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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC9447

Sampling Date: 09/07/23



Report to:

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Total number of pages in report: 783



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 unless noted in the narrative, comments or footnotes.

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: FC9447-1: AF-RHMW16-WGN01LF-2309	7
4.2: FC9447-2: AF-RHMW12A-WGN01LF-2309	10
4.3: FC9447-3: AF-RHMW12A-WGFD01LF-2309	13
4.4: FC9447-4: AF-RHMW02-WGN01LF-2309	16
4.5: FC9447-5: AF-RHMW02-WGFD01LF-2309	19
4.6: FC9447-6: AF-RHMW03-WGN01LF-2309	22
Section 5: Misc. Forms	25
5.1: Chain of Custody	26
5.2: QC Evaluation: DOD QSM5.x Limits	31
Section 6: MS Semi-volatiles - QC Data Summaries	32
6.1: Method Blank Summary	33
6.2: Blank Spike Summary	43
6.3: Matrix Spike Summary	47
6.4: Duplicate Summary	49
6.5: Injection Standard Area Summaries	51
6.6: TDCA Retention Time Checks	55
6.7: Ion Ratio Summaries	60
6.8: Isotope Dilution Standard Recovery Summaries	61
6.9: Initial and Continuing Calibration Summaries	64
6.10: Run Sequence Reports	81
Section 7: MS Semi-volatiles - Raw Data	84
7.1: Samples	85
7.2: Method Blanks	156
7.3: Blank Spikes	211
7.4: Matrix Spikes	255
7.5: Duplicates	277
7.6: Retention Time Markers	290
7.7: Initial and Continuing Calibrations	342
7.8: Instrument Run Logs	674
7.9: Standard Prep Logs	679
7.10: Sample Prep Logs	783



Sample Summary

AECOM, INC.

Job No: FC9447

**N6274223F0104 RH Fire Suppression System
Project No: 60697810**

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC9447-1	09/07/23	12:35	AAGM09/09/23	AQ	Ground Water	AF-RHMW16-WGN01LF-2309
FC9447-2	09/07/23	09:40	AAGM09/09/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2309
FC9447-3	09/07/23	09:40	AAGM09/09/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2309
FC9447-4	09/07/23	10:45	CWTN09/09/23	AQ	Ground Water	AF-RHMW02-WGN01LF-2309
FC9447-5	09/07/23	10:45	CWTN09/09/23	AQ	Ground Water	AF-RHMW02-WGFD01LF-2309
FC9447-6	09/07/23	13:40	CWTN09/09/23	AQ	Ground Water	AF-RHMW03-WGN01LF-2309

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC9447

Site: N6274223F0104 RH Fire Suppression System

Report Date: 9/13/2023 4:24:42 PM

On 09/09/2023, 6 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 5 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC9447 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: OP98930

Sample(s) FC9447-3MS, FC9447-4DUP were used as the QC samples indicated.

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

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: FC9447
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 09/07/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC9447-1 AF-RHMW16-WGN01LF-2309

No hits reported in this sample.

FC9447-2 AF-RHMW12A-WGN01LF-2309

No hits reported in this sample.

FC9447-3 AF-RHMW12A-WGFD01LF-2309

No hits reported in this sample.

FC9447-4 AF-RHMW02-WGN01LF-2309

Perfluoropentanoic acid	53.9	7.3	1.8	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.52 J	3.6	1.8	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	4.2 J	18	7.3	ng/l	EPA DRAFT 1633

FC9447-5 AF-RHMW02-WGFD01LF-2309

Perfluoropentanoic acid	49.0	8.2	2.1	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	0.83 J	4.1	2.1	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	4.3 J	21	8.2	ng/l	EPA DRAFT 1633

FC9447-6 AF-RHMW03-WGN01LF-2309

Perfluoropentanoic acid	4.4 J	7.4	1.9	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	5.9	3.7	1.9	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	2.6 J	3.7	1.9	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	0.91 J	3.7	0.93	ng/l	EPA DRAFT 1633
Perfluorododecanoic acid	0.89 J	3.7	1.9	ng/l	EPA DRAFT 1633
6:2 Fluorotelomer sulfonate	25.6	19	7.4	ng/l	EPA DRAFT 1633

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW16-WGN01LF-2309		
Lab Sample ID:	FC9447-1	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
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	6Q24389.D	1	09/13/23 03:35	MV	09/11/23 09:35	OP98930	S6Q350
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	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.0	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	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	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.5	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	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	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-RHMW16-WGN01LF-2309		Date Sampled:	09/07/23
Lab Sample ID:	FC9447-1	Date Received:	09/09/23	
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	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.5	1.8	0.88	ng/l	
919005-14-4	ADONA	3.5 U	7.0	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	7.0	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	7.0	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	7.0	3.5	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	7.0	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	7.0	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	7.0	1.8	0.68	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.8 U	18	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	88	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	88	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	74%		20-150%
	13C5-PFPeA	73%		20-150%
	13C5-PFHxA	81%		20-150%
	13C4-PFHpA	84%		20-150%
	13C8-PFOA	86%		20-150%
	13C9-PFNA	97%		20-150%
	13C6-PFDA	90%		20-150%
	13C7-PFUnDA	82%		20-150%
	13C2-PFDoDA	78%		20-150%
	13C2-PFTeDA	71%		20-150%
	13C3-PFBS	85%		20-150%
	13C3-PFHxS	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

Report of Analysis

Client Sample ID:	AF-RHMW16-WGN01LF-2309	
Lab Sample ID:	FC9447-1	Date Sampled: 09/07/23
Matrix:	AQ - Ground Water	Date Received: 09/09/23
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	87%		20-150%
	13C8-FOSA	71%		20-150%
	d3-MeFOSA	68%		20-150%
	d5-EtFOSA	73%		20-150%
	d3-MeFOSAA	73%		20-150%
	d5-EtFOSAA	61%		20-150%
	d7-MeFOSE	67%		20-150%
	d9-EtFOSE	72%		20-150%
	13C2-4:2FTS	83%		20-180%
	13C2-6:2FTS	81%		20-180%
	13C2-8:2FTS	79%		20-180%
	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-RHMW12A-WGN01LF-2309		
Lab Sample ID:	FC9447-2	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
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	6Q24390.D	1	09/13/23 03:49	MV	09/11/23 09:35	OP98930	S6Q350
Run #2							

Run #	Initial Volume	Final Volume
Run #1	535 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	15	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.5	1.9	0.88	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.7	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.7	1.9	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.93 U	3.7	0.93	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.7	1.9	0.57	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.7	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.7	1.9	0.47	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.7	1.9	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.7	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.7	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.7	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.7	1.9	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.7	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.7	3.7	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.8	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	3.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.7 U	7.5	3.7	0.93	ng/l	
4151-50-2	EtFOSA	3.7 U	7.5	3.7	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-2309		
Lab Sample ID:	FC9447-2	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
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	4.7	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.7	3.7	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	37	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	37	19	6.9	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.7	1.9	0.93	ng/l	
919005-14-4	ADONA	3.7 U	7.5	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	7.5	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	7.5	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	7.5	3.7	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	7.5	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	7.5	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	7.5	1.9	0.73	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	19	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	93	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	93	19	7.3	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	44%		20-150%
	13C5-PFPeA	78%		20-150%
	13C5-PFHxA	86%		20-150%
	13C4-PFHpA	92%		20-150%
	13C8-PFOA	89%		20-150%
	13C9-PFNA	100%		20-150%
	13C6-PFDA	105%		20-150%
	13C7-PFUnDA	91%		20-150%
	13C2-PFDoDA	80%		20-150%
	13C2-PFTeDA	69%		20-150%
	13C3-PFBS	102%		20-150%
	13C3-PFHxS	97%		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-2309	
Lab Sample ID:	FC9447-2	Date Sampled: 09/07/23
Matrix:	AQ - Ground Water	Date Received: 09/09/23
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	104%		20-150%
	13C8-FOSA	81%		20-150%
	d3-MeFOSA	74%		20-150%
	d5-EtFOSA	73%		20-150%
	d3-MeFOSAA	78%		20-150%
	d5-EtFOSAA	75%		20-150%
	d7-MeFOSE	64%		20-150%
	d9-EtFOSE	69%		20-150%
	13C2-4:2FTS	91%		20-180%
	13C2-6:2FTS	94%		20-180%
	13C2-8:2FTS	88%		20-180%
	13C3-HFPO-DA	84%		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-2309		
Lab Sample ID:	FC9447-3	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
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	6Q24391.D	1	09/13/23 04:03	MV	09/11/23 09:35	OP98930	S6Q350
Run #2							

Run #	Initial Volume	Final Volume
Run #1	525 ml	5.0 ml
Run #2		

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

375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.6	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.95 U	3.8	0.95	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.80	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.61	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.6 U	19	7.6	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.6 U	19	7.6	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.6 U	19	7.6	3.9	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.6	3.8	0.95	ng/l	
4151-50-2	EtFOSA	3.8 U	7.6	3.8	0.95	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-2309		Date Sampled:	09/07/23
Lab Sample ID:	FC9447-3		Date Received:	09/09/23
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	3.8 U	4.8	3.8	0.95	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.95	ng/l	
919005-14-4	ADONA	3.8 U	7.6	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.6	1.9	0.95	ng/l	
863090-89-5	PFMBA	3.8 U	7.6	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.6	3.8	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.6	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.6	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.6	1.9	0.74	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.5 U	19	9.5	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	95	19	8.3	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	95	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	47%		20-150%
	13C5-PFPeA	83%		20-150%
	13C5-PFHxA	90%		20-150%
	13C4-PFHpA	93%		20-150%
	13C8-PFOA	92%		20-150%
	13C9-PFNA	106%		20-150%
	13C6-PFDA	92%		20-150%
	13C7-PFUnDA	87%		20-150%
	13C2-PFDoDA	69%		20-150%
	13C2-PFTeDA	64%		20-150%
	13C3-PFBS	104%		20-150%
	13C3-PFHxS	93%		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-2309	
Lab Sample ID:	FC9447-3	Date Sampled: 09/07/23
Matrix:	AQ - Ground Water	Date Received: 09/09/23
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	89%		20-150%
	13C8-FOSA	84%		20-150%
	d3-MeFOSA	71%		20-150%
	d5-EtFOSA	71%		20-150%
	d3-MeFOSAA	75%		20-150%
	d5-EtFOSAA	71%		20-150%
	d7-MeFOSE	65%		20-150%
	d9-EtFOSE	70%		20-150%
	13C2-4:2FTS	95%		20-180%
	13C2-6:2FTS	91%		20-180%
	13C2-8:2FTS	91%		20-180%
	13C3-HFPO-DA	94%		20-150%

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 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-RHMW02-WGN01LF-2309		
Lab Sample ID:	FC9447-4	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
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	6Q24395.D	1	09/13/23 05:01	MV	09/11/23 09:35	OP98930	S6Q350
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	53.9	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	0.52	3.6	1.8	0.45	ng/l	J
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.6	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	4.2	18	7.3	3.2	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AF-RHMW02-WGN01LF-2309		
Lab Sample ID:	FC9447-4	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

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

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

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

PER and POLYFLUOROETHER SULFONIC ACIDS

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

FLUOROTELOMER CARBOXYLIC ACIDS

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

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	74%		20-150%
	13C5-PFPeA	66%		20-150%
	13C5-PFHxA	86%		20-150%
	13C4-PFHpA	97%		20-150%
	13C8-PFOA	85%		20-150%
	13C9-PFNA	102%		20-150%
	13C6-PFDA	94%		20-150%
	13C7-PFUnDA	83%		20-150%
	13C2-PFDoDA	71%		20-150%
	13C2-PFTeDA	56%		20-150%
	13C3-PFBS	96%		20-150%
	13C3-PFHxS	96%		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-RHMW02-WGN01LF-2309	
Lab Sample ID:	FC9447-4	Date Sampled: 09/07/23
Matrix:	AQ - Ground Water	Date Received: 09/09/23
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	88%		20-150%
	13C8-FOSA	85%		20-150%
	d3-MeFOSA	59%		20-150%
	d5-EtFOSA	54%		20-150%
	d3-MeFOSAA	83%		20-150%
	d5-EtFOSAA	71%		20-150%
	d7-MeFOSE	61%		20-150%
	d9-EtFOSE	60%		20-150%
	13C2-4:2FTS	87%		20-180%
	13C2-6:2FTS	79%		20-180%
	13C2-8:2FTS	75%		20-180%
	13C3-HFPO-DA	71%		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-RHMW02-WGFD01LF-2309		
Lab Sample ID:	FC9447-5	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
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	6Q24397.D	1	09/13/23 05:29	MV	09/11/23 09:35	OP98930	S6Q350
Run #2							

Run #	Initial Volume	Final Volume
Run #1	485 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	4.1 U	16	4.1	2.0	ng/l	
2706-90-3	Perfluoropentanoic acid	49.0	8.2	2.1	0.97	ng/l	
307-24-4	Perfluorohexanoic acid	0.83	4.1	2.1	0.52	ng/l	J
375-85-9	Perfluoroheptanoic acid	2.1 U	4.1	2.1	0.52	ng/l	
335-67-1	Perfluorooctanoic acid	1.0 U	4.1	1.0	0.52	ng/l	
375-95-1	Perfluorononanoic acid	2.1 U	4.1	2.1	0.63	ng/l	
335-76-2	Perfluorodecanoic acid	2.1 U	4.1	2.1	0.52	ng/l	
2058-94-8	Perfluoroundecanoic acid	2.1 U	4.1	2.1	0.62	ng/l	
307-55-1	Perfluorododecanoic acid	2.1 U	4.1	2.1	0.62	ng/l	
72629-94-8	Perfluorotridecanoic acid	2.1 U	4.1	2.1	0.87	ng/l	
376-06-7	Perfluorotetradecanoic acid	2.1 U	4.1	2.1	0.52	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	2.1 U	4.1	2.1	0.52	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	4.1 U	5.2	4.1	1.2	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2.1 U	4.1	2.1	0.72	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	2.1 U	4.1	2.1	0.52	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	2.1 U	4.1	2.1	0.56	ng/l	
68259-12-1	Perfluorononanesulfonic acid	2.1 U	4.1	2.1	0.59	ng/l	
335-77-3	Perfluorodecanesulfonic acid	2.1 U	4.1	2.1	0.66	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	4.1 U	5.2	4.1	1.2	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
757124-72-4	4:2 Fluorotelomer sulfonate	8.2 U	21	8.2	3.3	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	4.3	21	8.2	3.6	ng/l	J
39108-34-4	8:2 Fluorotelomer sulfonate	8.2 U	21	8.2	4.2	ng/l	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	2.1 U	4.1	2.1	0.69	ng/l	
31506-32-8	MeFOSA	4.1 U	8.2	4.1	1.0	ng/l	
4151-50-2	EtFOSA	4.1 U	8.2	4.1	1.0	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-RHMW02-WGFD01LF-2309		
Lab Sample ID:	FC9447-5	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
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	4.1 U	5.2	4.1	1.0	ng/l	
2991-50-6	EtFOSAA	4.1 U	5.2	4.1	1.4	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	21 U	41	21	4.5	ng/l	
1691-99-2	EtFOSE	21 U	41	21	7.6	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	2.1 U	4.1	2.1	1.0	ng/l	
919005-14-4	ADONA	4.1 U	8.2	4.1	1.9	ng/l	
377-73-1	PFMPA	2.1 U	8.2	2.1	1.0	ng/l	
863090-89-5	PFMBA	4.1 U	8.2	4.1	1.2	ng/l	
151772-58-6	NFDHA	4.1 U	8.2	4.1	1.2	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	4.1 U	8.2	4.1	1.4	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.1 U	8.2	4.1	1.8	ng/l	
113507-82-7	PFEESA	2.1 U	8.2	2.1	0.80	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	10 U	21	10	4.7	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	21 U	100	21	9.0	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	21 U	100	21	8.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	85%		20-150%
	13C5-PFPeA	70%		20-150%
	13C5-PFHxA	89%		20-150%
	13C4-PFHpA	99%		20-150%
	13C8-PFOA	90%		20-150%
	13C9-PFNA	110%		20-150%
	13C6-PFDA	91%		20-150%
	13C7-PFUnDA	76%		20-150%
	13C2-PFDoDA	63%		20-150%
	13C2-PFTeDA	55%		20-150%
	13C3-PFBS	108%		20-150%
	13C3-PFHxS	103%		20-150%

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

Report of Analysis

Client Sample ID:	AF-RHMW02-WGFD01LF-2309	
Lab Sample ID:	FC9447-5	Date Sampled: 09/07/23
Matrix:	AQ - Ground Water	Date Received: 09/09/23
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	87%		20-150%
	13C8-FOSA	90%		20-150%
	d3-MeFOSA	66%		20-150%
	d5-EtFOSA	64%		20-150%
	d3-MeFOSAA	73%		20-150%
	d5-EtFOSAA	66%		20-150%
	d7-MeFOSE	68%		20-150%
	d9-EtFOSE	67%		20-150%
	13C2-4:2FTS	98%		20-180%
	13C2-6:2FTS	92%		20-180%
	13C2-8:2FTS	76%		20-180%
	13C3-HFPO-DA	77%		20-150%

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

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Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW03-WGN01LF-2309		
Lab Sample ID:	FC9447-6	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
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	6Q24398.D	1	09/13/23 05:44	MV	09/11/23 09:35	OP98930	S6Q350
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	15	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	4.4	7.4	1.9	0.87	ng/l	J
307-24-4	Perfluorohexanoic acid	5.9	3.7	1.9	0.46	ng/l	
375-85-9	Perfluoroheptanoic acid	2.6	3.7	1.9	0.46	ng/l	J
335-67-1	Perfluorooctanoic acid	0.91	3.7	0.93	0.46	ng/l	J
375-95-1	Perfluorononanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	0.89	3.7	1.9	0.56	ng/l	J
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.7	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.7	1.9	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	3.7	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.7	1.9	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.7	1.9	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.7	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.7	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	25.6	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	3.7	1.9	0.62	ng/l	
31506-32-8	MeFOSA	3.7 U	7.4	3.7	0.93	ng/l	
4151-50-2	EtFOSA	3.7 U	7.4	3.7	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-RHMW03-WGN01LF-2309		
Lab Sample ID:	FC9447-6	Date Sampled:	09/07/23
Matrix:	AQ - Ground Water	Date Received:	09/09/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
---------	----------	--------	-----	-----	----	-------	---

PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS

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

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U	37	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	37	19	6.9	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.7	1.9	0.93	ng/l	
919005-14-4	ADONA	3.7 U	7.4	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	7.4	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	7.4	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	7.4	3.7	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	7.4	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	7.4	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	7.4	1.9	0.72	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	19	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	93	19	8.1	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	93	19	7.3	ng/l	

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

	13C4-PFBA	88%		20-150%
	13C5-PFPeA	79%		20-150%
	13C5-PFHxA	88%		20-150%
	13C4-PFHpA	98%		20-150%
	13C8-PFOA	84%		20-150%
	13C9-PFNA	100%		20-150%
	13C6-PFDA	94%		20-150%
	13C7-PFUnDA	90%		20-150%
	13C2-PFDoDA	73%		20-150%
	13C2-PFTeDA	57%		20-150%
	13C3-PFBS	114%		20-150%
	13C3-PFHxS	94%		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-RHMW03-WGN01LF-2309	
Lab Sample ID:	FC9447-6	Date Sampled: 09/07/23
Matrix:	AQ - Ground Water	Date Received: 09/09/23
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	82%		20-150%
	d3-MeFOSA	57%		20-150%
	d5-EtFOSA	59%		20-150%
	d3-MeFOSAA	78%		20-150%
	d5-EtFOSAA	72%		20-150%
	d7-MeFOSE	68%		20-150%
	d9-EtFOSE	63%		20-150%
	13C2-4:2FTS	93%		20-180%
	13C2-6:2FTS	84%		20-180%
	13C2-8:2FTS	78%		20-180%
	13C3-HFPO-DA	86%		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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FC9447

COC #: 2309AFSG06

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PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes			
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">PFAS EPA Draft 1633</div> <div style="margin-left: 20px;"> <p style="font-size: 2em; font-weight: bold;">9/14/23</p> <p style="font-size: 2em; font-weight: bold;">9/14/23</p> </div> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
Address: 1001 Bishop St. ste 1600		Street															
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii															
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # CTO CVI23F0104															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 800-954-4512		Client Purchase Order # 151253															
Sampler(s) Name(s) (Printed)		Sampler 1: PA JV Sampler 2: AM															
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONHE	HCl	NADH	HN03	HPS04	NADH/ZNAC	DI WATER	MEDH	PFAS EPA Draft 1633	LAB USE ONLY
1	AF-RHMW16-WGN01LF-2309	9/14/23	12:35	PA	GW	3		X								X	
<div style="display: flex; justify-content: space-between;"> <div> <p>Turnaround Time (Business days)</p> <p>10 Day (Business) Approved By: / Date: _____</p> <p>7 Day _____</p> <p>5 Day _____</p> <p>3 Day RUSH _____</p> <p>2 Day RUSH _____</p> <p>1 Day RUSH _____</p> <p>Other _____</p> <p>Rush T/A Data Available VIA Email or Lablink</p> </div> <div> <p>Data Deliverable Information</p> <p><input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY)</p> <p><input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC)</p> <p><input type="checkbox"/> REDT1 (EPA LEVEL 3)</p> <p><input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4)</p> <p><input checked="" type="checkbox"/> EDD'S</p> </div> <div> <p>Comments / Remarks</p> <p>EDMS upload database: JBPHE</p> <p>EDMS Coverage: AFFF Assessment Sampling GW</p> <p>UNITED ANS: 016-92500822</p> <p>S.2IR.1</p> </div> </div>																	
Relinquished by Sampler/Affiliation		Date Time:		Sample Custody must be documented below each time samples change possession, including courier delivery.				Relinquished By/Affiliation		Date Time:		Received By/Affiliation					
1 Anne Aspin / AECOM		9/14/23 14:5		2 Miranda DeCarro / AECOM				3 Miranda DeCarro / AECOM		9/14/23 14:50		4 UC					
5 Relinquished by/Affiliation		Date Time:		6 UC / 09/14/23 08:45				Relinquished By/Affiliation		Date Time:		Received By/Affiliation					

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Page 1 of 5

5.1 5





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COC #: 2309AFSG05

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="position: absolute; top: 0; right: 0; text-align: right;"> CALL TO 303-796-4624 </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
Address: 1001 Bishop St. ste 1600		Street															
City: Honolulu State: HI Zip: 96813		City Honolulu State Hawaii															
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # CTO CV123F0104															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order # 151253		PFAS EPA Draft 1633										LAB USE ONLY			
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	INONE	ICCI	INCH	HNDS	PERDA	INCH/ZINC	DI WATER	MEDH		
2	AF-RHMW12A-WGN01LF-2309	9/7/23	0740	AK	GW	3		X								X	
3	AF-RHMW12A-WGFD01LF-2309	9/7/23	0740	AK	GW	3		X								X	
Turnaround Time (Business days)				Data Deliverable Information				Comments / Remarks									
10 Day (Business) Approved By: / Date: 7 Day <input type="checkbox"/> 5 Day <input checked="" type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day RUSH Other _____ Rush T/A Data Available VIA Email or Lablink		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S				EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW UNITED AWB: 016-92500822											
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 Aime Beppia / AECOM		9/7/23 145		2 Ellie Shimatsu AECOM		9/7/23 145		3 Ellie Shimatsu AECOM		9/7/23 145		4 UC					
5 UC				6 [Signature] 09/09/23 0845				7 [Signature] 0845				8					

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Page 2 of 5



5.1
5



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COC #: 2309AFSG01

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		<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">PFAS EPA Draft 1633</div> <div style="border: 1px solid black; width: 100%; height: 100%;"></div> </div>												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
Address: 1001 Bishop St. ste 1600		Street																	
City: Honolulu	State: HI	Zip: 96813	City Honolulu														State Hawaii		
Project Contact: Katie Abbott Project Manager: Watson Tanji Phone #: 303-796-4624 / 808-954-4512		Email: katie.abbott@aecom.com Email: watson.tanji@aecom.com															Project # 23F0104 - 60697810		Fax #
Sampler(s) Name(s) (Printed)		Client Purchase Order # 151253																	
Sampler 1: Chris Warrick		Sampler 2: <i>Miranda DeCarmon</i>																	
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION				CONTAINER INFORMATION												LAB USE ONLY	
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	ICI	NaOH	HNO3	H2SO4	MAO-H2NAC	DI WATER	MEDI				
4	AF-RHMW02-WGN01LF-2309	9/7/23	1045	<i>Chris Warrick</i>	GW	3			X							X			
5	AF-RHMW02-WGFD01LF-2309	9/7/23	1045	<i>Chris Warrick</i>	GW	3			X							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 UNITED AWD: 010-92500822											
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				Date Time:	Received By/Affiliation						
1 <i>Tyler Nicholas AECOM</i>	9/7/23 1315	2 <i>Miranda DeCarmon/AECOM</i>				3 <i>Miranda DeCarmon/AECOM</i>	9/7/23 1450	4 <i>UC</i>											
5 <i>UC</i>		6 <i>UC 09/09/23 0845</i>						8											
Lab Use Only : Cooler Temperature (s) Celsius (corrected):		http://www.sgs.com/en/terms-and-conditions																	

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Page 3 of 5



5.1
5



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COC #: 2309AFSG02

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		PFAS EPA Draft 1633		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 # CTO CV123F0104															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #															
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order # 151253															
Sampler(s) Name(s) (Printed) Sampler 1: <i>Chris Watson</i> Sampler 2: <i>Tyler Nishikane</i>																	
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	INONE	INCI	INCH	INCO3	INCO4	INCHZINC	DI WATER	MEDI	LAB USE ONLY	
60	AF-RHMW03-WGN01LF-2309	9/7/23	1340	<i>Chris Watson</i>	GW	3	X										
Turnaround Time (Business days)		Data Deliverable Information		Comments / Remarks													
10 Day (Business) 7 Day <input type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other		Approved By: / Date: _____ <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S		EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW <i>United Airlines</i> <i>Airway Bill: 016-92500822</i>													
Rush T/A Data Available VIA Email or Lablink		Sample Custody must be documented below each time samples change possession, including courier delivery.															
Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation												
1 <i>Tyler Nishikane AECOM</i>	9/7/23 1530	2 <i>Eli Martin AECOM</i>	3 <i>Eli Martin AECOM</i>	9/7/23	4 <i>UC</i>												
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation												
5 <i>UC</i>		6 <i>UC</i>	7 <i>UC</i>	09/09/23 0845	8												

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FC9447: Chain of Custody

Page 4 of 5

5.1
5



SGS Sample Receipt Summary

Job Number: fc9447

Client: AECOM

Project: N6274223F0104 RH Fire Suppression Sys

Date / Time Received: 9/9/2023 8:45:00 AM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-92500822

Cooler Temps (Raw Measured) °C: Cooler 1: (5.2);

Cooler Temps (Corrected) °C: Cooler 1: (5.0);

Cooler Informatio

Y or N

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

Trip Blank Information

Y or N N/A

- 1. Trip Blank present / cooler:
- 2. Trip Blank listed on COC:

W or S N/A

- 3. Type of TB Received

Sample Information

Y or N N/A

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

Misc Information

Number of Encores: 25 Gram 5 Gram Number of Lab Filtered Metals

Test Strip Lot #: pH 0-3: _____ pH 10-12: _____ Other: (Specify) _____

Residual Chlorine Test Strip Lot: _____

Comments

SM001

Rev. Date 05/04/17

Technician: SHAYLAP

Date: 9/9/2023 8:45: PM

Reviewer: ZB

Date: 09/09/2023

FC9447: Chain of Custody

Page 5 of 5

5.1
5

QC Evaluation: DOD QSM5.x Limits

Job Number: FC9447
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 09/07/23

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
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No DOD QSM5.x Limits found for methods in this job.

* Sample used for QC is not from job FC9447

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: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q350-IBLK	6Q24321.D	1	09/12/23	MV	n/a	n/a	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q350-IBLK	6Q24321.D	1	09/12/23	MV	n/a	n/a	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	86% 20-150%
	13C5-PFHxA	96% 20-150%
	13C4-PFHpA	101% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	116% 20-150%
	13C6-PFDA	99% 20-150%
	13C7-PFUnDA	93% 20-150%
	13C2-PFDoDA	97% 20-150%
	13C2-PFTeDA	98% 20-150%
	13C3-PFBS	103% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	96% 20-150%
	13C8-FOSA	102% 20-150%
	d3-MeFOSAA	95% 20-150%
	d5-EtFOSAA	82% 20-150%
	13C2-4:2FTS	93% 20-180%
	13C2-6:2FTS	93% 20-180%
	13C2-8:2FTS	97% 20-180%

6.1.1
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Continuing Calibration Blank

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q350-ICCB	6Q24383.D	1	09/13/23	MV	n/a	n/a	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q350-ICCB	6Q24383.D	1	09/13/23	MV	n/a	n/a	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	87% 20-150%
	13C5-PFHxA	96% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	112% 20-150%
	13C6-PFDA	97% 20-150%
	13C7-PFUnDA	99% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	100% 20-150%
	13C3-PFBS	102% 20-150%
	13C3-PFHxS	94% 20-150%
	13C8-PFOS	91% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSAA	89% 20-150%
	d5-EtFOSAA	79% 20-150%
	13C2-4:2FTS	93% 20-180%
	13C2-6:2FTS	89% 20-180%
	13C2-8:2FTS	90% 20-180%

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Continuing Calibration Blank

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q350-ICCB	6Q24394.D	1	09/13/23	MV	n/a	n/a	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q350-ICCB	6Q24394.D	1	09/13/23	MV	n/a	n/a	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-4, FC9447-5, FC9447-6

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	88% 20-150%
	13C5-PFHxA	99% 20-150%
	13C4-PFHpA	100% 20-150%
	13C8-PFOA	104% 20-150%
	13C9-PFNA	109% 20-150%
	13C6-PFDA	100% 20-150%
	13C7-PFUnDA	98% 20-150%
	13C2-PFDoDA	104% 20-150%
	13C2-PFTeDA	102% 20-150%
	13C3-PFBS	108% 20-150%
	13C3-PFHxS	103% 20-150%
	13C8-PFOS	90% 20-150%
	13C8-FOSA	95% 20-150%
	d3-MeFOSAA	88% 20-150%
	d5-EtFOSAA	78% 20-150%
	13C2-4:2FTS	96% 20-180%
	13C2-6:2FTS	93% 20-180%
	13C2-8:2FTS	94% 20-180%

Continuing Calibration Blank

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q350-ICCB	6Q24401.D	1	09/13/23	MV	n/a	n/a	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q350-ICCB	6Q24401.D	1	09/13/23	MV	n/a	n/a	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-4, FC9447-5, FC9447-6

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	102% 20-150%
	13C5-PFPeA	85% 20-150%
	13C5-PFHxA	93% 20-150%
	13C4-PFHpA	97% 20-150%
	13C8-PFOA	94% 20-150%
	13C9-PFNA	106% 20-150%
	13C6-PFDA	97% 20-150%
	13C7-PFUnDA	98% 20-150%
	13C2-PFDoDA	103% 20-150%
	13C2-PFTeDA	98% 20-150%
	13C3-PFBS	106% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	111% 20-150%
	13C8-FOSA	107% 20-150%
	d3-MeFOSAA	103% 20-150%
	d5-EtFOSAA	100% 20-150%
	13C2-4:2FTS	103% 20-180%
	13C2-6:2FTS	100% 20-180%
	13C2-8:2FTS	96% 20-180%

Method Blank Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-MB	6Q24386.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Method Blank Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-MB	6Q24386.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

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

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	92% 20-150%
	13C5-PFPeA	80% 20-150%
	13C5-PFHxA	88% 20-150%
	13C4-PFHpA	92% 20-150%
	13C8-PFOA	86% 20-150%
	13C9-PFNA	95% 20-150%
	13C6-PFDA	85% 20-150%
	13C7-PFUnDA	81% 20-150%
	13C2-PFDoDA	79% 20-150%
	13C2-PFTeDA	78% 20-150%
	13C3-PFBS	96% 20-150%
	13C3-PFHxS	92% 20-150%
	13C8-PFOS	79% 20-150%
	13C8-FOSA	63% 20-150%
	d3-MeFOSA	55% 20-150%
	d5-EtFOSA	60% 20-150%
	d3-MeFOSAA	77% 20-150%
	d5-EtFOSAA	67% 20-150%
	d7-MeFOSE	62% 20-150%
	d9-EtFOSE	68% 20-150%
	13C2-4:2FTS	91% 20-180%
	13C2-6:2FTS	90% 20-180%
	13C2-8:2FTS	79% 20-180%
	13C3-HFPO-DA	89% 20-150%

Blank Spike Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-LLBS	6Q24385.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0320	107	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0157	105	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0075	100	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0075	100	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0070	93	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0064	85	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0079	105	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0077	103	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0075	100	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0073	97	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0077	103	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0061	92	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0074	105	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0075	109	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0081	113	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0073	105	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0070	97	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0076	105	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0066	91	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0303	108	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0274	96	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0315	109	40-150
754-91-6	PFOSA	0.0075	0.0075	100	40-150
31506-32-8	MeFOSA	0.015	0.0153	102	40-150
4151-50-2	EtFOSA	0.015	0.0140	93	40-150
2355-31-9	MeFOSAA	0.0075	0.0079	105	40-150
2991-50-6	EtFOSAA	0.0075	0.0080	107	40-150
24448-09-7	MeFOSE	0.0375	0.0373	99	40-150
1691-99-2	EtFOSE	0.0375	0.0369	98	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0164	109	40-150
919005-14-4	ADONA	0.0142	0.0155	109	40-150
377-73-1	PFMPA	0.015	0.0168	112	40-150
863090-89-5	PFMBA	0.015	0.0169	113	40-150
151772-58-6	NFDHA	0.015	0.0159	106	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0148	106	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0141	99	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-LLBS	6Q24385.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0144	108	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0237	63	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.168	90	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.181	97	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	94%	20-150%
	13C5-PFPeA	80%	20-150%
	13C5-PFHxA	85%	20-150%
	13C4-PFHpA	93%	20-150%
	13C8-PFOA	90%	20-150%
	13C9-PFNA	107%	20-150%
	13C6-PFDA	100%	20-150%
	13C7-PFUnDA	99%	20-150%
	13C2-PFDoDA	93%	20-150%
	13C2-PFTeDA	90%	20-150%
	13C3-PFBS	97%	20-150%
	13C3-PFHxS	89%	20-150%
	13C8-PFOS	96%	20-150%
	13C8-FOSA	67%	20-150%
	d3-MeFOSA	68%	20-150%
	d5-EtFOSA	75%	20-150%
	d3-MeFOSAA	89%	20-150%
	d5-EtFOSAA	80%	20-150%
	d7-MeFOSE	66%	20-150%
	d9-EtFOSE	79%	20-150%
	13C2-4:2FTS	86%	20-180%
	13C2-6:2FTS	91%	20-180%
	13C2-8:2FTS	78%	20-180%
	13C3-HFPO-DA	87%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-BS	6Q24384.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.105	105	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0527	105	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0245	98	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0240	96	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0236	94	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0235	94	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0246	98	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0233	93	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0269	108	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0239	96	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0239	96	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0202	91	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0232	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0236	103	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0232	97	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0228	98	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0240	100	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0222	92	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0209	86	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0933	100	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.109	115	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0968	101	40-150
754-91-6	PFOSA	0.025	0.0257	103	40-150
31506-32-8	MeFOSA	0.05	0.0543	109	40-150
4151-50-2	EtFOSA	0.05	0.0494	99	40-150
2355-31-9	MeFOSAA	0.025	0.0238	95	40-150
2991-50-6	EtFOSAA	0.025	0.0277	111	40-150
24448-09-7	MeFOSE	0.125	0.124	99	40-150
1691-99-2	EtFOSE	0.125	0.122	98	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0527	105	40-150
919005-14-4	ADONA	0.0473	0.0525	111	40-150
377-73-1	PFMPA	0.05	0.0555	111	40-150
863090-89-5	PFMBA	0.05	0.0545	109	40-150
151772-58-6	NFDHA	0.05	0.0538	108	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0481	103	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0444	94	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-BS	6Q24384.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0473	106	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0802	64	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.587	94	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.690	110	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	99%	20-150%
	13C5-PFPeA	90%	20-150%
	13C5-PFHxA	93%	20-150%
	13C4-PFHpA	105%	20-150%
	13C8-PFOA	97%	20-150%
	13C9-PFNA	101%	20-150%
	13C6-PFDA	100%	20-150%
	13C7-PFUnDA	99%	20-150%
	13C2-PFDoDA	86%	20-150%
	13C2-PFTeDA	88%	20-150%
	13C3-PFBS	112%	20-150%
	13C3-PFHxS	103%	20-150%
	13C8-PFOS	94%	20-150%
	13C8-FOSA	66%	20-150%
	d3-MeFOSA	61%	20-150%
	d5-EtFOSA	65%	20-150%
	d3-MeFOSAA	86%	20-150%
	d5-EtFOSAA	73%	20-150%
	d7-MeFOSE	63%	20-150%
	d9-EtFOSE	74%	20-150%
	13C2-4:2FTS	98%	20-180%
	13C2-6:2FTS	86%	20-180%
	13C2-8:2FTS	95%	20-180%
	13C3-HFPO-DA	97%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-MS	6Q24392.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350
FC9447-3	6Q24391.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	FC9447-3 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	0.0952	0.102	107	40-150
2706-90-3	Perfluoropentanoic acid	0.0076 U	0.0476	0.0543	114	40-150
307-24-4	Perfluorohexanoic acid	0.0038 U	0.0238	0.0226	95	40-150
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0238	0.0242	102	40-150
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0238	0.0221	93	40-150
375-95-1	Perfluorononanoic acid	0.0038 U	0.0238	0.0191	80	40-150
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0238	0.0220	92	40-150
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0238	0.0270	113	40-150
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0238	0.0244	102	40-150
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0238	0.0206	87	40-150
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0238	0.0238	100	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0211	0.0226	107	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0048 U	0.0224	0.0209	93	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0218	0.0202	93	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0038 U	0.0227	0.0211	93	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0038 U	0.0221	0.0211	95	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0038 U	0.0229	0.0237	103	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0038 U	0.023	0.0201	87	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0048 U	0.0231	0.0173	75	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019 U	0.0893	0.0916	103	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U	0.0905	0.0954	105	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U	0.0914	0.0835	91	40-150
754-91-6	PFOSA	0.0038 U	0.0238	0.0236	99	40-150
31506-32-8	MeFOSA	0.0076 U	0.0476	0.0519	109	40-150
4151-50-2	EtFOSA	0.0076 U	0.0476	0.0484	102	40-150
2355-31-9	MeFOSAA	0.0048 U	0.0238	0.0254	107	40-150
2991-50-6	EtFOSAA	0.0048 U	0.0238	0.0243	102	40-150
24448-09-7	MeFOSE	0.038 U	0.119	0.115	97	40-150
1691-99-2	EtFOSE	0.038 U	0.119	0.120	101	40-150
13252-13-6	HFPO-DA (GenX)	0.0038 U	0.0476	0.0479	101	40-150
919005-14-4	ADONA	0.0076 U	0.045	0.0475	106	40-150
377-73-1	PFMPA	0.0076 U	0.0476	0.0373	78	40-150
863090-89-5	PFMBA	0.0076 U	0.0476	0.0561	118	40-150
151772-58-6	NFDHA	0.0076 U	0.0476	0.0480	101	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0076 U	0.0445	0.0445	100	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0076 U	0.045	0.0401	89	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-MS	6Q24392.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350
FC9447-3	6Q24391.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	FC9447-3 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0076 U	0.0424	0.0444	105	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	0.119	0.222	186*	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.095 U	0.595	0.590	99	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.095 U	0.595	0.611	103	40-150

CAS No.	ID Standard Recoveries	MS	FC9447-3	Limits
	13C4-PFBA	30%	47%	20-150%
	13C5-PFPeA	73%	83%	20-150%
	13C5-PFHxA	85%	90%	20-150%
	13C4-PFHpA	90%	93%	20-150%
	13C8-PFOA	91%	92%	20-150%
	13C9-PFNA	115%	106%	20-150%
	13C6-PFDA	103%	92%	20-150%
	13C7-PFUnDA	83%	87%	20-150%
	13C2-PFDoDA	83%	69%	20-150%
	13C2-PFTeDA	78%	64%	20-150%
	13C3-PFBS	98%	104%	20-150%
	13C3-PFHxS	101%	93%	20-150%
	13C8-PFOS	97%	89%	20-150%
	13C8-FOSA	82%	84%	20-150%
	d3-MeFOSA	77%	71%	20-150%
	d5-EtFOSA	74%	71%	20-150%
	d3-MeFOSAA	82%	75%	20-150%
	d5-EtFOSAA	78%	71%	20-150%
	d7-MeFOSE	73%	65%	20-150%
	d9-EtFOSE	76%	70%	20-150%
	13C2-4:2FTS	88%	95%	20-180%
	13C2-6:2FTS	92%	91%	20-180%
	13C2-8:2FTS	88%	91%	20-180%
	13C3-HFPO-DA	86%	94%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-DUP	6Q24396.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350
FC9447-4	6Q24395.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	FC9447-4 ug/l	DUP Q ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	ND	nc		30
2706-90-3	Perfluoropentanoic acid	0.0539	0.0524	3		30
307-24-4	Perfluorohexanoic acid	0.0036 U	ND	nc		30
375-85-9	Perfluoroheptanoic acid	0.00052 J	0.00067 J	25		30
335-67-1	Perfluorooctanoic acid	0.0036 U	ND	nc		30
375-95-1	Perfluorononanoic acid	0.0036 U	ND	nc		30
335-76-2	Perfluorodecanoic acid	0.0036 U	ND	nc		30
2058-94-8	Perfluoroundecanoic acid	0.0036 U	ND	nc		30
307-55-1	Perfluorododecanoic acid	0.0036 U	ND	nc		30
72629-94-8	Perfluorotridecanoic acid	0.0036 U	ND	nc		30
376-06-7	Perfluorotetradecanoic acid	0.0036 U	ND	nc		30
375-73-5	Perfluorobutanesulfonic acid	0.0036 U	ND	nc		30
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U	ND	nc		30
355-46-4	Perfluorohexanesulfonic acid	0.0036 U	ND	nc		30
375-92-8	Perfluoroheptanesulfonic acid	0.0036 U	ND	nc		30
1763-23-1	Perfluorooctanesulfonic acid	0.0036 U	ND	nc		30
68259-12-1	Perfluorononanesulfonic acid	0.0036 U	ND	nc		30
335-77-3	Perfluorodecanesulfonic acid	0.0036 U	ND	nc		30
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U	ND	nc		30
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	ND	nc		30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0042 J	0.0039 J	7		30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	ND	nc		30
754-91-6	PFOSA	0.0036 U	ND	nc		30
31506-32-8	MeFOSA	0.0073 U	ND	nc		30
4151-50-2	EtFOSA	0.0073 U	ND	nc		30
2355-31-9	MeFOSAA	0.0045 U	ND	nc		30
2991-50-6	EtFOSAA	0.0045 U	ND	nc		30
24448-09-7	MeFOSE	0.036 U	ND	nc		30
1691-99-2	EtFOSE	0.036 U	ND	nc		30
13252-13-6	HFPO-DA (GenX)	0.0036 U	ND	nc		30
919005-14-4	ADONA	0.0073 U	ND	nc		30
377-73-1	PFMPA	0.0073 U	ND	nc		30
863090-89-5	PFMBA	0.0073 U	ND	nc		30
151772-58-6	NFDHA	0.0073 U	ND	nc		30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U	ND	nc		30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U	ND	nc		30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP98930-DUP	6Q24396.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350
FC9447-4	6Q24395.D	1	09/13/23	MV	09/11/23	OP98930	S6Q350

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC9447-1, FC9447-2, FC9447-3, FC9447-4, FC9447-5, FC9447-6

CAS No.	Compound	FC9447-4 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7PFEESA		0.0073 U	ND			nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	ND			nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.091 U	ND			nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.091 U	ND			nc	30

CAS No.	ID Standard Recoveries	DUP	FC9447-4	Limits
	13C4-PFBA	76%	74%	20-150%
	13C5-PFPeA	72%	66%	20-150%
	13C5-PFHxA	88%	86%	20-150%
	13C4-PFHpA	96%	97%	20-150%
	13C8-PFOA	95%	85%	20-150%
	13C9-PFNA	102%	102%	20-150%
	13C6-PFDA	92%	94%	20-150%
	13C7-PFUnDA	89%	83%	20-150%
	13C2-PFDoDA	79%	71%	20-150%
	13C2-PFTeDA	57%	56%	20-150%
	13C3-PFBS	91%	96%	20-150%
	13C3-PFHxS	87%	96%	20-150%
	13C8-PFOS	83%	88%	20-150%
	13C8-FOSA	78%	85%	20-150%
	d3-MeFOSA	58%	59%	20-150%
	d5-EtFOSA	60%	54%	20-150%
	d3-MeFOSAA	71%	83%	20-150%
	d5-EtFOSAA	67%	71%	20-150%
	d7-MeFOSE	61%	61%	20-150%
	d9-EtFOSE	64%	60%	20-150%
	13C2-4:2FTS	82%	87%	20-180%
	13C2-6:2FTS	73%	79%	20-180%
	13C2-8:2FTS	72%	75%	20-180%
	13C3-HFPO-DA	76%	71%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q350-CC347	Injection Date:	09/13/23
Lab File ID:	6Q24382.D	Injection Time:	01:54
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	73917	2.99	52058	5.64	82938	7.20	40329	7.73	28860	8.21
Check Std ^c	78985	3.00	57713	5.65	91568	7.21	39635	7.74	30051	8.21
Upper Limit ^d	147834	3.40	104116	6.05	165876	7.61	80658	8.14	57720	8.61
Lower Limit ^e	29567	2.60	20823	5.25	33175	6.81	16132	7.34	11544	7.81

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
S6Q350-ICCB	78609	3.00	57394	5.65	89367	7.21	36866	7.73	30140	8.21	1
S6Q350-ICCB	78609	3.00	57394	5.65	89367	7.21	36866	7.73	30140	8.21	1
OP98930-BS	74111	3.01	50530	5.65	82205	7.21	36371	7.74	27286	8.22	1
OP98930-LLBS	76298	3.03	54842	5.65	85855	7.21	36460	7.74	26350	8.22	1
OP98930-MB	79967	3.03	56135	5.65	93524	7.21	38783	7.74	30450	8.22	1
ZZZZZZ	78490	3.03	58336	5.65	83315	7.21	41058	7.74	30049	8.22	1
ZZZZZZ	77518	3.03	54024	5.65	90206	7.21	38398	7.74	29912	8.22	1
FC9447-1	82029	3.01	58023	5.65	93686	7.21	38006	7.73	28723	8.21	1
FC9447-2	78049	3.03	56669	5.65	89399	7.21	39490	7.74	26025	8.22	1
FC9447-3	76744	3.03	53604	5.65	86228	7.21	36841	7.74	29626	8.22	1
OP98930-MS	77382	3.03	57458	5.65	85619	7.21	37162	7.74	27513	8.22	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: S6Q347-ICC347 6Q24131.D 09/09/23 21:29. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q350-CC347	Injection Date:	09/13/23
Lab File ID:	6Q24382.D	Injection Time:	01:54
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9886	7.31	16775	8.36
Check Std ^c	10500	7.33	17573	8.37
Upper Limit ^d	19772	7.73	33550	8.77
Lower Limit ^e	3954	6.93	6710	7.97

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q350-ICCB	10420	7.33	17209	8.37	1
S6Q350-ICCB	10420	7.33	17209	8.37	1
OP98930-BS	8874	7.33	16258	8.37	1
OP98930-LLBS	9611	7.33	14990	8.37	1
OP98930-MB	9651	7.33	18706	8.37	1
ZZZZZZ	9735	7.31	18341	8.37	1
ZZZZZZ	10428	7.33	16876	8.37	1
FC9447-1	10680	7.33	18014	8.37	1
FC9447-2	9379	7.33	16106	8.37	1
FC9447-3	9229	7.33	16876	8.37	1
OP98930-MS	9310	7.33	16218	8.37	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q347-ICC347 6Q24131.D 09/09/23 21:29. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1
6

Injection Standard Area Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q350-CC347	Injection Date:	09/13/23
Lab File ID:	6Q24393.D	Injection Time:	04:32
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	73917	2.99	52058	5.64	82938	7.20	40329	7.73	28860	8.21
Check Std ^c	80224	3.00	58372	5.65	93254	7.21	39738	7.73	28739	8.21
Upper Limit ^d	147834	3.40	104116	6.05	165876	7.61	80658	8.13	57720	8.61
Lower Limit ^e	29567	2.60	20823	5.25	33175	6.81	16132	7.33	11544	7.81

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
S6Q350-ICCB	78299	3.00	56540	5.65	90678	7.21	40167	7.74	30286	8.21	1
FC9447-4	64429	3.01	57196	5.64	95168	7.21	40000	7.73	30339	8.22	1
OP98930-DUP	67187	3.01	56799	5.64	91704	7.21	42367	7.73	30831	8.21	1
FC9447-5	63399	3.01	56274	5.65	93978	7.21	36617	7.74	29310	8.22	1
FC9447-6	76391	3.03	55473	5.65	94087	7.21	40094	7.74	29954	8.22	1
ZZZZZZ	104100	3.03	55330	5.65	89160	7.21	35120	7.73	31250	8.21	10
S6Q350-ECC347	80042	3.00	57862	5.65	91345	7.21	39905	7.74	30323	8.21	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: S6Q347-ICC347 6Q24131.D 09/09/23 21:29. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

Injection Standard Area Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q350-CC347	Injection Date:	09/13/23
Lab File ID:	6Q24393.D	Injection Time:	04:32
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9886	7.31	16775	8.36
Check Std ^c	9818	7.31	16998	8.37
Upper Limit ^d	19772	7.71	33550	8.77
Lower Limit ^e	3954	6.91	6710	7.97

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q350-ICCB	9804	7.33	17681	8.37	1
FC9447-4	9467	7.31	17385	8.37	1
OP98930-DUP	10190	7.33	18584	8.37	1
FC9447-5	8774	7.33	16251	8.37	1
FC9447-6	9123	7.33	17017	8.37	1
ZZZZZZ	9580	7.33	15890	8.36	10
S6Q350-ECC347	9459	7.33	18599	8.37	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q347-ICC347 6Q24131.D 09/09/23 21:29. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -60 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 = -60% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.2
6

TDCA Retention Time Check

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q347-RT	Injection Date:	09/09/23
Lab File ID:	6Q24125.D	Injection Time:	20:03
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.374	--	--
TDCA	6.923	1.451	1.000
TCDCA	6.762	1.612	1.000
TUDCA	5.947	2.427	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
S6Q347-IC347	6Q24127.D	09/09/23	20:31	00:28	Mass Calibration Verification
S6Q347-IC347	6Q24128.D	09/09/23	20:46	00:43	Initial cal 1
S6Q347-IC347	6Q24129.D	09/09/23	21:00	00:57	Initial cal 2
S6Q347-IC347	6Q24130.D	09/09/23	21:14	01:11	Initial cal 3
S6Q347-ICC347	6Q24131.D	09/09/23	21:29	01:26	Initial cal 4
S6Q347-IC347	6Q24132.D	09/09/23	21:43	01:40	Initial cal 5
S6Q347-IC347	6Q24133.D	09/09/23	21:57	01:54	Initial cal 6
S6Q347-IC347	6Q24134.D	09/09/23	22:12	02:09	Initial cal 7
S6Q347-IC347	6Q24135.D	09/09/23	22:26	02:23	Initial cal 8
S6Q347-IBLK	6Q24136.D	09/09/23	22:41	02:38	Instrument Blank
S6Q347-IBLK	6Q24136.D	09/09/23	22:41	02:38	Instrument Blank
S6Q347-ICV347	6Q24137.D	09/09/23	22:55	02:52	Initial cal verification 4
S6Q347-ICV347	6Q24138.D	09/09/23	23:09	03:06	Initial cal verification 20
S6Q347-CC347	6Q24139.D	09/09/23	23:23	03:20	Continuing cal 4
S6Q347-CC347	6Q24140.D	09/09/23	23:38	03:35	Continuing cal 1.0LL
OP98824-BS	6Q24141.D	09/09/23	23:52	03:49	Blank Spike
OP98824-LLBS	6Q24142.D	09/10/23	00:06	04:03	Blank Spike
OP98824-MB	6Q24143.D	09/10/23	00:21	04:18	Method Blank
ZZZZZZ	6Q24144.D	09/10/23	00:35	04:32	(unrelated sample)
ZZZZZZ	6Q24145.D	09/10/23	00:49	04:46	(unrelated sample)
ZZZZZZ	6Q24146.D	09/10/23	01:04	05:01	(unrelated sample)
ZZZZZZ	6Q24147.D	09/10/23	01:18	05:15	(unrelated sample)
ZZZZZZ	6Q24148.D	09/10/23	01:32	05:29	(unrelated sample)
ZZZZZZ	6Q24149.D	09/10/23	01:47	05:44	(unrelated sample)
ZZZZZZ	6Q24150.D	09/10/23	02:01	05:58	(unrelated sample)
S6Q347-CC347	6Q24151.D	09/10/23	02:15	06:12	Continuing cal 4
S6Q347-ICCB	6Q24152.D	09/10/23	02:30	06:27	Continuing Calibration Blank
S6Q347-ICCB	6Q24152.D	09/10/23	02:30	06:27	Continuing Calibration Blank
ZZZZZZ	6Q24153.D	09/10/23	02:44	06:41	(unrelated sample)
ZZZZZZ	6Q24154.D	09/10/23	02:58	06:55	(unrelated sample)
ZZZZZZ	6Q24155.D	09/10/23	03:13	07:10	(unrelated sample)
ZZZZZZ	6Q24156.D	09/10/23	03:27	07:24	(unrelated sample)
S6Q347-ECC347	6Q24157.D	09/10/23	03:41	07:38	Ending cal 4
S6Q347-ICCB	6Q24158.D	09/10/23	03:56	07:53	Continuing Calibration Blank

TDCA Retention Time Check

Job Number: FC9447
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-RT	Injection Date: 09/09/23
Lab File ID: 6Q24125.D	Injection Time: 20:03
Instrument ID: GCMS6Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q347-ICCB	6Q24158.D	09/10/23	03:56	07:53	Continuing Calibration Blank

6.6.1

6

TDCA Retention Time Check

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q350-RT	Injection Date:	09/12/23
Lab File ID:	6Q24318.D	Injection Time:	10:37
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.374	--	--
TDCA	6.935	1.439	1.000
TCDCA	6.786	1.588	1.000
TUDCA	5.960	2.414	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
S6Q350-IBLK	6Q24321.D	09/12/23	11:20	00:43	Instrument Blank
S6Q350-IBLK	6Q24321.D	09/12/23	11:20	00:43	Instrument Blank
S6Q350-CC347	6Q24322.D	09/12/23	11:35	00:58	Continuing cal 4
S6Q350-CC347	6Q24323.D	09/12/23	11:49	01:12	Continuing cal 1.0LL
OP98860-BS	6Q24324.D	09/12/23	12:03	01:26	Blank Spike
OP98860-LLBS	6Q24325.D	09/12/23	12:18	01:41	Blank Spike
OP98860-MB	6Q24326.D	09/12/23	12:32	01:55	Method Blank
FC8993-1	6Q24327.D	09/12/23	12:46	02:09	(used for QC only; not part of job FC9447)
OP98860-MS	6Q24328.D	09/12/23	13:01	02:24	Matrix Spike
OP98860-MSD	6Q24329.D	09/12/23	13:15	02:38	Matrix Spike Duplicate
ZZZZZZ	6Q24330.D	09/12/23	13:29	02:52	(unrelated sample)
ZZZZZZ	6Q24331.D	09/12/23	13:44	03:07	(unrelated sample)
ZZZZZZ	6Q24332.D	09/12/23	13:58	03:21	(unrelated sample)
ZZZZZZ	6Q24333.D	09/12/23	14:12	03:35	(unrelated sample)
S6Q350-CC347	6Q24334.D	09/12/23	14:27	03:50	Continuing cal 4
S6Q350-ICCB	6Q24335.D	09/12/23	14:41	04:04	Continuing Calibration Blank
S6Q350-ICCB	6Q24335.D	09/12/23	14:41	04:04	Continuing Calibration Blank
ZZZZZZ	6Q24336.D	09/12/23	14:55	04:18	(unrelated sample)
ZZZZZZ	6Q24337.D	09/12/23	15:10	04:33	(unrelated sample)
ZZZZZZ	6Q24338.D	09/12/23	15:24	04:47	(unrelated sample)
ZZZZZZ	6Q24339.D	09/12/23	15:38	05:01	(unrelated sample)
ZZZZZZ	6Q24340.D	09/12/23	15:53	05:16	(unrelated sample)
ZZZZZZ	6Q24341.D	09/12/23	16:07	05:30	(unrelated sample)
ZZZZZZ	6Q24342.D	09/12/23	16:21	05:44	(unrelated sample)
ZZZZZZ	6Q24343.D	09/12/23	16:36	05:59	(unrelated sample)
ZZZZZZ	6Q24344.D	09/12/23	16:50	06:13	(unrelated sample)
ZZZZZZ	6Q24345.D	09/12/23	17:04	06:27	(unrelated sample)
S6Q350-CC347	6Q24346.D	09/12/23	17:19	06:42	Continuing cal 4
S6Q350-ICCB	6Q24347.D	09/12/23	17:33	06:56	Continuing Calibration Blank
S6Q350-ICCB	6Q24347.D	09/12/23	17:33	06:56	Continuing Calibration Blank
ZZZZZZ	6Q24348.D	09/12/23	17:47	07:10	(unrelated sample)
ZZZZZZ	6Q24349.D	09/12/23	18:02	07:25	(unrelated sample)
ZZZZZZ	6Q24350.D	09/12/23	18:16	07:39	(unrelated sample)
ZZZZZZ	6Q24351.D	09/12/23	18:30	07:53	(unrelated sample)

TDCA Retention Time Check

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q350-RT	Injection Date:	09/12/23
Lab File ID:	6Q24318.D	Injection Time:	10:37
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
OP98861-BS	6Q24352.D	09/12/23	18:45	08:08	Blank Spike
OP98861-LLBS	6Q24353.D	09/12/23	18:59	08:22	Blank Spike
OP98861-MB	6Q24354.D	09/12/23	19:13	08:36	Method Blank
FC8993-20	6Q24355.D	09/12/23	19:28	08:51	(used for QC only; not part of job FC9447)
OP98861-MS	6Q24356.D	09/12/23	19:42	09:05	Matrix Spike
OP98861-MSD	6Q24357.D	09/12/23	19:56	09:19	Matrix Spike Duplicate
S6Q350-CC347	6Q24358.D	09/12/23	20:11	09:34	Continuing cal 4
S6Q350-ICCB	6Q24359.D	09/12/23	20:25	09:48	Continuing Calibration Blank
S6Q350-ICCB	6Q24359.D	09/12/23	20:25	09:48	Continuing Calibration Blank
ZZZZZZ	6Q24360.D	09/12/23	20:39	10:02	(unrelated sample)
ZZZZZZ	6Q24361.D	09/12/23	20:54	10:17	(unrelated sample)
ZZZZZZ	6Q24362.D	09/12/23	21:08	10:31	(unrelated sample)
ZZZZZZ	6Q24363.D	09/12/23	21:22	10:45	(unrelated sample)
ZZZZZZ	6Q24364.D	09/12/23	21:37	11:00	(unrelated sample)
ZZZZZZ	6Q24365.D	09/12/23	21:51	11:14	(unrelated sample)
ZZZZZZ	6Q24366.D	09/12/23	22:05	11:28	(unrelated sample)
ZZZZZZ	6Q24367.D	09/12/23	22:20	11:43	(unrelated sample)
ZZZZZZ	6Q24368.D	09/12/23	22:34	11:57	(unrelated sample)
ZZZZZZ	6Q24369.D	09/12/23	22:48	12:11	(unrelated sample)
S6Q350-CC347	6Q24370.D	09/12/23	23:03	12:26	Continuing cal 4
S6Q350-ICCB	6Q24371.D	09/12/23	23:17	12:40	Continuing Calibration Blank
S6Q350-ICCB	6Q24371.D	09/12/23	23:17	12:40	Continuing Calibration Blank
ZZZZZZ	6Q24372.D	09/12/23	23:31	12:54	(unrelated sample)
ZZZZZZ	6Q24373.D	09/12/23	23:46	13:09	(unrelated sample)
ZZZZZZ	6Q24374.D	09/13/23	00:00	13:23	(unrelated sample)
ZZZZZZ	6Q24375.D	09/13/23	00:14	13:37	(unrelated sample)
ZZZZZZ	6Q24376.D	09/13/23	00:29	13:52	(unrelated sample)
ZZZZZZ	6Q24377.D	09/13/23	00:43	14:06	(unrelated sample)
ZZZZZZ	6Q24378.D	09/13/23	00:57	14:20	(unrelated sample)
ZZZZZZ	6Q24379.D	09/13/23	01:12	14:35	(unrelated sample)
ZZZZZZ	6Q24380.D	09/13/23	01:26	14:49	(unrelated sample)
ZZZZZZ	6Q24381.D	09/13/23	01:40	15:03	(unrelated sample)
S6Q350-CC347	6Q24382.D	09/13/23	01:54	15:17	Continuing cal 4
S6Q350-ICCB	6Q24383.D	09/13/23	02:09	15:32	Continuing Calibration Blank
S6Q350-ICCB	6Q24383.D	09/13/23	02:09	15:32	Continuing Calibration Blank
OP98930-BS	6Q24384.D	09/13/23	02:23	15:46	Blank Spike
OP98930-LLBS	6Q24385.D	09/13/23	02:37	16:00	Blank Spike
OP98930-MB	6Q24386.D	09/13/23	02:52	16:15	Method Blank
ZZZZZZ	6Q24387.D	09/13/23	03:06	16:29	(unrelated sample)
ZZZZZZ	6Q24388.D	09/13/23	03:20	16:43	(unrelated sample)
FC9447-1	6Q24389.D	09/13/23	03:35	16:58	AF-RHMW16-WGN01LF-2309
FC9447-2	6Q24390.D	09/13/23	03:49	17:12	AF-RHMW12A-WGN01LF-2309
FC9447-3	6Q24391.D	09/13/23	04:03	17:26	AF-RHMW12A-WGFD01LF-2309
OP98930-MS	6Q24392.D	09/13/23	04:18	17:41	Matrix Spike

6.6.2
6

TDCA Retention Time Check

Job Number: FC9447
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-RT	Injection Date: 09/12/23
Lab File ID: 6Q24318.D	Injection Time: 10:37
Instrument ID: GCMS6Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S6Q350-CC347	6Q24393.D	09/13/23	04:32	17:55	Continuing cal 4
S6Q350-ICCB	6Q24394.D	09/13/23	04:46	18:09	Continuing Calibration Blank
FC9447-4	6Q24395.D	09/13/23	05:01	18:24	AF-RHMW02-WGN01LF-2309
OP98930-DUP	6Q24396.D	09/13/23	05:15	18:38	Duplicate
FC9447-5	6Q24397.D	09/13/23	05:29	18:52	AF-RHMW02-WGFD01LF-2309
FC9447-6	6Q24398.D	09/13/23	05:44	19:07	AF-RHMW03-WGN01LF-2309
ZZZZZZ	6Q24399.D	09/13/23	05:58	19:21	(unrelated sample)
S6Q350-ECC347	6Q24400.D	09/13/23	06:12	19:35	Ending cal 4
S6Q350-ICCB	6Q24401.D	09/13/23	06:27	19:50	Continuing Calibration Blank

6.6.2

6

Ion Ratio Summary

Job Number: FC9447
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q350 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios					
		PFPeA	PFHxA	PFHpA	PFOA	PFDoDA	6:2FTS
S6Q347-ICC347	6Q24131.D	0	4.4	14.8	18.4	11.5	39.7
FC9447-1	6Q24389.D						
FC9447-2	6Q24390.D						
FC9447-3	6Q24391.D						
FC9447-4	6Q24395.D	0		13.7			32.5
FC9447-5	6Q24397.D	0	2.4				28.6
FC9447-6	6Q24398.D	0	1.8	13.1	23.1	2.8	38.6

6.7.1

6

Isotope Dilution Standard Recovery Summary

Job Number: FC9447
 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
FC9447-1	6Q24389.D	74	73	81	84	86	97	90	82
FC9447-2	6Q24390.D	44	78	86	92	89	100	105	91
FC9447-3	6Q24391.D	47	83	90	93	92	106	92	87
FC9447-4	6Q24395.D	74	66	86	97	85	102	94	83
FC9447-5	6Q24397.D	85	70	89	99	90	110	91	76
FC9447-6	6Q24398.D	88	79	88	98	84	100	94	90
OP98930-BS	6Q24384.D	99	90	93	105	97	101	100	99
OP98930-DUP	6Q24396.D	76	72	88	96	95	102	92	89
OP98930-LLBS	6Q24385.D	94	80	85	93	90	107	100	99
OP98930-MB	6Q24386.D	92	80	88	92	86	95	85	81
OP98930-MS	6Q24392.D	30	73	85	90	91	115	103	83
S6Q350-IBLK	6Q24321.D	101	86	96	101	97	116	99	93
S6Q350-ICCB	6Q24383.D	101	87	96	103	97	112	97	99
S6Q350-ICCB	6Q24394.D	101	88	99	100	104	109	100	98
S6Q350-ICCB	6Q24401.D	102	85	93	97	94	106	97	98

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: FC9447
 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
FC9447-1	6Q24389.D	78	71	85	85	87	71	68	73
FC9447-2	6Q24390.D	80	69	102	97	104	81	74	73
FC9447-3	6Q24391.D	69	64	104	93	89	84	71	71
FC9447-4	6Q24395.D	71	56	96	96	88	85	59	54
FC9447-5	6Q24397.D	63	55	108	103	87	90	66	64
FC9447-6	6Q24398.D	73	57	114	94	94	82	57	59
OP98930-BS	6Q24384.D	86	88	112	103	94	66	61	65
OP98930-DUP	6Q24396.D	79	57	91	87	83	78	58	60
OP98930-LLBS	6Q24385.D	93	90	97	89	96	67	68	75
OP98930-MB	6Q24386.D	79	78	96	92	79	63	55	60
OP98930-MS	6Q24392.D	83	78	98	101	97	82	77	74
S6Q350-IBLK	6Q24321.D	97	98	103	101	96	102		
S6Q350-ICCB	6Q24383.D	98	100	102	94	91	100		
S6Q350-ICCB	6Q24394.D	104	102	108	103	90	95		
S6Q350-ICCB	6Q24401.D	103	98	106	101	111	107		

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: FC9447
 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
FC9447-1	6Q24389.D	73	61	67	72	83	81	79	85
FC9447-2	6Q24390.D	78	75	64	69	91	94	88	84
FC9447-3	6Q24391.D	75	71	65	70	95	91	91	94
FC9447-4	6Q24395.D	83	71	61	60	87	79	75	71
FC9447-5	6Q24397.D	73	66	68	67	98	92	76	77
FC9447-6	6Q24398.D	78	72	68	63	93	84	78	86
OP98930-BS	6Q24384.D	86	73	63	74	98	86	95	97
OP98930-DUP	6Q24396.D	71	67	61	64	82	73	72	76
OP98930-LLBS	6Q24385.D	89	80	66	79	86	91	78	87
OP98930-MB	6Q24386.D	77	67	62	68	91	90	79	89
OP98930-MS	6Q24392.D	82	78	73	76	88	92	88	86
S6Q350-IBLK	6Q24321.D	95	82			93	93	97	
S6Q350-ICCB	6Q24383.D	89	79			93	89	90	
S6Q350-ICCB	6Q24394.D	88	78			96	93	94	
S6Q350-ICCB	6Q24401.D	103	100			103	100	96	

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	20-180%
S22 = 13C2-6:2FTS	20-180%
S23 = 13C2-8:2FTS	20-180%
S24 = 13C3-HFPO-DA	20-150%

6.8.1

6

Initial Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICC347
 Lab FileID: 6Q24131.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods											
Method File	1633_090923_S6Q347.quantmethod.xml											
Batch Name	D:\MassHunter\Data\090923_1633_S6Q347\QuantResults\6q347.batch.bin											
Last Calib Update	9/10/2023 12:48:31 PM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d											
2	D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d											
3	D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d											
4	D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d											
5	D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d											
6	D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d											
7	D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d											
8	D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d											
Compound												
I M4-PFBA												
T PFBA												
T 3:3FTCA												
I M5-PFPeA												
T PFMPA												
T PFPeA												
T PFMBA												
I M5-PFHxA												
T NFDHA												
T PFHxA												
T PFEEA												
T 5:3FTCA												
T 7:3FTCA												
I M4-PFHpA												
T PFHpA												
I M8-PFOA												
T PFOA												
I M9-PFNA												
T PFNA												
I M6-PFDA												
T PFDA												
I M7-PFUnDA												
T PFUnDA												
I M2-PFDdA												

Initial Calibration Summary

Job Number: FC9447
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICC347
 Lab FileID: 6Q24131.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.9292	0.9016	0.8473	0.9160	0.9202	1.0372	0.9717	0.8983	0.9277	6.061
T PFTfDA	Avg RF	1.0587	1.0418	1.0570	0.9980	1.0482	1.1585	1.0981	0.9783	1.0548	5.306
I M2-PFTeDA	Avg RF	1.8856	1.7514	1.6722	1.7953	1.8782	1.8294	1.8414	1.7525	1.8008	4.037
T PFTeDA						ISTD					
I M8-FOSA	Avg RF	0.8885	0.9483	0.9095	0.8800	0.9248	0.9711	0.9332	0.9042	0.9200	3.330
T FOSA						ISTD					
I M3-PFBS	Avg RF	1.2048	1.2544	1.1458	1.1954	1.1733	1.2562	1.2814	1.2993	1.2263	4.439
T PFBS						ISTD					
I M3-PFHxS	Avg RF	1.3412	1.3763	1.2197	1.3247	1.4853	1.3321	1.4186	1.3820	1.3600	5.692
T PFPeS	Avg RF	1.5265	1.6517	1.5508	1.3972	1.6587	1.4390	1.7126	1.6066	1.5679	7.046
T PFHxS						ISTD					
I M8-PFOS	Avg RF	1.3779	1.2711	1.1067	1.1676	1.2119	1.2089	1.1761	1.1601	1.2100	6.847
T PFHpS	Avg RF	1.4142	1.5678	1.2512	1.2888	1.4469	1.3684	1.3556	1.3877	1.3851	7.033
T PFOs	Avg RF	1.2135	1.1588	1.0559	1.1360	1.1892	1.3382	1.1882	1.1635	1.1804	6.743
T PFNS	Avg RF	0.7122	0.7742	0.6141	0.6940	0.7812	0.7553	0.7506	0.7452	0.7284	7.501
T PFDS	Avg RF	0.3683	0.4249	0.3733	0.3877	0.4221	0.4064	0.4006	0.4093	0.3991	5.276
T PFDoDS						ISTD					
I M2-4:2FTS	Avg RF	8.4165	8.5913	7.8020	8.1516	8.2851	8.4961	8.9032	7.5096	8.2694	5.385
T 4:2FTS						ISTD					
I M2-6:2FTS	Avg RF	4.4708	4.4499	4.3779	4.3833	4.7150	4.4815	4.3214	4.1869	4.4233	3.432
T 6:2FTS						ISTD					
I M2-8:2FTS	Avg RF	3.5833	3.4861	3.6757	3.1175	3.1436	3.6205	3.5599	2.7967	3.3729	9.341
T 8:2FTS						ISTD					
I M3-MeFOSAA	Avg RF	1.2659	1.1705	1.2332	1.1658	1.0222	1.2467	1.2370	1.1602	1.1877	6.601
T MeFOSAA						ISTD					
I M3-HFO-DA	Avg RF	0.8735	0.9683	0.9223	0.9505	0.9441	0.9293	1.0102	0.9716	0.9462	4.264
T HFO-DA	Avg RF	13.71	14.29	14.34	15.42	14.32	14.07	15.64	14.05	14.48	4.708
T ADONA	Avg RF	5.4084	5.9667	5.9765	7.1218	6.6304	6.1945	6.3034	6.4310	6.2541	8.123
T 9Cl-PF3ONS	Avg RF	3.5170	3.6777	3.6002	4.1867	3.5871	3.5928	3.7214	3.3043	3.6484	6.878
T 11Cl-PF3OUds						ISTD					
I M5-EFOSAA	Avg RF	0.7400	0.7377	0.7261	0.6945	0.6795	0.6000	0.7950	0.6765	0.7062	8.193
T EFOSAA						ISTD					
I M7-MeFOSE	Avg RF	1.0542	1.0354	1.0669	1.0635	1.0817	1.1212	1.1019	1.1236	1.0811	2.960
T MeFOSE						ISTD					
I M9-EFOSE	Avg RF	1.1041	1.2319	1.1956	1.2073	1.1832	1.2245	1.2119	1.1462	1.1881	3.637
T EFOSE						ISTD					

Generated at 12:50 PM on 9/10/2023

Page 2 of 3

Initial Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICC347
 Lab FileID: 6Q24131.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA	Avg RF	1.2887	1.3126	1.2893	1.3358	1.4123	1.3592	1.4659	1.4178	1.3602	4.829
T EFOSA						ISTD					
I M3-MeFOSA	Avg RF	1.0318	1.0724	1.0764	1.0798	1.0335	1.0951	1.0865	1.0125	1.0610	2.871
T MeFOSA						ISTD					
I 13C4-PFOS						ISTD					
S d3-MeFOSAA	Avg RF	0.6776	0.7083	0.6701	0.6458	0.7850	0.6665	0.7220	0.7165	0.6990	6.281
S 13C8-PFOS	Avg RF	0.7398	0.7415	0.8625	0.7380	0.7533	0.7669	0.8726	0.8261	0.7876	7.246
S d5-EFOSAA	Avg RF	0.6430	0.6630	0.6669	0.6233	0.6512	0.7405	0.6587	0.7328	0.6724	6.238
S 13C8-FOSA	Avg RF	1.6327	1.7572	1.7695	1.6490	1.7148	1.7726	1.9547	1.9874	1.7797	7.275
S d7-MeFOSE	Avg RF	0.6103	0.6411	0.6653	0.6032	0.6713	0.6439	0.7125	0.7107	0.6573	6.229
S d3-MeFOSA	Avg RF	0.6619	0.6897	0.6944	0.6482	0.7349	0.7215	0.7892	0.8312	0.7214	8.686
S d9-EFOSE	Avg RF	0.8556	0.8416	0.8863	0.8284	0.8959	0.8848	0.9634	0.9203	0.8845	4.958
S d5-EFOSA	Avg RF	0.6302	0.6923	0.6886	0.6147	0.6631	0.6860	0.7123	0.6942	0.6727	5.061
I 13C3-PFBA						ISTD					
S 13C4-PFBA	Avg RF	1.2605	1.2637	1.2773	1.2645	1.2606	1.2603	1.2563	1.2586	1.2627	0.508
I 18O2-PFHxS						ISTD					
S 13C2-4:2FTS	Avg RF	0.1515	0.1498	0.1545	0.1614	0.1447	0.1290	0.1237	0.1109	0.1407	12.464
S 13C3-PBBS	Avg RF	2.3832	2.2233	2.3578	2.3575	2.4722	2.1927	2.3507	2.1589	2.3120	4.680
S 13C2-6:2FTS	Avg RF	0.2142	0.2265	0.2250	0.2369	0.2054	0.1869	0.1949	0.1620	0.2065	11.899
S 13C3-PFHxS	Avg RF	1.4125	1.2987	1.3896	1.4459	1.3144	1.3840	1.4094	1.3318	1.3733	3.817
S 13C2-8:2FTS	Avg RF	0.2219	0.2156	0.2152	0.2464	0.2370	0.1937	0.2026	0.1778	0.2138	10.453
I 13C4-PFOA						ISTD					
S 13C8-PFOA	Avg RF	0.9502	0.8542	0.9544	0.9029	0.9380	0.9741	0.8503	0.9359	0.9200	5.045
I 13C2-PFDA						ISTD					
S 13C6-PFDA	Avg RF	1.0458	1.1031	1.0997	1.1527	1.0542	1.1612	1.0435	1.0469	1.0884	4.461
S 13C7-PFUnDA	Avg RF	1.4854	1.5255	1.4622	1.6139	1.4807	1.5075	1.2993	1.2911	1.4582	7.585
S 13C2-PFDODA	Avg RF	1.3382	1.4103	1.3086	1.4038	1.3645	1.3111	1.2872	1.3024	1.3407	3.524
S 13C2-PFTeDA	Avg RF	0.4875	0.5050	0.5091	0.5199	0.4729	0.4995	0.4953	0.4981	0.4984	2.836
I 13C5-PFNA						ISTD					
S 13C9-PFNA	Avg RF	0.8032	0.7721	0.7829	0.8342	0.8413	0.7284	0.7687	0.7187	0.7812	5.693
I 13C2-PFHxA						ISTD					
S 13C5-PPeA	Avg RF	0.3525	0.3356	0.3331	0.3289	0.3417	0.3286	0.3449	0.3303	0.3369	2.566
S 13C5-PFHxA	Avg RF	1.4024	1.3651	1.3549	1.3450	1.4014	1.2726	1.4679	1.4152	1.3781	4.205
S 13C3-HPOD-A	Avg RF	0.1969	0.1936	0.1859	0.1746	0.1890	0.1955	0.1923	0.1956	0.1904	3.876
S 13C4-PFHpA	Avg RF	1.1161	1.0747	1.0784	1.0414	1.0626	1.0458	1.0786	1.0938	1.0739	2.278

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

Initial Calibration Verification

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICV347
 Lab FileID: 6Q24137.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\090923_1633_S6Q347\s6q347.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24137
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	6.066	21.3	121.3
13C2-6:2FTS	5.000	5.579	11.6	111.6
13C2-8:2FTS	5.000	5.598	12.0	112.0
13C2-PFDoDA	1.250	1.278	2.2	102.2
13C2-PFTeDA	1.250	1.352	8.2	108.2
13C3-PFBS	2.500	2.754	10.2	110.2
13C3-PFHxS	2.500	2.699	8.0	108.0
13C4-PFBA	10.000	10.046	0.5	100.5
13C4-PFHpA	2.500	2.527	1.1	101.1
13C5-PFHxA	2.500	2.566	2.6	102.6
13C5-PFPeA	5.000	5.174	3.5	103.5
13C6-PFDA	1.250	1.403	12.3	112.3
13C7-PFUnDA	1.250	1.342	7.4	107.4
13C8-FOSA	2.500	2.453	-1.9	98.1
13C8-PFOA	2.500	2.268	-9.3	90.7
13C8-PFOS	2.500	2.403	-3.9	96.1
13C9-PFNA	1.250	1.347	7.7	107.7
4:2FTS	9.375	8.732	-6.9	93.1
6:2FTS	9.500	9.766	2.8	102.8
8:2FTS	9.600	9.739	1.4	101.4
d3-MeFOSAA	5.000	5.293	5.9	105.9
EtFOSAA	2.500	2.395	-4.2	95.8
FOSA	2.500	2.341	-6.4	93.6
MeFOSAA	2.500	2.163	-13.5	86.5
PFBA	10.000	10.100	1.0	101.0
PFBS	2.218	2.163	-2.5	97.5
PFDA	2.500	2.462	-1.5	98.5
PFDoDA	2.500	2.572	2.9	102.9
PFDS	2.413	2.521	4.5	104.5
PFHpA	2.500	2.586	3.5	103.5
PFHpS	2.383	2.398	0.6	100.6
PFHxA	2.500	2.546	1.8	101.8
PFHxS	2.285	2.147	-6.0	94.0
PFNA	2.500	2.500	0.0	100.0
PFNS	2.405	2.464	2.5	102.5
PFOA	2.500	2.617	4.7	104.7
PFOS	2.320	2.282	-1.6	98.4

Initial Calibration Verification

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICV347
 Lab FileID: 6Q24137.D

PFPeA	5.000	4.937	-1.3	98.7
PFPeS	2.353	2.251	-4.3	95.7
PFTeDA	2.500	2.499	0.0	100.0
PFTTrDA	2.500	2.520	0.8	100.8
PFUnDA	2.500	2.423	-3.1	96.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	5.189	9.8	109.8
13C3-HFPO-DA	10.000	9.778	-2.2	97.8
9C1-PF3ONS	4.675	4.885	4.5	104.5
ADONA	4.725	4.877	3.2	103.2
HFPO-DA	5.000	5.121	2.4	102.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.159	-2.6	97.4
5:3FTCA	62.400	61.064	-2.1	97.9
7:3FTCA	62.400	61.831	-0.9	99.1
d3-MeFOSA	2.500	2.427	-2.9	97.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.034	0.7	100.7
EtFOSE	12.500	12.605	0.8	100.8
MeFOSA	5.000	5.062	1.2	101.2
MeFOSE	12.500	12.869	3.0	103.0
PFDODS	2.425	2.427	0.1	100.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.923	-1.5	98.5
d7-MeFOSE	25.000	24.434	-2.3	97.7
d9-EtFOSE	25.000	24.033	-3.9	96.1
d5-EtFOSA	2.500	2.465	-1.4	98.6
NFDHA	5.000	4.953	-0.9	99.1
PFMBA	5.000	4.985	-0.3	99.7
PFMPA	5.000	4.925	-1.5	98.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.255	-4.4	95.6

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICV347
 Lab FileID: 6Q24138.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\090923_1633_S6Q347\s6q347.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24138
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.430	8.6	108.6
13C2-6:2FTS	5.000	5.395	7.9	107.9
13C2-8:2FTS	5.000	5.334	6.7	106.7
13C2-PFDoDA	1.250	1.221	-2.3	97.7
13C2-PFTeDA	1.250	1.231	-1.5	98.5
13C3-PFBS	2.500	2.601	4.1	104.1
13C3-PFHxS	2.500	2.626	5.0	105.0
13C4-PFBA	10.000	10.071	0.7	100.7
13C4-PFHpA	2.500	2.464	-1.4	98.6
13C5-PFHxA	2.500	2.341	-6.4	93.6
13C5-PFPeA	5.000	4.924	-1.5	98.5
13C6-PFDA	1.250	1.139	-8.9	91.1
13C7-PFUnDA	1.250	1.244	-0.5	99.5
13C8-FOSA	2.500	2.864	14.5	114.5
13C8-PFOA	2.500	2.496	-0.1	99.9
13C8-PFOS	2.500	2.705	8.2	108.2
13C9-PFNA	1.250	1.288	3.0	103.0
4:2FTS	20.000	21.462	7.3	107.3
6:2FTS	20.000	22.699	13.5	113.5
8:2FTS	20.000	19.617	-1.9	98.1
d3-MeFOSAA	5.000	5.544	10.9	110.9
EtFOSAA	20.000	18.985	-5.1	94.9
FOSA	20.000	19.302	-3.5	96.5
MeFOSAA	20.000	22.650	13.3	113.3
PFBA	20.000	20.288	1.4	101.4
PFBS	20.000	20.776	3.9	103.9
PFDA	20.000	23.708	18.5	118.5
PFDoDA	20.000	20.195	1.0	101.0
PFDS	20.000	22.597	13.0	113.0
PFHpA	20.000	20.561	2.8	102.8
PFHpS	20.000	20.527	2.6	102.6
PFHxA	20.000	22.484	12.4	112.4
PFHxS	20.000	20.688	3.4	103.4
PFNA	20.000	21.312	6.6	106.6
PFNS	20.000	21.484	7.4	107.4
PFOA	20.000	19.508	-2.5	97.5
PFOS	20.000	19.693	-1.5	98.5

Initial Calibration Verification

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q347-ICV347
 Lab FileID: 6Q24138.D

PFPeA	20.000	21.057	5.3	105.3
PFPeS	20.000	21.104	5.5	105.5
PFTeDA	20.000	19.818	-0.9	99.1
PFTTrDA	20.000	17.940	-10.3	89.7
PFUnDA	20.000	19.824	-0.9	99.1
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	20.731	3.7	103.7
13C3-HFPO-DA	10.000	9.696	-3.0	97.0
9C1-PF3ONS	20.000	20.926	4.6	104.6
ADONA	20.000	19.264	-3.7	96.3
HFPO-DA	20.000	19.865	-0.7	99.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	19.401	-3.0	97.0
5:3FTCA	20.000	22.080	10.4	110.4
7:3FTCA	20.000	20.916	4.6	104.6
d3-MeFOSA	2.500	2.810	12.4	112.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	18.339	-8.3	91.7
EtFOSE	100.000	111.385	11.4	111.4
MeFOSA	20.000	19.568	-2.2	97.8
MeFOSE	100.000	119.331	19.3	119.3
PFDoDS	20.000	20.145	0.7	100.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.901	18.0	118.0
d7-MeFOSE	25.000	27.430	9.7	109.7
d9-EtFOSE	25.000	26.723	6.9	106.9
d5-EtFOSA	2.500	2.884	15.4	115.4
NFDHA	20.000	21.229	6.1	106.1
PFMBA	20.000	20.546	2.7	102.7
PFMPA	20.000	20.612	3.1	103.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	20.000	19.494	-2.5	97.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-CC347
 Lab FileID: 6Q24323.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091223_1633_S6Q350\s6q350.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24323
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.817	-3.7	96.3
13C2-6:2FTS	5.000	5.100	2.0	102.0
13C2-8:2FTS	5.000	4.805	-3.9	96.1
13C2-PFDoDA	1.250	1.225	-2.0	98.0
13C2-PFTeDA	1.250	1.256	0.5	100.5
13C3-PFBS	2.500	2.821	12.8	112.8
13C3-PFHxS	2.500	2.604	4.2	104.2
13C4-PFBA	10.000	10.168	1.7	101.7
13C4-PFHpA	2.500	2.543	1.7	101.7
13C5-PFHxA	2.500	2.484	-0.6	99.4
13C5-PFPeA	5.000	4.428	-11.4	88.6
13C6-PFDA	1.250	1.177	-5.9	94.1
13C7-PFUnDA	1.250	1.259	0.8	100.8
13C8-FOSA	2.500	2.405	-3.8	96.2
13C8-PFOA	2.500	2.634	5.4	105.4
13C8-PFOS	2.500	2.591	3.7	103.7
13C9-PFNA	1.250	1.329	6.3	106.3
4:2FTS	0.750	0.756	0.8	100.8
6:2FTS	0.760	0.760	0.0	100.0
8:2FTS	0.768	0.785	2.2	102.2
d3-MeFOSAA	5.000	4.318	-13.6	86.4
EtFOSAA	0.200	0.218	8.9	108.9
FOSA	0.200	0.199	-0.3	99.7
MeFOSAA	0.200	0.199	-0.3	99.7
PFBA	0.800	0.813	1.7	101.7
PFBS	0.177	0.171	-3.4	96.6
PFDA	0.200	0.193	-3.5	96.5
PFDoDA	0.200	0.191	-4.3	95.7
PFDS	0.193	0.193	0.2	100.2
PFHpA	0.200	0.200	0.0	100.0
PFHpS	0.191	0.178	-6.7	93.3
PFHxA	0.200	0.200	0.1	100.1
PFHxS	0.183	0.212	15.6	115.6
PFNA	0.200	0.185	-7.4	92.6
PFNS	0.192	0.189	-1.6	98.4
PFOA	0.200	0.164	-17.8	82.2
PFOS	0.186	0.208	11.9	111.9

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-CC347
 Lab FileID: 6Q24323.D

PFPeA	0.400	0.416	4.0	104.0
PFPeS	0.188	0.184	-2.0	98.0
PFTeDA	0.200	0.178	-11.2	88.8
PFTrDA	0.200	0.170	-14.8	85.2
PFUnDA	0.200	0.198	-1.0	99.0
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	0.378	0.399	5.6	105.6
13C3-HFPO-DA	10.000	9.488	-5.1	94.9
9C1-PF3ONS	0.374	0.407	8.7	108.7
ADONA	0.378	0.384	1.5	101.5
HFPO-DA	0.400	0.412	3.0	103.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.899	-10.0	90.0
5:3FTCA	4.992	4.643	-7.0	93.0
7:3FTCA	4.992	4.868	-2.5	97.5
d3-MeFOSA	2.500	2.352	-5.9	94.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.396	-1.1	98.9
EtFOSE	1.000	1.015	1.5	101.5
MeFOSA	0.400	0.413	3.2	103.2
MeFOSE	1.000	0.932	-6.8	93.2
PFDODS	0.194	0.186	-4.0	96.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.290	-14.2	85.8
d7-MeFOSE	25.000	25.906	3.6	103.6
d9-EtFOSE	25.000	25.209	0.8	100.8
d5-EtFOSA	2.500	2.440	-2.4	97.6
NFDHA	0.400	0.374	-6.4	93.6
PFMBA	0.400	0.424	6.0	106.0
PFMPA	0.400	0.423	5.8	105.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.351	-1.4	98.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-CC347
 Lab FileID: 6Q24334.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091223_1633_S6Q350\s6q350.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24334
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.819	-3.6	96.4
13C2-6:2FTS	5.000	4.664	-6.7	93.3
13C2-8:2FTS	5.000	4.665	-6.7	93.3
13C2-PFDoDA	1.250	1.335	6.8	106.8
13C2-PFTeDA	1.250	1.412	12.9	112.9
13C3-PFBS	2.500	2.761	10.4	110.4
13C3-PFHxS	2.500	2.547	1.9	101.9
13C4-PFBA	10.000	10.098	1.0	101.0
13C4-PFHpA	2.500	2.474	-1.0	99.0
13C5-PFHxA	2.500	2.399	-4.0	96.0
13C5-PFPeA	5.000	4.431	-11.4	88.6
13C6-PFDA	1.250	1.343	7.4	107.4
13C7-PFUnDA	1.250	1.277	2.2	102.2
13C8-FOSA	2.500	2.490	-0.4	99.6
13C8-PFOA	2.500	2.267	-9.3	90.7
13C8-PFOS	2.500	2.374	-5.0	95.0
13C9-PFNA	1.250	1.451	16.1	116.1
4:2FTS	9.375	9.596	2.4	102.4
6:2FTS	9.500	10.127	6.6	106.6
8:2FTS	9.600	10.024	4.4	104.4
d3-MeFOSAA	5.000	4.398	-12.0	88.0
EtFOSAA	2.500	2.680	7.2	107.2
FOSA	2.500	2.323	-7.1	92.9
MeFOSAA	2.500	2.527	1.1	101.1
PFBA	10.000	10.672	6.7	106.7
PFBS	2.218	2.132	-3.9	96.1
PFDA	2.500	2.565	2.6	102.6
PFDoDA	2.500	2.435	-2.6	97.4
PFDS	2.413	2.429	0.6	100.6
PFHpA	2.500	2.548	1.9	101.9
PFHpS	2.383	2.478	4.0	104.0
PFHxA	2.500	2.510	0.4	100.4
PFHxS	2.285	2.209	-3.3	96.7
PFNA	2.500	2.202	-11.9	88.1
PFNS	2.405	2.515	4.6	104.6
PFOA	2.500	2.355	-5.8	94.2
PFOS	2.320	2.354	1.5	101.5

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-CC347
 Lab FileID: 6Q24334.D

PFPeA	5.000	5.260	5.2	105.2
PFPeS	2.353	2.403	2.1	102.1
PFTeDA	2.500	2.444	-2.2	97.8
PFTTrDA	2.500	2.461	-1.6	98.4
PFUnDA	2.500	2.644	5.8	105.8
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.410	-6.7	93.3
13C3-HFPO-DA	10.000	9.975	-0.3	99.7
9C1-PF3ONS	4.675	4.646	-0.6	99.4
ADONA	4.725	4.648	-1.6	98.4
HFPO-DA	5.000	5.239	4.8	104.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.990	-3.9	96.1
5:3FTCA	62.400	64.344	3.1	103.1
7:3FTCA	62.400	66.935	7.3	107.3
d3-MeFOSA	2.500	2.292	-8.3	91.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.921	-1.6	98.4
EtFOSE	12.500	12.804	2.4	102.4
MeFOSA	5.000	5.538	10.8	110.8
MeFOSE	12.500	12.079	-3.4	96.6
PFDoDS	2.425	2.397	-1.2	98.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.258	-14.8	85.2
d7-MeFOSE	25.000	26.661	6.6	106.6
d9-EtFOSE	25.000	27.310	9.2	109.2
d5-EtFOSA	2.500	2.421	-3.1	96.9
NFDHA	5.000	4.827	-3.5	96.5
PFMBA	5.000	5.340	6.8	106.8
PFMPA	5.000	5.343	6.9	106.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.385	-1.5	98.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-CC347
 Lab FileID: 6Q24382.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091223_1633_S6Q350\s6q350.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24382
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.707	-5.9	94.1
13C2-6:2FTS	5.000	4.399	-12.0	88.0
13C2-8:2FTS	5.000	4.417	-11.7	88.3
13C2-PFDoDA	1.250	1.336	6.8	106.8
13C2-PFTeDA	1.250	1.284	2.7	102.7
13C3-PFBS	2.500	2.509	0.3	100.3
13C3-PFHxS	2.500	2.463	-1.5	98.5
13C4-PFBA	10.000	10.220	2.2	102.2
13C4-PFHpA	2.500	2.461	-1.5	98.5
13C5-PFHxA	2.500	2.405	-3.8	96.2
13C5-PFPeA	5.000	4.359	-12.8	87.2
13C6-PFDA	1.250	1.197	-4.3	95.7
13C7-PFUnDA	1.250	1.254	0.3	100.3
13C8-FOSA	2.500	2.513	0.5	100.5
13C8-PFOA	2.500	2.442	-2.3	97.7
13C8-PFOS	2.500	2.531	1.2	101.2
13C9-PFNA	1.250	1.490	19.2	119.2
4:2FTS	9.375	9.054	-3.4	96.6
6:2FTS	9.500	9.280	-2.3	97.7
8:2FTS	9.600	9.209	-4.1	95.9
d3-MeFOSAA	5.000	4.471	-10.6	89.4
EtFOSAA	2.500	2.496	-0.1	99.9
FOSA	2.500	2.374	-5.0	95.0
MeFOSAA	2.500	2.583	3.3	103.3
PFBA	10.000	10.585	5.8	105.8
PFBS	2.218	2.205	-0.6	99.4
PFDA	2.500	2.815	12.6	112.6
PFDoDA	2.500	2.383	-4.7	95.3
PFDS	2.413	2.227	-7.7	92.3
PFHpA	2.500	2.438	-2.5	97.5
PFHpS	2.383	2.164	-9.2	90.8
PFHxA	2.500	2.384	-4.6	95.4
PFHxS	2.285	2.226	-2.6	97.4
PFNA	2.500	2.041	-18.4	81.6
PFNS	2.405	2.338	-2.8	97.2
PFOA	2.500	2.280	-8.8	91.2
PFOS	2.320	2.276	-1.9	98.1

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-CC347
 Lab FileID: 6Q24382.D

PFPeA	5.000	5.299	6.0	106.0
PFPeS	2.353	2.277	-3.2	96.8
PFTeDA	2.500	2.467	-1.3	98.7
PFTTrDA	2.500	2.351	-5.9	94.1
PFUnDA	2.500	2.487	-0.5	99.5
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	4.725	4.702	-0.5	99.5
13C3-HFPO-DA	10.000	9.538	-4.6	95.4
9C1-PF3ONS	4.675	4.575	-2.1	97.9
ADONA	4.725	4.963	5.0	105.0
HFPO-DA	5.000	5.214	4.3	104.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.824	-5.3	94.7
5:3FTCA	62.400	64.157	2.8	102.8
7:3FTCA	62.400	62.627	0.4	100.4
d3-MeFOSA	2.500	2.356	-5.8	94.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.873	-2.5	97.5
EtFOSE	12.500	13.057	4.5	104.5
MeFOSA	5.000	5.262	5.2	105.2
MeFOSE	12.500	12.221	-2.2	97.8
PFDoDS	2.425	2.193	-9.6	90.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.418	-11.6	88.4
d7-MeFOSE	25.000	25.203	0.8	100.8
d9-EtFOSE	25.000	25.230	0.9	100.9
d5-EtFOSA	2.500	2.489	-0.4	99.6
NFDHA	5.000	4.955	-0.9	99.1
PFMBA	5.000	5.345	6.9	106.9
PFMPA	5.000	5.428	8.6	108.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.569	2.7	102.7

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-CC347
 Lab FileID: 6Q24393.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091223_1633_S6Q350\s6q350.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24393
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.924	-1.5	98.5
13C2-6:2FTS	5.000	4.910	-1.8	98.2
13C2-8:2FTS	5.000	4.846	-3.1	96.9
13C2-PFDoDA	1.250	1.268	1.4	101.4
13C2-PFTeDA	1.250	1.305	4.4	104.4
13C3-PFBS	2.500	2.752	10.1	110.1
13C3-PFHxS	2.500	2.575	3.0	103.0
13C4-PFBA	10.000	10.039	0.4	100.4
13C4-PFHpA	2.500	2.445	-2.2	97.8
13C5-PFHxA	2.500	2.335	-6.6	93.4
13C5-PFPeA	5.000	4.288	-14.2	85.8
13C6-PFDA	1.250	1.372	9.7	109.7
13C7-PFUnDA	1.250	1.285	2.8	102.8
13C8-FOSA	2.500	2.593	3.7	103.7
13C8-PFOA	2.500	2.407	-3.7	96.3
13C8-PFOS	2.500	2.635	5.4	105.4
13C9-PFNA	1.250	1.392	11.3	111.3
4:2FTS	9.375	9.158	-2.3	97.7
6:2FTS	9.500	9.363	-1.4	98.6
8:2FTS	9.600	9.018	-6.1	93.9
d3-MeFOSAA	5.000	4.646	-7.1	92.9
EtFOSAA	2.500	2.630	5.2	105.2
FOSA	2.500	2.288	-8.5	91.5
MeFOSAA	2.500	2.617	4.7	104.7
PFBA	10.000	10.590	5.9	105.9
PFBS	2.218	2.166	-2.3	97.7
PFDA	2.500	2.451	-2.0	98.0
PFDoDA	2.500	2.659	6.4	106.4
PFDS	2.413	2.344	-2.8	97.2
PFHpA	2.500	2.434	-2.6	97.4
PFHpS	2.383	2.148	-9.9	90.1
PFHxA	2.500	2.458	-1.7	98.3
PFHxS	2.285	2.392	4.7	104.7
PFNA	2.500	2.277	-8.9	91.1
PFNS	2.405	2.439	1.4	101.4
PFOA	2.500	2.198	-12.1	87.9
PFOS	2.320	2.137	-7.9	92.1

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-CC347
 Lab FileID: 6Q24393.D

PFPeA	5.000	5.280	5.6	105.6
PFPeS	2.353	2.233	-5.1	94.9
PFTeDA	2.500	2.620	4.8	104.8
PFTTrDA	2.500	2.503	0.1	100.1
PFUnDA	2.500	2.604	4.1	104.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.503	-4.7	95.3
13C3-HFPO-DA	10.000	9.644	-3.6	96.4
9C1-PF3ONS	4.675	4.644	-0.7	99.3
ADONA	4.725	4.658	-1.4	98.6
HFPO-DA	5.000	5.009	0.2	100.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.981	-4.0	96.0
5:3FTCA	62.400	68.242	9.4	109.4
7:3FTCA	62.400	66.056	5.9	105.9
d3-MeFOSA	2.500	2.523	0.9	100.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.804	-3.9	96.1
EtFOSE	12.500	12.539	0.3	100.3
MeFOSA	5.000	5.178	3.6	103.6
MeFOSE	12.500	12.581	0.6	100.6
PFDoDS	2.425	2.443	0.7	100.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.300	-14.0	86.0
d7-MeFOSE	25.000	25.373	1.5	101.5
d9-EtFOSE	25.000	26.168	4.7	104.7
d5-EtFOSA	2.500	2.653	6.1	106.1
NFDHA	5.000	4.874	-2.5	97.5
PFMBA	5.000	5.430	8.6	108.6
PFMPA	5.000	5.431	8.6	108.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.600	3.4	103.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-ECC347
 Lab FileID: 6Q24400.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\091223_1633_S6Q350\s6q350.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\090923_1633_S6Q347\6Q24128.d
 2:D:\MassHunter\Data\090923_1633_S6Q347\6Q24129.d
 3:D:\MassHunter\Data\090923_1633_S6Q347\6Q24130.d
 4:D:\MassHunter\Data\090923_1633_S6Q347\6Q24131.d
 5:D:\MassHunter\Data\090923_1633_S6Q347\6Q24132.d
 6:D:\MassHunter\Data\090923_1633_S6Q347\6Q24133.d
 7:D:\MassHunter\Data\090923_1633_S6Q347\6Q24134.d
 8:D:\MassHunter\Data\090923_1633_S6Q347\6Q24135.d

Data File: 6Q24400
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.035	0.7	100.7
13C2-6:2FTS	5.000	5.094	1.9	101.9
13C2-8:2FTS	5.000	4.846	-3.1	96.9
13C2-PFDoDA	1.250	1.289	3.1	103.1
13C2-PFTeDA	1.250	1.358	8.7	108.7
13C3-PFBS	2.500	2.813	12.5	112.5
13C3-PFHxS	2.500	2.611	4.4	104.4
13C4-PFBA	10.000	10.057	0.6	100.6
13C4-PFHpA	2.500	2.525	1.0	101.0
13C5-PFHxA	2.500	2.388	-4.5	95.5
13C5-PFPeA	5.000	4.226	-15.5	84.5
13C6-PFDA	1.250	1.305	4.4	104.4
13C7-PFUnDA	1.250	1.266	1.3	101.3
13C8-FOSA	2.500	2.311	-7.6	92.4
13C8-PFOA	2.500	2.455	-1.8	98.2
13C8-PFOS	2.500	2.414	-3.4	96.6
13C9-PFNA	1.250	1.424	13.9	113.9
4:2FTS	9.375	9.364	-0.1	99.9
6:2FTS	9.500	9.829	3.5	103.5
8:2FTS	9.600	9.405	-2.0	98.0
d3-MeFOSAA	5.000	3.931	-21.4	78.6
EtFOSAA	2.500	2.696	7.8	107.8
FOSA	2.500	2.388	-4.5	95.5
MeFOSAA	2.500	2.879	15.1	115.1
PFBA	10.000	10.588	5.9	105.9
PFBS	2.218	2.145	-3.3	96.7
PFDA	2.500	2.396	-4.1	95.9
PFDoDA	2.500	2.437	-2.5	97.5
PFDS	2.413	2.255	-6.6	93.4
PFHpA	2.500	2.480	-0.8	99.2
PFHpS	2.383	2.190	-8.1	91.9
PFHxA	2.500	2.469	-1.2	98.8
PFHxS	2.285	2.385	4.4	104.4
PFNA	2.500	2.161	-13.6	86.4
PFNS	2.405	2.393	-0.5	99.5
PFOA	2.500	2.225	-11.0	89.0
PFOS	2.320	2.264	-2.4	97.6

Continuing Calibration Summary

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q350-ECC347
 Lab FileID: 6Q24400.D

PFPeA	5.000	5.302	6.0	106.0
PFPeS	2.353	2.346	-0.3	99.7
PFTeDA	2.500	2.394	-4.2	95.8
PFTTrDA	2.500	2.435	-2.6	97.4
PFUnDA	2.500	2.393	-4.3	95.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.417	-6.5	93.5
13C3-HFPO-DA	10.000	9.725	-2.7	97.3
9C1-PF3ONS	4.675	4.896	4.7	104.7
ADONA	4.725	4.694	-0.7	99.3
HFPO-DA	5.000	4.954	-0.9	99.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.895	-4.7	95.3
5:3FTCA	62.400	65.915	5.6	105.6
7:3FTCA	62.400	65.653	5.2	105.2
d3-MeFOSA	2.500	2.247	-10.1	89.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.833	-3.3	96.7
EtFOSE	12.500	12.317	-1.5	98.5
MeFOSA	5.000	5.231	4.6	104.6
MeFOSE	12.500	12.518	0.1	100.1
PFDoDS	2.425	2.285	-5.8	94.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.113	-17.7	82.3
d7-MeFOSE	25.000	23.125	-7.5	92.5
d9-EtFOSE	25.000	24.107	-3.6	96.4
d5-EtFOSA	2.500	2.349	-6.1	93.9
NFDHA	5.000	4.858	-2.8	97.2
PFMBA	5.000	5.455	9.1	109.1
PFMPA	5.000	5.512	10.2	110.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.495	1.0	101.0

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q347	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
S6Q347-RT	6Q24125.D	09/09/23 20:03	n/a	Retention Time Marker
S6Q347-RT	6Q24126.D	09/09/23 20:17	n/a	Retention Time Marker
S6Q347-IC347	6Q24127.D	09/09/23 20:31	n/a	Mass Calibration Verification
S6Q347-IC347	6Q24128.D	09/09/23 20:46	n/a	Initial cal 1
S6Q347-IC347	6Q24129.D	09/09/23 21:00	n/a	Initial cal 2
S6Q347-IC347	6Q24130.D	09/09/23 21:14	n/a	Initial cal 3
S6Q347-ICC347	6Q24131.D	09/09/23 21:29	n/a	Initial cal 4
S6Q347-IC347	6Q24132.D	09/09/23 21:43	n/a	Initial cal 5
S6Q347-IC347	6Q24133.D	09/09/23 21:57	n/a	Initial cal 6
S6Q347-IC347	6Q24134.D	09/09/23 22:12	n/a	Initial cal 7
S6Q347-IC347	6Q24135.D	09/09/23 22:26	n/a	Initial cal 8
S6Q347-IBLK	6Q24136.D	09/09/23 22:41	n/a	Instrument Blank
S6Q347-IBLK	6Q24136.D	09/09/23 22:41	n/a	Instrument Blank
S6Q347-ICV347	6Q24137.D	09/09/23 22:55	n/a	Initial cal verification 4
S6Q347-ICV347	6Q24138.D	09/09/23 23:09	n/a	Initial cal verification 20
S6Q347-CC347	6Q24139.D	09/09/23 23:23	n/a	Continuing cal 4
S6Q347-CC347	6Q24140.D	09/09/23 23:38	n/a	Continuing cal 1.0LL
OP98824-BS	6Q24141.D	09/09/23 23:52	OP98824	Blank Spike
OP98824-LLBS	6Q24142.D	09/10/23 00:06	OP98824	Blank Spike
OP98824-MB	6Q24143.D	09/10/23 00:21	OP98824	Method Blank
ZZZZZZ	6Q24144.D	09/10/23 00:35	OP98824	(unrelated sample)
ZZZZZZ	6Q24145.D	09/10/23 00:49	OP98824	(unrelated sample)
ZZZZZZ	6Q24146.D	09/10/23 01:04	OP98824	(unrelated sample)
ZZZZZZ	6Q24147.D	09/10/23 01:18	OP98824	(unrelated sample)
ZZZZZZ	6Q24148.D	09/10/23 01:32	OP98824	(unrelated sample)
ZZZZZZ	6Q24149.D	09/10/23 01:47	OP98824	(unrelated sample)
ZZZZZZ	6Q24150.D	09/10/23 02:01	OP98824	(unrelated sample)
S6Q347-CC347	6Q24151.D	09/10/23 02:15	n/a	Continuing cal 4
S6Q347-ICCB	6Q24152.D	09/10/23 02:30	n/a	Continuing Calibration Blank
S6Q347-ICCB	6Q24152.D	09/10/23 02:30	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24153.D	09/10/23 02:44	OP98824	(unrelated sample)
ZZZZZZ	6Q24154.D	09/10/23 02:58	OP98824	(unrelated sample)
ZZZZZZ	6Q24155.D	09/10/23 03:13	OP98824	(unrelated sample)
ZZZZZZ	6Q24156.D	09/10/23 03:27	OP98824	(unrelated sample)
S6Q347-ECC347	6Q24157.D	09/10/23 03:41	n/a	Ending cal 4
S6Q347-ICCB	6Q24158.D	09/10/23 03:56	n/a	Continuing Calibration Blank
S6Q347-ICCB	6Q24158.D	09/10/23 03:56	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q350	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
S6Q350-RT	6Q24318.D	09/12/23 10:37	n/a	Retention Time Marker
S6Q350-RT	6Q24319.D	09/12/23 10:52	n/a	Retention Time Marker
S6Q350-IBLK	6Q24321.D	09/12/23 11:20	n/a	Instrument Blank
S6Q350-IBLK	6Q24321.D	09/12/23 11:20	n/a	Instrument Blank
S6Q350-CC347	6Q24322.D	09/12/23 11:35	n/a	Continuing cal 4
S6Q350-CC347	6Q24323.D	09/12/23 11:49	n/a	Continuing cal 1.0LL
OP98860-BS	6Q24324.D	09/12/23 12:03	OP98860	Blank Spike
OP98860-LLBS	6Q24325.D	09/12/23 12:18	OP98860	Blank Spike
OP98860-MB	6Q24326.D	09/12/23 12:32	OP98860	Method Blank
FC8993-1	6Q24327.D	09/12/23 12:46	OP98860	(used for QC only; not part of job FC9447)
OP98860-MS	6Q24328.D	09/12/23 13:01	OP98860	Matrix Spike
OP98860-MSD	6Q24329.D	09/12/23 13:15	OP98860	Matrix Spike Duplicate
ZZZZZZ	6Q24330.D	09/12/23 13:29	OP98860	(unrelated sample)
ZZZZZZ	6Q24331.D	09/12/23 13:44	OP98860	(unrelated sample)
ZZZZZZ	6Q24332.D	09/12/23 13:58	OP98860	(unrelated sample)
ZZZZZZ	6Q24333.D	09/12/23 14:12	OP98860	(unrelated sample)
S6Q350-CC347	6Q24334.D	09/12/23 14:27	n/a	Continuing cal 4
S6Q350-ICCB	6Q24335.D	09/12/23 14:41	n/a	Continuing Calibration Blank
S6Q350-ICCB	6Q24335.D	09/12/23 14:41	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24336.D	09/12/23 14:55	OP98860	(unrelated sample)
ZZZZZZ	6Q24337.D	09/12/23 15:10	OP98860	(unrelated sample)
ZZZZZZ	6Q24338.D	09/12/23 15:24	OP98860	(unrelated sample)
ZZZZZZ	6Q24339.D	09/12/23 15:38	OP98860	(unrelated sample)
ZZZZZZ	6Q24340.D	09/12/23 15:53	OP98860	(unrelated sample)
ZZZZZZ	6Q24341.D	09/12/23 16:07	OP98860	(unrelated sample)
ZZZZZZ	6Q24342.D	09/12/23 16:21	OP98860	(unrelated sample)
ZZZZZZ	6Q24343.D	09/12/23 16:36	OP98860	(unrelated sample)
ZZZZZZ	6Q24344.D	09/12/23 16:50	OP98860	(unrelated sample)
ZZZZZZ	6Q24345.D	09/12/23 17:04	OP98860	(unrelated sample)
S6Q350-CC347	6Q24346.D	09/12/23 17:19	n/a	Continuing cal 4
S6Q350-ICCB	6Q24347.D	09/12/23 17:33	n/a	Continuing Calibration Blank
S6Q350-ICCB	6Q24347.D	09/12/23 17:33	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24348.D	09/12/23 17:47	OP98860	(unrelated sample)
ZZZZZZ	6Q24349.D	09/12/23 18:02	OP98860	(unrelated sample)
ZZZZZZ	6Q24350.D	09/12/23 18:16	OP98860	(unrelated sample)
ZZZZZZ	6Q24351.D	09/12/23 18:30	OP98860	(unrelated sample)
OP98861-BS	6Q24352.D	09/12/23 18:45	OP98861	Blank Spike
OP98861-LLBS	6Q24353.D	09/12/23 18:59	OP98861	Blank Spike
OP98861-MB	6Q24354.D	09/12/23 19:13	OP98861	Method Blank
FC8993-20	6Q24355.D	09/12/23 19:28	OP98861	(used for QC only; not part of job FC9447)
OP98861-MS	6Q24356.D	09/12/23 19:42	OP98861	Matrix Spike
OP98861-MSD	6Q24357.D	09/12/23 19:56	OP98861	Matrix Spike Duplicate
S6Q350-CC347	6Q24358.D	09/12/23 20:11	n/a	Continuing cal 4
S6Q350-ICCB	6Q24359.D	09/12/23 20:25	n/a	Continuing Calibration Blank
S6Q350-ICCB	6Q24359.D	09/12/23 20:25	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24360.D	09/12/23 20:39	OP98861	(unrelated sample)

Run Sequence Report

Job Number: FC9447
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q350	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q24361.D	09/12/23 20:54	OP98861	(unrelated sample)
ZZZZZZ	6Q24362.D	09/12/23 21:08	OP98861	(unrelated sample)
ZZZZZZ	6Q24363.D	09/12/23 21:22	OP98861	(unrelated sample)
ZZZZZZ	6Q24364.D	09/12/23 21:37	OP98861	(unrelated sample)
ZZZZZZ	6Q24365.D	09/12/23 21:51	OP98861	(unrelated sample)
ZZZZZZ	6Q24366.D	09/12/23 22:05	OP98861	(unrelated sample)
ZZZZZZ	6Q24367.D	09/12/23 22:20	OP98861	(unrelated sample)
ZZZZZZ	6Q24368.D	09/12/23 22:34	OP98861	(unrelated sample)
ZZZZZZ	6Q24369.D	09/12/23 22:48	OP98861	(unrelated sample)
S6Q350-CC347	6Q24370.D	09/12/23 23:03	n/a	Continuing cal 4
S6Q350-ICCB	6Q24371.D	09/12/23 23:17	n/a	Continuing Calibration Blank
S6Q350-ICCB	6Q24371.D	09/12/23 23:17	n/a	Continuing Calibration Blank
ZZZZZZ	6Q24372.D	09/12/23 23:31	OP98861	(unrelated sample)
ZZZZZZ	6Q24373.D	09/12/23 23:46	OP98861	(unrelated sample)
ZZZZZZ	6Q24374.D	09/13/23 00:00	OP98861	(unrelated sample)
ZZZZZZ	6Q24375.D	09/13/23 00:14	OP98861	(unrelated sample)
ZZZZZZ	6Q24376.D	09/13/23 00:29	OP98861	(unrelated sample)
ZZZZZZ	6Q24377.D	09/13/23 00:43	OP98861	(unrelated sample)
ZZZZZZ	6Q24378.D	09/13/23 00:57	OP98861	(unrelated sample)
ZZZZZZ	6Q24379.D	09/13/23 01:12	OP98861	(unrelated sample)
ZZZZZZ	6Q24380.D	09/13/23 01:26	OP98862	(unrelated sample)
ZZZZZZ	6Q24381.D	09/13/23 01:40	OP98862	(unrelated sample)
S6Q350-CC347	6Q24382.D	09/13/23 01:54	n/a	Continuing cal 4
S6Q350-ICCB	6Q24383.D	09/13/23 02:09	n/a	Continuing Calibration Blank
S6Q350-ICCB	6Q24383.D	09/13/23 02:09	n/a	Continuing Calibration Blank
OP98930-BS	6Q24384.D	09/13/23 02:23	OP98930	Blank Spike
OP98930-LLBS	6Q24385.D	09/13/23 02:37	OP98930	Blank Spike
OP98930-MB	6Q24386.D	09/13/23 02:52	OP98930	Method Blank
ZZZZZZ	6Q24387.D	09/13/23 03:06	OP98930	(unrelated sample)
ZZZZZZ	6Q24388.D	09/13/23 03:20	OP98930	(unrelated sample)
FC9447-1	6Q24389.D	09/13/23 03:35	OP98930	AF-RHMW16-WGN01LF-2309
FC9447-2	6Q24390.D	09/13/23 03:49	OP98930	AF-RHMW12A-WGN01LF-2309
FC9447-3	6Q24391.D	09/13/23 04:03	OP98930	AF-RHMW12A-WGFD01LF-2309
OP98930-MS	6Q24392.D	09/13/23 04:18	OP98930	Matrix Spike
S6Q350-CC347	6Q24393.D	09/13/23 04:32	n/a	Continuing cal 4
S6Q350-ICCB	6Q24394.D	09/13/23 04:46	n/a	Continuing Calibration Blank
FC9447-4	6Q24395.D	09/13/23 05:01	OP98930	AF-RHMW02-WGN01LF-2309
OP98930-DUP	6Q24396.D	09/13/23 05:15	OP98930	Duplicate
FC9447-5	6Q24397.D	09/13/23 05:29	OP98930	AF-RHMW02-WGFD01LF-2309
FC9447-6	6Q24398.D	09/13/23 05:44	OP98930	AF-RHMW03-WGN01LF-2309
ZZZZZZ	6Q24399.D	09/13/23 05:58	OP98754	(unrelated sample)
S6Q350-ECC347	6Q24400.D	09/13/23 06:12	n/a	Ending cal 4
S6Q350-ICCB	6Q24401.D	09/13/23 06:27	n/a	Continuing Calibration Blank

6-10-2
6

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24389.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 3:35:13 AM
 Sample Name : FC9447-1
 Vial : P3-E6
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	152766	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	28559	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	65096	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	52485	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	74468	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	28778	1.25 µg/L	0.000
M6-PFDA	8.222	519.1 -> 474.1	28110	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	34460	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	30036	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	10116	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	22696	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	21056	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	12413	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	12380	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2506	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3584	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3586	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	18479	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	37414	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	14817	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	79054	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	114548	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8831	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	8862	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	18014	2.50 µg/L	0.012
13C3-PFBA	3.014	216.0 -> 172.0	82029	5.00 µg/L	0.025
18O2-PFHxS	7.325	403.0 -> 83.9	10680	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	93686	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	28723	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	38006	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	58023	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2506	4.17 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.4%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3584	4.06 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.3%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3586	3.93 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 78.5%		
13C2-PFDoDA	9.093	615.1 -> 570.0	30036	0.97 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.0%		
13C2-PFTeDA	9.796	715.2 -> 670.0	10116	0.88 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.7%		
13C3-PFBS	5.584	302.1 -> 79.9	21056	2.13 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.3%		
13C3-PFHxS	7.326	402.1 -> 79.9	12413	2.12 µg/L	0.012



7.1.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.6%	
13C4-PFBA	3.025	216.8 -> 171.9	152766	7.37 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.7%	
13C4-PFHpA	6.581	367.1 -> 322.0	52485	2.11 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.2%	
13C5-PFHxA	5.654	318.0 -> 273.0	65096	2.04 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.4%	
13C5-PFPeA	4.447	268.3 -> 223.0	28559	3.65 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 73.0%	
13C6-PFDA	8.222	519.1 -> 474.1	28110	1.12 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C7-PFUnDA	8.676	570.0 -> 525.1	34460	1.03 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 82.3%	
13C8-FOSA	9.670	506.1 -> 77.8	22696	1.77 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.8%	
13C8-PFOA	7.211	421.1 -> 376.0	74468	2.16 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.4%	
13C8-PFOS	8.373	507.1 -> 79.9	12380	2.18 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C9-PFNA	7.729	472.1 -> 427.0	28778	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSAA	8.268	573.2 -> 419.0	18479	3.67 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 73.4%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	37414	8.47 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	8862	1.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 68.2%	
d5-EtFOSAA	8.464	589.2 -> 419.0	14817	3.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 61.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	79054	16.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.8%	
d9-EtFOSE	10.923	639.2 -> 58.9	114548	17.97 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 71.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	8831	1.82 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 72.9%	

Target Compounds

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



Perfluorinated Compounds by LC/MS/MS

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

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

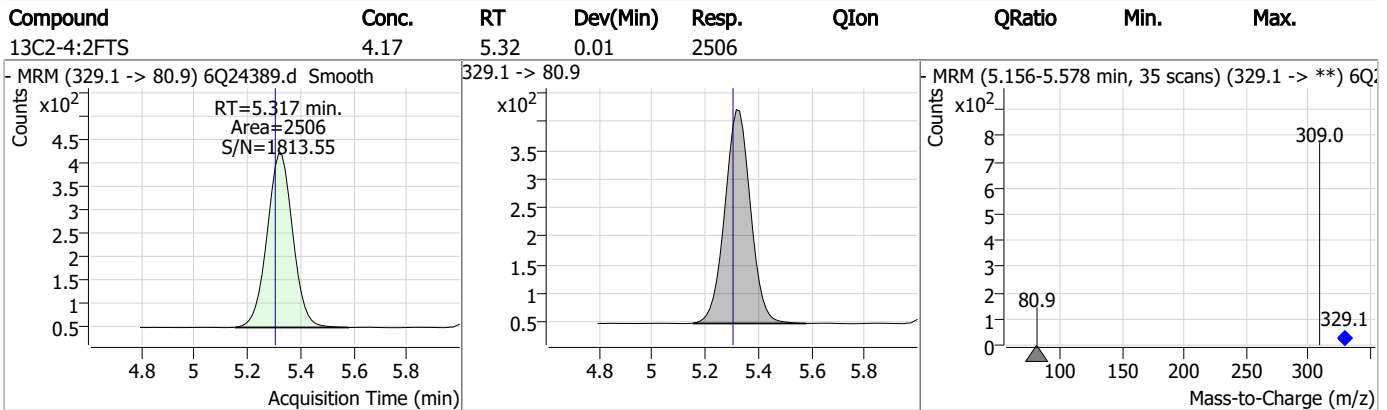
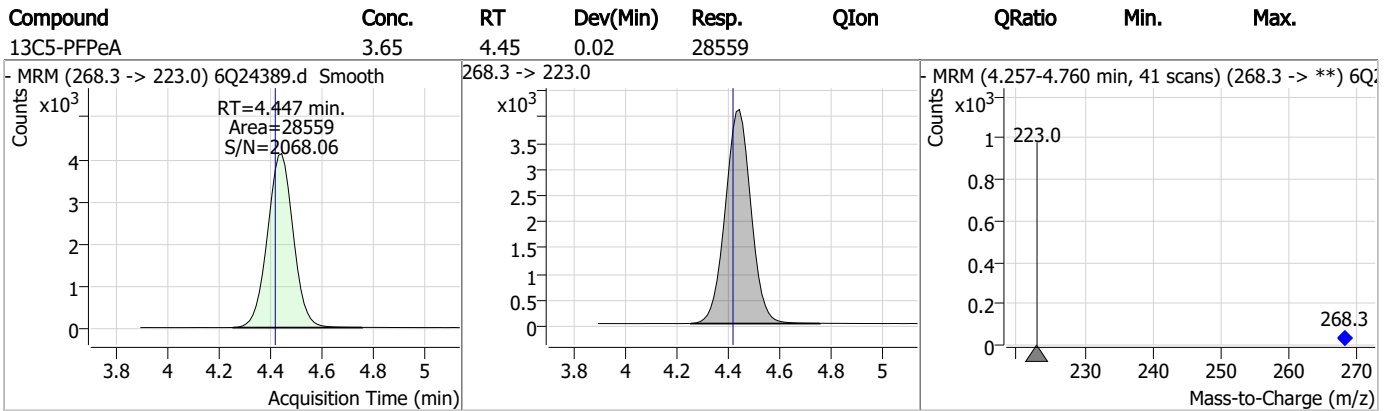
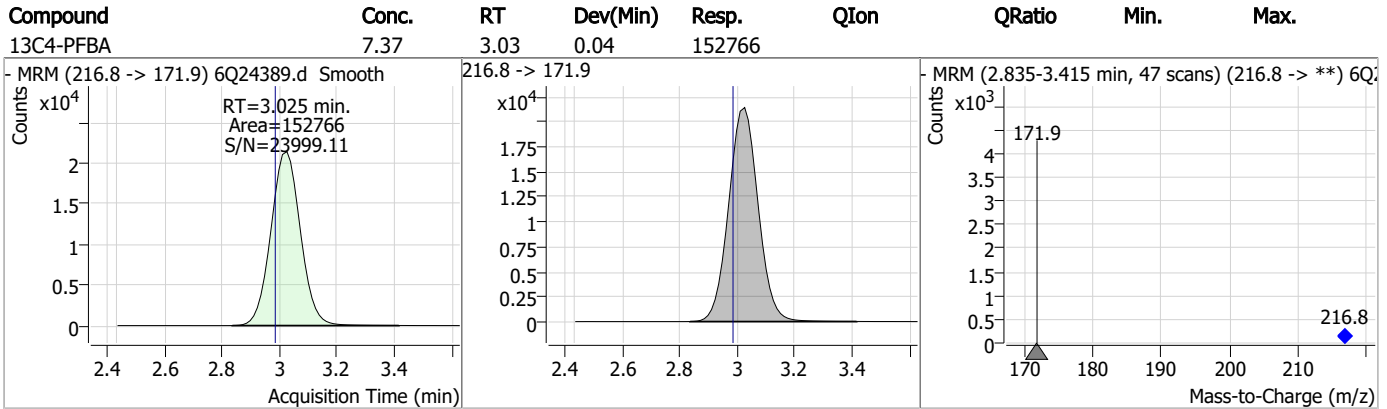
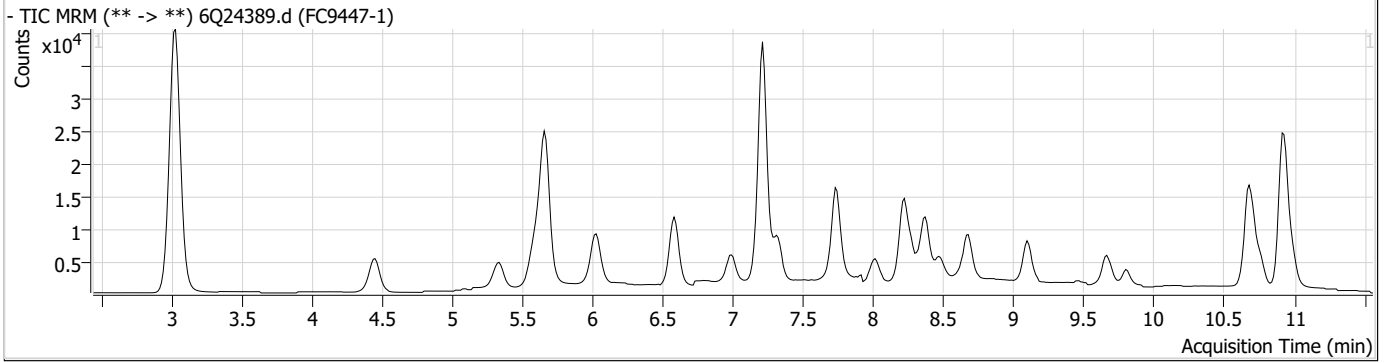
Perfluorinated Compounds by LC/MS/MS

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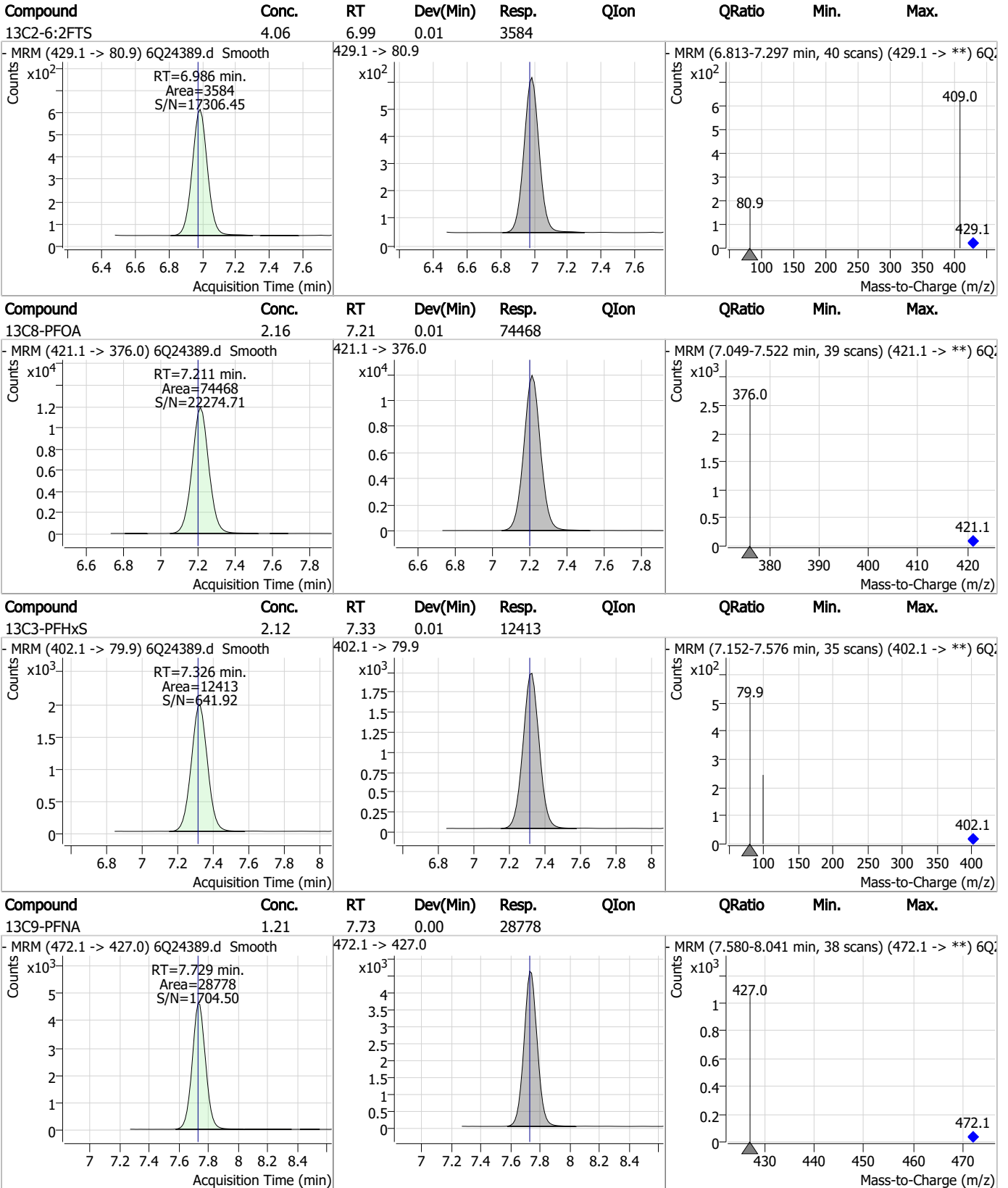
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.13	5.58	0.01	21056				
13C5-PFHxA	2.04	5.65	0.01	65096				
13C3-HFPO-DA	8.47	6.03	0.01	37414				
13C4-PFHpA	2.11	6.58	0.01	52485				

Perfluorinated Compounds by LC/MS/MS

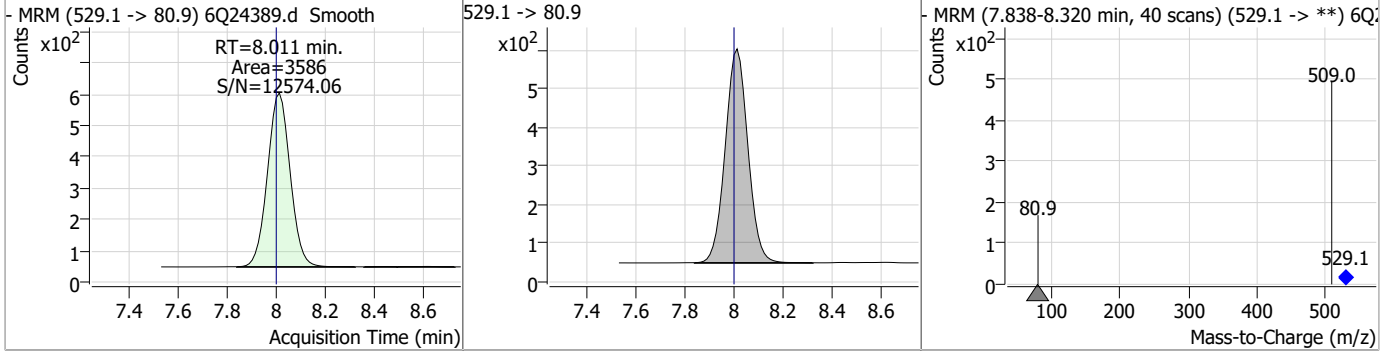


7.1.1

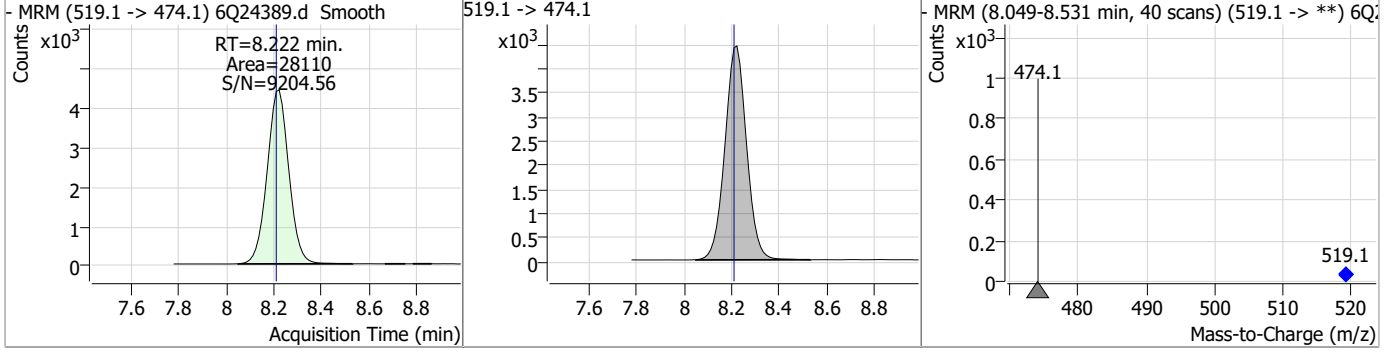
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Perfluorinated Compounds by LC/MS/MS

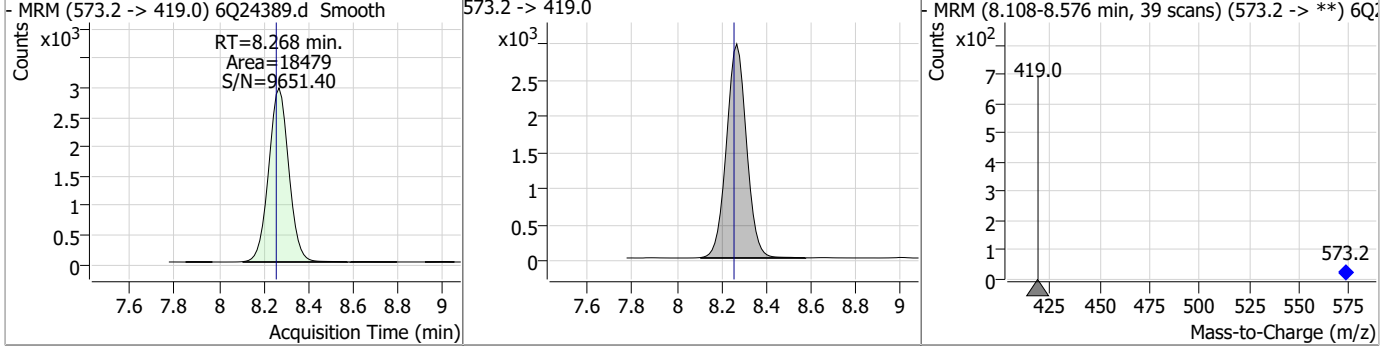
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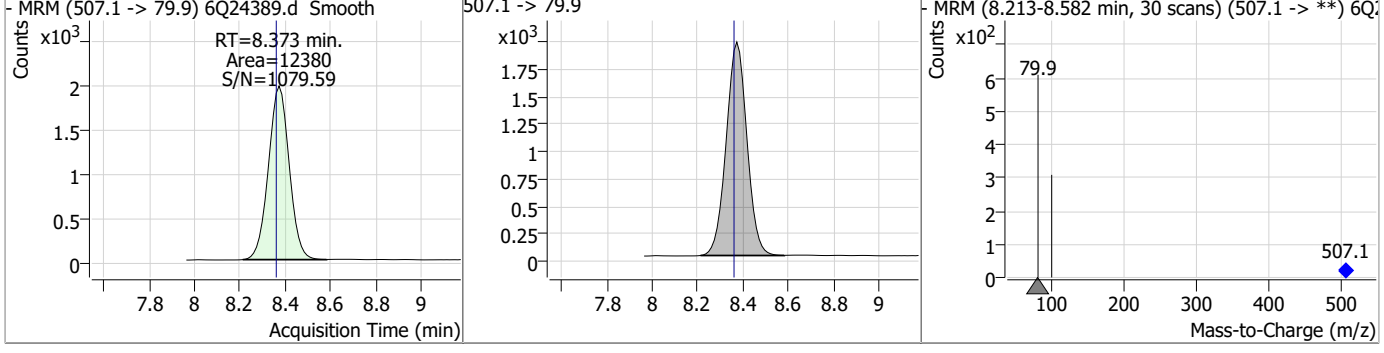
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Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
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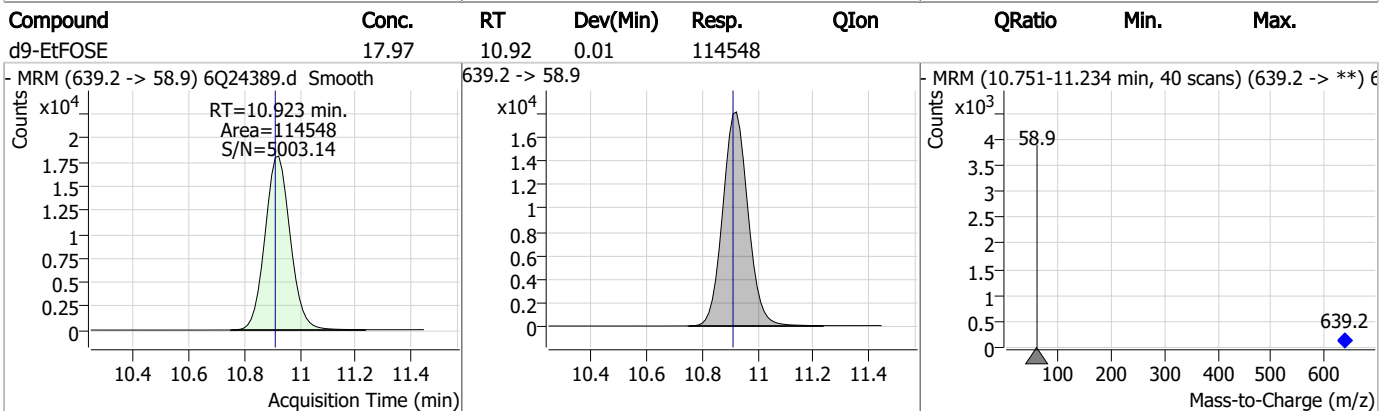
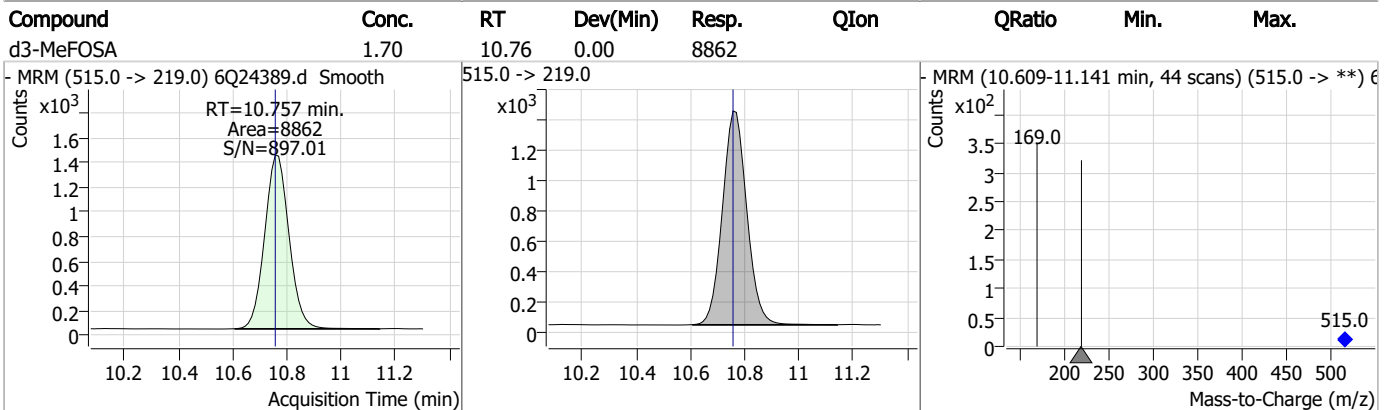
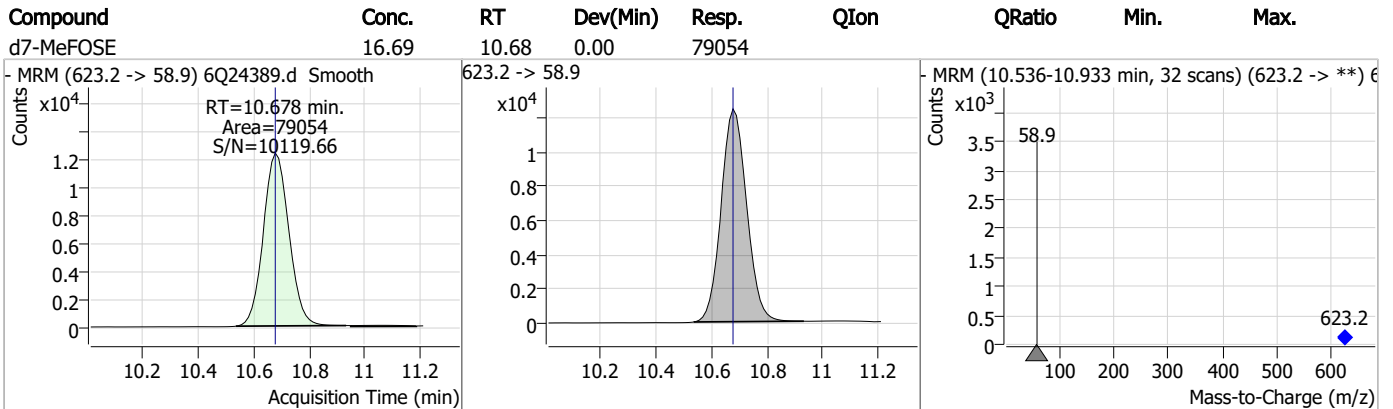
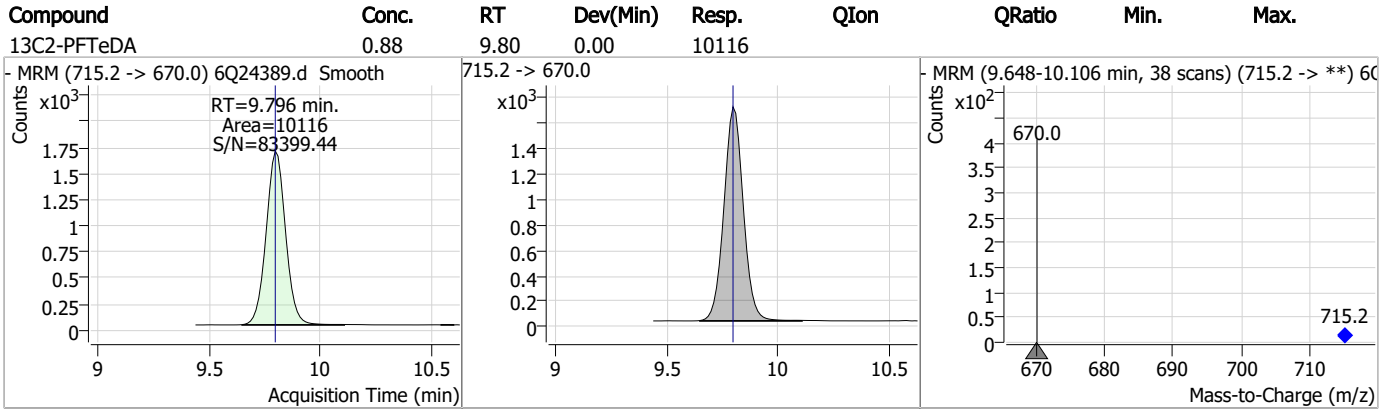
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Perfluorinated Compounds by LC/MS/MS

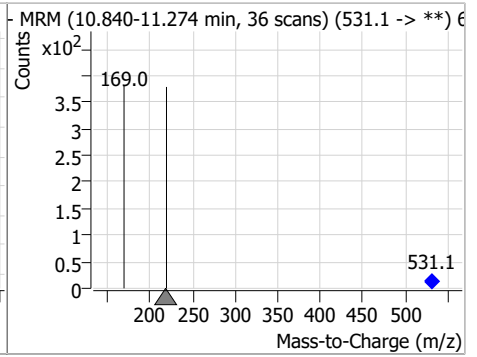
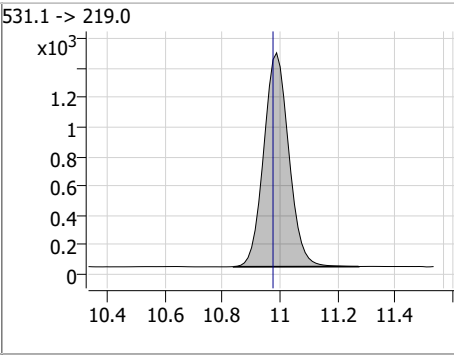
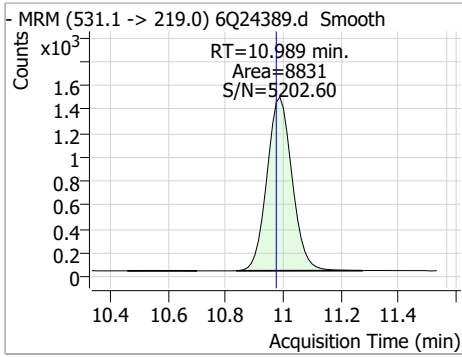
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	3.06	8.46	0.00	14817				
13C7-PFUnDA	1.03	8.68	0.01	34460				
13C2-PFDoDA	0.97	9.09	0.00	30036				
13C8-FOSA	1.77	9.67	0.01	22696				

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.82	10.99	0.01	8831				



7.1.1
7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24390.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 3:49:32 AM
 Sample Name : FC9447-2
 Vial : P3-E7
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,535,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	86193	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	29910	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	67308	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	56192	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	73560	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	30842	1.25 µg/L	0.012
M6-PFDA	8.222	519.1 -> 474.1	29768	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	34602	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	28014	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	8986	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	23150	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	22042	2.50 µg/L	0.012
M3-PFHxS	7.313	402.1 -> 79.9	12535	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	13182	2.50 µg/L	0.012
M2-4:2FTS	5.329	329.1 -> 80.9	2409	5.00 µg/L	0.025
M2-6:2FTS	6.986	429.1 -> 80.9	3639	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3544	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	17636	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	36294	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	16282	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	67665	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	97798	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7877	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	8552	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	16106	2.50 µg/L	0.012
13C3-PFBA	3.029	216.0 -> 172.0	78049	5.00 µg/L	0.040
18O2-PFHxS	7.325	403.0 -> 83.9	9379	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	89399	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	26025	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	39490	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	56669	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.329	329.1 -> 80.9	2409	4.56 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.3%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3639	4.70 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3544	4.42 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.4%		
13C2-PFDoDA	9.093	615.1 -> 570.0	28014	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.3%		
13C2-PFTeDA	9.796	715.2 -> 670.0	8986	0.87 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.3%		
13C3-PFBS	5.584	302.1 -> 79.9	22042	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C3-PFHxS	7.313	402.1 -> 79.9	12535	2.43 µg/L	0.000



7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C4-PFBA	3.025	216.8 -> 171.9	86193	4.37 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 43.7%	
13C4-PFHpA	6.581	367.1 -> 322.0	56192	2.31 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C5-PFHxA	5.654	318.0 -> 273.0	67308	2.15 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.2%	
13C5-PFPeA	4.447	268.3 -> 223.0	29910	3.92 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 78.3%	
13C6-PFDA	8.222	519.1 -> 474.1	29768	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C7-PFUnDA	8.676	570.0 -> 525.1	34602	1.14 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C8-FOSA	9.670	506.1 -> 77.8	23150	2.02 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.8%	
13C8-PFOA	7.211	421.1 -> 376.0	73560	2.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.4%	
13C8-PFOS	8.373	507.1 -> 79.9	13182	2.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C9-PFNA	7.741	472.1 -> 427.0	30842	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSAA	8.268	573.2 -> 419.0	17636	3.92 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 78.3%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	36294	8.41 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 84.1%	
d3-MeFOSA	10.757	515.0 -> 219.0	8552	1.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.6%	
d5-EtFOSAA	8.464	589.2 -> 419.0	16282	3.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 75.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	67665	15.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.9%	
d9-EtFOSE	10.923	639.2 -> 58.9	97798	17.16 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	7877	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	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.493	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



7.12

7

Perfluorinated Compounds by LC/MS/MS

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

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

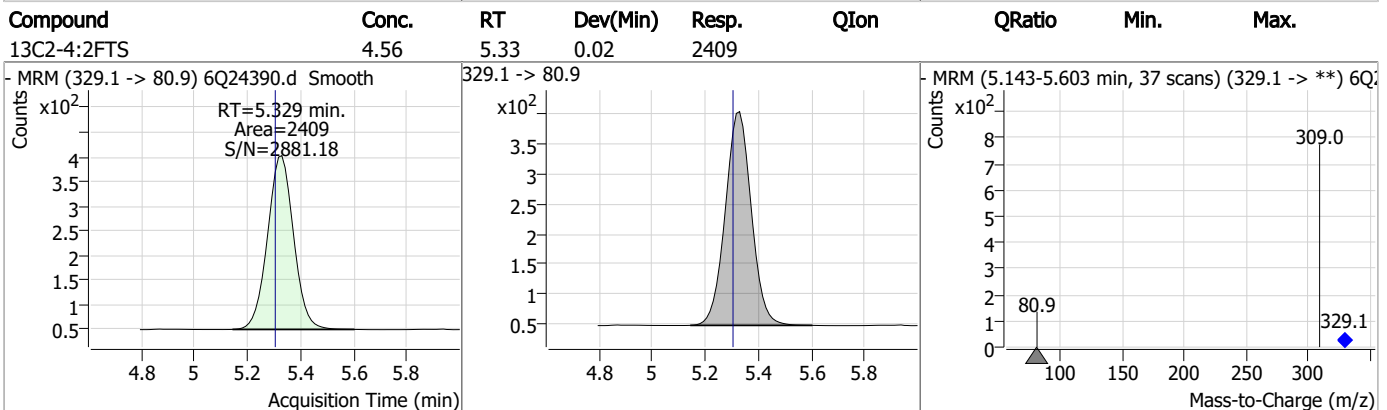
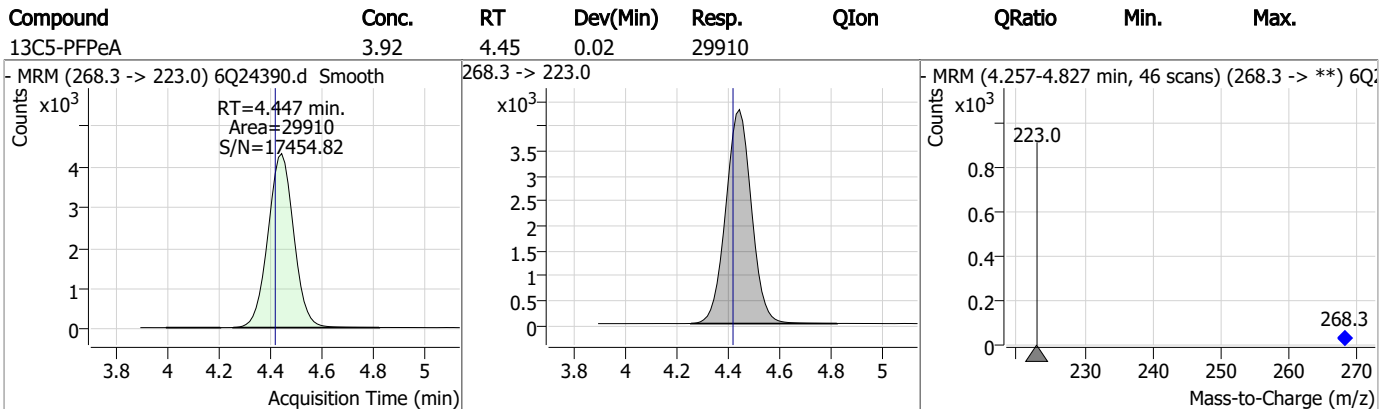
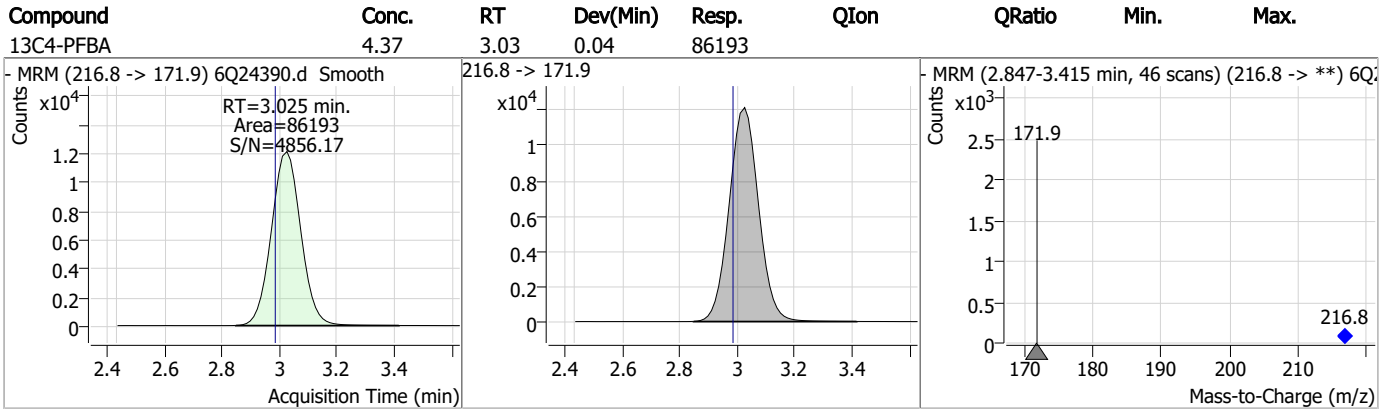
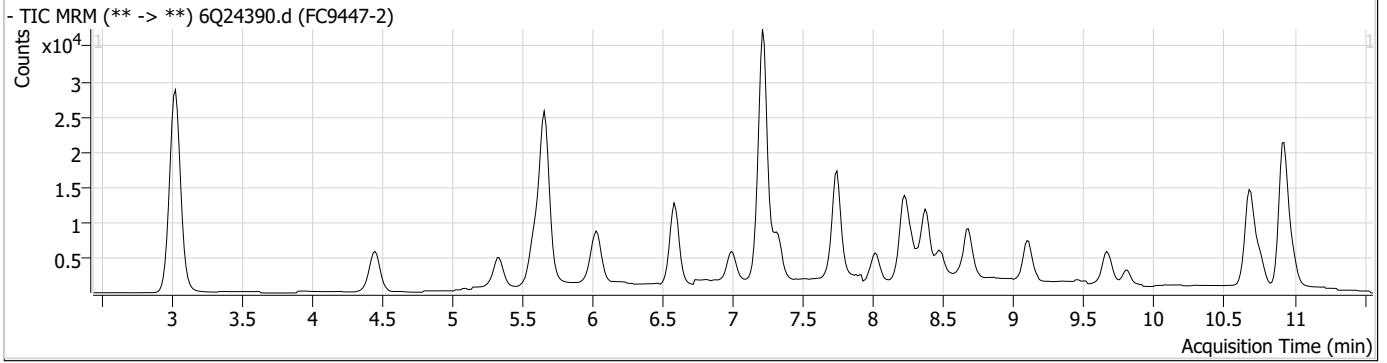
Perfluorinated Compounds by LC/MS/MS

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



Perfluorinated Compounds by LC/MS/MS



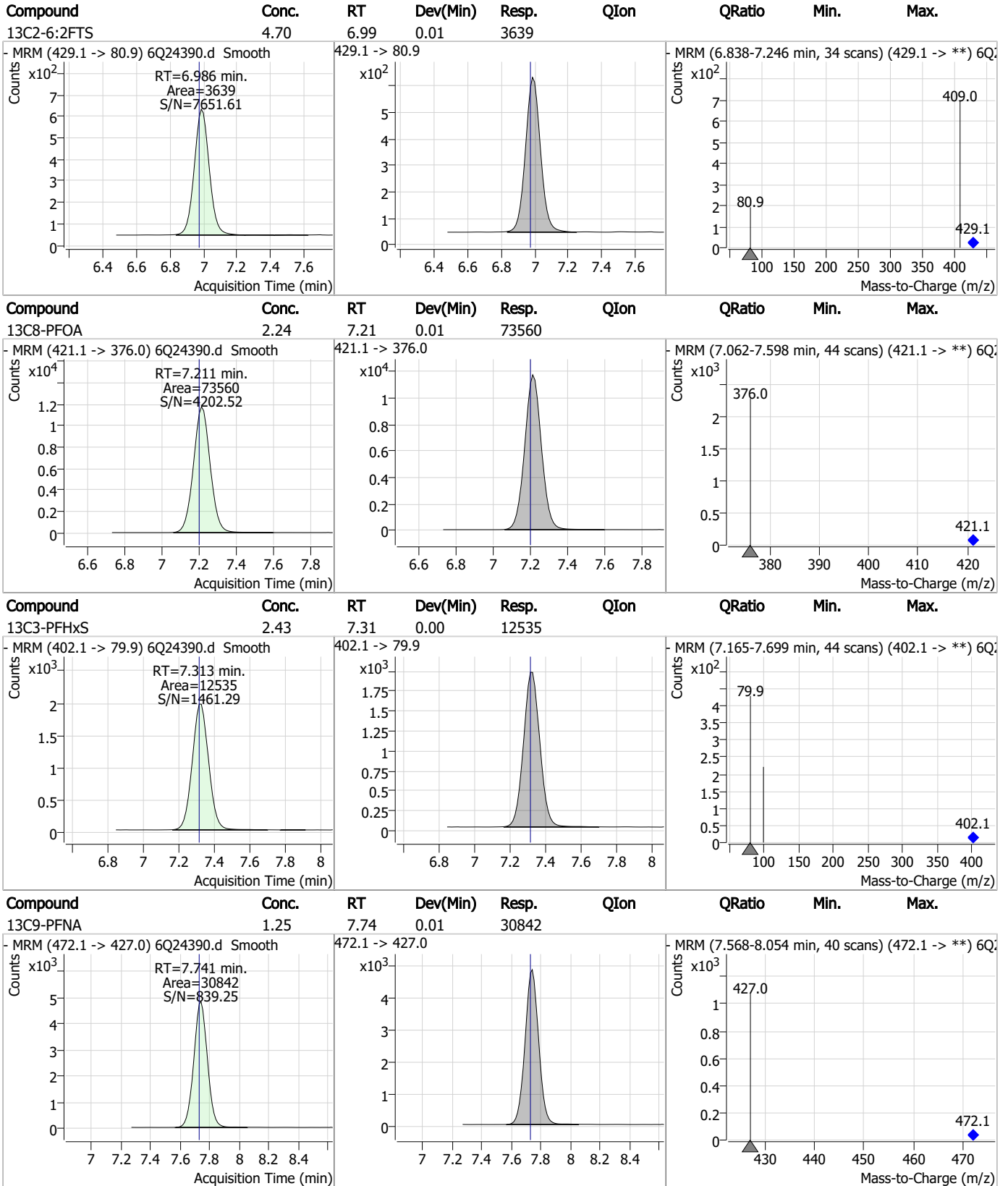
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.54	5.58	0.01	22042				
13C5-PFHxA	2.15	5.65	0.01	67308				
13C3-HFPO-DA	8.41	6.03	0.01	36294				
13C4-PFHpA	2.31	6.58	0.01	56192				

7.1.2

7

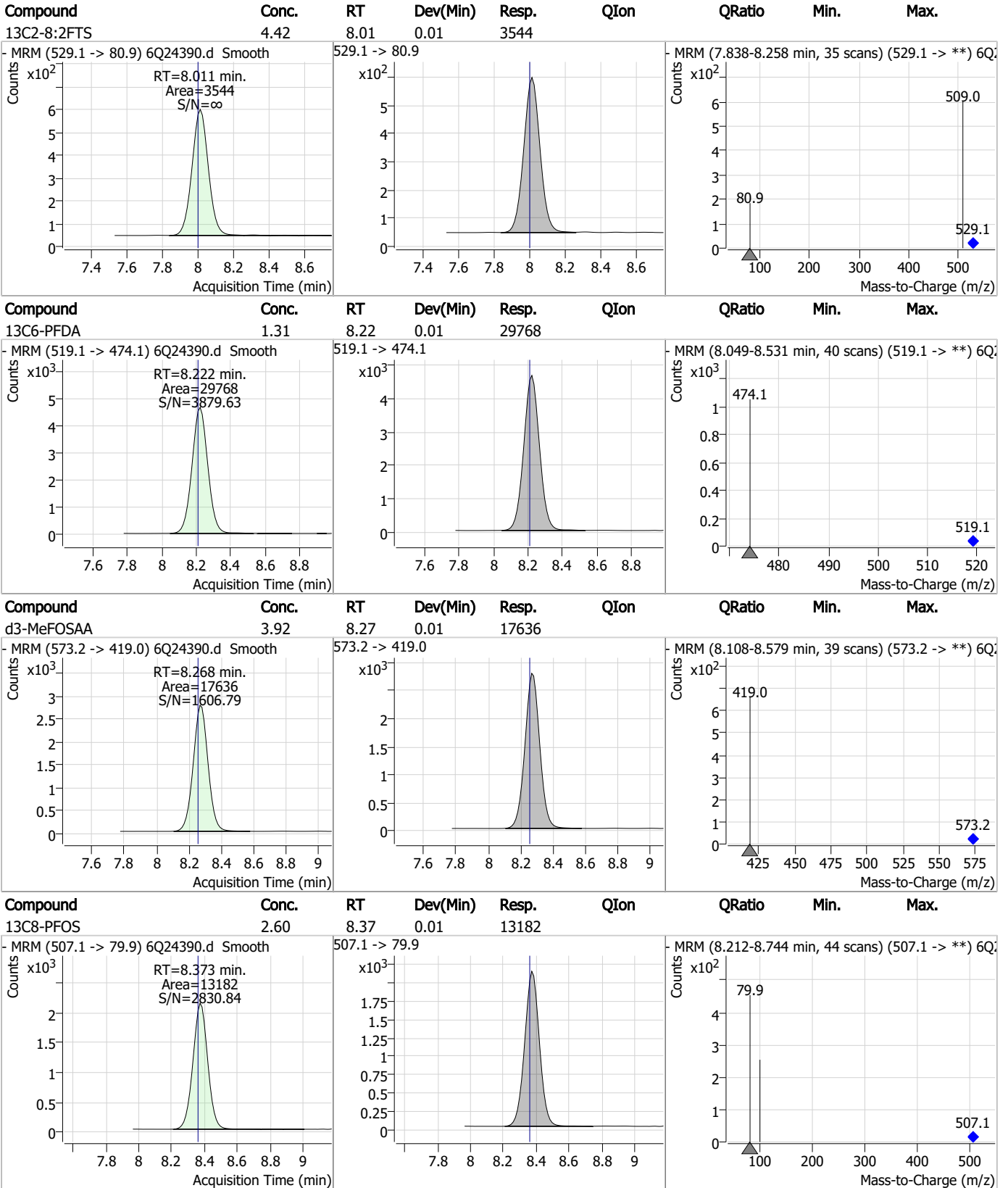
Perfluorinated Compounds by LC/MS/MS



7.1.2

7

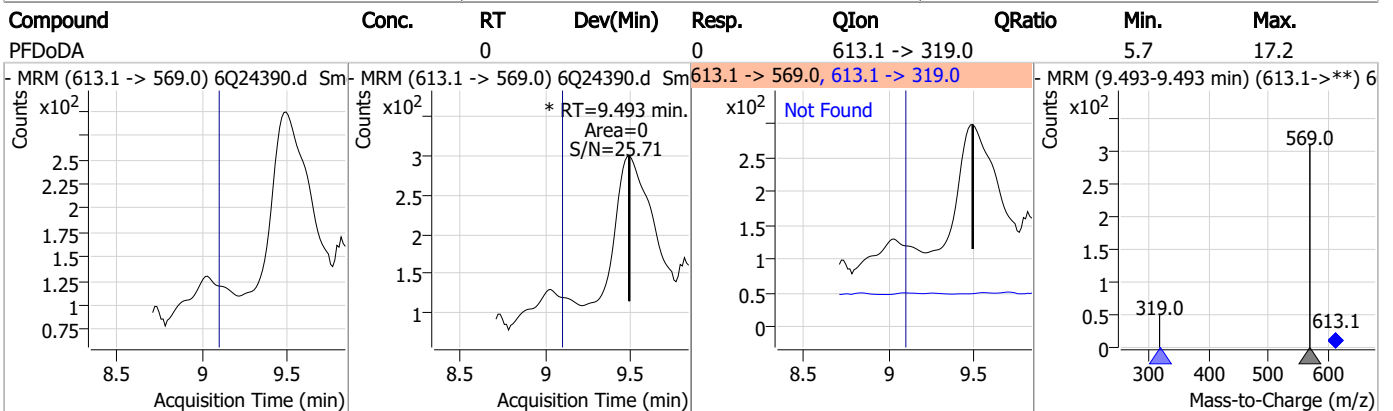
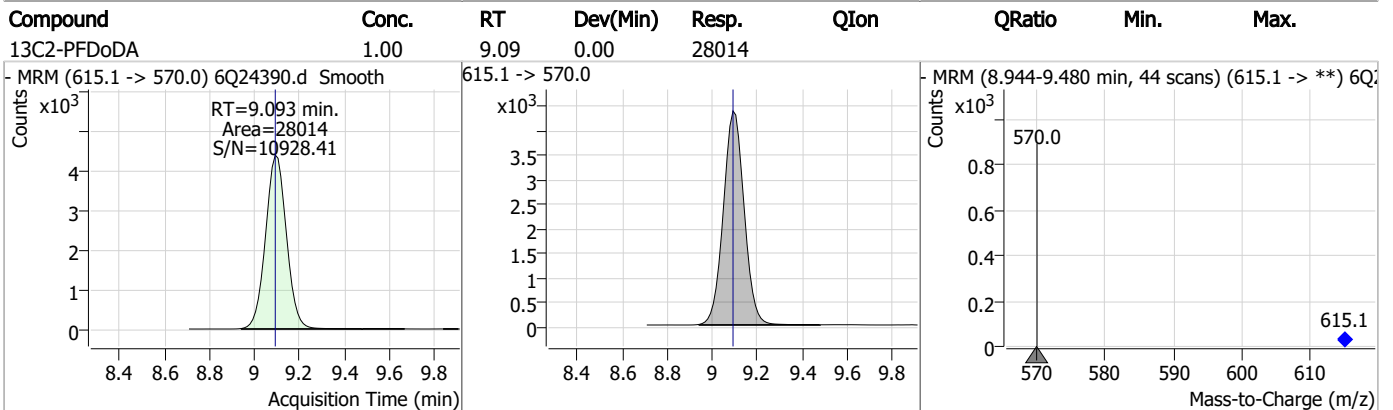
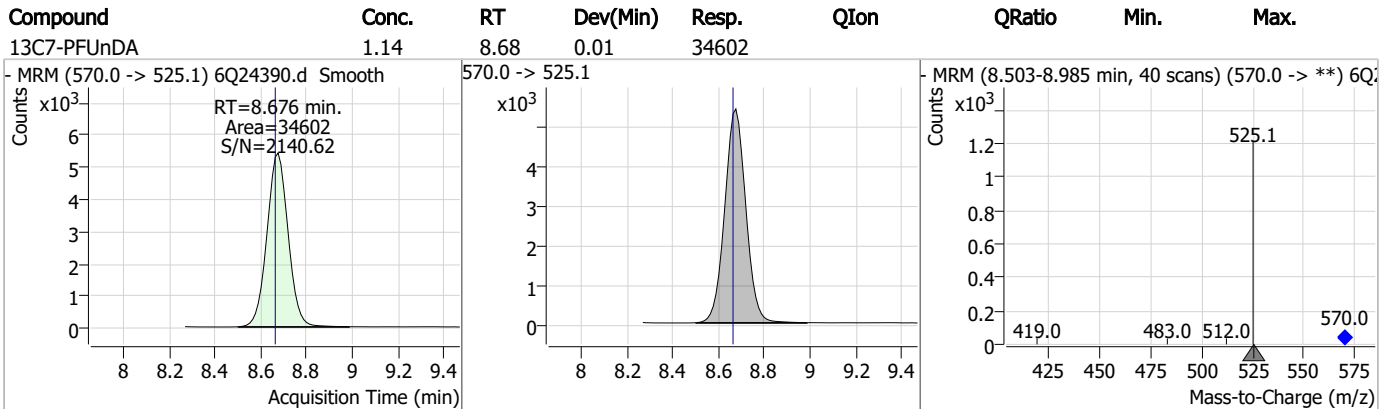
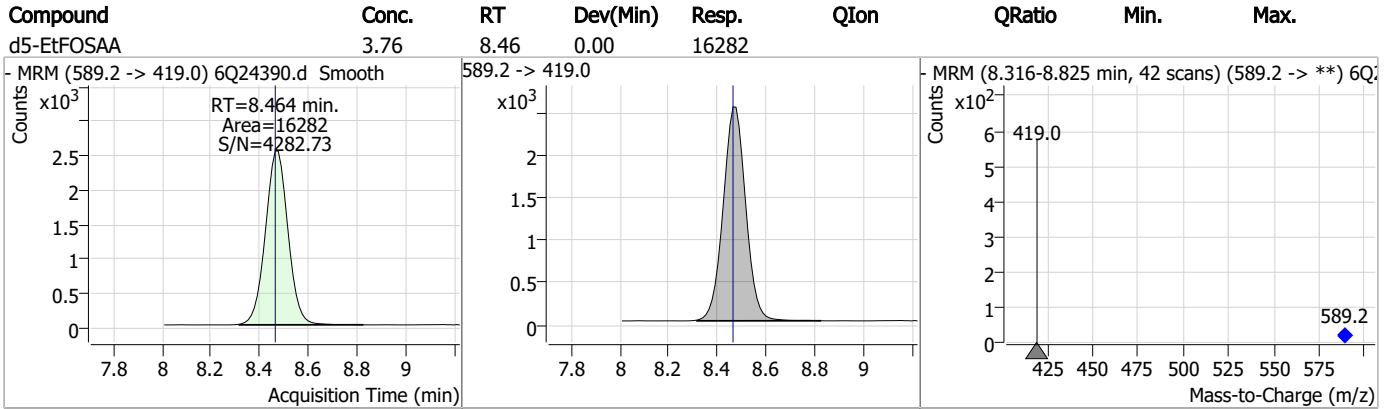
Perfluorinated Compounds by LC/MS/MS



7.1.2

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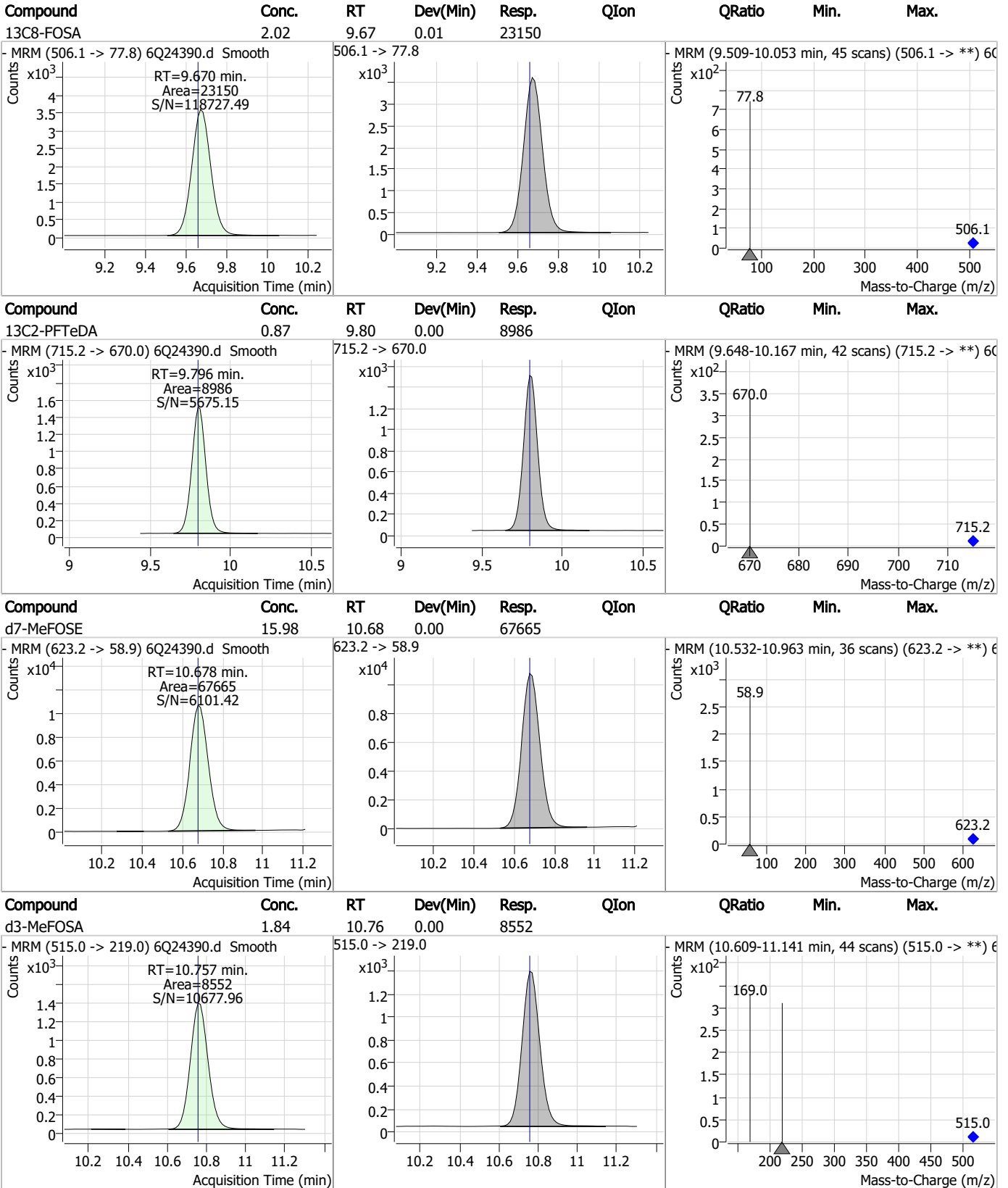
Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS

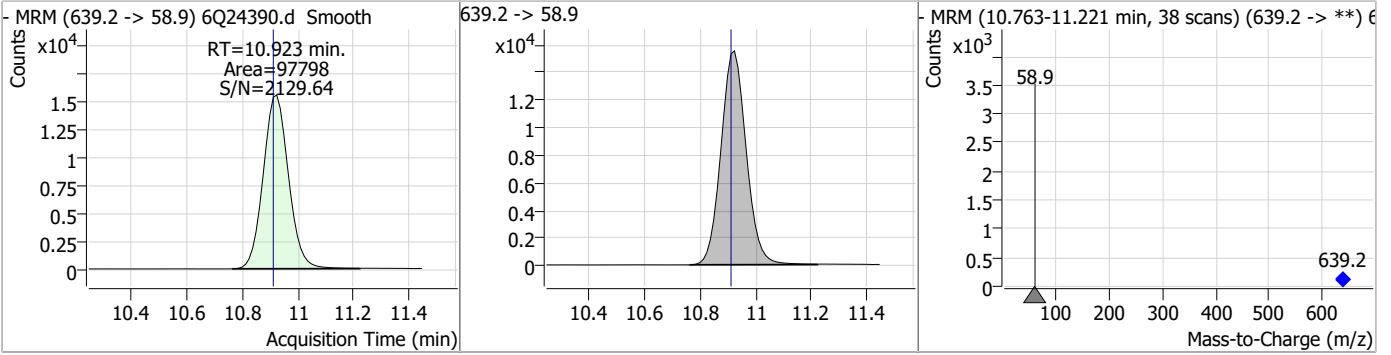


7.1.2

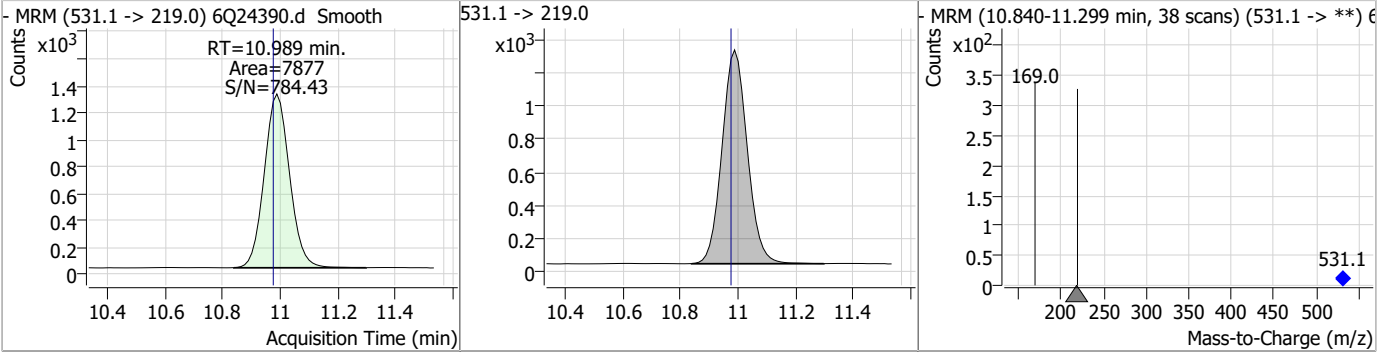
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.16	10.92	0.01	97798				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	1.82	10.99	0.01	7877				



7.1.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24391.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 4:03:52 AM
 Sample Name : FC9447-3
 Vial : P3-E8
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,525,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	90163	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	29848	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	66788	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	53452	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	73129	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	30378	1.25 µg/L	0.012
M6-PFDA	8.222	519.1 -> 474.1	29567	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	37706	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	27603	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	9388	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	25087	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	22279	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	11818	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	11859	2.50 µg/L	0.012
M2-4:2FTS	5.329	329.1 -> 80.9	2475	5.00 µg/L	0.025
M2-6:2FTS	6.986	429.1 -> 80.9	3449	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3610	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	17708	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	38323	10.00 µg/L	0.012
M5-EtFOSAA	8.476	589.2 -> 419.0	16045	5.00 µg/L	0.012
M7-MeFOSE	10.678	623.2 -> 58.9	72279	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	104898	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	8053	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	8658	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	16876	2.50 µg/L	0.012
13C3-PFBA	3.029	216.0 -> 172.0	76744	5.00 µg/L	0.040
18O2-PFHxS	7.325	403.0 -> 83.9	9229	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	86228	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	29626	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	36841	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	53604	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.329	329.1 -> 80.9	2475	4.77 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3449	4.53 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3610	4.57 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.5%		
13C2-PFDoDA	9.093	615.1 -> 570.0	27603	0.87 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.5%		
13C2-PFTeDA	9.796	715.2 -> 670.0	9388	0.79 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 63.6%		
13C3-PFBS	5.584	302.1 -> 79.9	22279	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C3-PFHxS	7.326	402.1 -> 79.9	11818	2.33 µg/L	0.012

7.1.3
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.2%	
13C4-PFBA	3.025	216.8 -> 171.9	90163	4.65 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 46.5%	
13C4-PFHpA	6.581	367.1 -> 322.0	53452	2.32 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C5-PFHxA	5.654	318.0 -> 273.0	66788	2.26 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.4%	
13C5-PFPeA	4.447	268.3 -> 223.0	29848	4.13 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.6%	
13C6-PFDA	8.222	519.1 -> 474.1	29567	1.15 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C7-PFUnDA	8.676	570.0 -> 525.1	37706	1.09 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C8-FOSA	9.670	506.1 -> 77.8	25087	2.09 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.5%	
13C8-PFOA	7.211	421.1 -> 376.0	73129	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C8-PFOS	8.373	507.1 -> 79.9	11859	2.23 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.2%	
13C9-PFNA	7.741	472.1 -> 427.0	30378	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.6%	
d3-MeFOSAA	8.268	573.2 -> 419.0	17708	3.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 75.1%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	38323	9.39 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d3-MeFOSA	10.757	515.0 -> 219.0	8658	1.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 71.1%	
d5-EtFOSAA	8.476	589.2 -> 419.0	16045	3.53 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 70.7%	
d7-MeFOSE	10.678	623.2 -> 58.9	72279	16.29 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 65.2%	
d9-EtFOSE	10.911	639.2 -> 58.9	104898	17.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 70.3%	
d5-EtFOSA	10.989	531.1 -> 219.0	8053	1.77 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 70.9%	

7.13
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.480	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

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

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

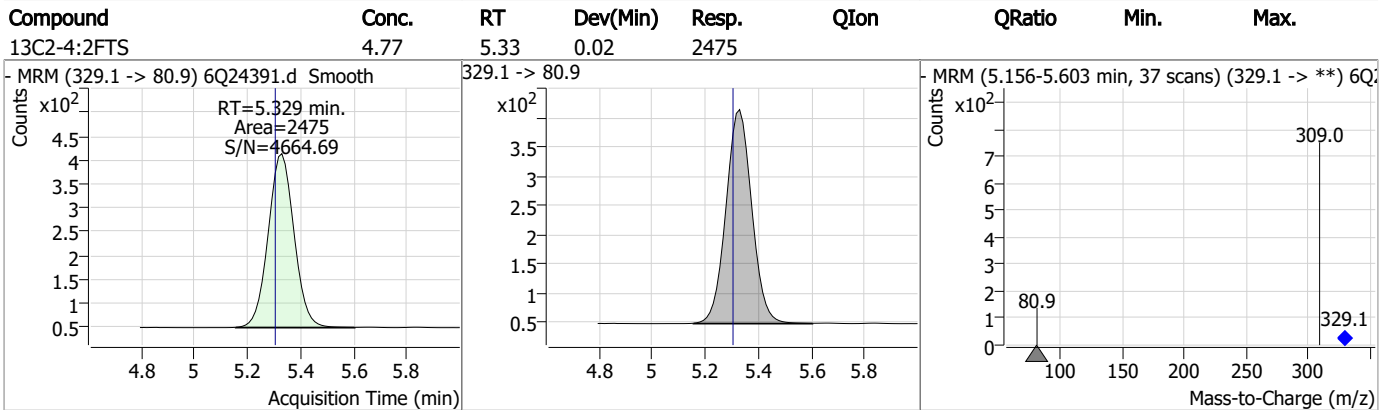
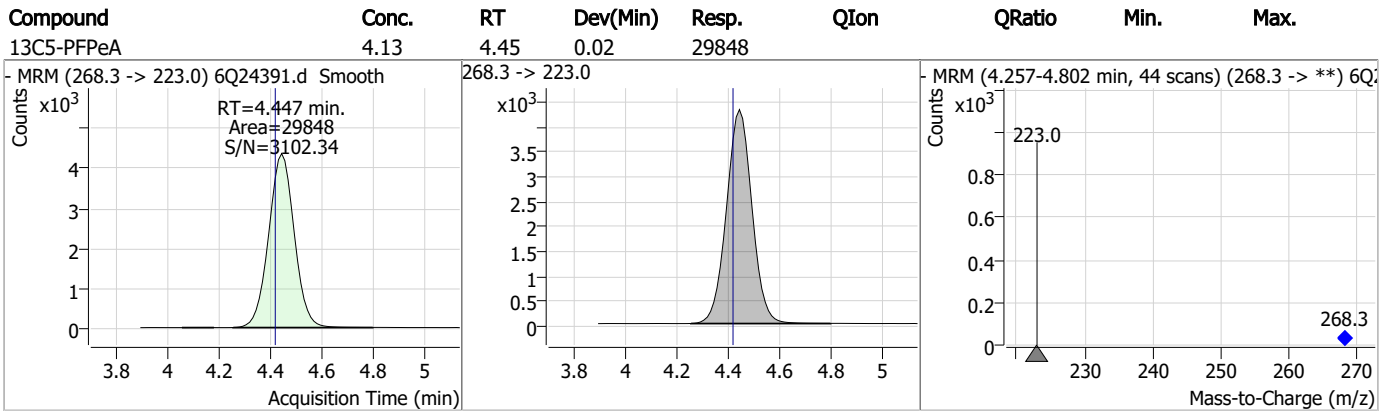
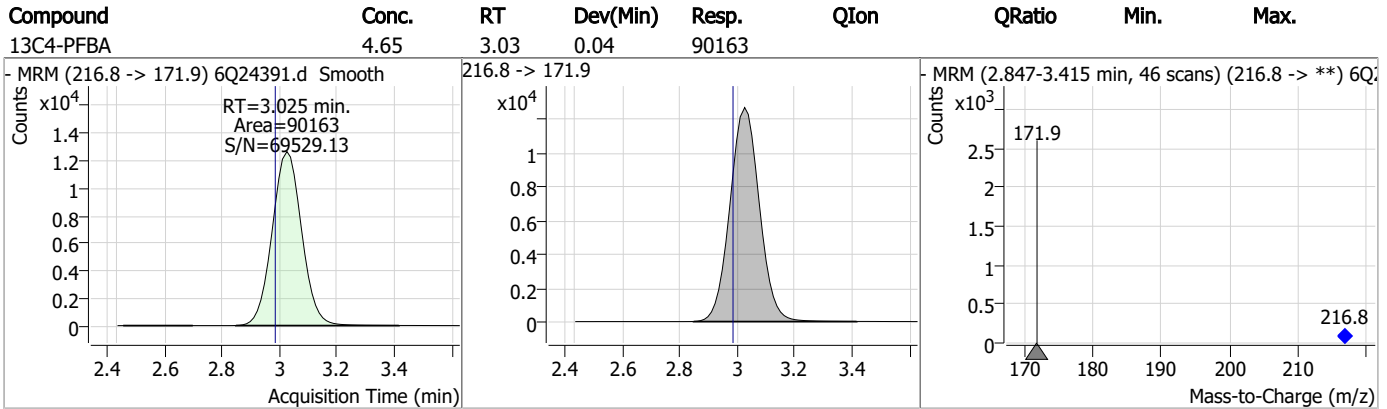
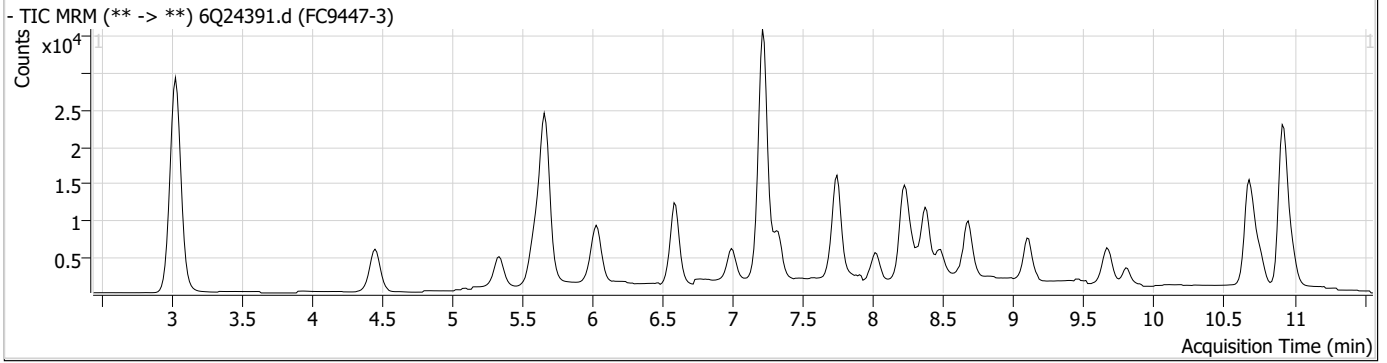
Perfluorinated Compounds by LC/MS/MS

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



Perfluorinated Compounds by LC/MS/MS



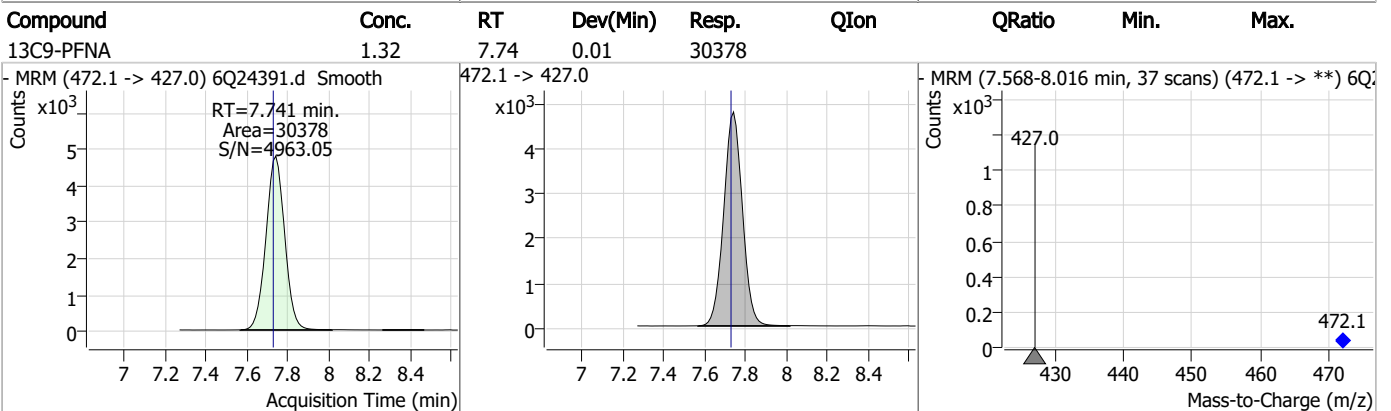
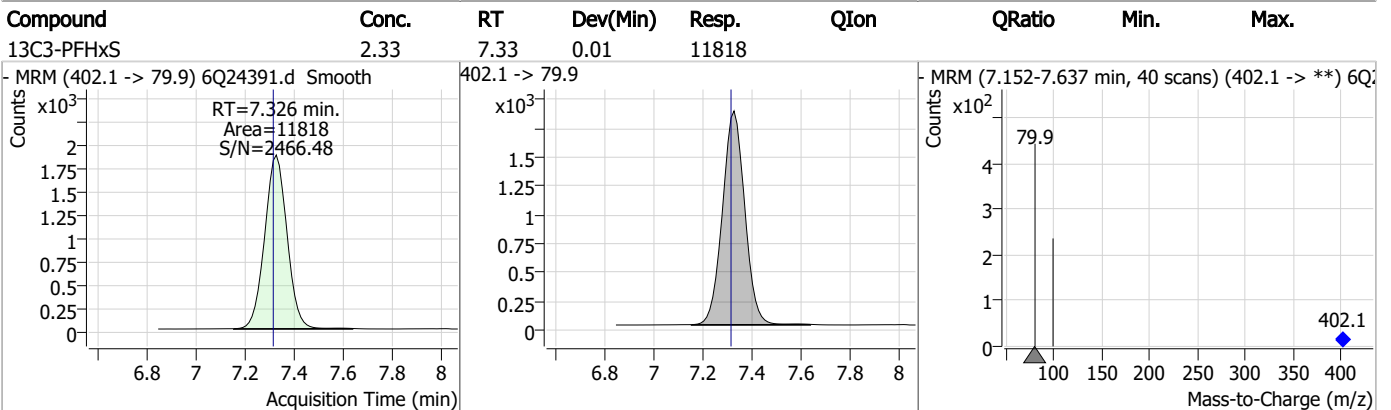
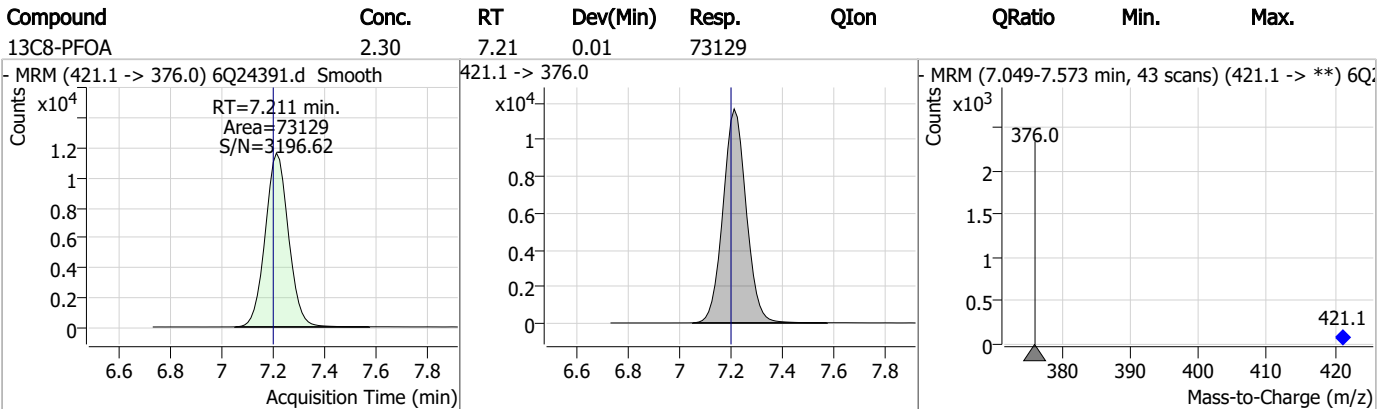
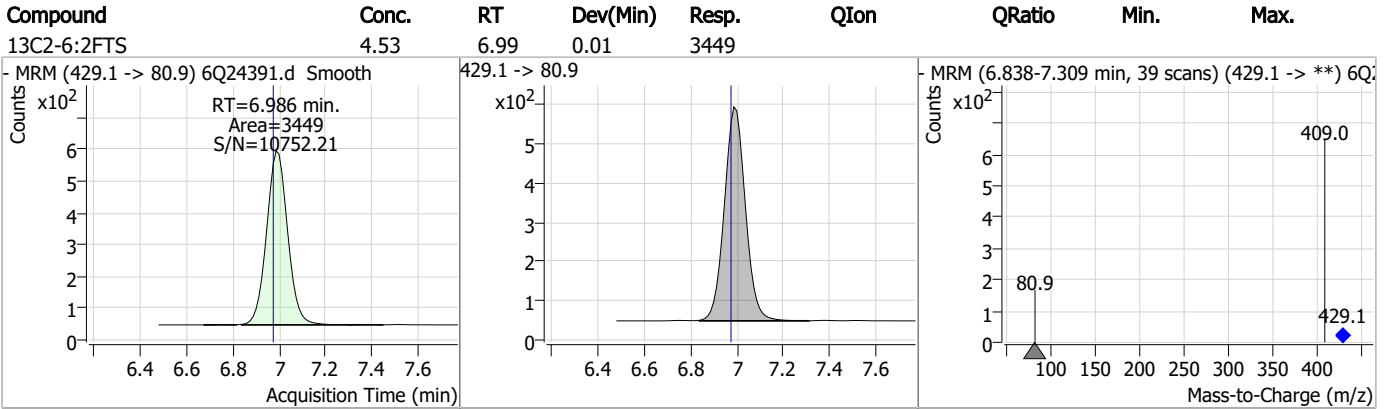
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.61	5.58	0.01	22279				
13C5-PFHxA	2.26	5.65	0.01	66788				
13C3-HFPO-DA	9.39	6.03	0.01	38323				
13C4-PFHpA	2.32	6.58	0.01	53452				

7.1.3

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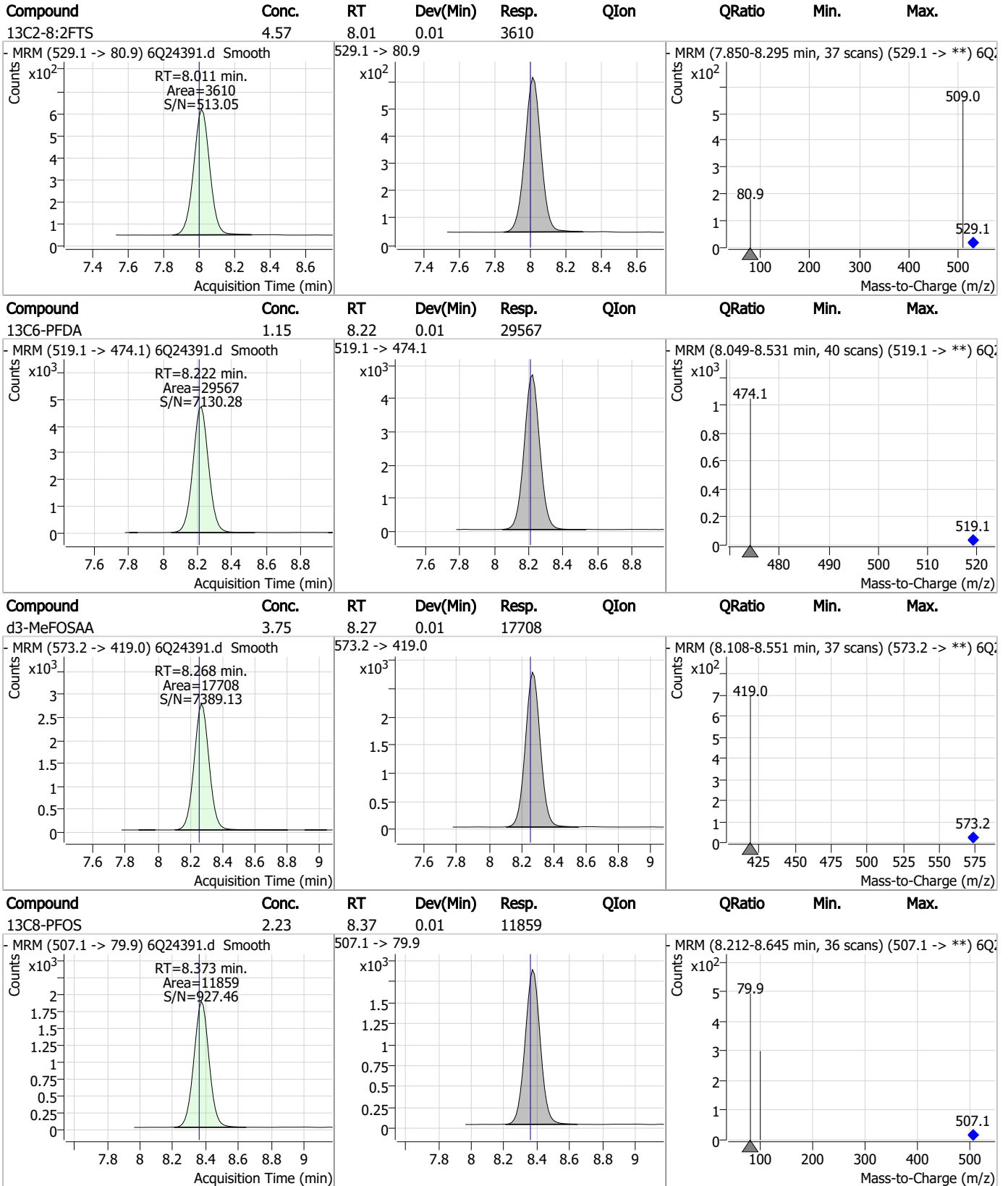
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

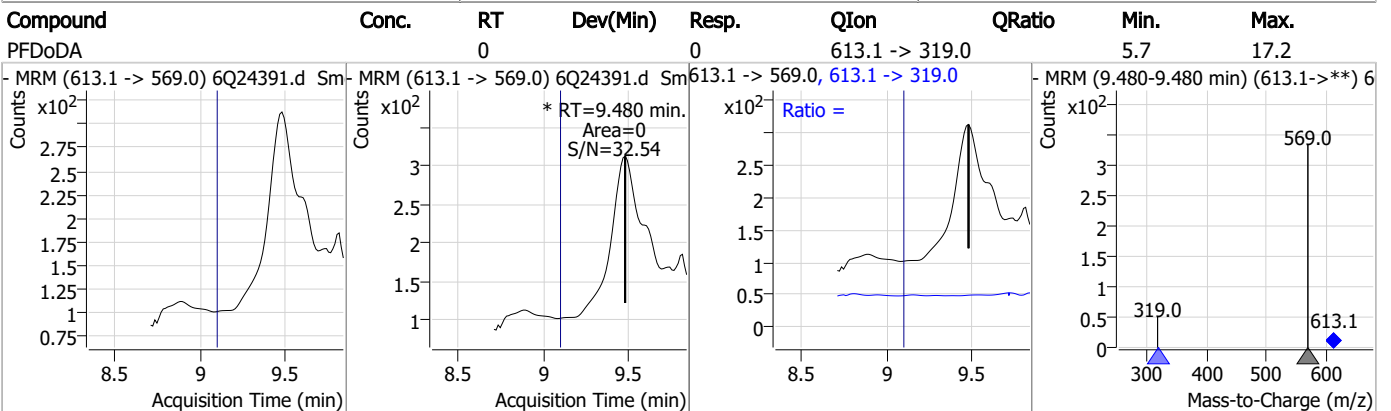
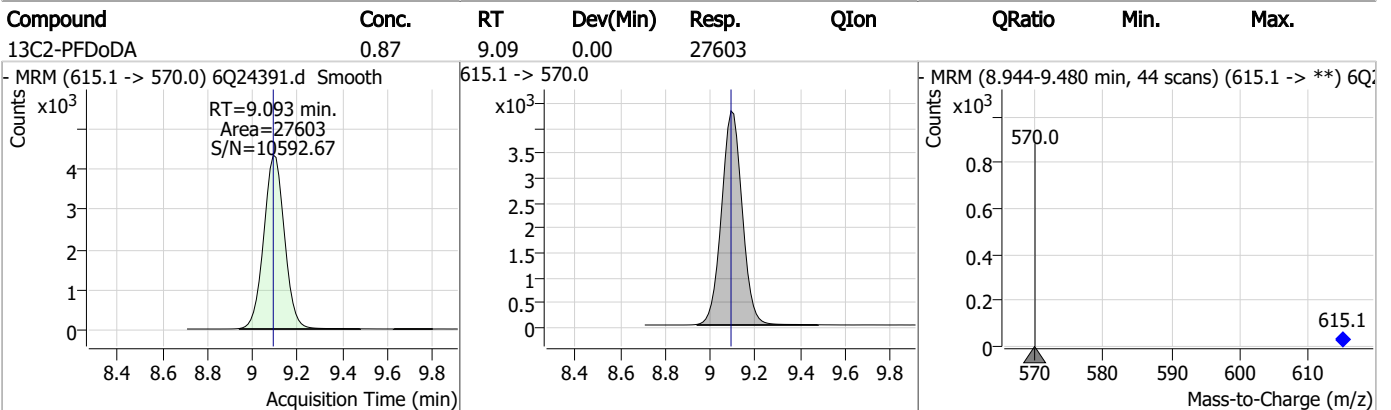
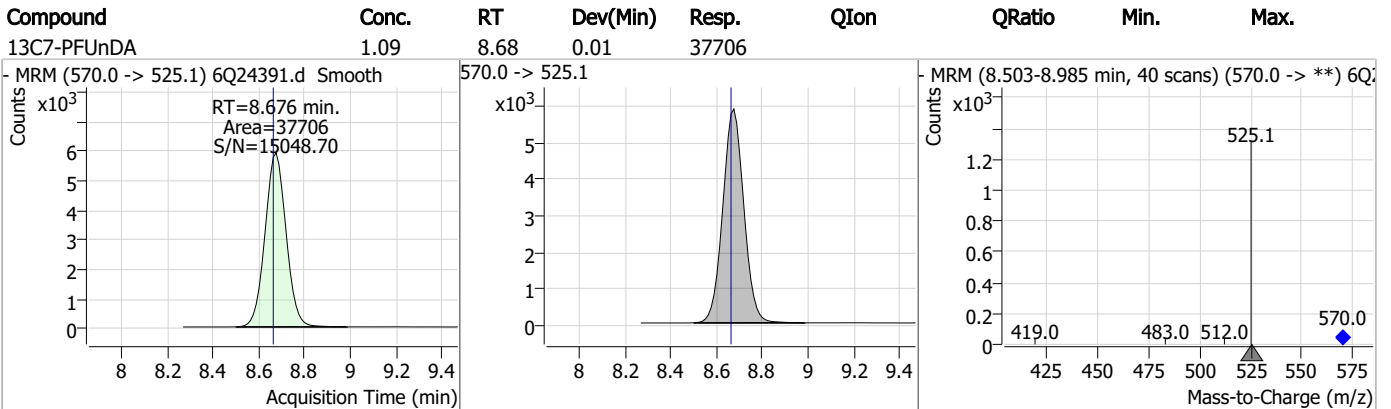
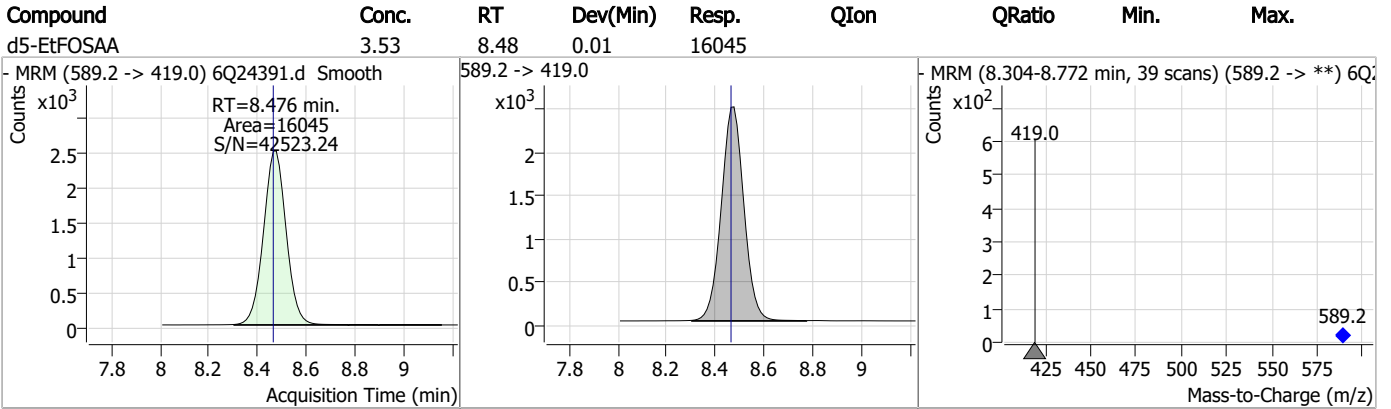
Perfluorinated Compounds by LC/MS/MS



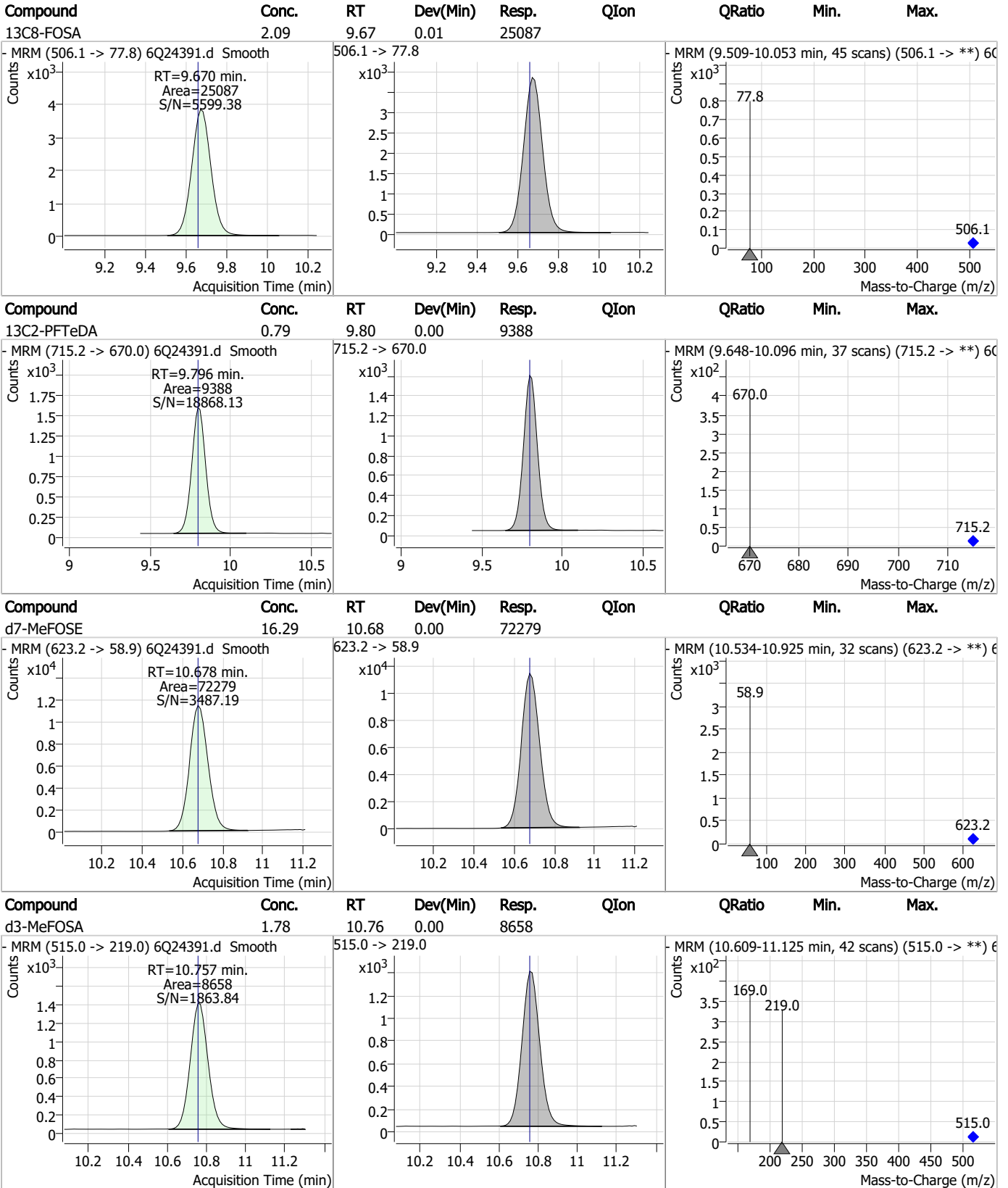
7.1.3

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Perfluorinated Compounds by LC/MS/MS

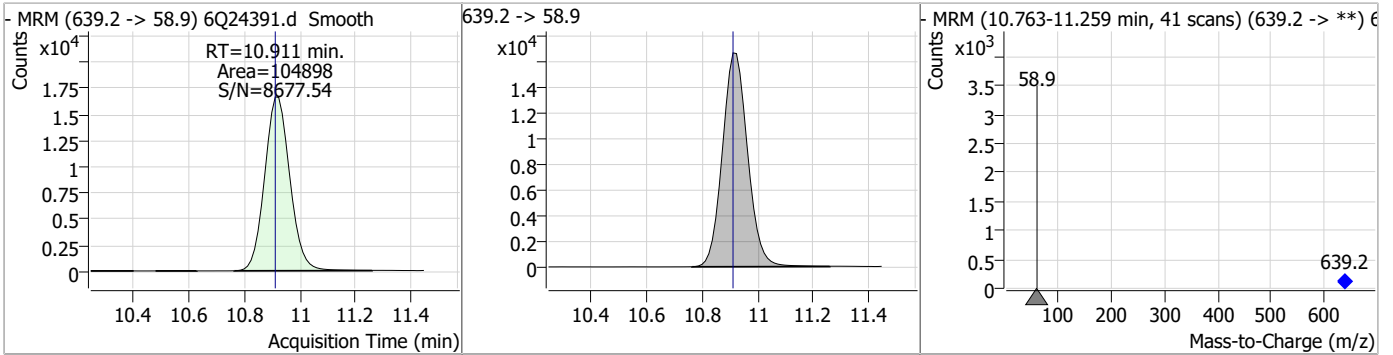


Perfluorinated Compounds by LC/MS/MS

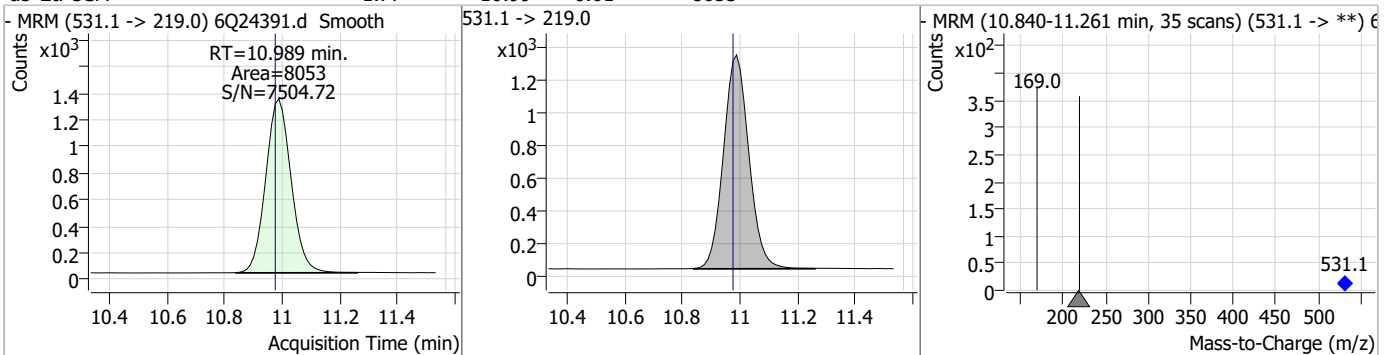


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	17.57	10.91	0.00	104898				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	1.77	10.99	0.01	8053				



7.1.3

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24395.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 5:01:11 AM
 Sample Name : FC9447-4
 Vial : P3-F1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	119963	10.00 µg/L	0.025
M5-PFPeA	4.422	268.3 -> 223.0	25438	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	67948	2.50 µg/L	0.000
M4-PFHpA	6.581	367.1 -> 322.0	59502	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	74007	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	31992	1.25 µg/L	0.012
M6-PFDA	8.210	519.1 -> 474.1	30883	1.25 µg/L	0.000
M7-PFUnDA	8.676	570.0 -> 525.1	36927	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	28735	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	8477	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	26148	2.50 µg/L	0.012
M3-PFBS	5.571	302.1 -> 79.9	21095	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12473	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	12007	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2327	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3090	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3026	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	20254	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	30820	10.00 µg/L	0.000
M5-EtFOSAA	8.476	589.2 -> 419.0	16711	5.00 µg/L	0.012
M7-MeFOSE	10.678	623.2 -> 58.9	69991	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	92306	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	6373	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	7447	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17385	2.50 µg/L	0.012
13C3-PFBA	3.014	216.0 -> 172.0	64429	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	9467	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	95168	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	30339	1.25 µg/L	0.012
13C5-PFNA	7.729	468.0 -> 423.0	40000	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	57196	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2327	4.37 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.4%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3090	3.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.1%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3026	3.74 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 74.8%		
13C2-PFDoDA	9.093	615.1 -> 570.0	28735	0.88 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.6%		
13C2-PFTeDA	9.796	715.2 -> 670.0	8477	0.70 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 56.1%		
13C3-PFBS	5.571	302.1 -> 79.9	21095	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.313	402.1 -> 79.9	12473	2.40 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 = 95.9%		
13C4-PFBA	3.010	216.8 -> 171.9	119963	7.37	µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 73.7%		
13C4-PFHpA	6.581	367.1 -> 322.0	59502	2.42	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%		
13C5-PFHxA	5.641	318.0 -> 273.0	67948	2.16	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.2%		
13C5-PFPeA	4.422	268.3 -> 223.0	25438	3.30	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 66.0%		
13C6-PFDA	8.210	519.1 -> 474.1	30883	1.17	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.5%		
13C7-PFUnDA	8.676	570.0 -> 525.1	36927	1.04	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.5%		
13C8-FOSA	9.670	506.1 -> 77.8	26148	2.11	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.5%		
13C8-PFOA	7.211	421.1 -> 376.0	74007	2.11	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.5%		
13C8-PFOS	8.373	507.1 -> 79.9	12007	2.19	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.7%		
13C9-PFNA	7.741	472.1 -> 427.0	31992	1.28	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%		
d3-MeFOSAA	8.268	573.2 -> 419.0	20254	4.17	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 83.3%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	30820	7.07	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 70.7%		
d3-MeFOSA	10.757	515.0 -> 219.0	7447	1.48	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 59.4%		
d5-EtFOSAA	8.476	589.2 -> 419.0	16711	3.57	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 71.5%		
d7-MeFOSE	10.678	623.2 -> 58.9	69991	15.31	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 61.3%		
d9-EtFOSE	10.923	639.2 -> 58.9	92306	15.01	µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 60.0%		
d5-EtFOSA	10.989	531.1 -> 219.0	6373	1.36	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 54.5%		

7.14
7

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	6.987	427.1 -> 407.0	1265	0.46	µg/L	88
		427.1 -> 80.9	411			
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	3.219	212.8 -> 168.9	0	µg/L	m	1
PFBS	5.437	298.7 -> 79.9	0	µg/L	m	1
		298.7 -> 98.8	0			
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8				
		363.1 -> 319.0	1809	0.06	µg/L	97
PFHpS	-	363.1 -> 169.0	247			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.408	449.0 -> 98.9				
		313.0 -> 269.0	0		µg/L m	1
PFHxS	-	313.0 -> 118.9	0			
		398.7 -> 79.9	-	N.D.		
PFNA	-	398.7 -> 98.9				
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	4.461	498.9 -> 98.8				
		263.0 -> 219.0	67148	5.93	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	3.696	241.0 -> 177.0	0		µg/L m	1
		241.0 -> 117.0	0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	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

7.1.4
7



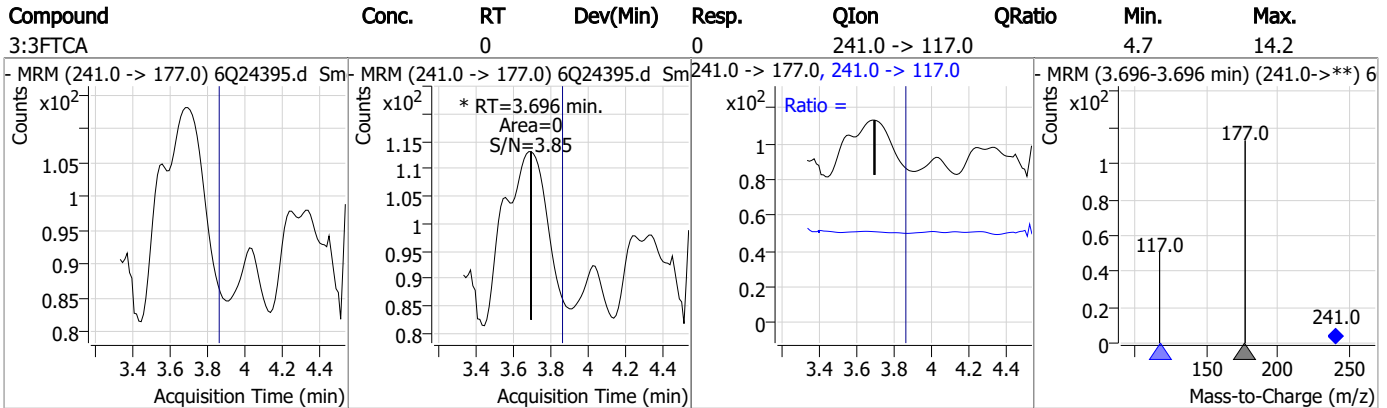
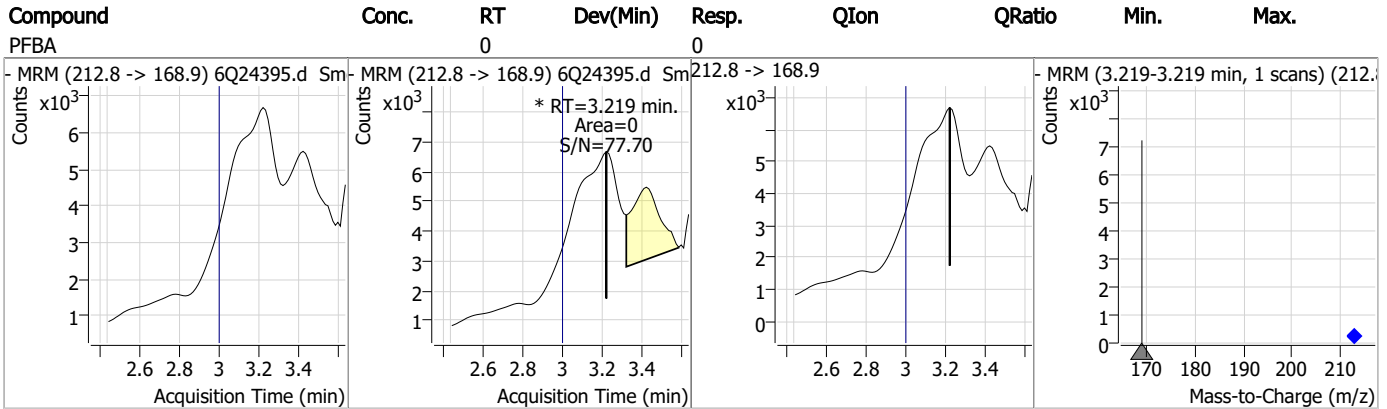
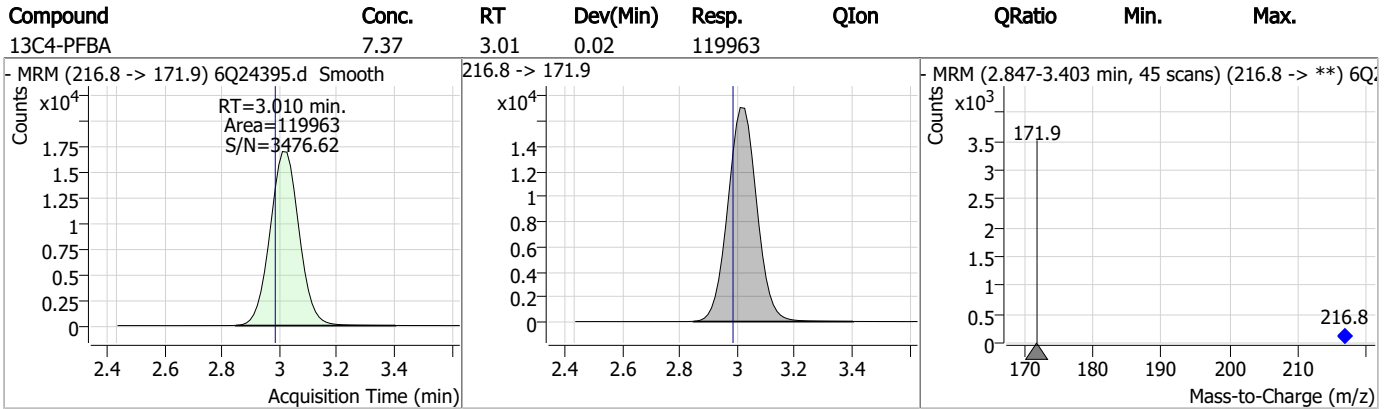
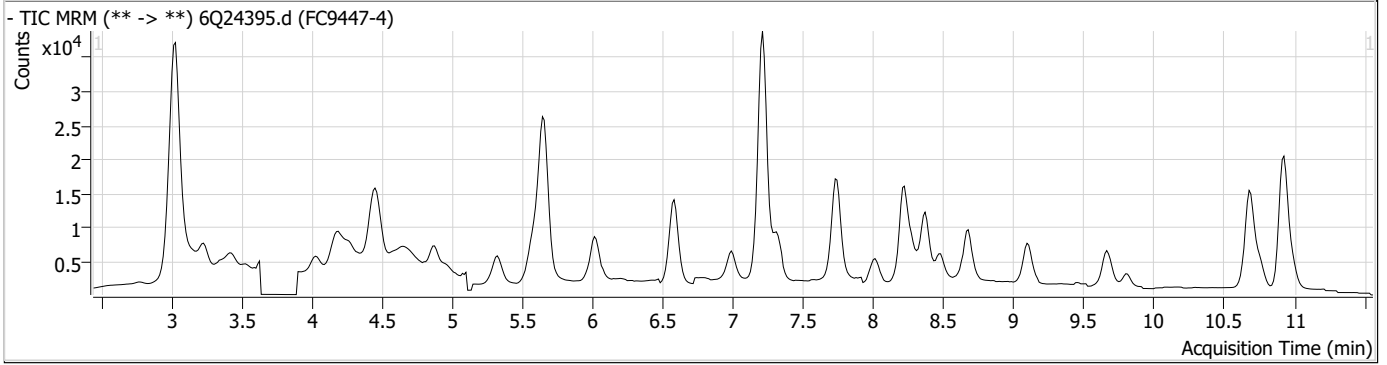
Perfluorinated Compounds by LC/MS/MS

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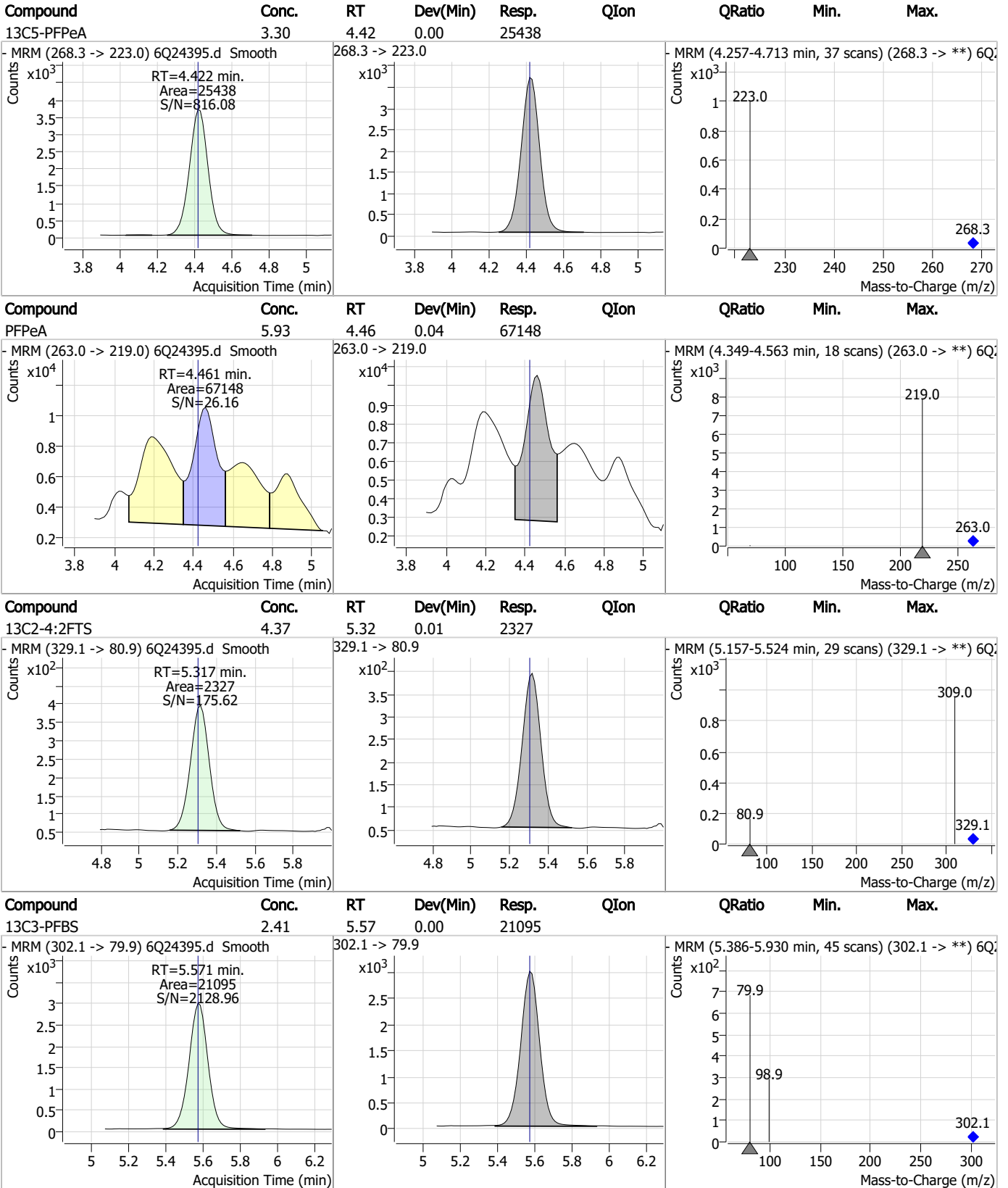
7.1.4
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Perfluorinated Compounds by LC/MS/MS



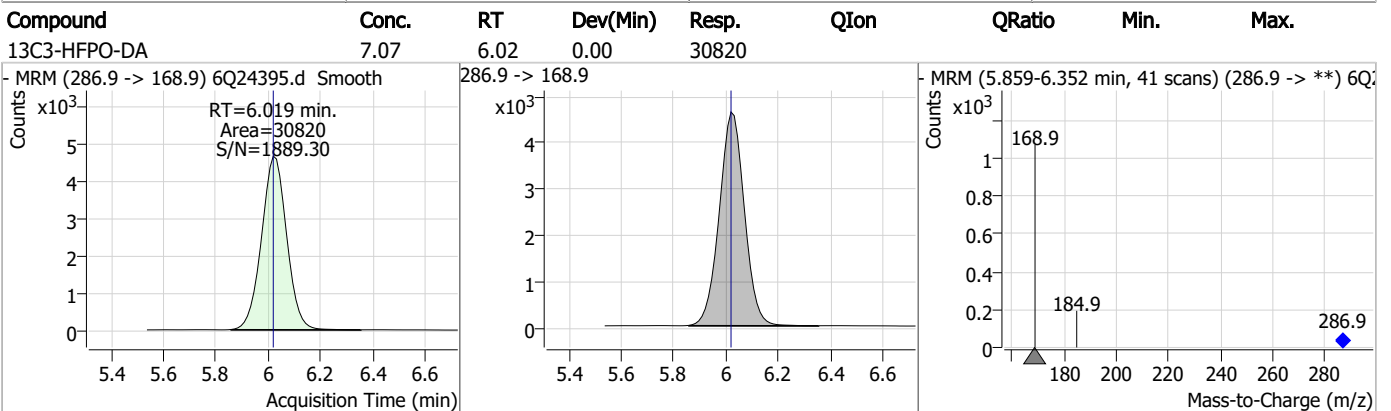
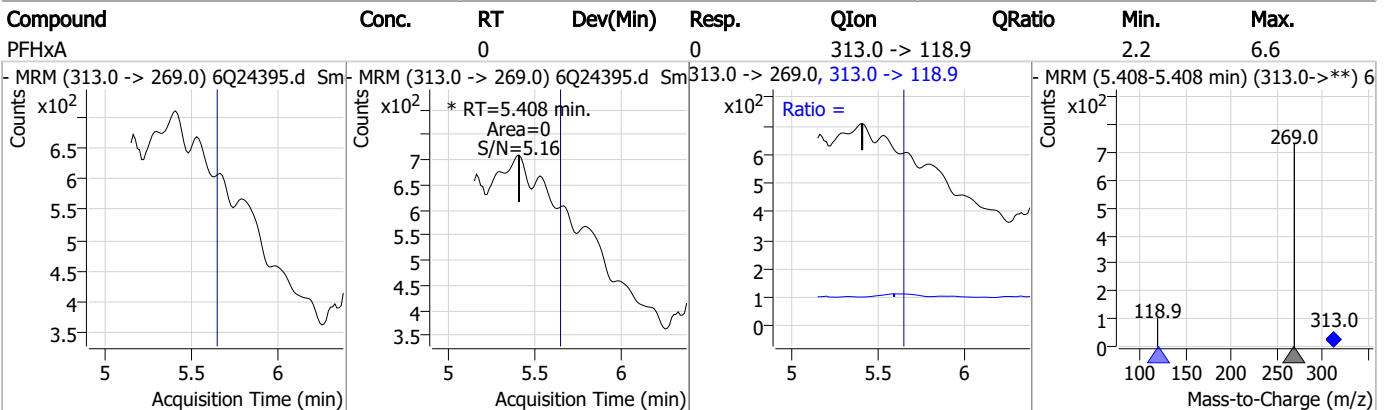
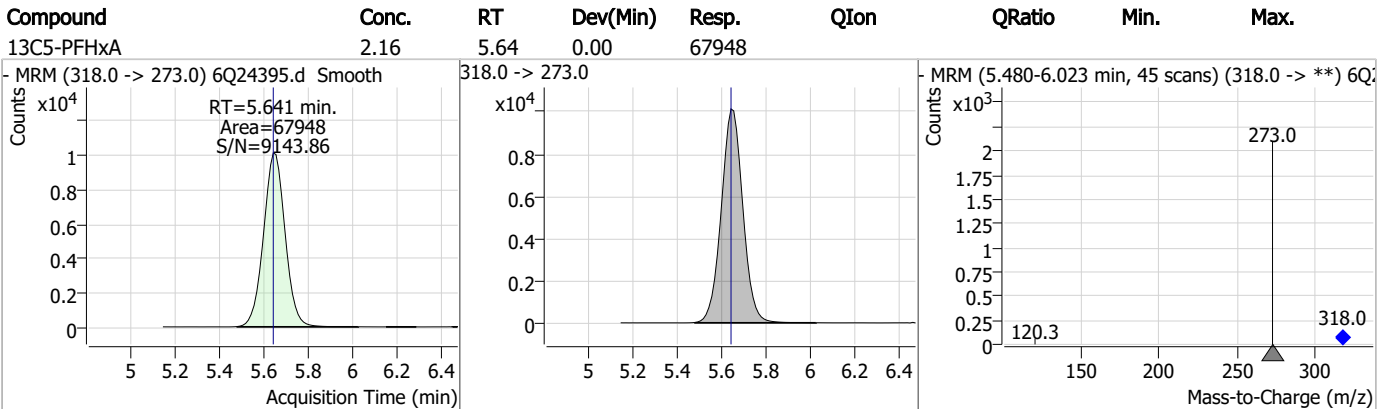
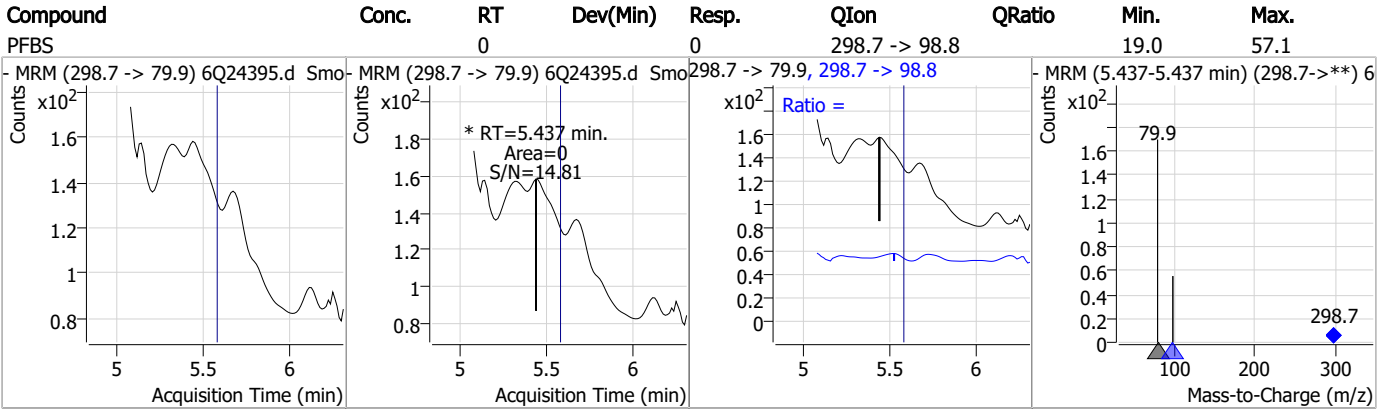
Perfluorinated Compounds by LC/MS/MS



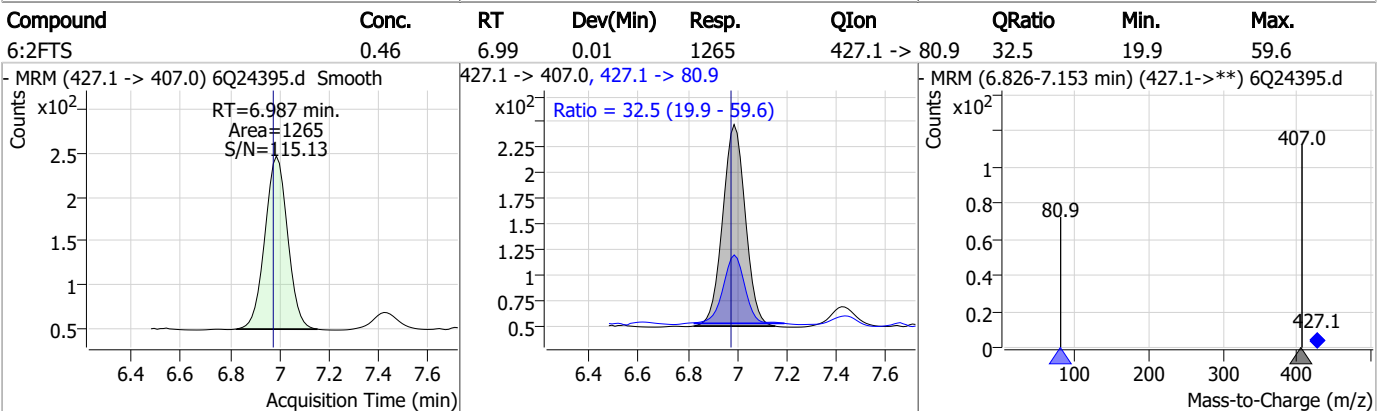
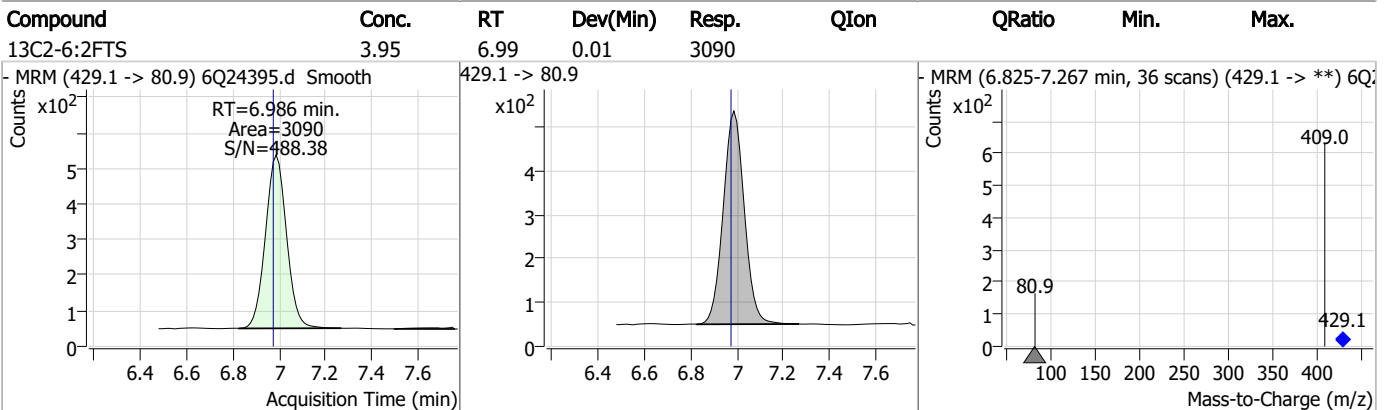
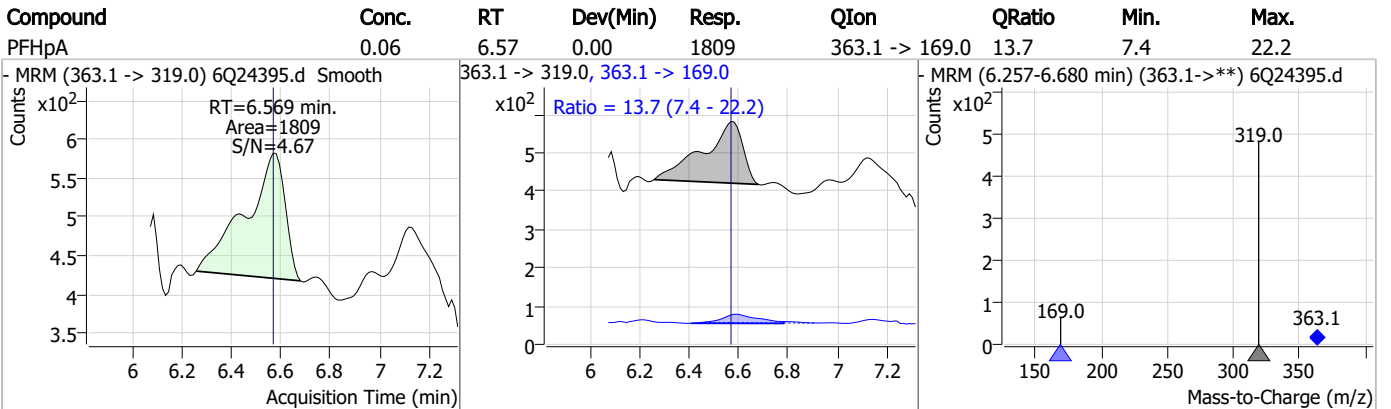
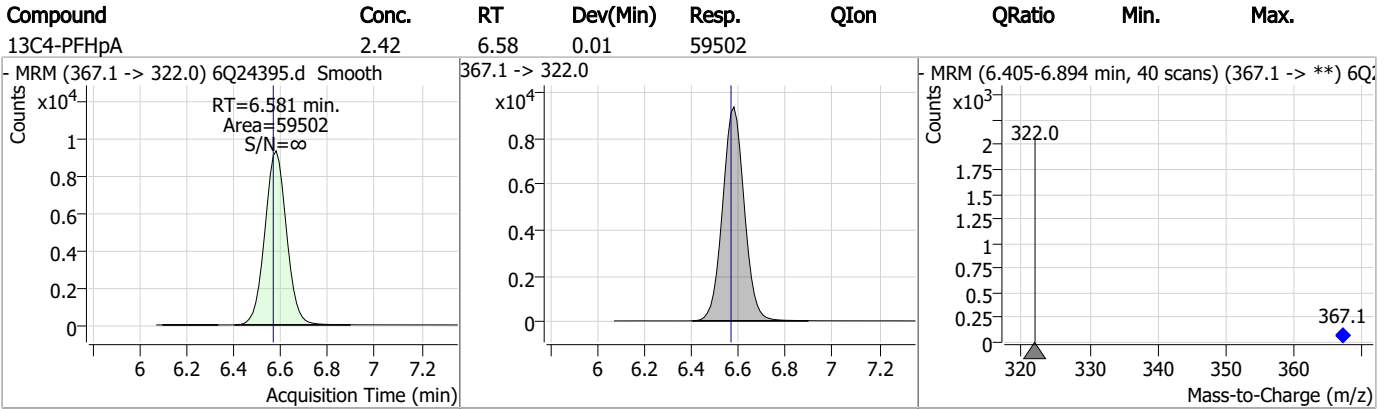
7.1.4

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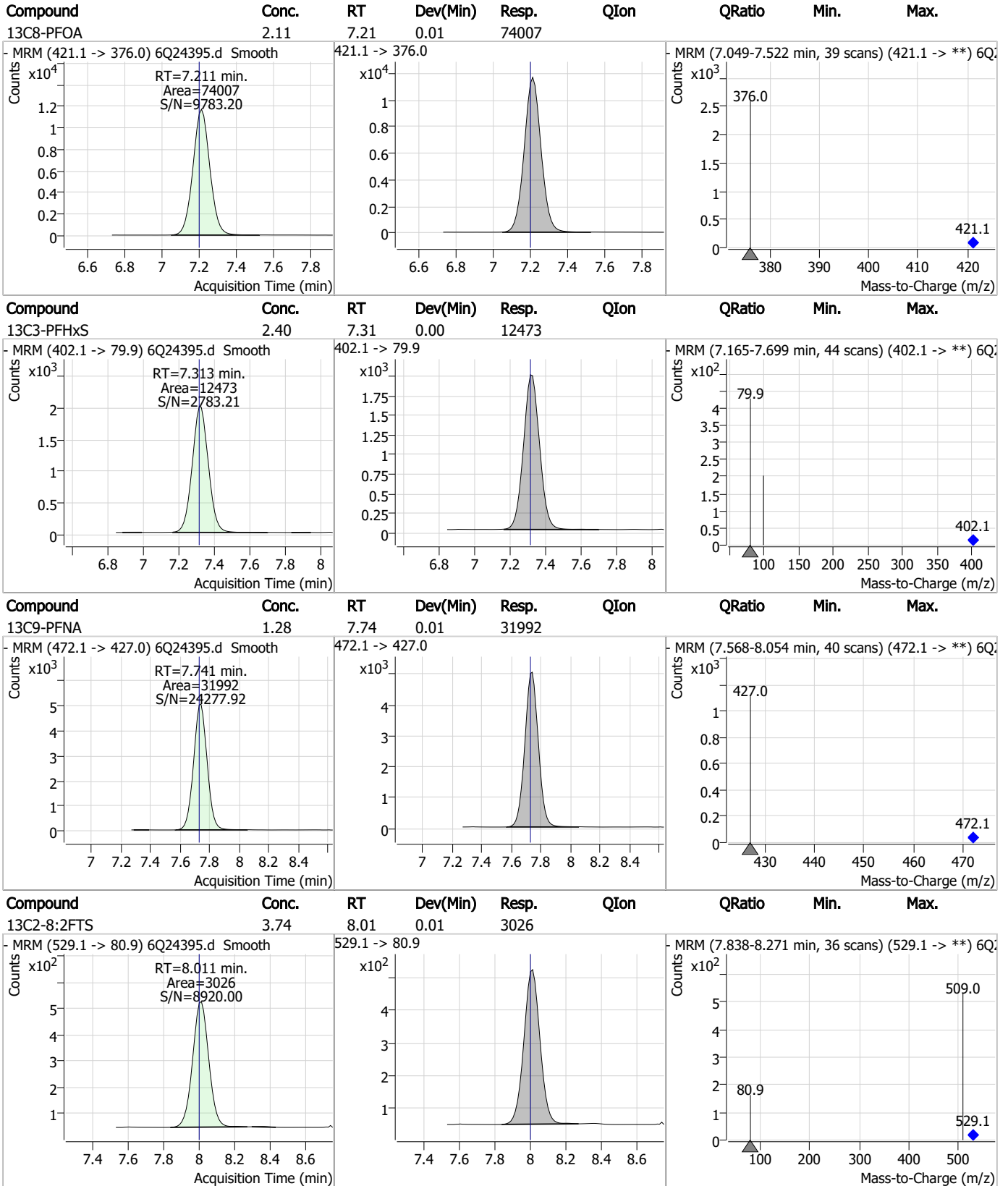
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



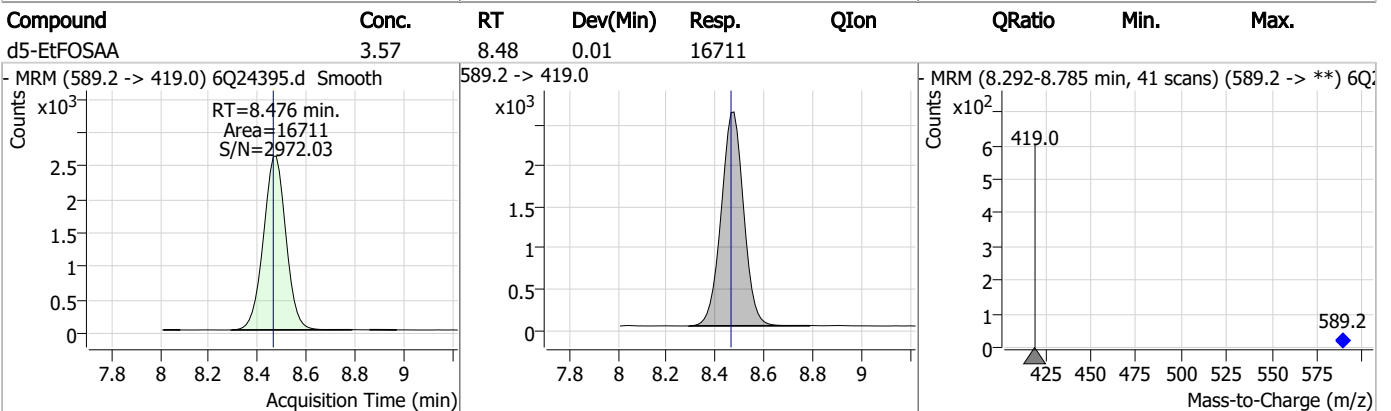
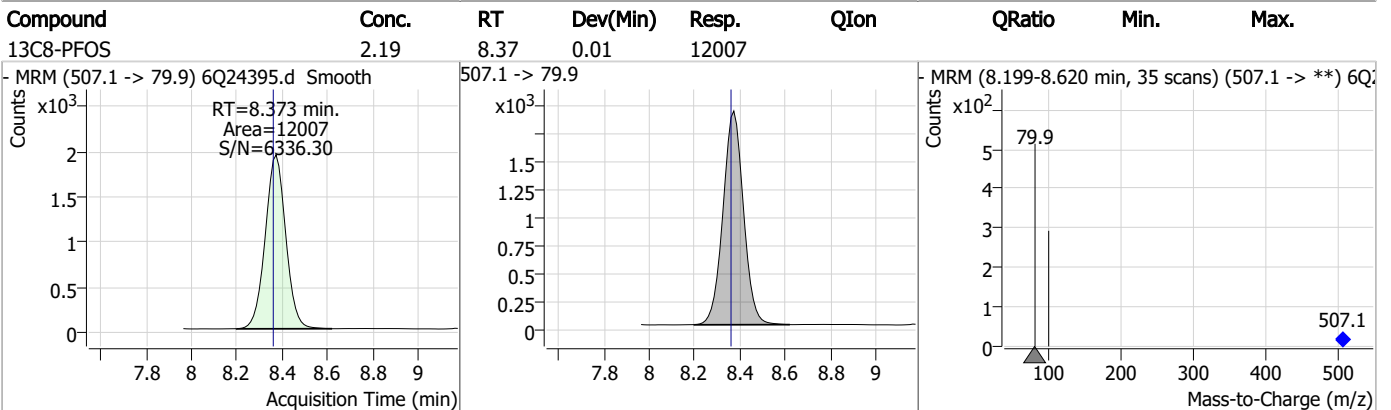
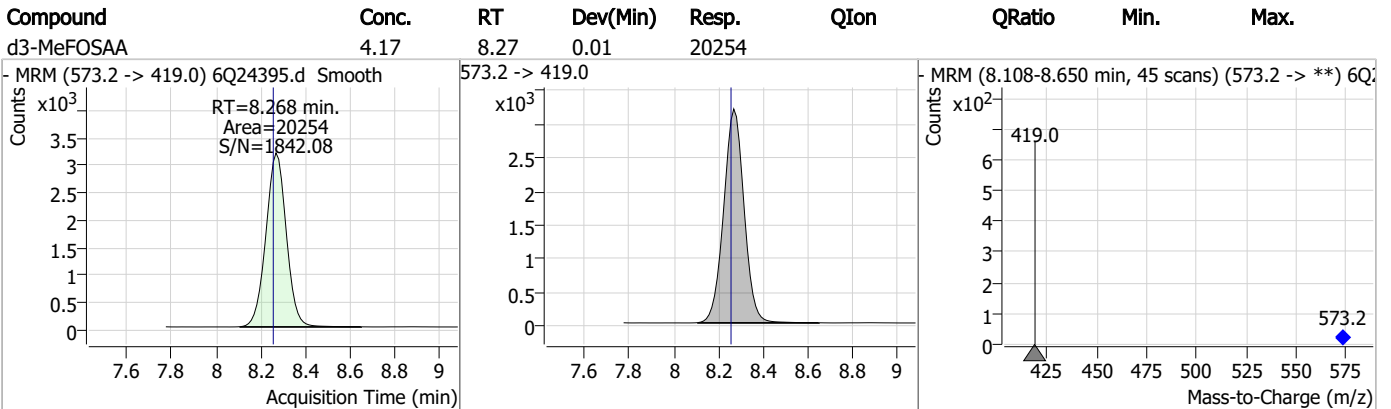
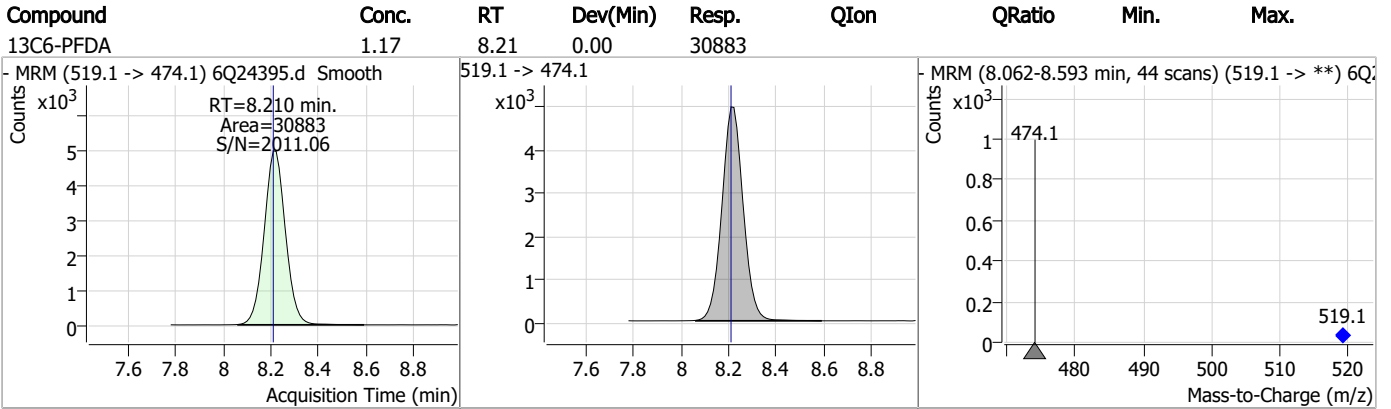
Perfluorinated Compounds by LC/MS/MS



7.1.4

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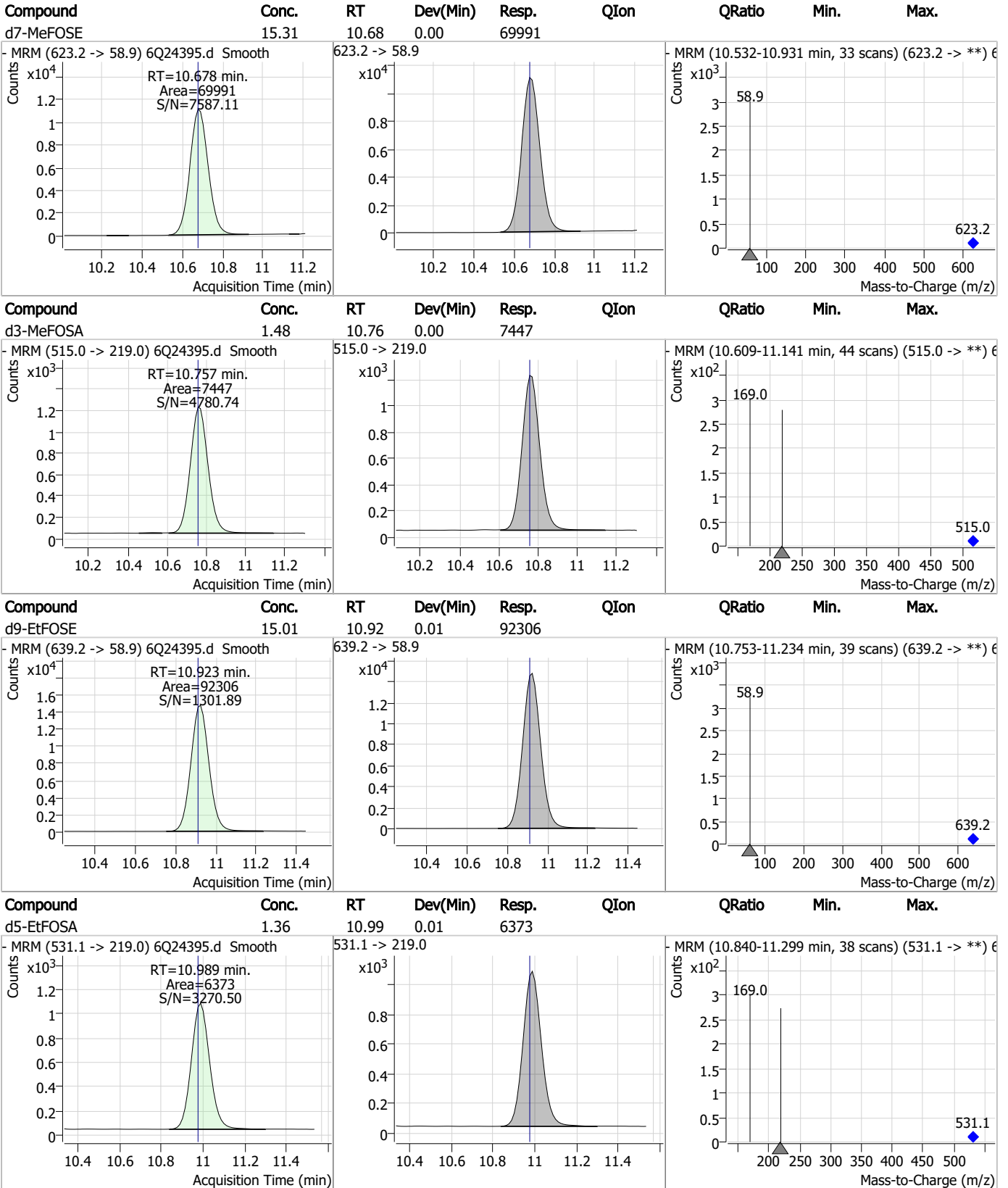
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.04	8.68	0.01	36927				
- MRM (570.0 -> 525.1) 6Q24395.d Smooth			570.0 -> 525.1		- MRM (8.503-8.985 min, 40 scans) (570.0 -> **) 6Q24395.d Smooth			
13C2-PFDoDA	0.88	9.09	0.00	28735				
- MRM (615.1 -> 570.0) 6Q24395.d Smooth			615.1 -> 570.0		- MRM (8.932-9.480 min, 45 scans) (615.1 -> **) 6Q24395.d Smooth			
13C8-FOSA	2.11	9.67	0.01	26148				
- MRM (506.1 -> 77.8) 6Q24395.d Smooth			506.1 -> 77.8		- MRM (9.509-10.053 min, 45 scans) (506.1 -> **) 6Q24395.d Smooth			
13C2-PFTeDA	0.70	9.80	0.00	8477				
- MRM (715.2 -> 670.0) 6Q24395.d Smooth			715.2 -> 670.0		- MRM (9.648-10.106 min, 38 scans) (715.2 -> **) 6Q24395.d Smooth			

Perfluorinated Compounds by LC/MS/MS



7.1.4

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24397.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 5:29:48 AM
 Sample Name : FC9447-5
 Vial : P3-F3
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,485,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	136534	10.00 µg/L	0.041
M5-PFPeA	4.434	268.3 -> 223.0	26726	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	68647	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	60065	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	77426	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	31448	1.25 µg/L	0.012
M6-PFDA	8.210	519.1 -> 474.1	29129	1.25 µg/L	0.000
M7-PFUnDA	8.676	570.0 -> 525.1	32419	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	24888	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	7976	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	26016	2.50 µg/L	0.012
M3-PFBS	5.571	302.1 -> 79.9	21856	2.50 µg/L	0.000
M3-PFHxS	7.326	402.1 -> 79.9	12419	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	11077	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2411	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3346	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	2838	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	16684	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	33040	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	14411	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	72498	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	95668	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	6979	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	7775	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	16251	2.50 µg/L	0.012
13C3-PFBA	3.014	216.0 -> 172.0	63399	5.00 µg/L	0.025
18O2-PFHxS	7.325	403.0 -> 83.9	8774	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	93978	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	29310	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	36617	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	56274	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2411	4.88 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3346	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-8:2FTS	8.011	529.1 -> 80.9	2838	3.78 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 75.7%		
13C2-PFDoDA	9.093	615.1 -> 570.0	24888	0.79 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 63.3%		
13C2-PFTeDA	9.796	715.2 -> 670.0	7976	0.68 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 54.6%		
13C3-PFBS	5.571	302.1 -> 79.9	21856	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C3-PFHxS	7.326	402.1 -> 79.9	12419	2.58 µg/L	0.012

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 = 103.1%	
13C4-PFBA	3.025	216.8 -> 171.9	136534	8.53 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.3%	
13C4-PFHpA	6.581	367.1 -> 322.0	60065	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFHxA	5.654	318.0 -> 273.0	68647	2.21 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.5%	
13C5-PFPeA	4.434	268.3 -> 223.0	26726	3.52 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 70.5%	
13C6-PFDA	8.210	519.1 -> 474.1	29129	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C7-PFUnDA	8.676	570.0 -> 525.1	32419	0.95 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 75.9%	
13C8-FOSA	9.670	506.1 -> 77.8	26016	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C8-PFOA	7.211	421.1 -> 376.0	77426	2.24 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.6%	
13C8-PFOS	8.373	507.1 -> 79.9	11077	2.16 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C9-PFNA	7.741	472.1 -> 427.0	31448	1.37 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.9%	
d3-MeFOSAA	8.268	573.2 -> 419.0	16684	3.67 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 73.4%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	33040	7.71 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.1%	
d3-MeFOSA	10.757	515.0 -> 219.0	7775	1.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 66.3%	
d5-EtFOSAA	8.464	589.2 -> 419.0	14411	3.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 65.9%	
d7-MeFOSE	10.678	623.2 -> 58.9	72498	16.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.9%	
d9-EtFOSE	10.923	639.2 -> 58.9	95668	16.64 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.6%	
d5-EtFOSA	10.989	531.1 -> 219.0	6979	1.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 63.8%	

7.15
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	6.987	427.1 -> 407.0	1224	0.41 µg/L	82
		427.1 -> 80.9	351		
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	3.219	212.8 -> 168.9	0	µg/L m	1
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.480	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	5.619	313.0 -> 269.0	2005	0.08 µg/L	94
		313.0 -> 118.9	48		
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	4.461	263.0 -> 219.0	56621	4.76 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			
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
MeFOSA	-	511.9 -> 219.0	-	N.D.	
		511.9 -> 169.0			
MeFOSE	-	616.1 -> 58.9	-	N.D.	
PFDoDS	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
NFDHA	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
PFMBA	-	279.0 -> 85.1	-	N.D.	
PFMPA	-	229.0 -> 84.9	-	N.D.	
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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



7.1.5
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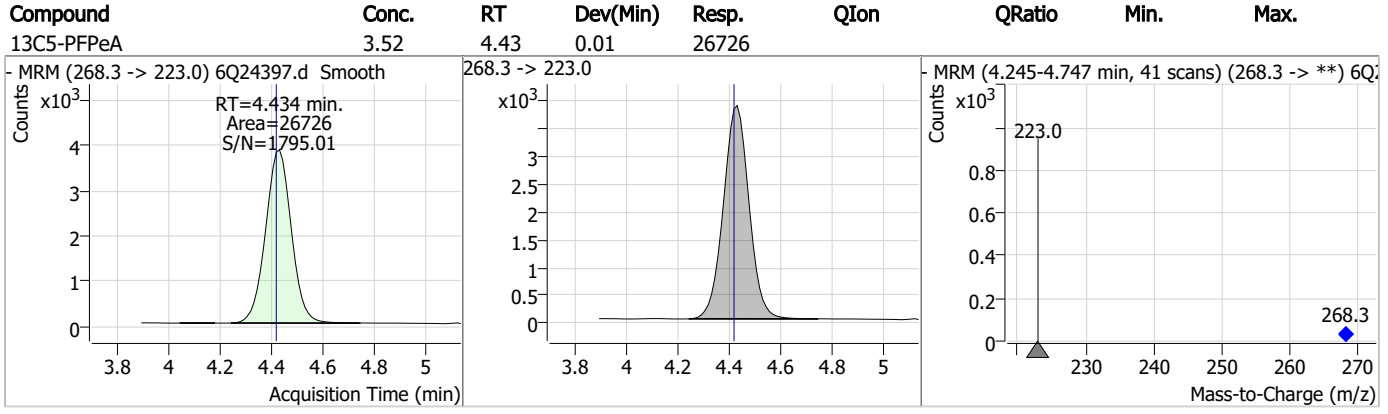
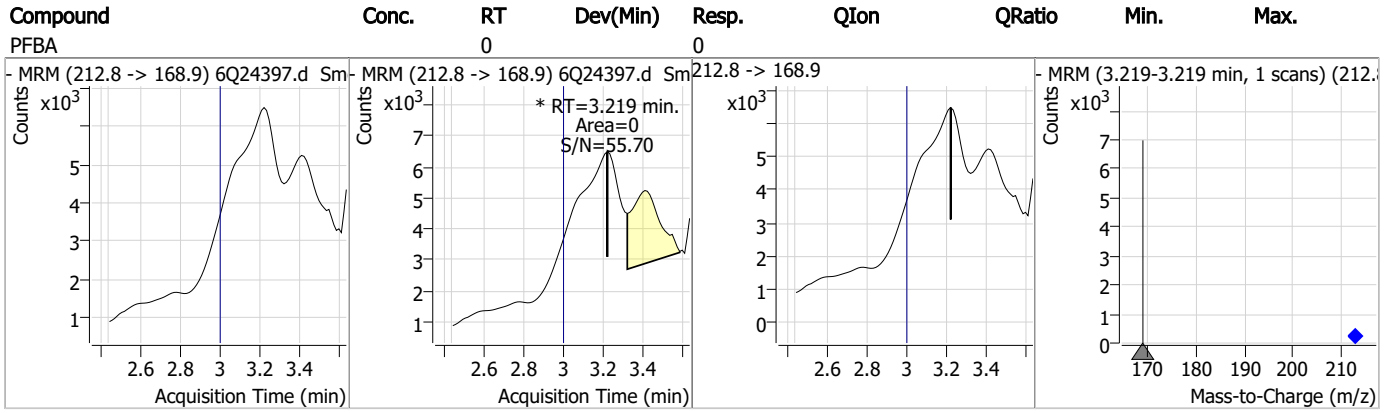
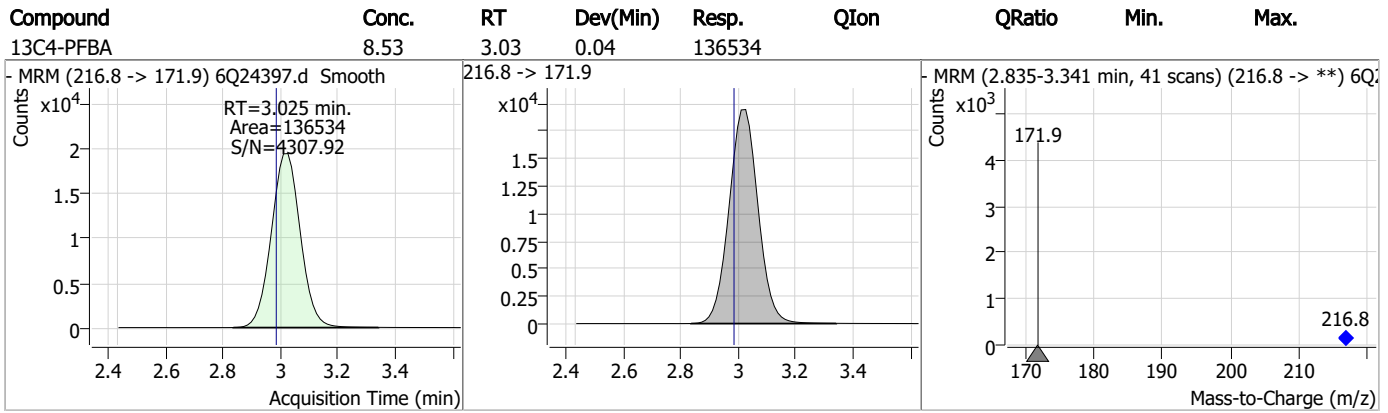
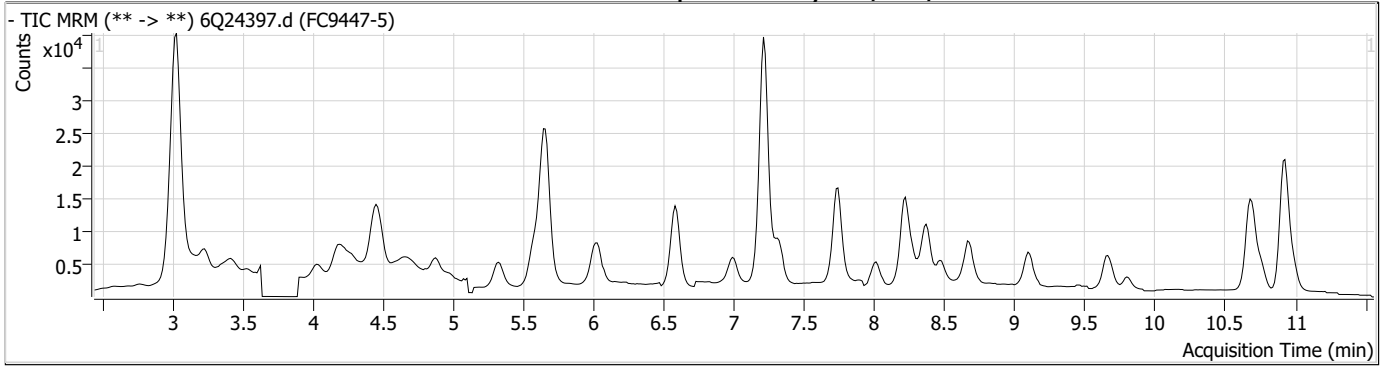
Perfluorinated Compounds by LC/MS/MS

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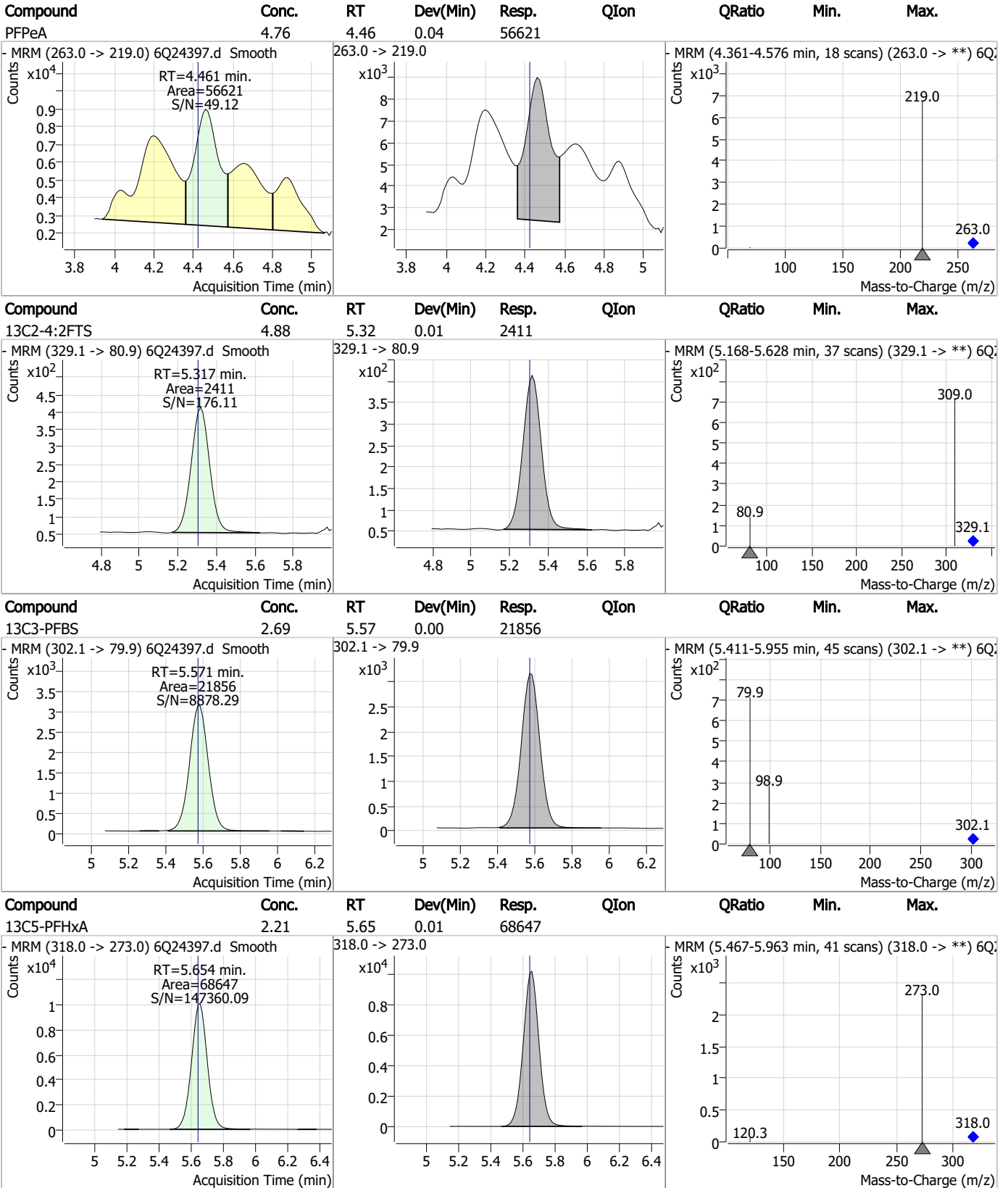
7.1.5
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Perfluorinated Compounds by LC/MS/MS



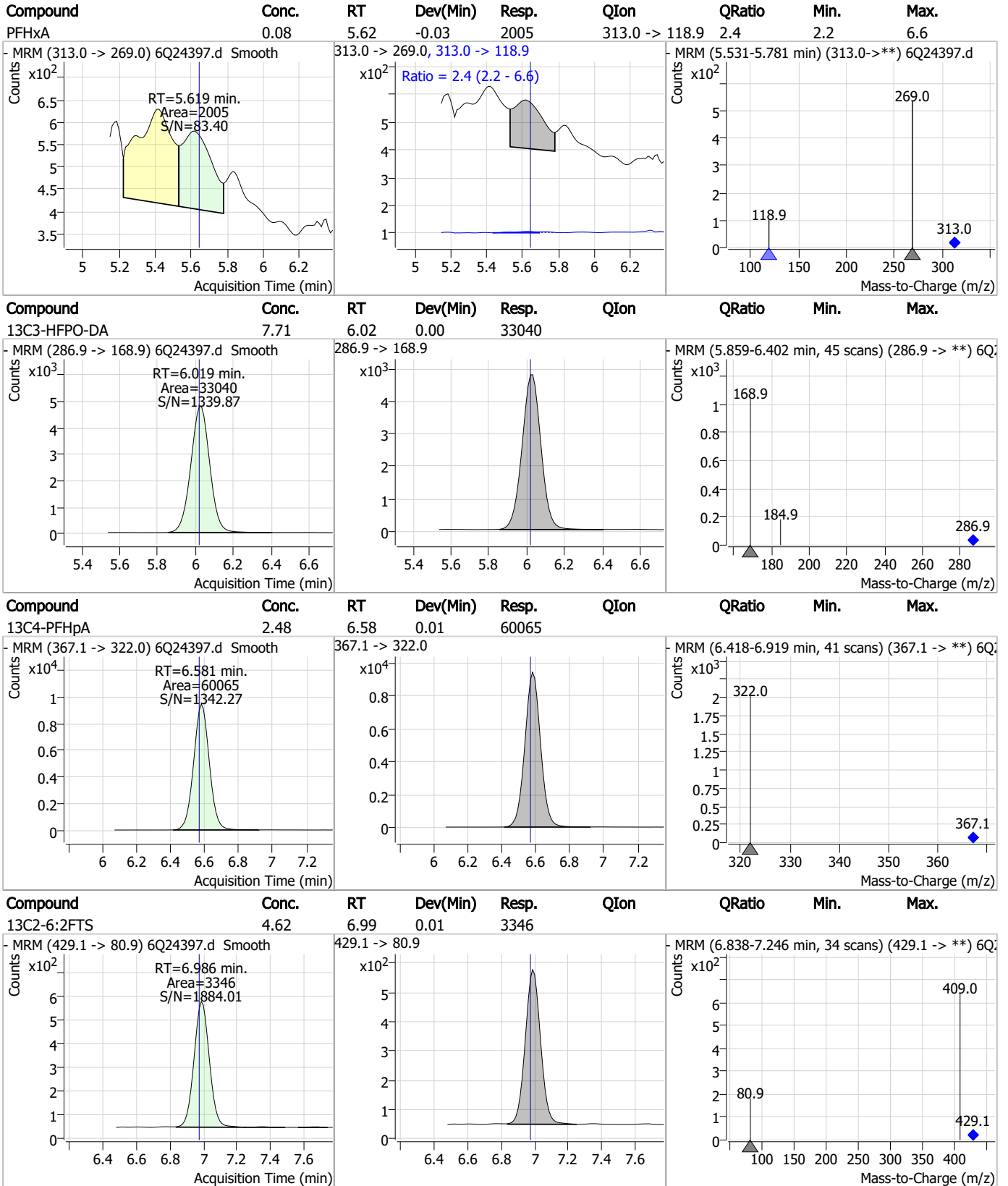
Perfluorinated Compounds by LC/MS/MS



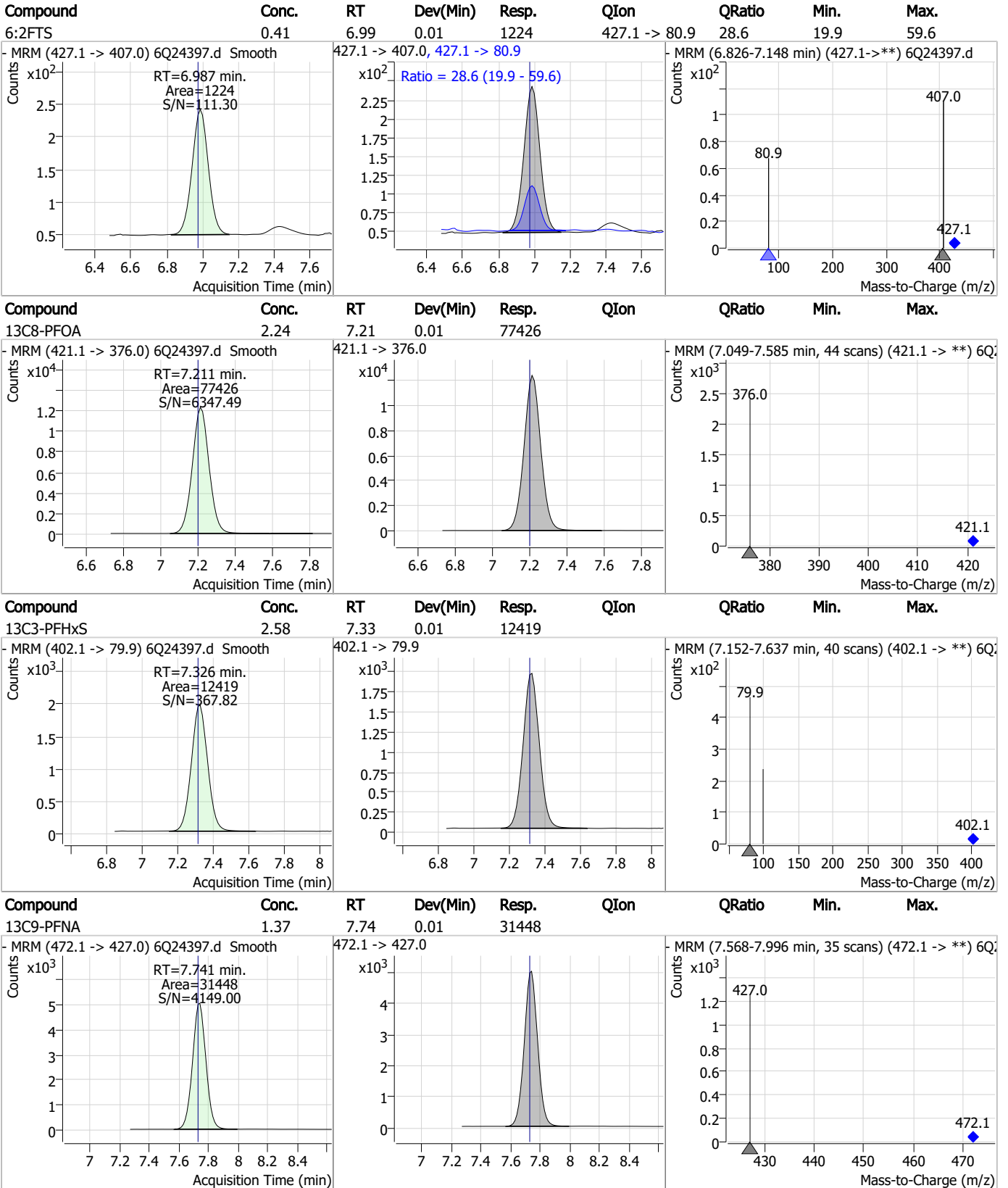
7.1.5

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Perfluorinated Compounds by LC/MS/MS



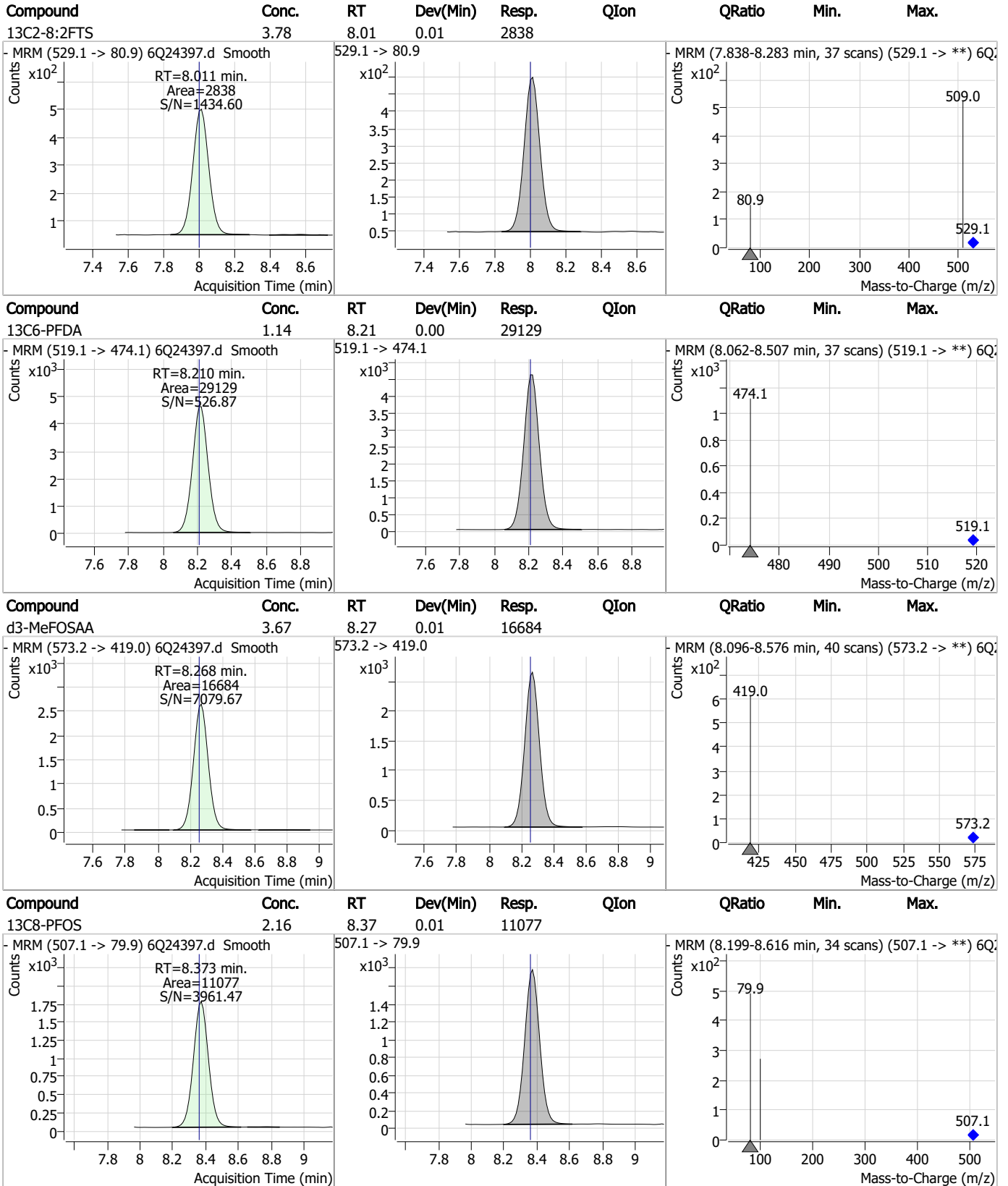
Perfluorinated Compounds by LC/MS/MS



7.1.5

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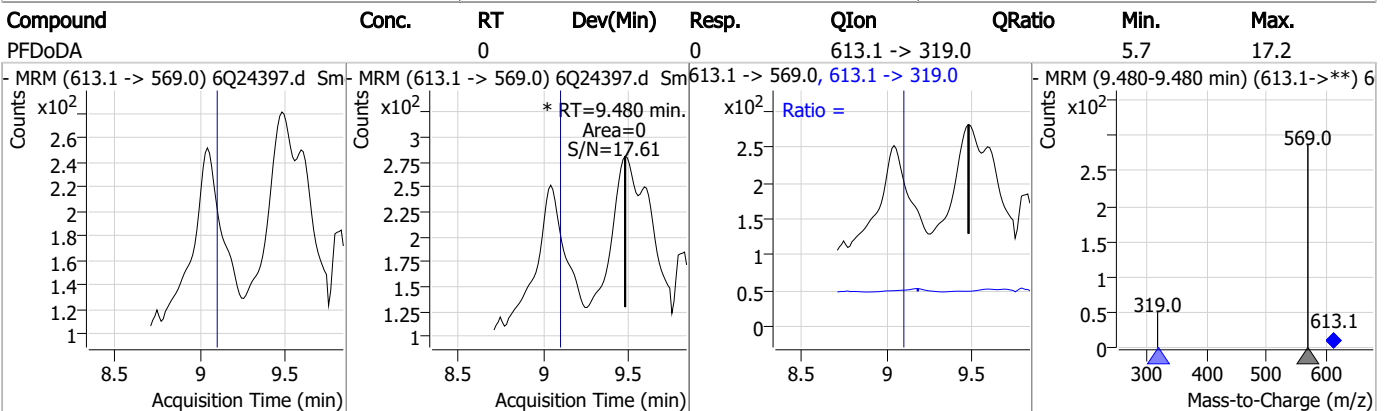
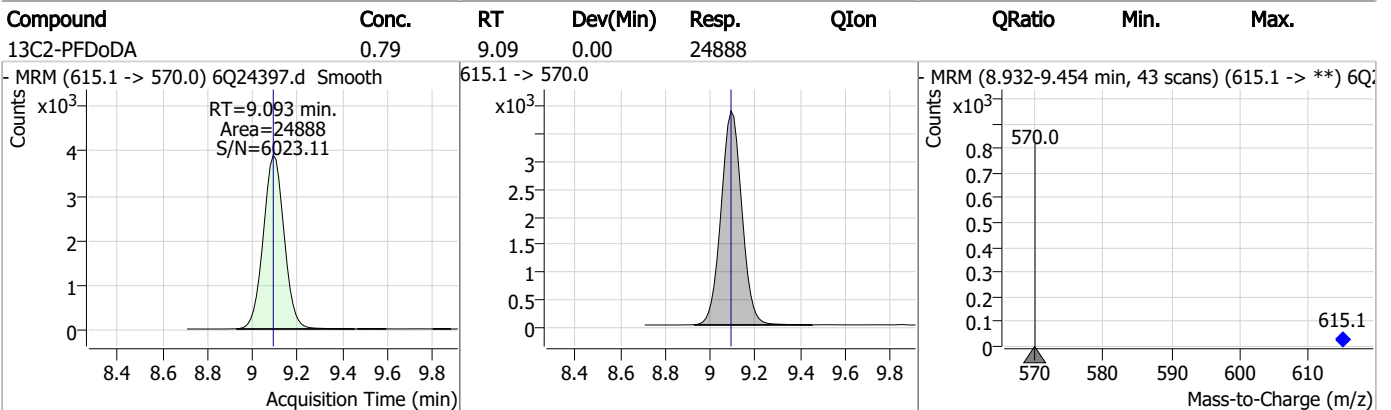
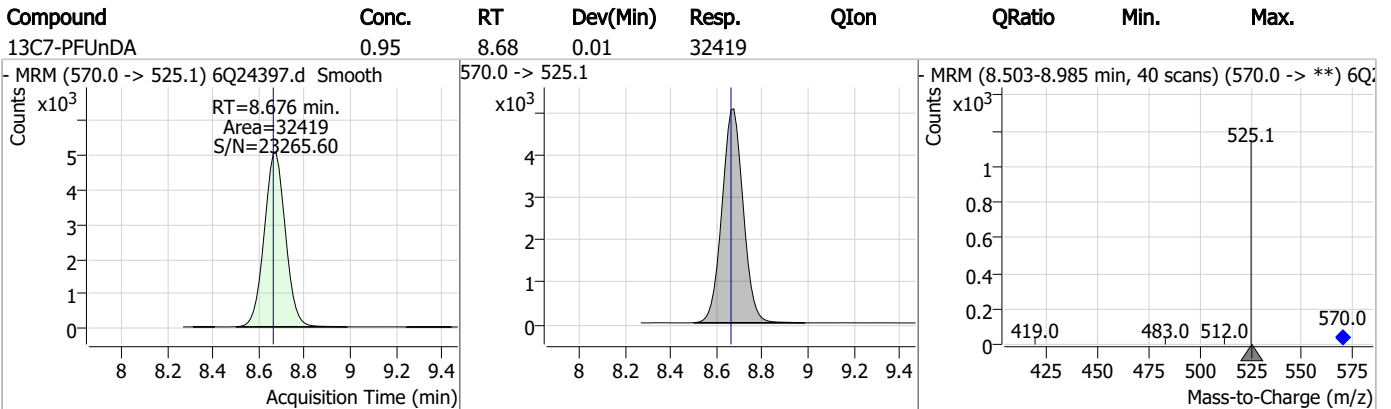
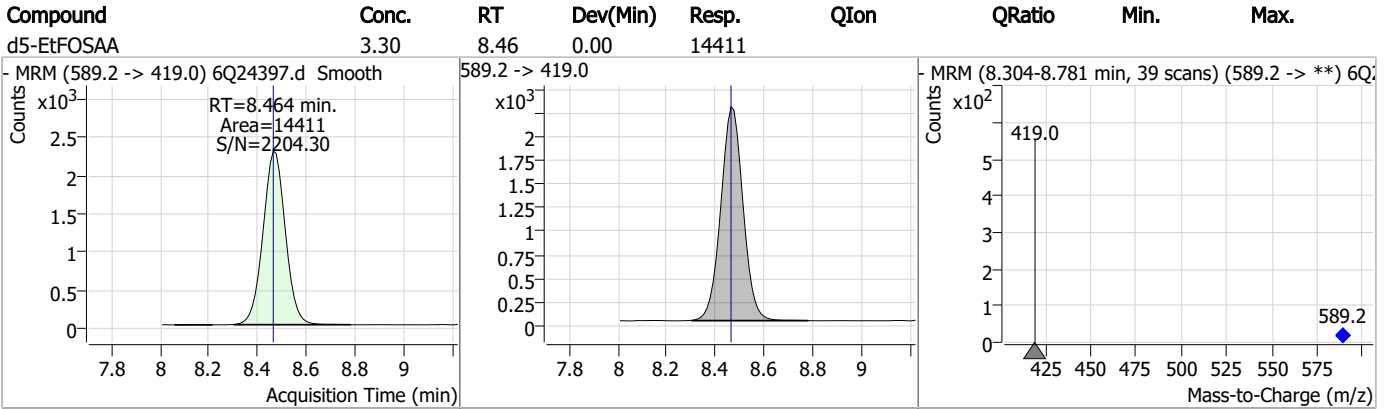
Perfluorinated Compounds by LC/MS/MS



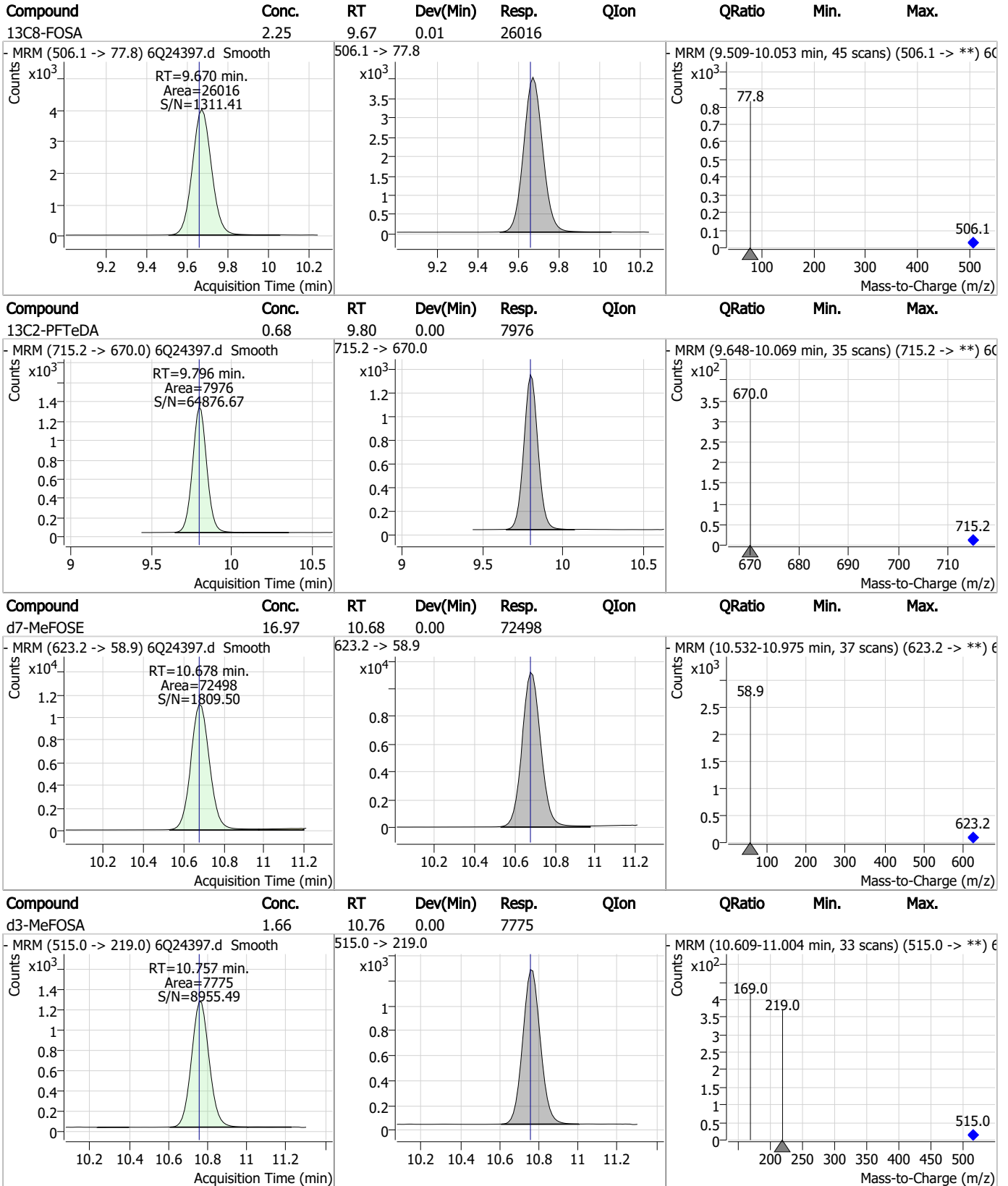
7.1.5

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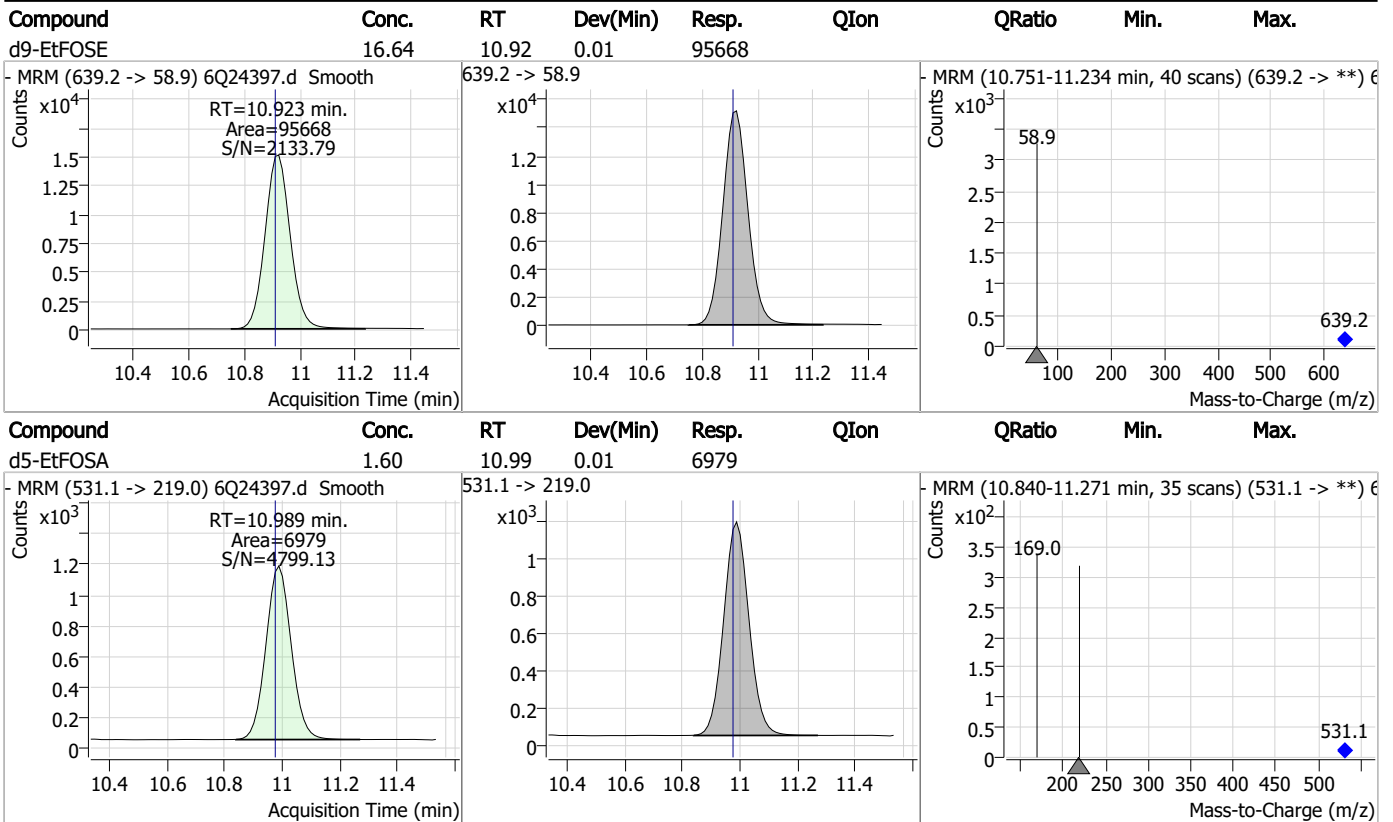
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.5
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Manual Integrations
APPROVED
 (compounds with "m" flag)
 Natasha Gumtie
 09/13/23 15:38

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24398.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 5:44:06 AM
 Sample Name : FC9447-6
 Vial : P3-F4
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	169113	10.00 µg/L	0.041
M5-PFPeA	4.434	268.3 -> 223.0	29473	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	66920	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	58333	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	72578	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	31357	1.25 µg/L	0.012
M6-PFDA	8.222	519.1 -> 474.1	30635	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	39373	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	29272	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	8498	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	24733	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	23967	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	11804	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	12583	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2384	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3179	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3032	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	18550	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	36273	10.00 µg/L	0.012
M5-EtFOSAA	8.476	589.2 -> 419.0	16480	5.00 µg/L	0.012
M7-MeFOSE	10.678	623.2 -> 58.9	75594	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	94915	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	6700	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	7006	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17017	2.50 µg/L	0.012
13C3-PFBA	3.029	216.0 -> 172.0	76391	5.00 µg/L	0.040
18O2-PFHxS	7.325	403.0 -> 83.9	9123	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	94087	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	29954	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	40094	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	55473	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2384	4.64 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3179	4.22 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.4%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3032	3.89 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.7%		
13C2-PFDoDA	9.093	615.1 -> 570.0	29272	0.91 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.9%		
13C2-PFTeDA	9.796	715.2 -> 670.0	8498	0.71 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 56.9%		
13C3-PFBS	5.584	302.1 -> 79.9	23967	2.84 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.6%		
13C3-PFHxS	7.326	402.1 -> 79.9	11804	2.36 µg/L	0.012

7.1.6
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C4-PFBA	3.025	216.8 -> 171.9	169113	8.77 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.7%	
13C4-PFHpA	6.581	367.1 -> 322.0	58333	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C5-PFHxA	5.654	318.0 -> 273.0	66920	2.19 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.5%	
13C5-PFPeA	4.434	268.3 -> 223.0	29473	3.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 78.8%	
13C6-PFDA	8.222	519.1 -> 474.1	30635	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C7-PFUnDA	8.676	570.0 -> 525.1	39373	1.13 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 90.1%	
13C8-FOSA	9.670	506.1 -> 77.8	24733	2.04 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.7%	
13C8-PFOA	7.211	421.1 -> 376.0	72578	2.10 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 83.8%	
13C8-PFOS	8.373	507.1 -> 79.9	12583	2.35 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C9-PFNA	7.741	472.1 -> 427.0	31357	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSAA	8.268	573.2 -> 419.0	18550	3.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	36273	8.58 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 85.8%	
d3-MeFOSA	10.757	515.0 -> 219.0	7006	1.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 57.1%	
d5-EtFOSAA	8.476	589.2 -> 419.0	16480	3.60 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 72.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	75594	16.90 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	94915	15.76 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.1%	
d5-EtFOSA	10.989	531.1 -> 219.0	6700	1.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 58.5%	

7.16
7

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	6.987	427.1 -> 407.0 427.1 -> 80.9	7767 3000	2.76 µg/L	98
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	5.350	298.7 -> 79.9 298.7 -> 98.8	0 0	µg/L m	1
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDoDA	9.068	613.1 -> 569.0 613.1 -> 319.0	2082 58	0.10 µg/L #	77
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8				
		363.1 -> 319.0	8521	0.28	µg/L	96
PFHpS	-	363.1 -> 169.0	1119			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.657	449.0 -> 98.9				
		313.0 -> 269.0	15619	0.64	µg/L	#m 92
PFHxS	-	313.0 -> 118.9	280			
		398.7 -> 79.9	-	N.D.		
PFNA	8.215	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	7.212	548.8 -> 98.9				
		413.0 -> 369.0	3660	0.10	µg/L	m 89
PFOS	-	413.0 -> 169.0	847			
		498.9 -> 79.9	-	N.D.		
PFPeA	4.436	498.9 -> 98.8				
		263.0 -> 219.0	6254	0.48	µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFEESA	-					

