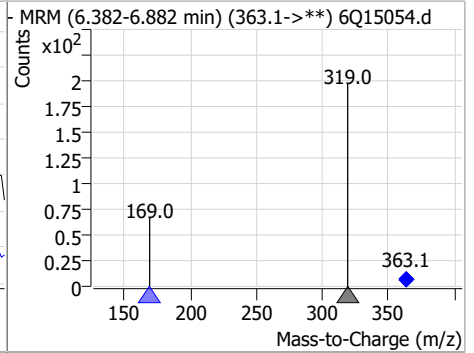
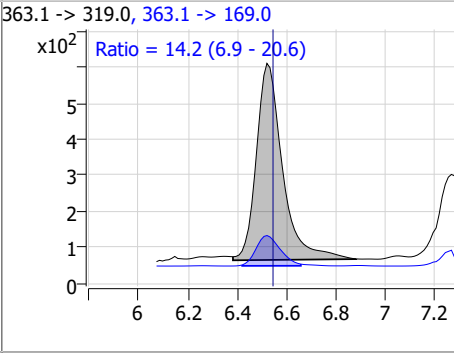
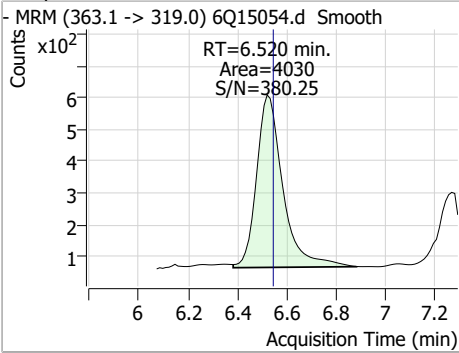


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.44	6.52	-0.02	32690	367.1 -> 322.0			

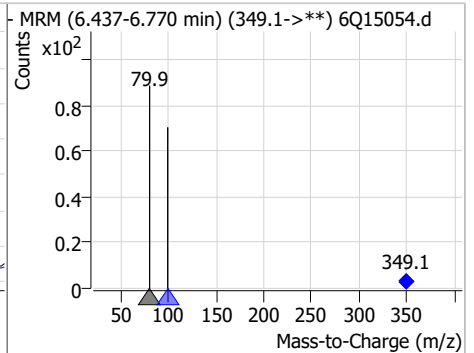
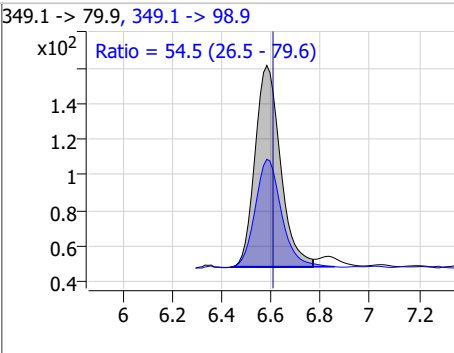
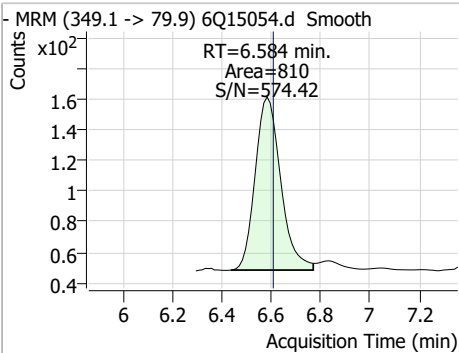


Perfluorinated Compounds by LC/MS/MS

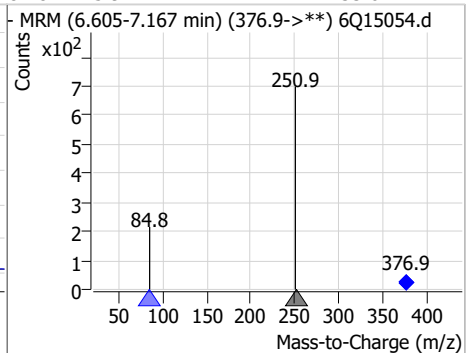
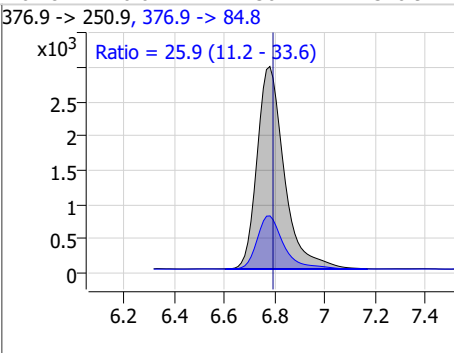
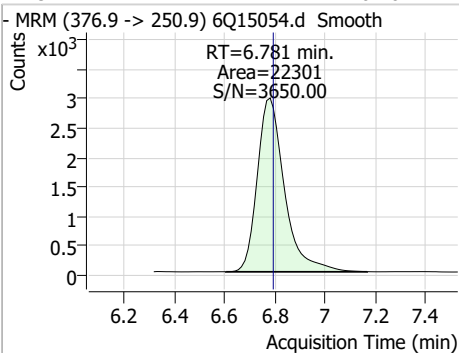
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.19	6.52	-0.02	4030	363.1 -> 169.0	14.2	6.9	20.6



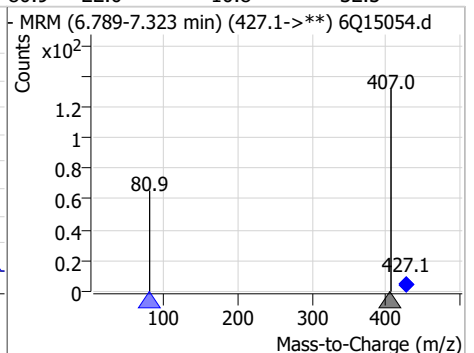
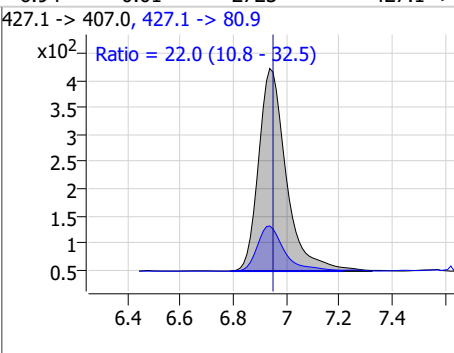
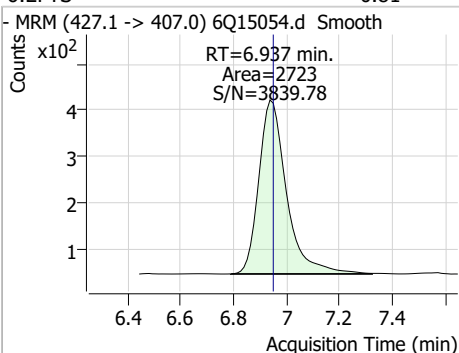
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.16	6.58	-0.02	810	349.1 -> 98.9	54.5	26.5	79.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.76	6.78	-0.01	22301	376.9 -> 84.8	25.9	11.2	33.6

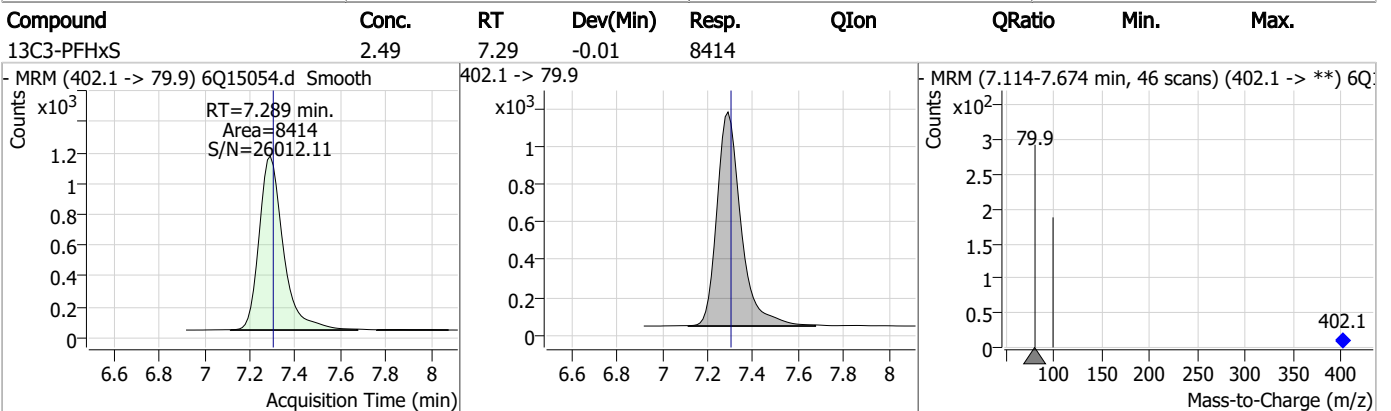
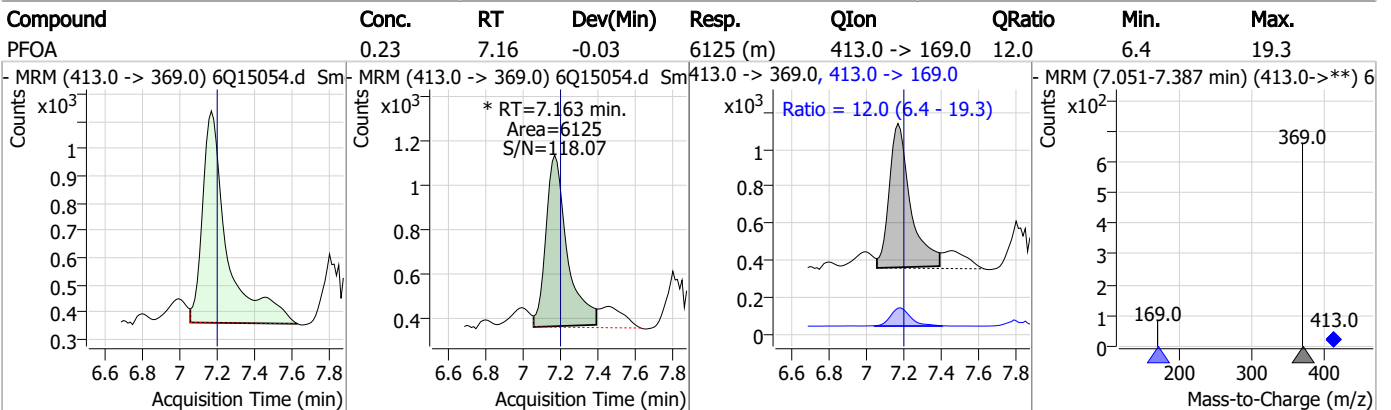
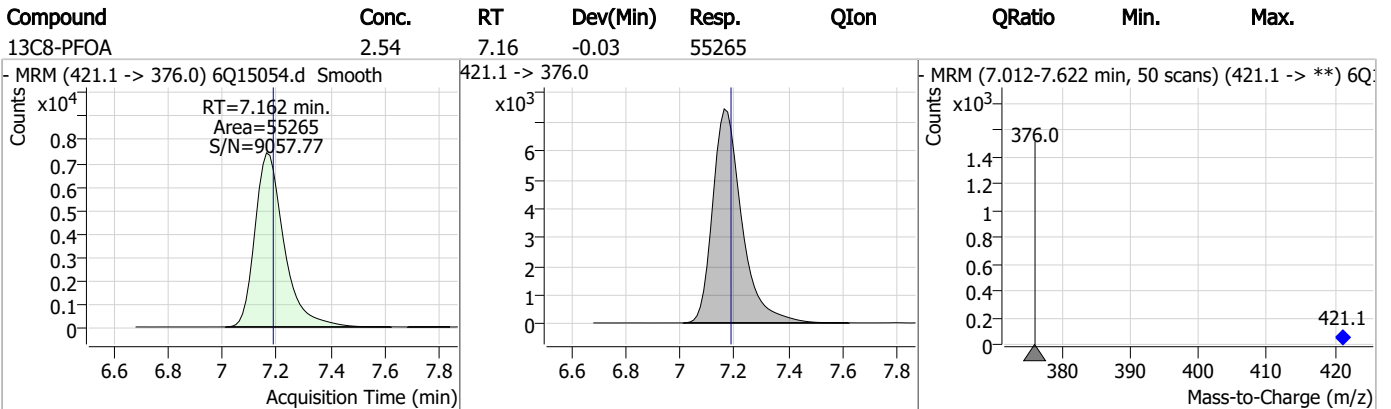
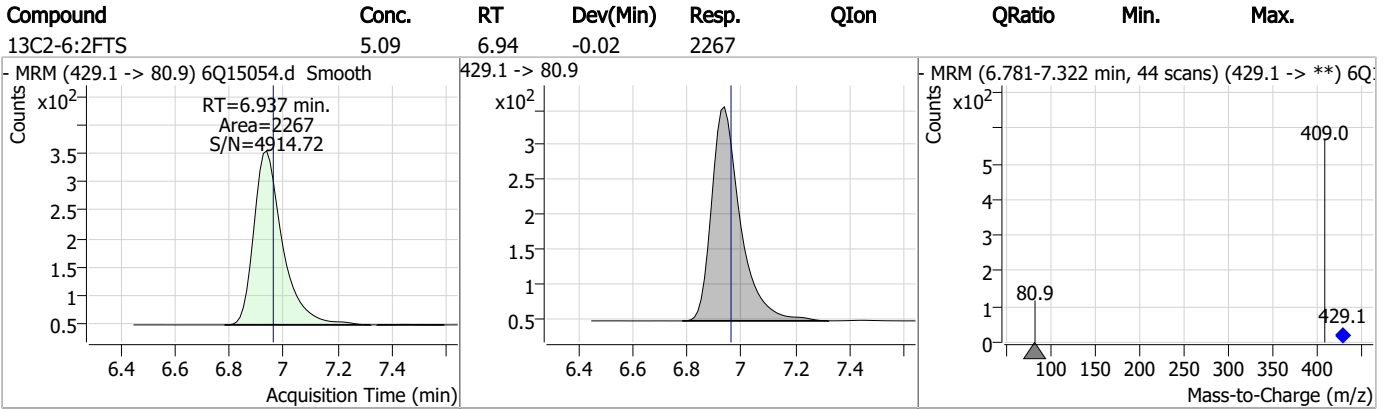


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.81	6.94	-0.01	2723	427.1 -> 80.9	22.0	10.8	32.5



7.7.12 7

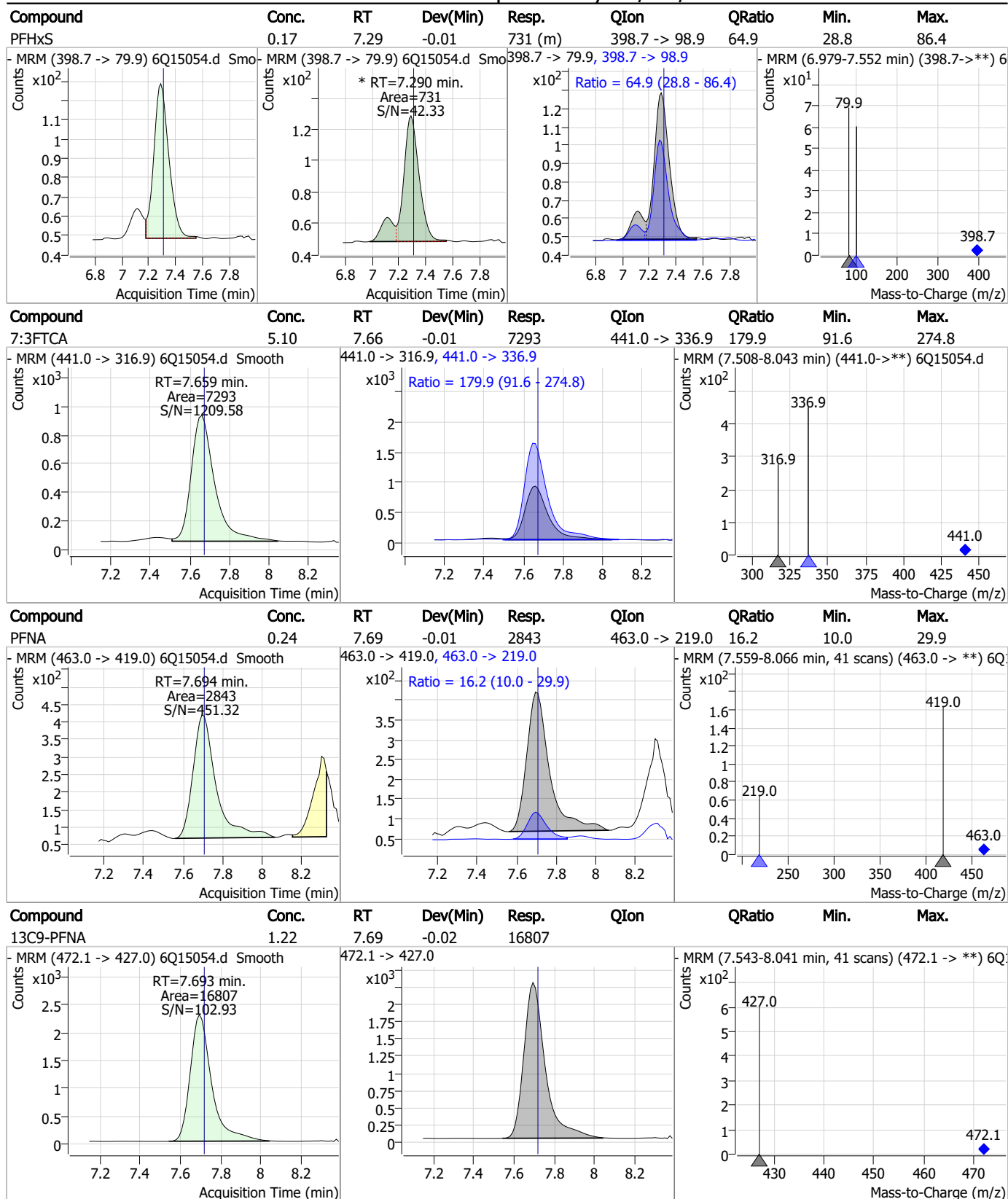
Perfluorinated Compounds by LC/MS/MS



7.7.12
7

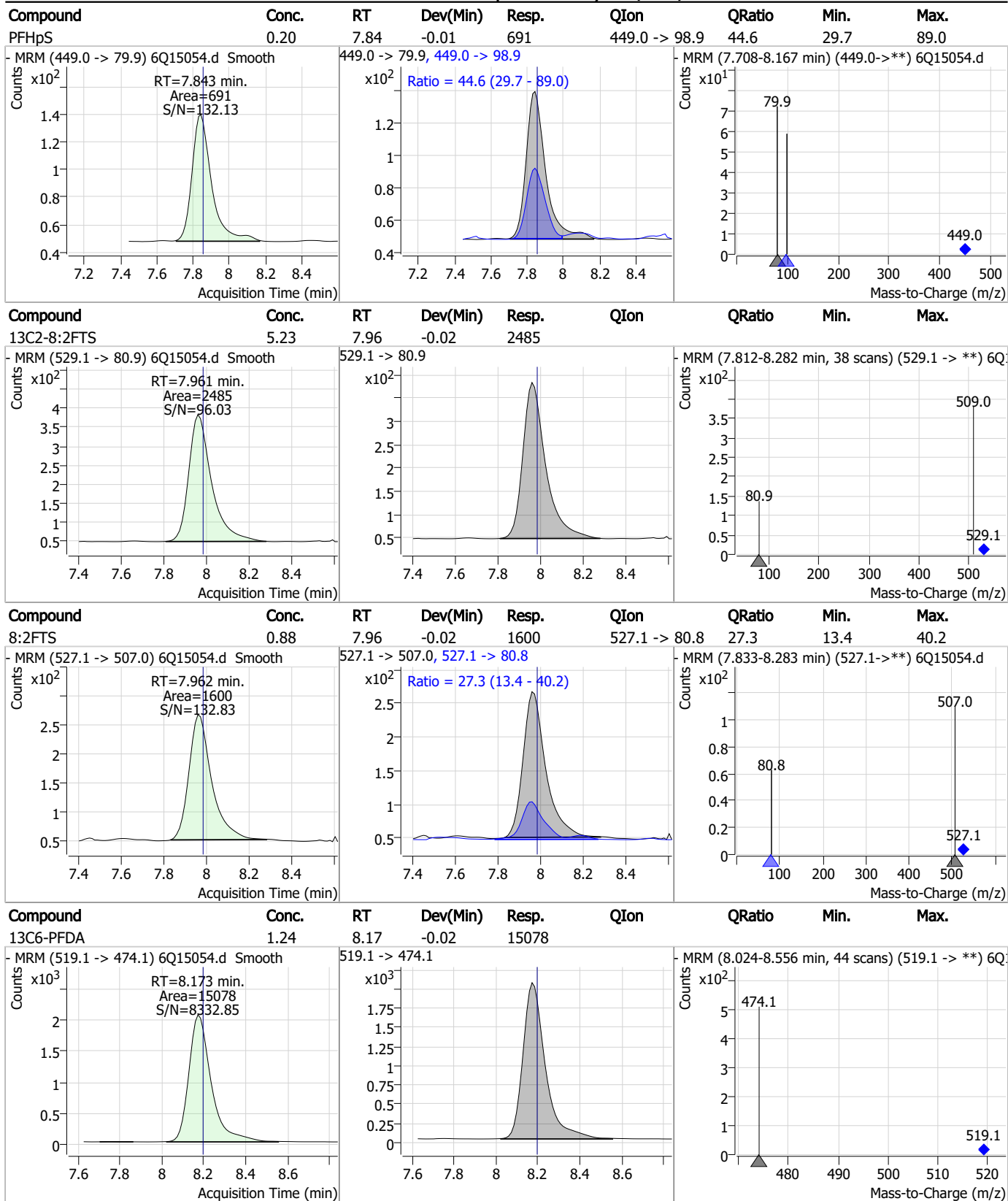


Perfluorinated Compounds by LC/MS/MS



7.7.12

Perfluorinated Compounds by LC/MS/MS

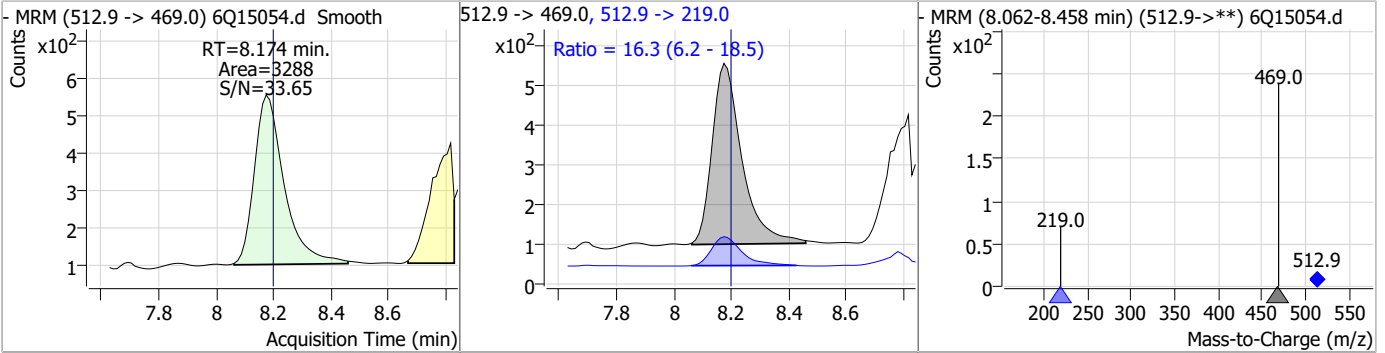


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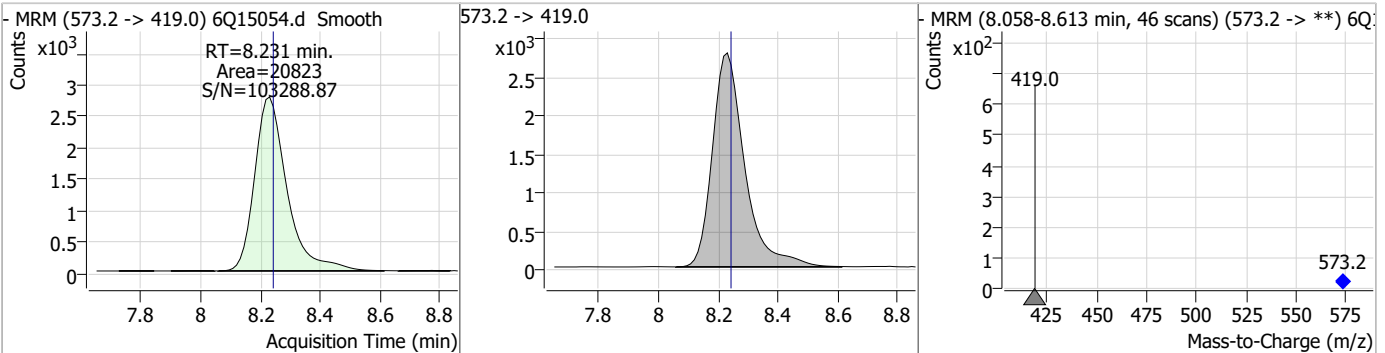


Perfluorinated Compounds by LC/MS/MS

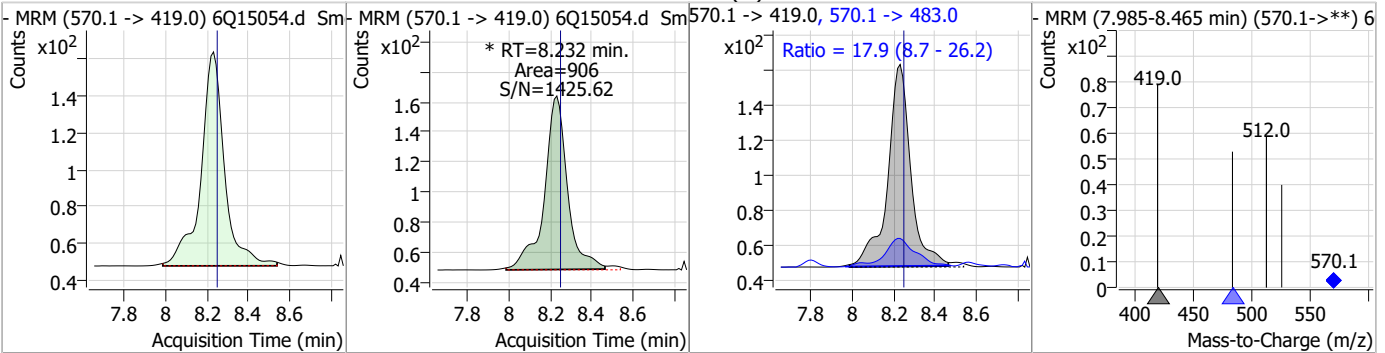
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.18	8.17	-0.02	3288	512.9 -> 219.0	16.3	6.2	18.5



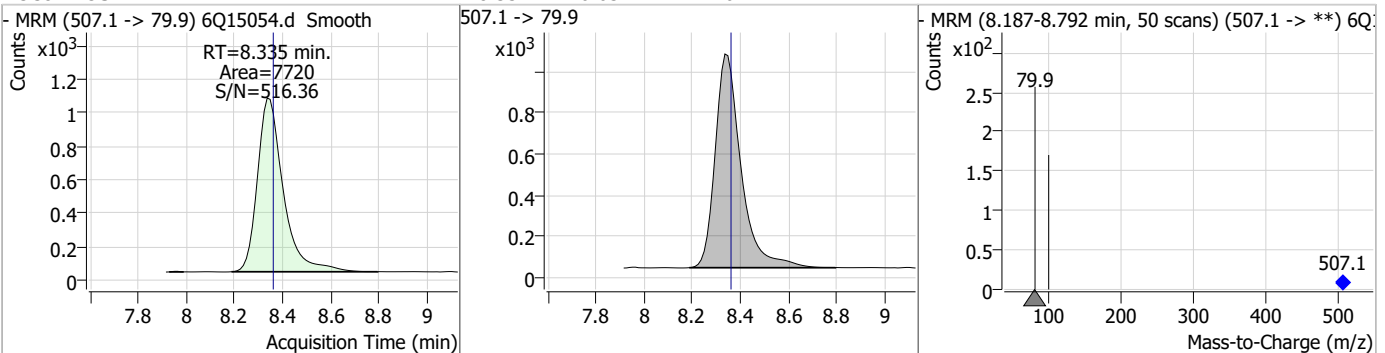
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.65	8.23	-0.01	20823				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.21	8.23	-0.01	906 (m)	570.1 -> 483.0	17.9	8.7	26.2

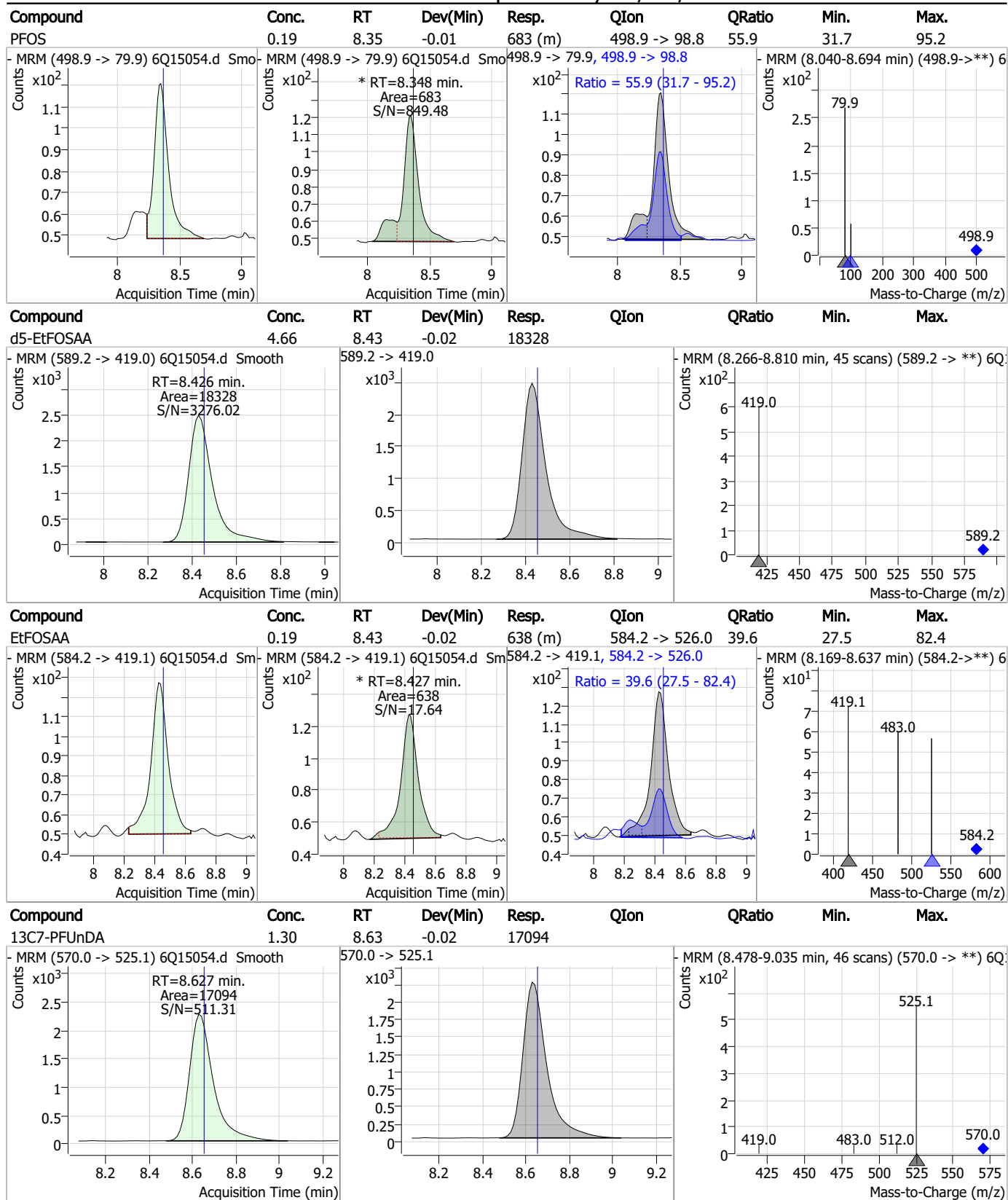


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.44	8.33	-0.03	7720				



7.7.12 7

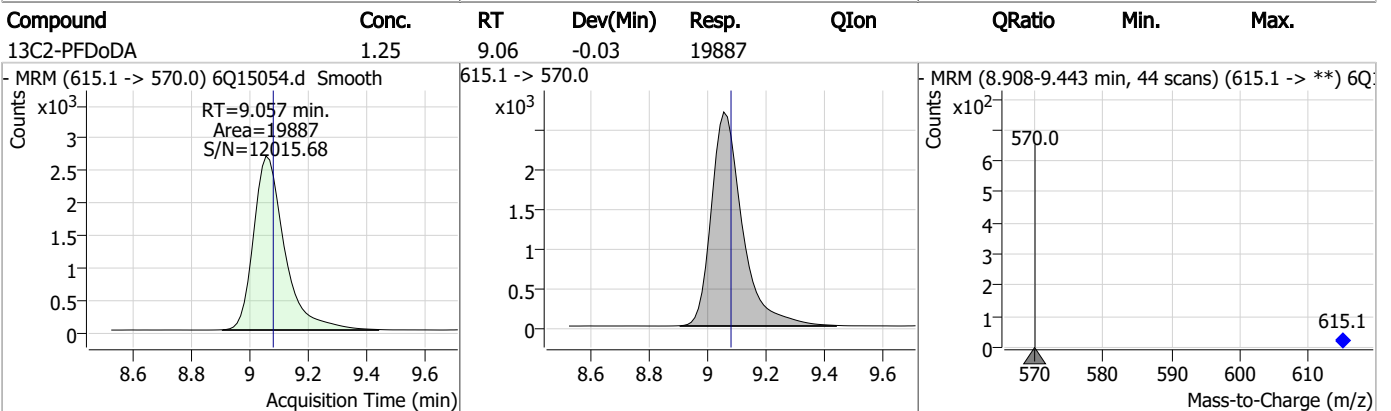
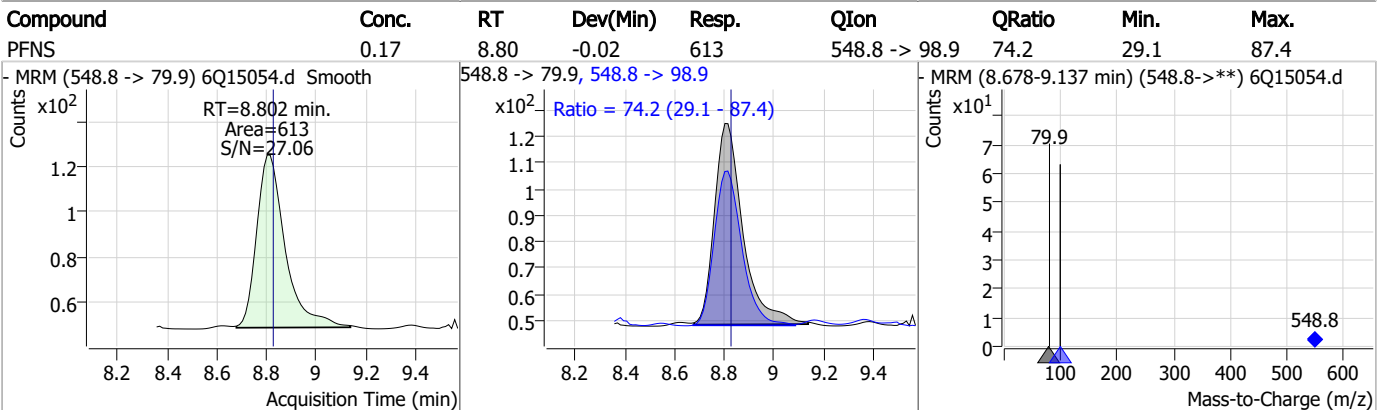
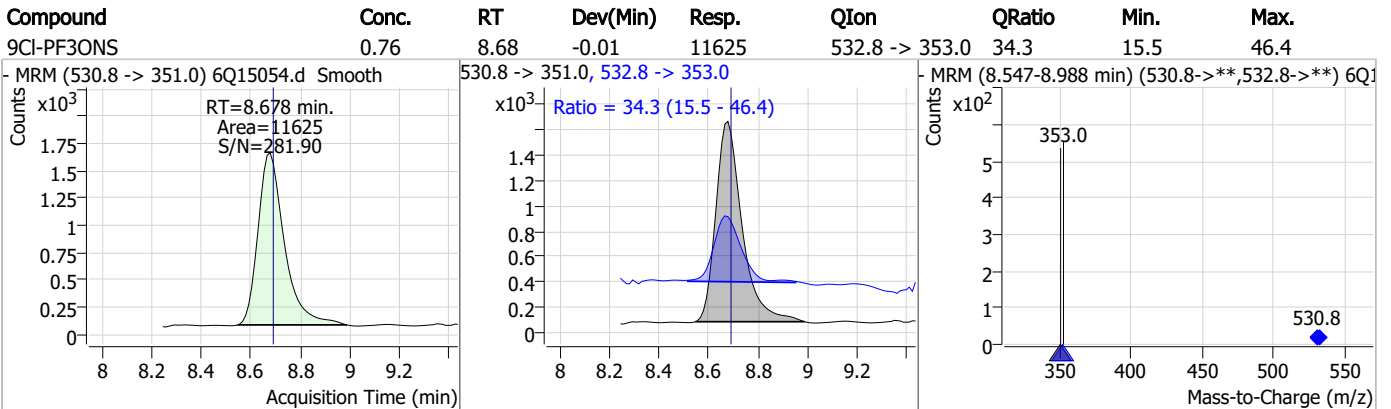
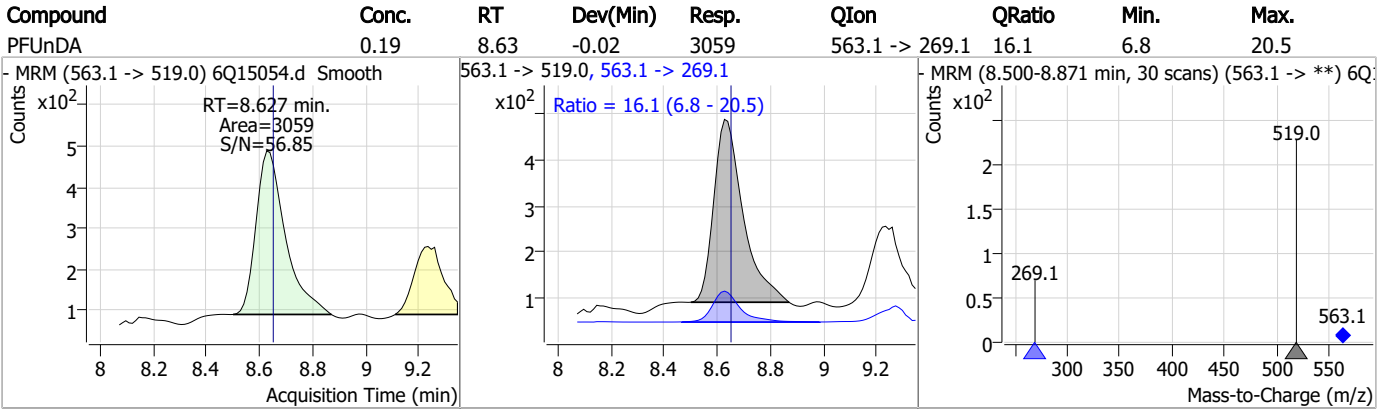
Perfluorinated Compounds by LC/MS/MS



