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Automated Report

Technical Report for

AECOM, INC.

N6274223F0104 RH Fire Suppression System

60697810

SGS Job Number: FC11787

Sampling Date: 12/07/23



Report to:

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Total number of pages in report: 592



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)
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),
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Test results relate only to samples analyzed.

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Sample Summary

AECOM, INC.

Job No: FC11787

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC11787-1	12/07/23	09:15	VVOS 12/09/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2312
FC11787-2	12/07/23	09:15	VVOS 12/09/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2312

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC11787

Site: N6274223F0104 RH Fire Suppression System

Report Date: 12/12/2023 1:18:37

On 12/09/2023, 2 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3.6 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC11787 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: OP552

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FC11787-1DUP, FC11787-2MS were used as the QC samples indicated.

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

Narrative prepared by:

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

Summary of Hits

Job Number: FC11787
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 12/07/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC11787-1 AF-RHMW12A-WGN01LF-2312

No hits reported in this sample.

FC11787-2 AF-RHMW12A-WGFD01LF-2312

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW12A-WGN01LF-2312		
Lab Sample ID:	FC11787-1	Date Sampled:	12/07/23
Matrix:	AQ - Ground Water	Date Received:	12/09/23
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	4Q55041.D	1	12/11/23 20:54	AL	12/11/23 08:40	OP552	S4Q806
Run #2							

Run #	Initial Volume	Final Volume
Run #1	555 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	3.6 U	14	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.2	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	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.90 U	3.6	0.90	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	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.54	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	0.63	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	0.51	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	7.2 U	18	7.2	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.2 U	18	7.2	3.1	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.2 U	18	7.2	3.7	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	3.6	1.8	0.60	ng/l	
31506-32-8	MeFOSA	3.6 U	7.2	3.6	0.90	ng/l	
4151-50-2	EtFOSA	3.6 U	7.2	3.6	0.90	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-2312		
Lab Sample ID:	FC11787-1	Date Sampled:	12/07/23
Matrix:	AQ - Ground Water	Date Received:	12/09/23
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	0.90	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	3.9	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	0.90	ng/l	
919005-14-4	ADONA	3.6 U	7.2	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.2	1.8	0.90	ng/l	
863090-89-5	PFMBA	3.6 U	7.2	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.2	3.6	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.2	3.6	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.2	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	7.2	1.8	0.70	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.0 U	18	9.0	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	90	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	90	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	68%		20-150%
	13C5-PFPeA	79%		20-150%
	13C5-PFHxA	79%		20-150%
	13C4-PFHpA	79%		20-150%
	13C8-PFOA	79%		20-150%
	13C9-PFNA	77%		20-150%
	13C6-PFDA	74%		20-150%
	13C7-PFUnDA	72%		20-150%
	13C2-PFDoDA	63%		20-150%
	13C2-PFTeDA	56%		20-150%
	13C3-PFBS	79%		20-150%
	13C3-PFHxS	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

Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2312	
Lab Sample ID:	FC11787-1	Date Sampled: 12/07/23
Matrix:	AQ - Ground Water	Date Received: 12/09/23
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	74%		20-150%
	13C8-FOSA	69%		20-150%
	d3-MeFOSA	67%		20-150%
	d5-EtFOSA	73%		20-150%
	d3-MeFOSAA	68%		20-150%
	d5-EtFOSAA	64%		20-150%
	d7-MeFOSE	55%		20-150%
	d9-EtFOSE	68%		20-150%
	13C2-4:2FTS	70%		20-180%
	13C2-6:2FTS	77%		20-180%
	13C2-8:2FTS	69%		20-180%
	13C3-HFPO-DA	80%		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

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Client Sample ID:	AF-RHMW12A-WGFD01LF-2312		
Lab Sample ID:	FC11787-2	Date Sampled:	12/07/23
Matrix:	AQ - Ground Water	Date Received:	12/09/23
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	4Q55043.D	1	12/11/23 21:23	AL	12/11/23 08:40	OP552	S4Q806
Run #2							

Run #	Initial Volume	Final Volume
Run #1	545 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	1.8 U	7.3	1.8	0.86	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.7	1.8	0.46	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.7	1.8	0.46	ng/l	
335-67-1	Perfluorooctanoic acid	0.92 U	3.7	0.92	0.46	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.7	1.8	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.7	1.8	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.7	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.7	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.7	1.8	0.77	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.7	1.8	0.46	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.7	1.8	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	1.8 U	3.7	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.7	1.8	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.7	1.8	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.7	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.7	1.8	0.59	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.6	3.7	1.0	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.8	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.8 U	3.7	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.7 U	7.3	3.7	0.92	ng/l	
4151-50-2	EtFOSA	3.7 U	7.3	3.7	0.92	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-2312		
Lab Sample ID:	FC11787-2	Date Sampled:	12/07/23
Matrix:	AQ - Ground Water	Date Received:	12/09/23
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	4.6	3.7	0.92	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	18 U	37	18	4.0	ng/l	
1691-99-2	EtFOSE	18 U	37	18	6.8	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.7	1.8	0.92	ng/l	
919005-14-4	ADONA	3.7 U	7.3	3.7	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.3	1.8	0.92	ng/l	
863090-89-5	PFMBA	3.7 U	7.3	3.7	1.0	ng/l	
151772-58-6	NFDHA	3.7 U	7.3	3.7	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	7.3	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	7.3	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	7.3	1.8	0.72	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.2 U	18	9.2	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	92	18	8.0	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	92	18	7.2	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	65%		20-150%
	13C5-PFPeA	82%		20-150%
	13C5-PFHxA	81%		20-150%
	13C4-PFHpA	83%		20-150%
	13C8-PFOA	79%		20-150%
	13C9-PFNA	80%		20-150%
	13C6-PFDA	78%		20-150%
	13C7-PFUnDA	83%		20-150%
	13C2-PFDoDA	70%		20-150%
	13C2-PFTeDA	60%		20-150%
	13C3-PFBS	78%		20-150%
	13C3-PFHxS	88%		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-2312	
Lab Sample ID:	FC11787-2	Date Sampled: 12/07/23
Matrix:	AQ - Ground Water	Date Received: 12/09/23
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	76%		20-150%
	13C8-FOSA	67%		20-150%
	d3-MeFOSA	65%		20-150%
	d5-EtFOSA	66%		20-150%
	d3-MeFOSAA	73%		20-150%
	d5-EtFOSAA	73%		20-150%
	d7-MeFOSE	49%		20-150%
	d9-EtFOSE	63%		20-150%
	13C2-4:2FTS	73%		20-180%
	13C2-6:2FTS	80%		20-180%
	13C2-8:2FTS	71%		20-180%
	13C3-HFPO-DA	83%		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

SGS - Orlando Sample Receipt Summary

Job Number: fc11787

Client: AECOM

Project: N6274223F0104 RH FIRE SUPPRESSION S

Date / Time Received: 12/9/2023 8:00:00 AM

Delivery Method: NITED CARGO/AIRSPAC

Airbill #'s: UNITED AWB: 016-97613596

Cooler Temps (Raw Measured) °C: Cooler 2: (4.2);

Cooler Temps (Corrected) °C: Cooler 2: (4.6);

Cooler Information

Y or N

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

Trip Blank Information

Y or N N/A

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

W or S N/A

- 3. Type of TB Received

Sample Information

Y or N N/A

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

Misc Information

Number of Encores: 25 Gram 5 Gram

Number of Lab Filtered Metals:

Test Strip Lot #s: pH 0-3: 226422

pH 10-12: _____ Other: (Specify) pH 1.0 - 12.0 222221

Residual Chlorine Test Strip Lot # _____

Comments

Sample Receipt Summary 112723 EK Technician: SHAYLAP

Date: 12/9/2023 11:00:12 AM

Reviewer: _____

Date: _____

FC11787: Chain of Custody

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5.1
5

QC Evaluation: DOD QSM5.x Limits

Job Number: FC11787
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 12/07/23

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 FC11787

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
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Instrument Blank

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q806-IBLK	4Q55025.D	1	12/11/23	AL	n/a	n/a	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

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	0.0015	0.0080	0.0010	ug/l	J
4151-50-2	EtFOSA	0.0023	0.0080	0.0010	ug/l	J
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	0.0053	0.040	0.0044	ug/l	J
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: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q806-IBLK	4Q55025.D	1	12/11/23	AL	n/a	n/a	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

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	98% 20-150%
	13C5-PFPeA	102% 20-150%
	13C5-PFHxA	100% 20-150%
	13C4-PFHpA	102% 20-150%
	13C8-PFOA	101% 20-150%
	13C9-PFNA	99% 20-150%
	13C6-PFDA	99% 20-150%
	13C7-PFUnDA	109% 20-150%
	13C2-PFDoDA	99% 20-150%
	13C2-PFTeDA	96% 20-150%
	13C3-PFBS	101% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	96% 20-150%
	13C8-FOSA	96% 20-150%
	d3-MeFOSAA	96% 20-150%
	d5-EtFOSAA	100% 20-150%
	13C2-4:2FTS	101% 20-180%
	13C2-6:2FTS	105% 20-180%
	13C2-8:2FTS	100% 20-180%

6.1.1
6

Continuing Calibration Blank

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q806-ICCB	4Q55037.D	1	12/11/23	AL	n/a	n/a	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

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: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q806-ICCB	4Q55037.D	1	12/11/23	AL	n/a	n/a	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

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	100% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	103% 20-150%
	13C4-PFHpA	104% 20-150%
	13C8-PFOA	96% 20-150%
	13C9-PFNA	99% 20-150%
	13C6-PFDA	103% 20-150%
	13C7-PFUnDA	109% 20-150%
	13C2-PFDoDA	104% 20-150%
	13C2-PFTeDA	102% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	94% 20-150%
	13C8-FOSA	94% 20-150%
	d3-MeFOSAA	97% 20-150%
	d5-EtFOSAA	96% 20-150%
	13C2-4:2FTS	107% 20-180%
	13C2-6:2FTS	97% 20-180%
	13C2-8:2FTS	100% 20-180%

6.1.2

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Continuing Calibration Blank

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q806-ICCB	4Q55047.D	1	12/11/23	AL	n/a	n/a	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

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: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q806-ICCB	4Q55047.D	1	12/11/23	AL	n/a	n/a	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

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	98% 20-150%
	13C5-PFPeA	100% 20-150%
	13C5-PFHxA	103% 20-150%
	13C4-PFHpA	101% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	101% 20-150%
	13C6-PFDA	105% 20-150%
	13C7-PFUnDA	107% 20-150%
	13C2-PFDoDA	101% 20-150%
	13C2-PFTeDA	96% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	102% 20-150%
	13C8-PFOS	95% 20-150%
	13C8-FOSA	95% 20-150%
	d3-MeFOSAA	96% 20-150%
	d5-EtFOSAA	92% 20-150%
	13C2-4:2FTS	98% 20-180%
	13C2-6:2FTS	96% 20-180%
	13C2-8:2FTS	95% 20-180%

Method Blank Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-MB	4Q55040.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

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: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-MB	4Q55040.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

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	128% 20-150%
	13C5-PFPeA	131% 20-150%
	13C5-PFHxA	126% 20-150%
	13C4-PFHpA	132% 20-150%
	13C8-PFOA	123% 20-150%
	13C9-PFNA	122% 20-150%
	13C6-PFDA	138% 20-150%
	13C7-PFUnDA	134% 20-150%
	13C2-PFDoDA	116% 20-150%
	13C2-PFTeDA	105% 20-150%
	13C3-PFBS	117% 20-150%
	13C3-PFHxS	131% 20-150%
	13C8-PFOS	113% 20-150%
	13C8-FOSA	98% 20-150%
	d3-MeFOSA	89% 20-150%
	d5-EtFOSA	105% 20-150%
	d3-MeFOSAA	108% 20-150%
	d5-EtFOSAA	110% 20-150%
	d7-MeFOSE	77% 20-150%
	d9-EtFOSE	99% 20-150%
	13C2-4:2FTS	108% 20-180%
	13C2-6:2FTS	119% 20-180%
	13C2-8:2FTS	119% 20-180%
	13C3-HFPO-DA	128% 20-150%

6.1.4
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Blank Spike Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-LLBS	4Q55039.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0331	110	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0159	106	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0083	111	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0080	107	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0077	103	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0074	99	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0087	116	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0083	111	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0088	117	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0087	116	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0079	105	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0076	114	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0075	106	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0073	106	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0074	104	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0078	112	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0075	104	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0077	106	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0068	93	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0293	104	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0294	103	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0360	125	40-150
754-91-6	PFOSA	0.0075	0.0082	109	40-150
31506-32-8	MeFOSA	0.015	0.0138	92	40-150
4151-50-2	EtFOSA	0.015	0.0146	97	40-150
2355-31-9	MeFOSAA	0.0075	0.0091	121	40-150
2991-50-6	EtFOSAA	0.0075	0.0078	104	40-150
24448-09-7	MeFOSE	0.0375	0.0382	102	40-150
1691-99-2	EtFOSE	0.0375	0.0355	95	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0160	107	40-150
919005-14-4	ADONA	0.0142	0.0162	114	40-150
377-73-1	PFMPA	0.015	0.0160	107	40-150
863090-89-5	PFMBA	0.015	0.0151	101	40-150
151772-58-6	NFDHA	0.015	0.0172	115	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0163	116	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0153	108	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-LLBS	4Q55039.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0148	111	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0325	87	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.191	102	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.201	107	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	82%	20-150%
	13C5-PFPeA	80%	20-150%
	13C5-PFHxA	77%	20-150%
	13C4-PFHpA	82%	20-150%
	13C8-PFOA	79%	20-150%
	13C9-PFNA	81%	20-150%
	13C6-PFDA	78%	20-150%
	13C7-PFUnDA	78%	20-150%
	13C2-PFDoDA	73%	20-150%
	13C2-PFTeDA	68%	20-150%
	13C3-PFBS	80%	20-150%
	13C3-PFHxS	84%	20-150%
	13C8-PFOS	76%	20-150%
	13C8-FOSA	54%	20-150%
	d3-MeFOSA	53%	20-150%
	d5-EtFOSA	58%	20-150%
	d3-MeFOSAA	70%	20-150%
	d5-EtFOSAA	73%	20-150%
	d7-MeFOSE	43%	20-150%
	d9-EtFOSE	55%	20-150%
	13C2-4:2FTS	79%	20-180%
	13C2-6:2FTS	77%	20-180%
	13C2-8:2FTS	67%	20-180%
	13C3-HFPO-DA	77%	20-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-B5	4Q55038.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.109	109	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0529	106	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0268	107	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0274	110	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0261	104	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0262	105	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0269	108	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0279	112	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0268	107	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0253	101	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0271	108	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0247	111	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0234	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0244	107	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0258	108	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0255	110	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0287	119	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0250	104	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0226	93	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0995	106	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.102	107	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.111	116	40-150
754-91-6	PFOSA	0.025	0.0263	105	40-150
31506-32-8	MeFOSA	0.05	0.0498	100	40-150
4151-50-2	EtFOSA	0.05	0.0466	93	40-150
2355-31-9	MeFOSAA	0.025	0.0266	106	40-150
2991-50-6	EtFOSAA	0.025	0.0273	109	40-150
24448-09-7	MeFOSE	0.125	0.119	95	40-150
1691-99-2	EtFOSE	0.125	0.118	94	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0536	107	40-150
919005-14-4	ADONA	0.0473	0.0543	115	40-150
377-73-1	PFMPA	0.05	0.0513	103	40-150
863090-89-5	PFMBA	0.05	0.0494	99	40-150
151772-58-6	NFDHA	0.05	0.0574	115	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0528	113	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0491	104	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-BS	4Q55038.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0465	104	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.126	101	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.650	104	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.665	106	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	92%	20-150%
	13C5-PFPeA	101%	20-150%
	13C5-PFHxA	97%	20-150%
	13C4-PFHpA	98%	20-150%
	13C8-PFOA	96%	20-150%
	13C9-PFNA	96%	20-150%
	13C6-PFDA	99%	20-150%
	13C7-PFUnDA	102%	20-150%
	13C2-PFDoDA	96%	20-150%
	13C2-PFTeDA	82%	20-150%
	13C3-PFBS	96%	20-150%
	13C3-PFHxS	108%	20-150%
	13C8-PFOS	90%	20-150%
	13C8-FOSA	80%	20-150%
	d3-MeFOSA	73%	20-150%
	d5-EtFOSA	84%	20-150%
	d3-MeFOSAA	89%	20-150%
	d5-EtFOSAA	89%	20-150%
	d7-MeFOSE	61%	20-150%
	d9-EtFOSE	76%	20-150%
	13C2-4:2FTS	94%	20-180%
	13C2-6:2FTS	96%	20-180%
	13C2-8:2FTS	90%	20-180%
	13C3-HFPO-DA	97%	20-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-MS	4Q55044.D	1	12/11/23	AL	12/11/23	OP552	S4Q806
FC11787-2	4Q55043.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

CAS No.	Compound	FC11787-2 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	0.0909	0.0991	109	40-150
2706-90-3	Perfluoropentanoic acid	0.0073 U	0.0455	0.0493	108	40-150
307-24-4	Perfluorohexanoic acid	0.0037 U	0.0227	0.0240	106	40-150
375-85-9	Perfluoroheptanoic acid	0.0037 U	0.0227	0.0252	111	40-150
335-67-1	Perfluorooctanoic acid	0.0037 U	0.0227	0.0236	104	40-150
375-95-1	Perfluorononanoic acid	0.0037 U	0.0227	0.0234	103	40-150
335-76-2	Perfluorodecanoic acid	0.0037 U	0.0227	0.0216	95	40-150
2058-94-8	Perfluoroundecanoic acid	0.0037 U	0.0227	0.0249	110	40-150
307-55-1	Perfluorododecanoic acid	0.0037 U	0.0227	0.0239	105	40-150
72629-94-8	Perfluorotridecanoic acid	0.0037 U	0.0227	0.0240	106	40-150
376-06-7	Perfluorotetradecanoic acid	0.0037 U	0.0227	0.0256	113	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0037 U	0.0202	0.0230	114	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0046 U	0.0214	0.0226	106	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0037 U	0.0208	0.0230	111	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0037 U	0.0217	0.0246	114	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0037 U	0.0211	0.0229	109	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0037 U	0.0219	0.0238	109	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0037 U	0.0219	0.0205	93	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0046 U	0.022	0.0195	88	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0852	0.101	119	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.0864	0.0940	109	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0873	0.100	115	40-150
754-91-6	PFOSA	0.0037 U	0.0227	0.0240	106	40-150
31506-32-8	MeFOSA	0.0073 U	0.0455	0.0440	97	40-150
4151-50-2	EtFOSA	0.0073 U	0.0455	0.0445	98	40-150
2355-31-9	MeFOSAA	0.0046 U	0.0227	0.0265	117	40-150
2991-50-6	EtFOSAA	0.0046 U	0.0227	0.0241	106	40-150
24448-09-7	MeFOSE	0.037 U	0.114	0.111	98	40-150
1691-99-2	EtFOSE	0.037 U	0.114	0.111	98	40-150
13252-13-6	HFPO-DA (GenX)	0.0037 U	0.0455	0.0462	102	40-150
919005-14-4	ADONA	0.0073 U	0.043	0.0485	113	40-150
377-73-1	PFMPA	0.0073 U	0.0455	0.0452	99	40-150
863090-89-5	PFMBA	0.0073 U	0.0455	0.0456	100	40-150
151772-58-6	NFDHA	0.0073 U	0.0455	0.0469	103	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U	0.0425	0.0444	104	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U	0.043	0.0378	88	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-MS	4Q55044.D	1	12/11/23	AL	12/11/23	OP552	S4Q806
FC11787-2	4Q55043.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

CAS No.	Compound	FC11787-2 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0073 U	0.0405	0.0424	105	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	0.114	0.171	150	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.092 U	0.568	0.594	105	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.092 U	0.568	0.609	107	40-150

CAS No.	ID Standard Recoveries	MS	FC11787-2	Limits
	13C4-PFBA	60%	65%	20-150%
	13C5-PFPeA	99%	82%	20-150%
	13C5-PFHxA	96%	81%	20-150%
	13C4-PFHpA	97%	83%	20-150%
	13C8-PFOA	96%	79%	20-150%
	13C9-PFNA	96%	80%	20-150%
	13C6-PFDA	101%	78%	20-150%
	13C7-PFUnDA	95%	83%	20-150%
	13C2-PFDoDA	81%	70%	20-150%
	13C2-PFTeDA	74%	60%	20-150%
	13C3-PFBS	96%	78%	20-150%
	13C3-PFHxS	102%	88%	20-150%
	13C8-PFOS	86%	76%	20-150%
	13C8-FOSA	85%	67%	20-150%
	d3-MeFOSA	85%	65%	20-150%
	d5-EtFOSA	91%	66%	20-150%
	d3-MeFOSAA	80%	73%	20-150%
	d5-EtFOSAA	83%	73%	20-150%
	d7-MeFOSE	66%	49%	20-150%
	d9-EtFOSE	83%	63%	20-150%
	13C2-4:2FTS	80%	73%	20-180%
	13C2-6:2FTS	92%	80%	20-180%
	13C2-8:2FTS	87%	71%	20-180%
	13C3-HFPO-DA	99%	83%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-DUP	4Q55042.D	1	12/11/23	AL	12/11/23	OP552	S4Q806
FC11787-1	4Q55041.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

CAS No.	Compound	FC11787-1 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.014 U	ND		nc		30
2706-90-3	Perfluoropentanoic acid	0.0072 U	ND		nc		30
307-24-4	Perfluorohexanoic acid	0.0036 U	ND		nc		30
375-85-9	Perfluoroheptanoic acid	0.0036 U	ND		nc		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	0.018 U	ND		nc		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	0.0072 U	ND		nc		30
4151-50-2	EtFOSA	0.0072 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	0.0072 U	ND		nc		30
377-73-1	PFMPA	0.0072 U	ND		nc		30
863090-89-5	PFMBA	0.0072 U	ND		nc		30
151772-58-6	NFDHA	0.0072 U	ND		nc		30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0072 U	ND		nc		30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0072 U	ND		nc		30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP552-DUP	4Q55042.D	1	12/11/23	AL	12/11/23	OP552	S4Q806
FC11787-1	4Q55041.D	1	12/11/23	AL	12/11/23	OP552	S4Q806

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11787-1, FC11787-2

CAS No.	Compound	FC11787-1 ug/l	DUP Q ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0072 U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.090 U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.090 U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC11787-1	Limits
	13C4-PFBA	83%	68%	20-150%
	13C5-PFPeA	100%	79%	20-150%
	13C5-PFHxA	95%	79%	20-150%
	13C4-PFHpA	99%	79%	20-150%
	13C8-PFOA	94%	79%	20-150%
	13C9-PFNA	89%	77%	20-150%
	13C6-PFDA	95%	74%	20-150%
	13C7-PFUnDA	94%	72%	20-150%
	13C2-PFDoDA	81%	63%	20-150%
	13C2-PFTeDA	73%	56%	20-150%
	13C3-PFBS	90%	79%	20-150%
	13C3-PFHxS	96%	84%	20-150%
	13C8-PFOS	87%	74%	20-150%
	13C8-FOSA	81%	69%	20-150%
	d3-MeFOSA	81%	67%	20-150%
	d5-EtFOSA	91%	73%	20-150%
	d3-MeFOSAA	87%	68%	20-150%
	d5-EtFOSAA	81%	64%	20-150%
	d7-MeFOSE	64%	55%	20-150%
	d9-EtFOSE	78%	68%	20-150%
	13C2-4:2FTS	85%	70%	20-180%
	13C2-6:2FTS	90%	77%	20-180%
	13C2-8:2FTS	90%	69%	20-180%
	13C3-HFPO-DA	97%	80%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q806-CC806	Injection Date:	12/11/23
Lab File ID:	4Q55036.D	Injection Time:	19:40
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal ^b	82334	2.70	74653	5.35	110788	6.98	39390	7.52	28985	8.00
Check Std ^c	80266	2.72	72141	5.35	111638	6.98	39063	7.52	28480	8.00
Upper Limit ^d	164668	3.12	149306	5.75	221576	7.38	78780	7.92	57970	8.40
Lower Limit ^e	32934	2.32	29861	4.95	44315	6.58	15756	7.12	11594	7.60

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
S4Q806-ICCB	76700	2.69	66664	5.35	109164	6.98	36559	7.52	26558	8.00	1
OP552-BS	72248	2.74	60877	5.36	94680	6.98	32433	7.52	23301	8.00	1
OP552-LLBS	78086	2.74	65933	5.36	102219	6.98	35135	7.52	25984	8.00	1
OP552-MB	61649	2.77	49160	5.36	79328	6.98	26746	7.52	19340	8.00	1
FC11787-1	90168	2.77	74516	5.36	115412	6.98	40777	7.52	30650	8.00	1
OP552-DUP	76690	2.77	63190	5.36	100637	6.98	35352	7.52	25077	8.00	1
FC11787-2	85545	2.77	73002	5.36	115045	6.98	39453	7.52	29162	8.00	1
OP552-MS	72633	2.77	61891	5.36	93976	6.98	32897	7.52	24622	8.00	1
ZZZZZZ	83819	2.75	68886	5.36	106929	6.98	37105	7.52	26544	8.00	1
S4Q806-ECC806	83315	2.70	73902	5.35	112405	6.98	39980	7.52	28701	8.00	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: S4Q806-ICCB 4Q55020.D 12/11/23 15:39. 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: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q806-CC806	Injection Date:	12/11/23
Lab File ID:	4Q55036.D	Injection Time:	19:40
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9591	7.04	11818	8.12
Check Std ^c	9701	7.04	12083	8.12
Upper Limit ^d	19182	7.44	23636	8.52
Lower Limit ^e	3836	6.64	4727	7.72

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S4Q806-ICCB	9202	7.04	11671	8.12	1
OP552-BS	7733	7.04	10549	8.12	1
OP552-LLBS	8561	7.04	11343	8.12	1
OP552-MB	6629	7.04	8975	8.13	1
FC11787-1	9433	7.04	12857	8.12	1
OP552-DUP	8382	7.04	11075	8.12	1
FC11787-2	9166	7.04	12803	8.12	1
OP552-MS	7768	7.04	10542	8.12	1
ZZZZZZ	9219	7.04	11635	8.12	1
S4Q806-ECC806	9793	7.04	12097	8.12	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q806-ICC806 4Q55020.D 12/11/23 15:39. 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
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TDCA Retention Time Check

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q806-RT	Injection Date:	12/11/23
Lab File ID:	4Q55014.D	Injection Time:	14:11
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.119	--	--
TDCA	6.784	1.335	1.000
TCDCA	6.635	1.484	1.000
TUDCA	5.791	2.328	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
S4Q806-IC806	4Q55016.D	12/11/23	14:40	00:29	Mass Calibration Verification
S4Q806-IC806	4Q55017.D	12/11/23	14:55	00:44	Initial cal 1
S4Q806-IC806	4Q55018.D	12/11/23	15:10	00:59	Initial cal 2
S4Q806-IC806	4Q55019.D	12/11/23	15:25	01:14	Initial cal 3
S4Q806-ICC806	4Q55020.D	12/11/23	15:39	01:28	Initial cal 4
S4Q806-IC806	4Q55021.D	12/11/23	15:54	01:43	Initial cal 5
S4Q806-IC806	4Q55022.D	12/11/23	16:09	01:58	Initial cal 6
S4Q806-IC806	4Q55023.D	12/11/23	16:24	02:13	Initial cal 7
S4Q806-IC806	4Q55024.D	12/11/23	16:43	02:32	Initial cal 8
S4Q806-IBLK	4Q55025.D	12/11/23	16:58	02:47	Instrument Blank
S4Q806-IBLK	4Q55025.D	12/11/23	16:58	02:47	Instrument Blank
S4Q806-ICV806	4Q55026.D	12/11/23	17:13	03:02	Initial cal verification 4
S4Q806-ICV806	4Q55027.D	12/11/23	17:27	03:16	Initial cal verification 20
S4Q806-CC806	4Q55028.D	12/11/23	17:42	03:31	Continuing cal 4
S4Q806-CC806	4Q55029.D	12/11/23	17:57	03:46	Continuing cal 1.0LL
ZZZZZ	4Q55030.D	12/11/23	18:12	04:01	(unrelated sample)
FC11645-22	4Q55031.D	12/11/23	18:26	04:15	(used for QC only; not part of job FC11787)
OP523-DUP	4Q55032.D	12/11/23	18:41	04:30	Duplicate
ZZZZZ	4Q55033.D	12/11/23	18:56	04:45	(unrelated sample)
FC11753-3	4Q55034.D	12/11/23	19:11	05:00	(used for QC only; not part of job FC11787)
OP524-MS	4Q55035.D	12/11/23	19:25	05:14	Matrix Spike
S4Q806-CC806	4Q55036.D	12/11/23	19:40	05:29	Continuing cal 4
S4Q806-ICCB	4Q55037.D	12/11/23	19:55	05:44	Continuing Calibration Blank
OP552-BS	4Q55038.D	12/11/23	20:10	05:59	Blank Spike
OP552-LLBS	4Q55039.D	12/11/23	20:24	06:13	Blank Spike
OP552-MB	4Q55040.D	12/11/23	20:39	06:28	Method Blank
FC11787-1	4Q55041.D	12/11/23	20:54	06:43	AF-RHMW12A-WGN01LF-2312
OP552-DUP	4Q55042.D	12/11/23	21:09	06:58	Duplicate
FC11787-2	4Q55043.D	12/11/23	21:23	07:12	AF-RHMW12A-WGFD01LF-2312
OP552-MS	4Q55044.D	12/11/23	21:38	07:27	Matrix Spike
ZZZZZ	4Q55045.D	12/11/23	21:53	07:42	(unrelated sample)
S4Q806-ECC806	4Q55046.D	12/11/23	22:07	07:56	Ending cal 4
S4Q806-ICCB	4Q55047.D	12/11/23	22:22	08:11	Continuing Calibration Blank

Isotope Dilution Standard Recovery Summary

Job Number: FC11787
 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
FC11787-1	4Q55041.D	68	79	79	79	79	77	74	72
FC11787-2	4Q55043.D	65	82	81	83	79	80	78	83
OP552-BS	4Q55038.D	92	101	97	98	96	96	99	102
OP552-DUP	4Q55042.D	83	100	95	99	94	89	95	94
OP552-LLBS	4Q55039.D	82	80	77	82	79	81	78	78
OP552-MB	4Q55040.D	128	131	126	132	123	122	138	134
OP552-MS	4Q55044.D	60	99	96	97	96	96	101	95
S4Q806-IBLK	4Q55025.D	98	102	100	102	101	99	99	109
S4Q806-ICCB	4Q55037.D	100	103	103	104	96	99	103	109
S4Q806-ICCB	4Q55047.D	98	100	103	101	100	101	105	107

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%

6.7.1

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Isotope Dilution Standard Recovery Summary

Job Number: FC11787
 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
FC11787-1	4Q55041.D	63	56	79	84	74	69	67	73
FC11787-2	4Q55043.D	70	60	78	88	76	67	65	66
OP552-BS	4Q55038.D	96	82	96	108	90	80	73	84
OP552-DUP	4Q55042.D	81	73	90	96	87	81	81	91
OP552-LLBS	4Q55039.D	73	68	80	84	76	54	53	58
OP552-MB	4Q55040.D	116	105	117	131	113	98	89	105
OP552-MS	4Q55044.D	81	74	96	102	86	85	85	91
S4Q806-IBLK	4Q55025.D	99	96	101	101	96	96		
S4Q806-ICCB	4Q55037.D	104	102	98	101	94	94		
S4Q806-ICCB	4Q55047.D	101	96	98	102	95	95		

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%

6.7.1

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Isotope Dilution Standard Recovery Summary

Job Number: FC11787
 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
FC11787-1	4Q55041.D	68	64	55	68	70	77	69	80
FC11787-2	4Q55043.D	73	73	49	63	73	80	71	83
OP552-BS	4Q55038.D	89	89	61	76	94	96	90	97
OP552-DUP	4Q55042.D	87	81	64	78	85	90	90	97
OP552-LLBS	4Q55039.D	70	73	43	55	79	77	67	77
OP552-MB	4Q55040.D	108	110	77	99	108	119	119	128
OP552-MS	4Q55044.D	80	83	66	83	80	92	87	99
S4Q806-IBLK	4Q55025.D	96	100			101	105	100	
S4Q806-ICCB	4Q55037.D	97	96			107	97	100	
S4Q806-ICCB	4Q55047.D	96	92			98	96	95	

Isotope Dilution Standards

Recovery Limits

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

6.7.1

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Initial Calibration Summary

Job Number: FC11787
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-ICC806
 Lab FileID: 4Q55020.D

Initial Calibration Report

Method Path	D:\MassHunter\methods 1633_121123_S4Q806.quantmethod.xml											
Method File	D:\MassHunter\Data\121123_1633_S4Q806\4Q55018.d											
Batch Name	D:\MassHunter\Data\121123_1633_S4Q806\4Q55019.d											
Last Calib Update	12/12/2023 9:24:56 AM											
Level Name	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
1	D:\MassHunter\Data\121123_1633_S4Q806\4Q55017.d											
2	D:\MassHunter\Data\121123_1633_S4Q806\4Q55018.d											
3	D:\MassHunter\Data\121123_1633_S4Q806\4Q55019.d											
4	D:\MassHunter\Data\121123_1633_S4Q806\4Q55020.d											
5	D:\MassHunter\Data\121123_1633_S4Q806\4Q55021.d											
6	D:\MassHunter\Data\121123_1633_S4Q806\4Q55022.d											
7	D:\MassHunter\Data\121123_1633_S4Q806\4Q55023.d											
8	D:\MassHunter\Data\121123_1633_S4Q806\4Q55024.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-PFUDA												
T PFUDA												
I M2-PFDODA												

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Initial Calibration Summary

Job Number: FC11787
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-ICC806
 Lab FileID: 4Q55020.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.8065	0.7993	0.9477	0.8472	0.9724	0.9856	0.9787	1.0619	0.9249	10.333
T PFTfDA	Avg RF	0.9454	0.8568	1.0324	0.9284	1.0303	1.0513	1.0194	1.0308	0.9868	6.973
I M2-PFTeDA	Avg RF	0.7382	0.7011	0.8646	0.8055	0.9104	0.9500	0.9388	0.9586	0.8584	11.619
T PFTeDA	Avg RF	1.1771	0.9989	1.1341	1.0118	1.1237	1.1746	1.1867	1.2590	1.1333	7.835
I M8-FOSA	Avg RF	0.7399	0.6800	0.7093	0.7079	0.7447	0.7727	0.7821	0.8574	0.7493	7.402
T PFBs	Avg RF	0.8104	0.6863	0.7916	0.8150	0.8318	0.8660	0.9191	1.0505	0.8463	12.507
I M3-PFHxS	Avg RF	0.7831	0.6742	0.7827	0.7472	0.8138	0.7535	0.7687	0.8885	0.7765	7.840
T PFHxS	Avg RF	0.9751	0.8578	1.0176	1.0213	1.1113	1.0807	1.1259	1.2847	1.0593	11.795
I M8-PFOS	Avg RF	1.1975	0.8947	1.0185	0.9514	1.0326	0.9774	1.0299	1.1055	1.0259	9.100
T PFHps	Avg RF	0.4570	0.3876	0.4675	0.4526	0.4712	0.4467	0.4572	0.4818	0.4527	6.316
T PFOS	Avg RF	0.6550	0.5955	0.6379	0.6536	0.6729	0.6761	0.6889	0.7892	0.6712	8.291
T PFDS	Avg RF	0.5156	0.4046	0.4835	0.4790	0.5020	0.4963	0.5133	0.5904	0.4981	10.292
I M2-4:2FTS	Avg RF	7.8991	8.0451	8.8116	8.5493	9.7871	10.07	10.31	9.0329	9.0634	10.060
T 4:2FTS	Avg RF	5.9676	4.3948	5.0470	4.8237	5.6631	5.3872	5.5466	5.7371	5.3209	9.903
I M2-6:2FTS	Avg RF	2.8495	2.3856	2.7976	2.5884	2.9275	2.8211	2.7504	2.5440	2.7080	6.780
T 6:2FTS	Avg RF	0.7035	0.6514	0.7808	0.7172	0.7786	0.8245	0.8349	0.9124	0.7754	10.756
I M2-8:2FTS	Avg RF	0.8766	0.8253	0.9720	0.8721	0.9496	0.9863	1.0398	1.0799	0.9502	9.222
T 8:2FTS	Avg RF	7.2961	6.6536	8.1537	7.4913	8.0253	8.2625	8.5470	9.0139	7.9304	9.470
I M3-MeFOSAA	Avg RF	2.5927	2.3222	2.7728	2.5332	2.7091	2.6848	2.6179	2.3848	2.5772	6.102
T MeFOSAA	Avg RF	2.6243	2.2946	2.7340	2.5288	2.7570	2.7698	2.8631	2.7894	2.6701	6.879
I M3-HFO-DA	Avg RF	0.8801	0.7359	0.8464	0.8202	0.8816	0.8842	0.9663	1.0467	0.8827	10.549
T HFO-DA	Avg RF	0.9295	0.8121	0.9466	0.8937	0.9323	1.0327	1.0557	1.1881	0.9738	11.842
I M7-MeFOSE	Avg RF	0.8279	0.7792	0.8543	0.8016	0.8643	0.9133	0.9182	0.9785	0.8672	7.660
T MeFOSE	Avg RF	0.8279	0.7792	0.8543	0.8016	0.8643	0.9133	0.9182	0.9785	0.8672	7.660

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Initial Calibration Summary

Job Number: FC11787
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-ICC806
 Lab FileID: 4Q55020.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		1.1264	0.8986	1.0334	1.0113	1.1115	1.1126	1.1468	1.1965	1.0796	8.720
T EtFOSA											
I M3-MeFOSA		0.9726	0.8261	0.8850	0.8715	0.9330	0.9387	0.9862	0.8972	0.9138	5.888
T MeFOSA											
I 13C4-PFOS		1.3611	1.4148	1.3410	1.3285	1.3577	1.2999	1.3543	1.1305	1.3235	6.385
S d3-MeFOSAA		1.2561	1.3637	1.3174	1.2386	1.3280	1.3460	1.4509	1.3663	1.3334	5.008
S 13C8-PFOS		1.0645	1.1393	1.1277	1.0350	1.1005	1.0742	1.1175	0.9917	1.0813	4.651
S d5-EFOSAA		1.3434	1.4822	1.3906	1.3797	1.4364	1.3416	1.4779	1.4317	1.4104	3.920
S 13C8-FOSA		0.4808	0.5283	0.5224	0.4894	0.5694	0.4884	0.5117	0.4758	0.5083	6.182
S d7-MeFOSE		0.6487	0.7046	0.7035	0.6576	0.7269	0.7003	0.7574	0.9065	0.7257	11.153
S d3-MeFOSA		0.4776	0.5174	0.5018	0.4887	0.5481	0.4811	0.5254	0.4986	0.5048	4.772
S d9-EFOSE		0.6166	0.6762	0.6919	0.6428	0.7147	0.6870	0.7582	0.7877	0.6969	8.089
S d5-EFOSA											
I 13C3-PFBA		1.0746	1.0758	1.0830	1.0574	1.0900	1.0673	1.0828	1.0830	1.0767	0.967
S 13C4-PFBA											
I 1802-PFHxS		0.1157	0.1054	0.1141	0.1003	0.0923	0.0886	0.0768	0.0807	0.0967	15.095
S 13C2-4:2FTS		1.9726	1.9228	2.1035	1.8275	2.0191	2.0158	1.9812	2.0349	1.9847	4.151
S 13C3-PFBS		0.2332	0.2388	0.2534	0.2291	0.2121	0.2190	0.1802	0.1542	0.2137	15.041
S 13C2-6:2FTS		1.5605	1.5362	1.6632	1.4257	1.5502	1.5713	1.5045	1.5217	1.5417	4.341
S 13C3-PFHxS		0.3047	0.3021	0.3175	0.2889	0.2743	0.2724	0.2478	0.2473	0.2819	9.248
S 13C2-8:2FTS											
I 13C4-PFOA		0.9233	0.9241	0.9107	0.9109	0.9323	0.9209	0.9118	0.9266	0.9201	0.882
S 13C8-PFOA											
I 13C2-PFDA		0.9227	0.9064	0.8966	0.9079	0.9036	0.9509	0.8630	0.8827	0.9042	2.884
S 13C6-PFDA		1.1404	1.0803	1.0544	1.0642	1.0261	0.9982	0.8849	0.7647	1.0017	12.081
S 13C7-PFUnDA		1.1921	1.1581	1.1401	1.1854	1.1446	1.2142	1.1903	1.2022	1.1784	2.323
S 13C2-PFDODA		1.1621	1.1248	1.1244	1.1390	1.0968	1.1550	1.1617	1.3113	1.1594	5.633
S 13C2-PFTeDA											
I 13C5-PFNA		1.0008	0.9520	0.9828	1.0014	1.0225	1.0283	1.0367	1.0382	1.0078	2.958
S 13C9-PFNA											
I 13C2-PFHxA		0.5623	0.5566	0.5443	0.5317	0.5528	0.5321	0.5434	0.5224	0.5432	2.531
S 13C5-PPeA		0.9554	0.9442	0.9166	0.9102	0.9374	0.9147	0.9227	0.9219	0.9279	1.723
S 13C5-PFHxA		0.2190	0.2161	0.2078	0.2097	0.2183	0.2137	0.2139	0.2060	0.2131	2.253
S 13C3-HPO-DA		0.9350	0.9119	0.8894	0.8812	0.8929	0.8763	0.8994	0.8398	0.8907	3.114
S 13C4-PFHxA											

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

Initial Calibration Verification

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-ICV806
 Lab FileID: 4Q55026.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\121123_1633_S4Q806\s4q806.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\121123_1633_S4Q806\4Q55017.d
 2:D:\MassHunter\Data\121123_1633_S4Q806\4Q55018.d
 3:D:\MassHunter\Data\121123_1633_S4Q806\4Q55019.d
 4:D:\MassHunter\Data\121123_1633_S4Q806\4Q55020.d
 5:D:\MassHunter\Data\121123_1633_S4Q806\4Q55021.d
 6:D:\MassHunter\Data\121123_1633_S4Q806\4Q55022.d
 7:D:\MassHunter\Data\121123_1633_S4Q806\4Q55023.d
 8:D:\MassHunter\Data\121123_1633_S4Q806\4Q55024.d

Data File: 4Q55026
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.834	16.7	116.7
13C2-6:2FTS	5.000	5.316	6.3	106.3
13C2-8:2FTS	5.000	5.018	0.4	100.4
13C2-PFDoDA	1.250	1.261	0.9	100.9
13C2-PFTeDA	1.250	1.222	-2.2	97.8
13C3-PFBS	2.500	2.577	3.1	103.1
13C3-PFHxS	2.500	2.667	6.7	106.7
13C4-PFBA	10.000	10.004	0.0	100.0
13C4-PFHpA	2.500	2.521	0.9	100.9
13C5-PFHxA	2.500	2.489	-0.4	99.6
13C5-PFPeA	5.000	4.959	-0.8	99.2
13C6-PFDA	1.250	1.262	1.0	101.0
13C7-PFUnDA	1.250	1.298	3.9	103.9
13C8-FOSA	2.500	2.349	-6.0	94.0
13C8-PFOA	2.500	2.470	-1.2	98.8
13C8-PFOS	2.500	2.371	-5.2	94.8
13C9-PFNA	1.250	1.265	1.2	101.2
4:2FTS	9.375	7.954	-15.2	84.8
6:2FTS	9.500	9.004	-5.2	94.8
8:2FTS	9.600	9.415	-1.9	98.1
d3-MeFOSAA	5.000	4.713	-5.7	94.3
EtFOSAA	2.500	2.313	-7.5	92.5
FOSA	2.500	2.380	-4.8	95.2
MeFOSAA	2.500	2.365	-5.4	94.6
PFBA	10.000	9.413	-5.9	94.1
PFBS	2.218	2.091	-5.7	94.3
PFDA	2.500	2.361	-5.5	94.5
PFDoDA	2.500	2.443	-2.3	97.7
PFDS	2.413	2.162	-10.4	89.6
PFHpA	2.500	2.376	-5.0	95.0
PFHpS	2.383	2.276	-4.5	95.5
PFHxA	2.500	2.375	-5.0	95.0
PFHxS	2.285	2.230	-2.4	97.6
PFNA	2.500	2.277	-8.9	91.1
PFNS	2.405	2.503	4.1	104.1
PFOA	2.500	2.317	-7.3	92.7
PFOS	2.320	2.209	-4.8	95.2

Initial Calibration Verification

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-ICV806
 Lab FileID: 4Q55026.D

PFPeA	5.000	4.819	-3.6	96.4
PFPeS	2.353	2.062	-12.3	87.7
PFTeDA	2.500	2.444	-2.2	97.8
PFTTrDA	2.500	2.380	-4.8	95.2
PFUnDA	2.500	2.504	0.2	100.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.568	-3.3	96.7
13C3-HFPO-DA	10.000	10.007	0.1	100.1
9C1-PF3ONS	4.675	4.820	3.1	103.1
ADONA	4.725	5.064	7.2	107.2
HFPO-DA	5.000	4.801	-4.0	96.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.402	-8.6	91.4
5:3FTCA	62.400	59.223	-5.1	94.9
7:3FTCA	62.400	60.470	-3.1	96.9
d3-MeFOSA	2.500	2.289	-8.4	91.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.563	-8.7	91.3
EtFOSE	12.500	11.886	-4.9	95.1
MeFOSA	5.000	4.581	-8.4	91.6
MeFOSE	12.500	11.863	-5.1	94.9
PFDoDS	2.425	2.228	-8.1	91.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.815	-3.7	96.3
d7-MeFOSE	25.000	22.968	-8.1	91.9
d9-EtFOSE	25.000	22.410	-10.4	89.6
d5-EtFOSA	2.500	2.297	-8.1	91.9
NFDHA	5.000	4.977	-0.5	99.5
PFMBA	5.000	4.712	-5.8	94.2
PFMPA	5.000	4.744	-5.1	94.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.288	-3.6	96.4

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-ICV806
 Lab FileID: 4Q55027.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\121123_1633_S4Q806\s4q806.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\121123_1633_S4Q806\4Q55017.d
 2:D:\MassHunter\Data\121123_1633_S4Q806\4Q55018.d
 3:D:\MassHunter\Data\121123_1633_S4Q806\4Q55019.d
 4:D:\MassHunter\Data\121123_1633_S4Q806\4Q55020.d
 5:D:\MassHunter\Data\121123_1633_S4Q806\4Q55021.d
 6:D:\MassHunter\Data\121123_1633_S4Q806\4Q55022.d
 7:D:\MassHunter\Data\121123_1633_S4Q806\4Q55023.d
 8:D:\MassHunter\Data\121123_1633_S4Q806\4Q55024.d

Data File: 4Q55027
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.217	4.3	104.3
13C2-6:2FTS	5.000	5.316	6.3	106.3
13C2-8:2FTS	5.000	5.233	4.7	104.7
13C2-PFDoDA	1.250	1.174	-6.1	93.9
13C2-PFTeDA	1.250	1.241	-0.7	99.3
13C3-PFBS	2.500	2.762	10.5	110.5
13C3-PFHxS	2.500	2.747	9.9	109.9
13C4-PFBA	10.000	10.267	2.7	102.7
13C4-PFHpA	2.500	2.465	-1.4	98.6
13C5-PFHxA	2.500	2.425	-3.0	97.0
13C5-PFPeA	5.000	4.981	-0.4	99.6
13C6-PFDA	1.250	1.209	-3.3	96.7
13C7-PFUnDA	1.250	1.160	-7.2	92.8
13C8-FOSA	2.500	2.370	-5.2	94.8
13C8-PFOA	2.500	2.512	0.5	100.5
13C8-PFOS	2.500	2.506	0.2	100.2
13C9-PFNA	1.250	1.313	5.0	105.0
4:2FTS	20.000	20.683	3.4	103.4
6:2FTS	20.000	20.296	1.5	101.5
8:2FTS	20.000	18.631	-6.8	93.2
d3-MeFOSAA	5.000	4.921	-1.6	98.4
EtFOSAA	20.000	19.843	-0.8	99.2
FOSA	20.000	18.527	-7.4	92.6
MeFOSAA	20.000	19.351	-3.2	96.8
PFBA	20.000	17.880	-10.6	89.4
PFBS	20.000	18.962	-5.2	94.8
PFDA	20.000	19.063	-4.7	95.3
PFDoDA	20.000	17.325	-13.4	86.6
PFDS	20.000	18.757	-6.2	93.8
PFHpA	20.000	18.687	-6.6	93.4
PFHpS	20.000	18.449	-7.8	92.2
PFHxA	20.000	20.638	3.2	103.2
PFHxS	20.000	20.195	1.0	101.0
PFNA	20.000	18.670	-6.7	93.3
PFNS	20.000	18.335	-8.3	91.7
PFOA	20.000	17.886	-10.6	89.4
PFOS	20.000	17.224	-13.9	86.1

Initial Calibration Verification

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-ICV806
 Lab FileID: 4Q55027.D

PFPeA	20.000	18.911	-5.4	94.6
PFPeS	20.000	19.867	-0.7	99.3
PFTeDA	20.000	20.747	3.7	103.7
PFTTrDA	20.000	18.627	-6.9	93.1
PFUnDA	20.000	19.009	-5.0	95.0
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	20.000	19.062	-4.7	95.3
13C3-HFPO-DA	10.000	9.952	-0.5	99.5
9C1-PF3ONS	20.000	18.441	-7.8	92.2
ADONA	20.000	21.178	5.9	105.9
HFPO-DA	20.000	19.118	-4.4	95.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	18.549	-7.3	92.7
5:3FTCA	20.000	20.675	3.4	103.4
7:3FTCA	20.000	18.148	-9.3	90.7
d3-MeFOSA	2.500	2.483	-0.7	99.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	17.478	-12.6	87.4
EtFOSE	100.000	95.721	-4.3	95.7
MeFOSA	20.000	18.094	-9.5	90.5
MeFOSE	100.000	100.977	1.0	101.0
PFDoDS	20.000	18.079	-9.6	90.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.719	-5.6	94.4
d7-MeFOSE	25.000	24.586	-1.7	98.3
d9-EtFOSE	25.000	24.669	-1.3	98.7
d5-EtFOSA	2.500	2.445	-2.2	97.8
NFDHA	20.000	19.828	-0.9	99.1
PFMBA	20.000	19.031	-4.8	95.2
PFMPA	20.000	19.204	-4.0	96.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	17.792	-11.0	89.0

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-CC806
 Lab FileID: 4Q55028.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\121123_1633_S4Q806\s4q806.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\121123_1633_S4Q806\4Q55017.d
 2:D:\MassHunter\Data\121123_1633_S4Q806\4Q55018.d
 3:D:\MassHunter\Data\121123_1633_S4Q806\4Q55019.d
 4:D:\MassHunter\Data\121123_1633_S4Q806\4Q55020.d
 5:D:\MassHunter\Data\121123_1633_S4Q806\4Q55021.d
 6:D:\MassHunter\Data\121123_1633_S4Q806\4Q55022.d
 7:D:\MassHunter\Data\121123_1633_S4Q806\4Q55023.d
 8:D:\MassHunter\Data\121123_1633_S4Q806\4Q55024.d

Data File: 4Q55028
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.164	3.3	103.3
13C2-6:2FTS	5.000	4.969	-0.6	99.4
13C2-8:2FTS	5.000	4.890	-2.2	97.8
13C2-PFDoDA	1.250	1.244	-0.5	99.5
13C2-PFTeDA	1.250	1.232	-1.4	98.6
13C3-PFBS	2.500	2.444	-2.2	97.8
13C3-PFHxS	2.500	2.552	2.1	102.1
13C4-PFBA	10.000	9.751	-2.5	97.5
13C4-PFHpA	2.500	2.515	0.6	100.6
13C5-PFHxA	2.500	2.414	-3.4	96.6
13C5-PFPeA	5.000	4.955	-0.9	99.1
13C6-PFDA	1.250	1.217	-2.6	97.4
13C7-PFUnDA	1.250	1.279	2.3	102.3
13C8-FOSA	2.500	2.474	-1.0	99.0
13C8-PFOA	2.500	2.372	-5.1	94.9
13C8-PFOS	2.500	2.458	-1.7	98.3
13C9-PFNA	1.250	1.287	2.9	102.9
4:2FTS	9.375	8.392	-10.5	89.5
6:2FTS	9.500	9.025	-5.0	95.0
8:2FTS	9.600	8.697	-9.4	90.6
d3-MeFOSAA	5.000	5.009	0.2	100.2
EtFOSAA	2.500	2.352	-5.9	94.1
FOSA	2.500	2.299	-8.0	92.0
MeFOSAA	2.500	2.274	-9.0	91.0
PFBA	10.000	9.223	-7.8	92.2
PFBS	2.218	2.057	-7.3	92.7
PFDA	2.500	2.293	-8.3	91.7
PFDoDA	2.500	2.326	-6.9	93.1
PFDS	2.413	2.238	-7.2	92.8
PFHpA	2.500	2.284	-8.6	91.4
PFHpS	2.383	2.292	-3.8	96.2
PFHxA	2.500	2.332	-6.7	93.3
PFHxS	2.285	2.192	-4.1	95.9
PFNA	2.500	2.129	-14.8	85.2
PFNS	2.405	2.321	-3.5	96.5
PFOA	2.500	2.301	-8.0	92.0
PFOS	2.320	2.046	-11.8	88.2

Continuing Calibration Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-CC806
 Lab FileID: 4Q55028.D

PFPeA	5.000	4.600	-8.0	92.0
PFPeS	2.353	2.094	-11.0	89.0
PFTeDA	2.500	2.375	-5.0	95.0
PFTTrDA	2.500	2.388	-4.5	95.5
PFUnDA	2.500	2.479	-0.8	99.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.466	-5.5	94.5
13C3-HFPO-DA	10.000	9.849	-1.5	98.5
9C1-PF3ONS	4.675	4.598	-1.6	98.4
ADONA	4.725	4.967	5.1	105.1
HFPO-DA	5.000	4.724	-5.5	94.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.229	-10.0	90.0
5:3FTCA	62.400	58.507	-6.2	93.8
7:3FTCA	62.400	60.820	-2.5	97.5
d3-MeFOSA	2.500	2.365	-5.4	94.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.781	-4.4	95.6
EtFOSE	12.500	11.655	-6.8	93.2
MeFOSA	5.000	4.708	-5.8	94.2
MeFOSE	12.500	11.828	-5.4	94.6
PFDoDS	2.425	2.249	-7.2	92.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.874	-2.5	97.5
d7-MeFOSE	25.000	24.580	-1.7	98.3
d9-EtFOSE	25.000	24.069	-3.7	96.3
d5-EtFOSA	2.500	2.396	-4.2	95.8
NFDHA	5.000	4.984	-0.3	99.7
PFMBA	5.000	4.537	-9.3	90.7
PFMPA	5.000	4.565	-8.7	91.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.322	-2.9	97.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-CC806
 Lab FileID: 4Q55029.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\121123_1633_S4Q806\s4q806.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\121123_1633_S4Q806\4Q55017.d
 2:D:\MassHunter\Data\121123_1633_S4Q806\4Q55018.d
 3:D:\MassHunter\Data\121123_1633_S4Q806\4Q55019.d
 4:D:\MassHunter\Data\121123_1633_S4Q806\4Q55020.d
 5:D:\MassHunter\Data\121123_1633_S4Q806\4Q55021.d
 6:D:\MassHunter\Data\121123_1633_S4Q806\4Q55022.d
 7:D:\MassHunter\Data\121123_1633_S4Q806\4Q55023.d
 8:D:\MassHunter\Data\121123_1633_S4Q806\4Q55024.d

Data File: 4Q55029
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.344	6.9	106.9
13C2-6:2FTS	5.000	5.226	4.5	104.5
13C2-8:2FTS	5.000	5.247	4.9	104.9
13C2-PFDoDA	1.250	1.229	-1.7	98.3
13C2-PFTeDA	1.250	1.167	-6.6	93.4
13C3-PFBS	2.500	2.545	1.8	101.8
13C3-PFHxS	2.500	2.670	6.8	106.8
13C4-PFBA	10.000	10.044	0.4	100.4
13C4-PFHpA	2.500	2.591	3.6	103.6
13C5-PFHxA	2.500	2.524	1.0	101.0
13C5-PFPeA	5.000	5.120	2.4	102.4
13C6-PFDA	1.250	1.240	-0.8	99.2
13C7-PFUnDA	1.250	1.311	4.9	104.9
13C8-FOSA	2.500	2.367	-5.3	94.7
13C8-PFOA	2.500	2.492	-0.3	99.7
13C8-PFOS	2.500	2.418	-3.3	96.7
13C9-PFNA	1.250	1.295	3.6	103.6
4:2FTS	0.750	0.690	-8.1	91.9
6:2FTS	0.760	0.749	-1.5	98.5
8:2FTS	0.768	0.761	-0.9	99.1
d3-MeFOSAA	5.000	4.760	-4.8	95.2
EtFOSAA	0.200	0.215	7.4	107.4
FOSA	0.200	0.205	2.3	102.3
MeFOSAA	0.200	0.238	19.0	119.0
PFBA	0.800	0.764	-4.5	95.5
PFBS	0.177	0.172	-2.6	97.4
PFDA	0.200	0.184	-8.1	91.9
PFDoDA	0.200	0.184	-8.0	92.0
PFDS	0.193	0.175	-9.3	90.7
PFHpA	0.200	0.185	-7.6	92.4
PFHpS	0.191	0.167	-12.4	87.6
PFHxA	0.200	0.177	-11.5	88.5
PFHxS	0.183	0.196	7.0	107.0
PFNA	0.200	0.218	9.0	109.0
PFNS	0.192	0.208	8.1	108.1
PFOA	0.200	0.203	1.4	101.4
PFOS	0.186	0.208	11.8	111.8

Continuing Calibration Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-CC806
 Lab FileID: 4Q55029.D

PFPeA	0.400	0.379	-5.2	94.8
PFPeS	0.188	0.148	-21.5	78.5
PFTeDA	0.200	0.195	-2.7	97.3
PFTTrDA	0.200	0.198	-0.8	99.2
PFUnDA	0.200	0.186	-6.8	93.2
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.381	0.8	100.8
13C3-HFPO-DA	10.000	10.132	1.3	101.3
9C1-PF3ONS	0.374	0.379	1.4	101.4
ADONA	0.378	0.396	4.8	104.8
HFPO-DA	0.400	0.385	-3.7	96.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.956	-4.2	95.8
5:3FTCA	4.992	4.523	-9.4	90.6
7:3FTCA	4.992	4.588	-8.1	91.9
d3-MeFOSA	2.500	2.184	-12.6	87.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.372	-7.0	93.0
EtFOSE	1.000	1.158	15.8	115.8
MeFOSA	0.400	0.437	9.2	109.2
MeFOSE	1.000	0.964	-3.6	96.4
PFDoDS	0.194	0.177	-8.7	91.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.614	-7.7	92.3
d7-MeFOSE	25.000	23.172	-7.3	92.7
d9-EtFOSE	25.000	22.785	-8.9	91.1
d5-EtFOSA	2.500	2.269	-9.2	90.8
NFDHA	0.400	0.437	9.3	109.3
PFMBA	0.400	0.369	-7.6	92.4
PFMPA	0.400	0.383	-4.3	95.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.361	1.3	101.3

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-CC806
 Lab FileID: 4Q55036.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\121123_1633_S4Q806\s4q806.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\121123_1633_S4Q806\4Q55017.d
 2:D:\MassHunter\Data\121123_1633_S4Q806\4Q55018.d
 3:D:\MassHunter\Data\121123_1633_S4Q806\4Q55019.d
 4:D:\MassHunter\Data\121123_1633_S4Q806\4Q55020.d
 5:D:\MassHunter\Data\121123_1633_S4Q806\4Q55021.d
 6:D:\MassHunter\Data\121123_1633_S4Q806\4Q55022.d
 7:D:\MassHunter\Data\121123_1633_S4Q806\4Q55023.d
 8:D:\MassHunter\Data\121123_1633_S4Q806\4Q55024.d

Data File: 4Q55036
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.951	-1.0	99.0
13C2-6:2FTS	5.000	4.713	-5.7	94.3
13C2-8:2FTS	5.000	4.499	-10.0	90.0
13C2-PFDoDA	1.250	1.251	0.1	100.1
13C2-PFTeDA	1.250	1.204	-3.6	96.4
13C3-PFBS	2.500	2.485	-0.6	99.4
13C3-PFHxS	2.500	2.492	-0.3	99.7
13C4-PFBA	10.000	9.938	-0.6	99.4
13C4-PFHpA	2.500	2.515	0.6	100.6
13C5-PFHxA	2.500	2.441	-2.4	97.6
13C5-PFPeA	5.000	4.985	-0.3	99.7
13C6-PFDA	1.250	1.284	2.8	102.8
13C7-PFUnDA	1.250	1.308	4.6	104.6
13C8-FOSA	2.500	2.312	-7.5	92.5
13C8-PFOA	2.500	2.430	-2.8	97.2
13C8-PFOS	2.500	2.440	-2.4	97.6
13C9-PFNA	1.250	1.211	-3.1	96.9
4:2FTS	9.375	8.391	-10.5	89.5
6:2FTS	9.500	9.117	-4.0	96.0
8:2FTS	9.600	8.769	-8.7	91.3
d3-MeFOSAA	5.000	4.666	-6.7	93.3
EtFOSAA	2.500	2.463	-1.5	98.5
FOSA	2.500	2.357	-5.7	94.3
MeFOSAA	2.500	2.412	-3.5	96.5
PFBA	10.000	9.257	-7.4	92.6
PFBS	2.218	1.942	-12.5	87.5
PFDA	2.500	2.149	-14.0	86.0
PFDoDA	2.500	2.292	-8.3	91.7
PFDS	2.413	2.104	-12.8	87.2
PFHpA	2.500	2.335	-6.6	93.4
PFHpS	2.383	2.295	-3.7	96.3
PFHxA	2.500	2.304	-7.8	92.2
PFHxS	2.285	2.130	-6.8	93.2
PFNA	2.500	2.205	-11.8	88.2
PFNS	2.405	2.375	-1.2	98.8
PFOA	2.500	2.265	-9.4	90.6
PFOS	2.320	2.105	-9.3	90.7

Continuing Calibration Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-CC806
 Lab FileID: 4Q55036.D

PFPeA	5.000	4.659	-6.8	93.2
PFPeS	2.353	2.058	-12.5	87.5
PFTeDA	2.500	2.389	-4.4	95.6
PFTTrDA	2.500	2.325	-7.0	93.0
PFUnDA	2.500	2.296	-8.2	91.8
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	4.621	-2.2	97.8
13C3-HFPO-DA	10.000	9.930	-0.7	99.3
9C1-PF3ONS	4.675	4.773	2.1	102.1
ADONA	4.725	4.966	5.1	105.1
HFPO-DA	5.000	4.730	-5.4	94.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.237	-10.0	90.0
5:3FTCA	62.400	58.414	-6.4	93.6
7:3FTCA	62.400	61.123	-2.0	98.0
d3-MeFOSA	2.500	2.217	-11.3	88.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.699	-6.0	94.0
EtFOSE	12.500	11.762	-5.9	94.1
MeFOSA	5.000	4.972	-0.6	99.4
MeFOSE	12.500	11.822	-5.4	94.6
PFDODS	2.425	2.215	-8.7	91.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.600	-8.0	92.0
d7-MeFOSE	25.000	23.112	-7.6	92.4
d9-EtFOSE	25.000	22.531	-9.9	90.1
d5-EtFOSA	2.500	2.332	-6.7	93.3
NFDHA	5.000	5.046	0.9	100.9
PFMBA	5.000	4.585	-8.3	91.7
PFMPA	5.000	4.580	-8.4	91.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.321	-2.9	97.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-ECC806
 Lab FileID: 4Q55046.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\121123_1633_S4Q806\s4q806.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\121123_1633_S4Q806\4Q55017.d
 2:D:\MassHunter\Data\121123_1633_S4Q806\4Q55018.d
 3:D:\MassHunter\Data\121123_1633_S4Q806\4Q55019.d
 4:D:\MassHunter\Data\121123_1633_S4Q806\4Q55020.d
 5:D:\MassHunter\Data\121123_1633_S4Q806\4Q55021.d
 6:D:\MassHunter\Data\121123_1633_S4Q806\4Q55022.d
 7:D:\MassHunter\Data\121123_1633_S4Q806\4Q55023.d
 8:D:\MassHunter\Data\121123_1633_S4Q806\4Q55024.d

Data File: 4Q55046
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.946	-1.1	98.9
13C2-6:2FTS	5.000	4.461	-10.8	89.2
13C2-8:2FTS	5.000	4.256	-14.9	85.1
13C2-PFDoDA	1.250	1.243	-0.5	99.5
13C2-PFTeDA	1.250	1.220	-2.4	97.6
13C3-PFBS	2.500	2.469	-1.3	98.7
13C3-PFHxS	2.500	2.484	-0.6	99.4
13C4-PFBA	10.000	9.812	-1.9	98.1
13C4-PFHpA	2.500	2.539	1.6	101.6
13C5-PFHxA	2.500	2.469	-1.2	98.8
13C5-PFPeA	5.000	4.944	-1.1	98.9
13C6-PFDA	1.250	1.251	0.1	100.1
13C7-PFUnDA	1.250	1.273	1.9	101.9
13C8-FOSA	2.500	2.391	-4.4	95.6
13C8-PFOA	2.500	2.477	-0.9	99.1
13C8-PFOS	2.500	2.505	0.2	100.2
13C9-PFNA	1.250	1.238	-1.0	99.0
4:2FTS	9.375	8.244	-12.1	87.9
6:2FTS	9.500	9.039	-4.9	95.1
8:2FTS	9.600	9.647	0.5	100.5
d3-MeFOSAA	5.000	4.676	-6.5	93.5
EtFOSAA	2.500	2.337	-6.5	93.5
FOSA	2.500	2.262	-9.5	90.5
MeFOSAA	2.500	2.258	-9.7	90.3
PFBA	10.000	9.264	-7.4	92.6
PFBS	2.218	1.941	-12.5	87.5
PFDA	2.500	2.245	-10.2	89.8
PFDoDA	2.500	2.388	-4.5	95.5
PFDS	2.413	2.171	-10.0	90.0
PFHpA	2.500	2.299	-8.0	92.0
PFHpS	2.383	2.102	-11.8	88.2
PFHxA	2.500	2.281	-8.7	91.3
PFHxS	2.285	2.173	-4.9	95.1
PFNA	2.500	2.202	-11.9	88.1
PFNS	2.405	2.314	-3.8	96.2
PFOA	2.500	2.245	-10.2	89.8
PFOS	2.320	2.082	-10.3	89.7

Continuing Calibration Summary

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q806-ECC806
 Lab FileID: 4Q55046.D

PFPeA	5.000	4.709	-5.8	94.2
PFPeS	2.353	2.122	-9.8	90.2
PFTeDA	2.500	2.302	-7.9	92.1
PFTTrDA	2.500	2.357	-5.7	94.3
PFUnDA	2.500	2.421	-3.2	96.8
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	4.631	-2.0	98.0
13C3-HFPO-DA	10.000	9.714	-2.9	97.1
9C1-PF3ONS	4.675	4.733	1.3	101.3
ADONA	4.725	5.038	6.6	106.6
HFPO-DA	5.000	4.806	-3.9	96.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.269	-9.7	90.3
5:3FTCA	62.400	58.767	-5.8	94.2
7:3FTCA	62.400	58.110	-6.9	93.1
d3-MeFOSA	2.500	2.310	-7.6	92.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.652	-7.0	93.0
EtFOSE	12.500	11.310	-9.5	90.5
MeFOSA	5.000	4.548	-9.0	91.0
MeFOSE	12.500	11.842	-5.3	94.7
PFDODS	2.425	2.143	-11.6	88.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.693	-6.1	93.9
d7-MeFOSE	25.000	23.772	-4.9	95.1
d9-EtFOSE	25.000	23.625	-5.5	94.5
d5-EtFOSA	2.500	2.515	0.6	100.6
NFDHA	5.000	5.028	0.6	100.6
PFMBA	5.000	4.627	-7.5	92.5
PFMPA	5.000	4.603	-7.9	92.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.237	-4.8	95.2

CC Criteria: +/- 30%

Run Sequence Report

Job Number: FC11787
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q806	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
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Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q806-RT	4Q55014.D	12/11/23 14:11	n/a	Retention Time Marker
S4Q806-RT	4Q55015.D	12/11/23 14:26	n/a	Retention Time Marker
S4Q806-IC806	4Q55016.D	12/11/23 14:40	n/a	Mass Calibration Verification
S4Q806-IC806	4Q55017.D	12/11/23 14:55	n/a	Initial cal 1
S4Q806-IC806	4Q55018.D	12/11/23 15:10	n/a	Initial cal 2
S4Q806-IC806	4Q55019.D	12/11/23 15:25	n/a	Initial cal 3
S4Q806-ICC806	4Q55020.D	12/11/23 15:39	n/a	Initial cal 4
S4Q806-IC806	4Q55021.D	12/11/23 15:54	n/a	Initial cal 5
S4Q806-IC806	4Q55022.D	12/11/23 16:09	n/a	Initial cal 6
S4Q806-IC806	4Q55023.D	12/11/23 16:24	n/a	Initial cal 7
S4Q806-IC806	4Q55024.D	12/11/23 16:43	n/a	Initial cal 8
S4Q806-IBLK	4Q55025.D	12/11/23 16:58	n/a	Instrument Blank
S4Q806-IBLK	4Q55025.D	12/11/23 16:58	n/a	Instrument Blank
S4Q806-ICV806	4Q55026.D	12/11/23 17:13	n/a	Initial cal verification 4
S4Q806-ICV806	4Q55027.D	12/11/23 17:27	n/a	Initial cal verification 20
S4Q806-CC806	4Q55028.D	12/11/23 17:42	n/a	Continuing cal 4
S4Q806-CC806	4Q55029.D	12/11/23 17:57	n/a	Continuing cal 1.0LL
ZZZZZZ	4Q55030.D	12/11/23 18:12	OP523	(unrelated sample)
FC11645-22	4Q55031.D	12/11/23 18:26	OP523	(used for QC only; not part of job FC11787)
OP523-DUP	4Q55032.D	12/11/23 18:41	OP523	Duplicate
ZZZZZZ	4Q55033.D	12/11/23 18:56	OP523	(unrelated sample)
FC11753-3	4Q55034.D	12/11/23 19:11	OP524	(used for QC only; not part of job FC11787)
OP524-MS	4Q55035.D	12/11/23 19:25	OP524	Matrix Spike
S4Q806-CC806	4Q55036.D	12/11/23 19:40	n/a	Continuing cal 4
S4Q806-ICCB	4Q55037.D	12/11/23 19:55	n/a	Continuing Calibration Blank
OP552-BS	4Q55038.D	12/11/23 20:10	OP552	Blank Spike
OP552-LLBS	4Q55039.D	12/11/23 20:24	OP552	Blank Spike
OP552-MB	4Q55040.D	12/11/23 20:39	OP552	Method Blank
FC11787-1	4Q55041.D	12/11/23 20:54	OP552	AF-RHMW12A-WGN01LF-2312
OP552-DUP	4Q55042.D	12/11/23 21:09	OP552	Duplicate
FC11787-2	4Q55043.D	12/11/23 21:23	OP552	AF-RHMW12A-WGFD01LF-2312
OP552-MS	4Q55044.D	12/11/23 21:38	OP552	Matrix Spike
ZZZZZZ	4Q55045.D	12/11/23 21:53	OP552	(unrelated sample)
S4Q806-ECC806	4Q55046.D	12/11/23 22:07	n/a	Ending cal 4
S4Q806-ICCB	4Q55047.D	12/11/23 22:22	n/a	Continuing Calibration Blank

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55041.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 8:54:17 PM
 Sample Name : fc11787-1
 Vial : P4-B6
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP552,S4Q806,555,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.765	216.8 -> 171.9	131591	10.00 µg/L	0.066
M5-PFPeA	4.200	268.3 -> 223.0	64285	5.00 µg/L	0.025
M5-PFHxA	5.359	318.0 -> 273.0	54372	2.50 µg/L	0.012
M4-PFHpA	6.304	367.1 -> 322.0	52503	2.50 µg/L	0.012
M8-PFOA	6.976	421.1 -> 376.0	84257	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	31475	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	20390	1.25 µg/L	0.000
M7-PFUnDA	8.449	570.0 -> 525.1	22021	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	22820	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	19942	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	12460	2.50 µg/L	0.000
M3-PFBS	5.227	302.1 -> 79.9	14778	2.50 µg/L	0.025
M3-PFHxS	7.042	402.1 -> 79.9	12232	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	12618	2.50 µg/L	0.000
M2-4:2FTS	5.071	329.1 -> 80.9	1282	5.00 µg/L	0.012
M2-6:2FTS	6.761	429.1 -> 80.9	3101	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	3678	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	23294	5.00 µg/L	0.000
M3-HFPO-DA	5.714	286.9 -> 168.9	50521	10.00 µg/L	0.013
M5-EtFOSAA	8.283	589.2 -> 419.0	17681	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	36092	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	43964	25.00 µg/L	0.000
M5-EtFOSA	11.398	531.1 -> 219.0	6573	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	6282	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	12857	2.50 µg/L	0.000
13C3-PFBA	2.768	216.0 -> 172.0	90168	5.00 µg/L	0.065
18O2-PFHxS	7.041	403.0 -> 83.9	9433	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	115412	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	30650	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	40777	1.25 µg/L	0.000
13C2-PFHxA	5.360	315.1 -> 270.0	74516	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.071	329.1 -> 80.9	1282	3.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 70.2%		
13C2-6:2FTS	6.761	429.1 -> 80.9	3101	3.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 76.9%		
13C2-8:2FTS	7.804	529.1 -> 80.9	3678	3.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 69.2%		
13C2-PFDoDA	8.867	615.1 -> 570.0	22820	0.79 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 63.2%		
13C2-PFTeDA	9.637	715.2 -> 670.0	19942	0.70 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 56.1%		
13C3-PFBS	5.227	302.1 -> 79.9	14778	1.97 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 78.9%		
13C3-PFHxS	7.042	402.1 -> 79.9	12232	2.10 µg/L	0.000



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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 = 84.1%	
13C4-PFBA	2.765	216.8 -> 171.9	131591	6.78 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 67.8%	
13C4-PFHpA	6.304	367.1 -> 322.0	52503	1.98 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.1%	
13C5-PFHxA	5.359	318.0 -> 273.0	54372	1.97 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.6%	
13C5-PFPeA	4.200	268.3 -> 223.0	64285	3.97 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 79.4%	
13C6-PFDA	8.004	519.1 -> 474.1	20390	0.92 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 73.6%	
13C7-PFUnDA	8.449	570.0 -> 525.1	22021	0.90 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 71.7%	
13C8-FOSA	9.794	506.1 -> 77.8	12460	1.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 68.7%	
13C8-PFOA	6.976	421.1 -> 376.0	84257	1.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.3%	
13C8-PFOS	8.117	507.1 -> 79.9	12618	1.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.6%	
13C9-PFNA	7.521	472.1 -> 427.0	31475	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 76.6%	
d3-MeFOSAA	8.086	573.2 -> 419.0	23294	3.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 68.4%	
13C3-HFPO-DA	5.714	286.9 -> 168.9	50521	7.95 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 79.5%	
d3-MeFOSA	11.126	515.0 -> 219.0	6282	1.68 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.3%	
d5-EtFOSAA	8.283	589.2 -> 419.0	17681	3.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 63.6%	
d7-MeFOSE	11.022	623.2 -> 58.9	36092	13.81 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 55.2%	
d9-EtFOSE	11.306	639.2 -> 58.9	43964	16.93 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 67.7%	
d5-EtFOSA	11.398	531.1 -> 219.0	6573	1.83 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.4%	

Target Compounds

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

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Perfluorinated Compounds by LC/MS/MS

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

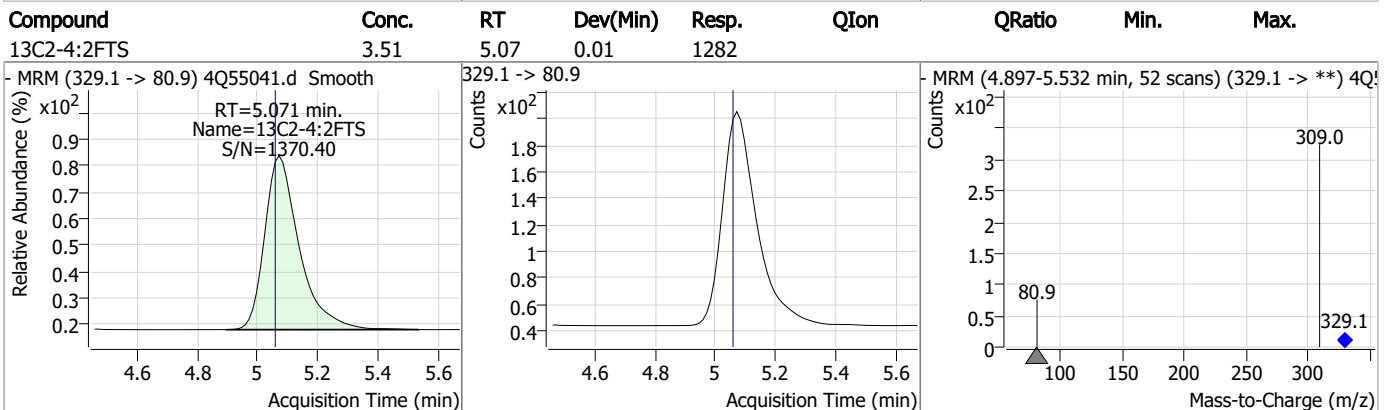
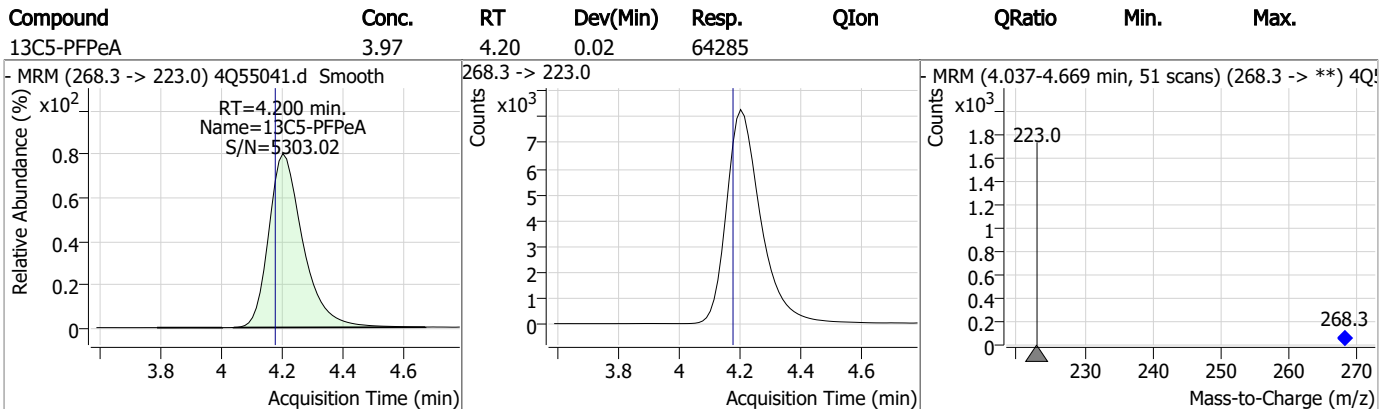
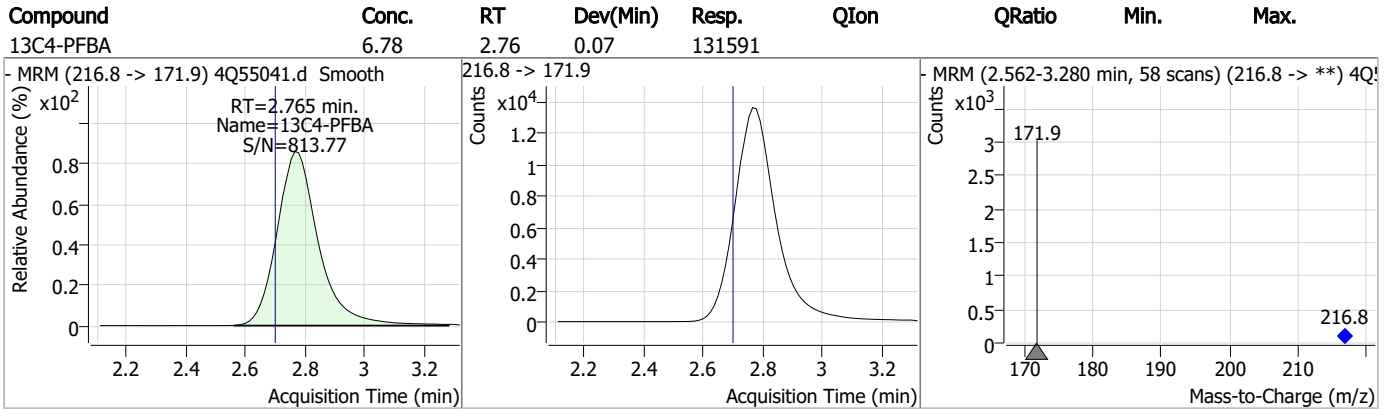
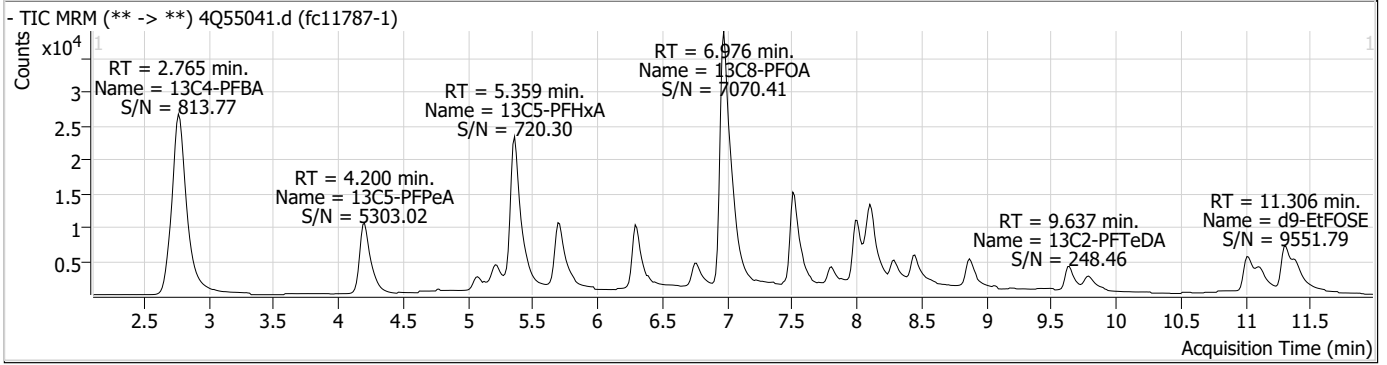
Perfluorinated Compounds by LC/MS/MS

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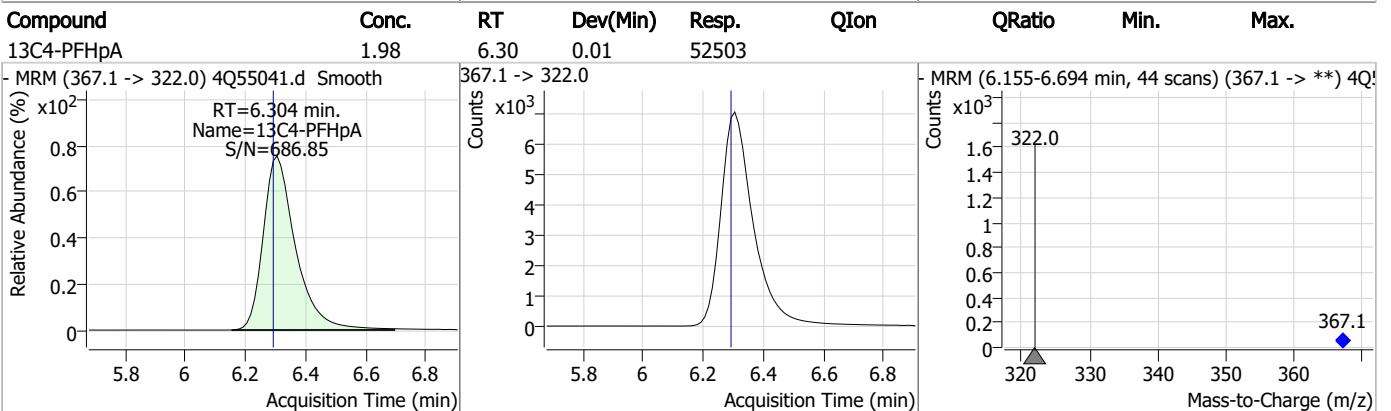
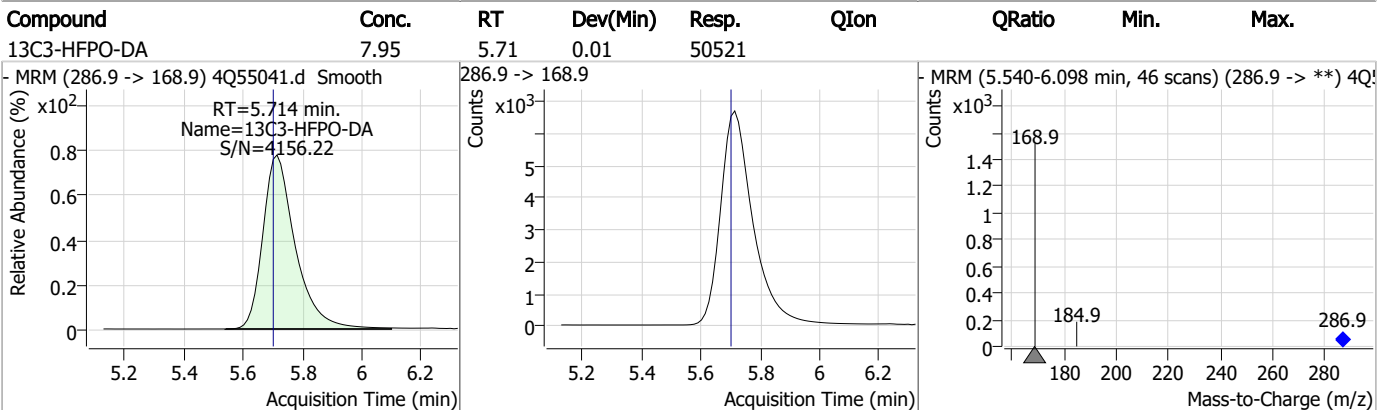
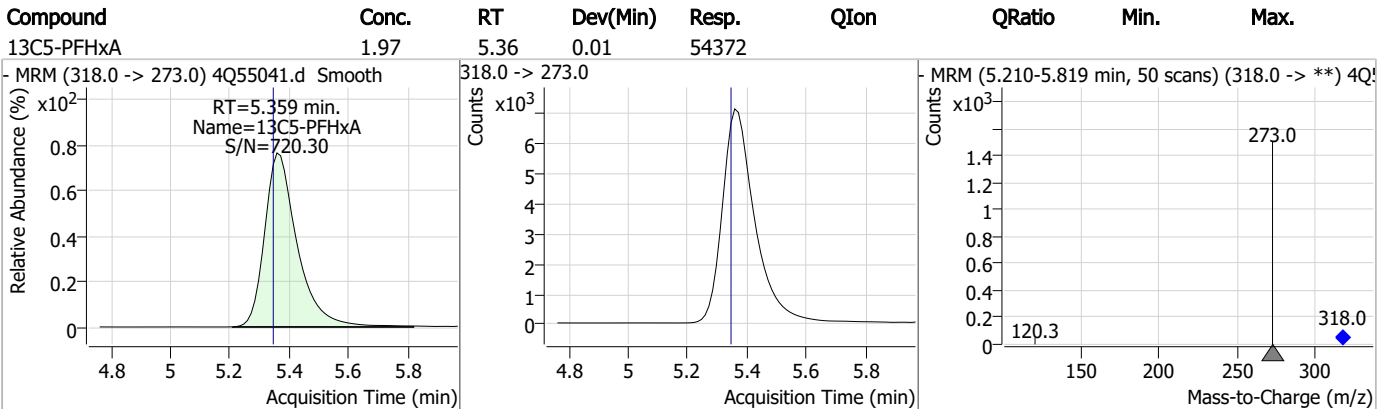
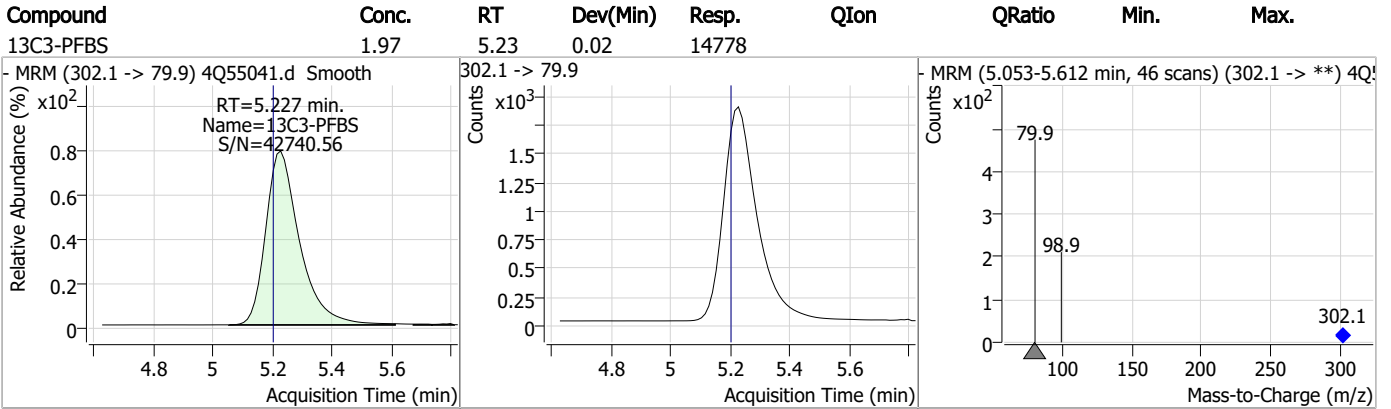
7.1.1
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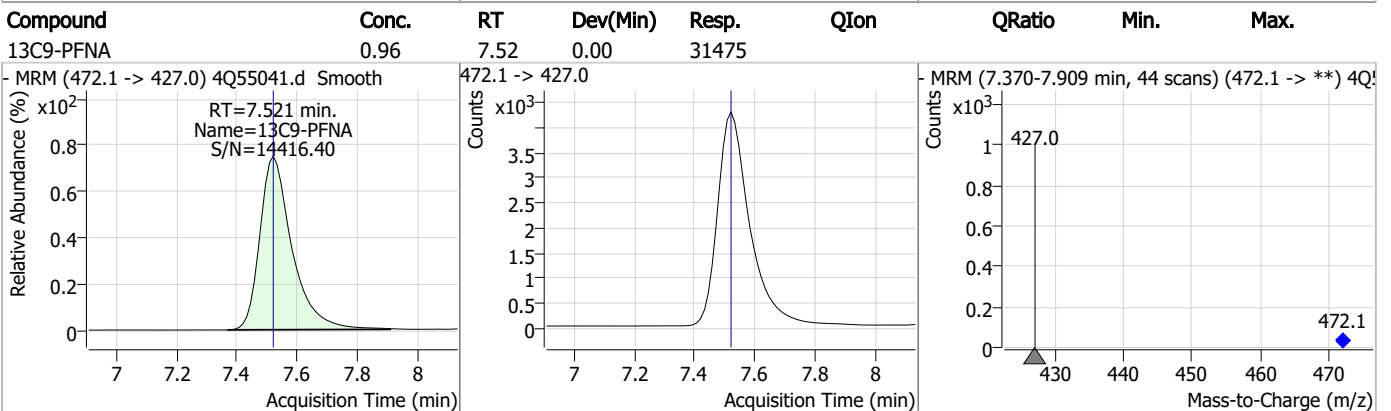
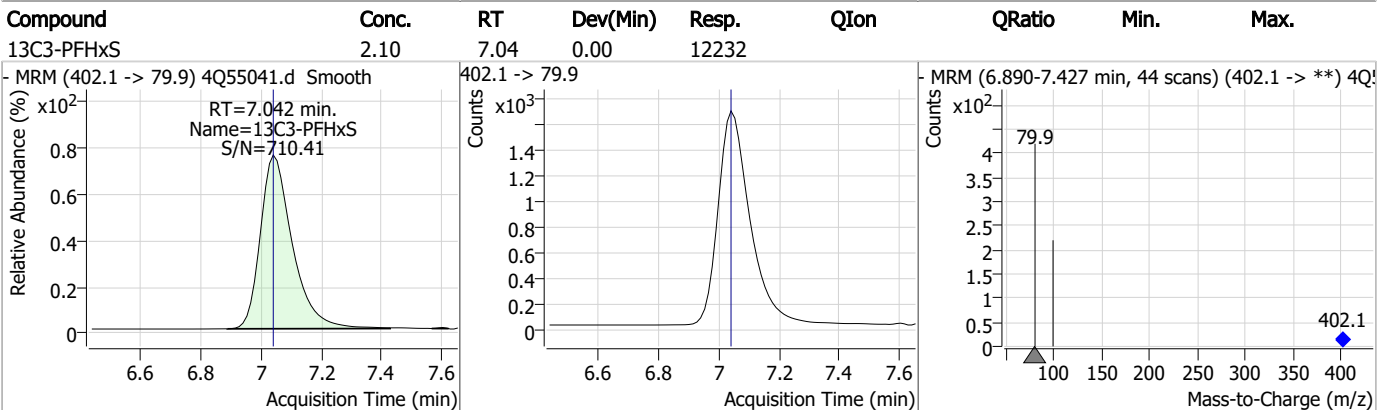
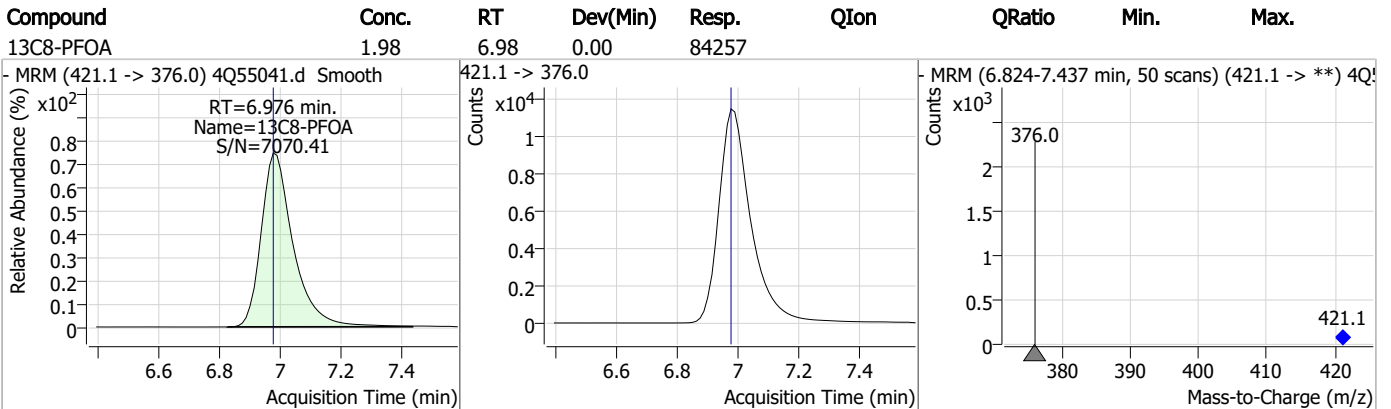
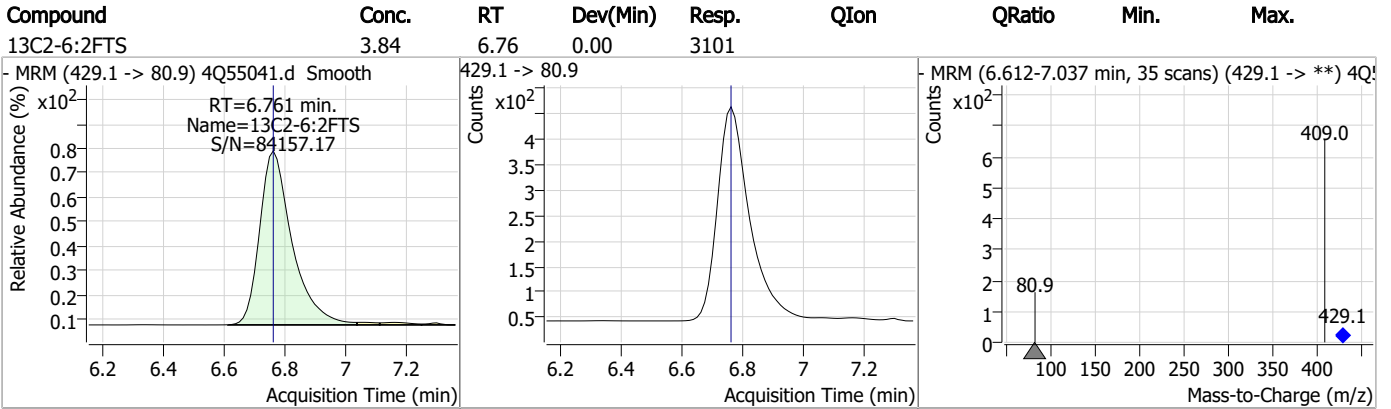
Perfluorinated Compounds by LC/MS/MS



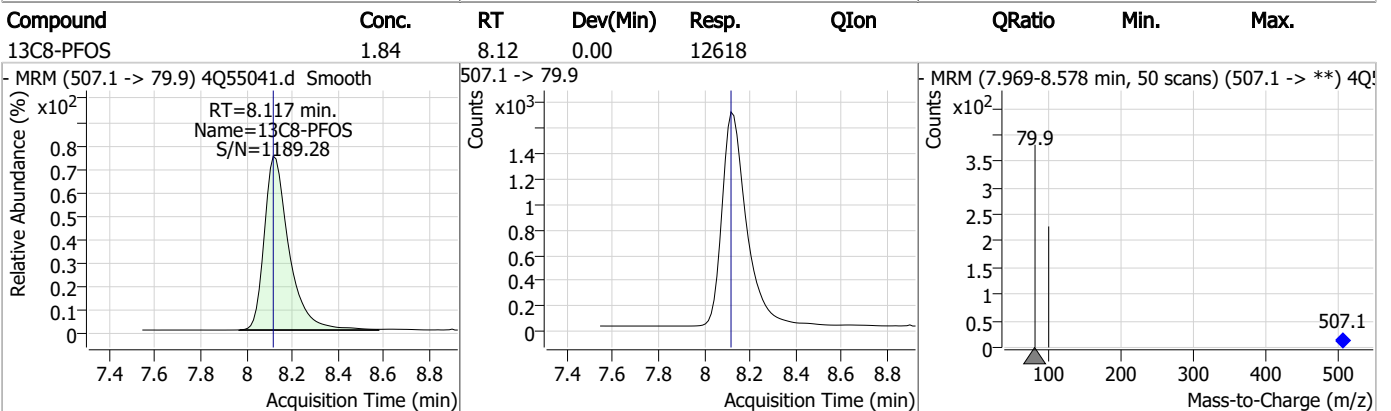
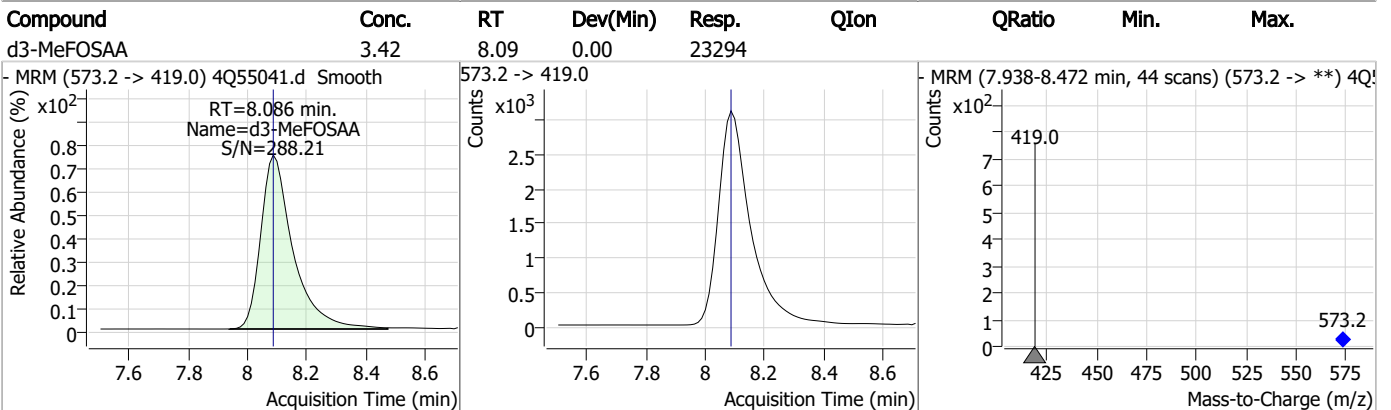
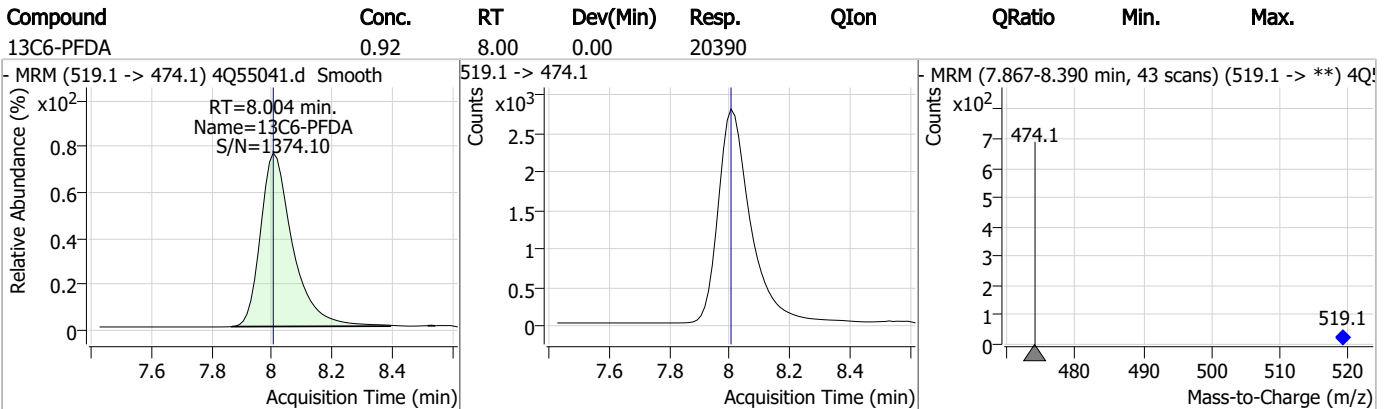
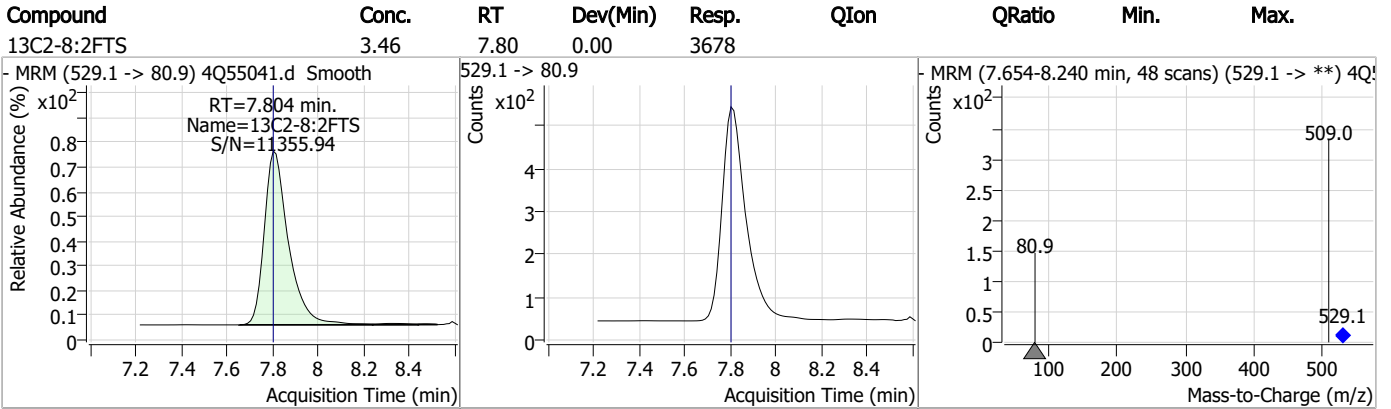
Perfluorinated Compounds by LC/MS/MS