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

7.1.6
7



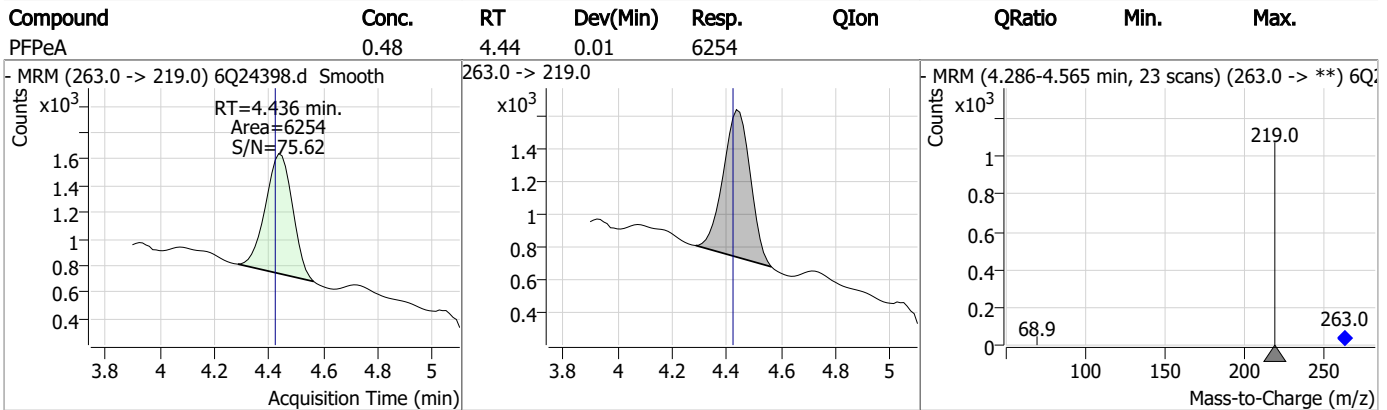
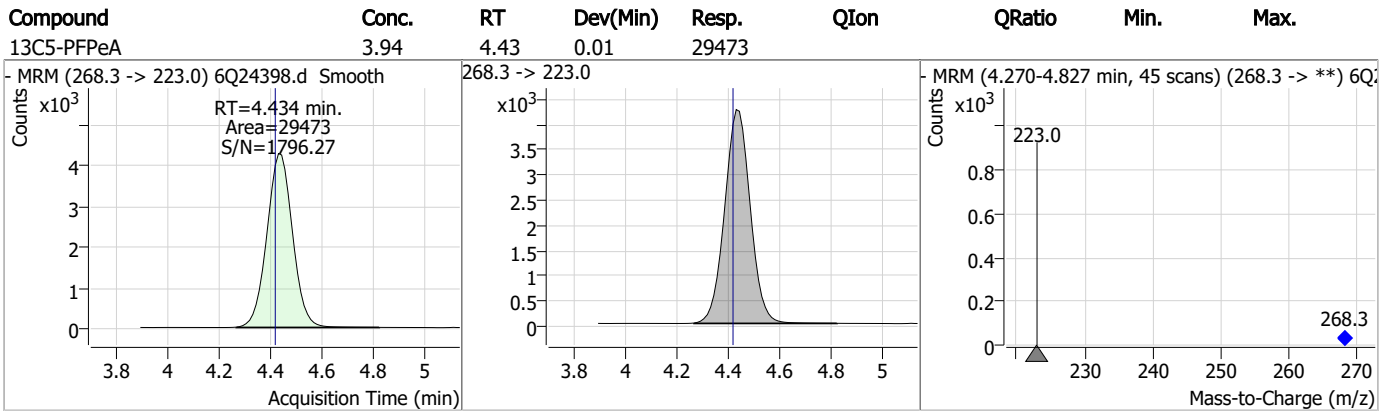
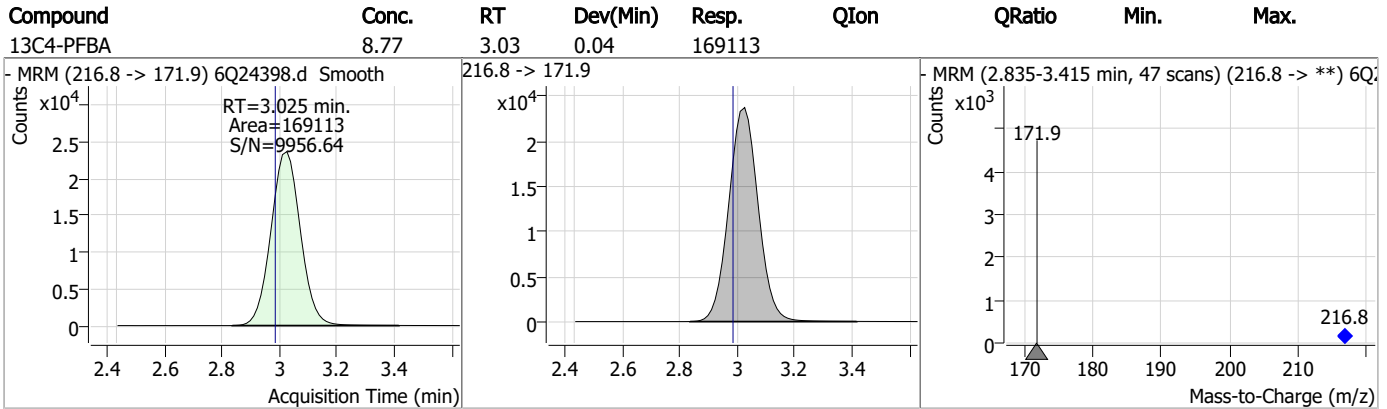
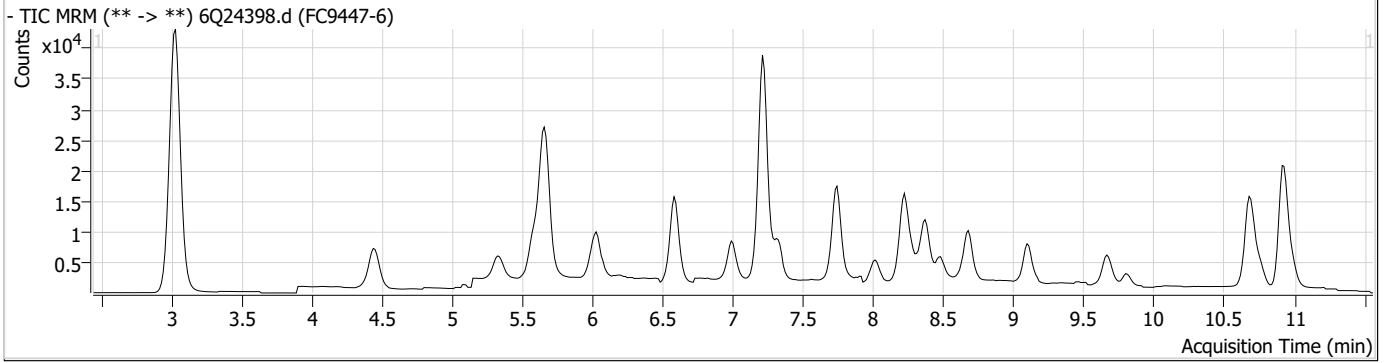
Perfluorinated Compounds by LC/MS/MS

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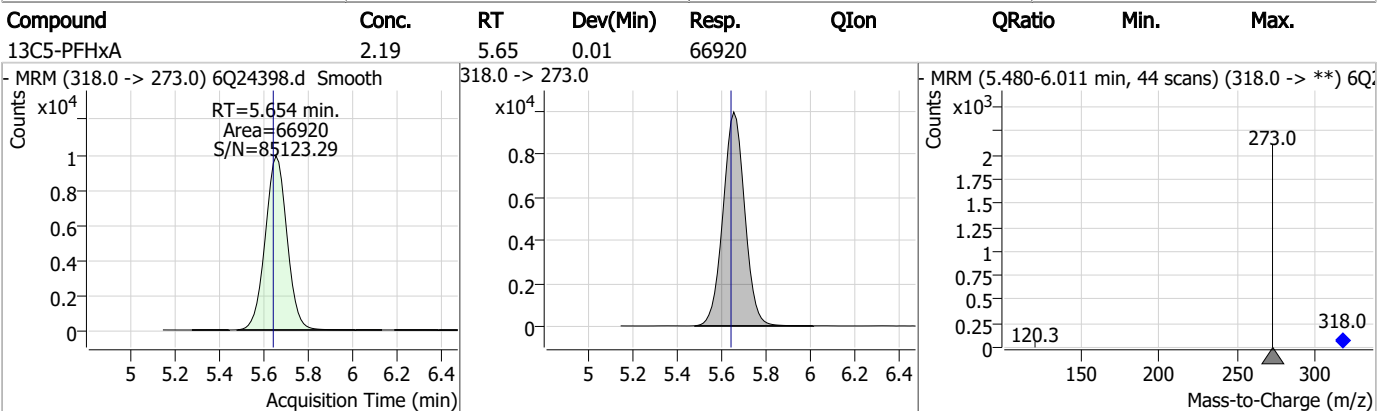
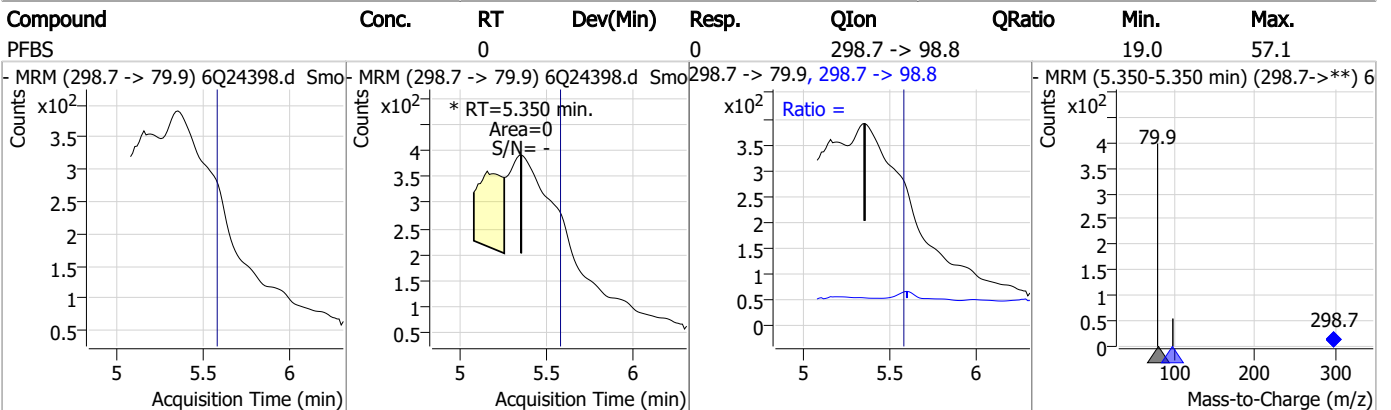
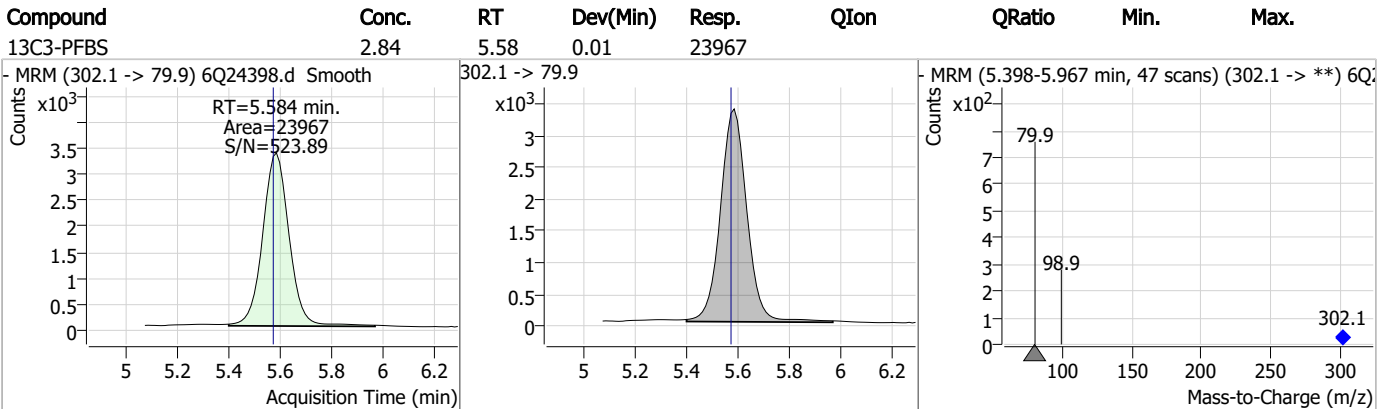
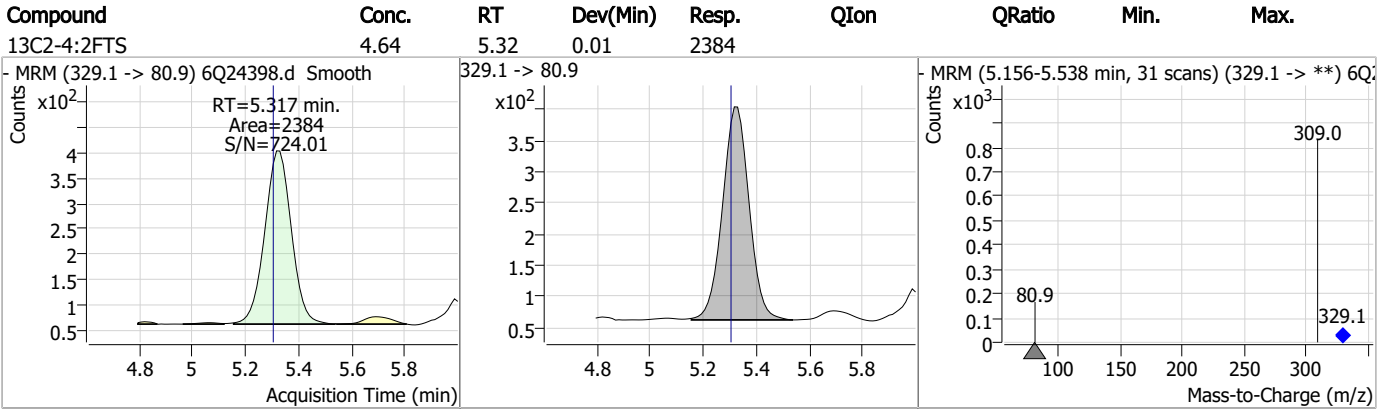
7.1.6
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

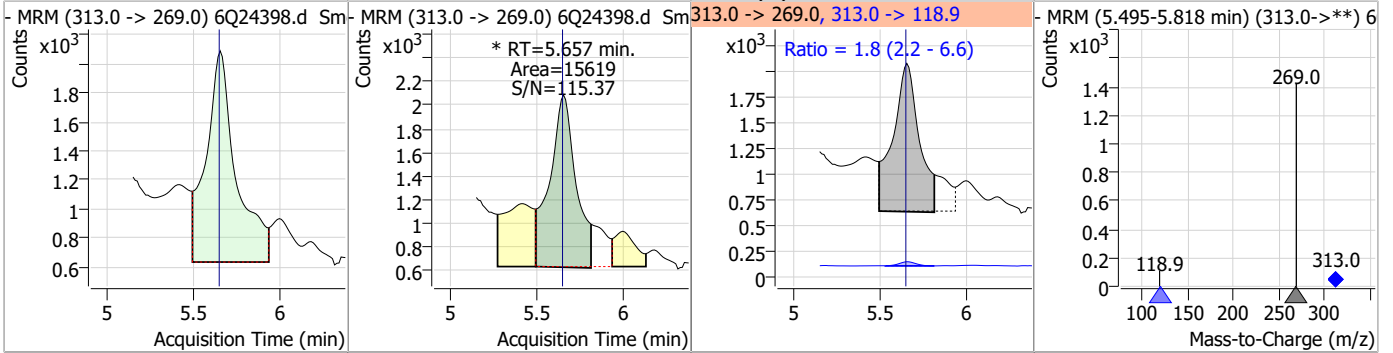


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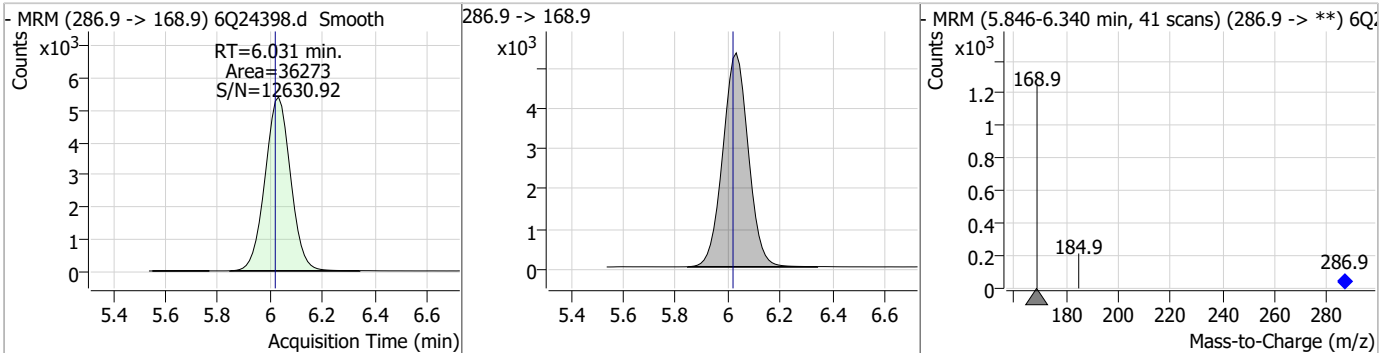
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Perfluorinated Compounds by LC/MS/MS

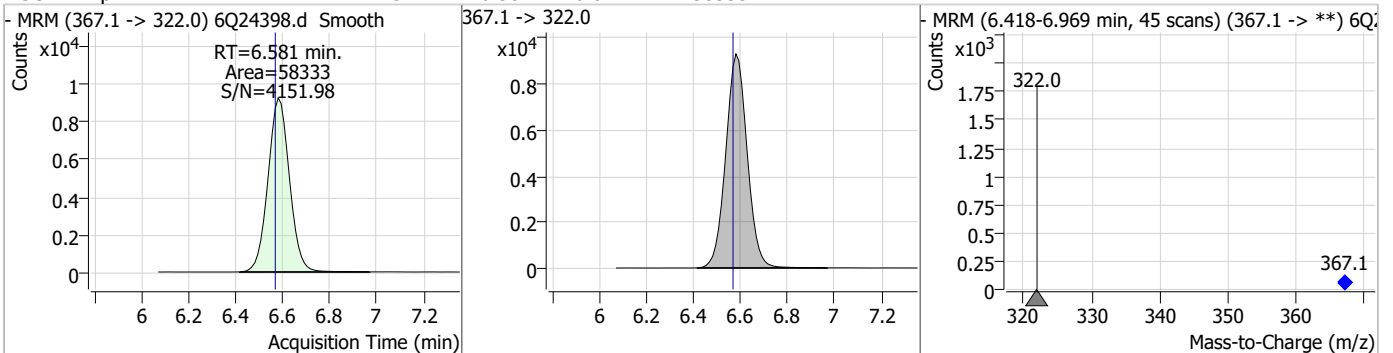
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.64	5.66	0.01	15619 (m)	313.0 -> 118.9	1.8	2.2	6.6



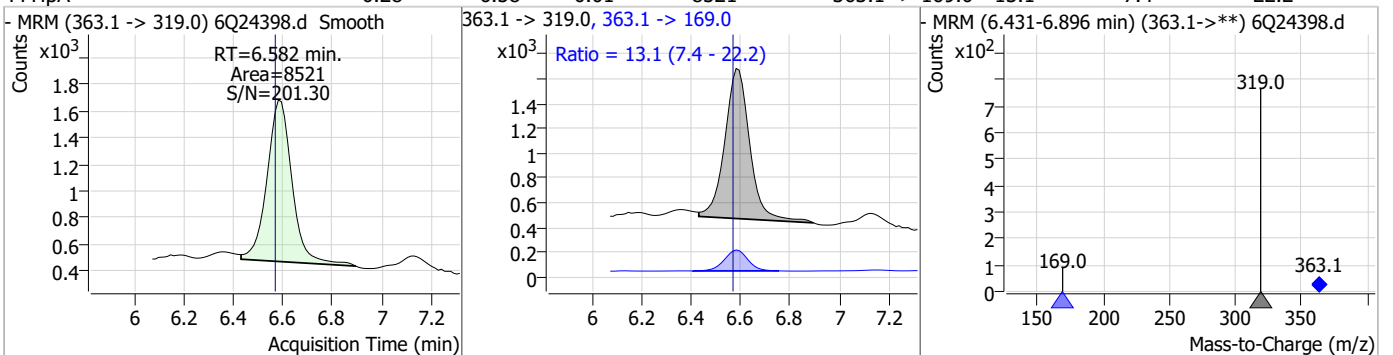
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.58	6.03	0.01	36273				



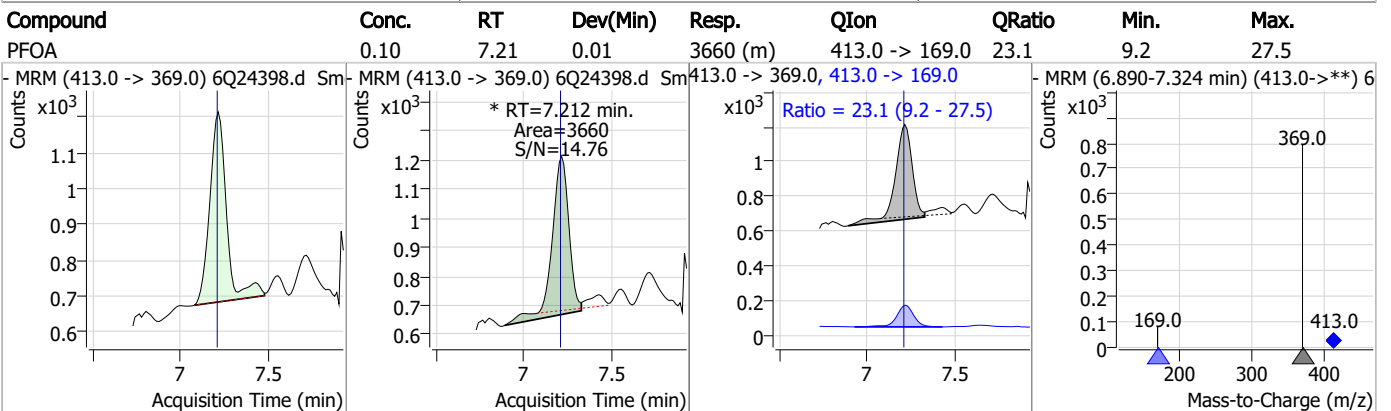
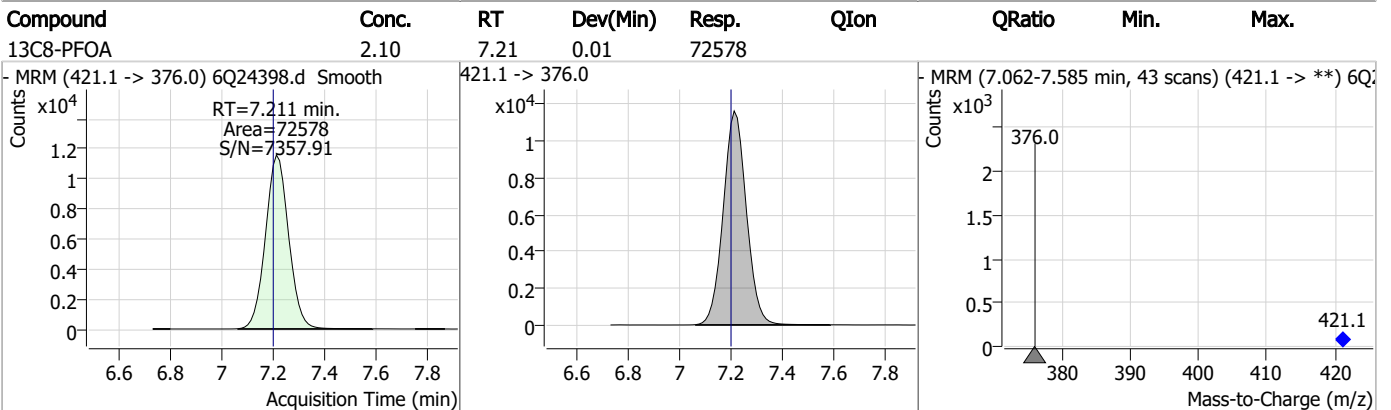
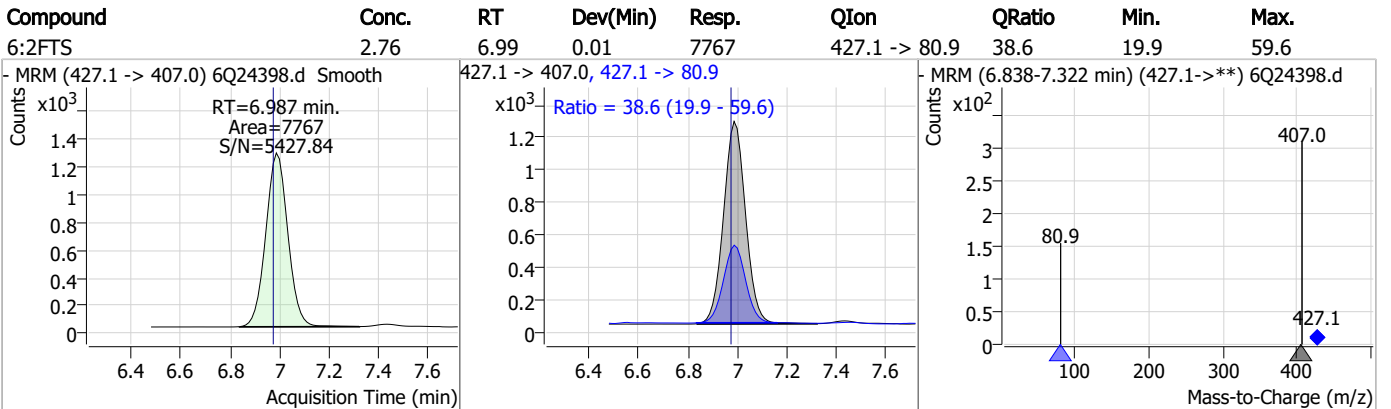
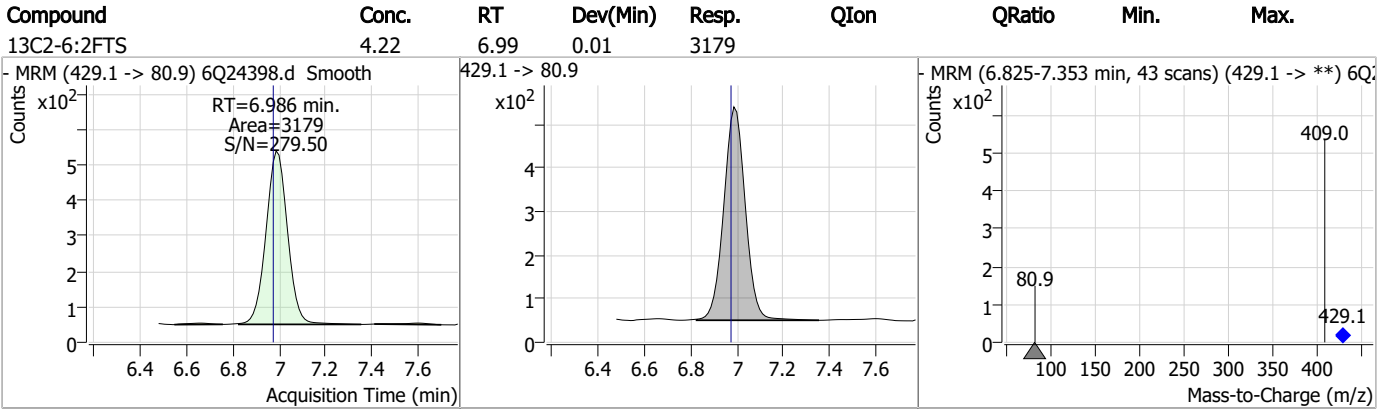
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.45	6.58	0.01	58333				



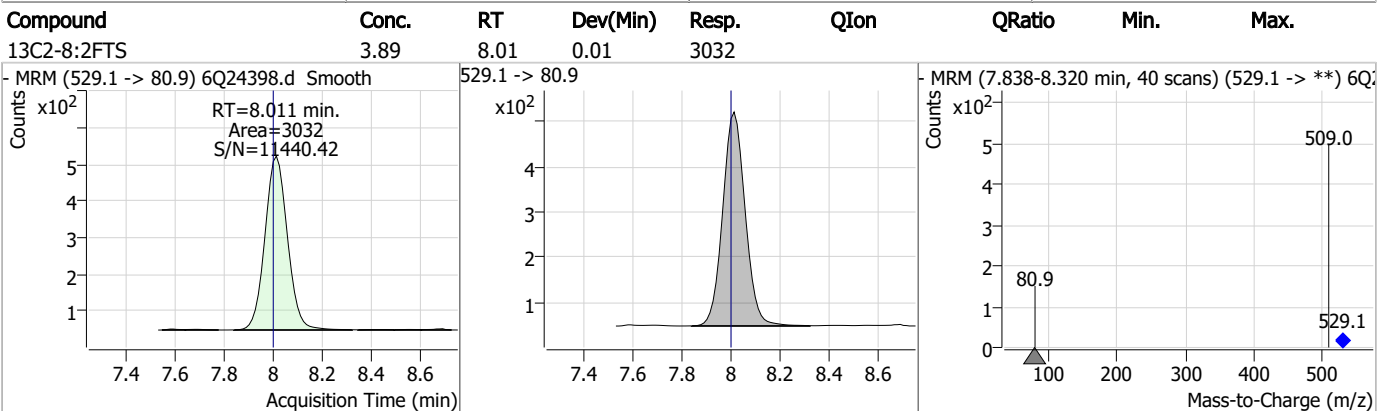
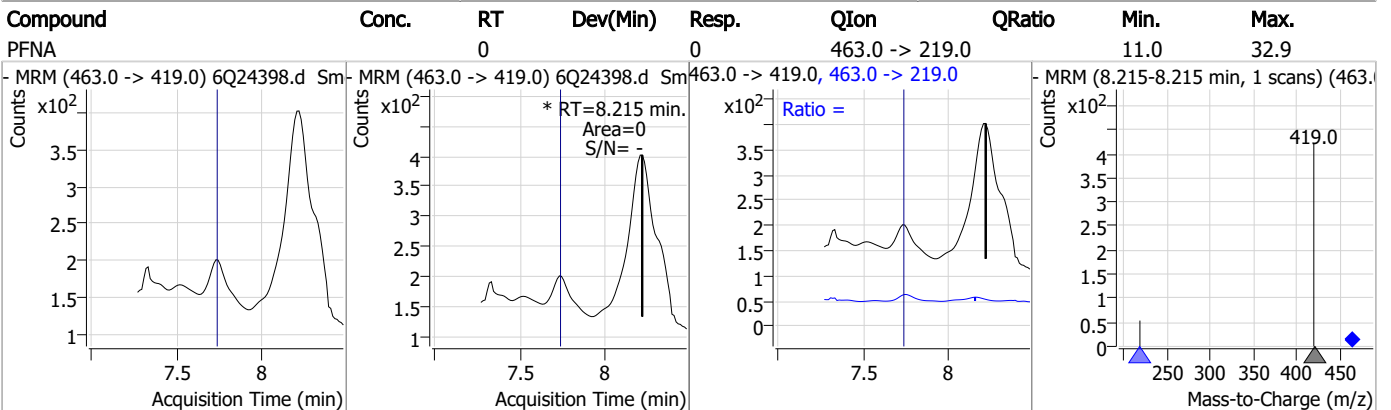
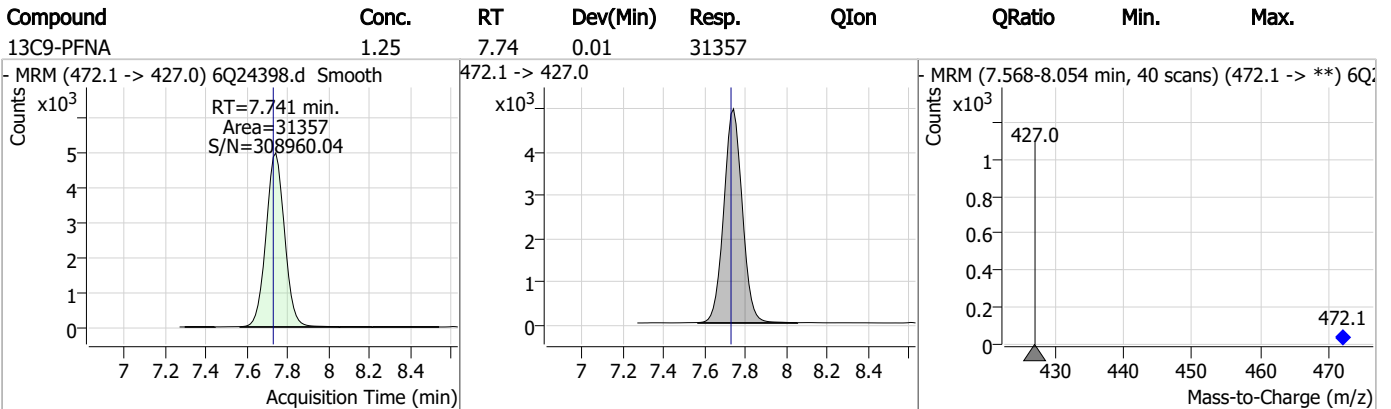
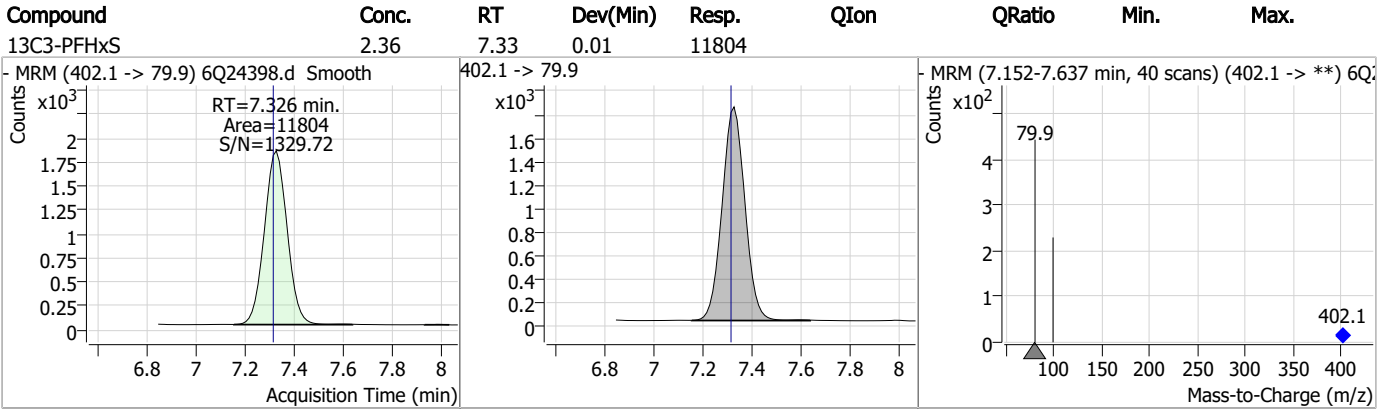
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.28	6.58	0.01	8521	363.1 -> 169.0	13.1	7.4	22.2



Perfluorinated Compounds by LC/MS/MS



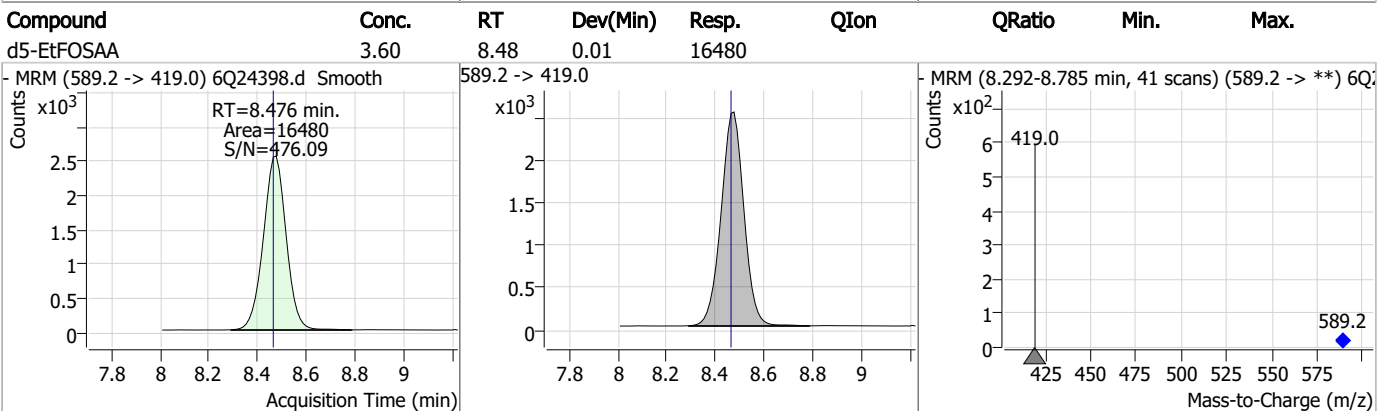
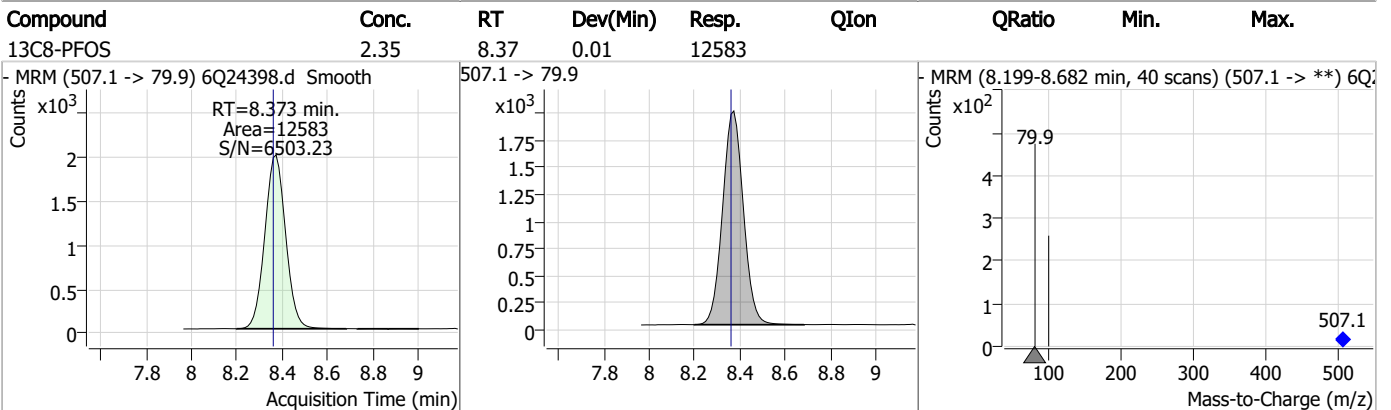
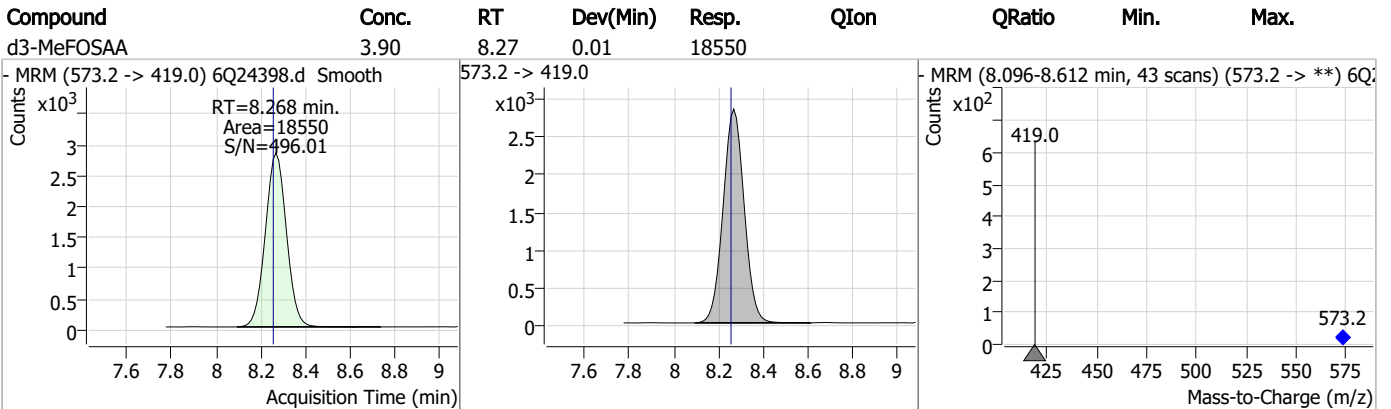
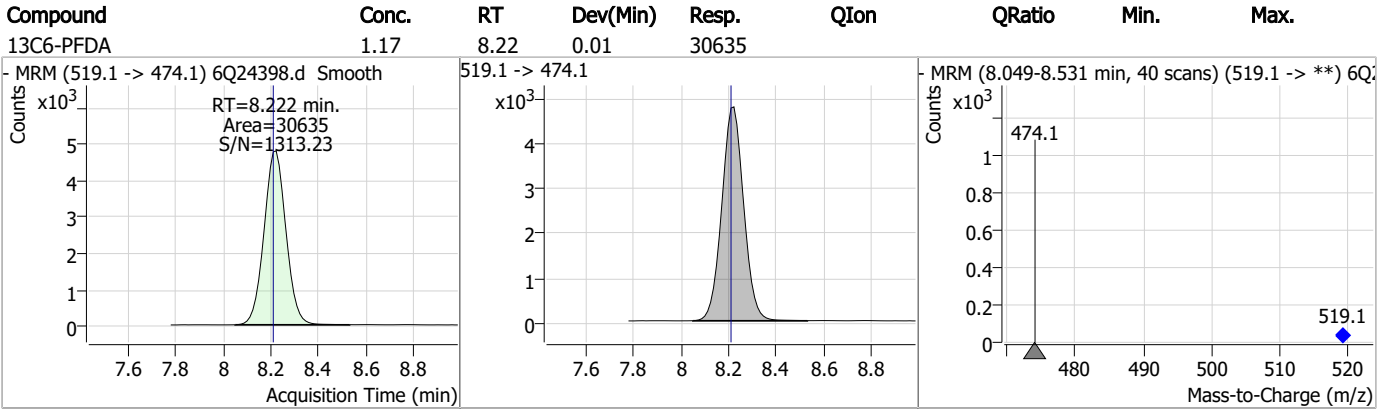
Perfluorinated Compounds by LC/MS/MS



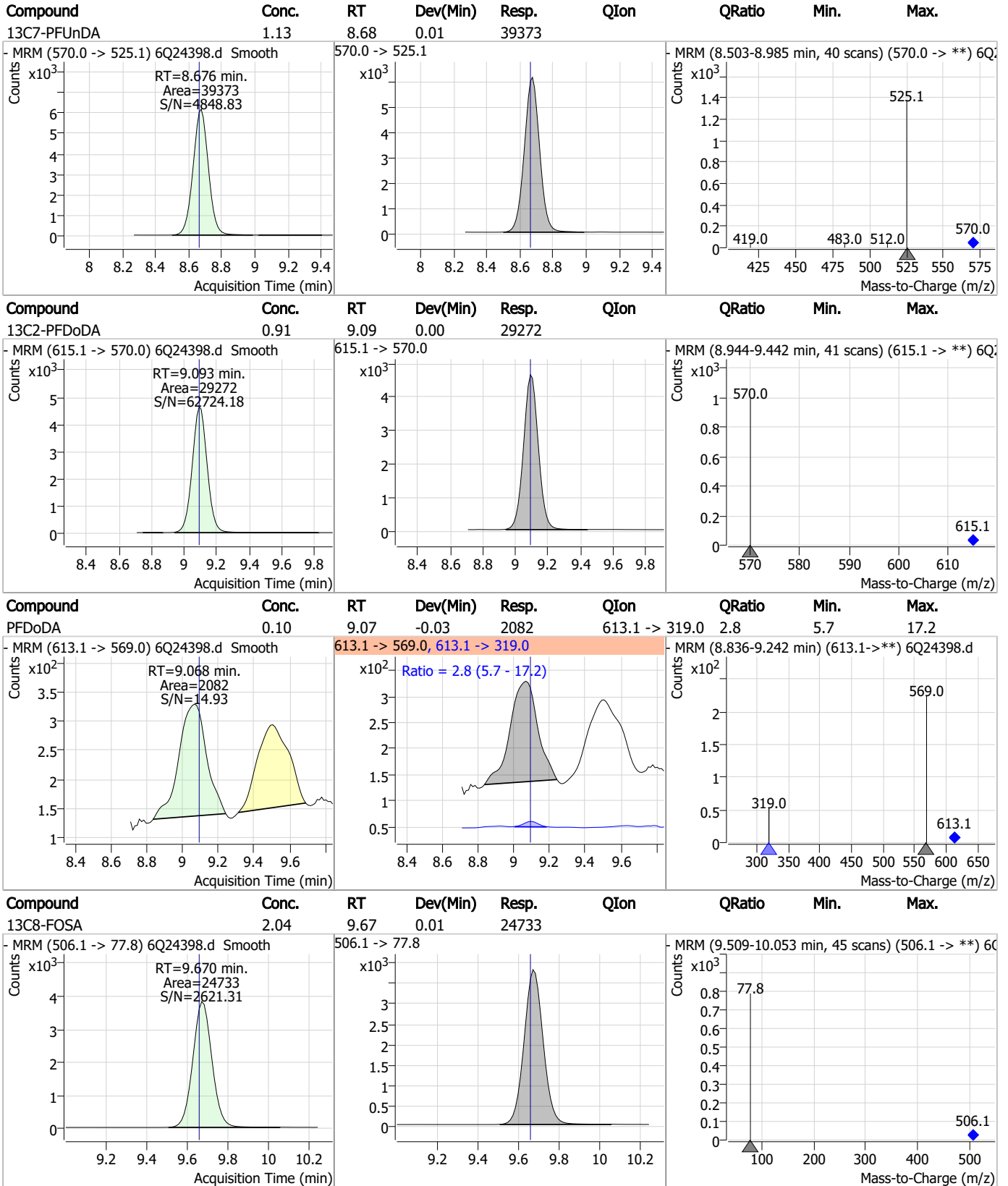
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

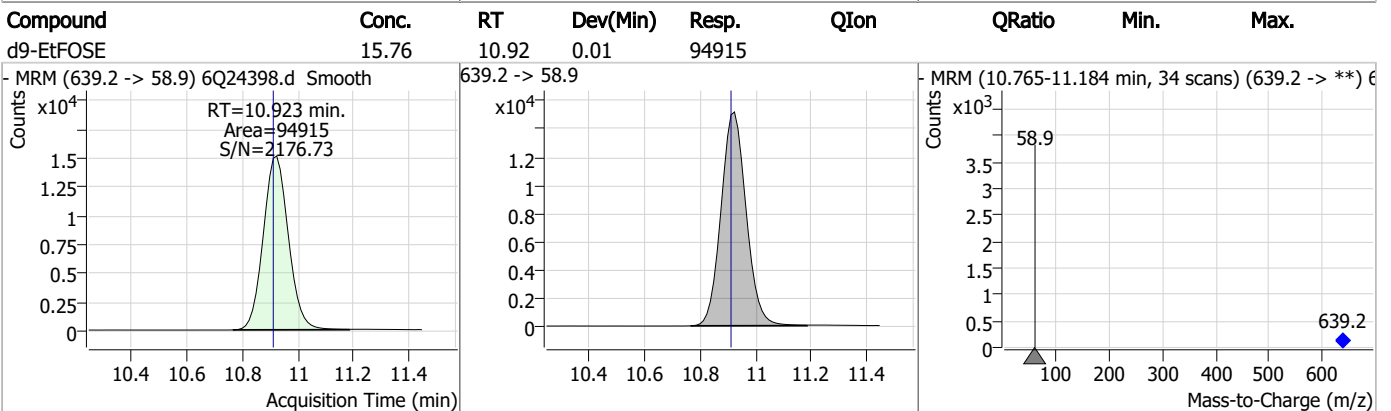
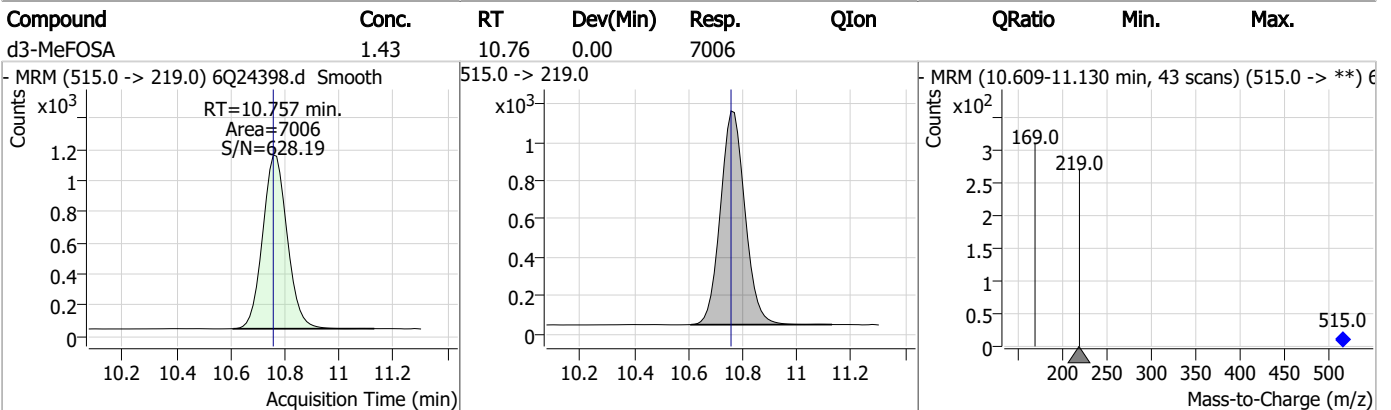
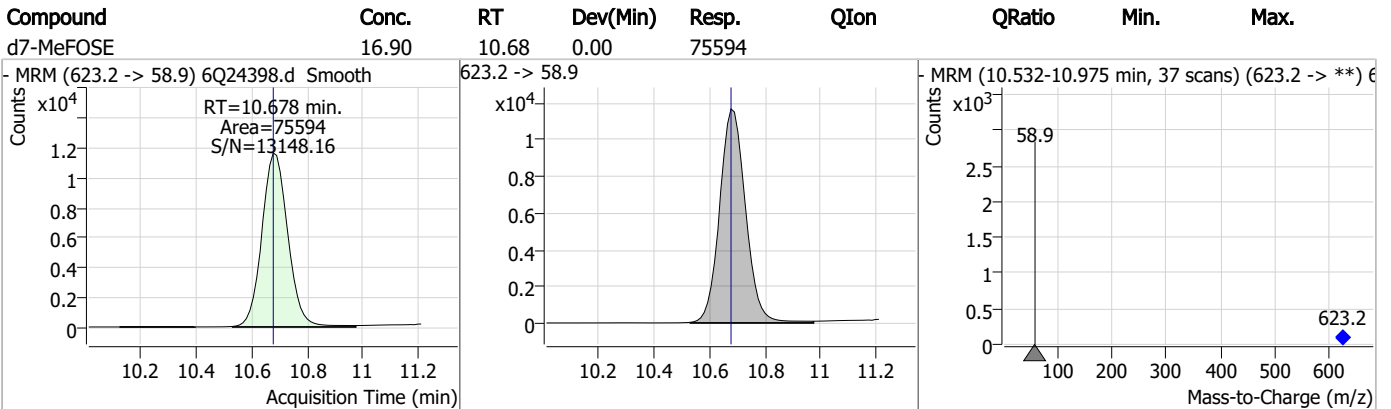
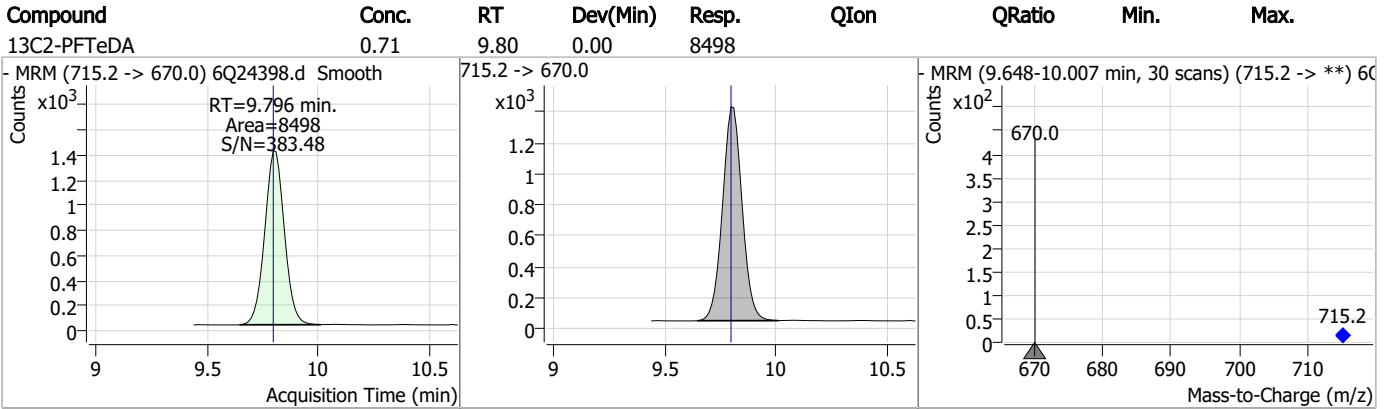


7.1.6

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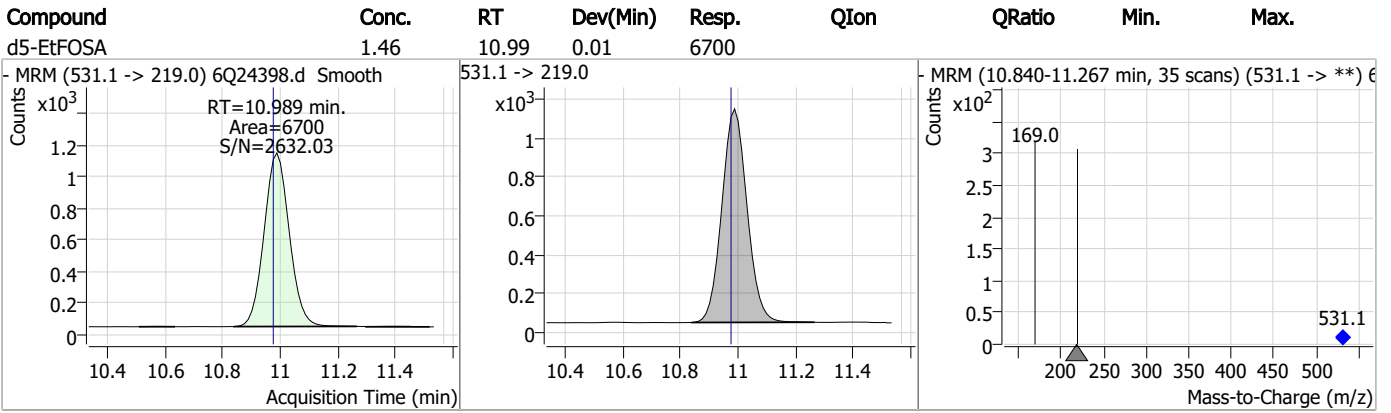
Perfluorinated Compounds by LC/MS/MS



7.1.6

7

Perfluorinated Compounds by LC/MS/MS



7.1.6
7

Manual Integration Approval Summary

Sample Number: FC9447-6 Method: EPA DRAFT 1633
Lab FileID: 6Q24398.D Analyst approved: 09/13/23 15:32 Martha Valls
Injection Time: 09/13/23 05:44 Supervisor approved: 09/13/23 15:38 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanoic acid	307-24-4		5.66	Split peak
Perfluorooctanoic acid	335-67-1		7.21	Split peak

7.1.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24386.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 2:52:17 AM
 Sample Name : OP98930-MB
 Vial : P3-E3
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	184931	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	30132	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	68338	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	55685	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	73916	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	28896	1.25 µg/L	0.012
M6-PFDA	8.222	519.1 -> 474.1	28332	1.25 µg/L	0.012
M7-PFUnDA	8.663	570.0 -> 525.1	36126	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	32294	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	11865	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	21107	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	21334	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	12222	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	11617	2.50 µg/L	0.012
M2-4:2FTS	5.329	329.1 -> 80.9	2474	5.00 µg/L	0.025
M2-6:2FTS	6.986	429.1 -> 80.9	3594	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3268	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	20034	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	38134	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	16907	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	75716	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	112992	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7584	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	7404	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	18706	2.50 µg/L	0.012
13C3-PFBA	3.029	216.0 -> 172.0	79967	5.00 µg/L	0.040
18O2-PFHxS	7.325	403.0 -> 83.9	9651	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	93524	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	30450	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	38783	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	56135	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.329	329.1 -> 80.9	2474	4.56 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.1%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3594	4.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3268	3.96 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.2%		
13C2-PFDoDA	9.093	615.1 -> 570.0	32294	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.1%		
13C2-PFTeDA	9.796	715.2 -> 670.0	11865	0.98 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.2%		
13C3-PFBS	5.584	302.1 -> 79.9	21334	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C3-PFHxS	7.326	402.1 -> 79.9	12222	2.31 µg/L	0.012

7.2.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C4-PFBA	3.025	216.8 -> 171.9	184931	9.16 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C4-PFHpA	6.581	367.1 -> 322.0	55685	2.31 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C5-PFHxA	5.654	318.0 -> 273.0	68338	2.21 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.3%	
13C5-PFPeA	4.447	268.3 -> 223.0	30132	3.98 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 79.7%	
13C6-PFDA	8.222	519.1 -> 474.1	28332	1.07 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 85.5%	
13C7-PFUnDA	8.663	570.0 -> 525.1	36126	1.02 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 81.4%	
13C8-FOSA	9.670	506.1 -> 77.8	21107	1.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 63.4%	
13C8-PFOA	7.211	421.1 -> 376.0	73916	2.15 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.9%	
13C8-PFOS	8.373	507.1 -> 79.9	11617	1.97 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.9%	
13C9-PFNA	7.741	472.1 -> 427.0	28896	1.19 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.4%	
d3-MeFOSAA	8.268	573.2 -> 419.0	20034	3.83 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 76.6%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	38134	8.92 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 89.2%	
d3-MeFOSA	10.757	515.0 -> 219.0	7404	1.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 54.9%	
d5-EtFOSAA	8.464	589.2 -> 419.0	16907	3.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 67.2%	
d7-MeFOSE	10.678	623.2 -> 58.9	75716	15.40 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 61.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	112992	17.07 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 68.3%	
d5-EtFOSA	10.989	531.1 -> 219.0	7584	1.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 60.3%	

Target Compounds

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



7.2.1
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	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

7.2.1
7

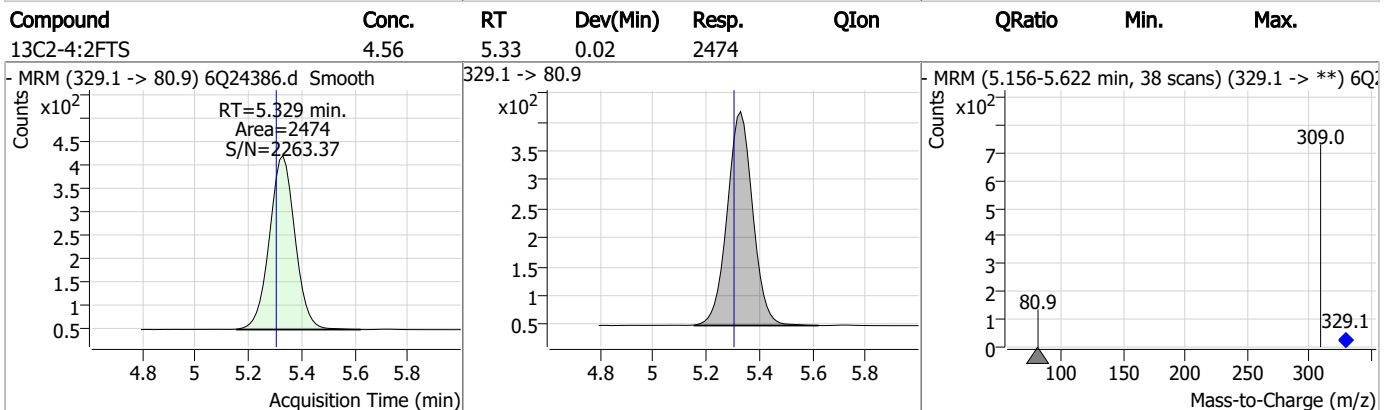
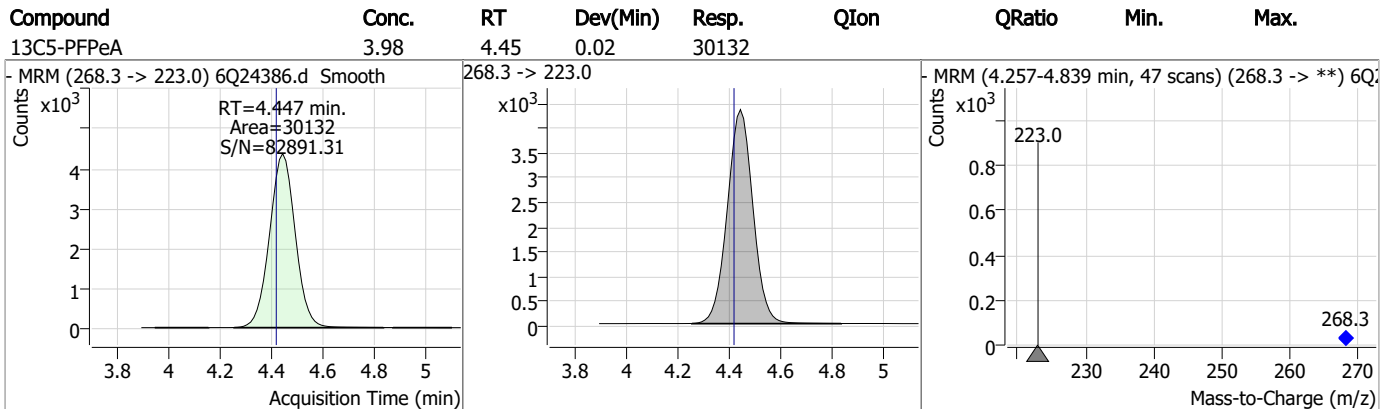
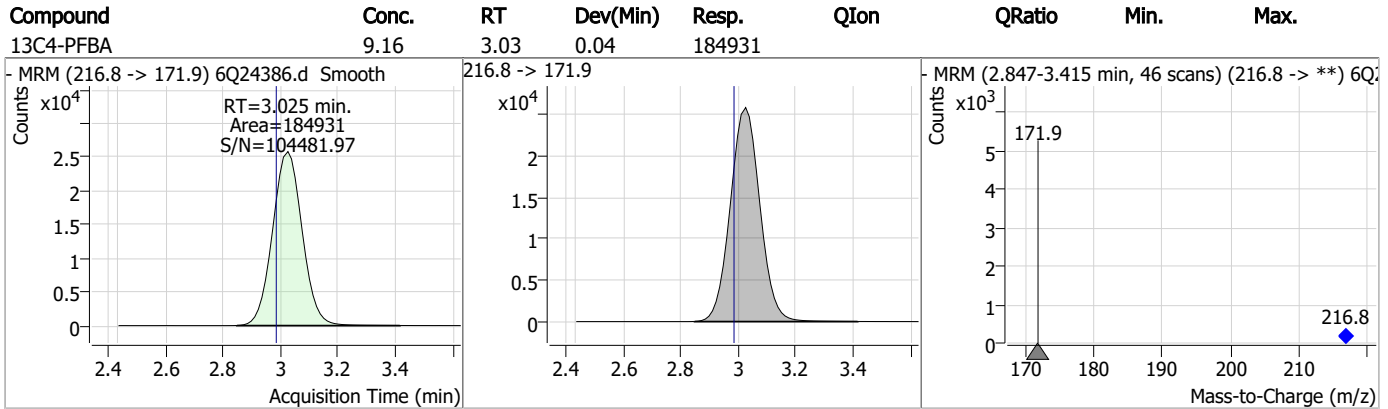
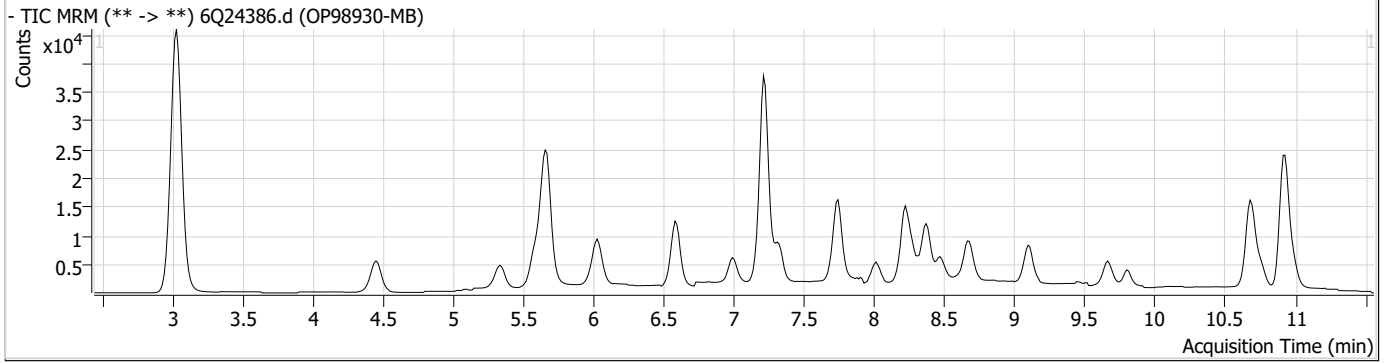
Perfluorinated Compounds by LC/MS/MS

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

7

Perfluorinated Compounds by LC/MS/MS



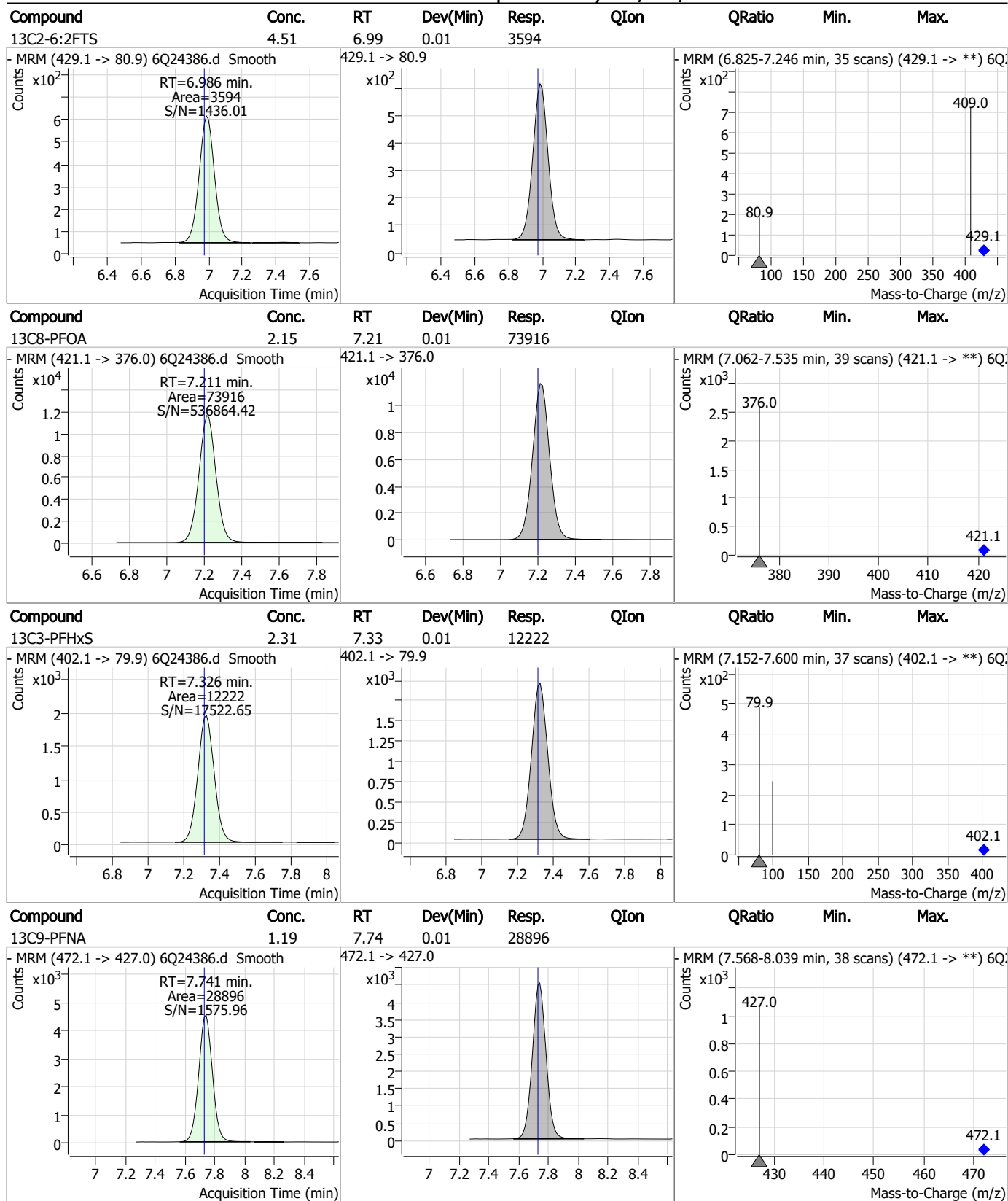
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.39	5.58	0.01	21334				
13C5-PFHxA	2.21	5.65	0.01	68338				
13C3-HFPO-DA	8.92	6.03	0.01	38134				
13C4-PFHpA	2.31	6.58	0.01	55685				

7.2.1
7

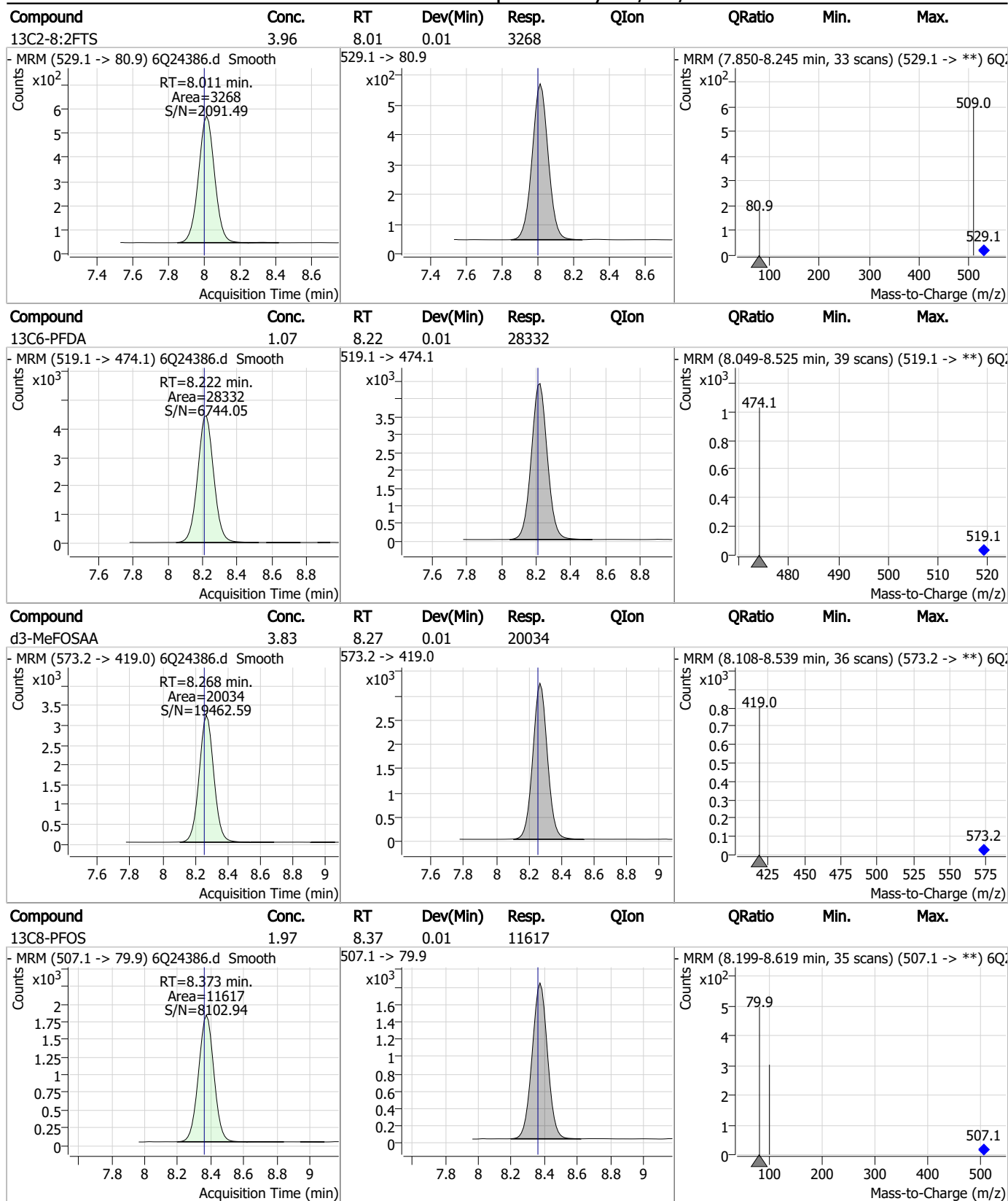


Perfluorinated Compounds by LC/MS/MS



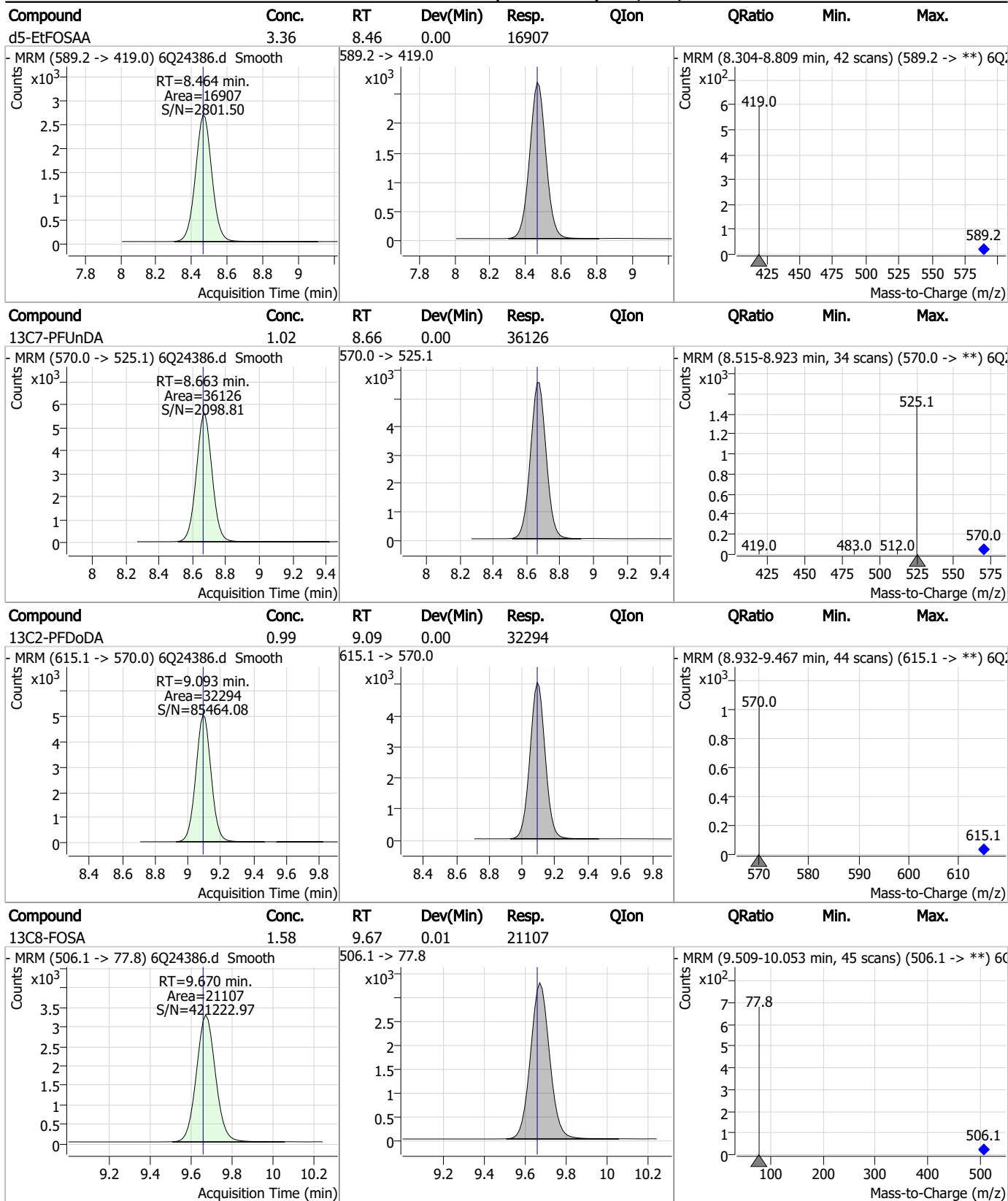
7.2.1
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Perfluorinated Compounds by LC/MS/MS



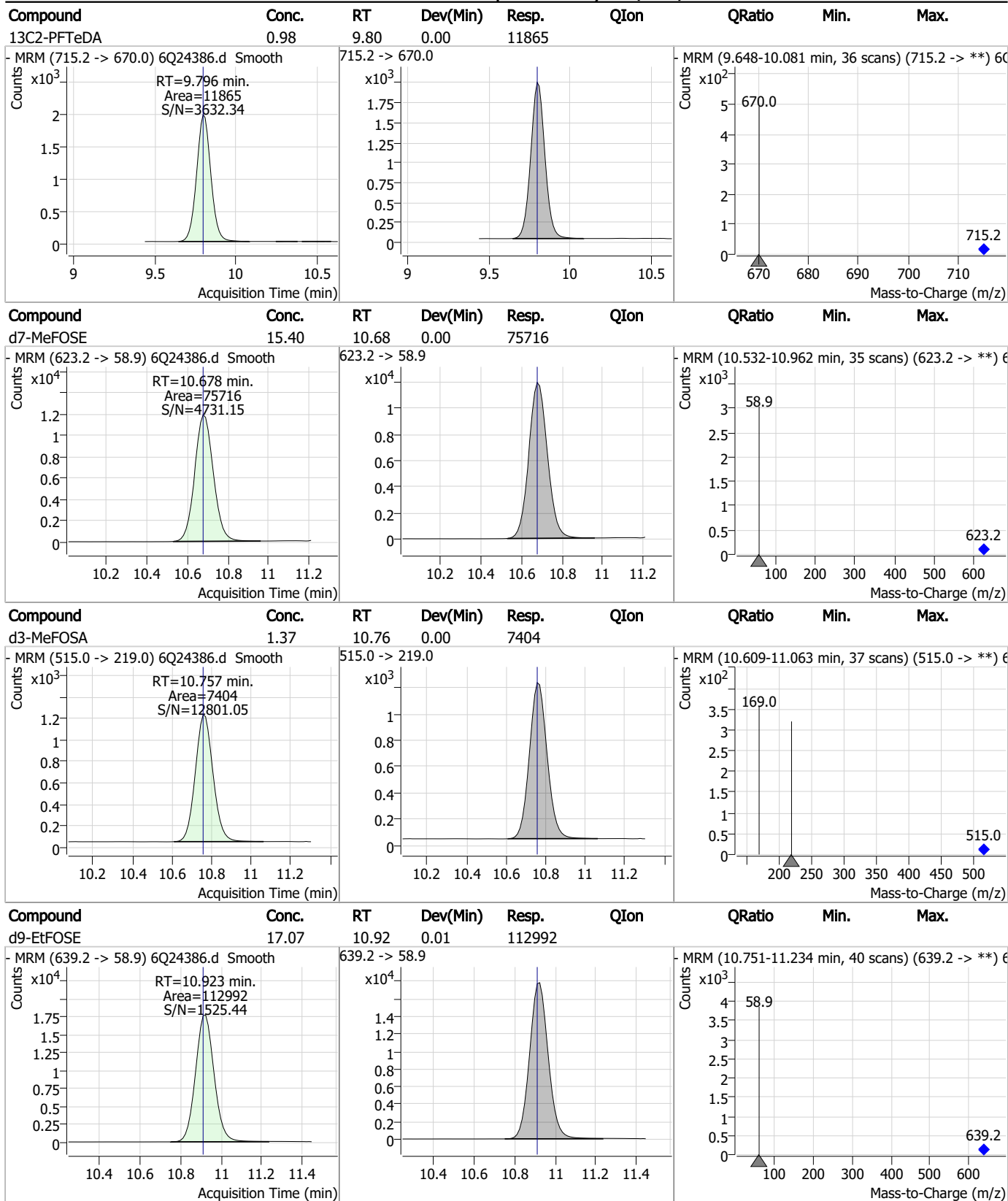
7.2.1
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Perfluorinated Compounds by LC/MS/MS



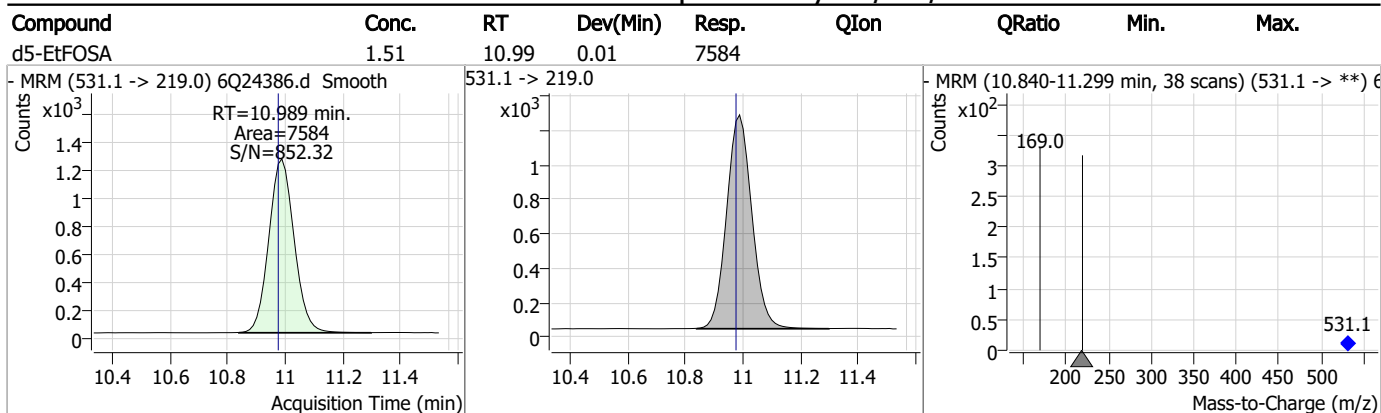
7.2.1
7

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 : 6Q24321.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/12/2023 11:20:45 AM
 Sample Name : IBLK
 Vial : P1-A1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	195425	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	32801	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	74462	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	61355	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	78700	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	34382	1.25 µg/L	0.000
M6-PFDA	8.222	519.1 -> 474.1	33241	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	41640	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	39909	1.25 µg/L	0.000
M2-PFTeDA	9.809	715.2 -> 670.0	15046	1.25 µg/L	0.012
M8-FOSA	9.670	506.1 -> 77.8	31032	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	23931	2.50 µg/L	0.012
M3-PFHxS	7.313	402.1 -> 79.9	13981	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	12941	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2639	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3875	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	4187	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	22562	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	43089	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	18893	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	114513	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	159072	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	11497	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	11655	2.50 µg/L	0.012
13C4-PFOS	8.374	502.8 -> 79.9	17060	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	76580	5.00 µg/L	0.012
18O2-PFHxS	7.325	403.0 -> 83.9	10078	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	88365	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	30739	1.25 µg/L	0.012
13C5-PFNA	7.729	468.0 -> 423.0	37886	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	56295	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2639	4.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3875	4.66 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-8:2FTS	8.011	529.1 -> 80.9	4187	4.86 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFDoDA	9.093	615.1 -> 570.0	39909	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C2-PFTeDA	9.809	715.2 -> 670.0	15046	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.584	302.1 -> 79.9	23931	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFHxS	7.313	402.1 -> 79.9	13981	2.53 µg/L	0.000

7.22
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C4-PFBA	2.997	216.8 -> 171.9	195425	10.10	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C4-PFHpA	6.581	367.1 -> 322.0	61355	2.54	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C5-PFHxA	5.654	318.0 -> 273.0	74462	2.40	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%		
13C5-PFPeA	4.434	268.3 -> 223.0	32801	4.32	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.5%		
13C6-PFDA	8.222	519.1 -> 474.1	33241	1.24	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C7-PFUnDA	8.676	570.0 -> 525.1	41640	1.16	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C8-FOSA	9.670	506.1 -> 77.8	31032	2.56	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C8-PFOA	7.211	421.1 -> 376.0	78700	2.42	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C8-PFOS	8.373	507.1 -> 79.9	12941	2.41	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C9-PFNA	7.729	472.1 -> 427.0	34382	1.45	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 116.2%		
d3-MeFOSAA	8.268	573.2 -> 419.0	22562	4.73	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.6%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	43089	10.05	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
d3-MeFOSA	10.769	515.0 -> 219.0	11655	2.37	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%		
d5-EtFOSAA	8.464	589.2 -> 419.0	18893	4.12	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.3%		
d7-MeFOSE	10.678	623.2 -> 58.9	114513	25.53	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
d9-EtFOSE	10.923	639.2 -> 58.9	159072	26.35	µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
d5-EtFOSA	10.989	531.1 -> 219.0	11497	2.50	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%		
Target Compounds						QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.		
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.		
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.		
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.		
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.		
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.		
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.		
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.		
PFDODA	9.480	613.1 -> 569.0 613.1 -> 319.0	0	µg/L	m	1
PFDS	-	599.0 -> 79.9	-	N.D.		

7.2.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.636	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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



7.2.2
7

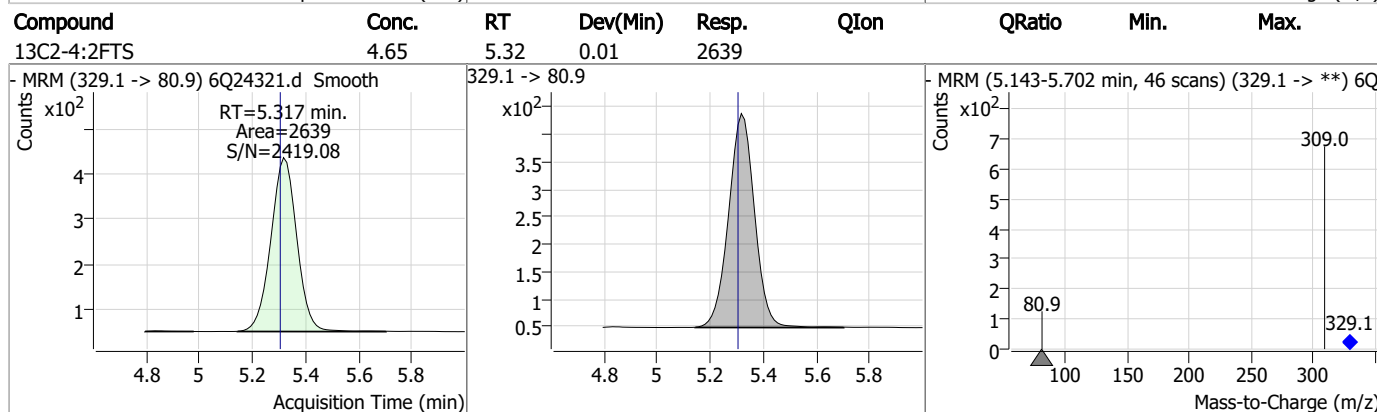
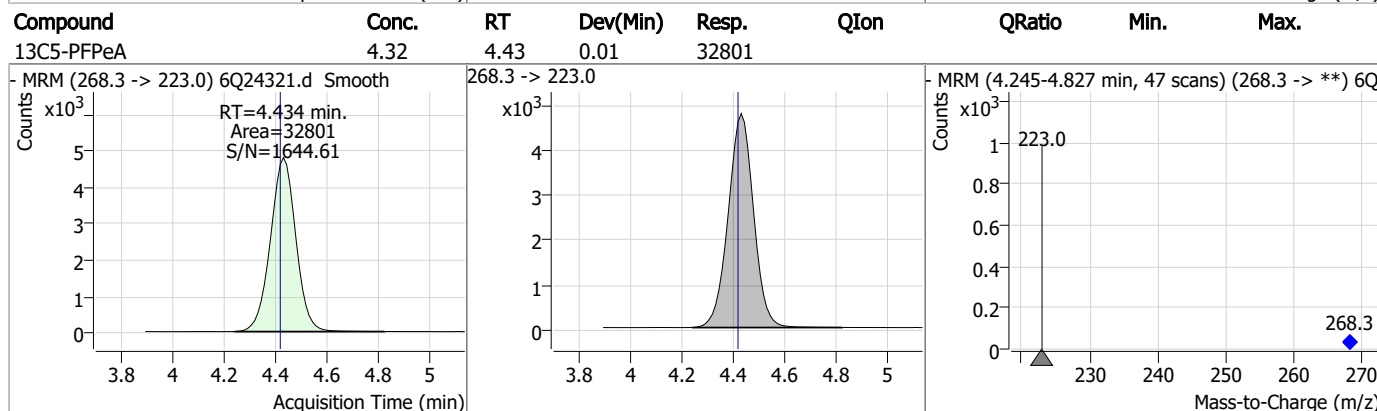
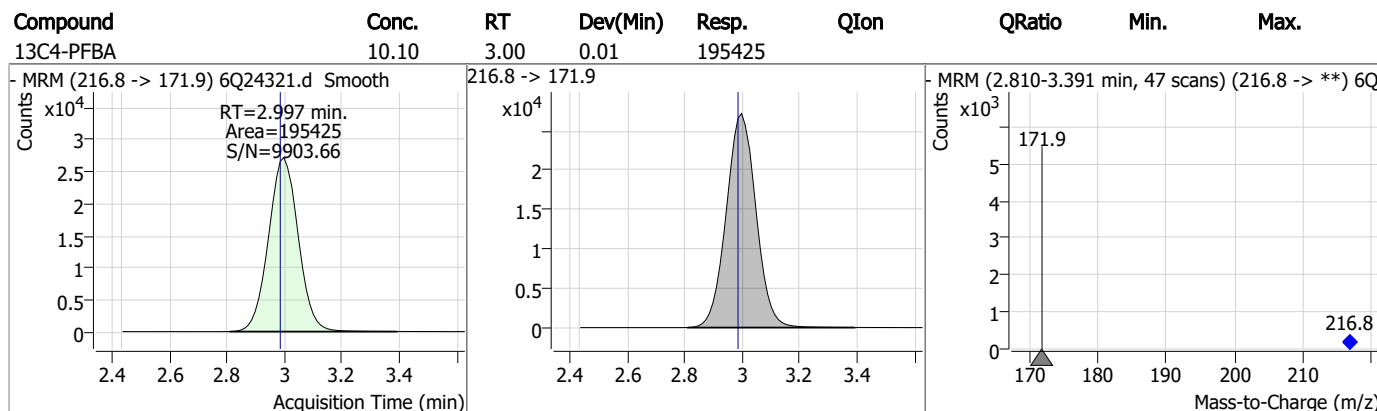
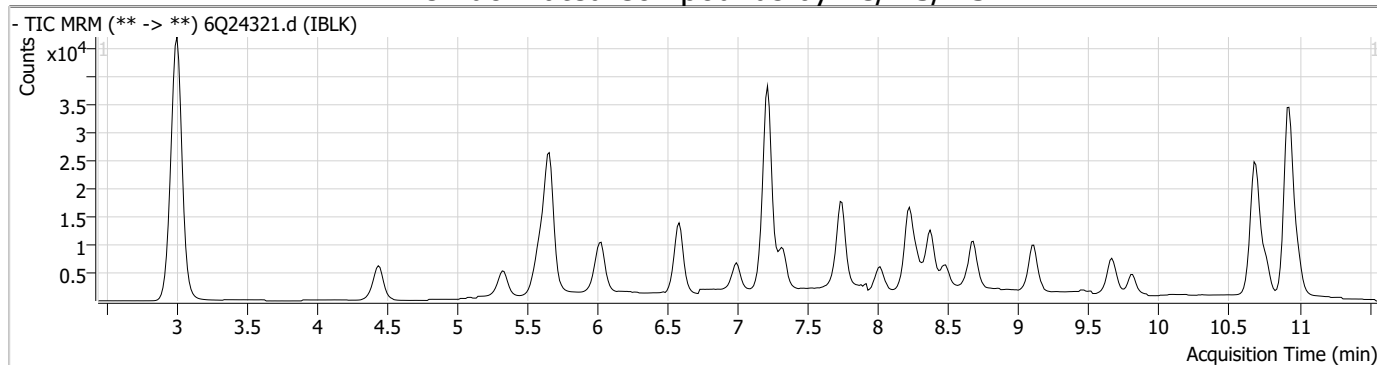
Perfluorinated Compounds by LC/MS/MS

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

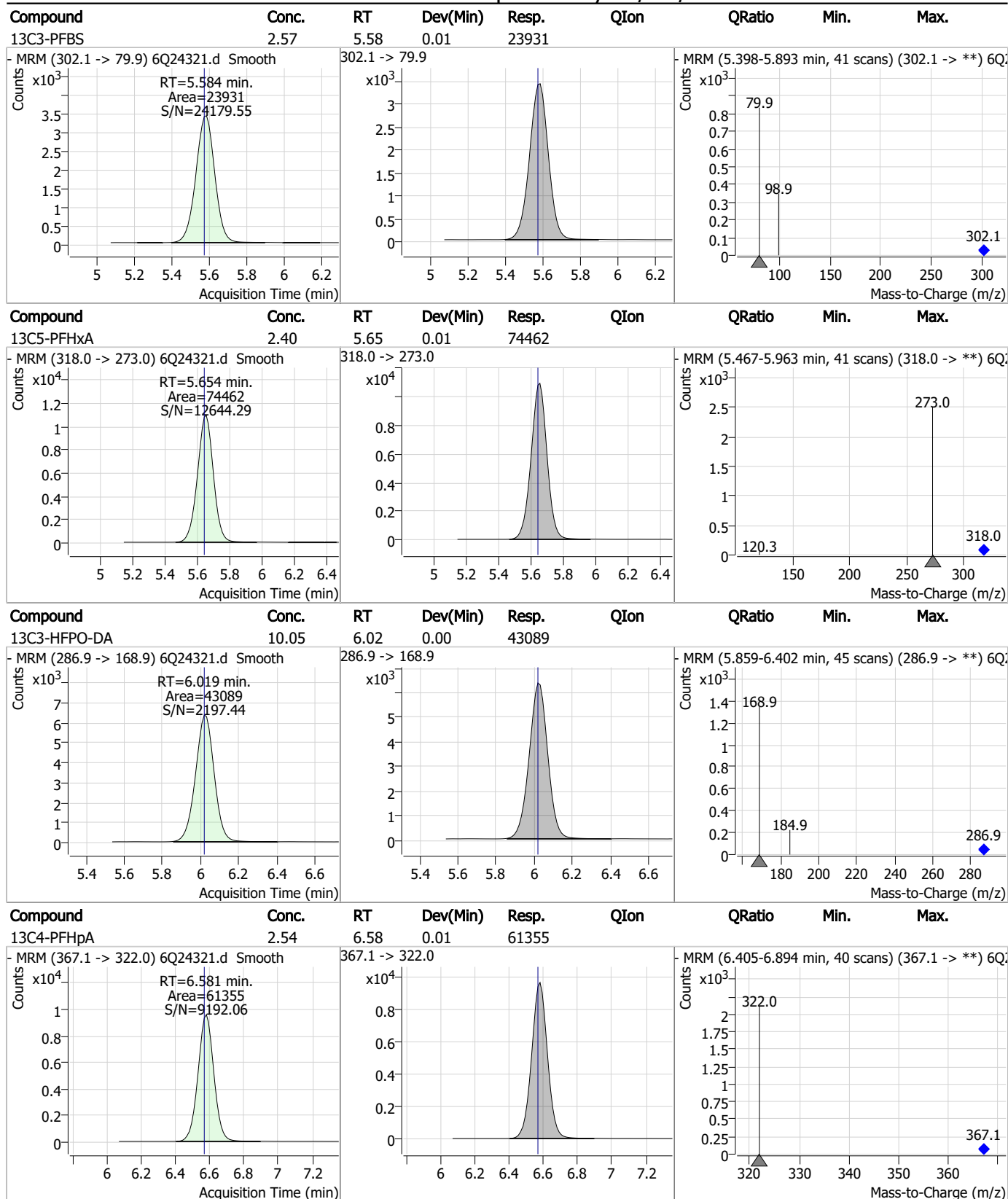
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Perfluorinated Compounds by LC/MS/MS



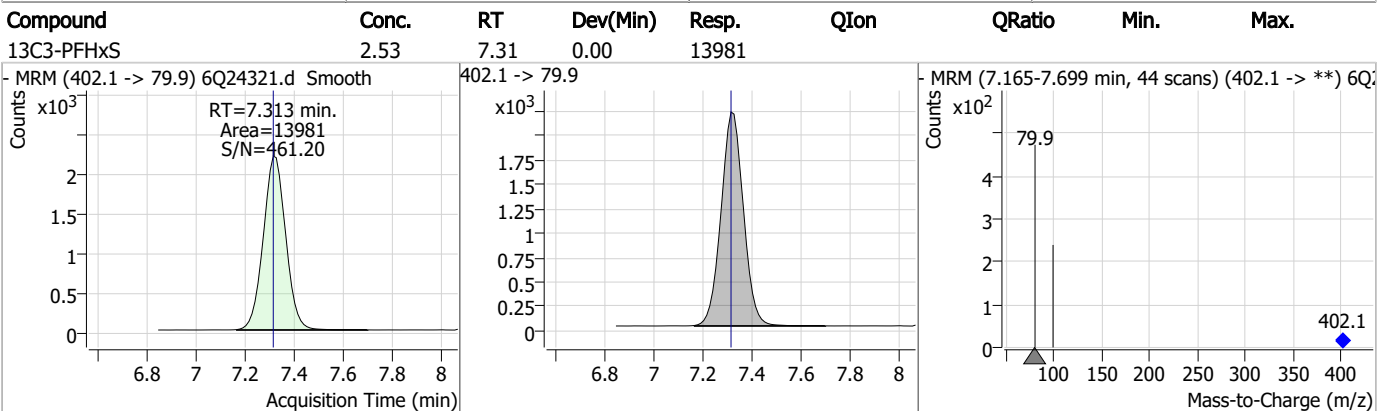
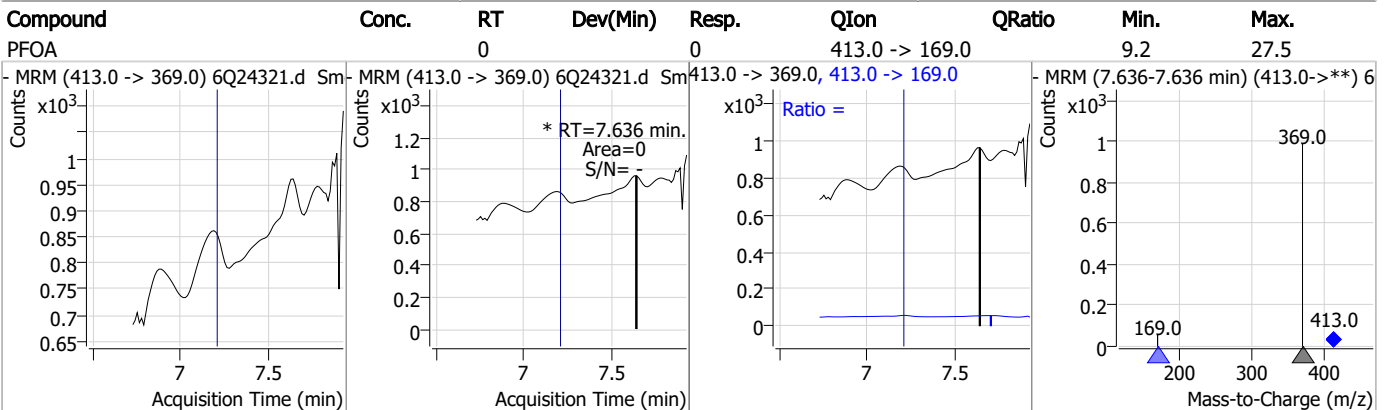
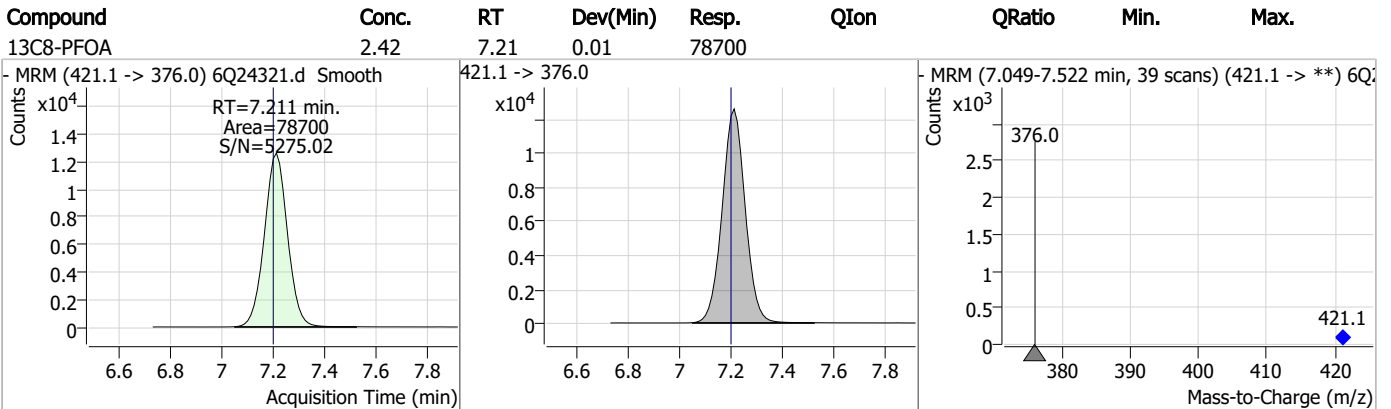
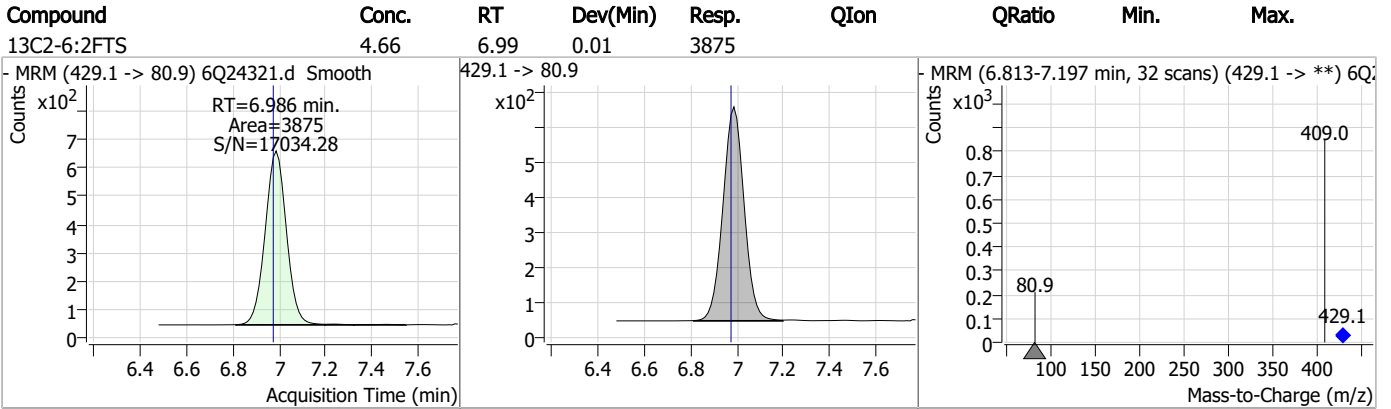
7.2.2
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Perfluorinated Compounds by LC/MS/MS

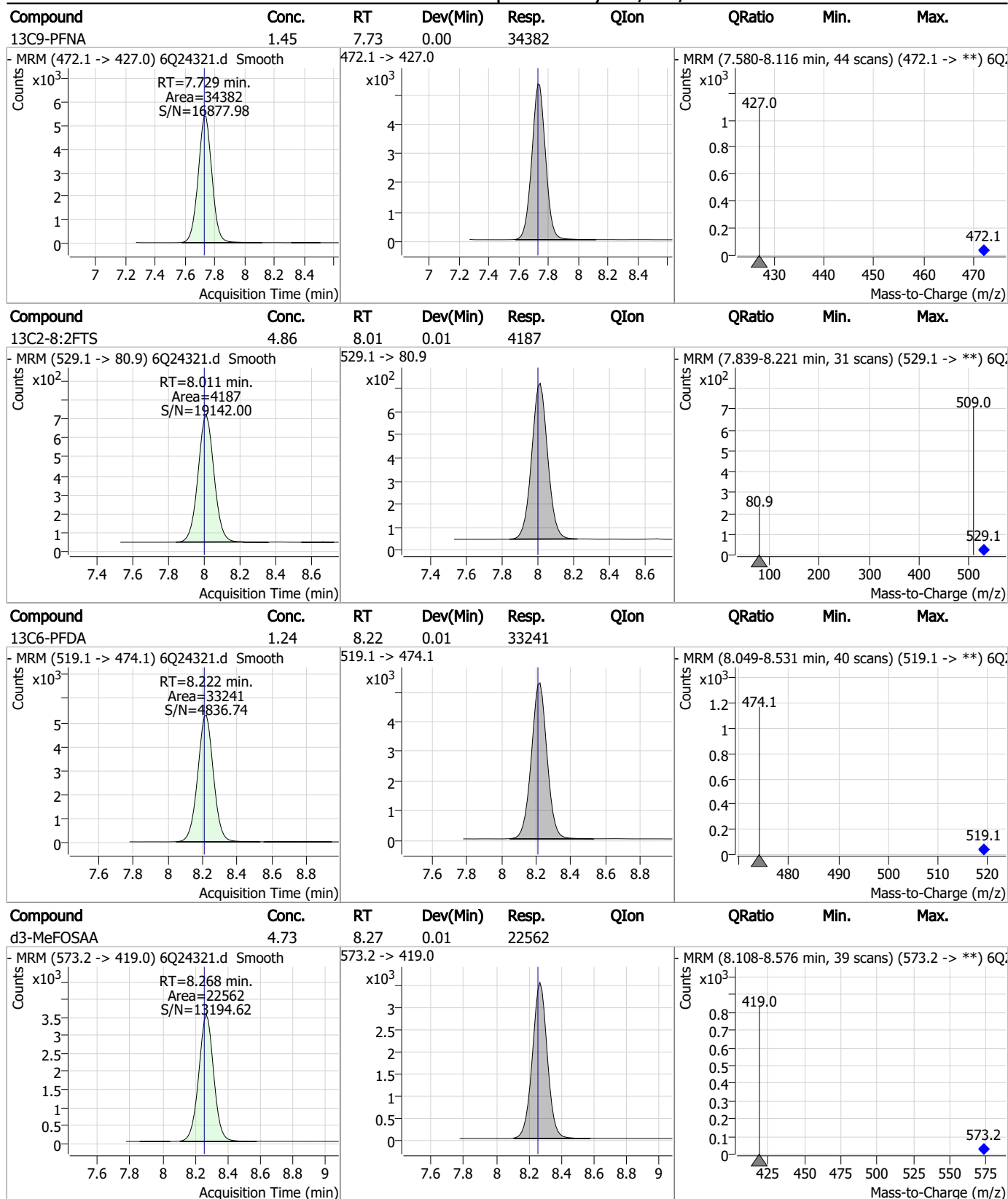


7.2.2
7

Perfluorinated Compounds by LC/MS/MS



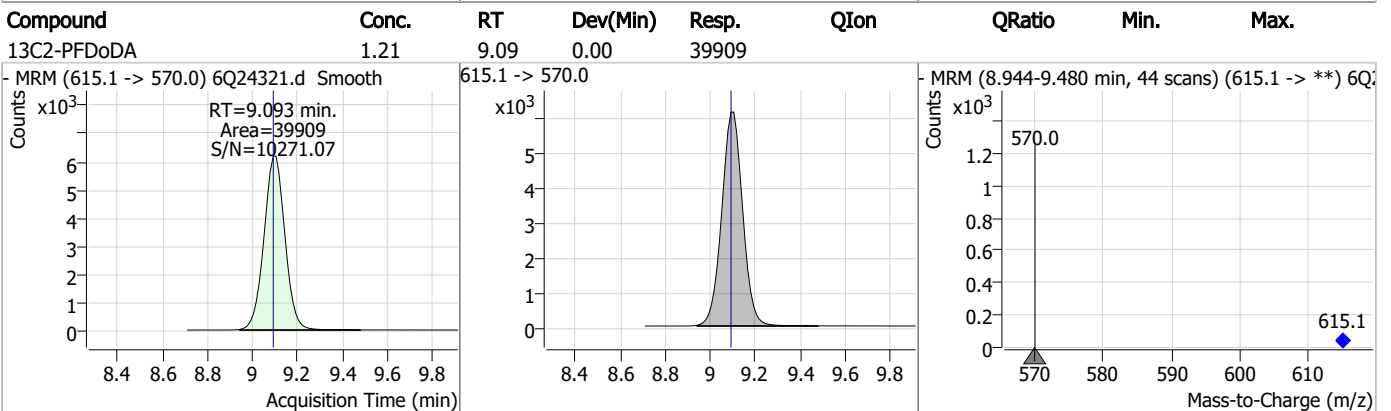
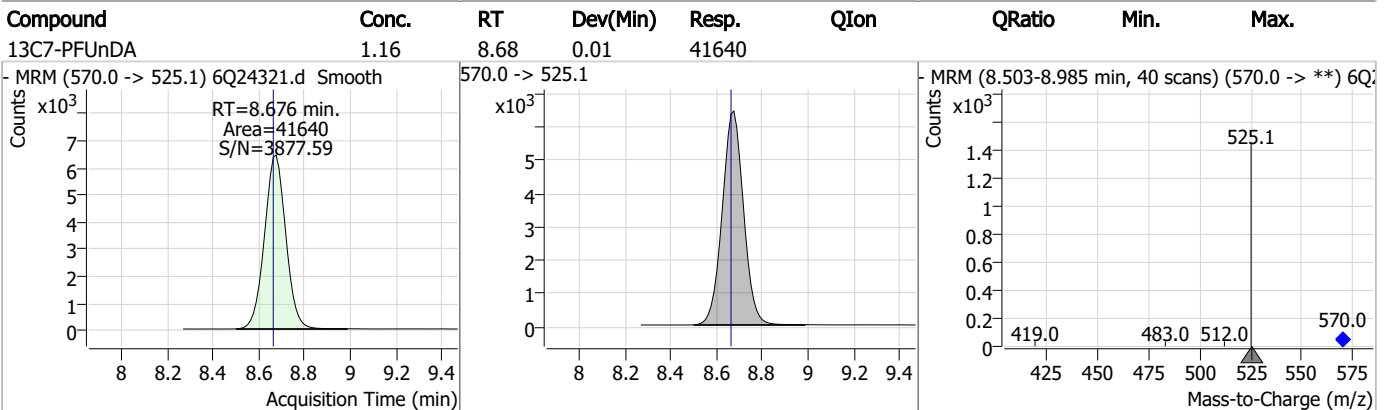
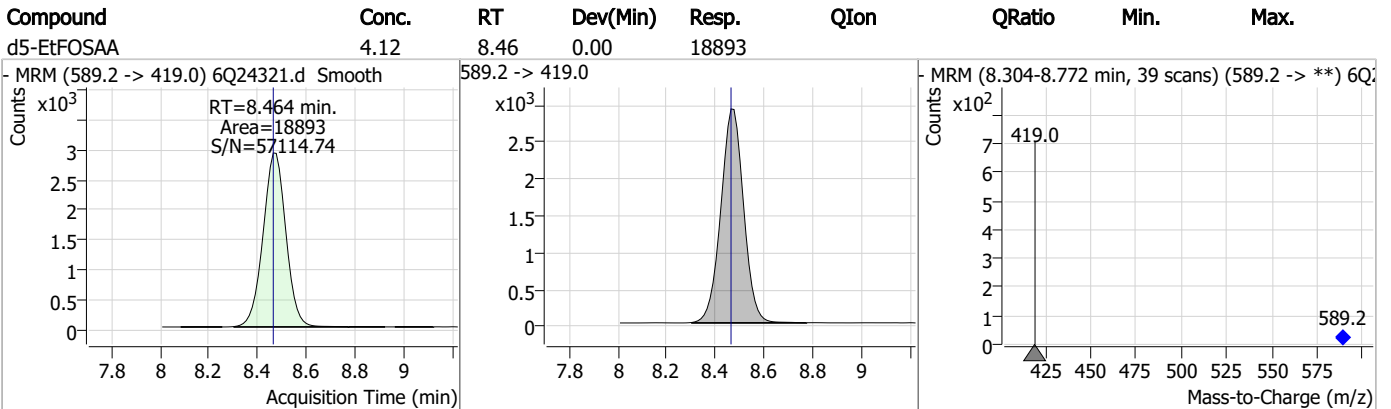
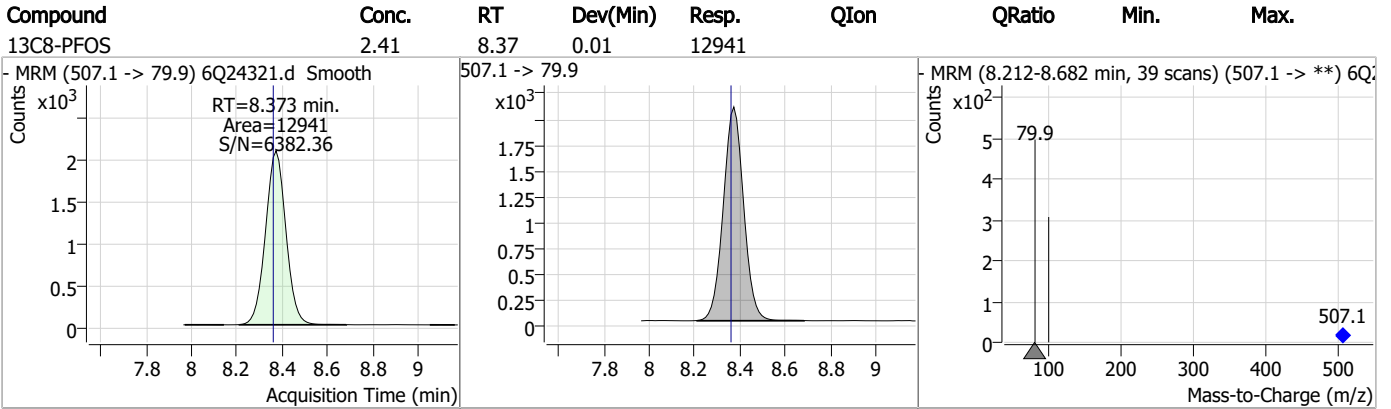
Perfluorinated Compounds by LC/MS/MS



7.2.2
7



Perfluorinated Compounds by LC/MS/MS



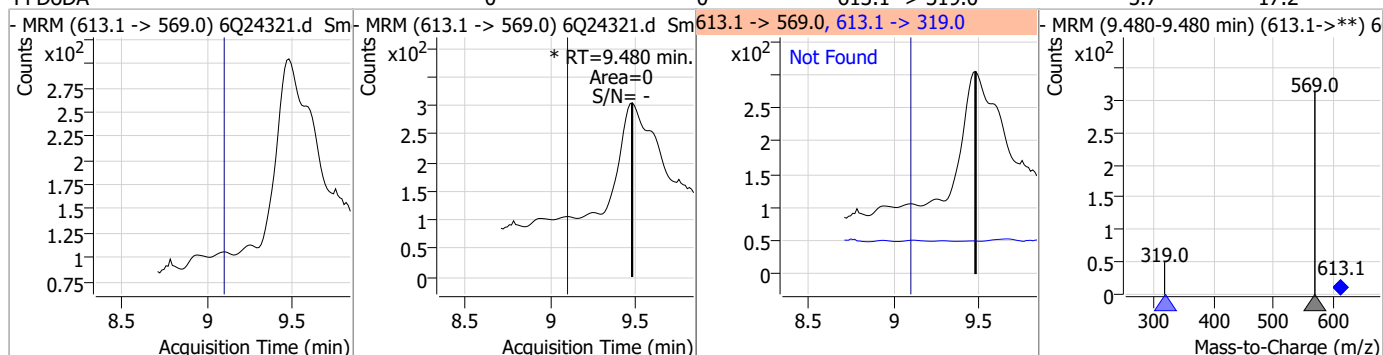
7.2.2

7

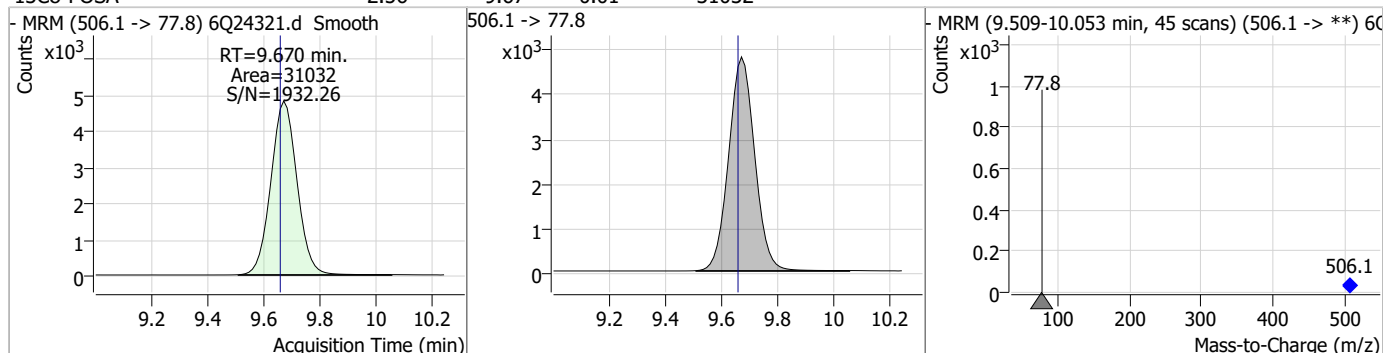


Perfluorinated Compounds by LC/MS/MS

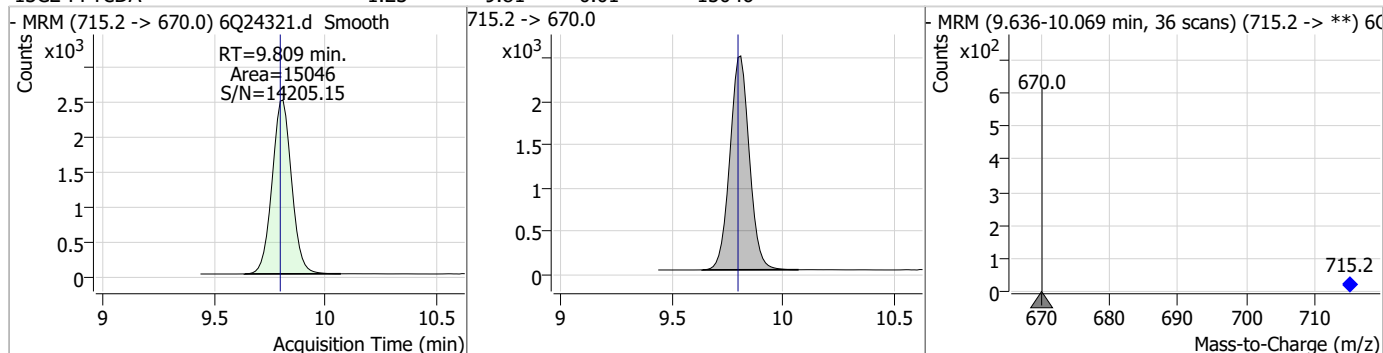
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	0	0		0	613.1 -> 319.0		5.7	17.2



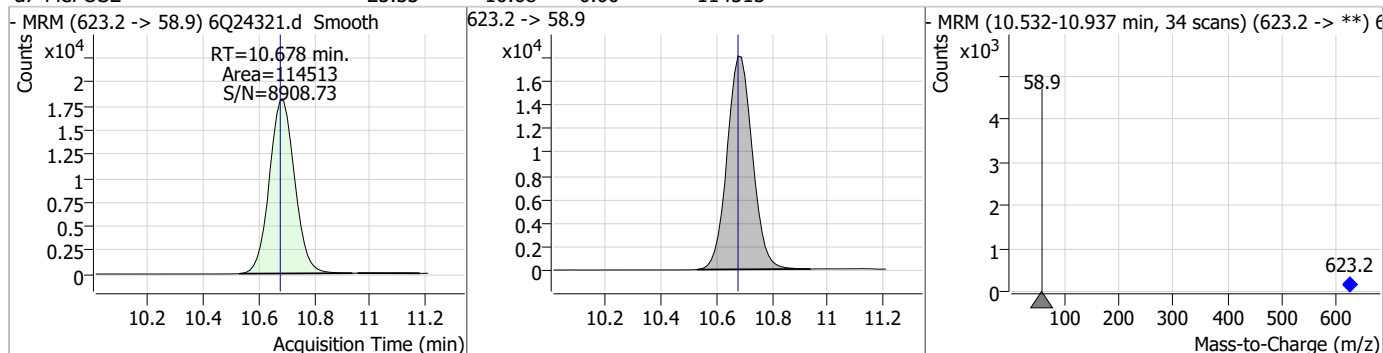
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.56	9.67	0.01	31032				



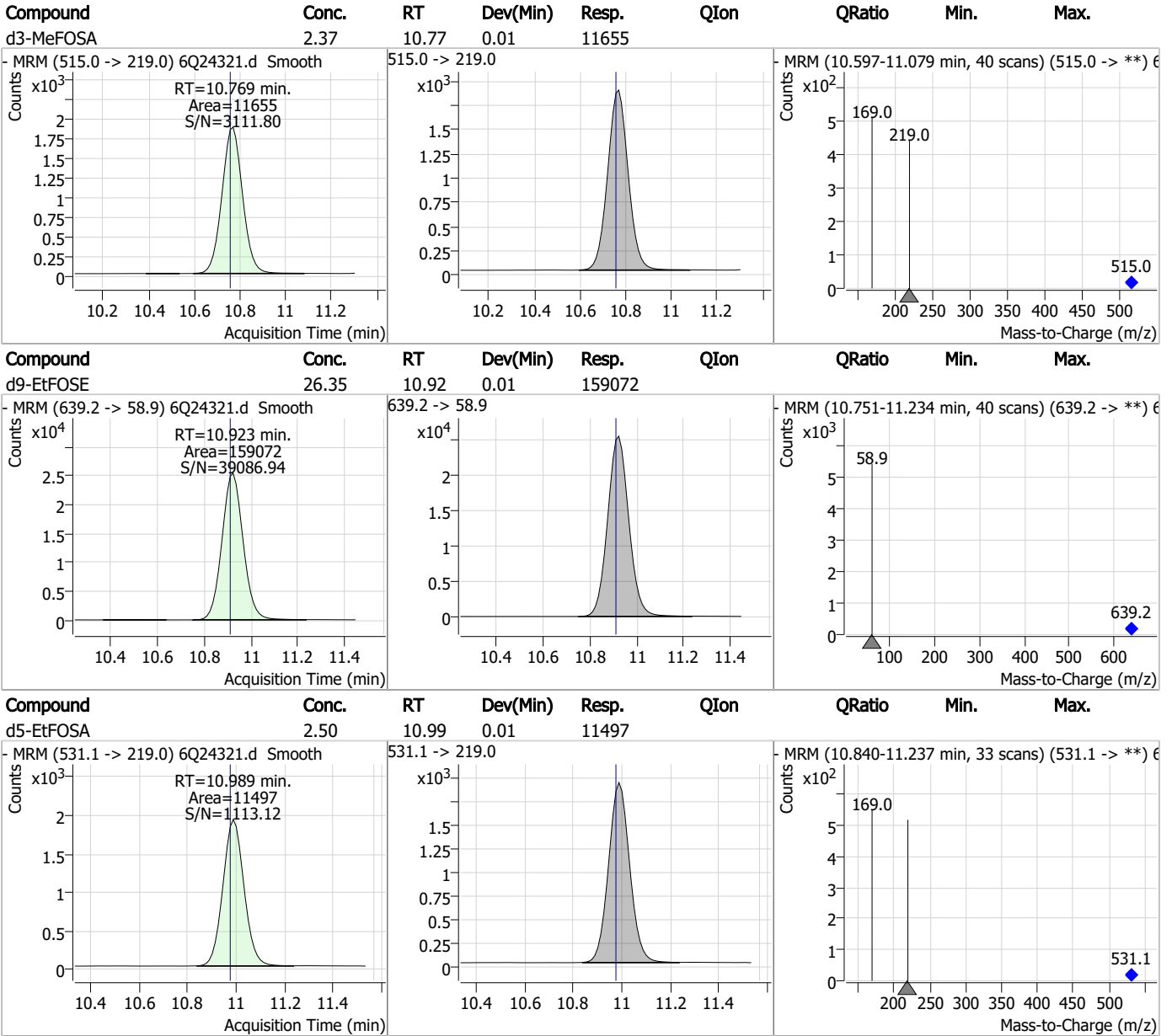
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.23	9.81	0.01	15046				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.53	10.68	0.00	114513				



Perfluorinated Compounds by LC/MS/MS



7.2.2

7



Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24383.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 2:09:18 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	199652	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	33681	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	76203	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	63232	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	79797	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	32239	1.25 µg/L	0.012
M6-PFDA	8.210	519.1 -> 474.1	31820	1.25 µg/L	0.000
M7-PFUnDA	8.676	570.0 -> 525.1	43298	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	39659	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14994	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30616	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	24611	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	13434	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	12381	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2718	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3838	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3999	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	21421	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	43494	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	18349	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	113174	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	158660	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	11689	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	11773	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17209	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	78609	5.00 µg/L	0.012
18O2-PFHxS	7.325	403.0 -> 83.9	10420	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	89367	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	30140	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	36866	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	57394	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2718	4.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.7%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3838	4.46 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.2%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3999	4.49 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C2-PFDoDA	9.093	615.1 -> 570.0	39659	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14994	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C3-PFBS	5.584	302.1 -> 79.9	24611	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFHxS	7.326	402.1 -> 79.9	13434	2.35 µg/L	0.012

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C4-PFBA	2.997	216.8 -> 171.9	199652	10.06 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.581	367.1 -> 322.0	63232	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	5.654	318.0 -> 273.0	76203	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C5-PFPeA	4.434	268.3 -> 223.0	33681	4.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.1%	
13C6-PFDA	8.210	519.1 -> 474.1	31820	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.676	570.0 -> 525.1	43298	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C8-FOSA	9.670	506.1 -> 77.8	30616	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOA	7.211	421.1 -> 376.0	79797	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
13C8-PFOS	8.373	507.1 -> 79.9	12381	2.28 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C9-PFNA	7.741	472.1 -> 427.0	32239	1.40 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.9%	
d3-MeFOSAA	8.268	573.2 -> 419.0	21421	4.45 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	43494	9.95 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	11773	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
d5-EtFOSAA	8.464	589.2 -> 419.0	18349	3.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 79.3%	
d7-MeFOSE	10.678	623.2 -> 58.9	113174	25.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d9-EtFOSE	10.923	639.2 -> 58.9	158660	26.06 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	11689	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
Target Compounds					QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.	
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.	
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.	
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.	
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.	
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.	
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.	
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.	
PFDODA	9.480	613.1 -> 569.0 613.1 -> 319.0	0	µg/L m	1
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

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

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

7.2.3
7

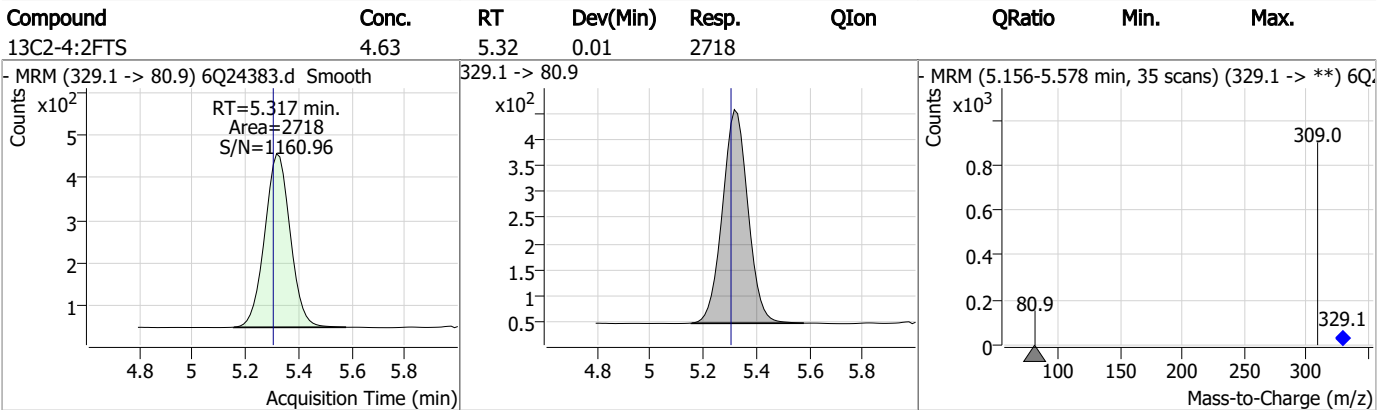
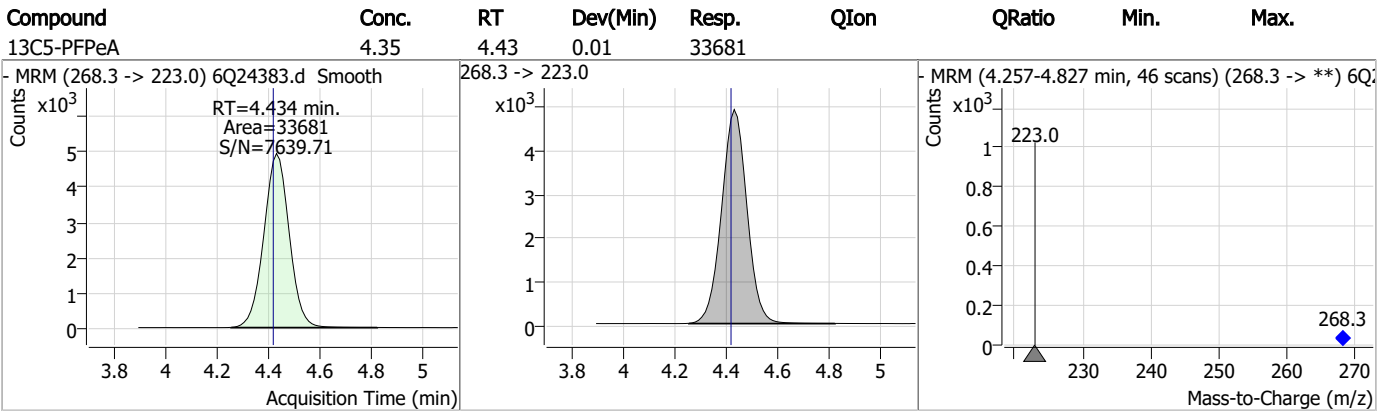
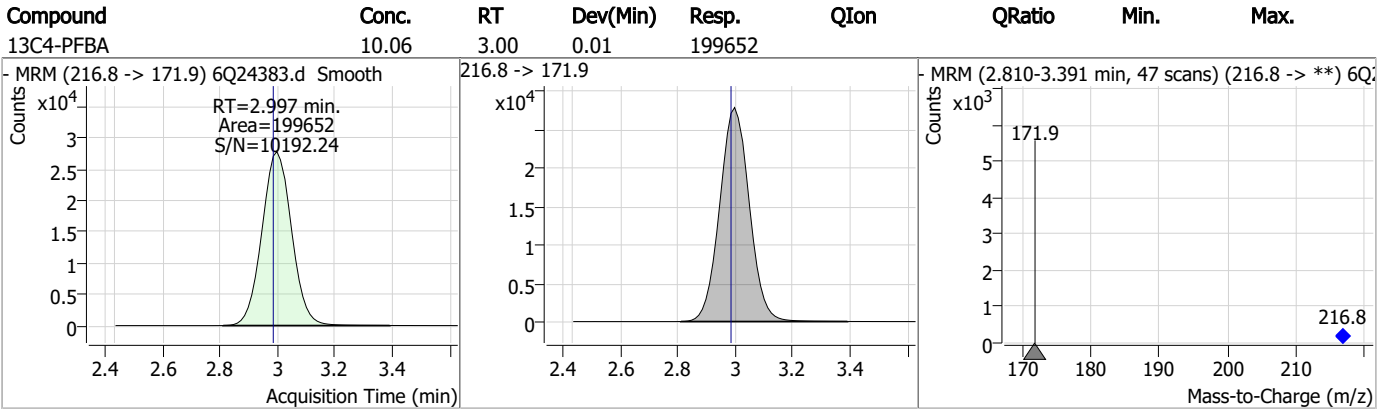
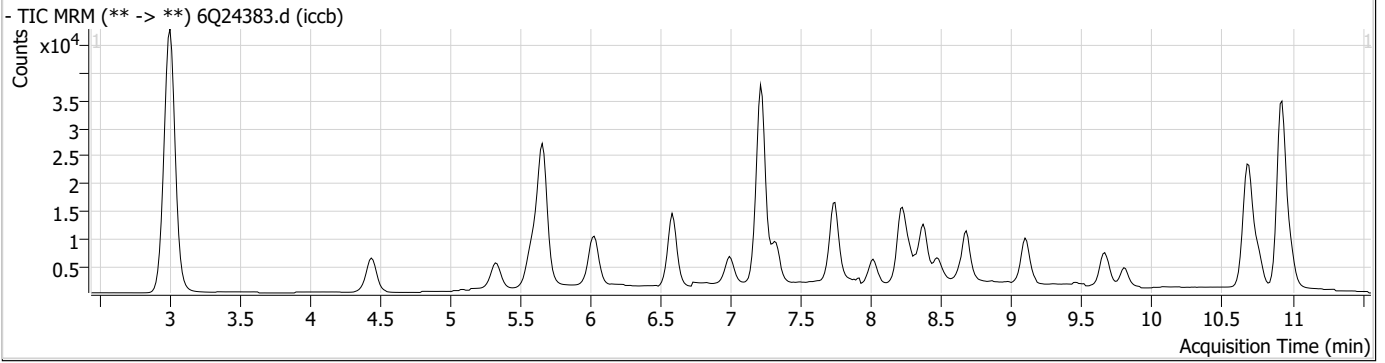
Perfluorinated Compounds by LC/MS/MS

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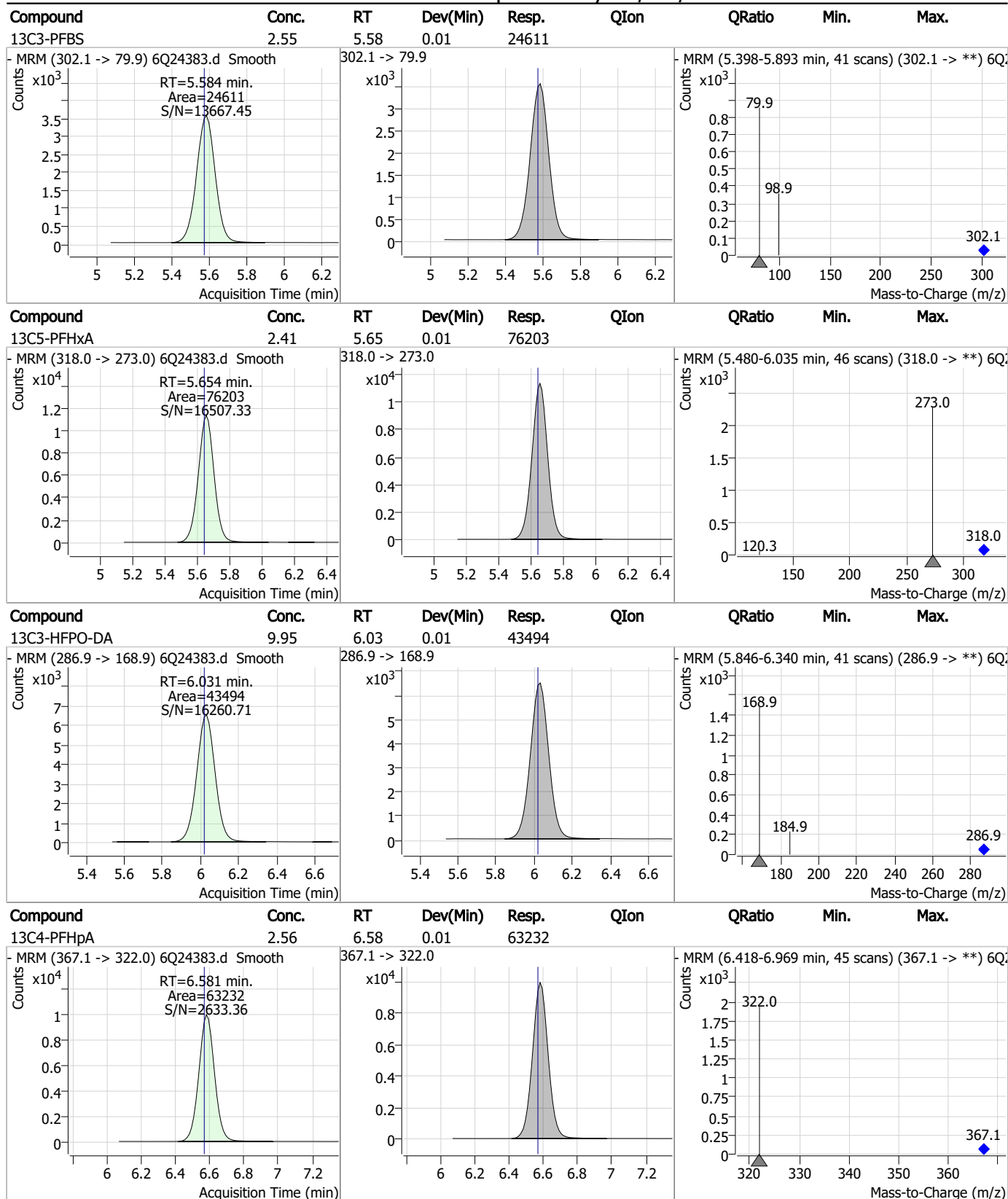
7.2.3

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.2.3
7

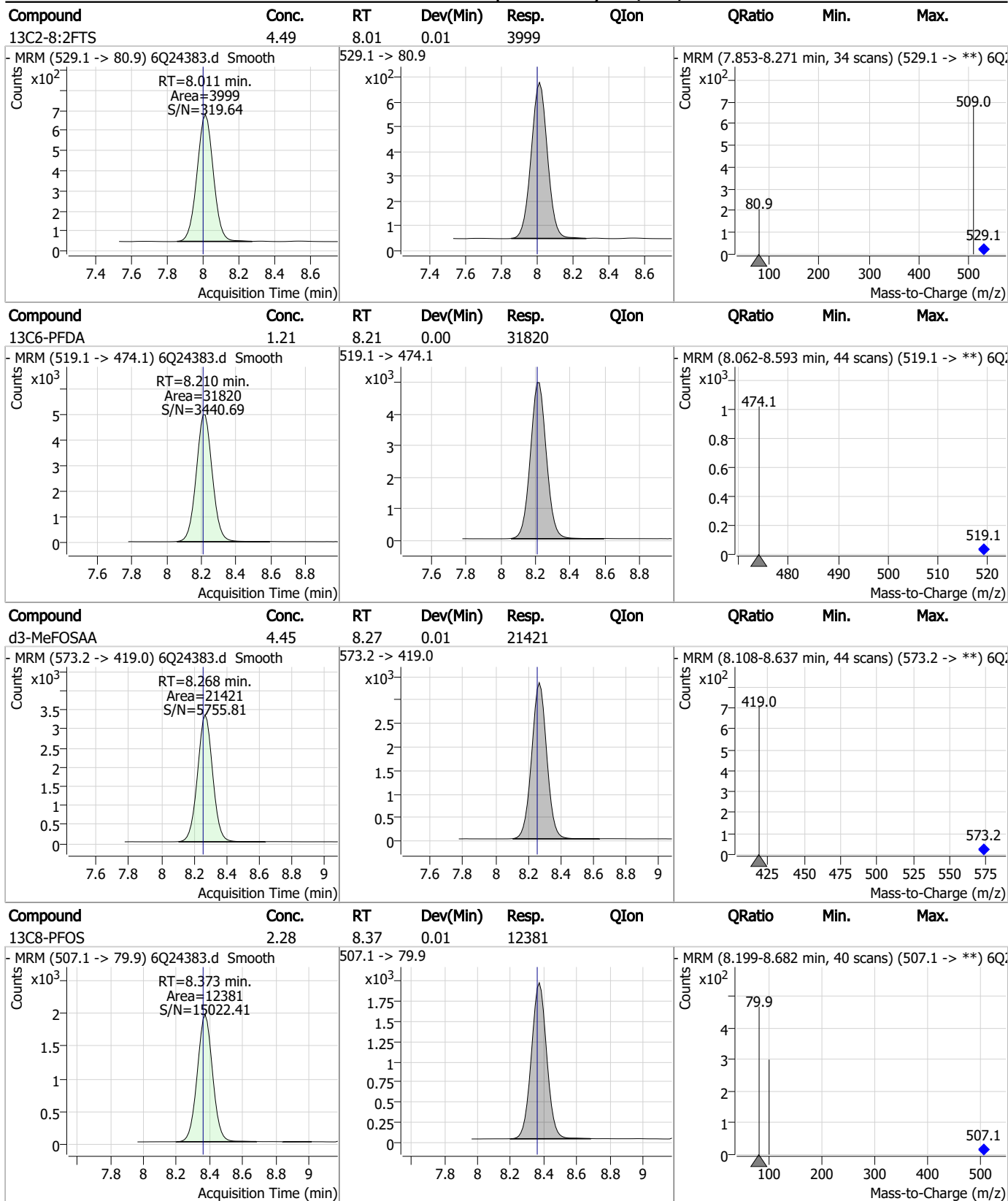
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.46	6.99	0.01	3838				
13C8-PFOA	2.43	7.21	0.01	79797				
13C3-PFHxS	2.35	7.33	0.01	13434				
13C9-PFNA	1.40	7.74	0.01	32239				

7.2.3

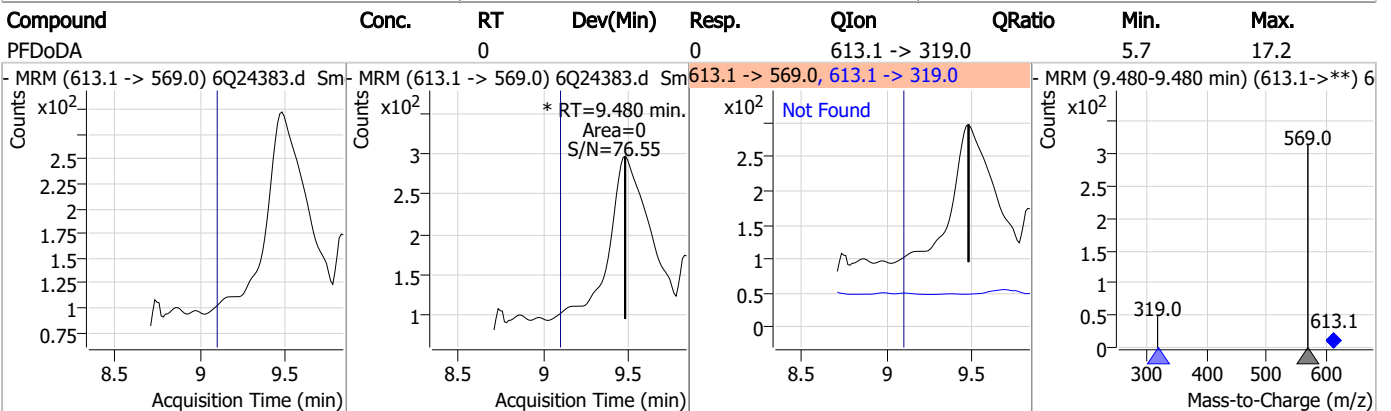
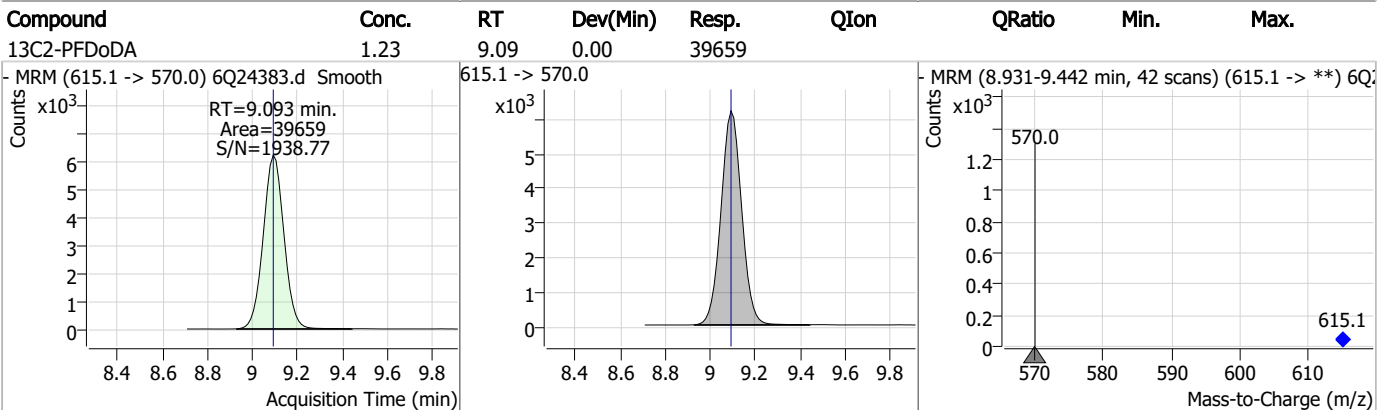
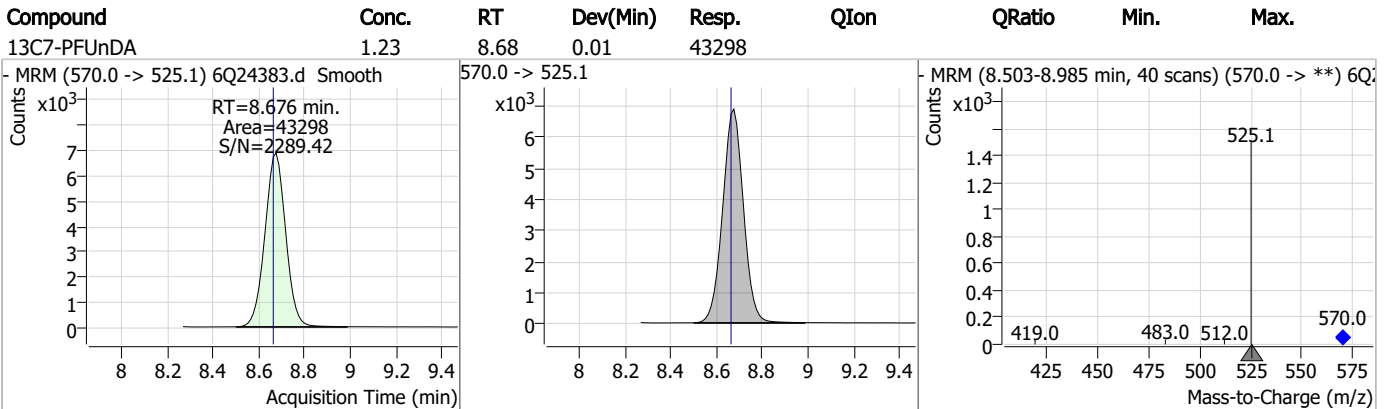
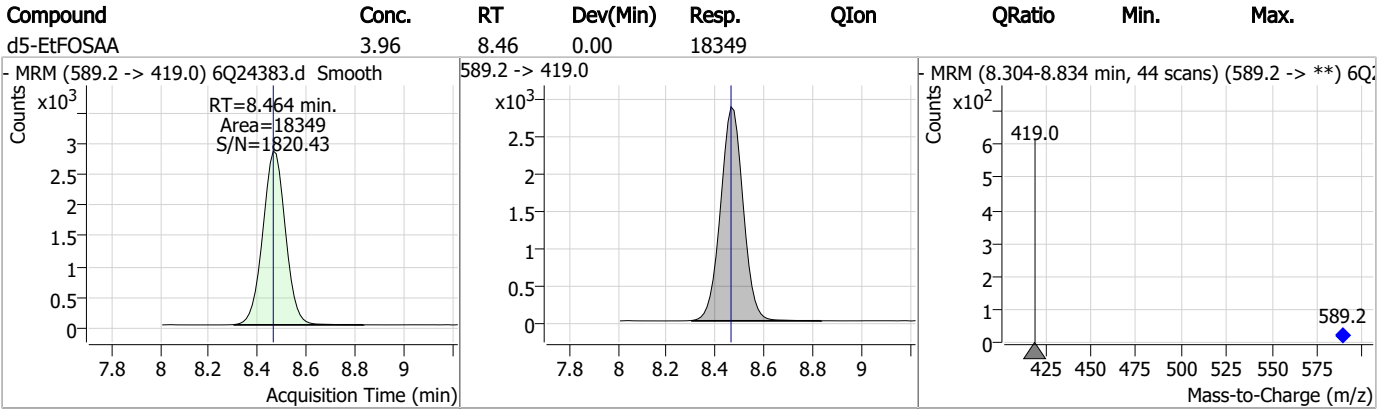
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Perfluorinated Compounds by LC/MS/MS

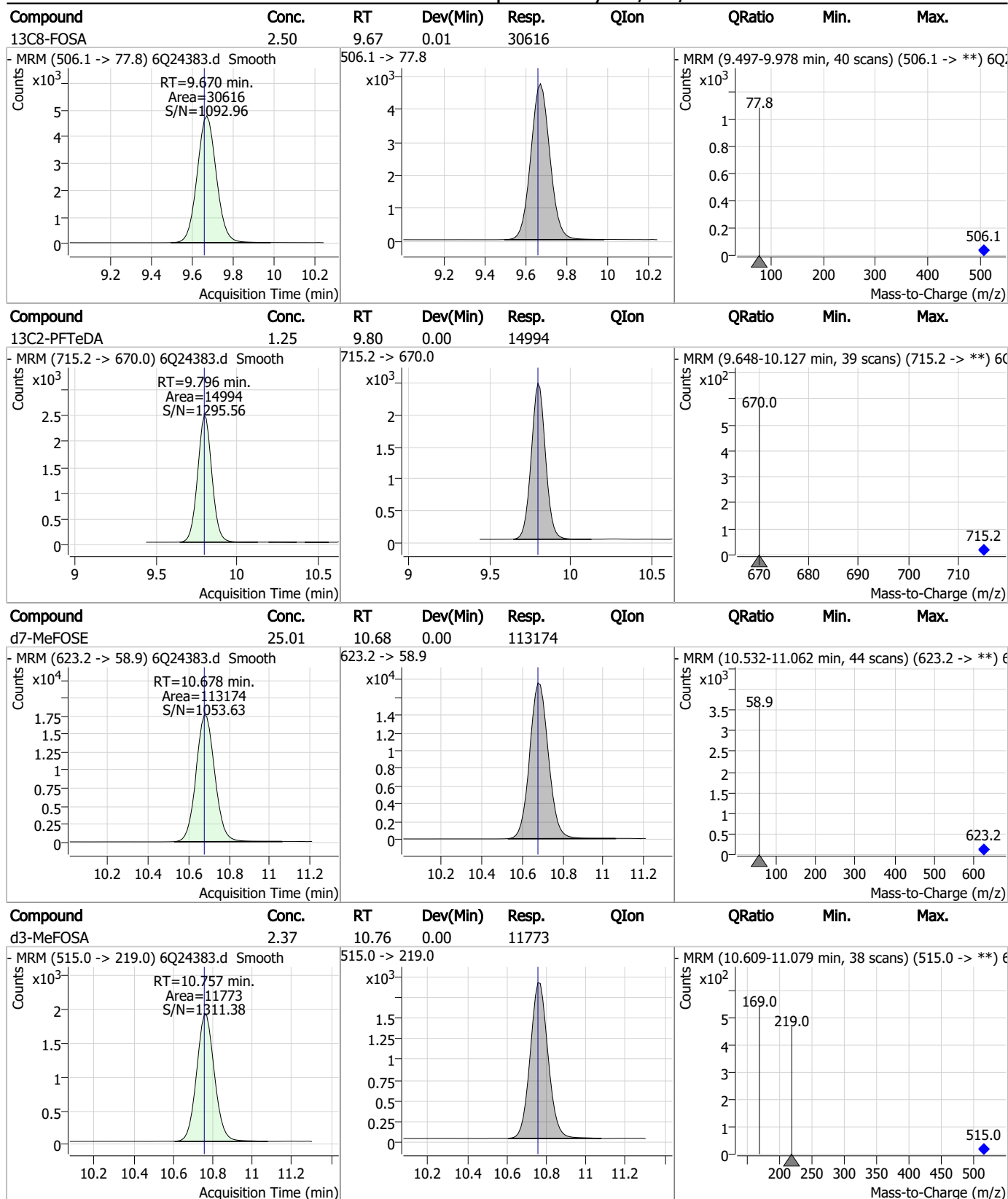


7.2.3
7

Perfluorinated Compounds by LC/MS/MS



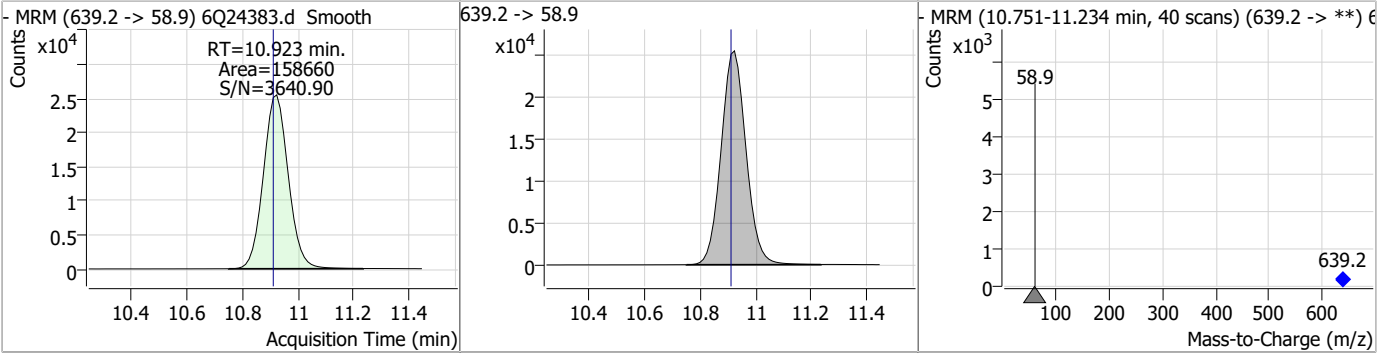
Perfluorinated Compounds by LC/MS/MS



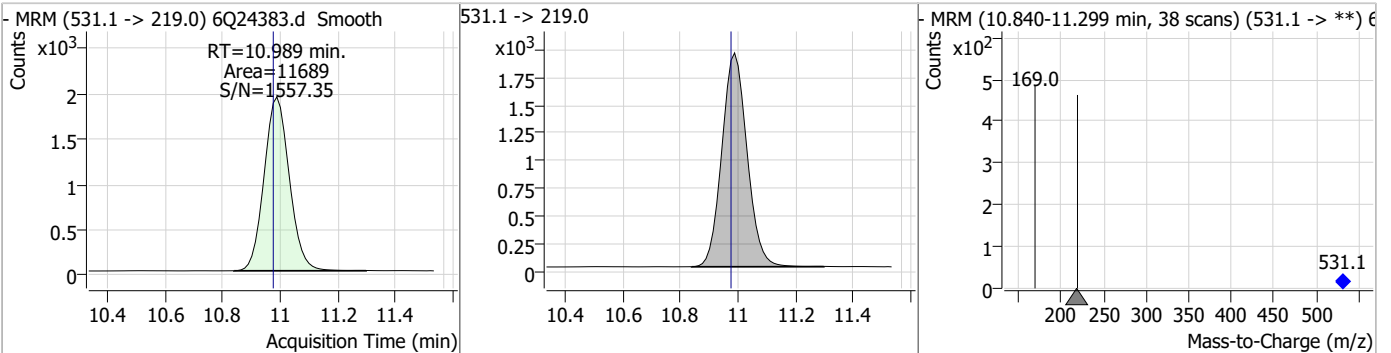
7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.06	10.92	0.01	158660				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.52	10.99	0.01	11689				



7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24394.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 4:46:50 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	199225	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	33355	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	77463	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	60439	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	87077	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	34255	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	32887	1.25 µg/L	0.000
M7-PFUnDA	8.676	570.0 -> 525.1	43428	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	42430	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	15409	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	29837	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	24406	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	13876	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	12601	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2639	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3768	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3942	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	21675	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	41860	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	18466	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	112210	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	153959	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	12342	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	11975	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17681	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	78299	5.00 µg/L	0.012
18O2-PFHxS	7.325	403.0 -> 83.9	9804	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	90678	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	30286	1.25 µg/L	0.000
13C5-PFNA	7.742	468.0 -> 423.0	40167	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	56540	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2639	4.78 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3768	4.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3942	4.70 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C2-PFDoDA	9.093	615.1 -> 570.0	42430	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-PFTeDA	9.796	715.2 -> 670.0	15409	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C3-PFBS	5.584	302.1 -> 79.9	24406	2.69 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C3-PFHxS	7.326	402.1 -> 79.9	13876	2.58 µg/L	0.012

7.24
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C4-PFBA	2.997	216.8 -> 171.9	199225	10.08 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C4-PFHpA	6.581	367.1 -> 322.0	60439	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFHxA	5.654	318.0 -> 273.0	77463	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFPeA	4.434	268.3 -> 223.0	33355	4.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.5%	
13C6-PFDA	8.210	519.1 -> 474.1	32887	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C7-PFUnDA	8.676	570.0 -> 525.1	43428	1.23 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-FOSA	9.670	506.1 -> 77.8	29837	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C8-PFOA	7.211	421.1 -> 376.0	87077	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOS	8.373	507.1 -> 79.9	12601	2.26 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C9-PFNA	7.729	472.1 -> 427.0	34255	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%	
d3-MeFOSAA	8.268	573.2 -> 419.0	21675	4.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.7%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	41860	9.72 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSA	10.757	515.0 -> 219.0	11975	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
d5-EtFOSAA	8.464	589.2 -> 419.0	18466	3.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 77.7%	
d7-MeFOSE	10.678	623.2 -> 58.9	112210	24.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	153959	24.61 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	12342	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%	

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	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.480	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



7.2.4
7

Perfluorinated Compounds by LC/MS/MS

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

7.2.4
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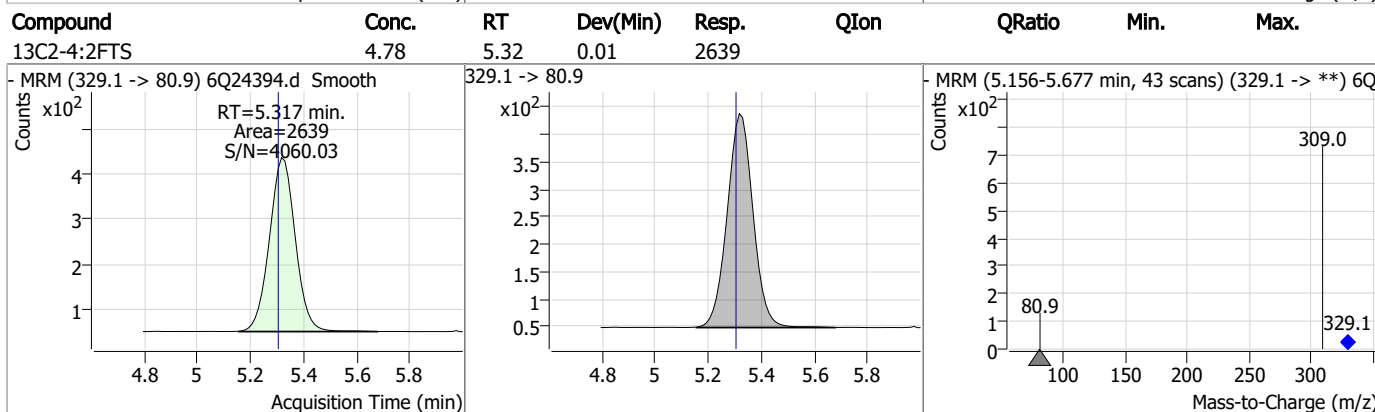
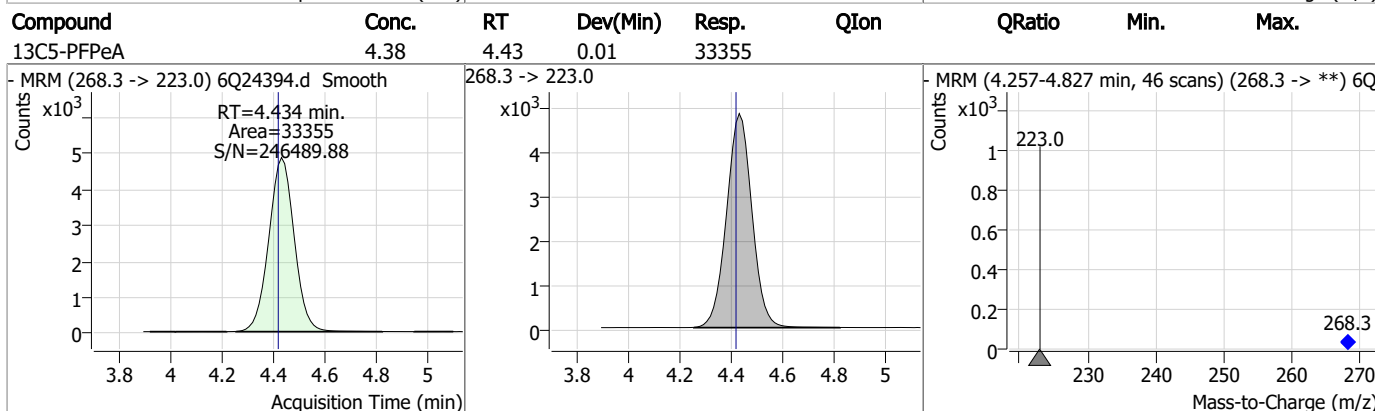
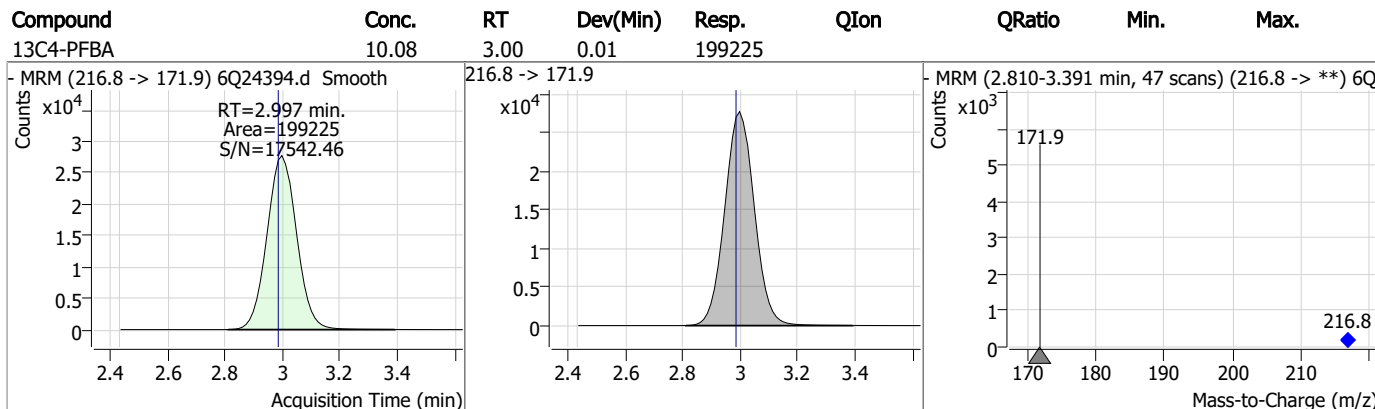
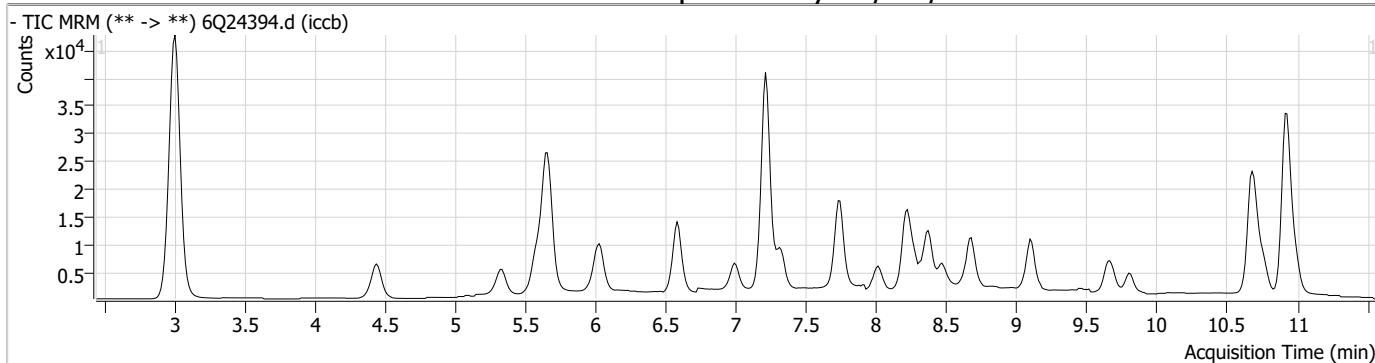
Perfluorinated Compounds by LC/MS/MS

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

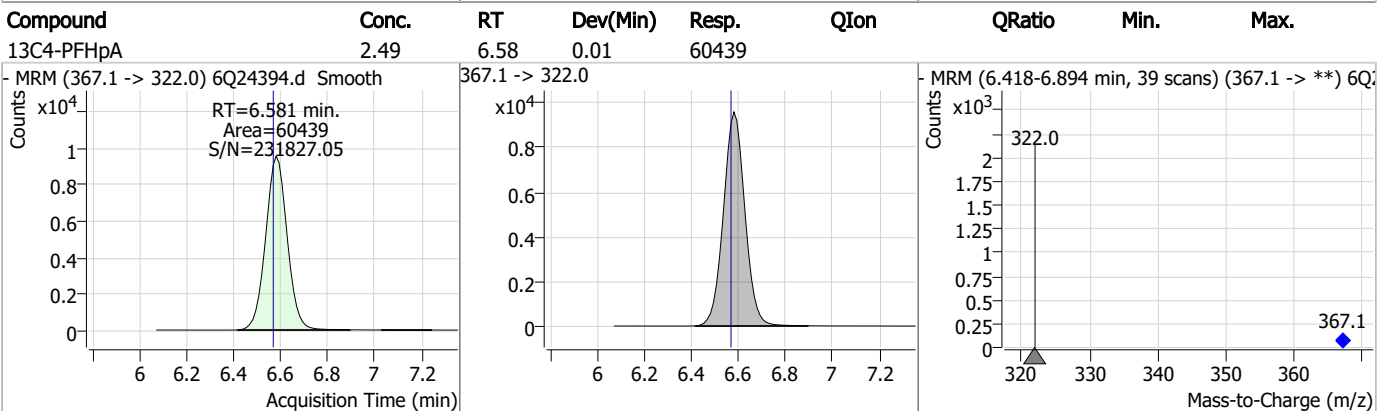
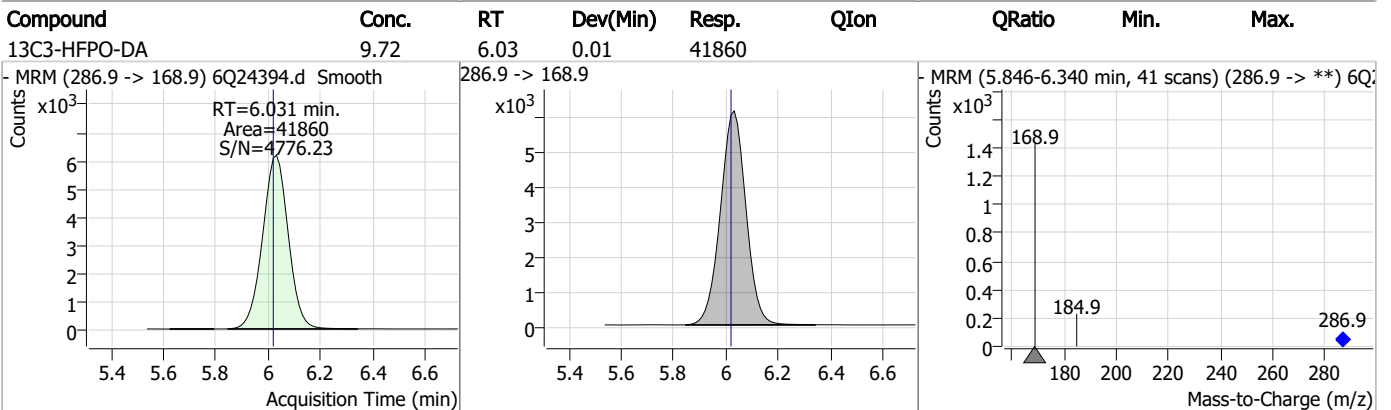
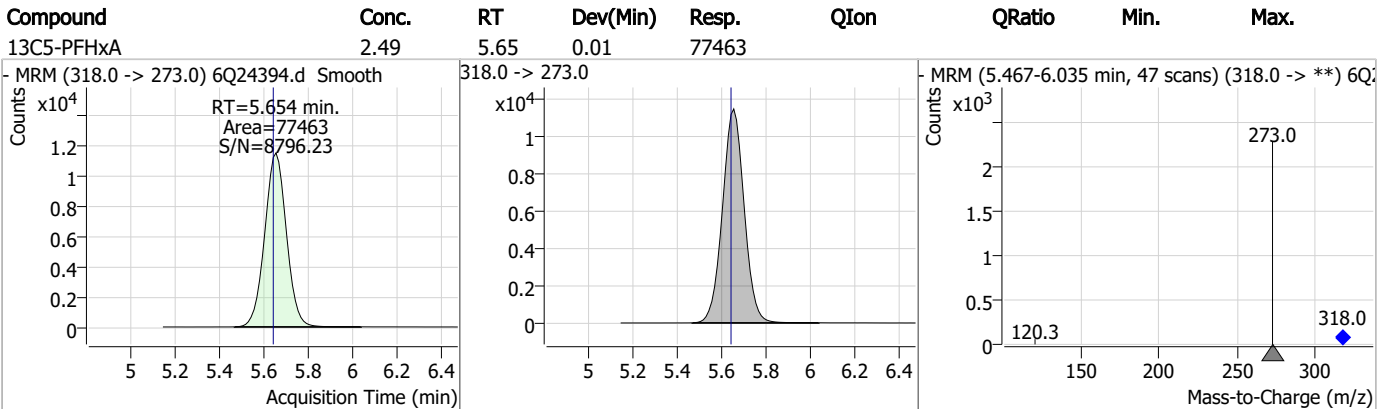
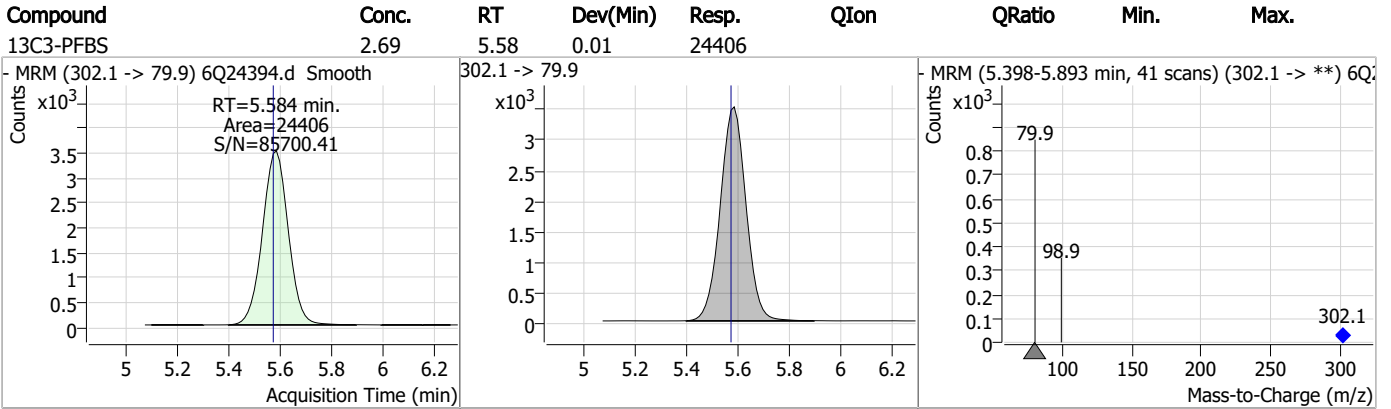
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Perfluorinated Compounds by LC/MS/MS

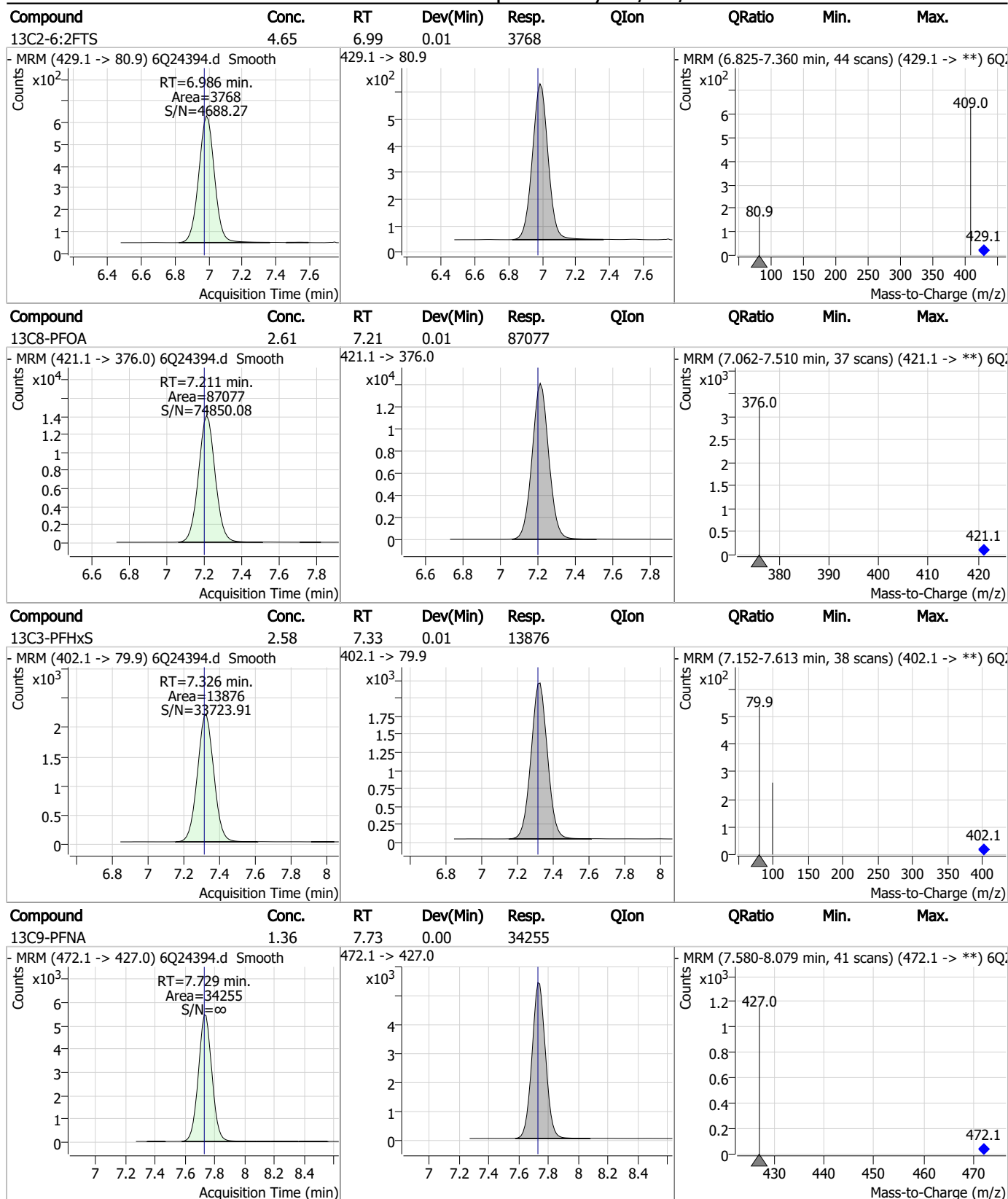


7.2.4
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Perfluorinated Compounds by LC/MS/MS

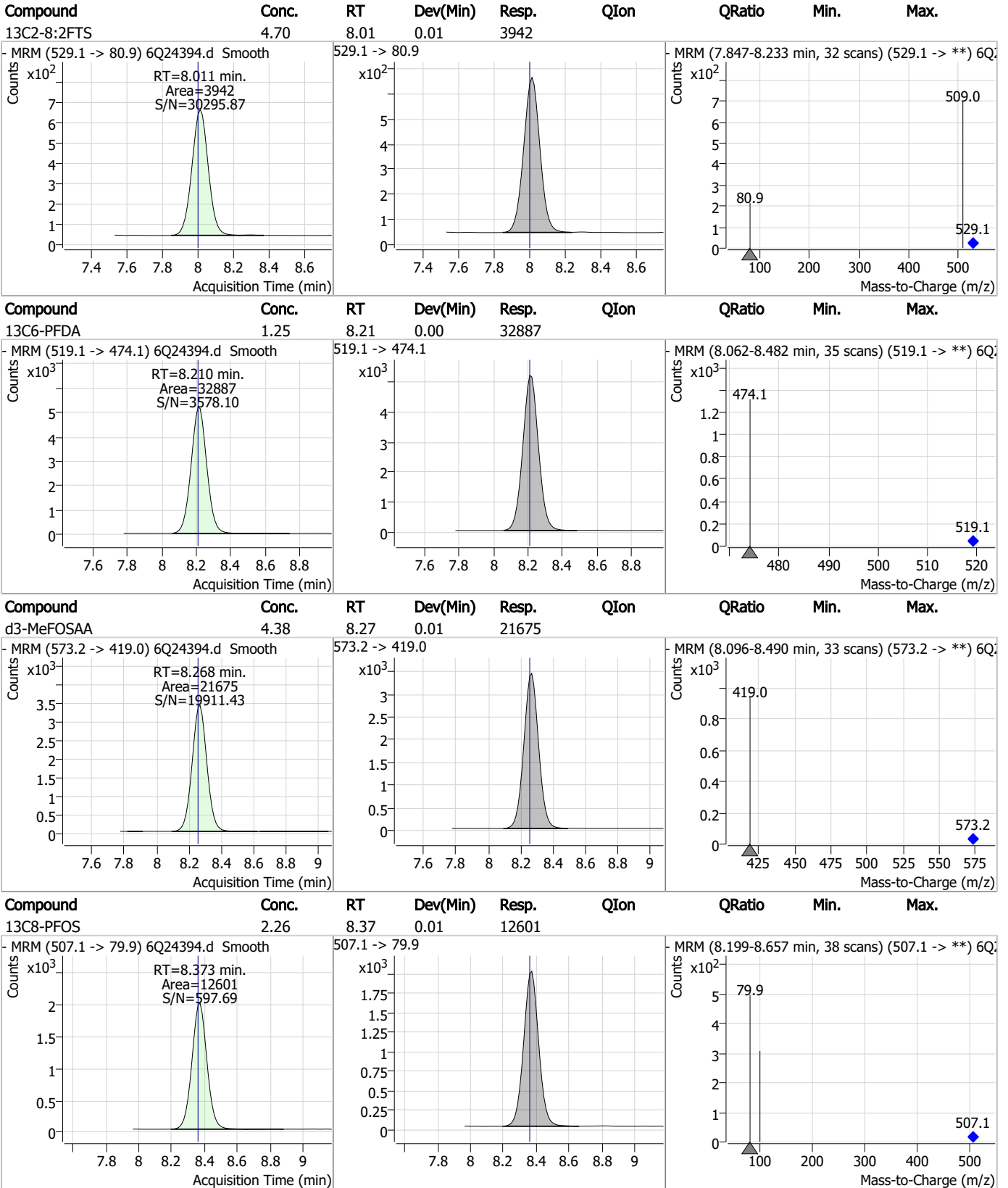


Perfluorinated Compounds by LC/MS/MS



7.2.4
7

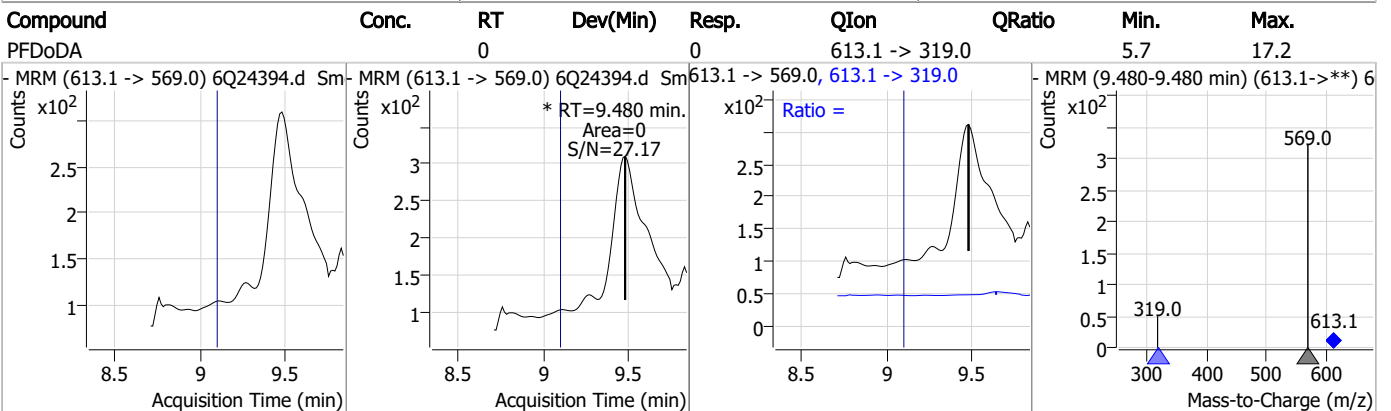
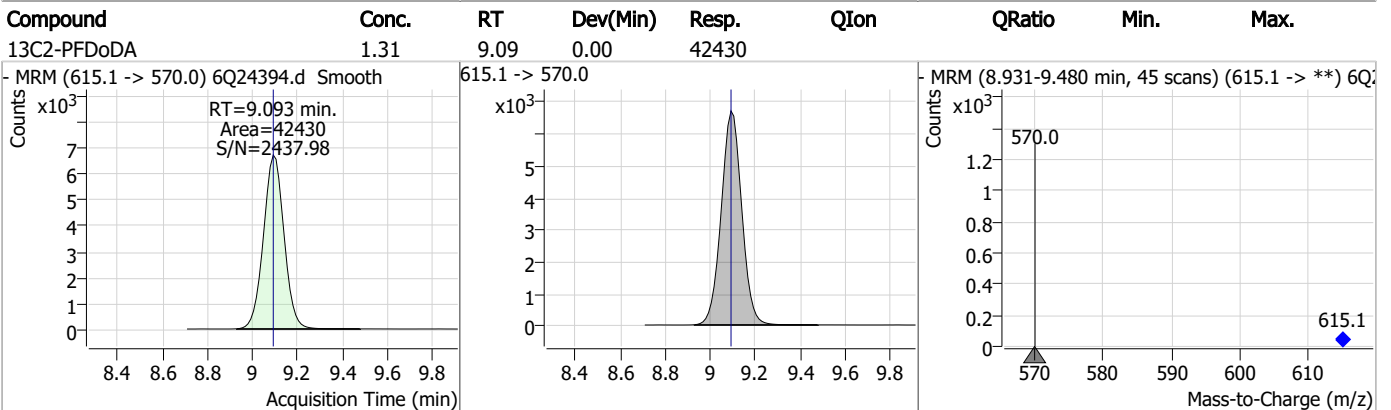
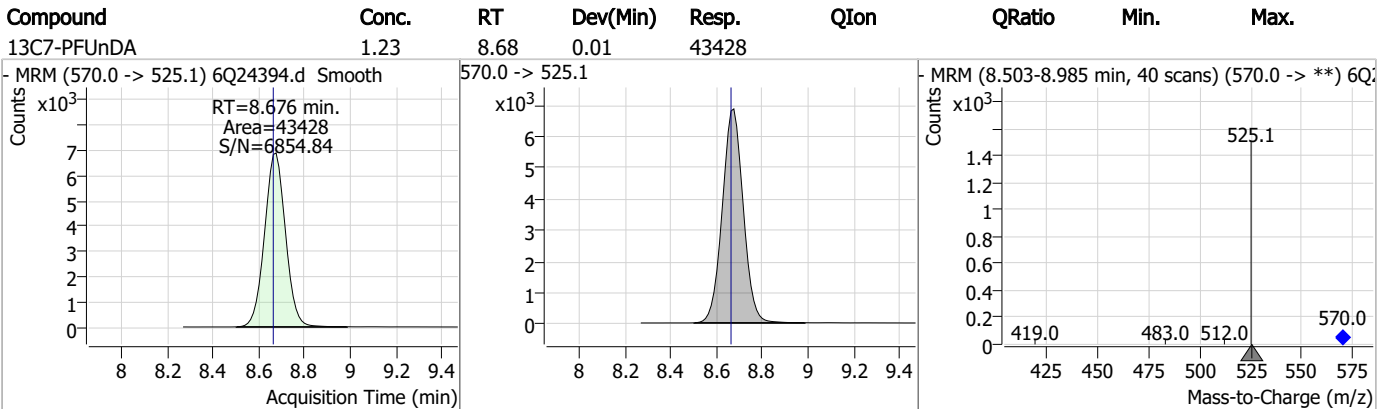
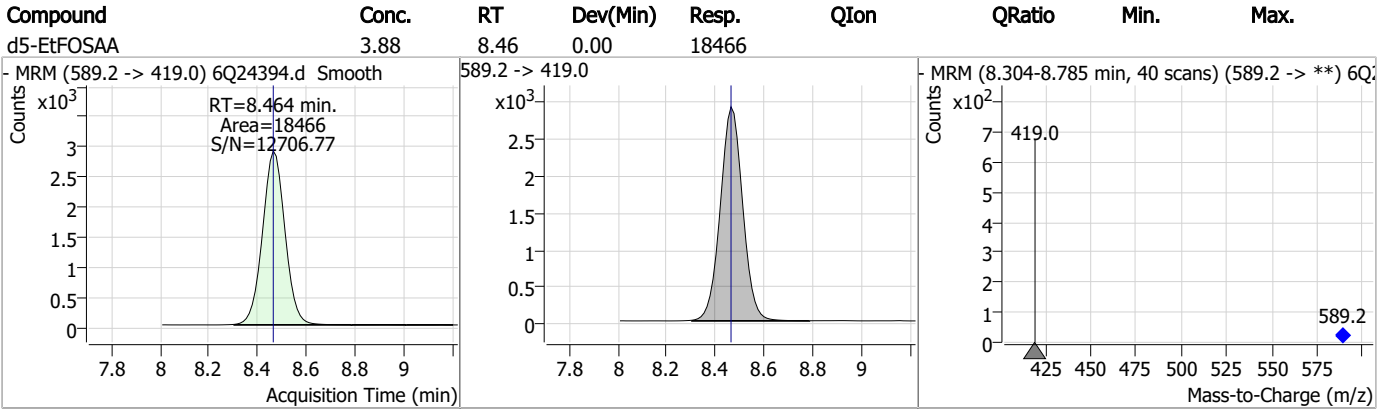
Perfluorinated Compounds by LC/MS/MS



7.2.4

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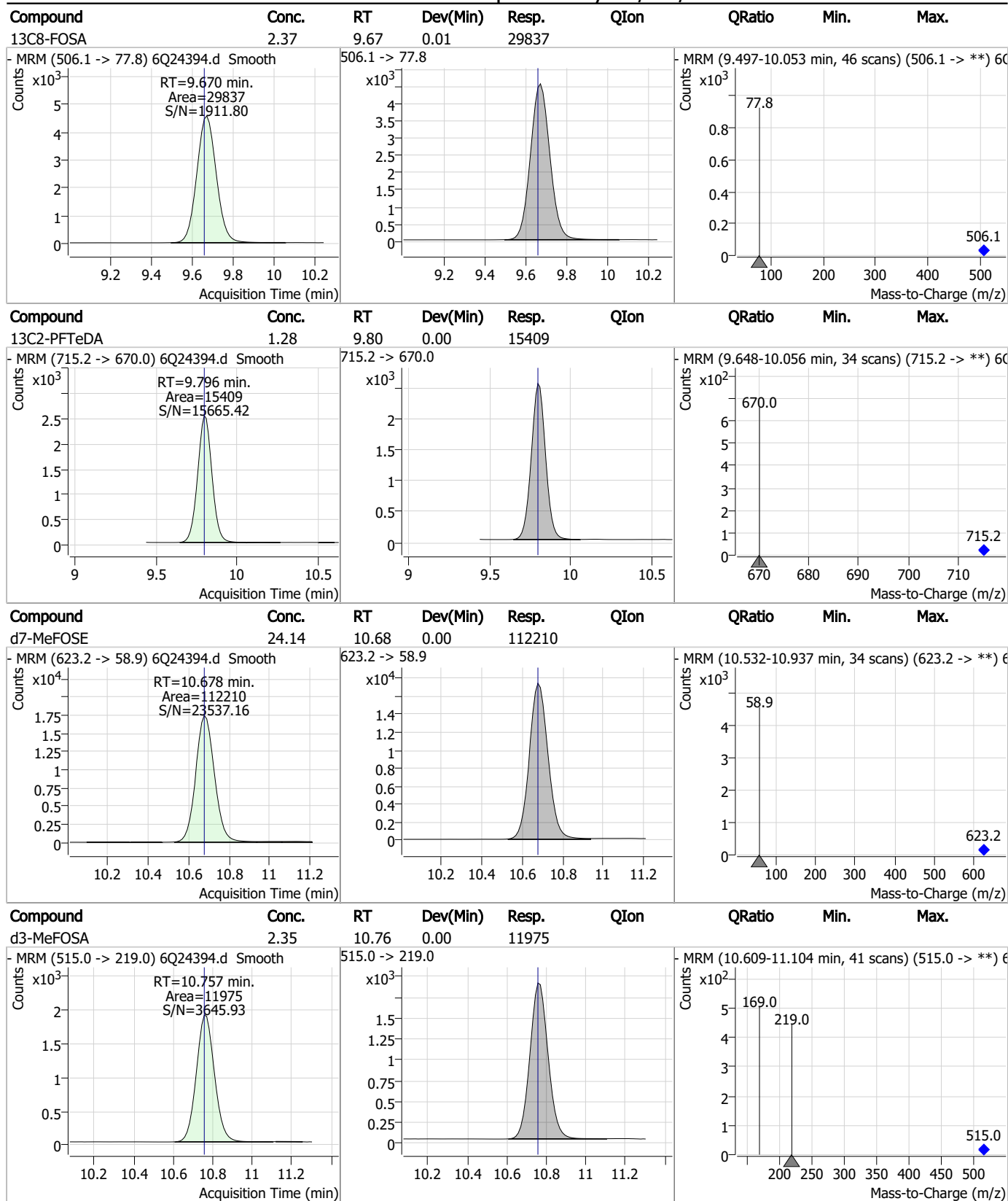
Perfluorinated Compounds by LC/MS/MS



7.2.4

7

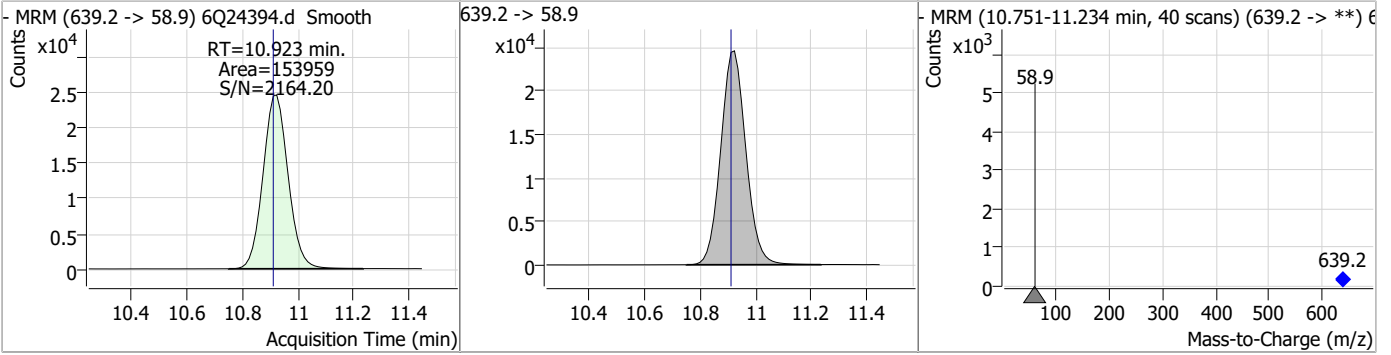
Perfluorinated Compounds by LC/MS/MS



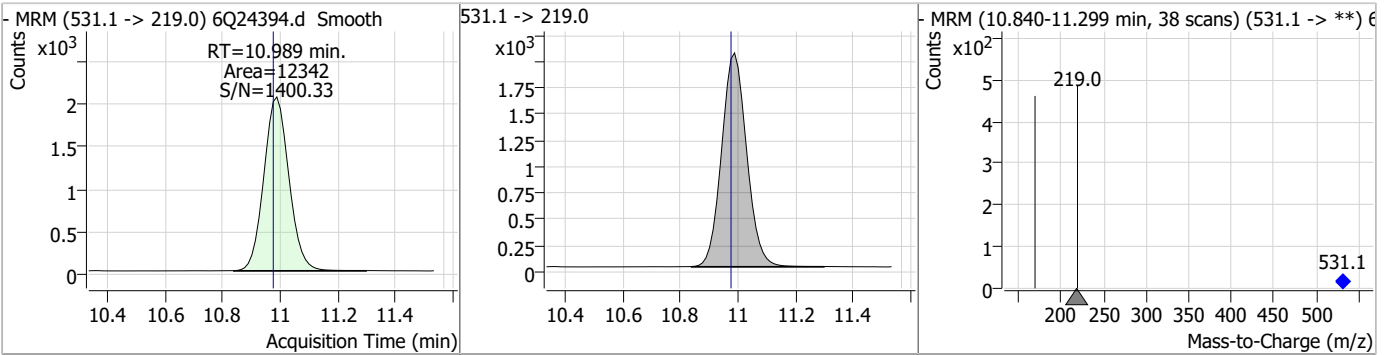
7.2.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.61	10.92	0.01	153959				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.59	10.99	0.01	12342				



7.2.4

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24401.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 6:27:03 AM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	199528	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	33497	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	74996	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	60578	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	77494	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	33116	1.25 µg/L	0.012
M6-PFDA	8.210	519.1 -> 474.1	31639	1.25 µg/L	0.000
M7-PFUnDA	8.676	570.0 -> 525.1	42907	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	41493	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14728	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	29811	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	24018	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	13545	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	13722	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2833	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	4052	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	4034	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	22571	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	42850	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	21083	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	113382	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	150954	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	11358	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	12426	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	15655	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	77715	5.00 µg/L	0.012
18O2-PFHxS	7.325	403.0 -> 83.9	9813	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	89743	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	30085	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	39951	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	58269	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2833	5.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C2-6:2FTS	6.986	429.1 -> 80.9	4052	5.00 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C2-8:2FTS	8.011	529.1 -> 80.9	4034	4.81 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-PFDoDA	9.093	615.1 -> 570.0	41493	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14728	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.584	302.1 -> 79.9	24018	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C3-PFHxS	7.326	402.1 -> 79.9	13545	2.51 µg/L	0.012

7.2.5
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFBA	2.997	216.8 -> 171.9	199528	10.17 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C4-PFHpA	6.581	367.1 -> 322.0	60578	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFHxA	5.654	318.0 -> 273.0	74996	2.33 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C5-PFPeA	4.434	268.3 -> 223.0	33497	4.27 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.3%	
13C6-PFDA	8.210	519.1 -> 474.1	31639	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C7-PFUnDA	8.676	570.0 -> 525.1	42907	1.22 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-FOSA	9.670	506.1 -> 77.8	29811	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C8-PFOA	7.211	421.1 -> 376.0	77494	2.35 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C8-PFOS	8.373	507.1 -> 79.9	13722	2.78 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C9-PFNA	7.741	472.1 -> 427.0	33116	1.33 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
d3-MeFOSAA	8.268	573.2 -> 419.0	22571	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	42850	9.65 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	12426	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.0%	
d5-EtFOSAA	8.464	589.2 -> 419.0	21083	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d7-MeFOSE	10.678	623.2 -> 58.9	113382	27.55 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.2%	
d9-EtFOSE	10.923	639.2 -> 58.9	150954	27.25 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d5-EtFOSA	10.989	531.1 -> 219.0	11358	2.70 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.9%	

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	9.493	613.1 -> 569.0	0	µg/L m	1
		613.1 -> 319.0	0		
PFDS	-	599.0 -> 79.9	-	N.D.	



7.25
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Perfluorinated Compounds by LC/MS/MS

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

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

7.2.5
7

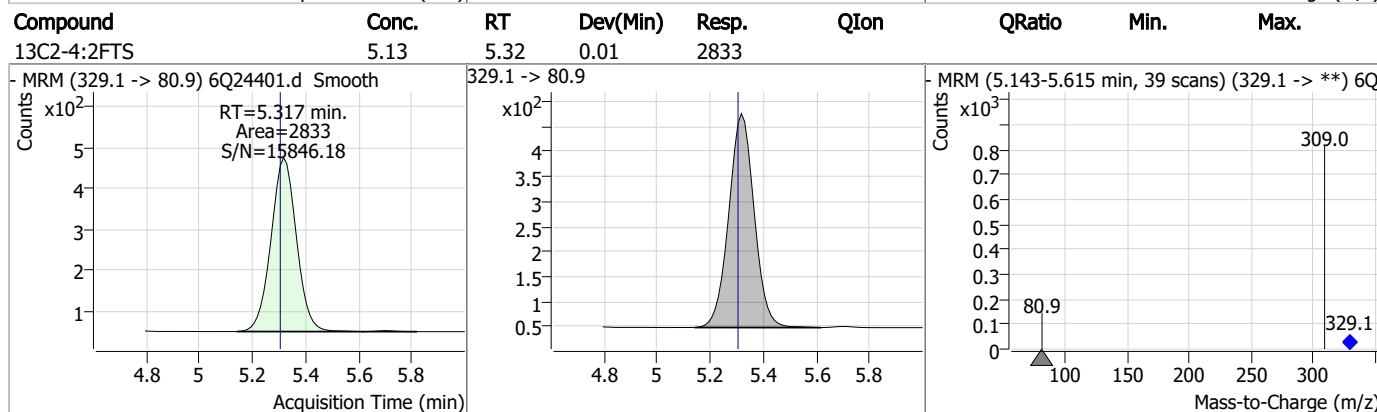
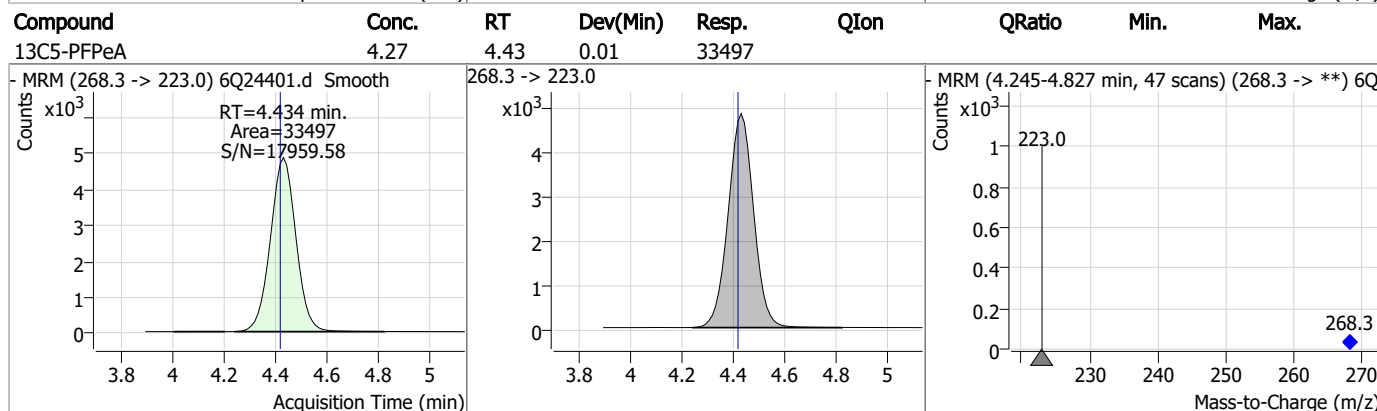
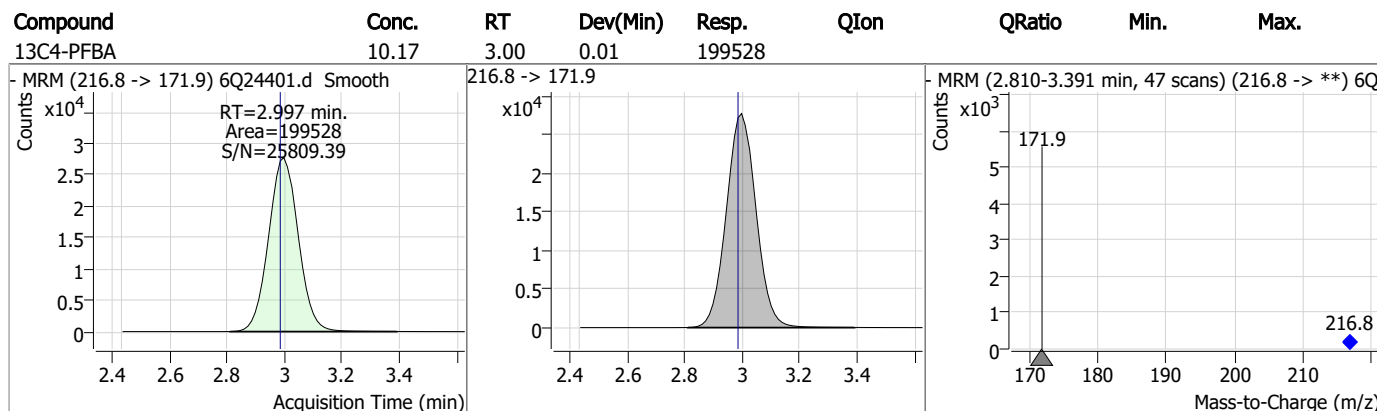
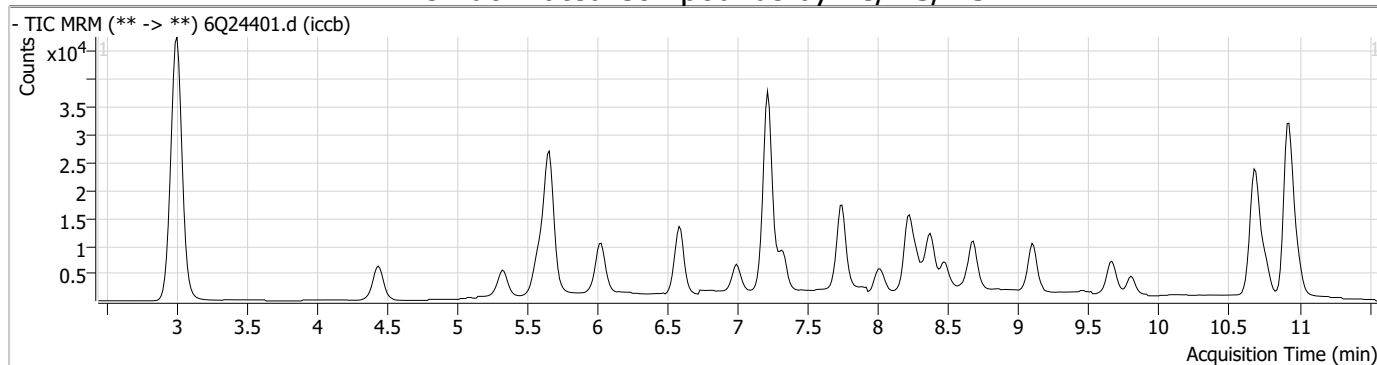
Perfluorinated Compounds by LC/MS/MS

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

7

Perfluorinated Compounds by LC/MS/MS



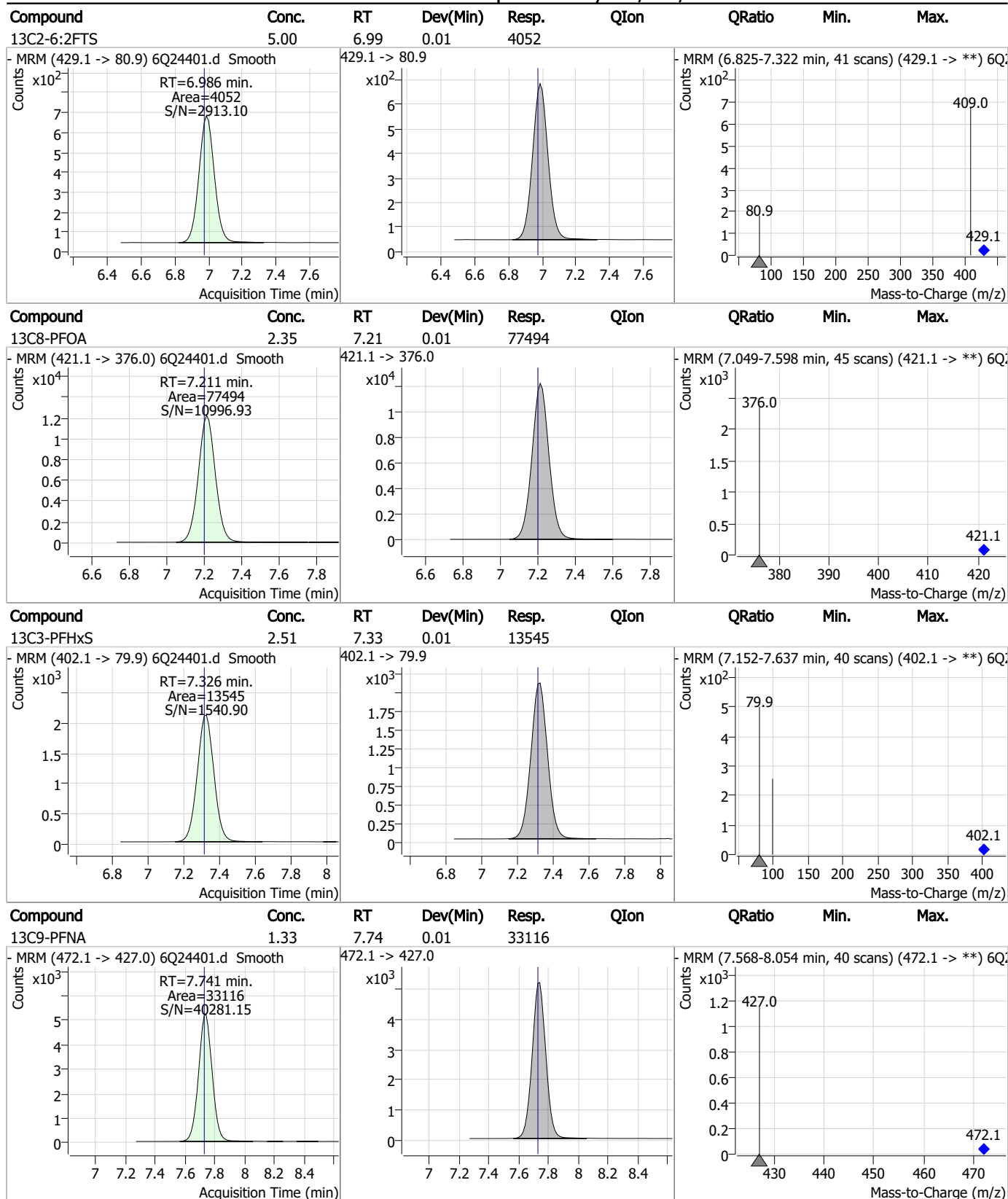
7.2.5
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.65	5.58	0.01	24018				
13C5-PFHxA	2.33	5.65	0.01	74996				
13C3-HFPO-DA	9.65	6.03	0.01	42850				
13C4-PFHpA	2.42	6.58	0.01	60578				

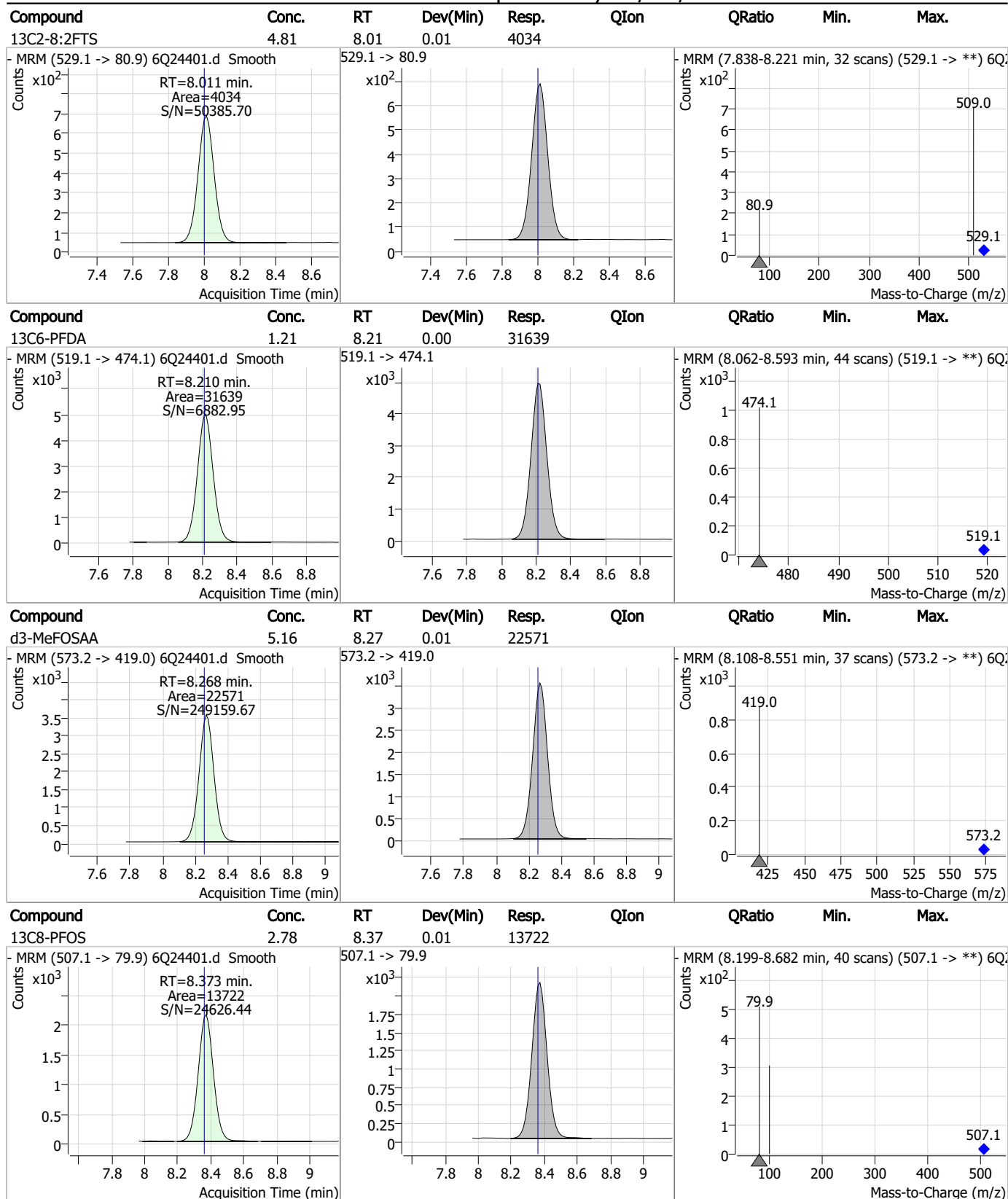
7.2.5
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Perfluorinated Compounds by LC/MS/MS



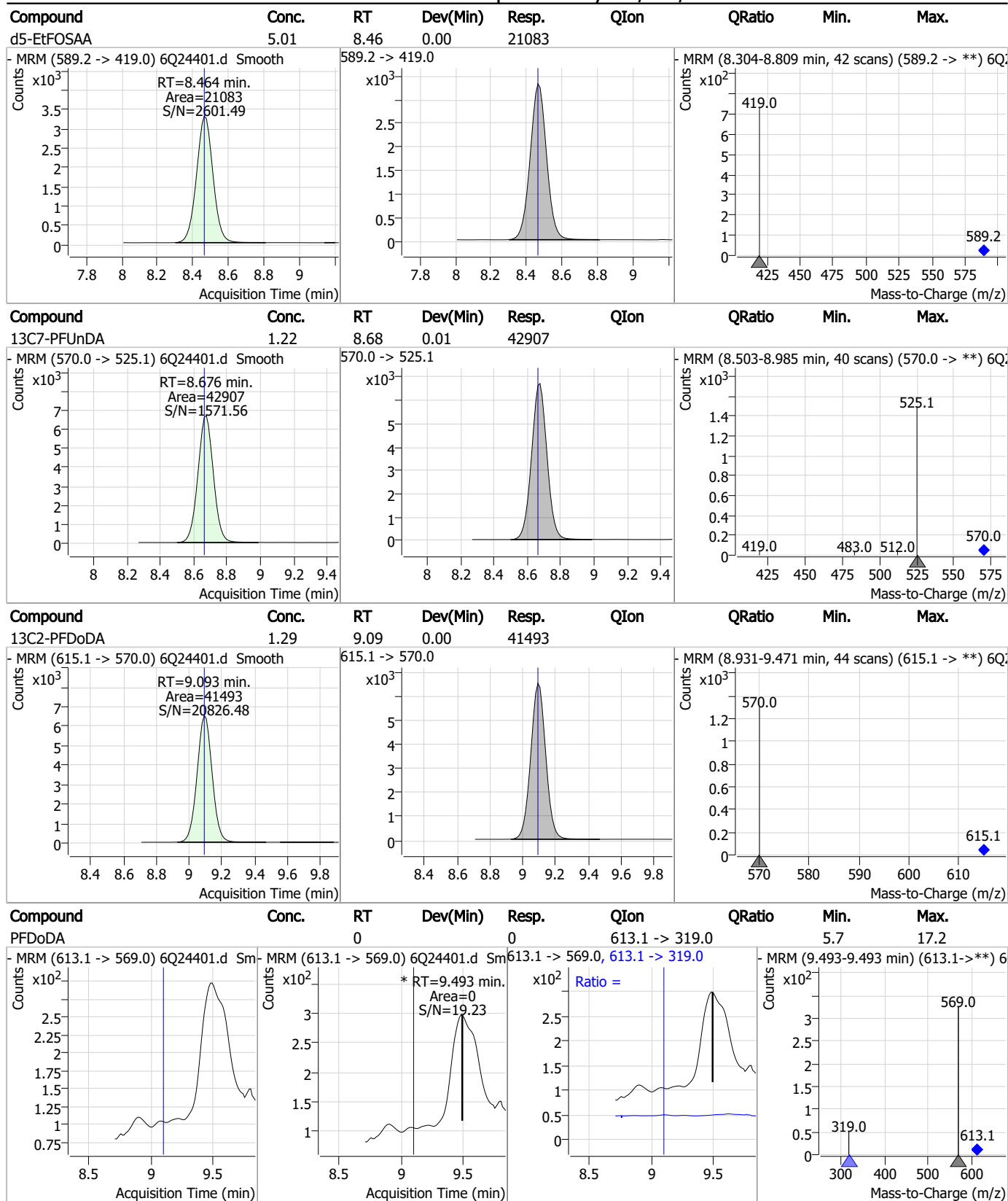
7.25
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Perfluorinated Compounds by LC/MS/MS



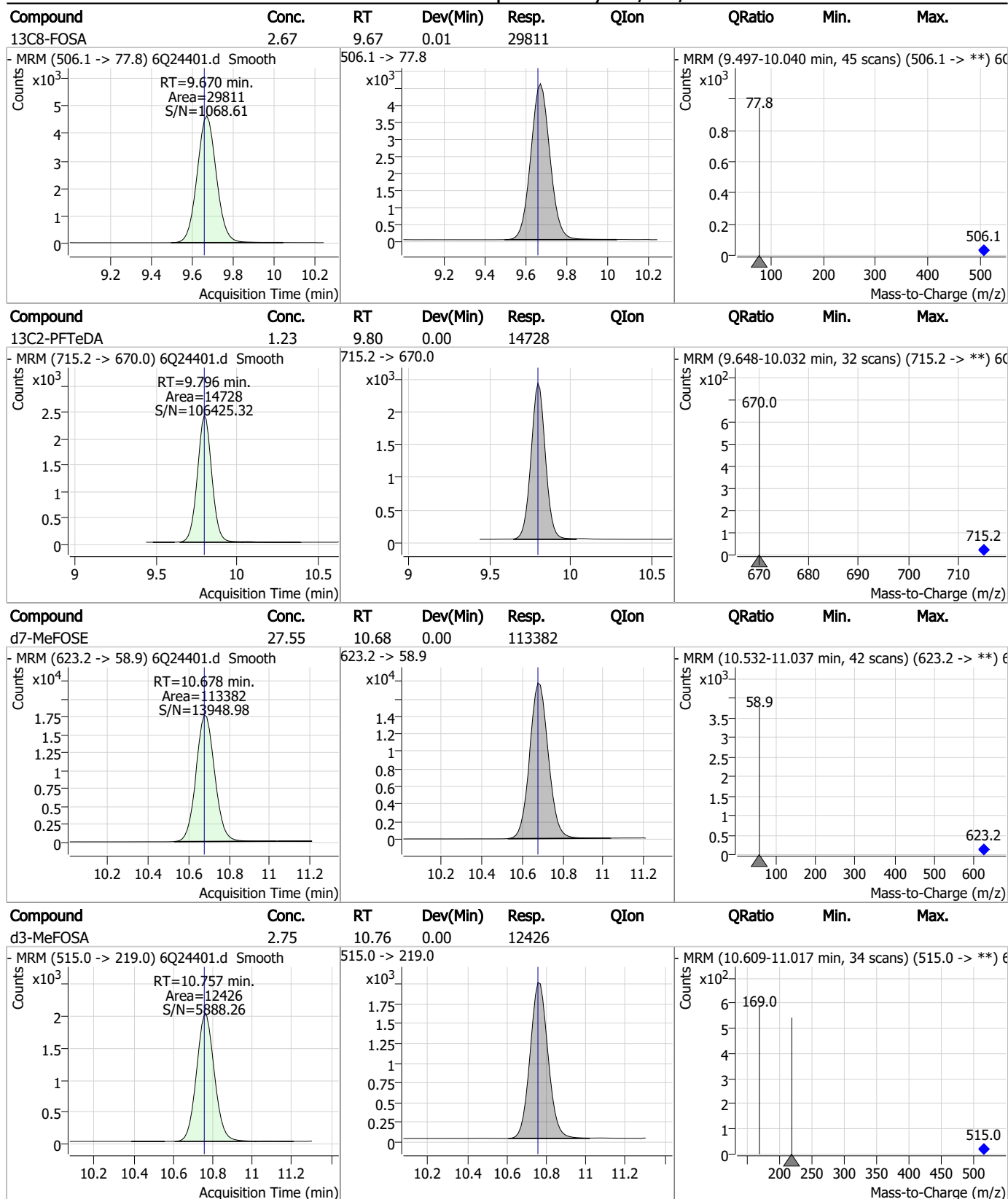
7.2.5
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Perfluorinated Compounds by LC/MS/MS



7.25
7

Perfluorinated Compounds by LC/MS/MS

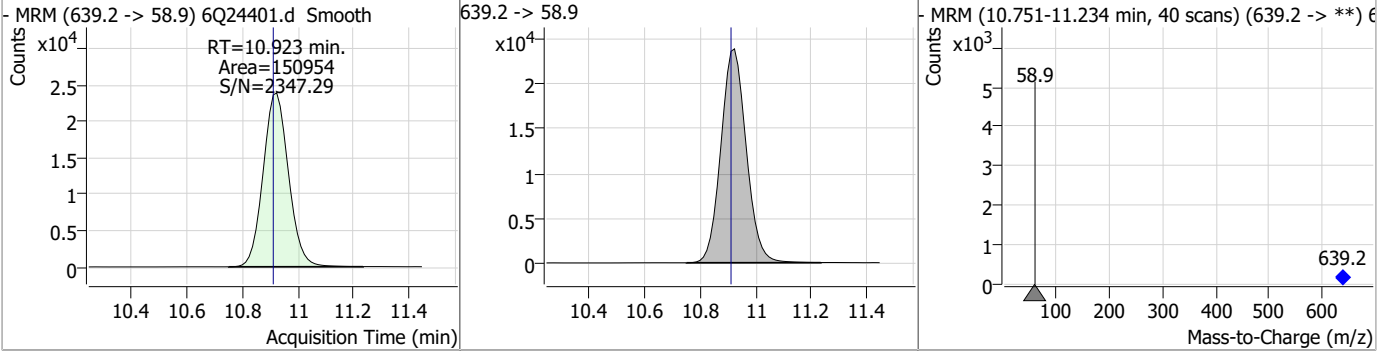


7.2.5
7

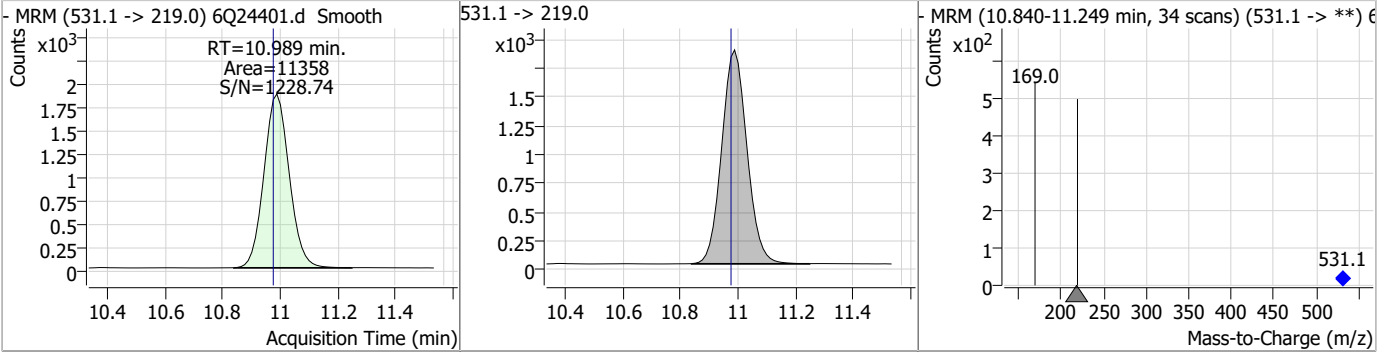


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.25	10.92	0.01	150954				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.70	10.99	0.01	11358				



7.2.5

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24384.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 2:23:37 AM
 Sample Name : OP98930-BS
 Vial : P3-E1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	185442	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	30579	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	64824	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	56916	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	73087	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	28589	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	29821	1.25 µg/L	0.000
M7-PFUnDA	8.676	570.0 -> 525.1	39437	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	31477	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	11938	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	19153	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	23040	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	12552	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	11998	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2443	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3152	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3608	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	19603	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	37447	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	16057	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	67560	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	107037	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7157	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	7103	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	16258	2.50 µg/L	0.012
13C3-PFBA	3.014	216.0 -> 172.0	74111	5.00 µg/L	0.025
18O2-PFHxS	7.325	403.0 -> 83.9	8874	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	82205	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	27286	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	36371	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	50530	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2443	4.89 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3152	4.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.0%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3608	4.75 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFDoDA	9.093	615.1 -> 570.0	31477	1.08 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.0%		
13C2-PFTeDA	9.796	715.2 -> 670.0	11938	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.8%		
13C3-PFBS	5.584	302.1 -> 79.9	23040	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.3%		
13C3-PFHxS	7.326	402.1 -> 79.9	12552	2.57 µg/L	0.012

7.31
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C4-PFBA	3.025	216.8 -> 171.9	185442	9.91 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C4-PFHpA	6.581	367.1 -> 322.0	56916	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C5-PFHxA	5.654	318.0 -> 273.0	64824	2.33 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C5-PFPeA	4.447	268.3 -> 223.0	30579	4.49 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.8%		
13C6-PFDA	8.210	519.1 -> 474.1	29821	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C7-PFUnDA	8.676	570.0 -> 525.1	39437	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C8-FOSA	9.670	506.1 -> 77.8	19153	1.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 66.2%		
13C8-PFOA	7.211	421.1 -> 376.0	73087	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C8-PFOS	8.373	507.1 -> 79.9	11998	2.34 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C9-PFNA	7.729	472.1 -> 427.0	28589	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
d3-MeFOSAA	8.268	573.2 -> 419.0	19603	4.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.2%		
13C3-HFPO-DA	6.031	286.9 -> 168.9	37447	9.73 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
d3-MeFOSA	10.757	515.0 -> 219.0	7103	1.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 60.6%		
d5-EtFOSAA	8.464	589.2 -> 419.0	16057	3.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 73.4%		
d7-MeFOSE	10.678	623.2 -> 58.9	67560	15.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 63.2%		
d9-EtFOSE	10.923	639.2 -> 58.9	107037	18.61 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 74.4%		
d5-EtFOSA	10.989	531.1 -> 219.0	7157	1.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 65.4%		
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	37687	9.33 µg/L	98
		327.1 -> 80.9	13531		
6:2FTS	6.987	427.1 -> 407.0	30365	10.89 µg/L	97
		427.1 -> 80.9	11465		
8:2FTS	8.012	527.1 -> 507.0	23562	9.68 µg/L	96
		527.1 -> 80.8	8676		
EtFOSAA	8.477	584.2 -> 419.1	6284	2.77 µg/L	97
		584.2 -> 526.0	3973		
FOSA	9.672	498.1 -> 77.9	18102	2.57 µg/L	99
		498.1 -> 478.0	468		
MeFOSAA	8.269	570.1 -> 419.0	11064	2.38 µg/L	96
		570.1 -> 483.0	2465		
PFBA	3.018	212.8 -> 168.9	64487	10.52 µg/L	100
PFBS	5.585	298.7 -> 79.9	22863	2.02 µg/L	100
		298.7 -> 98.8	8658		
PFDA	8.211	512.9 -> 469.0	66888	2.46 µg/L	100
		512.9 -> 219.0	10814		
PFDODA	9.094	613.1 -> 569.0	62867	2.69 µg/L	100
		613.1 -> 319.0	7262		
PFDS	9.245	599.0 -> 79.9	7769	2.22 µg/L	99

7.3.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3782			
PFHpA	6.582	363.1 -> 319.0	72203	2.40	µg/L	99
		363.1 -> 169.0	10324			
PFHpS	7.881	449.0 -> 79.9	13494	2.32	µg/L	98
		449.0 -> 98.9	6482			
PFHxA	5.657	313.0 -> 269.0	57818	2.45	µg/L	99
		313.0 -> 118.9	2696			
PFHxS	7.327	398.7 -> 79.9	18563	2.36	µg/L	m 96
		398.7 -> 98.9	8512			
PFNA	7.742	463.0 -> 419.0	50762	2.35	µg/L	95
		463.0 -> 219.0	12248			
PFNS	8.838	548.8 -> 79.9	13580	2.40	µg/L	94
		548.8 -> 98.9	6966			
PFOA	7.212	413.0 -> 369.0	89052	2.36	µg/L	96
		413.0 -> 169.0	14810			
PFOS	8.374	498.9 -> 79.9	15154	2.28	µg/L	m 95
		498.9 -> 98.8	6702			
PFPeA	4.449	263.0 -> 219.0	71785	5.27	µg/L	100
PFPeS	6.633	349.1 -> 79.9	15815	2.32	µg/L	95
		349.1 -> 98.9	6935			
PFTeDA	9.797	713.1 -> 669.0	41095	2.39	µg/L	100
		713.1 -> 168.9	3113			
PFTrDA	9.477	663.0 -> 619.0	63615	2.39	µg/L	99
		663.0 -> 168.9	5305			
PFUnDA	8.676	563.1 -> 519.0	52549	2.33	µg/L	98
		563.1 -> 269.1	8251			
11CI-PF3OUdS	9.516	630.9 -> 450.9	60698	4.44	µg/L	92
		632.9 -> 452.9	19959			
9CI-PF3ONS	8.703	530.8 -> 351.0	112746	4.81	µg/L	98
		532.8 -> 353.0	33076			
ADONA	6.829	376.9 -> 250.9	284839	5.25	µg/L	94
		376.9 -> 84.8	69389			
HFPO-DA	6.032	284.9 -> 168.9	18677	5.27	µg/L	97
		284.9 -> 184.9	2611			
3:3FTCA	3.902	241.0 -> 177.0	8501	8.02	µg/L	99
		241.0 -> 117.0	823			
5:3FTCA	6.296	341.0 -> 237.1	235229	58.68	µg/L	95
		341.0 -> 217.0	156483			
7:3FTCA	7.682	441.0 -> 316.9	163349	68.95	µg/L	87
		441.0 -> 336.9	336490			
EtFOSA	10.990	526.0 -> 219.0	19236	4.94	µg/L	98
		526.0 -> 169.0	24892			
EtFOSE	10.937	630.0 -> 58.9	61899	12.17	µg/L	100
MeFOSA	10.771	511.9 -> 219.0	16360	5.43	µg/L	m 98
		511.9 -> 169.0	21722			
MeFOSE	10.691	616.1 -> 58.9	36110	12.36	µg/L	100
PFDoS	9.923	699.1 -> 79.9	4011	2.09	µg/L	100
		699.1 -> 98.8	2252			
NFDHA	5.535	295.0 -> 201.0	14722	5.38	µg/L	98
		295.0 -> 84.9	3564			
PFMBA	4.863	279.0 -> 85.1	54088	5.45	µg/L	100
PFMPA	3.575	229.0 -> 84.9	39508	5.55	µg/L	100
PFEESA	6.124	314.8 -> 134.9	139596	4.73	µg/L	99
		314.8 -> 82.9	4756			

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

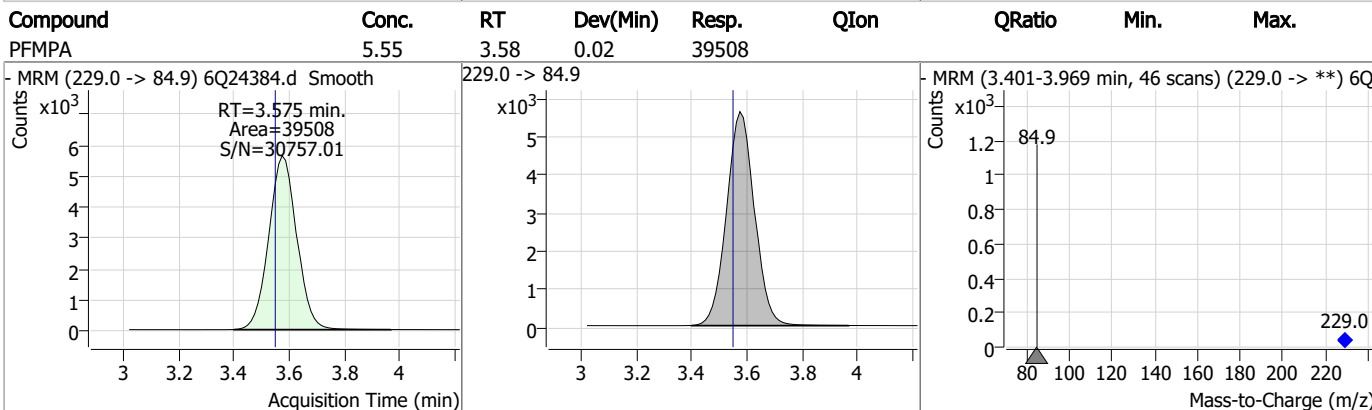
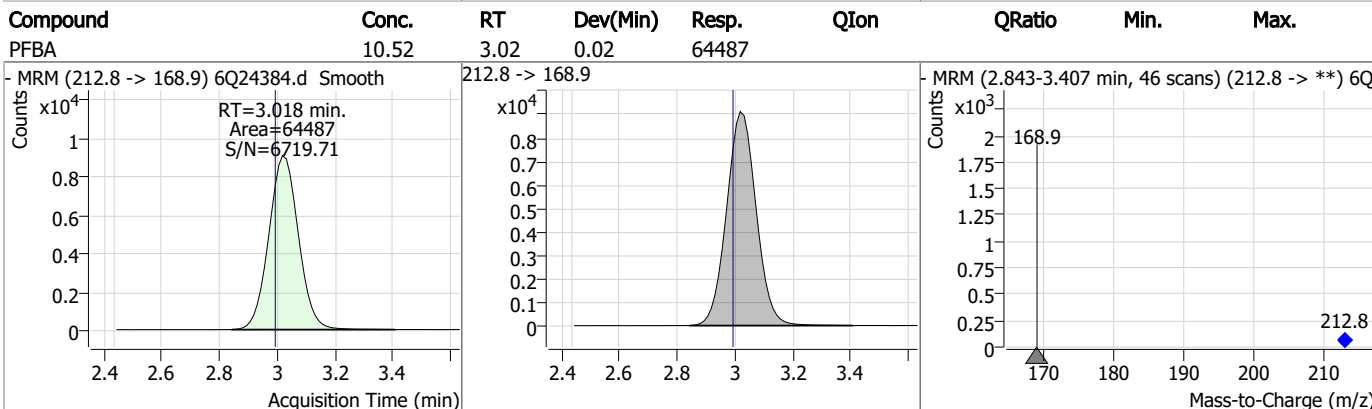
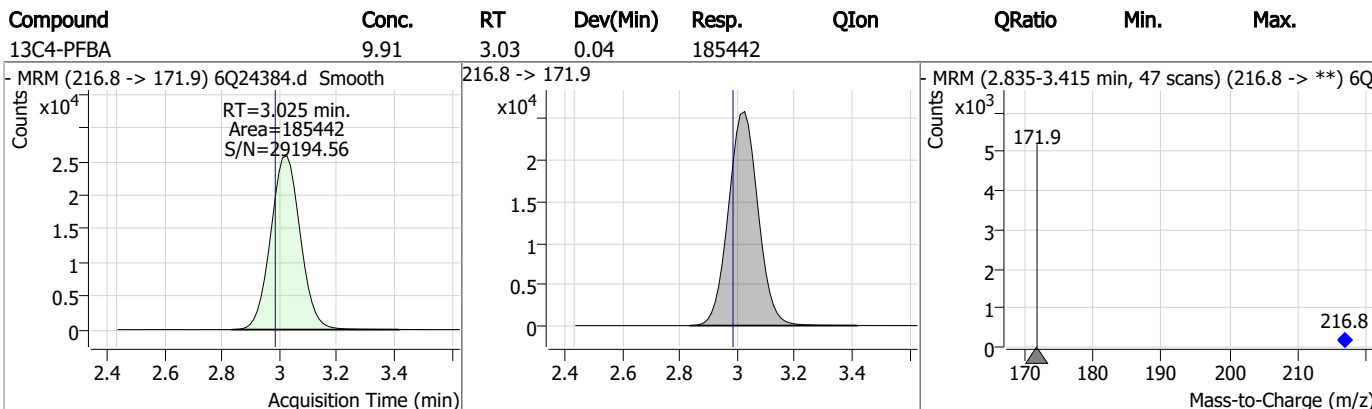
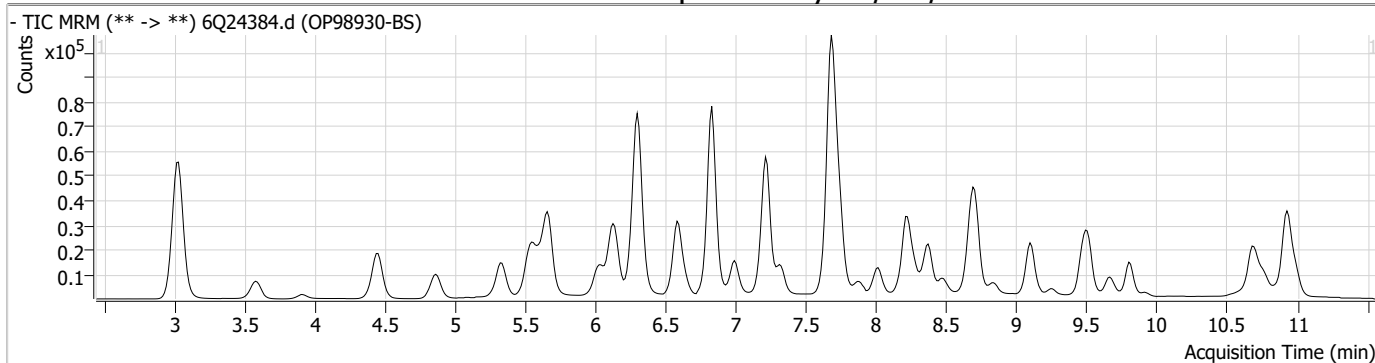
Perfluorinated Compounds by LC/MS/MS

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

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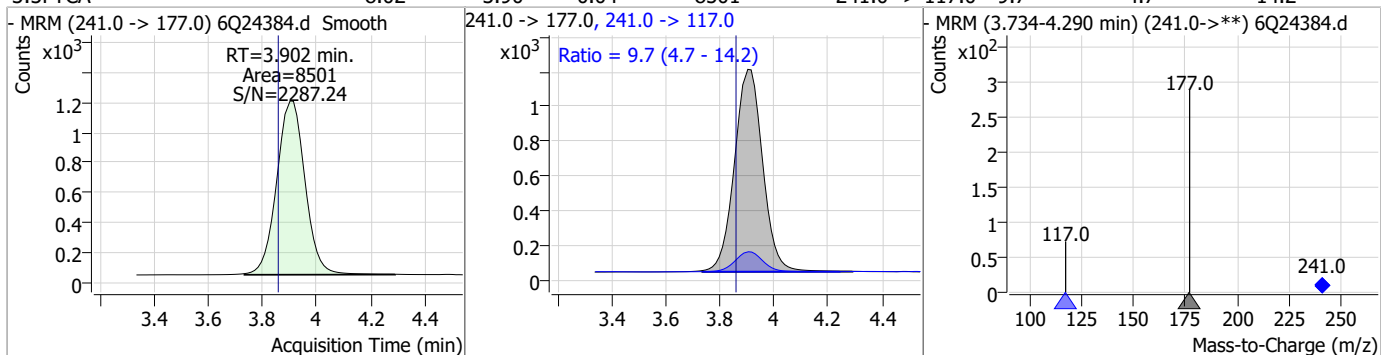
Perfluorinated Compounds by LC/MS/MS



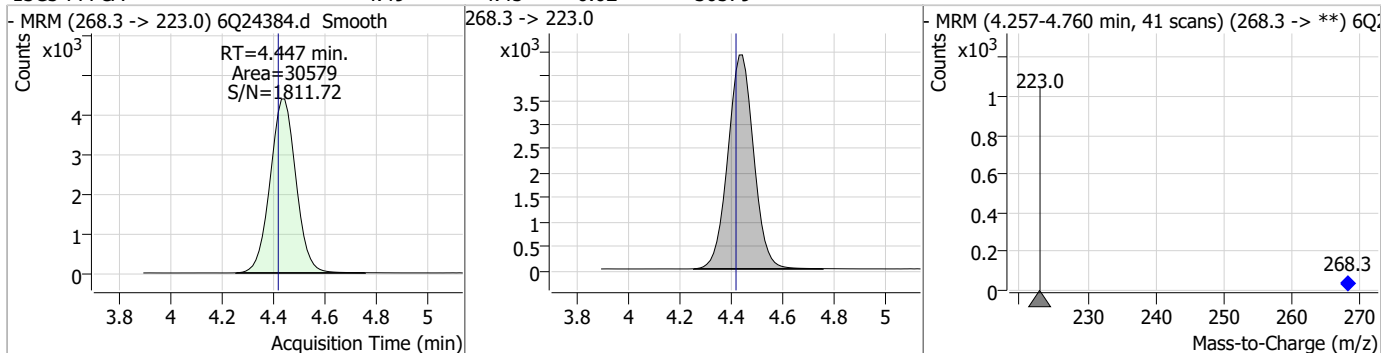
7.3.1
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Perfluorinated Compounds by LC/MS/MS

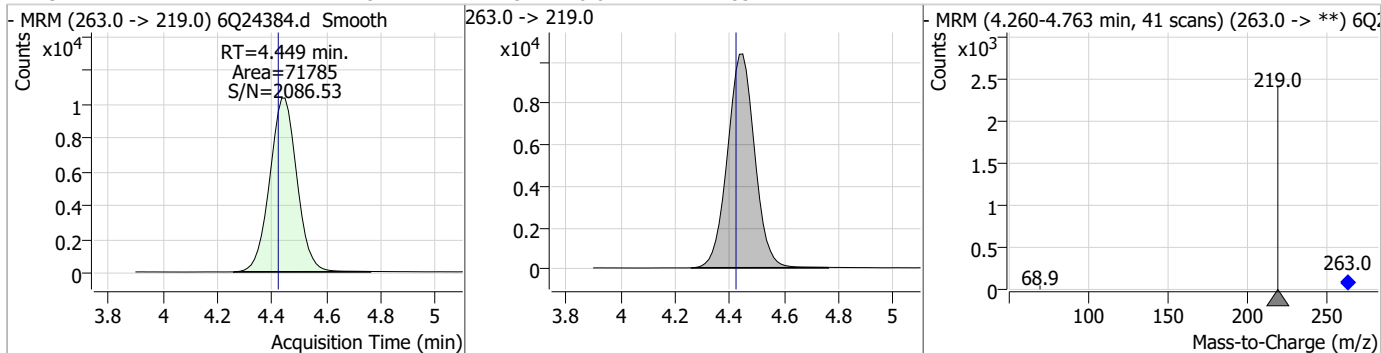
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	8.02	3.90	0.04	8501	241.0 -> 117.0	9.7	4.7	14.2



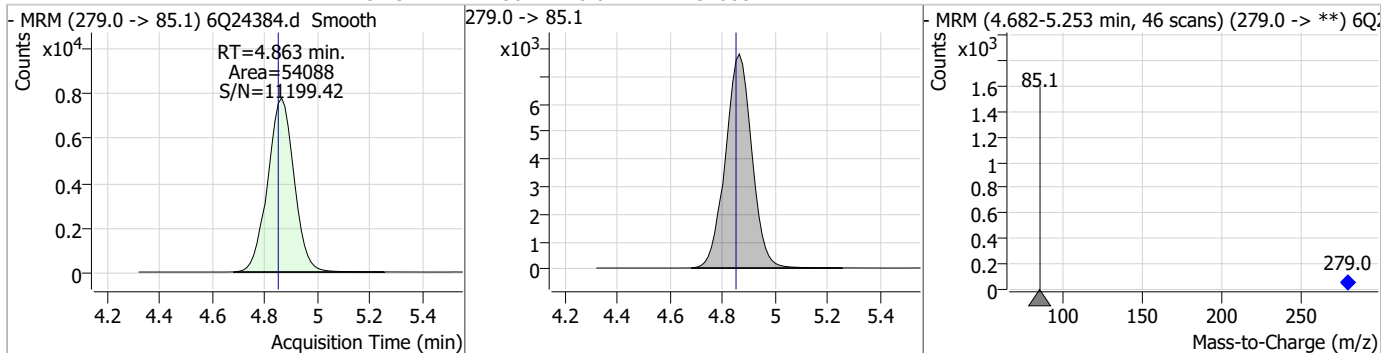
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.49	4.45	0.02	30579				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.27	4.45	0.02	71785				

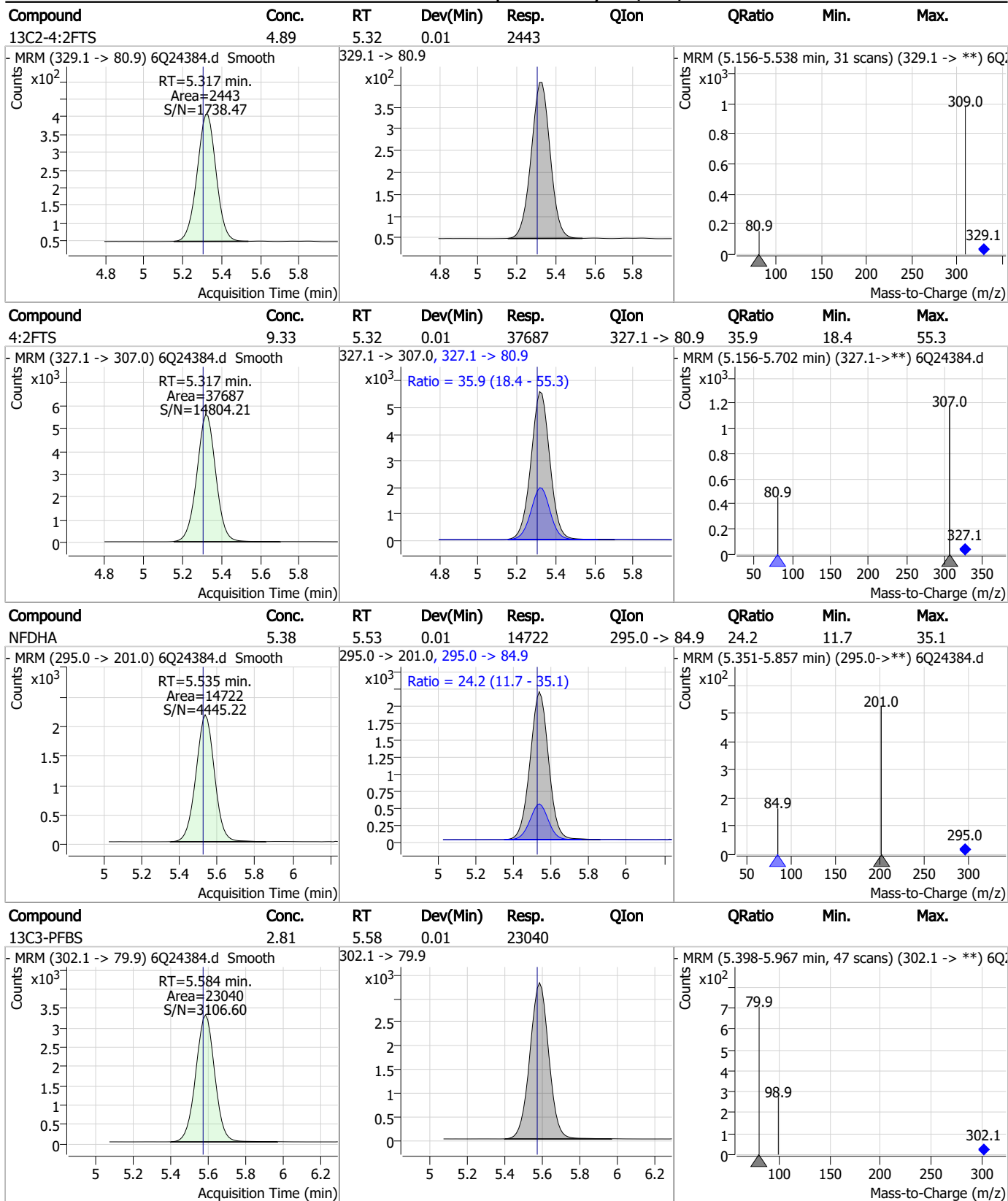


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.45	4.86	0.01	54088				



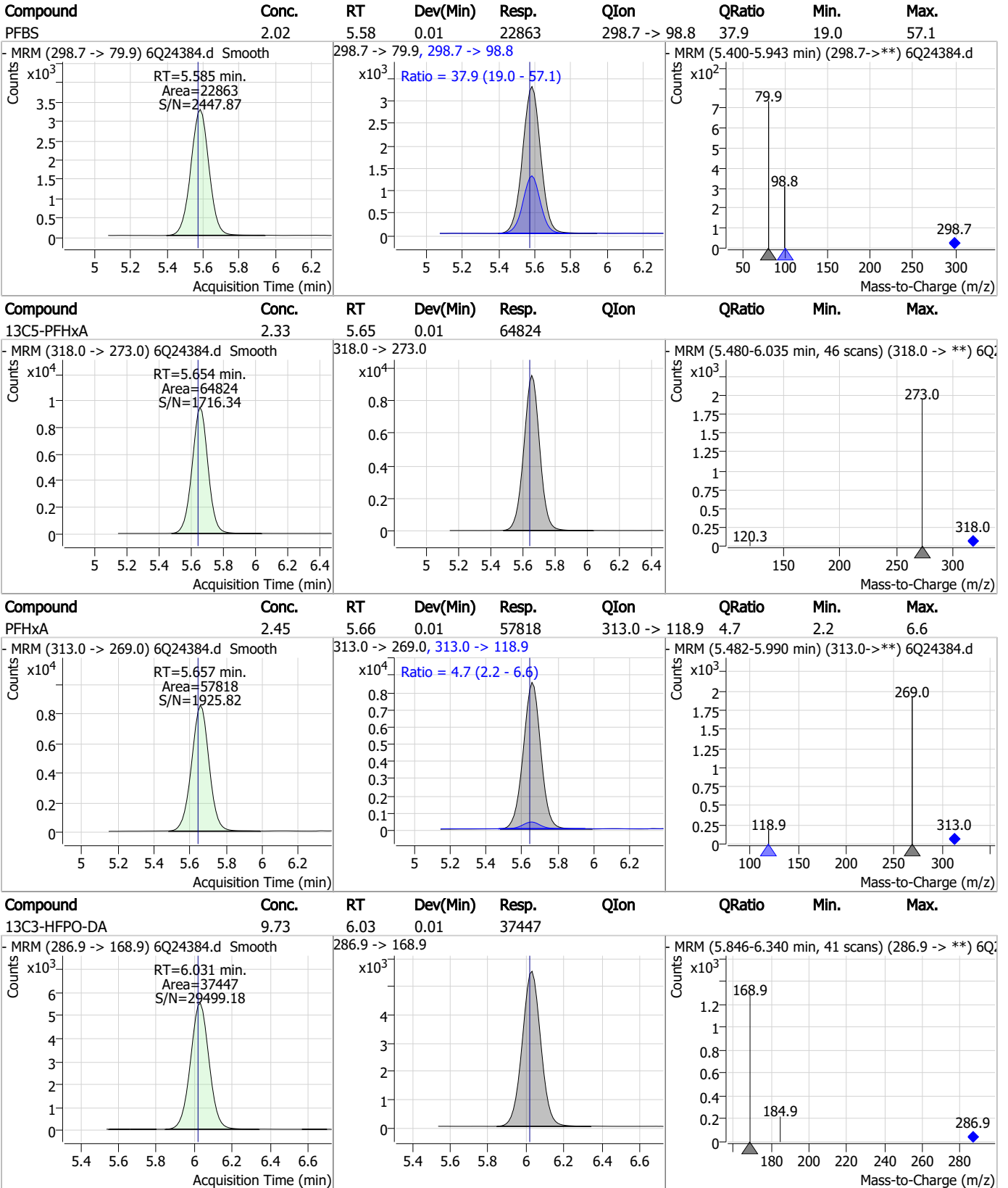
7.3.1
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Perfluorinated Compounds by LC/MS/MS



7.3.1
7

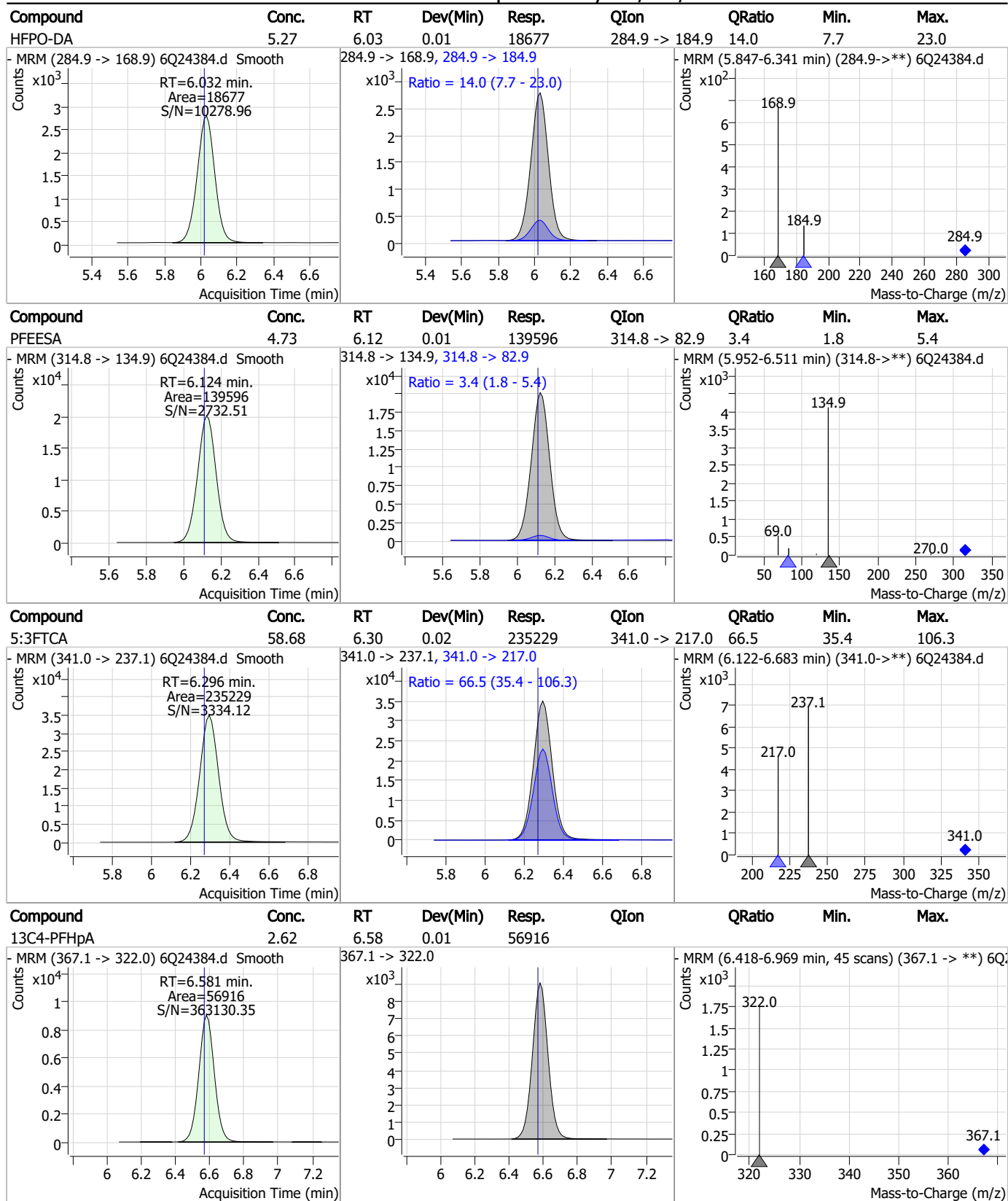
Perfluorinated Compounds by LC/MS/MS



7.3.1

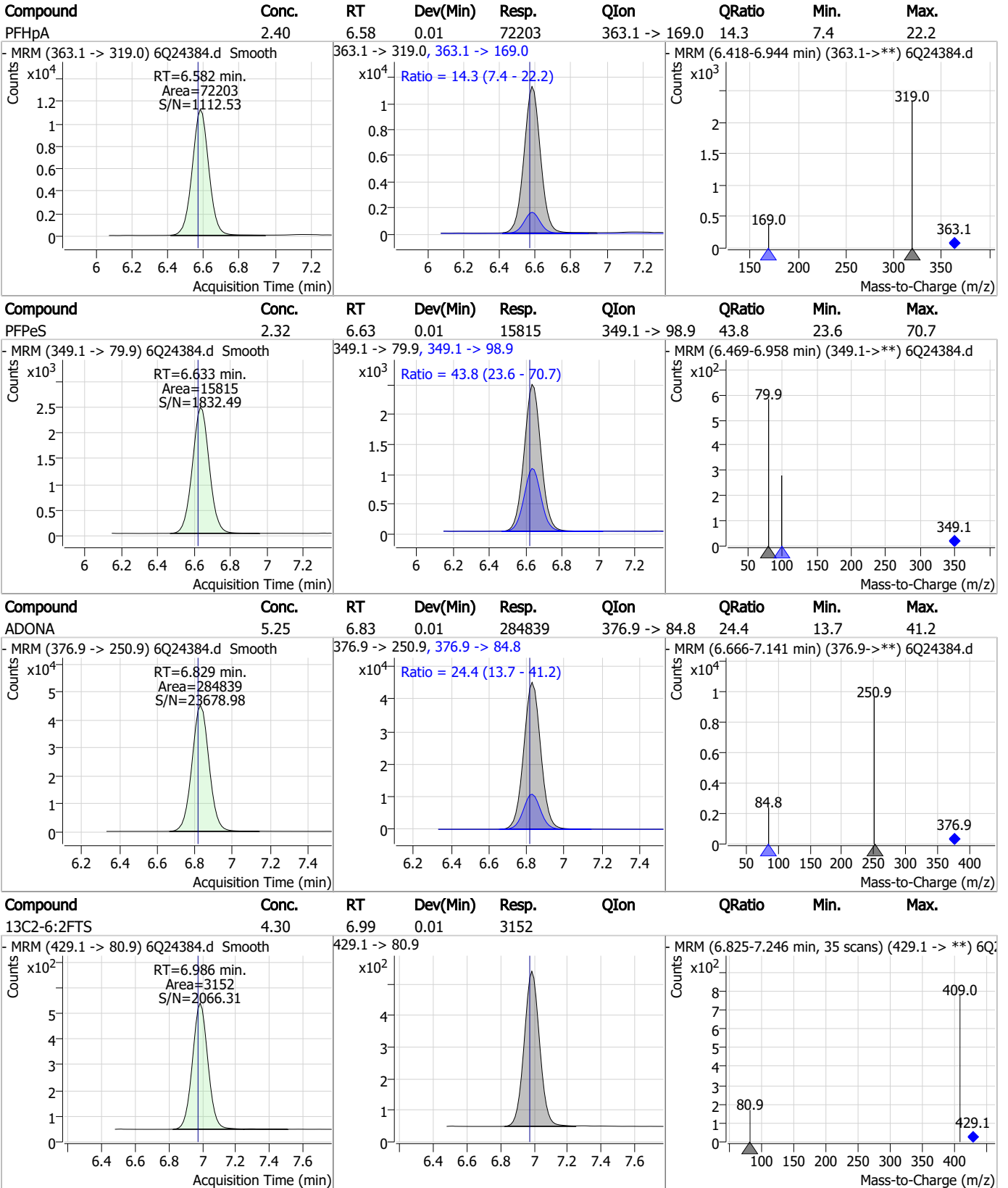
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Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Perfluorinated Compounds by LC/MS/MS

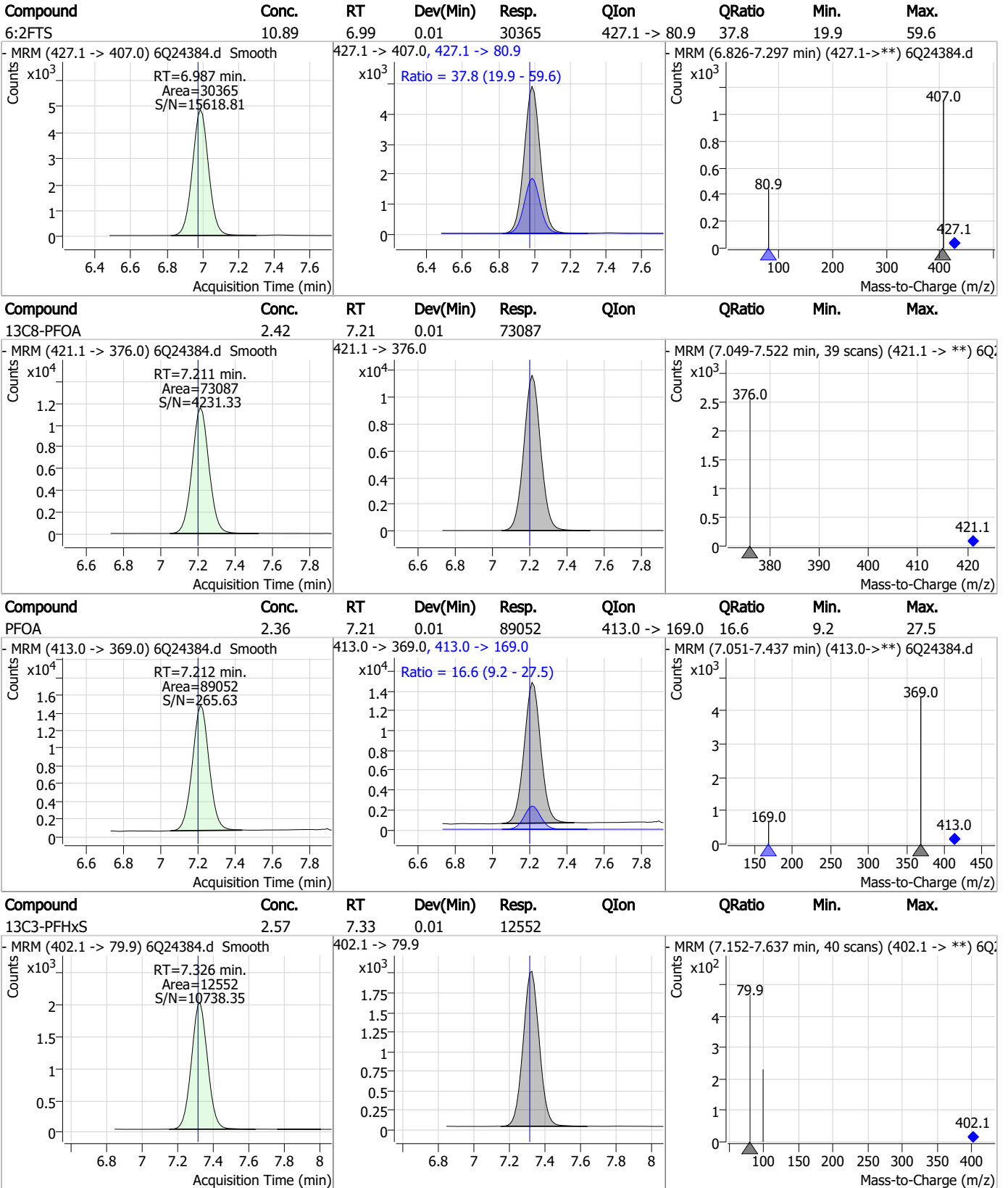


7.3.1

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Perfluorinated Compounds by LC/MS/MS

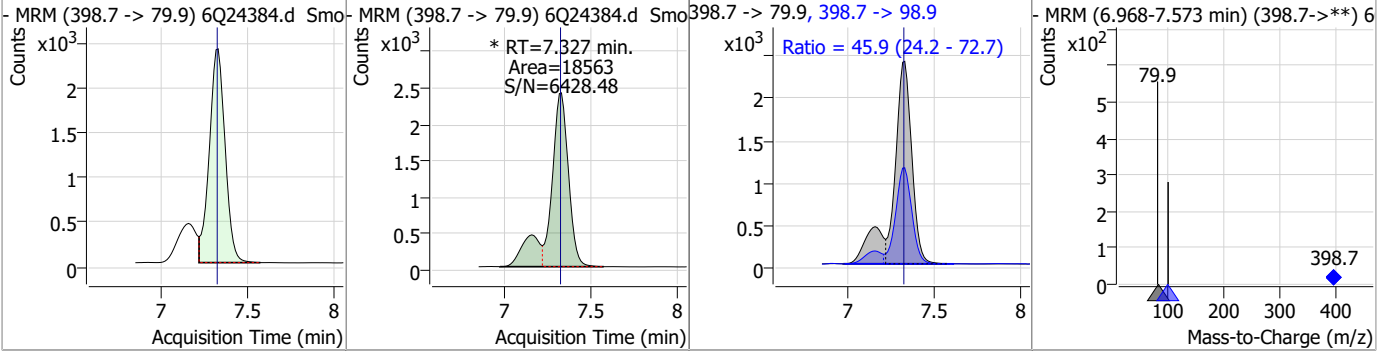


7.3.1

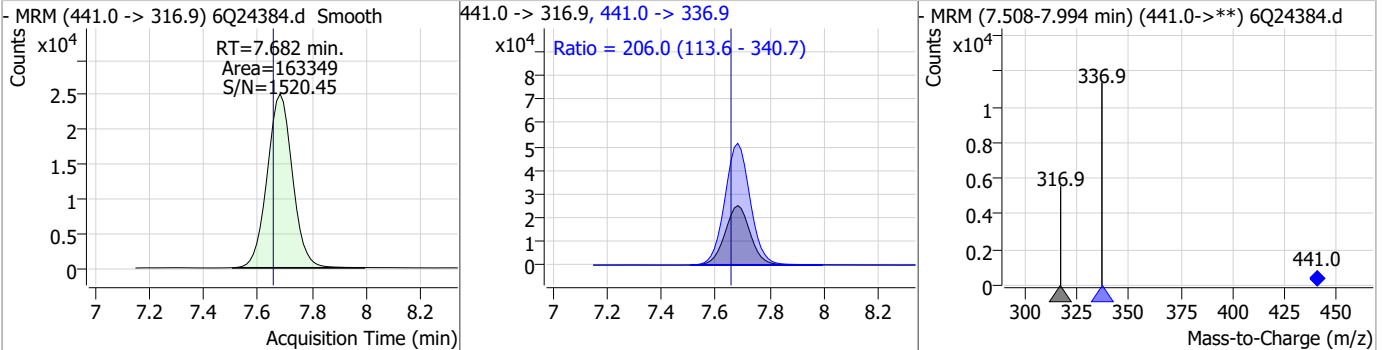
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Perfluorinated Compounds by LC/MS/MS

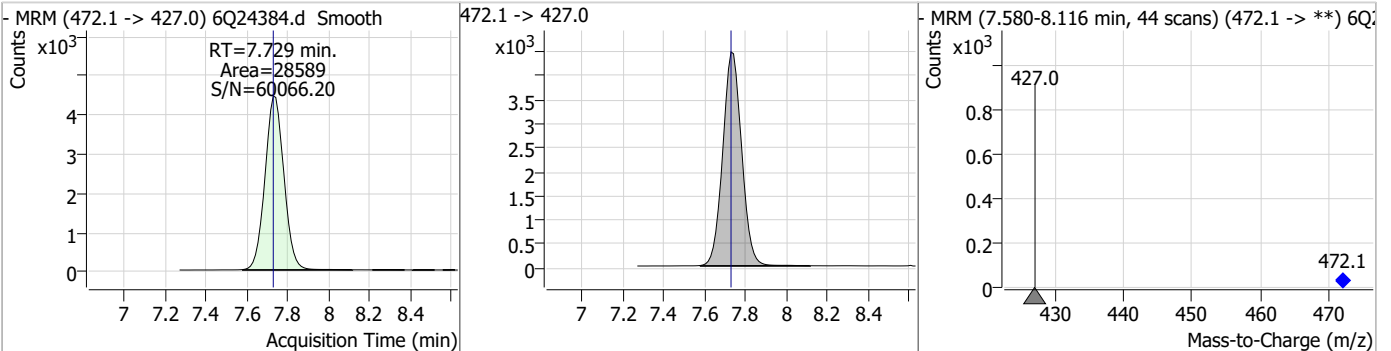
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.36	7.33	0.01	18563 (m)	398.7 -> 98.9	45.9	24.2	72.7



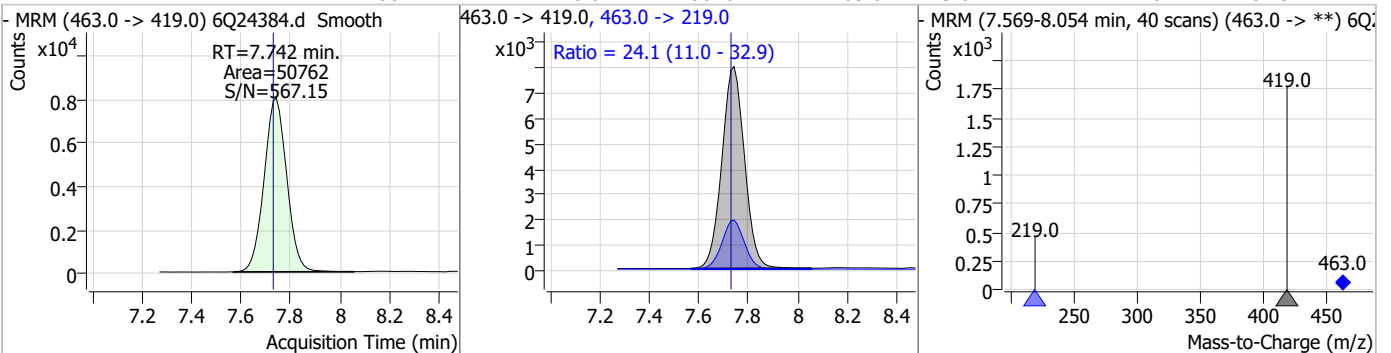
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	68.95	7.68	0.03	163349	441.0 -> 336.9	206.0	113.6	340.7



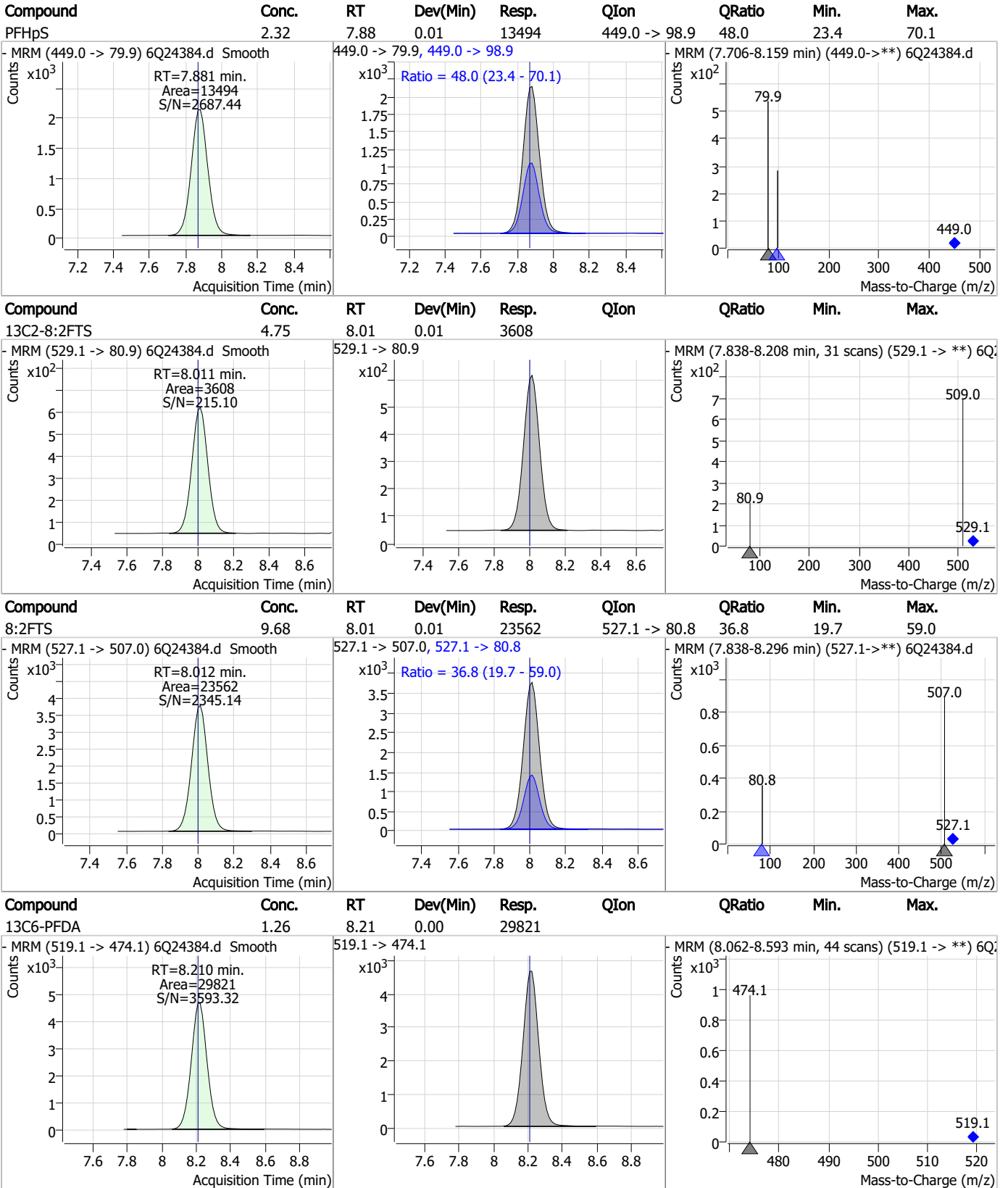
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.26	7.73	0.00	28589	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.35	7.74	0.01	50762	463.0 -> 219.0	24.1	11.0	32.9



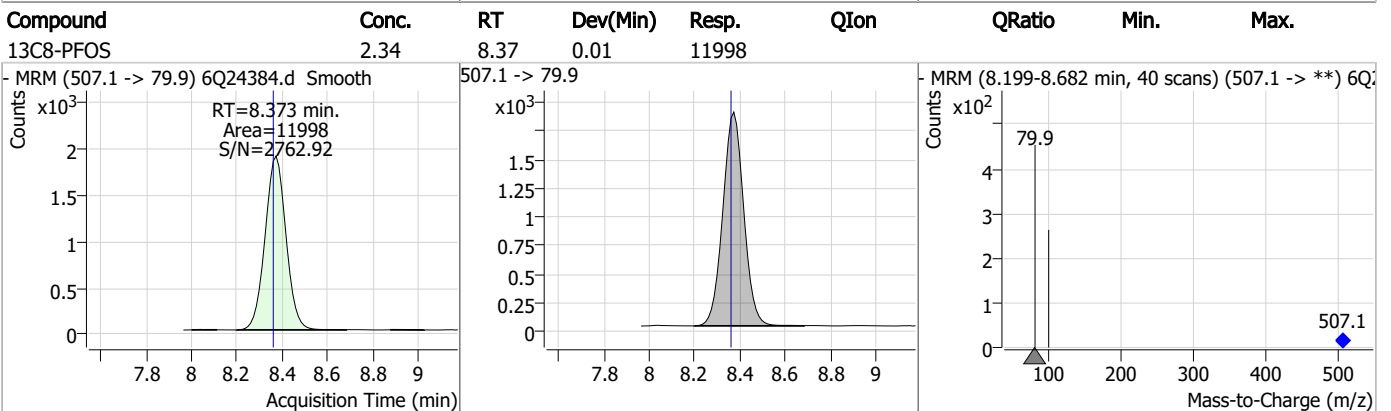
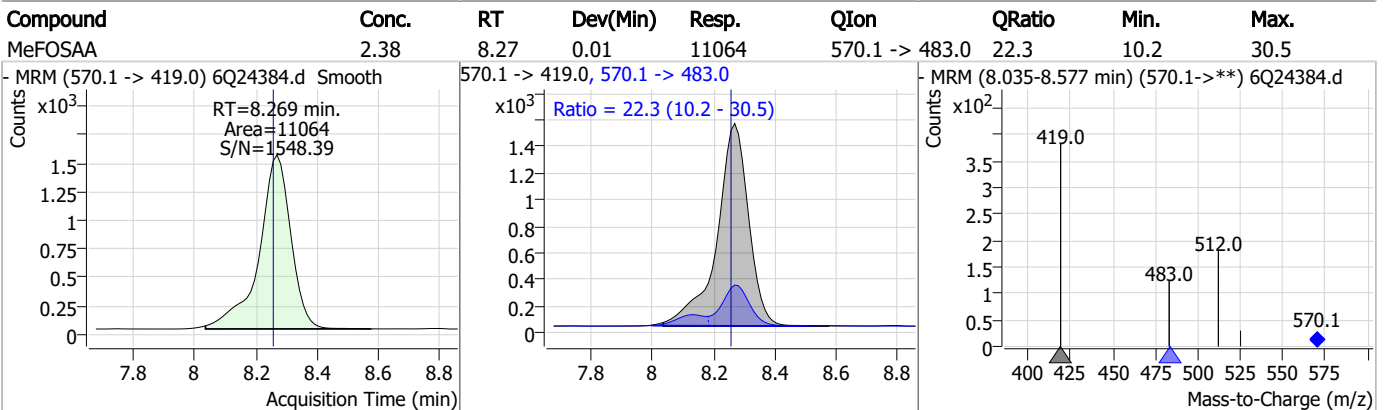
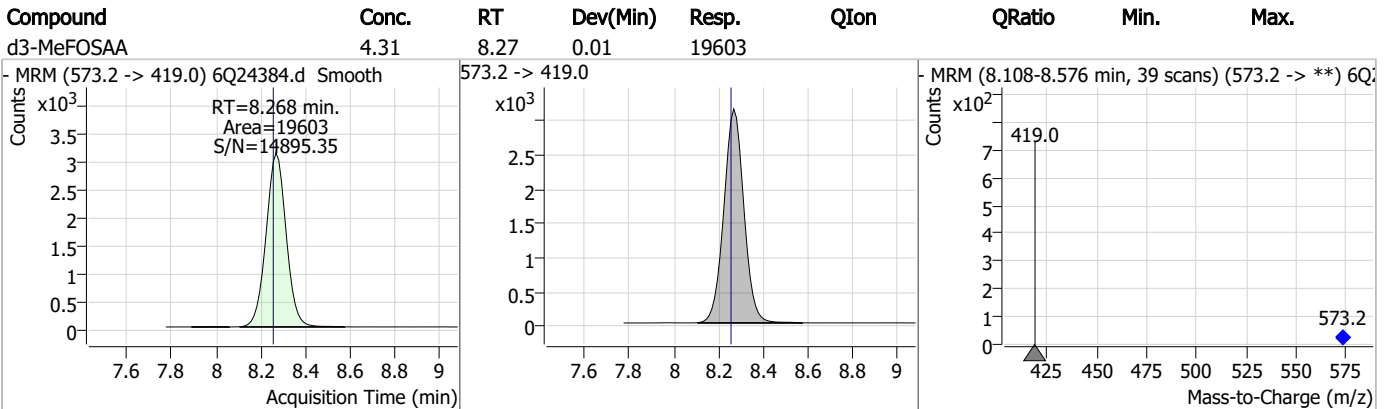
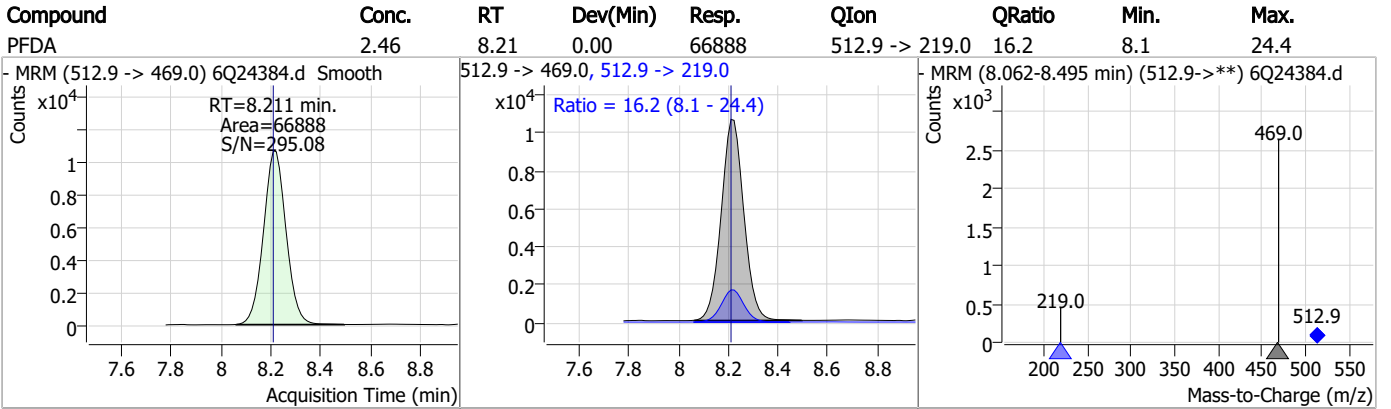
Perfluorinated Compounds by LC/MS/MS



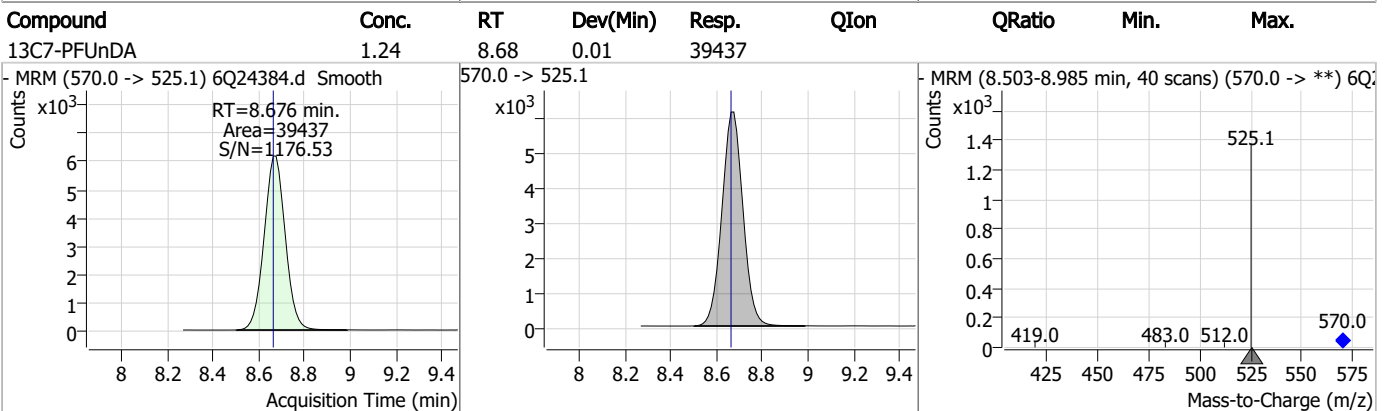
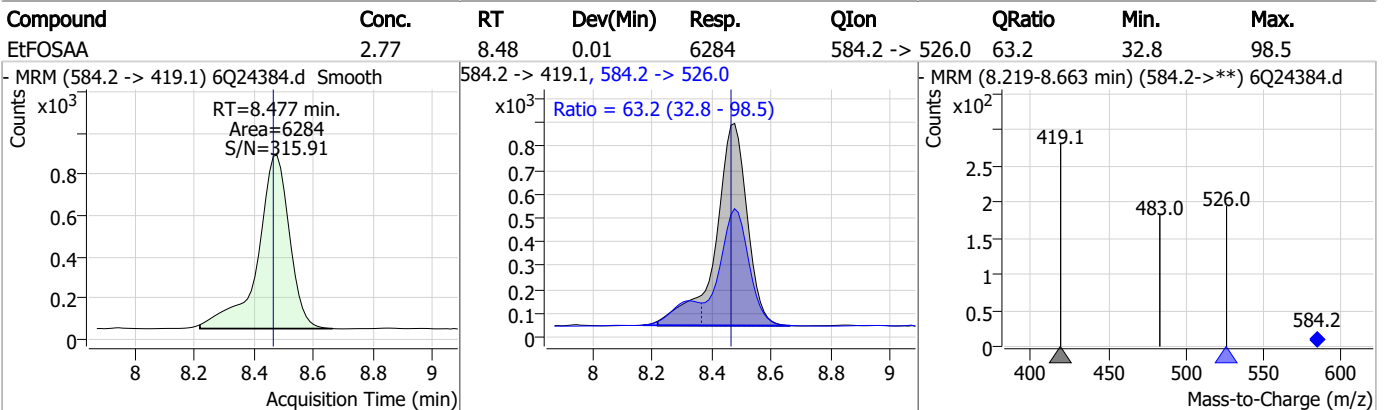
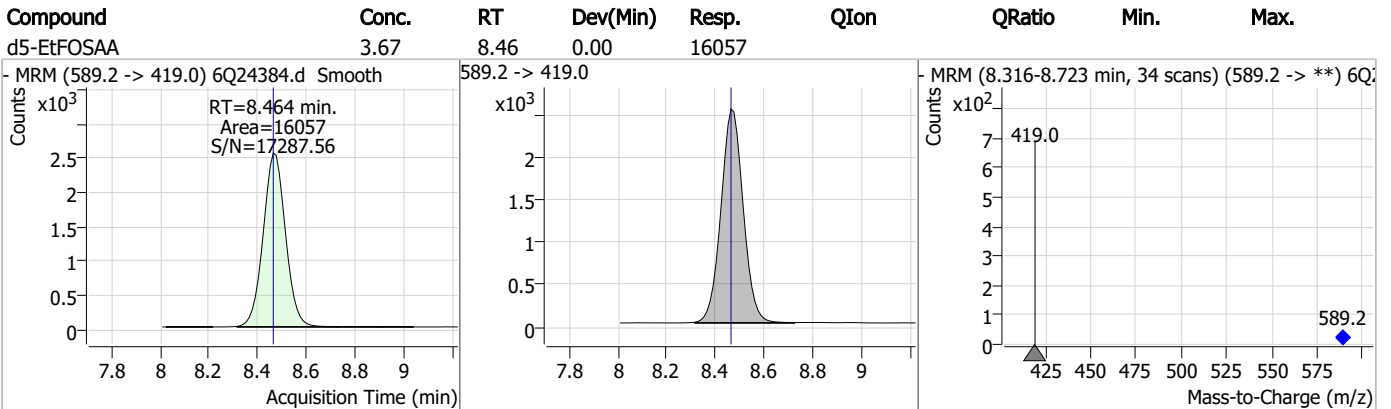
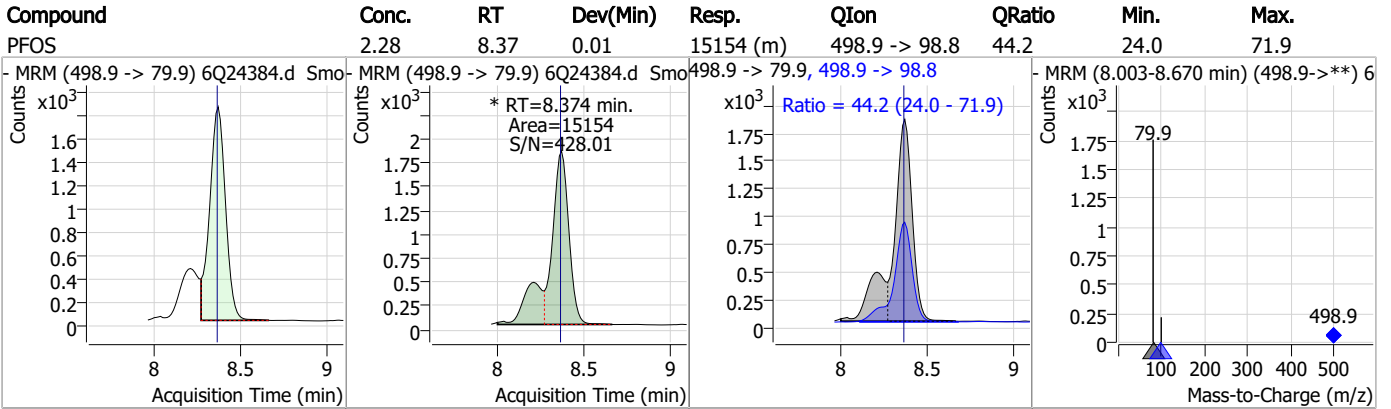
7.3.1

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Perfluorinated Compounds by LC/MS/MS



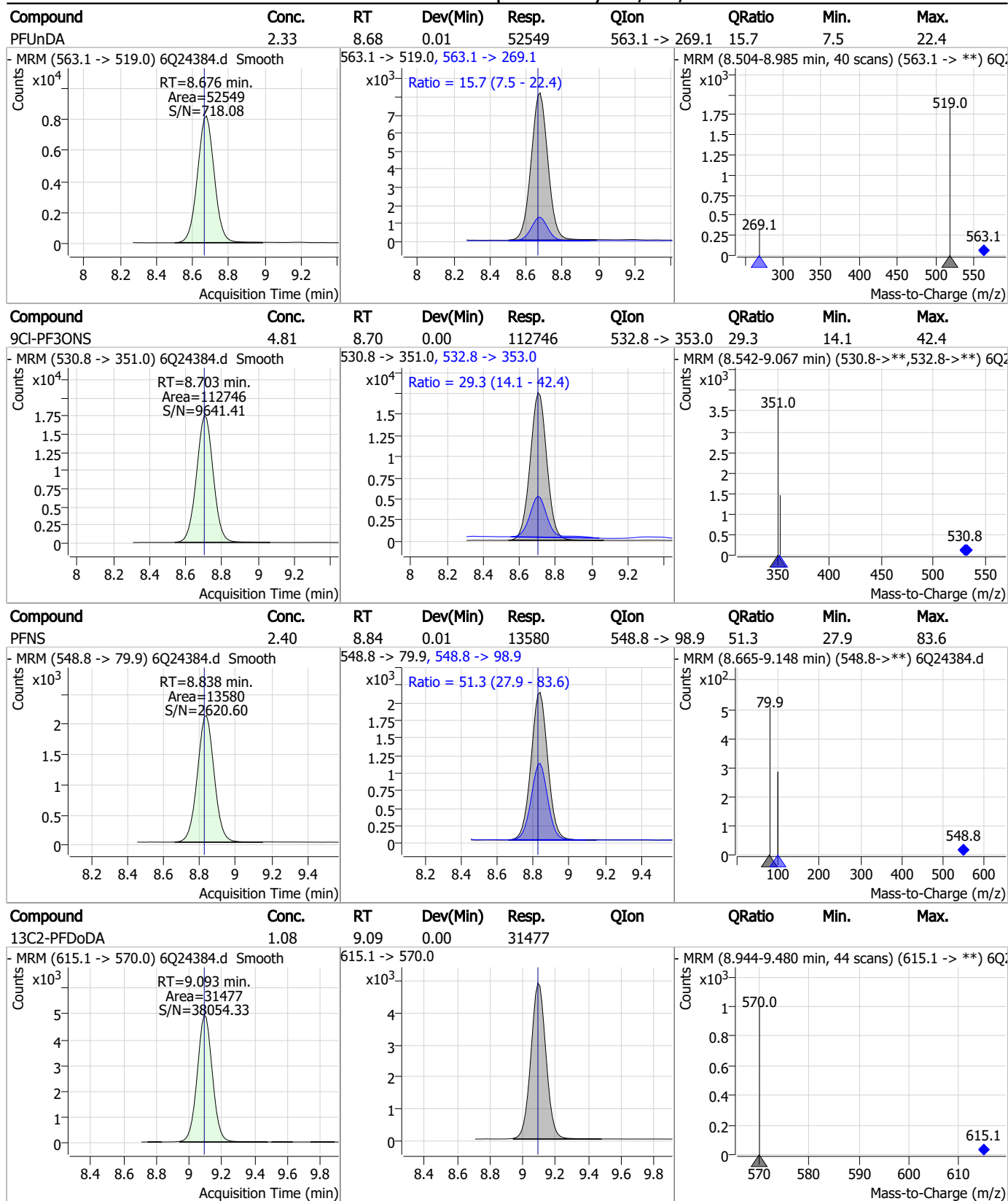
Perfluorinated Compounds by LC/MS/MS



7.3.1

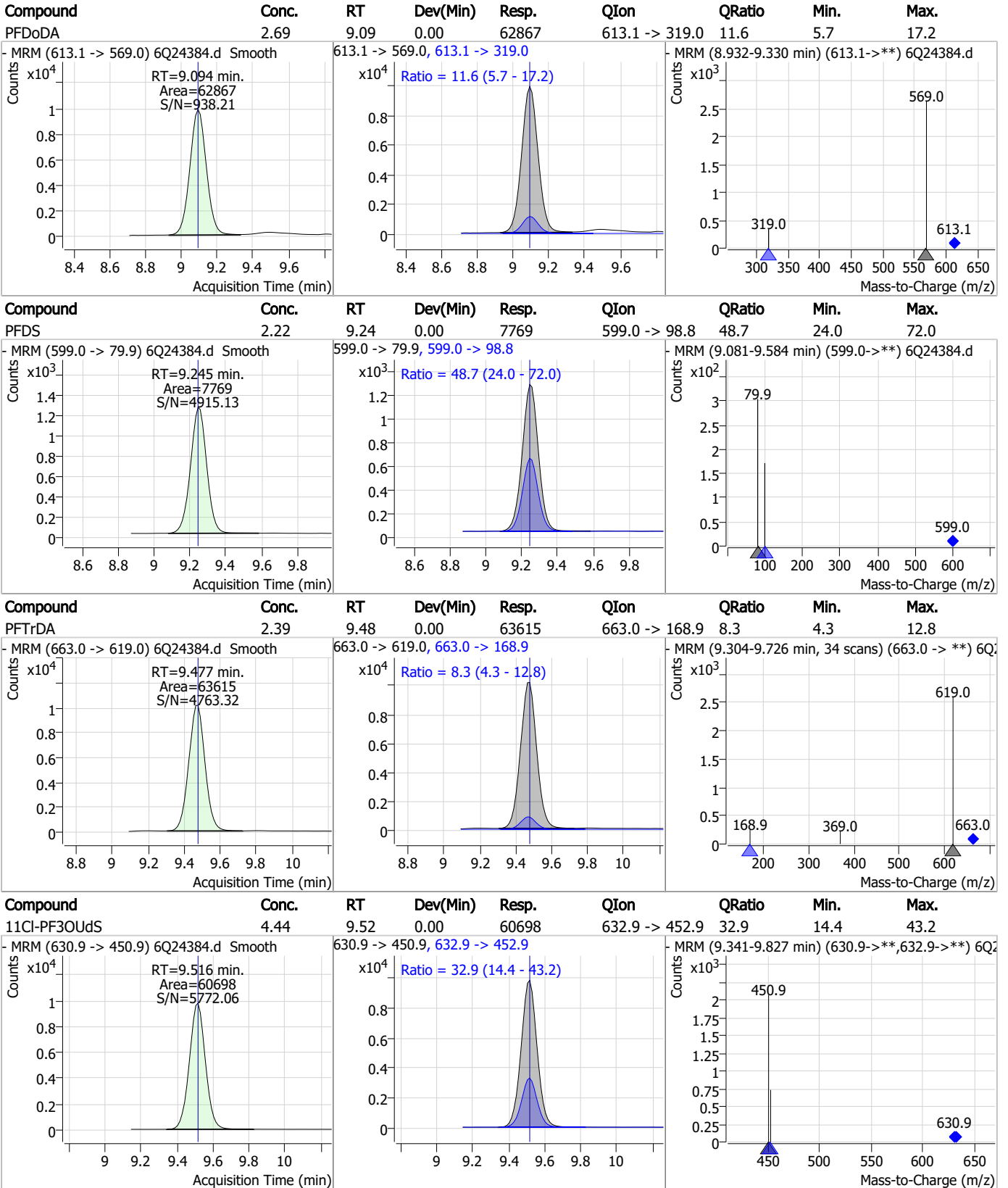
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Perfluorinated Compounds by LC/MS/MS



7.3.1
7

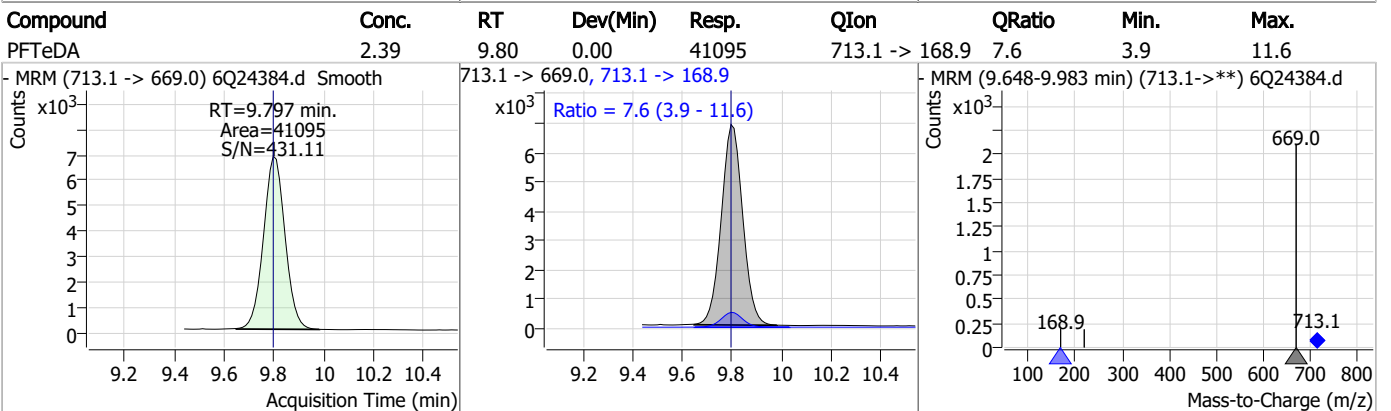
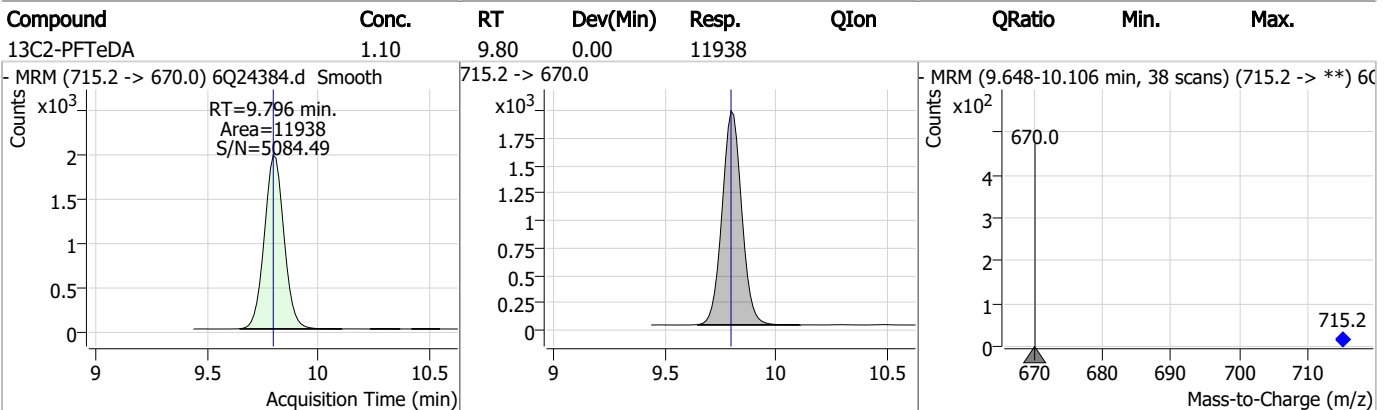
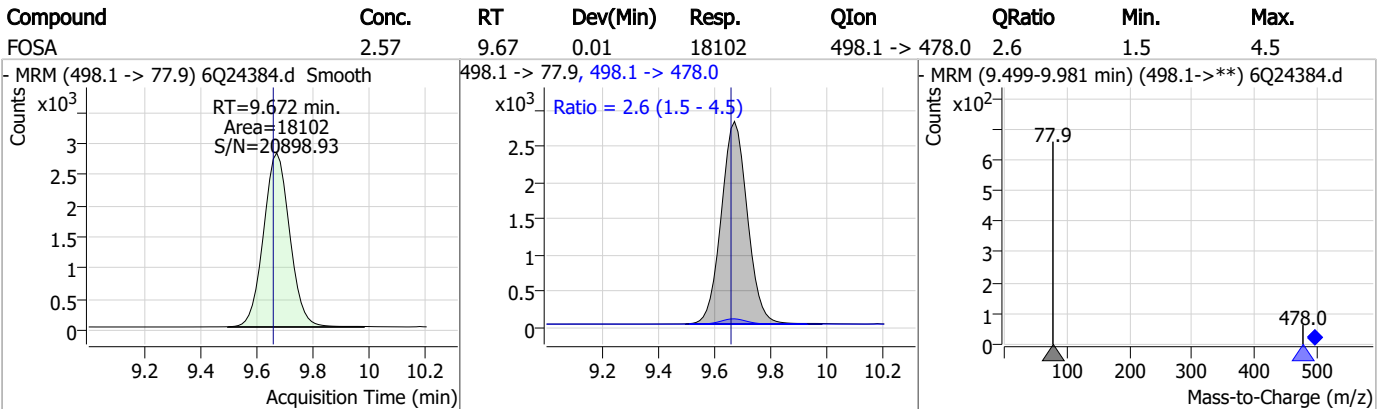
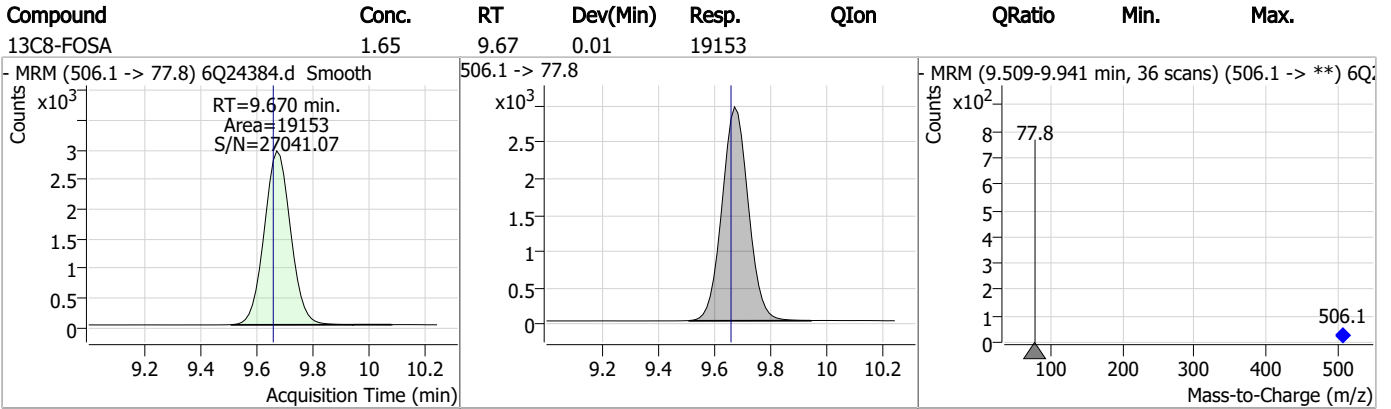
Perfluorinated Compounds by LC/MS/MS