7.7.12
7



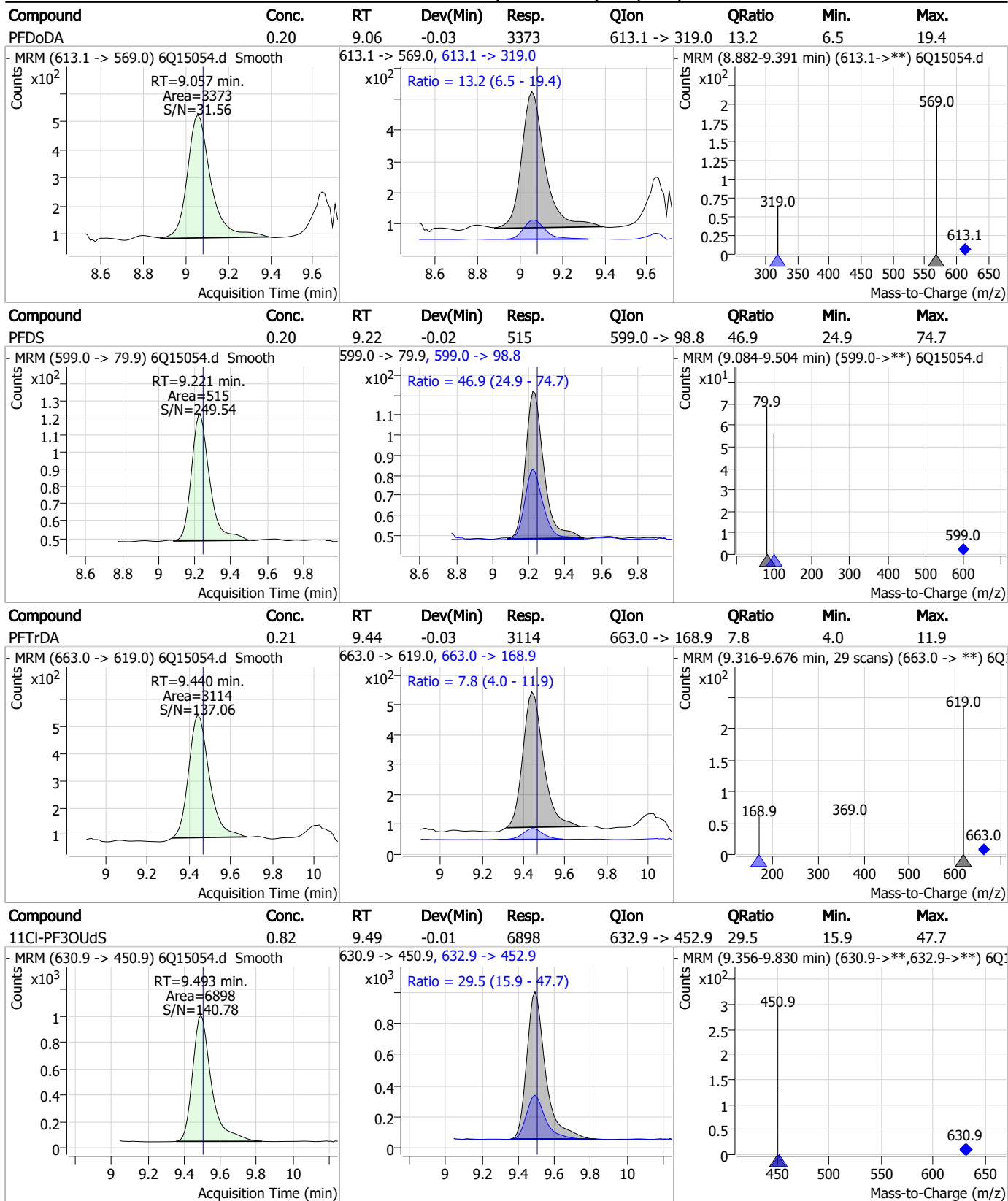
Perfluorinated Compounds by LC/MS/MS



7.7.12
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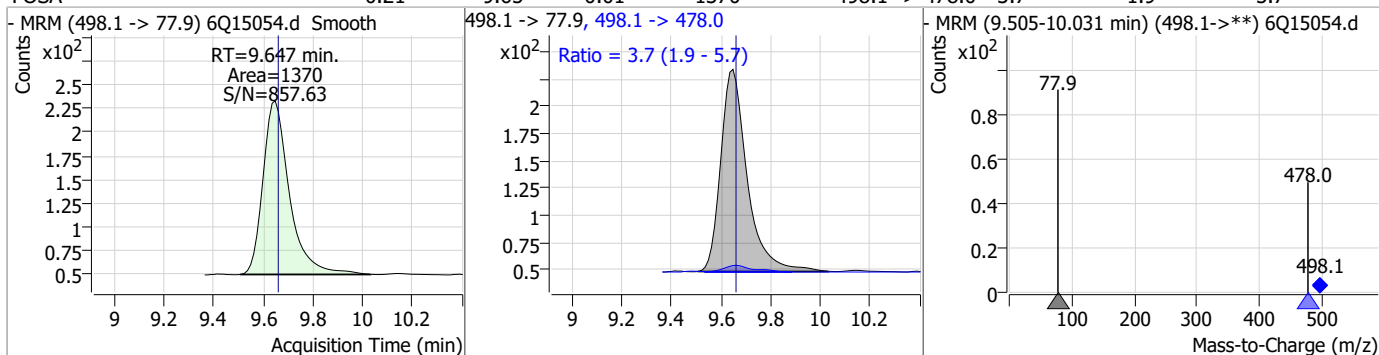
Perfluorinated Compounds by LC/MS/MS



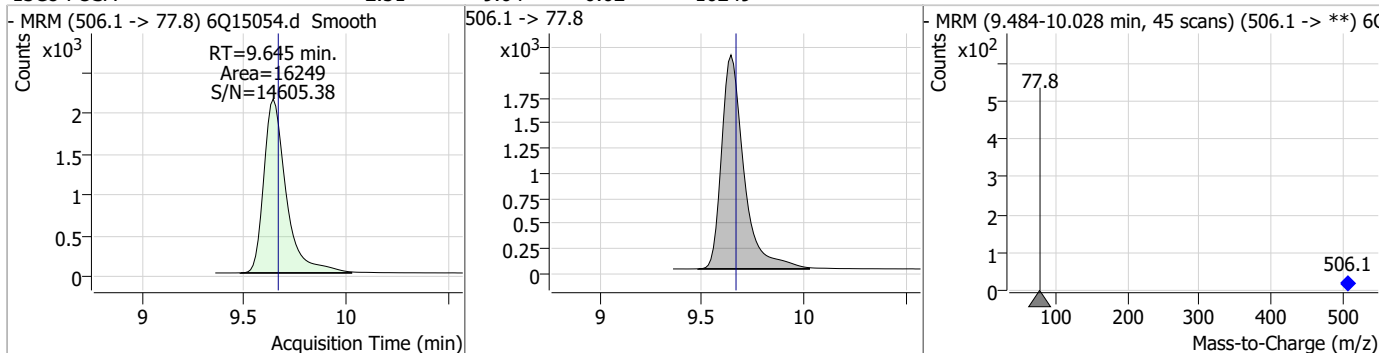
7.7.12 7

Perfluorinated Compounds by LC/MS/MS

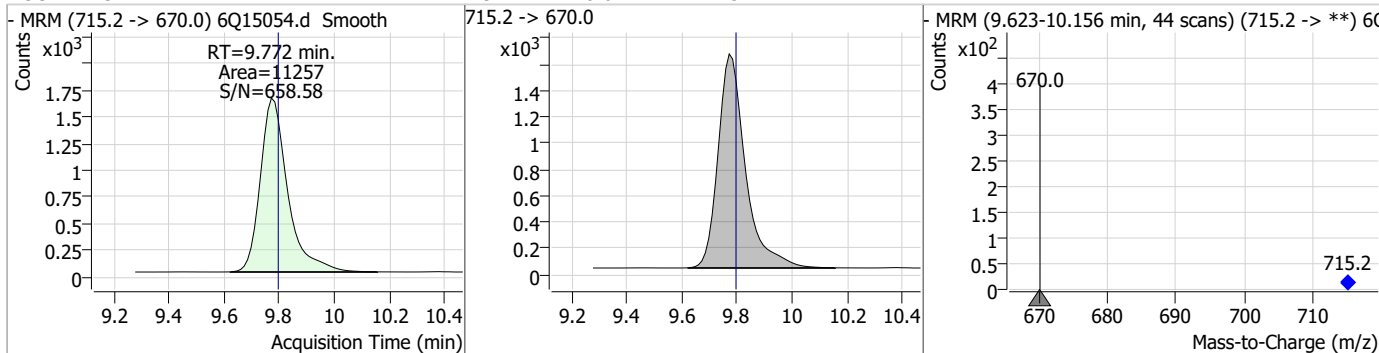
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.21	9.65	-0.01	1370	498.1 -> 478.0	3.7	1.9	5.7



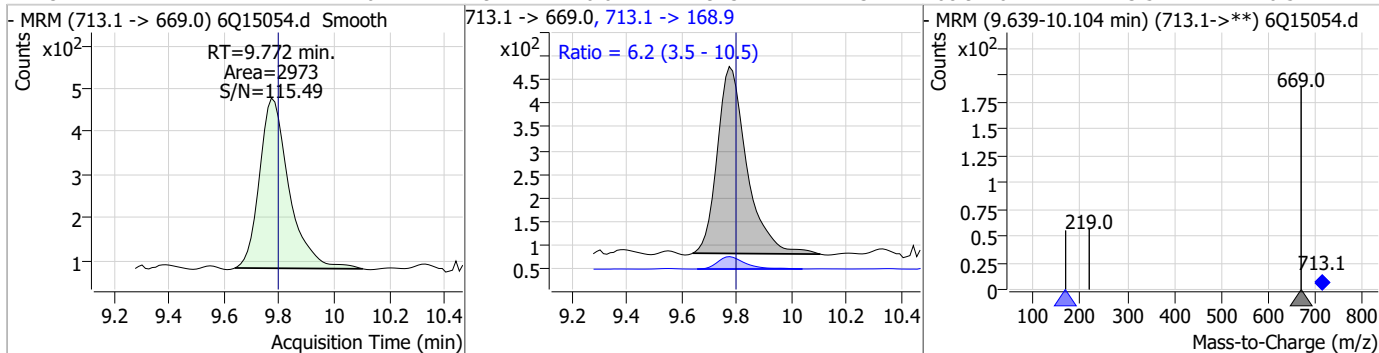
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.51	9.64	-0.02	16249				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.77	-0.02	11257				



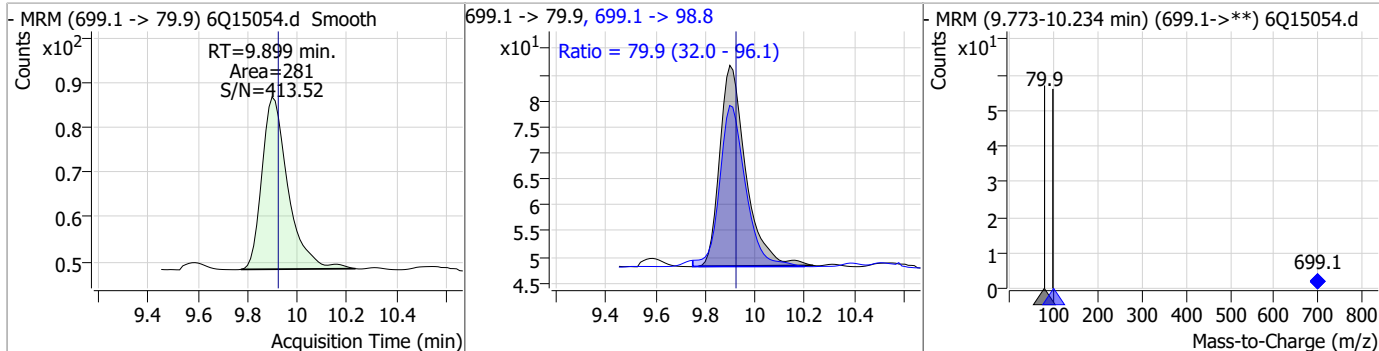
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.21	9.77	-0.02	2973	713.1 -> 168.9	6.2	3.5	10.5



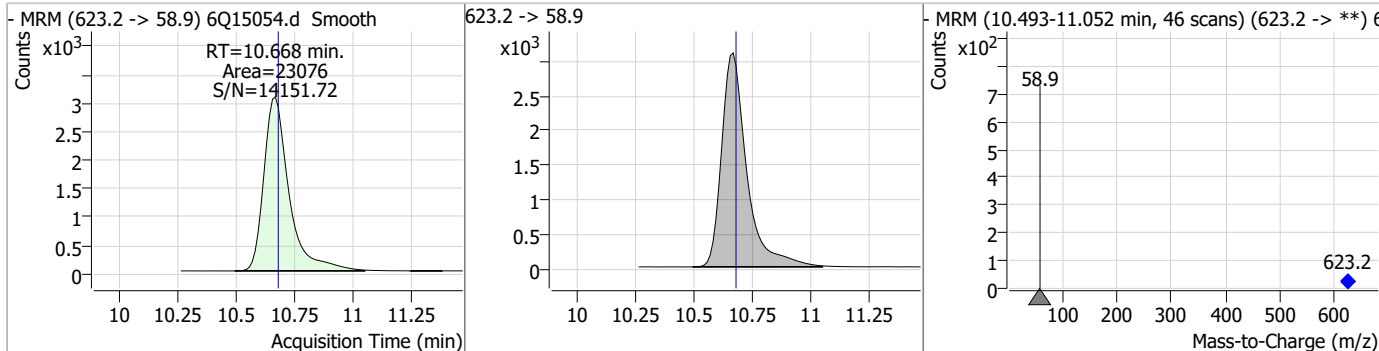
7.7.12 7

Perfluorinated Compounds by LC/MS/MS

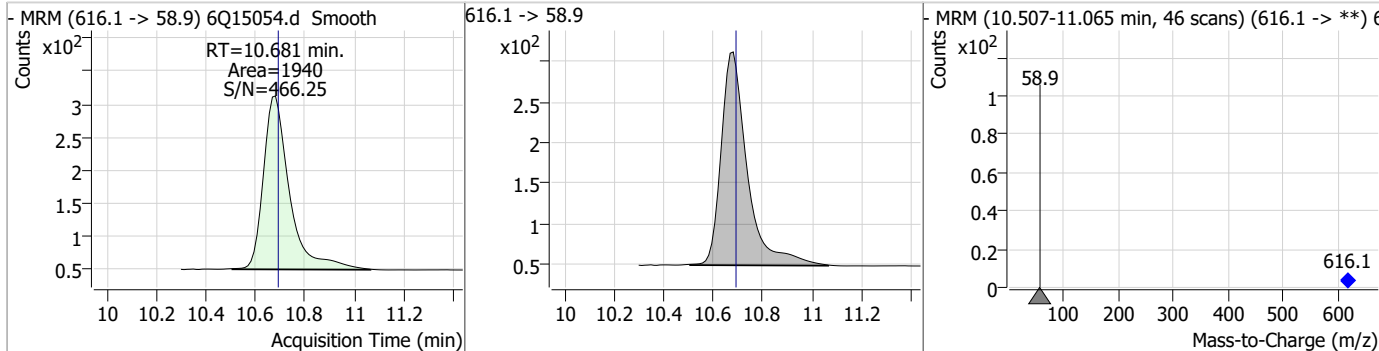
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.19	9.90	-0.02	281	699.1 -> 98.8	79.9	32.0	96.1



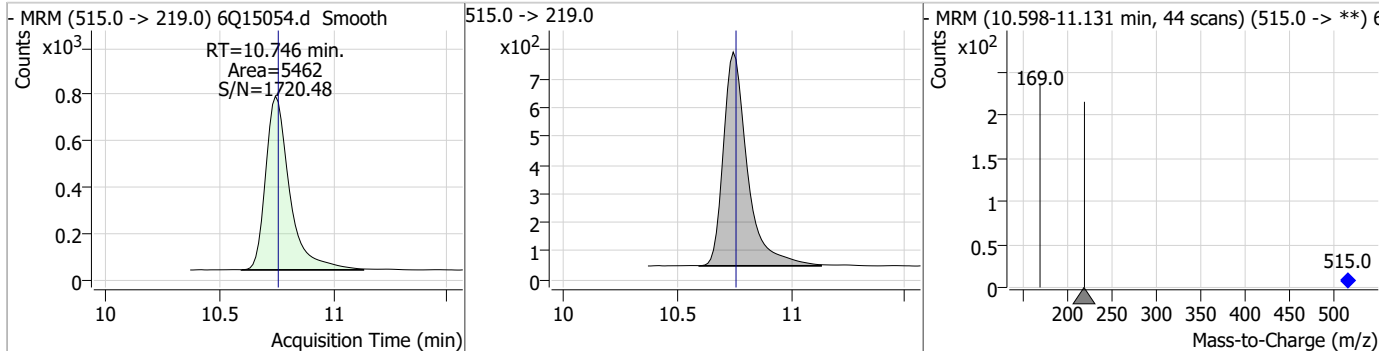
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.75	10.67	-0.01	23076				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.99	10.68	-0.01	1940				



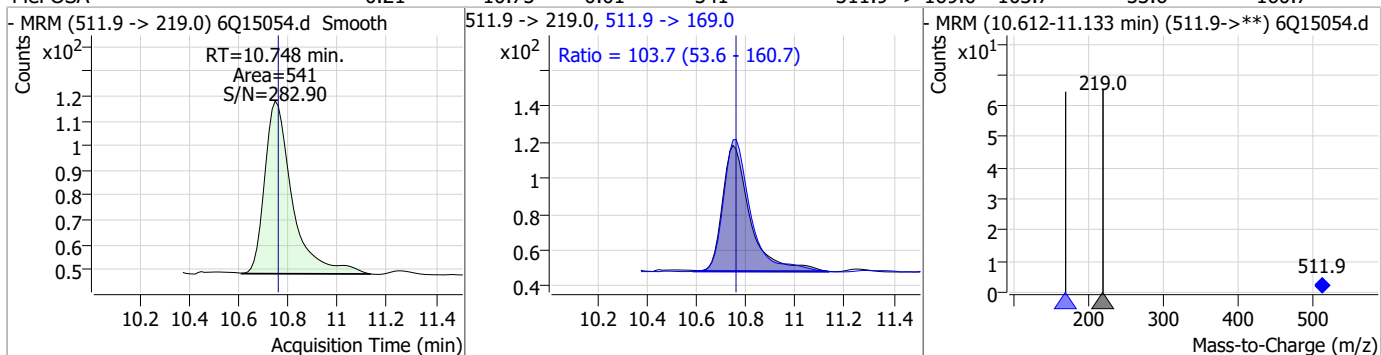
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	10.75	-0.01	5462				



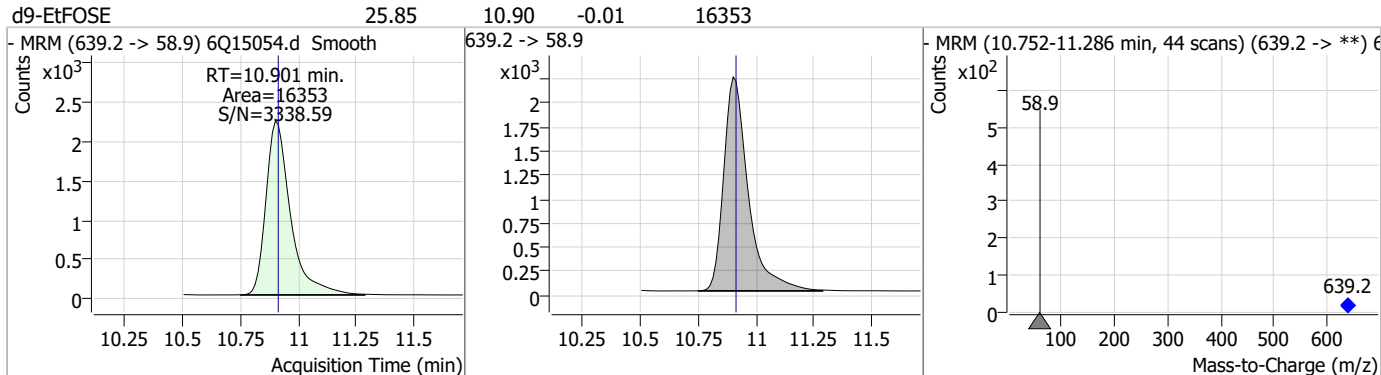
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Perfluorinated Compounds by LC/MS/MS

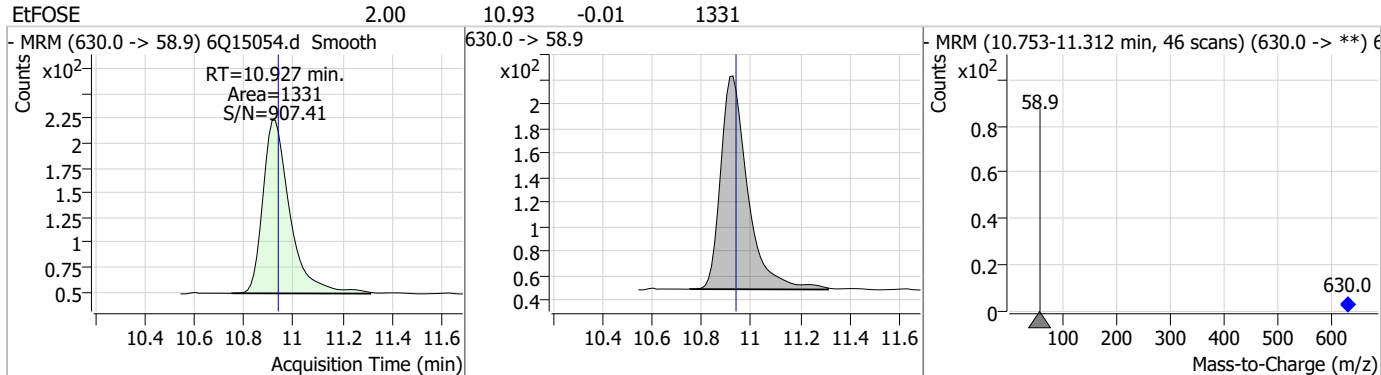
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.21	10.75	-0.01	541	511.9 -> 169.0	103.7	53.6	160.7



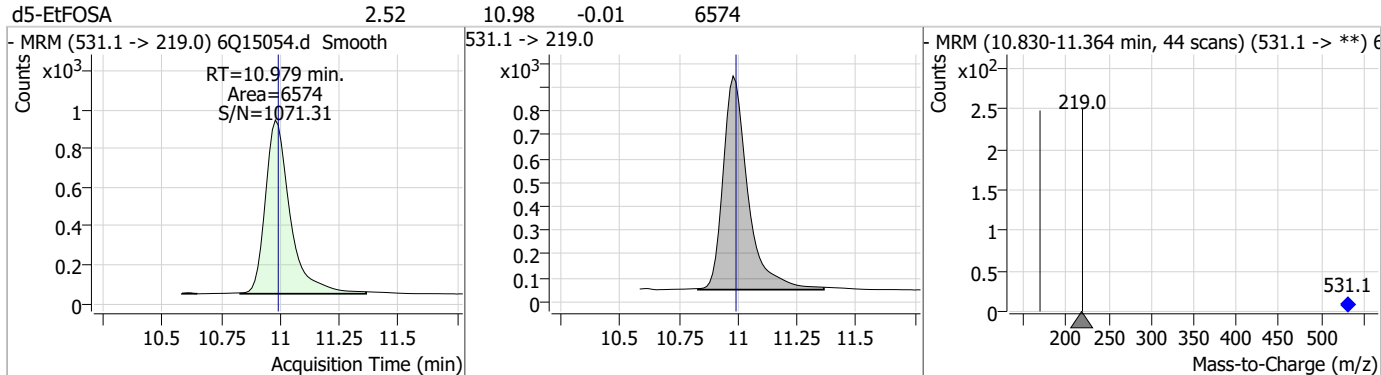
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.85	10.90	-0.01	16353				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	2.00	10.93	-0.01	1331				

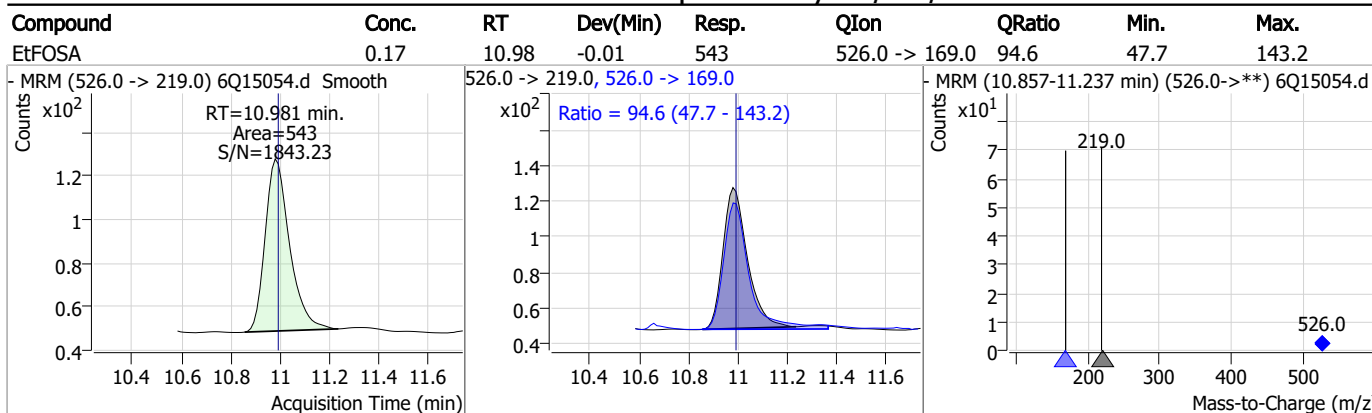


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.52	10.98	-0.01	6574				



7.7.12 7

Perfluorinated Compounds by LC/MS/MS



7.7.12
7

Manual Integration Approval Summary

Sample Number: S6Q228-CC225 Method: EPA DRAFT 1633
Lab FileID: 6Q15054.D Analyst approved: 03/21/23 13:24 Martha Valls
Injection Time: 03/21/23 01:59 Supervisor approved: 03/21/23 16:12 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.16	Poorly defined baseline
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.43	Split peak

7.7.12.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15064.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 4:18:55 AM
 Sample Name : cc225-4
 Vial : P1-A5
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95881,S6Q228,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.935	216.8 -> 171.9	82764	10.00 µg/L	-0.012
M5-PFPeA	4.370	268.3 -> 223.0	40345	5.00 µg/L	-0.025
M5-PFHxA	5.580	318.0 -> 273.0	36027	2.50 µg/L	-0.025
M4-PFHpA	6.519	367.1 -> 322.0	34436	2.50 µg/L	-0.025
M8-PFOA	7.162	421.1 -> 376.0	58685	2.50 µg/L	-0.025
M9-PFNA	7.693	472.1 -> 427.0	19504	1.25 µg/L	-0.025
M6-PFDA	8.173	519.1 -> 474.1	15626	1.25 µg/L	-0.025
M7-PFUnDA	8.627	570.0 -> 525.1	17958	1.25 µg/L	-0.025
M2-PFDoDA	9.057	615.1 -> 570.0	22990	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	12354	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	17409	2.50 µg/L	-0.025
M3-PFBS	5.511	302.1 -> 79.9	13109	2.50 µg/L	-0.037
M3-PFHxS	7.289	402.1 -> 79.9	8861	2.50 µg/L	-0.013
M8-PFOS	8.335	507.1 -> 79.9	8231	2.50 µg/L	-0.025
M2-4:2FTS	5.243	329.1 -> 80.9	1846	5.00 µg/L	-0.037
M2-6:2FTS	6.937	429.1 -> 80.9	2532	5.00 µg/L	-0.025
M2-8:2FTS	7.961	529.1 -> 80.9	2585	5.00 µg/L	-0.025
M3-MeFOSAA	8.231	573.2 -> 419.0	23701	5.00 µg/L	-0.012
M3-HFPO-DA	5.946	286.9 -> 168.9	14639	10.00 µg/L	-0.037
M5-EtFOSAA	8.426	589.2 -> 419.0	19145	5.00 µg/L	-0.025
M7-MeFOSE	10.668	623.2 -> 58.9	24460	25.00 µg/L	-0.012
M9-EtFOSE	10.901	639.2 -> 58.9	17379	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	6598	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	5981	2.50 µg/L	-0.012
13C4-PFOS	8.335	502.8 -> 79.9	9533	2.50 µg/L	-0.025
13C3-PFBA	2.939	216.0 -> 172.0	36048	5.00 µg/L	-0.013
18O2-PFHxS	7.288	403.0 -> 83.9	6571	2.50 µg/L	-0.026
13C4-PFOA	7.163	417.1 -> 372.0	71295	2.50 µg/L	-0.025
13C2-PFDA	8.173	515.1 -> 470.1	22318	1.25 µg/L	-0.025
13C5-PFNA	7.694	468.0 -> 423.0	20488	1.25 µg/L	-0.025
13C2-PFHxA	5.581	315.1 -> 270.0	34790	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.243	329.1 -> 80.9	1846	4.90 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C2-6:2FTS	6.937	429.1 -> 80.9	2532	5.19 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-8:2FTS	7.961	529.1 -> 80.9	2585	4.96 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-PFDoDA	9.057	615.1 -> 570.0	22990	1.32 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-PFTeDA	9.772	715.2 -> 670.0	12354	1.24 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C3-PFBS	5.511	302.1 -> 79.9	13109	2.33 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C3-PFHxS	7.289	402.1 -> 79.9	8861	2.39 µg/L	-0.013

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 = 95.5%	
13C4-PFBA	2.935	216.8 -> 171.9	82764	10.00 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.519	367.1 -> 322.0	34436	2.42 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFHxA	5.580	318.0 -> 273.0	36027	2.54 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFPeA	4.370	268.3 -> 223.0	40345	5.02 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C6-PFDA	8.173	519.1 -> 474.1	15626	1.17 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C7-PFUnDA	8.627	570.0 -> 525.1	17958	1.25 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-FOSA	9.645	506.1 -> 77.8	17409	2.63 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C8-PFOA	7.162	421.1 -> 376.0	58685	2.47 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOS	8.335	507.1 -> 79.9	8231	2.54 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C9-PFNA	7.693	472.1 -> 427.0	19504	1.23 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%	
d3-MeFOSAA	8.231	573.2 -> 419.0	23701	5.18 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C3-HFPO-DA	5.946	286.9 -> 168.9	14639	9.31 µg/L	-0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
d3-MeFOSA	10.746	515.0 -> 219.0	5981	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
d5-EtFOSAA	8.426	589.2 -> 419.0	19145	4.76 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d7-MeFOSE	10.668	623.2 -> 58.9	24460	26.67 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
d9-EtFOSE	10.901	639.2 -> 58.9	17379	26.85 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
d5-EtFOSA	10.979	531.1 -> 219.0	6598	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
Target Compounds					QValue
4:2FTS	5.244	327.1 -> 307.0	41219	9.65 µg/L	98
		327.1 -> 80.9	10104		
6:2FTS	6.937	427.1 -> 407.0	37647	10.01 µg/L	99
		427.1 -> 80.9	8290		
8:2FTS	7.962	527.1 -> 507.0	21692	11.41 µg/L	97
		527.1 -> 80.8	5527		
EtFOSAA	8.427	584.2 -> 419.1	8708	2.50 µg/L	m 94
		584.2 -> 526.0	4422		
FOSA	9.647	498.1 -> 77.9	17107	2.46 µg/L	99
		498.1 -> 478.0	620		
MeFOSAA	8.232	570.1 -> 419.0	12241	2.47 µg/L	m 99
		570.1 -> 483.0	2164		
PFBA	2.931	212.8 -> 168.9	22268	9.86 µg/L	100
PFBS	5.512	298.7 -> 79.9	12613	2.18 µg/L	100
		298.7 -> 98.8	5697		
PFDA	8.174	512.9 -> 469.0	50116	2.58 µg/L	96
		512.9 -> 219.0	7001		
PFDODA	9.057	613.1 -> 569.0	43475	2.19 µg/L	96
		613.1 -> 319.0	6292		
PFDS	9.221	599.0 -> 79.9	6448	2.39 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	3157			
PFHpA	6.520	363.1 -> 319.0	53169	2.39	µg/L	95
		363.1 -> 169.0	8310			
PFHpS	7.843	449.0 -> 79.9	9183	2.50	µg/L	94
		449.0 -> 98.9	5029			
PFHxA	5.582	313.0 -> 269.0	35393	2.33	µg/L	100
		313.0 -> 118.9	1462			
PFHxS	7.290	398.7 -> 79.9	9578	2.16	µg/L	m 99
		398.7 -> 98.9	5419			
PFNA	7.694	463.0 -> 419.0	34447	2.49	µg/L	98
		463.0 -> 219.0	6536			
PFNS	8.802	548.8 -> 79.9	9144	2.35	µg/L	90
		548.8 -> 98.9	4663			
PFOA	7.176	413.0 -> 369.0	69339	2.50	µg/L	96
		413.0 -> 169.0	10026			
PFOS	8.336	498.9 -> 79.9	9066	2.35	µg/L	m 98
		498.9 -> 98.8	5607			
PFPeA	4.372	263.0 -> 219.0	47168	4.91	µg/L	100
PFPeS	6.584	349.1 -> 79.9	12416	2.32	µg/L	95
		349.1 -> 98.9	6140			
PFTeDA	9.772	713.1 -> 669.0	38560	2.48	µg/L	99
		713.1 -> 168.9	2588			
PFTrDA	9.428	663.0 -> 619.0	41809	2.38	µg/L	100
		663.0 -> 168.9	3328			
PFUnDA	8.627	563.1 -> 519.0	43778	2.58	µg/L	98
		563.1 -> 269.1	6376			
11CI-PF3OUdS	9.493	630.9 -> 450.9	90313	9.97	µg/L	100
		632.9 -> 452.9	28504			
9CI-PF3ONS	8.678	530.8 -> 351.0	161052	9.81	µg/L	99
		532.8 -> 353.0	48848			
ADONA	6.781	376.9 -> 250.9	312213	9.93	µg/L	100
		376.9 -> 84.8	70581			
HFPO-DA	5.947	284.9 -> 168.9	15145	9.83	µg/L	97
		284.9 -> 184.9	2050			
3:3FTCA	3.826	241.0 -> 177.0	6366	13.25	µg/L	98
		241.0 -> 117.0	895			
5:3FTCA	6.234	341.0 -> 237.1	200573	65.47	µg/L	100
		341.0 -> 217.0	167651			
7:3FTCA	7.659	441.0 -> 316.9	98525	63.97	µg/L	90
		441.0 -> 336.9	193930			
EtFOSA	10.981	526.0 -> 219.0	8005	2.52	µg/L	97
		526.0 -> 169.0	7896			
EtFOSE	10.927	630.0 -> 58.9	18235	25.76	µg/L	100
MeFOSA	10.760	511.9 -> 219.0	7325	2.55	µg/L	95
		511.9 -> 169.0	7438			
MeFOSE	10.681	616.1 -> 58.9	26035	25.21	µg/L	100
PFDoDS	9.899	699.1 -> 79.9	3518	2.29	µg/L	98
		699.1 -> 98.8	2315			
NFDHA	5.451	295.0 -> 201.0	4906	5.02	µg/L	99
		295.0 -> 84.9	2150			
PFMBA	4.781	279.0 -> 85.1	15716	5.02	µg/L	100
PFMPA	3.501	229.0 -> 84.9	14111	5.13	µg/L	100
PFEESA	6.051	314.8 -> 134.9	85230	3.97	µg/L	98
		314.8 -> 82.9	2515			

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



7.7.13
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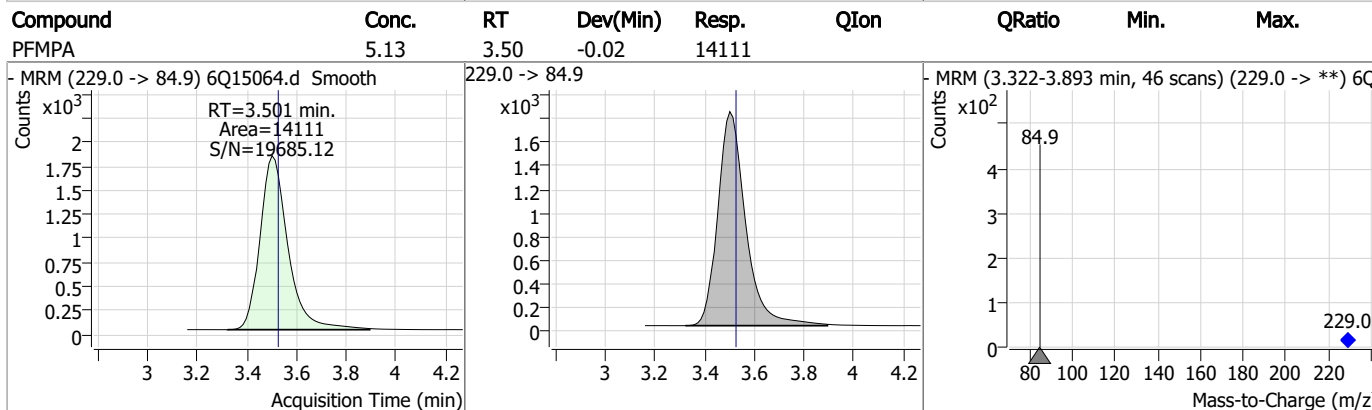
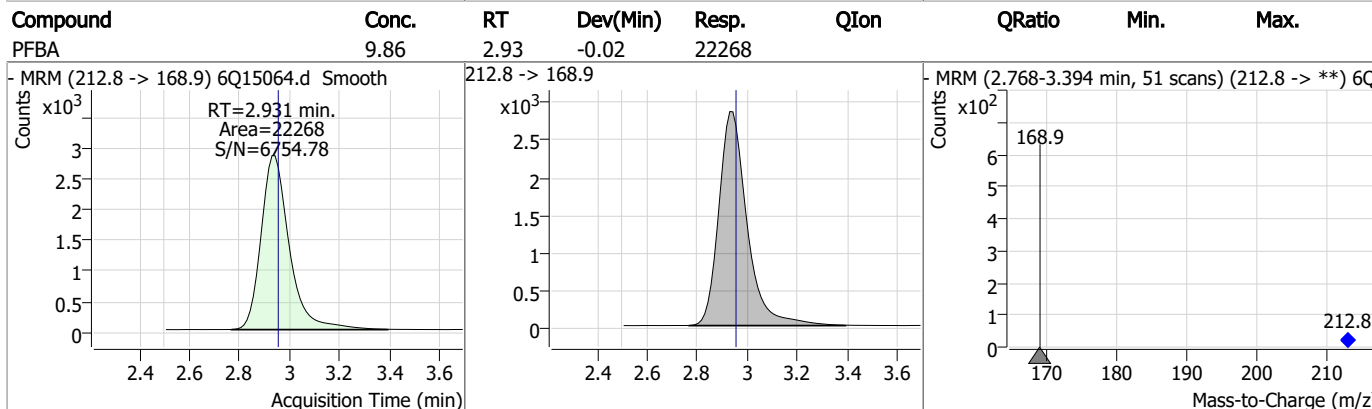
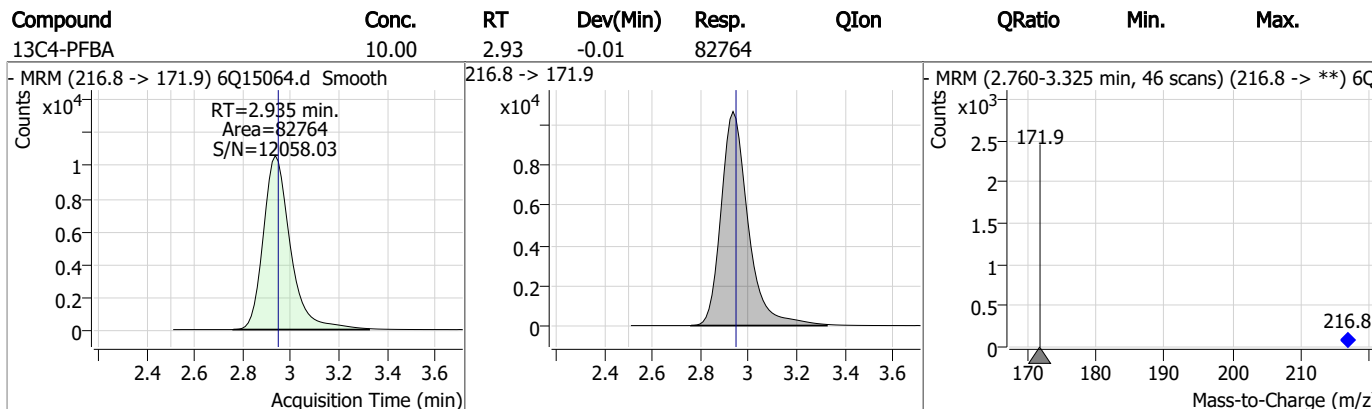
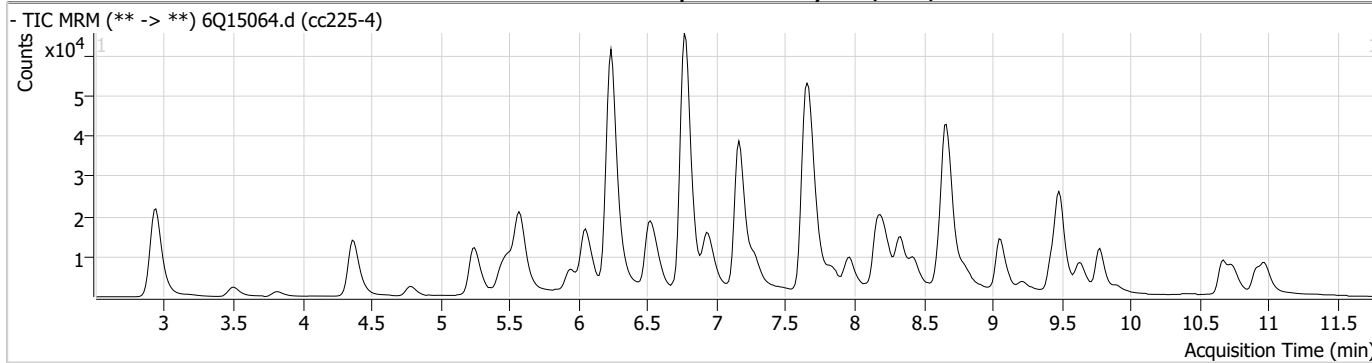
Perfluorinated Compounds by LC/MS/MS