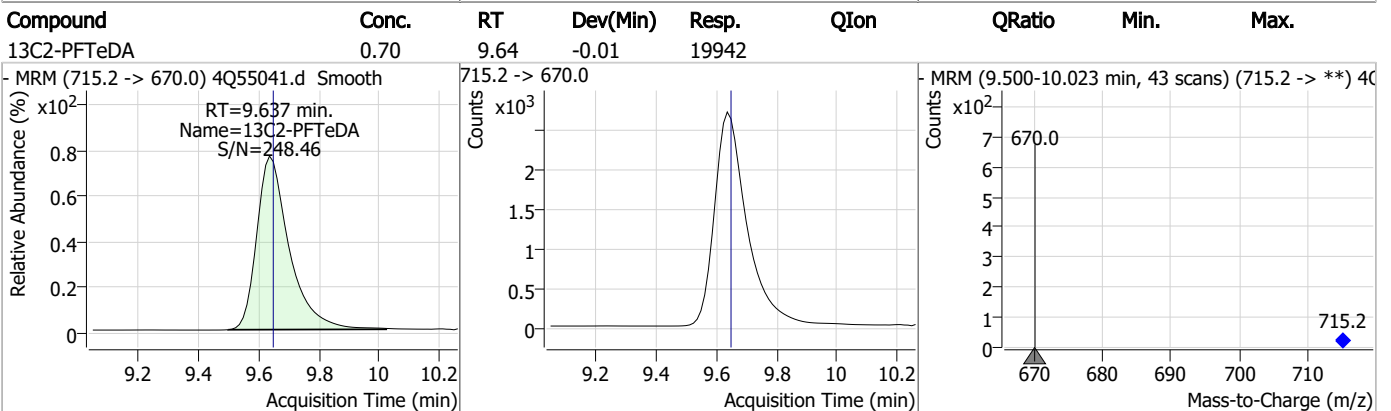
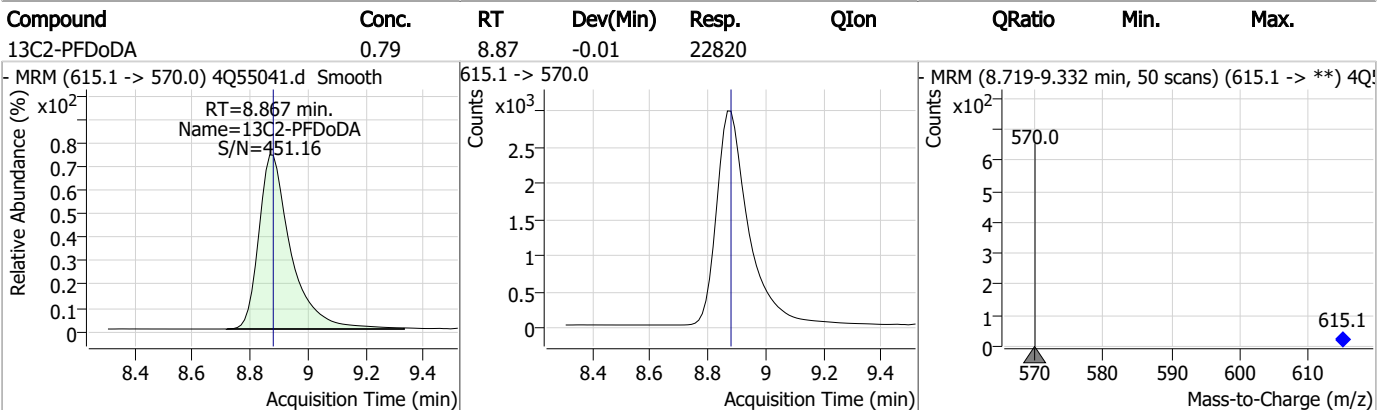
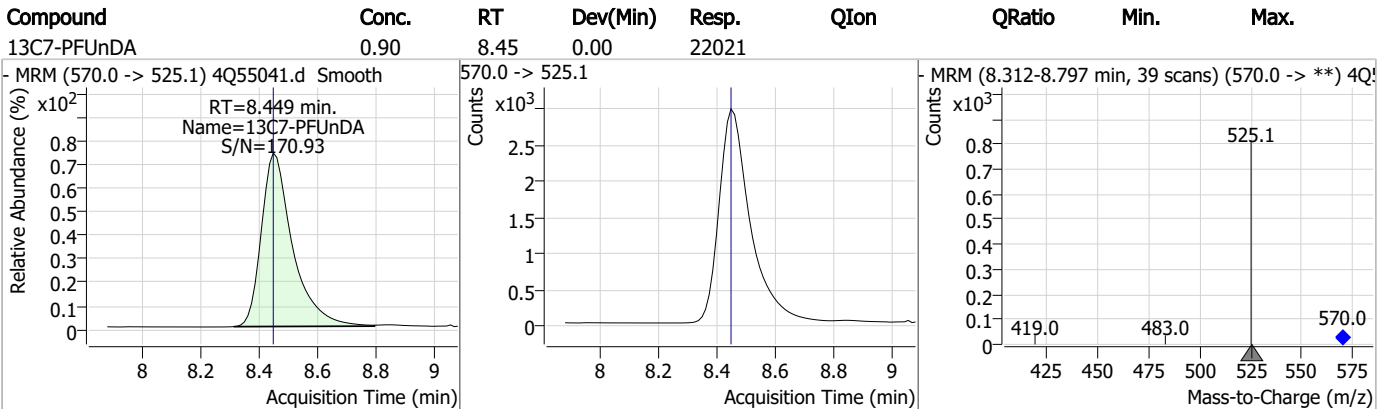
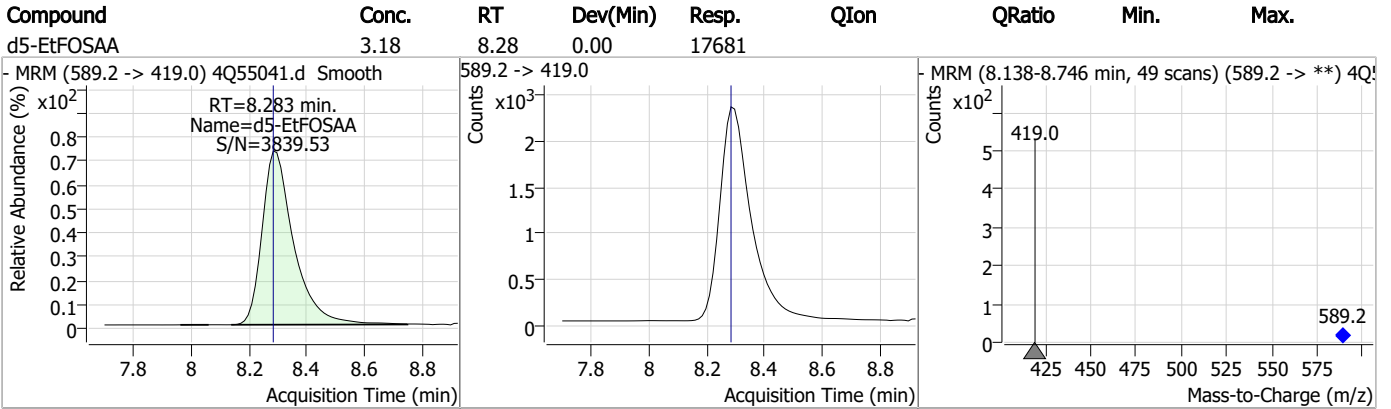
Perfluorinated Compounds by LC/MS/MS



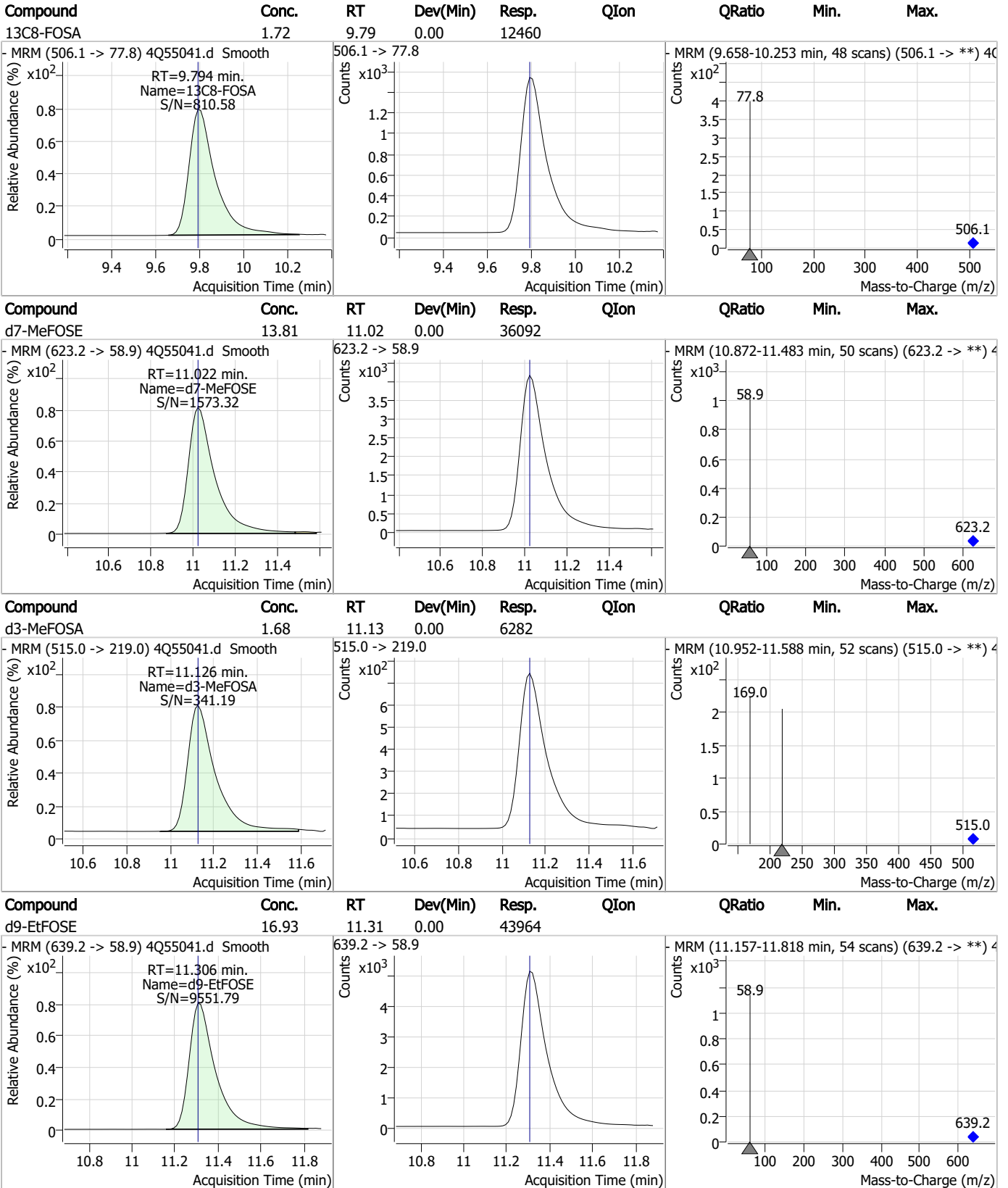
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



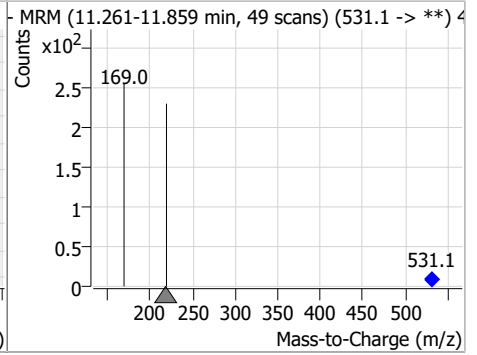
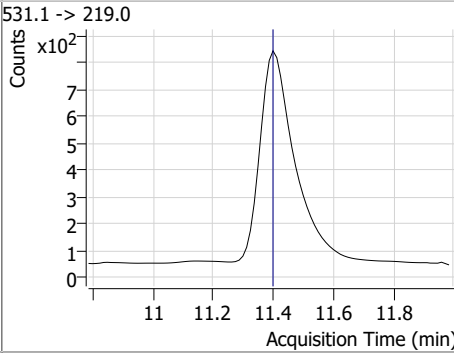
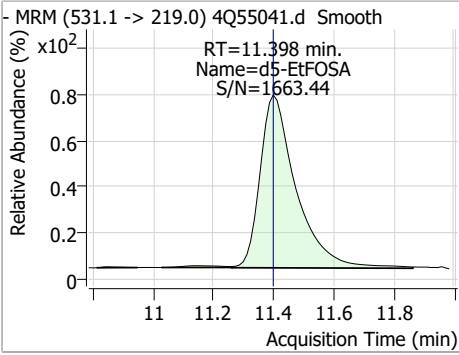
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	1.83	11.40	0.00	6573				



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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55043.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 9:23:48 PM
 Sample Name : fc11787-2
 Vial : P4-B8
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP552,S4Q806,545,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.765	216.8 -> 171.9	119681	10.00 µg/L	0.066
M5-PFPeA	4.200	268.3 -> 223.0	65323	5.00 µg/L	0.025
M5-PFHxA	5.359	318.0 -> 273.0	54630	2.50 µg/L	0.012
M4-PFHpA	6.304	367.1 -> 322.0	53719	2.50 µg/L	0.012
M8-PFOA	6.976	421.1 -> 376.0	83826	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	31958	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	20596	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	24216	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	24154	1.25 µg/L	0.000
M2-PFTeDA	9.637	715.2 -> 670.0	20263	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	12188	2.50 µg/L	0.000
M3-PFBS	5.215	302.1 -> 79.9	14194	2.50 µg/L	0.012
M3-PFHxS	7.042	402.1 -> 79.9	12462	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	13019	2.50 µg/L	0.000
M2-4:2FTS	5.071	329.1 -> 80.9	1286	5.00 µg/L	0.012
M2-6:2FTS	6.761	429.1 -> 80.9	3146	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	3682	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	24769	5.00 µg/L	0.000
M3-HFPO-DA	5.714	286.9 -> 168.9	51432	10.00 µg/L	0.013
M5-EtFOSAA	8.283	589.2 -> 419.0	20298	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	31714	25.00 µg/L	0.000
M9-EtFOSE	11.319	639.2 -> 58.9	40598	25.00 µg/L	0.012
M5-EtFOSA	11.397	531.1 -> 219.0	5931	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	6015	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	12803	2.50 µg/L	0.000
13C3-PFBA	2.768	216.0 -> 172.0	85545	5.00 µg/L	0.065
18O2-PFHxS	7.041	403.0 -> 83.9	9166	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	115045	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	29162	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	39453	1.25 µg/L	0.000
13C2-PFHxA	5.360	315.1 -> 270.0	73002	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.071	329.1 -> 80.9	1286	3.63 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 72.5%		
13C2-6:2FTS	6.761	429.1 -> 80.9	3146	4.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.3%		
13C2-8:2FTS	7.804	529.1 -> 80.9	3682	3.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 71.3%		
13C2-PFDoDA	8.880	615.1 -> 570.0	24154	0.88 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 70.3%		
13C2-PFTeDA	9.637	715.2 -> 670.0	20263	0.75 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 59.9%		
13C3-PFBS	5.215	302.1 -> 79.9	14194	1.95 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 78.0%		
13C3-PFHxS	7.042	402.1 -> 79.9	12462	2.20 µg/L	0.000

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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 = 88.2%	
13C4-PFBA	2.765	216.8 -> 171.9	119681	6.50 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 65.0%	
13C4-PFHpA	6.304	367.1 -> 322.0	53719	2.07 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.6%	
13C5-PFHxA	5.359	318.0 -> 273.0	54630	2.02 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.6%	
13C5-PFPeA	4.200	268.3 -> 223.0	65323	4.12 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.4%	
13C6-PFDA	8.004	519.1 -> 474.1	20596	0.98 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 78.1%	
13C7-PFUnDA	8.448	570.0 -> 525.1	24216	1.04 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 82.9%	
13C8-FOSA	9.794	506.1 -> 77.8	12188	1.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 67.5%	
13C8-PFOA	6.976	421.1 -> 376.0	83826	1.98 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 79.2%	
13C8-PFOS	8.117	507.1 -> 79.9	13019	1.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.3%	
13C9-PFNA	7.521	472.1 -> 427.0	31958	1.00 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 80.4%	
d3-MeFOSAA	8.086	573.2 -> 419.0	24769	3.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 73.1%	
13C3-HFPO-DA	5.714	286.9 -> 168.9	51432	8.27 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 82.7%	
d3-MeFOSA	11.126	515.0 -> 219.0	6015	1.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 64.7%	
d5-EtFOSAA	8.283	589.2 -> 419.0	20298	3.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 73.3%	
d7-MeFOSE	11.022	623.2 -> 58.9	31714	12.18 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 48.7%	
d9-EtFOSE	11.319	639.2 -> 58.9	40598	15.70 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 62.8%	
d5-EtFOSA	11.397	531.1 -> 219.0	5931	1.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 66.5%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.391	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	4.189	498.9 -> 98.8	873	0.07	µg/L	100
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	9.180	663.0 -> 619.0	0		µg/L	m
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

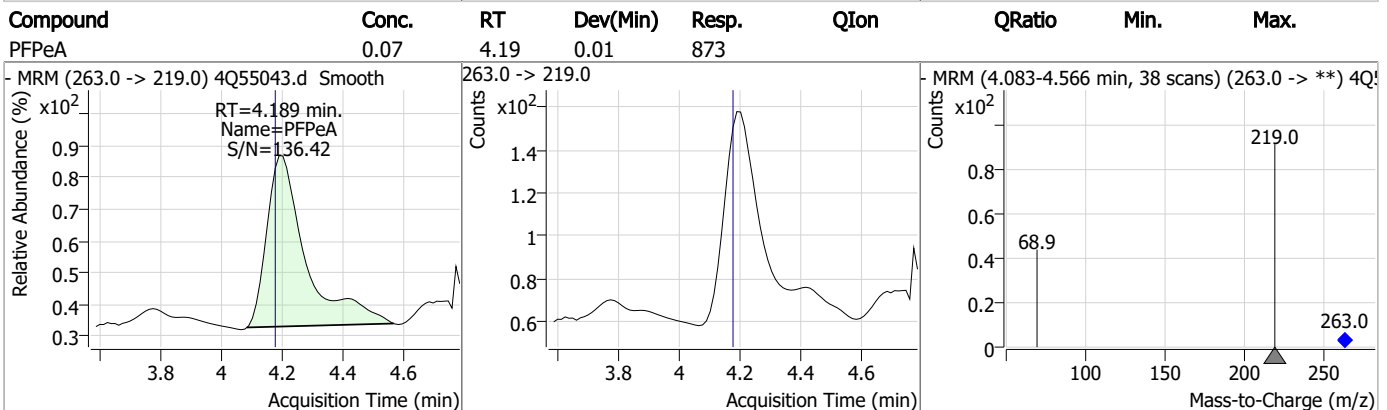
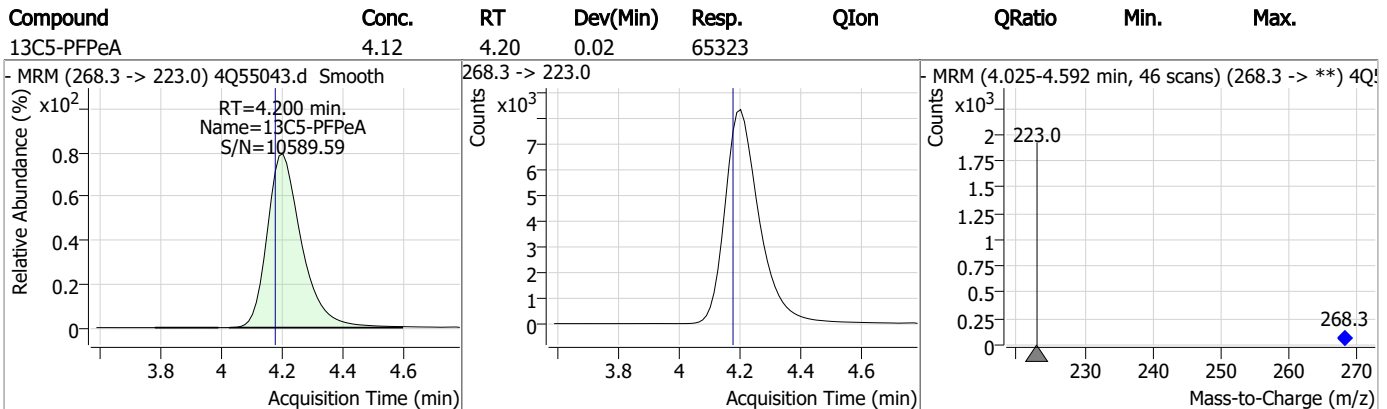
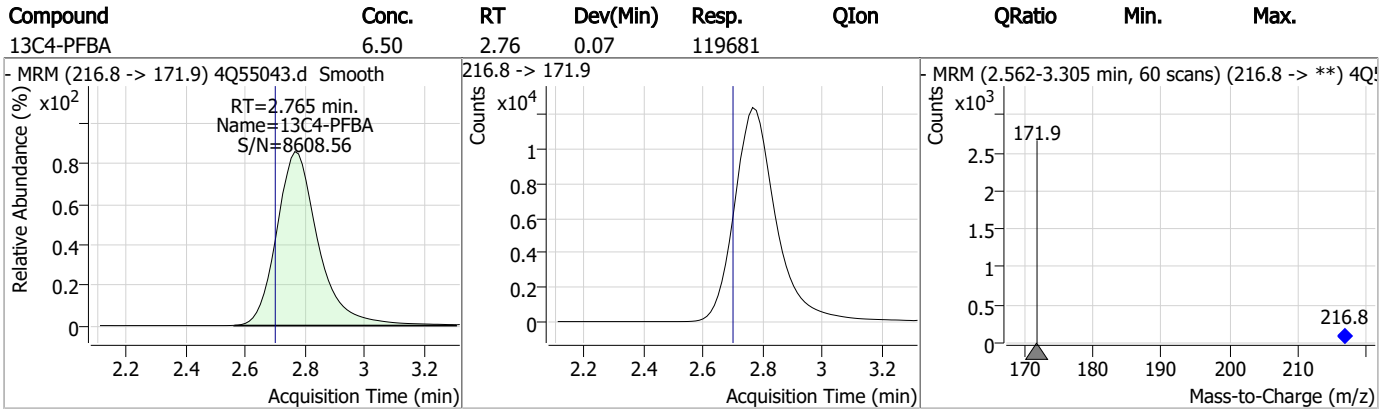
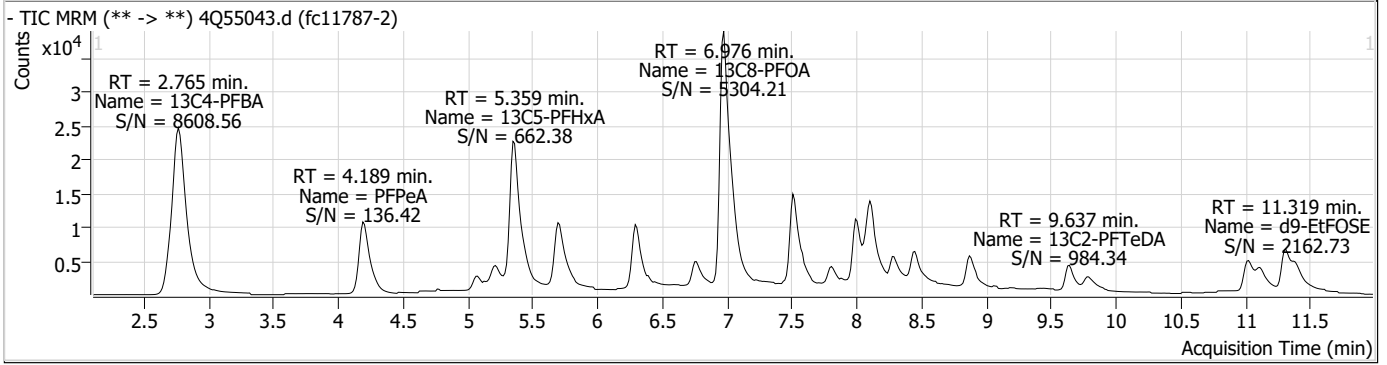
Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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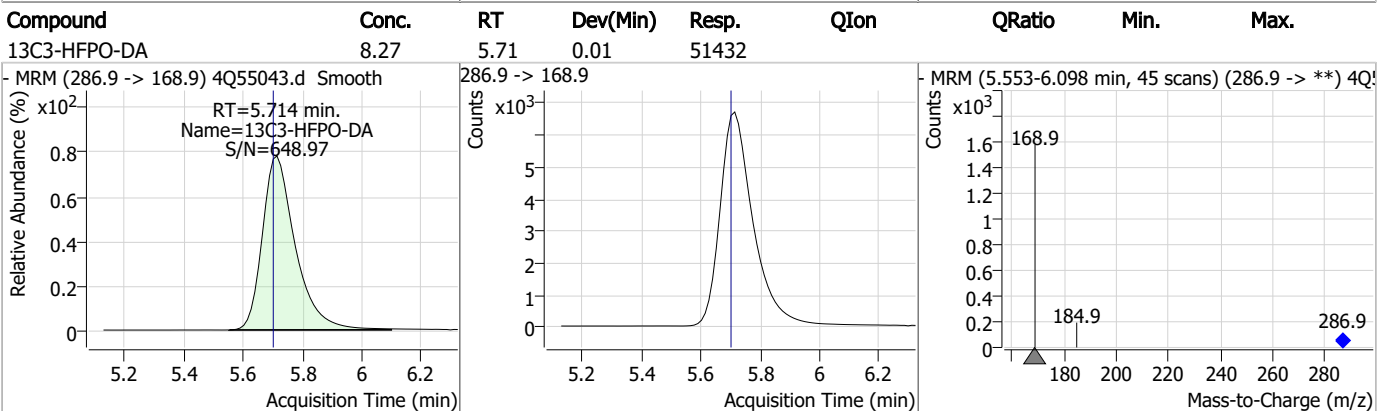
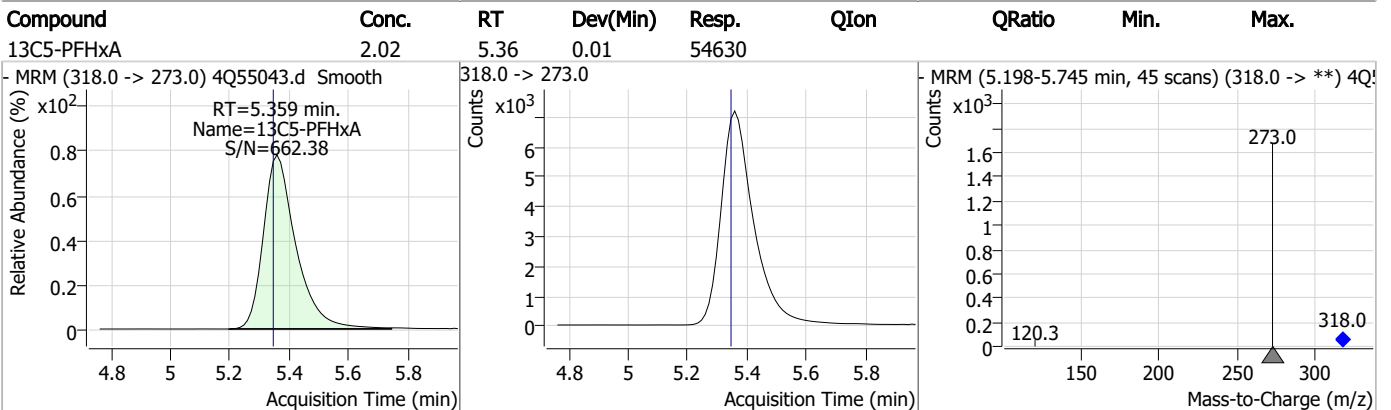
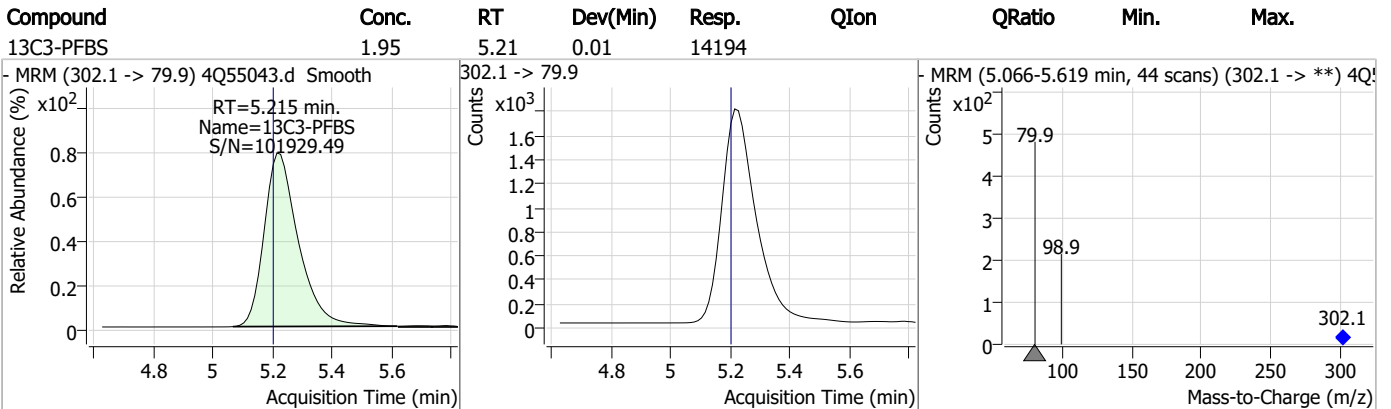
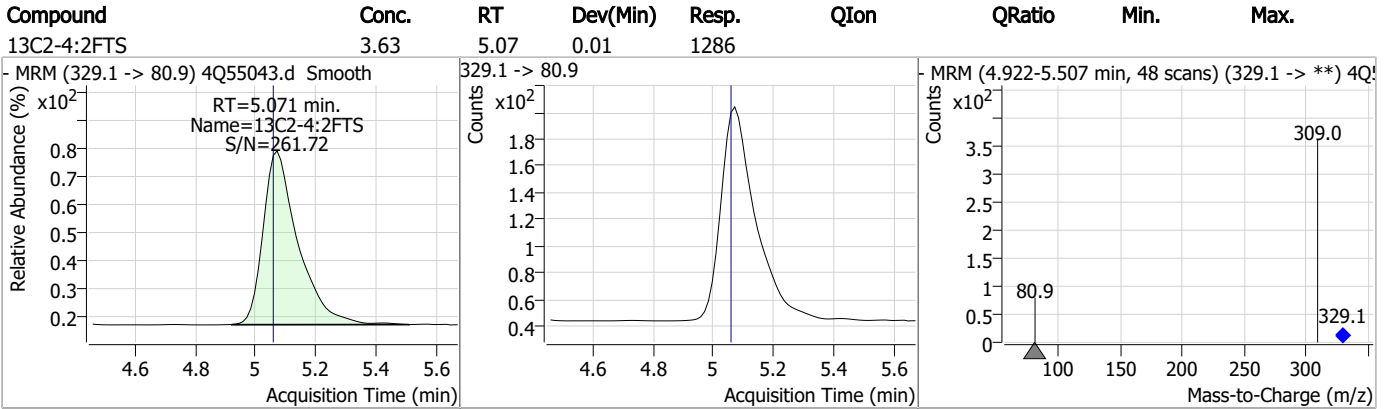
7.1.2
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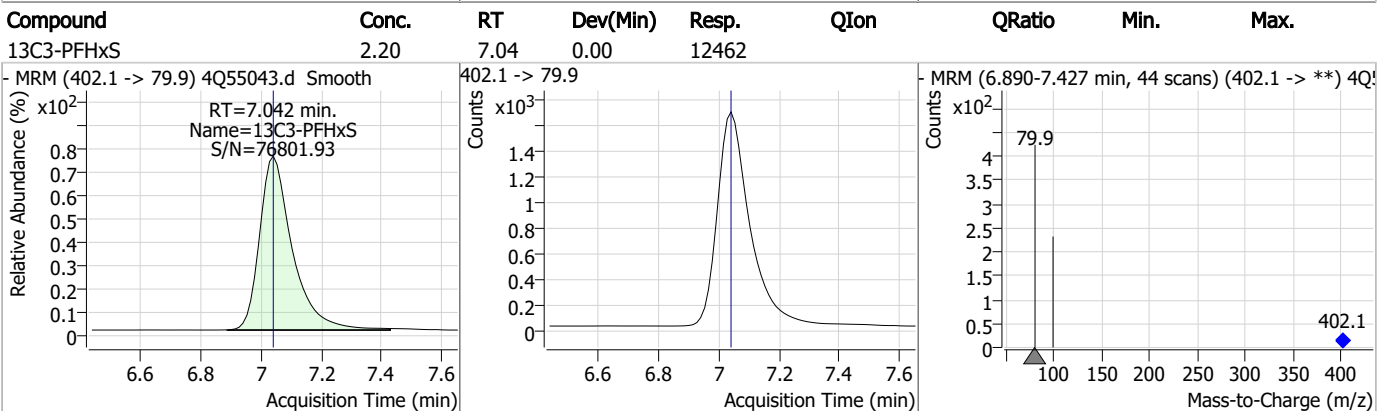
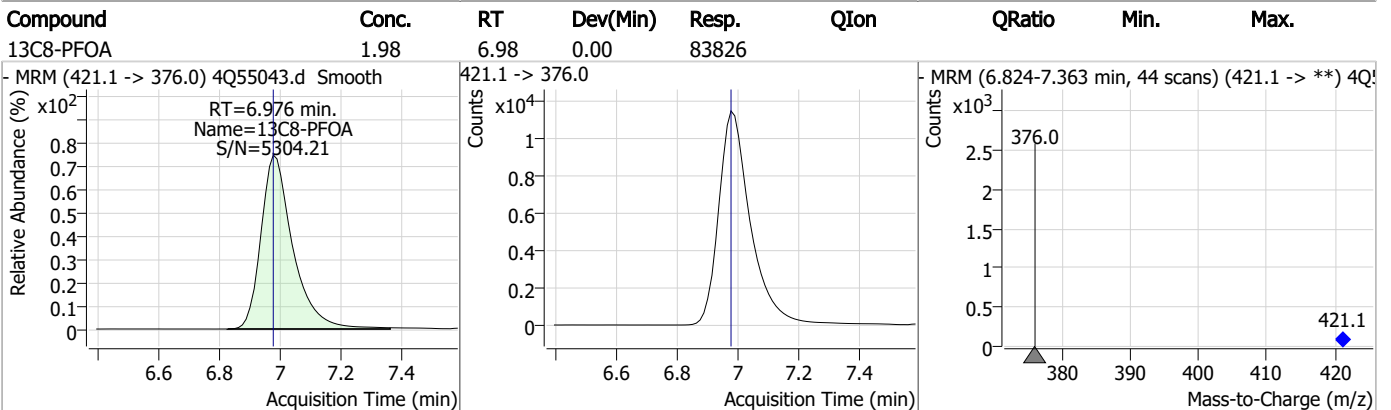
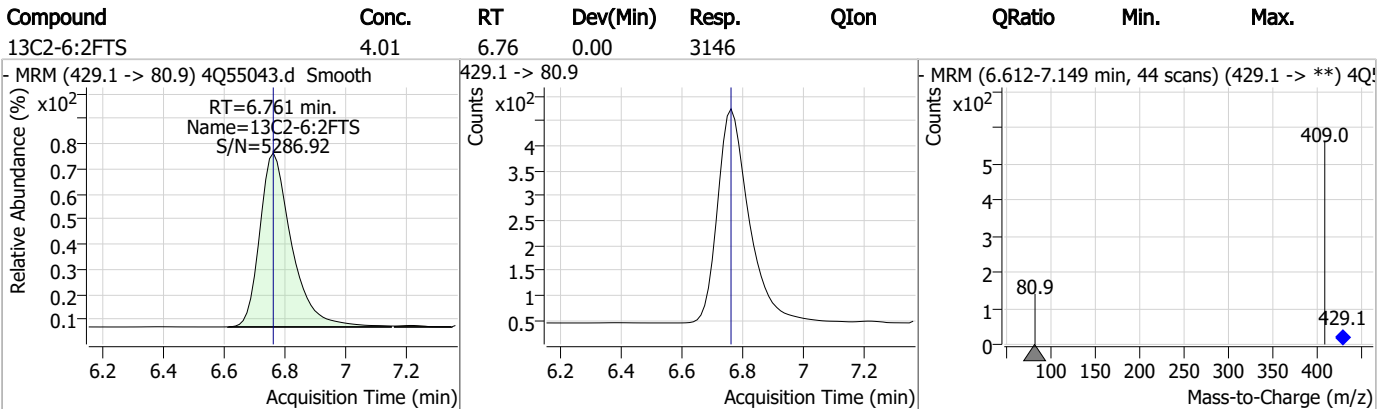
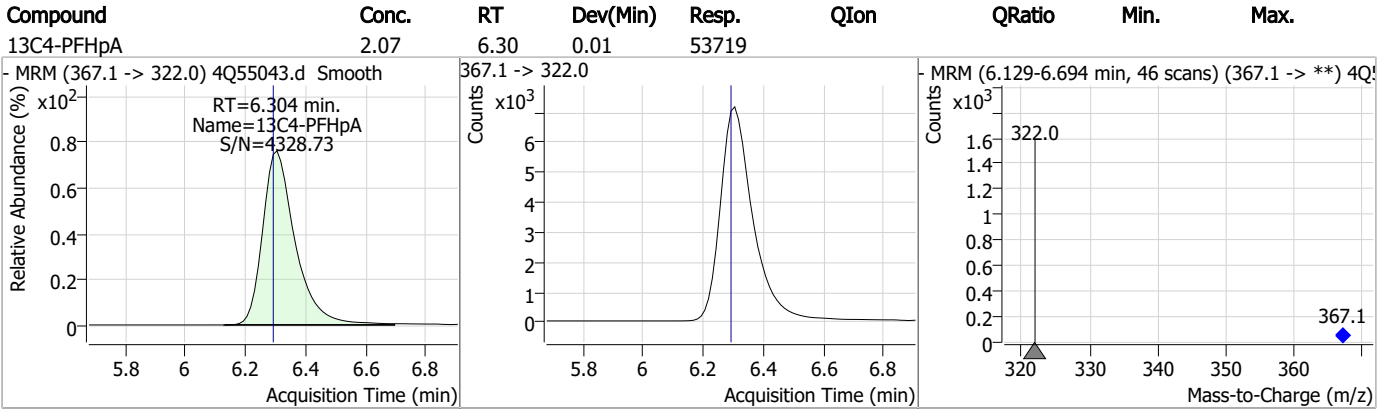
Perfluorinated Compounds by LC/MS/MS



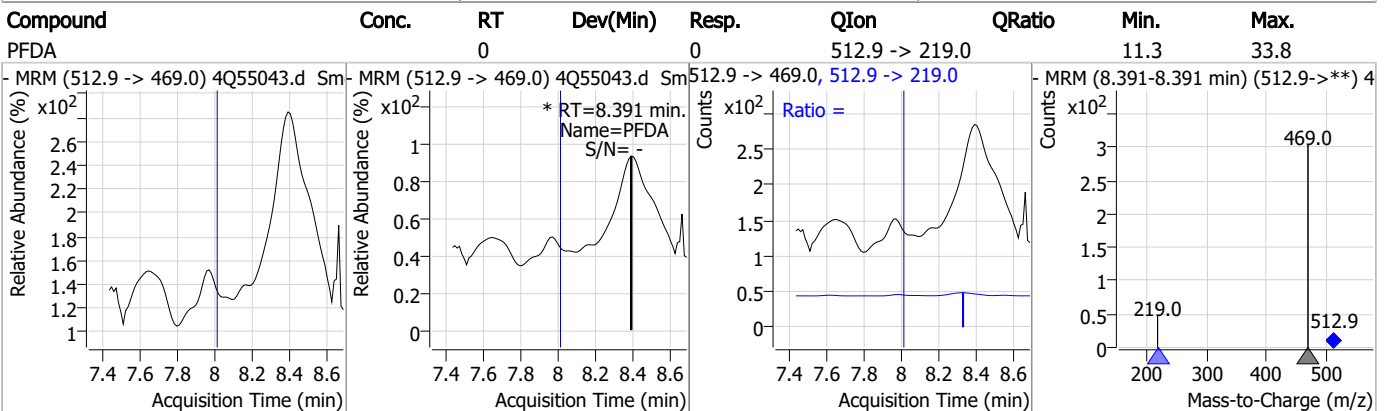
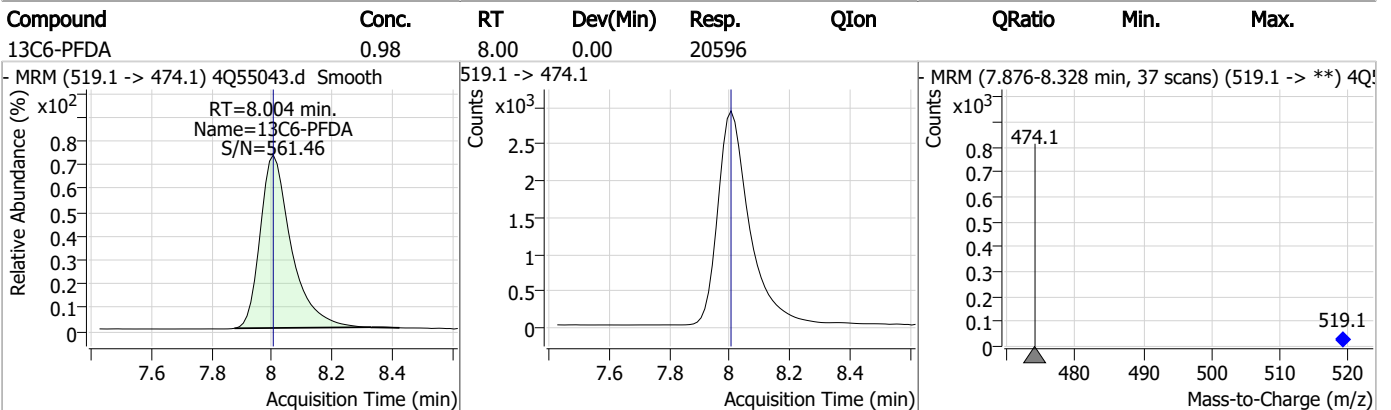
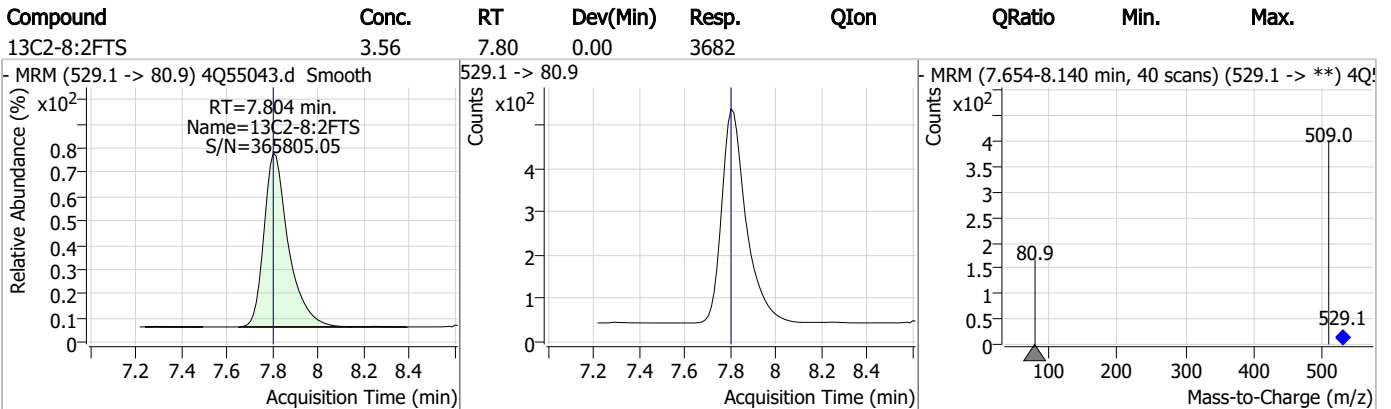
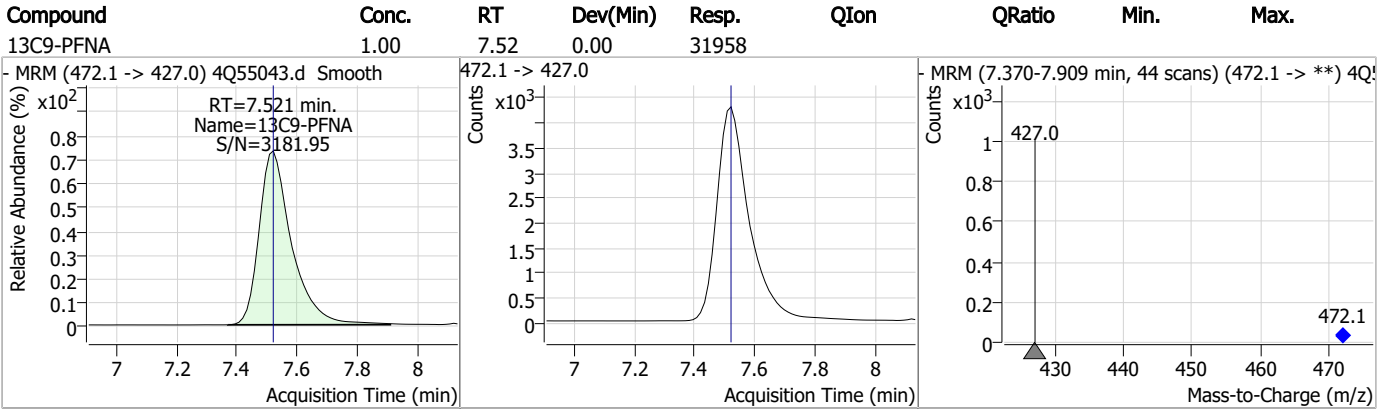
Perfluorinated Compounds by LC/MS/MS



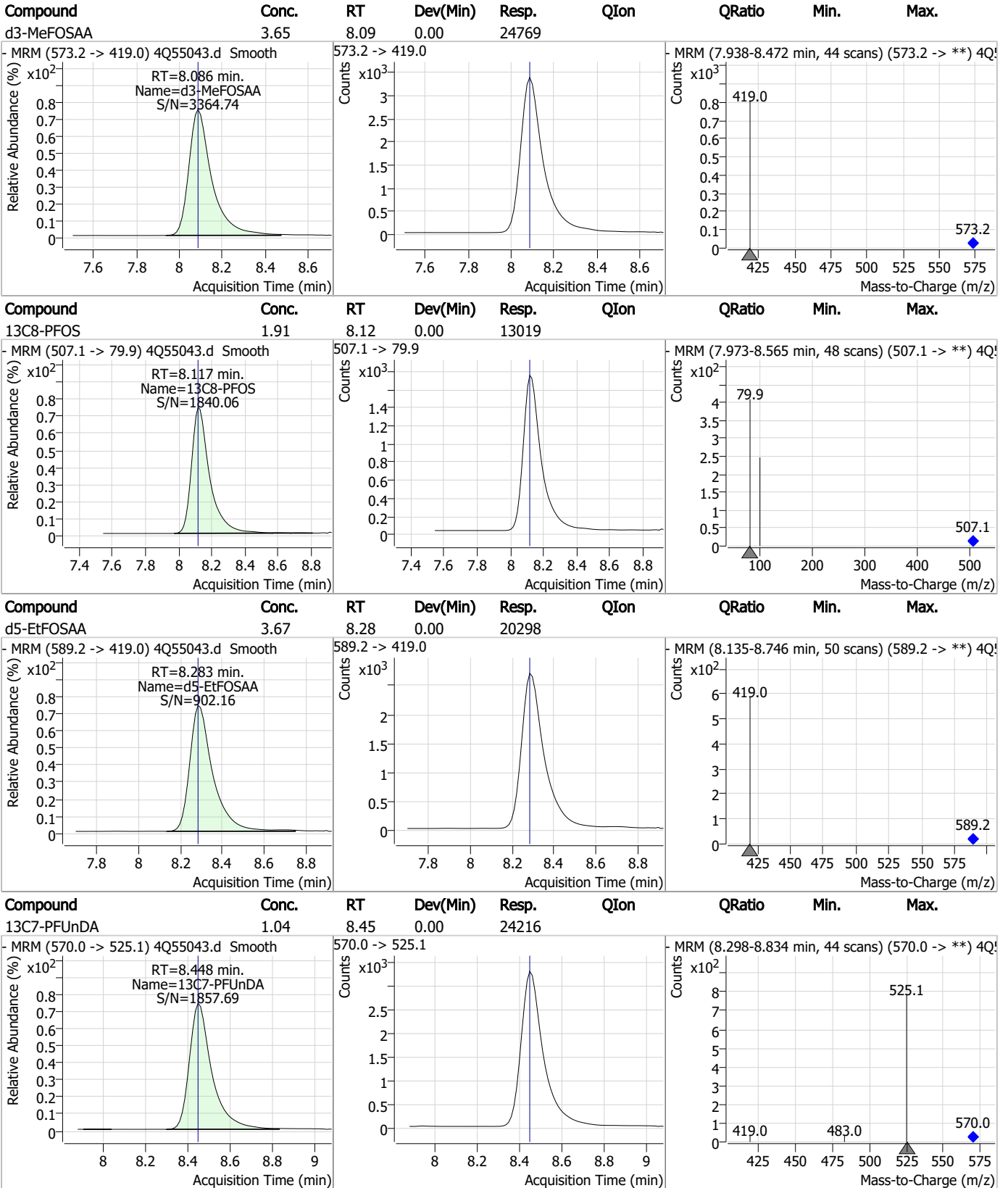
Perfluorinated Compounds by LC/MS/MS



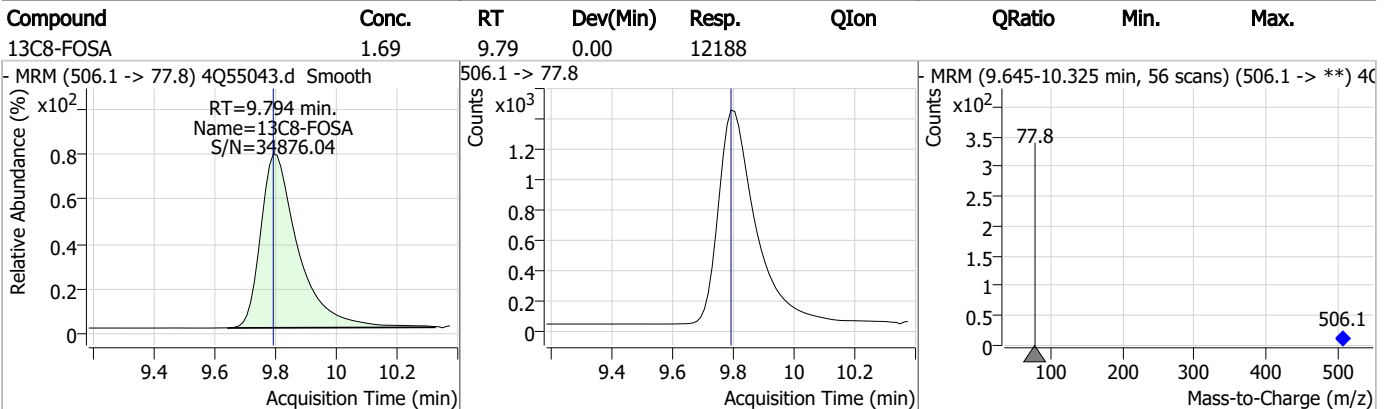
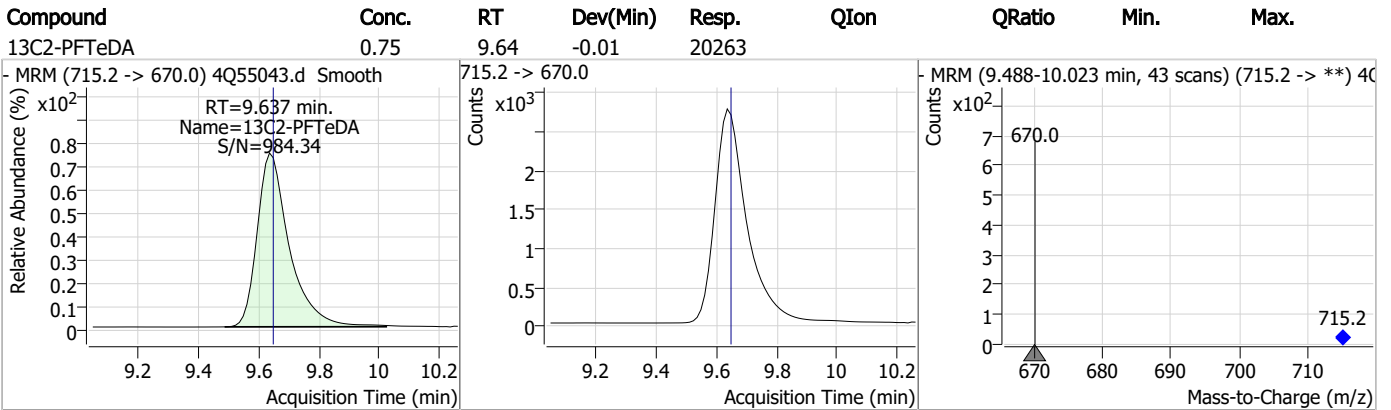
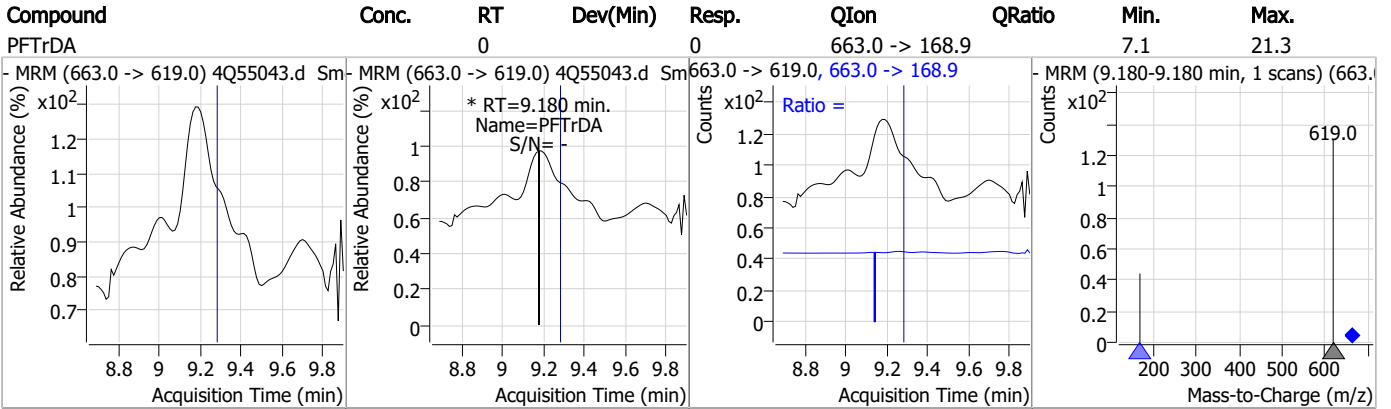
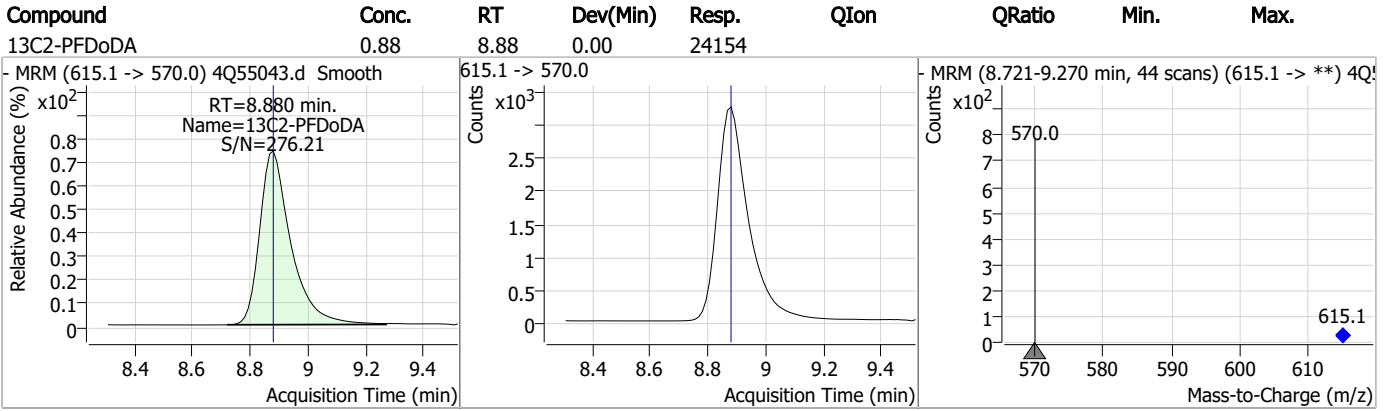
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



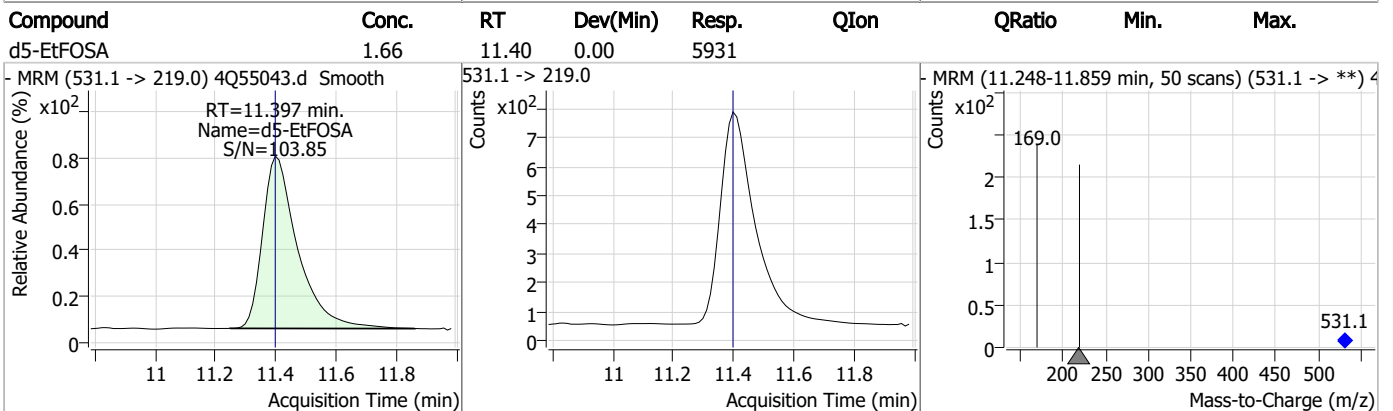
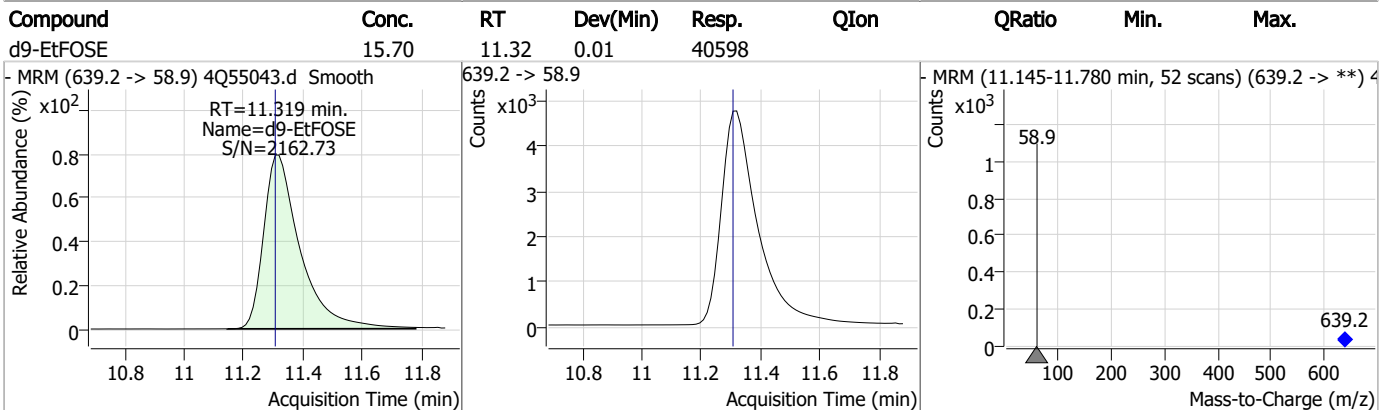
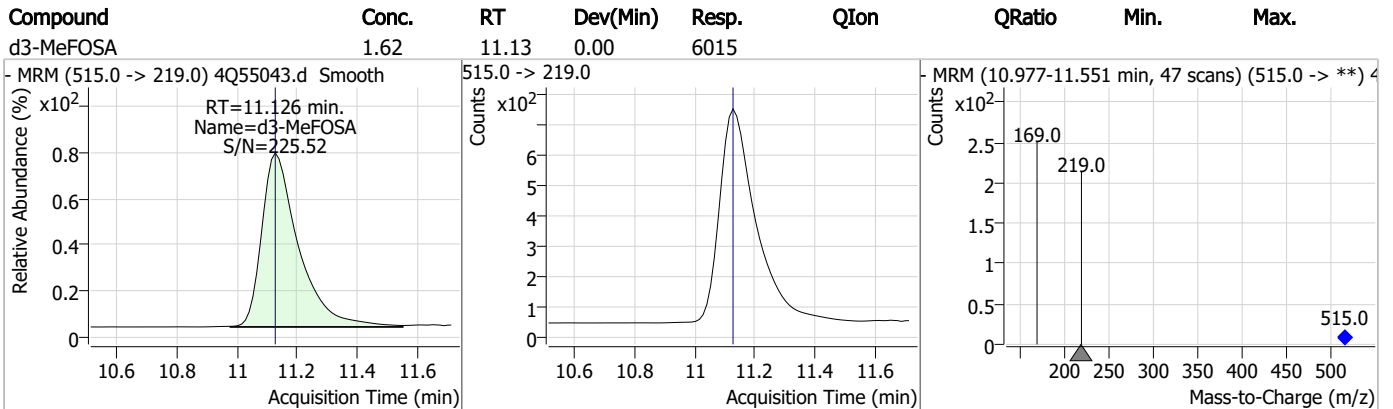
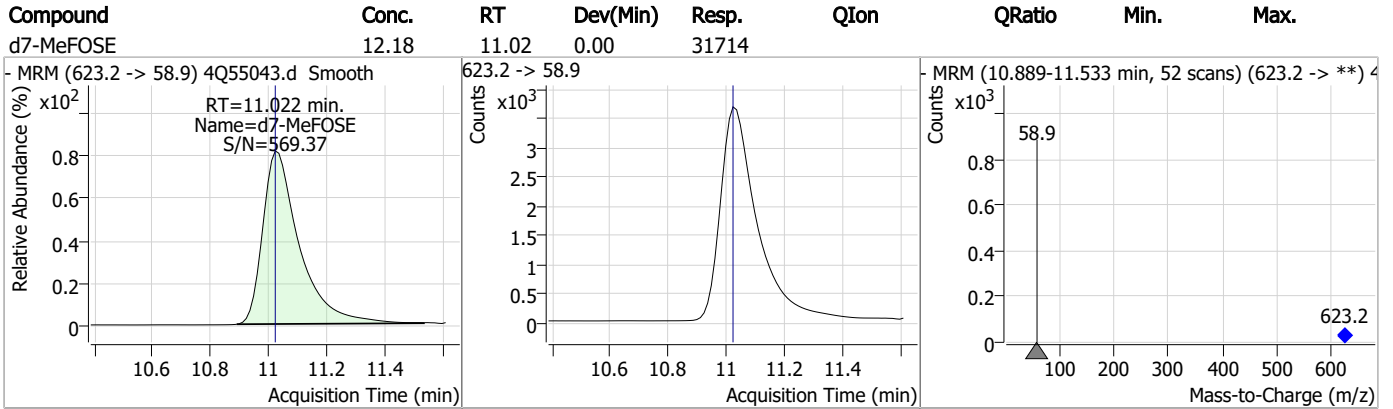
Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS



7.1.2

7

Perfluorinated Compounds by LC/MS/MS

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 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 8:39:32 PM
 Sample Name : op552-mb
 Vial : P4-B5
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP552,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.765	216.8 -> 171.9	169470	10.00 µg/L	0.066
M5-PFPeA	4.200	268.3 -> 223.0	69758	5.00 µg/L	0.025
M5-PFHxA	5.359	318.0 -> 273.0	57637	2.50 µg/L	0.012
M4-PFHpA	6.304	367.1 -> 322.0	57787	2.50 µg/L	0.012
M8-PFOA	6.976	421.1 -> 376.0	89913	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	32932	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	24198	1.25 µg/L	0.000
M7-PFUnDA	8.449	570.0 -> 525.1	26033	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	26349	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	23448	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	12344	2.50 µg/L	0.000
M3-PFBS	5.227	302.1 -> 79.9	15343	2.50 µg/L	0.025
M3-PFHxS	7.042	402.1 -> 79.9	13428	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	13492	2.50 µg/L	0.000
M2-4:2FTS	5.071	329.1 -> 80.9	1384	5.00 µg/L	0.012
M2-6:2FTS	6.761	429.1 -> 80.9	3374	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	4464	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	25639	5.00 µg/L	0.000
M3-HFPO-DA	5.714	286.9 -> 168.9	53626	10.00 µg/L	0.013
M5-EtFOSAA	8.283	589.2 -> 419.0	21406	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	35145	25.00 µg/L	0.000
M9-EtFOSE	11.319	639.2 -> 58.9	44997	25.00 µg/L	0.012
M5-EtFOSA	11.398	531.1 -> 219.0	6561	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	5797	2.50 µg/L	0.000
13C4-PFOS	8.130	502.8 -> 79.9	8975	2.50 µg/L	0.012
13C3-PFBA	2.768	216.0 -> 172.0	61649	5.00 µg/L	0.065
18O2-PFHxS	7.041	403.0 -> 83.9	6629	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	79328	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	19340	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	26746	1.25 µg/L	0.000
13C2-PFHxA	5.360	315.1 -> 270.0	49160	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.071	329.1 -> 80.9	1384	5.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.9%		
13C2-6:2FTS	6.761	429.1 -> 80.9	3374	5.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.1%		
13C2-8:2FTS	7.804	529.1 -> 80.9	4464	5.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.4%		
13C2-PFDoDA	8.867	615.1 -> 570.0	26349	1.45 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 115.6%		
13C2-PFTeDA	9.637	715.2 -> 670.0	23448	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C3-PFBS	5.227	302.1 -> 79.9	15343	2.92 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 116.6%		
13C3-PFHxS	7.042	402.1 -> 79.9	13428	3.28 µg/L	0.000

7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 131.4%	
13C4-PFBA	2.765	216.8 -> 171.9	169470	12.77 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 127.7%	
13C4-PFHpA	6.304	367.1 -> 322.0	57787	3.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 132.0%	
13C5-PFHxA	5.359	318.0 -> 273.0	57637	3.16 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 126.4%	
13C5-PFPeA	4.200	268.3 -> 223.0	69758	6.53 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 130.6%	
13C6-PFDA	8.004	519.1 -> 474.1	24198	1.73 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 138.4%	
13C7-PFUnDA	8.449	570.0 -> 525.1	26033	1.68 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 134.4%	
13C8-FOSA	9.794	506.1 -> 77.8	12344	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C8-PFOA	6.976	421.1 -> 376.0	89913	3.08 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 123.2%	
13C8-PFOS	8.117	507.1 -> 79.9	13492	2.82 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.7%	
13C9-PFNA	7.521	472.1 -> 427.0	32932	1.53 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 122.2%	
d3-MeFOSAA	8.086	573.2 -> 419.0	25639	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C3-HFPO-DA	5.714	286.9 -> 168.9	53626	12.80 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 128.0%	
d3-MeFOSA	11.126	515.0 -> 219.0	5797	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.0%	
d5-EtFOSAA	8.283	589.2 -> 419.0	21406	5.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
d7-MeFOSE	11.022	623.2 -> 58.9	35145	19.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.0%	
d9-EtFOSE	11.319	639.2 -> 58.9	44997	24.83 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
d5-EtFOSA	11.398	531.1 -> 219.0	6561	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.9%	

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

7.2.1
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Perfluorinated Compounds by LC/MS/MS

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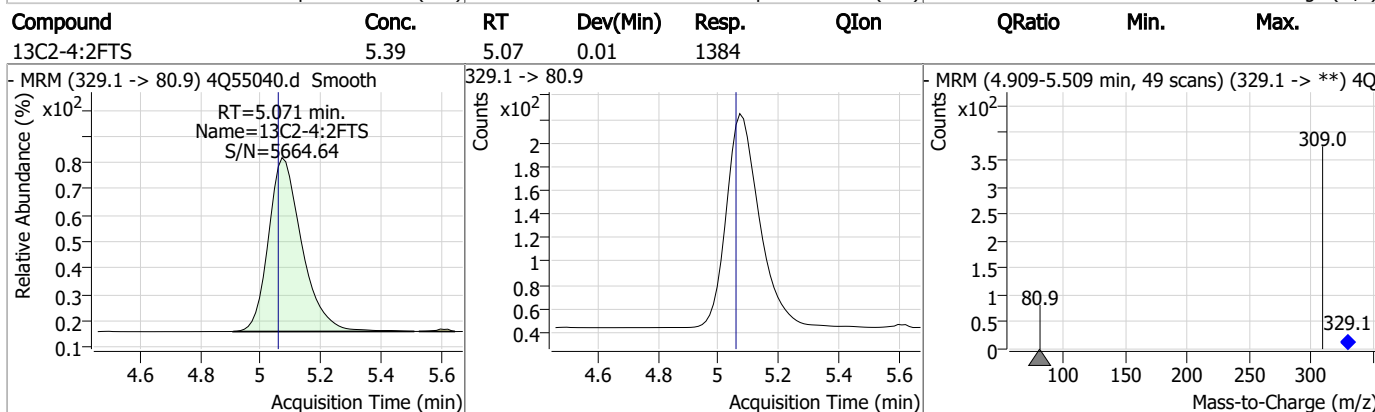
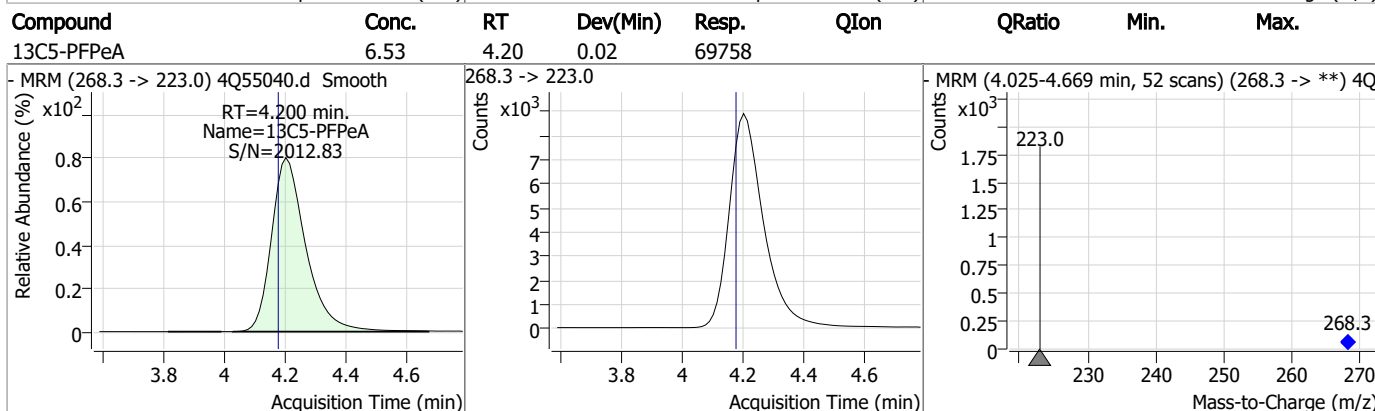
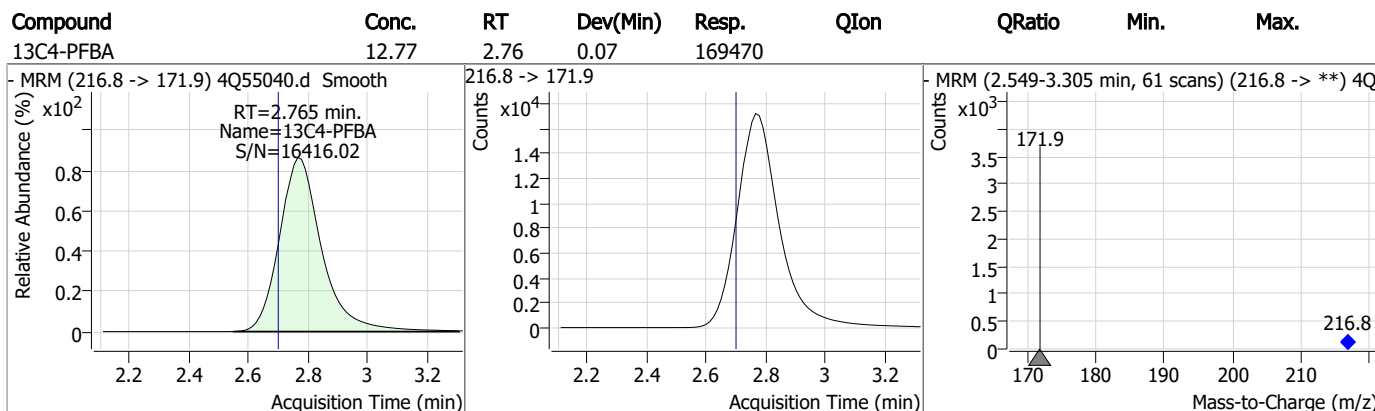
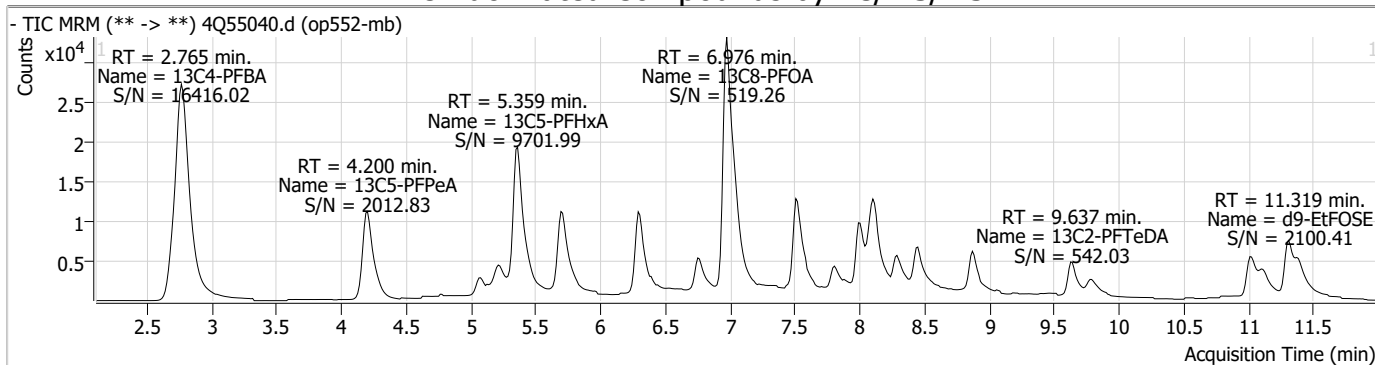
Perfluorinated Compounds by LC/MS/MS

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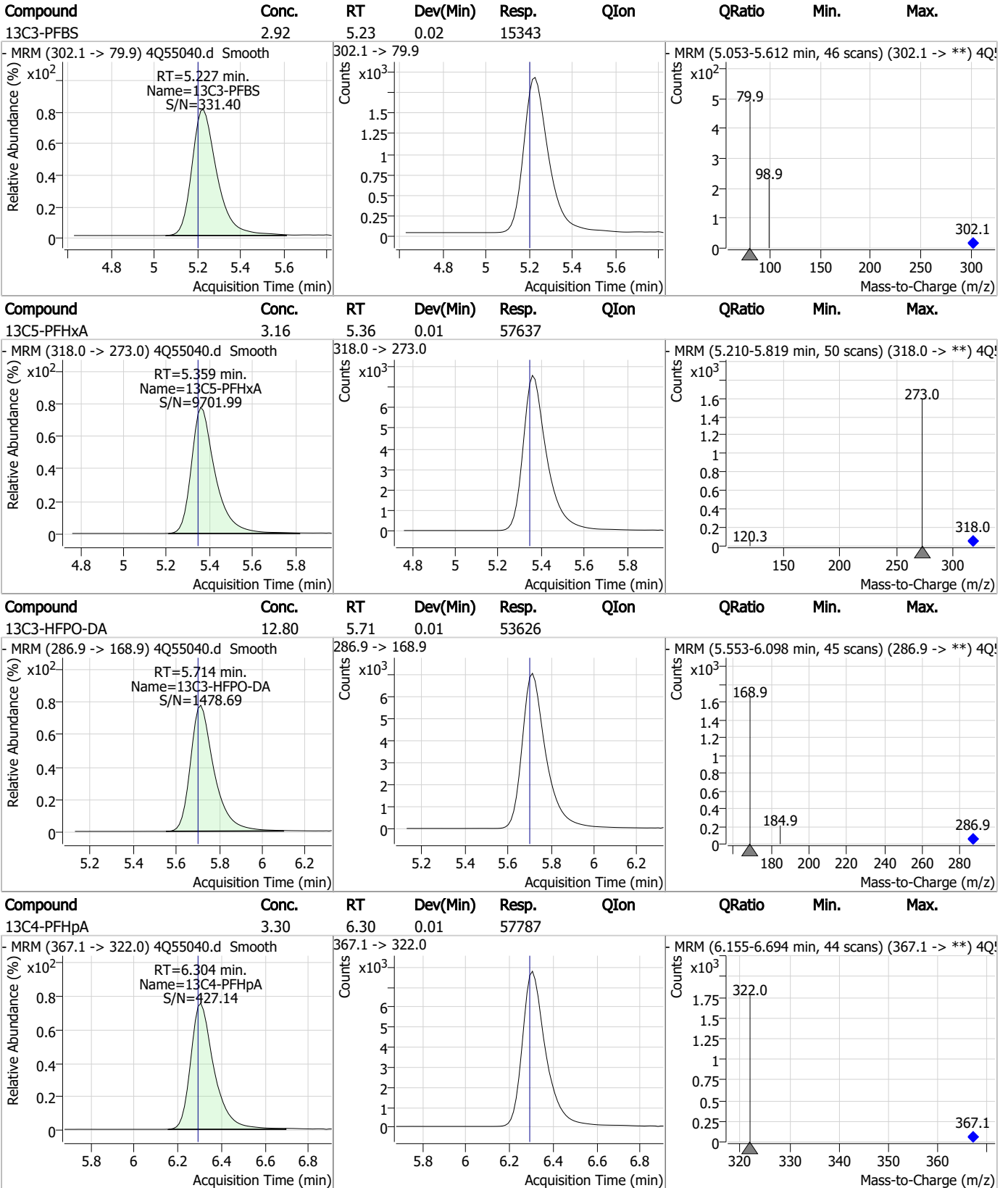
7.2.1

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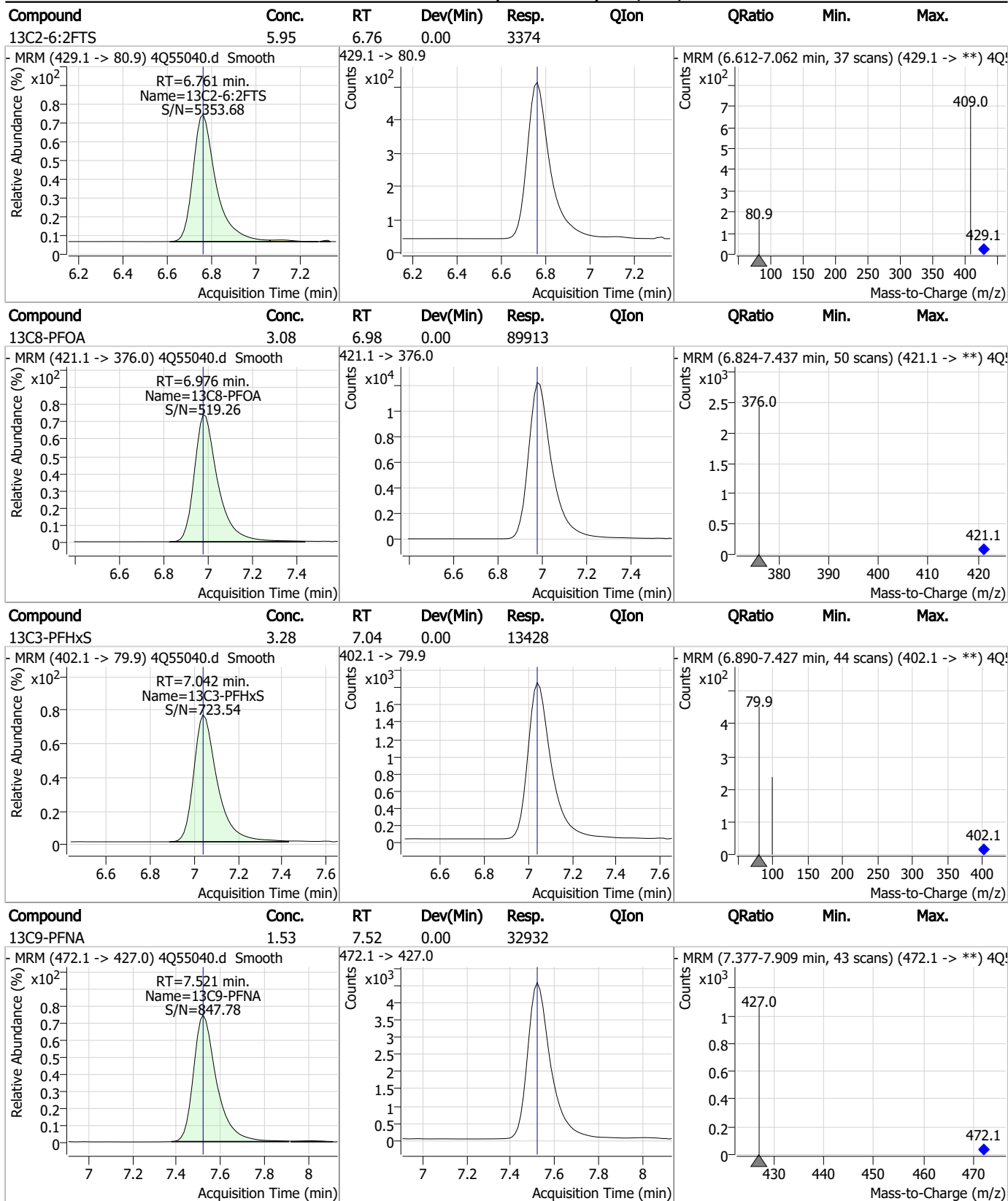
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

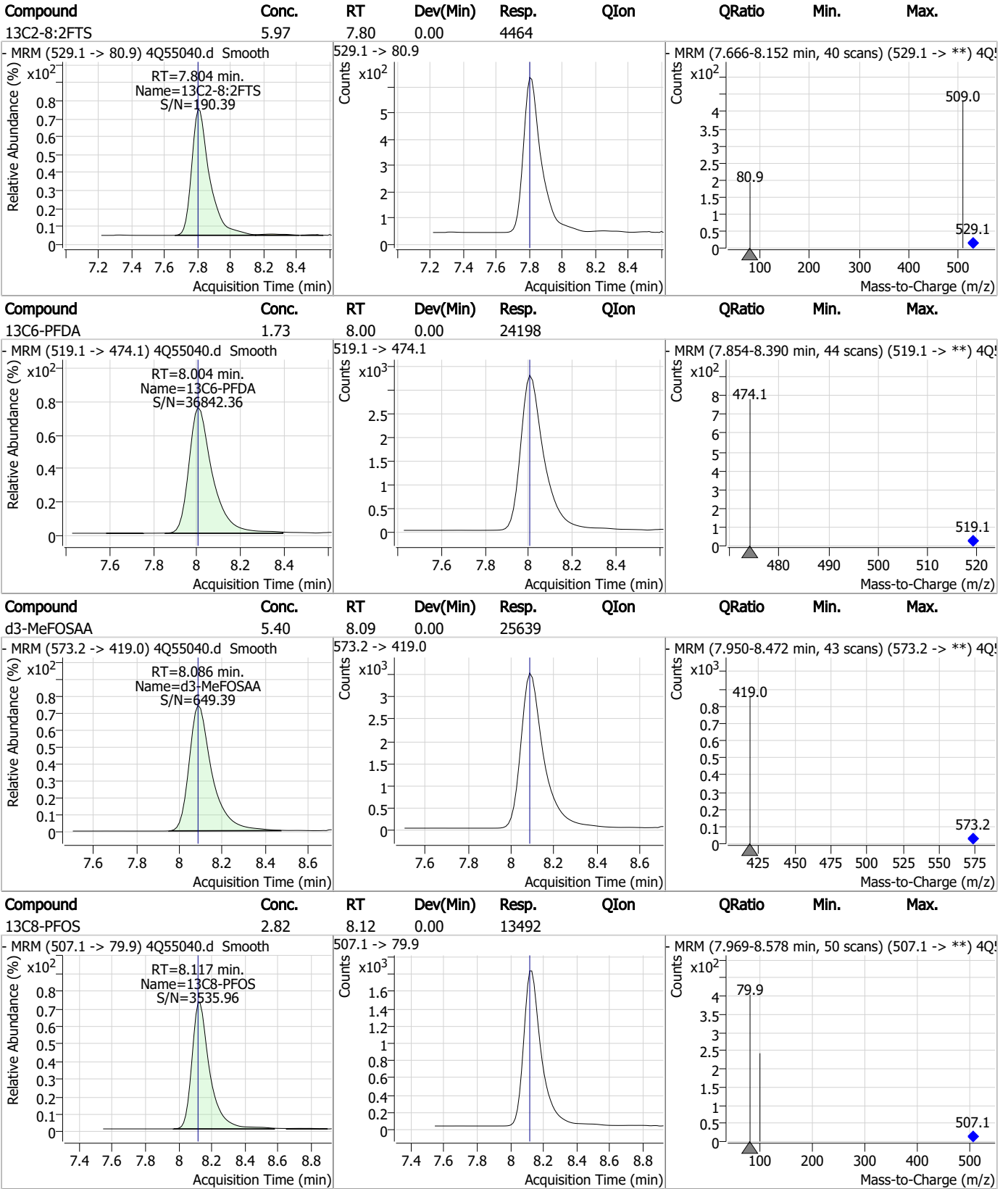


Perfluorinated Compounds by LC/MS/MS



7.2.1
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Perfluorinated Compounds by LC/MS/MS

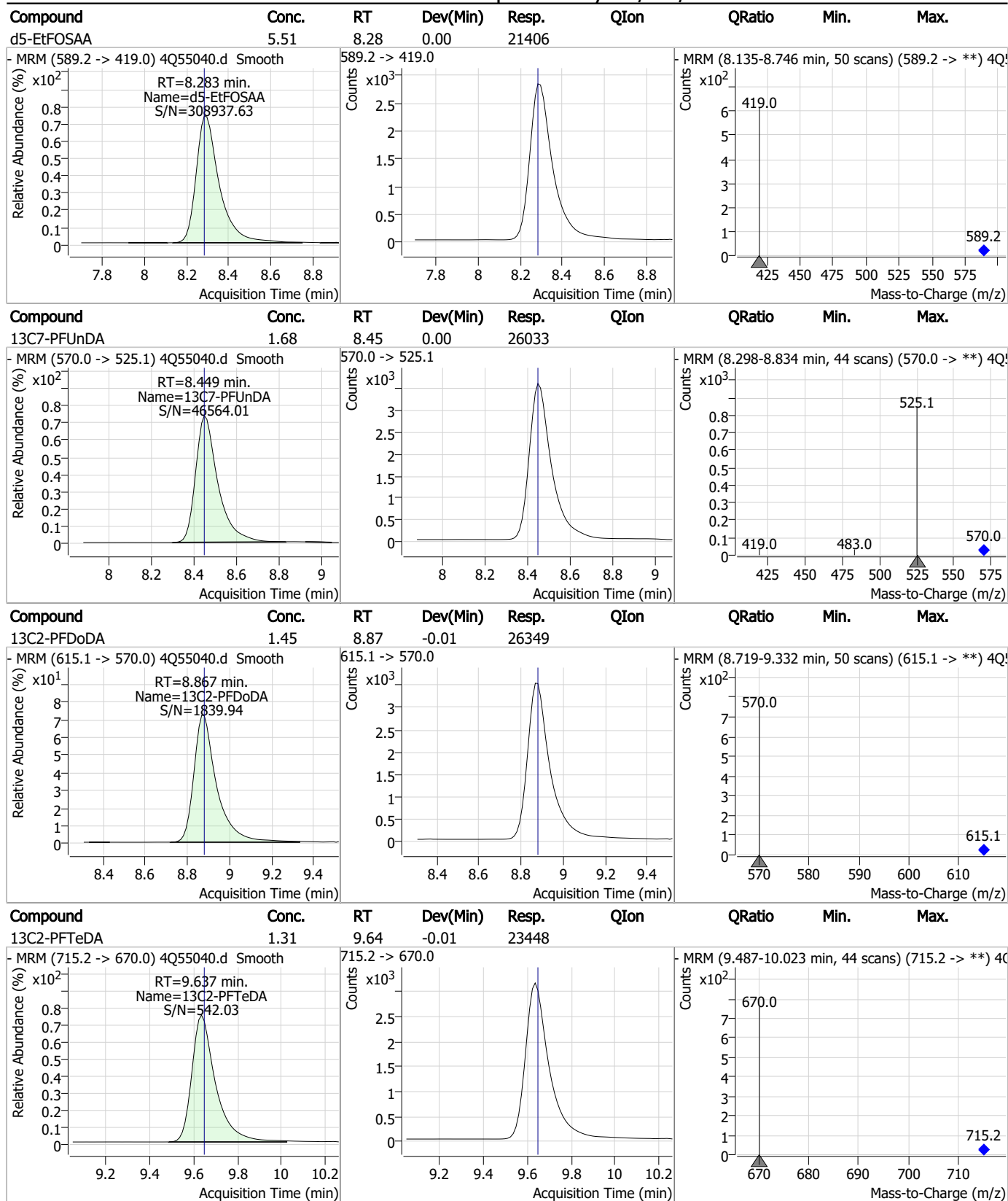


7.2.1

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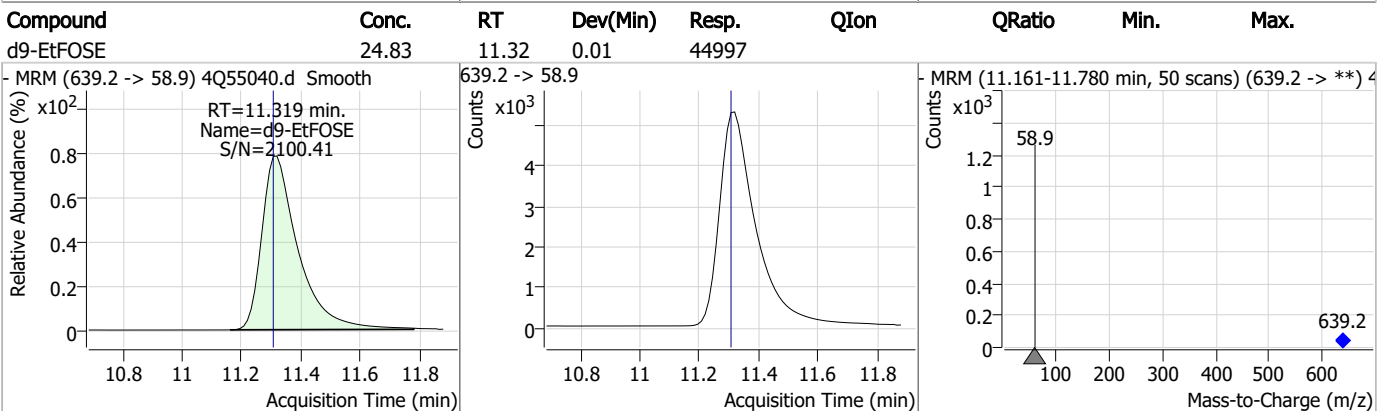
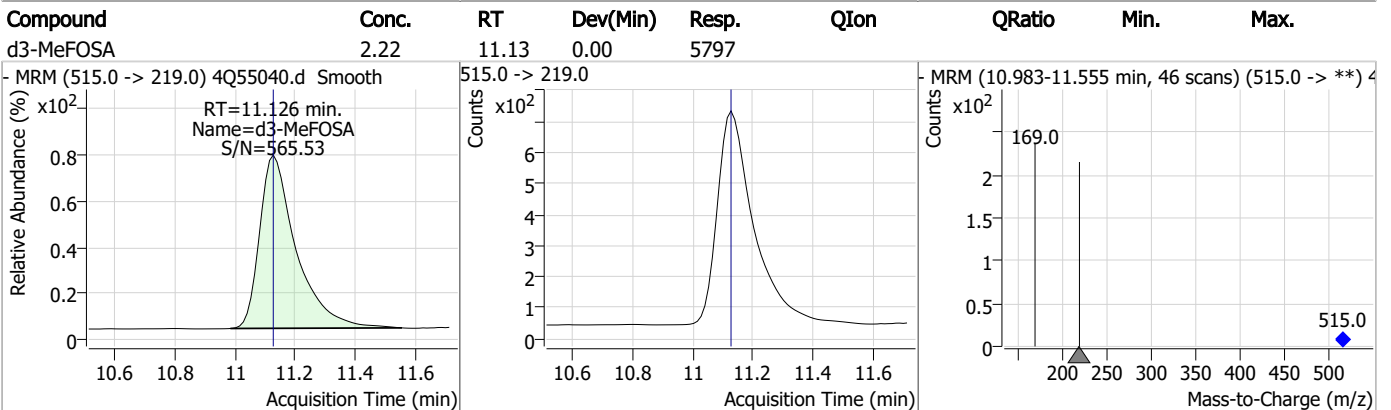
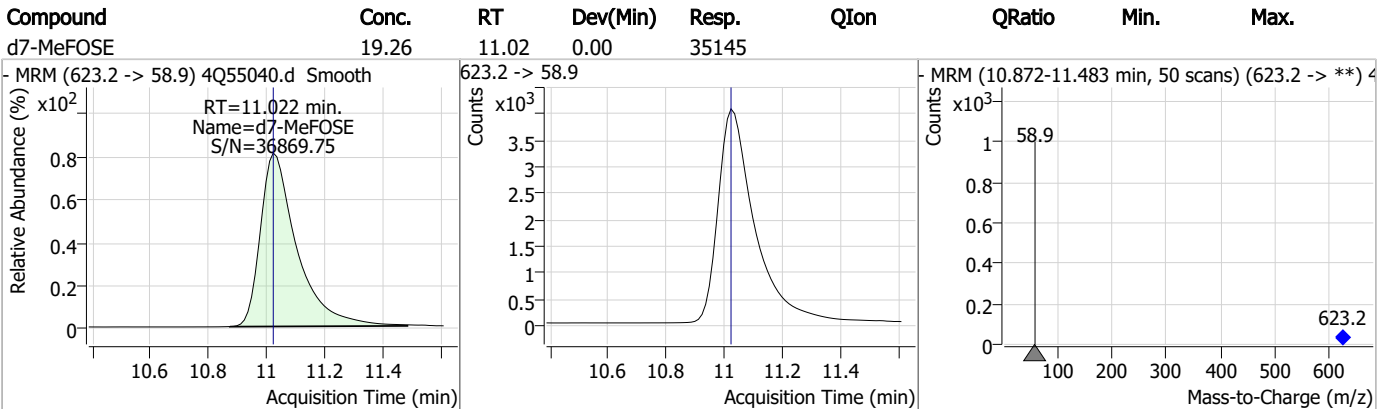
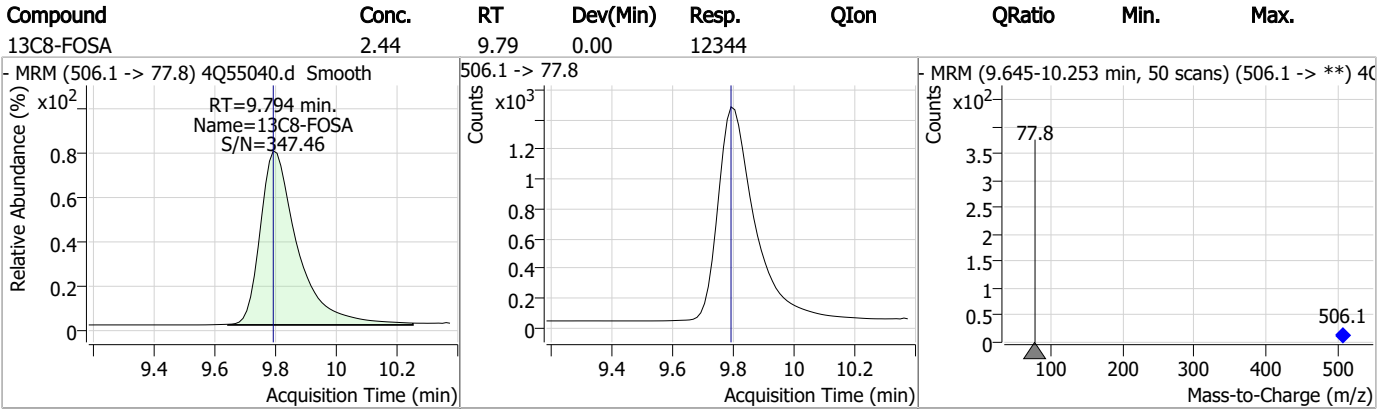


Perfluorinated Compounds by LC/MS/MS

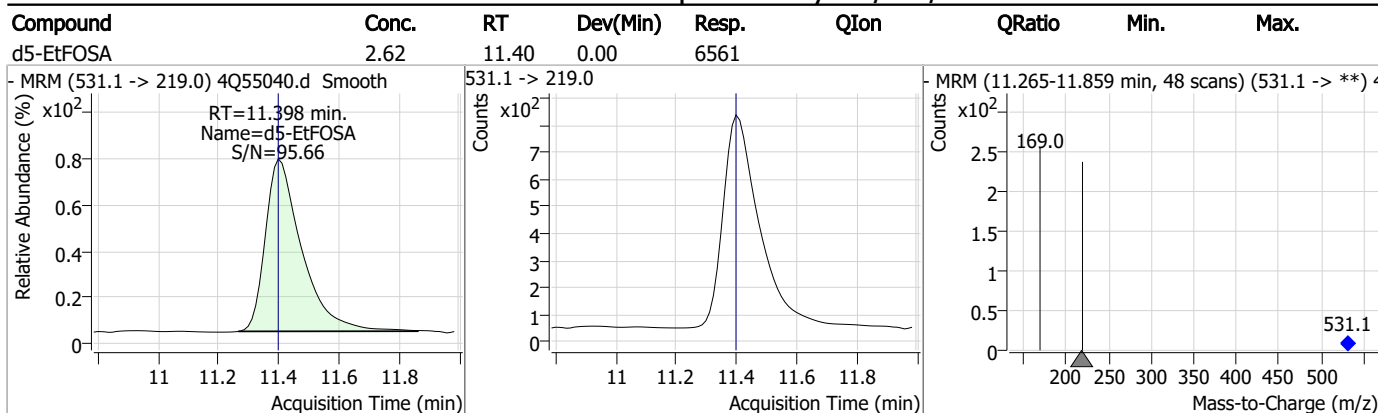


7.2.1
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Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

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 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 4:58:23 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.711	216.8 -> 171.9	162503	10.00 µg/L	0.012
M5-PFPeA	4.175	268.3 -> 223.0	75080	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	62803	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	61724	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	96476	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	36567	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	24573	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	29840	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	31918	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	30448	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	15285	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	17898	2.50 µg/L	0.000
M3-PFHxS	7.042	402.1 -> 79.9	13915	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	14485	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1747	5.00 µg/L	0.000
M2-6:2FTS	6.748	429.1 -> 80.9	4042	5.00 µg/L	-0.012
M2-8:2FTS	7.816	529.1 -> 80.9	5080	5.00 µg/L	0.012
M3-MeFOSAA	8.086	573.2 -> 419.0	28950	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	58661	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	24394	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	55784	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	53753	25.00 µg/L	0.000
M5-EtFOSA	11.398	531.1 -> 219.0	7547	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7746	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11334	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	76903	5.00 µg/L	0.000
18O2-PFHxS	7.041	403.0 -> 83.9	8970	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	103827	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	27326	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	36668	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	67713	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1747	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-6:2FTS	6.748	429.1 -> 80.9	4042	5.27 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
13C2-8:2FTS	7.816	529.1 -> 80.9	5080	5.02 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFDoDA	8.867	615.1 -> 570.0	31918	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-PFTeDA	9.637	715.2 -> 670.0	30448	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C3-PFBS	5.202	302.1 -> 79.9	17898	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFHxS	7.042	402.1 -> 79.9	13915	2.52 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C4-PFBA	2.711	216.8 -> 171.9	162503	9.81	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C4-PFHpA	6.292	367.1 -> 322.0	61724	2.56	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C5-PFHxA	5.347	318.0 -> 273.0	62803	2.50	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C5-PFPeA	4.175	268.3 -> 223.0	75080	5.10	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C6-PFDA	8.004	519.1 -> 474.1	24573	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C7-PFUnDA	8.448	570.0 -> 525.1	29840	1.36	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.0%		
13C8-FOSA	9.794	506.1 -> 77.8	15285	2.39	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%		
13C8-PFOA	6.976	421.1 -> 376.0	96476	2.52	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C8-PFOS	8.117	507.1 -> 79.9	14485	2.40	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%		
13C9-PFNA	7.521	472.1 -> 427.0	36567	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.9%		
d3-MeFOSAA	8.086	573.2 -> 419.0	28950	4.82	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.5%		
13C3-HFPO-DA	5.702	286.9 -> 168.9	58661	10.16	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
d3-MeFOSA	11.126	515.0 -> 219.0	7746	2.35	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%		
d5-EtFOSAA	8.283	589.2 -> 419.0	24394	4.98	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
d7-MeFOSE	11.022	623.2 -> 58.9	55784	24.21	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
d9-EtFOSE	11.306	639.2 -> 58.9	53753	23.49	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.9%		
d5-EtFOSA	11.398	531.1 -> 219.0	7547	2.39	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%		
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	8.284	584.2 -> 419.1 584.2 -> 526.0	112 26	0.03	µg/L m	72
FOSA	9.785	498.1 -> 77.9 498.1 -> 478.0	0 0		µg/L m	1
MeFOSAA	8.099	570.1 -> 419.0 570.1 -> 483.0	149 22	0.03	µg/L	94
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.		
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.		
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.		
PFDS	-	599.0 -> 79.9	-	N.D.		