7.3.1

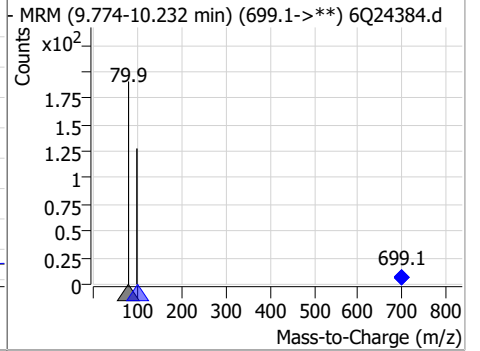
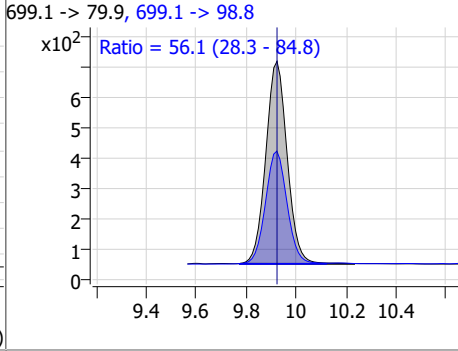
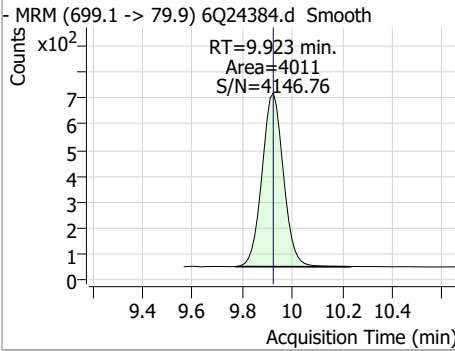
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Perfluorinated Compounds by LC/MS/MS

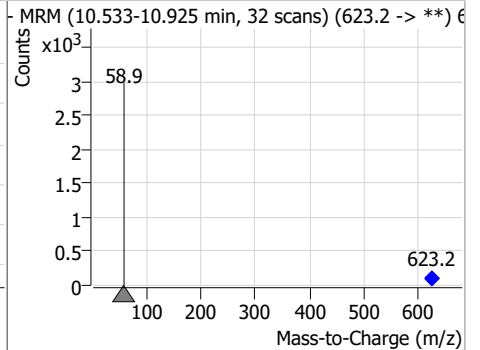
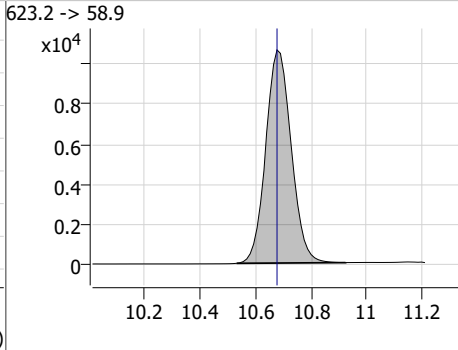
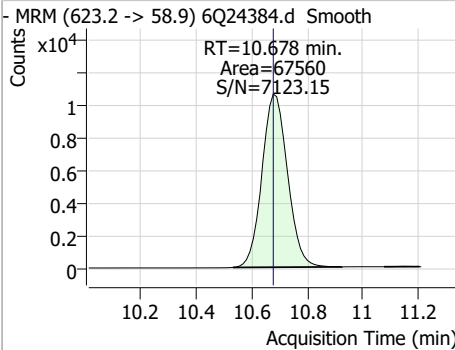


Perfluorinated Compounds by LC/MS/MS

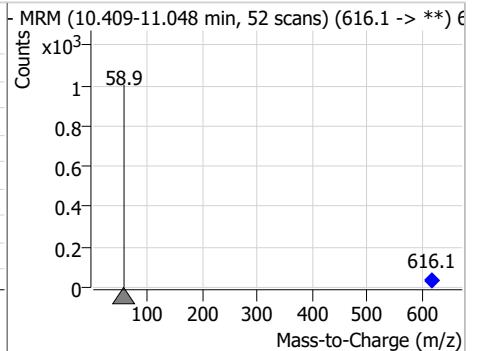
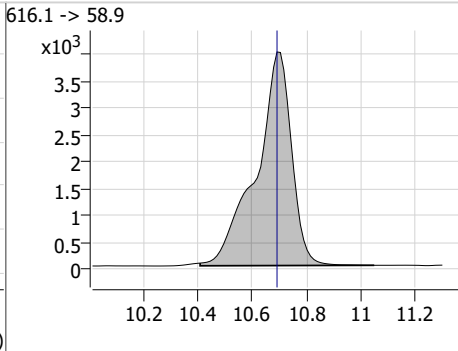
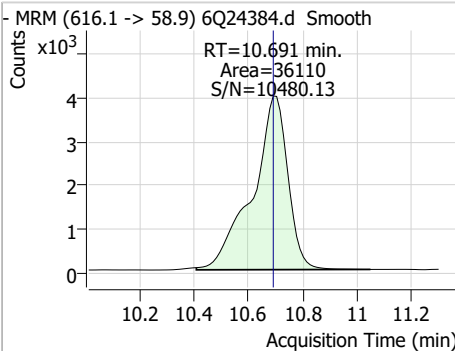
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.09	9.92	0.00	4011	699.1 -> 98.8	56.1	28.3	84.8



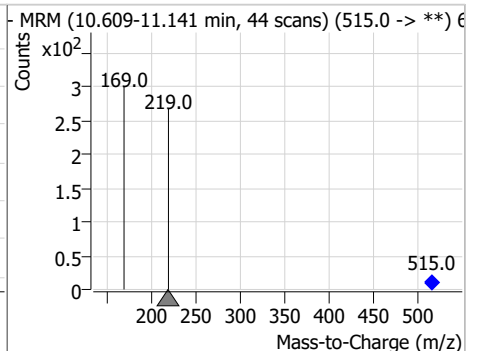
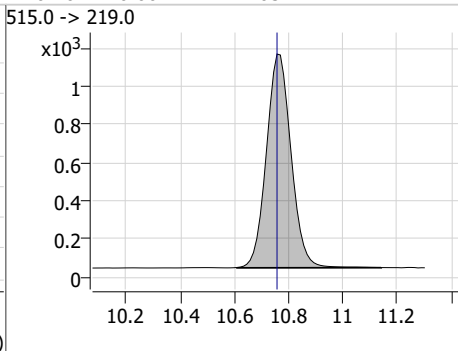
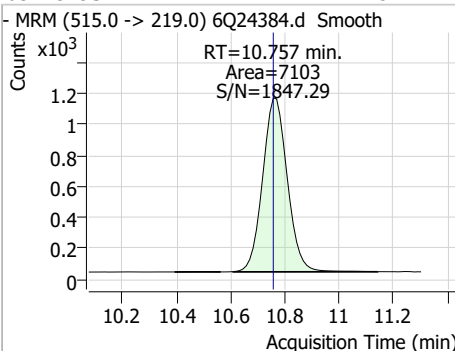
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	15.80	10.68	0.00	67560				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.36	10.69	0.00	36110				

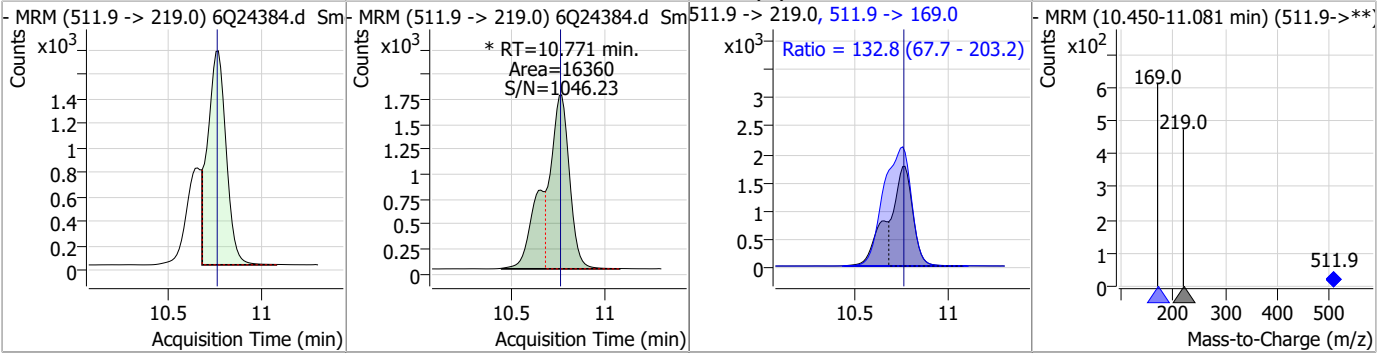


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.51	10.76	0.00	7103				

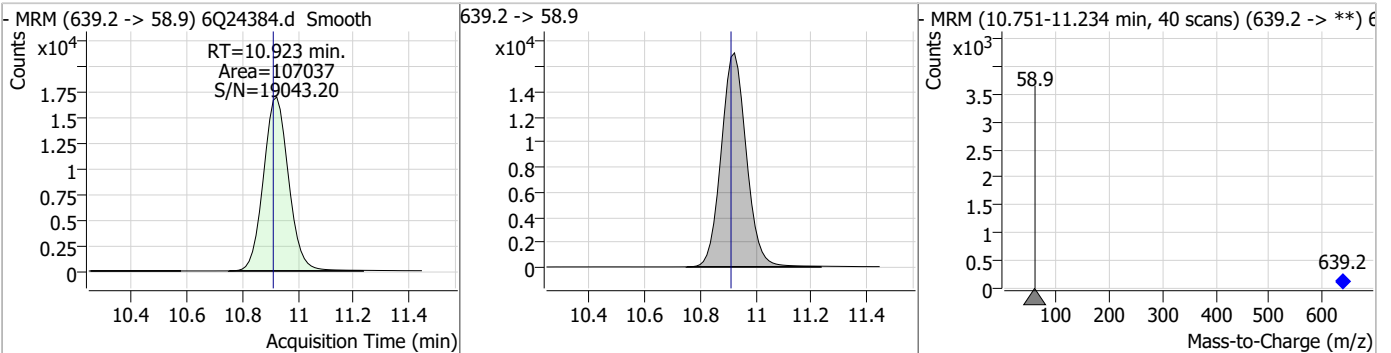


Perfluorinated Compounds by LC/MS/MS

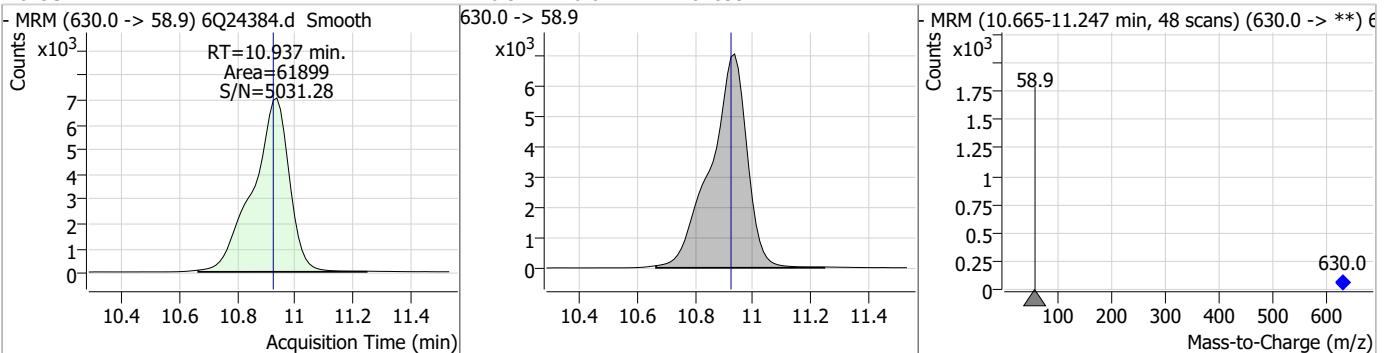
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.43	10.77	0.01	16360 (m)	511.9 -> 169.0	132.8	67.7	203.2



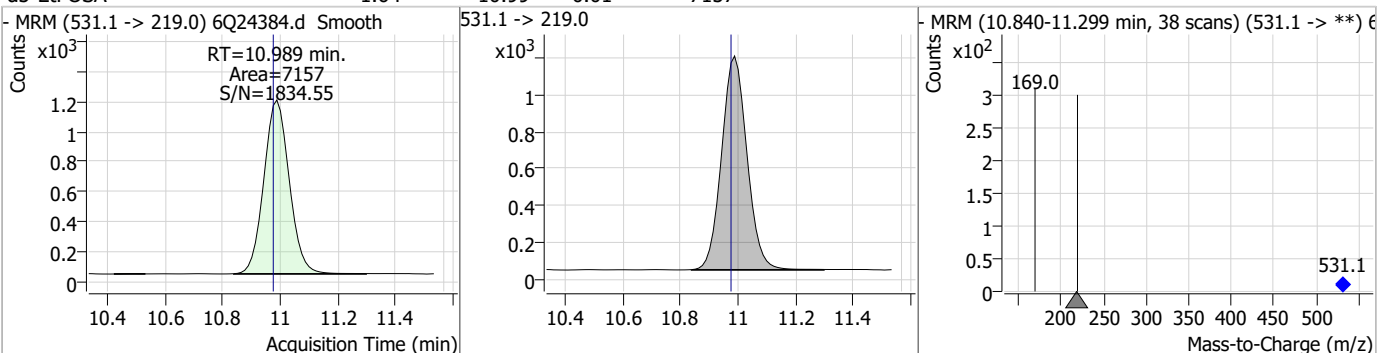
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	18.61	10.92	0.01	107037				



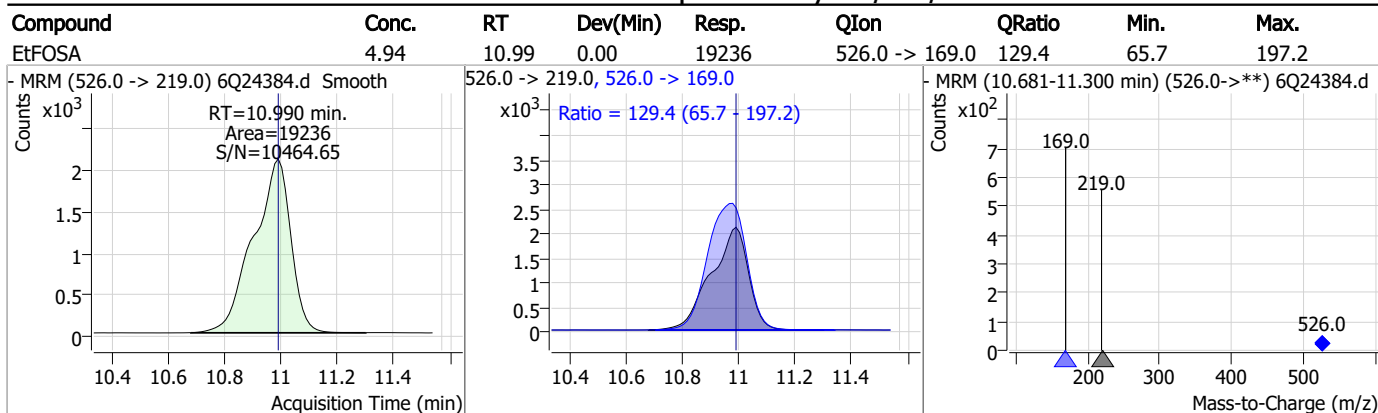
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.17	10.94	0.01	61899				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.64	10.99	0.01	7157				



Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Manual Integration Approval Summary

Sample Number: OP98930-BS Method: EPA DRAFT 1633
Lab FileID: 6Q24384.D Analyst approved: 09/13/23 14:00 Martha Valls
Injection Time: 09/13/23 02:23 Supervisor approved: 09/13/23 15:11 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
MeFOSA	31506-32-8		10.77	Split peak

7.3.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24385.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 2:37:59 AM
 Sample Name : OP98930-LLBS:3
 Vial : P3-E2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	181544	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	29719	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	64346	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	55063	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	71031	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	30460	1.25 µg/L	0.012
M6-PFDA	8.222	519.1 -> 474.1	28786	1.25 µg/L	0.012
M7-PFUnDA	8.663	570.0 -> 525.1	37955	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	32823	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	11758	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	17872	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	21646	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	11735	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	11316	2.50 µg/L	0.012
M2-4:2FTS	5.329	329.1 -> 80.9	2337	5.00 µg/L	0.025
M2-6:2FTS	6.986	429.1 -> 80.9	3593	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3190	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	18551	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	36488	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	16182	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	65155	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	105375	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7594	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	7371	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	14990	2.50 µg/L	0.012
13C3-PFBA	3.029	216.0 -> 172.0	76298	5.00 µg/L	0.040
18O2-PFHxS	7.325	403.0 -> 83.9	9611	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	85855	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	26350	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	36460	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	54842	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.329	329.1 -> 80.9	2337	4.32 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.4%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3593	4.53 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3190	3.88 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 77.6%		
13C2-PFDoDA	9.093	615.1 -> 570.0	32823	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C2-PFTeDA	9.796	715.2 -> 670.0	11758	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.5%		
13C3-PFBS	5.584	302.1 -> 79.9	21646	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFHxS	7.326	402.1 -> 79.9	11735	2.22 µg/L	0.012

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 = 88.9%	
13C4-PFBA	3.025	216.8 -> 171.9	181544	9.42 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C4-PFHpA	6.581	367.1 -> 322.0	55063	2.34 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C5-PFHxA	5.654	318.0 -> 273.0	64346	2.13 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.1%	
13C5-PFPeA	4.447	268.3 -> 223.0	29719	4.02 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
13C6-PFDA	8.222	519.1 -> 474.1	28786	1.25 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	8.663	570.0 -> 525.1	37955	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-FOSA	9.670	506.1 -> 77.8	17872	1.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.0%	
13C8-PFOA	7.211	421.1 -> 376.0	71031	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C8-PFOS	8.373	507.1 -> 79.9	11316	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C9-PFNA	7.741	472.1 -> 427.0	30460	1.34 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.9%	
d3-MeFOSAA	8.268	573.2 -> 419.0	18551	4.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.5%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	36488	8.73 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	7371	1.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 68.2%	
d5-EtFOSAA	8.464	589.2 -> 419.0	16182	4.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.3%	
d7-MeFOSE	10.678	623.2 -> 58.9	65155	16.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 66.1%	
d9-EtFOSE	10.923	639.2 -> 58.9	105375	19.87 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.5%	
d5-EtFOSA	10.989	531.1 -> 219.0	7594	1.88 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.3%	
Target Compounds					QValue
4:2FTS	5.330	327.1 -> 307.0	11699	3.03 µg/L	100
		327.1 -> 80.9	4336		
6:2FTS	6.987	427.1 -> 407.0	8694	2.74 µg/L	96
		427.1 -> 80.9	3682		
8:2FTS	8.012	527.1 -> 507.0	6784	3.15 µg/L	97
		527.1 -> 80.8	2541		
EtFOSAA	8.477	584.2 -> 419.1	1818	0.80 µg/L	m 91
		584.2 -> 526.0	1330		
FOSA	9.672	498.1 -> 77.9	4906	0.75 µg/L	100
		498.1 -> 478.0	151		
MeFOSAA	8.269	570.1 -> 419.0	3489	0.79 µg/L	97
		570.1 -> 483.0	765		
PFBA	3.032	212.8 -> 168.9	19229	3.20 µg/L	100
PFBS	5.585	298.7 -> 79.9	6500	0.61 µg/L	95
		298.7 -> 98.8	2664		
PFDA	8.223	512.9 -> 469.0	20616	0.79 µg/L	100
		512.9 -> 219.0	3390		
PFDODA	9.094	613.1 -> 569.0	18297	0.75 µg/L	94
		613.1 -> 319.0	2496		
PFDS	9.245	599.0 -> 79.9	2521	0.76 µg/L	97

7.3.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	1164	0.75	µg/L	96
		363.1 -> 319.0	21965			
PFHpS	7.881	363.1 -> 169.0	2902	0.81	µg/L	98
		449.0 -> 79.9	4430			
PFHxA	5.657	449.0 -> 98.9	2117	0.75	µg/L	100
		313.0 -> 269.0	17667			
PFHxS	7.327	313.0 -> 118.9	786	0.75	µg/L	96
		398.7 -> 79.9	5542			
PFNA	7.742	398.7 -> 98.9	2532	0.64	µg/L	94
		463.0 -> 419.0	14669			
PFNS	8.838	463.0 -> 219.0	3605	0.70	µg/L	94
		548.8 -> 79.9	3738			
PFOA	7.212	548.8 -> 98.9	2253	0.70	µg/L	96
		413.0 -> 369.0	25807			
PFOS	8.374	413.0 -> 169.0	4310	0.73	µg/L	98
		498.9 -> 79.9	4568			
PFPeA	4.449	498.9 -> 98.8	2133	1.57	µg/L	100
		263.0 -> 219.0	20813			
PFPeS	6.633	349.1 -> 79.9	4695	0.74	µg/L	92
		349.1 -> 98.9	1962			
PFTeDA	9.797	713.1 -> 669.0	13022	0.77	µg/L	98
		713.1 -> 168.9	900			
PFTrDA	9.464	663.0 -> 619.0	20088	0.73	µg/L	99
		663.0 -> 168.9	1675			
PFUnDA	8.676	563.1 -> 519.0	16775	0.77	µg/L	96
		563.1 -> 269.1	2750			
11CI-PF3OUdS	9.516	630.9 -> 450.9	18793	1.41	µg/L	91
		632.9 -> 452.9	6267			
9CI-PF3ONS	8.703	530.8 -> 351.0	33825	1.48	µg/L	93
		532.8 -> 353.0	10750			
ADONA	6.829	376.9 -> 250.9	81727	1.55	µg/L	96
		376.9 -> 84.8	20789			
HFPO-DA	6.032	284.9 -> 168.9	5676	1.64	µg/L	97
		284.9 -> 184.9	793			
3:3FTCA	3.915	241.0 -> 177.0	2456	2.37	µg/L	100
		241.0 -> 117.0	229			
5:3FTCA	6.296	341.0 -> 237.1	66694	16.76	µg/L	94
		341.0 -> 217.0	43969			
7:3FTCA	7.682	441.0 -> 316.9	42680	18.15	µg/L	97
		441.0 -> 336.9	99225			
EtFOSA	10.990	526.0 -> 219.0	5765	1.40	µg/L	97
		526.0 -> 169.0	7751			
EtFOSE	10.924	630.0 -> 58.9	18497	3.69	µg/L	100
		511.9 -> 219.0	4791			
MeFOSA	10.758	511.9 -> 169.0	6961	1.53	µg/L	92
		616.1 -> 58.9	10516			
MeFOSE	10.691	699.1 -> 79.9	1193	3.73	µg/L	100
		699.1 -> 98.8	705			
PFDoDS	9.923	295.0 -> 201.0	4326	0.66	µg/L	96
		295.0 -> 84.9	1109			
NFDHA	5.535	279.0 -> 85.1	16270	1.59	µg/L	95
		229.0 -> 84.9	11628			
PFMBA	4.863	314.8 -> 134.9	42266	1.68	µg/L	100
		314.8 -> 82.9	1427			
PFMPA	3.575			1.44	µg/L	99
PFEESA	6.124					

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



7.3.2
7

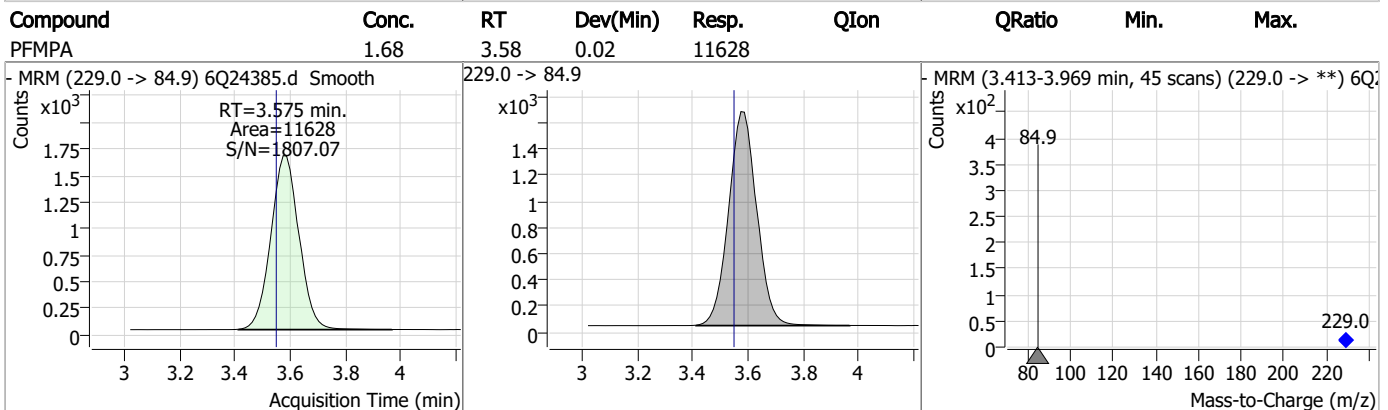
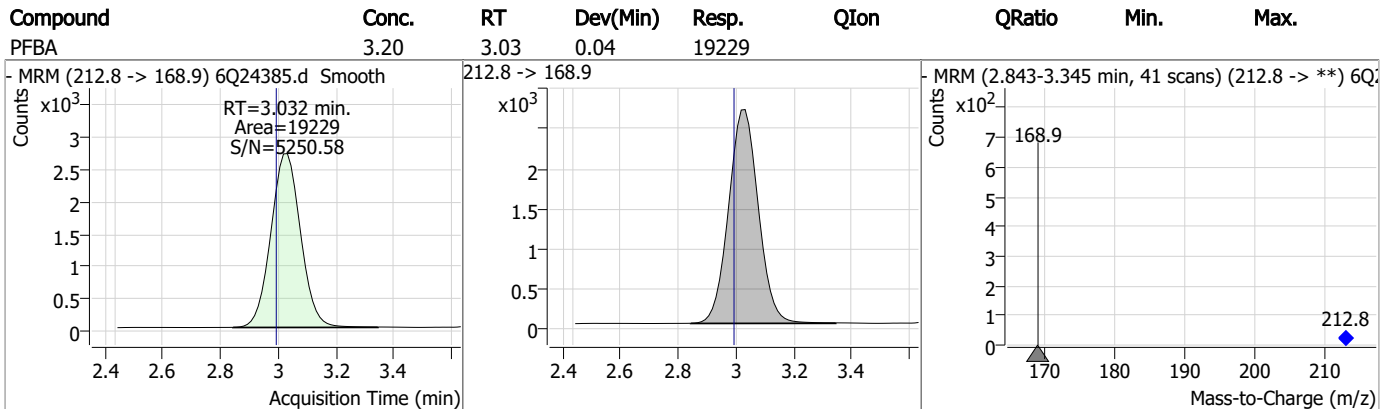
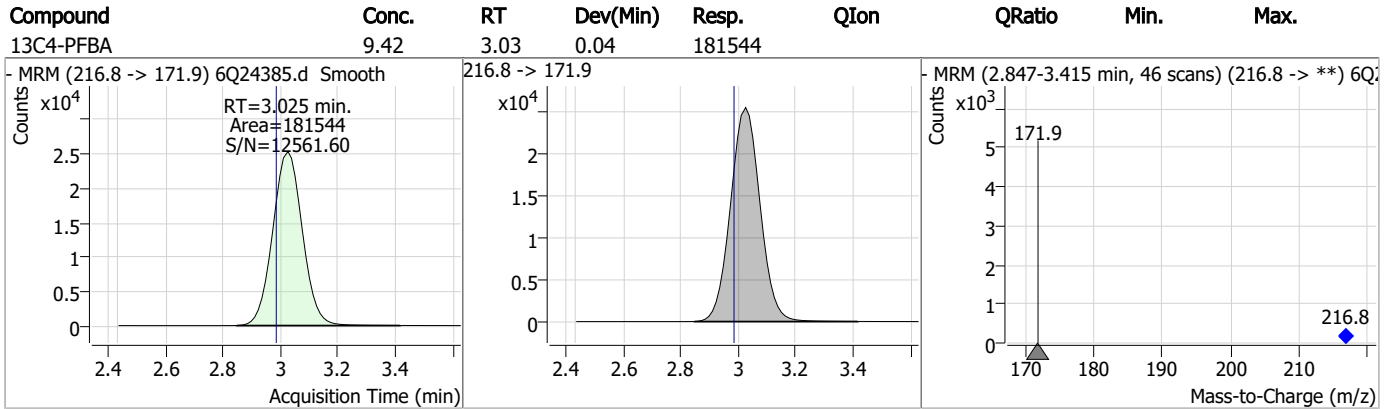
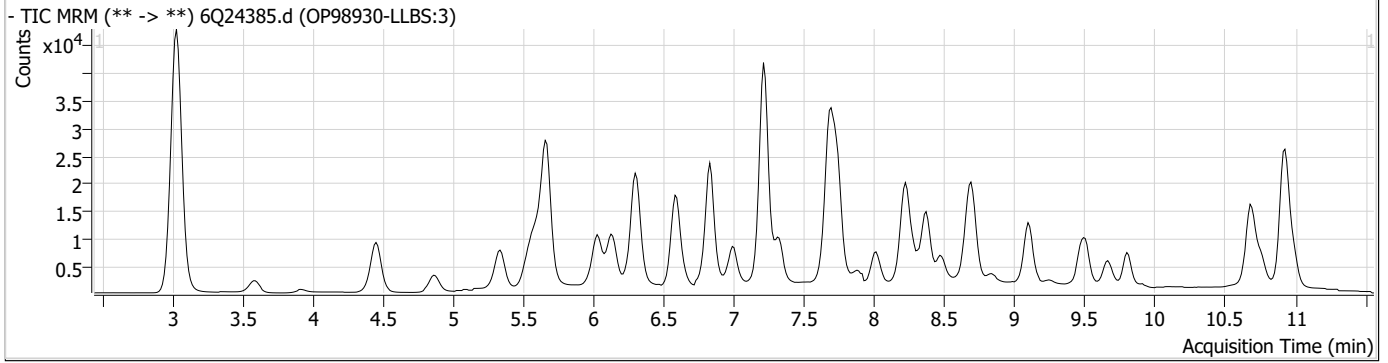
Perfluorinated Compounds by LC/MS/MS

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

7

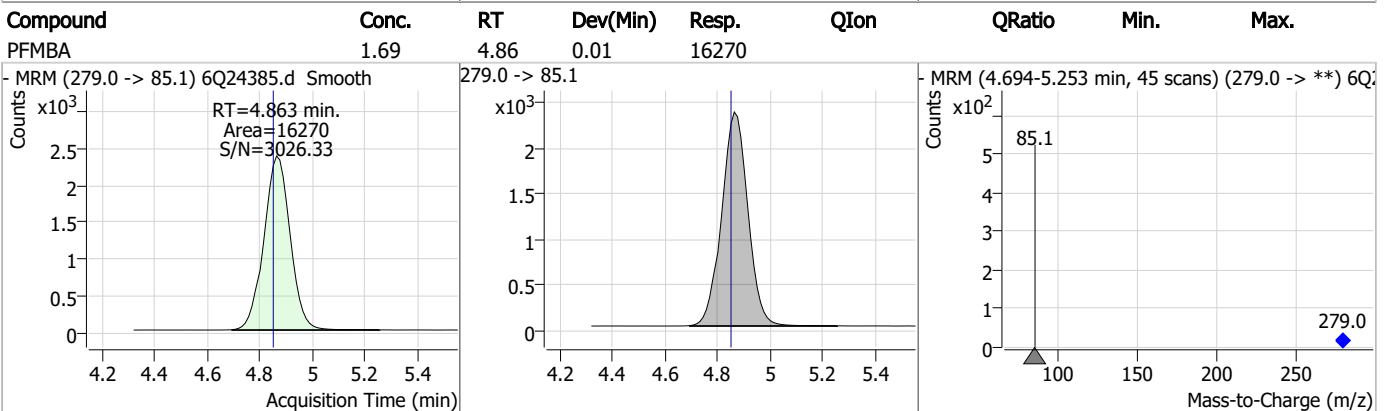
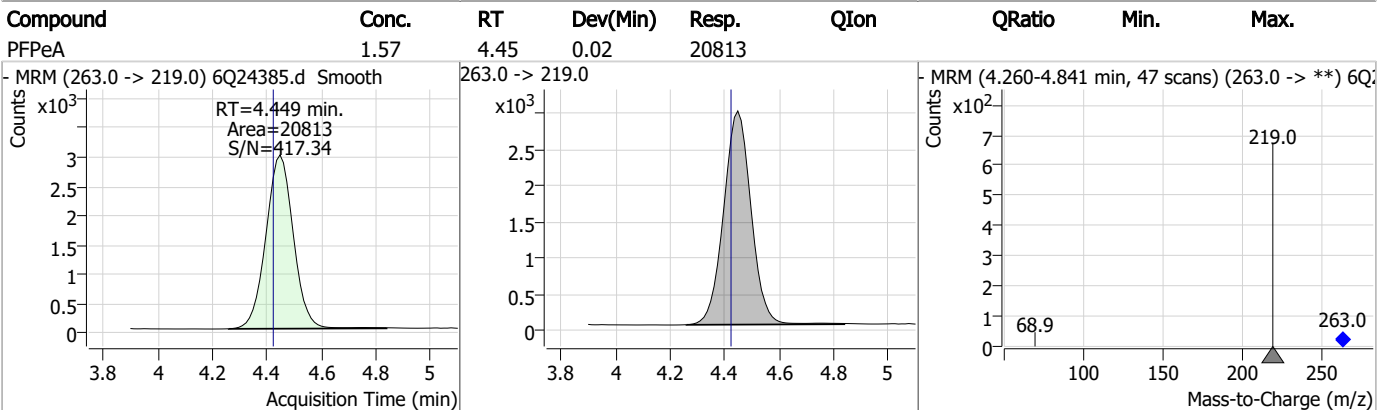
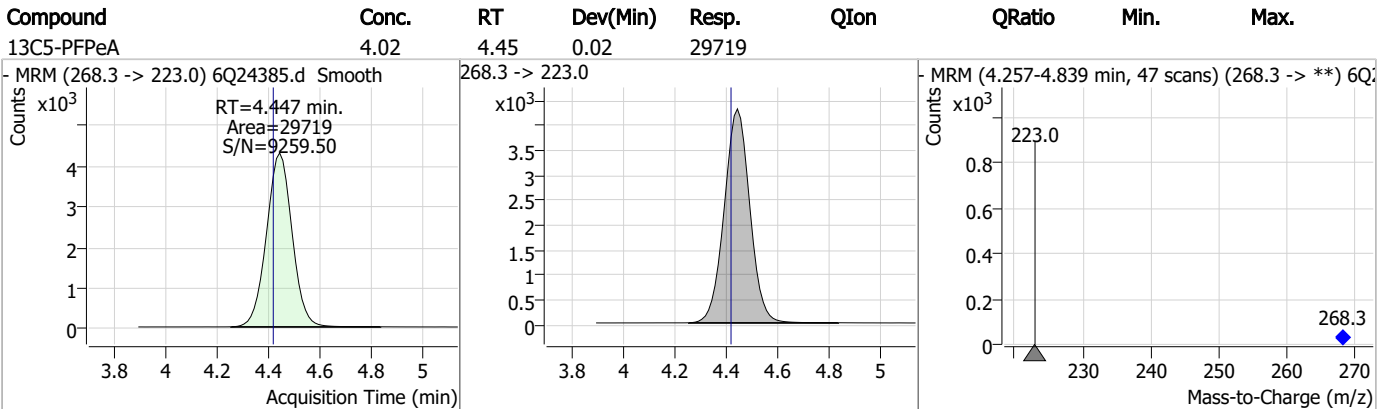
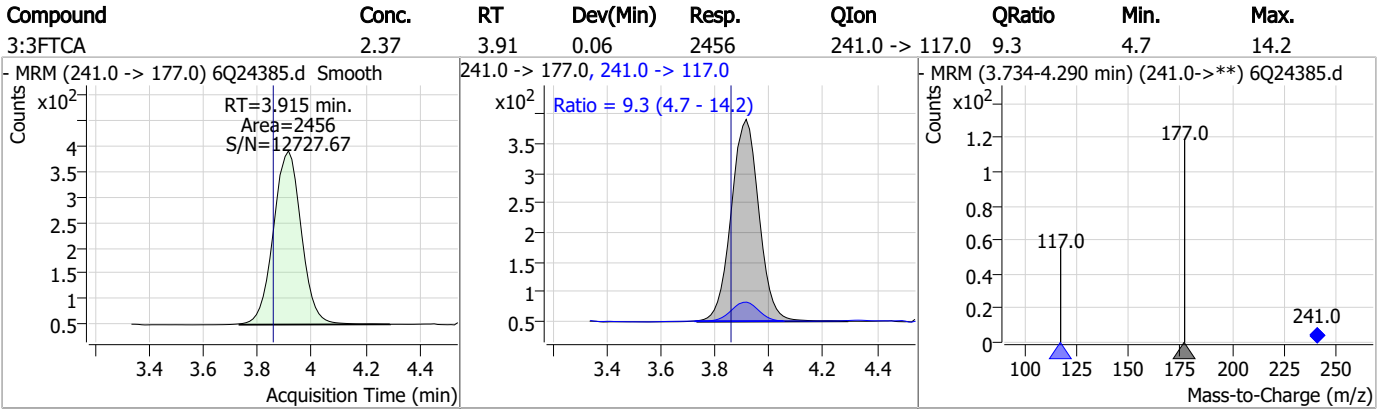
Perfluorinated Compounds by LC/MS/MS



7.3.2

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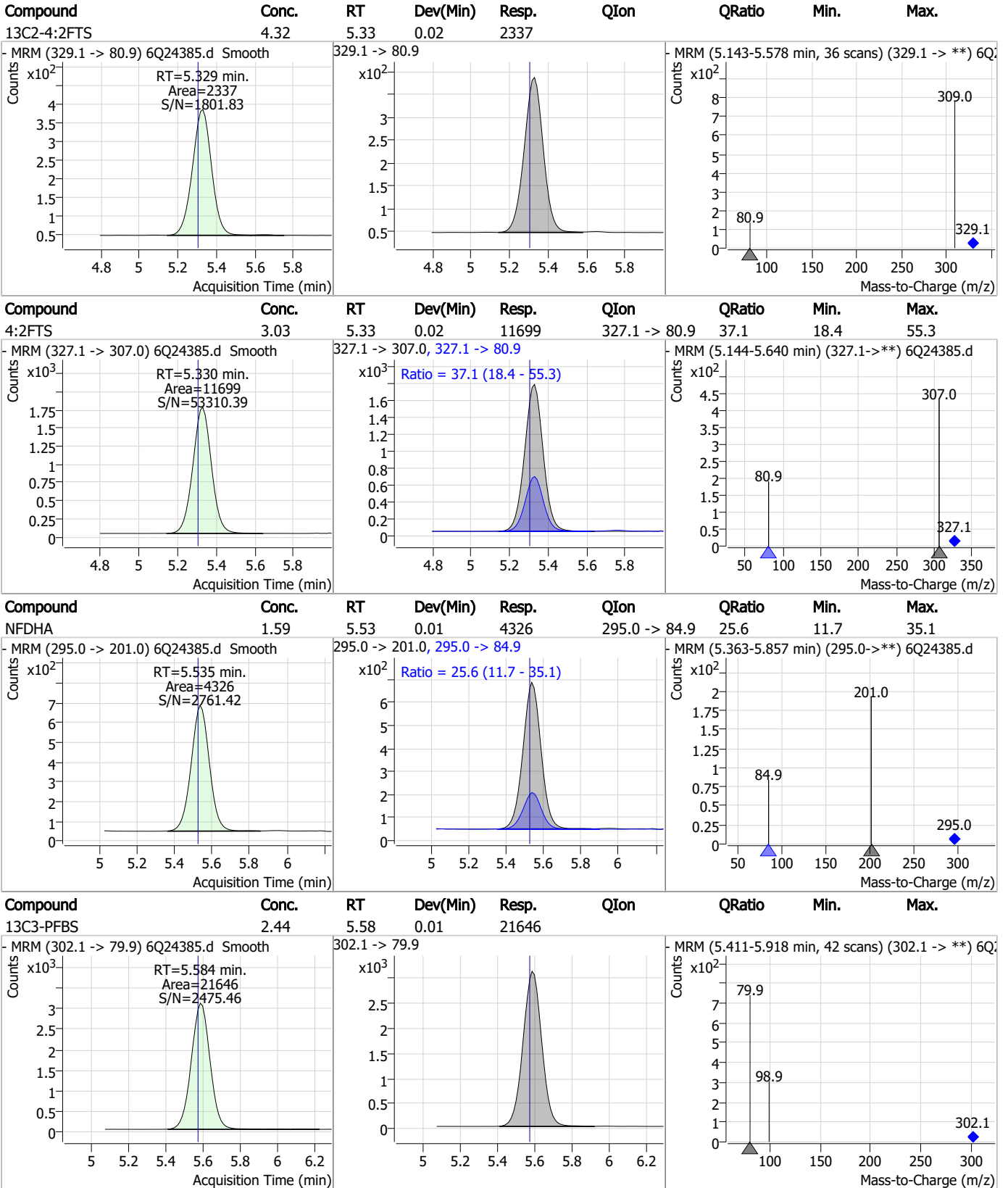
Perfluorinated Compounds by LC/MS/MS



7.3.2

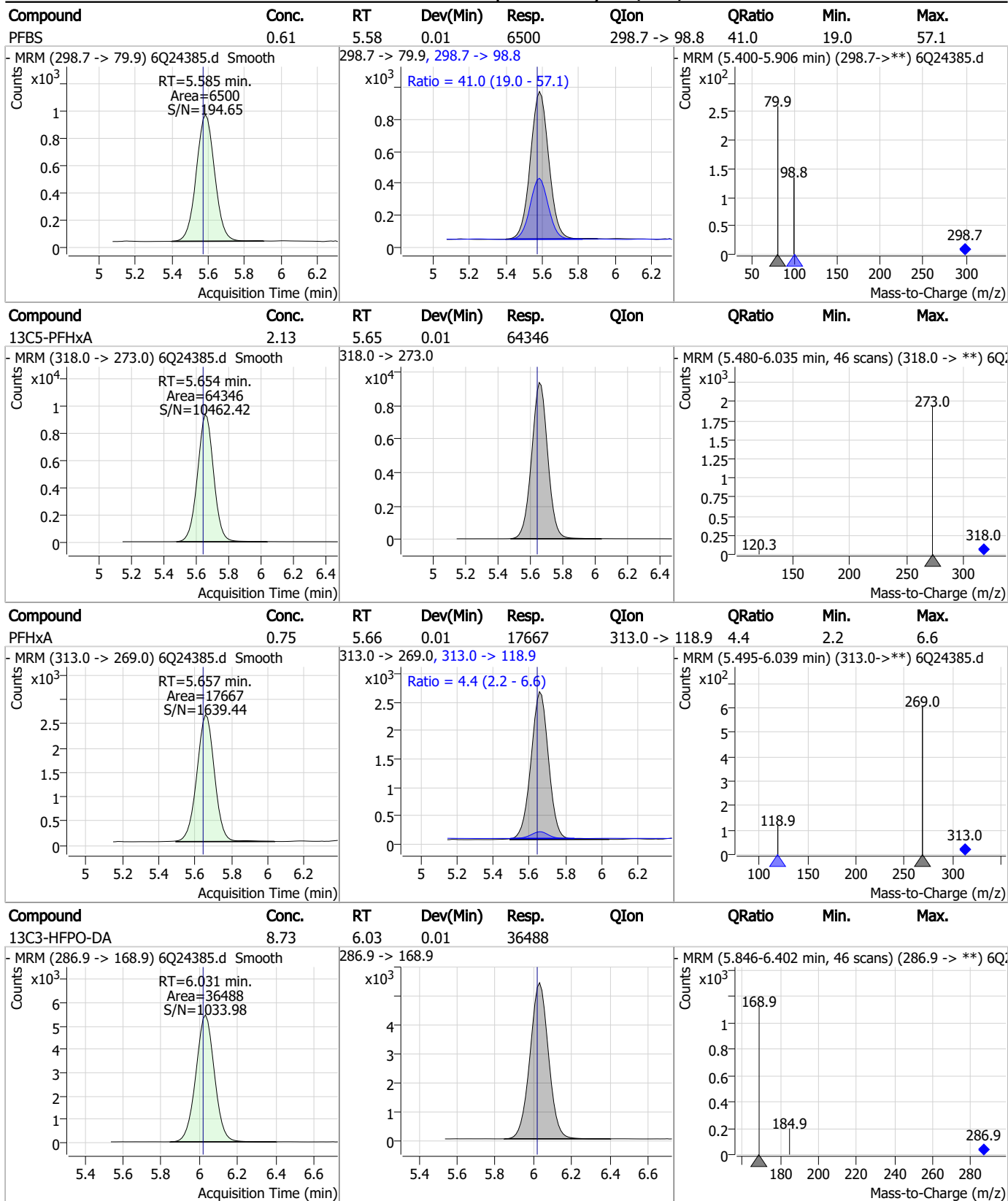
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Perfluorinated Compounds by LC/MS/MS



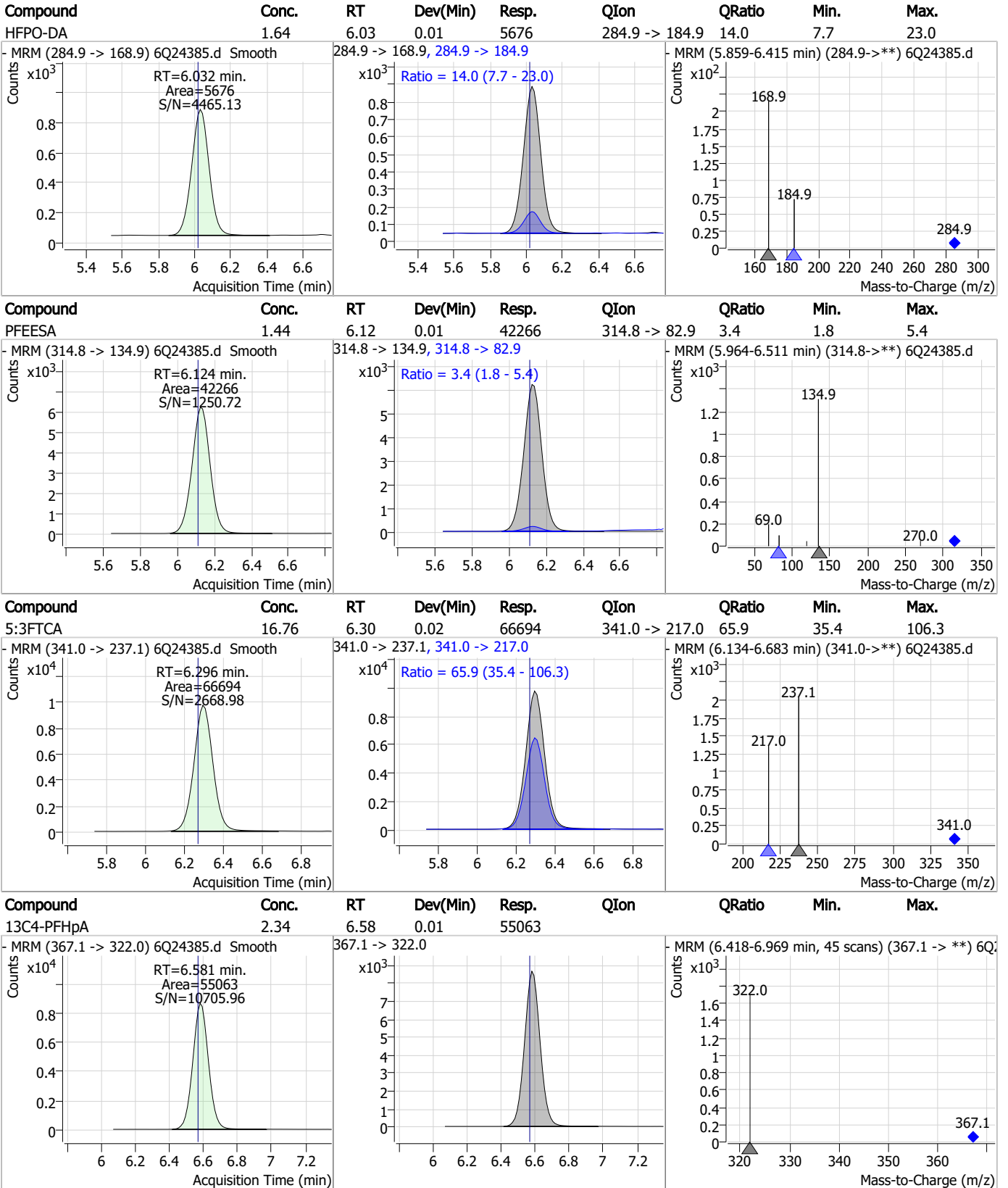
7.3.2
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Perfluorinated Compounds by LC/MS/MS



7.3.2
7

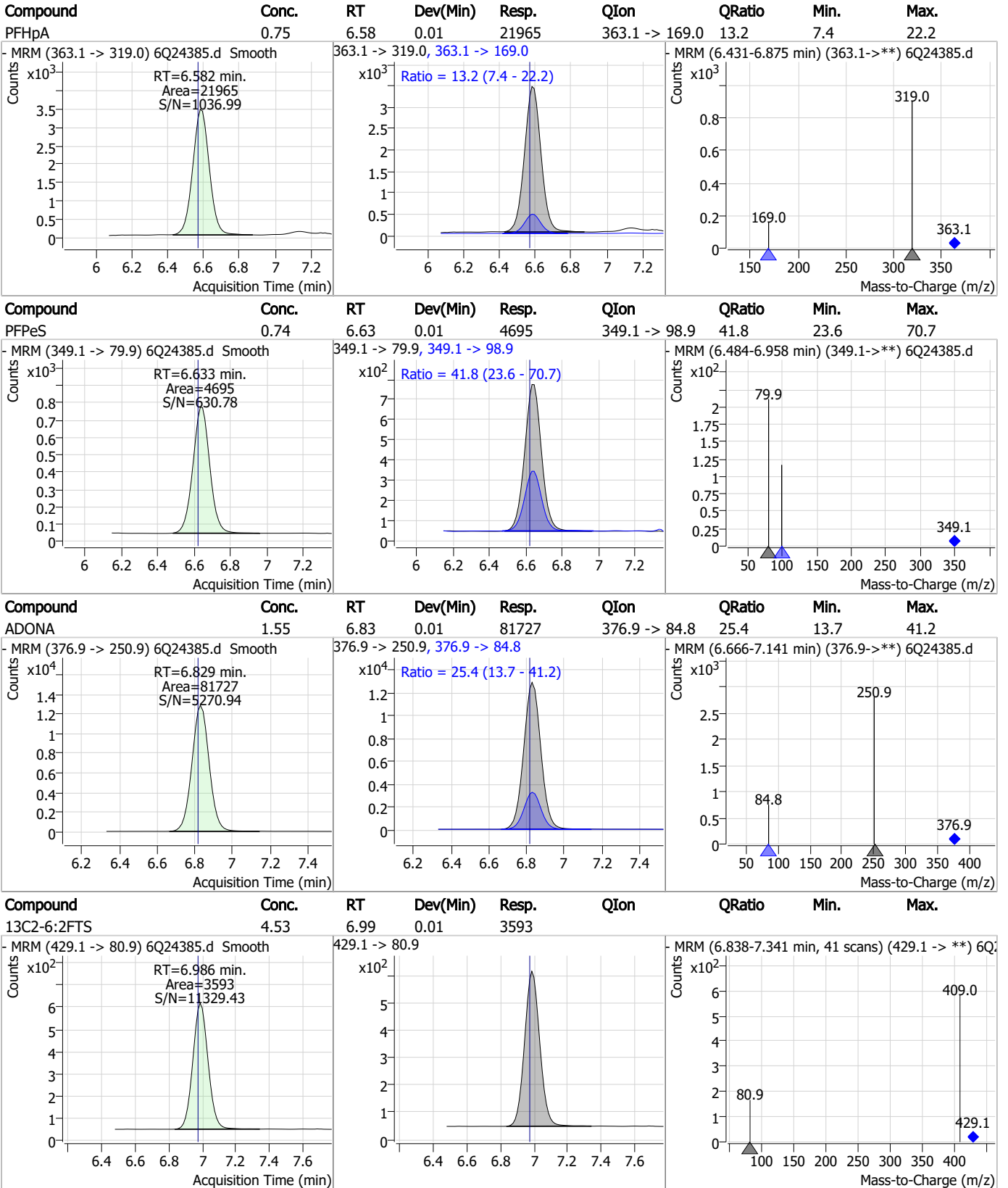
Perfluorinated Compounds by LC/MS/MS



7.3.2

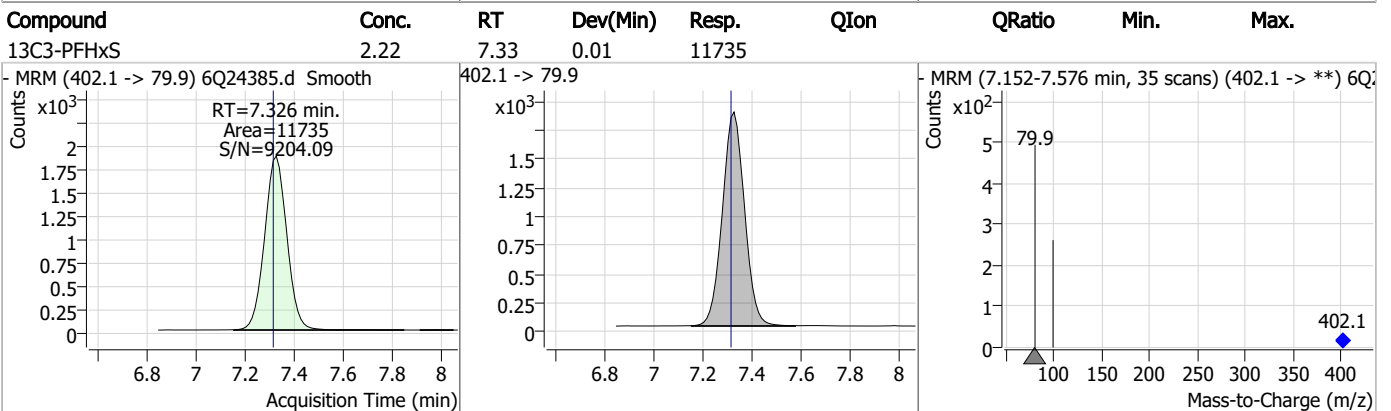
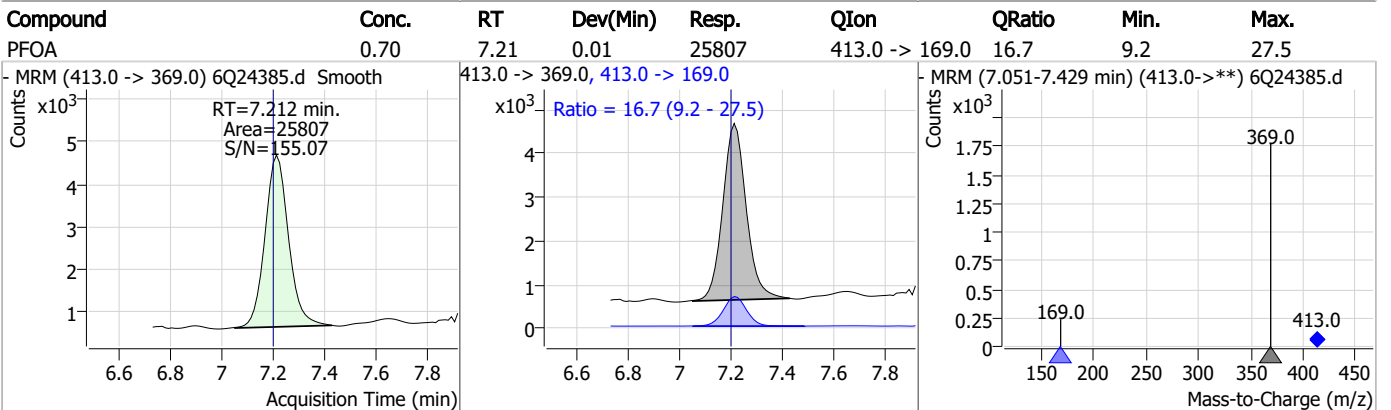
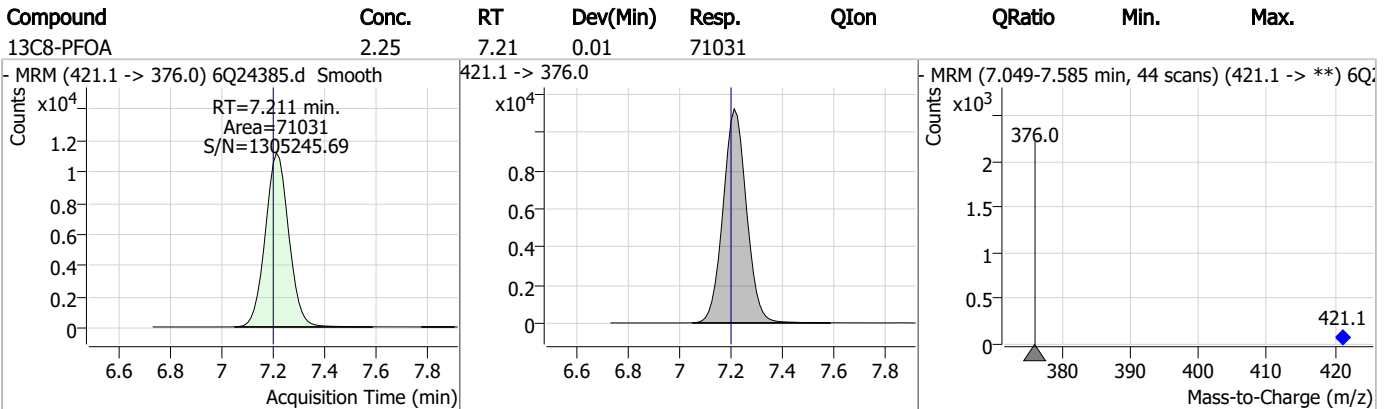
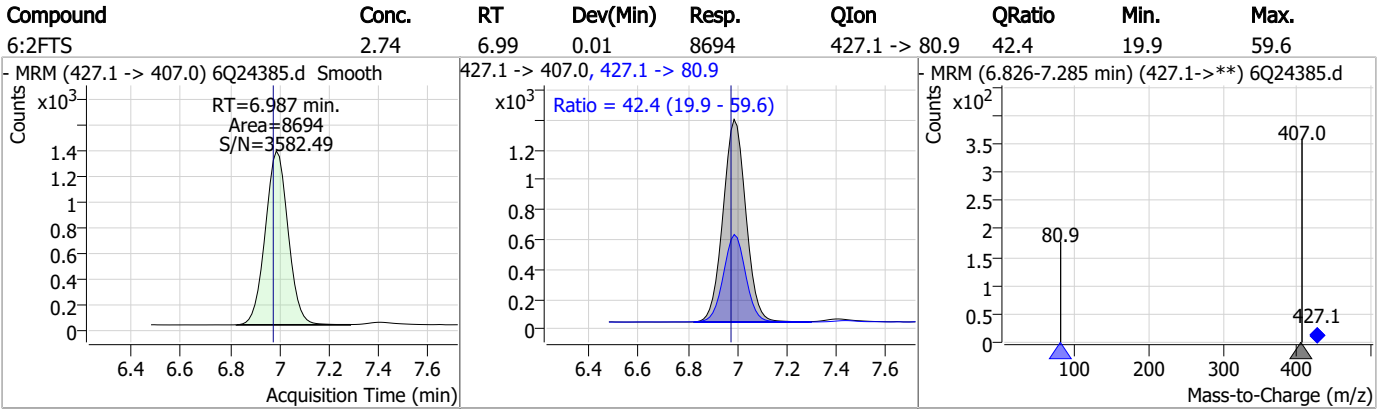
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Perfluorinated Compounds by LC/MS/MS

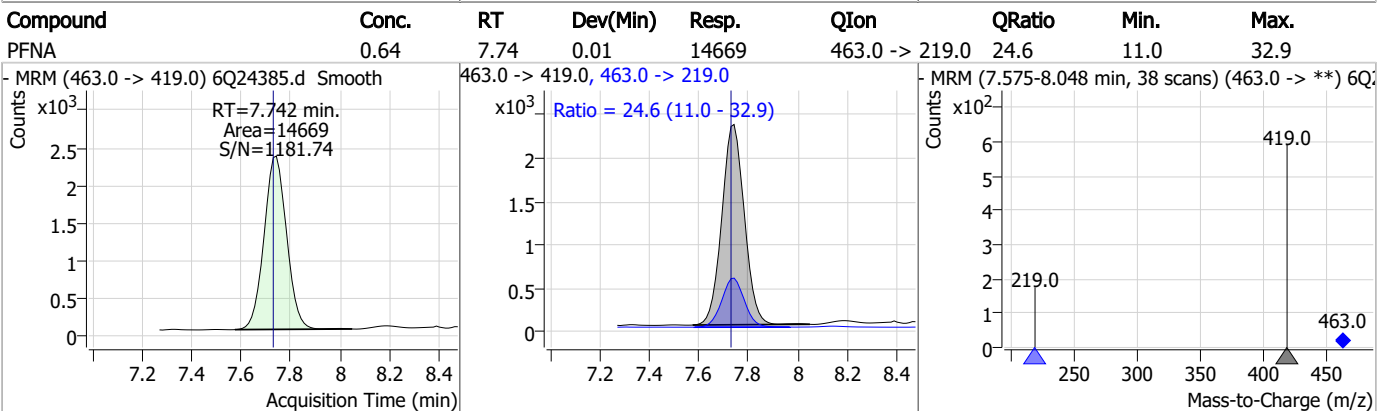
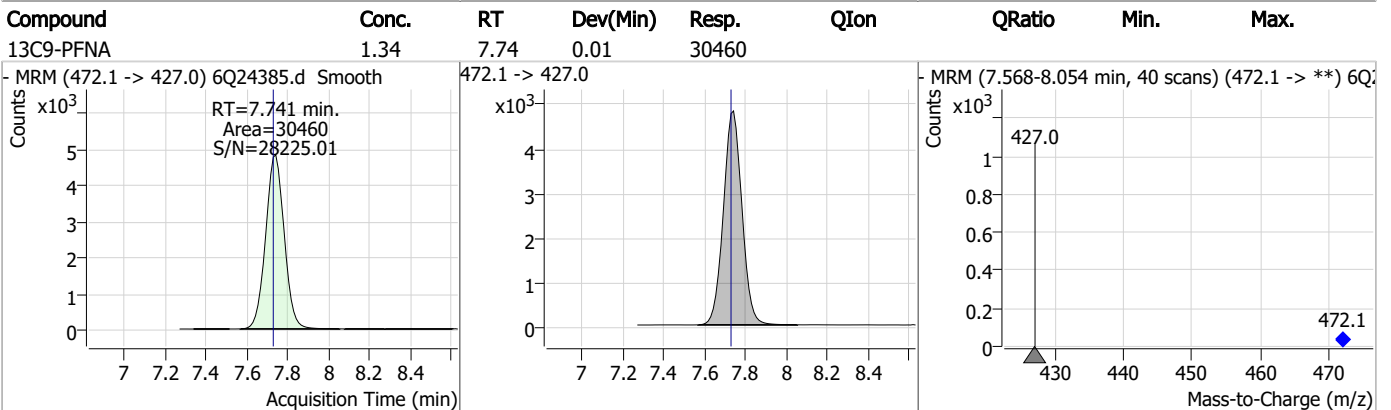
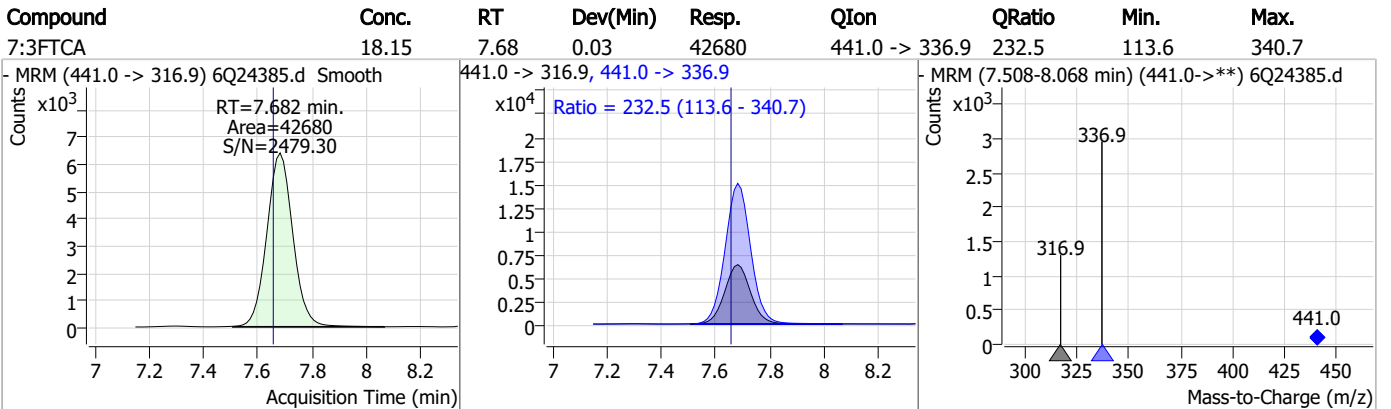
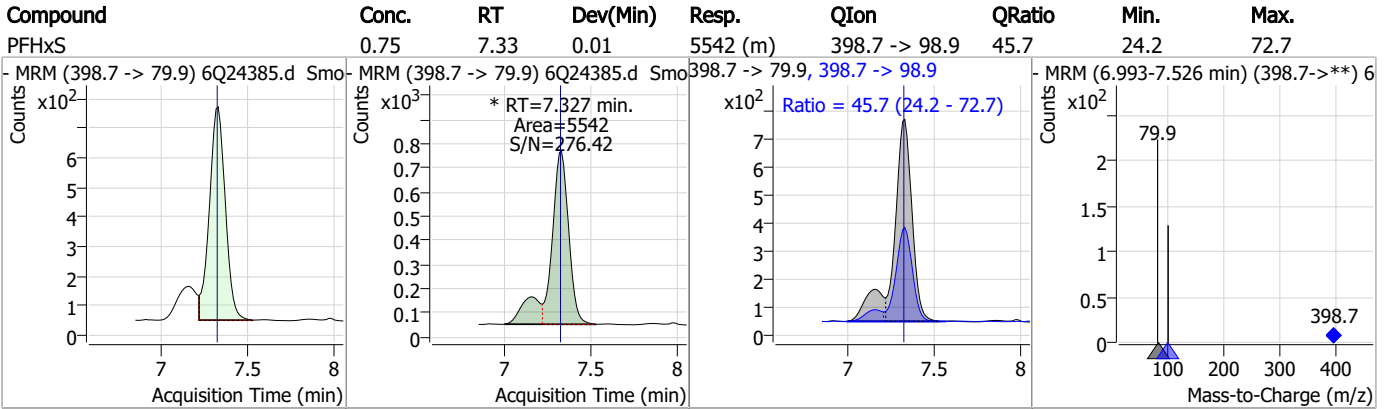


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Perfluorinated Compounds by LC/MS/MS



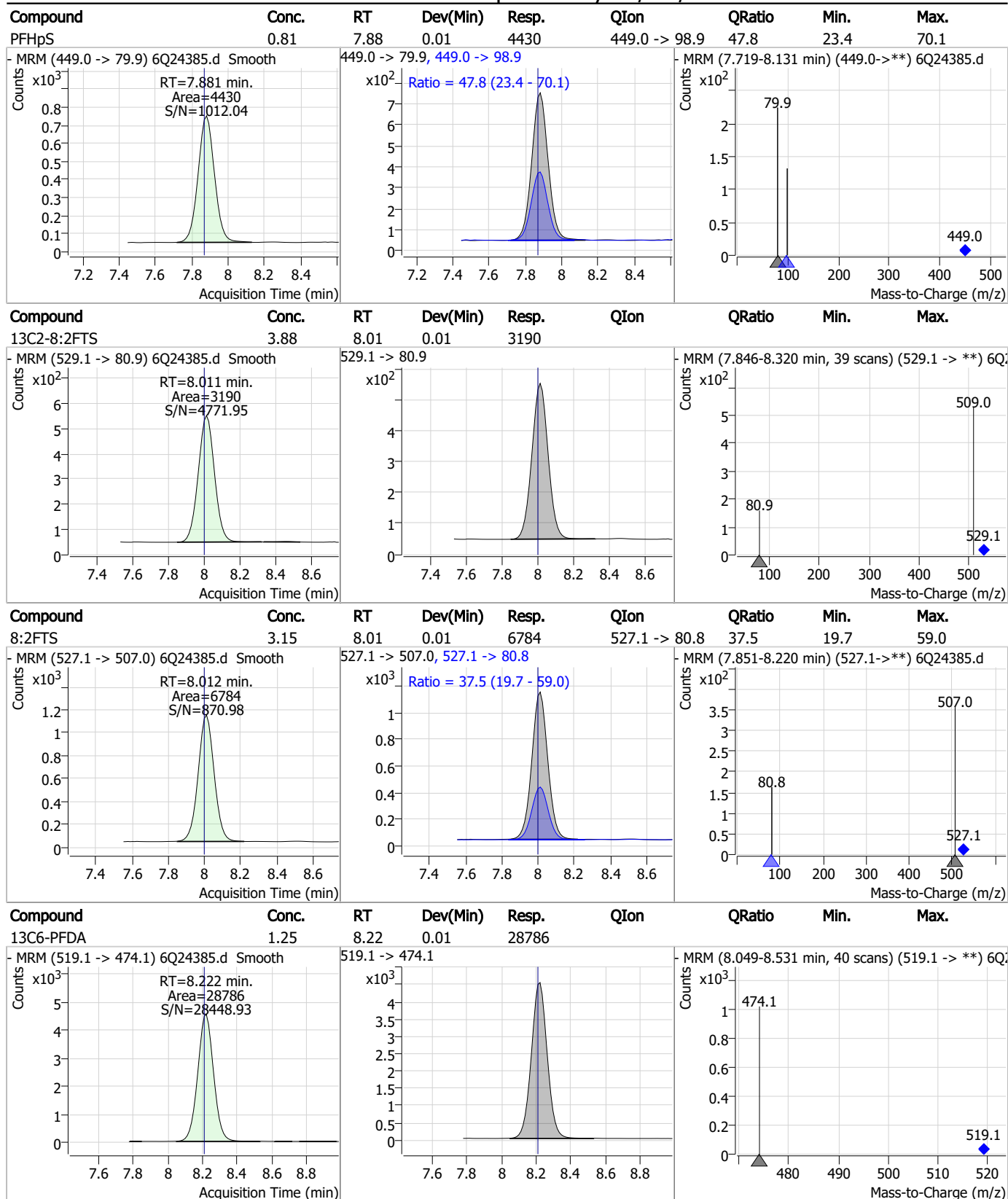
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

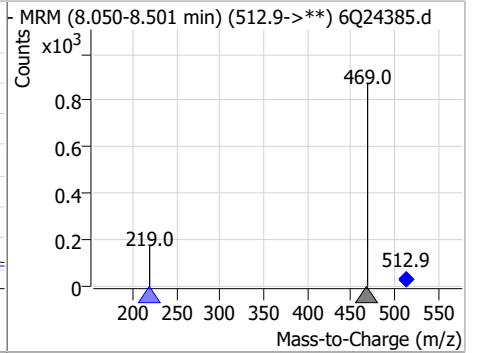
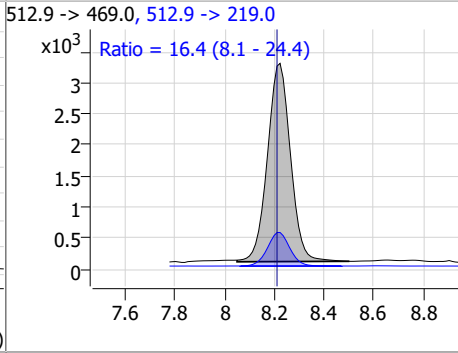
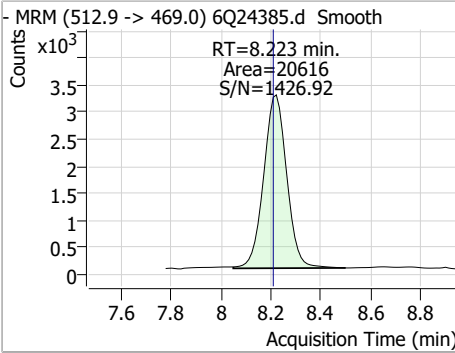
Perfluorinated Compounds by LC/MS/MS



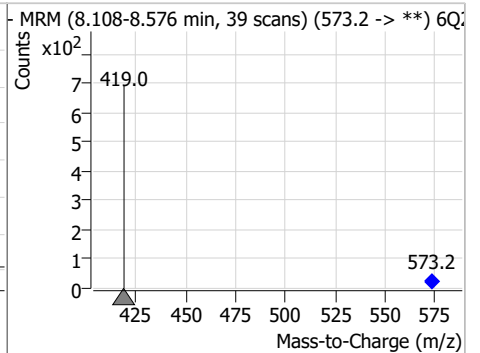
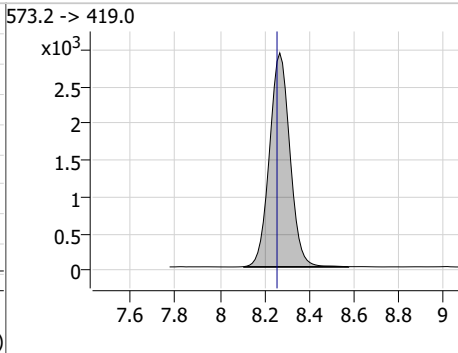
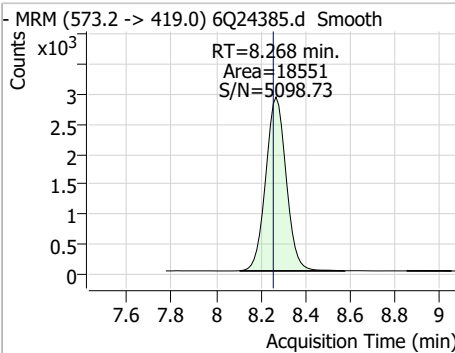
7.3.2
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Perfluorinated Compounds by LC/MS/MS

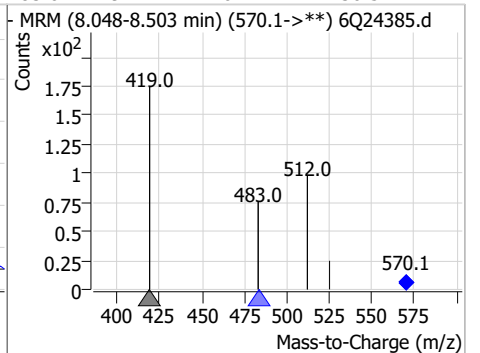
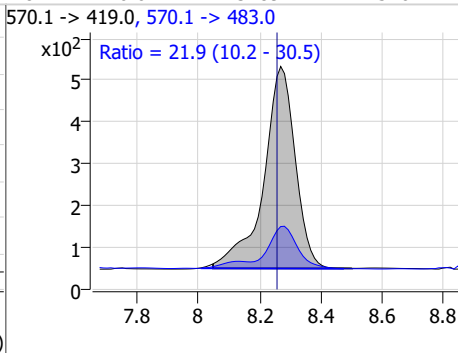
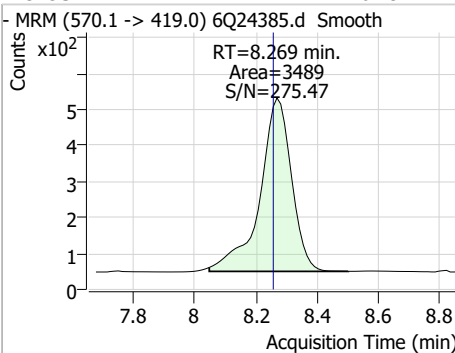
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.79	8.22	0.01	20616	512.9 -> 219.0	16.4	8.1	24.4



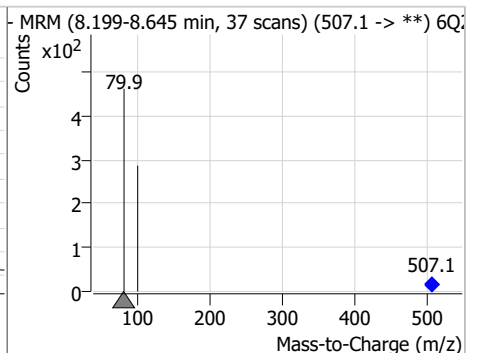
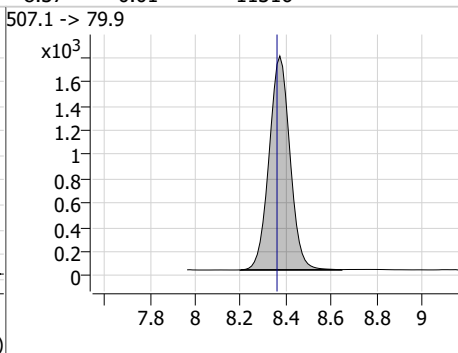
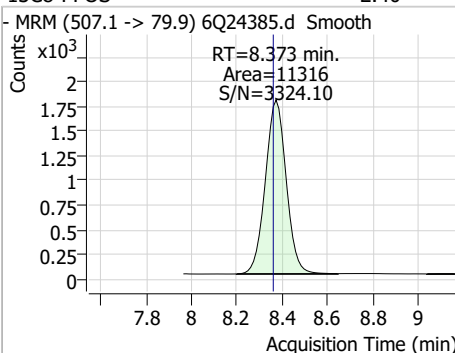
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.43	8.27	0.01	18551	573.2 -> 419.0			



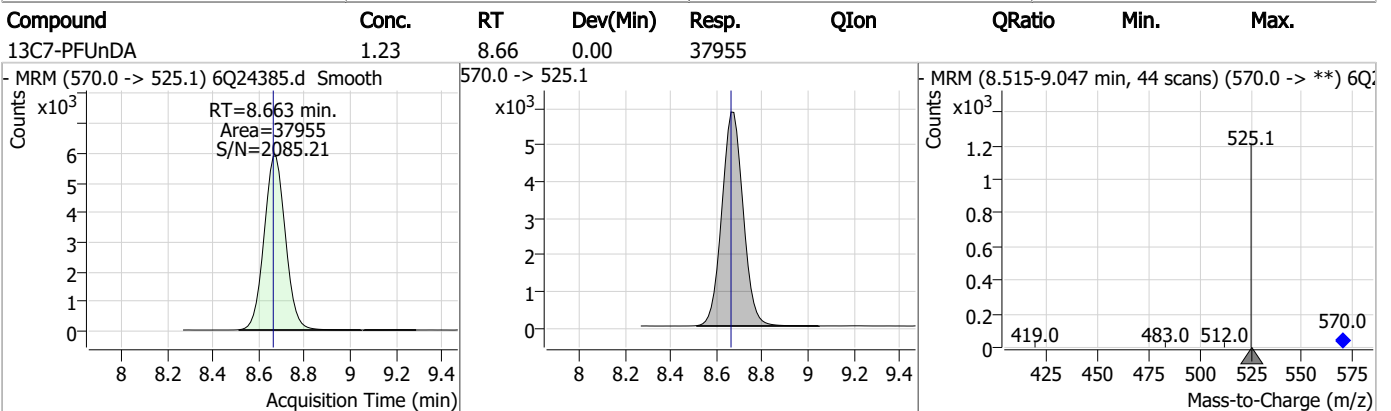
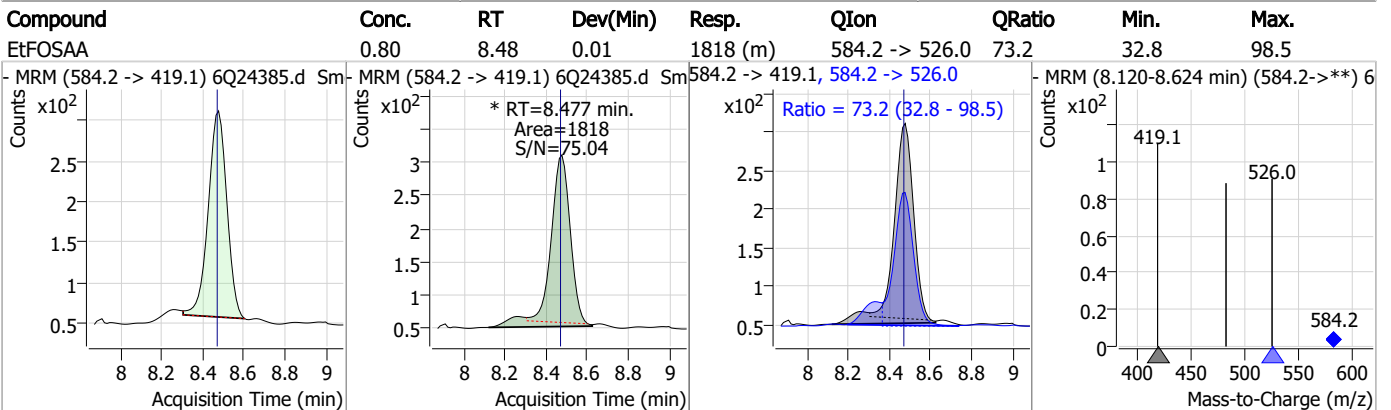
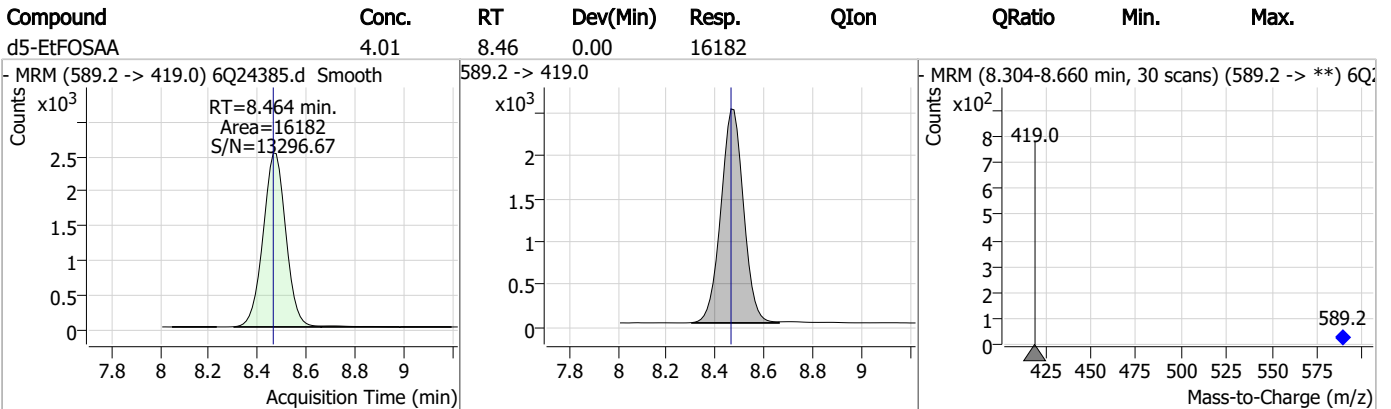
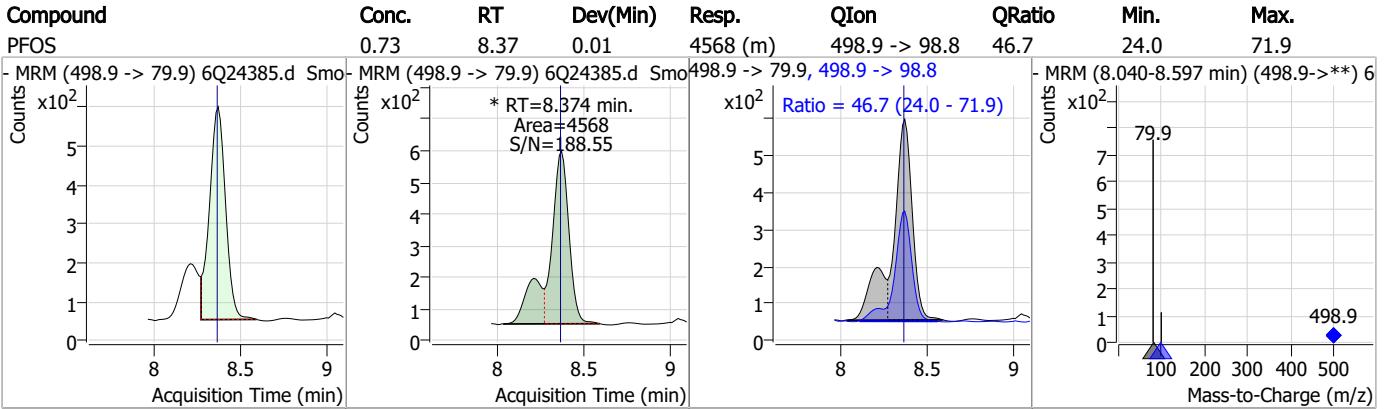
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.79	8.27	0.01	3489	570.1 -> 483.0	21.9	10.2	30.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.40	8.37	0.01	11316	507.1 -> 79.9			



Perfluorinated Compounds by LC/MS/MS

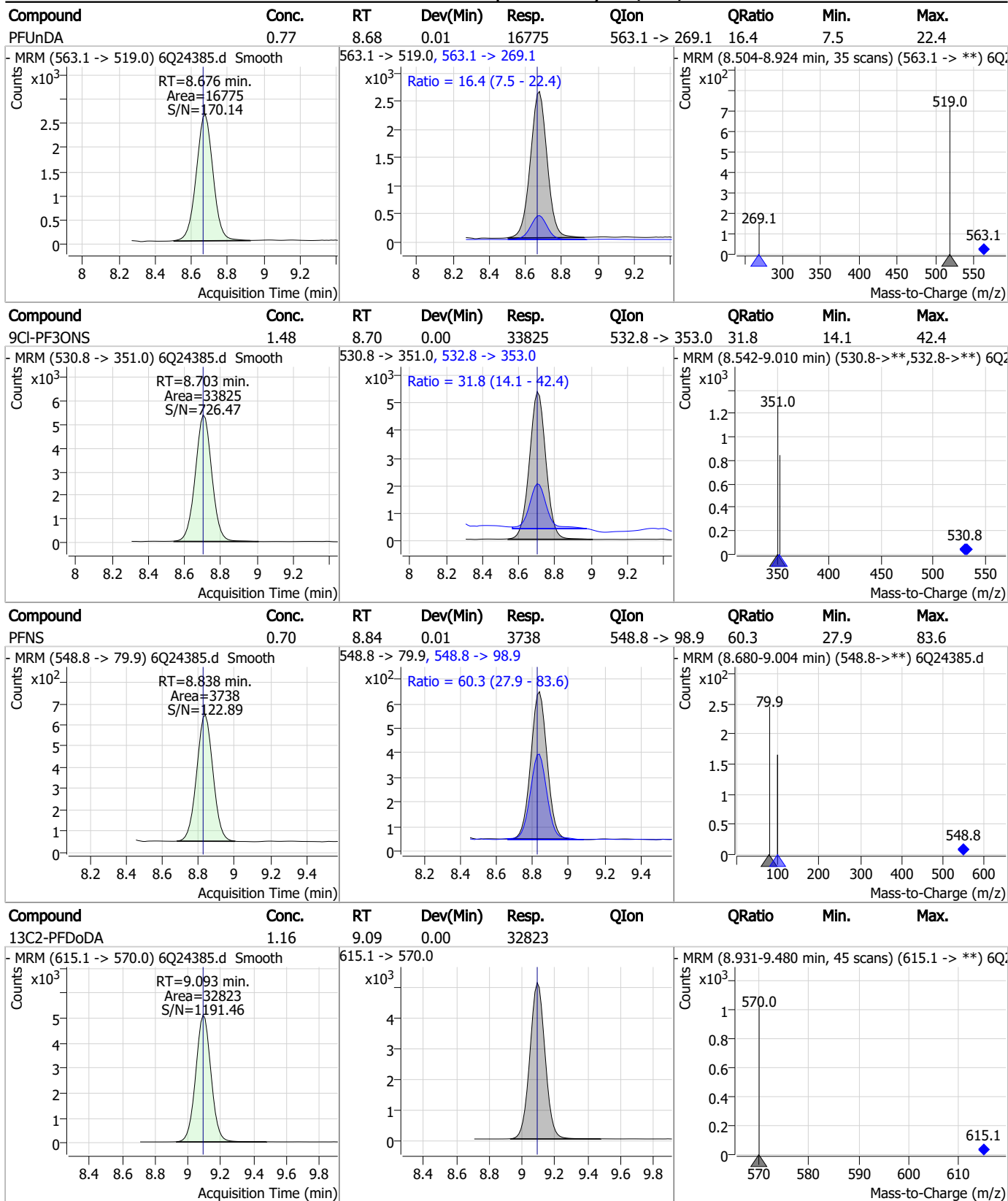


7.3.2

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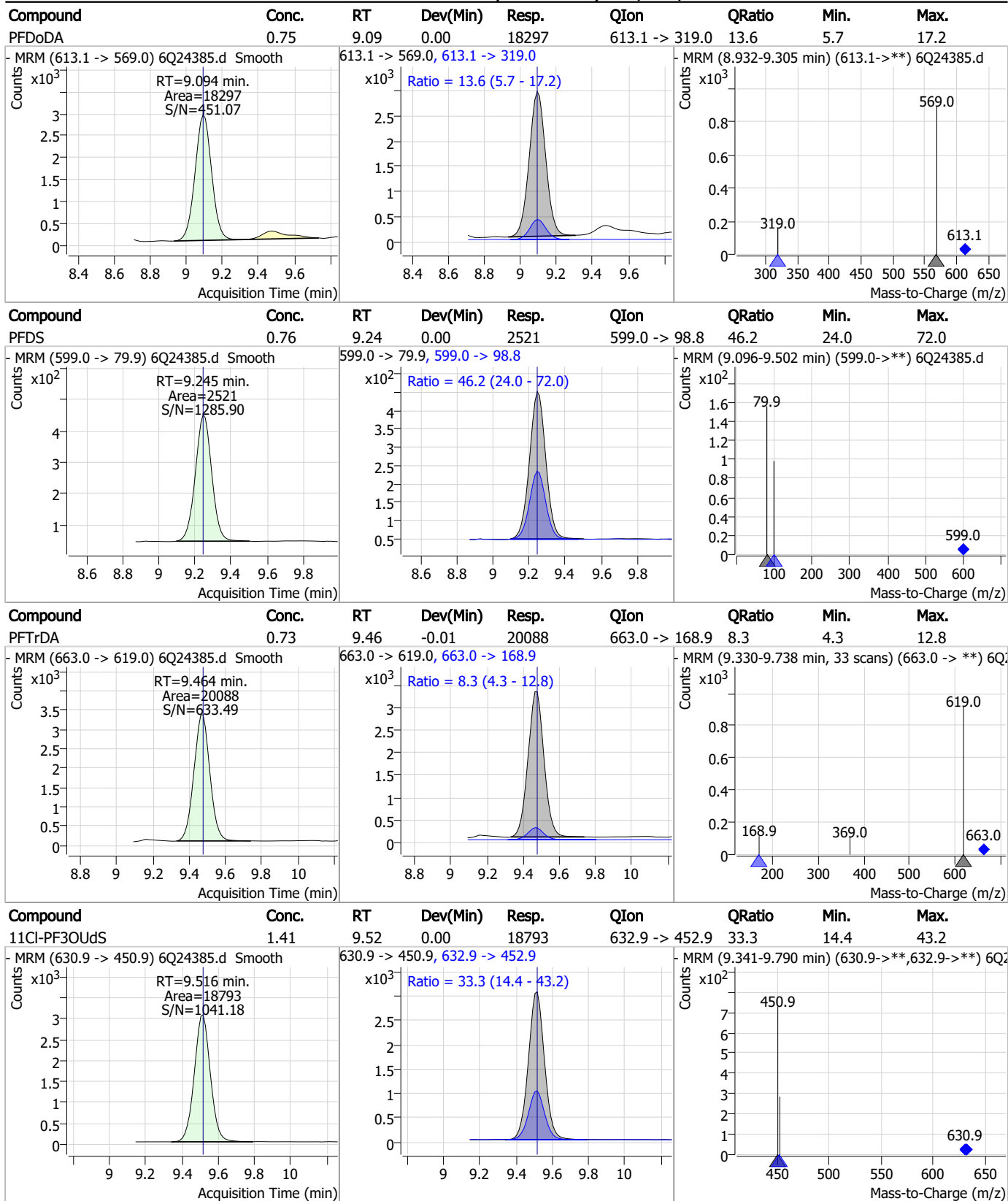


Perfluorinated Compounds by LC/MS/MS



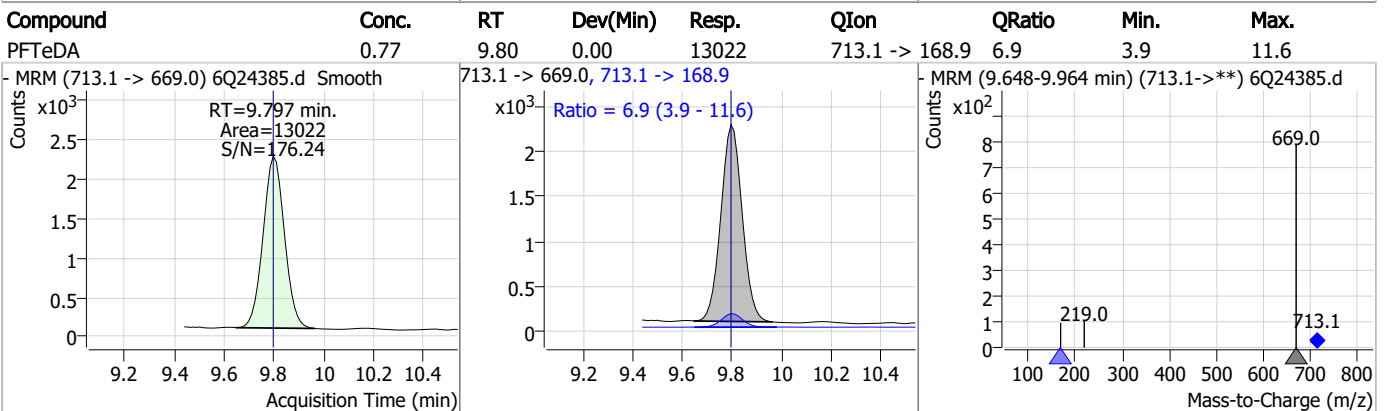
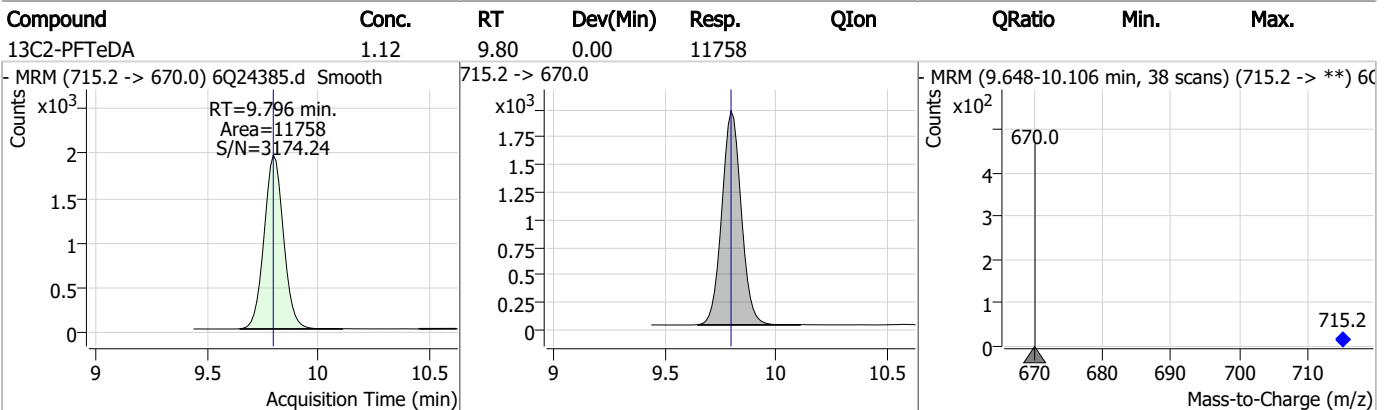
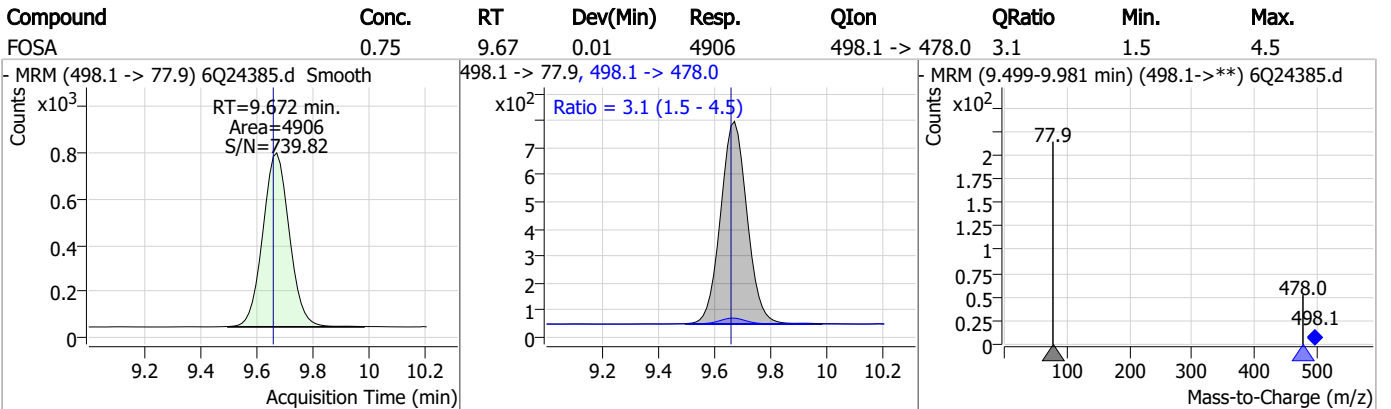
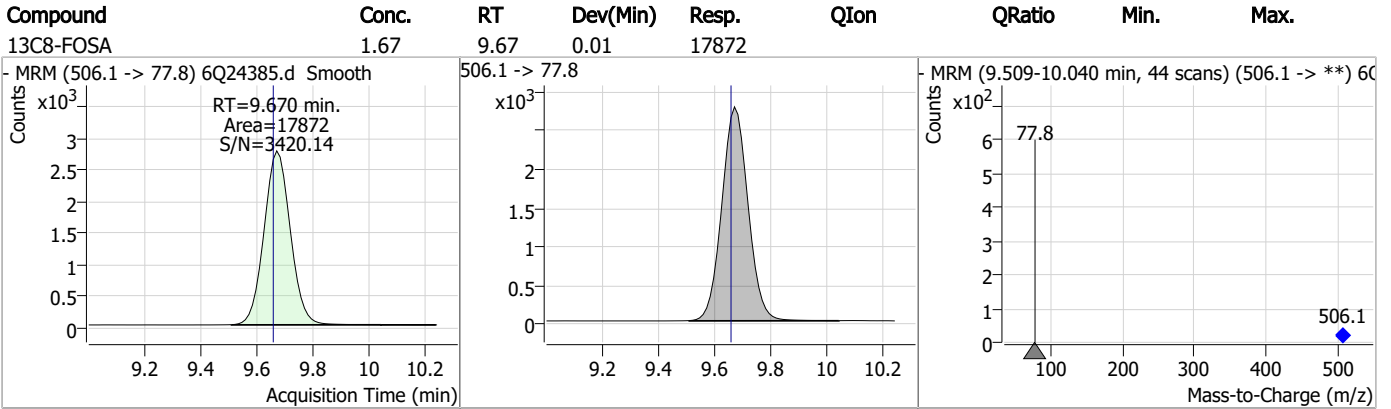
7.3.2
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Perfluorinated Compounds by LC/MS/MS



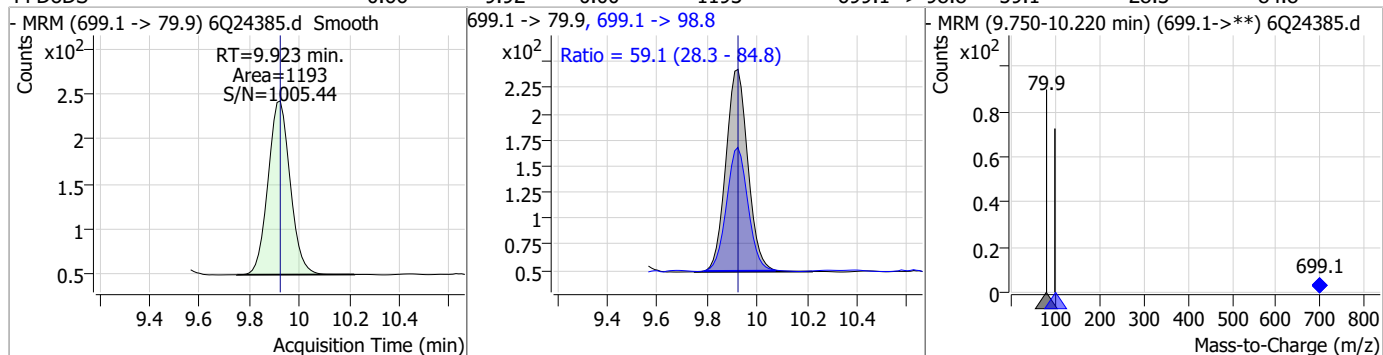
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

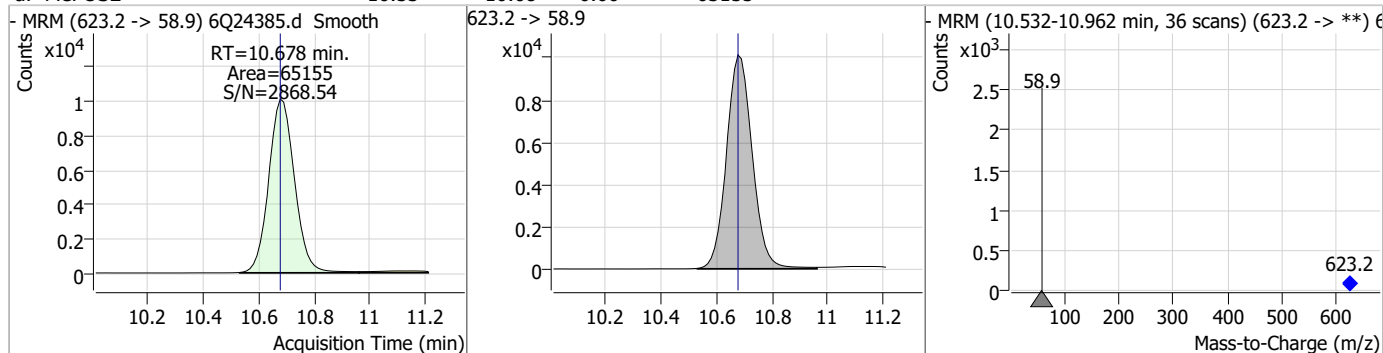


Perfluorinated Compounds by LC/MS/MS

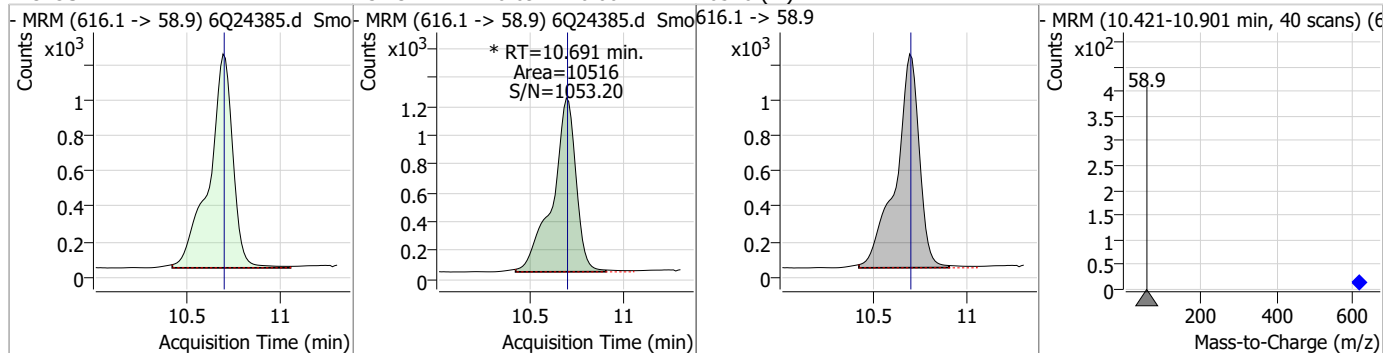
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.66	9.92	0.00	1193	699.1 -> 98.8	59.1	28.3	84.8



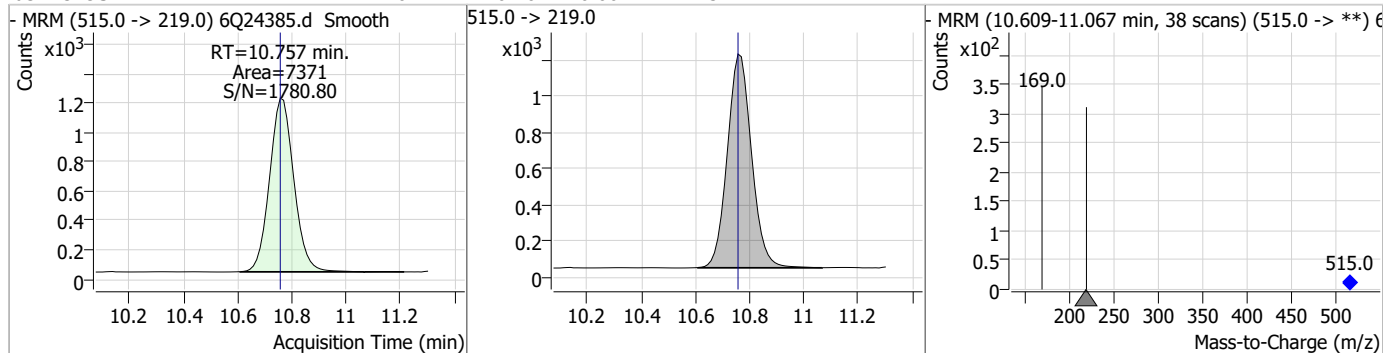
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	16.53	10.68	0.00	65155				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.73	10.69	0.00	10516 (m)				

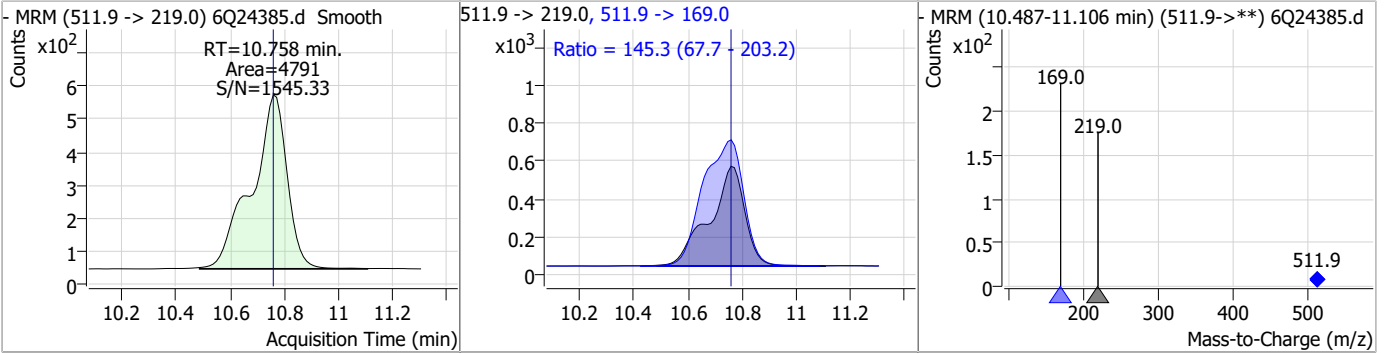


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.70	10.76	0.00	7371				

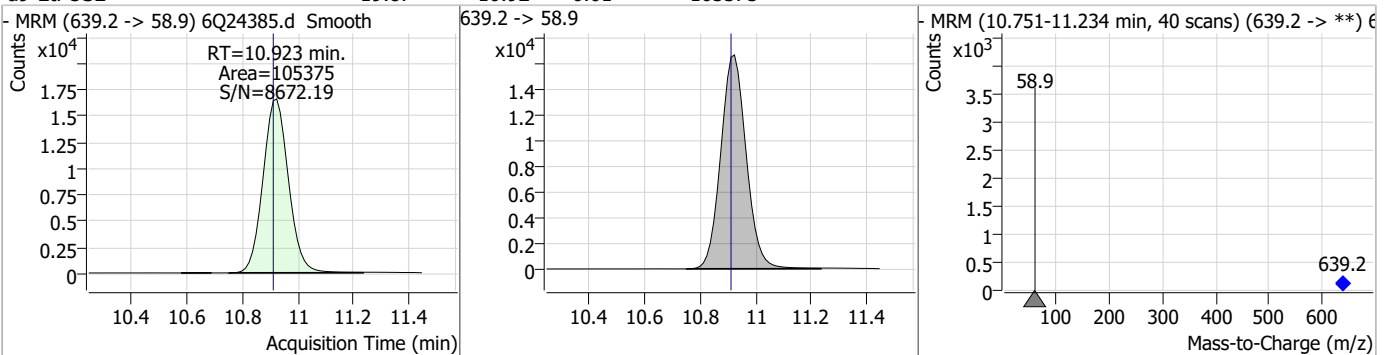


Perfluorinated Compounds by LC/MS/MS

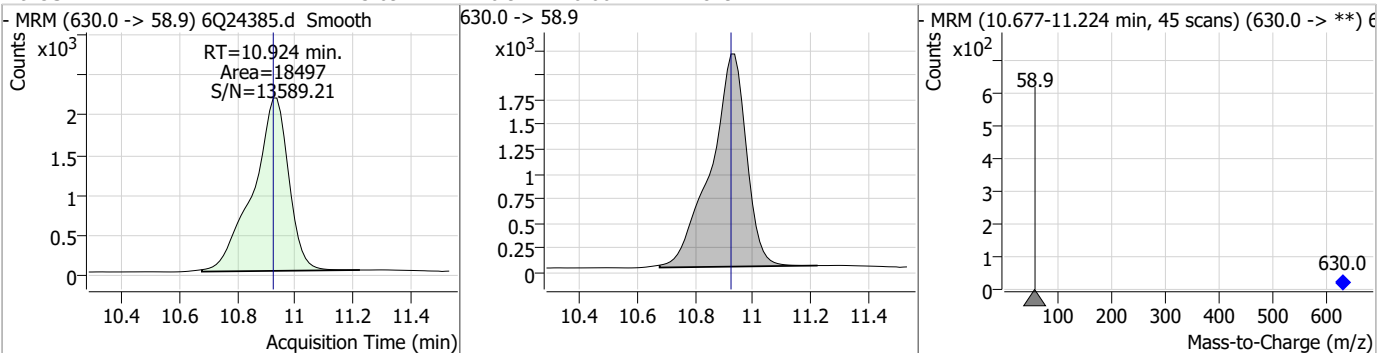
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	1.53	10.76	0.00	4791	511.9 -> 169.0	145.3	67.7	203.2



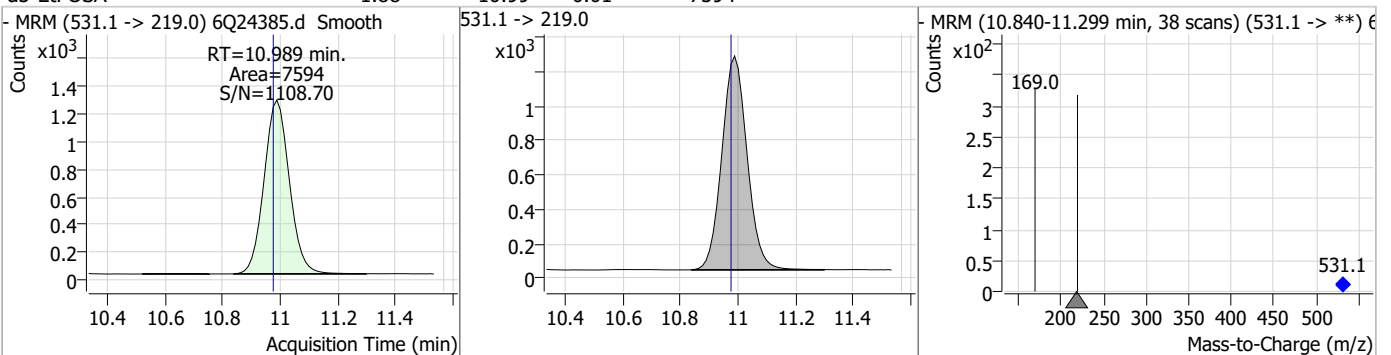
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.87	10.92	0.01	105375				



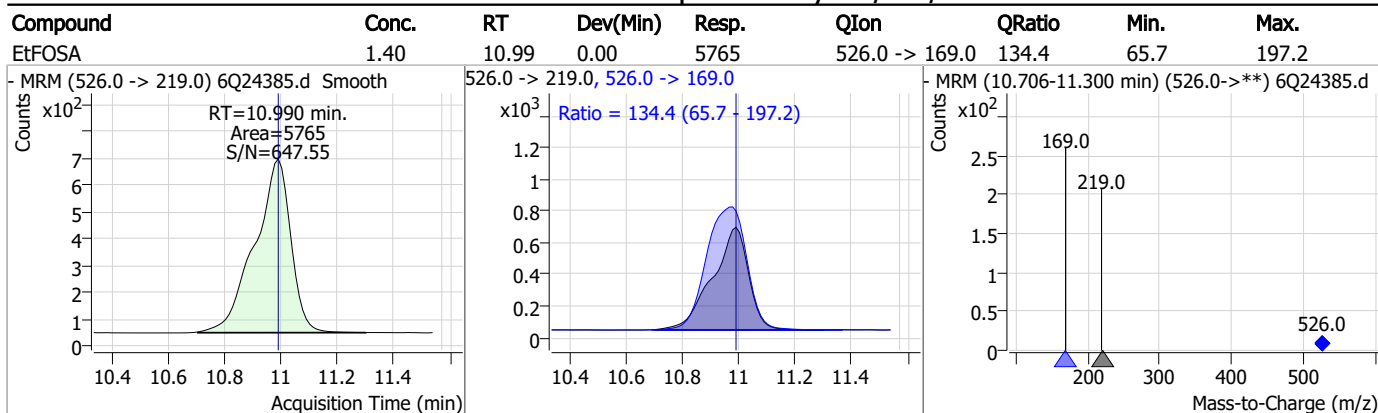
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	3.69	10.92	0.00	18497				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.88	10.99	0.01	7594				



Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP98930-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q24385.D Analyst approved: 09/13/23 14:00 Martha Valls
Injection Time: 09/13/23 02:37 Supervisor approved: 09/13/23 15:11 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		10.69	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24392.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 4:18:12 AM
 Sample Name : OP98930-MS
 Vial : P3-E9
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,525,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	59241	10.00 µg/L	0.041
M5-PFPeA	4.447	268.3 -> 223.0	28368	5.00 µg/L	0.025
M5-PFHxA	5.654	318.0 -> 273.0	67648	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	55489	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	71671	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	33255	1.25 µg/L	0.012
M6-PFDA	8.222	519.1 -> 474.1	30896	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	33399	1.25 µg/L	0.012
M2-PFDoDA	9.106	615.1 -> 570.0	30776	1.25 µg/L	0.012
M2-PFTeDA	9.809	715.2 -> 670.0	10732	1.25 µg/L	0.012
M8-FOSA	9.670	506.1 -> 77.8	23718	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	21100	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	12903	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	12351	2.50 µg/L	0.012
M2-4:2FTS	5.329	329.1 -> 80.9	2303	5.00 µg/L	0.025
M2-6:2FTS	6.986	429.1 -> 80.9	3549	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3494	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	18530	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	37856	10.00 µg/L	0.012
M5-EtFOSAA	8.476	589.2 -> 419.0	16929	5.00 µg/L	0.012
M7-MeFOSE	10.678	623.2 -> 58.9	77445	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	108587	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	8030	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	9049	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	16218	2.50 µg/L	0.012
13C3-PFBA	3.029	216.0 -> 172.0	77382	5.00 µg/L	0.040
18O2-PFHxS	7.325	403.0 -> 83.9	9310	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	85619	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	27513	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	37162	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	57458	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.329	329.1 -> 80.9	2303	4.40 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3549	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3494	4.39 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.8%		
13C2-PFDoDA	9.106	615.1 -> 570.0	30776	1.04 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.4%		
13C2-PFTeDA	9.809	715.2 -> 670.0	10732	0.98 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.3%		
13C3-PFBS	5.584	302.1 -> 79.9	21100	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.326	402.1 -> 79.9	12903	2.52 µg/L	0.012

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFBA	3.025	216.8 -> 171.9	59241	3.03 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 30.3%	
13C4-PFHpA	6.581	367.1 -> 322.0	55489	2.25 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
13C5-PFHxA	5.654	318.0 -> 273.0	67648	2.14 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 85.4%	
13C5-PFPeA	4.447	268.3 -> 223.0	28368	3.66 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 73.3%	
13C6-PFDA	8.222	519.1 -> 474.1	30896	1.29 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.676	570.0 -> 525.1	33399	1.04 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 83.2%	
13C8-FOSA	9.670	506.1 -> 77.8	23718	2.05 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C8-PFOA	7.211	421.1 -> 376.0	71671	2.27 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.0%	
13C8-PFOS	8.373	507.1 -> 79.9	12351	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C9-PFNA	7.741	472.1 -> 427.0	33255	1.43 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 114.6%	
d3-MeFOSAA	8.268	573.2 -> 419.0	18530	4.09 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.7%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	37856	8.65 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 86.5%	
d3-MeFOSA	10.757	515.0 -> 219.0	9049	1.93 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.4%	
d5-EtFOSAA	8.476	589.2 -> 419.0	16929	3.88 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	77445	18.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 72.7%	
d9-EtFOSE	10.923	639.2 -> 58.9	108587	18.92 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 75.7%	
d5-EtFOSA	10.989	531.1 -> 219.0	8030	1.84 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.6%	
Target Compounds					QValue
4:2FTS	5.330	327.1 -> 307.0	36651	9.62 µg/L	97
		327.1 -> 80.9	14166		
6:2FTS	6.987	427.1 -> 407.0	31460	10.02 µg/L	97
		427.1 -> 80.9	11882		
8:2FTS	8.012	527.1 -> 507.0	20658	8.77 µg/L	98
		527.1 -> 80.8	7887		
EtFOSAA	8.477	584.2 -> 419.1	6091	2.55 µg/L	99
		584.2 -> 526.0	4057		
FOSA	9.672	498.1 -> 77.9	21609	2.48 µg/L	99
		498.1 -> 478.0	558		
MeFOSAA	8.269	570.1 -> 419.0	11730	2.66 µg/L	100
		570.1 -> 483.0	2358		
PFBA	3.018	212.8 -> 168.9	20933	10.69 µg/L	100
PFBS	5.585	298.7 -> 79.9	24537	2.37 µg/L	96
		298.7 -> 98.8	8691		
PFDA	8.223	512.9 -> 469.0	65034	2.31 µg/L	98
		512.9 -> 219.0	11281		
PFDODA	9.106	613.1 -> 569.0	58479	2.56 µg/L	99
		613.1 -> 319.0	6461		
PFDS	9.257	599.0 -> 79.9	7596	2.11 µg/L	98

7.4.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3742			
PFHpA	6.582	363.1 -> 319.0	74644	2.54	µg/L	98
		363.1 -> 169.0	10476			
PFHpS	7.881	449.0 -> 79.9	13275	2.22	µg/L	94
		449.0 -> 98.9	6704			
PFHxA	5.657	313.0 -> 269.0	58401	2.37	µg/L	98
		313.0 -> 118.9	2909			
PFHxS	7.327	398.7 -> 79.9	17166	2.12	µg/L	m 99
		398.7 -> 98.9	8247			
PFNA	7.742	463.0 -> 419.0	50272	2.00	µg/L	93
		463.0 -> 219.0	12743			
PFNS	8.838	548.8 -> 79.9	14541	2.49	µg/L	90
		548.8 -> 98.9	7074			
PFOA	7.212	413.0 -> 369.0	85764	2.32	µg/L	98
		413.0 -> 169.0	15156			
PFOS	8.374	498.9 -> 79.9	15165	2.22	µg/L	m 98
		498.9 -> 98.8	7467			
PFPeA	4.449	263.0 -> 219.0	72099	5.71	µg/L	100
PFPeS	6.633	349.1 -> 79.9	15439	2.20	µg/L	99
		349.1 -> 98.9	7122			
PFTeDA	9.797	713.1 -> 669.0	38635	2.50	µg/L	99
		713.1 -> 168.9	3150			
PFTrDA	9.477	663.0 -> 619.0	56306	2.17	µg/L	98
		663.0 -> 168.9	4420			
PFUnDA	8.676	563.1 -> 519.0	54250	2.84	µg/L	97
		563.1 -> 269.1	8854			
11CI-PF3OUdS	9.516	630.9 -> 450.9	58194	4.21	µg/L	98
		632.9 -> 452.9	17265			
9CI-PF3ONS	8.716	530.8 -> 351.0	110595	4.67	µg/L	98
		532.8 -> 353.0	32740			
ADONA	6.829	376.9 -> 250.9	273664	4.99	µg/L	100
		376.9 -> 84.8	74639			
HFPO-DA	6.032	284.9 -> 168.9	18017	5.03	µg/L	95
		284.9 -> 184.9	2391			
3:3FTCA	3.915	241.0 -> 177.0	7884	23.29	µg/L	99
		241.0 -> 117.0	782			
5:3FTCA	6.296	341.0 -> 237.1	259347	62.00	µg/L	100
		341.0 -> 217.0	183829			
7:3FTCA	7.682	441.0 -> 316.9	158708	64.20	µg/L	97
		441.0 -> 336.9	352518			
EtFOSA	10.990	526.0 -> 219.0	22191	5.08	µg/L	95
		526.0 -> 169.0	30361			
EtFOSE	10.937	630.0 -> 58.9	65262	12.65	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	20924	5.45	µg/L	m 99
		511.9 -> 169.0	28495			
MeFOSE	10.691	616.1 -> 58.9	40366	12.05	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	3585	1.82	µg/L	99
		699.1 -> 98.8	2053			
NFDHA	5.535	295.0 -> 201.0	14371	5.04	µg/L	97
		295.0 -> 84.9	3586			
PFMBA	4.863	279.0 -> 85.1	54219	5.89	µg/L	100
PFMPA	3.575	229.0 -> 84.9	25845	3.91	µg/L	100
PFEESA	6.124	314.8 -> 134.9	143558	4.67	µg/L	99
		314.8 -> 82.9	4864			

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

7.4.1
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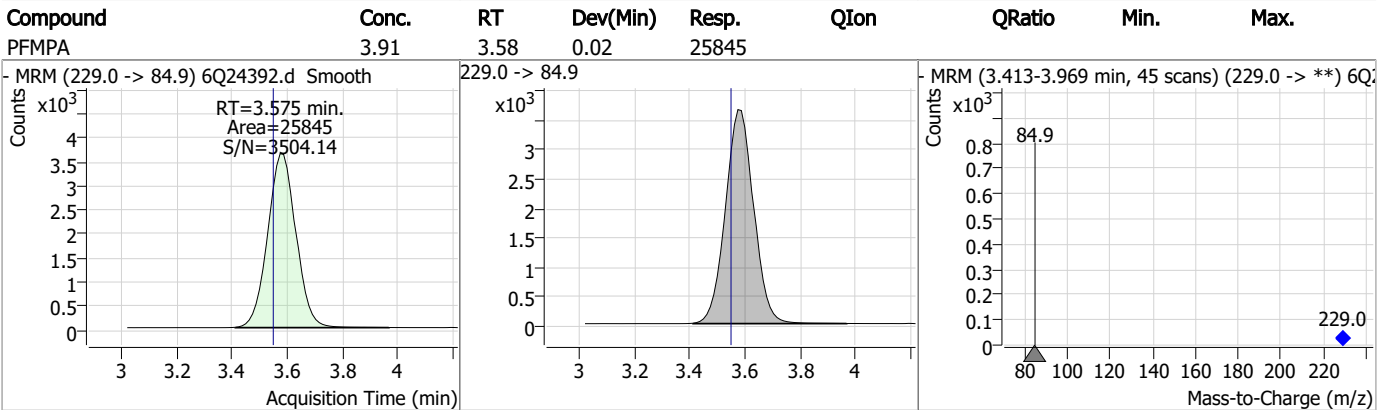
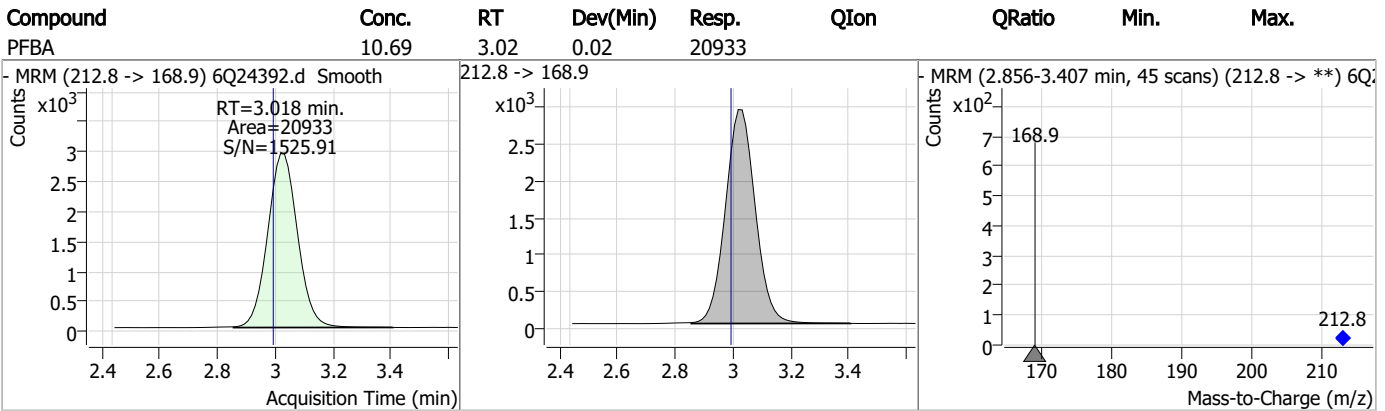
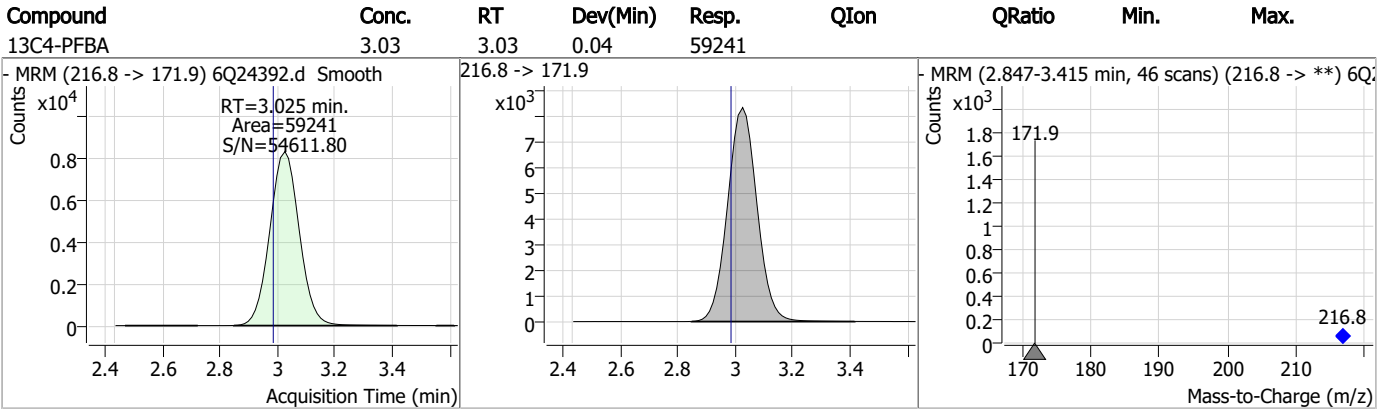
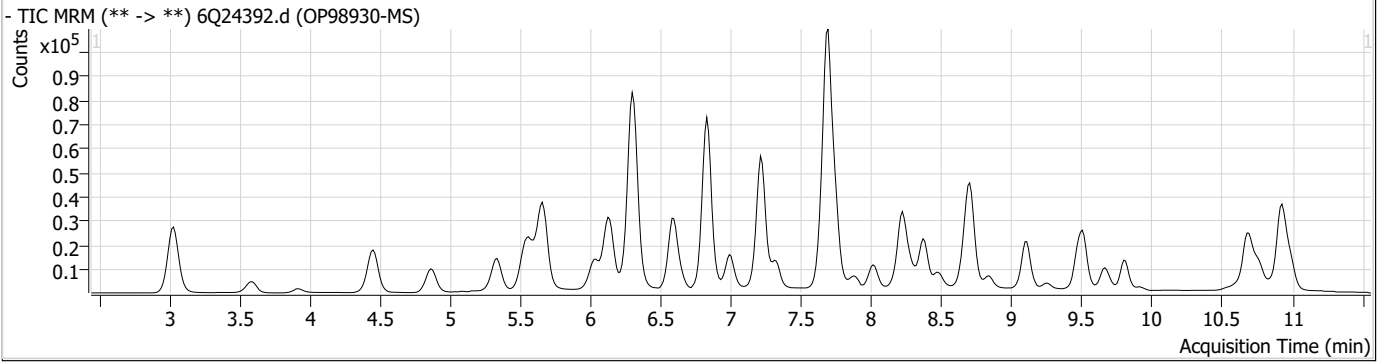
Perfluorinated Compounds by LC/MS/MS

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

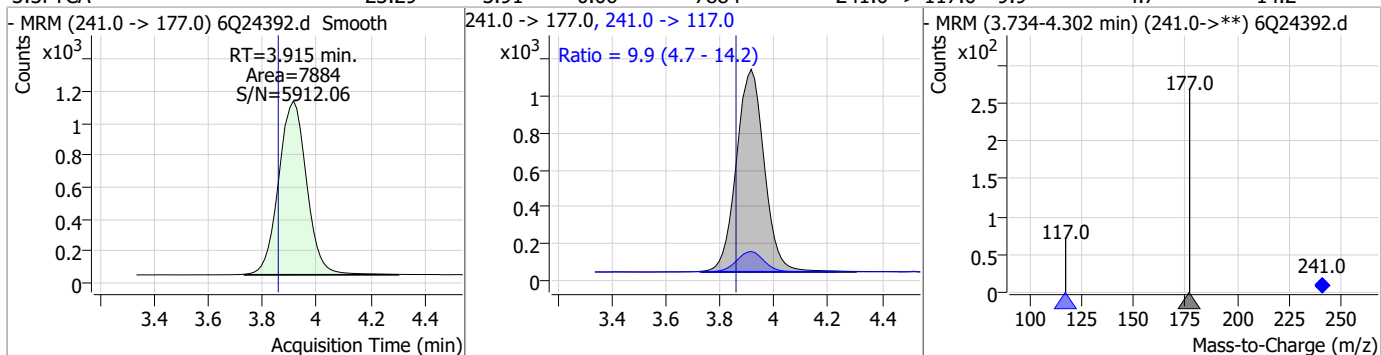
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Perfluorinated Compounds by LC/MS/MS

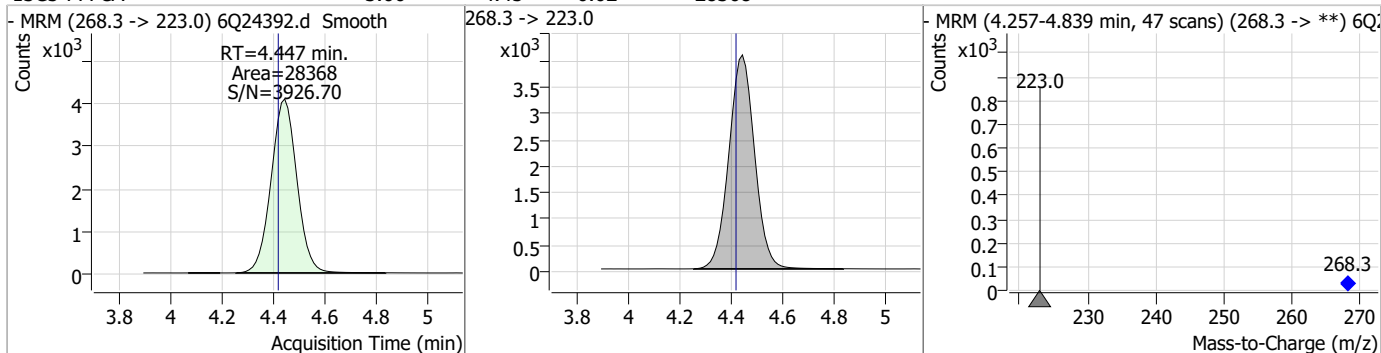


Perfluorinated Compounds by LC/MS/MS

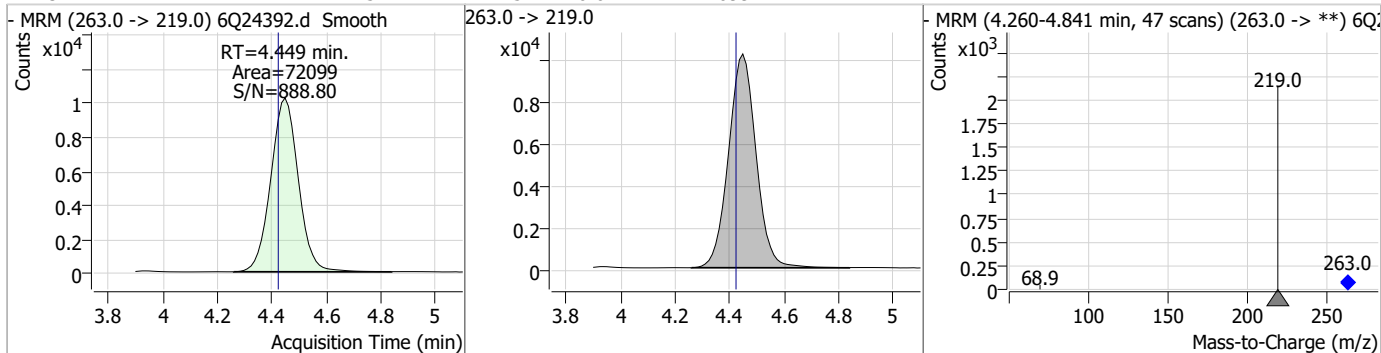
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	23.29	3.91	0.06	7884	241.0 -> 117.0	9.9	4.7	14.2



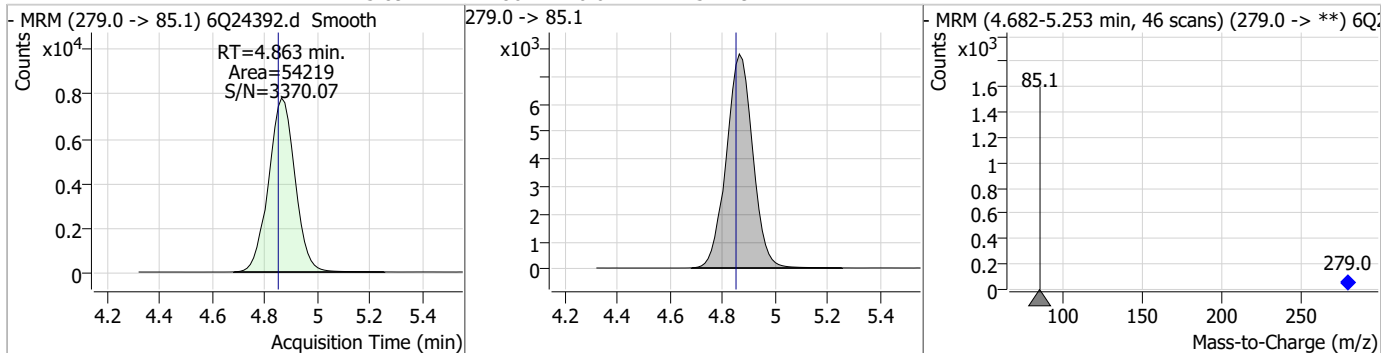
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	3.66	4.45	0.02	28368				



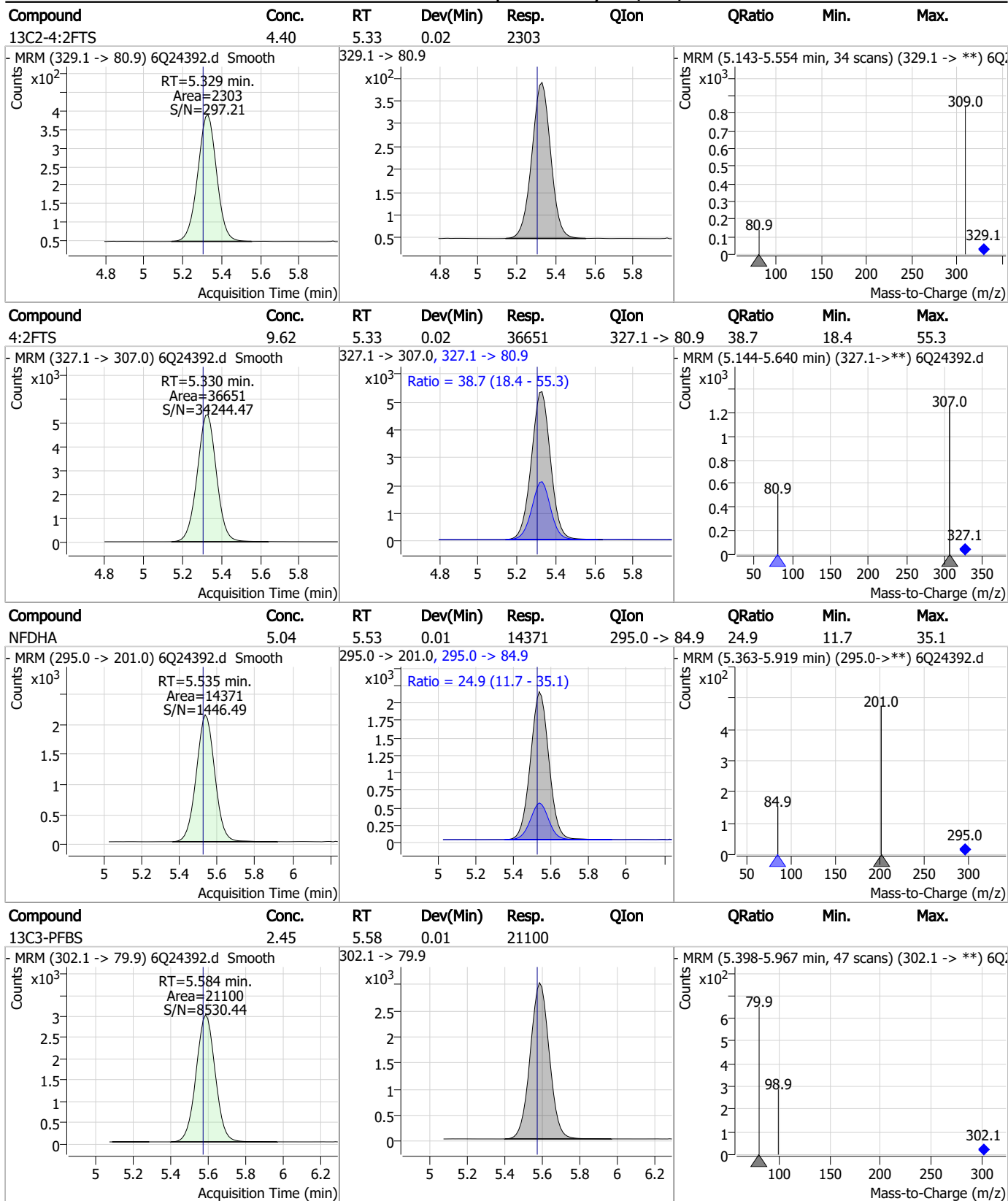
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.71	4.45	0.02	72099				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.89	4.86	0.01	54219				



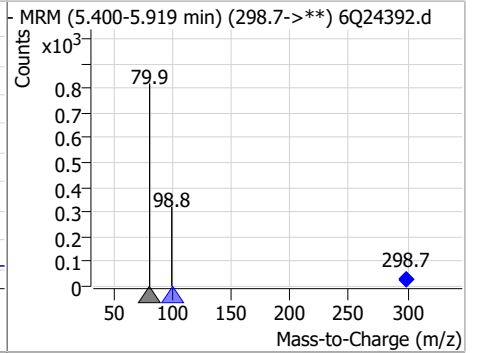
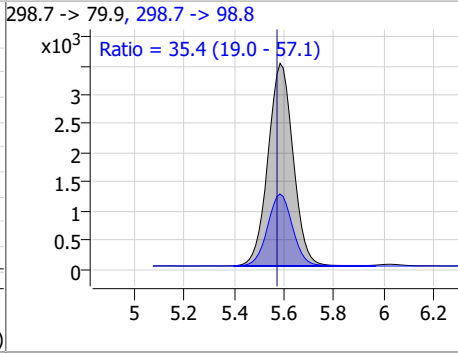
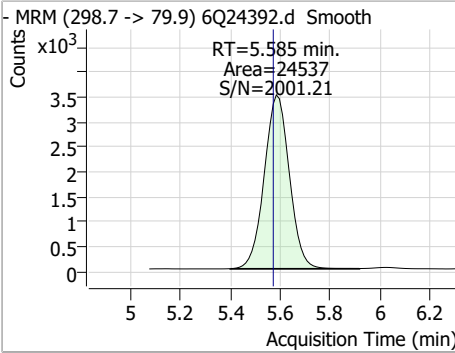
Perfluorinated Compounds by LC/MS/MS



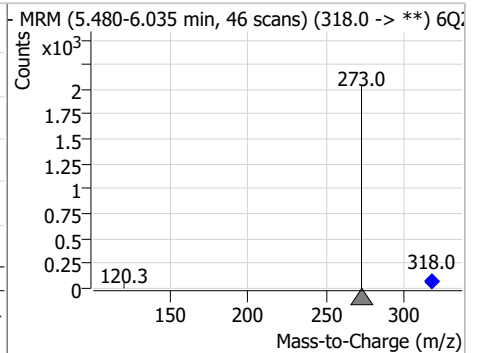
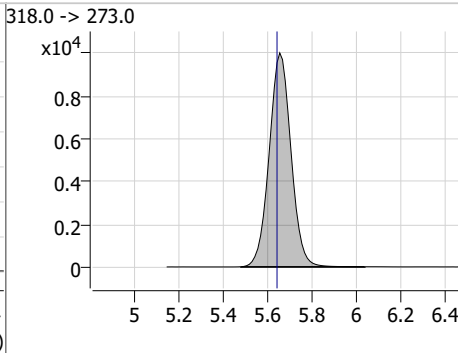
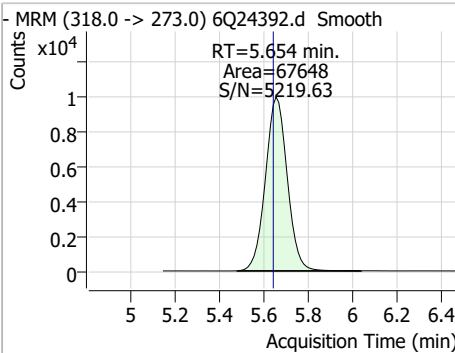
7.4.1
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Perfluorinated Compounds by LC/MS/MS

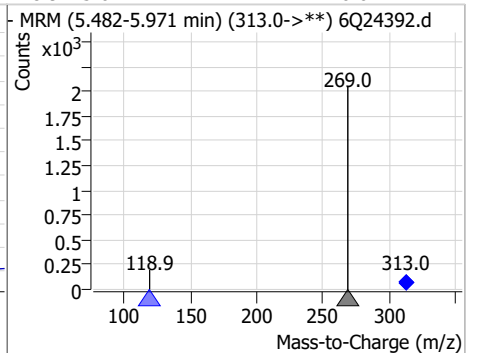
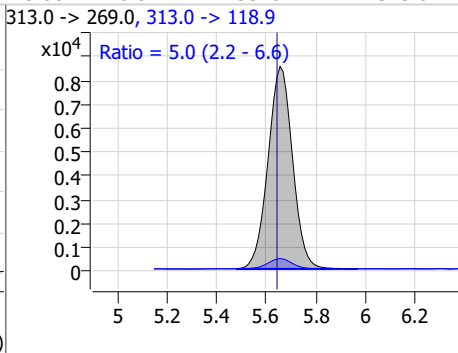
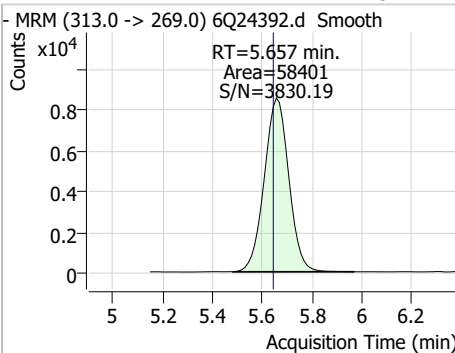
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.37	5.58	0.01	24537	298.7 -> 98.8	35.4	19.0	57.1



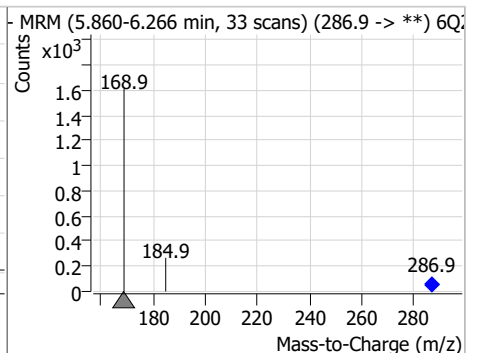
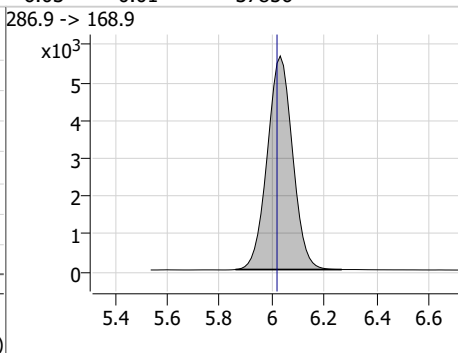
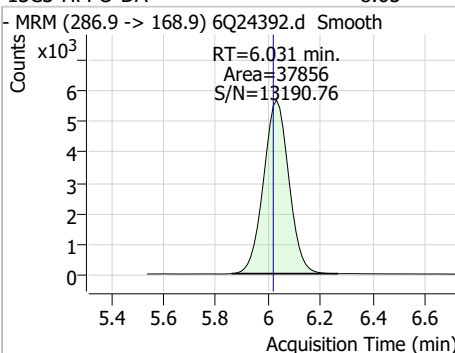
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.14	5.65	0.01	67648				



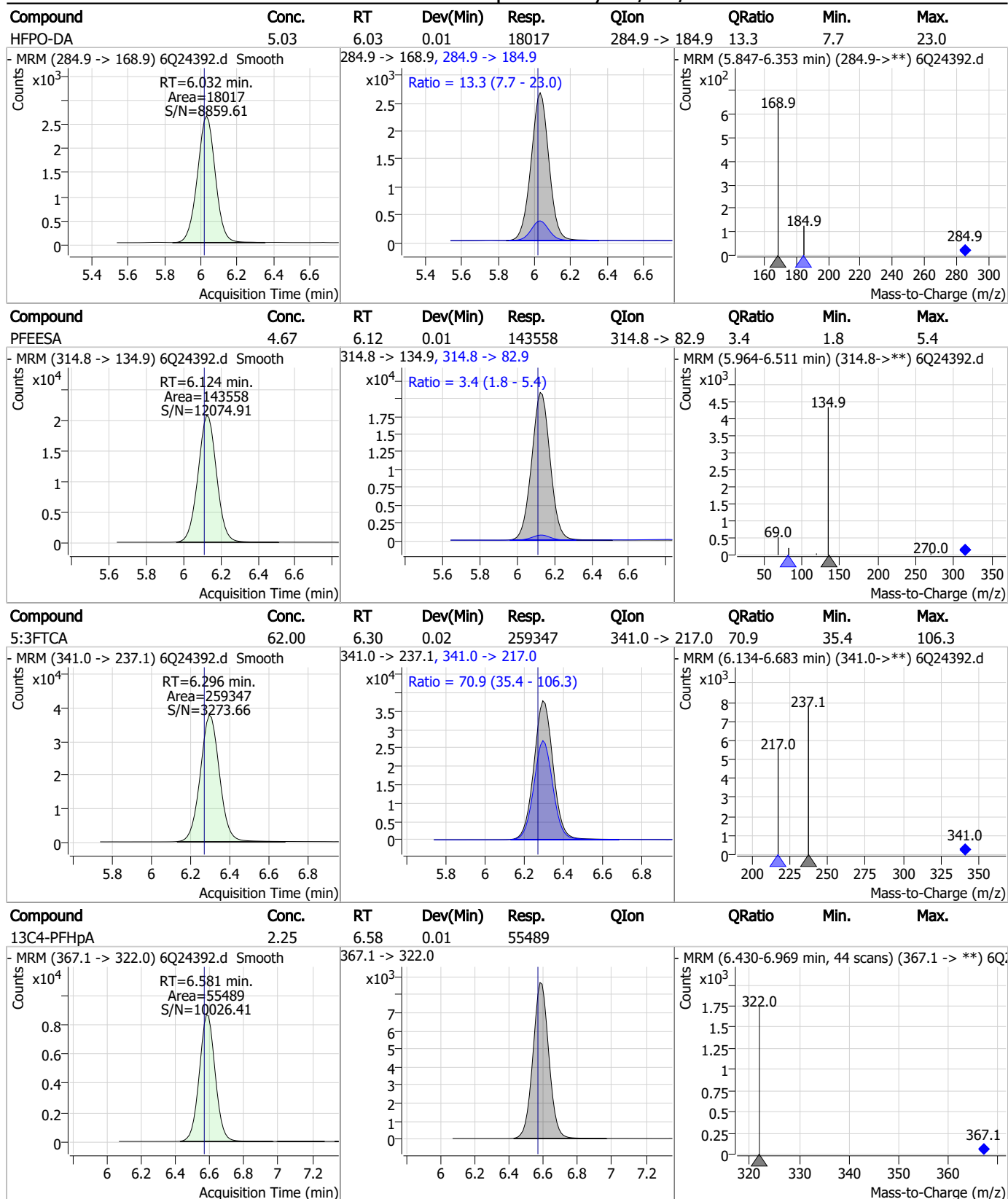
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.37	5.66	0.01	58401	313.0 -> 118.9	5.0	2.2	6.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	8.65	6.03	0.01	37856				



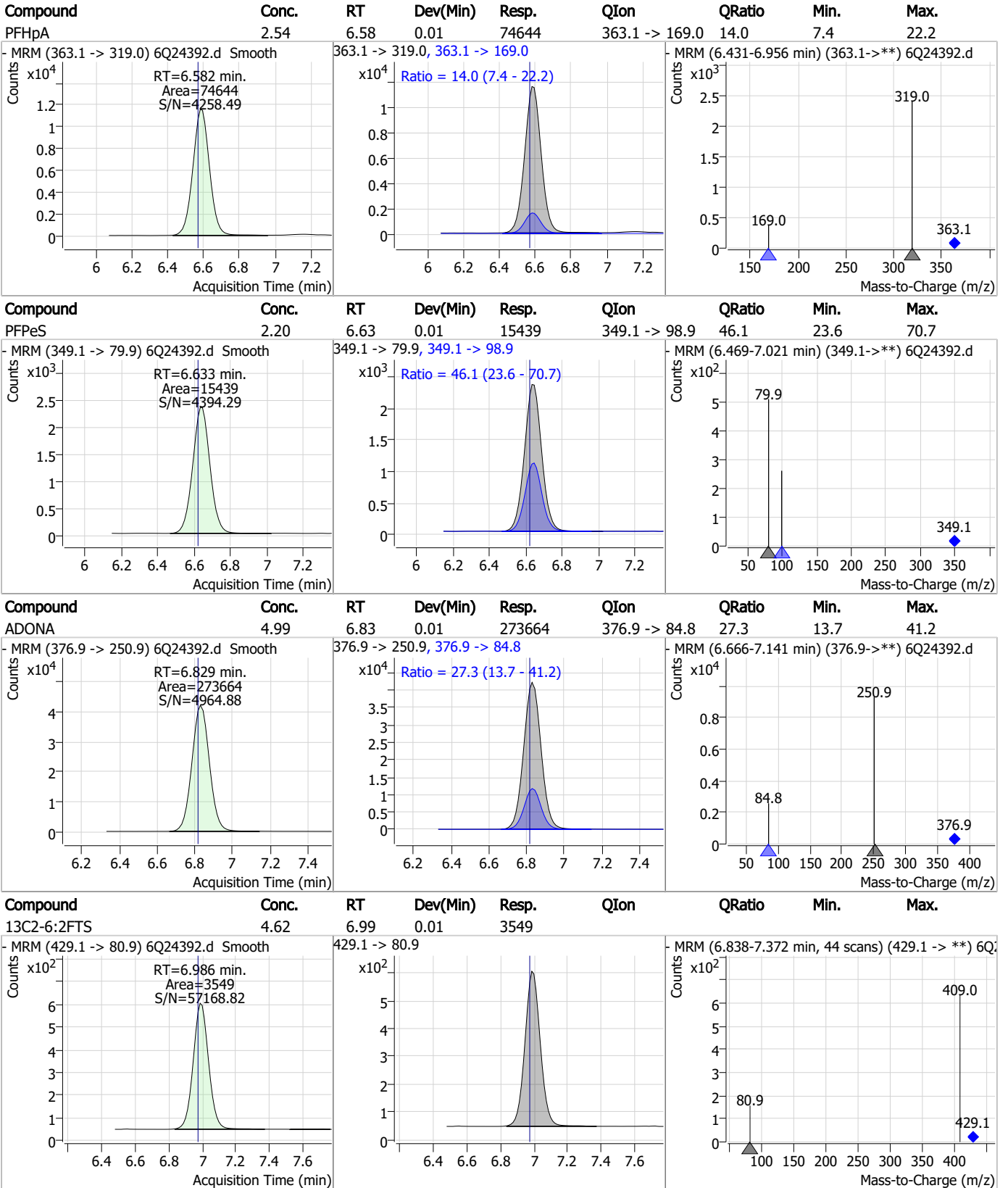
Perfluorinated Compounds by LC/MS/MS



7.4.1

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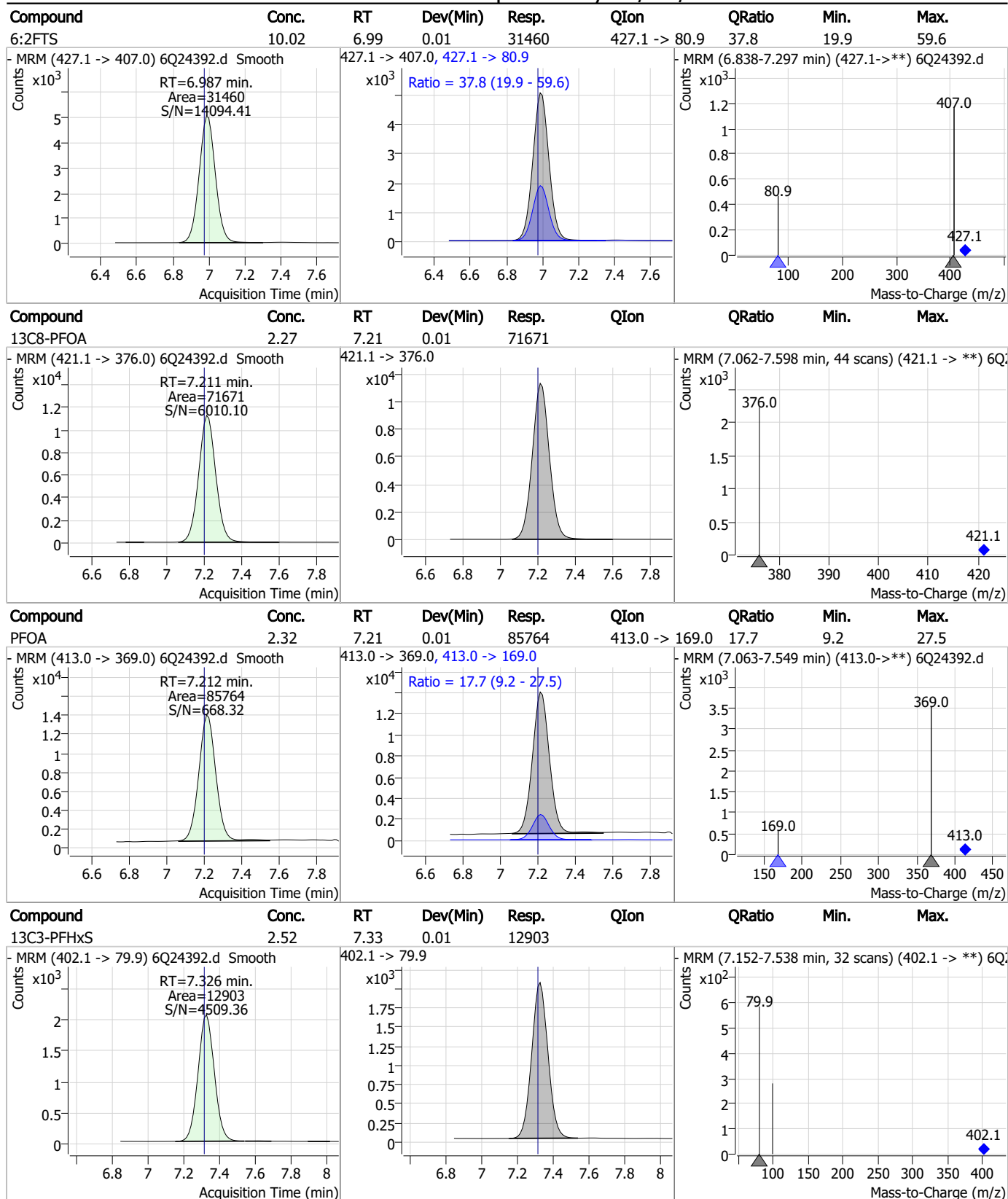
Perfluorinated Compounds by LC/MS/MS



7.4.1

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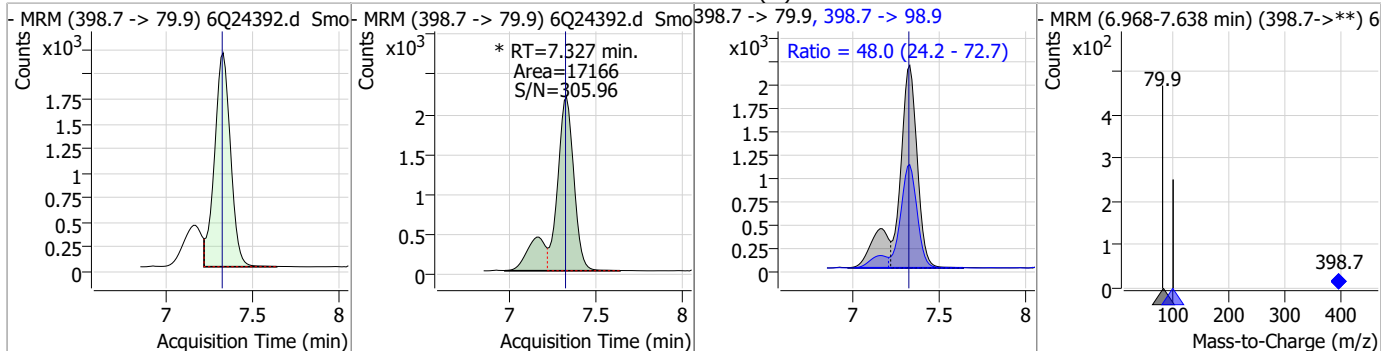
Perfluorinated Compounds by LC/MS/MS



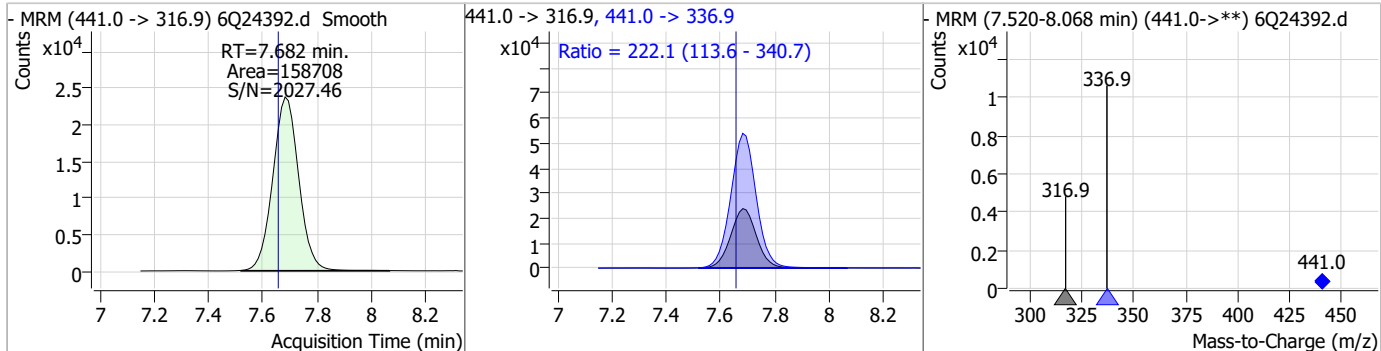
7.4.1
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Perfluorinated Compounds by LC/MS/MS

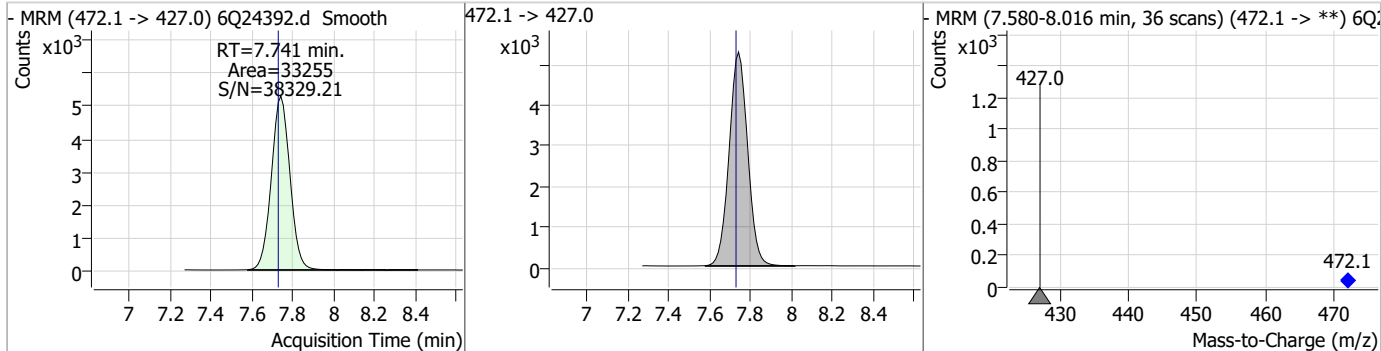
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.12	7.33	0.01	17166 (m)	398.7 -> 98.9	48.0	24.2	72.7



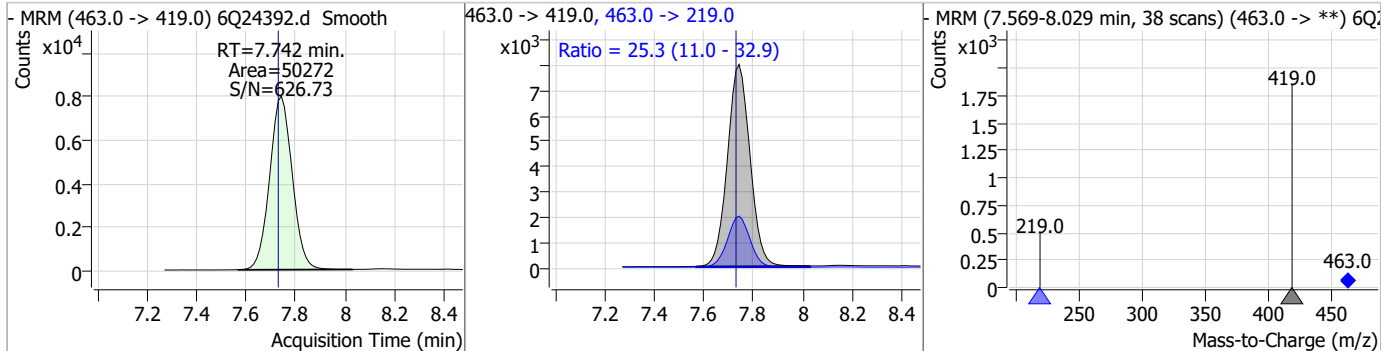
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	64.20	7.68	0.03	158708	441.0 -> 336.9	222.1	113.6	340.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.43	7.74	0.01	33255	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.00	7.74	0.01	50272	463.0 -> 219.0	25.3	11.0	32.9



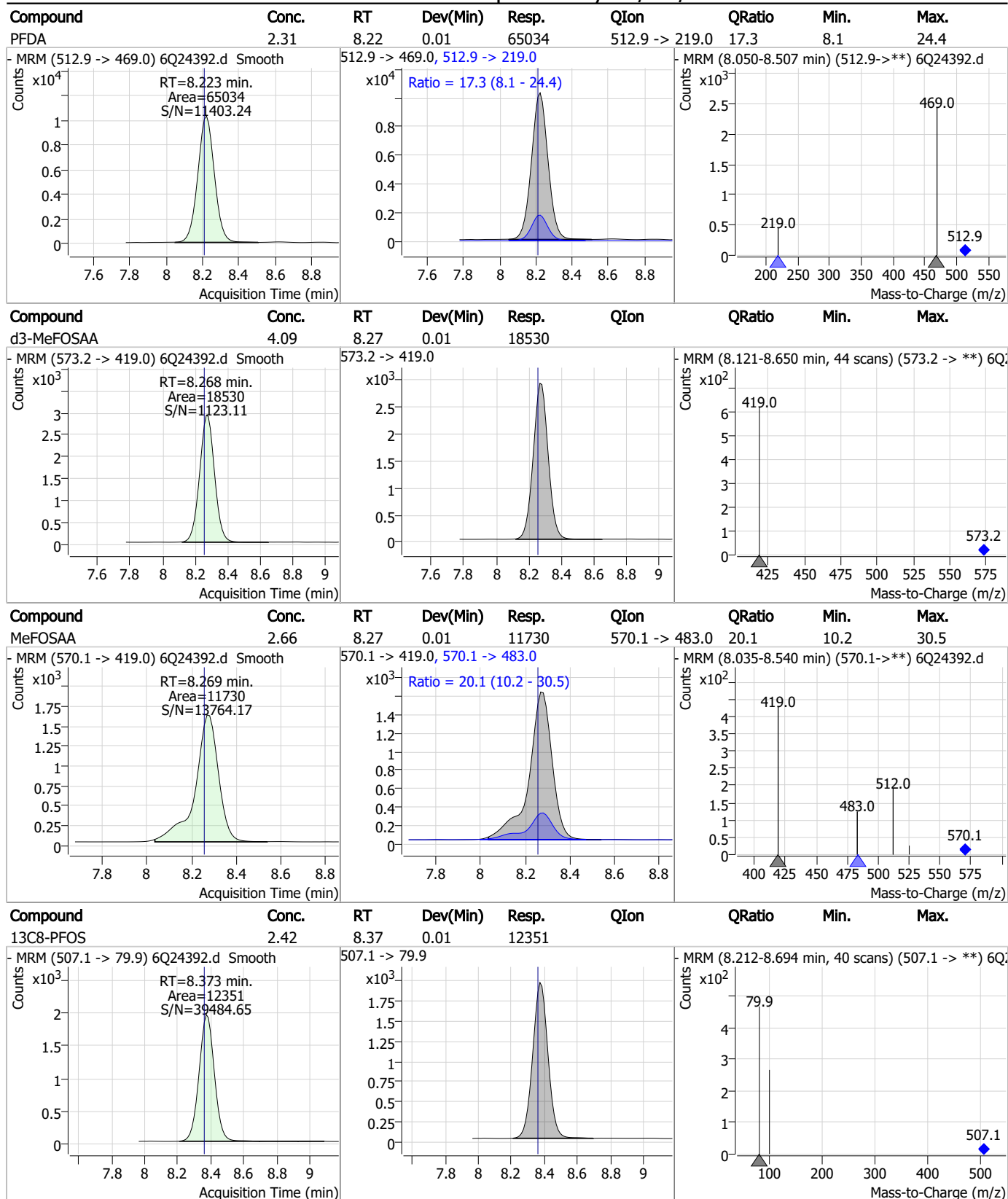
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.22	7.88	0.01	13275	449.0 -> 98.9	50.5	23.4	70.1
13C2-8:2FTS	4.39	8.01	0.01	3494				
8:2FTS	8.77	8.01	0.01	20658	527.1 -> 80.8	38.2	19.7	59.0
13C6-PFDA	1.29	8.22	0.01	30896				

7.4.1
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Perfluorinated Compounds by LC/MS/MS

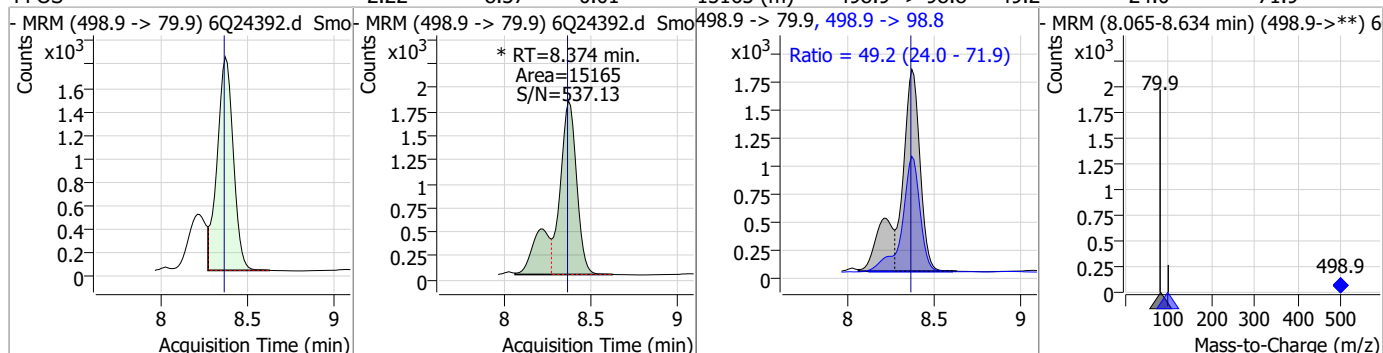


7.4.1

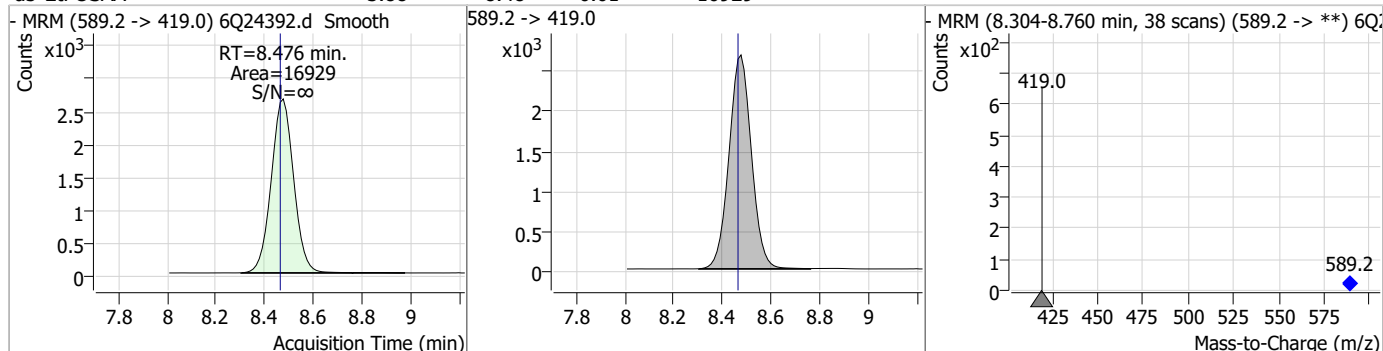
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Perfluorinated Compounds by LC/MS/MS

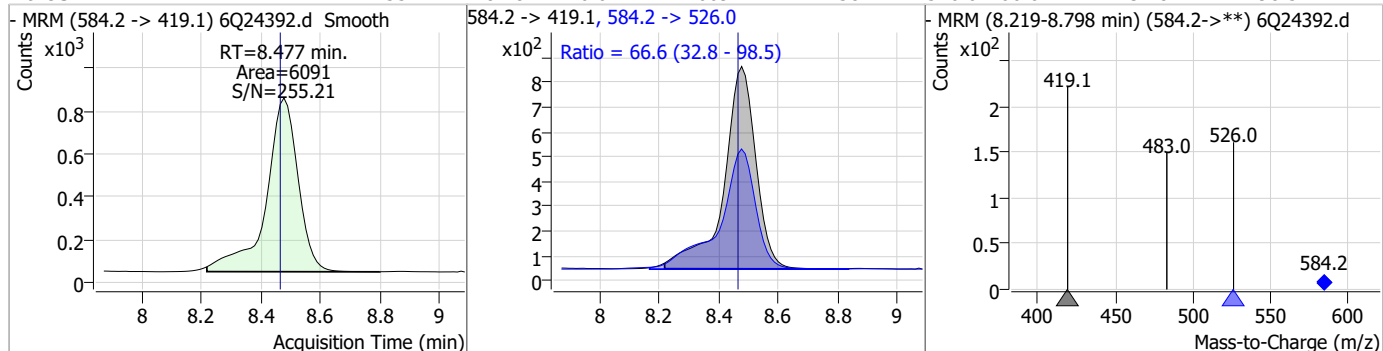
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.22	8.37	0.01	15165 (m)	498.9 -> 98.8	49.2	24.0	71.9



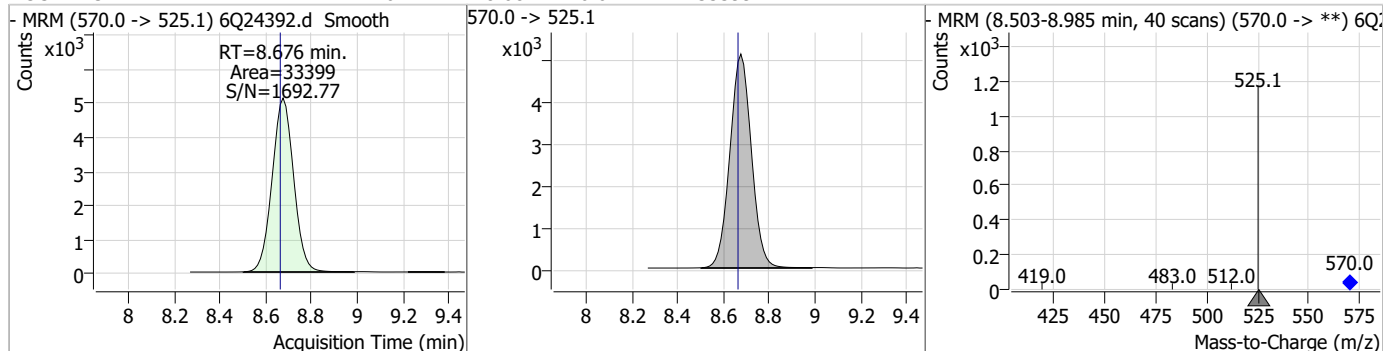
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	3.88	8.48	0.01	16929				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.55	8.48	0.01	6091	584.2 -> 526.0	66.6	32.8	98.5

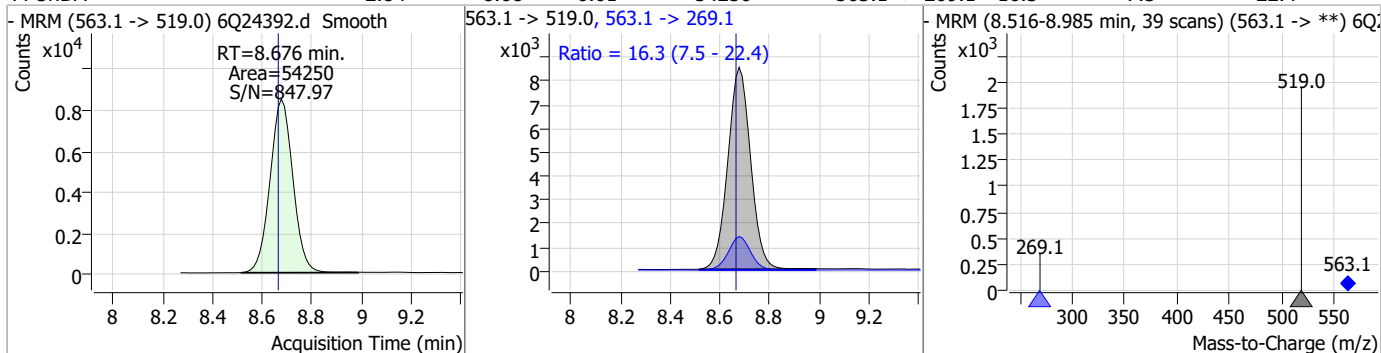


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.04	8.68	0.01	33399				

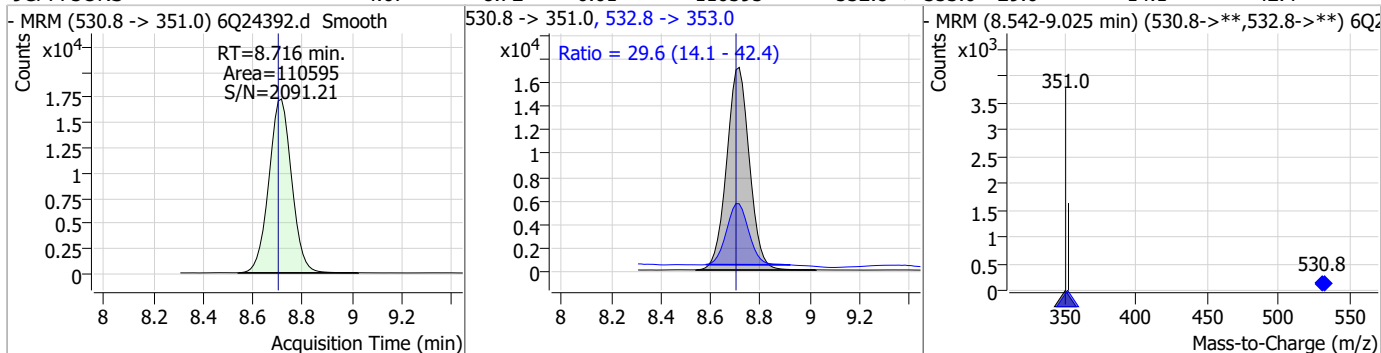


Perfluorinated Compounds by LC/MS/MS

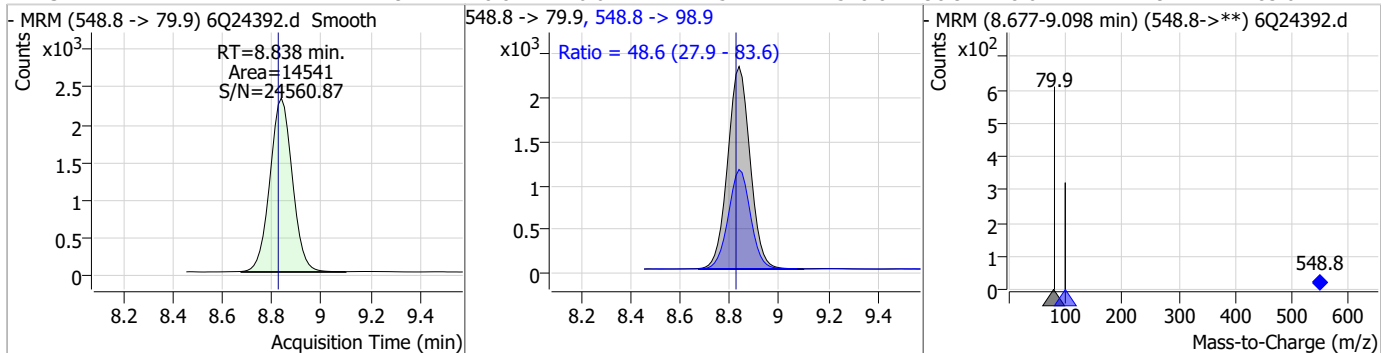
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.84	8.68	0.01	54250	563.1 -> 269.1	16.3	7.5	22.4



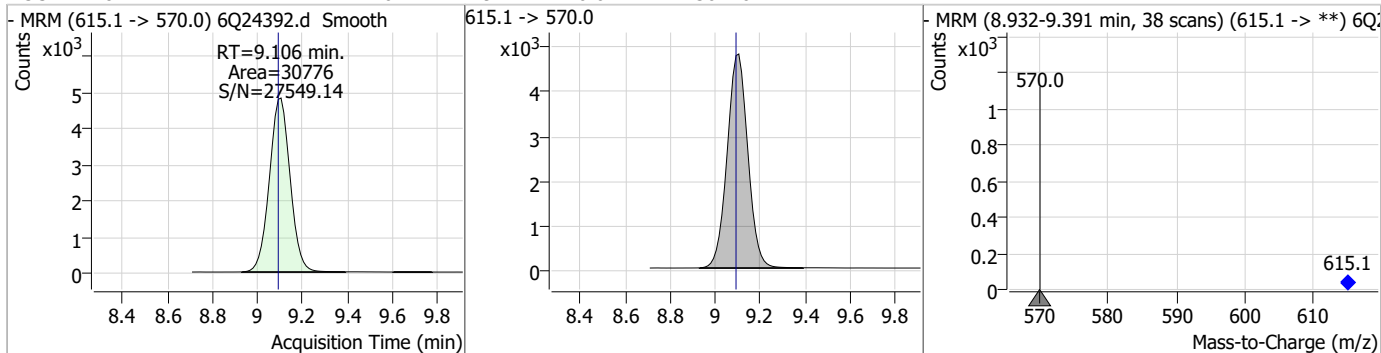
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	4.67	8.72	0.01	110595	532.8 -> 353.0	29.6	14.1	42.4



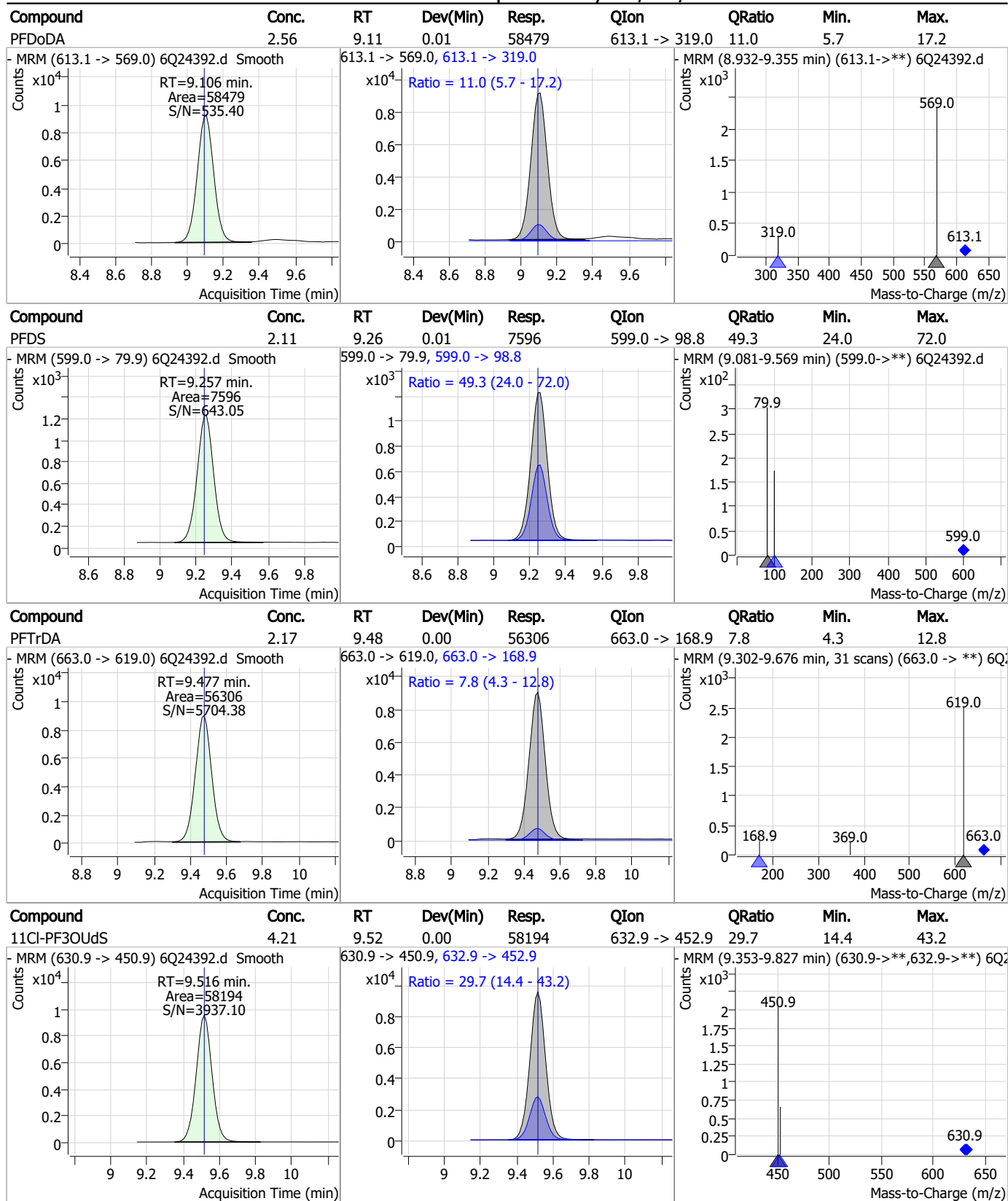
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.49	8.84	0.01	14541	548.8 -> 98.9	48.6	27.9	83.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.04	9.11	0.01	30776	615.1 -> 570.0			

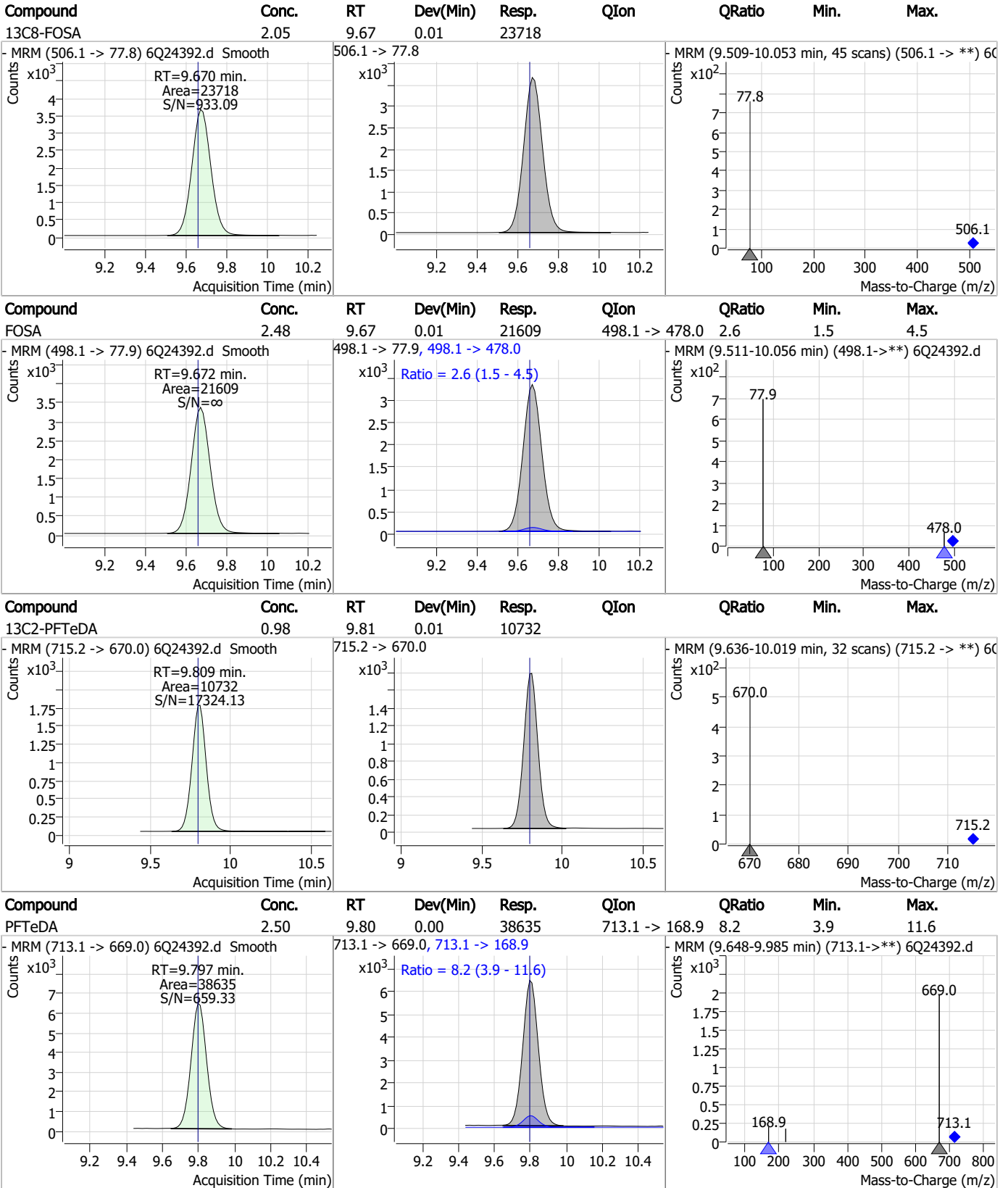


Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS

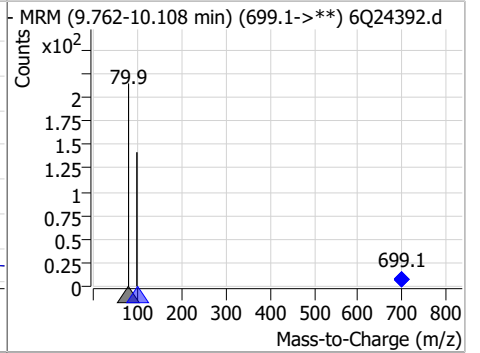
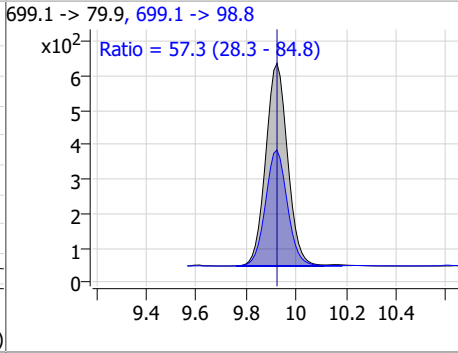
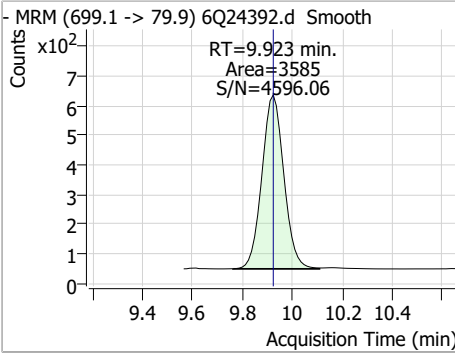


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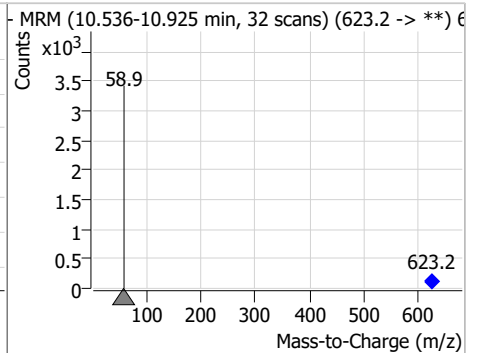
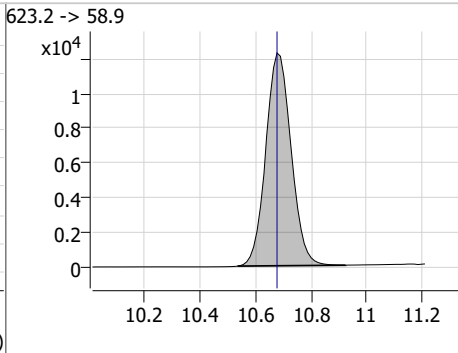
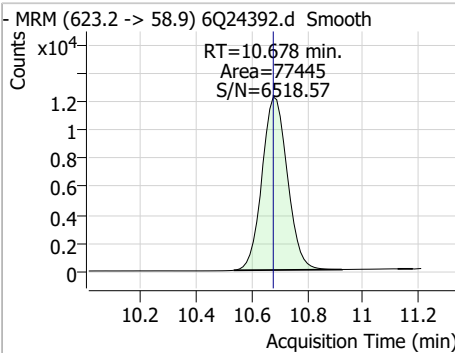
7

Perfluorinated Compounds by LC/MS/MS

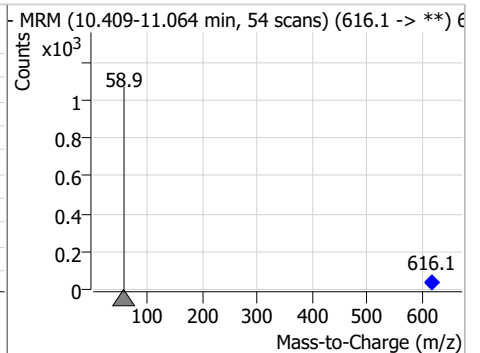
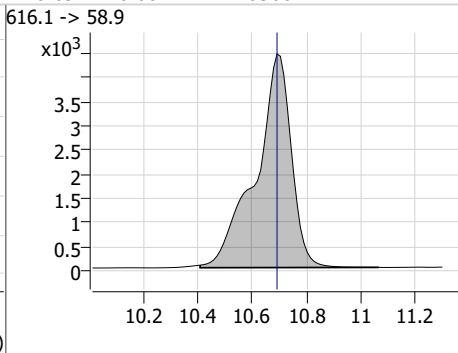
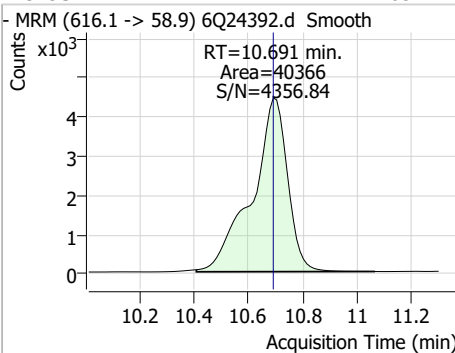
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.82	9.92	0.00	3585	699.1 -> 98.8	57.3	28.3	84.8



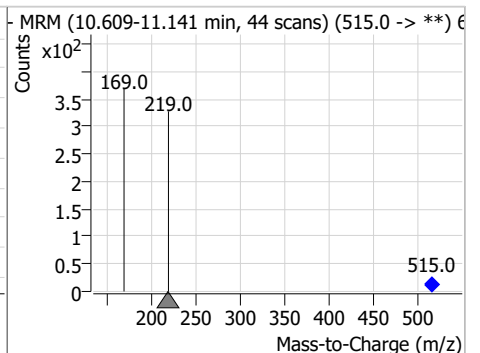
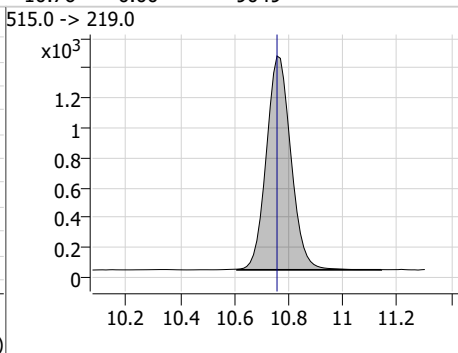
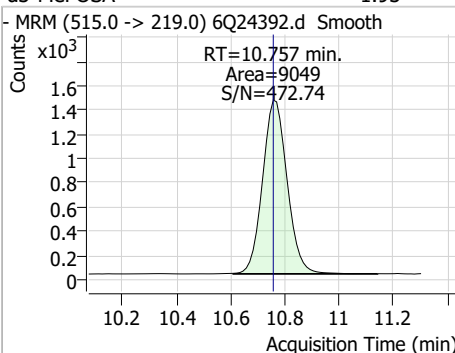
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	18.16	10.68	0.00	77445				



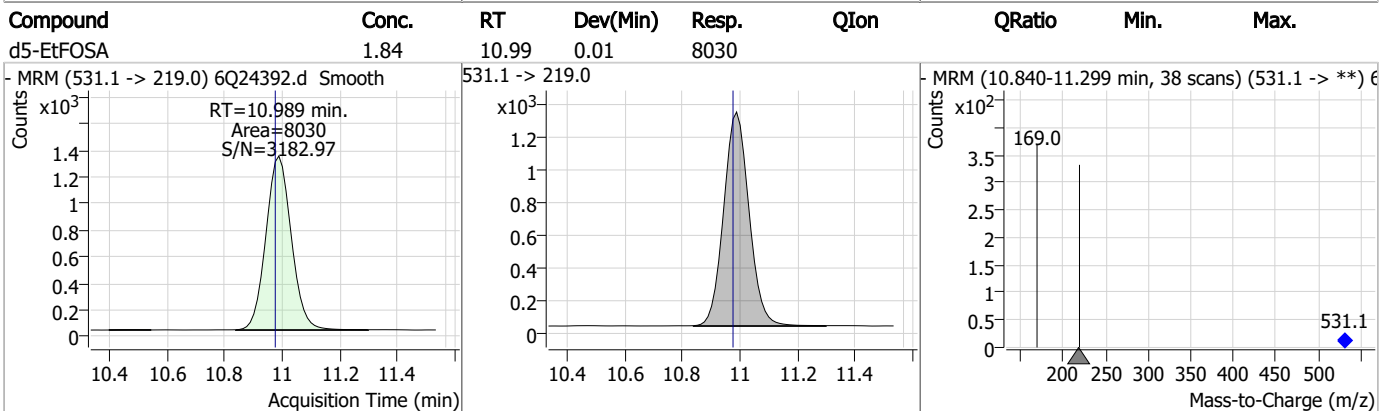
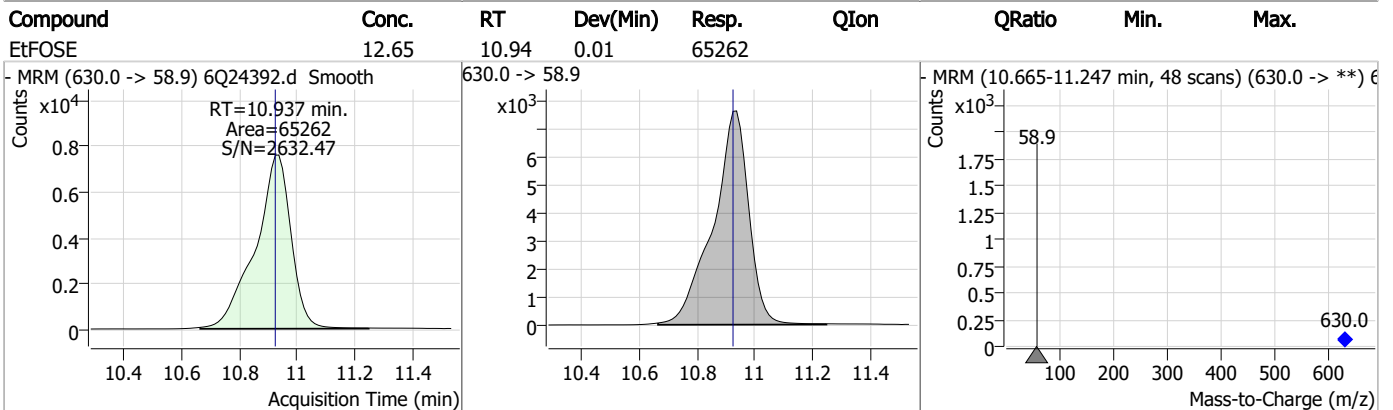
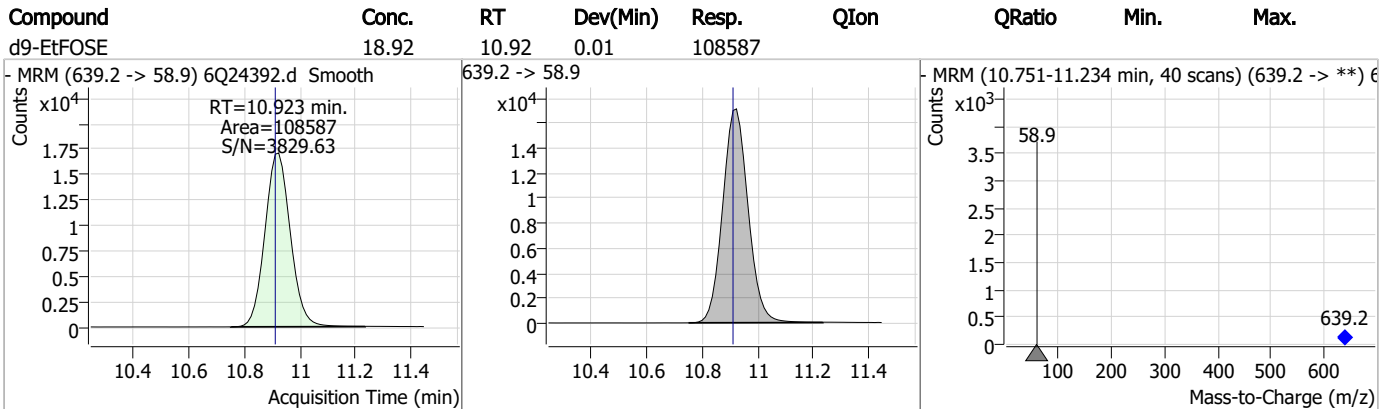
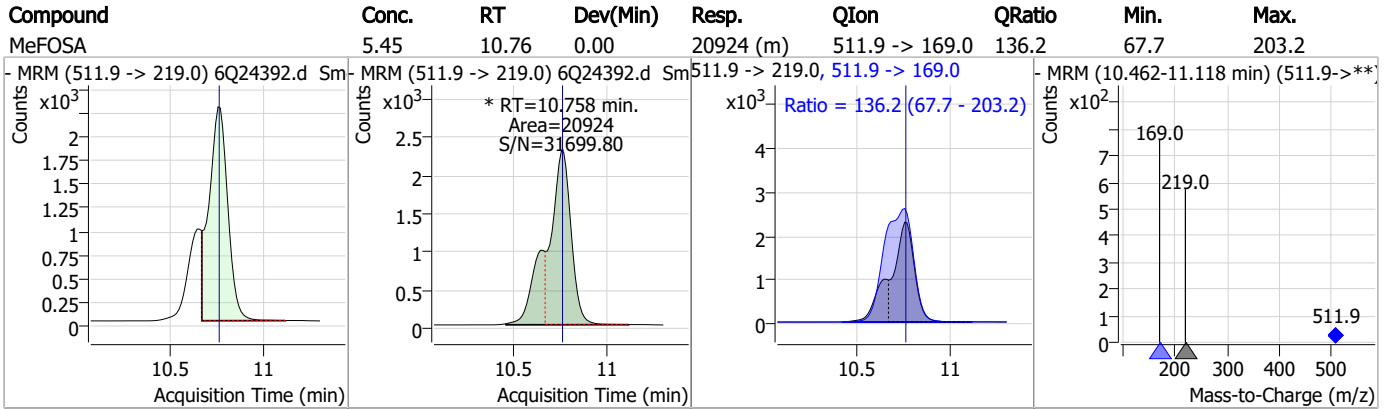
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.05	10.69	0.00	40366				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.93	10.76	0.00	9049				



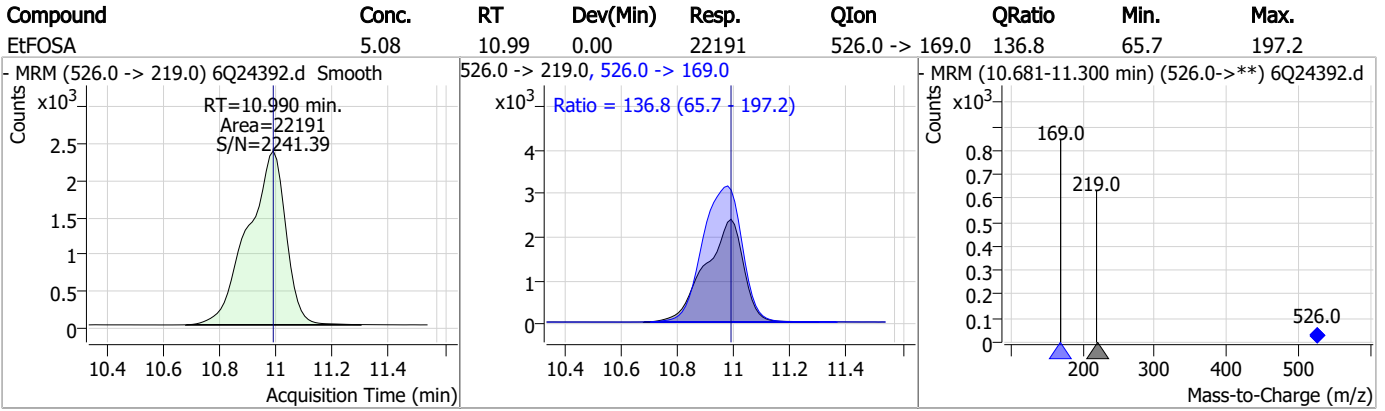
Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP98930-MS Method: EPA DRAFT 1633
Lab FileID: 6Q24392.D Analyst approved: 09/13/23 14:17 Martha Valls
Injection Time: 09/13/23 04:18 Supervisor approved: 09/13/23 15:11 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24396.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 5:15:29 AM
 Sample Name : OP98930-DUP
 Vial : P3-F2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98930,S6Q350,525,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.025	216.8 -> 171.9	129468	10.00 µg/L	0.041
M5-PFPeA	4.434	268.3 -> 223.0	27677	5.00 µg/L	0.012
M5-PFHxA	5.641	318.0 -> 273.0	68986	2.50 µg/L	0.000
M4-PFHpA	6.581	367.1 -> 322.0	58533	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	80207	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	33831	1.25 µg/L	0.012
M6-PFDA	8.222	519.1 -> 474.1	30725	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	39938	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	32601	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	8713	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	25752	2.50 µg/L	0.012
M3-PFBS	5.571	302.1 -> 79.9	21406	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12224	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	12123	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2351	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3058	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3124	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	18333	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	33063	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	16652	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	74467	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	104722	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	7467	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	7754	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	18584	2.50 µg/L	0.012
13C3-PFBA	3.014	216.0 -> 172.0	67187	5.00 µg/L	0.025
18O2-PFHxS	7.325	403.0 -> 83.9	10190	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	91704	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	30831	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	42367	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	56799	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2351	4.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.0%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3058	3.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 72.7%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3124	3.59 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 71.7%		
13C2-PFDoDA	9.093	615.1 -> 570.0	32601	0.99 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.9%		
13C2-PFTeDA	9.796	715.2 -> 670.0	8713	0.71 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 56.7%		
13C3-PFBS	5.571	302.1 -> 79.9	21406	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.9%		
13C3-PFHxS	7.313	402.1 -> 79.9	12224	2.18 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 = 87.3%		
13C4-PFBA	3.025	216.8 -> 171.9	129468	7.63	µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.3%		
13C4-PFHpA	6.581	367.1 -> 322.0	58533	2.40	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%		
13C5-PFHxA	5.641	318.0 -> 273.0	68986	2.20	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.1%		
13C5-PFPeA	4.434	268.3 -> 223.0	27677	3.62	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 72.3%		
13C6-PFDA	8.222	519.1 -> 474.1	30725	1.14	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.6%		
13C7-PFUnDA	8.676	570.0 -> 525.1	39938	1.11	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C8-FOSA	9.670	506.1 -> 77.8	25752	1.95	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.9%		
13C8-PFOA	7.211	421.1 -> 376.0	80207	2.38	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C8-PFOS	8.373	507.1 -> 79.9	12123	2.07	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.8%		
13C9-PFNA	7.741	472.1 -> 427.0	33831	1.28	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%		
d3-MeFOSAA	8.268	573.2 -> 419.0	18333	3.53	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 70.6%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	33063	7.64	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 76.4%		
d3-MeFOSA	10.757	515.0 -> 219.0	7754	1.45	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 57.8%		
d5-EtFOSAA	8.464	589.2 -> 419.0	16652	3.33	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 66.6%		
d7-MeFOSE	10.678	623.2 -> 58.9	74467	15.24	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 61.0%		
d9-EtFOSE	10.923	639.2 -> 58.9	104722	15.93	µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.7%		
d5-EtFOSA	10.989	531.1 -> 219.0	7467	1.49	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 59.7%		

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	6.987	427.1 -> 407.0	1117	0.41	µg/L	94
		427.1 -> 80.9	483			
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	3.219	212.8 -> 168.9	0	µg/L	m	1
PFBS	5.449	298.7 -> 79.9	0	µg/L	m	1
		298.7 -> 98.8	0			
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.557	599.0 -> 98.8				
		363.1 -> 319.0	2165	0.07 µg/L	m	87
PFHpS	-	363.1 -> 169.0	202			
		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	-	398.7 -> 98.9				
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		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	4.461	498.9 -> 98.8				
		263.0 -> 219.0	67847	5.50 µg/L		100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	3.696	241.0 -> 177.0	0	µg/L	m	1
		241.0 -> 117.0	0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.5.1
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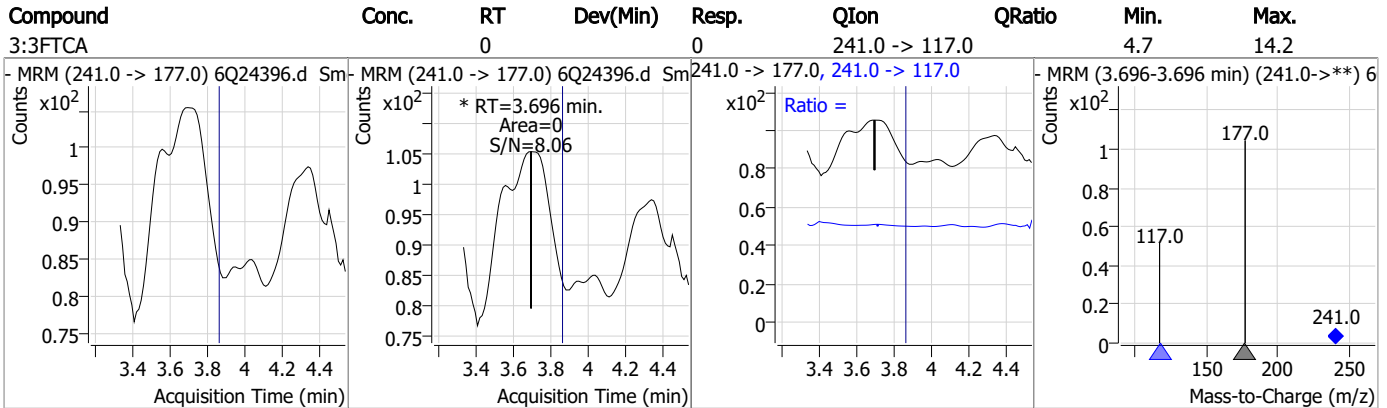
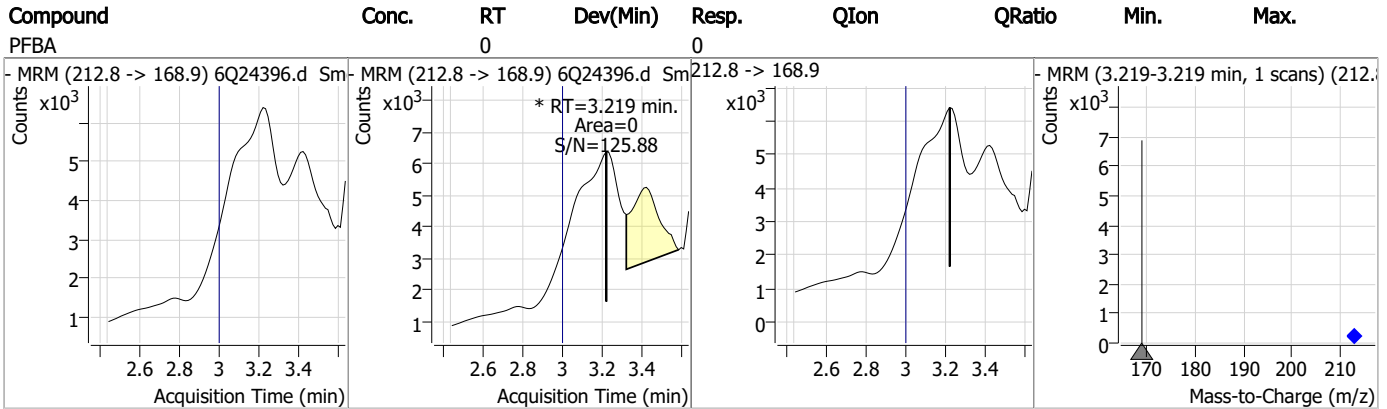
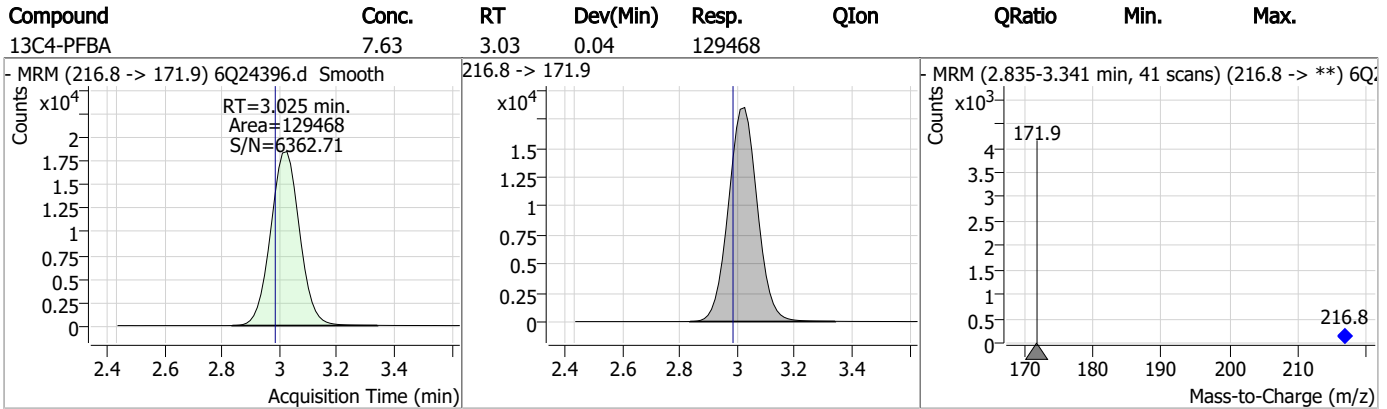
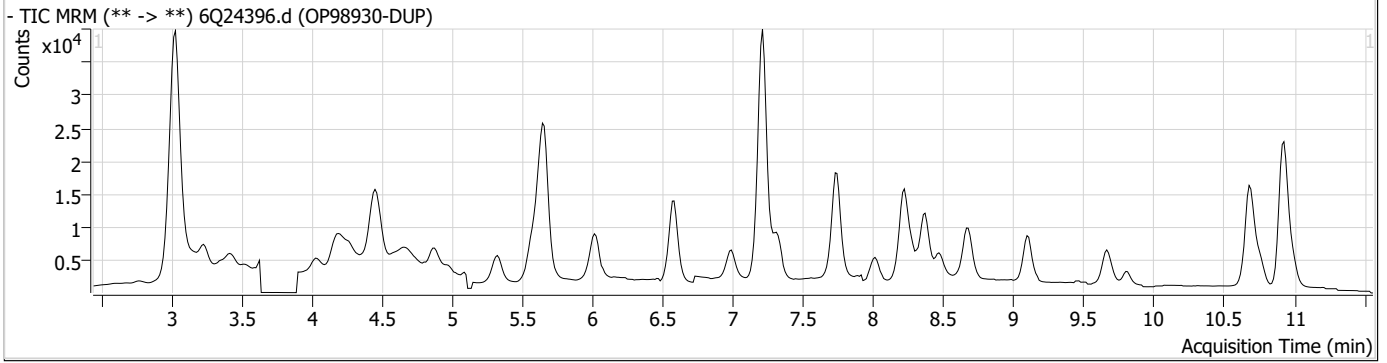
Perfluorinated Compounds by LC/MS/MS

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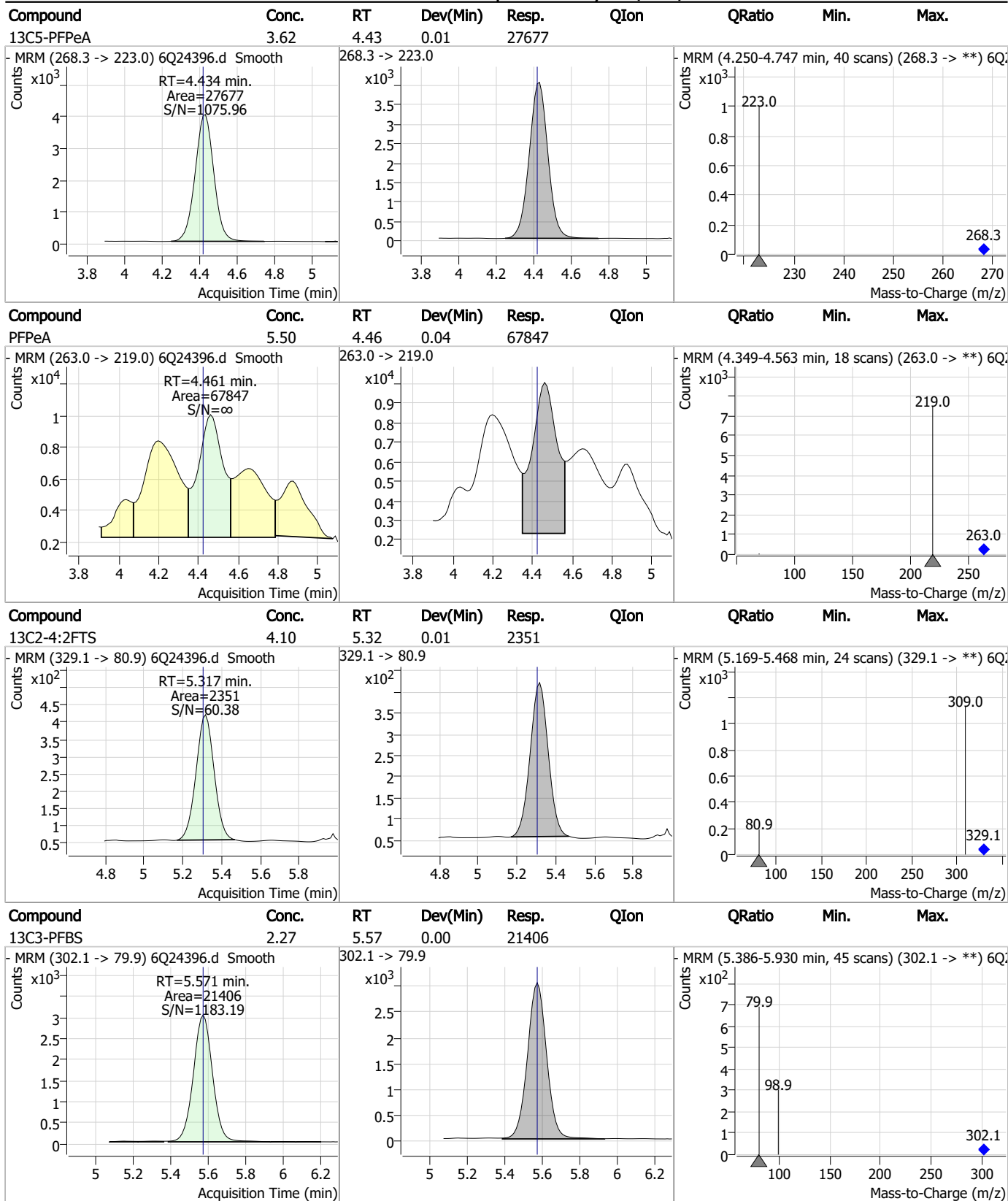
7.5.1

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Perfluorinated Compounds by LC/MS/MS

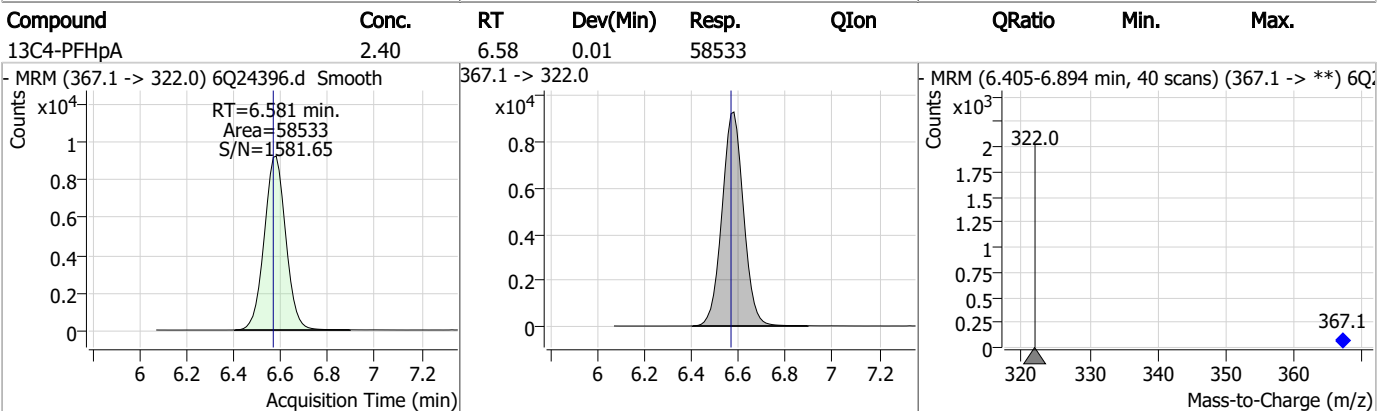
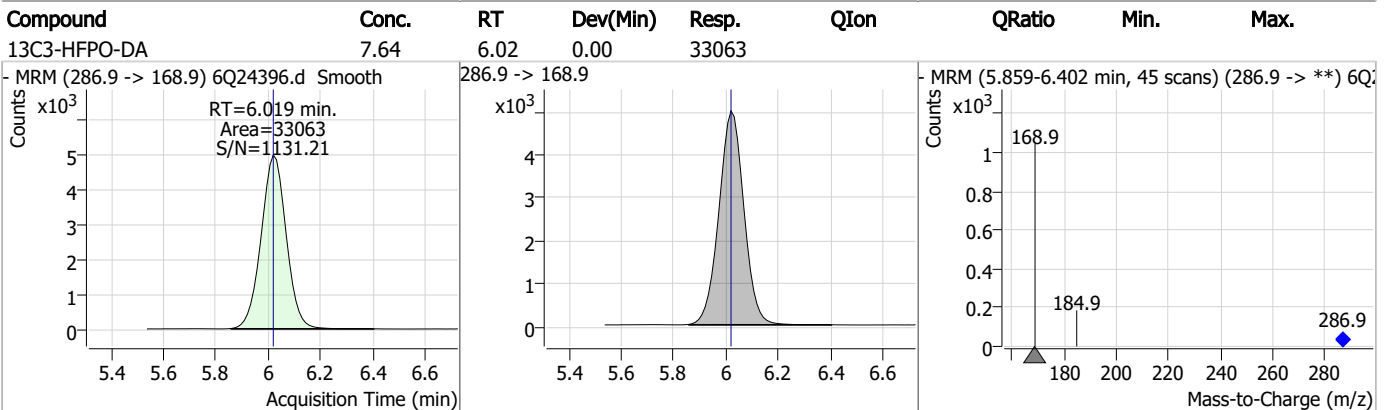
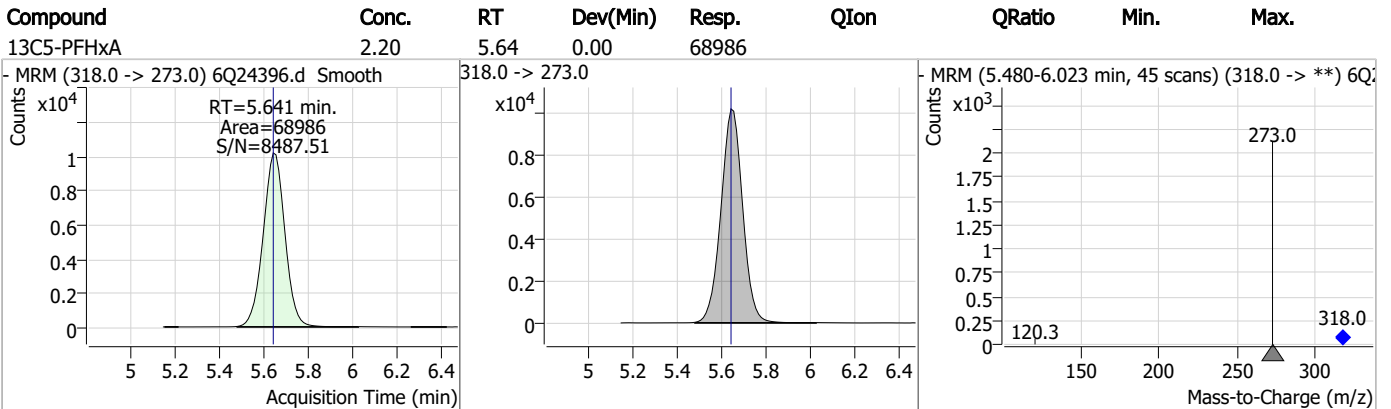
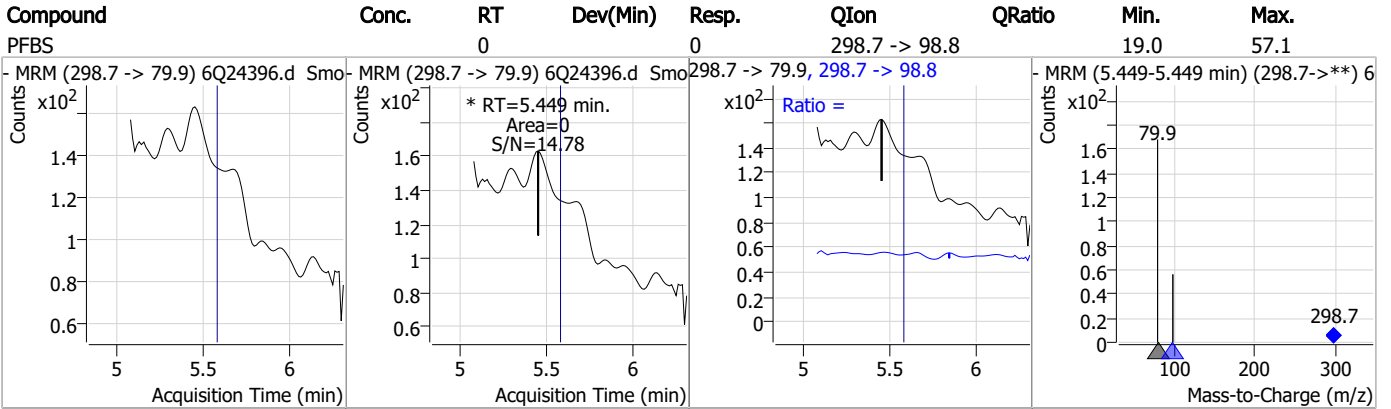


Perfluorinated Compounds by LC/MS/MS



7.5.1
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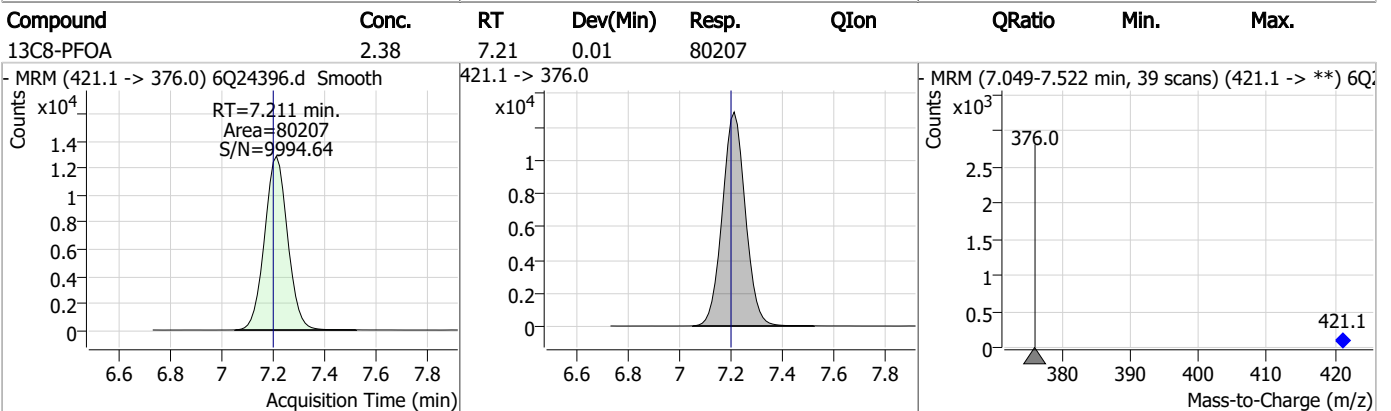
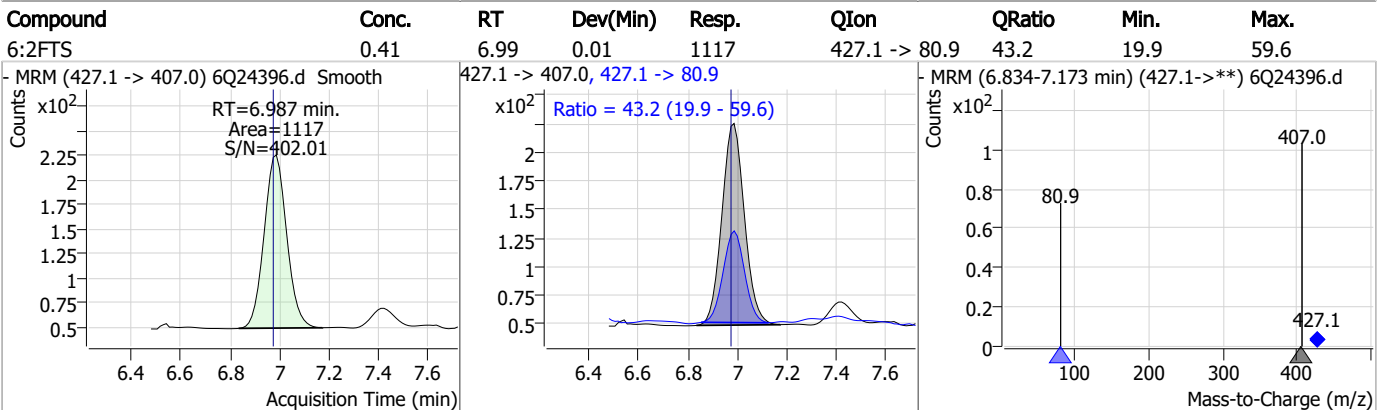
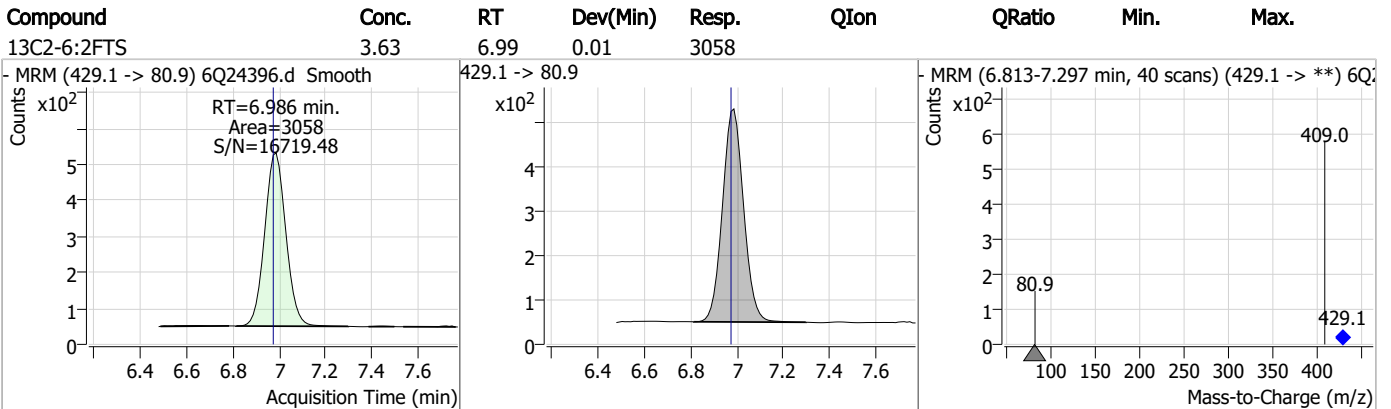
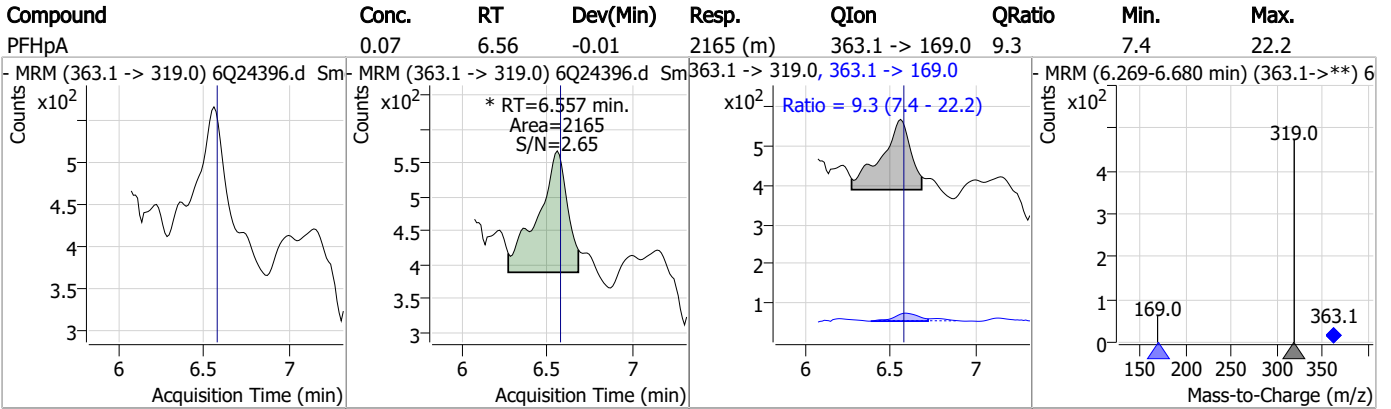
Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Perfluorinated Compounds by LC/MS/MS

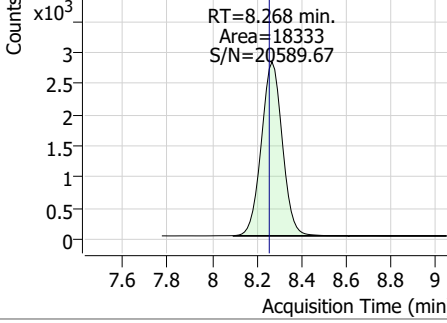
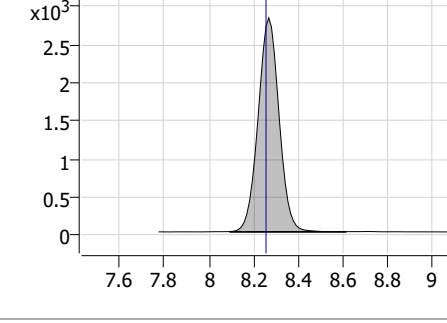
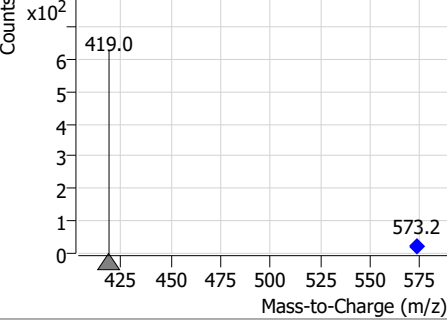
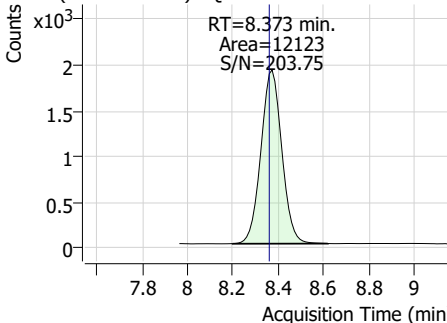
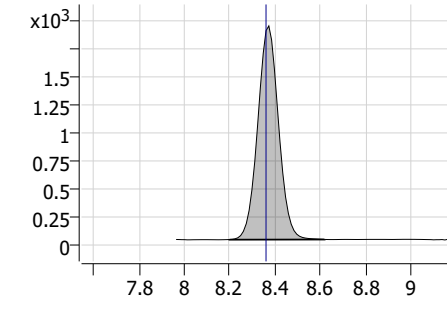
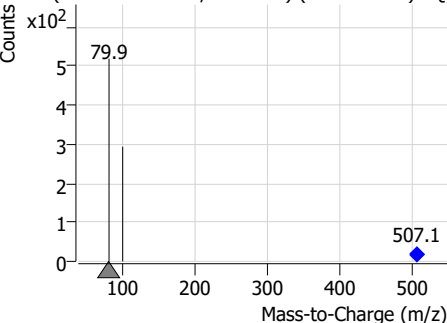
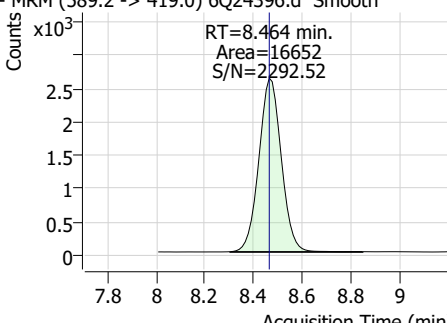
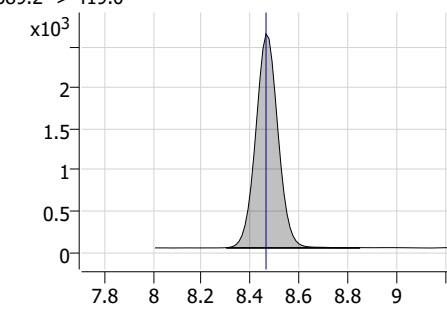
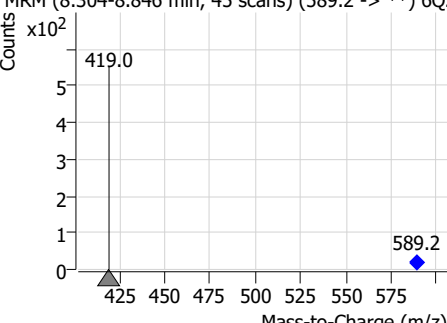
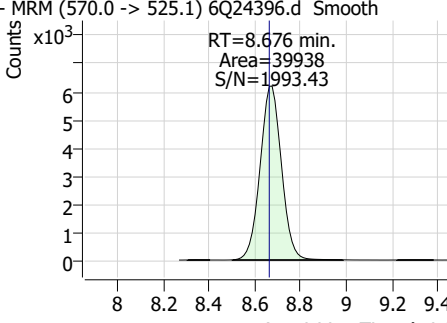
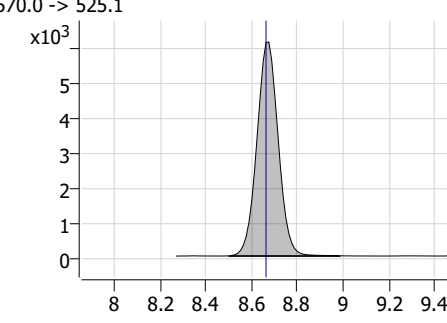
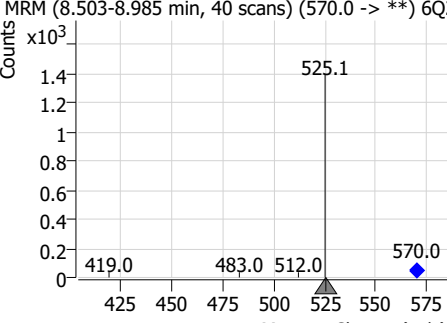


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.18	7.31	0.00	12224				
13C9-PFNA	1.28	7.74	0.01	33831				
13C2-8:2FTS	3.59	8.01	0.01	3124				
13C6-PFDA	1.14	8.22	0.01	30725				

7.5.1
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	3.53	8.27	0.01	18333				
- MRM (573.2 -> 419.0) 6Q24396.d Smooth Counts x10 ³ RT=8.268 min. Area=18333 S/N=20589.67 			573.2 -> 419.0 Counts x10 ³ 			- MRM (8.096-8.612 min, 43 scans) (573.2 -> **) 6Q24396.d Counts x10 ² 419.0 573.2 		
13C8-PFOS	2.07	8.37	0.01	12123				
- MRM (507.1 -> 79.9) 6Q24396.d Smooth Counts x10 ³ RT=8.373 min. Area=12123 S/N=203.75 			507.1 -> 79.9 Counts x10 ³ 			- MRM (8.199-8.619 min, 35 scans) (507.1 -> **) 6Q24396.d Counts x10 ² 79.9 507.1 		
d5-EtFOSAA	3.33	8.46	0.00	16652				
- MRM (589.2 -> 419.0) 6Q24396.d Smooth Counts x10 ³ RT=8.464 min. Area=16652 S/N=2292.52 			589.2 -> 419.0 Counts x10 ³ 			- MRM (8.304-8.846 min, 45 scans) (589.2 -> **) 6Q24396.d Counts x10 ² 419.0 589.2 		
13C7-PFUnDA	1.11	8.68	0.01	39938				
- MRM (570.0 -> 525.1) 6Q24396.d Smooth Counts x10 ³ RT=8.676 min. Area=39938 S/N=1993.43 			570.0 -> 525.1 Counts x10 ³ 			- MRM (8.503-8.985 min, 40 scans) (570.0 -> **) 6Q24396.d Counts x10 ³ 525.1 570.0 419.0 483.0 512.0 		

7.5.1
7

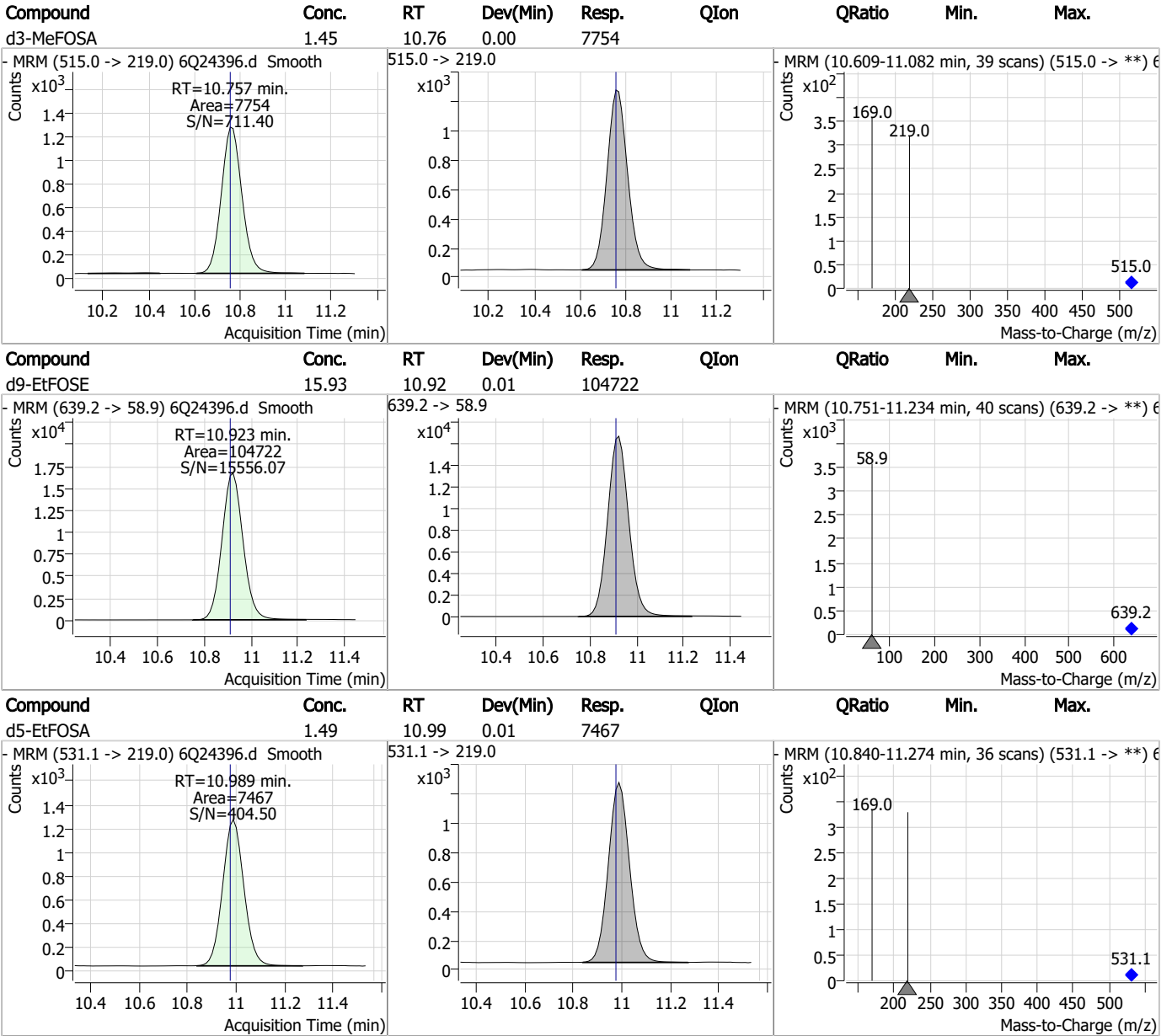
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	0.99	9.09	0.00	32601				
13C8-FOSA	1.95	9.67	0.01	25752				
13C2-PFTeDA	0.71	9.80	0.00	8713				
d7-MeFOSE	15.24	10.68	0.00	74467				

7.5.1

7

Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Manual Integration Approval Summary

Sample Number: OP98930-DUP Method: EPA DRAFT 1633
Lab FileID: 6Q24396.D Analyst approved: 09/13/23 14:17 Martha Valls
Injection Time: 09/13/23 05:15 Supervisor approved: 09/13/23 15:11 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.56	Split peak

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 09/11/23 13:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24125.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 8:03:16 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q347 TDCA.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

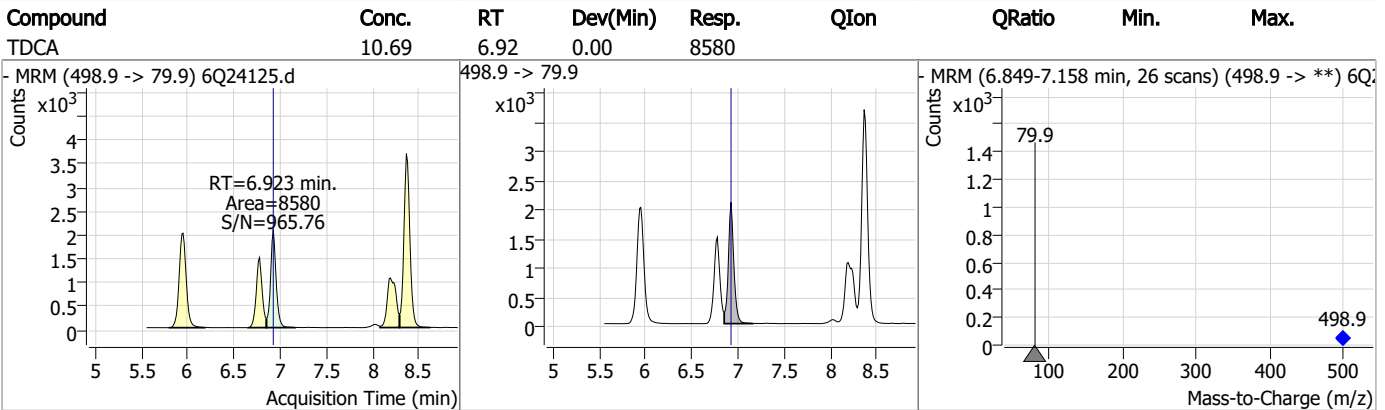
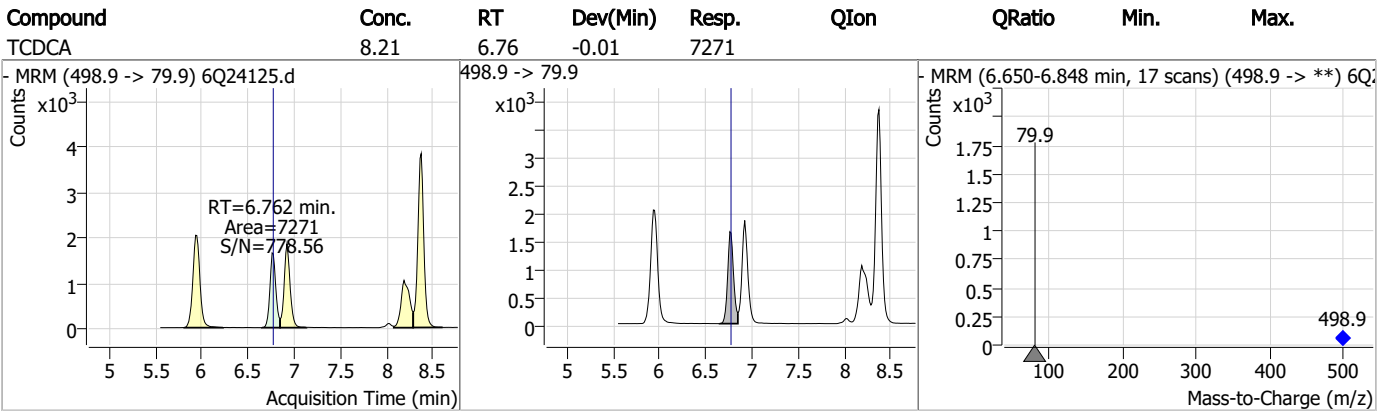
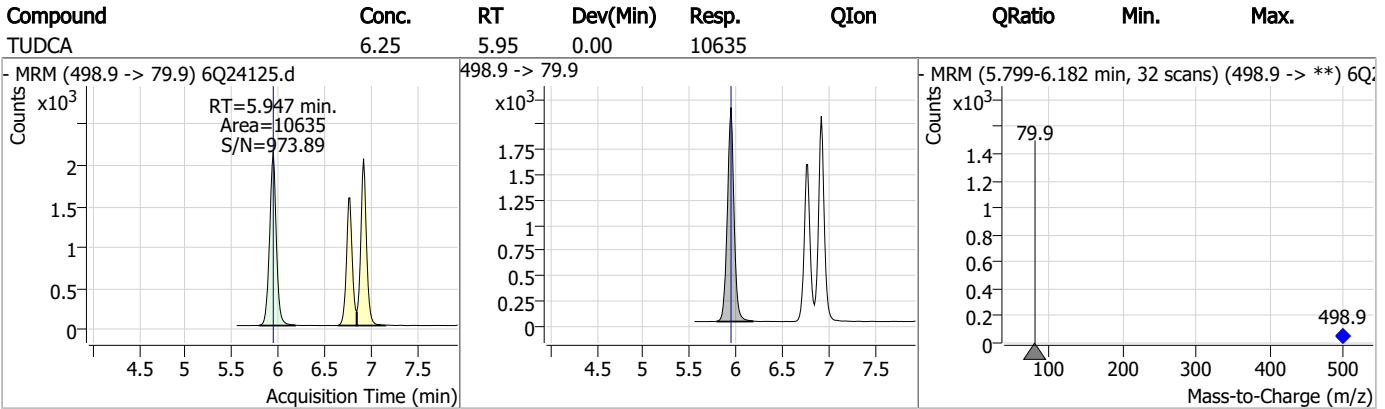
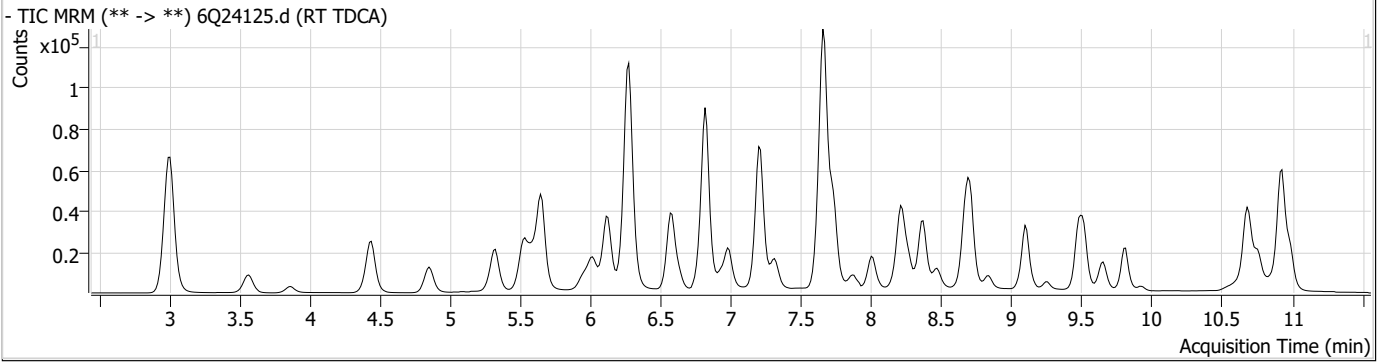
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.373	507.1 -> 79.9	19204	2.50	µg/L	0.000	
13C4-PFOS	8.374	502.8 -> 79.9	25385	2.50	µg/L	0.000	
System Monitoring Compounds							
13C8-PFOS	8.373	507.1 -> 79.9	19204	1.92	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 76.8%				
Target Compounds							
PFOS	8.374	498.9 -> 79.9 498.9 -> 98.8	23806 10842	3.63	µg/L	m	99
TCDCa	6.762	498.9 -> 79.9	7271	8.21	ng/ml		100
TDCA	6.923	498.9 -> 79.9	8580	10.69	ng/ml		100
TUDCA	5.947	498.9 -> 79.9	10635	6.25	ng/ml		100

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

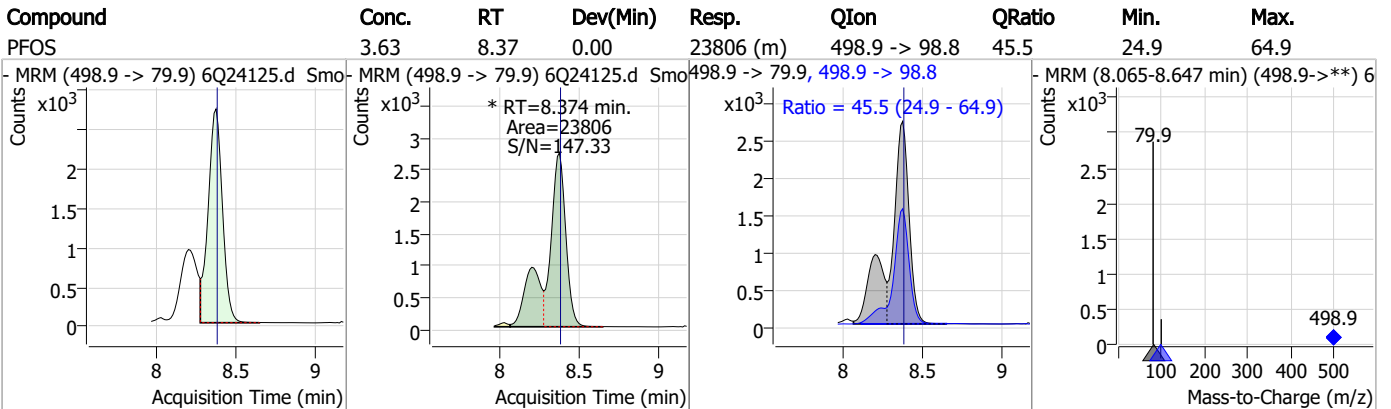
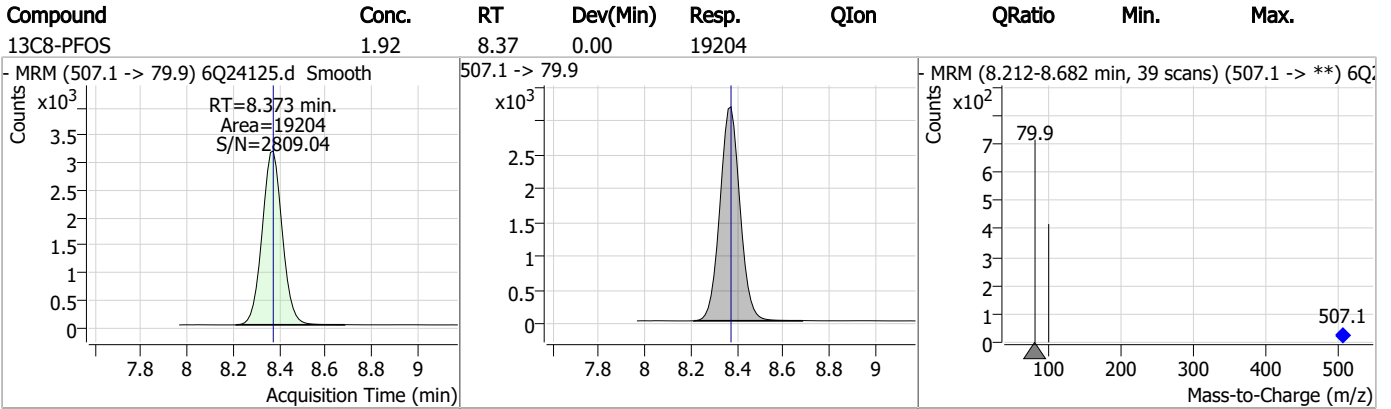
7.6.1
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.1

7



Manual Integration Approval Summary

Sample Number: S6Q347-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24125.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 20:03 Supervisor approved: 09/11/23 13:46 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 : 6Q24126.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 8:17:38 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	180561	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	33884	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	69787	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	54080	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	69584	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	30924	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31709	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	42332	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	37718	1.25 µg/L	0.000
M2-PFTeDA	9.809	715.2 -> 670.0	14358	1.25 µg/L	0.012
M8-FOSA	9.657	506.1 -> 77.8	28474	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	22482	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13033	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	13370	2.50 µg/L	0.012
M2-4:2FTS	5.304	329.1 -> 80.9	2603	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	3810	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3704	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	22630	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	37940	10.00 µg/L	-0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	21570	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	108082	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	141795	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	10646	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11285	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	16101	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	71699	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9108	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	79276	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	28082	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	37811	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	48868	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2603	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3810	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3704	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-PFDoDA	9.093	615.1 -> 570.0	37718	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFTeDA	9.809	715.2 -> 670.0	14358	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFBS	5.571	302.1 -> 79.9	22482	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFHxS	7.313	402.1 -> 79.9	13033	2.60 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 = 104.2%	
13C4-PFBA	2.985	216.8 -> 171.9	180561	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	54080	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFHxA	5.641	318.0 -> 273.0	69787	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	33884	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C6-PFDA	8.210	519.1 -> 474.1	31709	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C7-PFUnDA	8.663	570.0 -> 525.1	42332	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C8-FOSA	9.657	506.1 -> 77.8	28474	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C8-PFOA	7.198	421.1 -> 376.0	69584	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C8-PFOS	8.373	507.1 -> 79.9	13370	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C9-PFNA	7.729	472.1 -> 427.0	30924	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	22630	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	37940	10.19 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d3-MeFOSA	10.757	515.0 -> 219.0	11285	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
d5-EtFOSAA	8.464	589.2 -> 419.0	21570	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	108082	25.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d9-EtFOSE	10.911	639.2 -> 58.9	141795	24.89 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d5-EtFOSA	10.976	531.1 -> 219.0	10646	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	207483	48.20 µg/L	97
		327.1 -> 80.9	80147		
6:2FTS	6.974	427.1 -> 407.0	175918	52.20 µg/L	97
		427.1 -> 80.9	66908		
8:2FTS	7.999	527.1 -> 507.0	140581	56.26 µg/L	89
		527.1 -> 80.8	45869		
EtFOSAA	8.465	584.2 -> 419.1	41024	13.47 µg/L	100
		584.2 -> 526.0	27014		
FOSA	9.660	498.1 -> 77.9	330335	31.53 µg/L	100
		498.1 -> 478.0	9630		
MeFOSAA	8.257	570.1 -> 419.0	71811	13.36 µg/L	99
		570.1 -> 483.0	14790		
PFBA	2.993	212.8 -> 168.9	327634	54.90 µg/L	100
PFBS	5.572	298.7 -> 79.9	130012	11.79 µg/L	96
		298.7 -> 98.8	46784		
PFDA	8.211	512.9 -> 469.0	370121	12.81 µg/L	100
		512.9 -> 219.0	59837		
PFDoDA	9.094	613.1 -> 569.0	365708	13.06 µg/L	98
		613.1 -> 319.0	44267		
PFDS	9.245	599.0 -> 79.9	50300	12.91 µg/L	97

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	23293			
PFHpA	6.569	363.1 -> 319.0	393289	13.74	µg/L	99
		363.1 -> 169.0	59635			
PFHpS	7.868	449.0 -> 79.9	77362	11.95	µg/L	98
		449.0 -> 98.9	37295			
PFHxA	5.644	313.0 -> 269.0	356797	14.05	µg/L	100
		313.0 -> 118.9	15291			
PFHxS	7.314	398.7 -> 79.9	101278	12.39	µg/L	m 95
		398.7 -> 98.9	45684			
PFNA	7.593	463.0 -> 419.0	665095	28.52	µg/L	m 90
		463.0 -> 219.0	175832			
PFNS	8.826	548.8 -> 79.9	85312	13.51	µg/L	91
		548.8 -> 98.9	42253			
PFOA	7.200	413.0 -> 369.0	1169199	32.60	µg/L	m 97
		413.0 -> 169.0	197554			
PFOS	8.362	498.9 -> 79.9	85116	11.49	µg/L	m 99
		498.9 -> 98.8	40137			
PFPeA	4.424	263.0 -> 219.0	415191	27.51	µg/L	100
PFPeS	6.620	349.1 -> 79.9	90831	12.81	µg/L	97
		349.1 -> 98.9	41041			
PFTeDA	9.809	713.1 -> 669.0	285865	13.82	µg/L	97
		713.1 -> 168.9	19438			
PFTrDA	9.464	663.0 -> 619.0	455350	14.31	µg/L	96
		663.0 -> 168.9	33379			
PFUnDA	8.664	563.1 -> 519.0	315392	13.01	µg/L	98
		563.1 -> 269.1	49248			
11CI-PF3OUdS	9.516	630.9 -> 450.9	371059	26.81	µg/L	94
		632.9 -> 452.9	117893			
9CI-PF3ONS	8.703	530.8 -> 351.0	607133	25.59	µg/L	93
		532.8 -> 353.0	195536			
ADONA	6.817	376.9 -> 250.9	1526909	27.79	µg/L	95
		376.9 -> 84.8	377838			
HFPO-DA	6.020	284.9 -> 168.9	102278	28.49	µg/L	98
		284.9 -> 184.9	14999			
3:3FTCA	3.858	241.0 -> 177.0	72456	70.21	µg/L	99
		241.0 -> 117.0	6663			
5:3FTCA	6.258	341.0 -> 237.1	1568300	363.40	µg/L	92
		341.0 -> 217.0	1012695			
7:3FTCA	7.657	441.0 -> 316.9	862398	338.15	µg/L	90
		441.0 -> 336.9	1824656			
EtFOSA	10.990	526.0 -> 219.0	282787	48.82	µg/L	96
		526.0 -> 169.0	358610			
EtFOSE	10.924	630.0 -> 58.9	607923	90.21	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	235691	49.21	µg/L	m 99
		511.9 -> 169.0	316424			
MeFOSE	10.691	616.1 -> 58.9	426262	91.20	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	27121	12.71	µg/L	96
		699.1 -> 98.8	14619			
NFDHA	5.524	295.0 -> 201.0	81418	27.66	µg/L	95
		295.0 -> 84.9	21183			
PFMBA	4.850	279.0 -> 85.1	305772	27.79	µg/L	100
PFMPA	3.551	229.0 -> 84.9	218995	27.76	µg/L	100
PFEESA	6.112	314.8 -> 134.9	799216	25.18	µg/L	100
		314.8 -> 82.9	27975			

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

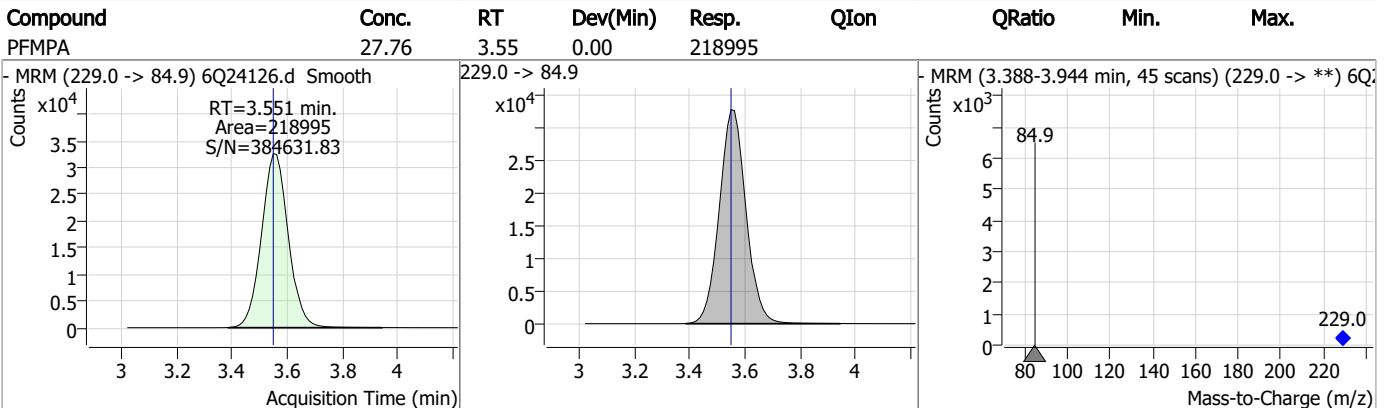
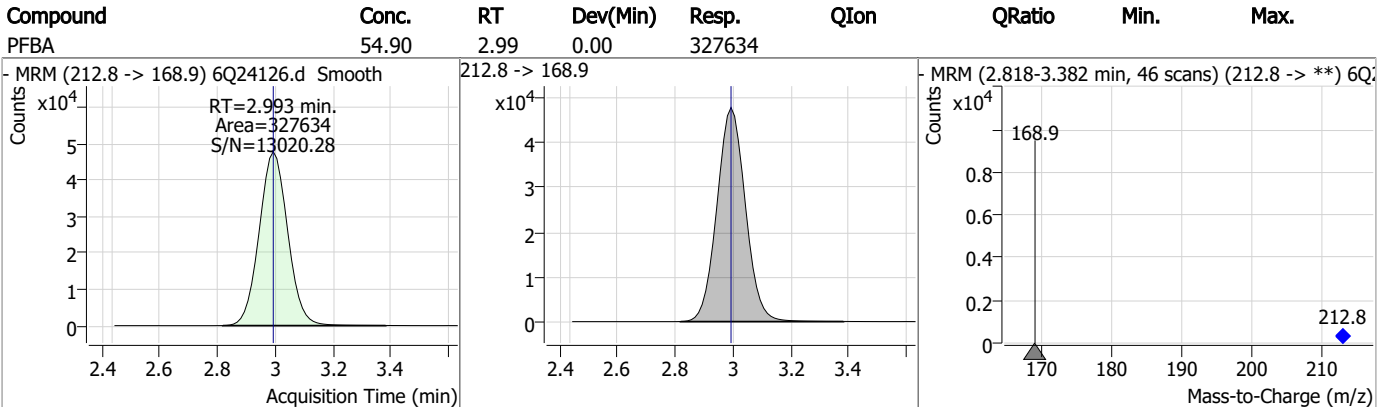
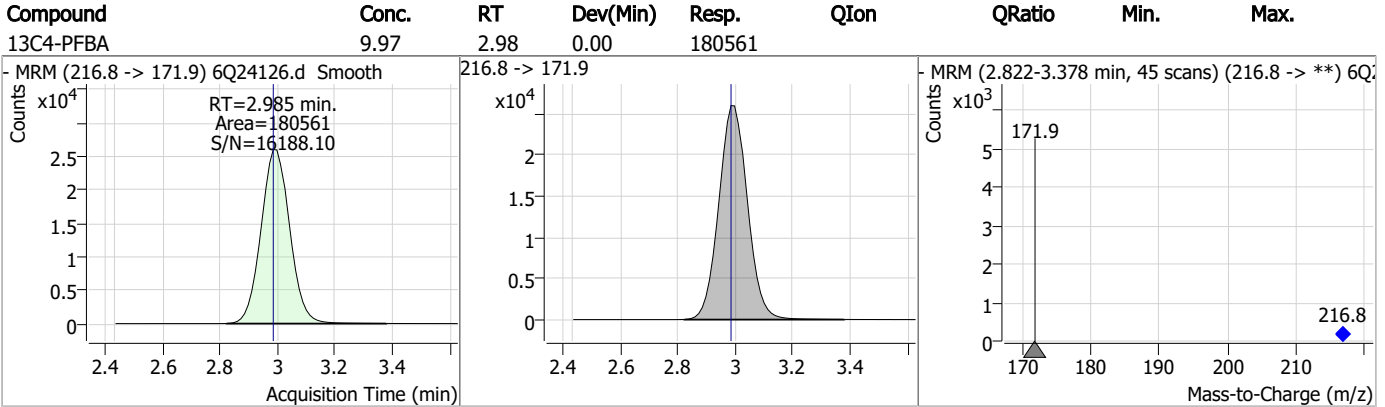
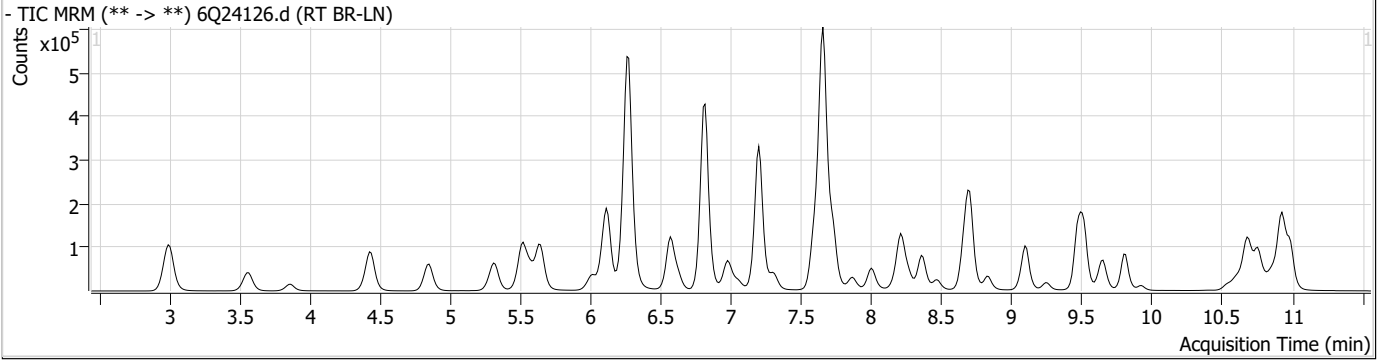
Perfluorinated Compounds by LC/MS/MS

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

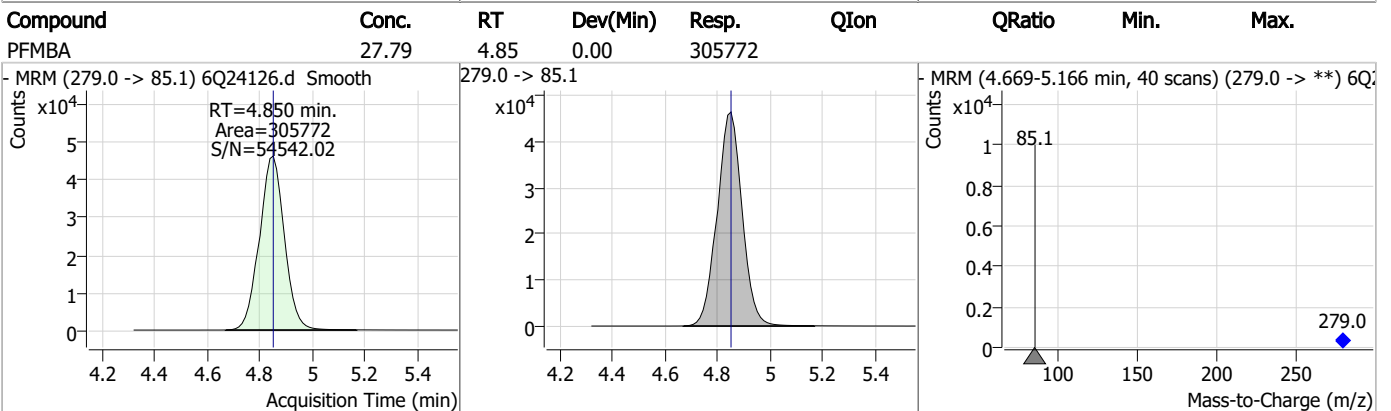
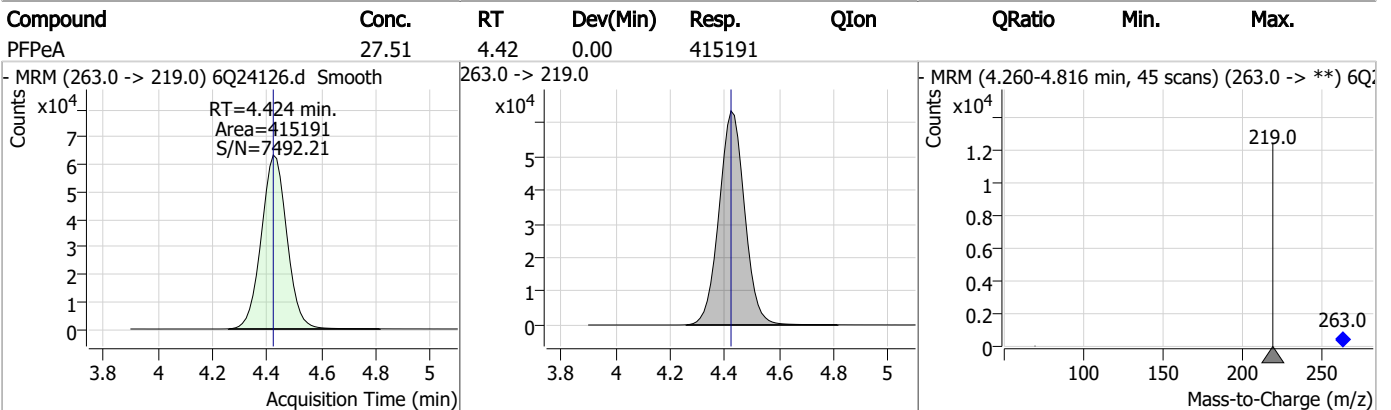
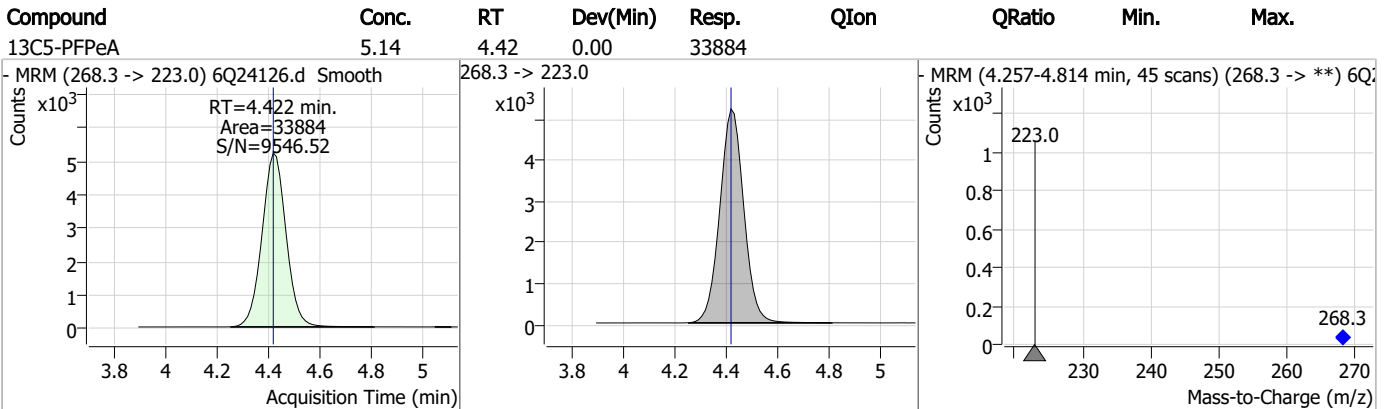
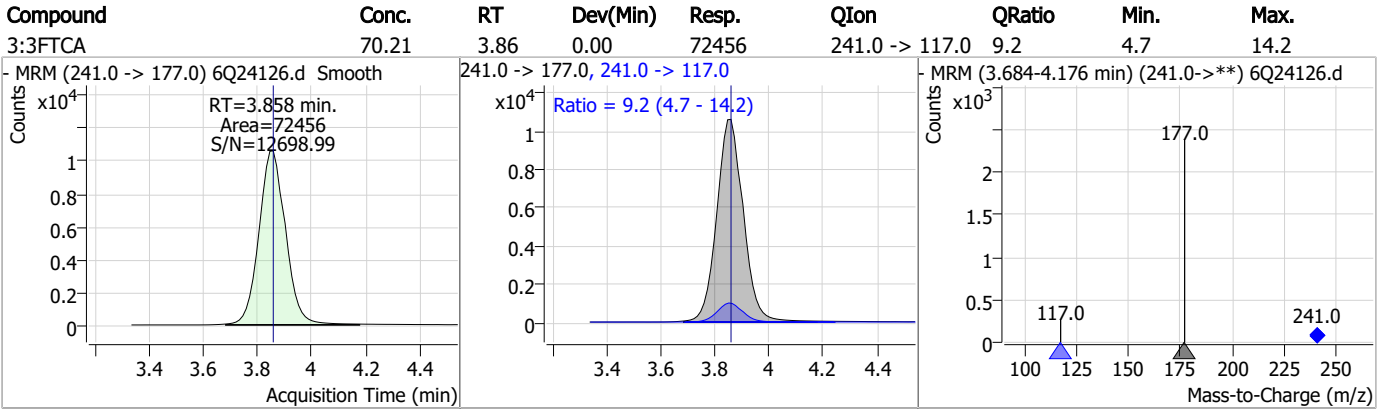
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Perfluorinated Compounds by LC/MS/MS

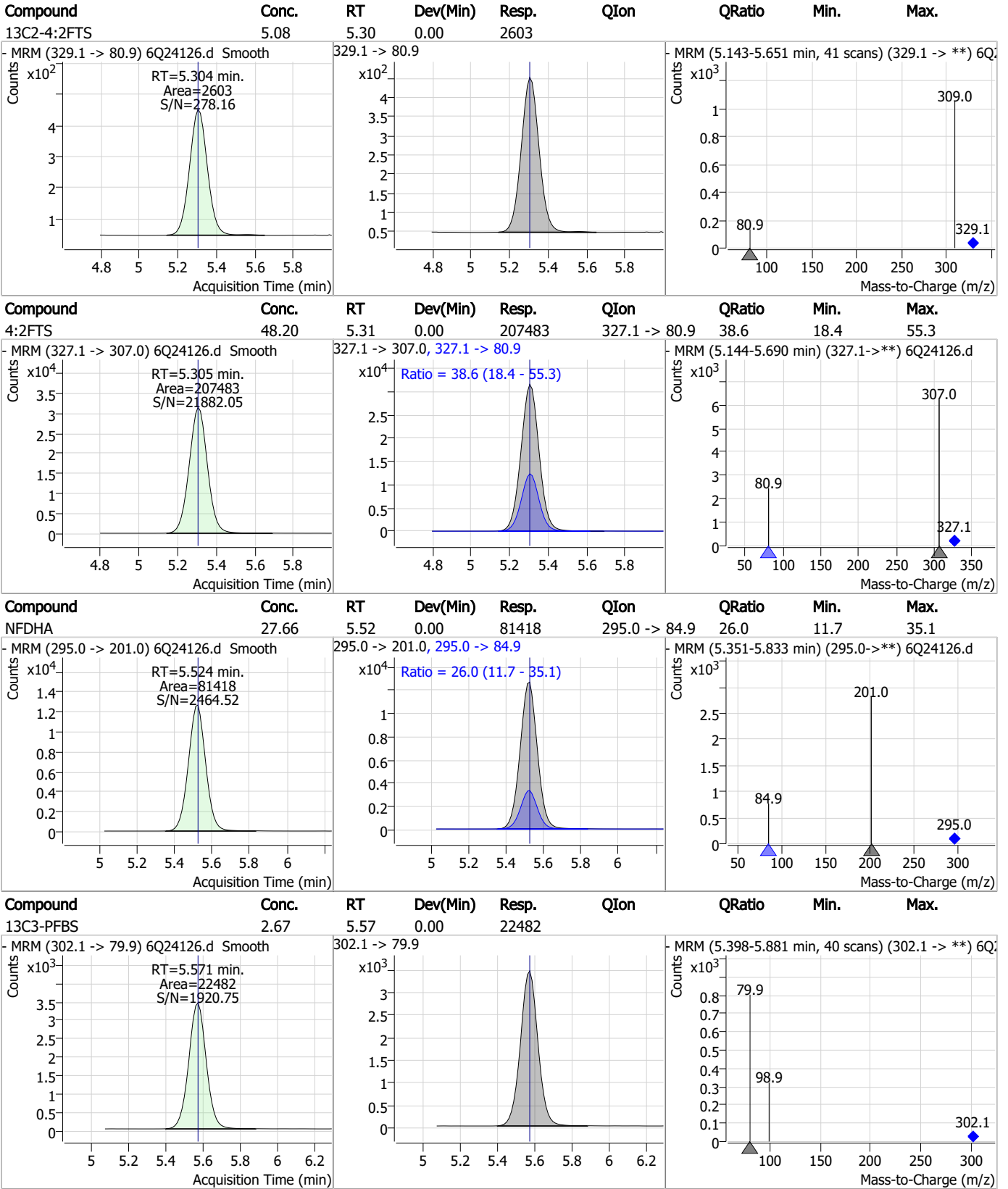


7.6.2
7

Perfluorinated Compounds by LC/MS/MS



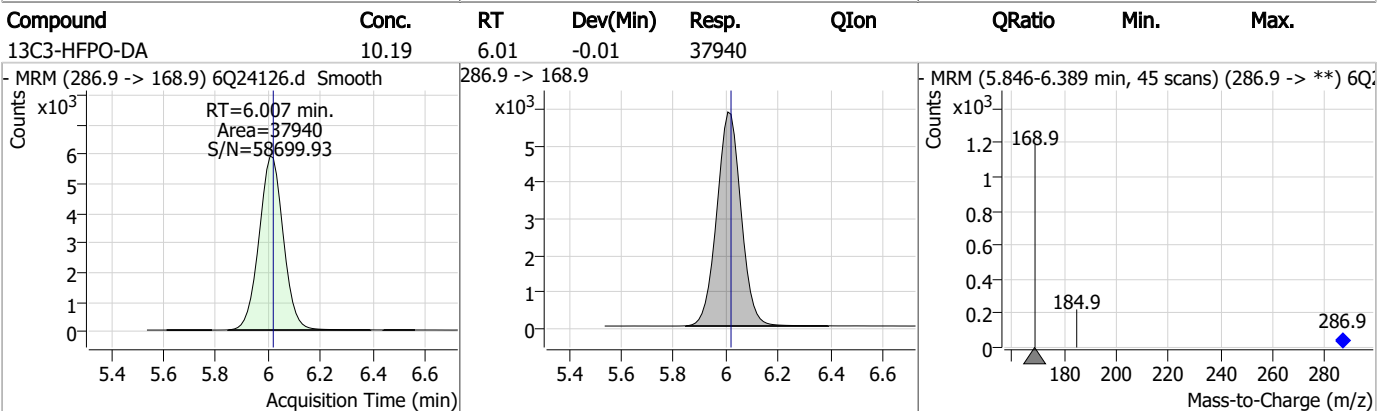
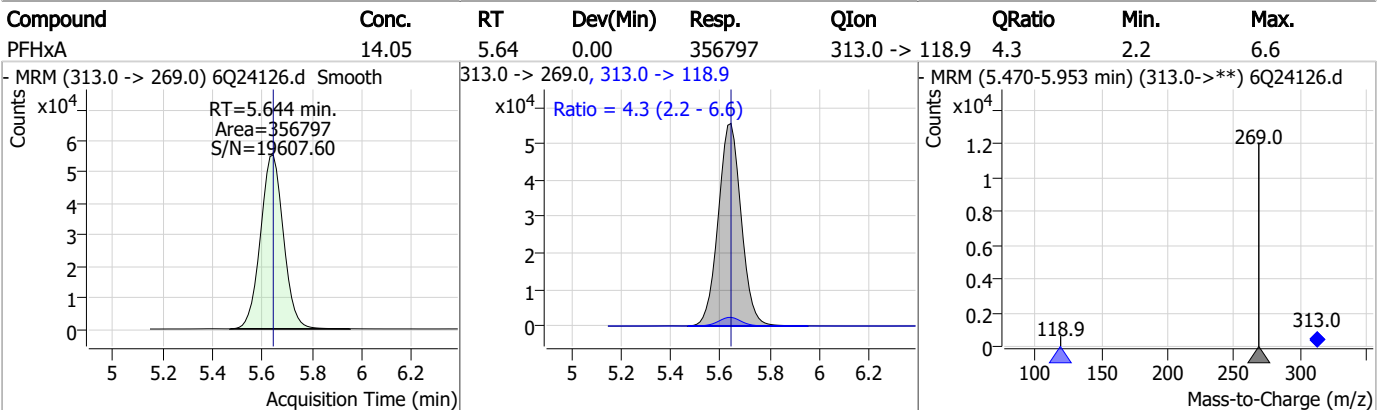
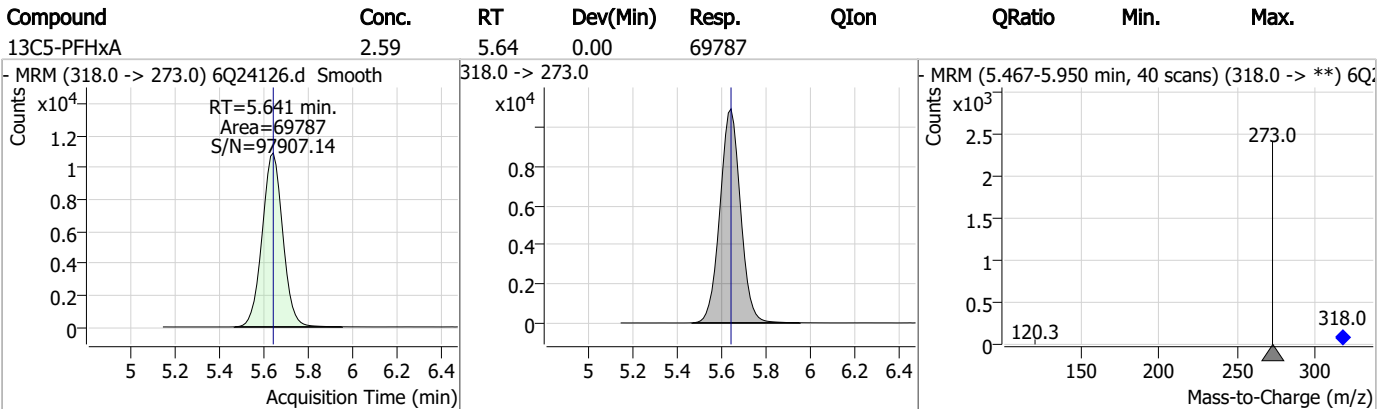
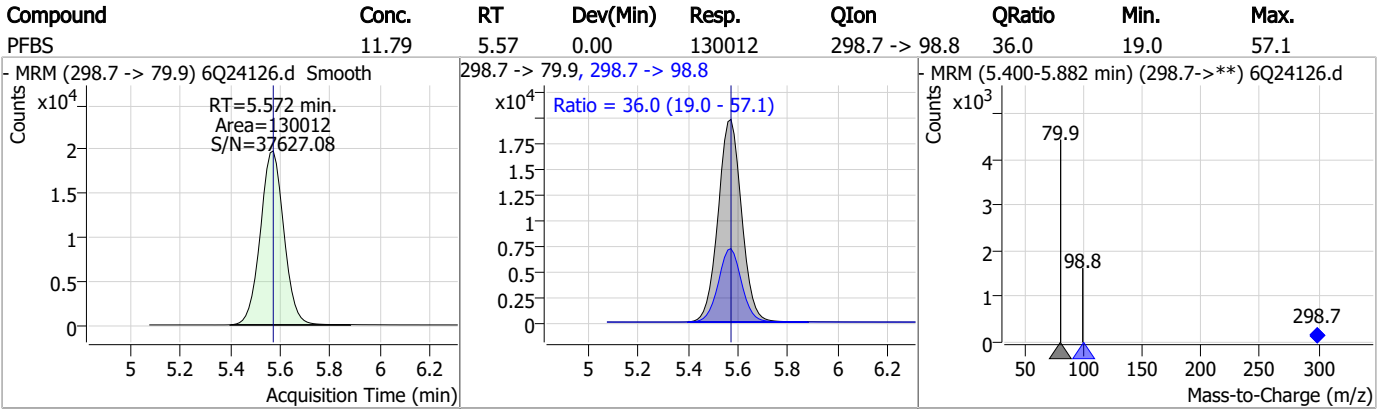
Perfluorinated Compounds by LC/MS/MS



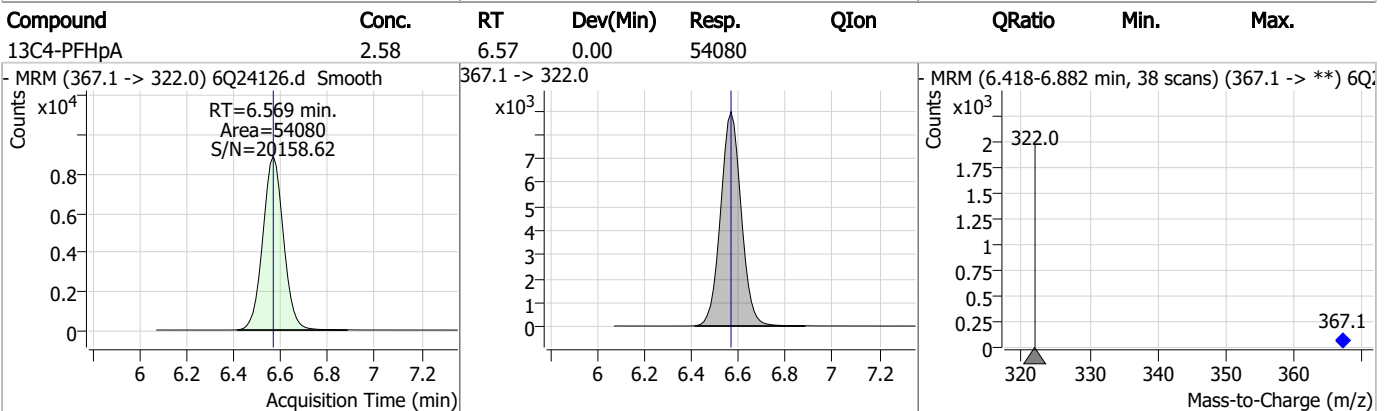
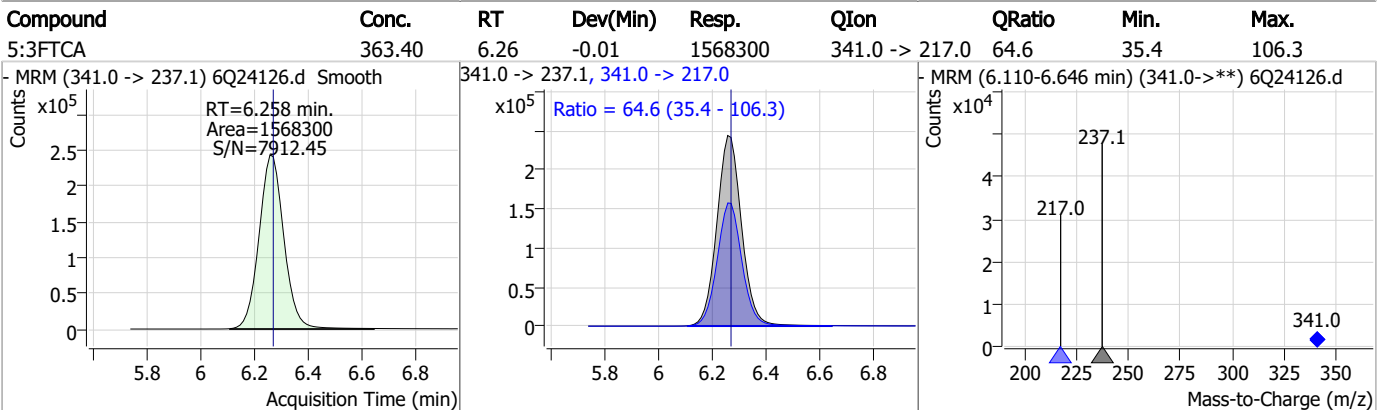
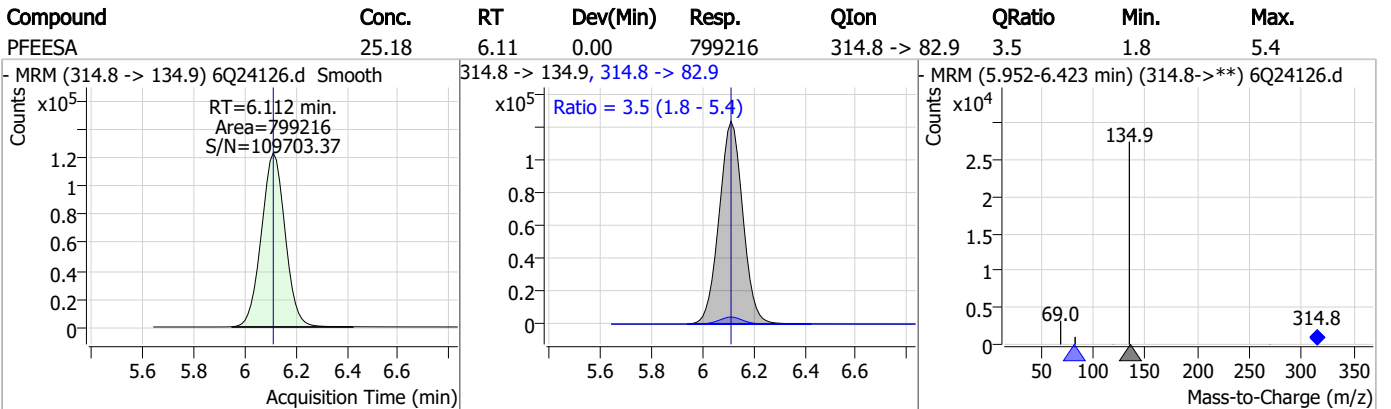
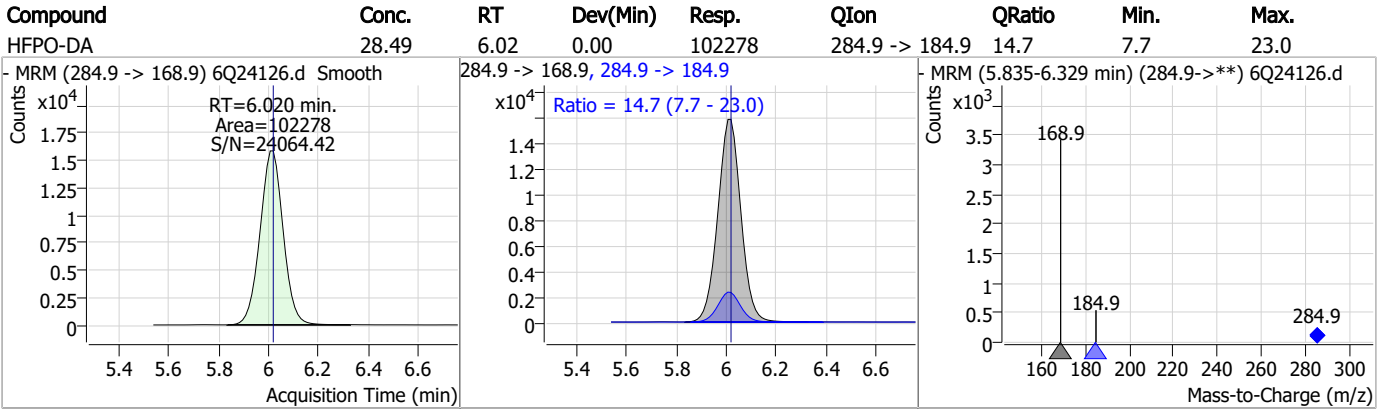
7.6.2

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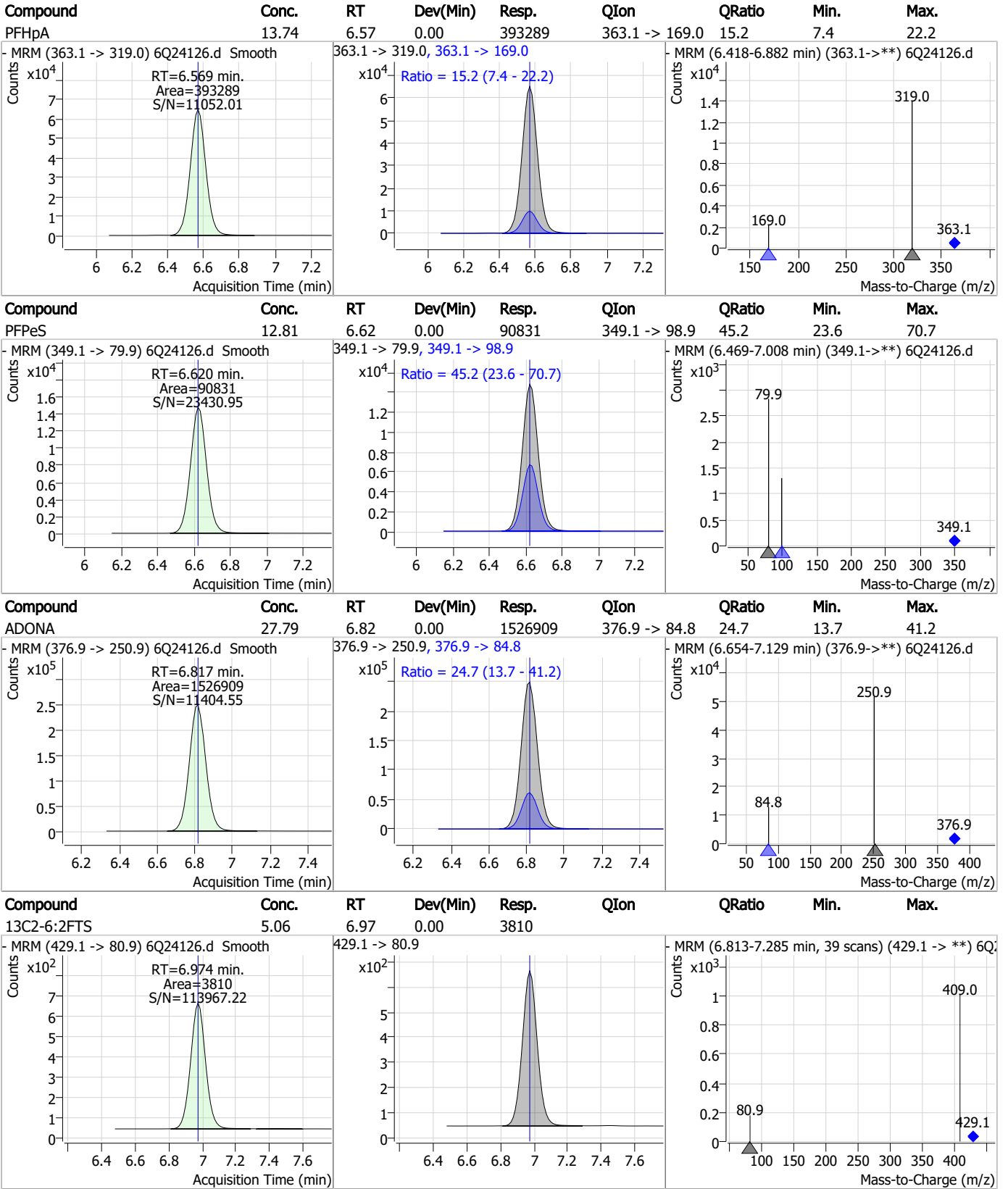
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