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

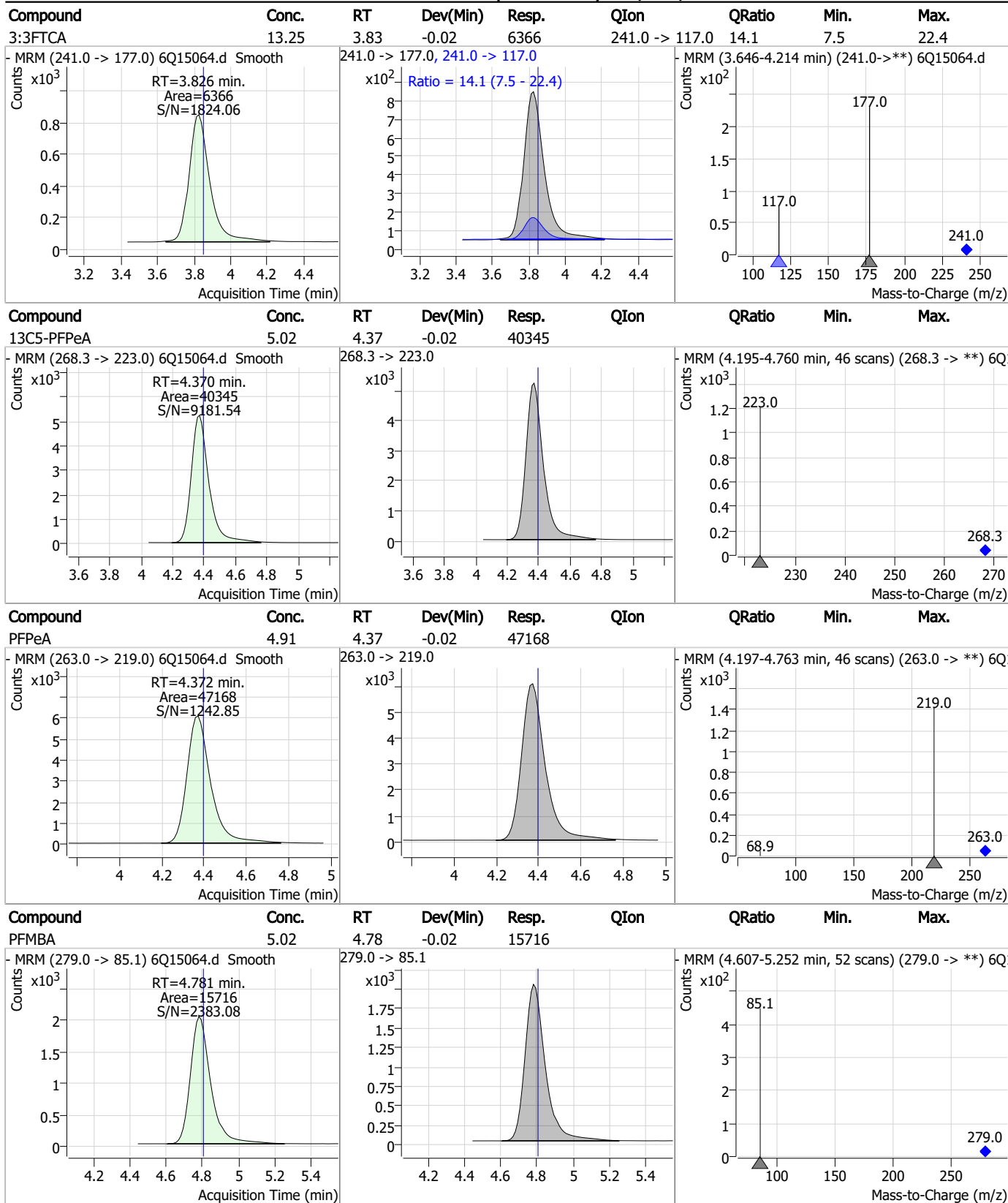
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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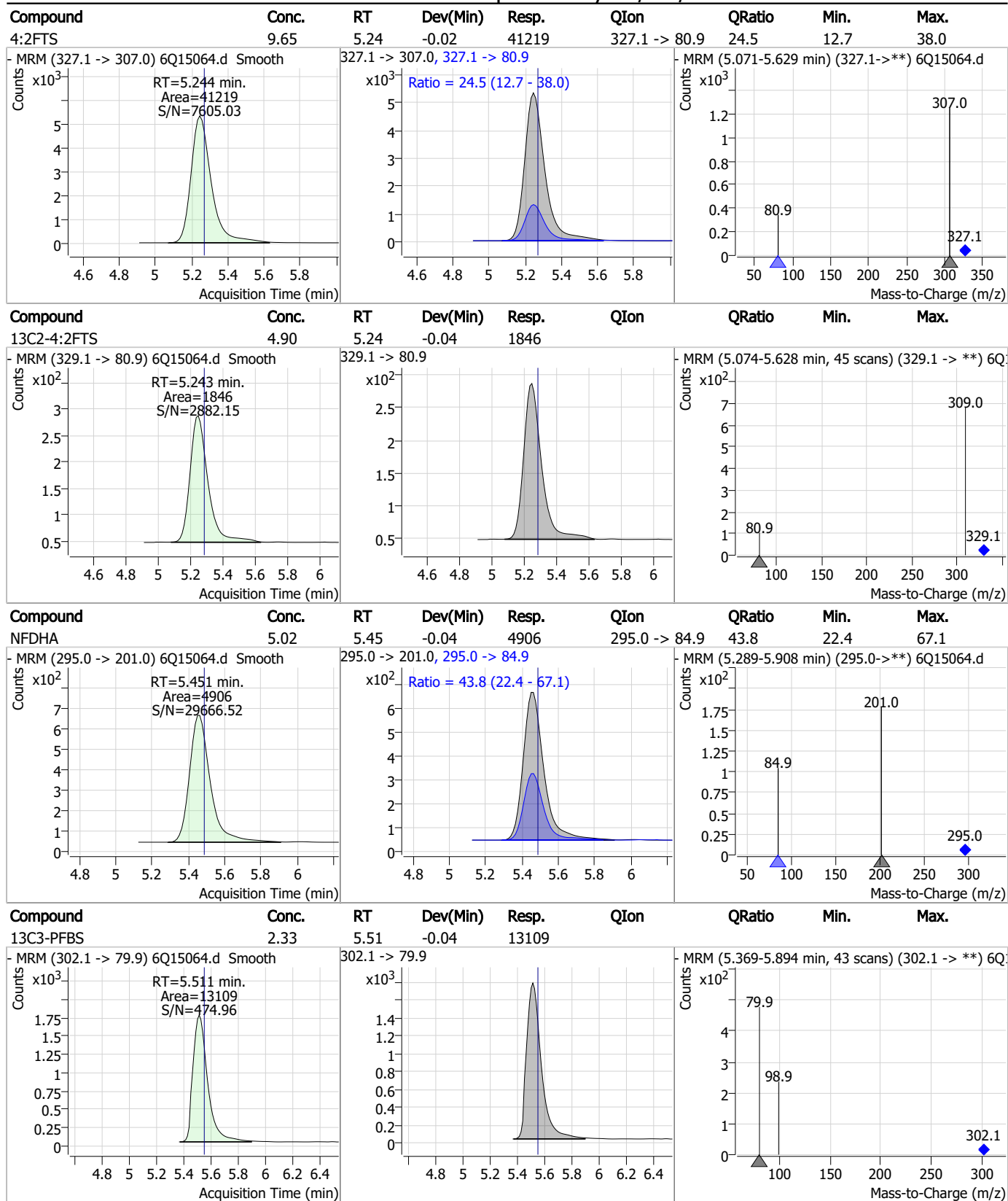
Perfluorinated Compounds by LC/MS/MS



7.7.13

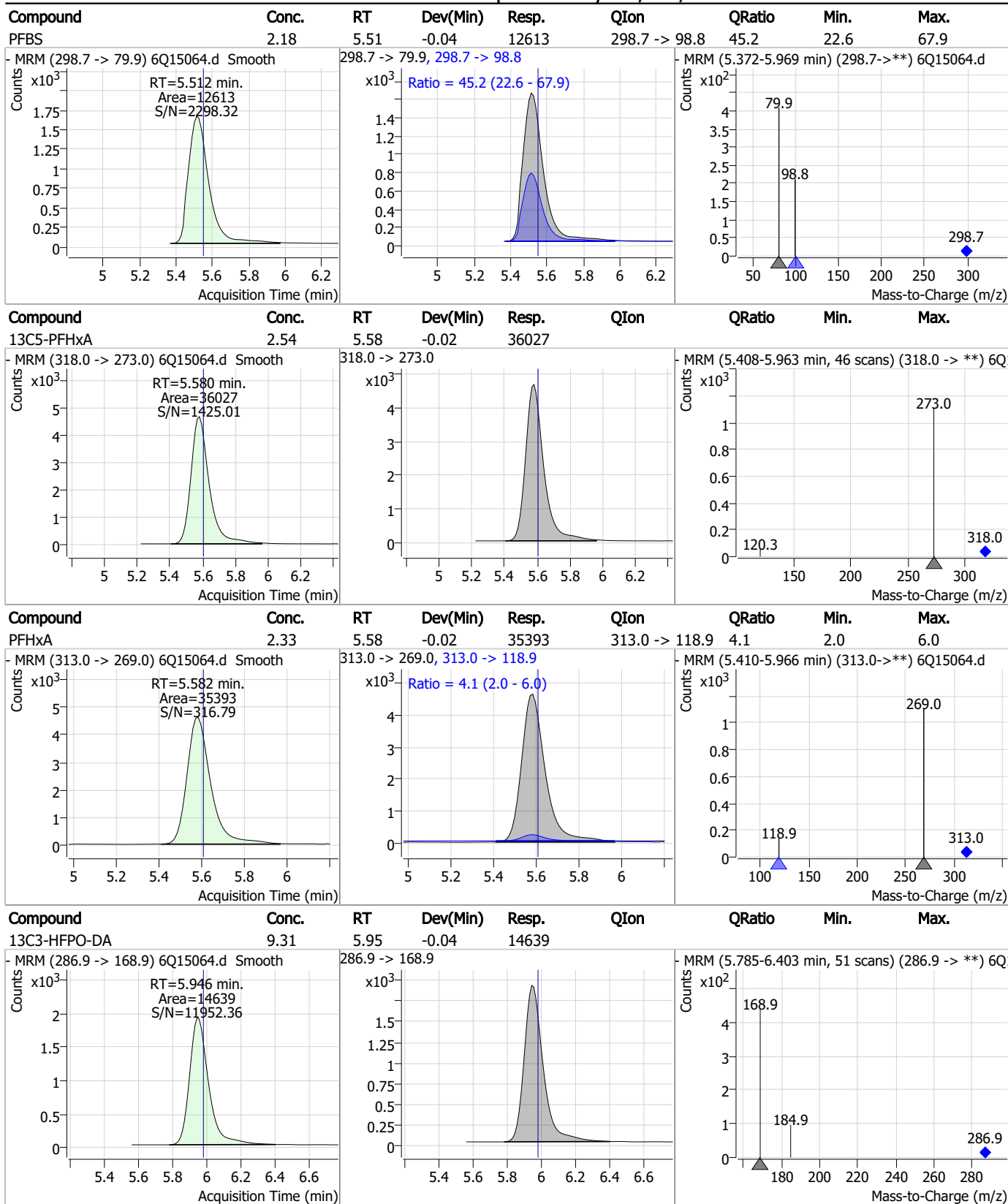
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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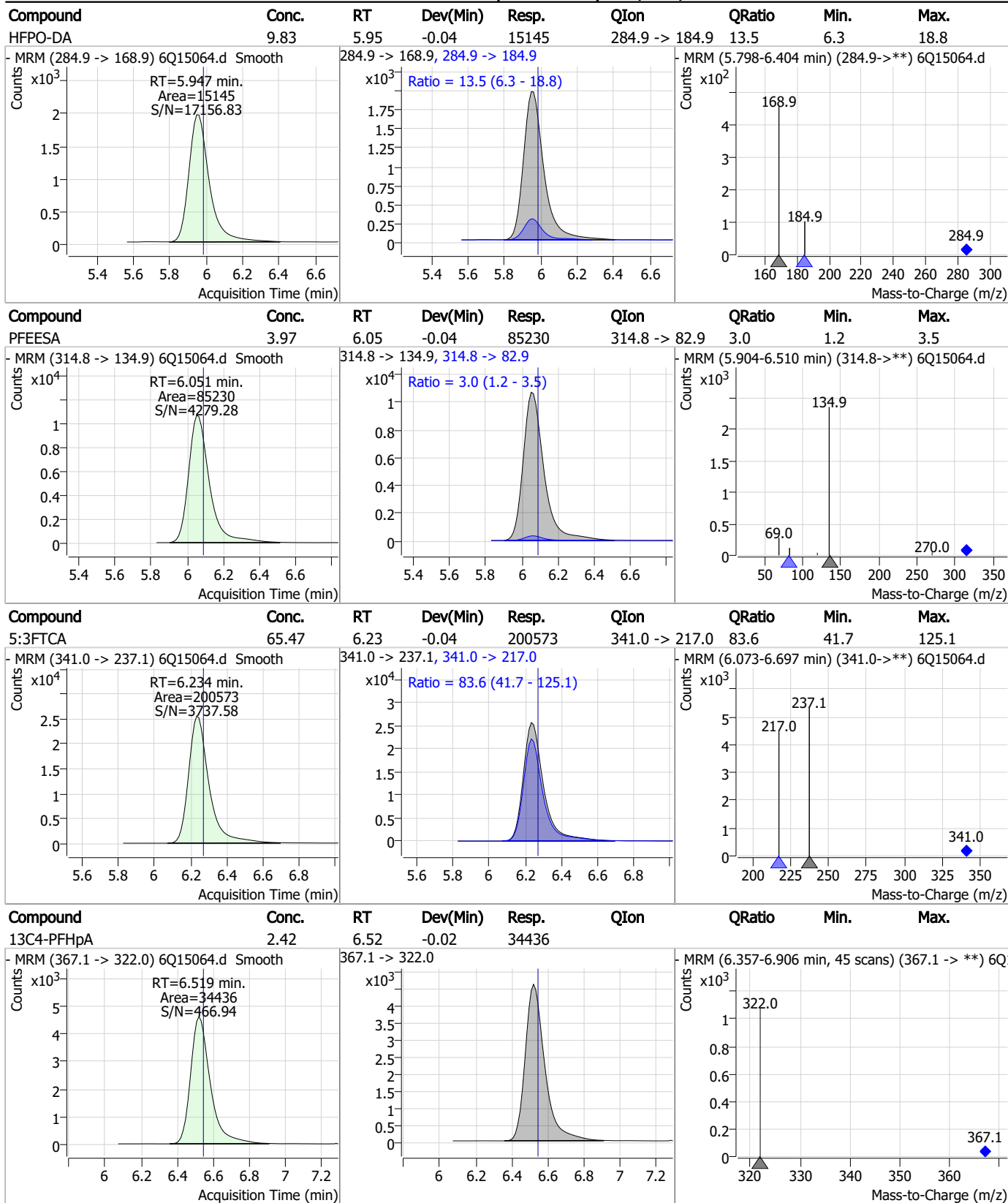
Perfluorinated Compounds by LC/MS/MS



7.7.13

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Perfluorinated Compounds by LC/MS/MS

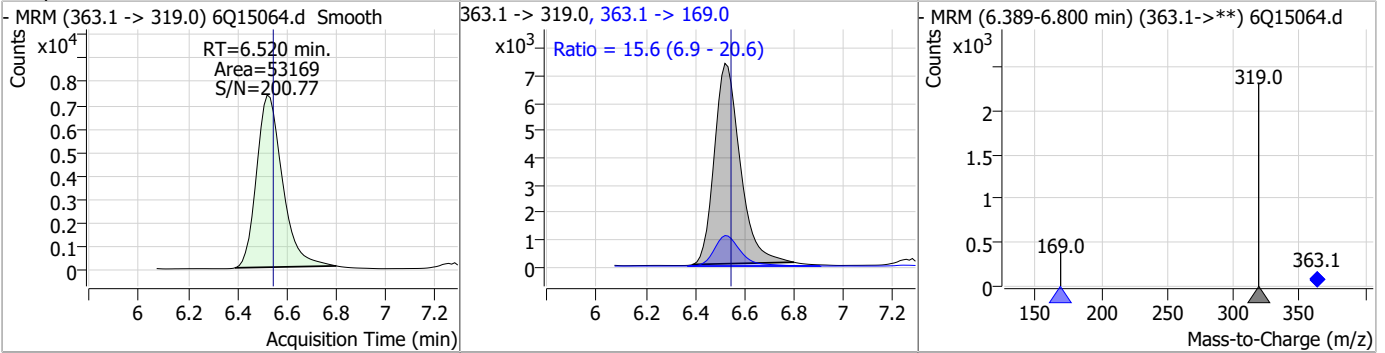


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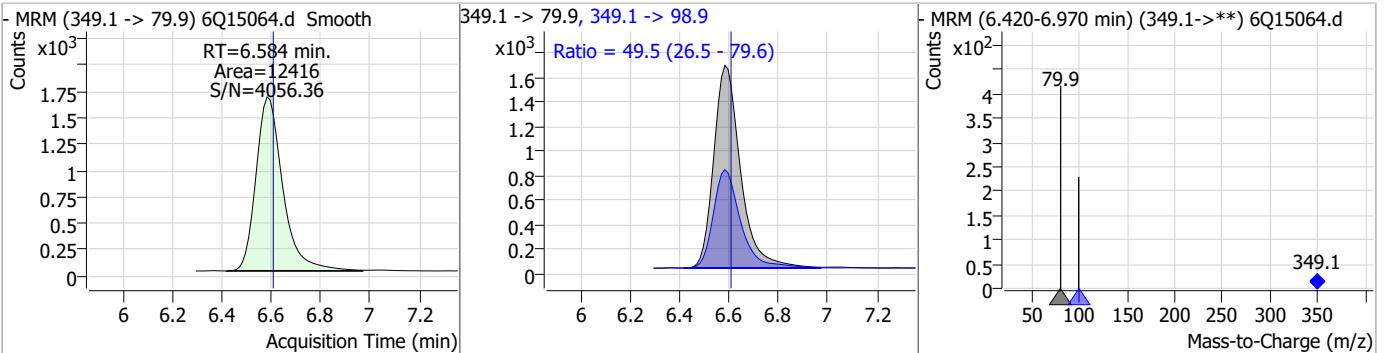
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Perfluorinated Compounds by LC/MS/MS

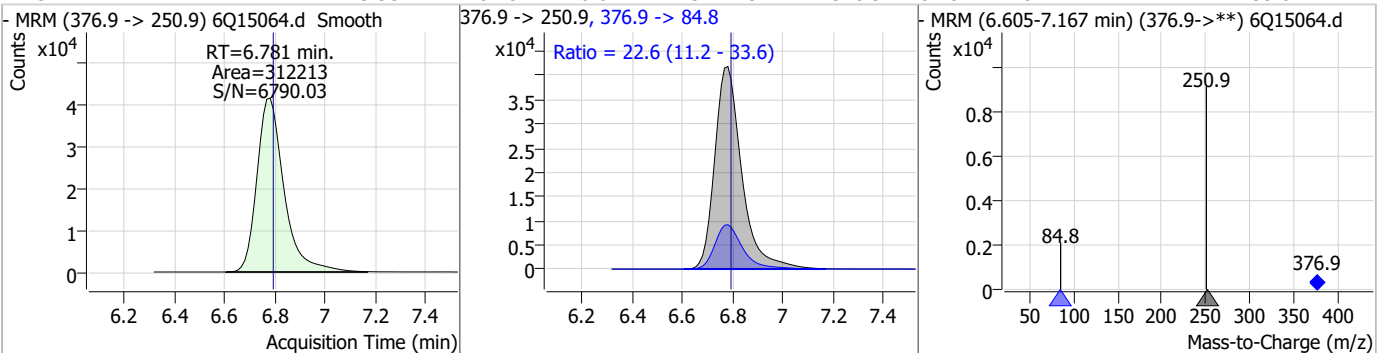
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.39	6.52	-0.02	53169	363.1 -> 169.0	15.6	6.9	20.6



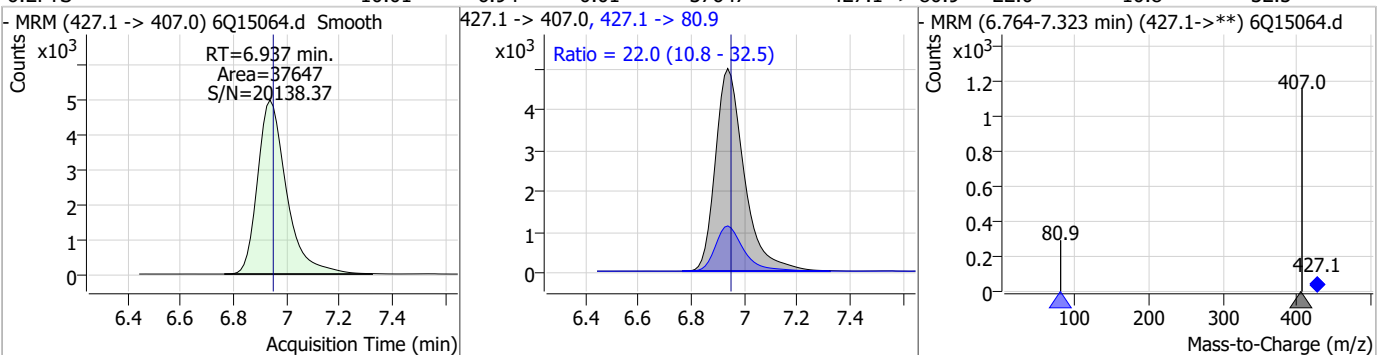
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.32	6.58	-0.02	12416	349.1 -> 98.9	49.5	26.5	79.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.93	6.78	-0.01	312213	376.9 -> 84.8	22.6	11.2	33.6

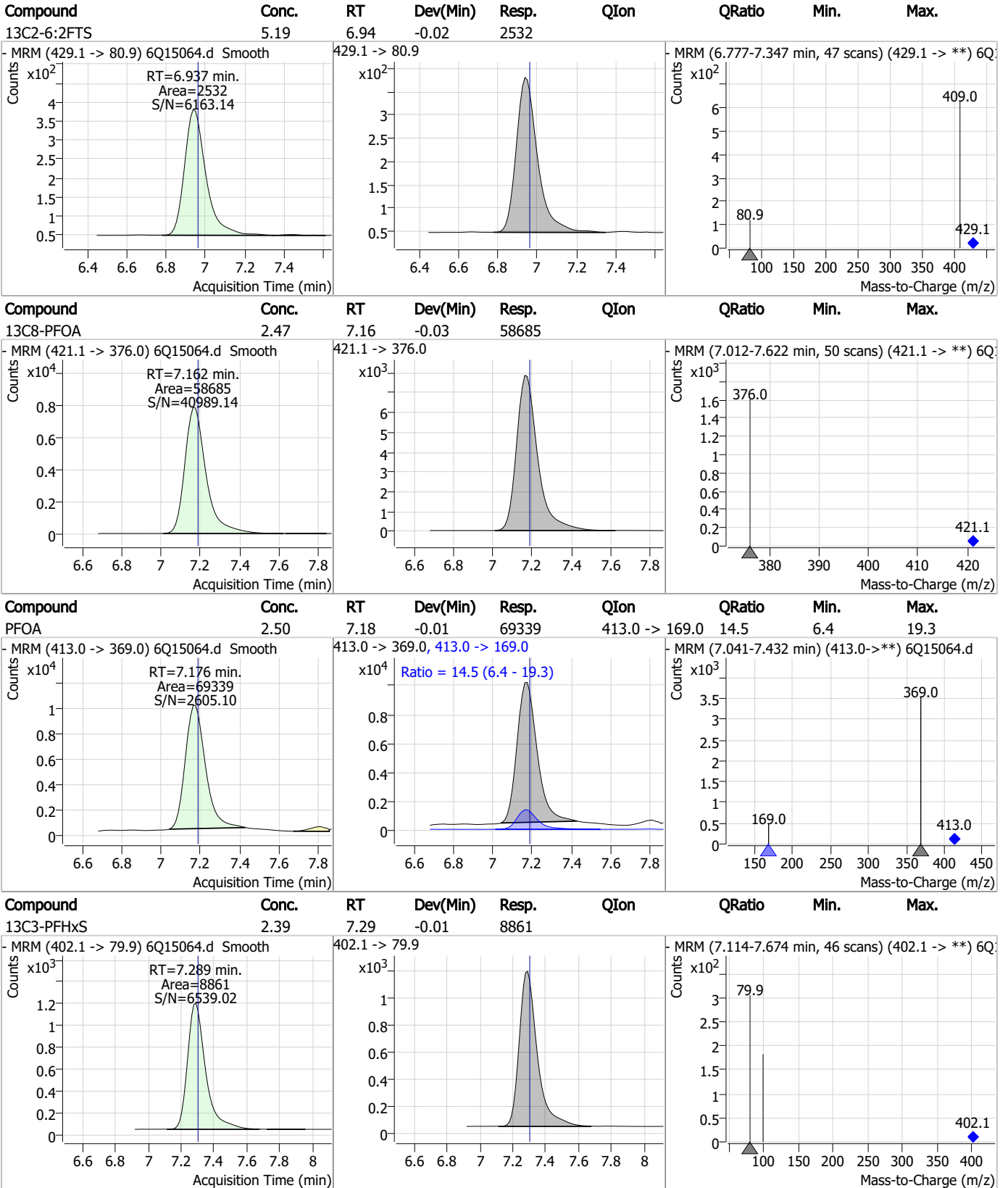


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	10.01	6.94	-0.01	37647	427.1 -> 80.9	22.0	10.8	32.5



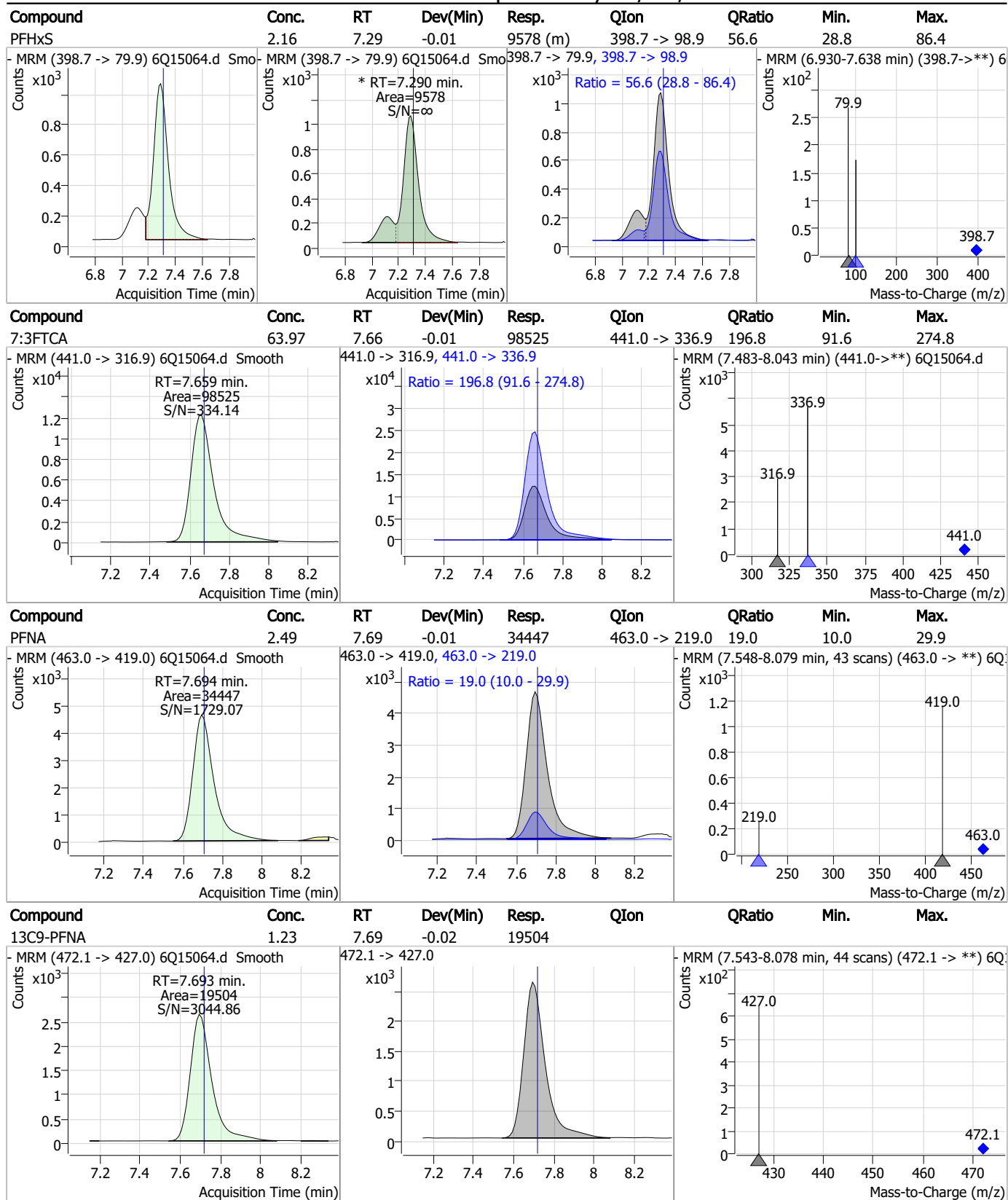
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Perfluorinated Compounds by LC/MS/MS



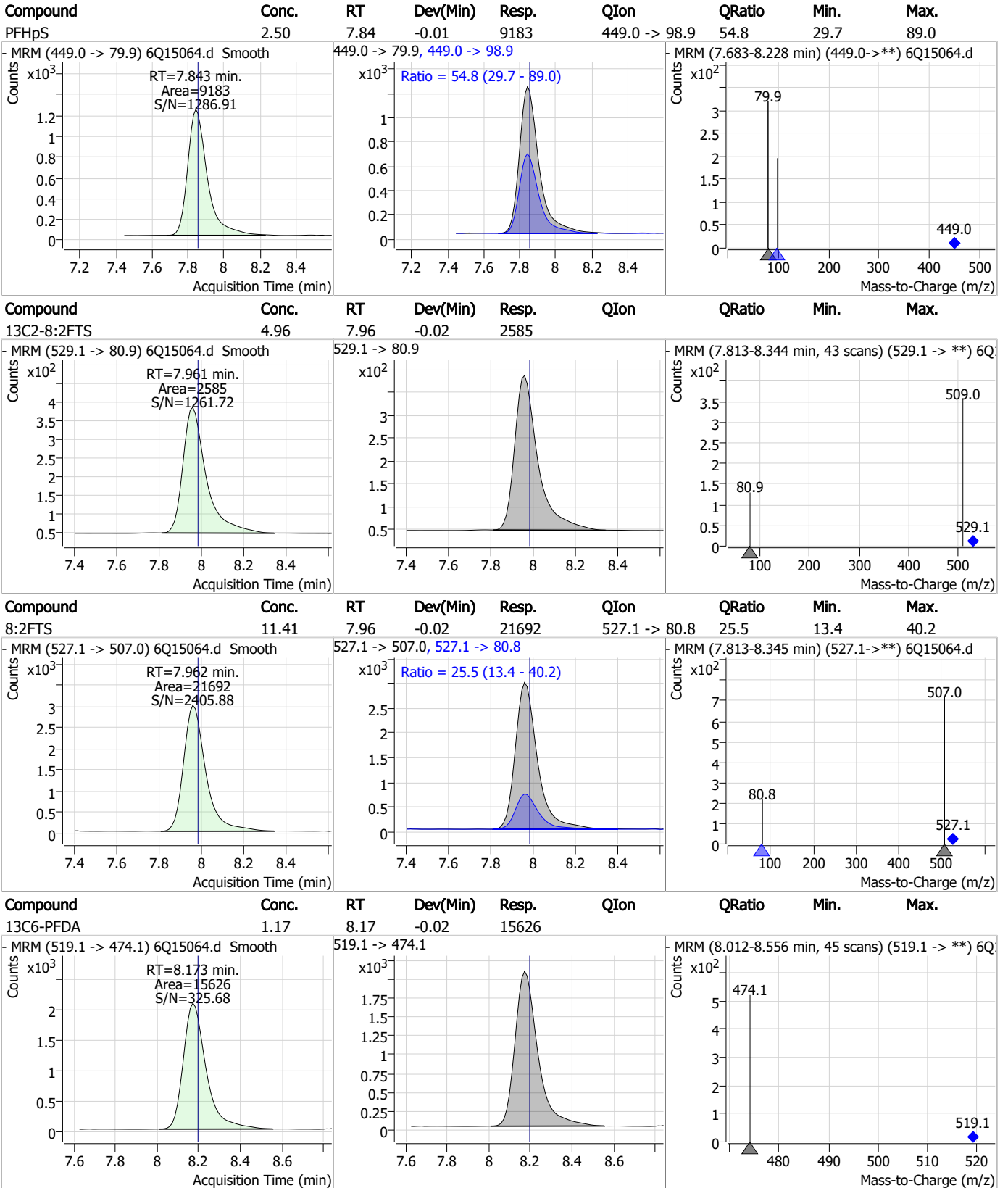
7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13 7

Perfluorinated Compounds by LC/MS/MS

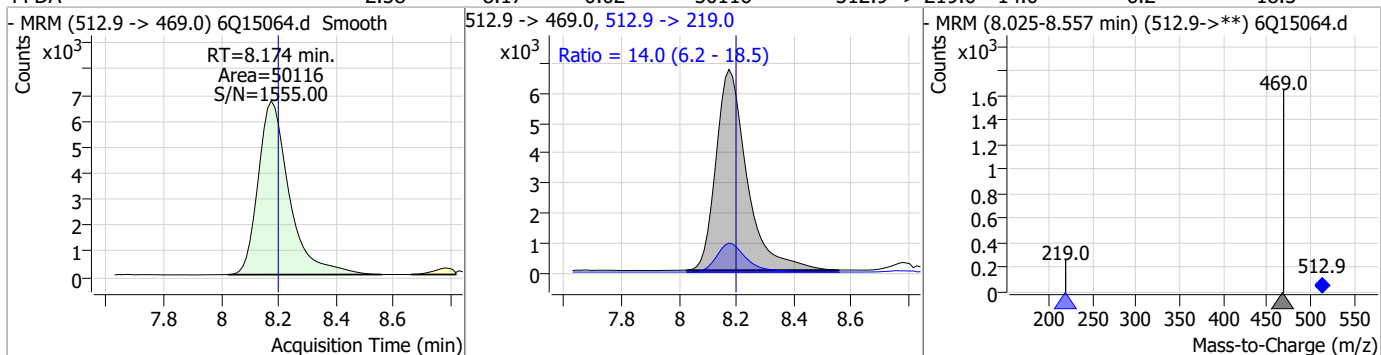


7.7.13 7

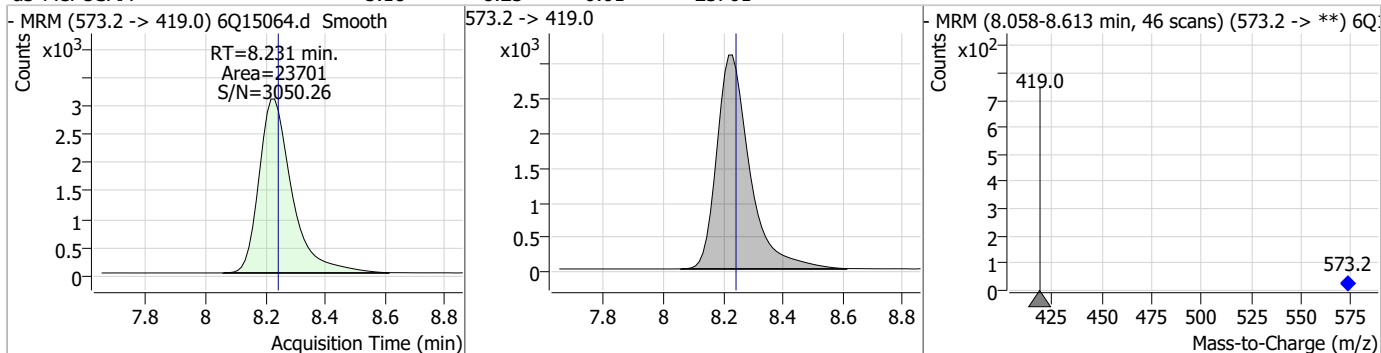


Perfluorinated Compounds by LC/MS/MS

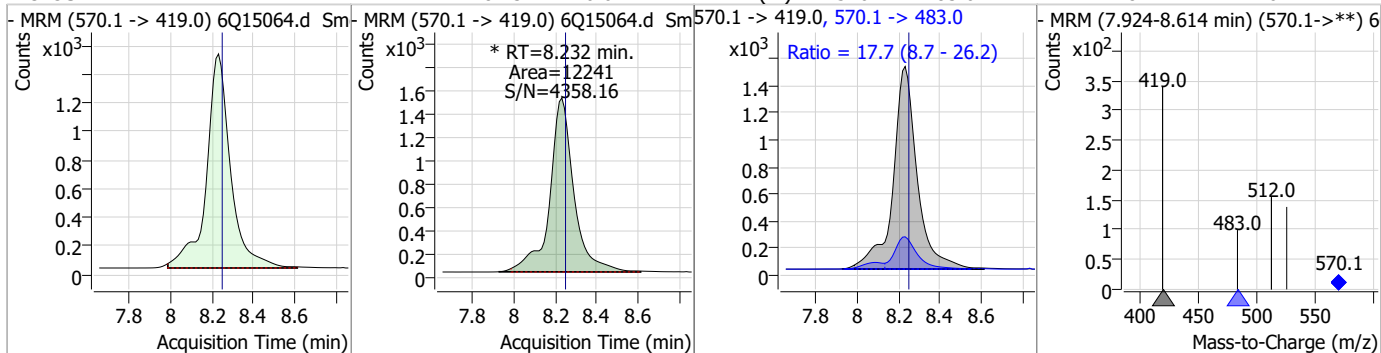
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.58	8.17	-0.02	50116	512.9 -> 219.0	14.0	6.2	18.5



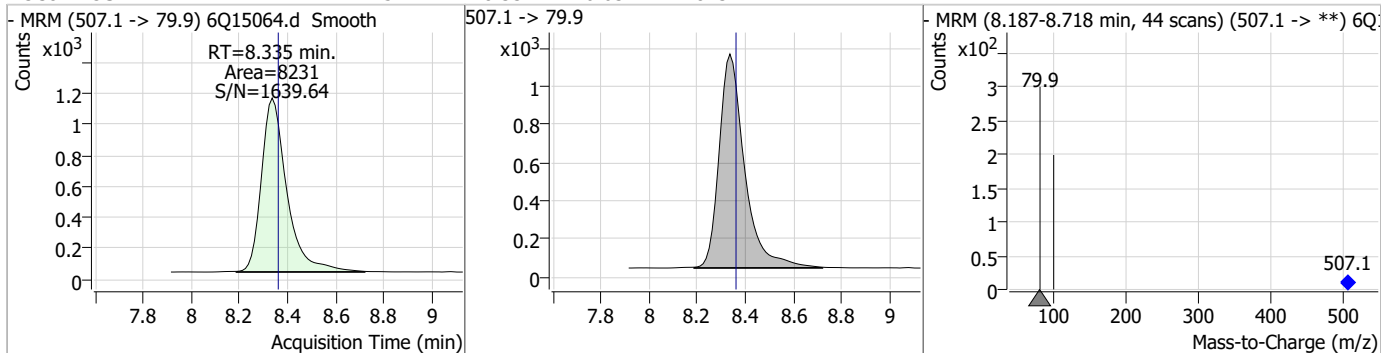
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.18	8.23	-0.01	23701				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.47	8.23	-0.01	12241 (m)	570.1 -> 483.0	17.7	8.7	26.2