7.2.2
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	6.965	548.8 -> 98.9	1393	0.03	µg/L	98
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	274	-	N.D.	
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	9.637	713.1 -> 669.0	0	µg/L	m	1
PFTrDA	9.267	713.1 -> 168.9	0	0.03	µg/L	91
		663.0 -> 619.0				
PFUnDA	-	663.0 -> 168.9	69	-	N.D.	
		563.1 -> 519.0				
11Cl-PF3OUdS	-	563.1 -> 269.1	-	N.D.		
		630.9 -> 450.9				
9Cl-PF3ONS	-	632.9 -> 452.9	-	N.D.		
		530.8 -> 351.0				
ADONA	-	532.8 -> 353.0	-	N.D.		
		376.9 -> 250.9				
HFPO-DA	-	376.9 -> 84.8	-	N.D.		
		284.9 -> 168.9				
3:3FTCA	-	284.9 -> 184.9	-	N.D.		
		241.0 -> 177.0				
5:3FTCA	-	241.0 -> 117.0	-	N.D.		
		341.0 -> 237.1				
7:3FTCA	-	341.0 -> 217.0	-	N.D.		
		441.0 -> 316.9				
EtFOSA	11.412	441.0 -> 336.9	746	0.23	µg/L	m
		526.0 -> 219.0				
EtFOSE	11.332	526.0 -> 169.0	856	0.70	µg/L	m
		630.0 -> 58.9				
MeFOSA	11.140	511.9 -> 219.0	428	0.15	µg/L	#m
		511.9 -> 169.0				
MeFOSE	11.035	616.1 -> 58.9	1156	0.53	µg/L	m
		699.1 -> 79.9				
PFDoDS	-	699.1 -> 98.8	-	N.D.		
		295.0 -> 201.0				
NFDHA	-	295.0 -> 84.9	-	N.D.		
		279.0 -> 85.1				
PFMBA	-	279.0 -> 85.1	-	N.D.		
PFMPA	-	229.0 -> 84.9	-	N.D.		
PFEESA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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



7.22
7

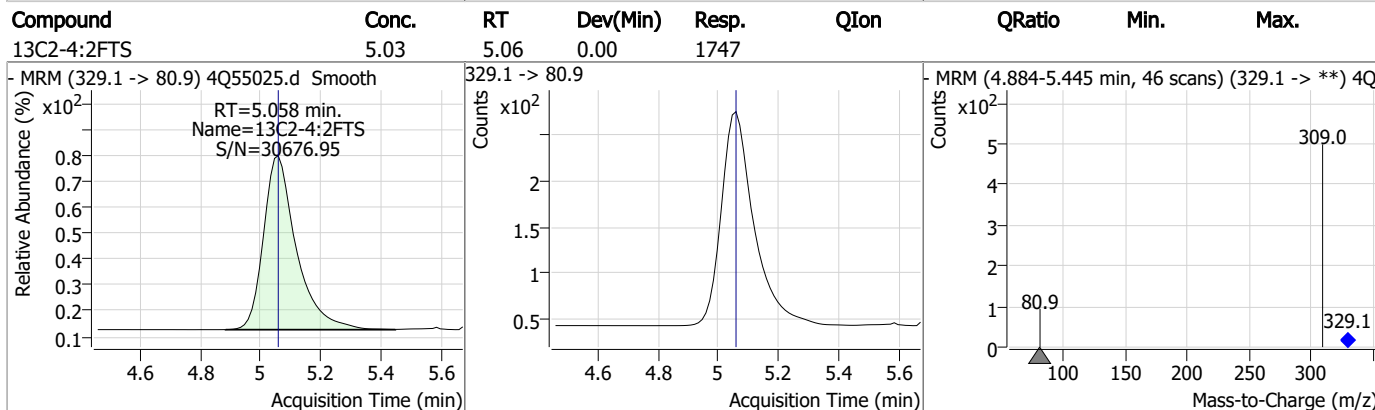
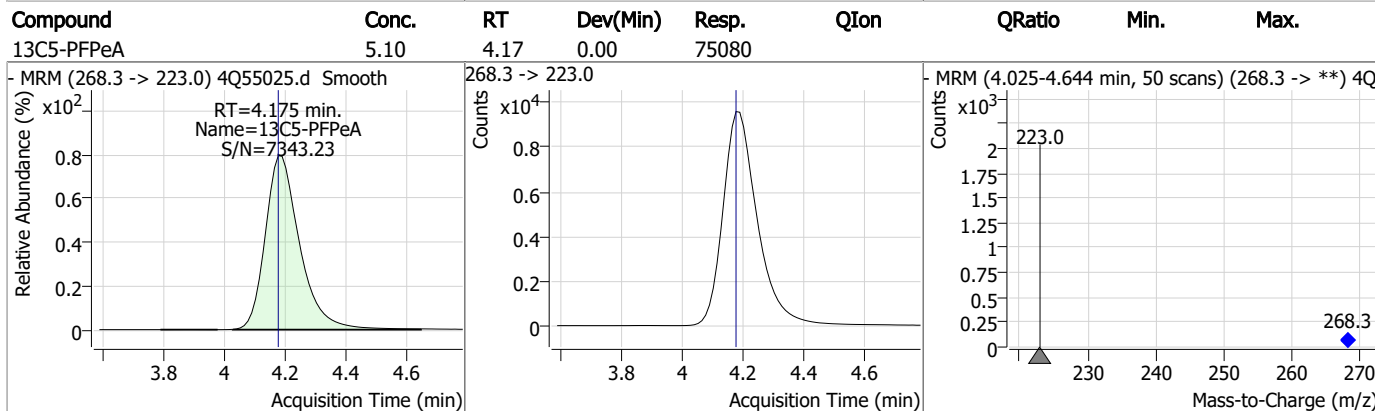
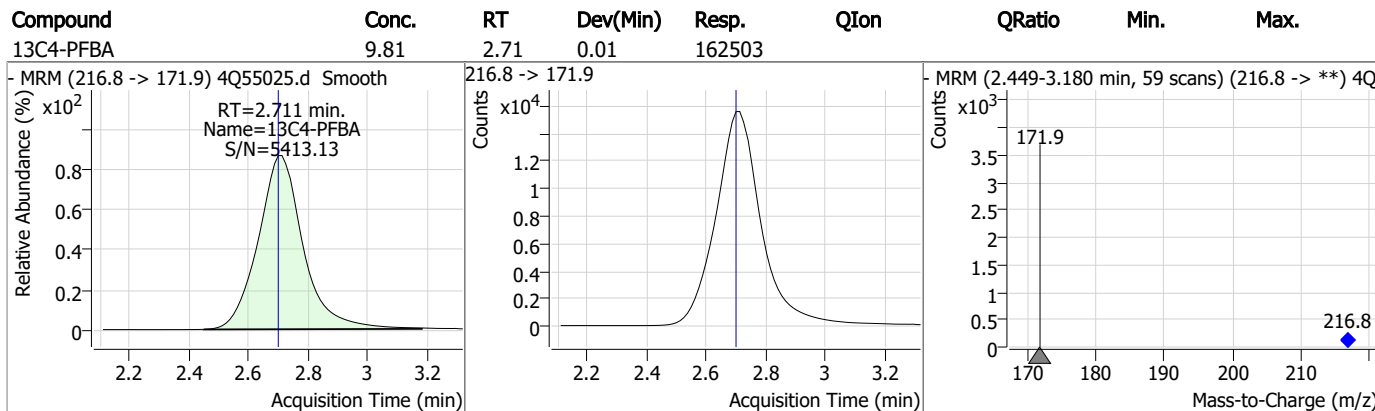
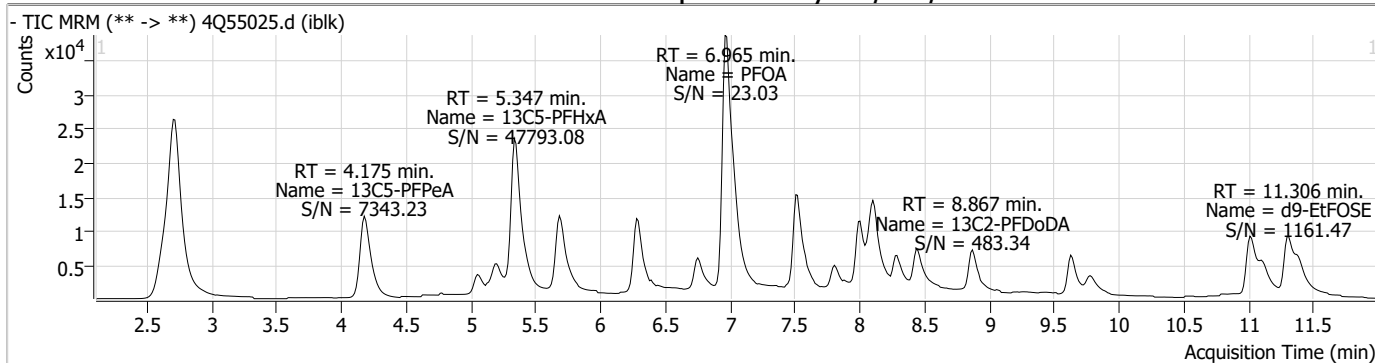
Perfluorinated Compounds by LC/MS/MS

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

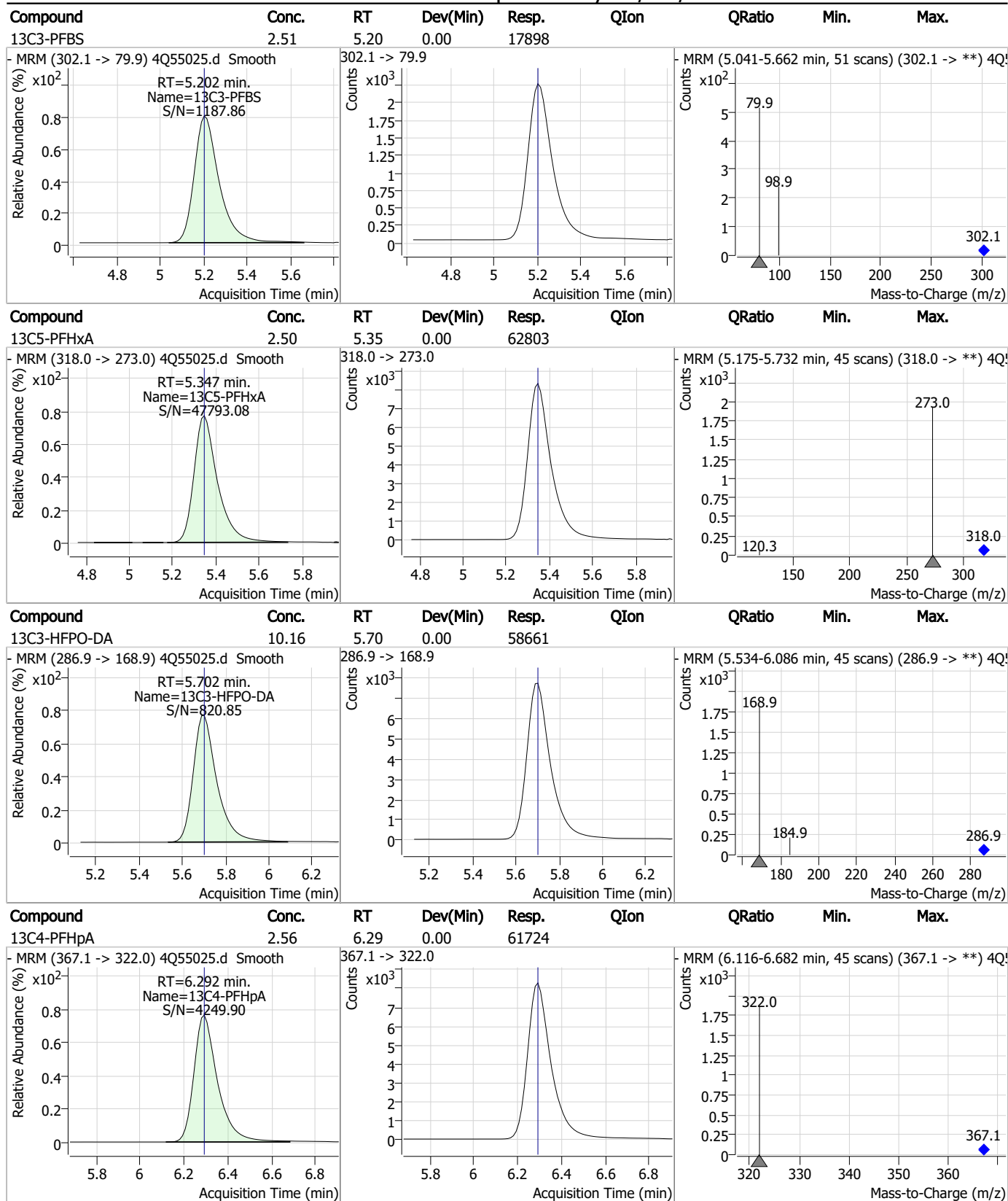
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Perfluorinated Compounds by LC/MS/MS



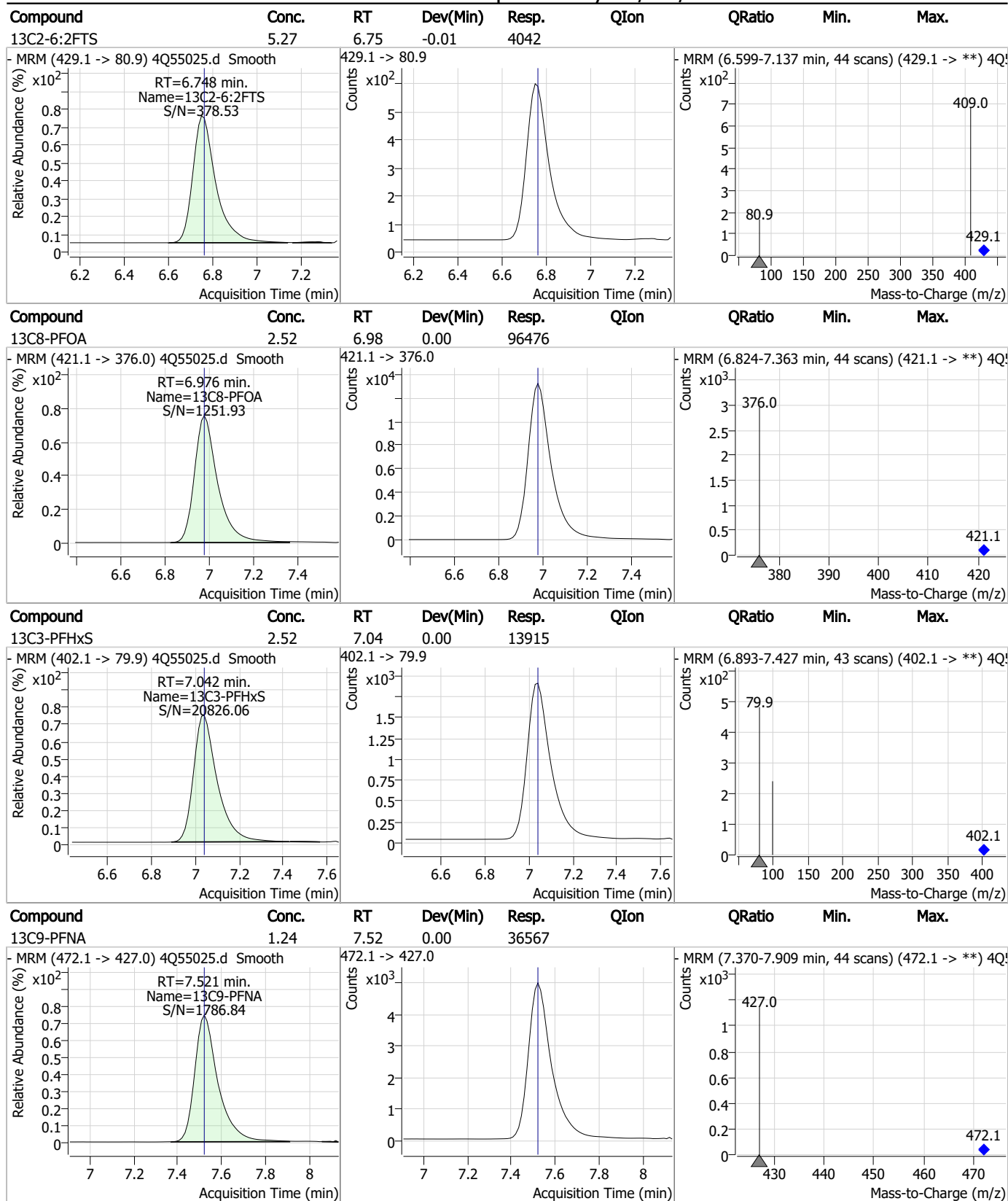
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Perfluorinated Compounds by LC/MS/MS



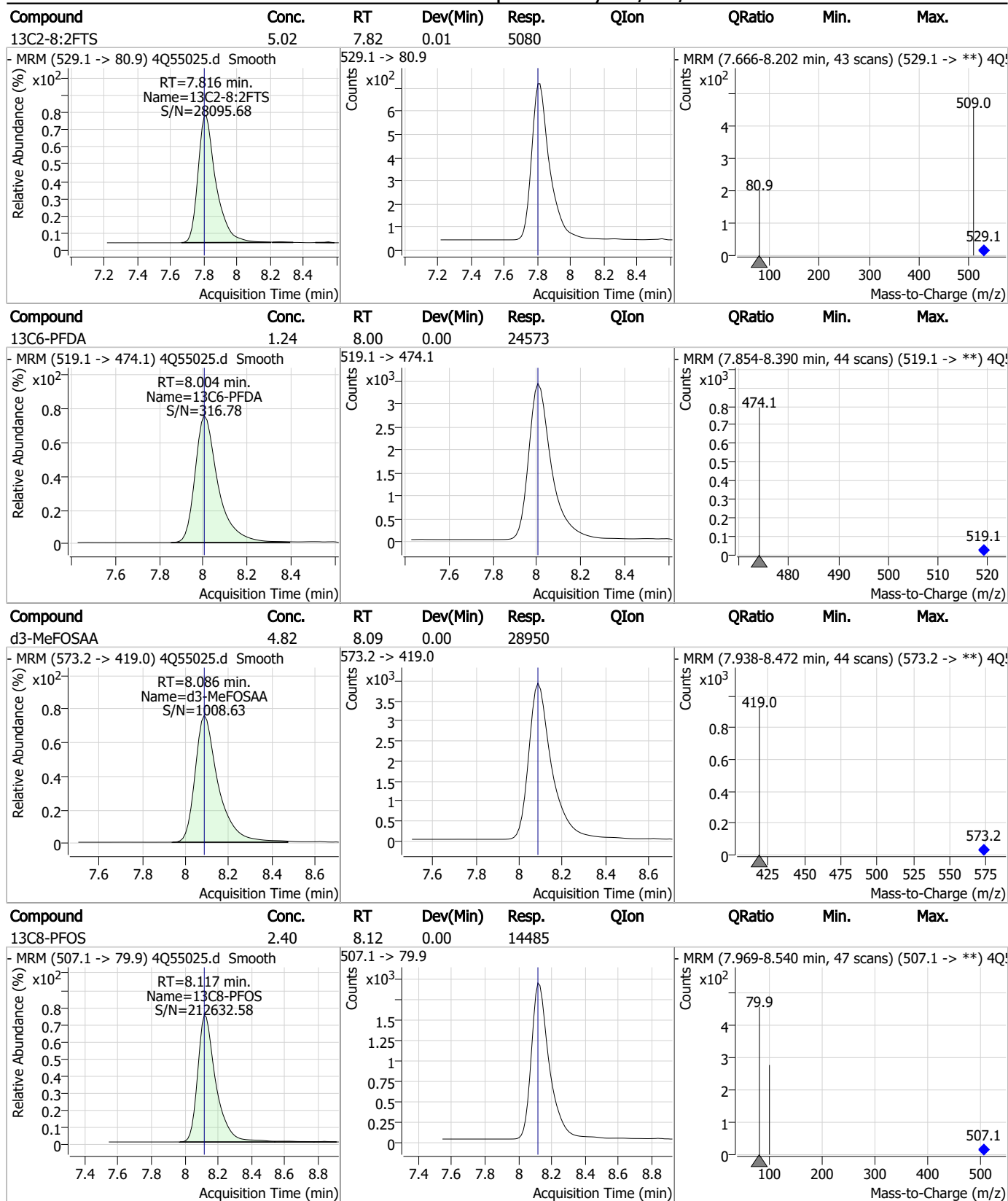
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Perfluorinated Compounds by LC/MS/MS



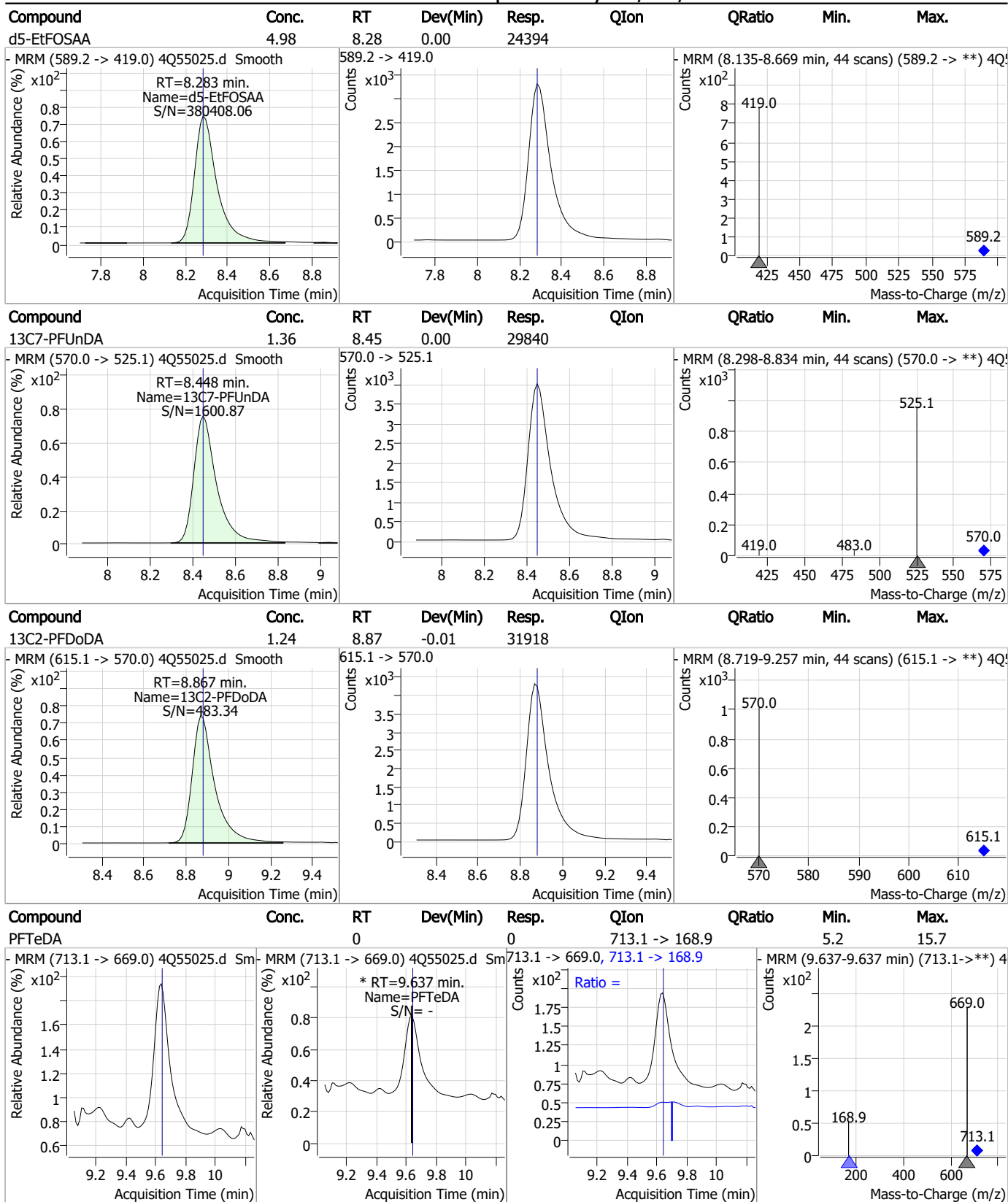
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Perfluorinated Compounds by LC/MS/MS



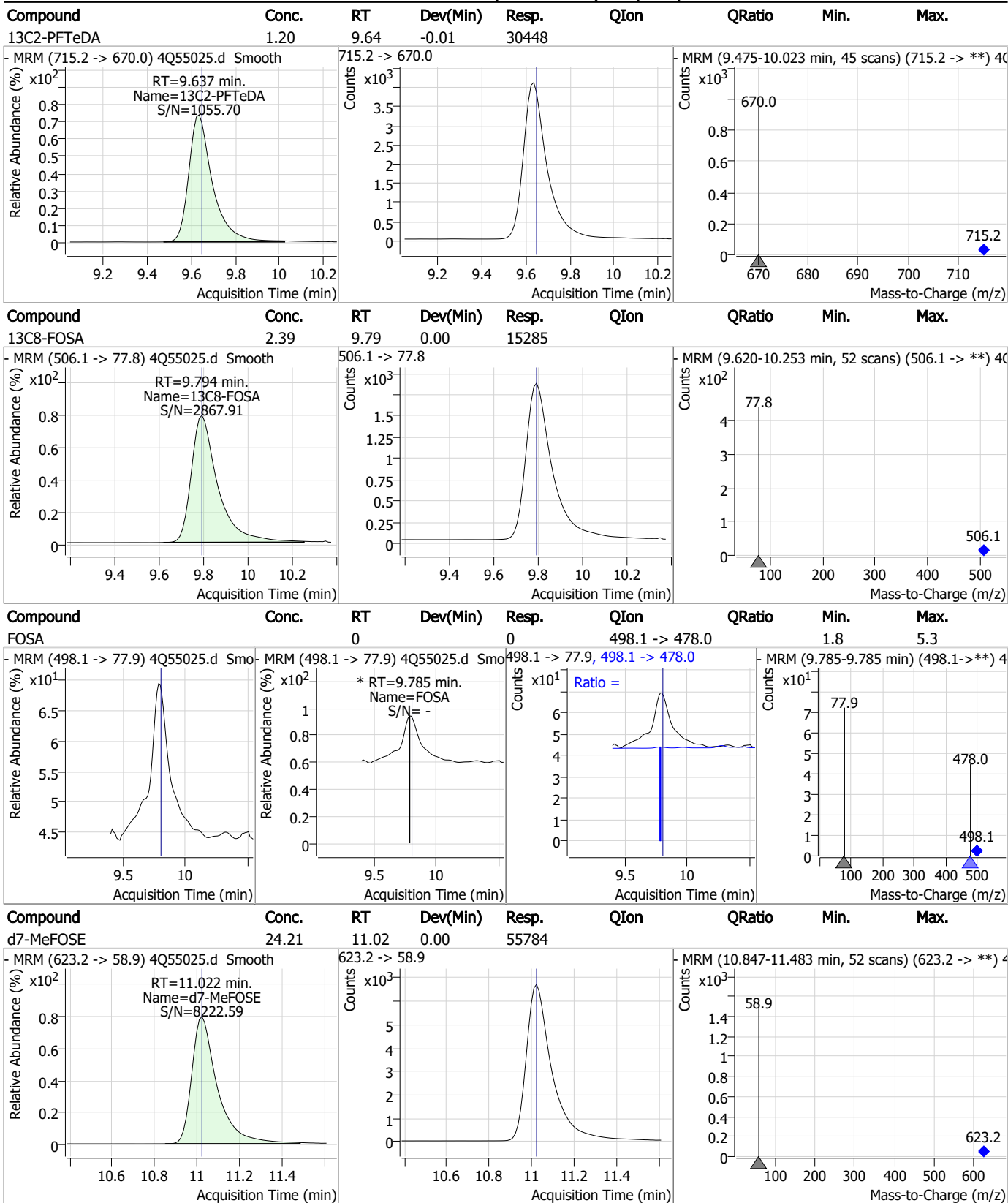
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Perfluorinated Compounds by LC/MS/MS



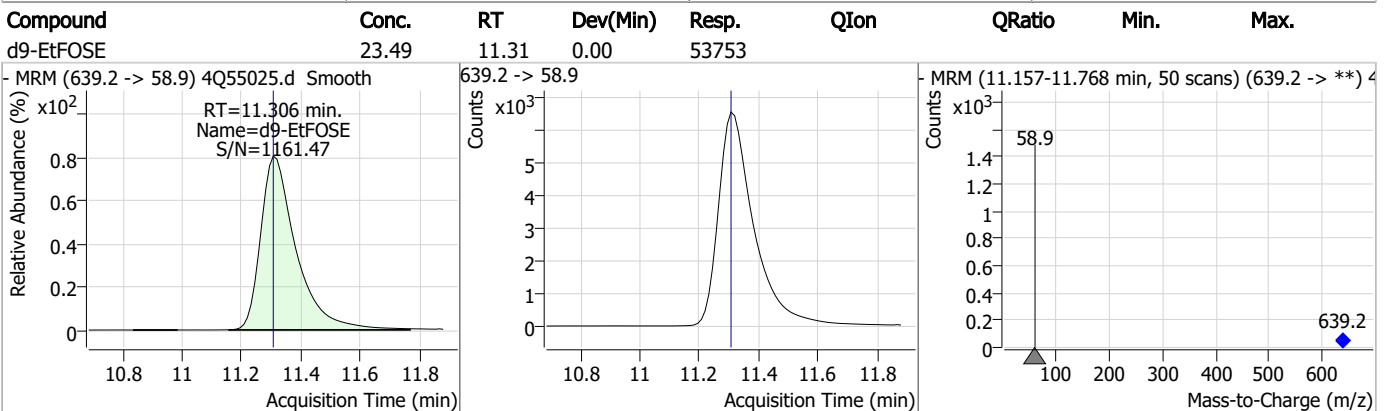
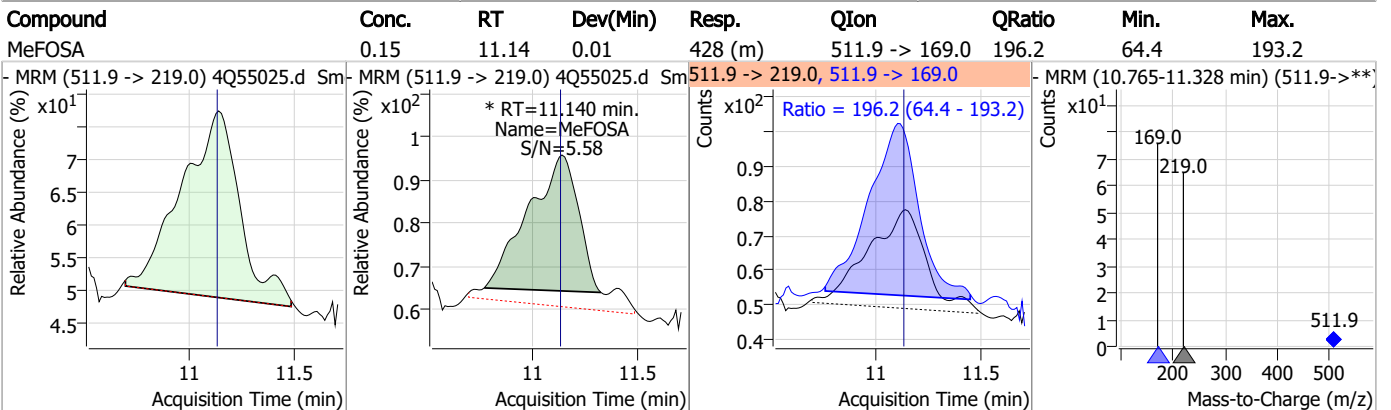
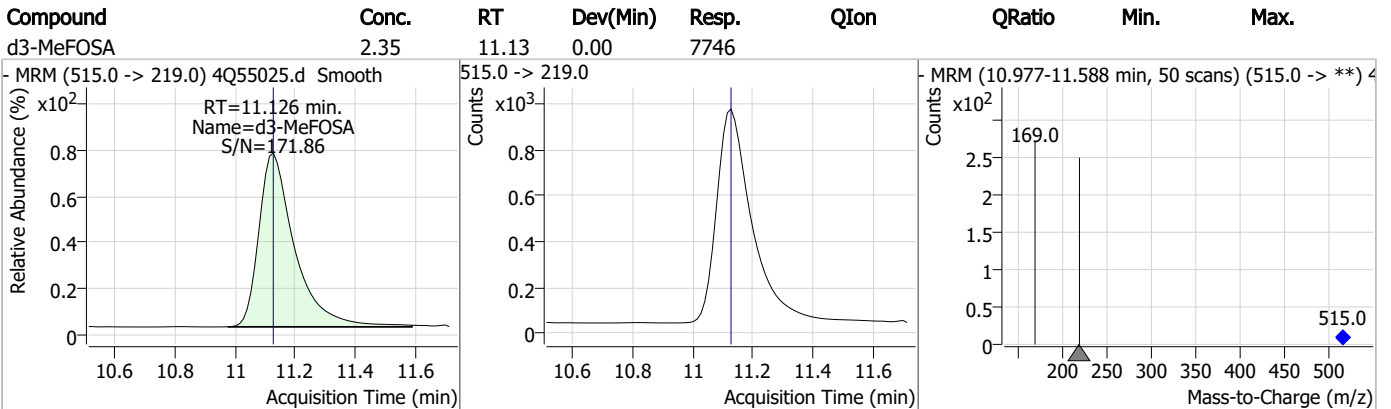
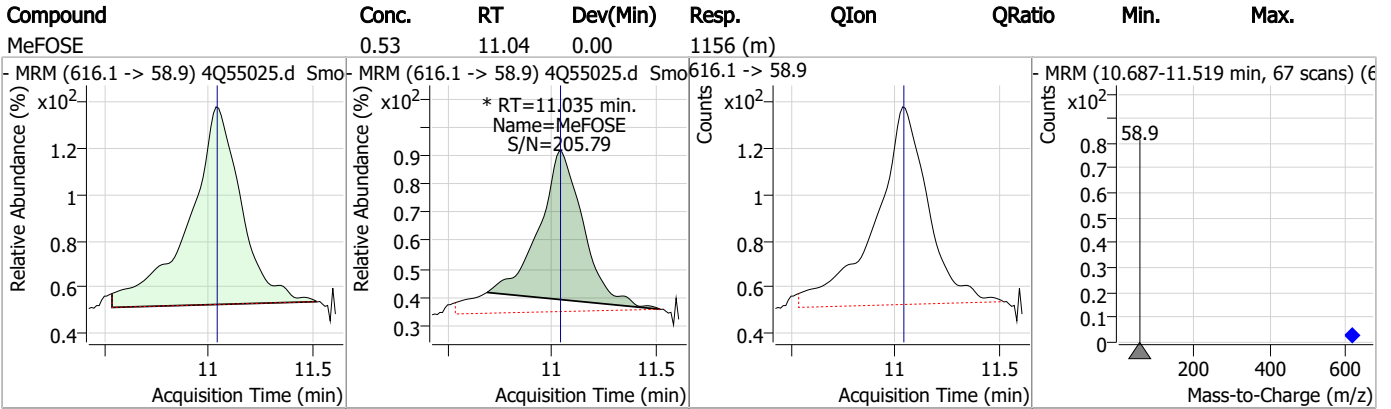
7.2.2
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Perfluorinated Compounds by LC/MS/MS

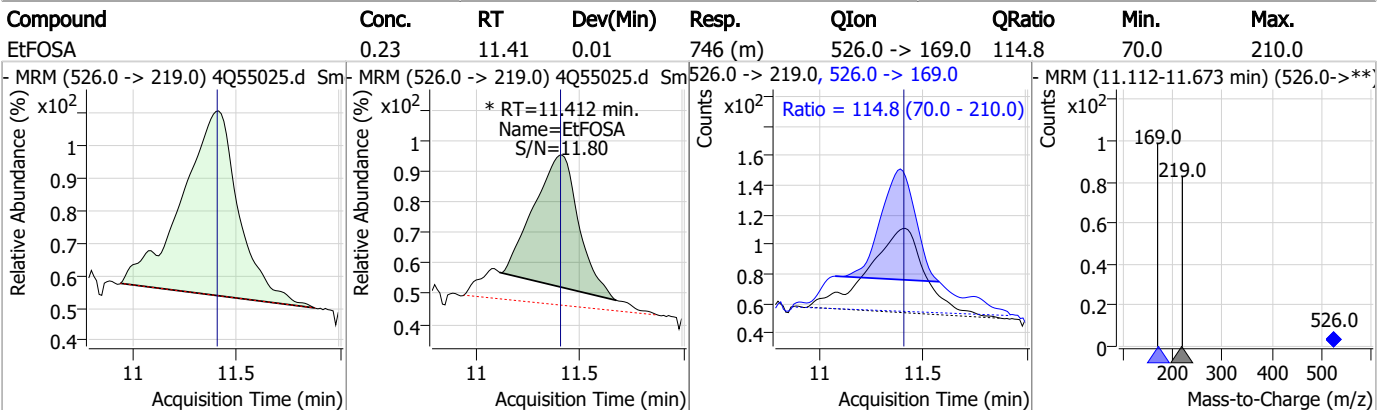
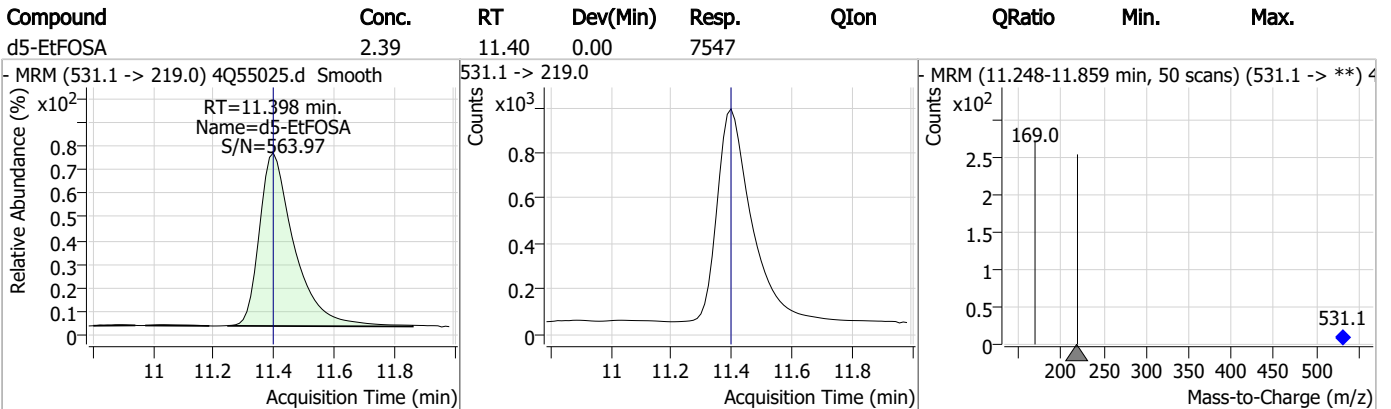
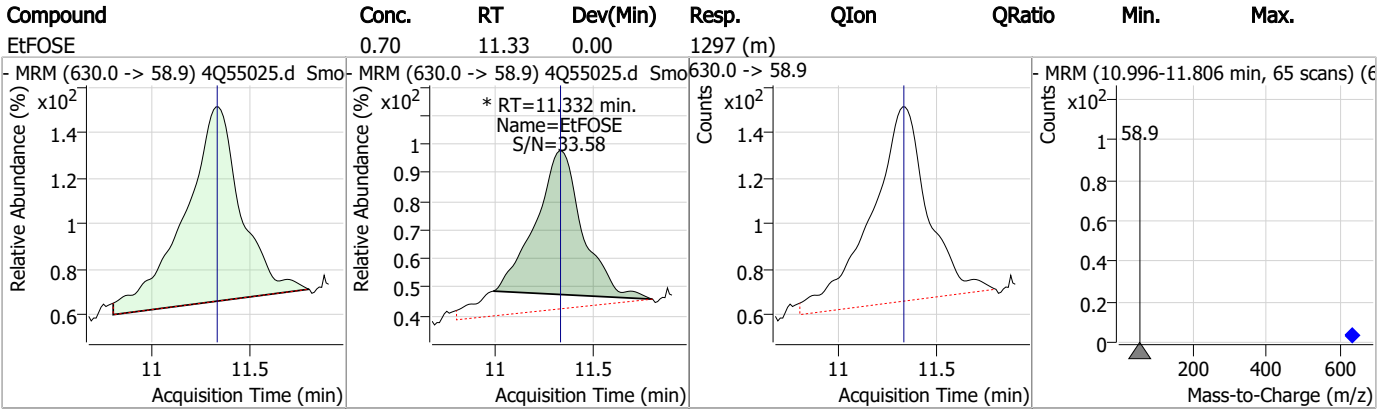


7.2.2
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.2.2

7

Manual Integration Approval Summary

Sample Number: S4Q806-IBLK Method: EPA DRAFT 1633
Lab FileID: 4Q55025.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 16:58 Supervisor approved: 12/12/23 11:51 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
EiFOSAA	2991-50-6		8.28	Poorly defined baseline
MeFOSE	24448-09-7		11.04	Poorly defined baseline
MeFOSA	31506-32-8		11.14	Poorly defined baseline
EiFOSE	1691-99-2		11.33	Poorly defined baseline
EiFOSA	4151-50-2		11.41	Poorly defined baseline

7.2.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55037.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 7:55:20 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.699	216.8 -> 171.9	164930	10.00 µg/L	0.000
M5-PFPeA	4.187	268.3 -> 223.0	74673	5.00 µg/L	0.012
M5-PFHxA	5.347	318.0 -> 273.0	63925	2.50 µg/L	0.000
M4-PFHpA	6.304	367.1 -> 322.0	61730	2.50 µg/L	0.012
M8-PFOA	6.976	421.1 -> 376.0	95928	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	36326	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	24777	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	28976	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	32543	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	31295	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	15420	2.50 µg/L	0.000
M3-PFBS	5.215	302.1 -> 79.9	17884	2.50 µg/L	0.012
M3-PFHxS	7.042	402.1 -> 79.9	14353	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	14566	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1901	5.00 µg/L	0.000
M2-6:2FTS	6.761	429.1 -> 80.9	3800	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	5210	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	29894	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	59665	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	24255	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	54461	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	53593	25.00 µg/L	0.000
M5-EtFOSA	11.398	531.1 -> 219.0	7538	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7313	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11671	2.50 µg/L	0.000
13C3-PFBA	2.691	216.0 -> 172.0	76700	5.00 µg/L	-0.013
18O2-PFHxS	7.041	403.0 -> 83.9	9202	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	109164	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	26558	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	36559	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	66664	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1901	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-6:2FTS	6.761	429.1 -> 80.9	3800	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-8:2FTS	7.804	529.1 -> 80.9	5210	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-PFDoDA	8.867	615.1 -> 570.0	32543	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.0%		
13C2-PFTeDA	9.637	715.2 -> 670.0	31295	1.27 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFBS	5.215	302.1 -> 79.9	17884	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C3-PFHxS	7.042	402.1 -> 79.9	14353	2.53 µg/L	0.000

7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFBA	2.699	216.8 -> 171.9	164930	9.99 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.304	367.1 -> 322.0	61730	2.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C5-PFHxA	5.347	318.0 -> 273.0	63925	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C5-PFPeA	4.187	268.3 -> 223.0	74673	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.004	519.1 -> 474.1	24777	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C7-PFUnDA	8.448	570.0 -> 525.1	28976	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C8-FOSA	9.794	506.1 -> 77.8	15420	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.7%	
13C8-PFOA	6.976	421.1 -> 376.0	95928	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C8-PFOS	8.117	507.1 -> 79.9	14566	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C9-PFNA	7.521	472.1 -> 427.0	36326	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.6%	
d3-MeFOSAA	8.086	573.2 -> 419.0	29894	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	59665	10.50 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
d3-MeFOSA	11.126	515.0 -> 219.0	7313	2.16 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 86.3%	
d5-EtFOSAA	8.283	589.2 -> 419.0	24255	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
d7-MeFOSE	11.022	623.2 -> 58.9	54461	22.95 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
d9-EtFOSE	11.306	639.2 -> 58.9	53593	22.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.0%	
d5-EtFOSA	11.398	531.1 -> 219.0	7538	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.7%	

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

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	7.384	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	-	548.8 -> 98.9	-	N.D.		
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

7.2.3
7

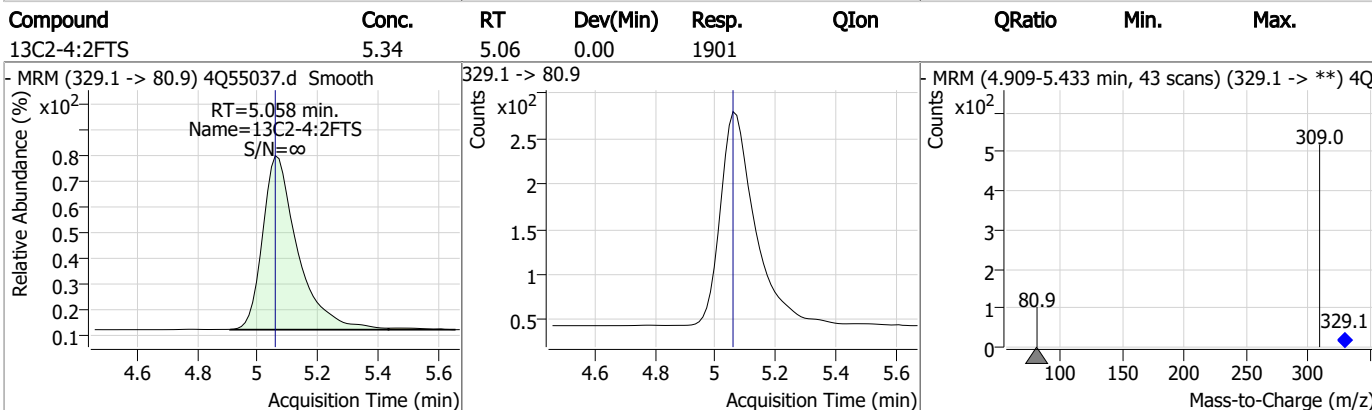
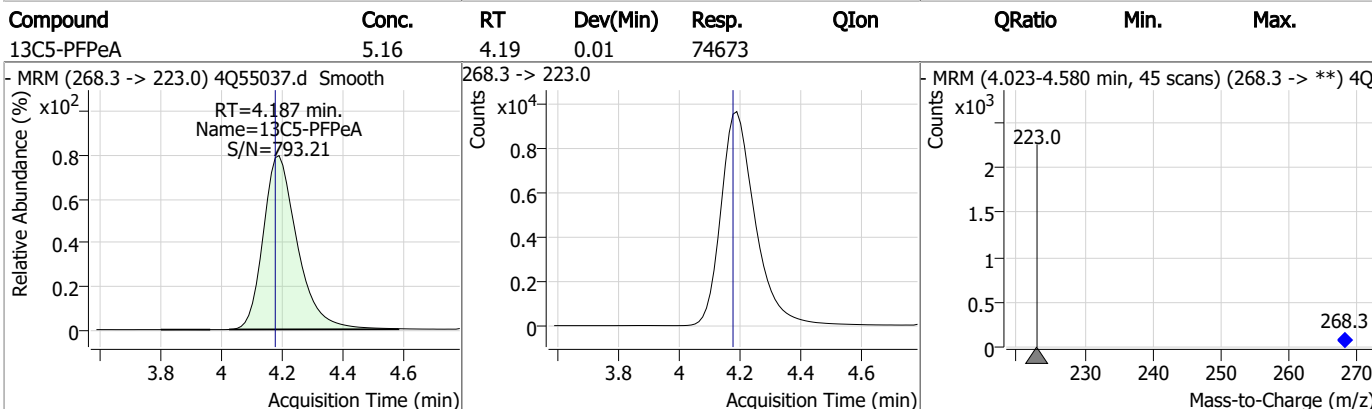
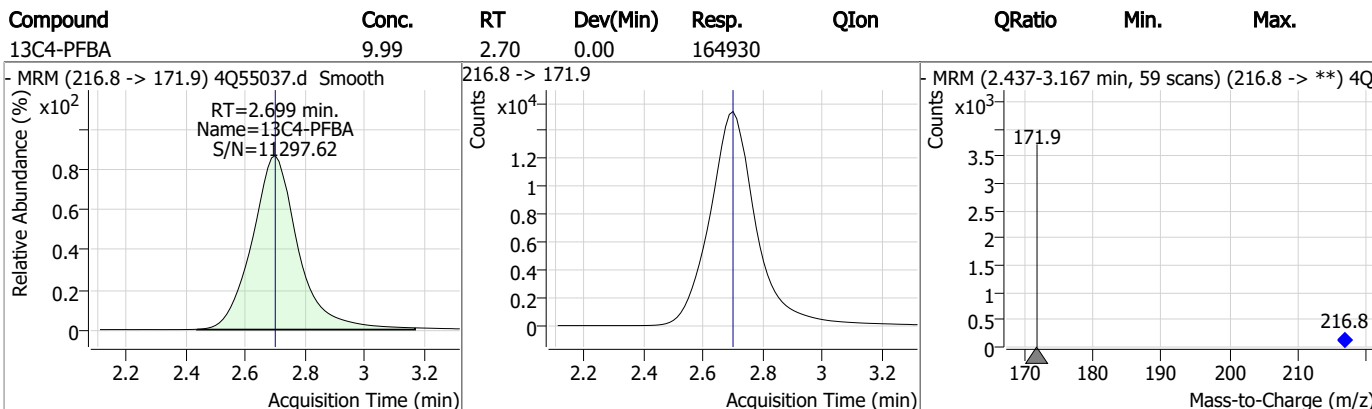
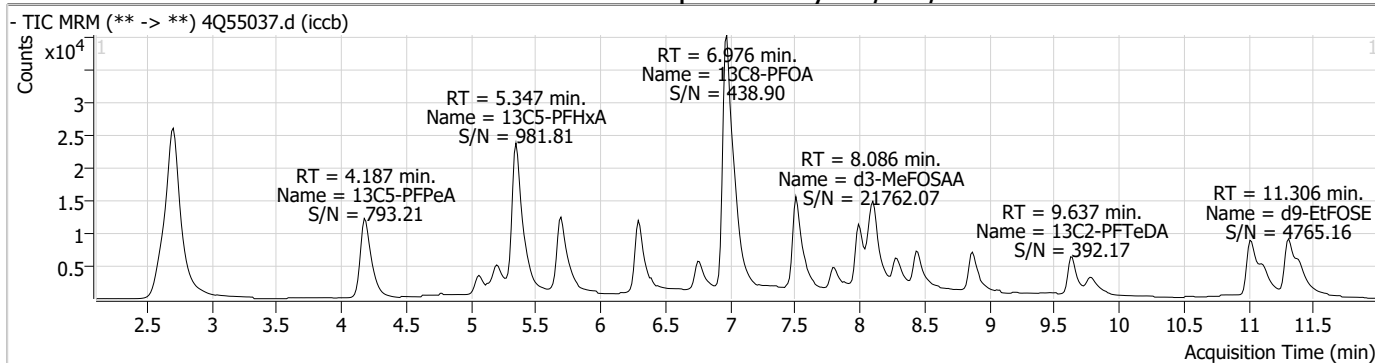
Perfluorinated Compounds by LC/MS/MS

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

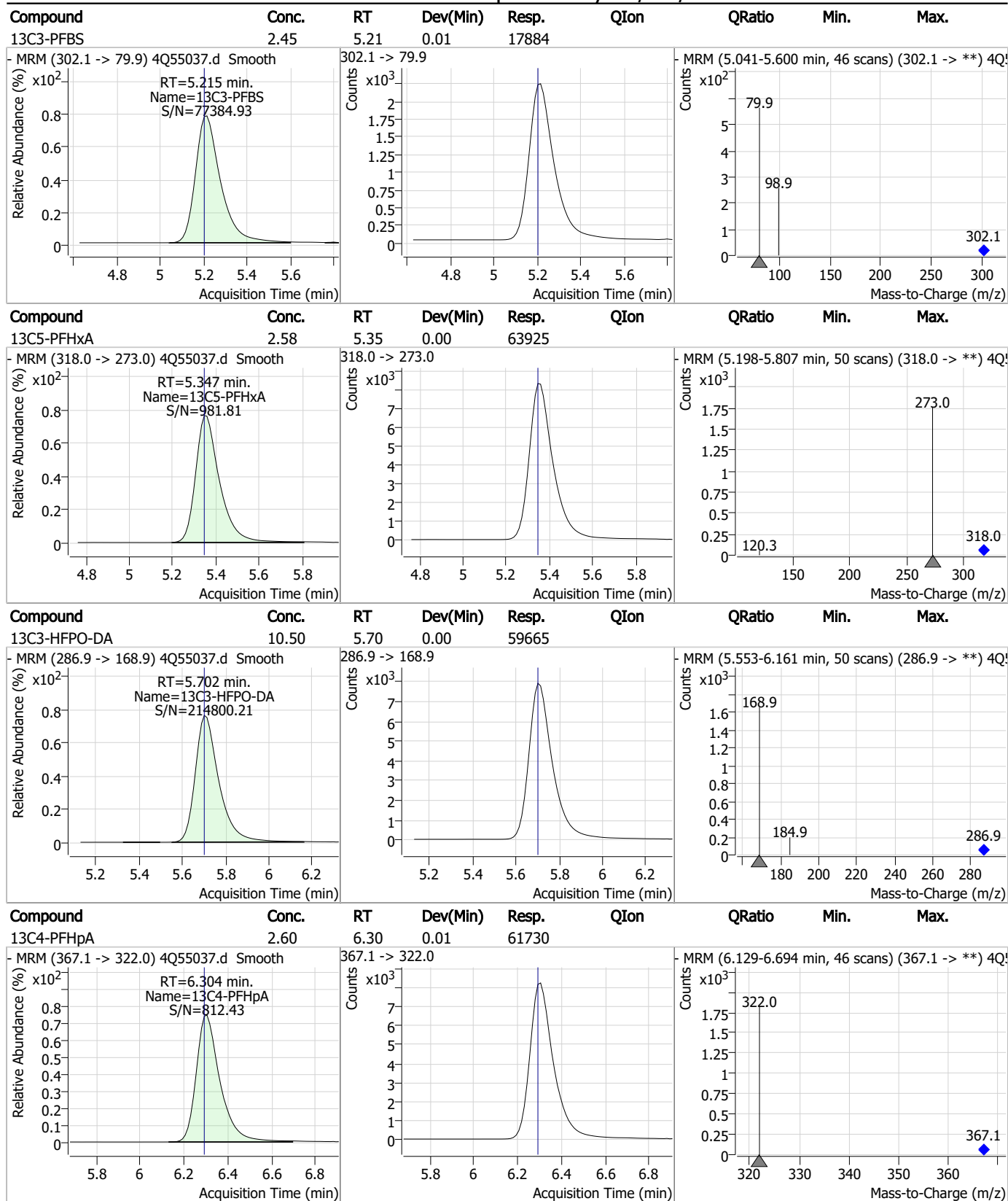
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Perfluorinated Compounds by LC/MS/MS



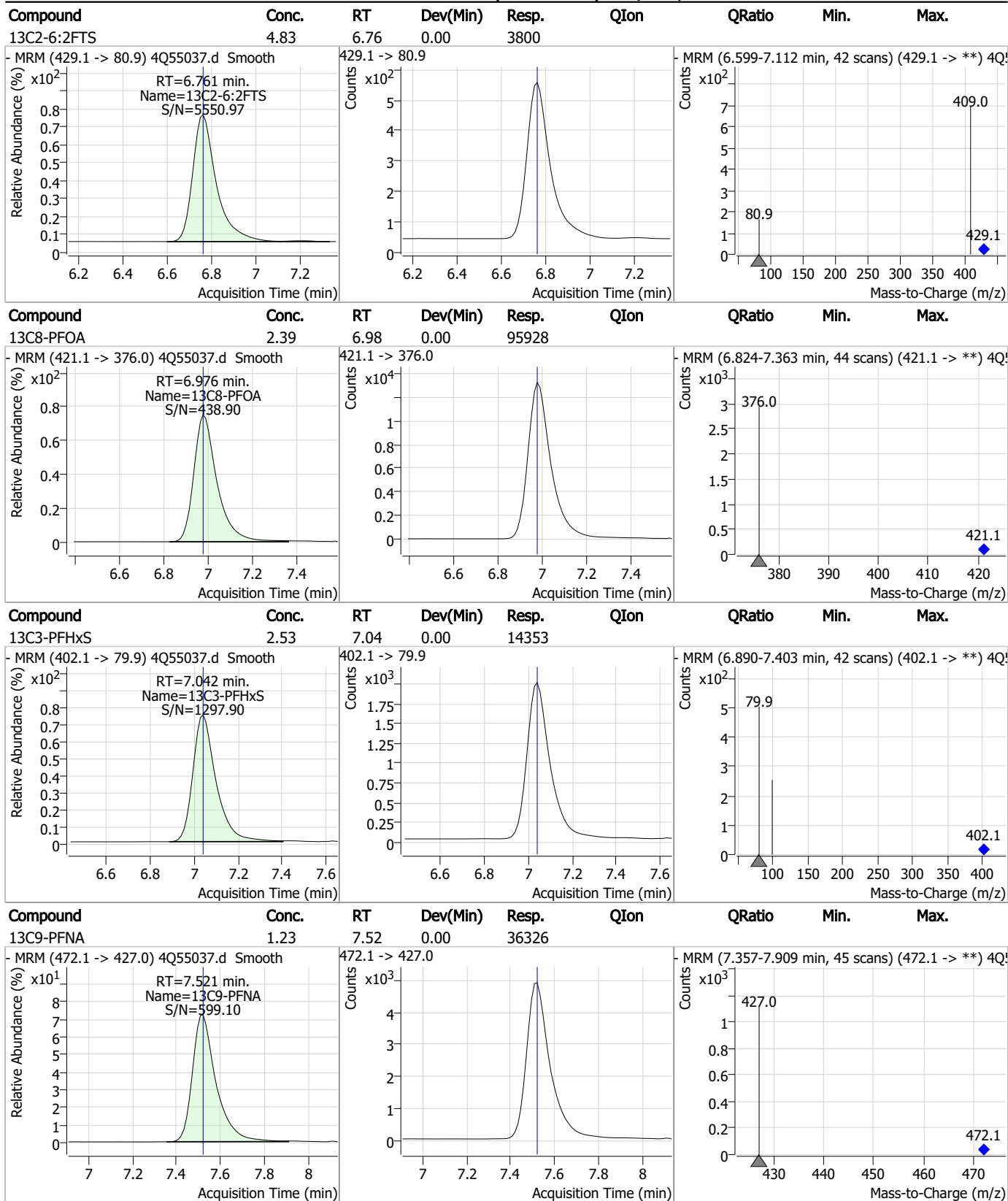
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

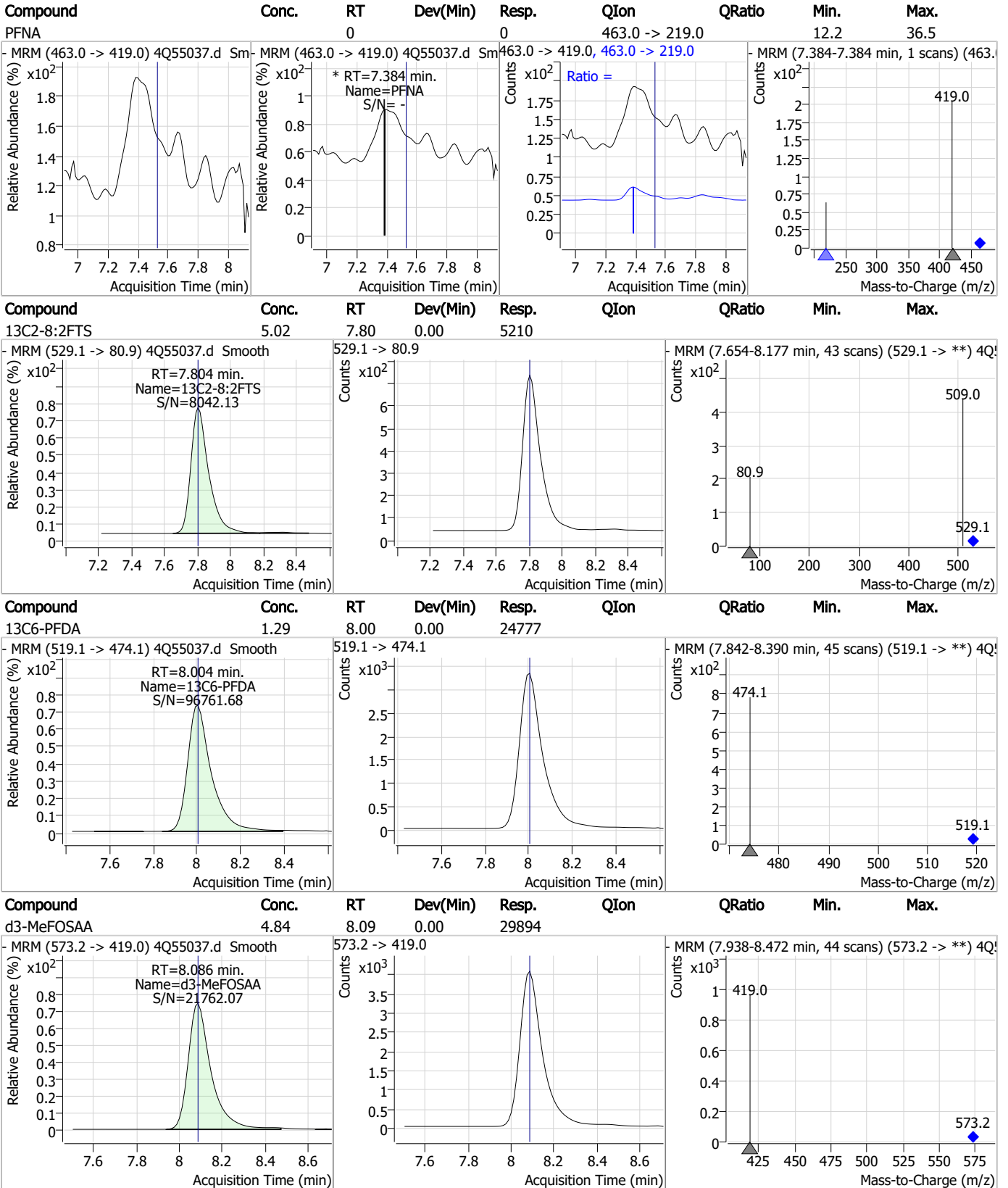
Perfluorinated Compounds by LC/MS/MS



7.2.3

7

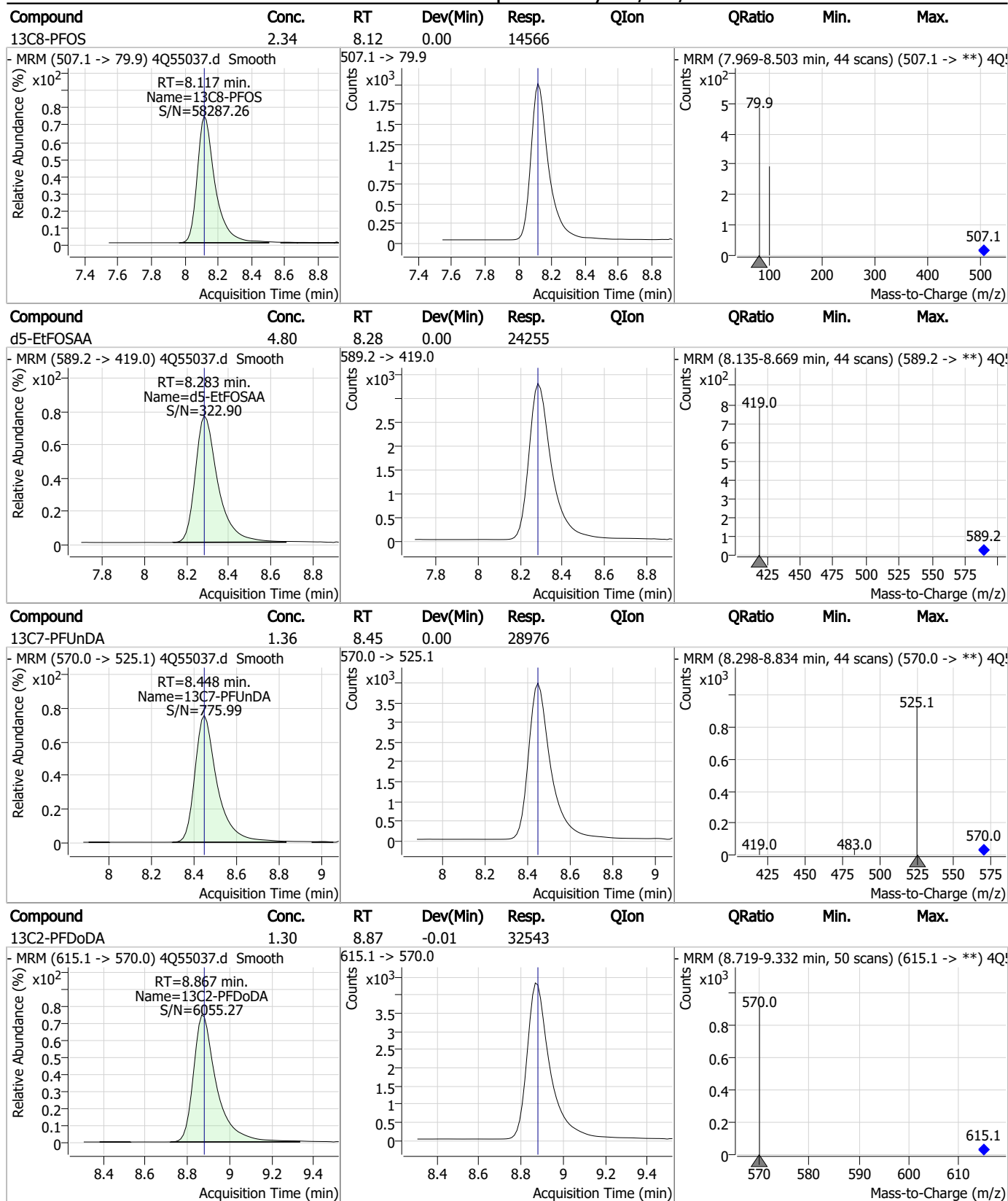
Perfluorinated Compounds by LC/MS/MS



7.2.3

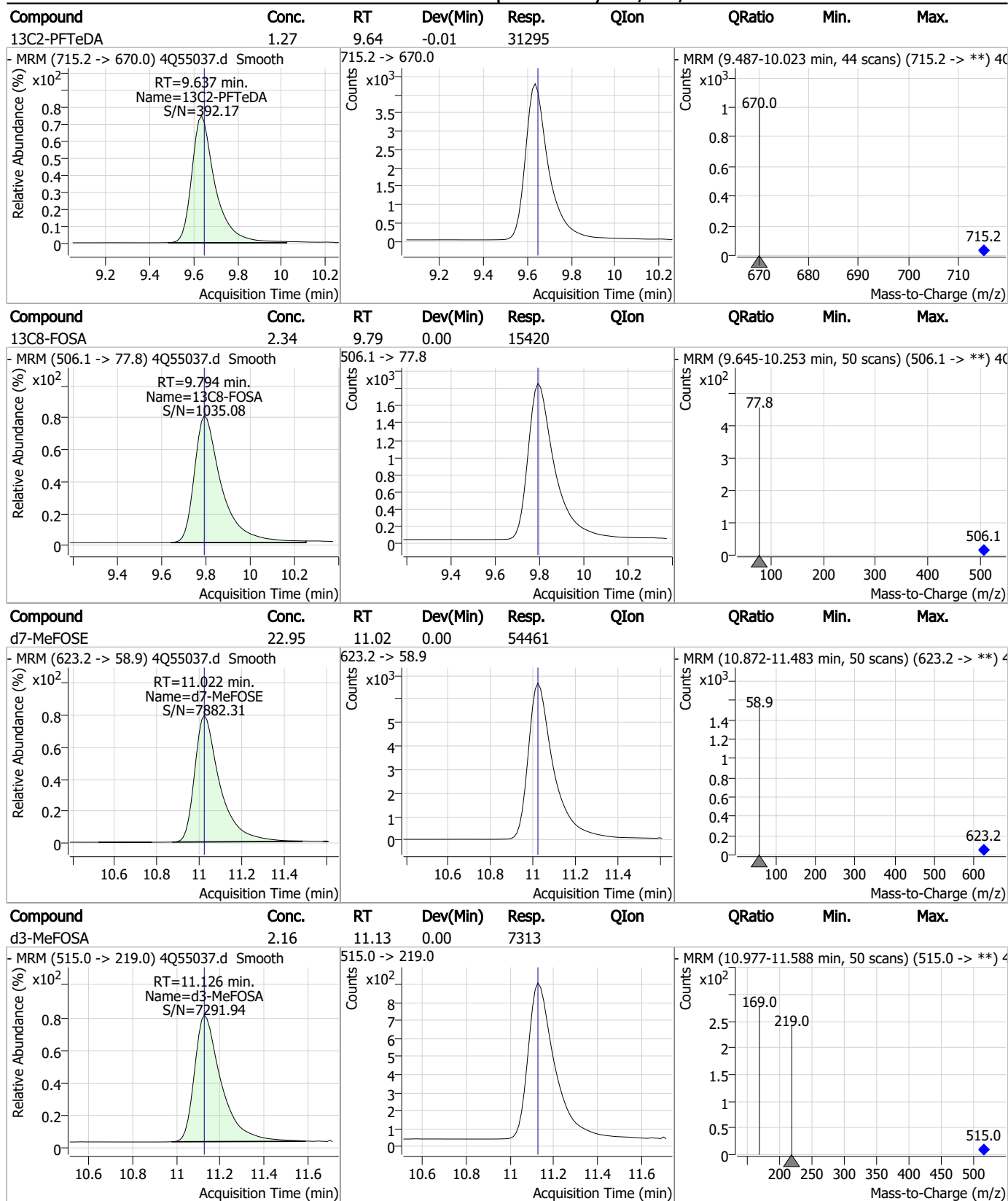
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Perfluorinated Compounds by LC/MS/MS



7.2.3
7

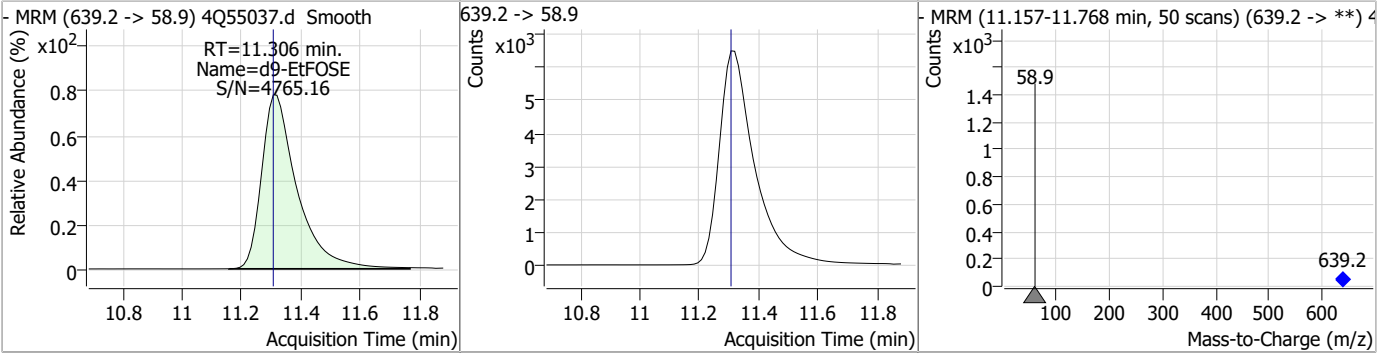
Perfluorinated Compounds by LC/MS/MS



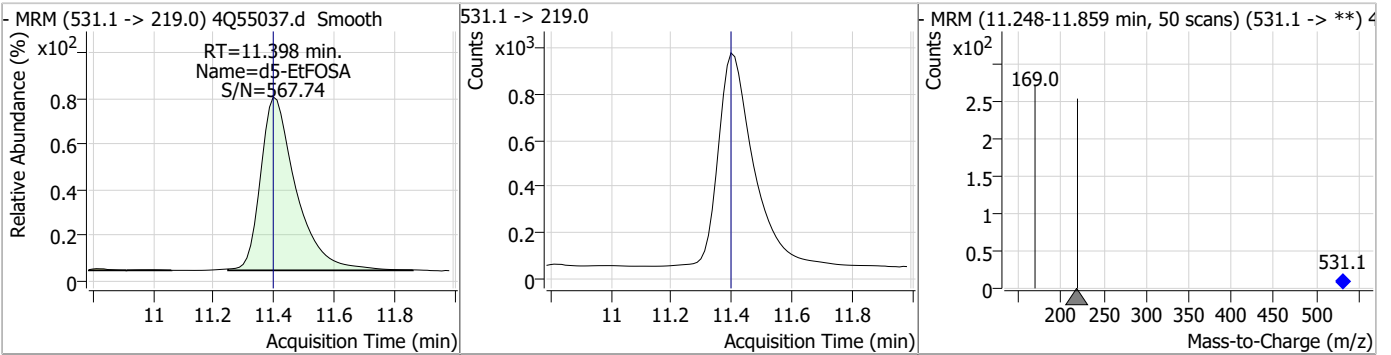
7.2.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.74	11.31	0.00	53593				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.32	11.40	0.00	7538				



7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55047.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 10:22:44 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.699	216.8 -> 171.9	164143	10.00 µg/L	0.000
M5-PFPeA	4.175	268.3 -> 223.0	74516	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	65583	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	61662	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	99370	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	38376	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	25685	1.25 µg/L	0.000
M7-PFUnDA	8.449	570.0 -> 525.1	29077	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	32239	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	30336	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	15644	2.50 µg/L	0.000
M3-PFBS	5.215	302.1 -> 79.9	17939	2.50 µg/L	0.012
M3-PFHxS	7.042	402.1 -> 79.9	14592	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	14904	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1765	5.00 µg/L	0.000
M2-6:2FTS	6.748	429.1 -> 80.9	3819	5.00 µg/L	-0.012
M2-8:2FTS	7.804	529.1 -> 80.9	4984	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	29890	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	59349	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	23350	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	55439	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	54039	25.00 µg/L	0.000
M5-EtFOSA	11.398	531.1 -> 219.0	7722	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7680	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11729	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	77547	5.00 µg/L	0.000
18O2-PFHxS	7.041	403.0 -> 83.9	9269	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	107818	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	27124	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	37772	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	68565	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1765	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
13C2-6:2FTS	6.748	429.1 -> 80.9	3819	4.82 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C2-8:2FTS	7.804	529.1 -> 80.9	4984	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C2-PFDoDA	8.867	615.1 -> 570.0	32239	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFTeDA	9.637	715.2 -> 670.0	30336	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C3-PFBS	5.215	302.1 -> 79.9	17939	2.44 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C3-PFHxS	7.042	402.1 -> 79.9	14592	2.55 µg/L	0.000

7.24
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFBA	2.699	216.8 -> 171.9	164143	9.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFHpA	6.292	367.1 -> 322.0	61662	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFHxA	5.347	318.0 -> 273.0	65583	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C5-PFPeA	4.175	268.3 -> 223.0	74516	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C6-PFDA	8.004	519.1 -> 474.1	25685	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C7-PFUnDA	8.449	570.0 -> 525.1	29077	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C8-FOSA	9.794	506.1 -> 77.8	15644	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-PFOA	6.976	421.1 -> 376.0	99370	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOS	8.117	507.1 -> 79.9	14904	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C9-PFNA	7.521	472.1 -> 427.0	38376	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.8%	
d3-MeFOSAA	8.086	573.2 -> 419.0	29890	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	59349	10.16 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
d3-MeFOSA	11.126	515.0 -> 219.0	7680	2.26 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.2%	
d5-EtFOSAA	8.283	589.2 -> 419.0	23350	4.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.1%	
d7-MeFOSE	11.022	623.2 -> 58.9	55439	23.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d9-EtFOSE	11.306	639.2 -> 58.9	54039	22.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
d5-EtFOSA	11.398	531.1 -> 219.0	7722	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	

7.2.4
7

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



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
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	6.978	548.8 -> 98.9	768	0.02	µg/L	m
		413.0 -> 369.0	191			
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	8.660	563.1 -> 519.0	0		µg/L	m
		563.1 -> 269.1	0			
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		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

7.24
7

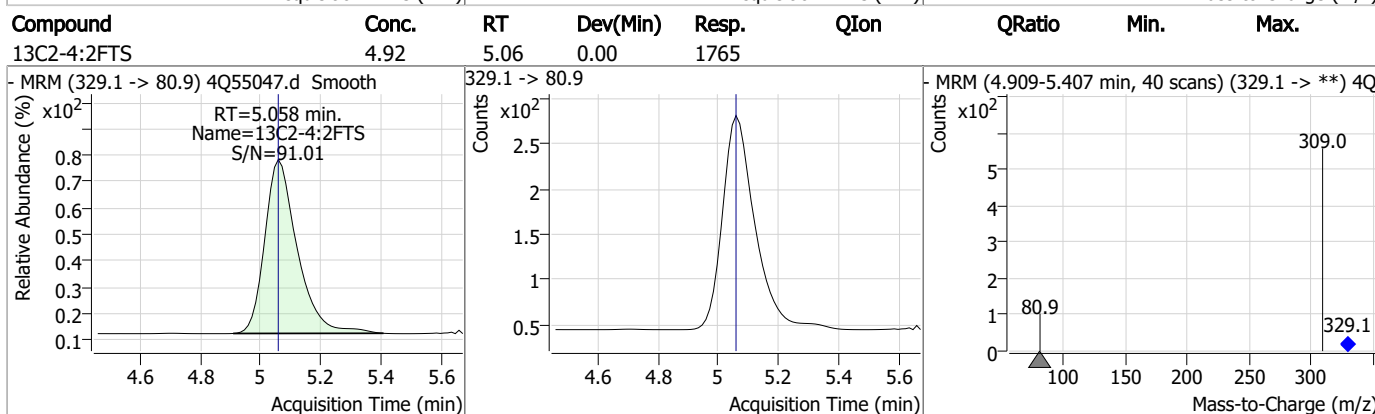
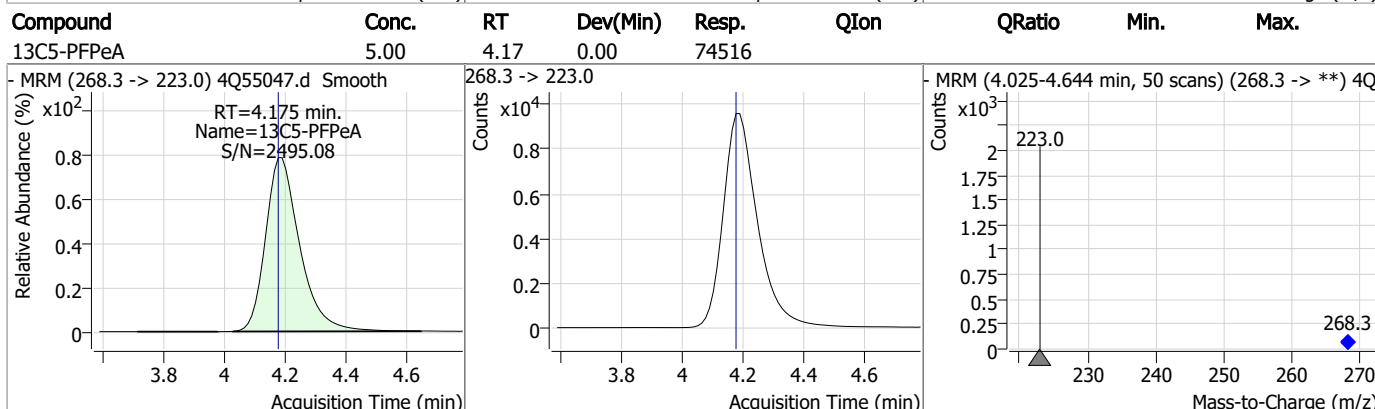
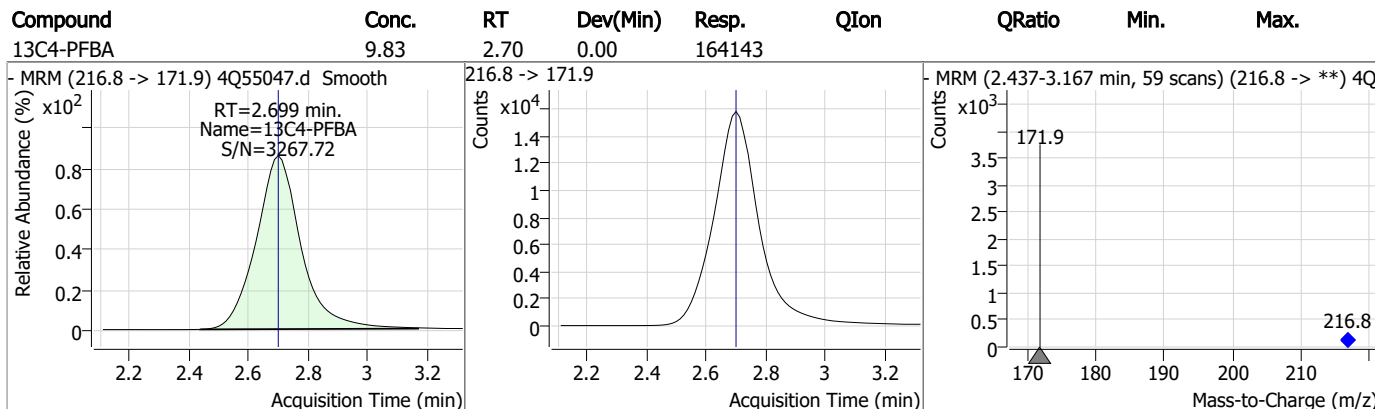
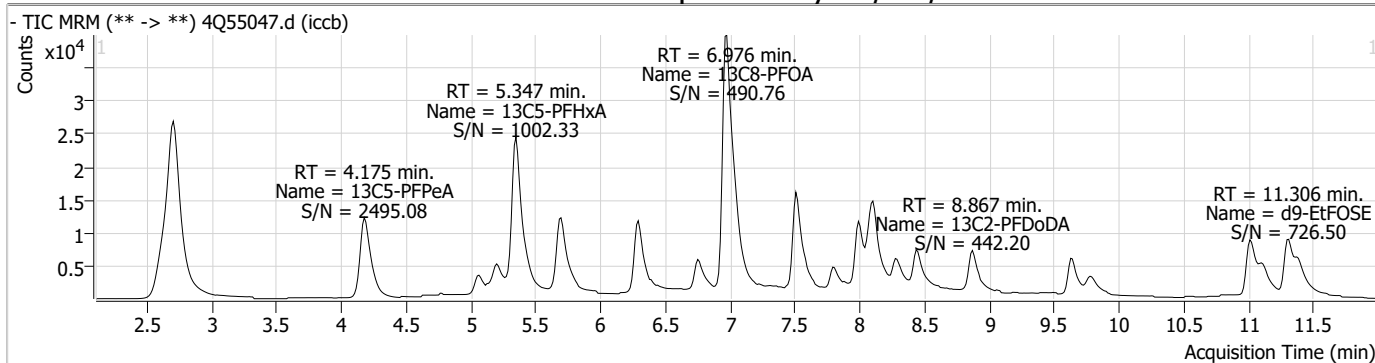
Perfluorinated Compounds by LC/MS/MS

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

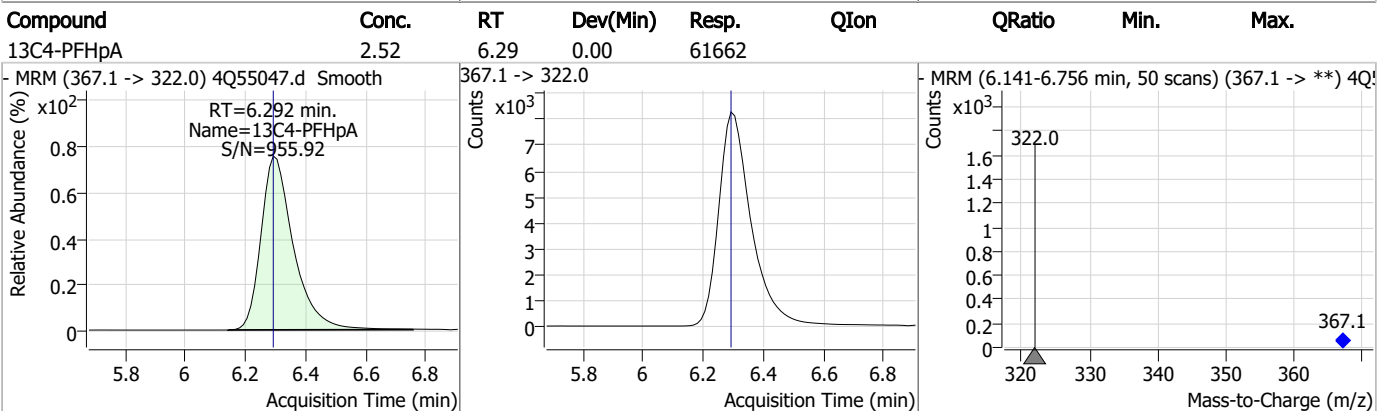
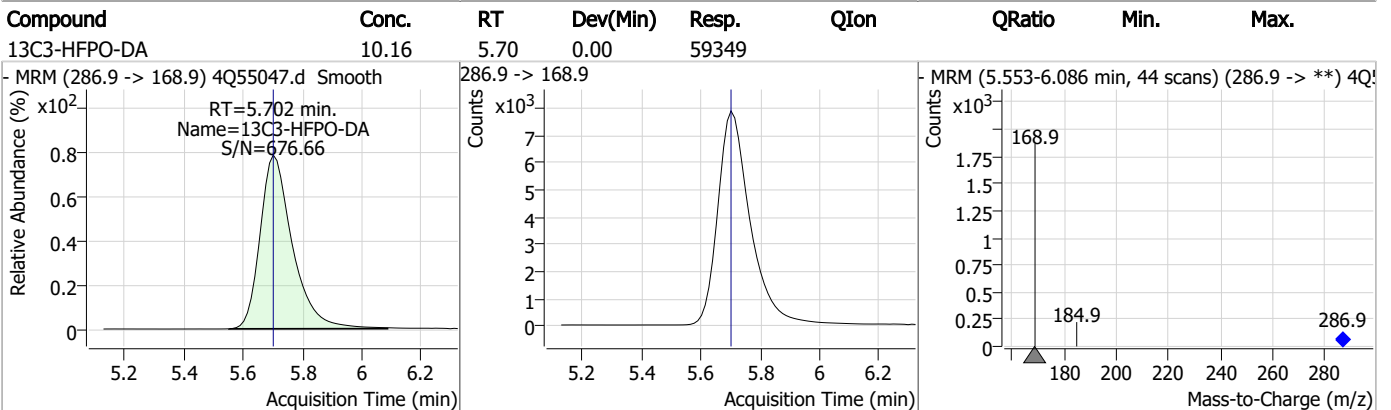
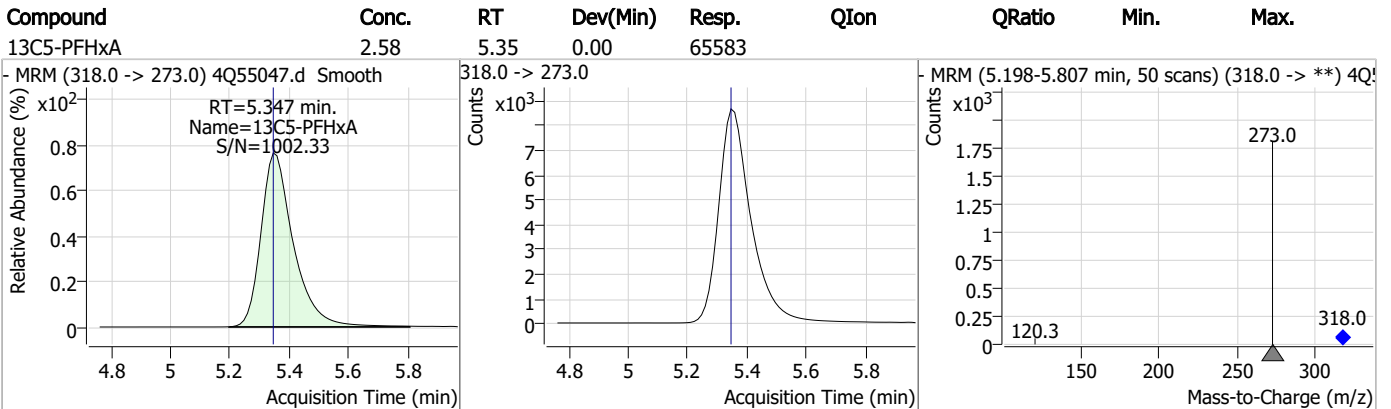
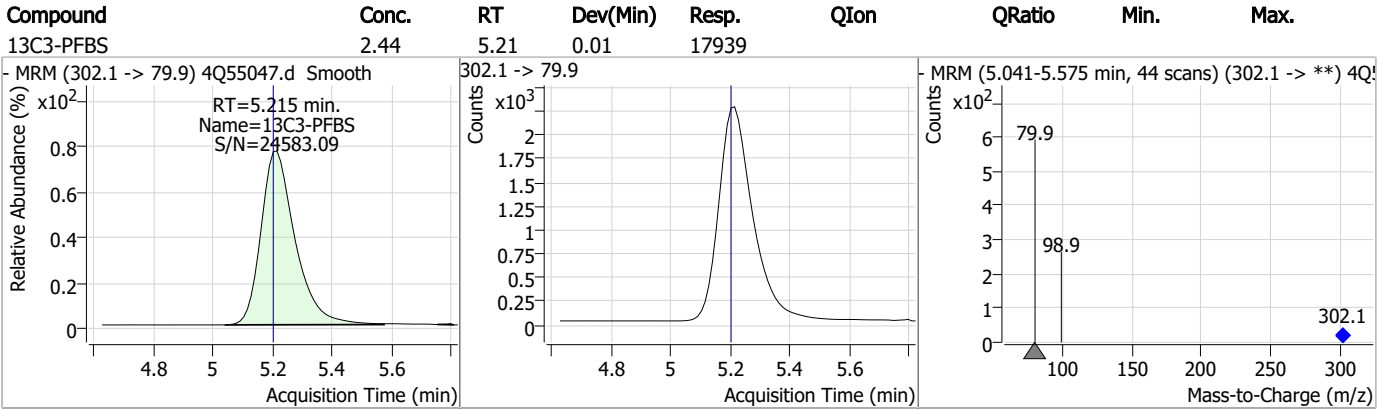
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Perfluorinated Compounds by LC/MS/MS

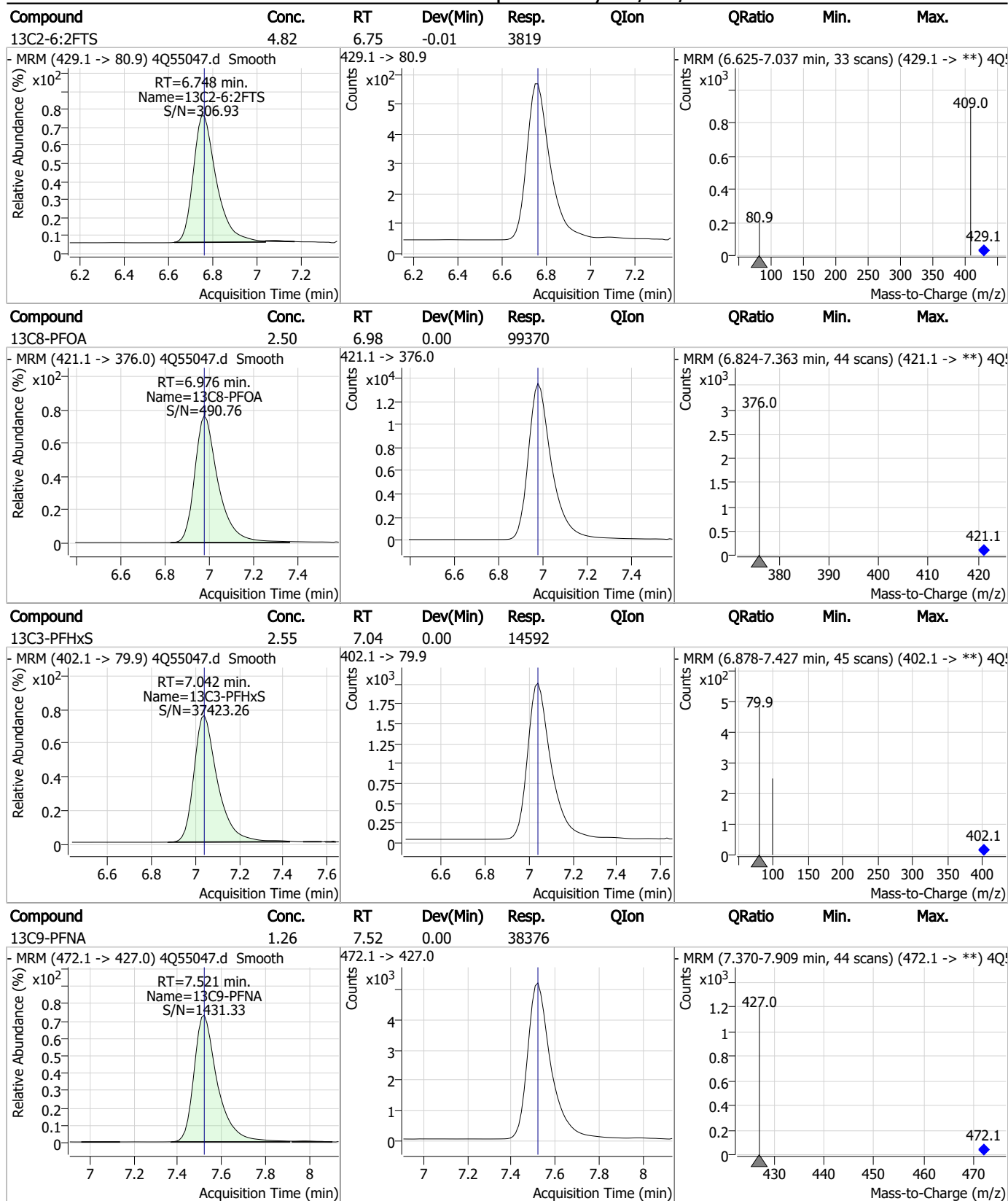


7.2.4
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Perfluorinated Compounds by LC/MS/MS

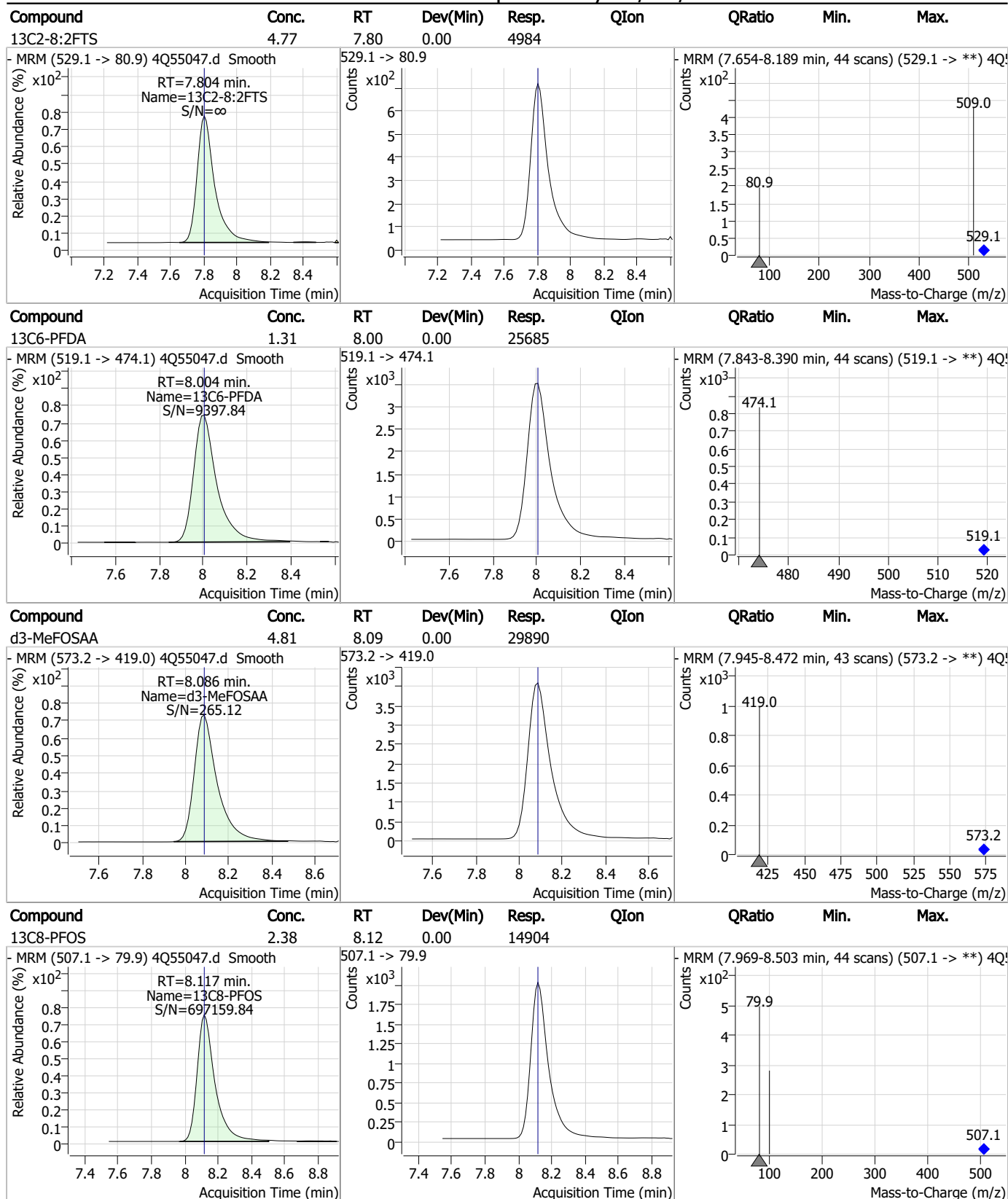


Perfluorinated Compounds by LC/MS/MS



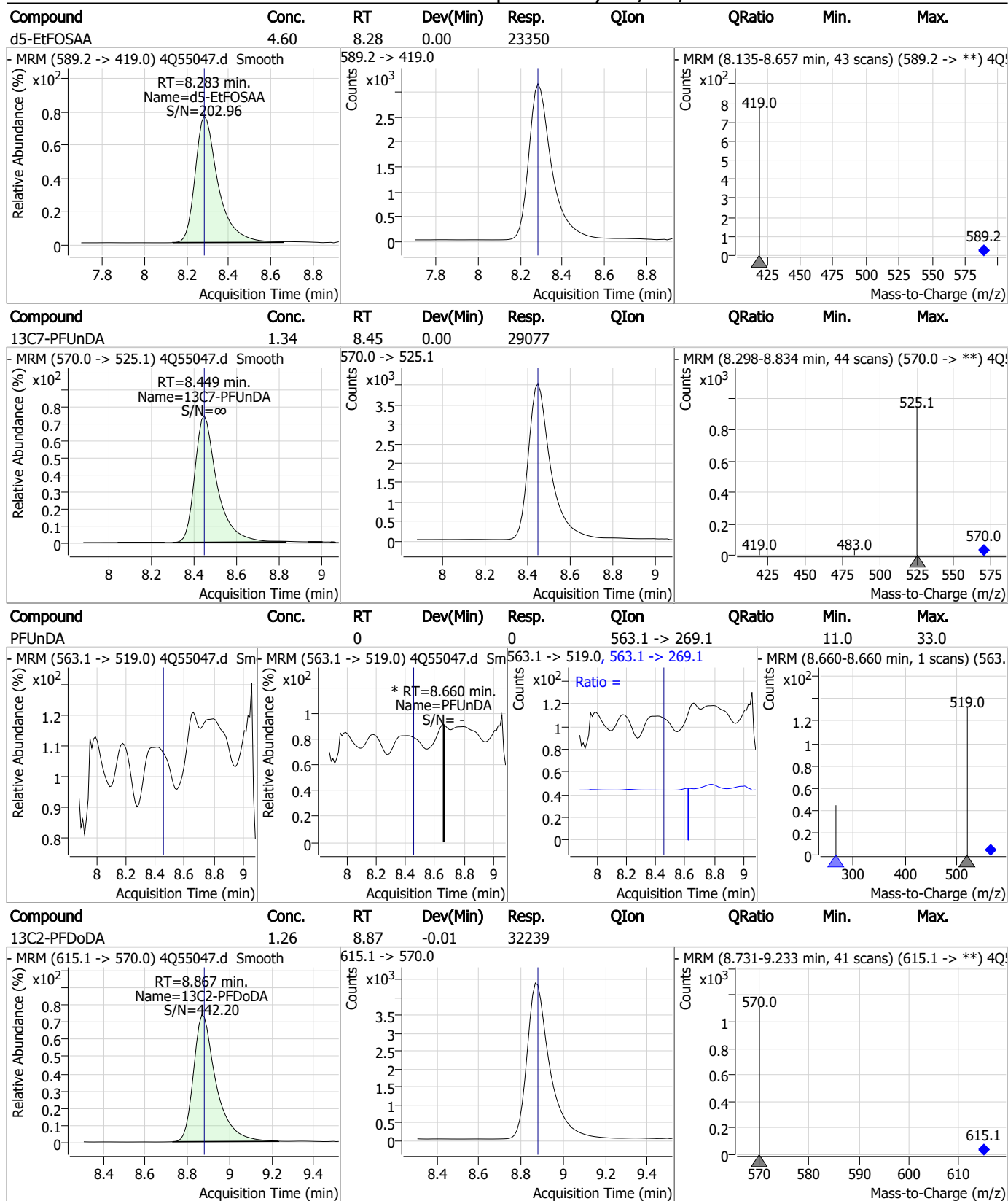
7.2.4
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Perfluorinated Compounds by LC/MS/MS



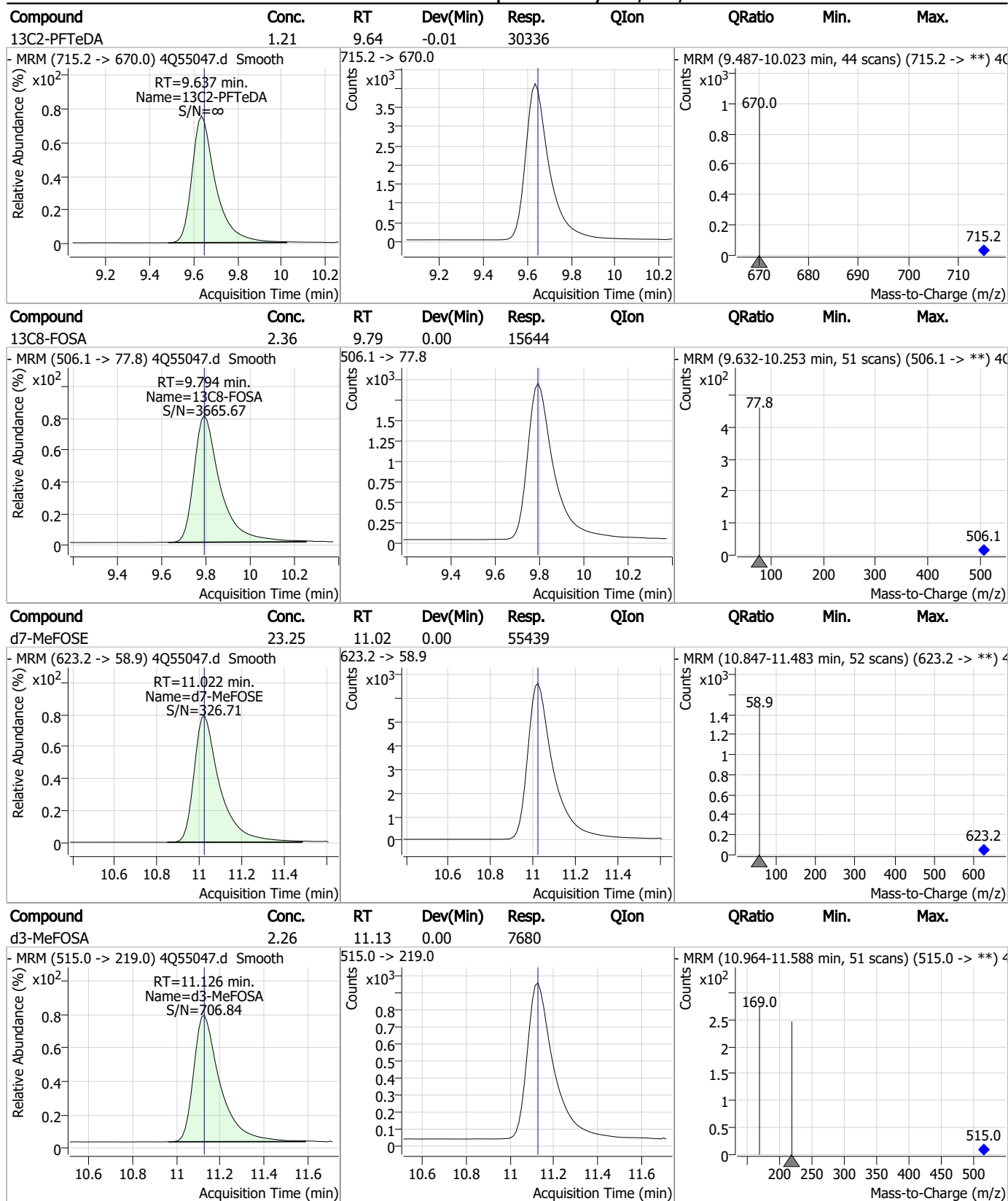
7.2.4
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Perfluorinated Compounds by LC/MS/MS



7.2.4
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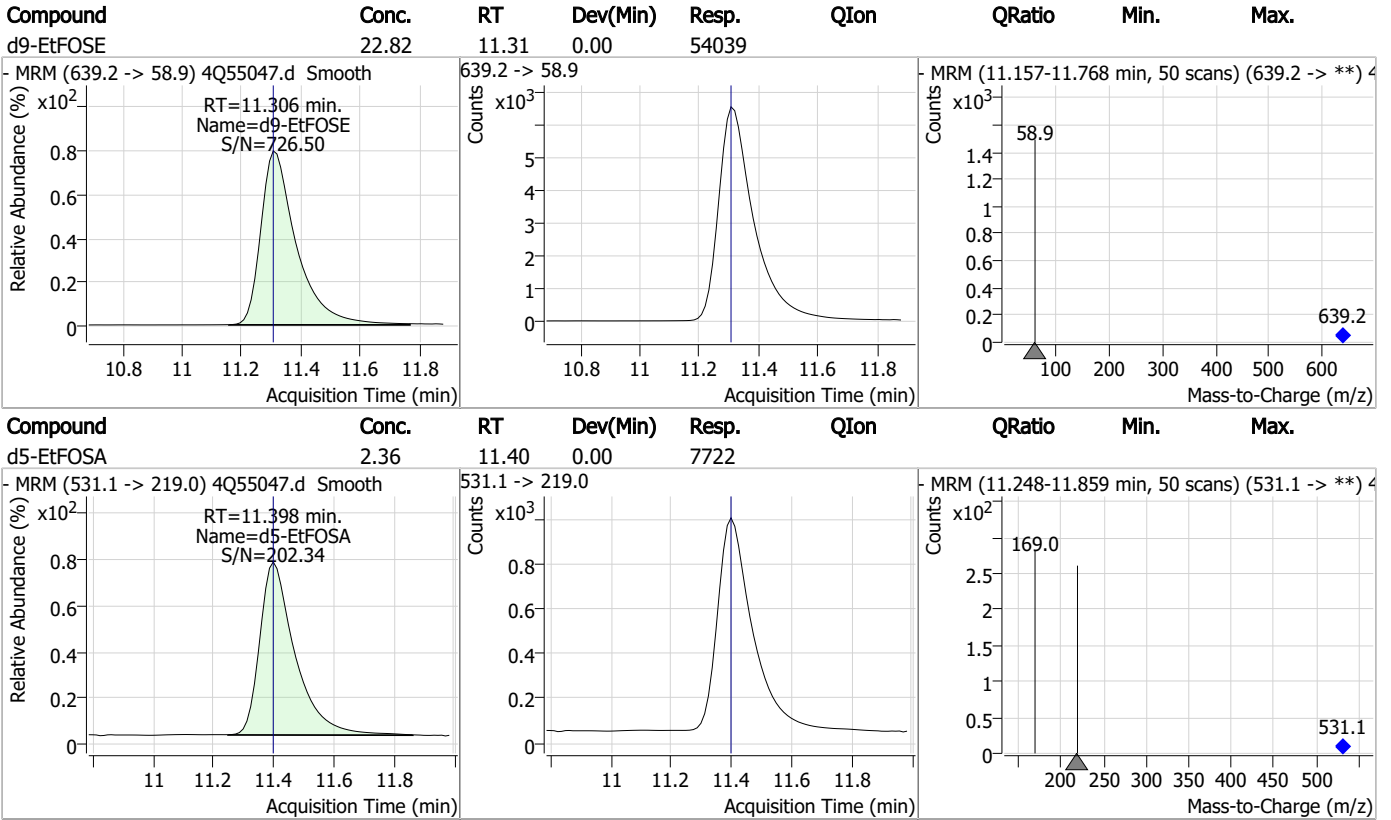
Perfluorinated Compounds by LC/MS/MS



7.2.4

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Perfluorinated Compounds by LC/MS/MS



7.2.4

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Manual Integration Approval Summary

Sample Number: S4Q806-ICCB Method: EPA DRAFT 1633
Lab FileID: 4Q55047.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 22:22 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.98	Split peak

7.2.4.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55038.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 8:10:04 PM
 Sample Name : op552-bs
 Vial : P4-B3
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP552,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.740	216.8 -> 171.9	142576	10.00 µg/L	0.041
M5-PFPeA	4.187	268.3 -> 223.0	67002	5.00 µg/L	0.012
M5-PFHxA	5.359	318.0 -> 273.0	54891	2.50 µg/L	0.012
M4-PFHpA	6.292	367.1 -> 322.0	53362	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	83529	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	31528	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	20865	1.25 µg/L	0.000
M7-PFUnDA	8.449	570.0 -> 525.1	23922	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	26333	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	22263	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	11955	2.50 µg/L	0.000
M3-PFBS	5.215	302.1 -> 79.9	14793	2.50 µg/L	0.012
M3-PFHxS	7.042	402.1 -> 79.9	12832	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	12663	2.50 µg/L	0.000
M2-4:2FTS	5.071	329.1 -> 80.9	1412	5.00 µg/L	0.012
M2-6:2FTS	6.761	429.1 -> 80.9	3163	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	3920	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	24915	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	50341	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	20368	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	32952	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	40556	25.00 µg/L	0.000
M5-EtFOSA	11.397	531.1 -> 219.0	6211	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	5625	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	10549	2.50 µg/L	0.000
13C3-PFBA	2.743	216.0 -> 172.0	72248	5.00 µg/L	0.040
18O2-PFHxS	7.041	403.0 -> 83.9	7733	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	94680	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	23301	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	32433	1.25 µg/L	0.000
13C2-PFHxA	5.360	315.1 -> 270.0	60877	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.071	329.1 -> 80.9	1412	4.72 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C2-6:2FTS	6.761	429.1 -> 80.9	3163	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-8:2FTS	7.804	529.1 -> 80.9	3920	4.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.9%		
13C2-PFDoDA	8.867	615.1 -> 570.0	26333	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.9%		
13C2-PFTeDA	9.637	715.2 -> 670.0	22263	1.03 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.4%		
13C3-PFBS	5.215	302.1 -> 79.9	14793	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.042	402.1 -> 79.9	12832	2.69 µg/L	0.000

7.31
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C4-PFBA	2.740	216.8 -> 171.9	142576	9.16 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 91.6%	
13C4-PFHpA	6.292	367.1 -> 322.0	53362	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFHxA	5.359	318.0 -> 273.0	54891	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C5-PFPeA	4.187	268.3 -> 223.0	67002	5.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.004	519.1 -> 474.1	20865	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C7-PFUnDA	8.449	570.0 -> 525.1	23922	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-FOSA	9.794	506.1 -> 77.8	11955	1.01 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.3%	
13C8-PFOA	6.976	421.1 -> 376.0	83529	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C8-PFOS	8.117	507.1 -> 79.9	12663	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.0%	
13C9-PFNA	7.521	472.1 -> 427.0	31528	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.5%	
d3-MeFOSAA	8.086	573.2 -> 419.0	24915	4.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.2%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	50341	9.70 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSA	11.126	515.0 -> 219.0	5625	1.84 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 73.5%	
d5-EtFOSAA	8.283	589.2 -> 419.0	20368	4.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
d7-MeFOSE	11.022	623.2 -> 58.9	32952	15.36 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 61.5%	
d9-EtFOSE	11.306	639.2 -> 58.9	40556	19.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.2%	
d5-EtFOSA	11.397	531.1 -> 219.0	6211	2.11 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.5%	
Target Compounds					QValue
4:2FTS	5.072	327.1 -> 307.0	25456	9.95 µg/L	96
		327.1 -> 80.9	10787		
6:2FTS	6.761	427.1 -> 407.0	34413	10.22 µg/L	95
		427.1 -> 80.9	11982		
8:2FTS	7.804	527.1 -> 507.0	23446	11.05 µg/L	98
		527.1 -> 80.8	9173		
EtFOSAA	8.284	584.2 -> 419.1	9831	2.73 µg/L	m 94
		584.2 -> 526.0	3635		
FOSA	9.798	498.1 -> 77.9	14253	2.63 µg/L	100
		498.1 -> 478.0	488		
MeFOSAA	8.087	570.1 -> 419.0	10286	2.66 µg/L	91
		570.1 -> 483.0	2152		
PFBA	2.746	212.8 -> 168.9	49446	10.91 µg/L	100
PFBS	5.216	298.7 -> 79.9	10944	2.47 µg/L	98
		298.7 -> 98.8	4117		
PFDA	8.005	512.9 -> 469.0	40944	2.69 µg/L	96
		512.9 -> 219.0	8394		
PFDODA	8.868	613.1 -> 569.0	52120	2.68 µg/L	100
		613.1 -> 319.0	9341		
PFDS	9.008	599.0 -> 79.9	8491	2.50 µg/L	96

7.3.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.305	599.0 -> 98.8	4078	2.74	µg/L	99
		363.1 -> 319.0	82497			
PFHpS	7.612	363.1 -> 169.0	14511	2.58	µg/L	99
		449.0 -> 79.9	13859			
PFHxA	5.362	449.0 -> 98.9	7266	2.68	µg/L	99
		313.0 -> 269.0	47192			
PFHxS	7.043	313.0 -> 118.9	1378	2.44	µg/L	m
		398.7 -> 79.9	9717			
PFNA	7.522	398.7 -> 98.9	4739	2.62	µg/L	97
		463.0 -> 419.0	50726			
PFNS	8.574	463.0 -> 219.0	11507	2.87	µg/L	96
		548.8 -> 79.9	6332			
PFOA	6.978	548.8 -> 98.9	3218	2.61	µg/L	99
		413.0 -> 369.0	91695			
PFOS	8.119	413.0 -> 169.0	18921	2.55	µg/L	m
		498.9 -> 79.9	13266			
PFPeA	4.189	498.9 -> 98.8	5871	5.29	µg/L	100
		263.0 -> 219.0	68671			
PFPeS	6.294	349.1 -> 79.9	10157	2.34	µg/L	96
		349.1 -> 98.9	4665			
PFTeDA	9.637	713.1 -> 669.0	41477	2.71	µg/L	100
		713.1 -> 168.9	4399			
PFTrDA	9.267	663.0 -> 619.0	52571	2.53	µg/L	99
		663.0 -> 168.9	7252			
PFUnDA	8.449	563.1 -> 519.0	50196	2.79	µg/L	96
		563.1 -> 269.1	11903			
11CI-PF3OUdS	9.294	630.9 -> 450.9	66035	4.91	µg/L	99
		632.9 -> 452.9	20501			
9CI-PF3ONS	8.451	530.8 -> 351.0	68459	5.28	µg/L	97
		532.8 -> 353.0	20200			
ADONA	6.568	376.9 -> 250.9	195935	5.43	µg/L	100
		376.9 -> 84.8	47045			
HFPO-DA	5.703	284.9 -> 168.9	25639	5.36	µg/L	98
		284.9 -> 184.9	2615			
3:3FTCA	3.667	241.0 -> 177.0	7198	12.56	µg/L	100
		241.0 -> 117.0	643			
5:3FTCA	6.033	341.0 -> 237.1	145201	65.01	µg/L	96
		341.0 -> 217.0	100045			
7:3FTCA	7.549	441.0 -> 316.9	69962	66.51	µg/L	95
		441.0 -> 336.9	165337			
EtFOSA	11.399	526.0 -> 219.0	12492	4.66	µg/L	m
		526.0 -> 169.0	17582			
EtFOSE	11.332	630.0 -> 58.9	16532	11.75	µg/L	100
		511.9 -> 219.0	10243			
MeFOSA	11.128	511.9 -> 169.0	14899	4.98	µg/L	m
		616.1 -> 58.9	15309			
MeFOSE	11.035	699.1 -> 79.9	5707	11.93	µg/L	m
		699.1 -> 98.8	3279			
PFDoDS	9.764	295.0 -> 201.0	6851	2.26	µg/L	99
		295.0 -> 84.9	1690			
NFDHA	5.241	279.0 -> 85.1	37000	5.74	µg/L	97
		229.0 -> 84.9	38778			
PFMBA	4.591	314.8 -> 134.9	60169	4.94	µg/L	100
		314.8 -> 82.9	2249			
PFMPA	3.357			5.13	µg/L	100
PFEESA	5.734			4.65	µg/L	100