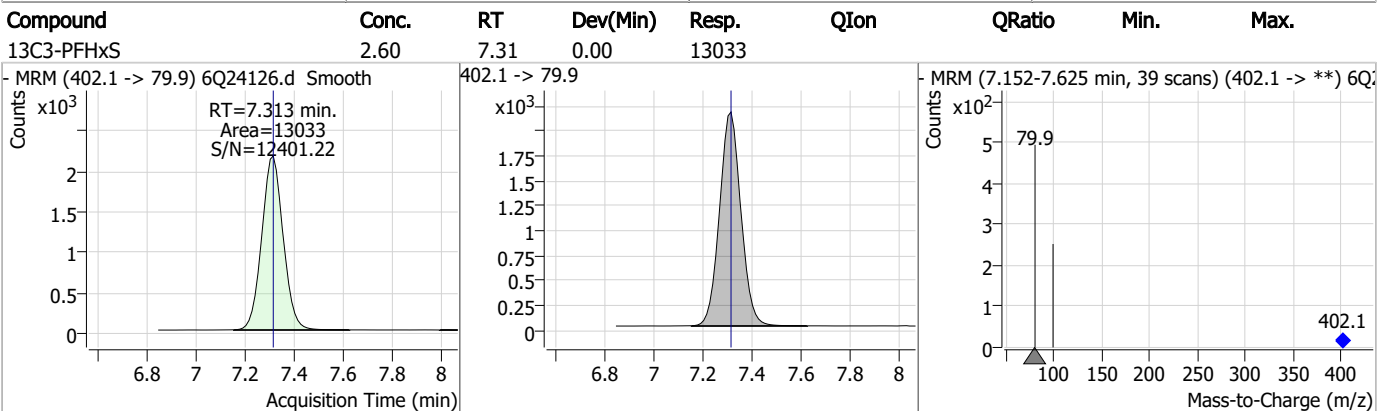
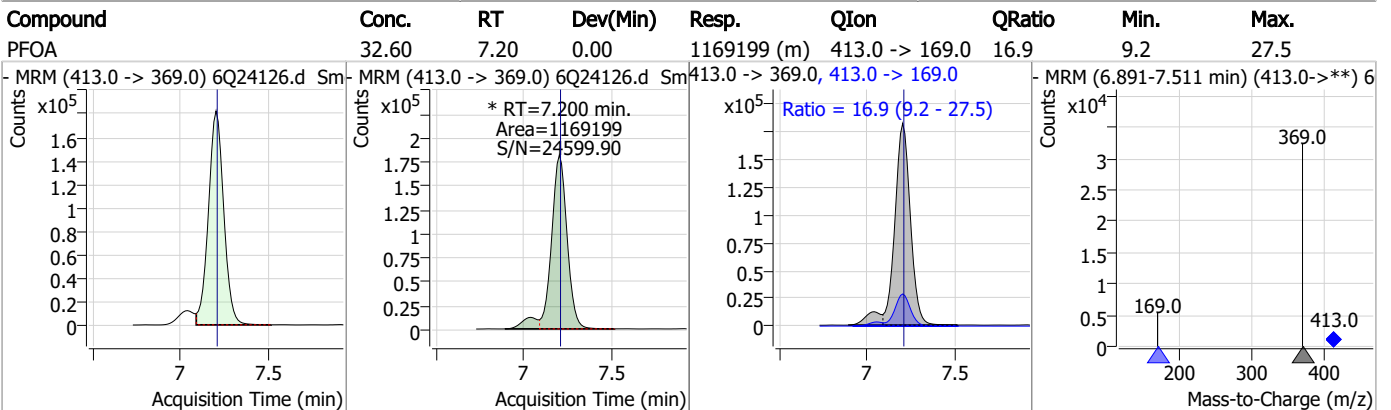
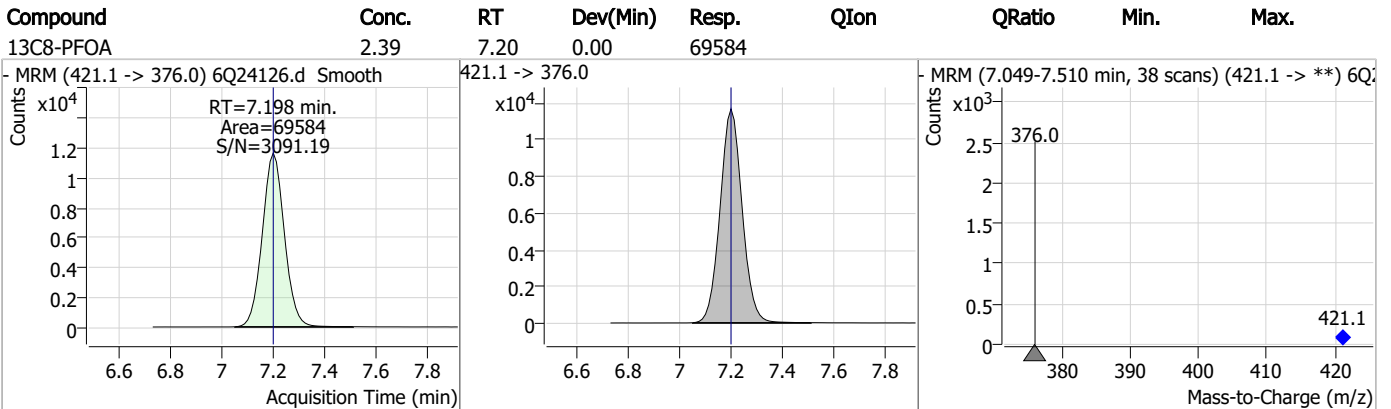
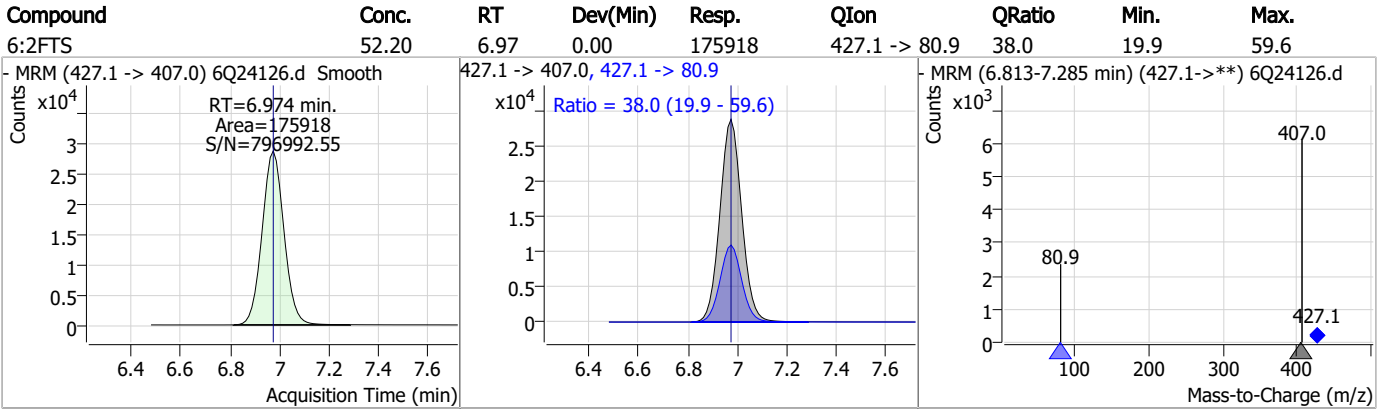
Perfluorinated Compounds by LC/MS/MS



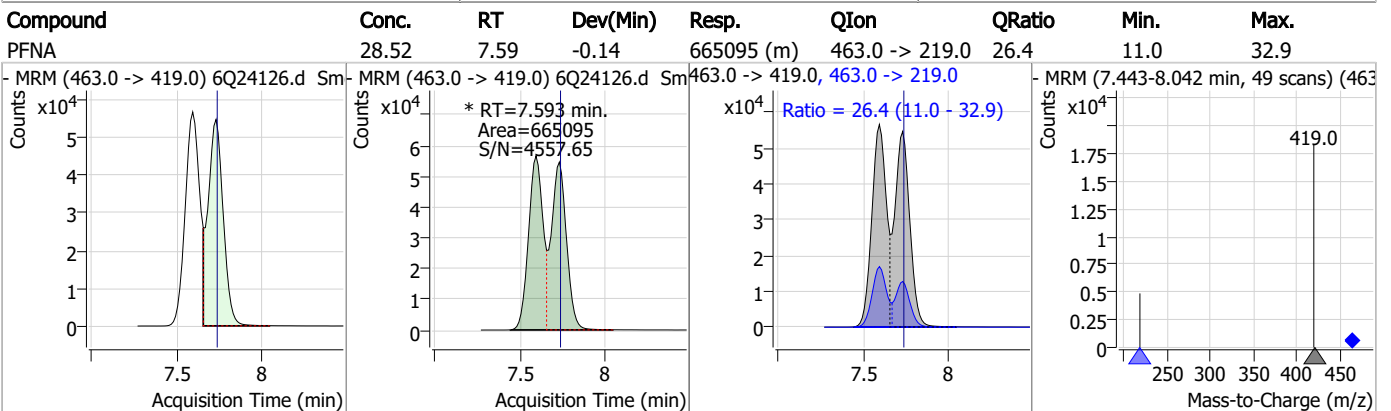
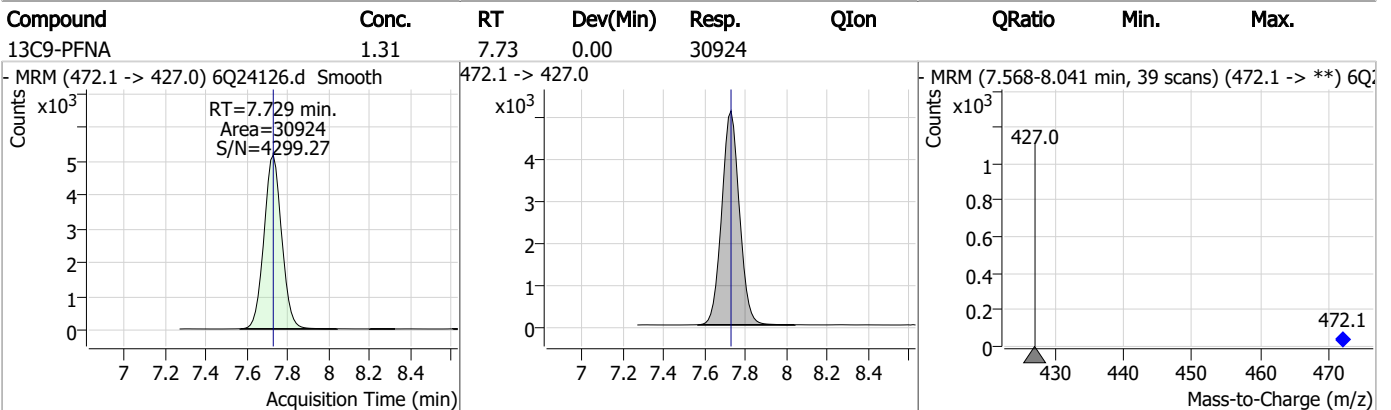
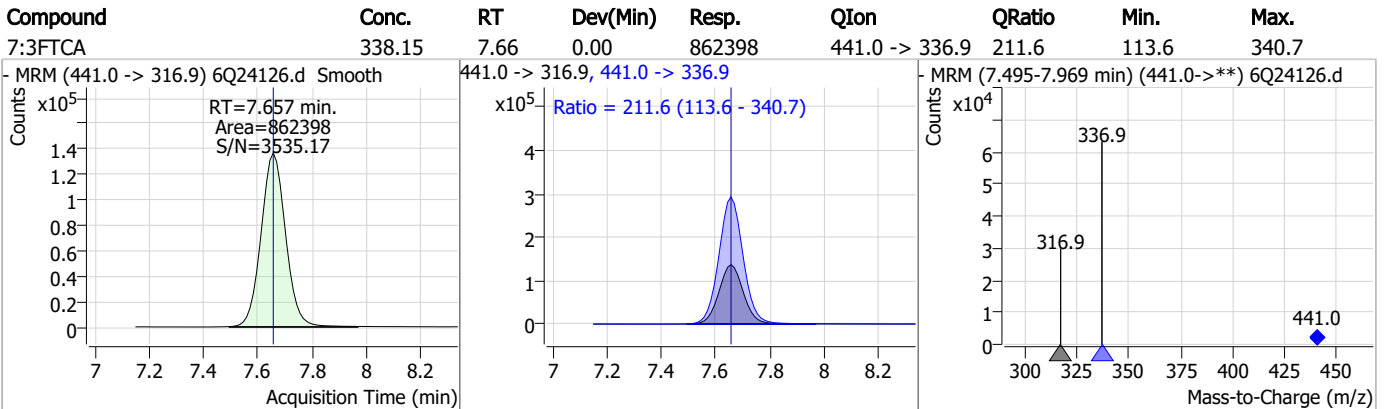
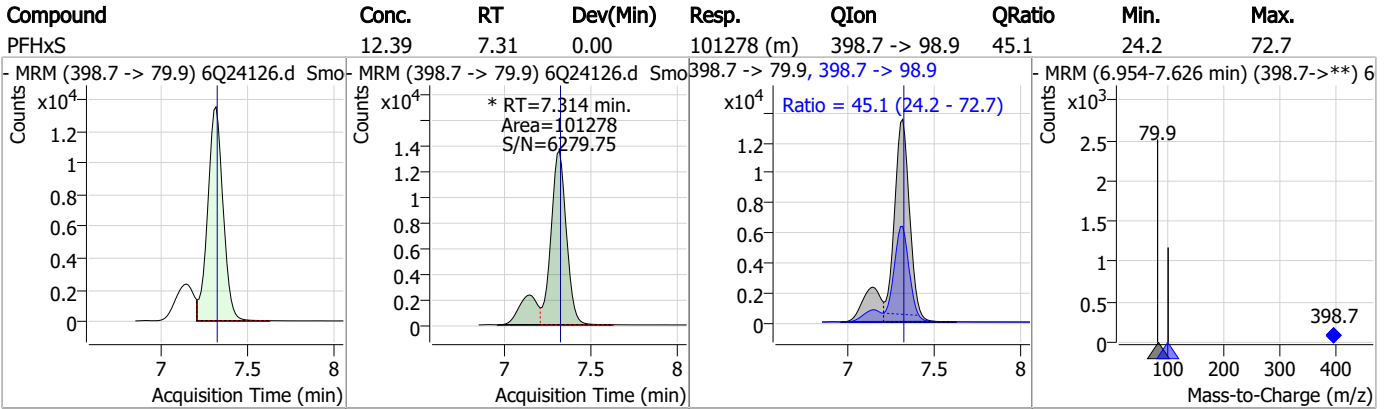
7.6.2

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

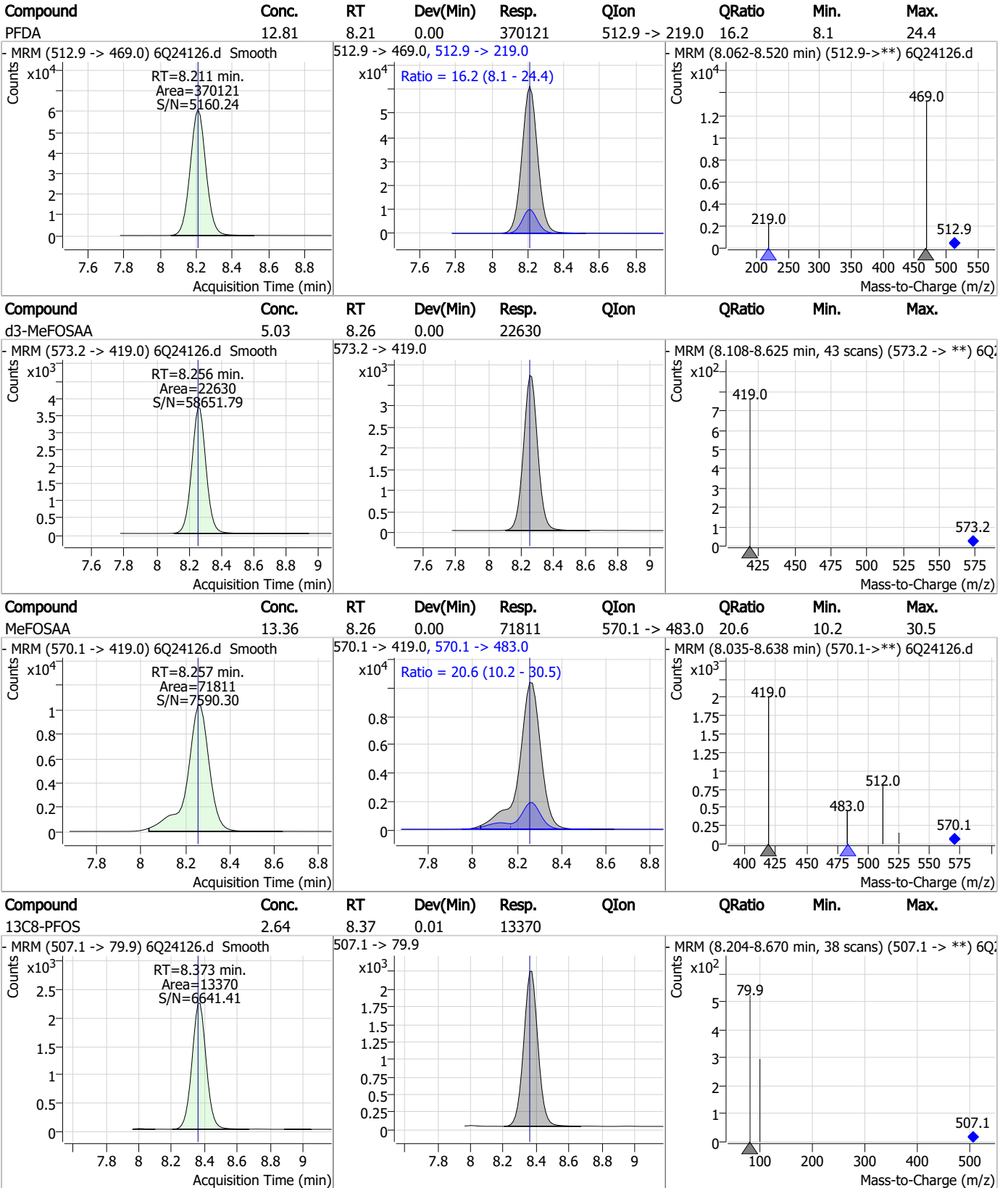
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	11.95	7.87	0.00	77362	449.0 -> 98.9	48.2	23.4	70.1
13C2-8:2FTS	4.76	8.00	0.00	3704				
8:2FTS	56.26	8.00	0.00	140581	527.1 -> 80.8	32.6	19.7	59.0
13C6-PFDA	1.30	8.21	0.00	31709				

7.6.2

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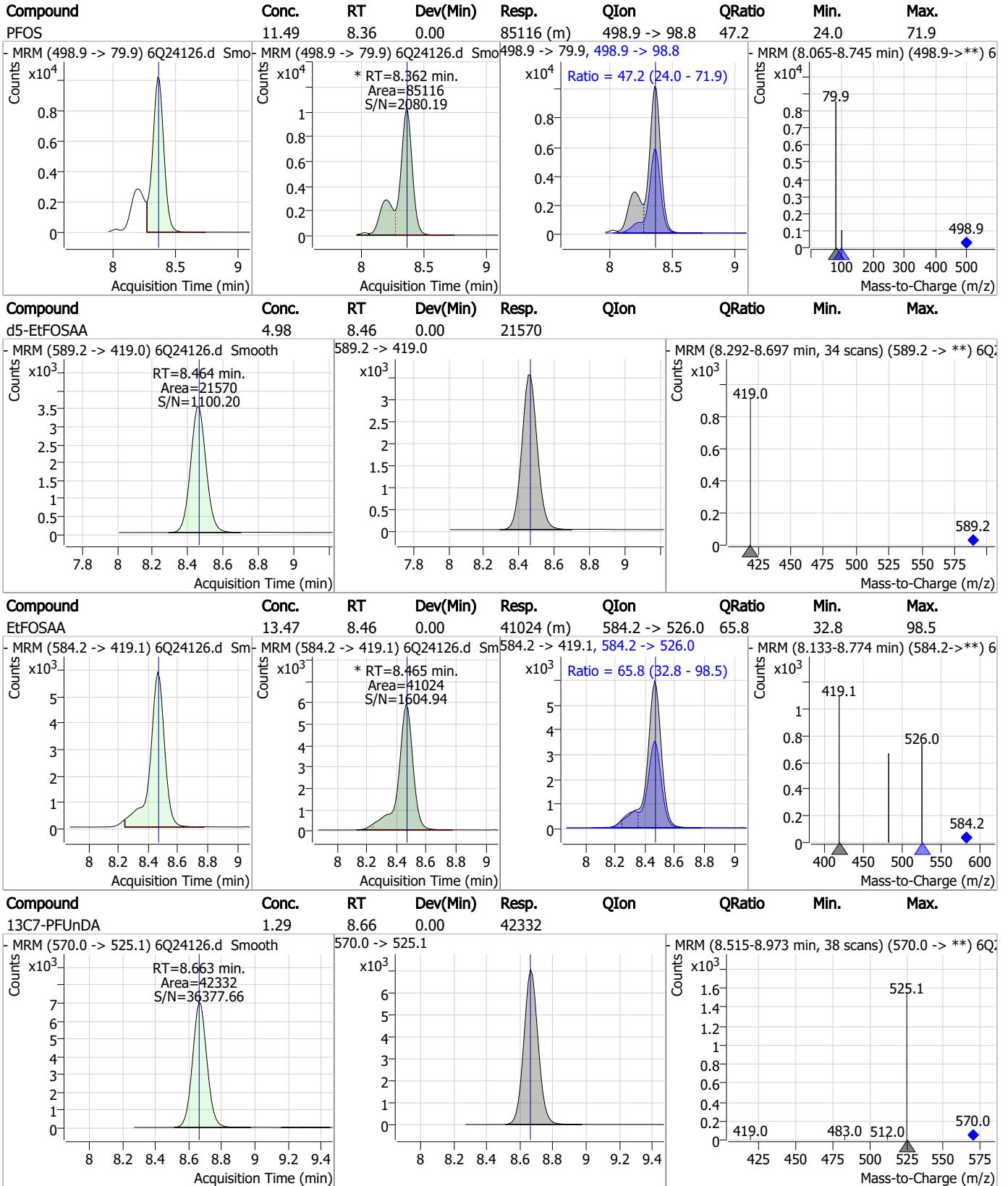
Perfluorinated Compounds by LC/MS/MS



7.6.2

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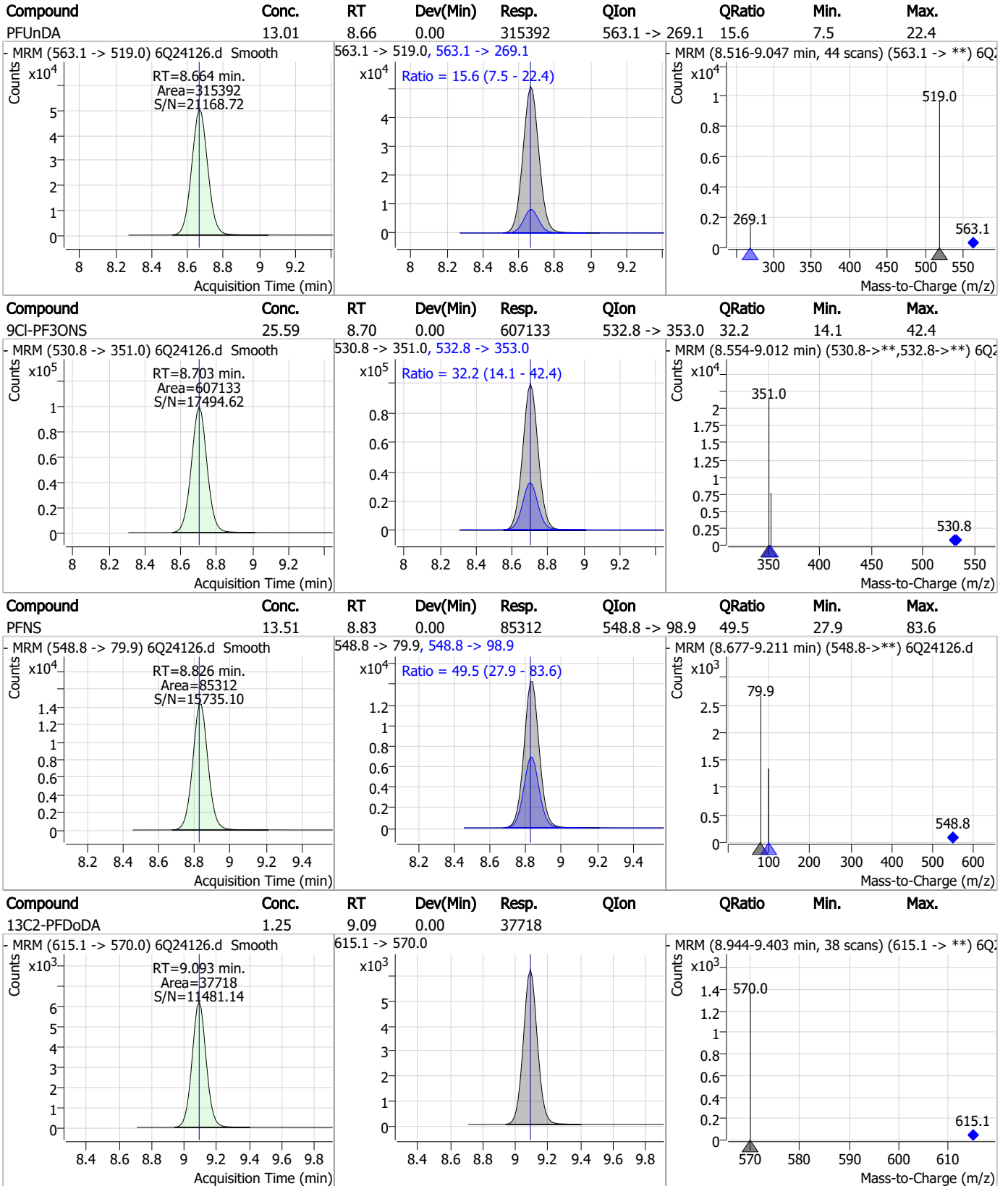
Perfluorinated Compounds by LC/MS/MS



7.6.2

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Perfluorinated Compounds by LC/MS/MS

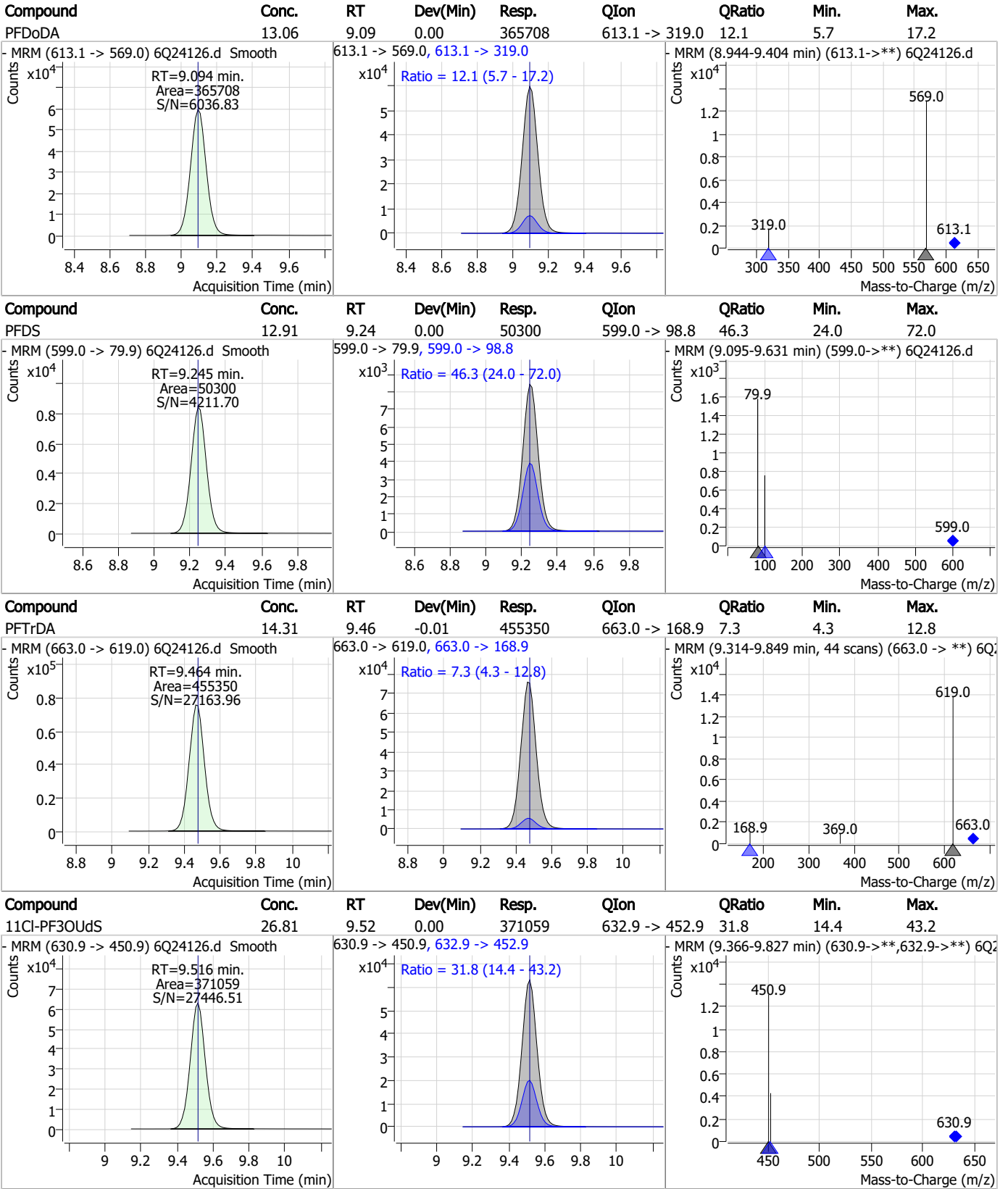


7.6.2

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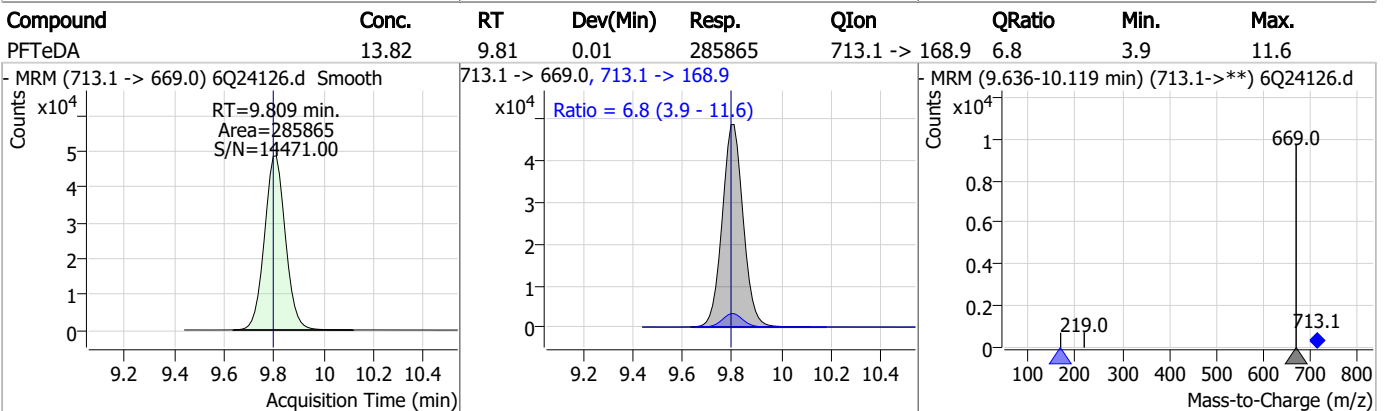
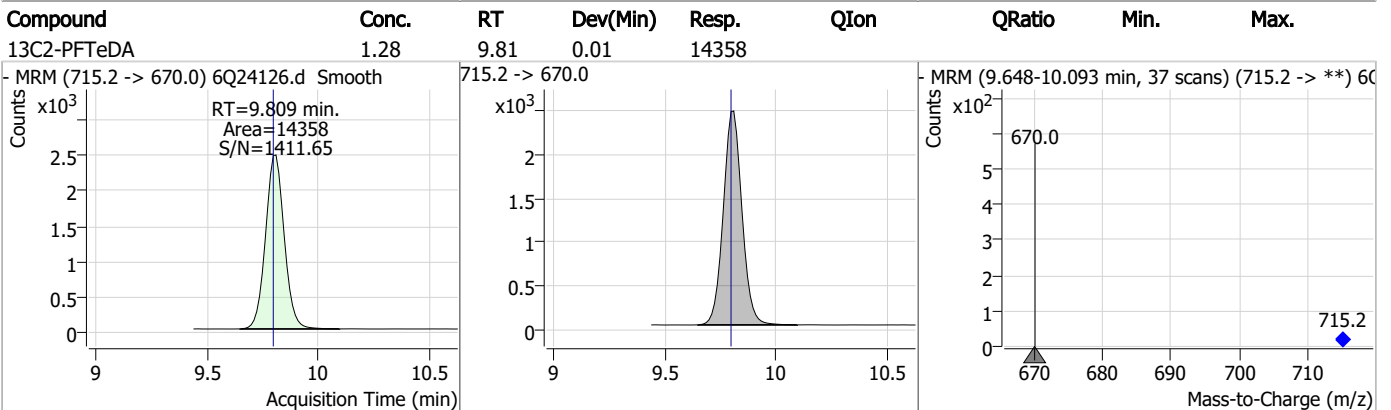
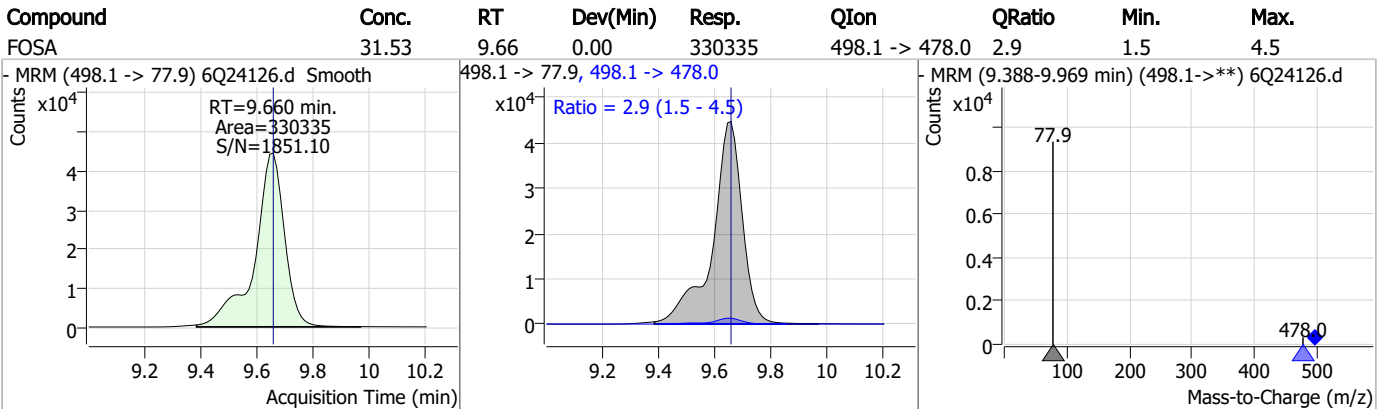
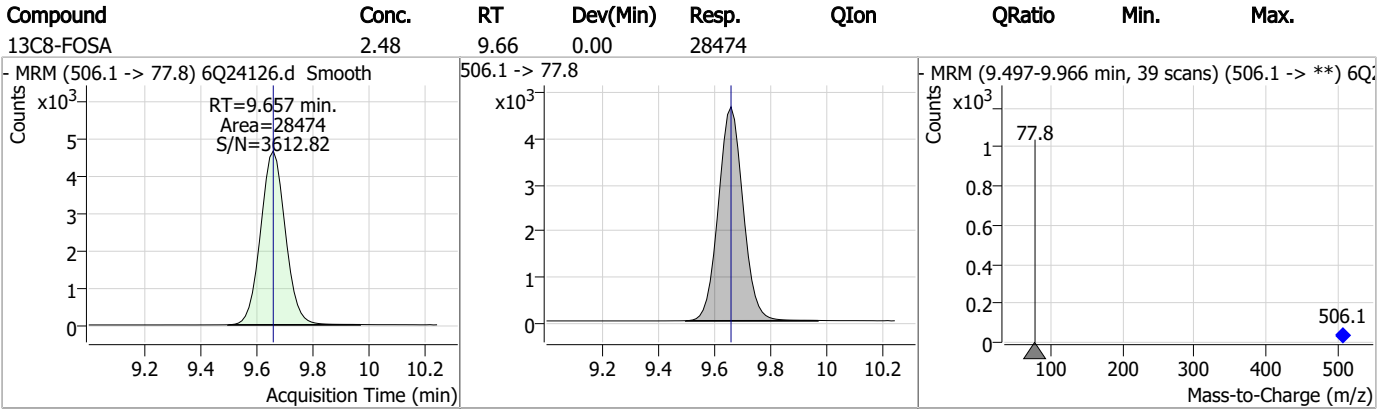
Perfluorinated Compounds by LC/MS/MS



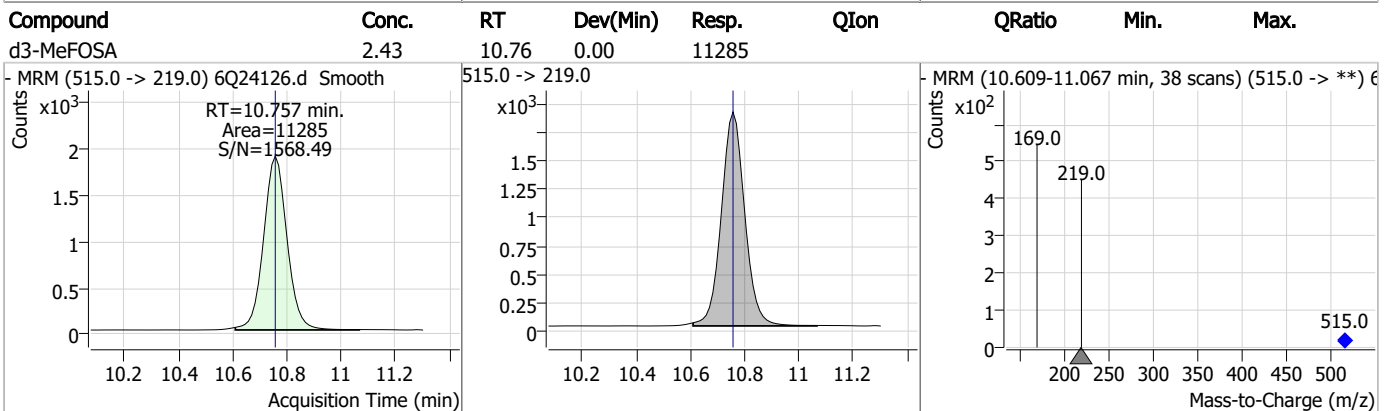
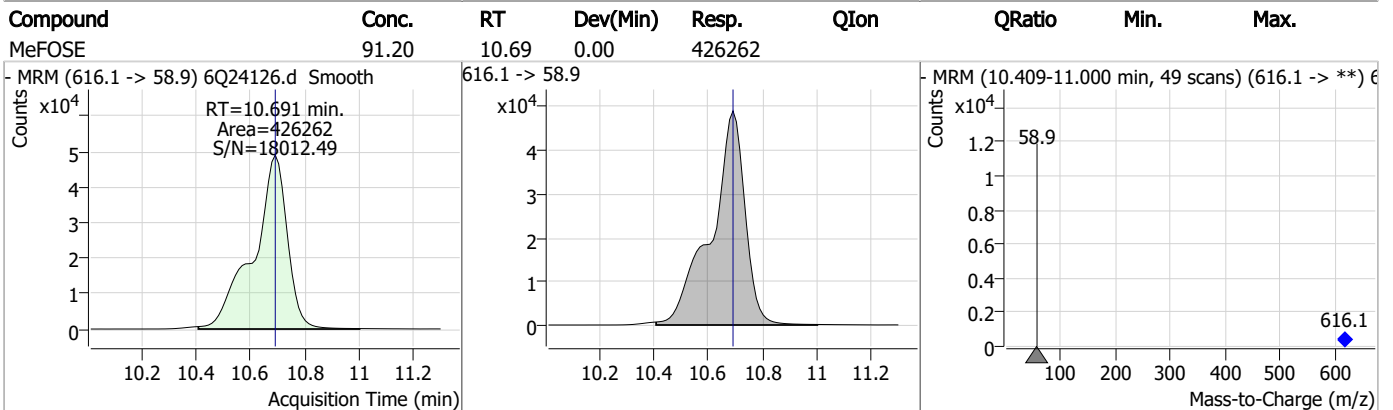
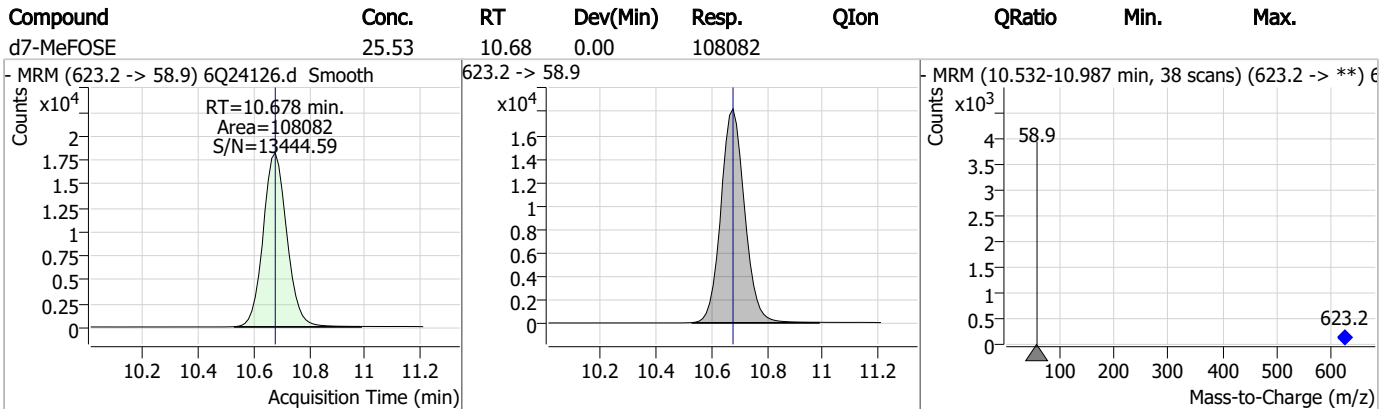
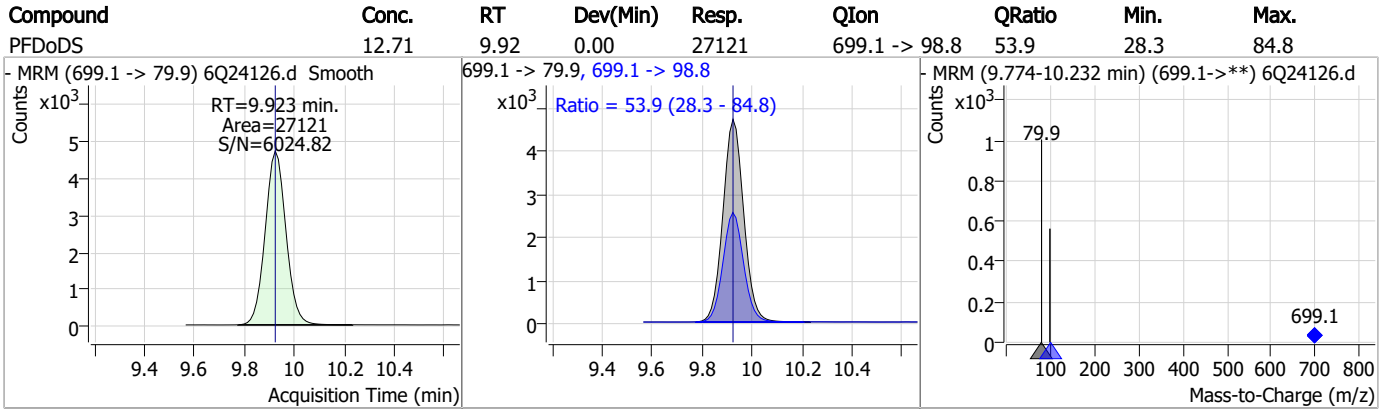
7.6.2

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Perfluorinated Compounds by LC/MS/MS

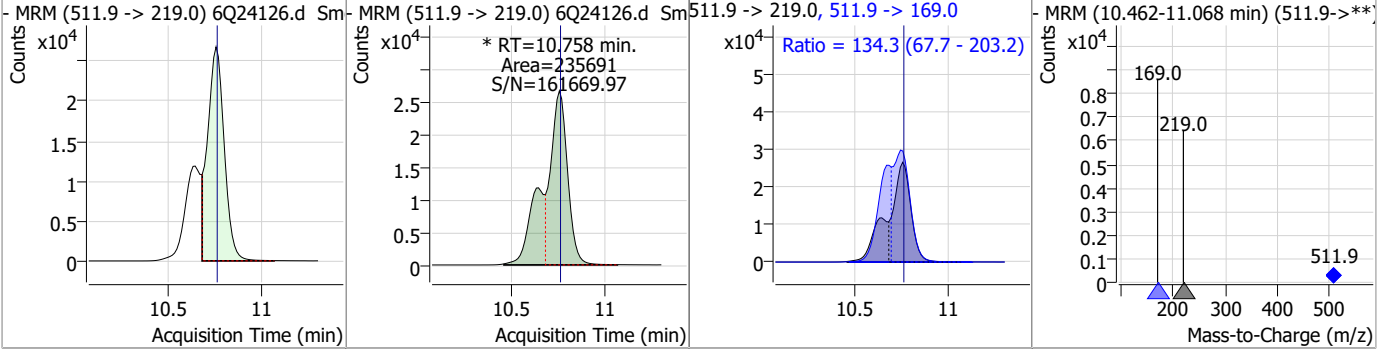


Perfluorinated Compounds by LC/MS/MS

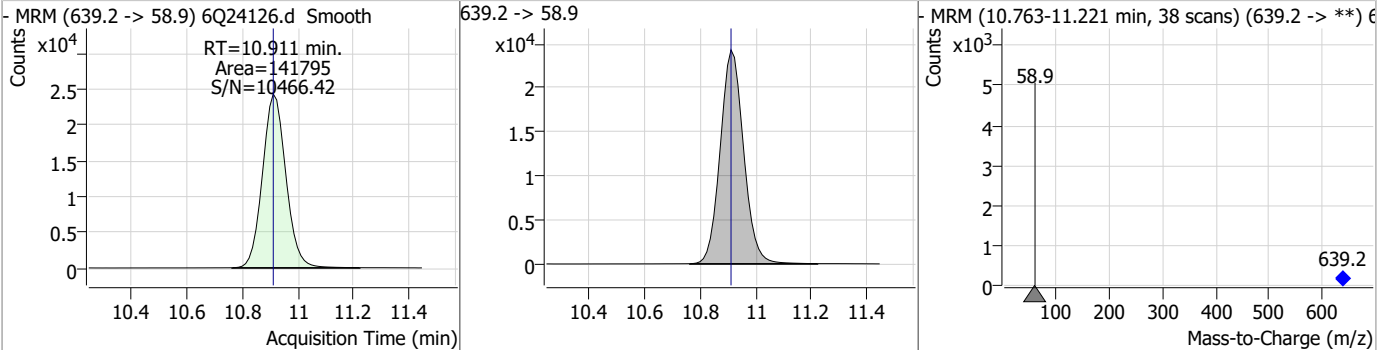


Perfluorinated Compounds by LC/MS/MS

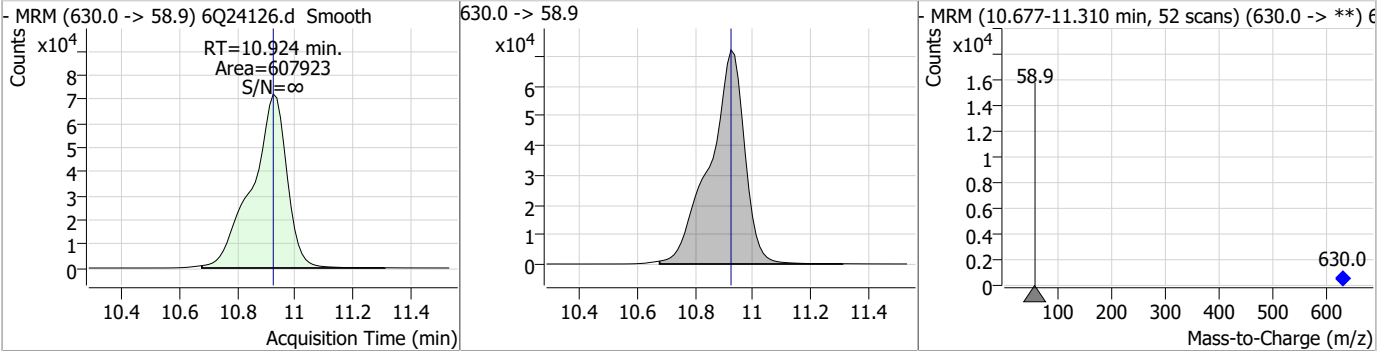
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	49.21	10.76	0.00	235691 (m)	511.9 -> 169.0	134.3	67.7	203.2



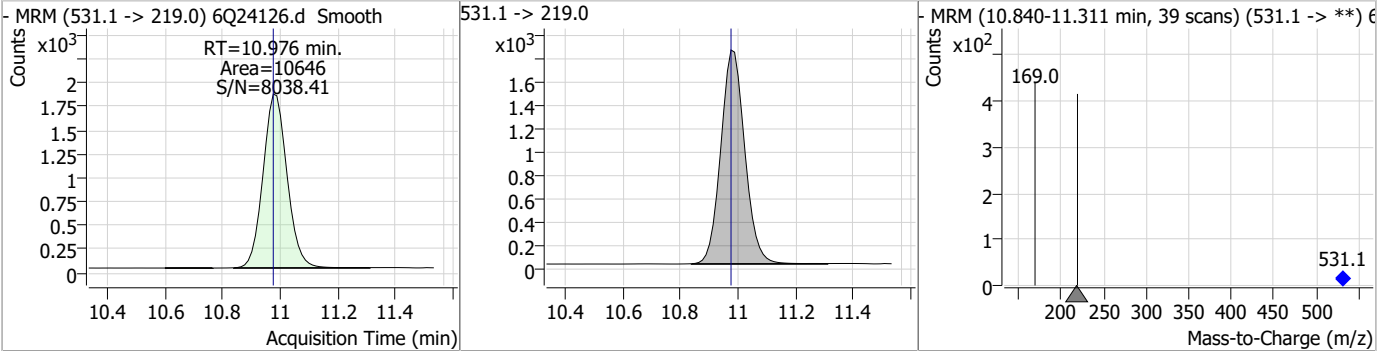
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.89	10.91	0.00	141795				



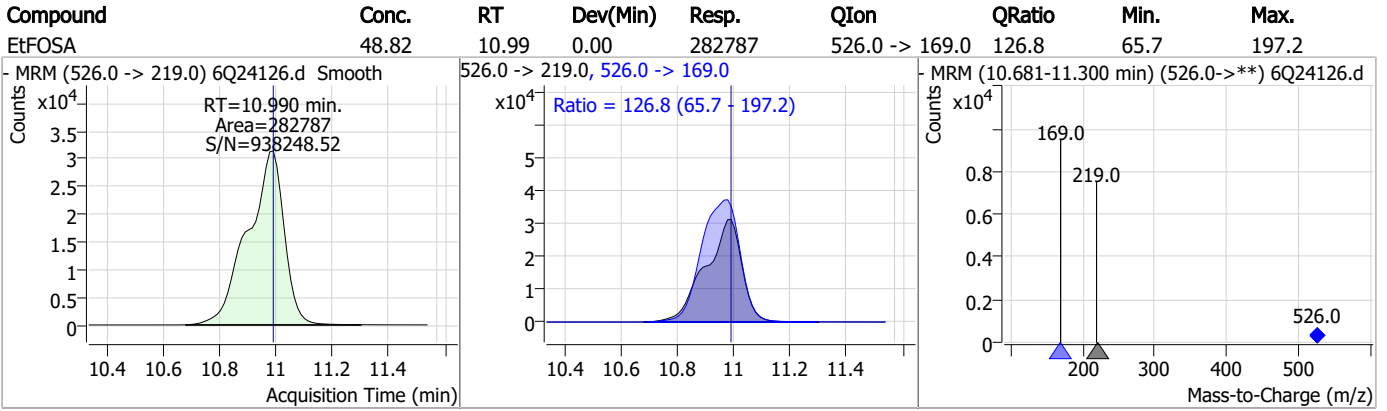
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	90.21	10.92	0.00	607923				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	10.98	0.00	10646				



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S6Q347-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24126.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 20:17 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorononanoic acid	375-95-1		7.59	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.6.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtie
 09/13/23 15:06

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24318.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/12/2023 10:37:47 AM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q350 TDCA.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

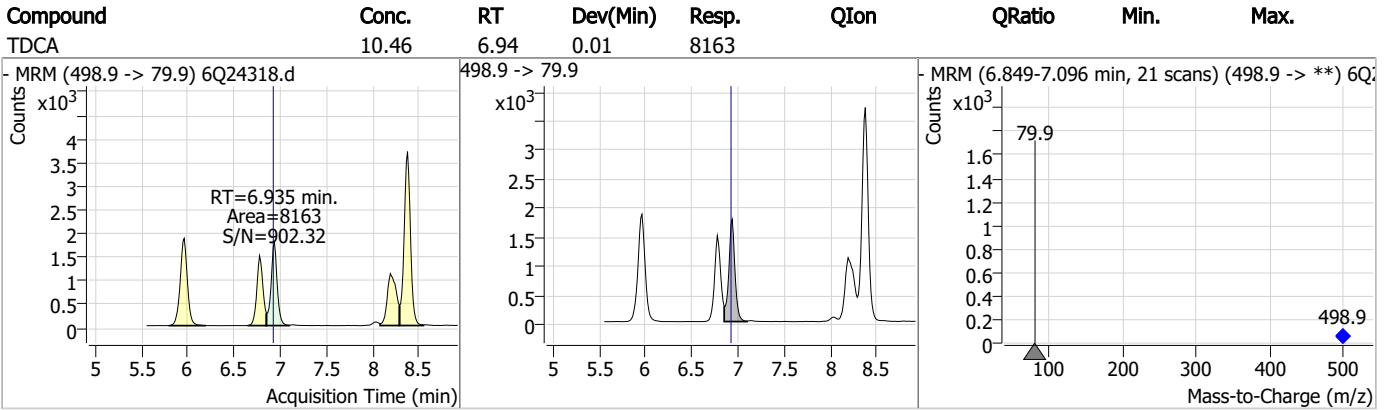
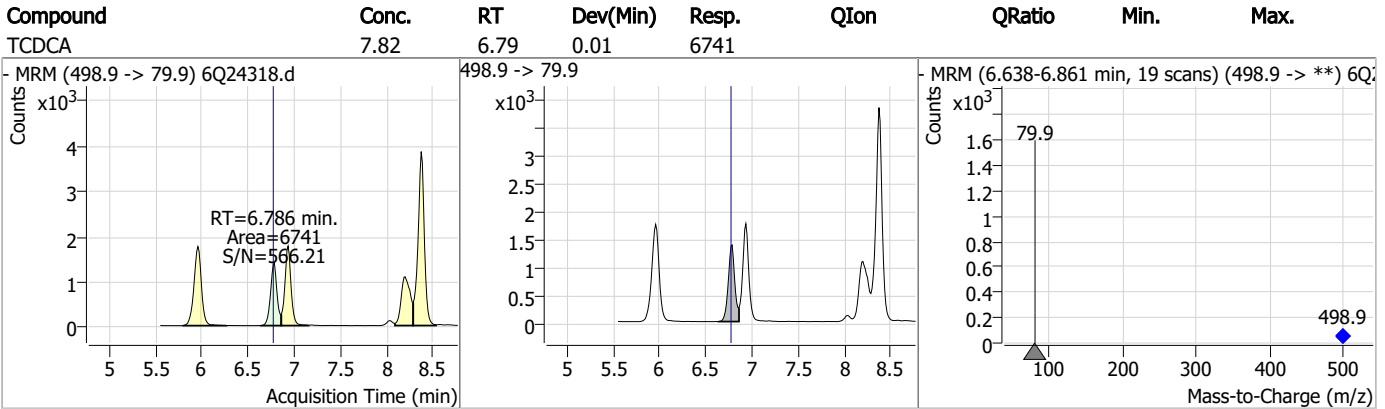
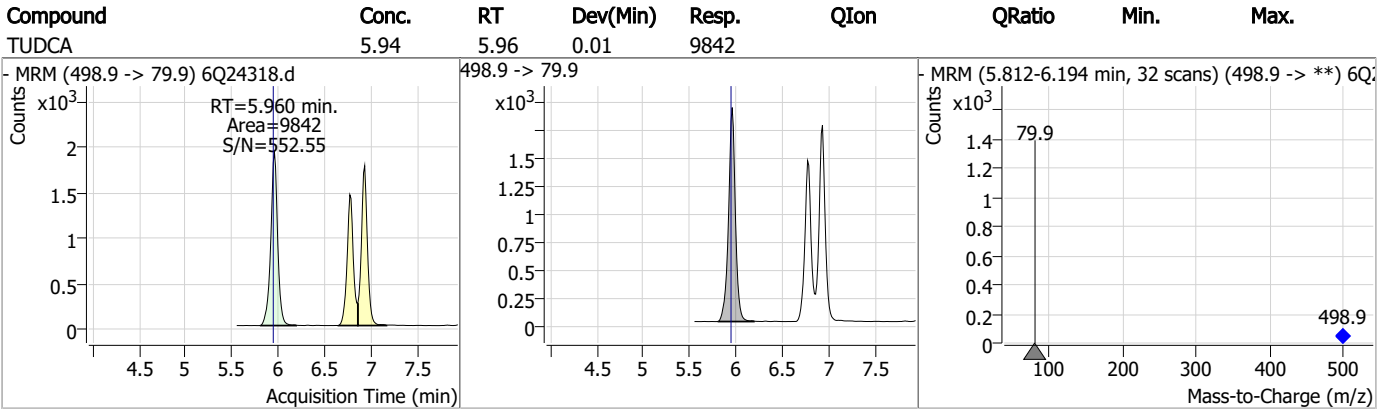
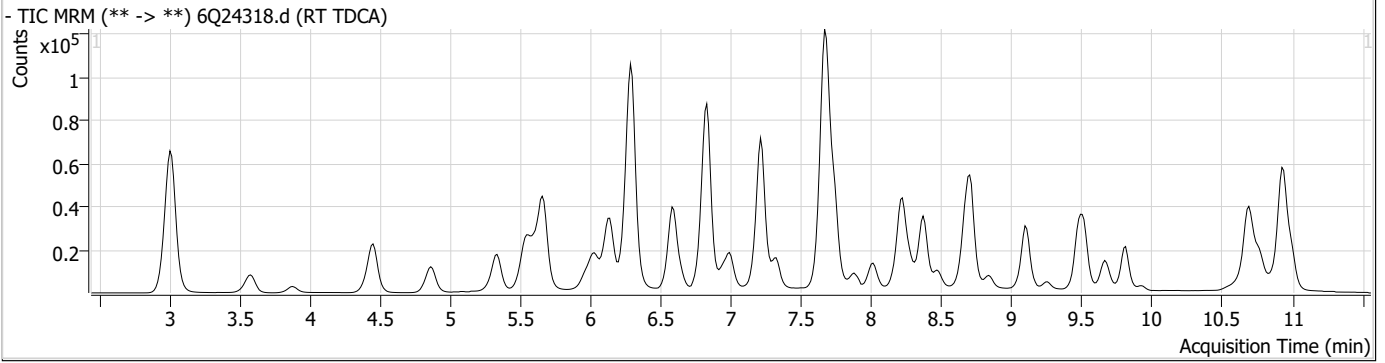
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.373	507.1 -> 79.9	18674	2.50	µg/L	0.000	
13C4-PFOS	8.374	502.8 -> 79.9	29365	2.50	µg/L	0.000	
System Monitoring Compounds							
13C8-PFOS	8.373	507.1 -> 79.9	18674	1.61	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 64.5%				
Target Compounds							
PFOS	8.374	498.9 -> 79.9 498.9 -> 98.8	26058 11626	4.08	µg/L	m	100
TCDCa	6.786	498.9 -> 79.9	6741	7.82	ng/ml		100
TDCA	6.935	498.9 -> 79.9	8163	10.46	ng/ml		100
TUDCA	5.960	498.9 -> 79.9	9842	5.94	ng/ml		100

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

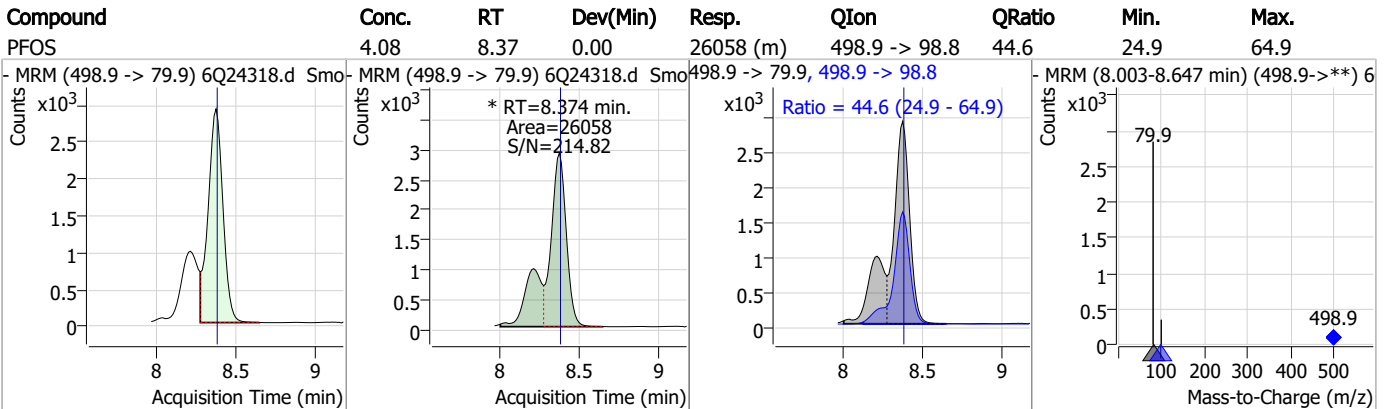
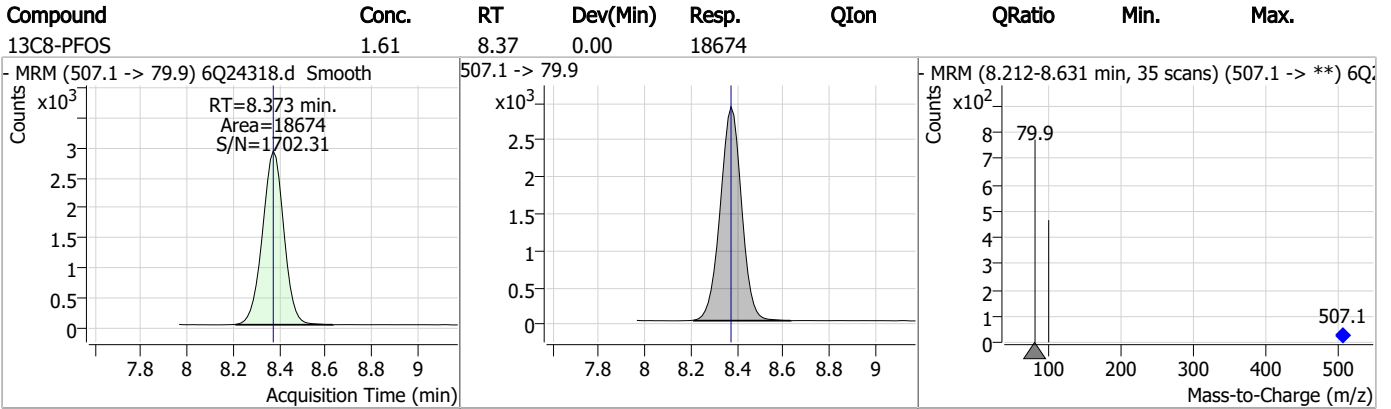
7.6.3

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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.3

7



Manual Integration Approval Summary

Sample Number: S6Q350-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24318.D Analyst approved: 09/13/23 14:00 Martha Valls
Injection Time: 09/12/23 10:37 Supervisor approved: 09/13/23 15:06 Natasha Gumtie

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

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24319.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/12/2023 10:52:06 AM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	186431	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	30995	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	73425	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	61314	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	73879	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	33963	1.25 µg/L	0.000
M6-PFDA	8.222	519.1 -> 474.1	32835	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	41424	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	41793	1.25 µg/L	0.000
M2-PFTeDA	9.809	715.2 -> 670.0	15220	1.25 µg/L	0.012
M8-FOSA	9.670	506.1 -> 77.8	30553	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	22159	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	13662	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	12891	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2228	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3243	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3310	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	19819	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	41657	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	19903	5.00 µg/L	0.000
M7-MeFOSE	10.690	623.2 -> 58.9	105545	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	145295	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	11519	2.50 µg/L	0.012
M3-MeFOSA	10.769	515.0 -> 219.0	12348	2.50 µg/L	0.012
13C4-PFOS	8.374	502.8 -> 79.9	17120	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	72794	5.00 µg/L	0.012
18O2-PFHxS	7.325	403.0 -> 83.9	9489	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	88137	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	28546	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	34479	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	55994	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2228	4.17 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.5%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3243	4.14 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 82.8%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3310	4.08 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 81.6%		
13C2-PFDoDA	9.093	615.1 -> 570.0	41793	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-PFTeDA	9.809	715.2 -> 670.0	15220	1.34 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C3-PFBS	5.584	302.1 -> 79.9	22159	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C3-PFHxS	7.326	402.1 -> 79.9	13662	2.62 µg/L	0.012

7.6.4
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C4-PFBA	2.997	216.8 -> 171.9	186431	10.14 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C4-PFHpA	6.581	367.1 -> 322.0	61314	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.654	318.0 -> 273.0	73425	2.38 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C5-PFPeA	4.434	268.3 -> 223.0	30995	4.11 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.1%	
13C6-PFDA	8.222	519.1 -> 474.1	32835	1.32 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C7-PFUnDA	8.676	570.0 -> 525.1	41424	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-FOSA	9.670	506.1 -> 77.8	30553	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-PFOA	7.211	421.1 -> 376.0	73879	2.28 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C8-PFOS	8.373	507.1 -> 79.9	12891	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C9-PFNA	7.729	472.1 -> 427.0	33963	1.58 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 126.1%	
d3-MeFOSAA	8.268	573.2 -> 419.0	19819	4.14 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.8%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	41657	9.77 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d3-MeFOSA	10.769	515.0 -> 219.0	12348	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSAA	8.464	589.2 -> 419.0	19903	4.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.4%	
d7-MeFOSE	10.690	623.2 -> 58.9	105545	23.45 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
d9-EtFOSE	10.923	639.2 -> 58.9	145295	23.99 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	11519	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	197674	53.64 µg/L	98
		327.1 -> 80.9	75362		
6:2FTS	6.987	427.1 -> 407.0	157104	54.77 µg/L	98
		427.1 -> 80.9	60473		
8:2FTS	8.012	527.1 -> 507.0	116892	52.35 µg/L	99
		527.1 -> 80.8	45556		
EtFOSAA	8.477	584.2 -> 419.1	38134	13.57 µg/L	m 99
		584.2 -> 526.0	24686		
FOSA	9.672	498.1 -> 77.9	332417	29.57 µg/L	100
		498.1 -> 478.0	10144		
MeFOSAA	8.269	570.1 -> 419.0	66333	14.09 µg/L	96
		570.1 -> 483.0	14836		
PFBA	2.993	212.8 -> 168.9	359910	58.41 µg/L	100
PFBS	5.585	298.7 -> 79.9	146808	13.51 µg/L	94
		298.7 -> 98.8	50907		
PFDA	8.223	512.9 -> 469.0	410282	13.72 µg/L	99
		512.9 -> 219.0	64261		
PFDoDA	9.094	613.1 -> 569.0	412135	13.29 µg/L	99
		613.1 -> 319.0	48915		
PFDS	9.245	599.0 -> 79.9	52050	13.86 µg/L	97

7.6.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	23846	13.72	µg/L	97
		363.1 -> 319.0	444980			
PFHpS	7.868	363.1 -> 169.0	61018	12.32	µg/L	91
		449.0 -> 79.9	76894			
PFHxA	5.657	449.0 -> 98.9	40318	13.06	µg/L	99
		313.0 -> 269.0	349099			
PFHxS	7.314	313.0 -> 118.9	16370	11.42	µg/L	m
		398.7 -> 79.9	97880			
PFNA	7.606	398.7 -> 98.9	50143	24.71	µg/L	m
		463.0 -> 419.0	632872			
PFNS	8.838	463.0 -> 219.0	164467	14.48	µg/L	92
		548.8 -> 79.9	88159			
PFOA	7.212	548.8 -> 98.9	43757	28.84	µg/L	m
		413.0 -> 369.0	1098335			
PFOS	8.374	413.0 -> 169.0	211705	12.51	µg/L	m
		498.9 -> 79.9	89336			
PFPeA	4.436	498.9 -> 98.8	41736	29.44	µg/L	100
		263.0 -> 219.0	406503			
PFPeS	6.633	349.1 -> 79.9	89382	12.03	µg/L	99
		349.1 -> 98.9	41710			
PFTeDA	9.809	713.1 -> 669.0	305553	13.94	µg/L	99
		713.1 -> 168.9	22550			
PFTrDA	9.477	663.0 -> 619.0	465864	13.21	µg/L	98
		663.0 -> 168.9	36843			
PFUnDA	8.676	563.1 -> 519.0	334467	14.09	µg/L	99
		563.1 -> 269.1	51703			
11CI-PF3OUdS	9.516	630.9 -> 450.9	383135	25.21	µg/L	97
		632.9 -> 452.9	116894			
9CI-PF3ONS	8.703	530.8 -> 351.0	651359	25.00	µg/L	99
		532.8 -> 353.0	189274			
ADONA	6.829	376.9 -> 250.9	1511056	25.05	µg/L	99
		376.9 -> 84.8	403145			
HFPO-DA	6.032	284.9 -> 168.9	108638	27.56	µg/L	98
		284.9 -> 184.9	15606			
3:3FTCA	3.871	241.0 -> 177.0	72932	68.44	µg/L	99
		241.0 -> 117.0	7202			
5:3FTCA	6.283	341.0 -> 237.1	1624058	357.67	µg/L	95
		341.0 -> 217.0	1081639			
7:3FTCA	7.669	441.0 -> 316.9	914687	340.88	µg/L	90
		441.0 -> 336.9	1924126			
EtFOSA	10.990	526.0 -> 219.0	278808	44.48	µg/L	96
		526.0 -> 169.0	353795			
EtFOSE	10.937	630.0 -> 58.9	628509	91.02	µg/L	100
		511.9 -> 219.0	247533			
MeFOSA	10.771	511.9 -> 169.0	334973	47.24	µg/L	100
		616.1 -> 58.9	433019			
MeFOSE	10.703	699.1 -> 79.9	27004	94.88	µg/L	100
		699.1 -> 98.8	15011			
PFDoDS	9.923	295.0 -> 201.0	80876	13.12	µg/L	99
		295.0 -> 84.9	20899			
NFDHA	5.535	279.0 -> 85.1	305208	26.11	µg/L	95
		229.0 -> 84.9	220538			
PFMBA	4.863	314.8 -> 134.9	803794	30.56	µg/L	100
		314.8 -> 82.9	28579			
PFMPA	3.563			24.07	µg/L	100
PFEESA	6.124					

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

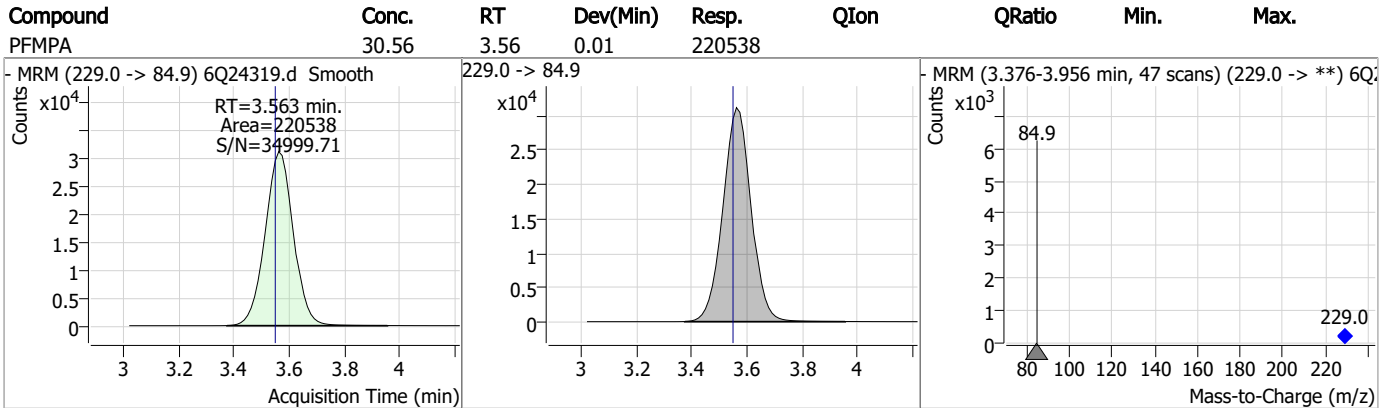
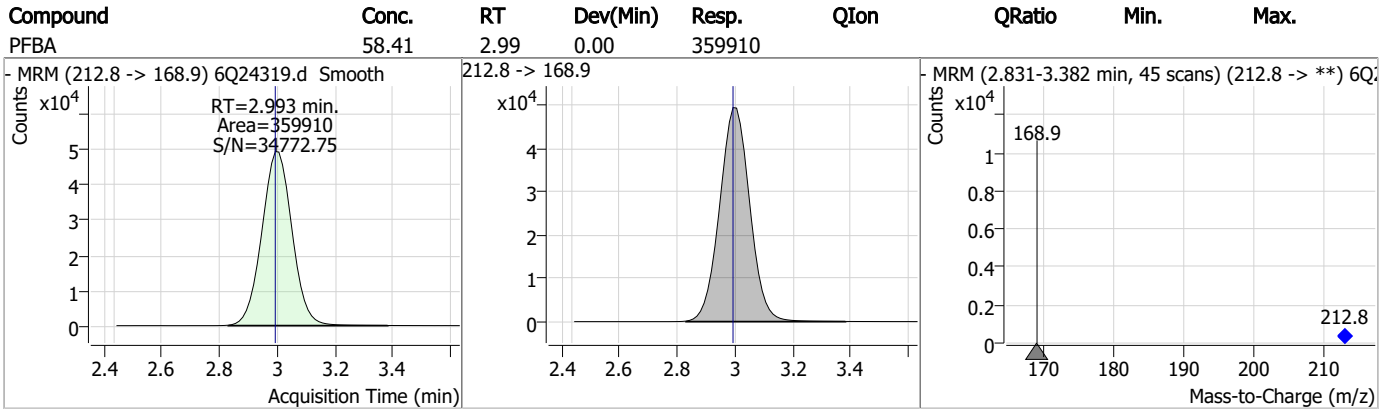
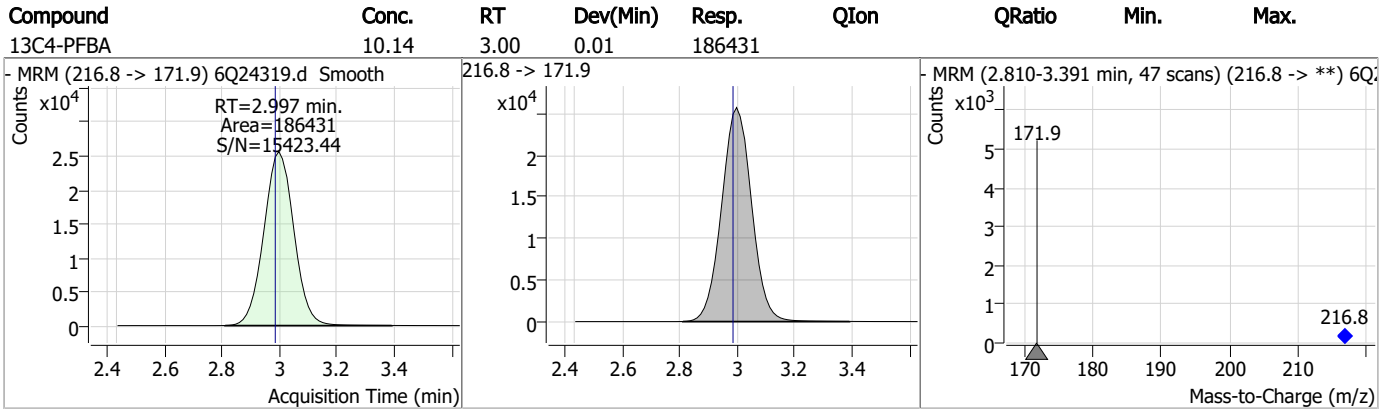
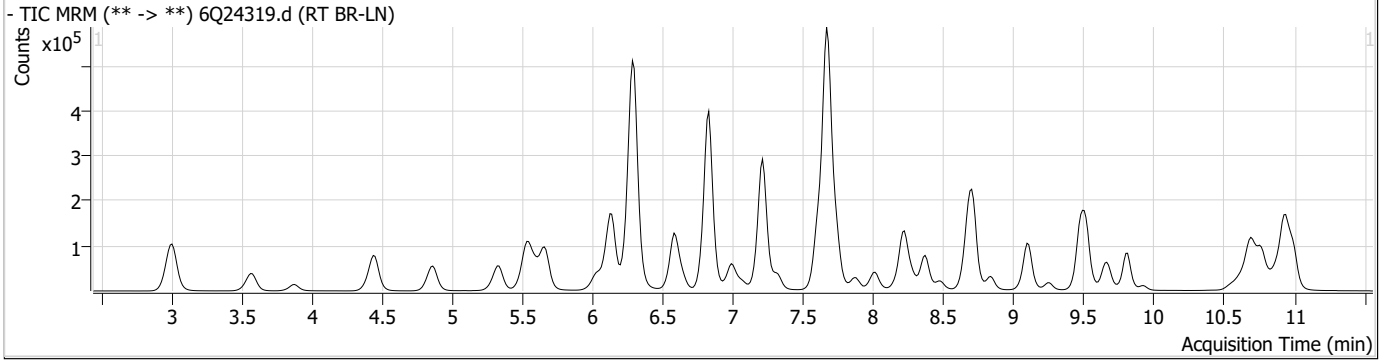
Perfluorinated Compounds by LC/MS/MS

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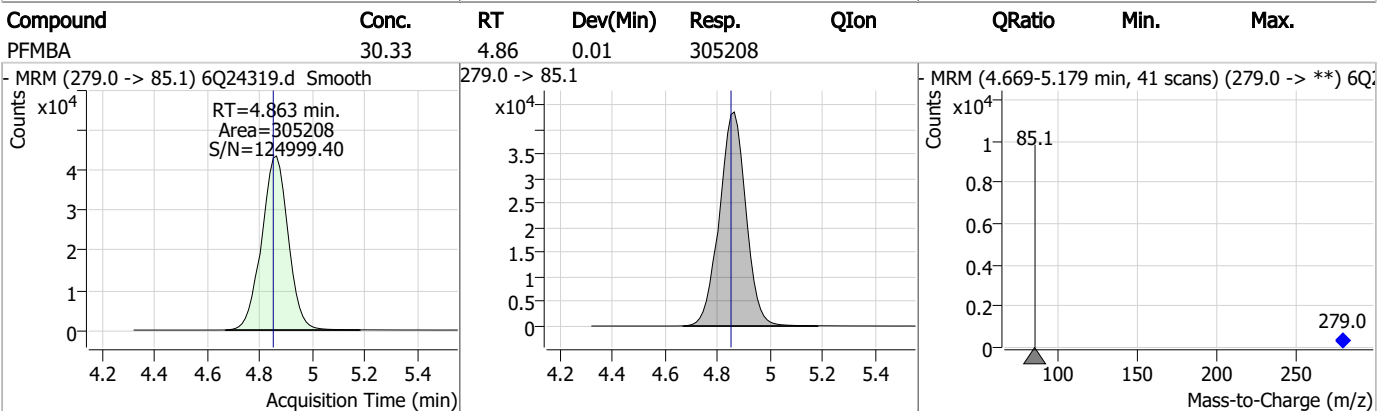
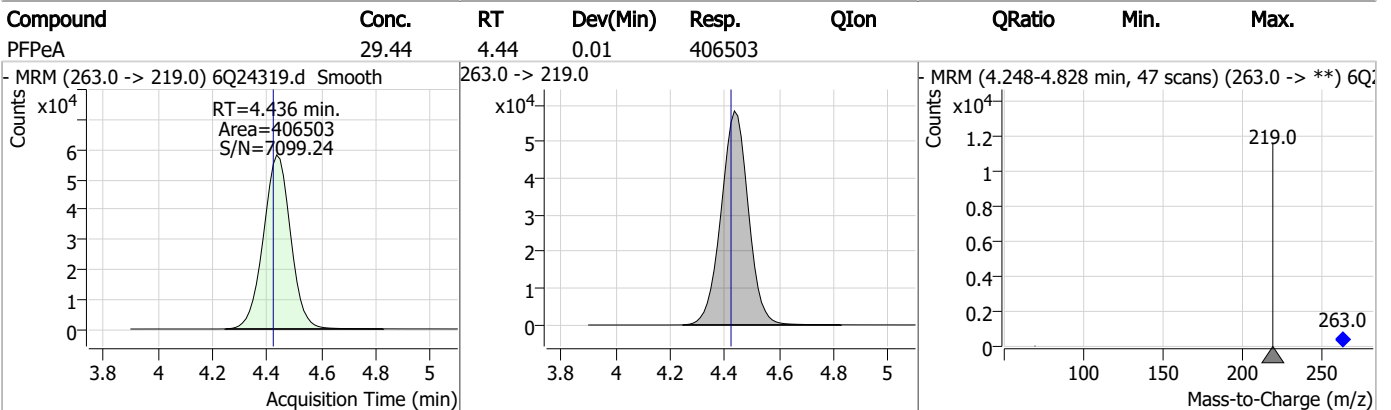
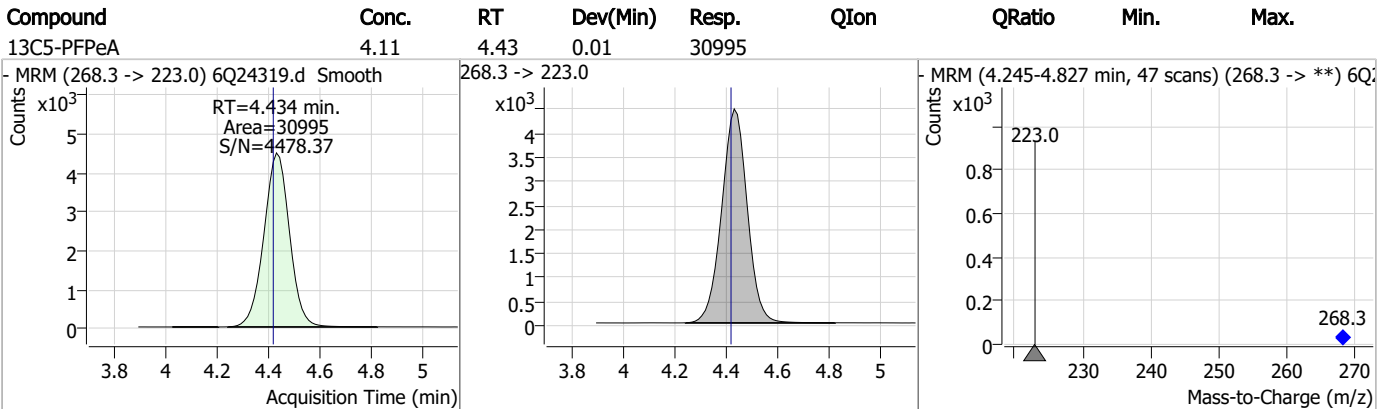
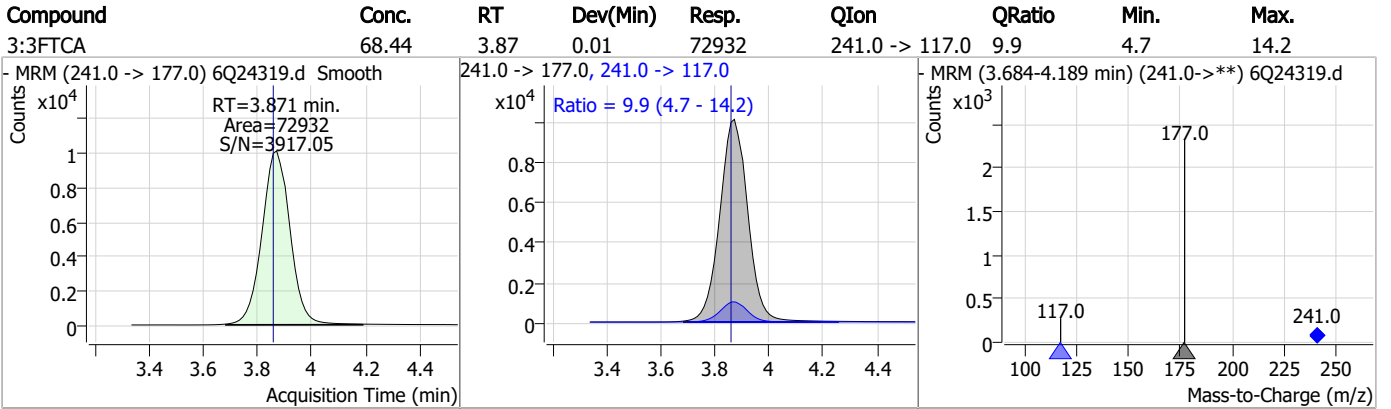
7.6.4

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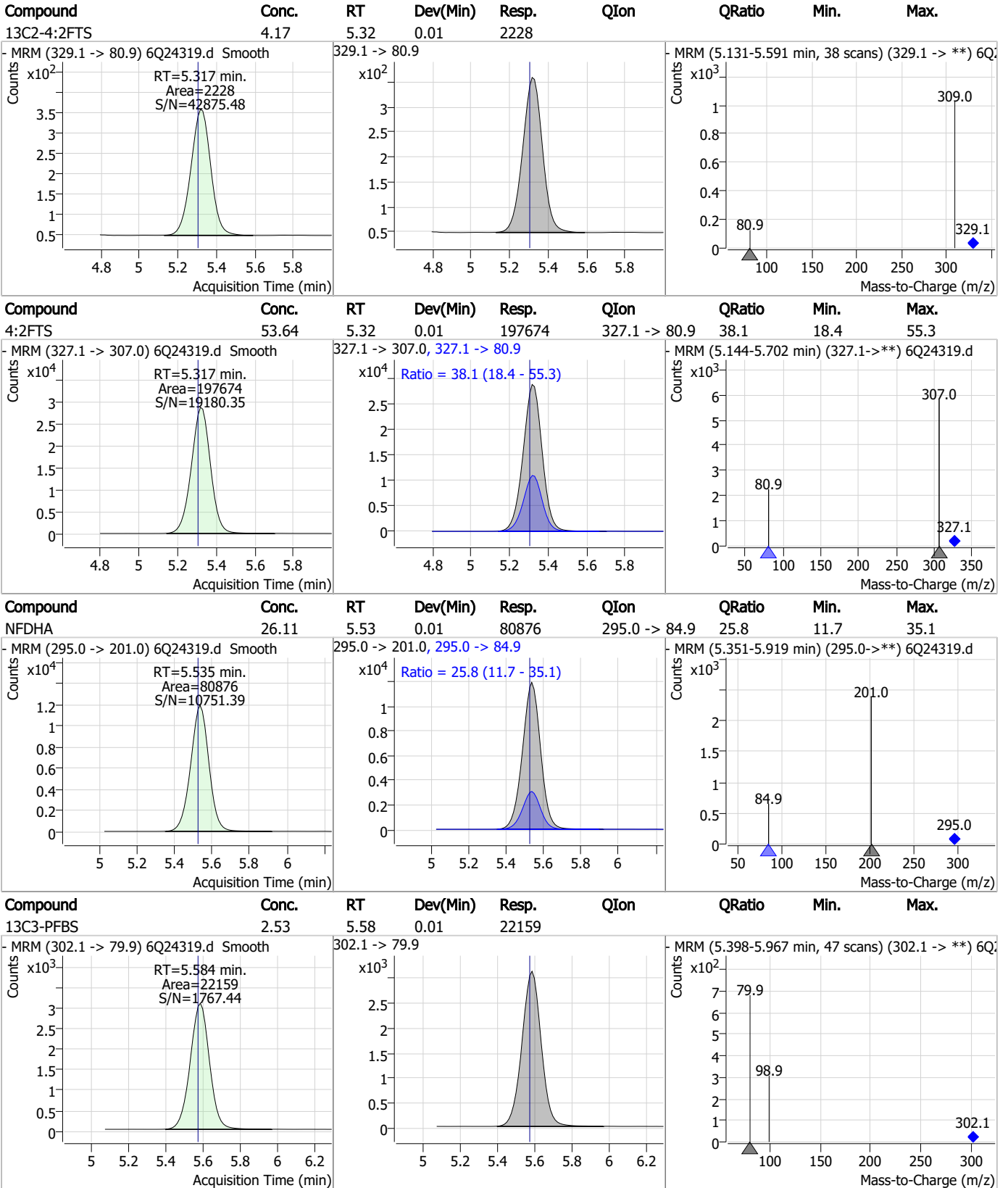
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

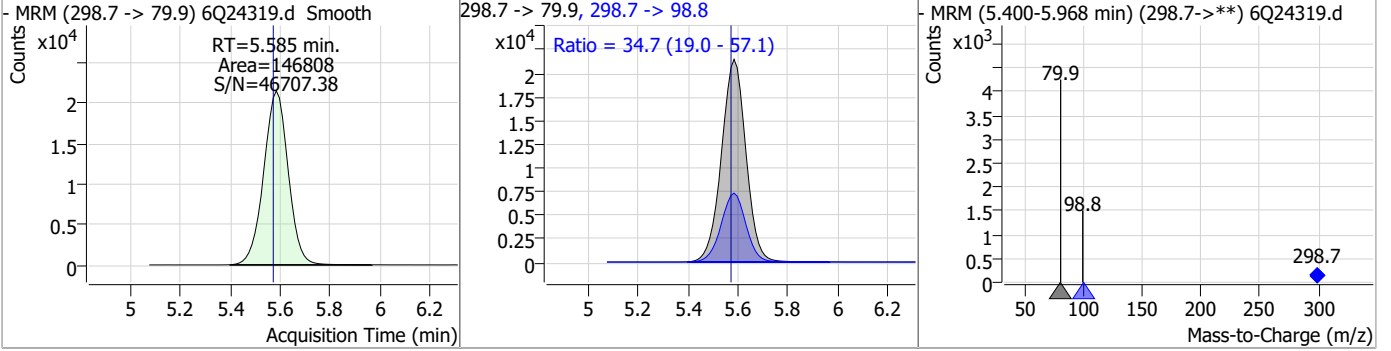


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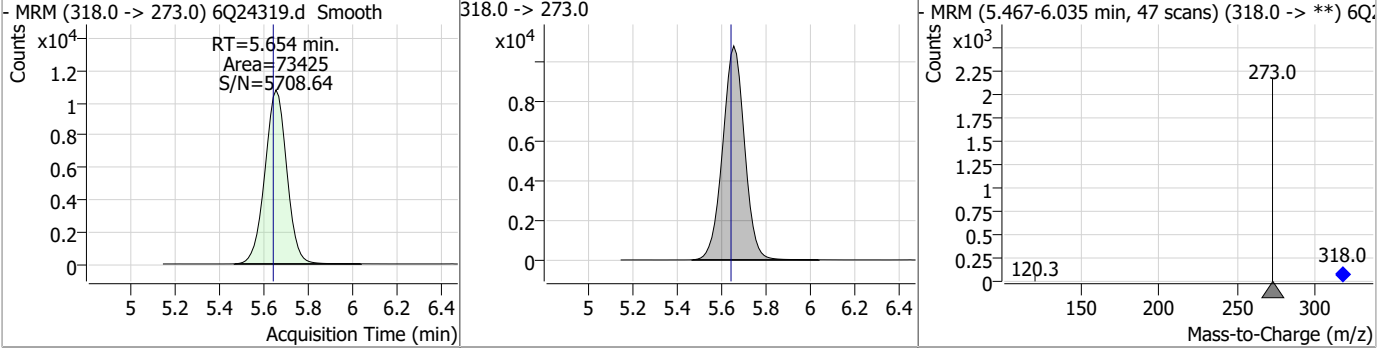
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Perfluorinated Compounds by LC/MS/MS

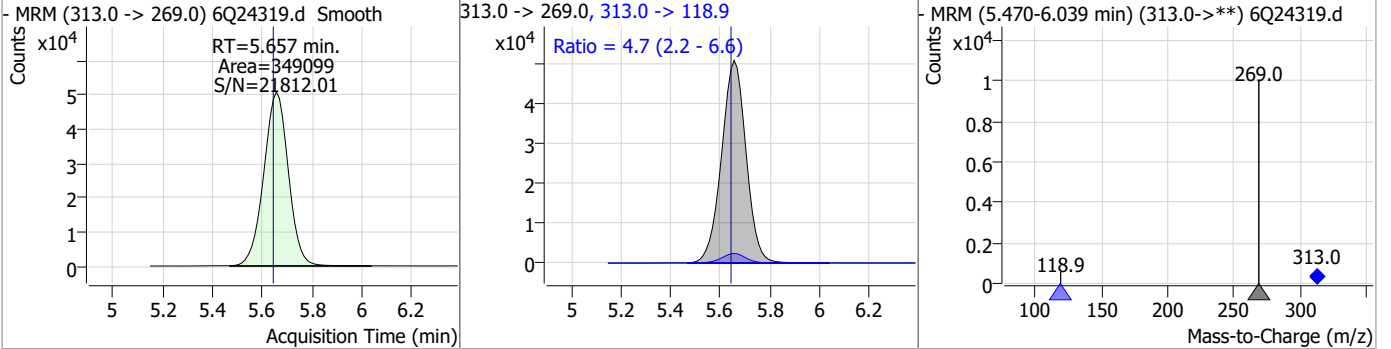
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	13.51	5.58	0.01	146808	298.7 -> 98.8	34.7	19.0	57.1



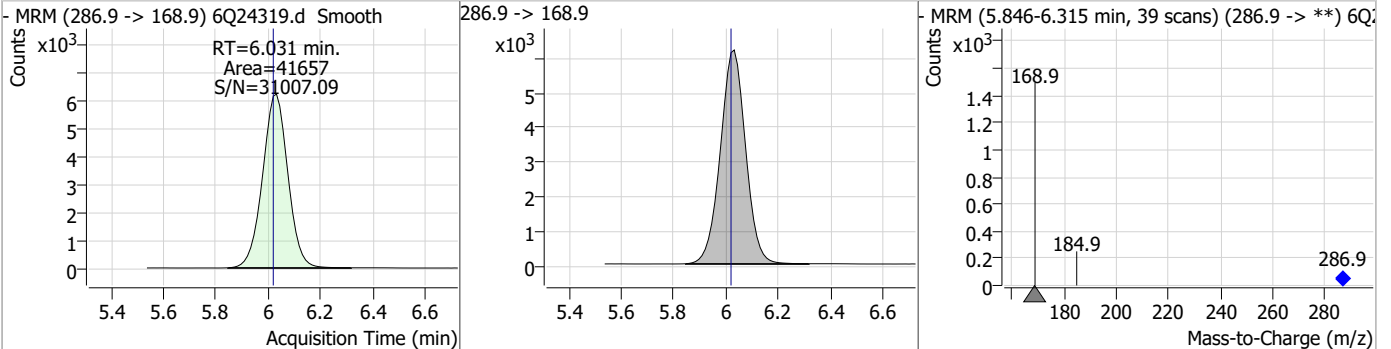
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.38	5.65	0.01	73425				



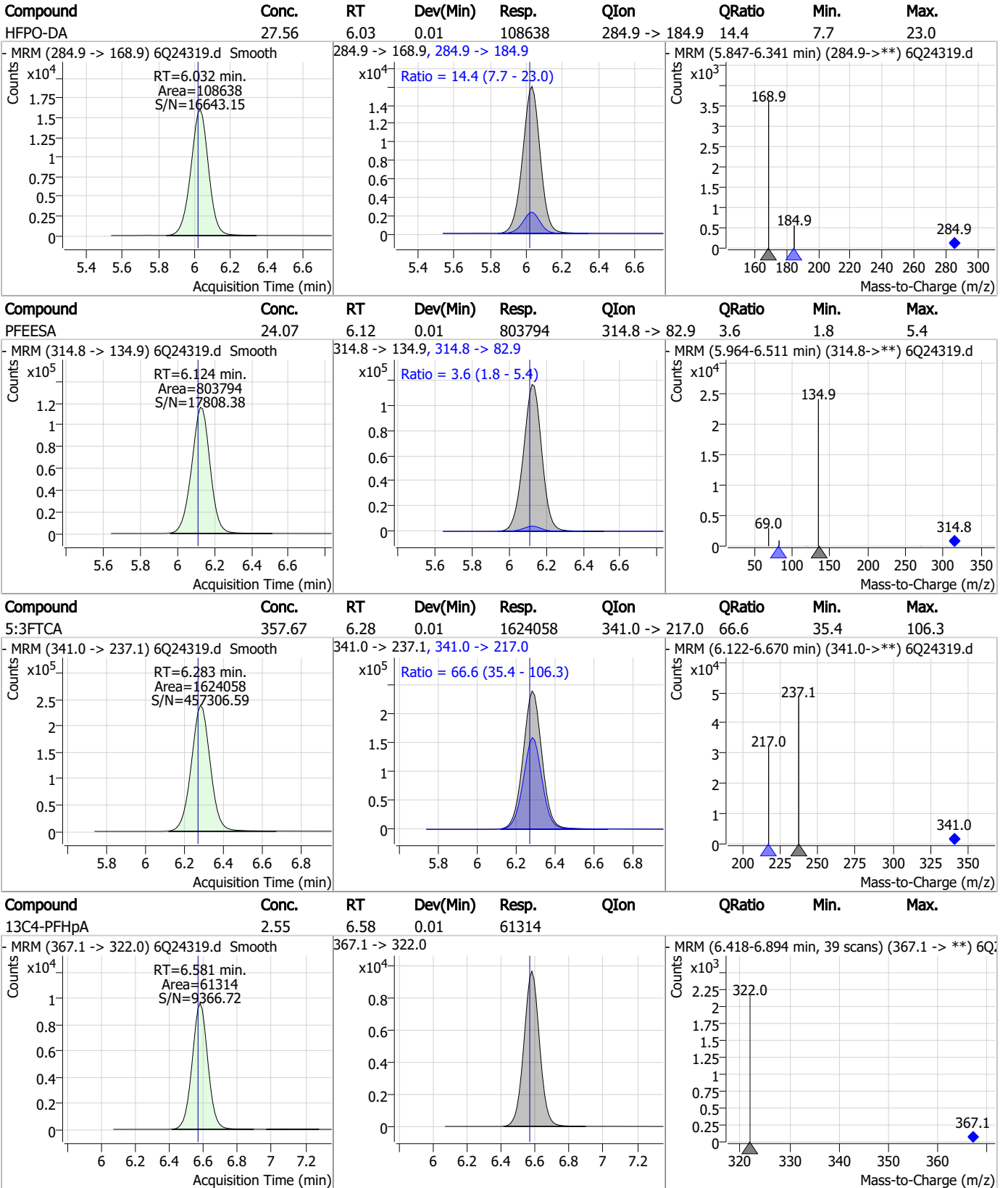
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.06	5.66	0.01	349099	313.0 -> 118.9	4.7	2.2	6.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.77	6.03	0.01	41657				



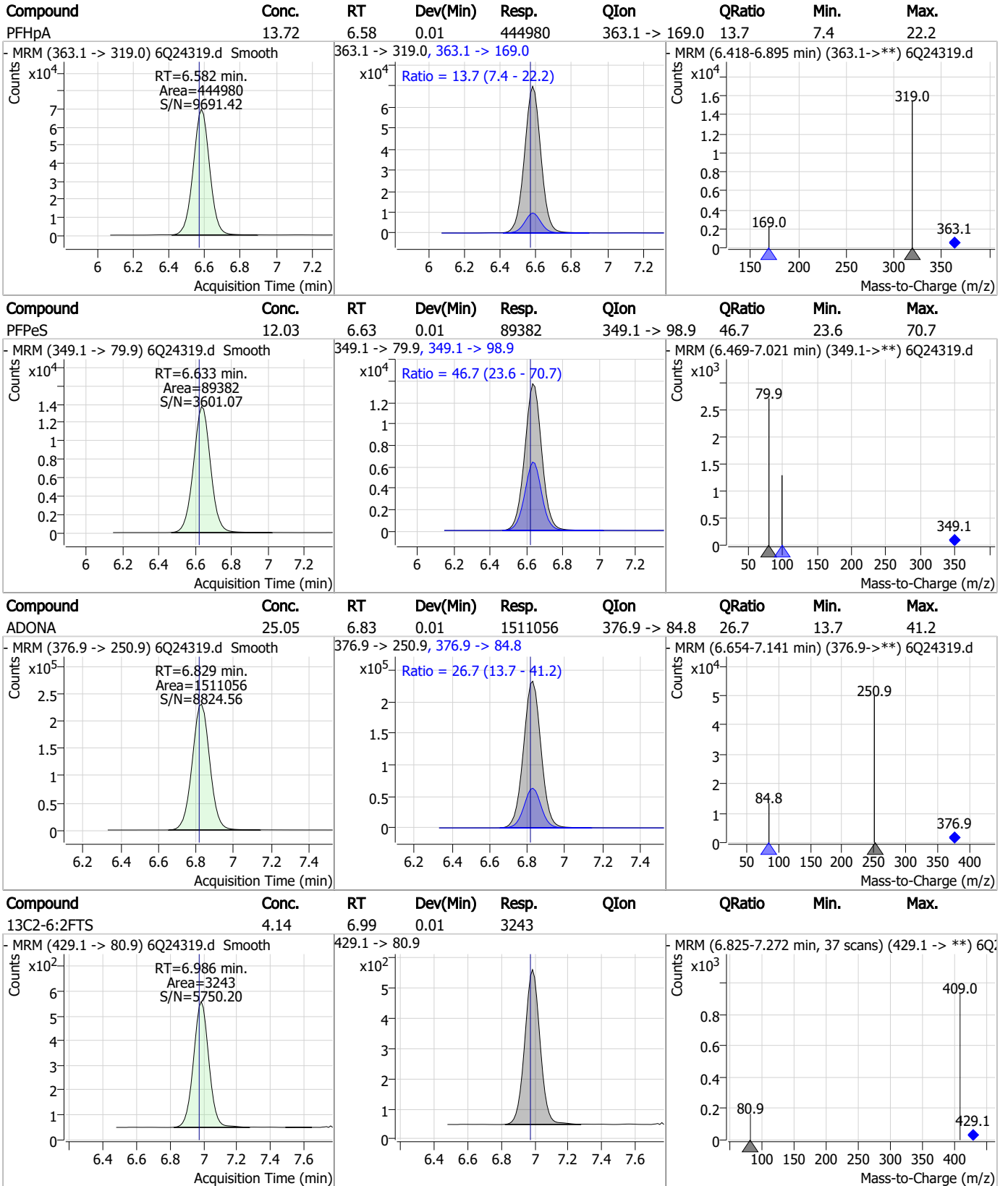
Perfluorinated Compounds by LC/MS/MS



7.6.4

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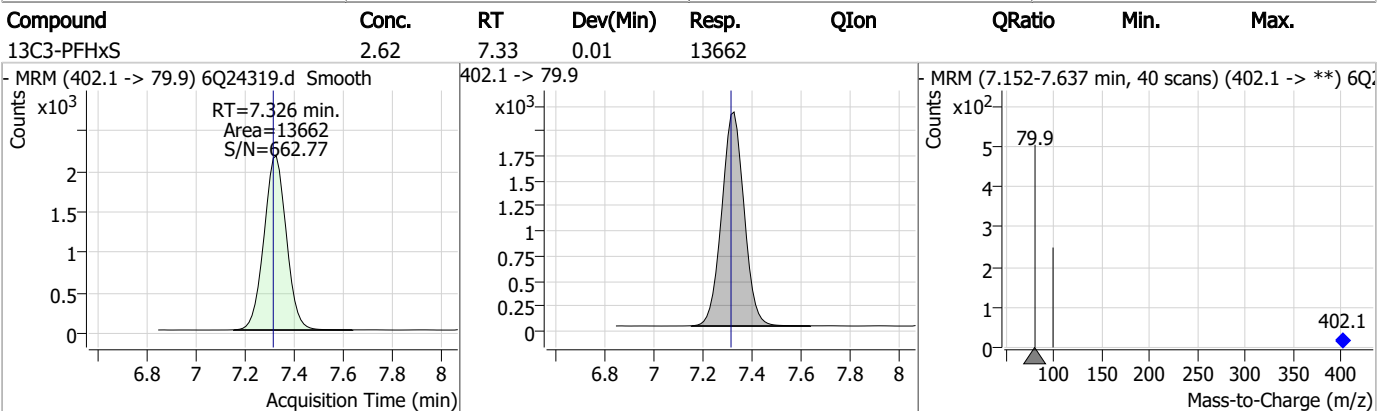
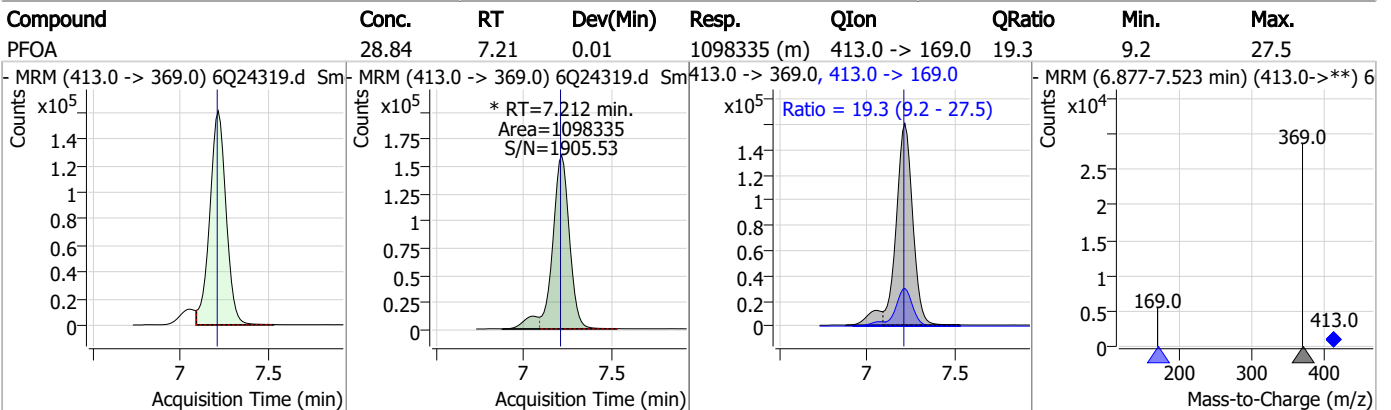
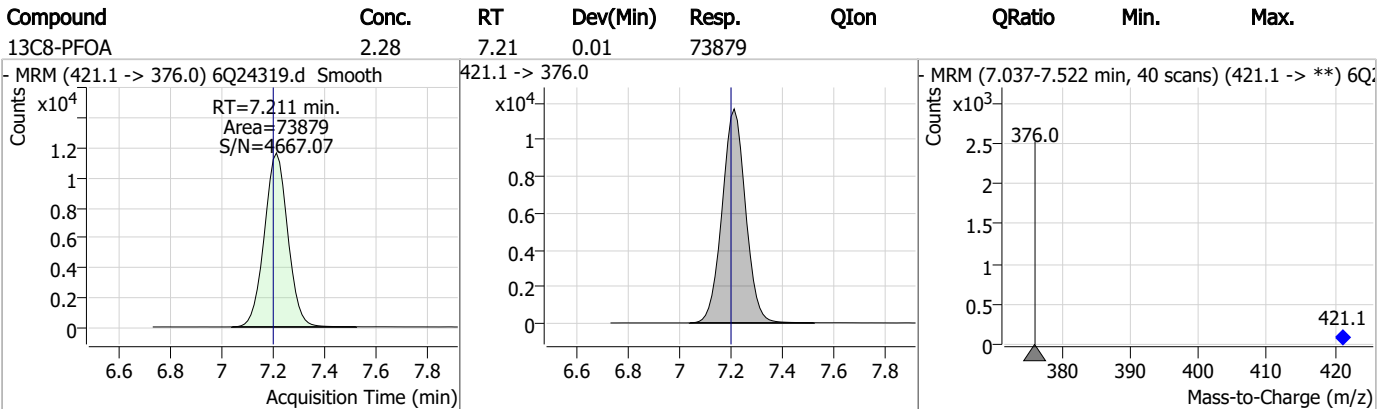
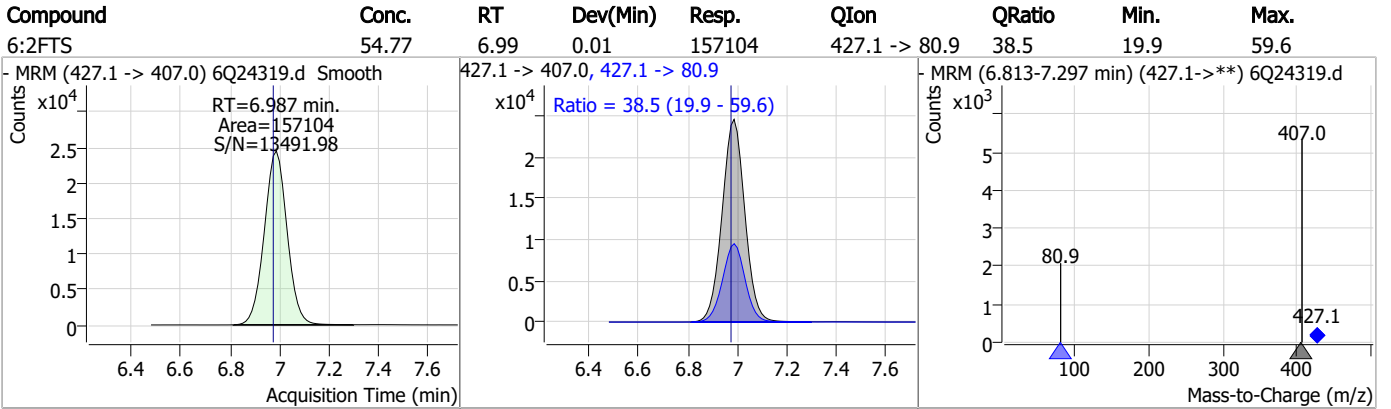
Perfluorinated Compounds by LC/MS/MS



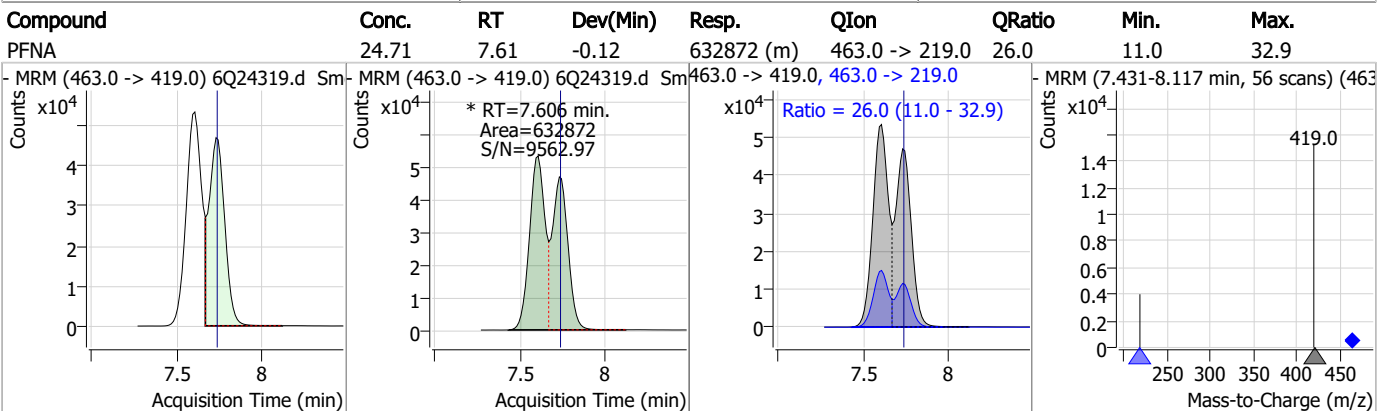
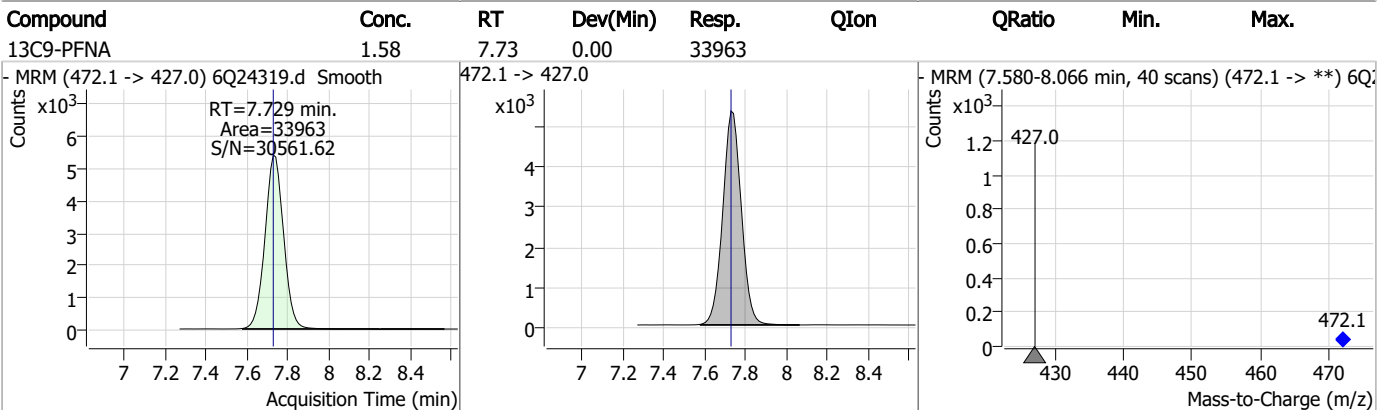
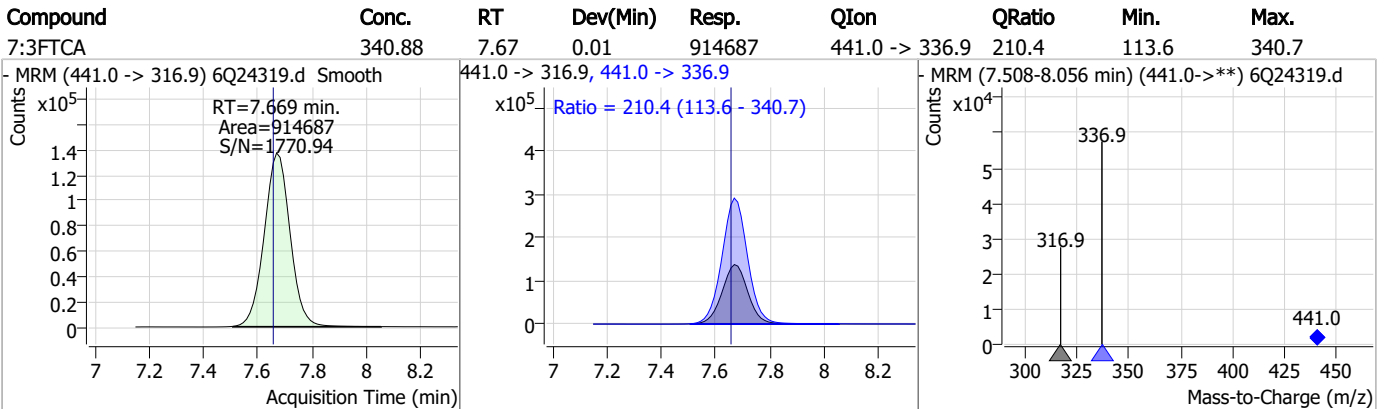
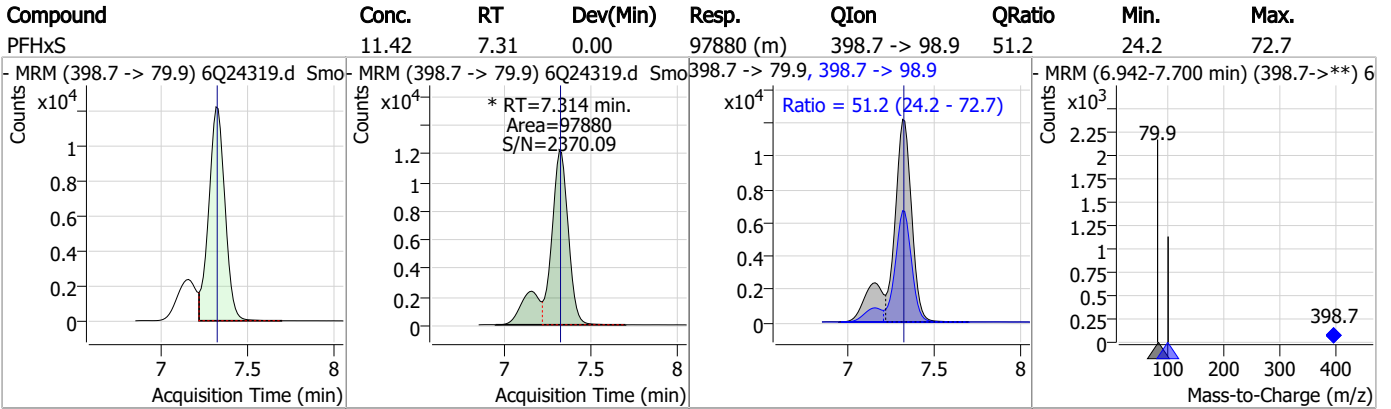
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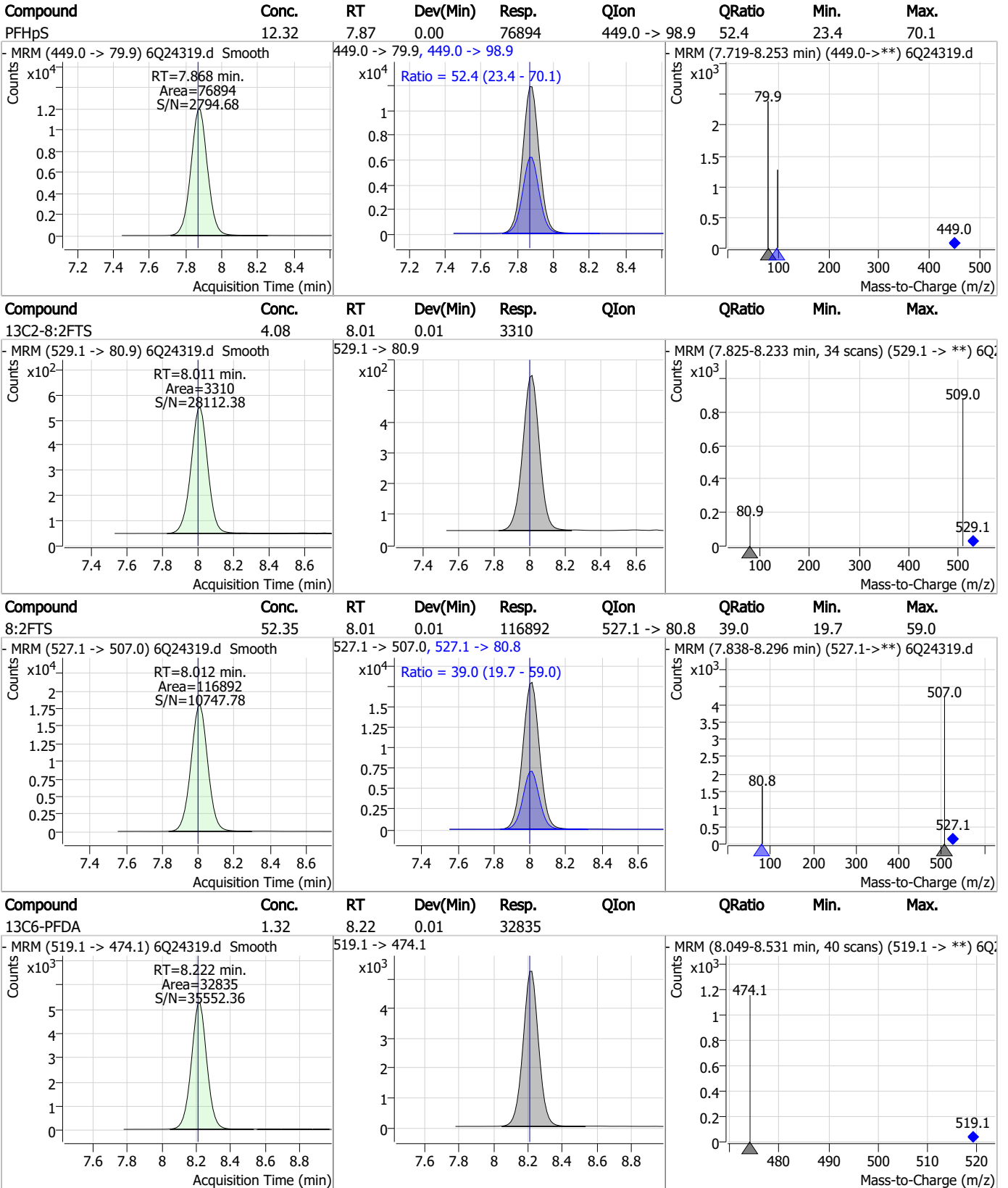
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS

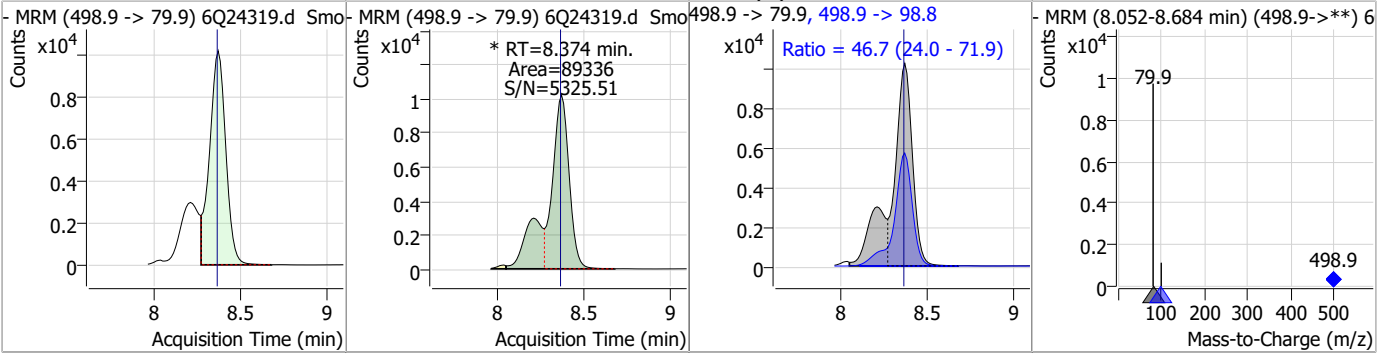
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	13.72	8.22	0.01	410282	512.9 -> 219.0	15.7	8.1	24.4
d3-MeFOSAA	4.14	8.27	0.01	19819				
MeFOSAA	14.09	8.27	0.01	66333	570.1 -> 483.0	22.4	10.2	30.5
13C8-PFOS	2.39	8.37	0.01	12891				

7.6.4

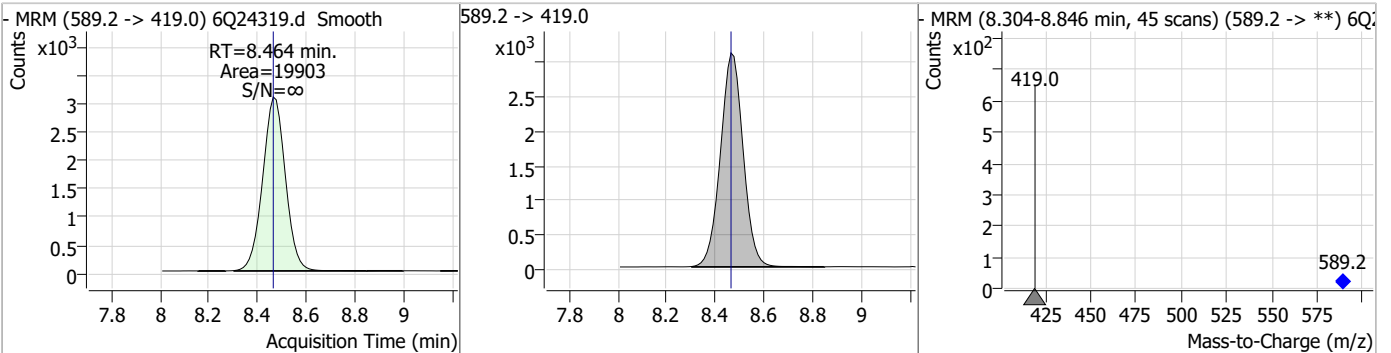
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Perfluorinated Compounds by LC/MS/MS

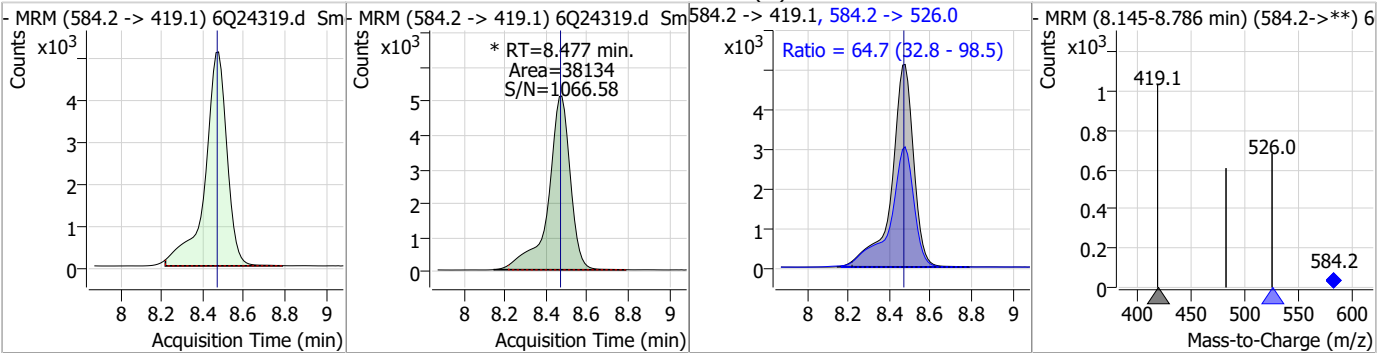
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	12.51	8.37	0.01	89336 (m)	498.9 -> 98.8	46.7	24.0	71.9



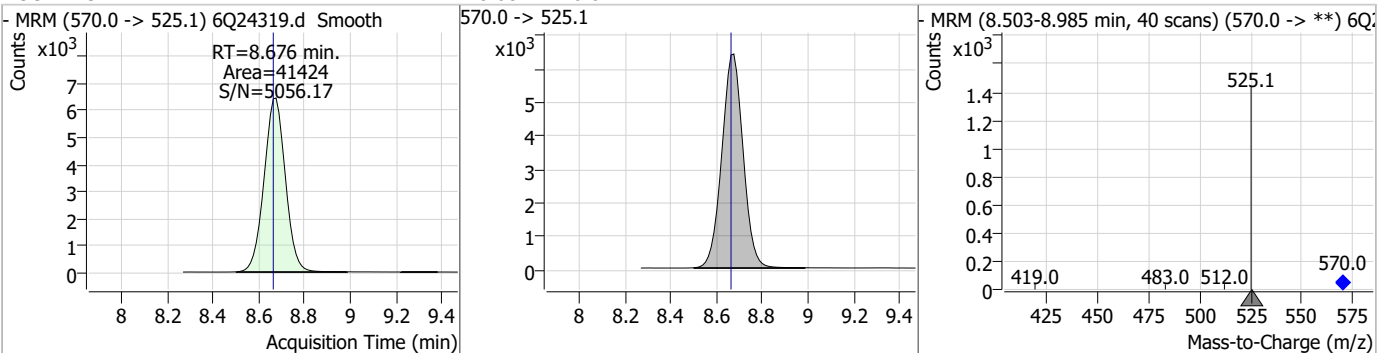
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.32	8.46	0.00	19903				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	13.57	8.48	0.01	38134 (m)	584.2 -> 526.0	64.7	32.8	98.5

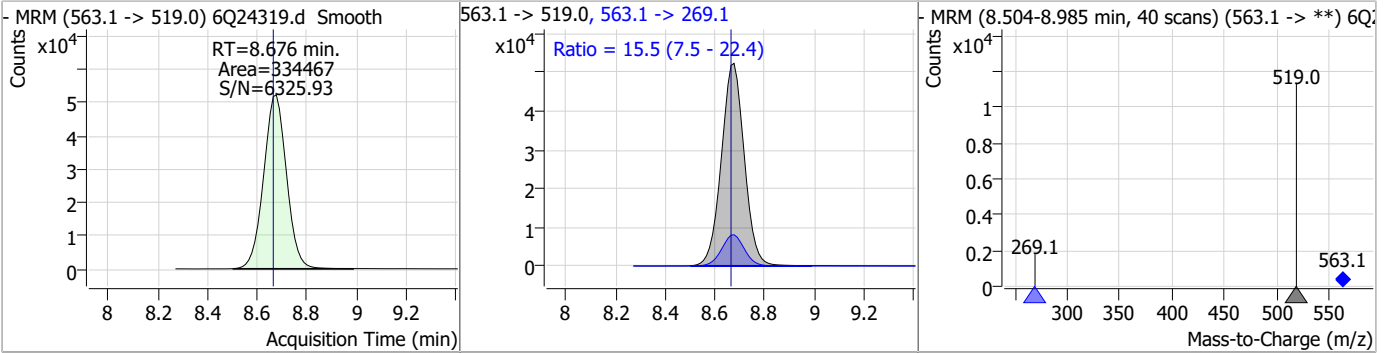


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.24	8.68	0.01	41424				

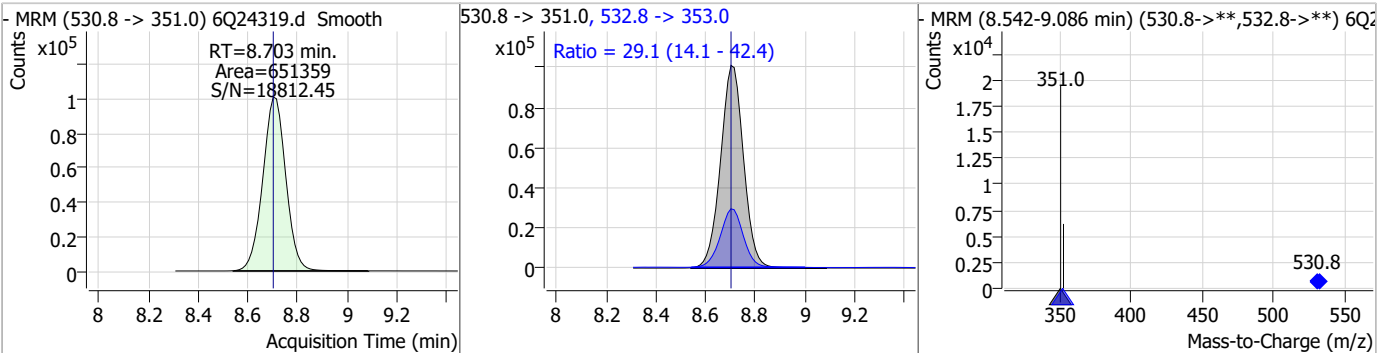


Perfluorinated Compounds by LC/MS/MS

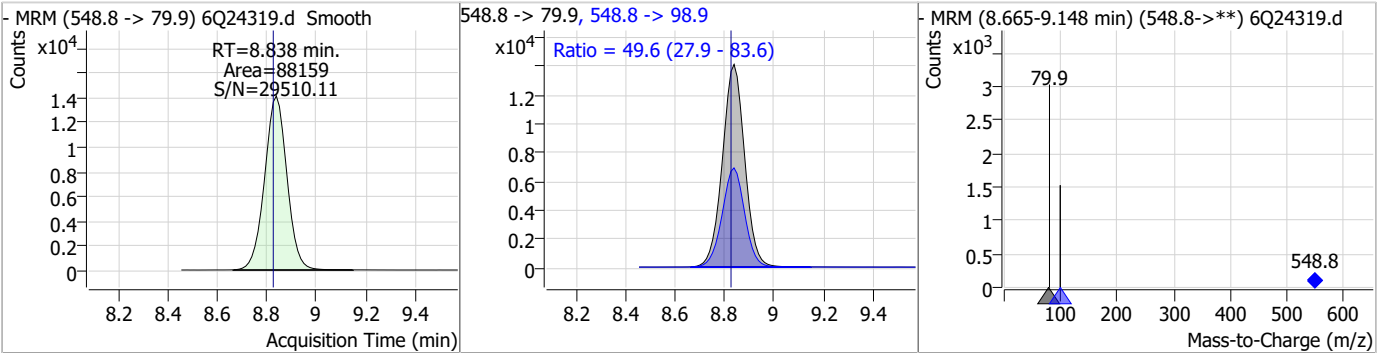
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	14.09	8.68	0.01	334467	563.1 -> 269.1	15.5	7.5	22.4



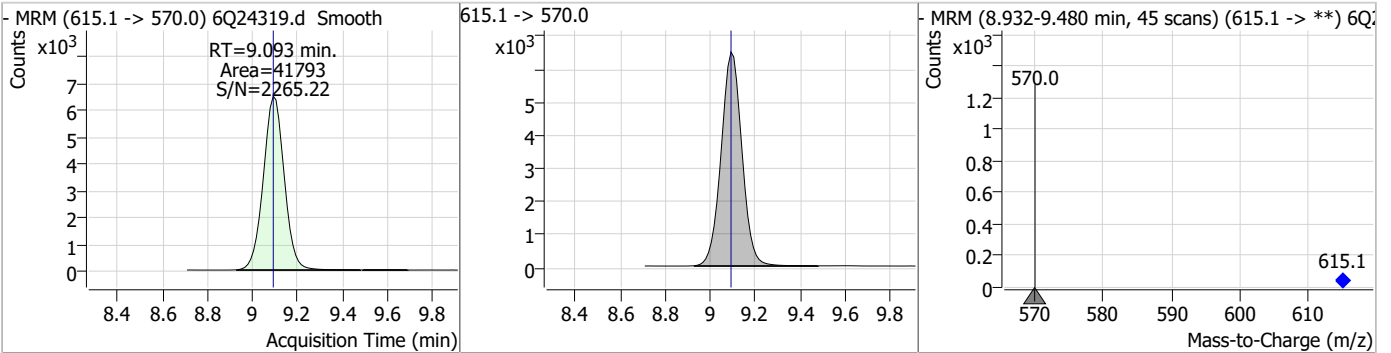
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	25.00	8.70	0.00	651359	532.8 -> 353.0	29.1	14.1	42.4



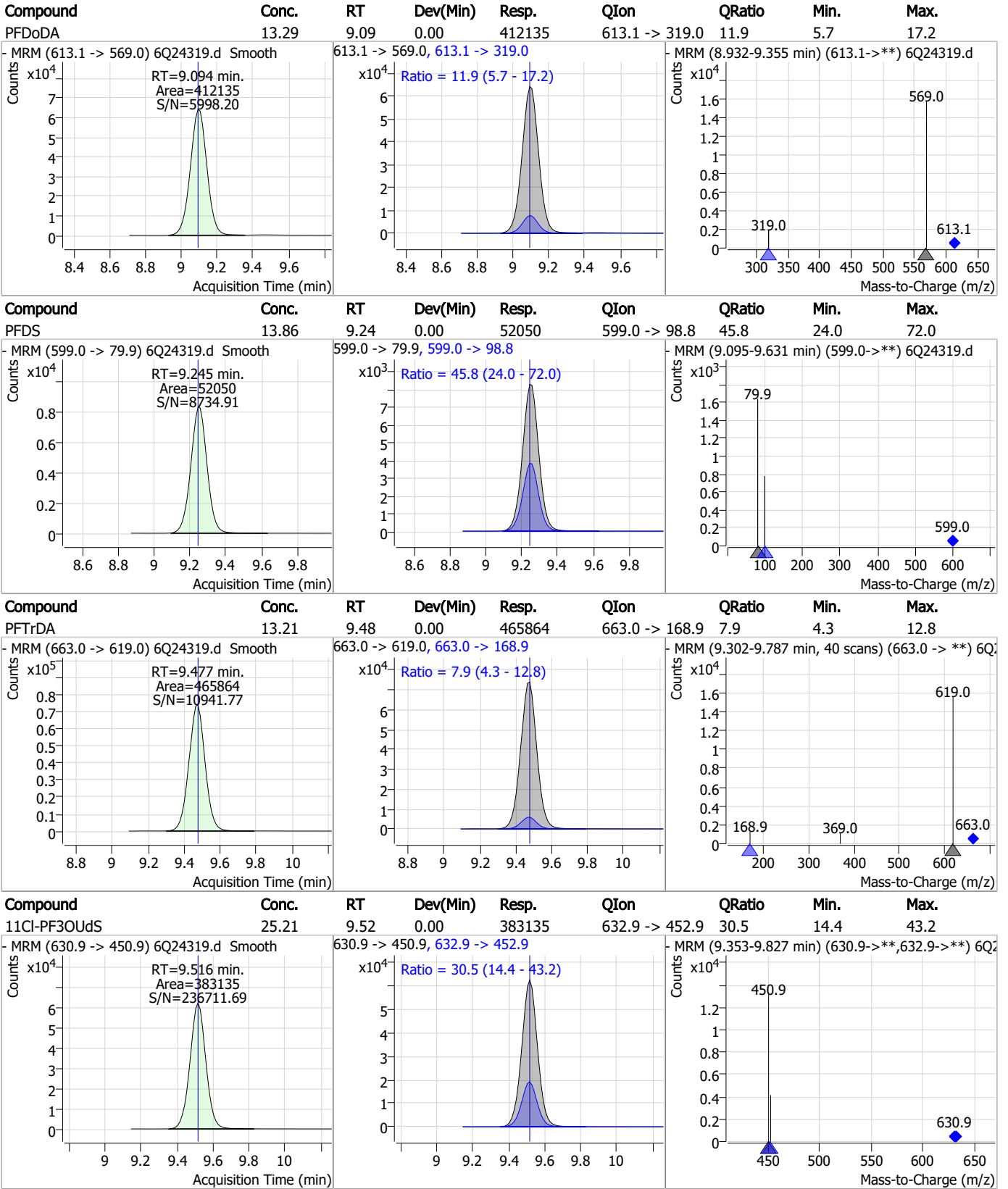
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	14.48	8.84	0.01	88159	548.8 -> 98.9	49.6	27.9	83.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.37	9.09	0.00	41793	615.1 -> 570.0			



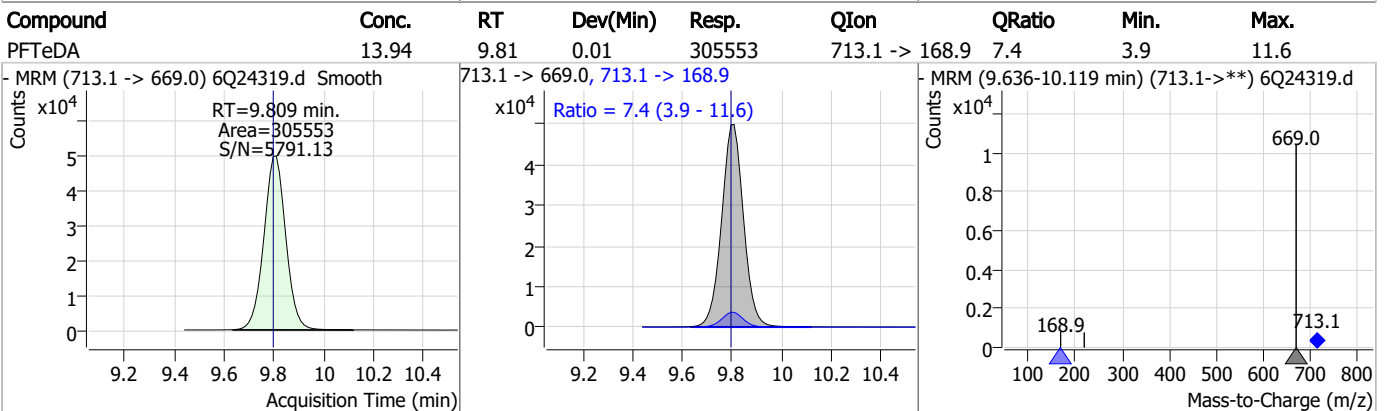
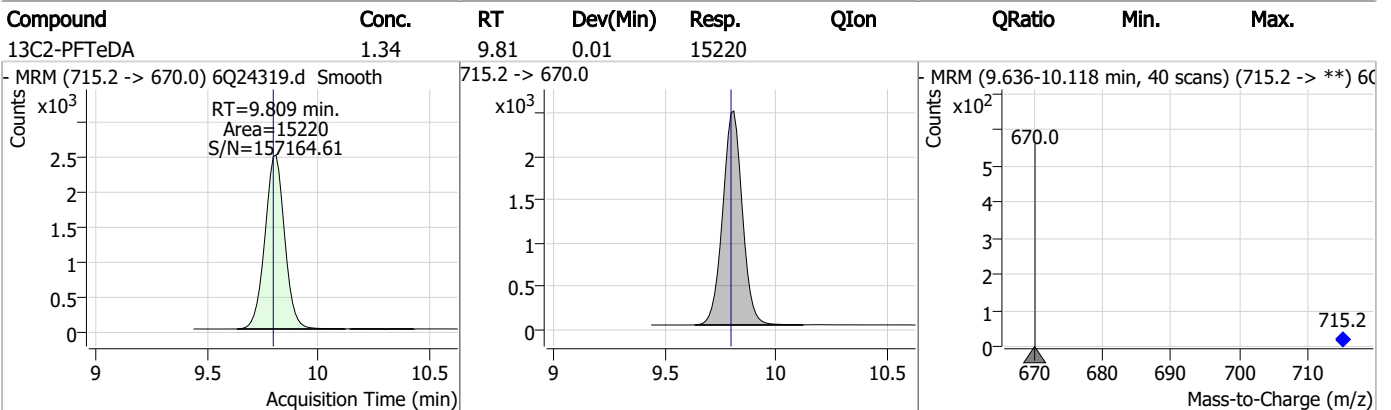
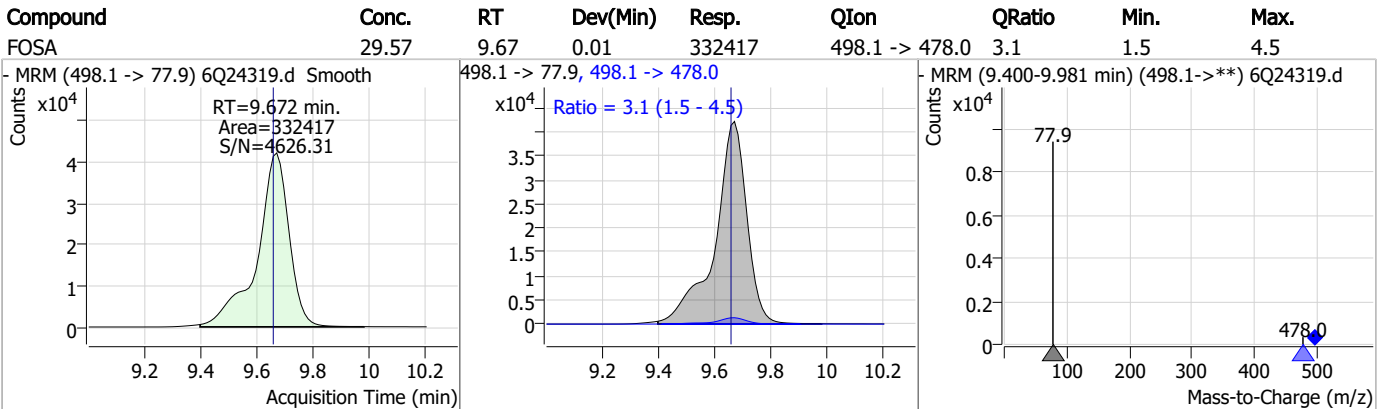
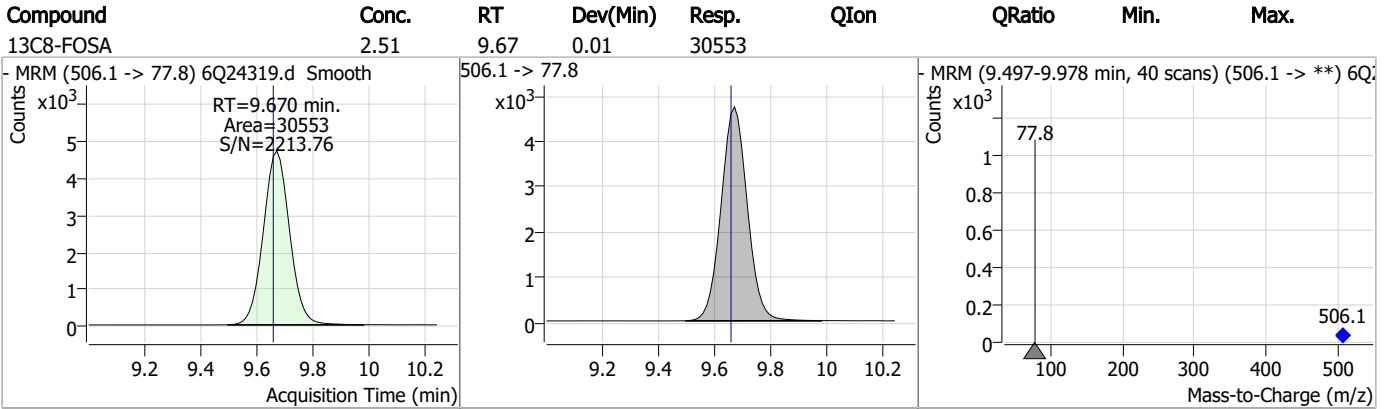
Perfluorinated Compounds by LC/MS/MS



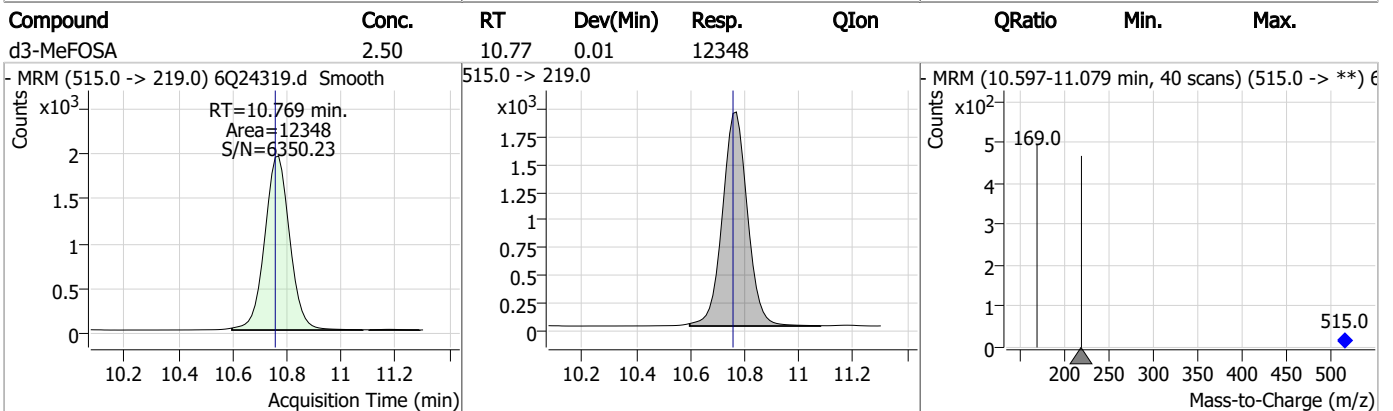
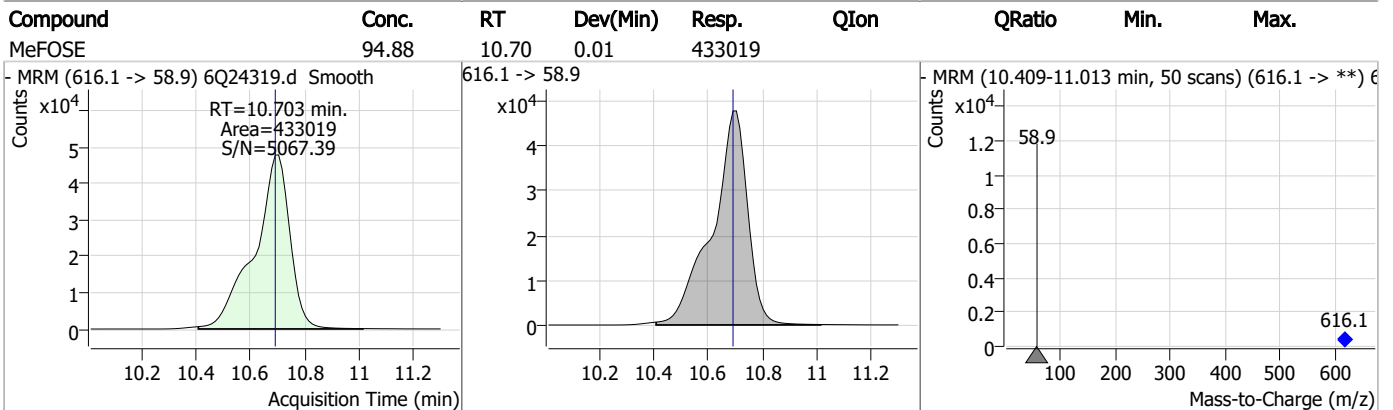
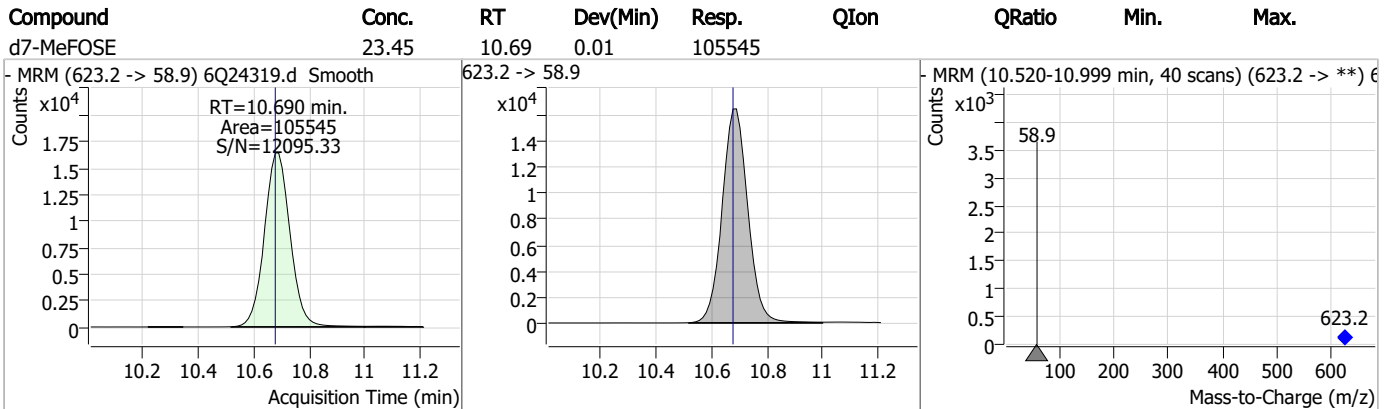
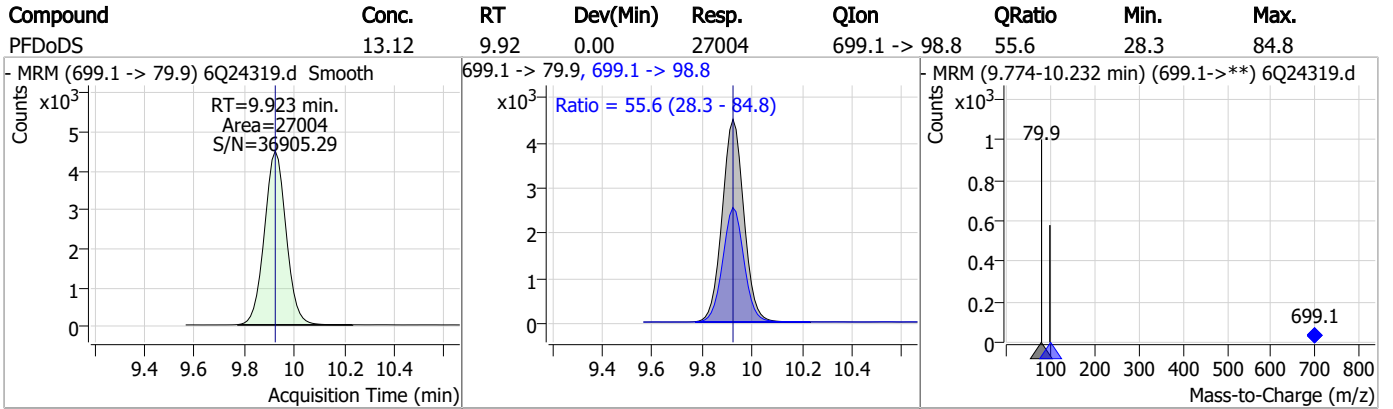
7.6.4

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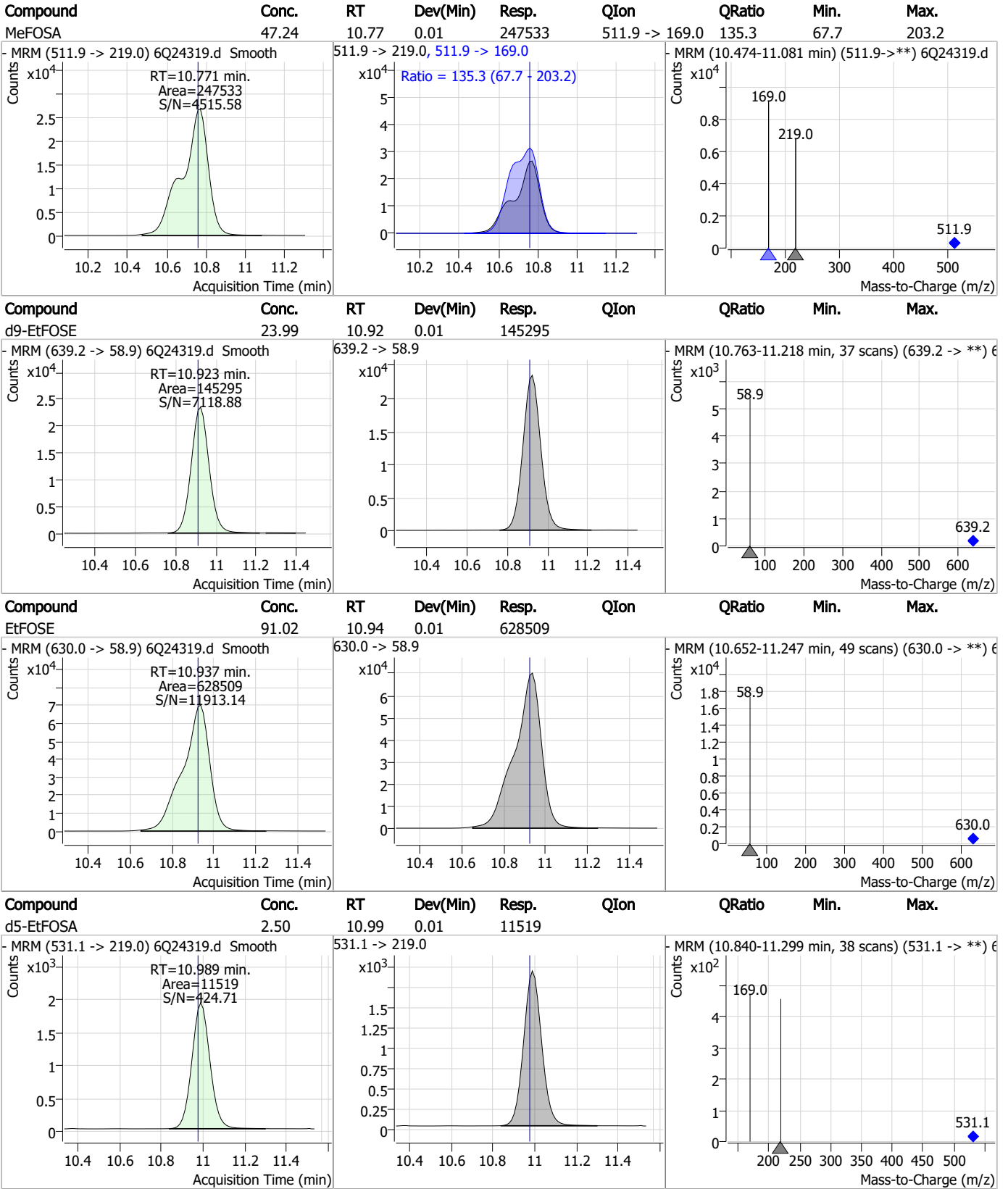
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



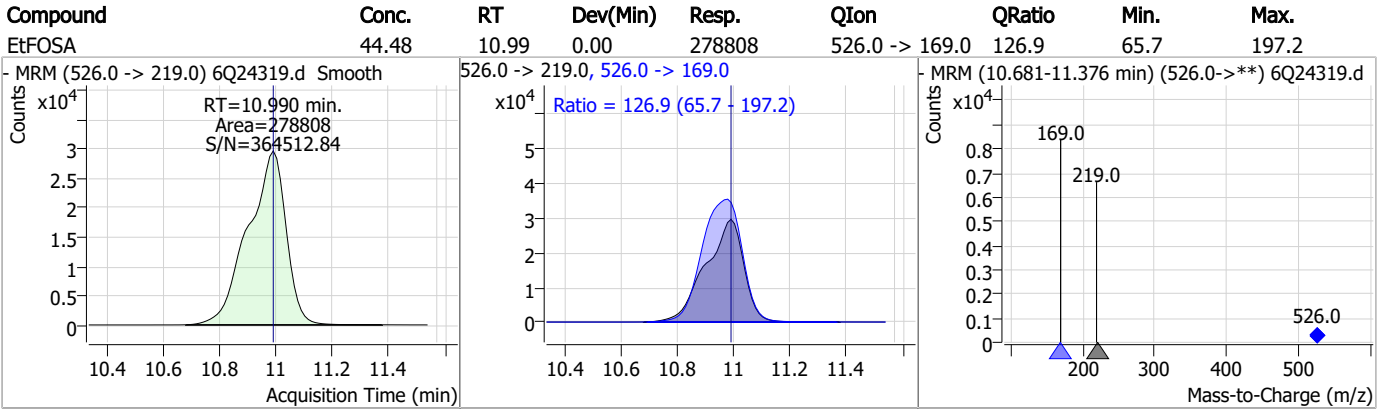
Perfluorinated Compounds by LC/MS/MS



7.6.4

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Perfluorinated Compounds by LC/MS/MS



7.6.4

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Manual Integration Approval Summary

Sample Number: S6Q350-RT Method: EPA DRAFT 1633
Lab FileID: 6Q24319.D Analyst approved: 09/13/23 14:00 Martha Valls
Injection Time: 09/12/23 10:52 Supervisor approved: 09/13/23 15:06 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.21	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorononanoic acid	375-95-1		7.61	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.48	Split peak

7.6.4.1

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QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 08 September 2023 10:38:10
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); 2.89E-5 [H] (Torr)

Source Parameters

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

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.92	-0.07	Pass	0.70	0.75	0.05	Pass	589408
302.00	301.90	-0.10	Pass	0.70	0.82	0.12	Pass	2012303
601.98	601.87	-0.11	Pass	0.70	0.78	0.08	Pass	2774400
1033.99	1033.92	-0.07	Pass	0.70	0.69	-0.01	Pass	1828876
1633.95	1633.92	-0.03	Pass	0.70	0.78	0.08	Pass	1214432
2233.91	2233.80	-0.11	Pass	0.70	0.82	0.12	Pass	615071

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	0.70	0.63	-0.07	Pass	207094
112.99	112.98	-0.01	Pass	0.70	0.73	0.03	Pass	703374
302.00	301.98	-0.02	Pass	0.70	0.72	0.02	Pass	1830422
601.98	602.01	0.03	Pass	0.70	0.68	-0.02	Pass	2651956
1033.99	1033.99	0.00	Pass	0.70	0.72	0.02	Pass	1332855
1633.95	1633.95	0.00	Pass	0.70	0.73	0.03	Pass	1015072
2233.91	2233.83	-0.08	Pass	0.70	0.70	0.00	Pass	430759

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	1.20	1.34	0.14	Pass	688563
302.00	301.83	-0.17	Pass	1.20	1.61	0.41	Pass	2815407
601.98	601.82	-0.16	Pass	1.20	1.74	0.54	Pass	4213825
1033.99	1033.88	-0.11	Pass	1.20	1.71	0.51	Pass	3045914
1633.95	1633.89	-0.06	Pass	1.20	1.67	0.47	Pass	2571946
2233.91	2233.73	-0.18	Pass	1.20	1.50	0.30	Pass	1157215

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.05	0.05	Pass	1.20	1.15	-0.05	Pass	263040
112.99	112.97	-0.02	Pass	1.20	1.21	0.01	Pass	1036516
302.00	301.90	-0.10	Pass	1.20	1.41	0.21	Pass	2387216
601.98	601.95	-0.03	Pass	1.20	1.41	0.21	Pass	3443771
1033.99	1033.94	-0.05	Pass	1.20	1.40	0.20	Pass	2419136
1633.95	1633.91	-0.04	Pass	1.20	1.30	0.10	Pass	2300119
2233.91	2233.84	-0.07	Pass	1.20	1.17	-0.03	Pass	1137390

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.83	-0.16	Pass	2.50	2.66	0.16	Pass	714524
302.00	301.85	-0.15	Pass	2.50	2.98	0.48	Pass	3305801
601.98	601.77	-0.21	Pass	2.50	3.03	0.53	Pass	4346811
1033.99	1033.78	-0.21	Pass	2.50	3.04	0.54	Pass	4542787
1633.95	1633.78	-0.17	Pass	2.50	3.14	0.64	Pass	4299429
2233.91	2233.82	-0.09	Pass	2.50	2.46	-0.04	Pass	2697015

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.99	-0.01	Pass	2.50	2.45	-0.05	Pass	283898
112.99	112.96	-0.03	Pass	2.50	2.57	0.07	Pass	1214436
302.00	301.85	-0.15	Pass	2.50	2.56	0.06	Pass	3299787
601.98	602.05	0.07	Pass	2.50	2.79	0.29	Pass	4553553
1033.99	1033.94	-0.05	Pass	2.50	2.86	0.36	Pass	3846373
1633.95	1633.95	0.00	Pass	2.50	2.62	0.12	Pass	4259139
2233.91	2233.85	-0.06	Pass	2.50	2.77	0.27	Pass	2967219

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24128.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 8:46:16 PM
 Sample Name : ic347-1
 Vial : P1-A2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	194516	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	36701	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	73013	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	58104	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	79352	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	31850	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31149	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	44241	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	39856	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14521	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	29898	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	23895	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	14162	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	13548	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3037	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4295	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4450	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	24818	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	41009	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	23552	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	111762	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	156674	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11540	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	12120	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	18312	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	77157	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10026	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	83510	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	29784	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	39656	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	52061	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3037	5.38 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4295	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4450	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFDoDA	9.093	615.1 -> 570.0	39856	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14521	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFBS	5.571	302.1 -> 79.9	23895	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.313	402.1 -> 79.9	14162	2.57 µg/L	0.000

7.7.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C4-PFBA	2.985	216.8 -> 171.9	194516	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.569	367.1 -> 322.0	58104	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFHxA	5.641	318.0 -> 273.0	73013	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C5-PFPeA	4.422	268.3 -> 223.0	36701	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C6-PFDA	8.210	519.1 -> 474.1	31149	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C7-PFUnDA	8.663	570.0 -> 525.1	44241	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.657	506.1 -> 77.8	29898	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.7%	
13C8-PFOA	7.198	421.1 -> 376.0	79352	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C8-PFOS	8.361	507.1 -> 79.9	13548	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C9-PFNA	7.729	472.1 -> 427.0	31850	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	24818	4.85 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	41009	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSA	10.757	515.0 -> 219.0	12120	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.8%	
d5-EtFOSAA	8.464	589.2 -> 419.0	23552	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	111762	23.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
d9-EtFOSE	10.911	639.2 -> 58.9	156674	24.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d5-EtFOSA	10.976	531.1 -> 219.0	11540	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	3834	0.76 µg/L	98
		327.1 -> 80.9	1471		
6:2FTS	6.974	427.1 -> 407.0	2918	0.77 µg/L	97
		427.1 -> 80.9	1211		
8:2FTS	7.999	527.1 -> 507.0	2450	0.82 µg/L	96
		527.1 -> 80.8	908		
EtFOSAA	8.465	584.2 -> 419.1	697	0.21 µg/L	m 87
		584.2 -> 526.0	383		
FOSA	9.660	498.1 -> 77.9	2125	0.19 µg/L	98
		498.1 -> 478.0	79		
MeFOSAA	8.269	570.1 -> 419.0	1257	0.21 µg/L	m 95
		570.1 -> 483.0	226		
PFBA	2.993	212.8 -> 168.9	5036	0.78 µg/L	100
PFBS	5.572	298.7 -> 79.9	2038	0.17 µg/L	99
		298.7 -> 98.8	788		
PFDA	8.211	512.9 -> 469.0	5499	0.19 µg/L	95
		512.9 -> 219.0	1020		
PFDODA	9.094	613.1 -> 569.0	5925	0.20 µg/L	100
		613.1 -> 319.0	689		
PFDS	9.245	599.0 -> 79.9	745	0.19 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	359			
PFHpA	6.569	363.1 -> 319.0	5812	0.19	µg/L	98
		363.1 -> 169.0	913			
PFHpS	7.868	449.0 -> 79.9	1426	0.22	µg/L	93
		449.0 -> 98.9	596			
PFHxA	5.644	313.0 -> 269.0	5204	0.20	µg/L	100
		313.0 -> 118.9	222			
PFHxS	7.314	398.7 -> 79.9	1583	0.18	µg/L	m 90
		398.7 -> 98.9	875			
PFNA	7.730	463.0 -> 419.0	5010	0.21	µg/L	95
		463.0 -> 219.0	1227			
PFNS	8.826	548.8 -> 79.9	1263	0.20	µg/L	86
		548.8 -> 98.9	579			
PFOA	7.200	413.0 -> 369.0	7507	0.18	µg/L	98
		413.0 -> 169.0	1465			
PFOS	8.374	498.9 -> 79.9	1426	0.19	µg/L	m 91
		498.9 -> 98.8	767			
PFPeA	4.424	263.0 -> 219.0	6424	0.39	µg/L	100
PFPeS	6.620	349.1 -> 79.9	1428	0.19	µg/L	96
		349.1 -> 98.9	638			
PFTeDA	9.797	713.1 -> 669.0	4381	0.21	µg/L	99
		713.1 -> 168.9	317			
PFTrDA	9.464	663.0 -> 619.0	6751	0.20	µg/L	99
		663.0 -> 168.9	605			
PFUnDA	8.664	563.1 -> 519.0	4626	0.18	µg/L	98
		563.1 -> 269.1	733			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	5452	0.36	µg/L	97
		632.9 -> 452.9	1670			
9Cl-PF3ONS	8.703	530.8 -> 351.0	8295	0.32	µg/L	89
		532.8 -> 353.0	1852			
ADONA	6.817	376.9 -> 250.9	21253	0.36	µg/L	99
		376.9 -> 84.8	5955			
HFPO-DA	6.020	284.9 -> 168.9	1433	0.37	µg/L	92
		284.9 -> 184.9	264			
3:3FTCA	3.846	241.0 -> 177.0	1004	0.90	µg/L	96
		241.0 -> 117.0	110			
5:3FTCA	6.271	341.0 -> 237.1	21641	4.79	µg/L	98
		341.0 -> 217.0	15680			
7:3FTCA	7.657	441.0 -> 316.9	13268	4.97	µg/L	89
		441.0 -> 336.9	27809			
EtFOSA	10.990	526.0 -> 219.0	2380	0.38	µg/L	99
		526.0 -> 169.0	3109			
EtFOSE	10.924	630.0 -> 58.9	6920	0.93	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	2001	0.39	µg/L	m 95
		511.9 -> 169.0	2601			
MeFOSE	10.691	616.1 -> 58.9	4713	0.98	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	387	0.18	µg/L	87
		699.1 -> 98.8	257			
NFDHA	5.524	295.0 -> 201.0	1240	0.40	µg/L	93
		295.0 -> 84.9	331			
PFMBA	4.850	279.0 -> 85.1	4591	0.39	µg/L	100
PFMPA	3.551	229.0 -> 84.9	3314	0.39	µg/L	100
PFEESA	6.112	314.8 -> 134.9	11884	0.36	µg/L	100
		314.8 -> 82.9	410			

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

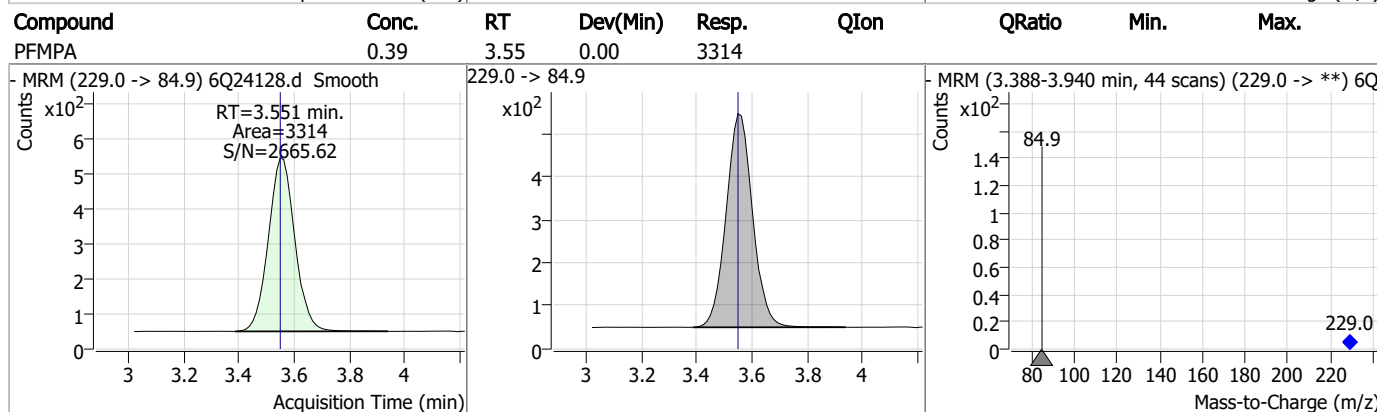
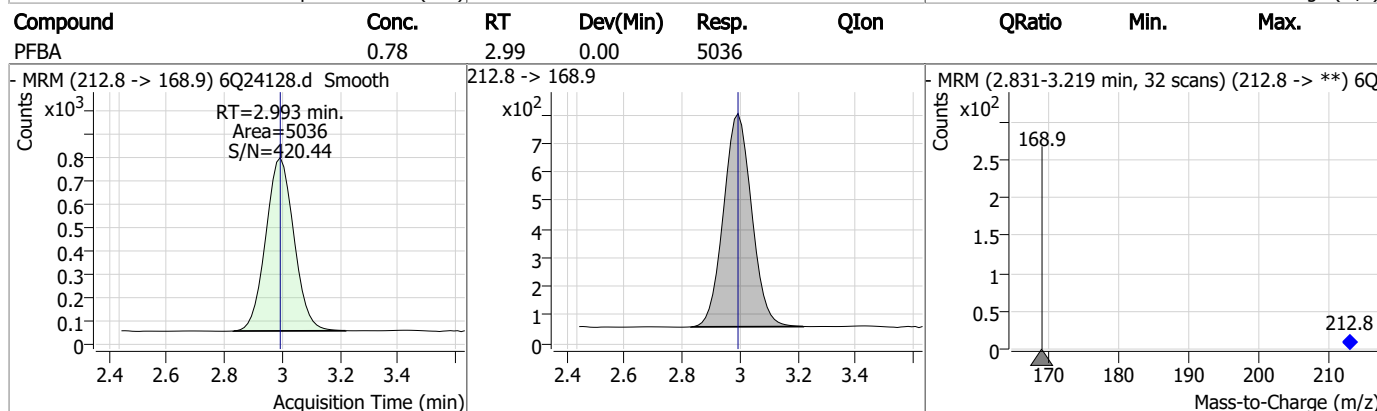
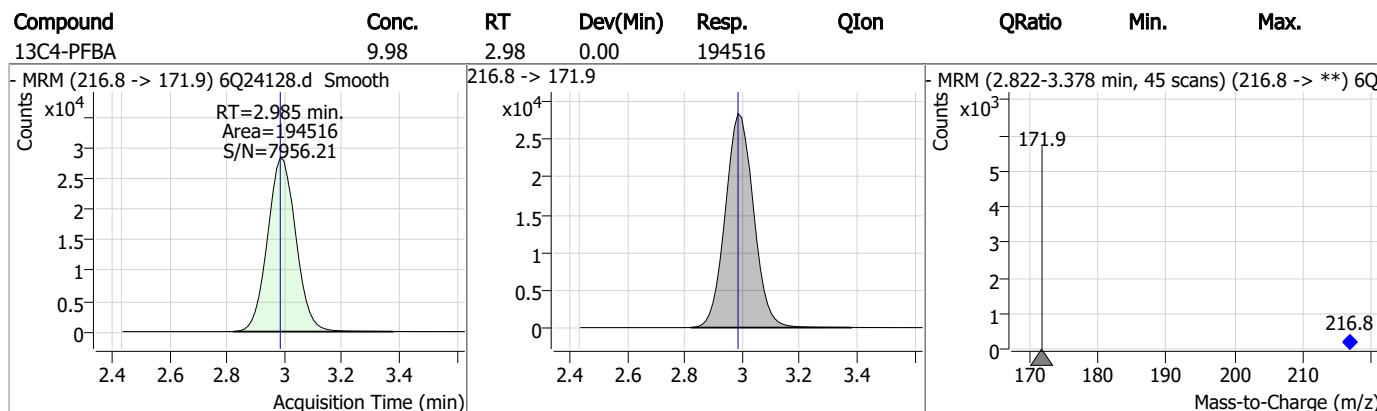
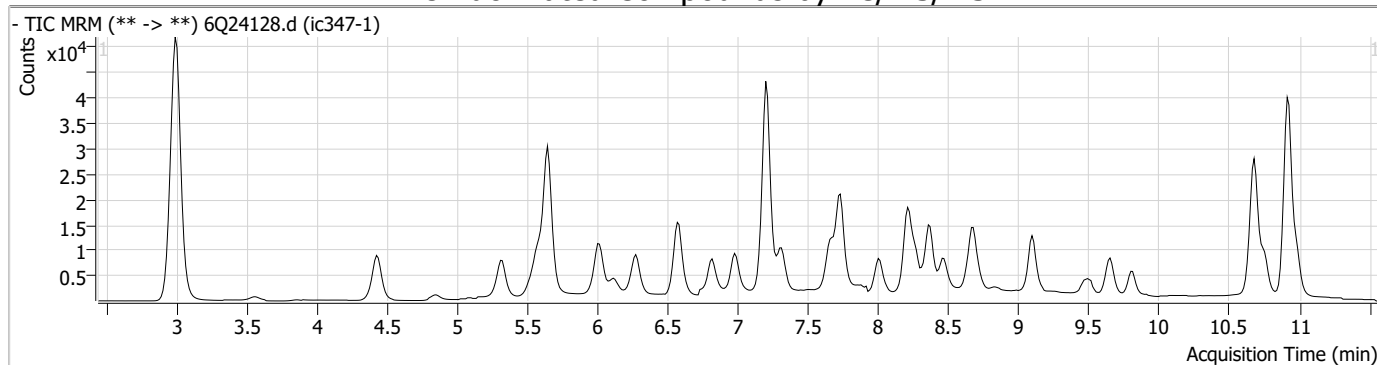
Perfluorinated Compounds by LC/MS/MS

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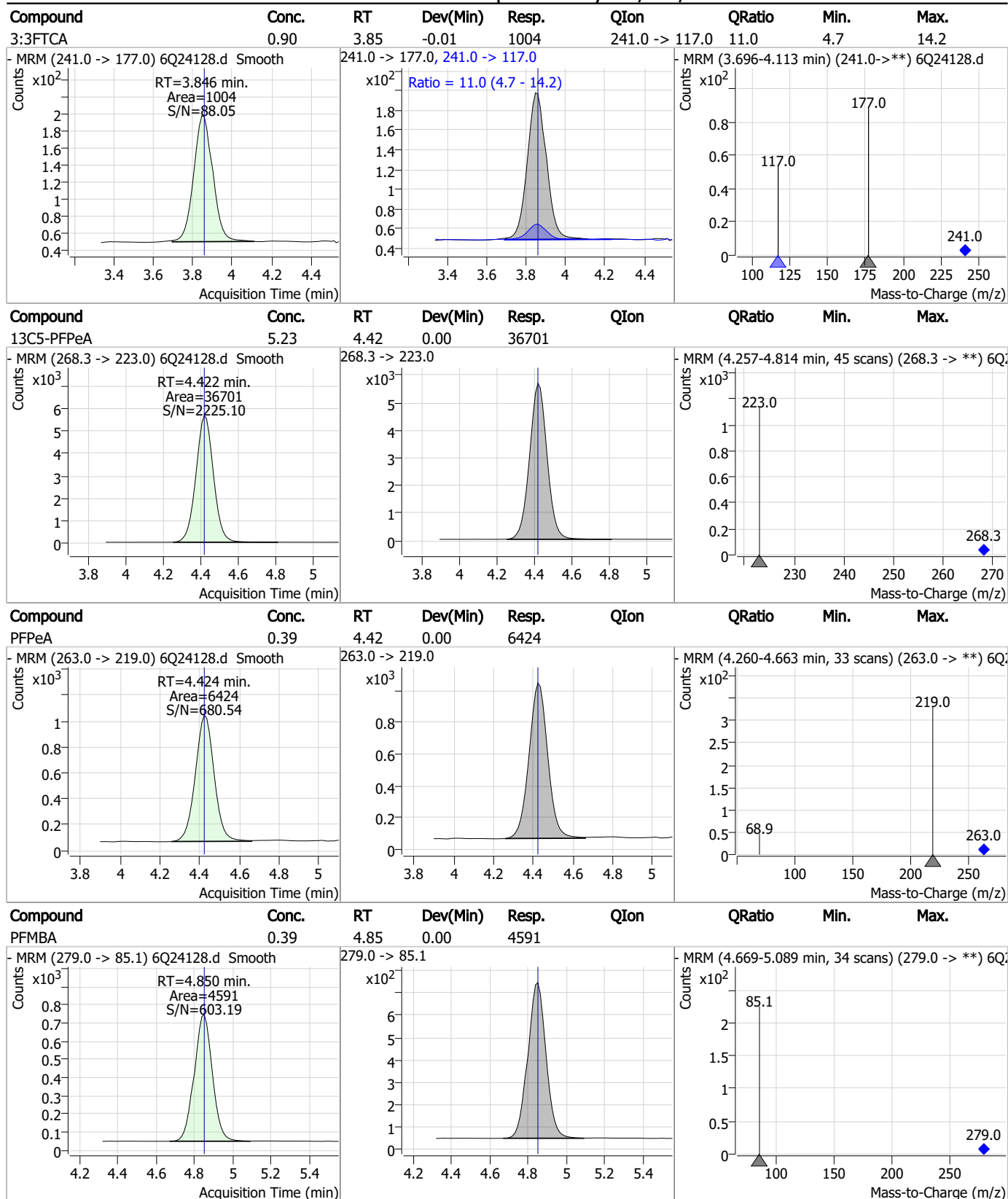
7.7.2
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Perfluorinated Compounds by LC/MS/MS

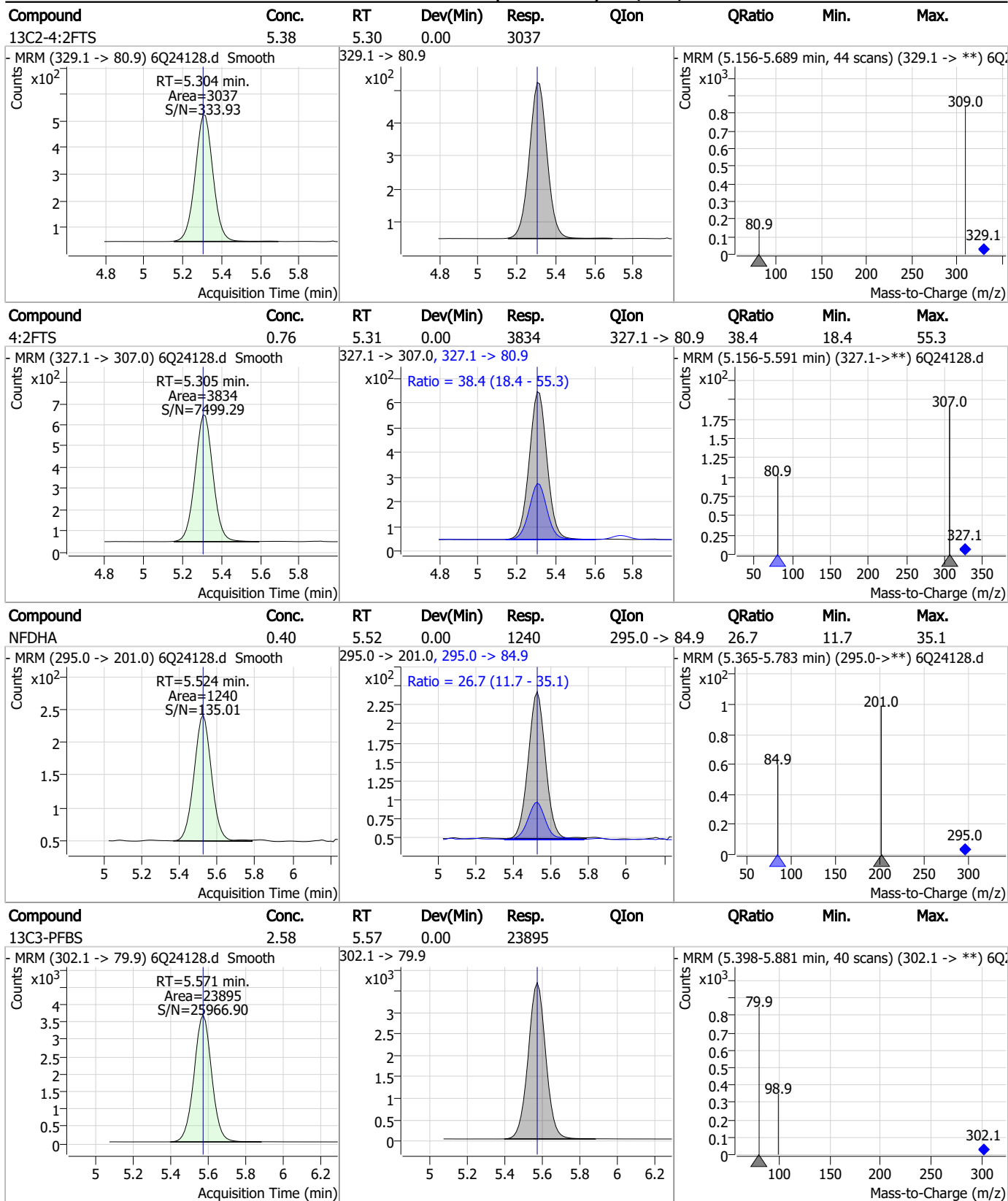


Perfluorinated Compounds by LC/MS/MS



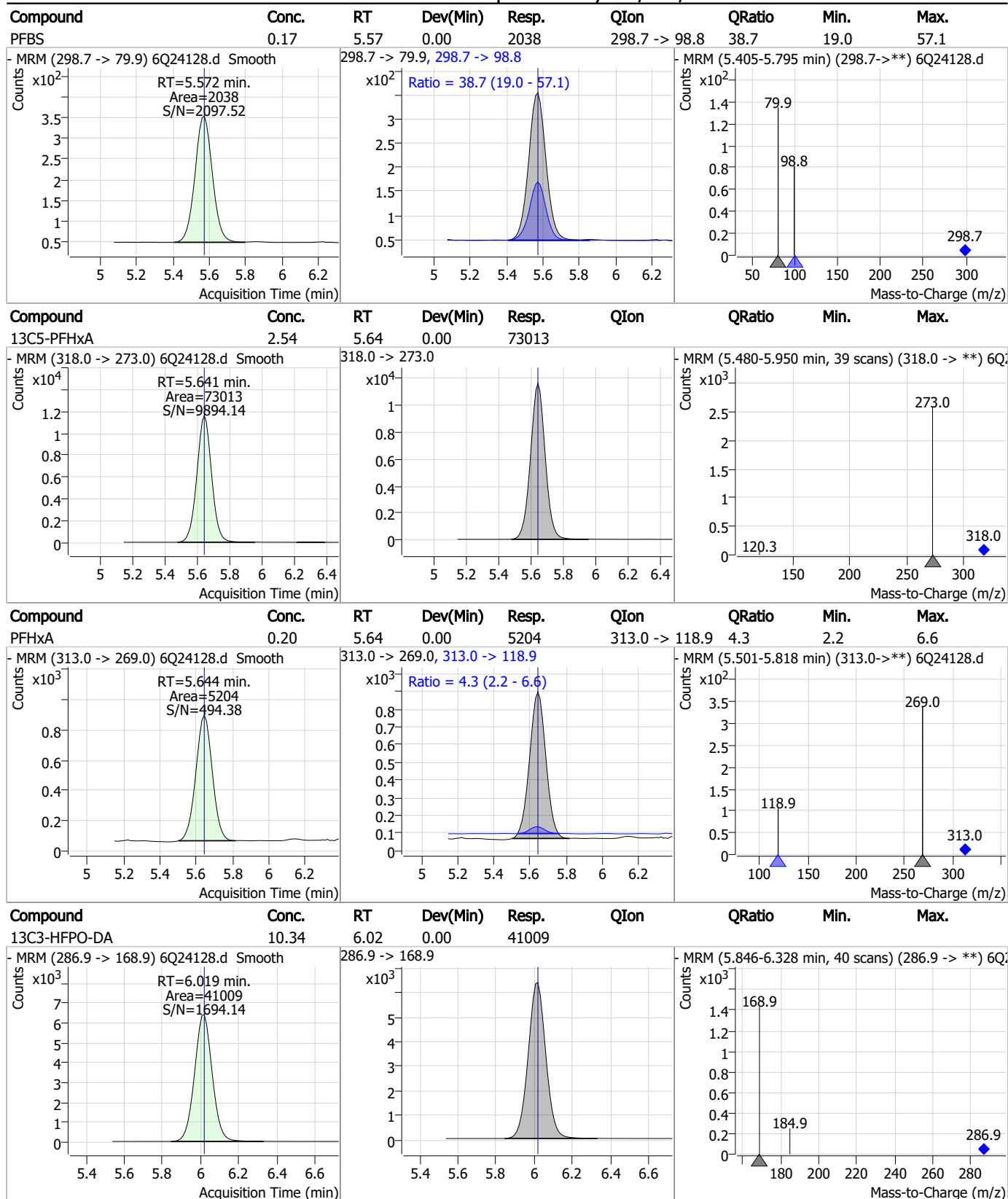
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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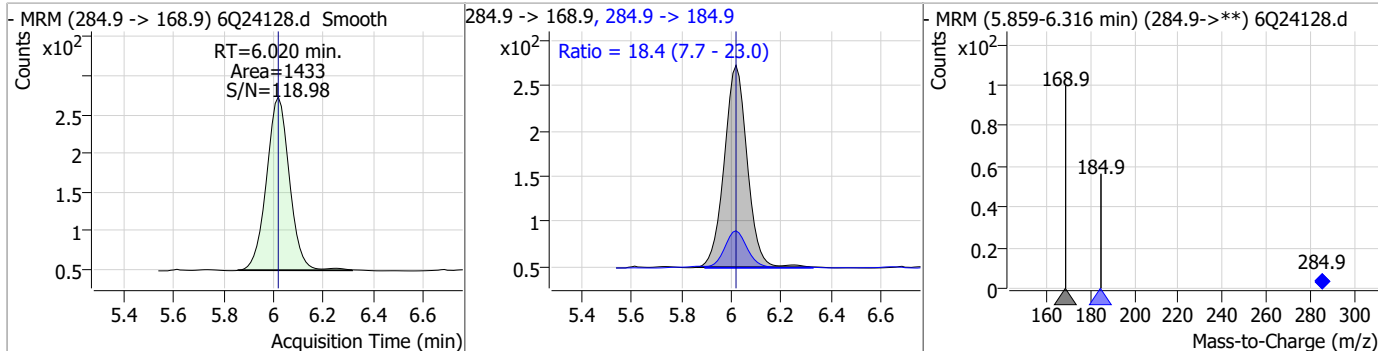
Perfluorinated Compounds by LC/MS/MS



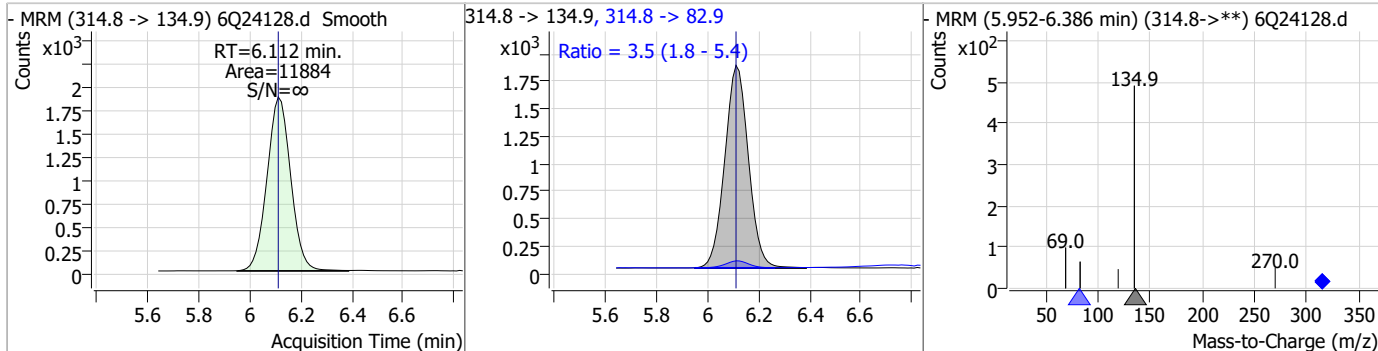
7.7.2
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Perfluorinated Compounds by LC/MS/MS

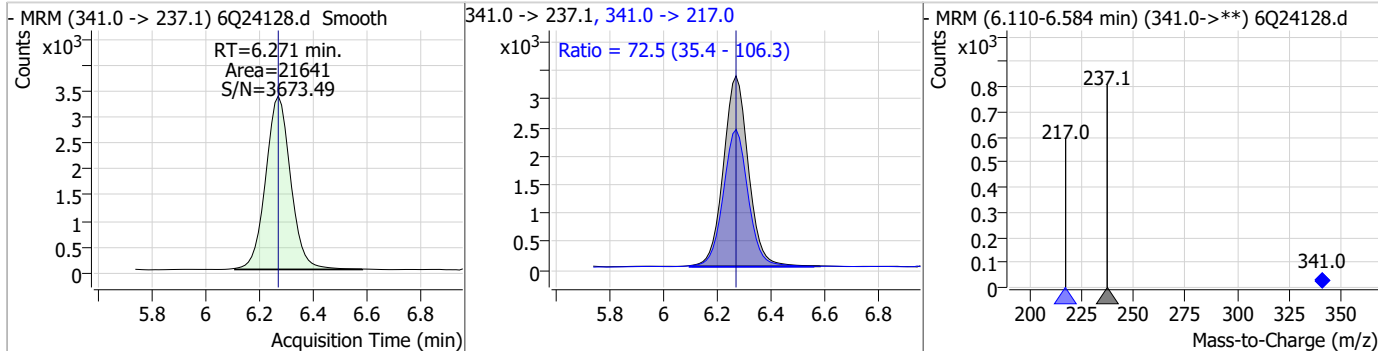
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.37	6.02	0.00	1433	284.9 -> 184.9	18.4	7.7	23.0



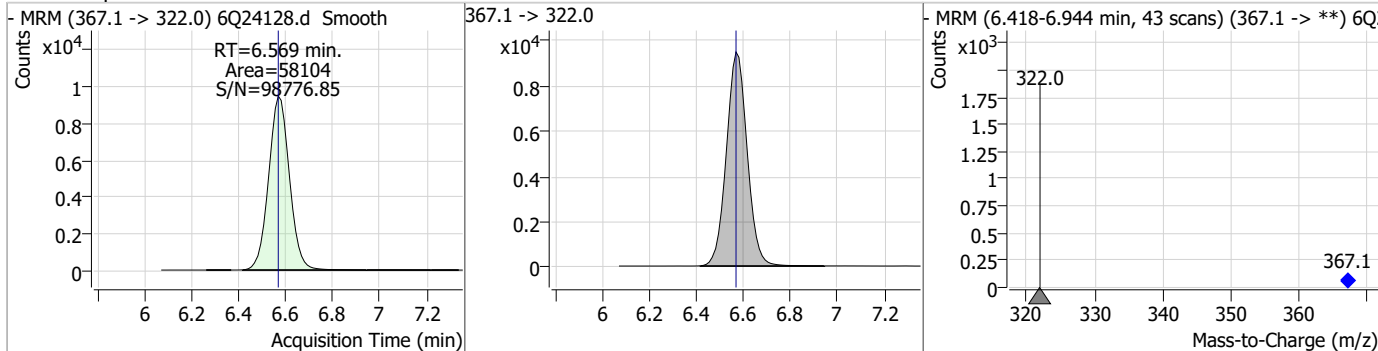
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.36	6.11	0.00	11884	314.8 -> 82.9	3.5	1.8	5.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.79	6.27	0.00	21641	341.0 -> 217.0	72.5	35.4	106.3

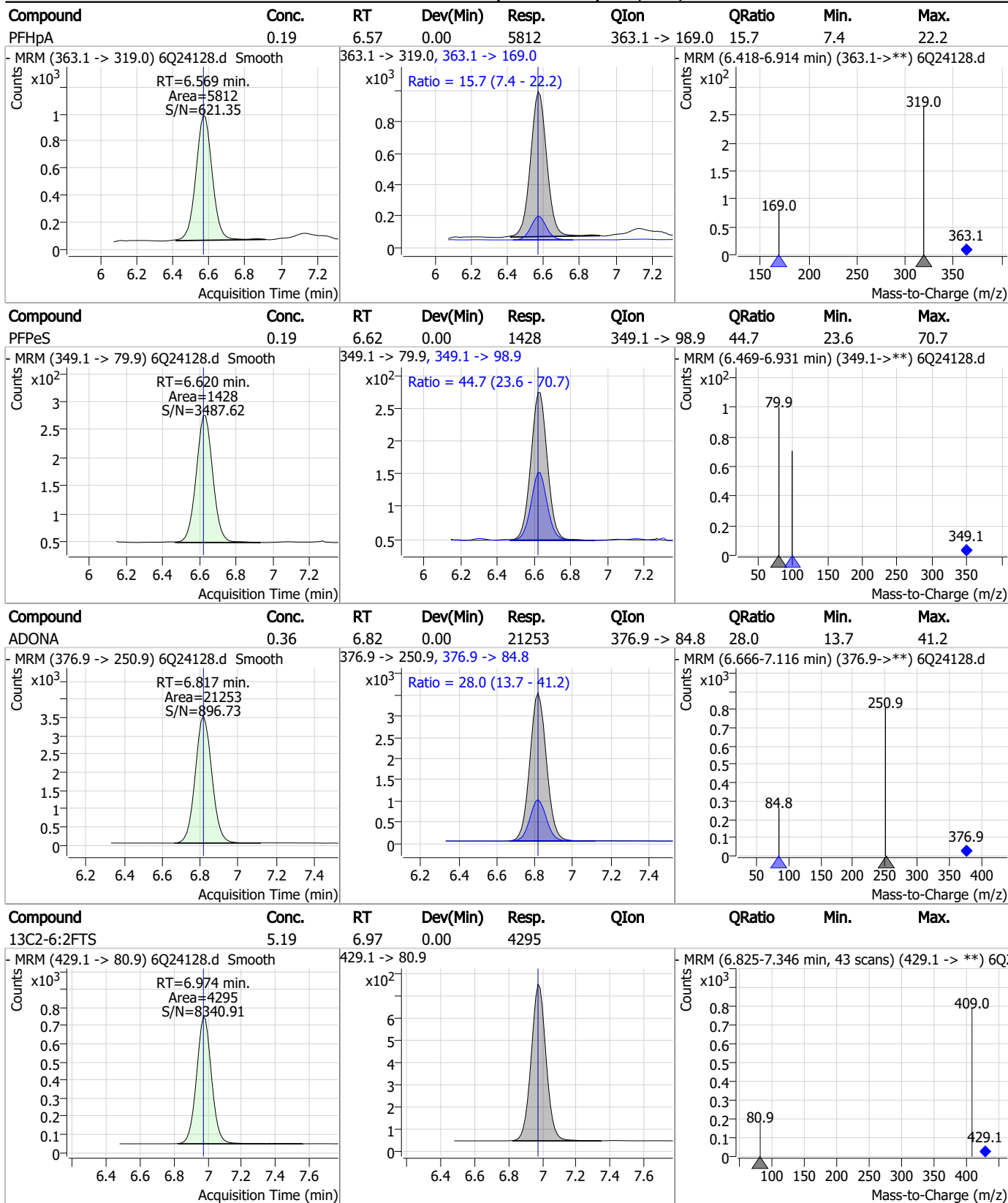


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.60	6.57	0.00	58104	367.1 -> 322.0			



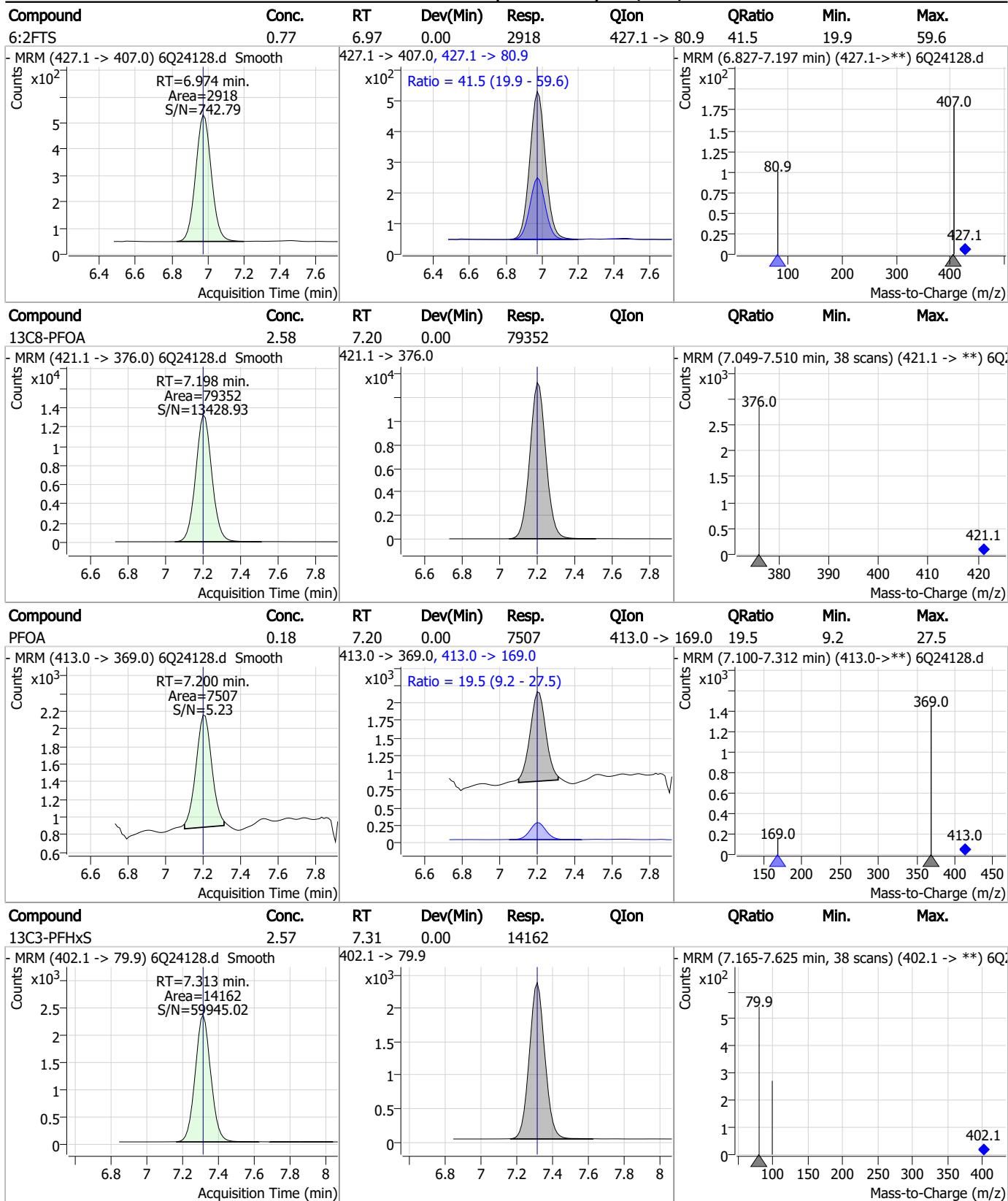
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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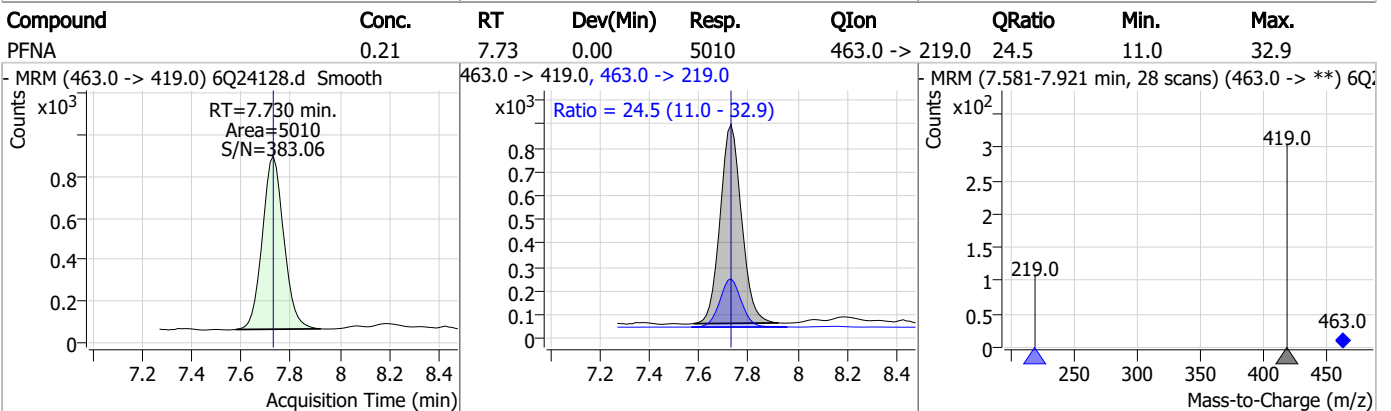
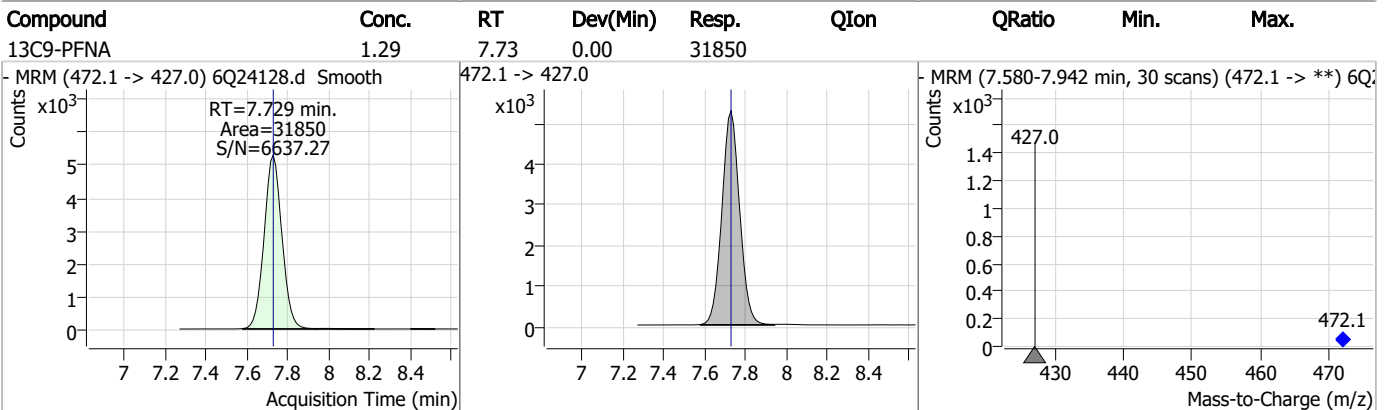
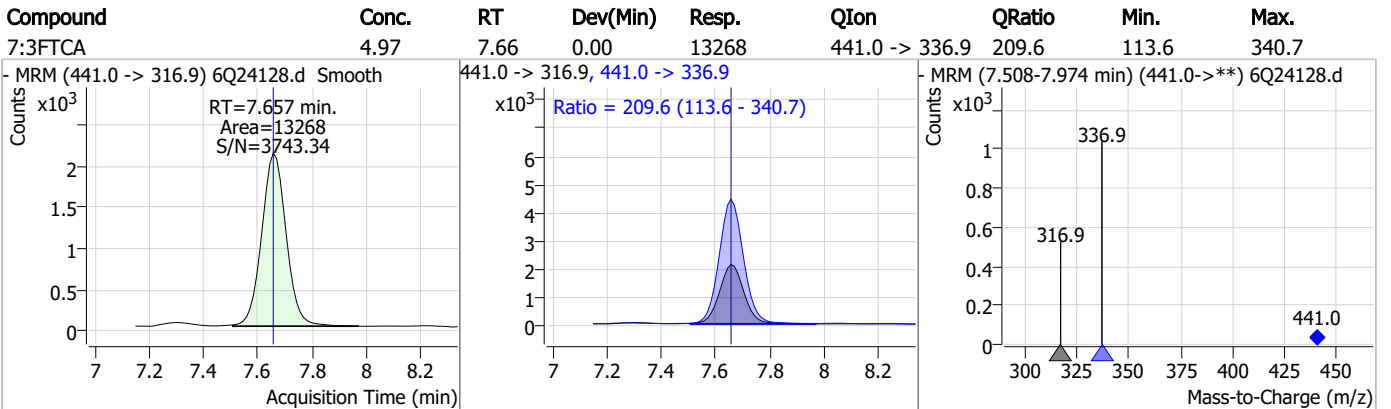
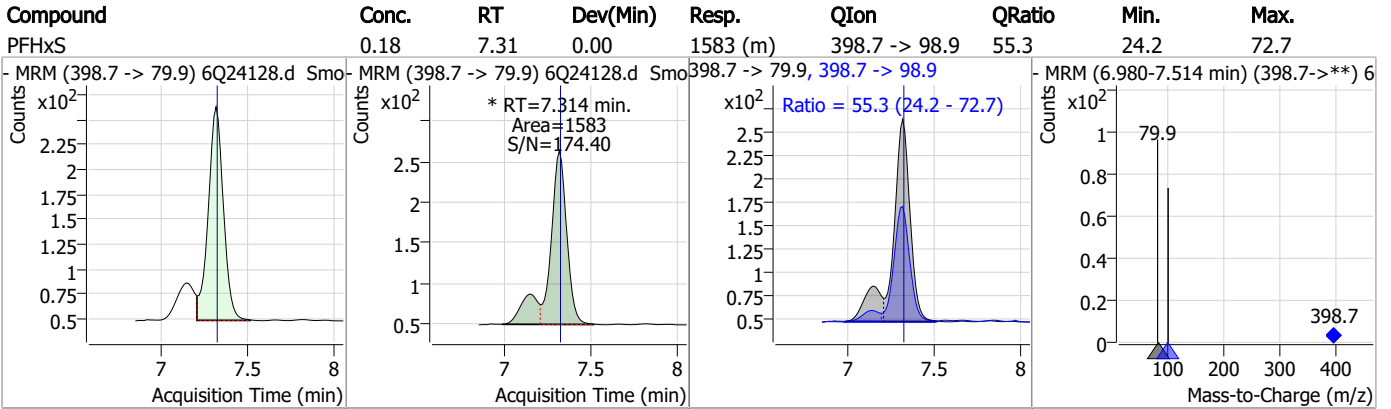
Perfluorinated Compounds by LC/MS/MS



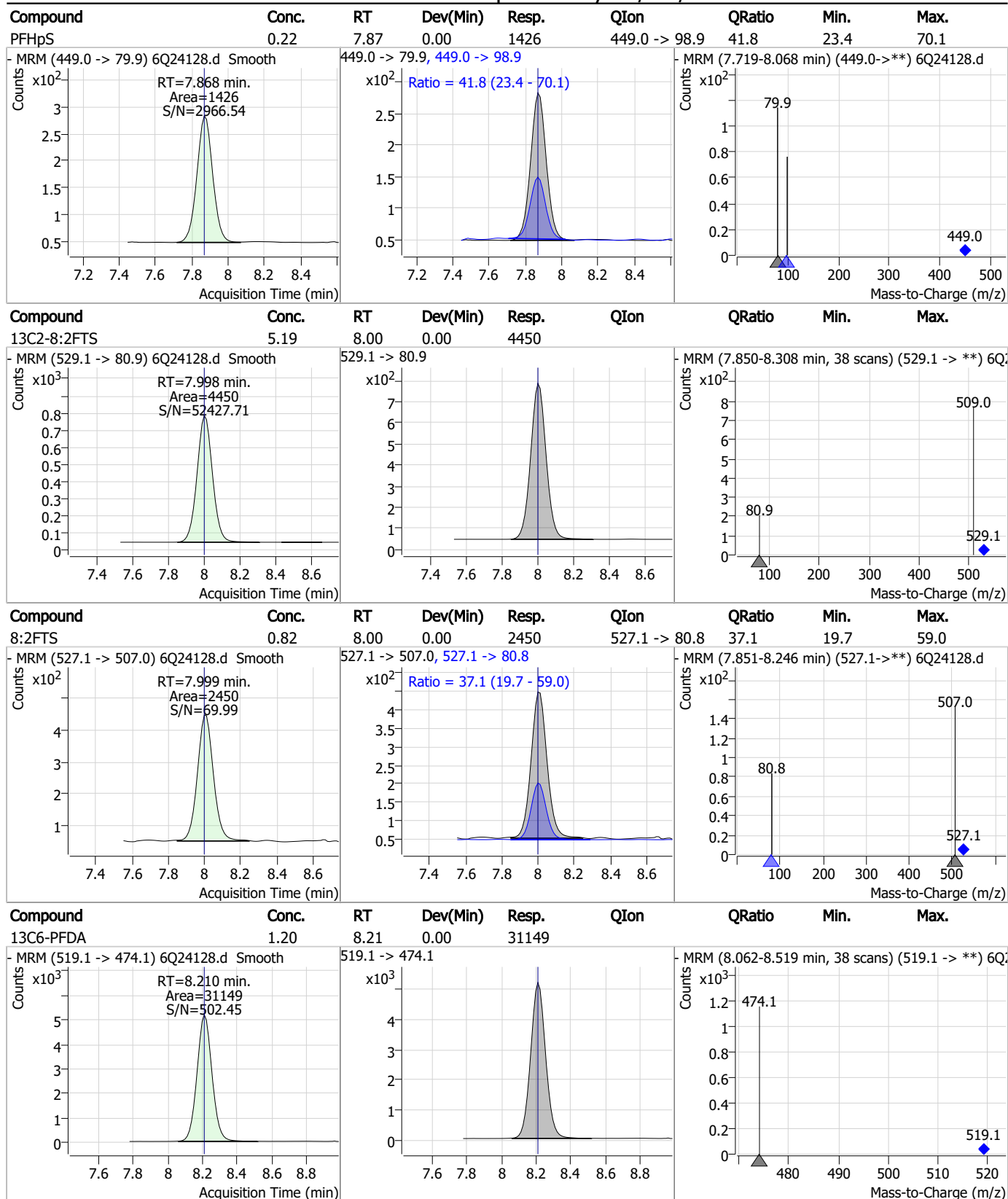
7.7.2
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Perfluorinated Compounds by LC/MS/MS



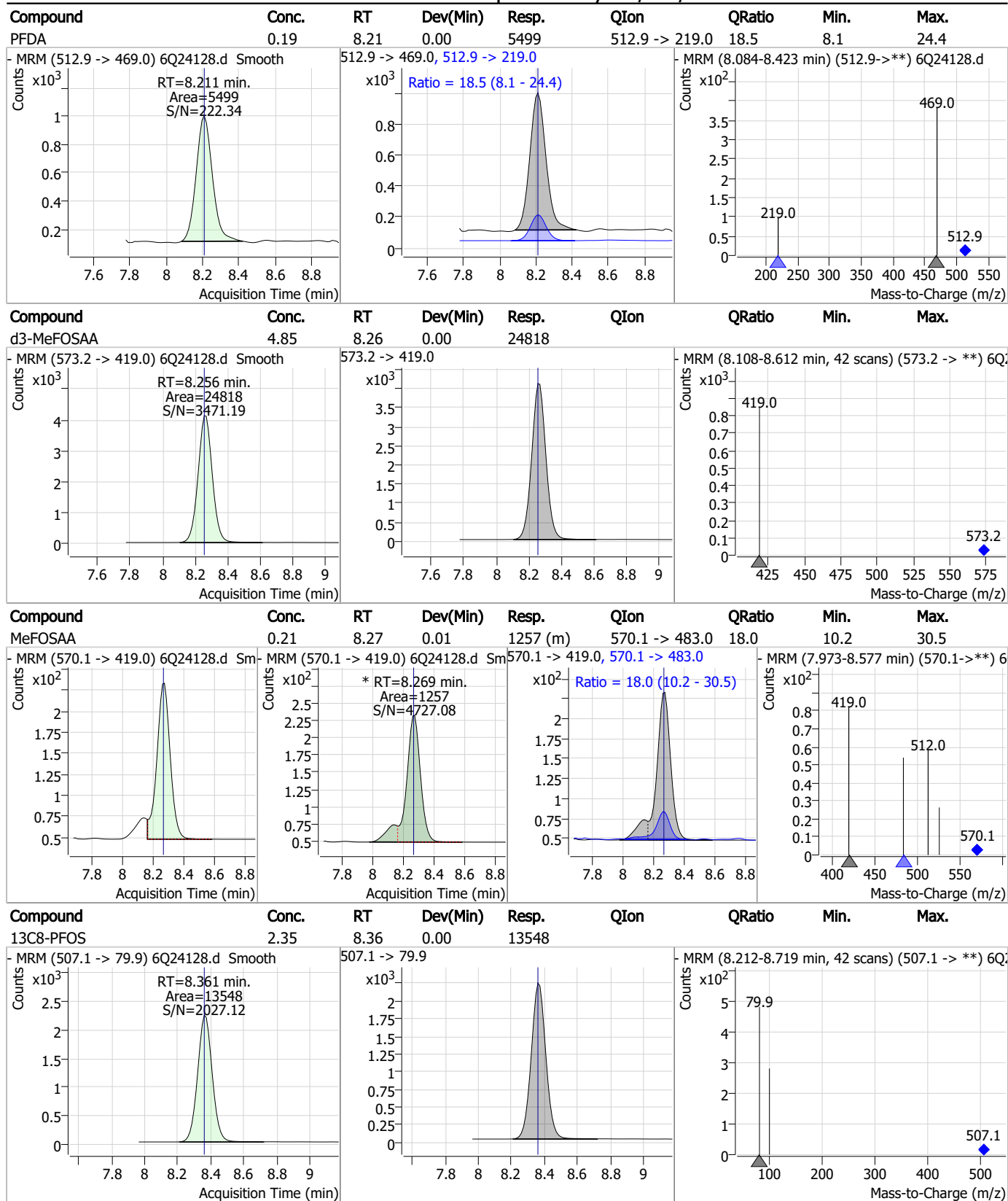
Perfluorinated Compounds by LC/MS/MS



7.7.2
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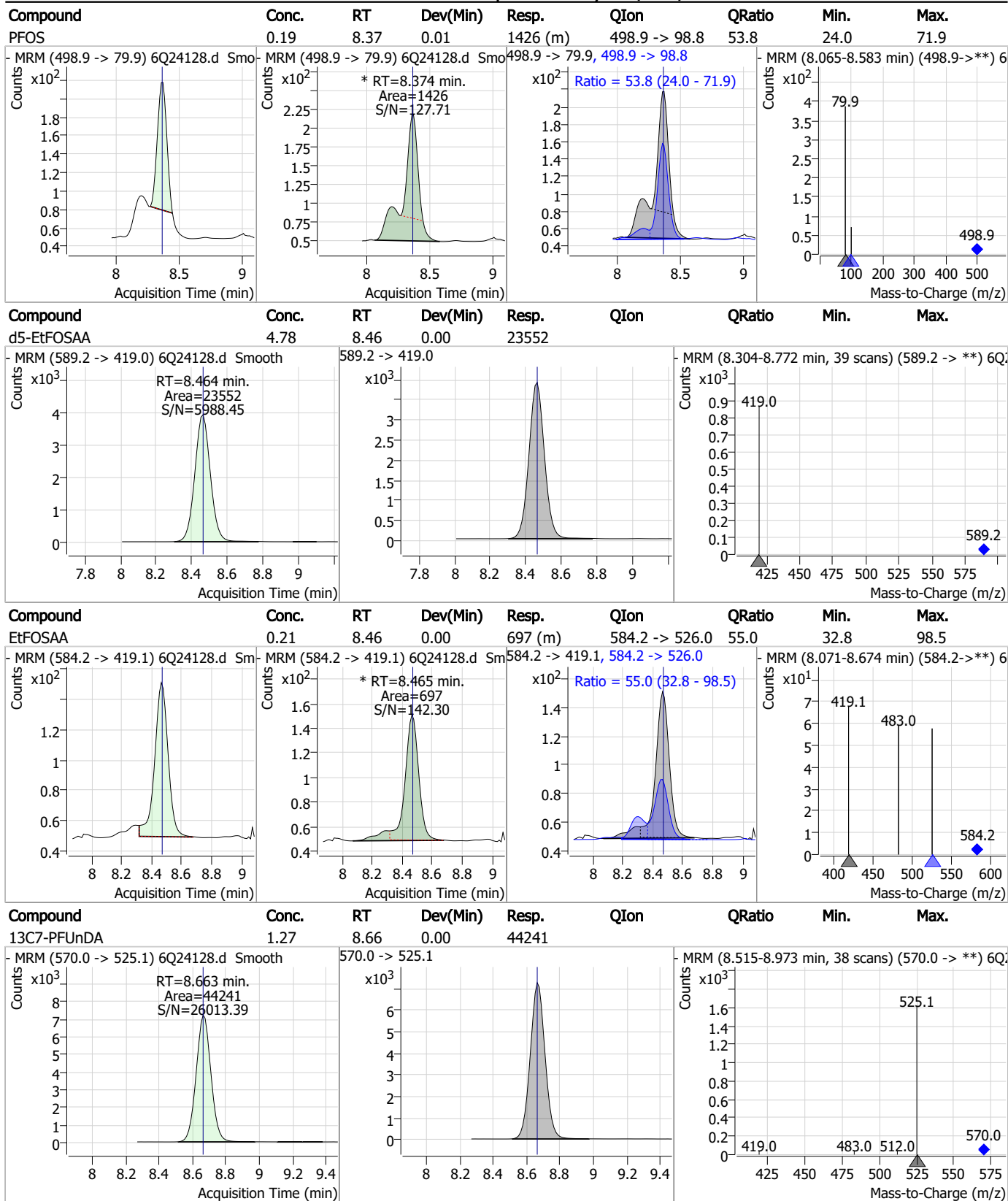
Perfluorinated Compounds by LC/MS/MS



7.7.2
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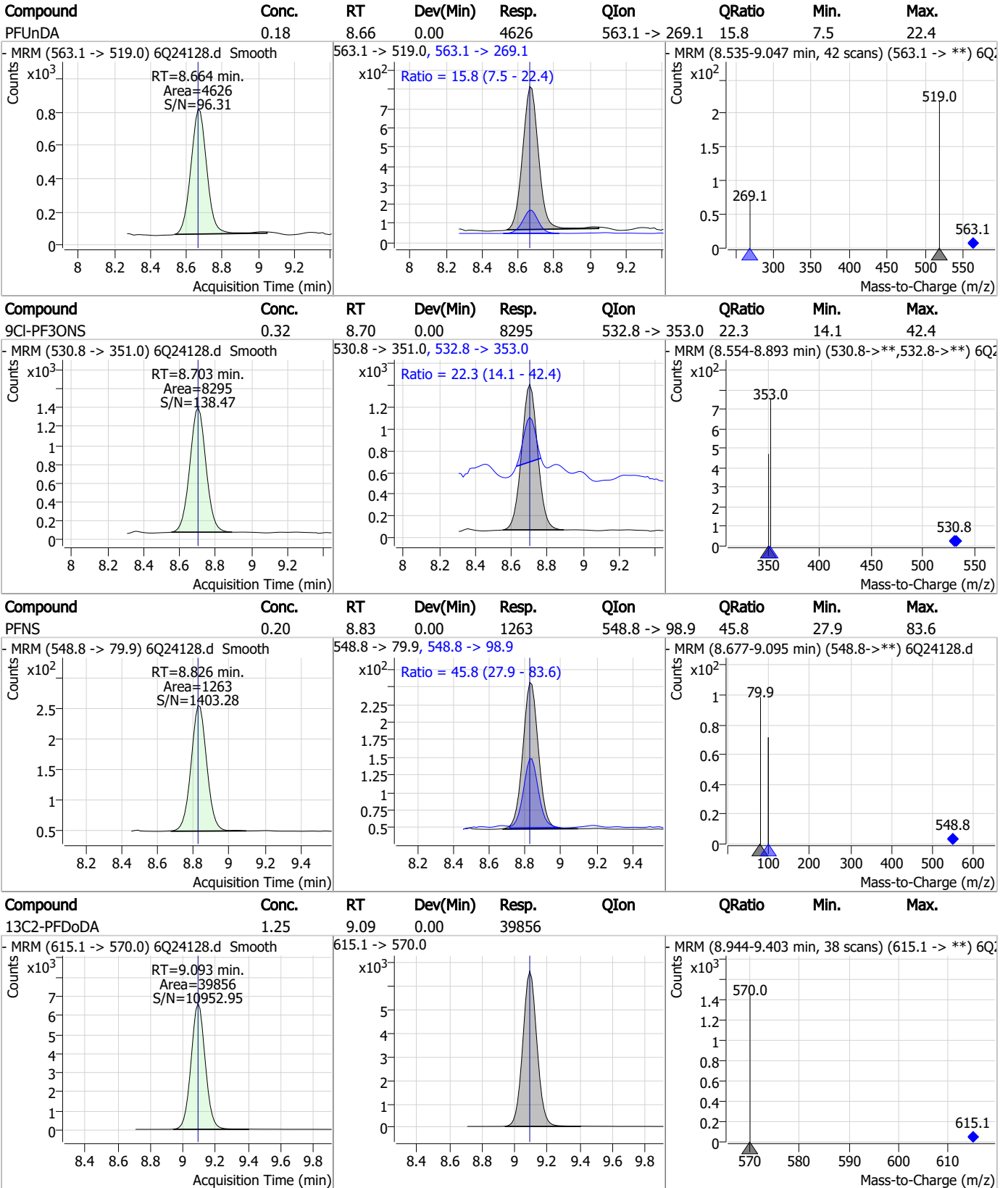


Perfluorinated Compounds by LC/MS/MS

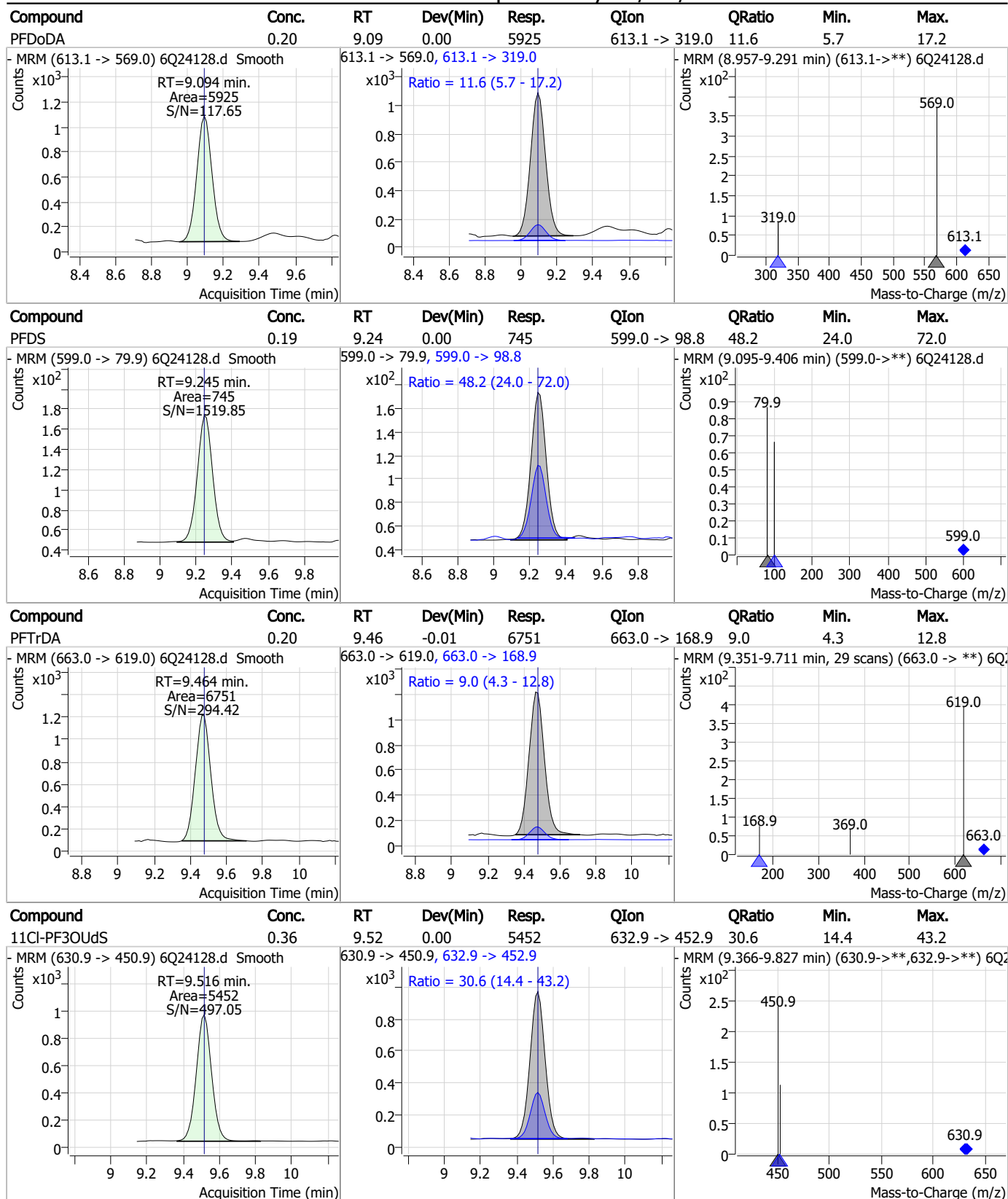


7.7.2
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Perfluorinated Compounds by LC/MS/MS

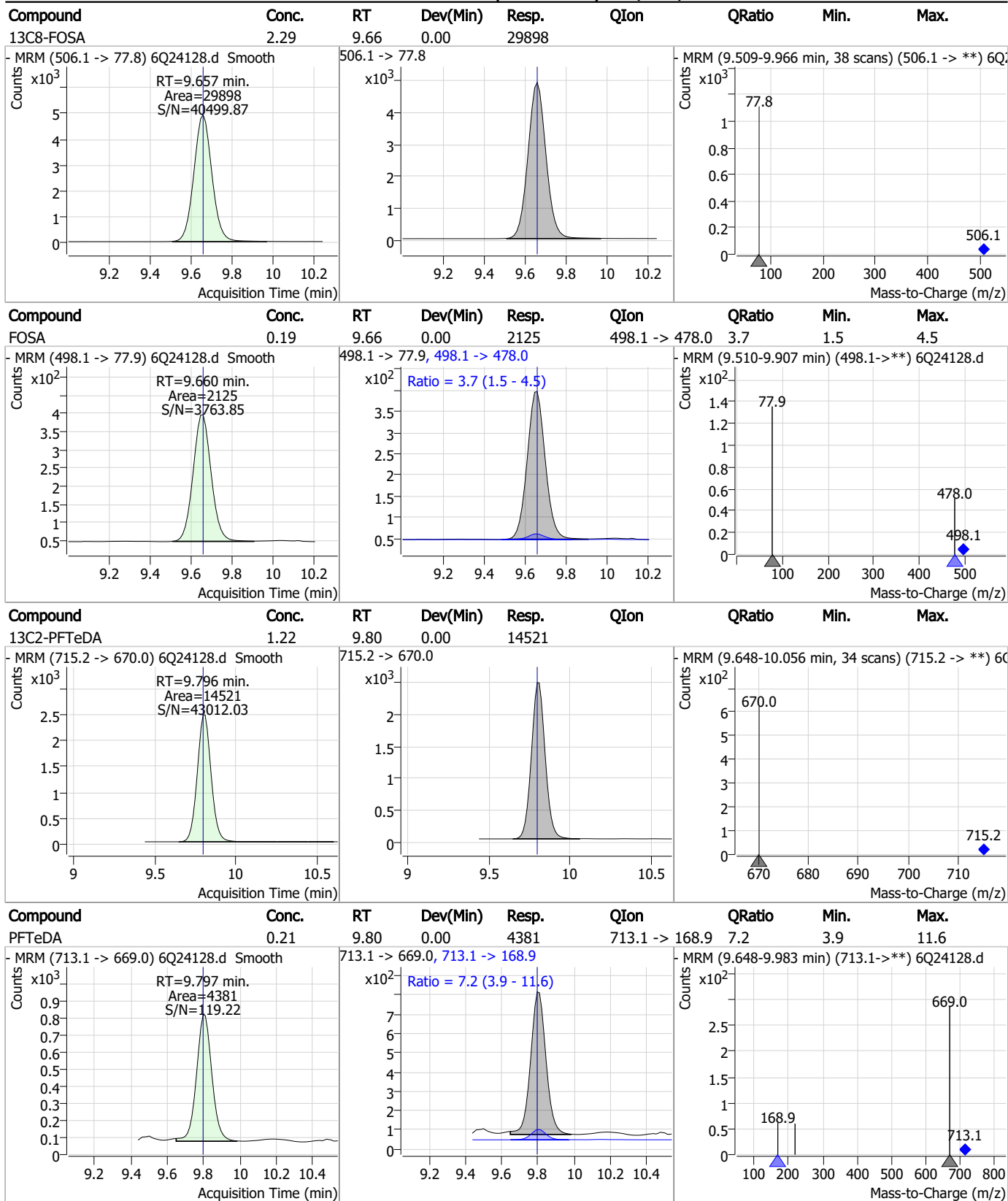


Perfluorinated Compounds by LC/MS/MS



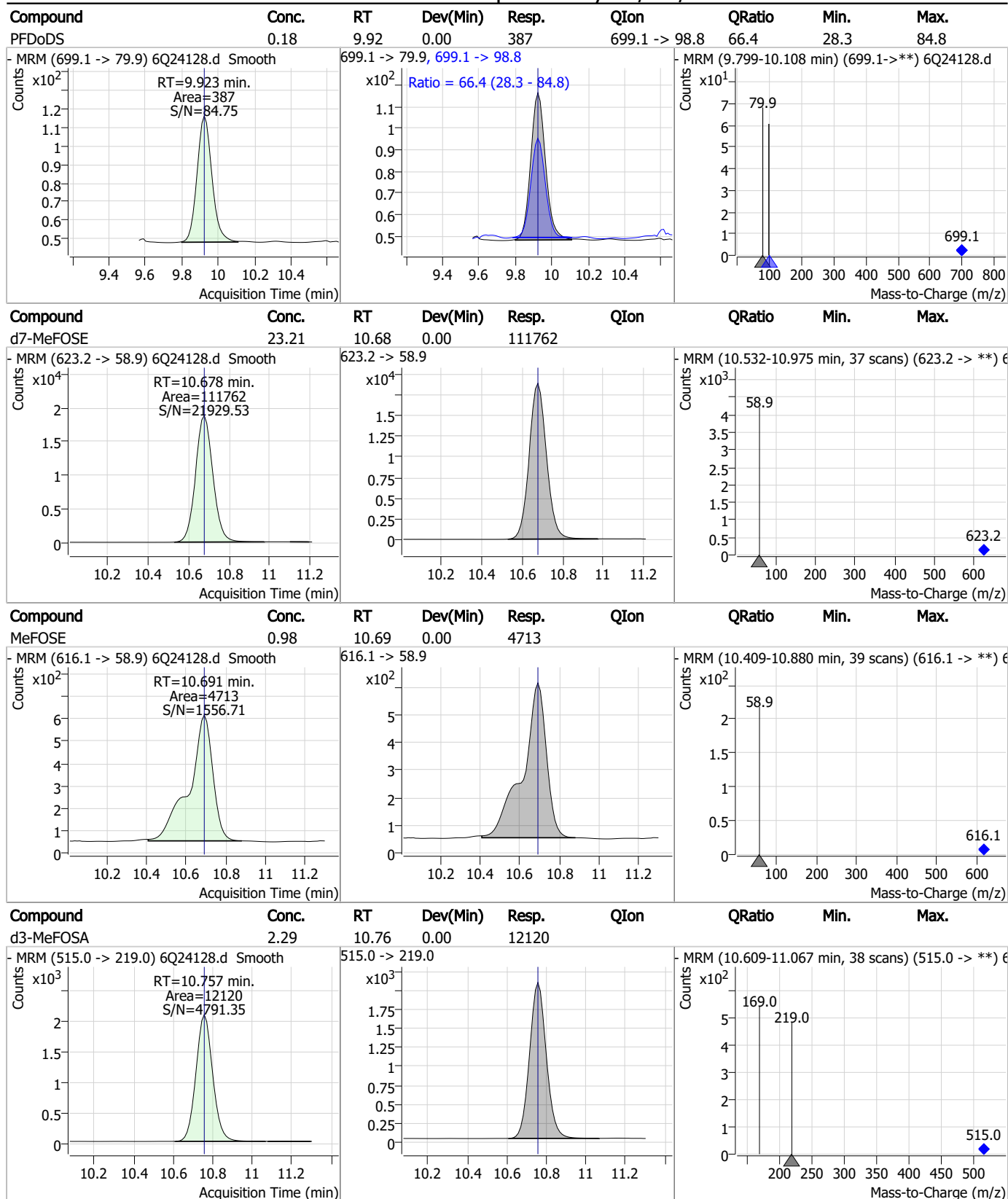
7.7.2
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Perfluorinated Compounds by LC/MS/MS



7.7.2
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Perfluorinated Compounds by LC/MS/MS

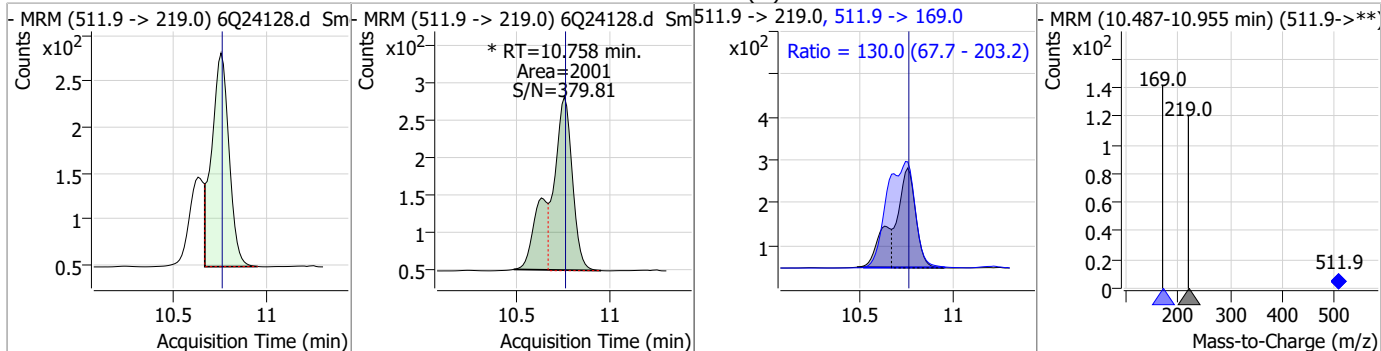


7.7.2

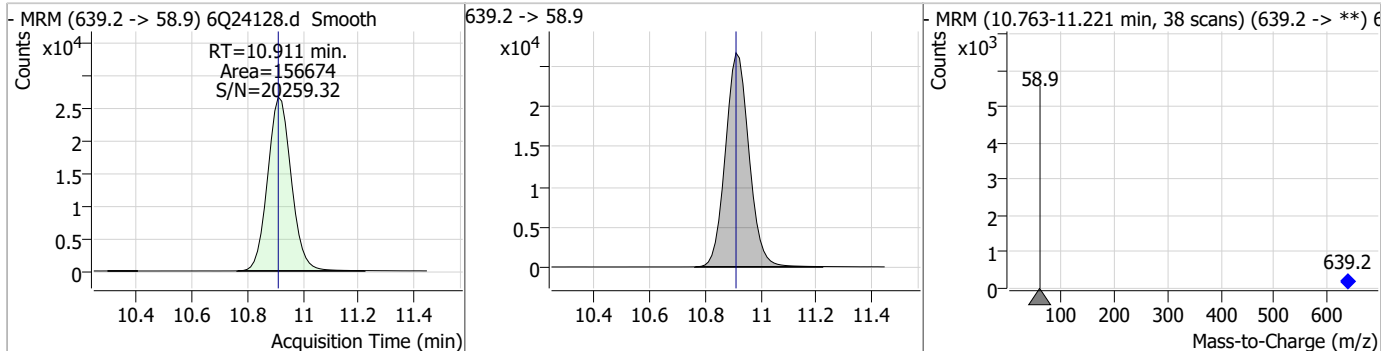
7

Perfluorinated Compounds by LC/MS/MS

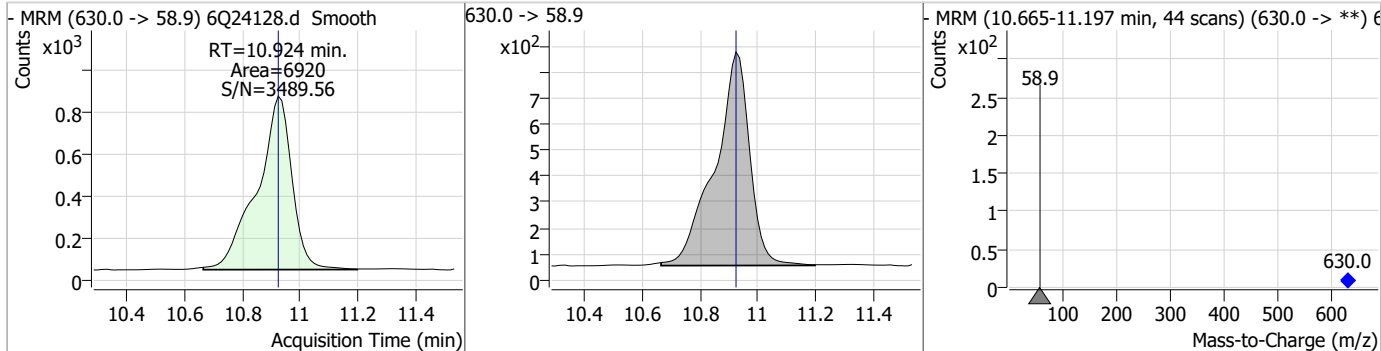
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.39	10.76	0.00	2001 (m)	511.9 -> 169.0	130.0	67.7	203.2



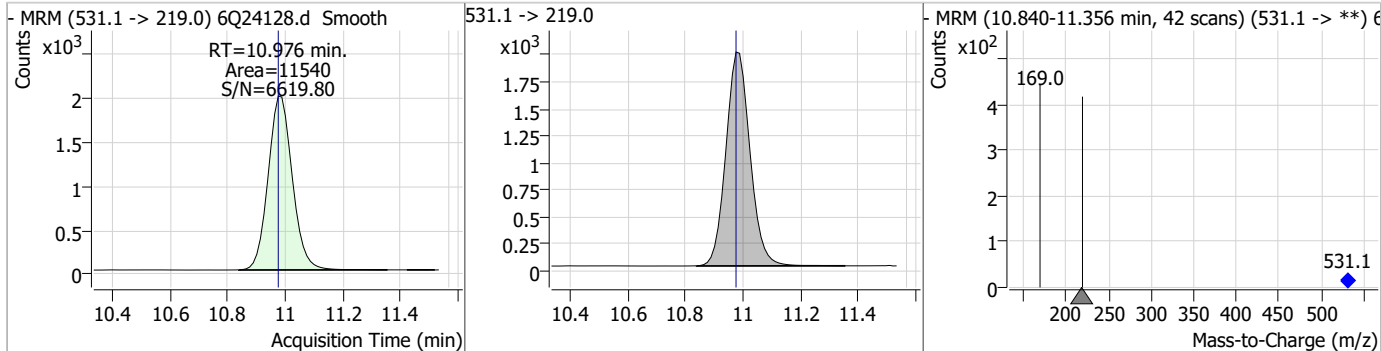
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.18	10.91	0.00	156674				



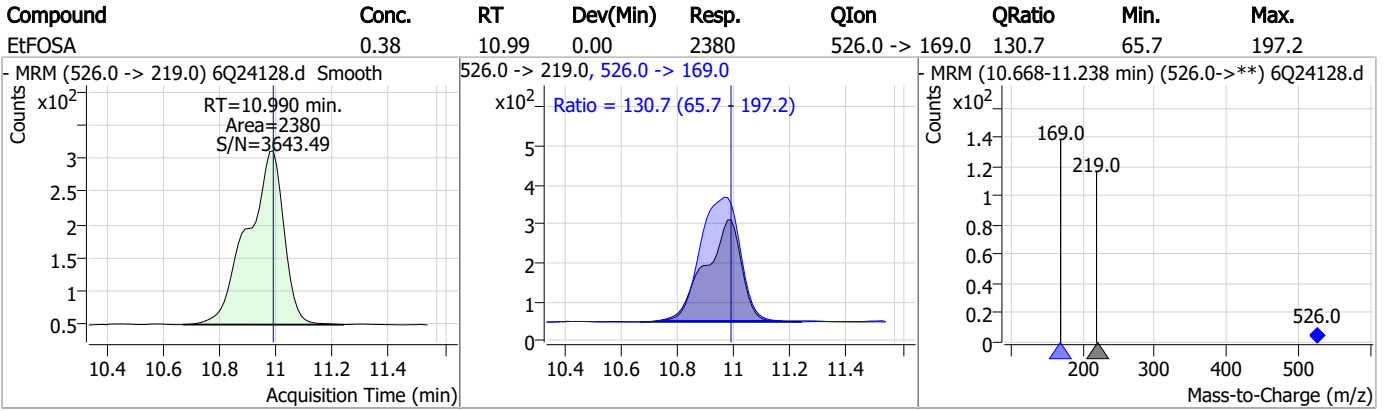
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.93	10.92	0.00	6920				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.34	10.98	0.00	11540				



Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24128.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 20:46 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24129.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:00:35 PM
 Sample Name : ic347-2
 Vial : P1-A3
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	195540	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	35818	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	72838	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	57342	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	77964	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	32156	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31739	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	43894	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	40577	1.25 µg/L	0.000
M2-PFTeDA	9.809	715.2 -> 670.0	14529	1.25 µg/L	0.012
M8-FOSA	9.657	506.1 -> 77.8	30968	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	22949	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13405	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	13068	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3093	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4676	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4452	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	24965	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	41331	10.00 µg/L	-0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	23368	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	112994	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	148321	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	12202	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	12156	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	17624	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	77368	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10322	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	91276	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	28773	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	41647	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	53358	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3093	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.5%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4676	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4452	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	40577	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.2%		
13C2-PFTeDA	9.809	715.2 -> 670.0	14529	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-PFBS	5.571	302.1 -> 79.9	22949	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C3-PFHxS	7.313	402.1 -> 79.9	13405	2.36 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 = 94.6%	
13C4-PFBA	2.985	216.8 -> 171.9	195540	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.569	367.1 -> 322.0	57342	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFHxA	5.641	318.0 -> 273.0	72838	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.422	268.3 -> 223.0	35818	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C6-PFDA	8.210	519.1 -> 474.1	31739	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C7-PFUnDA	8.663	570.0 -> 525.1	43894	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-FOSA	9.657	506.1 -> 77.8	30968	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C8-PFOA	7.198	421.1 -> 376.0	77964	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C8-PFOS	8.361	507.1 -> 79.9	13068	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C9-PFNA	7.729	472.1 -> 427.0	32156	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	24965	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	41331	10.17 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	12156	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
d5-EtFOSAA	8.464	589.2 -> 419.0	23368	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d7-MeFOSE	10.678	623.2 -> 58.9	112994	24.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d9-EtFOSE	10.911	639.2 -> 58.9	148321	23.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d5-EtFOSA	10.976	531.1 -> 219.0	12202	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.9%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	7971	1.56 µg/L	99
		327.1 -> 80.9	2905		
6:2FTS	6.974	427.1 -> 407.0	6325	1.53 µg/L	97
		427.1 -> 80.9	2635		
8:2FTS	7.999	527.1 -> 507.0	4767	1.59 µg/L	97
		527.1 -> 80.8	1775		
EtFOSAA	8.465	584.2 -> 419.1	1379	0.42 µg/L	m 97
		584.2 -> 526.0	870		
FOSA	9.647	498.1 -> 77.9	4699	0.41 µg/L	99
		498.1 -> 478.0	158		
MeFOSAA	8.257	570.1 -> 419.0	2338	0.39 µg/L	92
		570.1 -> 483.0	391		
PFBA	2.993	212.8 -> 168.9	10285	1.59 µg/L	100
PFBS	5.572	298.7 -> 79.9	4088	0.36 µg/L	97
		298.7 -> 98.8	1486		
PFDA	8.211	512.9 -> 469.0	11393	0.39 µg/L	97
		512.9 -> 219.0	1720		
PFDODA	9.094	613.1 -> 569.0	11707	0.39 µg/L	97
		613.1 -> 319.0	1475		
PFDS	9.245	599.0 -> 79.9	1562	0.41 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	729			
PFHpA	6.569	363.1 -> 319.0	11809	0.39	µg/L	97
		363.1 -> 169.0	1893			
PFHpS	7.868	449.0 -> 79.9	2532	0.40	µg/L	99
		449.0 -> 98.9	1191			
PFHxA	5.644	313.0 -> 269.0	10150	0.38	µg/L	98
		313.0 -> 118.9	507			
PFHxS	7.314	398.7 -> 79.9	3241	0.39	µg/L	m 95
		398.7 -> 98.9	1671			
PFNA	7.730	463.0 -> 419.0	9255	0.38	µg/L	99
		463.0 -> 219.0	2061			
PFNS	8.826	548.8 -> 79.9	2332	0.38	µg/L	99
		548.8 -> 98.9	1313			
PFOA	7.200	413.0 -> 369.0	17663	0.44	µg/L	92
		413.0 -> 169.0	2629			
PFOS	8.362	498.9 -> 79.9	3040	0.42	µg/L	m 96
		498.9 -> 98.8	1373			
PFPeA	4.424	263.0 -> 219.0	12795	0.80	µg/L	100
PFPeS	6.620	349.1 -> 79.9	2775	0.38	µg/L	94
		349.1 -> 98.9	1199			
PFTeDA	9.797	713.1 -> 669.0	8143	0.39	µg/L	98
		713.1 -> 168.9	568			
PFTrDA	9.464	663.0 -> 619.0	13528	0.40	µg/L	95
		663.0 -> 168.9	942			
PFUnDA	8.664	563.1 -> 519.0	10021	0.40	µg/L	95
		563.1 -> 269.1	1297			
11CI-PF3OUdS	9.516	630.9 -> 450.9	11491	0.76	µg/L	97
		632.9 -> 452.9	3516			
9CI-PF3ONS	8.703	530.8 -> 351.0	18446	0.71	µg/L	79
		532.8 -> 353.0	7249			
ADONA	6.817	376.9 -> 250.9	44652	0.75	µg/L	99
		376.9 -> 84.8	12483			
HFPO-DA	6.007	284.9 -> 168.9	3202	0.82	µg/L	96
		284.9 -> 184.9	441			
3:3FTCA	3.858	241.0 -> 177.0	2199	1.97	µg/L	100
		241.0 -> 117.0	208			
5:3FTCA	6.271	341.0 -> 237.1	44811	9.95	µg/L	96
		341.0 -> 217.0	30303			
7:3FTCA	7.657	441.0 -> 316.9	27227	10.23	µg/L	84
		441.0 -> 336.9	54669			
EtFOSA	10.990	526.0 -> 219.0	5125	0.77	µg/L	93
		526.0 -> 169.0	6328			
EtFOSE	10.924	630.0 -> 58.9	14617	2.07	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	4172	0.81	µg/L	m 99
		511.9 -> 169.0	5713			
MeFOSE	10.691	616.1 -> 58.9	9359	1.92	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	862	0.41	µg/L	98
		699.1 -> 98.8	502			
NFDHA	5.524	295.0 -> 201.0	2534	0.82	µg/L	93
		295.0 -> 84.9	677			
PFMBA	4.850	279.0 -> 85.1	9206	0.79	µg/L	100
PFMPA	3.551	229.0 -> 84.9	6609	0.79	µg/L	100
PFEESA	6.112	314.8 -> 134.9	24044	0.73	µg/L	98
		314.8 -> 82.9	699			

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

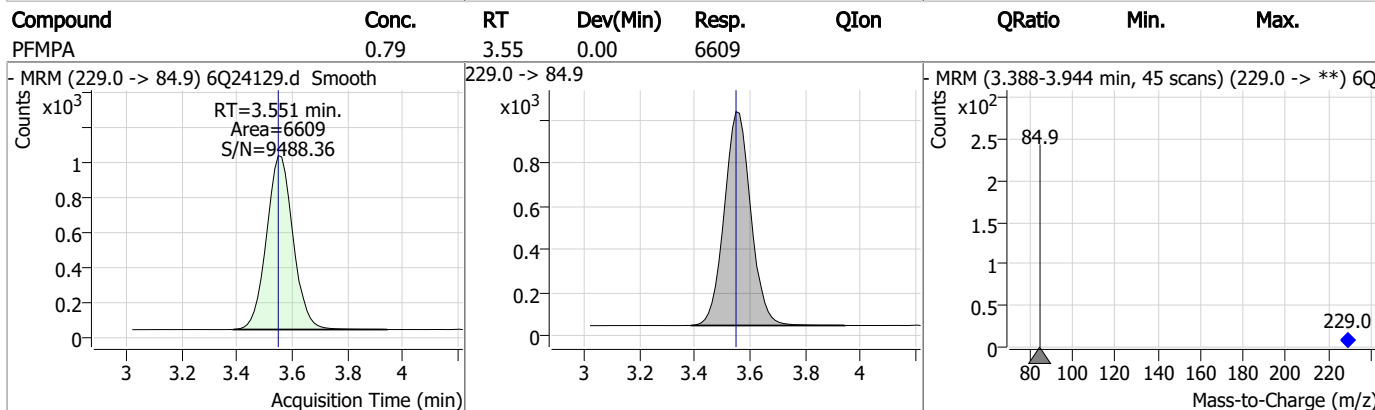
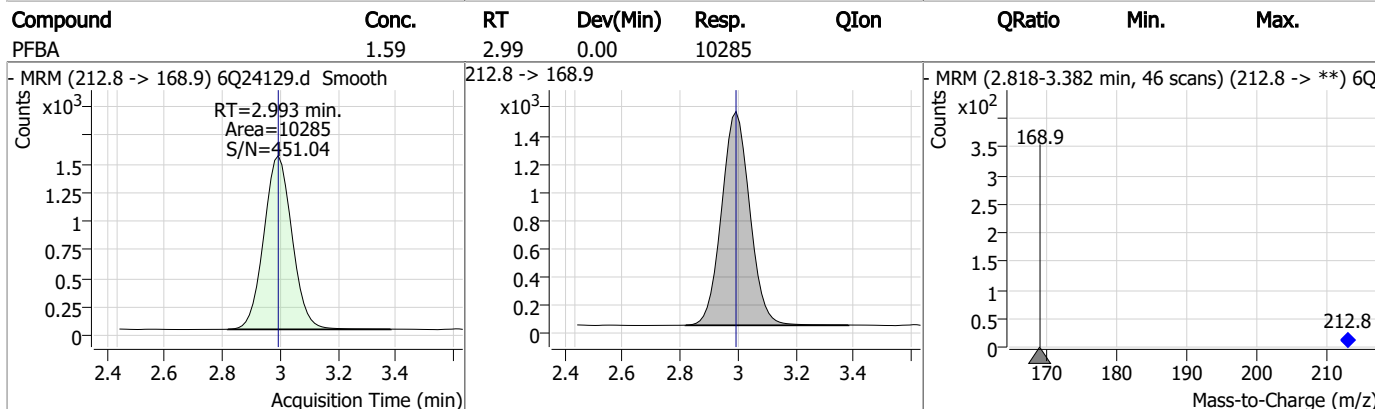
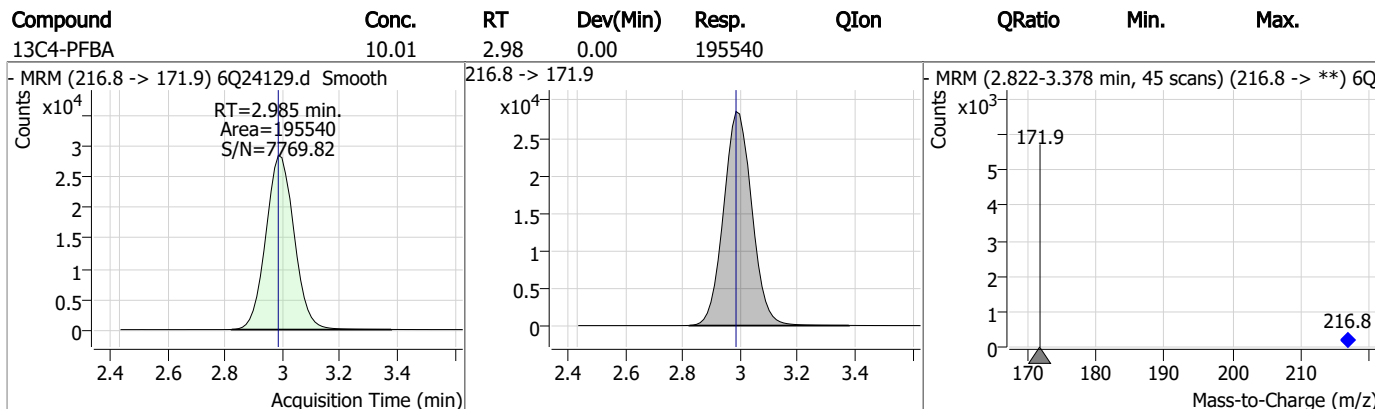
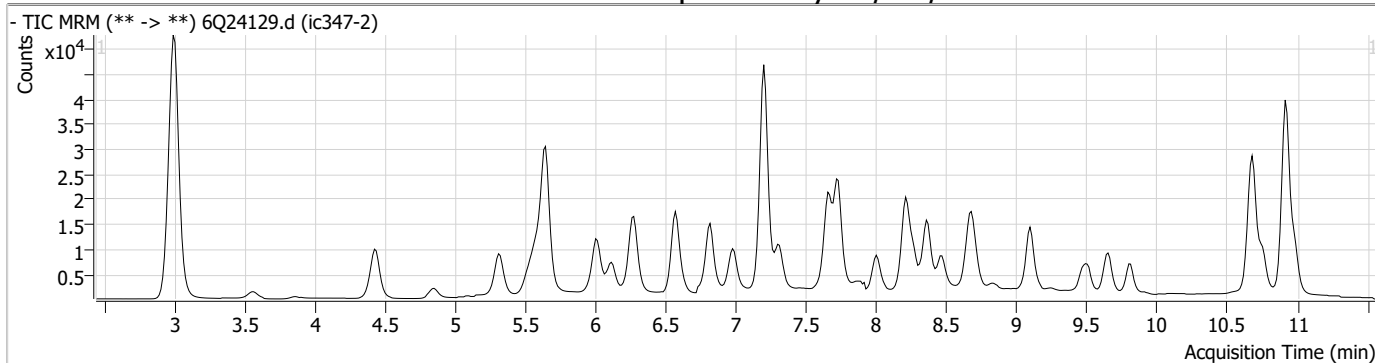
Perfluorinated Compounds by LC/MS/MS

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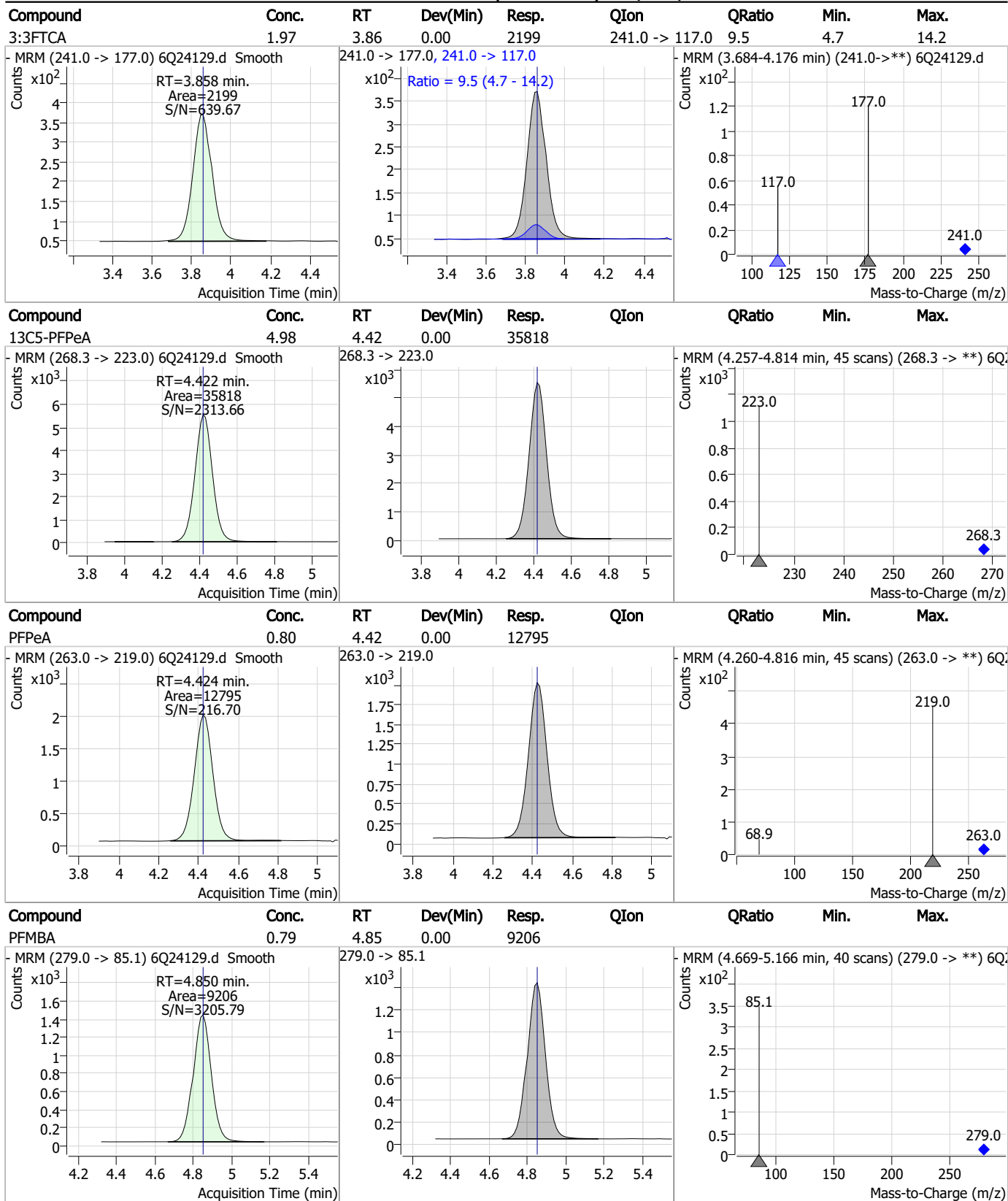
7.7.3

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Perfluorinated Compounds by LC/MS/MS

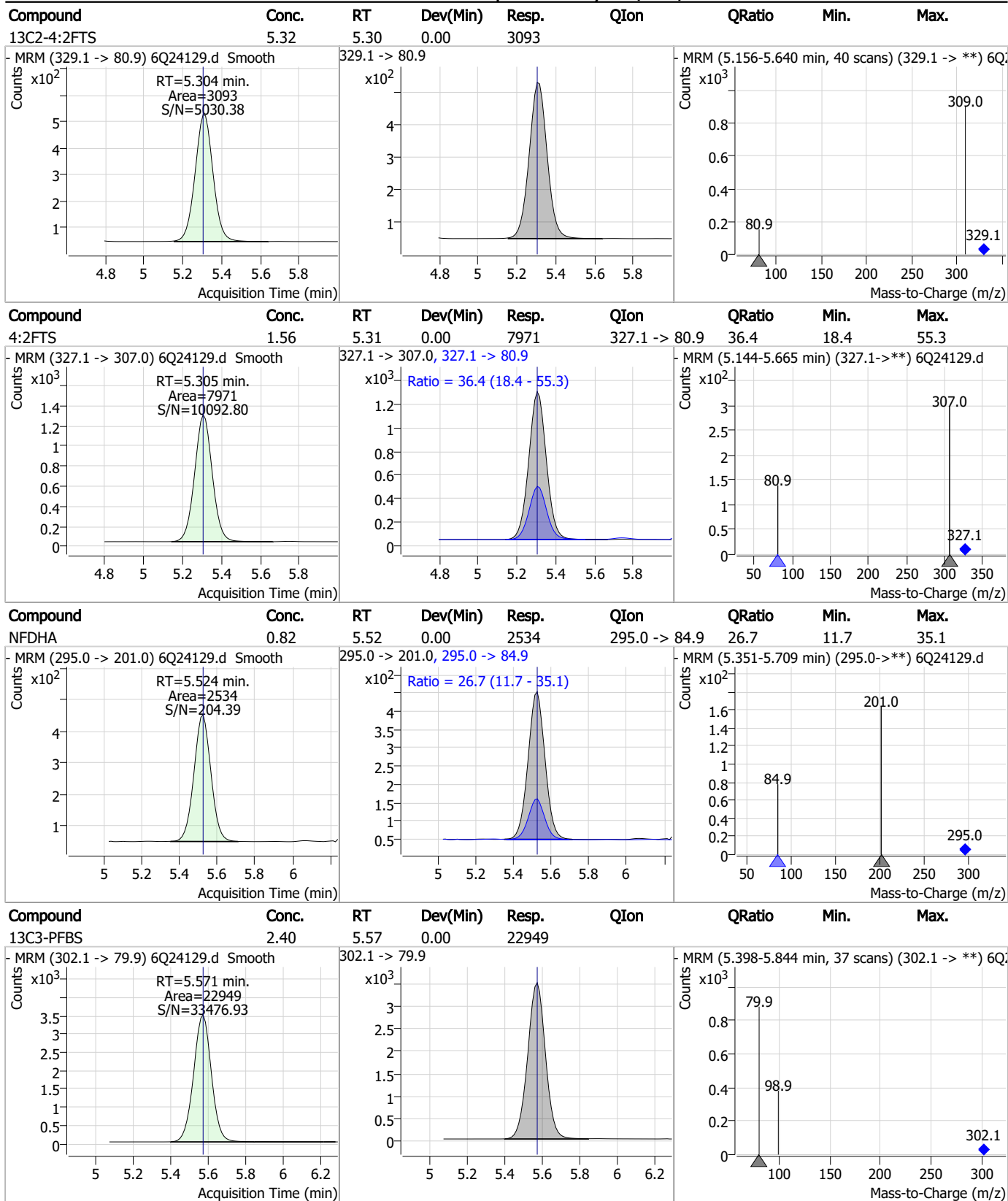


Perfluorinated Compounds by LC/MS/MS



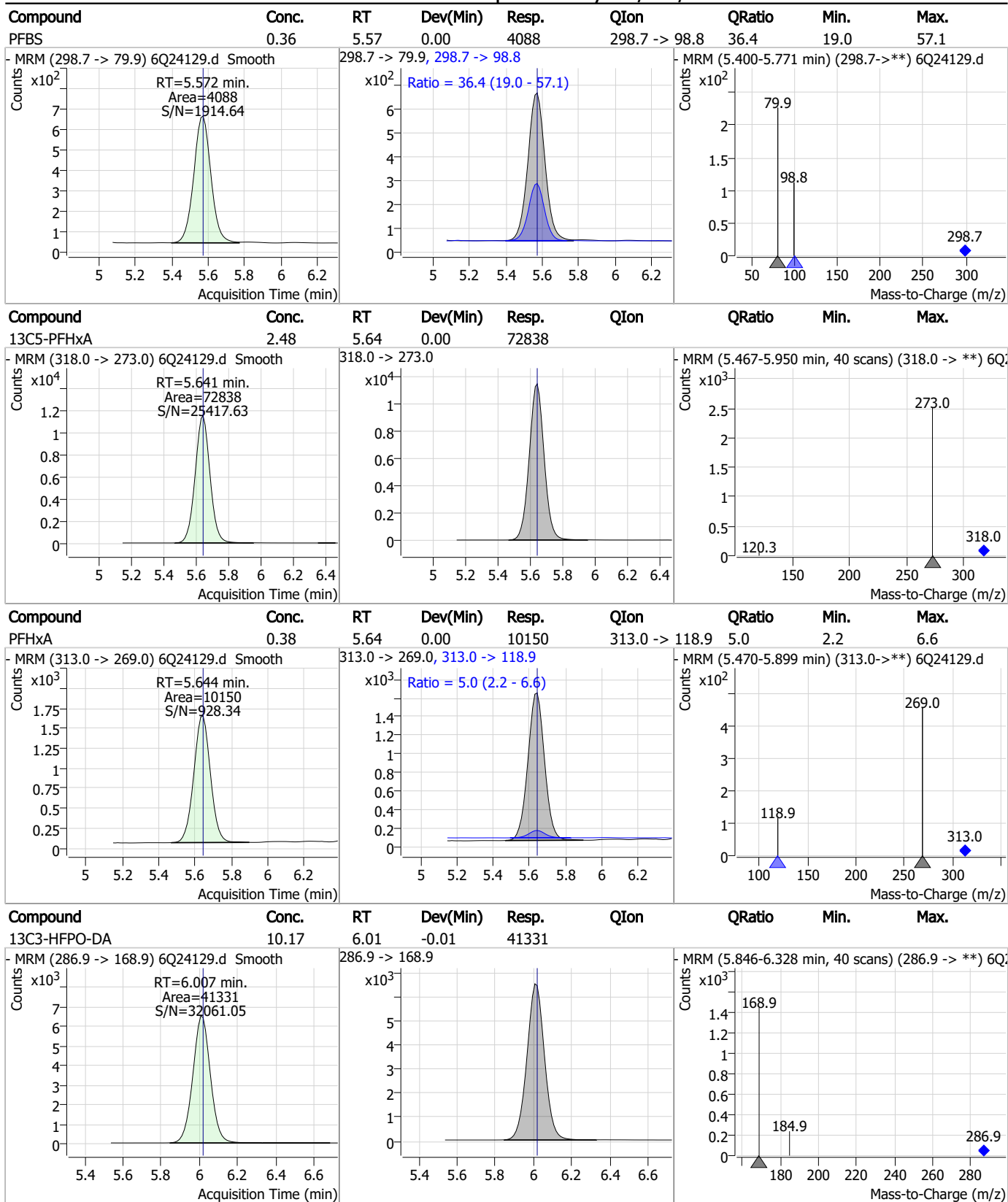
7.7.3
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Perfluorinated Compounds by LC/MS/MS



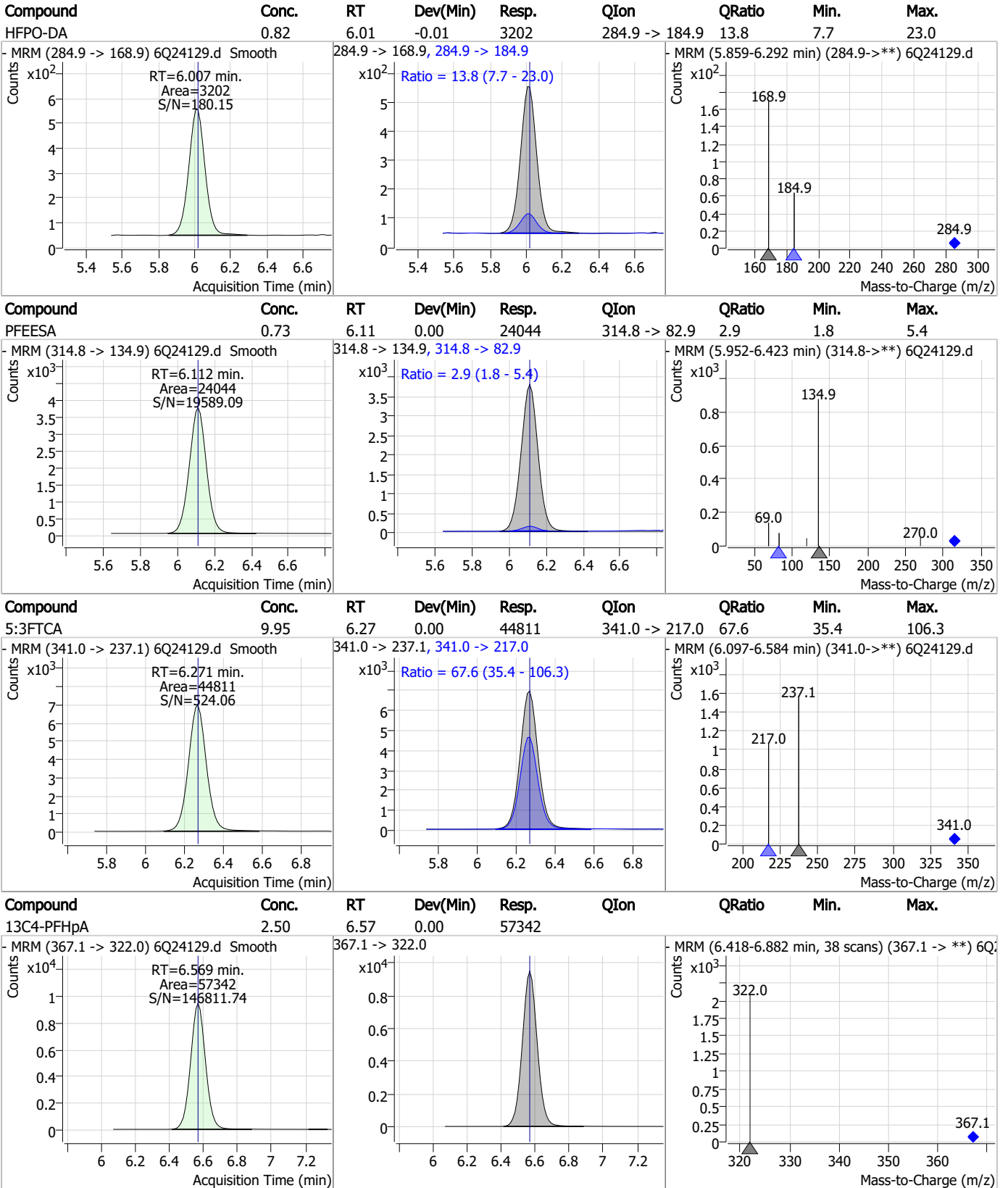
7.7.3
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Perfluorinated Compounds by LC/MS/MS

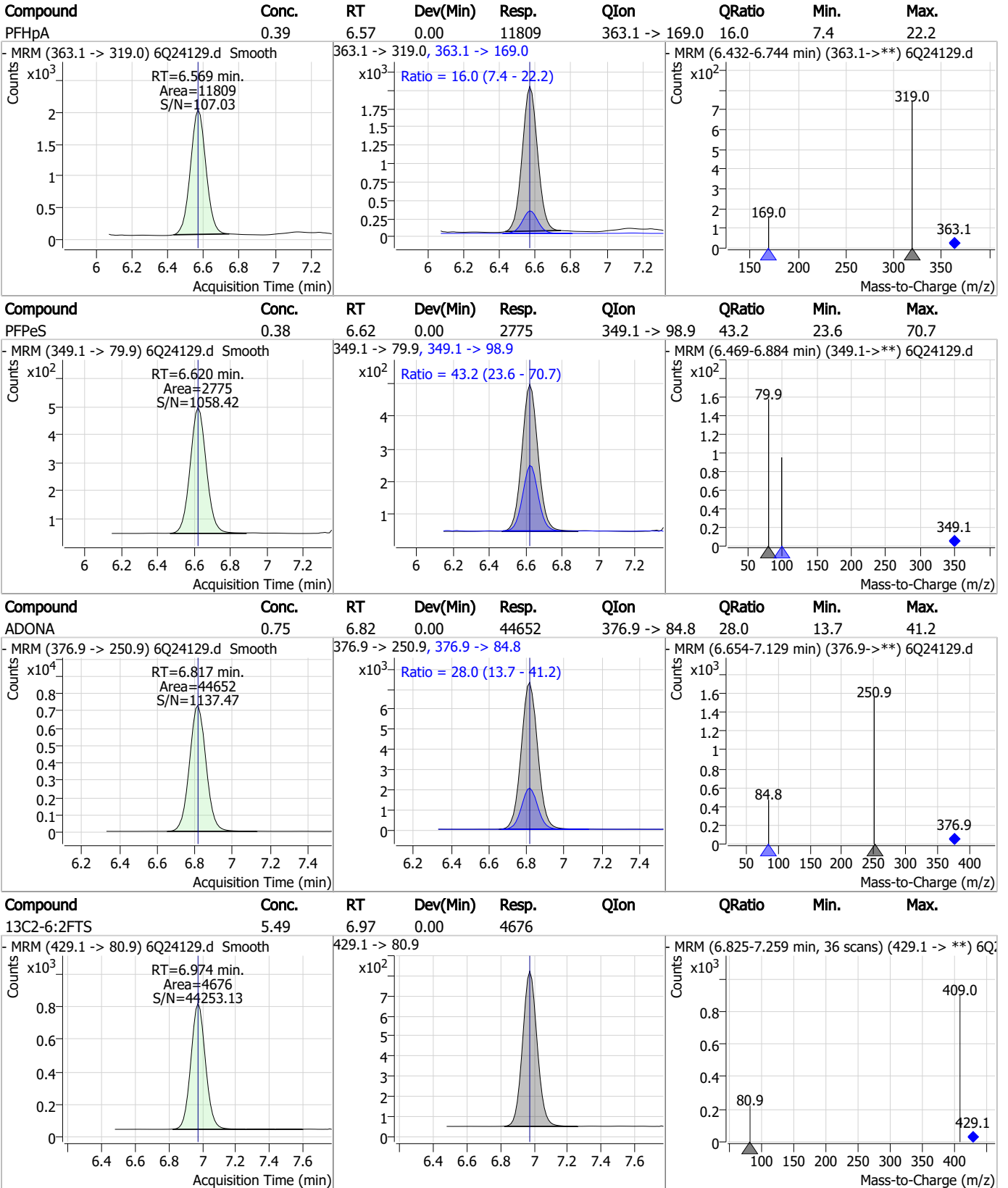


7.7.3
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

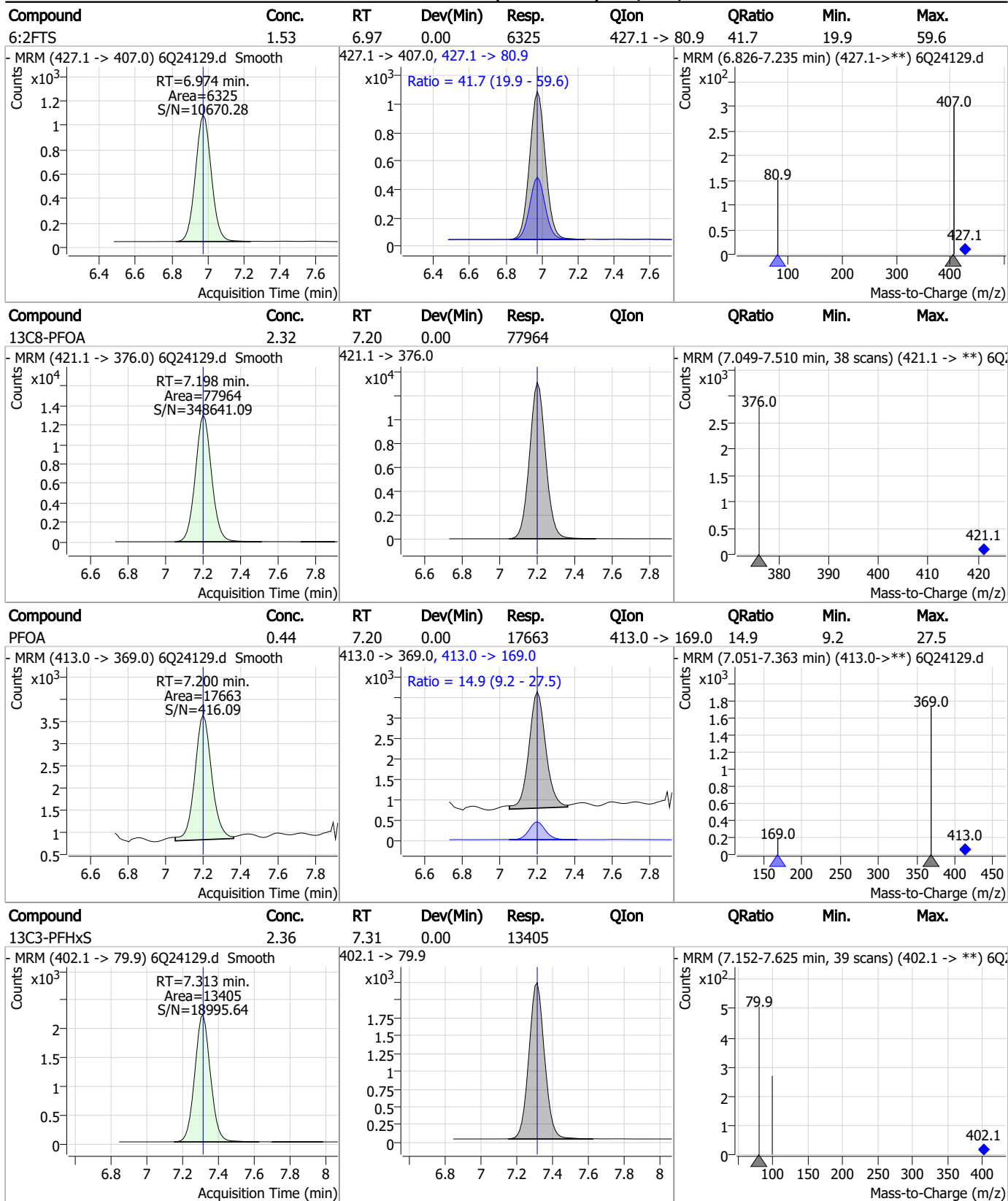


7.7.3

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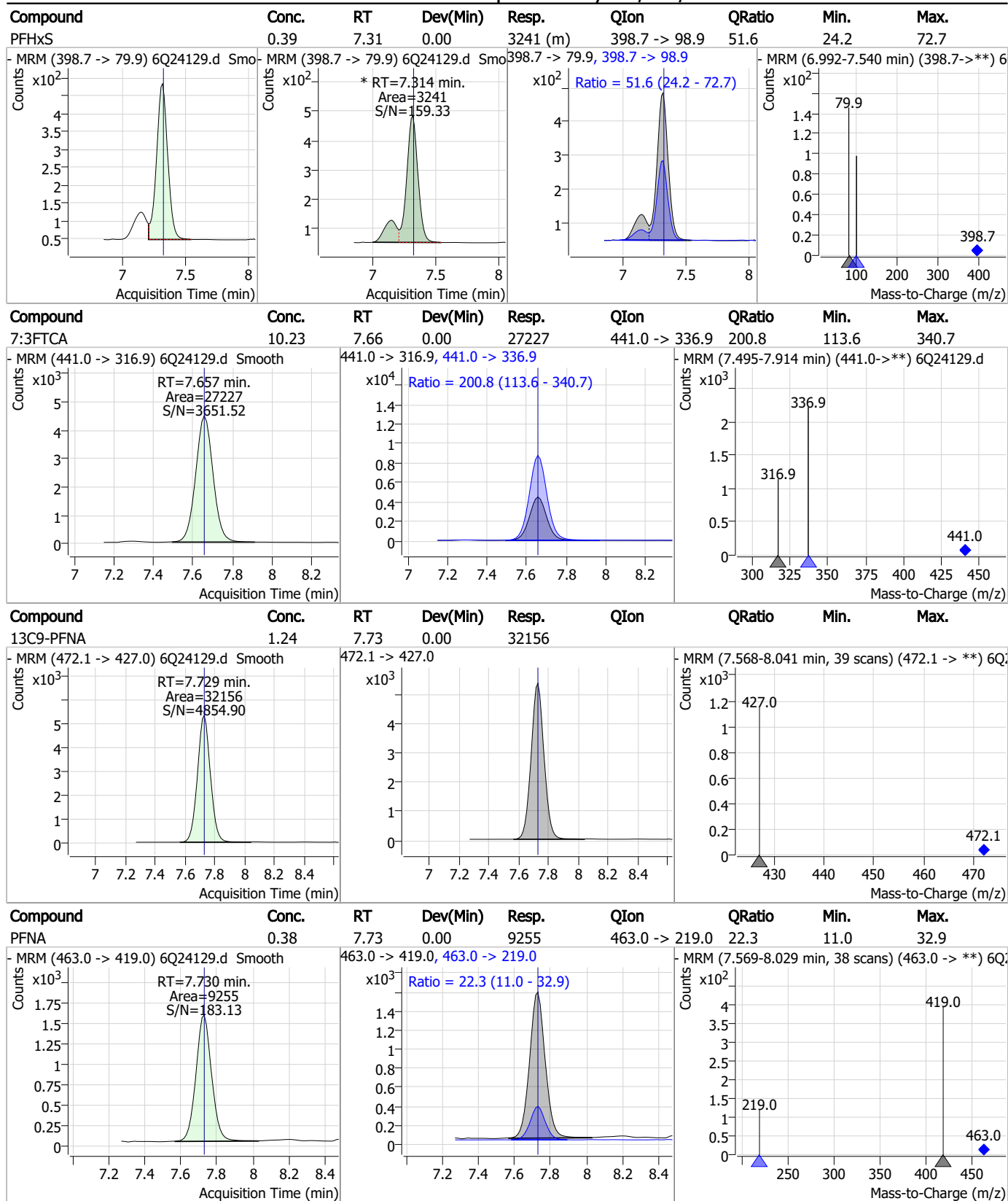
Perfluorinated Compounds by LC/MS/MS



7.7.3

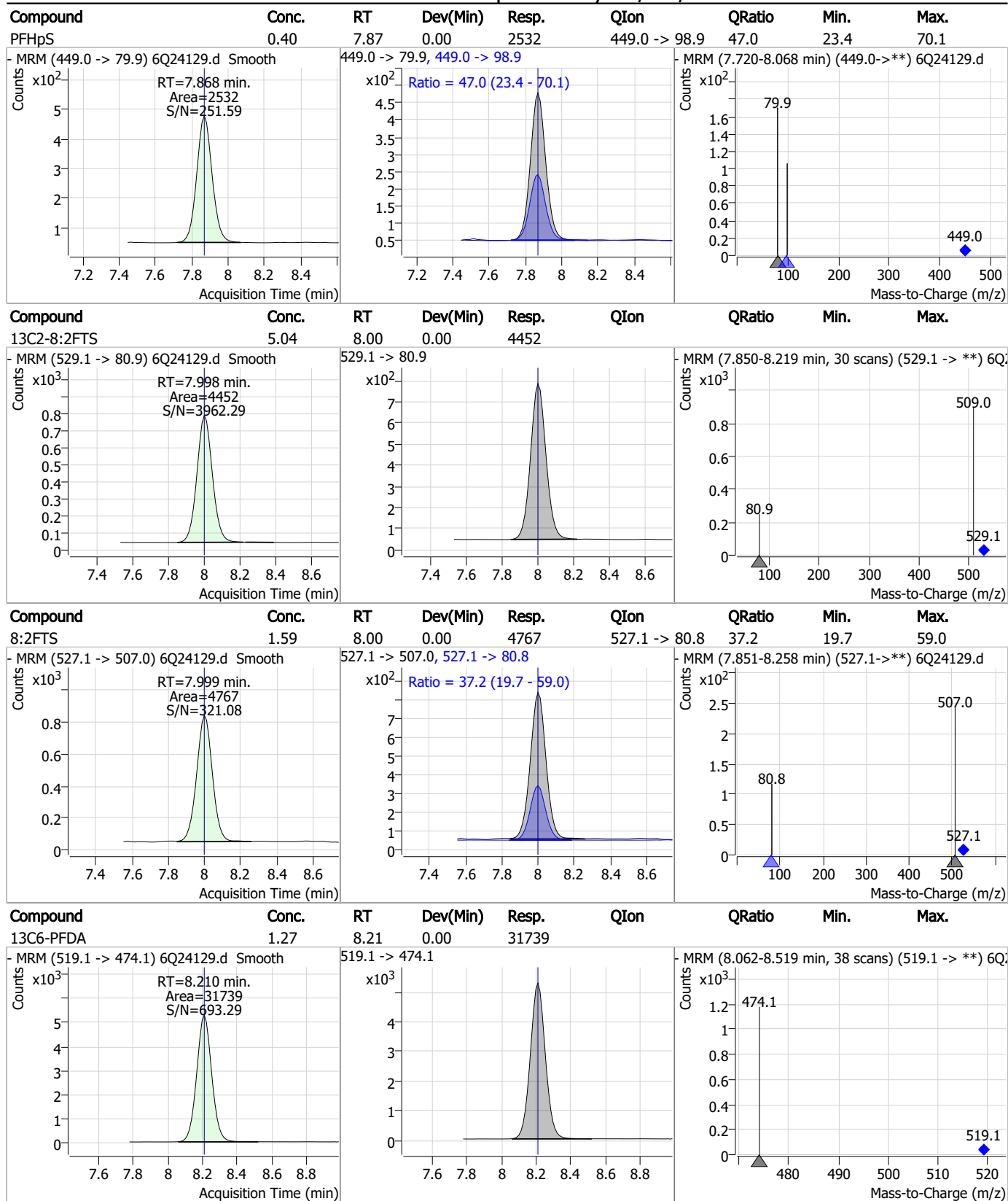
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS

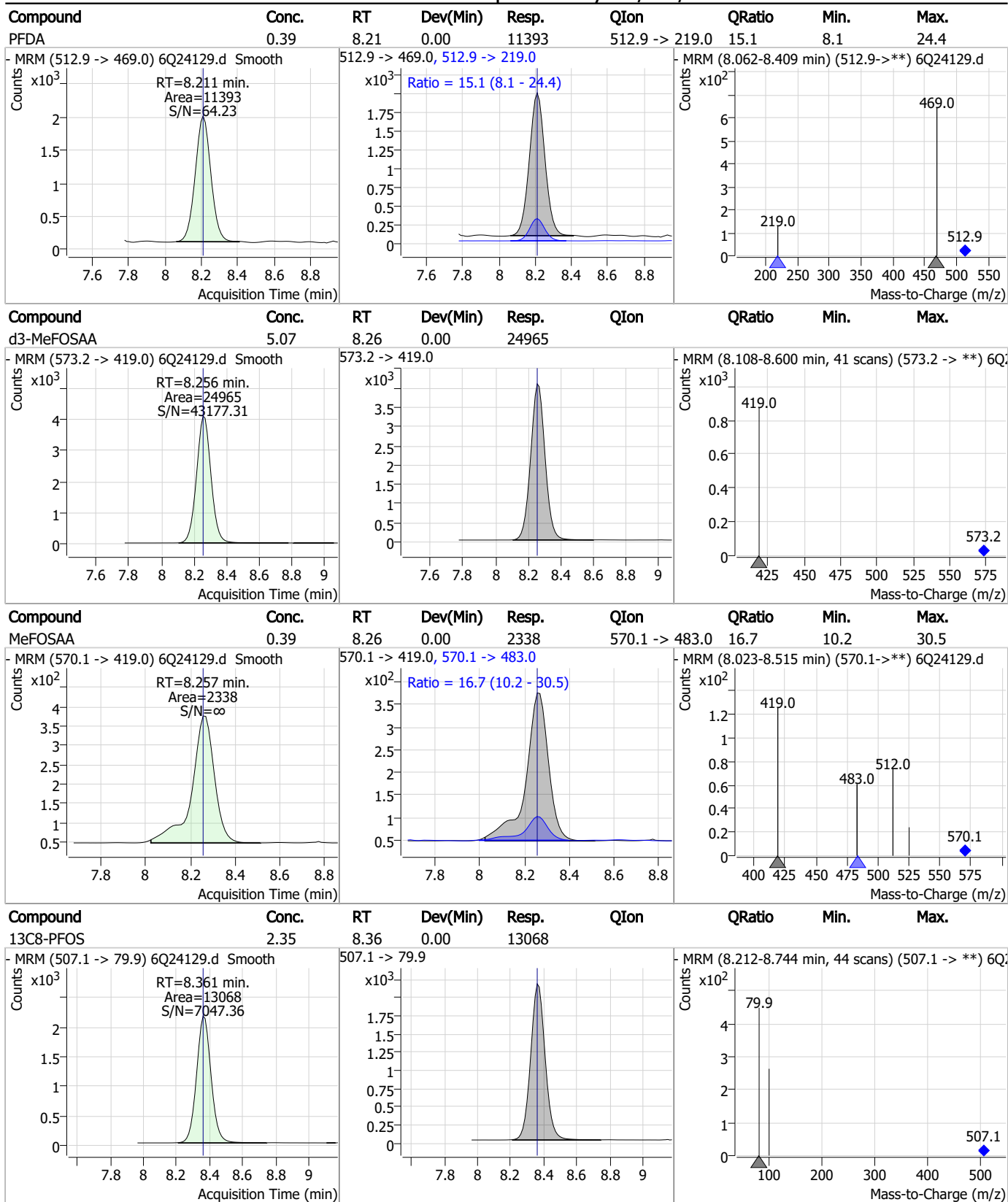


7.7.3

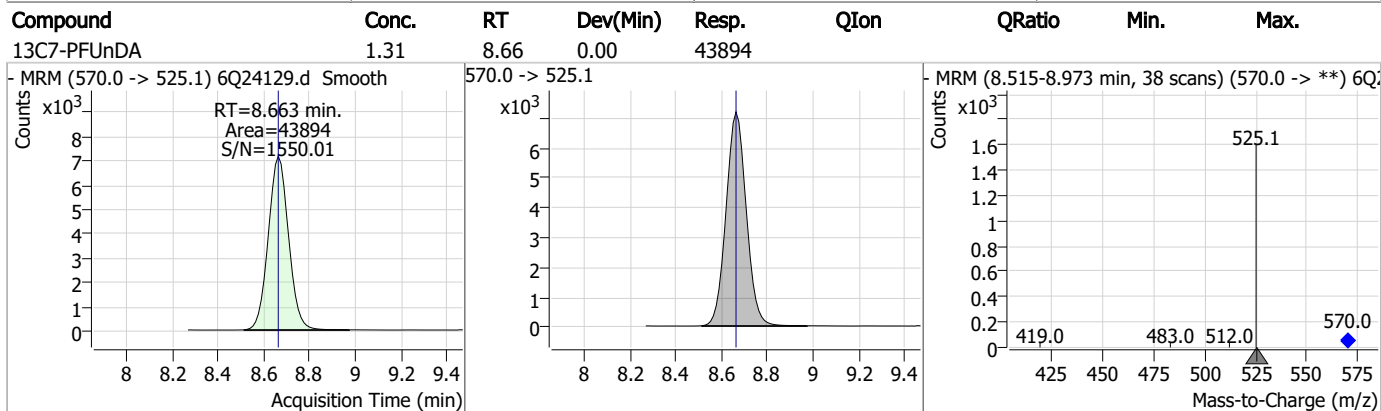
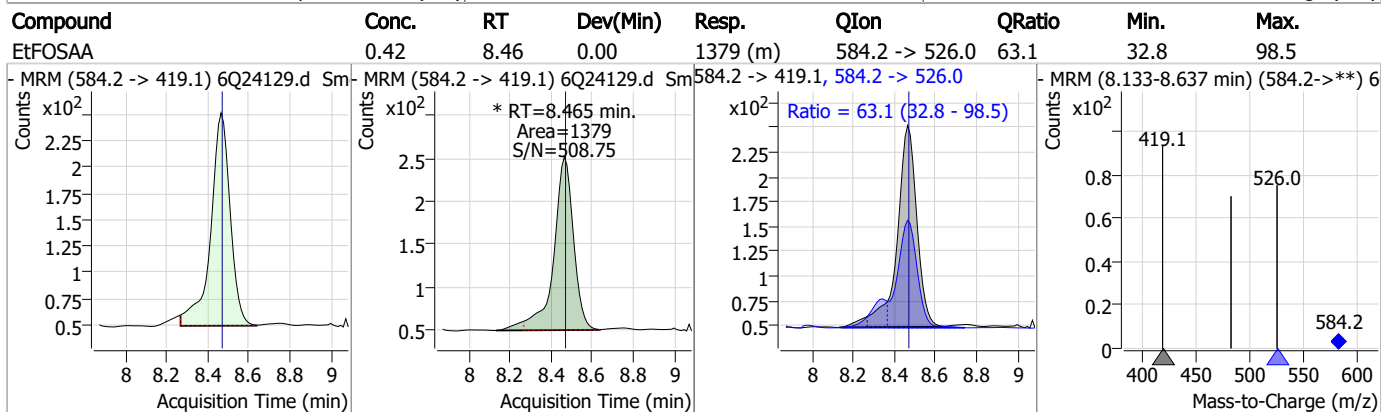
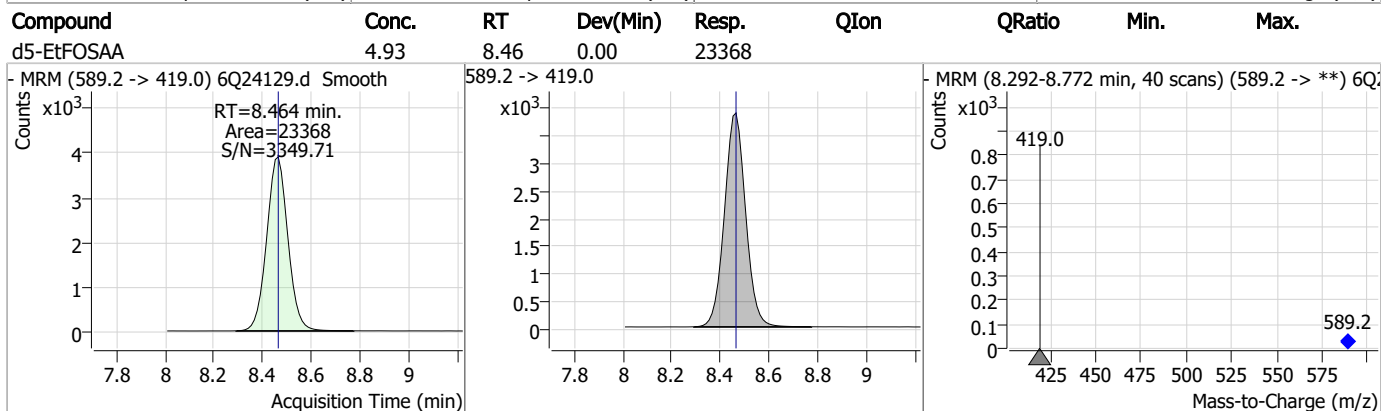
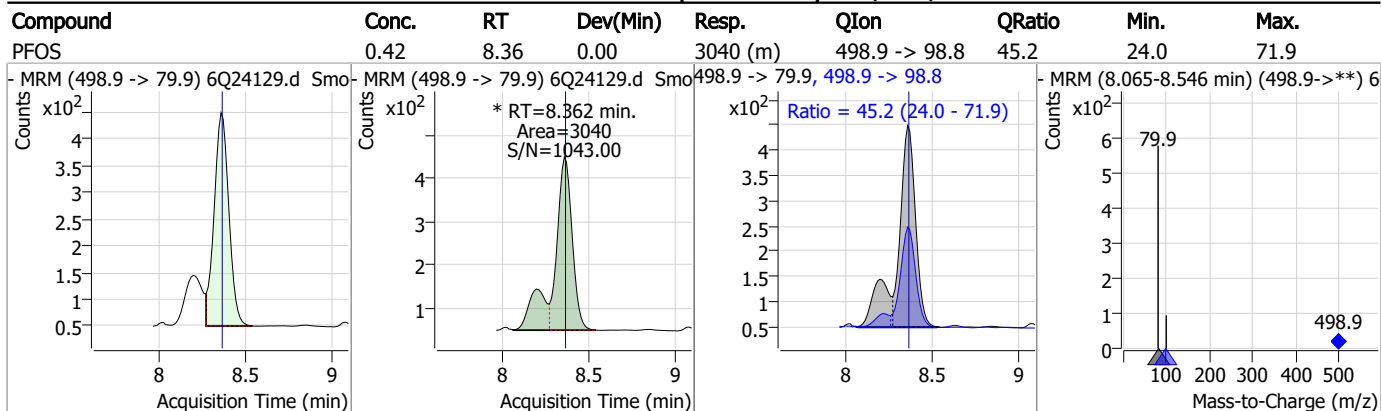
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Perfluorinated Compounds by LC/MS/MS

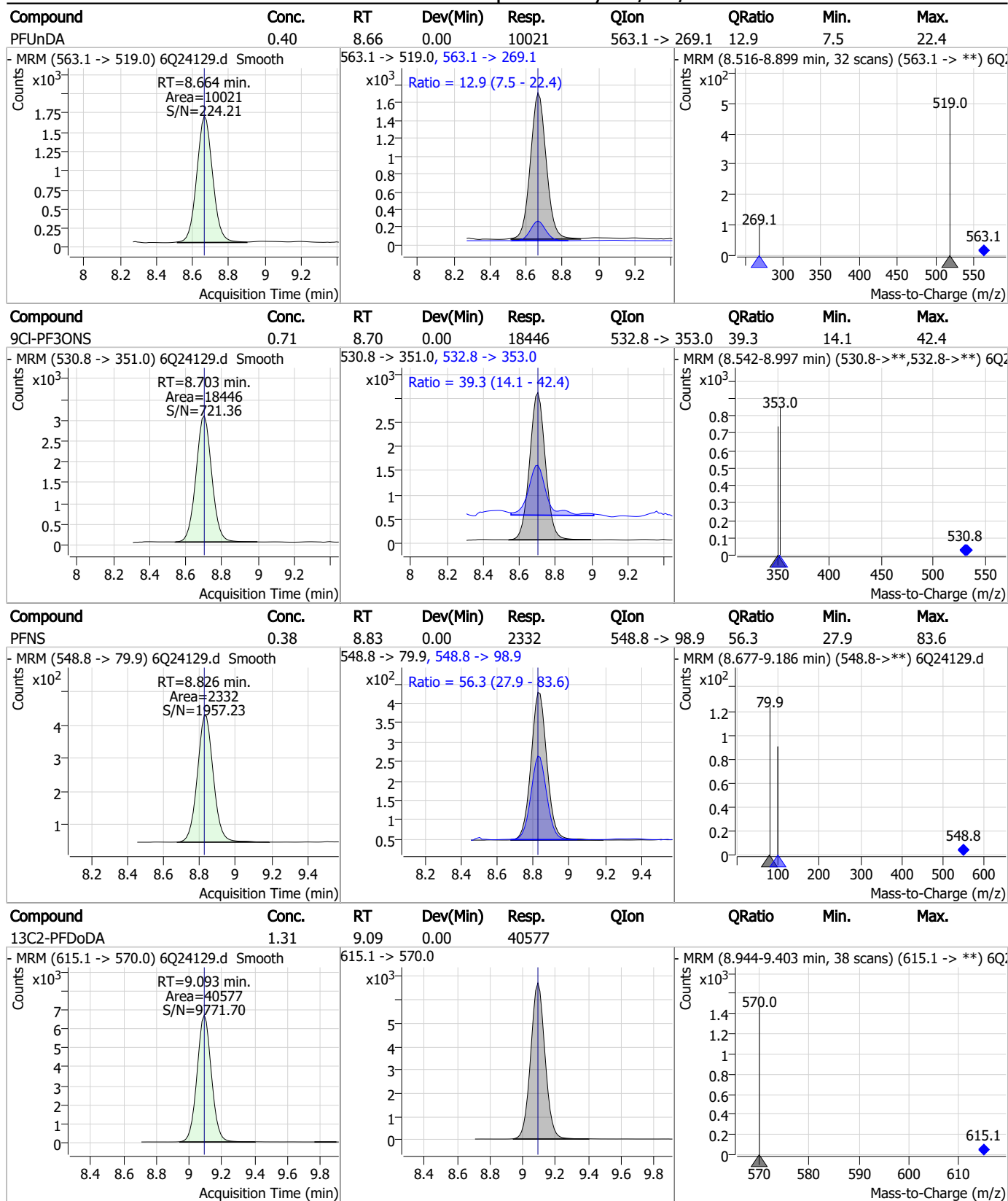


Perfluorinated Compounds by LC/MS/MS



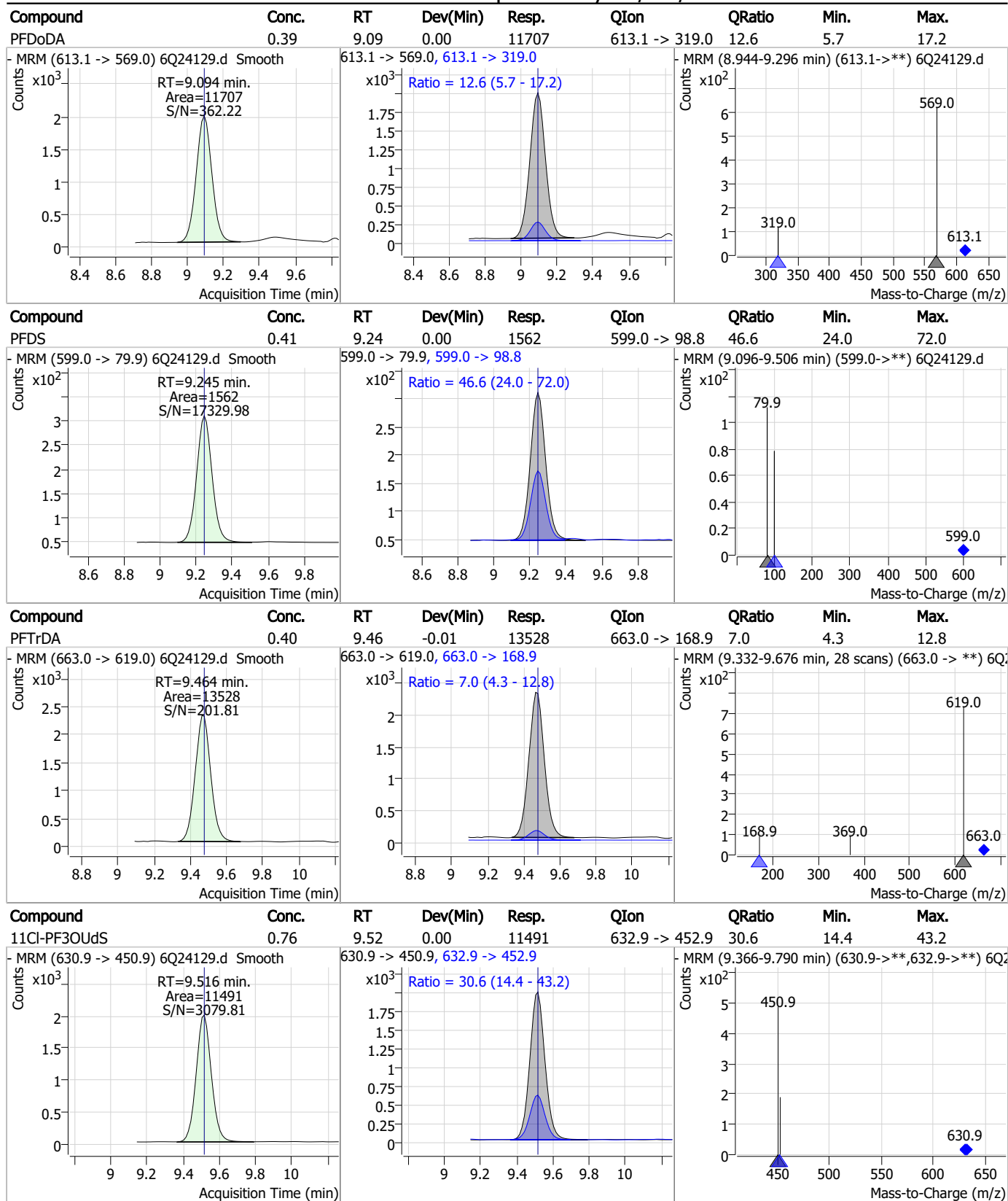
7.7.3
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Perfluorinated Compounds by LC/MS/MS