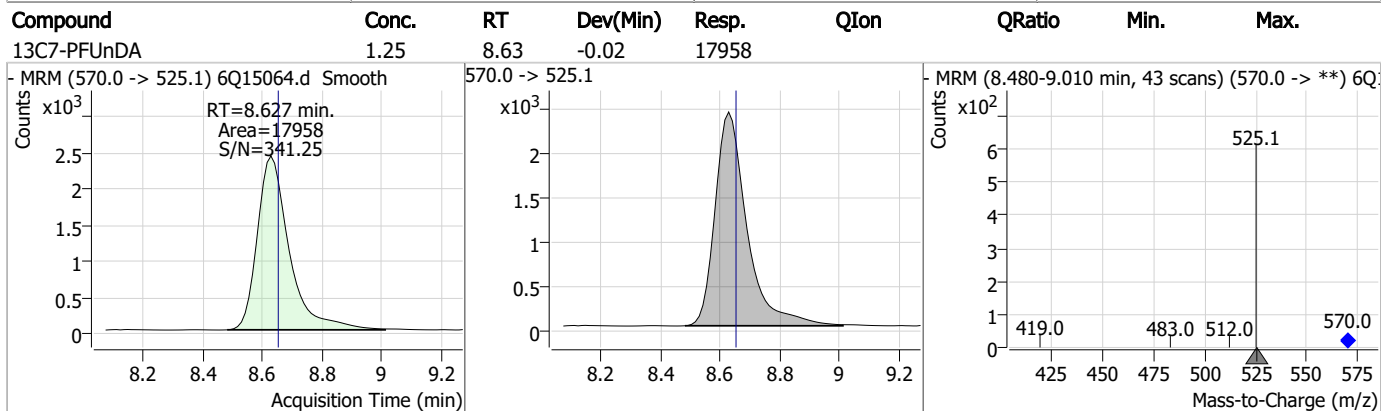
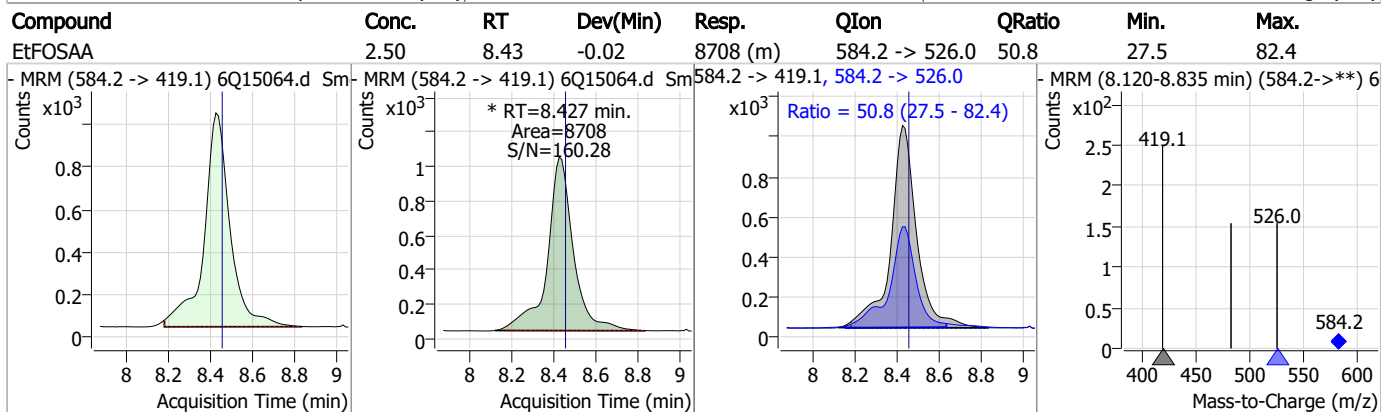
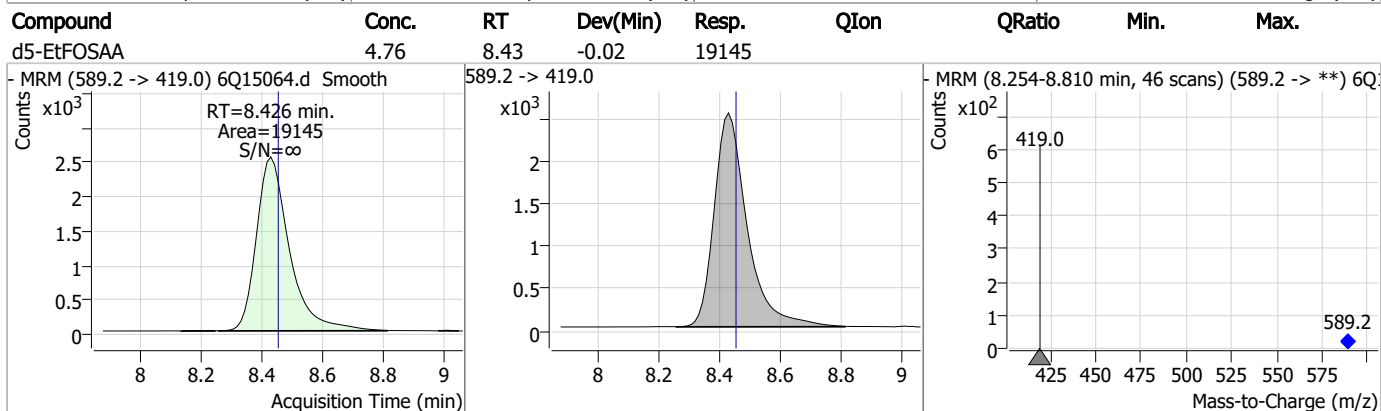
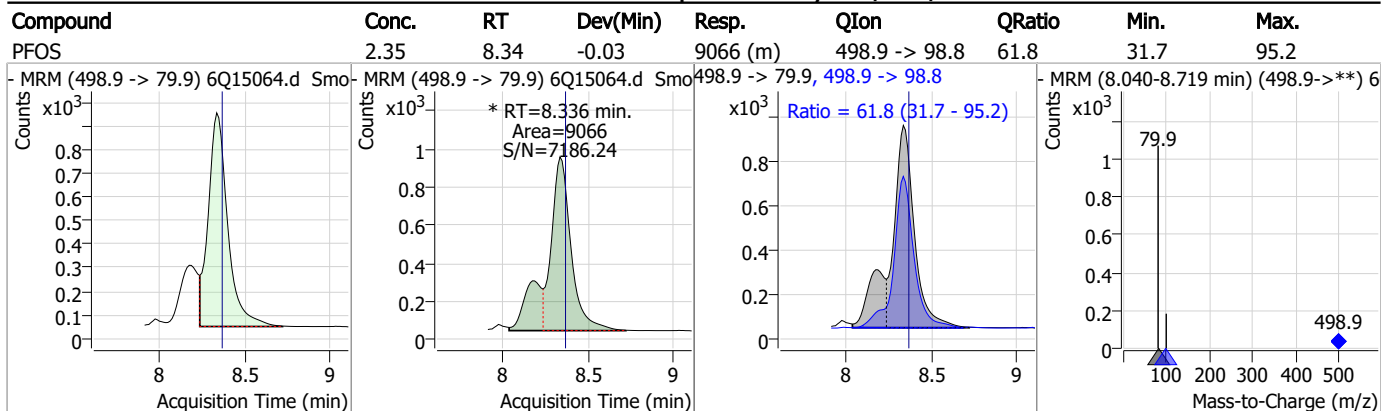


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.54	8.33	-0.03	8231				



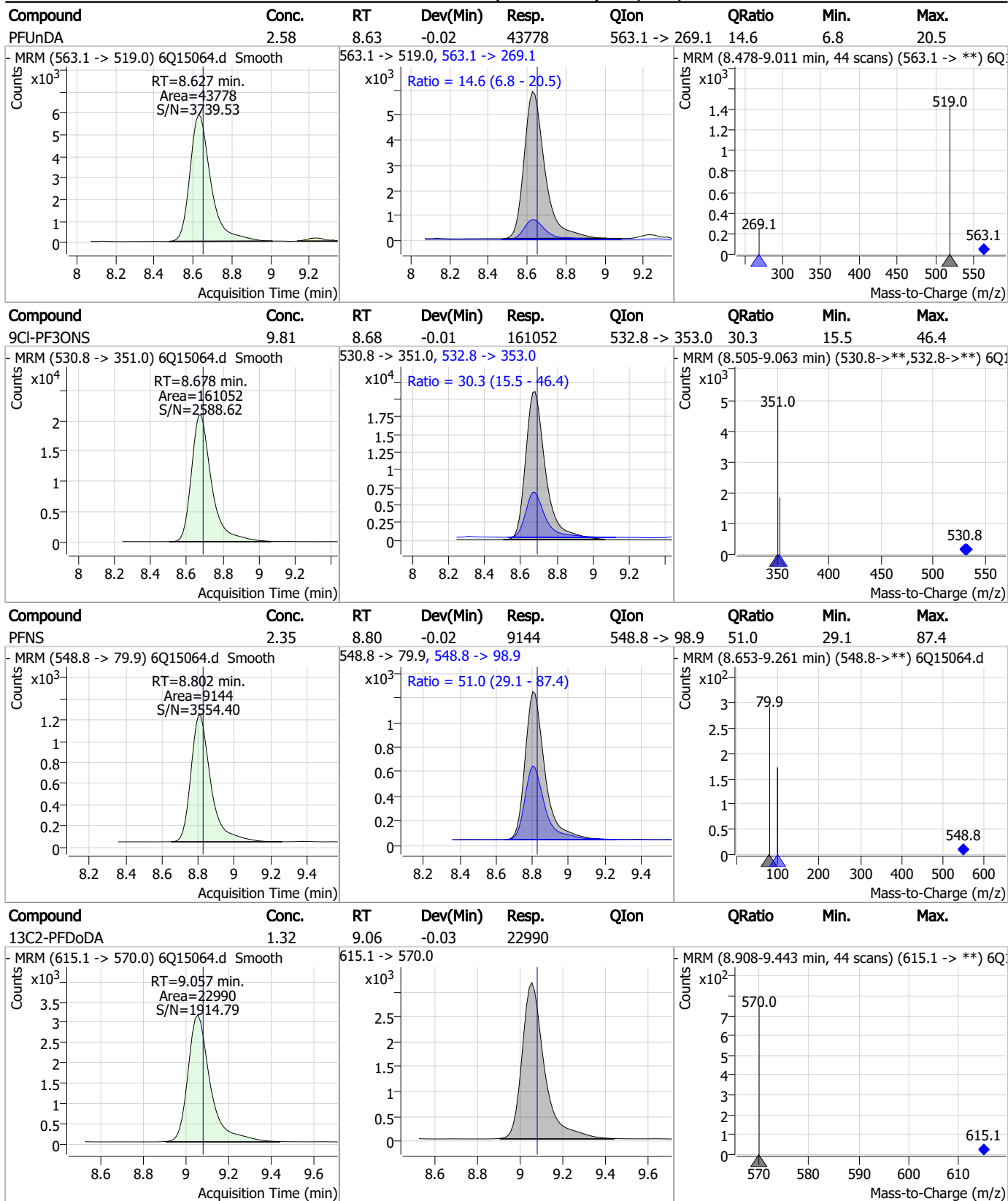
7.7.13
7

Perfluorinated Compounds by LC/MS/MS



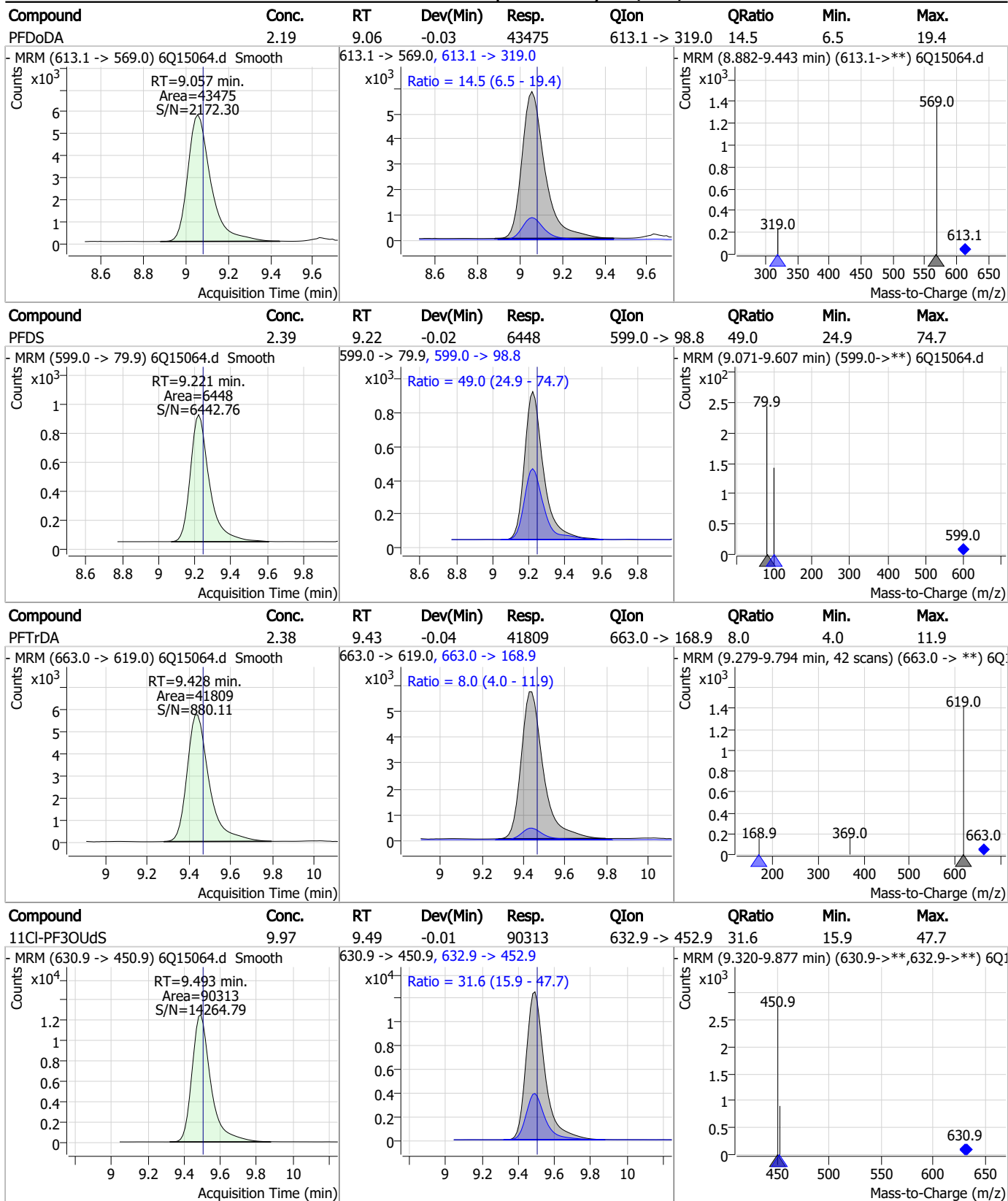
7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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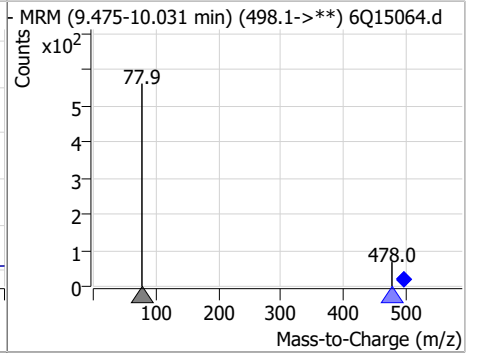
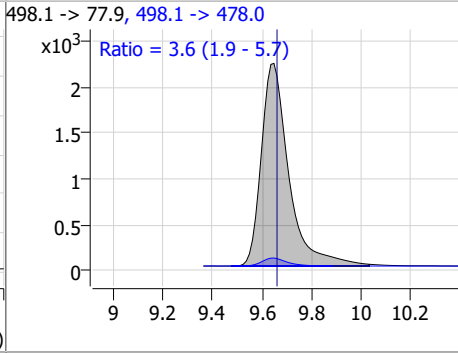
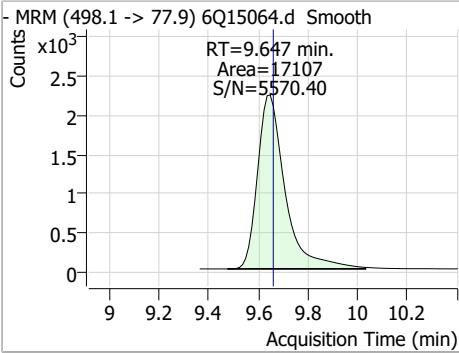
Perfluorinated Compounds by LC/MS/MS



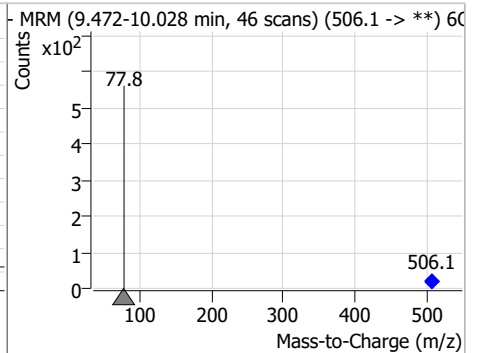
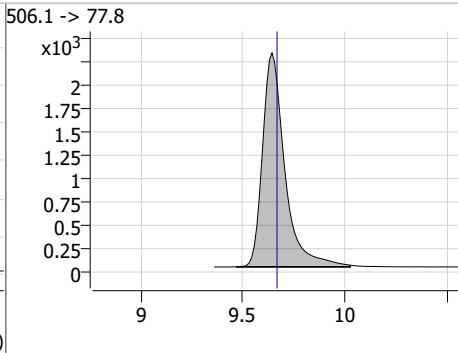
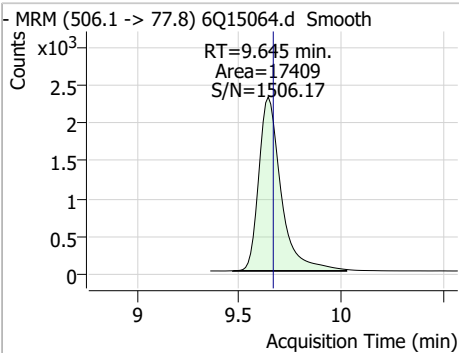
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Perfluorinated Compounds by LC/MS/MS

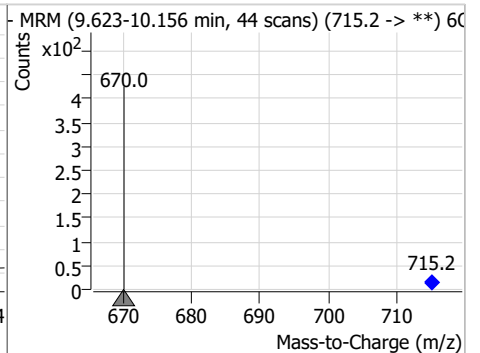
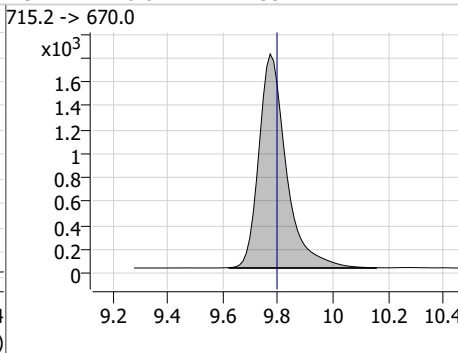
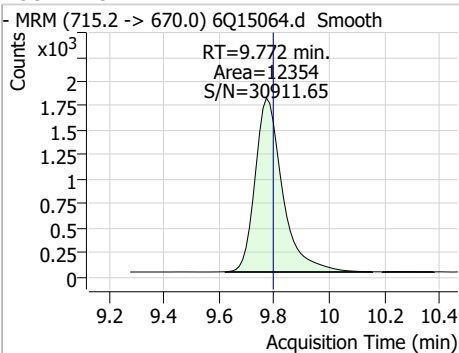
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.46	9.65	-0.01	17107	498.1 -> 478.0	3.6	1.9	5.7



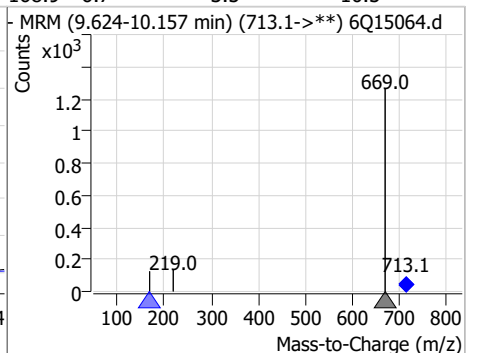
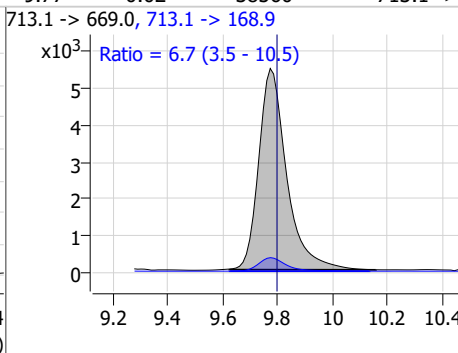
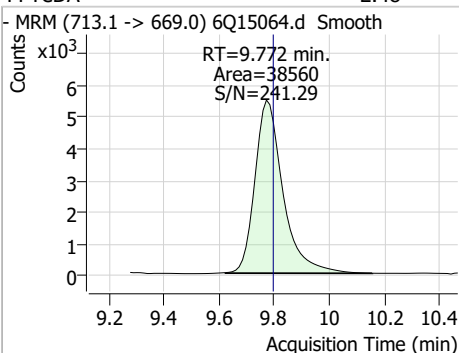
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.63	9.64	-0.02	17409				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.77	-0.02	12354				

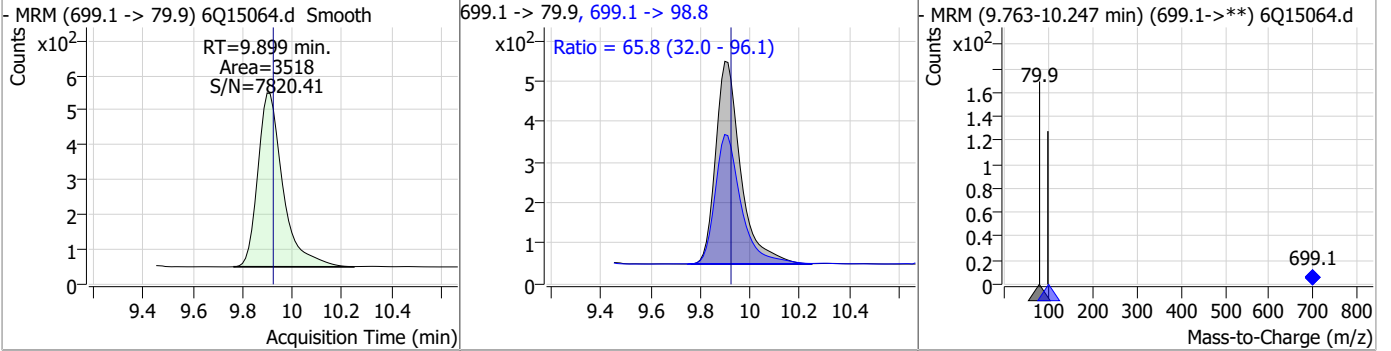


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.48	9.77	-0.02	38560	713.1 -> 168.9	6.7	3.5	10.5

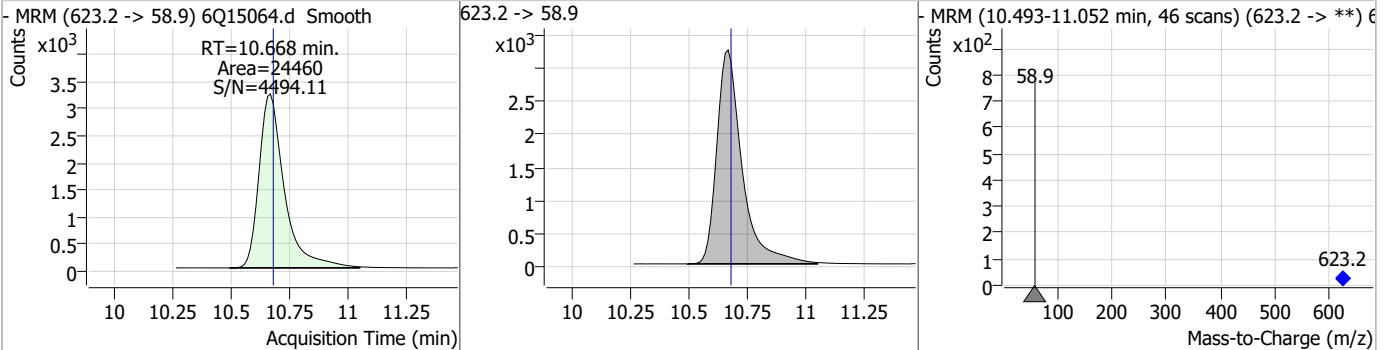


Perfluorinated Compounds by LC/MS/MS

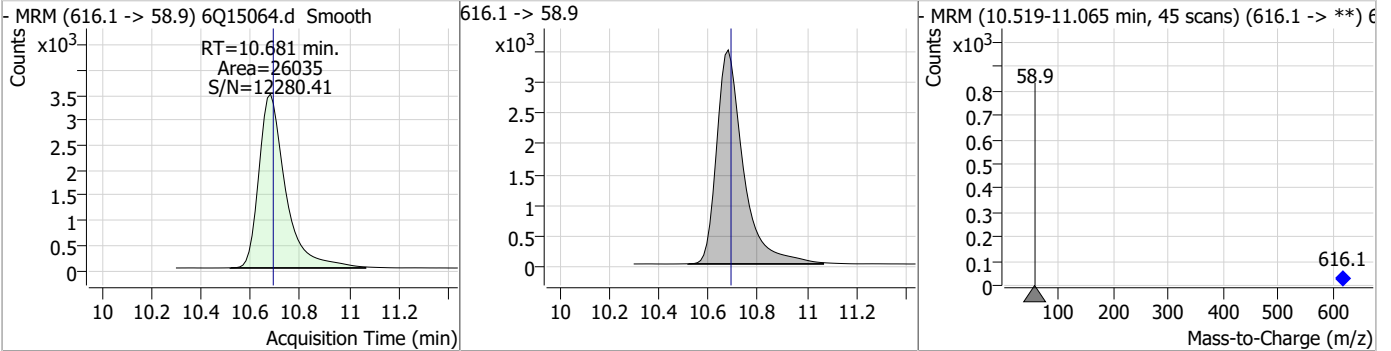
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.29	9.90	-0.02	3518	699.1 -> 98.8	65.8	32.0	96.1



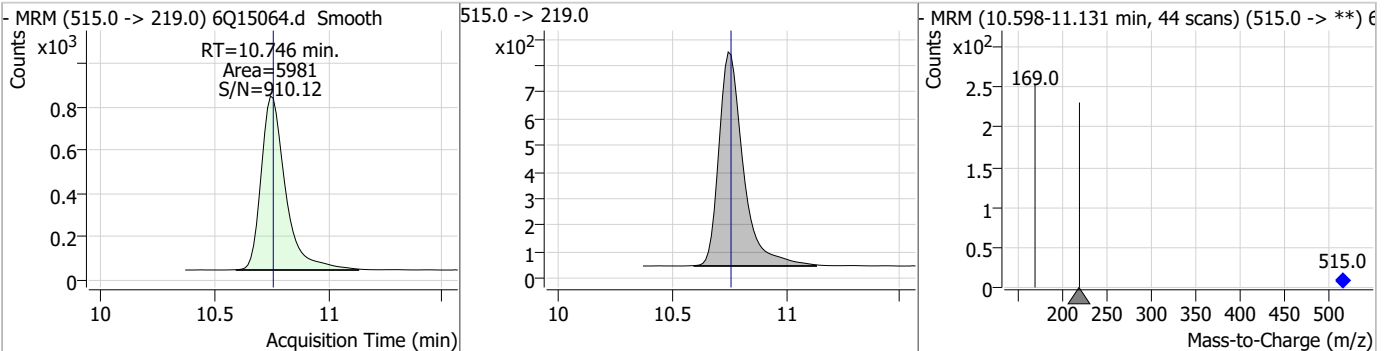
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.67	10.67	-0.01	24460				



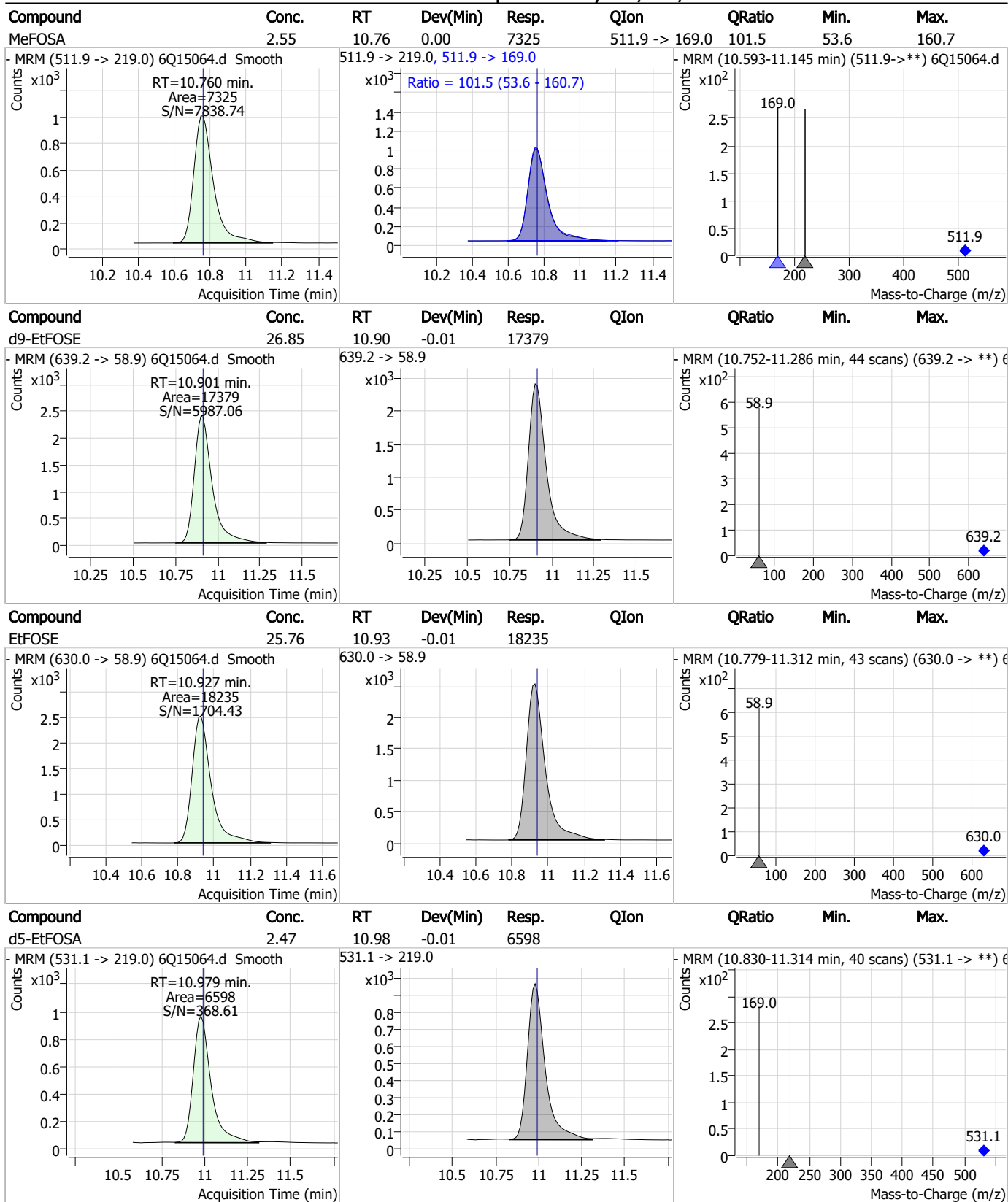
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	25.21	10.68	-0.01	26035				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	10.75	-0.01	5981				



Perfluorinated Compounds by LC/MS/MS

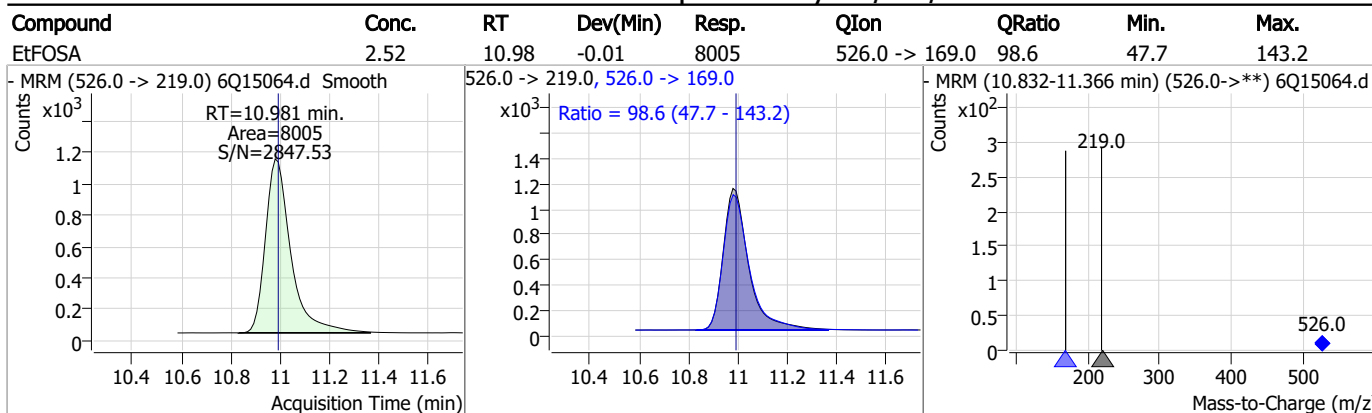


7.7.13

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Perfluorinated Compounds by LC/MS/MS



7.7.13

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Manual Integration Approval Summary

Sample Number: S6Q228-CC225 Method: EPA DRAFT 1633
Lab FileID: 6Q15064.D Analyst approved: 03/21/23 13:24 Martha Valls
Injection Time: 03/21/23 04:18 Supervisor approved: 03/21/23 16:12 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.43	Split peak

7.7.13.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q15076.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 3/21/2023 7:06:43 AM
 Sample Name : cc225-4
 Vial : P1-A5
 DA Method File : 1633_031523_S6Q225.quantmethod.xml
 Batch Name : s6q228.batch.bin
 Sample Information : OP95881,S6Q228,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.935	216.8 -> 171.9	83139	10.00 µg/L	-0.012
M5-PFPeA	4.370	268.3 -> 223.0	39993	5.00 µg/L	-0.025
M5-PFHxA	5.580	318.0 -> 273.0	36319	2.50 µg/L	-0.025
M4-PFHpA	6.519	367.1 -> 322.0	35920	2.50 µg/L	-0.025
M8-PFOA	7.175	421.1 -> 376.0	59031	2.50 µg/L	-0.012
M9-PFNA	7.706	472.1 -> 427.0	20469	1.25 µg/L	-0.012
M6-PFDA	8.185	519.1 -> 474.1	15198	1.25 µg/L	-0.012
M7-PFUnDA	8.639	570.0 -> 525.1	17990	1.25 µg/L	-0.012
M2-PFDoDA	9.057	615.1 -> 570.0	21708	1.25 µg/L	-0.025
M2-PFTeDA	9.772	715.2 -> 670.0	12035	1.25 µg/L	-0.025
M8-FOSA	9.645	506.1 -> 77.8	17850	2.50 µg/L	-0.025
M3-PFBS	5.511	302.1 -> 79.9	13409	2.50 µg/L	-0.037
M3-PFHxS	7.289	402.1 -> 79.9	8708	2.50 µg/L	-0.013
M8-PFOS	8.347	507.1 -> 79.9	8214	2.50 µg/L	-0.013
M2-4:2FTS	5.243	329.1 -> 80.9	2021	5.00 µg/L	-0.037
M2-6:2FTS	6.937	429.1 -> 80.9	2579	5.00 µg/L	-0.025
M2-8:2FTS	7.973	529.1 -> 80.9	2718	5.00 µg/L	-0.012
M3-MeFOSAA	8.231	573.2 -> 419.0	23735	5.00 µg/L	-0.012
M3-HFPO-DA	5.946	286.9 -> 168.9	15365	10.00 µg/L	-0.037
M5-EtFOSAA	8.426	589.2 -> 419.0	20297	5.00 µg/L	-0.025
M7-MeFOSE	10.668	623.2 -> 58.9	25094	25.00 µg/L	-0.012
M9-EtFOSE	10.901	639.2 -> 58.9	17145	25.00 µg/L	-0.012
M5-EtFOSA	10.979	531.1 -> 219.0	6755	2.50 µg/L	-0.012
M3-MeFOSA	10.746	515.0 -> 219.0	6145	2.50 µg/L	-0.012
13C4-PFOS	8.348	502.8 -> 79.9	10081	2.50 µg/L	-0.013
13C3-PFBA	2.939	216.0 -> 172.0	35834	5.00 µg/L	-0.013
18O2-PFHxS	7.288	403.0 -> 83.9	6236	2.50 µg/L	-0.026
13C4-PFOA	7.163	417.1 -> 372.0	69772	2.50 µg/L	-0.025
13C2-PFDA	8.173	515.1 -> 470.1	21440	1.25 µg/L	-0.025
13C5-PFNA	7.706	468.0 -> 423.0	20276	1.25 µg/L	-0.012
13C2-PFHxA	5.581	315.1 -> 270.0	34158	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.243	329.1 -> 80.9	2021	5.65 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C2-6:2FTS	6.937	429.1 -> 80.9	2579	5.57 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.3%		
13C2-8:2FTS	7.973	529.1 -> 80.9	2718	5.50 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-PFDoDA	9.057	615.1 -> 570.0	21708	1.29 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C2-PFTeDA	9.772	715.2 -> 670.0	12035	1.26 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFBS	5.511	302.1 -> 79.9	13409	2.51 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.289	402.1 -> 79.9	8708	2.47 µg/L	-0.013

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 = 98.9%	
13C4-PFBA	2.935	216.8 -> 171.9	83139	10.11 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C4-PFHpA	6.519	367.1 -> 322.0	35920	2.57 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C5-PFHxA	5.580	318.0 -> 273.0	36319	2.61 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFPeA	4.370	268.3 -> 223.0	39993	5.07 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.185	519.1 -> 474.1	15198	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C7-PFUnDA	8.639	570.0 -> 525.1	17990	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-FOSA	9.645	506.1 -> 77.8	17850	2.55 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOA	7.175	421.1 -> 376.0	59031	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C8-PFOS	8.347	507.1 -> 79.9	8214	2.40 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C9-PFNA	7.706	472.1 -> 427.0	20469	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSAA	8.231	573.2 -> 419.0	23735	4.90 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C3-HFPO-DA	5.946	286.9 -> 168.9	15365	9.96 µg/L	-0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSA	10.746	515.0 -> 219.0	6145	2.40 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
d5-EtFOSAA	8.426	589.2 -> 419.0	20297	4.77 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
d7-MeFOSE	10.668	623.2 -> 58.9	25094	25.88 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d9-EtFOSE	10.901	639.2 -> 58.9	17145	25.05 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d5-EtFOSA	10.979	531.1 -> 219.0	6755	2.39 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
Target Compounds					QValue
4:2FTS	5.244	327.1 -> 307.0	42585	9.11 µg/L	99
		327.1 -> 80.9	10478		
6:2FTS	6.937	427.1 -> 407.0	36999	9.65 µg/L	100
		427.1 -> 80.9	8040		
8:2FTS	7.962	527.1 -> 507.0	20584	10.30 µg/L	97
		527.1 -> 80.8	5167		
EtFOSAA	8.439	584.2 -> 419.1	8346	2.26 µg/L	m 95
		584.2 -> 526.0	4898		
FOSA	9.647	498.1 -> 77.9	17263	2.42 µg/L	99
		498.1 -> 478.0	717		
MeFOSAA	8.232	570.1 -> 419.0	11932	2.40 µg/L	m 93
		570.1 -> 483.0	2448		
PFBA	2.931	212.8 -> 168.9	22163	9.77 µg/L	100
PFBS	5.512	298.7 -> 79.9	12179	2.06 µg/L	95
		298.7 -> 98.8	5880		
PFDA	8.174	512.9 -> 469.0	50401	2.67 µg/L	97
		512.9 -> 219.0	6775		
PFDODA	9.057	613.1 -> 569.0	46573	2.49 µg/L	99
		613.1 -> 319.0	5881		
PFDS	9.221	599.0 -> 79.9	6305	2.35 µg/L	96