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

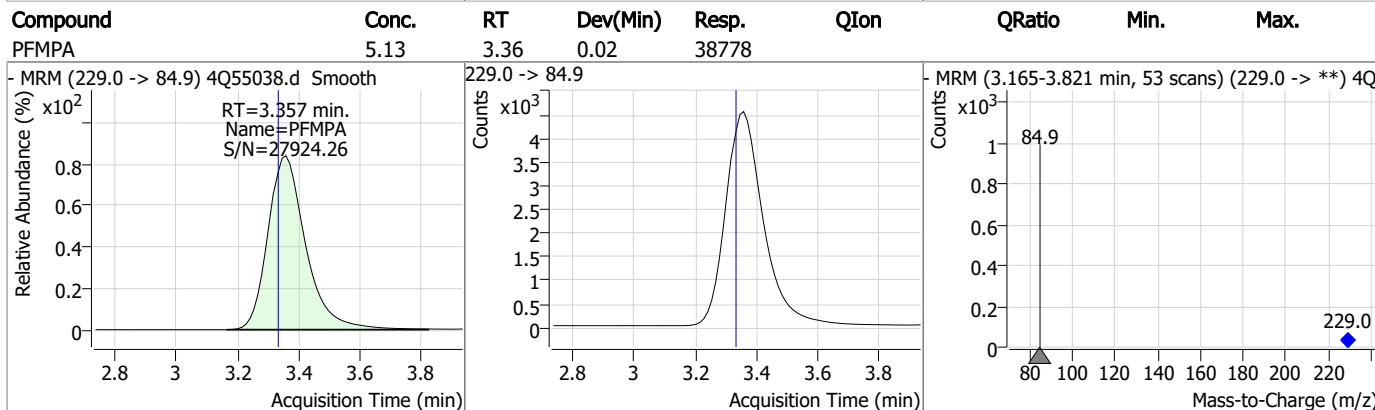
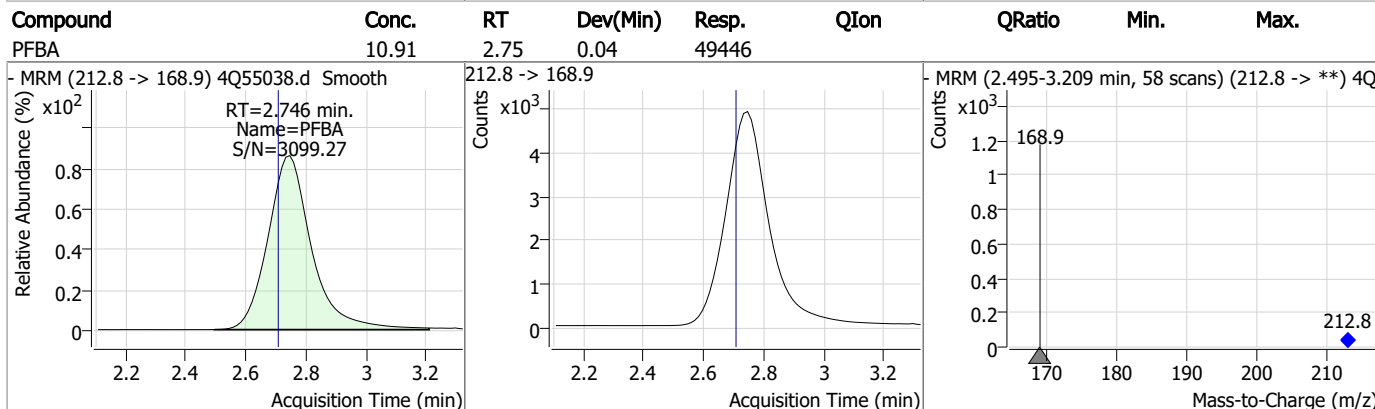
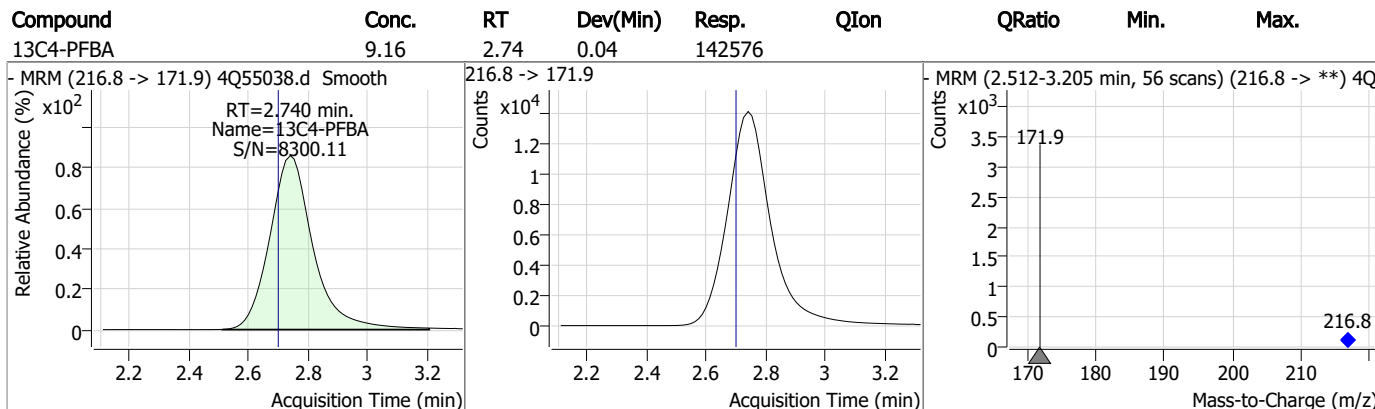
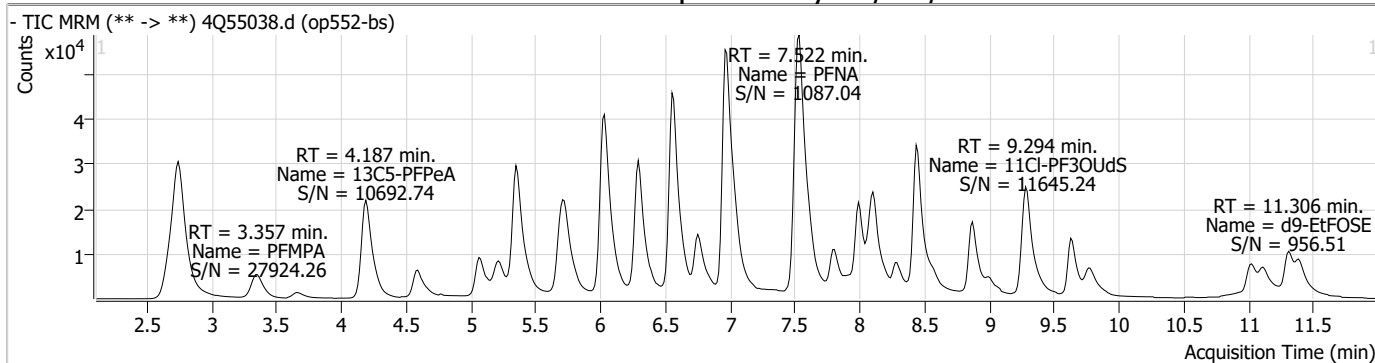
Perfluorinated Compounds by LC/MS/MS

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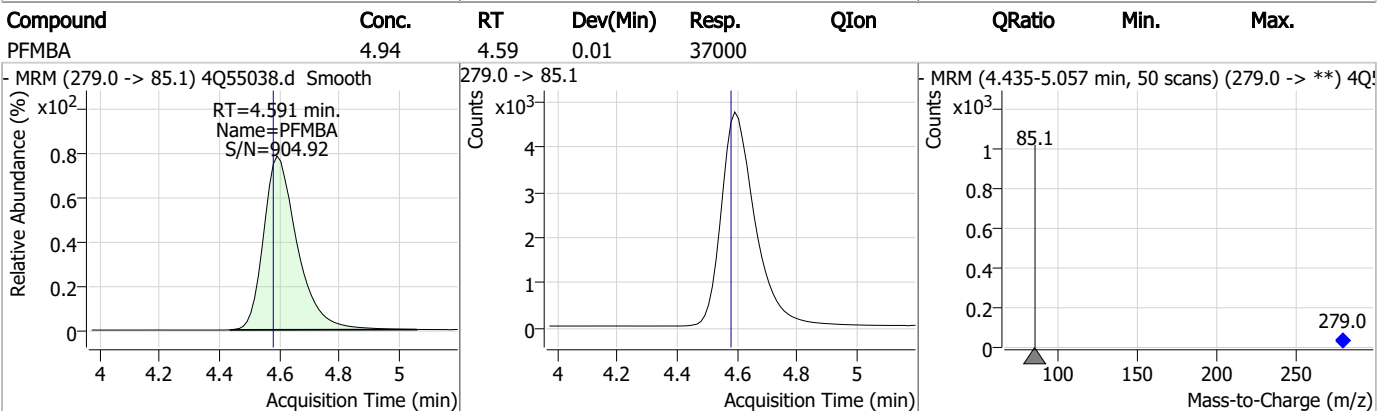
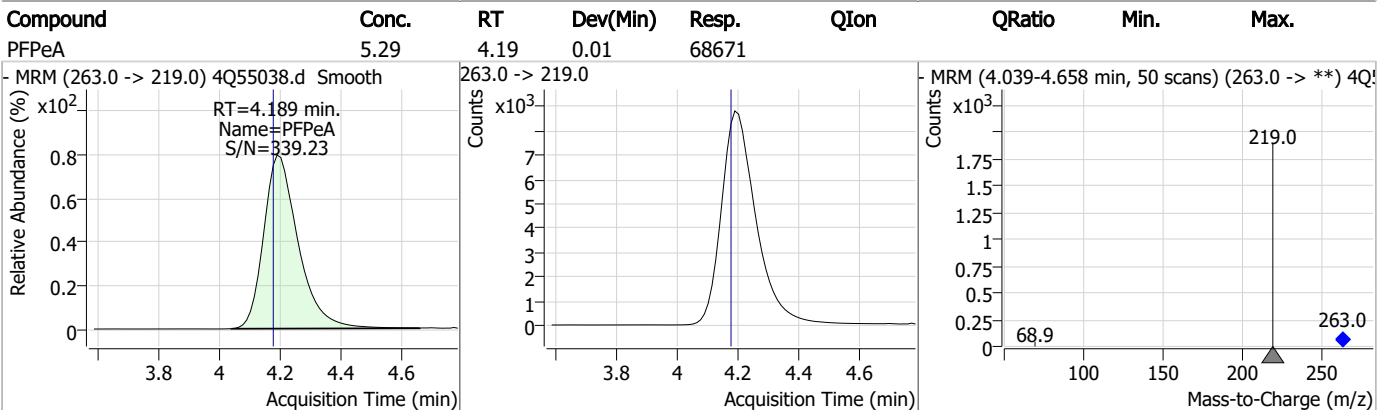
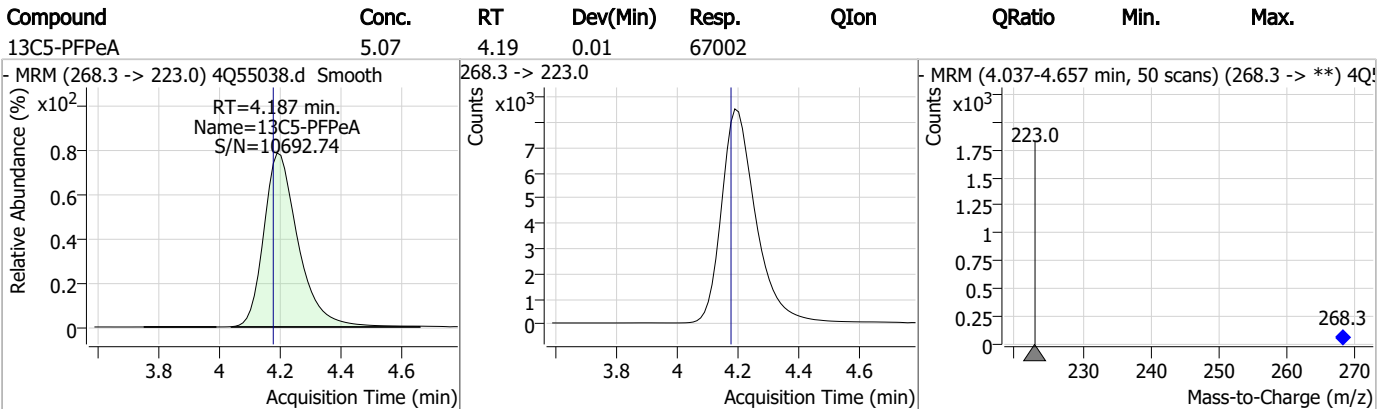
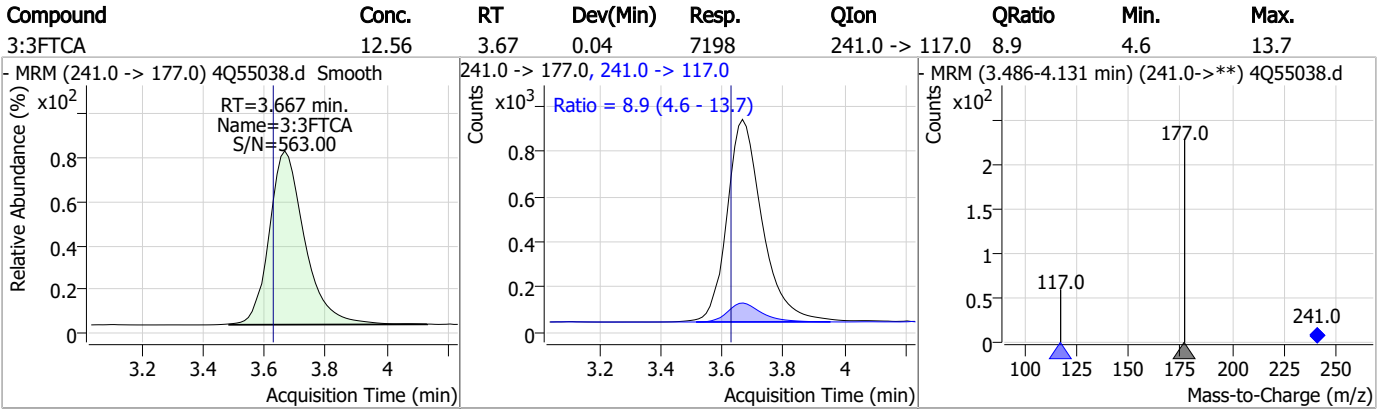
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Perfluorinated Compounds by LC/MS/MS



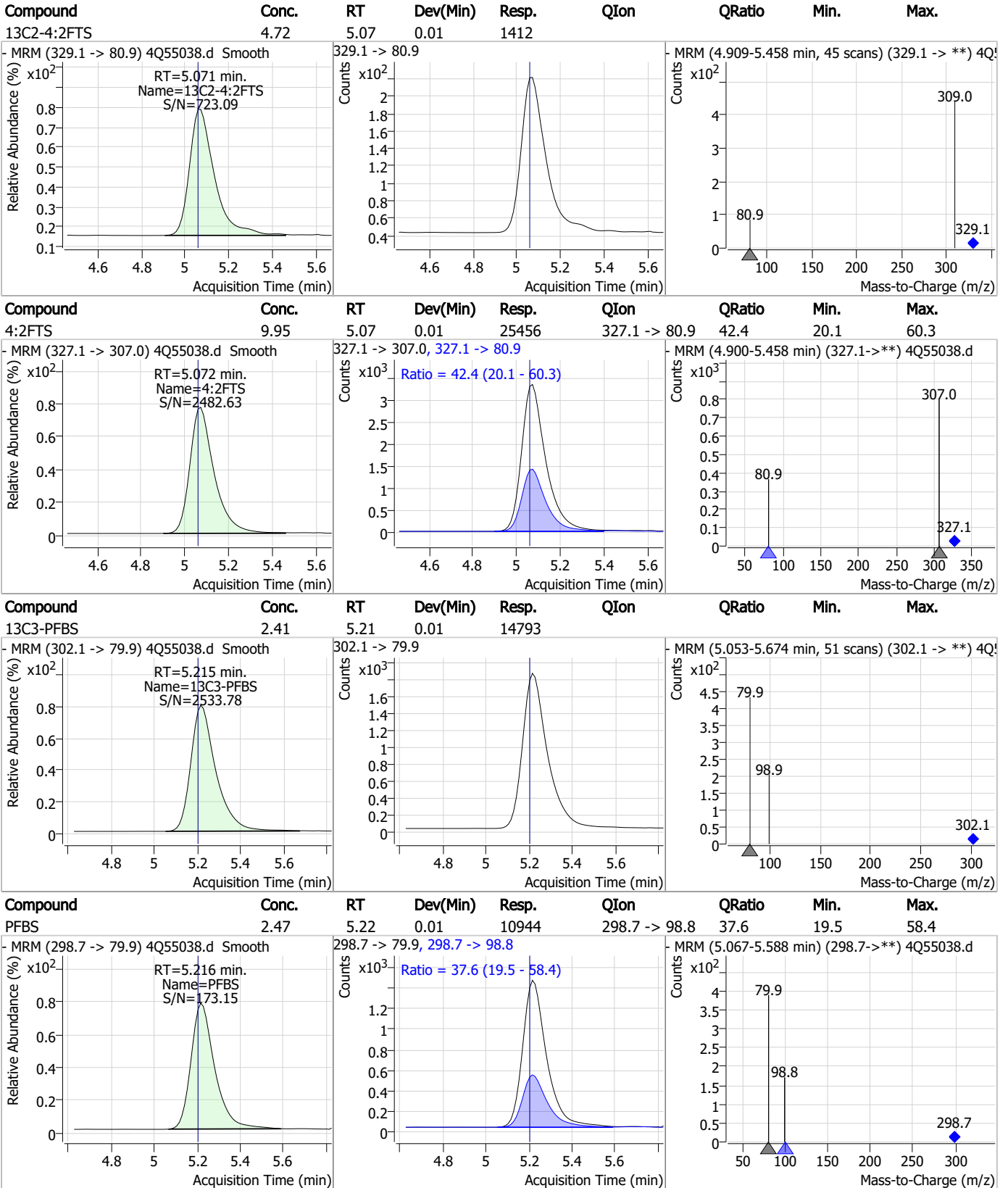
Perfluorinated Compounds by LC/MS/MS



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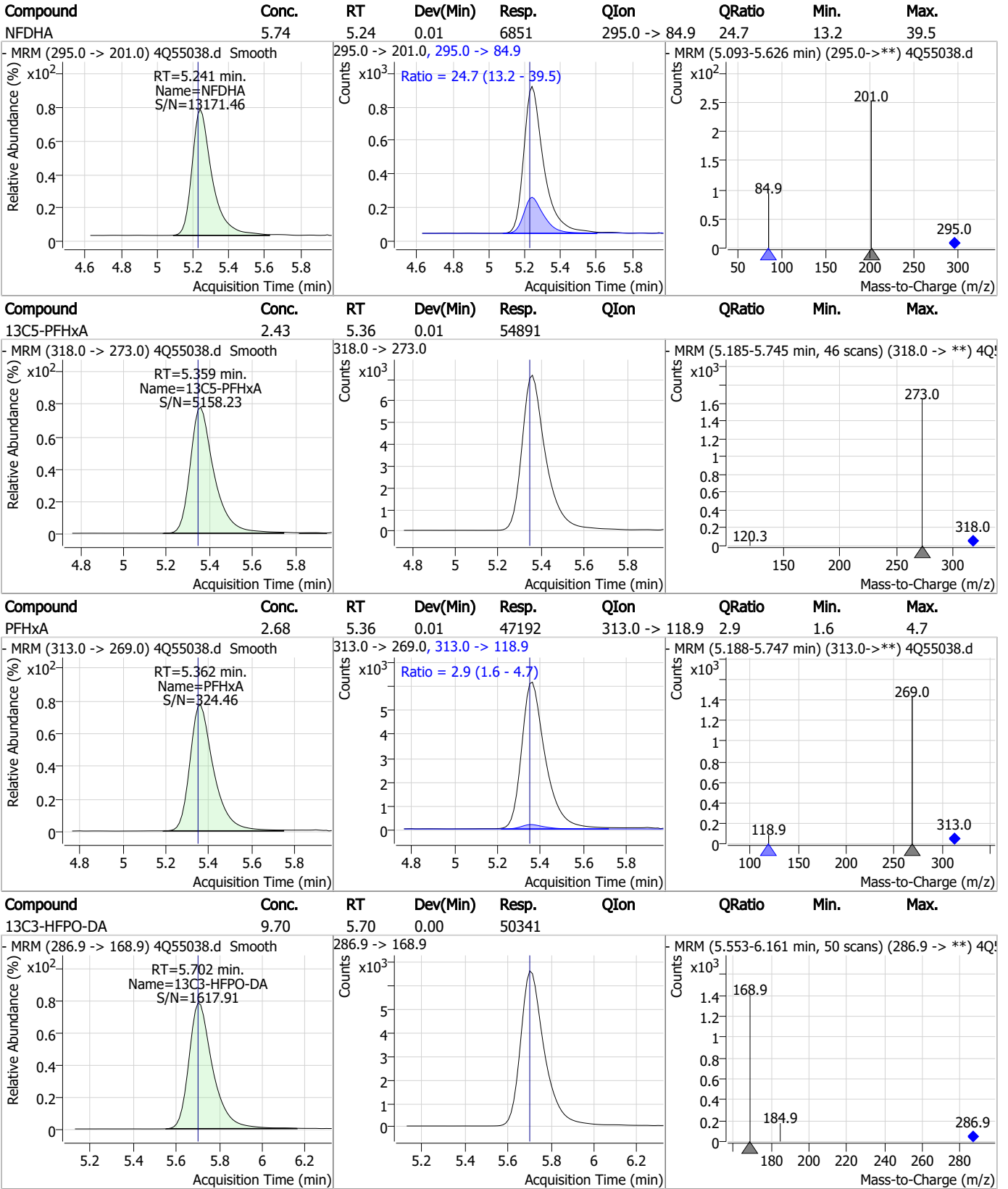
Perfluorinated Compounds by LC/MS/MS



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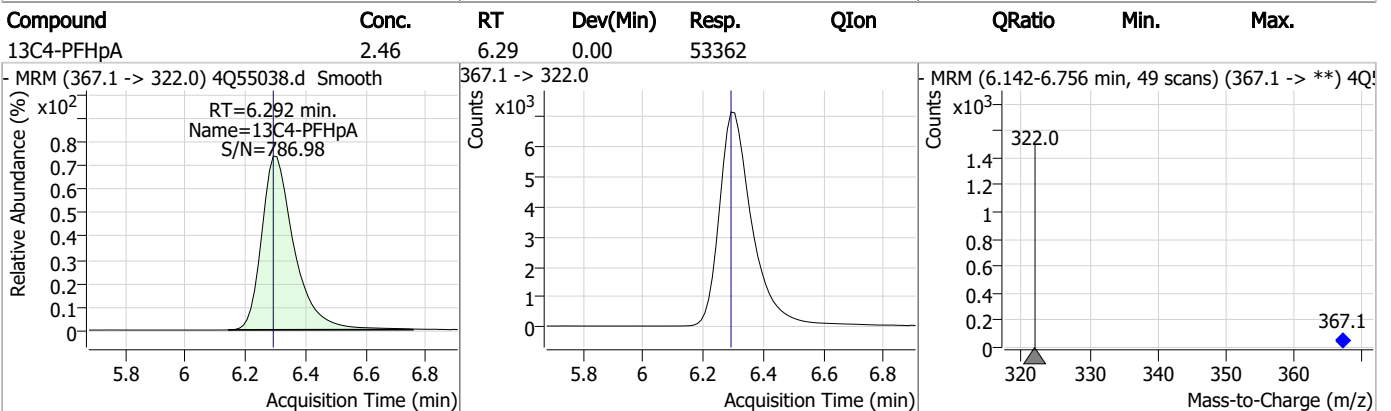
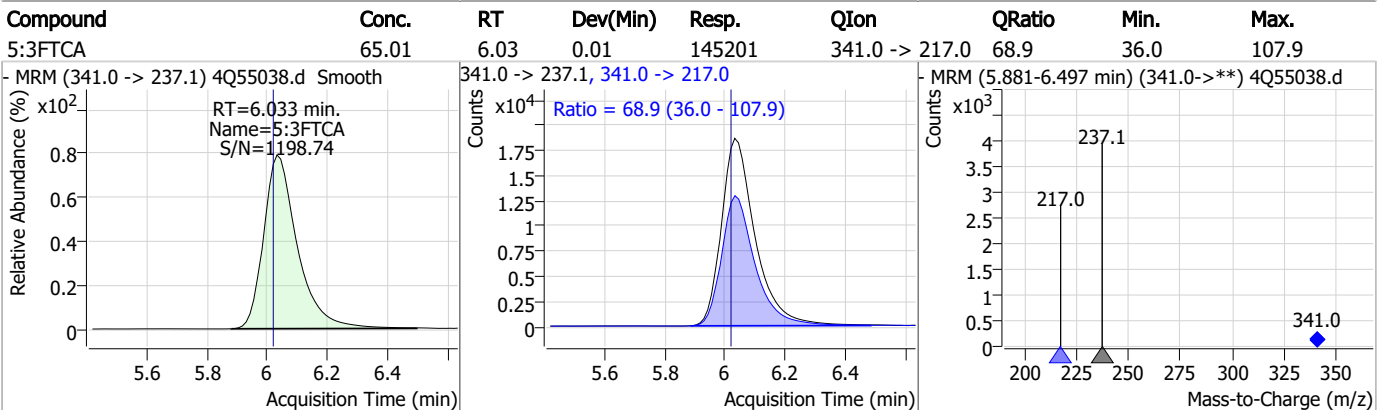
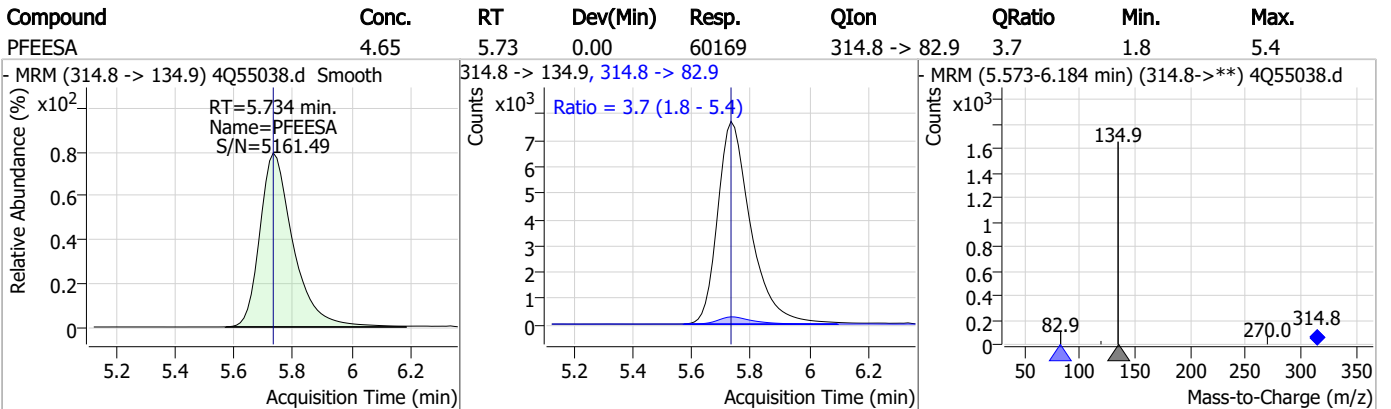
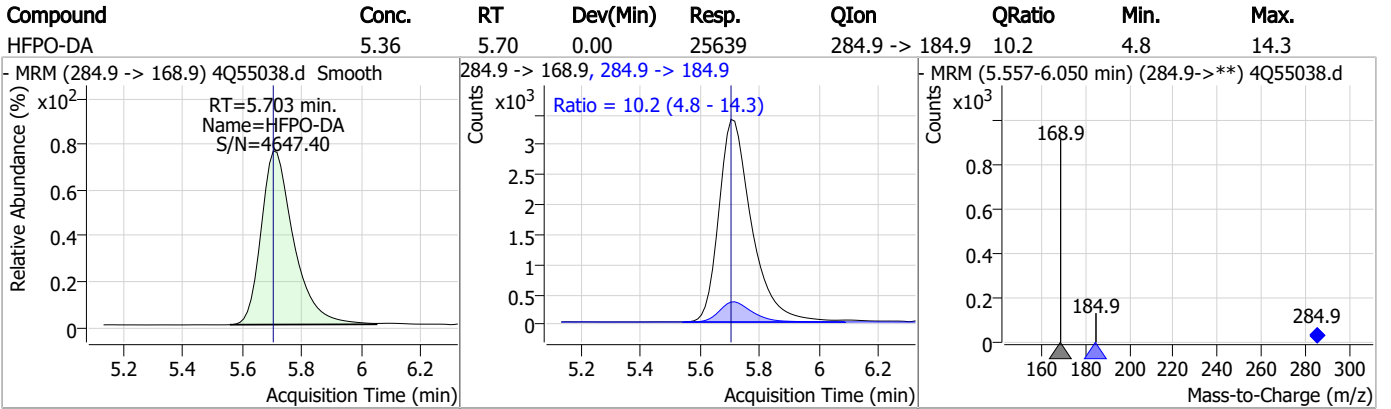
Perfluorinated Compounds by LC/MS/MS



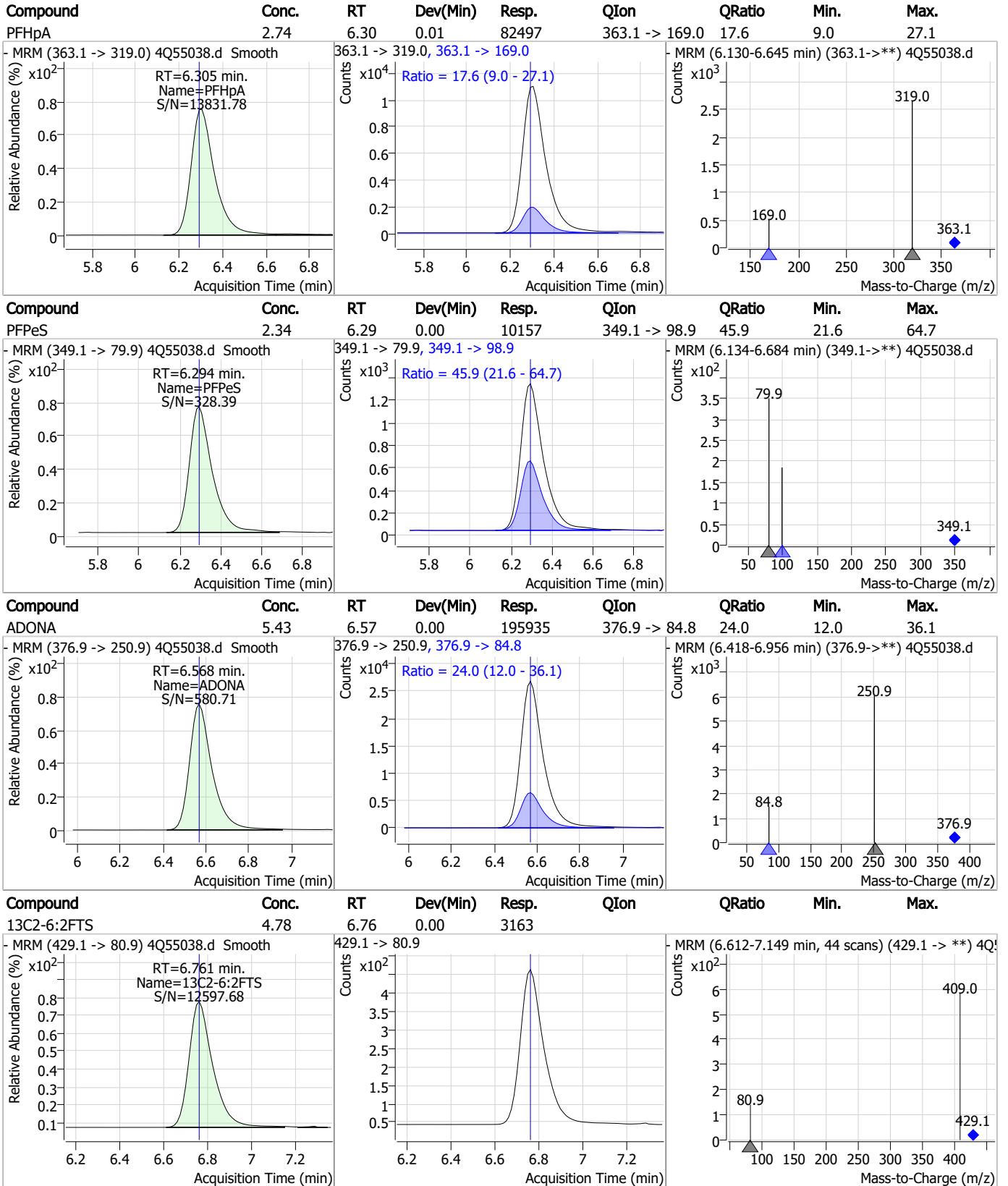
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Perfluorinated Compounds by LC/MS/MS



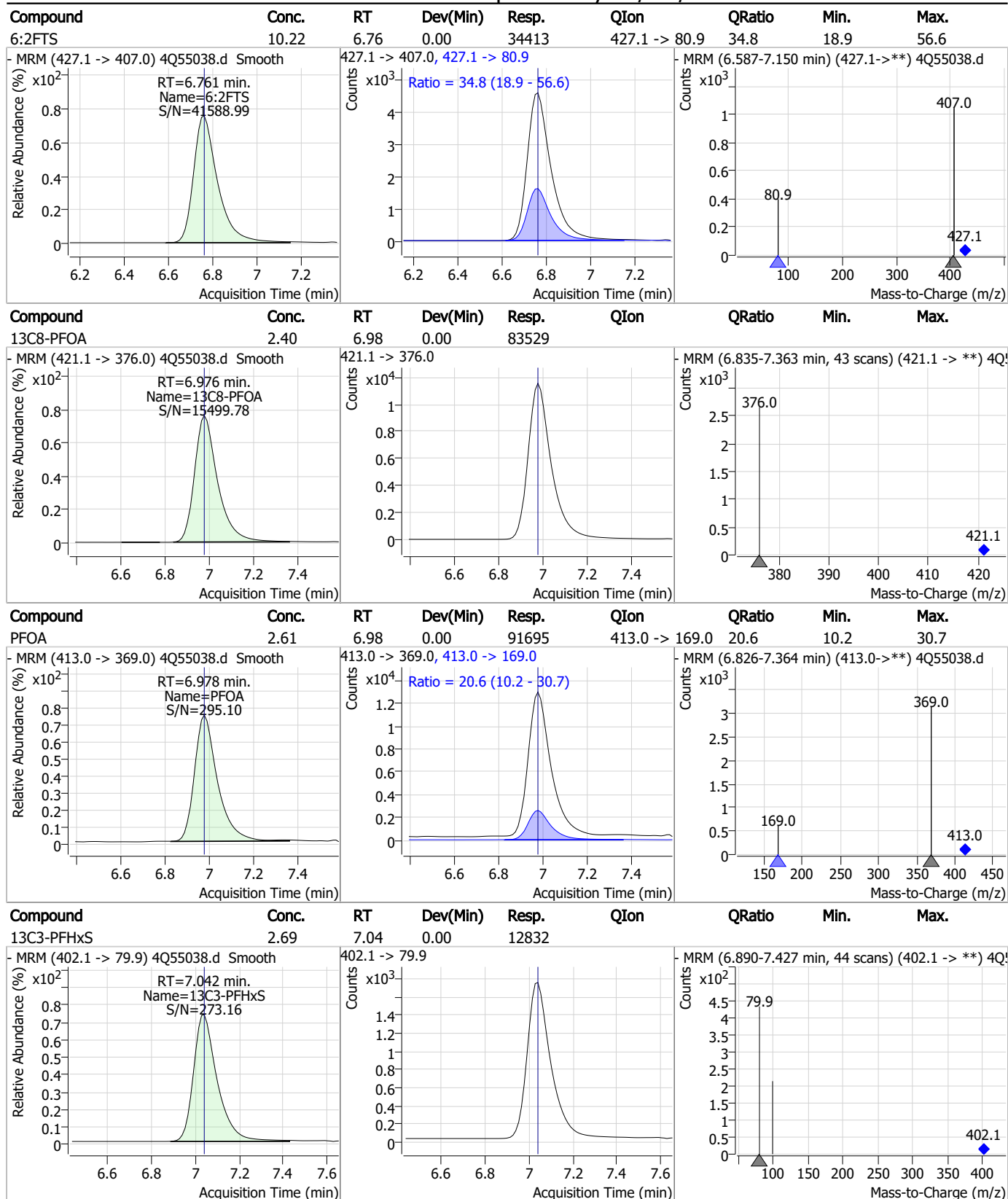
Perfluorinated Compounds by LC/MS/MS



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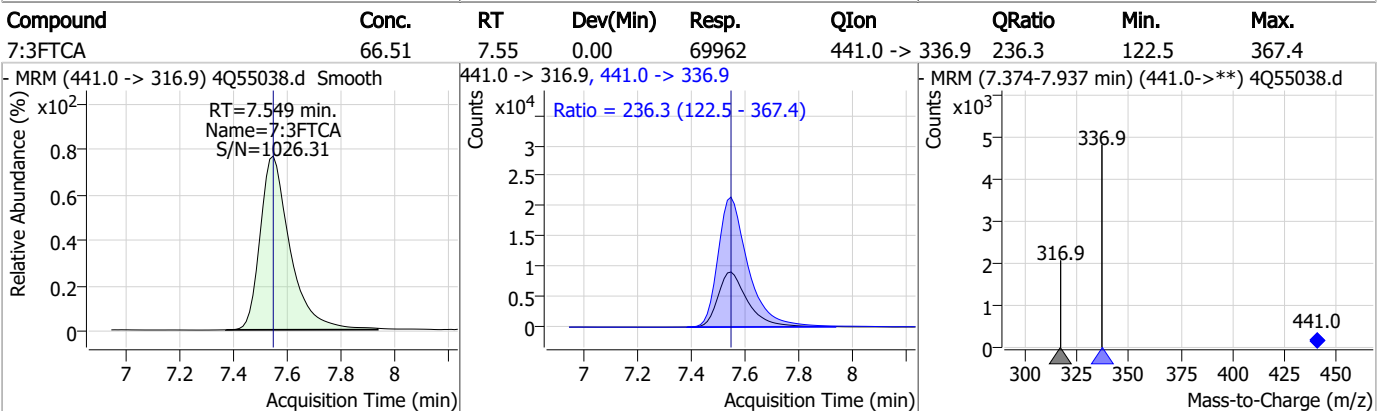
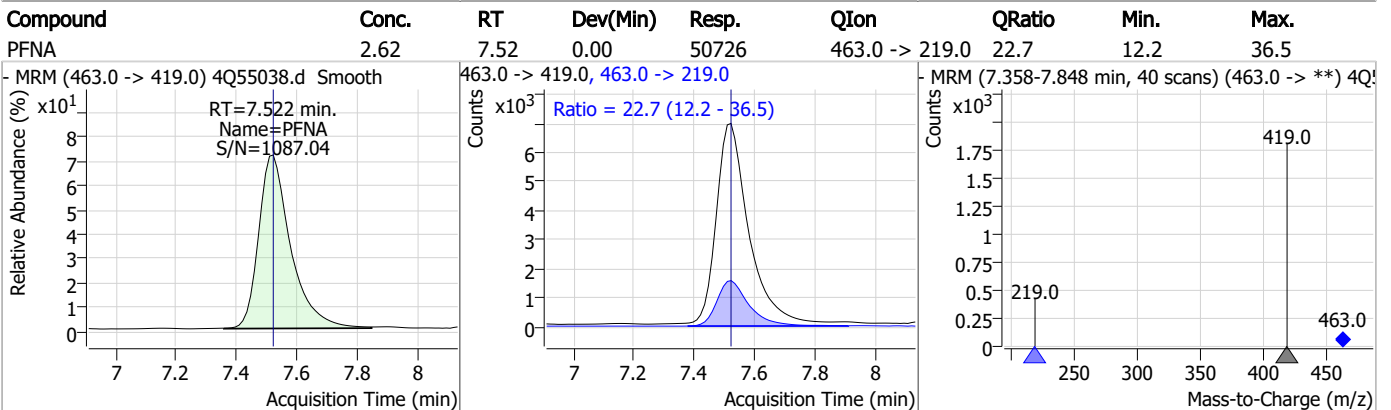
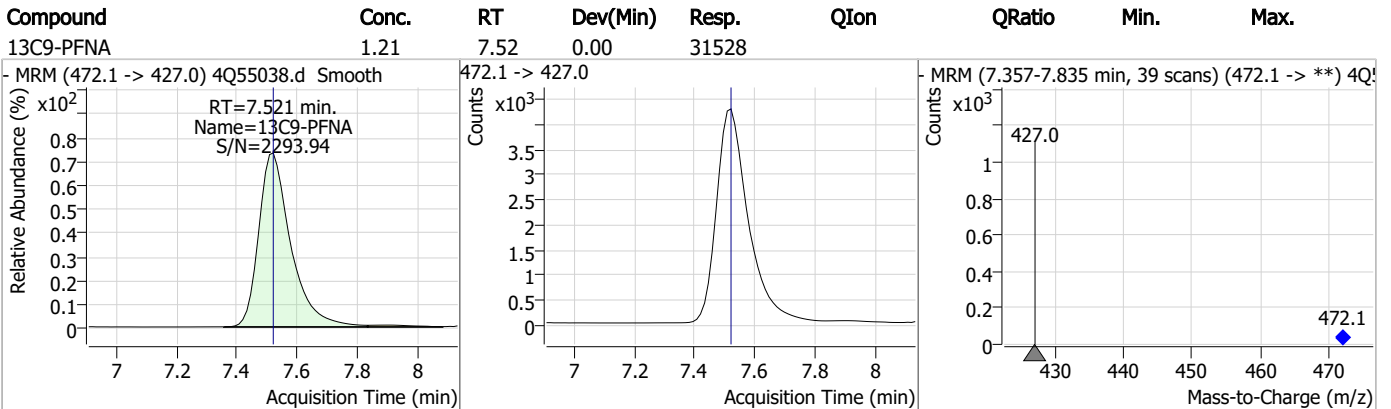
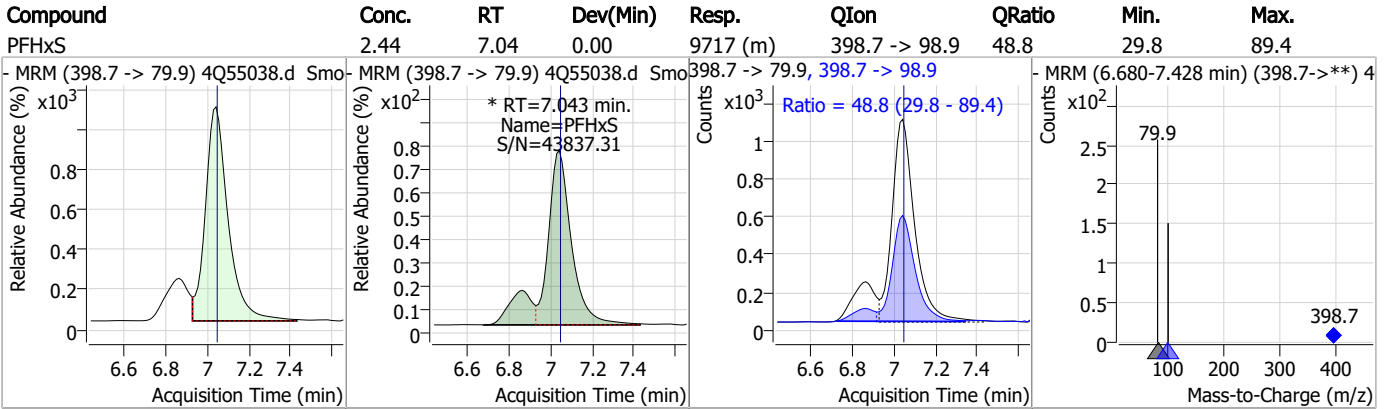
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Perfluorinated Compounds by LC/MS/MS

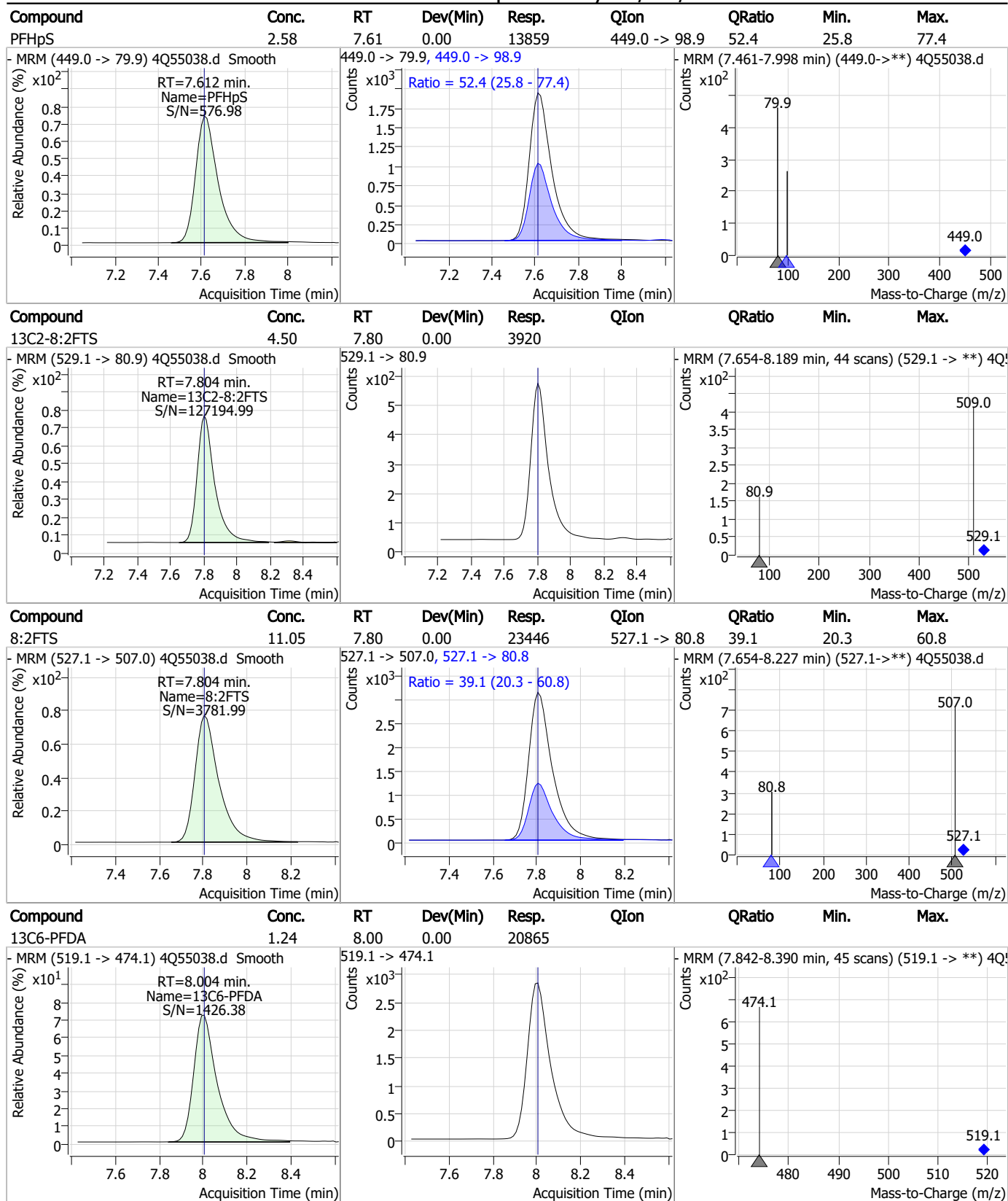


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Perfluorinated Compounds by LC/MS/MS

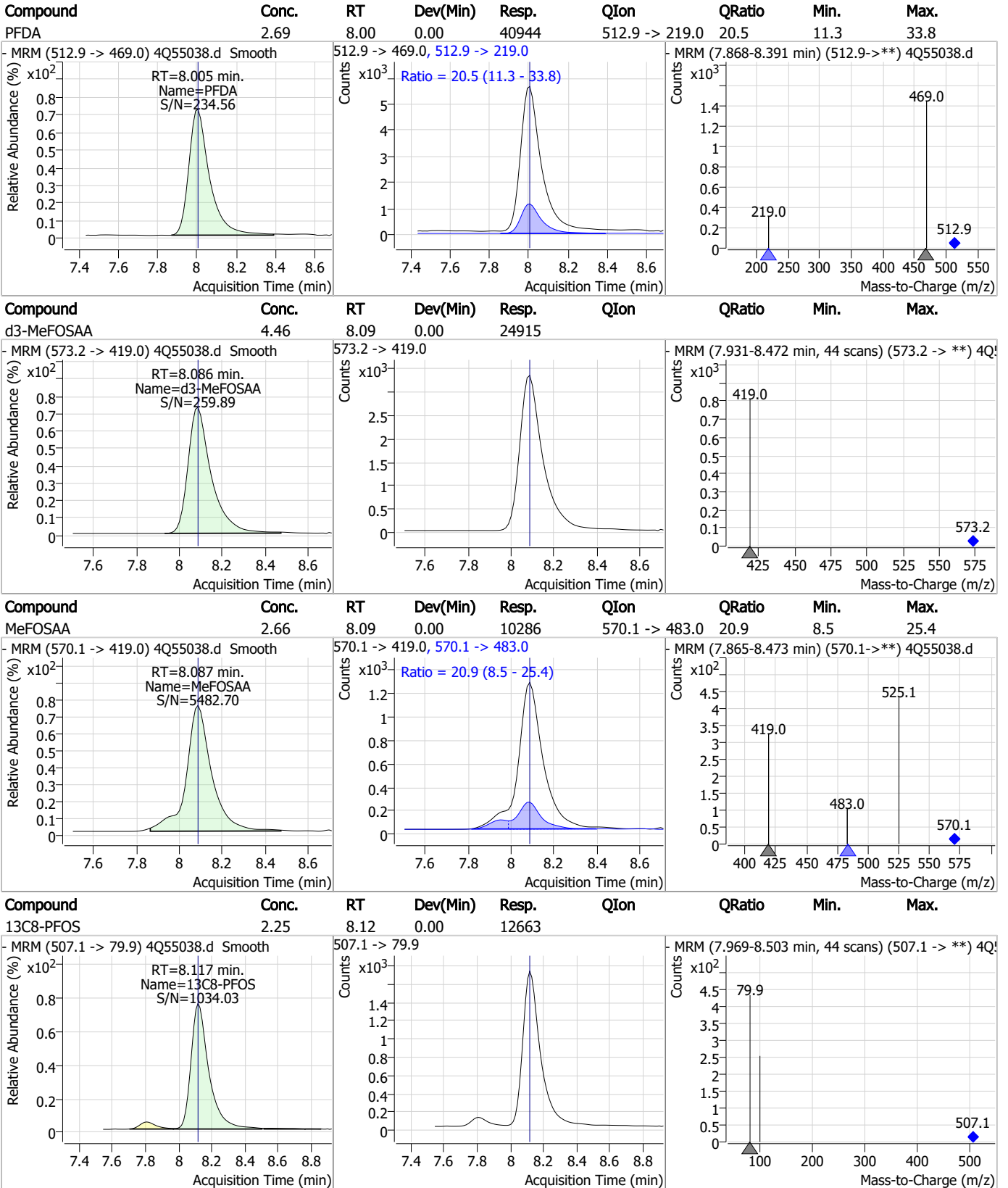


Perfluorinated Compounds by LC/MS/MS



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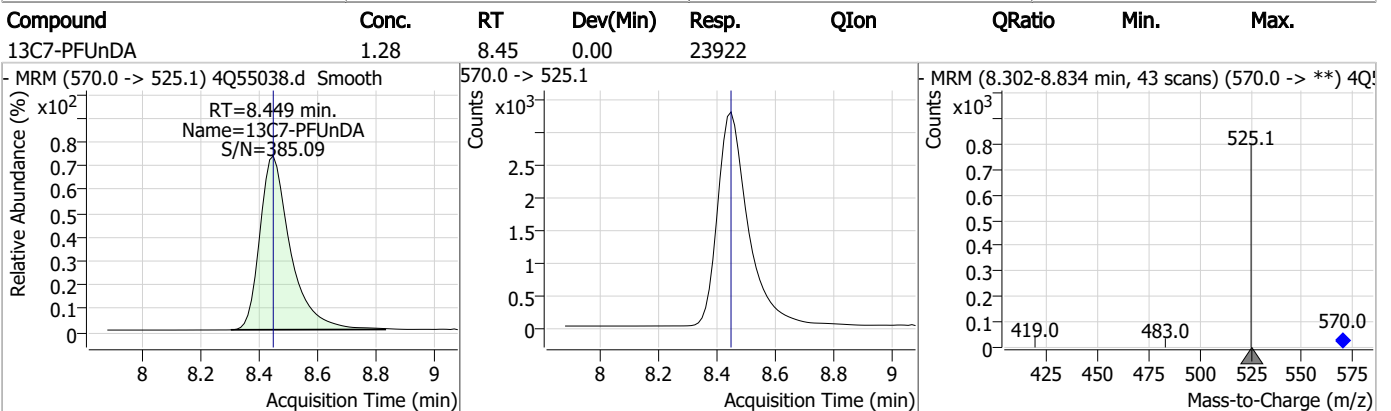
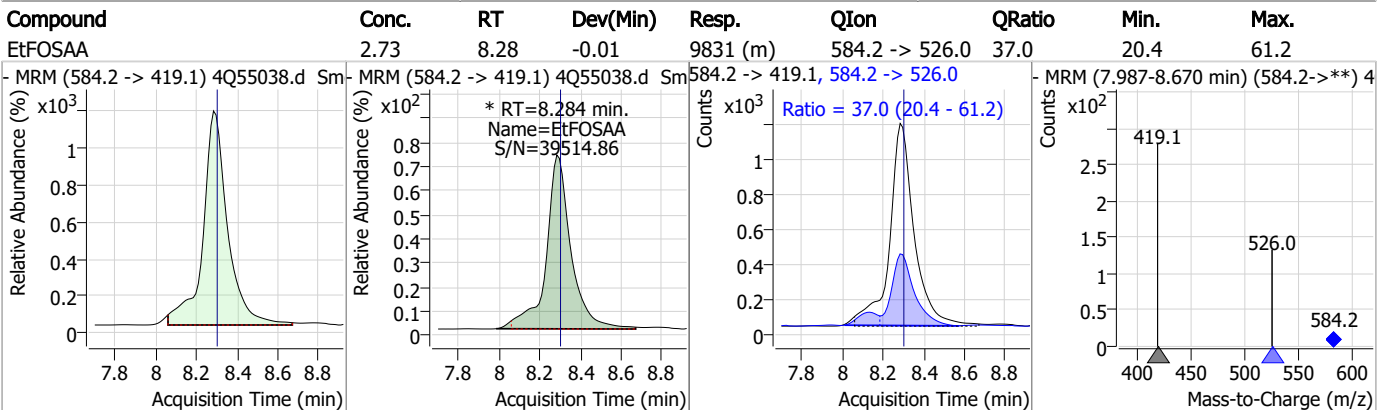
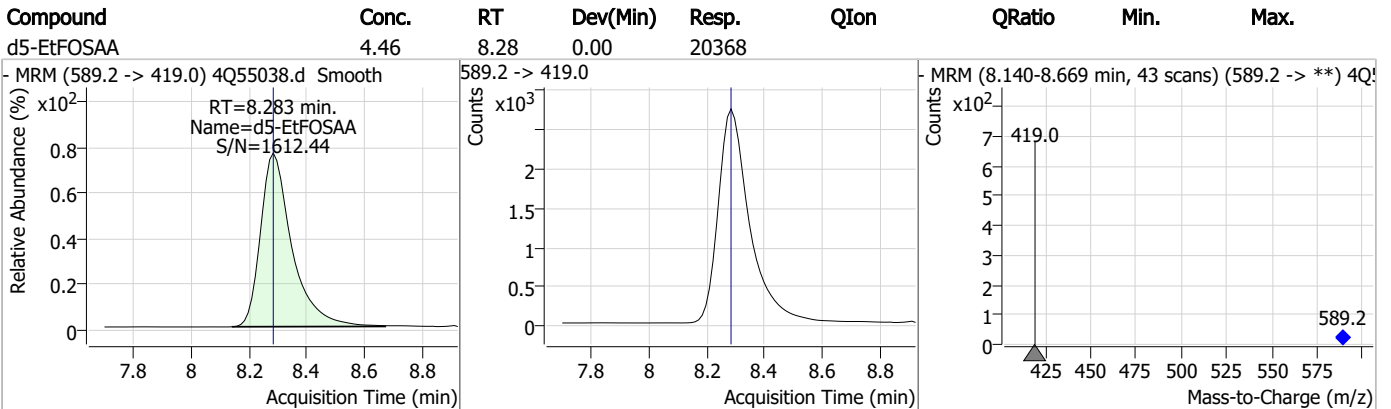
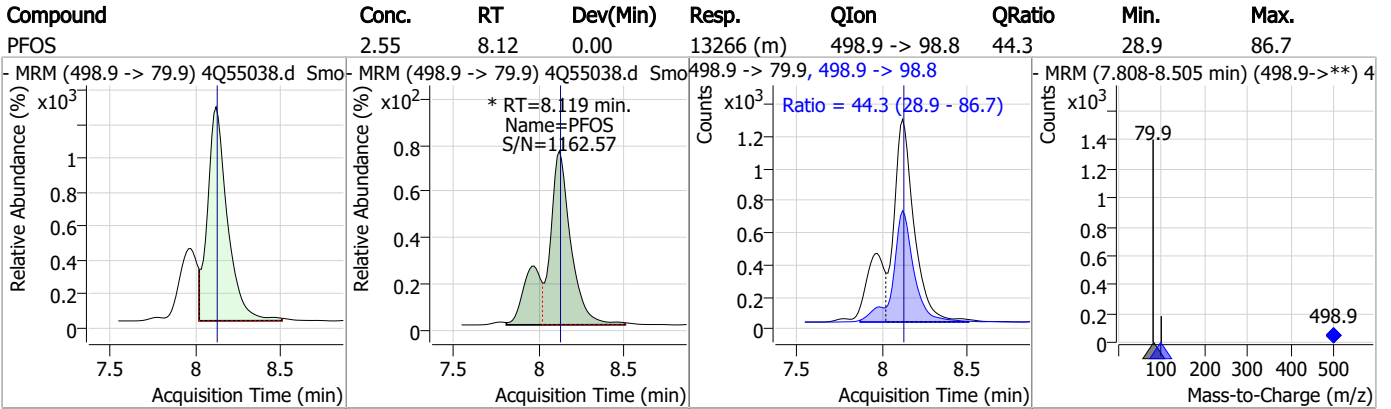
Perfluorinated Compounds by LC/MS/MS



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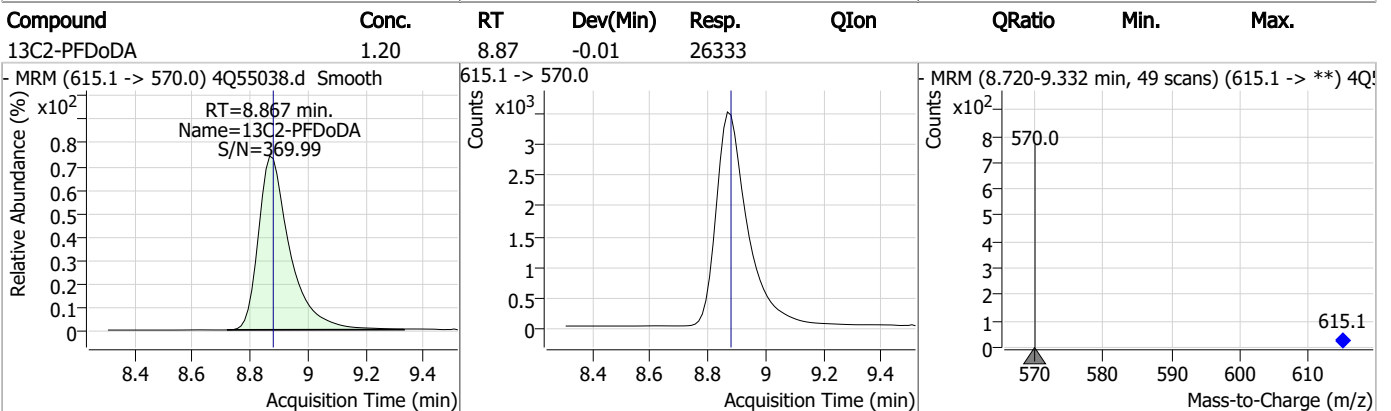
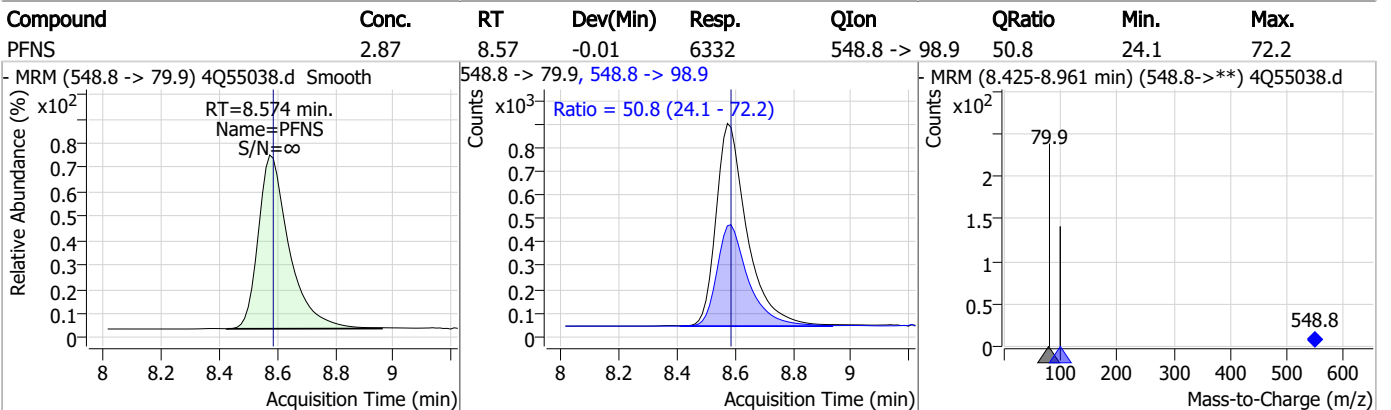
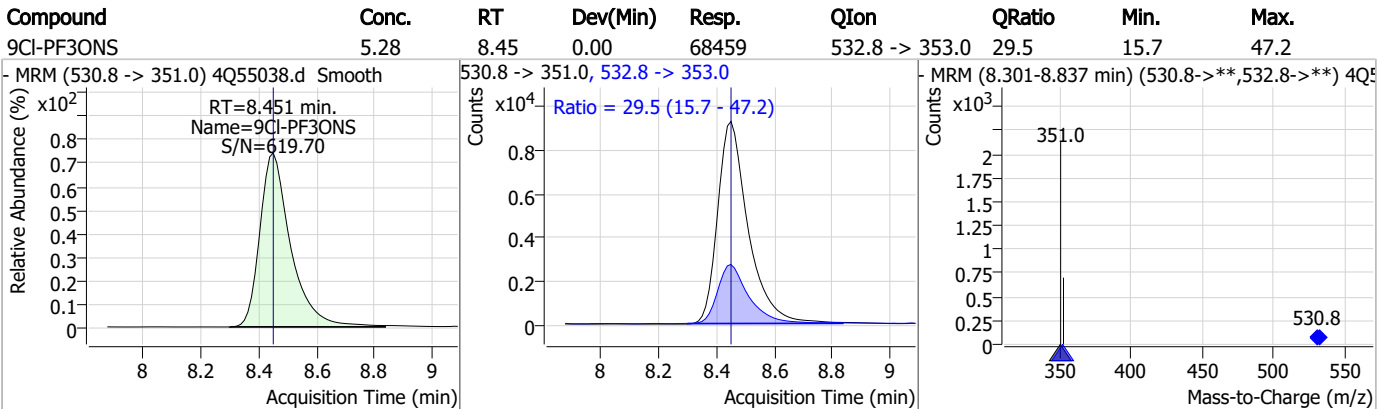
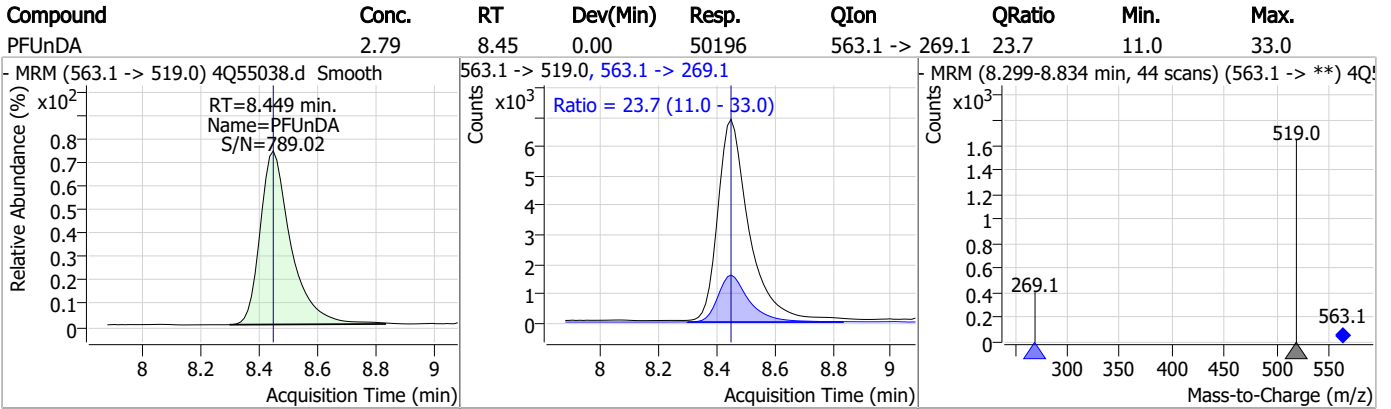
Perfluorinated Compounds by LC/MS/MS



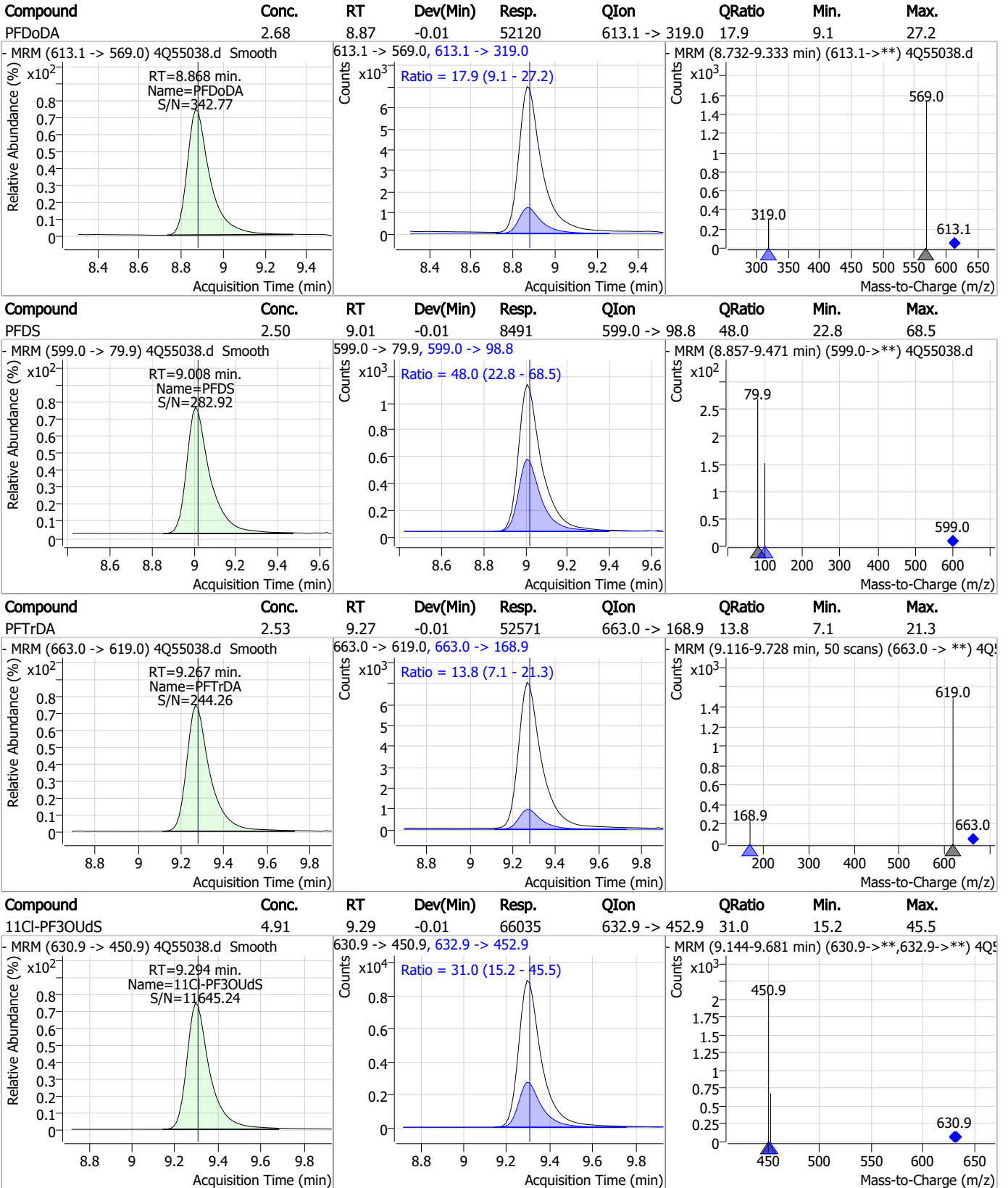
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Perfluorinated Compounds by LC/MS/MS

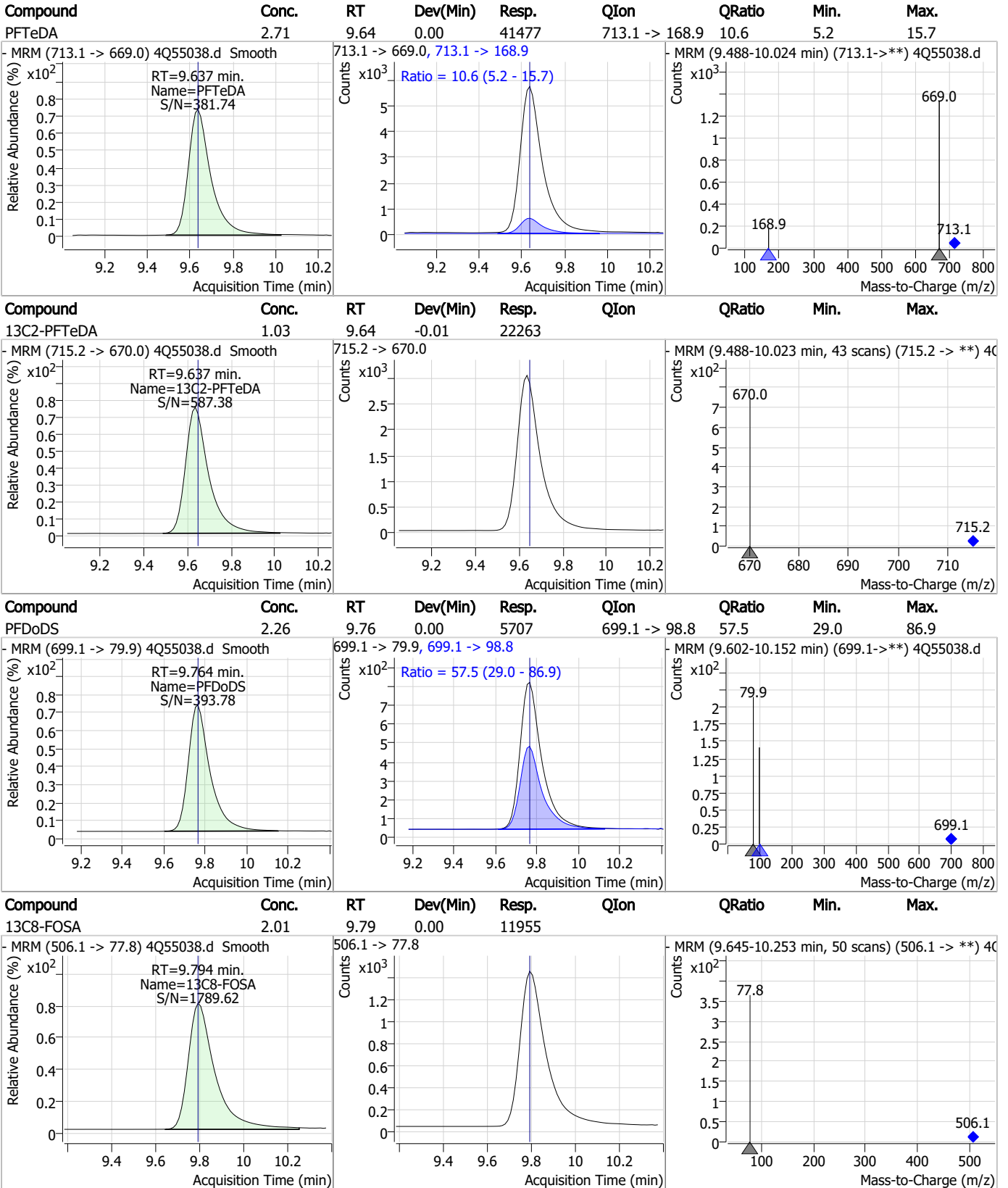


Perfluorinated Compounds by LC/MS/MS



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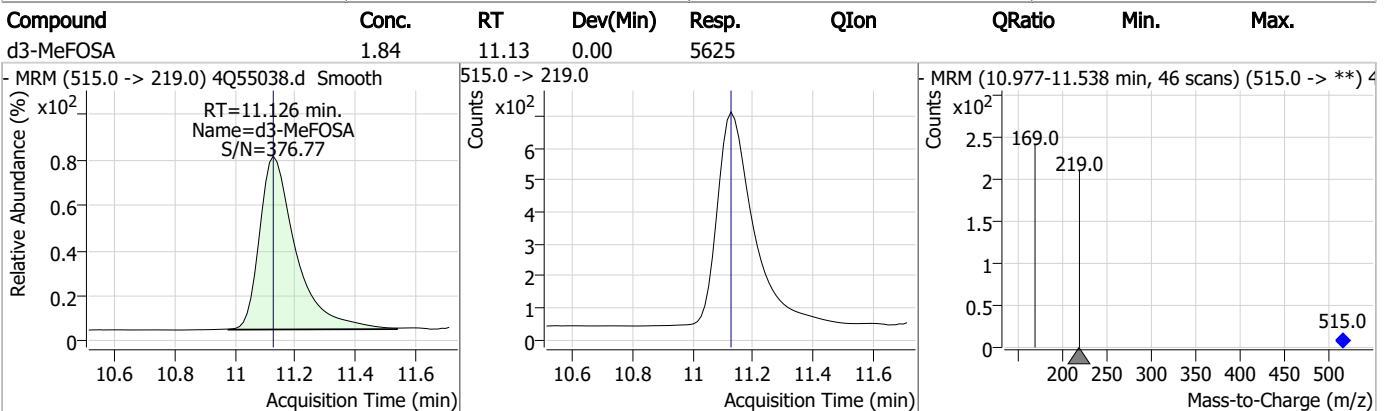
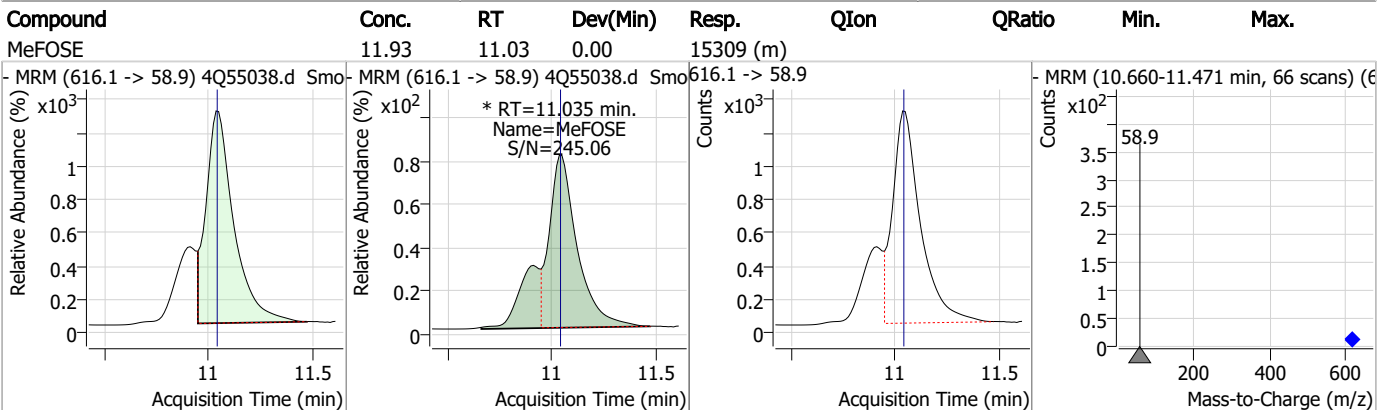
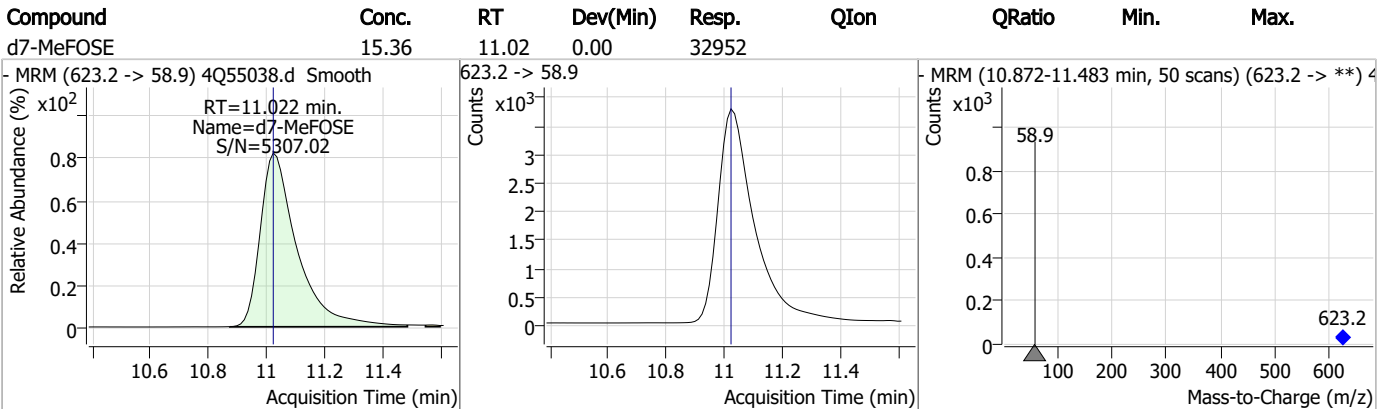
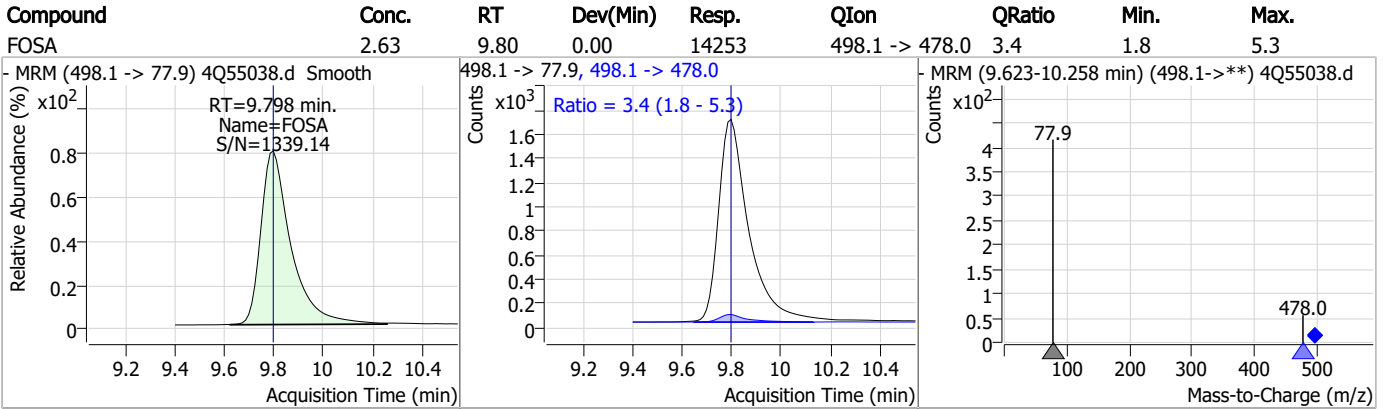
Perfluorinated Compounds by LC/MS/MS



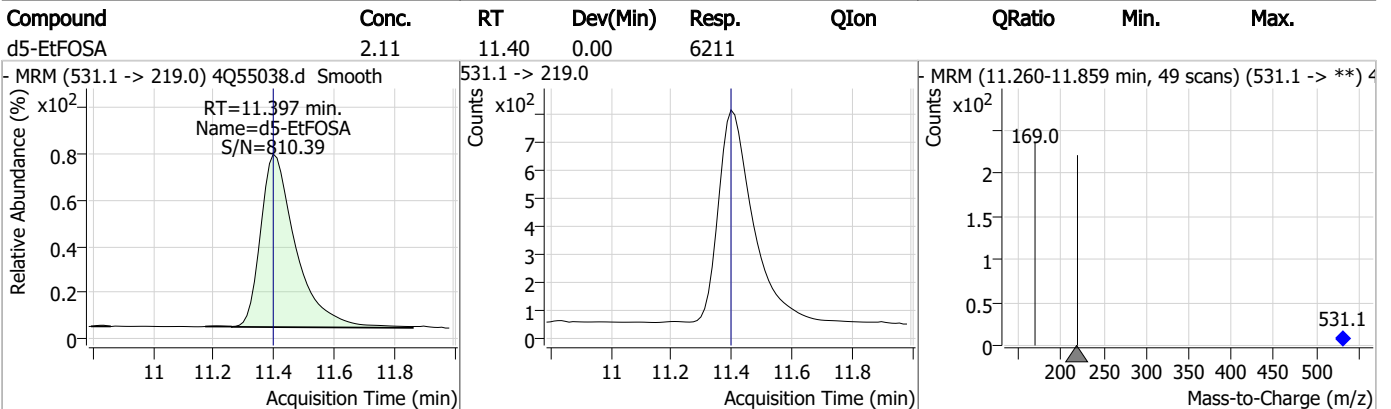
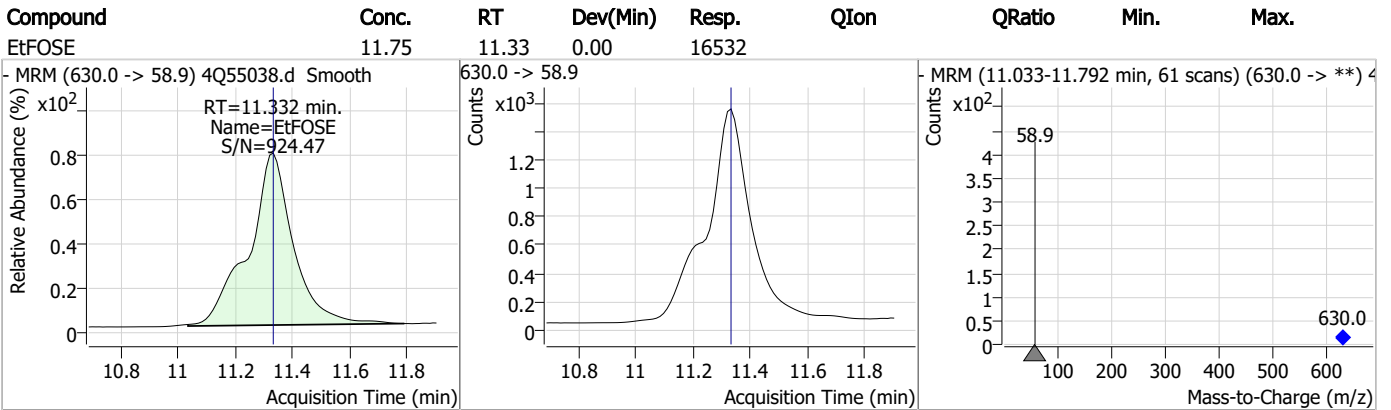
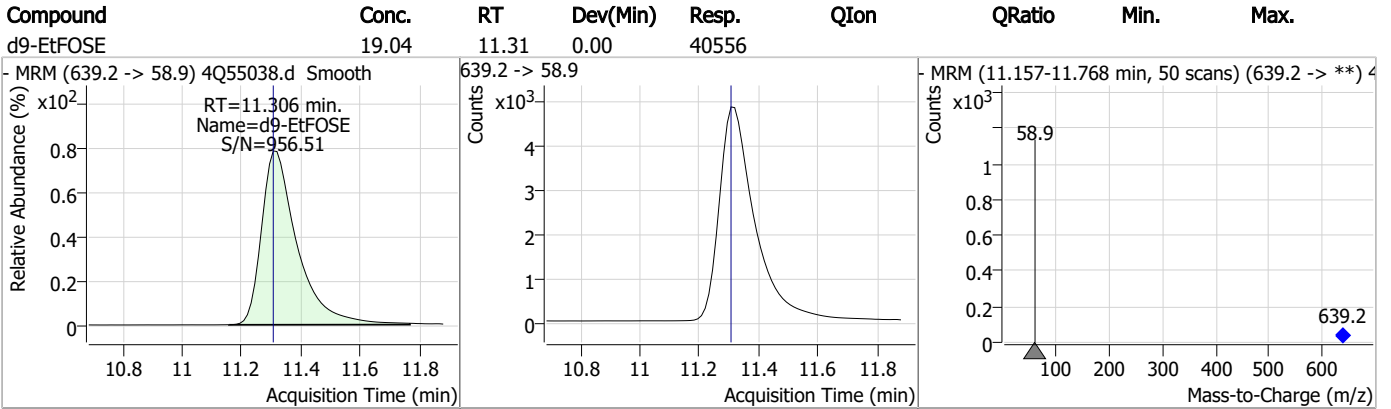
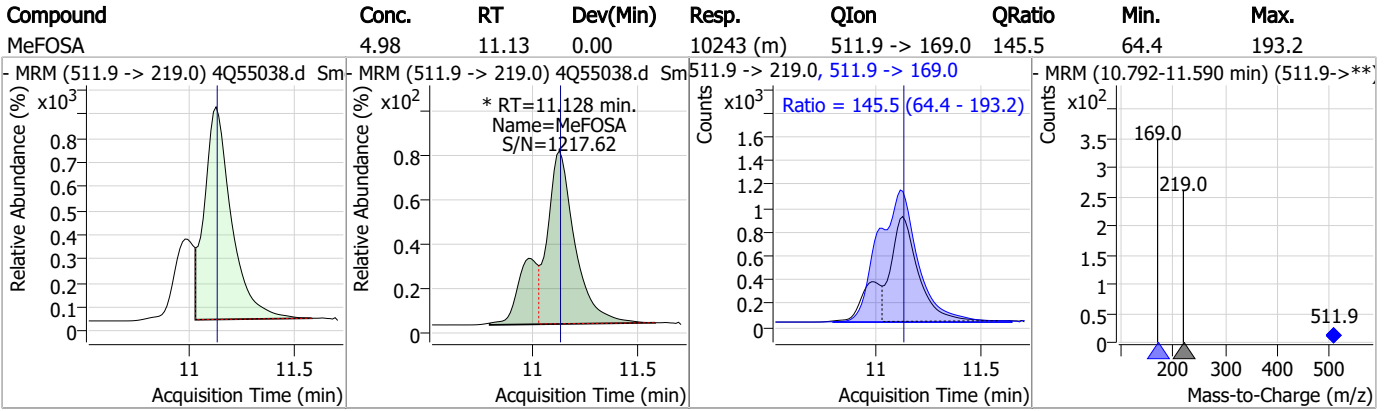
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Perfluorinated Compounds by LC/MS/MS



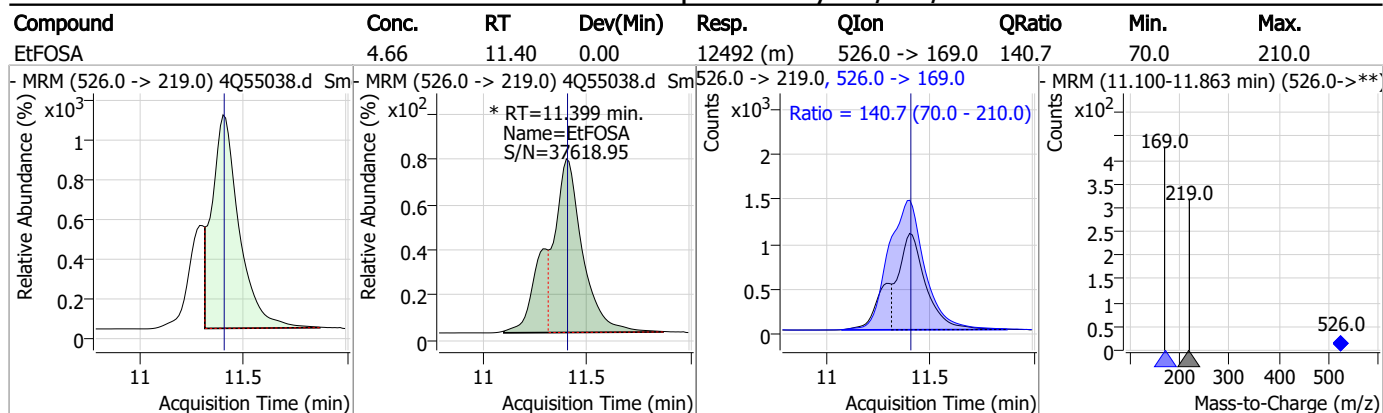
Perfluorinated Compounds by LC/MS/MS



7.3.1

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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: OP552-BS Method: EPA DRAFT 1633
Lab FileID: 4Q55038.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 20:10 Supervisor approved: 12/12/23 11:55 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
EtFOSAA	2991-50-6		8.28	Split peak
MeFOSE	24448-09-7		11.04	Split peak
MeFOSA	31506-32-8		11.13	Split peak
EtFOSA	4151-50-2		11.40	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55039.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 8:24:48 PM
 Sample Name : op552-llbs:3
 Vial : P4-B4
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP552,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.740	216.8 -> 171.9	137798	10.00 µg/L	0.041
M5-PFPeA	4.200	268.3 -> 223.0	57599	5.00 µg/L	0.025
M5-PFHxA	5.359	318.0 -> 273.0	47341	2.50 µg/L	0.012
M4-PFHpA	6.304	367.1 -> 322.0	47942	2.50 µg/L	0.012
M8-PFOA	6.976	421.1 -> 376.0	73943	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	28507	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	18341	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	20344	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	22227	1.25 µg/L	0.000
M2-PFTeDA	9.637	715.2 -> 670.0	20435	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	8667	2.50 µg/L	0.000
M3-PFBS	5.215	302.1 -> 79.9	13654	2.50 µg/L	0.012
M3-PFHxS	7.042	402.1 -> 79.9	11091	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	11426	2.50 µg/L	0.000
M2-4:2FTS	5.071	329.1 -> 80.9	1305	5.00 µg/L	0.012
M2-6:2FTS	6.761	429.1 -> 80.9	2800	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	3218	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	21149	5.00 µg/L	0.000
M3-HFPO-DA	5.714	286.9 -> 168.9	43331	10.00 µg/L	0.013
M5-EtFOSAA	8.283	589.2 -> 419.0	17915	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	24642	25.00 µg/L	0.000
M9-EtFOSE	11.319	639.2 -> 58.9	31248	25.00 µg/L	0.012
M5-EtFOSA	11.398	531.1 -> 219.0	4570	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	4328	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11343	2.50 µg/L	0.000
13C3-PFBA	2.743	216.0 -> 172.0	78086	5.00 µg/L	0.040
18O2-PFHxS	7.041	403.0 -> 83.9	8561	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	102219	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	25984	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	35135	1.25 µg/L	0.000
13C2-PFHxA	5.360	315.1 -> 270.0	65933	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.071	329.1 -> 80.9	1305	3.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 78.8%		
13C2-6:2FTS	6.761	429.1 -> 80.9	2800	3.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 76.5%		
13C2-8:2FTS	7.804	529.1 -> 80.9	3218	3.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 66.7%		
13C2-PFDoDA	8.880	615.1 -> 570.0	22227	0.91 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.6%		
13C2-PFTeDA	9.637	715.2 -> 670.0	20435	0.85 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 67.8%		
13C3-PFBS	5.215	302.1 -> 79.9	13654	2.01 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.4%		
13C3-PFHxS	7.042	402.1 -> 79.9	11091	2.10 µg/L	0.000

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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 = 84.0%	
13C4-PFBA	2.740	216.8 -> 171.9	137798	8.19 µg/L	0.041
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 81.9%	
13C4-PFHpA	6.304	367.1 -> 322.0	47942	2.04 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.6%	
13C5-PFHxA	5.359	318.0 -> 273.0	47341	1.93 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 77.4%	
13C5-PFPeA	4.200	268.3 -> 223.0	57599	4.02 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
13C6-PFDA	8.004	519.1 -> 474.1	18341	0.98 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 78.1%	
13C7-PFUnDA	8.448	570.0 -> 525.1	20344	0.98 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 78.2%	
13C8-FOSA	9.794	506.1 -> 77.8	8667	1.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 54.2%	
13C8-PFOA	6.976	421.1 -> 376.0	73943	1.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 78.6%	
13C8-PFOS	8.117	507.1 -> 79.9	11426	1.89 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 75.5%	
13C9-PFNA	7.521	472.1 -> 427.0	28507	1.01 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 80.5%	
d3-MeFOSAA	8.086	573.2 -> 419.0	21149	3.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 70.4%	
13C3-HFPO-DA	5.714	286.9 -> 168.9	43331	7.71 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 77.1%	
d3-MeFOSA	11.126	515.0 -> 219.0	4328	1.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 52.6%	
d5-EtFOSAA	8.283	589.2 -> 419.0	17915	3.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 73.0%	
d7-MeFOSE	11.022	623.2 -> 58.9	24642	10.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 42.7%	
d9-EtFOSE	11.319	639.2 -> 58.9	31248	13.64 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 54.6%	
d5-EtFOSA	11.398	531.1 -> 219.0	4570	1.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 57.8%	
Target Compounds					QValue
4:2FTS	5.072	327.1 -> 307.0	6920	2.93 µg/L	99
		327.1 -> 80.9	2759		
6:2FTS	6.761	427.1 -> 407.0	8774	2.94 µg/L	99
		427.1 -> 80.9	3258		
8:2FTS	7.804	527.1 -> 507.0	6261	3.60 µg/L	96
		527.1 -> 80.8	2393		
EtFOSAA	8.297	584.2 -> 419.1	2453	0.78 µg/L	91
		584.2 -> 526.0	1134		
FOSA	9.798	498.1 -> 77.9	3241	0.82 µg/L	97
		498.1 -> 478.0	79		
MeFOSAA	8.087	570.1 -> 419.0	2977	0.91 µg/L	97
		570.1 -> 483.0	467		
PFBA	2.746	212.8 -> 168.9	14512	3.31 µg/L	100
PFBS	5.216	298.7 -> 79.9	3100	0.76 µg/L	95
		298.7 -> 98.8	1118		
PFDA	8.005	512.9 -> 469.0	11575	0.87 µg/L	100
		512.9 -> 219.0	2612		
PFDODA	8.880	613.1 -> 569.0	14448	0.88 µg/L	98
		613.1 -> 319.0	2510		
PFDS	9.008	599.0 -> 79.9	2349	0.77 µg/L	96

7.3.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1137			
PFHpA	6.305	363.1 -> 319.0	21579	0.80	µg/L	99
		363.1 -> 169.0	3847			
PFHpS	7.624	449.0 -> 79.9	3574	0.74	µg/L	93
		449.0 -> 98.9	2012			
PFHxA	5.362	313.0 -> 269.0	12544	0.82	µg/L	100
		313.0 -> 118.9	368			
PFHxS	7.043	398.7 -> 79.9	2520	0.73	µg/L	m 93
		398.7 -> 98.9	1637			
PFNA	7.522	463.0 -> 419.0	12914	0.74	µg/L	96
		463.0 -> 219.0	3376			
PFNS	8.586	548.8 -> 79.9	1497	0.75	µg/L	70
		548.8 -> 98.9	1027			
PFOA	6.978	413.0 -> 369.0	24028	0.77	µg/L	99
		413.0 -> 169.0	5013			
PFOS	8.119	498.9 -> 79.9	3670	0.78	µg/L	m 80
		498.9 -> 98.8	1566			
PFPeA	4.202	263.0 -> 219.0	17788	1.59	µg/L	100
PFPeS	6.294	349.1 -> 79.9	2830	0.75	µg/L	99
		349.1 -> 98.9	1234			
PFTeDA	9.637	713.1 -> 669.0	11116	0.79	µg/L	99
		713.1 -> 168.9	1220			
PFTrDA	9.267	663.0 -> 619.0	15244	0.87	µg/L	97
		663.0 -> 168.9	1951			
PFUnDA	8.449	563.1 -> 519.0	12687	0.83	µg/L	99
		563.1 -> 269.1	2825			
11CI-PF3OUdS	9.294	630.9 -> 450.9	17743	1.53	µg/L	98
		632.9 -> 452.9	5521			
9CI-PF3ONS	8.451	530.8 -> 351.0	18178	1.63	µg/L	99
		532.8 -> 353.0	5779			
ADONA	6.568	376.9 -> 250.9	50279	1.62	µg/L	97
		376.9 -> 84.8	12739			
HFPO-DA	5.703	284.9 -> 168.9	6604	1.60	µg/L	98
		284.9 -> 184.9	687			
3:3FTCA	3.667	241.0 -> 177.0	1801	3.25	µg/L	100
		241.0 -> 117.0	164			
5:3FTCA	6.033	341.0 -> 237.1	36804	19.10	µg/L	100
		341.0 -> 217.0	26409			
7:3FTCA	7.549	441.0 -> 316.9	18264	20.13	µg/L	91
		441.0 -> 336.9	41977			
EtFOSA	11.412	526.0 -> 219.0	2888	1.46	µg/L	97
		526.0 -> 169.0	4143			
EtFOSE	11.332	630.0 -> 58.9	3843	3.55	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	2176	1.38	µg/L	m 85
		511.9 -> 169.0	3182			
MeFOSE	11.047	616.1 -> 58.9	3663	3.82	µg/L	m 100
PFDoDS	9.764	699.1 -> 79.9	1545	0.68	µg/L	97
		699.1 -> 98.8	862			
NFDHA	5.241	295.0 -> 201.0	1773	1.72	µg/L	86
		295.0 -> 84.9	339			
PFMBA	4.591	279.0 -> 85.1	9728	1.51	µg/L	100
PFMPA	3.357	229.0 -> 84.9	10403	1.60	µg/L	100
PFEESA	5.734	314.8 -> 134.9	16573	1.48	µg/L	99
		314.8 -> 82.9	552			

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

7.3.2
7

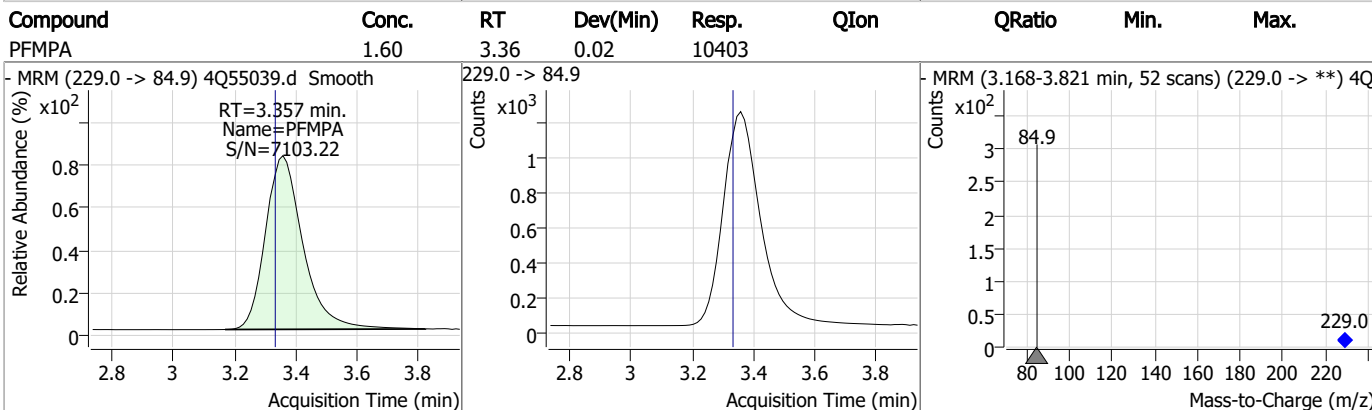
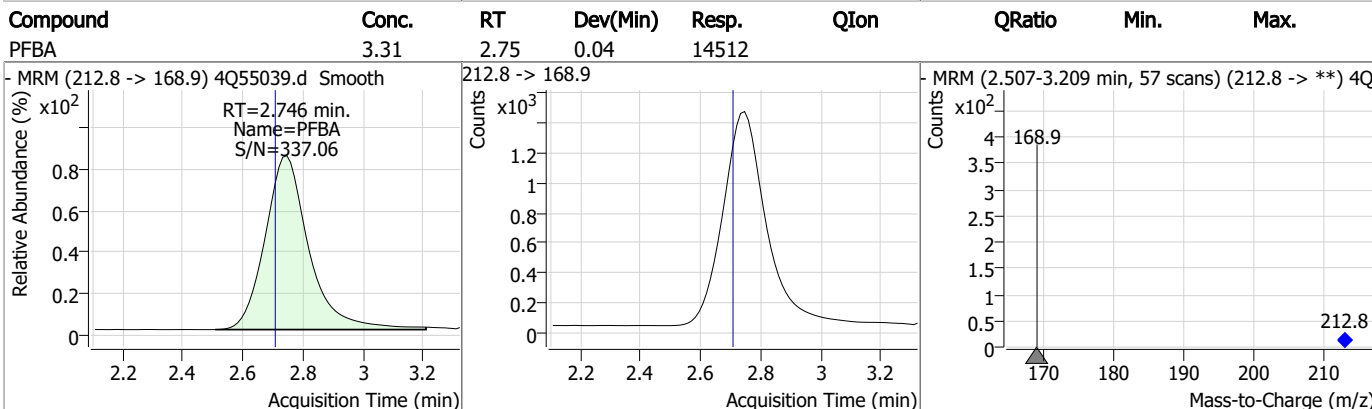
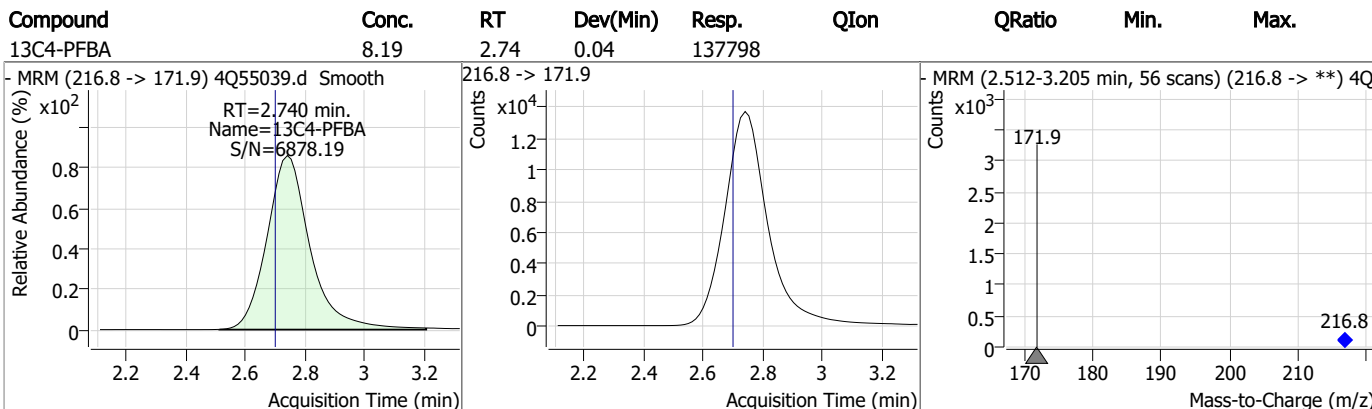
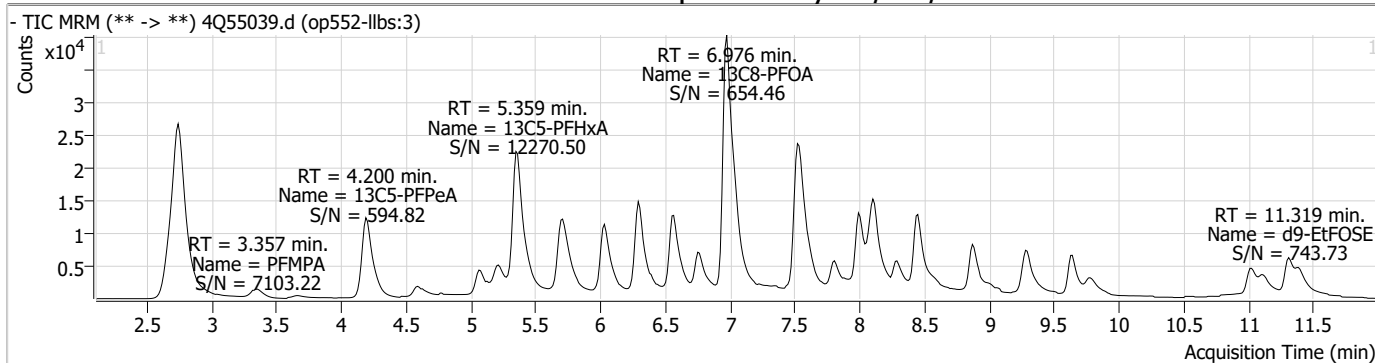
Perfluorinated Compounds by LC/MS/MS