7.7.3
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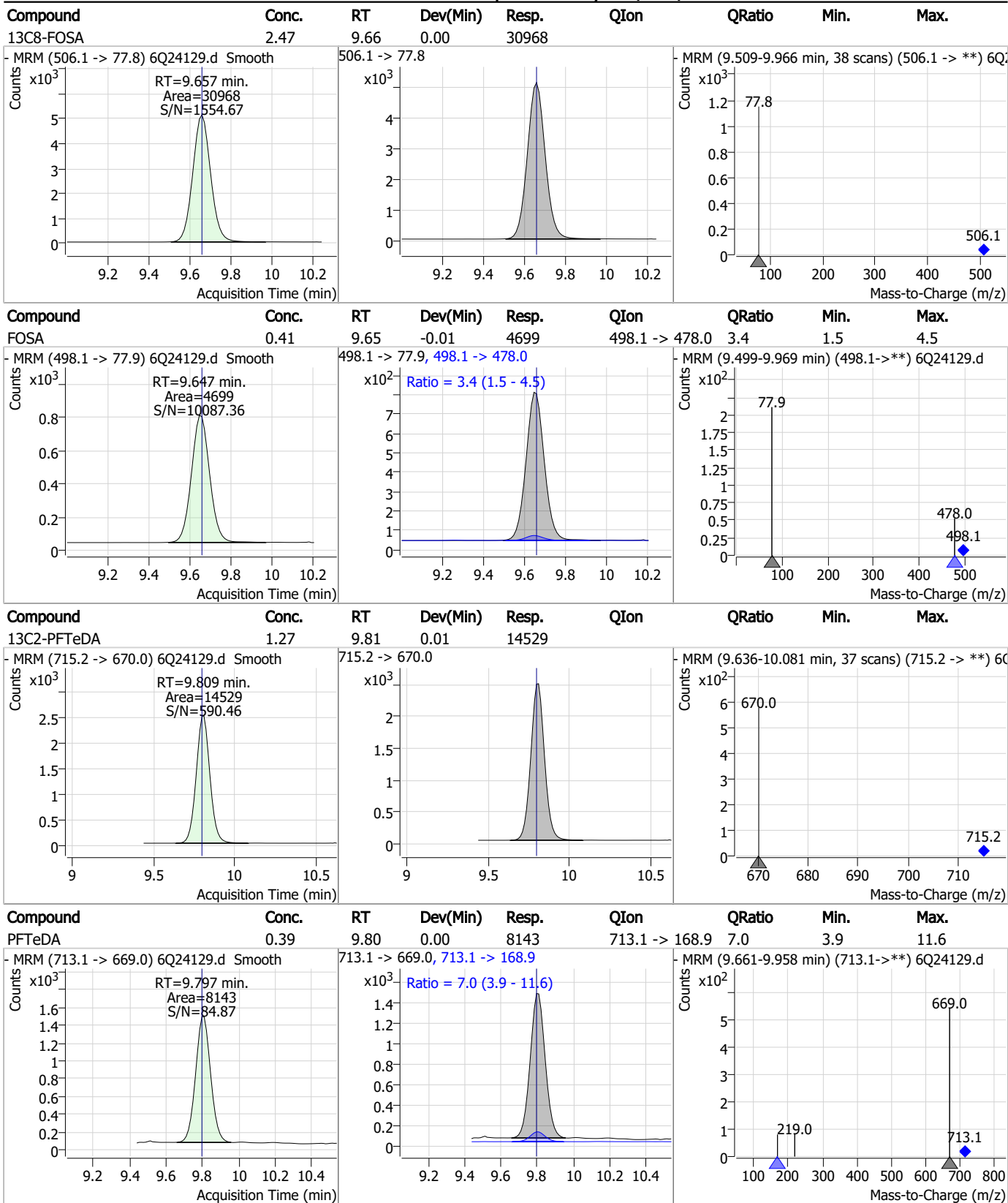
Perfluorinated Compounds by LC/MS/MS



7.7.3

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Perfluorinated Compounds by LC/MS/MS



7.7.3
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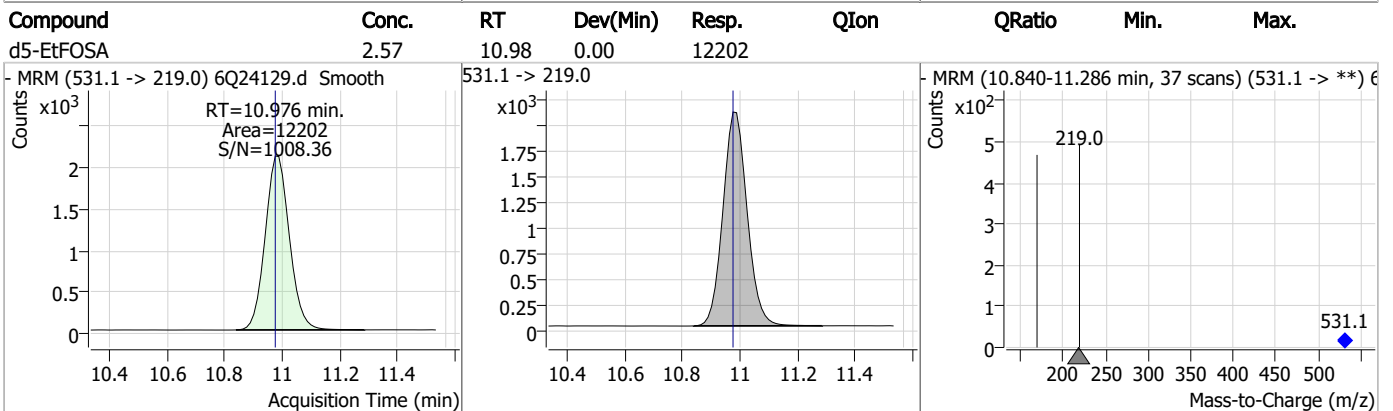
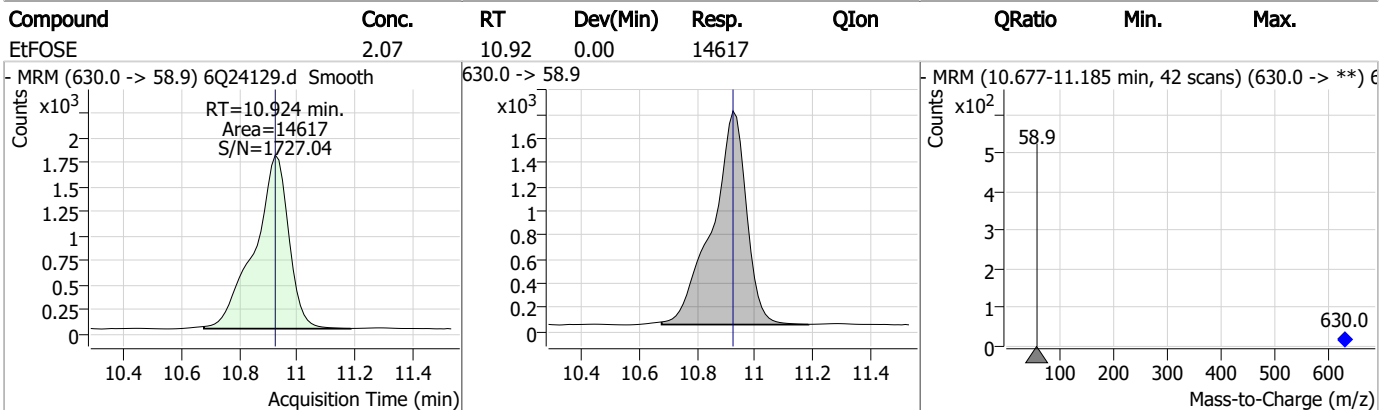
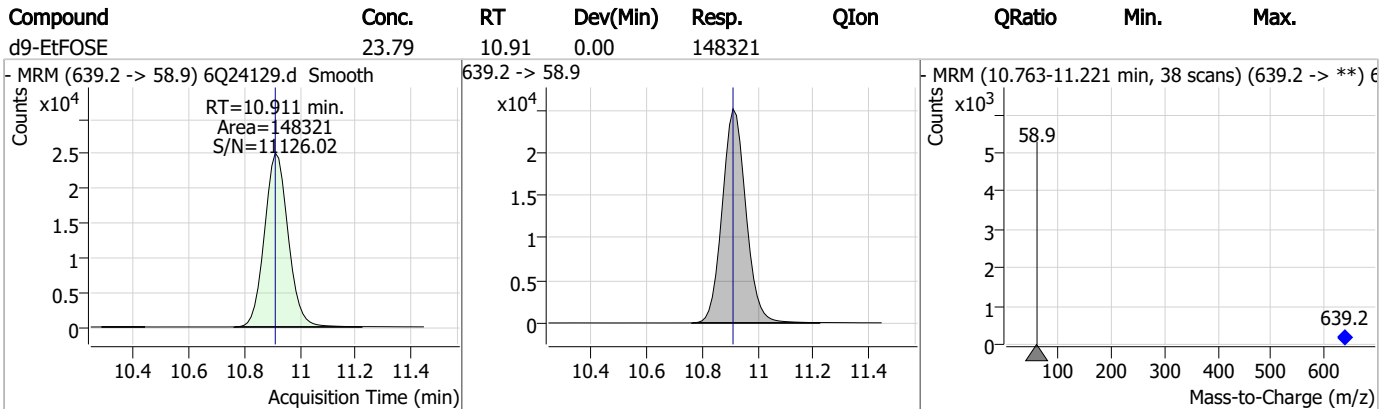
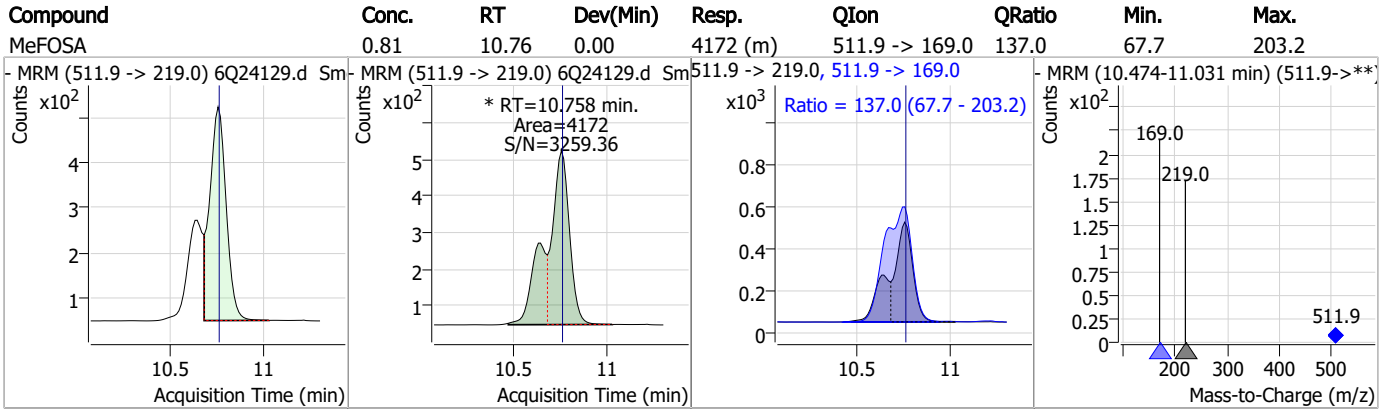
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.41	9.92	0.00	862	699.1 -> 98.8	58.2	28.3	84.8
d7-MeFOSE	24.39	10.68	0.00	112994				
MeFOSE	1.92	10.69	0.00	9359				
d3-MeFOSA	2.39	10.76	0.00	12156				

7.7.3

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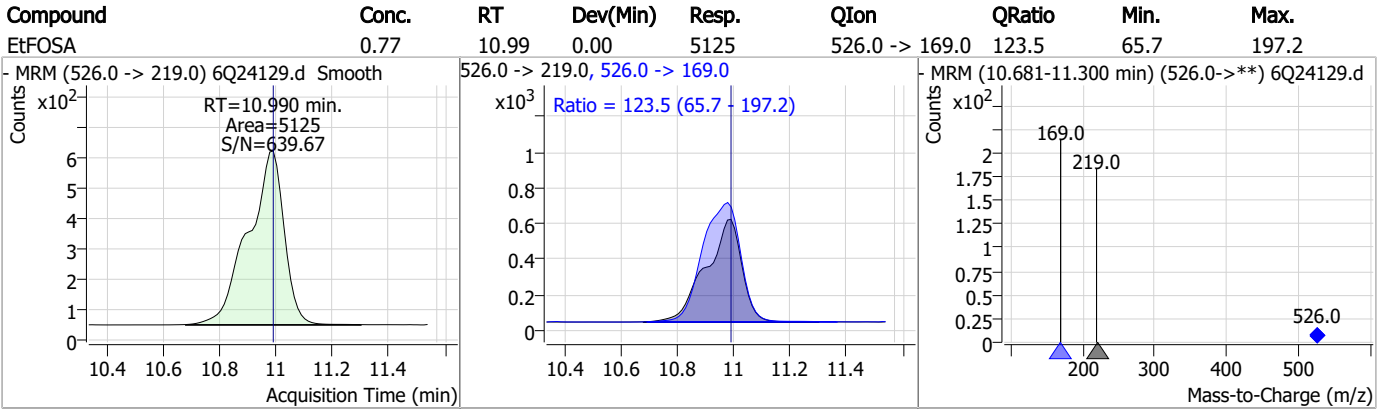
Perfluorinated Compounds by LC/MS/MS



7.7.3

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Perfluorinated Compounds by LC/MS/MS



7.7.3

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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24129.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:00 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24130.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:14:54 PM
 Sample Name : ic347-3
 Vial : P1-A4
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	210847	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	38605	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	78518	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	62493	2.50 µg/L	0.000
M8-PFOA	7.211	421.1 -> 376.0	86000	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	35728	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	34218	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	45496	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	40717	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	15841	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	31766	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	25864	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	15243	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	15484	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3390	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4936	5.00 µg/L	0.000
M2-8:2FTS	8.011	529.1 -> 80.9	4722	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	24060	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	43093	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	23943	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	119426	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	159109	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	12361	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	12466	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17951	2.50 µg/L	0.012
13C3-PFBA	2.989	216.0 -> 172.0	82539	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10970	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	90110	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	31115	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	45638	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	57950	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3390	5.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.8%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4936	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.0%		
13C2-8:2FTS	8.011	529.1 -> 80.9	4722	5.03 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFDoDA	9.093	615.1 -> 570.0	40717	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C2-PFTeDA	9.796	715.2 -> 670.0	15841	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C3-PFBS	5.571	302.1 -> 79.9	25864	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFHxS	7.313	402.1 -> 79.9	15243	2.53 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 = 101.2%		
13C4-PFBA	2.985	216.8 -> 171.9	210847	10.12 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C4-PFHpA	6.569	367.1 -> 322.0	62493	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C5-PFHxA	5.641	318.0 -> 273.0	78518	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C5-PFPeA	4.422	268.3 -> 223.0	38605	4.94 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C6-PFDA	8.210	519.1 -> 474.1	34218	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C7-PFUnDA	8.663	570.0 -> 525.1	45496	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C8-FOSA	9.657	506.1 -> 77.8	31766	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C8-PFOA	7.211	421.1 -> 376.0	86000	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C8-PFOS	8.361	507.1 -> 79.9	15484	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C9-PFNA	7.729	472.1 -> 427.0	35728	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
d3-MeFOSAA	8.268	573.2 -> 419.0	24060	4.79 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	43093	9.76 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.6%		
d3-MeFOSA	10.757	515.0 -> 219.0	12466	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
d5-EtFOSAA	8.464	589.2 -> 419.0	23943	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
d7-MeFOSE	10.678	623.2 -> 58.9	119426	25.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
d9-EtFOSE	10.911	639.2 -> 58.9	159109	25.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
d5-EtFOSA	10.976	531.1 -> 219.0	12361	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%		
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	24796	4.42 µg/L	98
		327.1 -> 80.9	9386		
6:2FTS	6.974	427.1 -> 407.0	20530	4.70 µg/L	96
		427.1 -> 80.9	7666		
8:2FTS	7.999	527.1 -> 507.0	16664	5.23 µg/L	91
		527.1 -> 80.8	5619		
EtFOSAA	8.465	584.2 -> 419.1	4346	1.29 µg/L	m 90
		584.2 -> 526.0	2508		
FOSA	9.660	498.1 -> 77.9	14445	1.24 µg/L	99
		498.1 -> 478.0	458		
MeFOSAA	8.269	570.1 -> 419.0	7418	1.30 µg/L	99
		570.1 -> 483.0	1475		
PFBA	2.993	212.8 -> 168.9	32733	4.70 µg/L	100
PFBS	5.572	298.7 -> 79.9	13147	1.04 µg/L	98
		298.7 -> 98.8	4855		
PFDA	8.211	512.9 -> 469.0	37917	1.22 µg/L	99
		512.9 -> 219.0	6085		
PFDODA	9.094	613.1 -> 569.0	34501	1.14 µg/L	94
		613.1 -> 319.0	4719		
PFDS	9.245	599.0 -> 79.9	4587	1.02 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2234			
PFHpA	6.569	363.1 -> 319.0	38992	1.18	µg/L	98
		363.1 -> 169.0	6034			
PFHpS	7.868	449.0 -> 79.9	8164	1.09	µg/L	97
		449.0 -> 98.9	3664			
PFHxA	5.644	313.0 -> 269.0	35338	1.24	µg/L	99
		313.0 -> 118.9	1424			
PFHxS	7.314	398.7 -> 79.9	10807	1.13	µg/L	m 91
		398.7 -> 98.9	4546			
PFNA	7.730	463.0 -> 419.0	30839	1.14	µg/L	93
		463.0 -> 219.0	7781			
PFNS	8.826	548.8 -> 79.9	7867	1.08	µg/L	97
		548.8 -> 98.9	4206			
PFOA	7.212	413.0 -> 369.0	54134	1.22	µg/L	95
		413.0 -> 169.0	8823			
PFOS	8.374	498.9 -> 79.9	8989	1.05	µg/L	m 95
		498.9 -> 98.8	4013			
PFPeA	4.424	263.0 -> 219.0	41423	2.41	µg/L	100
PFPeS	6.633	349.1 -> 79.9	8746	1.05	µg/L	98
		349.1 -> 98.9	4262			
PFTeDA	9.797	713.1 -> 669.0	26490	1.16	µg/L	100
		713.1 -> 168.9	2019			
PFTrDA	9.464	663.0 -> 619.0	43038	1.25	µg/L	100
		663.0 -> 168.9	3698			
PFUnDA	8.664	563.1 -> 519.0	32476	1.25	µg/L	98
		563.1 -> 269.1	4563			
11CI-PF3OUdS	9.516	630.9 -> 450.9	36653	2.33	µg/L	93
		632.9 -> 452.9	11898			
9CI-PF3ONS	8.703	530.8 -> 351.0	60202	2.23	µg/L	92
		532.8 -> 353.0	19669			
ADONA	6.817	376.9 -> 250.9	145989	2.34	µg/L	97
		376.9 -> 84.8	37493			
HFPO-DA	6.020	284.9 -> 168.9	9936	2.44	µg/L	97
		284.9 -> 184.9	1412			
3:3FTCA	3.858	241.0 -> 177.0	6850	5.68	µg/L	99
		241.0 -> 117.0	628			
5:3FTCA	6.271	341.0 -> 237.1	147003	30.28	µg/L	98
		341.0 -> 217.0	101346			
7:3FTCA	7.657	441.0 -> 316.9	86477	30.14	µg/L	90
		441.0 -> 336.9	181583			
EtFOSA	10.978	526.0 -> 219.0	15937	2.37	µg/L	96
		526.0 -> 169.0	20251			
EtFOSE	10.924	630.0 -> 58.9	47560	6.29	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	13418	2.54	µg/L	m 98
		511.9 -> 169.0	18460			
MeFOSE	10.691	616.1 -> 58.9	31854	6.17	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	2805	1.13	µg/L	89
		699.1 -> 98.8	1352			
NFDHA	5.524	295.0 -> 201.0	8068	2.44	µg/L	94
		295.0 -> 84.9	2132			
PFMBA	4.850	279.0 -> 85.1	30048	2.40	µg/L	100
PFMPA	3.551	229.0 -> 84.9	21315	2.37	µg/L	100
PFEESA	6.112	314.8 -> 134.9	76933	2.15	µg/L	100
		314.8 -> 82.9	2820			

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

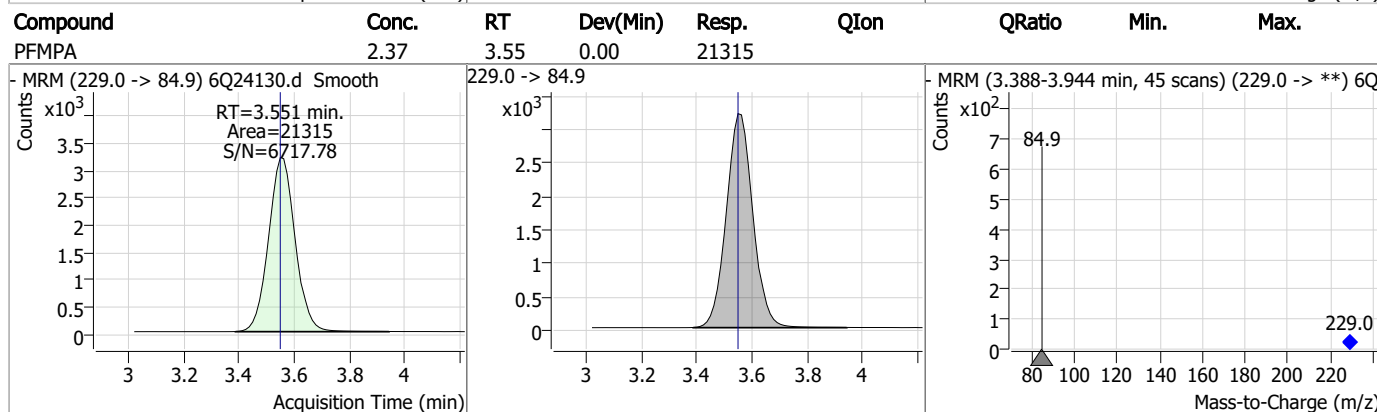
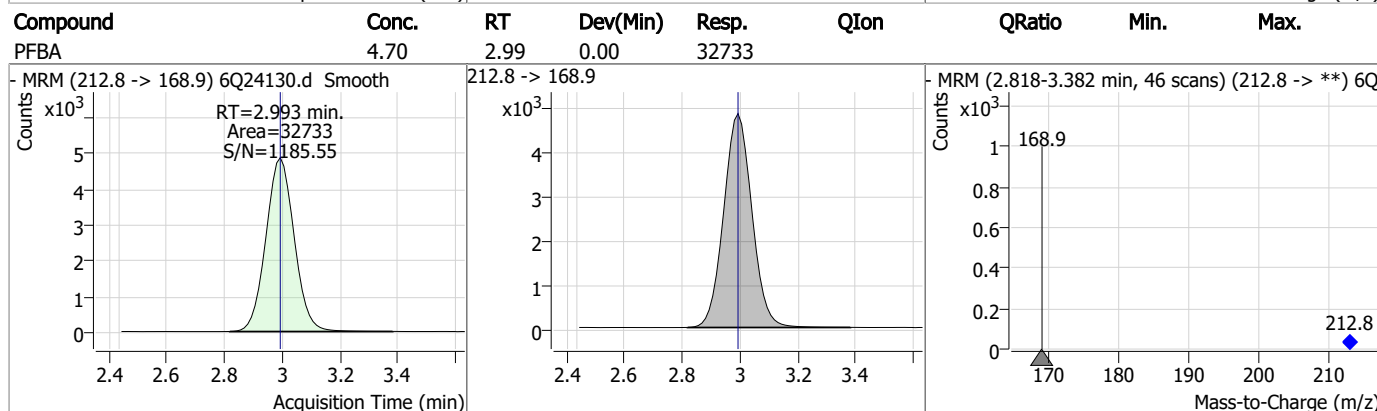
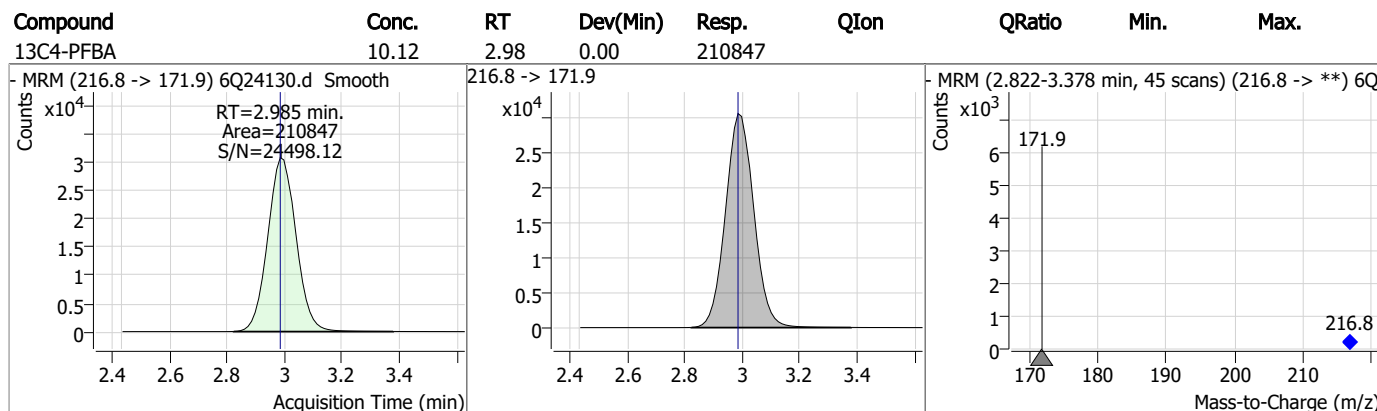
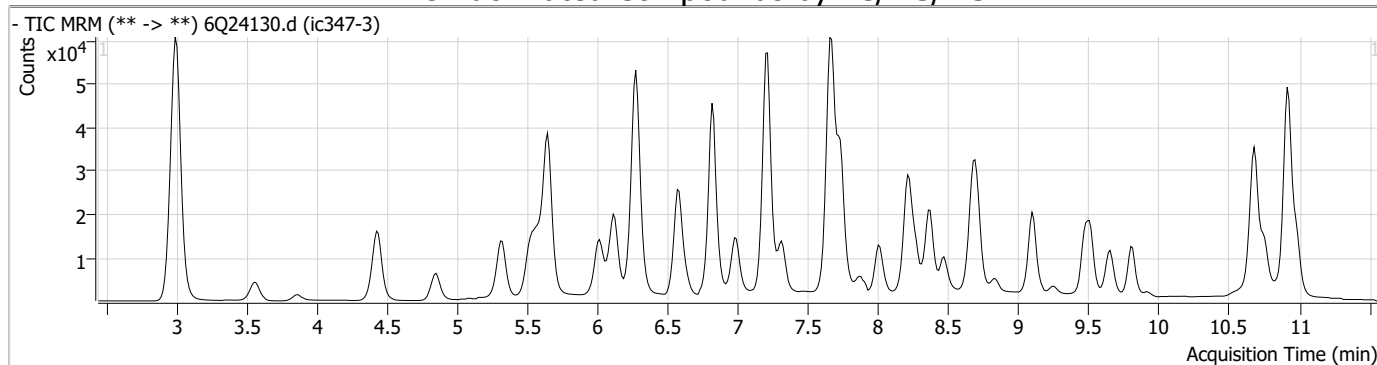
Perfluorinated Compounds by LC/MS/MS

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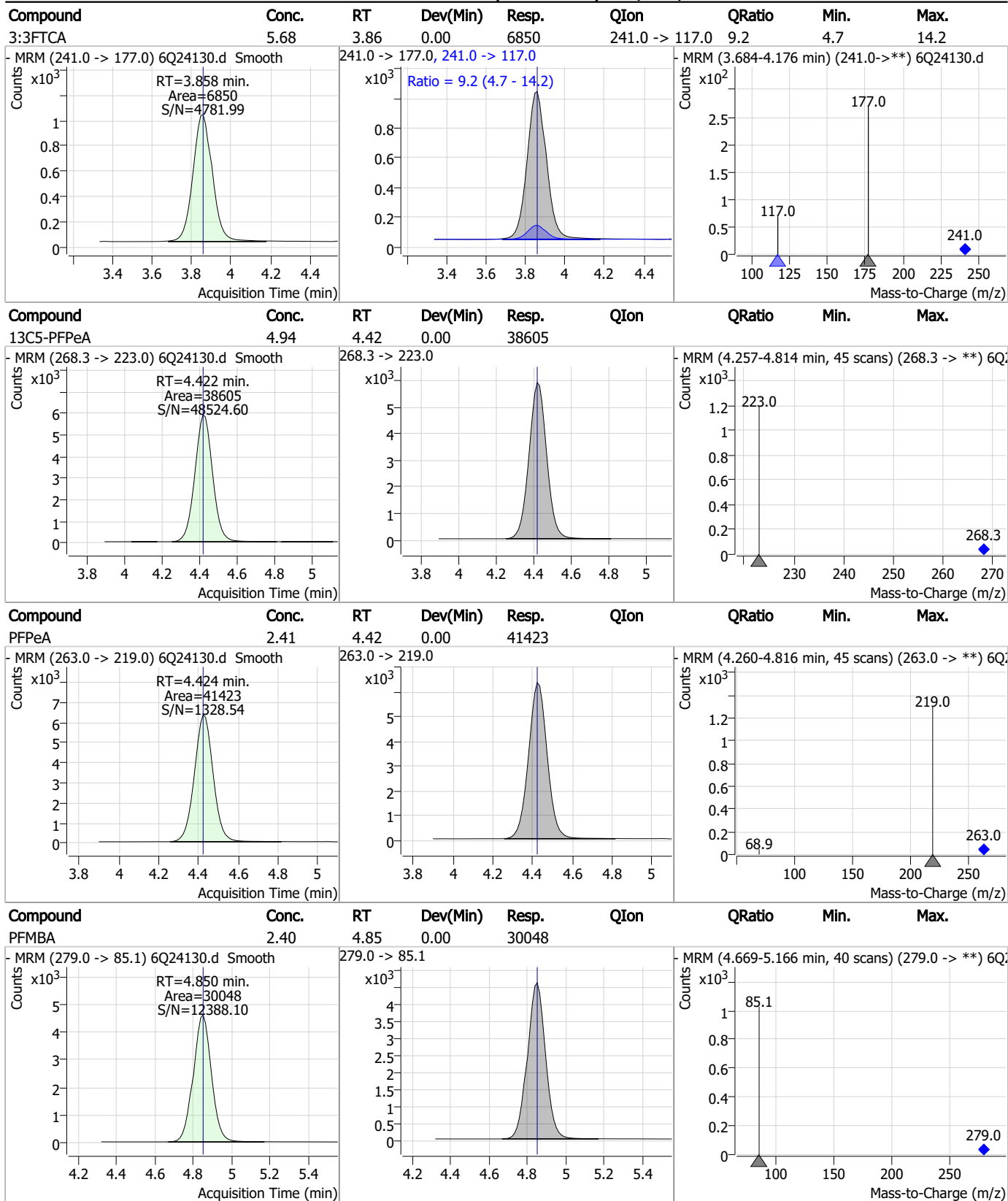
7.7.4

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Perfluorinated Compounds by LC/MS/MS

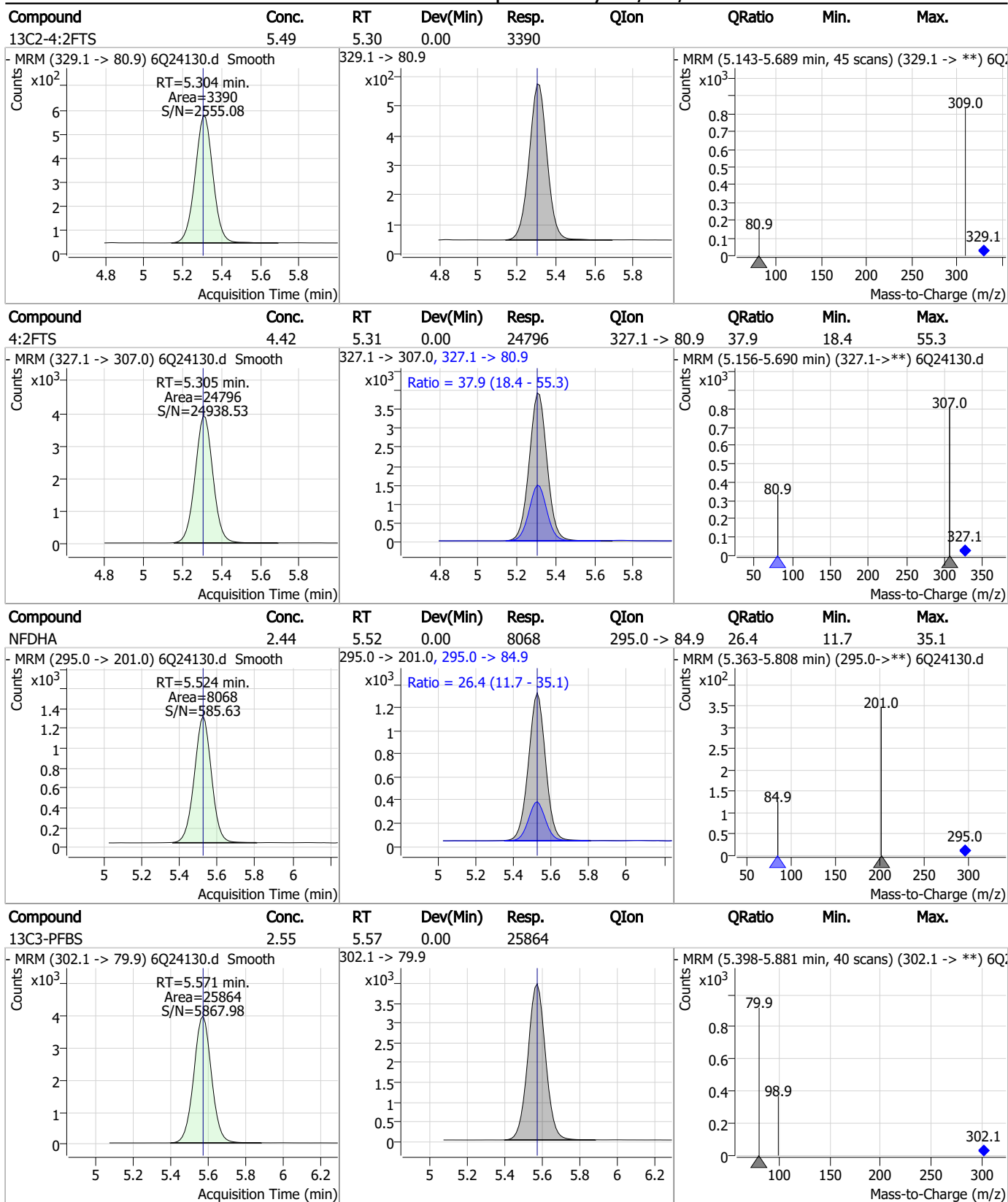


Perfluorinated Compounds by LC/MS/MS



7.7.4
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Perfluorinated Compounds by LC/MS/MS

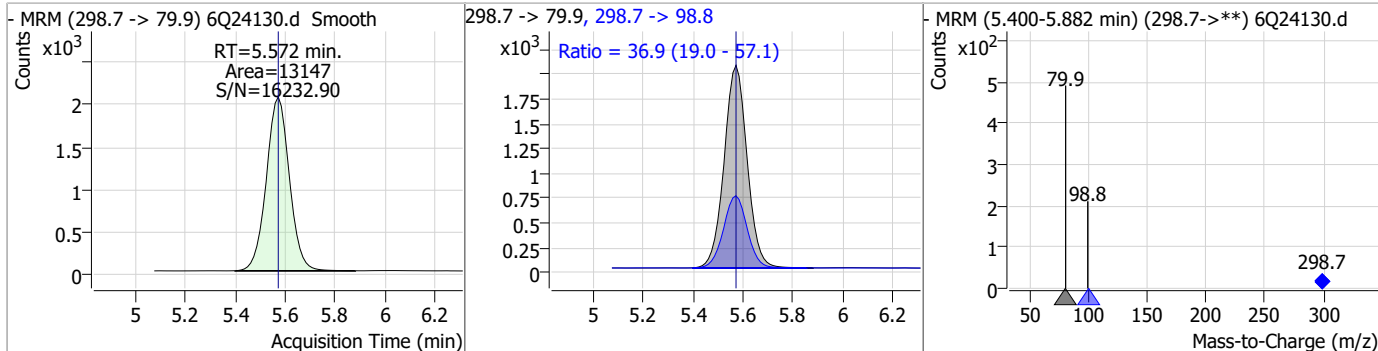


7.7.4

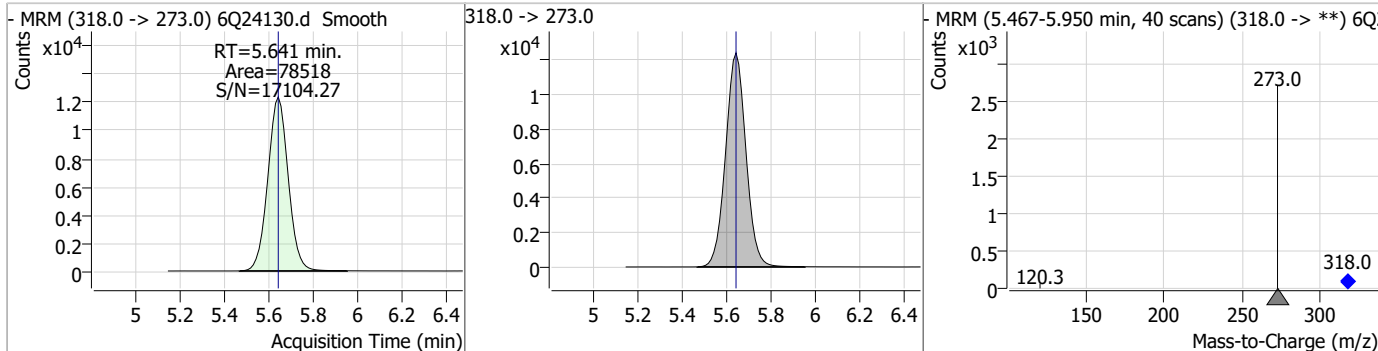
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Perfluorinated Compounds by LC/MS/MS

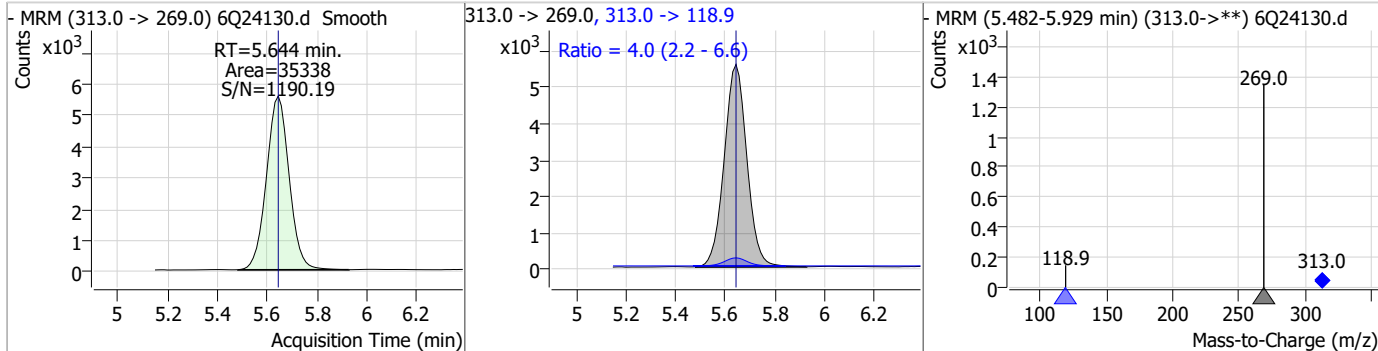
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.04	5.57	0.00	13147	298.7 -> 98.8	36.9	19.0	57.1



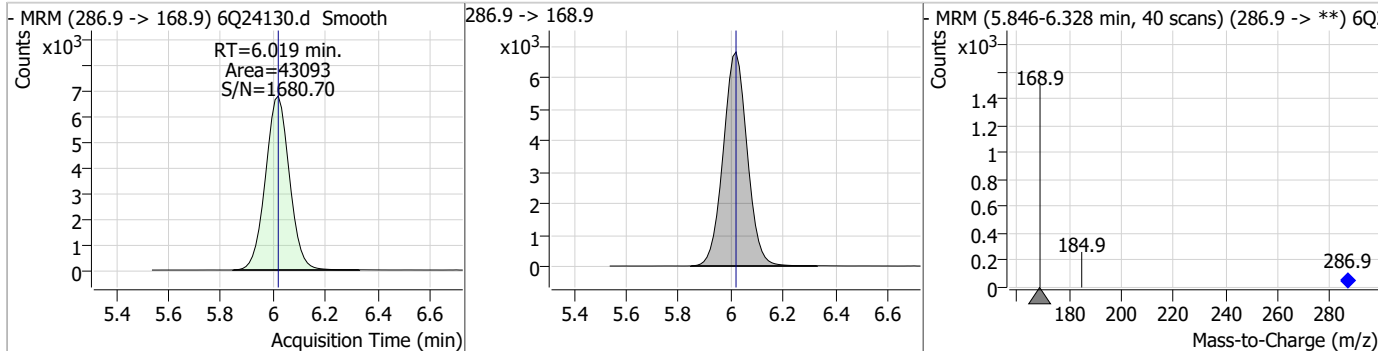
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.64	0.00	78518				



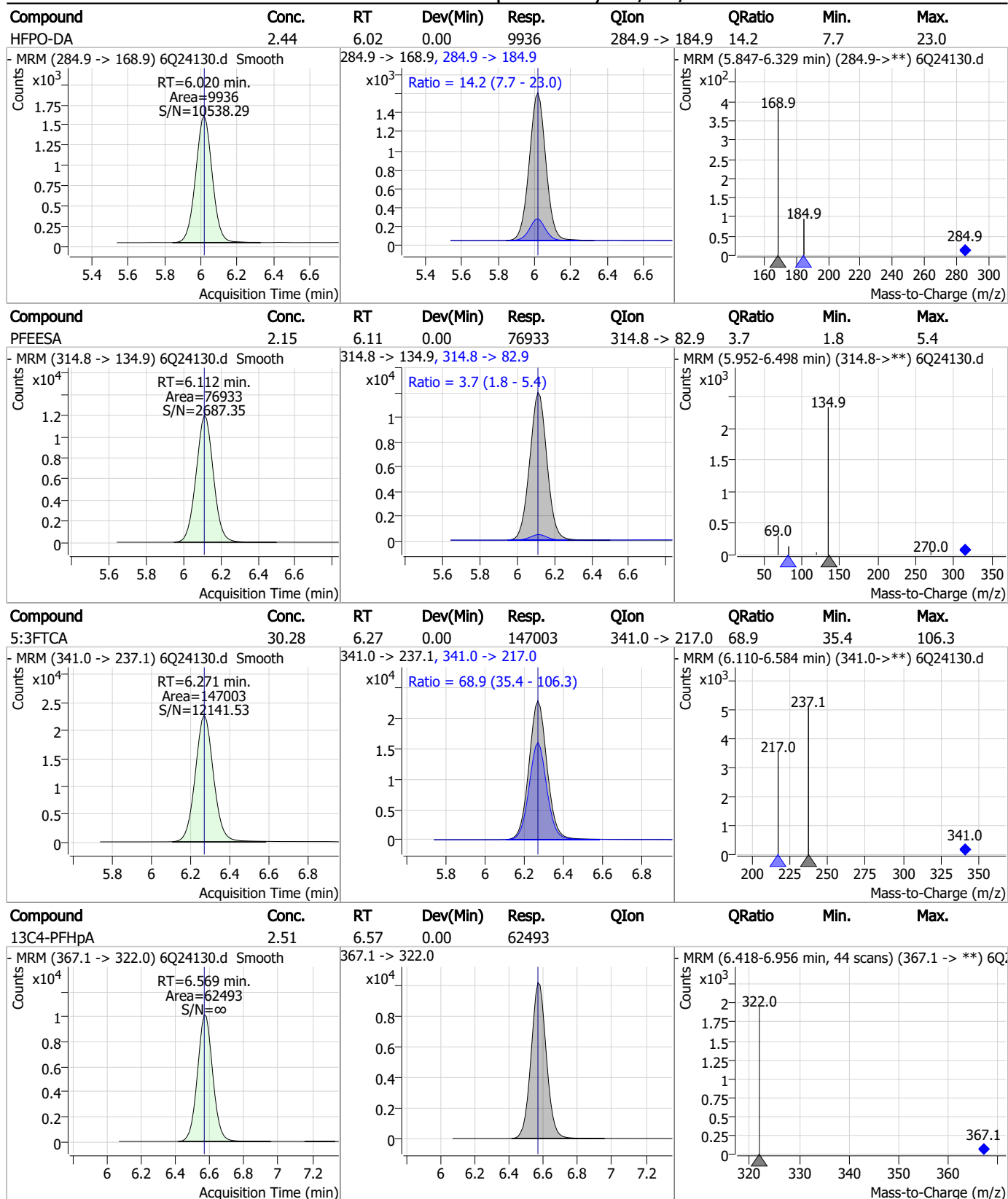
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.24	5.64	0.00	35338	313.0 -> 118.9	4.0	2.2	6.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.76	6.02	0.00	43093				



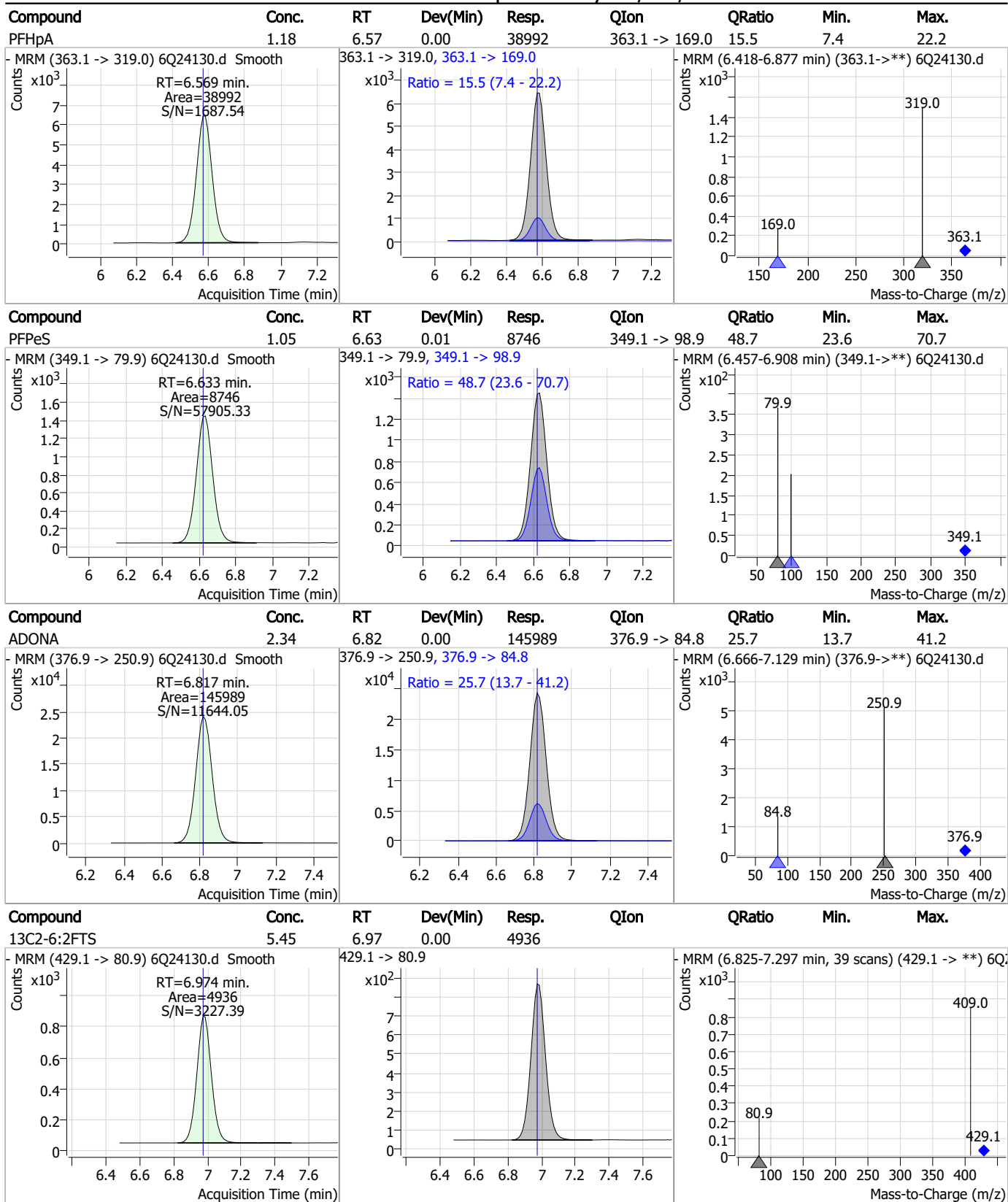
Perfluorinated Compounds by LC/MS/MS



7.7.4

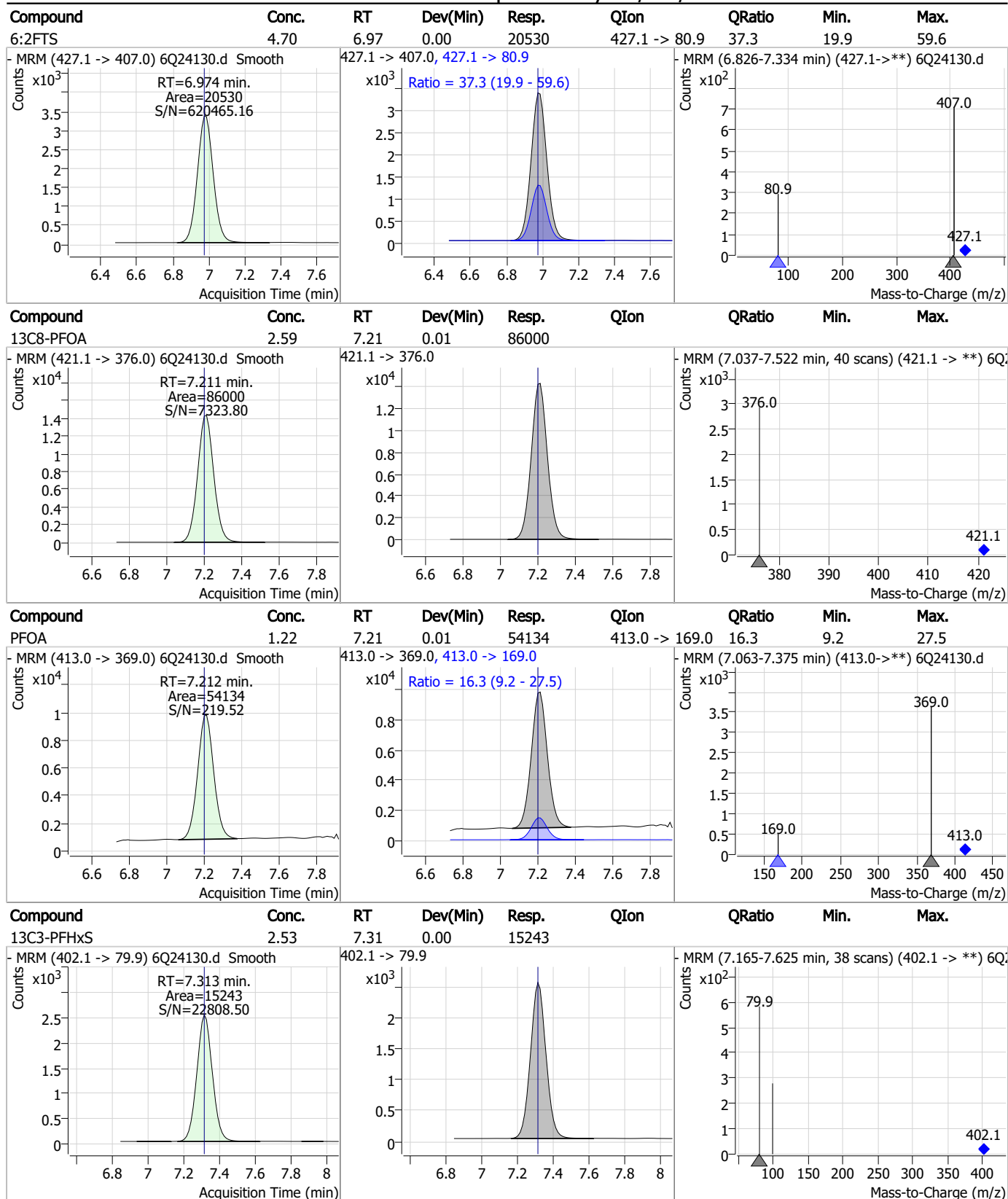
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Perfluorinated Compounds by LC/MS/MS



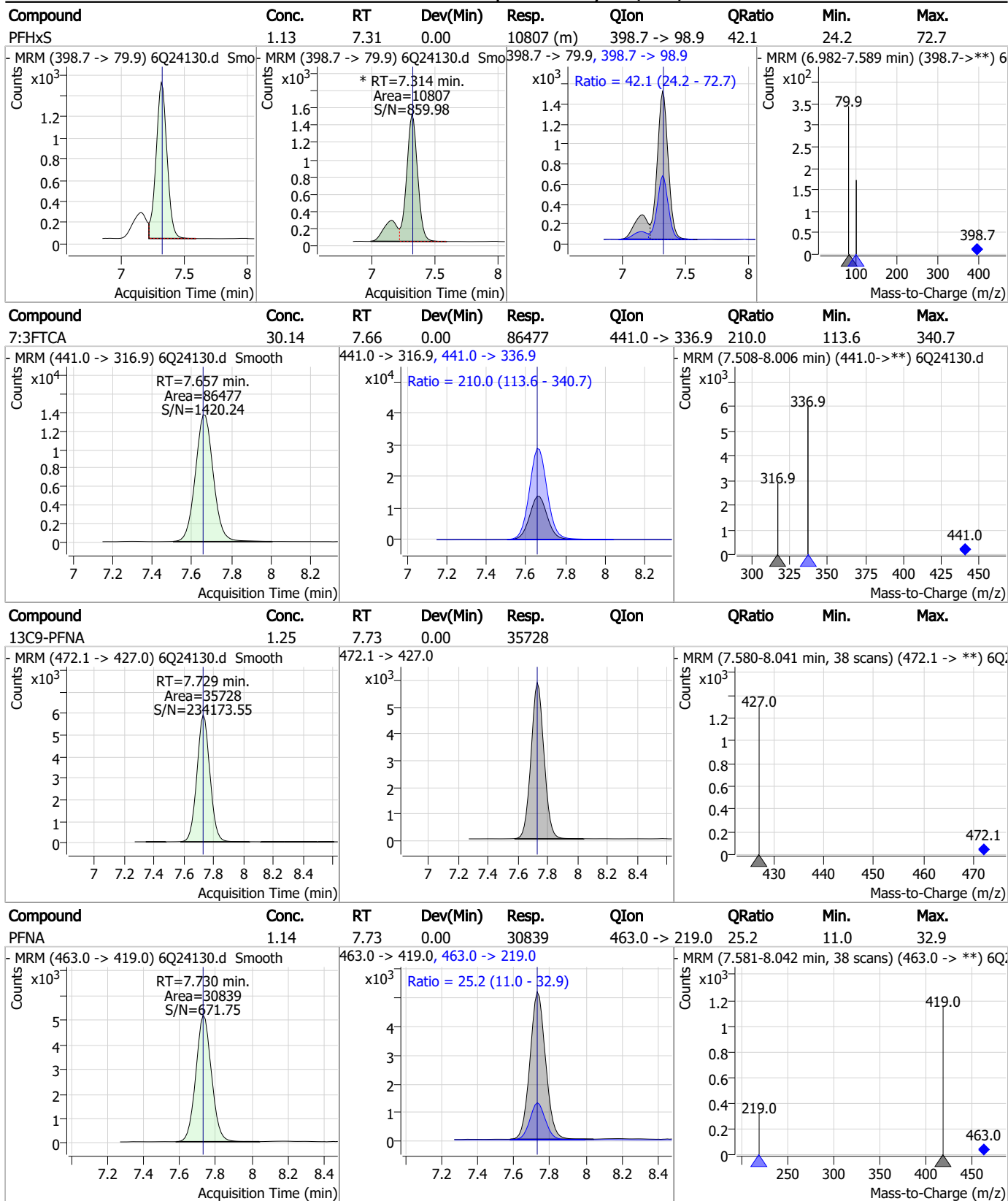
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Perfluorinated Compounds by LC/MS/MS



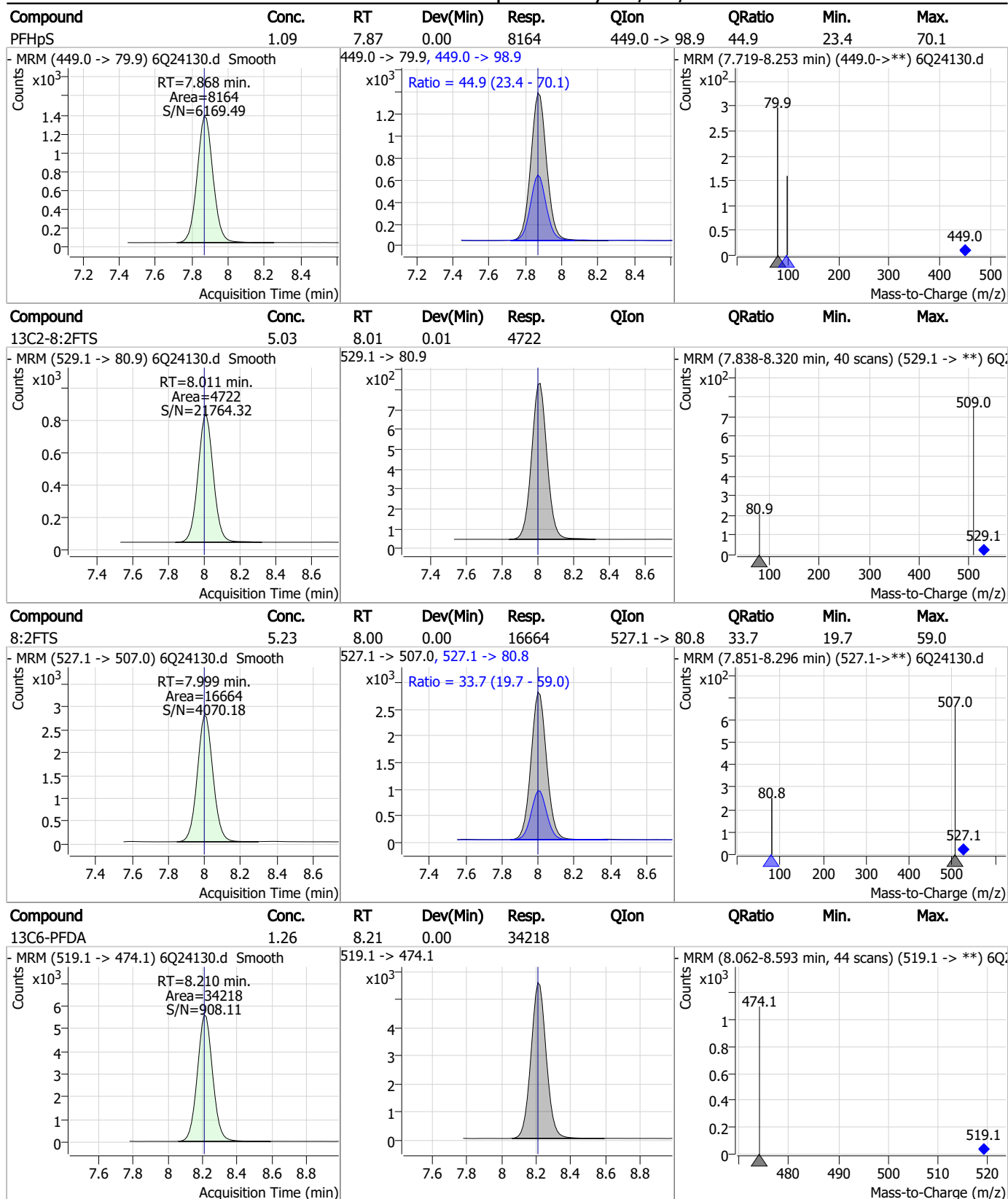
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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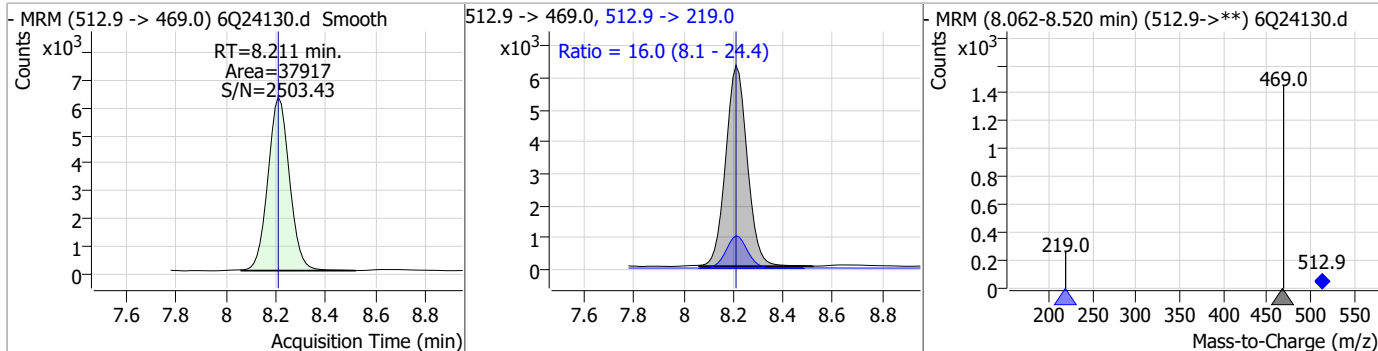
Perfluorinated Compounds by LC/MS/MS



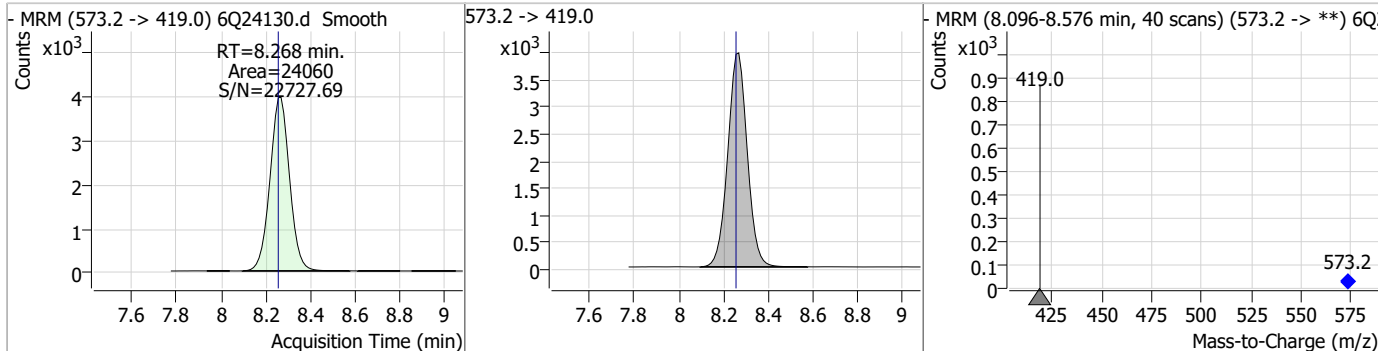
7.7.4
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Perfluorinated Compounds by LC/MS/MS

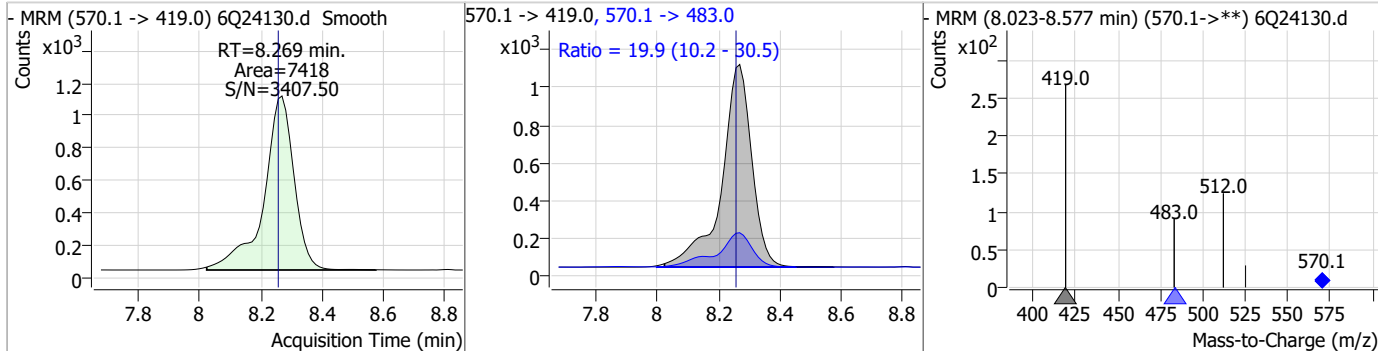
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.22	8.21	0.00	37917	512.9 -> 219.0	16.0	8.1	24.4



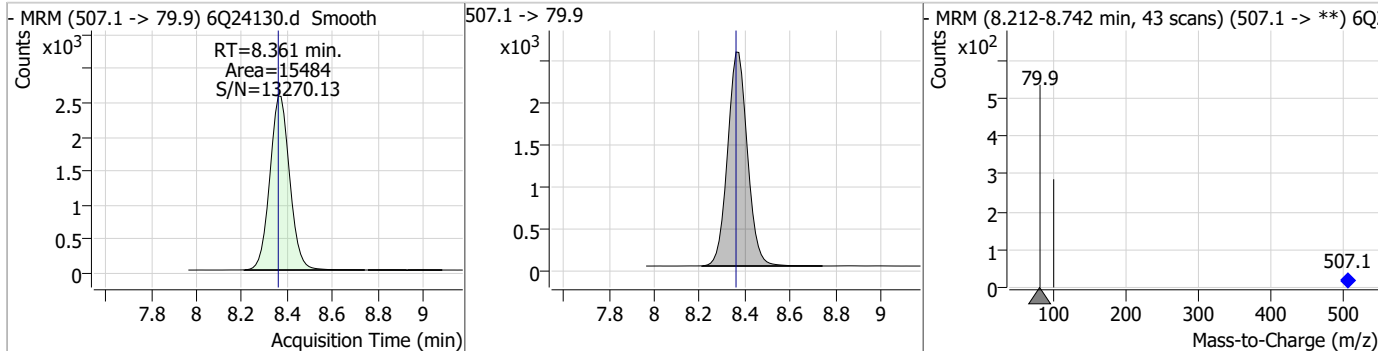
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.79	8.27	0.01	24060				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.30	8.27	0.01	7418	570.1 -> 483.0	19.9	10.2	30.5

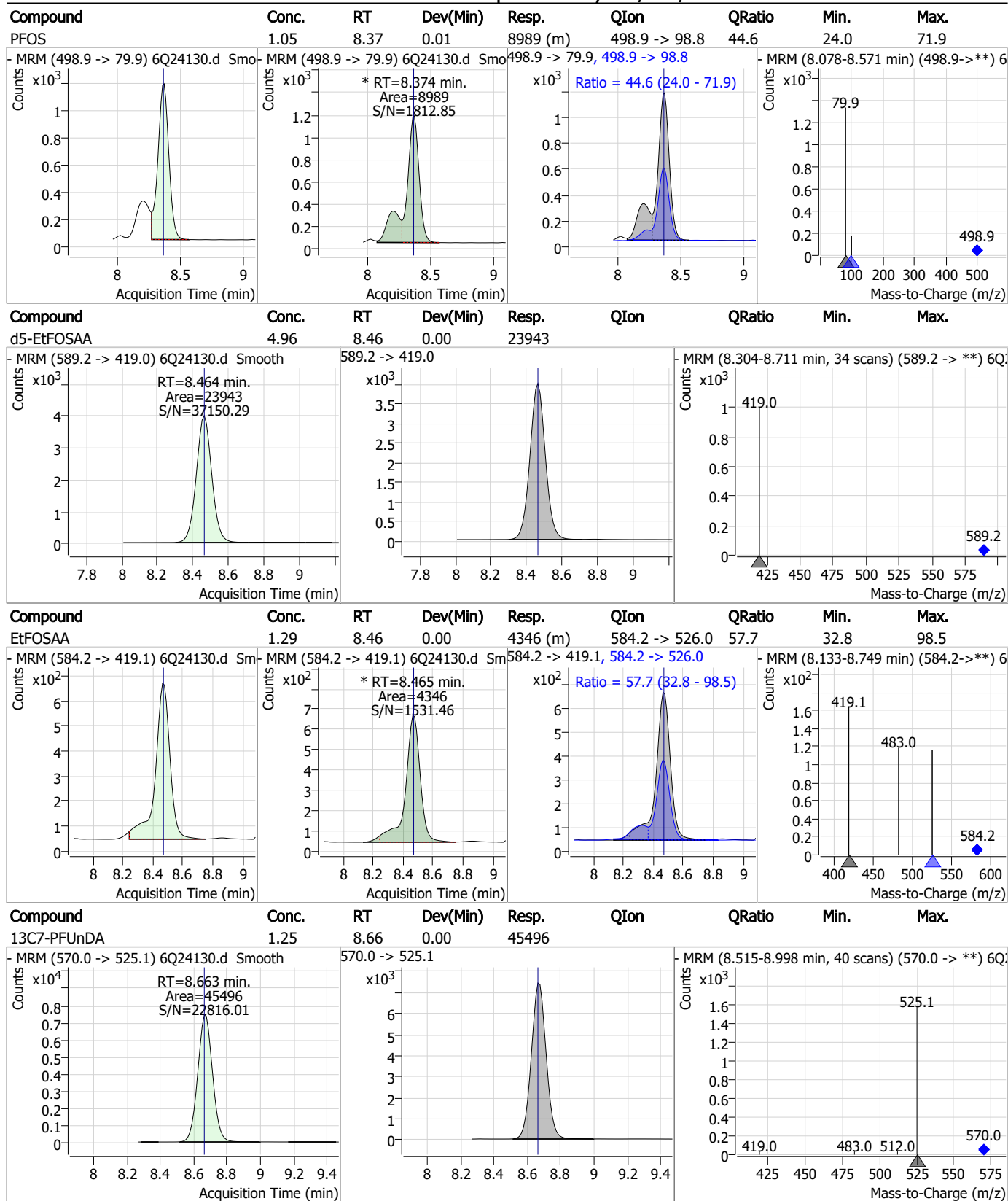


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.74	8.36	0.00	15484				



7.7.4
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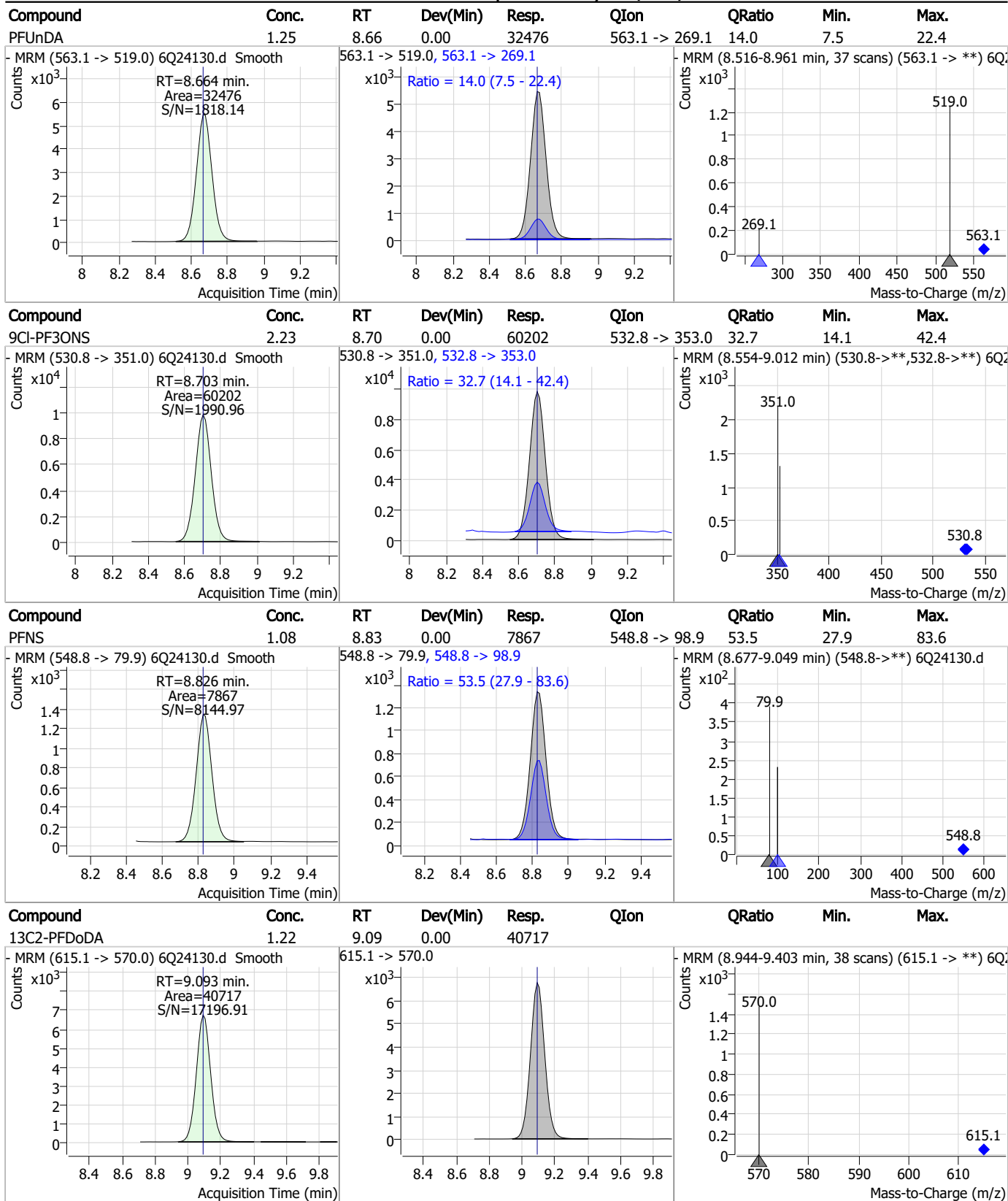
Perfluorinated Compounds by LC/MS/MS



7.7.4

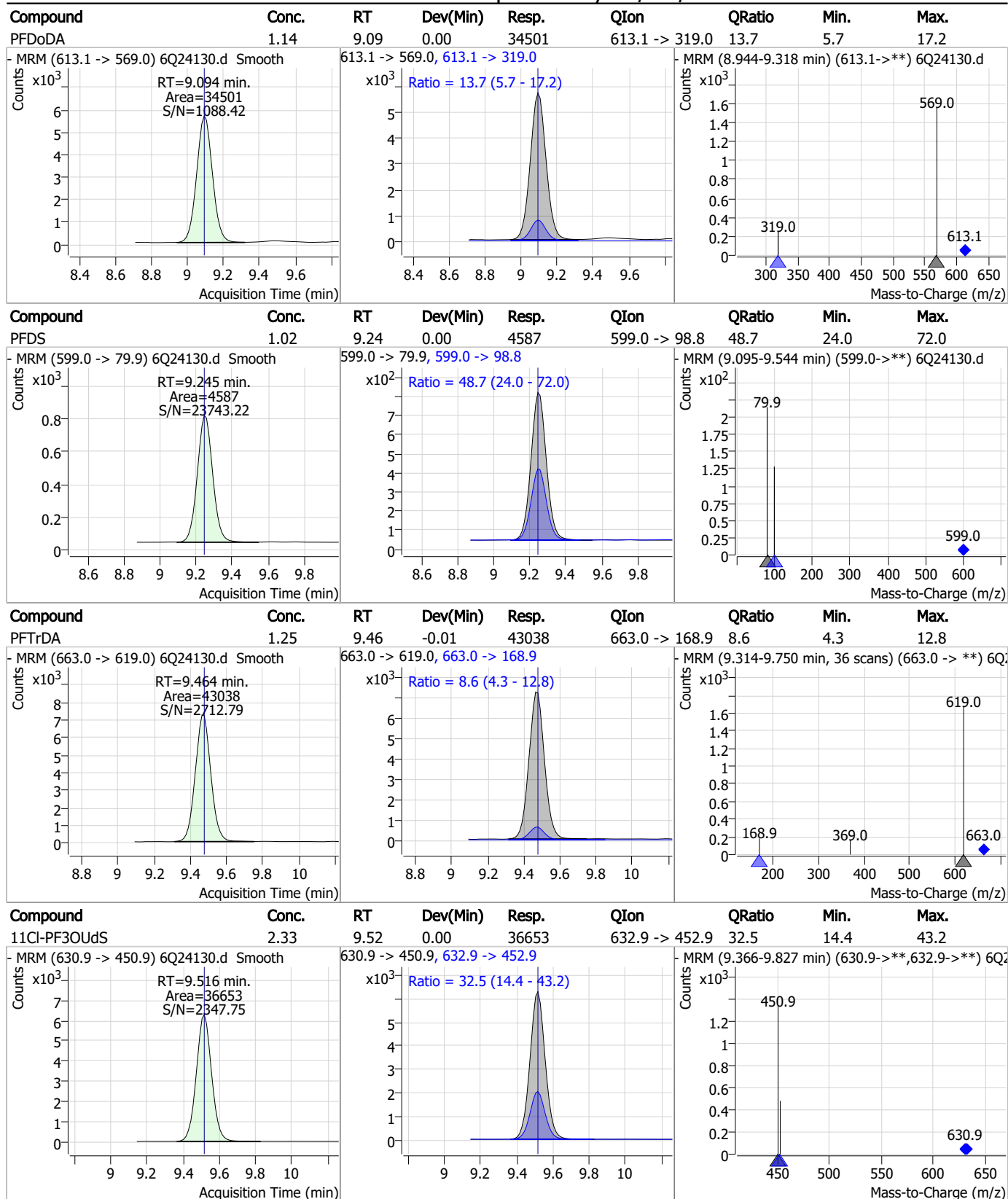
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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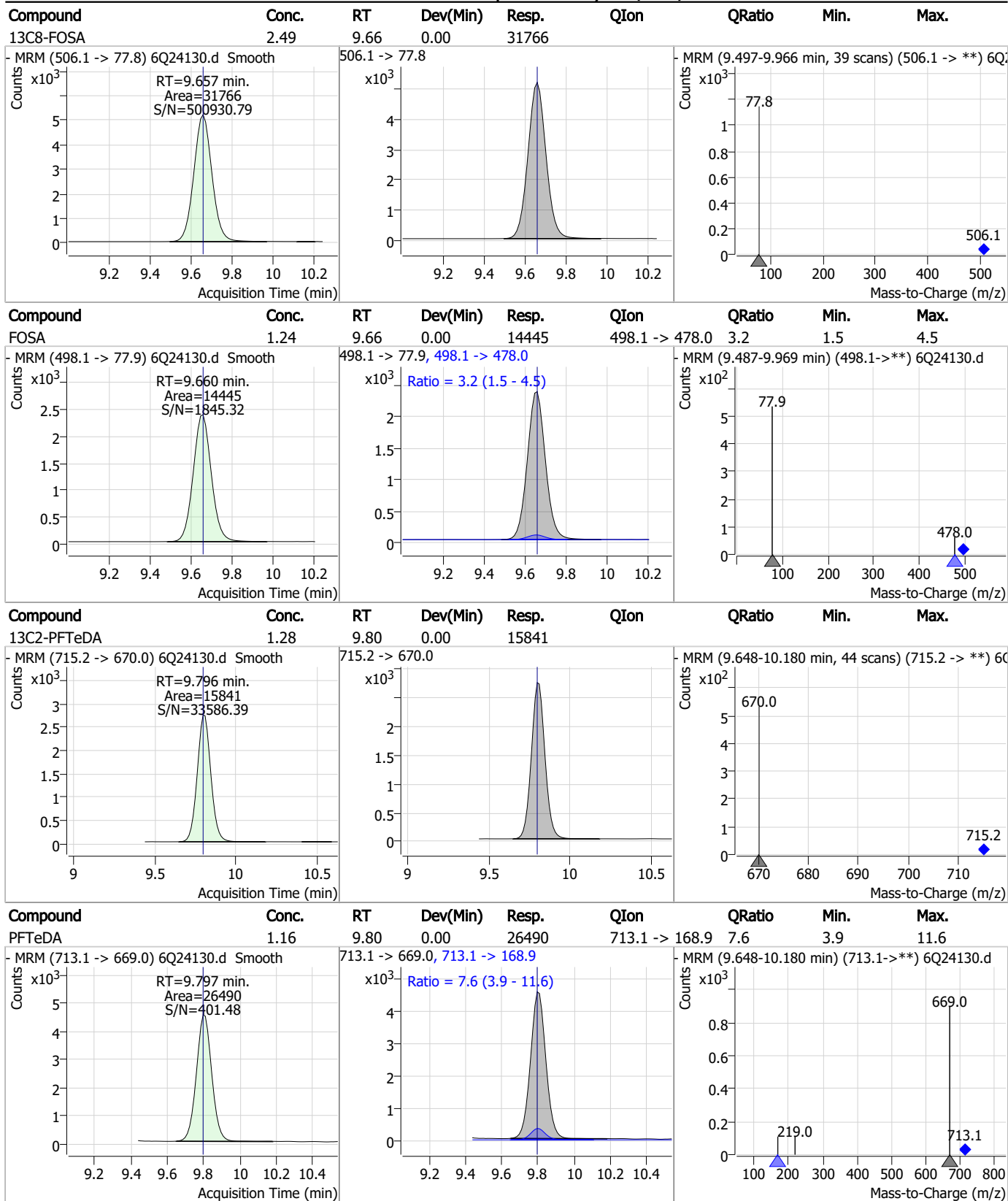
Perfluorinated Compounds by LC/MS/MS



7.7.4

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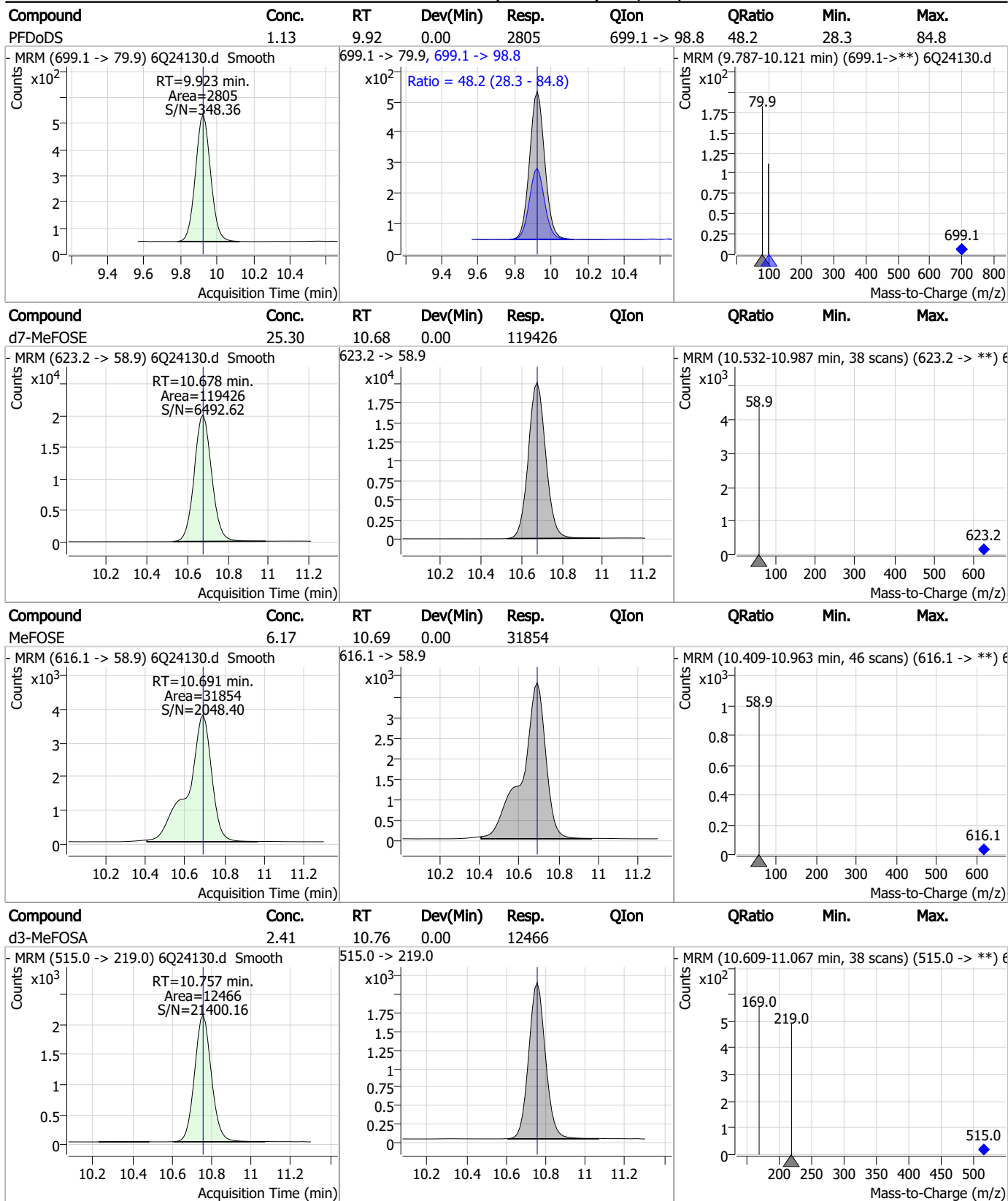
Perfluorinated Compounds by LC/MS/MS



7.7.4
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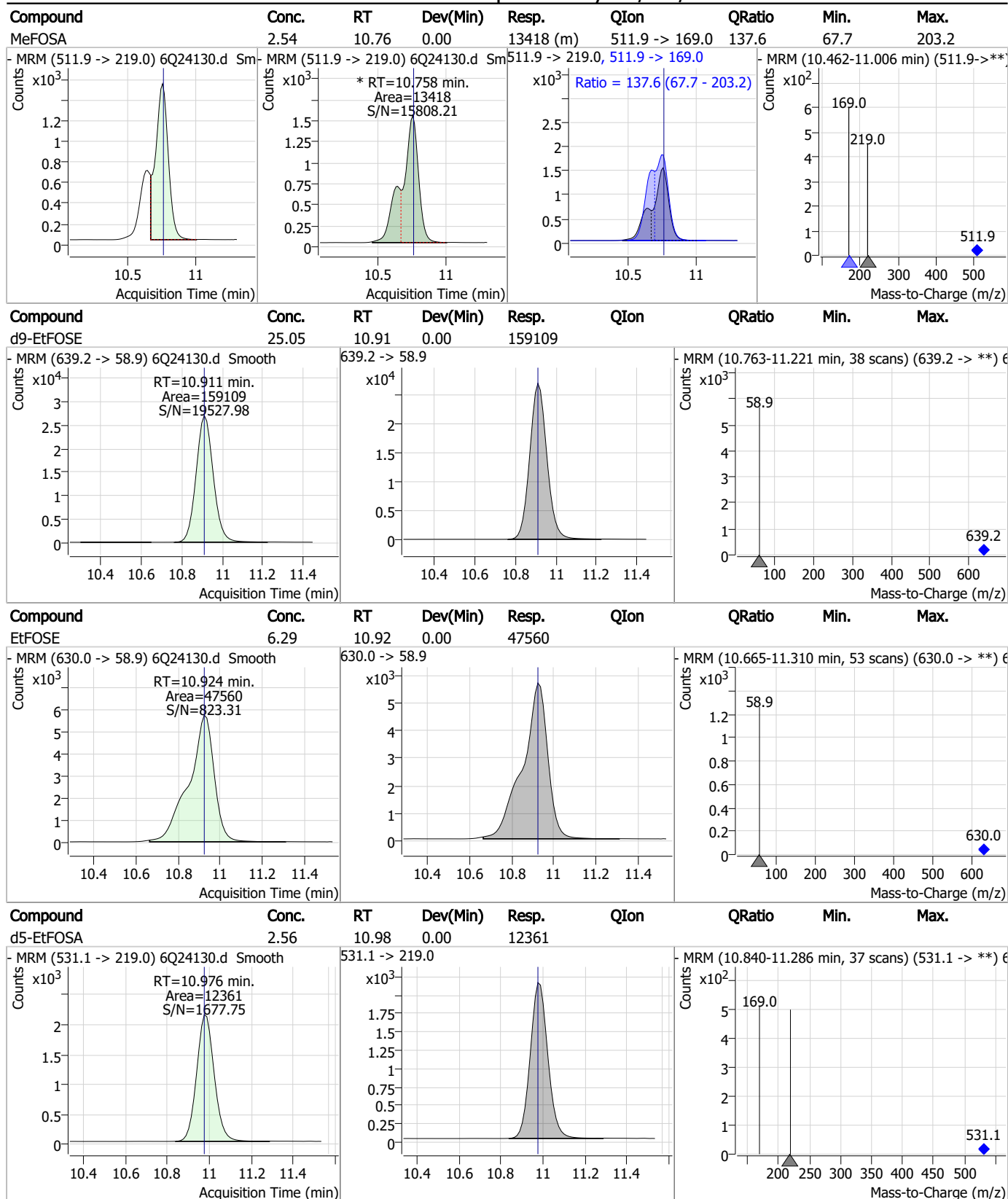
Perfluorinated Compounds by LC/MS/MS



7.7.4
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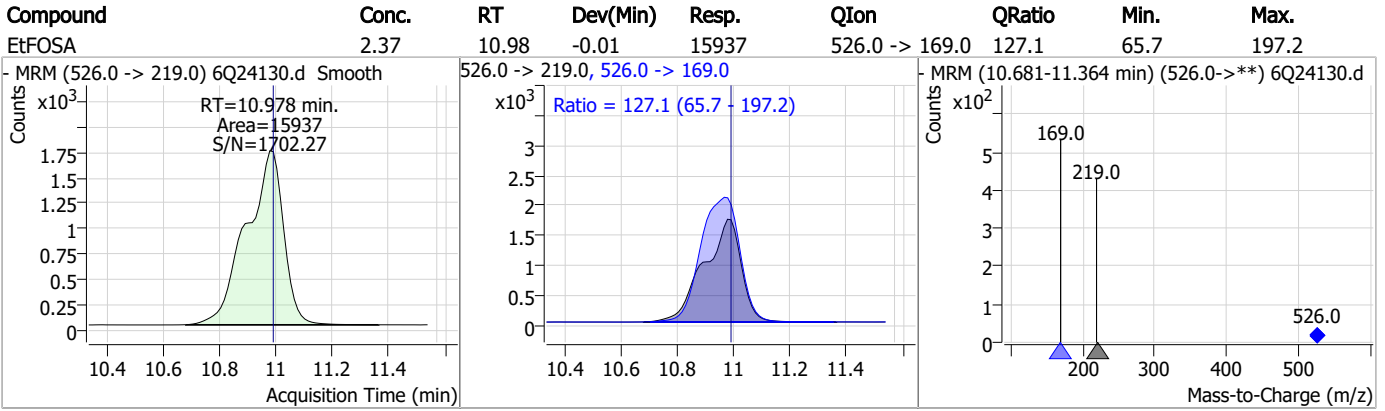
Perfluorinated Compounds by LC/MS/MS



7.7.4
7



Perfluorinated Compounds by LC/MS/MS



7.7.4

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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24130.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:14 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24131.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:29:14 PM
 Sample Name : icc347-4
 Vial : P1-A5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	194945	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	35702	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	73008	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	56527	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	77097	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	32711	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	32774	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	45887	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	39912	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14783	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	30256	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	22914	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	14053	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	13542	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3138	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4604	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4789	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	23699	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	37909	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	22874	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	110675	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	152005	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11278	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11893	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	18348	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	77082	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9719	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	85391	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	28432	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	39212	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	54280	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3138	5.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.7%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4604	5.74 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.7%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4789	5.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.2%		
13C2-PFDoDA	9.093	615.1 -> 570.0	39912	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14783	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFBS	5.571	302.1 -> 79.9	22914	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C3-PFHxS	7.313	402.1 -> 79.9	14053	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	2.985	216.8 -> 171.9	194945	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.569	367.1 -> 322.0	56527	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C5-PFHxA	5.641	318.0 -> 273.0	73008	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	35702	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C6-PFDA	8.210	519.1 -> 474.1	32774	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C7-PFUnDA	8.663	570.0 -> 525.1	45887	1.38 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 110.7%	
13C8-FOSA	9.657	506.1 -> 77.8	30256	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%	
13C8-PFOA	7.198	421.1 -> 376.0	77097	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-PFOS	8.361	507.1 -> 79.9	13542	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C9-PFNA	7.729	472.1 -> 427.0	32711	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.8%	
d3-MeFOSAA	8.256	573.2 -> 419.0	23699	4.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	37909	9.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	11893	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
d5-EtFOSAA	8.464	589.2 -> 419.0	22874	4.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
d7-MeFOSE	10.678	623.2 -> 58.9	110675	22.94 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
d9-EtFOSE	10.911	639.2 -> 58.9	152005	23.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.7%	
d5-EtFOSA	10.976	531.1 -> 219.0	11278	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.4%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	47960	9.24 µg/L	100
		327.1 -> 80.9	17687		
6:2FTS	6.974	427.1 -> 407.0	38345	9.41 µg/L	100
		427.1 -> 80.9	15230		
8:2FTS	7.999	527.1 -> 507.0	28666	8.87 µg/L	100
		527.1 -> 80.8	11268		
EtFOSAA	8.465	584.2 -> 419.1	7943	2.46 µg/L	100
		584.2 -> 526.0	5216	m	
FOSA	9.660	498.1 -> 77.9	26625	2.39 µg/L	100
		498.1 -> 478.0	798		
MeFOSAA	8.257	570.1 -> 419.0	13814	2.45 µg/L	100
		570.1 -> 483.0	2804		
PFBA	2.993	212.8 -> 168.9	62494	9.70 µg/L	100
PFBS	5.572	298.7 -> 79.9	24302	2.16 µg/L	100
		298.7 -> 98.8	9251		
PFDA	8.211	512.9 -> 469.0	71320	2.39 µg/L	100
		512.9 -> 219.0	11622		
PFDODA	9.094	613.1 -> 569.0	73119	2.47 µg/L	100
		613.1 -> 319.0	8396		
PFDS	9.245	599.0 -> 79.9	9071	2.30 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4357			
PFHpA	6.569	363.1 -> 319.0	74879	2.50	µg/L	100
		363.1 -> 169.0	11076			
PFHpS	7.868	449.0 -> 79.9	15071	2.30	µg/L	100
		449.0 -> 98.9	7042			
PFHxA	5.644	313.0 -> 269.0	64748	2.44	µg/L	100
		313.0 -> 118.9	2845			
PFHxS	7.314	398.7 -> 79.9	17947	2.04	µg/L	m 100
		398.7 -> 98.9	8693			
PFNA	7.730	463.0 -> 419.0	60473	2.45	µg/L	100
		463.0 -> 219.0	13245			
PFNS	8.826	548.8 -> 79.9	14799	2.31	µg/L	100
		548.8 -> 98.9	8251			
PFOA	7.200	413.0 -> 369.0	91944	2.31	µg/L	100
		413.0 -> 169.0	16877			
PFOS	8.362	498.9 -> 79.9	16196	2.16	µg/L	m 100
		498.9 -> 98.8	7761			
PFPeA	4.424	263.0 -> 219.0	78666	4.95	µg/L	100
PFPeS	6.620	349.1 -> 79.9	17522	2.29	µg/L	100
		349.1 -> 98.9	8258			
PFTeDA	9.797	713.1 -> 669.0	53078	2.49	µg/L	100
		713.1 -> 168.9	4087			
PFTrDA	9.477	663.0 -> 619.0	79667	2.37	µg/L	100
		663.0 -> 168.9	6816			
PFUnDA	8.664	563.1 -> 519.0	60985	2.32	µg/L	100
		563.1 -> 269.1	9088			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	74991	5.42	µg/L	100
		632.9 -> 452.9	21606			
9Cl-PF3ONS	8.703	530.8 -> 351.0	126215	5.32	µg/L	100
		532.8 -> 353.0	35665			
ADONA	6.817	376.9 -> 250.9	276162	5.03	µg/L	100
		376.9 -> 84.8	75780			
HFPO-DA	6.020	284.9 -> 168.9	18017	5.02	µg/L	100
		284.9 -> 184.9	2762			
3:3FTCA	3.858	241.0 -> 177.0	13136	11.79	µg/L	100
		241.0 -> 117.0	1240			
5:3FTCA	6.271	341.0 -> 237.1	276310	61.20	µg/L	100
		341.0 -> 217.0	195769			
7:3FTCA	7.657	441.0 -> 316.9	161457	60.51	µg/L	100
		441.0 -> 336.9	366751			
EtFOSA	10.990	526.0 -> 219.0	30132	4.91	µg/L	100
		526.0 -> 169.0	39623			
EtFOSE	10.924	630.0 -> 58.9	91756	12.70	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	25684	5.09	µg/L	m 100
		511.9 -> 169.0	34792			
MeFOSE	10.691	616.1 -> 58.9	58852	12.30	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	5093	2.36	µg/L	100
		699.1 -> 98.8	2879			
NFDHA	5.524	295.0 -> 201.0	15286	4.96	µg/L	100
		295.0 -> 84.9	3580			
PFMBA	4.850	279.0 -> 85.1	57430	4.95	µg/L	100
PFMPA	3.551	229.0 -> 84.9	41005	4.93	µg/L	100
PFEESA	6.112	314.8 -> 134.9	144134	4.34	µg/L	100
		314.8 -> 82.9	5170			

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

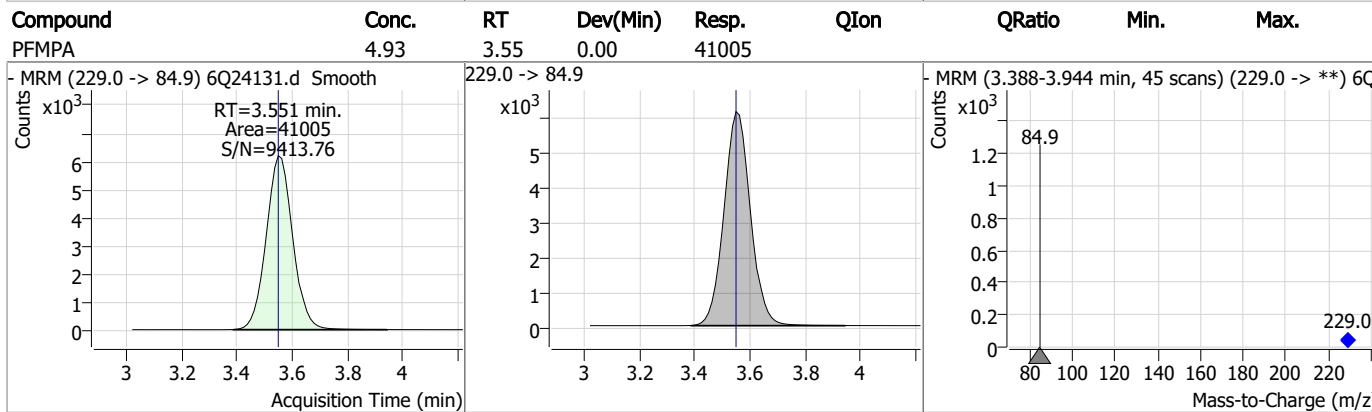
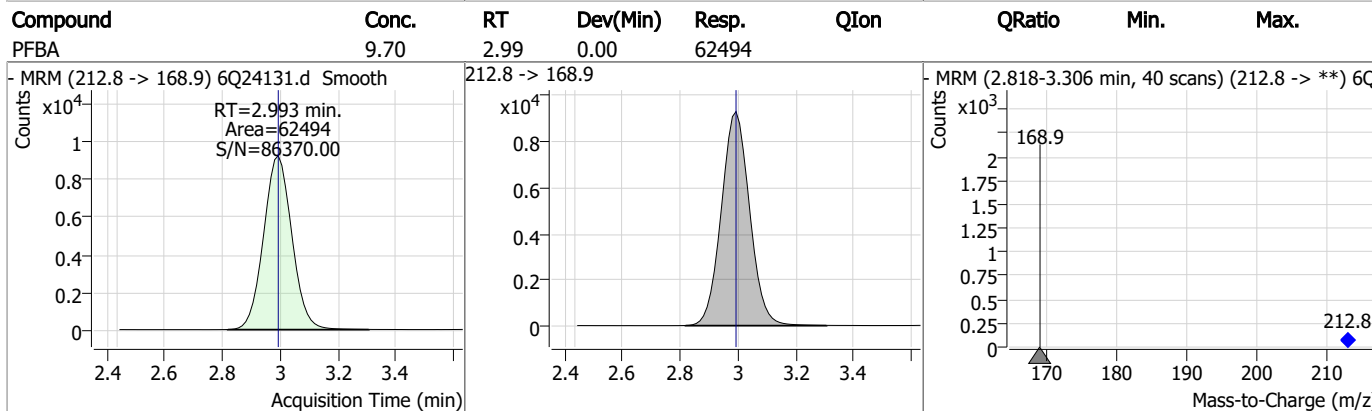
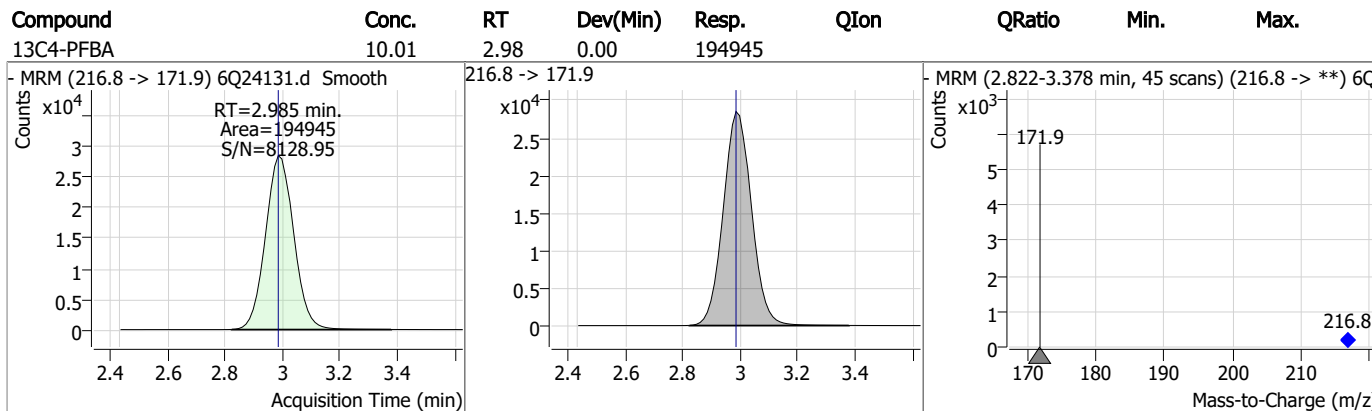
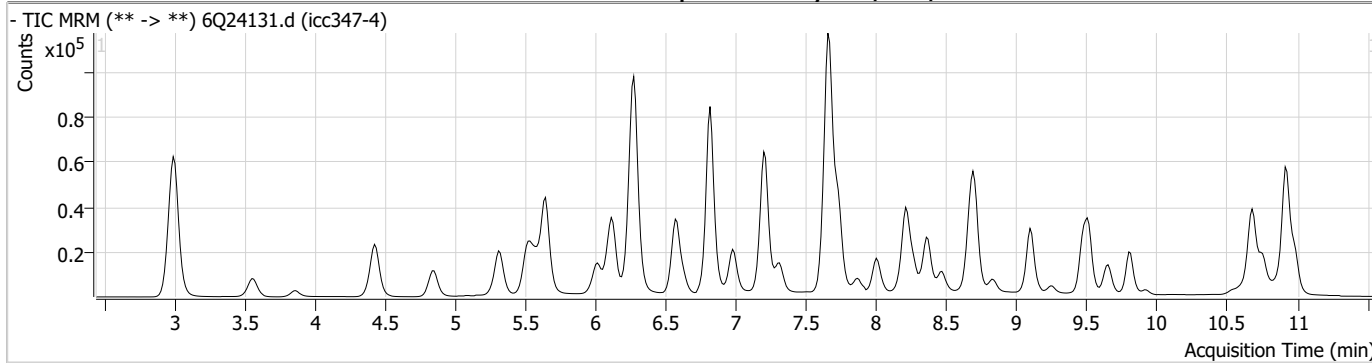
Perfluorinated Compounds by LC/MS/MS

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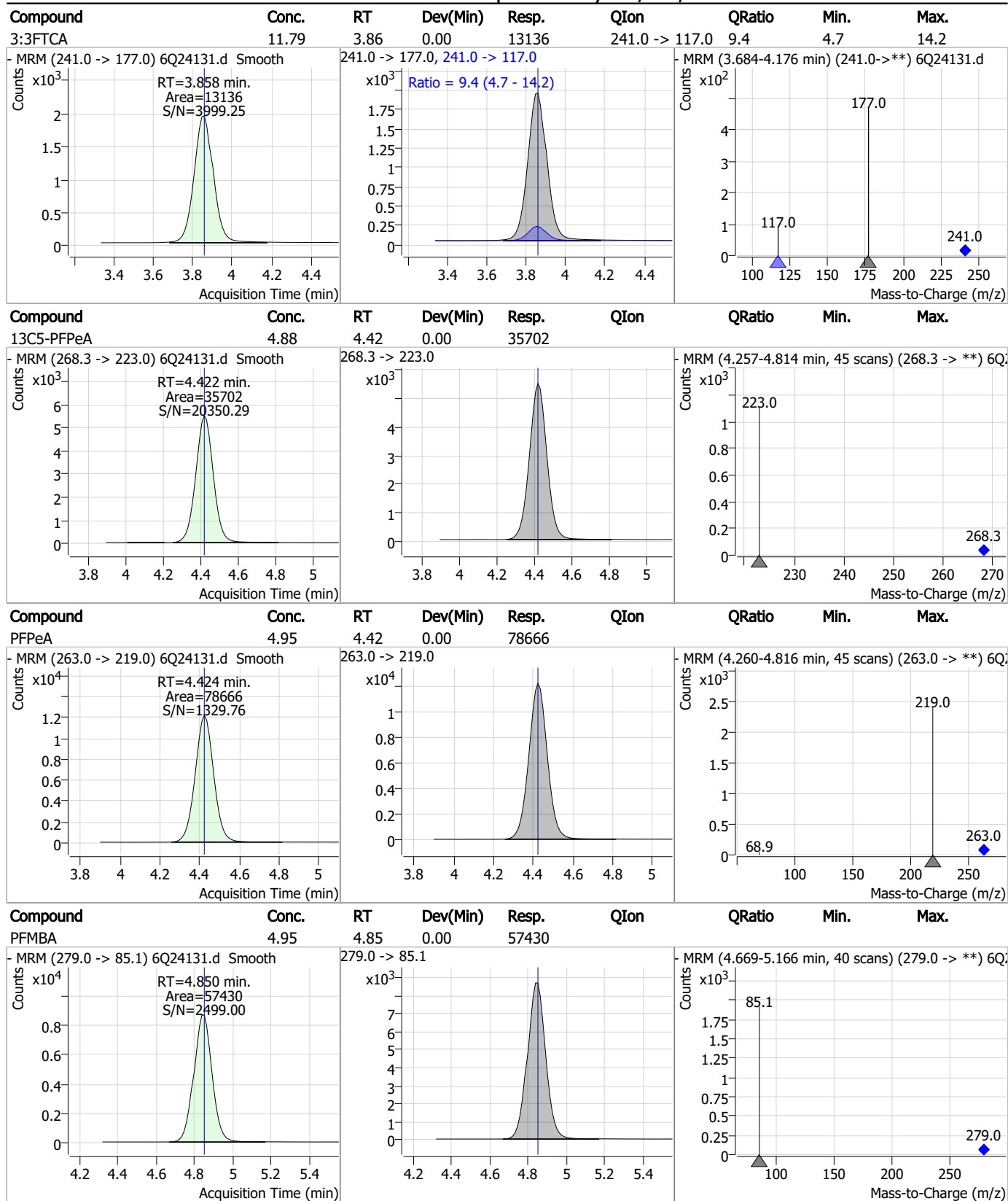
7.7.5
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Perfluorinated Compounds by LC/MS/MS

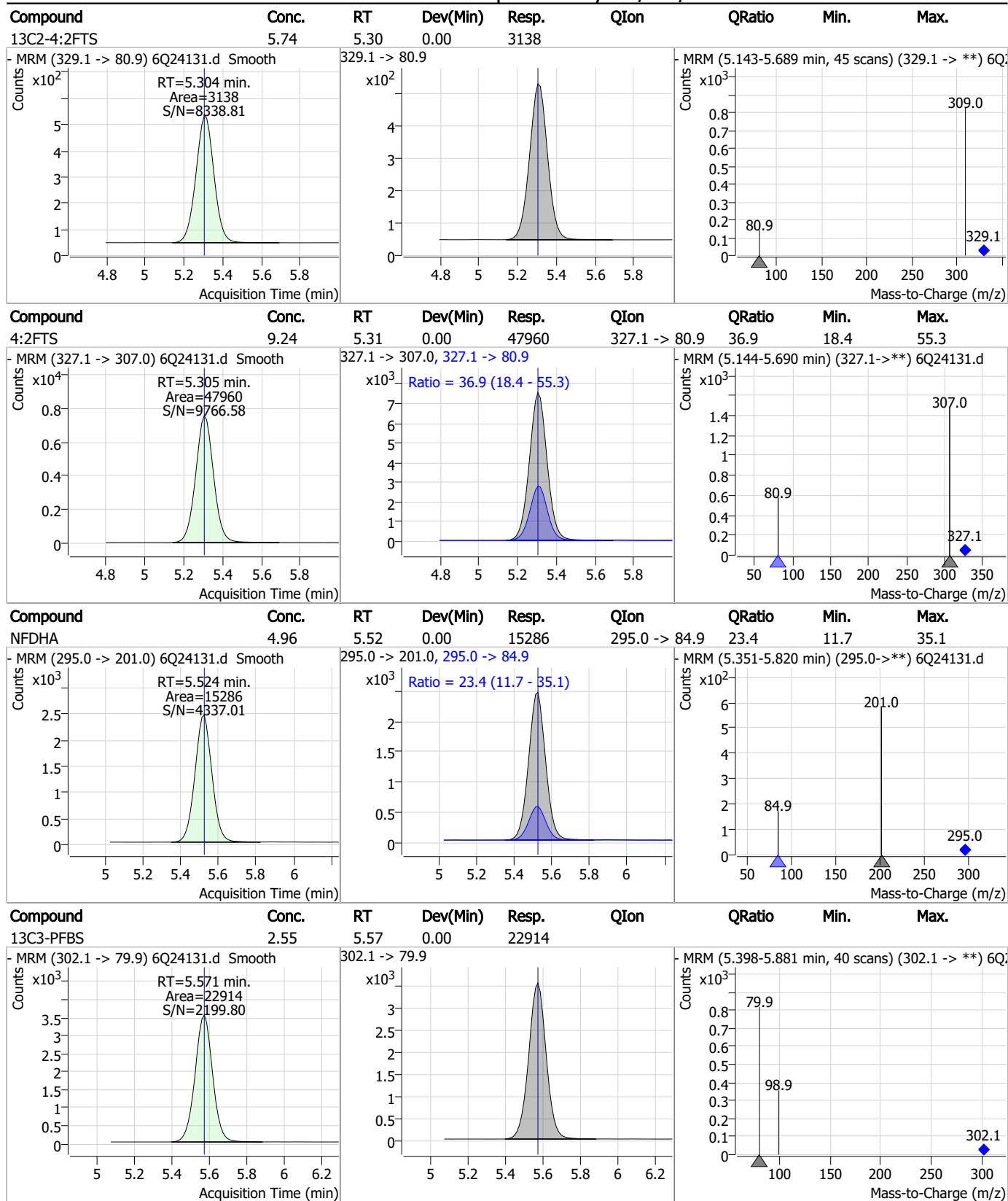


Perfluorinated Compounds by LC/MS/MS



7.7.5
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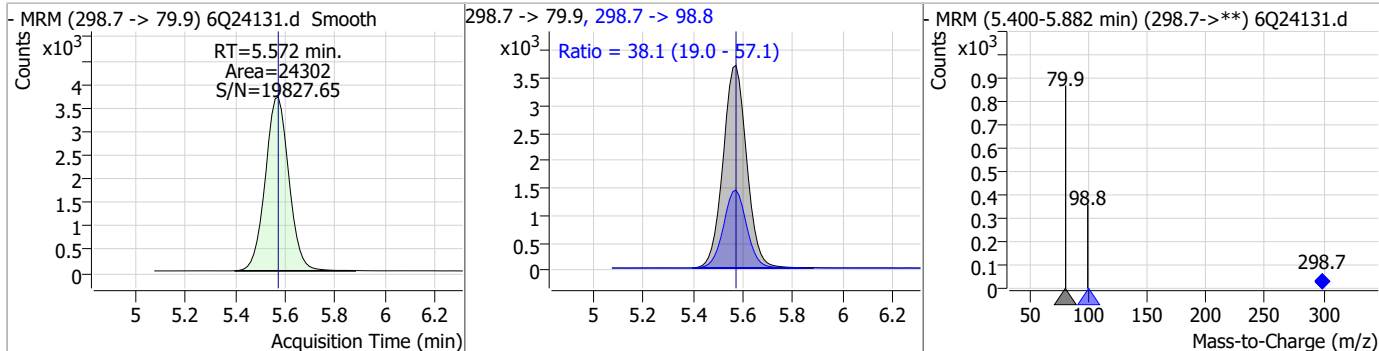
Perfluorinated Compounds by LC/MS/MS



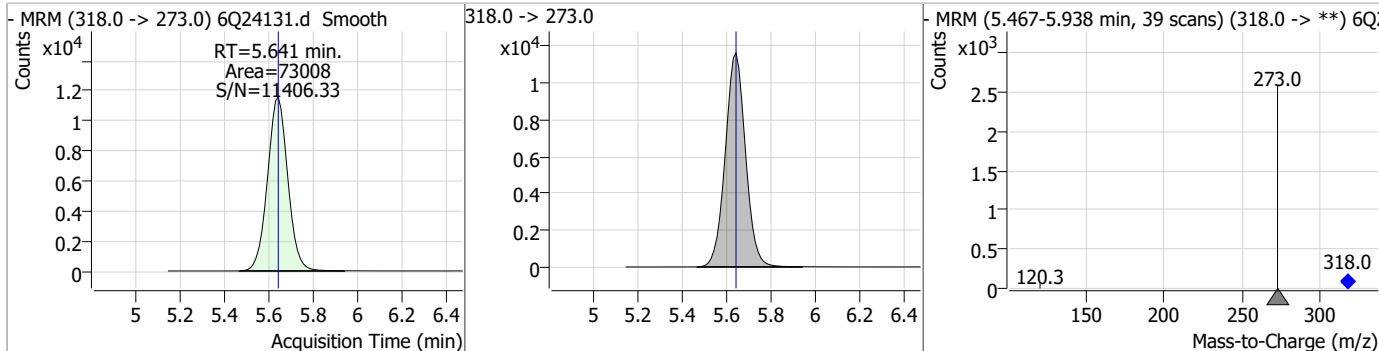
7.7.5
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Perfluorinated Compounds by LC/MS/MS

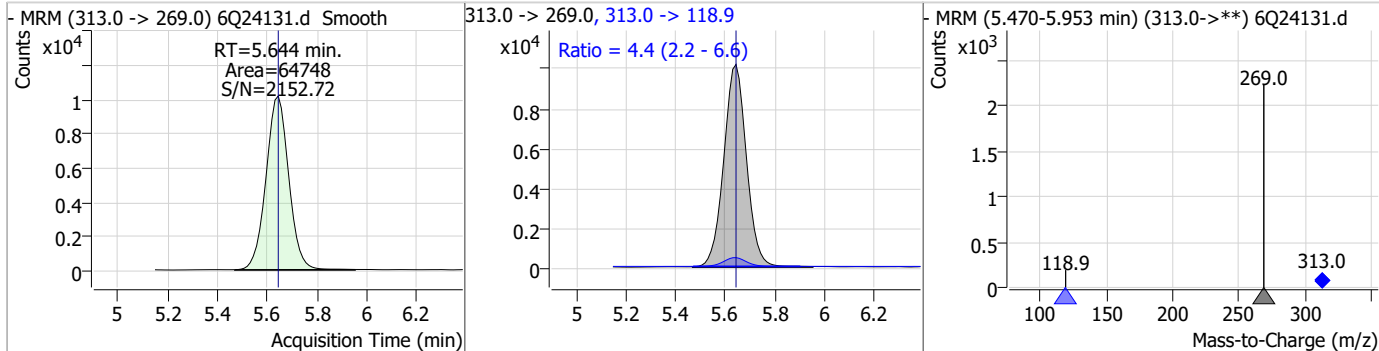
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.16	5.57	0.00	24302	298.7 -> 98.8	38.1	19.0	57.1



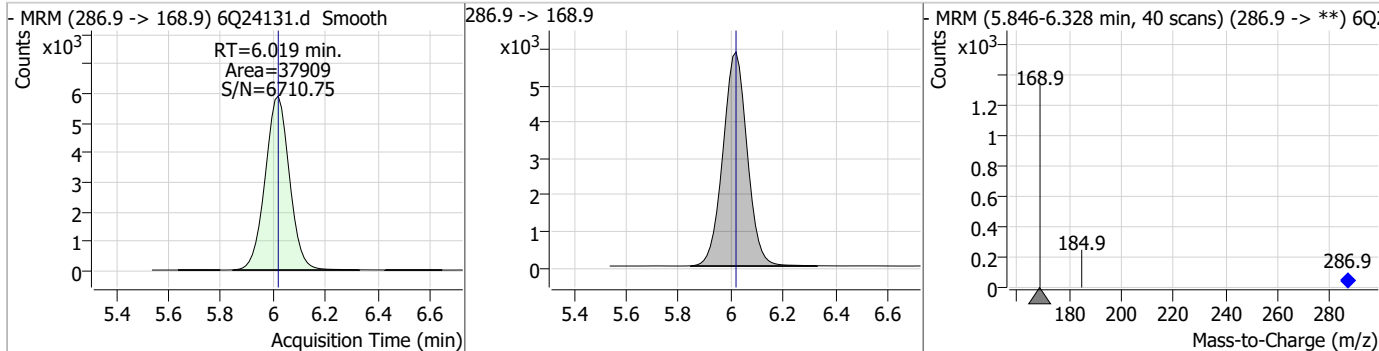
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.64	0.00	73008	318.0 -> 273.0	4.4	2.2	6.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.44	5.64	0.00	64748	313.0 -> 118.9	4.4	2.2	6.6



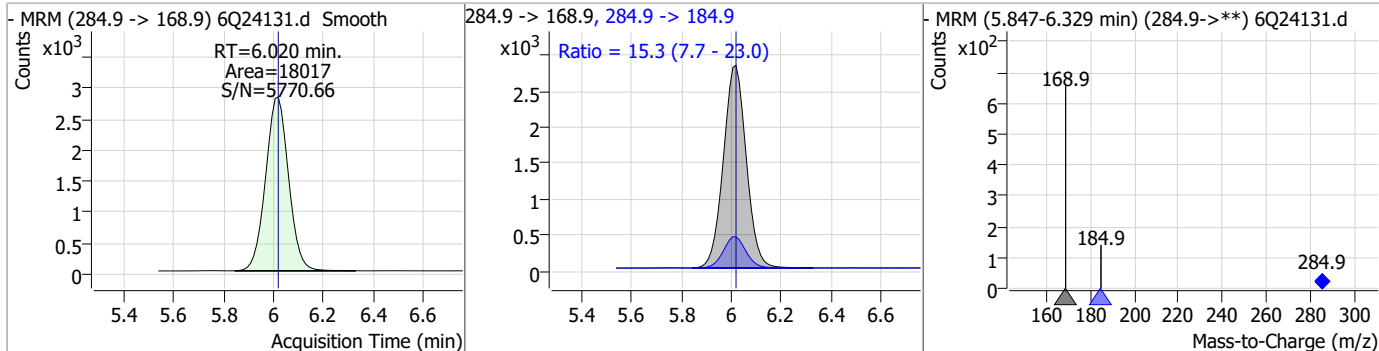
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.17	6.02	0.00	37909	286.9 -> 168.9	4.4	2.2	6.6



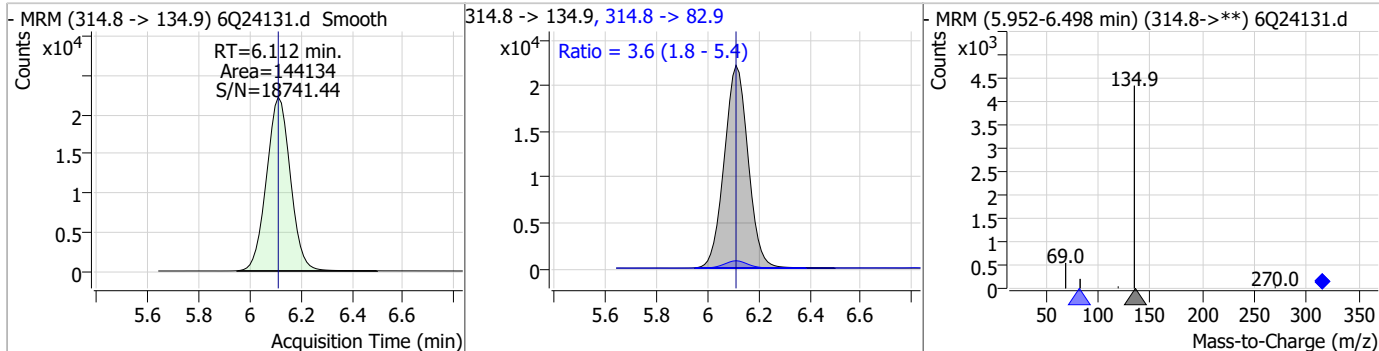
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Perfluorinated Compounds by LC/MS/MS

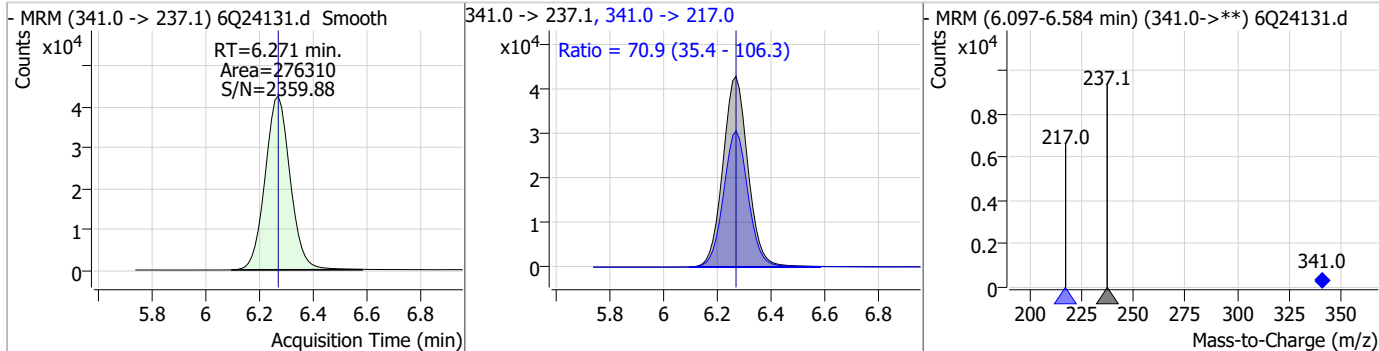
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.02	6.02	0.00	18017	284.9 -> 184.9	15.3	7.7	23.0



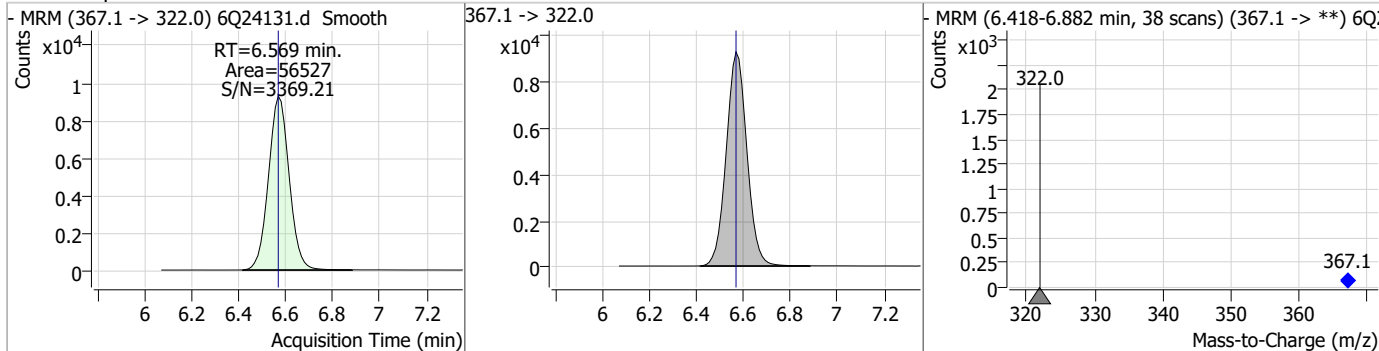
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.34	6.11	0.00	144134	314.8 -> 82.9	3.6	1.8	5.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	61.20	6.27	0.00	276310	341.0 -> 217.0	70.9	35.4	106.3

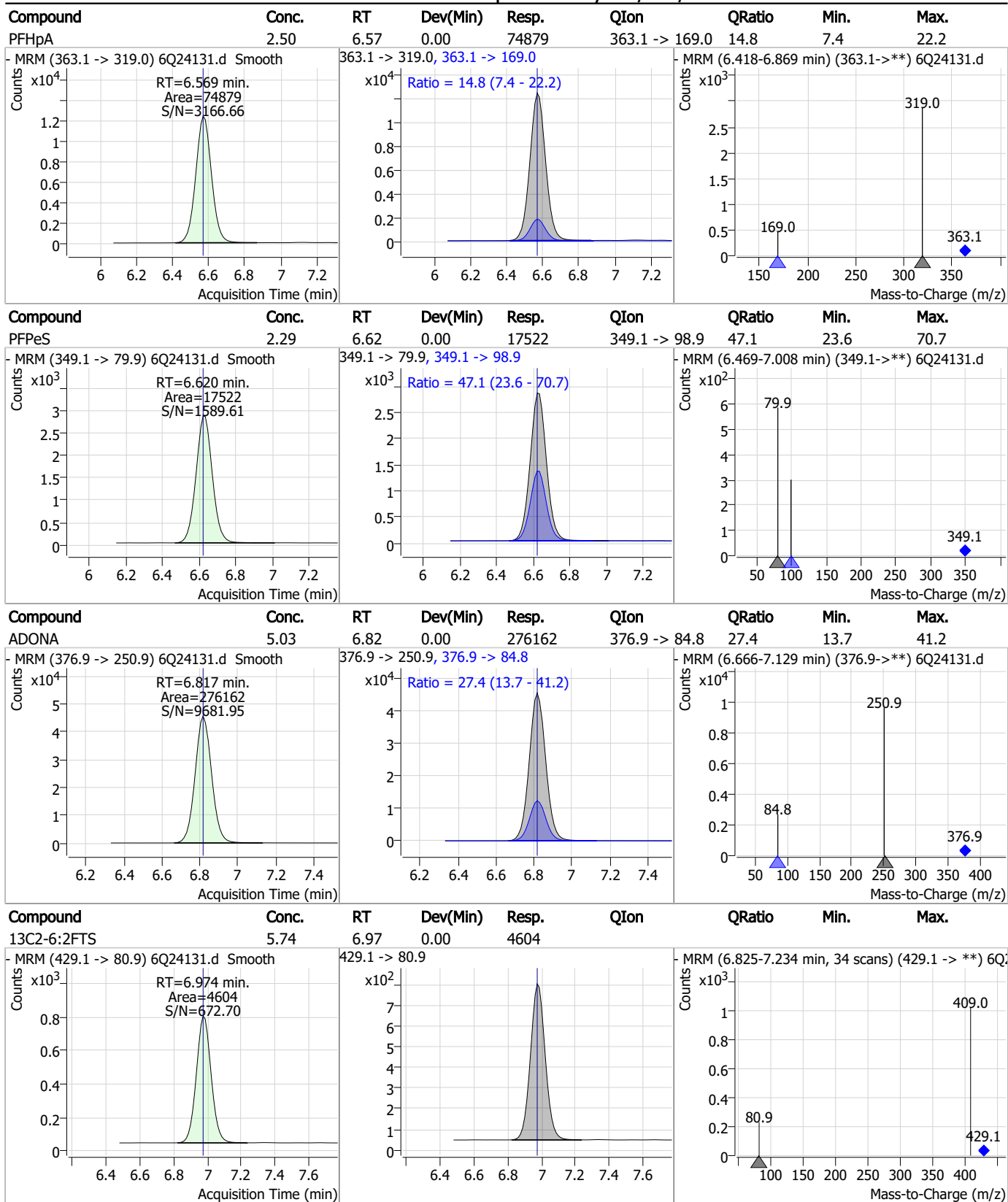


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.42	6.57	0.00	56527	367.1 -> 322.0			



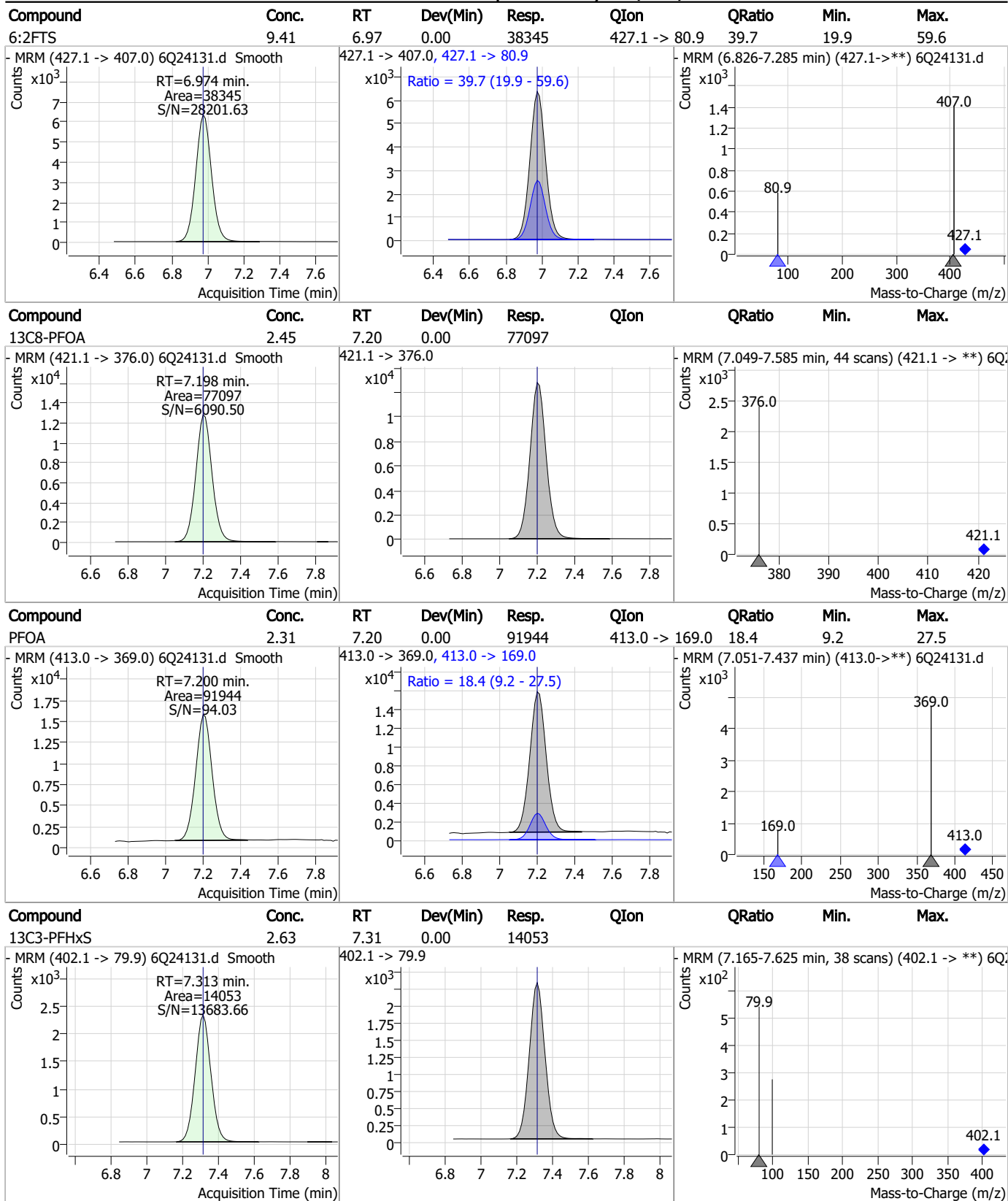
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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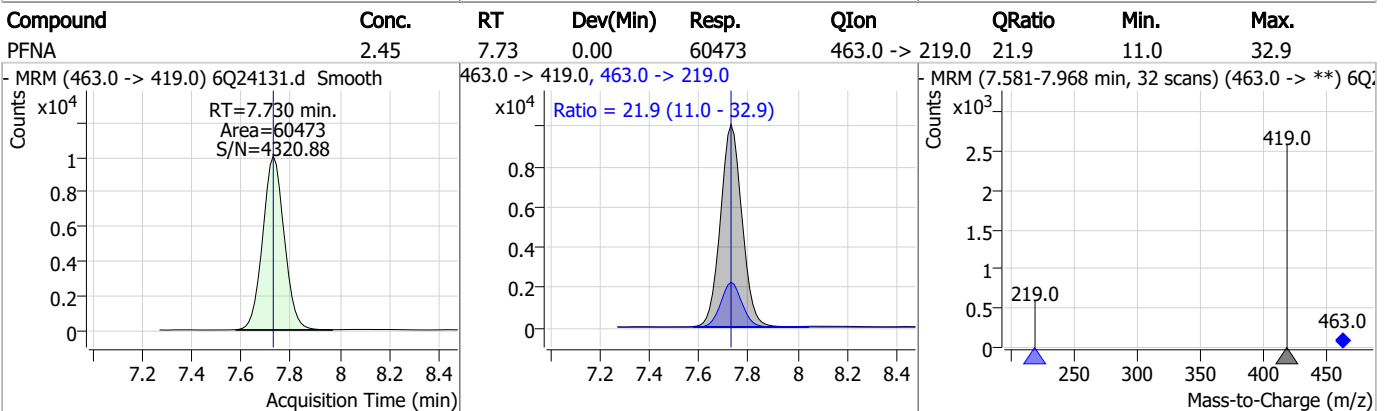
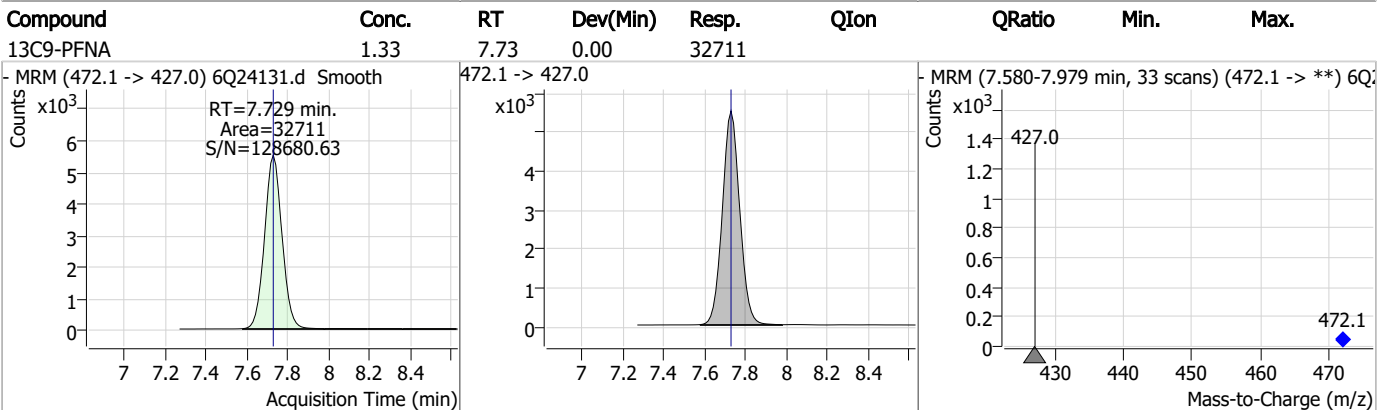
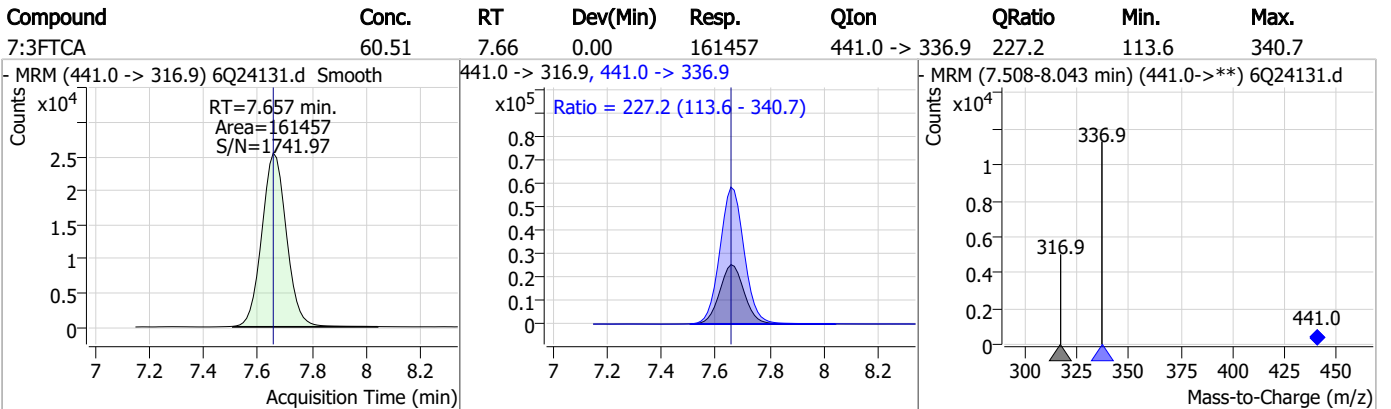
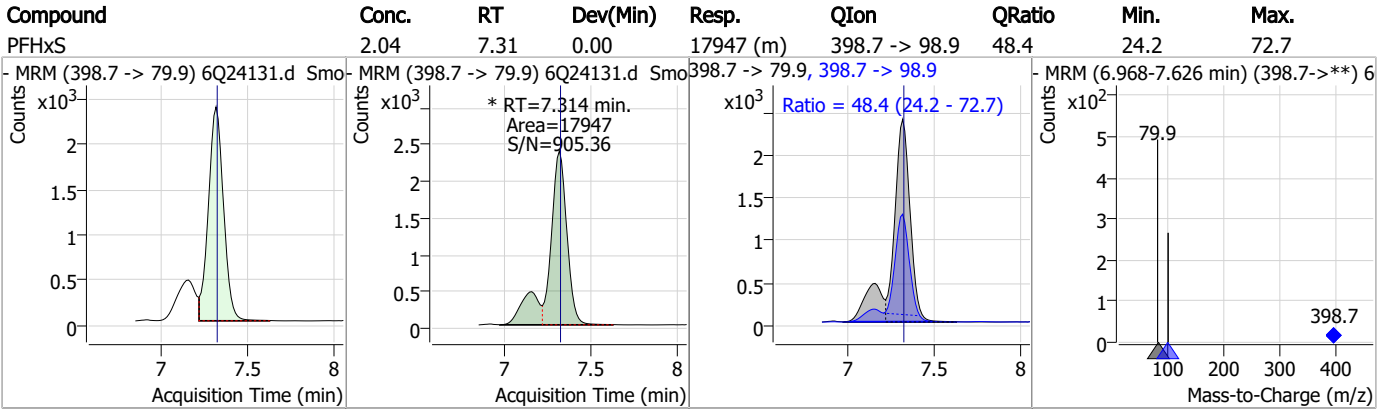
Perfluorinated Compounds by LC/MS/MS



7.7.5

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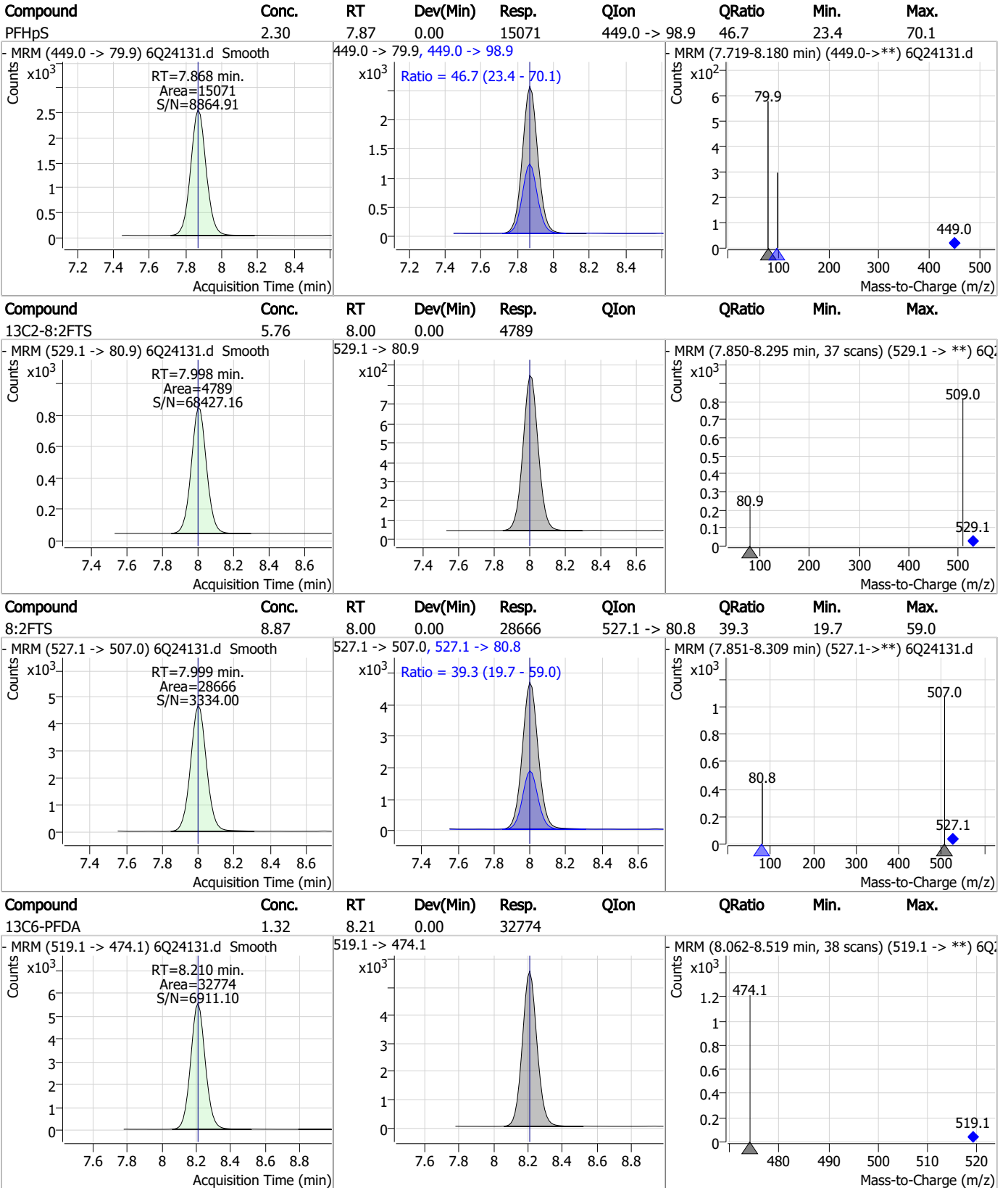
Perfluorinated Compounds by LC/MS/MS



7.7.5

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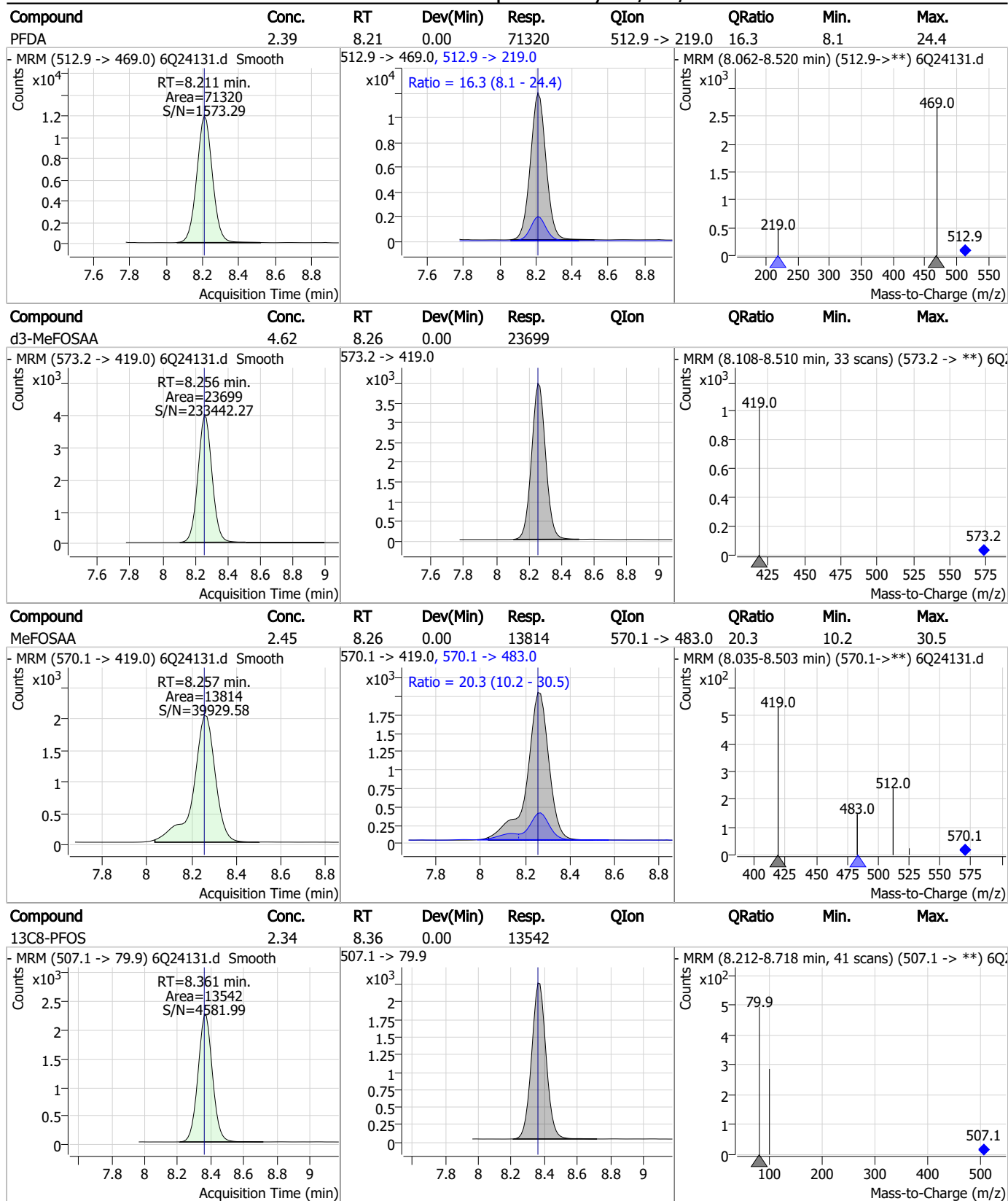
Perfluorinated Compounds by LC/MS/MS



7.7.5

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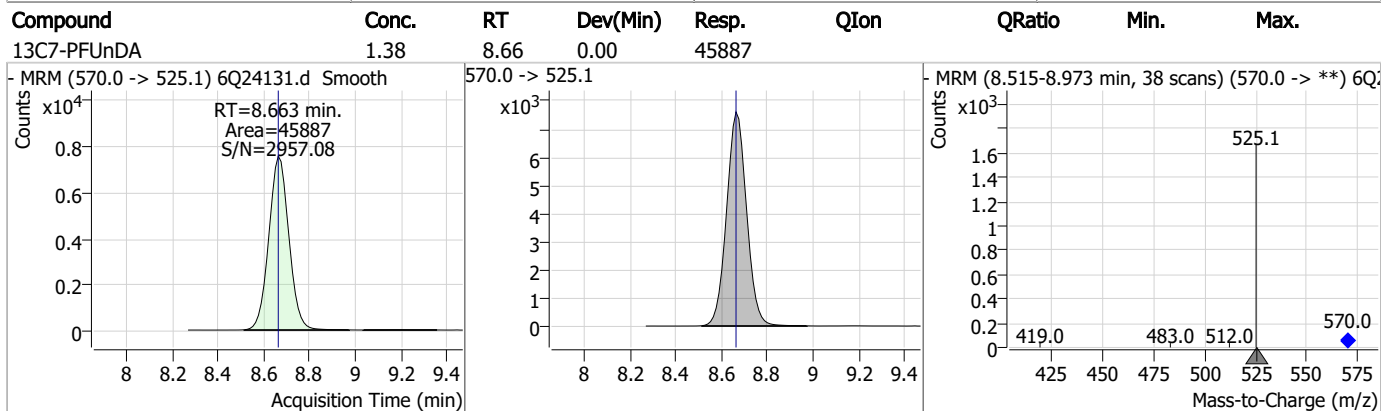
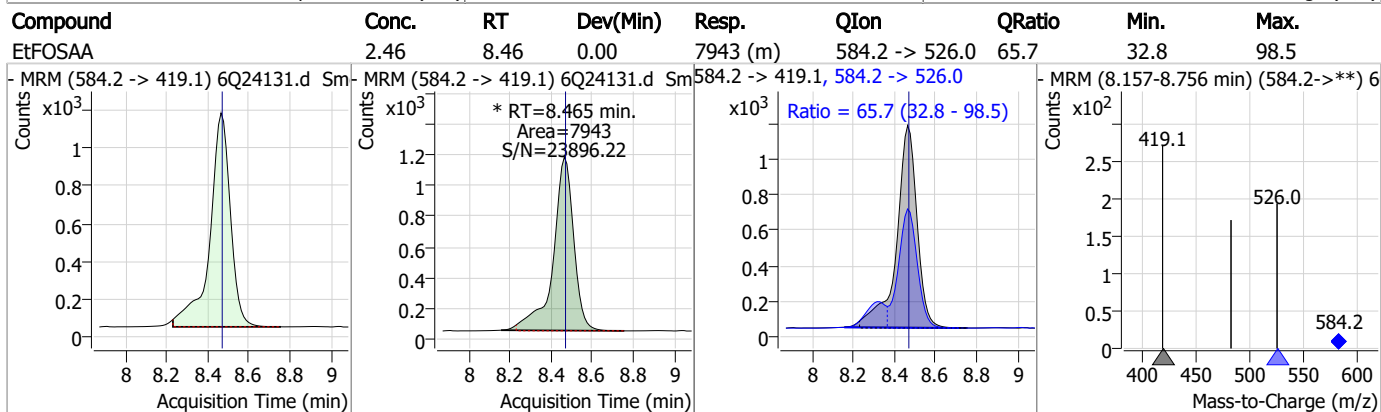
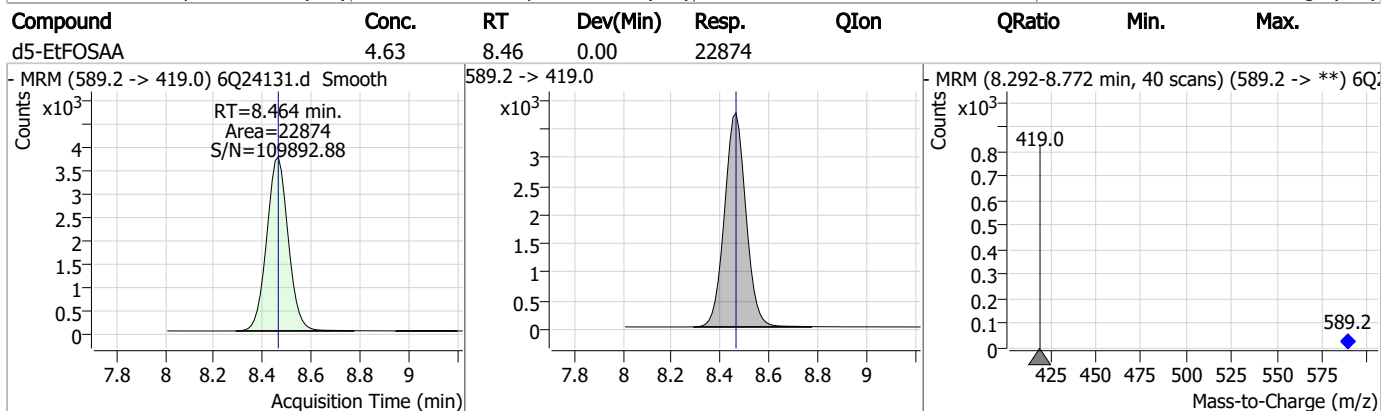
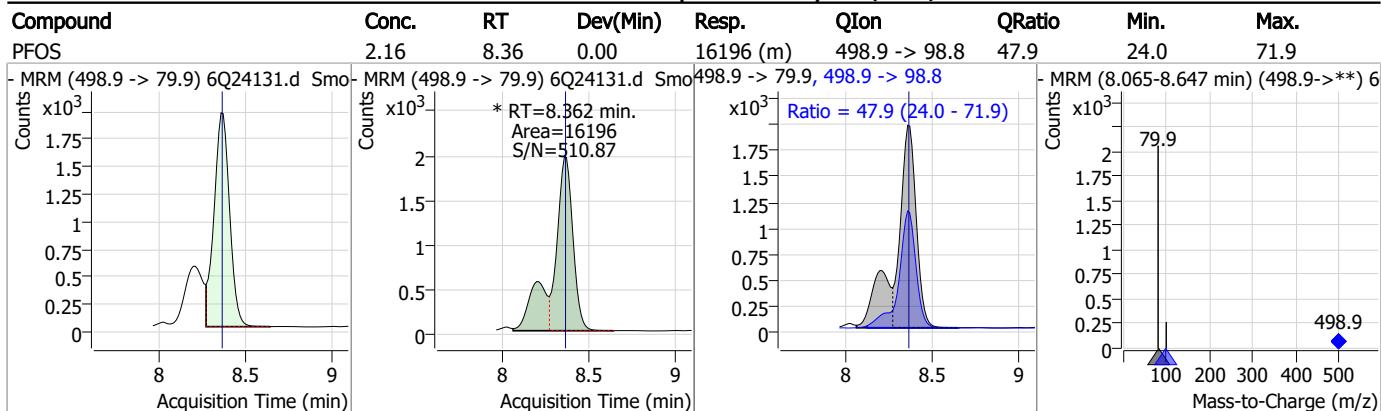
Perfluorinated Compounds by LC/MS/MS



7.7.5

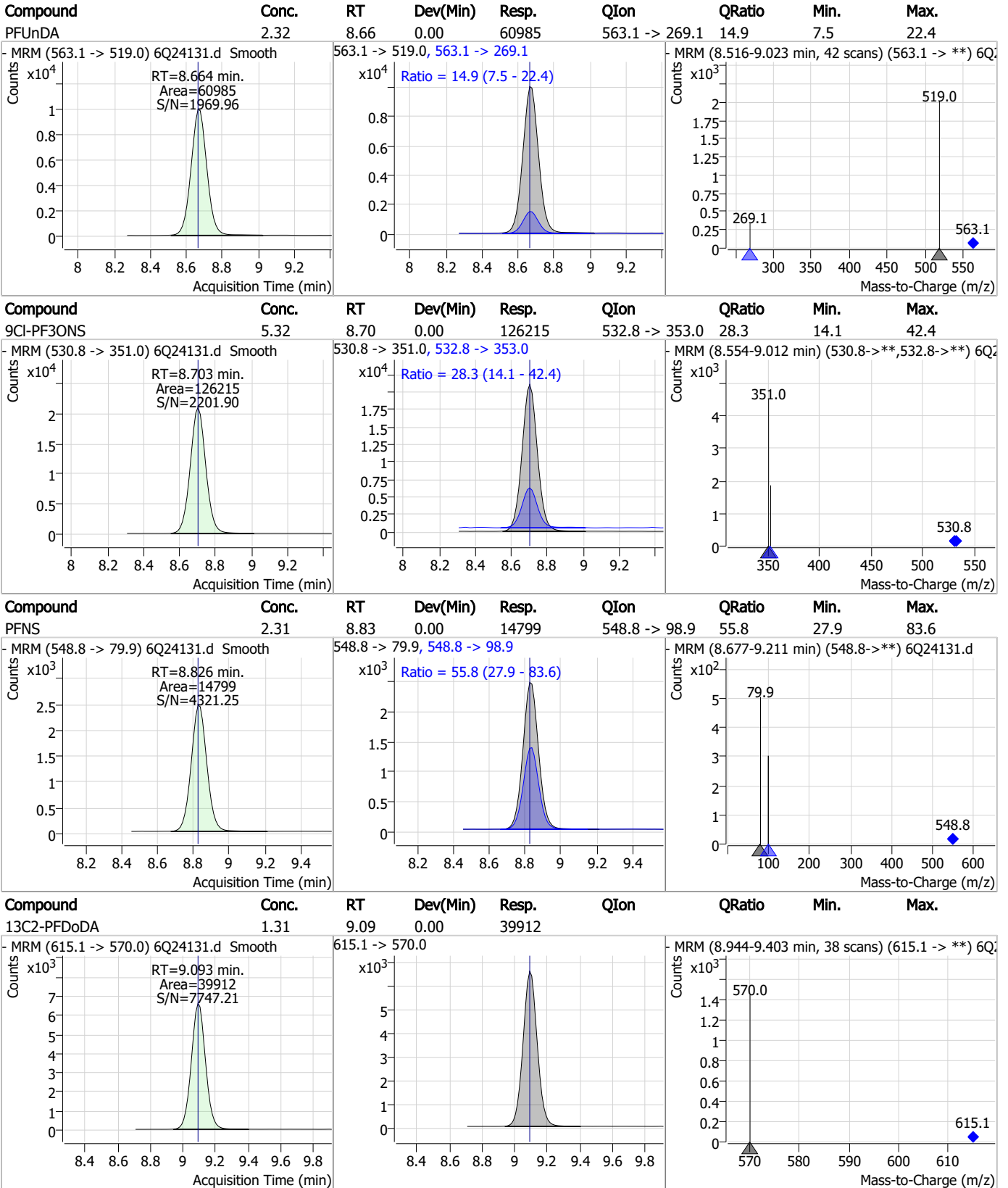
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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Perfluorinated Compounds by LC/MS/MS

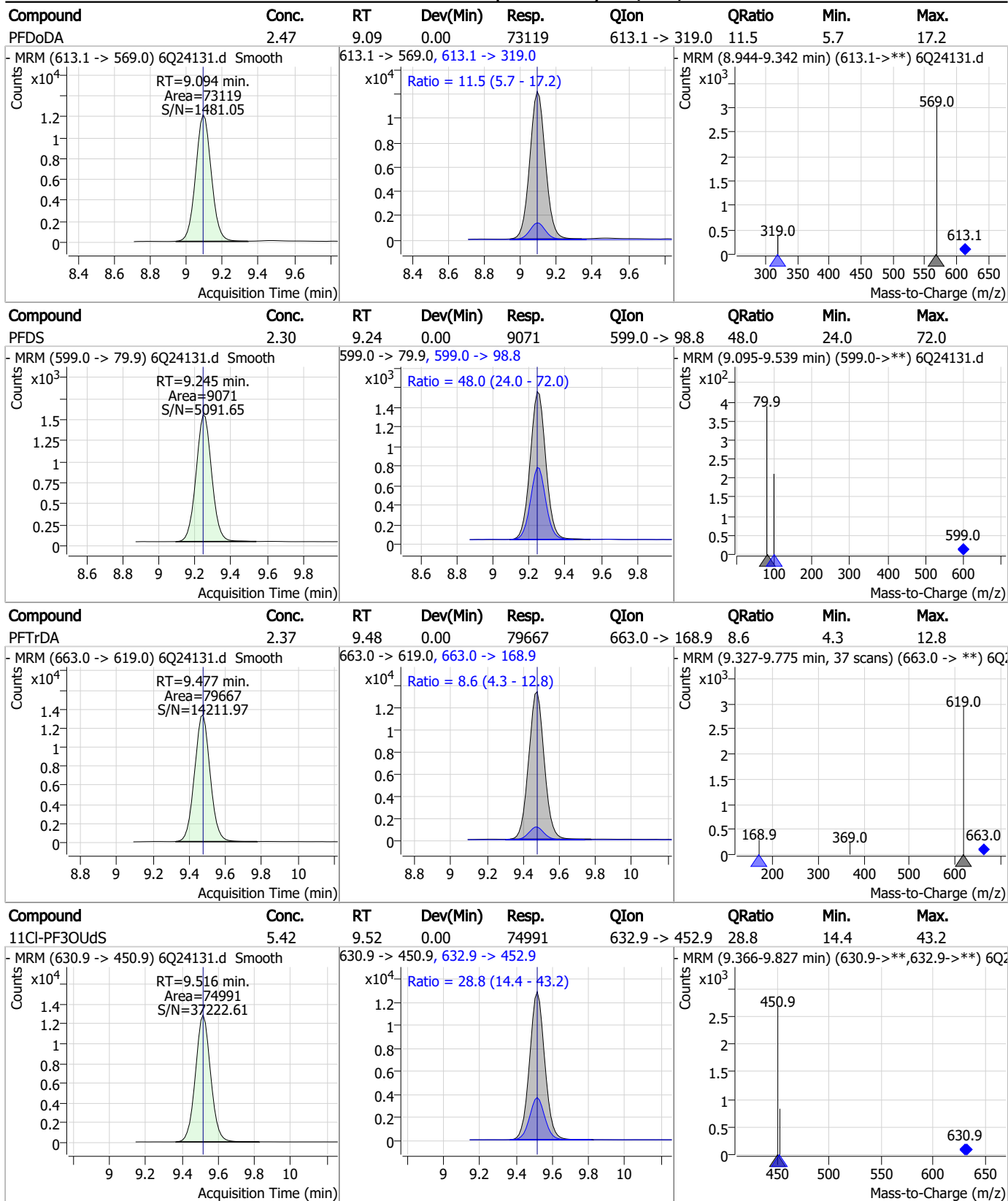


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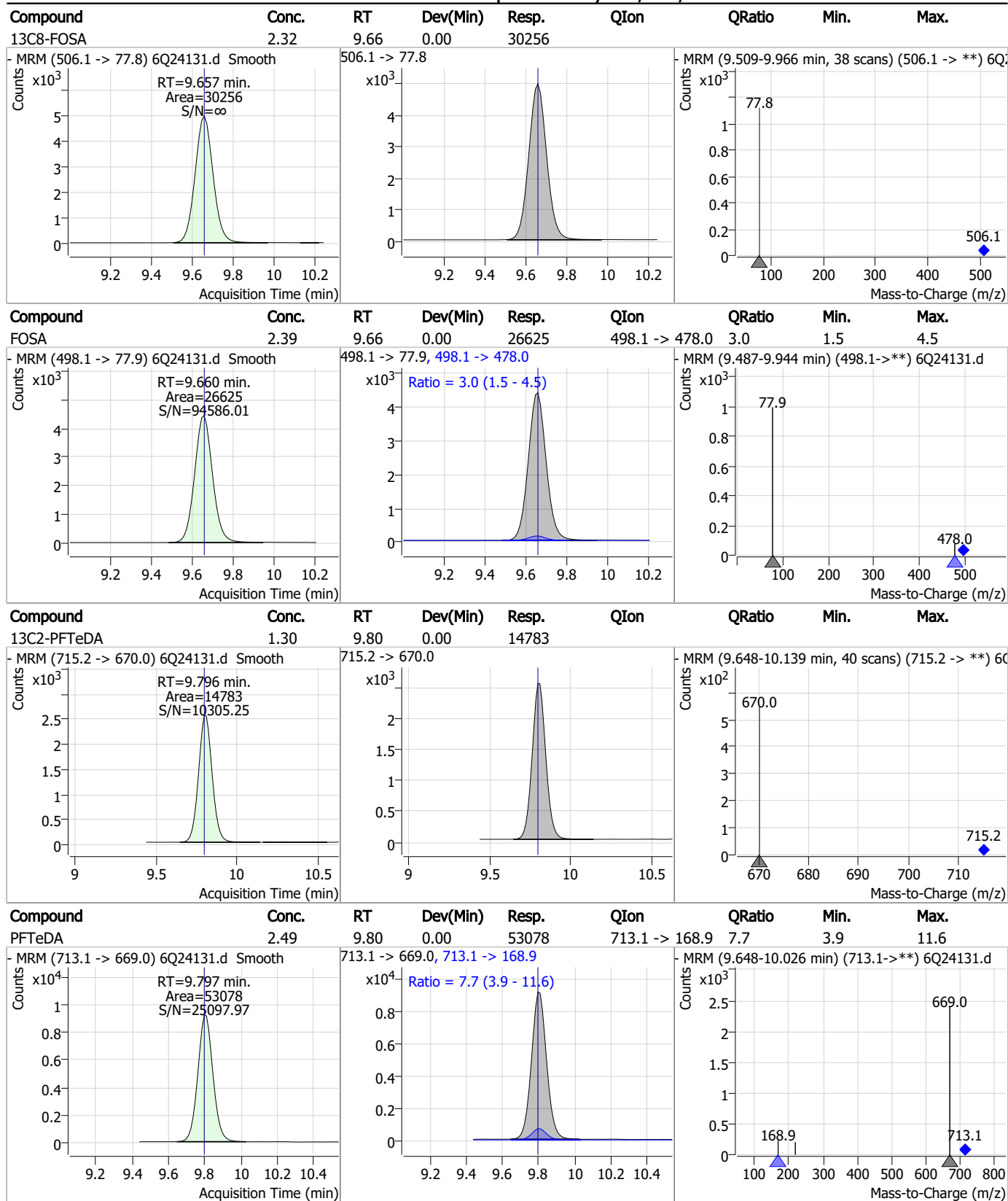


Perfluorinated Compounds by LC/MS/MS



7.7.5
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Perfluorinated Compounds by LC/MS/MS



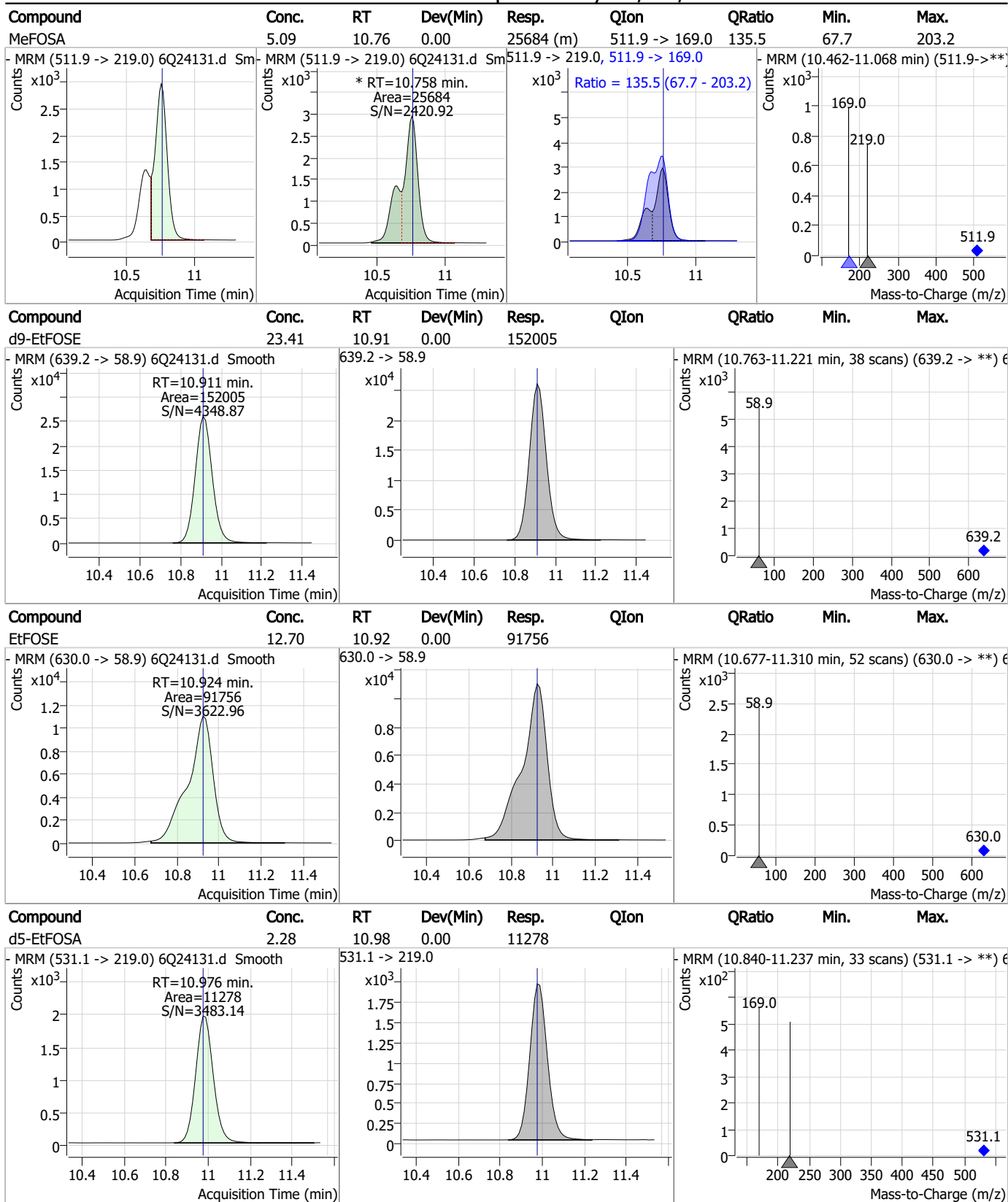
7.7.5
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.36	9.92	0.00	5093	699.1 -> 98.8	56.5	28.3	84.8
d7-MeFOSE	22.94	10.68	0.00	110675	623.2 -> 58.9			
MeFOSE	12.30	10.69	0.00	58852	616.1 -> 58.9			
d3-MeFOSA	2.25	10.76	0.00	11893	515.0 -> 219.0			

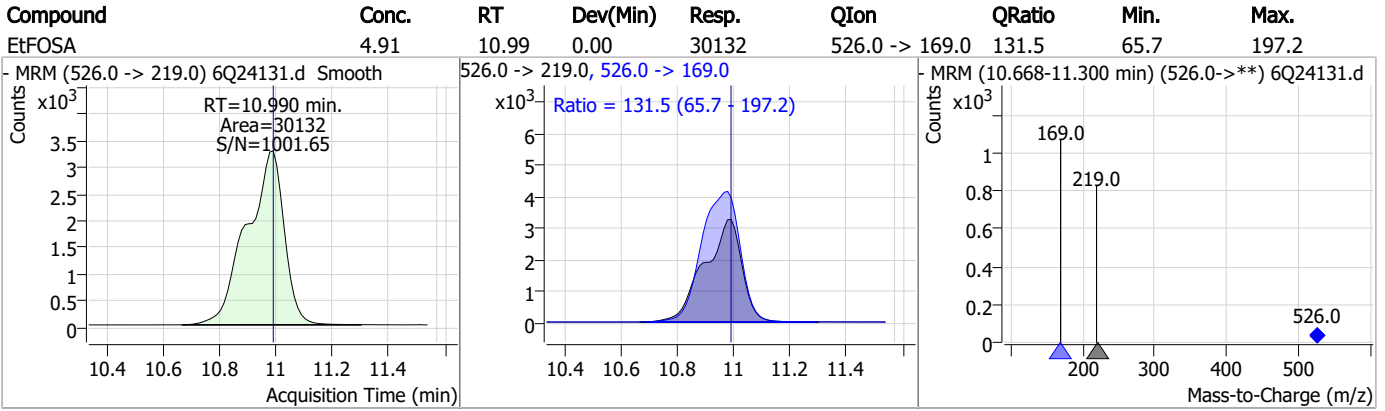
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S6Q347-ICC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24131.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:29 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24132.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:43:33 PM
 Sample Name : ic347-5
 Vial : P1-A6
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	194322	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	36396	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	74636	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	56595	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	77788	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	33776	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31458	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	44185	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	40715	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14113	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	28864	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	24553	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13055	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	12679	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2875	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4079	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4708	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	26426	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	40257	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	21922	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	112992	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	150799	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11162	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	12370	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	16832	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	77076	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9932	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	82933	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	29840	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	40146	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	53259	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2875	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4079	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4708	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	40715	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14113	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.9%		
13C3-PFBS	5.571	302.1 -> 79.9	24553	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C3-PFHxS	7.313	402.1 -> 79.9	13055	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 = 95.7%	
13C4-PFBA	2.985	216.8 -> 171.9	194322	9.98 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.569	367.1 -> 322.0	56595	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFHxA	5.641	318.0 -> 273.0	74636	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFPeA	4.422	268.3 -> 223.0	36396	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C6-PFDA	8.210	519.1 -> 474.1	31458	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C7-PFUnDA	8.663	570.0 -> 525.1	44185	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-FOSA	9.657	506.1 -> 77.8	28864	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C8-PFOA	7.198	421.1 -> 376.0	77788	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C8-PFOS	8.361	507.1 -> 79.9	12679	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C9-PFNA	7.729	472.1 -> 427.0	33776	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	26426	5.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	40257	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSA	10.757	515.0 -> 219.0	12370	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
d5-EtFOSAA	8.464	589.2 -> 419.0	21922	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d7-MeFOSE	10.678	623.2 -> 58.9	112992	25.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
d9-EtFOSE	10.911	639.2 -> 58.9	150799	25.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d5-EtFOSA	10.976	531.1 -> 219.0	11162	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	89313	18.79 µg/L	99
		327.1 -> 80.9	33576		
6:2FTS	6.974	427.1 -> 407.0	73088	20.25 µg/L	100
		427.1 -> 80.9	29004		
8:2FTS	7.999	527.1 -> 507.0	56836	17.89 µg/L	92
		527.1 -> 80.8	19652		
EtFOSAA	8.465	584.2 -> 419.1	14897	4.81 µg/L	m 87
		584.2 -> 526.0	11358		
FOSA	9.647	498.1 -> 77.9	53389	5.03 µg/L	99
		498.1 -> 478.0	1782		
MeFOSAA	8.257	570.1 -> 419.0	27013	4.30 µg/L	98
		570.1 -> 483.0	5720		
PFBA	2.993	212.8 -> 168.9	127128	19.80 µg/L	100
PFBS	5.572	298.7 -> 79.9	51107	4.24 µg/L	97
		298.7 -> 98.8	18392		
PFDA	8.211	512.9 -> 469.0	148868	5.19 µg/L	98
		512.9 -> 219.0	23061		
PFDoDA	9.094	613.1 -> 569.0	149865	4.96 µg/L	100
		613.1 -> 319.0	17448		
PFDS	9.245	599.0 -> 79.9	19117	5.17 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	9284			
PFHpA	6.569	363.1 -> 319.0	152393	5.09	µg/L	100
		363.1 -> 169.0	22350			
PFHpS	7.868	449.0 -> 79.9	29288	4.77	µg/L	94
		449.0 -> 98.9	14845			
PFHxA	5.644	313.0 -> 269.0	133386	4.91	µg/L	100
		313.0 -> 118.9	5688			
PFHxS	7.314	398.7 -> 79.9	39583	4.83	µg/L	m 98
		398.7 -> 98.9	18603			
PFNA	7.730	463.0 -> 419.0	120572	4.73	µg/L	97
		463.0 -> 219.0	28112			
PFNS	8.826	548.8 -> 79.9	29011	4.85	µg/L	98
		548.8 -> 98.9	16552			
PFOA	7.200	413.0 -> 369.0	187081	4.67	µg/L	98
		413.0 -> 169.0	32630			
PFOS	8.362	498.9 -> 79.9	34051	4.85	µg/L	m 98
		498.9 -> 98.8	15874			
PFPeA	4.424	263.0 -> 219.0	160163	9.88	µg/L	100
PFPeS	6.620	349.1 -> 79.9	36493	5.14	µg/L	92
		349.1 -> 98.9	15355			
PFTeDA	9.797	713.1 -> 669.0	106026	5.22	µg/L	98
		713.1 -> 168.9	7548			
PFTrDA	9.464	663.0 -> 619.0	170717	4.97	µg/L	97
		663.0 -> 168.9	12889			
PFUnDA	8.664	563.1 -> 519.0	126118	4.98	µg/L	100
		563.1 -> 269.1	18540			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	136464	9.29	µg/L	94
		632.9 -> 452.9	43709			
9Cl-PF3ONS	8.703	530.8 -> 351.0	249575	9.91	µg/L	100
		532.8 -> 353.0	70986			
ADONA	6.817	376.9 -> 250.9	544860	9.35	µg/L	100
		376.9 -> 84.8	148280			
HFPO-DA	6.020	284.9 -> 168.9	38007	9.98	µg/L	97
		284.9 -> 184.9	5410			
3:3FTCA	3.858	241.0 -> 177.0	26639	23.98	µg/L	100
		241.0 -> 117.0	2538			
5:3FTCA	6.271	341.0 -> 237.1	561724	121.70	µg/L	96
		341.0 -> 217.0	381387			
7:3FTCA	7.657	441.0 -> 316.9	343407	125.90	µg/L	91
		441.0 -> 336.9	730771			
EtFOSA	10.990	526.0 -> 219.0	63058	10.38	µg/L	96
		526.0 -> 169.0	80186			
EtFOSE	10.924	630.0 -> 58.9	178421	24.90	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	51136	9.74	µg/L	m 100
		511.9 -> 169.0	69484			
MeFOSE	10.691	616.1 -> 58.9	122226	25.02	µg/L	100
PFDoS	9.923	699.1 -> 79.9	10383	5.13	µg/L	97
		699.1 -> 98.8	5629			
NFDHA	5.524	295.0 -> 201.0	30641	9.73	µg/L	93
		295.0 -> 84.9	8148			
PFMBA	4.850	279.0 -> 85.1	116250	9.84	µg/L	100
PFMPA	3.551	229.0 -> 84.9	83524	9.86	µg/L	100
PFEESA	6.112	314.8 -> 134.9	300099	8.84	µg/L	100
		314.8 -> 82.9	10436			

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

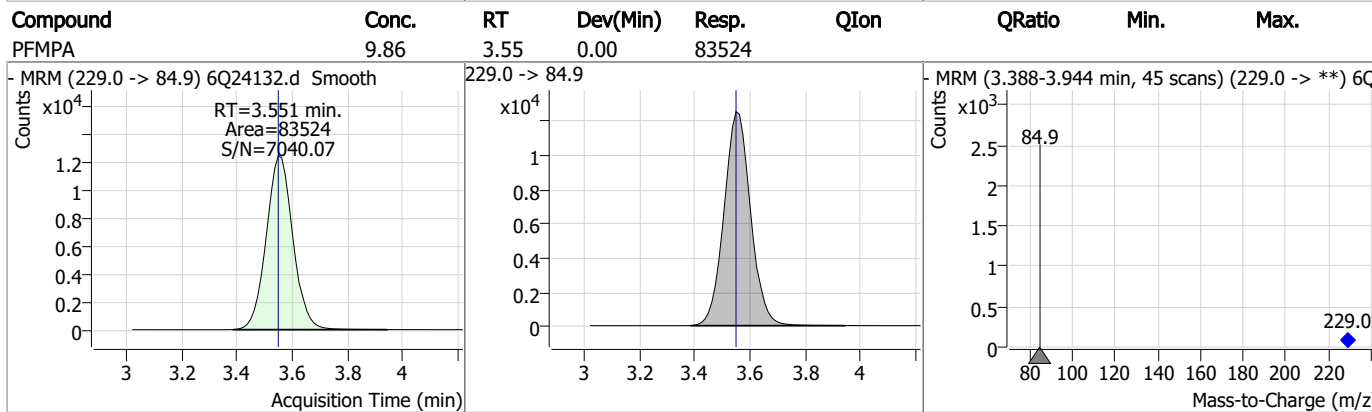
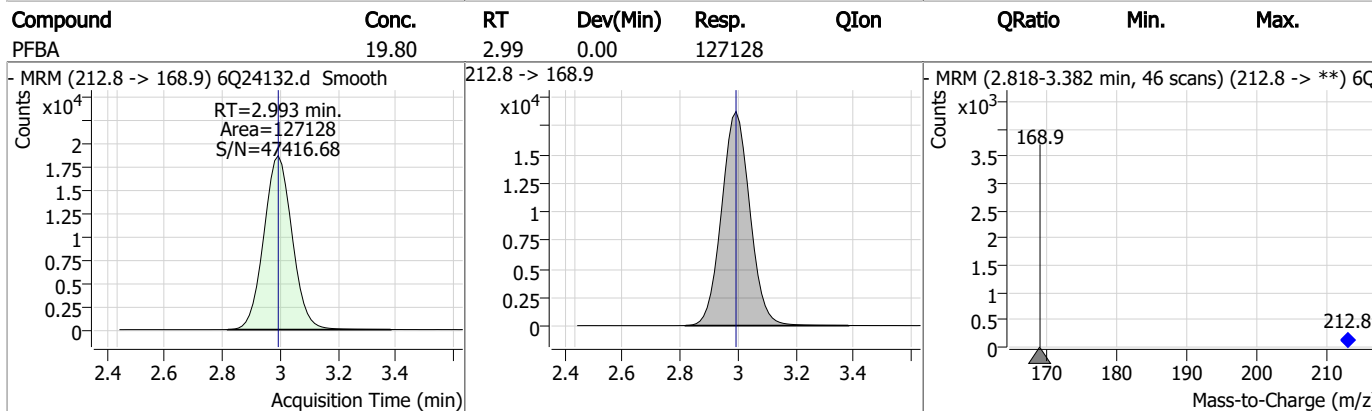
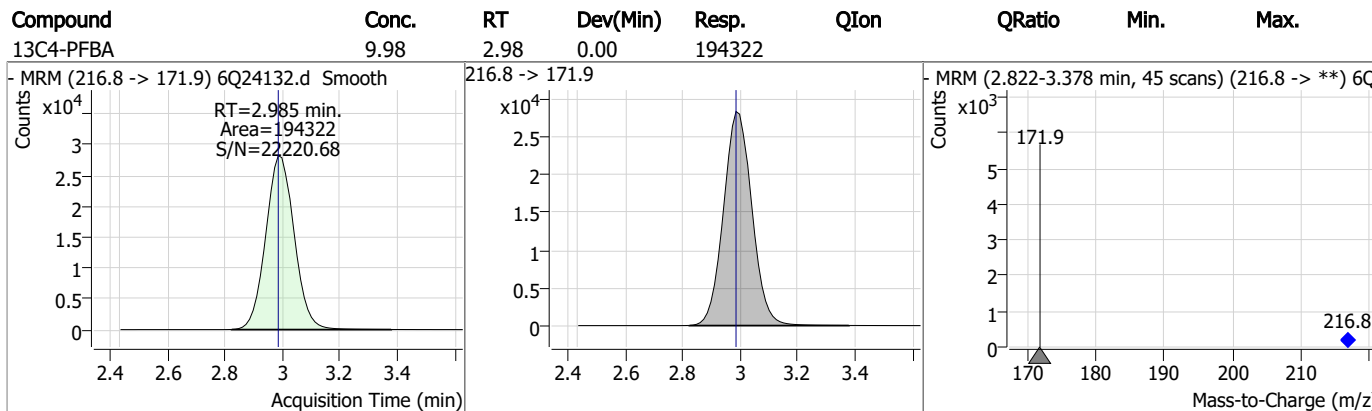
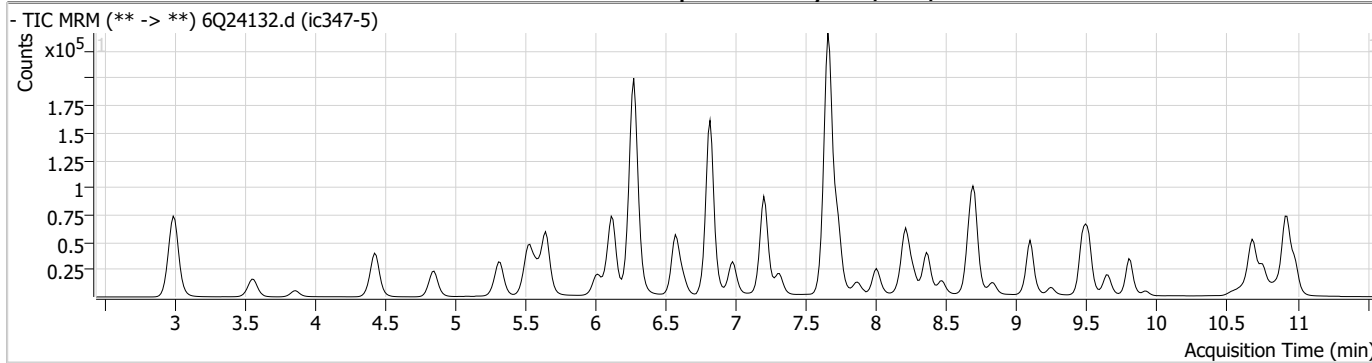
Perfluorinated Compounds by LC/MS/MS

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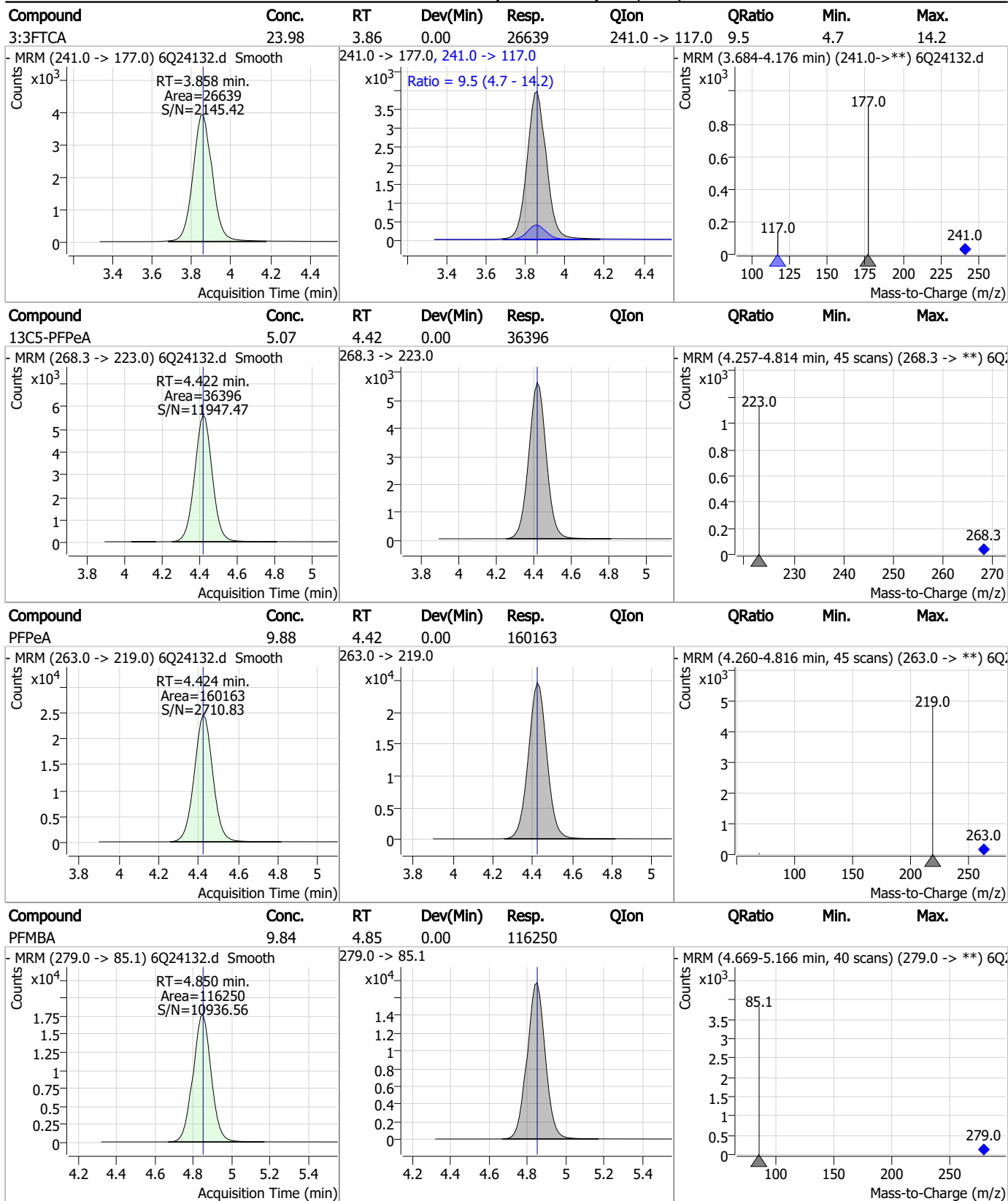
7.7.6

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Perfluorinated Compounds by LC/MS/MS

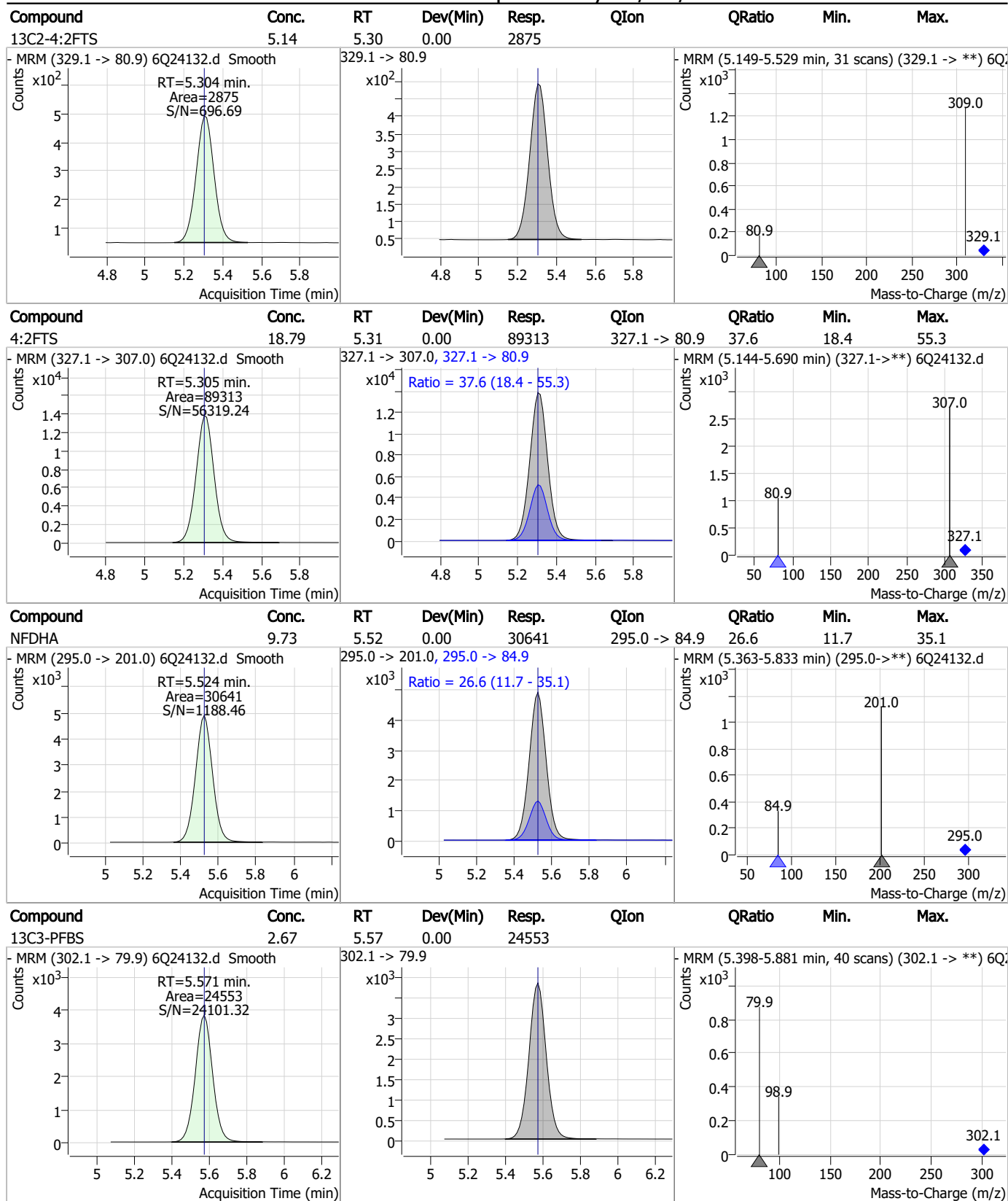


Perfluorinated Compounds by LC/MS/MS



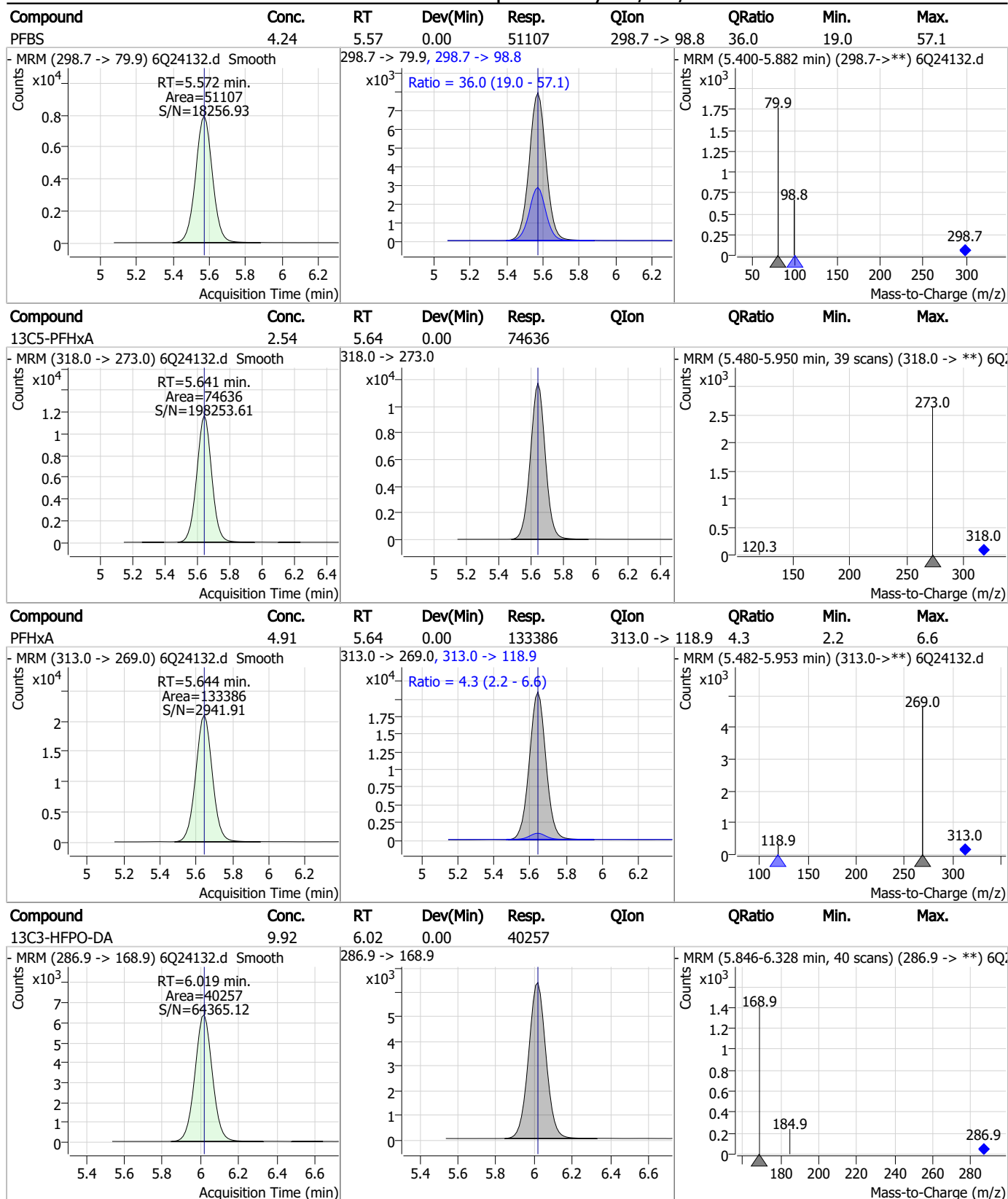
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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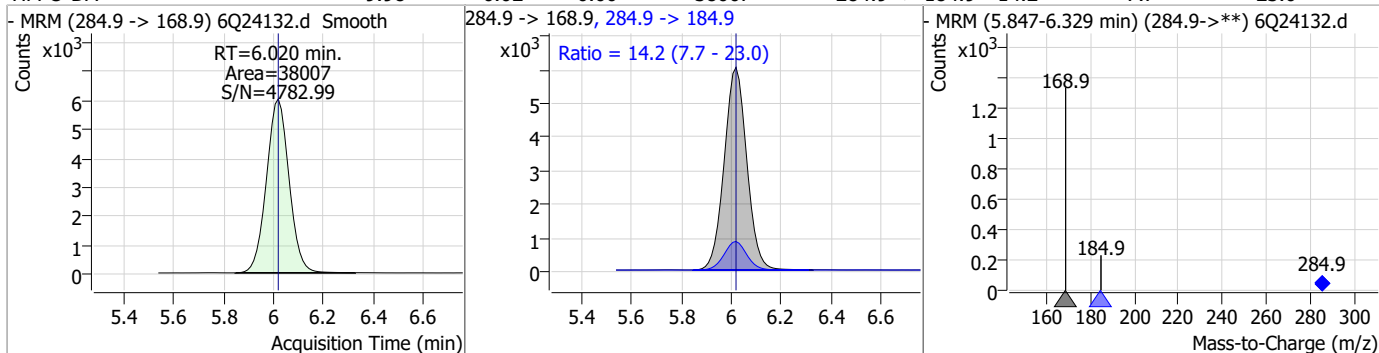
Perfluorinated Compounds by LC/MS/MS



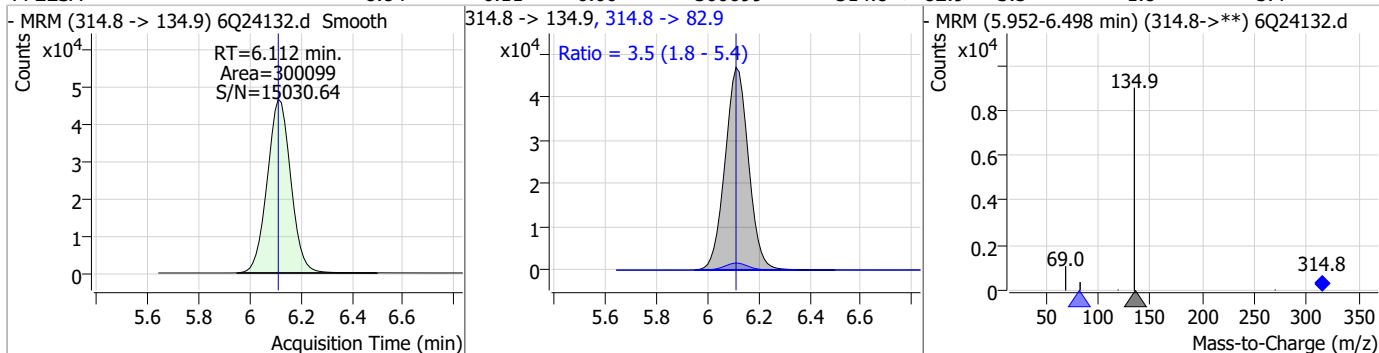
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Perfluorinated Compounds by LC/MS/MS

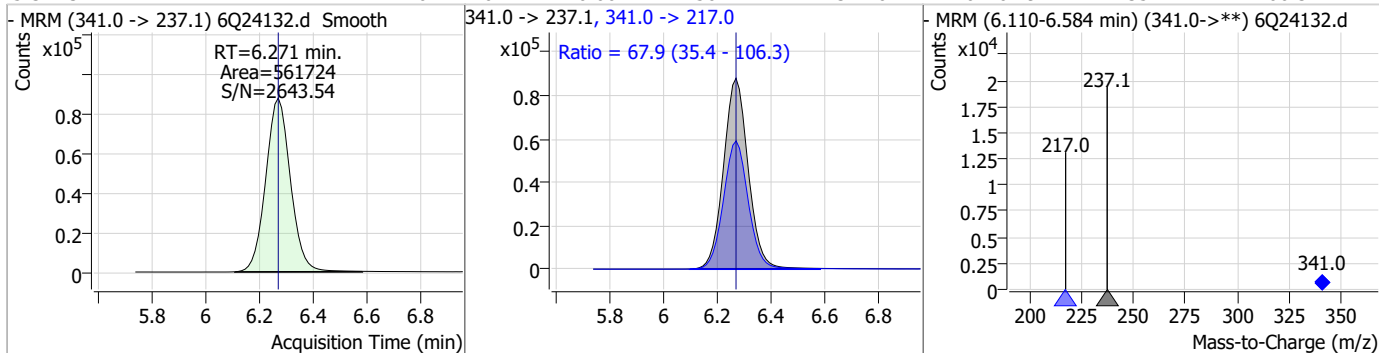
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.98	6.02	0.00	38007	284.9 -> 184.9	14.2	7.7	23.0



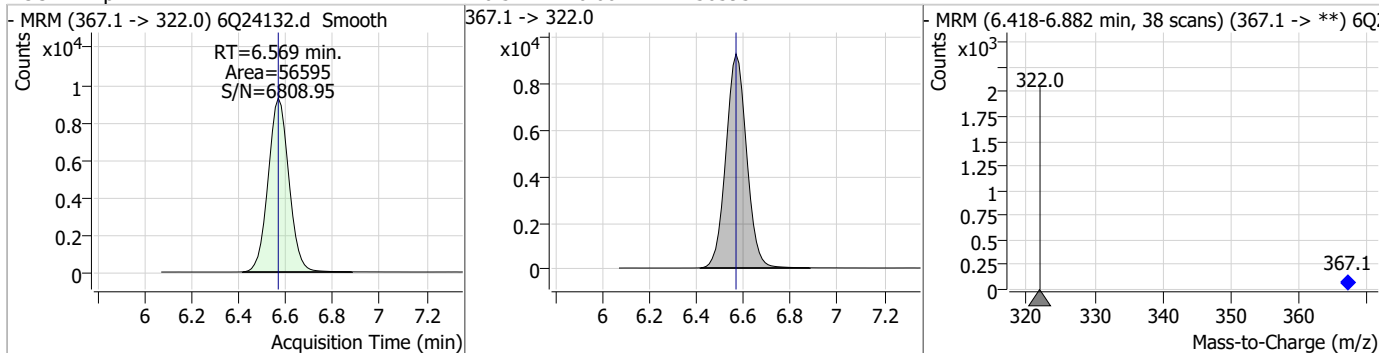
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.84	6.11	0.00	300099	314.8 -> 82.9	3.5	1.8	5.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	121.70	6.27	0.00	561724	341.0 -> 217.0	67.9	35.4	106.3

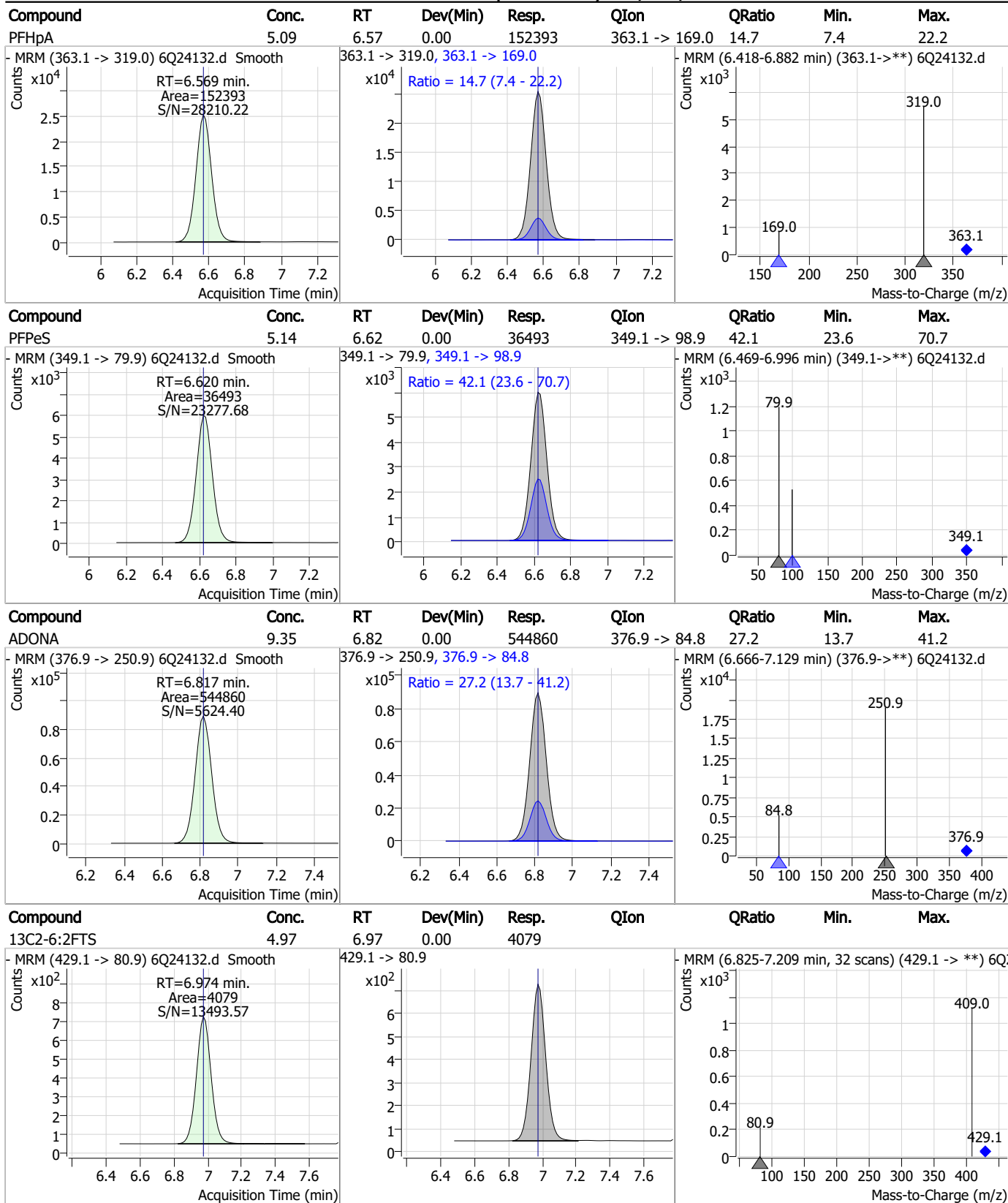


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.57	0.00	56595	367.1 -> 322.0			



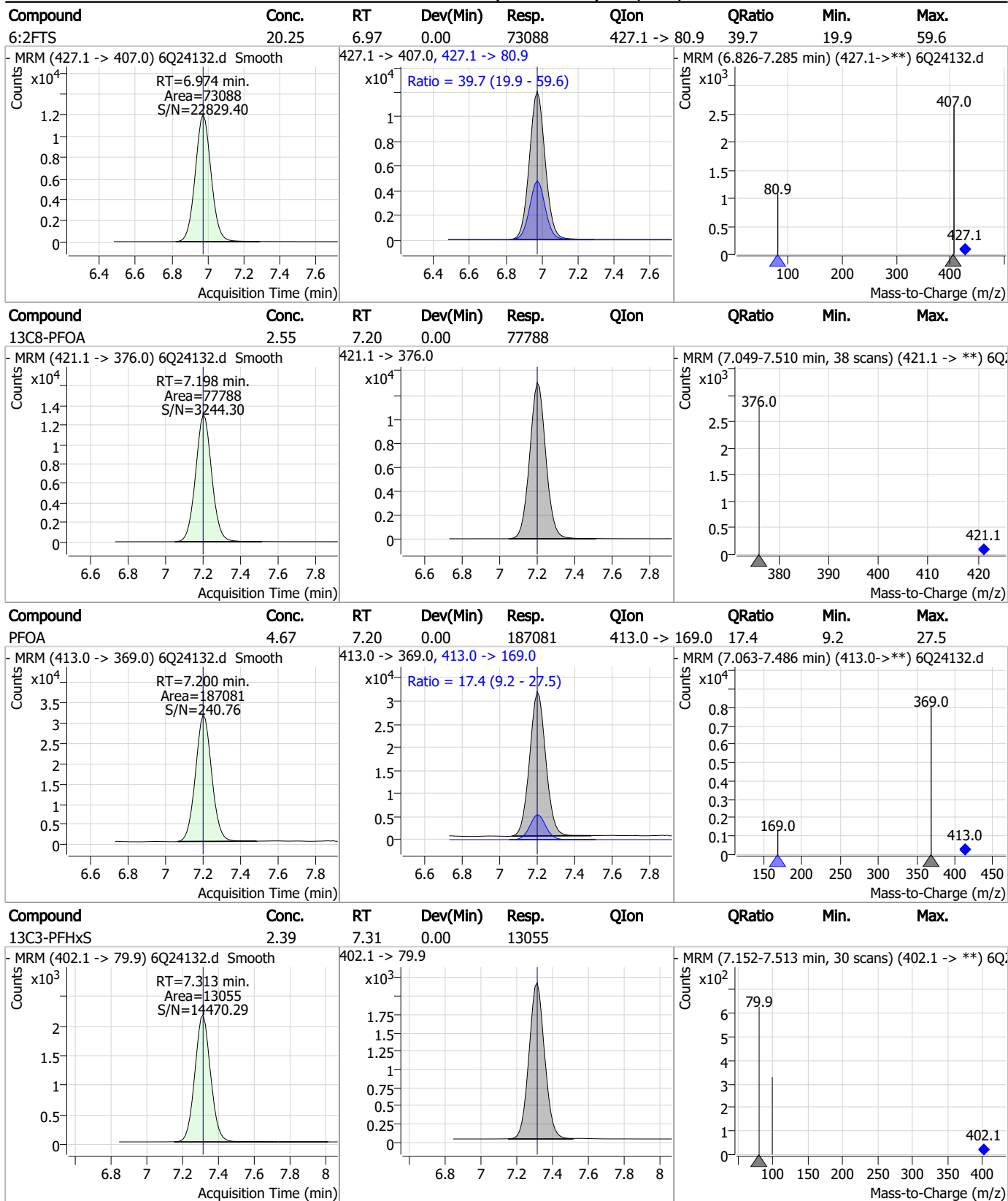
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Perfluorinated Compounds by LC/MS/MS



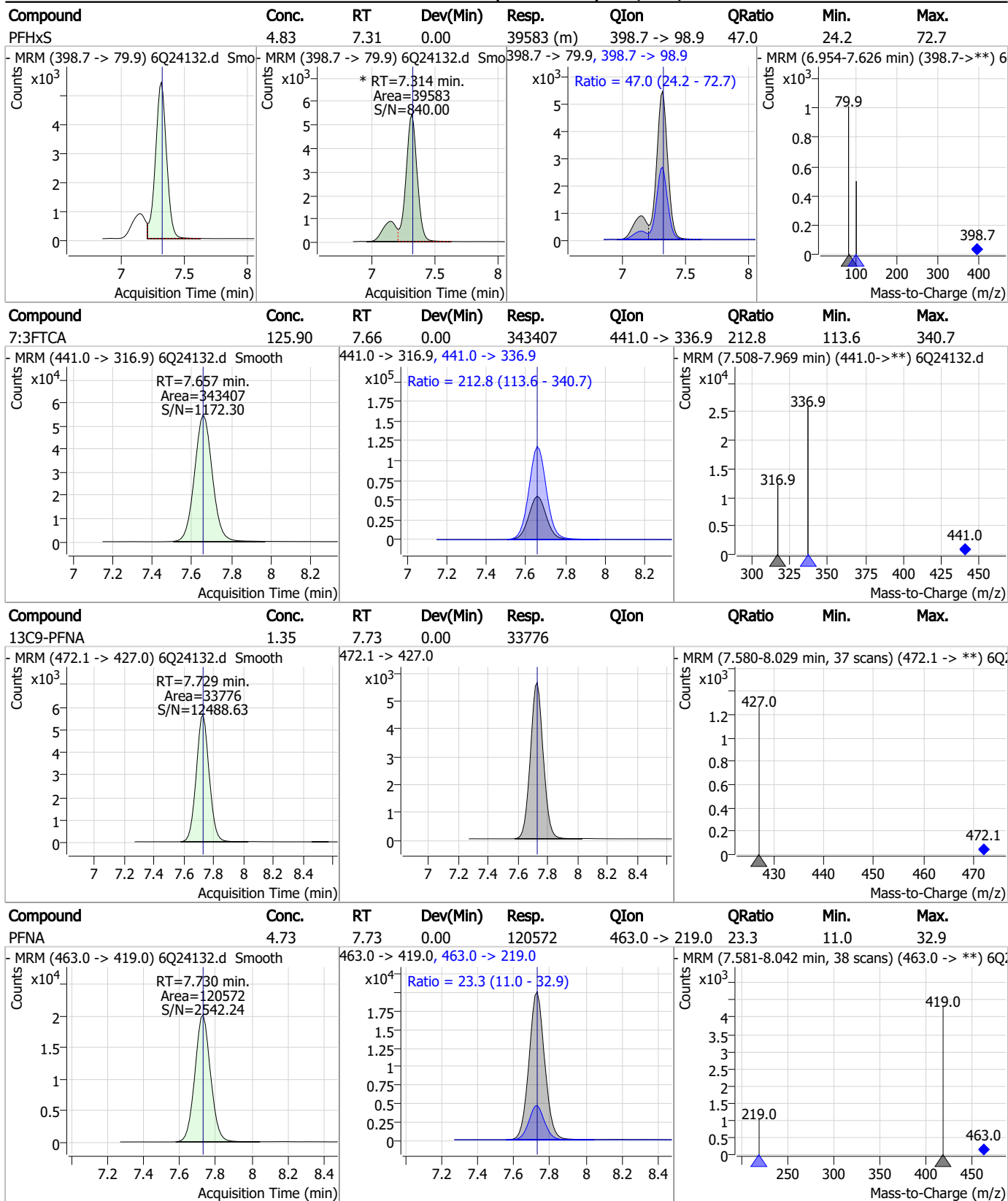
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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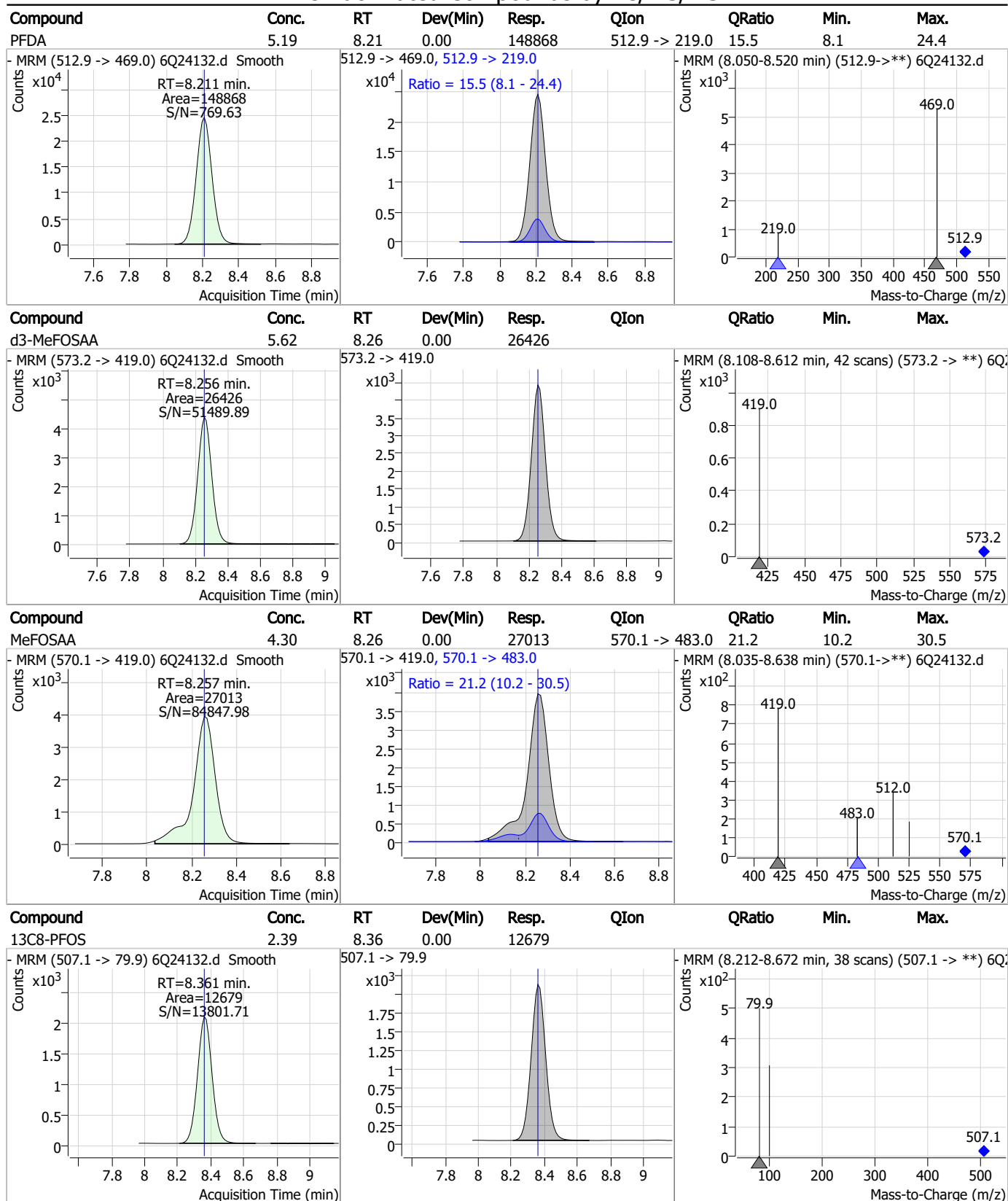
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.77	7.87	0.00	29288	449.0 -> 98.9	50.7	23.4	70.1
13C2-8:2FTS	5.54	8.00	0.00	4708	529.1 -> 80.9			
8:2FTS	17.89	8.00	0.00	56836	527.1 -> 80.8	34.6	19.7	59.0
13C6-PFDA	1.21	8.21	0.00	31458	519.1 -> 474.1			

7.7.6

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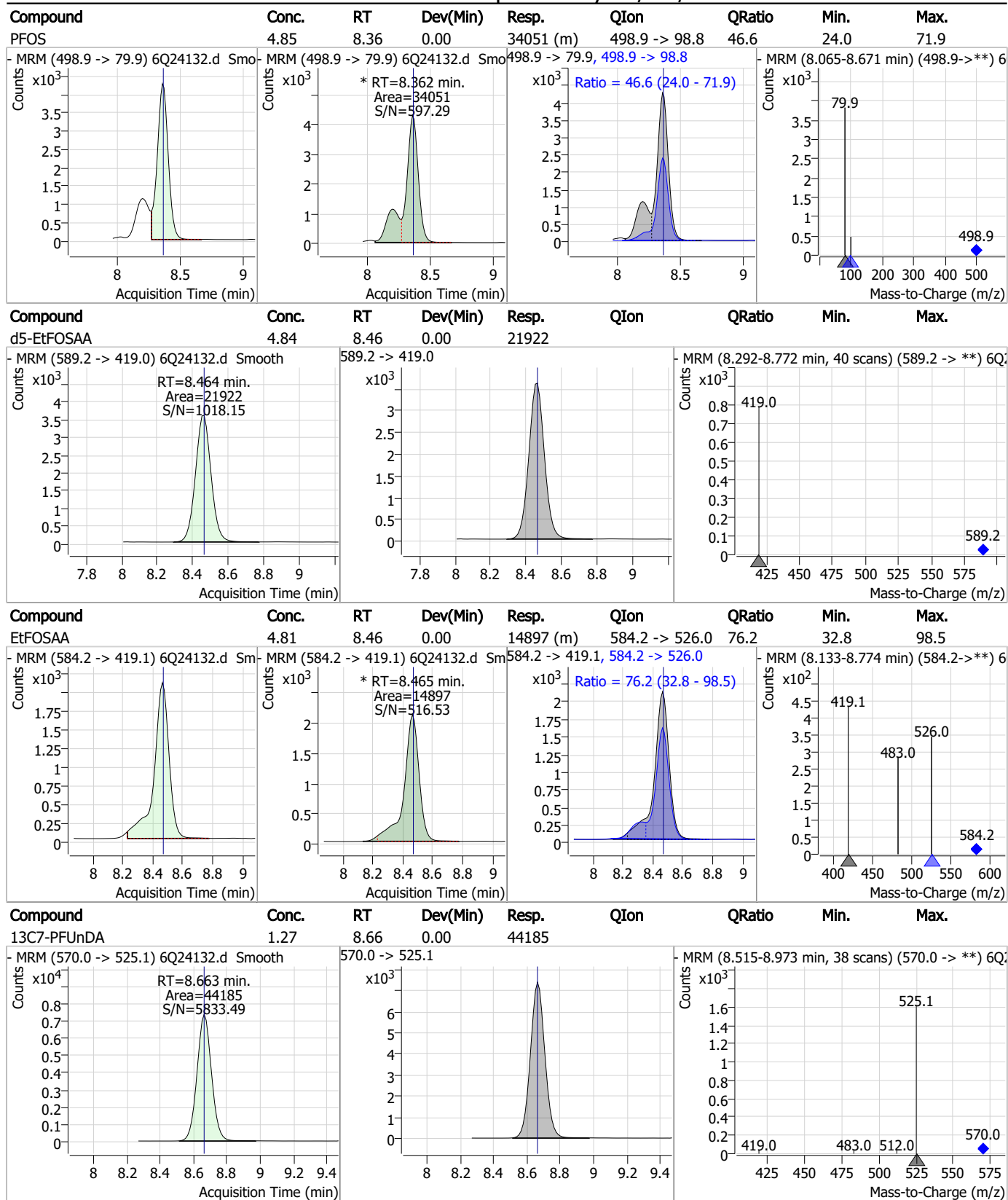
Perfluorinated Compounds by LC/MS/MS



7.7.6

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Perfluorinated Compounds by LC/MS/MS

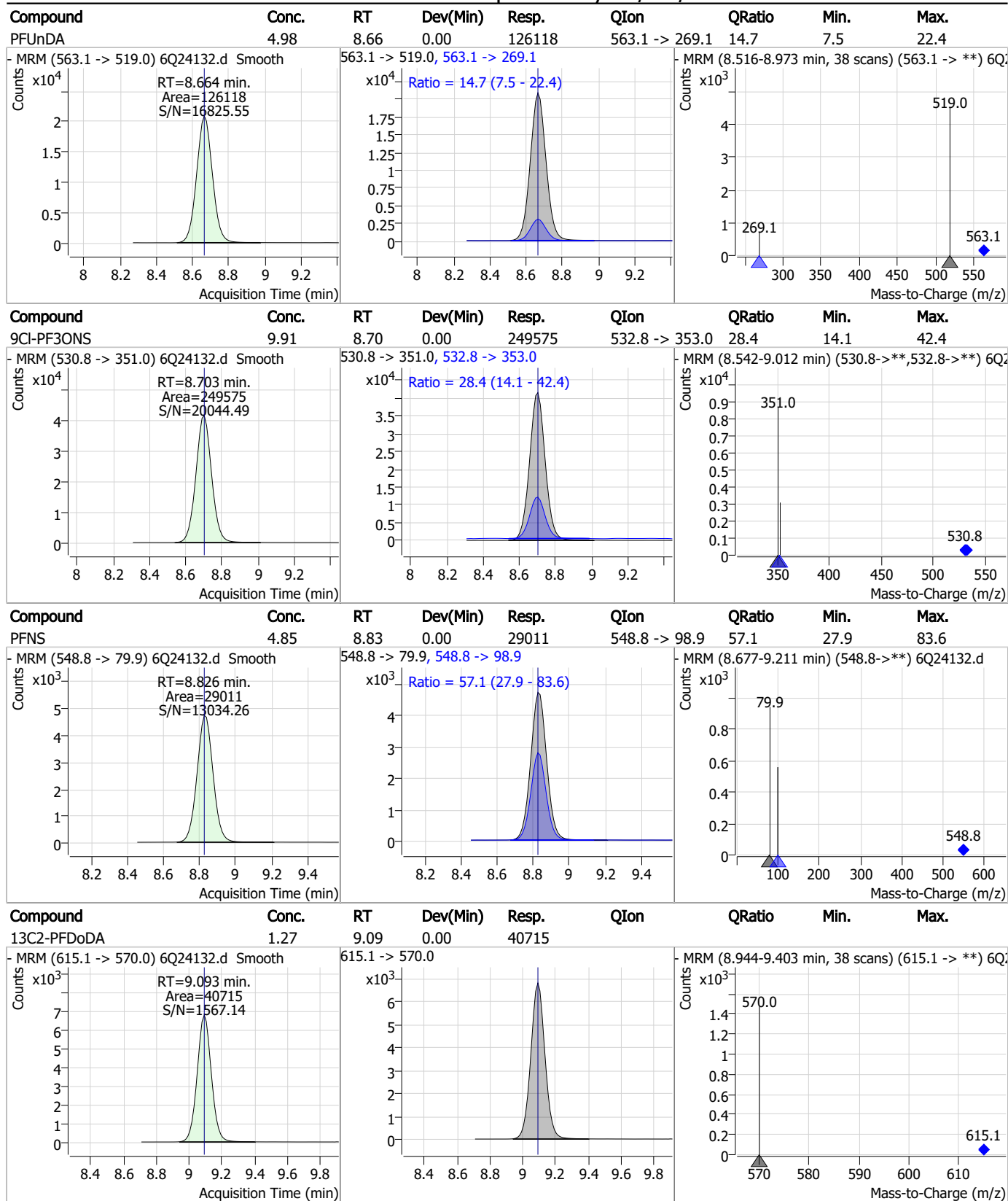


7.7.6

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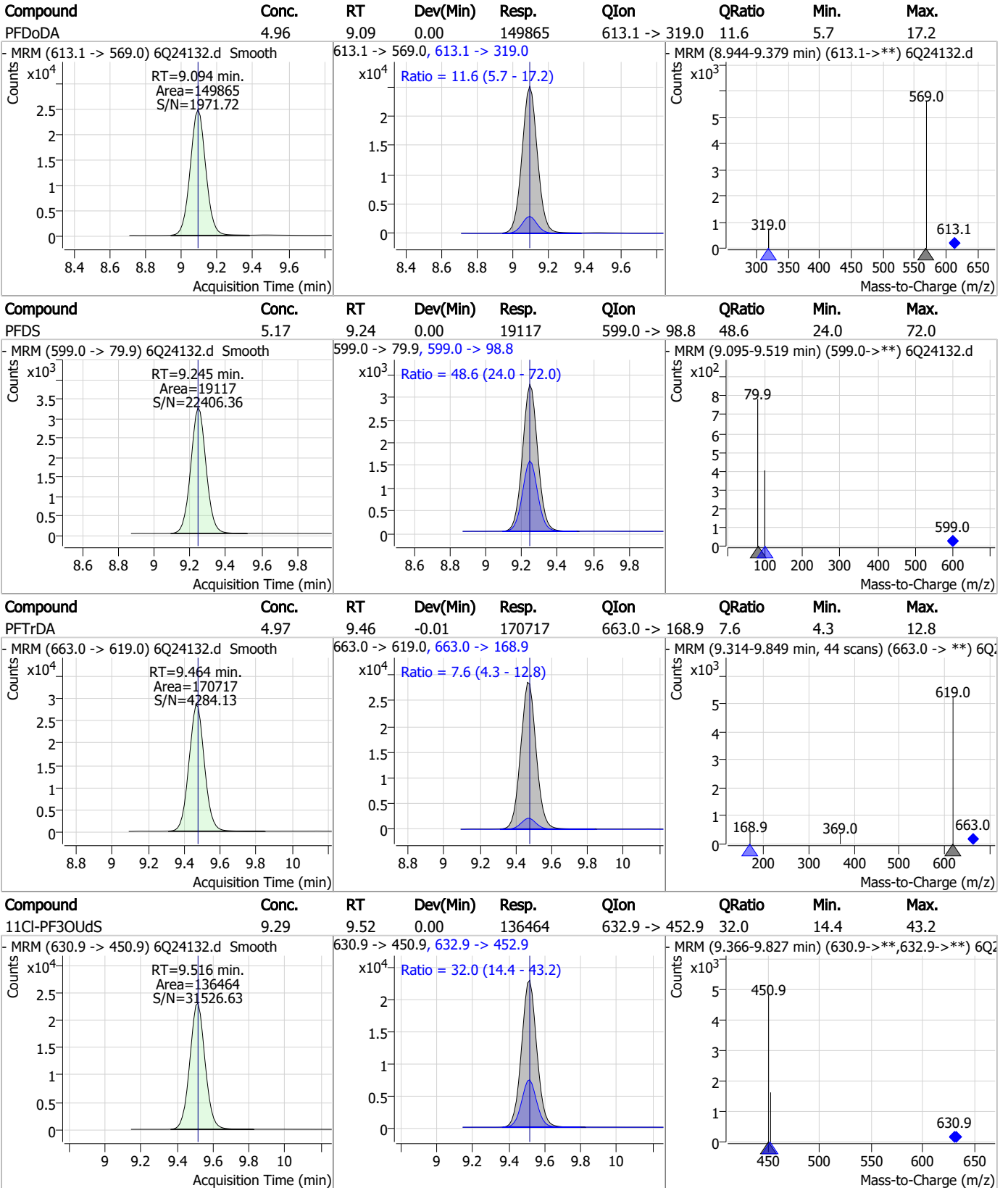
Perfluorinated Compounds by LC/MS/MS



7.7.6
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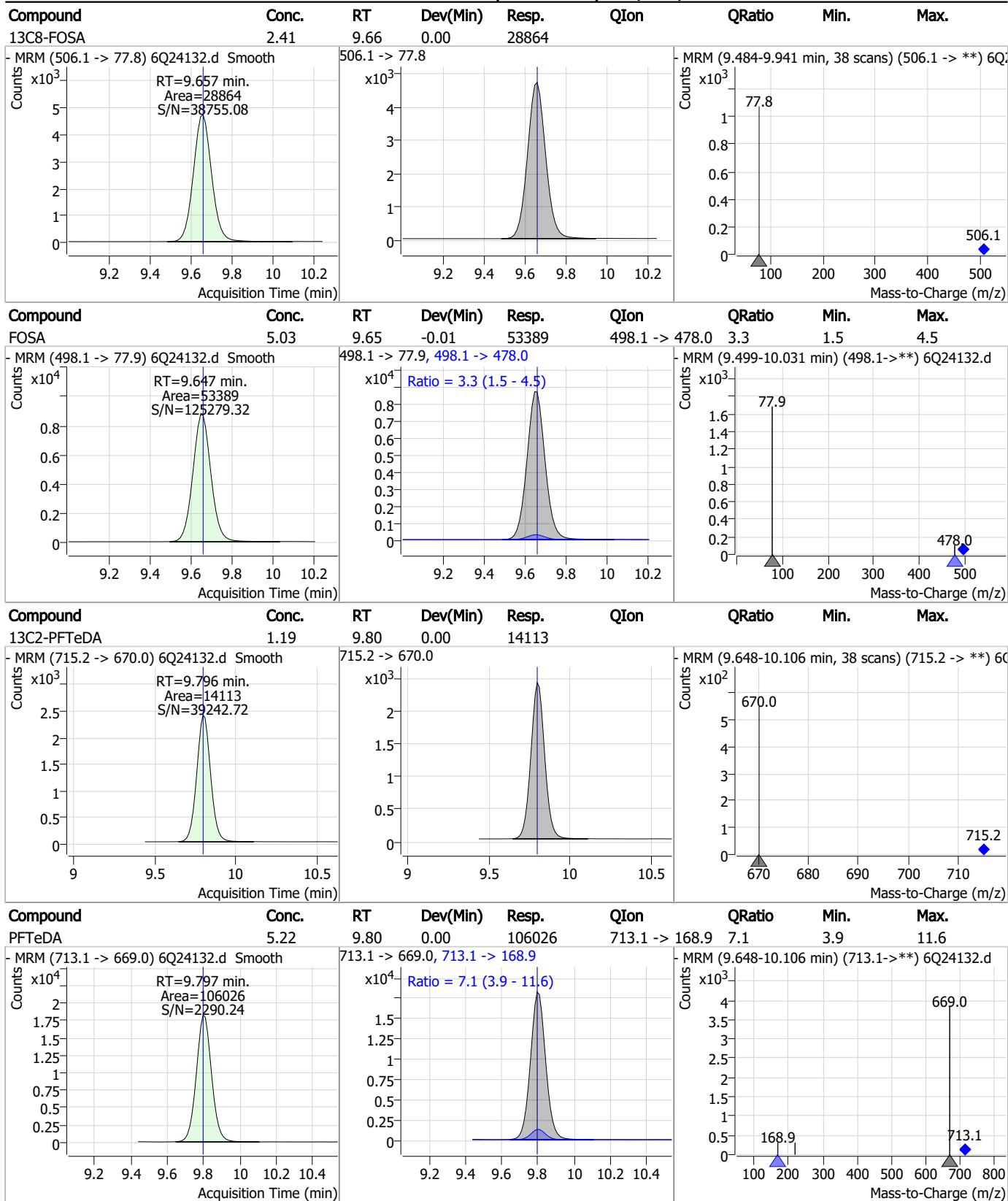
Perfluorinated Compounds by LC/MS/MS



7.7.6

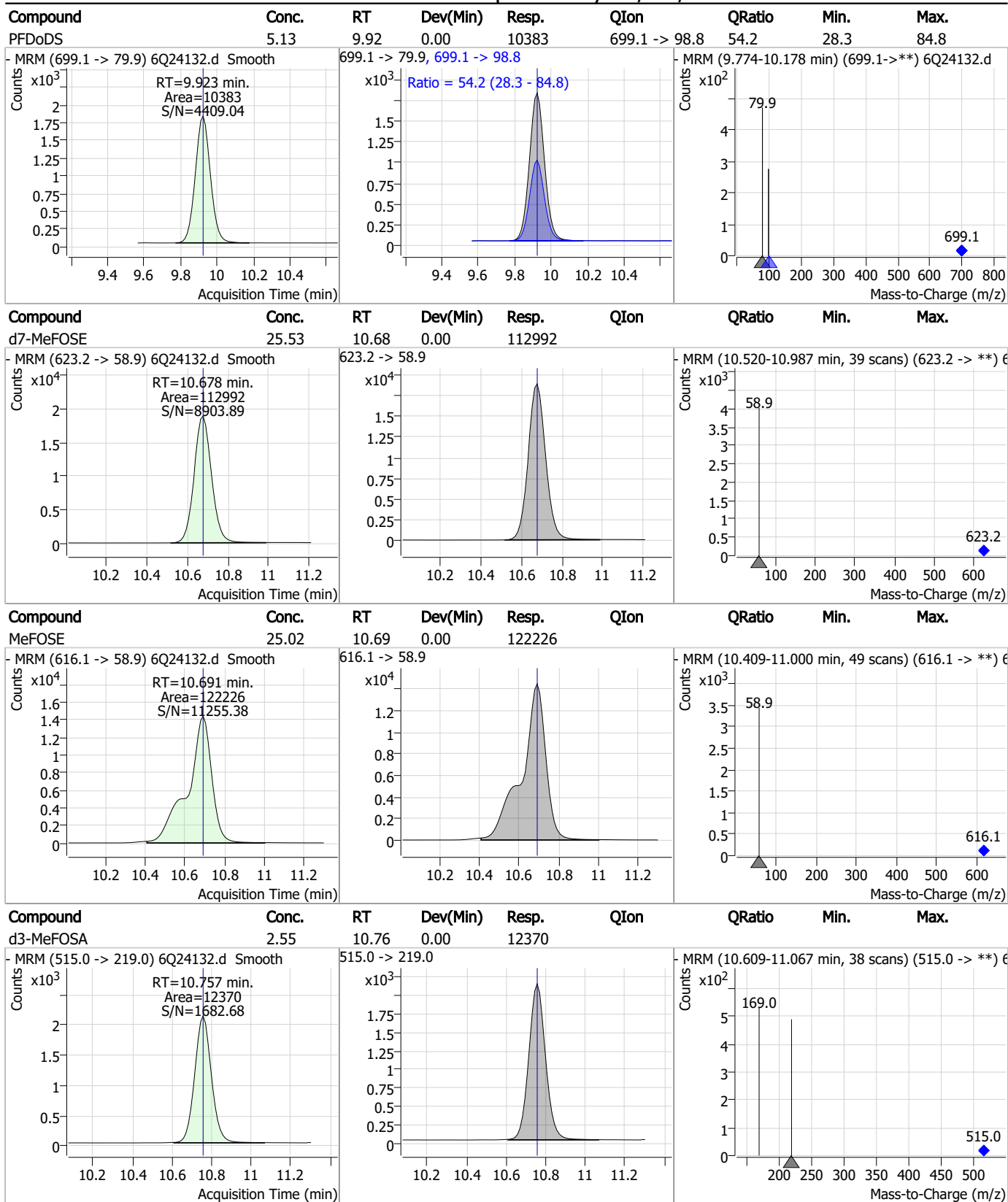
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Perfluorinated Compounds by LC/MS/MS



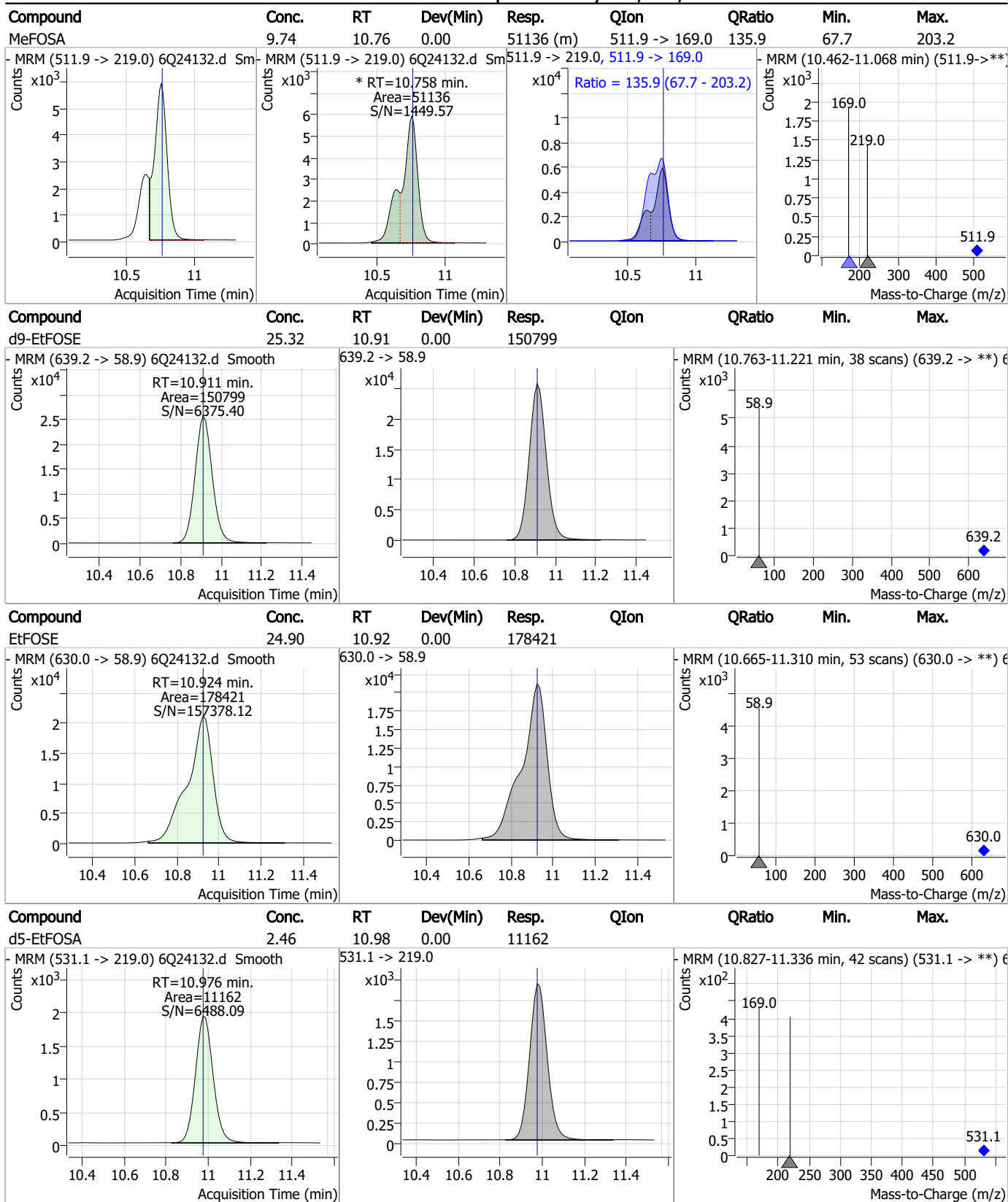
7.7.6
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Perfluorinated Compounds by LC/MS/MS



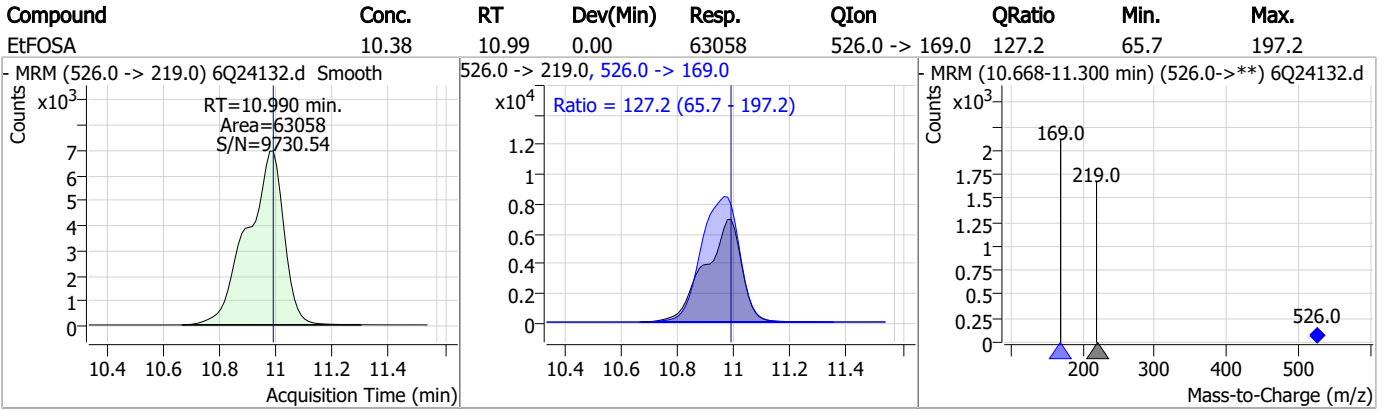
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6

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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24132.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:43 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.6.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 09/11/23 13:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24133.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 9:57:53 PM
 Sample Name : ic347-6
 Vial : P1-A7
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	180391	10.00 µg/L	0.013
M5-PFPeA	4.422	268.3 -> 223.0	34266	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	66353	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	54527	2.50 µg/L	0.000
M8-PFOA	7.211	421.1 -> 376.0	73624	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	30030	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31415	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	40783	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	35468	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	13514	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	28682	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	22086	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13941	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	12409	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2598	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3766	5.00 µg/L	0.012
M2-8:2FTS	7.998	529.1 -> 80.9	3901	5.00 µg/L	0.000
M3-MeFOSAA	8.268	573.2 -> 419.0	21568	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	40768	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	23964	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	104187	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	143170	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11099	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11674	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	16181	2.50 µg/L	0.012
13C3-PFBA	2.989	216.0 -> 172.0	71565	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	10073	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	75583	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	27053	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	41229	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	52140	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2598	4.58 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.7%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3766	4.53 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.5%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3901	4.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.6%		
13C2-PFDoDA	9.093	615.1 -> 570.0	35468	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFTeDA	9.796	715.2 -> 670.0	13514	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C3-PFBS	5.571	302.1 -> 79.9	22086	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFHxS	7.313	402.1 -> 79.9	13941	2.52 µg/L	0.000

7.7.7
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C4-PFBA	2.997	216.8 -> 171.9	180391	9.98 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C4-PFHpA	6.569	367.1 -> 322.0	54527	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C5-PFHxA	5.641	318.0 -> 273.0	66353	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C5-PFPeA	4.422	268.3 -> 223.0	34266	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C6-PFDA	8.210	519.1 -> 474.1	31415	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C7-PFUnDA	8.663	570.0 -> 525.1	40783	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C8-FOSA	9.657	506.1 -> 77.8	28682	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C8-PFOA	7.211	421.1 -> 376.0	73624	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C8-PFOS	8.373	507.1 -> 79.9	12409	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C9-PFNA	7.729	472.1 -> 427.0	30030	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
d3-MeFOSAA	8.268	573.2 -> 419.0	21568	4.77 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C3-HFPO-DA	6.019	286.9 -> 168.9	40768	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
d3-MeFOSA	10.757	515.0 -> 219.0	11674	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
d5-EtFOSAA	8.464	589.2 -> 419.0	23964	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
d7-MeFOSE	10.678	623.2 -> 58.9	104187	24.49 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.0%		
d9-EtFOSE	10.911	639.2 -> 58.9	143170	25.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
d5-EtFOSA	10.976	531.1 -> 219.0	11099	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.0%		
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	206949	48.16 µg/L	99
		327.1 -> 80.9	76988		
6:2FTS	6.987	427.1 -> 407.0	160327	48.13 µg/L	95
		427.1 -> 80.9	68239		
8:2FTS	8.012	527.1 -> 507.0	135599	51.52 µg/L	91
		527.1 -> 80.8	45715		
EtFOSAA	8.465	584.2 -> 419.1	35944	10.62 µg/L	m 94
		584.2 -> 526.0	25356		
FOSA	9.660	498.1 -> 77.9	139263	13.19 µg/L	99
		498.1 -> 478.0	3572		
MeFOSAA	8.269	570.1 -> 419.0	67222	13.12 µg/L	m 100
		570.1 -> 483.0	13575		
PFBA	2.993	212.8 -> 168.9	310779	52.13 µg/L	100
PFBS	5.572	298.7 -> 79.9	123050	11.36 µg/L	98
		298.7 -> 98.8	45278		
PFDA	8.211	512.9 -> 469.0	359744	12.57 µg/L	99
		512.9 -> 219.0	57342		
PFDoDA	9.094	613.1 -> 569.0	367886	13.98 µg/L	99
		613.1 -> 319.0	41275		
PFDS	9.245	599.0 -> 79.9	45223	12.51 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	22142			
PFHpA	6.582	363.1 -> 319.0	368343	12.77	µg/L	99
		363.1 -> 169.0	55663			
PFHpS	7.868	449.0 -> 79.9	71482	11.90	µg/L	96
		449.0 -> 98.9	35469			
PFHxA	5.644	313.0 -> 269.0	329142	13.63	µg/L	100
		313.0 -> 118.9	13956			
PFHxS	7.314	398.7 -> 79.9	91678	10.49	µg/L	m 99
		398.7 -> 98.9	44834			
PFNA	7.730	463.0 -> 419.0	292769	12.93	µg/L	96
		463.0 -> 219.0	69145			
PFNS	8.838	548.8 -> 79.9	79872	13.63	µg/L	93
		548.8 -> 98.9	40602			
PFOA	7.212	413.0 -> 369.0	503057	13.26	µg/L	95
		413.0 -> 169.0	81684			
PFOS	8.374	498.9 -> 79.9	78788	11.46	µg/L	m 98
		498.9 -> 98.8	36740			
PFPeA	4.424	263.0 -> 219.0	389244	25.50	µg/L	100
PFPeS	6.633	349.1 -> 79.9	87380	11.52	µg/L	96
		349.1 -> 98.9	38620			
PFTeDA	9.797	713.1 -> 669.0	247222	12.70	µg/L	99
		713.1 -> 168.9	19544			
PFTrDA	9.464	663.0 -> 619.0	410884	13.73	µg/L	96
		663.0 -> 168.9	29175			
PFUnDA	8.676	563.1 -> 519.0	308368	13.20	µg/L	99
		563.1 -> 269.1	44709			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	346039	23.27	µg/L	94
		632.9 -> 452.9	111089			
9Cl-PF3ONS	8.703	530.8 -> 351.0	590310	23.15	µg/L	99
		532.8 -> 353.0	171312			
ADONA	6.817	376.9 -> 250.9	1354994	22.95	µg/L	98
		376.9 -> 84.8	357055			
HFPO-DA	6.020	284.9 -> 168.9	94716	24.55	µg/L	97
		284.9 -> 184.9	13394			
3:3FTCA	3.858	241.0 -> 177.0	66485	64.48	µg/L	100
		241.0 -> 117.0	6236			
5:3FTCA	6.271	341.0 -> 237.1	1402378	341.77	µg/L	95
		341.0 -> 217.0	935160			
7:3FTCA	7.669	441.0 -> 316.9	779941	321.64	µg/L	97
		441.0 -> 336.9	1810510			
EtFOSA	10.978	526.0 -> 219.0	150862	24.98	µg/L	97
		526.0 -> 169.0	193581			
EtFOSE	10.924	630.0 -> 58.9	438292	64.42	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	127843	25.80	µg/L	m 97
		511.9 -> 169.0	167923			
MeFOSE	10.691	616.1 -> 58.9	292041	64.82	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	24460	12.35	µg/L	98
		699.1 -> 98.8	13547			
NFDHA	5.524	295.0 -> 201.0	76081	27.18	µg/L	96
		295.0 -> 84.9	19190			
PFMBA	4.850	279.0 -> 85.1	285219	25.64	µg/L	100
PFMPA	3.551	229.0 -> 84.9	205098	25.71	µg/L	100
PFEESA	6.112	314.8 -> 134.9	706454	23.41	µg/L	100
		314.8 -> 82.9	26389			

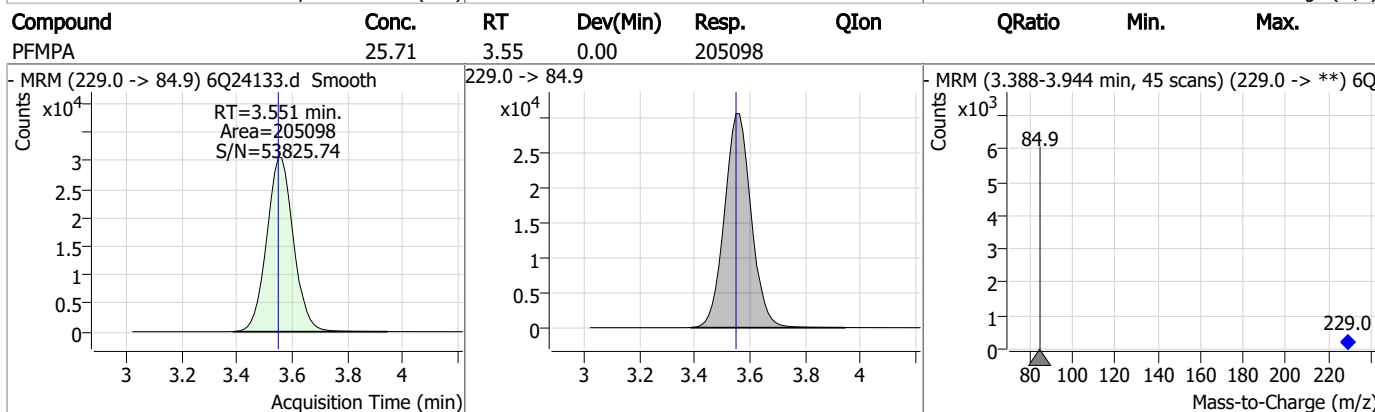
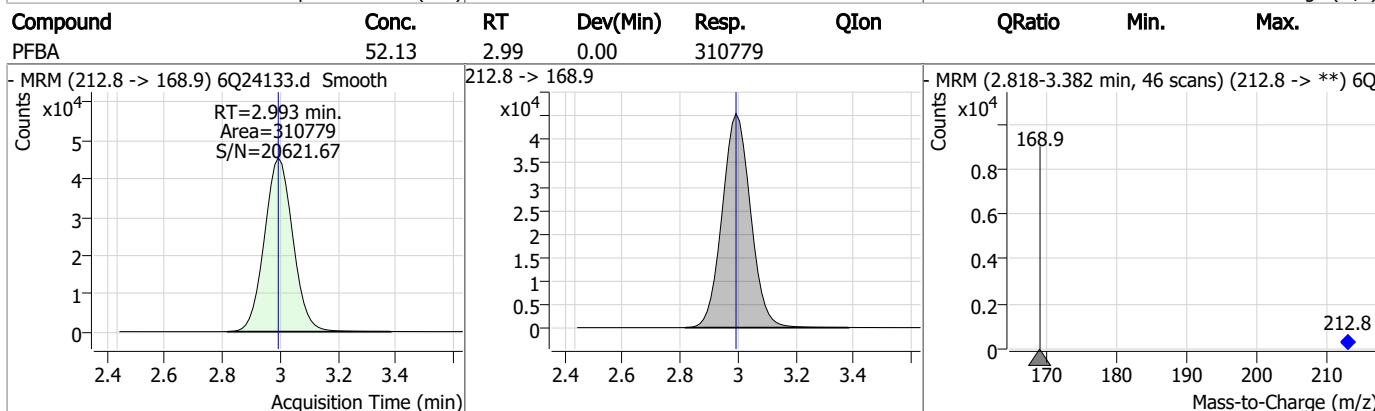
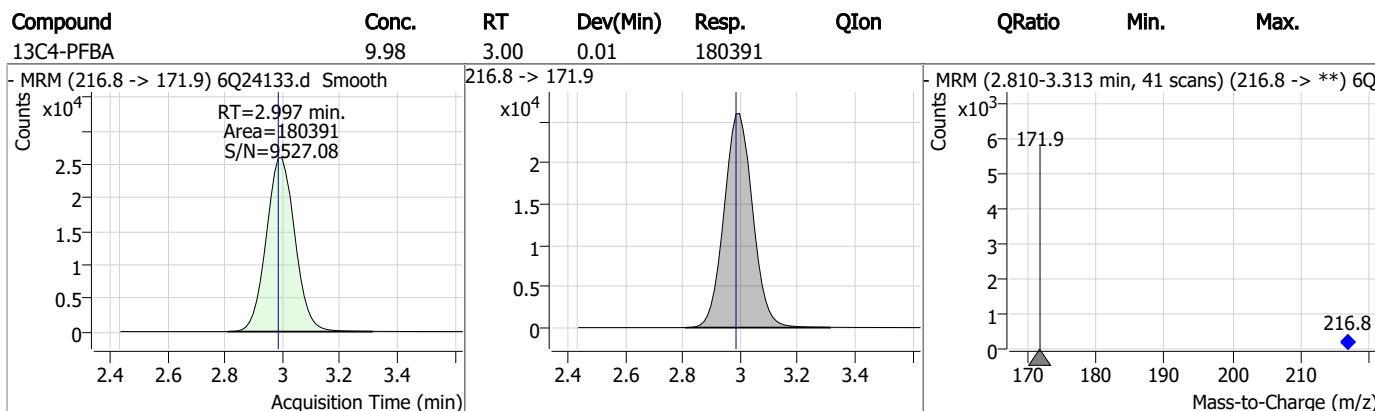
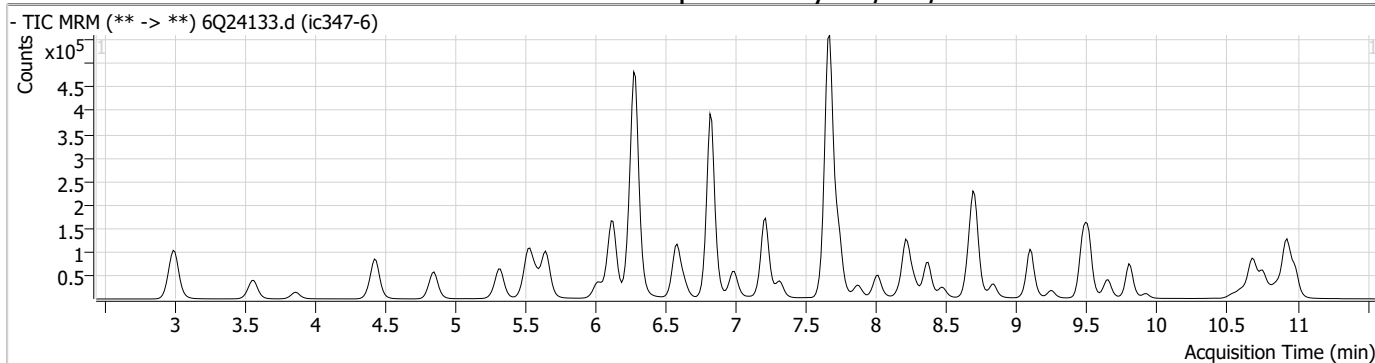
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

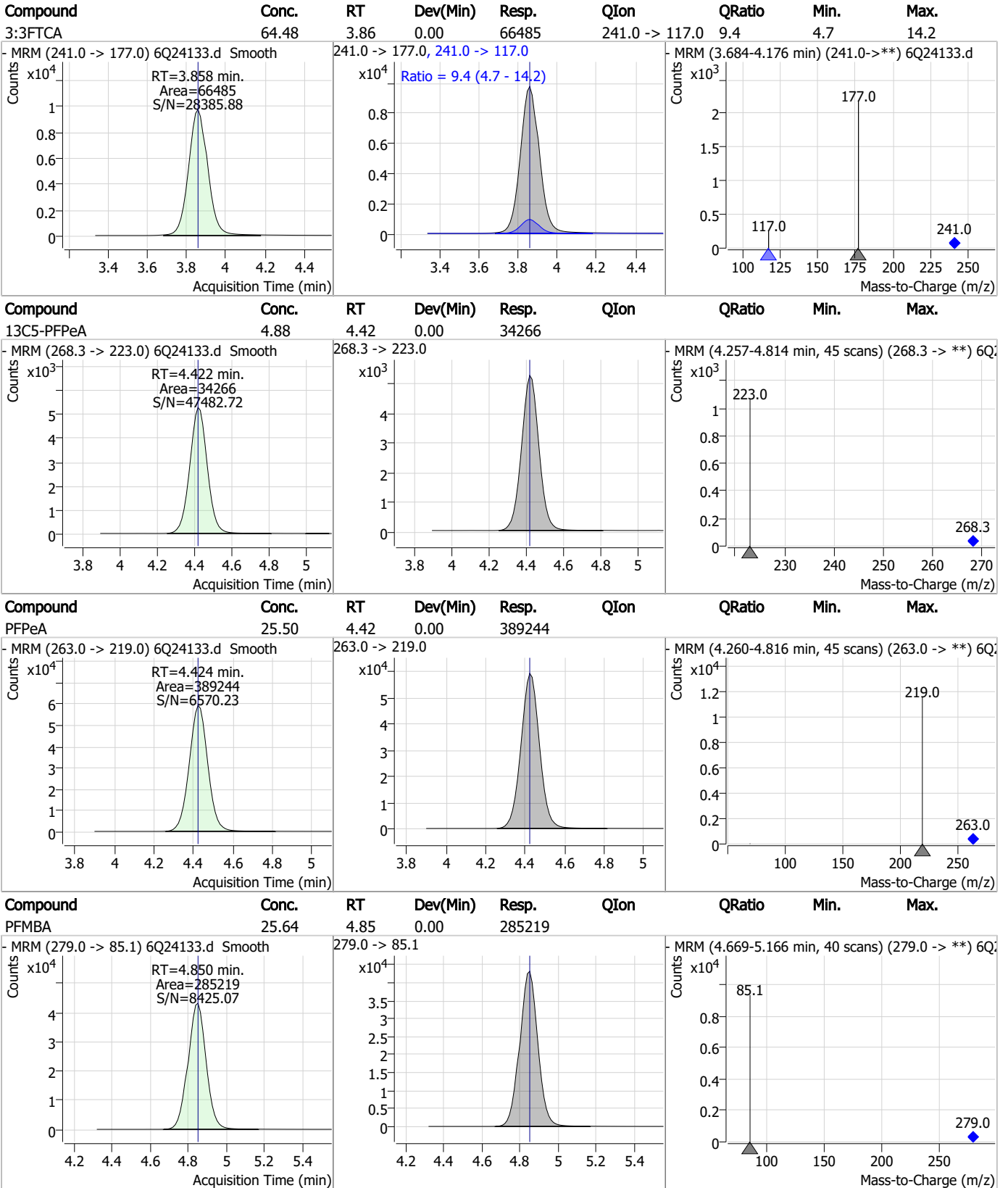
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.7
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Perfluorinated Compounds by LC/MS/MS



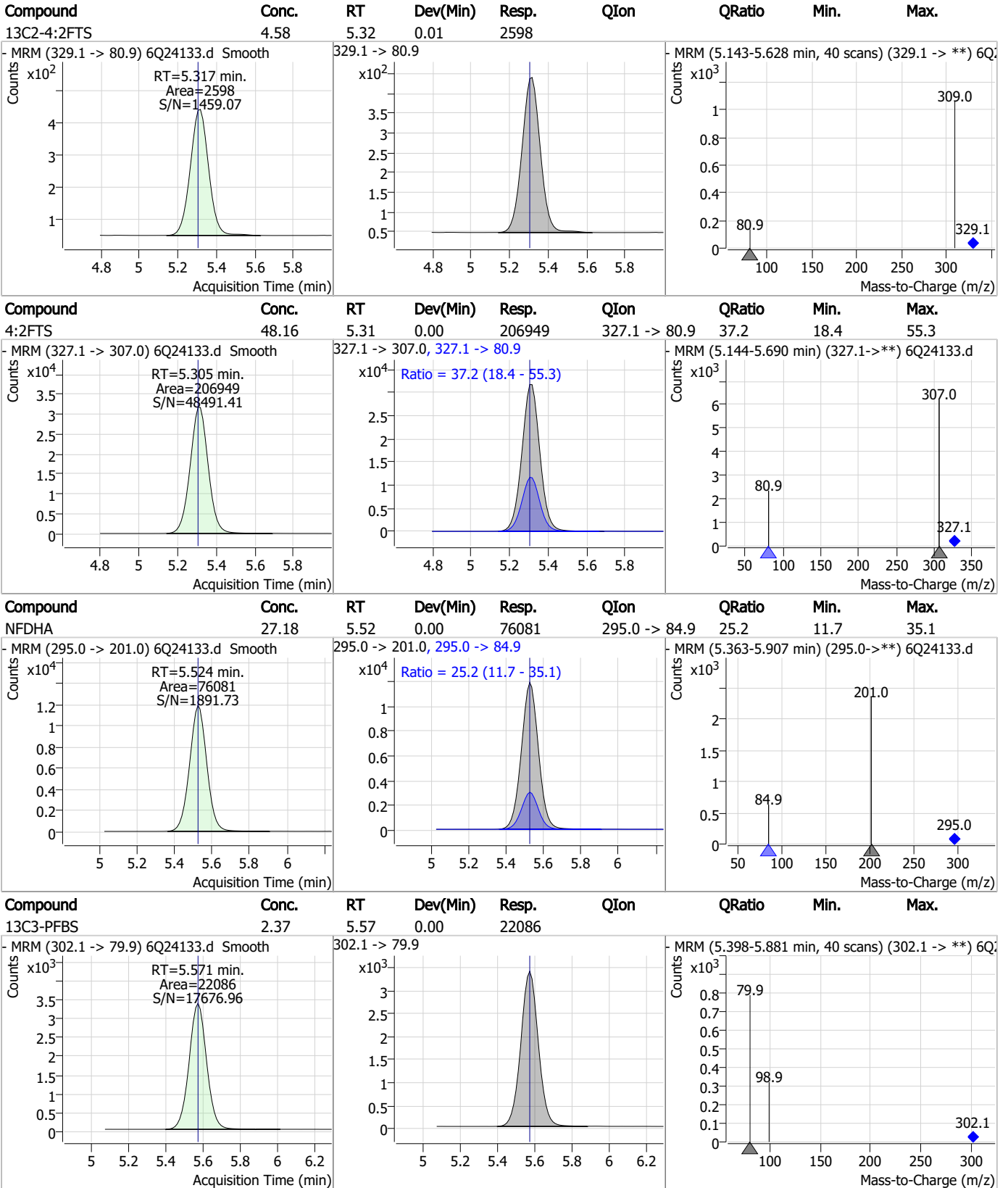
Perfluorinated Compounds by LC/MS/MS



7.7.7

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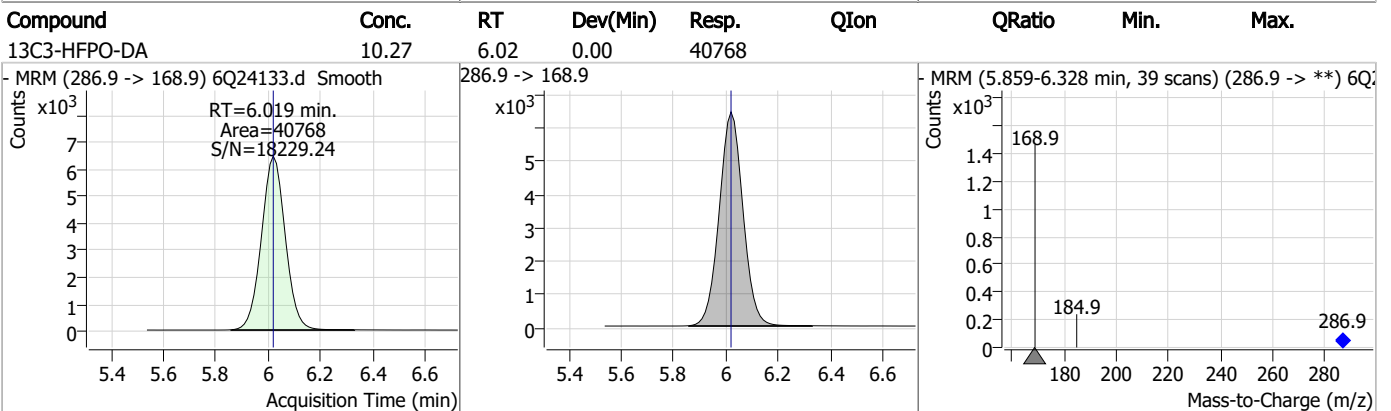
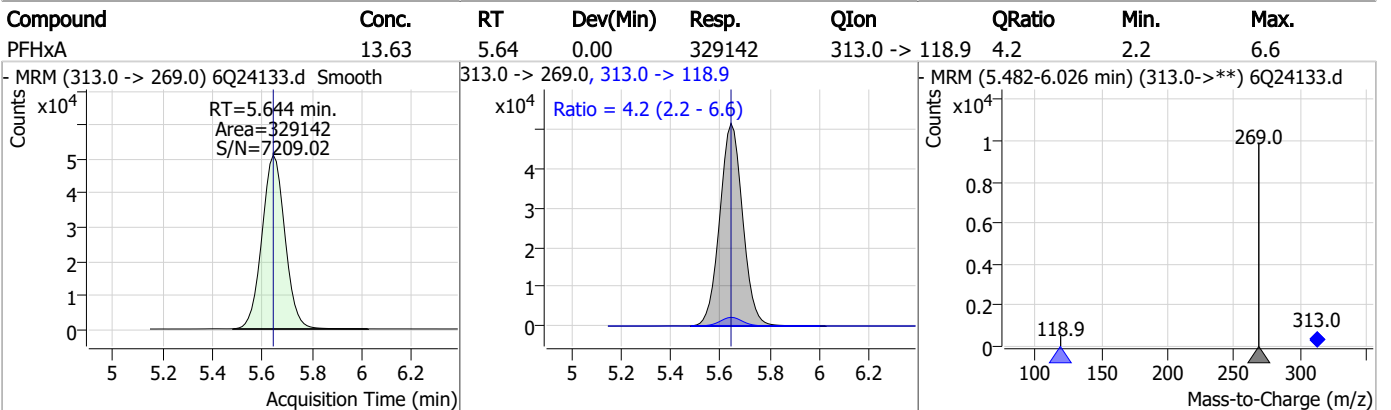
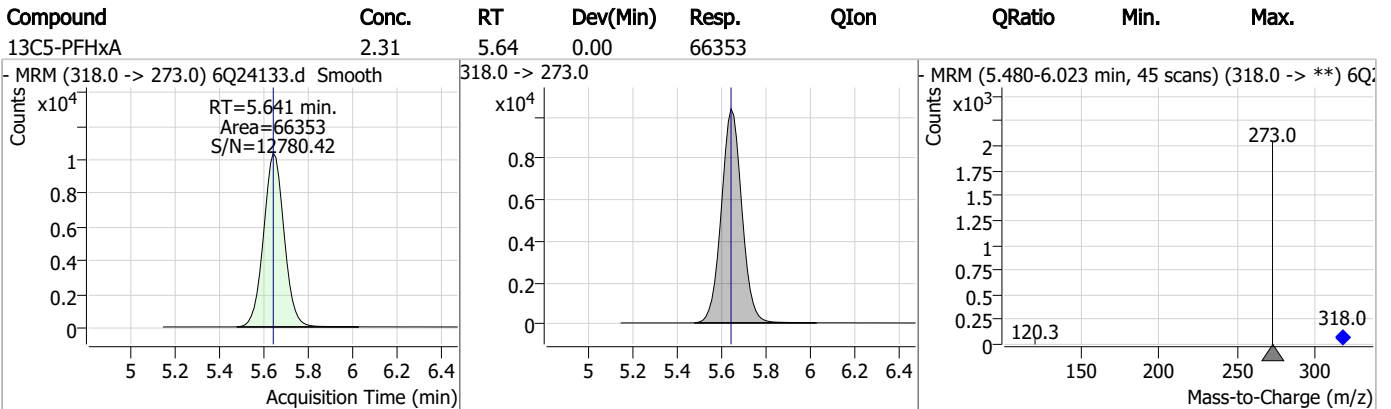
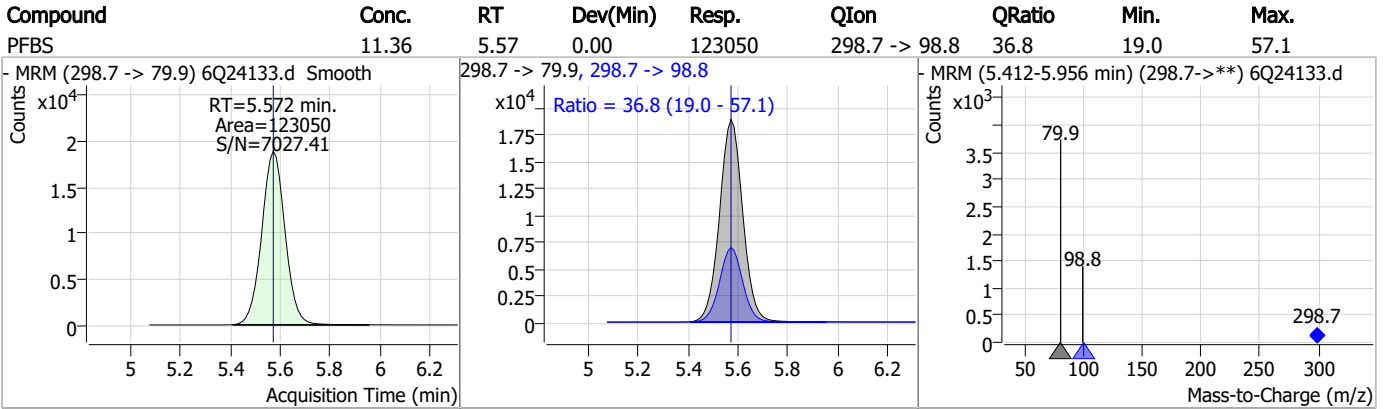
Perfluorinated Compounds by LC/MS/MS



7.7.7

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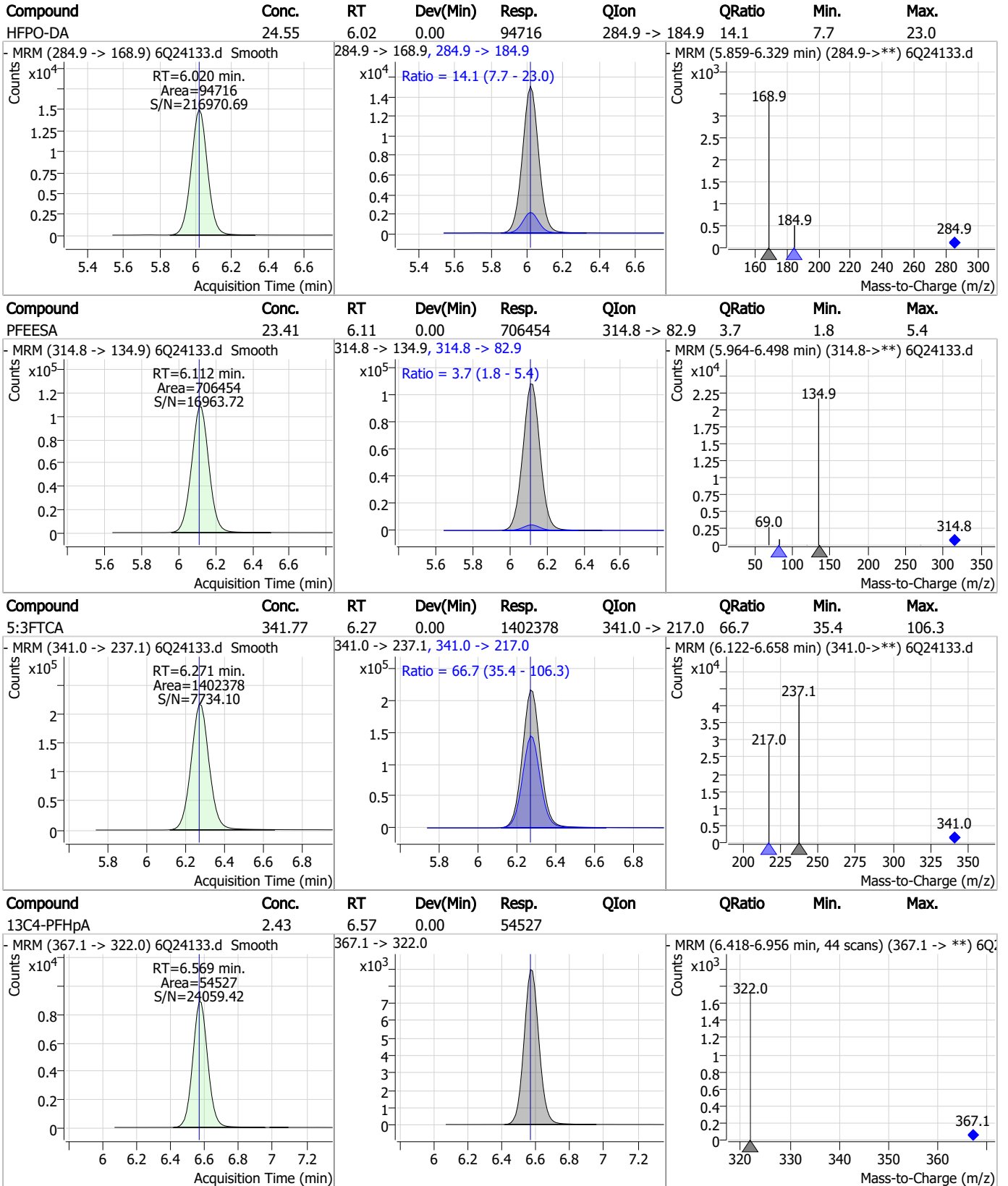
Perfluorinated Compounds by LC/MS/MS



7.7.7

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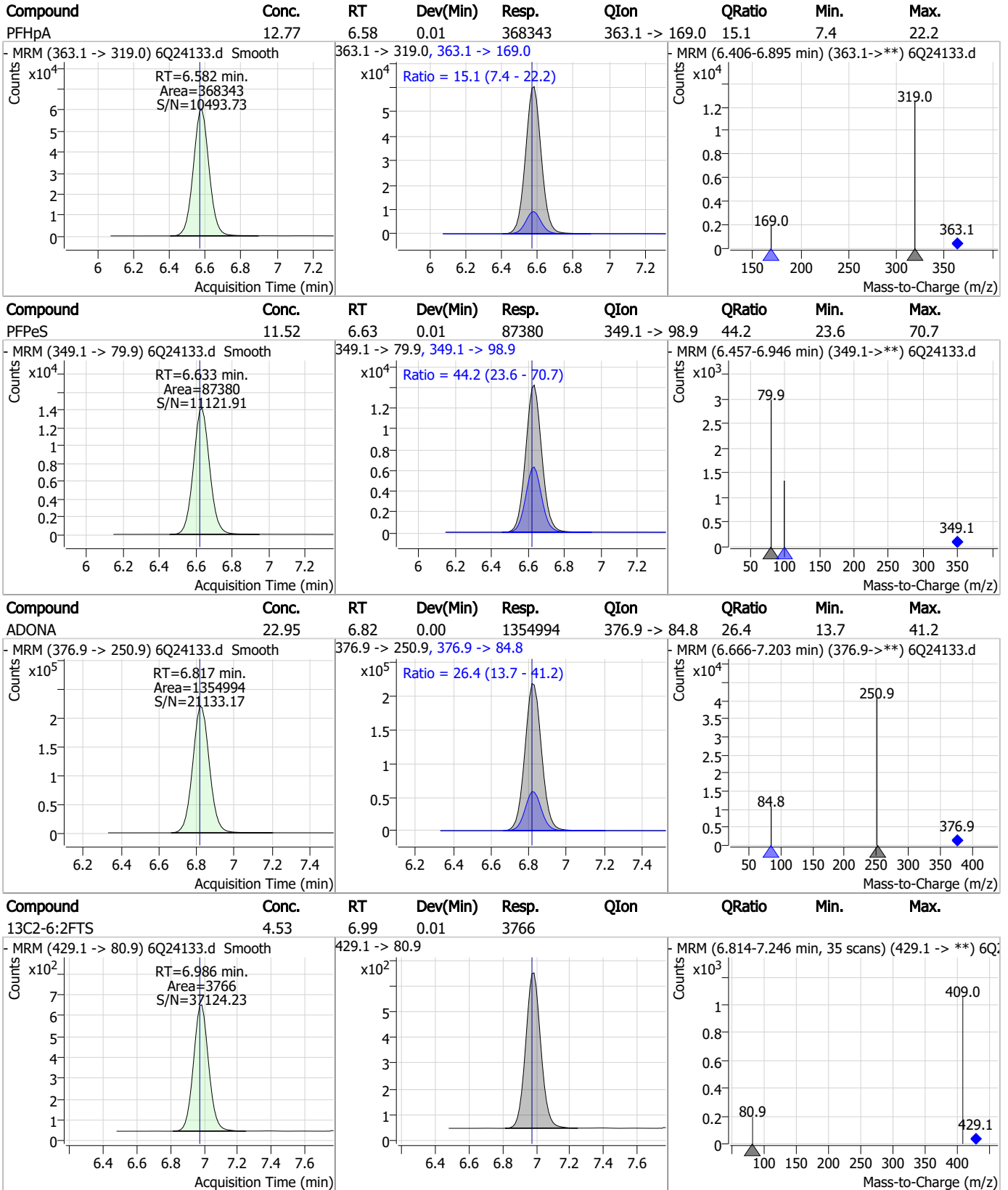
Perfluorinated Compounds by LC/MS/MS



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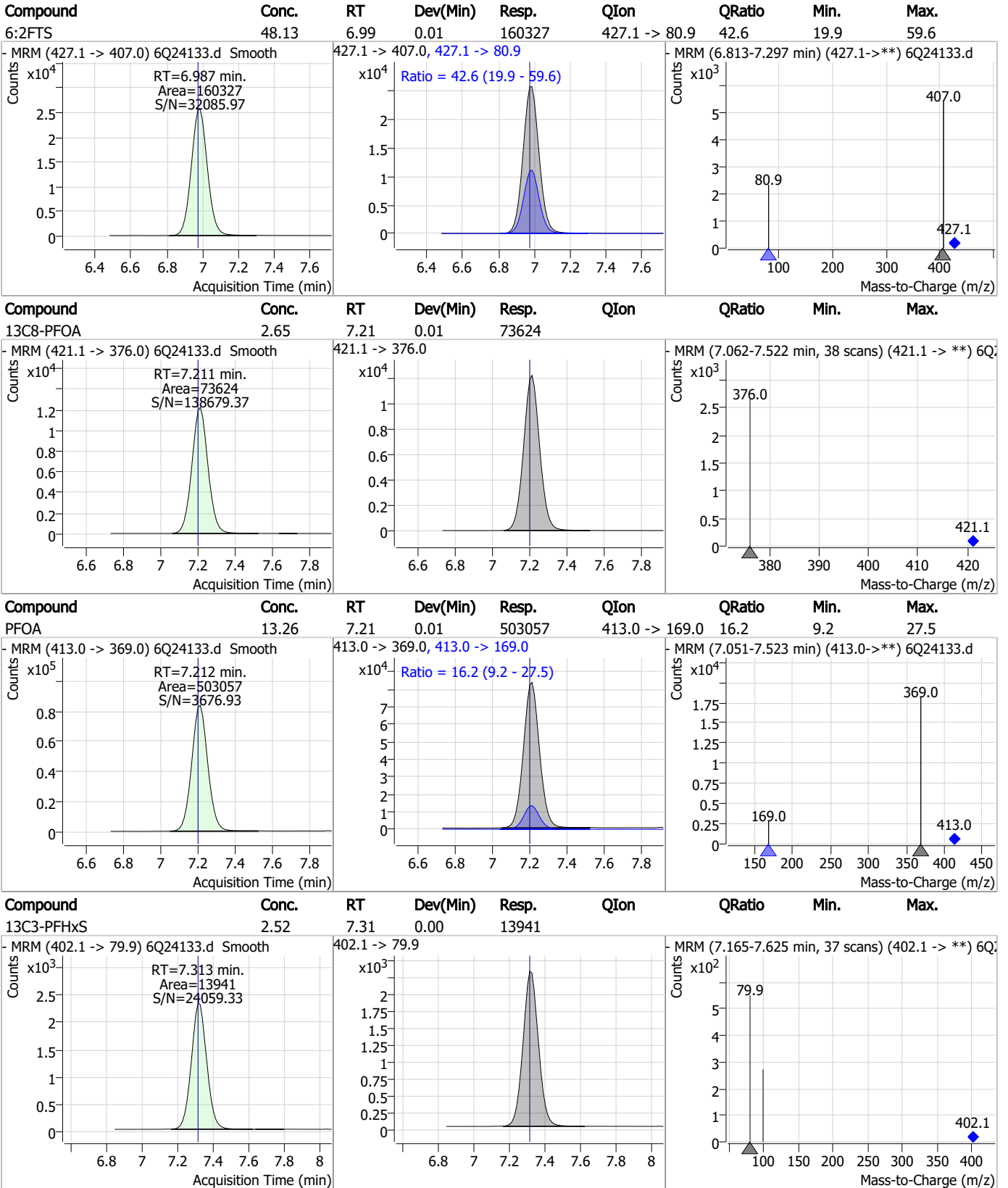
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Perfluorinated Compounds by LC/MS/MS



7.7.7
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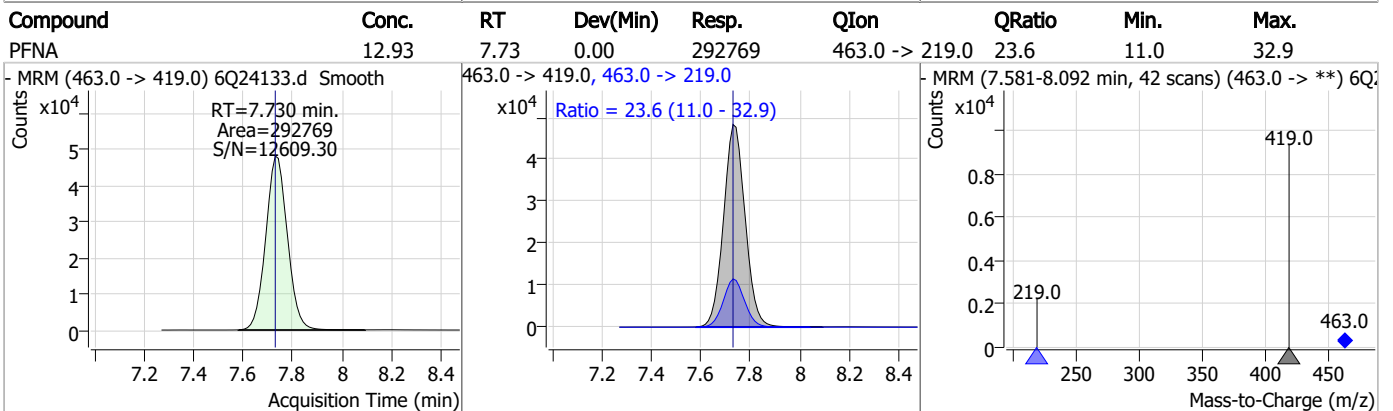
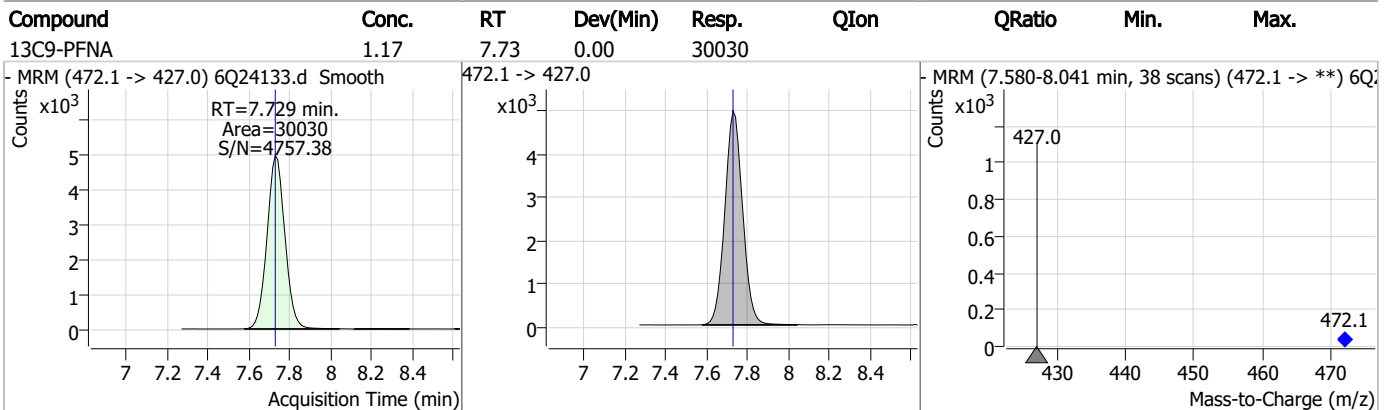
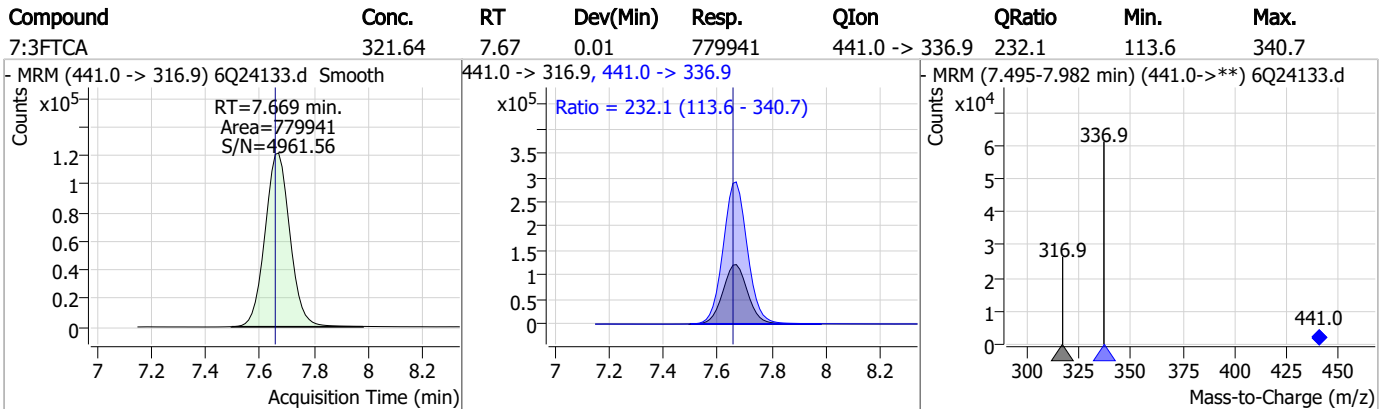
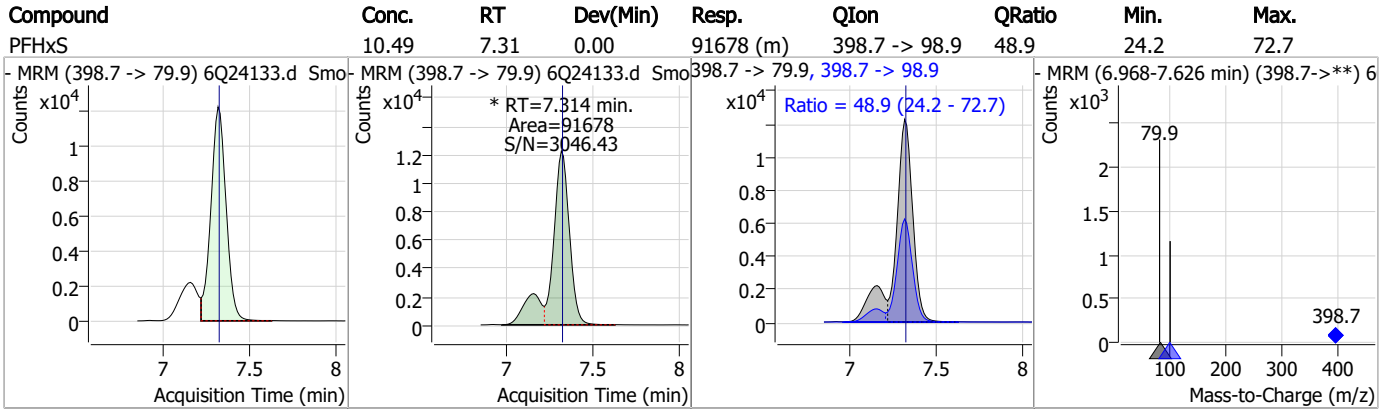
Perfluorinated Compounds by LC/MS/MS



7.7.7

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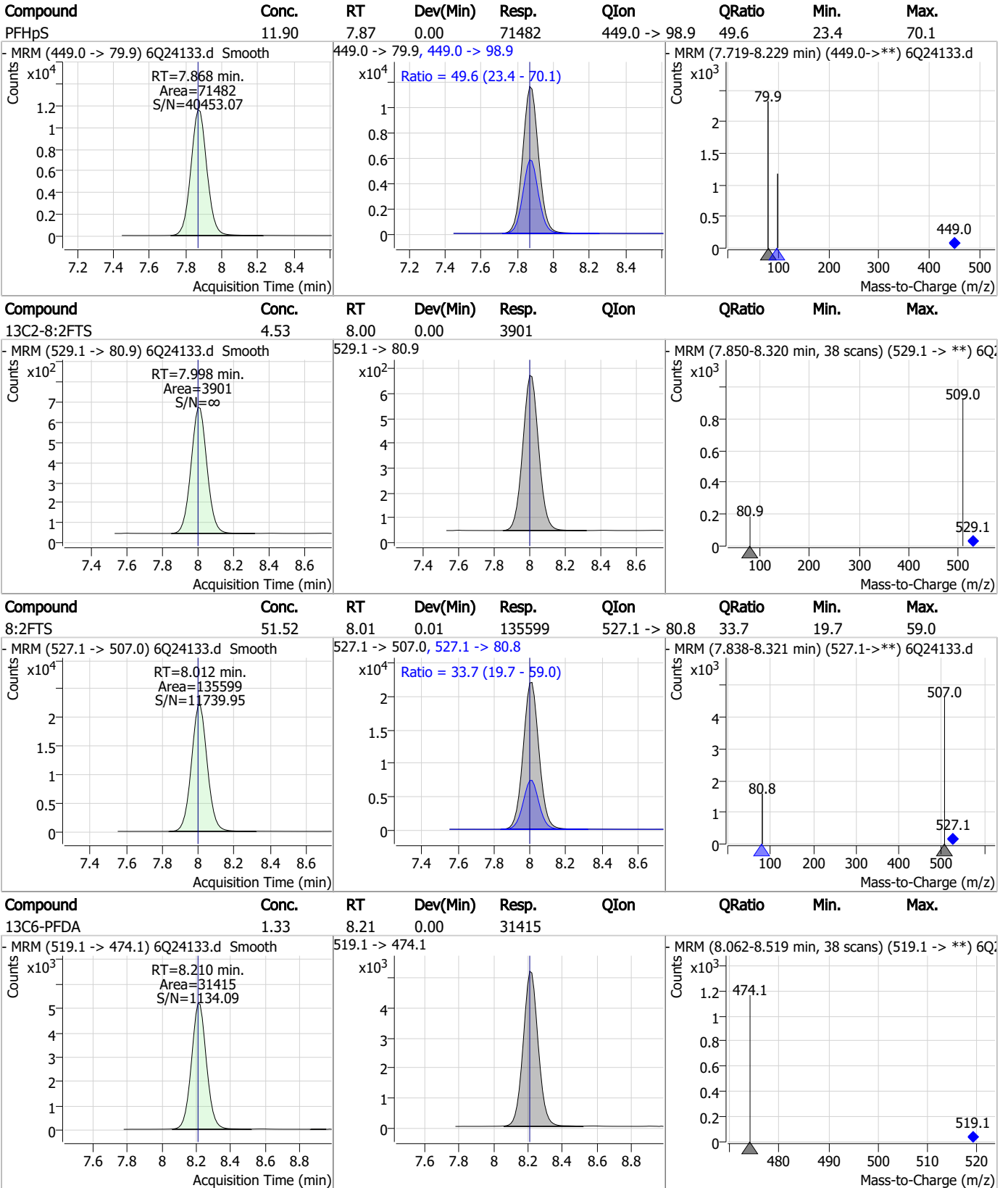
Perfluorinated Compounds by LC/MS/MS



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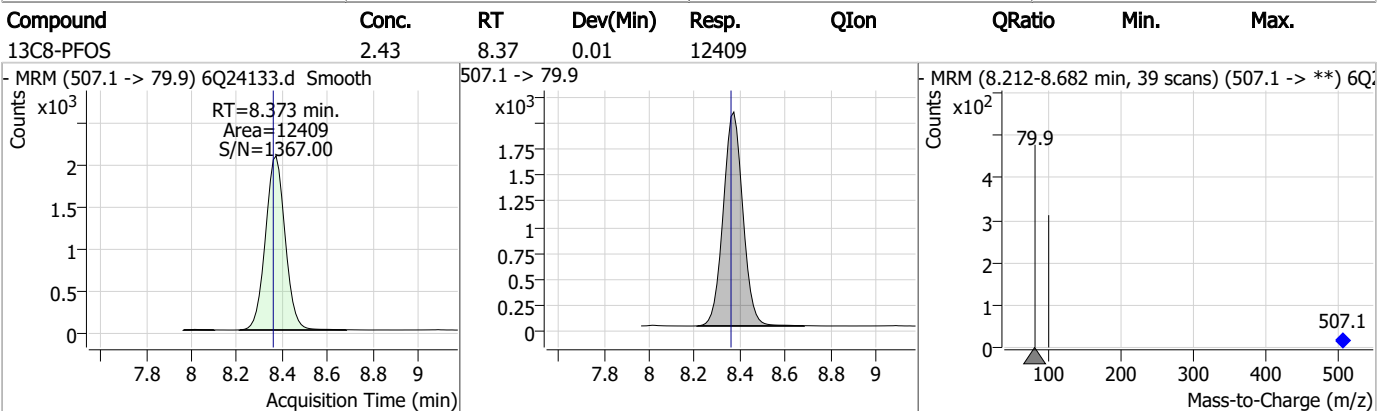
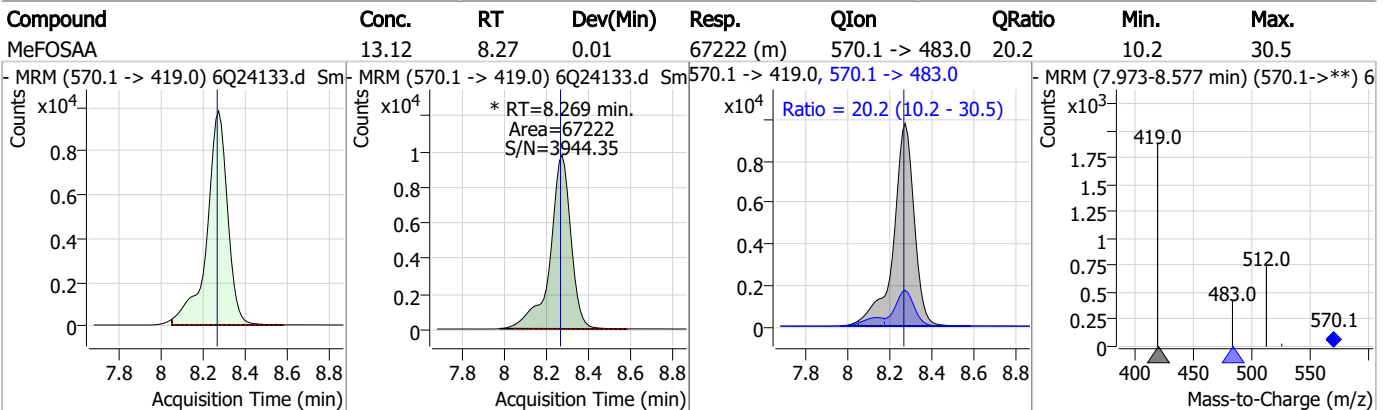
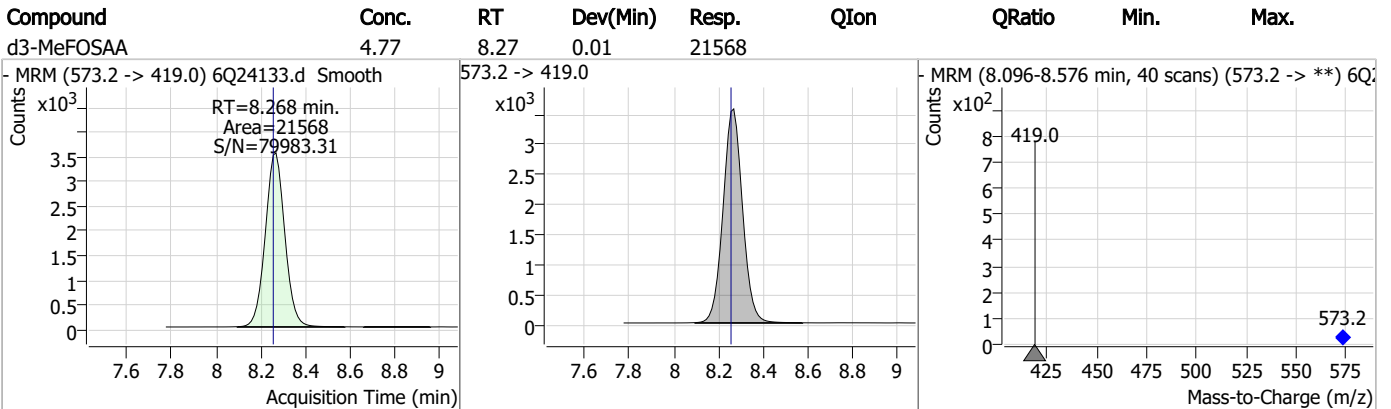
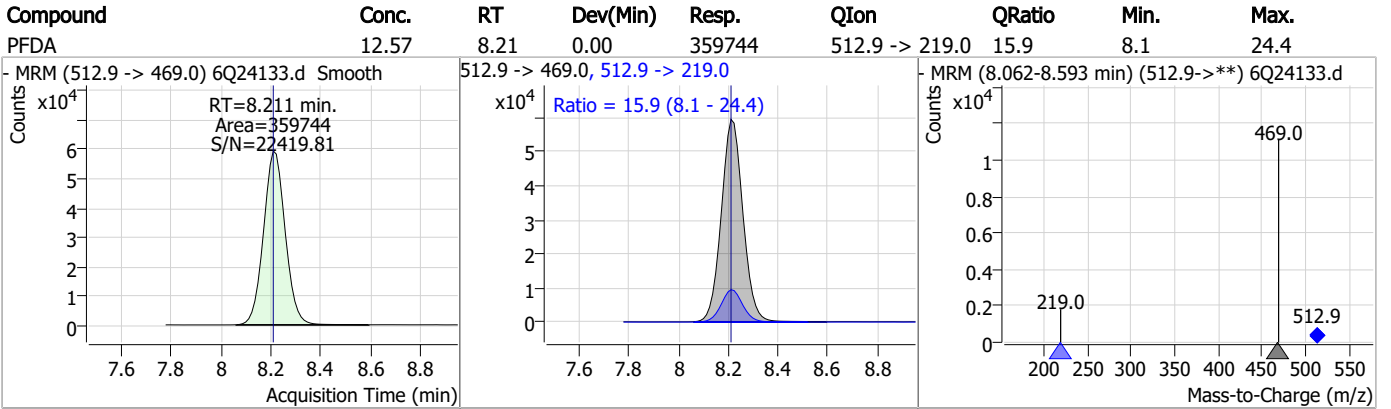
Perfluorinated Compounds by LC/MS/MS