7.7.14
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3303			
PFHpA	6.532	363.1 -> 319.0	55652	2.40	µg/L	98
		363.1 -> 169.0	7962			
PFHpS	7.843	449.0 -> 79.9	8238	2.25	µg/L	100
		449.0 -> 98.9	4862			
PFHxA	5.582	313.0 -> 269.0	35894	2.35	µg/L	100
		313.0 -> 118.9	1390			
PFHxS	7.290	398.7 -> 79.9	10391	2.39	µg/L	m 95
		398.7 -> 98.9	5583			
PFNA	7.707	463.0 -> 419.0	33214	2.29	µg/L	100
		463.0 -> 219.0	6600			
PFNS	8.802	548.8 -> 79.9	9108	2.35	µg/L	98
		548.8 -> 98.9	5204			
PFOA	7.176	413.0 -> 369.0	68461	2.45	µg/L	95
		413.0 -> 169.0	10142			
PFOS	8.348	498.9 -> 79.9	8612	2.24	µg/L	m 99
		498.9 -> 98.8	5395			
PFPeA	4.372	263.0 -> 219.0	46683	4.90	µg/L	100
PFPeS	6.584	349.1 -> 79.9	12478	2.38	µg/L	95
		349.1 -> 98.9	6144			
PFTeDA	9.772	713.1 -> 669.0	41181	2.72	µg/L	98
		713.1 -> 168.9	2563			
PFTrDA	9.440	663.0 -> 619.0	42133	2.54	µg/L	100
		663.0 -> 168.9	3271			
PFUnDA	8.627	563.1 -> 519.0	42262	2.48	µg/L	99
		563.1 -> 269.1	5624			
11CI-PF3OUdS	9.493	630.9 -> 450.9	87763	9.23	µg/L	96
		632.9 -> 452.9	30033			
9CI-PF3ONS	8.678	530.8 -> 351.0	162109	9.41	µg/L	98
		532.8 -> 353.0	51789			
ADONA	6.781	376.9 -> 250.9	318481	9.65	µg/L	98
		376.9 -> 84.8	73959			
HFPO-DA	5.959	284.9 -> 168.9	15099	9.34	µg/L	99
		284.9 -> 184.9	1922			
3:3FTCA	3.826	241.0 -> 177.0	6231	13.09	µg/L	97
		241.0 -> 117.0	851			
5:3FTCA	6.234	341.0 -> 237.1	198215	64.17	µg/L	100
		341.0 -> 217.0	165824			
7:3FTCA	7.659	441.0 -> 316.9	105941	68.24	µg/L	94
		441.0 -> 336.9	184982			
EtFOSA	10.981	526.0 -> 219.0	8155	2.51	µg/L	97
		526.0 -> 169.0	8036			
EtFOSE	10.927	630.0 -> 58.9	17738	25.40	µg/L	100
MeFOSA	10.760	511.9 -> 219.0	7318	2.48	µg/L	96
		511.9 -> 169.0	7548			
MeFOSE	10.681	616.1 -> 58.9	25590	24.15	µg/L	100
PFDoDS	9.911	699.1 -> 79.9	3610	2.35	µg/L	98
		699.1 -> 98.8	2360			
NFDHA	5.463	295.0 -> 201.0	5036	5.11	µg/L	95
		295.0 -> 84.9	2083			
PFMBA	4.781	279.0 -> 85.1	15766	5.08	µg/L	100
PFMPA	3.501	229.0 -> 84.9	13731	5.03	µg/L	100
PFEESA	6.064	314.8 -> 134.9	90809	4.19	µg/L	99
		314.8 -> 82.9	2346			

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



7.7.14
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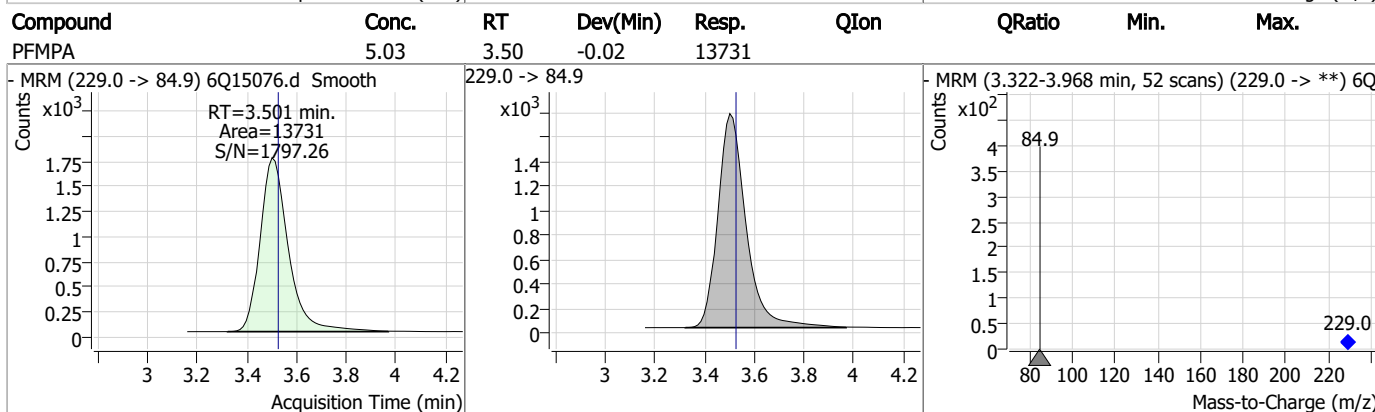
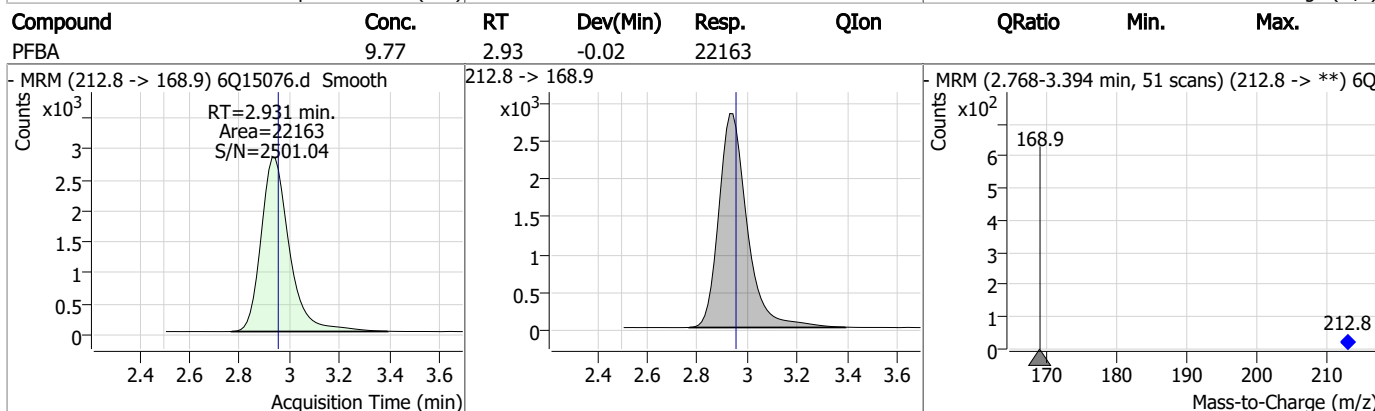
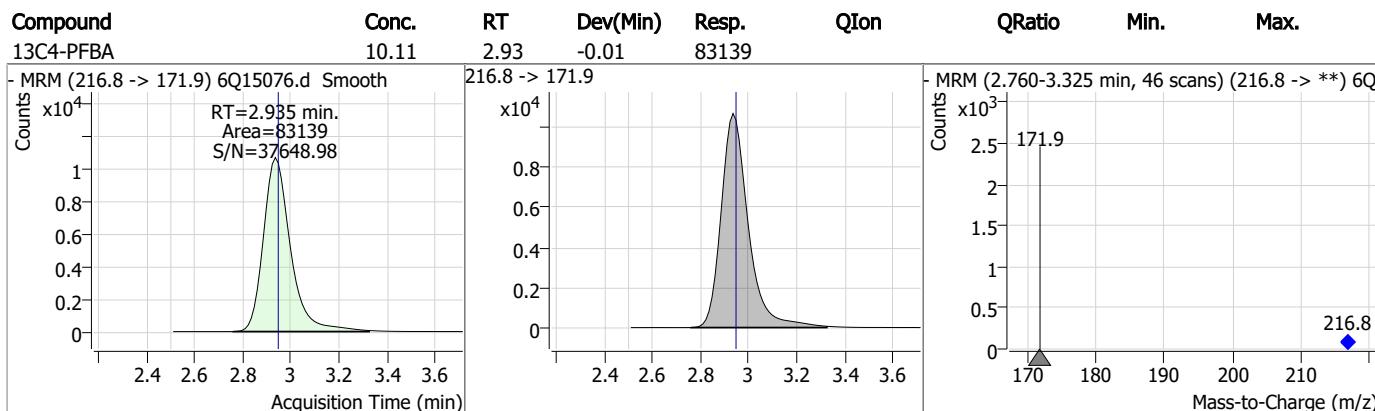
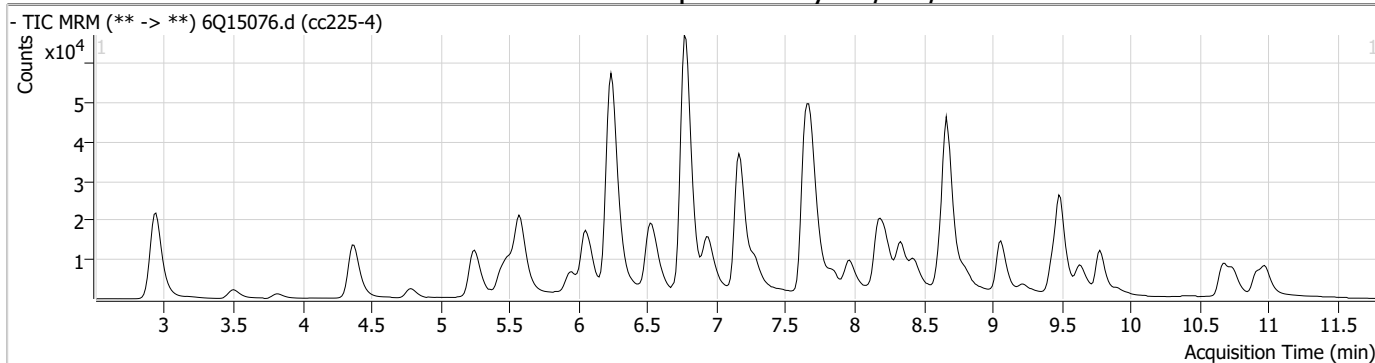
Perfluorinated Compounds by LC/MS/MS

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

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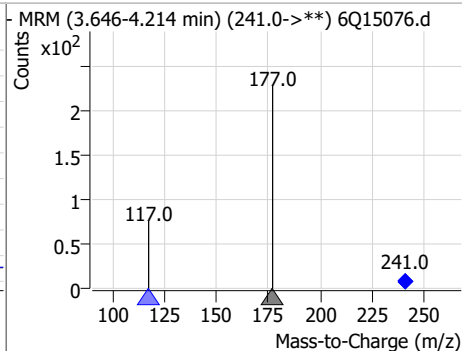
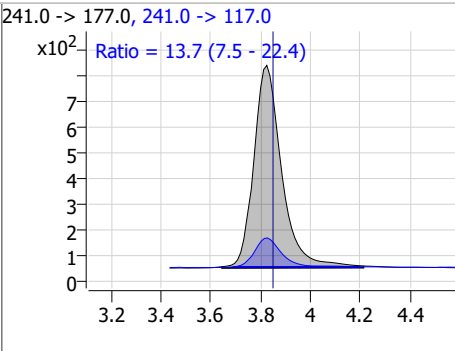
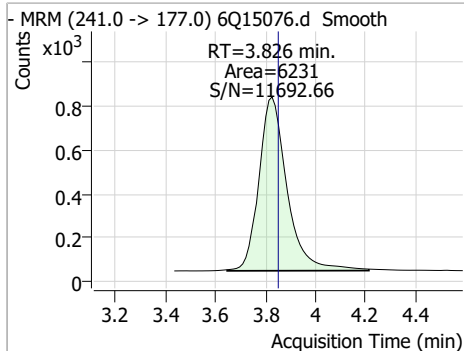
Perfluorinated Compounds by LC/MS/MS



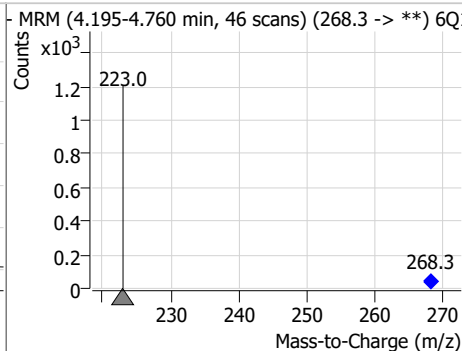
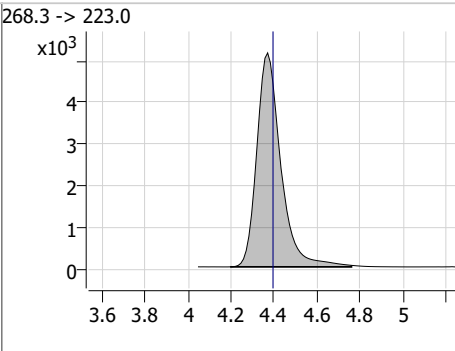
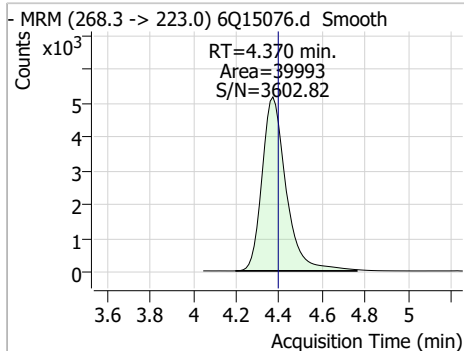
7.7.14
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Perfluorinated Compounds by LC/MS/MS

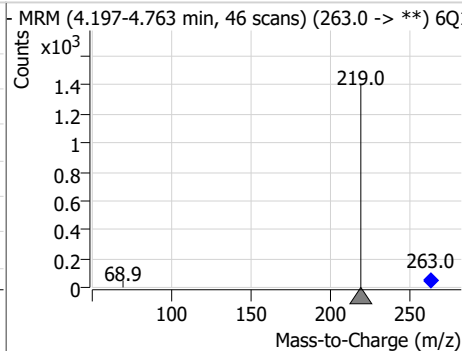
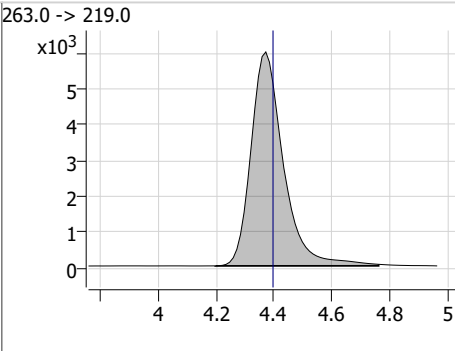
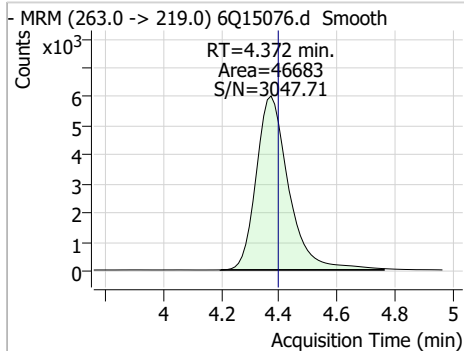
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	13.09	3.83	-0.02	6231	241.0 -> 117.0	13.7	7.5	22.4



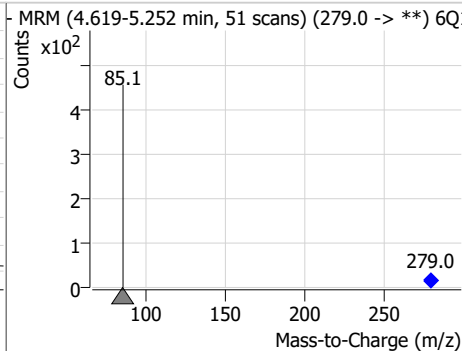
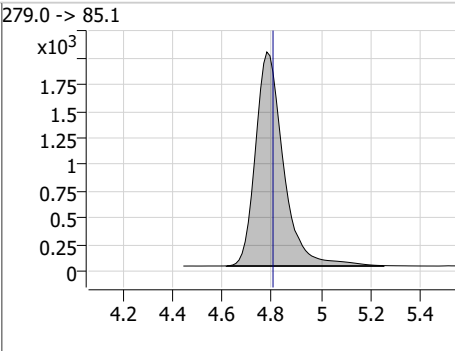
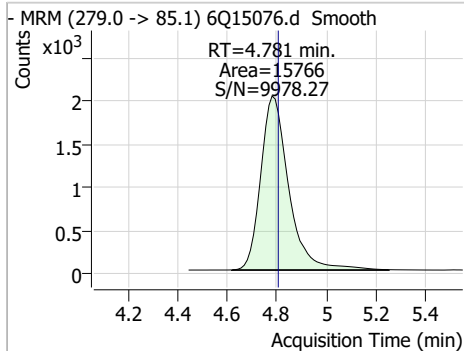
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.07	4.37	-0.02	39993				



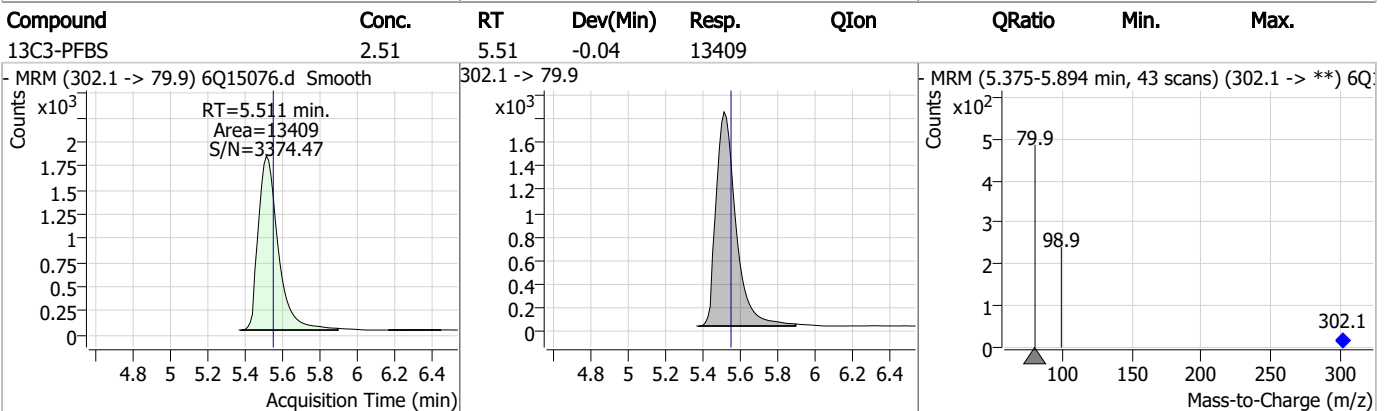
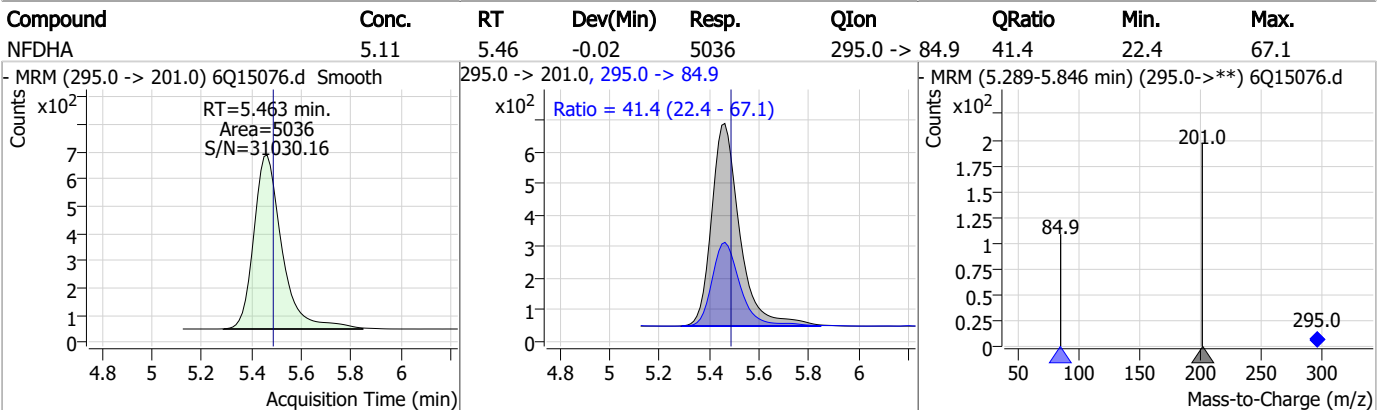
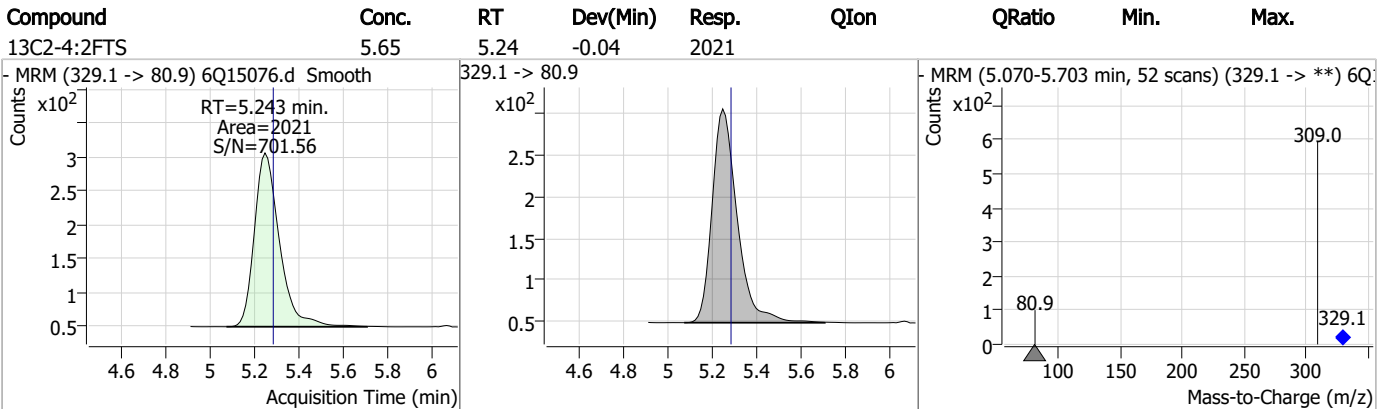
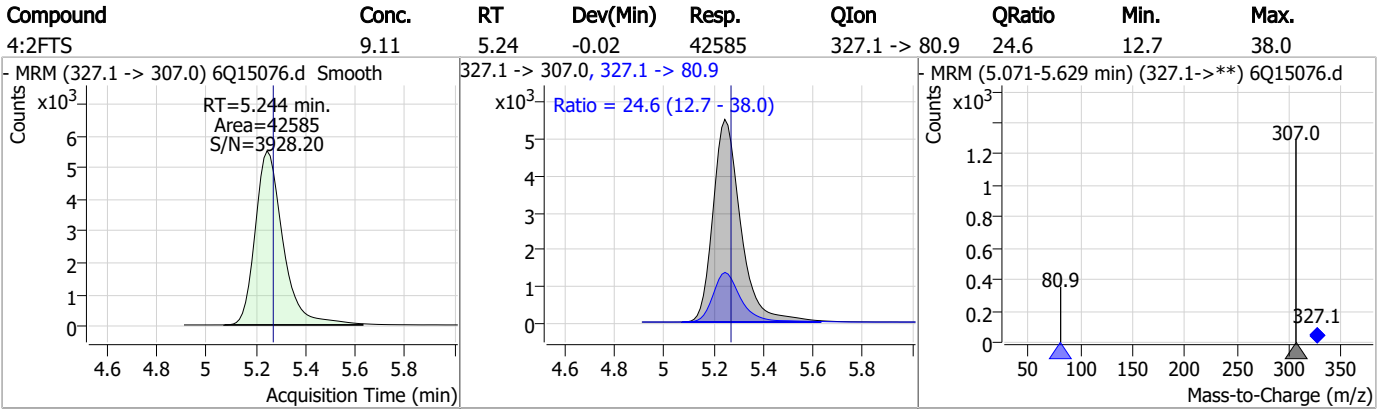
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.90	4.37	-0.02	46683				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.08	4.78	-0.02	15766				

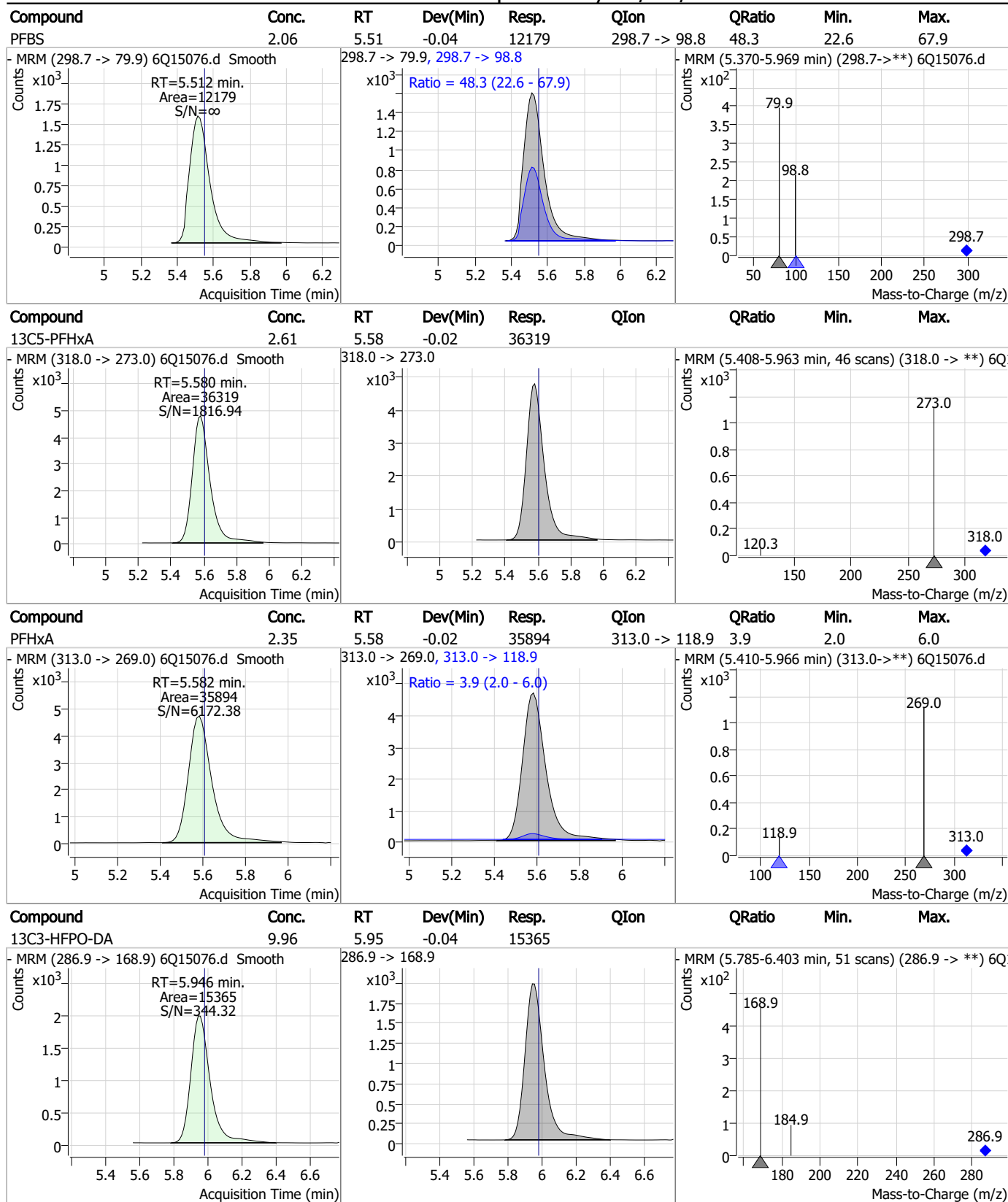


Perfluorinated Compounds by LC/MS/MS



7.7.14

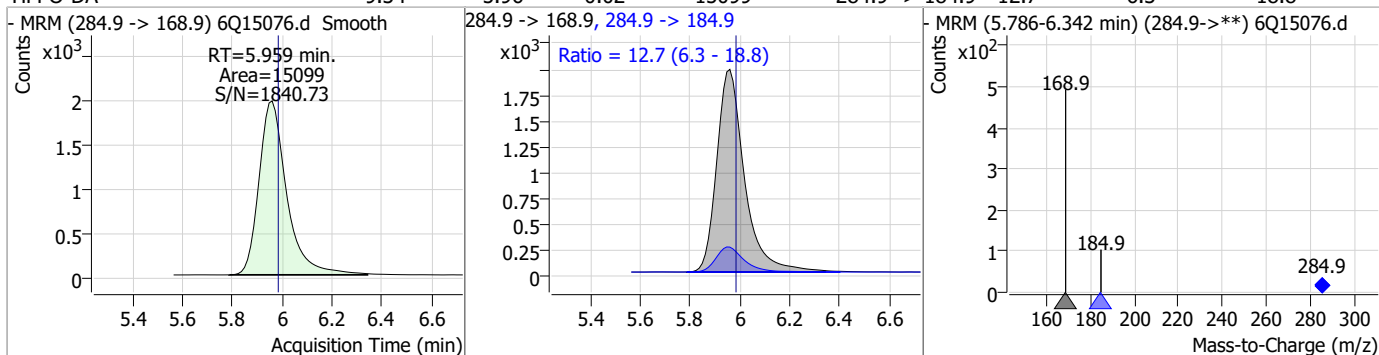
Perfluorinated Compounds by LC/MS/MS



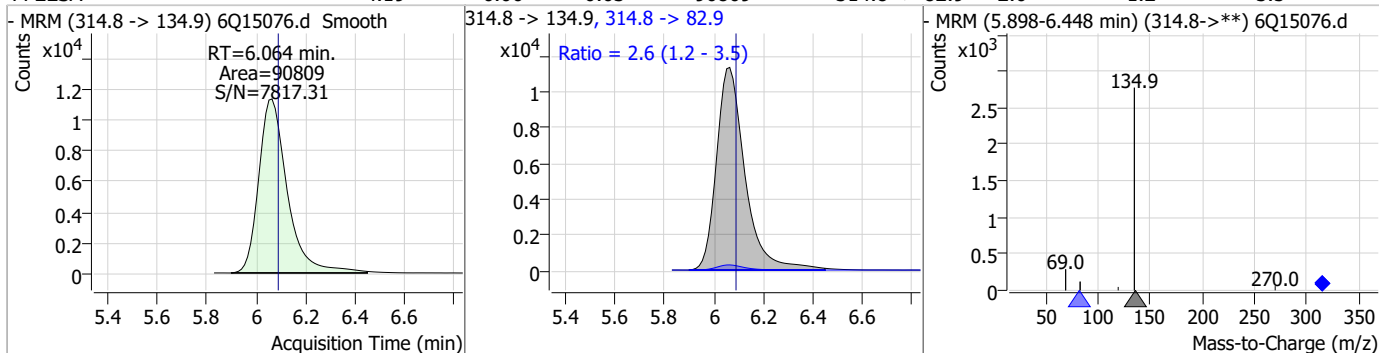
7.7.14

Perfluorinated Compounds by LC/MS/MS

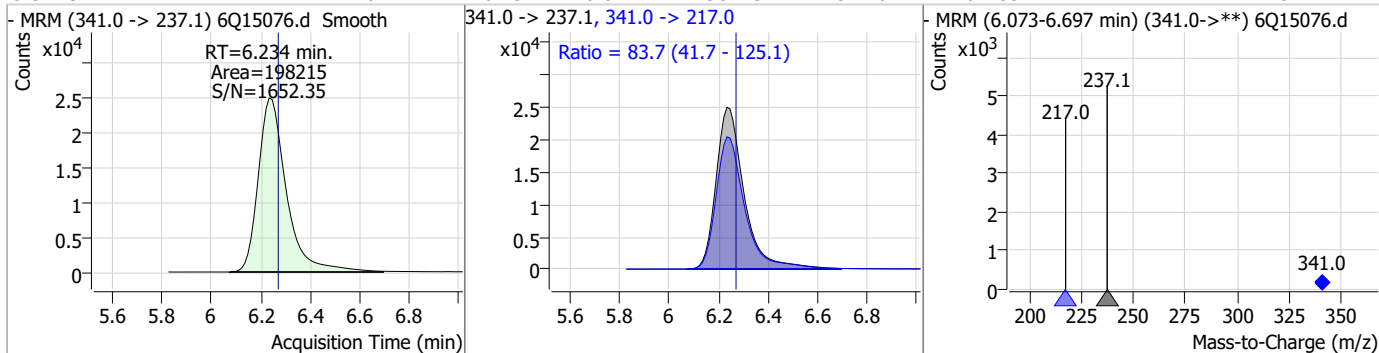
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.34	5.96	-0.02	15099	284.9 -> 184.9	12.7	6.3	18.8



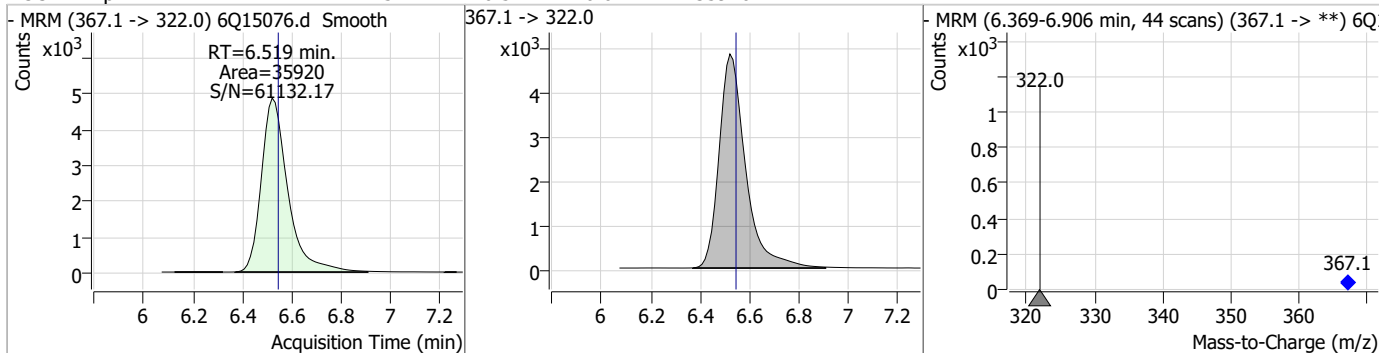
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.19	6.06	-0.03	90809	314.8 -> 82.9	2.6	1.2	3.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	64.17	6.23	-0.04	198215	341.0 -> 217.0	83.7	41.7	125.1

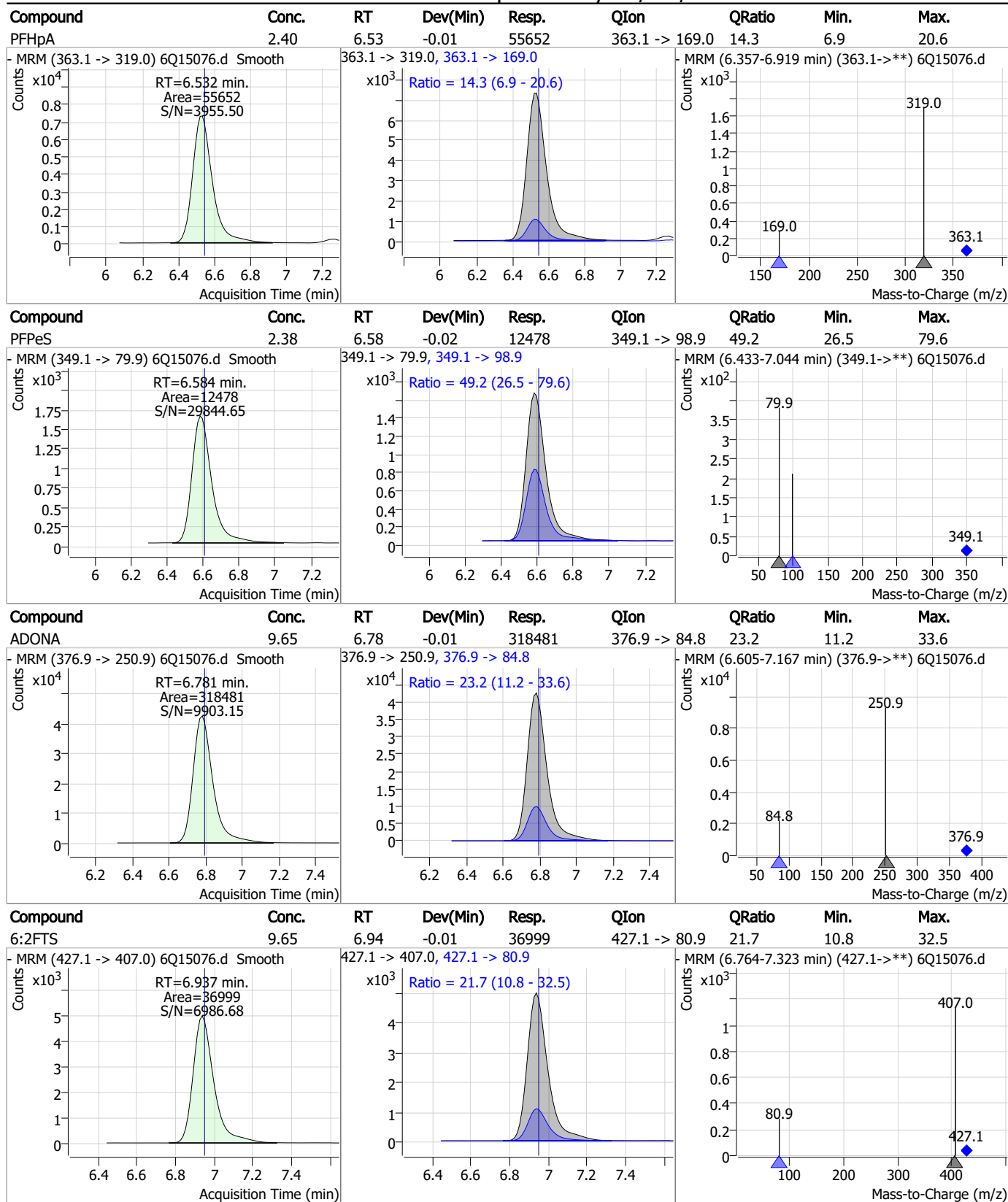


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.52	-0.02	35920	367.1 -> 322.0			



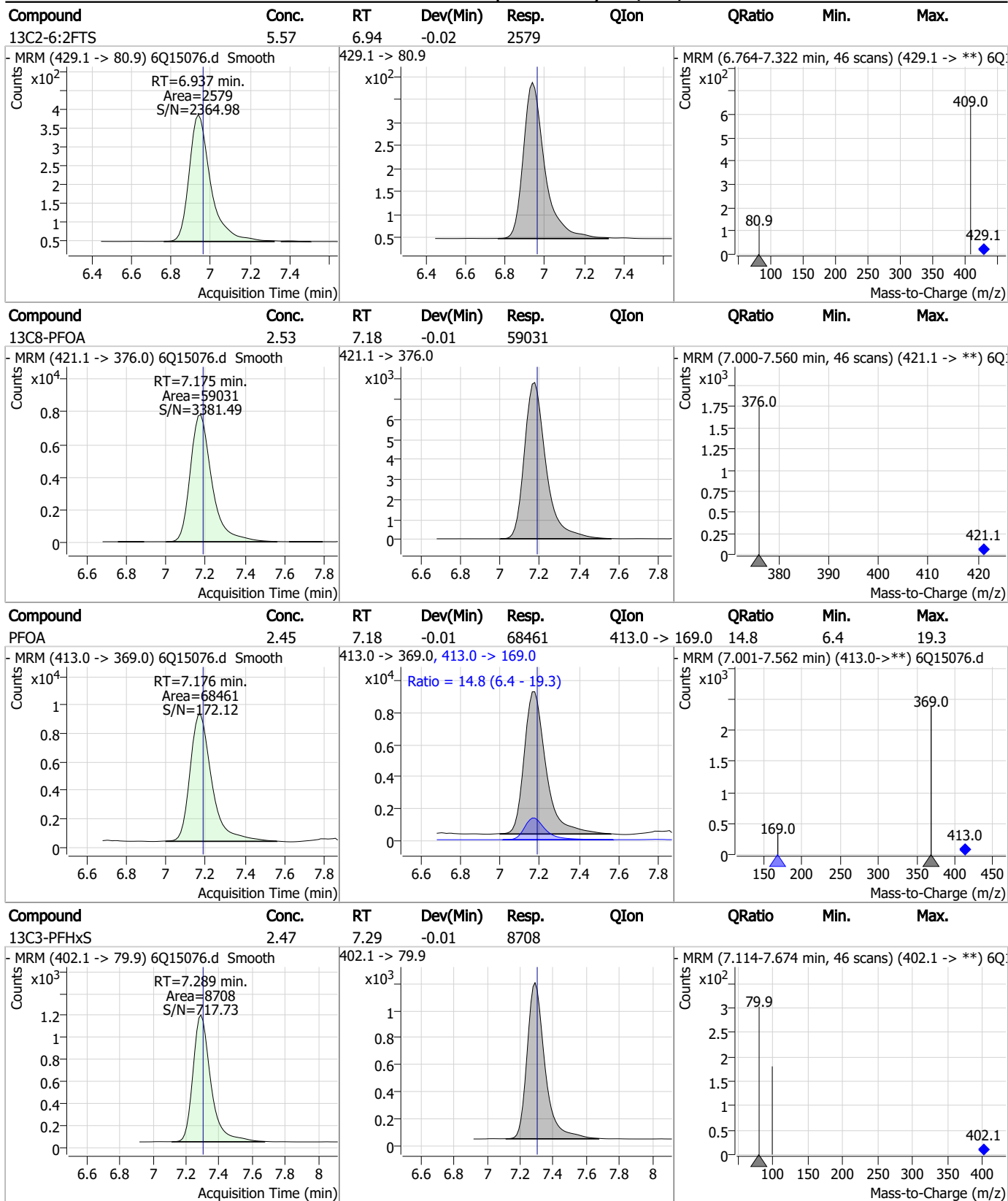
7.7.14
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Perfluorinated Compounds by LC/MS/MS