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

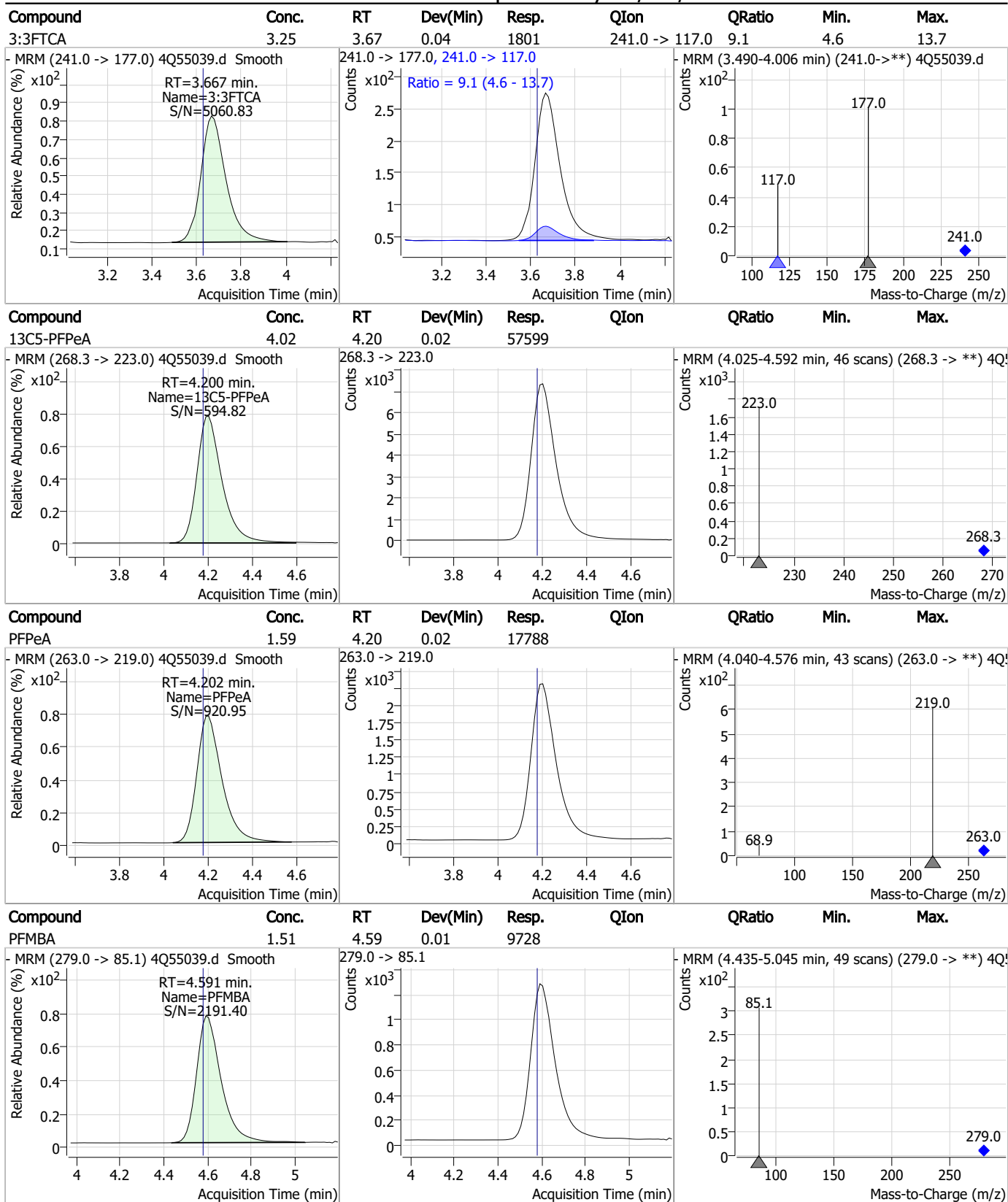
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Perfluorinated Compounds by LC/MS/MS



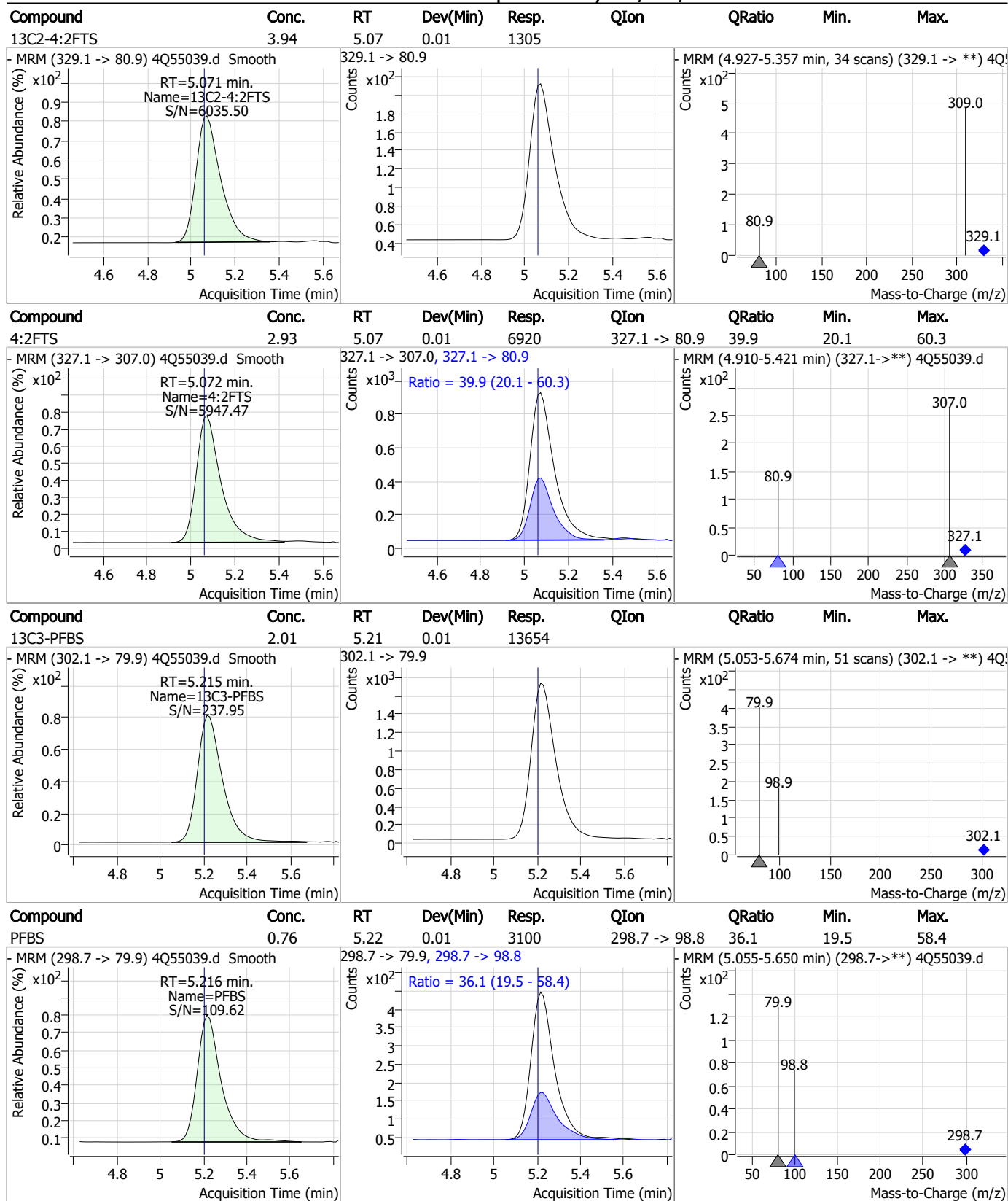
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Perfluorinated Compounds by LC/MS/MS



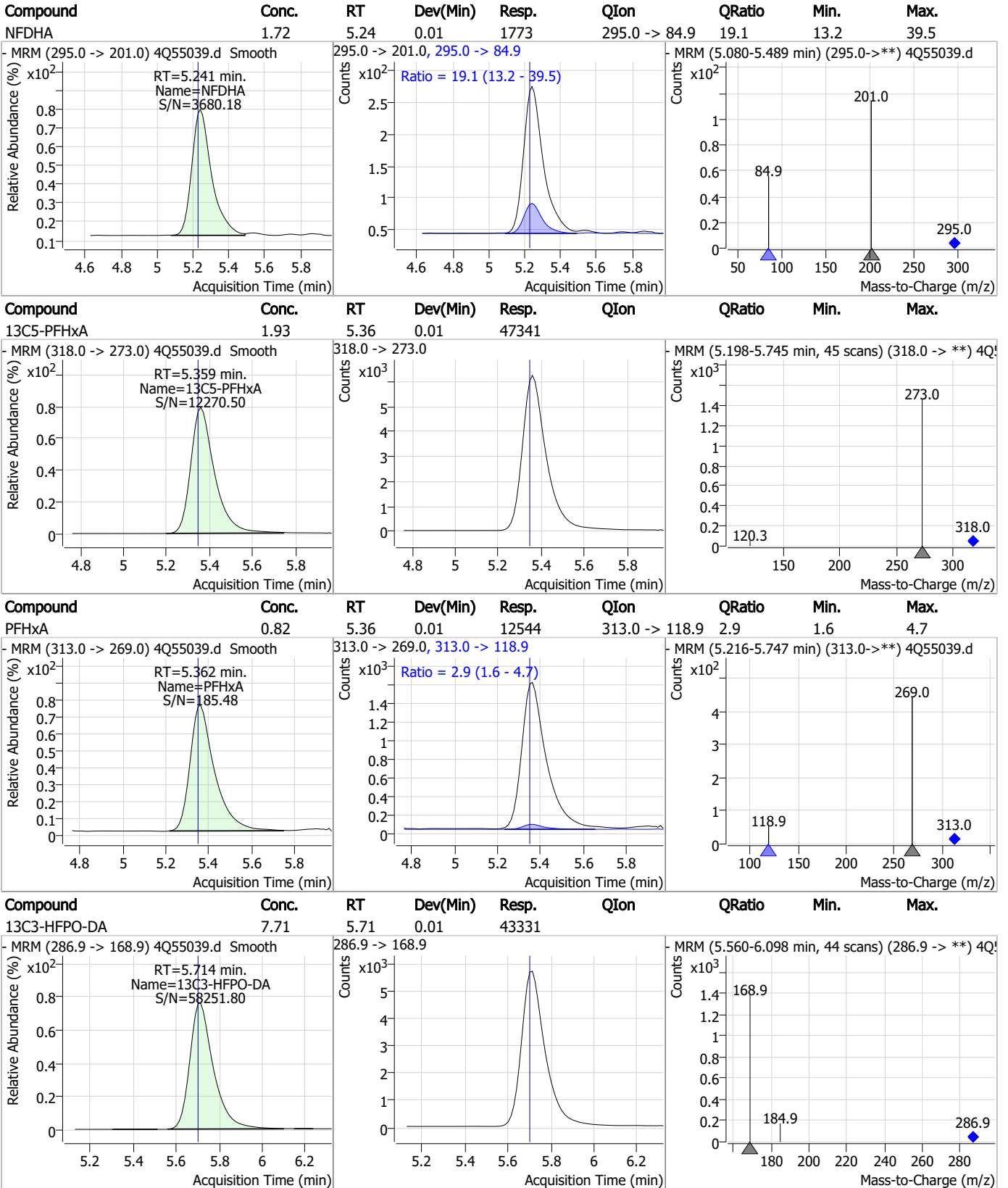
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Perfluorinated Compounds by LC/MS/MS



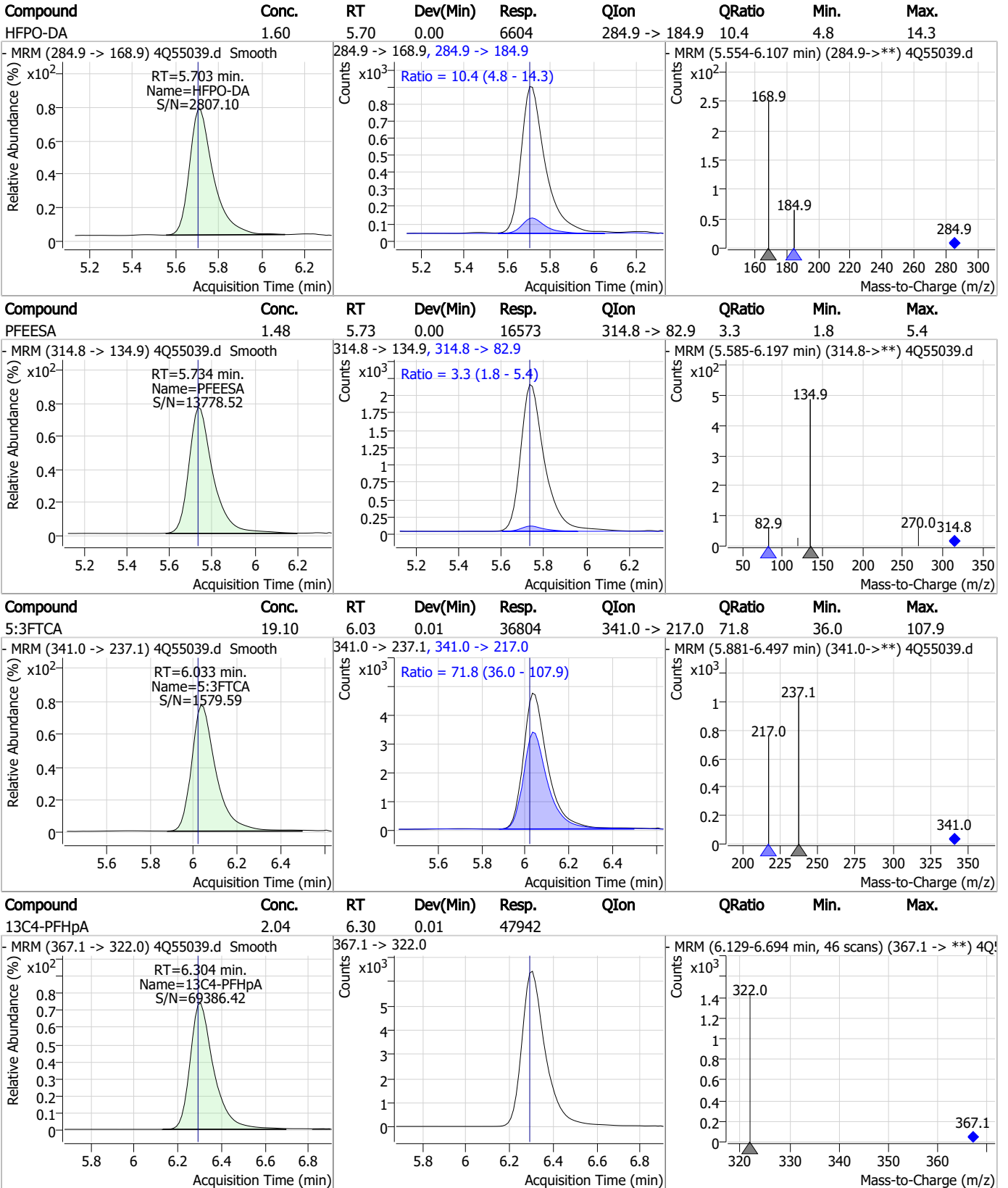
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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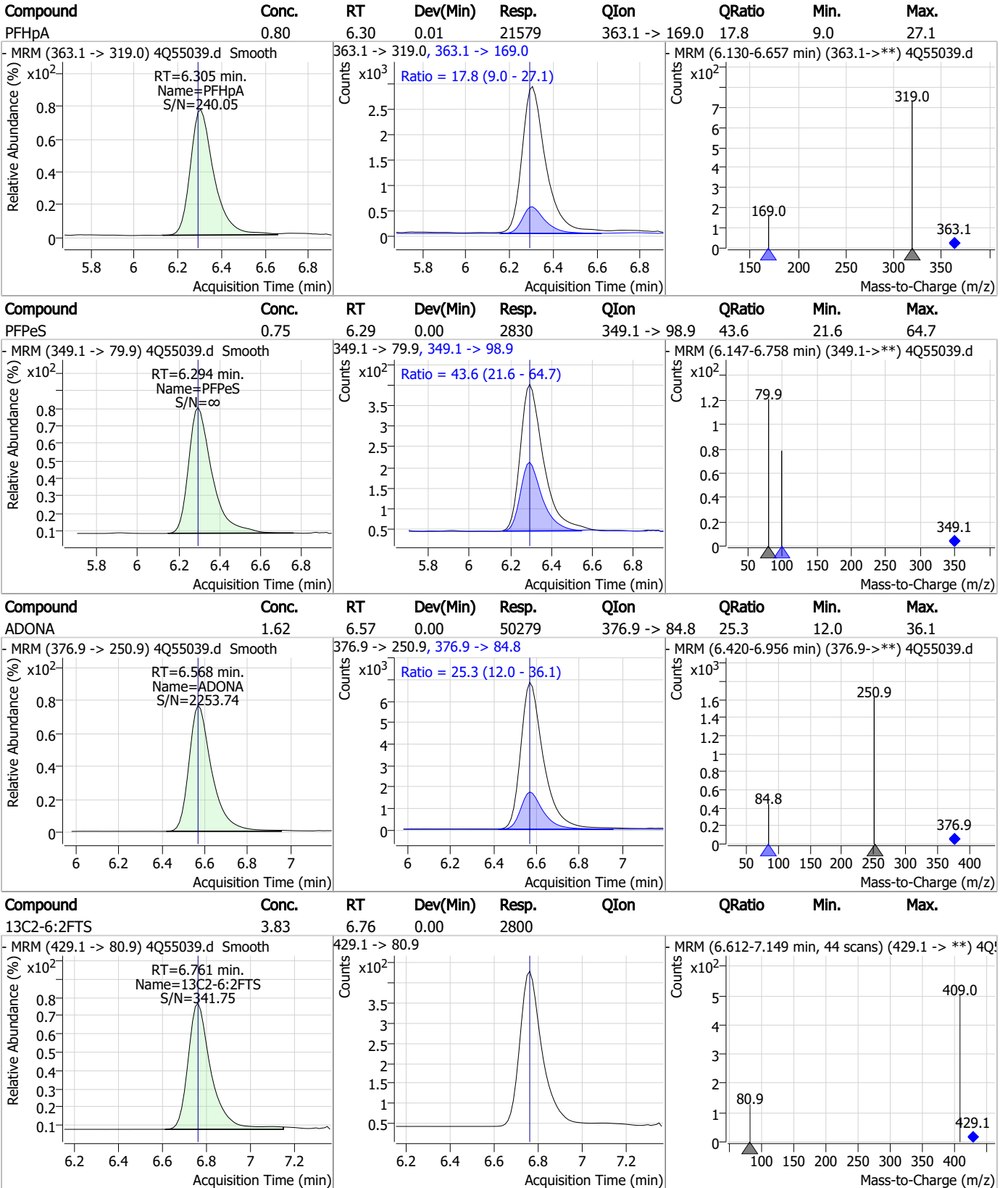
Perfluorinated Compounds by LC/MS/MS



7.3.2

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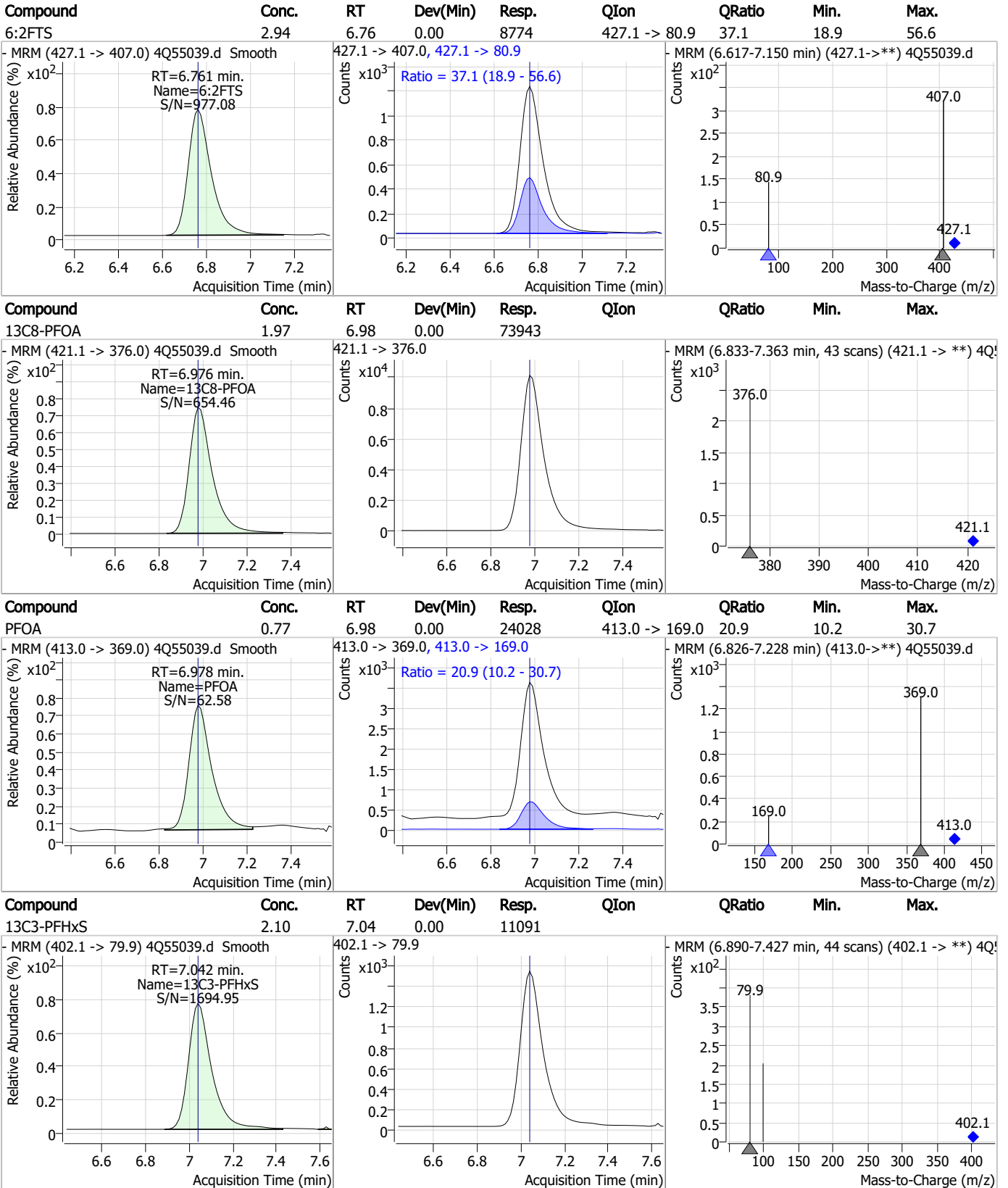
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7.3.2

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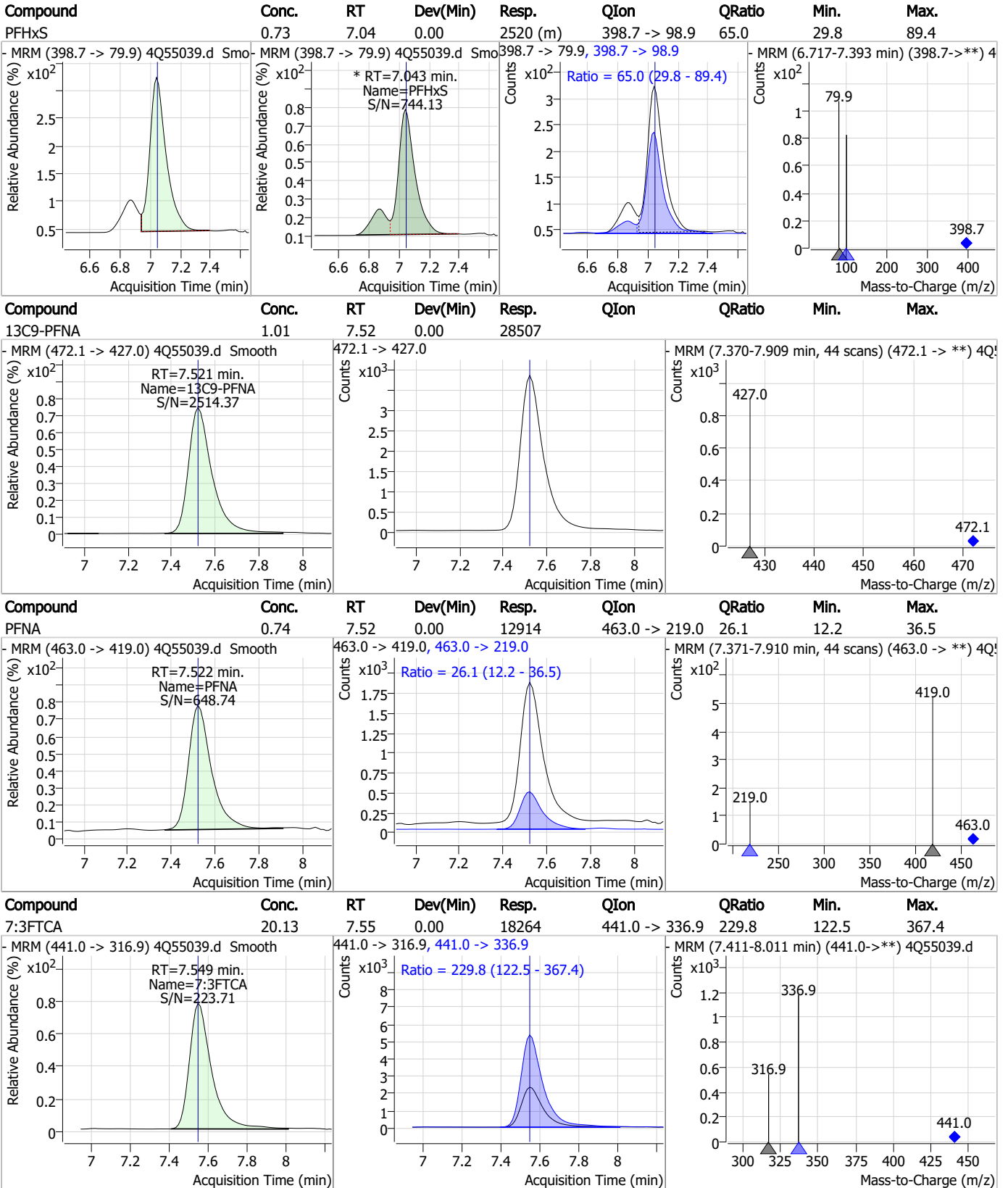
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7.3.2

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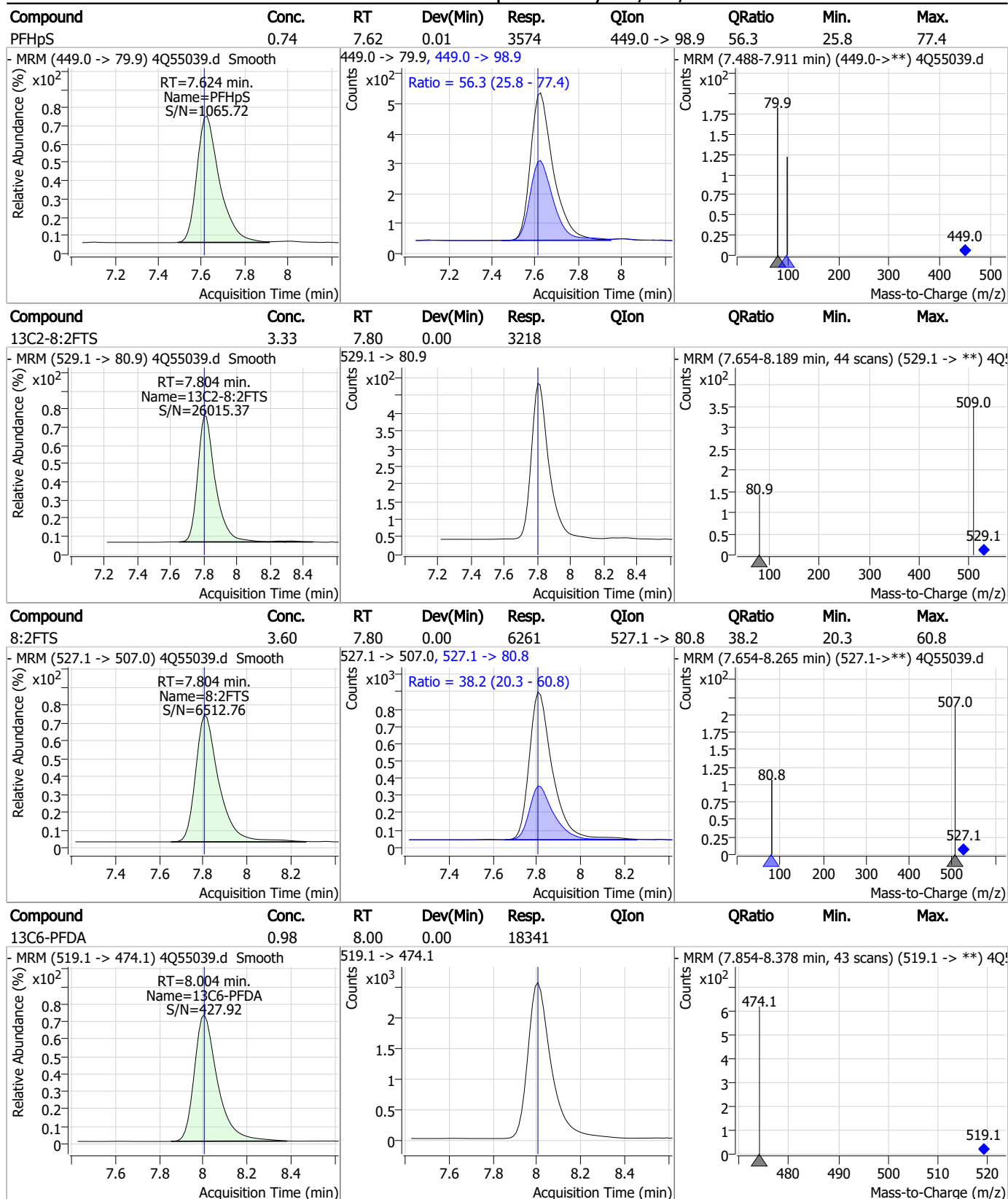
Perfluorinated Compounds by LC/MS/MS



7.3.2

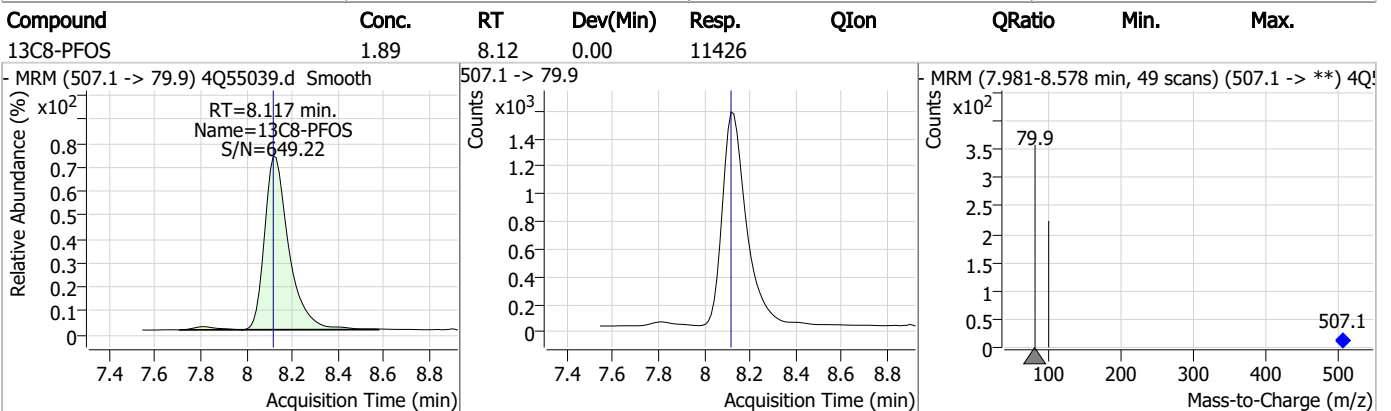
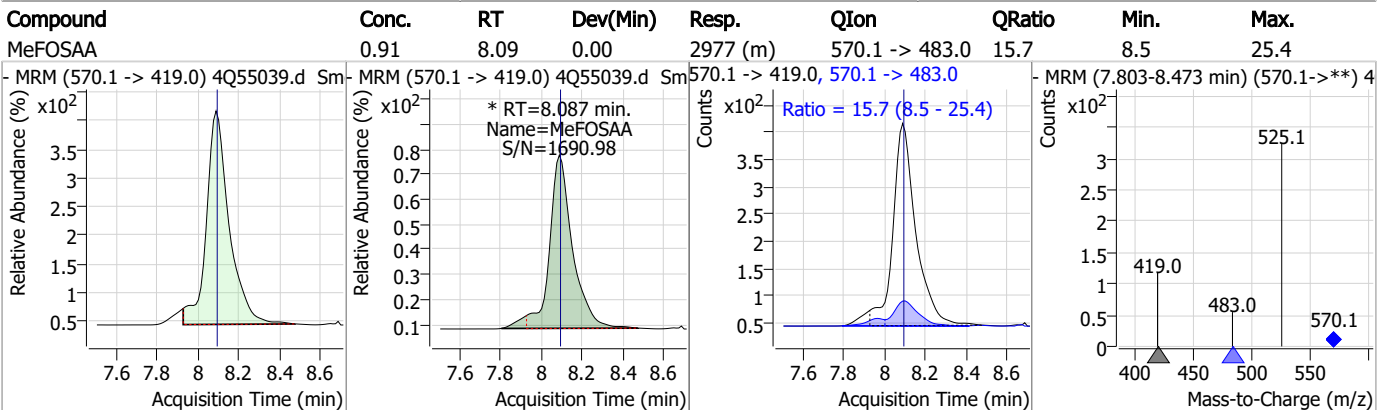
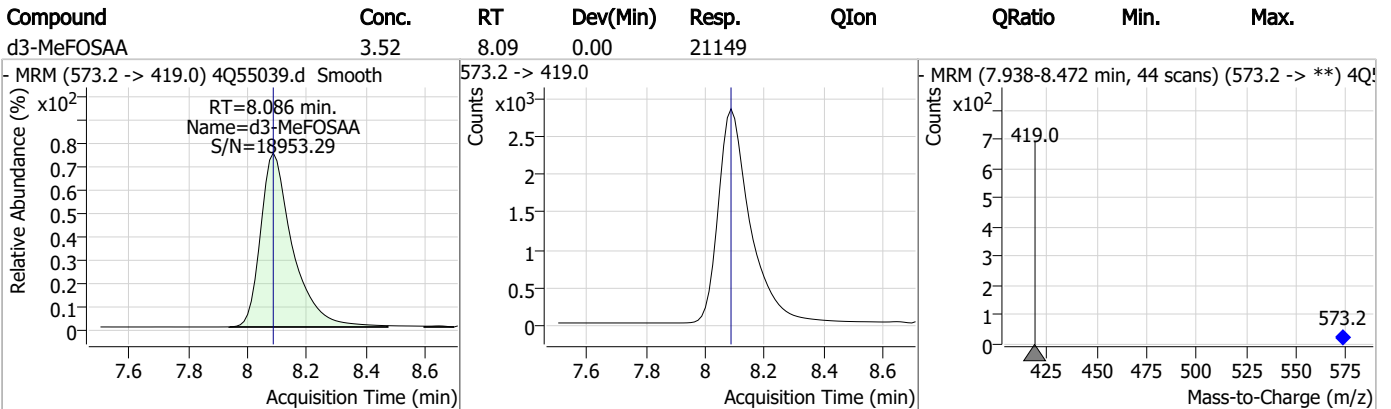
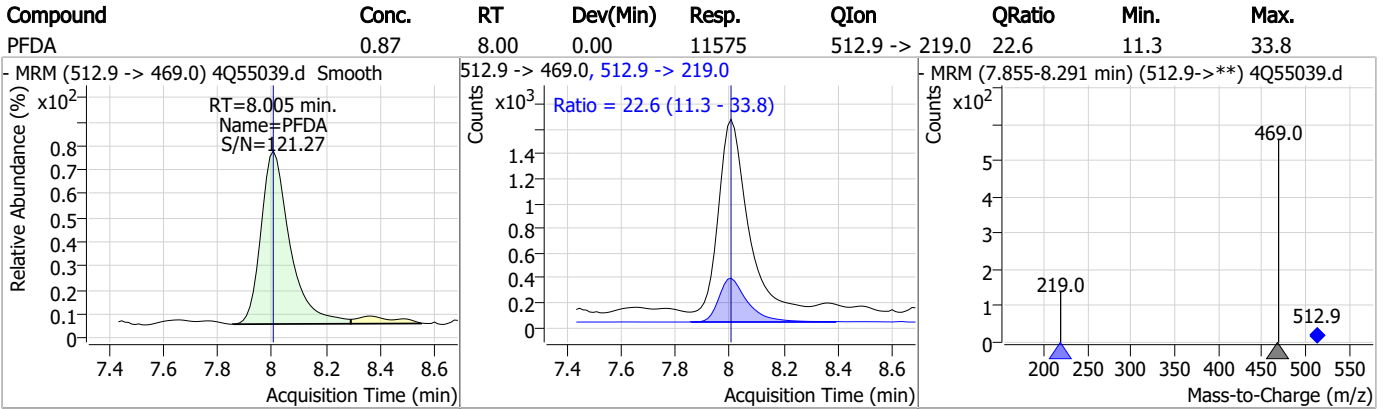
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Perfluorinated Compounds by LC/MS/MS

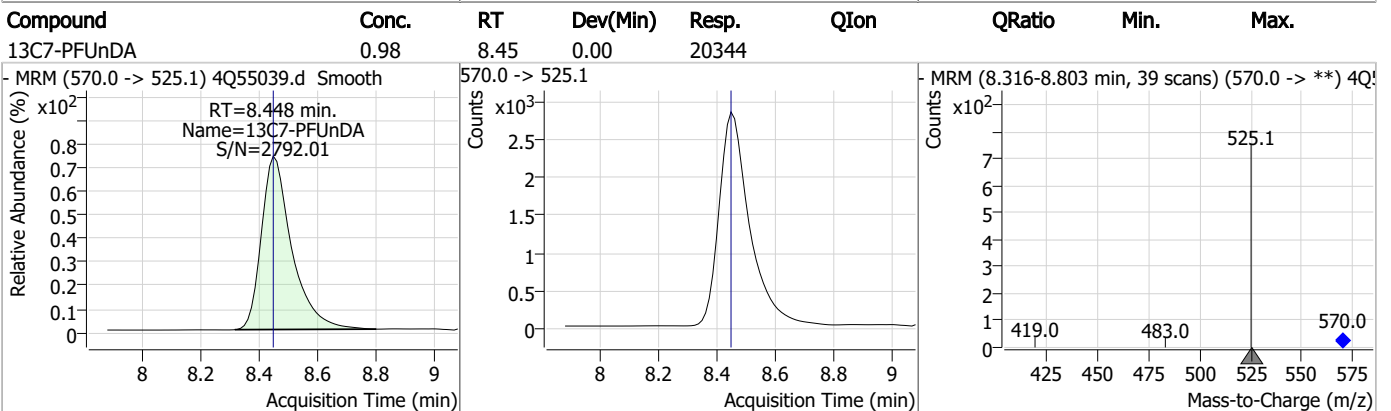
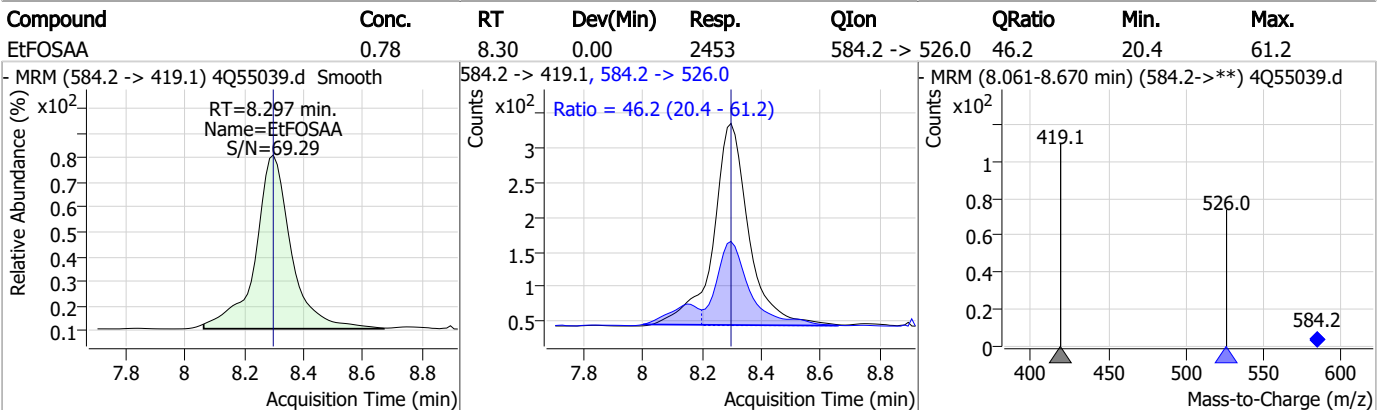
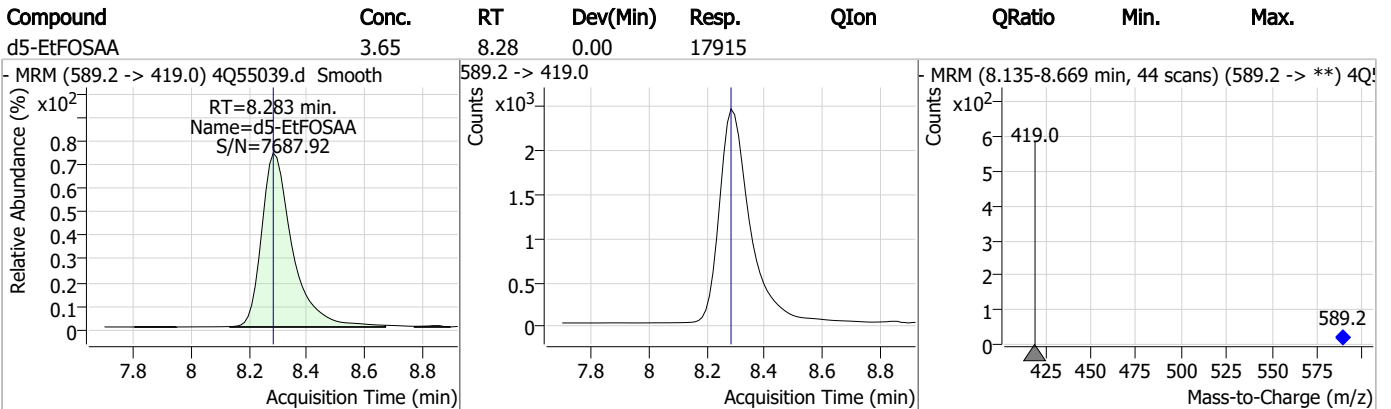
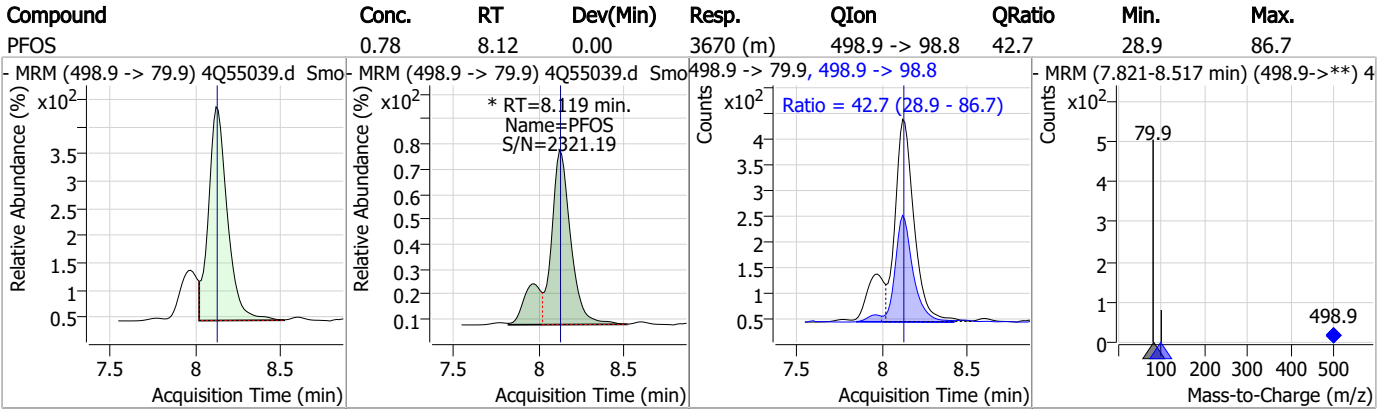


7.3.2
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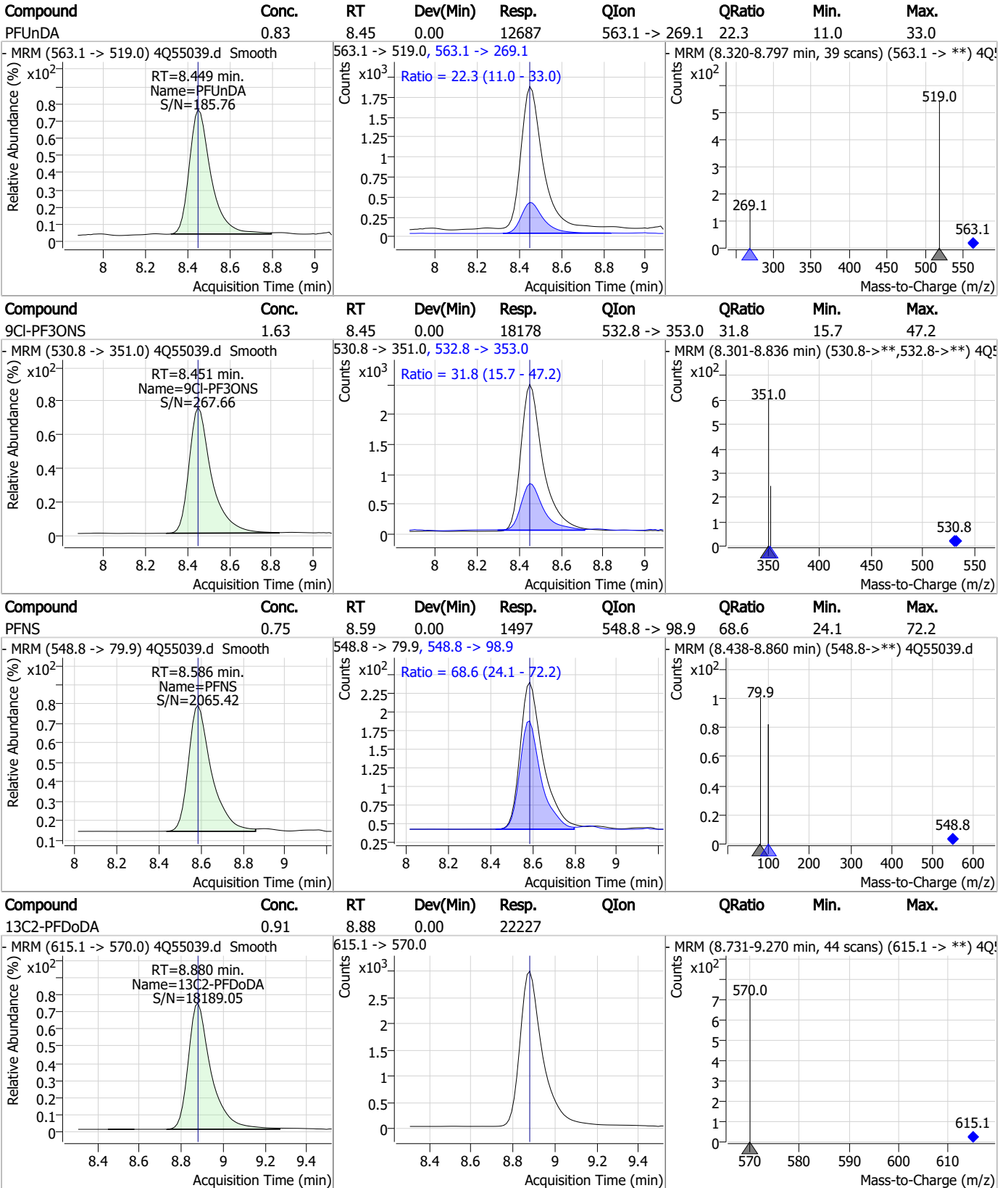
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



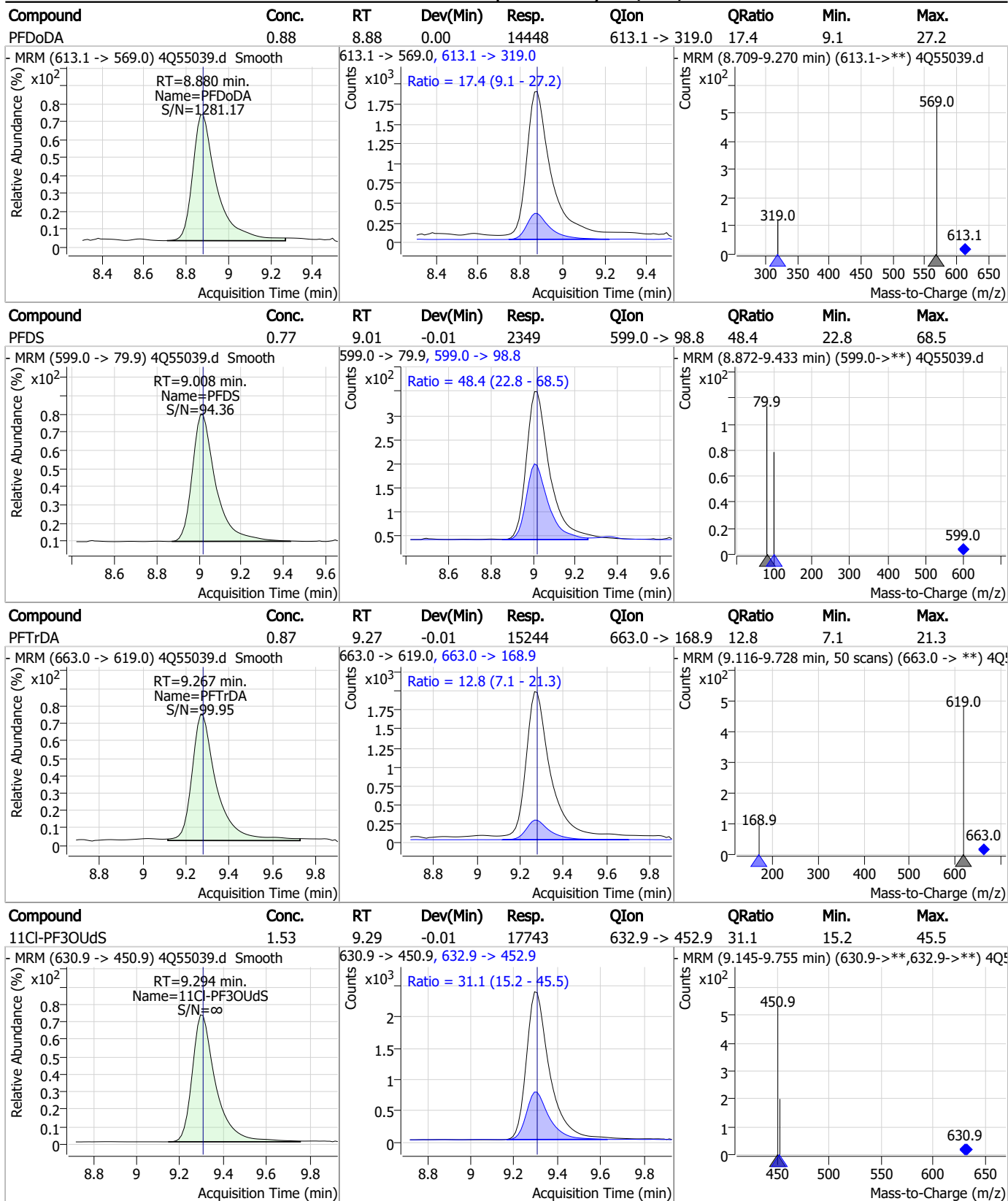
Perfluorinated Compounds by LC/MS/MS



7.3.2

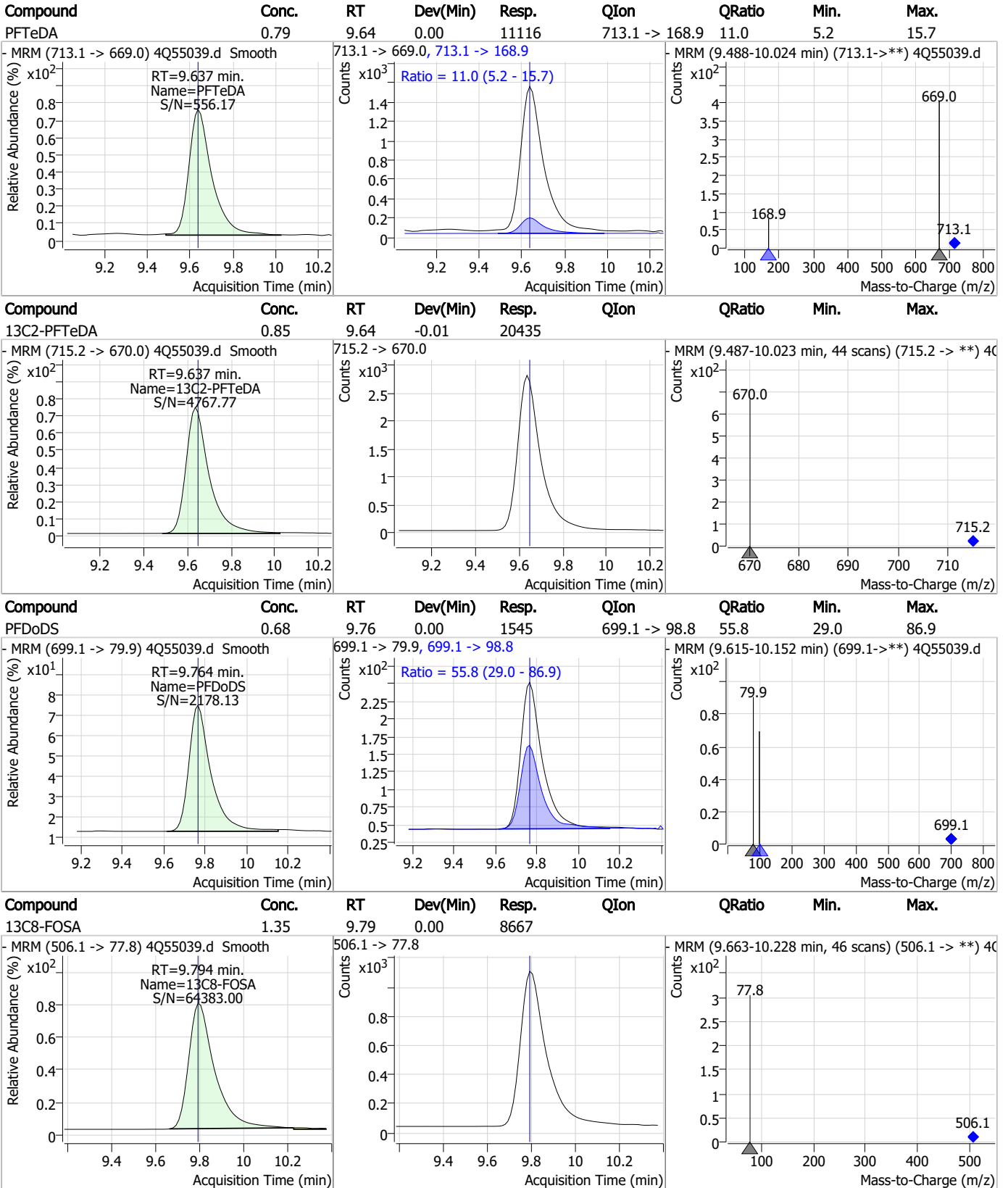
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Perfluorinated Compounds by LC/MS/MS



7.3.2
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Perfluorinated Compounds by LC/MS/MS

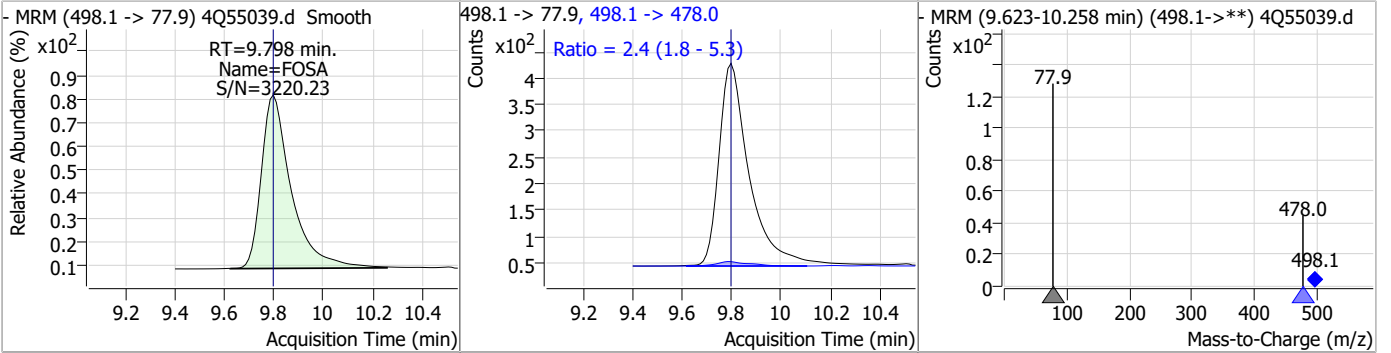


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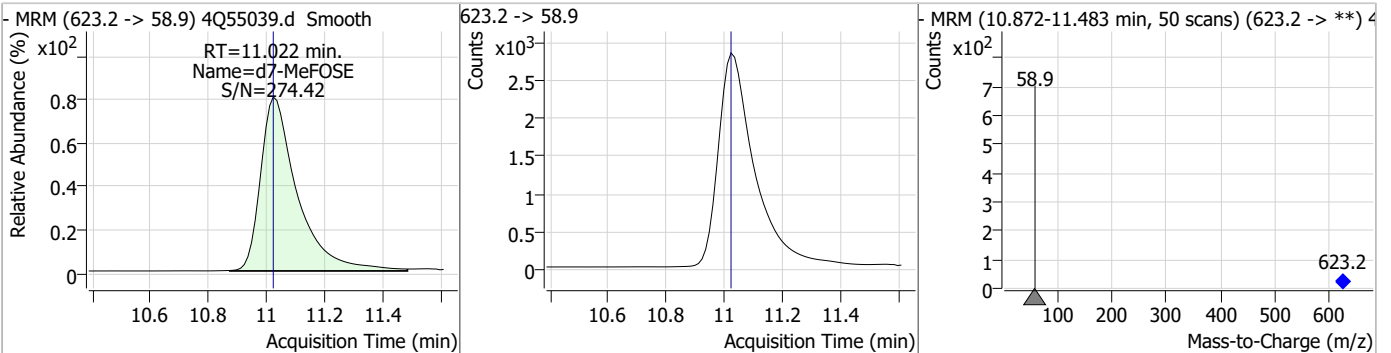
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Perfluorinated Compounds by LC/MS/MS

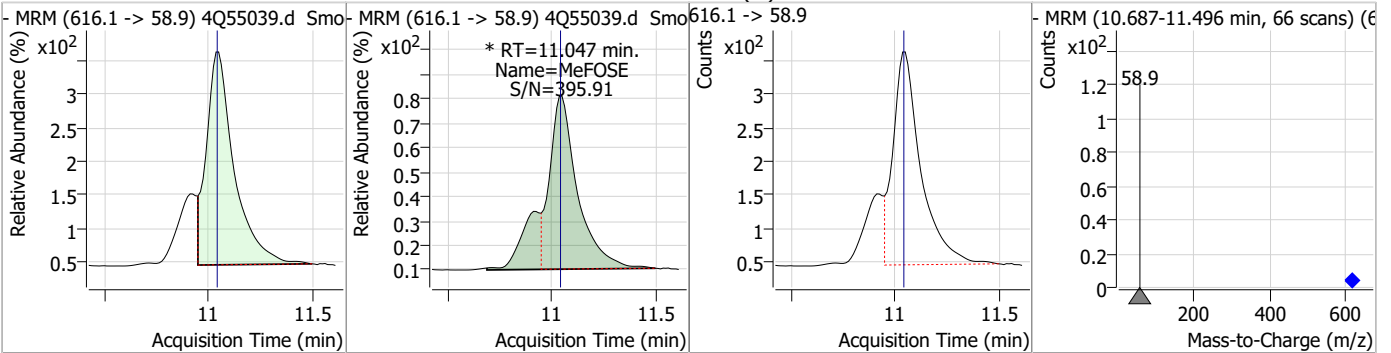
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.82	9.80	0.00	3241	498.1 -> 478.0	2.4	1.8	5.3



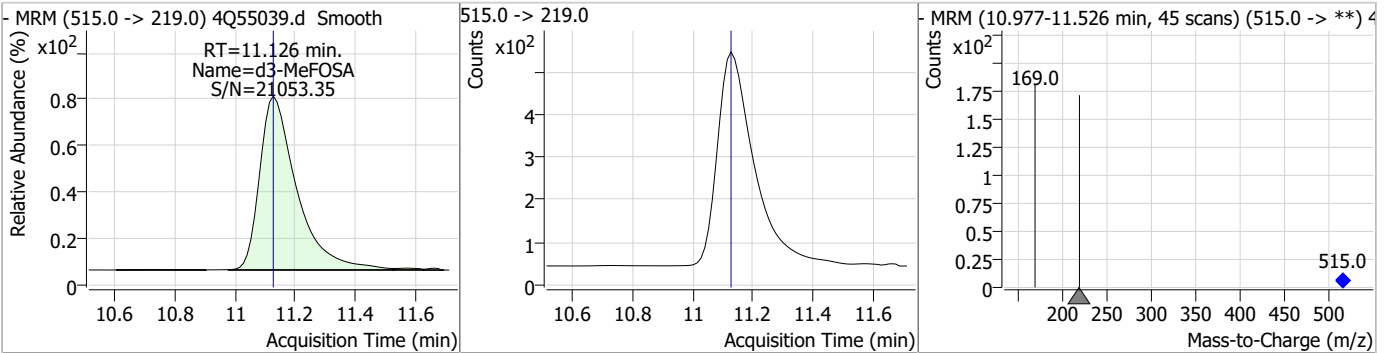
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	10.69	11.02	0.00	24642				



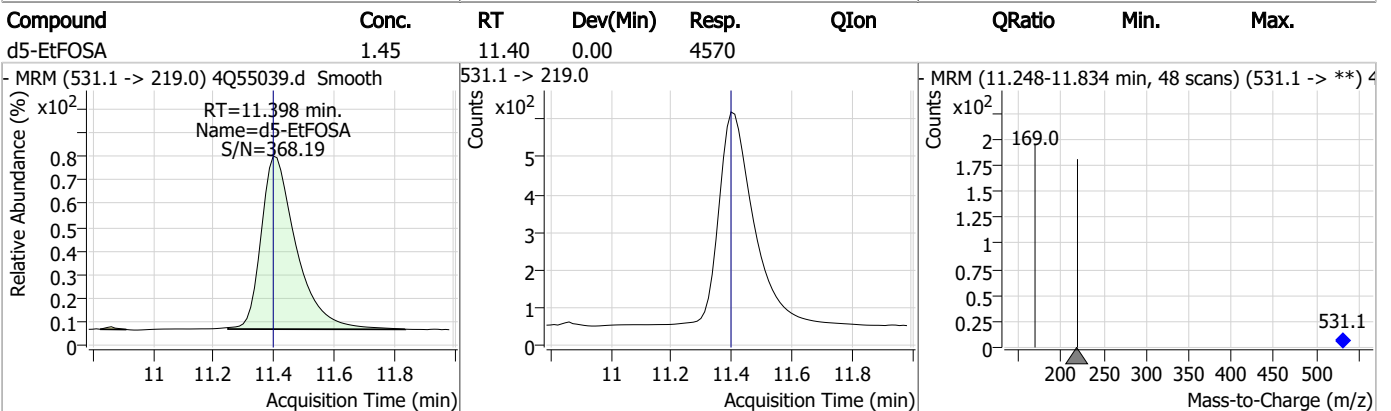
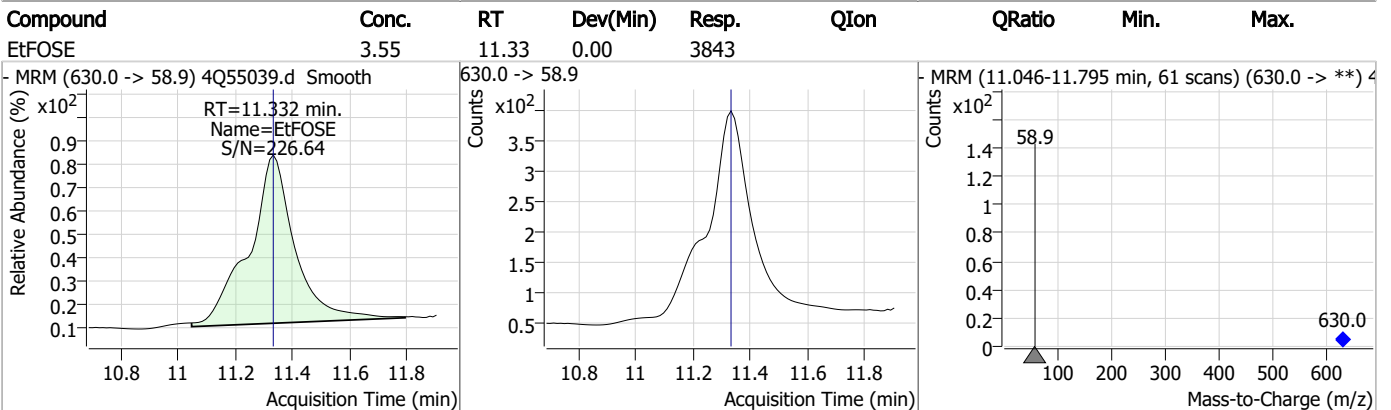
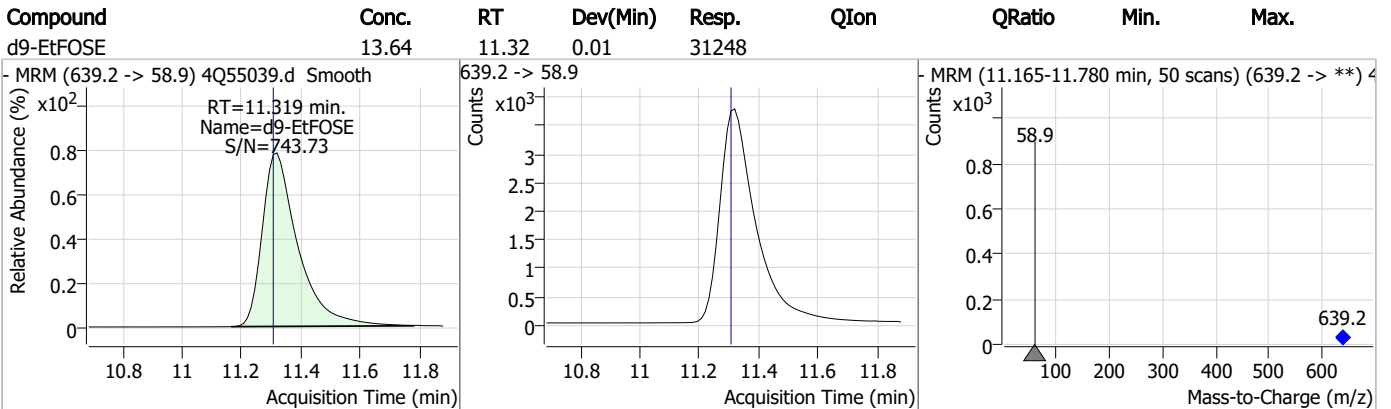
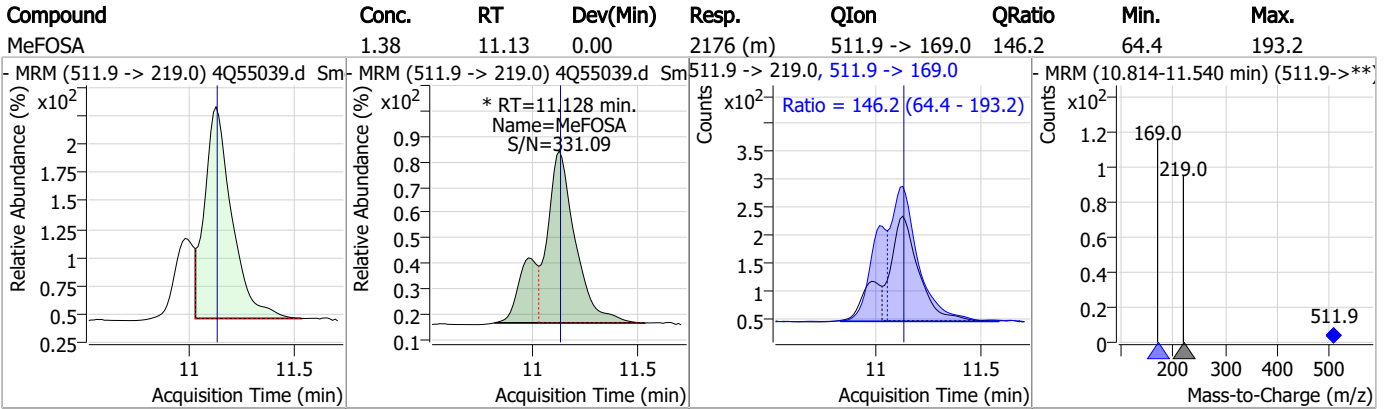
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.82	11.05	0.01	3663 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	1.31	11.13	0.00	4328				



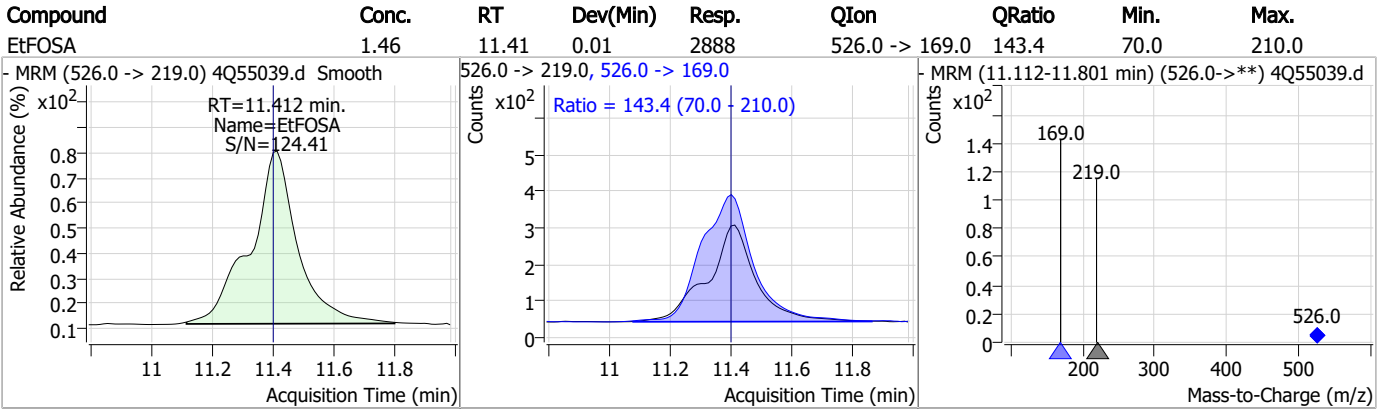
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP552-LLBS Method: EPA DRAFT 1633
Lab FileID: 4Q55039.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 20:24 Supervisor approved: 12/12/23 11:55 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
MeFOSAA	2355-31-9		8.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
MeFOSE	24448-09-7		11.05	Split peak
MeFOSA	31506-32-8		11.13	Split peak

7.3.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55044.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 9:38:32 PM
 Sample Name : op552-ms
 Vial : P4-B9
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP552,S4Q806,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.765	216.8 -> 171.9	93820	10.00 µg/L	0.066
M5-PFPeA	4.200	268.3 -> 223.0	66368	5.00 µg/L	0.025
M5-PFHxA	5.359	318.0 -> 273.0	55263	2.50 µg/L	0.012
M4-PFHpA	6.304	367.1 -> 322.0	53303	2.50 µg/L	0.012
M8-PFOA	6.976	421.1 -> 376.0	83377	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	31917	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	22495	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	23467	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	23509	1.25 µg/L	0.000
M2-PFTeDA	9.637	715.2 -> 670.0	21036	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	12594	2.50 µg/L	0.000
M3-PFBS	5.215	302.1 -> 79.9	14843	2.50 µg/L	0.012
M3-PFHxS	7.042	402.1 -> 79.9	12233	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	12086	2.50 µg/L	0.000
M2-4:2FTS	5.071	329.1 -> 80.9	1197	5.00 µg/L	0.012
M2-6:2FTS	6.761	429.1 -> 80.9	3051	5.00 µg/L	0.000
M2-8:2FTS	7.816	529.1 -> 80.9	3789	5.00 µg/L	0.012
M3-MeFOSAA	8.086	573.2 -> 419.0	22357	5.00 µg/L	0.000
M3-HFPO-DA	5.714	286.9 -> 168.9	51992	10.00 µg/L	0.013
M5-EtFOSAA	8.283	589.2 -> 419.0	18922	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	35131	25.00 µg/L	0.000
M9-EtFOSE	11.319	639.2 -> 58.9	43958	25.00 µg/L	0.012
M5-EtFOSA	11.397	531.1 -> 219.0	6710	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	6485	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	10542	2.50 µg/L	0.000
13C3-PFBA	2.768	216.0 -> 172.0	72633	5.00 µg/L	0.065
18O2-PFHxS	7.041	403.0 -> 83.9	7768	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	93976	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	24622	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	32897	1.25 µg/L	0.000
13C2-PFHxA	5.360	315.1 -> 270.0	61891	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.071	329.1 -> 80.9	1197	3.98 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.6%		
13C2-6:2FTS	6.761	429.1 -> 80.9	3051	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.9%		
13C2-8:2FTS	7.816	529.1 -> 80.9	3789	4.33 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.5%		
13C2-PFDoDA	8.880	615.1 -> 570.0	23509	1.01 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.0%		
13C2-PFTeDA	9.637	715.2 -> 670.0	21036	0.92 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.7%		
13C3-PFBS	5.215	302.1 -> 79.9	14843	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFHxS	7.042	402.1 -> 79.9	12233	2.55 µg/L	0.000

7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C4-PFBA	2.765	216.8 -> 171.9	93820	6.00 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 60.0%		
13C4-PFHpA	6.304	367.1 -> 322.0	53303	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C5-PFHxA	5.359	318.0 -> 273.0	55263	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C5-PFPeA	4.200	268.3 -> 223.0	66368	4.94 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C6-PFDA	8.004	519.1 -> 474.1	22495	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C7-PFUnDA	8.448	570.0 -> 525.1	23467	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.2%		
13C8-FOSA	9.794	506.1 -> 77.8	12594	2.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 84.7%		
13C8-PFOA	6.976	421.1 -> 376.0	83377	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C8-PFOS	8.117	507.1 -> 79.9	12086	2.15 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.0%		
13C9-PFNA	7.521	472.1 -> 427.0	31917	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
d3-MeFOSAA	8.086	573.2 -> 419.0	22357	4.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 80.1%		
13C3-HFPO-DA	5.714	286.9 -> 168.9	51992	9.86 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
d3-MeFOSA	11.126	515.0 -> 219.0	6485	2.12 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 84.8%		
d5-EtFOSAA	8.283	589.2 -> 419.0	18922	4.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.0%		
d7-MeFOSE	11.022	623.2 -> 58.9	35131	16.39 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 65.6%		
d9-EtFOSE	11.319	639.2 -> 58.9	43958	20.65 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 82.6%		
d5-EtFOSA	11.397	531.1 -> 219.0	6710	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 91.3%		
Target Compounds					QValue
4:2FTS	5.072	327.1 -> 307.0	24167	11.14 µg/L	99
		327.1 -> 80.9	9612		
6:2FTS	6.761	427.1 -> 407.0	33573	10.34 µg/L	99
		427.1 -> 80.9	12376		
8:2FTS	7.804	527.1 -> 507.0	22641	11.04 µg/L	100
		527.1 -> 80.8	9115		
EtFOSAA	8.297	584.2 -> 419.1	8841	2.65 µg/L	m 97
		584.2 -> 526.0	3795		
FOSA	9.798	498.1 -> 77.9	15056	2.64 µg/L	99
		498.1 -> 478.0	478		
MeFOSAA	8.087	570.1 -> 419.0	10112	2.92 µg/L	92
		570.1 -> 483.0	2041		
PFBA	2.771	212.8 -> 168.9	32521	10.90 µg/L	100
PFBS	5.216	298.7 -> 79.9	11264	2.53 µg/L	99
		298.7 -> 98.8	4315		
PFDA	8.005	512.9 -> 469.0	38910	2.37 µg/L	98
		512.9 -> 219.0	8319		
PFDODA	8.880	613.1 -> 569.0	45808	2.63 µg/L	99
		613.1 -> 319.0	8492		
PFDS	9.008	599.0 -> 79.9	7330	2.26 µg/L	97

7.4.1
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3477			
PFHpA	6.305	363.1 -> 319.0	83360	2.77	µg/L	99
		363.1 -> 169.0	14763			
PFHpS	7.624	449.0 -> 79.9	13859	2.71	µg/L	100
		449.0 -> 98.9	7183			
PFHxA	5.362	313.0 -> 269.0	46943	2.64	µg/L	100
		313.0 -> 118.9	1484			
PFHxS	7.043	398.7 -> 79.9	9593	2.52	µg/L	m 91
		398.7 -> 98.9	5048			
PFNA	7.522	463.0 -> 419.0	50388	2.57	µg/L	97
		463.0 -> 219.0	11601			
PFNS	8.586	548.8 -> 79.9	5533	2.62	µg/L	95
		548.8 -> 98.9	2844			
PFOA	6.978	413.0 -> 369.0	91307	2.60	µg/L	100
		413.0 -> 169.0	18537			
PFOS	8.119	498.9 -> 79.9	12499	2.52	µg/L	m 89
		498.9 -> 98.8	6201			
PFPeA	4.202	263.0 -> 219.0	69789	5.43	µg/L	100
PFPeS	6.294	349.1 -> 79.9	10309	2.49	µg/L	97
		349.1 -> 98.9	4657			
PFTeDA	9.637	713.1 -> 669.0	40647	2.81	µg/L	99
		713.1 -> 168.9	4126			
PFTrDA	9.267	663.0 -> 619.0	49045	2.64	µg/L	98
		663.0 -> 168.9	6615			
PFUnDA	8.449	563.1 -> 519.0	48393	2.74	µg/L	99
		563.1 -> 269.1	10519			
11CI-PF3OUdS	9.294	630.9 -> 450.9	57675	4.15	µg/L	99
		632.9 -> 452.9	17754			
9CI-PF3ONS	8.451	530.8 -> 351.0	65400	4.88	µg/L	100
		532.8 -> 353.0	20371			
ADONA	6.568	376.9 -> 250.9	198592	5.33	µg/L	99
		376.9 -> 84.8	47170			
HFPO-DA	5.715	284.9 -> 168.9	25105	5.08	µg/L	98
		284.9 -> 184.9	2591			
3:3FTCA	3.692	241.0 -> 177.0	7077	18.76	µg/L	100
		241.0 -> 117.0	637			
5:3FTCA	6.045	341.0 -> 237.1	146891	65.32	µg/L	98
		341.0 -> 217.0	103702			
7:3FTCA	7.549	441.0 -> 316.9	70901	66.95	µg/L	95
		441.0 -> 336.9	167611			
EtFOSA	11.399	526.0 -> 219.0	14187	4.90	µg/L	99
		526.0 -> 169.0	20014			
EtFOSE	11.332	630.0 -> 58.9	18618	12.21	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	11479	4.84	µg/L	m 88
		511.9 -> 169.0	16351			
MeFOSE	11.047	616.1 -> 58.9	16714	12.21	µg/L	100
PFDoDS	9.764	699.1 -> 79.9	5153	2.14	µg/L	99
		699.1 -> 98.8	2954			
NFDHA	5.241	295.0 -> 201.0	6197	5.16	µg/L	99
		295.0 -> 84.9	1664			
PFMBA	4.603	279.0 -> 85.1	37226	5.02	µg/L	100
PFMPA	3.369	229.0 -> 84.9	37228	4.97	µg/L	100
PFEESA	5.734	314.8 -> 134.9	60786	4.66	µg/L	100
		314.8 -> 82.9	2157			

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

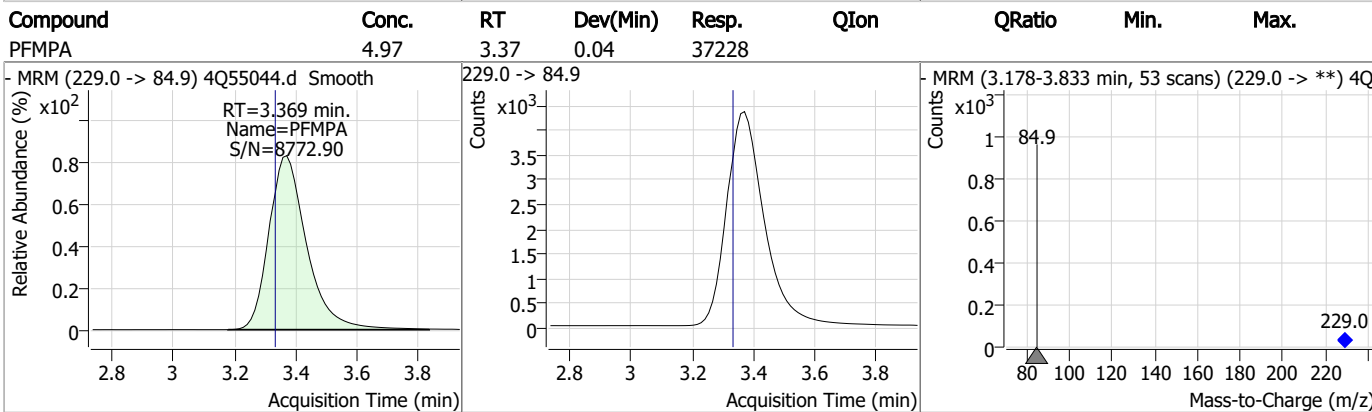
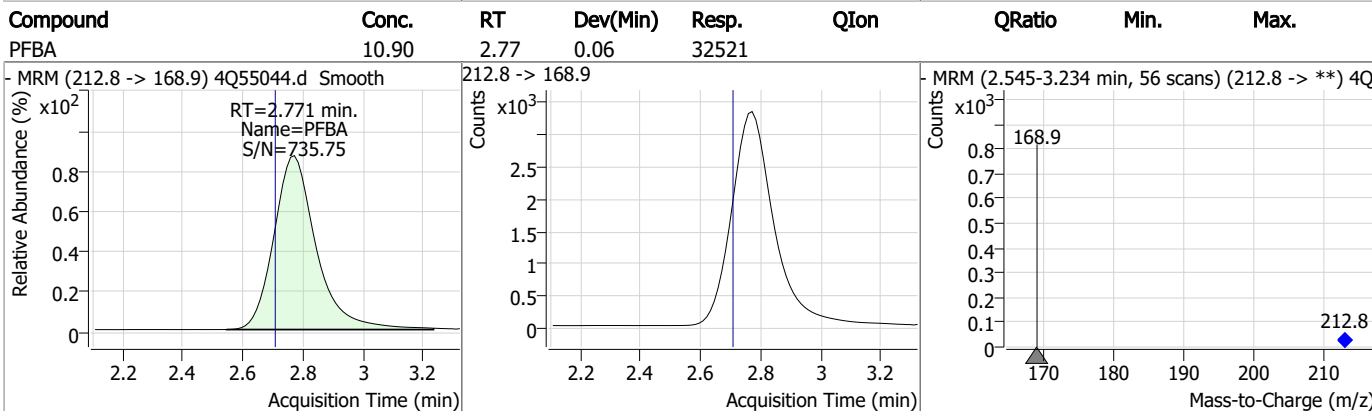
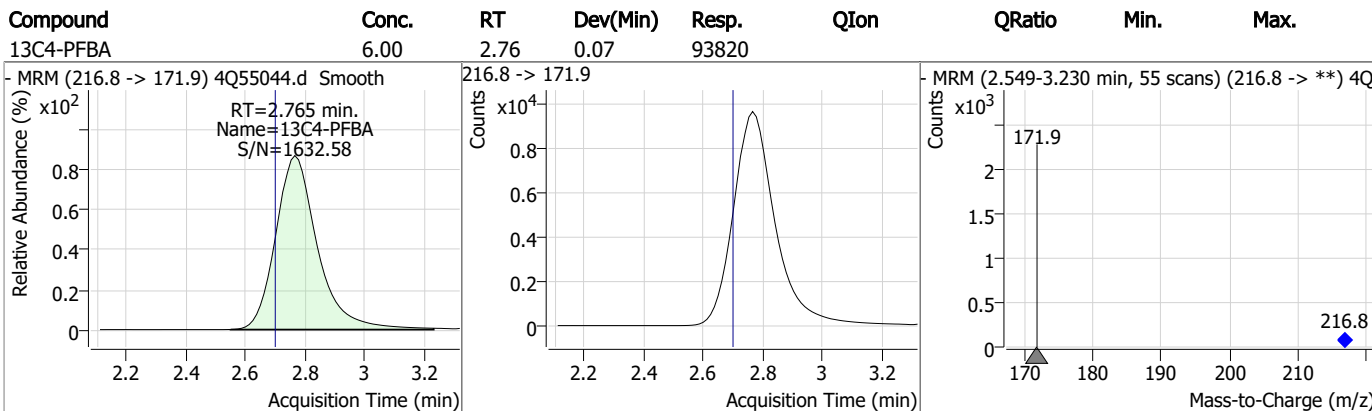
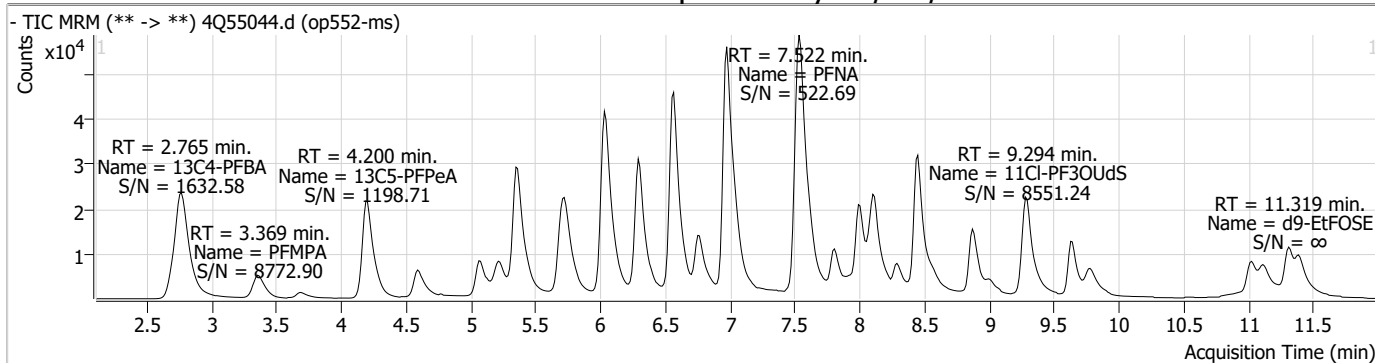
Perfluorinated Compounds by LC/MS/MS

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

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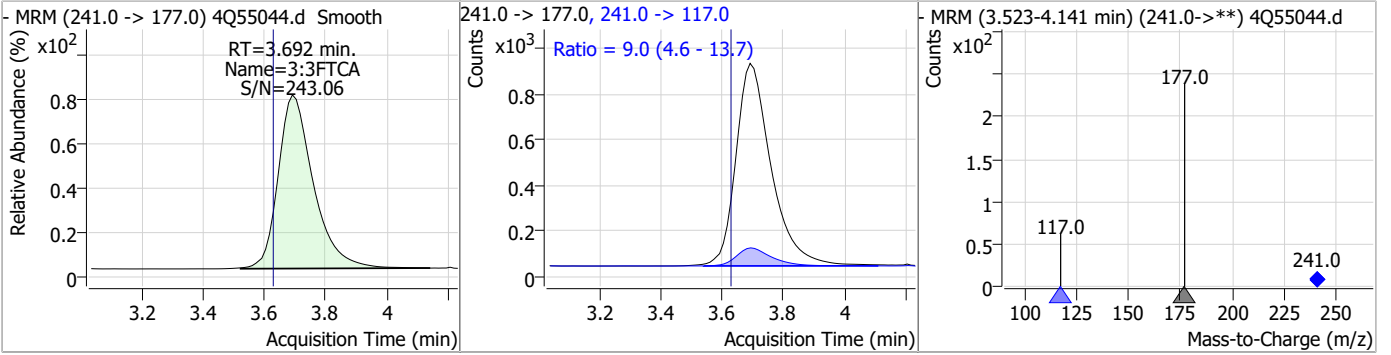
Perfluorinated Compounds by LC/MS/MS



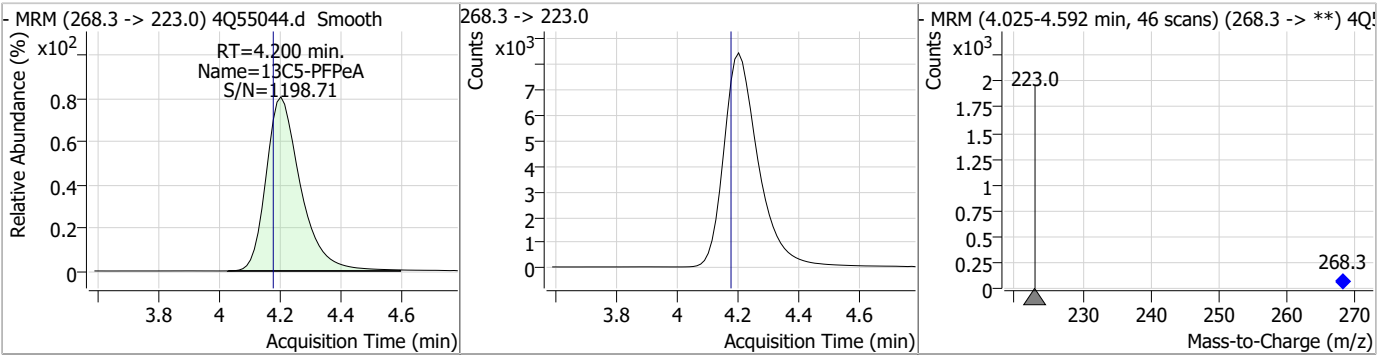
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Perfluorinated Compounds by LC/MS/MS

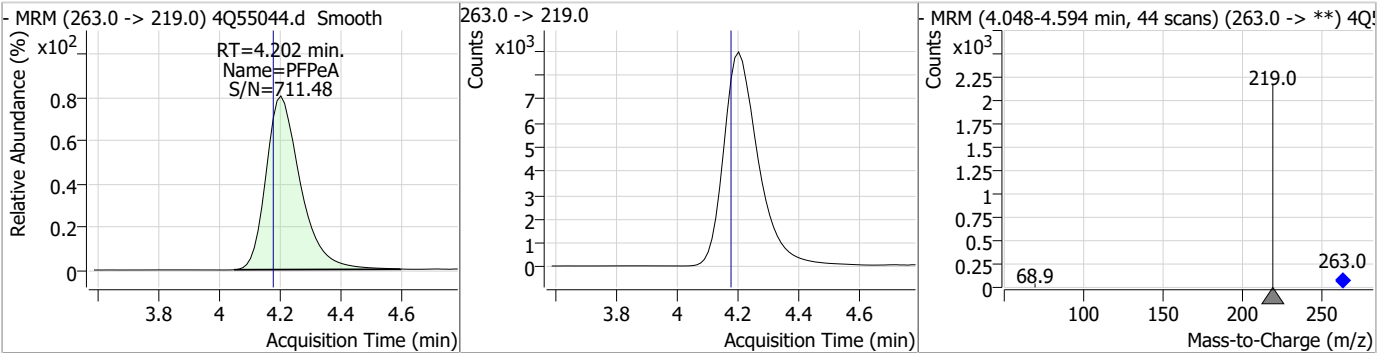
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	18.76	3.69	0.06	7077	241.0 -> 117.0	9.0	4.6	13.7



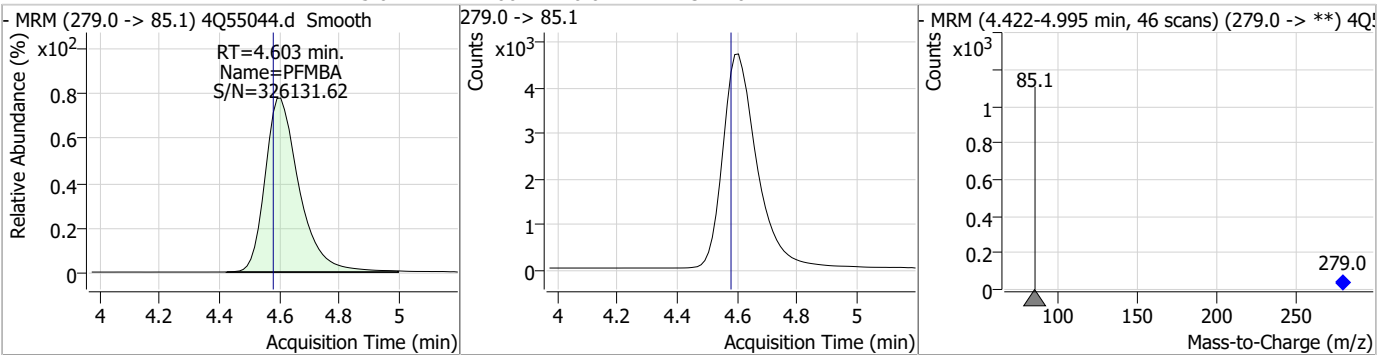
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.94	4.20	0.02	66368				



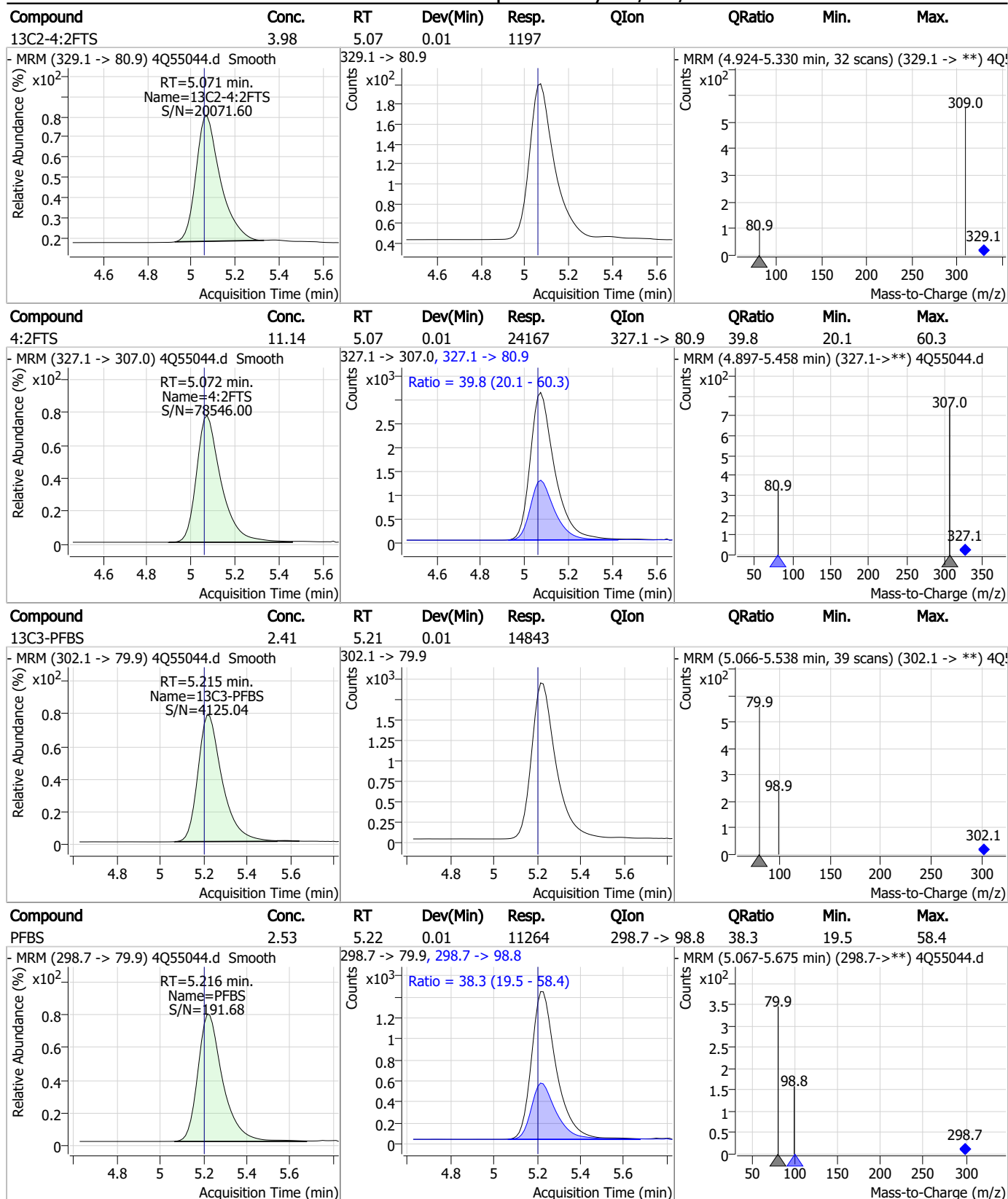
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.43	4.20	0.02	69789				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.02	4.60	0.02	37226				

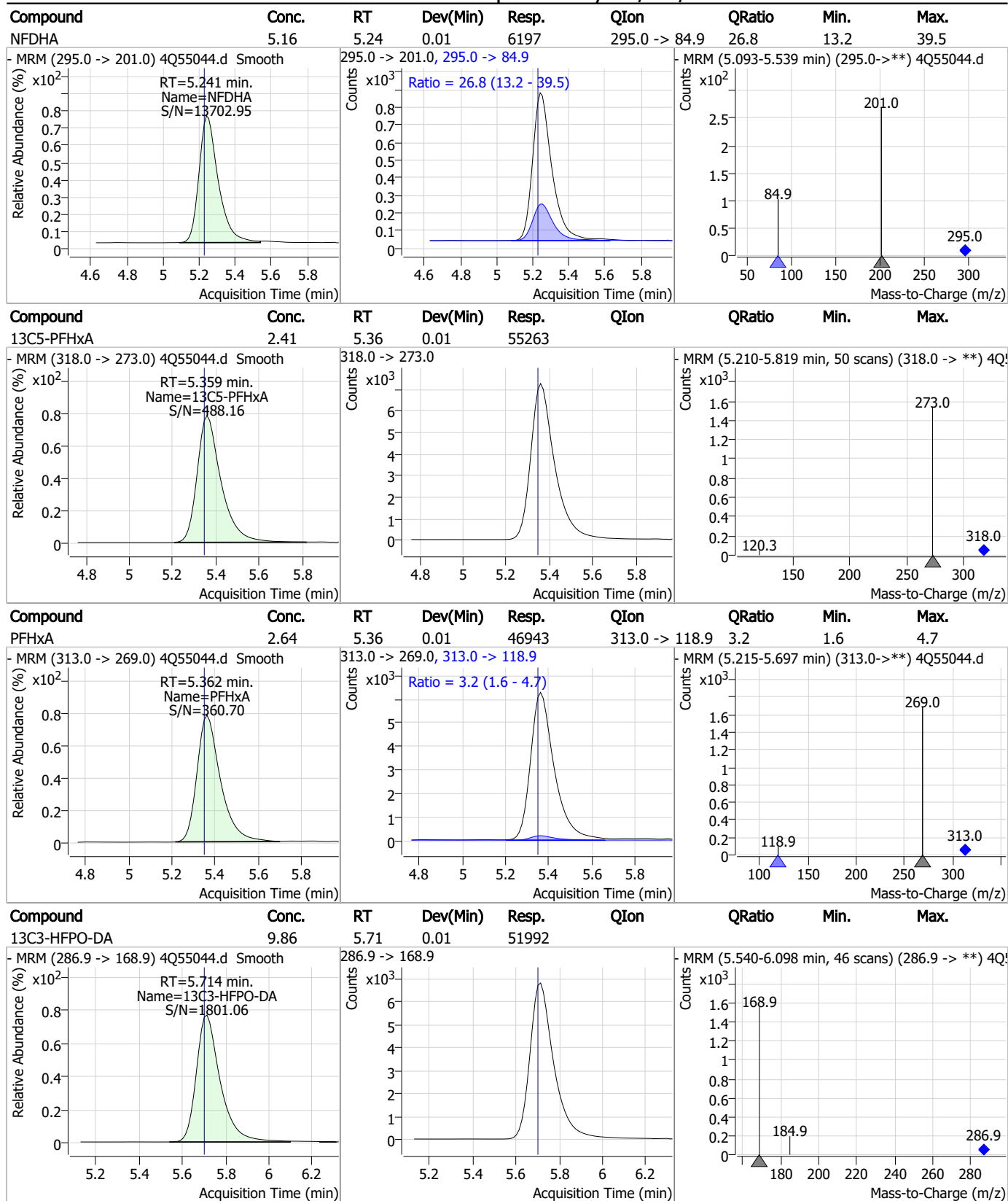


Perfluorinated Compounds by LC/MS/MS



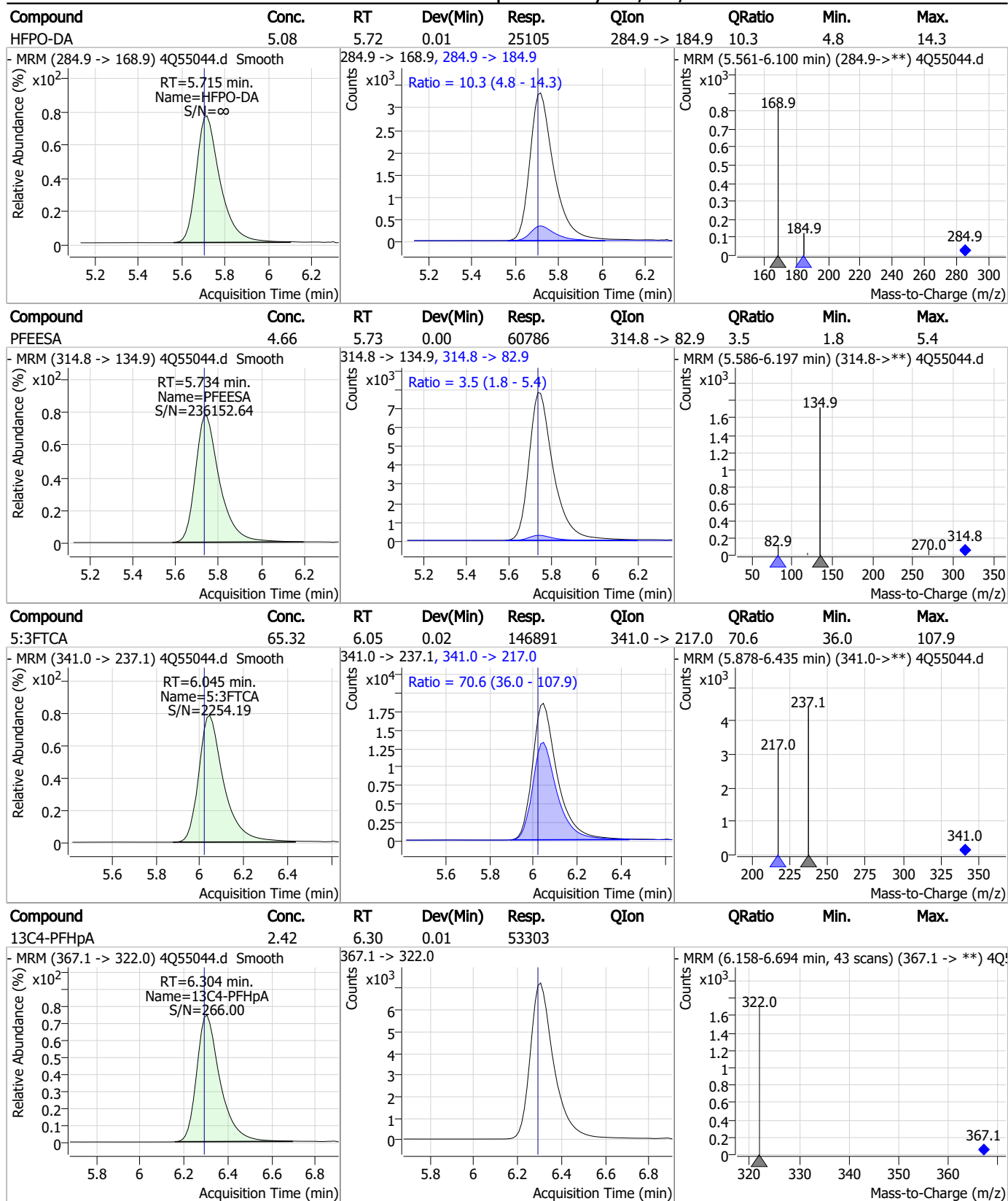
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Perfluorinated Compounds by LC/MS/MS