7.7.7

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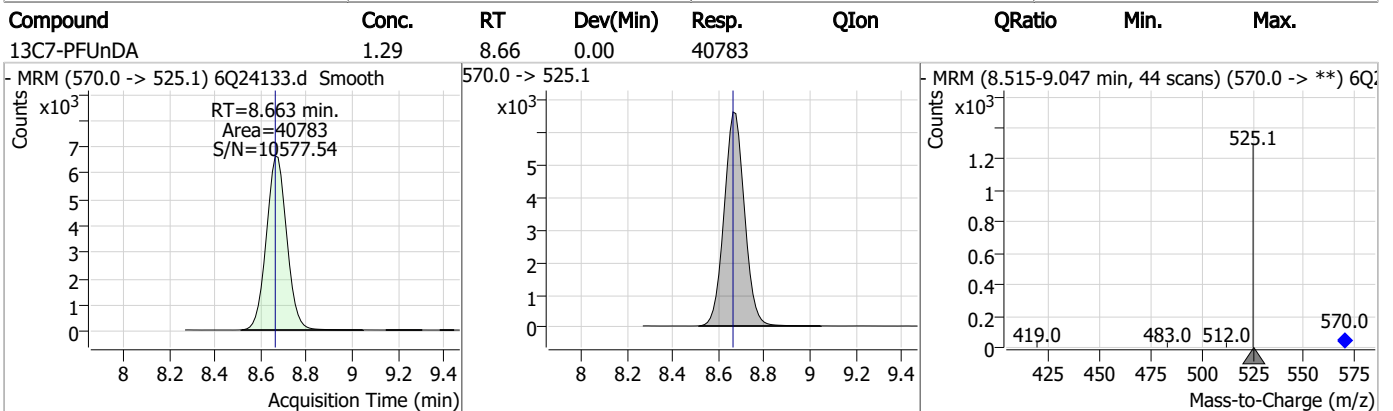
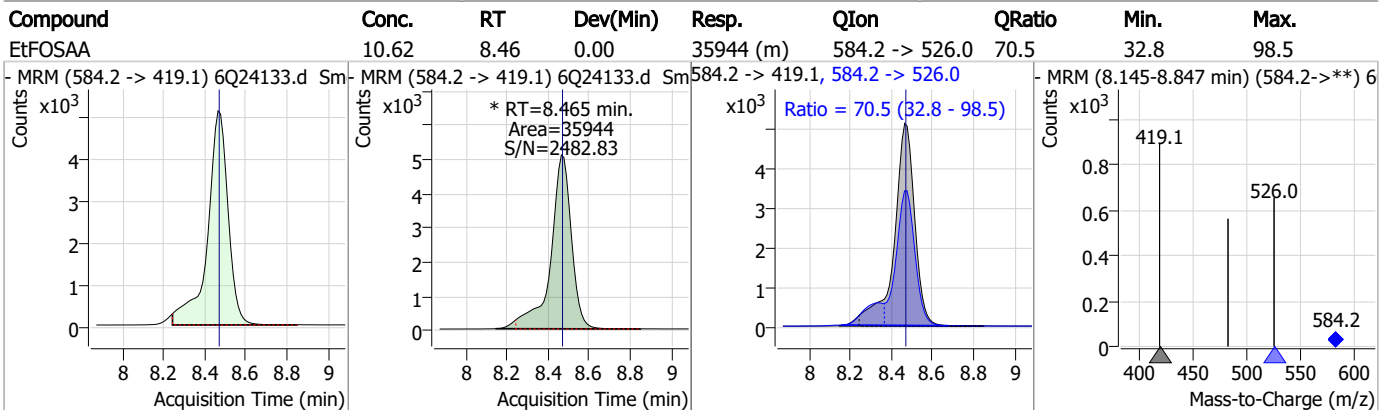
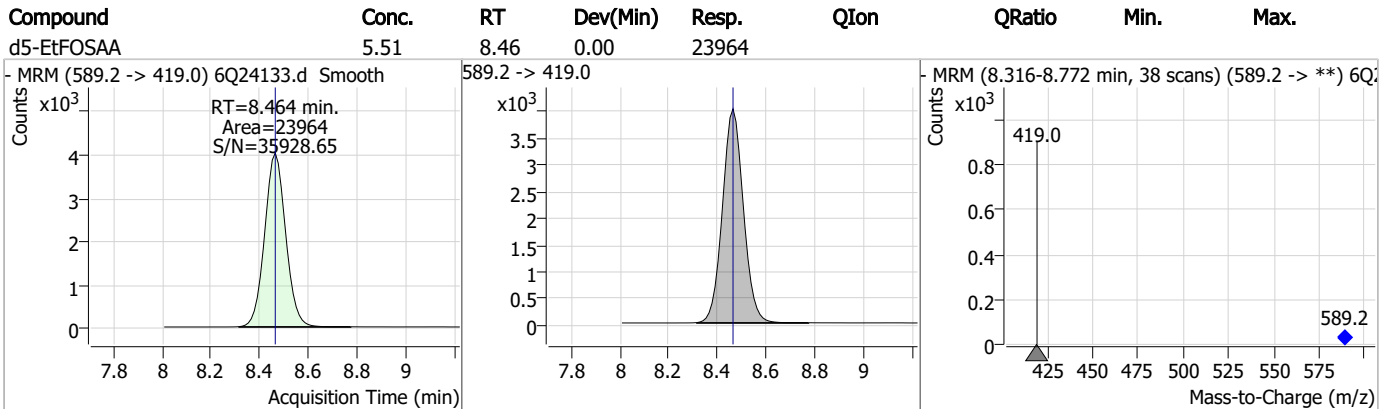
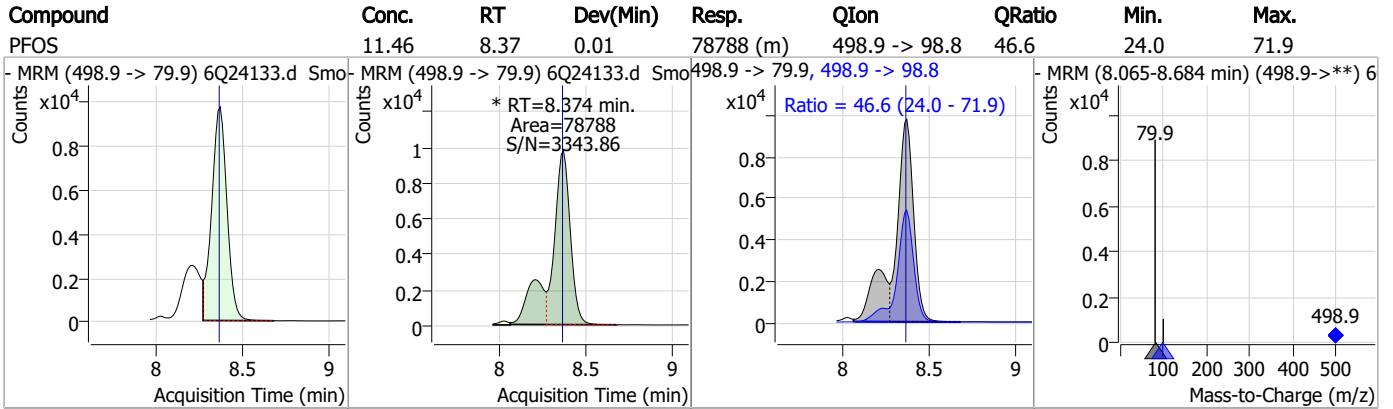
Perfluorinated Compounds by LC/MS/MS



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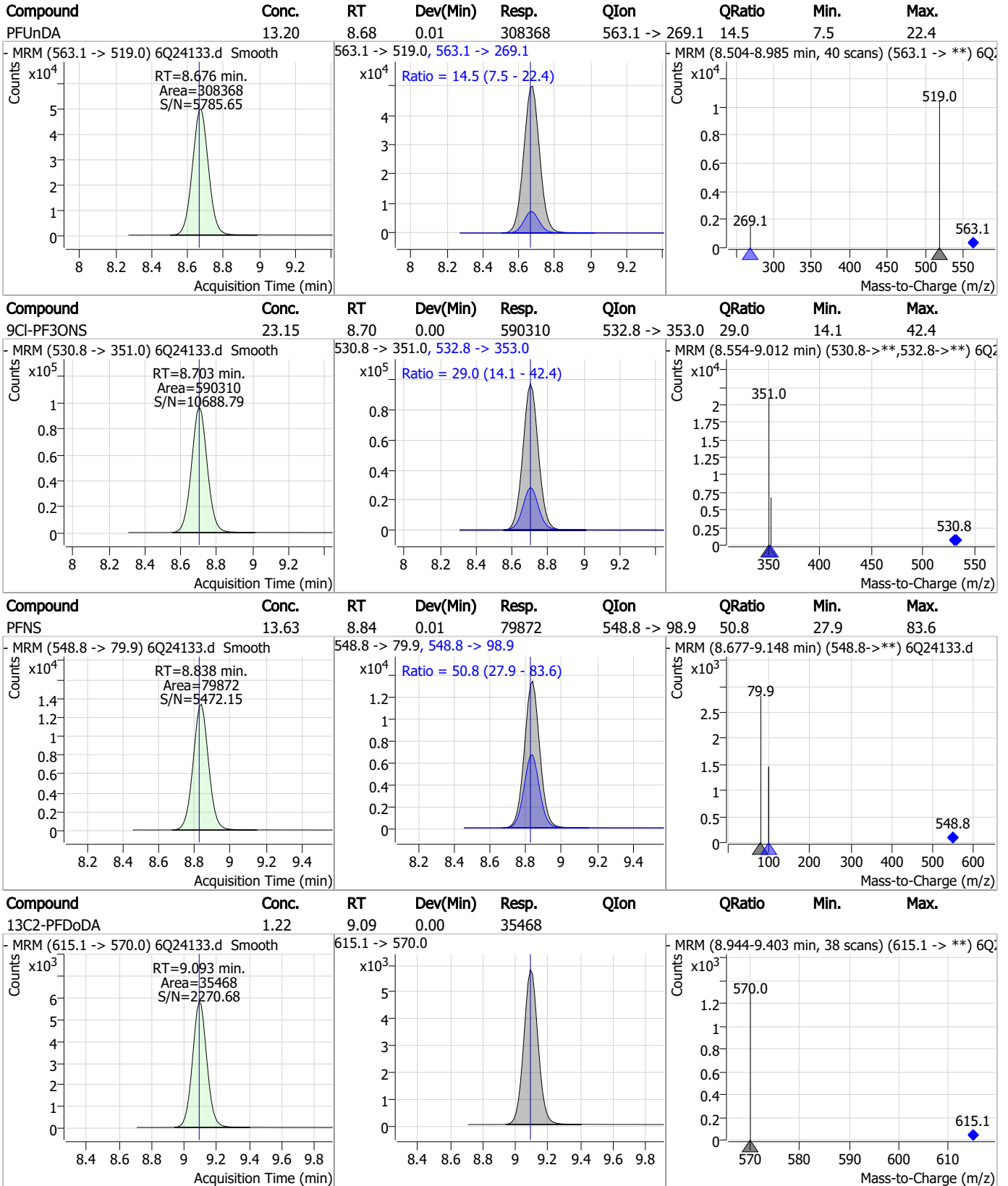
Perfluorinated Compounds by LC/MS/MS



7.7.7

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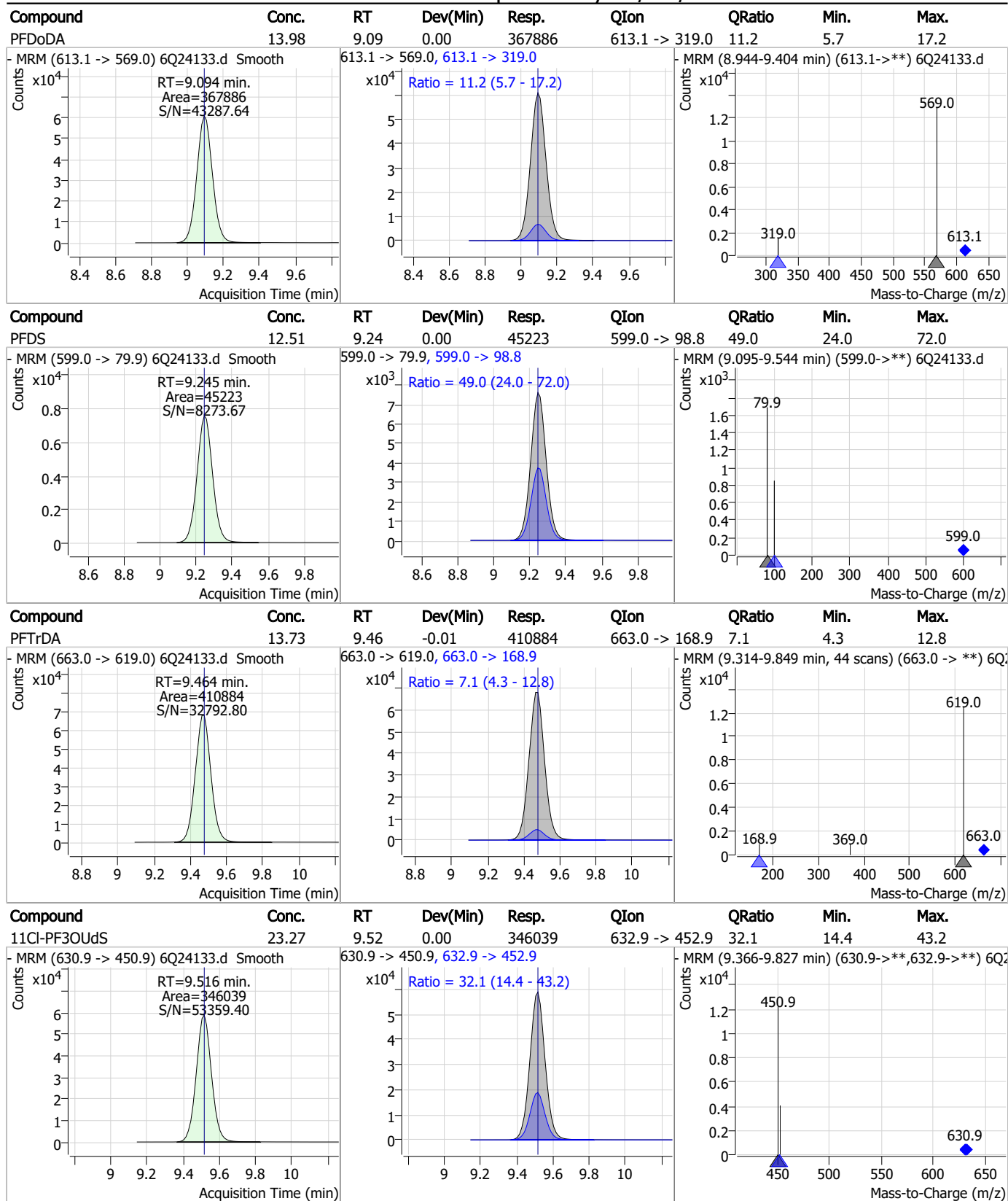
Perfluorinated Compounds by LC/MS/MS



7.7.7

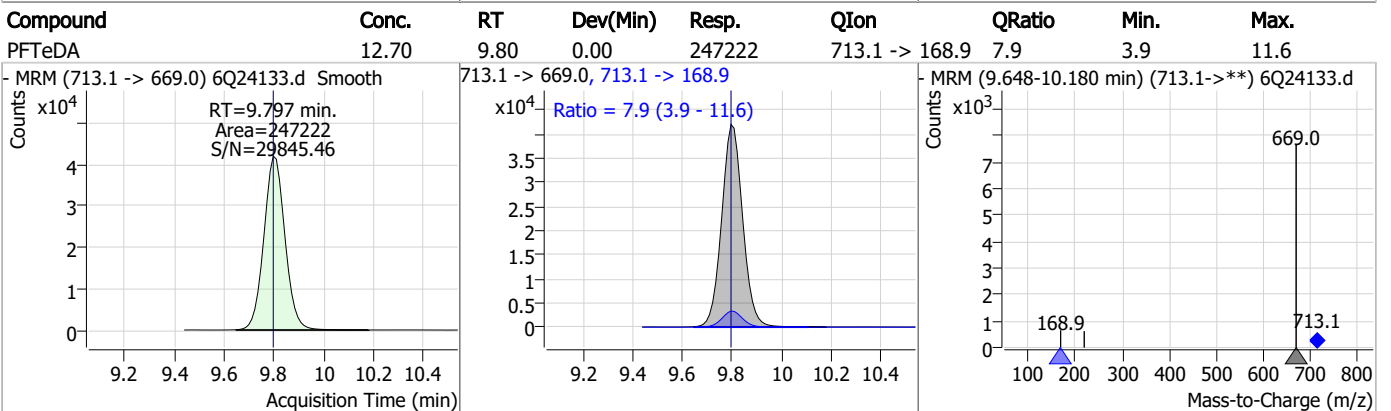
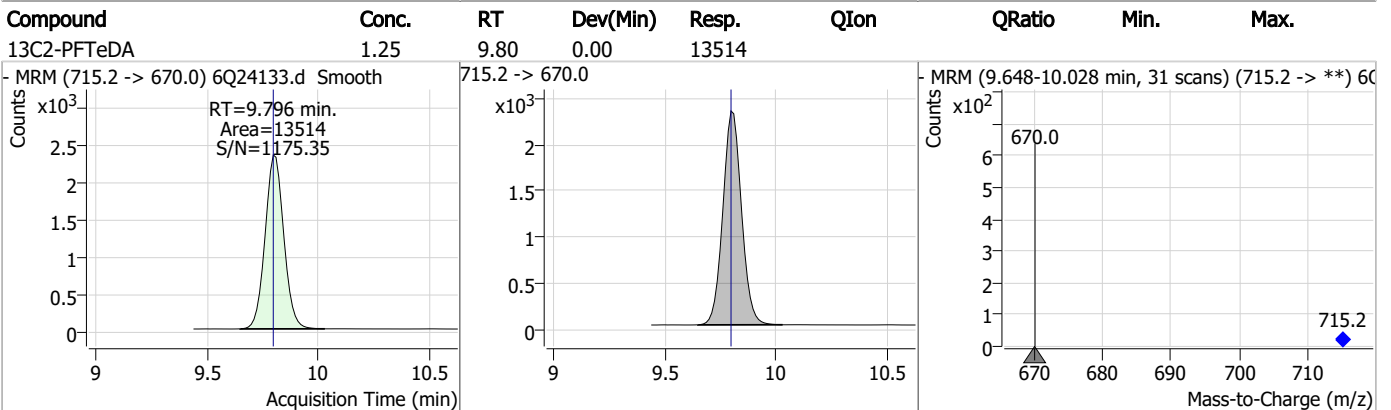
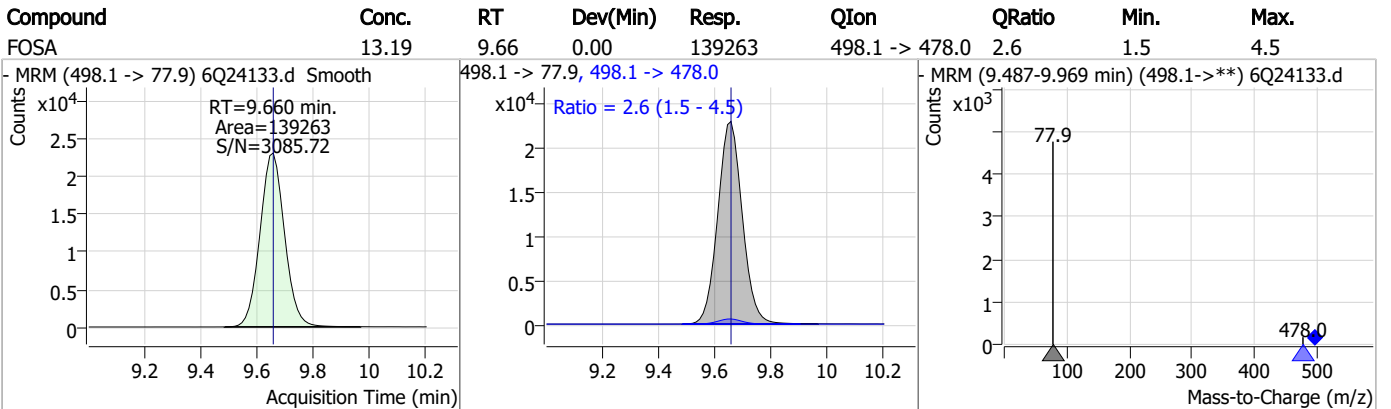
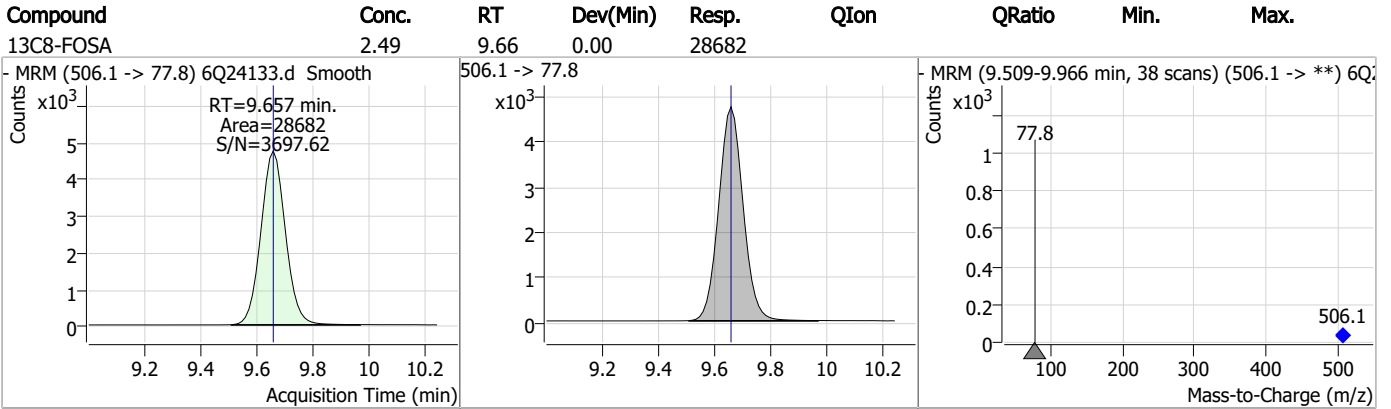
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Perfluorinated Compounds by LC/MS/MS

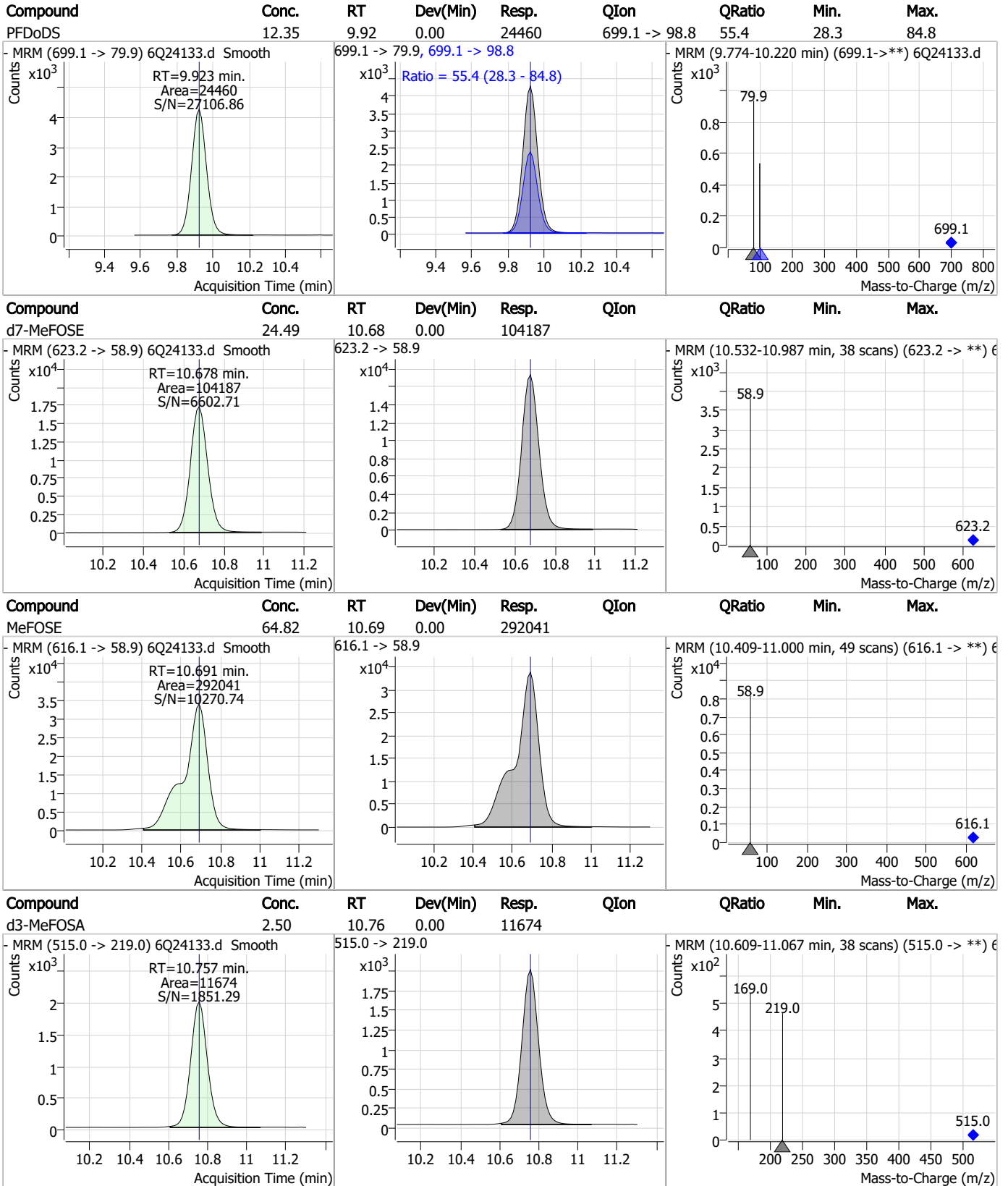


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Perfluorinated Compounds by LC/MS/MS



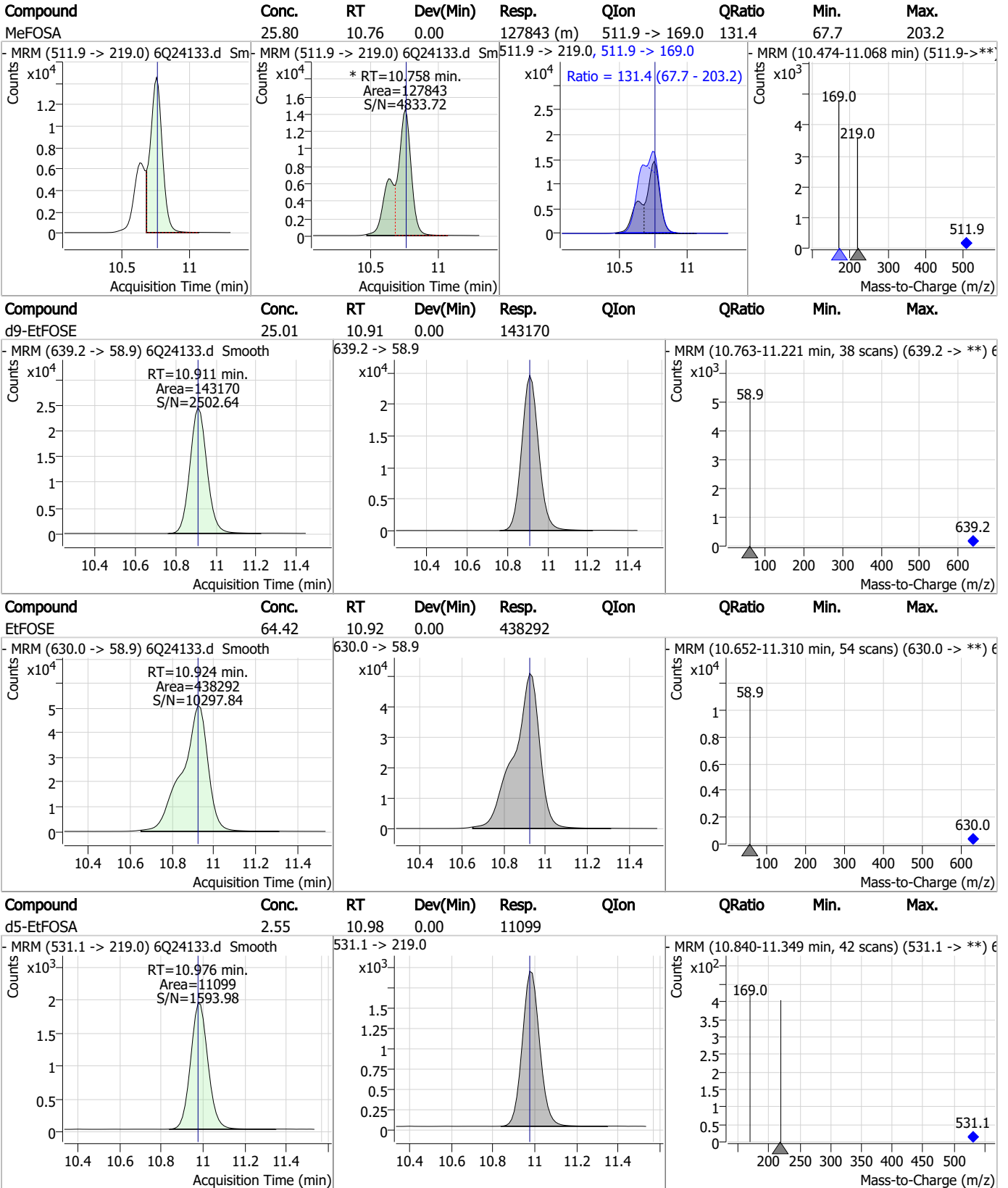
Perfluorinated Compounds by LC/MS/MS



7.7.7

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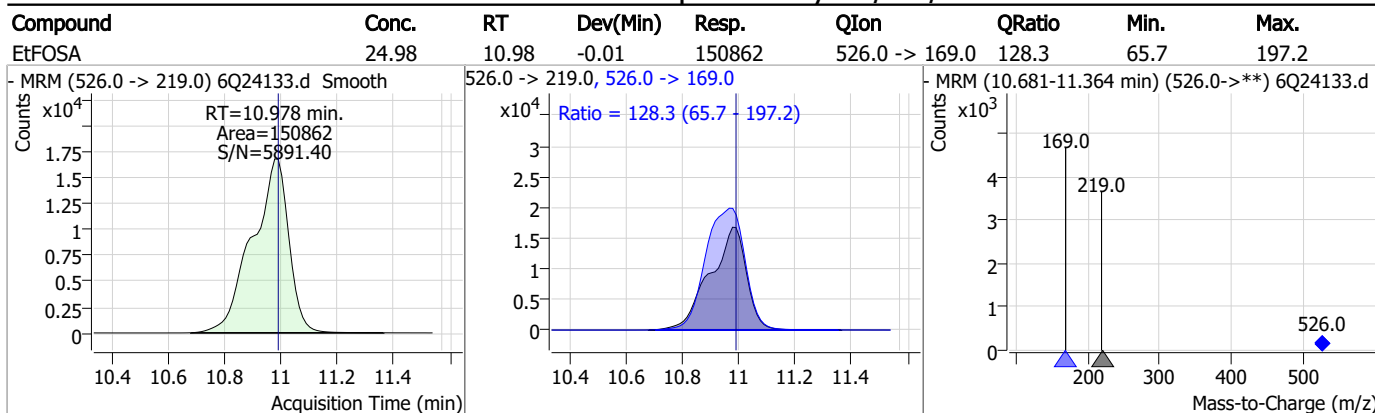
Perfluorinated Compounds by LC/MS/MS



7.7.7

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Perfluorinated Compounds by LC/MS/MS



7.7.7
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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24133.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 21:57 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.7.1

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Manual Integrations
APPROVED
(compounds with "m" flag)

Norman Farmer
09/11/23 13:46

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24134.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 9/9/2023 10:12:14 PM
Sample Name : ic347-7
Vial : P1-A8
DA Method File : 1633_090923_S6Q347.quantmethod.xml
Batch Name : s6q347.batch.bin
Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	170965	10.00 µg/L	0.013
M5-PFPeA	4.422	268.3 -> 223.0	33036	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	70298	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	51652	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	69892	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	29213	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	29845	1.25 µg/L	0.000
M7-PFUnDA	8.676	570.0 -> 525.1	37162	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	36815	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14166	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	29009	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	21327	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12787	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	12950	2.50 µg/L	0.012
M2-4:2FTS	5.304	329.1 -> 80.9	2244	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	3537	5.00 µg/L	0.000
M2-8:2FTS	8.011	529.1 -> 80.9	3676	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	21429	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	36832	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	19549	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	105738	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	142973	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	10571	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11712	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	14840	2.50 µg/L	0.012
13C3-PFBA	2.989	216.0 -> 172.0	68041	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9073	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	82194	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	28602	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	38005	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	47890	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2244	4.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3537	4.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.4%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3676	4.74 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C2-PFDoDA	9.093	615.1 -> 570.0	36815	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14166	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-PFBS	5.571	302.1 -> 79.9	21327	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C3-PFHxS	7.313	402.1 -> 79.9	12787	2.57 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 = 102.6%	
13C4-PFBA	2.997	216.8 -> 171.9	170965	9.95 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.569	367.1 -> 322.0	51652	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFHxA	5.641	318.0 -> 273.0	70298	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFPeA	4.422	268.3 -> 223.0	33036	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C6-PFDA	8.210	519.1 -> 474.1	29845	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C7-PFUnDA	8.676	570.0 -> 525.1	37162	1.11 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.1%	
13C8-FOSA	9.657	506.1 -> 77.8	29009	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C8-PFOA	7.198	421.1 -> 376.0	69892	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C8-PFOS	8.373	507.1 -> 79.9	12950	2.77 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.8%	
13C9-PFNA	7.729	472.1 -> 427.0	29213	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
d3-MeFOSAA	8.268	573.2 -> 419.0	21429	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	36832	10.10 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSA	10.757	515.0 -> 219.0	11712	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.4%	
d5-EtFOSAA	8.464	589.2 -> 419.0	19549	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	105738	27.10 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.4%	
d9-EtFOSE	10.911	639.2 -> 58.9	142973	27.23 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.9%	
d5-EtFOSA	10.976	531.1 -> 219.0	10571	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	374653	100.93 µg/L	100
		327.1 -> 80.9	138480		
6:2FTS	6.974	427.1 -> 407.0	290385	92.81 µg/L	99
		427.1 -> 80.9	117556		
8:2FTS	7.999	527.1 -> 507.0	251275	101.32 µg/L	88
		527.1 -> 80.8	80203		
EtFOSAA	8.465	584.2 -> 419.1	77711	28.15 µg/L	m 96
		584.2 -> 526.0	53729		
FOSA	9.660	498.1 -> 77.9	270716	25.36 µg/L	99
		498.1 -> 478.0	7653		
MeFOSAA	8.269	570.1 -> 419.0	132541	26.04 µg/L	m 98
		570.1 -> 483.0	27907		
PFBA	2.993	212.8 -> 168.9	600145	106.22 µg/L	100
PFBS	5.572	298.7 -> 79.9	242394	23.17 µg/L	94
		298.7 -> 98.8	83471		
PFDA	8.211	512.9 -> 469.0	731170	26.89 µg/L	96
		512.9 -> 219.0	107274		
PFDoDA	9.094	613.1 -> 569.0	715477	26.19 µg/L	99
		613.1 -> 319.0	83799		
PFDS	9.245	599.0 -> 79.9	93803	24.86 µg/L	97

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	43012			
PFHpA	6.569	363.1 -> 319.0	741357	27.12	µg/L	100
		363.1 -> 169.0	109127			
PFHpS	7.868	449.0 -> 79.9	145143	23.16	µg/L	96
		449.0 -> 98.9	71496			
PFHxA	5.644	313.0 -> 269.0	642553	25.11	µg/L	100
		313.0 -> 118.9	27982			
PFHxS	7.314	398.7 -> 79.9	200149	24.96	µg/L	m 93
		398.7 -> 98.9	87979			
PFNA	7.730	463.0 -> 419.0	594153	26.97	µg/L	99
		463.0 -> 219.0	134179			
PFNS	8.838	548.8 -> 79.9	148025	24.21	µg/L	98
		548.8 -> 98.9	79972			
PFOA	7.200	413.0 -> 369.0	949246	26.35	µg/L	98
		413.0 -> 169.0	164884			
PFOS	8.374	498.9 -> 79.9	162915	22.71	µg/L	m 96
		498.9 -> 98.8	82044			
PFPeA	4.424	263.0 -> 219.0	765809	52.04	µg/L	100
PFPeS	6.633	349.1 -> 79.9	170694	24.54	µg/L	99
		349.1 -> 98.9	79408			
PFTeDA	9.809	713.1 -> 669.0	521712	25.56	µg/L	97
		713.1 -> 168.9	34681			
PFTrDA	9.477	663.0 -> 619.0	808552	26.03	µg/L	96
		663.0 -> 168.9	57888			
PFUnDA	8.676	563.1 -> 519.0	587189	27.58	µg/L	98
		563.1 -> 269.1	91396			
11CI-PF3OUdS	9.516	630.9 -> 450.9	647633	48.20	µg/L	94
		632.9 -> 452.9	207948			
9CI-PF3ONS	8.703	530.8 -> 351.0	1085370	47.12	µg/L	91
		532.8 -> 353.0	358874			
ADONA	6.817	376.9 -> 250.9	2721698	51.03	µg/L	97
		376.9 -> 84.8	709553			
HFPO-DA	6.020	284.9 -> 168.9	186033	53.38	µg/L	100
		284.9 -> 184.9	28216			
3:3FTCA	3.858	241.0 -> 177.0	134077	137.21	µg/L	100
		241.0 -> 117.0	12612			
5:3FTCA	6.271	341.0 -> 237.1	2690365	618.87	µg/L	97
		341.0 -> 217.0	1851445			
7:3FTCA	7.657	441.0 -> 316.9	1627884	633.65	µg/L	96
		441.0 -> 336.9	3582290			
EtFOSA	10.990	526.0 -> 219.0	309918	53.89	µg/L	95
		526.0 -> 169.0	389310			
EtFOSE	10.924	630.0 -> 58.9	866372	127.51	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	254497	51.20	µg/L	m 100
		511.9 -> 169.0	344920			
MeFOSE	10.691	616.1 -> 58.9	582535	127.40	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	50315	24.34	µg/L	91
		699.1 -> 98.8	25089			
NFDHA	5.524	295.0 -> 201.0	147737	49.82	µg/L	96
		295.0 -> 84.9	37572			
PFMBA	4.850	279.0 -> 85.1	564577	52.63	µg/L	100
PFMPA	3.551	229.0 -> 84.9	404398	52.58	µg/L	100
PFEESA	6.112	314.8 -> 134.9	1431735	44.78	µg/L	100
		314.8 -> 82.9	51051			

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

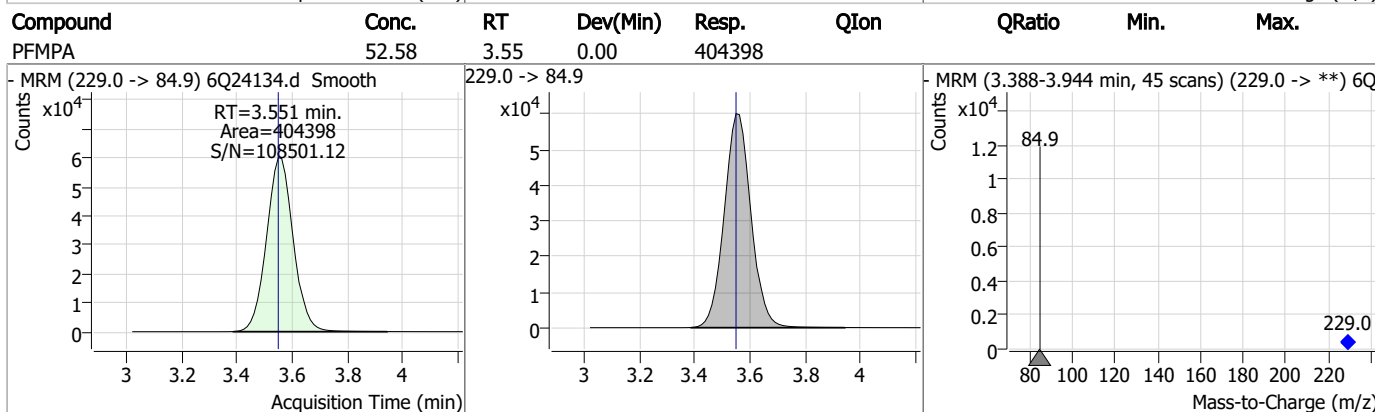
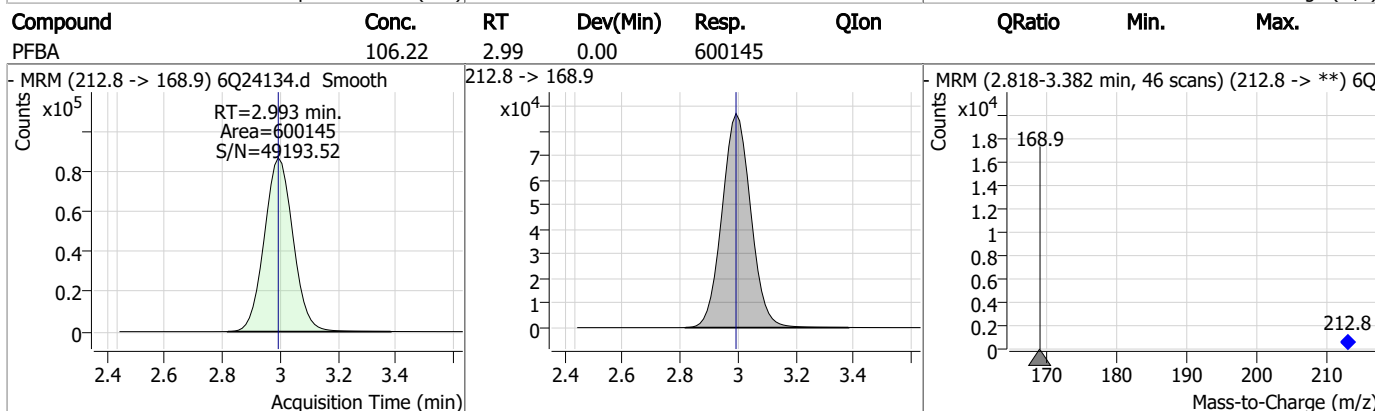
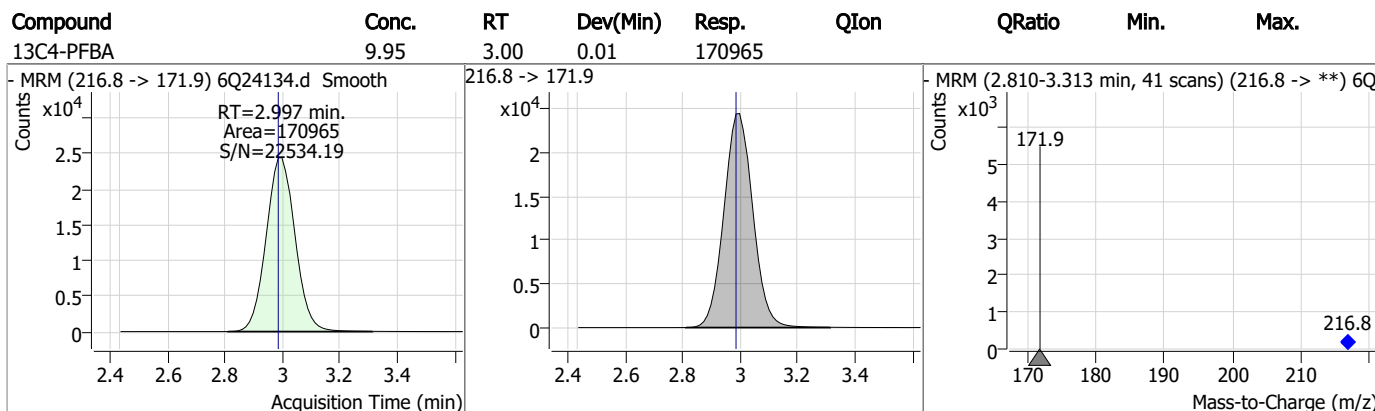
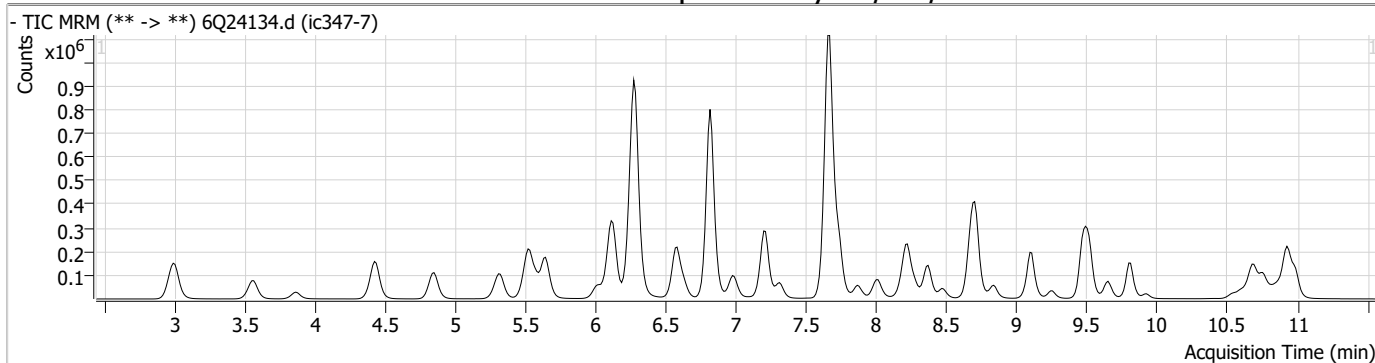
Perfluorinated Compounds by LC/MS/MS

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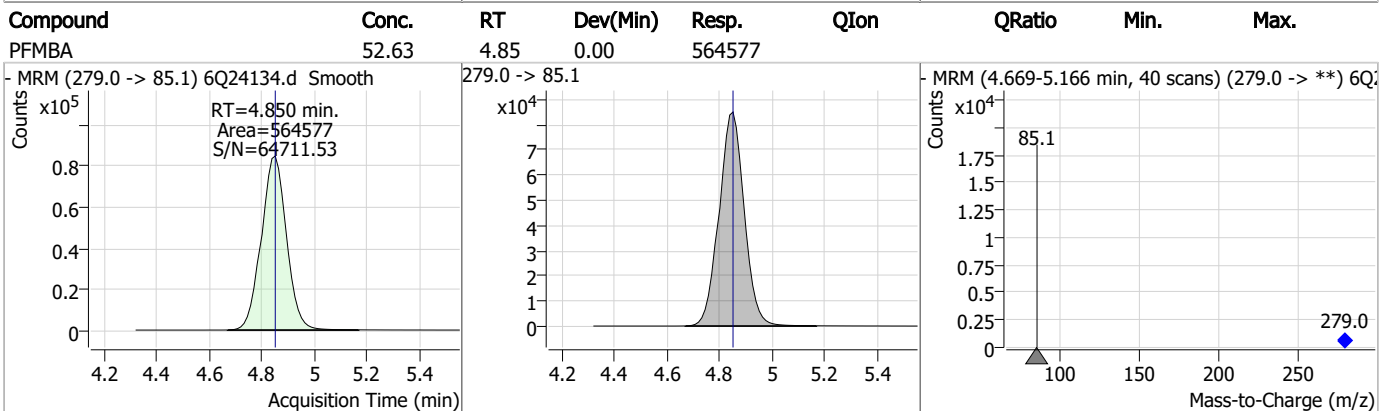
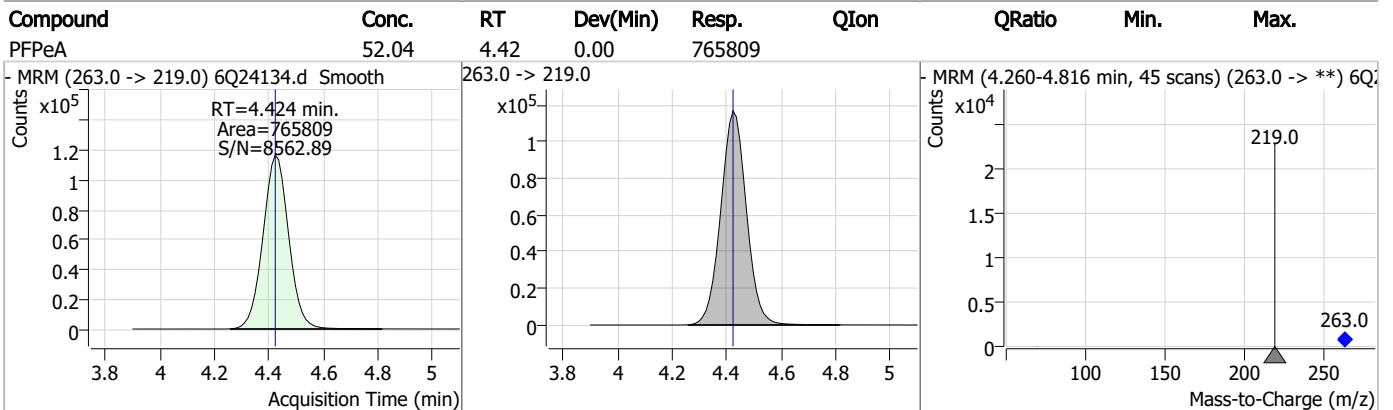
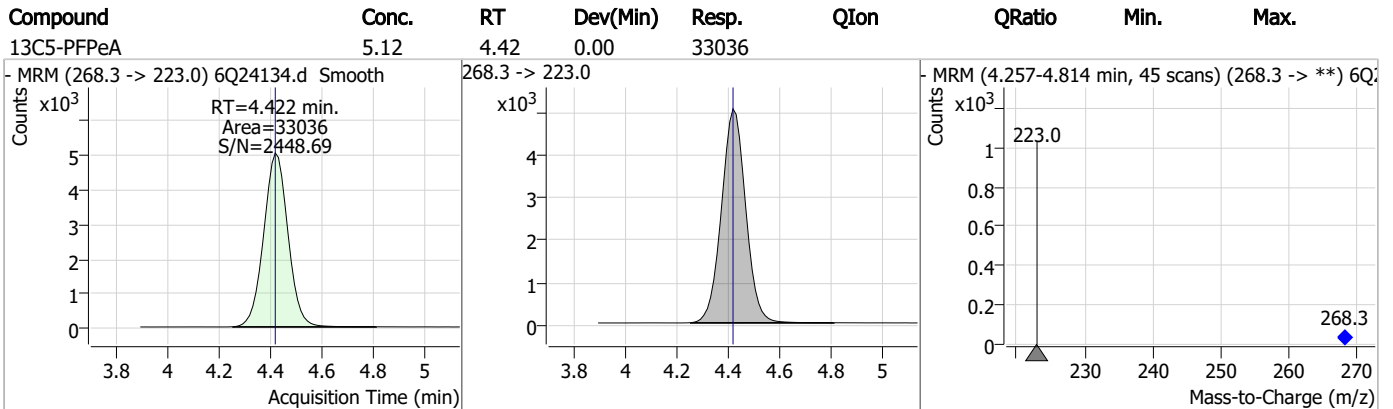
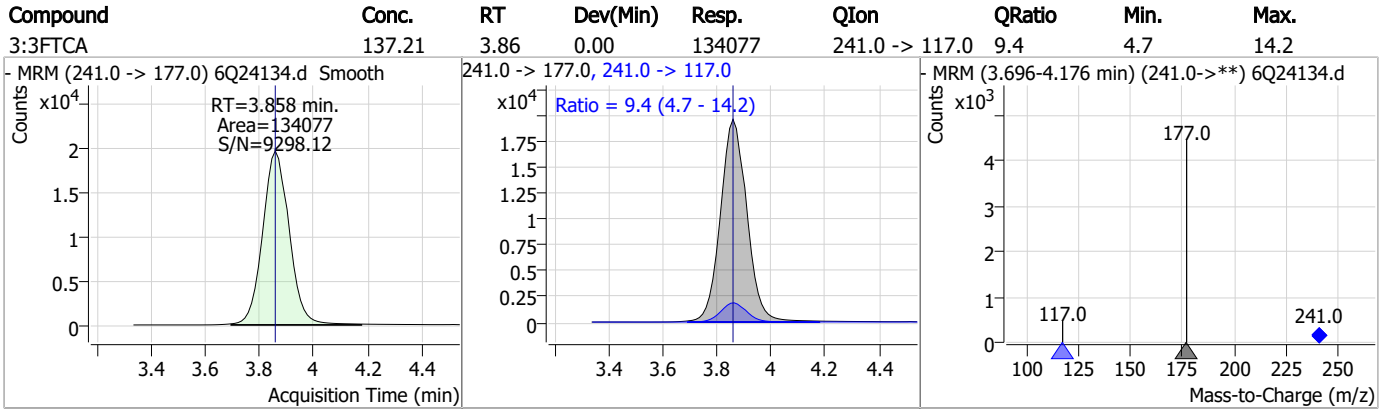
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Perfluorinated Compounds by LC/MS/MS



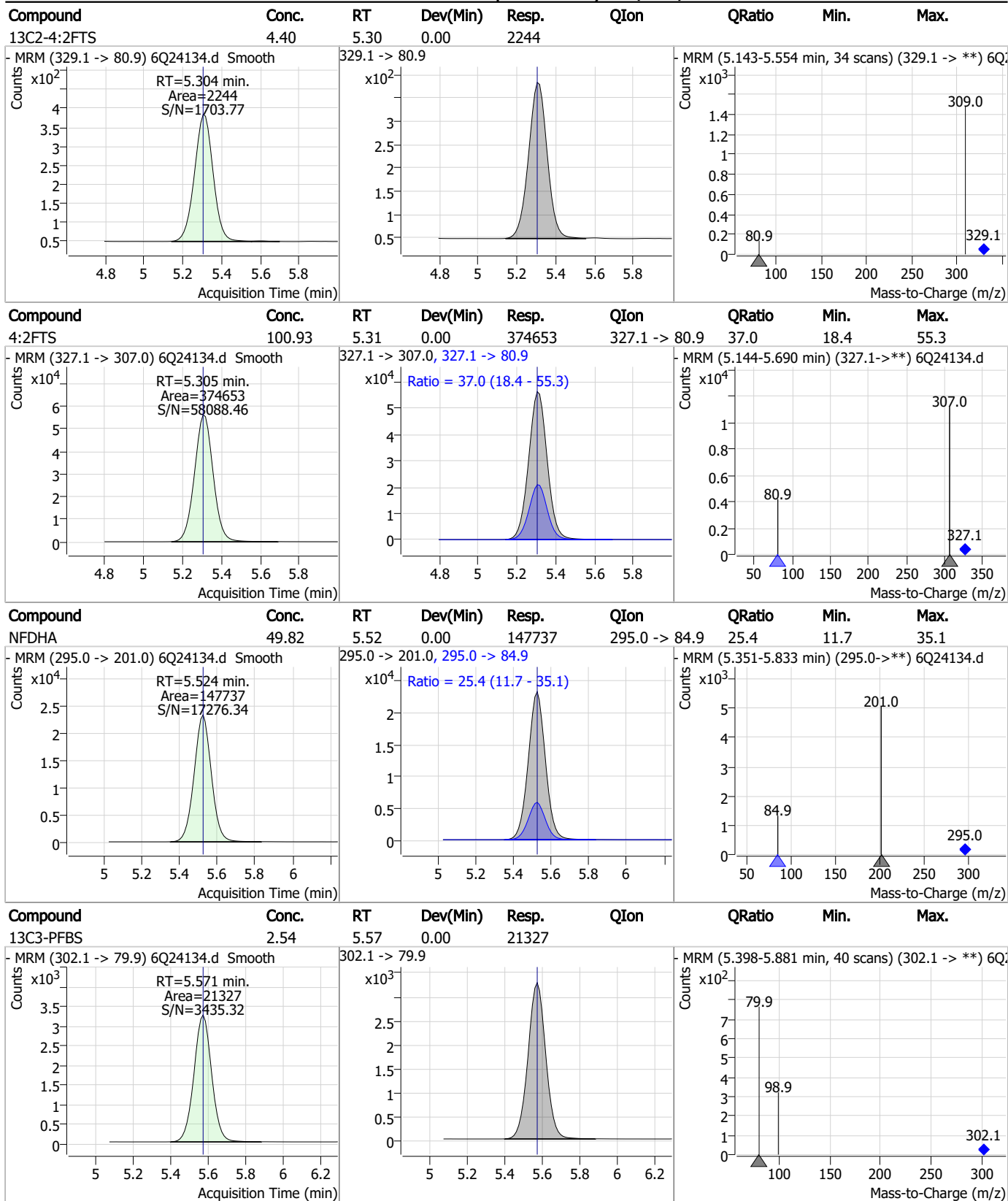
Perfluorinated Compounds by LC/MS/MS



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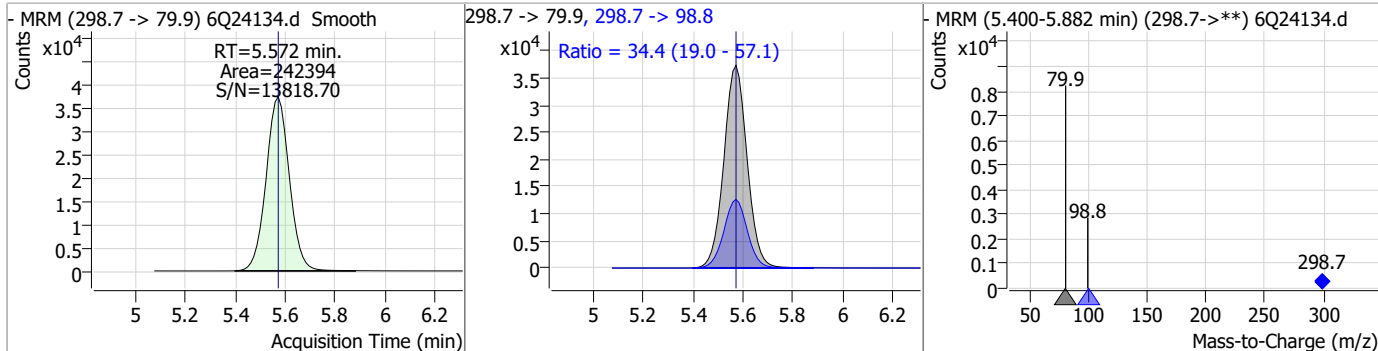
Perfluorinated Compounds by LC/MS/MS



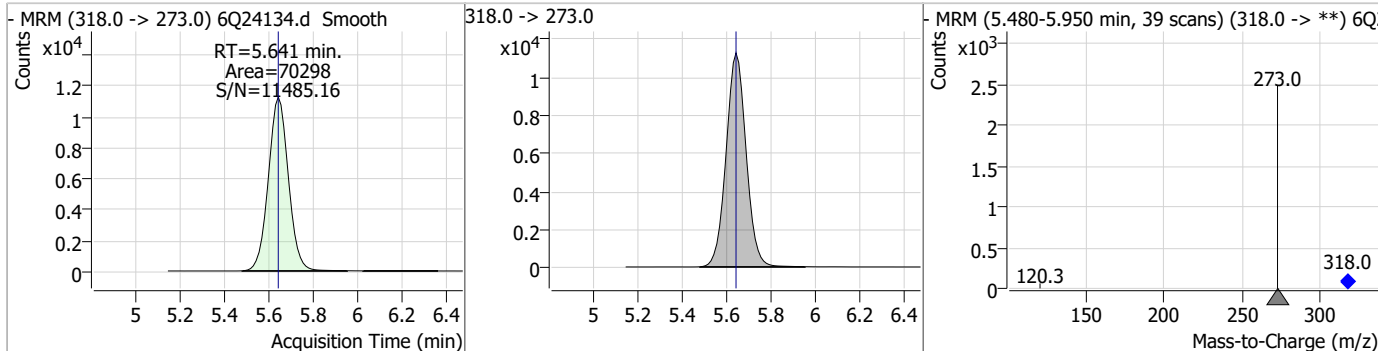
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Perfluorinated Compounds by LC/MS/MS

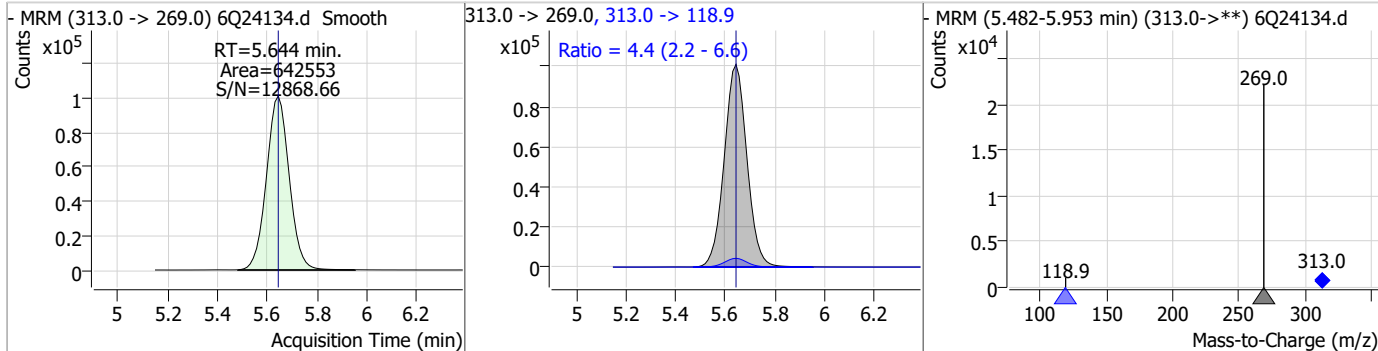
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.17	5.57	0.00	242394	298.7 -> 98.8	34.4	19.0	57.1



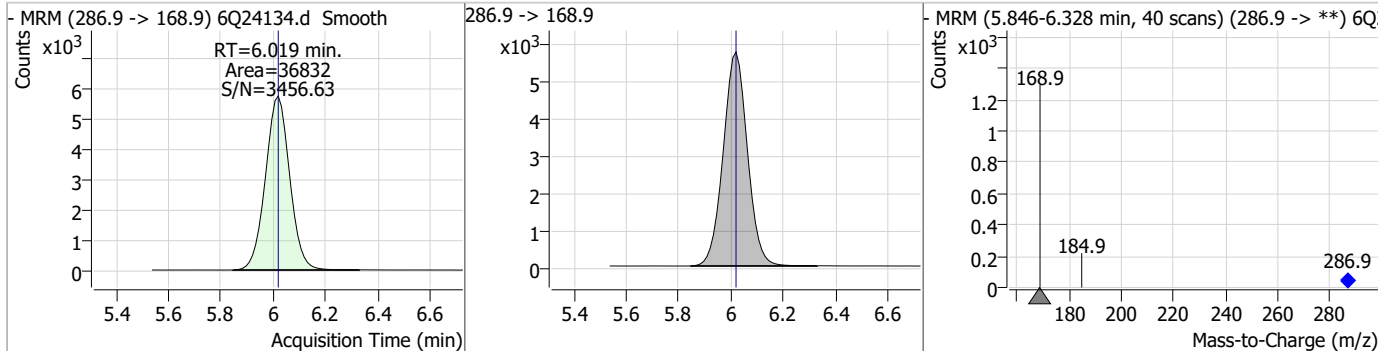
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.66	5.64	0.00	70298				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	25.11	5.64	0.00	642553	313.0 -> 118.9	4.4	2.2	6.6



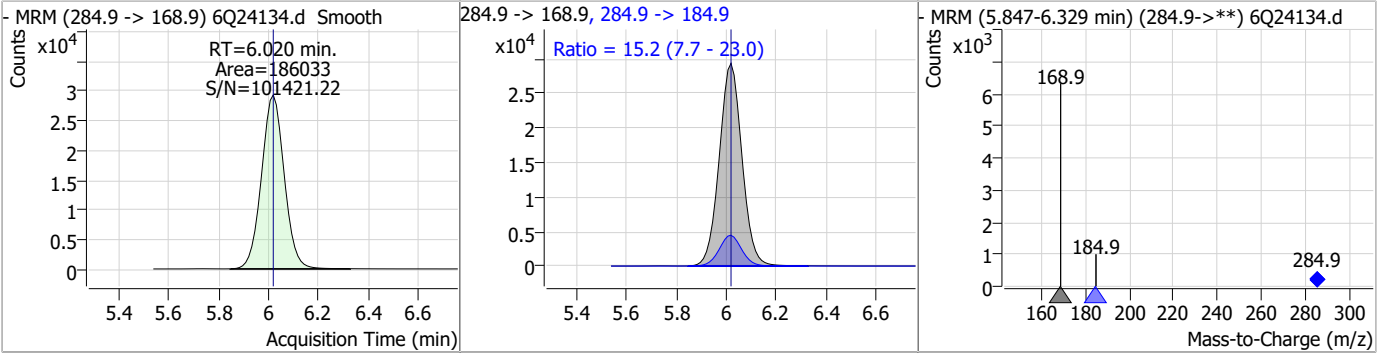
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.10	6.02	0.00	36832				



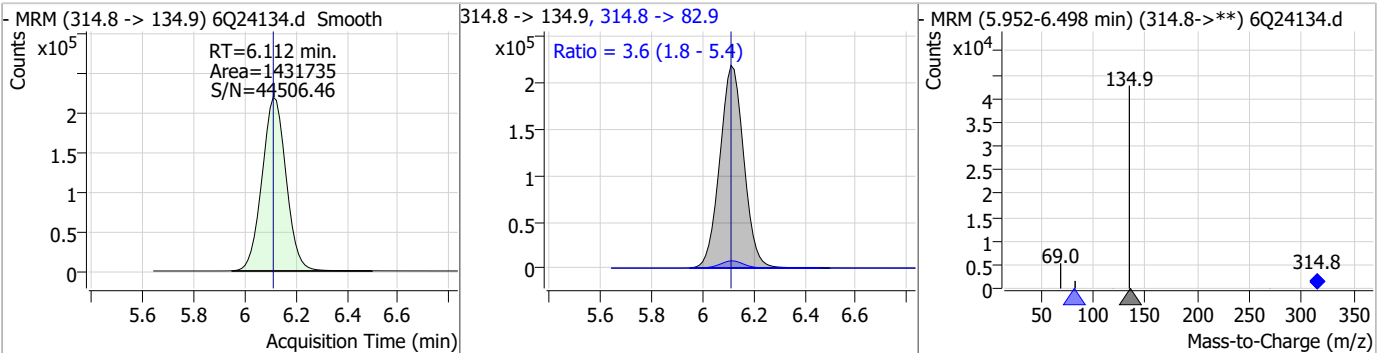
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Perfluorinated Compounds by LC/MS/MS

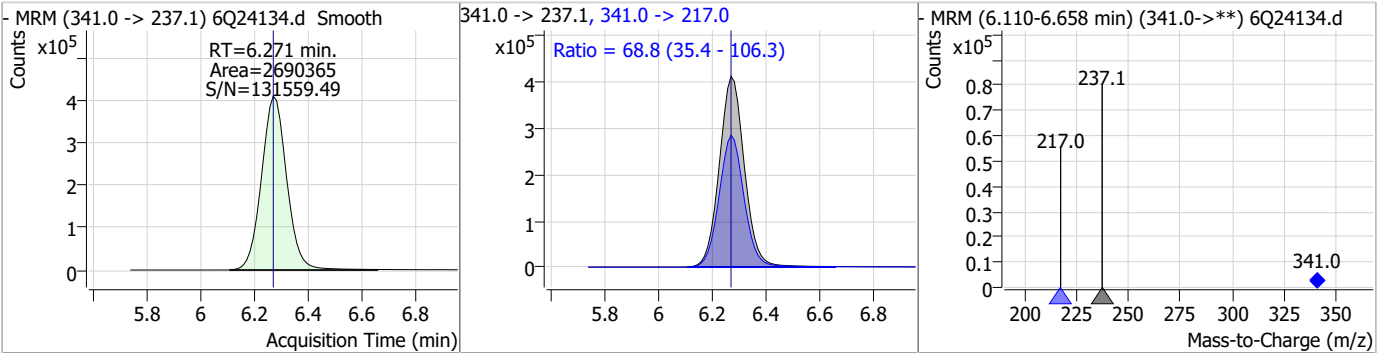
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	53.38	6.02	0.00	186033	284.9 -> 184.9	15.2	7.7	23.0



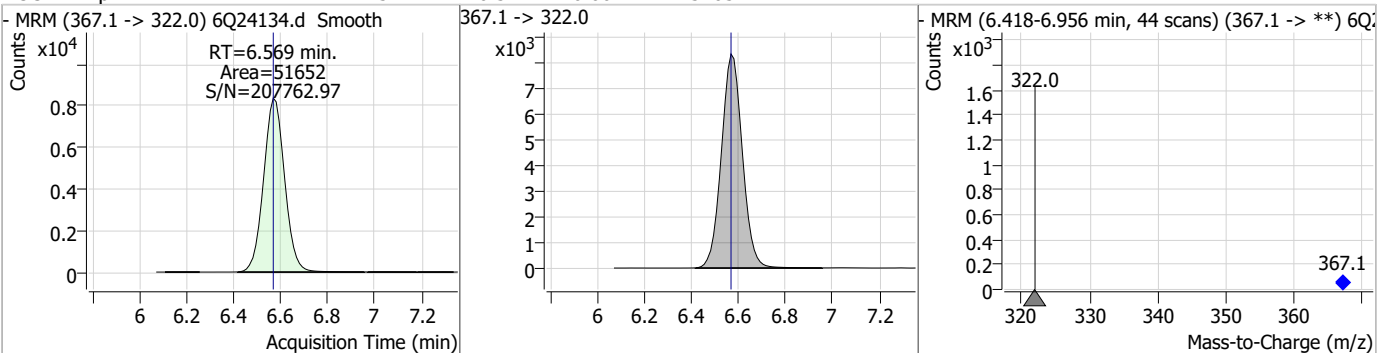
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	44.78	6.11	0.00	1431735	314.8 -> 82.9	3.6	1.8	5.4



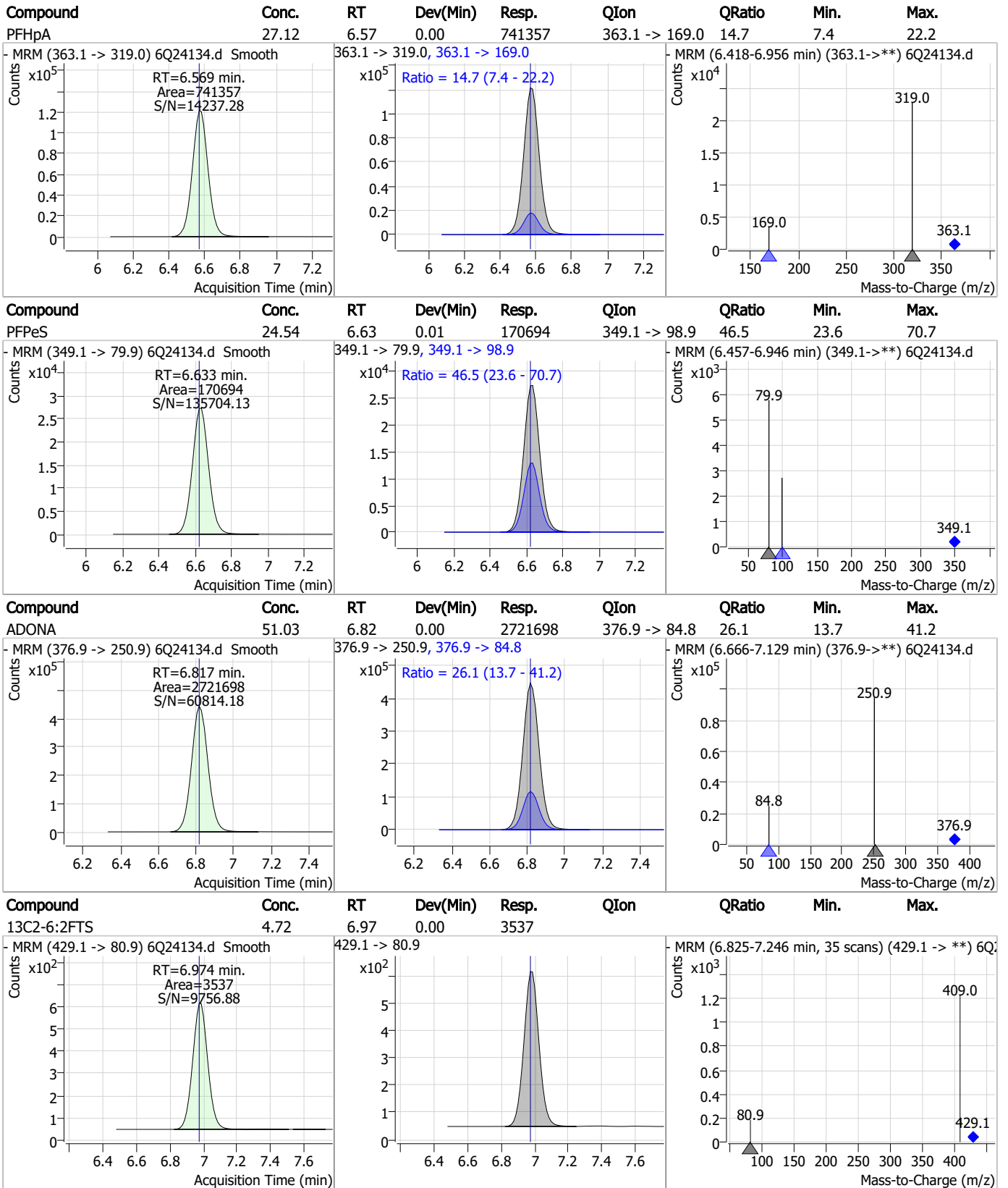
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	618.87	6.27	0.00	2690365	341.0 -> 217.0	68.8	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.51	6.57	0.00	51652	367.1 -> 322.0			



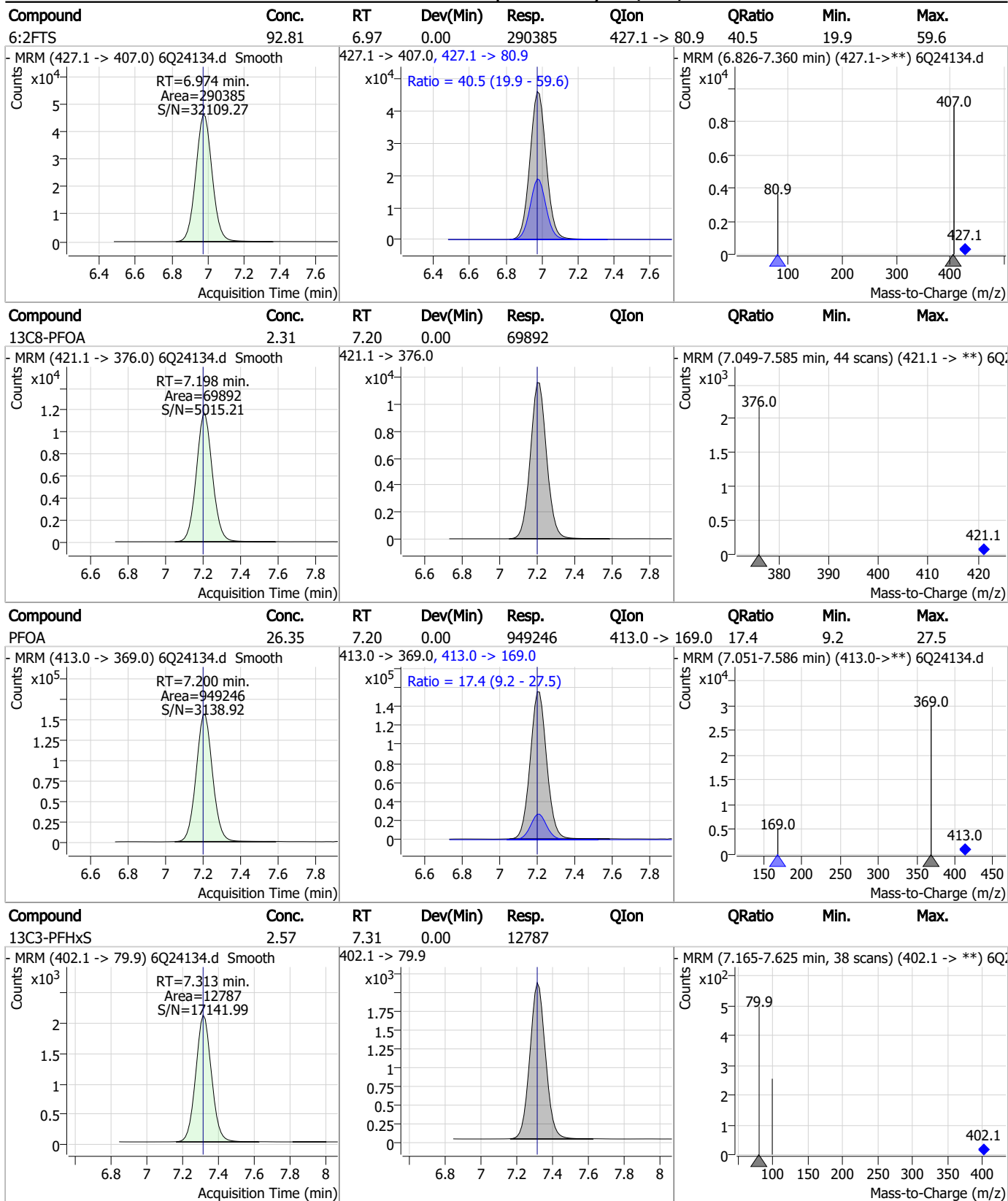
Perfluorinated Compounds by LC/MS/MS



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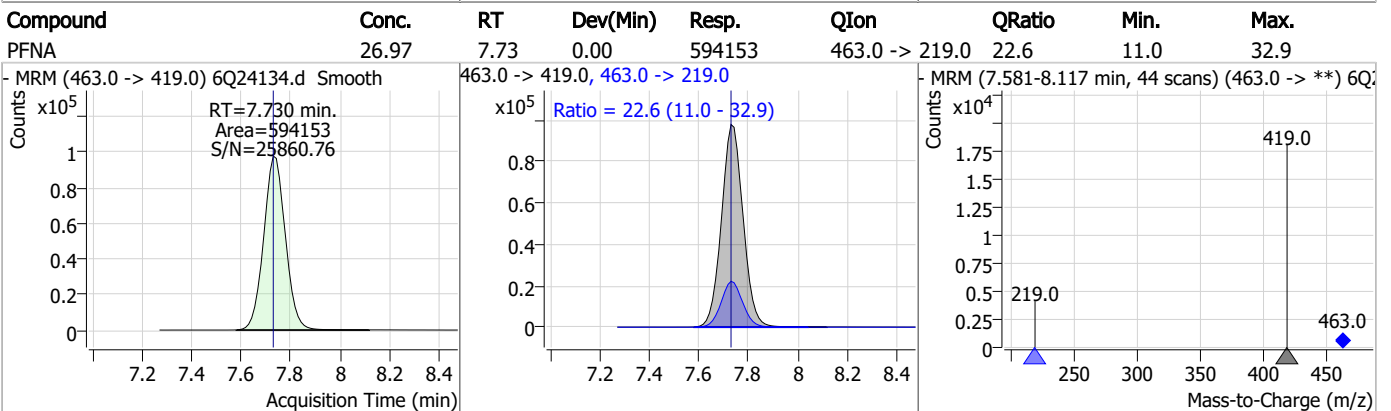
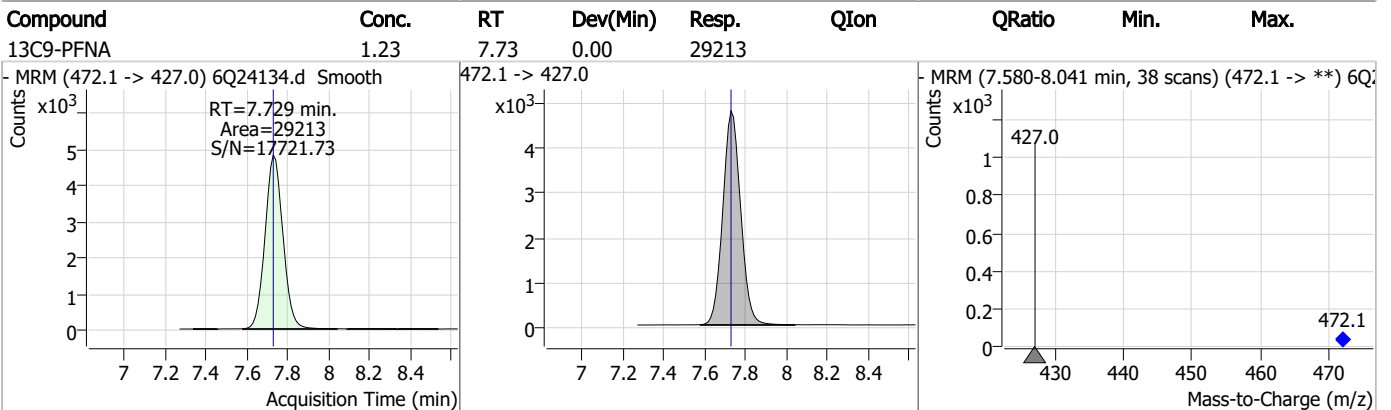
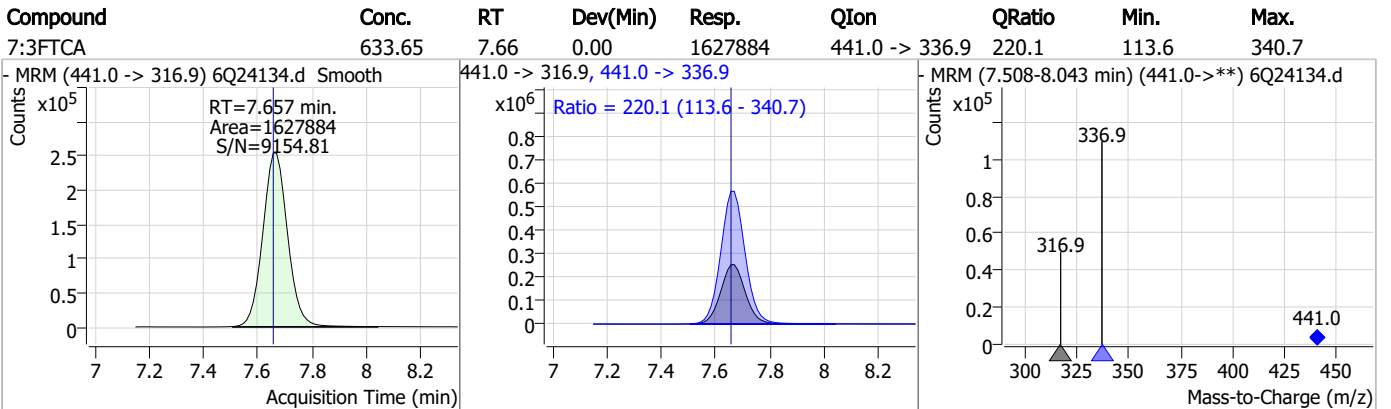
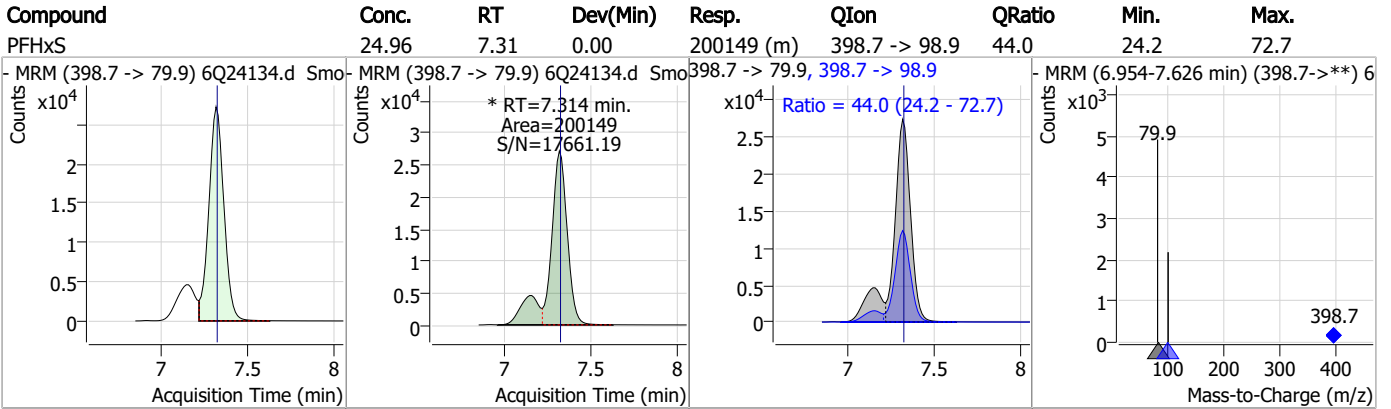
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Perfluorinated Compounds by LC/MS/MS

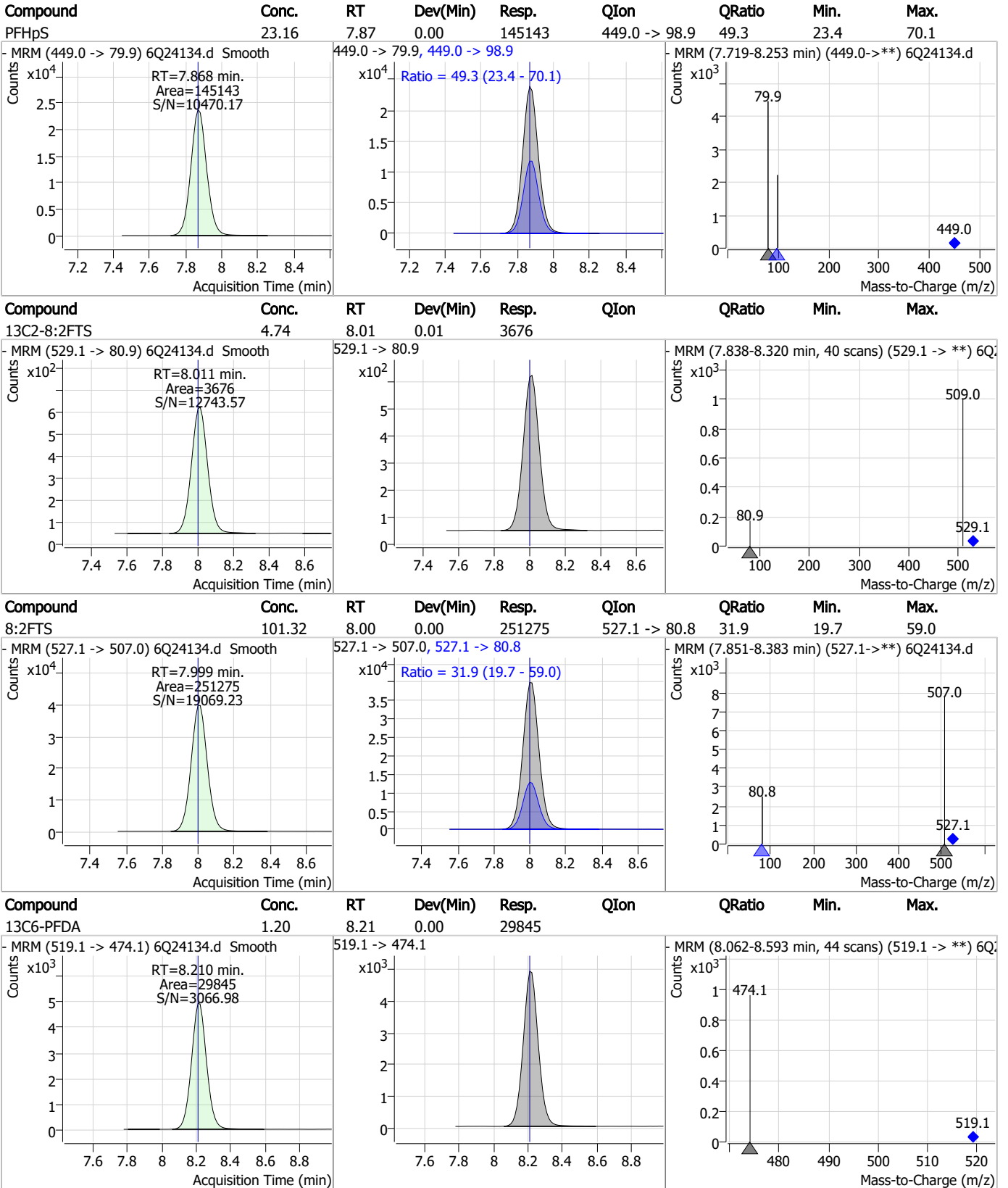


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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

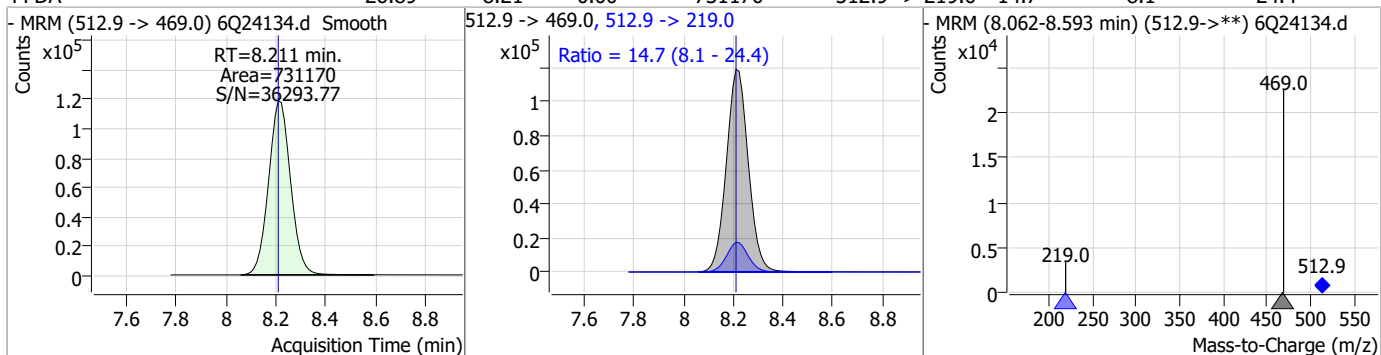


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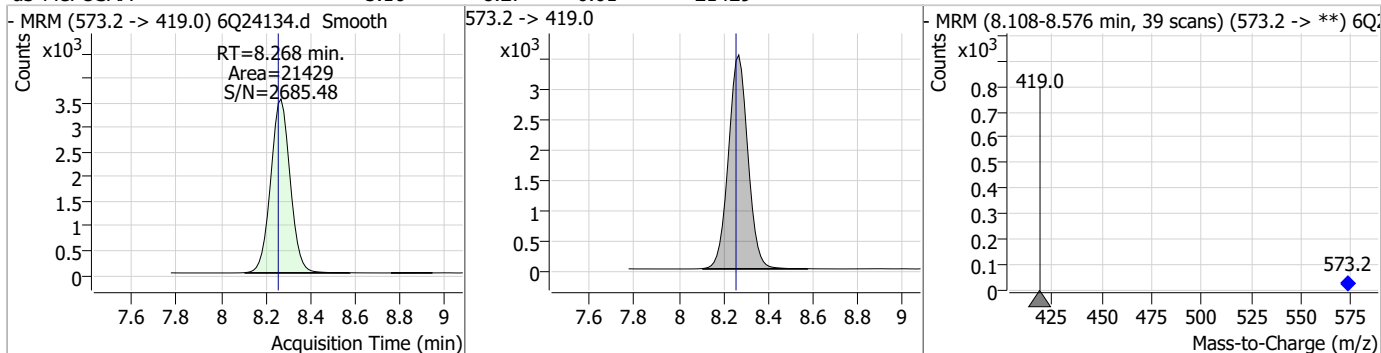
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Perfluorinated Compounds by LC/MS/MS

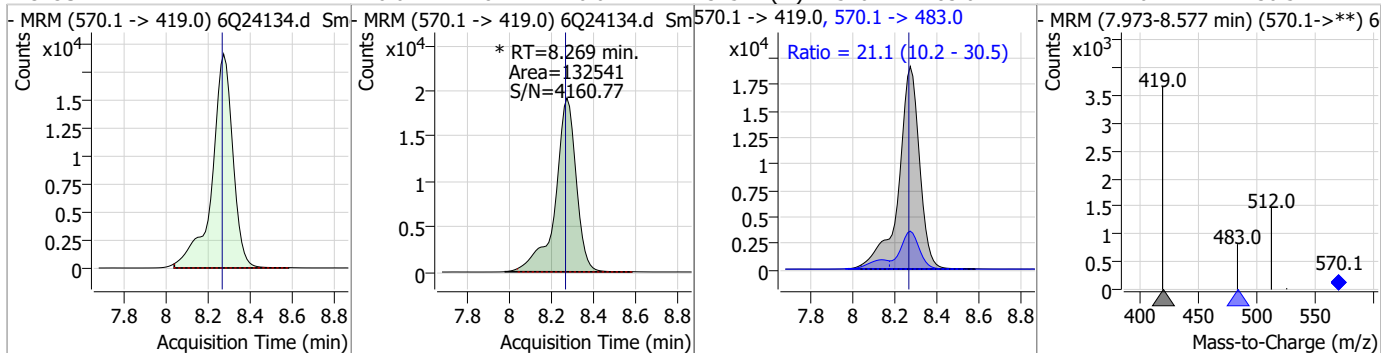
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	26.89	8.21	0.00	731170	512.9 -> 219.0	14.7	8.1	24.4



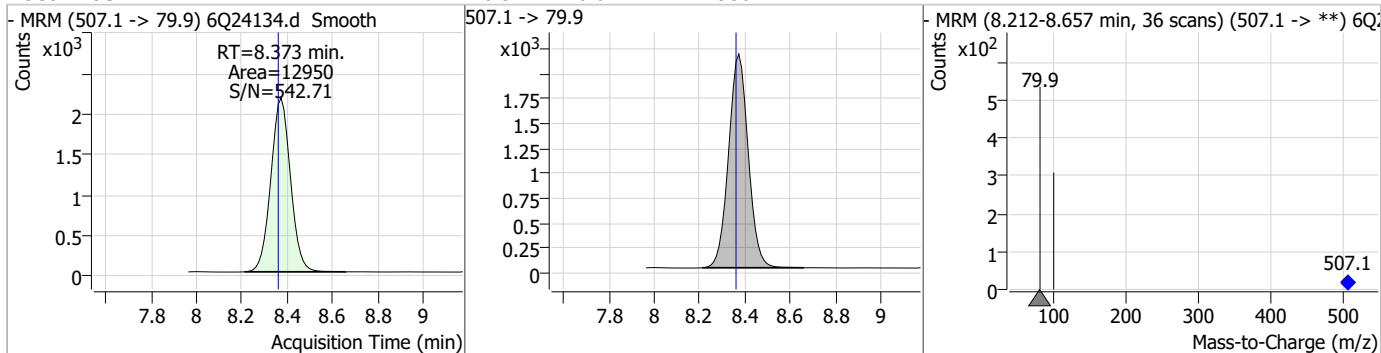
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.16	8.27	0.01	21429				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	26.04	8.27	0.01	132541 (m)	570.1 -> 483.0	21.1	10.2	30.5

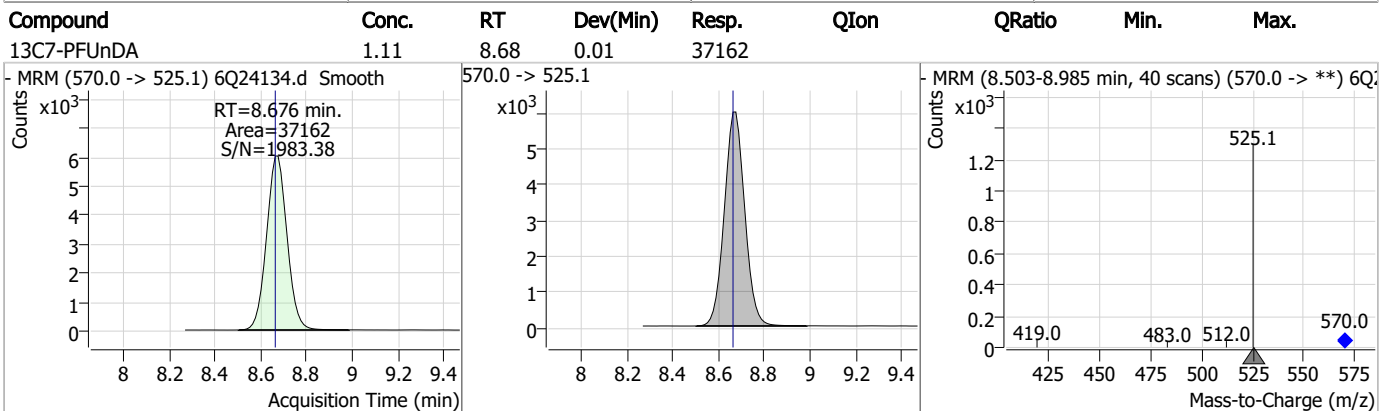
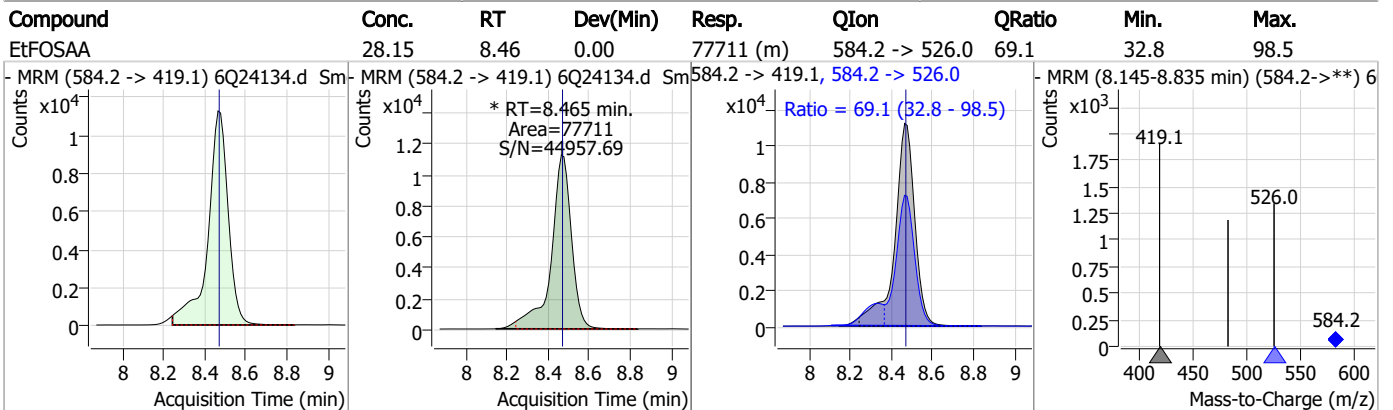
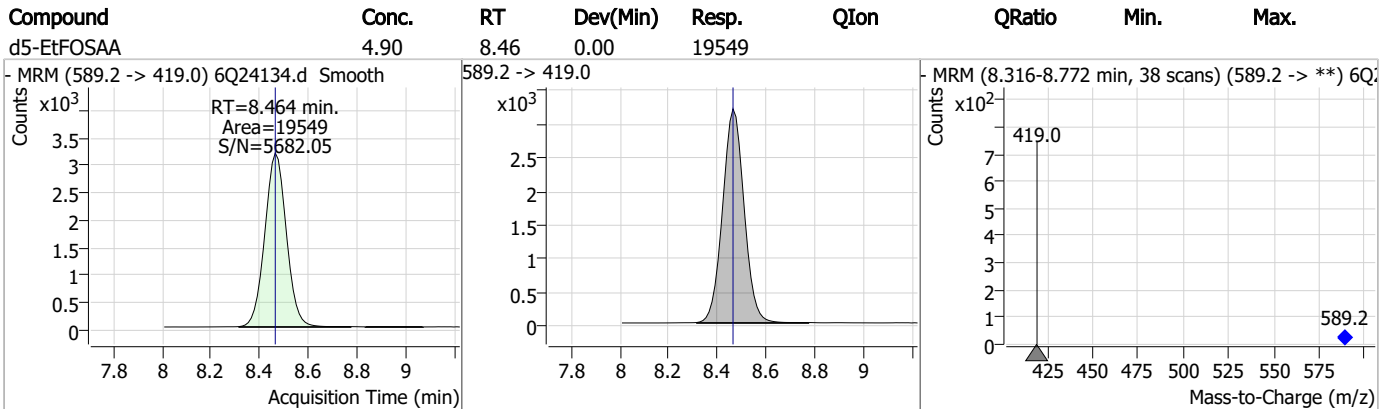
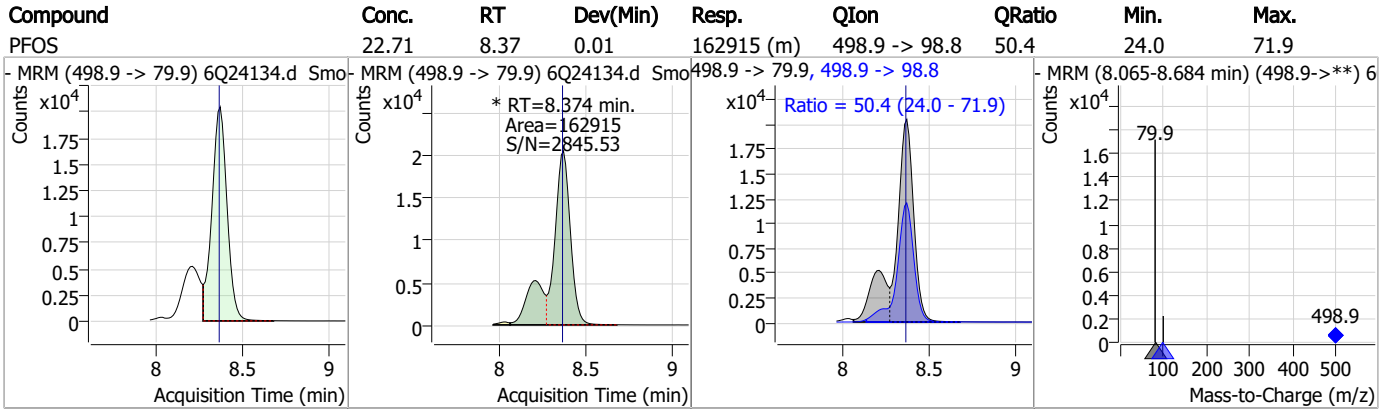


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.77	8.37	0.01	12950				



7.7.8
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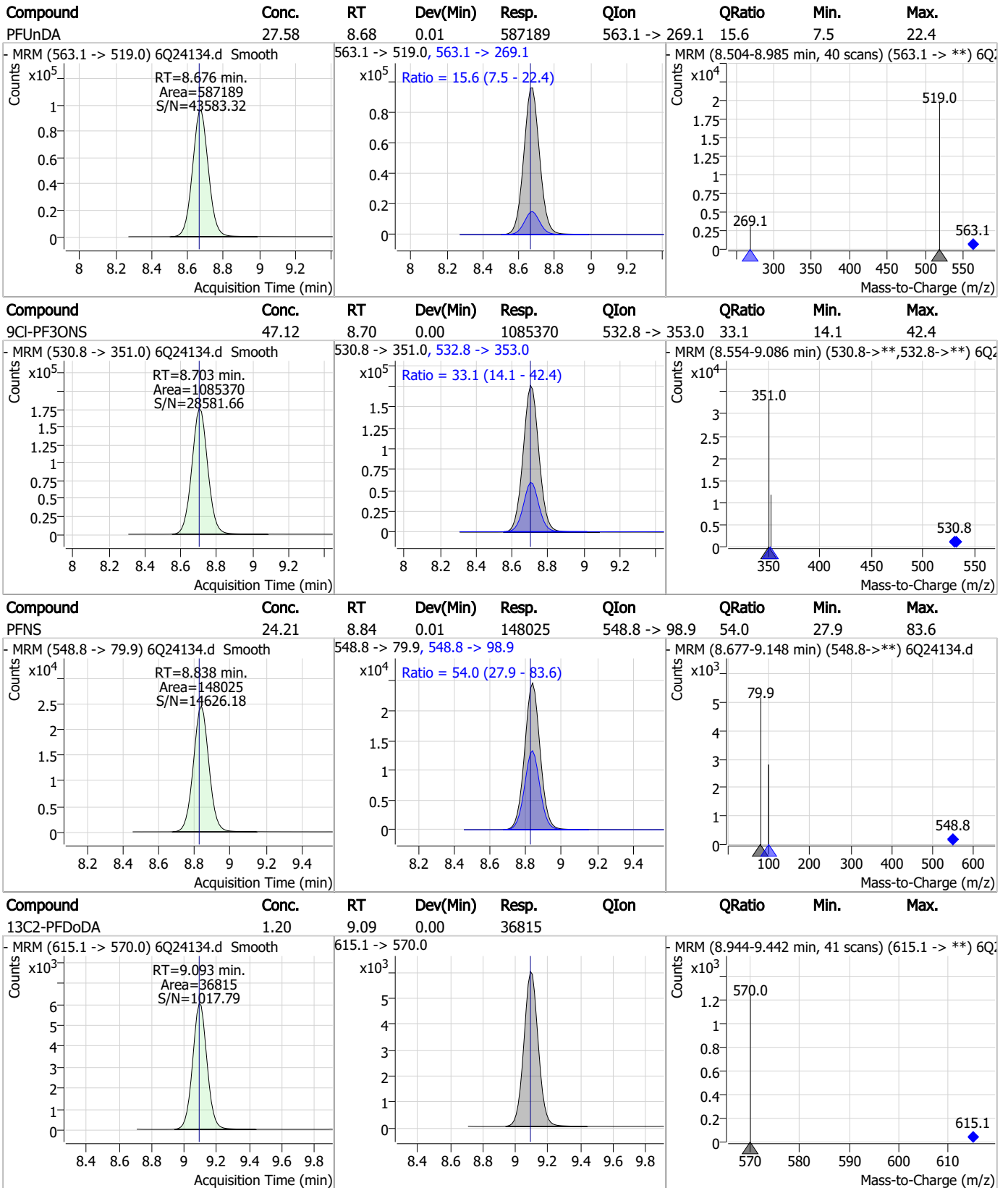
Perfluorinated Compounds by LC/MS/MS



7.7.8

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Perfluorinated Compounds by LC/MS/MS

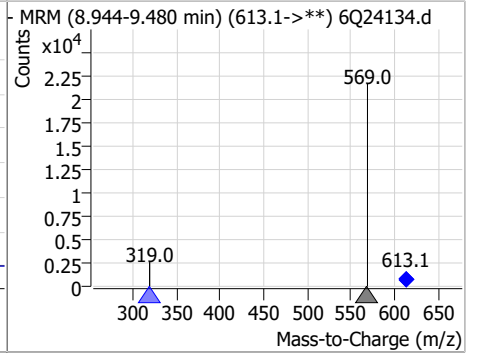
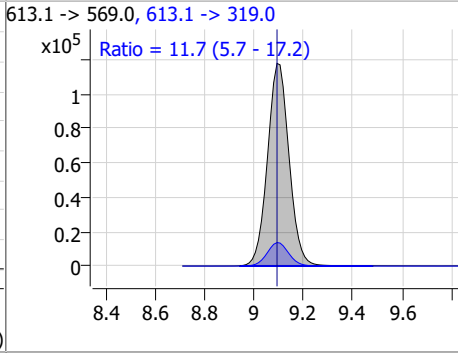
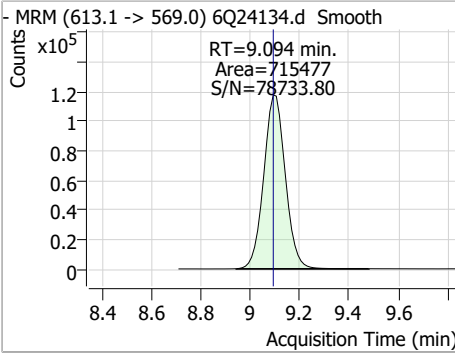


7.7.8

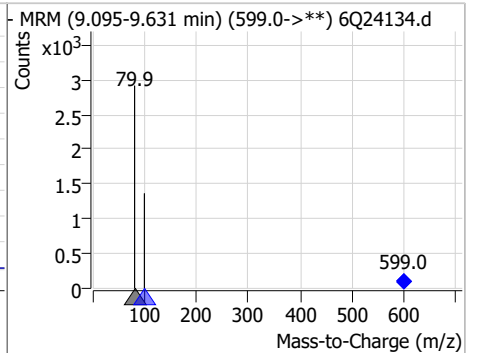
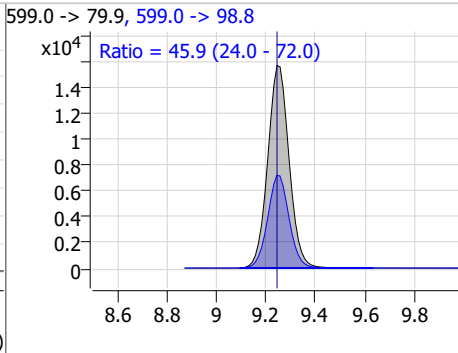
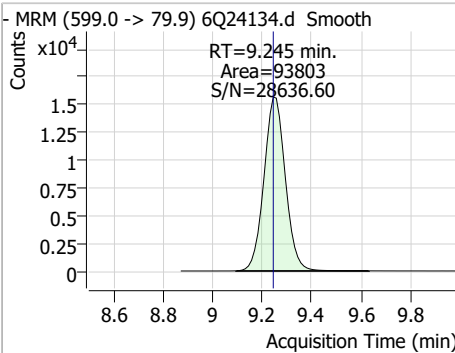
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Perfluorinated Compounds by LC/MS/MS

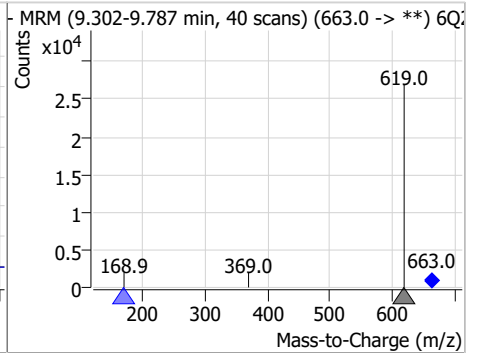
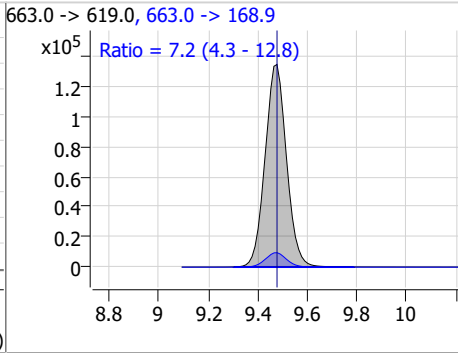
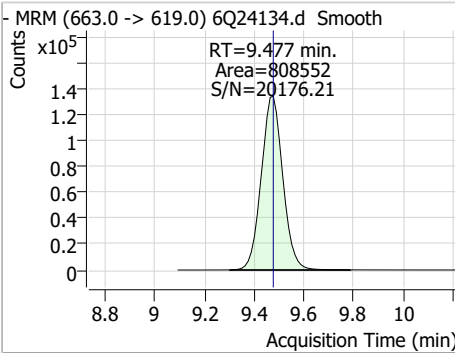
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	26.19	9.09	0.00	715477	613.1 -> 319.0	11.7	5.7	17.2



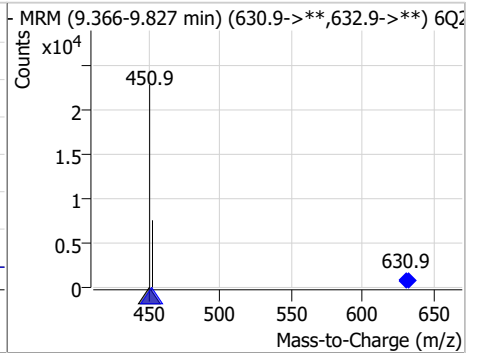
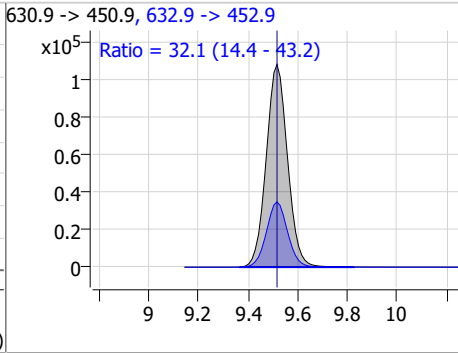
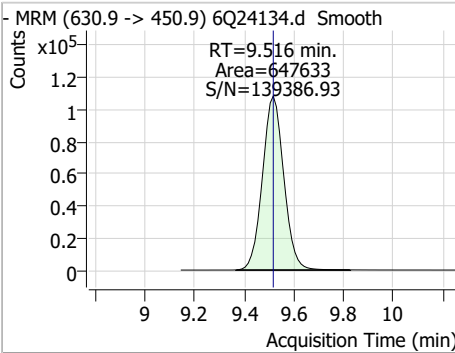
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	24.86	9.24	0.00	93803	599.0 -> 98.8	45.9	24.0	72.0



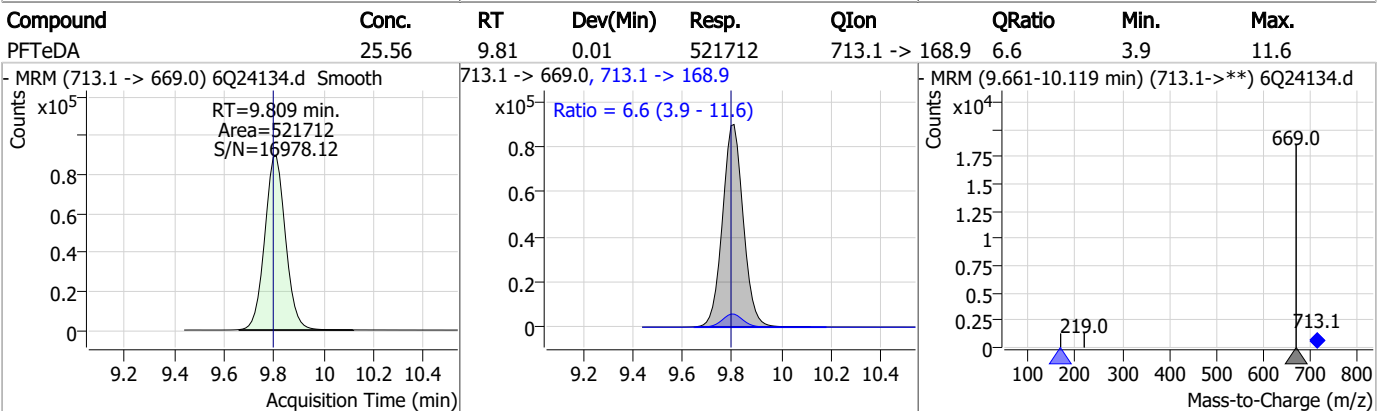
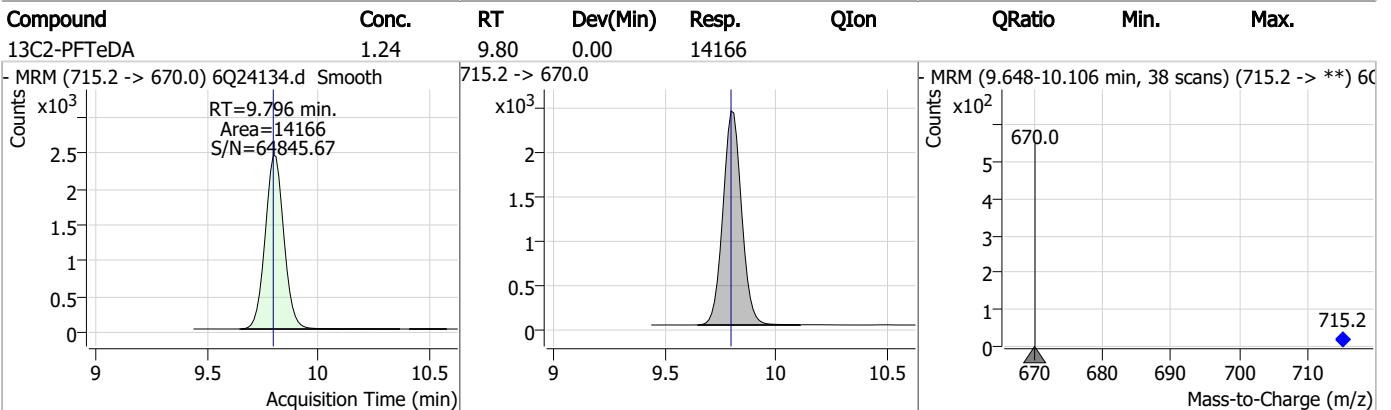
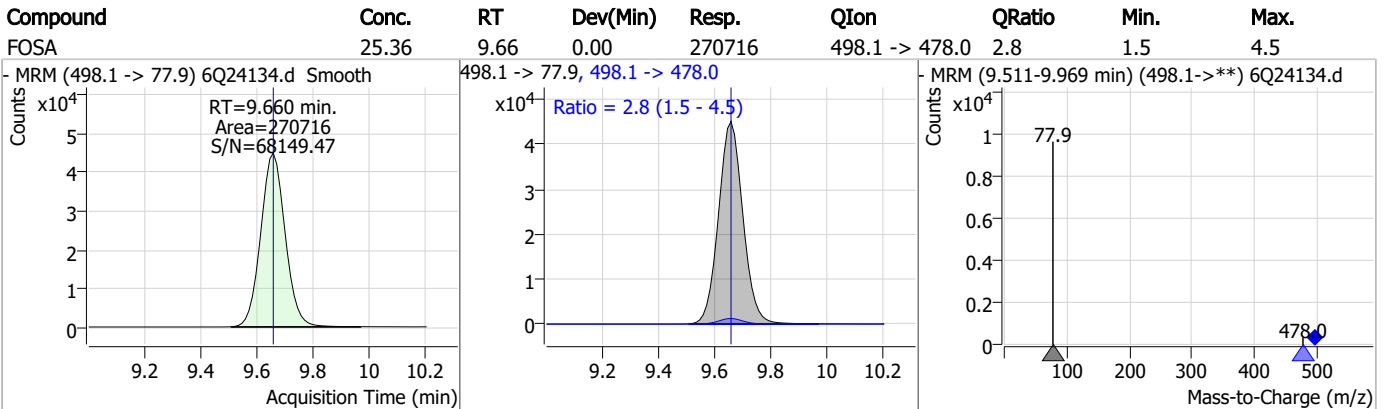
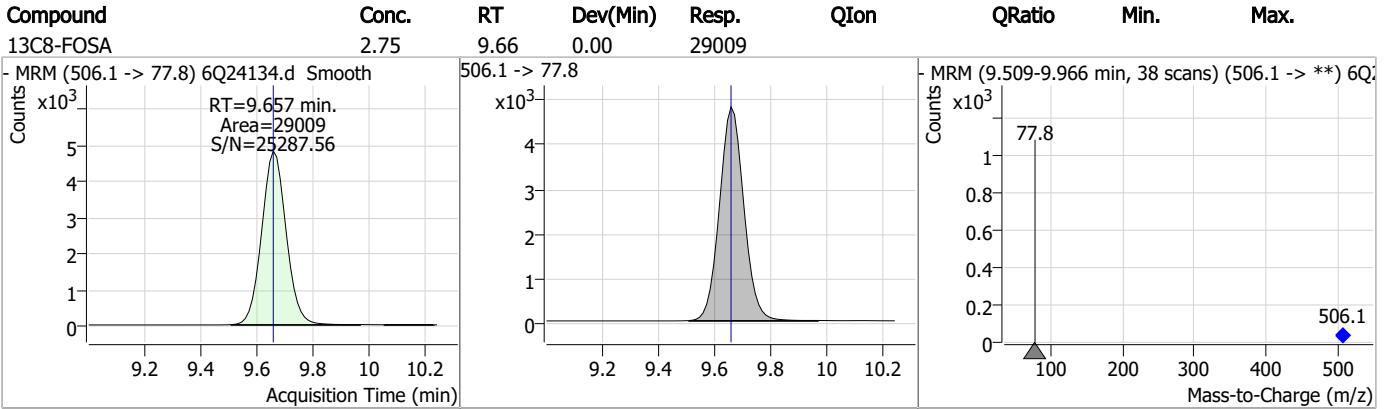
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	26.03	9.48	0.00	808552	663.0 -> 168.9	7.2	4.3	12.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUds	48.20	9.52	0.00	647633	632.9 -> 452.9	32.1	14.4	43.2

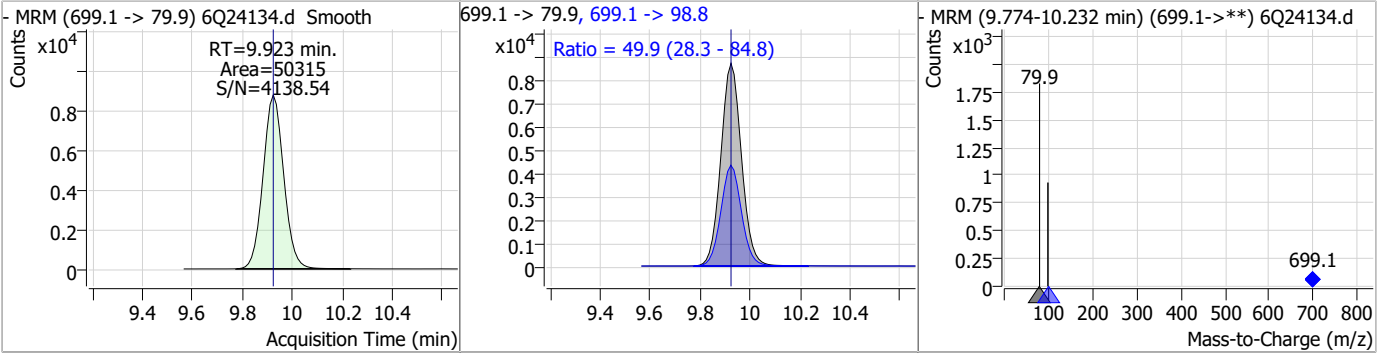


Perfluorinated Compounds by LC/MS/MS

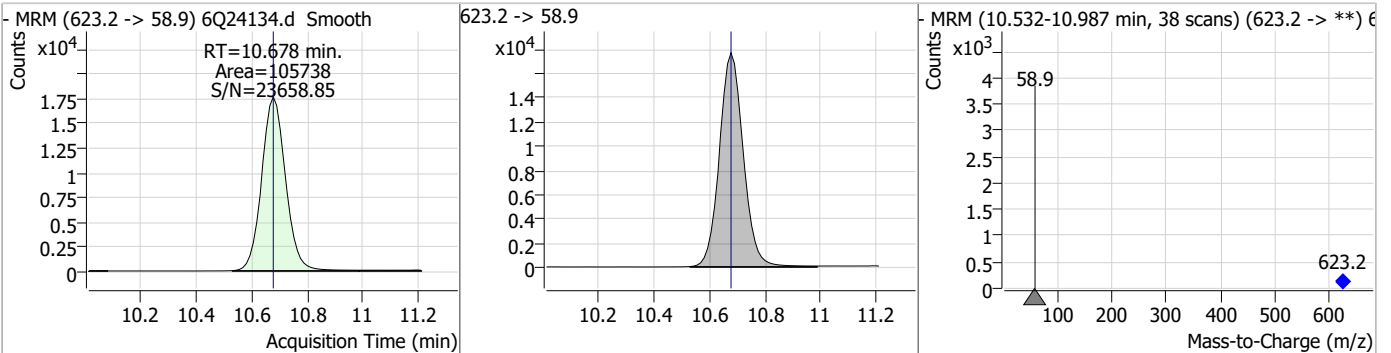


Perfluorinated Compounds by LC/MS/MS

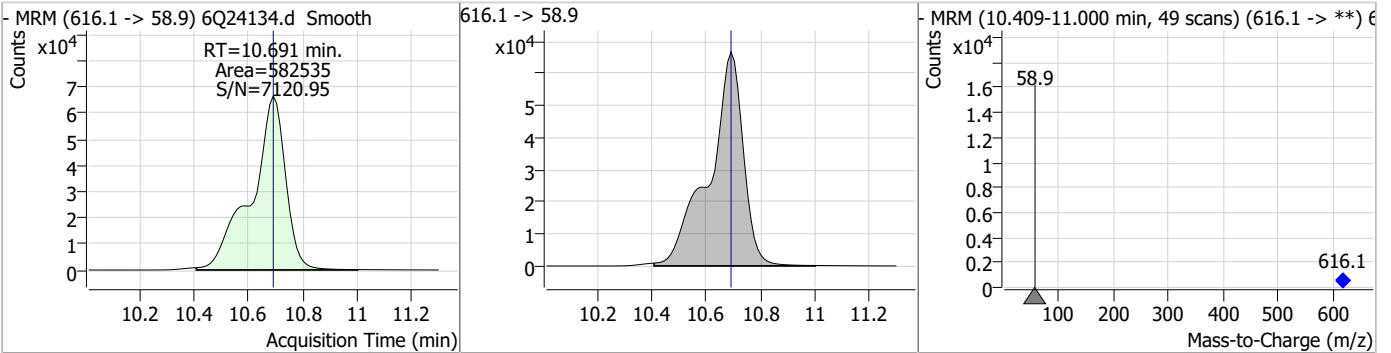
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	24.34	9.92	0.00	50315	699.1 -> 98.8	49.9	28.3	84.8



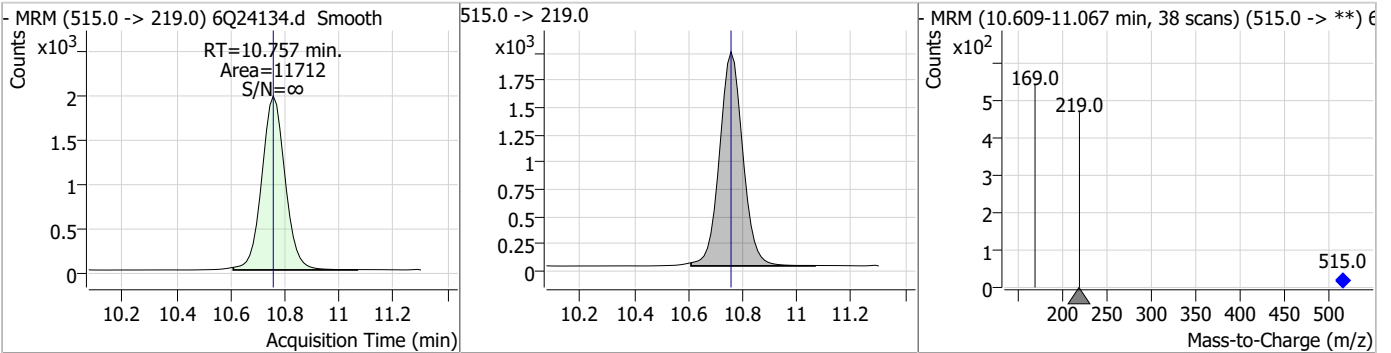
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.10	10.68	0.00	105738				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	127.40	10.69	0.00	582535				

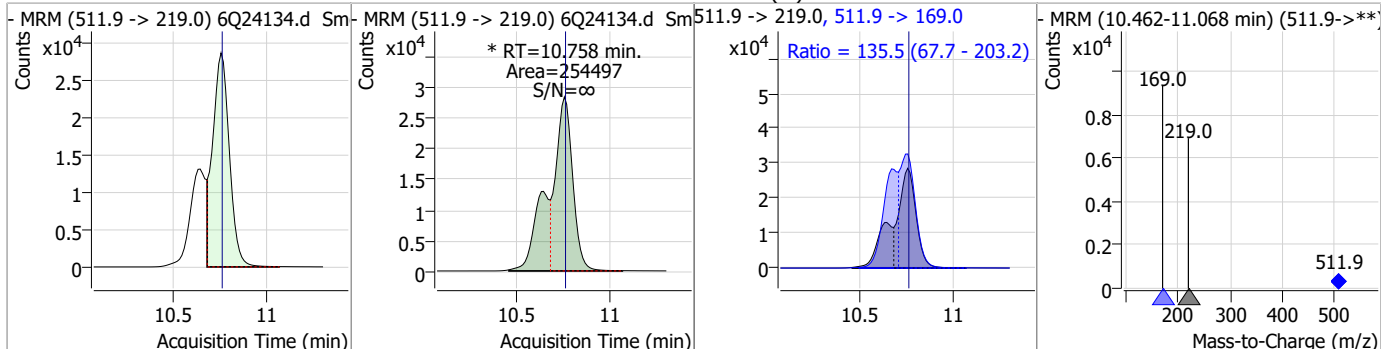


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.74	10.76	0.00	11712				

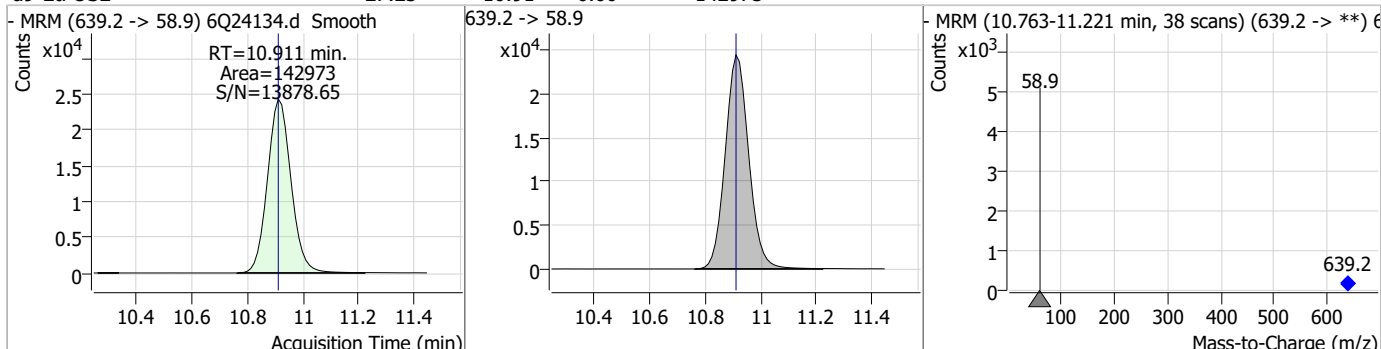


Perfluorinated Compounds by LC/MS/MS

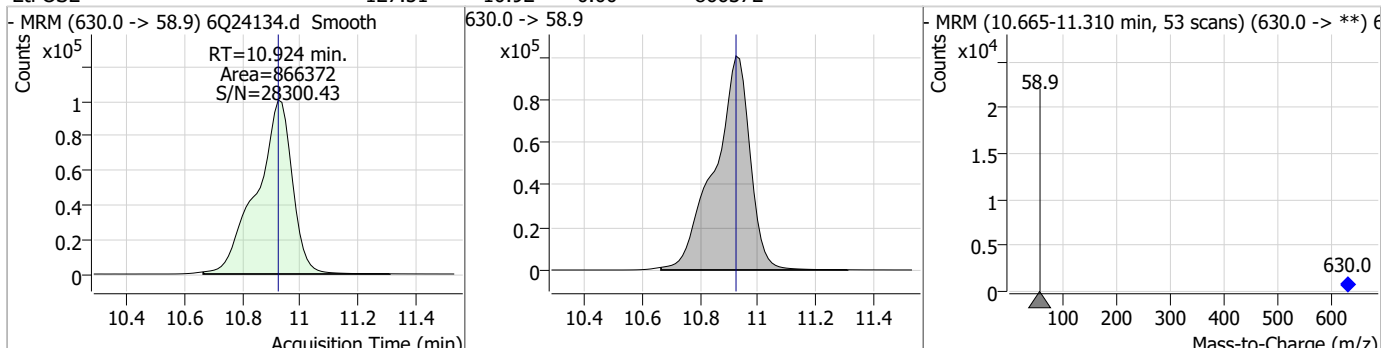
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	51.20	10.76	0.00	254497 (m)	511.9 -> 169.0	135.5	67.7	203.2



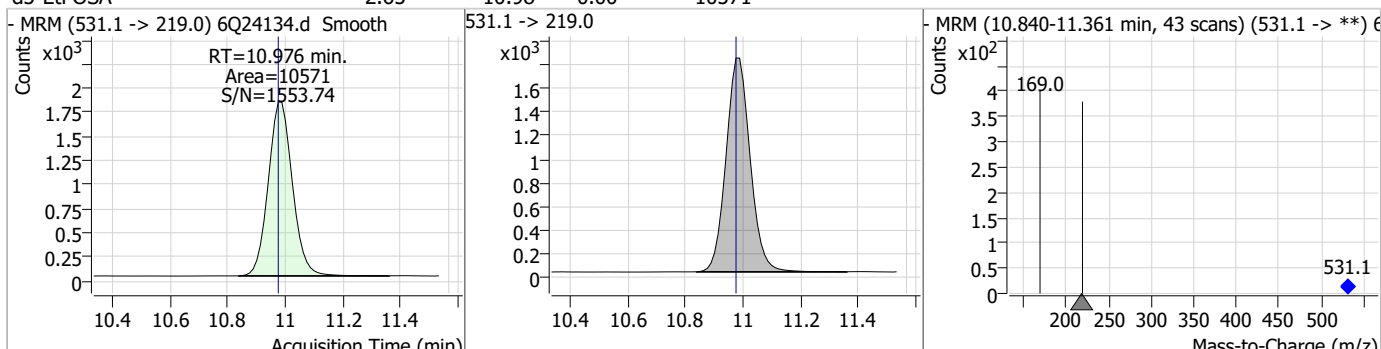
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.23	10.91	0.00	142973				



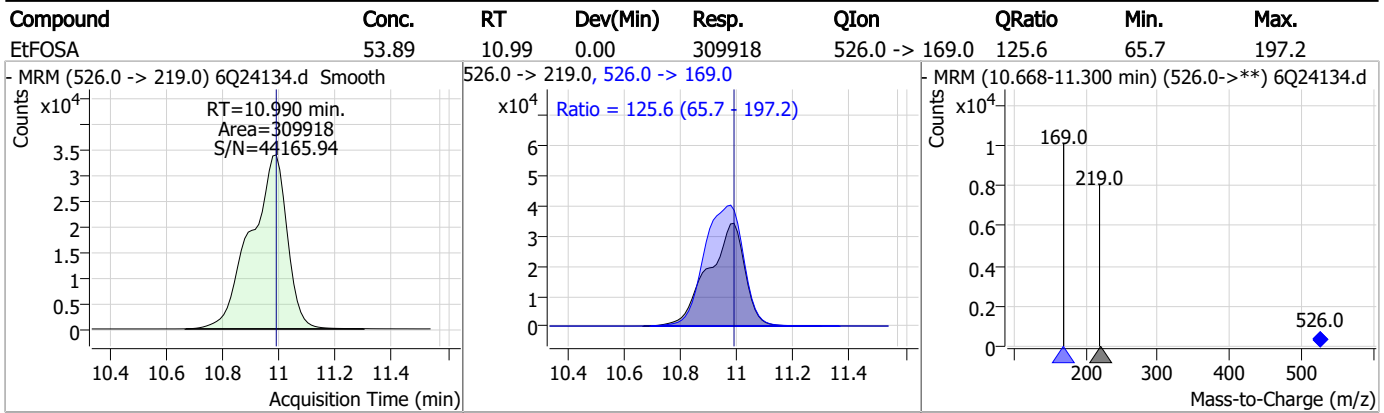
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	127.51	10.92	0.00	866372				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.65	10.98	0.00	10571				



Perfluorinated Compounds by LC/MS/MS



7.7.8
7

Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24134.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 22:12 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.8.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24135.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 10:26:35 PM
 Sample Name : ic347-8
 Vial : P1-A9
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	3.010	216.8 -> 171.9	152309	10.00 µg/L	0.025
M5-PFPeA	4.434	268.3 -> 223.0	30072	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	64430	2.50 µg/L	0.012
M4-PFHpA	6.569	367.1 -> 322.0	49796	2.50 µg/L	0.000
M8-PFOA	7.211	421.1 -> 376.0	67860	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	26662	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	28563	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	35225	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	35532	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	13590	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	28041	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	19365	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	11947	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	11657	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	1989	5.00 µg/L	0.012
M2-6:2FTS	6.974	429.1 -> 80.9	2906	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3191	5.00 µg/L	0.000
M3-MeFOSAA	8.268	573.2 -> 419.0	20218	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	35620	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	20679	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	100276	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	129846	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	9796	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11728	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	14110	2.50 µg/L	0.012
13C3-PFBA	3.014	216.0 -> 172.0	60509	5.00 µg/L	0.025
18O2-PFHxS	7.313	403.0 -> 83.9	8970	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	72506	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	27282	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	37097	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	45526	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	1989	3.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 78.8%		
13C2-6:2FTS	6.974	429.1 -> 80.9	2906	3.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 78.4%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3191	4.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.2%		
13C2-PFDoDA	9.093	615.1 -> 570.0	35532	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	9.796	715.2 -> 670.0	13590	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFBS	5.571	302.1 -> 79.9	19365	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C3-PFHxS	7.313	402.1 -> 79.9	11947	2.42 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 = 97.0%	
13C4-PFBA	3.010	216.8 -> 171.9	152309	9.97 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	49796	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.654	318.0 -> 273.0	64430	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C5-PFPeA	4.434	268.3 -> 223.0	30072	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C6-PFDA	8.210	519.1 -> 474.1	28563	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C7-PFUnDA	8.663	570.0 -> 525.1	35225	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.5%	
13C8-FOSA	9.657	506.1 -> 77.8	28041	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.7%	
13C8-PFOA	7.211	421.1 -> 376.0	67860	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C8-PFOS	8.373	507.1 -> 79.9	11657	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C9-PFNA	7.729	472.1 -> 427.0	26662	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.0%	
d3-MeFOSAA	8.268	573.2 -> 419.0	20218	5.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	35620	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	11728	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.2%	
d5-EtFOSAA	8.464	589.2 -> 419.0	20679	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	100276	27.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d9-EtFOSE	10.911	639.2 -> 58.9	129846	26.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSA	10.976	531.1 -> 219.0	9796	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	700140	212.84 µg/L	97
		327.1 -> 80.9	269168		
6:2FTS	6.974	427.1 -> 407.0	577862	224.81 µg/L	97
		427.1 -> 80.9	218204		
8:2FTS	7.999	527.1 -> 507.0	428310	199.00 µg/L	97
		527.1 -> 80.8	176203		
EtFOSAA	8.465	584.2 -> 419.1	174859	59.87 µg/L	m 99
		584.2 -> 526.0	113624		
FOSA	9.660	498.1 -> 77.9	633892	61.43 µg/L	99
		498.1 -> 478.0	17313		
MeFOSAA	8.269	570.1 -> 419.0	293229	61.06 µg/L	98
		570.1 -> 483.0	62499		
PFBA	3.018	212.8 -> 168.9	1286191	255.52 µg/L	100
PFBS	5.572	298.7 -> 79.9	557963	58.74 µg/L	97
		298.7 -> 98.8	204077		
PFDA	8.211	512.9 -> 469.0	1621177	62.31 µg/L	97
		512.9 -> 219.0	243573		
PFDoDA	9.094	613.1 -> 569.0	1595930	60.52 µg/L	99
		613.1 -> 319.0	192095		
PFDS	9.245	599.0 -> 79.9	209574	61.71 µg/L	98

7.7.9
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	102812	63.32	µg/L	100
		363.1 -> 319.0	1668443			
PFHpS	7.868	363.1 -> 169.0	245707	57.10	µg/L	93
		449.0 -> 79.9	322182			
PFHxA	5.644	449.0 -> 98.9	165870	63.92	µg/L	99
		313.0 -> 269.0	1499026			
PFHxS	7.314	313.0 -> 118.9	62381	58.54	µg/L	96
		398.7 -> 79.9	438576			
PFNA	7.730	398.7 -> 98.9	201005	65.46	µg/L	99
		463.0 -> 419.0	1316266			
PFNS	8.838	463.0 -> 219.0	292647	59.26	µg/L	100
		548.8 -> 79.9	326185			
PFOA	7.200	548.8 -> 98.9	181012	64.55	µg/L	97
		413.0 -> 369.0	2257752			
PFOS	8.362	413.0 -> 169.0	383148	58.11	µg/L	96
		498.9 -> 79.9	375275			
PFPeA	4.436	498.9 -> 98.8	170425	126.75	µg/L	100
		263.0 -> 219.0	1698027			
PFPeS	6.633	349.1 -> 79.9	388412	59.76	µg/L	97
		349.1 -> 98.9	175086			
PFTeDA	9.797	713.1 -> 669.0	1190816	60.83	µg/L	97
		713.1 -> 168.9	80517			
PFTrDA	9.464	663.0 -> 619.0	1738013	57.96	µg/L	97
		663.0 -> 168.9	130058			
PFUnDA	8.664	563.1 -> 519.0	1274607	63.16	µg/L	99
		563.1 -> 269.1	183543			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	1390316	106.98	µg/L	89
		632.9 -> 452.9	480393			
9Cl-PF3ONS	8.703	530.8 -> 351.0	2677283	120.18	µg/L	100
		532.8 -> 353.0	761976			
ADONA	6.817	376.9 -> 250.9	5910544	114.60	µg/L	99
		376.9 -> 84.8	1578262			
HFPO-DA	6.020	284.9 -> 168.9	432596	128.35	µg/L	97
		284.9 -> 184.9	61656			
3:3FTCA	3.883	241.0 -> 177.0	315415	362.32	µg/L	100
		241.0 -> 117.0	29805			
5:3FTCA	6.283	341.0 -> 237.1	6361403	1596.60	µg/L	98
		341.0 -> 217.0	4385075			
7:3FTCA	7.657	441.0 -> 316.9	3606648	1531.74	µg/L	99
		441.0 -> 336.9	8280618			
EtFOSA	10.990	526.0 -> 219.0	694397	130.29	µg/L	100
		526.0 -> 169.0	910620			
EtFOSE	10.924	630.0 -> 58.9	1860346	301.48	µg/L	100
		511.9 -> 219.0	593764			
MeFOSA	10.758	511.9 -> 169.0	806315	119.29	µg/L	100
		616.1 -> 58.9	1408353			
MeFOSE	10.691	699.1 -> 79.9	115697	324.79	µg/L	100
		699.1 -> 98.8	60207			
PFDoDS	9.923	295.0 -> 201.0	318808	62.18	µg/L	94
		295.0 -> 84.9	82583			
NFDHA	5.524	279.0 -> 85.1	1264212	117.31	µg/L	95
		229.0 -> 84.9	908638			
PFMBA	4.850	314.8 -> 134.9	3195310	129.48	µg/L	100
PFMPA	3.563	314.8 -> 82.9	112015	129.79	µg/L	100
PFEESA	6.124			109.04	µg/L	100

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

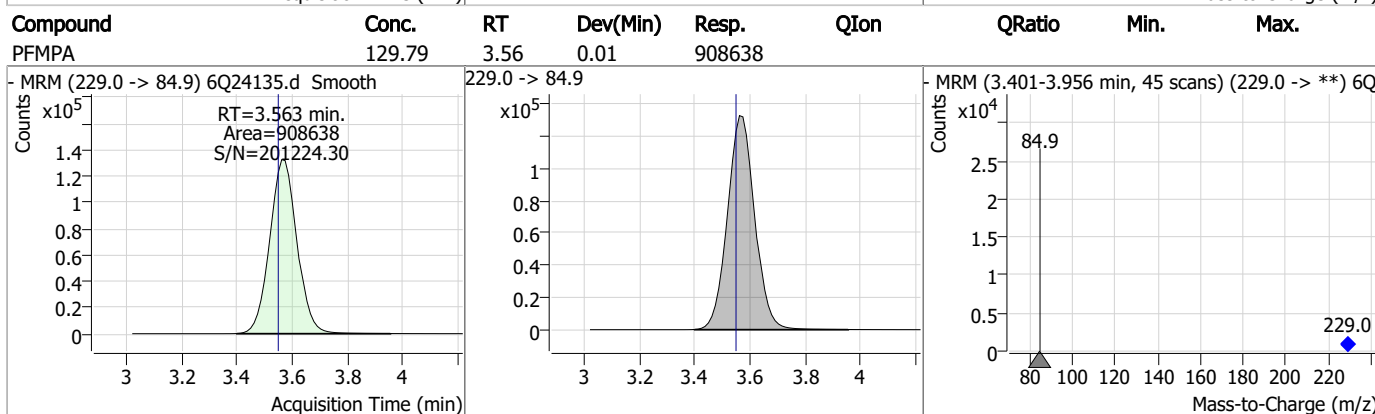
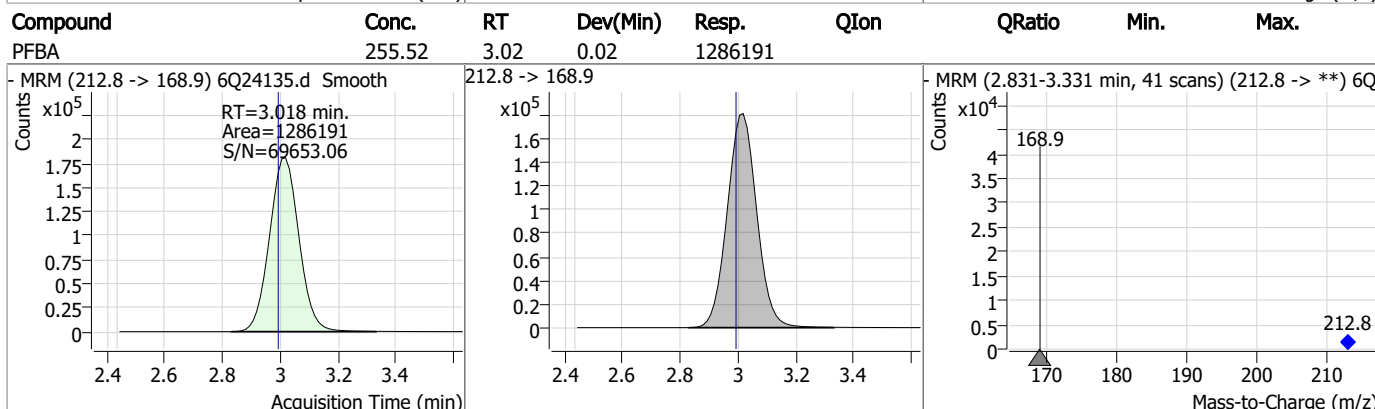
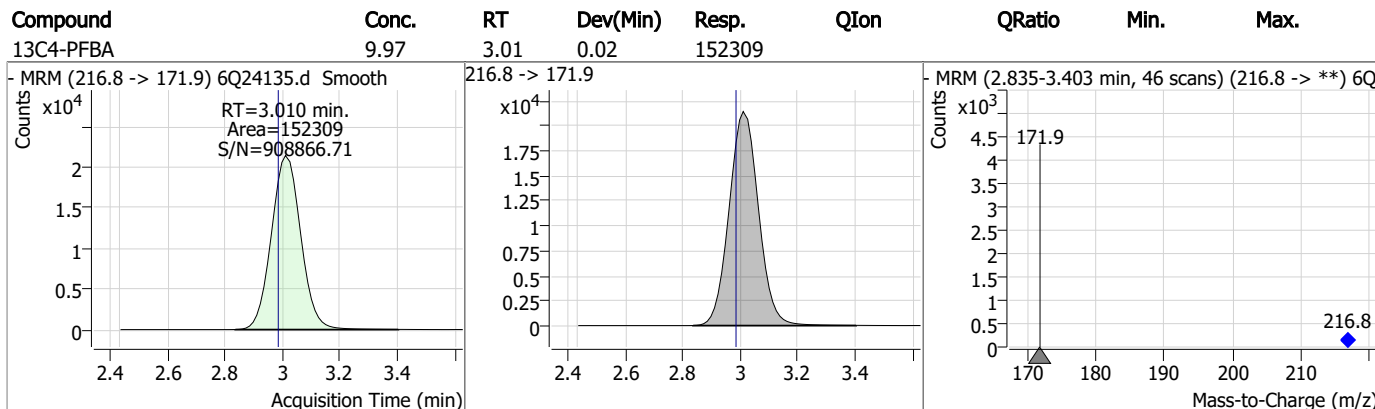
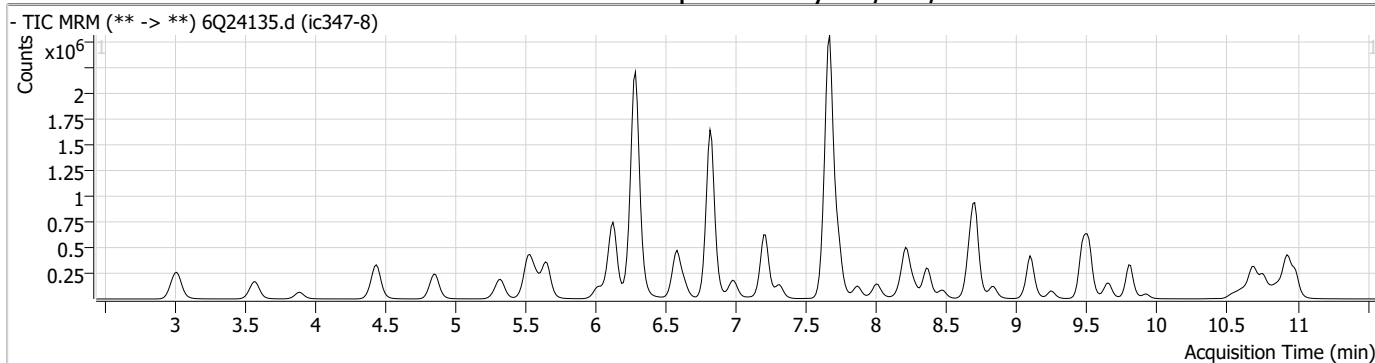
Perfluorinated Compounds by LC/MS/MS

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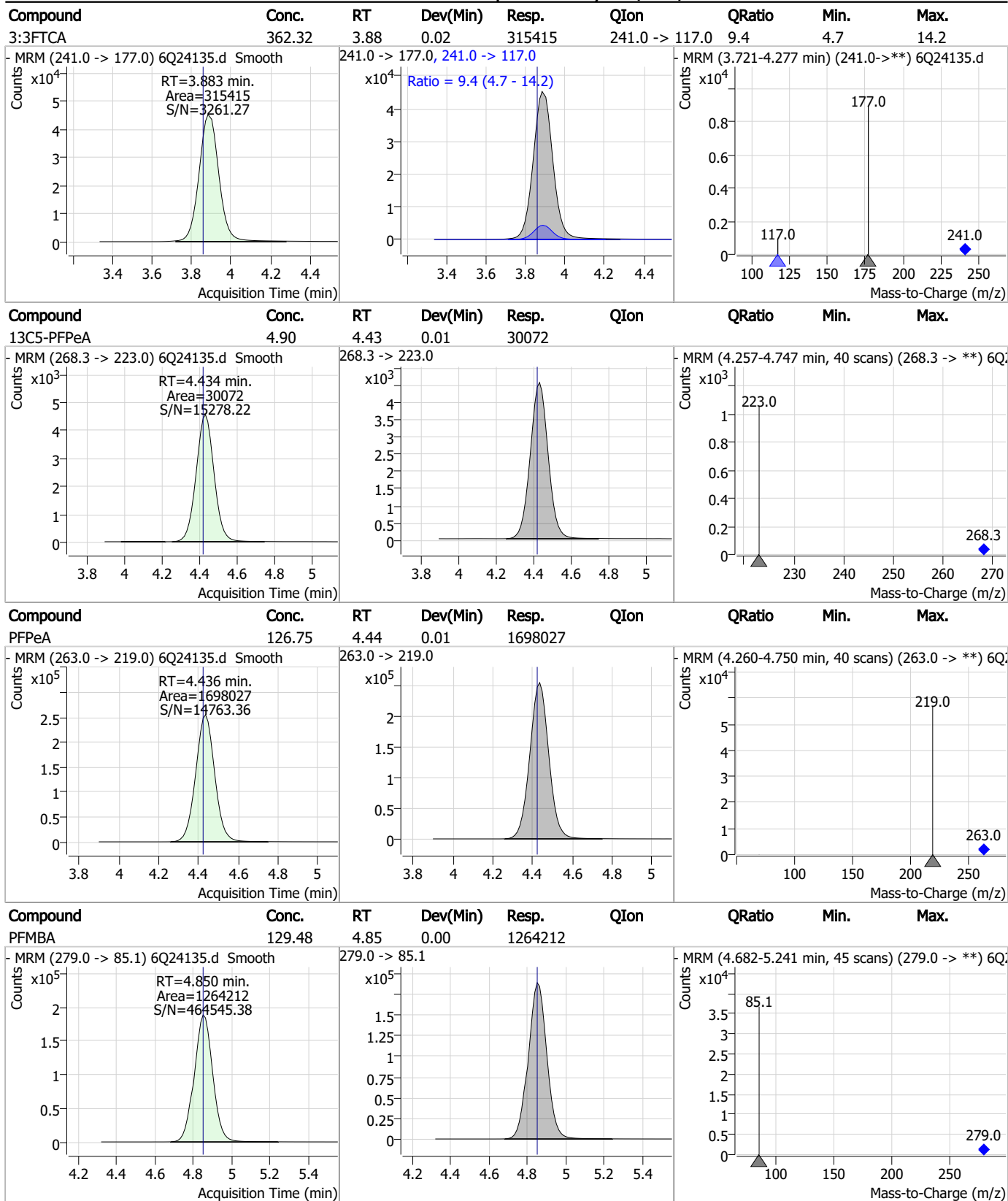
7.7.9

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Perfluorinated Compounds by LC/MS/MS

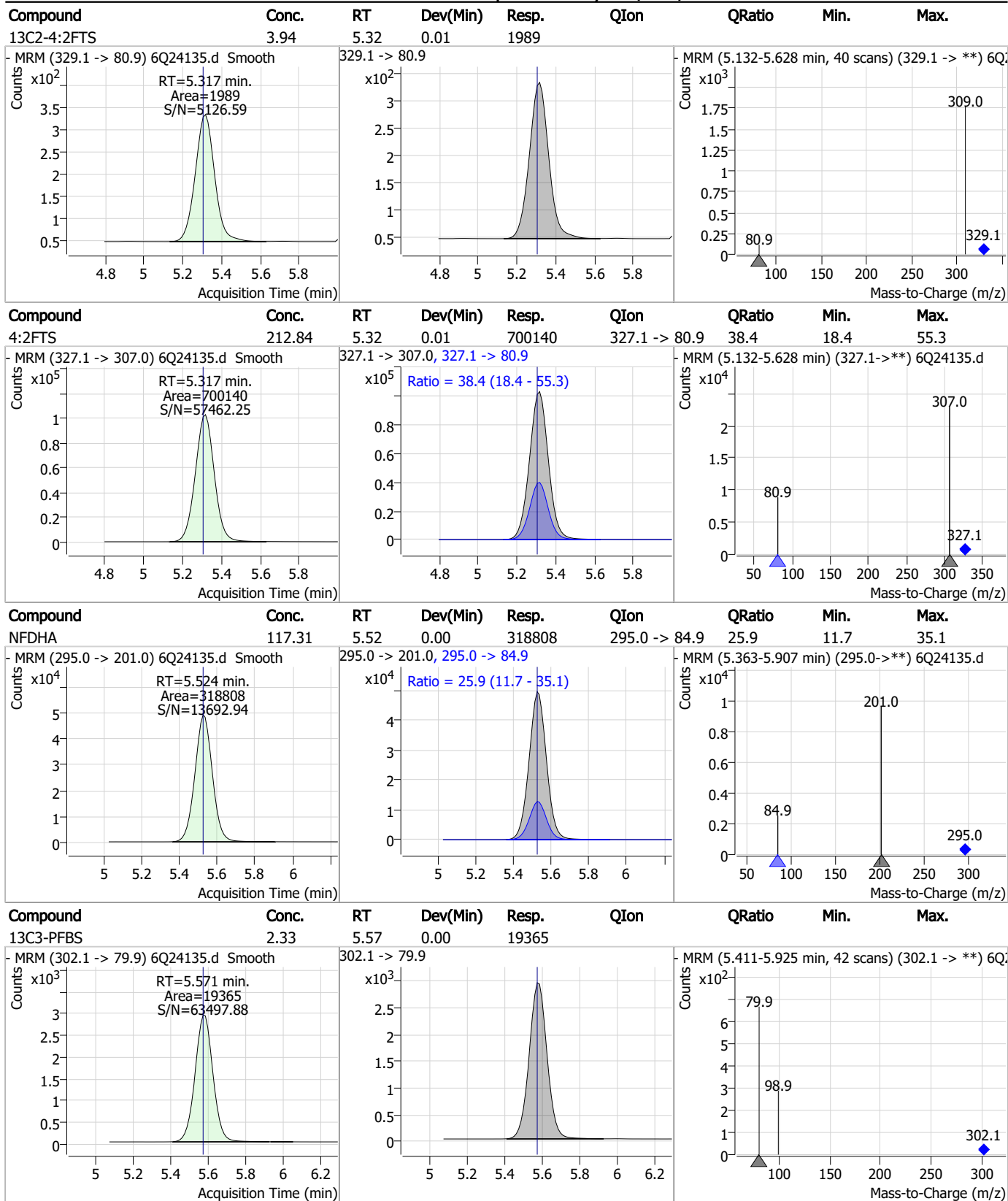


Perfluorinated Compounds by LC/MS/MS



7.7.9
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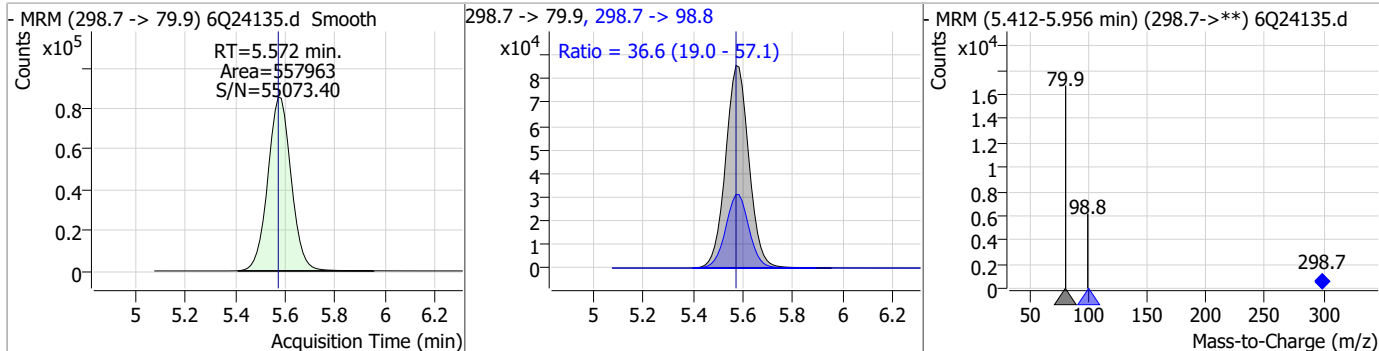
Perfluorinated Compounds by LC/MS/MS



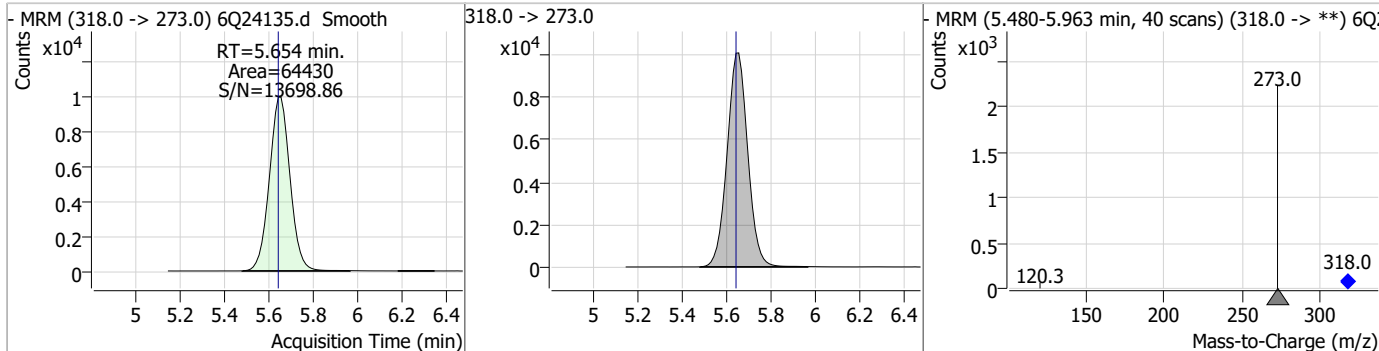
7.7.9
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Perfluorinated Compounds by LC/MS/MS

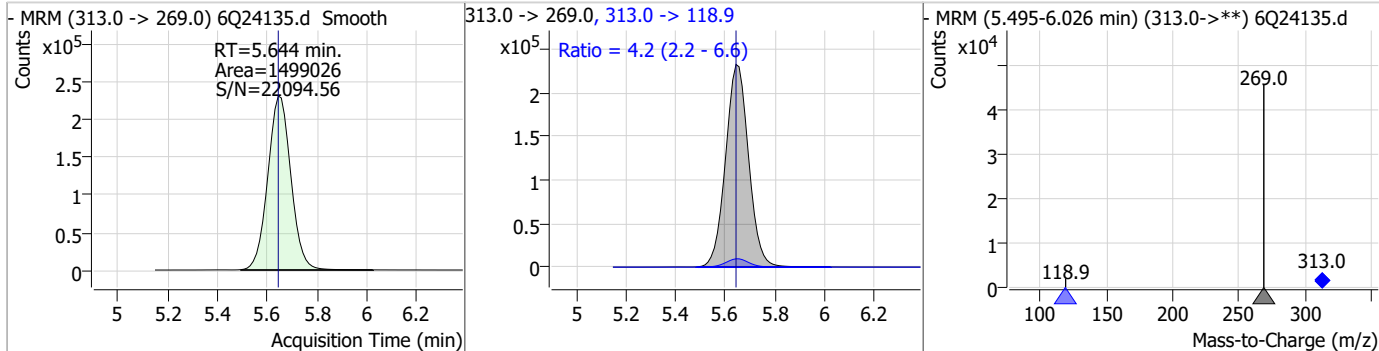
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	58.74	5.57	0.00	557963	298.7 -> 98.8	36.6	19.0	57.1



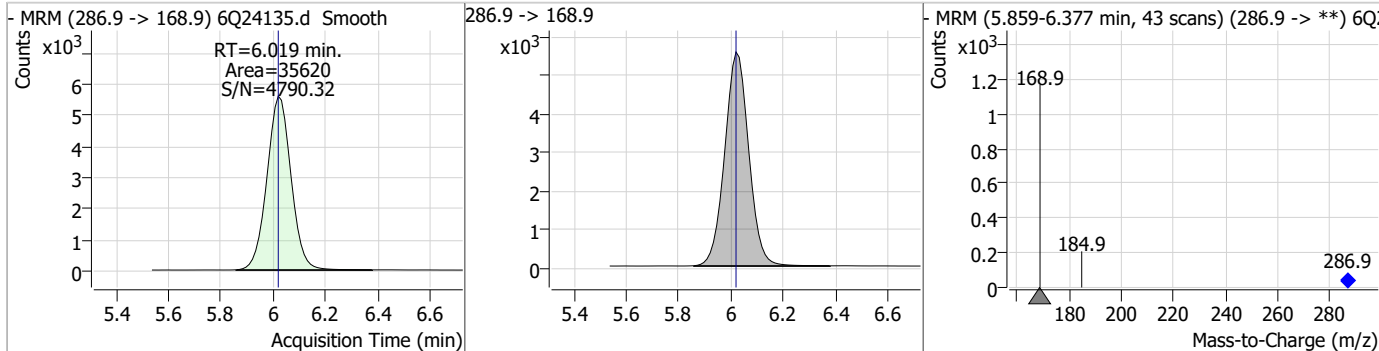
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.57	5.65	0.01	64430				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	63.92	5.64	0.00	1499026	313.0 -> 118.9	4.2	2.2	6.6

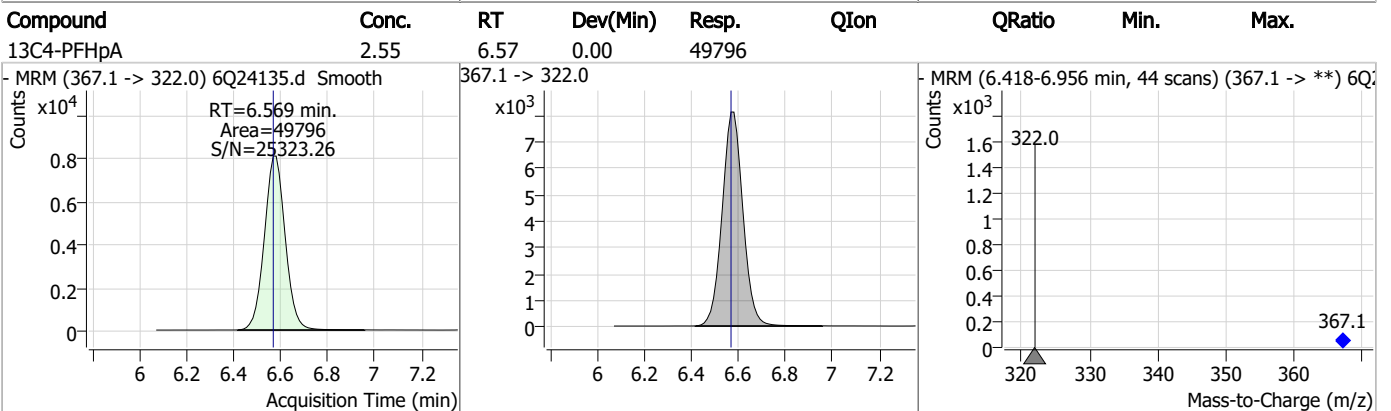
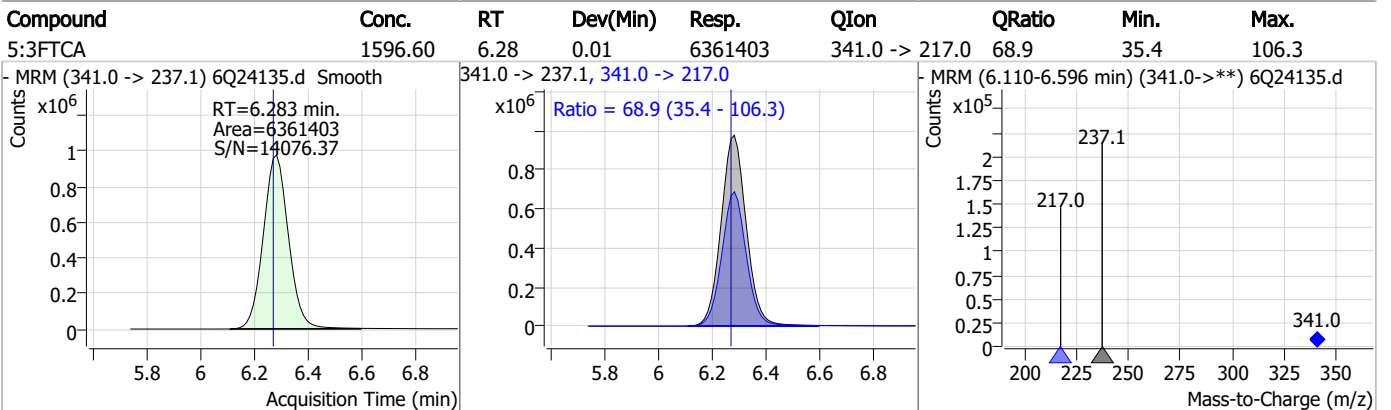
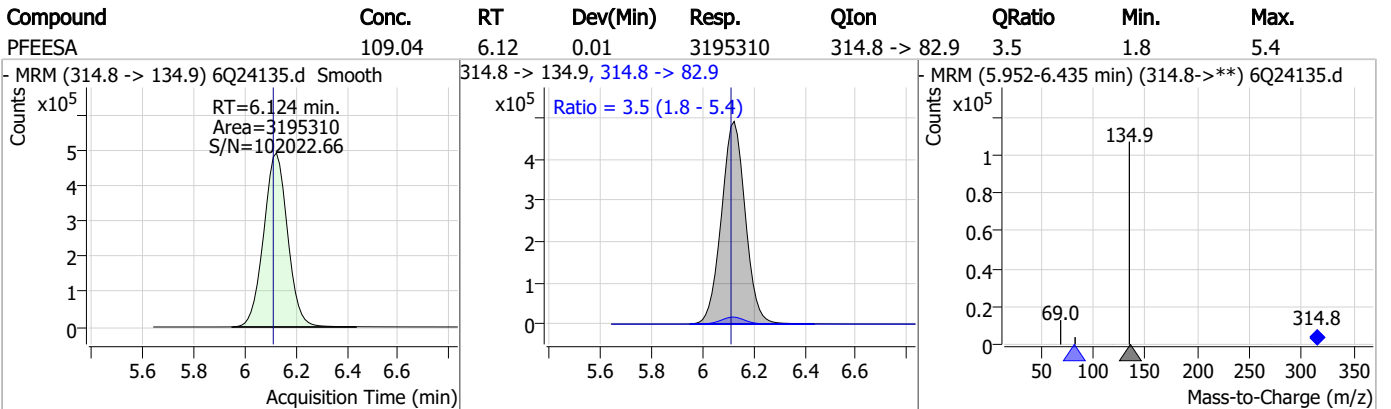
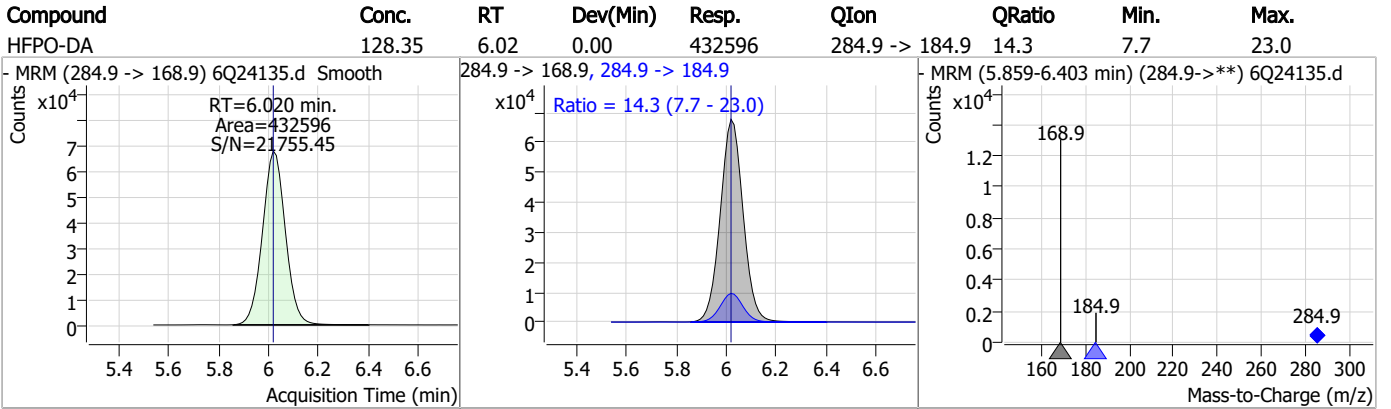


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.27	6.02	0.00	35620				



7.7.9
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Perfluorinated Compounds by LC/MS/MS

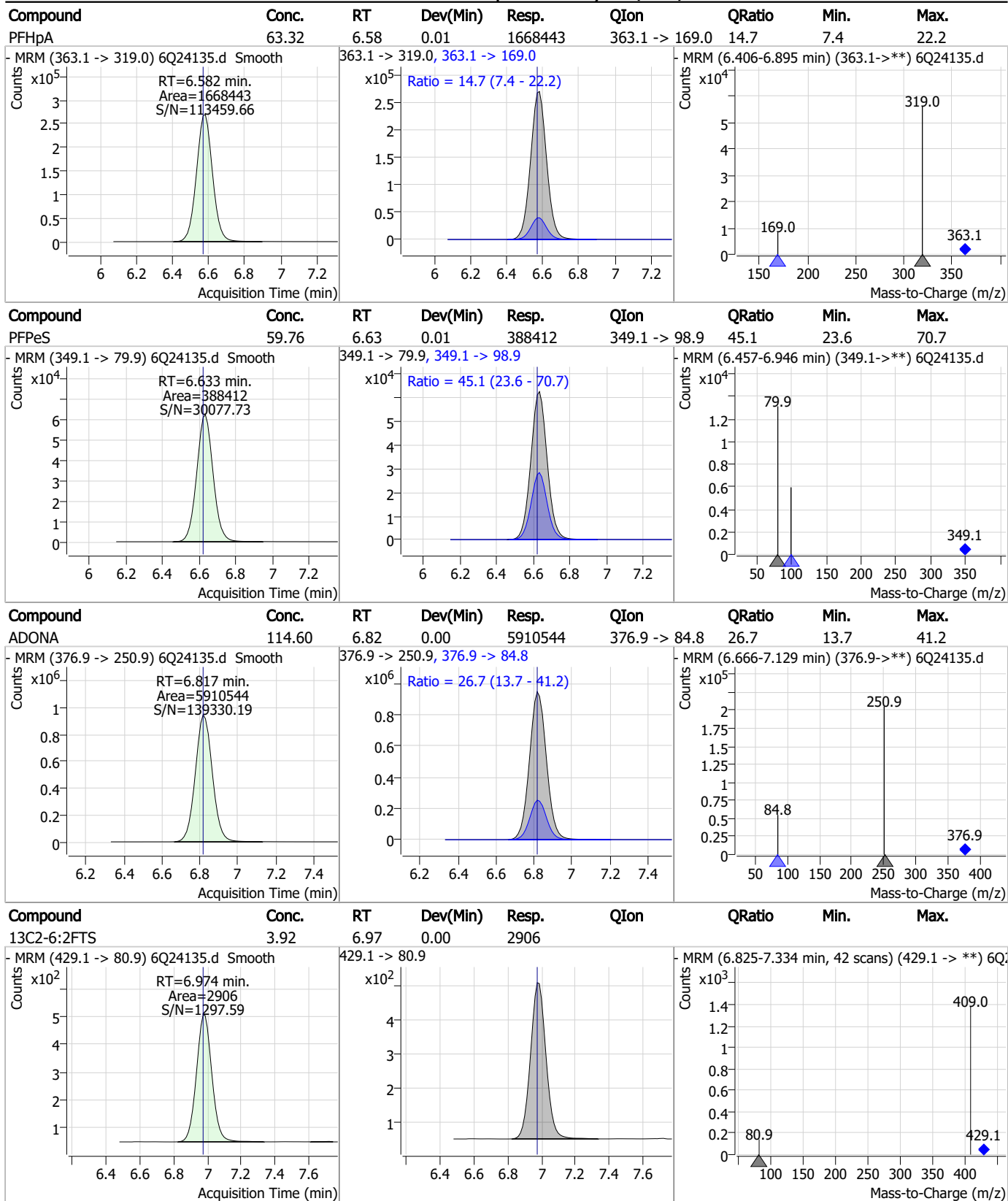


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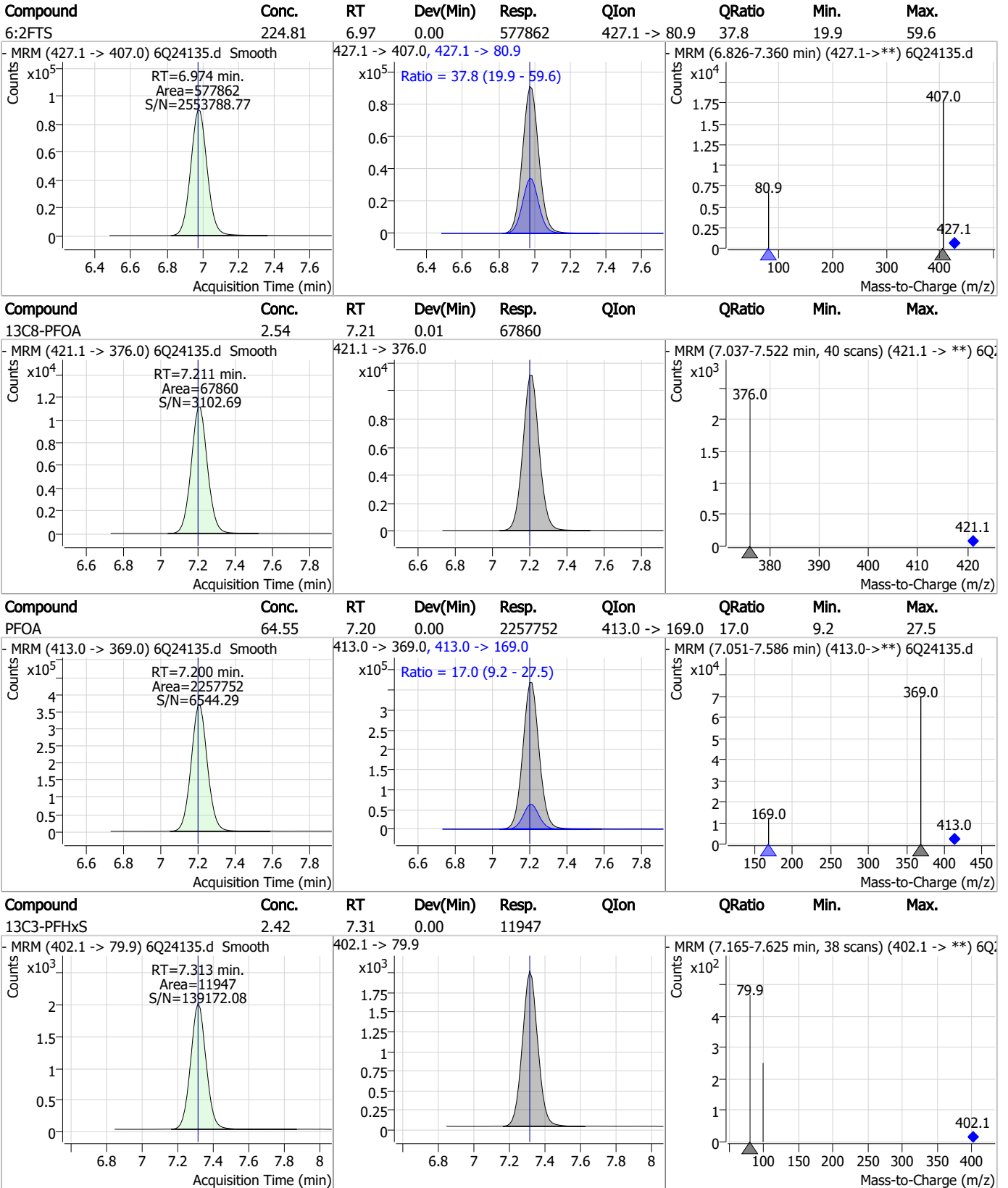


Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

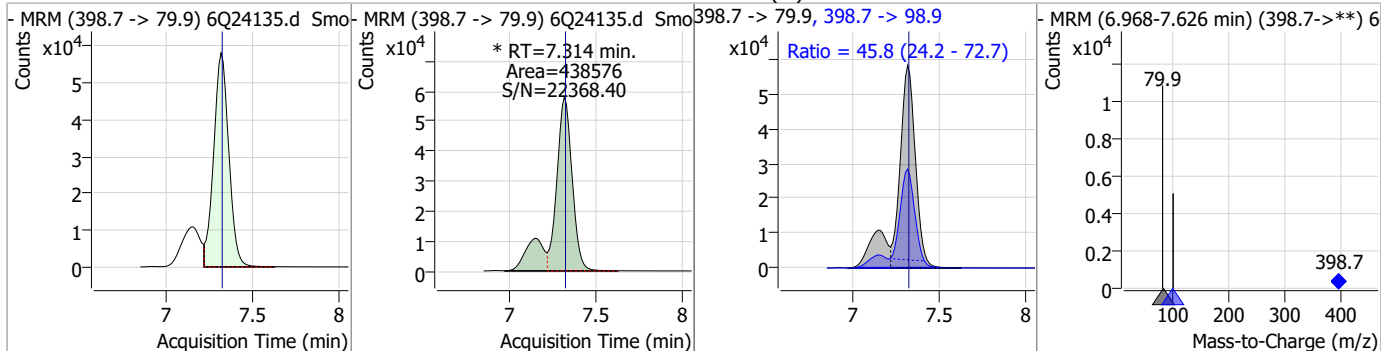


7.7.9

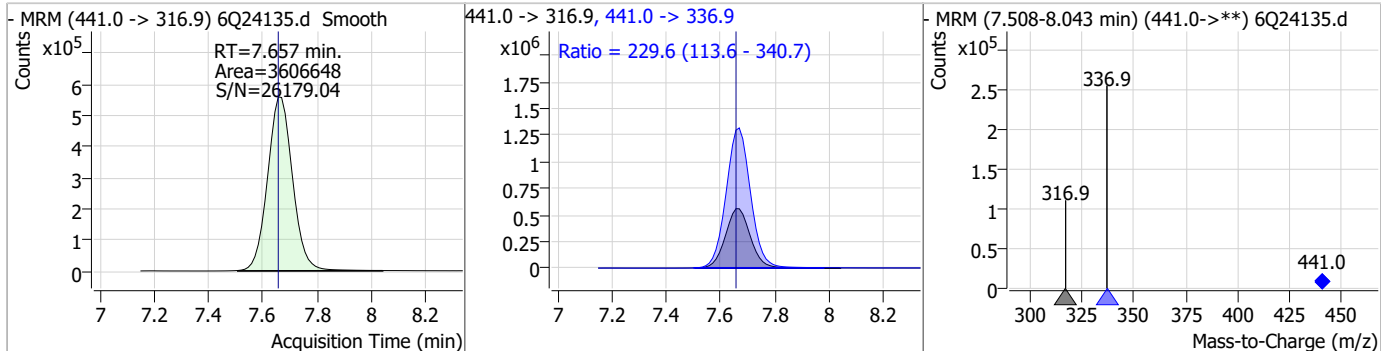
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Perfluorinated Compounds by LC/MS/MS

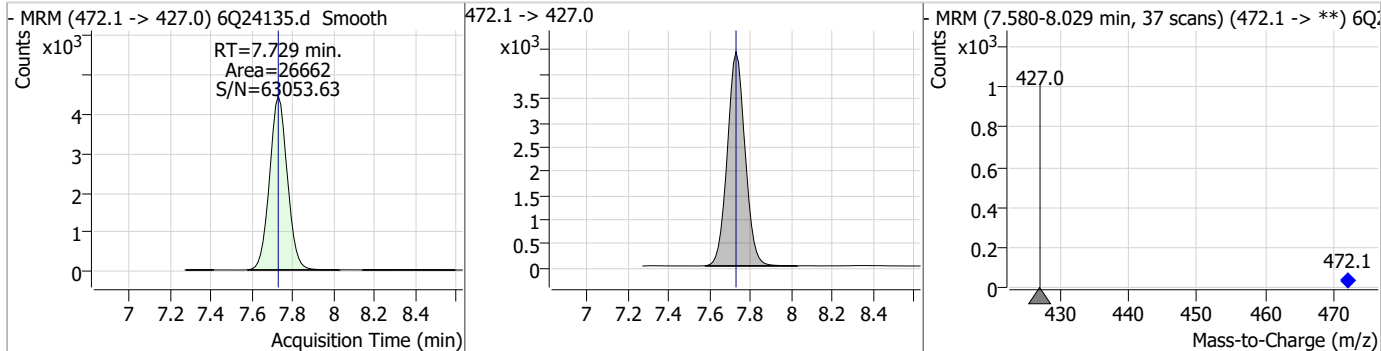
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	58.54	7.31	0.00	438576 (m)	398.7 -> 98.9	45.8	24.2	72.7



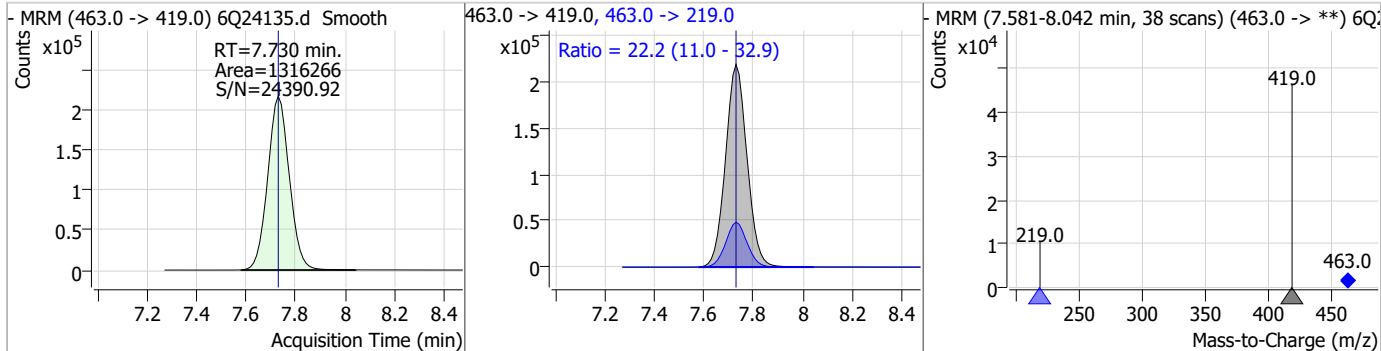
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	1531.74	7.66	0.00	3606648	441.0 -> 336.9	229.6	113.6	340.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.15	7.73	0.00	26662	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	65.46	7.73	0.00	1316266	463.0 -> 219.0	22.2	11.0	32.9

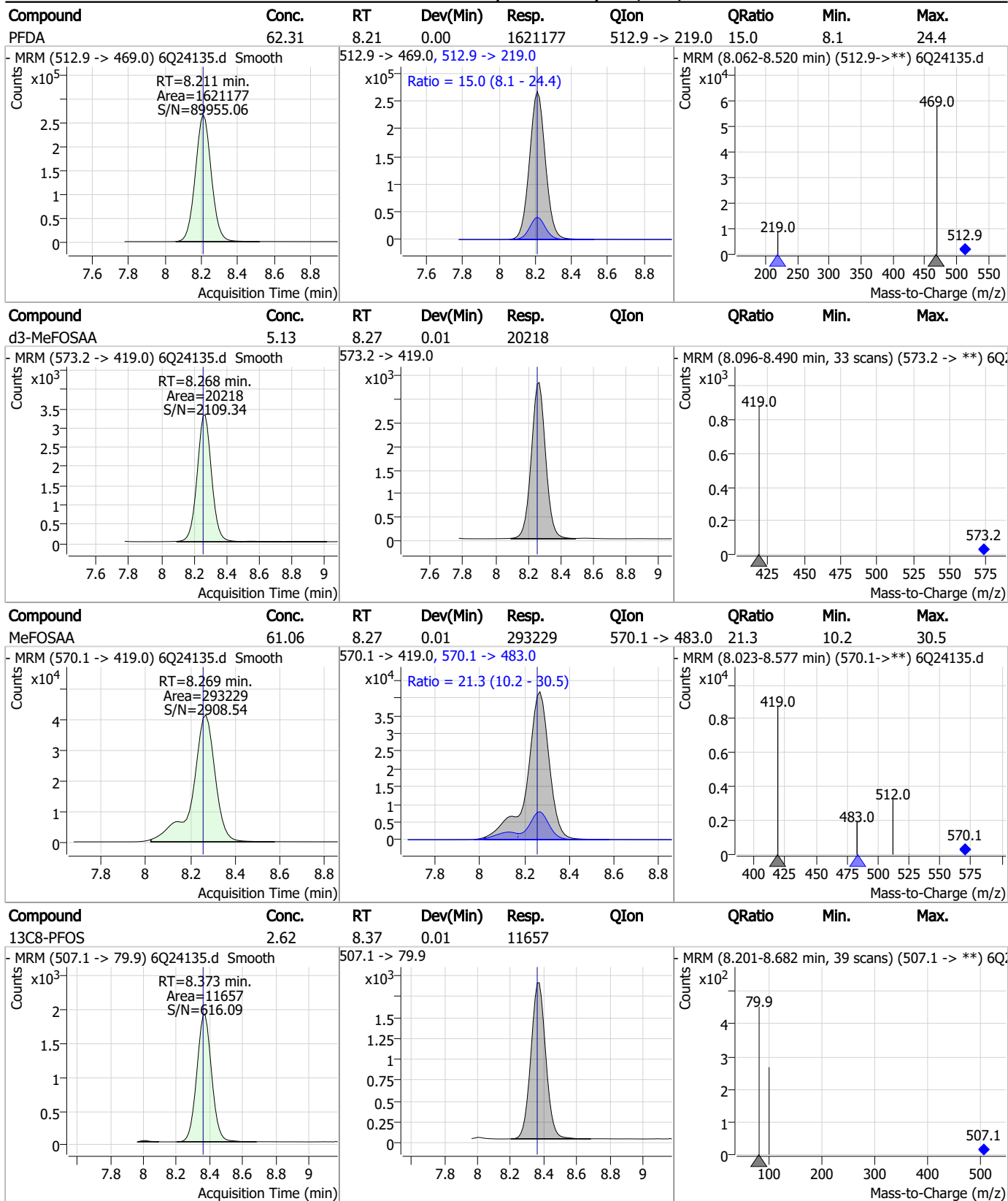


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	57.10	7.87	0.00	322182	449.0 -> 98.9	51.5	23.4	70.1
13C2-8:2FTS	4.16	8.00	0.00	3191				
8:2FTS	199.00	8.00	0.00	428310	527.1 -> 80.8	41.1	19.7	59.0
13C6-PFDA	1.20	8.21	0.00	28563				

7.7.9
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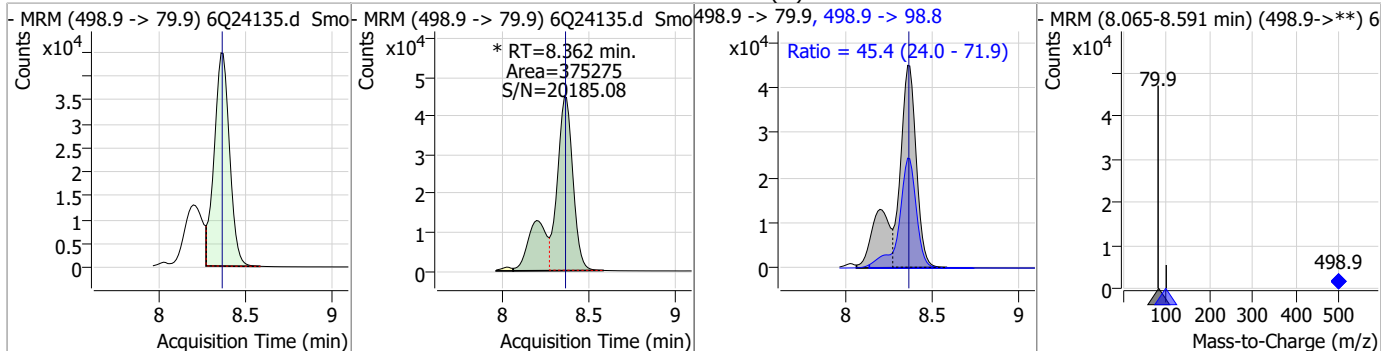
Perfluorinated Compounds by LC/MS/MS



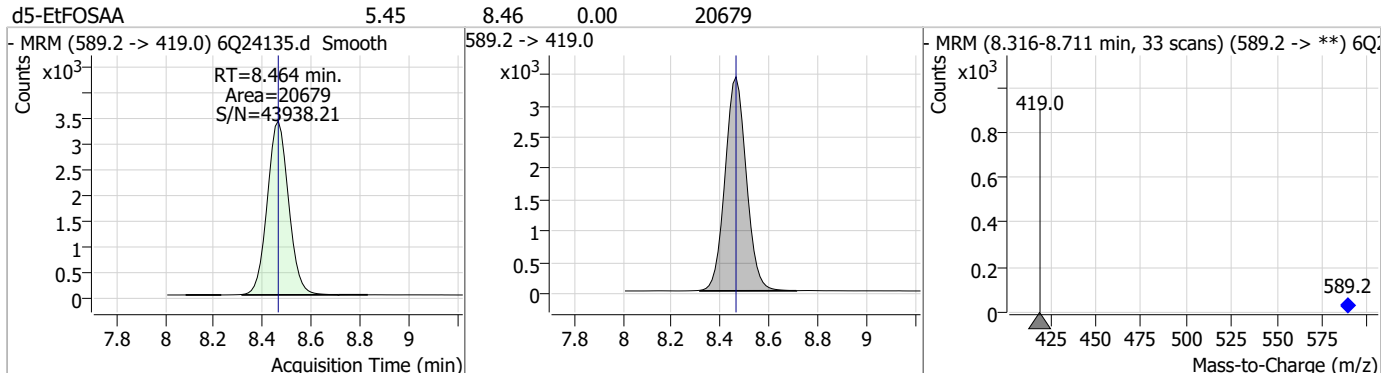
7.7.9
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Perfluorinated Compounds by LC/MS/MS

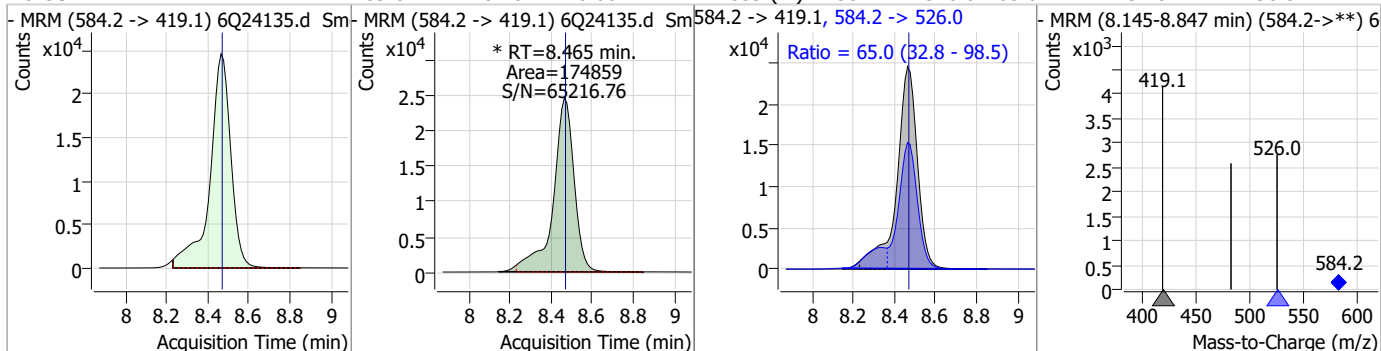
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	58.11	8.36	0.00	375275 (m)	498.9 -> 98.8	45.4	24.0	71.9



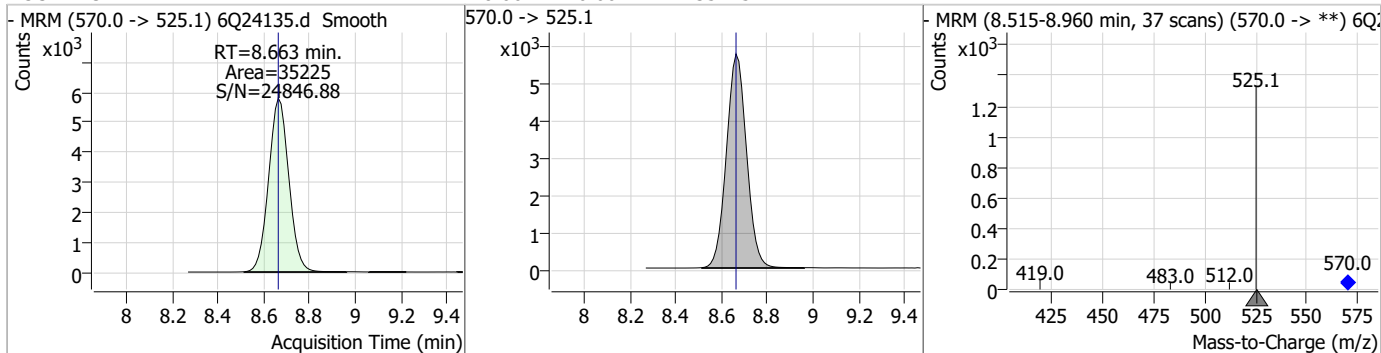
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.45	8.46	0.00	20679				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	59.87	8.46	0.00	174859 (m)	584.2 -> 526.0	65.0	32.8	98.5

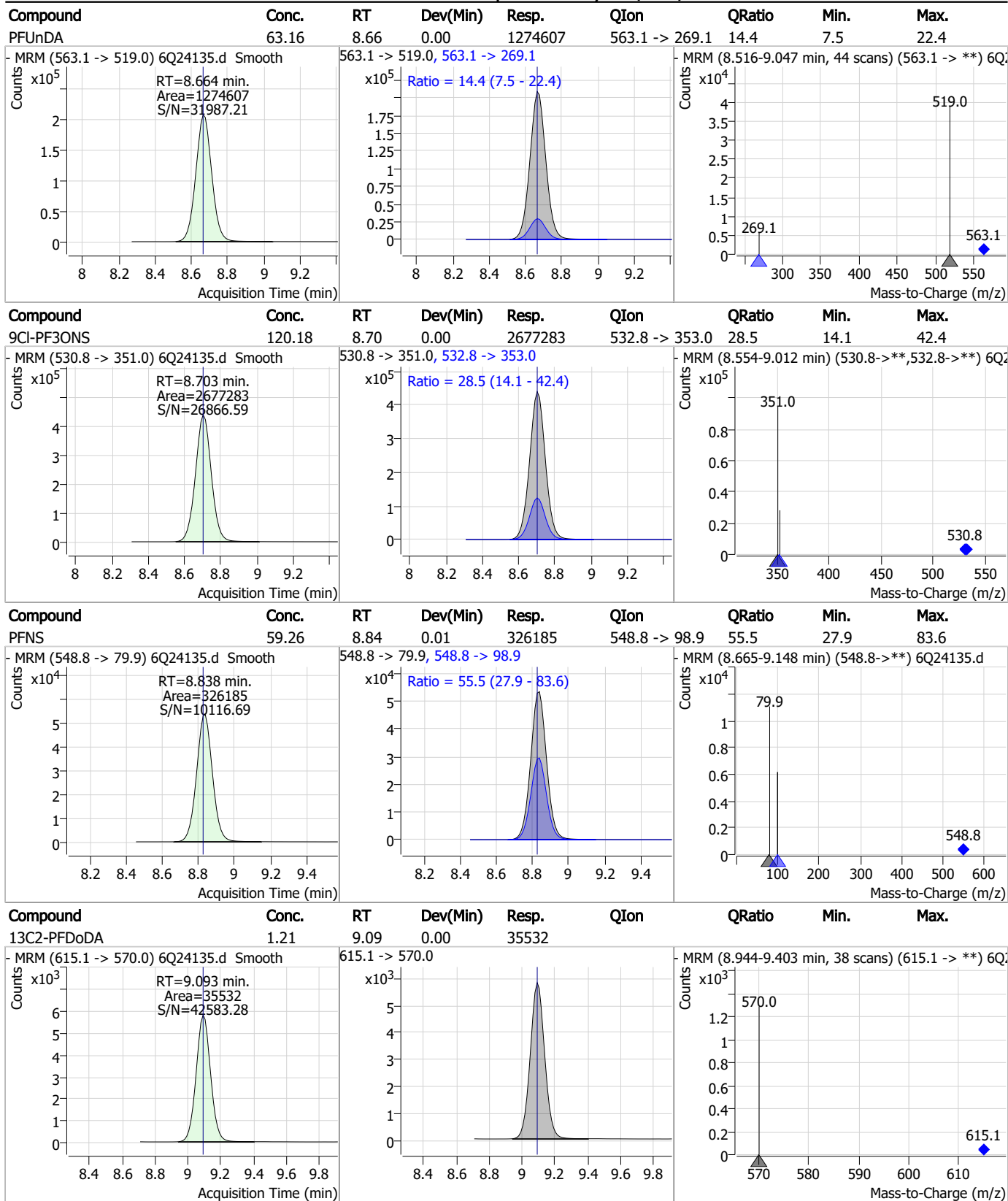


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.11	8.66	0.00	35225				



7.7.9
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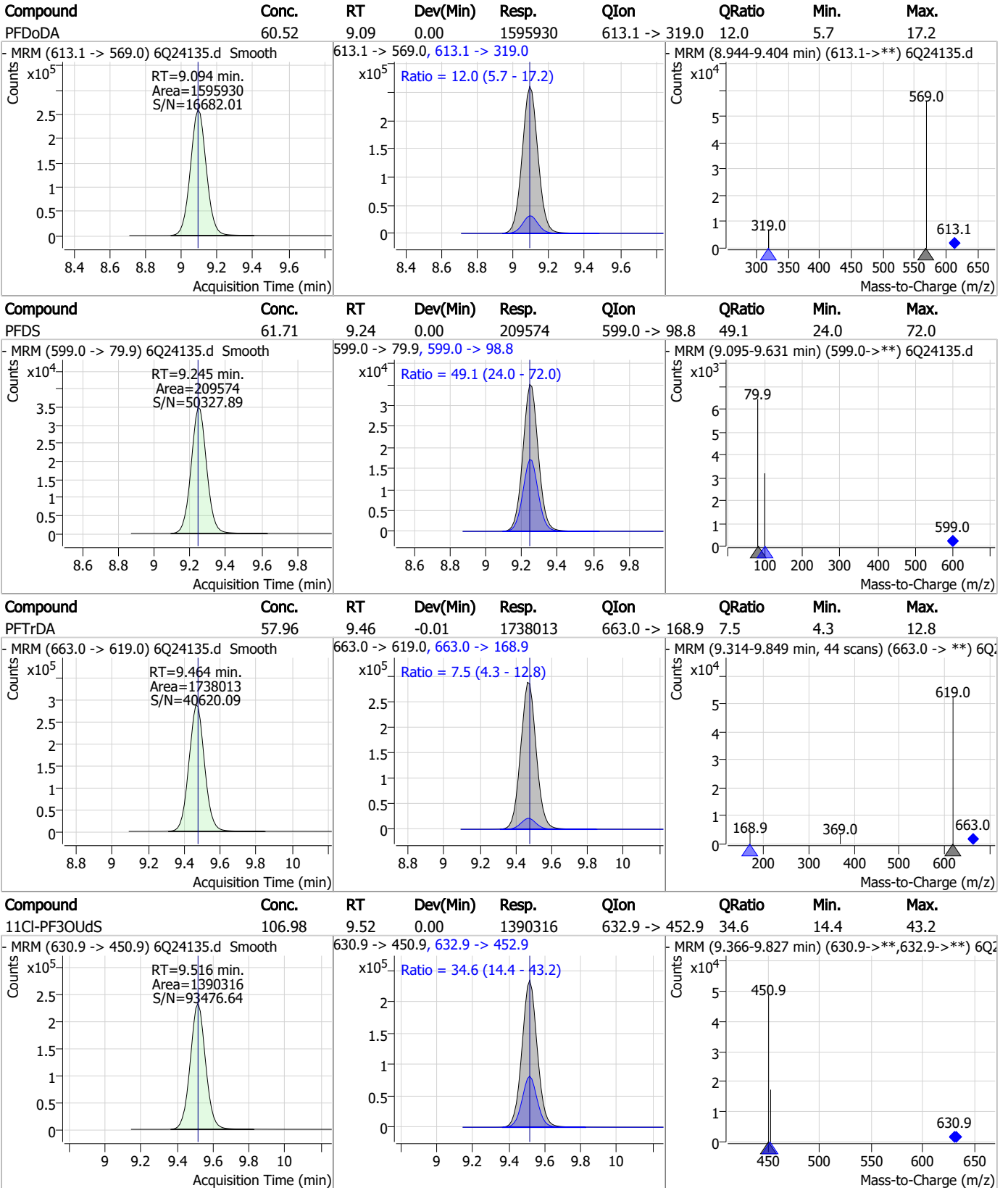
Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

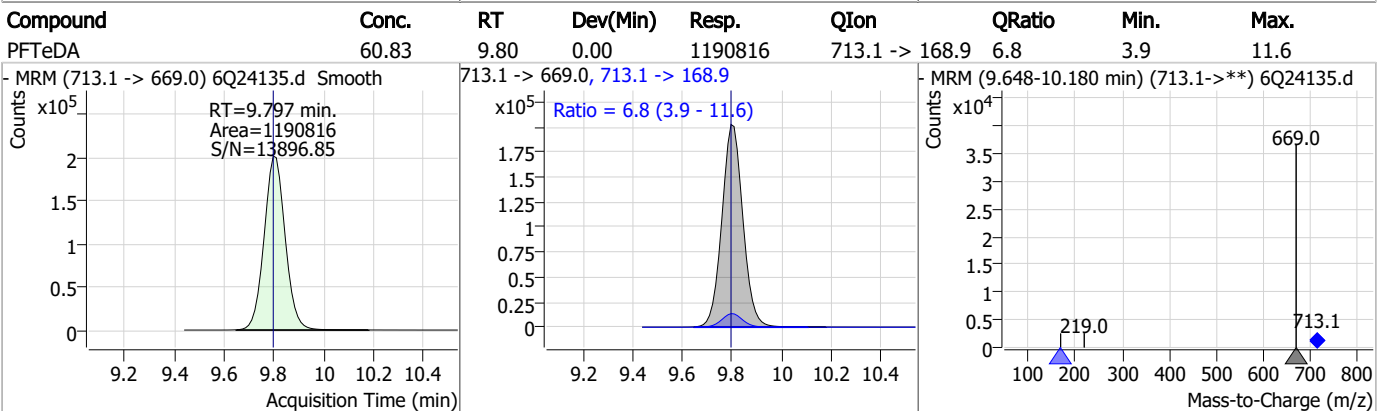
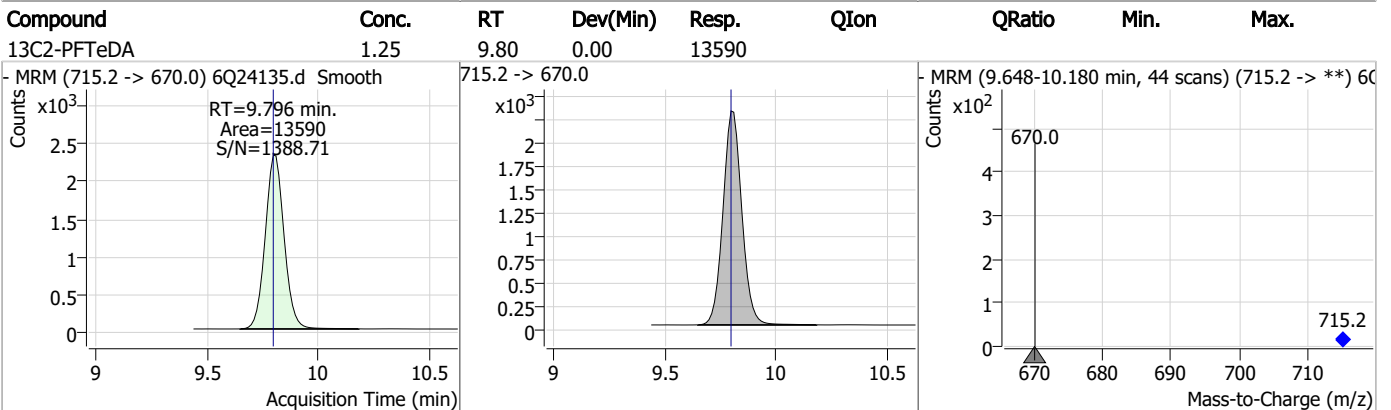
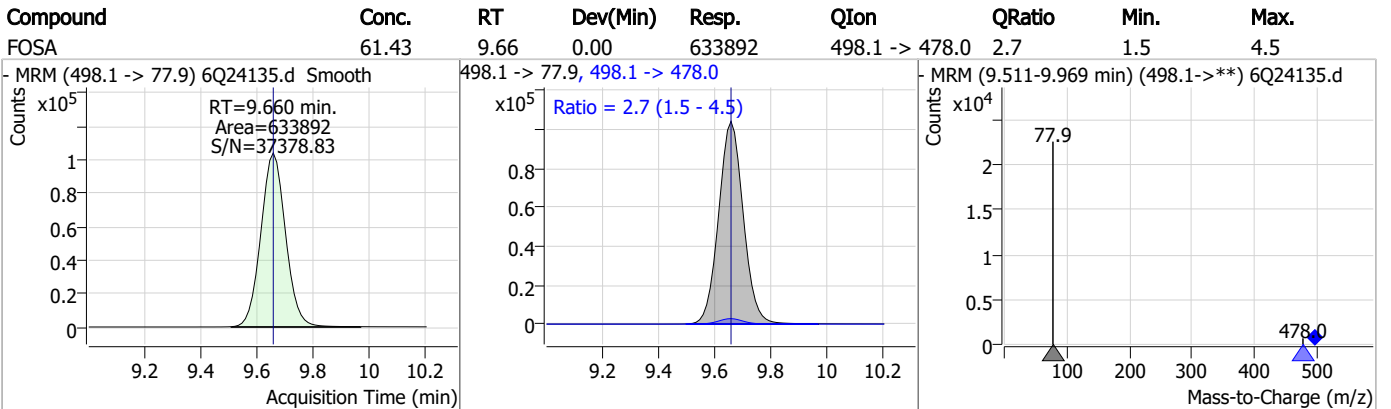
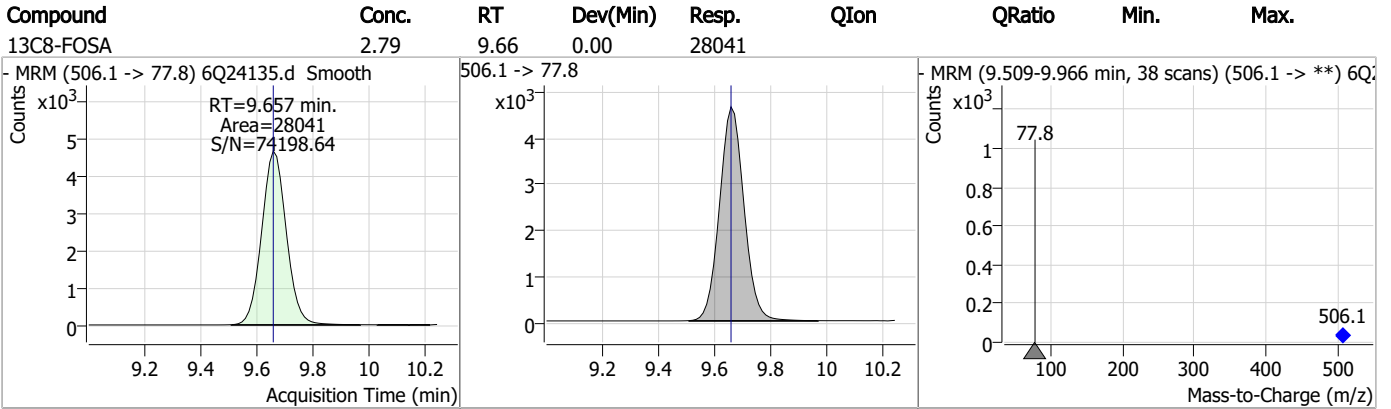


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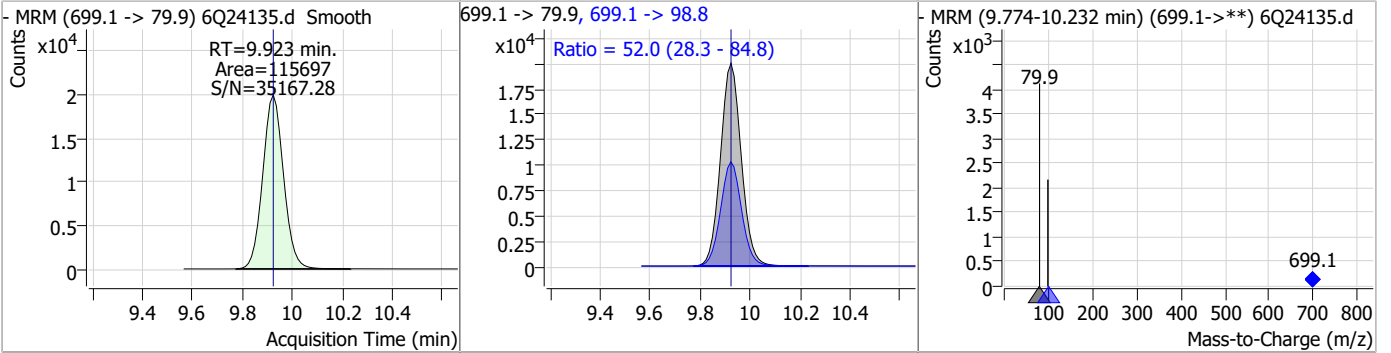


Perfluorinated Compounds by LC/MS/MS

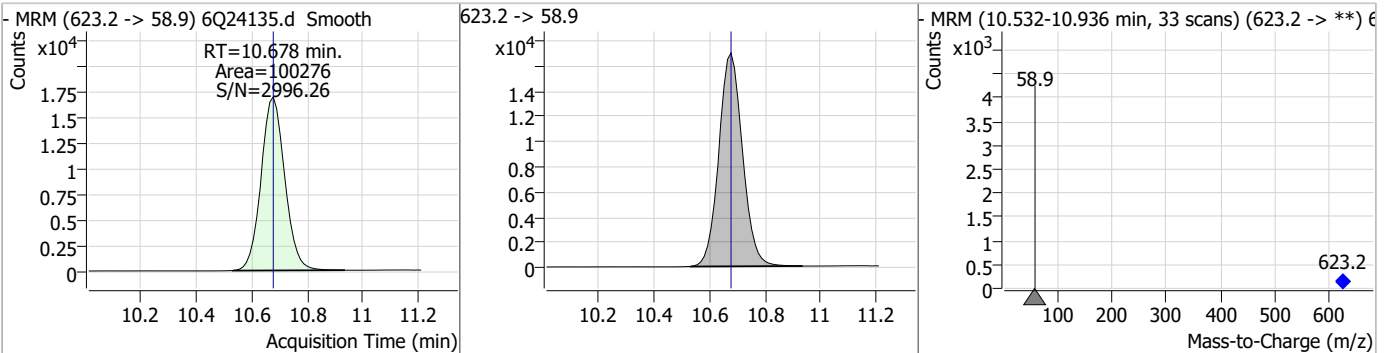


Perfluorinated Compounds by LC/MS/MS

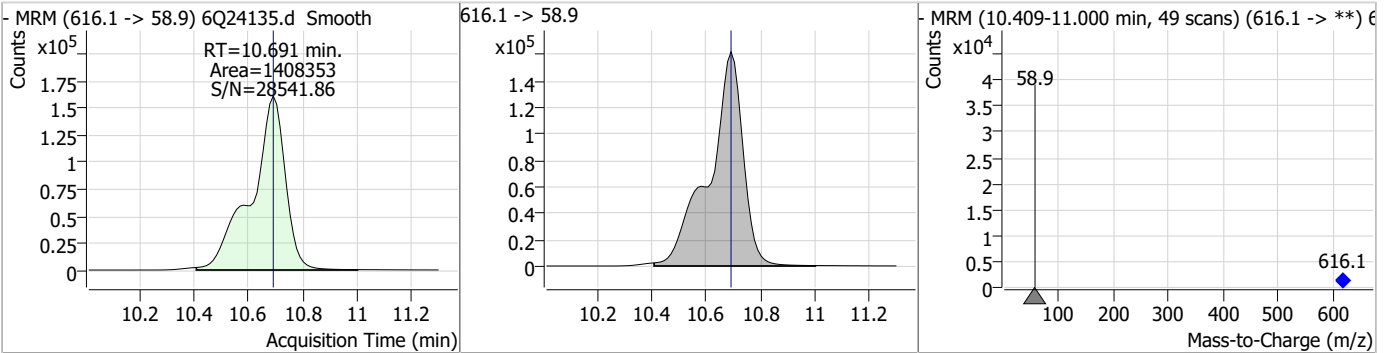
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	62.18	9.92	0.00	115697	699.1 -> 98.8	52.0	28.3	84.8



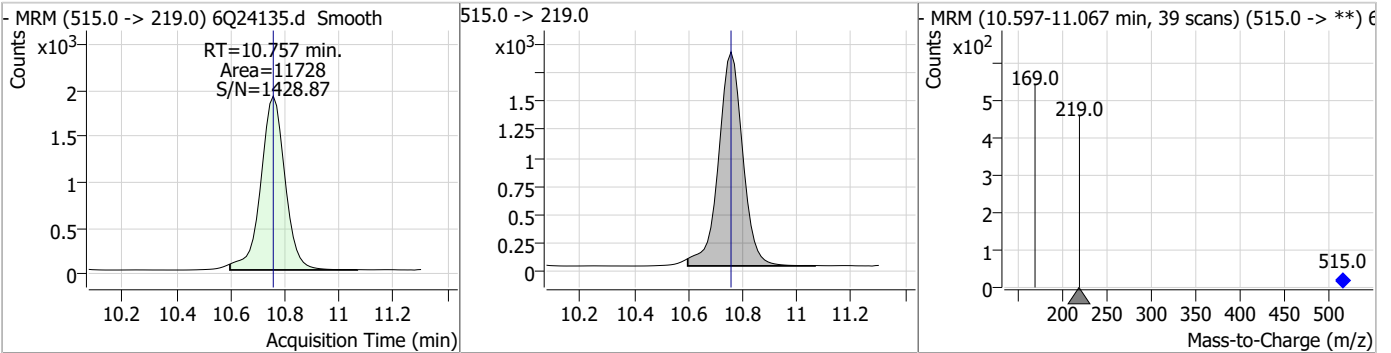
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.03	10.68	0.00	100276				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	324.79	10.69	0.00	1408353				

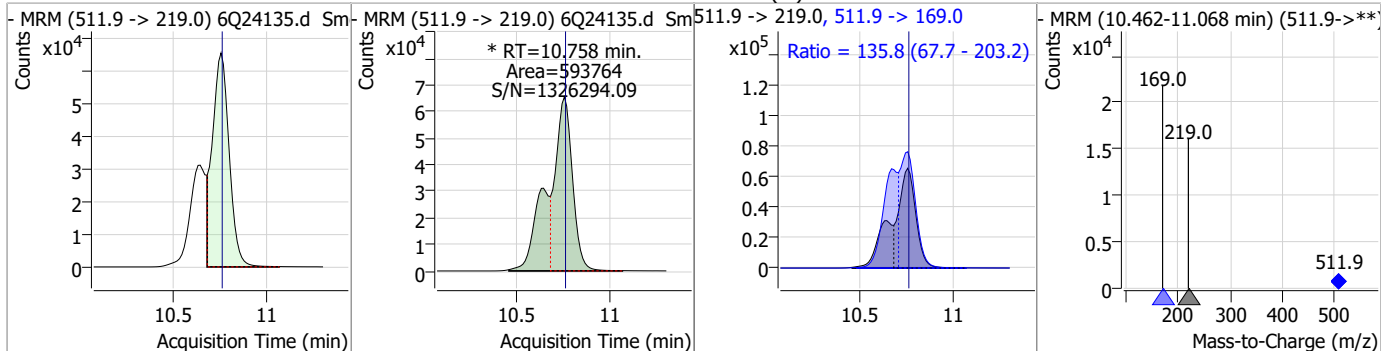


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.88	10.76	0.00	11728				

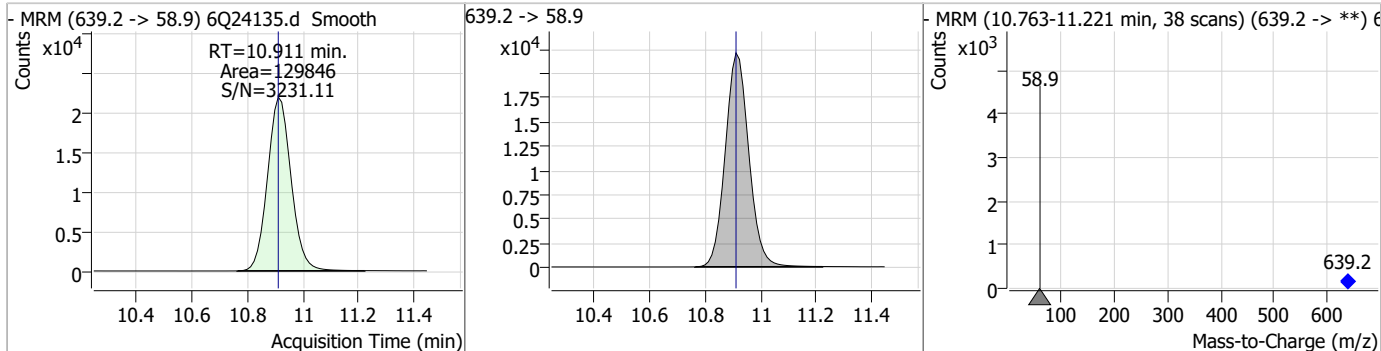


Perfluorinated Compounds by LC/MS/MS

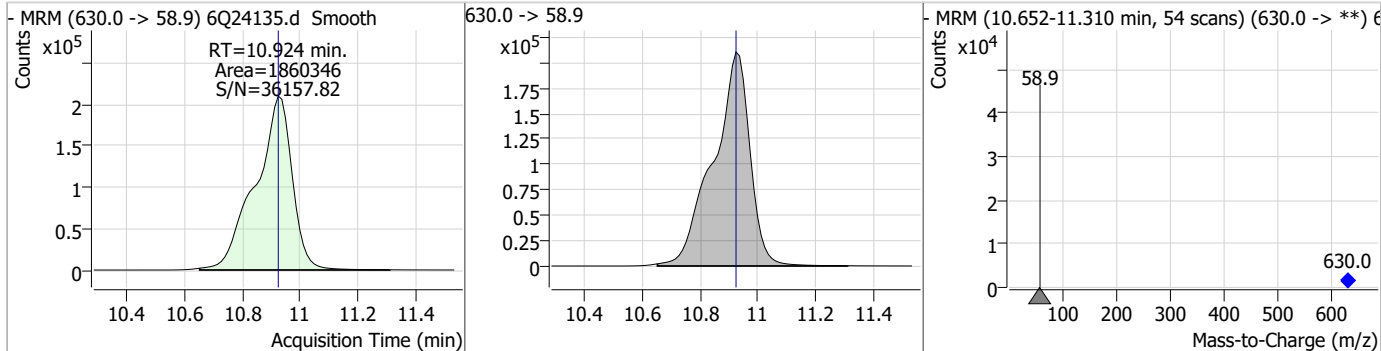
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	119.29	10.76	0.00	593764 (m)	511.9 -> 169.0	135.8	67.7	203.2



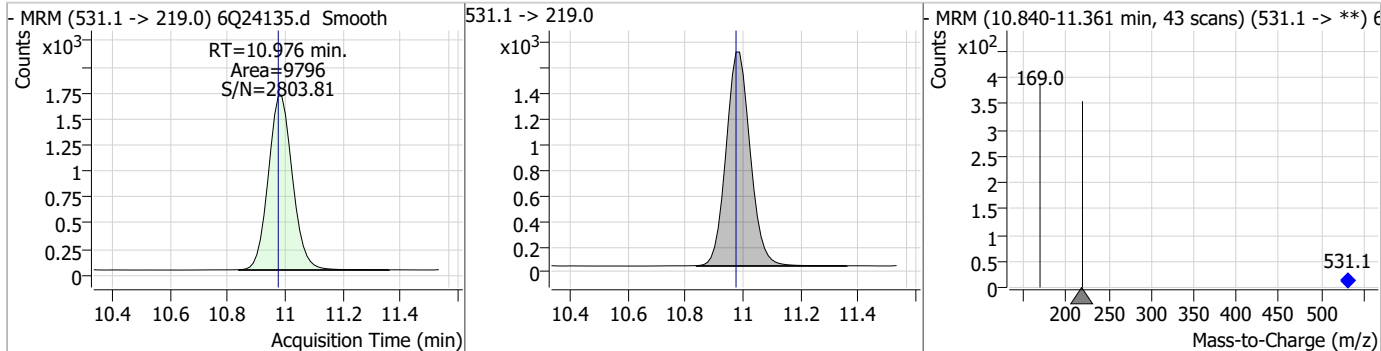
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.01	10.91	0.00	129846				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	301.48	10.92	0.00	1860346				

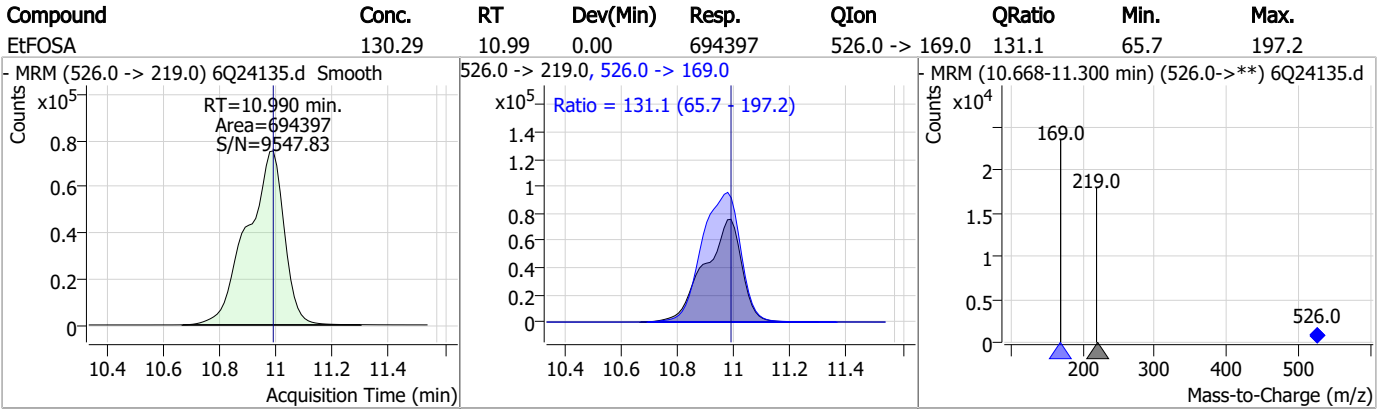


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.58	10.98	0.00	9796				



7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9

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Manual Integration Approval Summary

Sample Number: S6Q347-IC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24135.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 22:26 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.9.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24137.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 10:55:19 PM
 Sample Name : icv347-4
 Vial : P1-B1
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	190485	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	35664	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	72347	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	55521	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	73483	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	33307	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	33568	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	43008	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	37646	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14810	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	29788	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	23973	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	13952	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	12914	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	3212	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	4336	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	4505	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	25244	5.00 µg/L	0.000
M3-HFPO-DA	6.019	286.9 -> 168.9	38089	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	22591	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	109593	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	145065	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	11314	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	11947	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17060	2.50 µg/L	0.012
13C3-PFBA	2.989	216.0 -> 172.0	75083	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	9411	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	88033	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	27471	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	39573	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	51143	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	3212	6.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.3%		
13C2-6:2FTS	6.974	429.1 -> 80.9	4336	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.6%		
13C2-8:2FTS	7.998	529.1 -> 80.9	4505	5.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.0%		
13C2-PFDoDA	9.093	615.1 -> 570.0	37646	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14810	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C3-PFBS	5.571	302.1 -> 79.9	23973	2.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C3-PFHxS	7.313	402.1 -> 79.9	13952	2.70 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 = 108.0%	
13C4-PFBA	2.985	216.8 -> 171.9	190485	10.05 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.569	367.1 -> 322.0	55521	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFHxA	5.641	318.0 -> 273.0	72347	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	35664	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.210	519.1 -> 474.1	33568	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 112.3%	
13C7-PFUnDA	8.663	570.0 -> 525.1	43008	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C8-FOSA	9.657	506.1 -> 77.8	29788	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C8-PFOA	7.198	421.1 -> 376.0	73483	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C8-PFOS	8.361	507.1 -> 79.9	12914	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C9-PFNA	7.729	472.1 -> 427.0	33307	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
d3-MeFOSAA	8.256	573.2 -> 419.0	25244	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	38089	9.78 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSA	10.757	515.0 -> 219.0	11947	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
d5-EtFOSAA	8.464	589.2 -> 419.0	22591	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d7-MeFOSE	10.678	623.2 -> 58.9	109593	24.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.7%	
d9-EtFOSE	10.911	639.2 -> 58.9	145065	24.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
d5-EtFOSA	10.976	531.1 -> 219.0	11314	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	46395	8.73 µg/L	99
		327.1 -> 80.9	17284		
6:2FTS	6.974	427.1 -> 407.0	37463	9.77 µg/L	99
		427.1 -> 80.9	14581		
8:2FTS	7.999	527.1 -> 507.0	29599	9.74 µg/L	92
		527.1 -> 80.8	10202		
EtFOSAA	8.465	584.2 -> 419.1	7642	2.40 µg/L	m 100
		584.2 -> 526.0	5021		
FOSA	9.660	498.1 -> 77.9	25663	2.34 µg/L	99
		498.1 -> 478.0	849		
MeFOSAA	8.257	570.1 -> 419.0	12969	2.16 µg/L	m 93
		570.1 -> 483.0	3047		
PFBA	2.993	212.8 -> 168.9	63584	10.10 µg/L	100
PFBS	5.572	298.7 -> 79.9	25442	2.16 µg/L	95
		298.7 -> 98.8	8945		
PFDA	8.211	512.9 -> 469.0	75273	2.46 µg/L	99
		512.9 -> 219.0	12039		
PFDODA	9.094	613.1 -> 569.0	71866	2.57 µg/L	100
		613.1 -> 319.0	8187		
PFDS	9.245	599.0 -> 79.9	9483	2.52 µg/L	99

7.7.10
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.569	599.0 -> 98.8	4510	2.59	µg/L	99
		363.1 -> 319.0	75988			
PFHpS	7.868	363.1 -> 169.0	10992	2.40	µg/L	96
		449.0 -> 79.9	14990			
PFHxA	5.644	449.0 -> 98.9	7351	2.55	µg/L	99
		313.0 -> 269.0	67040			
PFHxS	7.314	313.0 -> 118.9	3151	2.15	µg/L	m
		398.7 -> 79.9	18790			
PFNA	7.730	398.7 -> 98.9	9028	2.50	µg/L	96
		463.0 -> 419.0	62800			
PFNS	8.826	463.0 -> 219.0	12562	2.46	µg/L	95
		548.8 -> 79.9	15027			
PFOA	7.200	548.8 -> 98.9	7864	2.62	µg/L	98
		413.0 -> 369.0	99110			
PFOS	8.374	413.0 -> 169.0	17170	2.28	µg/L	m
		498.9 -> 79.9	16329			
PFPeA	4.424	498.9 -> 98.8	7879	4.94	µg/L	100
		263.0 -> 219.0	78444			
PFPeS	6.620	349.1 -> 79.9	17087	2.25	µg/L	98
		349.1 -> 98.9	7862			
PFTeDA	9.797	713.1 -> 669.0	53321	2.50	µg/L	98
		713.1 -> 168.9	3812			
PFTrDA	9.477	663.0 -> 619.0	80051	2.52	µg/L	99
		663.0 -> 168.9	6536			
PFUnDA	8.664	563.1 -> 519.0	59697	2.42	µg/L	98
		563.1 -> 269.1	9458			
11CI-PF3OUdS	9.516	630.9 -> 450.9	72108	5.19	µg/L	96
		632.9 -> 452.9	22263			
9CI-PF3ONS	8.703	530.8 -> 351.0	116359	4.88	µg/L	98
		532.8 -> 353.0	34095			
ADONA	6.817	376.9 -> 250.9	268961	4.88	µg/L	100
		376.9 -> 84.8	73628			
HFPO-DA	6.020	284.9 -> 168.9	18459	5.12	µg/L	95
		284.9 -> 184.9	2460			
3:3FTCA	3.858	241.0 -> 177.0	13238	12.16	µg/L	100
		241.0 -> 117.0	1242			
5:3FTCA	6.271	341.0 -> 237.1	273196	61.06	µg/L	99
		341.0 -> 217.0	190912			
7:3FTCA	7.657	441.0 -> 316.9	163478	61.83	µg/L	94
		441.0 -> 336.9	355224			
EtFOSA	10.978	526.0 -> 219.0	30987	5.03	µg/L	95
		526.0 -> 169.0	39111			
EtFOSE	10.924	630.0 -> 58.9	86898	12.60	µg/L	100
		511.9 -> 219.0	25666			
MeFOSA	10.758	511.9 -> 169.0	34100	5.06	µg/L	m
		616.1 -> 58.9	60985			
MeFOSE	10.691	699.1 -> 79.9	5003	12.87	µg/L	100
		699.1 -> 98.8	2722			
PFDoDS	9.923	295.0 -> 201.0	15116	2.43	µg/L	97
		295.0 -> 84.9	3934			
NFDHA	5.524	279.0 -> 85.1	57727	4.99	µg/L	100
		229.0 -> 84.9	40889			
PFMBA	4.850	314.8 -> 134.9	140013	4.26	µg/L	100
		314.8 -> 82.9	5162			

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

7.7.10
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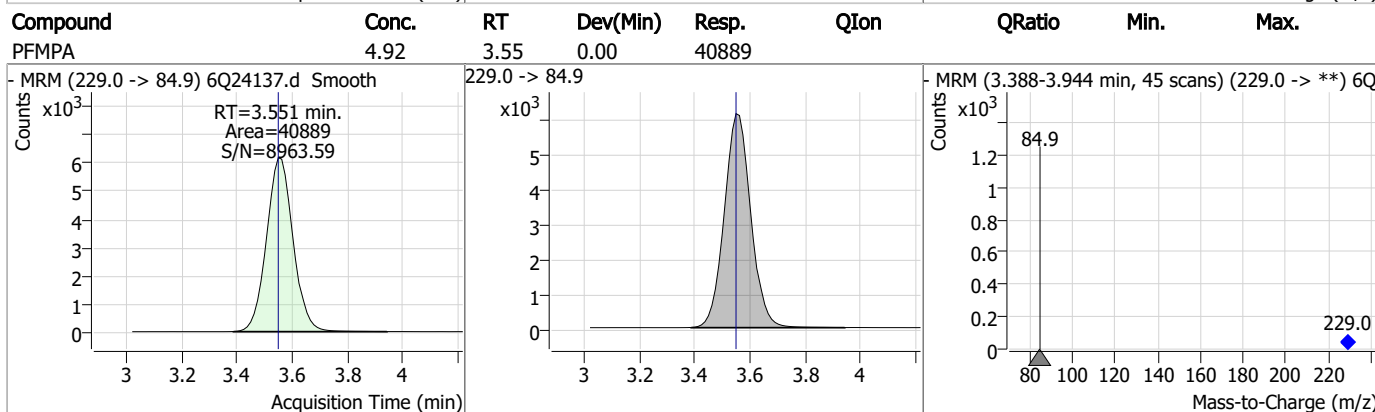
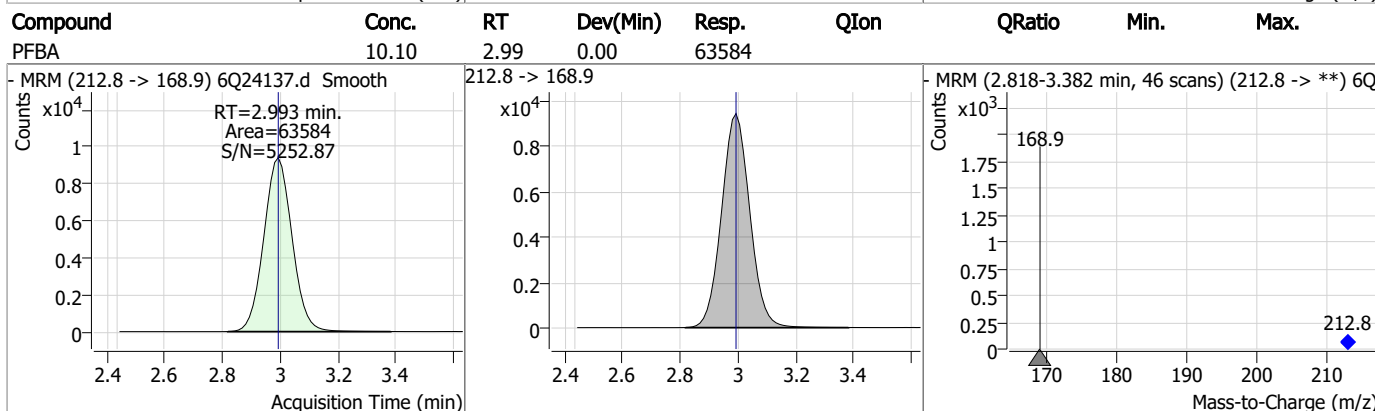
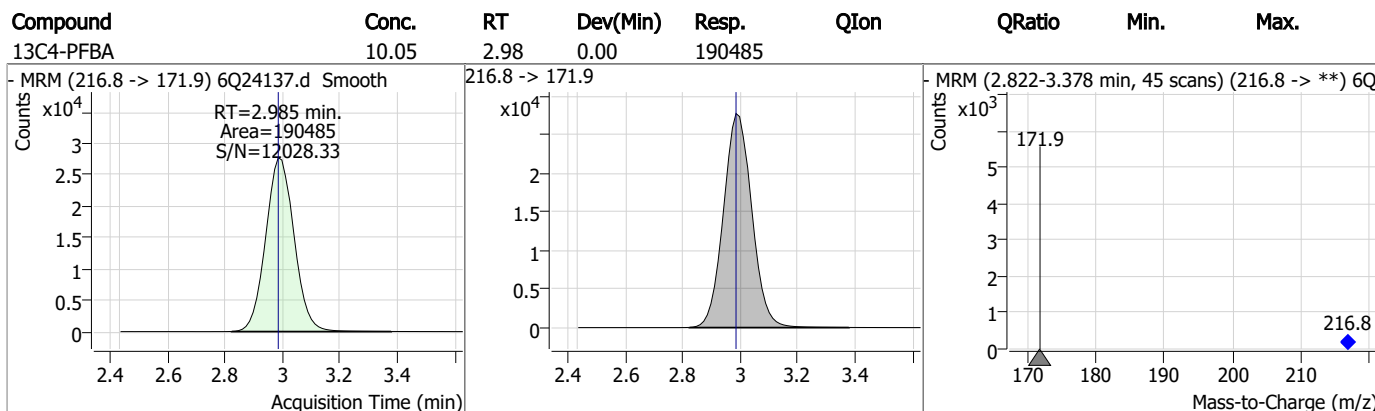
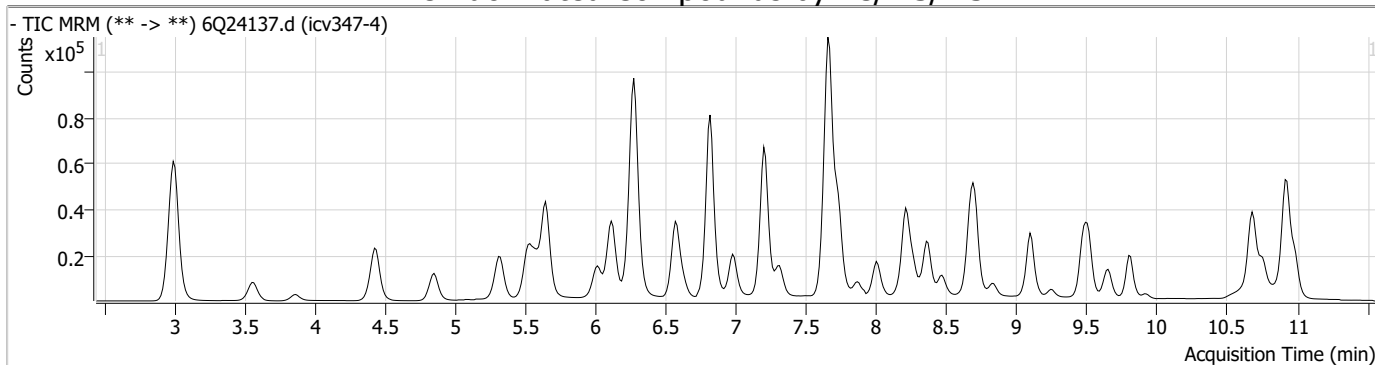
Perfluorinated Compounds by LC/MS/MS

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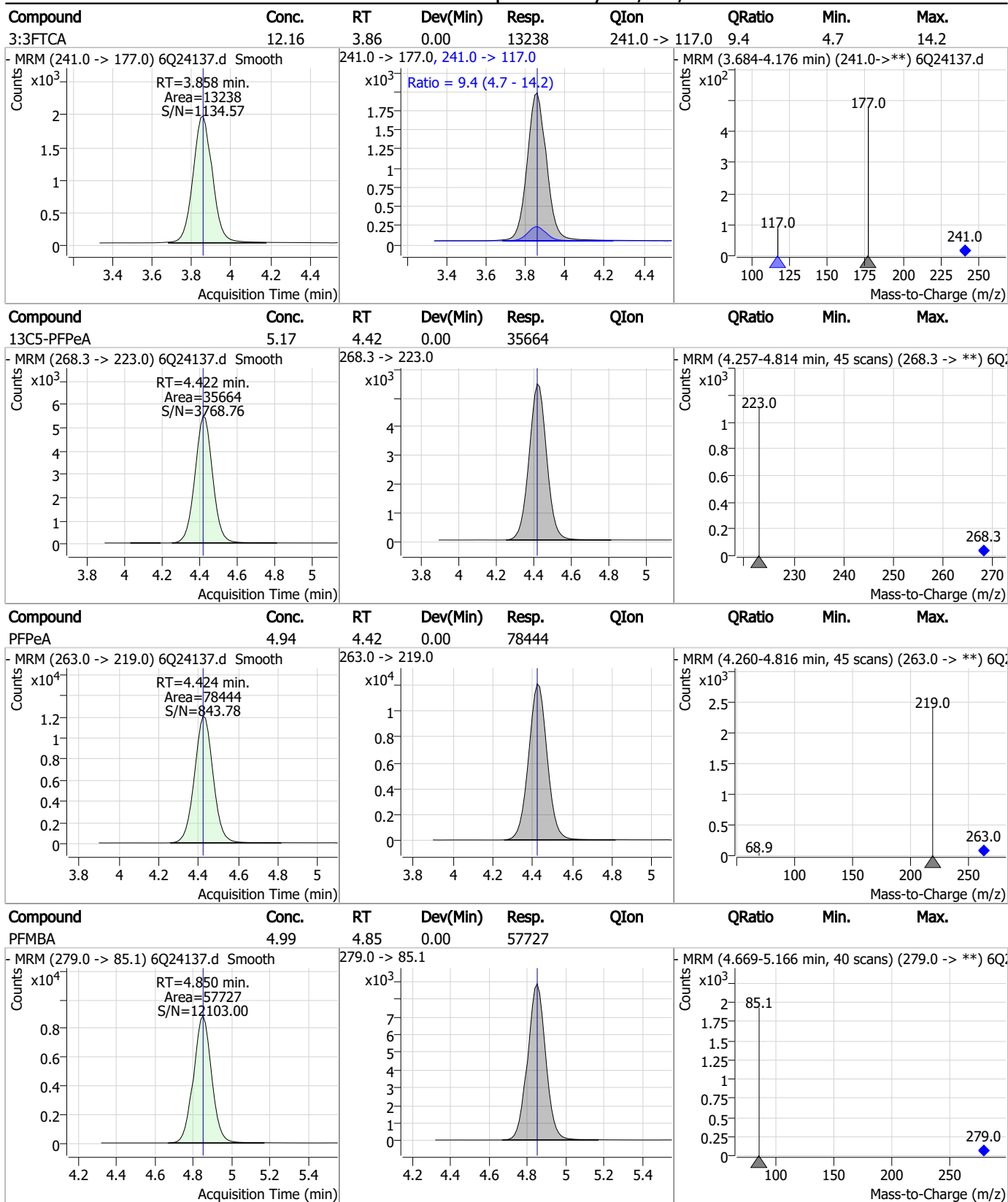
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Perfluorinated Compounds by LC/MS/MS

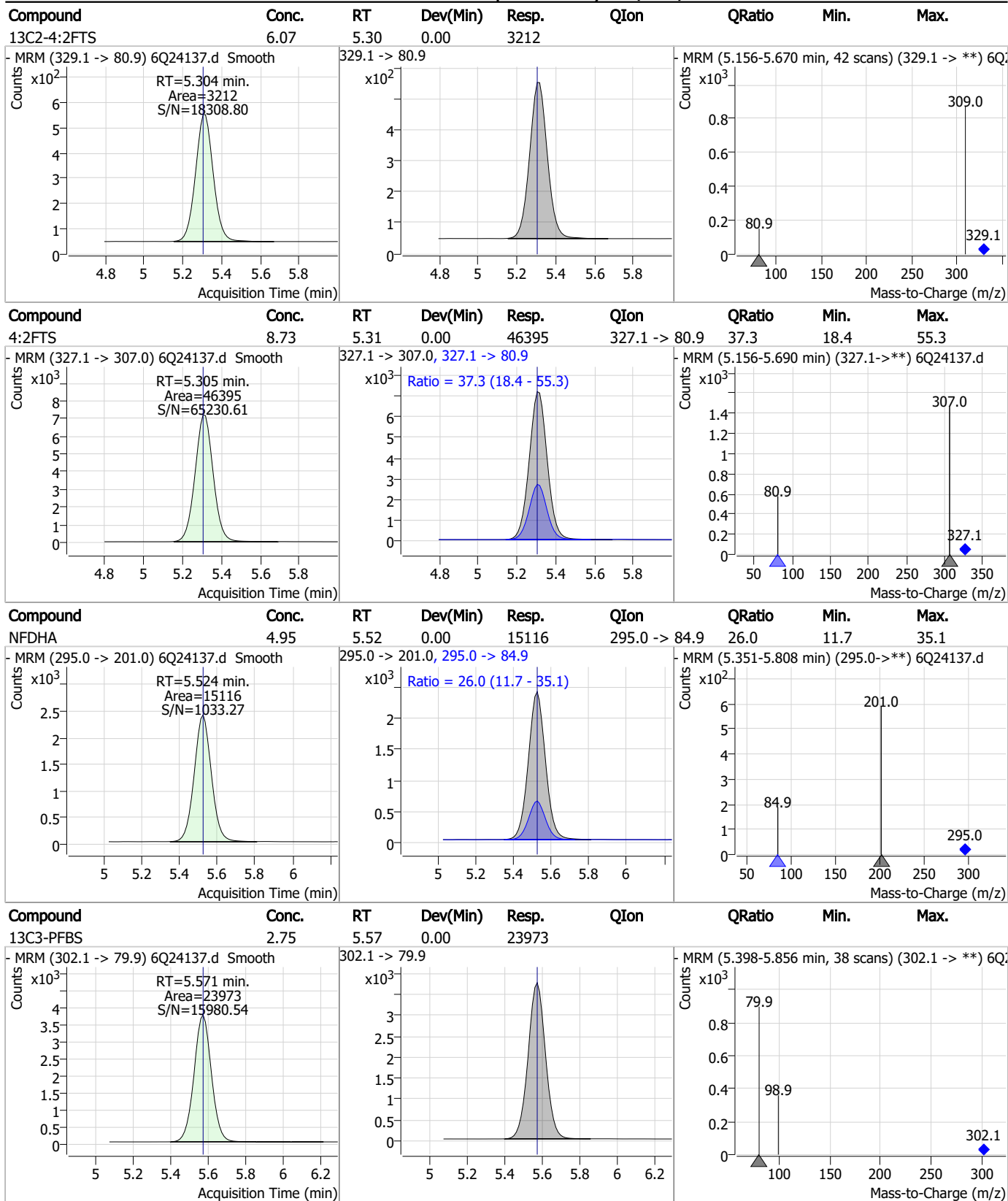


Perfluorinated Compounds by LC/MS/MS



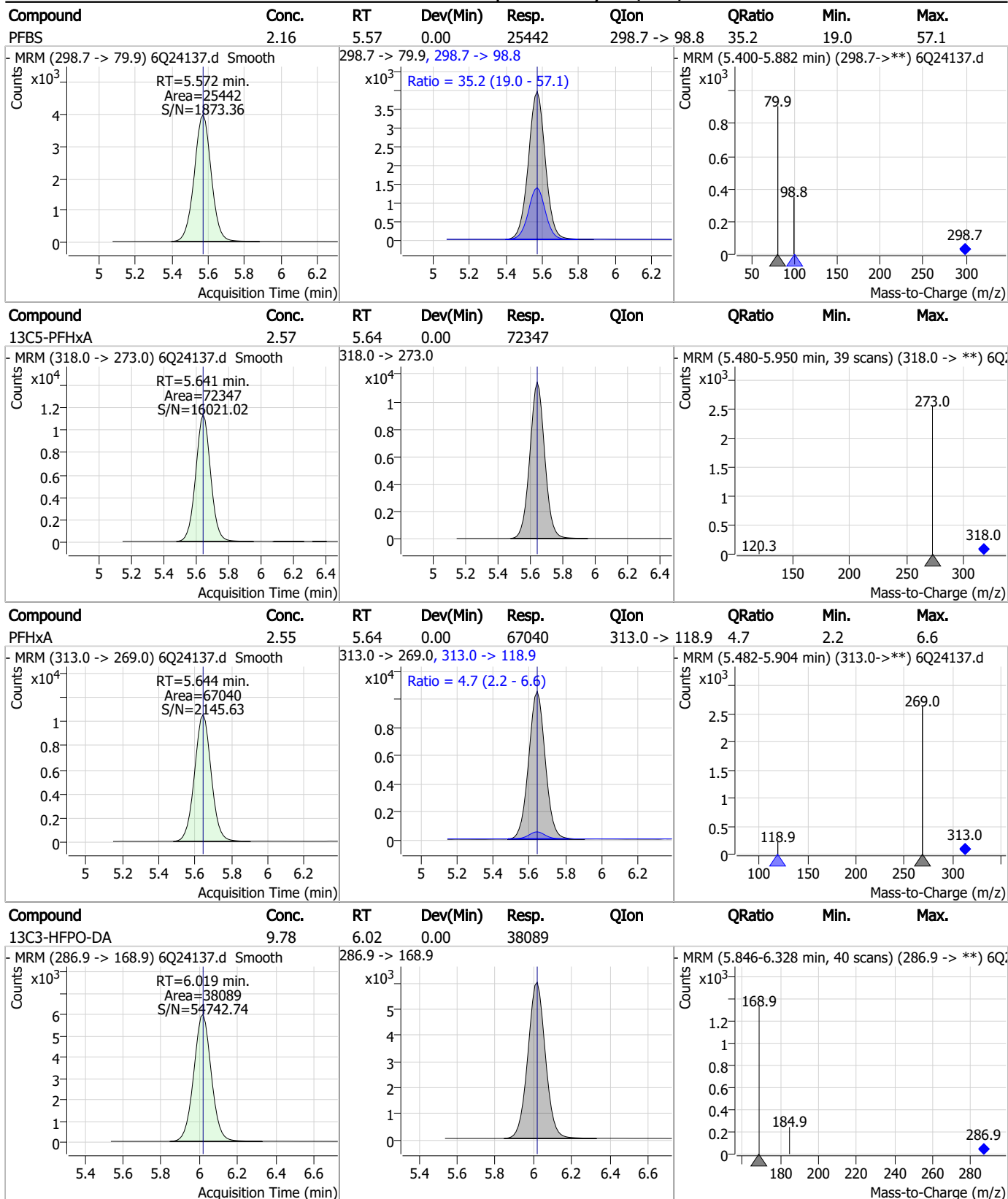
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

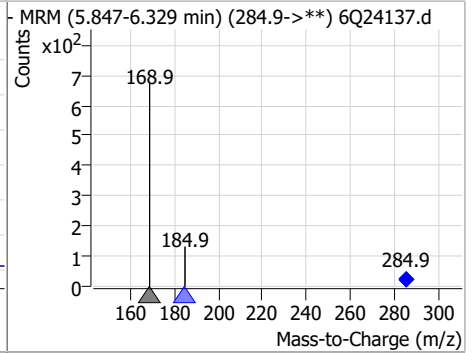
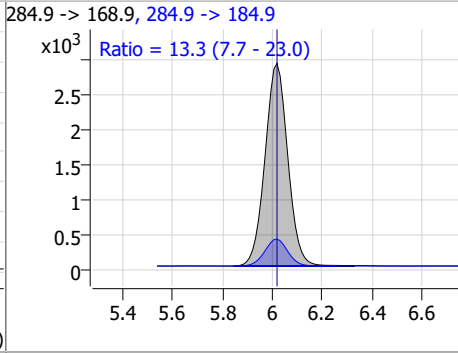
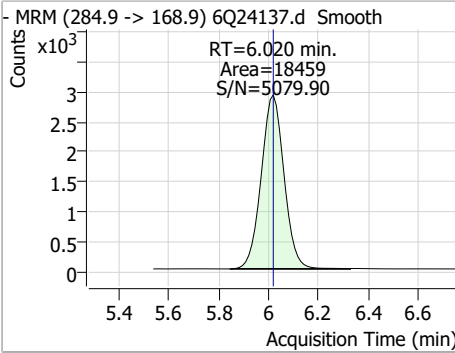
Perfluorinated Compounds by LC/MS/MS



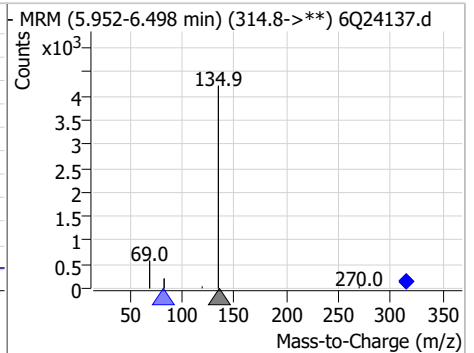
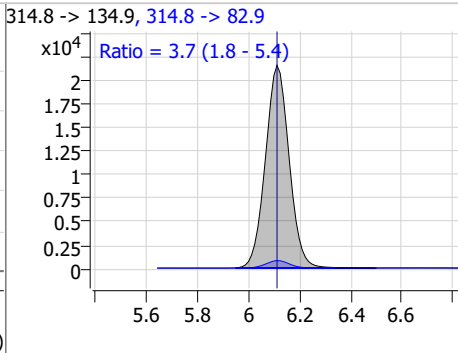
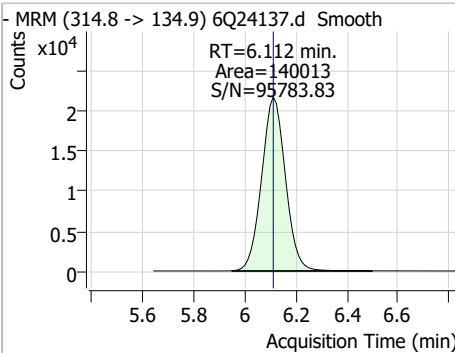
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Perfluorinated Compounds by LC/MS/MS

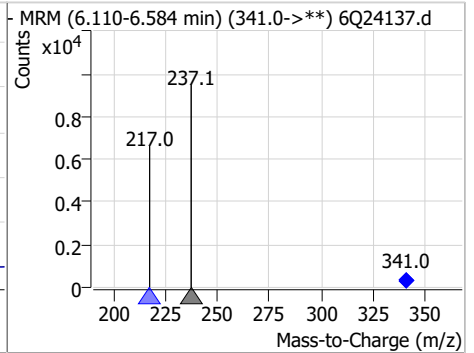
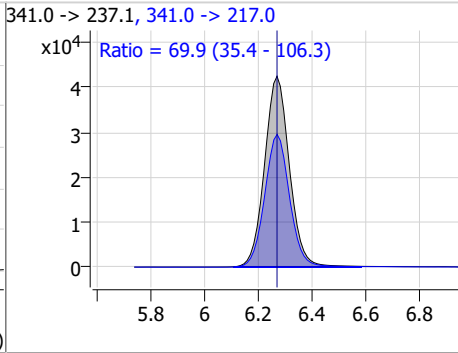
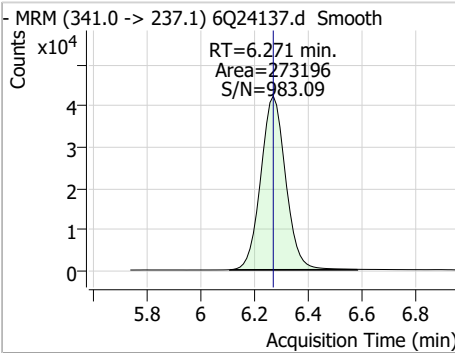
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.12	6.02	0.00	18459	284.9 -> 184.9	13.3	7.7	23.0



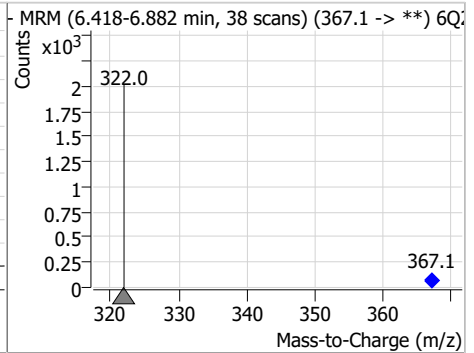
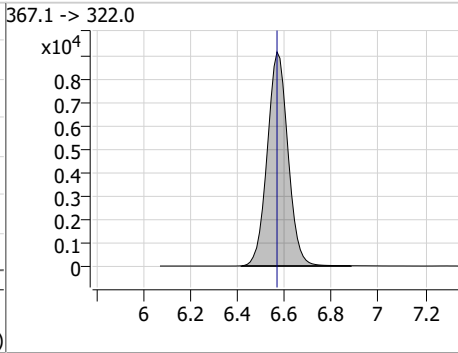
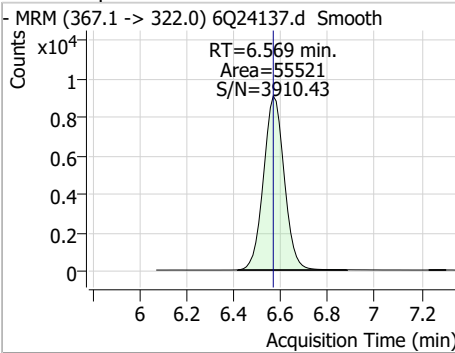
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.26	6.11	0.00	140013	314.8 -> 82.9	3.7	1.8	5.4



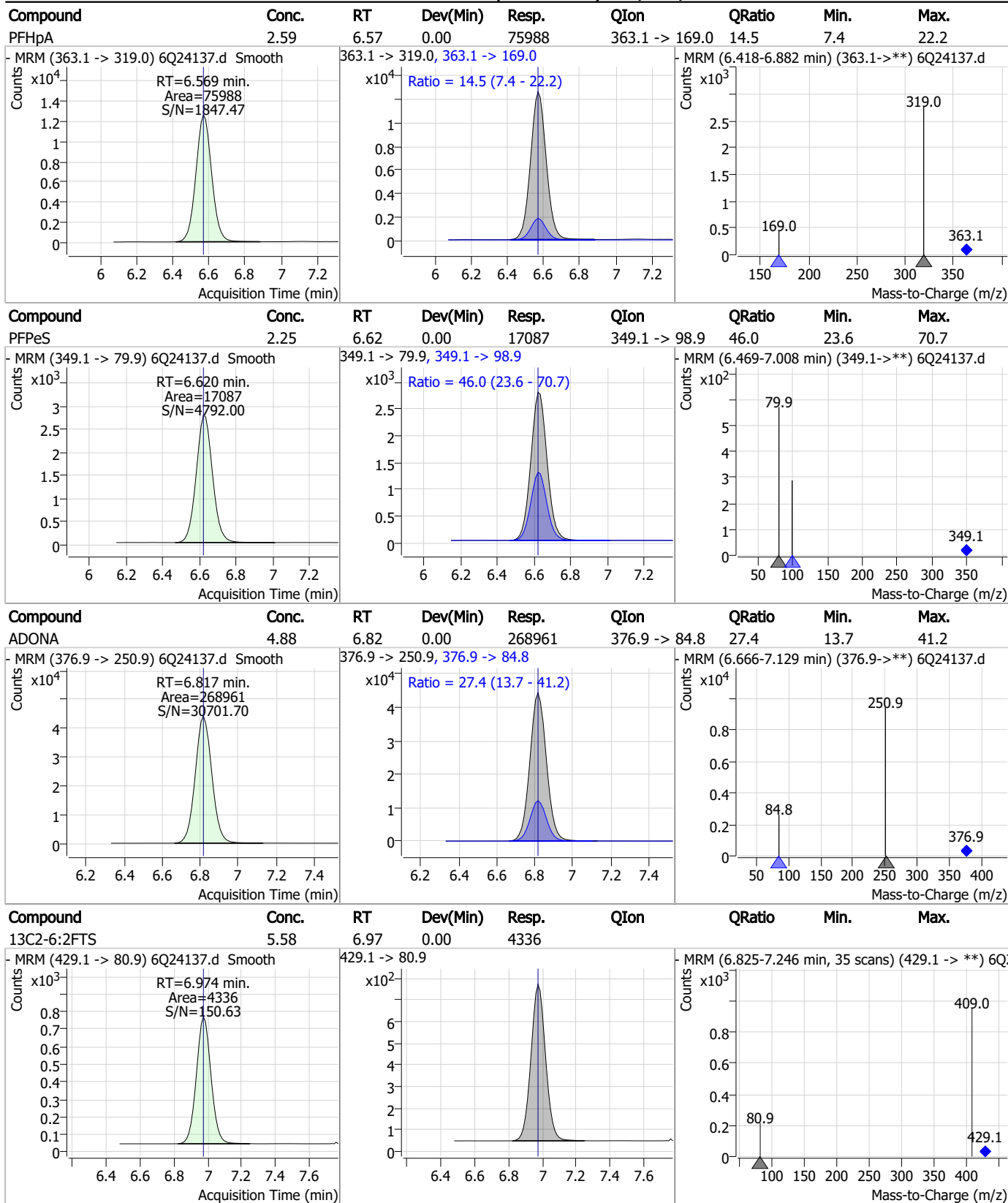
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	61.06	6.27	0.00	273196	341.0 -> 217.0	69.9	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.53	6.57	0.00	55521	367.1 -> 322.0			

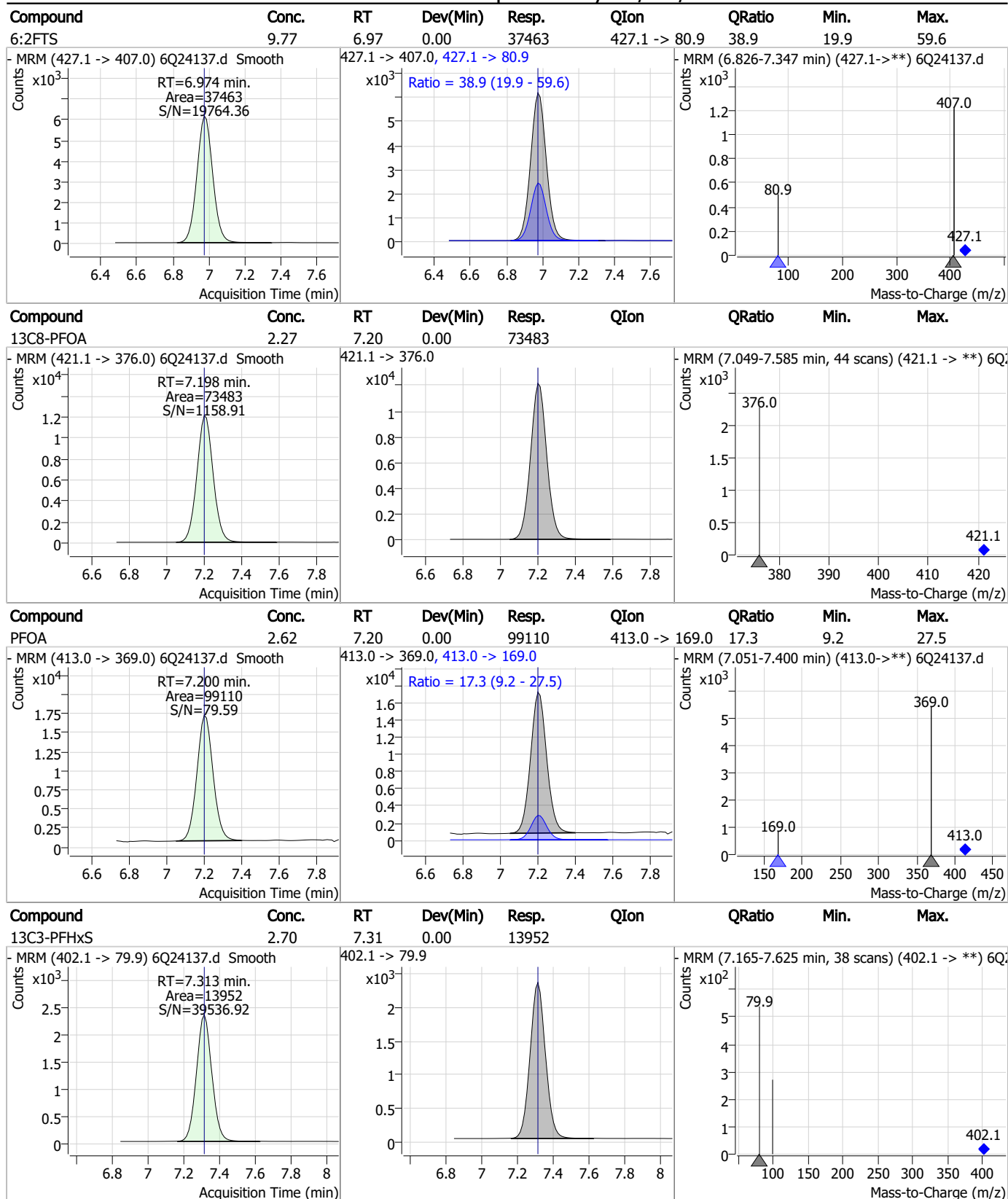


Perfluorinated Compounds by LC/MS/MS



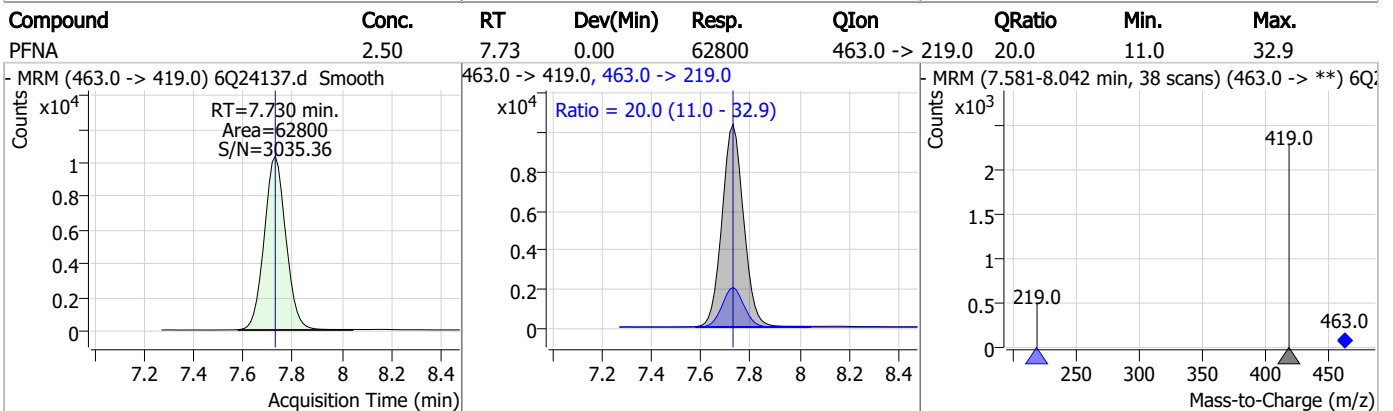
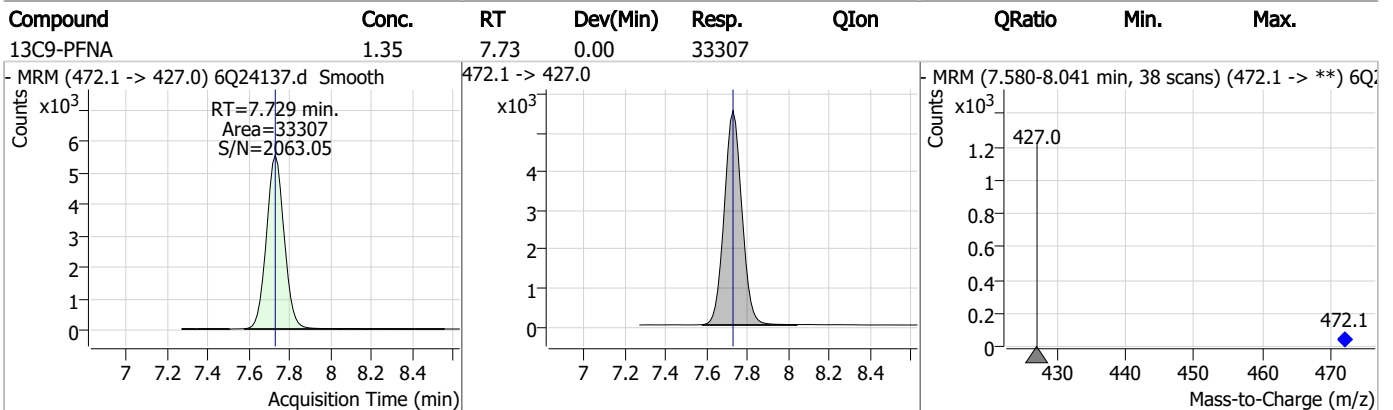
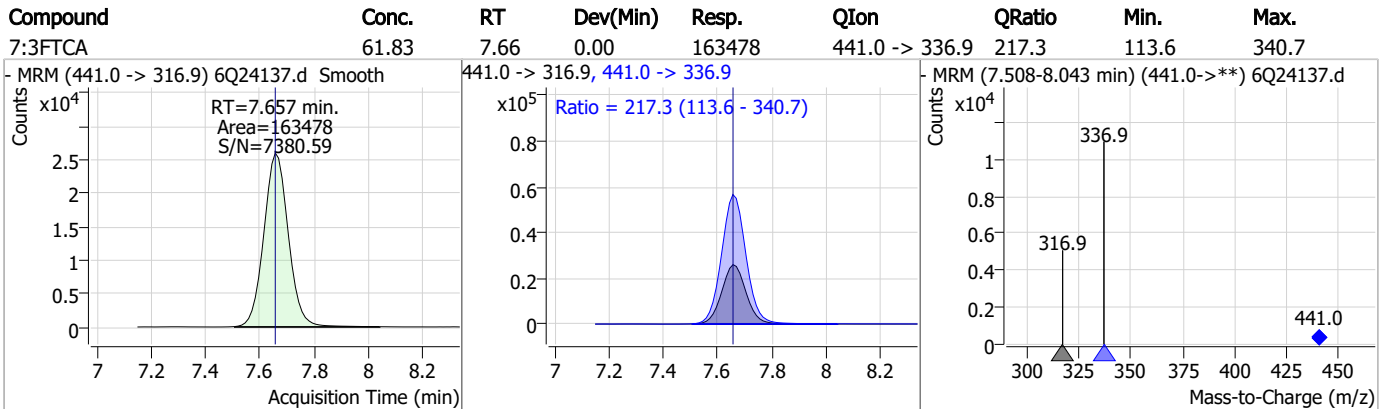
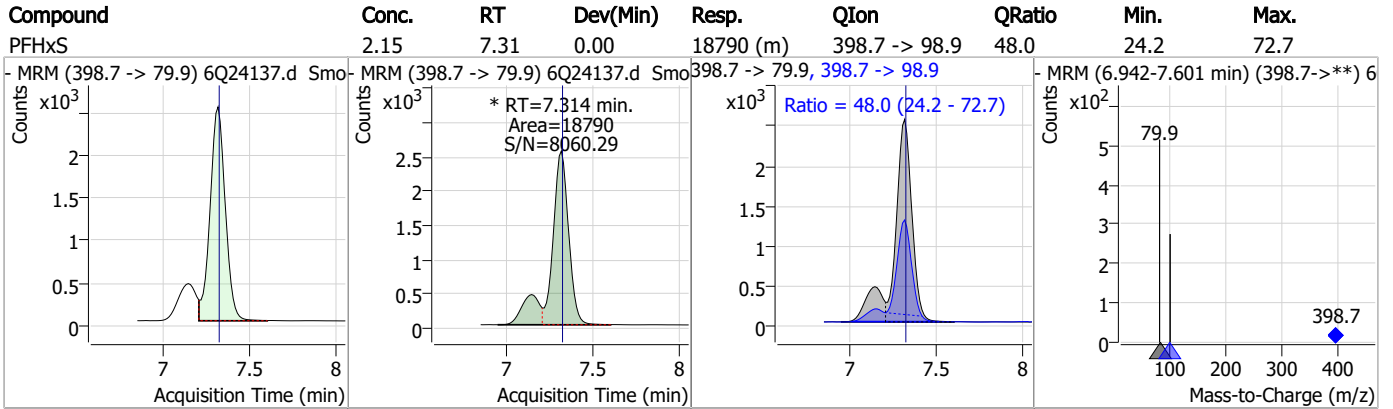
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



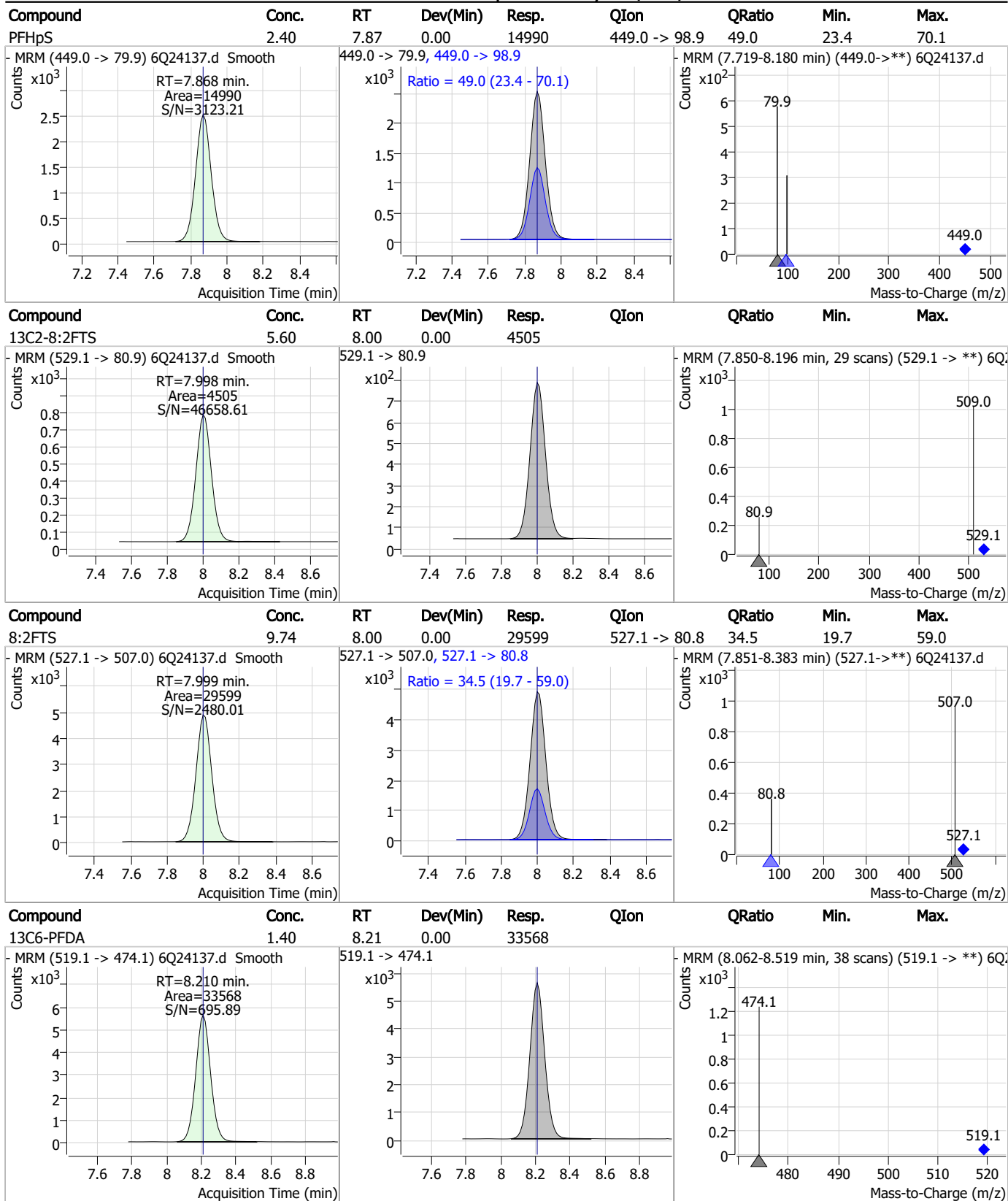
7.7.10
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Perfluorinated Compounds by LC/MS/MS



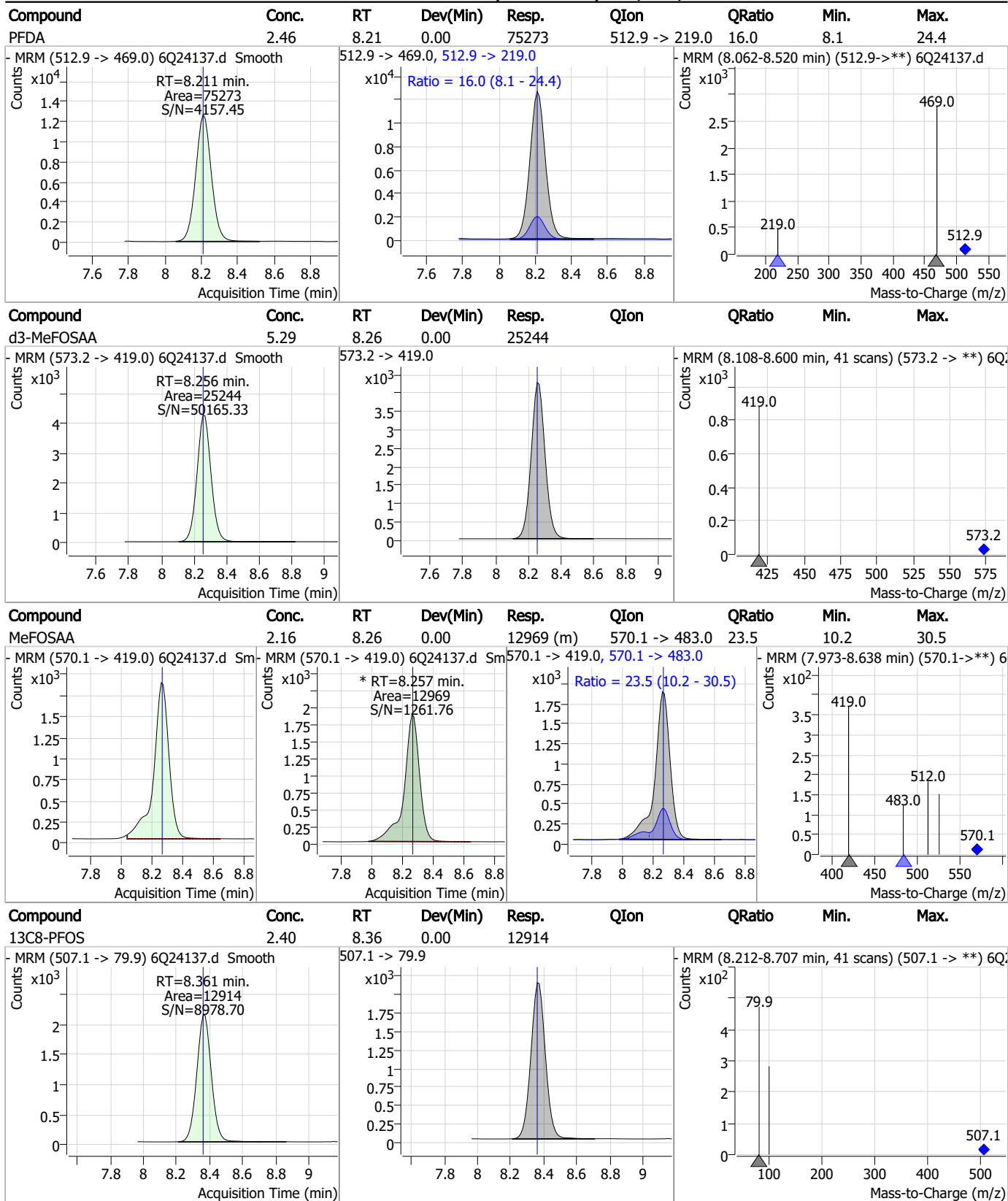
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

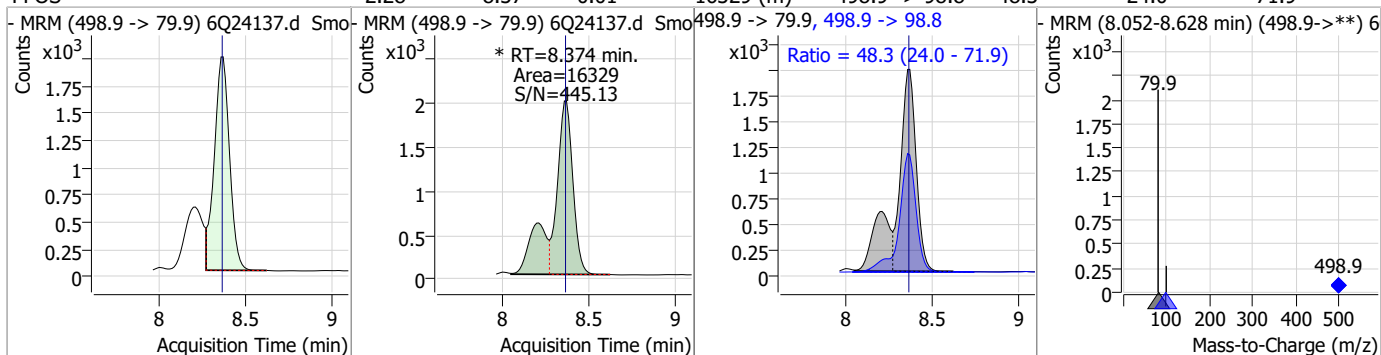
Perfluorinated Compounds by LC/MS/MS



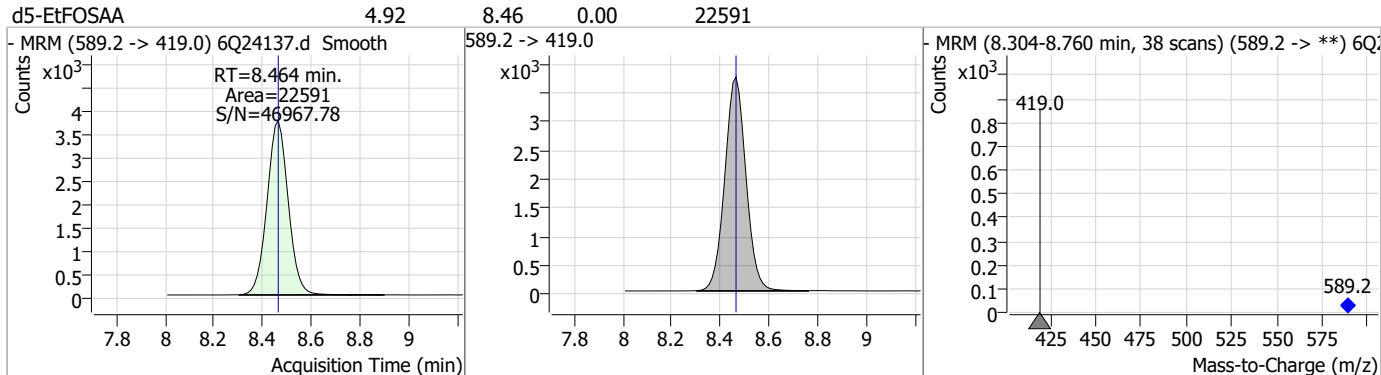
7.7.10
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Perfluorinated Compounds by LC/MS/MS

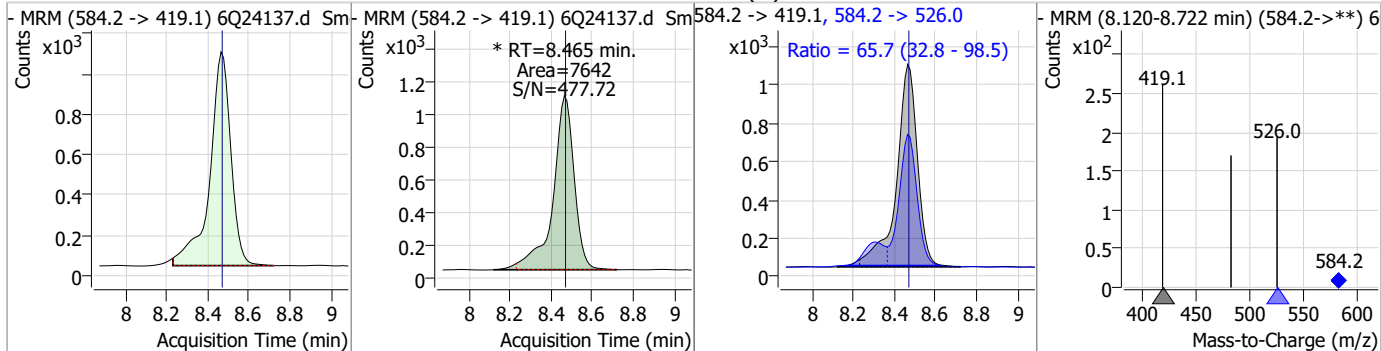
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.28	8.37	0.01	16329 (m)	498.9 -> 98.8	48.3	24.0	71.9



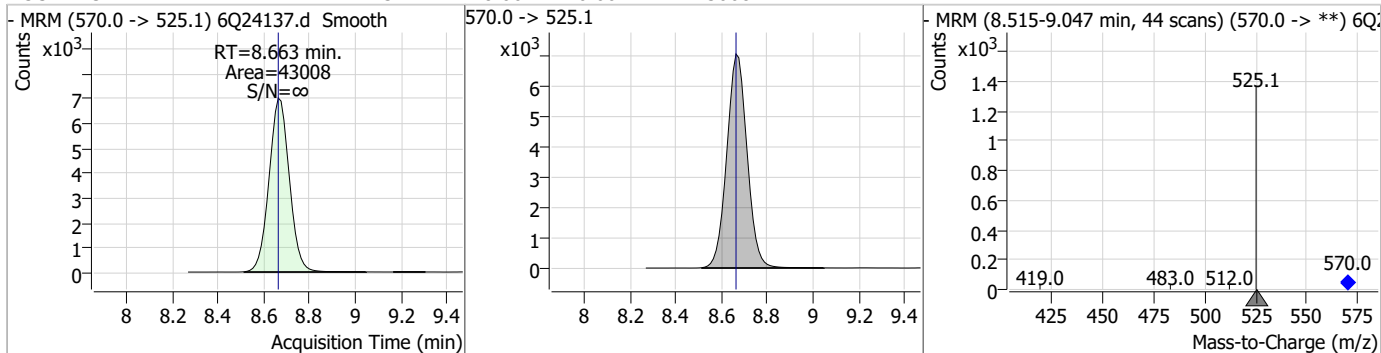
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.92	8.46	0.00	22591				



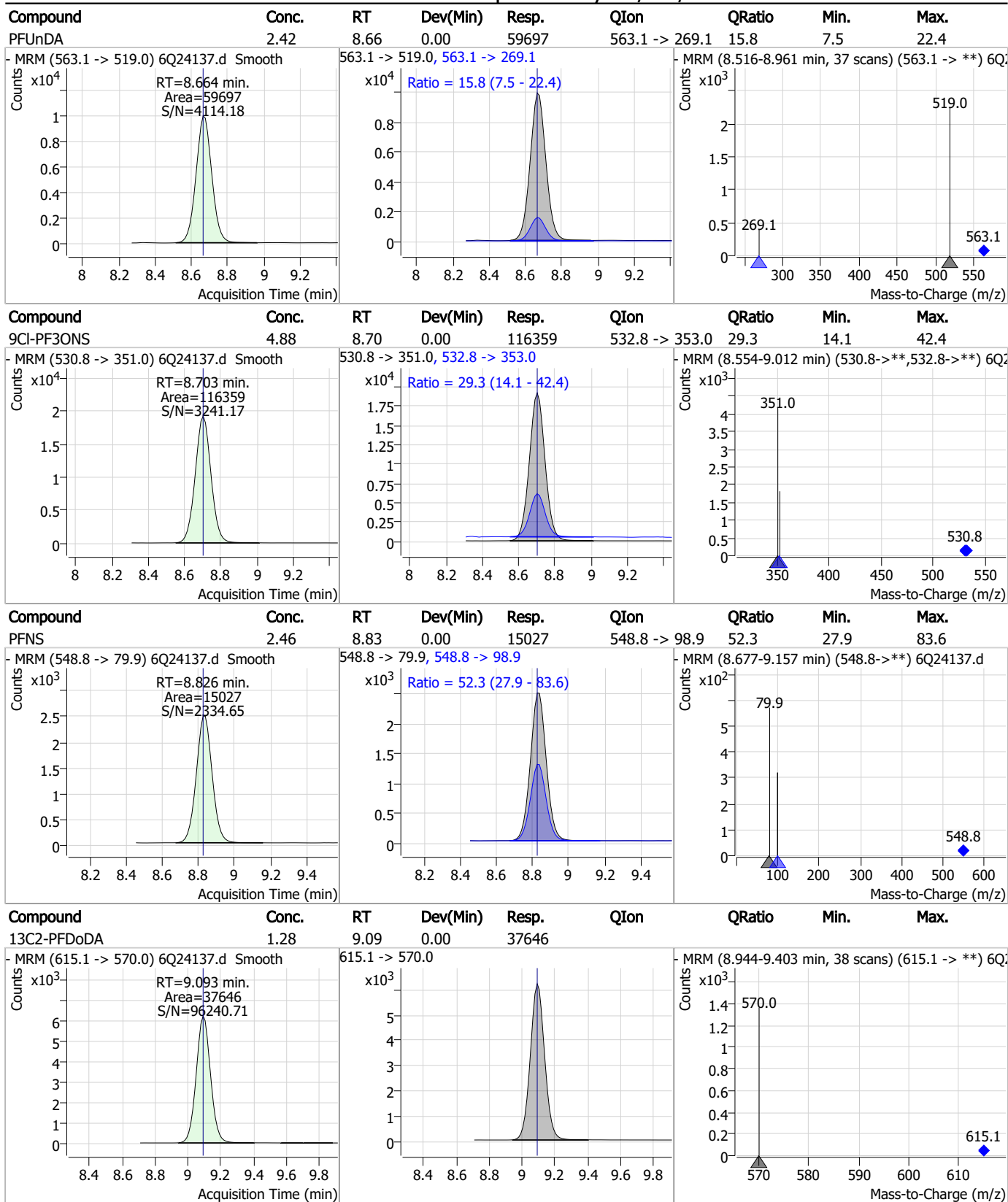
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.40	8.46	0.00	7642 (m)	584.2 -> 526.0	65.7	32.8	98.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.34	8.66	0.00	43008				



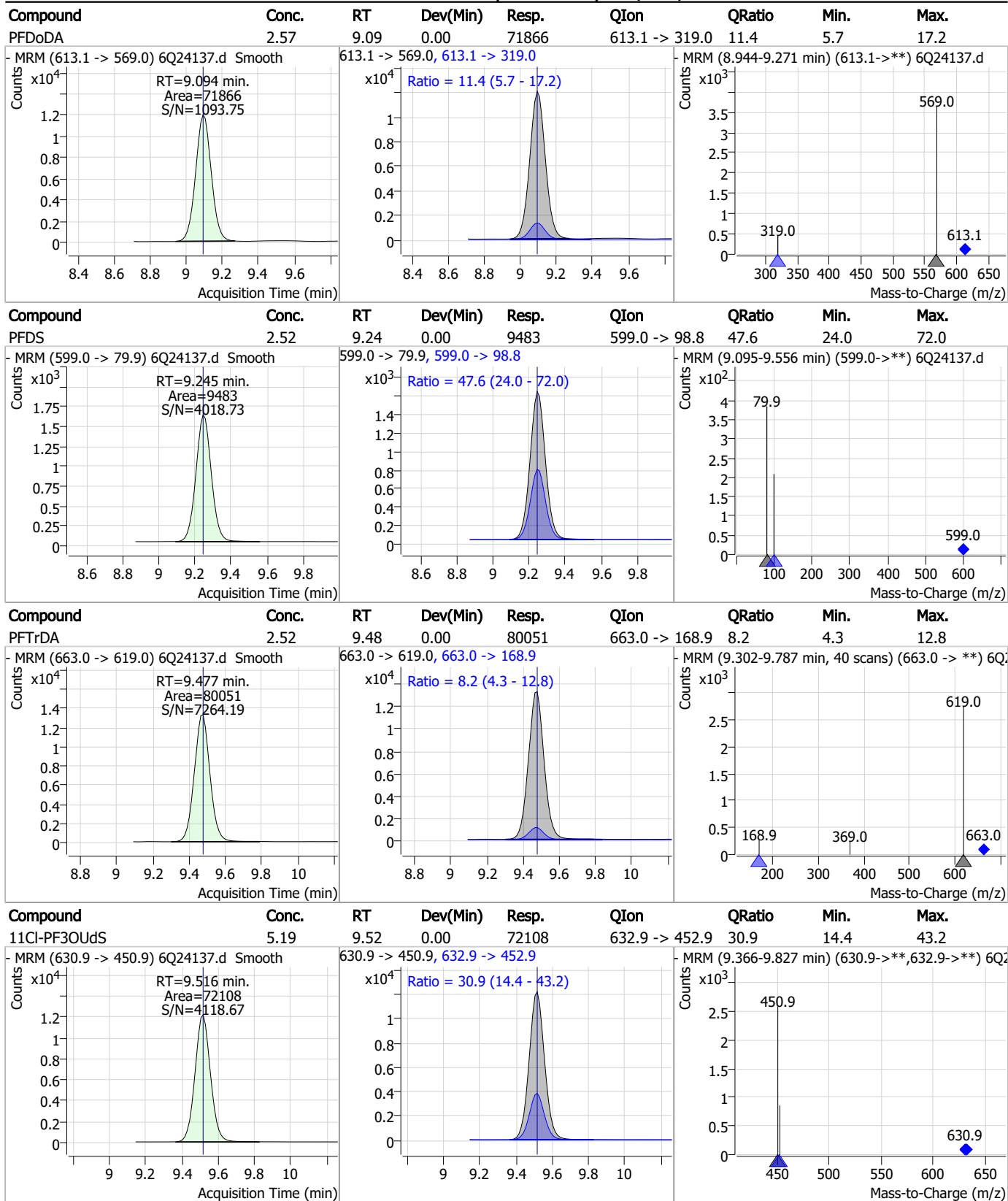
Perfluorinated Compounds by LC/MS/MS



7.7.10 7

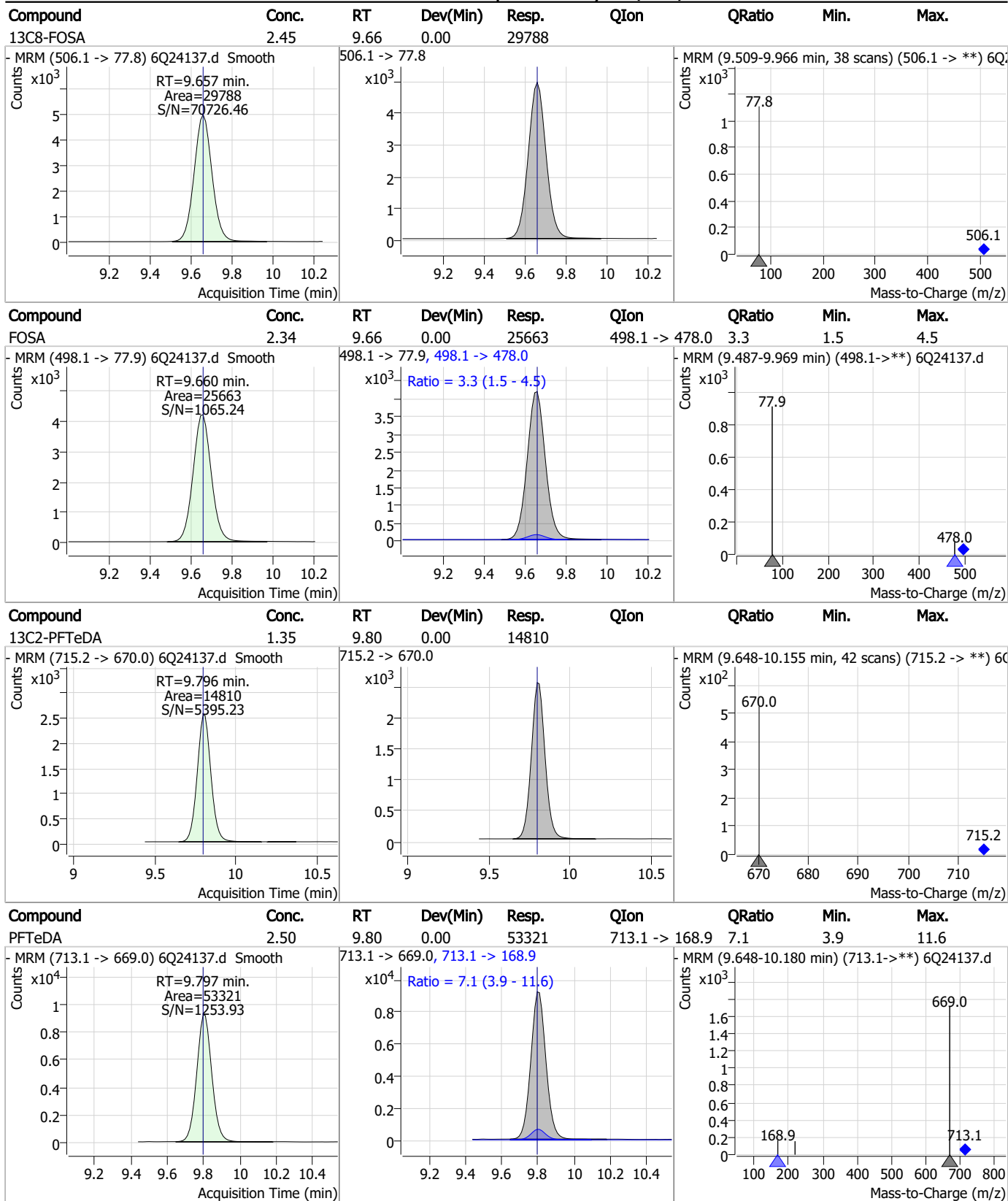


Perfluorinated Compounds by LC/MS/MS



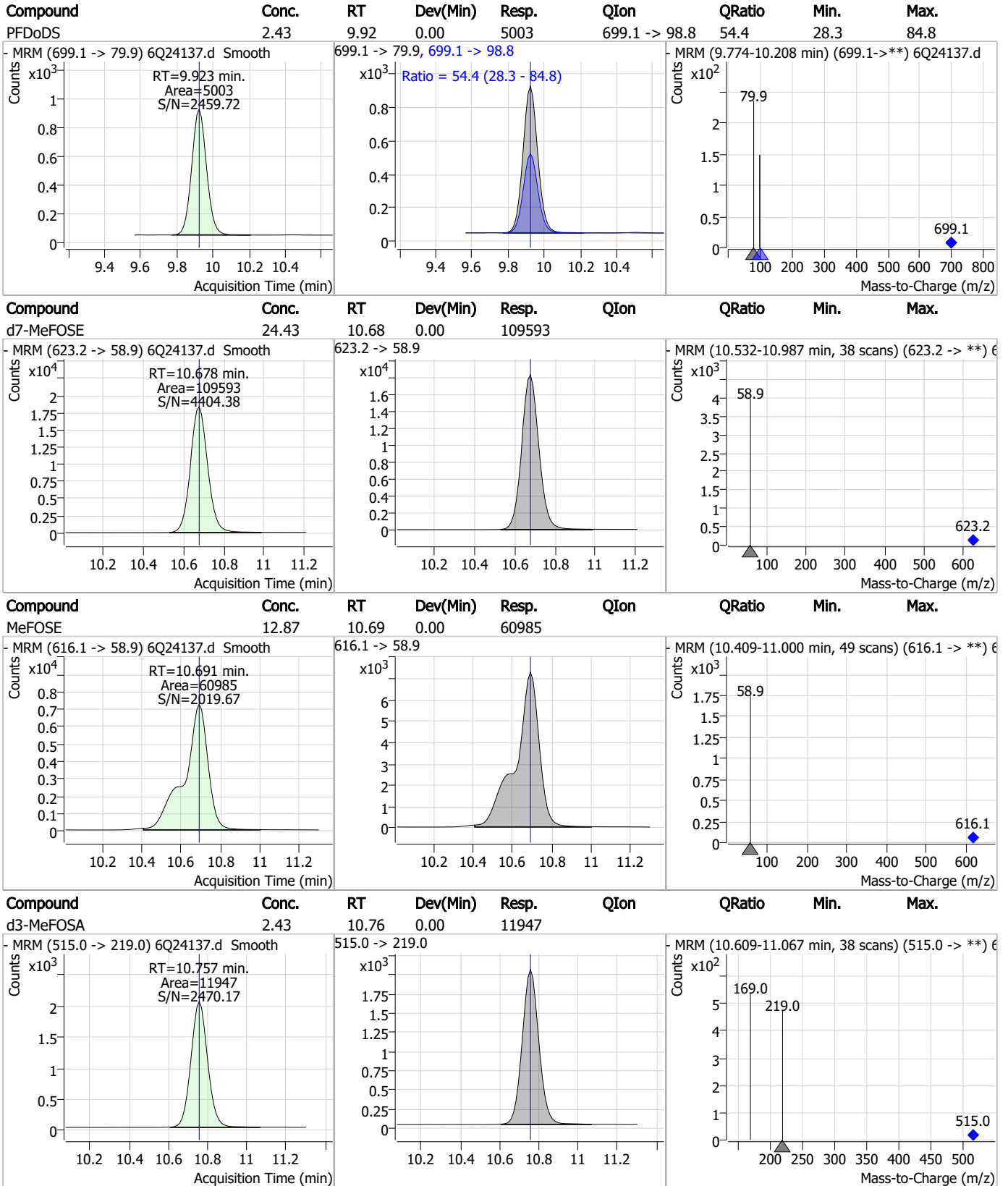
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10
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Perfluorinated Compounds by LC/MS/MS