7.7.14

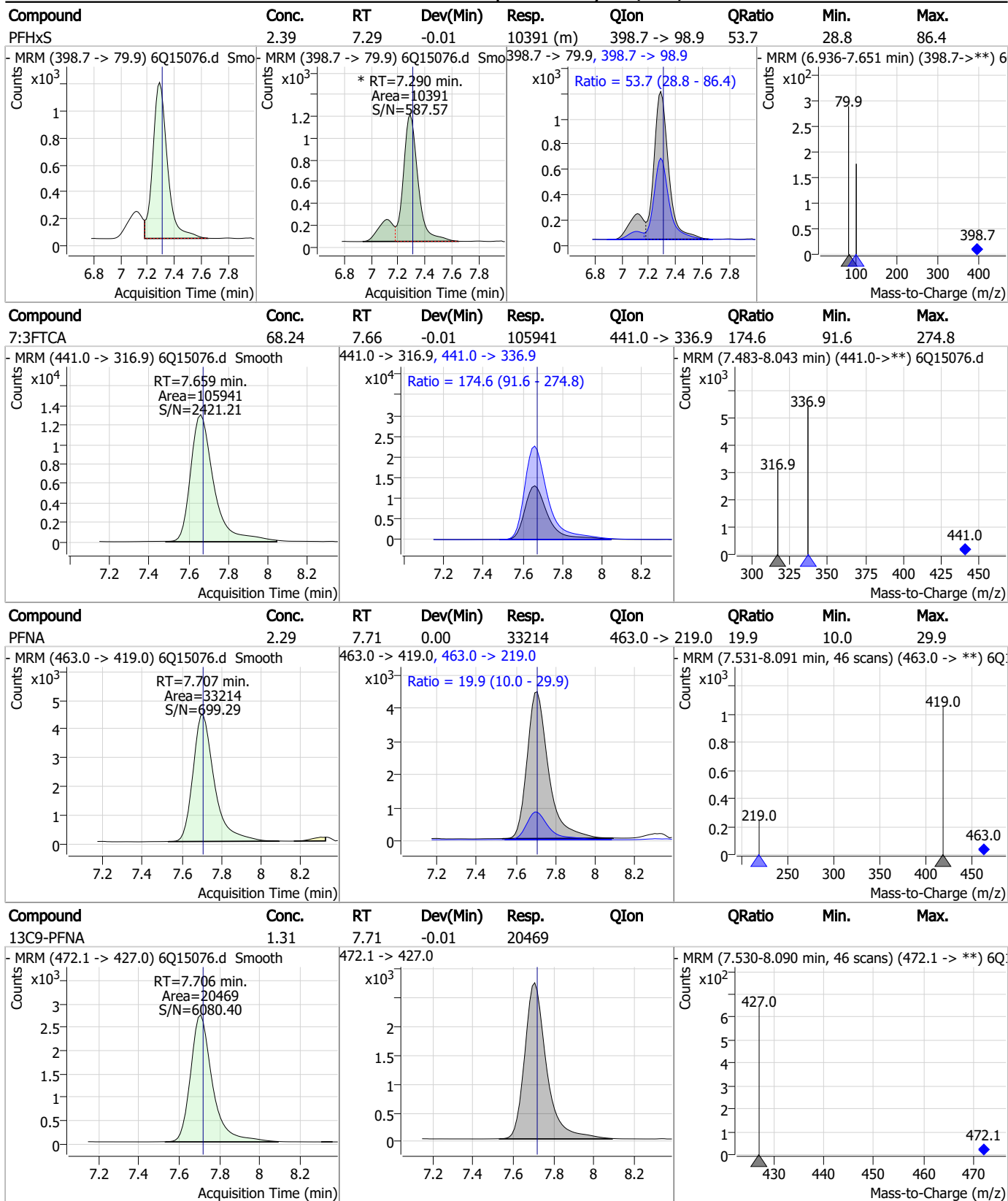
Perfluorinated Compounds by LC/MS/MS



7.7.14

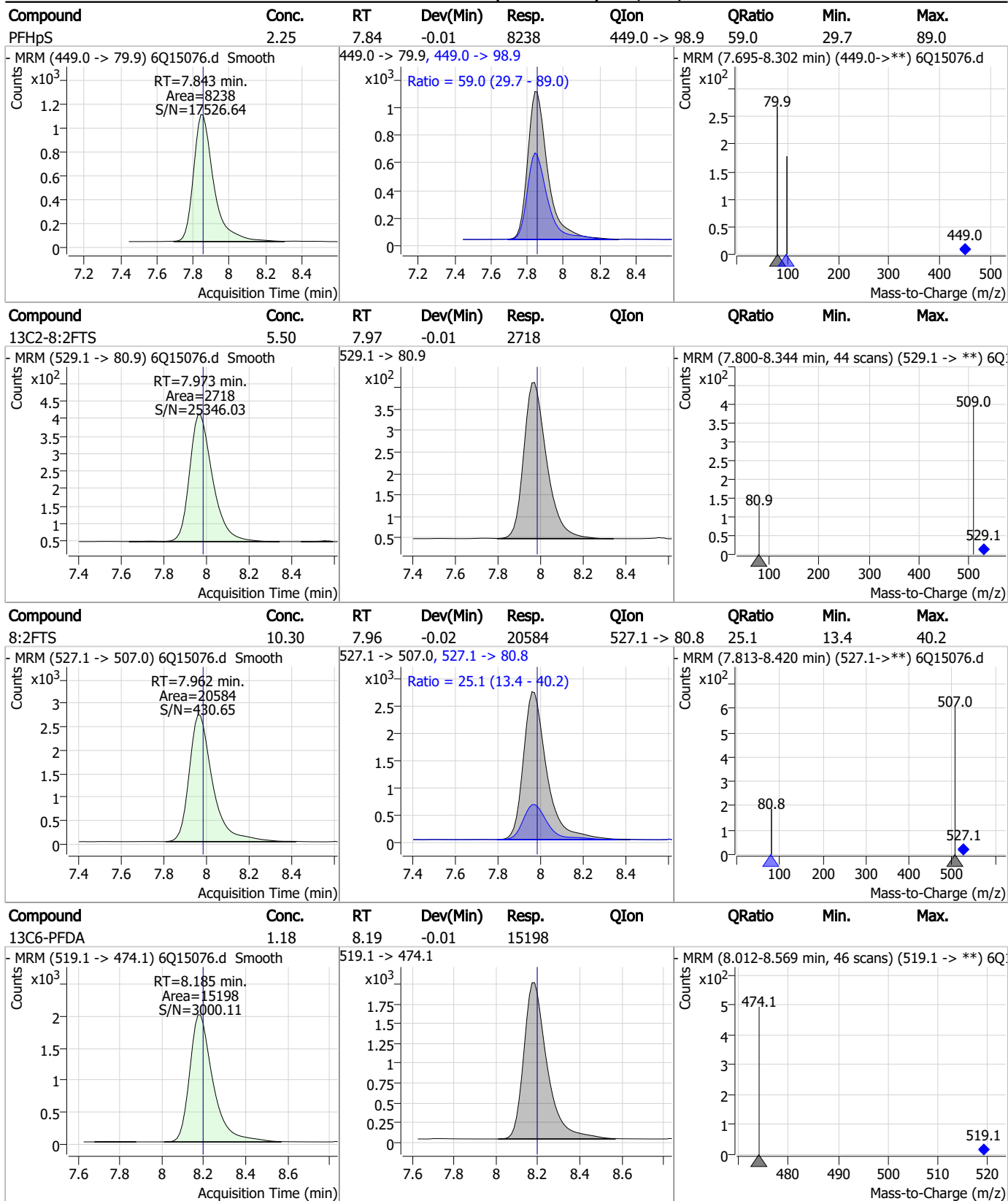
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Perfluorinated Compounds by LC/MS/MS



7.7.14

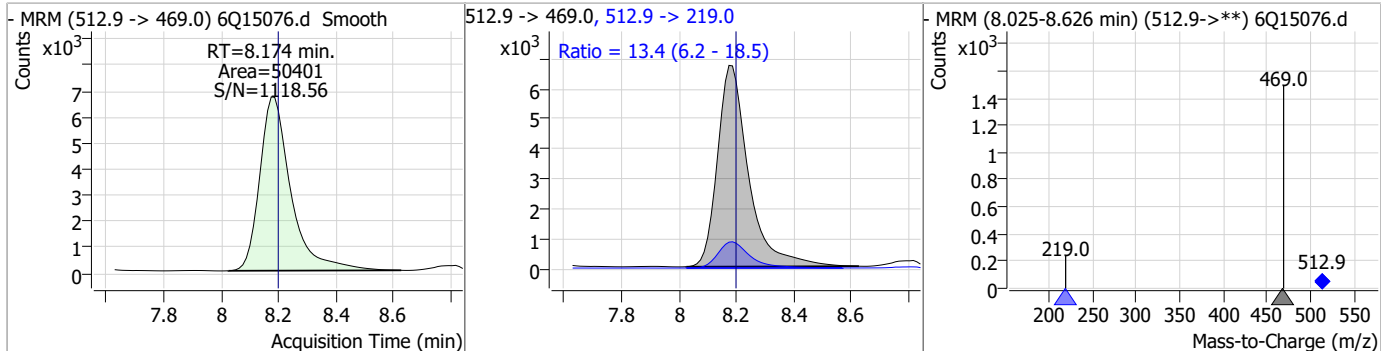
Perfluorinated Compounds by LC/MS/MS



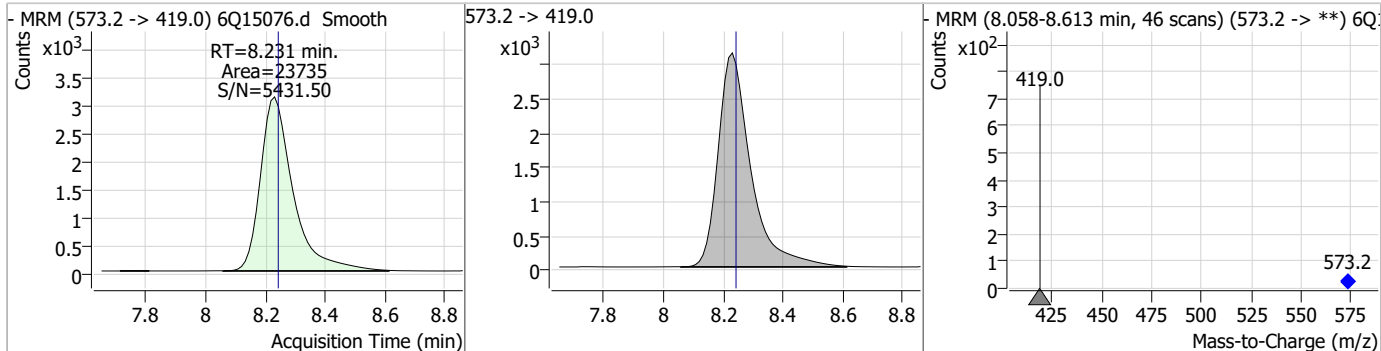
7.7.14

Perfluorinated Compounds by LC/MS/MS

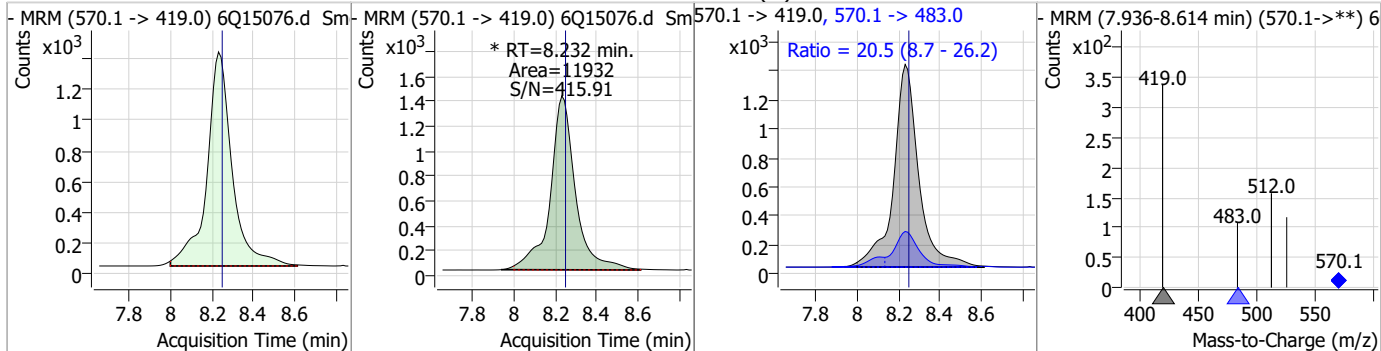
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.67	8.17	-0.02	50401	512.9 -> 219.0	13.4	6.2	18.5



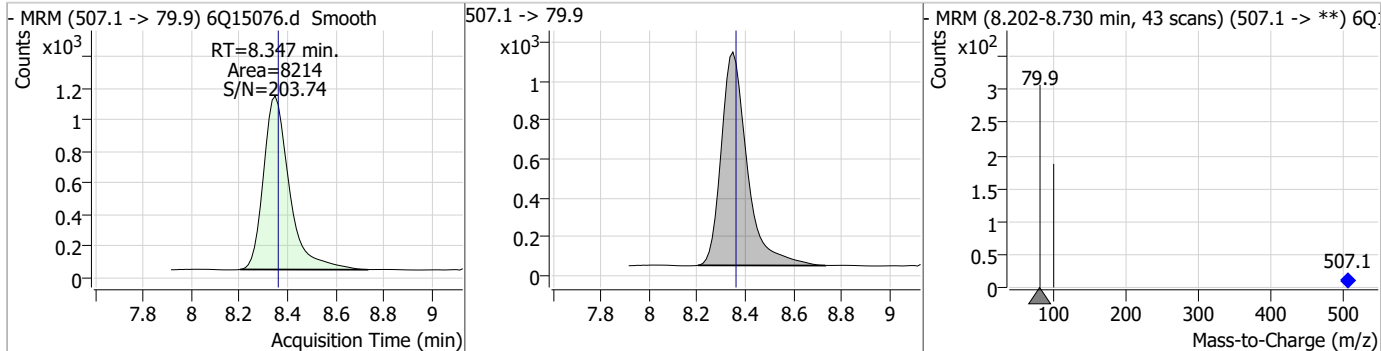
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.90	8.23	-0.01	23735				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.40	8.23	-0.01	11932 (m)	570.1 -> 483.0	20.5	8.7	26.2

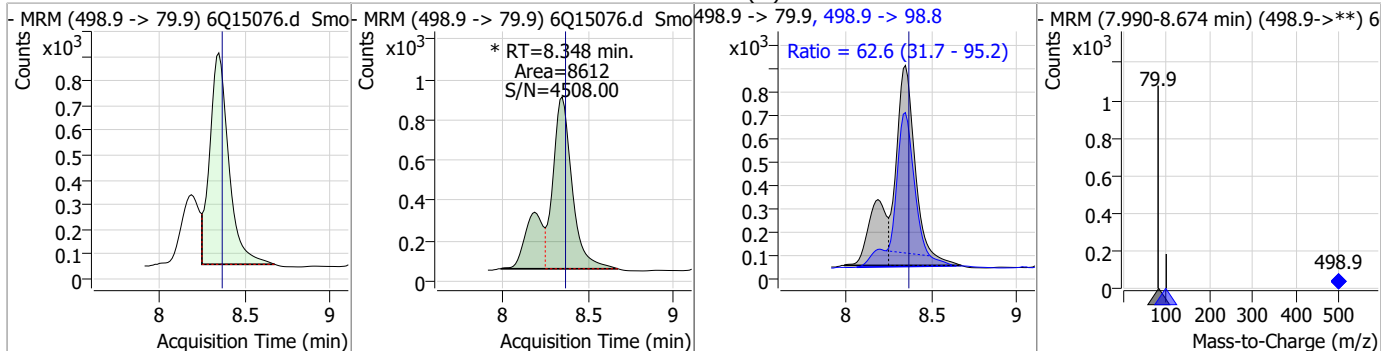


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.40	8.35	-0.01	8214				

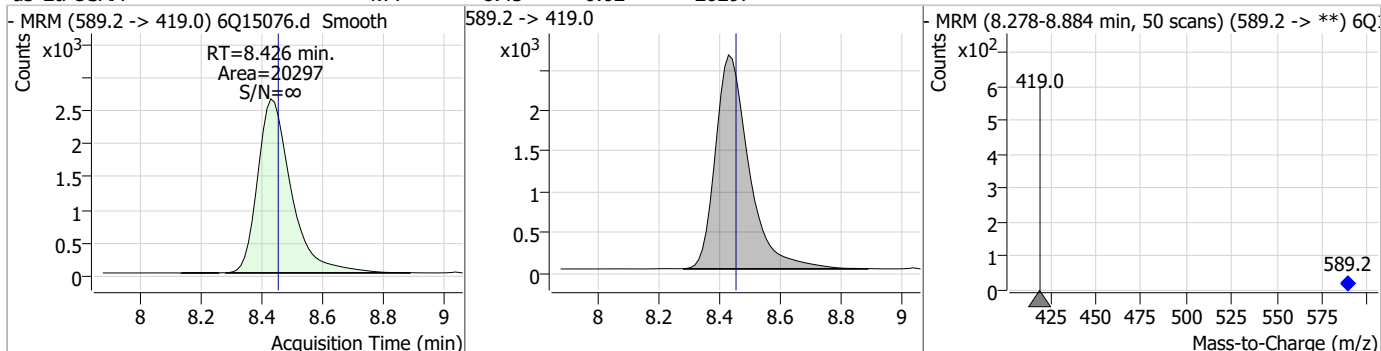


Perfluorinated Compounds by LC/MS/MS

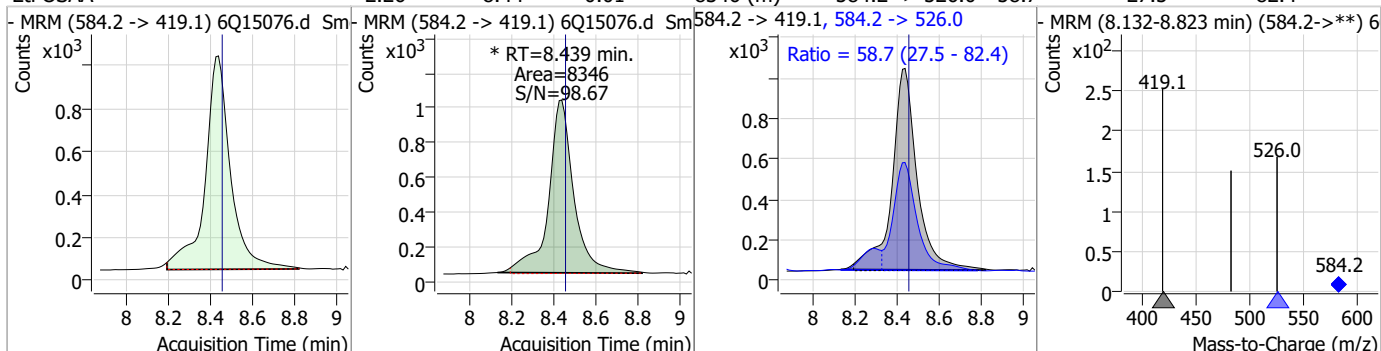
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.24	8.35	-0.01	8612 (m)	498.9 -> 98.8	62.6	31.7	95.2



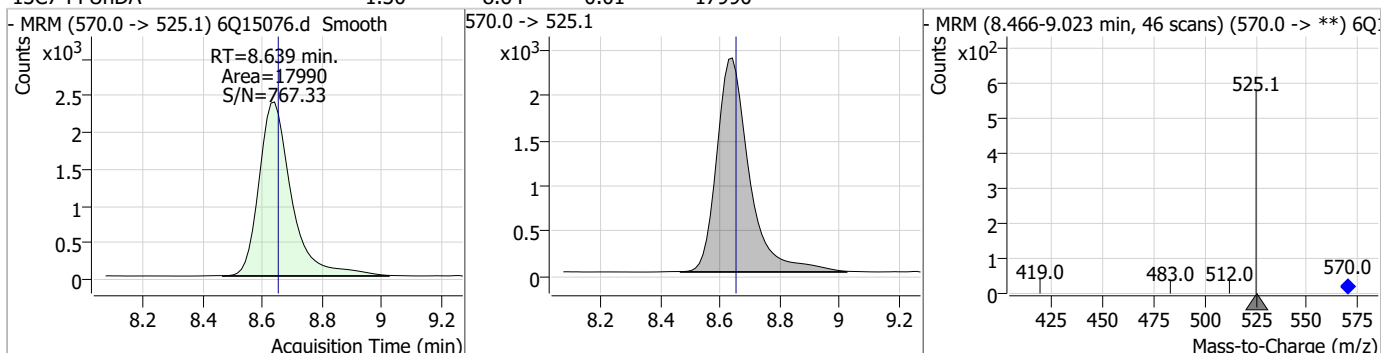
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.77	8.43	-0.02	20297				



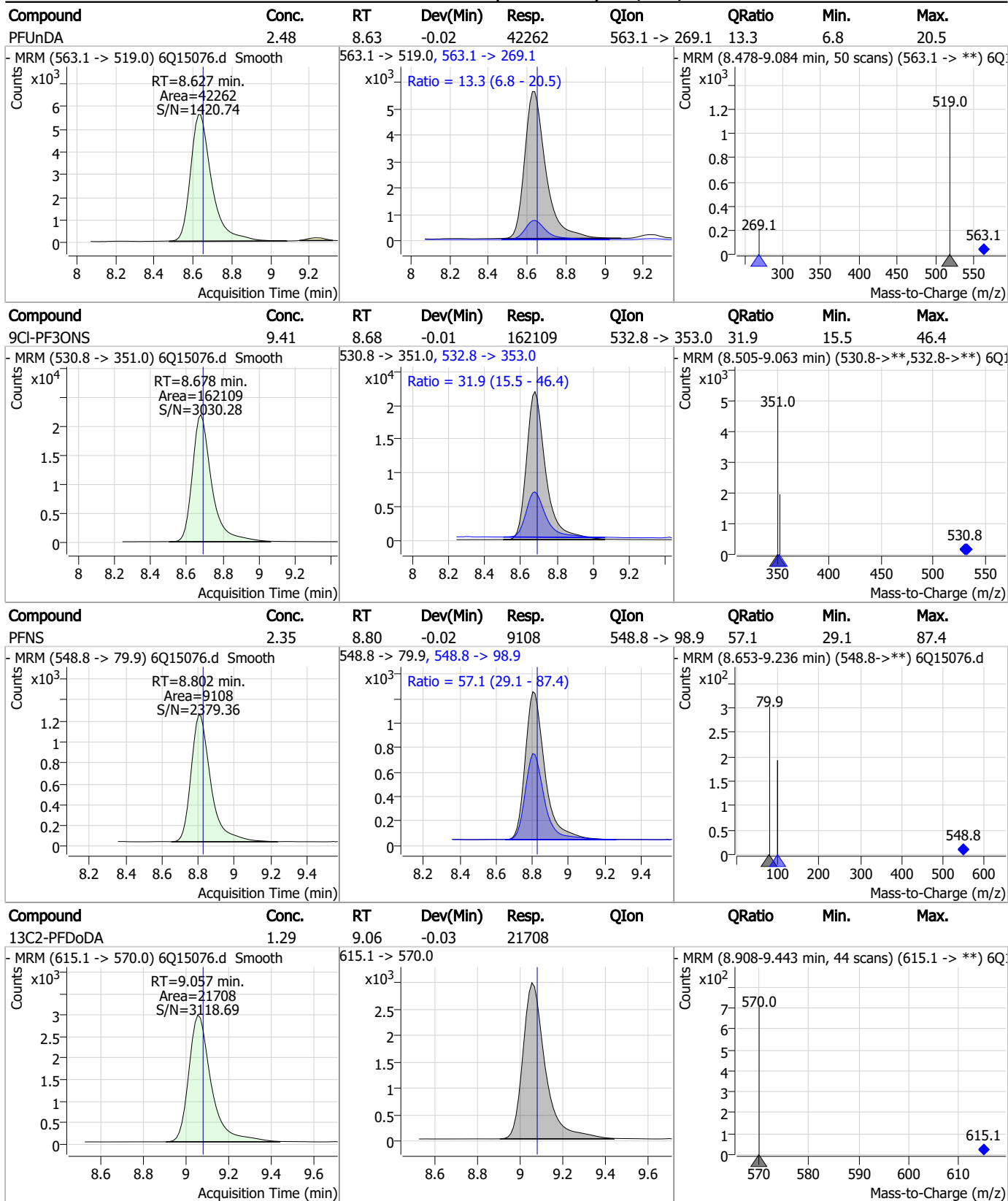
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.26	8.44	-0.01	8346 (m)	584.2 -> 526.0	58.7	27.5	82.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.30	8.64	-0.01	17990				

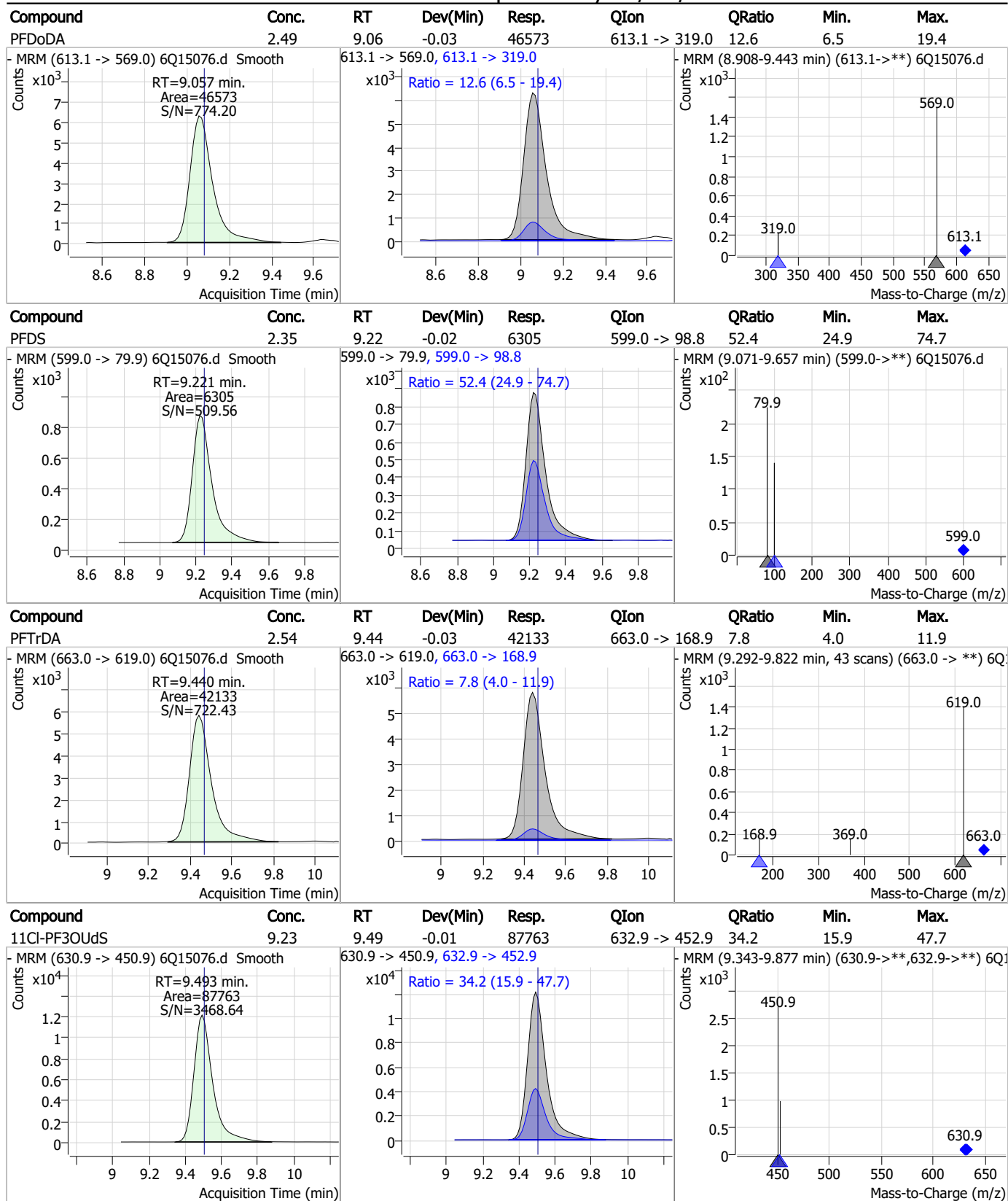


Perfluorinated Compounds by LC/MS/MS



7.7.14
7

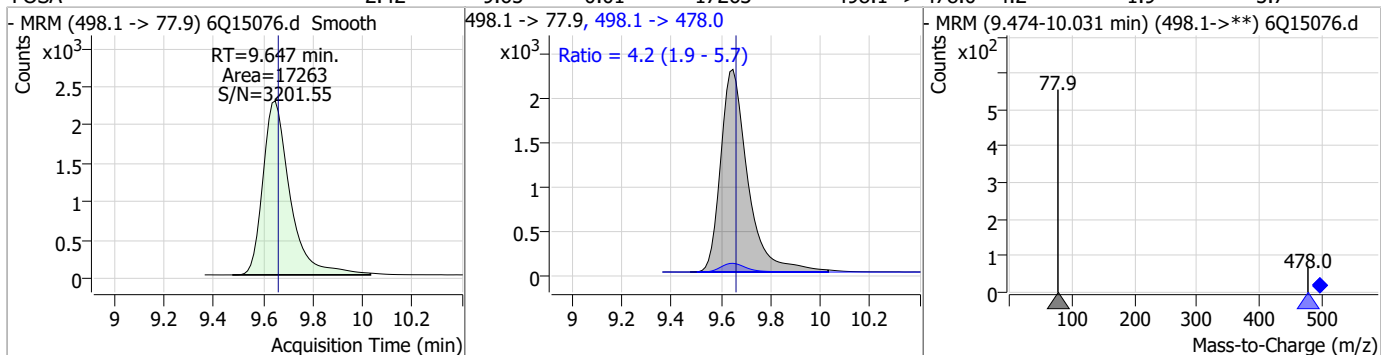
Perfluorinated Compounds by LC/MS/MS



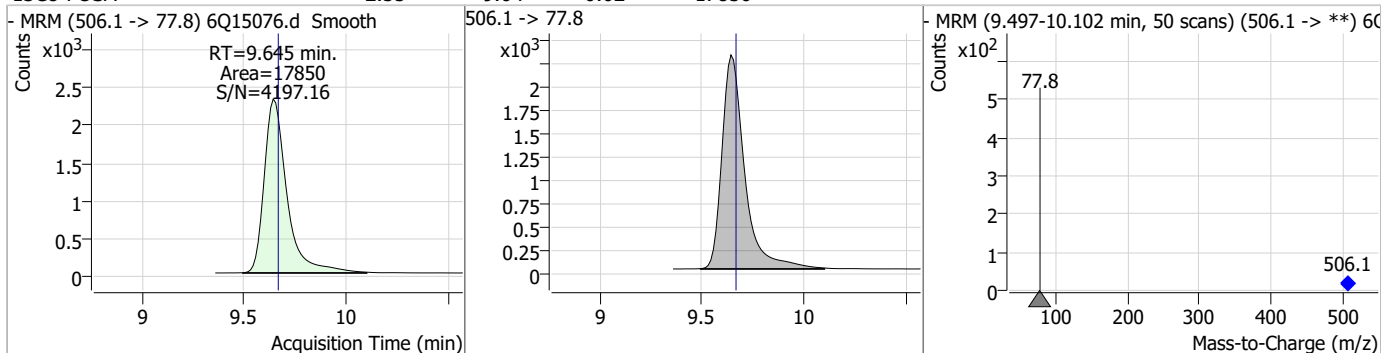
7.7.14

Perfluorinated Compounds by LC/MS/MS

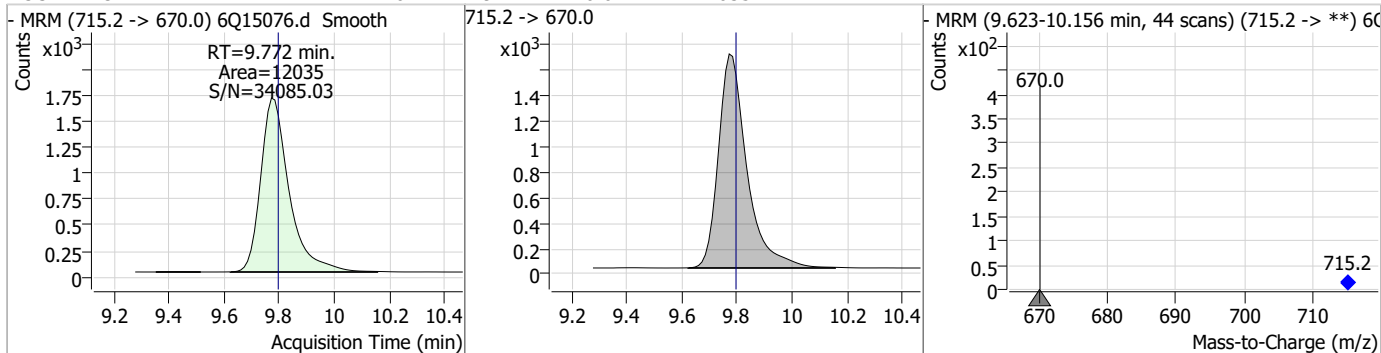
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.42	9.65	-0.01	17263	498.1 -> 478.0	4.2	1.9	5.7



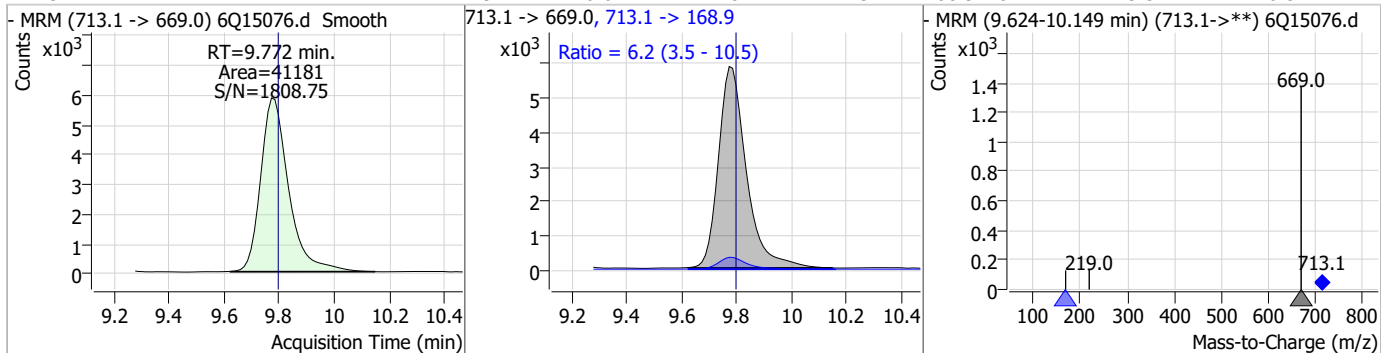
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	9.64	-0.02	17850				



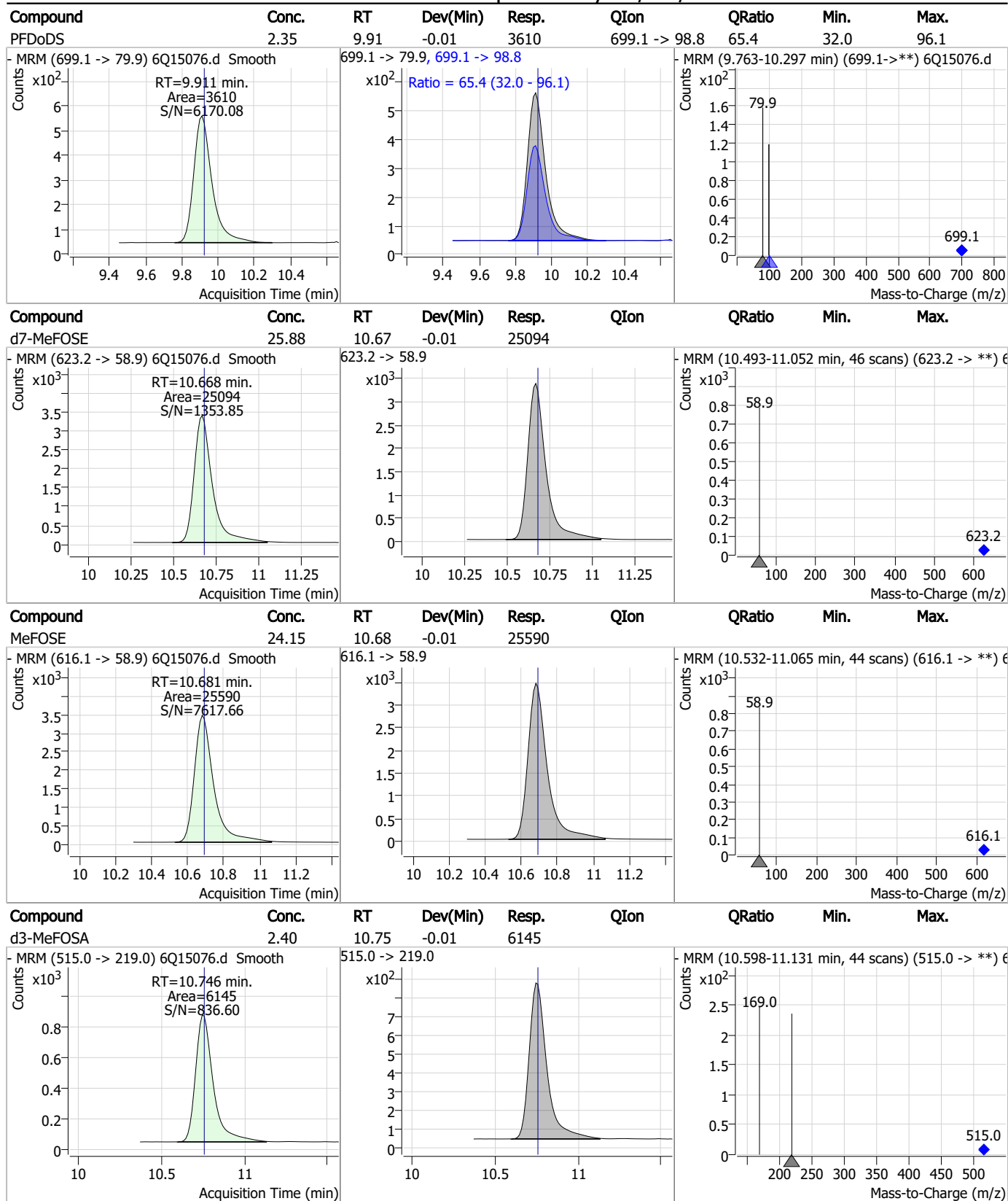
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.77	-0.02	12035				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.72	9.77	-0.02	41181	713.1 -> 168.9	6.2	3.5	10.5