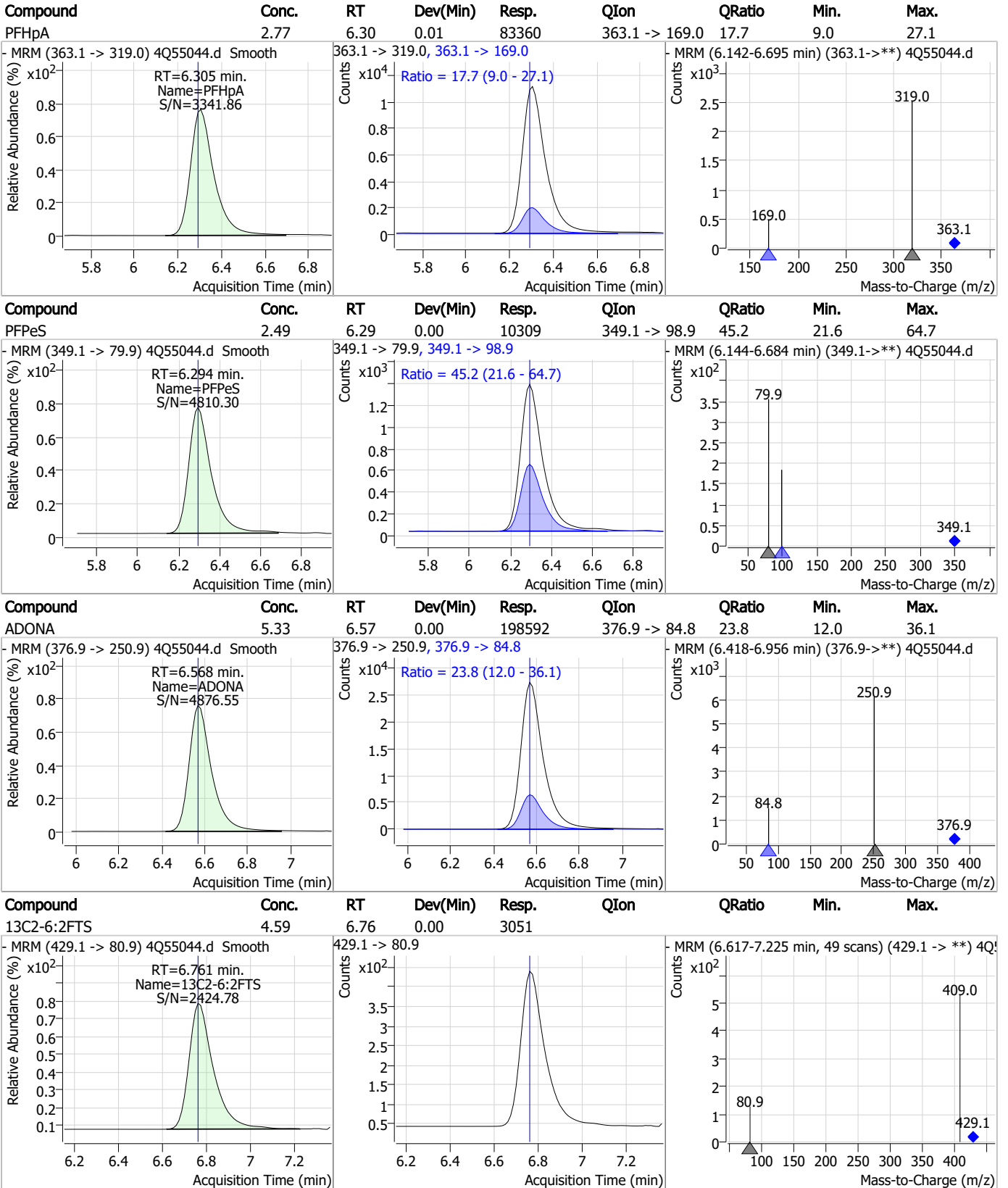
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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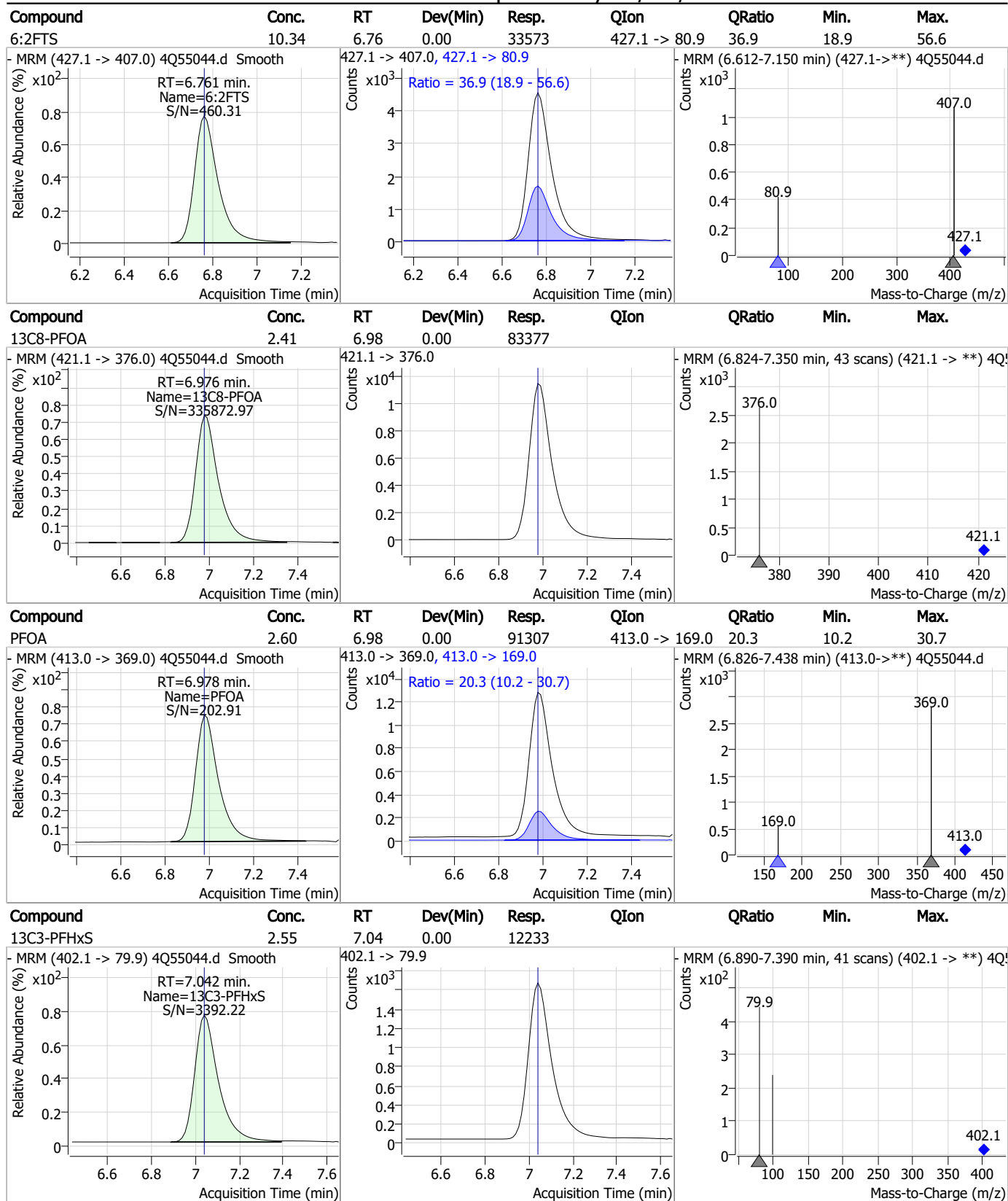
Perfluorinated Compounds by LC/MS/MS



7.4.1

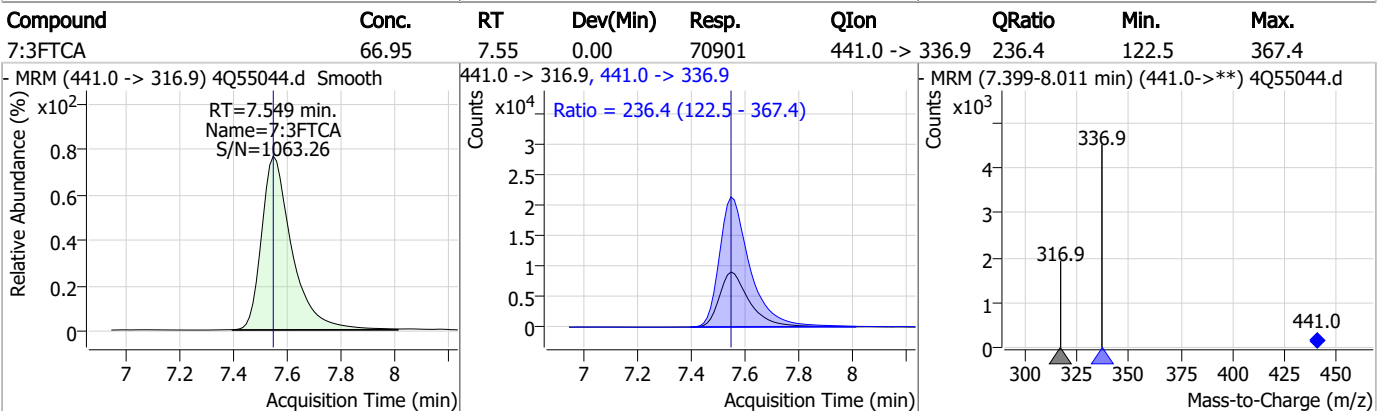
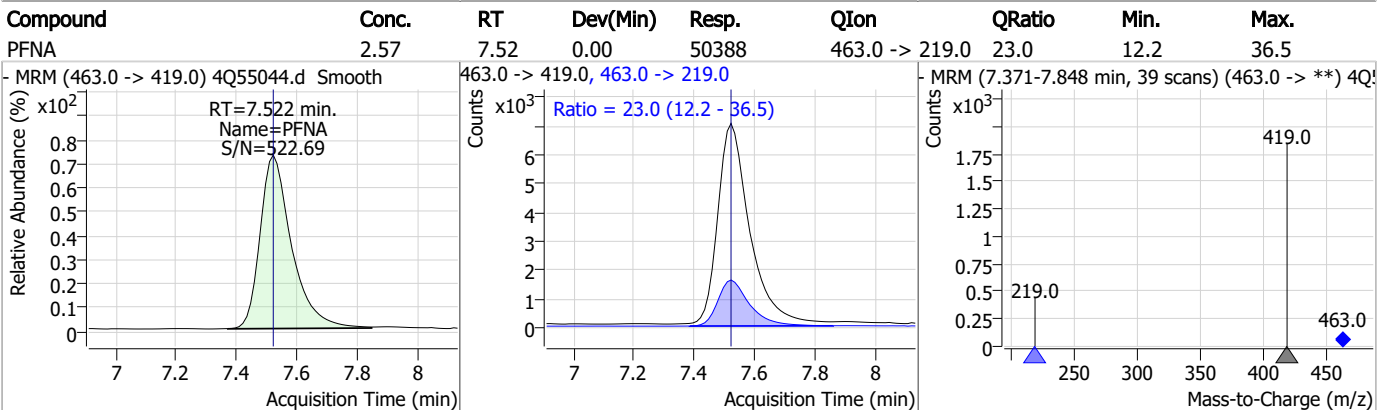
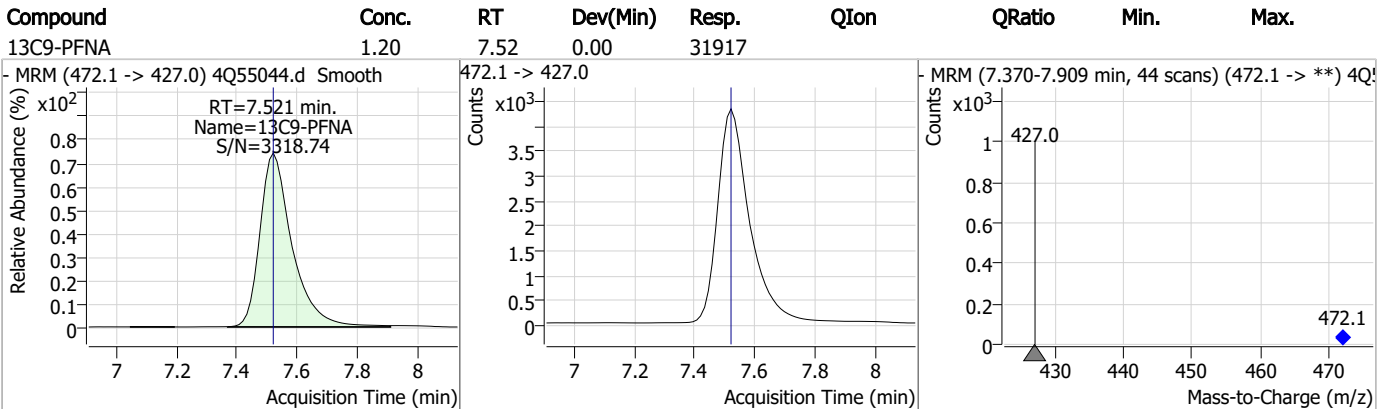
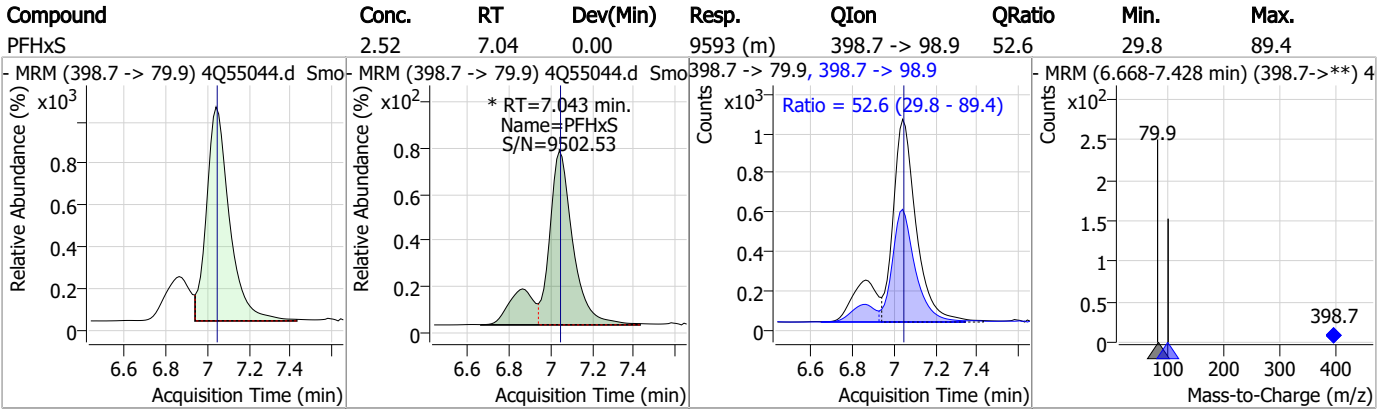
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Perfluorinated Compounds by LC/MS/MS

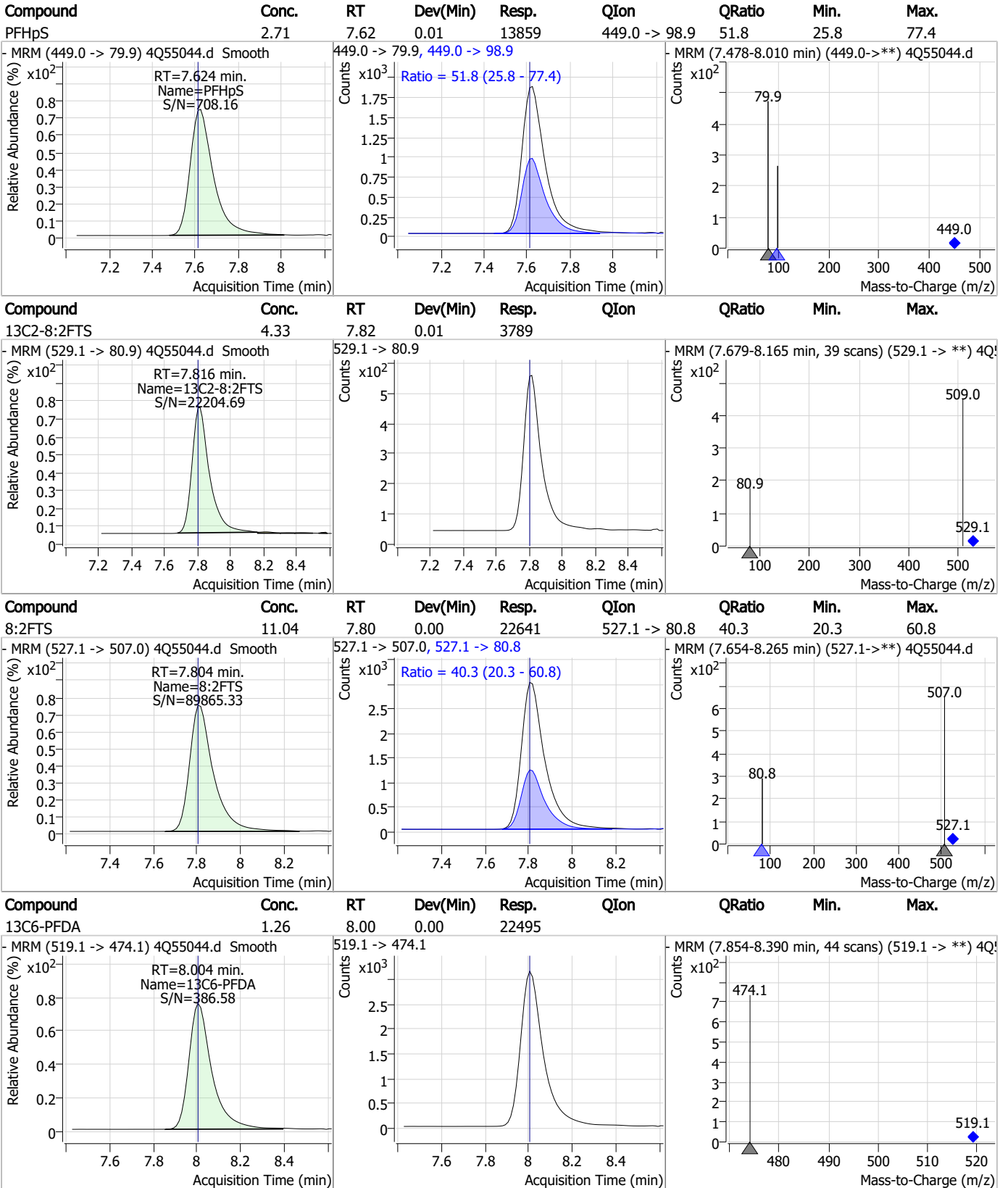


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Perfluorinated Compounds by LC/MS/MS



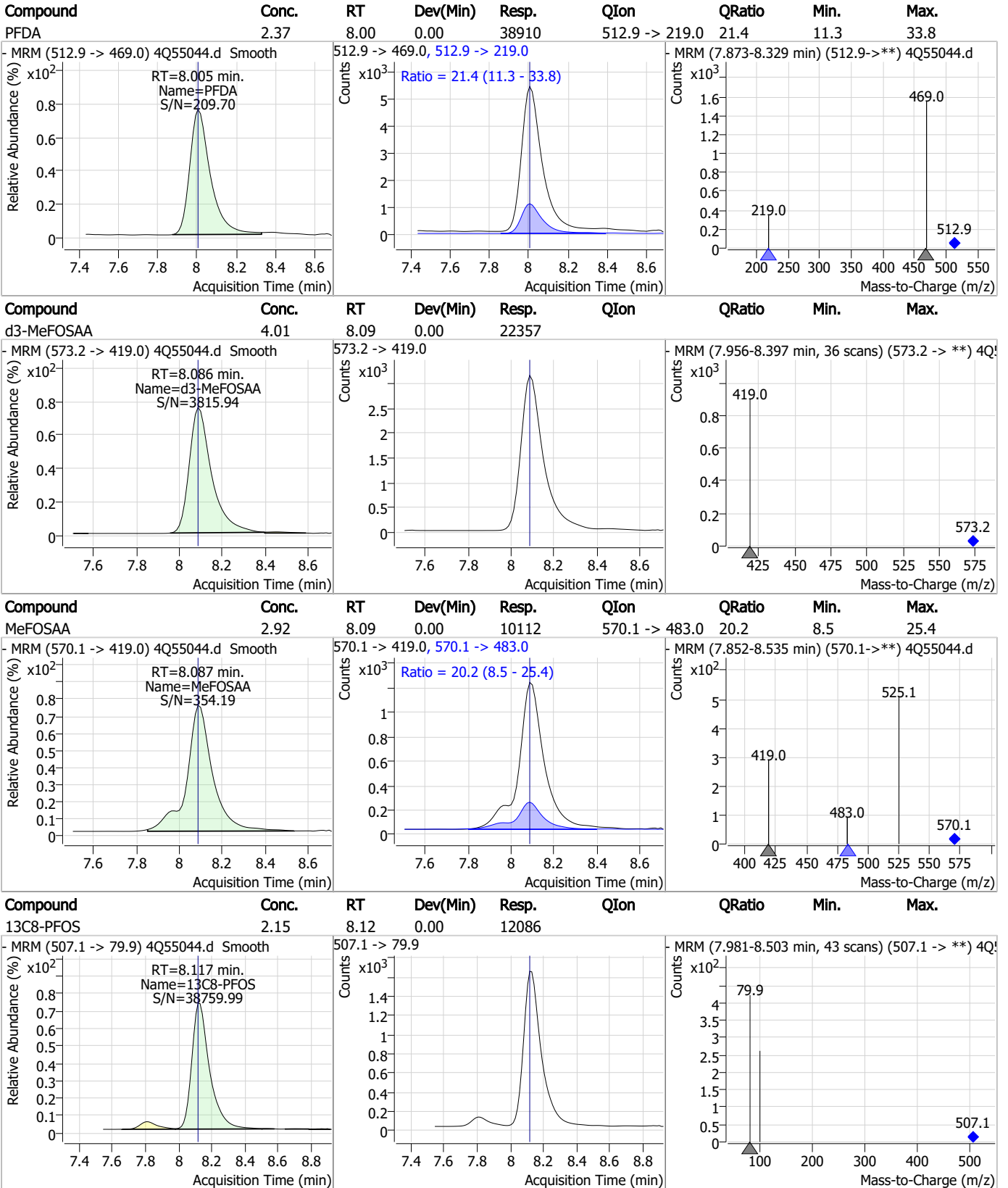
Perfluorinated Compounds by LC/MS/MS



7.4.1

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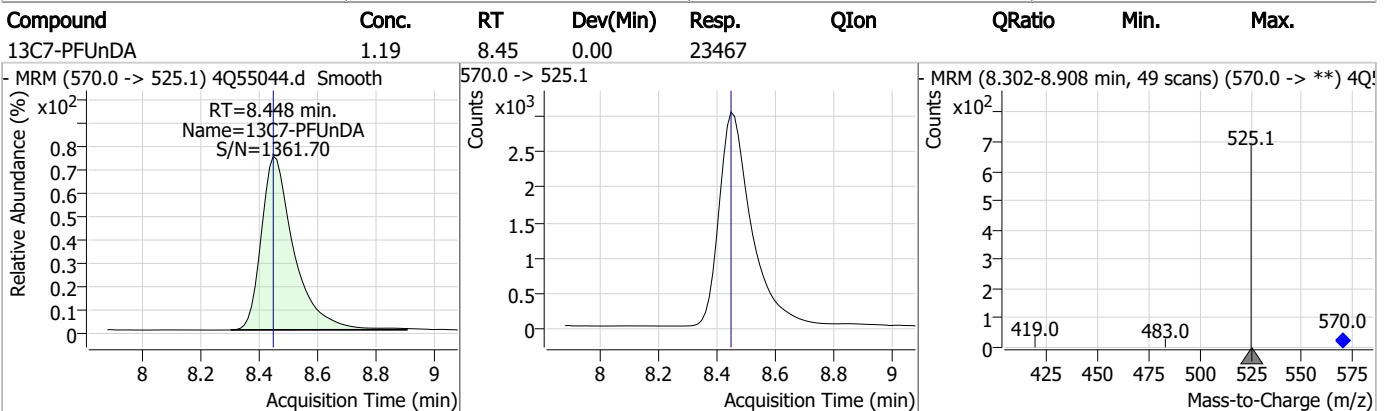
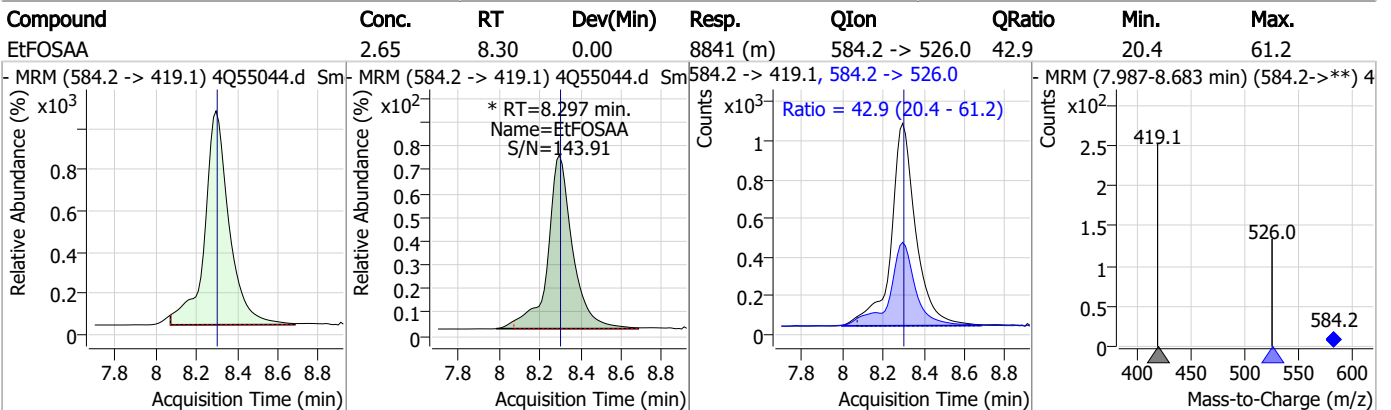
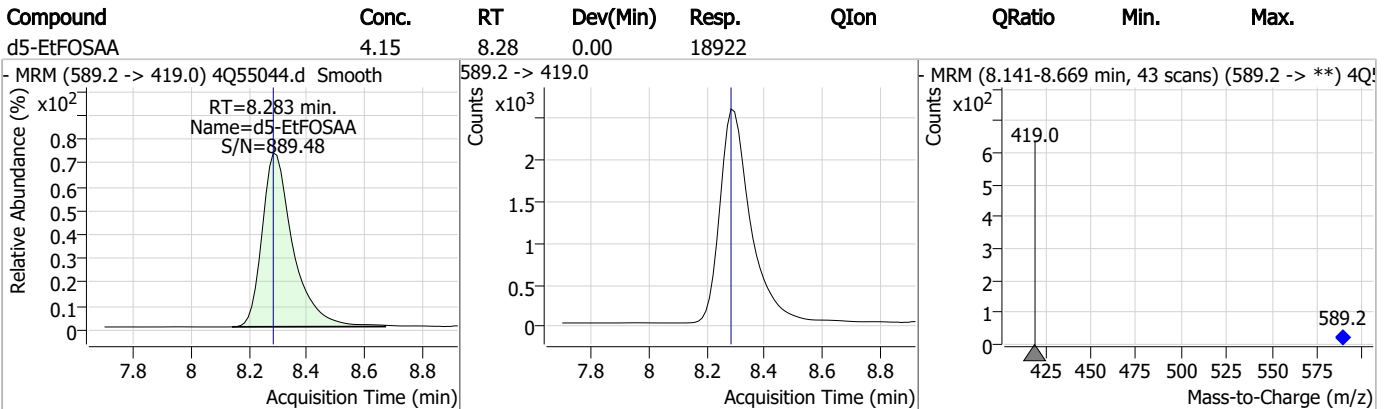
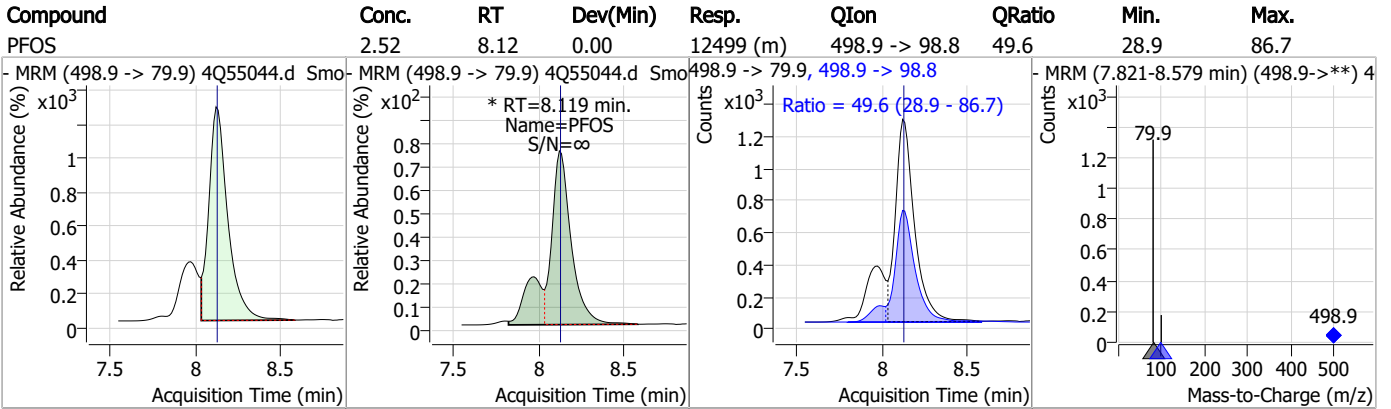
Perfluorinated Compounds by LC/MS/MS



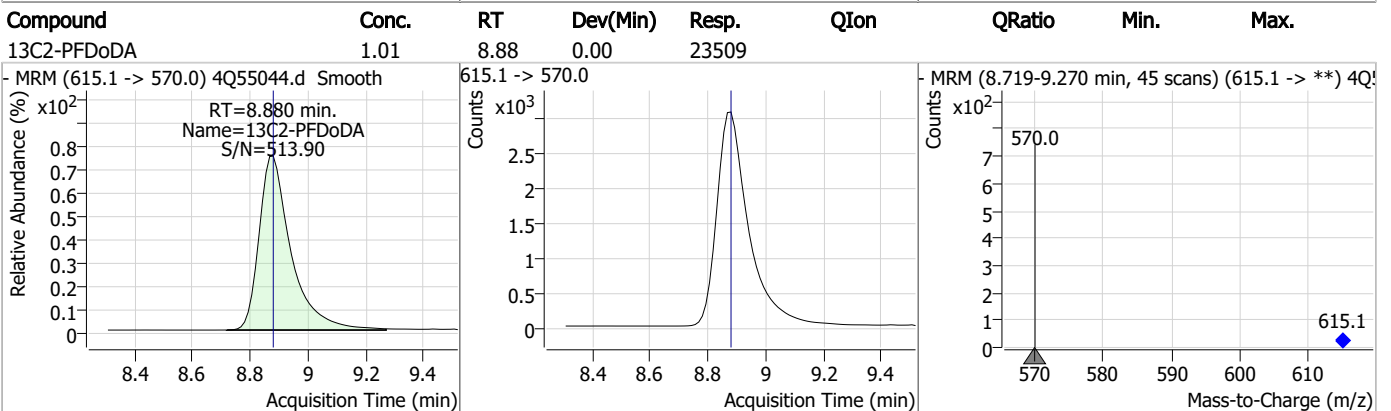
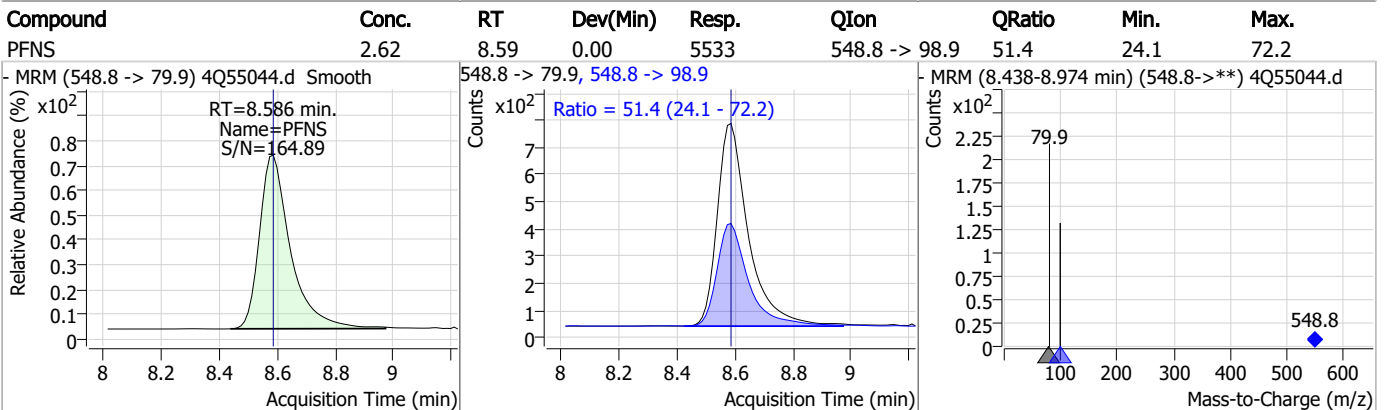
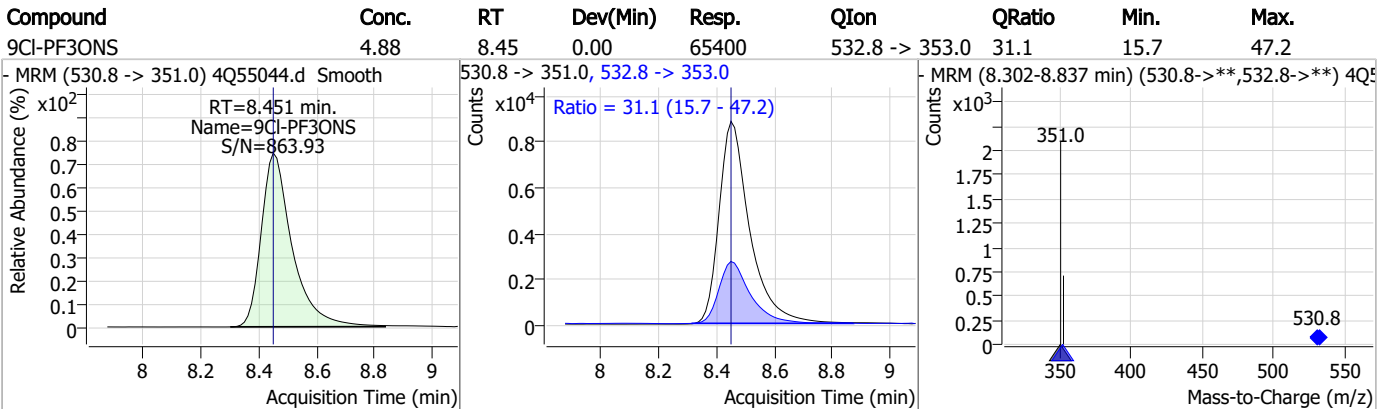
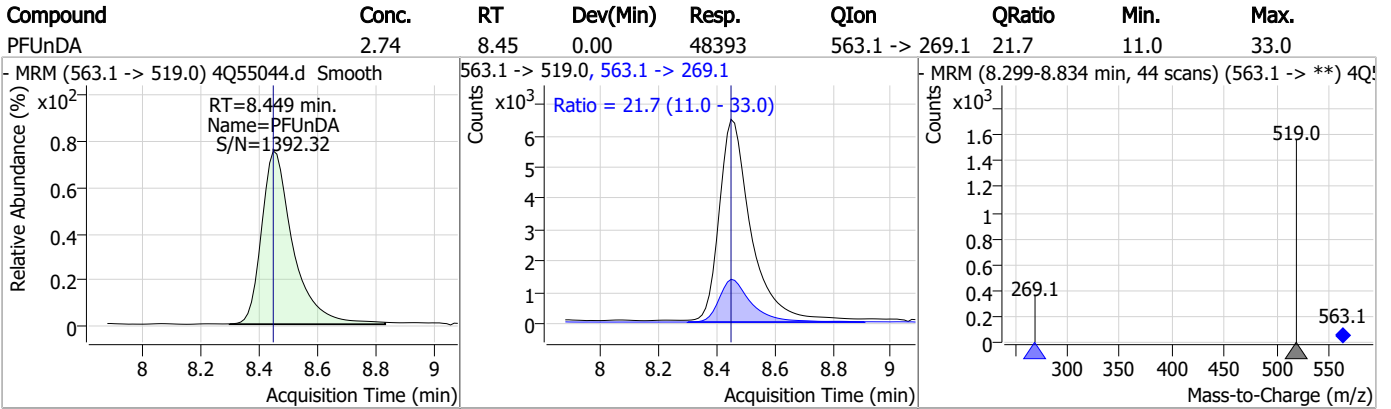
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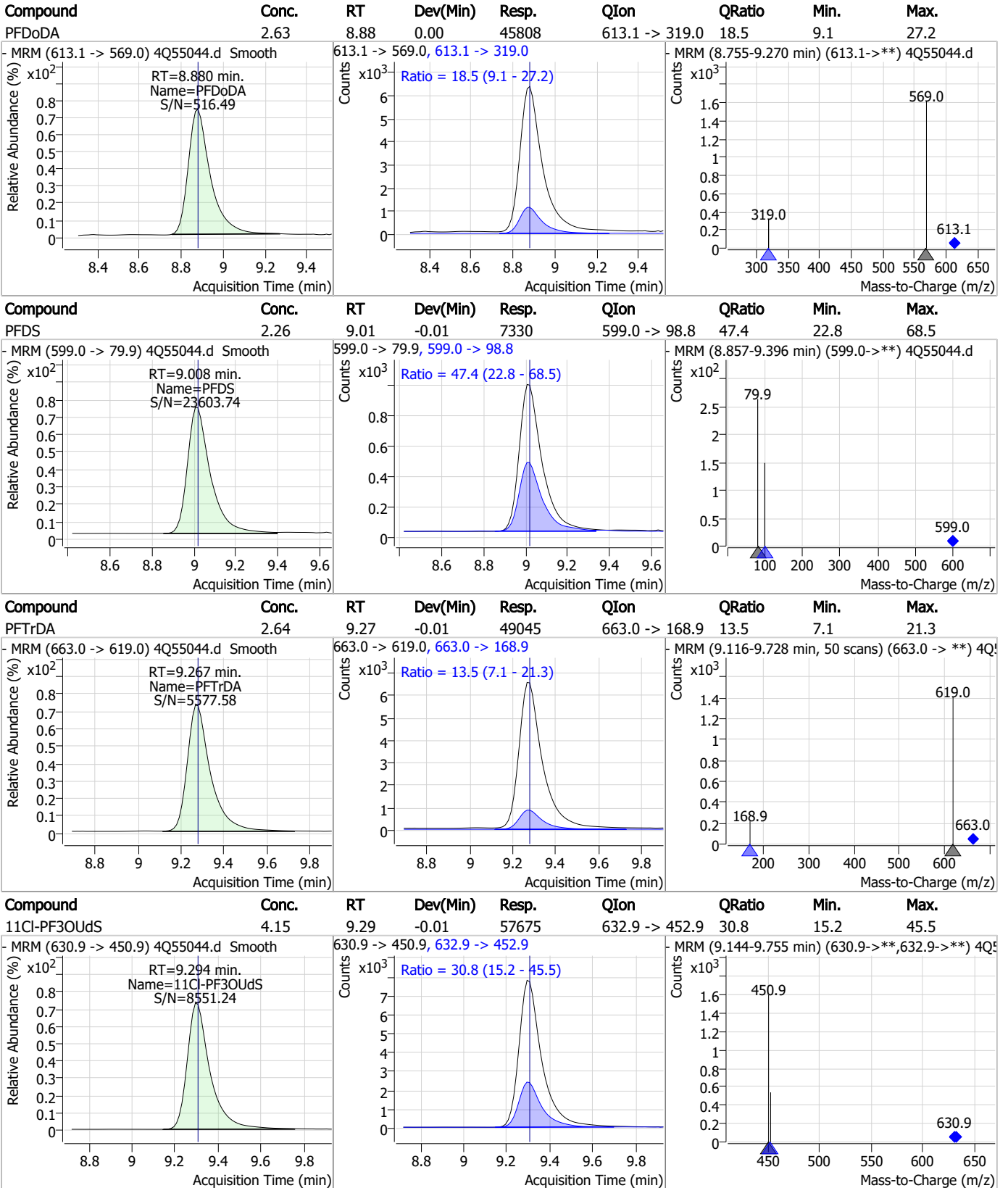
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

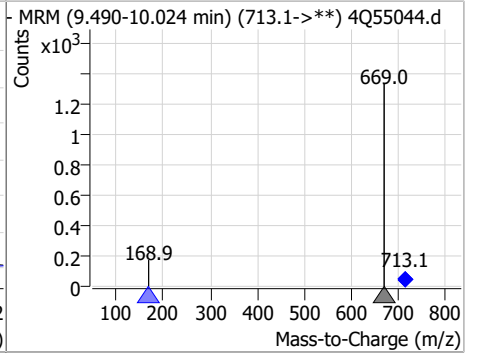
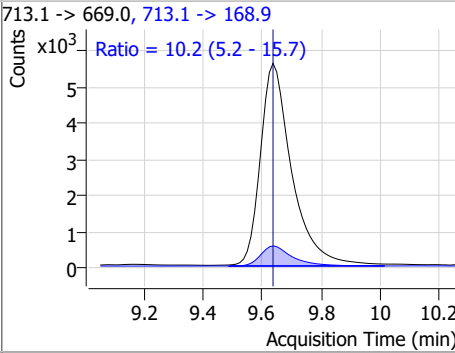
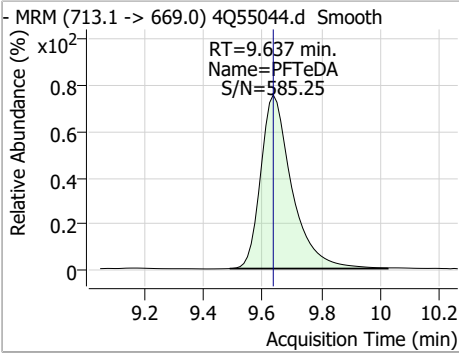


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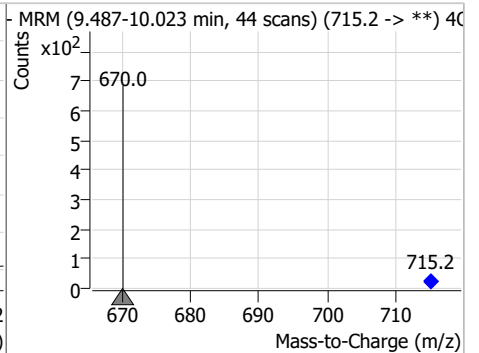
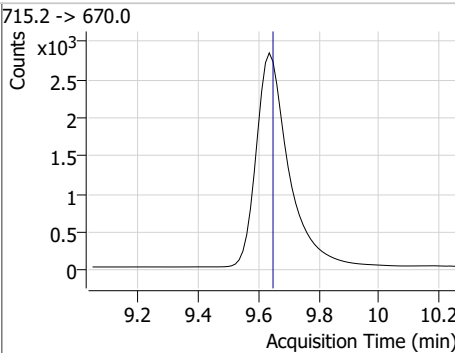
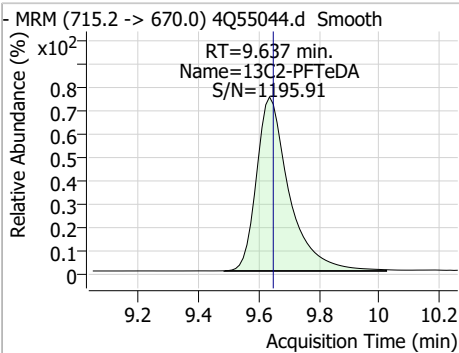
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Perfluorinated Compounds by LC/MS/MS

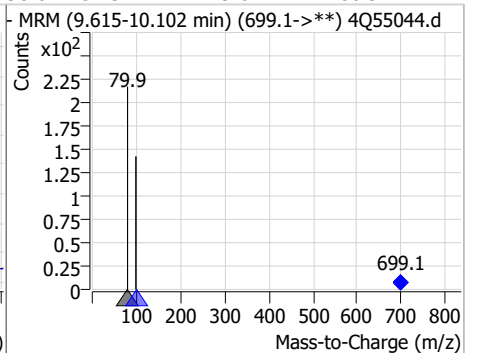
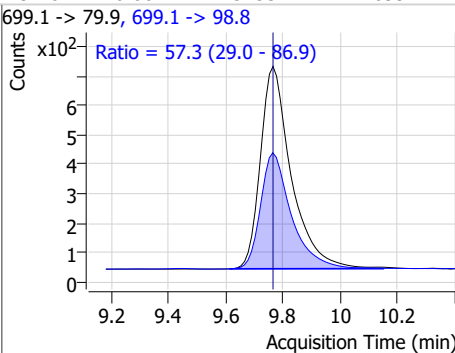
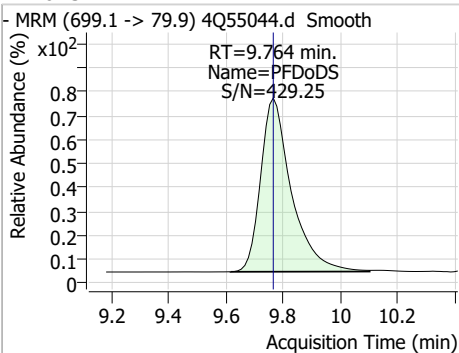
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.81	9.64	0.00	40647	713.1 -> 168.9	10.2	5.2	15.7



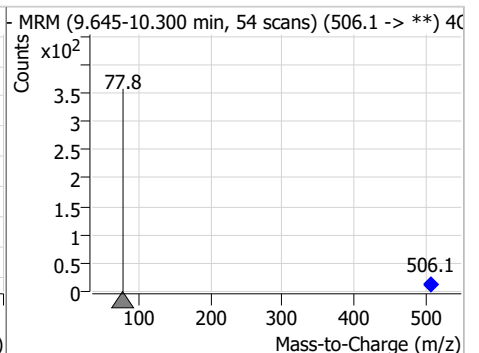
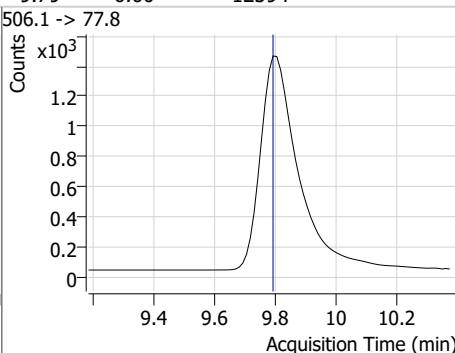
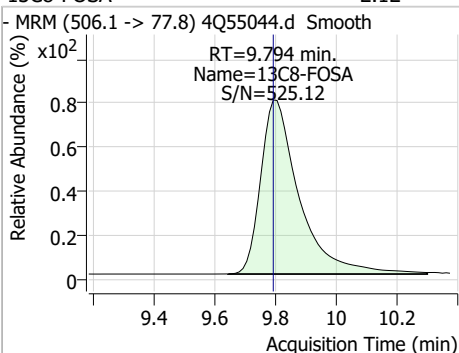
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.92	9.64	-0.01	21036				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.14	9.76	0.00	5153	699.1 -> 98.8	57.3	29.0	86.9

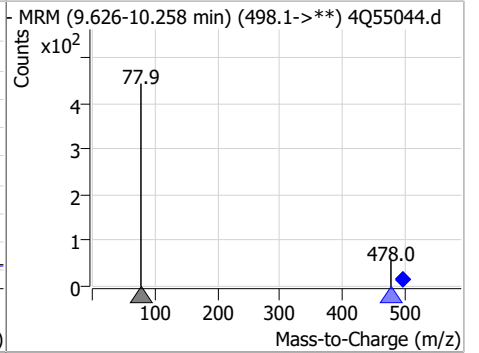
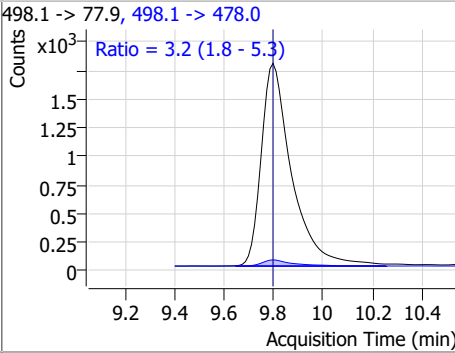
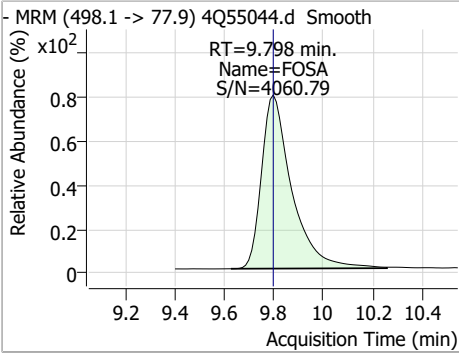


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.12	9.79	0.00	12594				

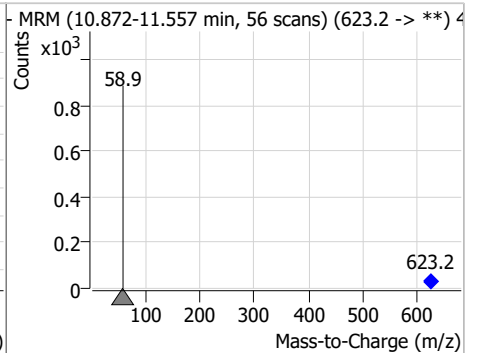
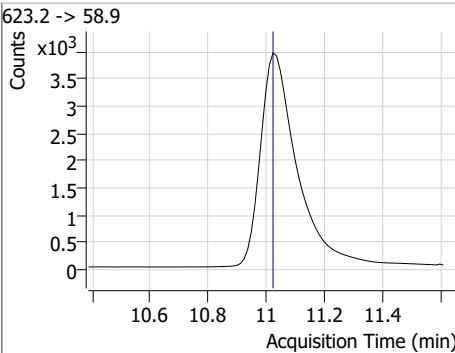
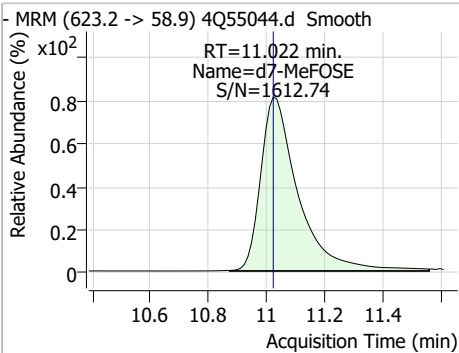


Perfluorinated Compounds by LC/MS/MS

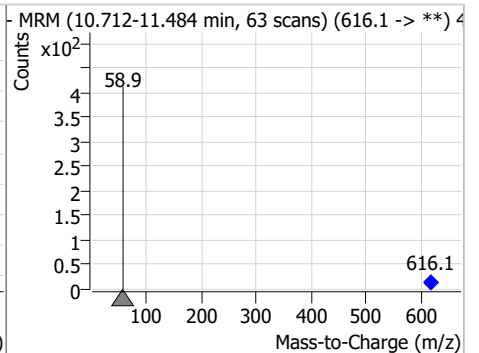
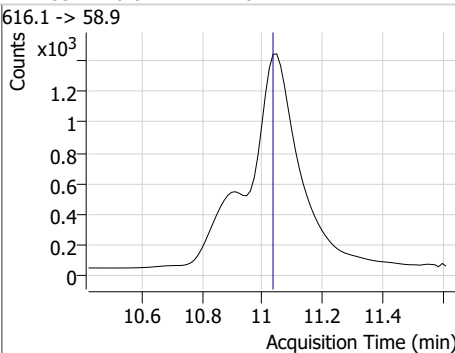
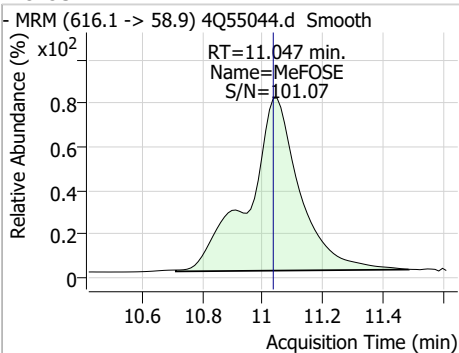
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.64	9.80	0.00	15056	498.1 -> 478.0	3.2	1.8	5.3



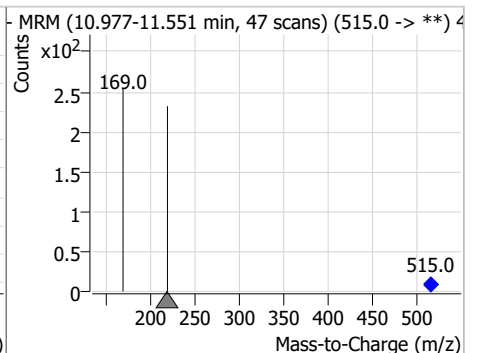
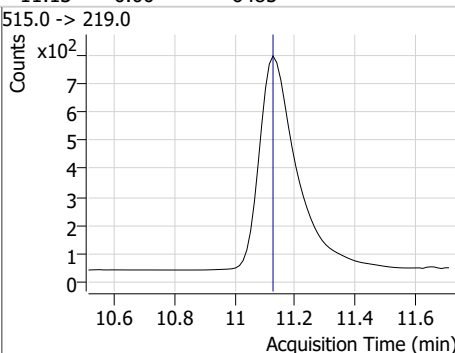
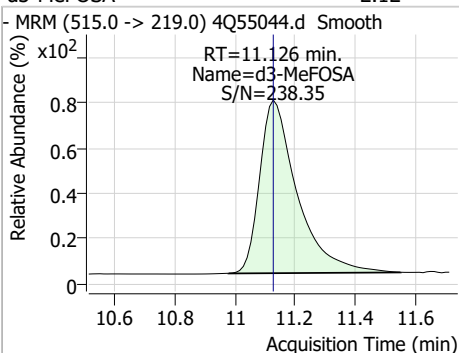
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	16.39	11.02	0.00	35131				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.21	11.05	0.01	16714				



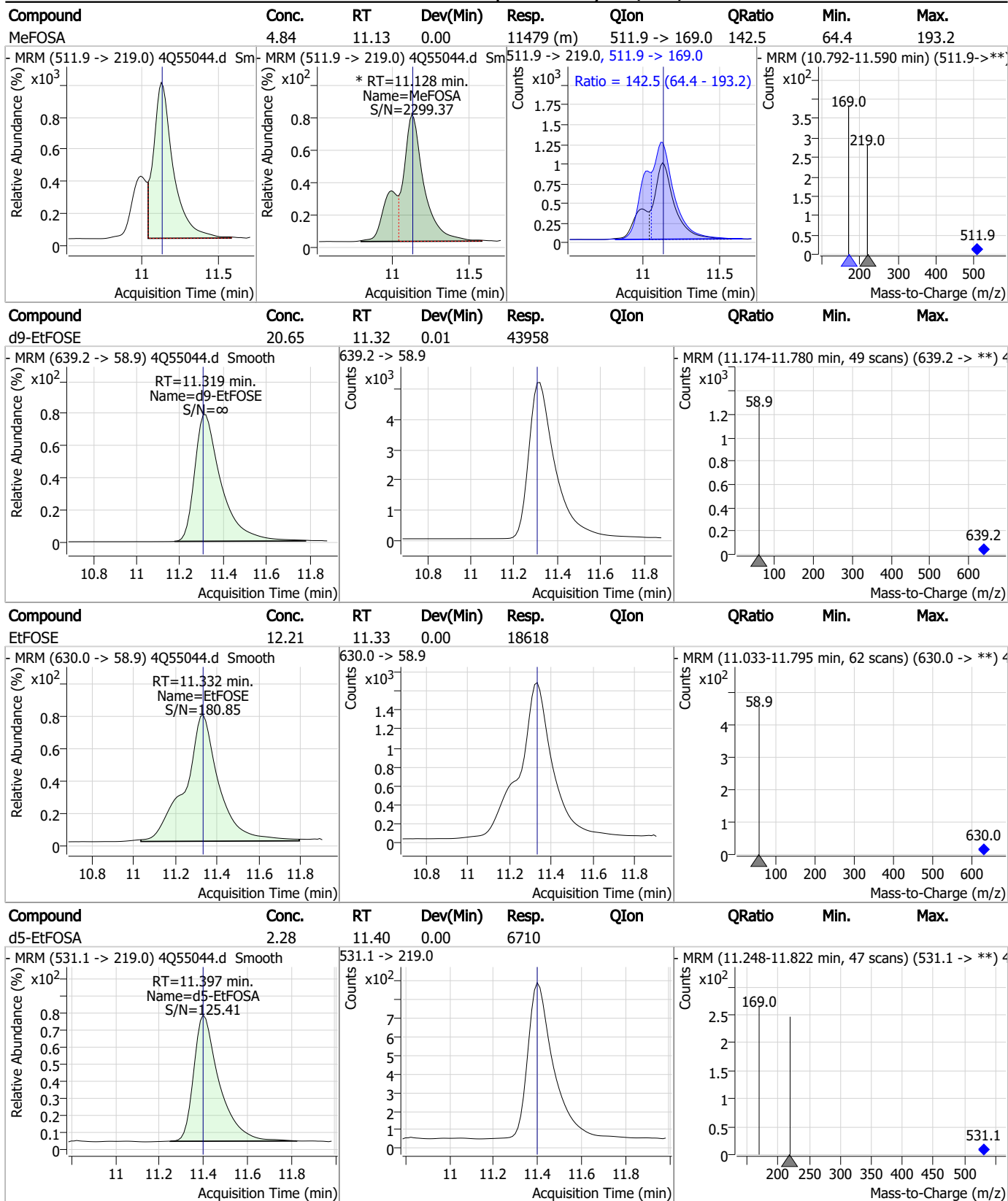
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.12	11.13	0.00	6485				



7.4.1

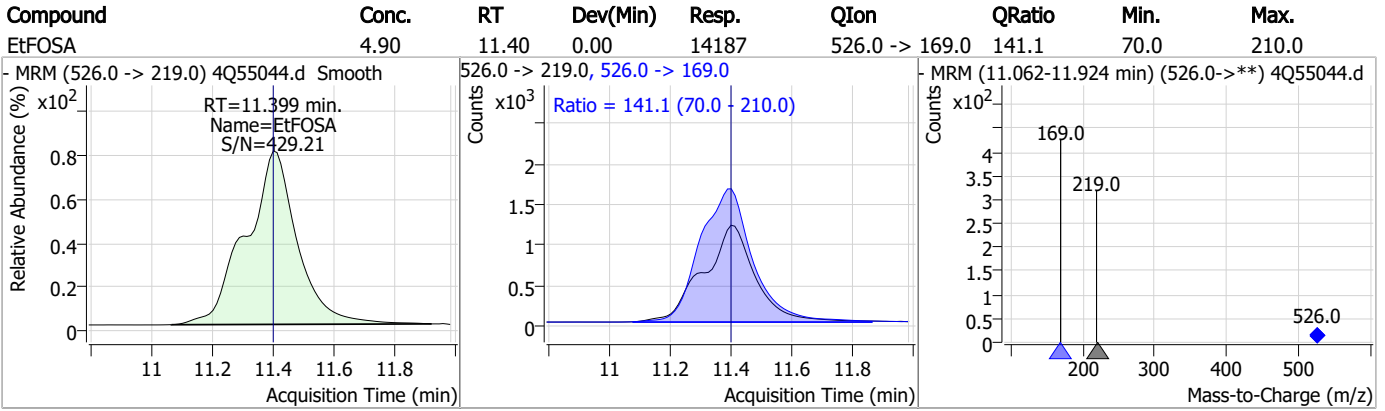
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Perfluorinated Compounds by LC/MS/MS



7.4.1
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Perfluorinated Compounds by LC/MS/MS



7.4.1

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Manual Integration Approval Summary

Sample Number: OP552-MS Method: EPA DRAFT 1633
Lab FileID: 4Q55044.D Analyst approved: 12/12/23 10:10 Anna Ludwig
Injection Time: 12/11/23 21:38 Supervisor approved: 12/12/23 11:55 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSA	31506-32-8		11.13	Split peak

7.4.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55042.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 9:09:04 PM
 Sample Name : op552-dup
 Vial : P4-B7
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP552,S4Q806,525,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.777	216.8 -> 171.9	137437	10.00 µg/L	0.078
M5-PFPeA	4.200	268.3 -> 223.0	68722	5.00 µg/L	0.025
M5-PFHxA	5.359	318.0 -> 273.0	55510	2.50 µg/L	0.012
M4-PFHpA	6.304	367.1 -> 322.0	55887	2.50 µg/L	0.012
M8-PFOA	6.976	421.1 -> 376.0	87262	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	31786	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	21579	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	23664	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	24078	1.25 µg/L	0.000
M2-PFTeDA	9.637	715.2 -> 670.0	21181	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	12583	2.50 µg/L	0.000
M3-PFBS	5.227	302.1 -> 79.9	15021	2.50 µg/L	0.025
M3-PFHxS	7.042	402.1 -> 79.9	12404	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	12845	2.50 µg/L	0.000
M2-4:2FTS	5.071	329.1 -> 80.9	1372	5.00 µg/L	0.012
M2-6:2FTS	6.761	429.1 -> 80.9	3230	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	4255	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	25519	5.00 µg/L	0.000
M3-HFPO-DA	5.714	286.9 -> 168.9	52268	10.00 µg/L	0.013
M5-EtFOSAA	8.283	589.2 -> 419.0	19357	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	35990	25.00 µg/L	0.000
M9-EtFOSE	11.319	639.2 -> 58.9	43763	25.00 µg/L	0.012
M5-EtFOSA	11.397	531.1 -> 219.0	7042	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	6512	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11075	2.50 µg/L	0.000
13C3-PFBA	2.768	216.0 -> 172.0	76690	5.00 µg/L	0.065
18O2-PFHxS	7.041	403.0 -> 83.9	8382	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	100637	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	25077	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	35352	1.25 µg/L	0.000
13C2-PFHxA	5.360	315.1 -> 270.0	63190	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.071	329.1 -> 80.9	1372	4.23 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.6%		
13C2-6:2FTS	6.761	429.1 -> 80.9	3230	4.51 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.1%		
13C2-8:2FTS	7.804	529.1 -> 80.9	4255	4.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C2-PFDoDA	8.880	615.1 -> 570.0	24078	1.02 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.5%		
13C2-PFTeDA	9.637	715.2 -> 670.0	21181	0.91 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.9%		
13C3-PFBS	5.227	302.1 -> 79.9	15021	2.26 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.3%		
13C3-PFHxS	7.042	402.1 -> 79.9	12404	2.40 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 = 96.0%	
13C4-PFBA	2.777	216.8 -> 171.9	137437	8.32 µg/L	0.078
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 83.2%	
13C4-PFHpA	6.304	367.1 -> 322.0	55887	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.359	318.0 -> 273.0	55510	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C5-PFPeA	4.200	268.3 -> 223.0	68722	5.01 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C6-PFDA	8.004	519.1 -> 474.1	21579	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C7-PFUnDA	8.448	570.0 -> 525.1	23664	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-FOSA	9.794	506.1 -> 77.8	12583	2.91 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 80.6%	
13C8-PFOA	6.976	421.1 -> 376.0	87262	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C8-PFOS	8.117	507.1 -> 79.9	12845	2.17 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.0%	
13C9-PFNA	7.521	472.1 -> 427.0	31786	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 89.2%	
d3-MeFOSAA	8.086	573.2 -> 419.0	25519	4.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 87.1%	
13C3-HFPO-DA	5.714	286.9 -> 168.9	52268	9.71 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
d3-MeFOSA	11.126	515.0 -> 219.0	6512	2.03 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 81.0%	
d5-EtFOSAA	8.283	589.2 -> 419.0	19357	4.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 80.8%	
d7-MeFOSE	11.022	623.2 -> 58.9	35990	15.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 63.9%	
d9-EtFOSE	11.319	639.2 -> 58.9	43763	19.57 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.3%	
d5-EtFOSA	11.397	531.1 -> 219.0	7042	2.28 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.2%	

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.	

7.5.1
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8				
PFHpA	-	363.1 -> 319.0	-	N.D.		
		363.1 -> 169.0				
PFHpS	-	449.0 -> 79.9	-	N.D.		
		449.0 -> 98.9				
PFHxA	-	313.0 -> 269.0	-	N.D.		
		313.0 -> 118.9				
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	7.648	463.0 -> 419.0	0	µg/L	m	1
		463.0 -> 219.0	0			
PFNS	-	548.8 -> 79.9	-	N.D.		
		548.8 -> 98.9				
PFOA	6.978	413.0 -> 369.0	0	µg/L	m	1
		413.0 -> 169.0	0			
PFOS	-	498.9 -> 79.9	-	N.D.		
		498.9 -> 98.8				
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
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

7.5.1
7

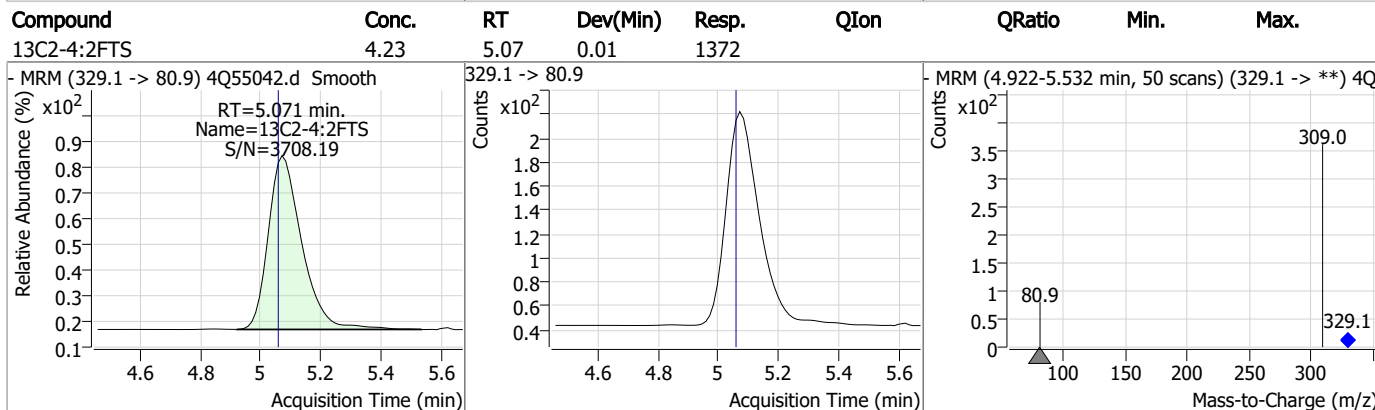
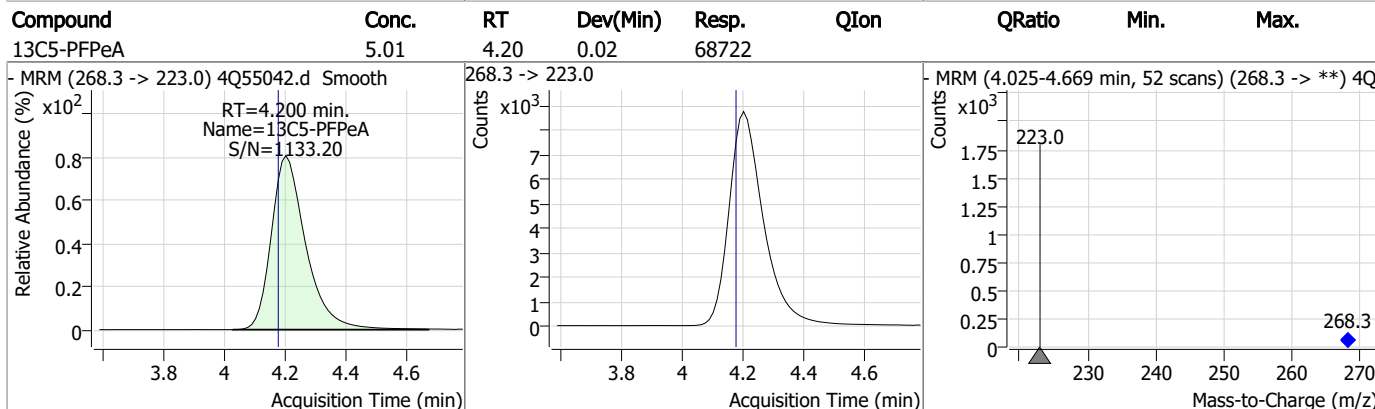
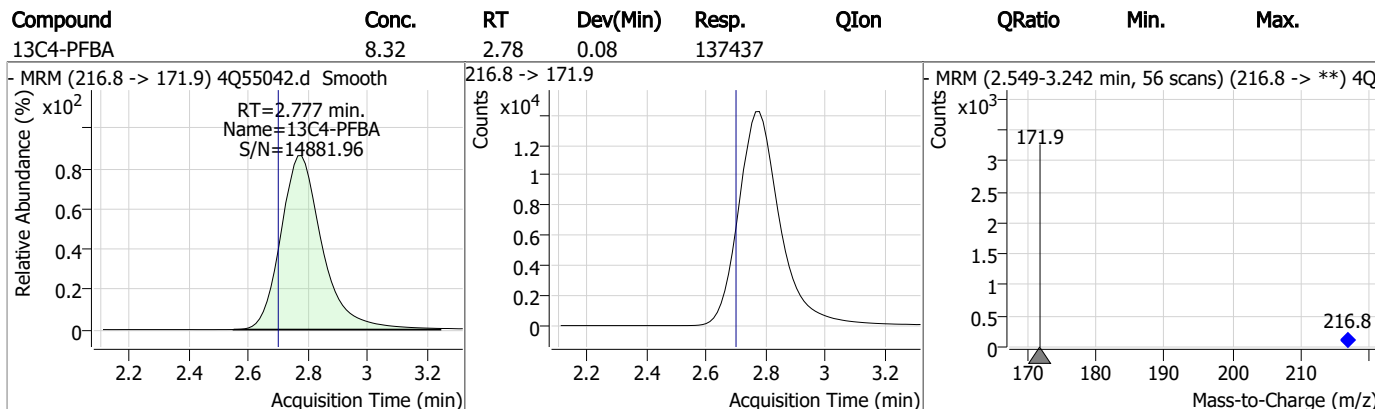
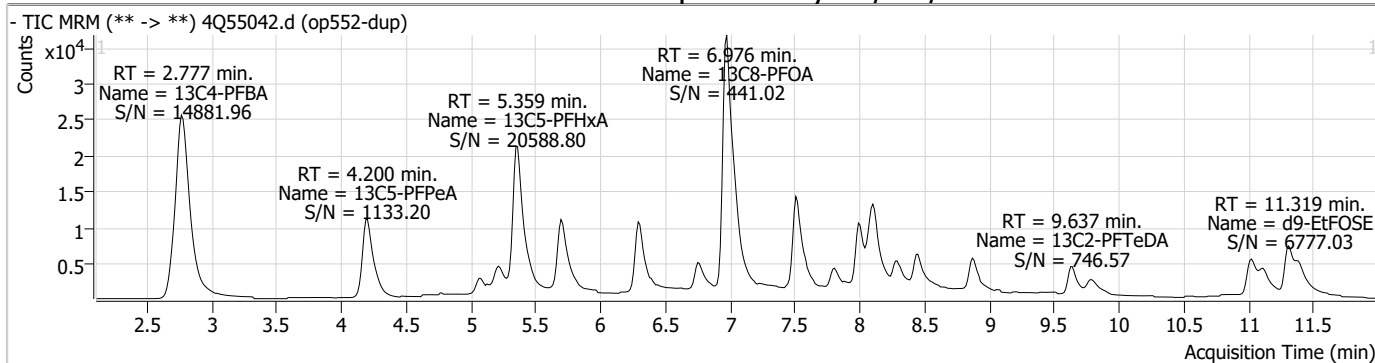
Perfluorinated Compounds by LC/MS/MS

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

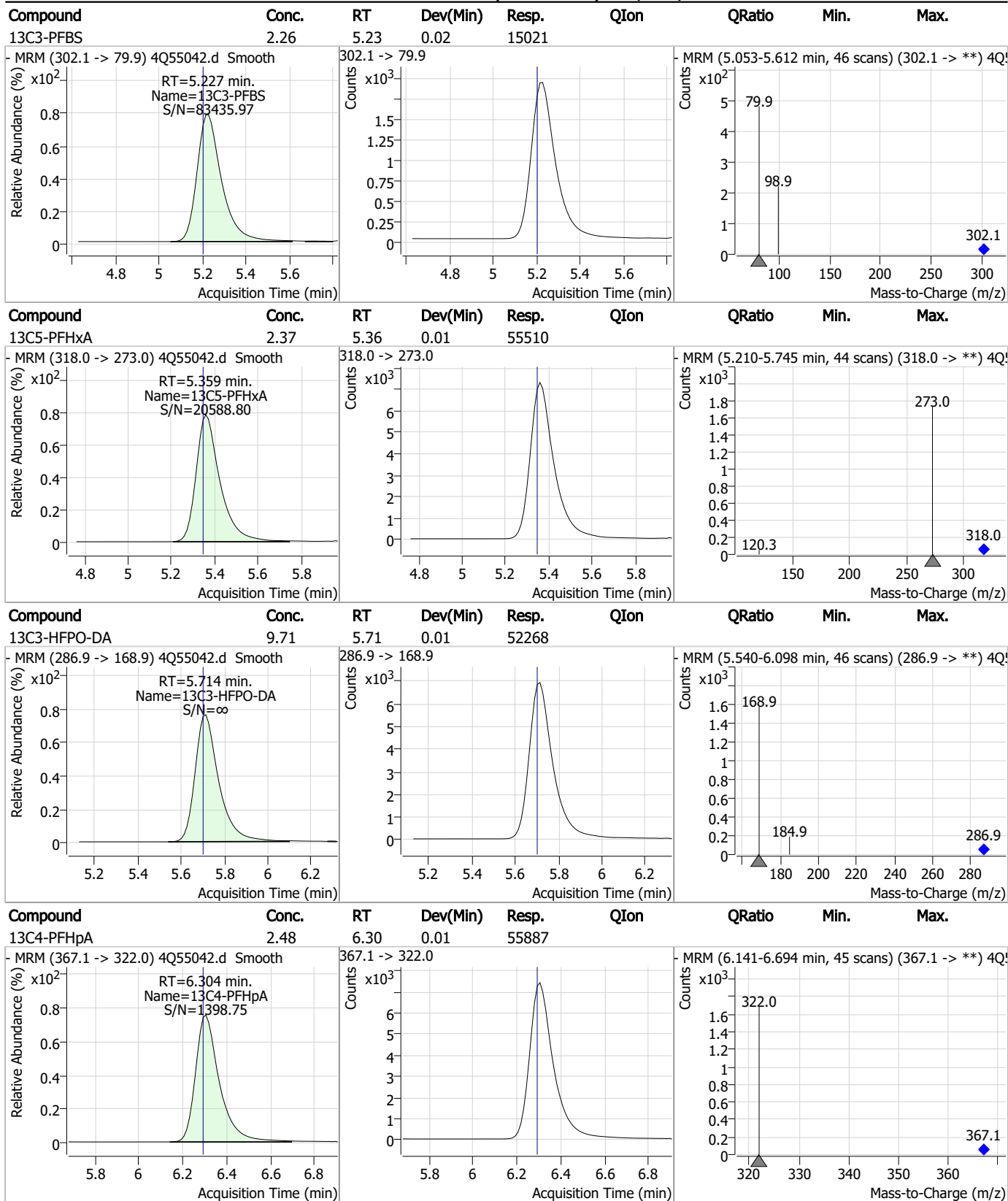
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Perfluorinated Compounds by LC/MS/MS



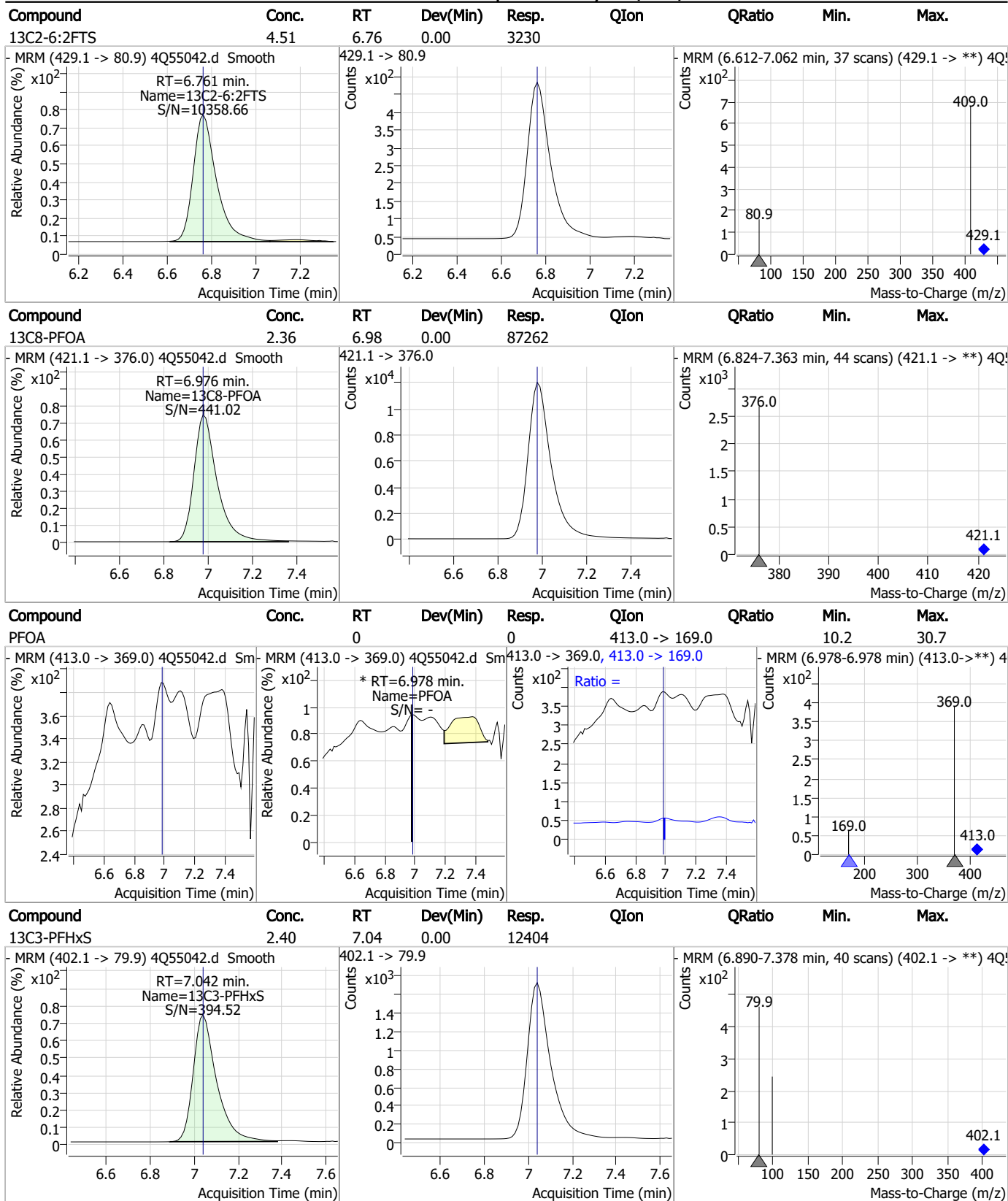
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Perfluorinated Compounds by LC/MS/MS



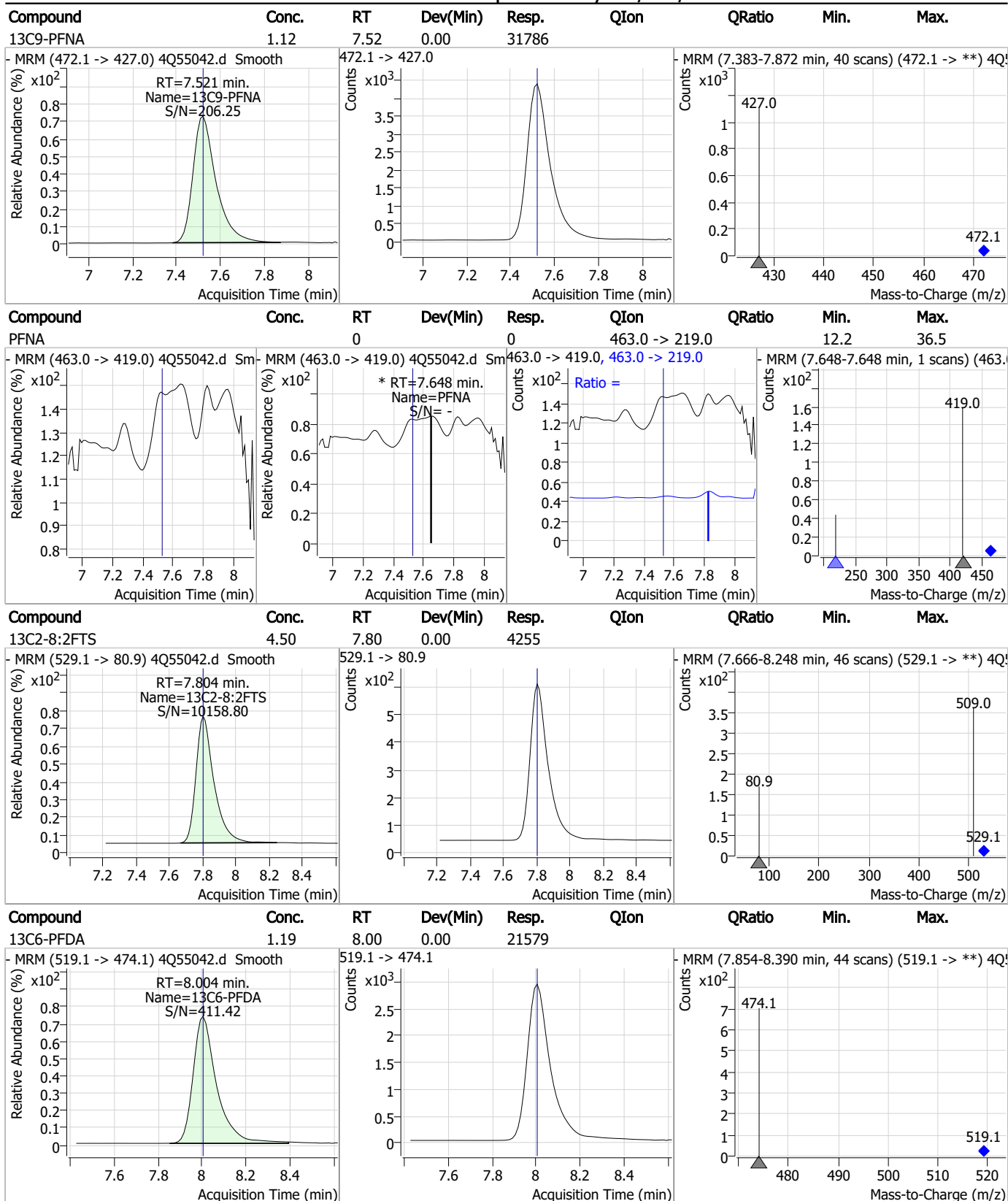
7.5.1
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Perfluorinated Compounds by LC/MS/MS



7.5.1
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Perfluorinated Compounds by LC/MS/MS



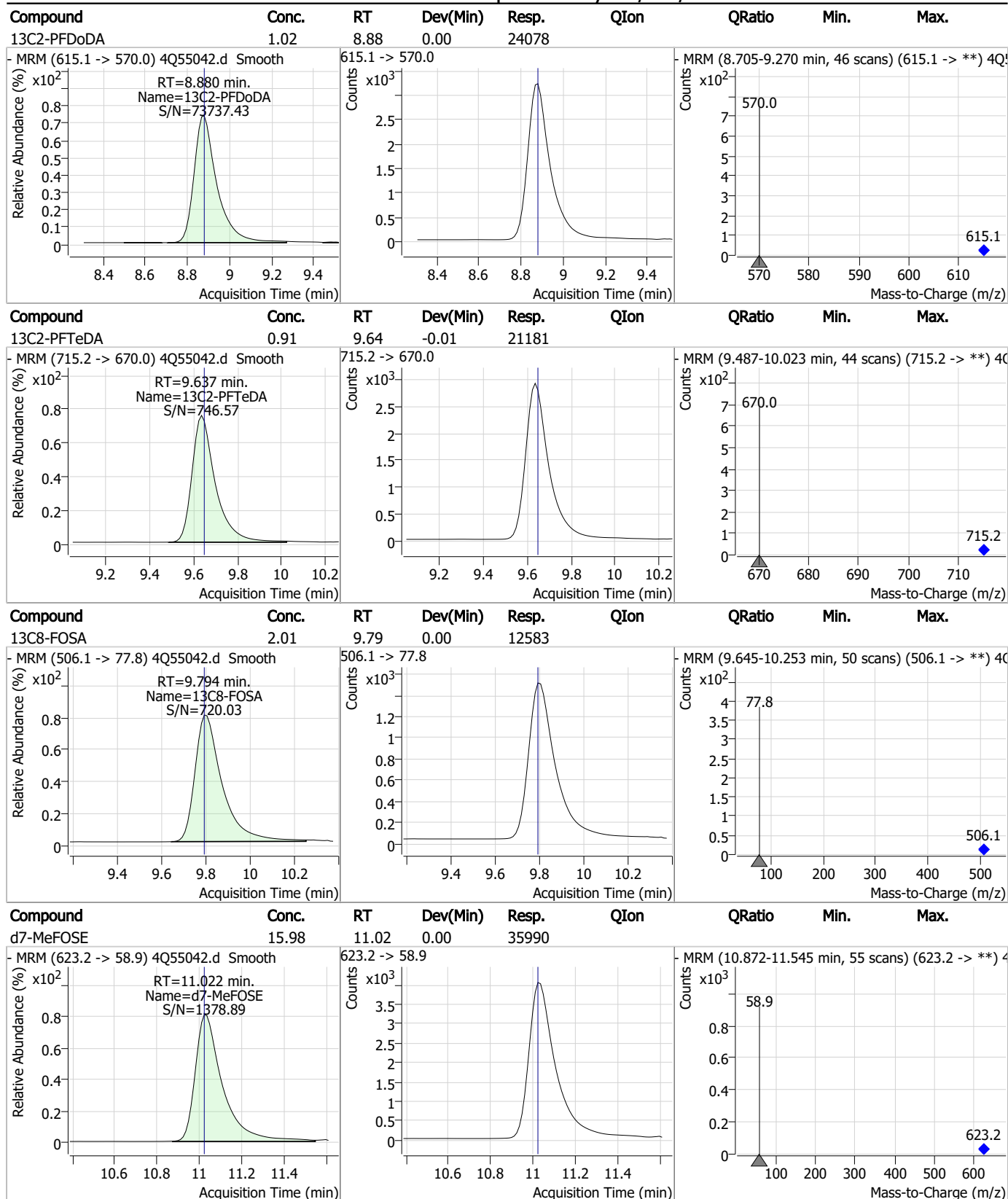
7.5.1
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.35	8.09	0.00	25519				
13C8-PFOS	2.17	8.12	0.00	12845				
d5-EtFOSAA	4.04	8.28	0.00	19357				
13C7-PFUnDA	1.18	8.45	0.00	23664				

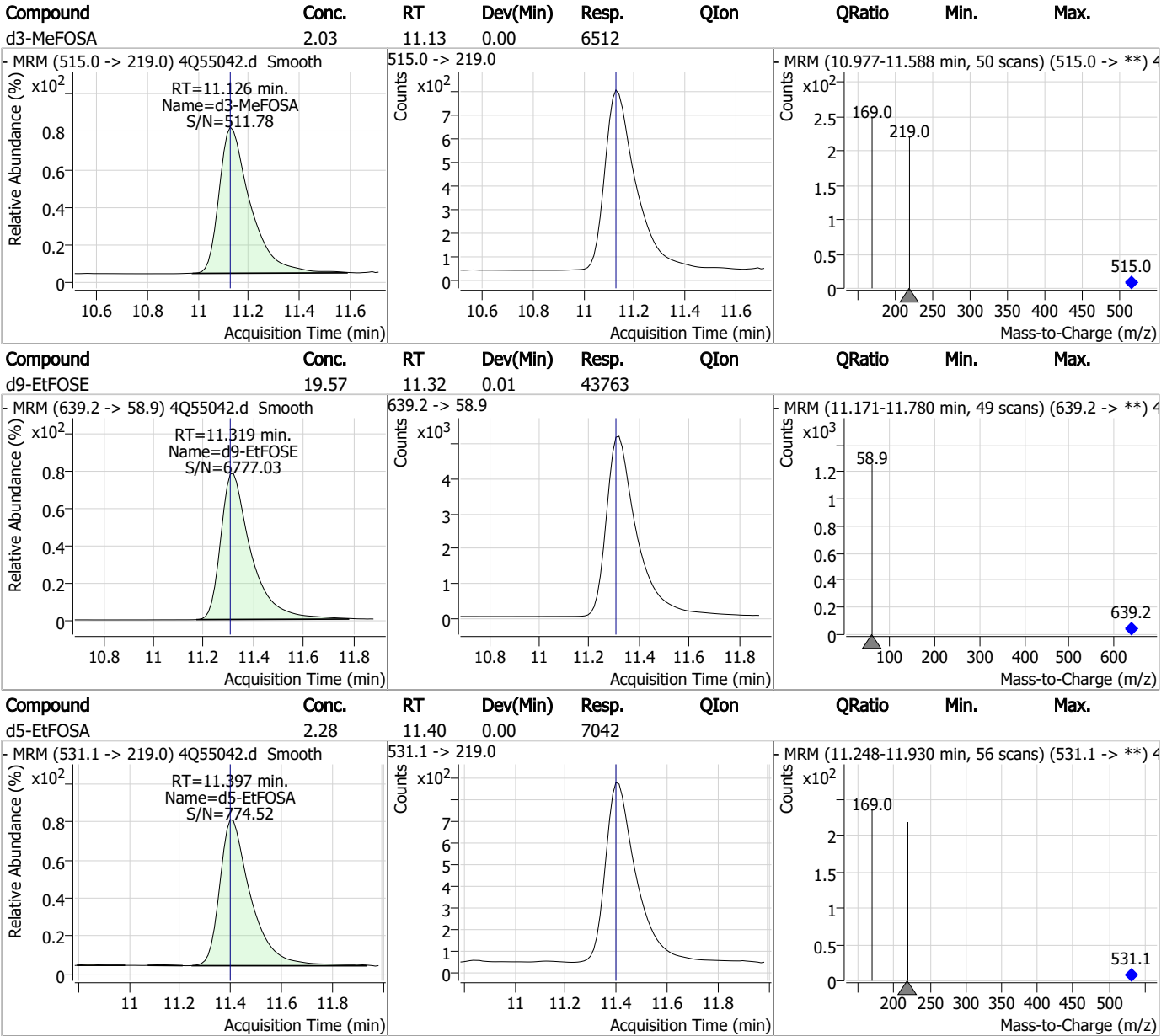
7.5.1
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Perfluorinated Compounds by LC/MS/MS



7.5.1
7

Perfluorinated Compounds by LC/MS/MS



7.5.1

7



Perfluorinated Compounds by LC/MS/MS

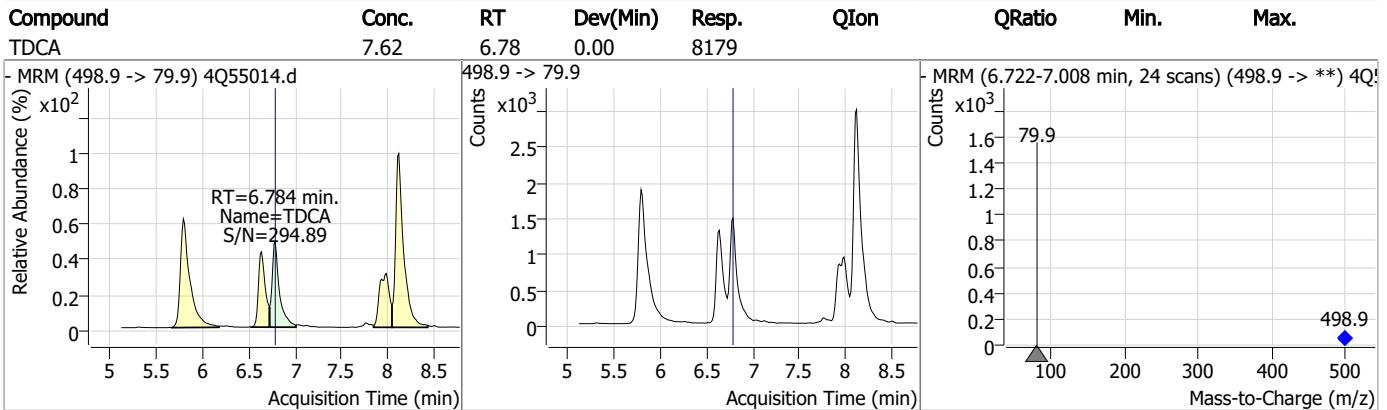
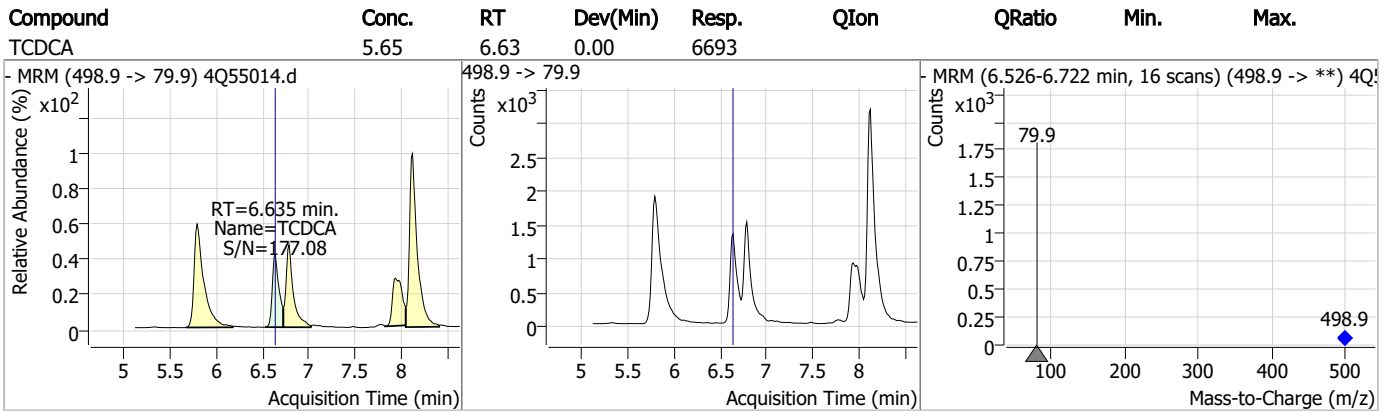
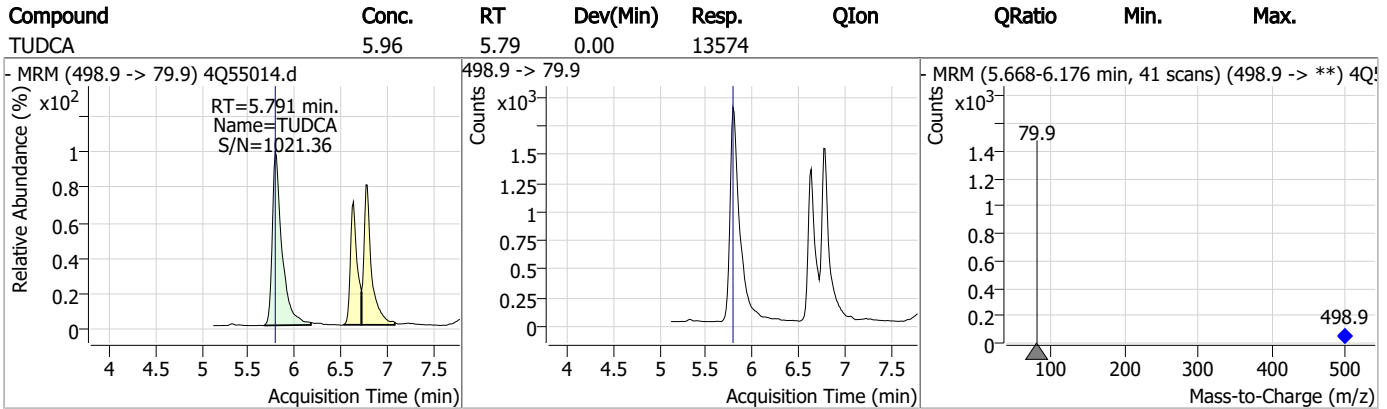
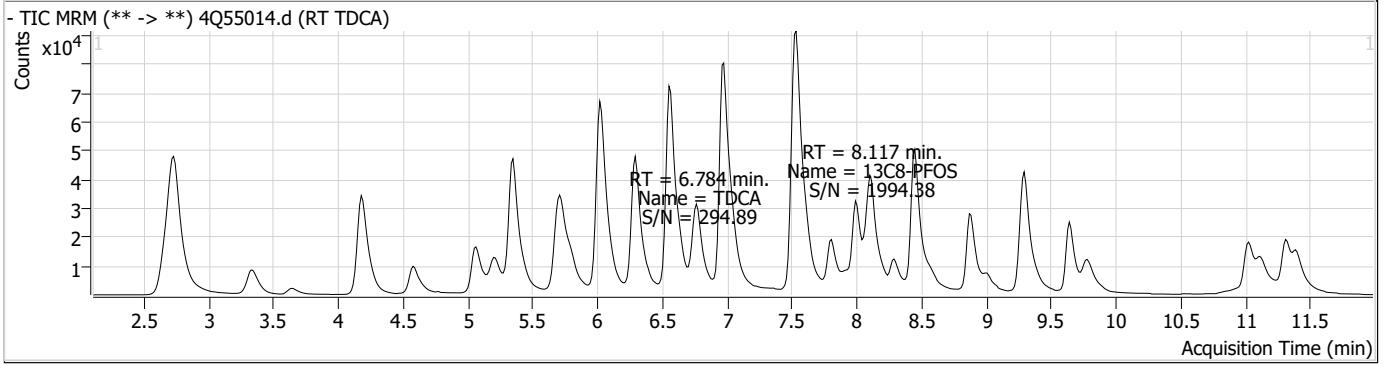
Data File : 4Q55014.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 2:11:27 PM
 Sample Name : RT TDCA
 Vial : P1-B1
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q806_TDCA.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.117	507.1 -> 79.9	25678	2.50	µg/L	0.000	
13C4-PFOS	8.118	502.8 -> 79.9	21077	2.50	µg/L	0.000	
System Monitoring Compounds							
13C8-PFOS	8.117	507.1 -> 79.9	25678	3.09	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 123.6%				
Target Compounds							
PFOS	8.119	498.9 -> 79.9 498.9 -> 98.8	24269 11203	2.77	µg/L m		95
TCDCa	6.635	498.9 -> 79.9	6693	5.65	ng/ml		100
TDCA	6.784	498.9 -> 79.9	8179	7.62	ng/ml		100
TUDCA	5.791	498.9 -> 79.9	13574	5.96	ng/ml		100

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

7.6.1
7

Perfluorinated Compounds by LC/MS/MS

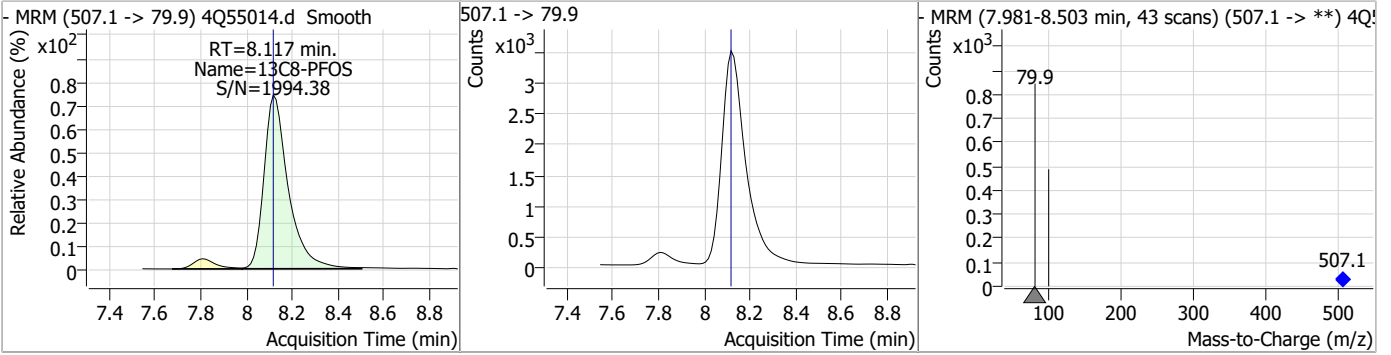


7.6.1

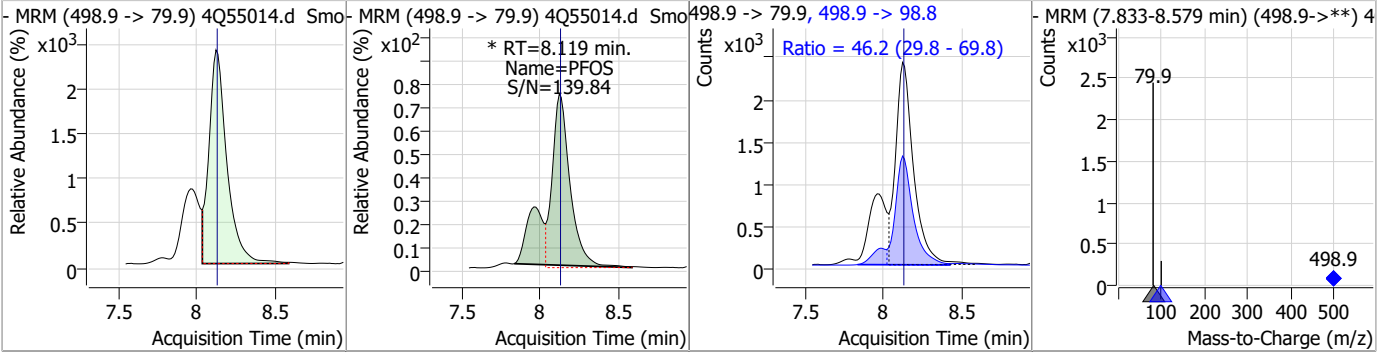
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Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	3.09	8.12	0.00	25678				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.77	8.12	0.00	24269 (m)	498.9 -> 98.8	46.2	29.8	69.8



7.6.1

7



Manual Integration Approval Summary

Sample Number: S4Q806-RT Method: EPA DRAFT 1633
Lab FileID: 4Q55014.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 14:11 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak

7.6.1.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55015.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 2:26:10 PM
 Sample Name : RT_BR_LN
 Vial : P1-B2
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.686	216.8 -> 171.9	193938	10.00 µg/L	-0.013
M5-PFPeA	4.175	268.3 -> 223.0	90415	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	78760	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	75365	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	109814	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	44077	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	28717	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	30557	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	39306	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	38444	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	18726	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	21832	2.50 µg/L	0.000
M3-PFHxS	7.042	402.1 -> 79.9	16200	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	17188	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	2189	5.00 µg/L	0.000
M2-6:2FTS	6.761	429.1 -> 80.9	4467	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	5816	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	35154	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	72605	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	29852	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	58181	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	61823	25.00 µg/L	0.000
M5-EtFOSA	11.397	531.1 -> 219.0	8897	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	9529	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	13155	2.50 µg/L	0.000
13C3-PFBA	2.691	216.0 -> 172.0	90324	5.00 µg/L	-0.013
18O2-PFHxS	7.041	403.0 -> 83.9	10175	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	119826	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	31747	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	42653	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	85651	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	2189	5.56 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.2%		
13C2-6:2FTS	6.761	429.1 -> 80.9	4467	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-8:2FTS	7.804	529.1 -> 80.9	5816	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.4%		
13C2-PFDoDA	8.867	615.1 -> 570.0	39306	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C2-PFTeDA	9.637	715.2 -> 670.0	38444	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C3-PFBS	5.202	302.1 -> 79.9	21832	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C3-PFHxS	7.042	402.1 -> 79.9	16200	2.58 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 = 103.3%	
13C4-PFBA	2.686	216.8 -> 171.9	193938	9.97 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.292	367.1 -> 322.0	75365	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFHxA	5.347	318.0 -> 273.0	78760	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C5-PFPeA	4.175	268.3 -> 223.0	90415	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C6-PFDA	8.004	519.1 -> 474.1	28717	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C7-PFUnDA	8.448	570.0 -> 525.1	30557	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.1%	
13C8-FOSA	9.794	506.1 -> 77.8	18726	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-PFOA	6.976	421.1 -> 376.0	109814	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOS	8.117	507.1 -> 79.9	17188	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C9-PFNA	7.521	472.1 -> 427.0	44077	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
d3-MeFOSAA	8.086	573.2 -> 419.0	35154	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	72605	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSA	11.126	515.0 -> 219.0	9529	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
d5-EtFOSAA	8.283	589.2 -> 419.0	29852	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d7-MeFOSE	11.022	623.2 -> 58.9	58181	21.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.0%	
d9-EtFOSE	11.306	639.2 -> 58.9	61823	23.27 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
d5-EtFOSA	11.397	531.1 -> 219.0	8897	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	185075	46.64 µg/L	98
		327.1 -> 80.9	76195		
6:2FTS	6.761	427.1 -> 407.0	245377	51.62 µg/L	95
		427.1 -> 80.9	85398		
8:2FTS	7.804	527.1 -> 507.0	168283	53.47 µg/L	96
		527.1 -> 80.8	64108		
EtFOSAA	8.297	584.2 -> 419.1	67095	12.73 µg/L	m 97
		584.2 -> 526.0	25917		
FOSA	9.785	498.1 -> 77.9	257767	30.37 µg/L	m 99
		498.1 -> 478.0	8522		
MeFOSAA	8.087	570.1 -> 419.0	70912	13.01 µg/L	95
		570.1 -> 483.0	13442		
PFBA	2.695	212.8 -> 168.9	319782	51.86 µg/L	100
PFBS	5.203	298.7 -> 79.9	72986	11.15 µg/L	99
		298.7 -> 98.8	27741		
PFDA	8.005	512.9 -> 469.0	270165	12.90 µg/L	94
		512.9 -> 219.0	52781		
PFDoDA	8.868	613.1 -> 569.0	374311	12.87 µg/L	99
		613.1 -> 319.0	66209		
PFDS	9.008	599.0 -> 79.9	56664	12.28 µg/L	94

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	28218			
PFHpA	6.305	363.1 -> 319.0	563324	13.24	µg/L	100
		363.1 -> 169.0	101424			
PFHpS	7.624	449.0 -> 79.9	91376	12.55	µg/L	100
		449.0 -> 98.9	46903			
PFHxA	5.350	313.0 -> 269.0	326587	12.91	µg/L	100
		313.0 -> 118.9	9752			
PFHxS	7.043	398.7 -> 79.9	59038	11.73	µg/L	m 88
		398.7 -> 98.9	30057			
PFNA	7.384	463.0 -> 419.0	737721	27.25	µg/L	m 97
		463.0 -> 219.0	191207			
PFNS	8.586	548.8 -> 79.9	38238	12.75	µg/L	94
		548.8 -> 98.9	20075			
PFOA	6.978	413.0 -> 369.0	1357763	29.36	µg/L	m 99
		413.0 -> 169.0	284116			
PFOS	8.119	498.9 -> 79.9	82352	11.68	µg/L	m 85
		498.9 -> 98.8	38669			
PFPeA	4.177	263.0 -> 219.0	462538	26.39	µg/L	100
PFPeS	6.294	349.1 -> 79.9	67449	12.30	µg/L	97
		349.1 -> 98.9	30489			
PFTeDA	9.637	713.1 -> 669.0	346807	13.14	µg/L	99
		713.1 -> 168.9	35102			
PFTrDA	9.267	663.0 -> 619.0	404413	13.03	µg/L	99
		663.0 -> 168.9	56120			
PFUnDA	8.449	563.1 -> 519.0	310285	13.49	µg/L	98
		563.1 -> 269.1	65909			
11Cl-PF3OUdS	9.294	630.9 -> 450.9	475895	24.55	µg/L	99
		632.9 -> 452.9	145795			
9Cl-PF3ONS	8.451	530.8 -> 351.0	439554	23.49	µg/L	99
		532.8 -> 353.0	136399			
ADONA	6.568	376.9 -> 250.9	1413310	27.16	µg/L	100
		376.9 -> 84.8	340280			
HFPO-DA	5.703	284.9 -> 168.9	177146	25.68	µg/L	99
		284.9 -> 184.9	17507			
3:3FTCA	3.630	241.0 -> 177.0	51377	65.88	µg/L	100
		241.0 -> 117.0	4678			
5:3FTCA	6.020	341.0 -> 237.1	1048916	327.28	µg/L	99
		341.0 -> 217.0	747931			
7:3FTCA	7.549	441.0 -> 316.9	493765	327.17	µg/L	96
		441.0 -> 336.9	1174339			
EtFOSA	11.399	526.0 -> 219.0	179357	46.68	µg/L	100
		526.0 -> 169.0	250140			
EtFOSE	11.320	630.0 -> 58.9	183850	85.73	µg/L	100
MeFOSA	11.115	511.9 -> 219.0	154635	44.40	µg/L	m 88
		511.9 -> 169.0	220812			
MeFOSE	11.035	616.1 -> 58.9	205685	90.76	µg/L	100
PFDoS	9.764	699.1 -> 79.9	42633	12.45	µg/L	97
		699.1 -> 98.8	23856			
NFDHA	5.229	295.0 -> 201.0	45368	26.50	µg/L	99
		295.0 -> 84.9	11638			
PFMBA	4.578	279.0 -> 85.1	265819	26.32	µg/L	100
PFMPA	3.315	229.0 -> 84.9	265726	26.03	µg/L	100
PFEESA	5.734	314.8 -> 134.9	426302	22.95	µg/L	99
		314.8 -> 82.9	13636			