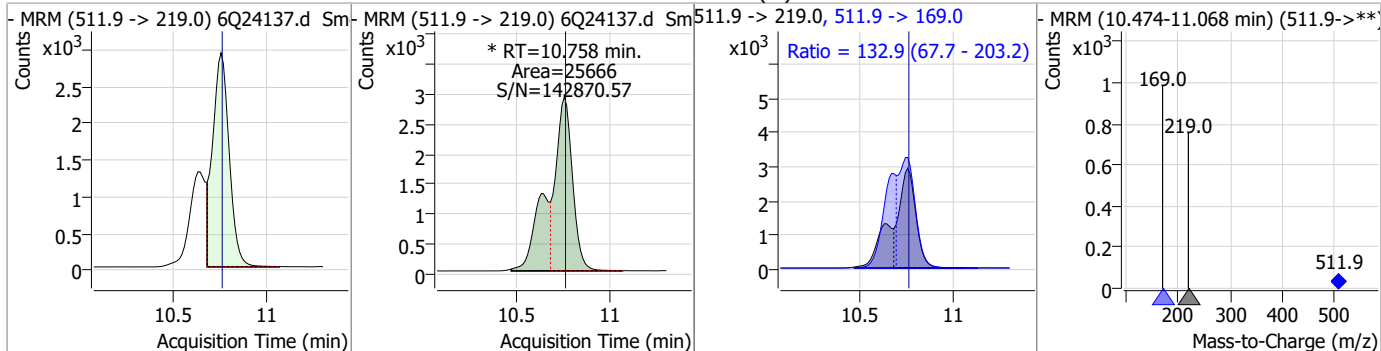


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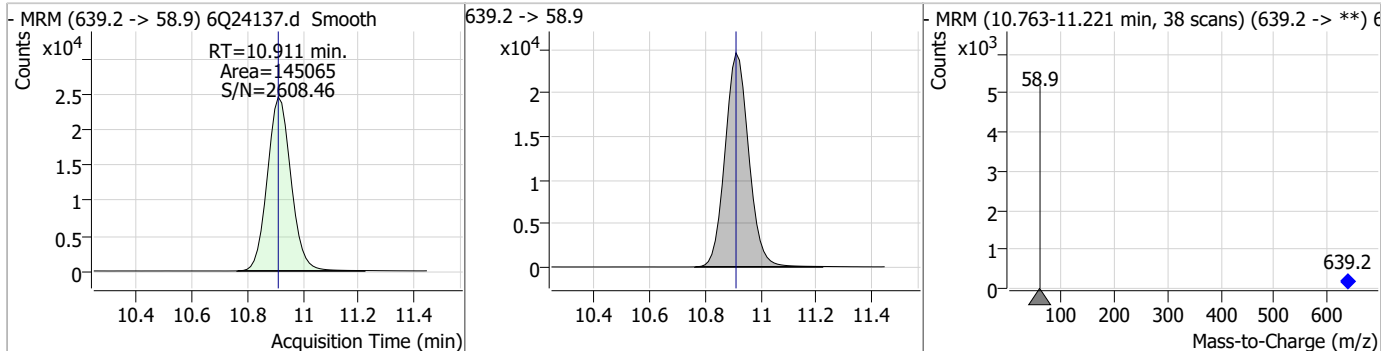


Perfluorinated Compounds by LC/MS/MS

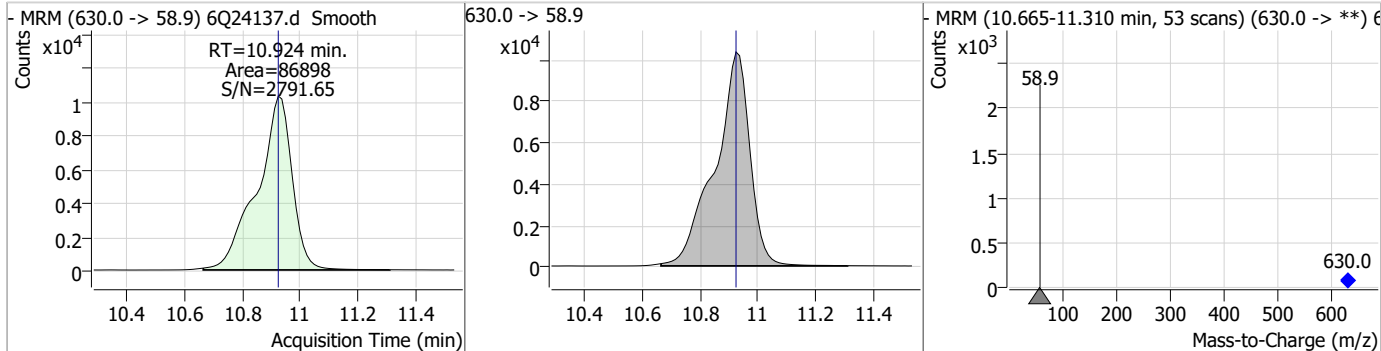
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.06	10.76	0.00	25666 (m)	511.9 -> 169.0	132.9	67.7	203.2



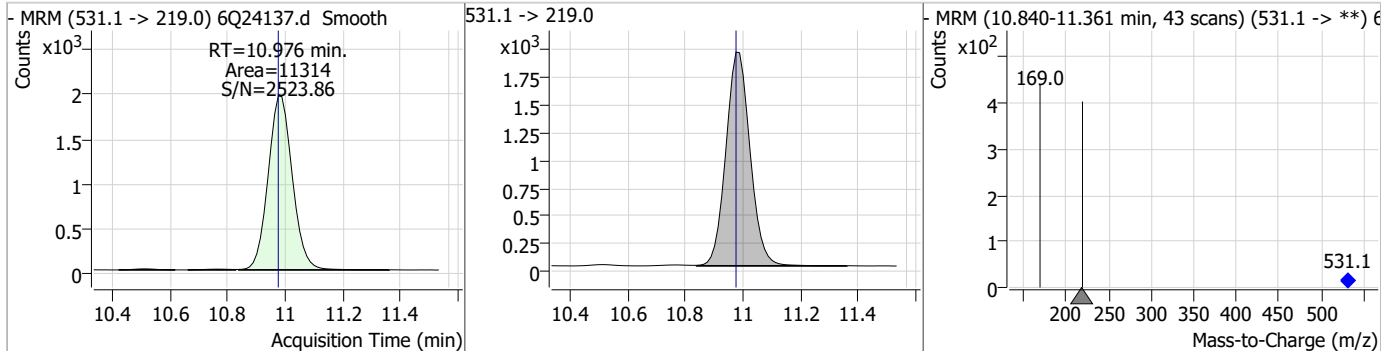
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.03	10.91	0.00	145065				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.60	10.92	0.00	86898				

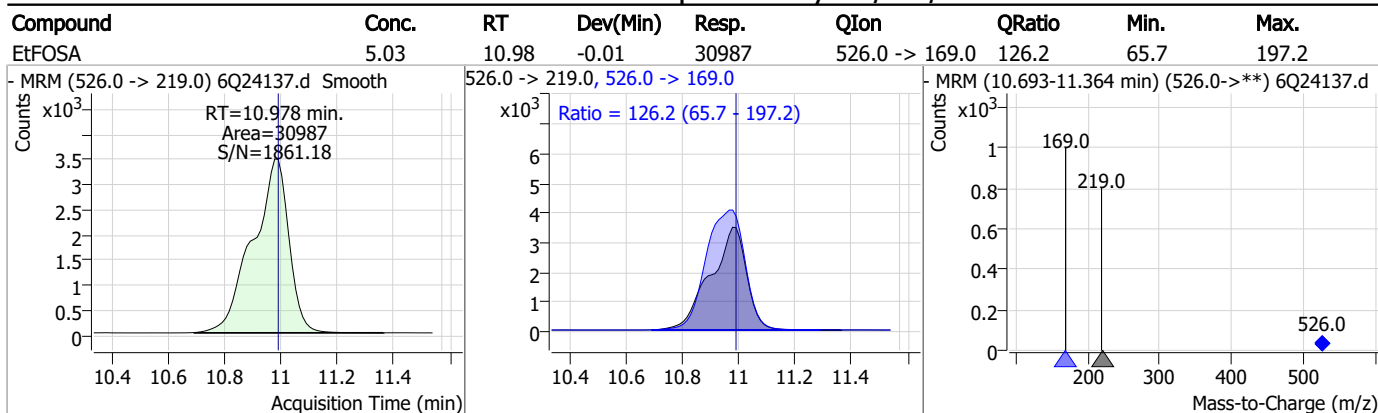


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.46	10.98	0.00	11314				



7.7.10
7

Perfluorinated Compounds by LC/MS/MS



7.7.10
7



Manual Integration Approval Summary

Sample Number: S6Q347-ICV347 Method: EPA DRAFT 1633
Lab FileID: 6Q24137.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 22:55 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
MeFOSAA	2355-31-9		8.26	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24138.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/9/2023 11:09:38 PM
 Sample Name : icv347-20
 Vial : P1-B2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q347.batch.bin
 Sample Information : OP98555,S6Q347,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.985	216.8 -> 171.9	179417	10.00 µg/L	0.000
M5-PFPeA	4.422	268.3 -> 223.0	32878	5.00 µg/L	0.000
M5-PFHxA	5.641	318.0 -> 273.0	63931	2.50 µg/L	0.000
M4-PFHpA	6.569	367.1 -> 322.0	52436	2.50 µg/L	0.000
M8-PFOA	7.198	421.1 -> 376.0	70783	2.50 µg/L	0.000
M9-PFNA	7.729	472.1 -> 427.0	29316	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	26815	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	39237	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	35425	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	13278	1.25 µg/L	0.000
M8-FOSA	9.657	506.1 -> 77.8	27232	2.50 µg/L	0.000
M3-PFBS	5.571	302.1 -> 79.9	21054	2.50 µg/L	0.000
M3-PFHxS	7.313	402.1 -> 79.9	12623	2.50 µg/L	0.000
M8-PFOS	8.361	507.1 -> 79.9	11385	2.50 µg/L	0.000
M2-4:2FTS	5.304	329.1 -> 80.9	2674	5.00 µg/L	0.000
M2-6:2FTS	6.974	429.1 -> 80.9	3899	5.00 µg/L	0.000
M2-8:2FTS	7.998	529.1 -> 80.9	3992	5.00 µg/L	0.000
M3-MeFOSAA	8.256	573.2 -> 419.0	20707	5.00 µg/L	0.000
M3-HFPO-DA	6.007	286.9 -> 168.9	36589	10.00 µg/L	-0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	21201	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	96337	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	126306	25.00 µg/L	0.000
M5-EtFOSA	10.976	531.1 -> 219.0	10366	2.50 µg/L	0.000
M3-MeFOSA	10.757	515.0 -> 219.0	10832	2.50 µg/L	0.000
13C4-PFOS	8.361	502.8 -> 79.9	13358	2.50 µg/L	0.000
13C3-PFBA	2.989	216.0 -> 172.0	70541	5.00 µg/L	0.000
18O2-PFHxS	7.313	403.0 -> 83.9	8751	2.50 µg/L	0.000
13C4-PFOA	7.199	417.1 -> 372.0	77049	2.50 µg/L	0.000
13C2-PFDA	8.210	515.1 -> 470.1	27047	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	36418	1.25 µg/L	0.000
13C2-PFHxA	5.642	315.1 -> 270.0	49542	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.304	329.1 -> 80.9	2674	5.43 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C2-6:2FTS	6.974	429.1 -> 80.9	3899	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-8:2FTS	7.998	529.1 -> 80.9	3992	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C2-PFDoDA	9.093	615.1 -> 570.0	35425	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-PFTeDA	9.796	715.2 -> 670.0	13278	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C3-PFBS	5.571	302.1 -> 79.9	21054	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C3-PFHxS	7.313	402.1 -> 79.9	12623	2.63 µg/L	0.000

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 = 105.0%	
13C4-PFBA	2.985	216.8 -> 171.9	179417	10.07 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.569	367.1 -> 322.0	52436	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C5-PFHxA	5.641	318.0 -> 273.0	63931	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C5-PFPeA	4.422	268.3 -> 223.0	32878	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C6-PFDA	8.210	519.1 -> 474.1	26815	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.1%	
13C7-PFUnDA	8.663	570.0 -> 525.1	39237	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C8-FOSA	9.657	506.1 -> 77.8	27232	2.86 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.5%	
13C8-PFOA	7.198	421.1 -> 376.0	70783	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C8-PFOS	8.361	507.1 -> 79.9	11385	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C9-PFNA	7.729	472.1 -> 427.0	29316	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSAA	8.256	573.2 -> 419.0	20707	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.9%	
13C3-HFPO-DA	6.007	286.9 -> 168.9	36589	9.70 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSA	10.757	515.0 -> 219.0	10832	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.4%	
d5-EtFOSAA	8.464	589.2 -> 419.0	21201	5.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	96337	27.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.7%	
d9-EtFOSE	10.911	639.2 -> 58.9	126306	26.72 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.9%	
d5-EtFOSA	10.976	531.1 -> 219.0	10366	2.88 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.4%	
Target Compounds					QValue
4:2FTS	5.305	327.1 -> 307.0	94917	21.46 µg/L	98
		327.1 -> 80.9	36329		
6:2FTS	6.974	427.1 -> 407.0	78300	22.70 µg/L	100
		427.1 -> 80.9	31050		
8:2FTS	7.999	527.1 -> 507.0	52827	19.62 µg/L	97
		527.1 -> 80.8	19671		
EtFOSAA	8.465	584.2 -> 419.1	56843	18.98 µg/L	m 99
		584.2 -> 526.0	37860		
FOSA	9.660	498.1 -> 77.9	193424	19.30 µg/L	100
		498.1 -> 478.0	5640		
MeFOSAA	8.269	570.1 -> 419.0	111409	22.65 µg/L	97
		570.1 -> 483.0	20853		
PFBA	2.993	212.8 -> 168.9	120303	20.29 µg/L	100
PFBS	5.572	298.7 -> 79.9	214565	20.78 µg/L	97
		298.7 -> 98.8	77668		
PFDA	8.211	512.9 -> 469.0	579112	23.71 µg/L	97
		512.9 -> 219.0	86003		
PFDoDA	9.094	613.1 -> 569.0	530946	20.20 µg/L	99
		613.1 -> 319.0	58850		
PFDS	9.245	599.0 -> 79.9	74954	22.60 µg/L	98

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	34877			
PFHpA	6.569	363.1 -> 319.0	570512	20.56	µg/L	99
		363.1 -> 169.0	82907			
PFHpS	7.868	449.0 -> 79.9	113113	20.53	µg/L	99
		449.0 -> 98.9	53389			
PFHxA	5.644	313.0 -> 269.0	523174	22.48	µg/L	100
		313.0 -> 118.9	22359			
PFHxS	7.314	398.7 -> 79.9	163773	20.69	µg/L	m 95
		398.7 -> 98.9	73736			
PFNA	7.730	463.0 -> 419.0	471192	21.31	µg/L	93
		463.0 -> 219.0	118919			
PFNS	8.826	548.8 -> 79.9	115493	21.48	µg/L	96
		548.8 -> 98.9	61285			
PFOA	7.200	413.0 -> 369.0	711692	19.51	µg/L	98
		413.0 -> 169.0	123250			
PFOS	8.362	498.9 -> 79.9	124216	19.69	µg/L	m 97
		498.9 -> 98.8	56601			
PFPeA	4.424	263.0 -> 219.0	308408	21.06	µg/L	100
PFPeS	6.620	349.1 -> 79.9	144916	21.10	µg/L	94
		349.1 -> 98.9	62687			
PFTeDA	9.797	713.1 -> 669.0	379097	19.82	µg/L	99
		713.1 -> 168.9	30065			
PFTrDA	9.477	663.0 -> 619.0	536304	17.94	µg/L	98
		663.0 -> 168.9	42093			
PFUnDA	8.664	563.1 -> 519.0	445591	19.82	µg/L	99
		563.1 -> 269.1	64631			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	276739	20.73	µg/L	92
		632.9 -> 452.9	91483			
9Cl-PF3ONS	8.703	530.8 -> 351.0	478844	20.93	µg/L	95
		532.8 -> 353.0	147077			
ADONA	6.817	376.9 -> 250.9	1020576	19.26	µg/L	99
		376.9 -> 84.8	273409			
HFPO-DA	6.020	284.9 -> 168.9	68775	19.86	µg/L	99
		284.9 -> 184.9	10140			
3:3FTCA	3.858	241.0 -> 177.0	19896	19.40	µg/L	100
		241.0 -> 117.0	1895			
5:3FTCA	6.271	341.0 -> 237.1	87293	22.08	µg/L	98
		341.0 -> 217.0	60441			
7:3FTCA	7.657	441.0 -> 316.9	48868	20.92	µg/L	95
		441.0 -> 336.9	107327			
EtFOSA	10.990	526.0 -> 219.0	103430	18.34	µg/L	80
		526.0 -> 169.0	112205			
EtFOSE	10.924	630.0 -> 58.9	668592	111.38	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	89956	19.57	µg/L	75
		511.9 -> 169.0	94548			
MeFOSE	10.691	616.1 -> 58.9	497110	119.33	µg/L	100
PFDoS	9.923	699.1 -> 79.9	36612	20.14	µg/L	95
		699.1 -> 98.8	19456			
NFDHA	5.524	295.0 -> 201.0	57248	21.23	µg/L	96
		295.0 -> 84.9	14595			
PFMBA	4.850	279.0 -> 85.1	219332	20.55	µg/L	100
PFMPA	3.551	229.0 -> 84.9	157764	20.61	µg/L	100
PFEESA	6.112	314.8 -> 134.9	566832	19.49	µg/L	99
		314.8 -> 82.9	19424			

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



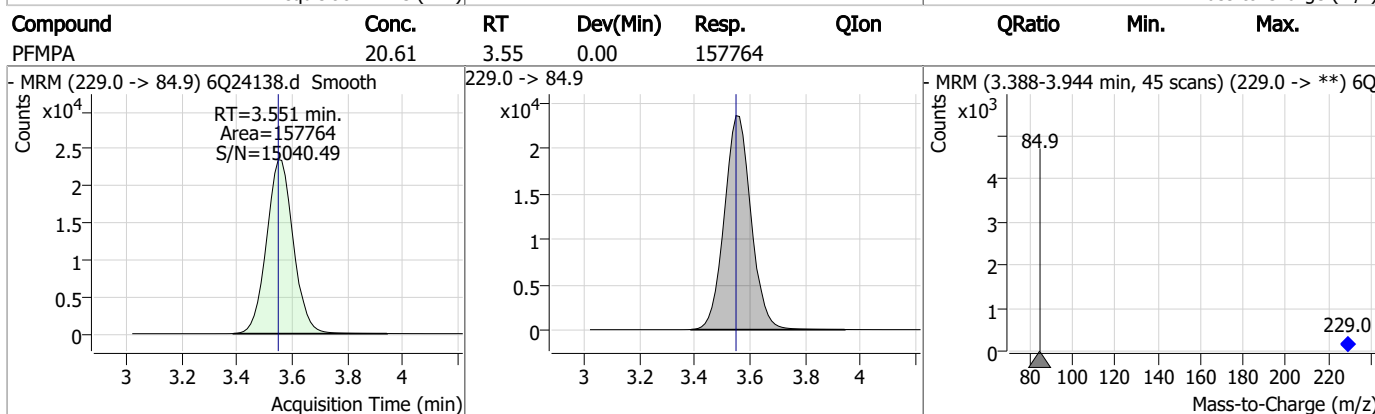
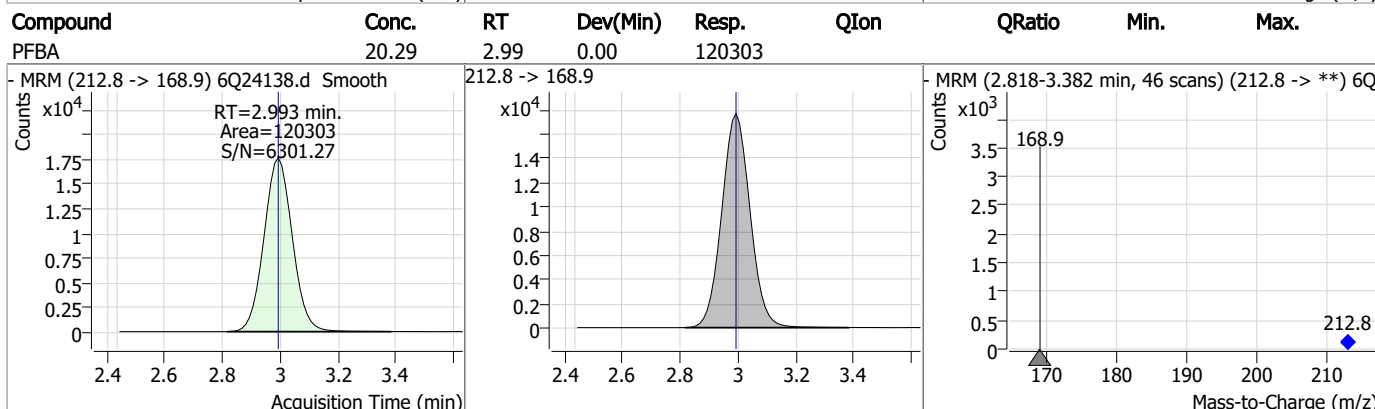
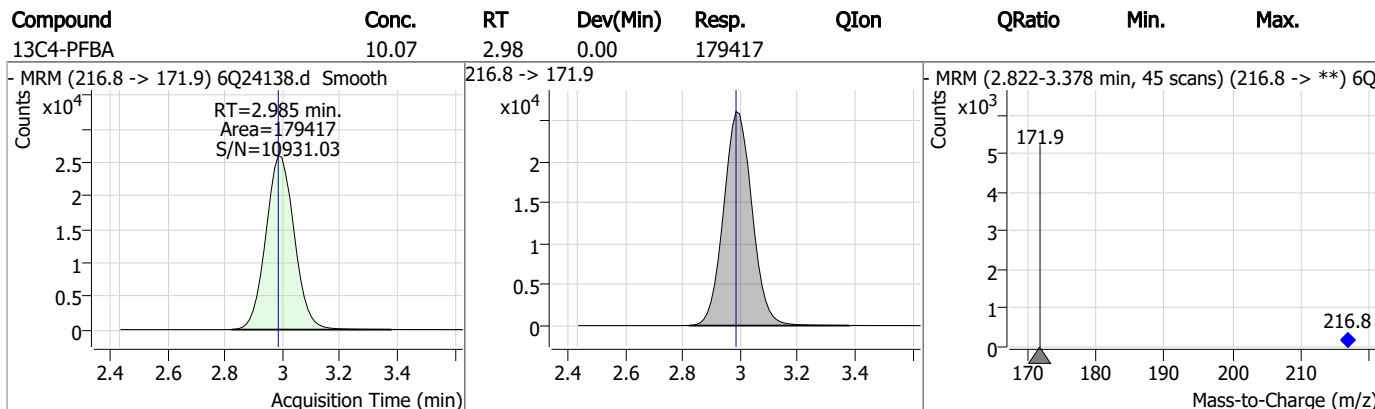
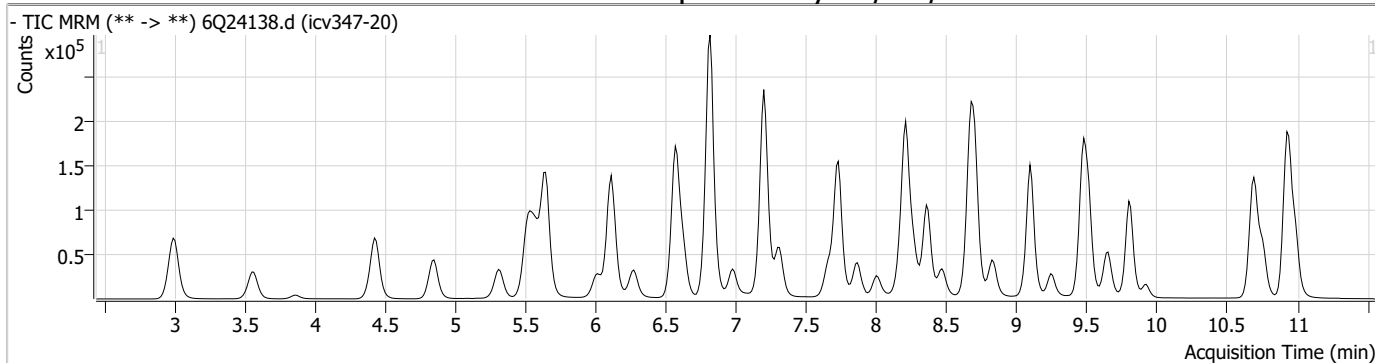
Perfluorinated Compounds by LC/MS/MS

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

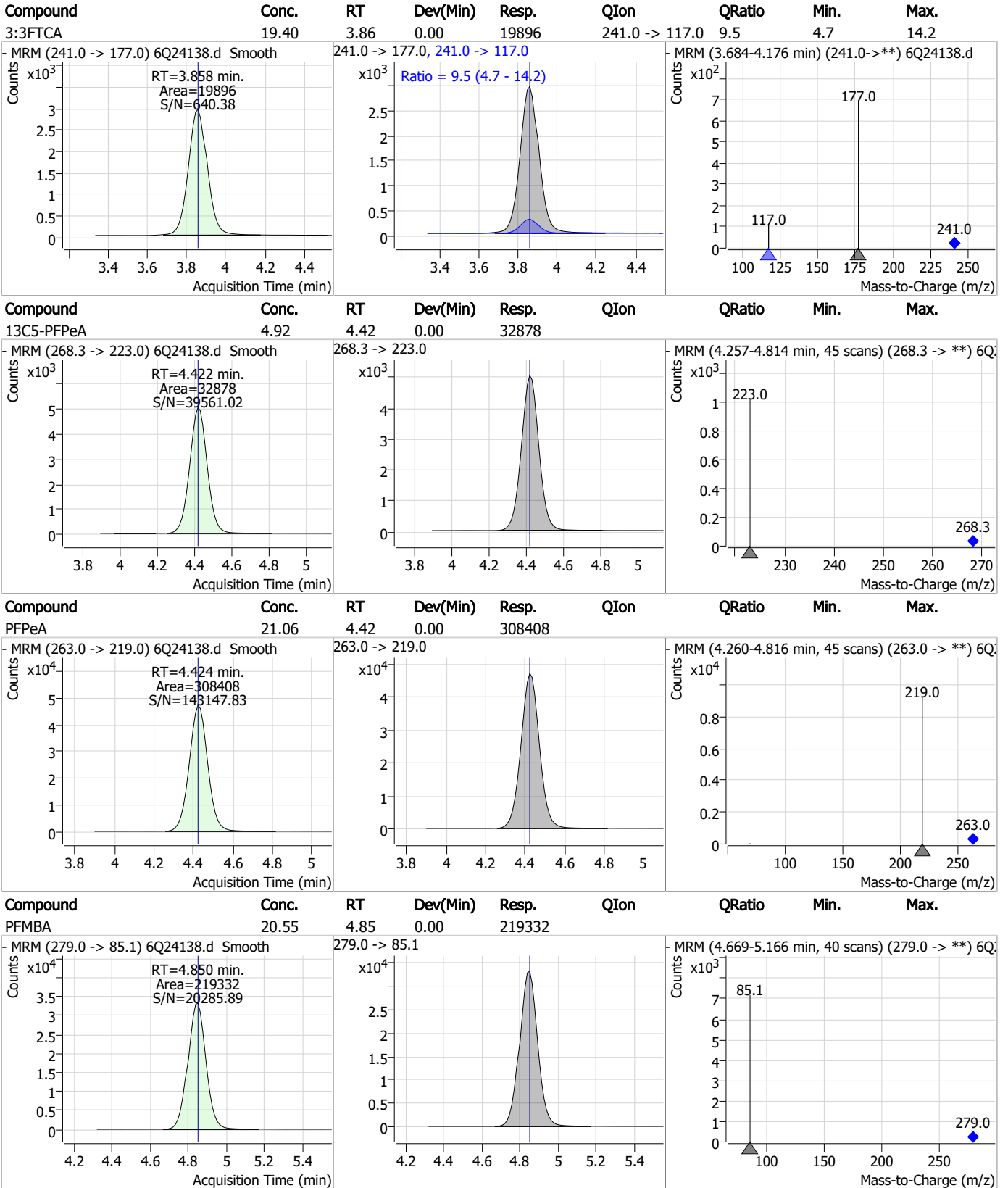
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Perfluorinated Compounds by LC/MS/MS



7.7.11
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Perfluorinated Compounds by LC/MS/MS

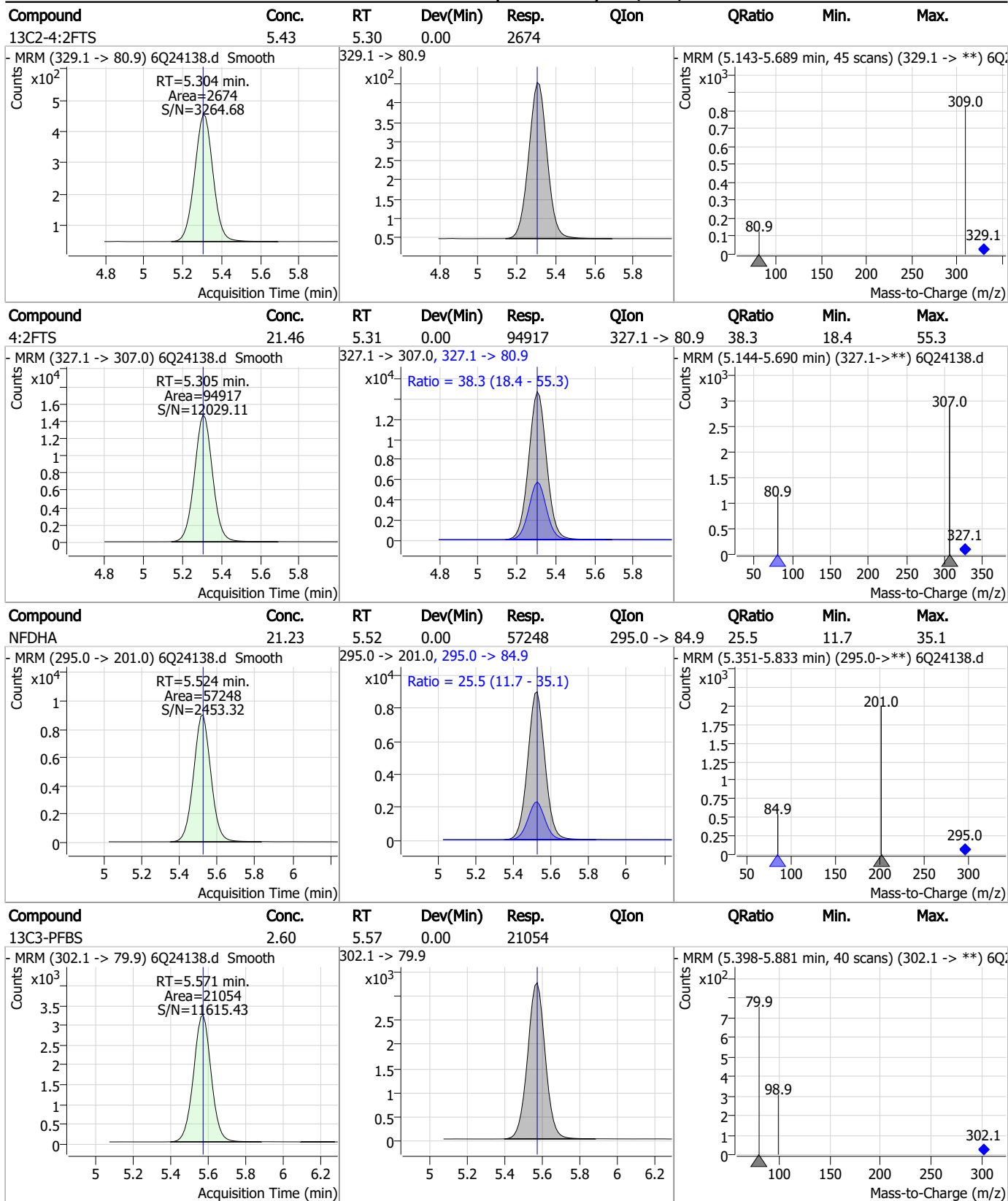


7.7.11

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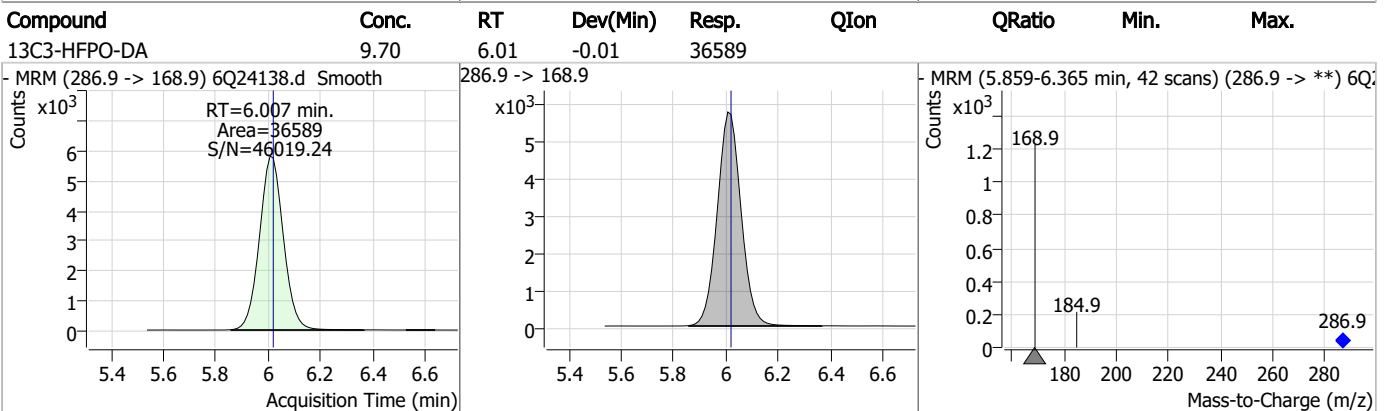
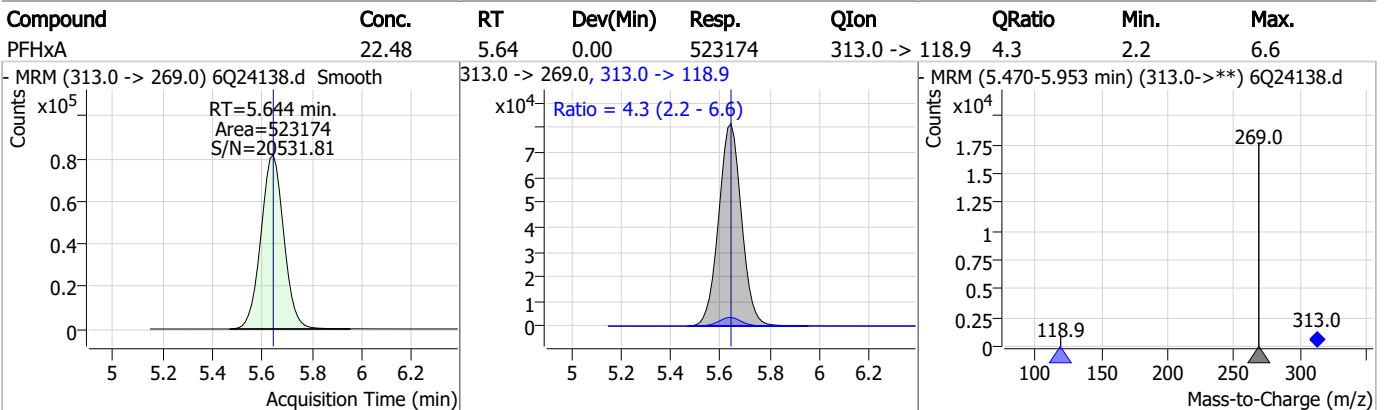
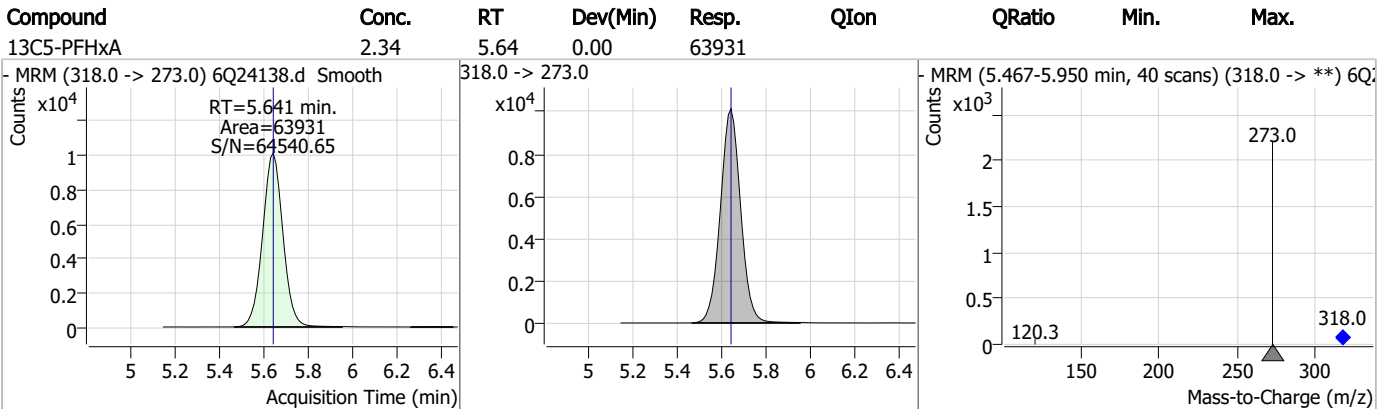
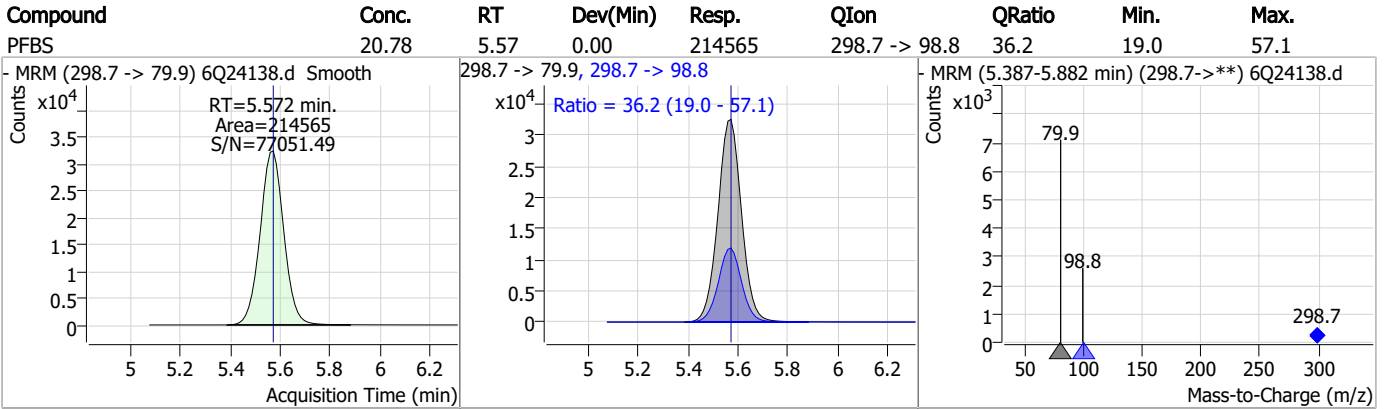


Perfluorinated Compounds by LC/MS/MS



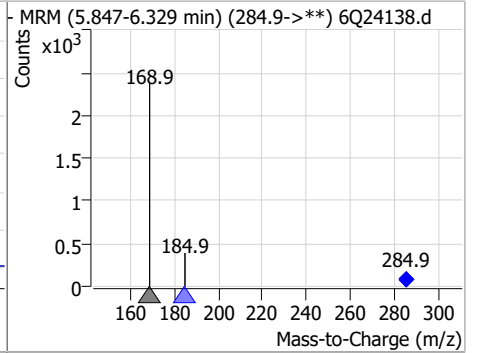
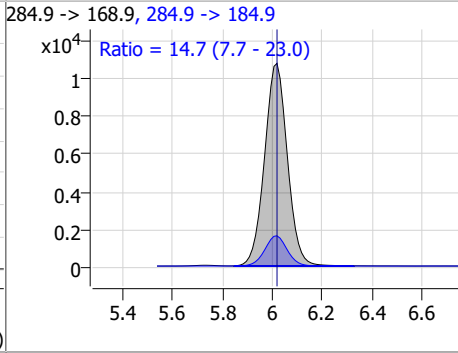
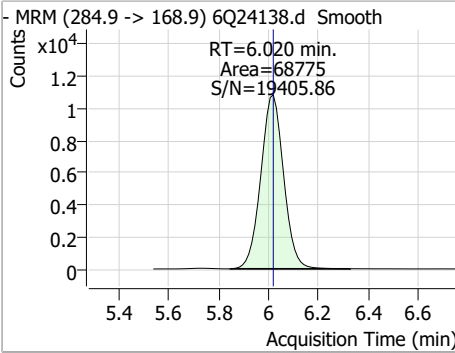
7.7.11
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Perfluorinated Compounds by LC/MS/MS

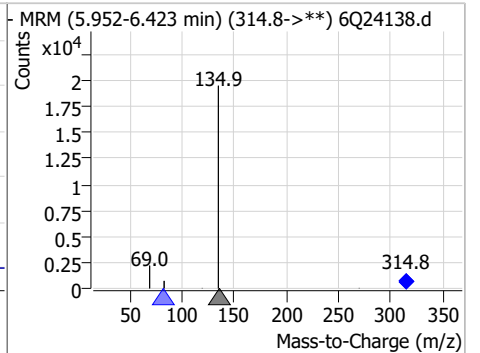
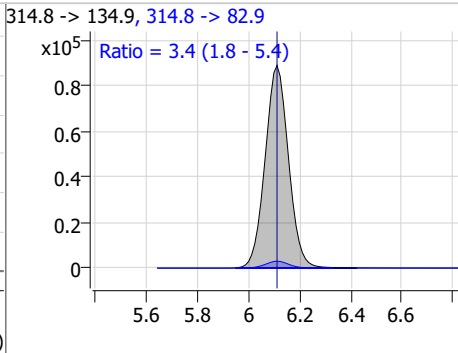
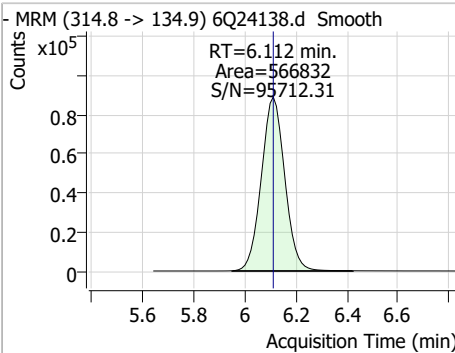


Perfluorinated Compounds by LC/MS/MS

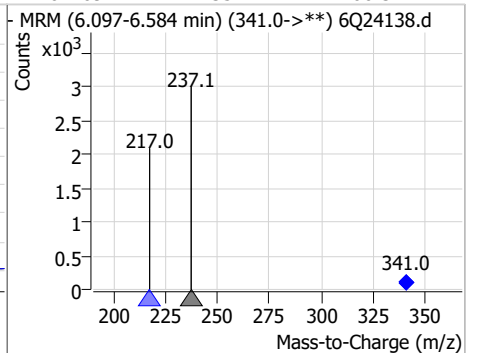
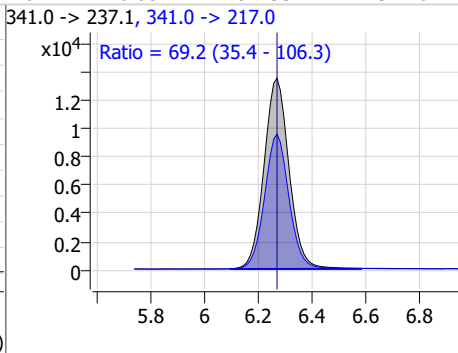
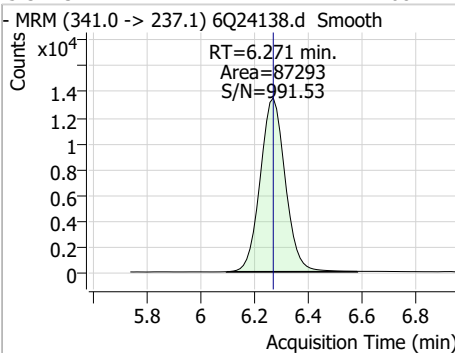
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.86	6.02	0.00	68775	284.9 -> 184.9	14.7	7.7	23.0



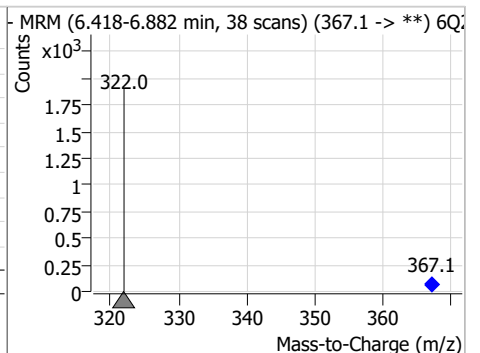
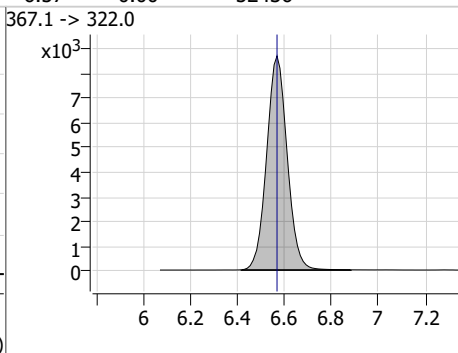
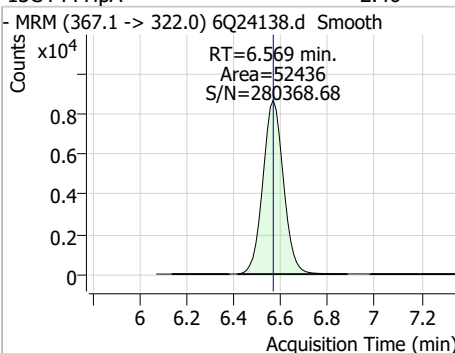
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.49	6.11	0.00	566832	314.8 -> 82.9	3.4	1.8	5.4



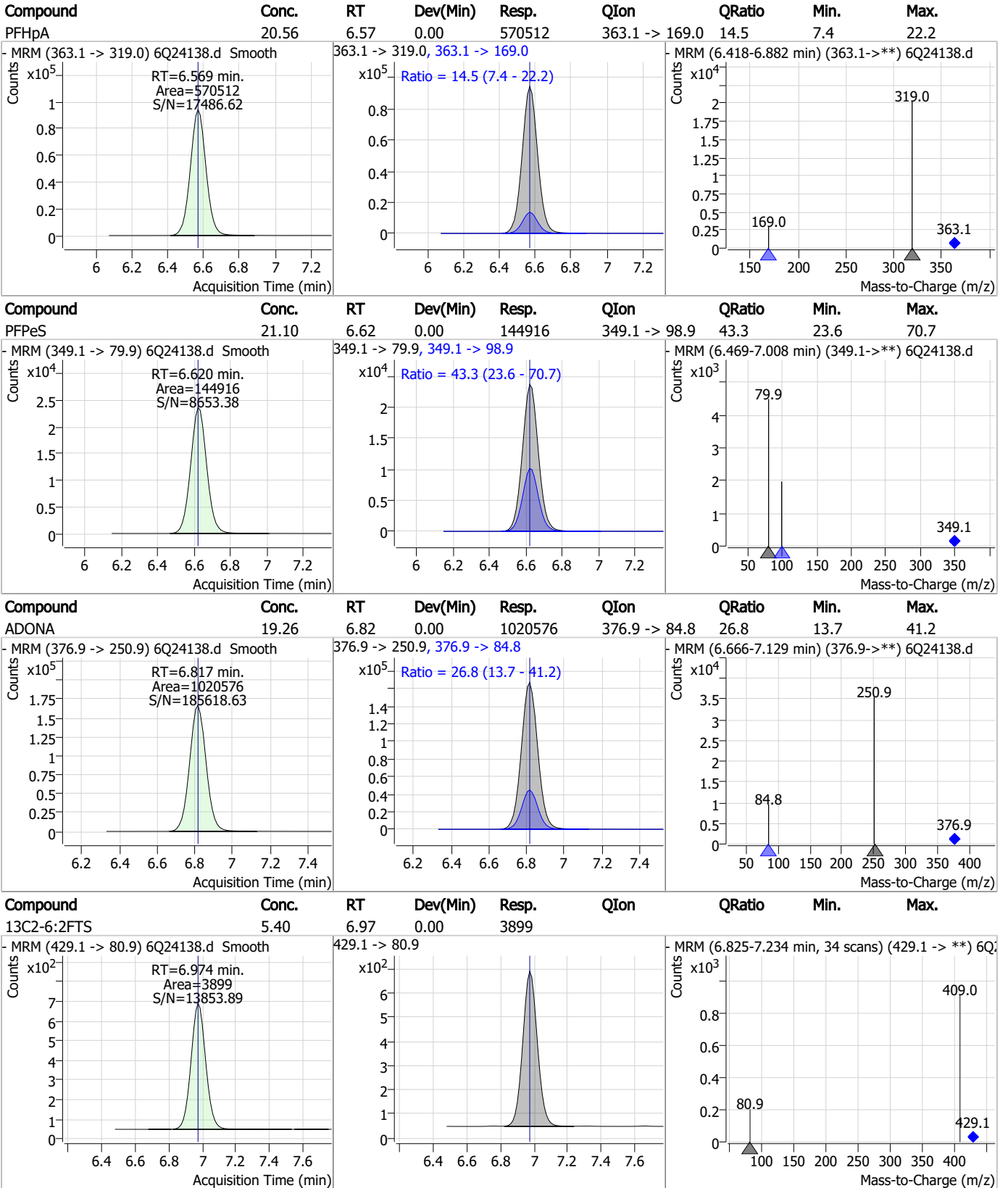
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	22.08	6.27	0.00	87293	341.0 -> 217.0	69.2	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.46	6.57	0.00	52436	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

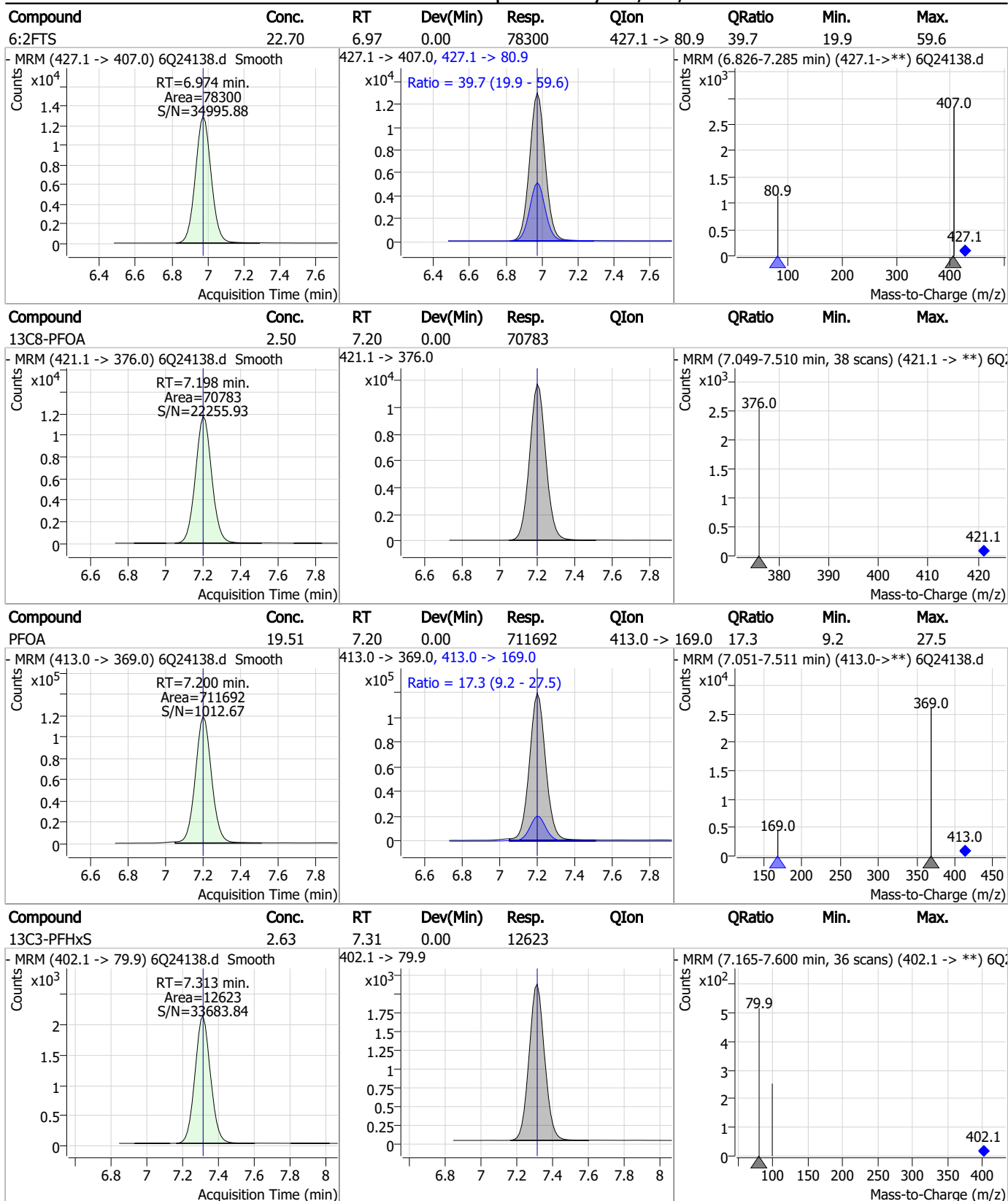


7.7.11

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Perfluorinated Compounds by LC/MS/MS

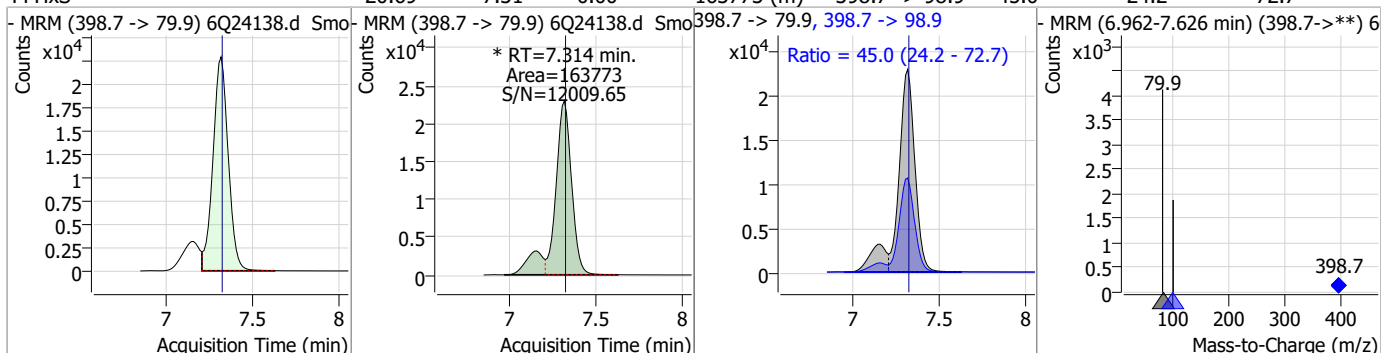


7.7.11

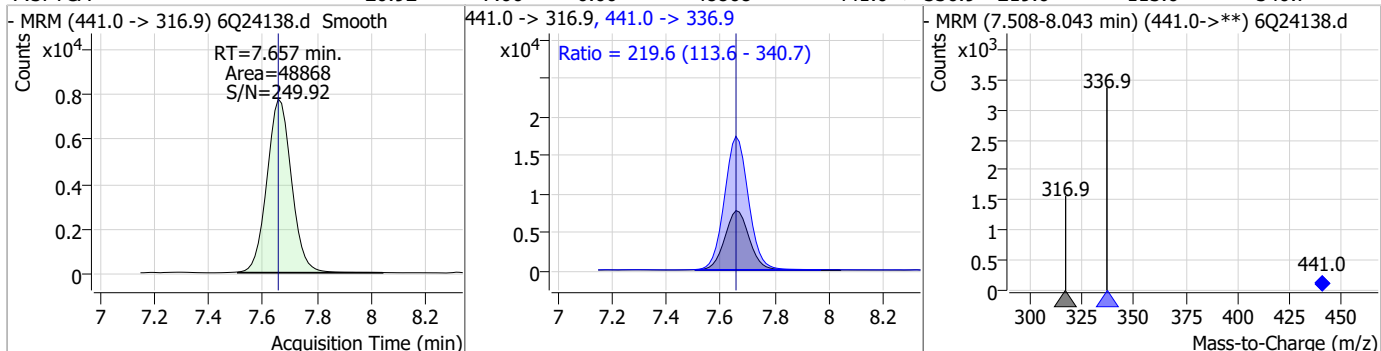
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Perfluorinated Compounds by LC/MS/MS

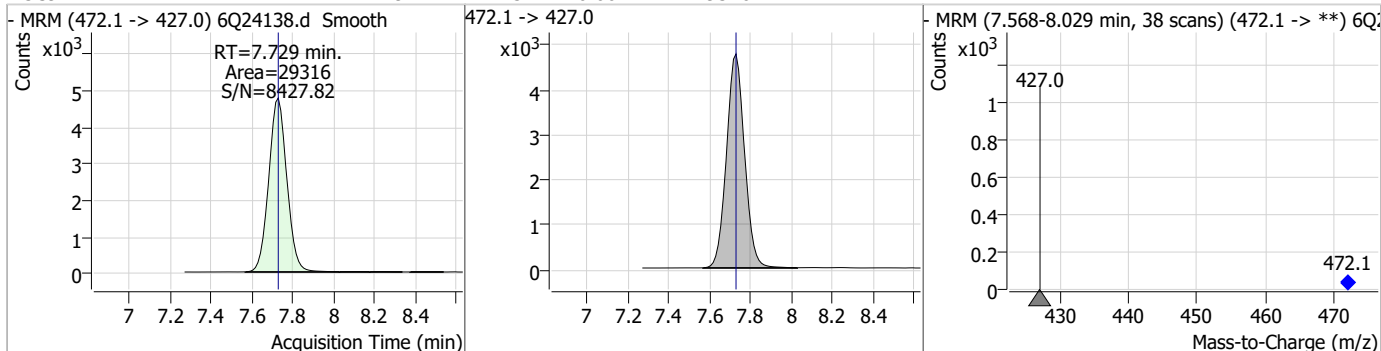
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	20.69	7.31	0.00	163773 (m)	398.7 -> 98.9	45.0	24.2	72.7



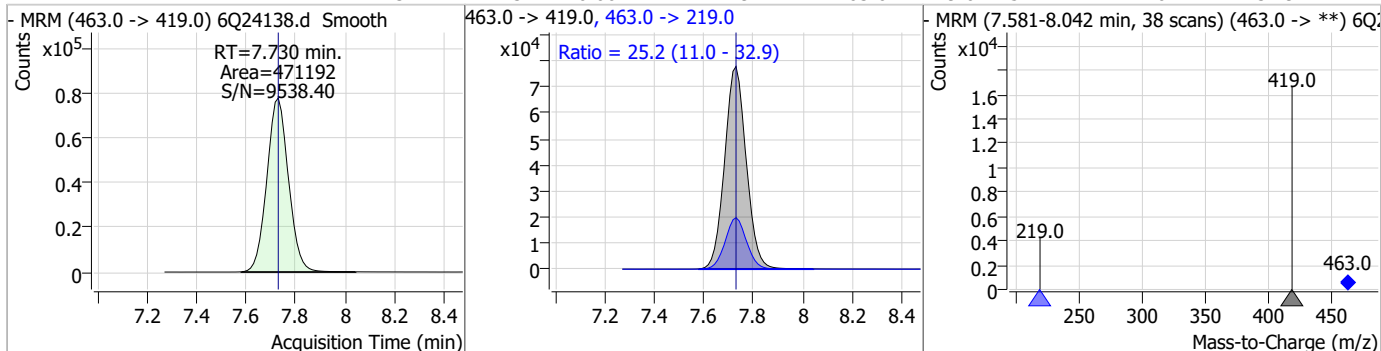
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	20.92	7.66	0.00	48868	441.0 -> 336.9	219.6	113.6	340.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.29	7.73	0.00	29316	472.1 -> 427.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.31	7.73	0.00	471192	463.0 -> 219.0	25.2	11.0	32.9



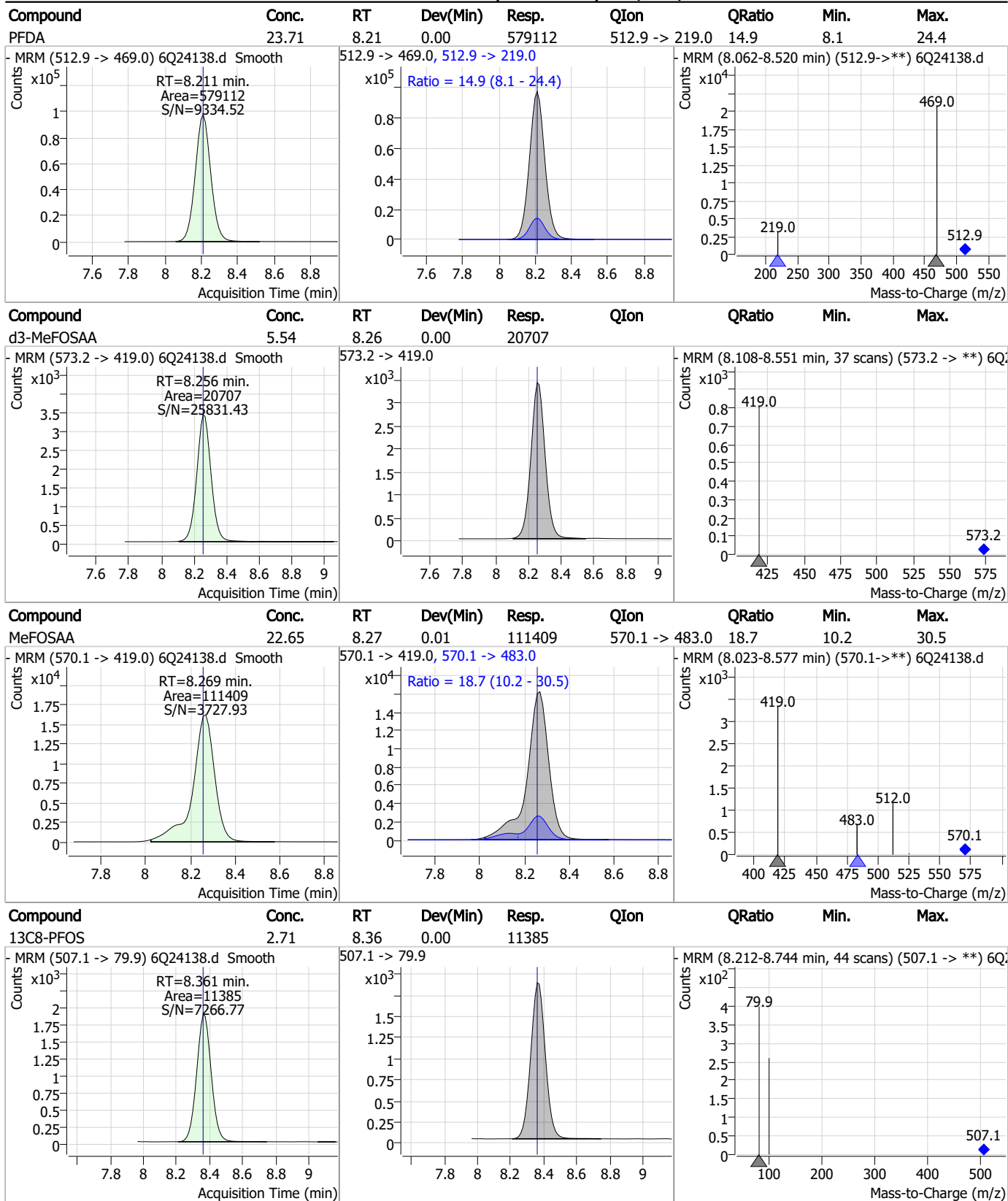
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.53	7.87	0.00	113113	449.0 -> 98.9	47.2	23.4	70.1
13C2-8:2FTS	5.33	8.00	0.00	3992	529.1 -> 80.9			
8:2FTS	19.62	8.00	0.00	52827	527.1 -> 80.8	37.2	19.7	59.0
13C6-PFDA	1.14	8.21	0.00	26815	519.1 -> 474.1			

7.7.11

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Perfluorinated Compounds by LC/MS/MS

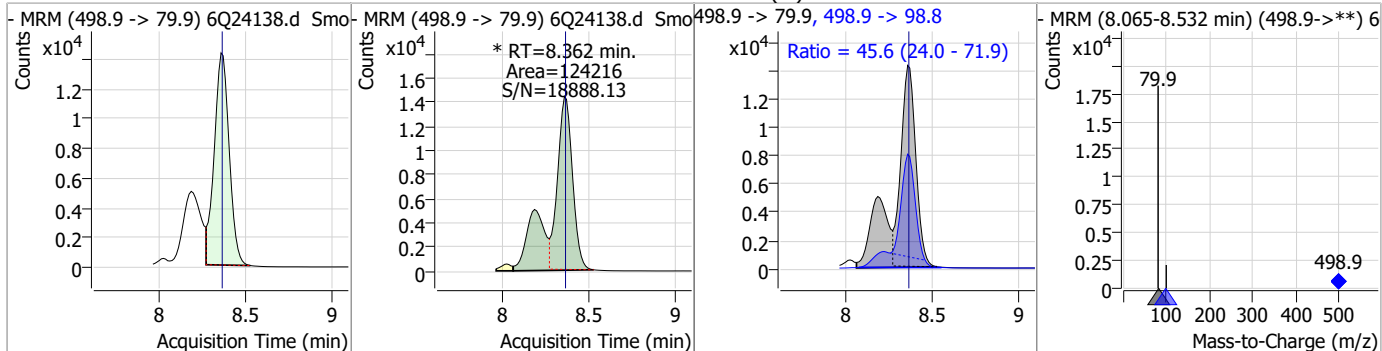


7.7.11

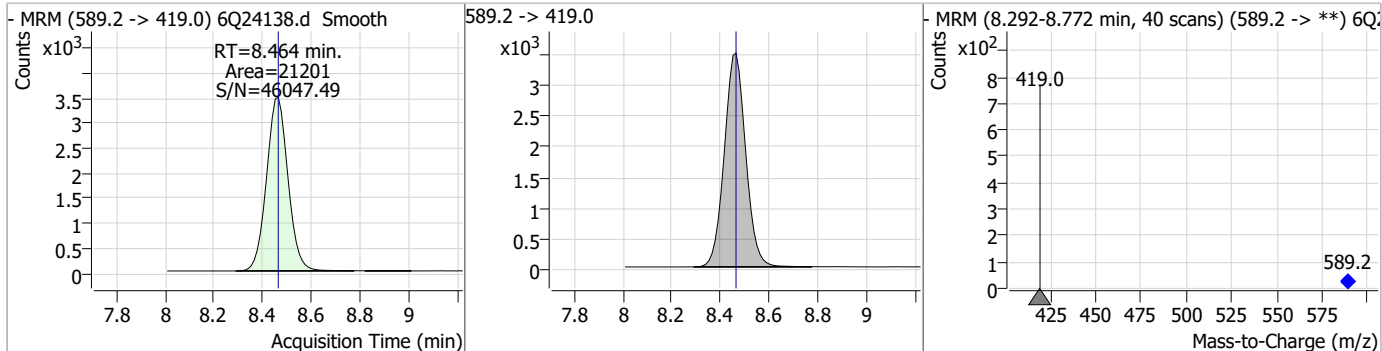
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Perfluorinated Compounds by LC/MS/MS

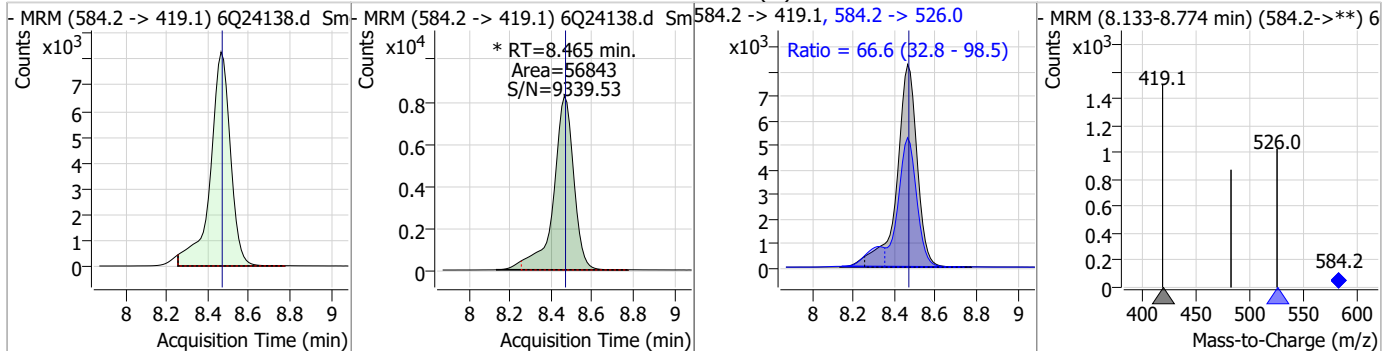
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.69	8.36	0.00	124216 (m)	498.9 -> 98.8	45.6	24.0	71.9



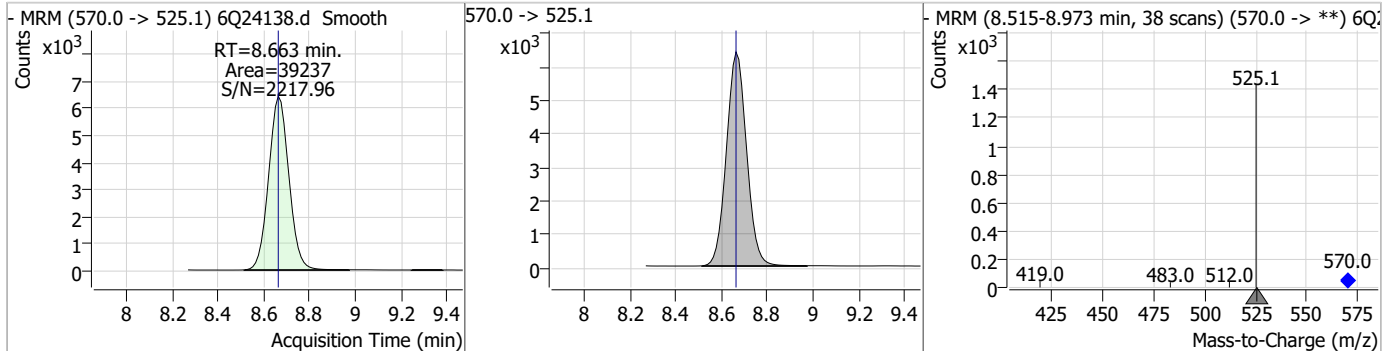
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.90	8.46	0.00	21201				



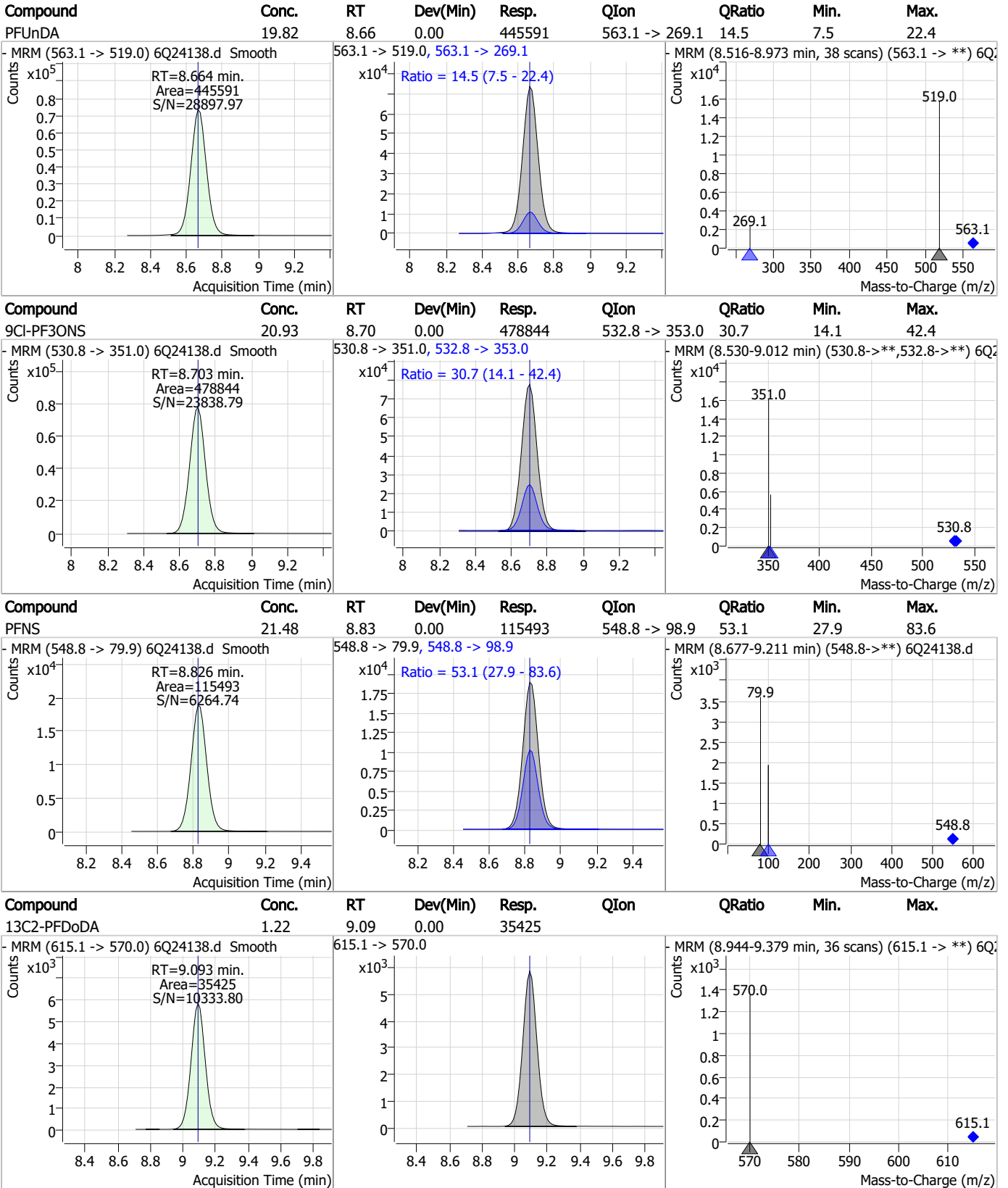
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	18.98	8.46	0.00	56843 (m)	584.2 -> 526.0	66.6	32.8	98.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.24	8.66	0.00	39237				



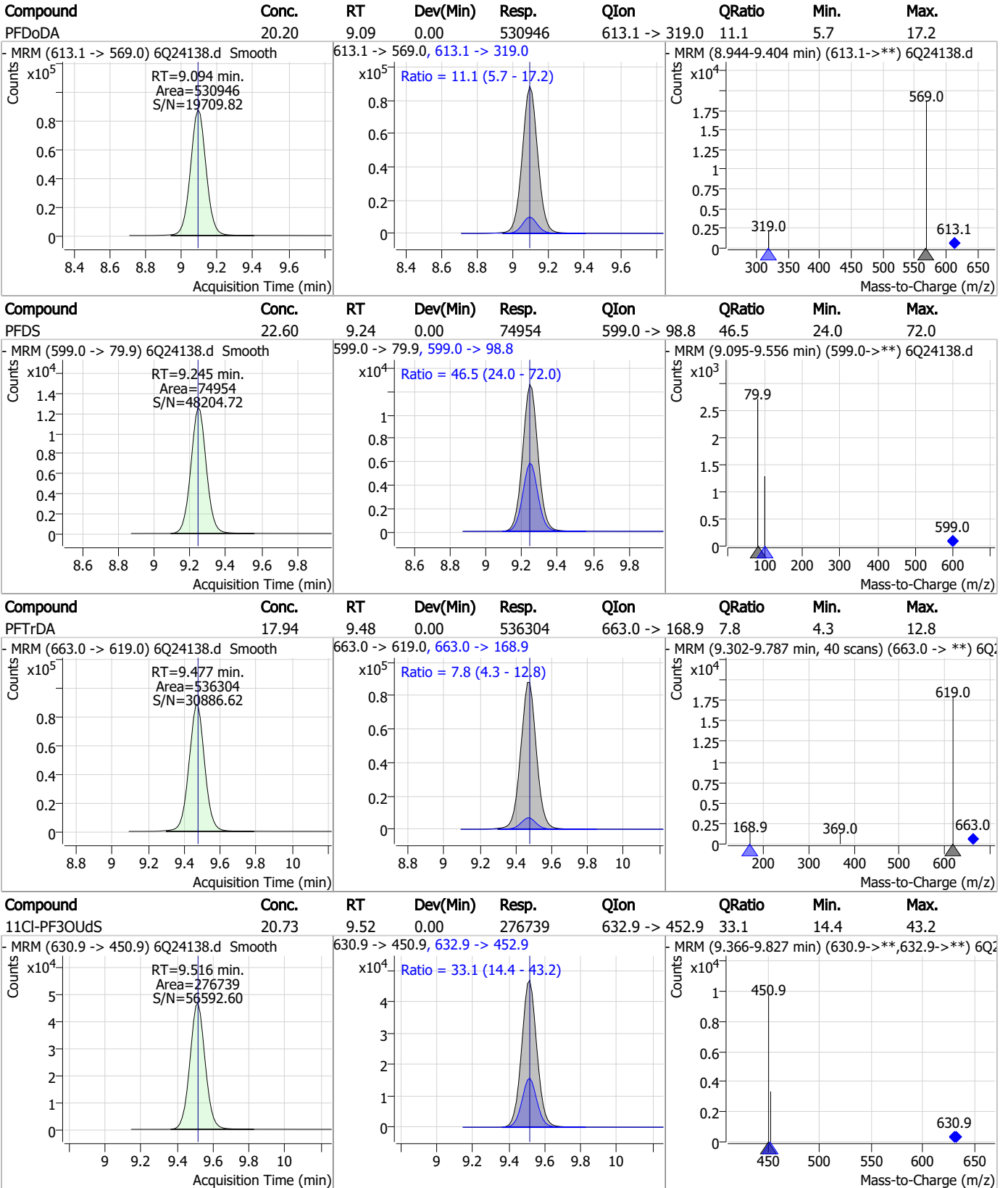
Perfluorinated Compounds by LC/MS/MS



7.7.11

7

Perfluorinated Compounds by LC/MS/MS

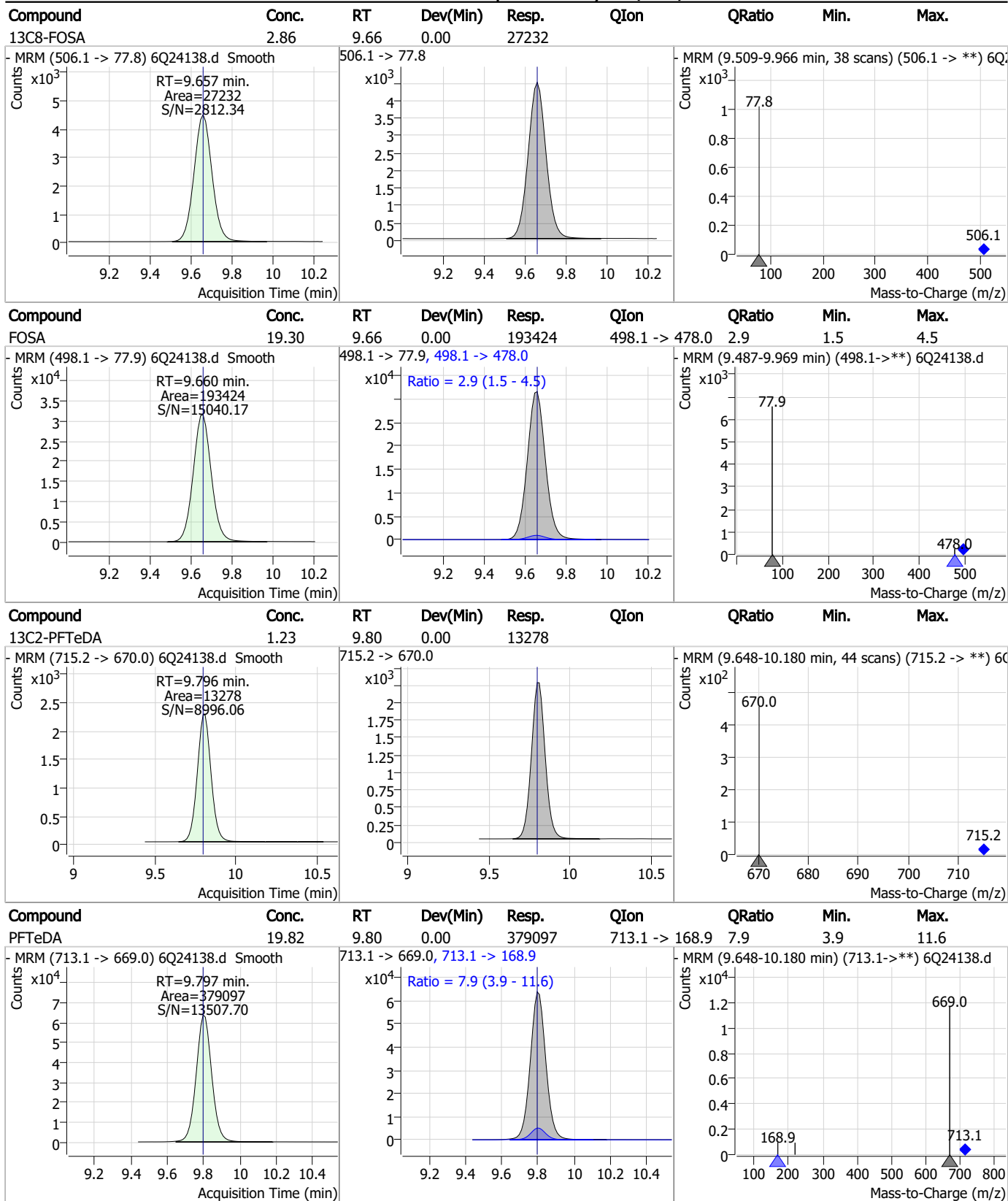


7.7.11

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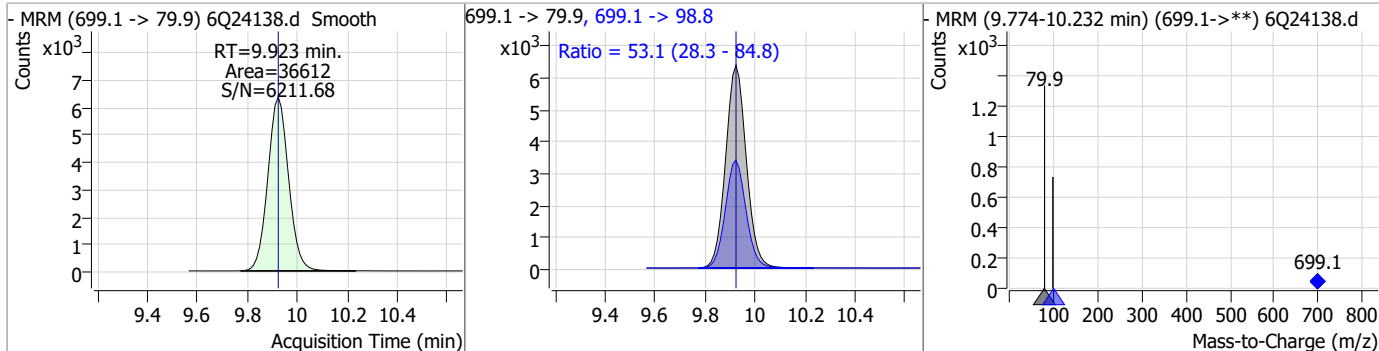
Perfluorinated Compounds by LC/MS/MS



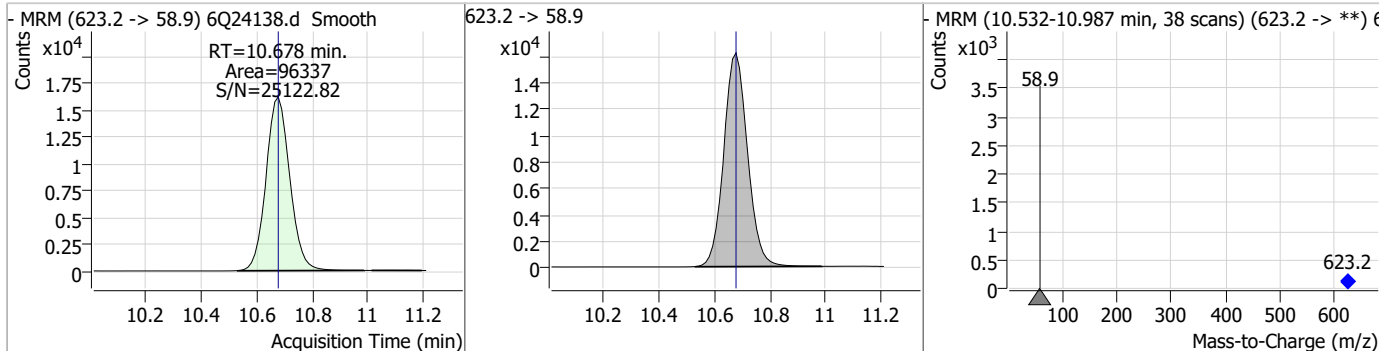
7.7.11
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Perfluorinated Compounds by LC/MS/MS

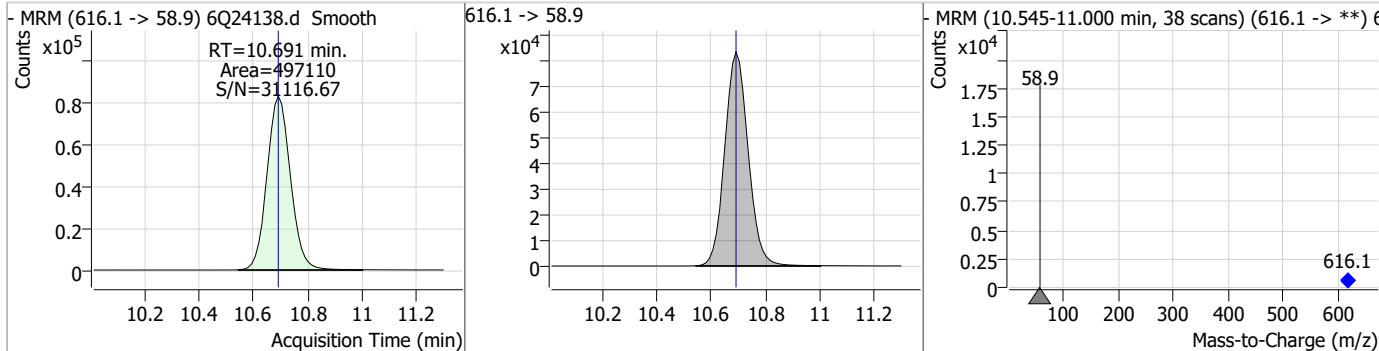
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	20.14	9.92	0.00	36612	699.1 -> 98.8	53.1	28.3	84.8



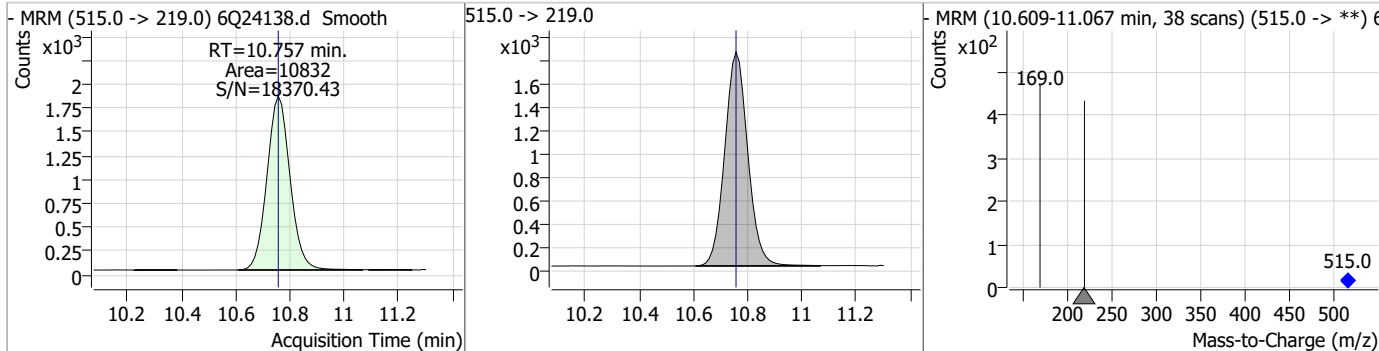
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.43	10.68	0.00	96337				



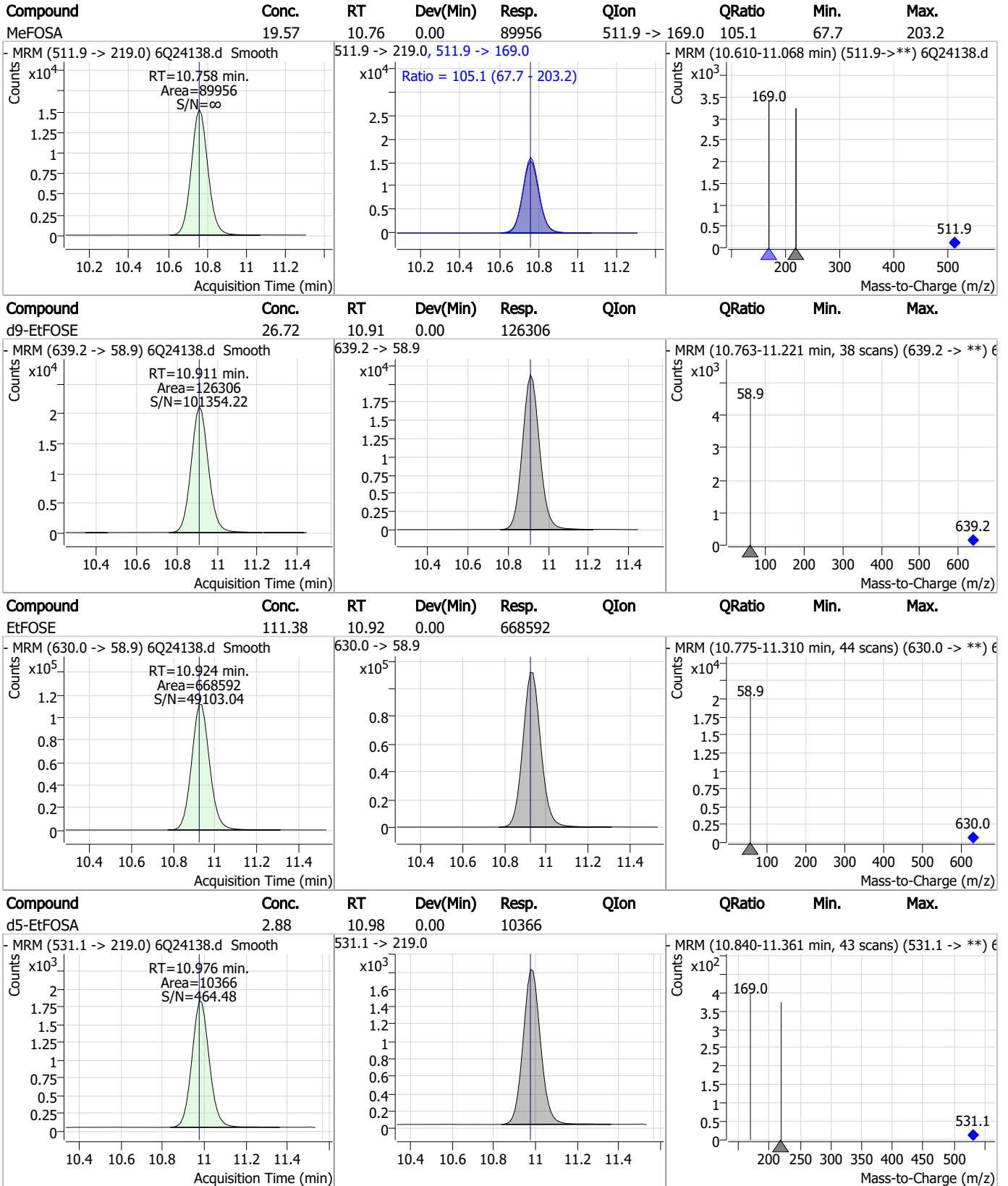
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	119.33	10.69	0.00	497110				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.81	10.76	0.00	10832				



Perfluorinated Compounds by LC/MS/MS

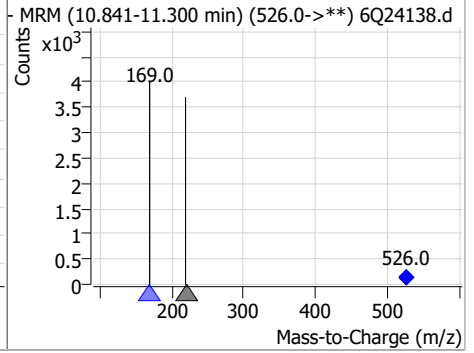
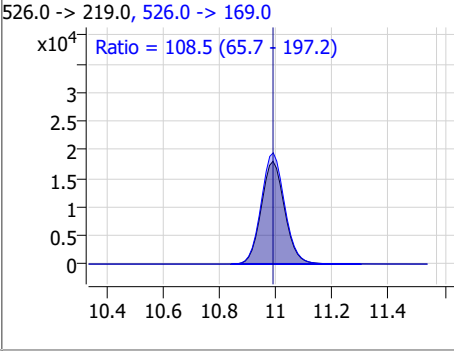
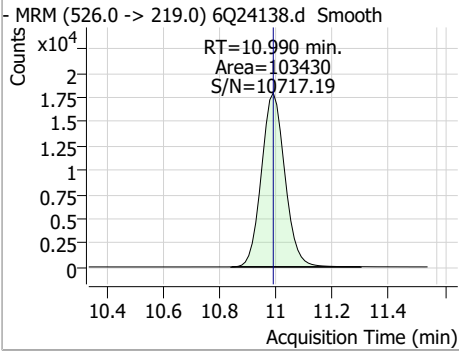


7.7.11

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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	18.34	10.99	0.00	103430	526.0 -> 169.0	108.5	65.7	197.2



7.7.11

7

Manual Integration Approval Summary

Sample Number: S6Q347-ICV347 Method: EPA DRAFT 1633
Lab FileID: 6Q24138.D Analyst approved: 09/10/23 14:26 Martha Valls
Injection Time: 09/09/23 23:09 Supervisor approved: 09/11/23 13:46 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.7.11.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24323.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/12/2023 11:49:25 AM
 Sample Name : cc347-1.0LL
 Vial : P1-A2
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	197885	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	33673	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	77267	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	61645	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	83913	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	33644	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	31889	1.25 µg/L	0.000
M7-PFUnDA	8.676	570.0 -> 525.1	45727	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	40907	1.25 µg/L	0.000
M2-PFTeDA	9.809	715.2 -> 670.0	15584	1.25 µg/L	0.012
M8-FOSA	9.670	506.1 -> 77.8	30728	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	24809	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	13602	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	14652	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2577	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	4005	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3908	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	21666	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	40781	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	20707	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	122239	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	160072	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	11781	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	12178	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17947	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	77064	5.00 µg/L	0.012
18O2-PFHxS	7.325	403.0 -> 83.9	9509	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	86563	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	31123	1.25 µg/L	0.012
13C5-PFNA	7.742	468.0 -> 423.0	40514	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	56427	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2577	4.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-6:2FTS	6.986	429.1 -> 80.9	4005	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3908	4.81 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-PFDoDA	9.093	615.1 -> 570.0	40907	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFTeDA	9.809	715.2 -> 670.0	15584	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFBS	5.584	302.1 -> 79.9	24809	2.82 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.8%		
13C3-PFHxS	7.326	402.1 -> 79.9	13602	2.60 µg/L	0.012

7.7.12
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFBA	2.997	216.8 -> 171.9	197885	10.17 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C4-PFHpA	6.581	367.1 -> 322.0	61645	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFHxA	5.654	318.0 -> 273.0	77267	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFPeA	4.434	268.3 -> 223.0	33673	4.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
13C6-PFDA	8.210	519.1 -> 474.1	31889	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.1%	
13C7-PFUnDA	8.676	570.0 -> 525.1	45727	1.26 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-FOSA	9.670	506.1 -> 77.8	30728	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-PFOA	7.211	421.1 -> 376.0	83913	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C8-PFOS	8.373	507.1 -> 79.9	14652	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C9-PFNA	7.729	472.1 -> 427.0	33644	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.3%	
d3-MeFOSAA	8.268	573.2 -> 419.0	21666	4.32 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.4%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	40781	9.49 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 94.9%	
d3-MeFOSA	10.757	515.0 -> 219.0	12178	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.1%	
d5-EtFOSAA	8.464	589.2 -> 419.0	20707	4.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.8%	
d7-MeFOSE	10.678	623.2 -> 58.9	122239	25.91 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	160072	25.21 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
d5-EtFOSA	10.989	531.1 -> 219.0	11781	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	3224	0.76 µg/L	97
		327.1 -> 80.9	1252		
6:2FTS	6.987	427.1 -> 407.0	2692	0.76 µg/L	96
		427.1 -> 80.9	1004		
8:2FTS	8.012	527.1 -> 507.0	2069	0.78 µg/L	93
		527.1 -> 80.8	728		
EtFOSAA	8.477	584.2 -> 419.1	637	0.22 µg/L	90
		584.2 -> 526.0	470		
FOSA	9.672	498.1 -> 77.9	2256	0.20 µg/L	99
		498.1 -> 478.0	61		
MeFOSAA	8.269	570.1 -> 419.0	1026	0.20 µg/L	96
		570.1 -> 483.0	189		
PFBA	2.993	212.8 -> 168.9	5320	0.81 µg/L	100
PFBS	5.585	298.7 -> 79.9	2080	0.17 µg/L	97
		298.7 -> 98.8	833		
PFDA	8.211	512.9 -> 469.0	5607	0.19 µg/L	94
		512.9 -> 219.0	1065		
PFDODA	9.094	613.1 -> 569.0	5811	0.19 µg/L	98
		613.1 -> 319.0	631		
PFDS	9.245	599.0 -> 79.9	825	0.19 µg/L	97

7.7.12
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	381	0.20	µg/L	95
		363.1 -> 319.0	6524			
PFHpS	7.881	363.1 -> 169.0	1094	0.18	µg/L	89
		449.0 -> 79.9	1263			
PFHxA	5.657	449.0 -> 98.9	685	0.20	µg/L	97
		313.0 -> 269.0	5632			
PFHxS	7.327	313.0 -> 118.9	303	0.21	µg/L	100
		398.7 -> 79.9	1805			
PFNA	7.742	398.7 -> 98.9	870	0.19	µg/L	99
		463.0 -> 419.0	4701			
PFNS	8.838	463.0 -> 219.0	1016	0.19	µg/L	80
		548.8 -> 79.9	1307			
PFOA	7.212	548.8 -> 98.9	536	0.16	µg/L	100
		413.0 -> 369.0	7107			
PFOS	8.374	413.0 -> 169.0	1313	0.21	µg/L	96
		498.9 -> 79.9	1690			
PFPeA	4.436	498.9 -> 98.8	857	0.42	µg/L	100
		263.0 -> 219.0	6242			
PFPeS	6.633	349.1 -> 79.9	1363	0.18	µg/L	98
		349.1 -> 98.9	620			
PFTeDA	9.797	713.1 -> 669.0	3989	0.18	µg/L	94
		713.1 -> 168.9	385			
PFTrDA	9.477	663.0 -> 619.0	5884	0.17	µg/L	96
		663.0 -> 168.9	596			
PFUnDA	8.676	563.1 -> 519.0	5185	0.20	µg/L	98
		563.1 -> 269.1	826			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	5940	0.40	µg/L	98
		632.9 -> 452.9	1781			
9Cl-PF3ONS	8.703	530.8 -> 351.0	10369	0.41	µg/L	81
		532.8 -> 353.0	1890			
ADONA	6.829	376.9 -> 250.9	22656	0.38	µg/L	99
		376.9 -> 84.8	6068			
HFPO-DA	6.032	284.9 -> 168.9	1589	0.41	µg/L	95
		284.9 -> 184.9	210			
3:3FTCA	3.871	241.0 -> 177.0	1017	0.90	µg/L	96
		241.0 -> 117.0	109			
5:3FTCA	6.283	341.0 -> 237.1	22183	4.64	µg/L	98
		341.0 -> 217.0	15367			
7:3FTCA	7.669	441.0 -> 316.9	13747	4.87	µg/L	90
		441.0 -> 336.9	28960			
EtFOSA	10.990	526.0 -> 219.0	2537	0.40	µg/L	94
		526.0 -> 169.0	3143			
EtFOSE	10.937	630.0 -> 58.9	7722	1.02	µg/L	100
		511.9 -> 219.0	2132			
MeFOSA	10.758	511.9 -> 169.0	2865	0.41	µg/L	99
		616.1 -> 58.9	4926			
MeFOSE	10.703	699.1 -> 79.9	436	0.93	µg/L	100
		699.1 -> 98.8	198			
PFDoDS	9.923	295.0 -> 201.0	1221	0.19	µg/L	85
		295.0 -> 84.9	304			
NFDHA	5.535	279.0 -> 85.1	4637	0.37	µg/L	97
		229.0 -> 84.9	3317			
PFMBA	4.863	314.8 -> 134.9	12333	0.42	µg/L	100
		314.8 -> 82.9	347			
PFMPA	3.563			0.42	µg/L	100
PFEESA	6.124			0.35	µg/L	98

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



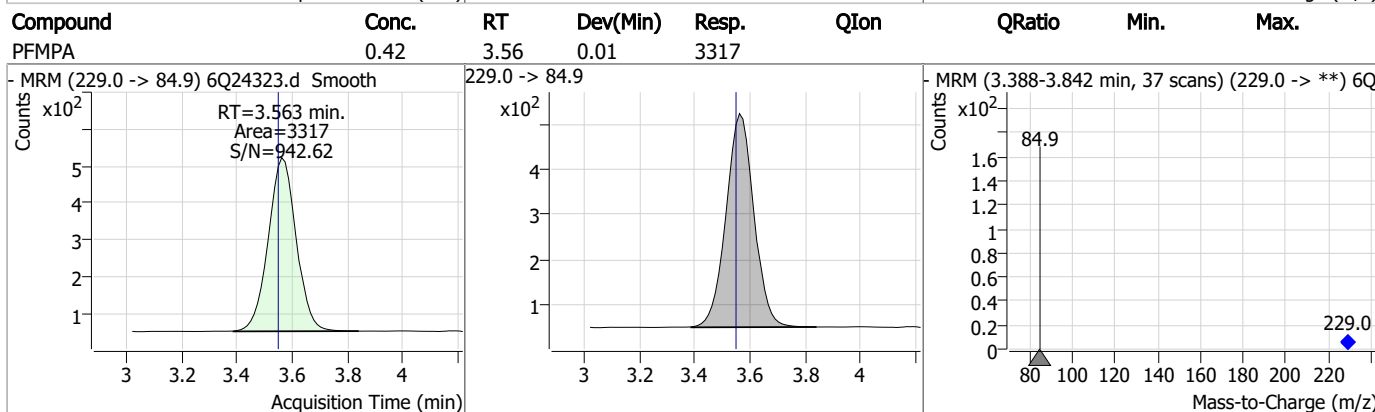
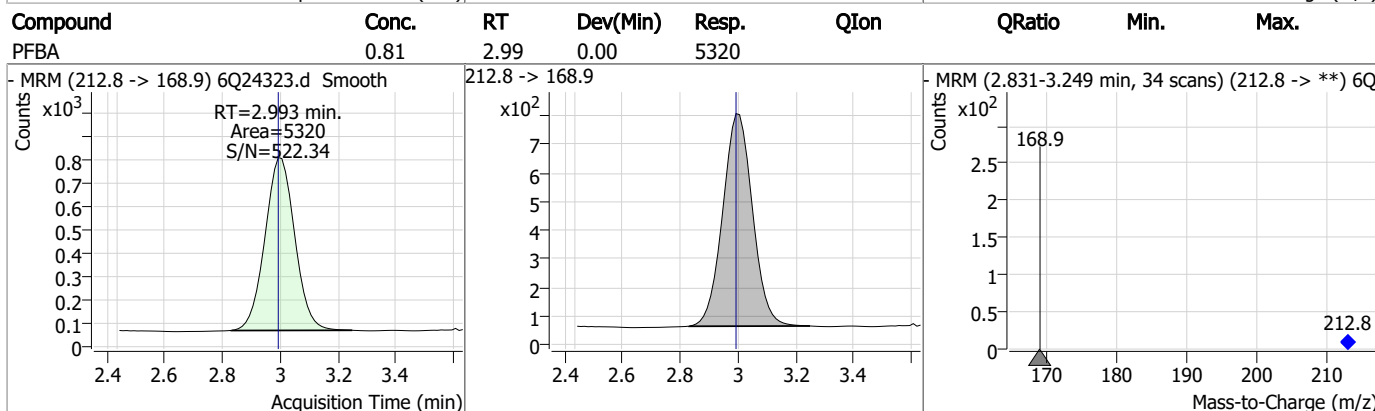
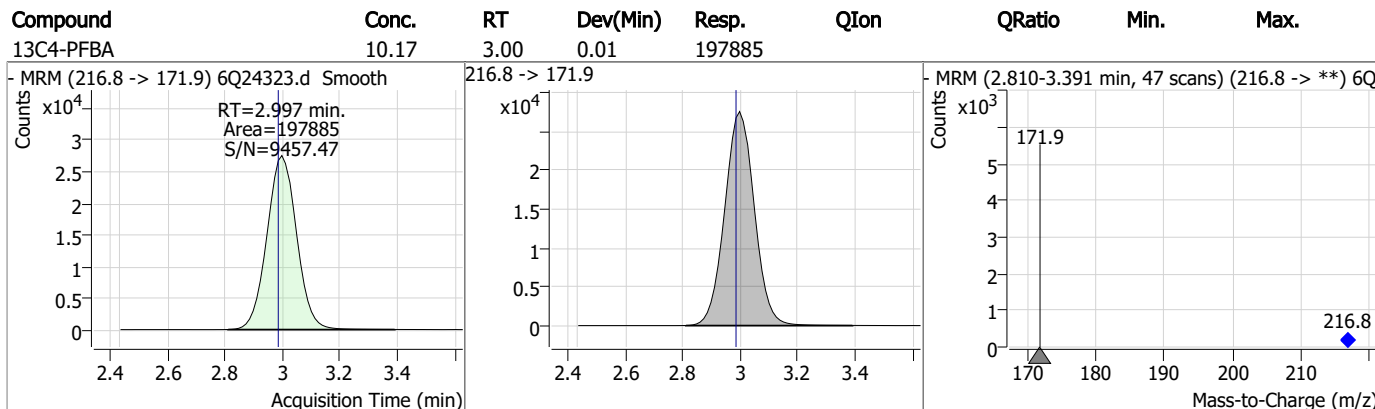
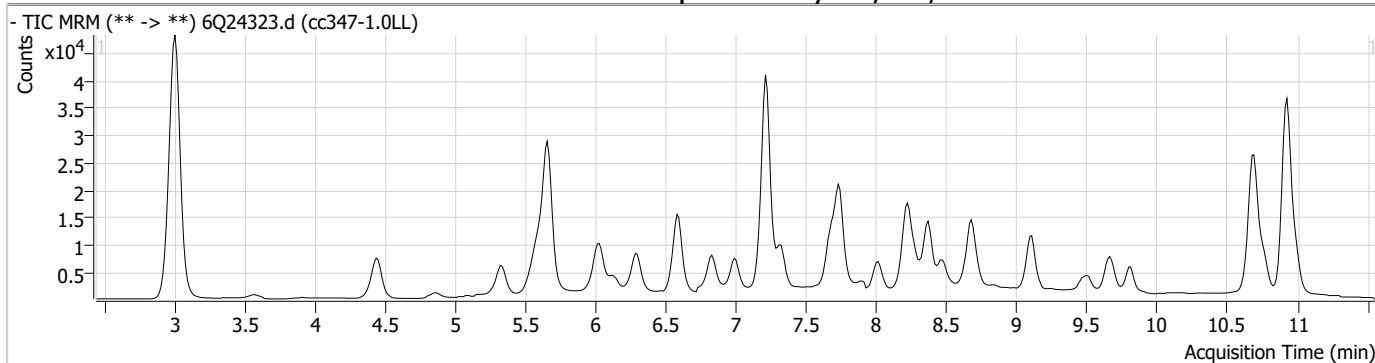
Perfluorinated Compounds by LC/MS/MS

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

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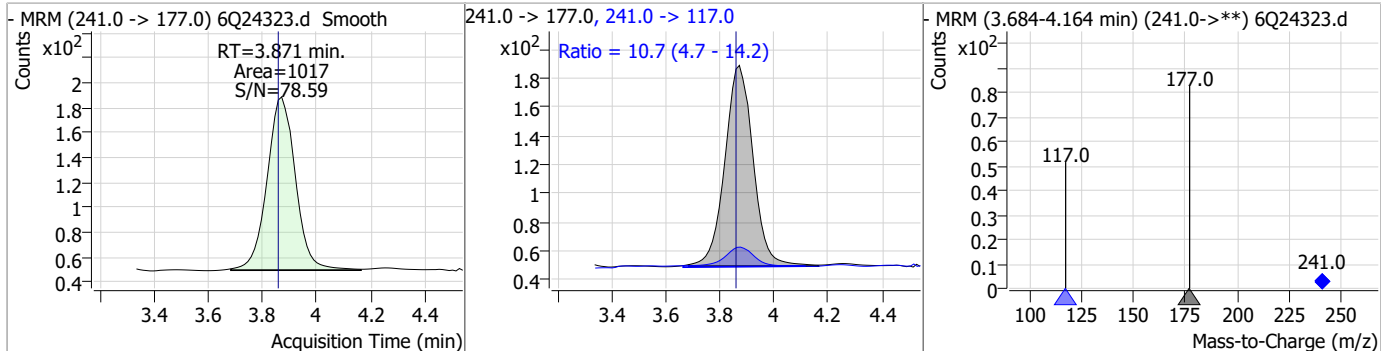
Perfluorinated Compounds by LC/MS/MS



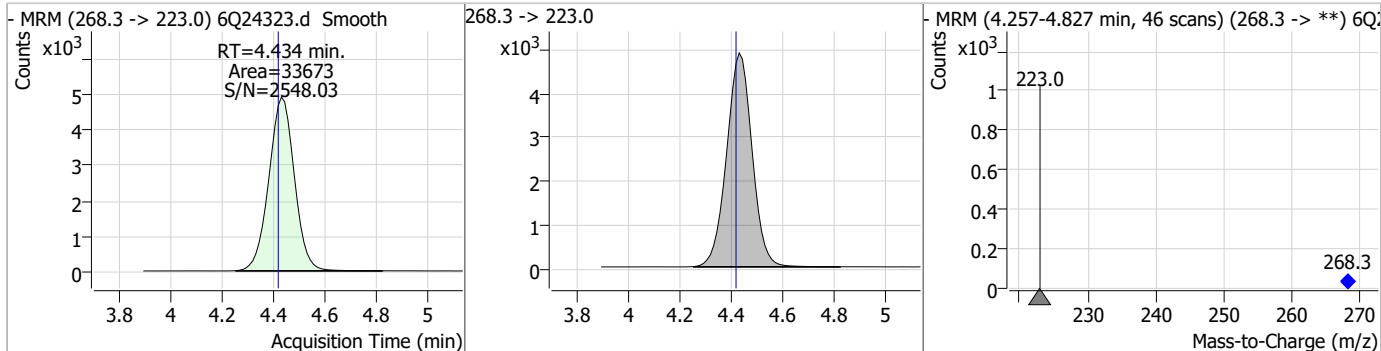
7.7.12
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Perfluorinated Compounds by LC/MS/MS

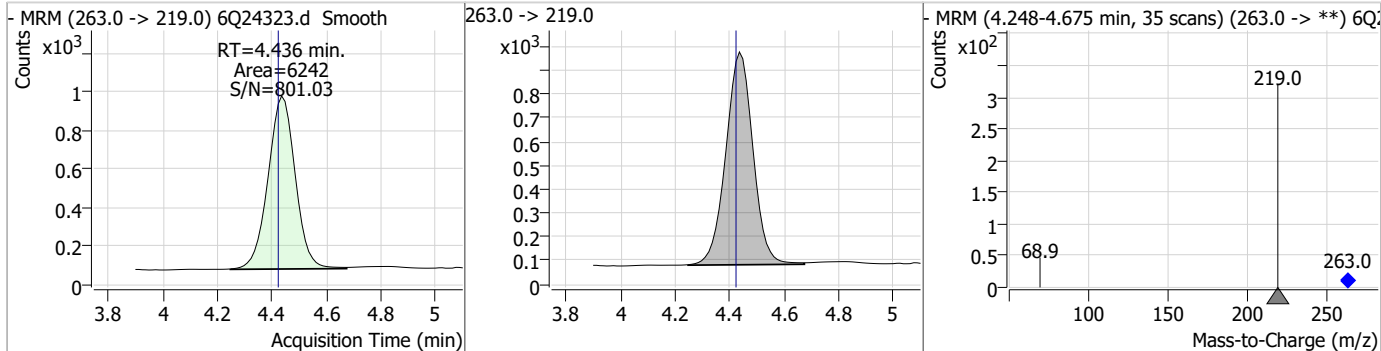
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	0.90	3.87	0.01	1017	241.0 -> 117.0	10.7	4.7	14.2



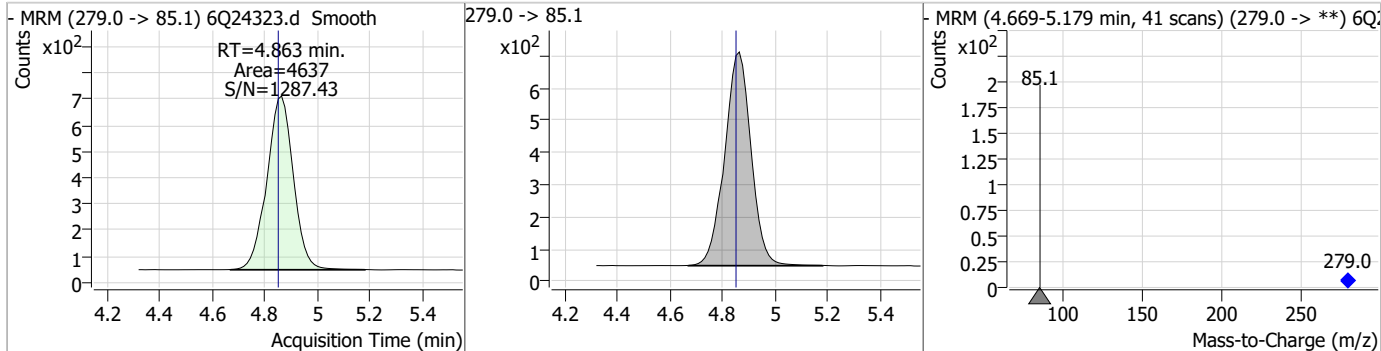
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.43	4.43	0.01	33673				



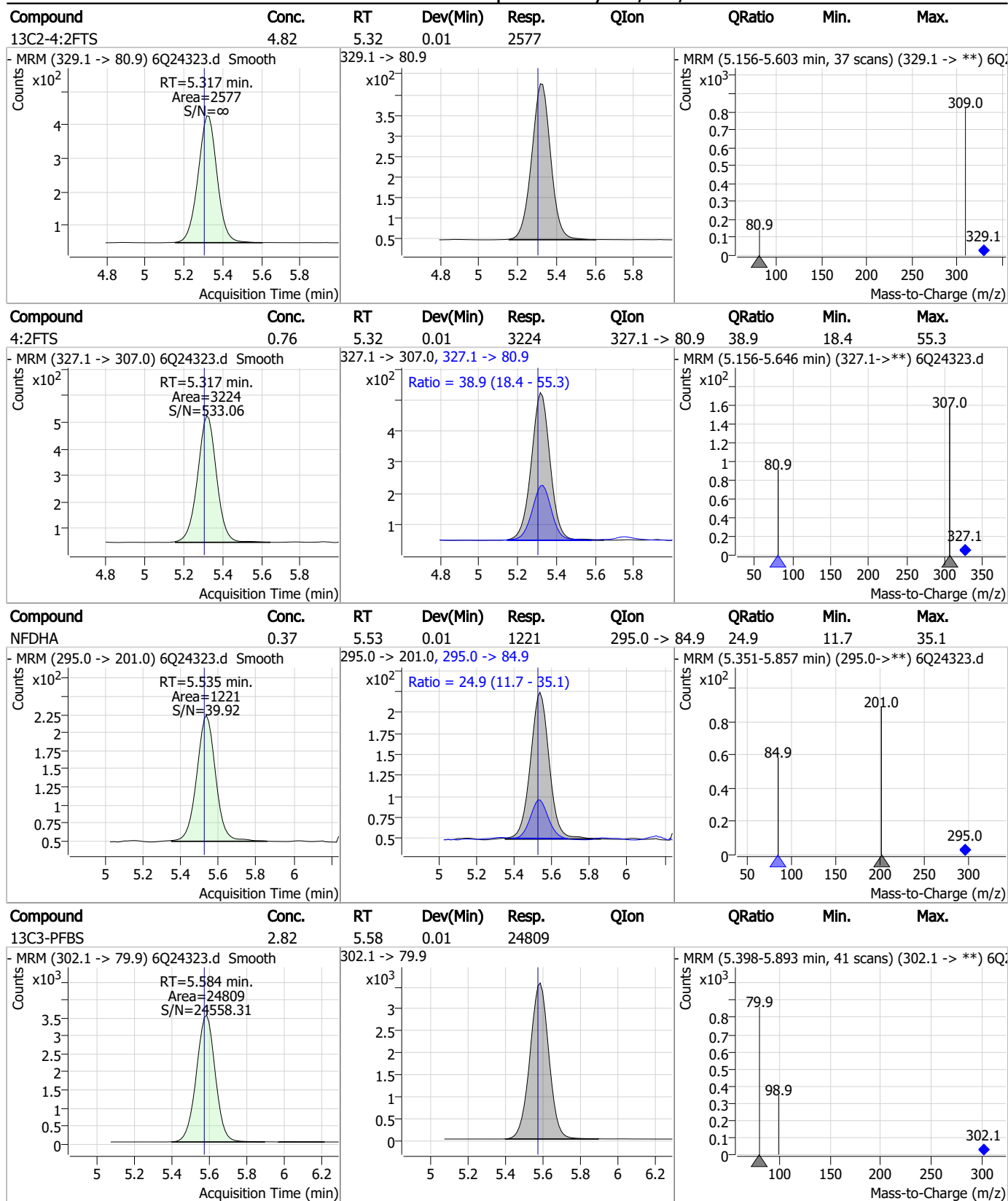
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.42	4.44	0.01	6242				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.42	4.86	0.01	4637				

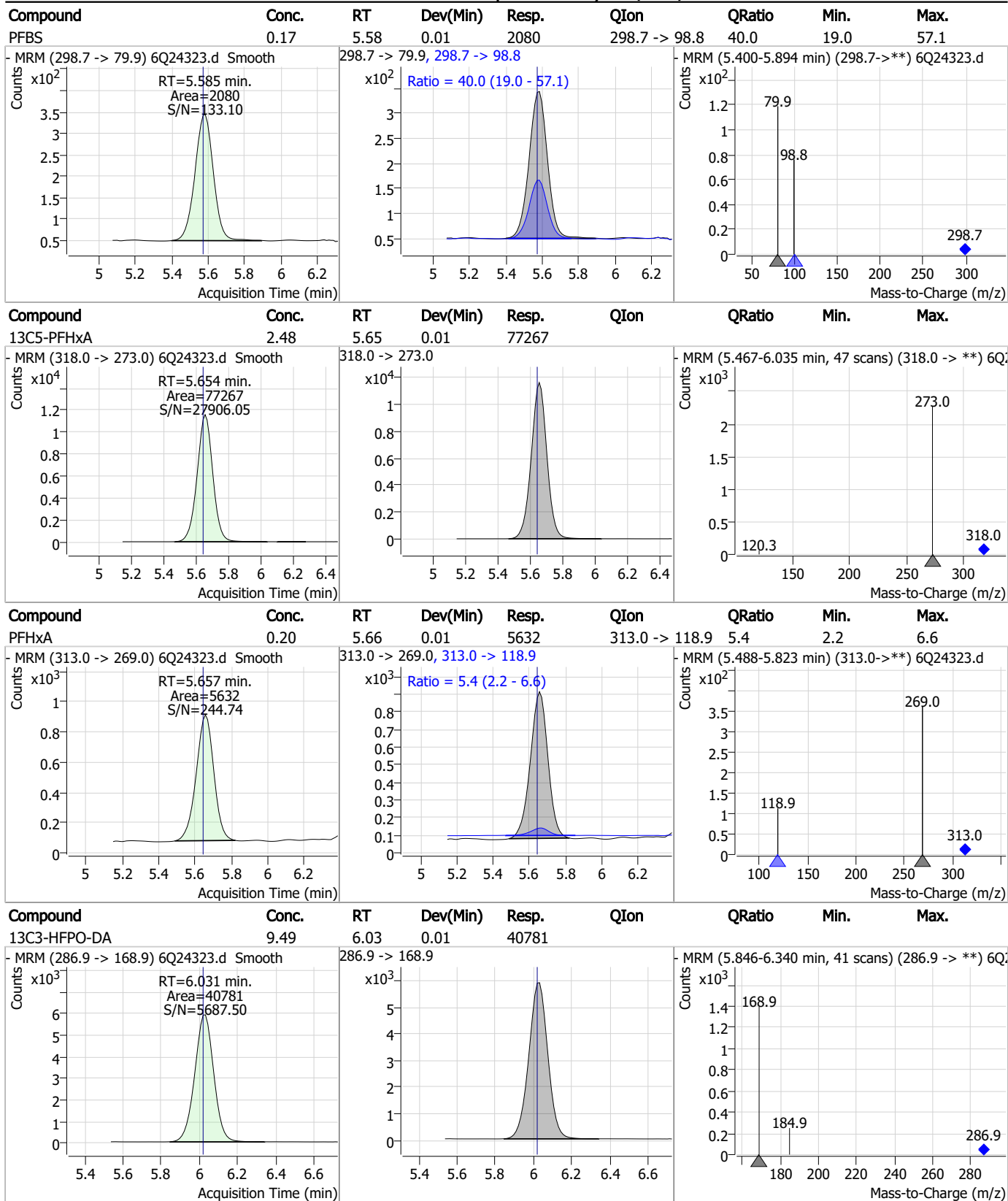


Perfluorinated Compounds by LC/MS/MS



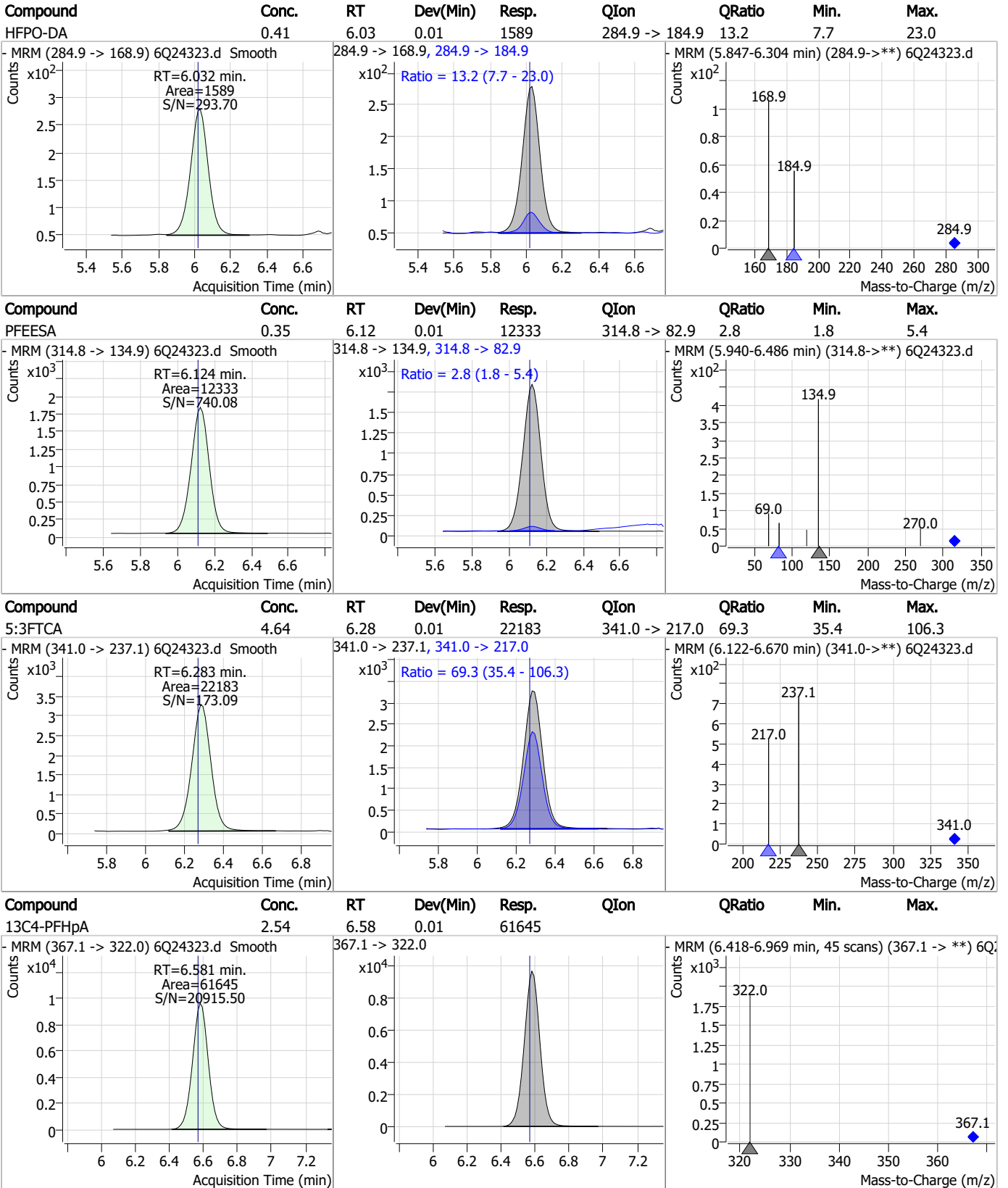
7.7.12
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Perfluorinated Compounds by LC/MS/MS



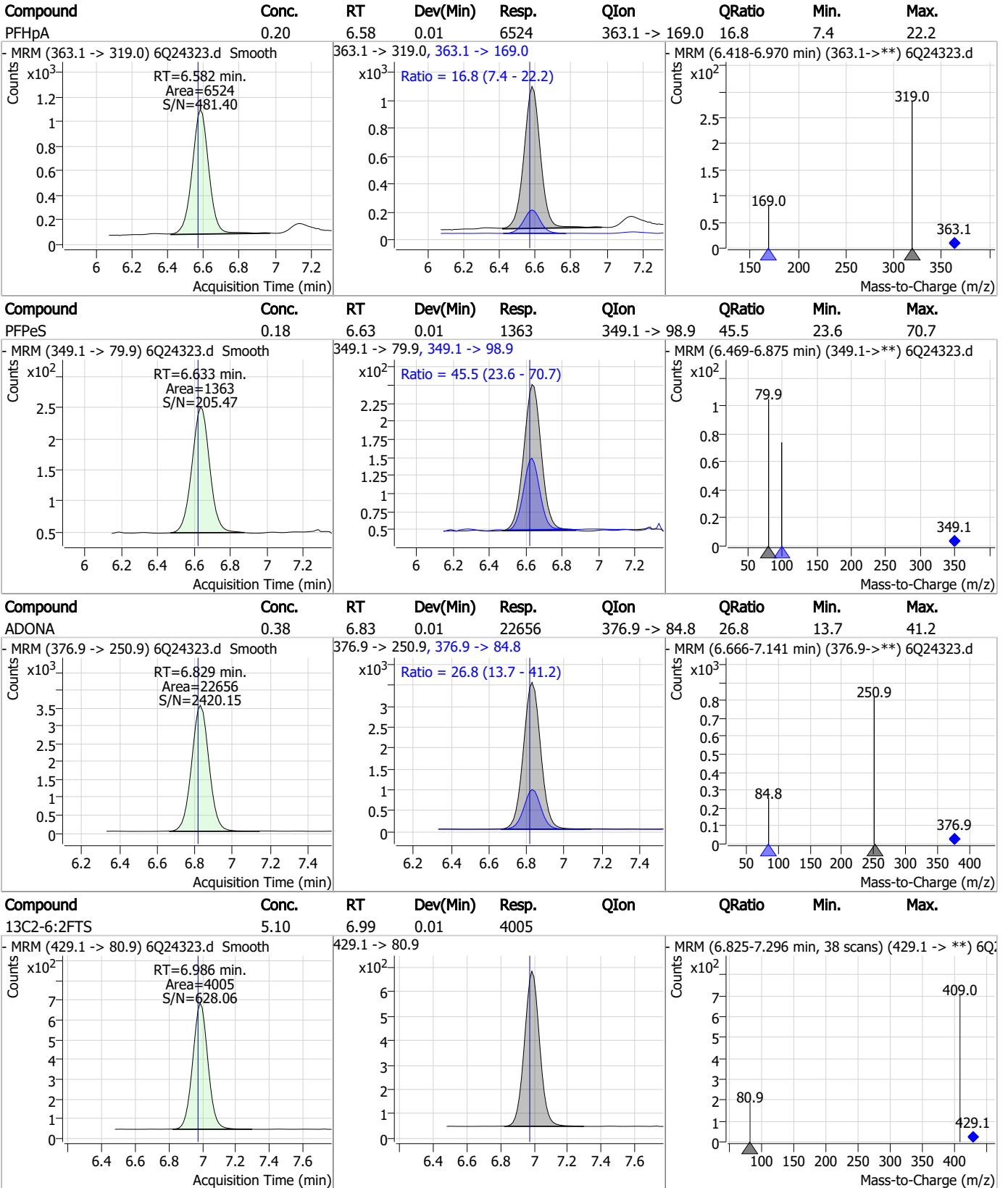
7.7.12
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Perfluorinated Compounds by LC/MS/MS



7.7.12 7

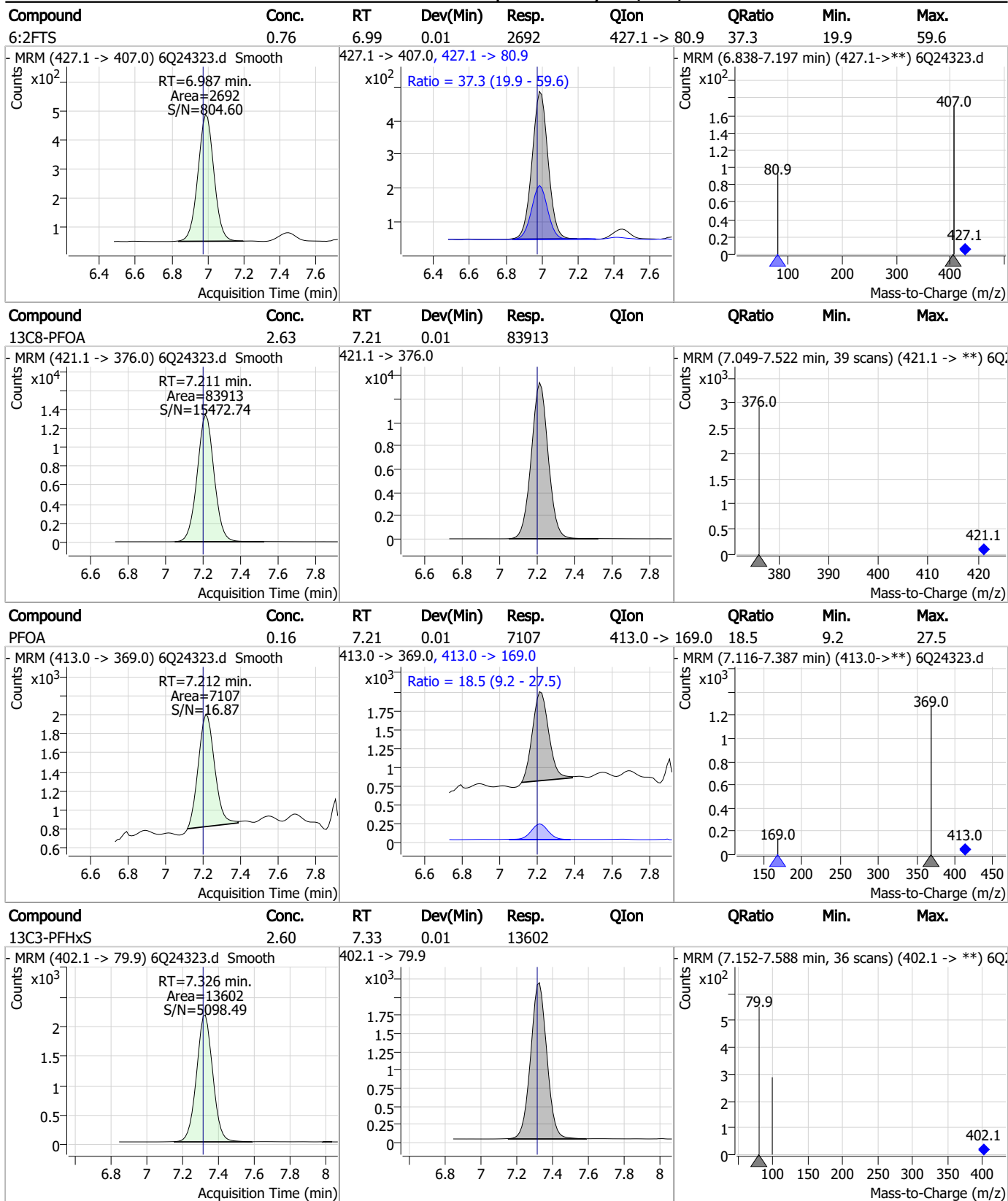
Perfluorinated Compounds by LC/MS/MS



7.7.12 7

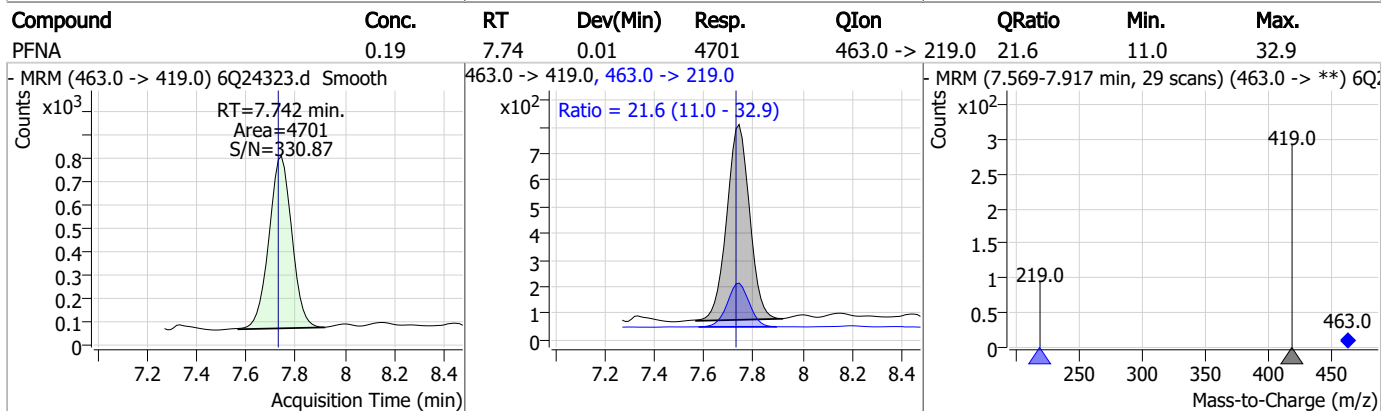
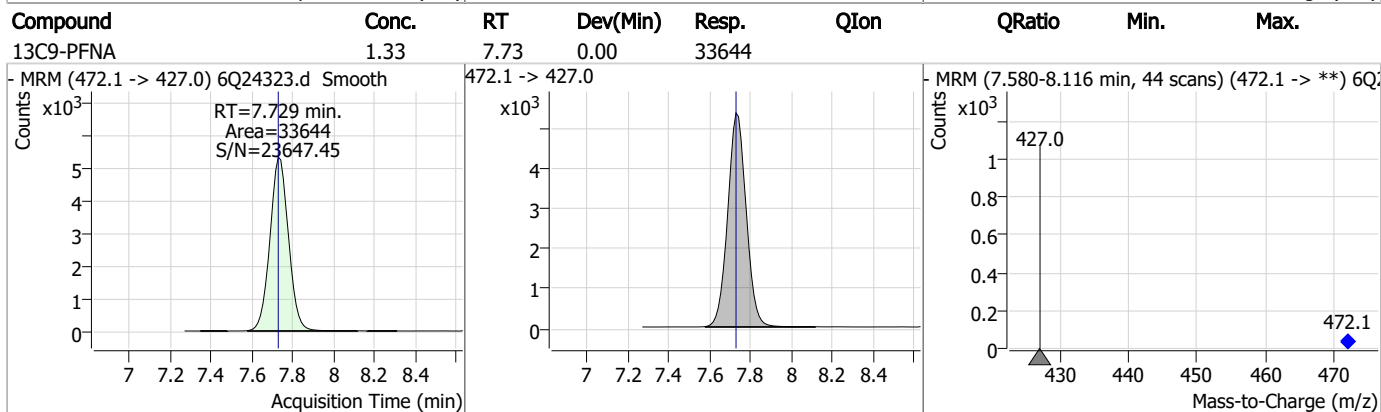
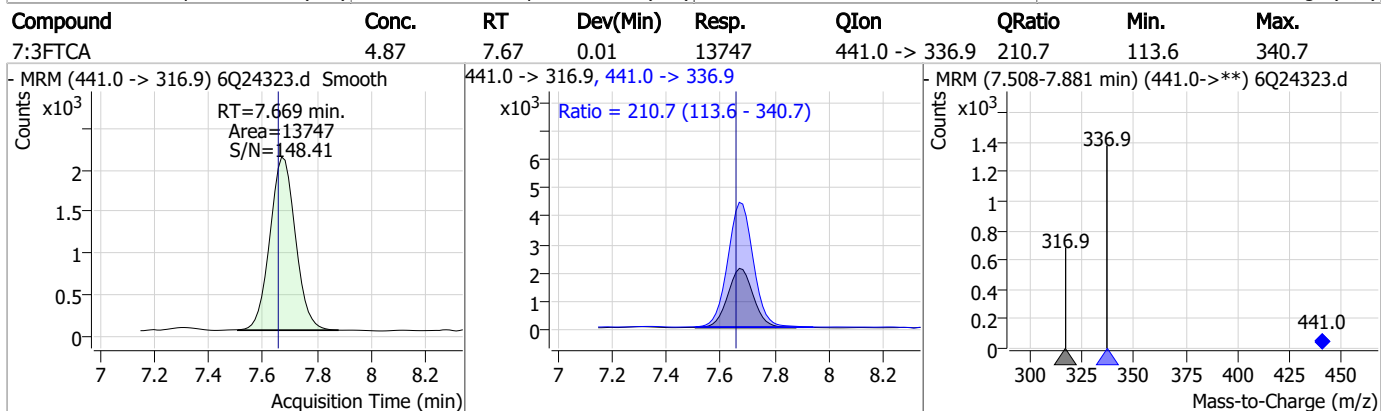
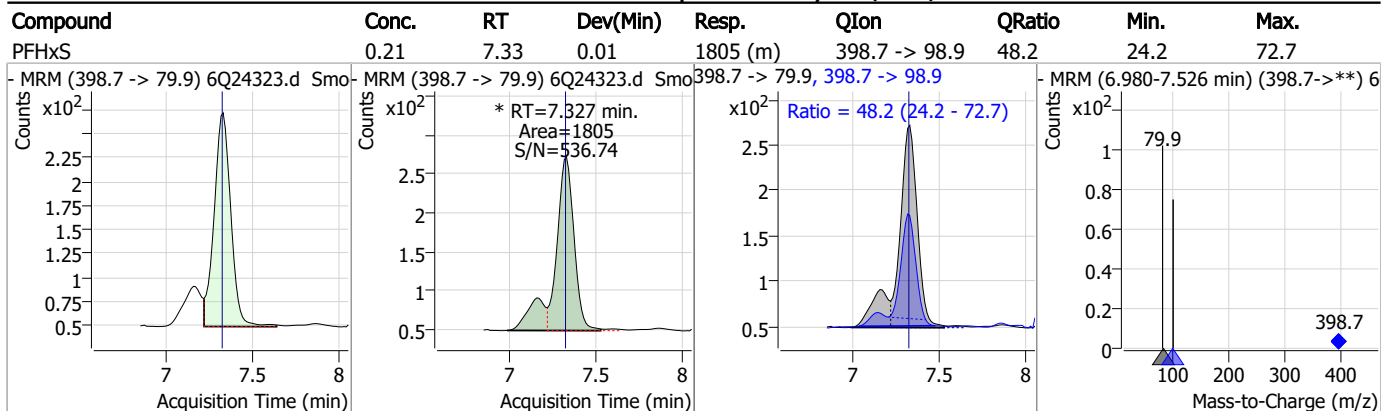


Perfluorinated Compounds by LC/MS/MS



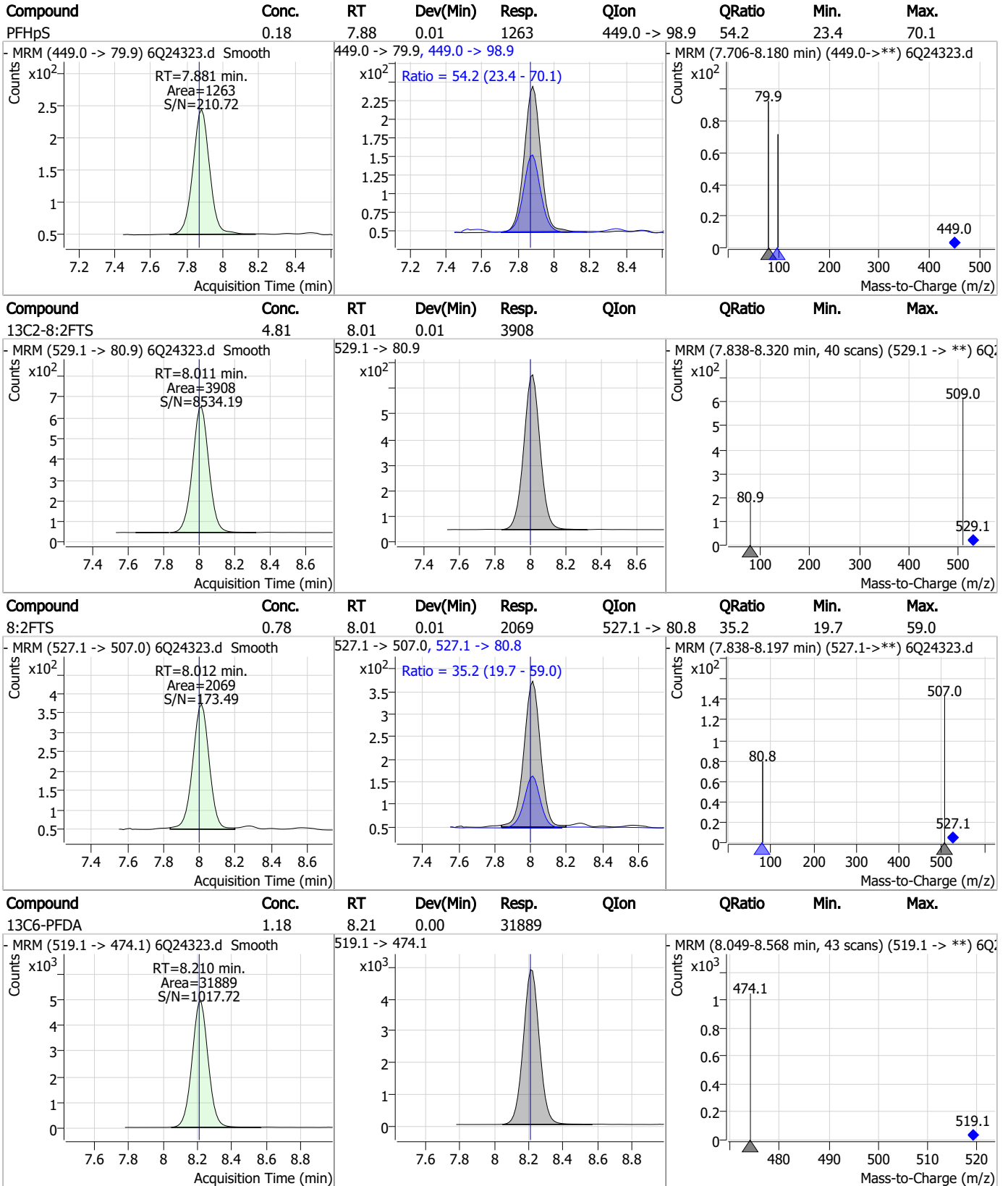
7.7.12

Perfluorinated Compounds by LC/MS/MS



7.7.12
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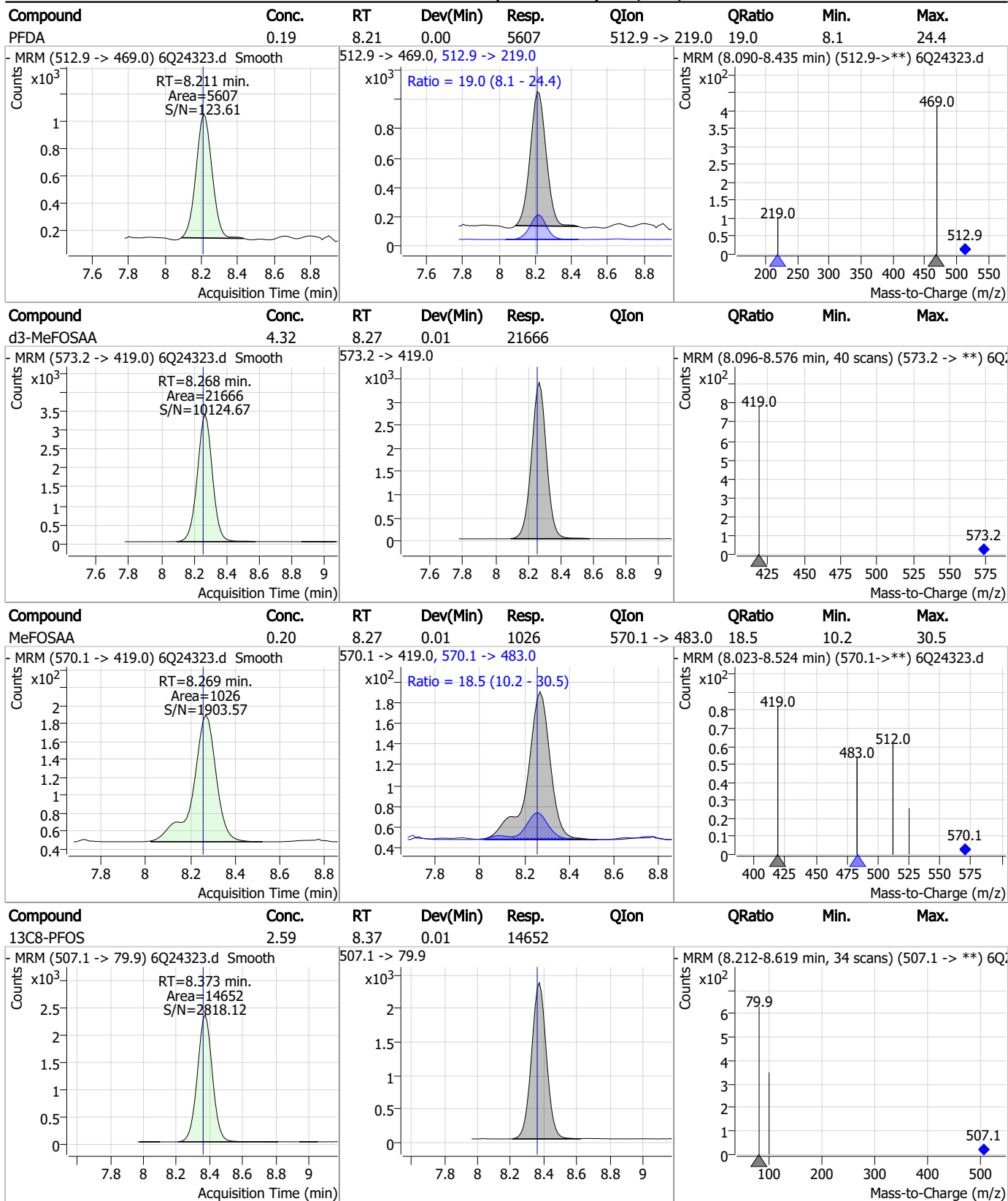
Perfluorinated Compounds by LC/MS/MS



7.7.12



Perfluorinated Compounds by LC/MS/MS

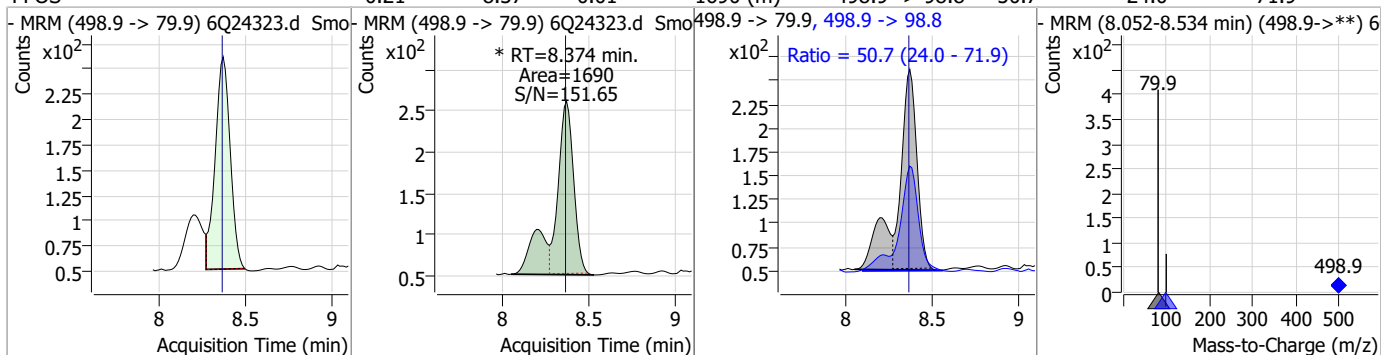


7.7.12
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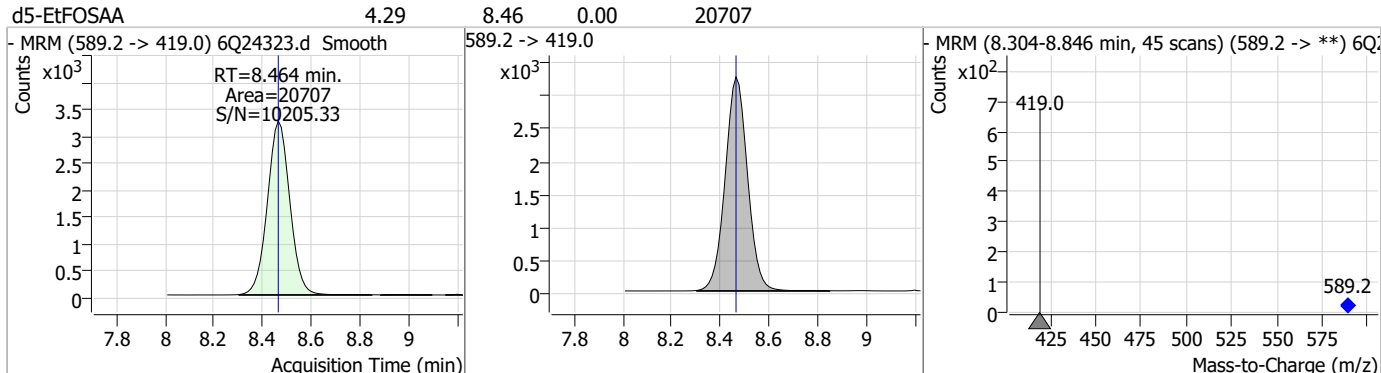


Perfluorinated Compounds by LC/MS/MS

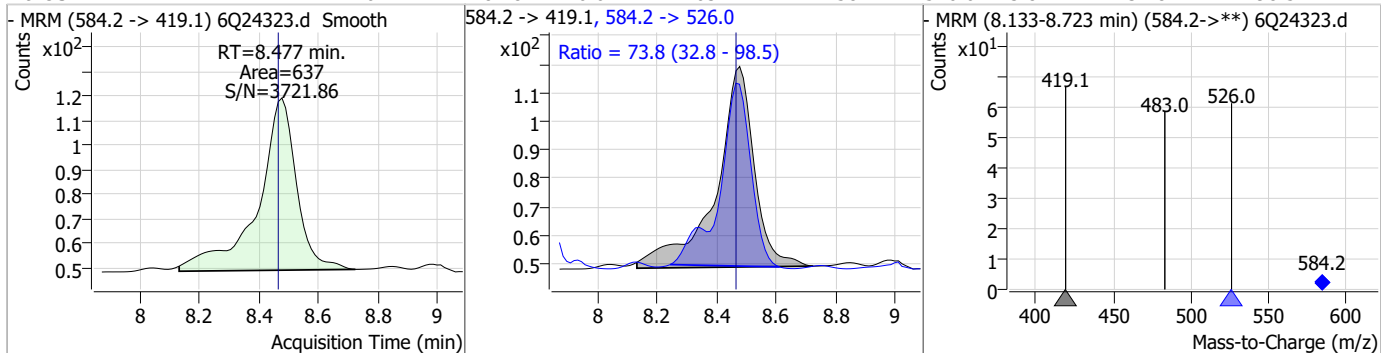
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.21	8.37	0.01	1690 (m)	498.9 -> 98.8	50.7	24.0	71.9



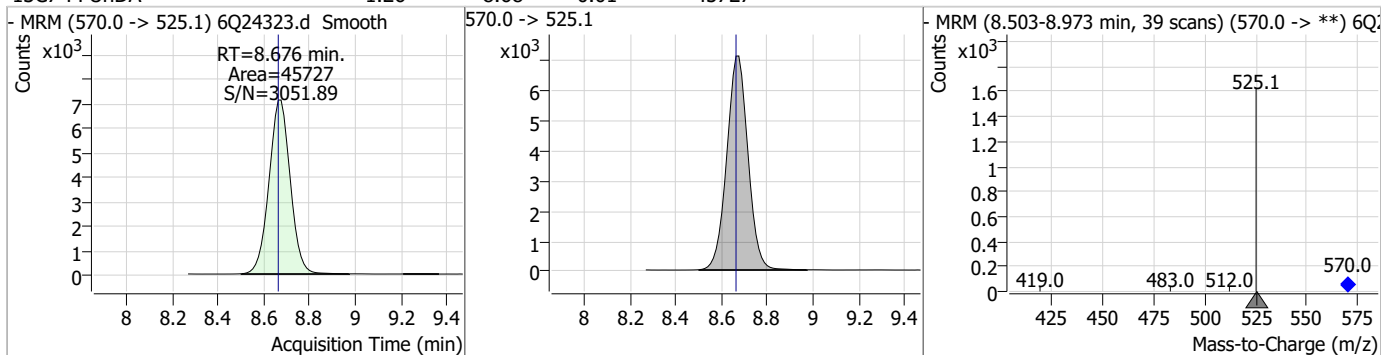
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.29	8.46	0.00	20707				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.22	8.48	0.01	637	584.2 -> 526.0	73.8	32.8	98.5

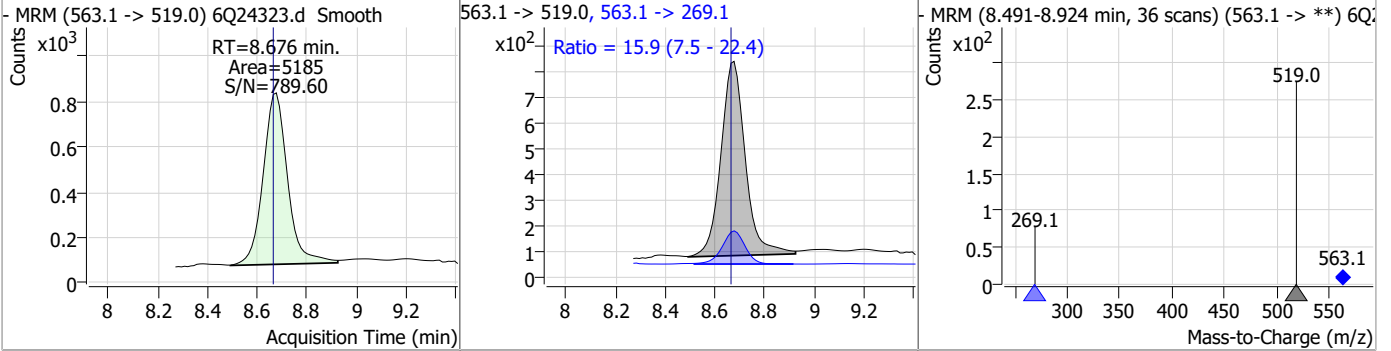


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.26	8.68	0.01	45727				

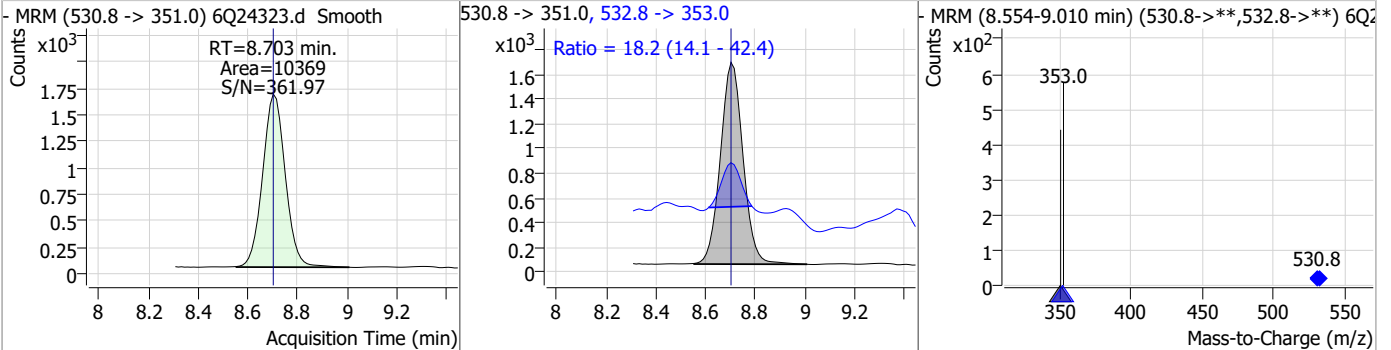


Perfluorinated Compounds by LC/MS/MS

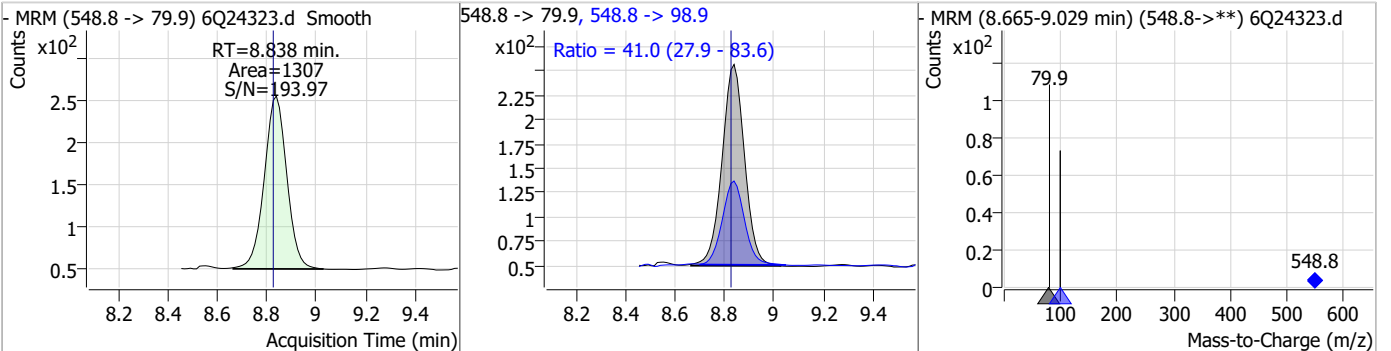
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.20	8.68	0.01	5185	563.1 -> 269.1	15.9	7.5	22.4



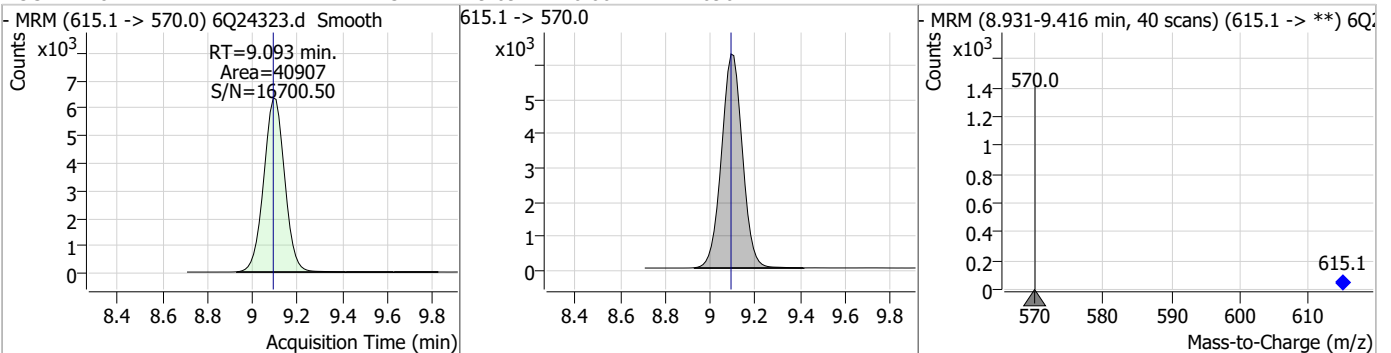
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	0.41	8.70	0.00	10369	532.8 -> 353.0	18.2	14.1	42.4



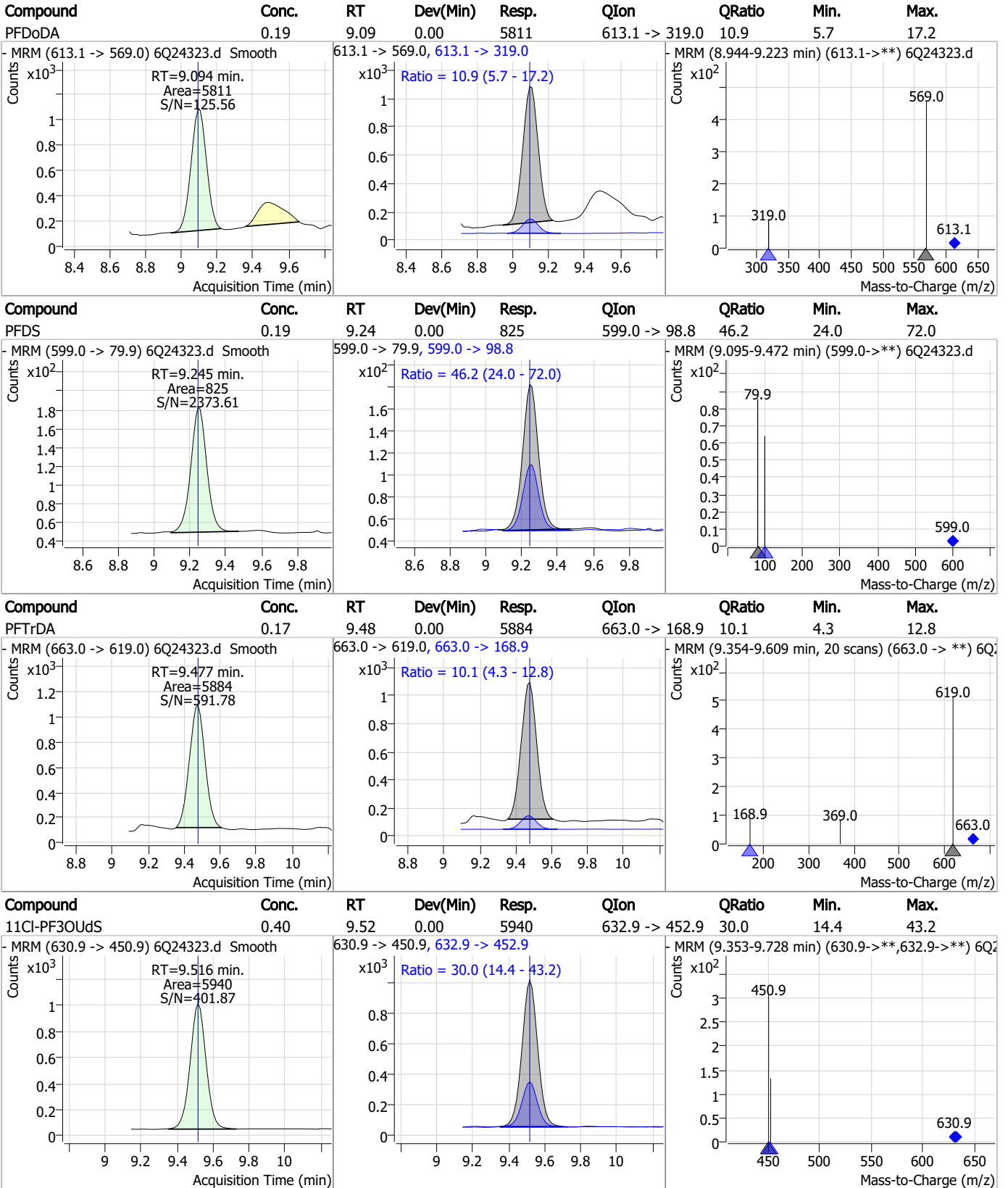
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.19	8.84	0.01	1307	548.8 -> 98.9	41.0	27.9	83.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.23	9.09	0.00	40907	615.1 -> 570.0	-	-	-



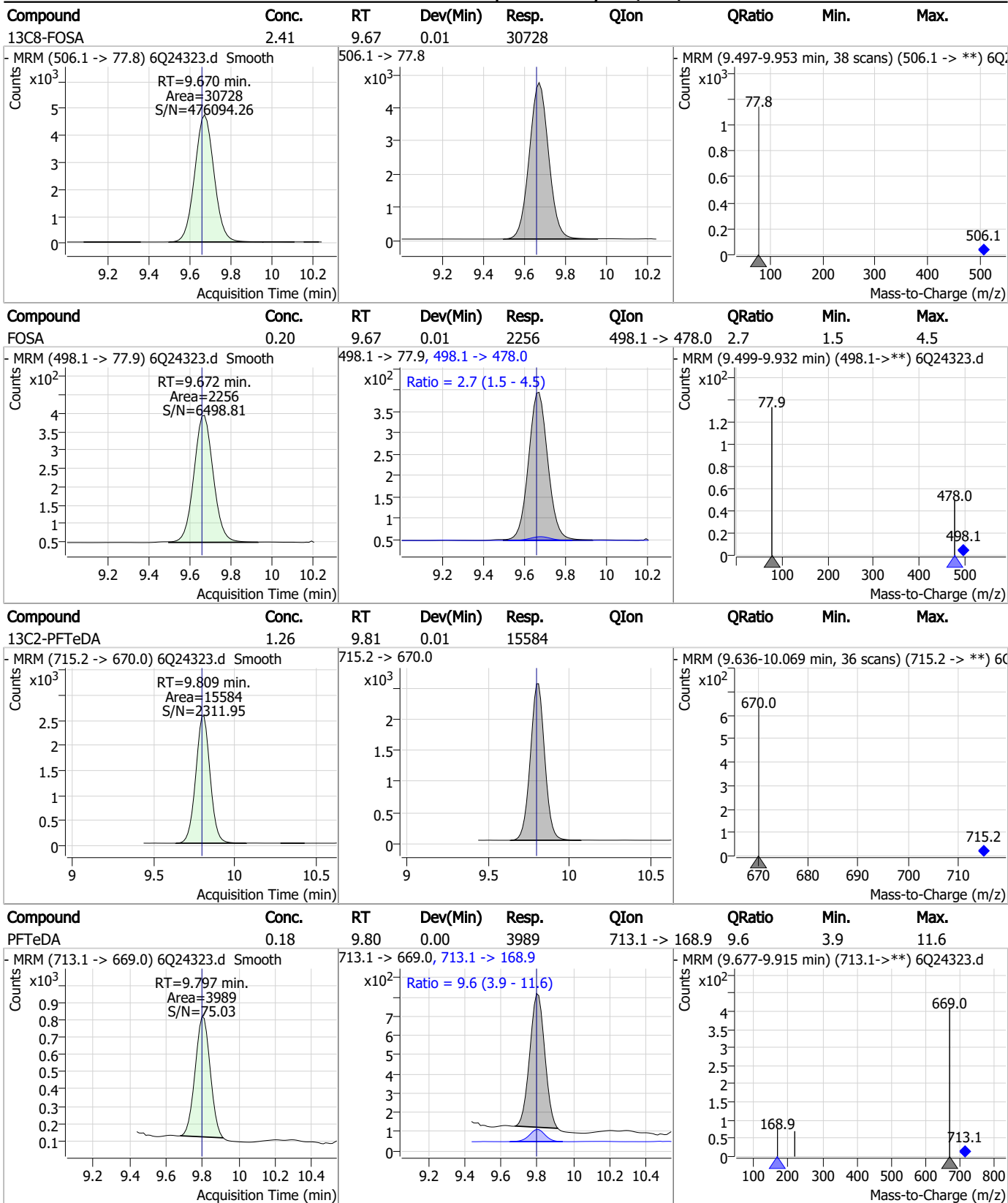
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



Perfluorinated Compounds by LC/MS/MS

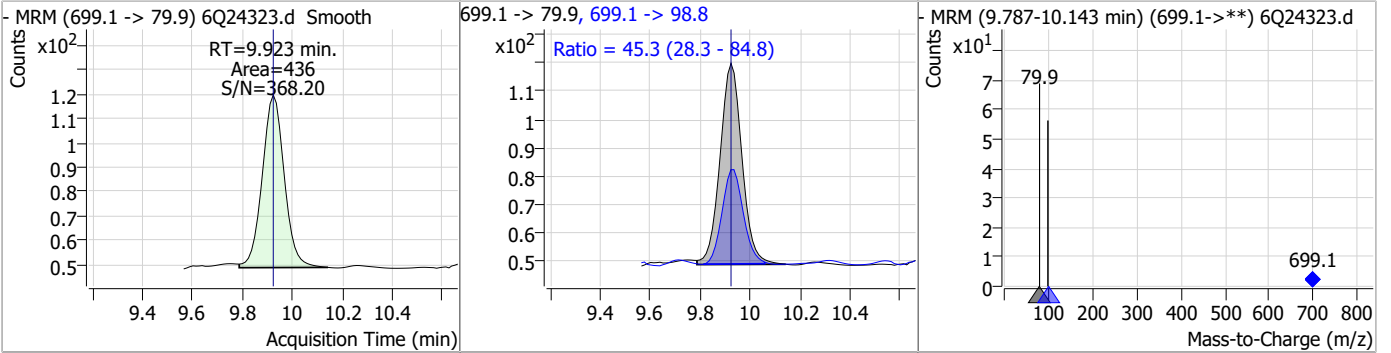


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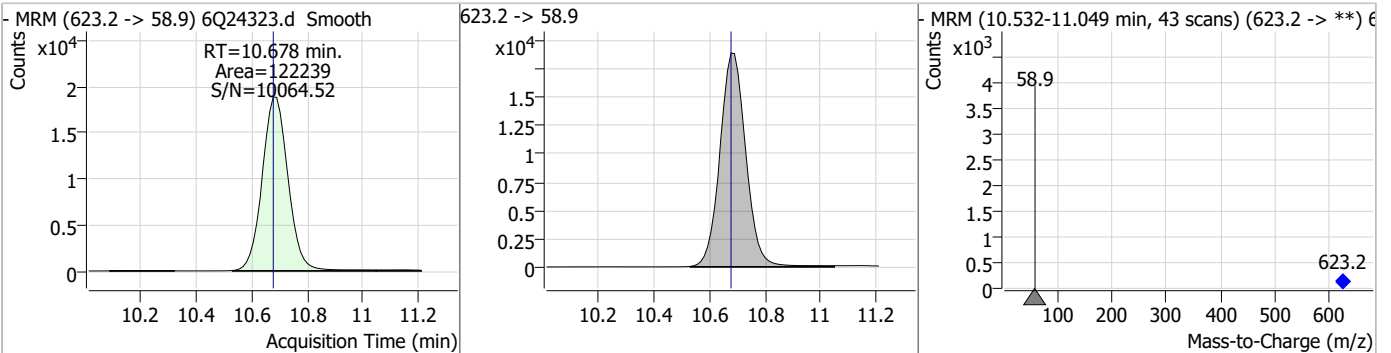


Perfluorinated Compounds by LC/MS/MS

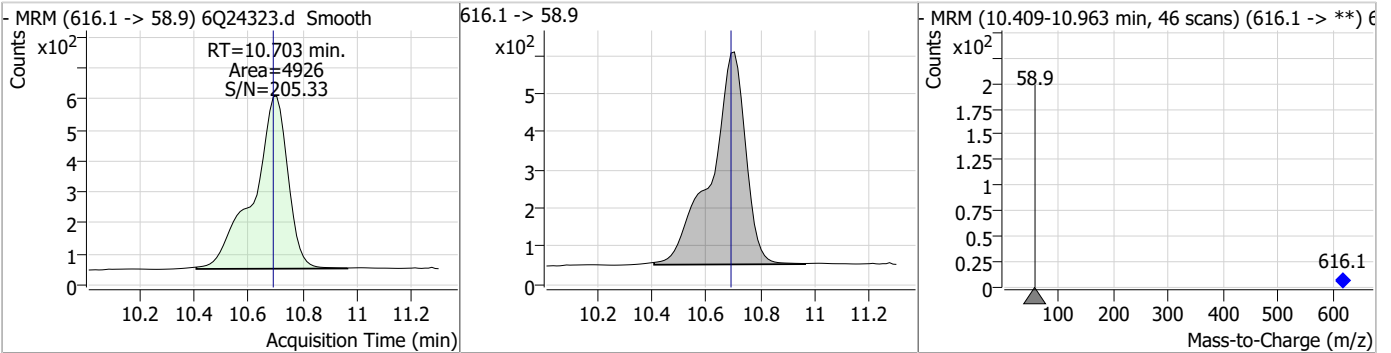
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.19	9.92	0.00	436	699.1 -> 98.8	45.3	28.3	84.8



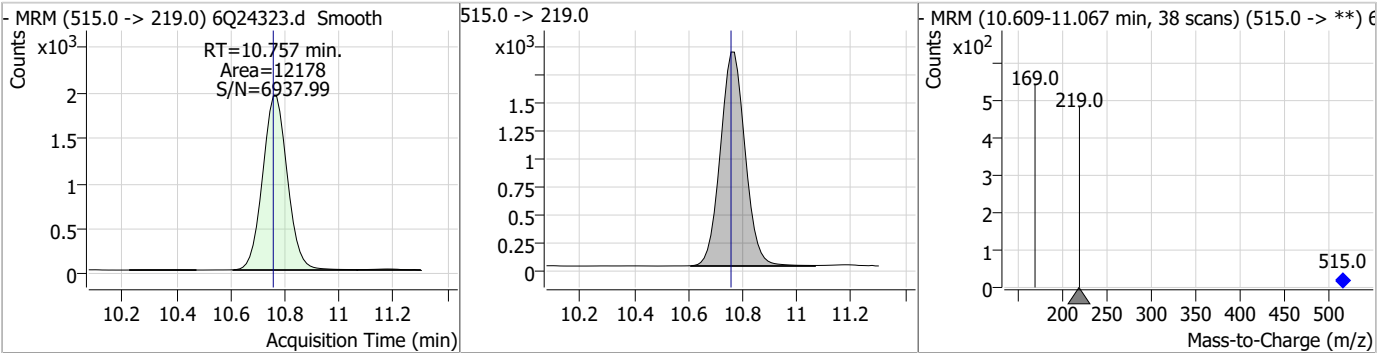
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.91	10.68	0.00	122239				



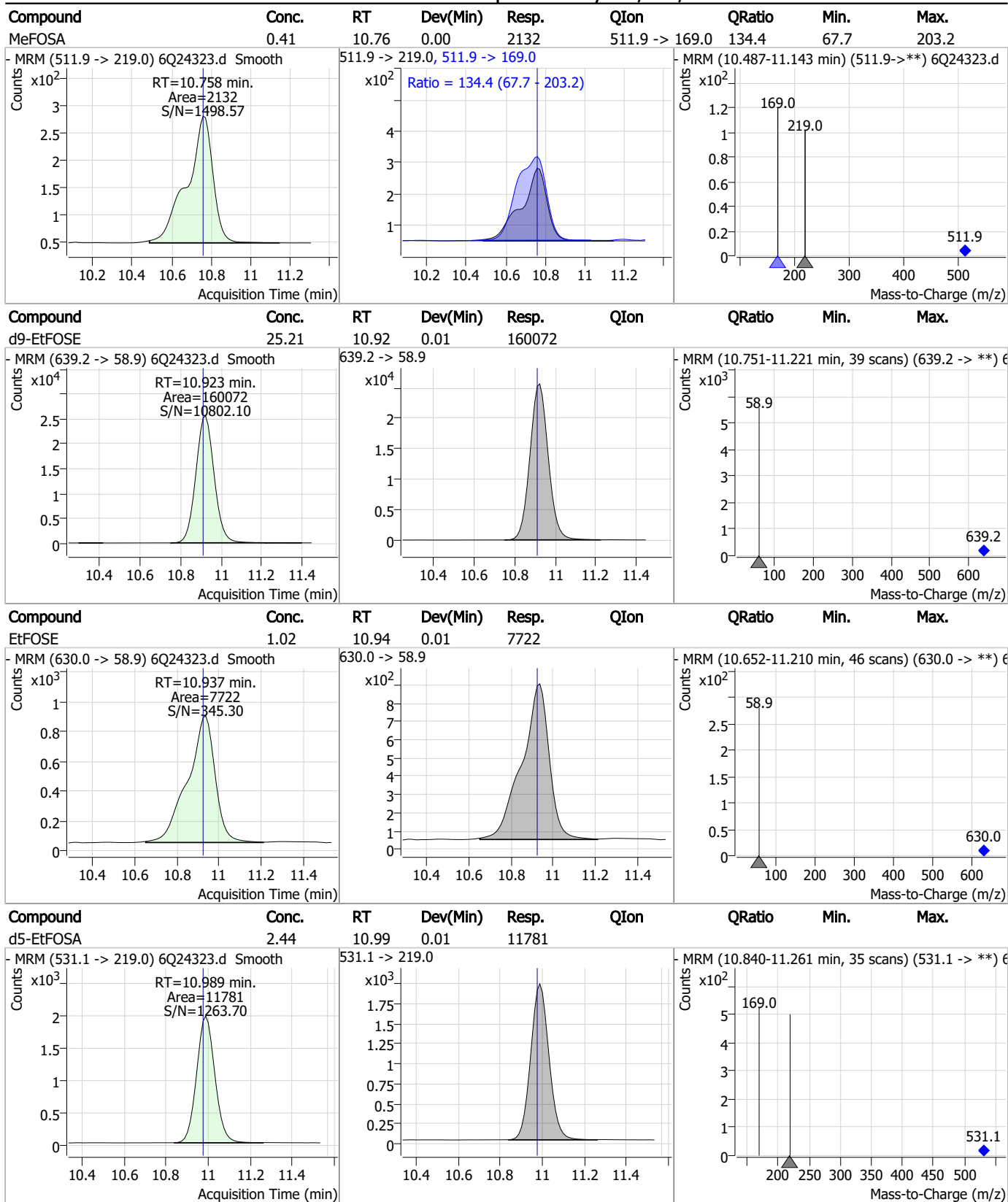
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.93	10.70	0.01	4926				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.35	10.76	0.00	12178				



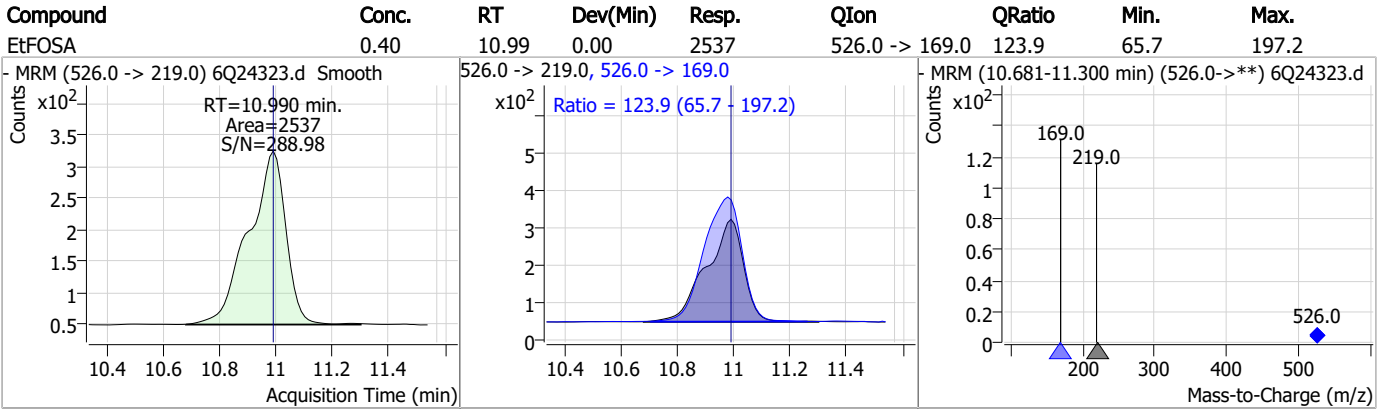
Perfluorinated Compounds by LC/MS/MS



7.7.12

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Perfluorinated Compounds by LC/MS/MS



7.7.12

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Manual Integration Approval Summary

Sample Number: S6Q350-CC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24323.D Analyst approved: 09/13/23 14:00 Martha Valls
Injection Time: 09/12/23 11:49 Supervisor approved: 09/13/23 15:06 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak

7.7.12.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24334.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/12/2023 2:27:07 PM
 Sample Name : cc347-4
 Vial : P1-A5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	200287	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	33813	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	74878	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	60168	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	76936	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	35089	1.25 µg/L	0.000
M6-PFDA	8.222	519.1 -> 474.1	33254	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	42378	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	40727	1.25 µg/L	0.000
M2-PFTeDA	9.809	715.2 -> 670.0	16009	1.25 µg/L	0.012
M8-FOSA	9.670	506.1 -> 77.8	31565	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	24792	2.50 µg/L	0.012
M3-PFHxS	7.313	402.1 -> 79.9	13588	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	13318	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2633	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3740	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3874	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	21897	5.00 µg/L	0.012
M3-HFPO-DA	6.019	286.9 -> 168.9	43014	10.00 µg/L	0.000
M5-EtFOSAA	8.464	589.2 -> 419.0	20393	5.00 µg/L	0.000
M7-MeFOSE	10.690	623.2 -> 58.9	124818	25.00 µg/L	0.012
M9-EtFOSE	10.923	639.2 -> 58.9	172060	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	11602	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	11775	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17807	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	78541	5.00 µg/L	0.012
18O2-PFHxS	7.325	403.0 -> 83.9	9711	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	92241	2.50 µg/L	0.012
13C2-PFDA	8.223	515.1 -> 470.1	28438	1.25 µg/L	0.012
13C5-PFNA	7.729	468.0 -> 423.0	38688	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	56614	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2633	4.82 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3740	4.66 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3874	4.67 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.3%		
13C2-PFDoDA	9.093	615.1 -> 570.0	40727	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFTeDA	9.809	715.2 -> 670.0	16009	1.41 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 112.9%		
13C3-PFBS	5.584	302.1 -> 79.9	24792	2.76 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.4%		
13C3-PFHxS	7.313	402.1 -> 79.9	13588	2.55 µg/L	0.000

7.7.13
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C4-PFBA	2.997	216.8 -> 171.9	200287	10.10 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.581	367.1 -> 322.0	60168	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C5-PFHxA	5.654	318.0 -> 273.0	74878	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFPeA	4.434	268.3 -> 223.0	33813	4.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.6%	
13C6-PFDA	8.222	519.1 -> 474.1	33254	1.34 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C7-PFUnDA	8.676	570.0 -> 525.1	42378	1.28 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C8-FOSA	9.670	506.1 -> 77.8	31565	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOA	7.211	421.1 -> 376.0	76936	2.27 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C8-PFOS	8.373	507.1 -> 79.9	13318	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C9-PFNA	7.729	472.1 -> 427.0	35089	1.45 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 116.1%	
d3-MeFOSAA	8.268	573.2 -> 419.0	21897	4.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
13C3-HFPO-DA	6.019	286.9 -> 168.9	43014	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d3-MeFOSA	10.757	515.0 -> 219.0	11775	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.7%	
d5-EtFOSAA	8.464	589.2 -> 419.0	20393	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.2%	
d7-MeFOSE	10.690	623.2 -> 58.9	124818	26.66 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
d9-EtFOSE	10.923	639.2 -> 58.9	172060	27.31 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
d5-EtFOSA	10.989	531.1 -> 219.0	11602	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	41796	9.60 µg/L	98
		327.1 -> 80.9	15797		
6:2FTS	6.987	427.1 -> 407.0	33509	10.13 µg/L	100
		427.1 -> 80.9	13327		
8:2FTS	8.012	527.1 -> 507.0	26197	10.02 µg/L	94
		527.1 -> 80.8	9354		
EtFOSAA	8.477	584.2 -> 419.1	7718	2.68 µg/L	m 93
		584.2 -> 526.0	4659		
FOSA	9.672	498.1 -> 77.9	26982	2.32 µg/L	99
		498.1 -> 478.0	739		
MeFOSAA	8.269	570.1 -> 419.0	13142	2.53 µg/L	96
		570.1 -> 483.0	2934		
PFBA	2.993	212.8 -> 168.9	70638	10.67 µg/L	100
PFBS	5.585	298.7 -> 79.9	25933	2.13 µg/L	100
		298.7 -> 98.8	9856		
PFDA	8.223	512.9 -> 469.0	77704	2.57 µg/L	100
		512.9 -> 219.0	12785		
PFDODA	9.094	613.1 -> 569.0	73590	2.43 µg/L	99
		613.1 -> 319.0	8827		
PFDS	9.245	599.0 -> 79.9	9424	2.43 µg/L	99

7.7.13
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4607			
PFHpA	6.582	363.1 -> 319.0	81119	2.55	µg/L	99
		363.1 -> 169.0	11552			
PFHpS	7.868	449.0 -> 79.9	15972	2.48	µg/L	97
		449.0 -> 98.9	7157			
PFHxA	5.657	313.0 -> 269.0	68408	2.51	µg/L	99
		313.0 -> 118.9	3124			
PFHxS	7.314	398.7 -> 79.9	18824	2.21	µg/L	m 99
		398.7 -> 98.9	9299			
PFNA	7.730	463.0 -> 419.0	58283	2.20	µg/L	95
		463.0 -> 219.0	14099			
PFNS	8.838	548.8 -> 79.9	15817	2.52	µg/L	95
		548.8 -> 98.9	8223			
PFOA	7.212	413.0 -> 369.0	93368	2.35	µg/L	99
		413.0 -> 169.0	16632			
PFOS	8.374	498.9 -> 79.9	17373	2.35	µg/L	m 99
		498.9 -> 98.8	8256			
PFPeA	4.436	263.0 -> 219.0	79224	5.26	µg/L	100
PFPeS	6.633	349.1 -> 79.9	17763	2.40	µg/L	96
		349.1 -> 98.9	7840			
PFTeDA	9.809	713.1 -> 669.0	56362	2.44	µg/L	99
		713.1 -> 168.9	4212			
PFTrDA	9.477	663.0 -> 619.0	84569	2.46	µg/L	97
		663.0 -> 168.9	6457			
PFUnDA	8.676	563.1 -> 519.0	64197	2.64	µg/L	100
		563.1 -> 269.1	9565			
11CI-PF3OUdS	9.516	630.9 -> 450.9	69206	4.41	µg/L	93
		632.9 -> 452.9	22573			
9CI-PF3ONS	8.703	530.8 -> 351.0	124990	4.65	µg/L	98
		532.8 -> 353.0	36792			
ADONA	6.829	376.9 -> 250.9	289461	4.65	µg/L	98
		376.9 -> 84.8	75691			
HFPO-DA	6.020	284.9 -> 168.9	21323	5.24	µg/L	96
		284.9 -> 184.9	2895			
3:3FTCA	3.871	241.0 -> 177.0	13725	11.99	µg/L	98
		241.0 -> 117.0	1366			
5:3FTCA	6.283	341.0 -> 237.1	297943	64.34	µg/L	99
		341.0 -> 217.0	209808			
7:3FTCA	7.682	441.0 -> 316.9	183162	66.93	µg/L	88
		441.0 -> 336.9	381447			
EtFOSA	10.990	526.0 -> 219.0	31063	4.92	µg/L	98
		526.0 -> 169.0	39980			
EtFOSE	10.937	630.0 -> 58.9	104701	12.80	µg/L	100
MeFOSA	10.771	511.9 -> 219.0	27675	5.54	µg/L	m 99
		511.9 -> 169.0	37042			
MeFOSE	10.691	616.1 -> 58.9	65193	12.08	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	5095	2.40	µg/L	98
		699.1 -> 98.8	2809			
NFDHA	5.535	295.0 -> 201.0	15245	4.83	µg/L	94
		295.0 -> 84.9	3981			
PFMBA	4.850	279.0 -> 85.1	58632	5.34	µg/L	100
PFMPA	3.563	229.0 -> 84.9	42058	5.34	µg/L	100
PFEESA	6.124	314.8 -> 134.9	149337	4.39	µg/L	100
		314.8 -> 82.9	5238			

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



7.7.13
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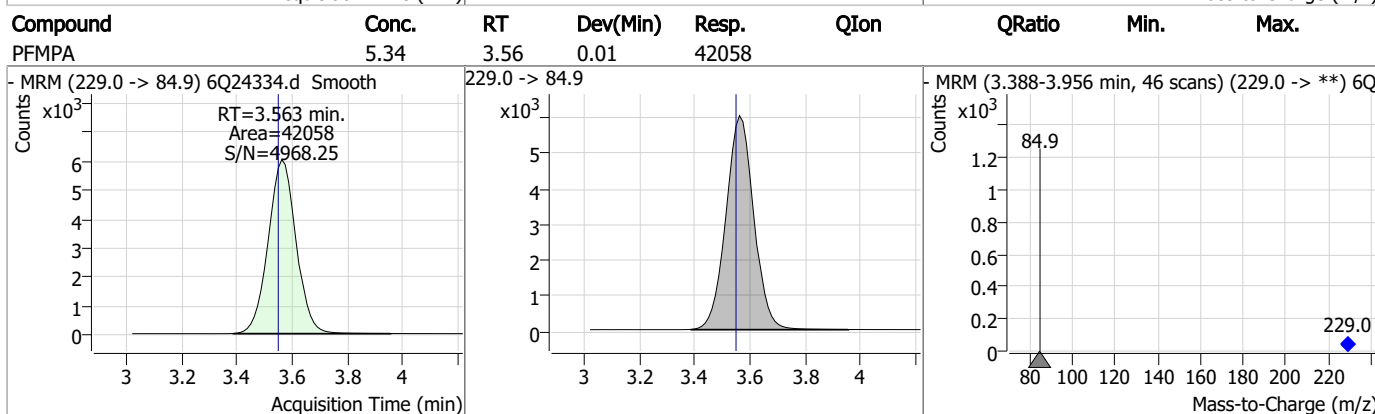
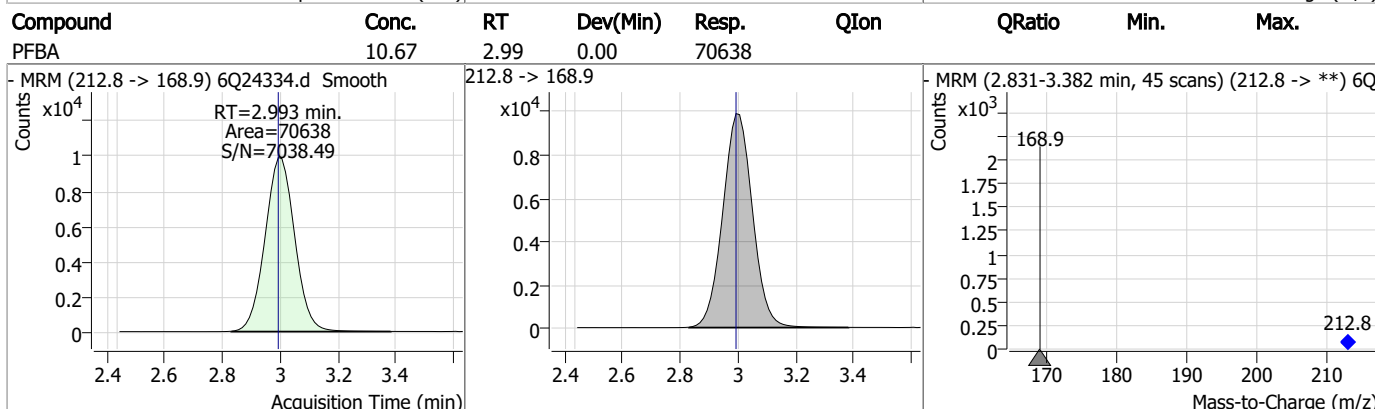
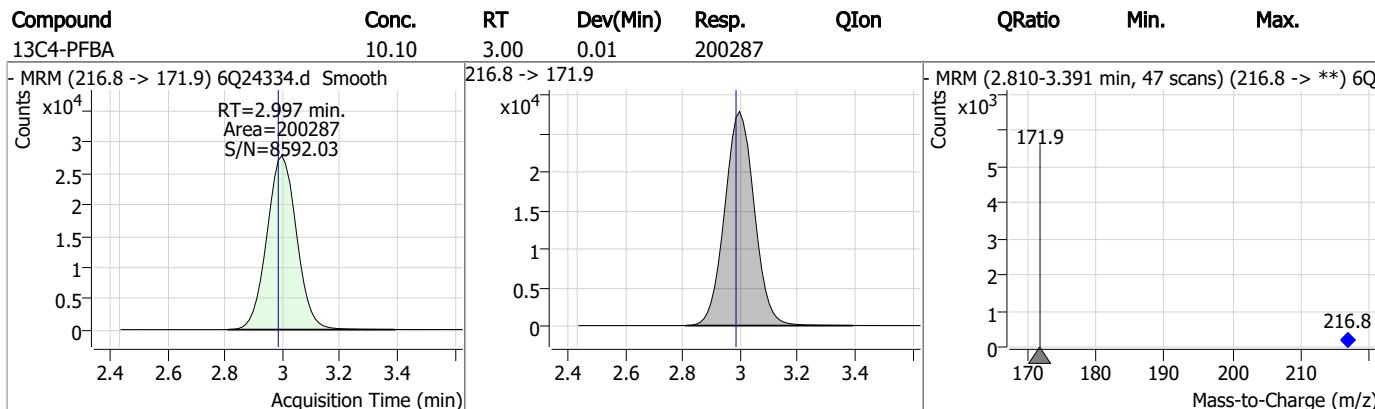
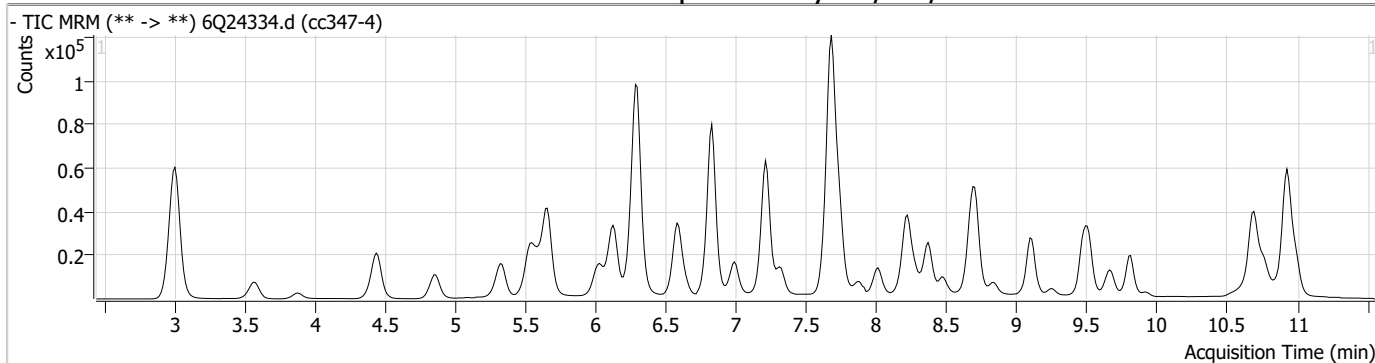
Perfluorinated Compounds by LC/MS/MS

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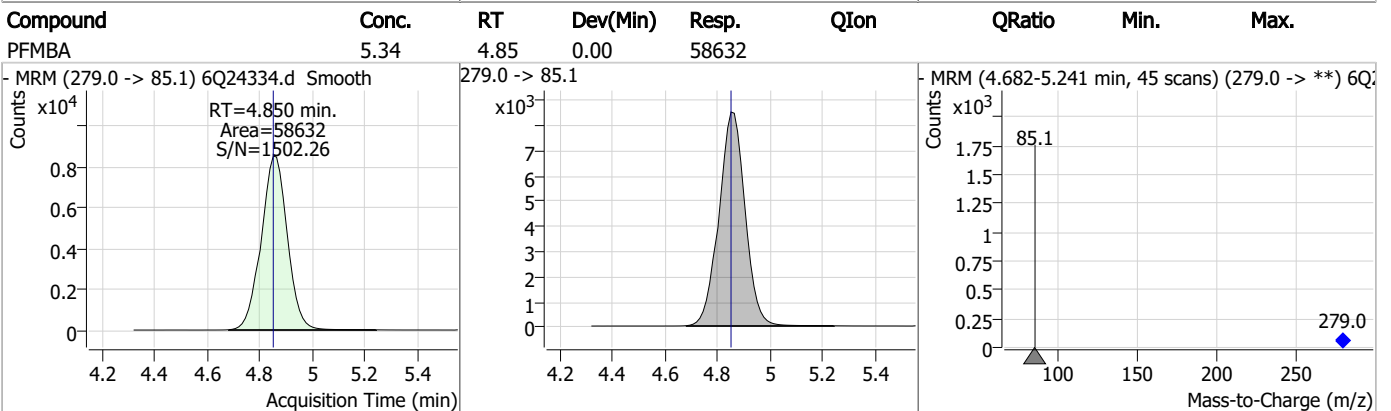
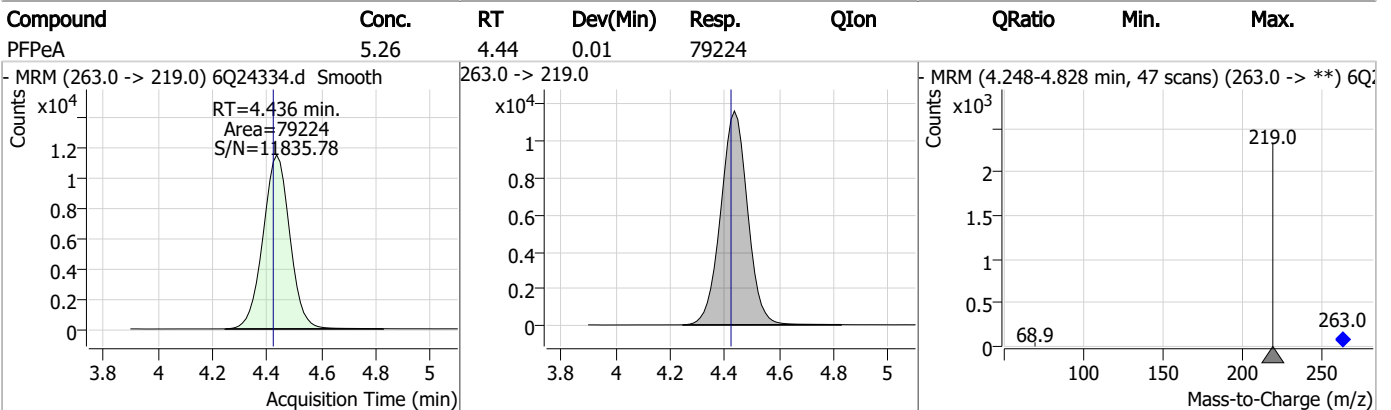
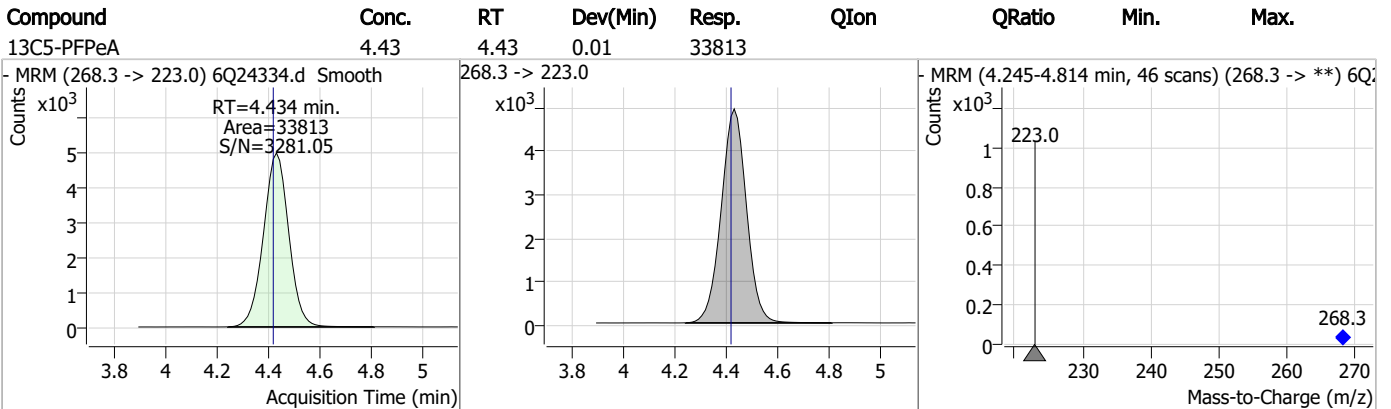
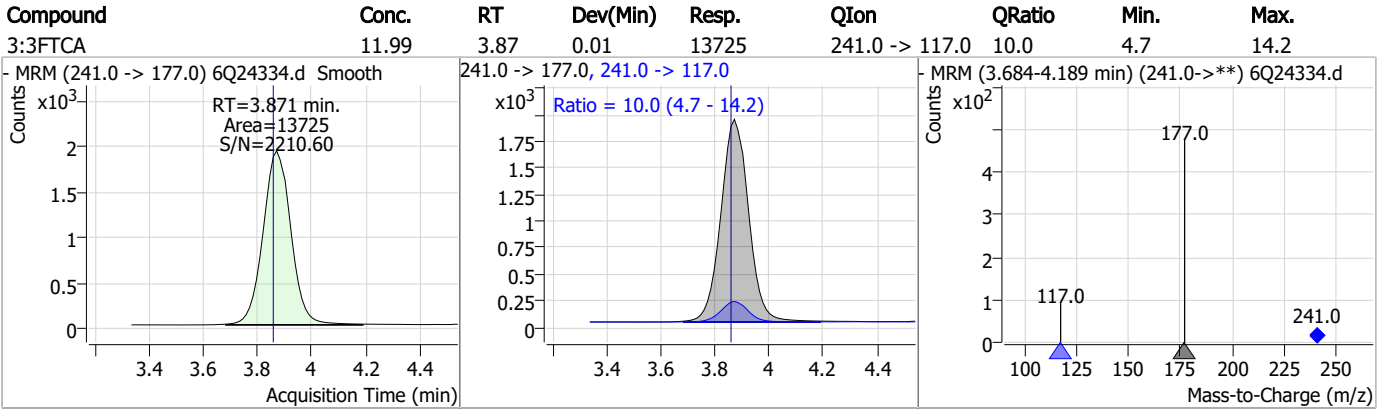
7

Perfluorinated Compounds by LC/MS/MS

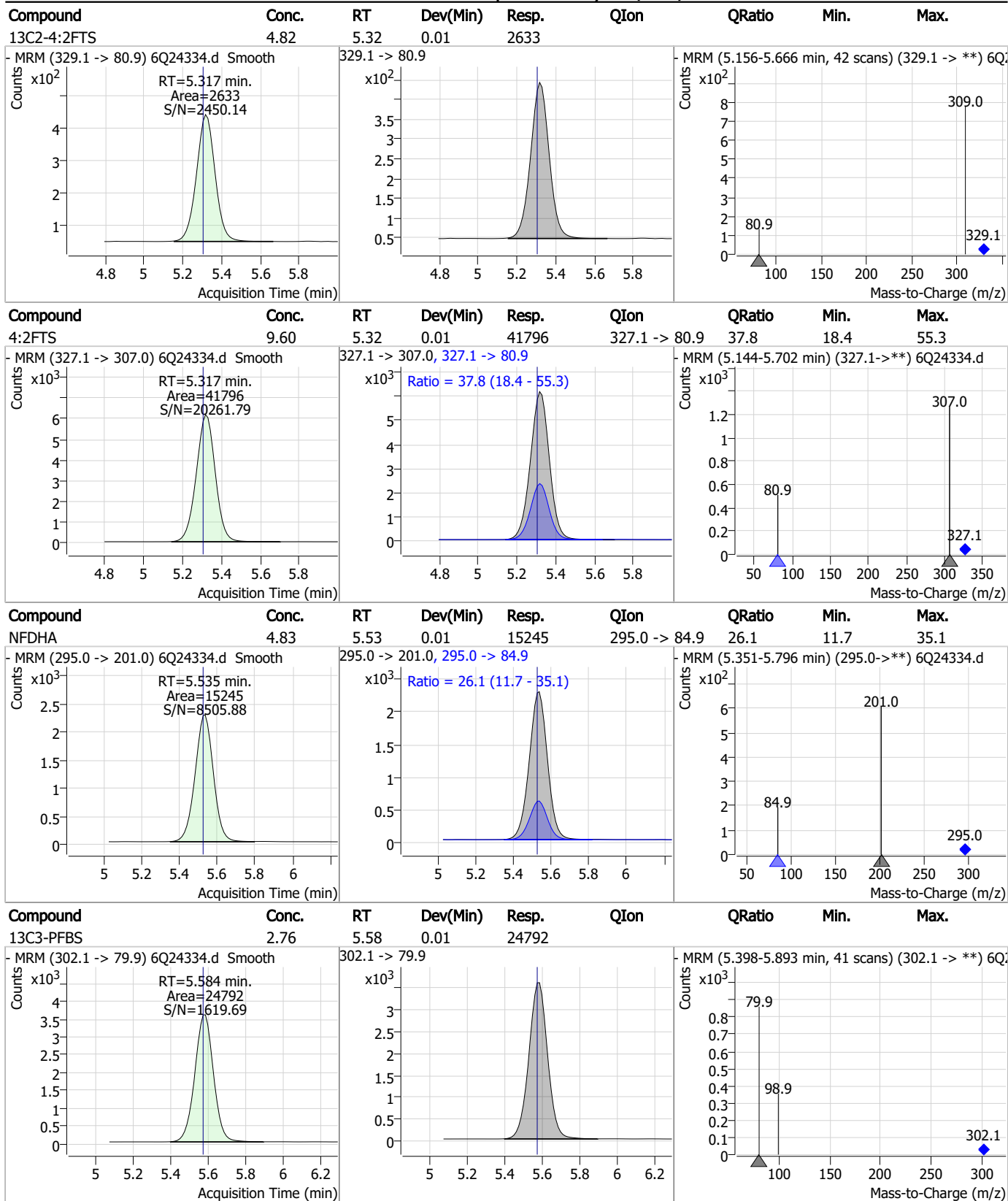


7.7.13
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Perfluorinated Compounds by LC/MS/MS



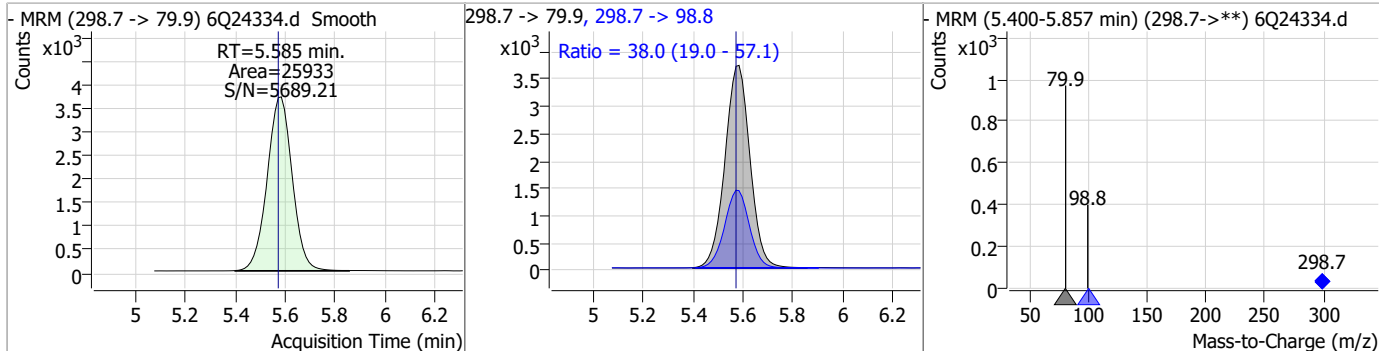
Perfluorinated Compounds by LC/MS/MS



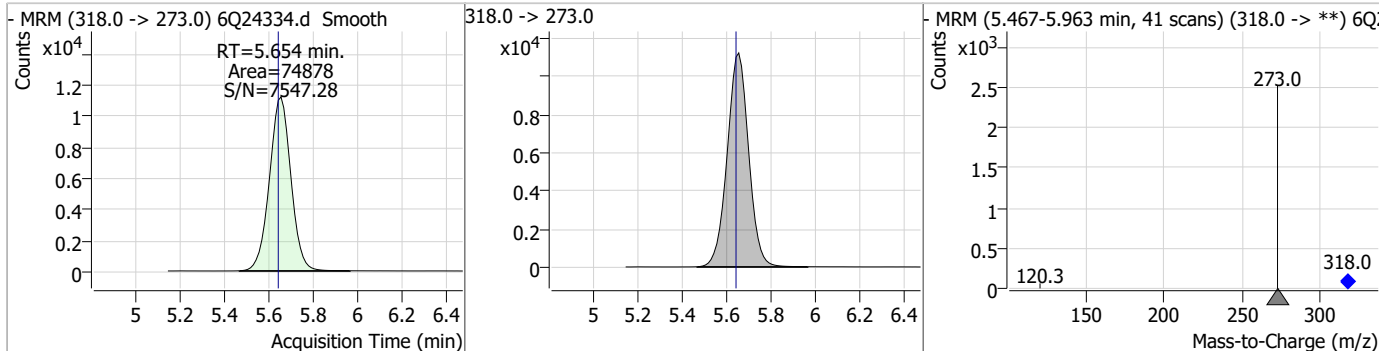
7.7.13
7

Perfluorinated Compounds by LC/MS/MS

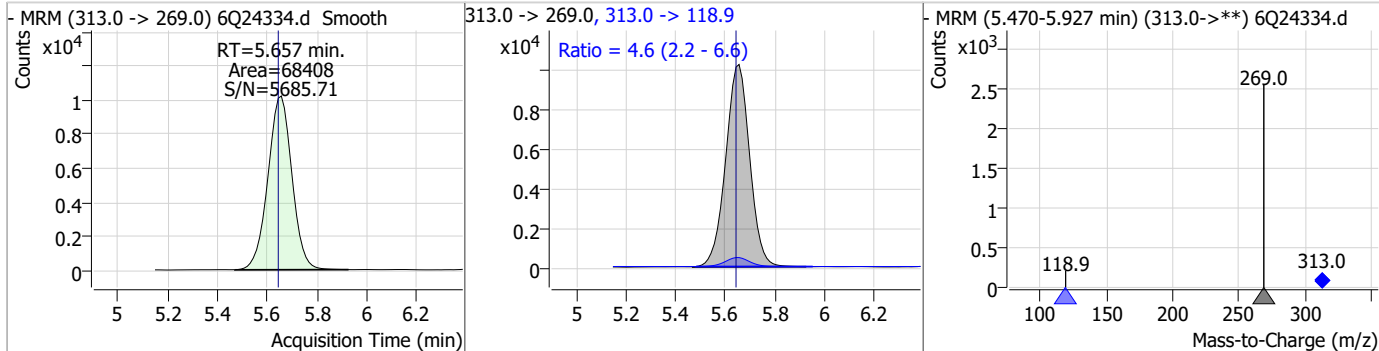
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.13	5.58	0.01	25933	298.7 -> 98.8	38.0	19.0	57.1



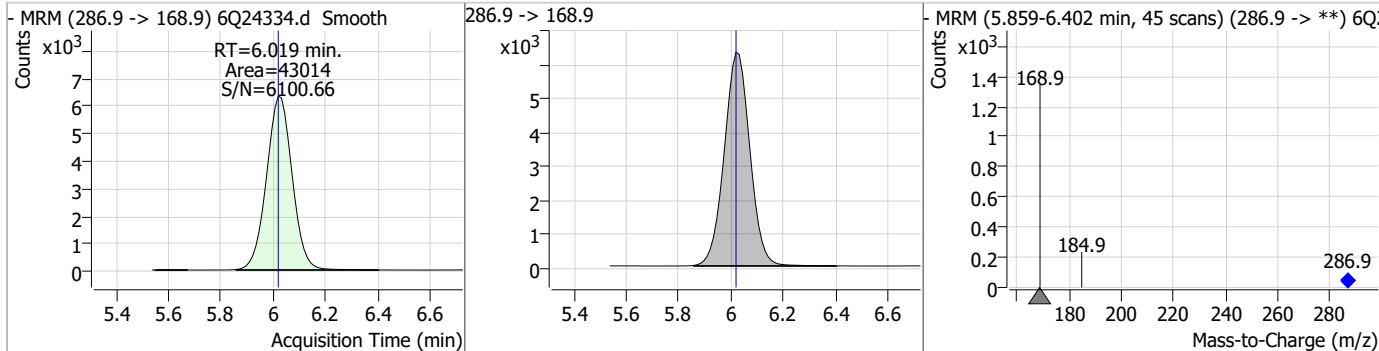
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.65	0.01	74878				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.51	5.66	0.01	68408	313.0 -> 118.9	4.6	2.2	6.6



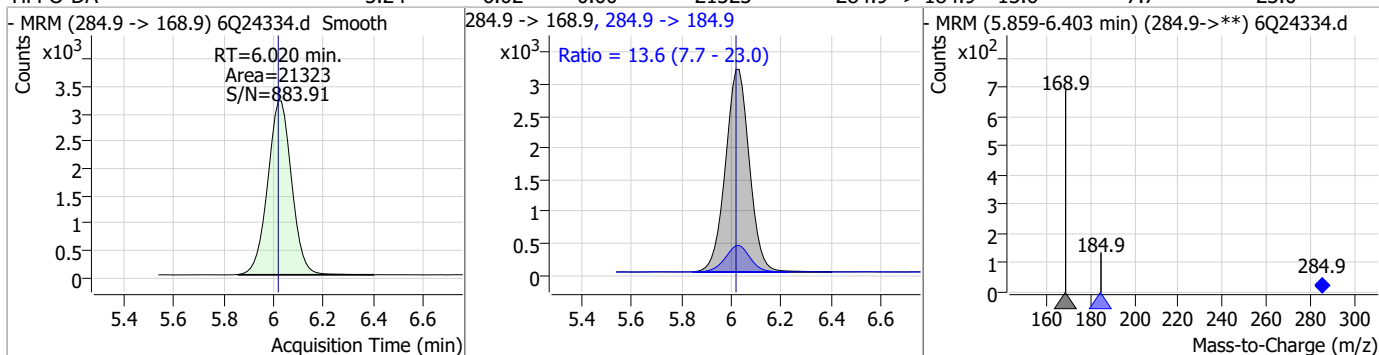
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.97	6.02	0.00	43014				



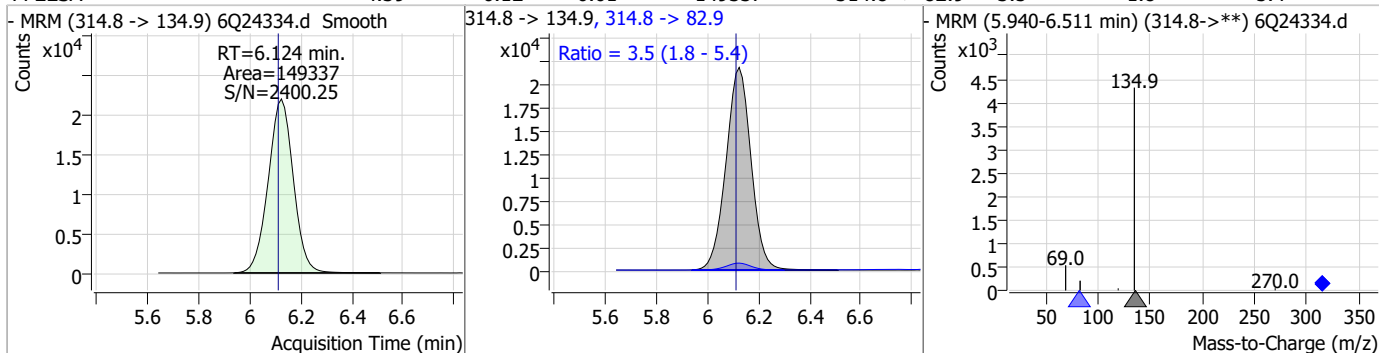
7.7.13
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Perfluorinated Compounds by LC/MS/MS

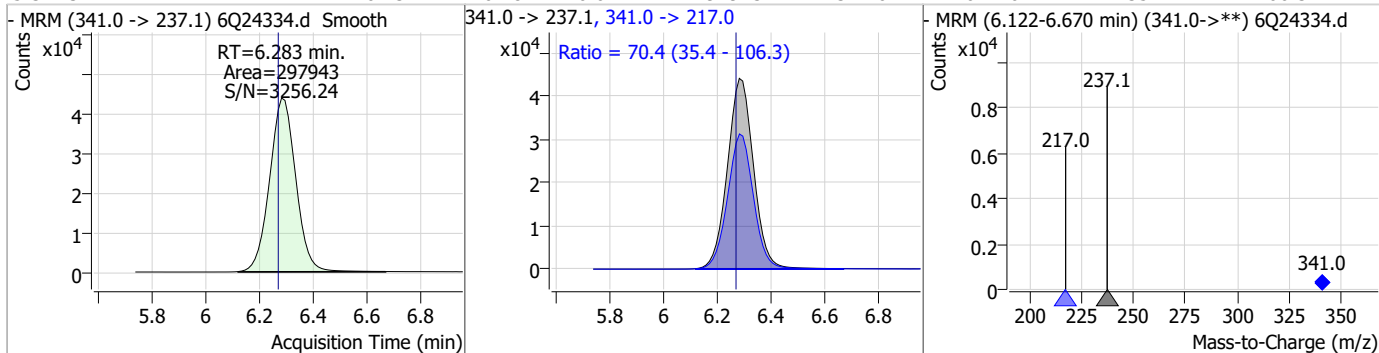
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.24	6.02	0.00	21323	284.9 -> 184.9	13.6	7.7	23.0



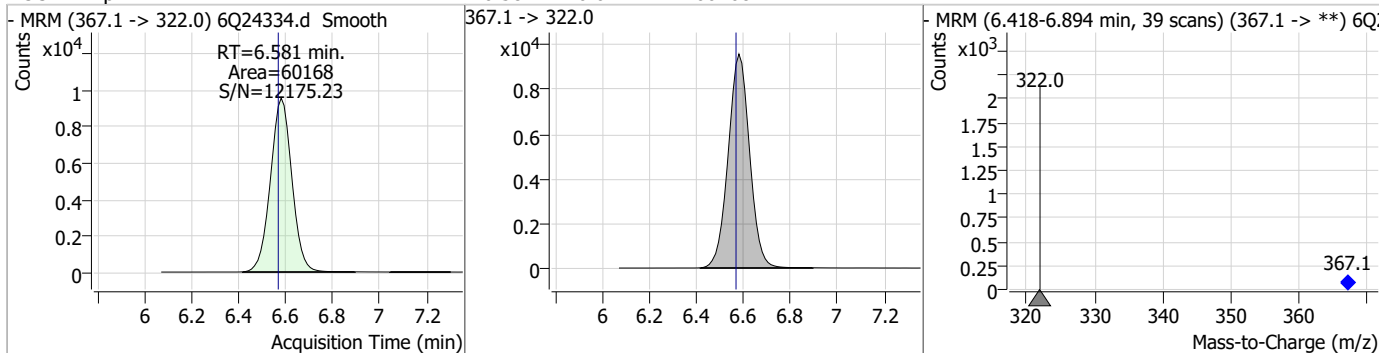
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.39	6.12	0.01	149337	314.8 -> 82.9	3.5	1.8	5.4



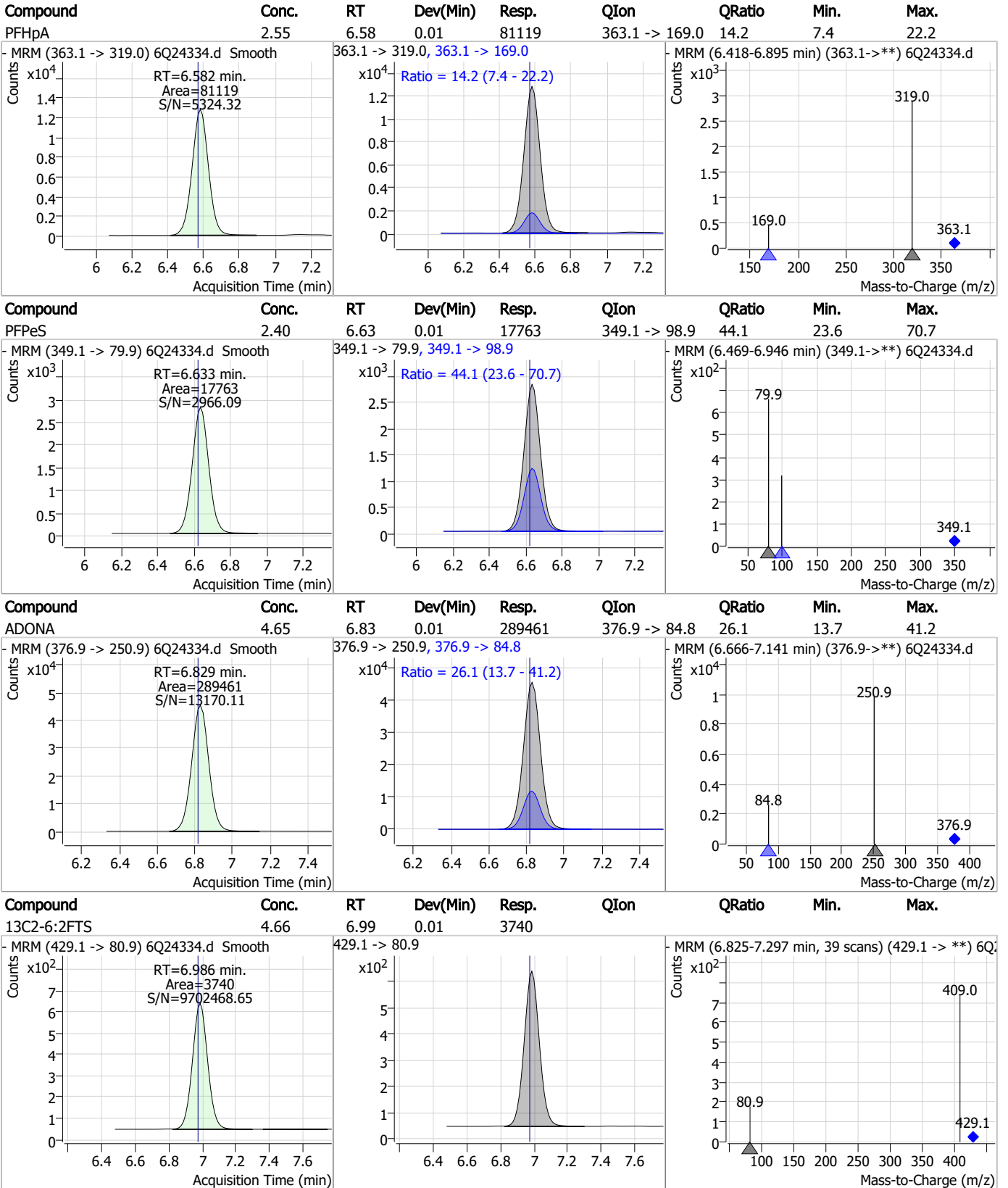
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	64.34	6.28	0.01	297943	341.0 -> 217.0	70.4	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.58	0.01	60168	367.1 -> 322.0			



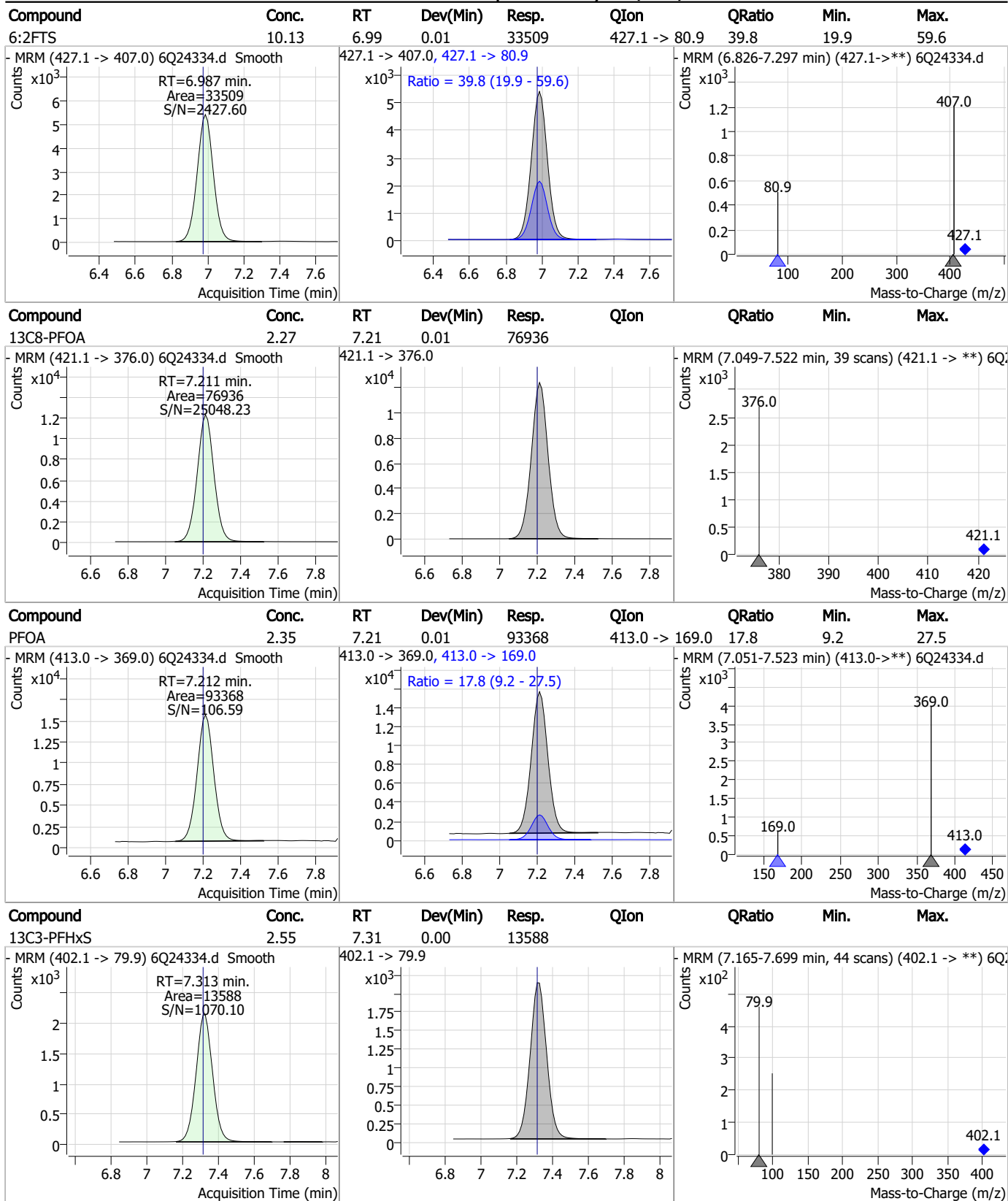
Perfluorinated Compounds by LC/MS/MS



7.7.13
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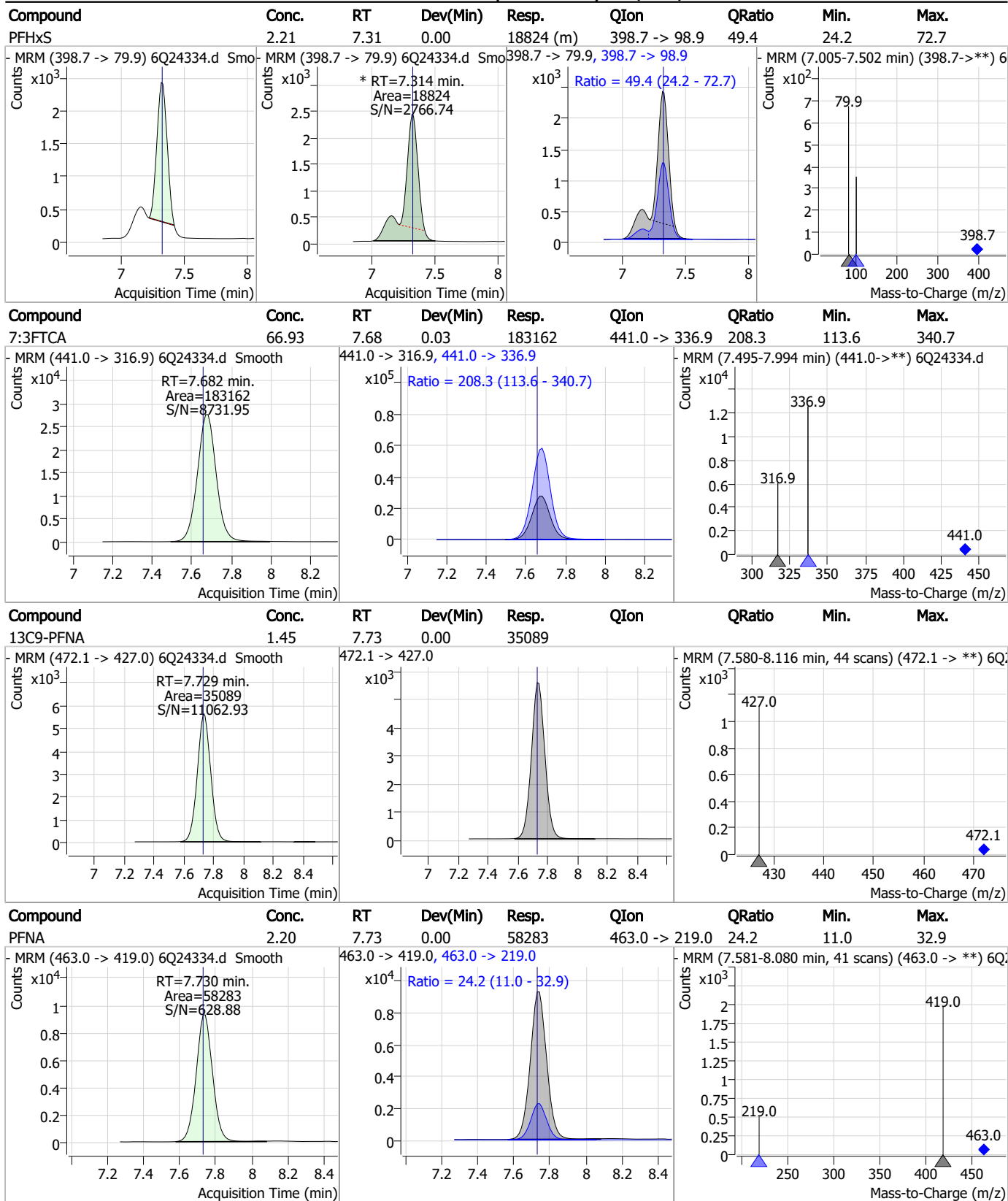


Perfluorinated Compounds by LC/MS/MS



7.7.13

Perfluorinated Compounds by LC/MS/MS



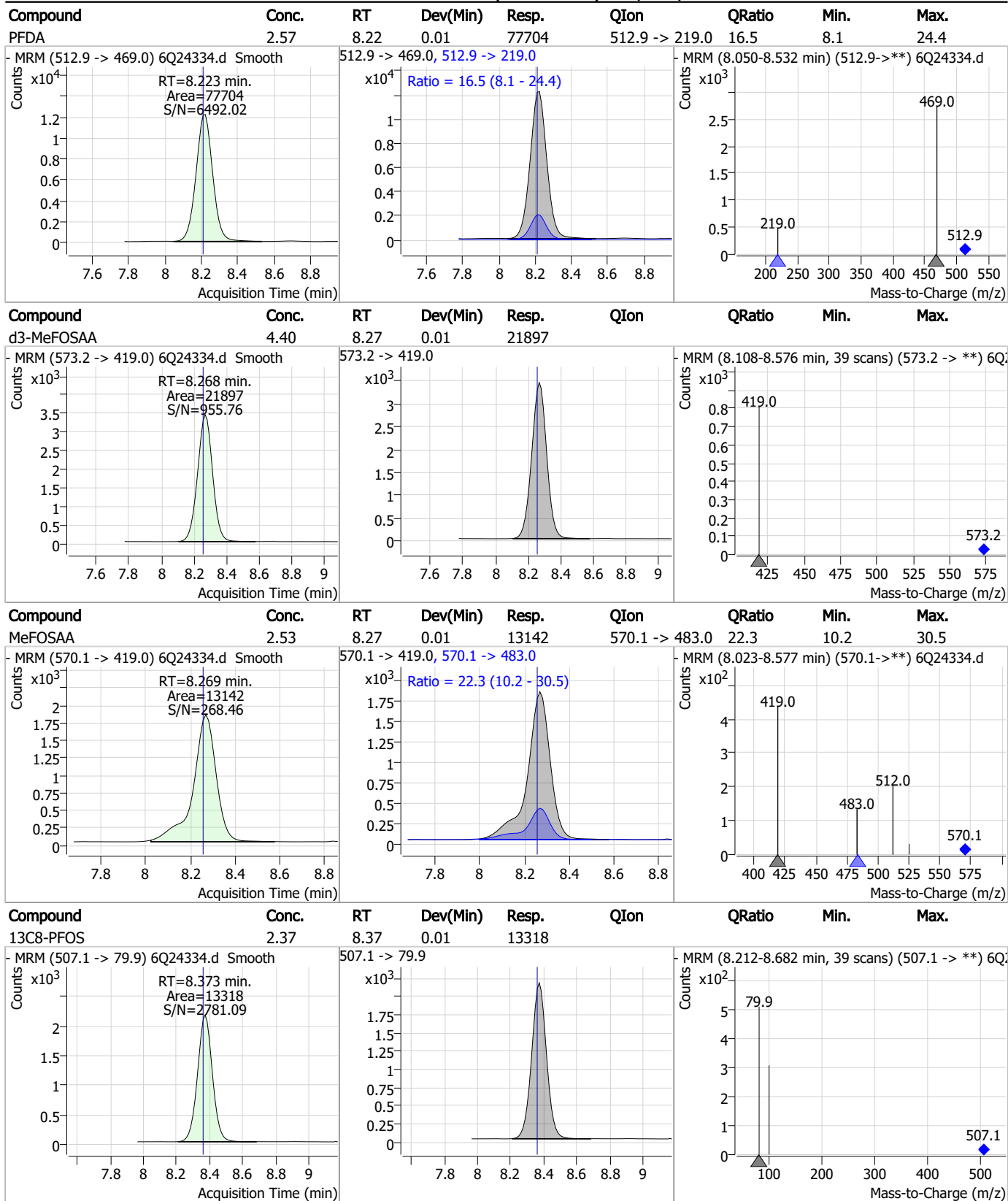
7.7.13
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.48	7.87	0.00	15972	449.0 -> 98.9	44.8	23.4	70.1
13C2-8:2FTS	4.67	8.01	0.01	3874	529.1 -> 80.9			
8:2FTS	10.02	8.01	0.01	26197	527.1 -> 80.8	35.7	19.7	59.0
13C6-PFDA	1.34	8.22	0.01	33254	519.1 -> 474.1			

7.7.13
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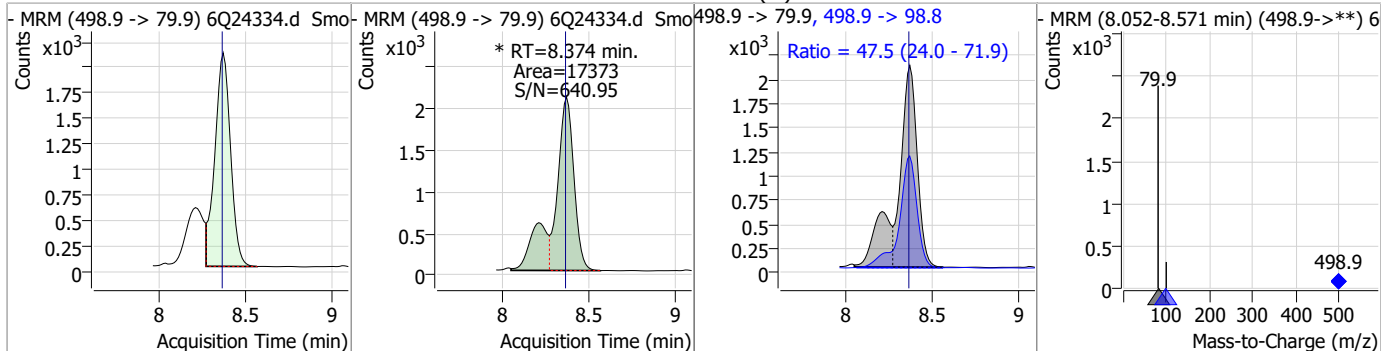
Perfluorinated Compounds by LC/MS/MS



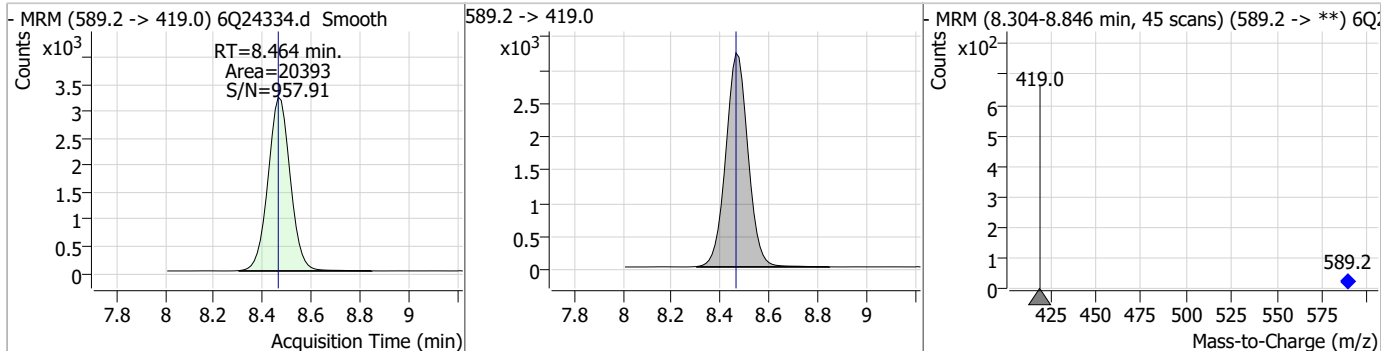
7.7.13
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Perfluorinated Compounds by LC/MS/MS

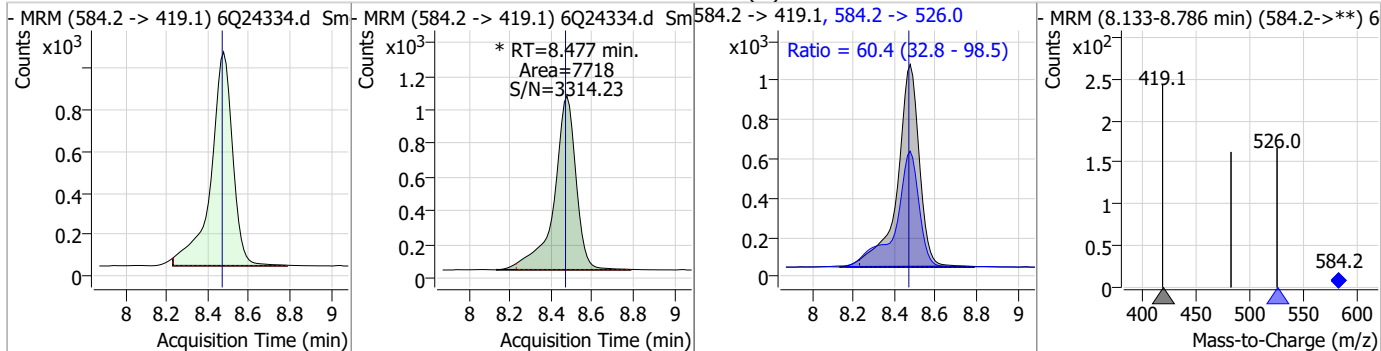
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.35	8.37	0.01	17373 (m)	498.9 -> 98.8	47.5	24.0	71.9



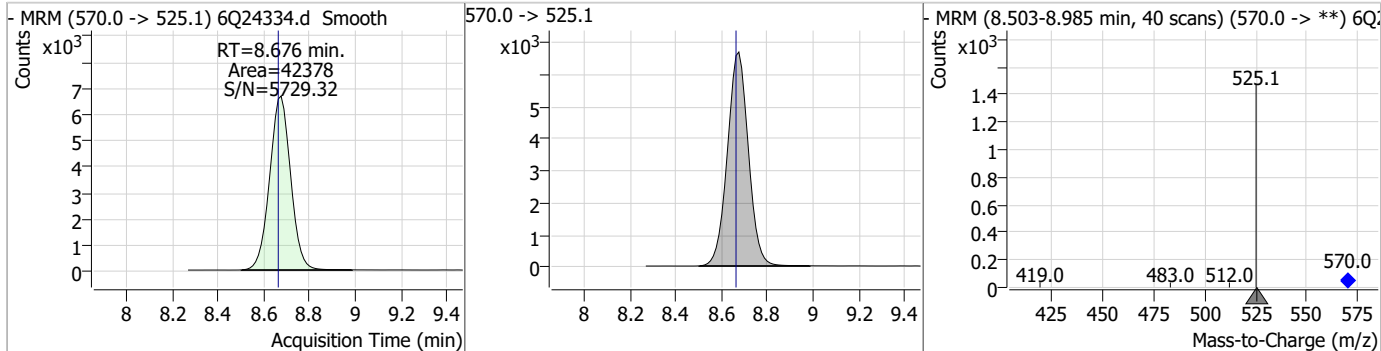
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.26	8.46	0.00	20393				



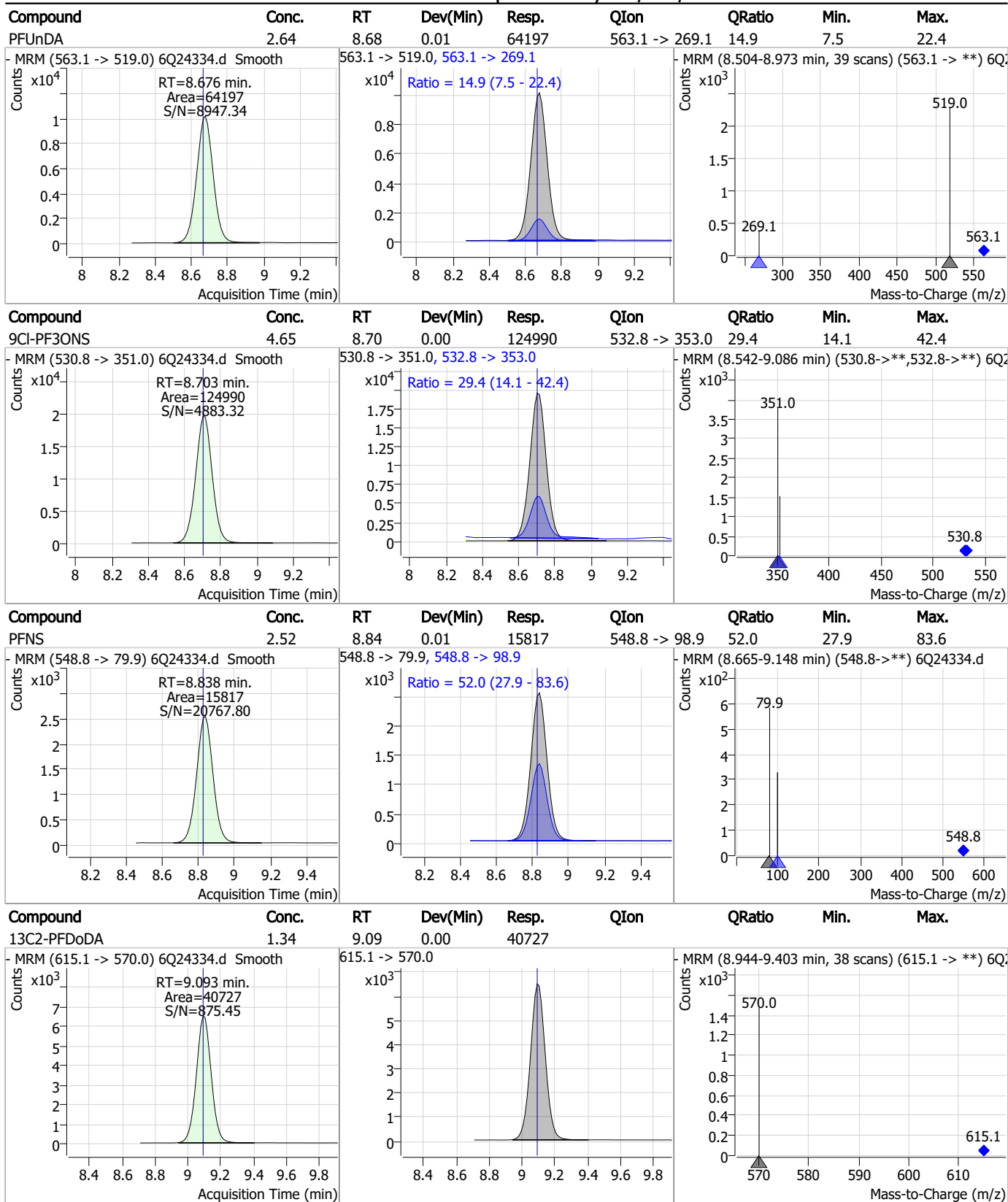
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.68	8.48	0.01	7718 (m)	584.2 -> 526.0	60.4	32.8	98.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.68	0.01	42378				

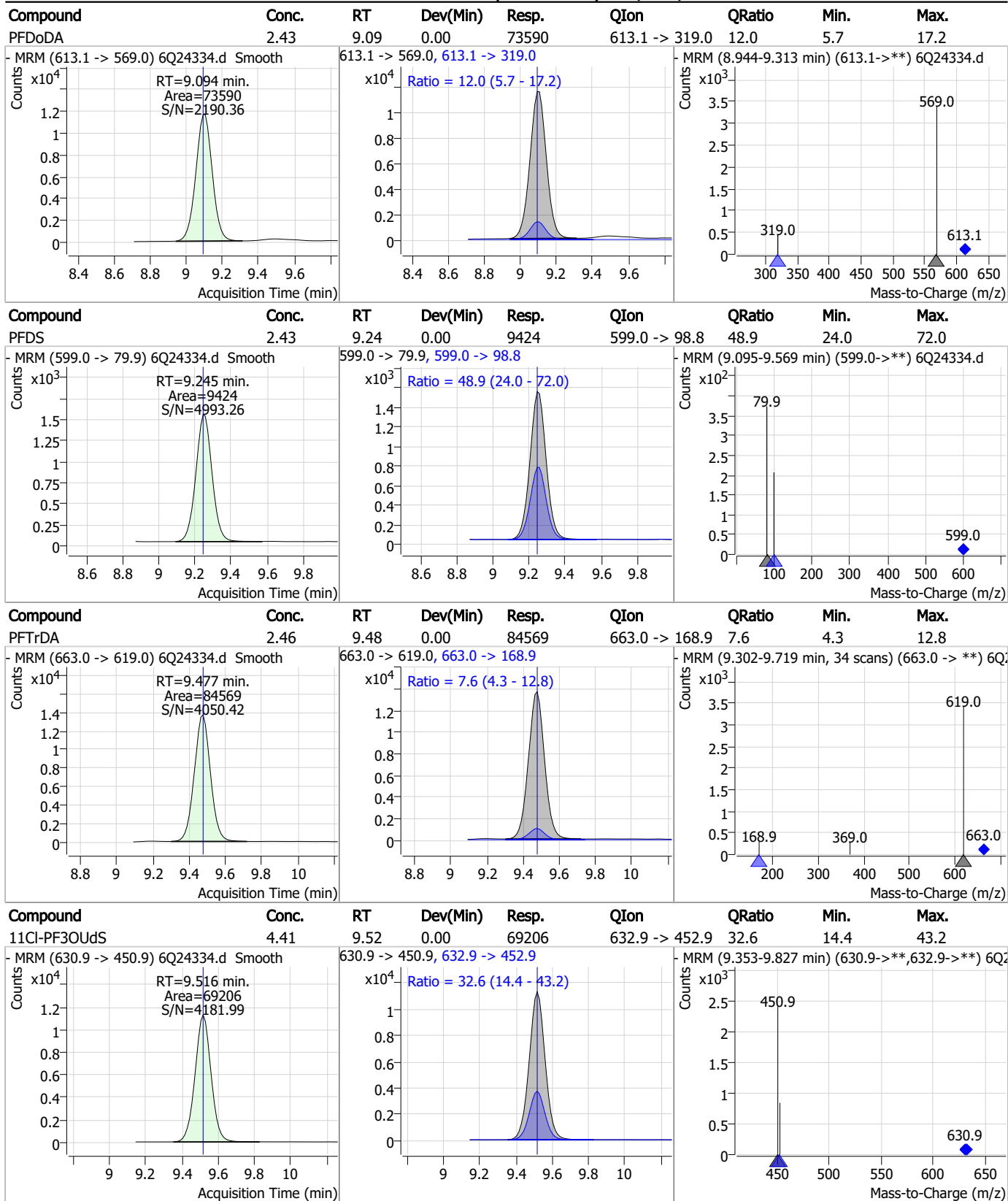


Perfluorinated Compounds by LC/MS/MS



7.7.13
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Perfluorinated Compounds by LC/MS/MS



7.7.13
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Perfluorinated Compounds by LC/MS/MS

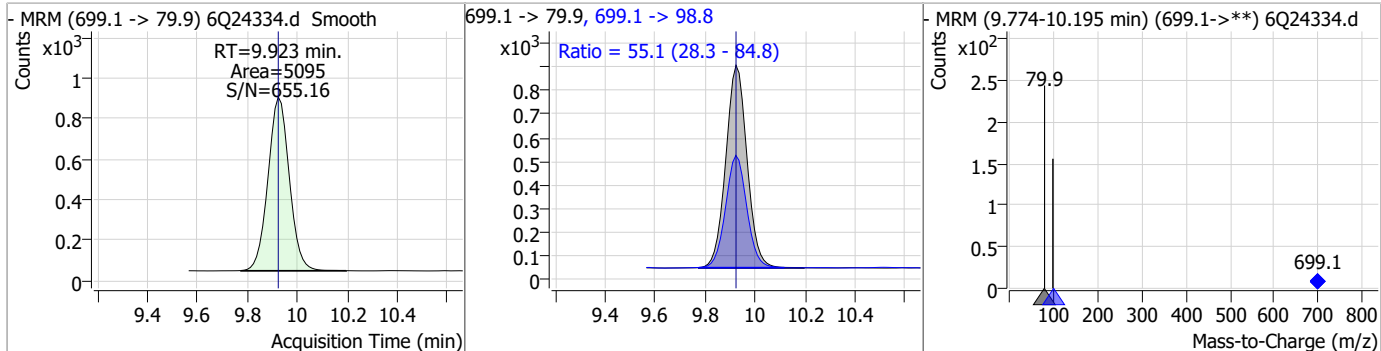
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.49	9.67	0.01	31565				
- MRM (506.1 -> 77.8) 6Q24334.d Smooth Counts x10 ³ RT=9.670 min. Area=31565 S/N=223149.42 Acquisition Time (min)			506.1 -> 77.8 Counts x10 ³ Acquisition Time (min)			- MRM (9.509-10.040 min, 44 scans) (506.1 -> **) 6Q24334.d Counts x10 ³ 77.8 506.1 Mass-to-Charge (m/z)		
FOSA	2.32	9.67	0.01	26982	498.1 -> 478.0	2.7	1.5	4.5
- MRM (498.1 -> 77.9) 6Q24334.d Smooth Counts x10 ³ RT=9.672 min. Area=26982 S/N=155430.07 Acquisition Time (min)			498.1 -> 77.9, 498.1 -> 478.0 Counts x10 ³ Ratio = 2.7 (1.5 - 4.5) Acquisition Time (min)			- MRM (9.499-9.981 min) (498.1->**) 6Q24334.d Counts x10 ³ 77.9 478.0 Mass-to-Charge (m/z)		
13C2-PFTeDA	1.41	9.81	0.01	16009				
- MRM (715.2 -> 670.0) 6Q24334.d Smooth Counts x10 ³ RT=9.809 min. Area=16009 S/N=26492.51 Acquisition Time (min)			715.2 -> 670.0 Counts x10 ³ Acquisition Time (min)			- MRM (9.636-10.118 min, 40 scans) (715.2 -> **) 6Q24334.d Counts x10 ² 670.0 715.2 Mass-to-Charge (m/z)		
PFTeDA	2.44	9.81	0.01	56362	713.1 -> 168.9	7.5	3.9	11.6
- MRM (713.1 -> 669.0) 6Q24334.d Smooth Counts x10 ⁴ RT=9.809 min. Area=56362 S/N=2803.17 Acquisition Time (min)			713.1 -> 669.0, 713.1 -> 168.9 Counts x10 ⁴ Ratio = 7.5 (3.9 - 11.6) Acquisition Time (min)			- MRM (9.636-10.011 min) (713.1->**) 6Q24334.d Counts x10 ³ 219.0 669.0 713.1 Mass-to-Charge (m/z)		

7.7.13
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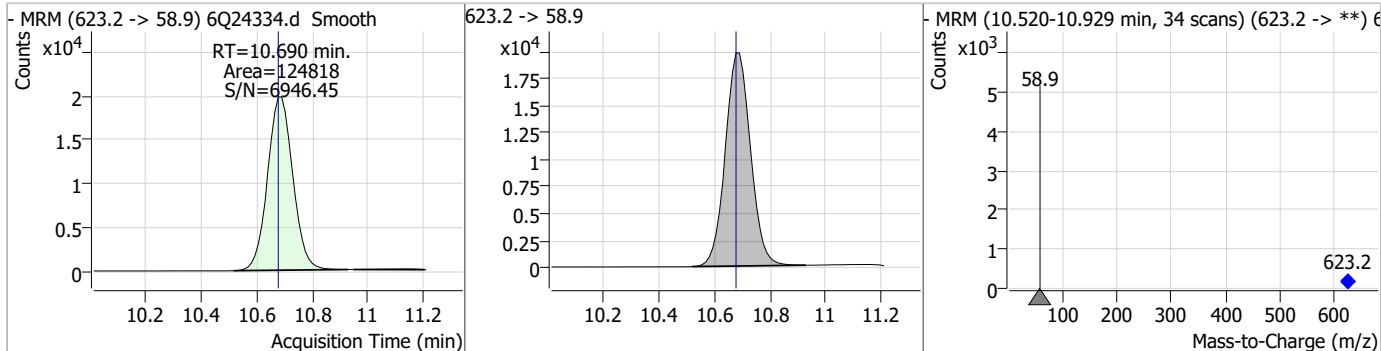


Perfluorinated Compounds by LC/MS/MS

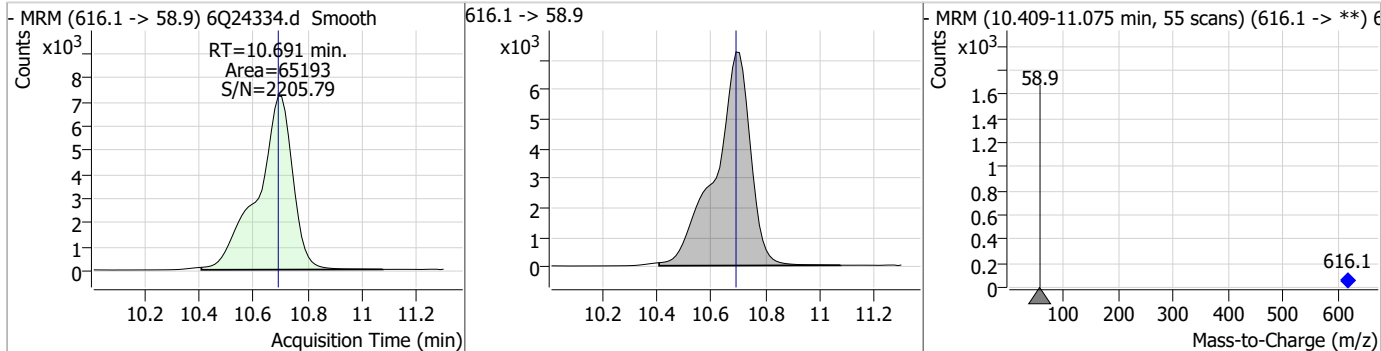
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	2.40	9.92	0.00	5095	699.1 -> 98.8	55.1	28.3	84.8



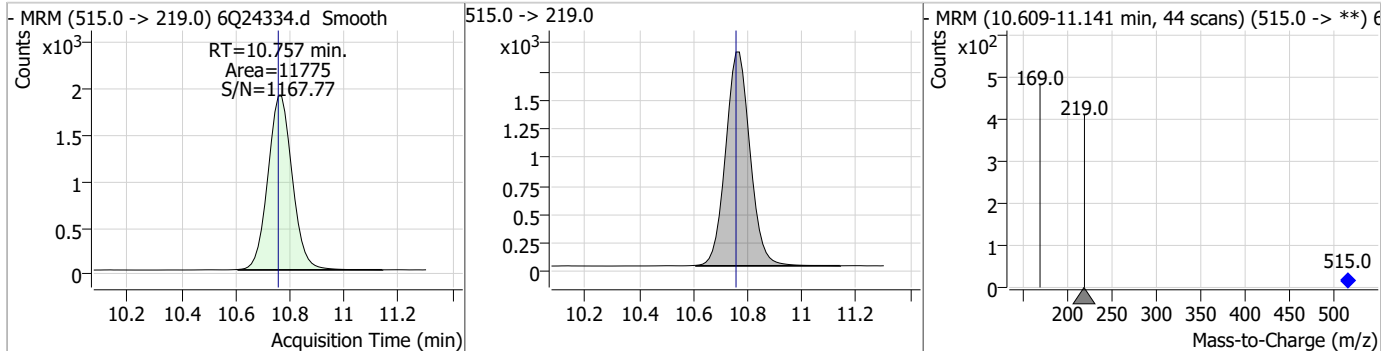
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.66	10.69	0.01	124818				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.08	10.69	0.00	65193				



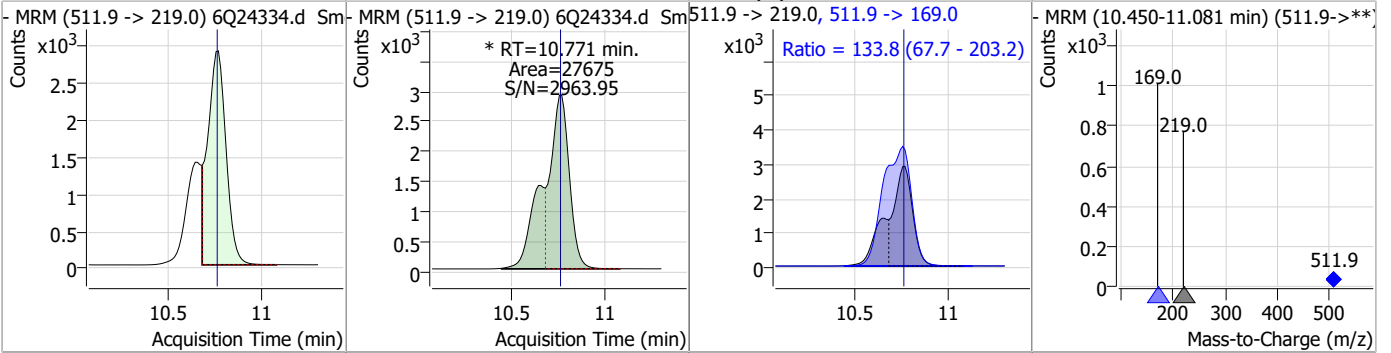
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.29	10.76	0.00	11775				



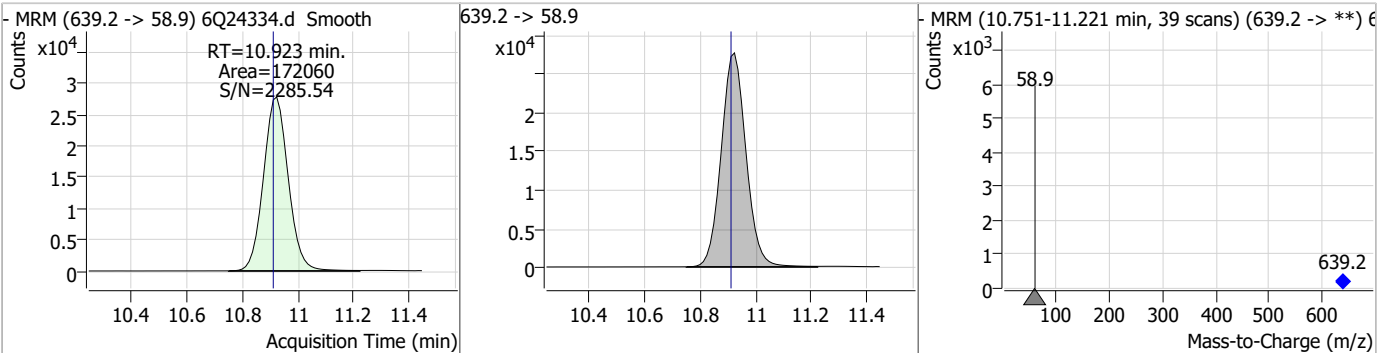
7.7.13
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Perfluorinated Compounds by LC/MS/MS

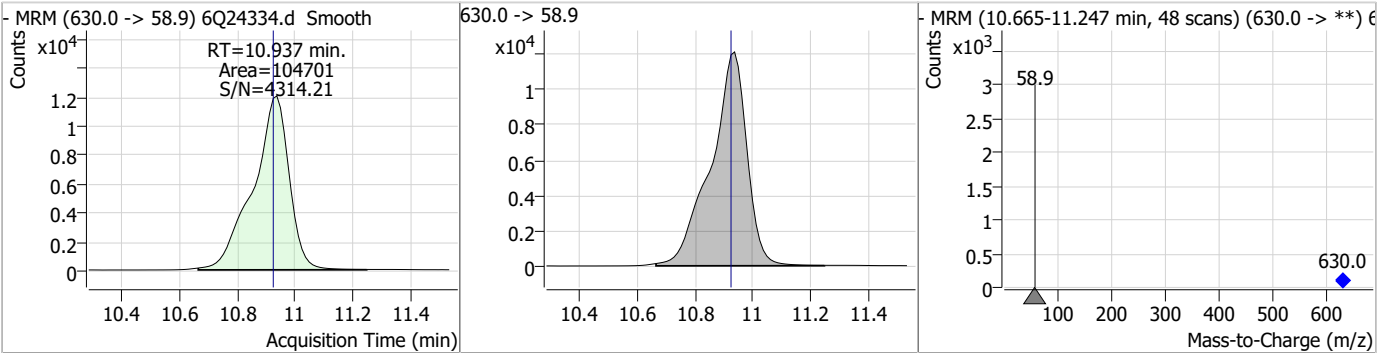
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.54	10.77	0.01	27675 (m)	511.9 -> 169.0	133.8	67.7	203.2



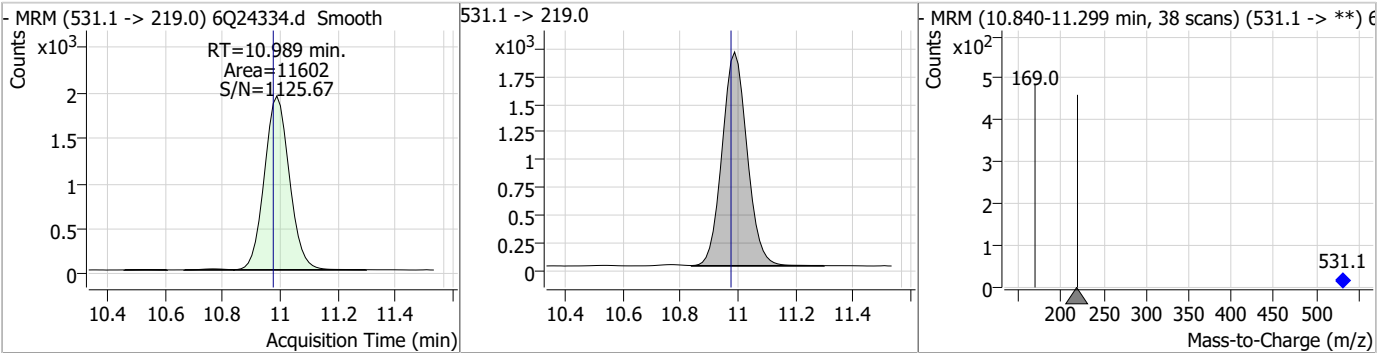
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.31	10.92	0.01	172060				



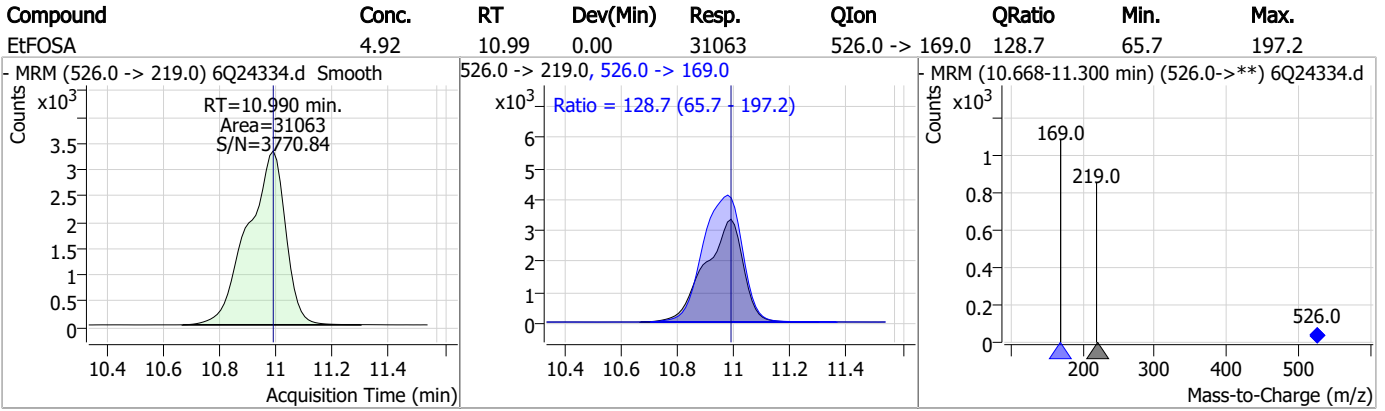
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.80	10.94	0.01	104701				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.42	10.99	0.01	11602				



Perfluorinated Compounds by LC/MS/MS



7.7.13
7



Manual Integration Approval Summary

Sample Number: S6Q350-CC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24334.D Analyst approved: 09/13/23 14:00 Martha Valls
Injection Time: 09/12/23 14:27 Supervisor approved: 09/13/23 15:06 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSA	31506-32-8		10.77	Split peak

7.7.13.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24382.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 1:54:58 AM
 Sample Name : cc347-4
 Vial : P1-A5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	203859	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	33904	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	76496	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	61023	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	82284	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	36899	1.25 µg/L	0.000
M6-PFDA	8.222	519.1 -> 474.1	31315	1.25 µg/L	0.012
M7-PFUnDA	8.663	570.0 -> 525.1	43950	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	43047	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	15388	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	31443	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	24360	2.50 µg/L	0.012
M3-PFHxS	7.326	402.1 -> 79.9	14208	2.50 µg/L	0.012
M8-PFOS	8.373	507.1 -> 79.9	14012	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2781	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3815	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3966	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	21967	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	41930	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	20881	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	116440	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	156864	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	11770	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	11945	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	17573	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	78985	5.00 µg/L	0.012
18O2-PFHxS	7.325	403.0 -> 83.9	10500	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	91568	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	30051	1.25 µg/L	0.000
13C5-PFNA	7.742	468.0 -> 423.0	39635	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	57713	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2781	4.71 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3815	4.40 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.0%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3966	4.42 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.3%		
13C2-PFDoDA	9.093	615.1 -> 570.0	43047	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-PFTeDA	9.796	715.2 -> 670.0	15388	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C3-PFBS	5.584	302.1 -> 79.9	24360	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C3-PFHxS	7.326	402.1 -> 79.9	14208	2.46 µg/L	0.012

7.7.14
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C4-PFBA	2.997	216.8 -> 171.9	203859	10.22 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C4-PFHpA	6.581	367.1 -> 322.0	61023	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFHxA	5.654	318.0 -> 273.0	76496	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C5-PFPeA	4.434	268.3 -> 223.0	33904	4.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
13C6-PFDA	8.222	519.1 -> 474.1	31315	1.20 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C7-PFUnDA	8.663	570.0 -> 525.1	43950	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-FOSA	9.670	506.1 -> 77.8	31443	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOA	7.211	421.1 -> 376.0	82284	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C8-PFOS	8.373	507.1 -> 79.9	14012	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C9-PFNA	7.729	472.1 -> 427.0	36899	1.49 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 119.2%	
d3-MeFOSAA	8.268	573.2 -> 419.0	21967	4.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.4%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	41930	9.54 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
d3-MeFOSA	10.757	515.0 -> 219.0	11945	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
d5-EtFOSAA	8.464	589.2 -> 419.0	20881	4.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
d7-MeFOSE	10.678	623.2 -> 58.9	116440	25.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
d9-EtFOSE	10.923	639.2 -> 58.9	156864	25.23 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
d5-EtFOSA	10.989	531.1 -> 219.0	11770	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	41645	9.05 µg/L	97
		327.1 -> 80.9	16041		
6:2FTS	6.987	427.1 -> 407.0	31317	9.28 µg/L	95
		427.1 -> 80.9	13420		
8:2FTS	8.012	527.1 -> 507.0	24640	9.21 µg/L	99
		527.1 -> 80.8	9467		
EtFOSAA	8.477	584.2 -> 419.1	7362	2.50 µg/L	m 95
		584.2 -> 526.0	5137		
FOSA	9.672	498.1 -> 77.9	27470	2.37 µg/L	100
		498.1 -> 478.0	786		
MeFOSAA	8.269	570.1 -> 419.0	13480	2.58 µg/L	94
		570.1 -> 483.0	3121		
PFBA	2.993	212.8 -> 168.9	71314	10.58 µg/L	100
PFBS	5.585	298.7 -> 79.9	26350	2.21 µg/L	97
		298.7 -> 98.8	9513		
PFDA	8.211	512.9 -> 469.0	80315	2.82 µg/L	97
		512.9 -> 219.0	12177		
PFDODA	9.094	613.1 -> 569.0	76134	2.38 µg/L	99
		613.1 -> 319.0	8573		
PFDS	9.245	599.0 -> 79.9	9093	2.23 µg/L	97

7.7.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	4545	2.44	µg/L	100
		363.1 -> 319.0	78713			
PFHpS	7.881	363.1 -> 169.0	11615	2.16	µg/L	92
		449.0 -> 79.9	14674			
PFHxA	5.657	449.0 -> 98.9	7672	2.38	µg/L	100
		313.0 -> 269.0	66375			
PFHxS	7.327	313.0 -> 118.9	2997	2.23	µg/L	m
		398.7 -> 79.9	19831			
PFNA	7.742	398.7 -> 98.9	9514	2.04	µg/L	98
		463.0 -> 419.0	56797			
PFNS	8.838	463.0 -> 219.0	12990	2.34	µg/L	99
		548.8 -> 79.9	15468			
PFOA	7.212	548.8 -> 98.9	8712	2.28	µg/L	96
		413.0 -> 369.0	96684			
PFOS	8.374	413.0 -> 169.0	15966	2.28	µg/L	m
		498.9 -> 79.9	17672			
PFPeA	4.436	498.9 -> 98.8	8207	5.30	µg/L	100
		263.0 -> 219.0	80029			
PFPeS	6.633	349.1 -> 79.9	17603	2.28	µg/L	98
		349.1 -> 98.9	8111			
PFTeDA	9.797	713.1 -> 669.0	54685	2.47	µg/L	99
		713.1 -> 168.9	4339			
PFTrDA	9.464	663.0 -> 619.0	85413	2.35	µg/L	98
		663.0 -> 168.9	6759			
PFUnDA	8.664	563.1 -> 519.0	62620	2.49	µg/L	100
		563.1 -> 269.1	9245			
11CI-PF3OUdS	9.516	630.9 -> 450.9	71933	4.70	µg/L	96
		632.9 -> 452.9	22204			
9CI-PF3ONS	8.703	530.8 -> 351.0	119971	4.58	µg/L	95
		532.8 -> 353.0	37134			
ADONA	6.829	376.9 -> 250.9	301307	4.96	µg/L	95
		376.9 -> 84.8	74969			
HFPO-DA	6.032	284.9 -> 168.9	20687	5.21	µg/L	95
		284.9 -> 184.9	2764			
3:3FTCA	3.871	241.0 -> 177.0	13777	11.82	µg/L	98
		241.0 -> 117.0	1372			
5:3FTCA	6.296	341.0 -> 237.1	303495	64.16	µg/L	96
		341.0 -> 217.0	204781			
7:3FTCA	7.682	441.0 -> 316.9	175077	62.63	µg/L	96
		441.0 -> 336.9	387009			
EtFOSA	10.990	526.0 -> 219.0	31206	4.87	µg/L	95
		526.0 -> 169.0	39215			
EtFOSE	10.937	630.0 -> 58.9	97336	13.06	µg/L	100
		511.9 -> 219.0	26677			
MeFOSA	10.758	511.9 -> 169.0	37174	5.26	µg/L	97
		616.1 -> 58.9	61533			
MeFOSE	10.691	699.1 -> 79.9	4906	12.22	µg/L	100
		699.1 -> 98.8	2921			
PFDoDS	9.923	295.0 -> 201.0	15988	2.19	µg/L	96
		295.0 -> 84.9	4049			
NFDHA	5.535	279.0 -> 85.1	58839	4.95	µg/L	96
		229.0 -> 84.9	42845			
PFMBA	4.863	314.8 -> 134.9	158970	5.34	µg/L	100
		314.8 -> 82.9	5359			
PFMPA	3.563			5.43	µg/L	100
PFEESA	6.124			4.57	µg/L	99

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

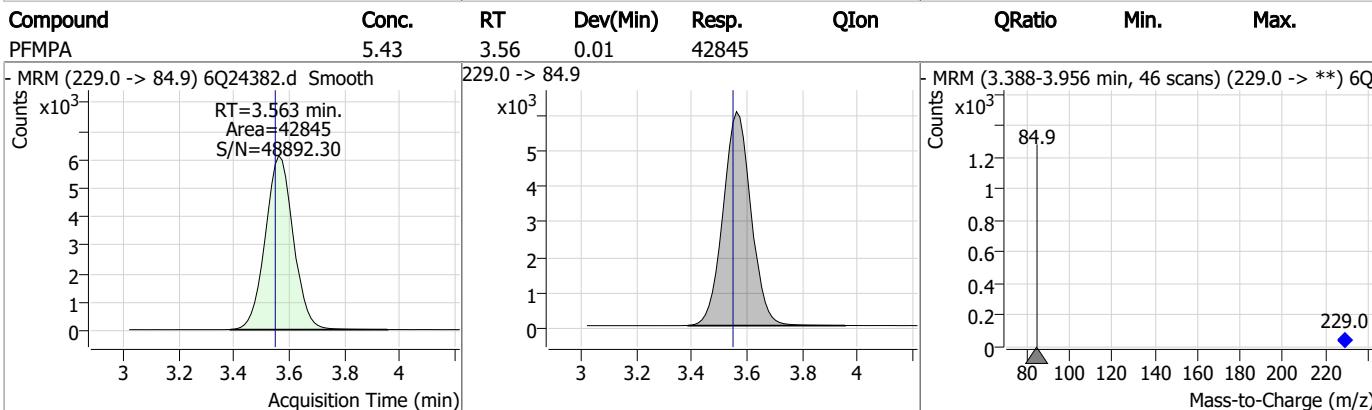
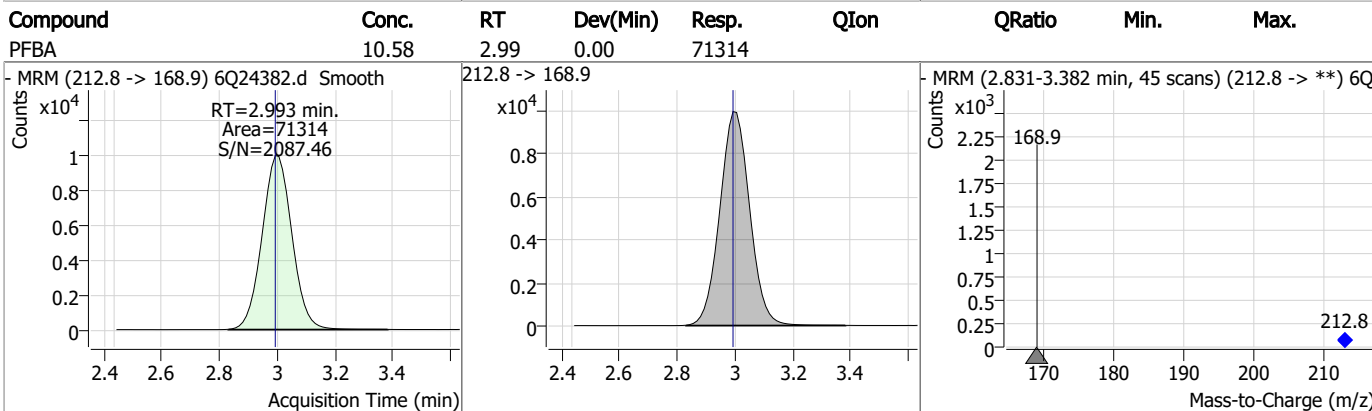
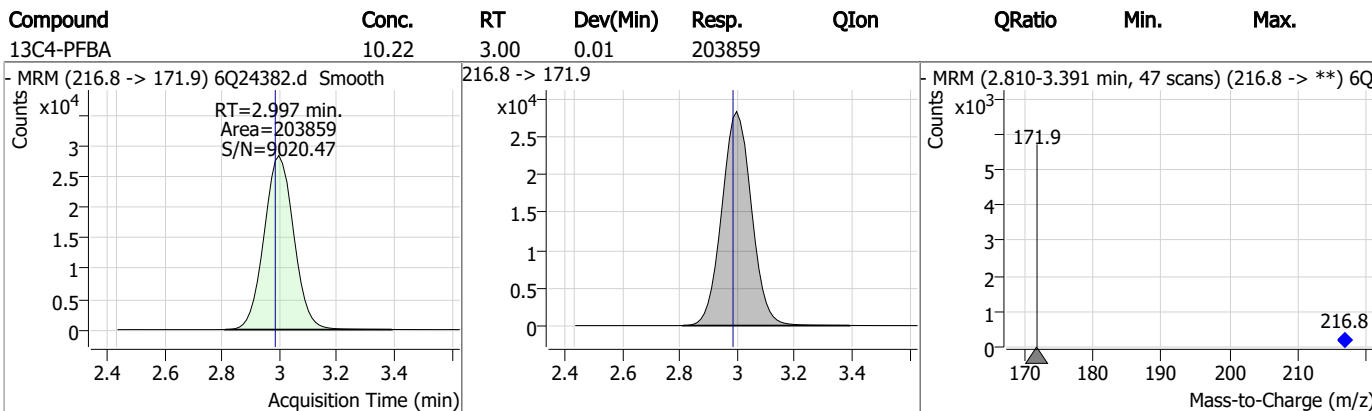
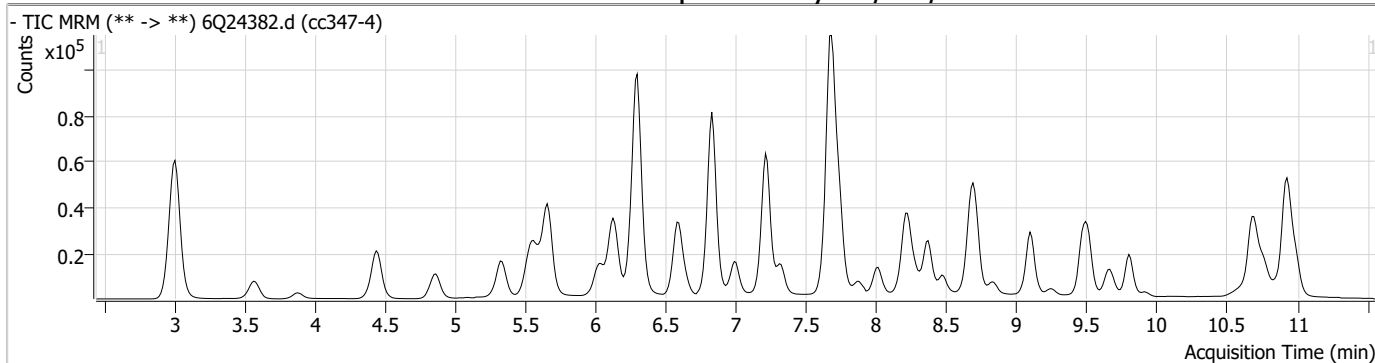
Perfluorinated Compounds by LC/MS/MS

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

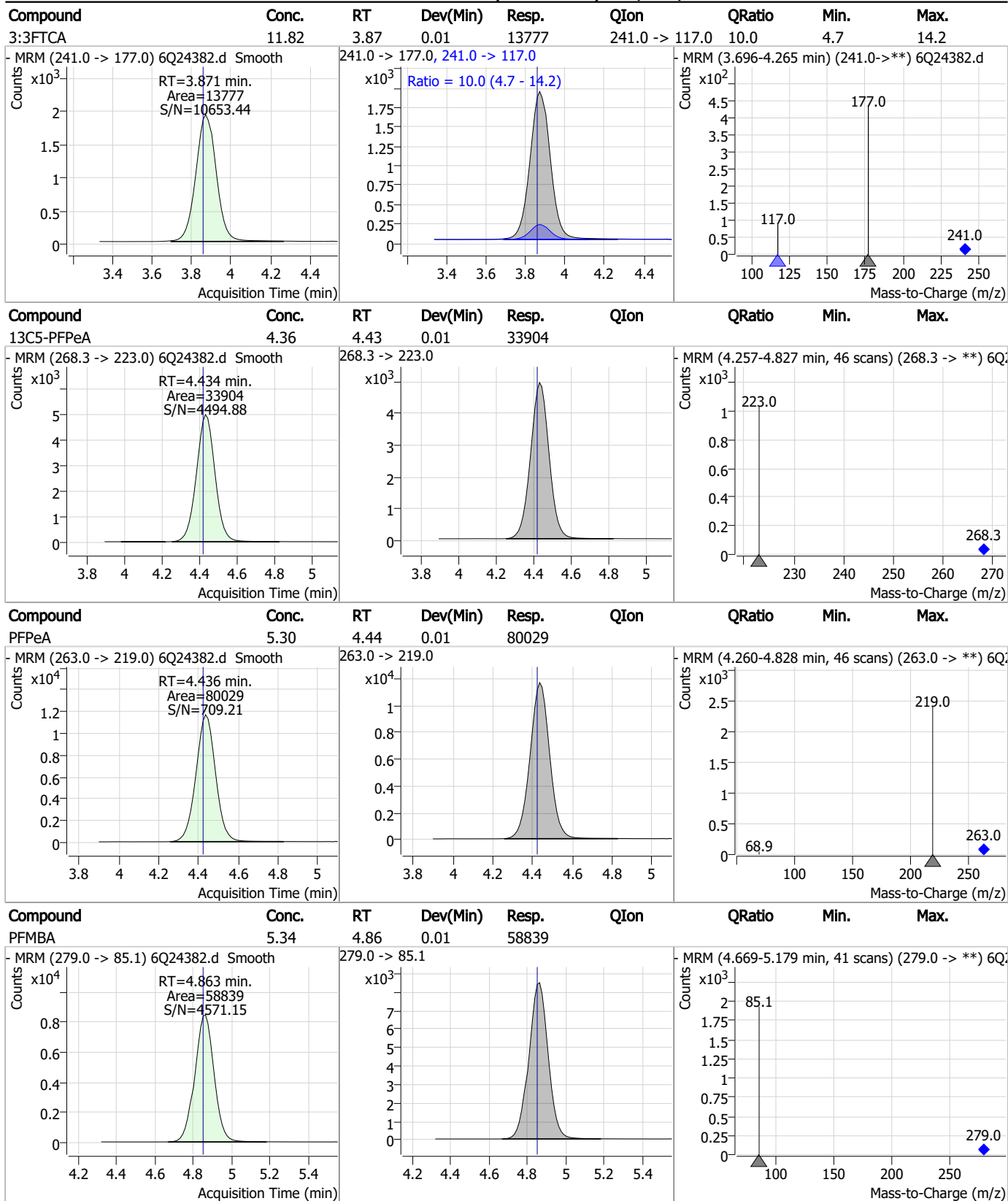
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Perfluorinated Compounds by LC/MS/MS



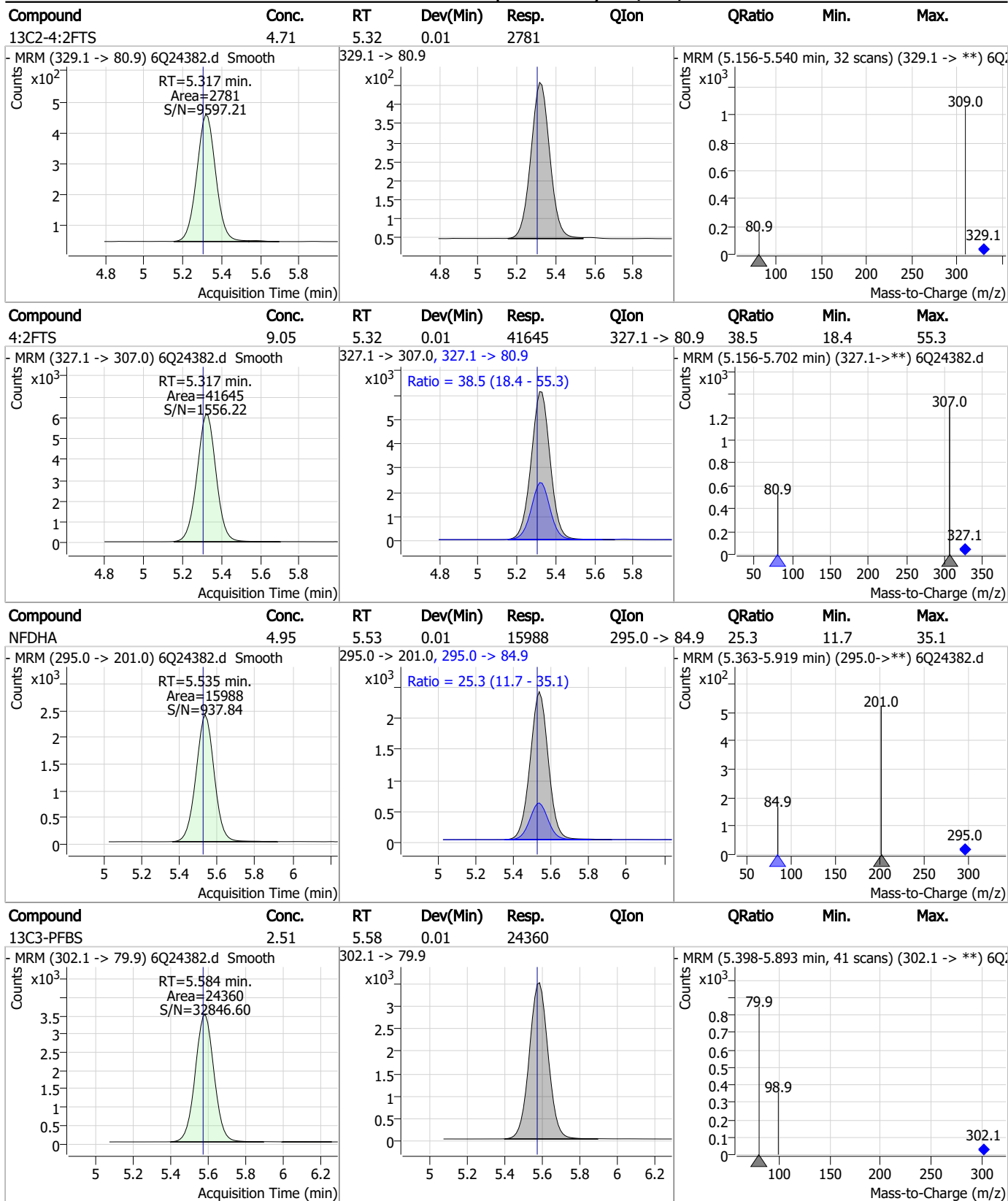
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Perfluorinated Compounds by LC/MS/MS



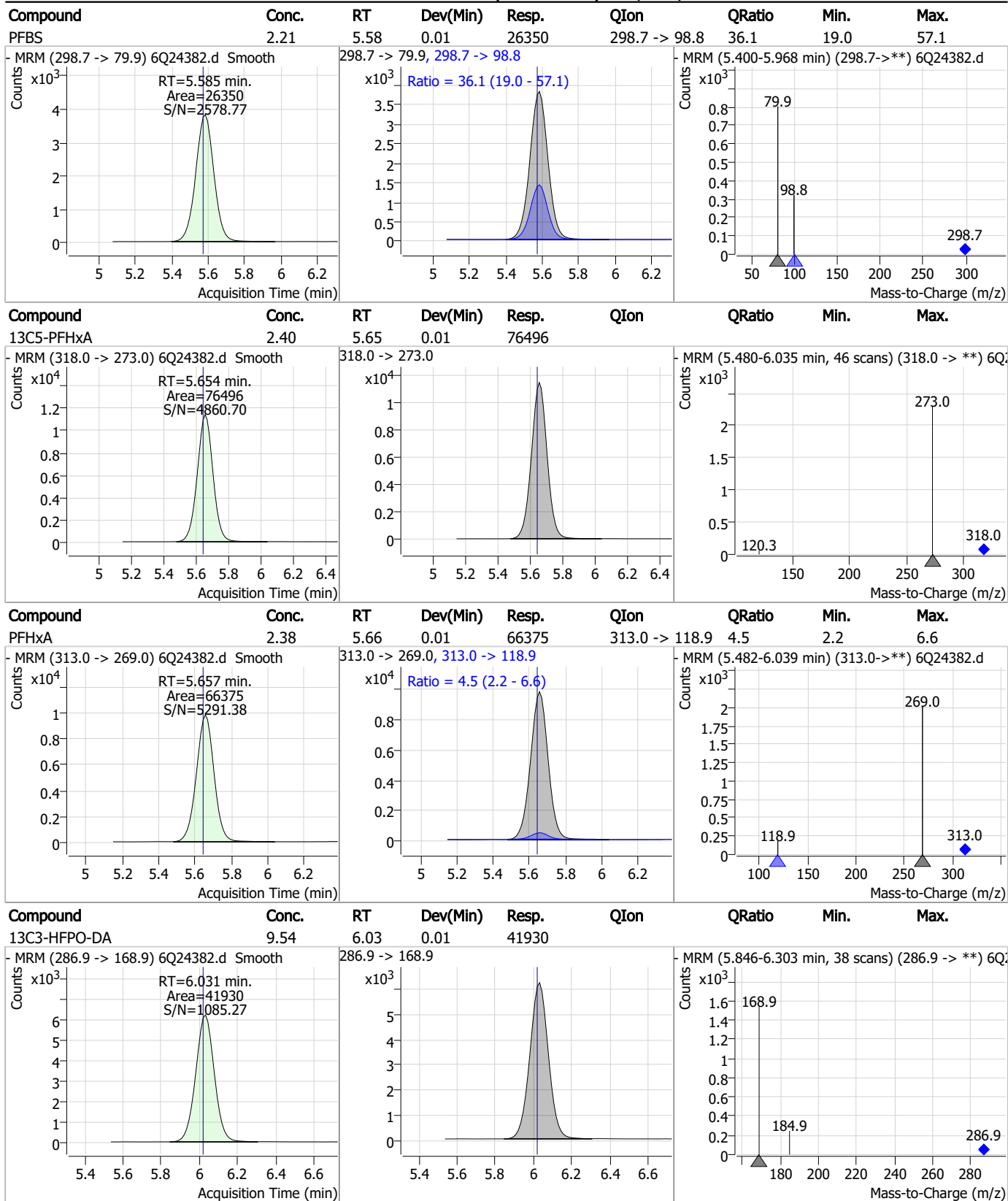
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Perfluorinated Compounds by LC/MS/MS



7.7.14

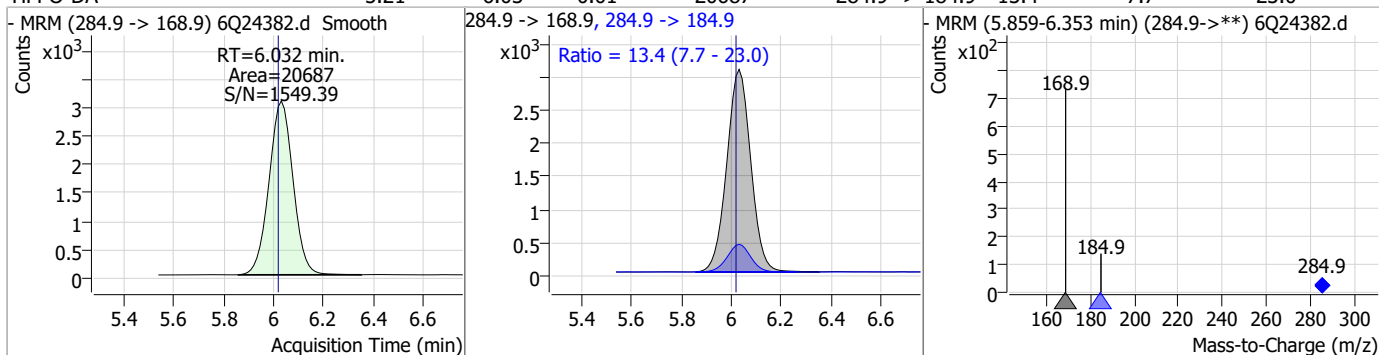
Perfluorinated Compounds by LC/MS/MS



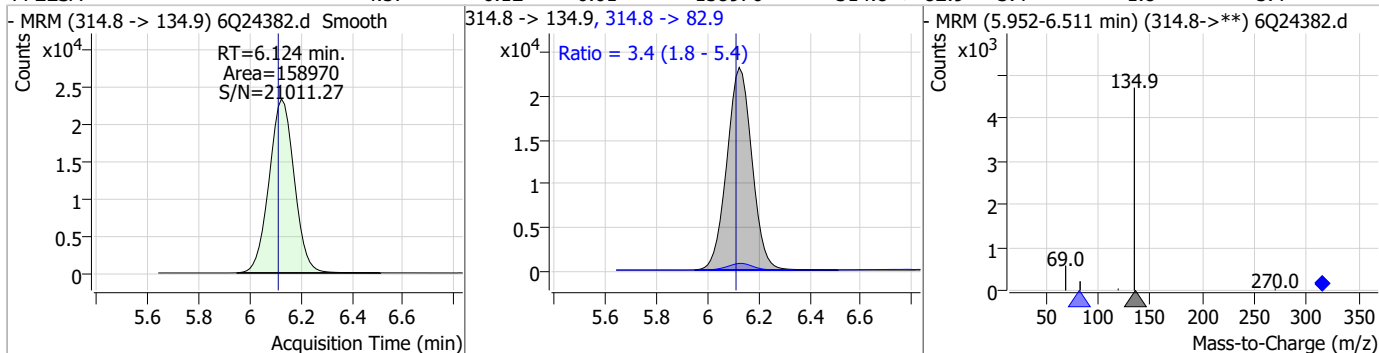
7.7.14
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Perfluorinated Compounds by LC/MS/MS

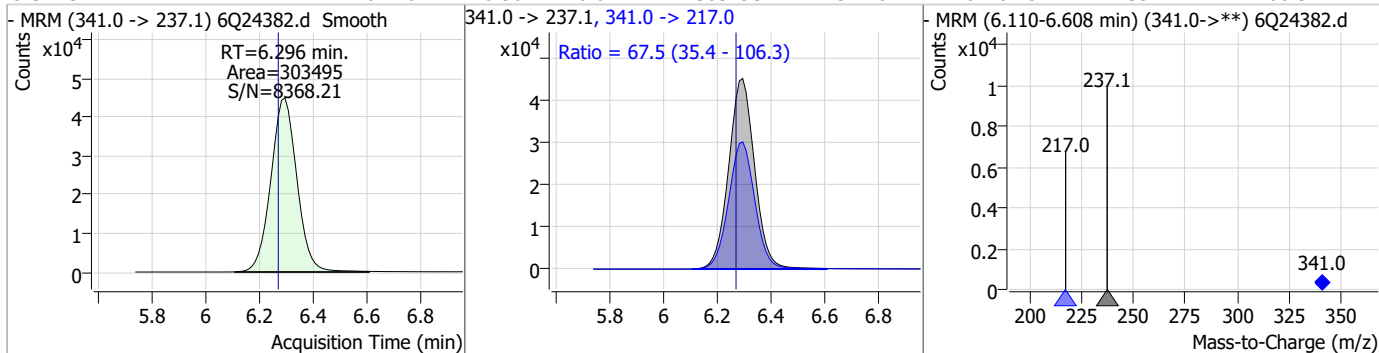
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.21	6.03	0.01	20687	284.9 -> 184.9	13.4	7.7	23.0



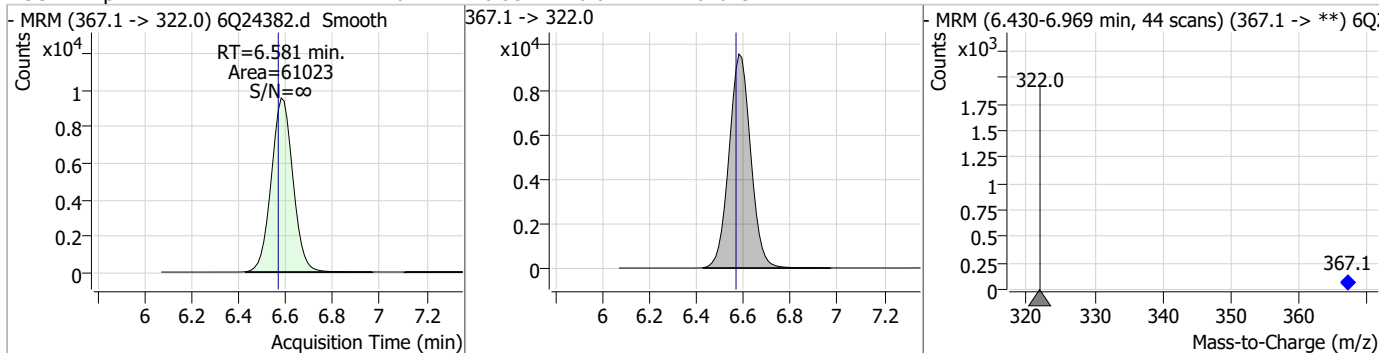
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.57	6.12	0.01	158970	314.8 -> 82.9	3.4	1.8	5.4