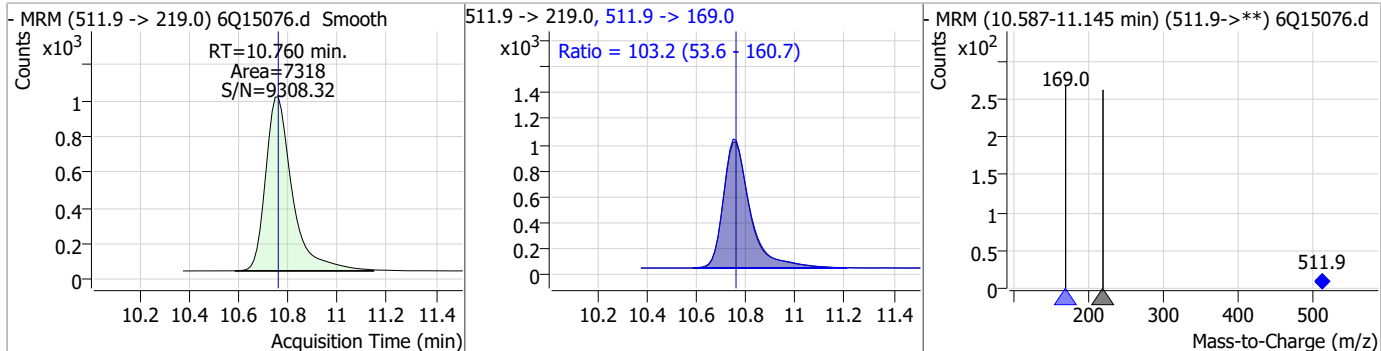
Perfluorinated Compounds by LC/MS/MS



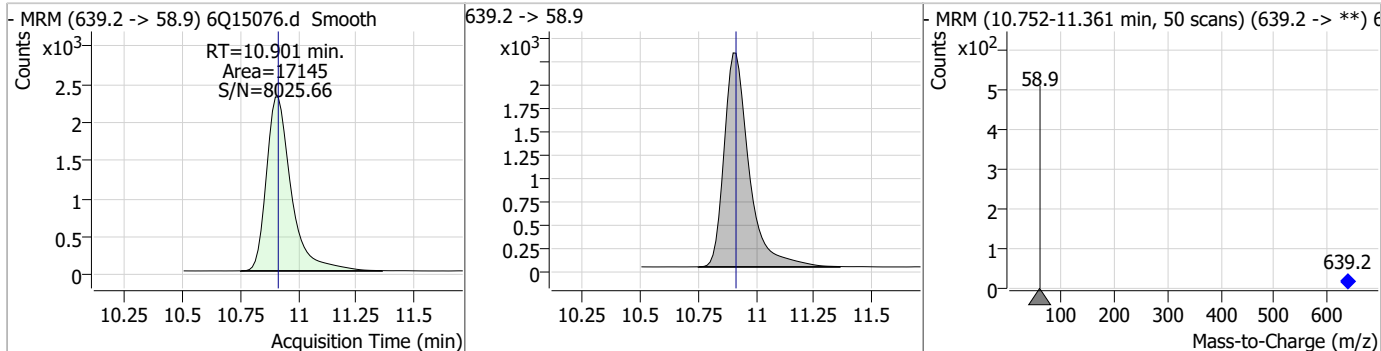
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

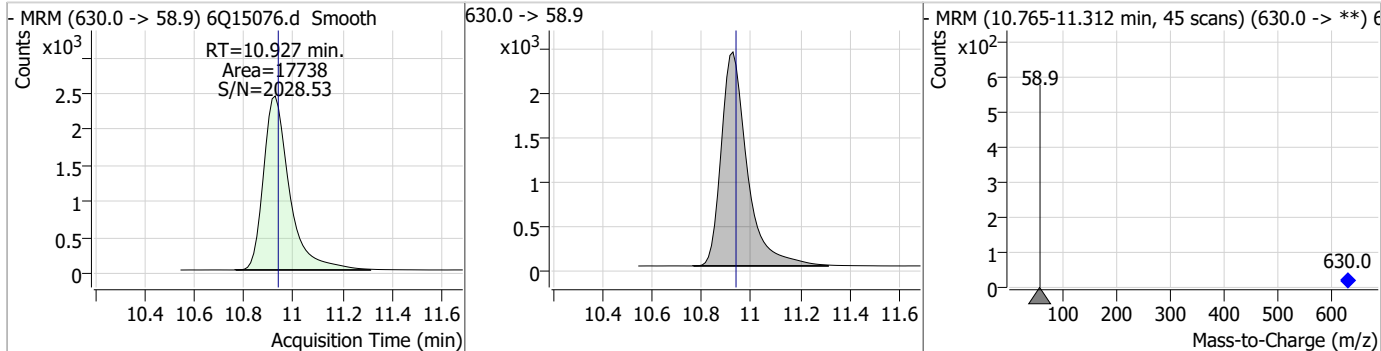
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.48	10.76	0.00	7318	511.9 -> 169.0	103.2	53.6	160.7



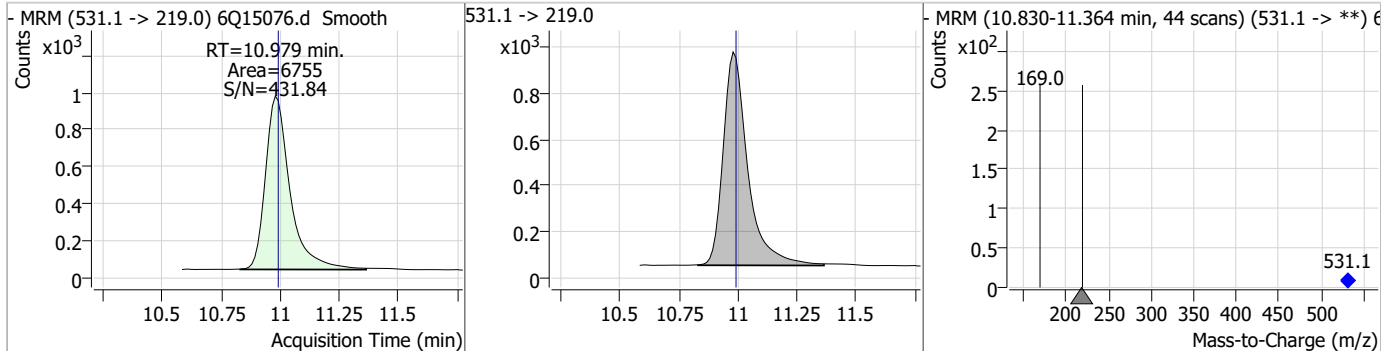
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.05	10.90	-0.01	17145				



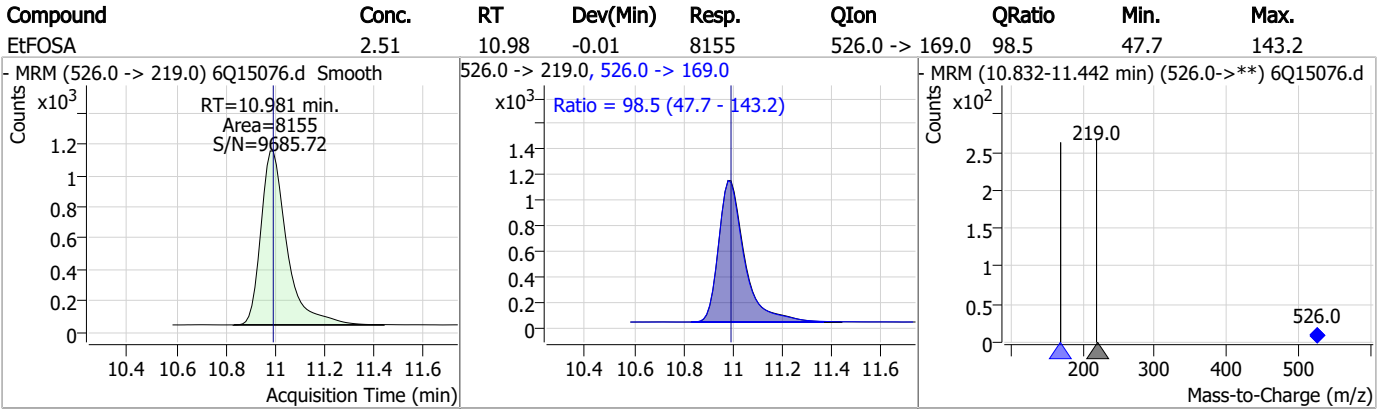
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	25.40	10.93	-0.01	17738				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.39	10.98	-0.01	6755				



Perfluorinated Compounds by LC/MS/MS



7.7.14
7

Manual Integration Approval Summary

Sample Number: S6Q228-CC225 Method: EPA DRAFT 1633
Lab FileID: 6Q15076.D Analyst approved: 03/21/23 13:24 Martha Valls
Injection Time: 03/21/23 07:06 Supervisor approved: 03/21/23 16:12 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.29	Split peak
MeFOSAA	2355-31-9		8.23	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.35	Split peak
EtFOSAA	2991-50-6		8.44	Split peak

7.7.14.1

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SGS ORLANDO

DATE:	03/15/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_031523_S6Q225
CAL DATE:	03/15/23
ANALYST:	M. Valls
RUN BATCH:	S6Q225

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W5% CAN 220225 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2083D
ICV STD LOT #:	LCMS 2073D/2071
ISTD/ID STD LOT #:	11384/11383

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q14838.d	P1-B9	CCB	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	needle cleaning, temp. check
2	6Q14839.d	P1-B9	CCB	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	↓
3	6Q14840.d	P1-B9	CCB	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	↓
4	6Q14841.d	P1-B9	CCB	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	↓
5	6Q14842.d	P1-B9	CCB	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	↓
6	6Q14843.d	P1-B9	CCB	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	↓
7	6Q14844.d	P1-B9	CCB	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	↓
8	6Q14845.d	P1-B9	CCB	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	↓
9	6Q14846.d	P1-B9	CCB	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	↓
10	6Q14847.d	P1-B3	RT TDCA	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	✓
11	6Q14848.d	P1-B4	RT BR-LN	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	✓
12	6Q14849.d	P1-A1	ic225-0	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	Check Tune File
13	6Q14850.d	P1-A2	ic225-1	1633full.m	Calibration	1.6/500	OP95881,S6Q225,500,,5.0,1,,water	✓
14	6Q14851.d	P1-A3	ic225-2	1633full.m	Calibration	4/500	OP95881,S6Q225,500,,5.0,1,,water	✓
15	6Q14852.d	P1-A4	ic225-3	1633full.m	Calibration	10/500	OP95881,S6Q225,500,,5.0,1,,water	✓
16	6Q14853.d	P1-A5	icc225-4	1633full.m	Calibration	20/500	OP95881,S6Q225,500,,5.0,1,,water	✓
17	6Q14854.d	P1-A6	ic225-5	1633full.m	Calibration	40/500	OP95881,S6Q225,500,,5.0,1,,water	✓
18	6Q14855.d	P1-A7	ic225-6	1633full.m	Calibration	100/500	OP95881,S6Q225,500,,5.0,1,,water	✓
19	6Q14856.d	P1-A8	ic225-7	1633full.m	Calibration	200/500	OP95881,S6Q225,500,,5.0,1,,water	✓
20	6Q14857.d	P1-A9	ic225-8	1633full.m	Calibration	1x	OP95881,S6Q225,500,,5.0,1,,water	✓
21	6Q14858.d	P1-A1	IBLK	1633full.m	Sample		OP95881,S6Q225,500,,5.0,1,,water	✓
22	6Q14859.d	P1-B1	icv225-4	1633full.m	QC	20/500	OP95881,S6Q225,500,,5.0,1,,water	✓
23	6Q14860.d	P1-B2	icv225-20	1633full.m	QC	100/500	OP95881,S6Q225,500,,5.0,1,,water	✓, Prepped by NG
24	6Q14861.d	P1-A5	cc225-4	1633full.m	QC	20/500	OP95881,S6Q225,500,,5.0,1,,water	✓
25	6Q14862.d	P1-A2	cc225-1,0LL	1633full.m	QC	1.6/500	OP95881,S6Q225,500,,5.0,1,,water	✓
26	6Q14863.d	P3-A1	op95856-bs	1633full.m	Sample		OP95856,S6Q225,500,,5.0,1,,soil	Windows update, rebooted
27	6Q14864.d	P3-A2	op95856-llbs:2	1633full.m	Sample		OP95856,S6Q225,500,,5.0,1,,soil	Windows update, rebooted
28	6Q14865.d	P3-A3	op95856-mb	1633full.m	Sample		OP95856,S6Q225,500,,5.0,1,,soil	Windows update, rebooted
29	6Q14866.d	P3-A4	JD61406-1	1633full.m	Sample		OP95856,S6Q225,5.03,,5.0,0.1,soil	Windows update, rebooted
30	6Q14867.d	P3-A5	JD61406-2	1633full.m	Sample		OP95856,S6Q225,4.98,,5.0,0.1,soil	Windows update, rebooted
31	6Q14868.d	P3-A6	JD61406-3	1633full.m	Sample		OP95856,S6Q225,5.05,,5.0,0.1,soil	Windows update, rebooted
32	6Q14869.d	P3-A7	op95856-ms	1633full.m	Sample		OP95856,S6Q225,5.00,,5.0,0.1,soil	Windows update, rebooted
33	6Q14870.d	P3-A8	op95856-msd	1633full.m	Sample		OP95856,S6Q225,4.96,,5.0,0.1,soil	Windows update, rebooted
34	6Q14871.d	P3-A9	JD61406-4	1633full.m	Sample		OP95856,S6Q225,5.04,,5.0,0.1,soil	Windows update, rebooted
35	6Q14872.d	P1-A5	cc225-4	1633full.m	QC	20/500	OP95881,S6Q225,500,,5.0,1,,water	Windows update, rebooted



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q14873.d	P1-A1	iccb	1633full.m	Sample	OP95881.S6Q225.500,,,5.0,1,water	Windows update, rebooted
37	6Q14874.d	P3-B1	op95880-bs	1633full.m	Sample	OP95880.S6Q225.500,,,5.0,1,water	Windows update, rebooted
38	6Q14875.d	P3-B2	op95880-llbs:2	1633full.m	Sample	OP95880.S6Q225.500,,,5.0,1,water	Windows update, rebooted
39	6Q14876.d	P3-B3	op95880-mb	1633full.m	Sample	OP95880.S6Q225.500,,,5.0,1,water	Windows update, rebooted
40	6Q14877.d	P3-B4	FC3313-1	1633full.m	Sample	OP95880.S6Q225.500,,,5.0,1,water	Windows update, rebooted
41	6Q14878.d	P3-B5	FC3313-2	1633full.m	Sample	OP95880.S6Q225.560,,,5.0,1,water	Windows update, rebooted
42	6Q14879.d	P3-B6	FC3313-3	1633full.m	Sample	OP95880.S6Q225.490,,,5.0,1,water	Windows update, rebooted
43	6Q14880.d	P3-B7	FC3313-4	1633full.m	Sample	OP95880.S6Q225.515,,,5.0,1,water	Windows update, rebooted
44	6Q14881.d	P3-B8	op95880-ms	1633full.m	Sample	OP95880.S6Q225.515,,,5.0,1,water	Windows update, rebooted
45	6Q14882.d	P3-B9	op95880-msd	1633full.m	Sample	OP95880.S6Q225.515,,,5.0,1,water	Windows update, rebooted
46	6Q14883.d	P3-C1	FC3313-5	1633full.m	Sample	OP95880.S6Q225.515,,,5.0,1,water	Windows update, rebooted
47	6Q14884.d	P1-A5	cc225-4	1633full.m	QC	20/500	Windows update, rebooted
48	6Q14885.d	P1-A1	iccb	1633full.m	Sample	OP95881.S6Q225.500,,,5.0,1,water	Windows update, rebooted
49	6Q14886.d	P3-C2	FC3313-6	1633full.m	Sample	OP95880.S6Q225.500,,,5.0,1,water	Windows update, rebooted
50	6Q14887.d	P3-C3	FC3313-7	1633full.m	Sample	OP95880.S6Q225.60,,,5.0,1,water	Windows update, rebooted
51	6Q14888.d	P3-C4	FC3313-8	1633full.m	Sample	OP95880.S6Q225.525,,,5.0,1,water	Windows update, rebooted
52	6Q14889.d	P3-C5	FC3313-9	1633full.m	Sample	OP95880.S6Q225.535,,,5.0,1,water	Windows update, rebooted
53	6Q14890.d	P3-C6	FC3313-10	1633full.m	Sample	OP95880.S6Q225.525,,,5.0,1,water	Windows update, rebooted
54	6Q14891.d	P3-C7	FC3369-1	1633full.m	Sample	OP95880.S6Q225.560,,,5.0,1,water	Windows update, rebooted
55	6Q14892.d	P3-C8	FC3369-2	1633full.m	Sample	OP95880.S6Q225.515,,,5.0,1,water	Windows update, rebooted
56	6Q14893.d	P3-C9	FC3369-3	1633full.m	Sample	OP95880.S6Q225.510,,,5.0,1,water	Windows update, rebooted
57	6Q14894.d	P3-D1	FC3369-4	1633full.m	Sample	OP95880.S6Q225.560,,,5.0,1,water	Windows update, rebooted
58	6Q14895.d	P3-D2	FC3369-5	1633full.m	Sample	OP95880.S6Q225.480,,,5.0,1,water	Windows update, rebooted
59	6Q14896.d	P1-A5	cc225-4	1633full.m	QC	20/500	Windows update, rebooted
60	6Q14897.d	P1-A2	cc225-1.0LL	1633full.m	QC	1.6/500	Windows update, rebooted
61	6Q14898.d	P1-A1	iccb	1633full.m	Sample	OP95881.S6Q225.500,,,5.0,1,water	Windows update, rebooted
62	6Q14899.d	P3-D3	FC3369-6	1633full.m	Sample	OP95880.S6Q225.500,,,5.0,1,water	Windows update, rebooted
63	6Q14900.d	P3-D4	FC3369-7	1633full.m	Sample	OP95880.S6Q225.560,,,5.0,1,water	Windows update, rebooted
64	6Q14901.d	P3-D5	FC3369-8	1633full.m	Sample	OP95880.S6Q225.510,,,5.0,1,water	Windows update, rebooted
65	6Q14902.d	P3-D6	op95881-bs	1633full.m	Sample	OP95880.S6Q225.480,,,5.0,1,water	Windows update, rebooted
66	6Q14903.d	P3-D7	op95881-llbs:3	1633full.m	Sample	OP95881.S6Q225.500,,,5.0,1,water	Windows update, rebooted
67	6Q14904.d	P3-D8	op95881-mb	1633full.m	Sample	OP95881.S6Q225.500,,,5.0,1,water	Windows update, rebooted
68	6Q14905.d	P3-D9	FC3312-1	1633full.m	Sample	OP95881.S6Q225.560,,,5.0,1,water	Windows update, rebooted
69	6Q14906.d	P3-E1	FC3315-1	1633full.m	Sample	OP95881.S6Q225.550,,,5.0,1,water	Windows update, rebooted
70	6Q14907.d	P3-E2	FC3315-2	1633full.m	Sample	OP95881.S6Q225.550,,,5.0,1,water	Windows update, rebooted
71	6Q14908.d	P3-E3	FC3315-3	1633full.m	Sample	OP95881.S6Q225.570,,,5.0,1,water	Windows update, rebooted
72	6Q14909.d	P1-A5	cc225-4	1633full.m	QC	20/500	Windows update, rebooted
73	6Q14910.d	P1-A1	iccb	1633full.m	Sample	OP95881.S6Q225.500,,,5.0,1,water	Windows update, rebooted
74	6Q14911.d	P3-E4	FC3315-4	1633full.m	Sample	OP95881.S6Q225.570,,,5.0,1,water	Windows update, rebooted
75	6Q14912.d	P3-E5	FC3315-5	1633full.m	Sample	OP95881.S6Q225.570,,,5.0,1,water	Windows update, rebooted
76	6Q14913.d	P3-E6	FC3315-6	1633full.m	Sample	OP95881.S6Q225.560,,,5.0,1,water	Windows update, rebooted
77	6Q14914.d	P3-E7	FC3315-7	1633full.m	Sample	OP95881.S6Q225.570,,,5.0,1,water	Windows update, rebooted
78	6Q14915.d	P3-E8	FC3315-8	1633full.m	Sample	OP95881.S6Q225.560,,,5.0,1,water	Windows update, rebooted



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

79	6Q14916.d	P3-E9	FC3328-1	1633full.m	Sample	OP95881,S6Q225,520,,,5.0,1,water	Windows update, rebooted
80	6Q14917.d	P3-F1	FC3329-1	1633full.m	Sample	OP95881,S6Q225,530,,,5.0,1,water	Windows update, rebooted
81	6Q14918.d	P3-F2	FC3346-1	1633full.m	Sample	OP95881,S6Q225,500,,,5.0,1,water	Windows update, rebooted
82	6Q14919.d	P1-A5	cc225-4	1633full.m	QC	OP95881,S6Q225,500,,,5.0,1,water	Windows update, rebooted
83	6Q14920.d	P1-A1	iccb	1633full.m	Sample	OP95881,S6Q225,500,,,5.0,1,water	Windows update, rebooted
84	6Q14921.d	P3-F3	FC3371-1	1633full.m	Sample	OP95881,S6Q225,570,,,5.0,1,water	Windows update, rebooted
85	6Q14922.d	P3-F4	op95881-rms	1633full.m	Sample	OP95881,S6Q225,560,,,5.0,1,water	Windows update, rebooted
86	6Q14923.d	P3-F5	op95881-rmsd	1633full.m	Sample	OP95881,S6Q225,550,,,5.0,1,water	Windows update, rebooted
87	6Q14924.d	P3-F6	FC3371-2	1633full.m	Sample	OP95881,S6Q225,570,,,5.0,1,water	Windows update, rebooted
88	6Q14925.d	P3-F7	FC3371-3	1633full.m	Sample	OP95881,S6Q225,570,,,5.0,1,water	Windows update, rebooted
89	6Q14926.d	P3-F8	FC3371-4	1633full.m	Sample	OP95881,S6Q225,570,,,5.0,1,water	Windows update, rebooted
90	6Q14927.d	P3-F9	FC3371-5	1633full.m	Sample	OP95881,S6Q225,570,,,5.0,1,water	Windows update, rebooted
91	6Q14928.d	P1-E1	FC3371-6	1633full.m	Sample	OP95881,S6Q225,570,,,5.0,1,water	Windows update, rebooted
92	6Q14929.d	P1-E2	FC3371-7	1633full.m	Sample	OP95881,S6Q225,570,,,5.0,1,water	Windows update, rebooted
93	6Q14930.d	P1-A5	cc225-4	1633full.m	QC	OP95881,S6Q225,500,,,5.0,1,water	Windows update, rebooted
94	6Q14931.d	P1-A1	iccb	1633full.m	Sample	OP95881,S6Q225,500,,,5.0,1,water	Windows update, rebooted

SGS ORLANDO

DATE:	03/21/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_031523_S6Q225
CAL DATE:	03/15/23
ANALYST:	M. Valls
RUN BATCH:	S6Q228

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W5% CAN 220225 2mM AMAC: 11387
IC/CC STD LOT #:	LCMS 2083D
ICV STD LOT #:	LCMS 2073D/2071
ISTD/ID STD LOT #:	11384/11383

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q15010.d	P1-A1	CCB	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
2	6Q15011.d	P1-A1	CCB	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
3	6Q15012.d	P1-A1	CCB	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
4	6Q15013.d	P1-B3	RT TDCA	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
5	6Q15014.d	P1-B4	RT BR-LN	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
6	6Q15015.d	P1-A9	high std	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
7	6Q15016.d	P1-A1	IBLK	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
8	6Q15017.d	P1-A5	cc225-4	1633full.m	QC	20/500	OP95881,S6Q228,500,,,5.0,1,water	✓
9	6Q15018.d	P1-A2	cc225-1.0LL	1633full.m	QC	1.6/500	OP95881,S6Q228,500,,,5.0,1,water	✓
10	6Q15019.d	P2-A1	FC3313-3	1633full.m	Sample	250/500	OP95880,S6Q228,490,,,5.0,2,water	✓
11	6Q15020.d	P2-A2	FC3313-4	1633full.m	Sample	250/500	OP95880,S6Q228,515,,,5.0,2,water	✓
12	6Q15021.d	P2-A3	op95880-ms	1633full.m	Sample	250/500	OP95880,S6Q228,515,,,5.0,2,water	✓
13	6Q15022.d	P2-A4	op95880-msd	1633full.m	Sample	250/500	OP95880,S6Q228,515,,,5.0,2,water	✓
14	6Q15023.d	P2-A5	FC3313-6	1633full.m	Sample	50/500	OP95880,S6Q228,60,,,5.0,10,water	redo for low suir.
15	6Q15024.d	P2-A6	FC3313-7	1633full.m	Sample	250/500	OP95880,S6Q228,525,,,5.0,2,water	✓
16	6Q15025.d	P2-A7	FC3313-8	1633full.m	Sample	250/500	OP95880,S6Q228,535,,,5.0,2,water	✓
17	6Q15026.d	P2-A8	FC3313-10	1633full.m	Sample	100/500	OP95880,S6Q228,525,,,5.0,5,water	✓
18	6Q15027.d	P2-A9	FC3369-3	1633full.m	Sample	50/500	OP95880,S6Q228,510,,,5.0,10,water	✓
19	6Q15028.d	P2-B1	FC3369-6	1633full.m	Sample		OP95880,S6Q228,560,,,5.0,10,water	+ redo lower volum
20	6Q15029.d	P1-A5	cc225-4	1633full.m	QC	20/500	OP95881,S6Q228,500,,,5.0,1,water	✓
21	6Q15030.d	P1-A1	iccb	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
22	6Q15031.d	P2-B2	FC3369-7	1633full.m	Sample	50/500	OP95880,S6Q228,510,,,5.0,10,water	✓
23	6Q15032.d	P2-B3	jd61784-2	1633full.m	Sample	100/500	OP95901,S6Q228,550,,,5.0,5,water	✓
24	6Q15033.d	P2-B4	jd61784-3	1633full.m	Sample	50/500	OP95901,S6Q228,560,,,5.0,10,water	✓
25	6Q15034.d	P2-B5	op95901-ms	1633full.m	Sample	50/500	OP95901,S6Q228,570,,,5.0,10,water	✓
26	6Q15035.d	P2-B6	op95901-msd	1633full.m	Sample	50/500	OP95901,S6Q228,570,,,5.0,10,water	✓
27	6Q15036.d	P2-B7	jd61784-4	1633full.m	Sample	50/500	OP95901,S6Q228,560,,,5.0,10,water	✓
28	6Q15037.d	P2-B8	jd61784-7	1633full.m	Sample	100/500	OP95901,S6Q228,550,,,5.0,5,water	✓
29	6Q15038.d	P2-B9	jd61784-8	1633full.m	Sample	50/500	OP95901,S6Q228,570,,,5.0,10,water	✓
30	6Q15039.d	P2-C1	jd61784-11	1633full.m	Sample	50/500	OP95901,S6Q228,570,,,5.0,10,water	✓
31	6Q15040.d	P2-C2	jd61784-12	1633full.m	Sample	100/500	OP95901,S6Q228,560,,,5.0,5,water	✓
32	6Q15041.d	P1-A5	cc225-4	1633full.m	QC	20/500	OP95881,S6Q228,500,,,5.0,1,water	✓
33	6Q15042.d	P1-A1	iccb	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
34	6Q15043.d	P2-C3	jd61784-13	1633full.m	Sample	100/500	OP95901,S6Q228,560,,,5.0,5,water	✓
35	6Q15044.d	P2-C4	jd61784-14	1633full.m	Sample	100/500	OP95901,S6Q228,570,,,5.0,5,water	✓



LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

36	6Q15045.d	P2-C5	jd61784-15	1633full.m	Sample	100/500	OP95901,S6Q228,550,,,5.0,1,water	✓
37	6Q15046.d	P2-C6	jd61784-15	1633full.m	Sample	100/500	OP95901,S6Q228,550,,,5.0,5,water	✓
38	6Q15047.d	P2-C7	jd61184-1a	1633full.m	Sample	50/500	OP95902,S6Q228,455,,,5.0,10,water	✓
39	6Q15048.d	P2-C8	jd61184-2a	1633full.m	Sample	50/500	OP95902,S6Q228,495,,,5.0,10,water	✓
40	6Q15049.d	P2-C9	jd61633-2	1633full.m	Sample	50/500	OP95902,S6Q228,455,,,5.0,10,water	✓
41	6Q15050.d	P2-D1	jd61633-3	1633full.m	Sample	100/500	OP95902,S6Q228,415,,,5.0,5,water	✓
42	6Q15051.d	P2-D2	jd61633-5	1633full.m	Sample	100/500	OP95902,S6Q228,510,,,5.0,5,water	✓
43	6Q15052.d	P2-D3	jd61633-8	1633full.m	Sample	50/500	OP95902,S6Q228,495,,,5.0,10,water	✓
44	6Q15053.d	P1-A5	cc225-4	1633full.m	QC	20/500	OP95881,S6Q228,500,,,5.0,1,water	✓
45	6Q15054.d	P1-A2	cc225-1,0LL	1633full.m	QC	1.6/500	OP95881,S6Q228,500,,,5.0,1,water	✓
46	6Q15055.d	P1-A1	iccb	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
47	6Q15056.d	P2-D4	jd61633-10	1633full.m	Sample	50/500	OP95902,S6Q228,525,,,5.0,10,water	✓
48	6Q15057.d	P2-D5	jd61633-11	1633full.m	Sample	100/500	OP95902,S6Q228,510,,,5.0,5,water	✓
49	6Q15058.d	P2-D6	jd61633-12	1633full.m	Sample	100/500	OP95902,S6Q228,200,,,5.0,5,water	✓
50	6Q15059.d	P2-D7	jd61633-13	1633full.m	Sample	100/500	OP95902,S6Q228,510,,,5.0,5,water	✓
51	6Q15060.d	P2-D8	jd61633-14	1633full.m	Sample	50/500	OP95902,S6Q228,520,,,5.0,10,water	✓
52	6Q15061.d	P2-D9	op95902-ms	1633full.m	Sample	50/500	OP95902,S6Q228,520,,,5.0,10,water	✓
53	6Q15062.d	P2-E1	op95902-msd	1633full.m	Sample	50/500	OP95902,S6Q228,520,,,5.0,10,water	✓
54	6Q15063.d	P2-E2	FC3369-7	1633full.m	Sample	50/500	OP95880,S6Q228,510,,,5.0,10,water	✓
55	6Q15064.d	P1-A5	cc225-4	1633full.m	QC	20/500	OP95881,S6Q228,500,,,5.0,1,water	✓
56	6Q15065.d	P1-A1	iccb	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
57	6Q15066.d	P2-E3	op95927-bs	1633full.m	Sample		OP95927,S6Q228,500,,,5.0,1,water	✓
58	6Q15067.d	P2-E4	op95927-llbs:3	1633full.m	Sample		OP95927,S6Q228,500,,,5.0,1,water	✓
59	6Q15068.d	P2-E5	op95927-mb	1633full.m	Sample		OP95927,S6Q228,500,,,5.0,1,water	✓
60	6Q15069.d	P2-E6	FC3427-1	1633full.m	Sample		OP95927,S6Q228,560,,,5.0,1,water	✓
61	6Q15070.d	P2-E7	FC3427-2	1633full.m	Sample		OP95927,S6Q228,540,,,5.0,1,water	✓
62	6Q15071.d	P2-E8	op95927-ms	1633full.m	Sample		OP95927,S6Q228,550,,,5.0,1,water	✓
63	6Q15072.d	P2-E9	FC3427-3	1633full.m	Sample		OP95927,S6Q228,550,,,5.0,1,water	✓
64	6Q15073.d	P2-F1	op95927-dup	1633full.m	Sample		OP95927,S6Q228,540,,,5.0,1,water	✓
65	6Q15074.d	P2-F2	FC3427-4	1633full.m	Sample		OP95927,S6Q228,570,,,5.0,1,water	✓
66	6Q15075.d	P2-F3	FC3427-5	1633full.m	Sample		OP95927,S6Q228,540,,,5.0,1,water	✓
67	6Q15076.d	P1-A5	cc225-4	1633full.m	QC	20/500	OP95881,S6Q228,500,,,5.0,1,water	✓
68	6Q15077.d	P1-A1	iccb	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓
69	6Q15078.d	P2-F4	FC3464-1	1633full.m	Sample		OP95927,S6Q228,500,,,5.0,1,water	✓
70	6Q15079.d	P2-F5	FC3464-2	1633full.m	Sample		OP95927,S6Q228,570,,,5.0,1,water	✓
71	6Q15080.d	P2-F6	op95925-bs	1633full.m	Sample		OP95927,S6Q228,570,,,5.0,1,water	✓
72	6Q15081.d	P2-F7	op95925-llbs:2	1633full.m	Sample		OP95925,S6Q228,500,,,5.0,1,water	✓
73	6Q15082.d	P2-F8	op95925-mb	1633full.m	Sample		OP95925,S6Q228,500,,,5.0,1,water	✓
74	6Q15083.d	P2-F9	JD61307-3	1633full.m	Sample		OP95925,S6Q228,550,,,5.0,1,water	✓
75	6Q15084.d	P3-A1	op95925-ms	1633full.m	Sample		OP95925,S6Q228,500,,,5.0,1,water	✓
76	6Q15085.d	P3-A2	FC3282-5	1633full.m	Sample		OP95925,S6Q228,60,,,5.0,1,water	✓
77	6Q15086.d	P1-A5	cc225-4	1633full.m	QC	20/500	OP95881,S6Q228,500,,,5.0,1,water	✓
78	6Q15087.d	P1-A1	iccb	1633full.m	Sample		OP95881,S6Q228,500,,,5.0,1,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

79	6Q15088.d	P3-A3	op95923-bs	1633full.m	Sample	OP95923,S6Q228,60,,,5.0.1,water	✓
80	6Q15089.d	P3-A4	op95923-llbs:2	1633full.m	Sample	OP95923,S6Q228,60,,,5.0.1,water	✓
81	6Q15090.d	P3-A5	op95923-mb	1633full.m	Sample	OP95923,S6Q228,60,,,5.0.1,water	✓
82	6Q15091.d	P3-A6	JD60842-10AR	1633full.m	Sample	OP95923,S6Q228,60,,,5.0.1,water	✓
83	6Q15092.d	P3-A7	op95923-ms	1633full.m	Sample	OP95923,S6Q228,60,,,5.0.1,water	✓
84	6Q15093.d	P3-A8	JD60842-11AR	1633full.m	Sample	OP95923,S6Q228,60,,,5.0.1,water	✓
85	6Q15094.d	P3-A9	op95923-dup	1633full.m	Sample	OP95923,S6Q228,60,,,5.0.1,water	✓
86	6Q15095.d	P3-B1	JD60842-14AR	1633full.m	Sample	OP95923,S6Q228,60,,,5.0.1,water	✓
87	6Q15096.d	P1-A5	ecc225-4	1633full.m	QC	20/500	✓
88	6Q15097.d	P1-A1	iccb	1633full.m	Sample	OP95881,S6Q228,500,,,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 2083	1633 spike (cal. std)	11638	PFAC-MxH	Wellington	8-8-27	2-22-24	1-4 ppm	250NL	4mL	62.5 125 250ppb	1033 mix	3/6/23	9/16/23	MW
		11639	PFAC-MxI		9-14-26	2-22-24	1-10 ppm	250NL		62.5 125ppb				
		11058	PFAC-MxI		1-11-25	2-22-24	2 ppm	500NL		250ppb				
		11659A	PFAC-MxI		2-1-27	2-22-24	2 ppm	250NL		125ppb				
		11641	PFAC-MxG		9-14-26	2-22-24	4-20 ppm	312NL		312/1100 ppb				
		11628B	PFAC-MxJ											
		11642A	PFAC-MxJ											

* based on date opened as specified in each SGS - Orlando SOP. ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819 Page 22 of 50

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 2071	SPIKE FULL list std.	11606	PFOA DOD 28	Absolute	11/9/27	2/7/24	1.0ppm	200uL	2.0mL	100ppb	95% meth + 5% H2O	2/16/23	3/21/23	MW
		LCMS 1987	40LIST PAPPAL 20# #1	SGS std.		3/21/23	1.0ppm	200uL						
		LCMS 1986	40LIST AKA ON #2			4/18/23	1.0ppm	200uL						
		LCMS 2012	FOSS #1			5/11/23	5.0ppm	200uL		500ppb				
LCMS 2072	A-C 1633 (spike) Cal std.	11599	PFAC-MxH	Wilmington	8/8/27	2/7/24	1-4 ppm	250uL	4mL	62.5 250ppb	1633 MIX	2/20/23	8/20/23	MV
		11491	PFAC-MxI		9/14/26	2/7/24	1-10 ppm	250uL		62.5 250ppb				
		11600	PFAC-MxF		1/11/25	2/20/24	2ppm	500uL		250ppb				
		11489	PFAC-MxG		2/22/27	2/7/24	2ppm	250uL		125ppb				
		11602	PFAC-MxJ		12/1/27	2/20/24	4-20 ppm	312uL		312/100 ppb				
LCMS 2073 A-D	1633 spike Cal std.	11599	PFAC-MxH	Wilmington	8/8/27	2/7/24	1-4 ppm	250uL	4mL	62.5 250ppb	1633 MIX	2/22/23	8/22/23	MV
		11638	PFAC-MxI		8/18/27	2/22/24	ppm	250uL		62.5 250ppb				
		11600	PFAC-MxF		9/14/26	2/20/24	1-10 ppm	250uL		62.5 250ppb				
		11639	PFAC-MxG		9/14/26	2/22/24	ppm	250uL		250ppb				
		11627B	PFAC-MxH		11/11/25	2/20/24	2ppm	500uL		250ppb				
		11640AB	PFAC-MxJ		1/11/25	2/22/24	2ppm	250uL		125ppb				
		11602	PFAC-MxI		12/11/27	2/20/24	2ppm	250uL		312/100 ppb				
		11641	PFAC-MxG		12/11/27	2/22/24	4-20 ppm	312uL		ppb				
		1168B	PFAC-MxH		9/14/26	2/7/24	4-20 ppm							
		11628A	PFAC-MxJ		9/14/26	2/22/24	ppm							
					NS	02/23/23								

* 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 1987	40 List Std ADD-ON #1	10736A	10'2 PF3	Wellington Labs	03/03/26	03/31/23	50ppm	80uL	4.0mL	1ppm	05/NEOH S/1470	10/18/22	03/21/23	NG
		10840	PF20S		07/08/26	10/18/23								
		10889	N-HFOSA		08/03/26	08/23/23								
		10837	N-HFOSA		08/03/26	08/23/23								
		10843	PF-HADA	NS Vend	09/30/26	10/18/23								
		10841	PFODA		05/01/26	10/18/23								
		10681A	3:3FPCA		11/12/25	03/21/23								
		10685A	PFPPA		11/12/25	05/12/23								
		10683A	7:3FPCA		11/12/25	05/18/23								
		11117	PFEC1HS		10/14/26	06/23/23								
		10762B	PFEE5A		05/12/25	10/18/23								
		10763B	PF50HA		03/21/25	10/18/23								
		10764A	PFMFA		03/21/25	03/21/23								
		10765B	PFHDA		03/21/25	10/18/23								
			3:6 PF-10A											
						10/18/22								

* 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 1985A-B	List 40 isotope ADD-ON	11333	D7-N-MEFOSE	Wellington Labs	01/27/27	10/12/23	50ppm	200uL	2.0mL	15 ppm	95/MCOH 5% H ₂ O	10/18/22	04/18/23	NGS
→	↓	11339	D9-N-EFOSE	↓	01/27/27	10/12/23	↓	200uL	↓	↓	↓	↓	↓	NGS
→	↓	11115	D2- PERHDA	↓	11/23/28	08/23/23	↓	40uL	↓	↓	↓	↓	↓	NGS
→	↓	10836	D-N-EFOSA	↓	12/30/25	08/23/23	↓	40uL	↓	↓	↓	↓	↓	NGS
LCMS 1986	40 List Std. ADD-ON #2	11224	FBSA-1	Wellington Labs	11/10/26	06/22/23	50ppm	80uL	4.0mL	1ppm	95/MCOH 5% H ₂ O	10/18/22	04/18/23	NGS
→	↓	11225	FHSA-1	↓	12/29/26	06/22/23	50ppm	80uL	↓	↓	↓	↓	↓	NGS
→	↓	11140	L-PRFS	↓	01/22/26	05/26/23	50ppm	80uL	↓	↓	↓	↓	↓	NGS
NG 10/18/22														

* 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 A 2009 B	PFC SPIKE	11483	PTOADD (2800000)	Wellington Labs	08/05/27	11/08/23	1.0ppm	2mL	5mL	400ppb	95/MEOH 5% H2O	11/08/22	05/08/23	NG
		10839	N-HE-TOSA-M		08/23/26	09/23/23	50ppm	40uL						NG
		11294	PBSA-1		11/10/26	06/23/23								NG
		11249	FHXSA-1		12/29/26	11/03/23								NG
		11332	PFCHS		03/28/27	10/18/23								NG
LCMS A-B 2010	(SPIKE) 1623 CAL STD.	10855F	PFAC-MXH	Wellington Labs	09/14/26	11/04/23	1-4 ppm	250uL	4mL	62.5/125/250 ppb	1623 Mix	11/09/22	05/10/23	NG
		10853E	PFAC-MXI		09/14/26	11/04/23	1-10 ppm	250uL		62.5/125 ppb				NG
		10856I	PFAC-MXF		05/10/23	05/10/23	2 ppm	500uL		250ppb				NG
		10854E	PFAC-MXG		03/04/25	11/04/23	2 ppm	250uL		125ppb				NG
		10857D	PFAC-MXS		10/12/23	11/02/23	4-20 ppm	312uL		212/1160 ppb				NG
LCMS 2011	(SPIKE) FULL LIST STD.	11440	PROA-DON(28)	Absolute	08/05/27	10/24/23	1.0ppm	400uL	4.0mL	100ppb	95/MEOH 5% H2O	11/11/22	02/11/23	NG
		LCMS 1987	40 LIST ADDON #1			02/21/23	1.0ppm	400uL		100ppb				NG
		LCMS 1986	40 LIST ADDON #2			01/18/23	1.0ppm	400uL		100ppb				NG
		LCMS 2012	FOSE STD.			05/11/23	50ppm	400uL		500ppb				NG
LCMS 2012	FOSE STD.	11336	N-ET-FOSE	Wellington Labs	05/13/27	09/19/23	50ppm	200uL	2.0mL	5ppm	95/MEOH 5% H2O	11/11/22	05/11/23	NG
		11336	N-HE-FOSE		05/13/27	09/19/23	50ppm	200uL						NG

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

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

11599
rec'd 01/10/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0822
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 08/05/2022
LAST TESTED: (mm/dd/yyyy) 08/08/2022
EXPIRY DATE: (mm/dd/yyyy) 08/08/2027
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₉, C₁₀ and C₁₂ linear; C₆ and C₈ linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

PFACMXH0822 (1 of 11)
rev0

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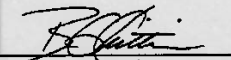
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Table A: PFAC-MXH; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment In Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFFHpA	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	PFDaA	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
		as the salt	as the acid	
Potassium perfluoro-1-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanedisulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFFHpS	1000	953	12
Potassium perfluorooctanedisulfonate ^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-decanedisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanedisulfonate	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-perfluorodecanedisulfonate	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)

11600
rec'd 01/10/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXI

**Native Perfluorooctanesulfonamide
and Perfluorooctanesulfonamidoethanol
Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXI
<u>LOT NUMBER:</u>	PFACMXI0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

PFACMXI0921 (1 of 5)
rev0

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Table A: PFAC-MXI; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By: 
 B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

11602
rec'd 01/10/23



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.