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

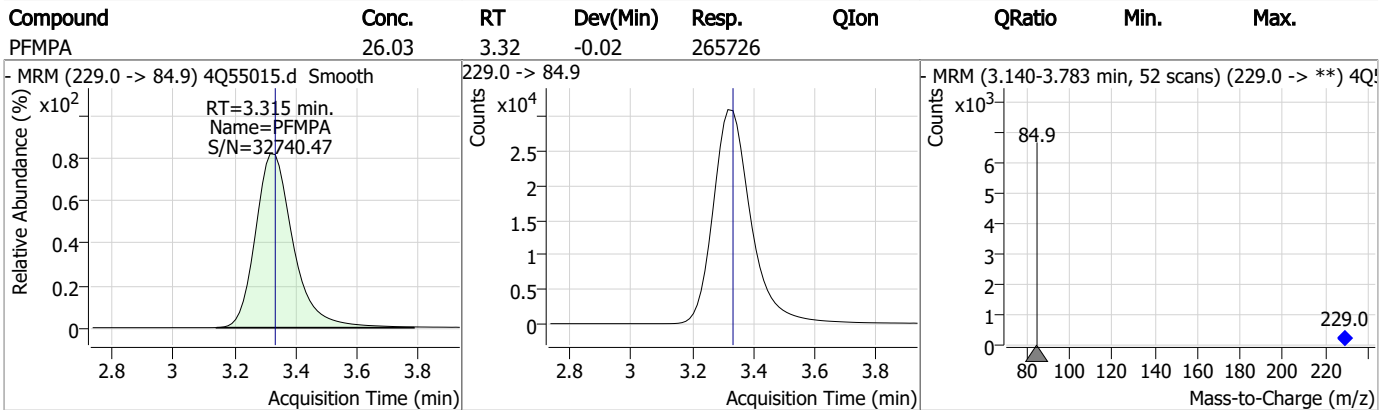
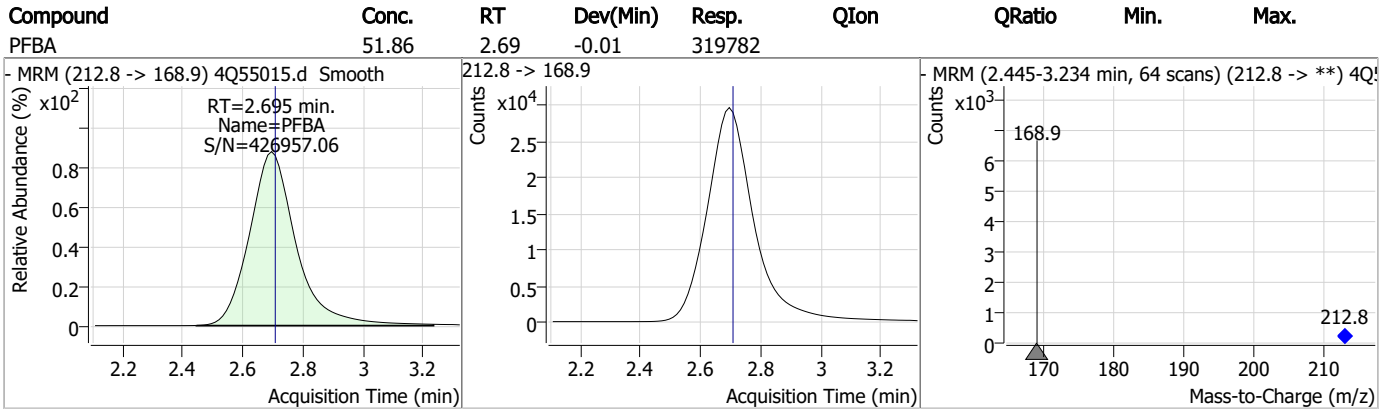
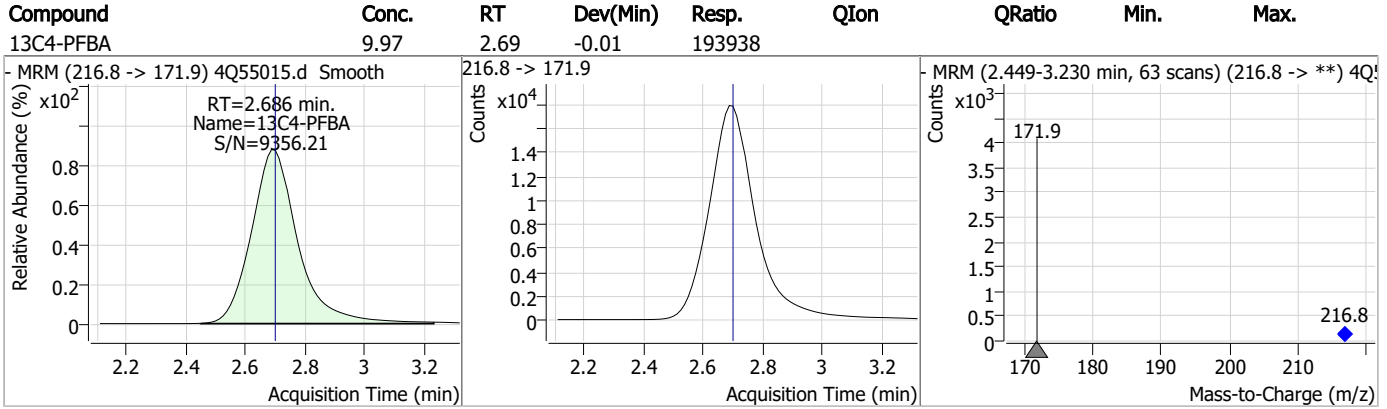
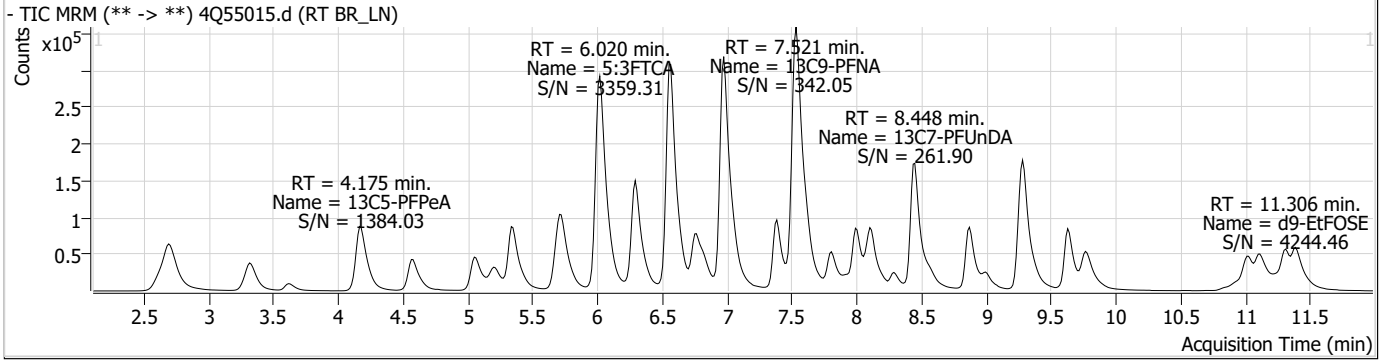
Perfluorinated Compounds by LC/MS/MS

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

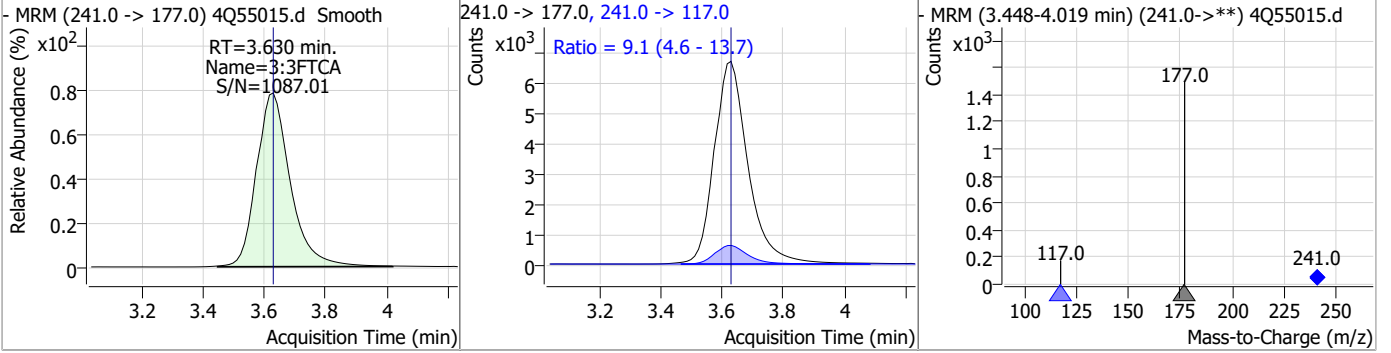
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Perfluorinated Compounds by LC/MS/MS

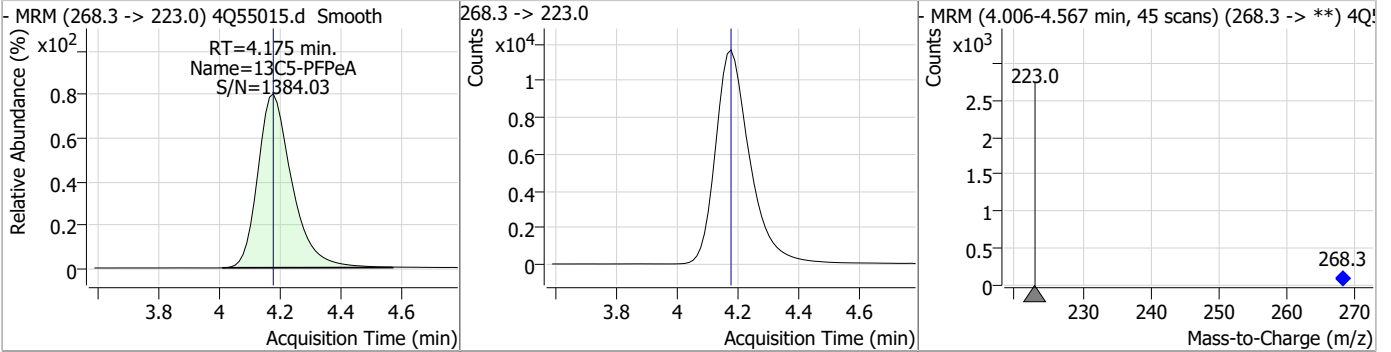


Perfluorinated Compounds by LC/MS/MS

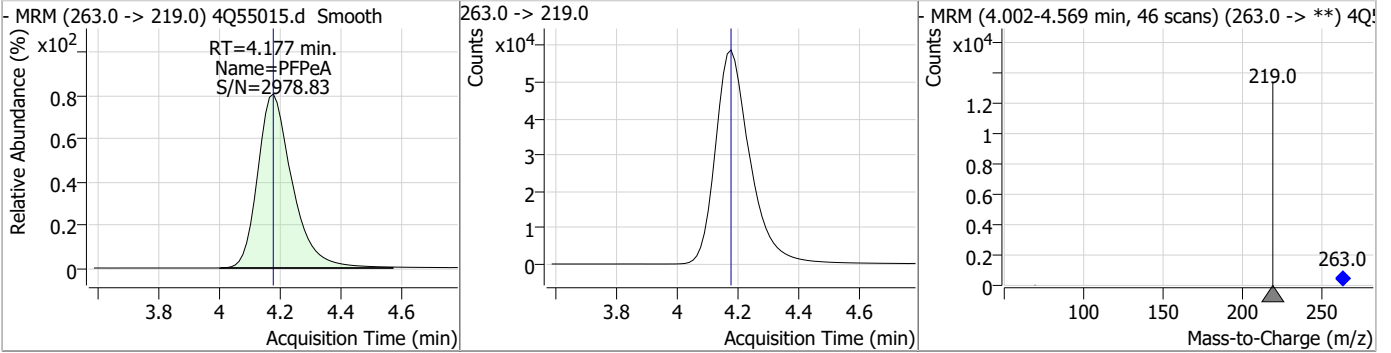
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	65.88	3.63	0.00	51377	241.0 -> 117.0	9.1	4.6	13.7



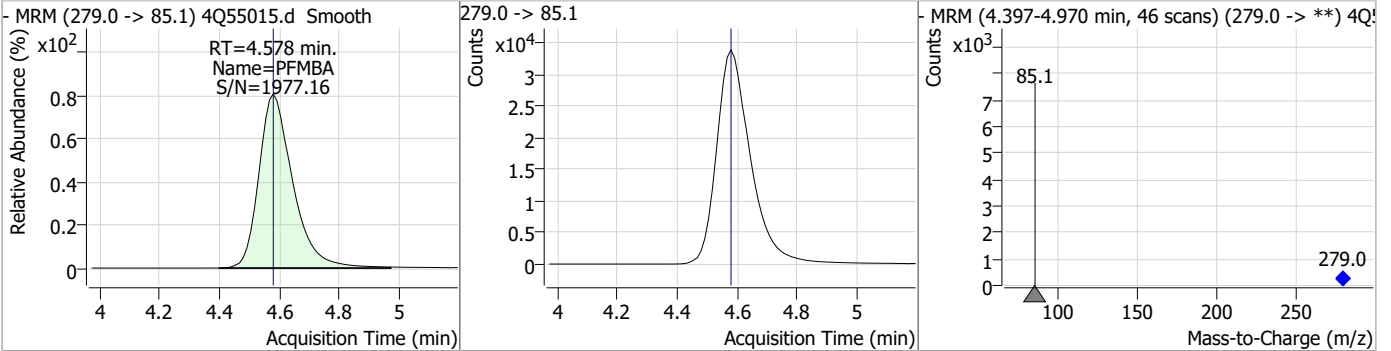
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.86	4.17	0.00	90415				



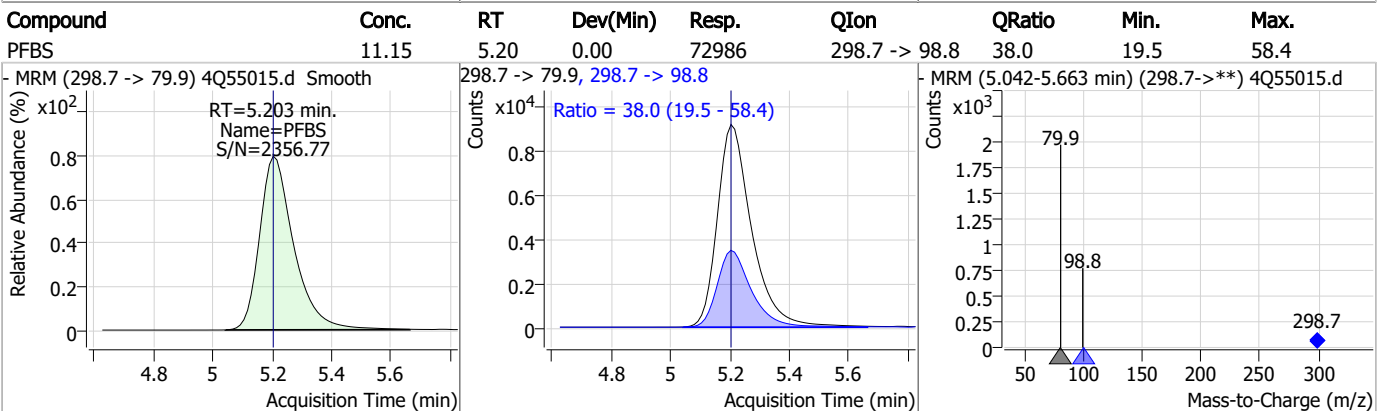
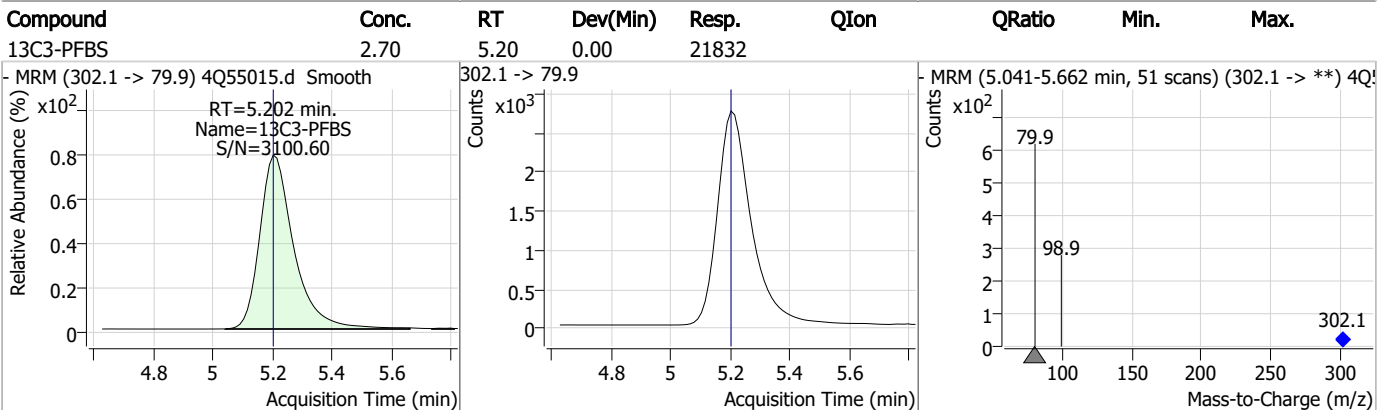
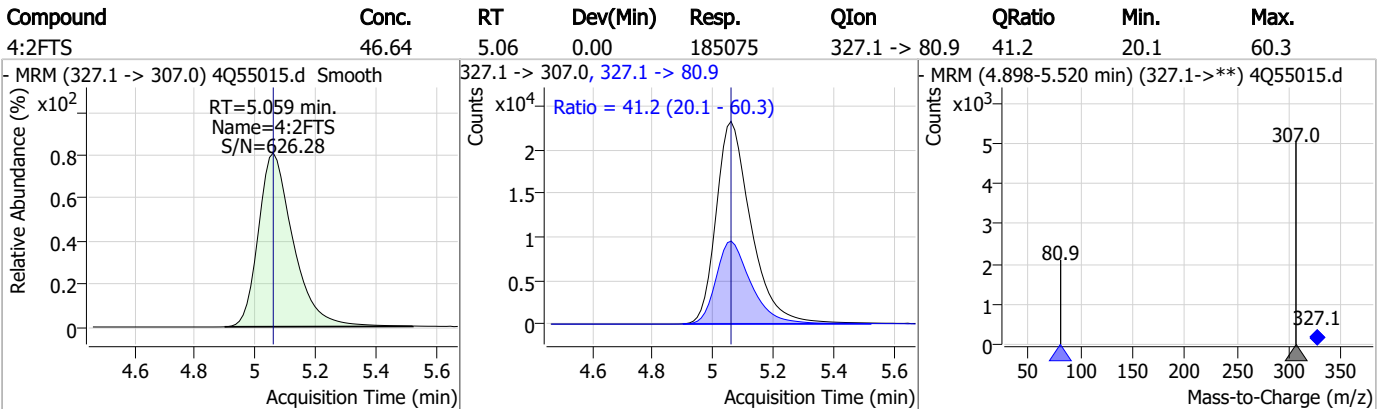
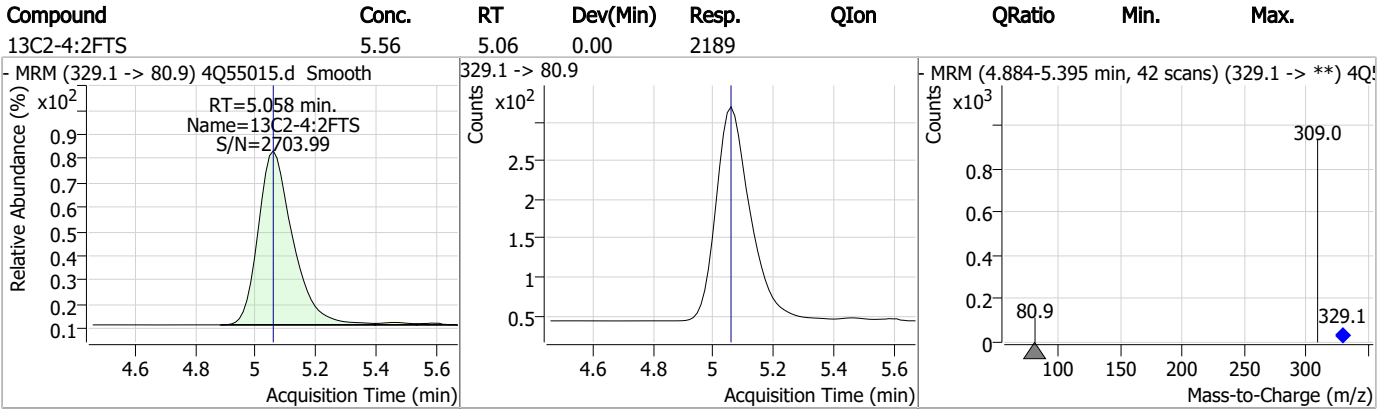
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	26.39	4.18	0.00	462538				



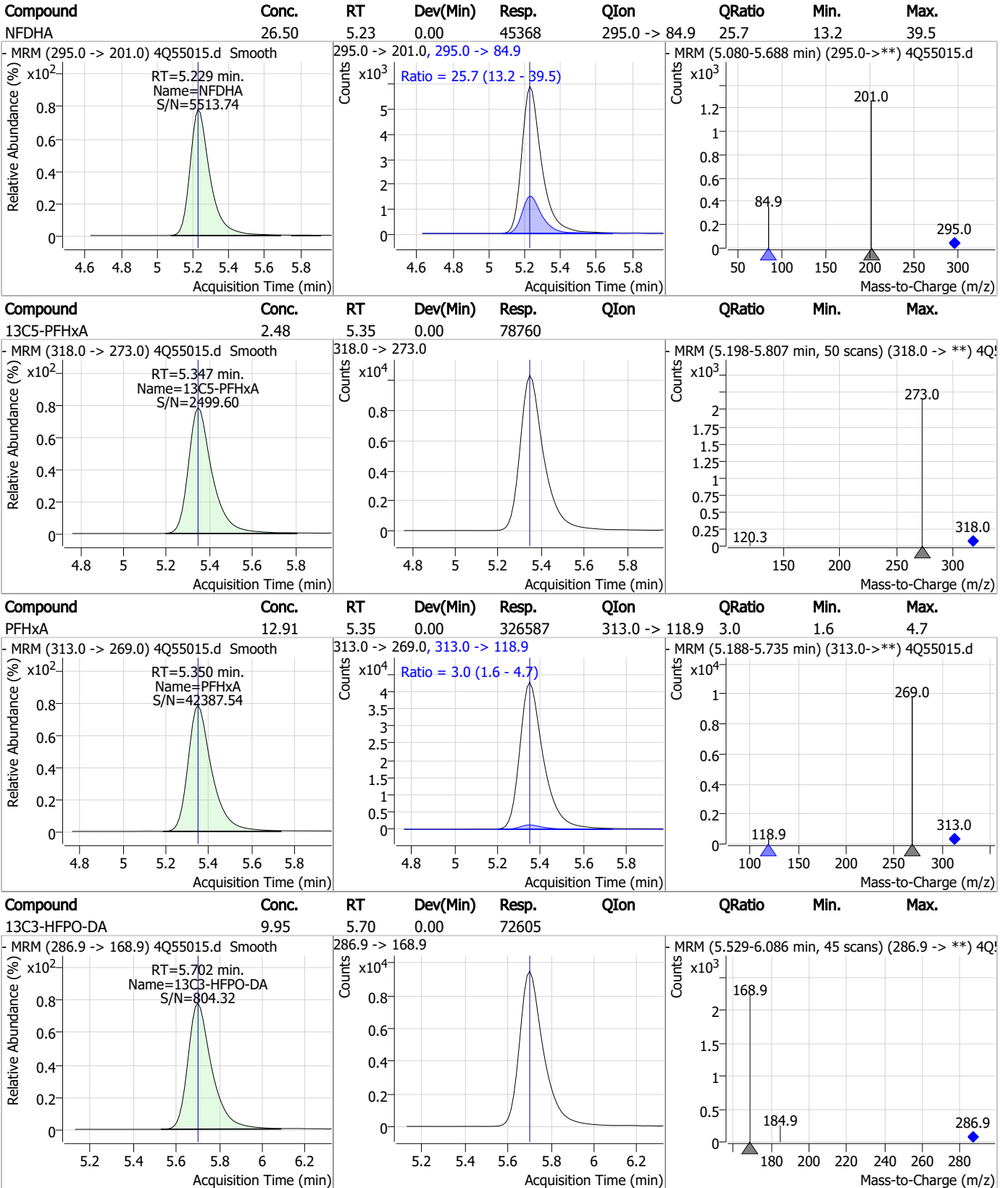
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	26.32	4.58	0.00	265819				



Perfluorinated Compounds by LC/MS/MS



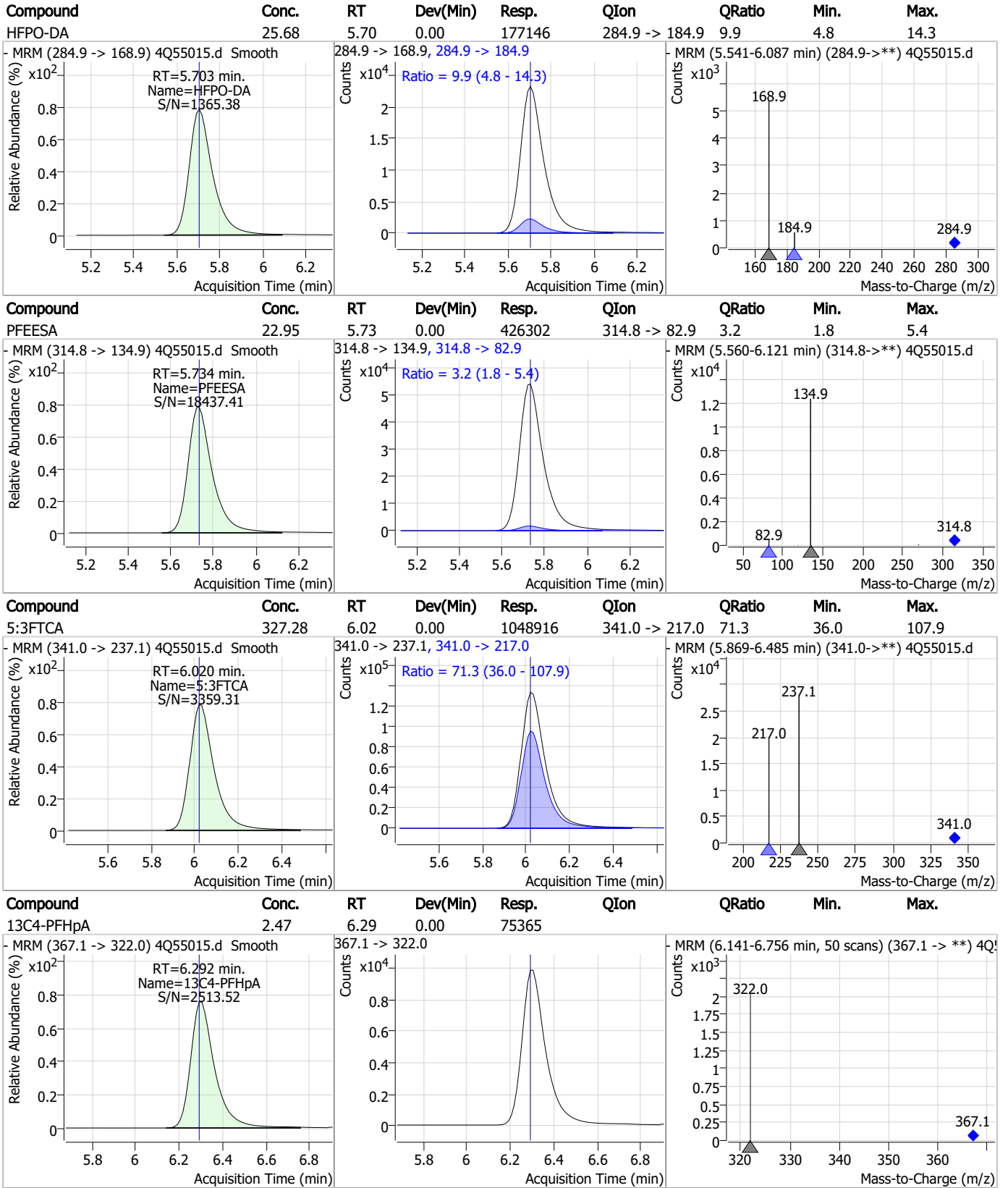
Perfluorinated Compounds by LC/MS/MS



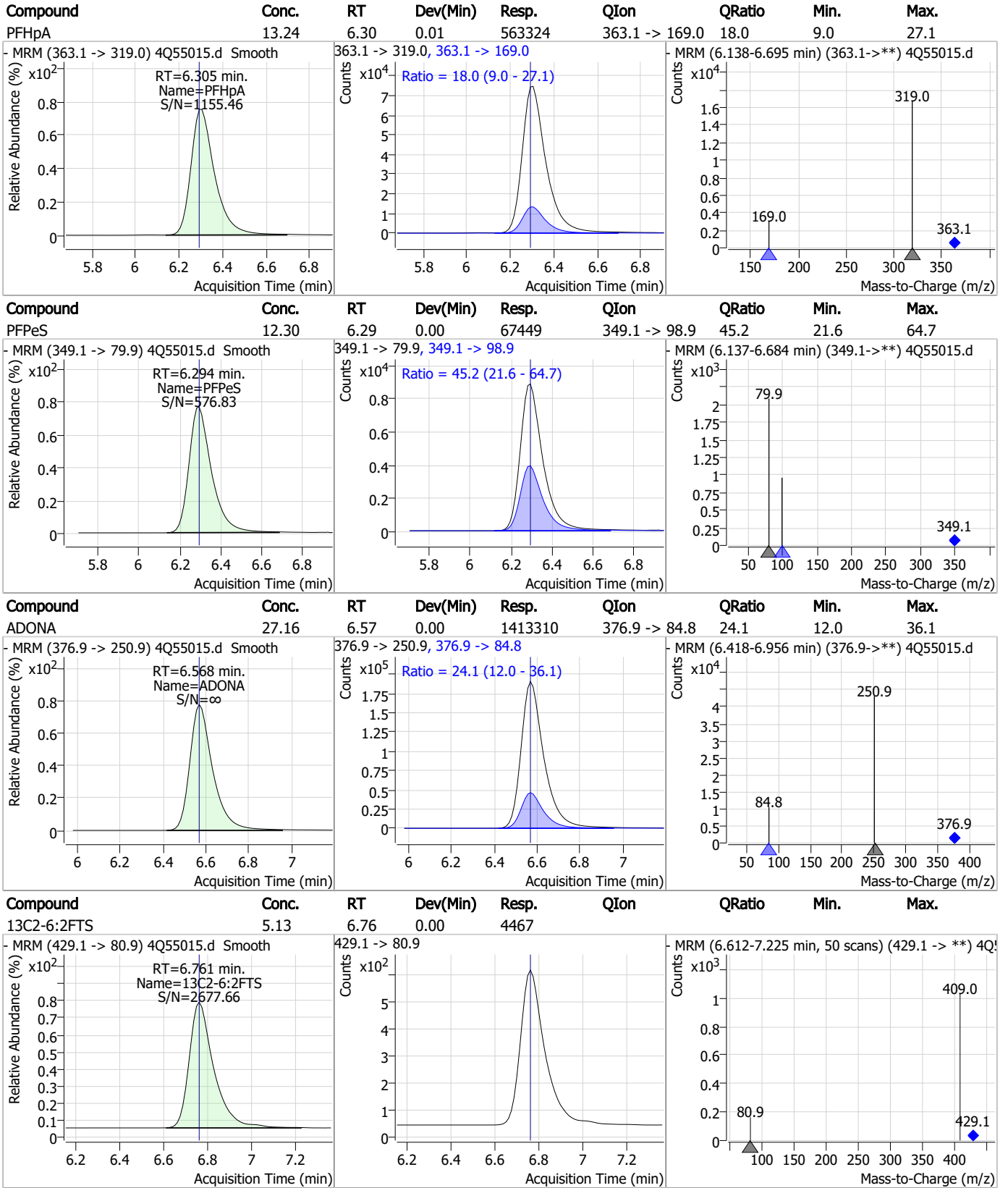
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Perfluorinated Compounds by LC/MS/MS



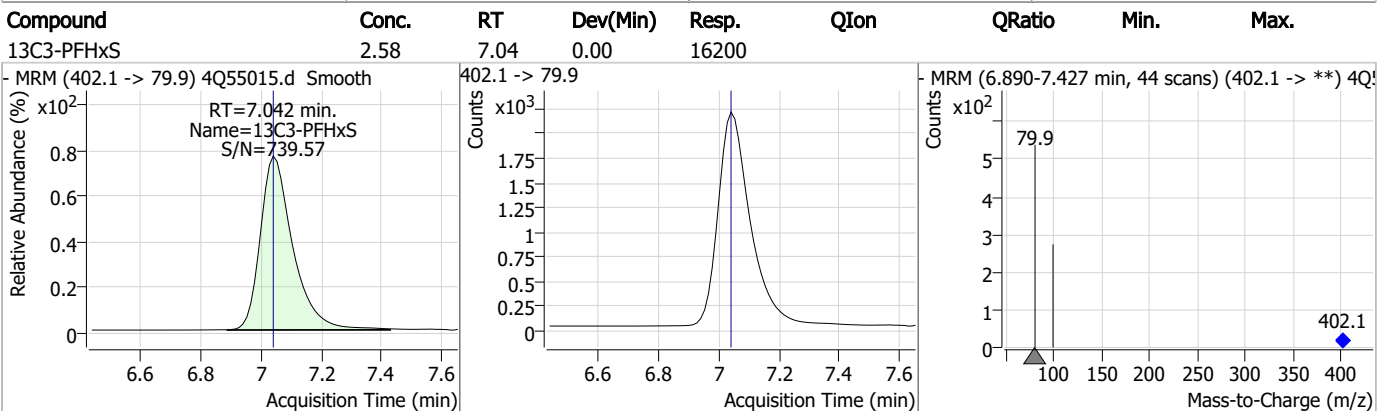
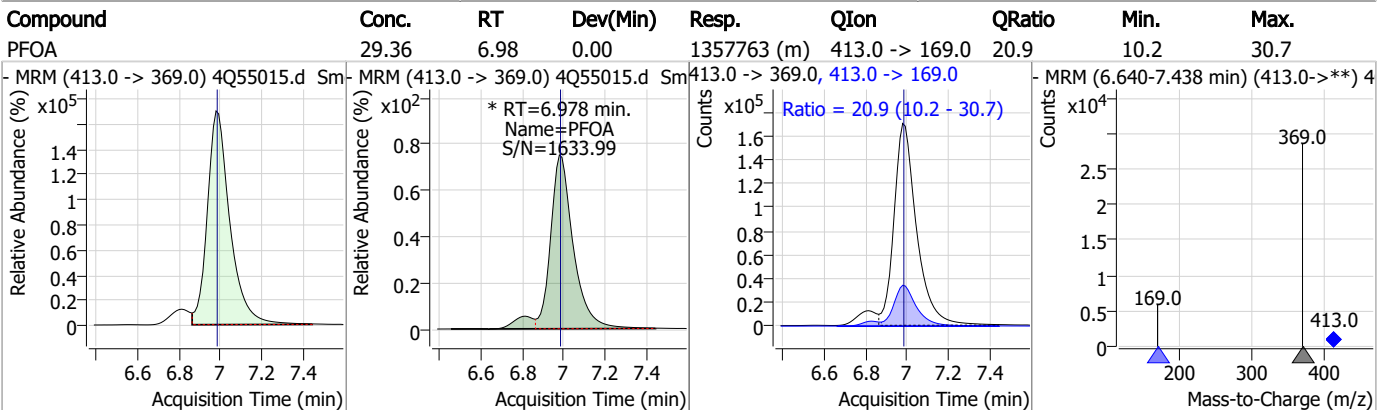
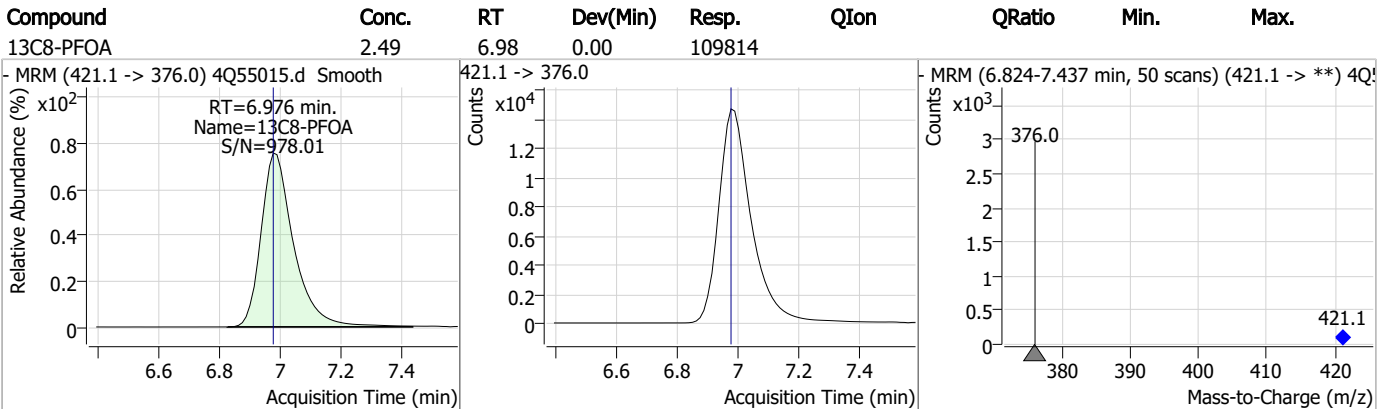
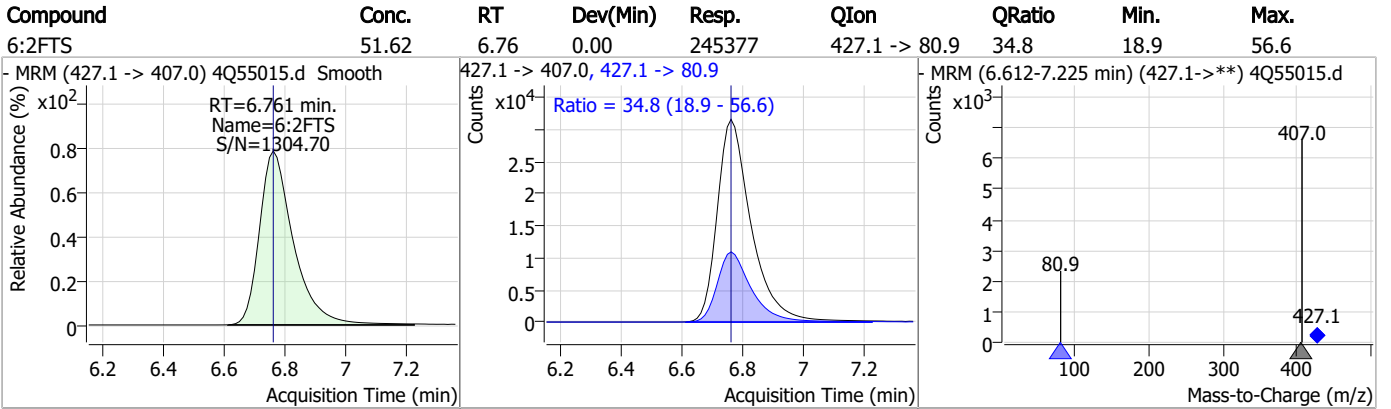
Perfluorinated Compounds by LC/MS/MS



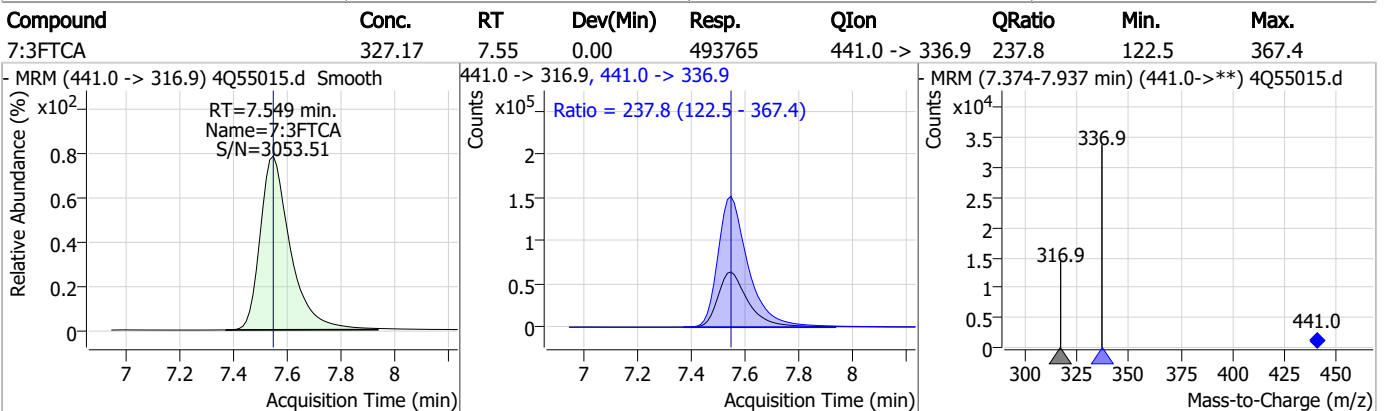
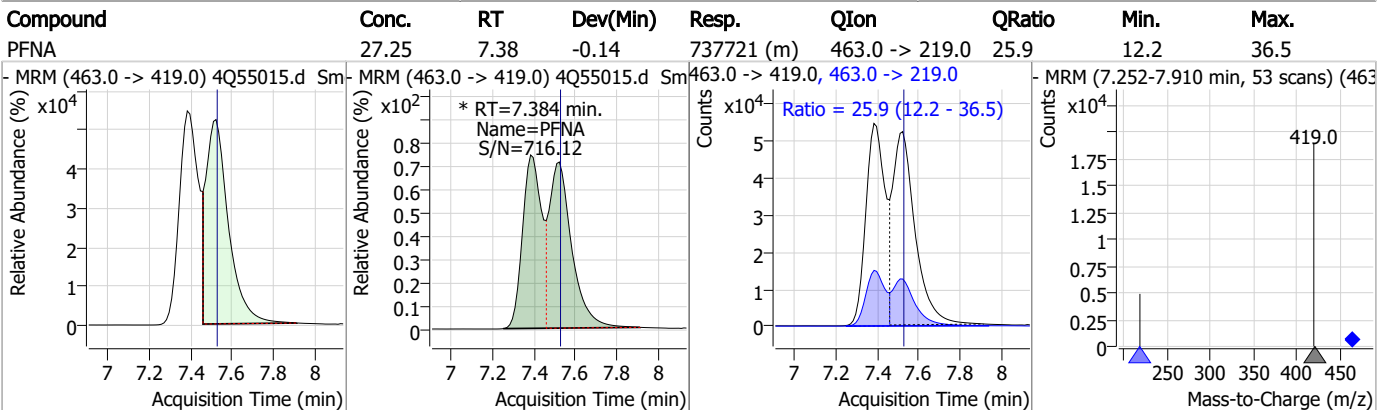
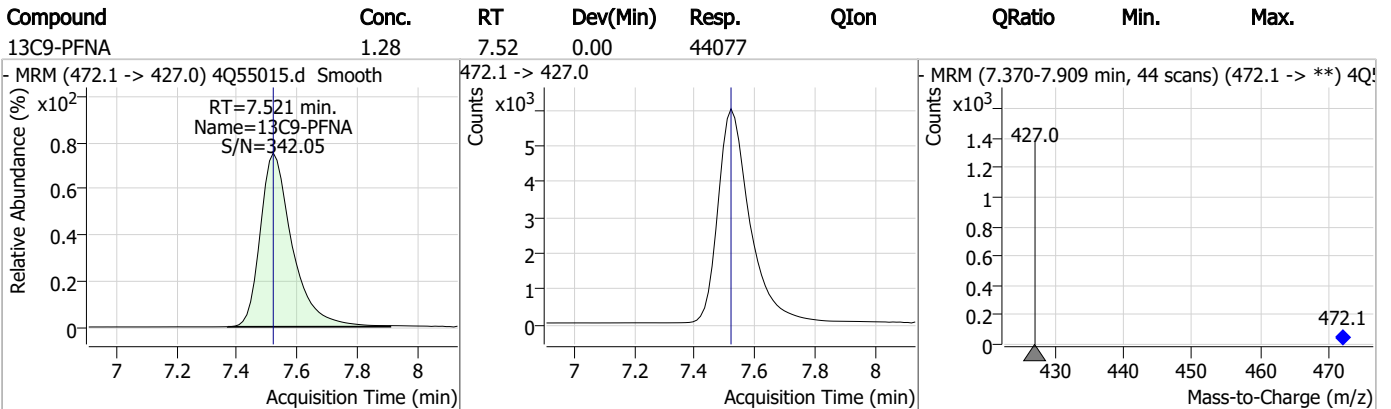
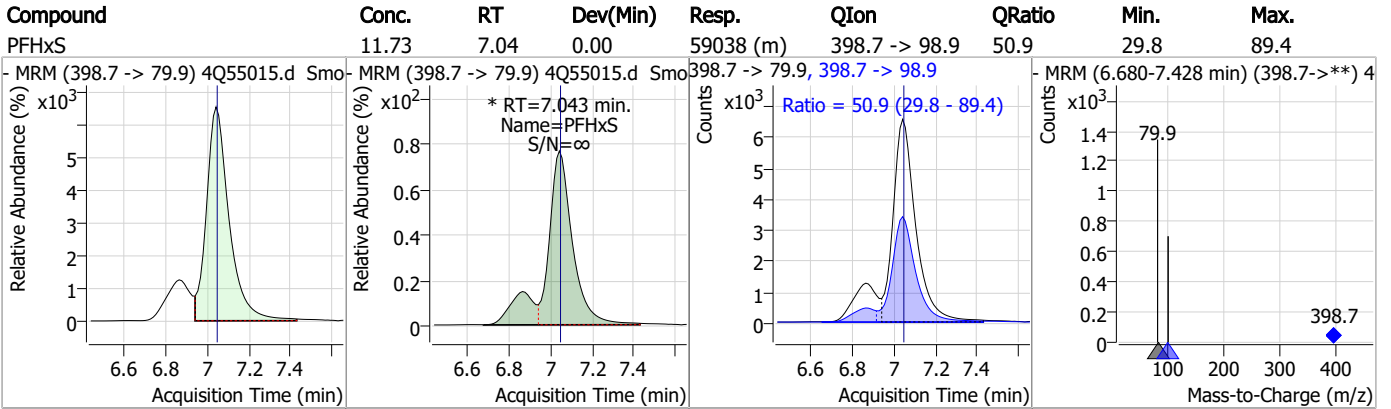
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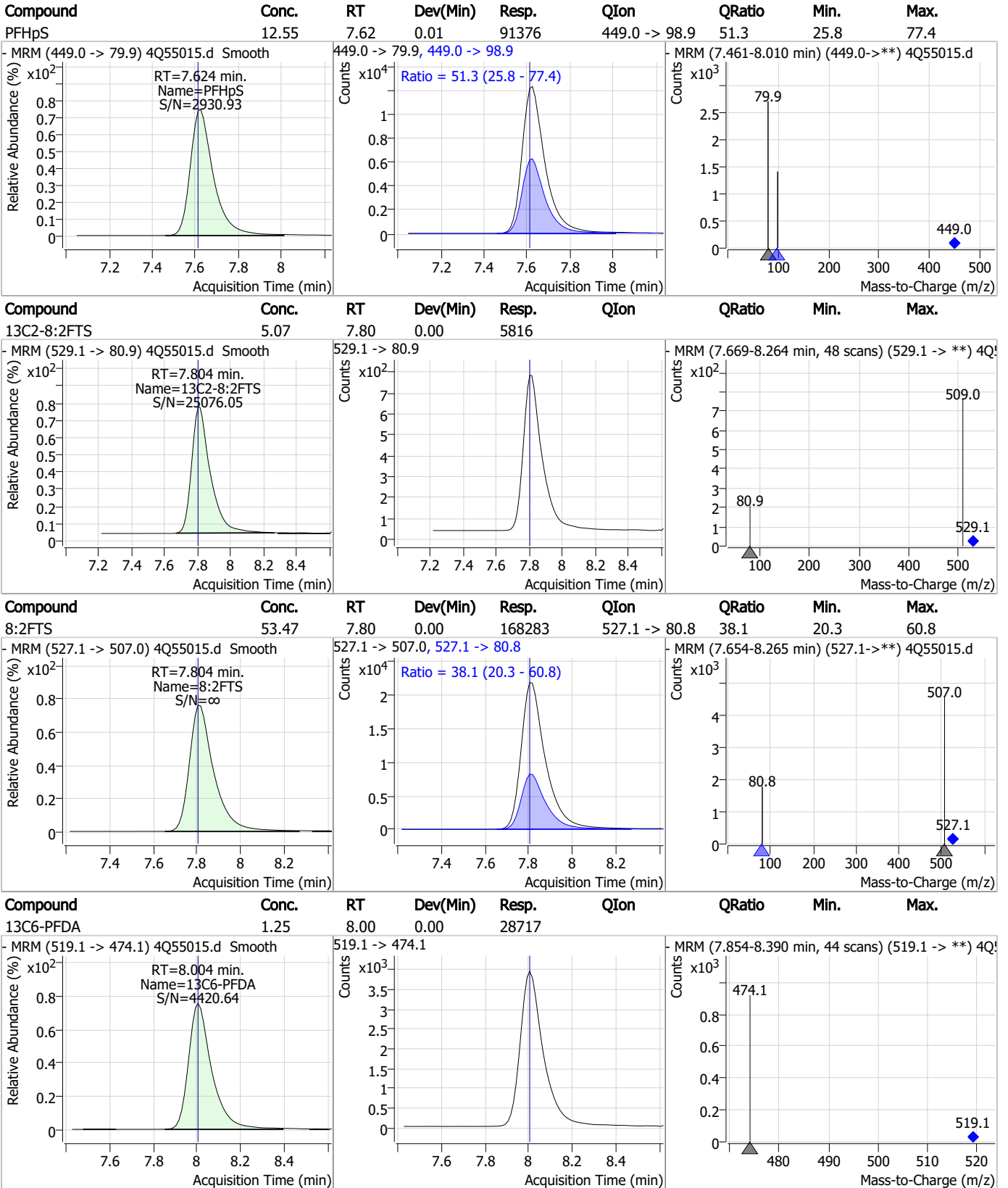
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



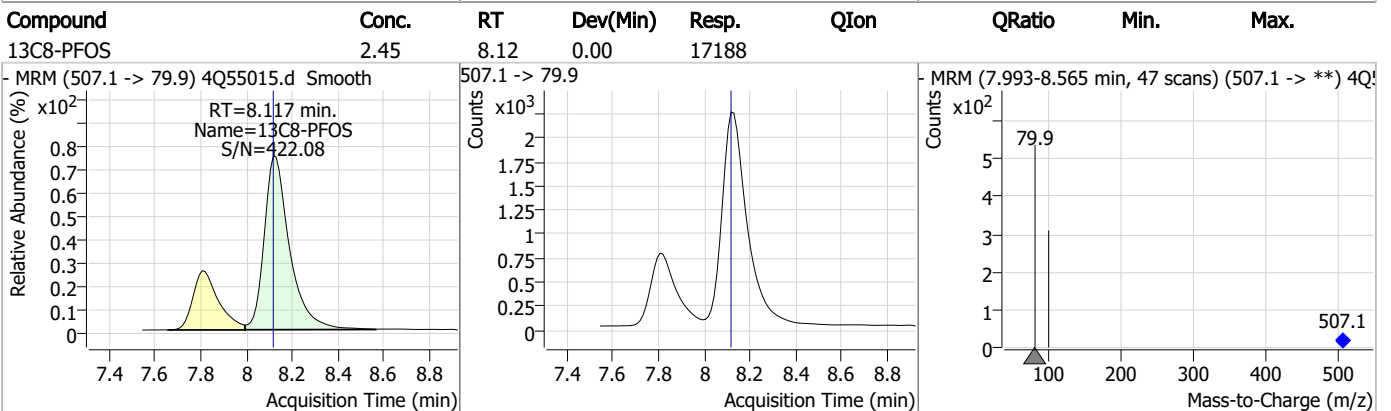
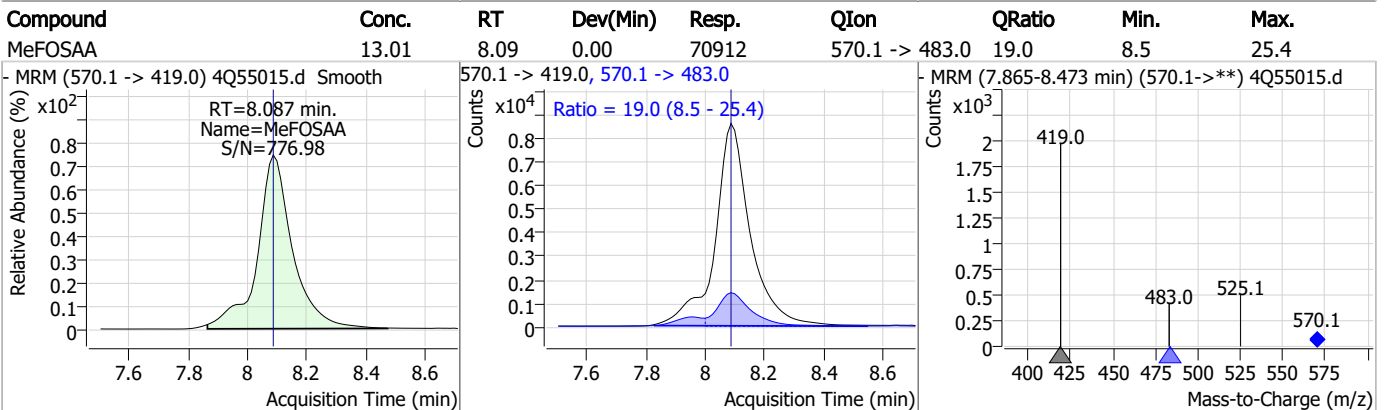
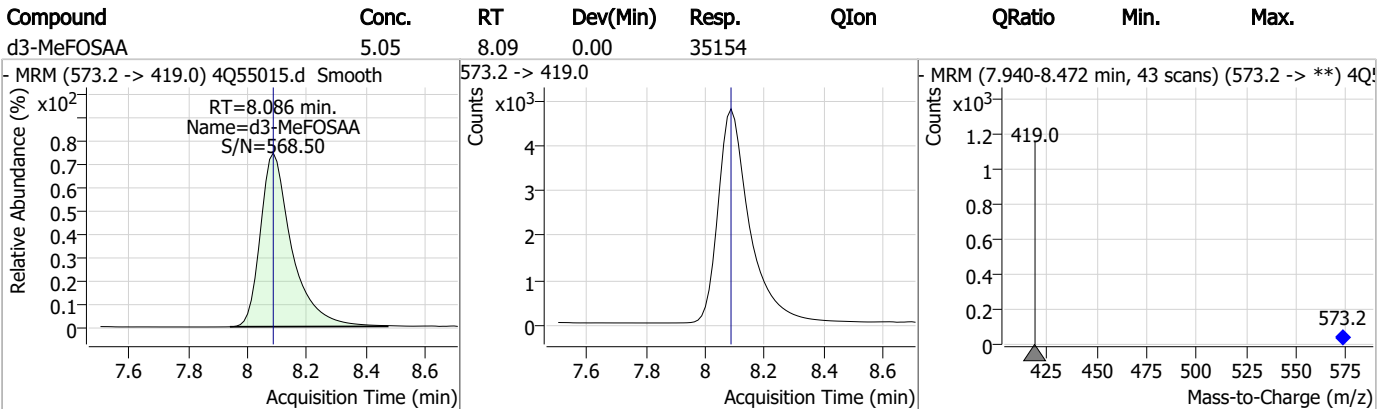
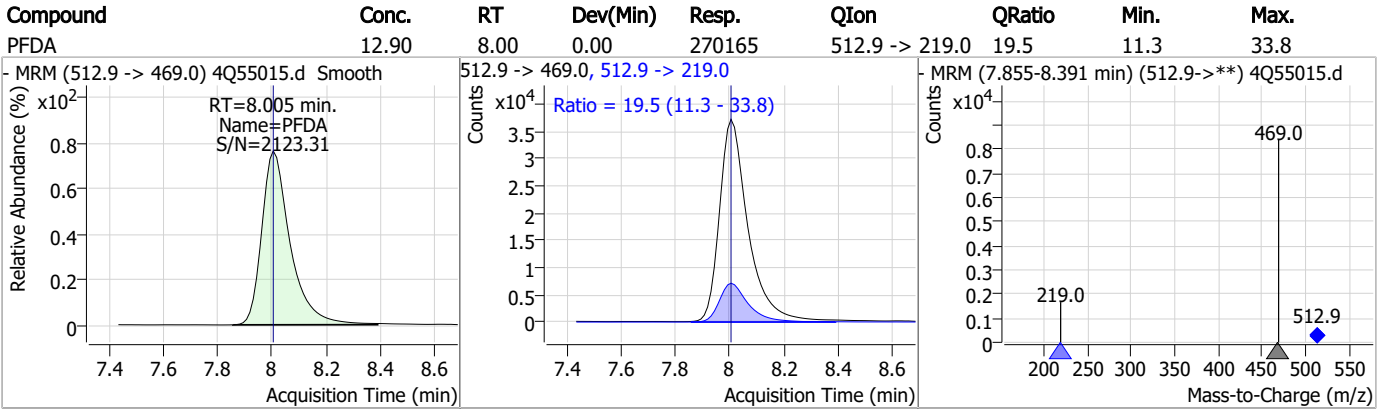
Perfluorinated Compounds by LC/MS/MS



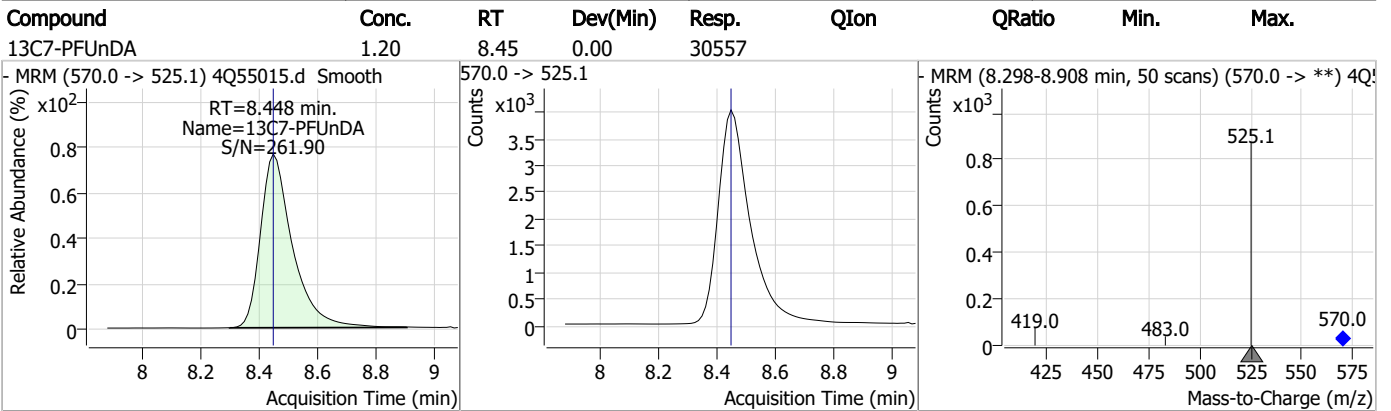
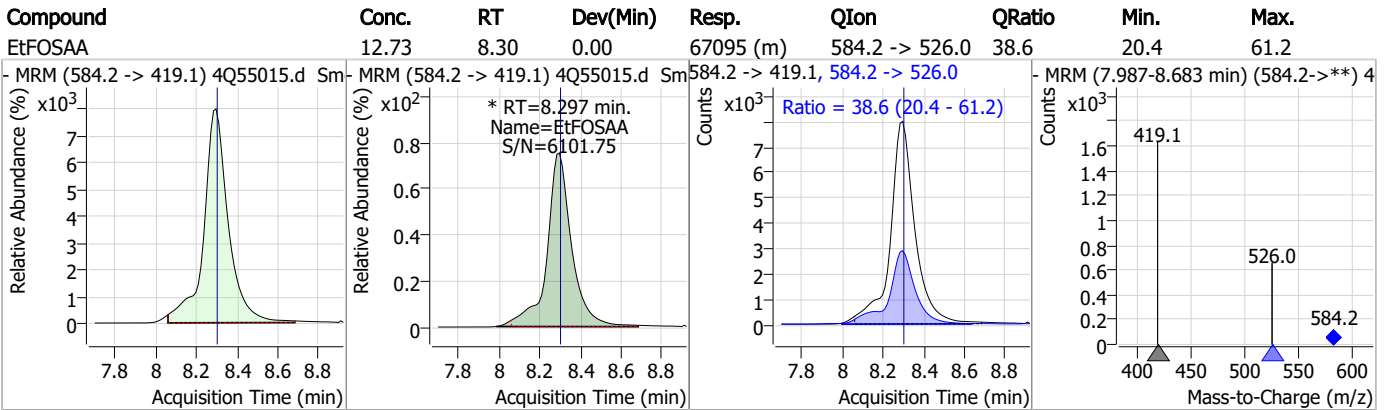
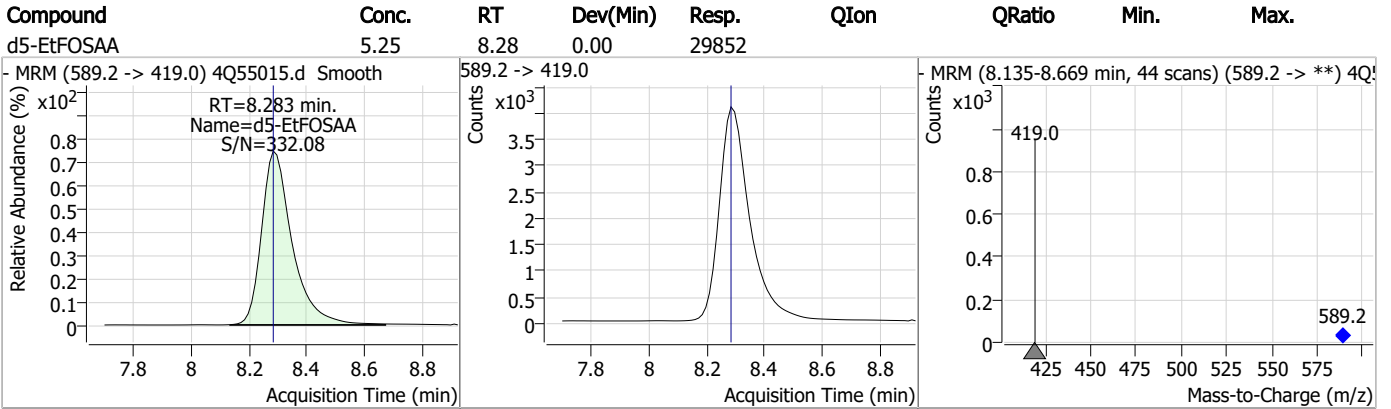
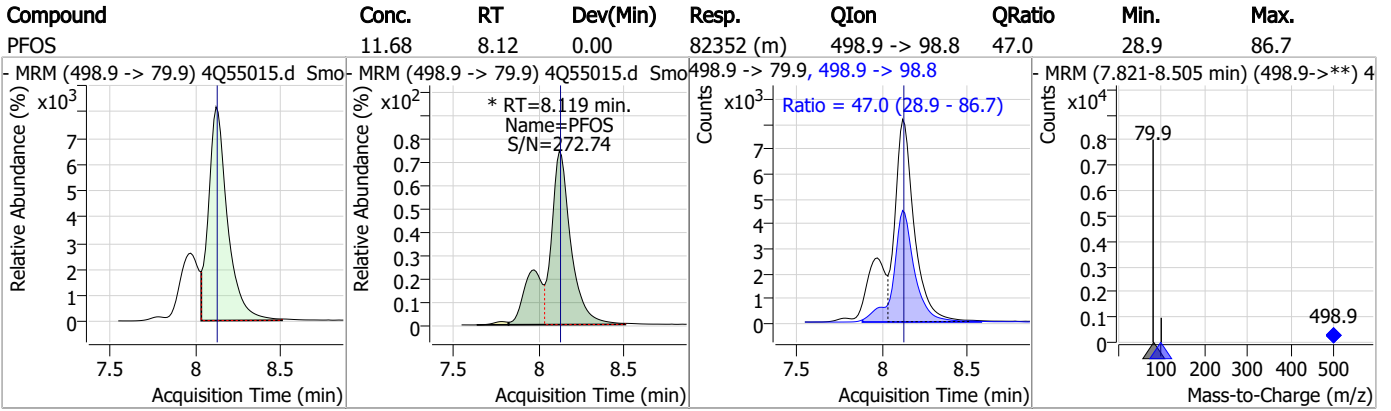
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Perfluorinated Compounds by LC/MS/MS

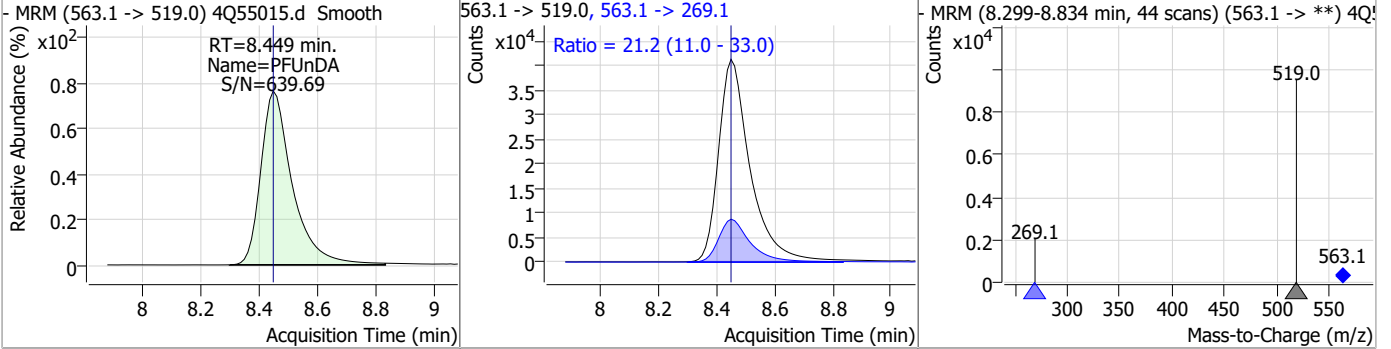


Perfluorinated Compounds by LC/MS/MS

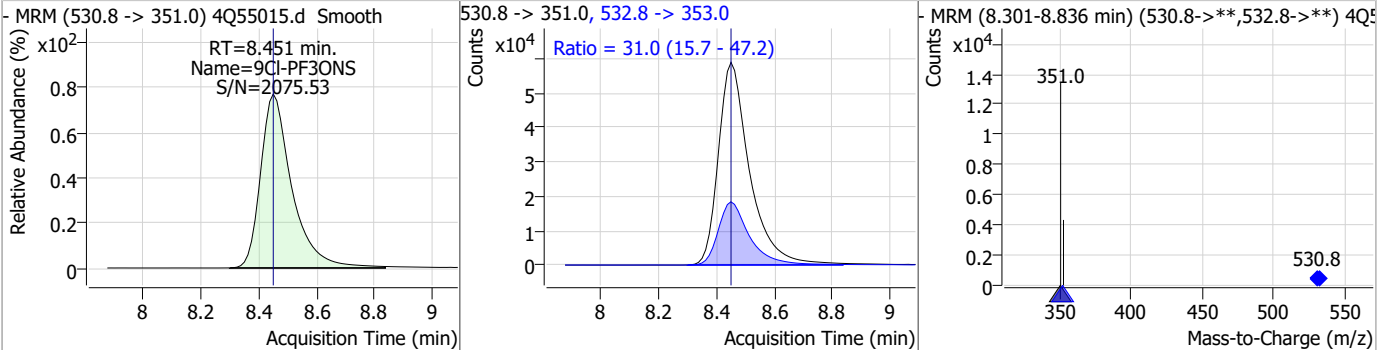


Perfluorinated Compounds by LC/MS/MS

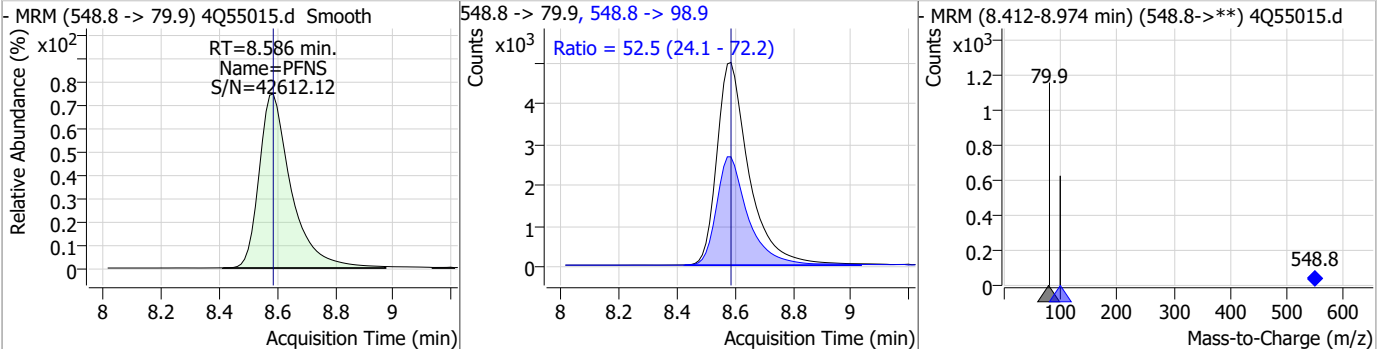
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.49	8.45	0.00	310285	563.1 -> 269.1	21.2	11.0	33.0



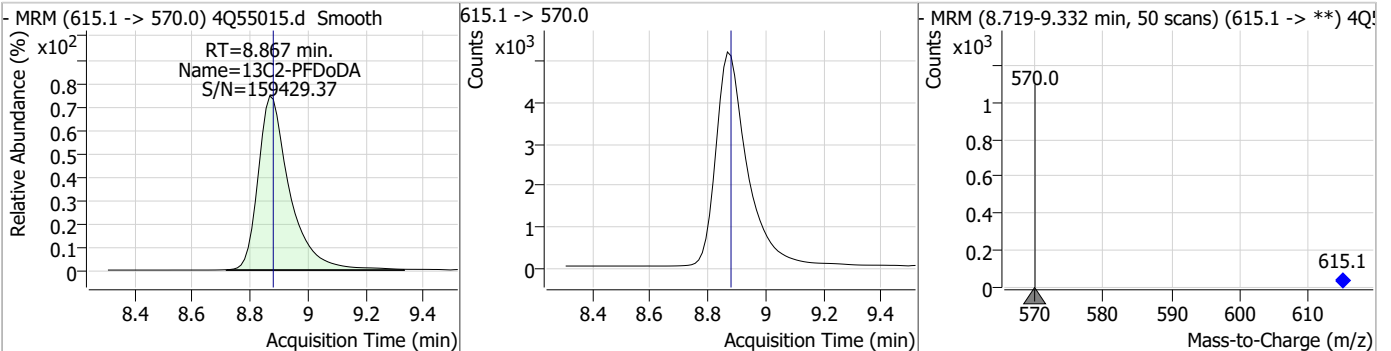
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	23.49	8.45	0.00	439554	532.8 -> 353.0	31.0	15.7	47.2



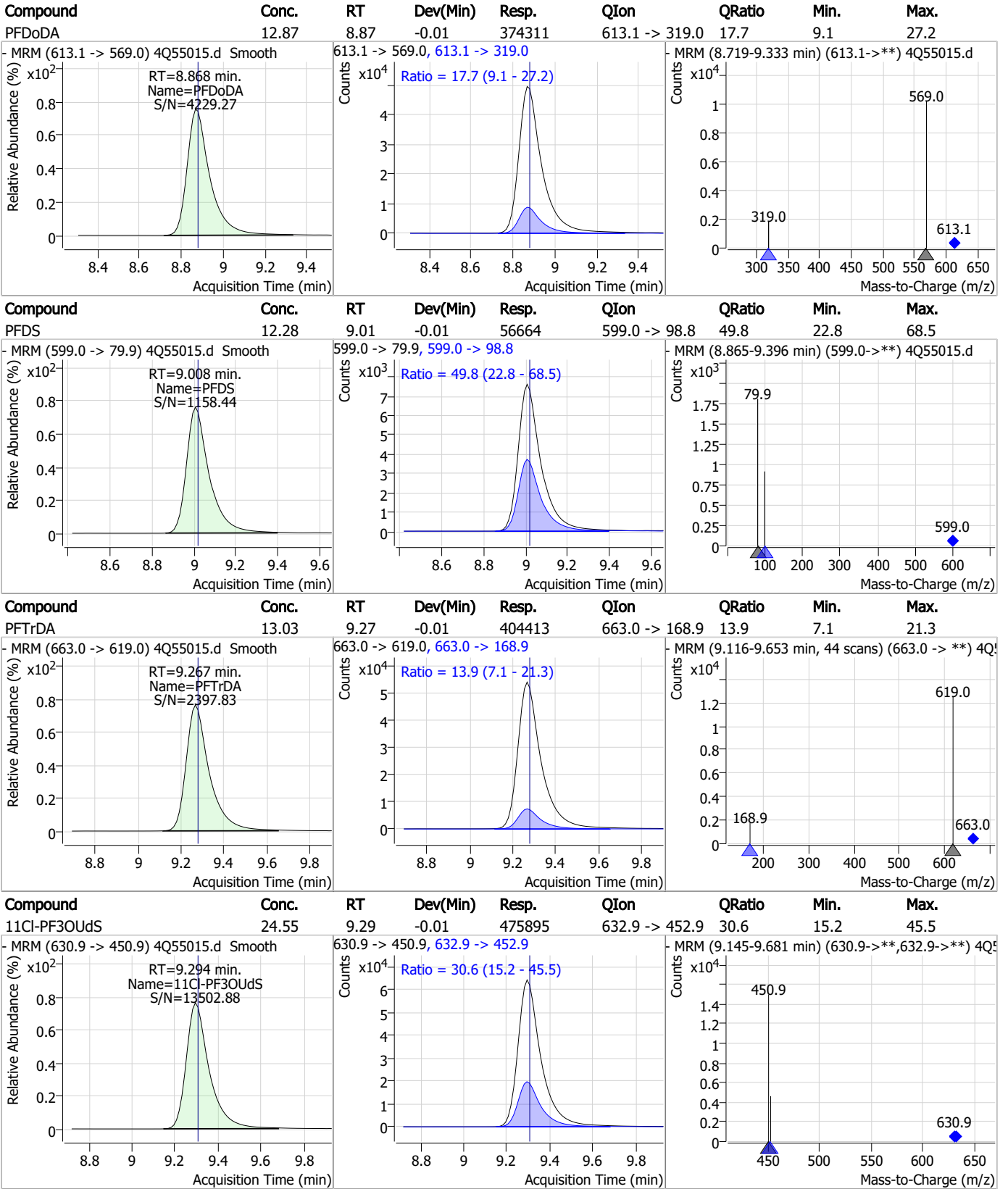
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	12.75	8.59	0.00	38238	548.8 -> 98.9	52.5	24.1	72.2



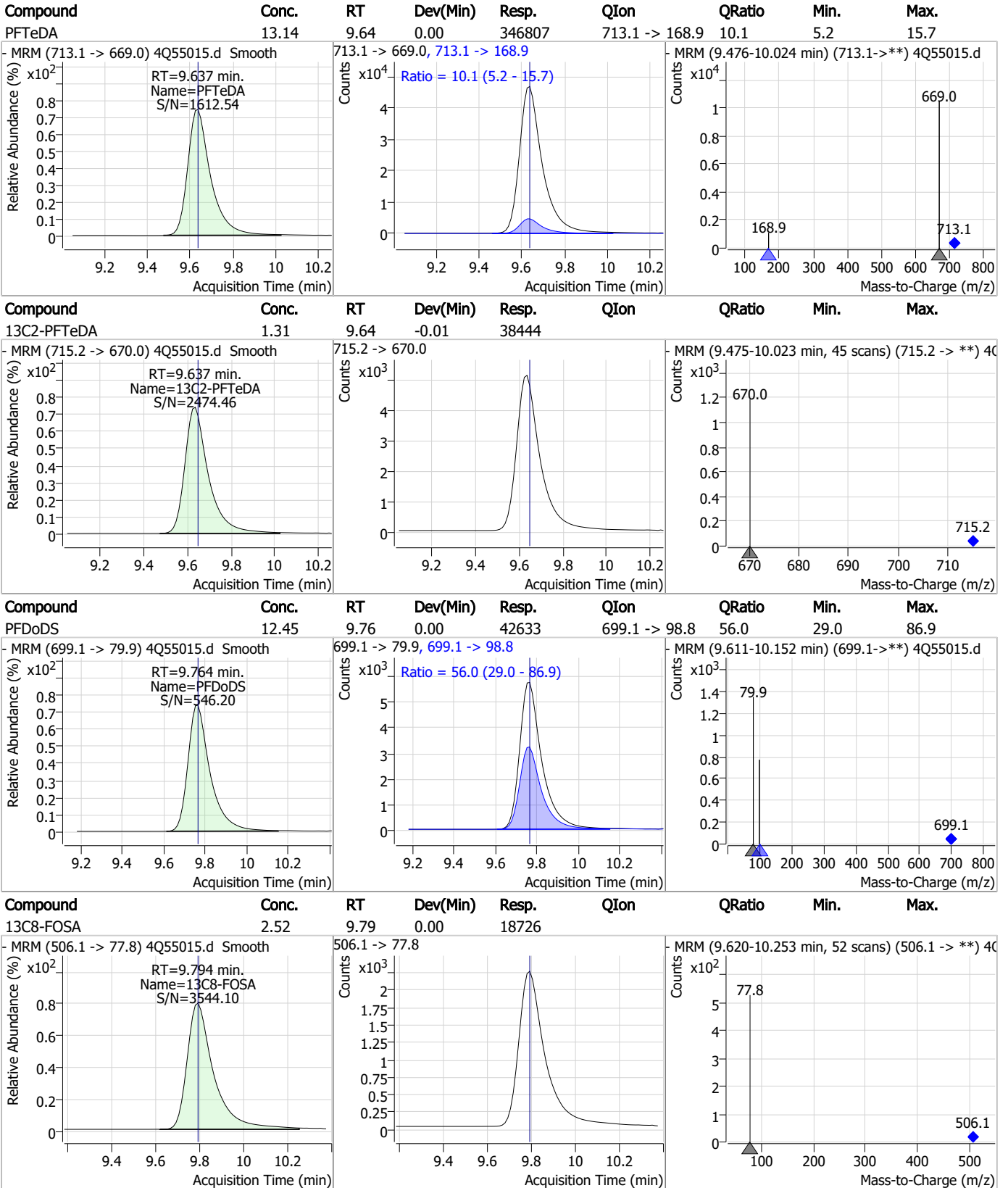
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.31	8.87	-0.01	39306	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

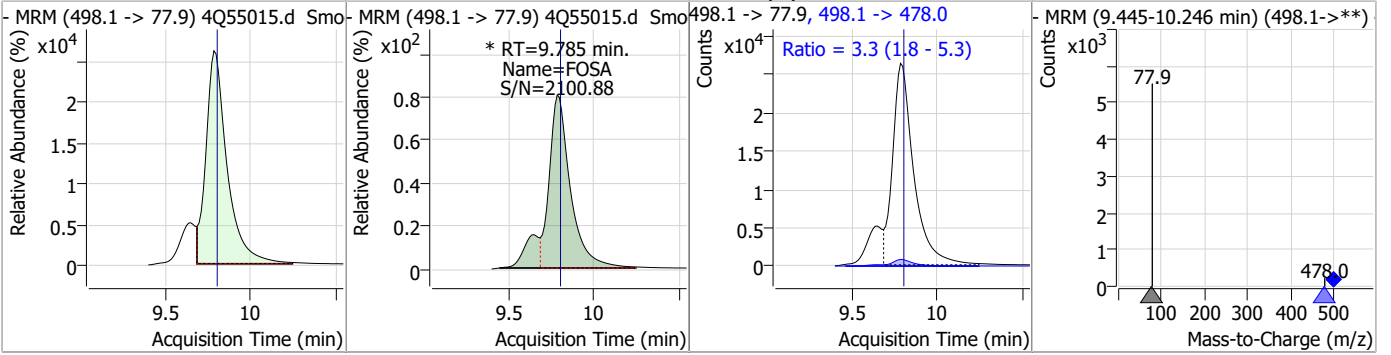


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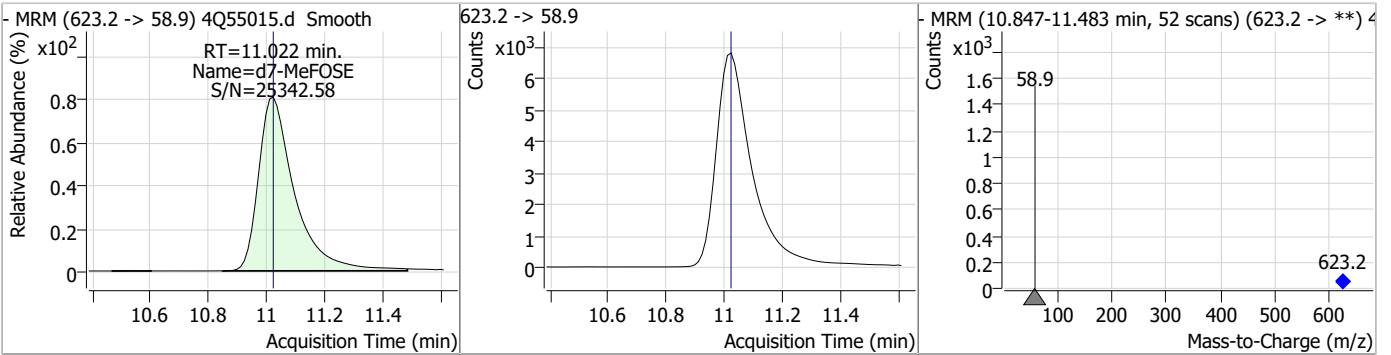
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Perfluorinated Compounds by LC/MS/MS

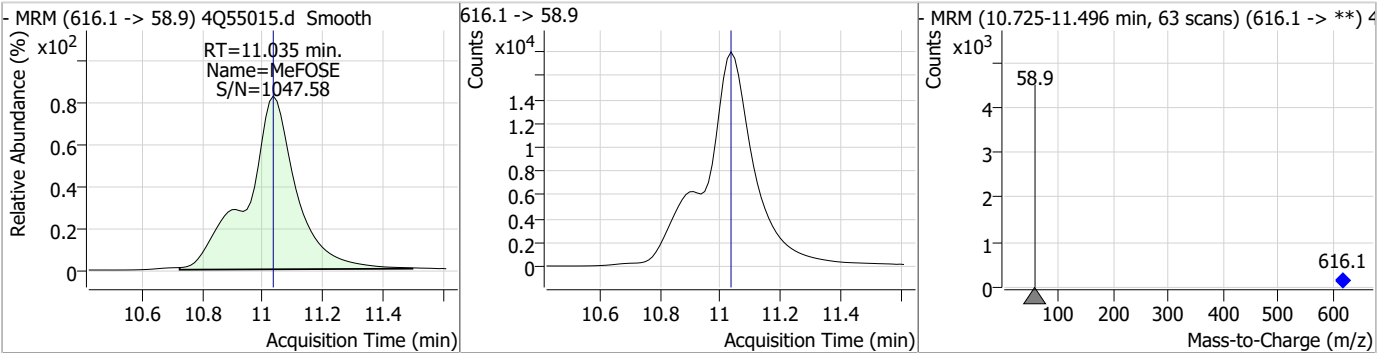
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	30.37	9.79	-0.01	257767 (m)	498.1 -> 478.0	3.3	1.8	5.3



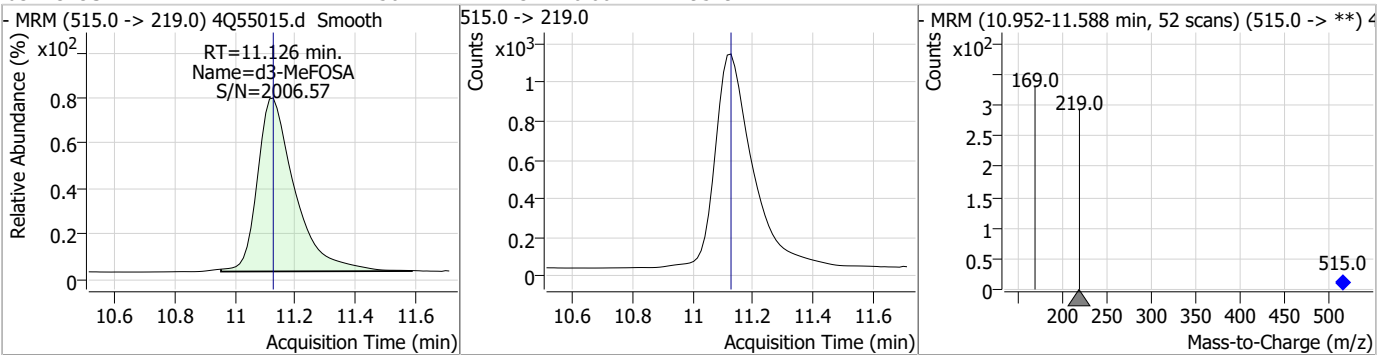
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.75	11.02	0.00	58181				



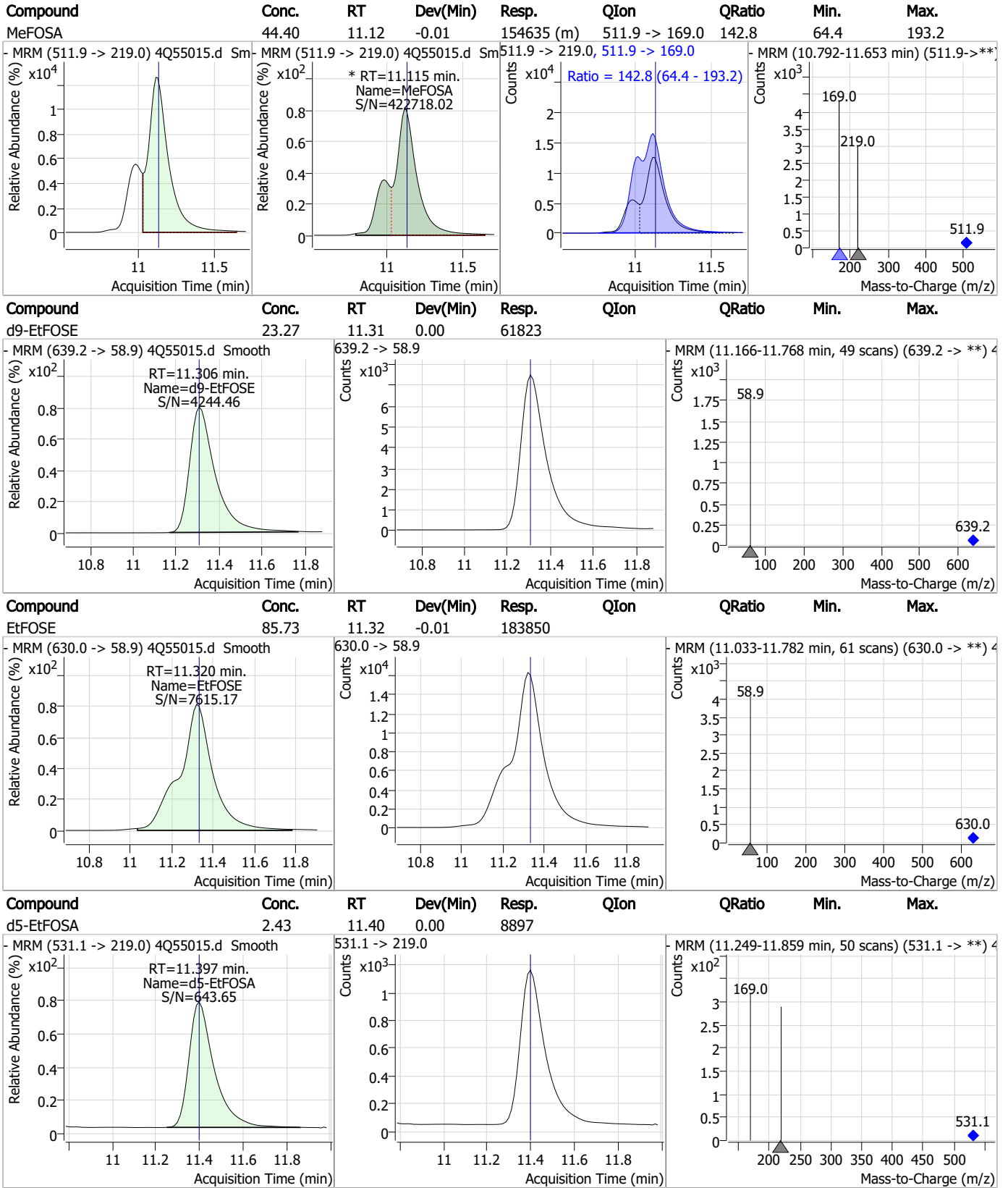
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	90.76	11.03	0.00	205685				



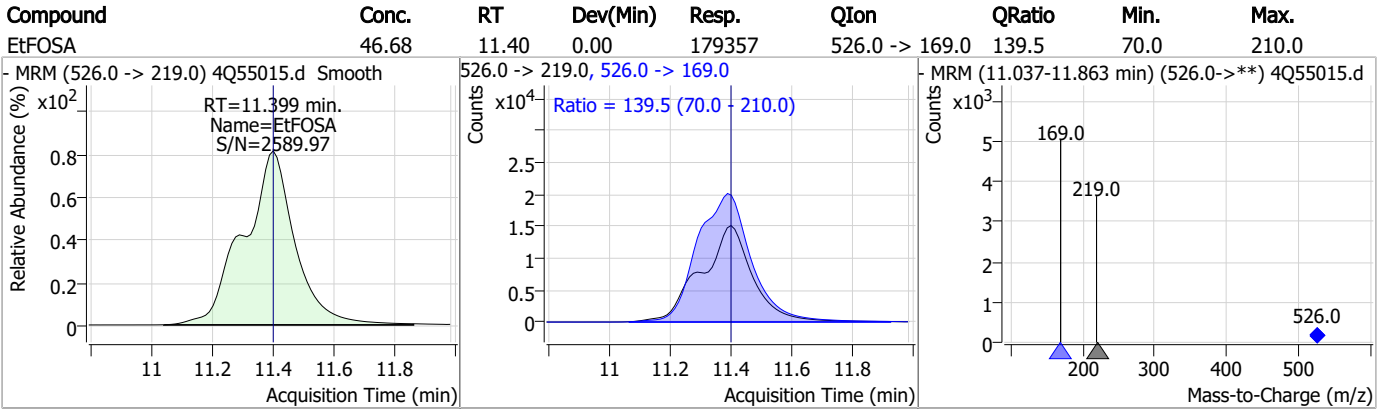
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.50	11.13	0.00	9529				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q806-RT Method: EPA DRAFT 1633
Lab FileID: 4Q55015.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 14:26 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.98	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
Perfluorononanoic acid	375-95-1		7.38	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
PFOSA	754-91-6		9.79	Split peak
MeFOSA	31506-32-8		11.12	Split peak

7.6.2.1
7

QQQ Check Tune Report



Instrument Name LCMS4-Q
MS Model G6470A
MS Instrument Serial SG2004G105
Software_Firmware Version 10.0.142, FW: A.00.08.100
Tune Date & Time 11 December 2023 10:09:12
Data Path D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.67E+0 [R] (Torr); 3.50E-5 [H] (Torr)

Source Parameters

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

7.7.1

7

QQQ Check Tune Report



Negative Results

Analyzer: MS1 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.99	0.00	Pass	0.70	0.75	0.05	Pass	55023
302.00	302.00	0.00	Pass	0.70	0.71	0.01	Pass	77150
601.98	602.01	0.03	Pass	0.70	0.70	0.00	Pass	345865
1033.99	1034.02	0.03	Pass	0.70	0.70	0.00	Pass	215639
1633.95	1633.99	0.04	Pass	0.70	0.71	0.01	Pass	494607
2233.91	2233.92	0.01	Pass	0.70	0.74	0.04	Pass	245378

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.09	0.09	Pass	0.70	0.59	-0.11	Pass	11667
112.99	112.99	0.00	Pass	0.70	0.67	-0.03	Pass	41756
302.00	302.01	0.01	Pass	0.70	0.68	-0.02	Pass	67406
601.98	601.98	0.00	Pass	0.70	0.69	-0.01	Pass	204691
1033.99	1033.99	0.00	Pass	0.70	0.67	-0.03	Pass	147228
1633.95	1633.95	0.00	Pass	0.70	0.69	-0.01	Pass	339422
2233.91	2233.92	0.01	Pass	0.70	0.73	0.03	Pass	237901

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.81	-0.18	Pass	1.20	1.63	0.43	Pass	82185
302.00	301.84	-0.16	Pass	1.20	1.26	0.06	Pass	112502
601.98	601.87	-0.11	Pass	1.20	1.14	-0.06	Pass	485105
1033.99	1033.96	-0.03	Pass	1.20	1.13	-0.07	Pass	330359
1633.95	1633.97	0.02	Pass	1.20	1.15	-0.05	Pass	953809
2233.91	2233.97	0.06	Pass	1.20	1.14	-0.06	Pass	527691

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.10	0.10	Pass	1.20	1.04	-0.16	Pass	16562
112.99	113.01	0.02	Pass	1.20	1.18	-0.02	Pass	57954
302.00	301.99	-0.01	Pass	1.20	1.32	0.12	Pass	102497
601.98	601.97	-0.01	Pass	1.20	1.41	0.21	Pass	402338
1033.99	1033.99	0.00	Pass	1.20	1.50	0.30	Pass	309873
1633.95	1633.93	-0.02	Pass	1.20	1.46	0.26	Pass	1105743
2233.91	2233.96	0.05	Pass	1.20	1.39	0.19	Pass	554560

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.69	-0.30	Pass	2.50	2.92	0.42	Pass	95085
302.00	301.76	-0.24	Pass	2.50	2.55	0.05	Pass	147873
601.98	601.76	-0.22	Pass	2.50	2.58	0.08	Pass	737162
1033.99	1033.47	-0.52	Pass	2.50	2.75	0.25	Pass	646536
1633.95	1633.46	-0.49	Pass	2.50	3.05	0.55	Pass	2652994
2233.91	2233.38	-0.53	Pass	2.50	3.16	0.66	Pass	2053222

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	2.50	2.34	-0.16	Pass	21448
112.99	112.98	-0.01	Pass	2.50	2.48	-0.02	Pass	80555
302.00	302.01	0.01	Pass	2.50	2.58	0.08	Pass	136634
601.98	601.97	-0.01	Pass	2.50	2.59	0.09	Pass	629641
1033.99	1034.01	0.02	Pass	2.50	2.68	0.18	Pass	536261
1633.95	1634.02	0.07	Pass	2.50	2.49	-0.01	Pass	2332875
2233.91	2233.95	0.04	Pass	2.50	2.29	-0.21	Pass	1911094

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55017.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 2:55:38 PM
 Sample Name : ic806-1
 Vial : P1-A2
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.686	216.8 -> 171.9	165194	10.00 µg/L	-0.013
M5-PFPeA	4.175	268.3 -> 223.0	76447	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	64944	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	63558	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	99610	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	37638	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	25435	1.25 µg/L	0.000
M7-PFUnDA	8.449	570.0 -> 525.1	31434	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	32859	1.25 µg/L	0.000
M2-PFTeDA	9.637	715.2 -> 670.0	32034	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	16195	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	18454	2.50 µg/L	0.000
M3-PFHxS	7.042	402.1 -> 79.9	14599	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	15144	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	2166	5.00 µg/L	0.000
M2-6:2FTS	6.761	429.1 -> 80.9	4177	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	5701	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	32818	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	59546	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	25667	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	57961	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	57583	25.00 µg/L	0.000
M5-EtFOSA	11.398	531.1 -> 219.0	7433	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7820	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	12056	2.50 µg/L	0.000
13C3-PFBA	2.691	216.0 -> 172.0	76865	5.00 µg/L	-0.013
18O2-PFHxS	7.041	403.0 -> 83.9	9356	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	107883	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	27565	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	37607	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	67975	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	2166	5.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.6%		
13C2-6:2FTS	6.761	429.1 -> 80.9	4177	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-8:2FTS	7.804	529.1 -> 80.9	5701	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-PFDoDA	8.880	615.1 -> 570.0	32859	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C2-PFTeDA	9.637	715.2 -> 670.0	32034	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C3-PFBS	5.202	302.1 -> 79.9	18454	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-PFHxS	7.042	402.1 -> 79.9	14599	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	2.686	216.8 -> 171.9	165194	9.98 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.292	367.1 -> 322.0	63558	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C5-PFHxA	5.347	318.0 -> 273.0	64944	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%	
13C5-PFPeA	4.175	268.3 -> 223.0	76447	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C6-PFDA	8.004	519.1 -> 474.1	25435	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C7-PFUnDA	8.449	570.0 -> 525.1	31434	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.8%	
13C8-FOSA	9.794	506.1 -> 77.8	16195	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C8-PFOA	6.976	421.1 -> 376.0	99610	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOS	8.117	507.1 -> 79.9	15144	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C9-PFNA	7.521	472.1 -> 427.0	37638	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSAA	8.086	573.2 -> 419.0	32818	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	59546	10.28 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.8%	
d3-MeFOSA	11.126	515.0 -> 219.0	7820	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.4%	
d5-EtFOSAA	8.283	589.2 -> 419.0	25667	4.92 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
d7-MeFOSE	11.022	623.2 -> 58.9	57961	23.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
d9-EtFOSE	11.306	639.2 -> 58.9	57583	23.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
d5-EtFOSA	11.398	531.1 -> 219.0	7433	2.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.5%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	2566	0.65 µg/L	97
		327.1 -> 80.9	1085		
6:2FTS	6.761	427.1 -> 407.0	3788	0.85 µg/L	93
		427.1 -> 80.9	1273		
8:2FTS	7.804	527.1 -> 507.0	2495	0.81 µg/L	97
		527.1 -> 80.8	1060		
EtFOSAA	8.297	584.2 -> 419.1	904	0.20 µg/L	m 95
		584.2 -> 526.0	395		
FOSA	9.798	498.1 -> 77.9	1525	0.21 µg/L	99
		498.1 -> 478.0	49		
MeFOSAA	8.087	570.1 -> 419.0	923	0.18 µg/L	m 94
		570.1 -> 483.0	179		
PFBA	2.682	212.8 -> 168.9	4071	0.78 µg/L	100
PFBS	5.203	298.7 -> 79.9	967	0.17 µg/L	96
		298.7 -> 98.8	402		
PFDA	8.005	512.9 -> 469.0	4369	0.24 µg/L	82
		512.9 -> 219.0	604		
PFDODA	8.880	613.1 -> 569.0	4240	0.17 µg/L	96
		613.1 -> 319.0	843		
PFDS	9.020	599.0 -> 79.9	766	0.19 µg/L	88

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	410			
PFHpA	6.305	363.1 -> 319.0	6262	0.17	µg/L	96
		363.1 -> 169.0	1231			
PFHpS	7.624	449.0 -> 79.9	1128	0.18	µg/L	97
		449.0 -> 98.9	608			
PFHxA	5.350	313.0 -> 269.0	4177	0.20	µg/L	98
		313.0 -> 118.9	98			
PFHxS	7.043	398.7 -> 79.9	837	0.18	µg/L	m 91
		398.7 -> 98.9	445			
PFNA	7.522	463.0 -> 419.0	4973	0.22	µg/L	93
		463.0 -> 219.0	1031			
PFNS	8.586	548.8 -> 79.9	531	0.20	µg/L	83
		548.8 -> 98.9	317			
PFOA	6.978	413.0 -> 369.0	8894	0.21	µg/L	97
		413.0 -> 169.0	1709			
PFOS	8.119	498.9 -> 79.9	1349	0.22	µg/L	m 85
		498.9 -> 98.8	628			
PFPeA	4.177	263.0 -> 219.0	5554	0.37	µg/L	100
PFPeS	6.294	349.1 -> 79.9	890	0.18	µg/L	99
		349.1 -> 98.9	375			
PFTeDA	9.650	713.1 -> 669.0	3783	0.17	µg/L	94
		713.1 -> 168.9	477			
PFTrDA	9.279	663.0 -> 619.0	4970	0.19	µg/L	99
		663.0 -> 168.9	686			
PFUnDA	8.449	563.1 -> 519.0	4465	0.19	µg/L	97
		563.1 -> 269.1	924			
11Cl-PF3OUdS	9.306	630.9 -> 450.9	5907	0.37	µg/L	99
		632.9 -> 452.9	1820			
9Cl-PF3ONS	8.451	530.8 -> 351.0	5774	0.38	µg/L	95
		532.8 -> 353.0	1651			
ADONA	6.568	376.9 -> 250.9	16422	0.38	µg/L	96
		376.9 -> 84.8	4275			
HFPO-DA	5.703	284.9 -> 168.9	2088	0.37	µg/L	99
		284.9 -> 184.9	211			
3:3FTCA	3.630	241.0 -> 177.0	601	0.90	µg/L	91
		241.0 -> 117.0	74			
5:3FTCA	6.020	341.0 -> 237.1	12288	4.65	µg/L	97
		341.0 -> 217.0	8586			
7:3FTCA	7.549	441.0 -> 316.9	5626	4.52	µg/L	99
		441.0 -> 336.9	13639			
EtFOSA	11.399	526.0 -> 219.0	1340	0.42	µg/L	98
		526.0 -> 169.0	1850			
EtFOSE	11.332	630.0 -> 58.9	1907	0.95	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	1217	0.43	µg/L	m 93
		511.9 -> 169.0	1660			
MeFOSE	11.035	616.1 -> 58.9	2155	0.95	µg/L	100
PFDoDS	9.765	699.1 -> 79.9	606	0.20	µg/L	90
		699.1 -> 98.8	305			
NFDHA	5.229	295.0 -> 201.0	614	0.44	µg/L	94
		295.0 -> 84.9	144			
PFMBA	4.578	279.0 -> 85.1	3285	0.38	µg/L	100
PFMPA	3.315	229.0 -> 84.9	3187	0.37	µg/L	100
PFEESA	5.734	314.8 -> 134.9	5379	0.35	µg/L	96
		314.8 -> 82.9	118			

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

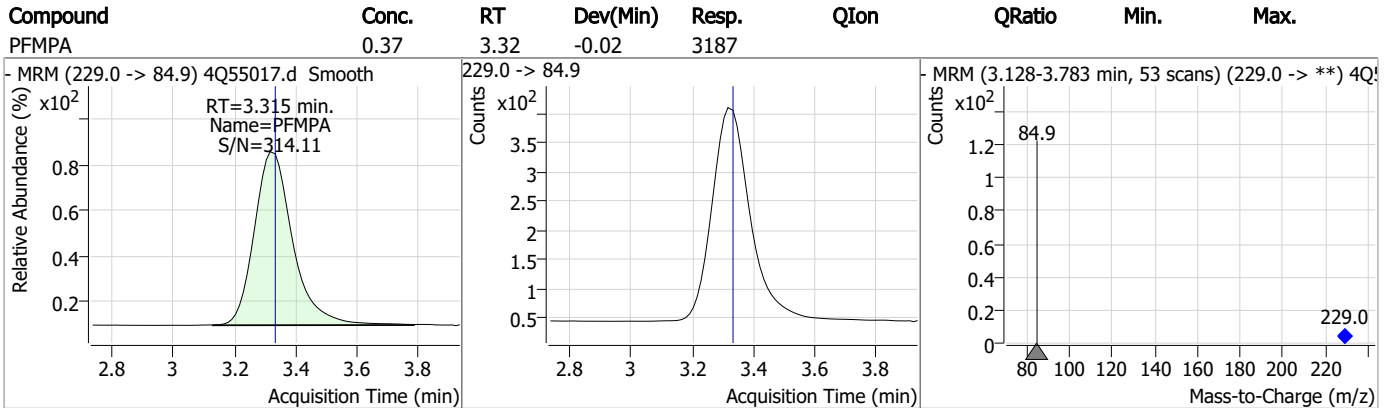
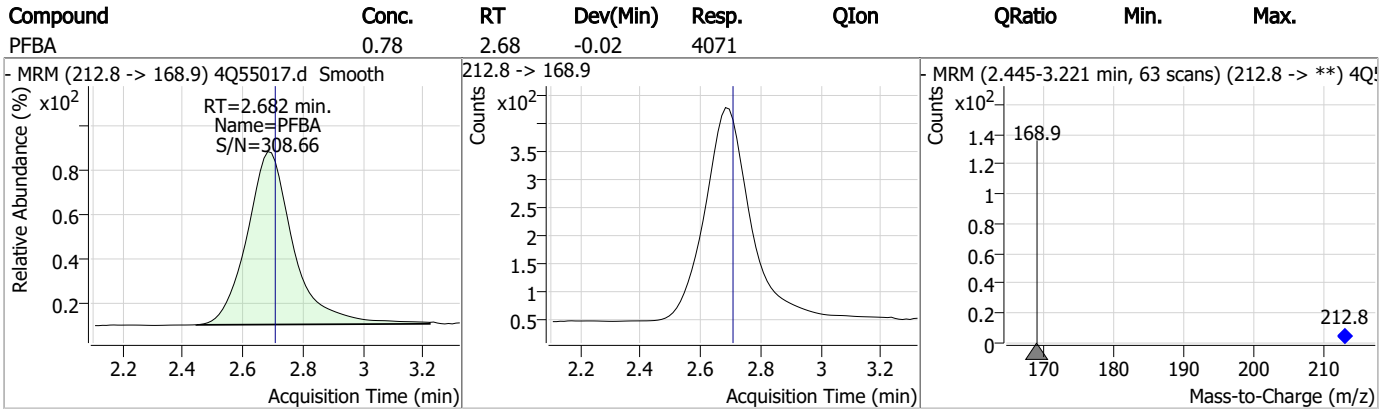
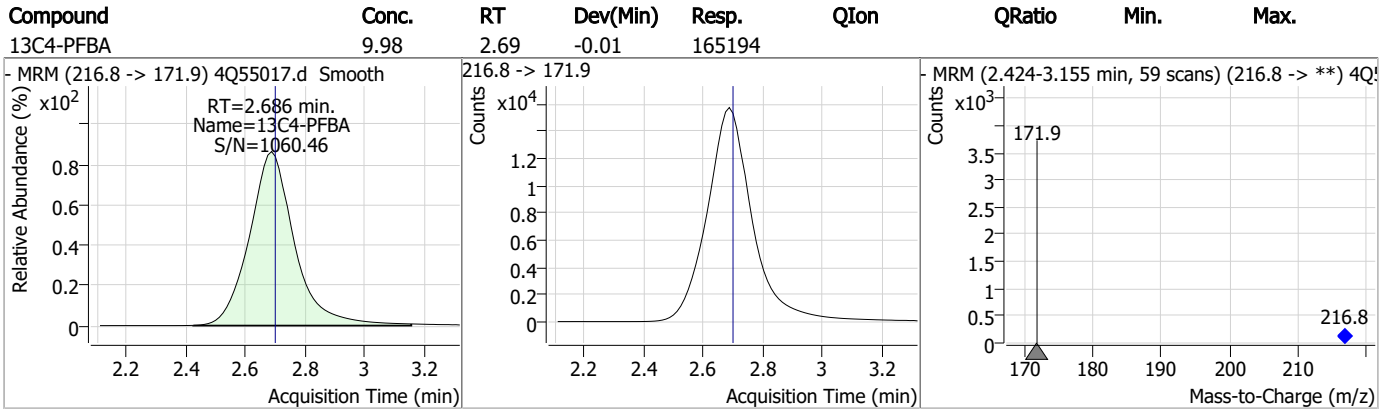
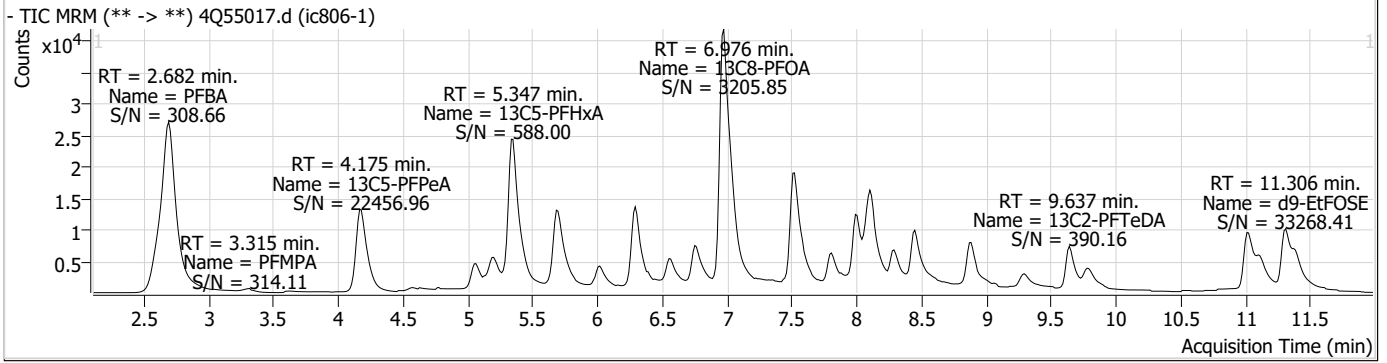
Perfluorinated Compounds by LC/MS/MS