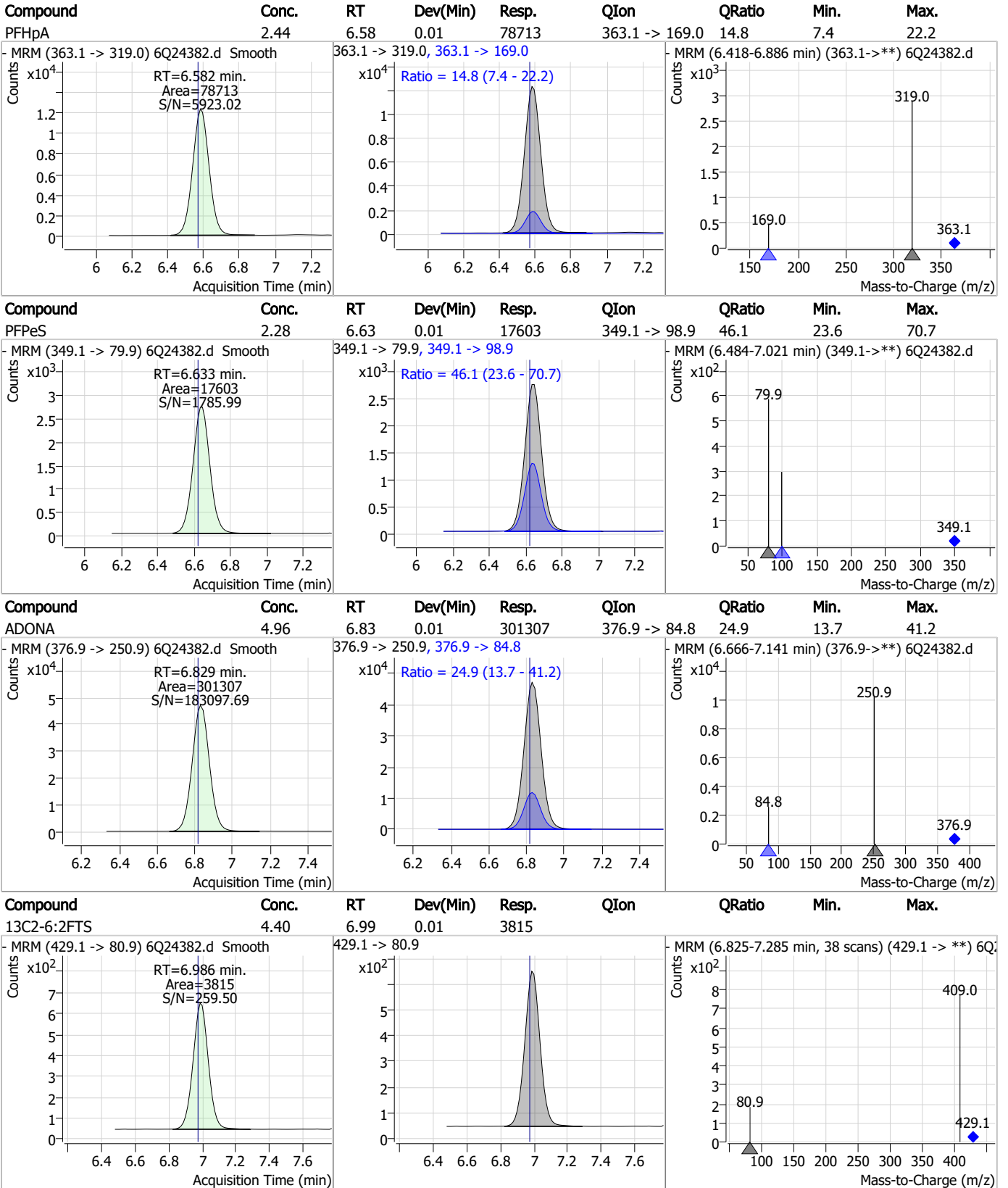
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	64.16	6.30	0.02	303495	341.0 -> 217.0	67.5	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.58	0.01	61023	367.1 -> 322.0			



Perfluorinated Compounds by LC/MS/MS

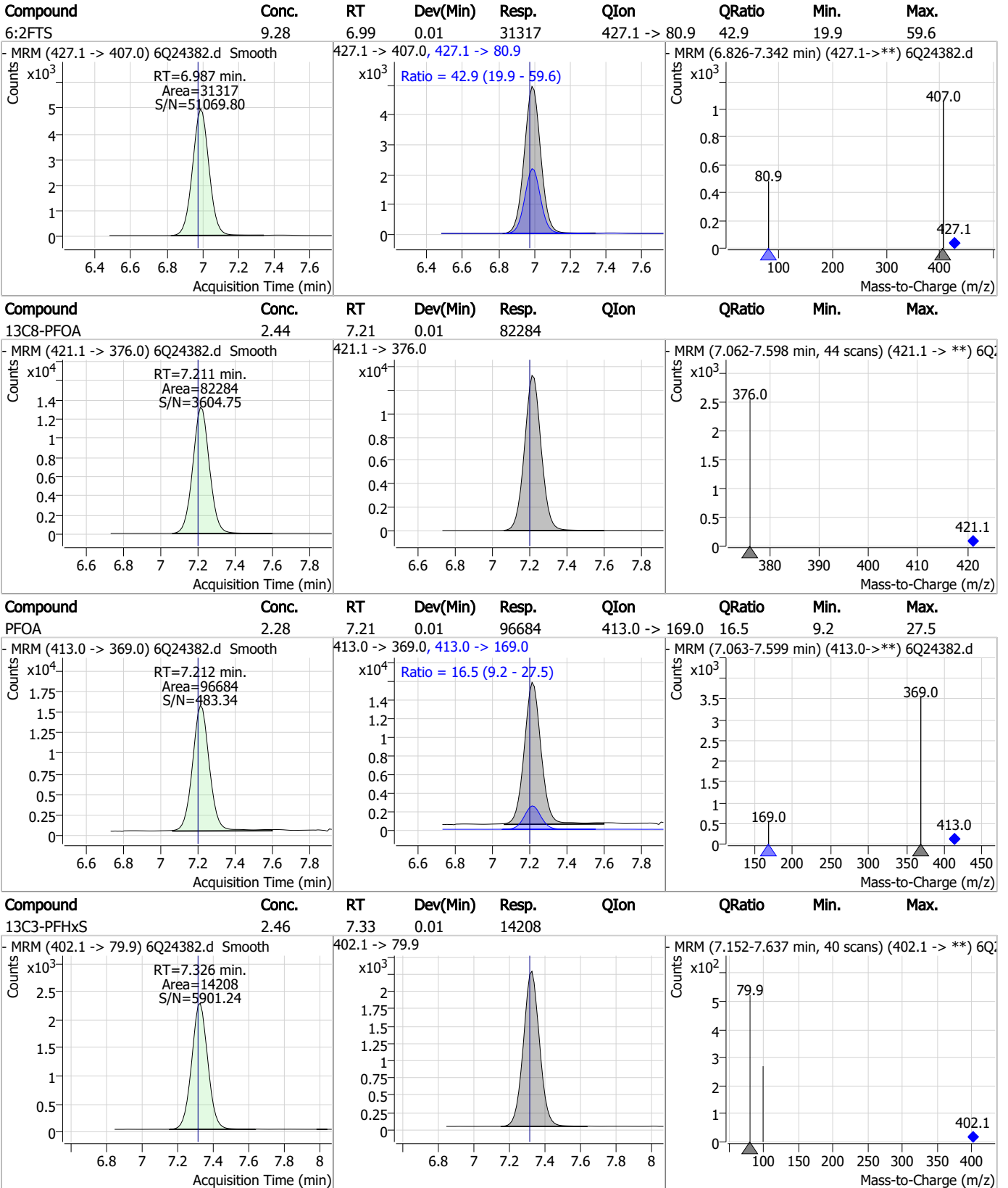


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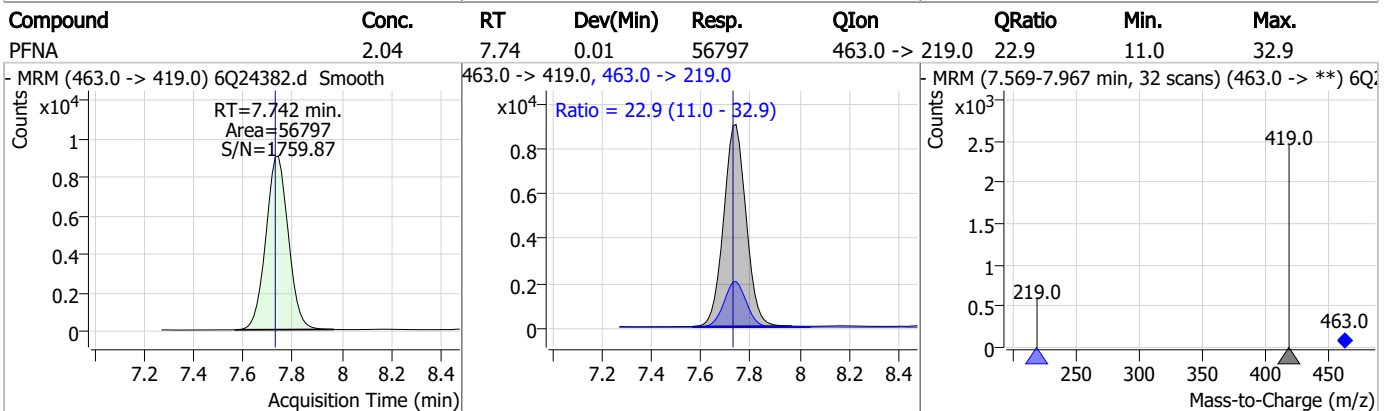
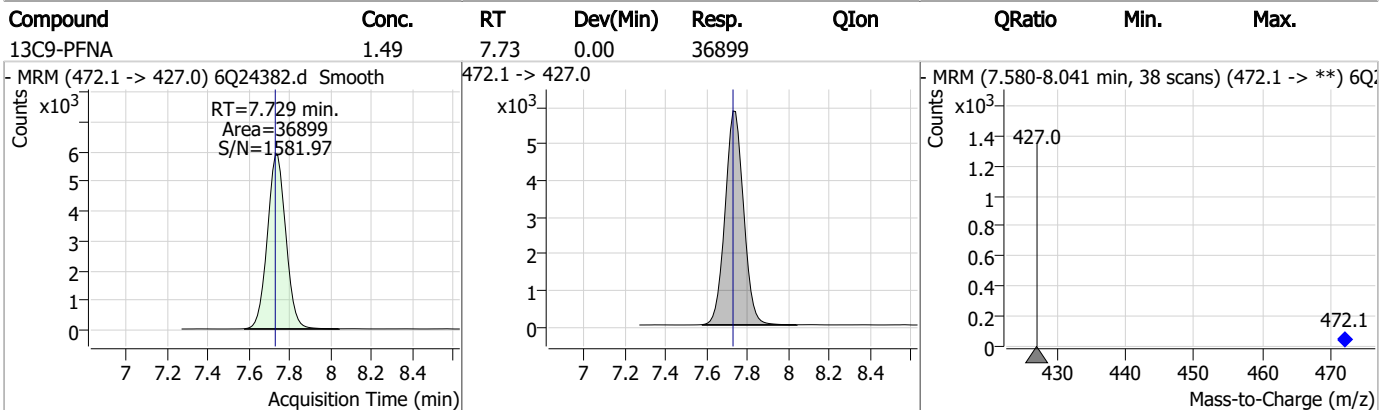
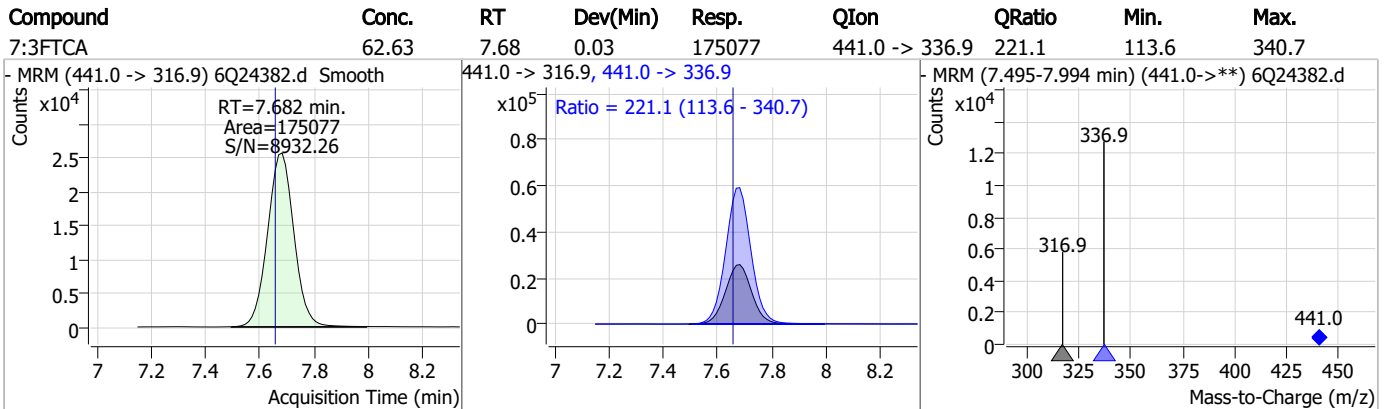
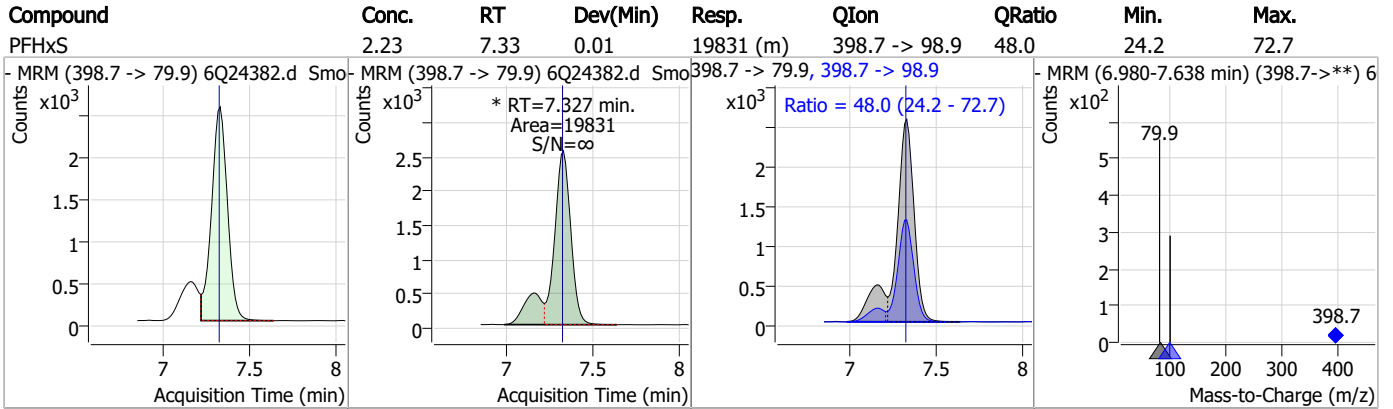
Perfluorinated Compounds by LC/MS/MS



7.7.14

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Perfluorinated Compounds by LC/MS/MS



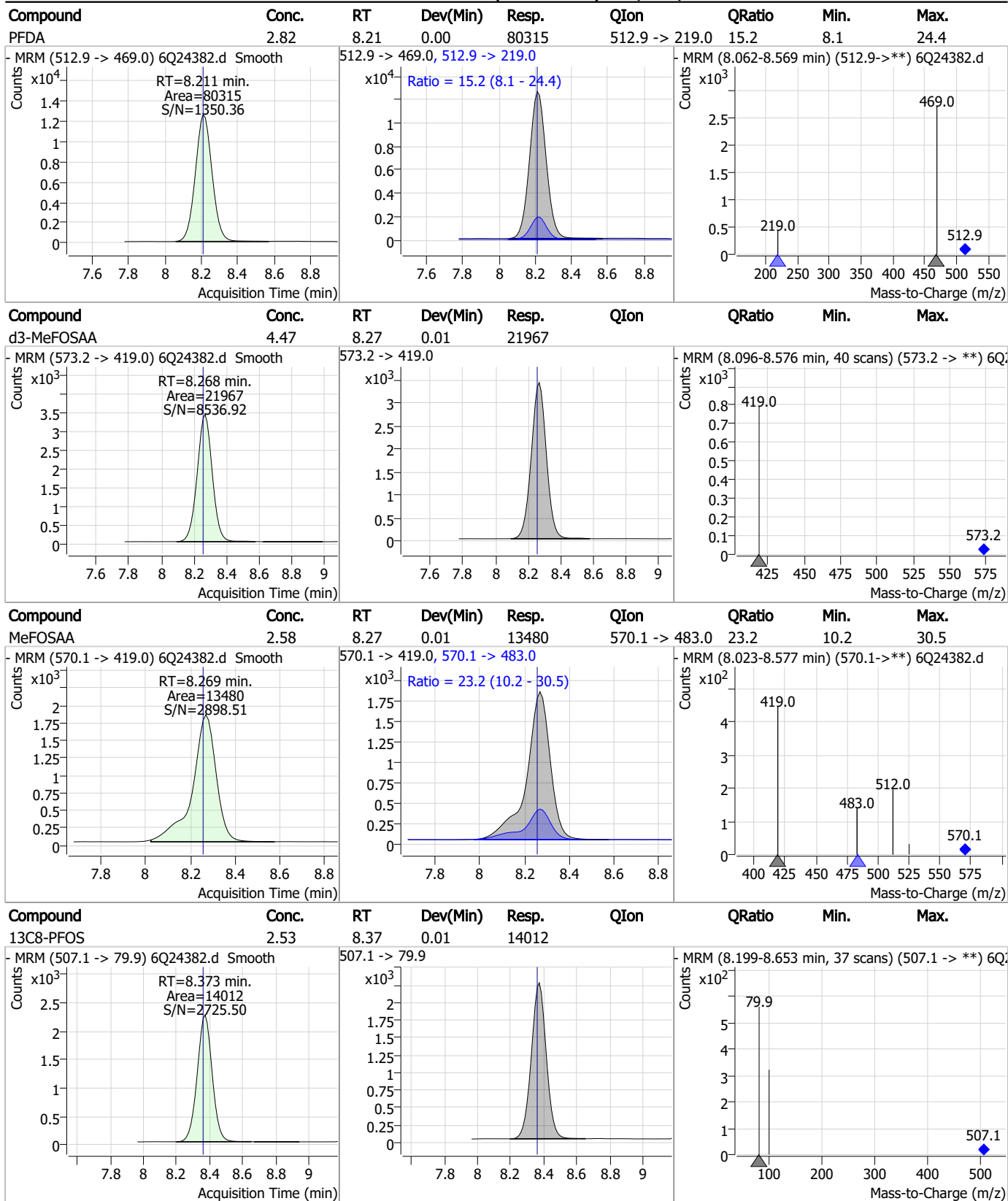
7.7.14
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.16	7.88	0.01	14674	449.0 -> 98.9	52.3	23.4	70.1
13C2-8:2FTS	4.42	8.01	0.01	3966	529.1 -> 80.9			
8:2FTS	9.21	8.01	0.01	24640	527.1 -> 80.8	38.4	19.7	59.0
13C6-PFDA	1.20	8.22	0.01	31315	519.1 -> 474.1			

7.7.14

Perfluorinated Compounds by LC/MS/MS

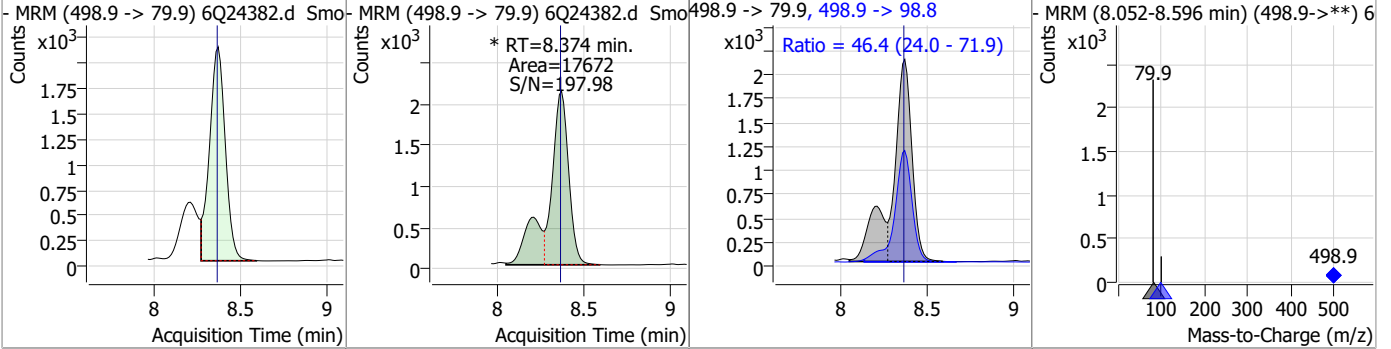


7.7.14
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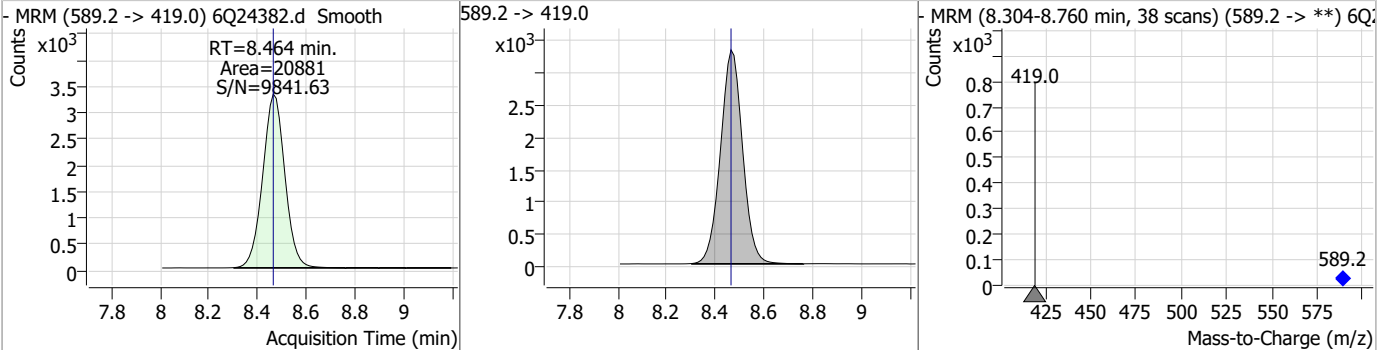


Perfluorinated Compounds by LC/MS/MS

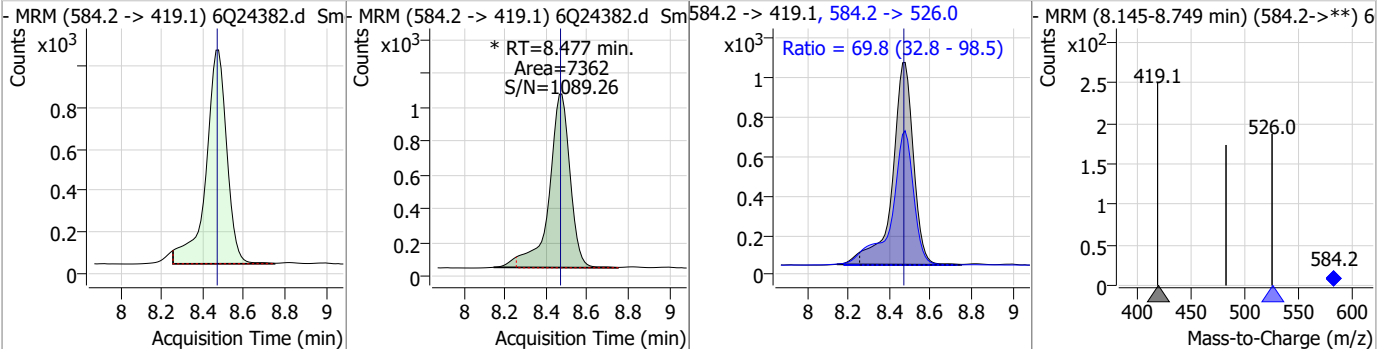
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.28	8.37	0.01	17672 (m)	498.9 -> 98.8	46.4	24.0	71.9



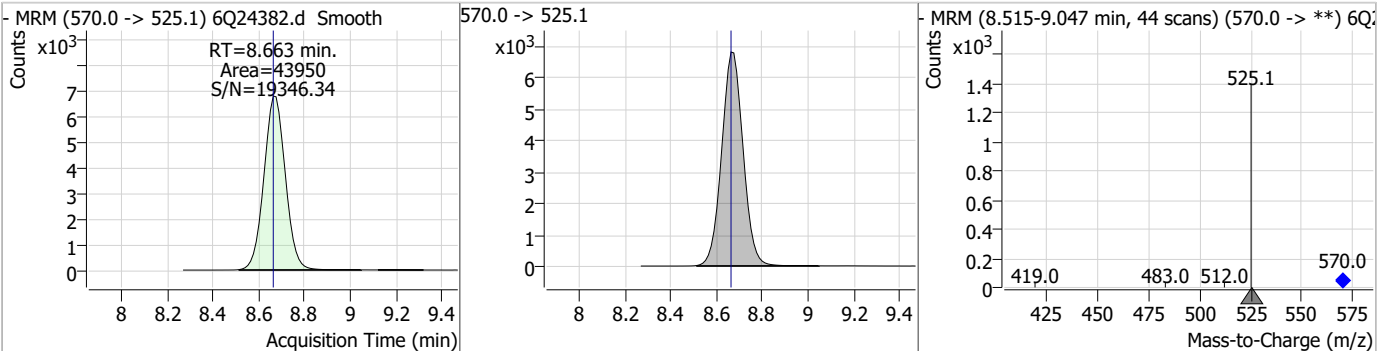
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.42	8.46	0.00	20881				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.50	8.48	0.01	7362 (m)	584.2 -> 526.0	69.8	32.8	98.5

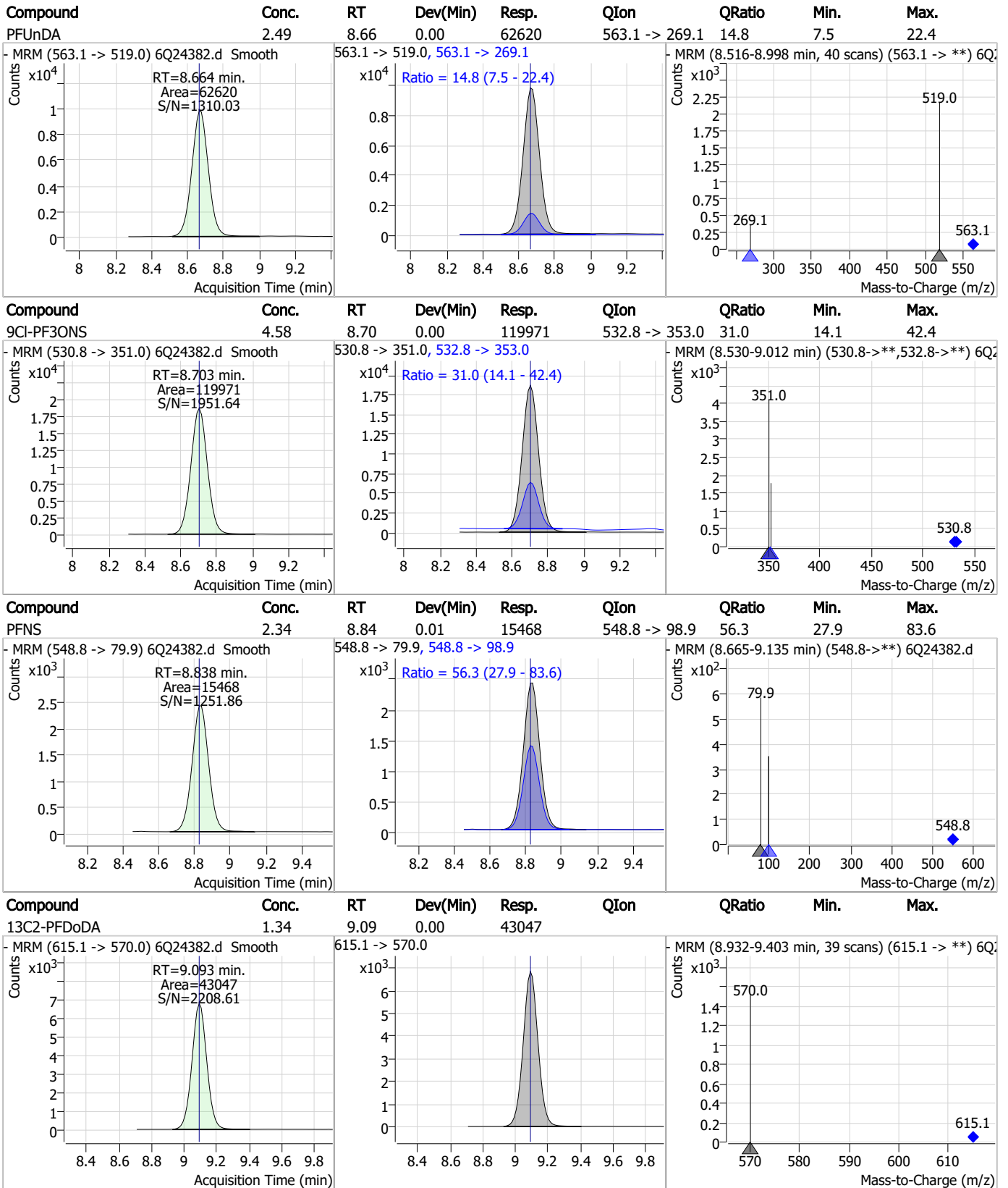


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.25	8.66	0.00	43950				



7.7.14
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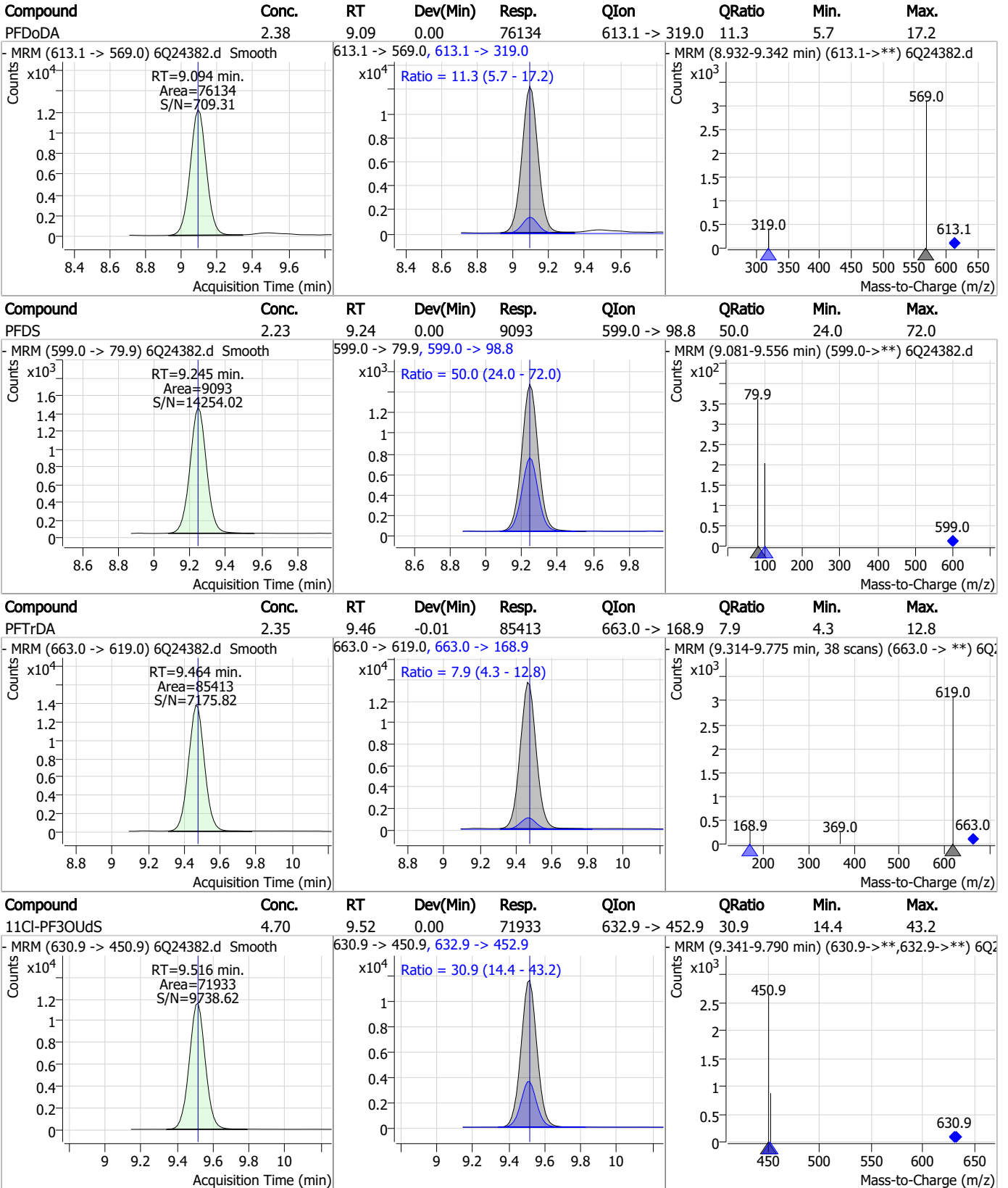
Perfluorinated Compounds by LC/MS/MS



7.7.14



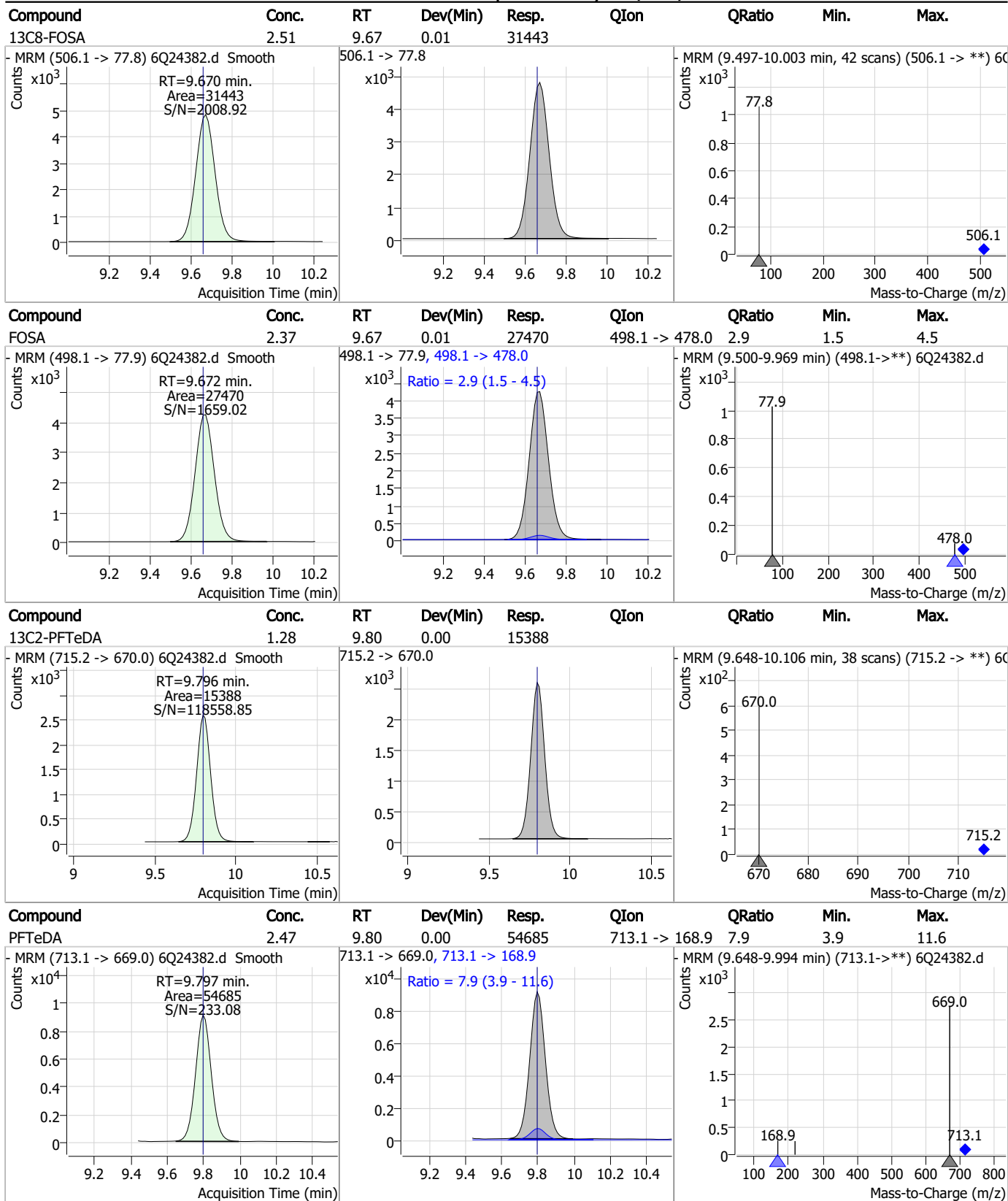
Perfluorinated Compounds by LC/MS/MS



7.7.14



Perfluorinated Compounds by LC/MS/MS

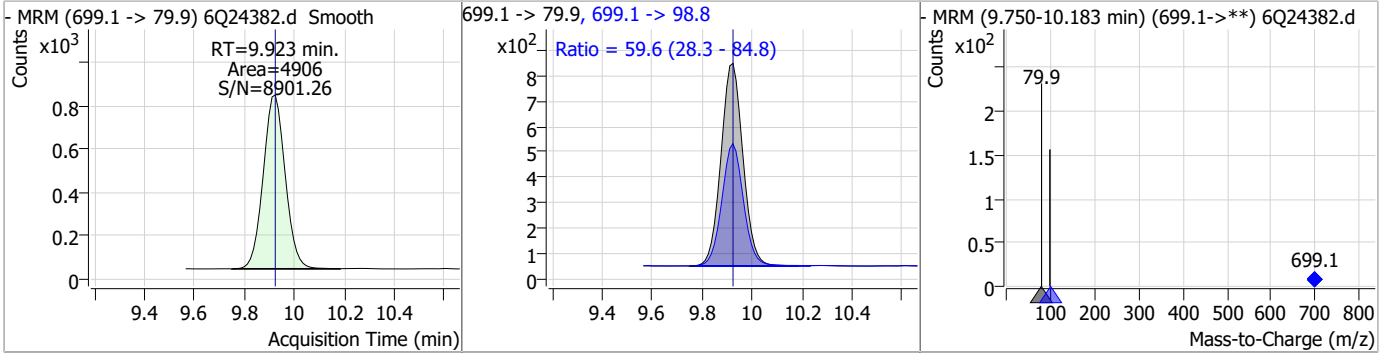


7.7.14

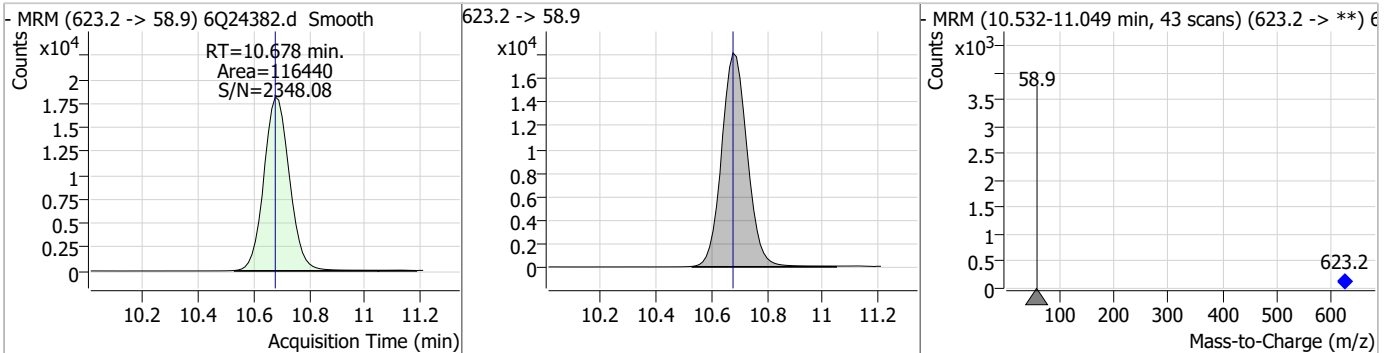


Perfluorinated Compounds by LC/MS/MS

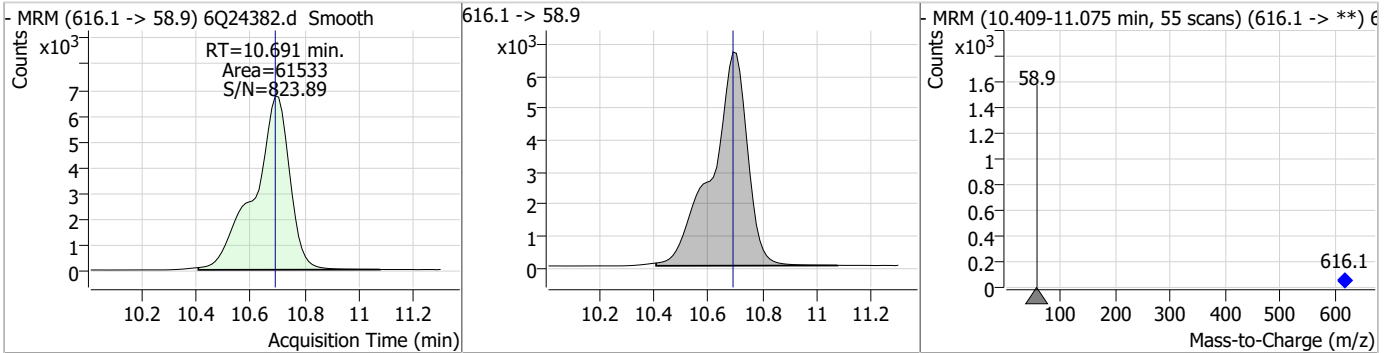
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.19	9.92	0.00	4906	699.1 -> 98.8	59.6	28.3	84.8



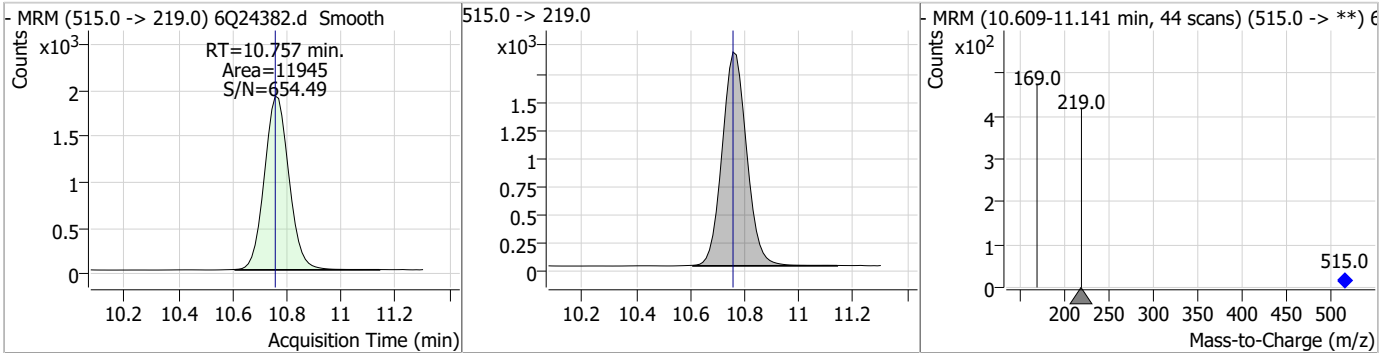
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.20	10.68	0.00	116440				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.22	10.69	0.00	61533				



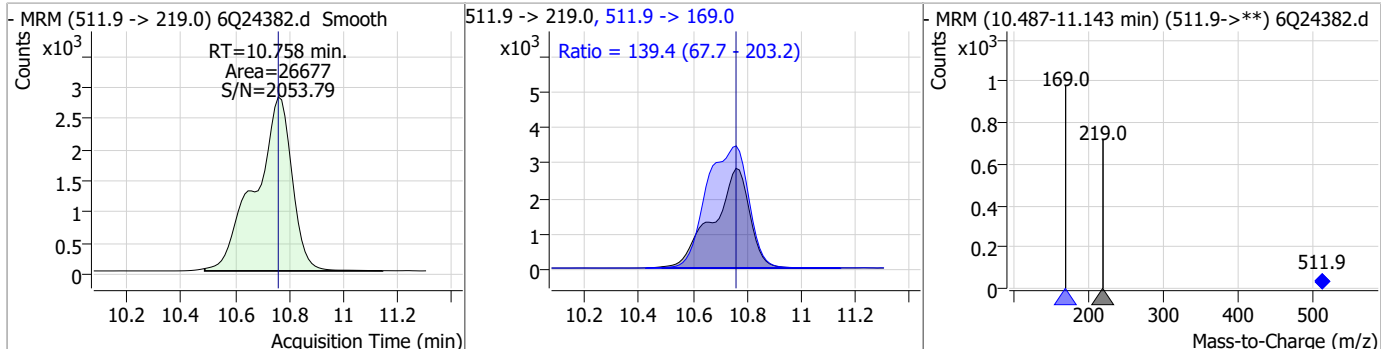
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.36	10.76	0.00	11945				



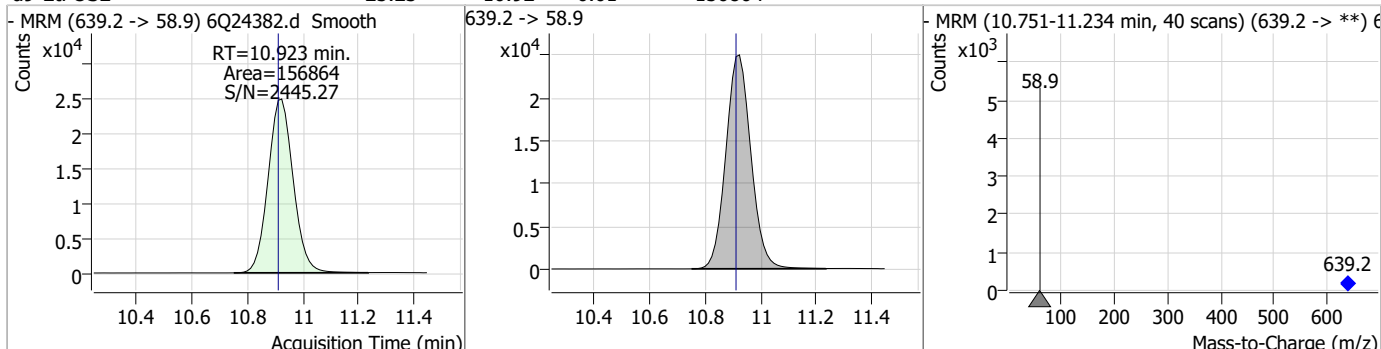
7.7.14
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Perfluorinated Compounds by LC/MS/MS

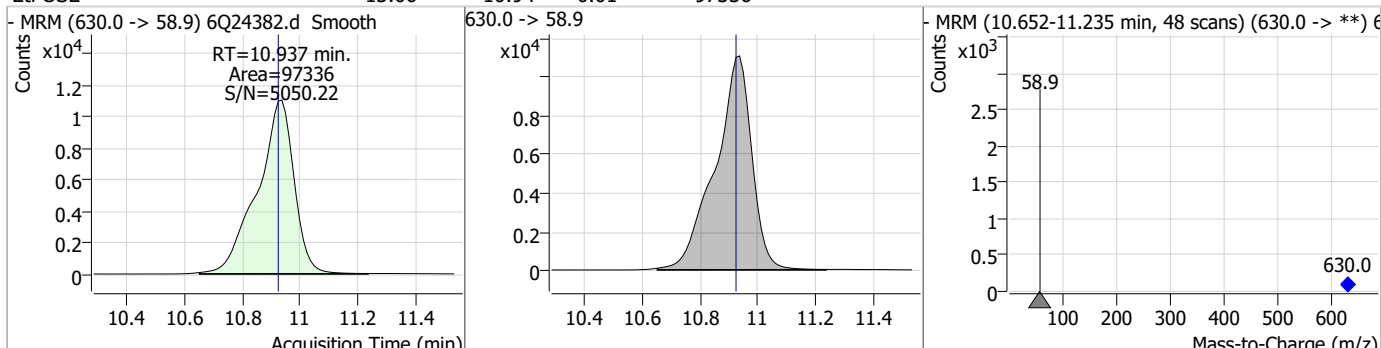
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.26	10.76	0.00	26677	511.9 -> 169.0	139.4	67.7	203.2



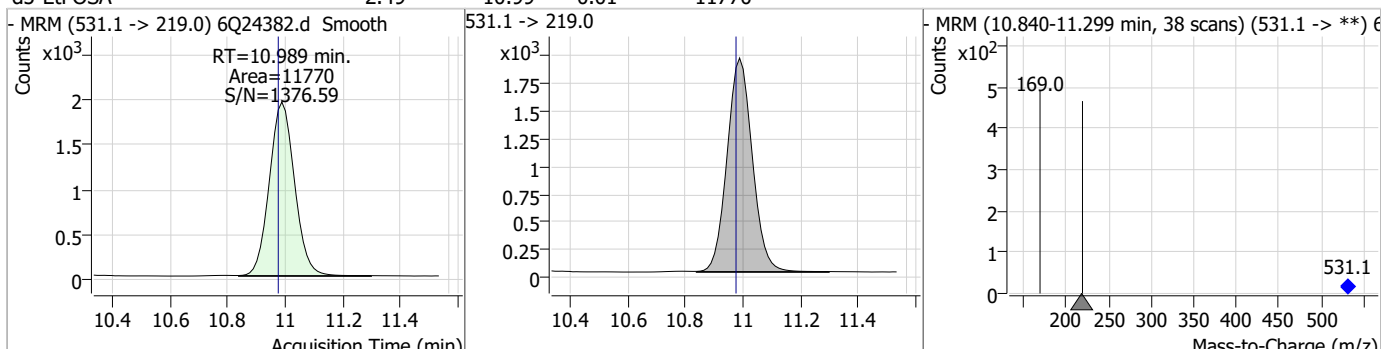
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.23	10.92	0.01	156864				



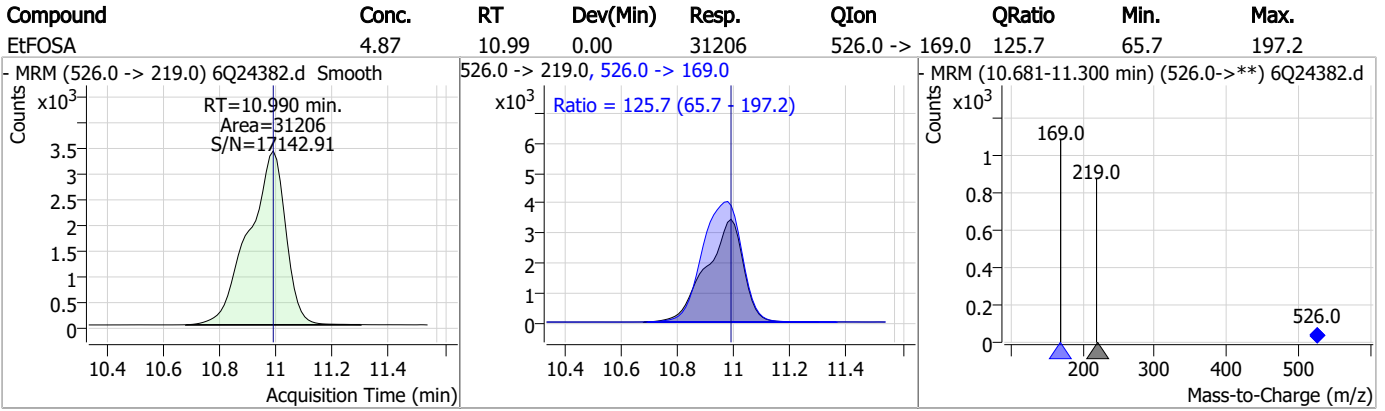
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.06	10.94	0.01	97336				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	10.99	0.01	11770				



Perfluorinated Compounds by LC/MS/MS



7.7.14
7



Manual Integration Approval Summary

Sample Number: S6Q350-CC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24382.D Analyst approved: 09/13/23 14:00 Martha Valls
Injection Time: 09/13/23 01:54 Supervisor approved: 09/13/23 15:06 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.48	Split peak

7.7.14.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24393.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 4:32:31 AM
 Sample Name : cc347-4
 Vial : P1-A5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	203387	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	33737	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	75120	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	61306	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	82588	2.50 µg/L	0.012
M9-PFNA	7.729	472.1 -> 427.0	34562	1.25 µg/L	0.000
M6-PFDA	8.210	519.1 -> 474.1	34323	1.25 µg/L	0.000
M7-PFUnDA	8.663	570.0 -> 525.1	43076	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	39083	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	14949	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	31384	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	24987	2.50 µg/L	0.012
M3-PFHxS	7.313	402.1 -> 79.9	13887	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	14111	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2720	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3981	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	4069	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	22081	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	42880	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	19661	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	113394	25.00 µg/L	0.000
M9-EtFOSE	10.923	639.2 -> 58.9	157385	25.00 µg/L	0.012
M5-EtFOSA	10.989	531.1 -> 219.0	12132	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	12373	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	16998	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	80224	5.00 µg/L	0.012
18O2-PFHxS	7.313	403.0 -> 83.9	9818	2.50 µg/L	0.000
13C4-PFOA	7.211	417.1 -> 372.0	93254	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	28739	1.25 µg/L	0.000
13C5-PFNA	7.729	468.0 -> 423.0	39738	1.25 µg/L	0.000
13C2-PFHxA	5.654	315.1 -> 270.0	58372	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2720	4.92 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3981	4.91 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-8:2FTS	8.011	529.1 -> 80.9	4069	4.85 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	39083	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C2-PFTeDA	9.796	715.2 -> 670.0	14949	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C3-PFBS	5.584	302.1 -> 79.9	24987	2.75 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C3-PFHxS	7.313	402.1 -> 79.9	13887	2.57 µg/L	0.000

7.7.15
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C4-PFBA	2.997	216.8 -> 171.9	203387	10.04 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.581	367.1 -> 322.0	61306	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C5-PFHxA	5.654	318.0 -> 273.0	75120	2.33 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C5-PFPeA	4.434	268.3 -> 223.0	33737	4.29 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.8%	
13C6-PFDA	8.210	519.1 -> 474.1	34323	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.7%	
13C7-PFUnDA	8.663	570.0 -> 525.1	43076	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C8-FOSA	9.670	506.1 -> 77.8	31384	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-PFOA	7.211	421.1 -> 376.0	82588	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C8-PFOS	8.373	507.1 -> 79.9	14111	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C9-PFNA	7.729	472.1 -> 427.0	34562	1.39 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.3%	
d3-MeFOSAA	8.268	573.2 -> 419.0	22081	4.65 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	42880	9.64 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d3-MeFOSA	10.757	515.0 -> 219.0	12373	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
d5-EtFOSAA	8.464	589.2 -> 419.0	19661	4.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.0%	
d7-MeFOSE	10.678	623.2 -> 58.9	113394	25.37 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
d9-EtFOSE	10.923	639.2 -> 58.9	157385	26.17 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d5-EtFOSA	10.989	531.1 -> 219.0	12132	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	41205	9.16 µg/L	93
		327.1 -> 80.9	16851		
6:2FTS	6.987	427.1 -> 407.0	32979	9.36 µg/L	100
		427.1 -> 80.9	13005		
8:2FTS	8.012	527.1 -> 507.0	24753	9.02 µg/L	96
		527.1 -> 80.8	9094		
EtFOSAA	8.465	584.2 -> 419.1	7303	2.63 µg/L	m 89
		584.2 -> 526.0	5449		
FOSA	9.672	498.1 -> 77.9	26419	2.29 µg/L	100
		498.1 -> 478.0	832		
MeFOSAA	8.269	570.1 -> 419.0	13726	2.62 µg/L	99
		570.1 -> 483.0	2879		
PFBA	2.993	212.8 -> 168.9	71181	10.59 µg/L	100
PFBS	5.585	298.7 -> 79.9	26553	2.17 µg/L	97
		298.7 -> 98.8	9657		
PFDA	8.211	512.9 -> 469.0	76628	2.45 µg/L	99
		512.9 -> 219.0	12208		
PFDoDA	9.094	613.1 -> 569.0	77122	2.66 µg/L	99
		613.1 -> 319.0	9093		
PFDS	9.245	599.0 -> 79.9	9639	2.34 µg/L	97

7.7.15
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.582	599.0 -> 98.8	4458	2.43	µg/L	99
		363.1 -> 319.0	78969			
PFHpS	7.868	363.1 -> 169.0	11968	2.15	µg/L	91
		449.0 -> 79.9	14672			
PFHxA	5.657	449.0 -> 98.9	7717	2.46	µg/L	99
		313.0 -> 269.0	67204			
PFHxS	7.314	313.0 -> 118.9	2827	2.39	µg/L	m
		398.7 -> 79.9	20831			
PFNA	7.730	398.7 -> 98.9	9107	2.28	µg/L	99
		463.0 -> 419.0	59365			
PFNS	8.838	463.0 -> 219.0	13246	2.44	µg/L	93
		548.8 -> 79.9	16249			
PFOA	7.212	548.8 -> 98.9	8233	2.20	µg/L	99
		413.0 -> 369.0	93550			
PFOS	8.374	413.0 -> 169.0	16735	2.14	µg/L	m
		498.9 -> 79.9	16707			
PFPeA	4.436	498.9 -> 98.8	8409	5.28	µg/L	100
		263.0 -> 219.0	79348			
PFPeS	6.633	349.1 -> 79.9	16869	2.23	µg/L	100
		349.1 -> 98.9	7901			
PFTeDA	9.797	713.1 -> 669.0	56419	2.62	µg/L	98
		713.1 -> 168.9	3958			
PFTrDA	9.477	663.0 -> 619.0	82546	2.50	µg/L	99
		663.0 -> 168.9	6781			
PFUnDA	8.676	563.1 -> 519.0	64248	2.60	µg/L	100
		563.1 -> 269.1	9598			
11CI-PF3OUdS	9.516	630.9 -> 450.9	70445	4.50	µg/L	95
		632.9 -> 452.9	22328			
9CI-PF3ONS	8.703	530.8 -> 351.0	124532	4.64	µg/L	96
		532.8 -> 353.0	37716			
ADONA	6.829	376.9 -> 250.9	289196	4.66	µg/L	98
		376.9 -> 84.8	75976			
HFPO-DA	6.032	284.9 -> 168.9	20323	5.01	µg/L	99
		284.9 -> 184.9	2999			
3:3FTCA	3.871	241.0 -> 177.0	13927	11.98	µg/L	99
		241.0 -> 117.0	1366			
5:3FTCA	6.283	341.0 -> 237.1	317012	68.24	µg/L	95
		341.0 -> 217.0	210967			
7:3FTCA	7.669	441.0 -> 316.9	181342	66.06	µg/L	89
		441.0 -> 336.9	377893			
EtFOSA	10.990	526.0 -> 219.0	31711	4.80	µg/L	98
		526.0 -> 169.0	41061			
EtFOSE	10.937	630.0 -> 58.9	93785	12.54	µg/L	100
		511.9 -> 219.0	27188			
MeFOSA	10.758	511.9 -> 169.0	37244	5.18	µg/L	m
		616.1 -> 58.9	61690			
MeFOSE	10.691	699.1 -> 79.9	5502	12.58	µg/L	100
		699.1 -> 98.8	2746			
PFDoDS	9.923	295.0 -> 201.0	15445	2.44	µg/L	91
		295.0 -> 84.9	4035			
NFDHA	5.535	279.0 -> 85.1	59484	4.87	µg/L	94
		229.0 -> 84.9	42653			
PFMBA	4.863	314.8 -> 134.9	157149	5.43	µg/L	100
		314.8 -> 82.9	5195			
PFMPA	3.563			5.43	µg/L	100
PFEESA	6.124			4.60	µg/L	99

7.7.15
7

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



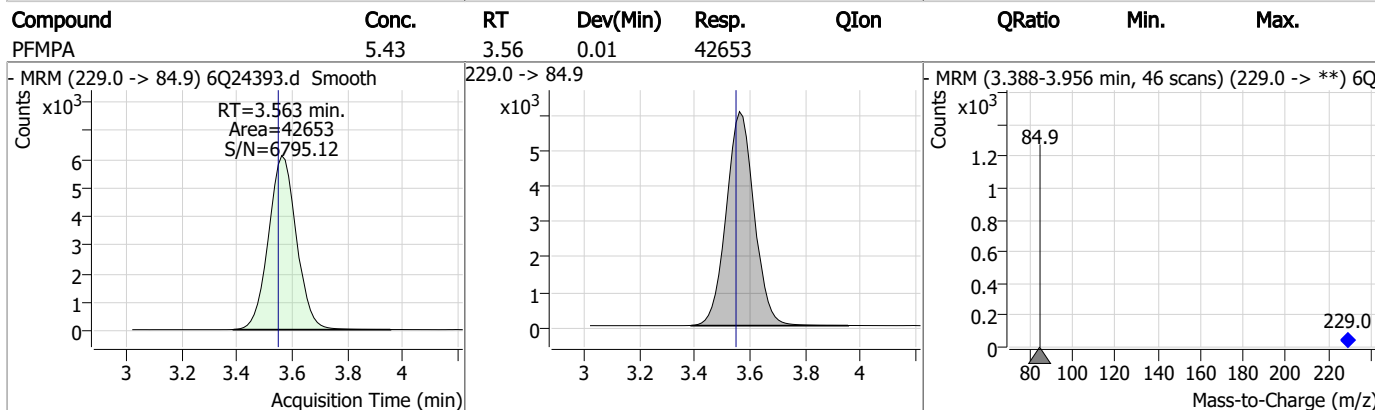
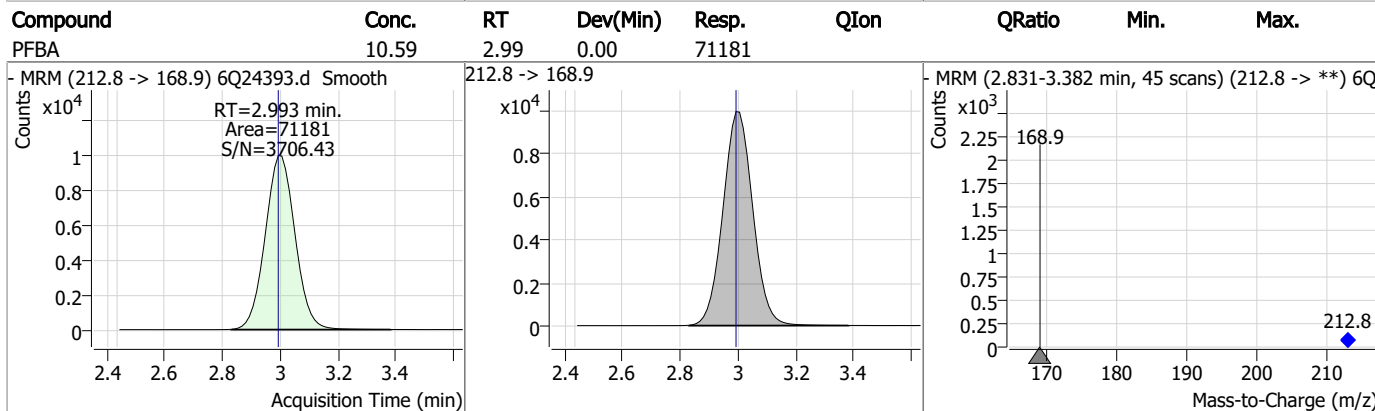
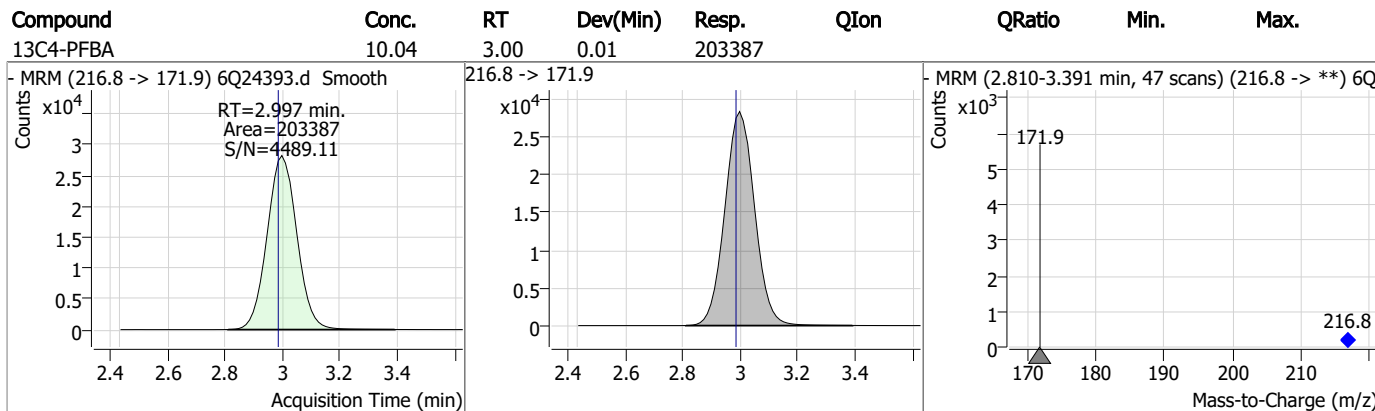
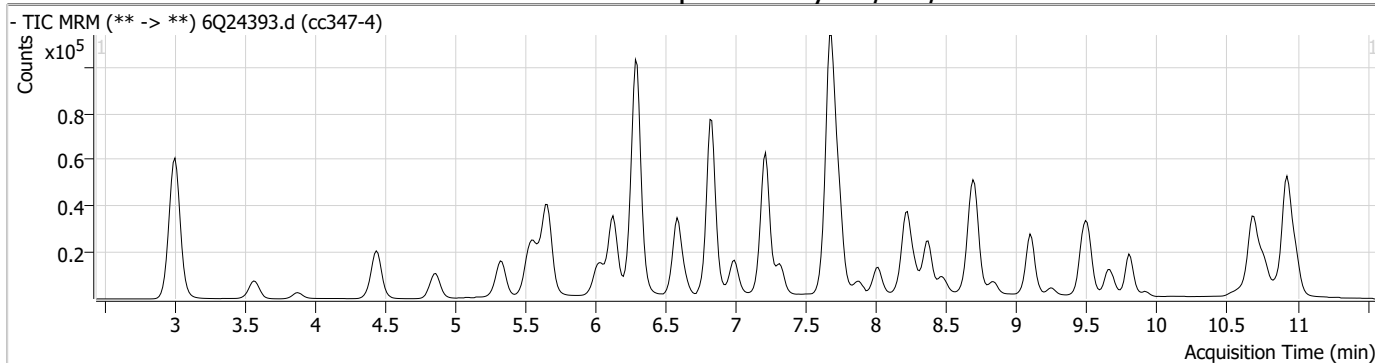
Perfluorinated Compounds by LC/MS/MS

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

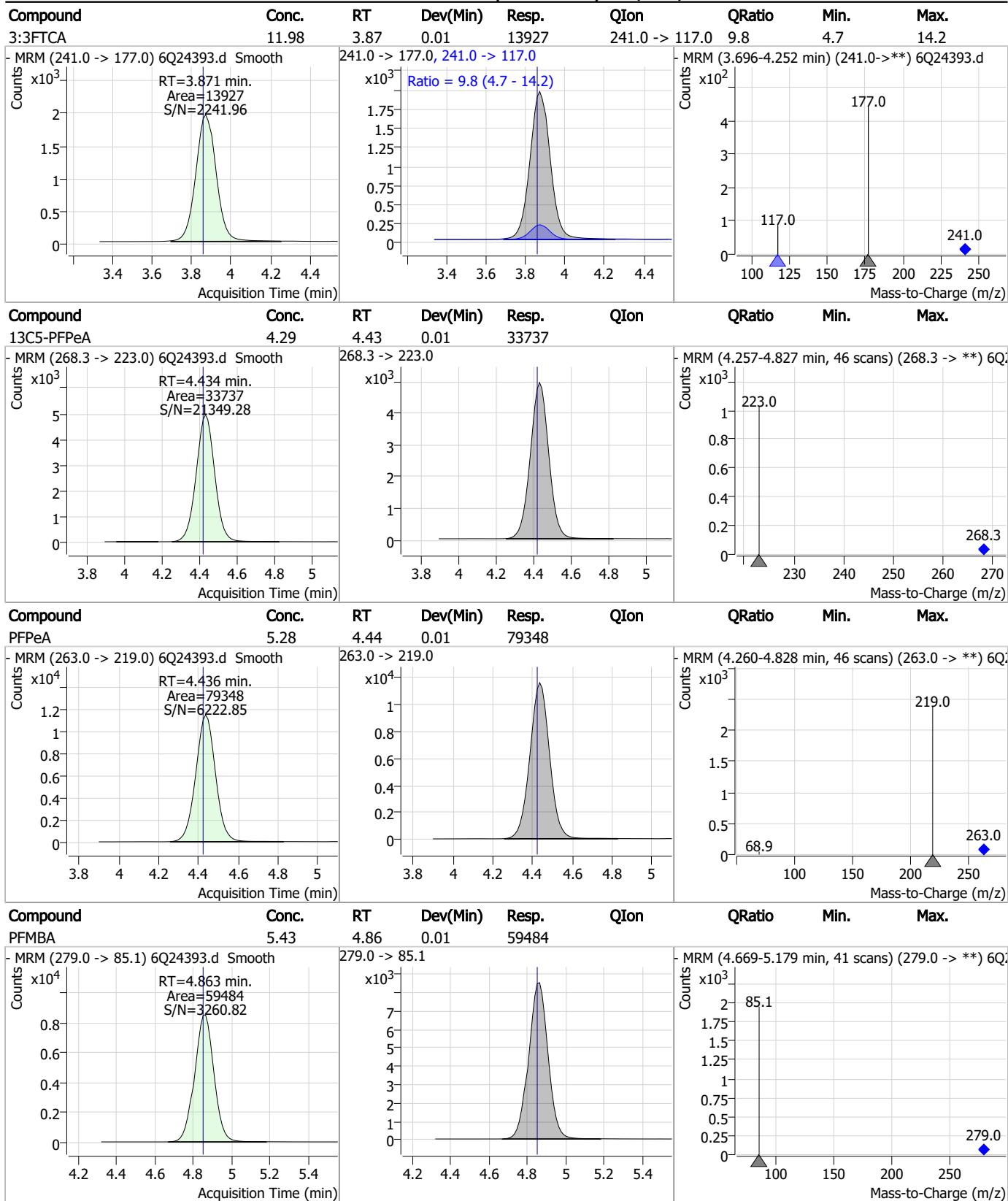
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Perfluorinated Compounds by LC/MS/MS



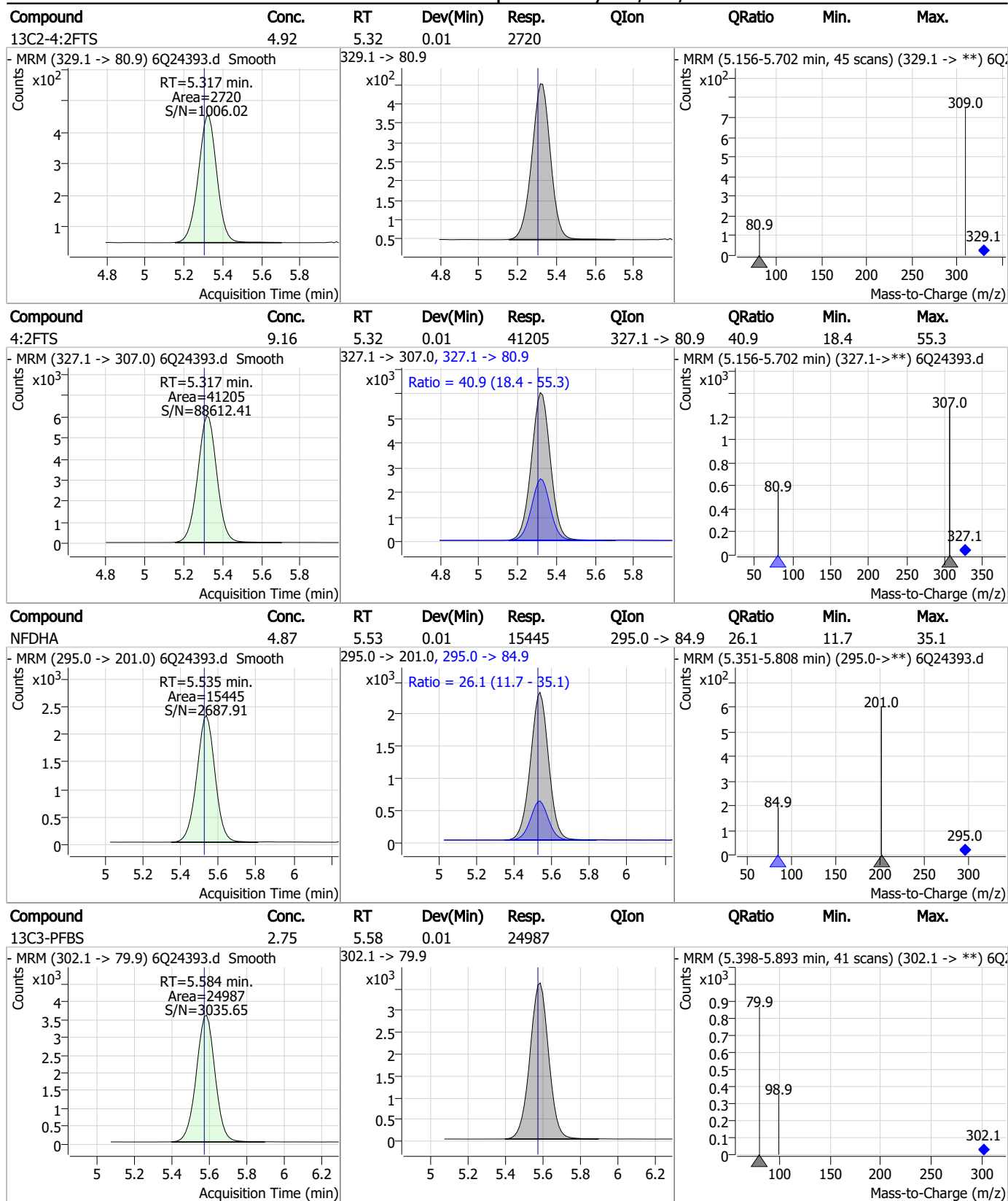
7.7.15
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Perfluorinated Compounds by LC/MS/MS



7.7.15
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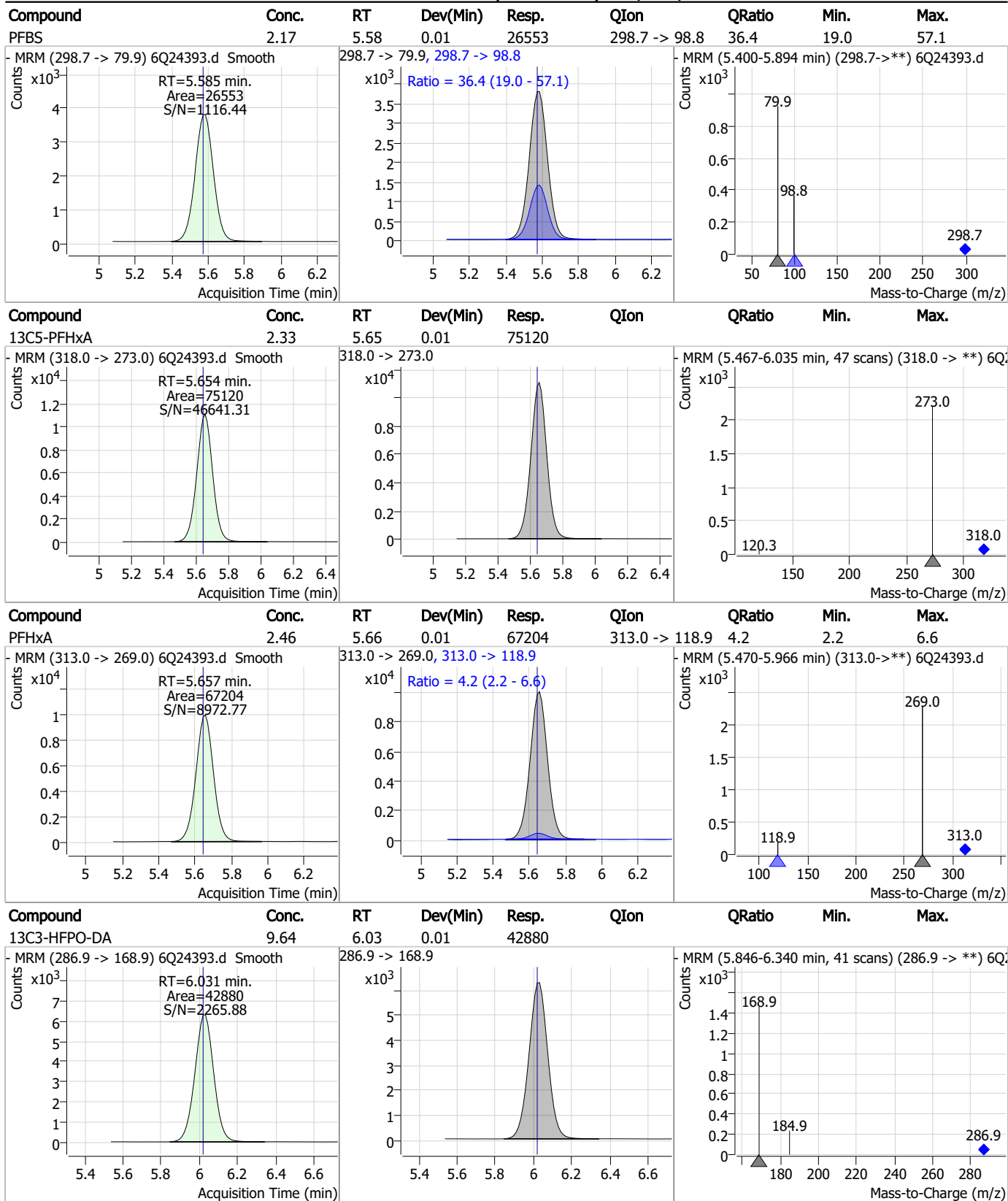
Perfluorinated Compounds by LC/MS/MS



7.7.15
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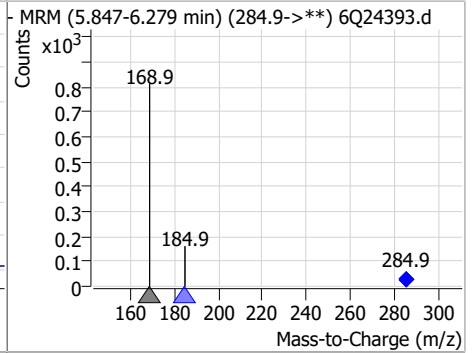
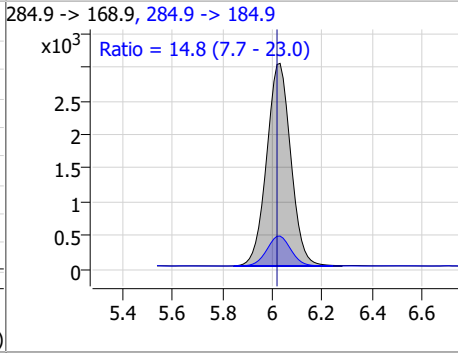
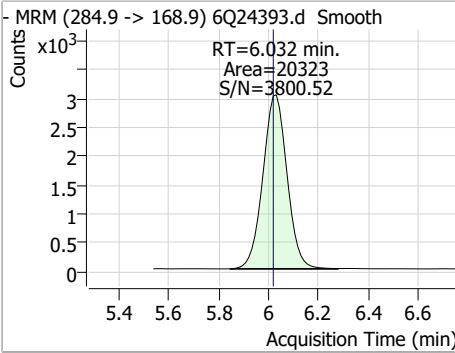
Perfluorinated Compounds by LC/MS/MS



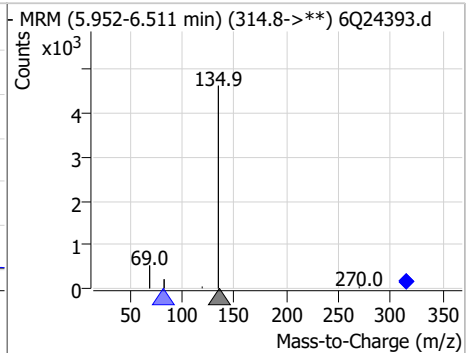
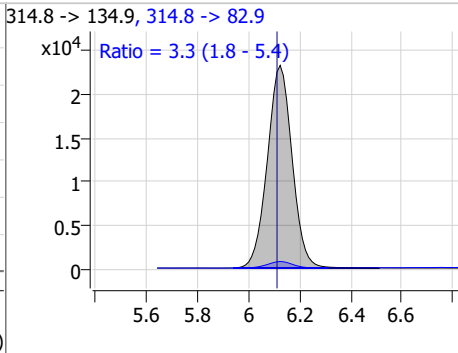
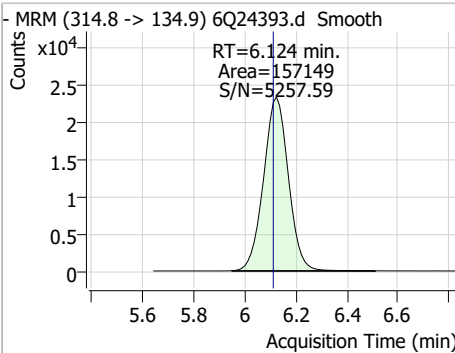
7.7.15
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Perfluorinated Compounds by LC/MS/MS

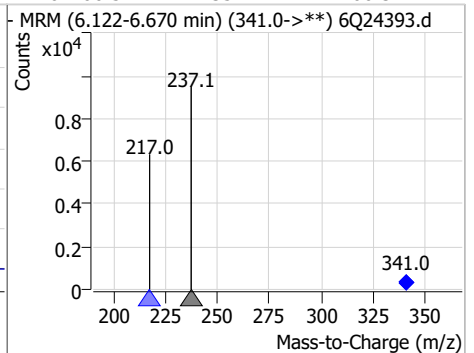
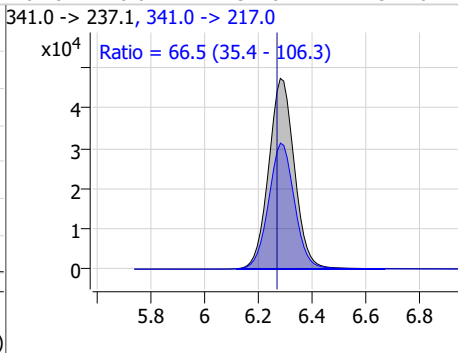
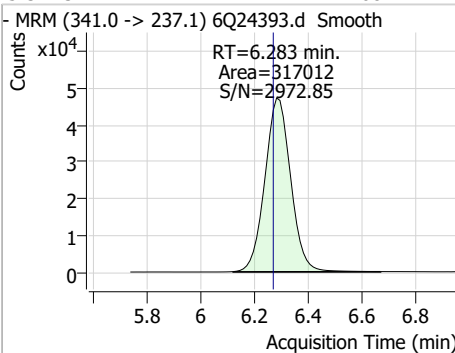
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.01	6.03	0.01	20323	284.9 -> 184.9	14.8	7.7	23.0



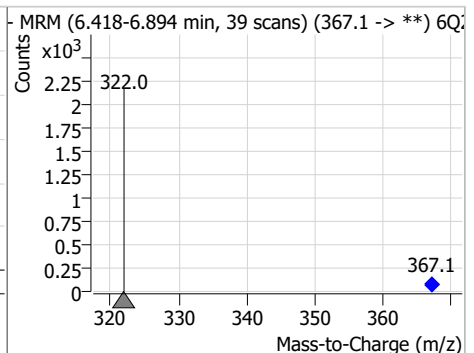
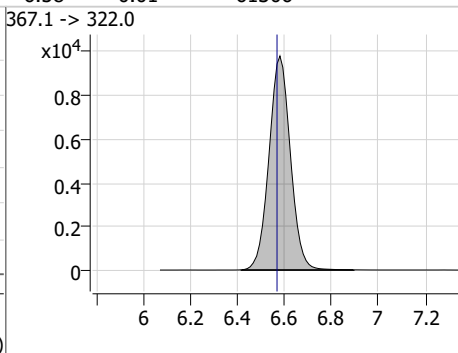
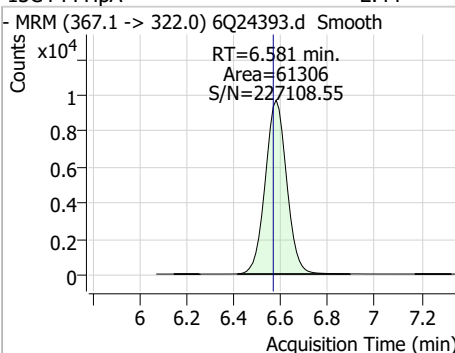
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.60	6.12	0.01	157149	314.8 -> 82.9	3.3	1.8	5.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	68.24	6.28	0.01	317012	341.0 -> 217.0	66.5	35.4	106.3



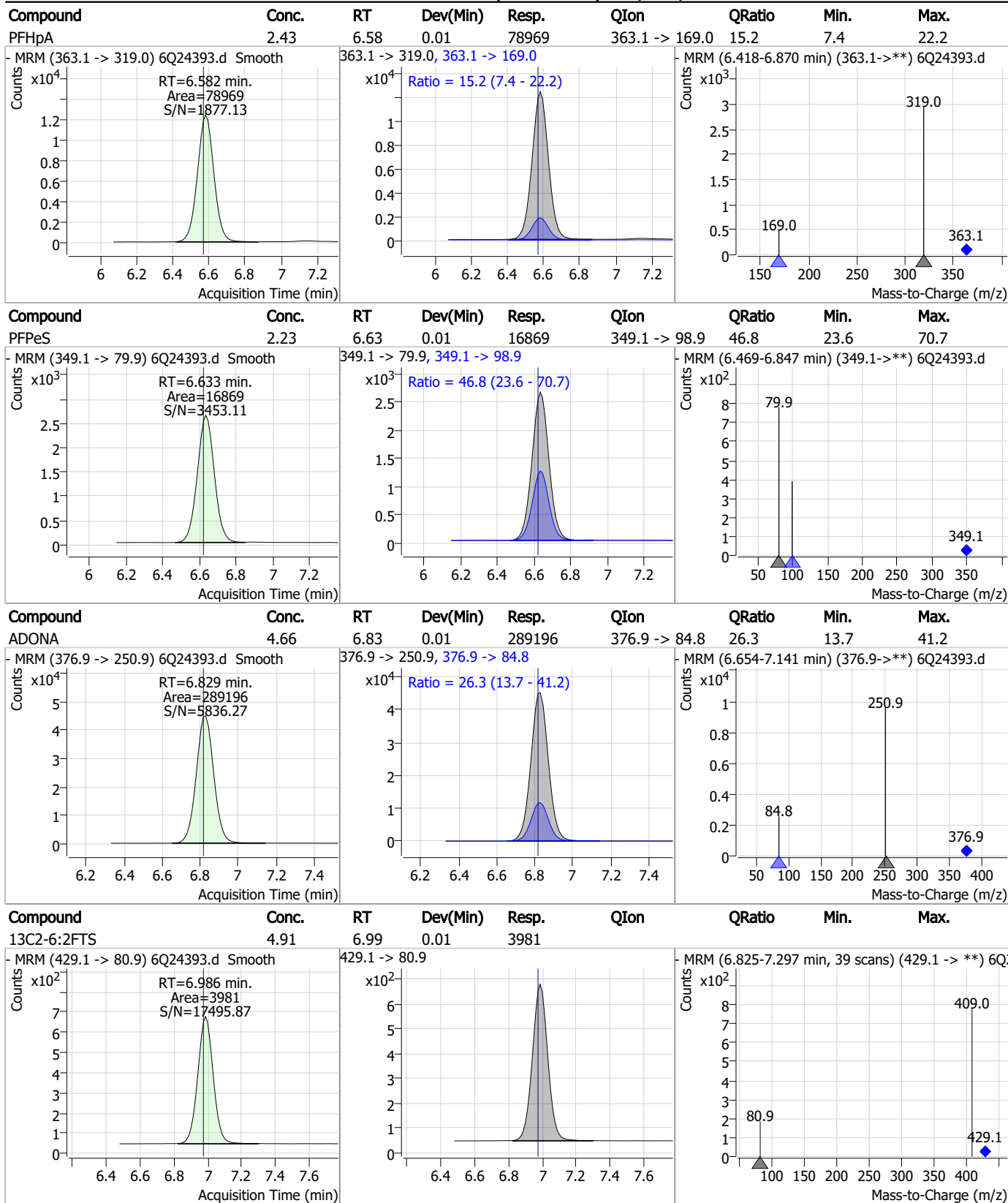
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.44	6.58	0.01	61306	367.1 -> 322.0			



7.7.15
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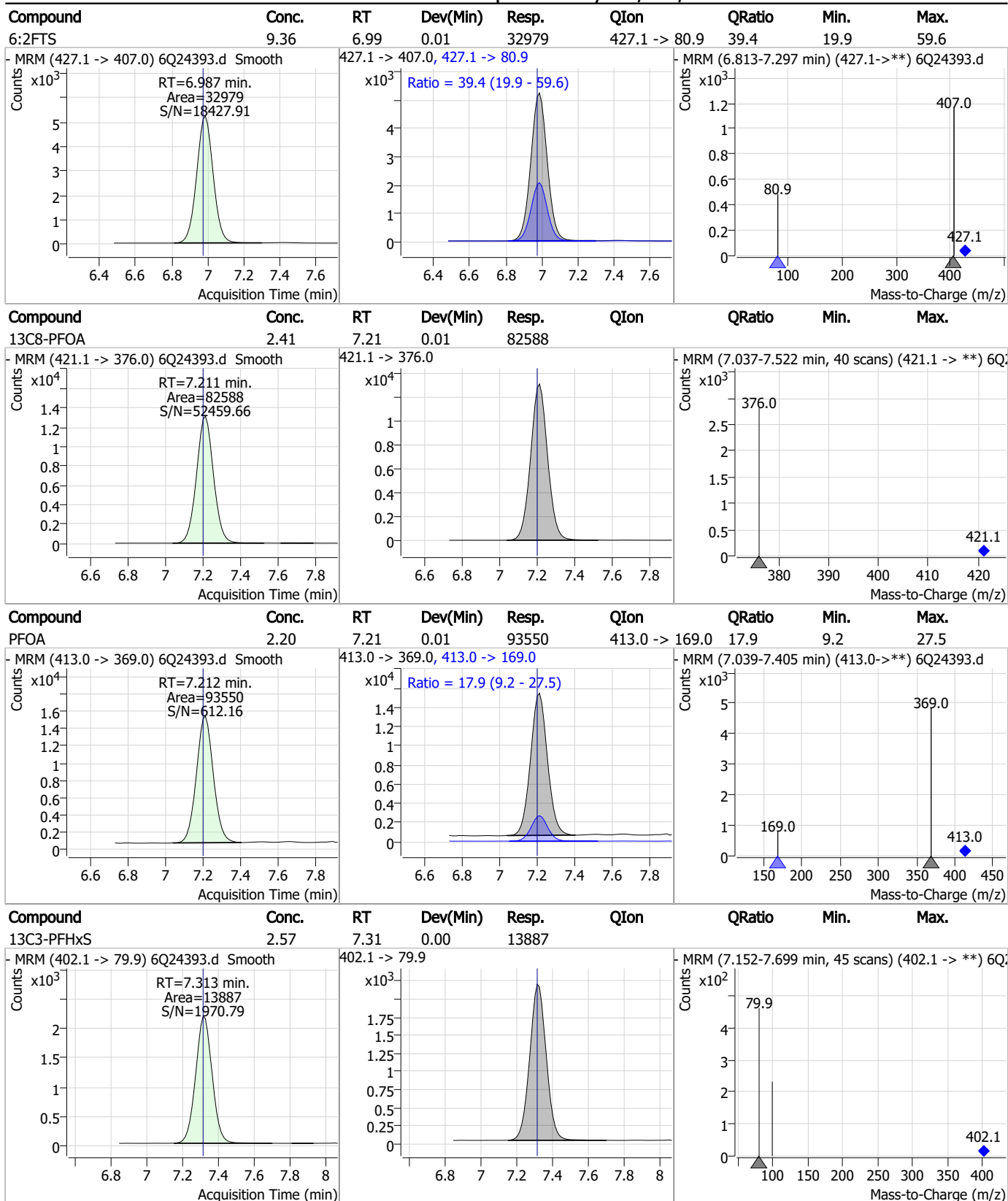
Perfluorinated Compounds by LC/MS/MS



7.7.15
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Perfluorinated Compounds by LC/MS/MS

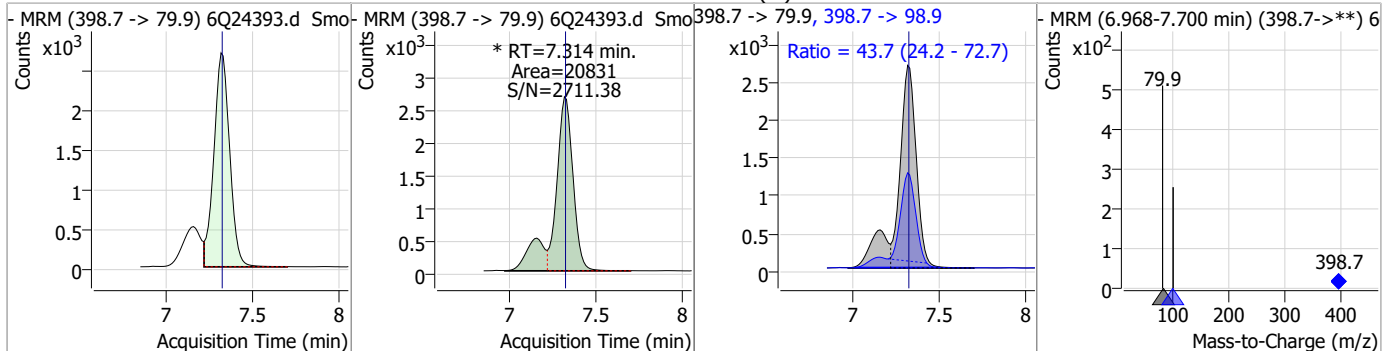


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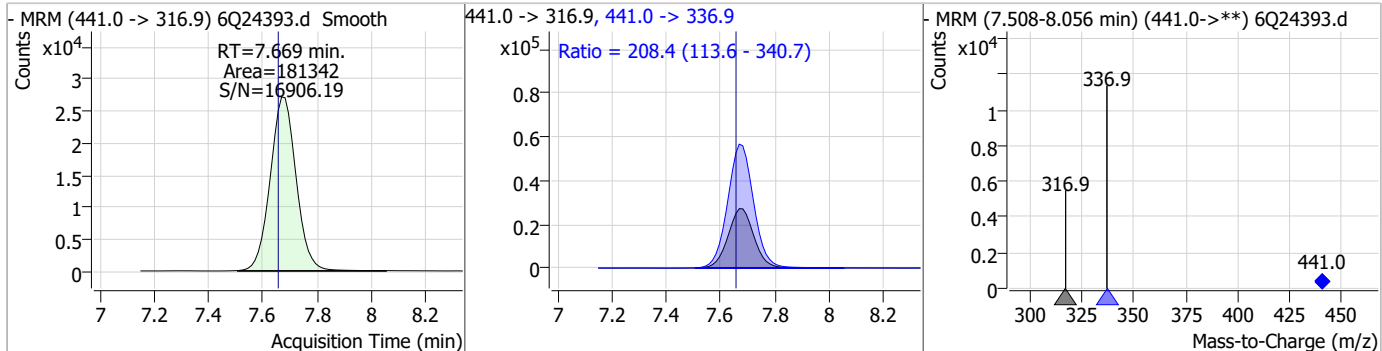
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Perfluorinated Compounds by LC/MS/MS

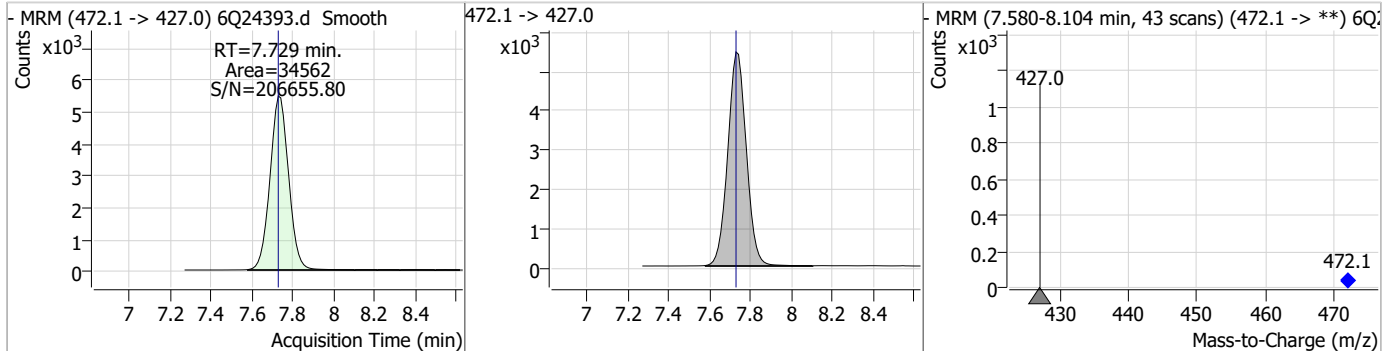
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.39	7.31	0.00	20831 (m)	398.7 -> 98.9	43.7	24.2	72.7



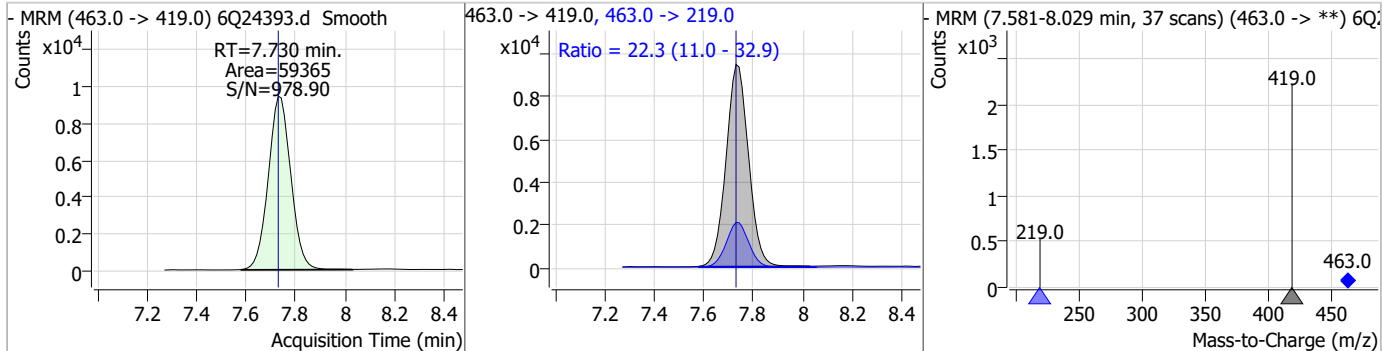
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	66.06	7.67	0.01	181342	441.0 -> 336.9	208.4	113.6	340.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.39	7.73	0.00	34562	472.1 -> 427.0			

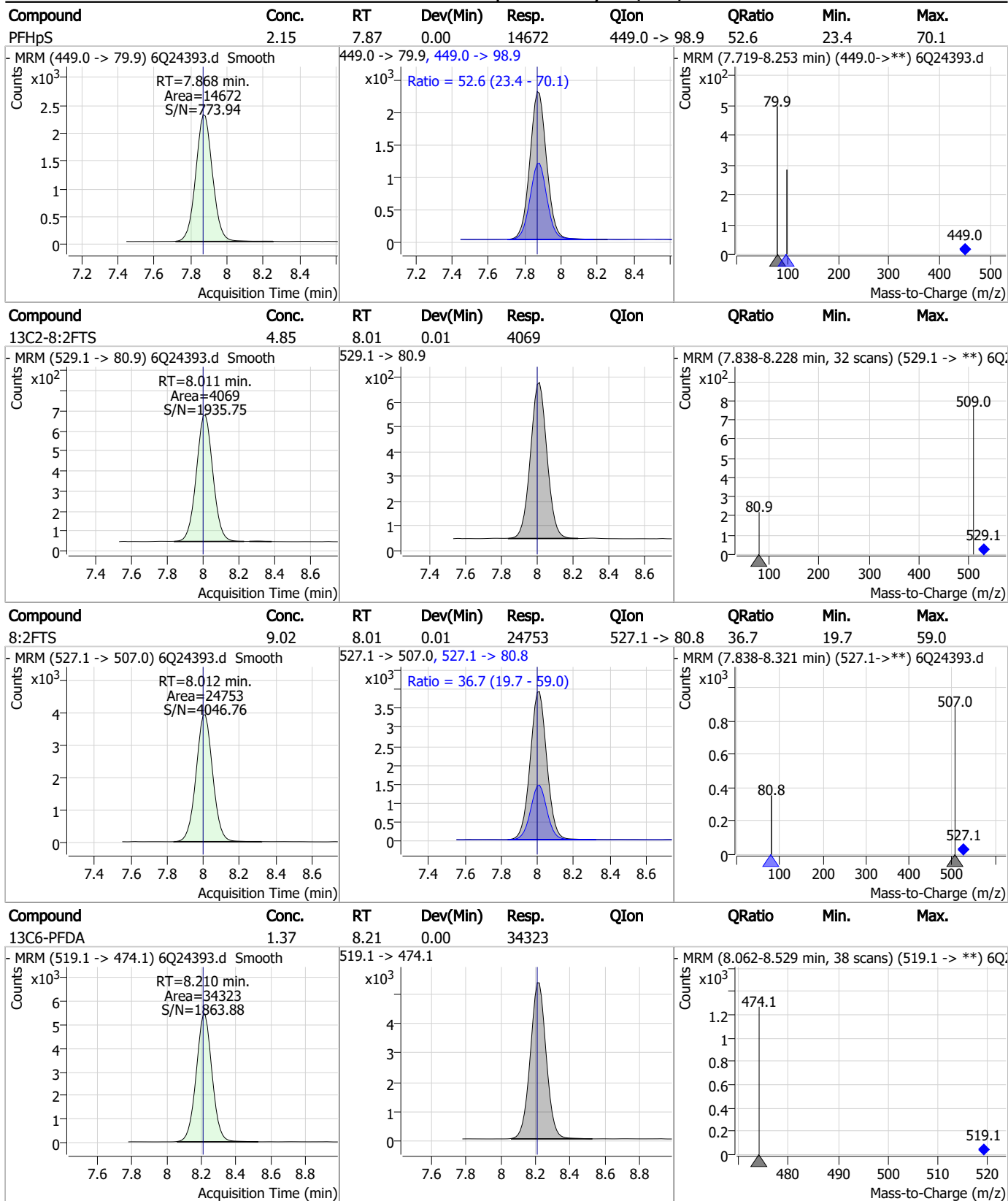


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.28	7.73	0.00	59365	463.0 -> 219.0	22.3	11.0	32.9



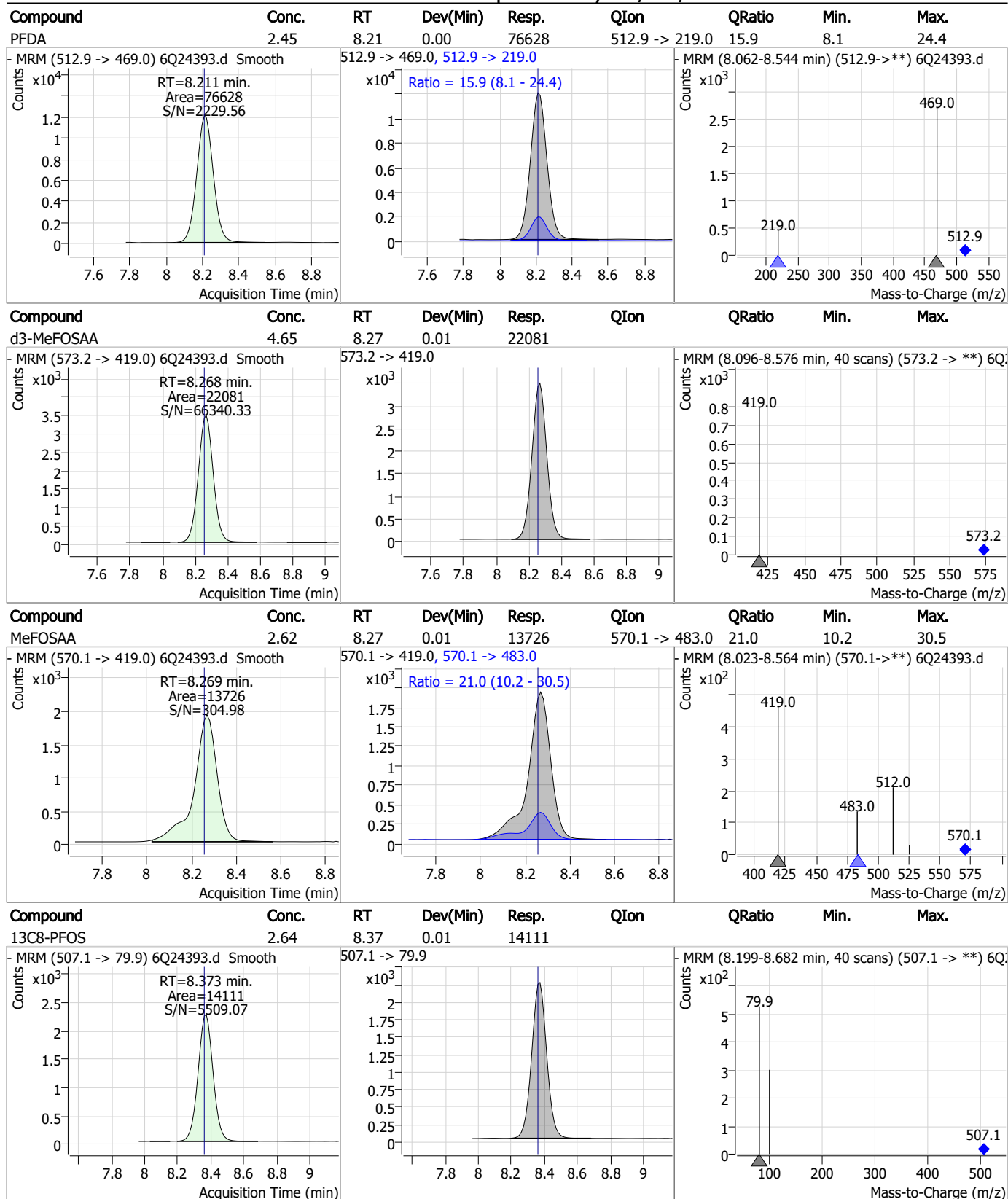
7.7.15 7

Perfluorinated Compounds by LC/MS/MS



7.7.15
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Perfluorinated Compounds by LC/MS/MS



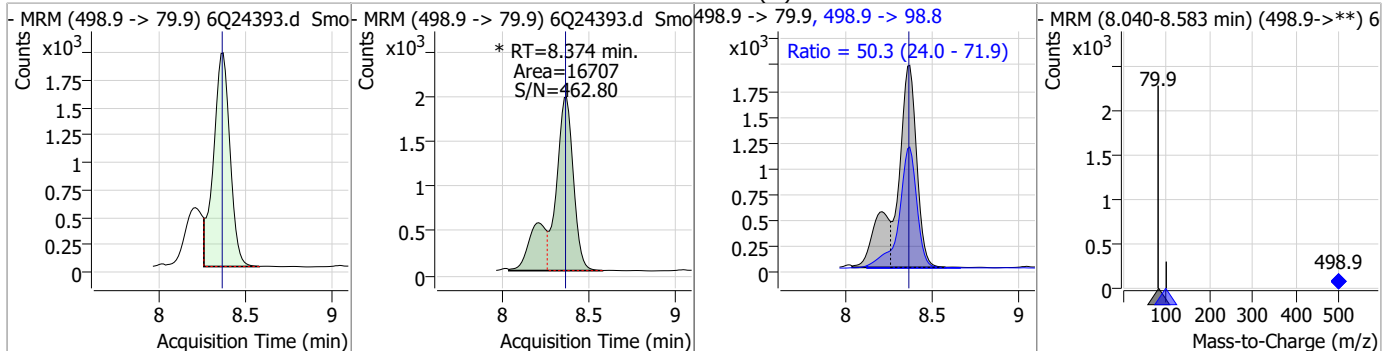
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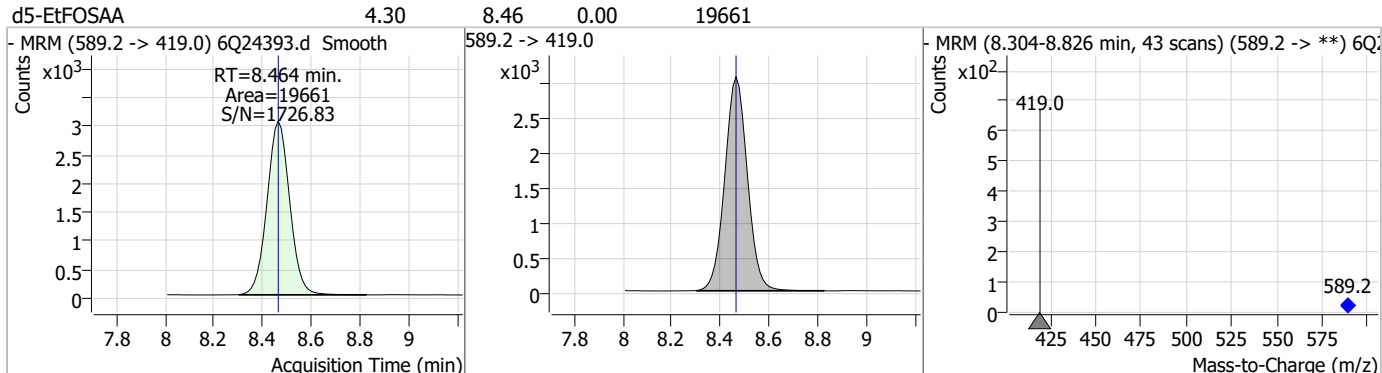


Perfluorinated Compounds by LC/MS/MS

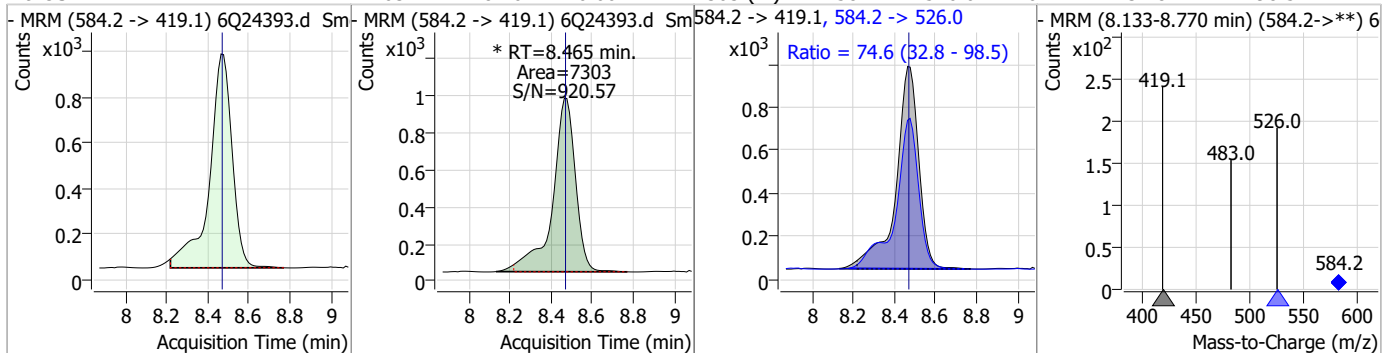
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.14	8.37	0.01	16707 (m)	498.9 -> 98.8	50.3	24.0	71.9



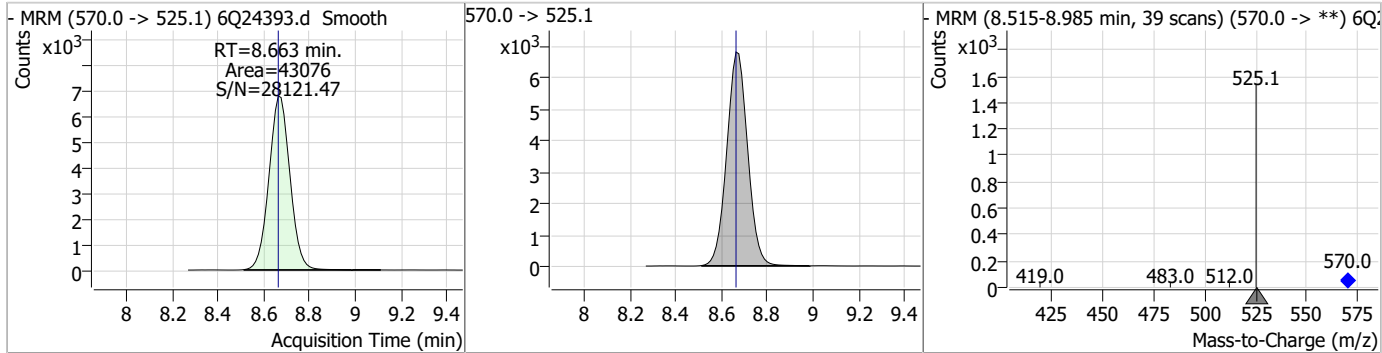
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.30	8.46	0.00	19661				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.63	8.46	0.00	7303 (m)	584.2 -> 526.0	74.6	32.8	98.5

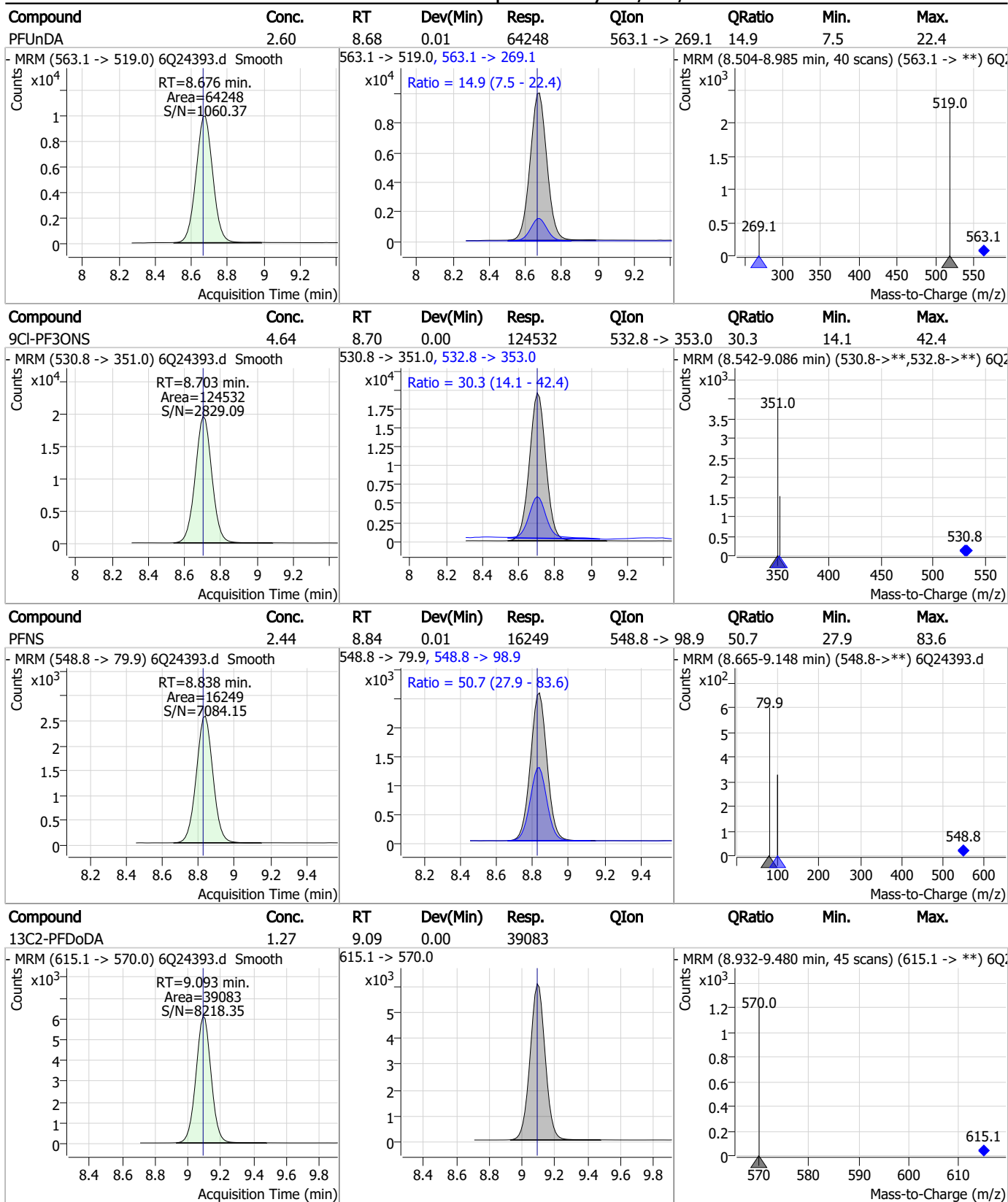


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.66	0.00	43076				



7.7.15
7

Perfluorinated Compounds by LC/MS/MS

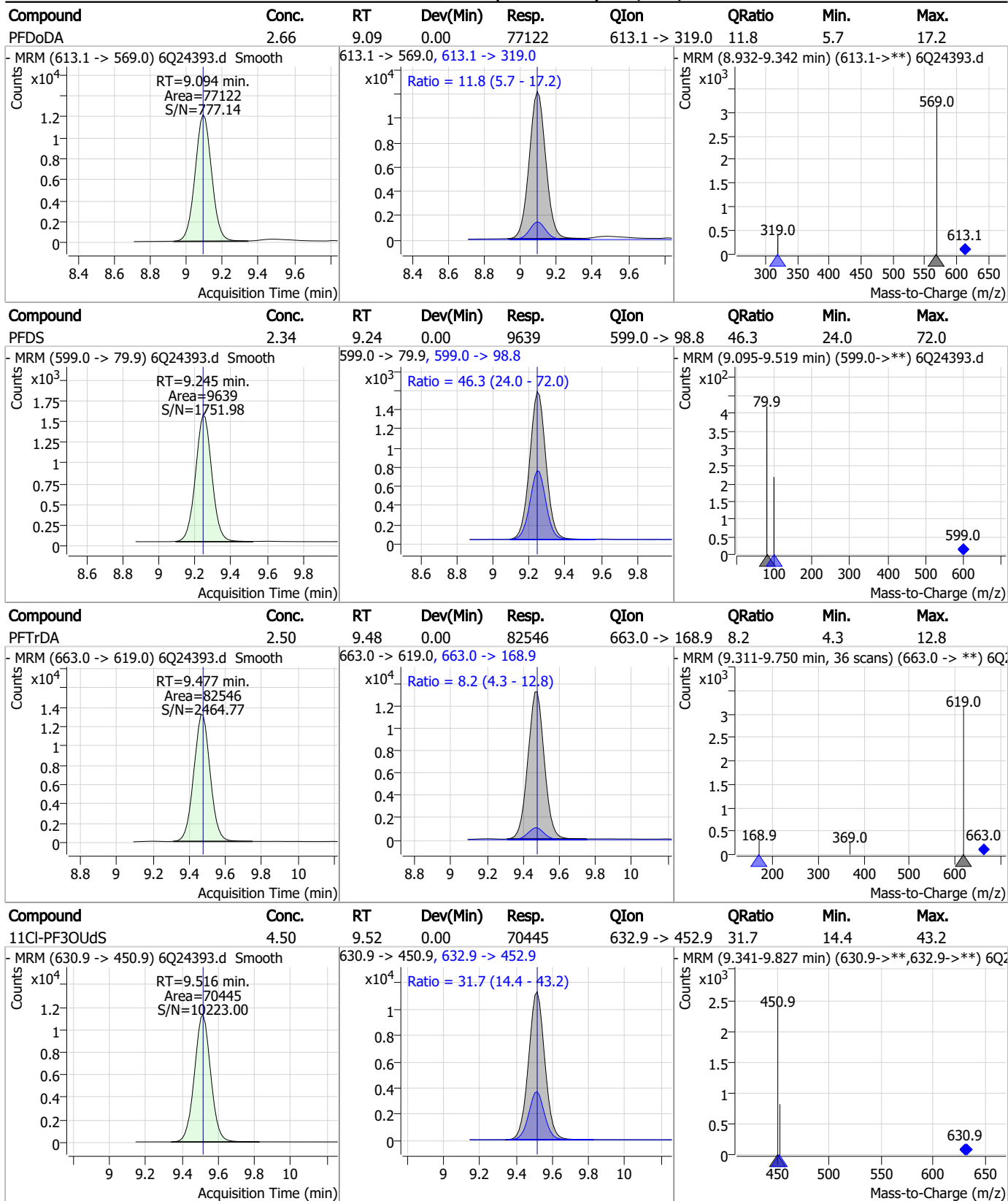


7.7.15

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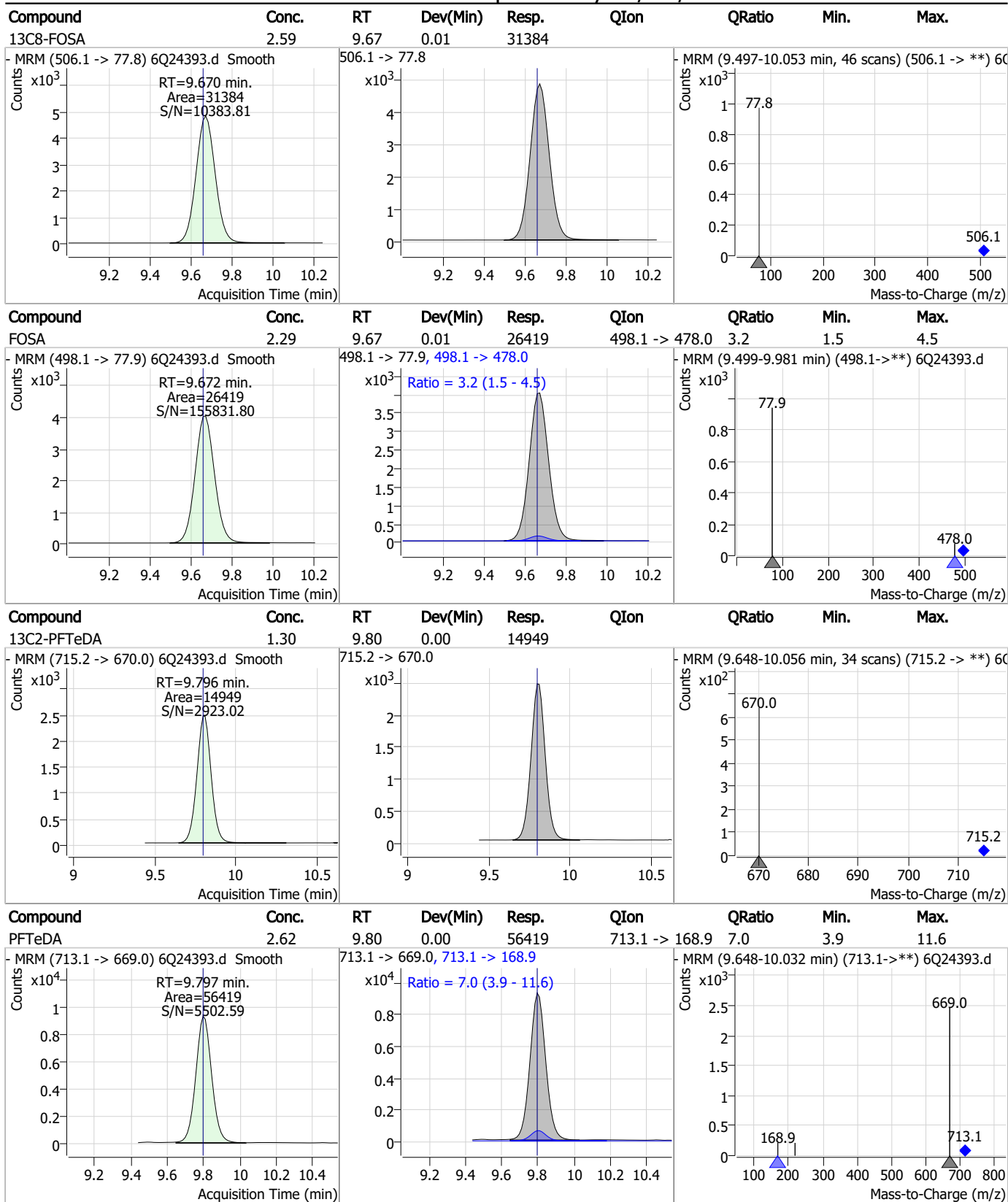
Perfluorinated Compounds by LC/MS/MS



7.7.15 7



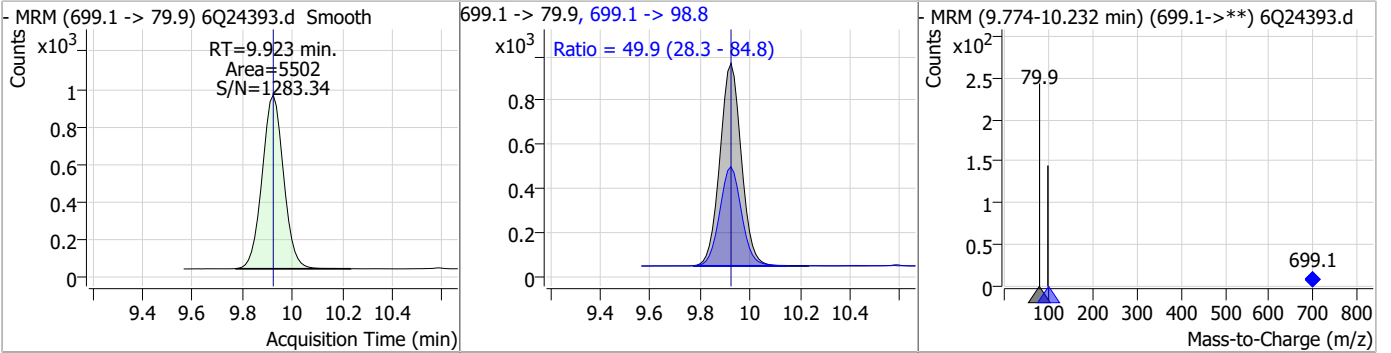
Perfluorinated Compounds by LC/MS/MS



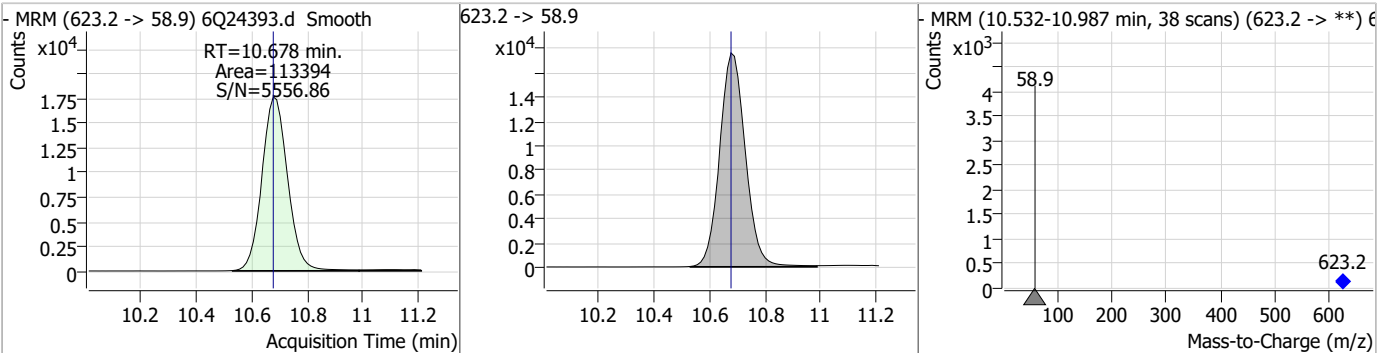
7.7.15

Perfluorinated Compounds by LC/MS/MS

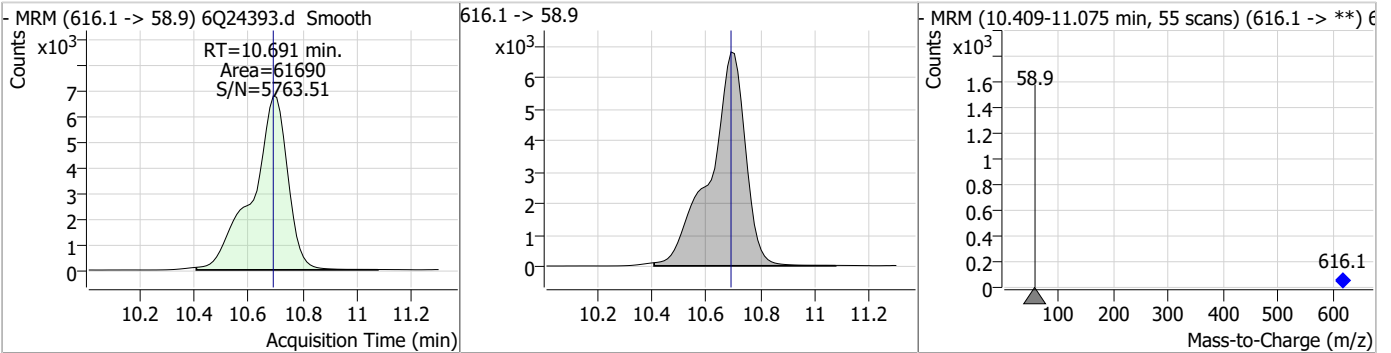
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.44	9.92	0.00	5502	699.1 -> 98.8	49.9	28.3	84.8



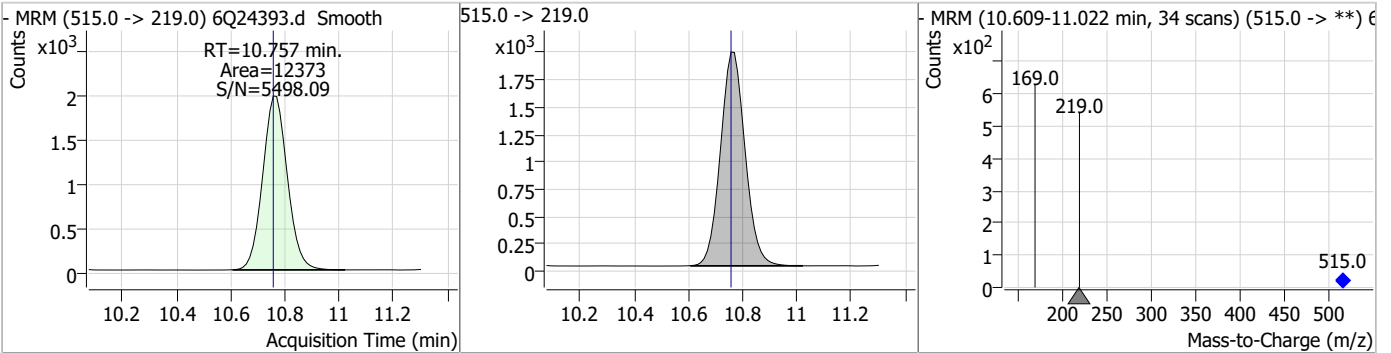
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.37	10.68	0.00	113394				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.58	10.69	0.00	61690				

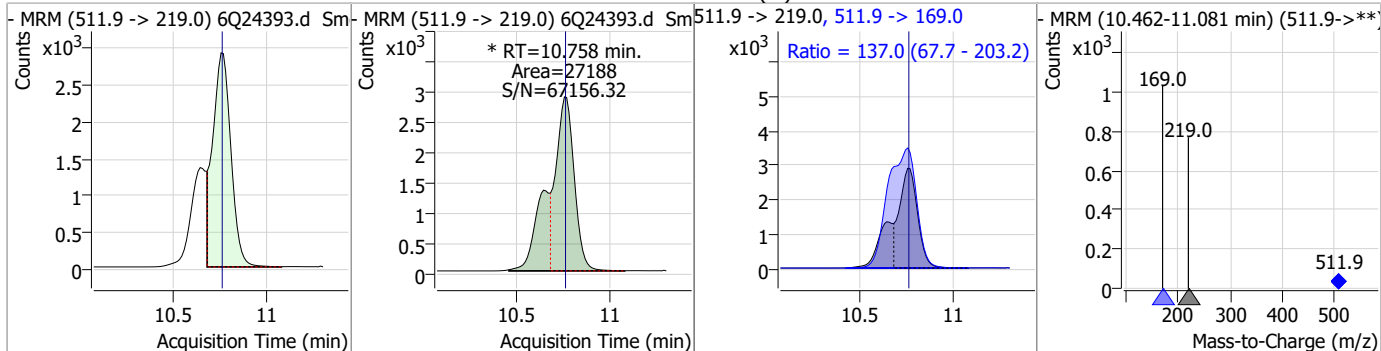


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.76	0.00	12373				

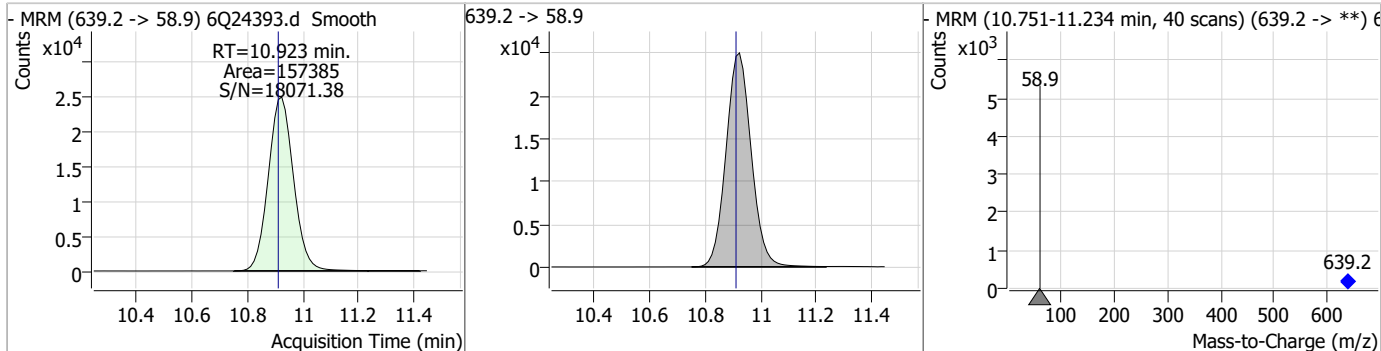


Perfluorinated Compounds by LC/MS/MS

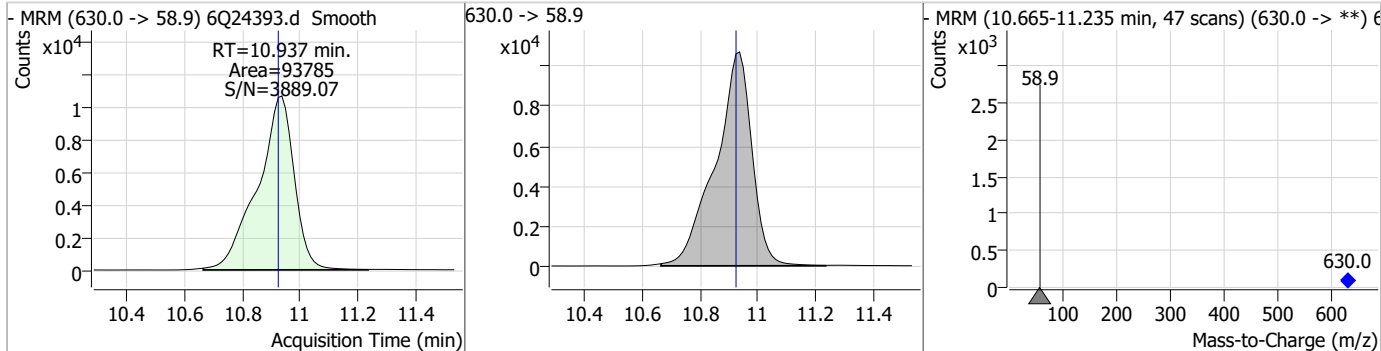
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.18	10.76	0.00	27188 (m)	511.9 -> 169.0	137.0	67.7	203.2



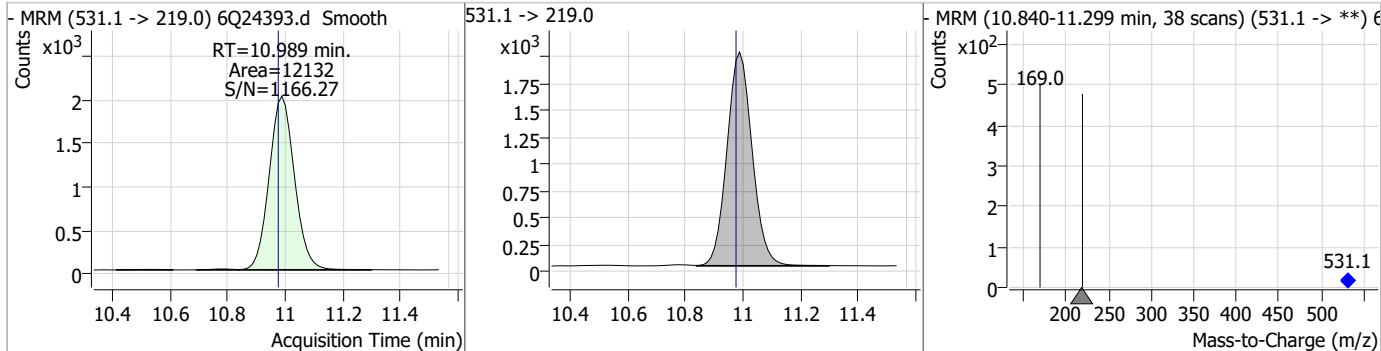
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.17	10.92	0.01	157385				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.54	10.94	0.01	93785				

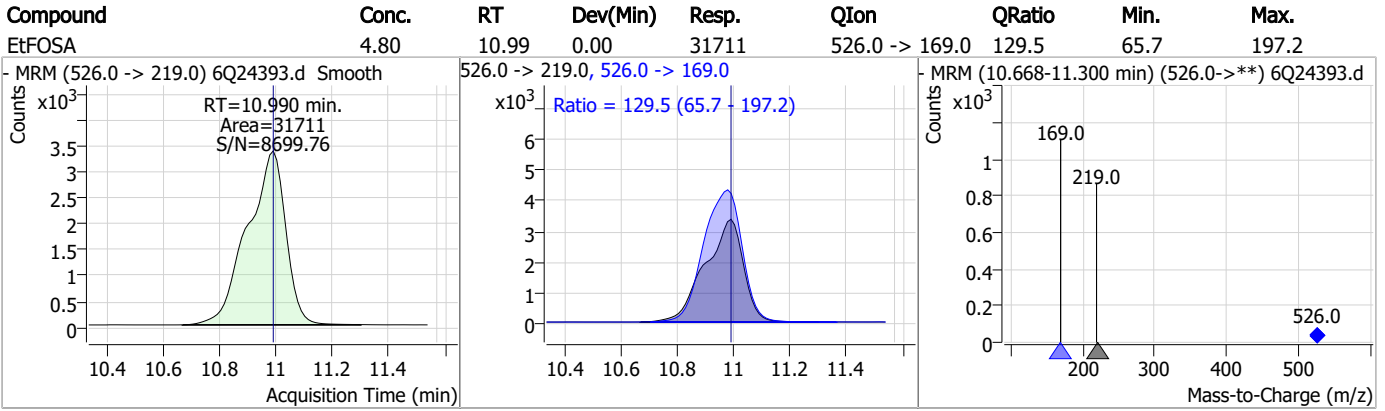


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.65	10.99	0.01	12132				



7.7.15
7

Perfluorinated Compounds by LC/MS/MS



7.7.15
7



Manual Integration Approval Summary

Sample Number: S6Q350-CC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24393.D Analyst approved: 09/13/23 14:00 Martha Valls
Injection Time: 09/13/23 04:32 Supervisor approved: 09/13/23 15:06 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.31	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSA	31506-32-8		10.76	Split peak

7.7.15.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q24400.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 9/13/2023 6:12:43 AM
 Sample Name : ecc347-4
 Vial : P1-A5
 DA Method File : 1633_090923_S6Q347.quantmethod.xml
 Batch Name : s6q350.batch.bin
 Sample Information : OP98555,S6Q350,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.997	216.8 -> 171.9	203289	10.00 µg/L	0.013
M5-PFPeA	4.434	268.3 -> 223.0	32956	5.00 µg/L	0.012
M5-PFHxA	5.654	318.0 -> 273.0	76170	2.50 µg/L	0.012
M4-PFHpA	6.581	367.1 -> 322.0	62762	2.50 µg/L	0.012
M8-PFOA	7.211	421.1 -> 376.0	82531	2.50 µg/L	0.012
M9-PFNA	7.741	472.1 -> 427.0	35514	1.25 µg/L	0.012
M6-PFDA	8.222	519.1 -> 474.1	34463	1.25 µg/L	0.012
M7-PFUnDA	8.676	570.0 -> 525.1	44773	1.25 µg/L	0.012
M2-PFDoDA	9.093	615.1 -> 570.0	41921	1.25 µg/L	0.000
M2-PFTeDA	9.796	715.2 -> 670.0	16424	1.25 µg/L	0.000
M8-FOSA	9.670	506.1 -> 77.8	30602	2.50 µg/L	0.012
M3-PFBS	5.584	302.1 -> 79.9	24609	2.50 µg/L	0.012
M3-PFHxS	7.313	402.1 -> 79.9	13566	2.50 µg/L	0.000
M8-PFOS	8.373	507.1 -> 79.9	14145	2.50 µg/L	0.012
M2-4:2FTS	5.317	329.1 -> 80.9	2680	5.00 µg/L	0.012
M2-6:2FTS	6.986	429.1 -> 80.9	3979	5.00 µg/L	0.012
M2-8:2FTS	8.011	529.1 -> 80.9	3920	5.00 µg/L	0.013
M3-MeFOSAA	8.268	573.2 -> 419.0	20442	5.00 µg/L	0.012
M3-HFPO-DA	6.031	286.9 -> 168.9	42864	10.00 µg/L	0.012
M5-EtFOSAA	8.464	589.2 -> 419.0	20575	5.00 µg/L	0.000
M7-MeFOSE	10.678	623.2 -> 58.9	113081	25.00 µg/L	0.000
M9-EtFOSE	10.911	639.2 -> 58.9	158639	25.00 µg/L	0.000
M5-EtFOSA	10.989	531.1 -> 219.0	11753	2.50 µg/L	0.012
M3-MeFOSA	10.757	515.0 -> 219.0	12060	2.50 µg/L	0.000
13C4-PFOS	8.374	502.8 -> 79.9	18599	2.50 µg/L	0.012
13C3-PFBA	3.001	216.0 -> 172.0	80042	5.00 µg/L	0.012
18O2-PFHxS	7.325	403.0 -> 83.9	9459	2.50 µg/L	0.012
13C4-PFOA	7.211	417.1 -> 372.0	91345	2.50 µg/L	0.012
13C2-PFDA	8.210	515.1 -> 470.1	30323	1.25 µg/L	0.000
13C5-PFNA	7.742	468.0 -> 423.0	39905	1.25 µg/L	0.012
13C2-PFHxA	5.654	315.1 -> 270.0	57862	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.317	329.1 -> 80.9	2680	5.03 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-6:2FTS	6.986	429.1 -> 80.9	3979	5.09 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-8:2FTS	8.011	529.1 -> 80.9	3920	4.85 µg/L	0.013
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	41921	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C2-PFTeDA	9.796	715.2 -> 670.0	16424	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.7%		
13C3-PFBS	5.584	302.1 -> 79.9	24609	2.81 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.5%		
13C3-PFHxS	7.313	402.1 -> 79.9	13566	2.61 µg/L	0.000

7.7.16
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C4-PFBA	2.997	216.8 -> 171.9	203289	10.06 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.581	367.1 -> 322.0	62762	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFHxA	5.654	318.0 -> 273.0	76170	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C5-PFPeA	4.434	268.3 -> 223.0	32956	4.23 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 84.5%	
13C6-PFDA	8.222	519.1 -> 474.1	34463	1.31 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C7-PFUnDA	8.676	570.0 -> 525.1	44773	1.27 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-FOSA	9.670	506.1 -> 77.8	30602	2.31 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.4%	
13C8-PFOA	7.211	421.1 -> 376.0	82531	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOS	8.373	507.1 -> 79.9	14145	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C9-PFNA	7.741	472.1 -> 427.0	35514	1.42 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.9%	
d3-MeFOSAA	8.268	573.2 -> 419.0	20442	3.93 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 78.6%	
13C3-HFPO-DA	6.031	286.9 -> 168.9	42864	9.73 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
d3-MeFOSA	10.757	515.0 -> 219.0	12060	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.9%	
d5-EtFOSAA	8.464	589.2 -> 419.0	20575	4.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.3%	
d7-MeFOSE	10.678	623.2 -> 58.9	113081	23.12 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
d9-EtFOSE	10.911	639.2 -> 58.9	158639	24.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.4%	
d5-EtFOSA	10.989	531.1 -> 219.0	11753	2.35 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.9%	
Target Compounds					QValue
4:2FTS	5.317	327.1 -> 307.0	41501	9.36 µg/L	96
		327.1 -> 80.9	16265		
6:2FTS	6.987	427.1 -> 407.0	34602	9.83 µg/L	97
		427.1 -> 80.9	13085		
8:2FTS	8.012	527.1 -> 507.0	24869	9.41 µg/L	96
		527.1 -> 80.8	9167		
EtFOSAA	8.465	584.2 -> 419.1	7833	2.70 µg/L	m 99
		584.2 -> 526.0	5218		
FOSA	9.660	498.1 -> 77.9	26886	2.39 µg/L	100
		498.1 -> 478.0	783		
MeFOSAA	8.269	570.1 -> 419.0	13978	2.88 µg/L	96
		570.1 -> 483.0	3078		
PFBA	3.006	212.8 -> 168.9	71139	10.59 µg/L	100
PFBS	5.585	298.7 -> 79.9	25892	2.14 µg/L	98
		298.7 -> 98.8	10135		
PFDA	8.211	512.9 -> 469.0	75231	2.40 µg/L	99
		512.9 -> 219.0	12089		
PFDODA	9.094	613.1 -> 569.0	75833	2.44 µg/L	100
		613.1 -> 319.0	8589		
PFDS	9.245	599.0 -> 79.9	9292	2.25 µg/L	100

7.7.16
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4447			
PFHpA	6.582	363.1 -> 319.0	82348	2.48	µg/L	99
		363.1 -> 169.0	11777			
PFHpS	7.868	449.0 -> 79.9	14993	2.19	µg/L	95
		449.0 -> 98.9	7548			
PFHxA	5.657	313.0 -> 269.0	68446	2.47	µg/L	99
		313.0 -> 118.9	3152			
PFHxS	7.327	398.7 -> 79.9	20287	2.38	µg/L	m 99
		398.7 -> 98.9	9988			
PFNA	7.742	463.0 -> 419.0	57872	2.16	µg/L	94
		463.0 -> 219.0	14209			
PFNS	8.826	548.8 -> 79.9	15981	2.39	µg/L	98
		548.8 -> 98.9	8720			
PFOA	7.212	413.0 -> 369.0	94637	2.22	µg/L	99
		413.0 -> 169.0	17816			
PFOS	8.374	498.9 -> 79.9	17742	2.26	µg/L	m 97
		498.9 -> 98.8	8190			
PFPeA	4.436	263.0 -> 219.0	77843	5.30	µg/L	100
PFPeS	6.633	349.1 -> 79.9	17316	2.35	µg/L	99
		349.1 -> 98.9	7999			
PFTeDA	9.797	713.1 -> 669.0	56641	2.39	µg/L	99
		713.1 -> 168.9	4176			
PFTrDA	9.464	663.0 -> 619.0	86125	2.43	µg/L	99
		663.0 -> 168.9	7252			
PFUnDA	8.664	563.1 -> 519.0	61380	2.39	µg/L	100
		563.1 -> 269.1	9228			
11CI-PF3OUdS	9.516	630.9 -> 450.9	69072	4.42	µg/L	93
		632.9 -> 452.9	22304			
9CI-PF3ONS	8.703	530.8 -> 351.0	131248	4.90	µg/L	98
		532.8 -> 353.0	38368			
ADONA	6.829	376.9 -> 250.9	291323	4.69	µg/L	100
		376.9 -> 84.8	79547			
HFPO-DA	6.032	284.9 -> 168.9	20094	4.95	µg/L	97
		284.9 -> 184.9	2852			
3:3FTCA	3.871	241.0 -> 177.0	13821	11.89	µg/L	99
		241.0 -> 117.0	1369			
5:3FTCA	6.283	341.0 -> 237.1	310483	65.92	µg/L	92
		341.0 -> 217.0	200340			
7:3FTCA	7.669	441.0 -> 316.9	182753	65.65	µg/L	92
		441.0 -> 336.9	391810			
EtFOSA	10.990	526.0 -> 219.0	30908	4.83	µg/L	98
		526.0 -> 169.0	41256			
EtFOSE	10.937	630.0 -> 58.9	92857	12.32	µg/L	100
MeFOSA	10.758	511.9 -> 219.0	26771	5.23	µg/L	97
		511.9 -> 169.0	37294			
MeFOSE	10.691	616.1 -> 58.9	61209	12.52	µg/L	100
PFDoDS	9.923	699.1 -> 79.9	5160	2.29	µg/L	99
		699.1 -> 98.8	2944			
NFDHA	5.535	295.0 -> 201.0	15607	4.86	µg/L	94
		295.0 -> 84.9	4097			
PFMBA	4.863	279.0 -> 85.1	58367	5.45	µg/L	100
PFMPA	3.563	229.0 -> 84.9	42287	5.51	µg/L	100
PFEESA	6.124	314.8 -> 134.9	155724	4.49	µg/L	99
		314.8 -> 82.9	5289			

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



7.7.16
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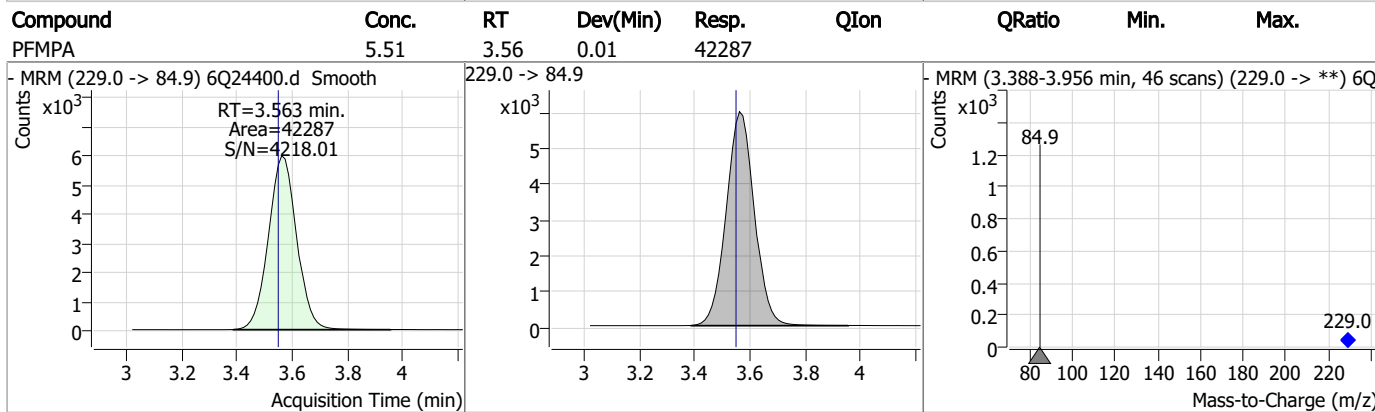
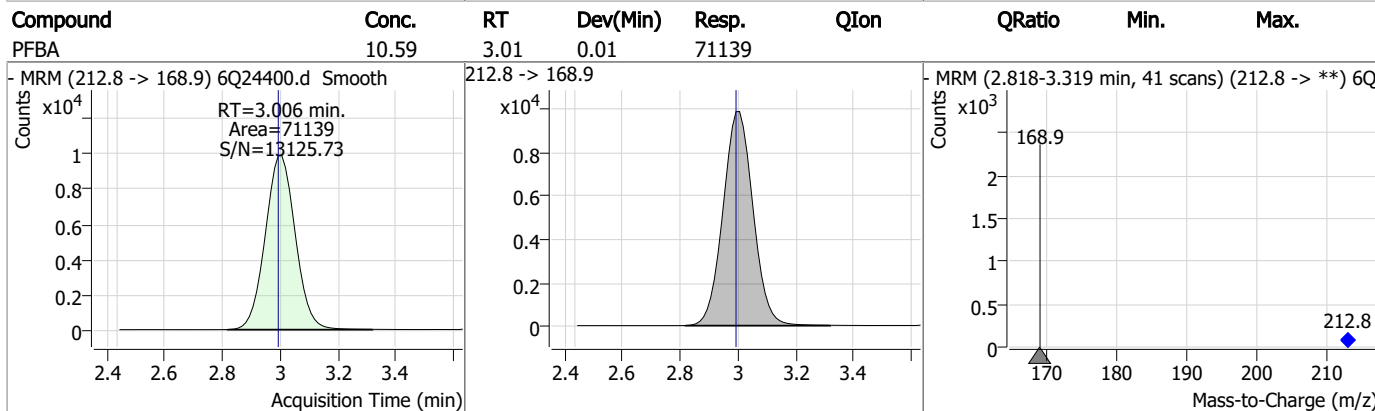
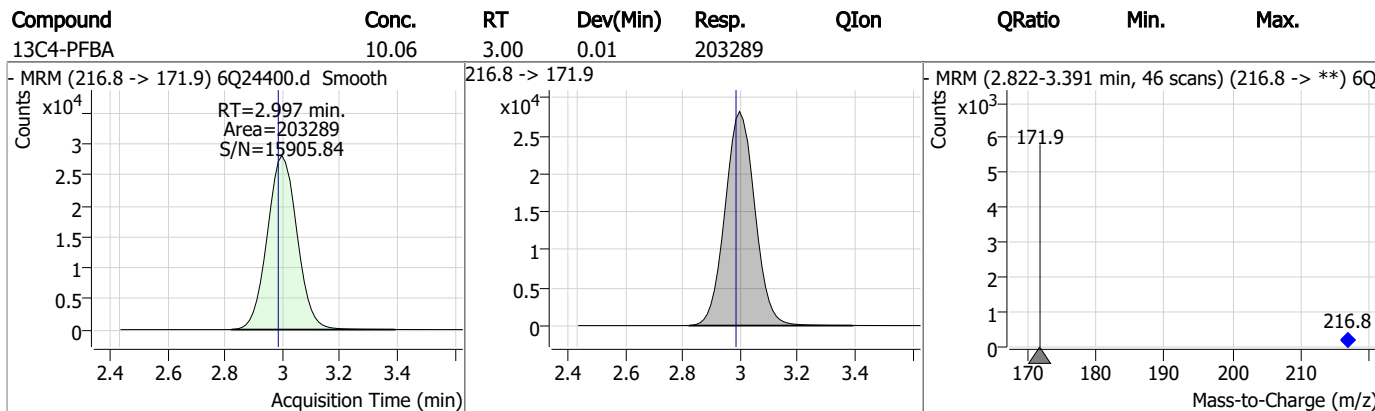
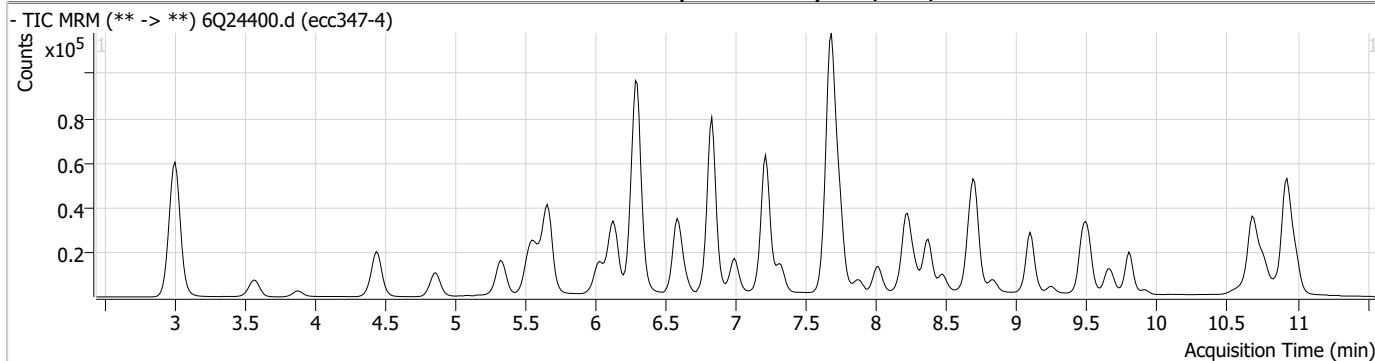
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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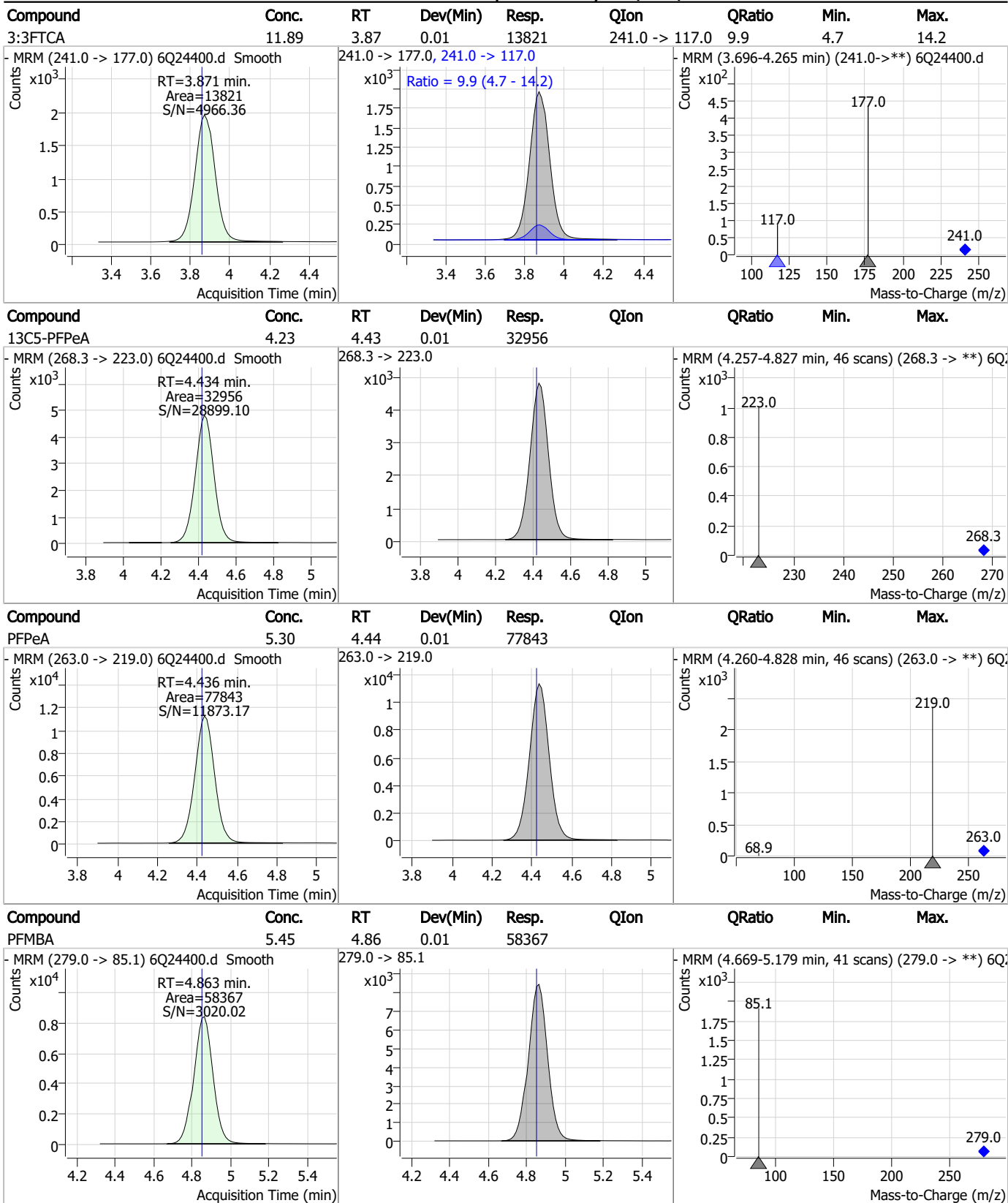
7.7.16

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Perfluorinated Compounds by LC/MS/MS

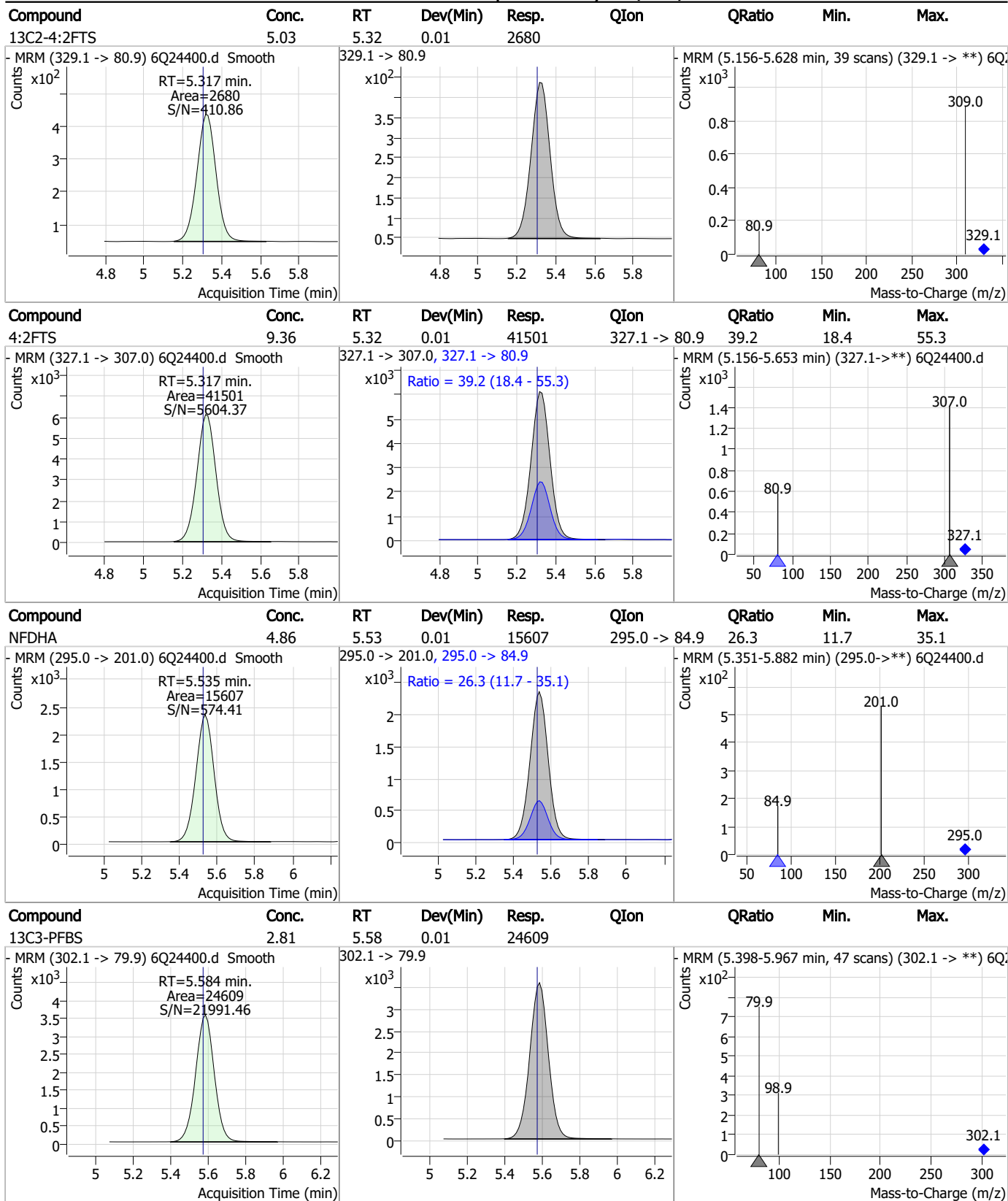


Perfluorinated Compounds by LC/MS/MS



7.7.16 7

Perfluorinated Compounds by LC/MS/MS



7.7.16
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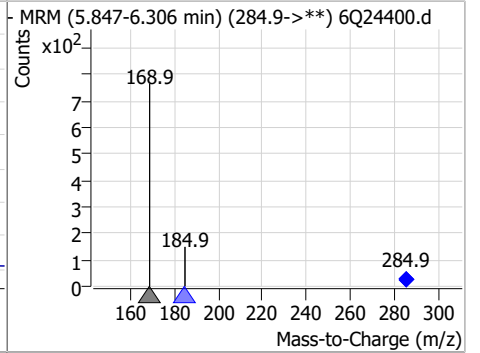
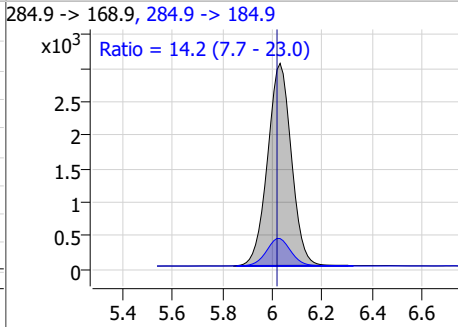
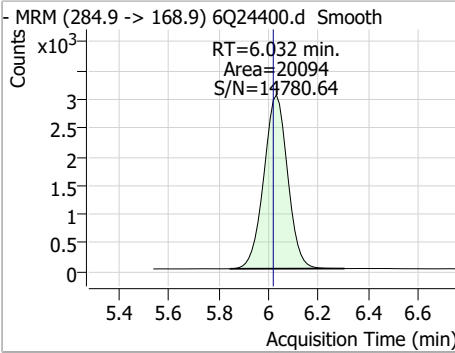
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.14	5.58	0.01	25892	298.7 -> 98.8	39.1	19.0	57.1
13C5-PFHxA	2.39	5.65	0.01	76170	318.0 -> 273.0	39.1 (19.0 - 57.1)		
PFHxA	2.47	5.66	0.01	68446	313.0 -> 118.9	4.6	2.2	6.6
13C3-HFPO-DA	9.73	6.03	0.01	42864	286.9 -> 168.9	4.6		

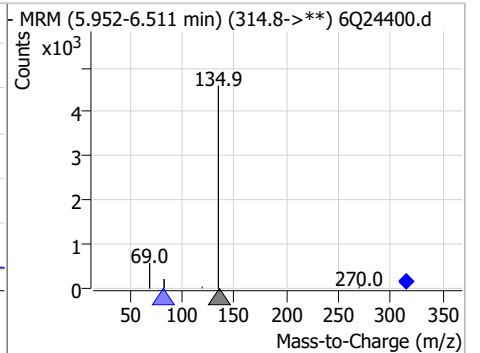
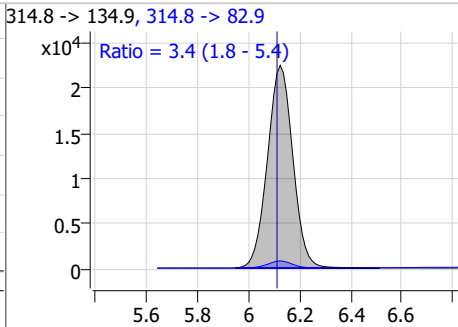
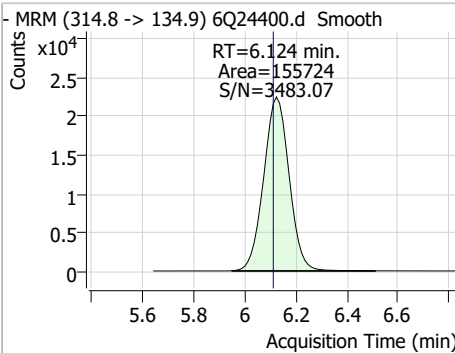
7.7.16
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Perfluorinated Compounds by LC/MS/MS

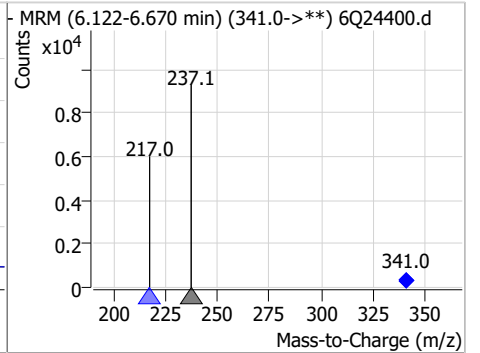
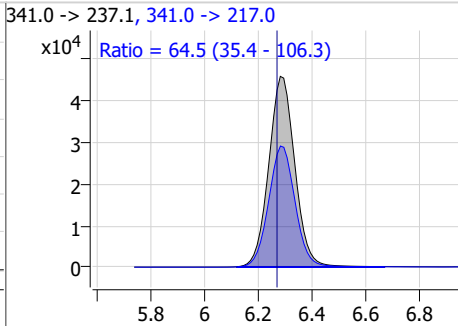
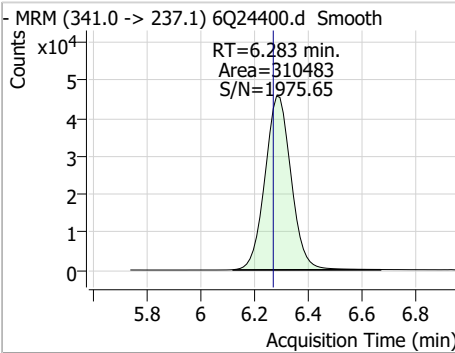
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.95	6.03	0.01	20094	284.9 -> 184.9	14.2	7.7	23.0



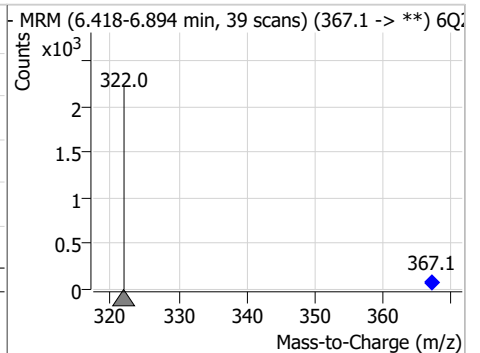
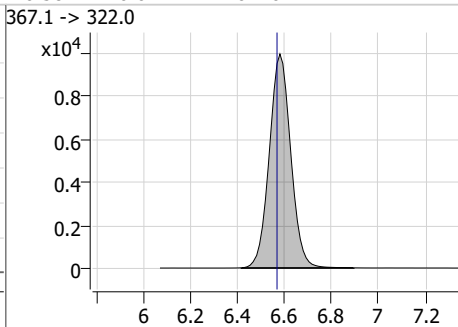
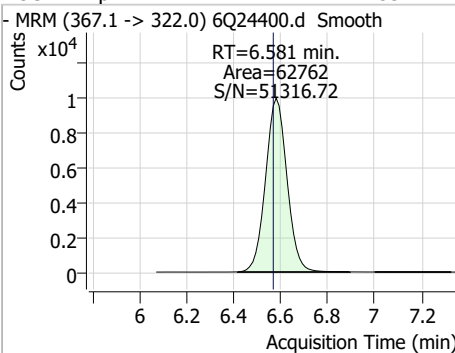
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.49	6.12	0.01	155724	314.8 -> 82.9	3.4	1.8	5.4



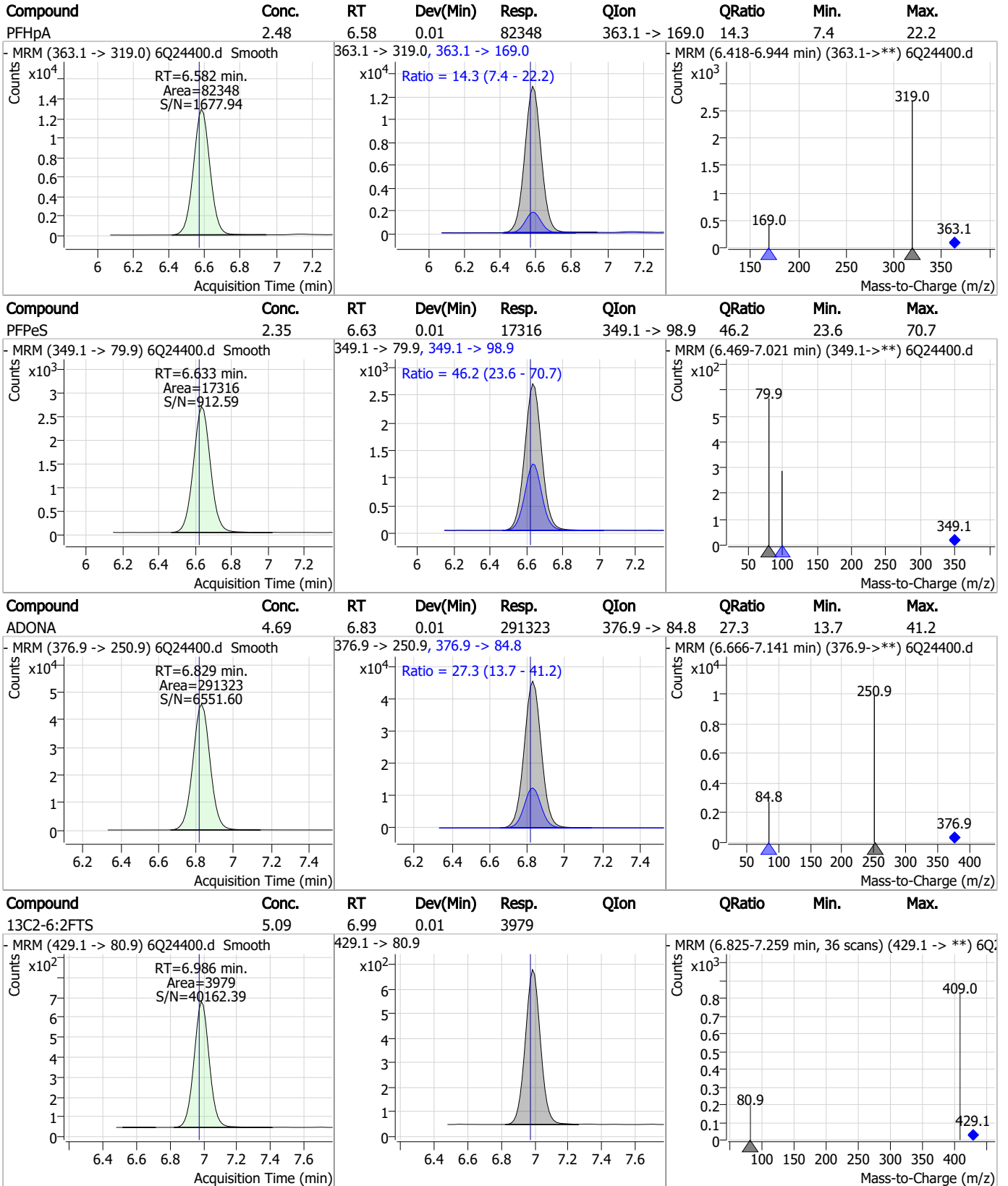
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.92	6.28	0.01	310483	341.0 -> 217.0	64.5	35.4	106.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.53	6.58	0.01	62762	367.1 -> 322.0			



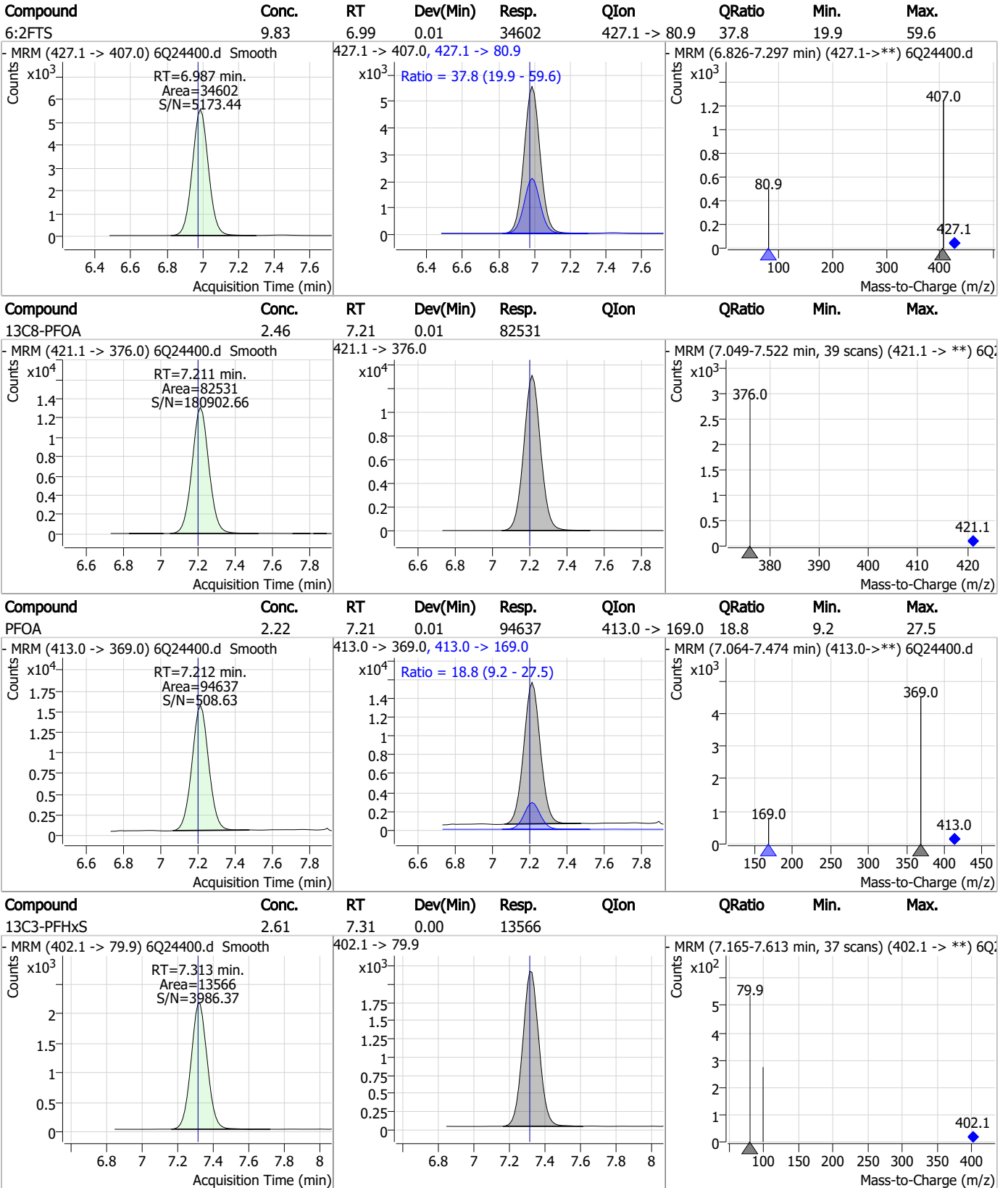
Perfluorinated Compounds by LC/MS/MS



7.7.16 7



Perfluorinated Compounds by LC/MS/MS

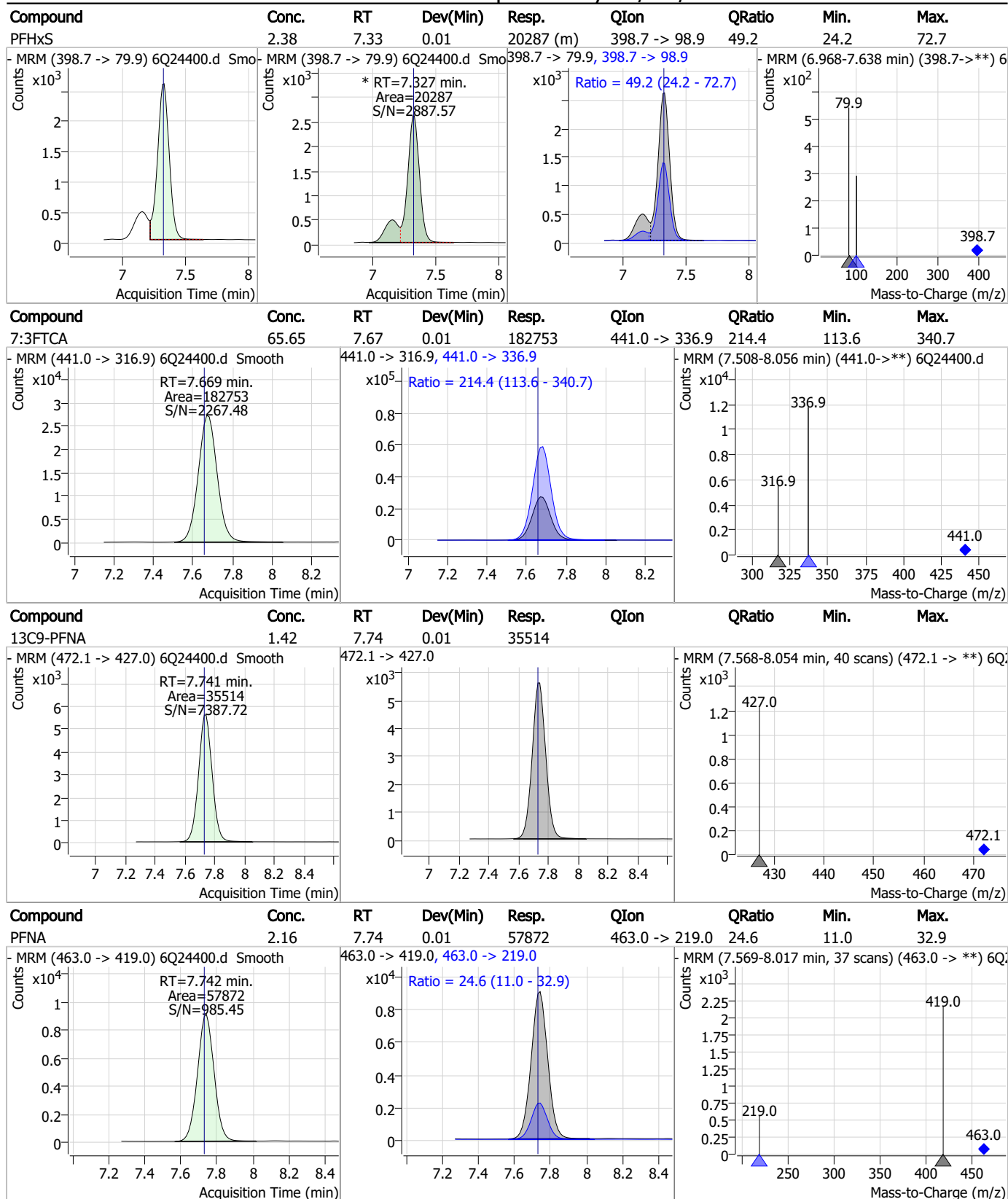


7.7.16

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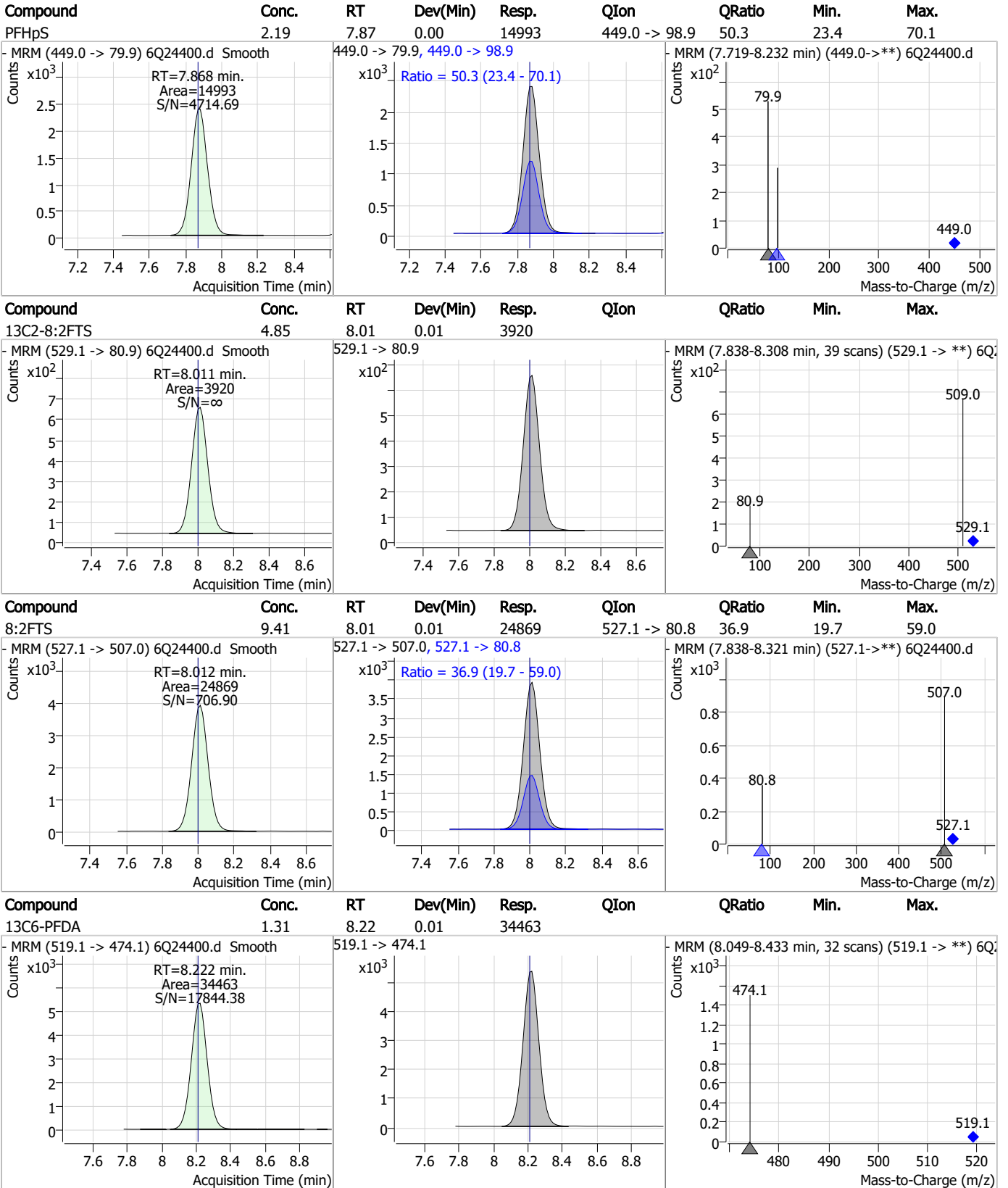


Perfluorinated Compounds by LC/MS/MS



7.7.16 7

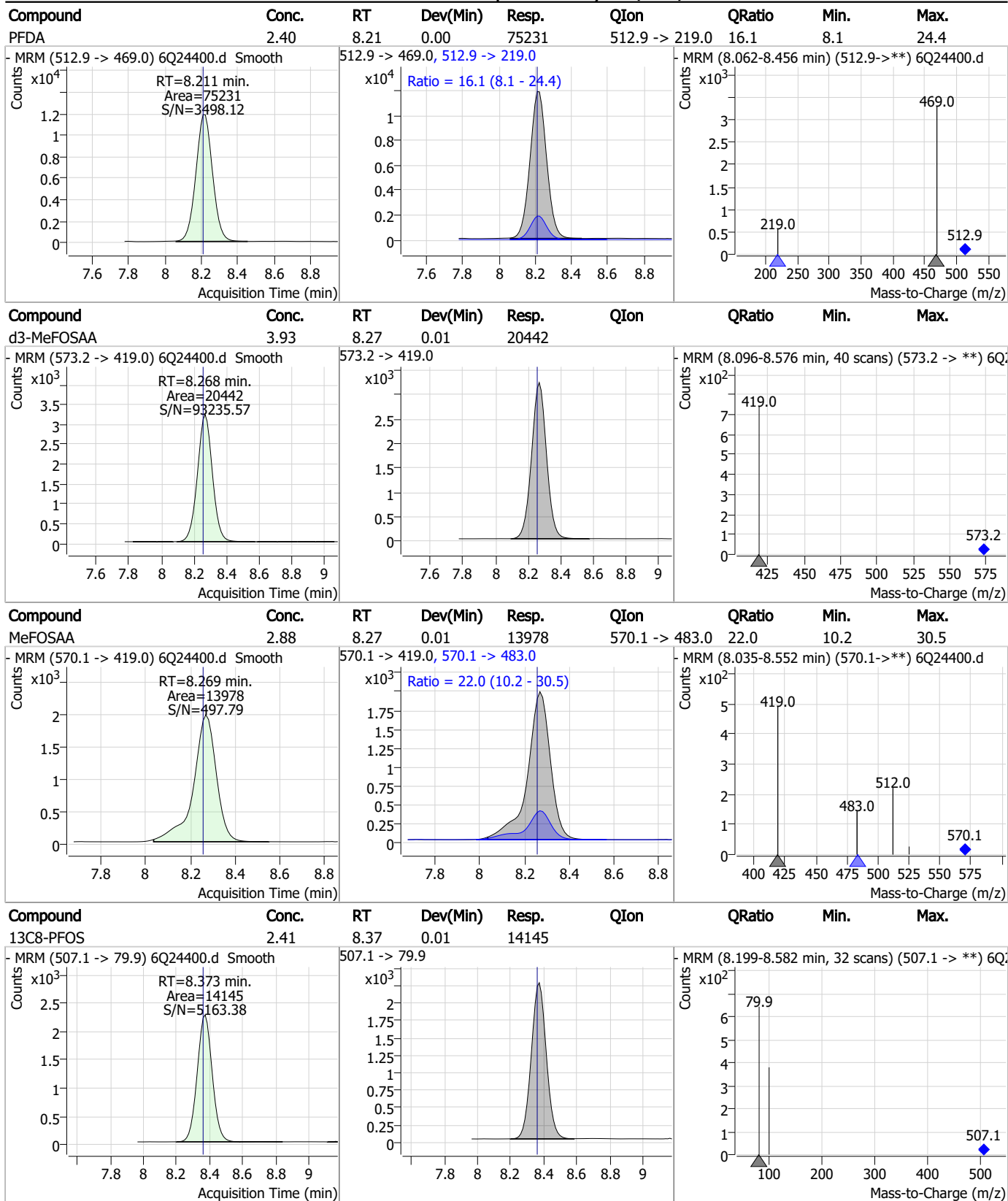
Perfluorinated Compounds by LC/MS/MS



7.7.16 7



Perfluorinated Compounds by LC/MS/MS

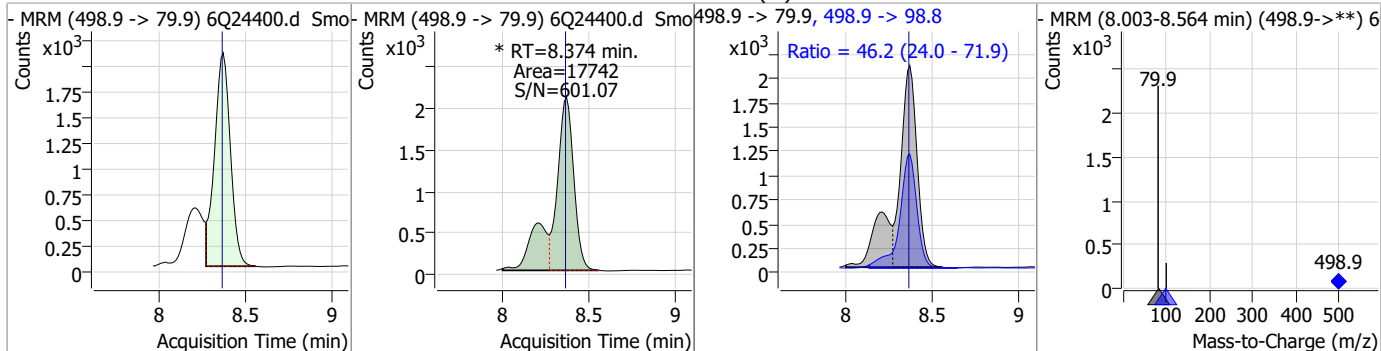


7.7.16
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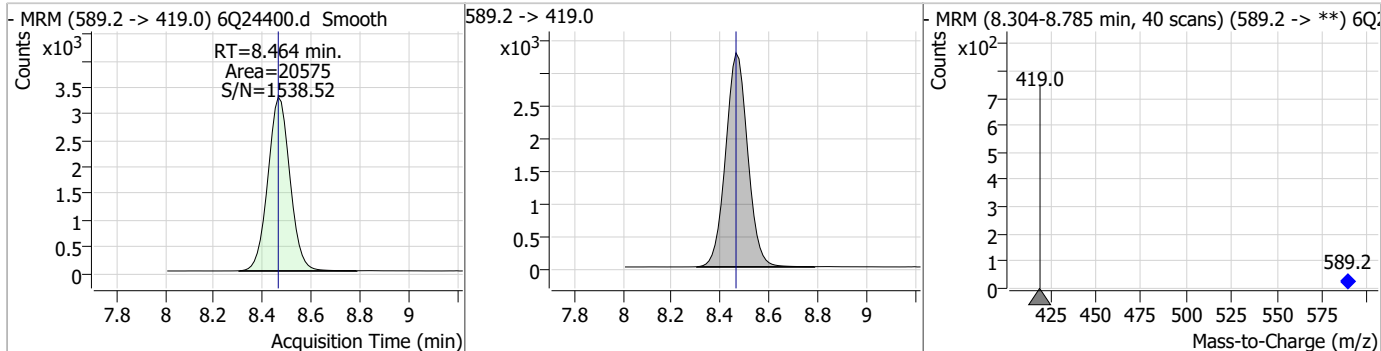


Perfluorinated Compounds by LC/MS/MS

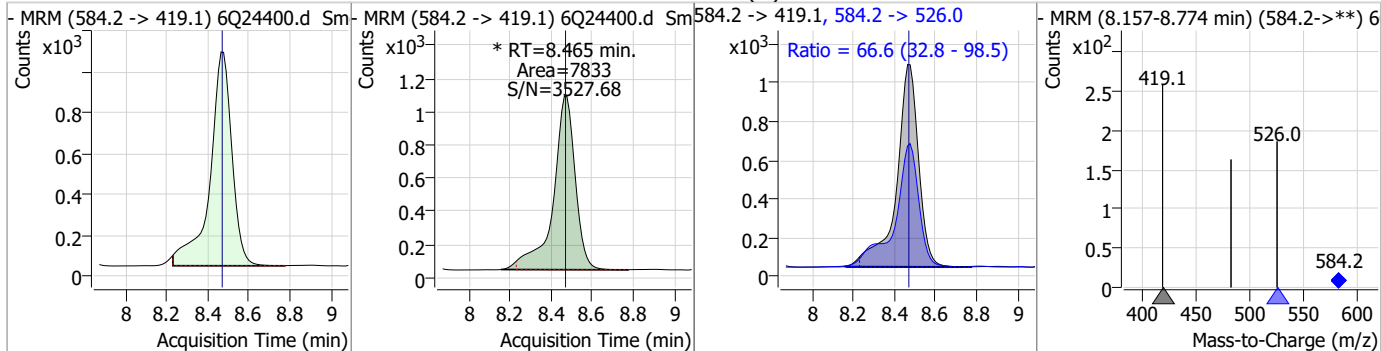
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.26	8.37	0.01	17742 (m)	498.9 -> 98.8	46.2	24.0	71.9



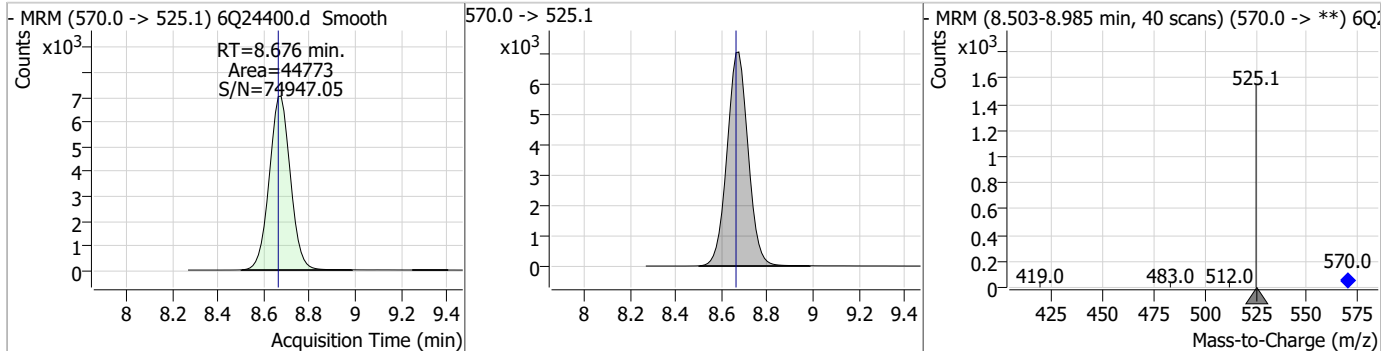
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.11	8.46	0.00	20575				



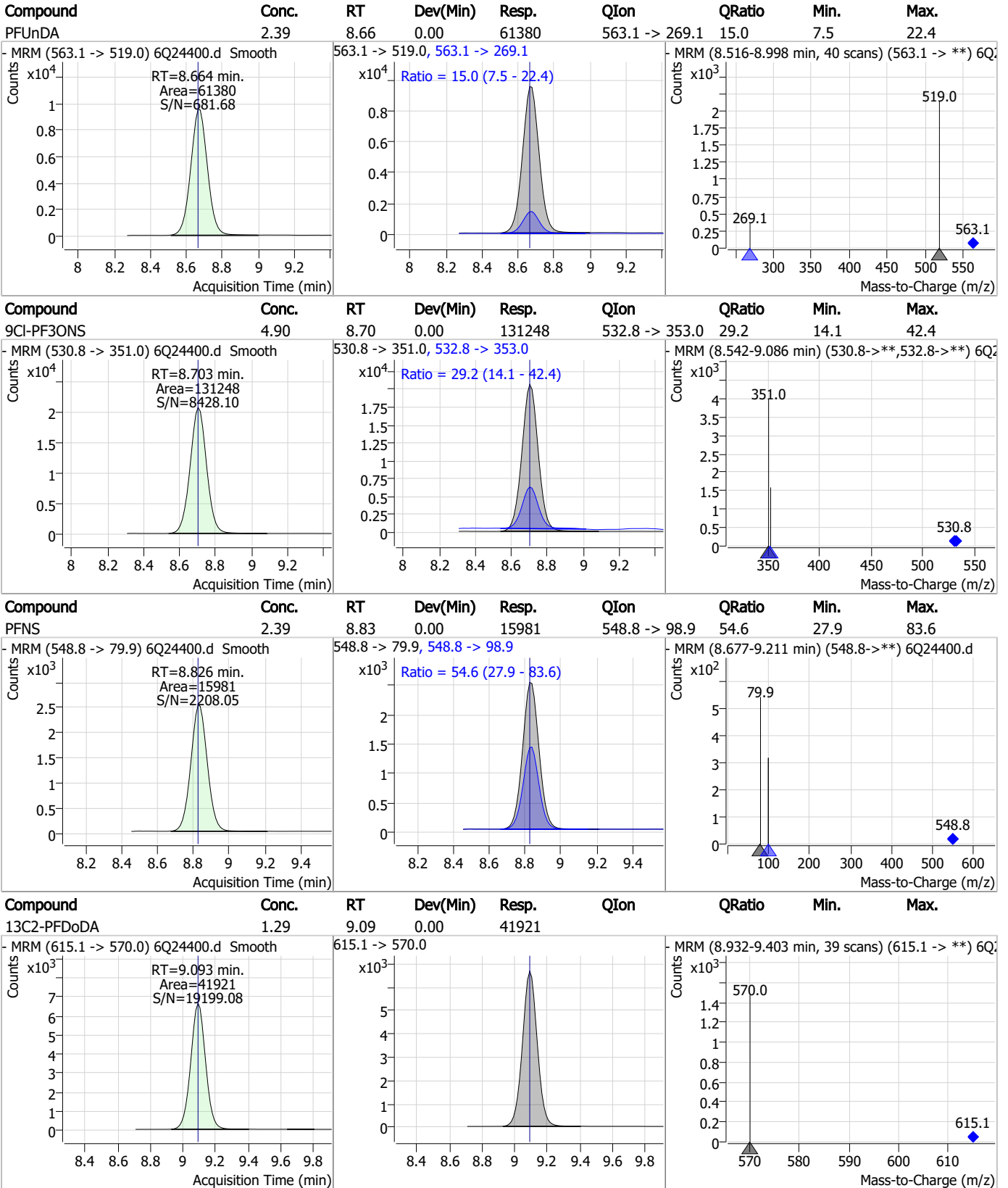
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.70	8.46	0.00	7833 (m)	584.2 -> 526.0	66.6	32.8	98.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.27	8.68	0.01	44773				



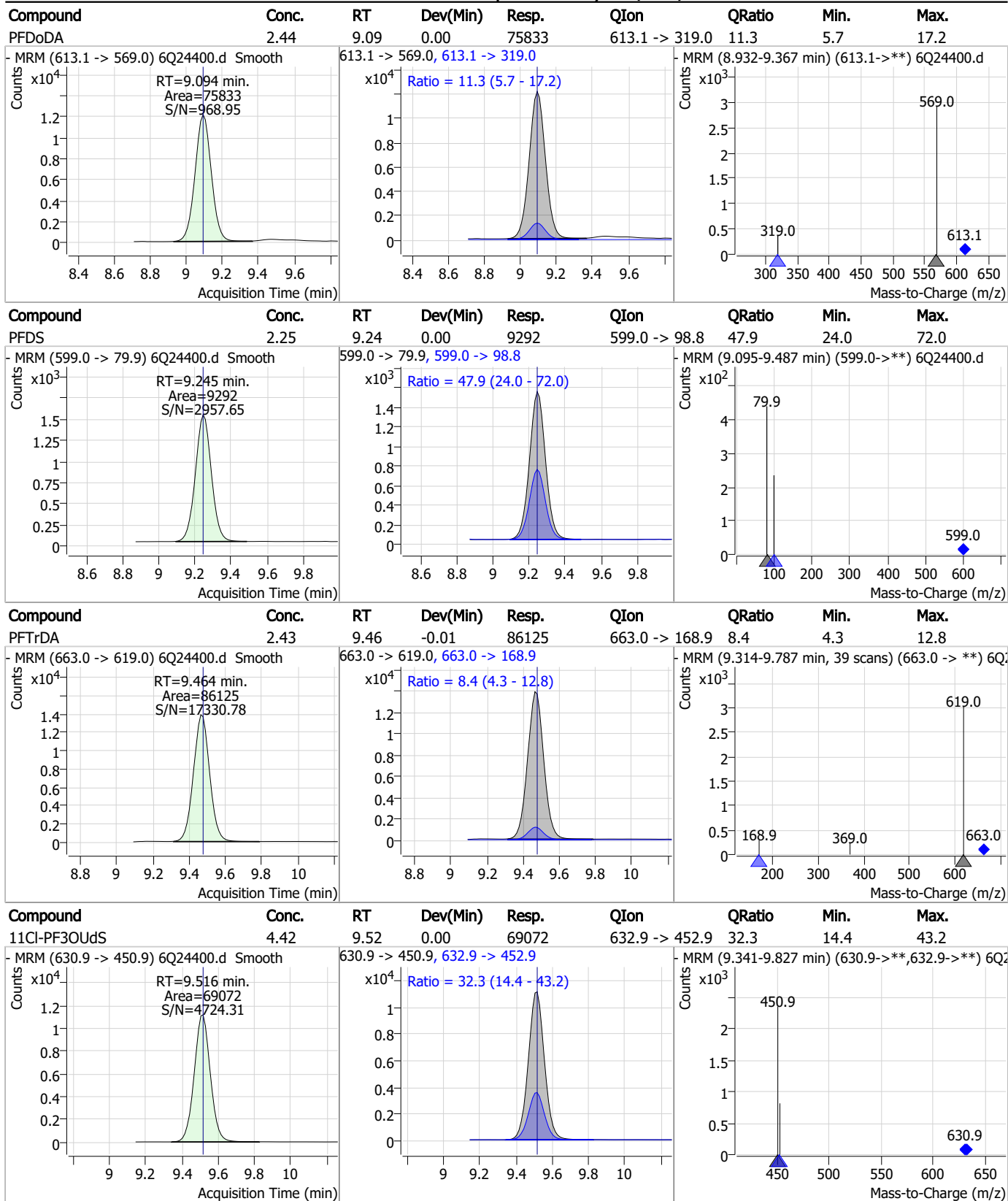
Perfluorinated Compounds by LC/MS/MS



7.7.16 7



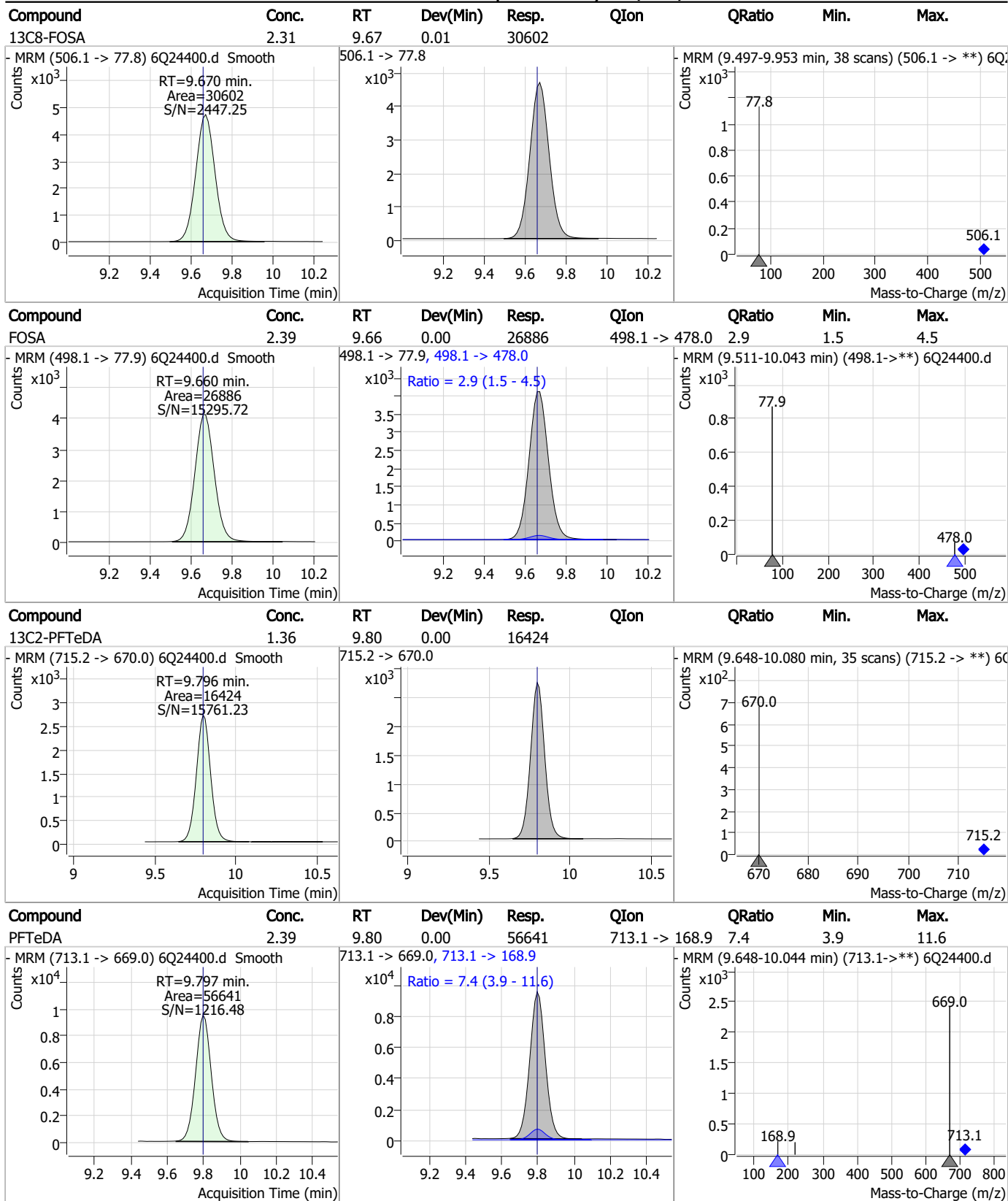
Perfluorinated Compounds by LC/MS/MS



7.7.16 7



Perfluorinated Compounds by LC/MS/MS

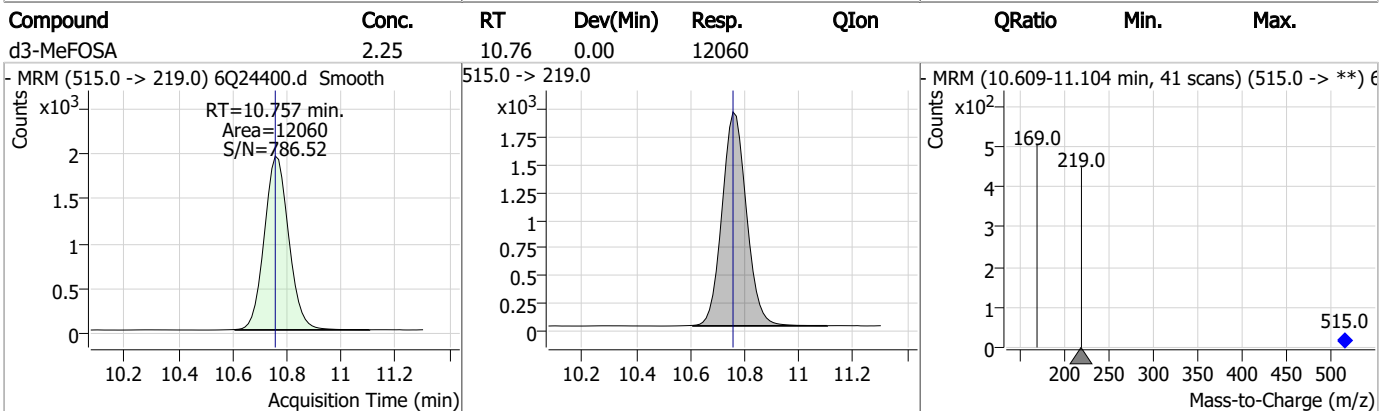
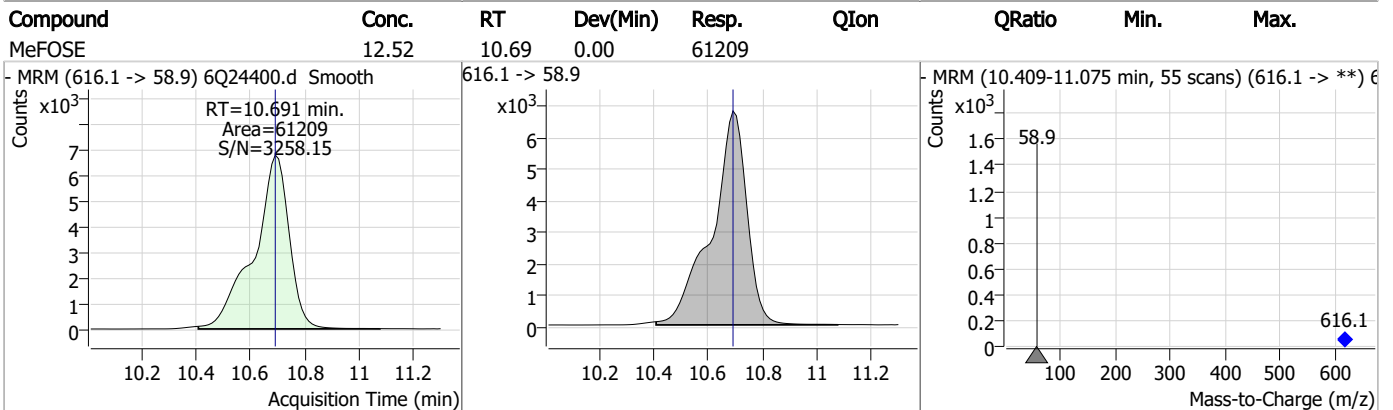
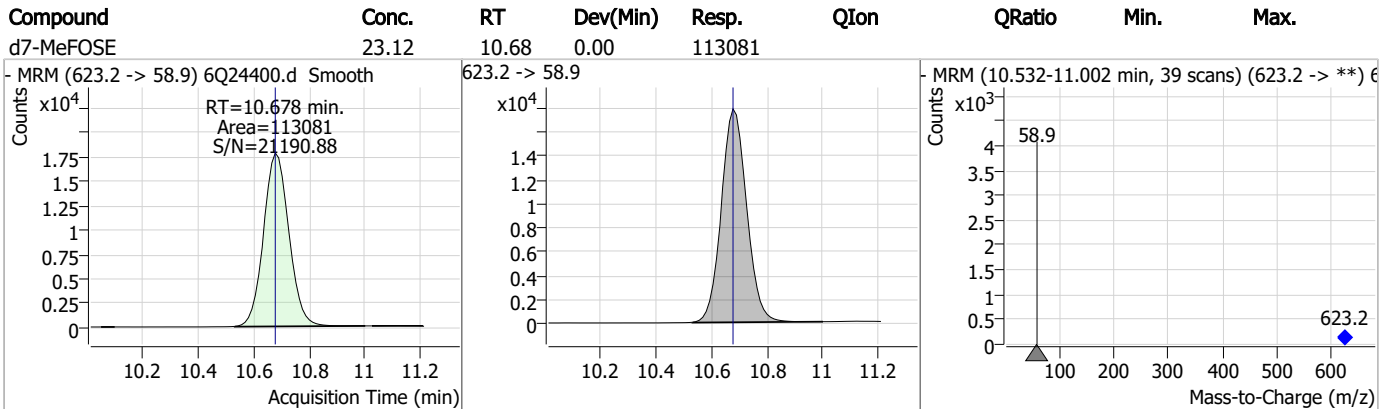
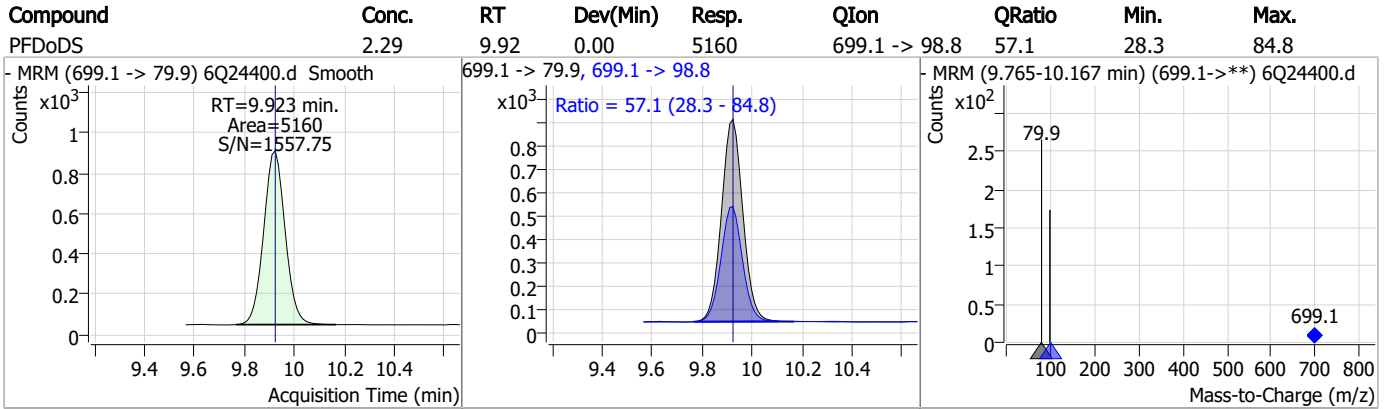


7.7.16

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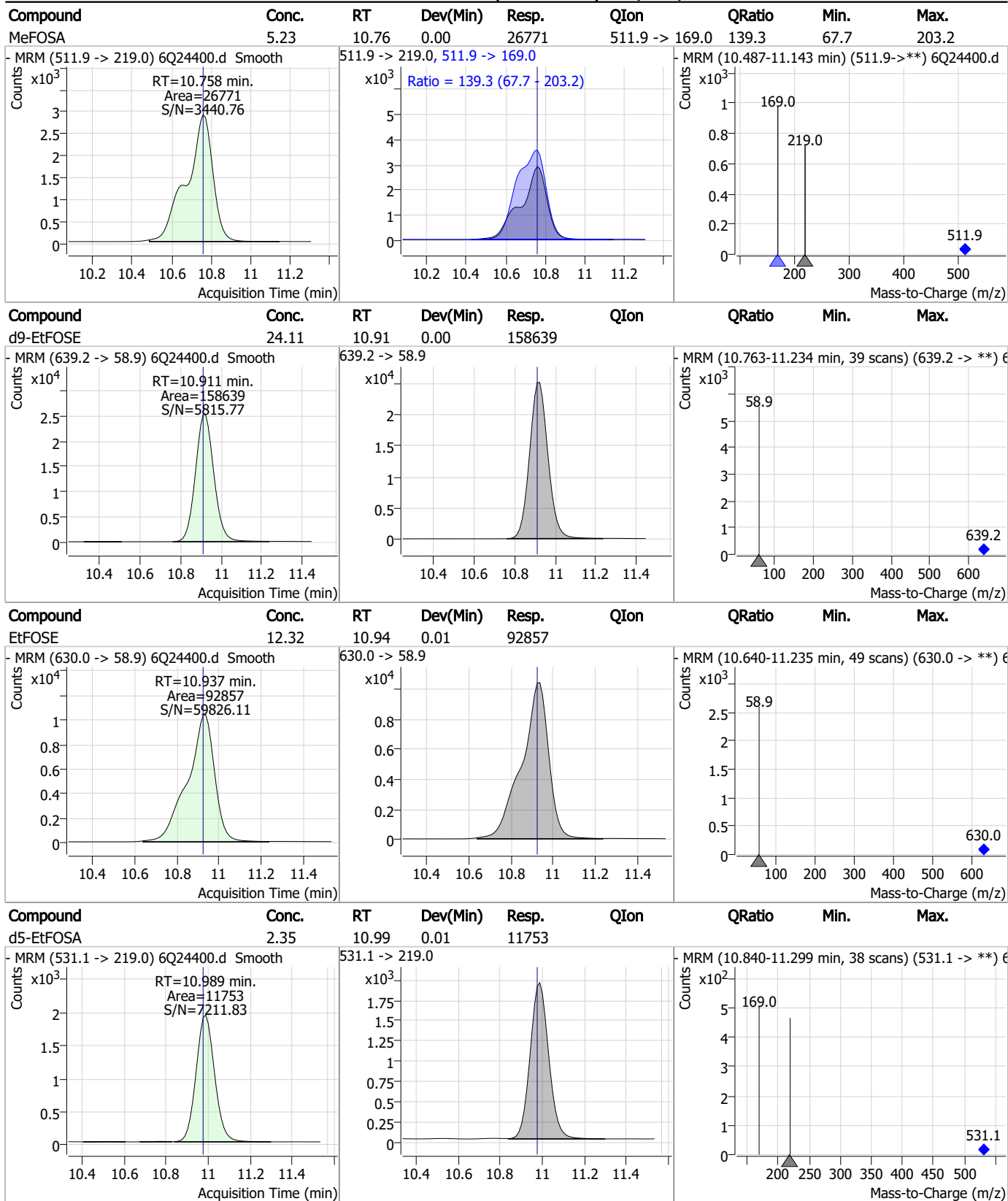


Perfluorinated Compounds by LC/MS/MS



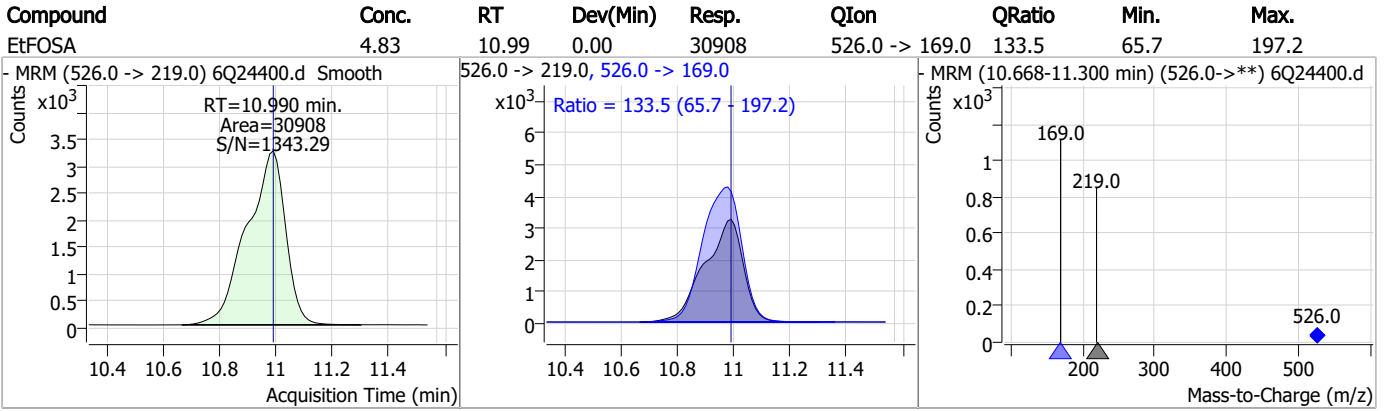
7.7.16
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Perfluorinated Compounds by LC/MS/MS



7.7.16
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Perfluorinated Compounds by LC/MS/MS



7.7.16

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Manual Integration Approval Summary

Sample Number: S6Q350-ECC347 Method: EPA DRAFT 1633
Lab FileID: 6Q24400.D Analyst approved: 09/13/23 14:00 Martha Valls
Injection Time: 09/13/23 06:12 Supervisor approved: 09/13/23 15:06 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.33	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.37	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.7.16.1

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SGS ORLANDO

DATE:	09/09/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_090923_S6Q347
CAL DATE:	09/09/23
ANALYST:	M. Valls
RUN BATCH:	S6Q347

ELUENT A LOT #:	ACN 232980
ELUENT B LOT #:	HPLC WATER:231331 W5% Acetonitrile: 232980 2mM AMAC.
IC/CC STD LOT #:	LCMS 2151-E
ICV STD LOT #:	LCMS 2151B/2159
ISTD/ID STD LOT #:	11966A/11967A

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q24123.d	P1-B9	CCB	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
2	6Q24124.d	P1-B9	CCB	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
3	6Q24125.d	P1-B3	RT TDCA	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
4	6Q24126.d	P1-B4	RT BR-LN	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
5	6Q24127.d	P1-A1	ic347-0	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
6	6Q24128.d	P1-A2	ic347-1	1633full.m	Calibration	1.6/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
7	6Q24129.d	P1-A3	ic347-2	1633full.m	Calibration	3.2/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
8	6Q24130.d	P1-A4	ic347-3	1633full.m	Calibration	10/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
9	6Q24131.d	P1-A5	icc347-4	1633full.m	Calibration	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
10	6Q24132.d	P1-A6	ic347-5	1633full.m	Calibration	40/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
11	6Q24133.d	P1-A7	ic347-6	1633full.m	Calibration	100/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
12	6Q24134.d	P1-A8	ic347-7	1633full.m	Calibration	200/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
13	6Q24135.d	P1-A9	ic347-8	1633full.m	Calibration	1x	OP98555,S6Q347,500,,,5.0,1,,water	✓
14	6Q24136.d	P1-A1	IBLK	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
15	6Q24137.d	P1-B1	icv347-4	1633full.m	QC	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
16	6Q24138.d	P1-B2	icv347-20	1633full.m	QC	100/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
17	6Q24139.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
18	6Q24140.d	P1-A2	cc347-1,0LL	1633full.m	QC	1.6/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
19	6Q24141.d	P3-A1	OP98824-BS	1633full.m	Sample		OP98824,S6Q347,5.00,,,5.0,1,soil	✓
20	6Q24142.d	P3-A2	OP98824-LLBS:2	1633full.m	Sample		OP98824,S6Q347,5.00,,,5.0,1,soil	✓
21	6Q24143.d	P3-A3	OP98824-MB	1633full.m	Sample		OP98824,S6Q347,5.00,,,5.0,1,soil	✓
22	6Q24144.d	P3-B2	FC8986-6	1633full.m	Sample		OP98824,S6Q347,4.99,,,5.0,1,soil	✓
23	6Q24145.d	P3-B3	FC8986-7	1633full.m	Sample		OP98824,S6Q347,5.05,,,5.0,1,soil	✓
24	6Q24146.d	P3-B4	FC8986-8	1633full.m	Sample		OP98824,S6Q347,5.03,,,5.0,1,soil	✓
25	6Q24147.d	P3-B5	FC8986-9	1633full.m	Sample		OP98824,S6Q347,5.02,,,5.0,1,soil	✓
26	6Q24148.d	P3-B6	FC8986-10	1633full.m	Sample		OP98824,S6Q347,5.02,,,5.0,1,soil	✓
27	6Q24149.d	P3-B7	FC8986-11	1633full.m	Sample		OP98824,S6Q347,5.03,,,5.0,1,soil	✓
28	6Q24150.d	P3-B8	FC8986-12	1633full.m	Sample		OP98824,S6Q347,5.03,,,5.0,1,soil	✓
29	6Q24151.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓
30	6Q24152.d	P1-A1	iccb	1633full.m	Sample		OP98555,S6Q347,500,,,5.0,1,,water	✓
31	6Q24153.d	P3-B9	FC8986-13	1633full.m	Sample		OP98824,S6Q347,4.95,,,5.0,1,soil	✓
32	6Q24154.d	P3-C1	FC8986-14	1633full.m	Sample		OP98824,S6Q347,4.95,,,5.0,1,soil	✓
33	6Q24155.d	P3-C2	FC8986-15	1633full.m	Sample		OP98824,S6Q347,4.96,,,5.0,1,soil	✓
34	6Q24156.d	P3-C3	FC8986-16	1633full.m	Sample		OP98824,S6Q347,5.00,,,5.0,1,soil	✓
35	6Q24157.d	P1-A5	Ecc347-4	1633full.m	QC	20/500	OP98555,S6Q347,500,,,5.0,1,,water	✓



SGS ORLANDO LCMS6-6Q ANALYSIS LOG

36	6Q24158.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q347.500,,,5.0,1,water	✓
37	6Q24159.d	P1-C1	Test LCMS2175-A	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
38	6Q24160.d	P1-C2	Test LCMS2175-B	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
39	6Q24161.d	P1-C3	Test LCMS2175-C	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
40	6Q24162.d	P1-C4	Test LCMS2175-D	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
41	6Q24163.d	P1-C5	Test LCMS2175-E	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass
42	6Q24164.d	P1-C6	Test LCMS2175-F	1633full.m	QC	OP98555.S6Q347.500,,,5.0,1,water	Pass

SGS ORLANDO

DATE:	09/12/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 uI
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_090923_S6Q347
CAL DATE:	09/09/23
ANALYST:	M. Valls
RUN BATCH:	S6Q350

ELUENT A LOT #:	ACN 232980
ELUENT B LOT #:	HPLC WATER:231331 WB5% Acetonitrile: 232980 2mM AMAC.
IC/CC STD LOT #:	LCMS 2151-E
ICV STD LOT #:	LCMS 2151B/2159
ISTD/ID STD LOT #:	11966A/11967A

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q24316.d	P1-B9	CCB	1633full.m	Sample		OP98555,S6Q350,5.00,,5.0,1,water	✓
2	6Q24317.d	P1-B9	CCB	1633full.m	Sample		OP98555,S6Q350,5.00,,5.0,1,water	✓
3	6Q24318.d	P1-B3	RT TDCA	1633full.m	Sample		OP98555,S6Q350,5.00,,5.0,1,water	✓
4	6Q24319.d	P1-B4	RT BR-LN	1633full.m	Sample		OP98555,S6Q350,5.00,,5.0,1,water	✓
5	6Q24320.d	P1-A9	High Std	1633full.m	Sample		OP98555,S6Q350,5.00,,5.0,1,water	✓
6	6Q24321.d	P1-A1	IBLK	1633full.m	Sample		OP98555,S6Q350,5.00,,5.0,1,water	✓
7	6Q24322.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555,S6Q350,5.00,,5.0,1,water	✓
8	6Q24323.d	P1-A2	cc347-1,0LL	1633full.m	QC	1.6/500	OP98555,S6Q350,5.00,,5.0,1,water	✓
9	6Q24324.d	P5-A1	OP98860-BS	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
10	6Q24325.d	P5-A2	OP98860-LLBS:2	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
11	6Q24326.d	P5-A3	OP98860-MB	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
12	6Q24327.d	P5-A4	FC8993-1	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
13	6Q24328.d	P5-A5	OP98860-MS	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
14	6Q24329.d	P5-A6	OP98860-MSD	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
15	6Q24330.d	P5-A7	FC8993-2	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
16	6Q24331.d	P5-A8	FC8993-3	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
17	6Q24332.d	P5-A9	FC8993-4	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
18	6Q24333.d	P5-B1	FC8993-5	1633full.m	Sample		OP98860,S6Q350,5.00,,5.0,1,soil	✓
19	6Q24334.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555,S6Q350,5.00,,5.0,1,water	✓
20	6Q24335.d	P1-A1	iccb	1633full.m	Sample		OP98555,S6Q350,5.00,,5.0,1,water	✓
21	6Q24336.d	P5-B2	FC8993-6	1633full.m	Sample		OP98860,S6Q350,5.05,,5.0,1,soil	✓
22	6Q24337.d	P5-B3	FC8993-7	1633full.m	Sample		OP98860,S6Q350,5.03,,5.0,1,soil	✓
23	6Q24338.d	P5-B4	FC8993-8	1633full.m	Sample		OP98860,S6Q350,5.02,,5.0,1,soil	✓
24	6Q24339.d	P5-B5	FC8993-9	1633full.m	Sample		OP98860,S6Q350,4.97,,5.0,1,soil	✓
25	6Q24340.d	P5-B6	FC8993-10	1633full.m	Sample		OP98860,S6Q350,5.03,,5.0,1,soil	✓
26	6Q24341.d	P5-B7	FC8993-11	1633full.m	Sample		OP98860,S6Q350,5.04,,5.0,1,soil	rr5x Surr high
27	6Q24342.d	P5-B8	FC8993-12	1633full.m	Sample		OP98860,S6Q350,4.96,,5.0,1,soil	✓
28	6Q24343.d	P5-B9	FC8993-13	1633full.m	Sample		OP98860,S6Q350,5.03,,5.0,1,soil	✓
29	6Q24344.d	P5-C1	FC8993-14	1633full.m	Sample		OP98860,S6Q350,5.03,,5.0,1,soil	✓
30	6Q24345.d	P5-C2	FC8993-15	1633full.m	Sample		OP98860,S6Q350,4.96,,5.0,1,soil	rr5x Surr high
31	6Q24346.d	P1-A5	cc347-4	1633full.m	QC	20/500	OP98555,S6Q350,5.00,,5.0,1,water	✓
32	6Q24347.d	P1-A1	iccb	1633full.m	Sample		OP98555,S6Q350,5.00,,5.0,1,water	✓
33	6Q24348.d	P5-C3	FC8993-16	1633full.m	Sample		OP98860,S6Q350,5.04,,5.0,1,soil	✓
34	6Q24349.d	P5-C4	FC8993-17	1633full.m	Sample		OP98860,S6Q350,5.05,,5.0,1,soil	✓
35	6Q24350.d	P5-C5	FC8993-18	1633full.m	Sample		OP98860,S6Q350,5.03,,5.0,1,soil	✓

LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

36	6Q24351.d	P5-C6	FC8993-19	1633full.m	Sample	OP98860,S6Q350,4.96,,5.0,1,soil	✓
37	6Q24352.d	P5-C7	OP98861-BS	1633full.m	Sample	OP98861,S6Q350,5.00,,,5.0,1,soil	✓
38	6Q24353.d	P5-C8	OP98861-LLBS:2	1633full.m	Sample	OP98861,S6Q350,5.00,,,5.0,1,soil	✓
39	6Q24354.d	P5-C9	OP98861-MB	1633full.m	Sample	OP98861,S6Q350,5.00,,,5.0,1,soil	✓
40	6Q24355.d	P5-D1	FC8993-20	1633full.m	Sample	OP98861,S6Q350,5.04,,,5.0,1,soil	✓
41	6Q24356.d	P5-D2	OP98861-MS	1633full.m	Sample	OP98861,S6Q350,5.03,,,5.0,1,soil	✓
42	6Q24357.d	P5-D3	OP98861-MSD	1633full.m	Sample	OP98861,S6Q350,4.97,,,5.0,1,soil	✓
43	6Q24358.d	P1-A5	cc347-4	1633full.m	QC	OP98555,S6Q350,500,,,,5.0,1,water	✓
44	6Q24359.d	P1-A1	iccb	1633full.m	Sample	OP98555,S6Q350,500,,,,5.0,1,water	✓
45	6Q24360.d	P5-D4	FC8993-21	1633full.m	Sample	OP98861,S6Q350,5.03,,,5.0,1,soil	✓
46	6Q24361.d	P5-D5	FC8993-22	1633full.m	Sample	OP98861,S6Q350,5.01,,,5.0,1,soil	✓
47	6Q24362.d	P5-D6	FC8993-23	1633full.m	Sample	OP98861,S6Q350,4.97,,,5.0,1,soil	✓
48	6Q24363.d	P5-D7	FC8993-24	1633full.m	Sample	OP98861,S6Q350,4.97,,,5.0,1,soil	✓
49	6Q24364.d	P5-D8	FC8993-25	1633full.m	Sample	OP98861,S6Q350,5.02,,,5.0,1,soil	✓
50	6Q24365.d	P5-D9	FC8993-26	1633full.m	Sample	OP98861,S6Q350,4.96,,,5.0,1,soil	✓
51	6Q24366.d	P5-E1	FC8993-27	1633full.m	Sample	OP98861,S6Q350,4.95,,,5.0,1,soil	✓
52	6Q24367.d	P5-E2	FC8993-28	1633full.m	Sample	OP98861,S6Q350,4.99,,,5.0,1,soil	✓
53	6Q24368.d	P5-E3	FC8993-29	1633full.m	Sample	OP98861,S6Q350,5.03,,,5.0,1,soil	✓
54	6Q24369.d	P5-E4	FC8993-30	1633full.m	Sample	OP98861,S6Q350,4.98,,,5.0,1,soil	✓
55	6Q24370.d	P1-A5	cc347-4	1633full.m	QC	OP98555,S6Q350,500,,,,5.0,1,water	✓
56	6Q24371.d	P1-A1	iccb	1633full.m	Sample	OP98555,S6Q350,500,,,,5.0,1,water	✓
57	6Q24372.d	P5-E5	FC8993-31	1633full.m	Sample	OP98861,S6Q350,5.01,,,5.0,1,soil	✓
58	6Q24373.d	P5-E6	FC8993-32	1633full.m	Sample	OP98861,S6Q350,4.96,,,5.0,1,soil	✓
59	6Q24374.d	P5-E7	FC8993-33	1633full.m	Sample	OP98861,S6Q350,5.05,,,5.0,1,soil	✓
60	6Q24375.d	P5-E8	FC8993-34	1633full.m	Sample	OP98861,S6Q350,5.00,,,5.0,1,soil	✓
61	6Q24376.d	P5-E9	FC8993-35	1633full.m	Sample	OP98861,S6Q350,5.01,,,5.0,1,soil	✓
62	6Q24377.d	P5-F1	FC8993-36	1633full.m	Sample	OP98861,S6Q350,5.02,,,5.0,1,soil	✓
63	6Q24378.d	P5-F2	FC8993-37	1633full.m	Sample	OP98861,S6Q350,5.04,,,5.0,1,soil	✓
64	6Q24379.d	P5-F3	FC8993-38	1633full.m	Sample	OP98861,S6Q350,5.04,,,5.0,1,soil	✓
65	6Q24380.d	P5-F4	FC8993-45	1633full.m	Sample	OP98862,S6Q350,5.01,,,5.0,2,soil	✓
66	6Q24381.d	P5-F5	FC8993-46	1633full.m	Sample	OP98862,S6Q350,5.02,,,5.0,1,soil	✓
67	6Q24382.d	P1-A5	cc347-4	1633full.m	QC	OP98555,S6Q350,500,,,,5.0,1,water	✓
68	6Q24383.d	P1-A1	iccb	1633full.m	Sample	OP98555,S6Q350,500,,,,5.0,1,water	✓
69	6Q24384.d	P3-E1	OP98930-BS	1633full.m	Sample	OP98930,S6Q350,500,,,,5.0,1,water	✓
70	6Q24385.d	P3-E2	OP98930-LLBS:3	1633full.m	Sample	OP98930,S6Q350,500,,,,5.0,1,water	✓
71	6Q24386.d	P3-E3	OP98930-MB	1633full.m	Sample	OP98930,S6Q350,500,,,,5.0,1,water	✓
72	6Q24387.d	P3-E4	FC9376-2	1633full.m	Sample	OP98930,S6Q350,575,,,5.0,1,water	✓
73	6Q24388.d	P3-E5	FC9424-1	1633full.m	Sample	OP98930,S6Q350,535,,,5.0,1,water	✓
74	6Q24389.d	P3-E6	FC9447-1	1633full.m	Sample	OP98930,S6Q350,570,,,5.0,1,water	✓
75	6Q24390.d	P3-E7	FC9447-2	1633full.m	Sample	OP98930,S6Q350,535,,,5.0,1,water	✓
76	6Q24391.d	P3-E8	FC9447-3	1633full.m	Sample	OP98930,S6Q350,525,,,5.0,1,water	✓
77	6Q24392.d	P3-E9	OP98930-MS	1633full.m	Sample	OP98930,S6Q350,525,,,5.0,1,water	✓
78	6Q24393.d	P1-A5	cc347-4	1633full.m	QC	OP98555,S6Q350,500,,,,5.0,1,water	✓

SGS ORLANDO LCMS6-6Q ANALYSIS LOG

79	6Q24394.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q350.500,,,5.0,1,water	✓
80	6Q24395.d	P3-F1	FC9447-4	1633full.m	Sample	OP98930.S6Q350.550,,,5.0,1,water	✓
81	6Q24396.d	P3-F2	OP98930-DUP	1633full.m	Sample	OP98930.S6Q350.525,,,5.0,1,water	✓
82	6Q24397.d	P3-F3	FC9447-5	1633full.m	Sample	OP98930.S6Q350.485,,,5.0,1,water	✓
83	6Q24398.d	P3-F4	FC9447-6	1633full.m	Sample	OP98930.S6Q350.540,,,5.0,1,water	✓
84	6Q24399.d	P3-F5	FC8879-1	1633full.m	Sample	OP98754.S6Q350.505,,,5.0,10,water	✓
85	6Q24400.d	P1-A5	ecc347-4	1633full.m	QC	OP98555.S6Q350.500,,,5.0,1,water	✓
86	6Q24401.d	P1-A1	iccb	1633full.m	Sample	OP98555.S6Q350.500,,,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 2154	1033 Cal std. (epike)	LCMS 2140	BR-LN Et-Me	SGS LABS	M/A	12/28/23	2 ppm	250uL	4 mL	125	1033 mix	7/31/23	12/28/23	MV
		11899	PFAC MxH	Wellington	4/9/28	7/31/24	1-4 ppm			62.5	(210884)			
		11930A	PFAC MxH		3/24/26	7/19/24	2 ppm			125				
		11900	PFAC MxH		3/24/26	7/31/24	2 ppm			250ppb				
		11931A	PFAC MxH		12/1/27	7/19/24	2 ppm			125ppb				
		11892	PFAC MxG		3-28-28	7/31/24	4-20 ppm	3/2NL		312				
		11901	PFAC MxG		3-28-28	7/31/24	4-20 ppm			1100ppb				
		11893	PFAC MxJ		3-28-28	7/31/24	4-20 ppm			312				
		11902	PFAC MxJ		3-28-28	7/31/24	4-20 ppm			1100ppb				
		11933A	PFAC MxJ		3-28-28	7/31/24	4-20 ppm			312				
LCMS 2152	Full List 40 Spike (cal std)	11849/11872	PFAC MxJ	Absolute	3/13/28	8/1/24	1.0ppm	400uL	4.0mL	100ppb	95% MeOH 5% H2O	8/6/23	8/23/23	JR
		LCMS 2047	40 List Add-on #1	SGS Std	-	8/23/23	1.0ppm			100ppb				JR
		LCMS 2117	40 List Add-on #2		-	11/06/23	1.0ppm			100ppb				JR
		LCMS 2101	FOSE Std		-	9/19/23	5.0ppm	200uL*		500ppb				JR
		LCMS 2153	FOSE Std		-	9/19/23	5.0ppm	200uL*		500ppb				JR
LCMS 2153	FOSE std.	11336	BR-N Et-fosa	SGS Std	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	8/6/23	9/19/23	JR
		11338	BR-N Et-fosa	Wellington Labs	5/13/27	7/19/23	50ppm							JR
		11497	BR-N Et-fosa		5/13/27	7/19/23	50ppm							JR
LCMS 2154	1033 BR-LN Me + Et (fosa)	11795	BR-N Me+FOSE	Wellington LABS	8/23/27	12/28/23	50ppm	200uL	5mL	2ppm	1033 mix (3000uL)	8/7/23	12/28/23	MV
		11798	BR-N Et-fosa		10/7/27	6/28/24		500uL		5ppm				
		11796	BR-N Et-fosa		10/7/27	12/28/23		200uL		2ppm				
			BR-N Et-fosa		10/7/27	6/28/24		500uL		5ppm				

* based on date opened as specified in each SGS - Orlando SOP. * JR 8/11/23

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Parent Name	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 2139	1033 RT BR-LN	11496	br-Fosa	Wellington Labs	10/7/27	12/28/23	50ppm	5uL	2.5mL	100ppb	1033 mix	6/28/23	12/28/23	MU
		11497	br- N-MeFosa		8/23/27									
		11498	bc N-EtFosa		10/7/27									
		11494	br- N-MeFosa		10/7/27									
		11495	br- N-EtFosa		10/7/27									
		11502	T-PFA		01/27/27									
		11527	IP PFNA		01/10/27									
LCMS 2140	1033 BR-LN me + Et	11497	br-N MeFosa	Wellington Labs	8/23/27	12/28/23	50ppm	200uL	5mL	2ppm	1033 mix (3000uL)	6/28/23	12/28/23	MU
		11498	br-N EtFosa		10/7/27	12/28/23		200uL		2ppm				
		11795	br-N MeFosa		10/7/27	6/28/24		500uL		5ppm				
		11796	br-N EtFosa		10/7/27	6/28/24		500uL		5ppm				
LCMS 2141	List 40 Sum ADD-ON Isotope	11523	dt-N- MeFosa	Wellington Labs	1/27/27	5/9/24	50ppm	400uL	4mL	5ppm	950meOH 500H2O	7/11/23	01/11/24	MU
		11537	dg-N EtFosa		1/27/27	6/1/24		400uL		5ppm				
		11334	M2- PFHDA		11/23/26	6/1/24		80uL		1ppm				
		11335	D-N- EtFosa		3/7/27	6/1/24		80uL		1ppm				
						PR 7/12/23								

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2159	Full List Copike List 40 std.	11872	PF6A (28 comp)	Absolute	3/13/28	8/1/24	1.0ppm	400µL	4.0mL	100ppb	95% MeOH 5% H2O (2.1400ml)	8/17/23	9/19/23	MJ
		LCMS 2155	List 40 ADDON 1	SGS labs	MA	10/18/23								
		LCMS 2150	List 40 ADDON 2			2/7/24								
		LCMS 2153	FOSC std.			9/19/23	5.0ppm	400µL		500ppb				
LCMS 2160	PFC ID Std	11872	PF6A-D00 (28 comp)	Absolute	3/13/28	8/01/24	1µg/mL	400µL	4.0mL	100ppb	95% MeOH 5% H2O	8/08/23	02/08/24	JR
		11432	N-MeFSA	Wellington Labs	02/28/27	3/13/24	50µg/mL	8 mL						JR
		11793	FOSA-1		02/01/28	8/08/24								JR
		11792	FHSA-1		12/01/27	0/08/24								JR
		11332	PFECHS		3/29/27	4/18/24								JR
LCMS 2161	PFC Spike	11872	PF6A-D00 (28 comp)	Absolute	3/13/28	8/01/24	1.0ppm	2 mL	5mL	400ppb	95% MeOH 5% H2O	8/08/23	02/08/24	JR
		11432	N-Me-FSA-M	Wellington Labs	02/28/27	3/13/24	50ppm	40µL						JR
		11793	FOSA-1		02/01/28	8/08/24								JR
		11792	FHSA-1		12/01/27	8/08/24								JR
		11332	PFECHS		3/28/27	4/18/24								JR

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



11338



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

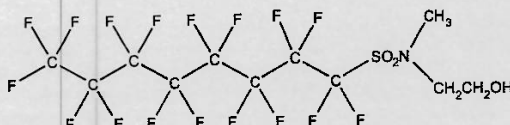
NMeFOSE0522M

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)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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11892
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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture

PRODUCT CODE:	PFAC-MXG
LOT NUMBER:	PFACMXG1122
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/30/2022
LAST TESTED: (mm/dd/yyyy)	12/01/2022
EXPIRY DATE: (mm/dd/yyyy)	12/01/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

PFACMXG1122 (1 of 5)
rev0


7.9.1
7

Table A:

PFAC-MVG: 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-OPFHxA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

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11893
rec'd: 06/29/23



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>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

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

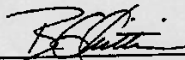
PFACMXJ0323 (1 of 5)
rev0

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: 04/12/2023
(mm/dd/yyyy)

11899
rec'd: 07/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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. 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
7

Title 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		23
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		24
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-butanesulfonate	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: 05/11/2023
(mm/dd/yyyy)

11900
rec'd: 07/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
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 (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
- 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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

PFACMXF0323 (1 of 5)
rev0

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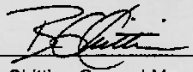


Table A:

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

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 03/29/2023
(mm/dd/yyyy)

7.9.1
7

11901
rec'd: 07/11/23



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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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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

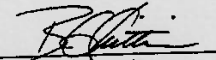
PFACMXG1122 (1 of 5)
rev0

7.9.1
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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

11902
rec'd: 07/11/23



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>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

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

PFACMXJ0323 (1 of 5)
rev0

7.9.1

7

Table A:

PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:


B.G. Chittim, General Manager

Date: 04/12/2023
(mm/dd/yyyy)

11930A-B
Rec # 120/23
mw



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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; C₅ and C₆ 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. 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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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		23
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		24
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-butanesulfonate	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

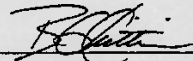
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^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: 05/11/2023
(mm/dd/yyyy)

11931 A-B
Rec 7/26/23 MW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
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 hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Form#: 13, Issued 2004-11-10
Revision#: 3, Revised 2020-12-23

PFACMXF0323 (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-dioxanonoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroicosafafluoro-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: 03/29/2023
(mm/dd/yyyy)

11933 A-B
Rec 7/26/23
mw



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: Refrigerate ampoule

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

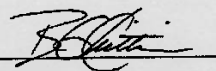
PFACMXJ0323 (1 of 5)
rev0

7.9.1

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

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
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: 04/12/2023
(mm/dd/yyyy)

11966 A-J
rec'd 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled PFAS Injection
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS0723
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/05/2023
LAST TESTED: (mm/dd/yyyy) 07/05/2023
EXPIRY DATE: (mm/dd/yyyy) 07/05/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and 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

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

MPFACHIFIS0723 (1 of 5)
rev0

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: 07/07/2023
(mm/dd/yyyy)

7.9.1
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11967 A-J
rec'd: 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES0623
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 06/19/2023
LAST TESTED: (mm/dd/yyyy) 06/20/2023
EXPIRY DATE: (mm/dd/yyyy) 06/20/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4 - C_{12} , C_{14}), three mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4 , C_6 , and C_8), three mass-labelled (one ^{13}C and two ^2H) perfluoro-1-octanesulfonamides, three mass-labelled (^{13}C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^2H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (^2H) perfluorooctanesulfonamidoethanols, and mass-labelled (^{13}C) hexafluoropropylene oxide dimer acid ($^{13}\text{C}_3$ -GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ^{13}C -labelled components all have chemical purities >98% and isotopic purities of $\geq 99\%$. The individual ^2H -labelled components all have chemical purities >98% and isotopic purities of $\geq 98\%$.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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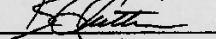
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1. e A:

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		18
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFD _o A	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		24
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		16
N-Methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-Ethyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		23
N-Methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-Ethyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		17
2-(N-Methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d7-N-MeFOSE	5000		20
2-(N-Ethyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -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: 06/22/2023
(mm/dd/yyyy)



CERTIFIED WEIGHT REPORT

Part Number: 64029A
Lot Number: 031323
Description: PFOA-DOD
26 components
Expiration Date: 03/1323
Recommended Storage: Freezer (0 °C)
1.0
Net Weight Concentration (µg/mL): 1.0
NIST Test ID: 6UTB

Solvent(s): Methanol (1 mL KOH) 2-Propanol
Lot# 107722 (86%) 32600 (2%)
Formulated By: Prashant Chauhan
Reviewed By: Pedro L. Rencas

SE-05 Balance Uncertainty
0.01 Flask Uncertainty

11872
rec'd: 06/19/23

Volumes shown below were combined and diluted to (mL):
Note: All assigned values are sodium concentrations.

Compound	Part Number	Lot Number	Division Factor	Initial Vol. (mL)	Final Vol. (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (k=2)	SDS Information (Solvent Safety Info. On Attached pp.)
1. Perfluoro-n-butanoic acid (PFBA)	99542	110422	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4 N/A
2. Perfluoro-pentanoic acid (PFPA)	99543	011723	0.02	2.00	0.017	50.3	1.01	0.02	2706-80-3 N/A
3. Perfluoro-hexanoic acid (PFHA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4 N/A
4. Perfluoroheptanoic acid (PFHnA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-58-9 N/A
5. Perfluorooctanoic acid (br-PFOA)*	99502	086522	0.02	2.00	0.017	50.2	1.00	0.02	335-87-1 (L) N/A special labeling only
6. Perfluorononanoic acid (br-PFOA)*	99500	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1 N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-78-2 N/A
8. Perfluoroundecanoic acid (PFUNA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2068-84-8 N/A
9. Perfluorododecanoic acid (PFDDA)	99198	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-56-1 N/A
10. Perfluorotridecanoic acid (PFTrDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	27839-84-9 N/A
11. Perfluorotetradecanoic acid (PFTrDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	375-06-7 N/A
12. Perfluoropentadecanoic acid (PFPrDA)	3677	FQSA0221	0.02	2.00	0.017	50.0	1.00	0.05	74-81-9 N/A
13. Hexafluoroisobutanoic acid (br-HECFOAA)*	4162	INHEFOSAA042	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L) N/A
14. Hexafluoroheptanoic acid (br-HECFOAA)*	4163	INHEFOSAA121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-8 (L) N/A
15. Perfluorobutanoic acid (PFBS)	99194	086522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5 N/A
16. Perfluoro-1-pentanoic acid (PFPA5)	99544	091822	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4 N/A
17. Perfluoroheptanoic acid (br-PFHnA5)	99198	030923	0.02	2.00	0.017	50.0	1.00	0.02	355-46-4 (L) N/A
18. Perfluoro-1-heptanoic acid (br-PFHnA5)	3672	LPHFOS0622	0.02	2.10	0.017	47.8	1.00	0.05	375-52-8 N/A
19. Heptafluorooctanoic acid (br-PFO5)*	99201	030923	0.02	2.00	0.017	50.1	1.00	0.02	1783-23-1 (L) N/A
20. Perfluoro-1-nonanoic acid (PFNS)	3957	LPHFNS1122	0.02	2.10	0.017	48.0	1.01	0.05	8259-12-1 N/A
21. Perfluoro-1-decanoic acid (PFDS)	3671	086522	0.02	2.10	0.017	48.2	1.01	0.05	335-77-3 N/A
22. 1H,1H,2H,2H-Perfluorodecanoic acid (br-PFDD5)	65271	060522	0.02	2.00	0.017	50.2	1.00	0.05	787124-72-4 N/A
23. 1H,1H,2H,2H-Perfluoroundecanoic acid (br-PFUD5)	65272	031023	0.02	2.10	0.017	50.3	1.00	0.05	278189-87-2 N/A
24. 1H,1H,2H,2H-Perfluorododecanoic acid (br-PFDOD5)	3662	BF150822	0.02	2.10	0.017	47.9	1.01	0.05	81108-34-4 N/A
25. 2-Heptafluoropropyl-2,3,3,3-tetrafluorodecanoic acid (PFPO-DA)	99669	086522	0.02	2.00	0.017	50.1	1.00	0.02	5326-13-6 N/A
26. 11-Chloroheptafluoro-3-oxoheptanoic acid (11Cl-PFO-DA)	4165	11ClPFO0502	0.02	2.12	0.017	47.1	1.00	0.05	78305-182-9 N/A
27. 3-Chlorooctafluoro-3-oxooctanoic acid (3Cl-PFO-DA)	4164	9ClPFO051022	0.02	2.14	0.017	46.6	1.00	0.05	796429-56-1 N/A
28. Dodecafluoro-3H,4-B-dioxanoneic acid (ADONA)	4103	NADONA0922	0.02	2.12	0.017	47.1	1.00	0.05	818035-14-4 N/A
Perfluorooctanoic acid (linear)*	99202	086522	0.02	2.00	0.004	49.8	0.99	0.010	335-67-1 (L) N/A
Perfluorooctanoic acid (branched isomer)*	99202	086522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L) N/A
Perfluorohexanoic acid (linear)*	99198	030923	0.02	2.00	0.017	44.0	0.95	0.02	355-46-4 (L) N/A
Perfluorohexanoic acid (branched isomer)*	99198	030923	0.02	2.00	0.017	0.0	0.12	0.000	355-46-4 (L) N/A
Heptafluorooctanoic acid (linear)*	99201	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-23-1 (L) N/A
Heptafluorooctanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	7.5	0.15	0.003	1783-23-1 (L) N/A
Heptafluorodecanoic acid (linear)*	99201	030923	0.02	2.00	0.017	4.0	0.06	0.002	1783-23-1 (L) N/A
Heptafluorodecanoic acid (branched isomer)*	99201	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1783-23-1 (L) N/A
Nonafluoroundecanoic acid (linear)*	4162	INHEFOSAA042	0.02	2.00	0.017	38.0	0.72	0.04	2355-31-9 (L) N/A
Nonafluoroundecanoic acid (branched)*	4162	INHEFOSAA042	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L) N/A
Nonafluorodecanoic acid (linear)*	4162	INHEFOSAA042	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L) N/A
Nonafluorodecanoic acid (branched)*	4162	INHEFOSAA042	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L) N/A
Tridecafluorotetradecanoic acid (linear)*	4163	INHEFOSAA121	0.02	2.00	0.017	38.6	0.73	0.04	2991-50-8 (L) N/A
Tridecafluorotetradecanoic acid (branched)*	4163	INHEFOSAA121	0.02	2.00	0.017	7.7	0.15	0.008	2991-50-8 (L) N/A
Tridecafluoropentadecanoic acid (linear)*	4163	INHEFOSAA121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-8 (L) N/A
Tridecafluoropentadecanoic acid (branched)*	4163	INHEFOSAA121	0.02	2.00	0.017	0.4	0.007	0.0005	2991-50-8 (L) N/A

*Concentrations for branched and linear isomers are based on LC/MS 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).
 * All values are certified for 100% purity unless otherwise stated.
 * All values are certified for 100% purity unless otherwise stated.
 * University Reference: Taylor, K.N., and Kopy, C.E., "Guidelines for Preparing and Expanding the Uncertainty of NIST Measurement Bank," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

11796
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE:	br-NEtFOSE
LOT NUMBER:	brNEtFOSE1022
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/12/2022
LAST TESTED: (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy)	10/07/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS Data (SIR)
Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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Revision#: 9, Revised 2020-12-23

brNEtFOSE1022 (1 of 7)
rev1

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11795
rec'd 10/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE: br-NMeFOSE
LOT NUMBER: brNMeFOSE0922
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 09/02/2022
LAST TESTED: (mm/dd/yyyy) 09/07/2022 (HRGC/LRMS)
 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy) 10/07/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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brNMeFOSE0922 (1 of 7)
rev1

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rec'd: 05/15/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

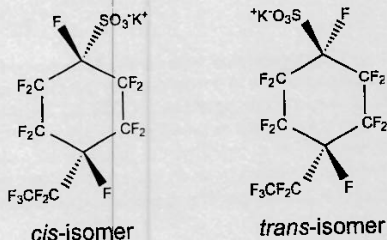
PFECHS

LOT NUMBER: PFECHS0223

COMPOUND:

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE:



CAS #: 335-24-0

MOLECULAR FORMULA:

C₉F₁₅SO₃K

MOLECULAR WEIGHT: 500.22

CONCENTRATION:

50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/14/2023

EXPIRY DATE: (mm/dd/yyyy)

03/14/2028

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*, by ¹⁹F NMR).

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Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023
(mm/dd/yyyy)

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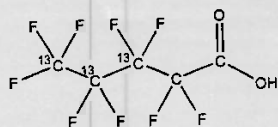


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

M3PFPeA

LOT NUMBER: M3PFPeA0720**COMPOUND:**Perfluoro-n-[3,4,5-¹³C₃]pentanoic acid**CAS #:** Not available**STRUCTURE:****MOLECULAR FORMULA:**¹³C₃¹²C₂HF₉O₂**MOLECULAR WEIGHT:** 267.02**CONCENTRATION:**

50.0 ± 2.5 µg/ml

SOLVENT(S):Methanol
Water (<1%)**CHEMICAL PURITY:**

>98%

ISOTOPIC PURITY:≥99% ¹³C
(3,4,5-¹³C₃)**LAST TESTED:** (mm/dd/yyyy)

07/22/2020

EXPIRY DATE: (mm/dd/yyyy)

07/22/2025

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.
- Contains ~ 0.95% of perfluoro-n-[¹³C₃]butanoic acid and 0.05% of perfluoro-1-pentanoic acid.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2020

(mm/dd/yyyy)

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rec'd: 03/17/23



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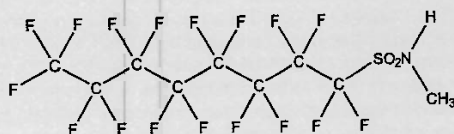
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-Methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA1122M

STRUCTURE:

CAS #: 31506-32-8



MOLECULAR FORMULA: C₉H₄F₁₇NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/11/2022
EXPIRY DATE: (mm/dd/yyyy) 11/11/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 513.17
SOLVENT(S): Methanol

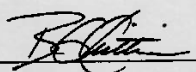
DOCUMENTATION/ DATA ATTACHED:

- 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: 11/25/2022
(mm/dd/yyyy)

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Revision#:9, Revised 2020-12-23

NMeFOSA1122M (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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brNEtFOSA0922 (1 of 6)
rev1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSA
<u>LOT NUMBER:</u>	brNMeFOSA0822
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/18/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/23/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/23/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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brNMeFOSA0822 (1 of 6)
rev1

7.9.1

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

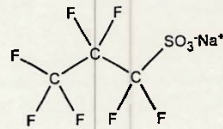
COMPOUND:

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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FPPrPA(3:3FTCA) 1116 B



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

FPPrPA

LOT NUMBER:

FPPrPA0122

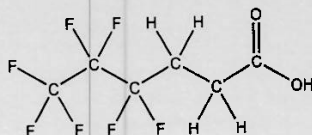
COMPOUND:

3-Perfluoropropyl propanoic acid

STRUCTURE:

CAS #:

356-02-5



MOLECULAR FORMULA:

C₆H₃F₇O₂

MOLECULAR WEIGHT:

242.09

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

02/03/2022

EXPIRY DATE: (mm/dd/yyyy)

02/03/2027

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.
- Contains <1% of the unsaturated 3:3 telomer acid (C₆H₃F₇O₂) as an impurity determined by ¹⁹F NMR.

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Certified By:

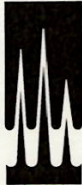
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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1116 A.B NW

1116B on the back NW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

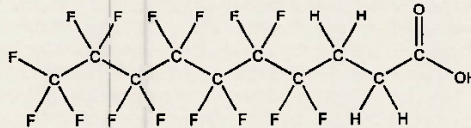
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

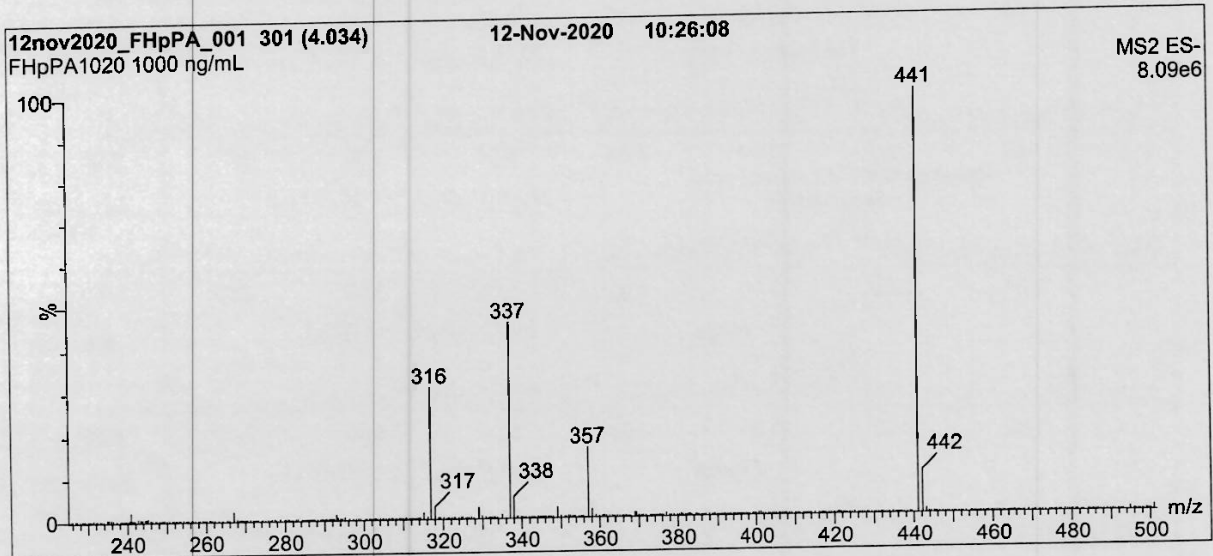
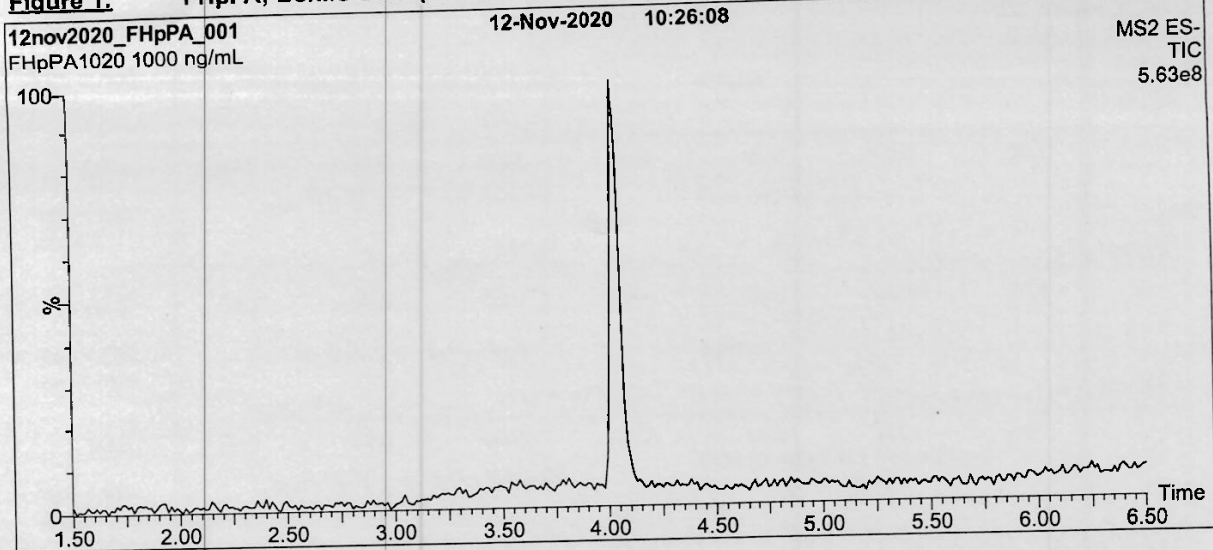
Date: 11/27/2020

(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

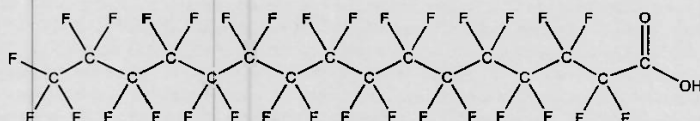


10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/07/2021
EXPIRY DATE: (mm/dd/yyyy) 05/07/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

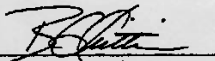
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 05/25/2021
 B.G. Chittim, General Manager (mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFODA

10847 NS 01/18/23

LOT NUMBER:

PFODA0821

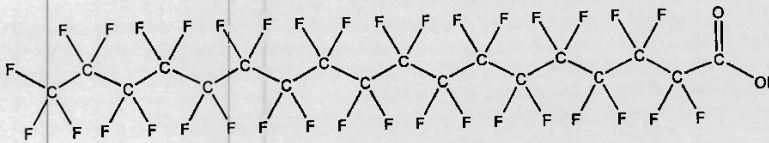
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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CERTIFICATE OF ANALYSIS DOCUMENTATION

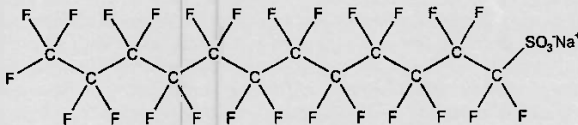
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
48.5 ± 2.4 µg/mL (PFDoS acid)
48.4 ± 2.4 µg/mL (PFDoS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/09/2021
EXPIRY DATE: (mm/dd/yyyy) 07/09/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 722.14
SOLVENT(S): Methanol


DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

LPFDoS0721 (1 of 4)
rev0

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

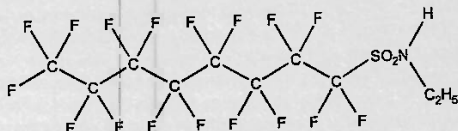
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

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)

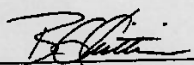
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim, General Manager

Date: 08/16/2021

(mm/dd/yyyy)

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10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

rec'd
WPH
8/20/21

LOT NUMBER:

36OPFHpA0320

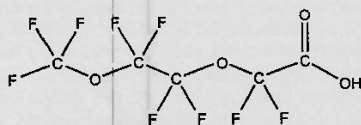
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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10764A-B



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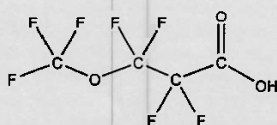
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA *rec'd
WPH
8/20/21* **LOT NUMBER:** PF4OPeA0320

COMPOUND: Perfluoro-4-oxapentanoic acid

SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)

STRUCTURE: **CAS #:** 377-73-1



MOLECULAR FORMULA: C₄HF₇O₃ **MOLECULAR WEIGHT:** 230.04

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

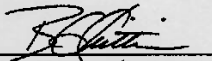
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)
rev1

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10763 A-B



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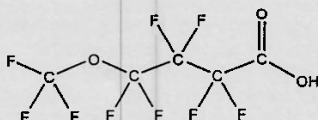
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **MOLECULAR WEIGHT:** 280.05

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

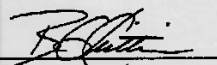
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager

Date: 12/21/2020
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)
rev1

7.9.1
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10762 A-B



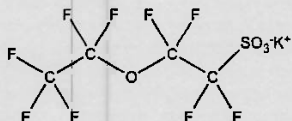
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd
8/20/21
WPH* **LOT NUMBER:** PFEESA0520

COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19

CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol

44.6 ± 2.2 µg/ml (PFEESA acid)

44.5 ± 2.2 µg/ml (PFEESA anion)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2020

EXPIRY DATE: (mm/dd/yyyy) 05/13/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

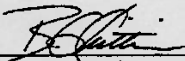
Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 05/29/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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Form#:27, Issued 2004-11-10
Revision#:7, Revised 2020-01-09

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11514 rec'd 11/14/22

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

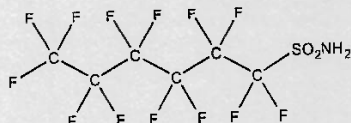
LOT NUMBER: FHxSA1221I

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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FHxSA1221I (1 of 4)

11649 Rec. 02/13/23

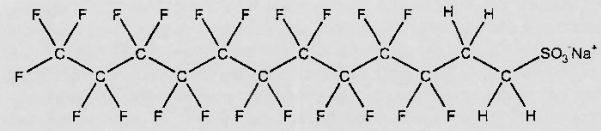


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS1122
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) 12/01/2022
EXPIRY DATE: (mm/dd/yyyy) 12/01/2027
RECOMMENDED STORAGE: Refrigerate ampoule

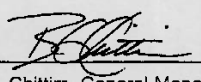
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/09/2022
B.G. Chittim, General Manager (mm/dd/yyyy)

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Form# 27, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

102FTS1122 (1 of 4)
rev0

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7

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 2151A-E	1033 Cal std. (epike)	LCMS 2140	BR-LN Et-Me	SGS LABS	M/A	12/28/23	2 ppm	250uL	4 mL	125	1033 mix	7/31/23	12/28/23	MV
		11899	PFAC MXH	Wellington	4/9/28	7/31/24	1-4 ppm			62.5	(210884)			
		11930A	PFAC MXH							125				
		11900	PFAC MXF		3/24/26	7/19/24	2 ppm			250ppb				
		11931A	PFAC MXF		7/31/24	7/31/24	2 ppm			125ppb				
		11892	PFAC MXG		12-1-27	7/19/24	2 ppm	✓		125ppb				
		11901	PFAC MXG		7/31/24	7/31/24	2 ppm			312				✓
		11893	PFAC MXJ		3-28-28	7/19/24	4-20 ppm	3/2NL	✓	1100ppb				✓
		11902	PFAC MXJ		7-27-27	7/31/24								
		11933A	PFAC MXJ		7-27-27	7/31/24								
LCMS 2152	Full List 40 Spike (cal std)	11849/11872	PFAC MXJ	Absolute	3/13/28	8/1/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O	8/6/23	8/23/23	JR
		LCMS 2047	40 List Add-on #1	SGS Std	-	8/23/25	1.0ppm			100ppb				RR
		LCMS 2117	40 List Add-on #2		-	11/05/25	1.0ppm			100ppb				RR
		LCMS 2101	FOSE Std		-	9/19/25	5.0ppm	200uL*		500ppb				RR
		LCMS 2153	FOSE Std		-	9/19/25	5.0ppm	200uL*		500ppb				RR
LCMS 2153	FOSE std.	11336	BR-N Et-fose	SGS Std	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	8/6/23	9/19/23	RR
		11338	BR-N Et-fose	Wellington Labs	5/13/27	7/19/23								RR
LCMS 2154	1033 BR-LN Me + Et (fose)	11497	BR-N Et-fose	Wellington LABS	8/23/27	12/28/23	50ppm	200uL	5mL	2ppm	1033 mix	8/7/23	12/28/23	MV
		11795	BR-N Me-fose		10/7/27	6/28/24				5ppm	(3000uL)			
		11498	BR-N Et-fose		10/7/27	12/28/23				2ppm				
		11796	BR-N Et-fose		10/7/27	6/28/24				5ppm				

* based on date opened as specified in each SGS - Orlando SOP. * RR 8/11/25

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2139	1033 RT BR-LN	11496	br-Fosa	Wellington Labs	10/7/27	12/28/23	50ppm	5uL	2.5mL	100ppb	1033 mix	6/28/23	12/28/23	MU
		11497	br- N-MeFosa		8/23/27									
		11498	bc N-EtFosa		10/7/27									
		11494	br- N-MeFosa		10/7/27									
		11495	br- N-EtFosa		10/7/27									
		11502	T-PFA		01/27/27									
		11527	IP PFNA		01/10/27									
LCMS 2140	1033 BR-LN me + Et	11497	br-N MeFosa	Wellington Labs	8/23/27	12/28/23	50ppm	200mL	5mL	2ppm	1033 mix (3000mL)	6/28/23	12/28/23	MU
		11498	br-N EtFosa		10/7/27	12/28/23		200mL		2ppm				
		11795	br-N MeFosa		10/7/27	6/28/24		500mL		5ppm				
		11796	br-N EtFosa		10/7/27	6/28/24		500mL		5ppm				
LCMS 2141	List 40 Sum ADD-ON Isotope	11523	dt-N- MeFosa	Wellington Labs	1/27/27	5/9/24	50ppm	400mL	4mL	5ppm	950mL 500H2O	7/11/23	01/11/24	MU
		11537	dg-N EtFosa		1/27/27	6/11/24		400mL		5ppm				
		11334	M2- PFHDA		11/23/26	6/11/24		80mL		1ppm				
		11335	D-N- EtFosa		3/7/27	6/11/24		80mL		1ppm				
						PR 7/12/23								

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

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

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2156	List 40 ADD ON #2	11513	FBSA-1	Wellington	11/10/20	4/18/24	50 ppm	800ul	4.0mL	1ppm	95%meth 5% H2O (3760)	8/7/23	2/7/24	MJ
		11514	FHSA1		12/29/20	4/18/24								
		11408	F-PFAS		7/12/26	5/9/24								
LCMS 2157	1033 RT BR-LN	11496	br-Fosa	Wellington	10/7/27	12/28/23	50 ppm	10mL 515ul	5mL	100ppb	1033 mix (4930)	8/7/23	12/28/23	MJ
		11497	br-N metosa		8/23/27			10mL						
		11498	br-N E-Fosa		10/7/27									
		11494	br-N metose		10/7/27									
		11495	br-N E-Fose		10/7/27									
		11502	T-PFOA		01/27/27									
		11527	IP PFNA		01/10/27									
LCMS 2158 AE	1033 Cal std. Spike	LCMS 11930	Br-LN E-Me LA60	SGS LABO	N/A	12/28/23	2ppm 5ppm	250mL	4mL	125 312.5ppb	1033 MIX 21088mL	8/7/23	12/28/23	MJ
		11930	PFAC MXH	Wellington	4/19/28	7/31/24 8/7/24	1-4 ppm			42.5 125				
		11931A	PFAC MXF		3/24/26	7-31-24 8-7-24	2ppm			125ppb				
		11907	PFAC MXG		12/1/27	7-31-24 8-7-24	2ppm			125ppb				
		11933A	PFAC MXJ		3-28-28	7-31-24 8-7-24	4-20 ppm	312mL		312 1100ppb				
						MA	Continue next page	8/7/23						

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



11338



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

7.9.2
7**PRODUCT CODE:**

N-MeFOSE-M

LOT NUMBER:

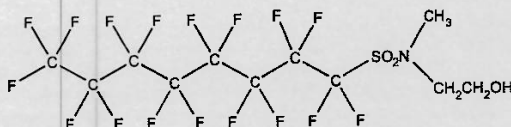
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy)

05/13/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager
Date: 06/14/2022
(mm/dd/yyyy)

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

11892
rec'd: 06/09/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture

PRODUCT CODE:	PFAC-MXG
LOT NUMBER:	PFACMXG1122
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/30/2022
LAST TESTED: (mm/dd/yyyy)	12/01/2022
EXPIRY DATE: (mm/dd/yyyy)	12/01/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

PFACMXG1122 (1 of 5)
rev0

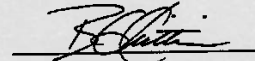
7.9.2
7

Table A:

PFAC-MVG: 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-OPFHxA	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)

11893
rec'd: 06/29/23



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>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

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

PFACMXJ0323 (1 of 5)
rev0

7.9.2
7

Table A:

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

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
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: 04/12/2023
(mm/dd/yyyy)

11899
rec'd: 07/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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. 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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7.9.2
7

Title 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		23
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		24
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-butanesulfonate	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: 05/11/2023
(mm/dd/yyyy)

11900
rec'd: 07/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
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 (9Cl-PF3ONS and 11Cl-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
- 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

PFACMXF0323 (1 of 5)
rev0

7.9.2
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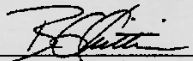


Table A:

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

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: 
B.G. Chittim, General Manager

Date: 03/29/2023
(mm/dd/yyyy)

1190)
rec'd: 07/11/23



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)
rev0

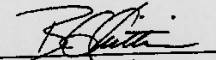
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PFAC-MXG: Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

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)

7.9.2
7

11902
rec'd: 07/11/23



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>	PFACMXJ0323
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	03/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	03/28/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	03/28/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

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

PFACMXJ0323 (1 of 5)
rev0

7.9.2

7

Table A:

PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/mL)
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:


B.G. Chittim, General Manager

Date: 04/12/2023
(mm/dd/yyyy)

11930 A-B
Rec # w 7/26/23
mw



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0423
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 04/06/2023
LAST TESTED: (mm/dd/yyyy) 04/19/2023
EXPIRY DATE: (mm/dd/yyyy) 04/19/2028
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; C₅ and C₆ 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. 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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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		23
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		24
N-Methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid ^b	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	
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

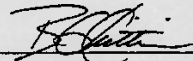
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^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: 05/11/2023
(mm/dd/yyyy)

11931 A-B
Rec 7/26/23 MW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE: PFAC-MXF
LOT NUMBER: PFACMXF0323
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 03/23/2023
LAST TESTED: (mm/dd/yyyy) 03/24/2023
EXPIRY DATE: (mm/dd/yyyy) 03/24/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxananoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUdS), and hexafluoropropylene oxide dimer acid (GenX, HFPO-DA). 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
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

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Form#: 13, Issued 2004-11-10
Revision#: 3, Revised 2020-12-23

PFACMXF0323 (1 of 5)
rev0

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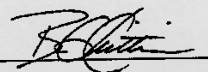
Table A:

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

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxananoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroicosafafluoro-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: 03/29/2023

(mm/dd/yyyy)

11933 A-B
Rec 7/26/23
mw



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE: PFAC-MXJ
LOT NUMBER: PFACMXJ0323
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 03/27/2023
LAST TESTED: (mm/dd/yyyy) 03/28/2023
EXPIRY DATE: (mm/dd/yyyy) 03/28/2028
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

Compound	Acronym	Concentration ($\mu\text{g/mL}$)
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: 04/12/2023
(mm/dd/yyyy)

11966 A-J
rec'd: 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

**Mass-Labelled PFAS Injection
Standard Solution/Mixture**

PRODUCT CODE: MPFAC-HIF-IS
LOT NUMBER: MPFACHIFIS0723
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/05/2023
LAST TESTED: (mm/dd/yyyy) 07/05/2023
EXPIRY DATE: (mm/dd/yyyy) 07/05/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of ≥99% per ¹³C or >94% per ¹⁸O.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

MPFACHIFIS0723 (1 of 5)
rev0

7.9.2
7





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: 07/07/2023
(mm/dd/yyyy)

7.9.2
 7

11967 A-J
rec'd: 08/22/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-ES
LOT NUMBER: MPFACHIFES0623
SOLVENT(S): Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 06/19/2023
LAST TESTED: (mm/dd/yyyy) 06/20/2023
EXPIRY DATE: (mm/dd/yyyy) 06/20/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4 - C_{12} , C_{14}), three mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4 , C_6 , and C_8), three mass-labelled (one ^{13}C and two ^2H) perfluoro-1-octanesulfonamides, three mass-labelled (^{13}C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^2H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (^2H) perfluorooctanesulfonamidoethanols, and mass-labelled (^{13}C) hexafluoropropylene oxide dimer acid ($^{13}\text{C}_3$ -GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ^{13}C -labelled components all have chemical purities >98% and isotopic purities of $\geq 99\%$. The individual ^2H -labelled components all have chemical purities >98% and isotopic purities of $\geq 98\%$.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Revision#: 9, Revised 2020-12-23

MPFACHIFES0623 (1 of 7)
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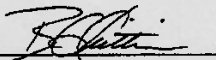
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1. e A:

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		18
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFD _o A	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		24
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		16
N-Methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-Ethyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		23
N-Methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-Ethyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		17
2-(N-Methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d7-N-MeFOSE	5000		20
2-(N-Ethyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -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: 06/22/2023
(mm/dd/yyyy)



CERTIFIED WEIGHT REPORT

Part Number: 64029A
Lot Number: 031323
Description: PFOA-DOD
26 components
031323
Expiration Date: 1.0
Recommended Storage: 6 UITS
NIST Test ID: 1.0

Solvent(s): Methanol (1 mL KOH)
2-Propanol
Lot# 107722 (86%)
32600 (2%)

Formulated By: Prashant Chauhan
Reviewed By: Pedro L. Rencas

11872
rec'd: 06/19/23

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are sodium concentrations.

Compound	Part Number	Lot Number	Division Factor	Initial Vol. (mL)	Final Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (k=2)	Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butyric acid (PFBA)	99542	110422	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-pentanoic acid (PFPA)	99543	011723	0.02	2.00	0.017	50.3	1.01	0.02	2706-80-3	N/A	N/A
3. Perfluoro-hexanoic acid (PFHA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHxA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-58-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99502	086522	0.02	2.00	0.017	50.2	1.00	0.02	335-87-1 (L)	N/A	spec. tabling/9
6. Perfluorononanoic acid (PFNA)	99500	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	335-78-2	N/A	cert. tabling
8. Perfluoroundecanoic acid (PFUdA)	99505	071522	0.02	2.00	0.017	50.2	1.00	0.02	2068-84-8	N/A	N/A
9. Perfluorododecanoic acid (PFDDA)	99198	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-56-1	N/A	N/A
10. Perfluorotridecanoic acid (PFTDA)	99504	110922	0.02	2.00	0.017	50.1	1.00	0.02	27839-84-9	N/A	N/A
11. Perfluorotetradecanoic acid (PFTDA)	99503	033022	0.02	2.00	0.017	50.1	1.00	0.02	375-06-7	N/A	N/A
12. Perfluoropentadecanoic acid (PFPA)	3677	FQSA0221	0.02	2.00	0.017	50.0	1.00	0.05	744-81-8	N/A	N/A
13. Hexafluoroisooctanoic acid (br-NMFOAA)*	4162	INMFOAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
14. Hexafluoroheptanoic acid (br-NMFOAA)*	4163	INMFOAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-8 (L)	N/A	N/A
15. Perfluorobutanoic acid (PFBS)	99194	086522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanoic acid (PFPA5)	99544	091822	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluoroheptanoic acid (br-PFHx5)	99198	030923	0.02	2.00	0.017	50.0	1.00	0.02	355-48-4 (L)	N/A	N/A
18. Perfluoro-1-heptanoic acid (br-PFH5)	3672	LPHF050622	0.021	2.10	0.017	47.8	1.00	0.05	375-58-9	N/A	N/A
19. Heptafluorooctanoic acid (br-PFO5)*	99201	030923	0.02	2.00	0.017	50.1	1.00	0.02	1783-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanoic acid (PFNS)	3957	LFFNS1122	0.021	2.10	0.017	48.0	1.01	0.05	8259-12-1	N/A	N/A
21. Perfluoro-1-decanoic acid (PFDS)	3671	086522	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,11H,2H-Perfluorododecanoic acid (br-PFD12)	65271	065522	0.02	2.00	0.017	50.2	1.00	0.05	787124-72-4	N/A	N/A
23. 1H,11H,2H-Perfluorotridecanoic acid (br-PFT13)	65272	031023	0.02	2.00	0.017	50.3	1.00	0.05	27819-87-2	N/A	N/A
24. 1H,11H,2H-Perfluorotetradecanoic acid (br-PFT14)	3662	BF150622	0.021	2.10	0.017	47.9	1.01	0.05	81108-34-4	N/A	N/A
25. 2-Heptafluoropropyl-2,3,3,3-tetrafluoropentanoic acid (PFPO-DA)	99669	086522	0.02	2.00	0.017	50.1	1.00	0.02	53262-13-6	N/A	N/A
26. 11-Chloroheptafluoro-3-oxooctanoic acid (11C-HPFO-DA)	4165	11C-HPFO0502	0.021	2.12	0.017	47.1	1.00	0.05	78305-182-9	N/A	N/A
27. 3-Chlorooctafluoro-3-oxononanoic acid (3C-HPFO-DA)	4164	9C-HPFO051022	0.021	2.14	0.017	46.6	1.00	0.05	79649-56-1	N/A	N/A
28. Dodecafluoro-3H,4-B-dioxononanoic acid (ADONA)	4103	NADONA0922	0.021	2.12	0.017	47.1	1.00	0.05	818035-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99502	086522	0.02	2.00	0.004	49.8	0.99	0.010	335-67-1 (L)	N/A	spec. tabling/9
Perfluorooctanoic acid (branched isomer)*	99502	086522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	spec. tabling/9
Perfluorohexanoic acid (linear)*	99198	030923	0.02	2.00	0.017	44.0	0.95	0.02	355-48-4 (L)	N/A	N/A
Perfluorohexanoic acid (branched isomer)*	99198	030923	0.02	2.00	0.017	0.0	0.12	0.000	355-48-4 (L)	N/A	N/A
Heptafluorooctanoic acid (linear)*	99501	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-23-1 (L)	N/A	N/A
Heptafluorooctanoic acid (branched isomer)*	99501	030923	0.02	2.00	0.017	7.5	0.15	0.003	1783-23-1 (L)	N/A	N/A
Heptafluorooctanoic acid (branched isomer)*	99501	030923	0.02	2.00	0.017	4.0	0.08	0.002	1783-23-1 (L)	N/A	N/A
Heptafluorooctanoic acid (branched isomer)*	99501	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1783-23-1 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (linear)*	4162	INMFOAA0422	0.02	2.00	0.017	38.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4162	INMFOAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4162	INMFOAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4162	INMFOAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4163	INMFOAA1121	0.02	2.00	0.017	38.6	0.73	0.04	2991-50-8 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4163	INMFOAA1121	0.02	2.00	0.017	7.7	0.15	0.008	2991-50-8 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4163	INMFOAA1121	0.02	2.00	0.017	5.3	0.11	0.005	2991-50-8 (L)	N/A	N/A
Nonylperfluoro-1-octanoic acid (branched)*	4163	INMFOAA1121	0.02	2.00	0.017	0.4	0.007	0.0005	2991-50-8 (L)	N/A	N/A

*Concentrations for branched and linear isomers are based on LC/MS 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.1

1 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).
 * All values are certified for 100% purity unless otherwise stated.
 * All values are certified for 100% purity unless otherwise stated.
 * University Reference: Taylor, K.N., and Kopy, C.E., "Guidelines for Formulating and Expanding the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

11796
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE:	br-NEtFOSE
LOT NUMBER:	brNEtFOSE1022
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/12/2022
LAST TESTED: (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy)	10/07/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS Data (SIR)
Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

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

brNEtFOSE1022 (1 of 7)
rev1

7.9.2

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11795
rec'd 10/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE: br-NMeFOSE
LOT NUMBER: brNMeFOSE0922
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 09/02/2022
LAST TESTED: (mm/dd/yyyy) 09/07/2022 (HRGC/LRMS)
 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy) 10/07/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

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brNMeFOSE0922 (1 of 7)
rev1

7.9.2
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11794
rec'd: 05/15/23



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PRODUCT CODE:

PFECHS

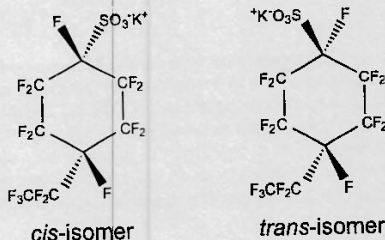
LOT NUMBER: PFECHS0223

COMPOUND:

Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

STRUCTURE:

CAS #: 335-24-0



MOLECULAR FORMULA:

C₉F₁₅SO₃K

MOLECULAR WEIGHT: 500.22

CONCENTRATION:

50.0 ± 2.5 µg/mL (K salt)
46.2 ± 2.3 µg/mL (PFECHS acid)
46.1 ± 2.3 µg/mL (PFECHS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/14/2023

EXPIRY DATE: (mm/dd/yyyy)

03/14/2028

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*, by ¹⁹F NMR).

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Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023

(mm/dd/yyyy)

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7



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DOCUMENTATION

PRODUCT CODE:

M3PFPeA

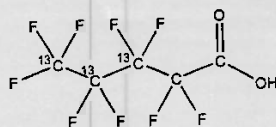
LOT NUMBER: M3PFPeA0720

COMPOUND:

Perfluoro-n-[3,4,5-¹³C₃]pentanoic acid

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA:

¹³C₃¹²C₂HF₉O₂

MOLECULAR WEIGHT: 267.02

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY: ≥99% ¹³C
(3,4,5-¹³C₃)

LAST TESTED: (mm/dd/yyyy)

07/22/2020

EXPIRY DATE: (mm/dd/yyyy)

07/22/2025

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.
- Contains ~ 0.95% of perfluoro-n-[¹³C₃]butanoic acid and 0.05% of perfluoro-1-pentanoic acid.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2020

(mm/dd/yyyy)

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11498



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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brNEtFOSA0922 (1 of 6)
rev1

7.9.2
7

11497



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CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NMeFOSA
<u>LOT NUMBER:</u>	brNMeFOSA0822
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/18/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/23/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/23/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
 Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS Data (SIR)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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brNMeFOSA0822 (1 of 6)
rev1

7.9.2

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

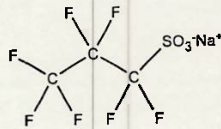
COMPOUND:

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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FPrPA(3:3FTEA) 1116 B



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PRODUCT CODE:

FPrPA

LOT NUMBER:

FPrPA0122

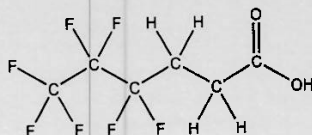
COMPOUND:

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)

02/03/2022

EXPIRY DATE: (mm/dd/yyyy)

02/03/2027

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.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

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Certified By:

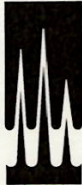
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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1116 A/B NW

1116B on the back NW



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PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

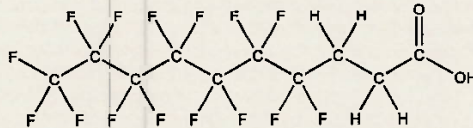
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 11/27/2020

(mm/dd/yyyy)

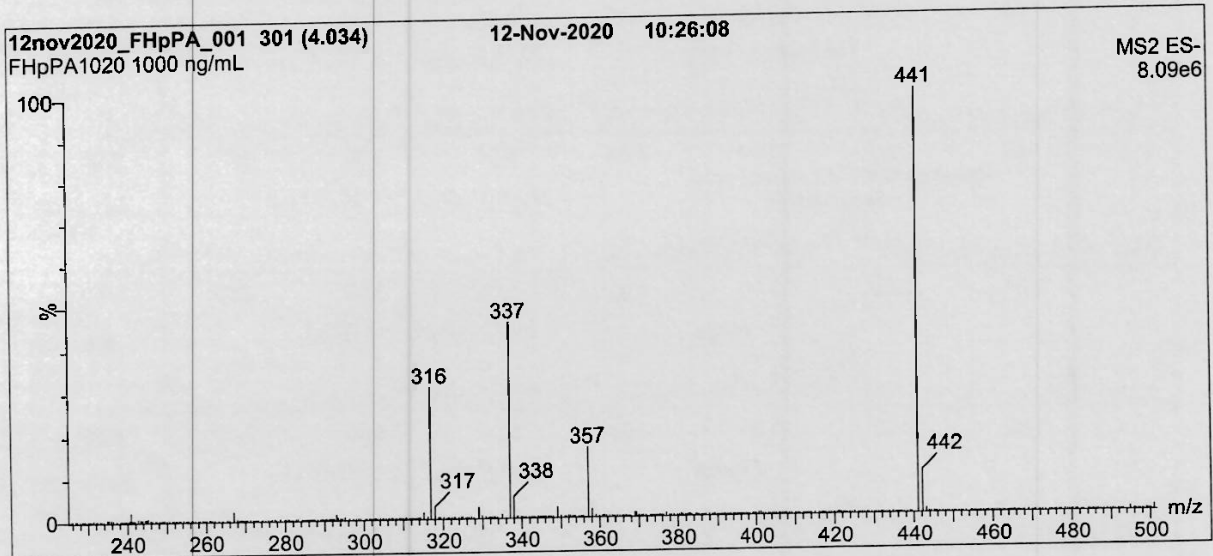
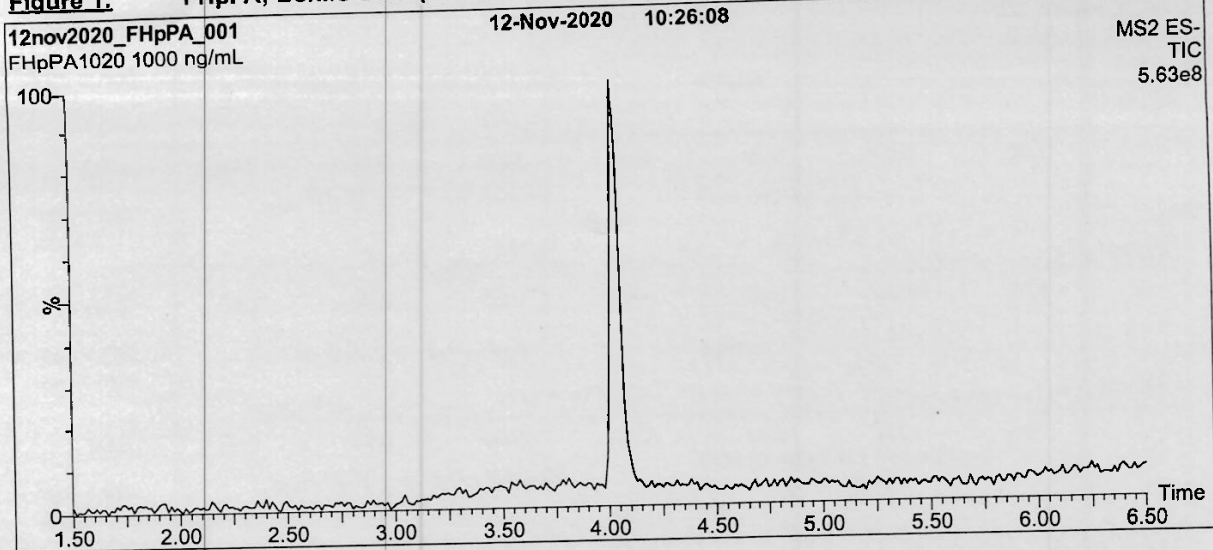
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Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

7.9.2

7

Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000



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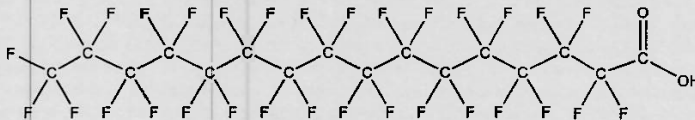
CERTIFICATE OF ANALYSIS
DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **MOLECULAR WEIGHT:** 814.13

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/07/2021

EXPIRY DATE: (mm/dd/yyyy) 05/07/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

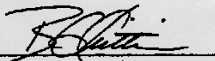
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 05/25/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

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10847 NS 01/18/23

PRODUCT CODE:

PFODA

LOT NUMBER:

PFODA0821

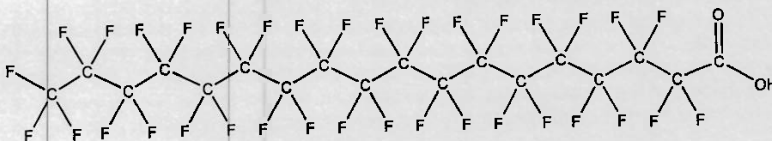
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

MOLECULAR WEIGHT:

914.14

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

09/03/2021

EXPIRY DATE: (mm/dd/yyyy)

09/03/2026

RECOMMENDED STORAGE:

Store ampoules at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

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Certified By:

B.G. Chittim, General Manager

Date: 09/28/2021

(mm/dd/yyyy)

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10



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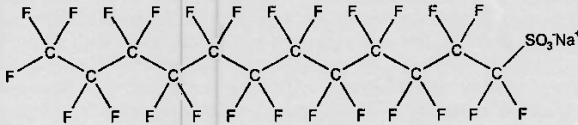
10840

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).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager
Date: 07/16/2021
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

LPFDoS0721 (1 of 4)
rev0

7.9.2

7



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

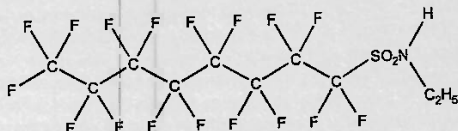
LOT NUMBER: NEtFOSA0821M

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)

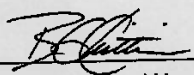
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

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)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA

10765 A-13



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

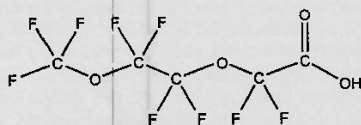
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/ml

SOLVENT(S):

Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

03/31/2020

EXPIRY DATE: (mm/dd/yyyy)

03/31/2025

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020
(mm/dd/yyyy)

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10764A-B



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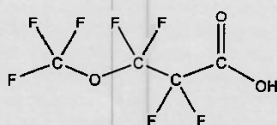
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

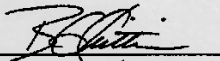
DOCUMENTATION/ DATA ATTACHED:

- 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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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)
rev1

7.9.2

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10763 A-B



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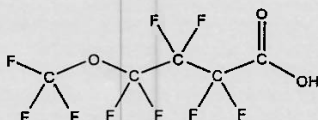
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

COMPOUND: Perfluoro-5-oxahexanoic acid

SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)

STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₅HF₉O₃ **MOLECULAR WEIGHT:** 280.05

CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

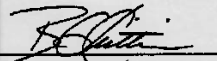
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/21/2020
(mm/dd/yyyy)

B.G. Chittim, General Manager

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Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)
rev1

7.9.2
7

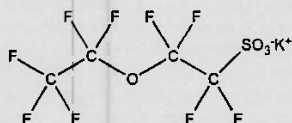
10762 A-B



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *rec'd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate
STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **MOLECULAR WEIGHT:** 354.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
 44.6 ± 2.2 µg/ml (PFEESA acid)
 44.5 ± 2.2 µg/ml (PFEESA anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/13/2020
EXPIRY DATE: (mm/dd/yyyy) 05/13/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

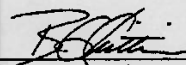
DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

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Certified By: 
 B.G. Chittim, General Manager **Date:** 05/29/2020
(mm/dd/yyyy)

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Form#:27, Issued 2004-11-10
 Revision#:7, Revised 2020-01-09

7.9.2

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1513 rec'd 11/14/22



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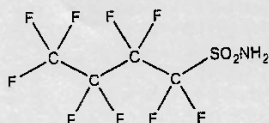
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FBSA-I
COMPOUND: Perfluoro-1-butanefulfonamide

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

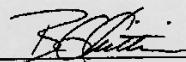
DOCUMENTATION/ DATA ATTACHED:

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: 
B.G. Chittim, General Manager

Date: 11/10/2021
(mm/dd/yyyy)

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7.9.2
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11514 rec'd 11/14/22

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

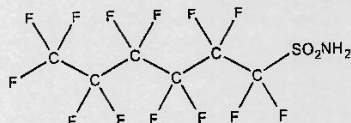
LOT NUMBER: FHxSA1221I

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:

B.G. Chittim, General Manager

Date: 01/10/2022
(mm/dd/yyyy)

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FHxSA1221I (1 of 4)

11649 Rec. 02/13/23

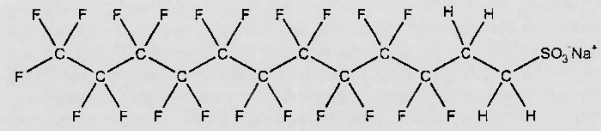


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 10:2FTS **LOT NUMBER:** 102FTS1122
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) 12/01/2022
EXPIRY DATE: (mm/dd/yyyy) 12/01/2027
RECOMMENDED STORAGE: Refrigerate ampoule

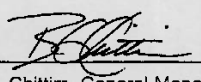
DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/09/2022
B.G. Chittim, General Manager (mm/dd/yyyy)

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Form# 27, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

102FTS1122 (1 of 4)
rev0

7.9.2
7



SGS - ORLANDO

Date/Time Started: 9/11/23
 Date/Time Finished: 9/12/23 13:37

9:35

SPE LIQUID SAMPLE PREP REPORT

Method: EPA 1633 Draft QSM 1/15/40

Balance ID: _____

Batch#: 0798930 Ext. By: _____ 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 98930 MB	/	500	7	NA	25		5	A1	
OP 98930 BS		500							
OP 98930 LLBS		500				200			
FC 9376-2	2	575				60			
FC 9447-1	↓	535							
FC 9447-1		570							
-2		535							
-3		525							
-4		550							
-5		485							
-6	2	540	7	NA	25		5	A1	
JCR 9/11/23									
OP FC9447-3 MS	3	525	7	NA	25	200	5	A1	
OP MSD									
OP FC9447-4 DUP	3	525	7	NA	25		5	A1	

Comments:

EIS (SURR) ID: 11988 D-E Conc: 250-500 ng/ml Exp. Date: 9/7/24 Inj. By: JCR Ver. By: KG

SPIKE.1 ID: LCMS 2175-B Conc: varied Exp. Date: 12/28/23 Inj. By: JCR Ver. By: KG

SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____

NIS (ISTD) ID: 11951 F-H Conc: 250/1000 ng/ml Exp. Date: 8/31/24 Inj. By: MW Ver. By: JR

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____

Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot# 230916 1% NH4OH MeOH PF588 SPE Lot# 6744688-01

Water Lot# 0798930 0.3M Formic Acid PF583 Syringe filter Lot# _____

Acetic Acid# 194063 3% NH4OH Sol _____ pH paper Lot# 205423

0.1M Formic PF589 5% Formic Acid _____ Carbon Lot# _____

Relinquished By: JCR Date: 9/11/23

Accepted By: MW Date: 9/12/23

1633 AQ extraction 042222 xls NF

7.10.1 7