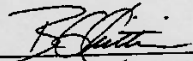
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Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

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)

7.9.1
 7

11618 A-B rec'd 01/19/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

**Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

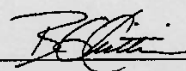
PFACMXJ0921 (1 of 5)
rev1

7.9.1
7

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)

11627 A-B
rec'd 01/26/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0122
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 01/10/2022
LAST TESTED: (mm/dd/yyyy) 01/11/2022
EXPIRY DATE: (mm/dd/yyyy) 01/11/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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

PFACMXF0122 (1 of 5)
rev0

7.9.1

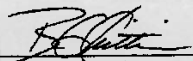
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

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-dioxanonanoate	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)

11628 A-B
rec'd 01/26/23



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

PFACMXJC921 (1 of 5)
rev1

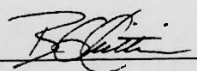
7.9.1

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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)

11638
rec'd 02/06/23



WELLINGTON LABORATORIES

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, C₅, 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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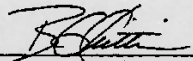
7.9.1
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Table A: PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butyric 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
		as the salt	as the acid	
Potassium perfluoro-1-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanedisulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFFpS	1000	953	12
Potassium perfluorooctanedisulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanedisulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanedisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanedisulfonate	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-perfluorodecanedisulfonate	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:  Date: 08/09/2022
(mm/dd/yyyy)
 B.G. Chittim, General Manager

11639
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXI

**Native Perfluorooctanesulfonamide
and Perfluorooctanesulfonamidoethanol
Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXI
<u>LOT NUMBER:</u>	PFACMXI0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). 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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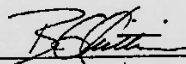
PFACMXI0921 (1 of 5)
rev0

7.9.1
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Table A: PFAC-MXI; Components and Concentrations ($\mu\text{g/mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g/mL}$)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By:


 B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

11640 A-B
rev'd: 02/06/23



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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PFACMXF0122 (1 of 5)
rev0

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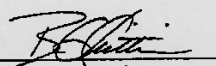
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxananoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By:


B.G. Chittim, General Manager

Date: 01/12/2022
(mm/dd/yyyy)

11641
rec'd: 02/06/23



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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PFACMXG1122 (1 of 5)
rev0

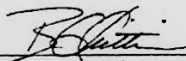
7.9.1
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Table A: PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

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)

11642 A-B
rec'd: 02/06/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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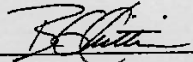
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXJ:0921 (1 of 5)
rev1

7.9.1
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Table A: PFAC-MXJ; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By: 
 B.G. Chittim, General Manager

Date: 10/02/2021
(m/mcd/yyyy)

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

PFACMX.0921 (3 of 5)
 rev1

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11657 rec'd: 02/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0822
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 08/05/2022
LAST TESTED: (mm/dd/yyyy) 08/08/2022
EXPIRY DATE: (mm/dd/yyyy) 08/08/2027
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₈, C₁₀ and C₁₂ linear; C₈ and C₉ 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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PFACMXH0822 (1 of 11)
rev0

7.9.1
7

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
		as the salt	as the acid	
Potassium perfluoro-1-butanefulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	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-perfluorodecanesulfonate	8:2FTS	4000	3840	16

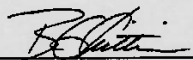
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^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)

11658 rec'd 02/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXI

Native Perfluorooctanesulfonamide and Perfluorooctanesulfonamidoethanol Solution/Mixture

PRODUCT CODE: PFAC-MXI
LOT NUMBER: PFACMXI0921
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-MXI is a solution/mixture of two native perfluorooctanesulfonamides (FOSAs) and two native perfluorooctanesulfonamidoethanols (FOSEs). 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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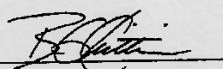
PFACMXI0921 (1 of 5)
rev0

7.9.1
7

Table A: PFAC-MXI; Components and Concentrations ($\mu\text{g}/\text{mL}$; $\pm 5\%$ in methanol)

Compound	Acronym	Concentration ($\mu\text{g}/\text{mL}$)	Peak Assignment in Figure 1
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00	B
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00	D
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	N-MeFOSE	10.0	A
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	N-EtFOSE	10.0	C

Certified By:


B.G. Chittim, General Manager

Date: 09/23/2021
(mm/dd/yyyy)

11659 A-B rec'd: 02/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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

PFACMXF0122 (1 of 5)
rev0

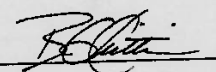
7.9.1

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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-dioxanonanoate	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)

7.9.1
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11660 rec'd: 02/20/23



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


PFACMXG1122 (1 of 5)
revD

7.9.1
7

Table A: PFAC-MXG; Components and Concentrations (ng/mL; $\pm 5\%$ 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.

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B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

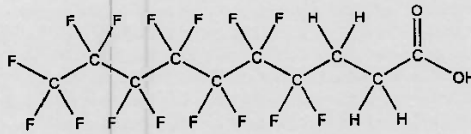
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₉F₁₅O₂

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)

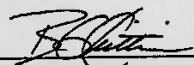
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 11/27/2020
(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPrPA

LOT NUMBER:

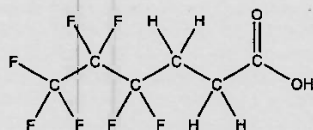
FPrPA1020

COMPOUND:

3-Perfluoropropyl propanoic acid

STRUCTURE:**CAS #:**

356-02-5

**MOLECULAR FORMULA:** $C_6H_5F_7O_2$ **MOLECULAR WEIGHT:**

242.09

CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/mL}$ **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.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_8H_5F_7O_2$) as an impurity determined by ^{19}F NMR.

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Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA

LOT NUMBER:

FPePA1120

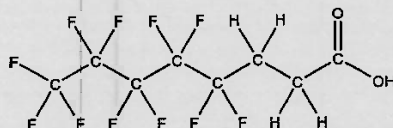
COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:

CAS #:

914637-49-3



MOLECULAR FORMULA:

C₈H₅F₁₁O₂

MOLECULAR WEIGHT:

342.11

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/11/2020

EXPIRY DATE: (mm/dd/yyyy)

11/11/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid (C₈H₃F₁₁O₂) as an impurity determined by ¹⁹F NMR.

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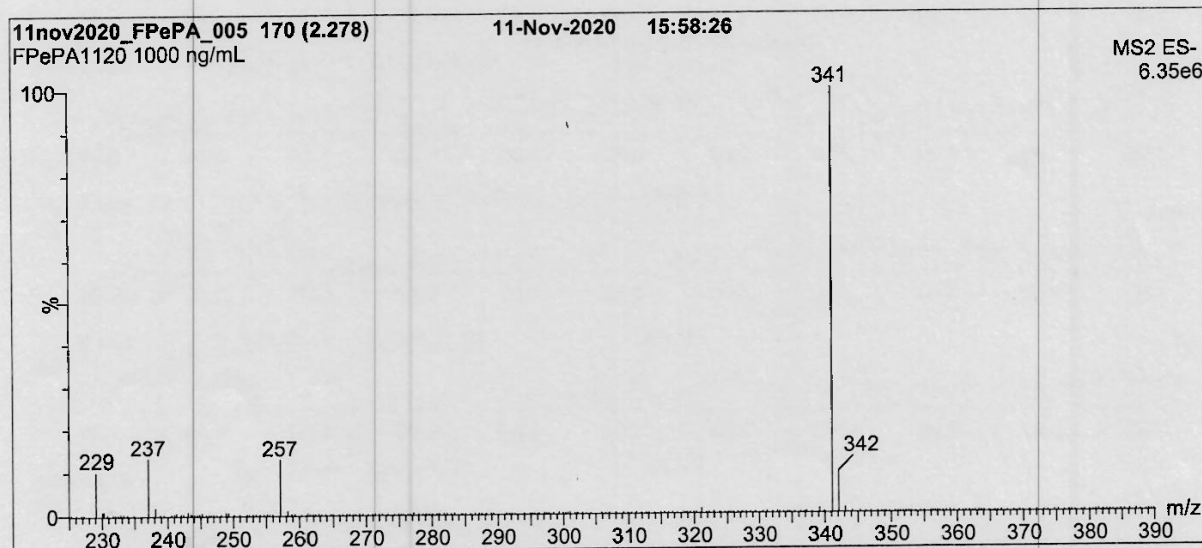
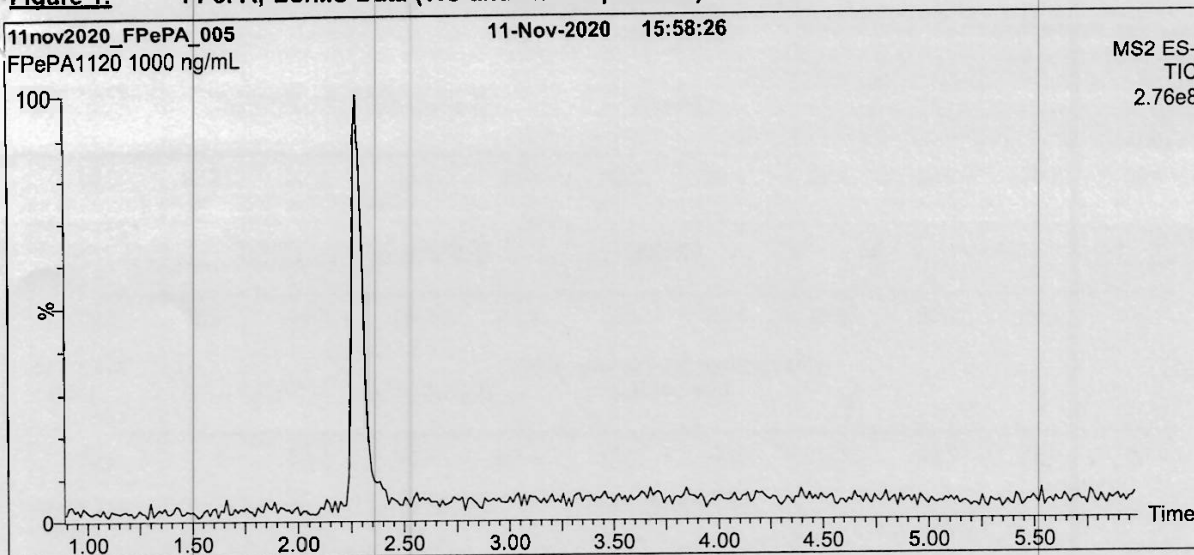
Date: 11/27/2020

(mm/dd/yyyy)

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7.9.1
7

Figure 1: FPePA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{1a}
1.7 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) = 18.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

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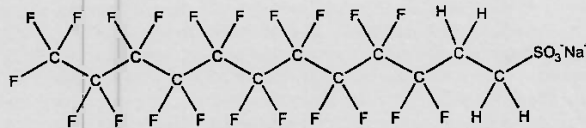


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS0221
COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE: **CAS #:** 108026-35-3



MOLECULAR FORMULA: C₁₂H₄F₂₁SO₃Na **MOLECULAR WEIGHT:** 650.18
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol
48.3 ± 2.4 µg/mL (10:2FTS acid)
48.2 ± 2.4 µg/mL (10:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/03/2021
EXPIRY DATE: (mm/dd/yyyy) 03/03/2026
RECOMMENDED STORAGE: Refrigerate ampoule

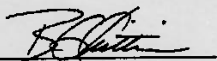
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:  **Date:** 03/05/2021
B.G. Chittim, General Manager (mm/dd/yyyy)

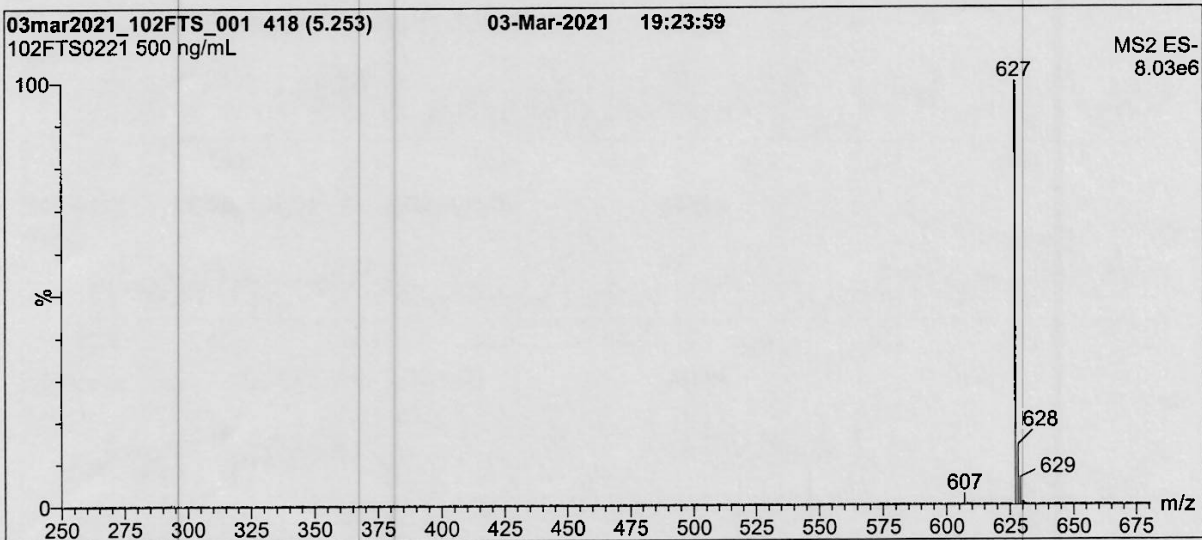
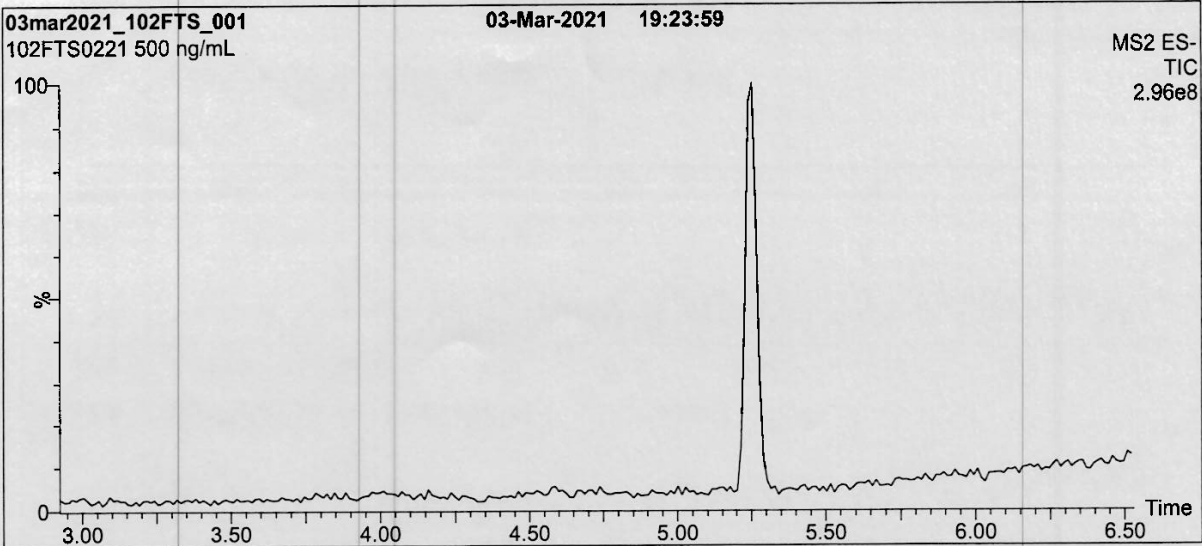
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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

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 μ m, 2.1 x 100 mm

Mobile phase: Gradient
 Start: 40% H₂O / 60% (80:20 MeOH:ACN)
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for 3 min
 before returning to initial conditions in 0.75 min.
 Time: 12 min

Flow: 300 μ L/min

MS Parameters:
 Experiment: Full Scan (250 - 850 amu)
 Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 25.00
 Desolvation Temperature ($^{\circ}$ C) = 500
 Desolvation Gas Flow (L/hr) = 1000

Form#: 27, Issued 2004-11-10
 Revision#: 9, Revised 2020-12-23

10762 A-B



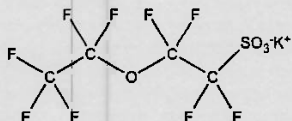
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CERTIFICATE OF ANALYSIS DOCUMENTATION

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: $C_4F_8SO_4K$ **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

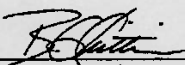
DOCUMENTATION/ DATA ATTACHED:

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).

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Certified By:  **Date:** 05/29/2020
(mm/dd/yyyy)
 B.G. Chittim, General Manager

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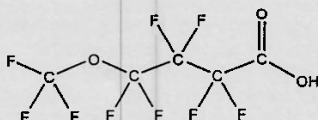
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

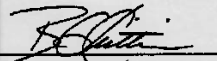
DOCUMENTATION/ DATA ATTACHED:

- 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.

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Certified By:  **Date:** 12/21/2020
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)
rev1

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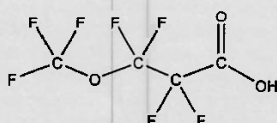
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

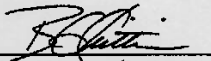
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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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

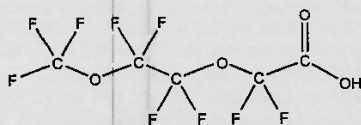
COMPOUND:

Perfluoro-3,6-dioxahexanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₈O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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10829



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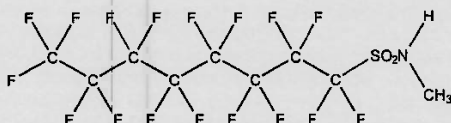
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



rec'd
WPA
10/5/21

MOLECULAR FORMULA: 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

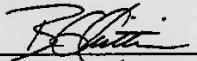
DOCUMENTATION/ DATA ATTACHED:

- 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.

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Certified By: 
B.G. Chittim, General Manager

Date: 08/04/2021
(mm/dd/yyyy)

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Revision#: 9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)
rev0

7.9.1

7



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

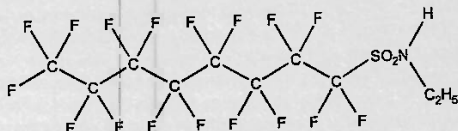
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

MOLECULAR WEIGHT:

527.20

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/12/2021

EXPIRY DATE: (mm/dd/yyyy)

08/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

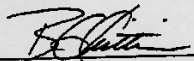
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021
(mm/dd/yyyy)

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10



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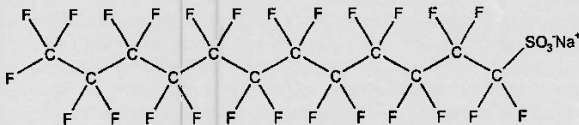
10840

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).

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Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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PRODUCT CODE:

PFODA

10847 NS 01/18/23

LOT NUMBER:

PFODA0821

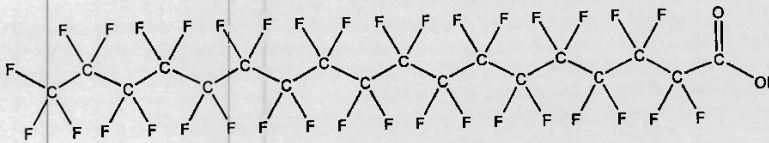
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store 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.

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Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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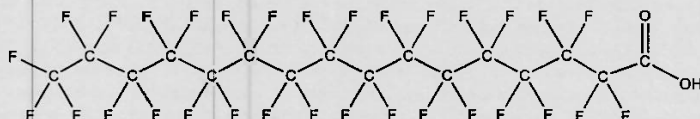
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

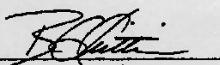
DOCUMENTATION/ DATA ATTACHED:

- 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.

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Certified By:  **Date:** 05/25/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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1117

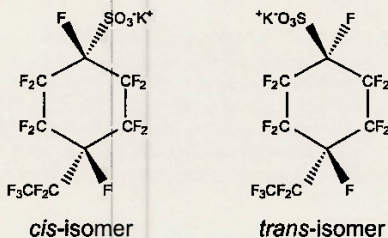


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFECHS **LOT NUMBER:** PFECHS1021
COMPOUND: Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE: **CAS #:** 335-24-0



MOLECULAR FORMULA: C₈F₁₆SO₃K **MOLECULAR WEIGHT:** 500.22
CONCENTRATION: 50.0 ± 2.5 µg/mL (K salt) **SOLVENT(S):** Methanol
 46.2 ± 2.3 µg/mL (PFECHS acid)
 46.1 ± 2.3 µg/mL (PFECHS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/14/2021
EXPIRY DATE: (mm/dd/yyyy) 10/14/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

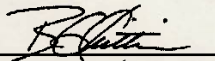
DOCUMENTATION/ DATA ATTACHED:

- 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 a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

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Certified By:  **Date:** 10/15/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
 Revision#:9, Revised 2020-12-23

PFECHS1021 (1 of 4)
 rev0

7.9.1
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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

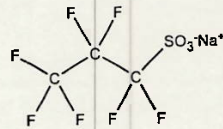
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)
 46.0 ± 2.3 µg/mL (PFPrS acid)
 45.8 ± 2.3 µg/mL (PFPrS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021
(mm/dd/yyyy)

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11224



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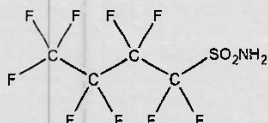
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FBSA-I
COMPOUND: Perfluoro-1-butanesulfonamide

LOT NUMBER: FBSA11211

STRUCTURE:

CAS #: 30334-69-1



MOLECULAR FORMULA: C₄H₂F₉NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/10/2021
EXPIRY DATE: (mm/dd/yyyy) 11/10/2026
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 299.11
SOLVENT(S): Isopropanol

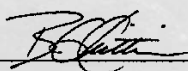
DOCUMENTATION/ DATA ATTACHED:

- 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: 
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Date: 11/10/2021
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

FBSA11211 (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

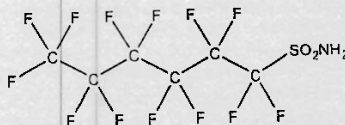
LOT NUMBER: FHxSA12211

COMPOUND:

Perfluoro-1-hexanesulfonamide

CAS #: 41997-13-1

STRUCTURE:



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

MOLECULAR WEIGHT: 399.13

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S): Isopropanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

12/29/2021

EXPIRY DATE: (mm/dd/yyyy)

12/29/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

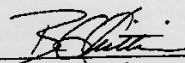
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:


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Date: 01/10/2022
(mm/dd/yyyy)

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11336

PRODUCT CODE:

N-EtFOSE-M

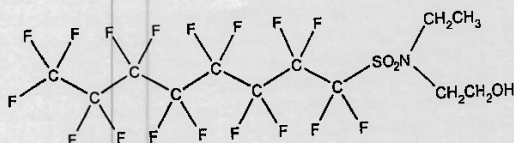
LOT NUMBER: NEtFOSE0622M

COMPOUND:

2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

CAS #: 1691-99-2

STRUCTURE:



MOLECULAR FORMULA:

C₁₂H₁₀F₁₇NO₃S

MOLECULAR WEIGHT: 571.25

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

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Certified By:

B.G. Chittim, General Manager

Date: 07/13/2022
(mm/dd/yyyy)

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NEtFOSE0622M (1 of 5)
rev0

Form#:27, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

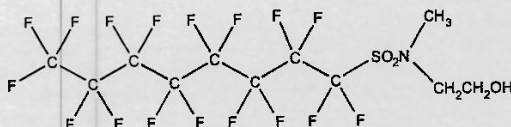
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

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Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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11383 A-J



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CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE:	MPFAC-HIF-ES
LOT NUMBER:	MPFACHIFES0822
SOLVENT(S):	Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	07/20/2022
LAST TESTED: (mm/dd/yyyy)	08/02/2022
EXPIRY DATE: (mm/dd/yyyy)	08/02/2025
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) perfluorooctane-sulfonamidoethanols, 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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Table A: MPFAC-HIF-ES; Components and Concentrations
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

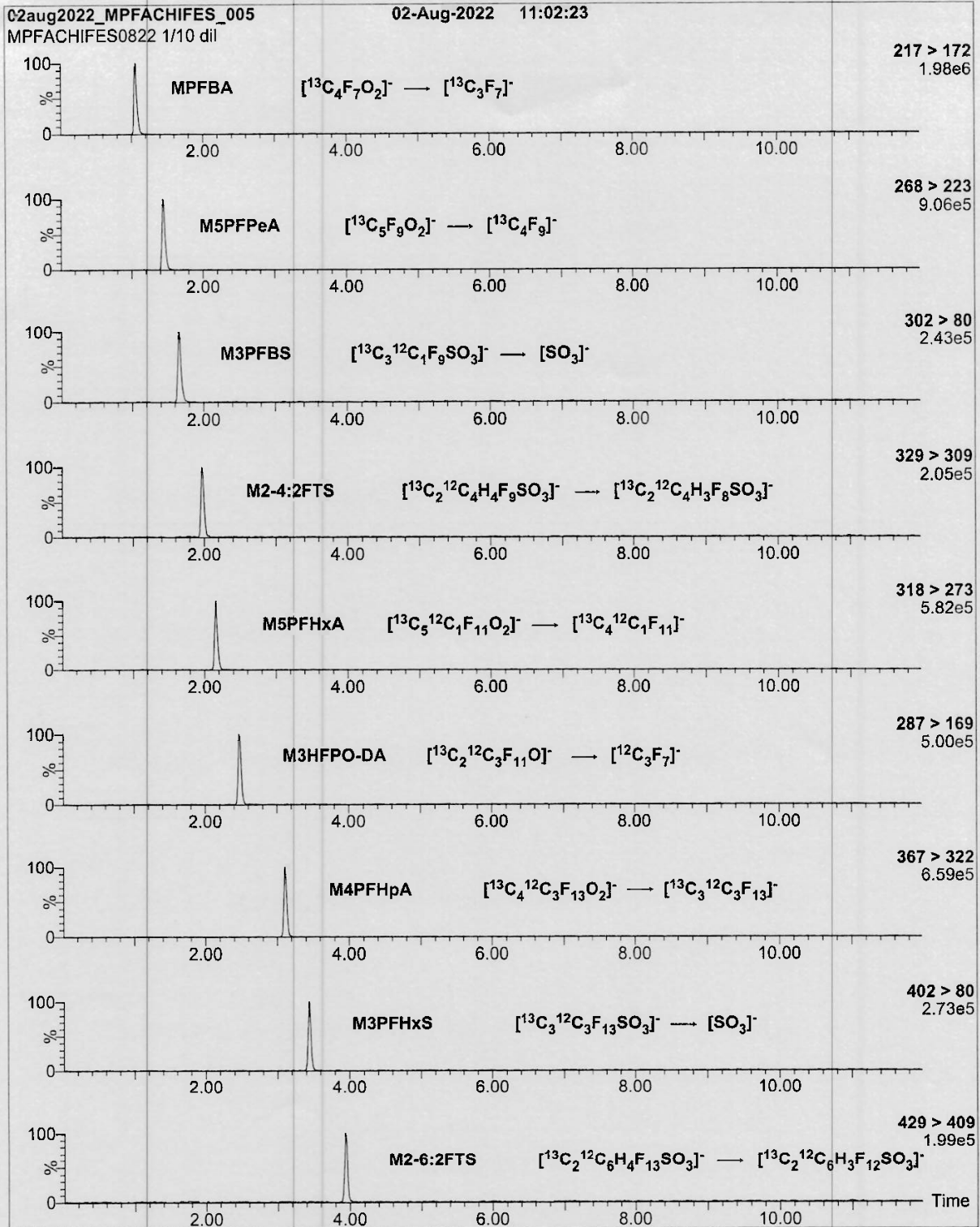
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₆)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₇)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		17
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		23
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		18
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₃ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₅ -ol	d9-N-EtFOSE	5000		22
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 08/02/2022
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



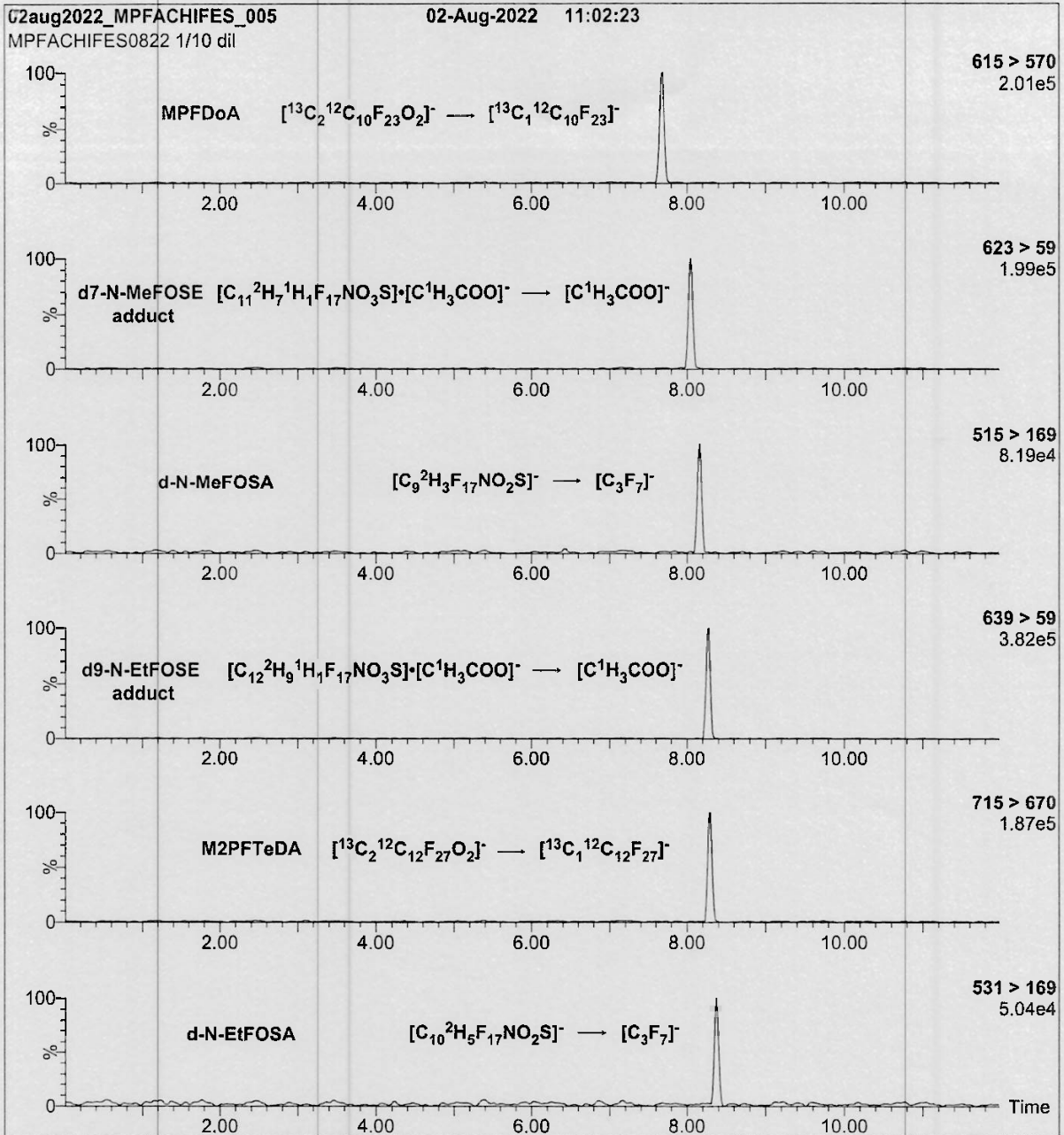
Form# 13, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

MPFACHIFES0822 (5 of 7)
rev0

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Figure 2: MPFAC-HIF-ES; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-ES)
 Mobile phase: Same as Figure 1
 Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.24e-3
 Collision Energy (eV) = 4-64 (variable)

11384 A-J



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CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled Perfluoroalkyl Substance
Injection Standard Solution/Mixture**

<u>PRODUCT CODE:</u>	MPFAC-HIF-IS
<u>LOT NUMBER:</u>	MPFACHIFIS0921
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/07/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/07/2026
<u>RECOMMENDED STORAGE:</u>	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 (C₈ and C₉). 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.

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

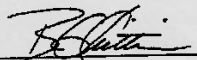
MPFACHIFIS0921 (1 of 5)
rev1

7.9.1
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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

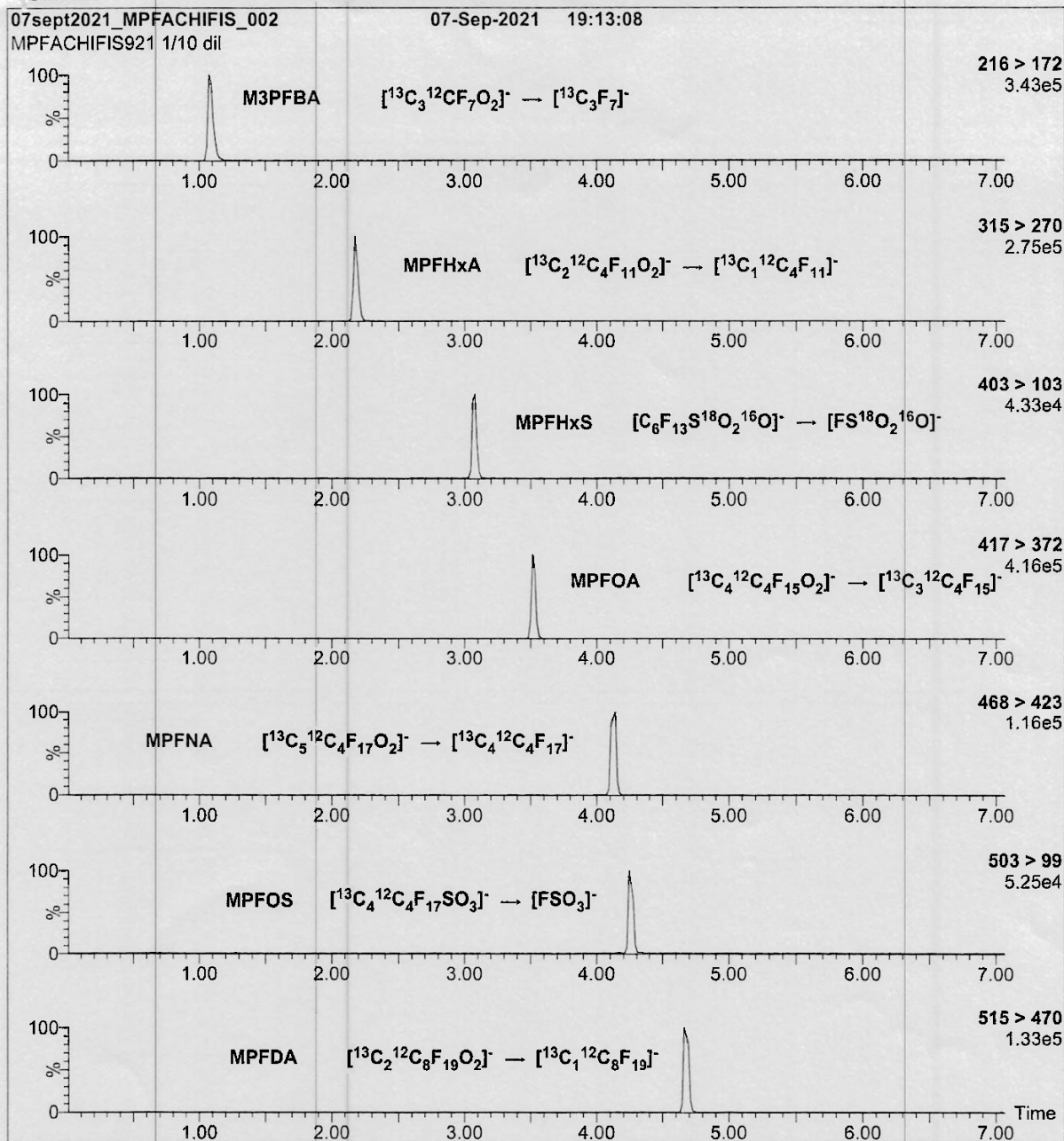
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 10/13/2021
(mm/dd/yyyy)

Figure 2: MPFAC-HIF-IS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: On-column (MPFAC-HIF-IS)

Mobile phase: Same as Figure 1

Flow: 300 $\mu\text{L}/\text{min}$

MS Parameters:

Collision Gas (mbar) = 3.18e-3

Collision Energy (eV) = 4-64 (variable)



11606 rec'd 01/13/23

CERTIFIED WEIGHT REPORT

Part Number: 64029A
Lot Number: 110922
Description: PFOA - DOD
28 components
Expiry Date: 11/09/27
Recommended Storage: Freezer (0 °C)
Nominal Concentration (µg/mL): 1.0
NIST Test ID#: 8UTB

Solvent(s): Methanol (1 mM KOH)
2-Propanol
Lot# 102722 (98%)
32500 (2%)

SE-05 Balance Uncertainty
0.018 Flask Uncertainty

Prashant Chauhan
Formulated By: Prashant Chauhan
DATE: 11/09/22

Pedro L. Rentas
Reviewed By: Pedro L. Rentas
DATE: 11/09/22

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-ret 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	ori-ret 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 (PFDDA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTEA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	378-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
14. N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHps0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (8:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	27819-97-2	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 (HPFO-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-oxaundecane-1-sulfonic acid (11Cl-PF30Uds)	4165	11ClPF30Uds0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF30NS)	4164	9ClPF30NS0522	0.021	2.14	0.017	46.6	1.00	0.05	756426-58-1	N/A	N/A
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-ret 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-ret 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	5.3	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 Kuyatt, 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).

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 03/16/23 10:00

Method: EPA 1633 Draft (QSM)

Started (mm/dd/yy 24:00)

Date/Time: 3/20/23 15:28

Balance ID: _____

Finished (mm/dd/yy 24:00)

Batch#: OP95927 Ext. By: GH

Conc. By: _____ Viald By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 95927 MB	/	500	-	N/A	25		5	E	
OP 95927 BS	/	500	-						
OP 95927 LLBS	/	500	-			200			
FC3427-1	2	540	6			80			
2	2	540							
3	2	550-95							dirty
4	2	570							dirty
5	2	540							
FC3404-1	2	570	6	N/A	25		5	F	
2	2	570	6	N/A	25		5	F	
OPFC3427-2MS	3	550-205	6	N/A	25	200	5	E	dirty
OP MSD									
OPFC3427-3DUP	3	540	6	N/A	25		5	E	dirty

Comments: FC3427-2MS has two cartridges/centr. tubes

EIS (SURR) ID: 11650F-H Conc: 250-Subc 051/m³ Exp. Date: 03/06/24 Inj. By: GH Ver. By: AG

SPIKE.1 ID: LCM S 20730 Conc: VARIED Exp. Date: 03/02/23 Inj. By: GH Ver. By: AG

SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____

NIS (ISTD) ID: 11651D-E Conc: 250-1000 ng/ml Exp. Date: 3/6/24 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 PF318 SPE Lot # 923-000963

Water Lot# OP95448 0.3M Formic Acid PF317 Syringe filter Lot # _____

Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322

0.1M Formic PF313 5% Formic Acid _____ Carbon Lot# 160898

Relinquished By: Gabriela Pacheco
Accepted By: MW

Date: 03/16/23
Date: 3/20/23

7.10.1 7