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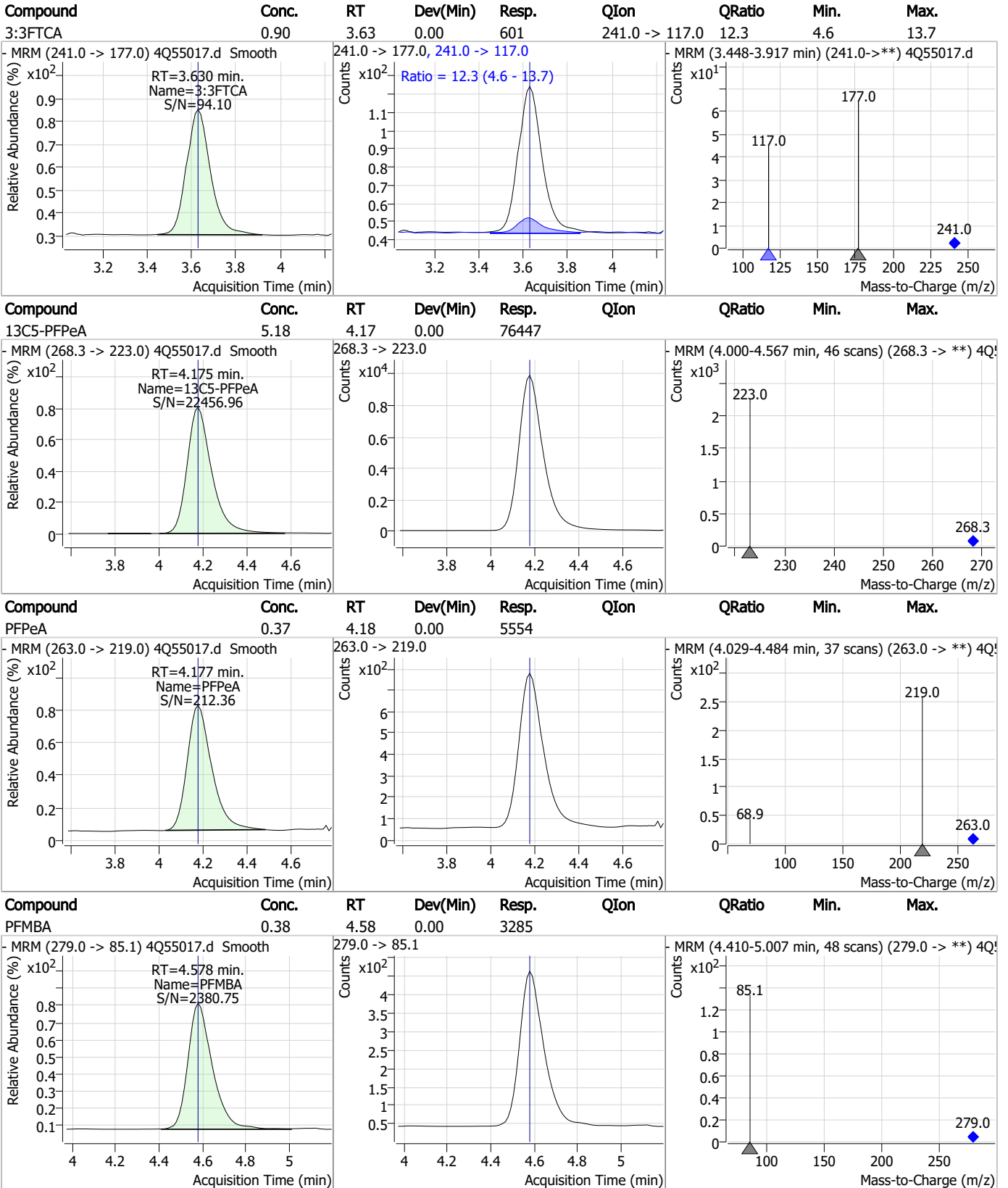
7.7.2
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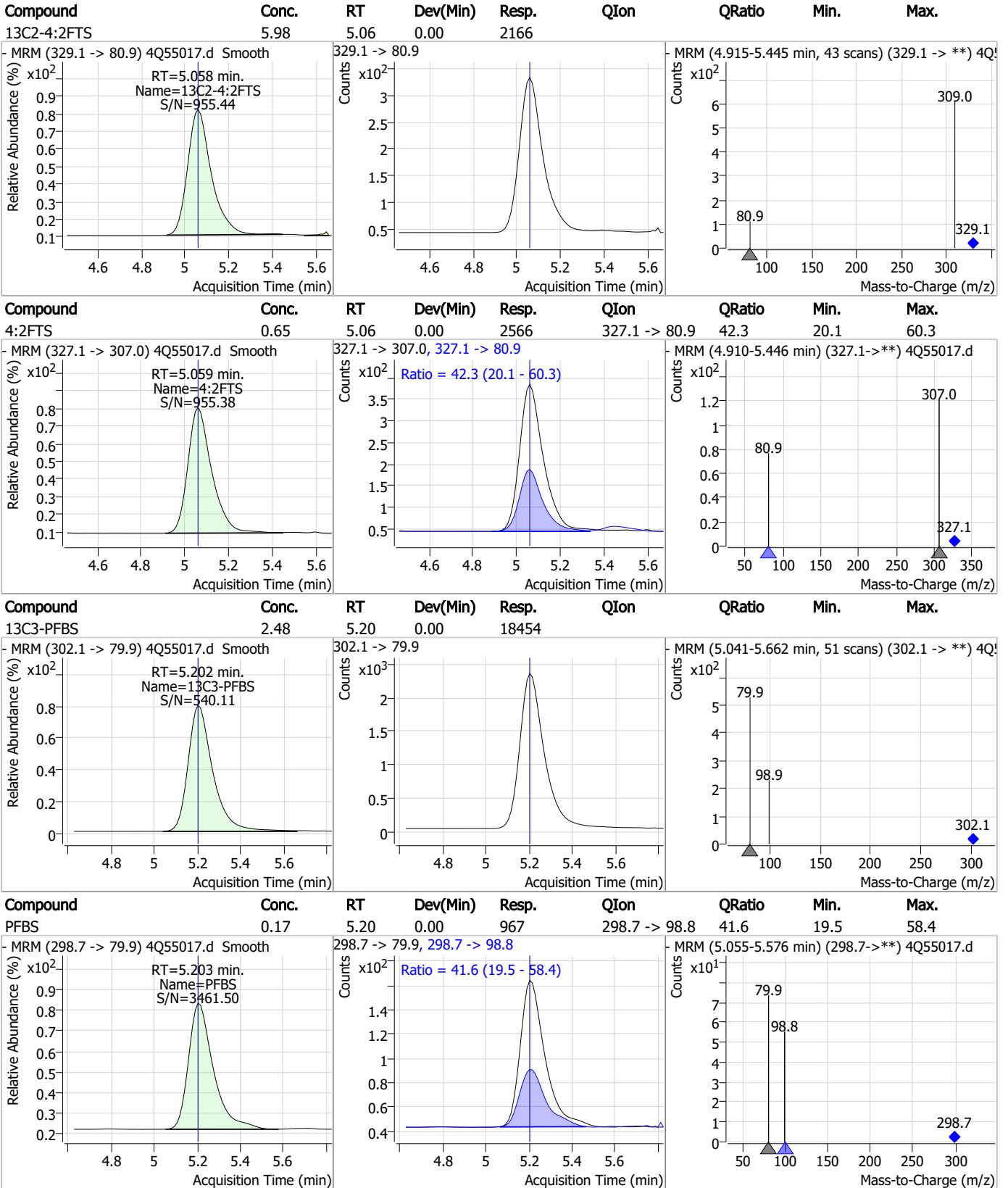
Perfluorinated Compounds by LC/MS/MS



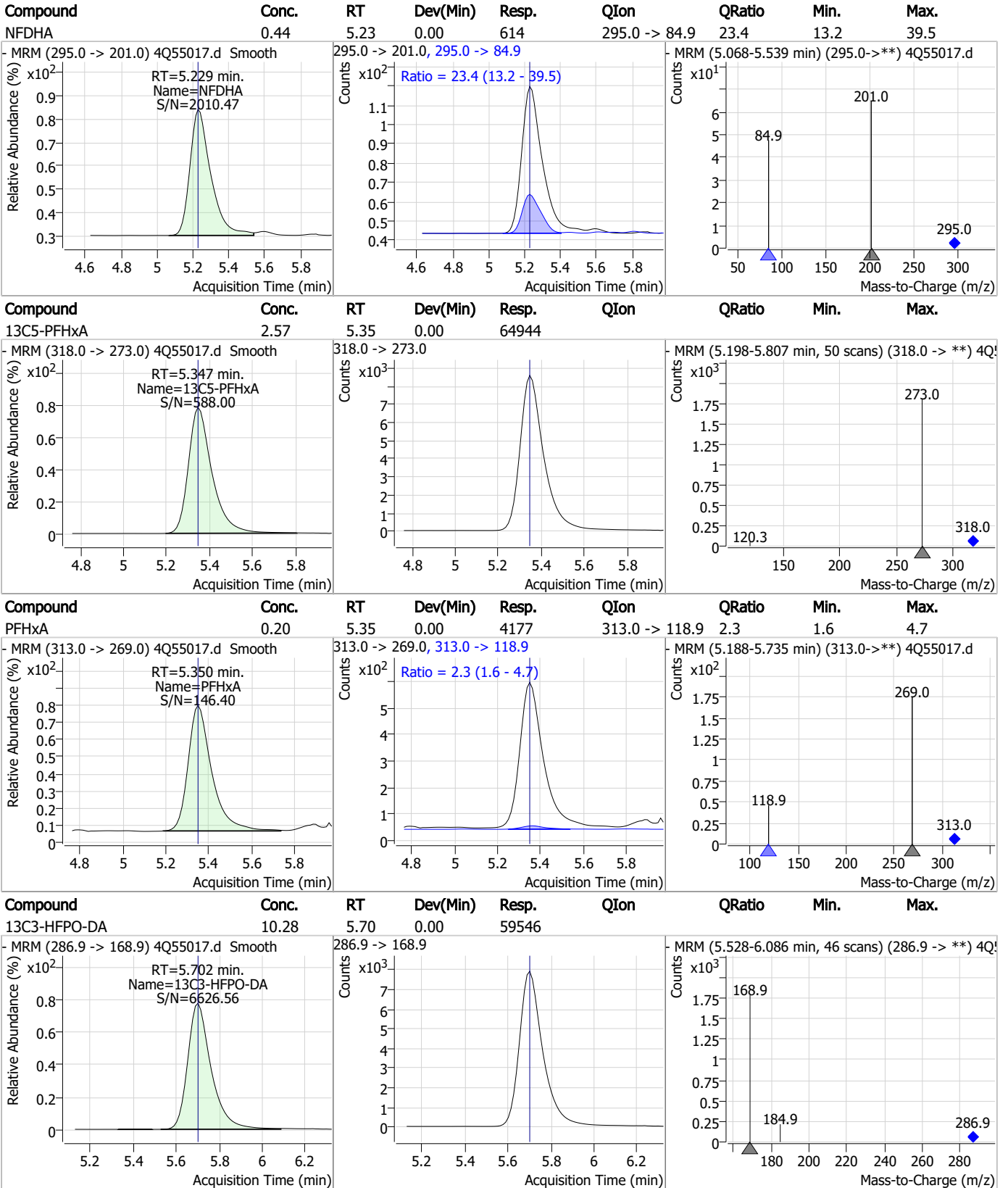
Perfluorinated Compounds by LC/MS/MS



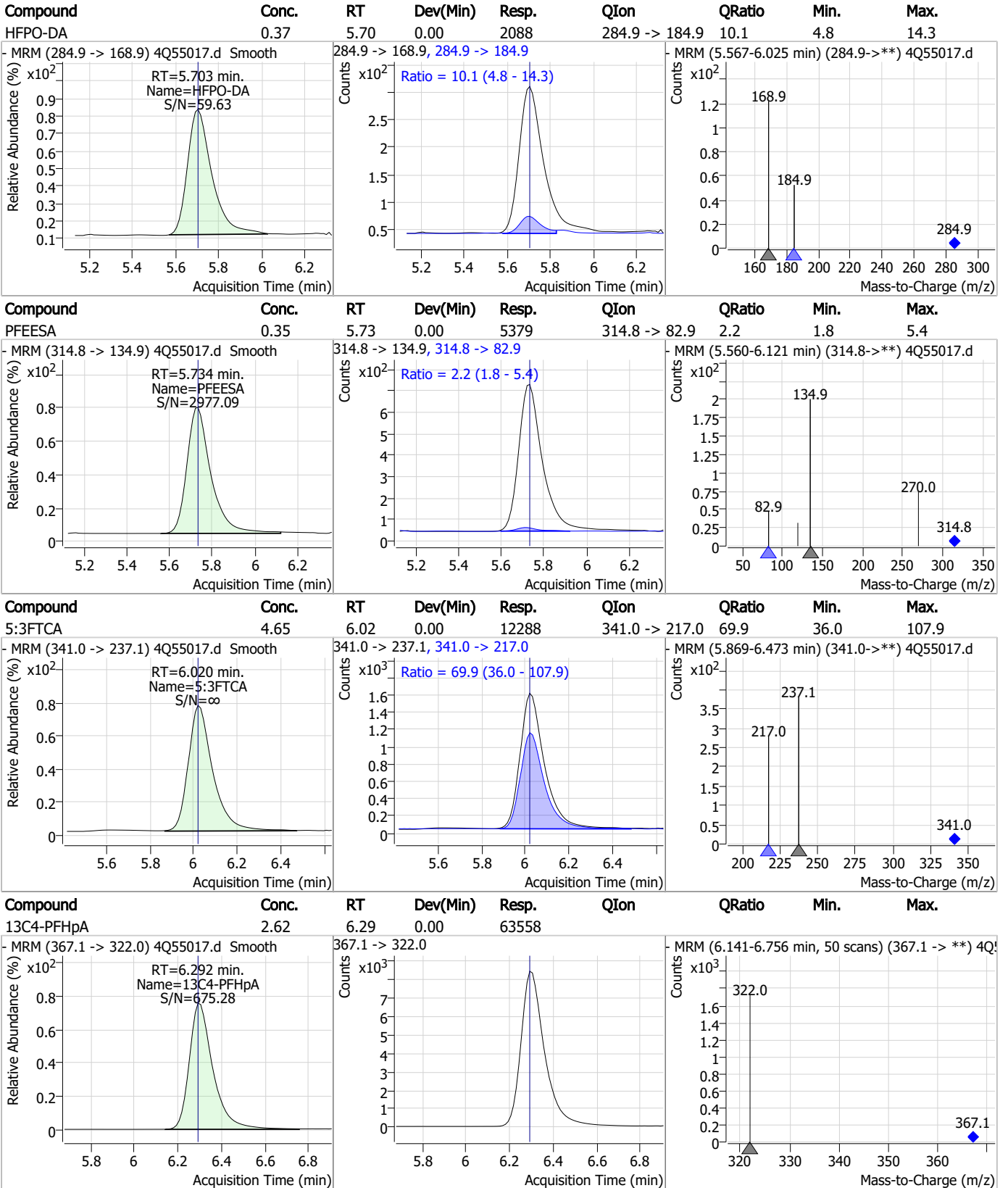
Perfluorinated Compounds by LC/MS/MS



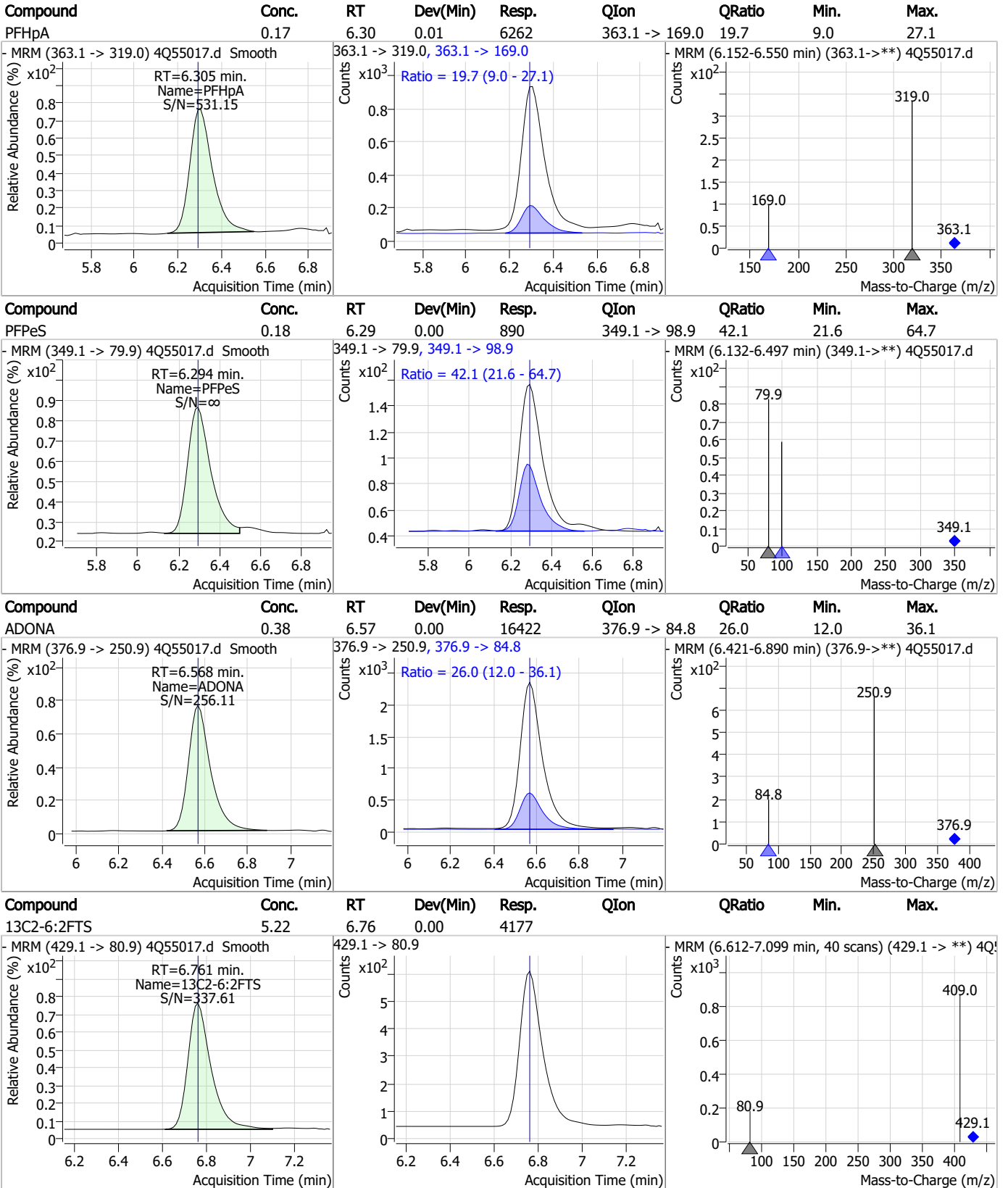
Perfluorinated Compounds by LC/MS/MS



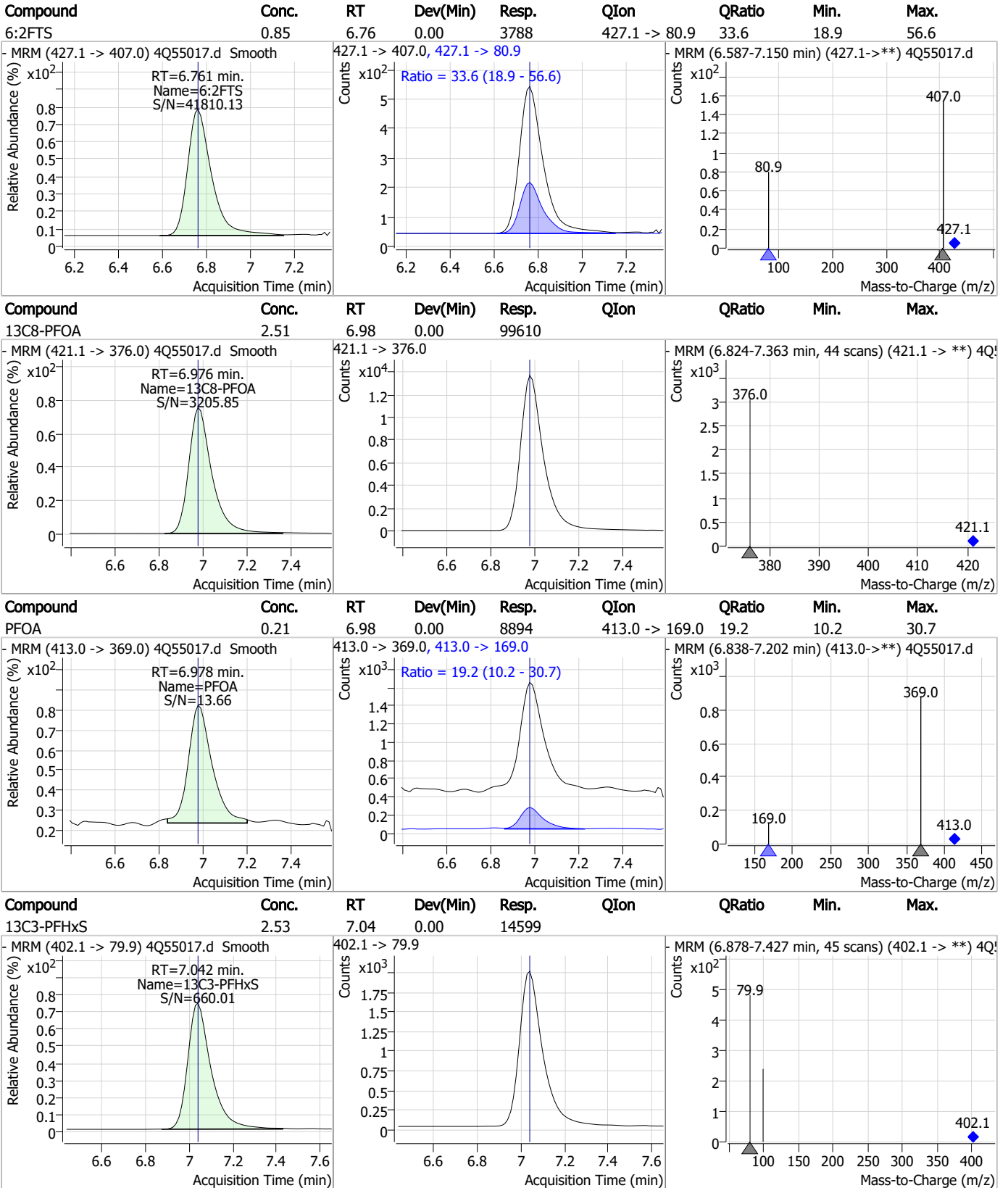
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

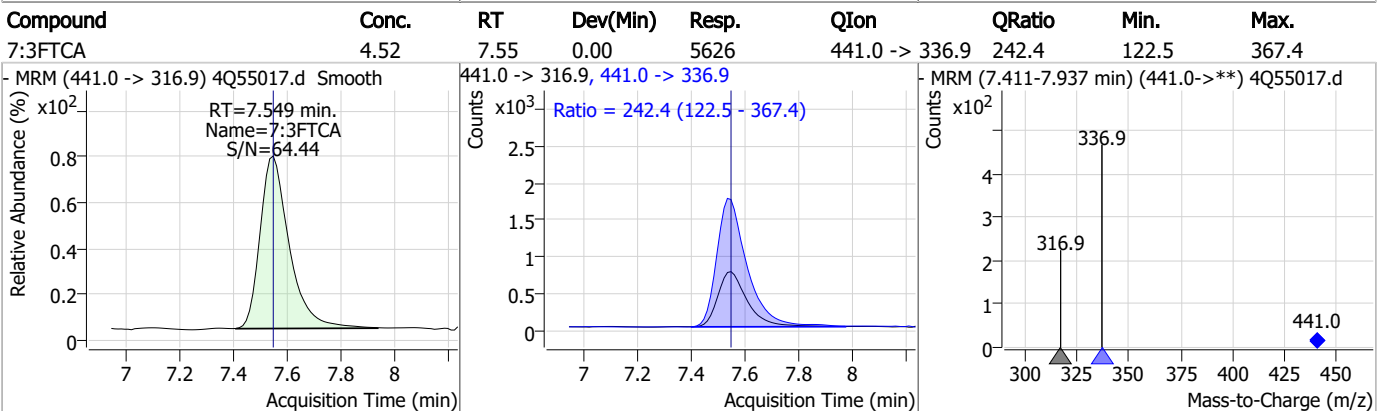
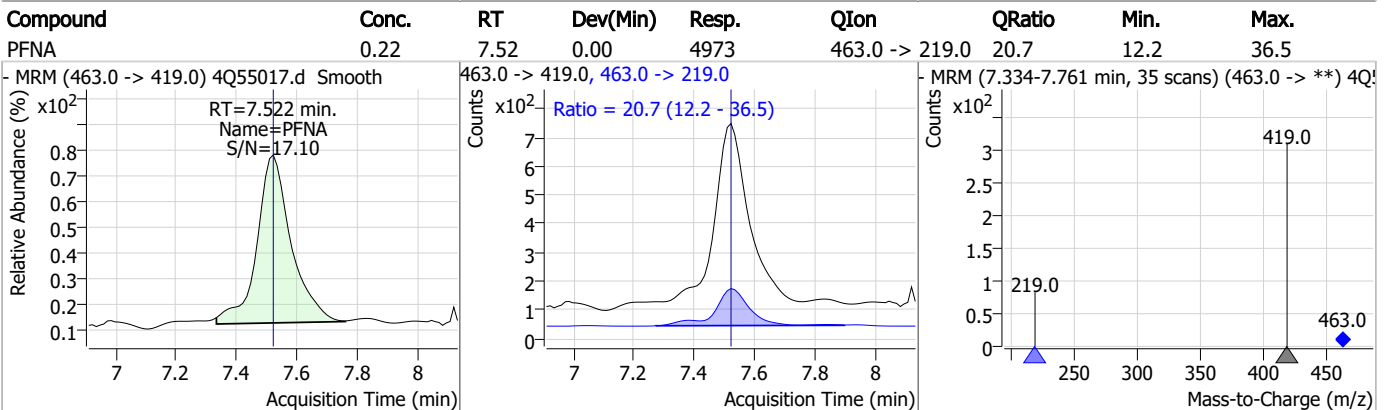
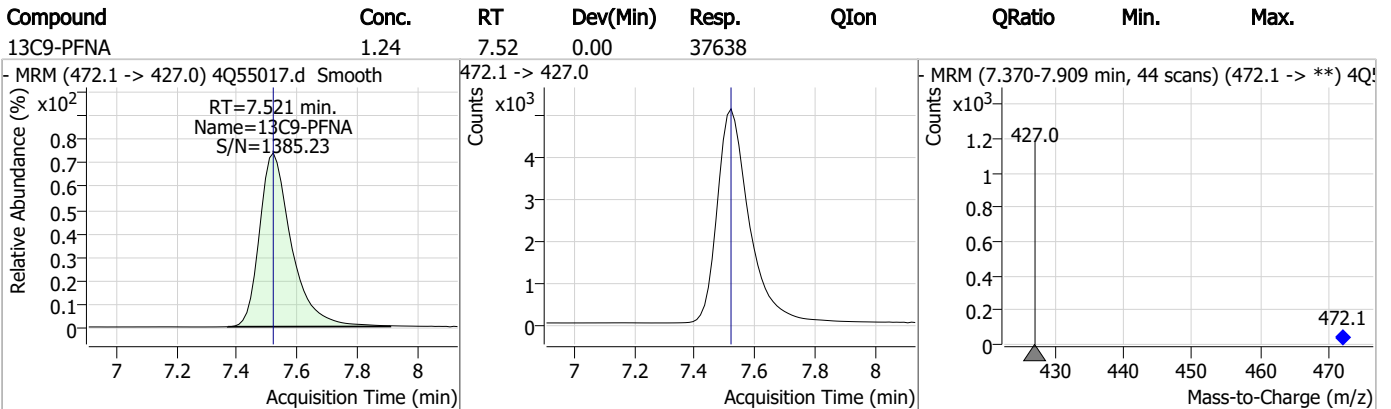
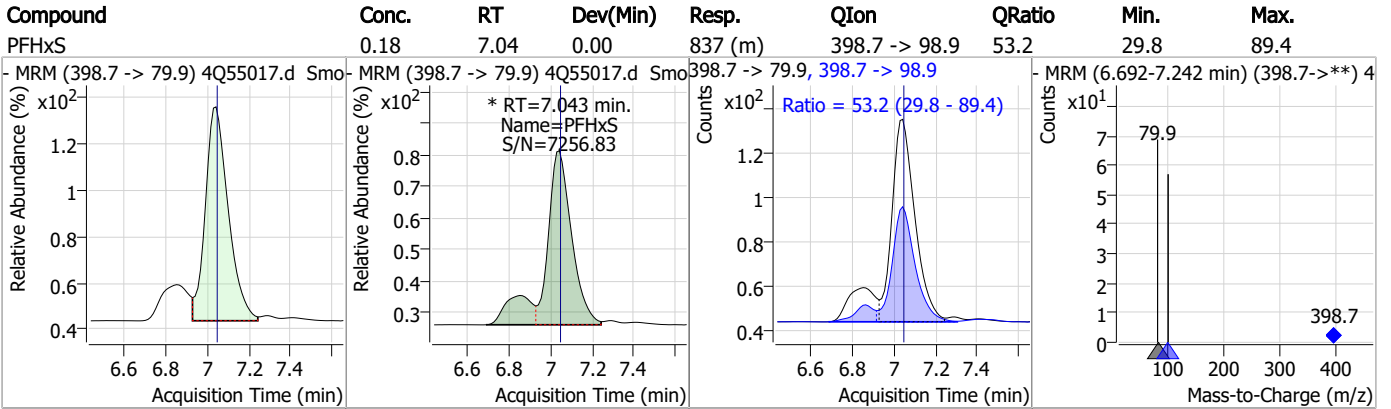


Perfluorinated Compounds by LC/MS/MS

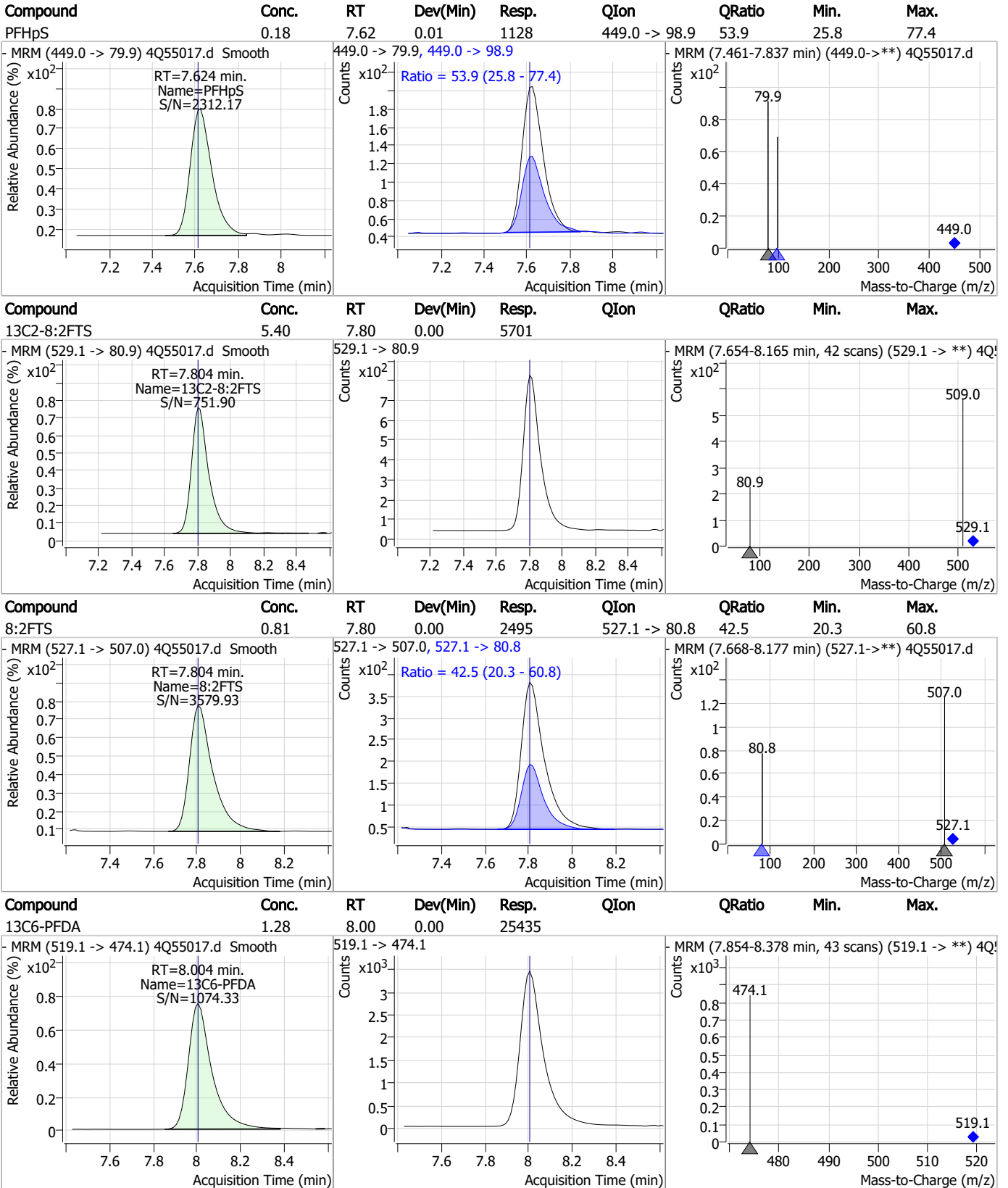


7.7.2
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Perfluorinated Compounds by LC/MS/MS

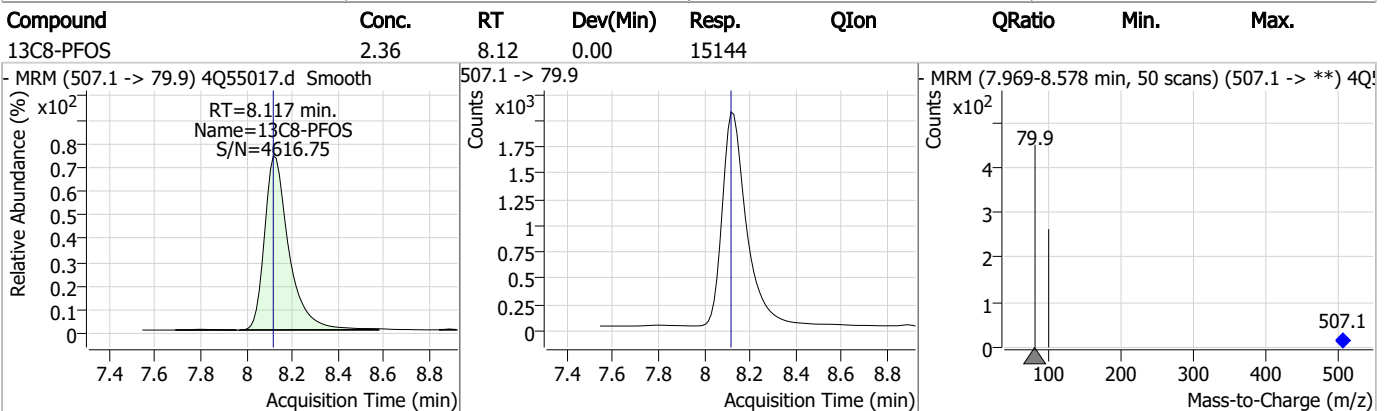
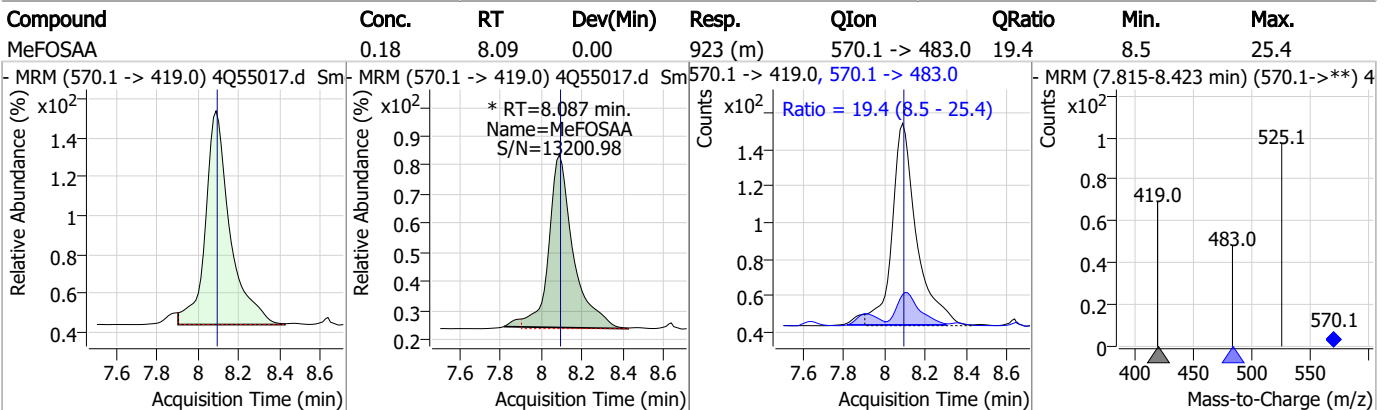
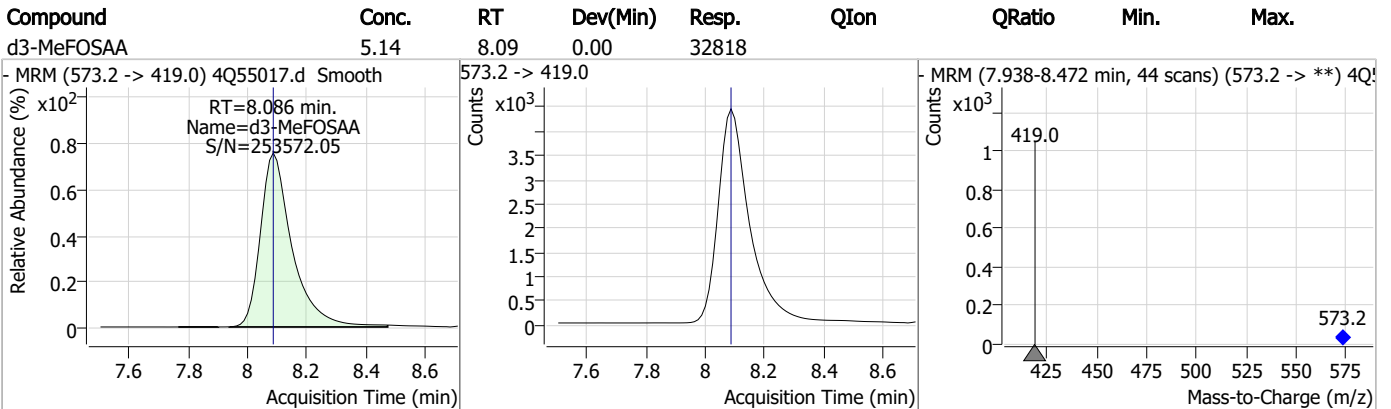
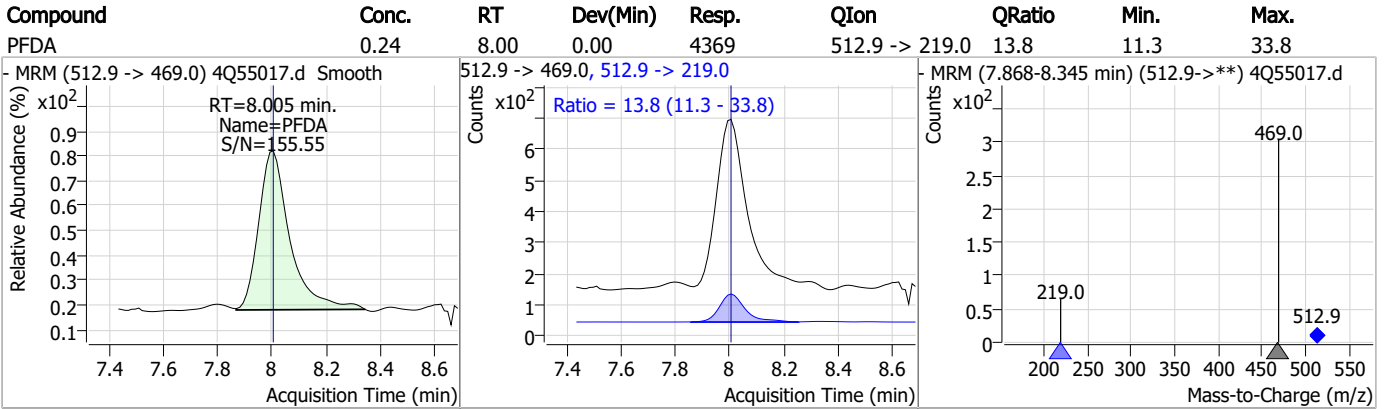


Perfluorinated Compounds by LC/MS/MS



7.7.2
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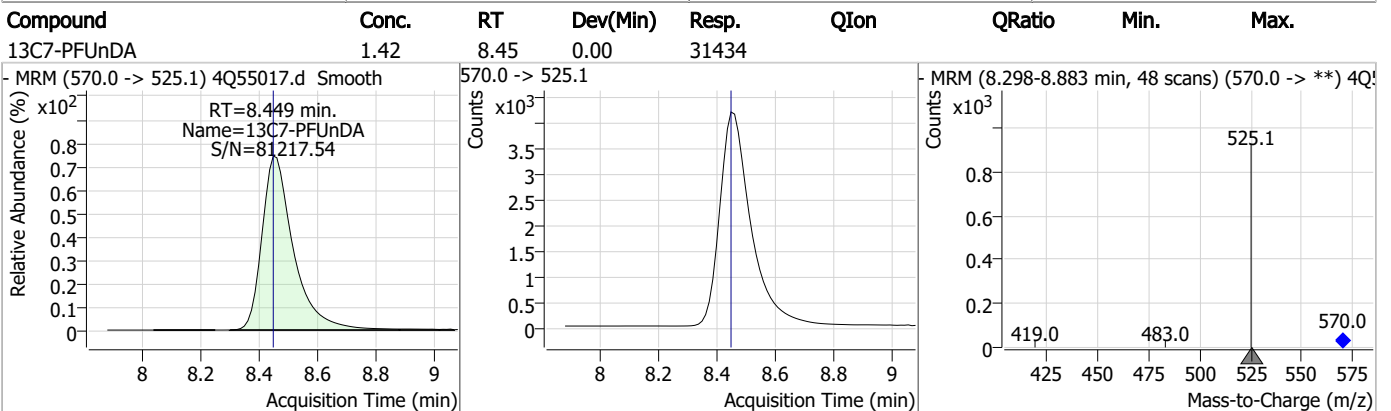
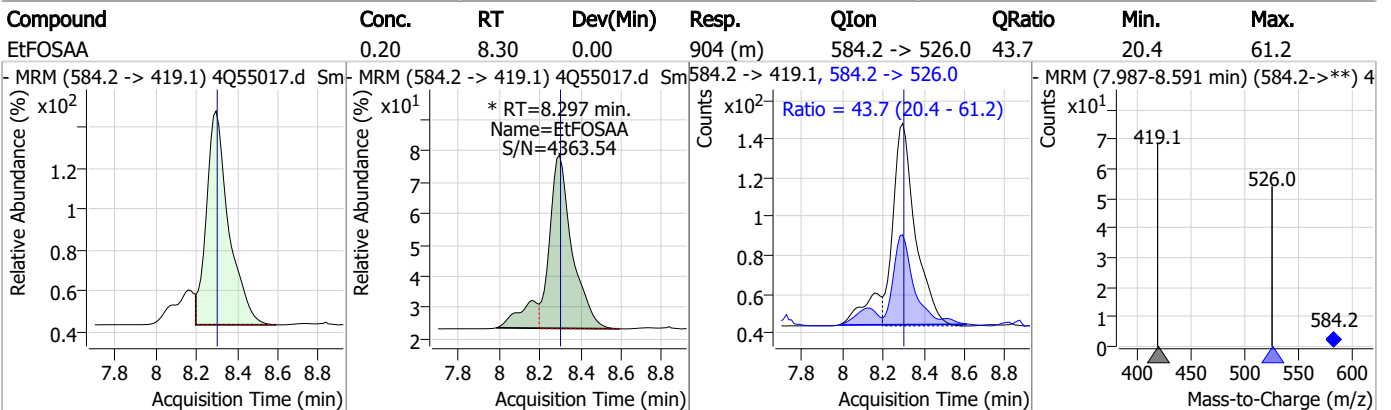
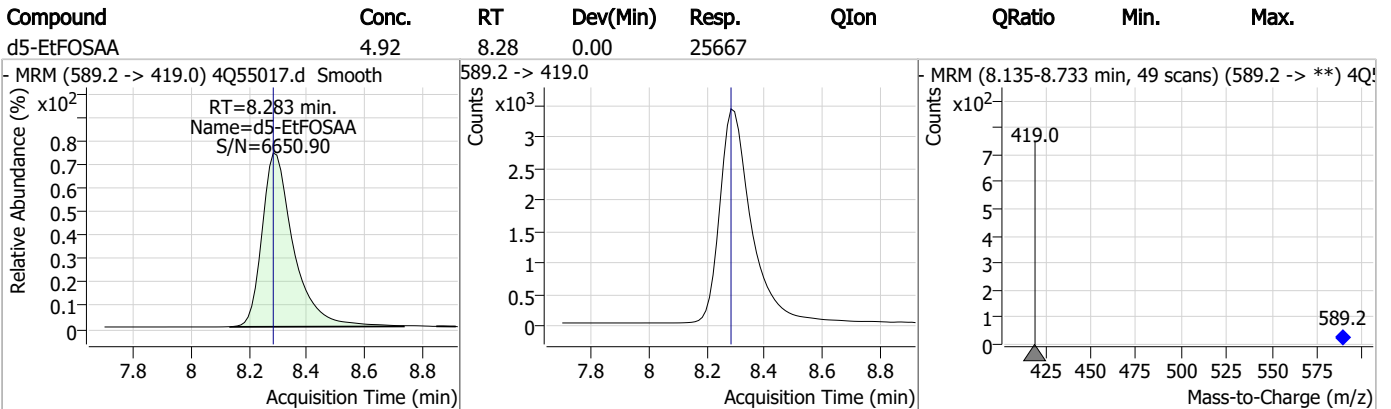
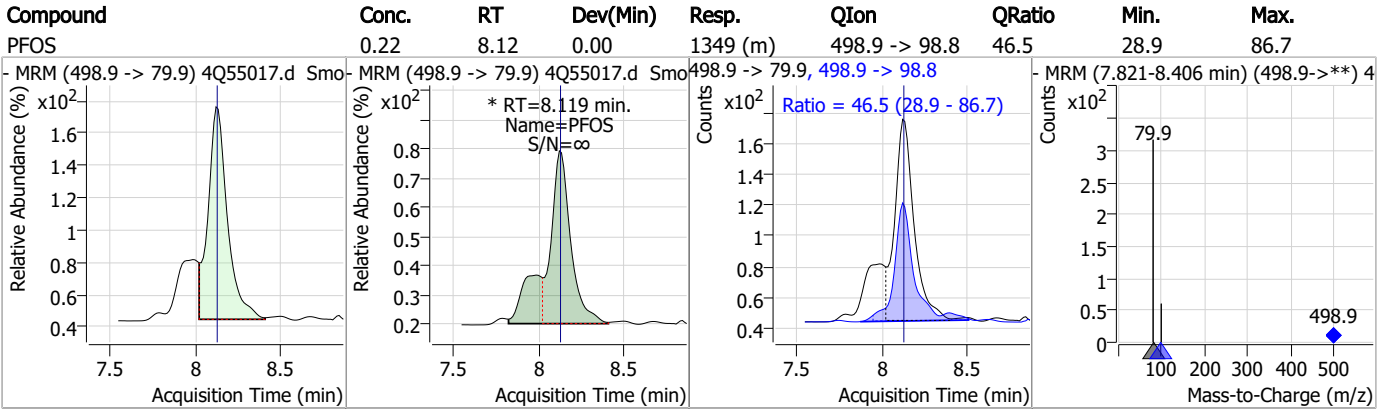
Perfluorinated Compounds by LC/MS/MS



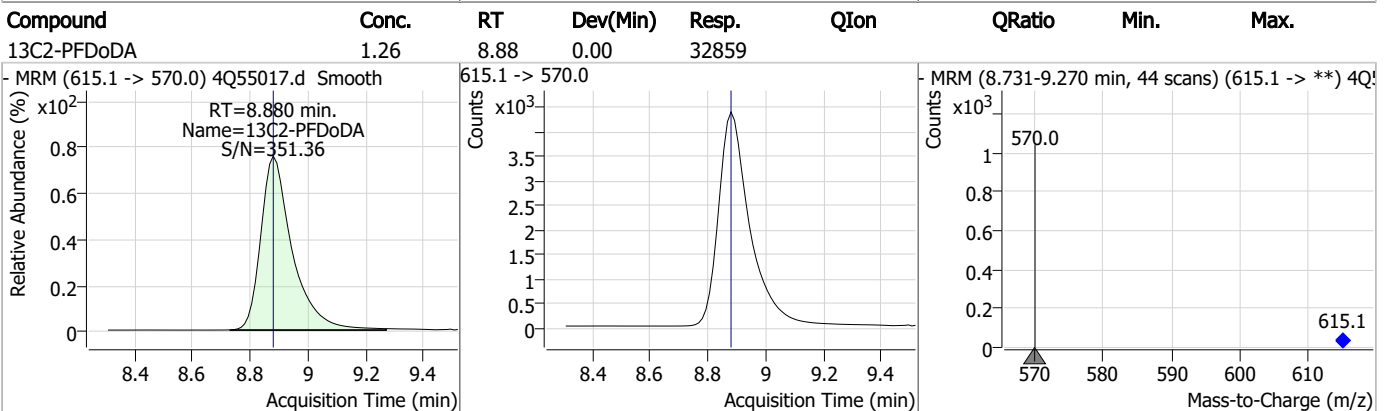
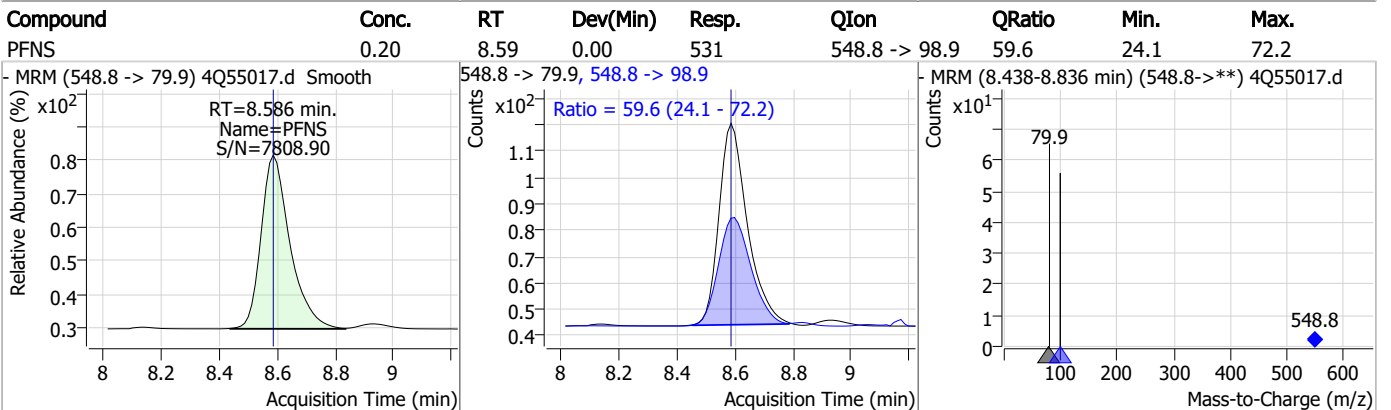
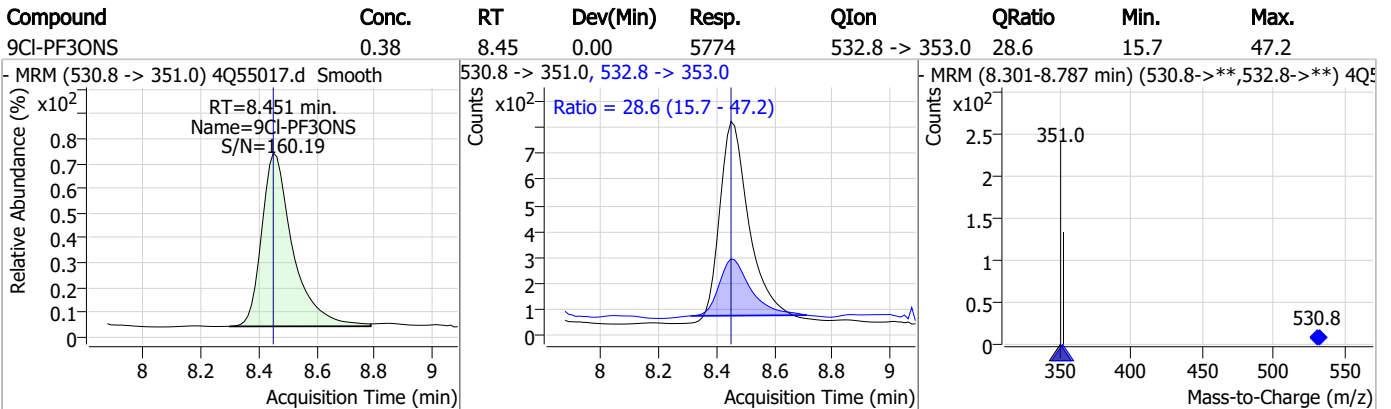
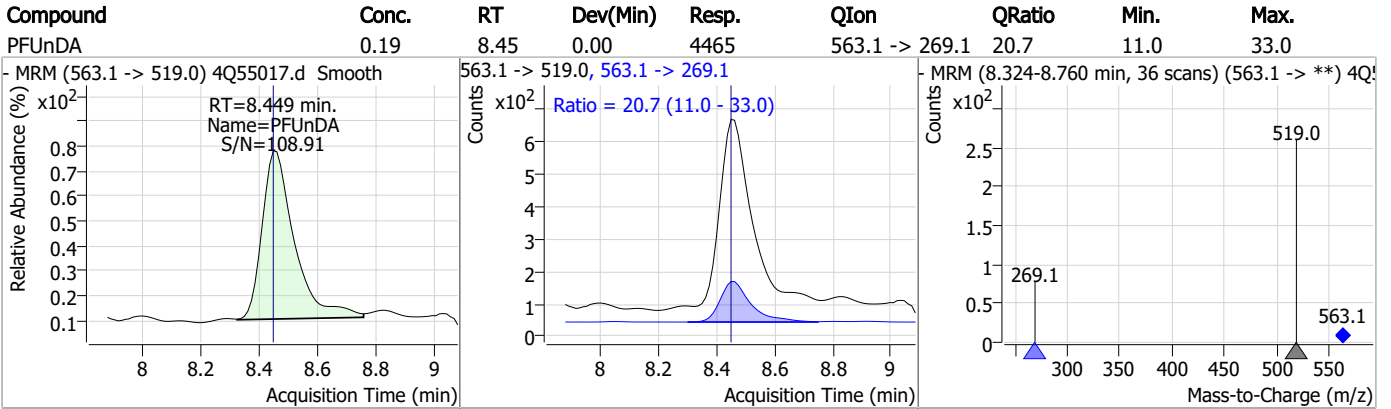
7.7.2

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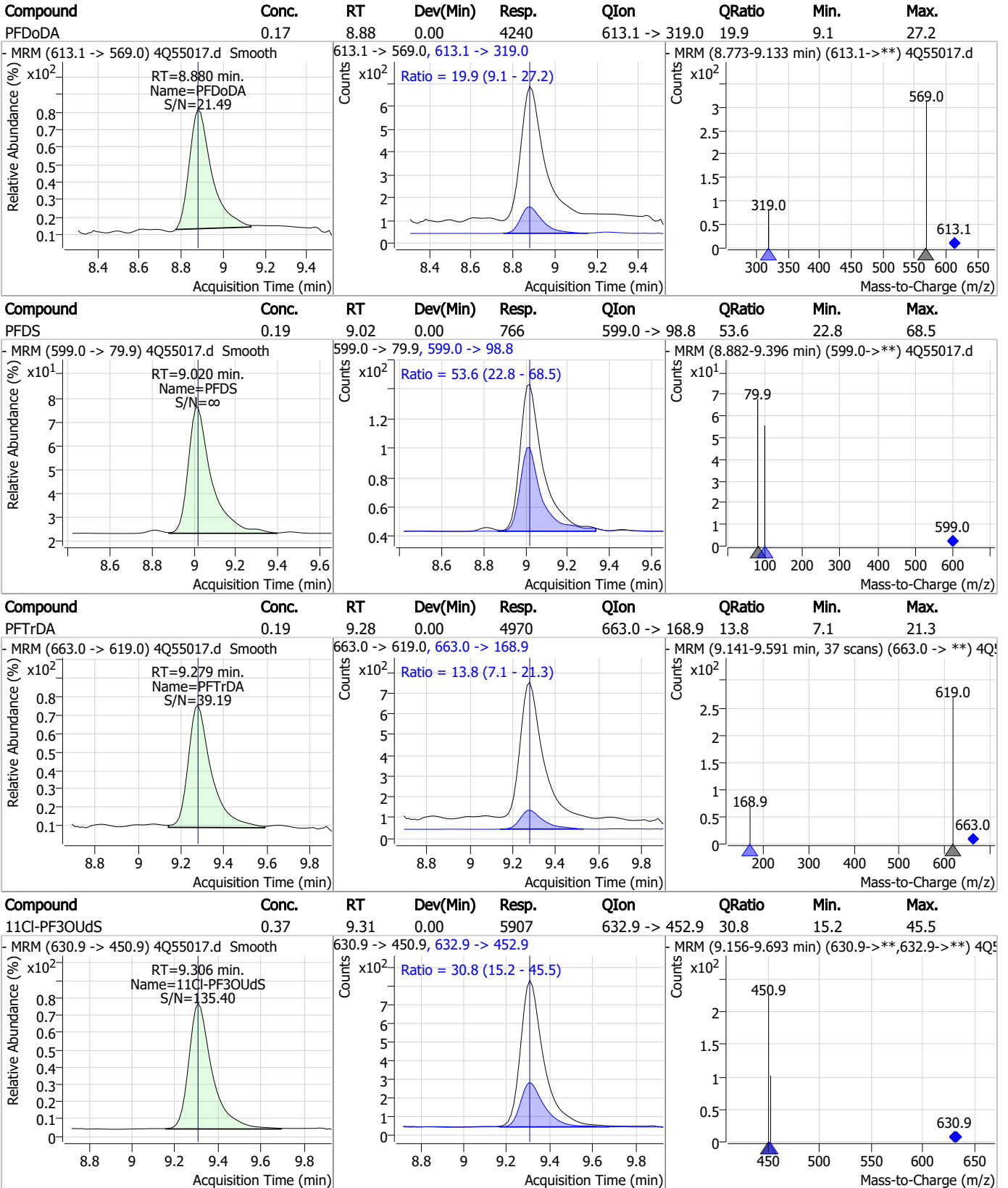
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



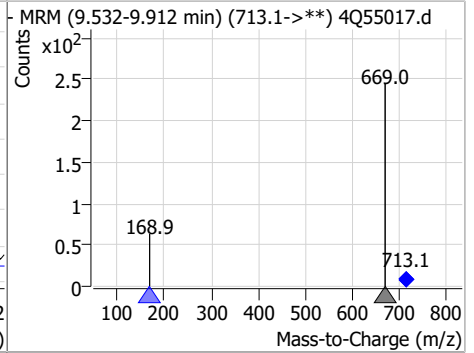
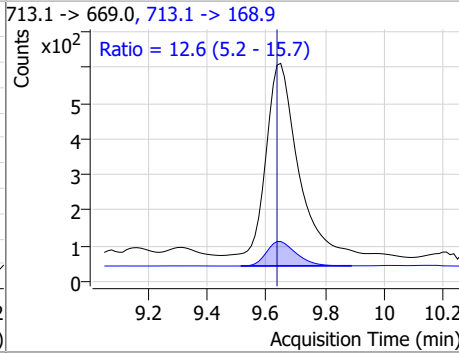
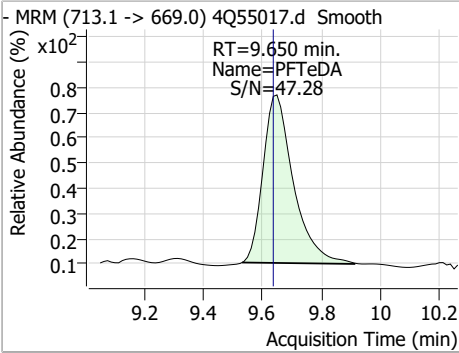
Perfluorinated Compounds by LC/MS/MS



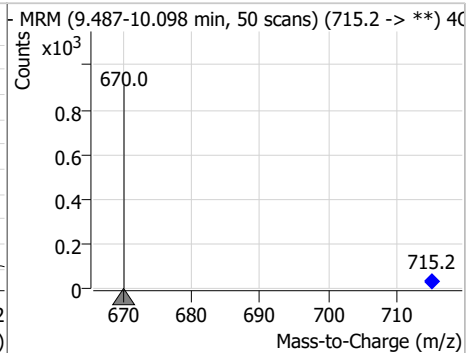
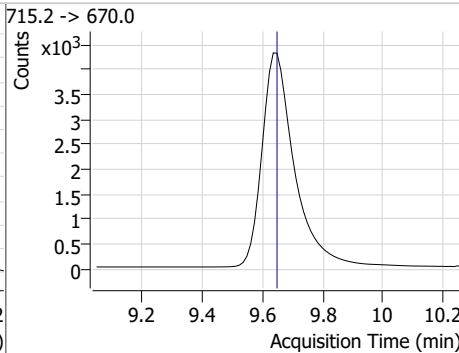
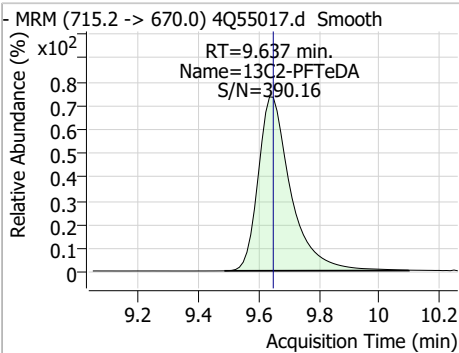
7.7.2
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Perfluorinated Compounds by LC/MS/MS

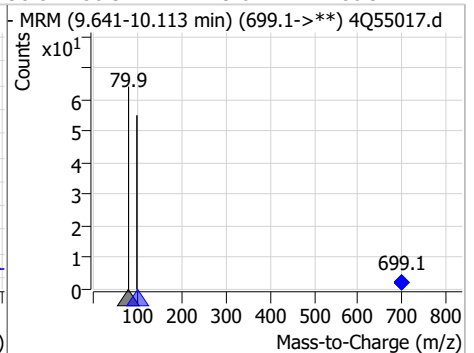
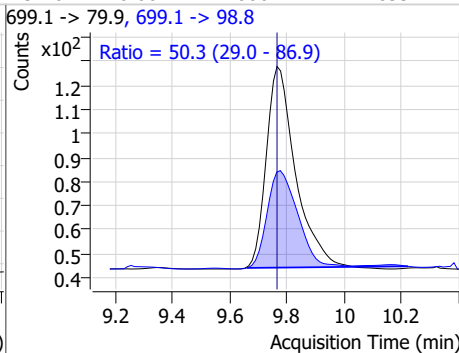
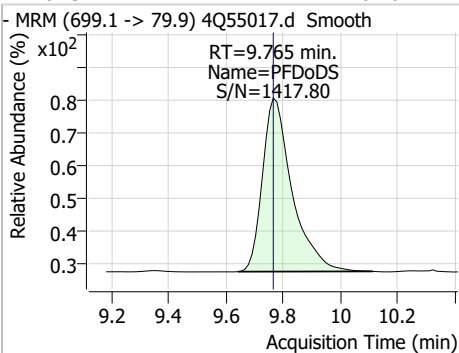
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.17	9.65	0.01	3783	713.1 -> 168.9	12.6	5.2	15.7



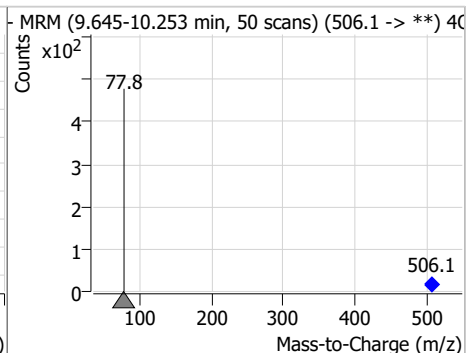
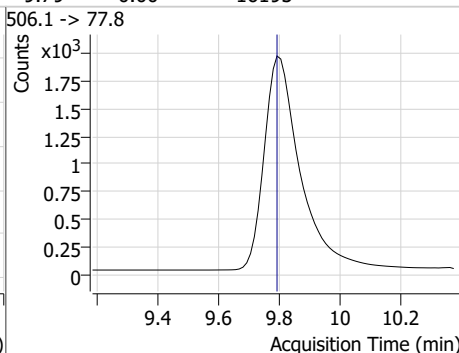
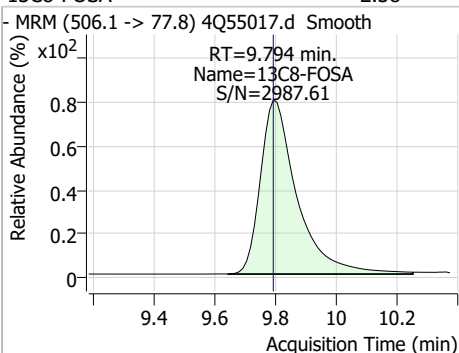
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.25	9.64	-0.01	32034				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.20	9.76	0.00	606	699.1 -> 98.8	50.3	29.0	86.9

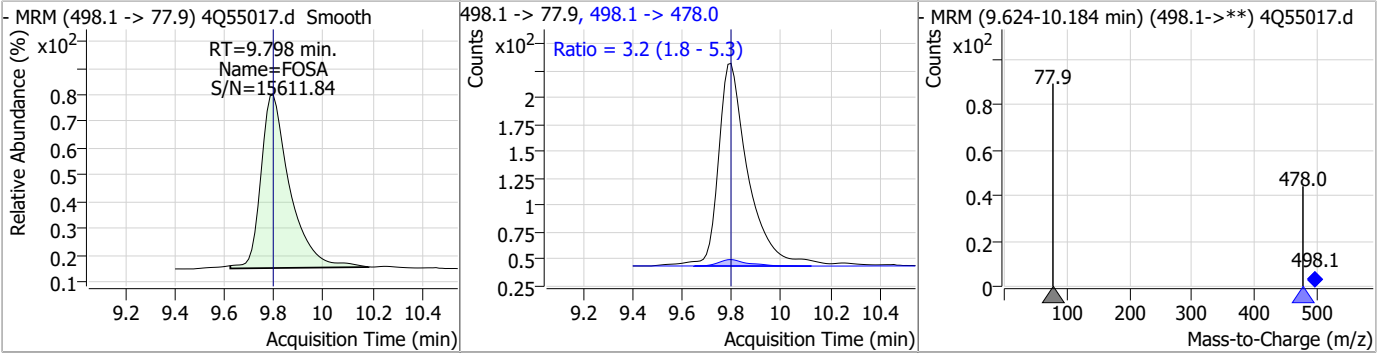


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.38	9.79	0.00	16195				

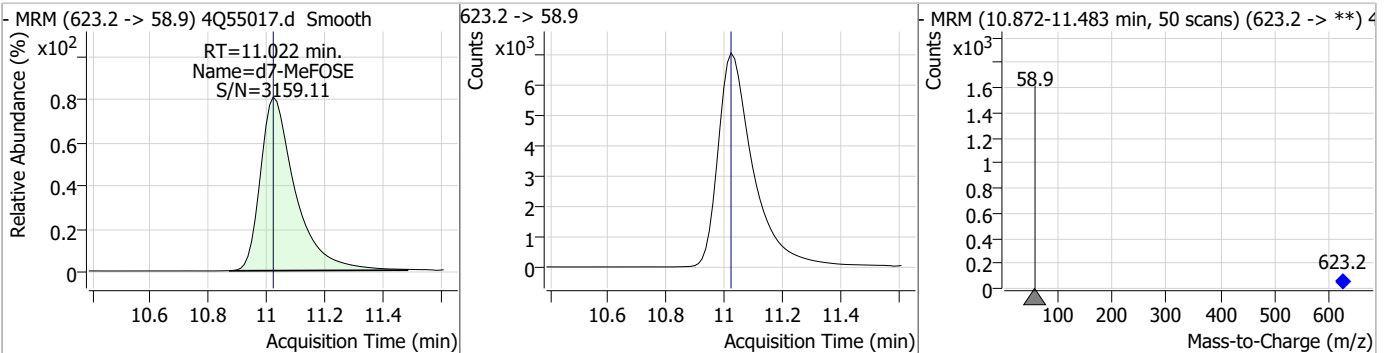


Perfluorinated Compounds by LC/MS/MS

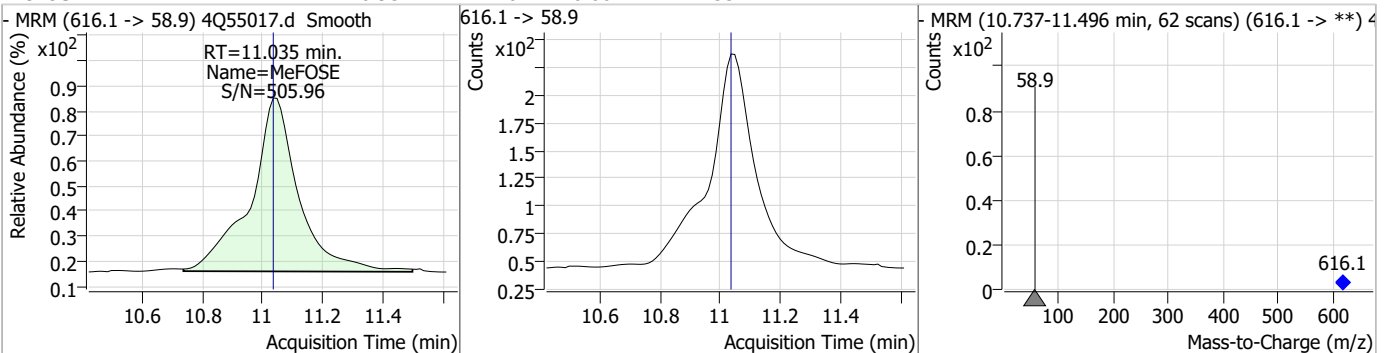
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.21	9.80	0.00	1525	498.1 -> 478.0	3.2	1.8	5.3



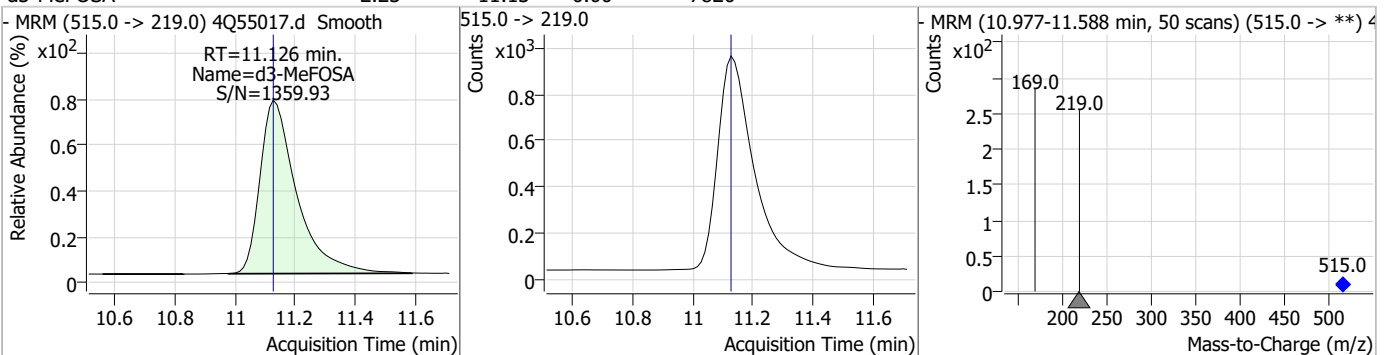
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.65	11.02	0.00	57961				



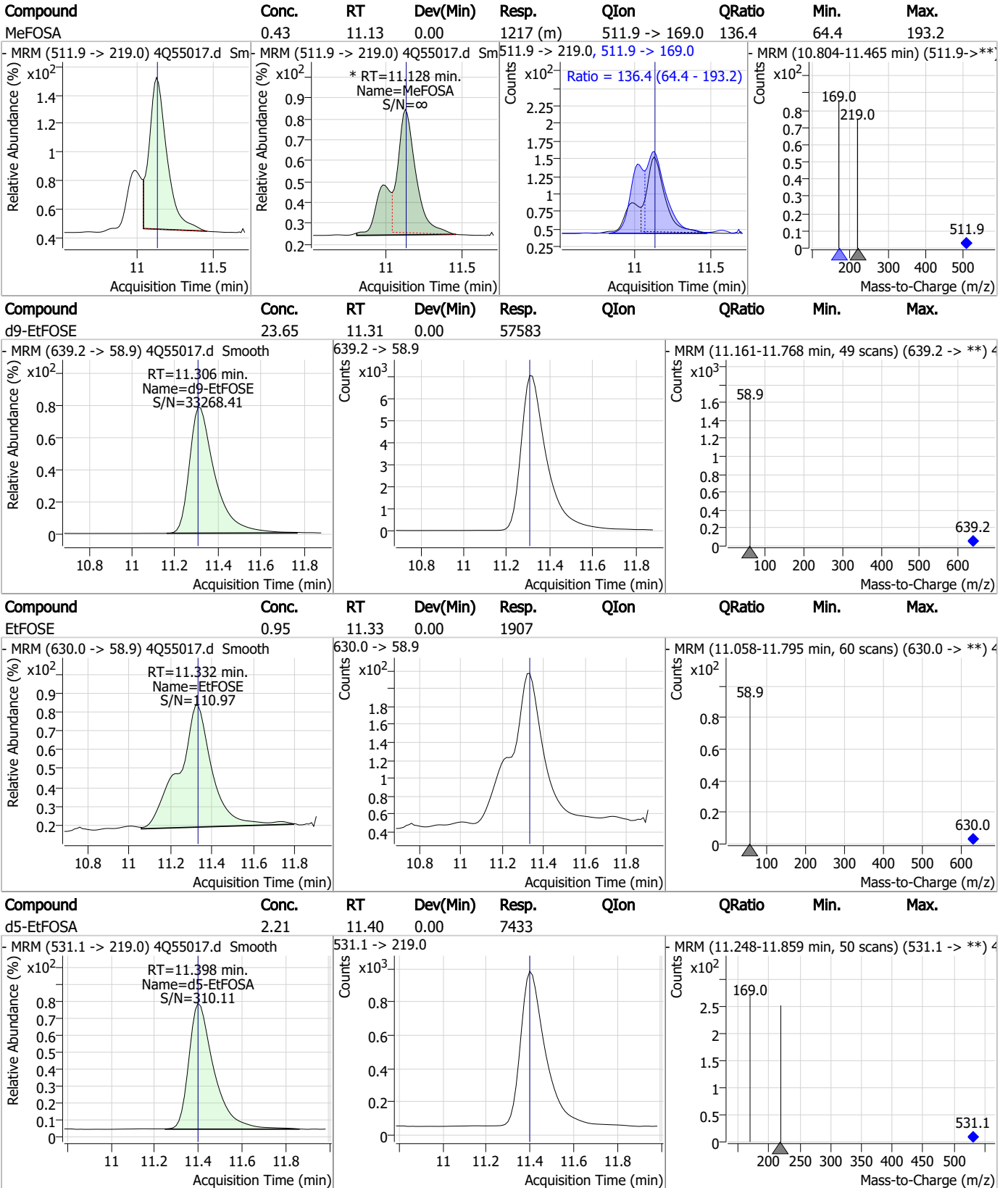
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.95	11.04	0.00	2155				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.23	11.13	0.00	7820				



Perfluorinated Compounds by LC/MS/MS

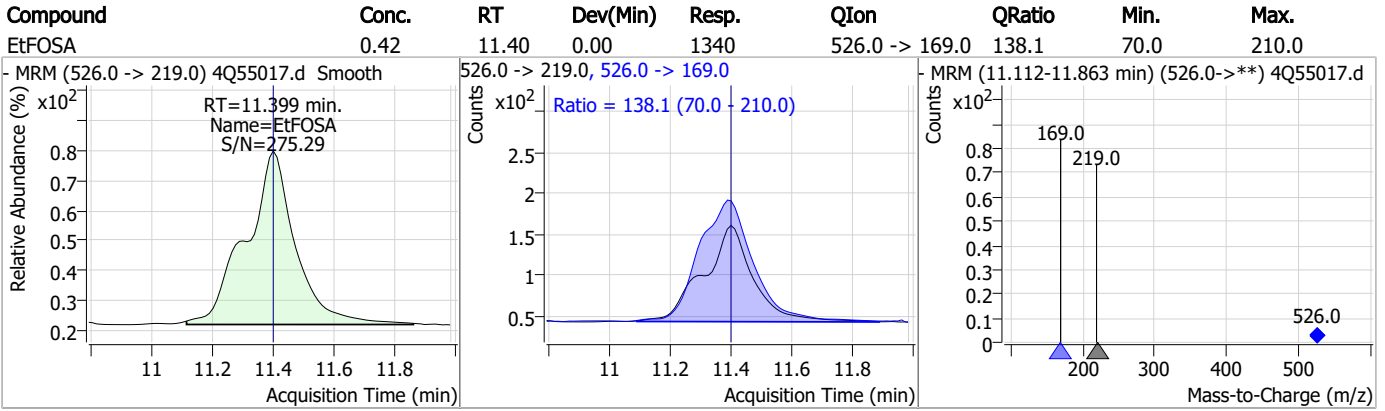


7.7.2

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Perfluorinated Compounds by LC/MS/MS



7.7.2

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Manual Integration Approval Summary

Sample Number: S4Q806-IC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55017.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 14:55 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
MeFOSAA	2355-31-9		8.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSA	31506-32-8		11.13	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55018.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 3:10:22 PM
 Sample Name : ic806-2
 Vial : P1-A3
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.686	216.8 -> 171.9	169136	10.00 µg/L	-0.013
M5-PFPeA	4.175	268.3 -> 223.0	78950	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	66968	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	64674	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	104418	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	38134	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	26309	1.25 µg/L	0.000
M7-PFUnDA	8.449	570.0 -> 525.1	31359	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	33615	1.25 µg/L	0.000
M2-PFTeDA	9.637	715.2 -> 670.0	32649	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	17136	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	18471	2.50 µg/L	0.000
M3-PFHxS	7.042	402.1 -> 79.9	14756	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	15767	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	2025	5.00 µg/L	0.000
M2-6:2FTS	6.761	429.1 -> 80.9	4587	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	5804	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	32714	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	61303	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	26344	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	61084	25.00 µg/L	0.000
M9-EtFOSE	11.319	639.2 -> 58.9	59823	25.00 µg/L	0.012
M5-EtFOSA	11.398	531.1 -> 219.0	7818	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	8146	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11562	2.50 µg/L	0.000
13C3-PFBA	2.691	216.0 -> 172.0	78611	5.00 µg/L	-0.013
18O2-PFHxS	7.041	403.0 -> 83.9	9606	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	112991	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	29027	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	40056	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	70924	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	2025	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-6:2FTS	6.761	429.1 -> 80.9	4587	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C2-8:2FTS	7.804	529.1 -> 80.9	5804	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-PFDoDA	8.880	615.1 -> 570.0	33615	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFTeDA	9.637	715.2 -> 670.0	32649	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFBS	5.202	302.1 -> 79.9	18471	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFHxS	7.042	402.1 -> 79.9	14756	2.49 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 = 99.6%	
13C4-PFBA	2.686	216.8 -> 171.9	169136	9.99 µg/L	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.292	367.1 -> 322.0	64674	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFHxA	5.347	318.0 -> 273.0	66968	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C5-PFPeA	4.175	268.3 -> 223.0	78950	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C6-PFDA	8.004	519.1 -> 474.1	26309	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C7-PFUnDA	8.449	570.0 -> 525.1	31359	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C8-FOSA	9.794	506.1 -> 77.8	17136	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C8-PFOA	6.976	421.1 -> 376.0	104418	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C8-PFOS	8.117	507.1 -> 79.9	15767	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C9-PFNA	7.521	472.1 -> 427.0	38134	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.5%	
d3-MeFOSAA	8.086	573.2 -> 419.0	32714	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	61303	10.14 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
d3-MeFOSA	11.126	515.0 -> 219.0	8146	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.1%	
d5-EtFOSAA	8.283	589.2 -> 419.0	26344	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
d7-MeFOSE	11.022	623.2 -> 58.9	61084	25.99 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d9-EtFOSE	11.319	639.2 -> 58.9	59823	25.62 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d5-EtFOSA	11.398	531.1 -> 219.0	7818	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	4887	1.33 µg/L	97
		327.1 -> 80.9	2066		
6:2FTS	6.761	427.1 -> 407.0	6129	1.26 µg/L	93
		427.1 -> 80.9	2555		
8:2FTS	7.804	527.1 -> 507.0	4253	1.35 µg/L	97
		527.1 -> 80.8	1794		
EtFOSAA	8.297	584.2 -> 419.1	1551	0.33 µg/L	99
		584.2 -> 526.0	620		
FOSA	9.798	498.1 -> 77.9	2739	0.35 µg/L	100
		498.1 -> 478.0	100		
MeFOSAA	8.099	570.1 -> 419.0	1705	0.34 µg/L	m 99
		570.1 -> 483.0	299		
PFBA	2.695	212.8 -> 168.9	7249	1.35 µg/L	100
PFBS	5.203	298.7 -> 79.9	1784	0.32 µg/L	89
		298.7 -> 98.8	578		
PFDA	8.005	512.9 -> 469.0	6863	0.36 µg/L	93
		512.9 -> 219.0	1314		
PFDODA	8.880	613.1 -> 569.0	8598	0.35 µg/L	98
		613.1 -> 319.0	1639		
PFDS	9.020	599.0 -> 79.9	1450	0.34 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	651			
PFHpA	6.293	363.1 -> 319.0	12057	0.33	µg/L	96
		363.1 -> 169.0	2410			
PFHpS	7.624	449.0 -> 79.9	2061	0.31	µg/L	89
		449.0 -> 98.9	1220			
PFHxA	5.350	313.0 -> 269.0	7255	0.34	µg/L	98
		313.0 -> 118.9	280			
PFHxS	7.043	398.7 -> 79.9	1456	0.32	µg/L	m 98
		398.7 -> 98.9	844			
PFNA	7.522	463.0 -> 419.0	8943	0.38	µg/L	92
		463.0 -> 219.0	1814			
PFNS	8.586	548.8 -> 79.9	941	0.34	µg/L	99
		548.8 -> 98.9	462			
PFOA	6.978	413.0 -> 369.0	16279	0.37	µg/L	97
		413.0 -> 169.0	3107			
PFOS	8.119	498.9 -> 79.9	2093	0.32	µg/L	m 94
		498.9 -> 98.8	1115			
PFPeA	4.177	263.0 -> 219.0	10304	0.67	µg/L	100
PFPeS	6.282	349.1 -> 79.9	1523	0.30	µg/L	98
		349.1 -> 98.9	676			
PFTeDA	9.650	713.1 -> 669.0	7325	0.33	µg/L	98
		713.1 -> 168.9	818			
PFTrDA	9.279	663.0 -> 619.0	9217	0.35	µg/L	100
		663.0 -> 168.9	1309			
PFUnDA	8.449	563.1 -> 519.0	8065	0.34	µg/L	99
		563.1 -> 269.1	1802			
11CI-PF3OUdS	9.306	630.9 -> 450.9	10634	0.65	µg/L	98
		632.9 -> 452.9	3343			
9CI-PF3ONS	8.451	530.8 -> 351.0	10648	0.67	µg/L	97
		532.8 -> 353.0	3548			
ADONA	6.568	376.9 -> 250.9	30836	0.70	µg/L	98
		376.9 -> 84.8	7687			
HFPO-DA	5.703	284.9 -> 168.9	4048	0.69	µg/L	99
		284.9 -> 184.9	368			
3:3FTCA	3.630	241.0 -> 177.0	1141	1.68	µg/L	97
		241.0 -> 117.0	115			
5:3FTCA	6.020	341.0 -> 237.1	23119	8.48	µg/L	98
		341.0 -> 217.0	16265			
7:3FTCA	7.536	441.0 -> 316.9	11270	8.78	µg/L	92
		441.0 -> 336.9	26085			
EtFOSA	11.399	526.0 -> 219.0	2248	0.67	µg/L	m 92
		526.0 -> 169.0	3357			
EtFOSE	11.332	630.0 -> 58.9	3729	1.80	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	2153	0.72	µg/L	m 88
		511.9 -> 169.0	3078			
MeFOSE	11.035	616.1 -> 58.9	3969	1.67	µg/L	100
PFDoDS	9.764	699.1 -> 79.9	990	0.32	µg/L	95
		699.1 -> 98.8	539			
NFDHA	5.229	295.0 -> 201.0	932	0.64	µg/L	93
		295.0 -> 84.9	280			
PFMBA	4.578	279.0 -> 85.1	5912	0.67	µg/L	100
PFMPA	3.315	229.0 -> 84.9	6030	0.68	µg/L	100
PFEESA	5.722	314.8 -> 134.9	9864	0.62	µg/L	98
		314.8 -> 82.9	415			

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

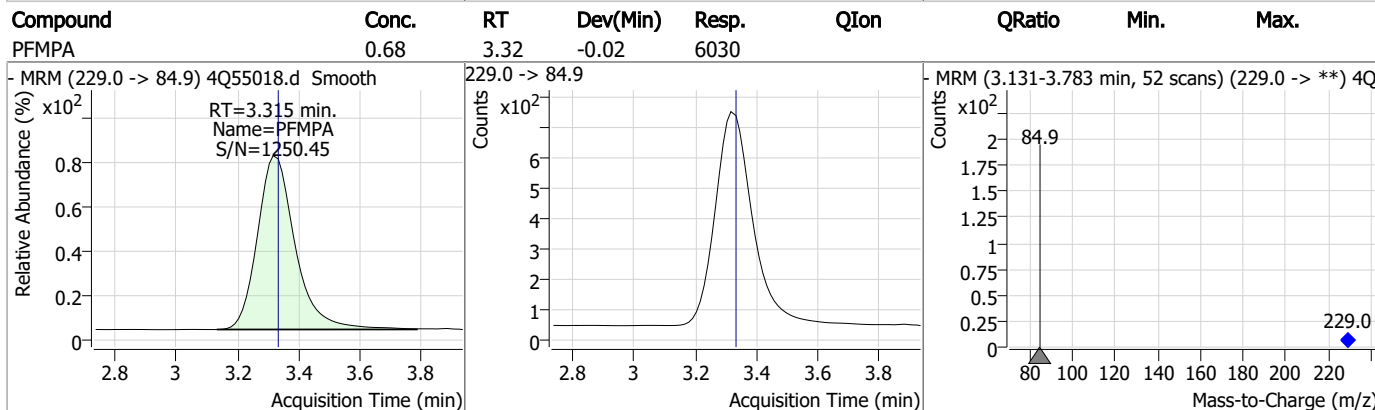
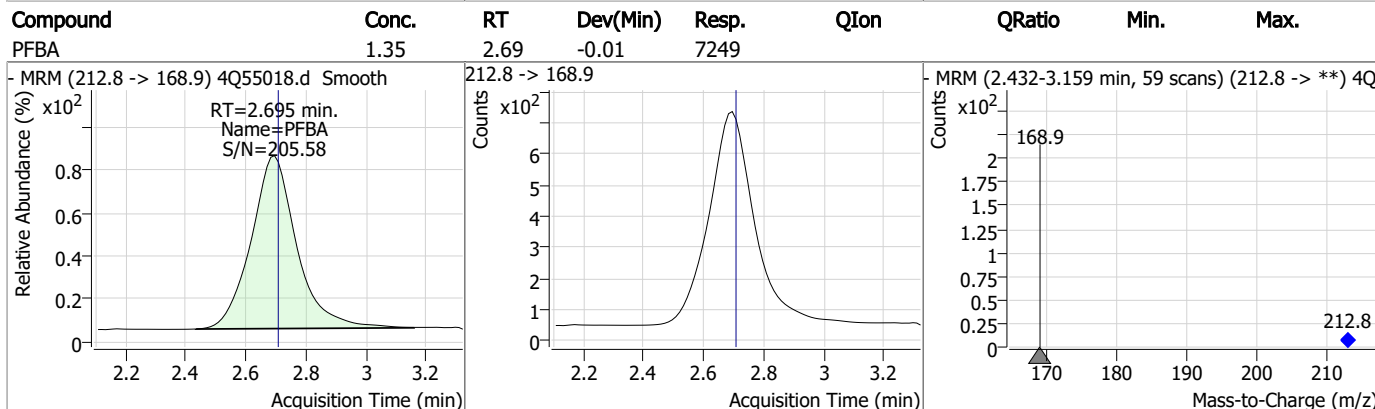
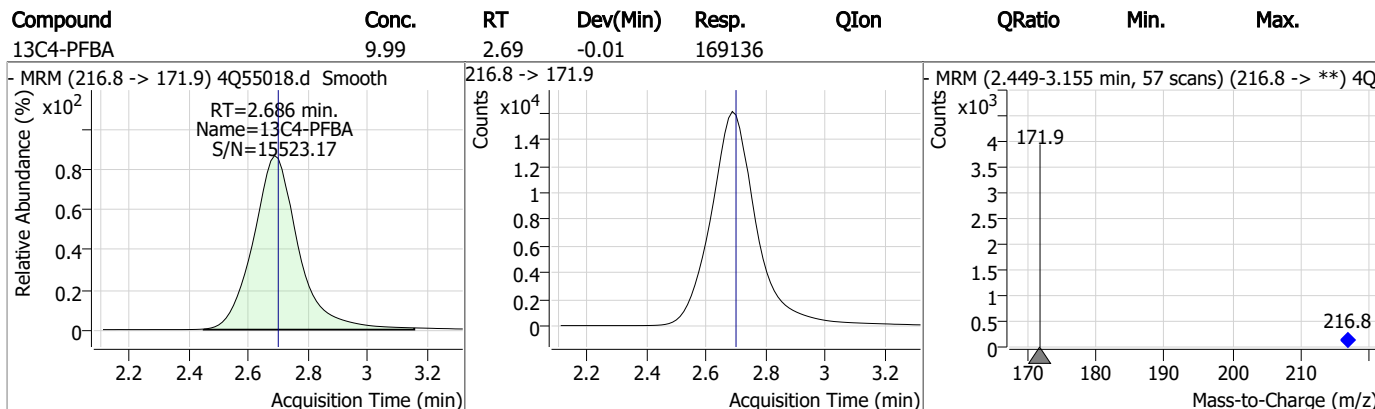
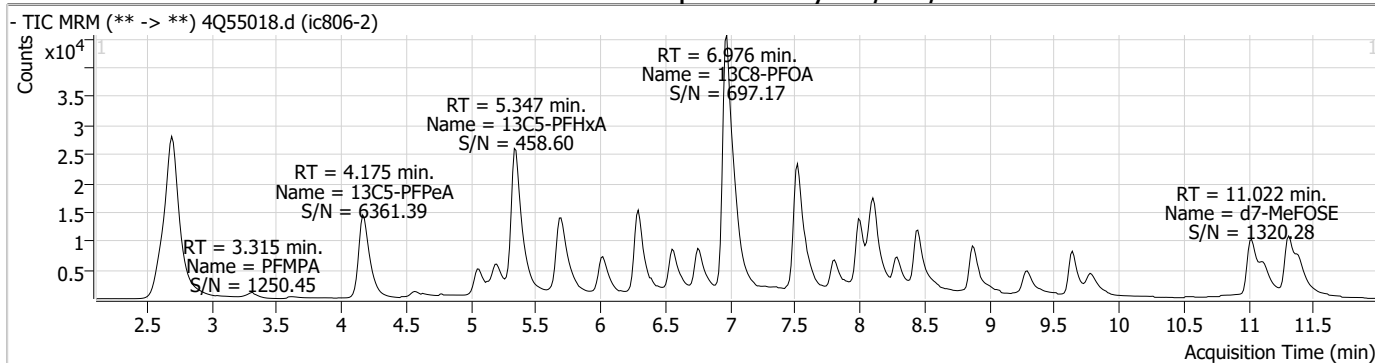
Perfluorinated Compounds by LC/MS/MS

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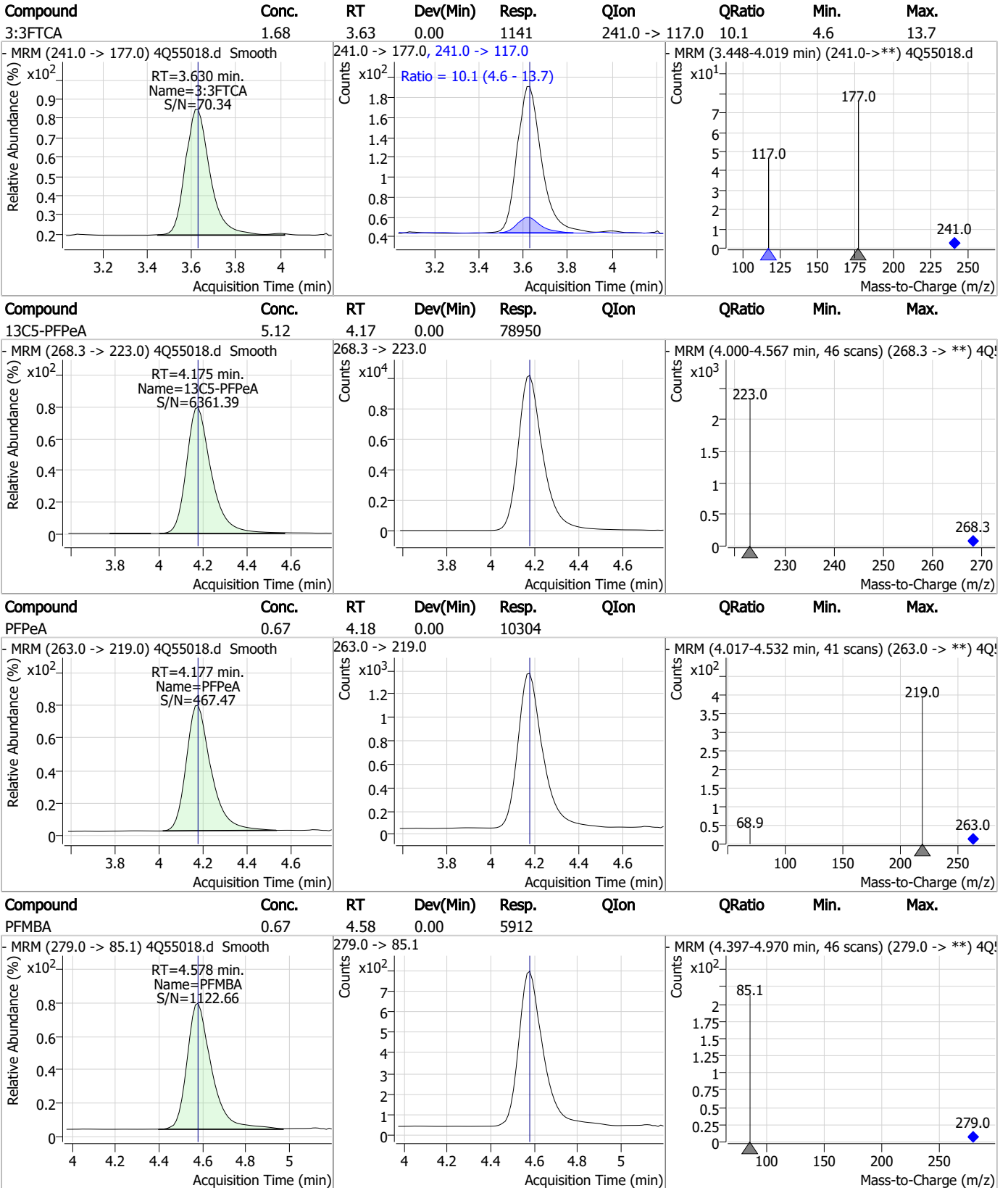
7.7.3

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

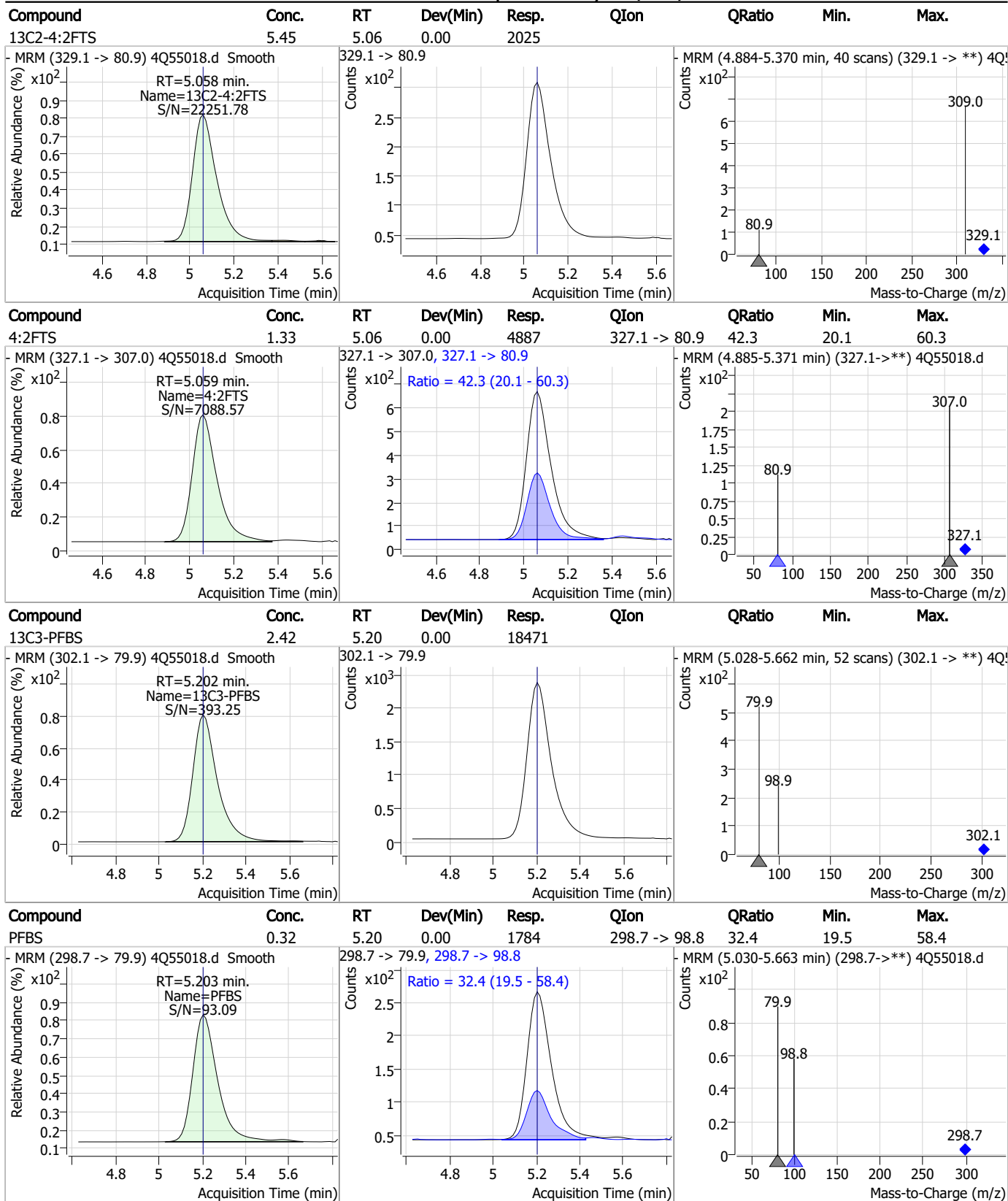


7.7.3

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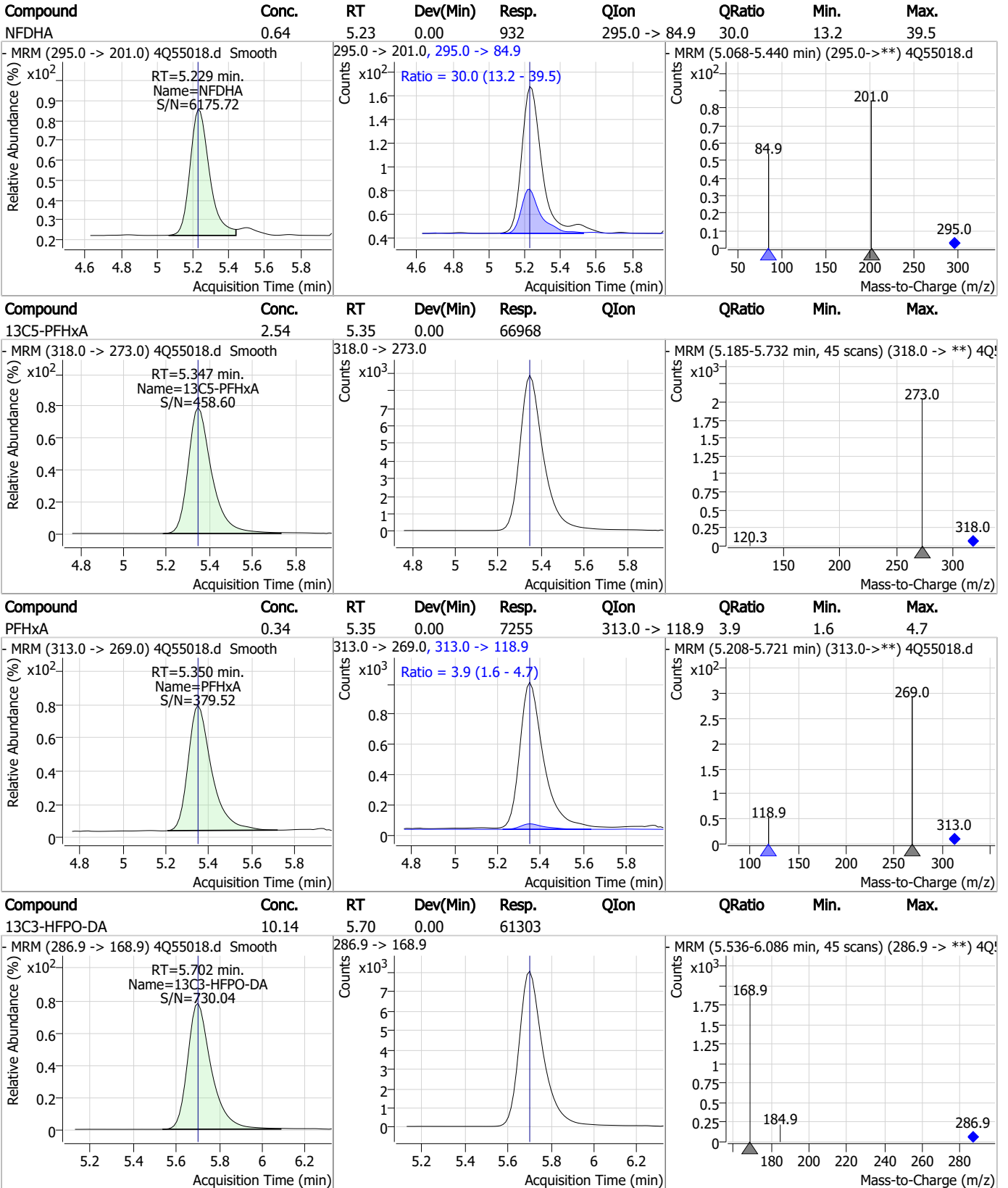


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

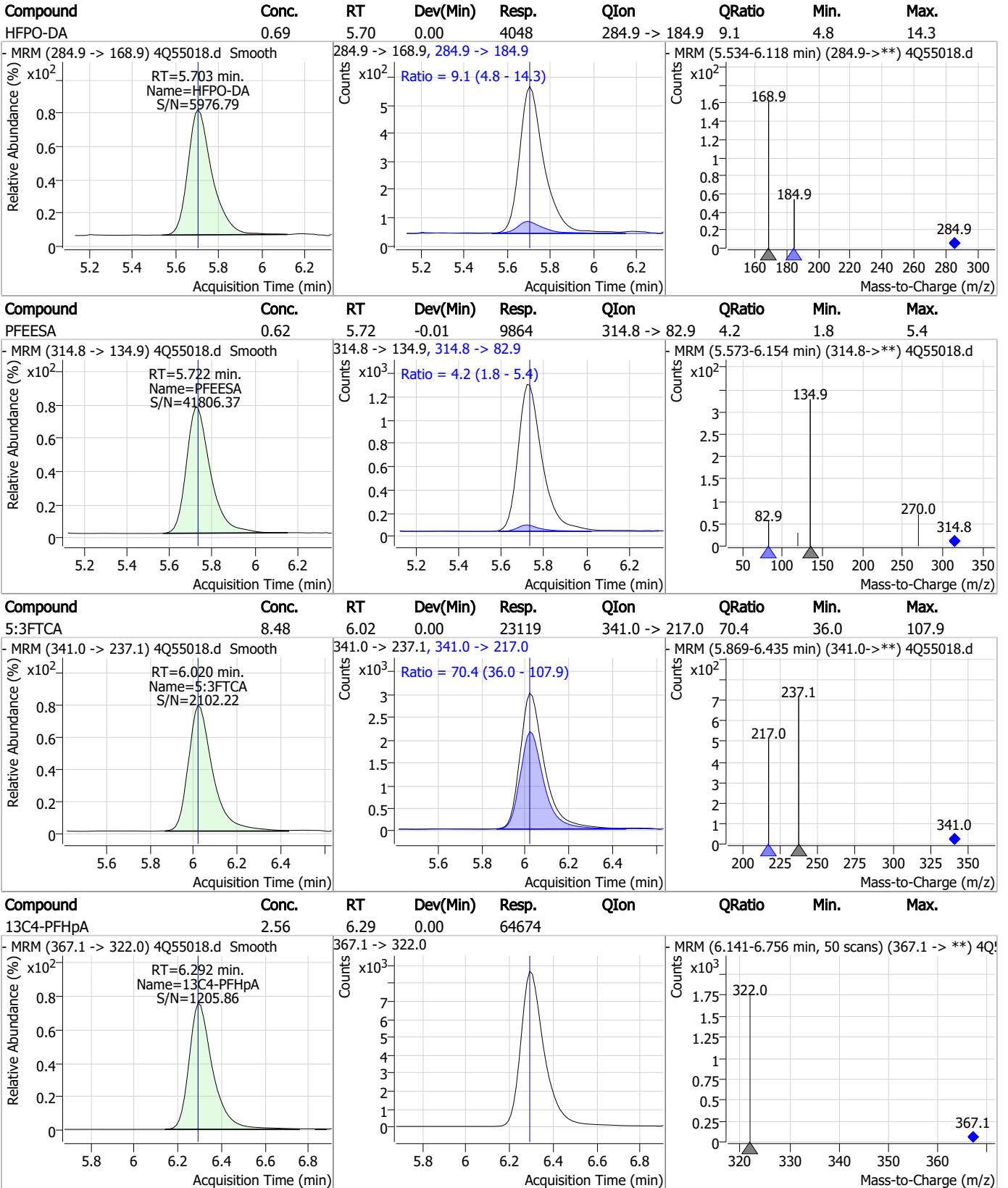
Perfluorinated Compounds by LC/MS/MS



7.7.3

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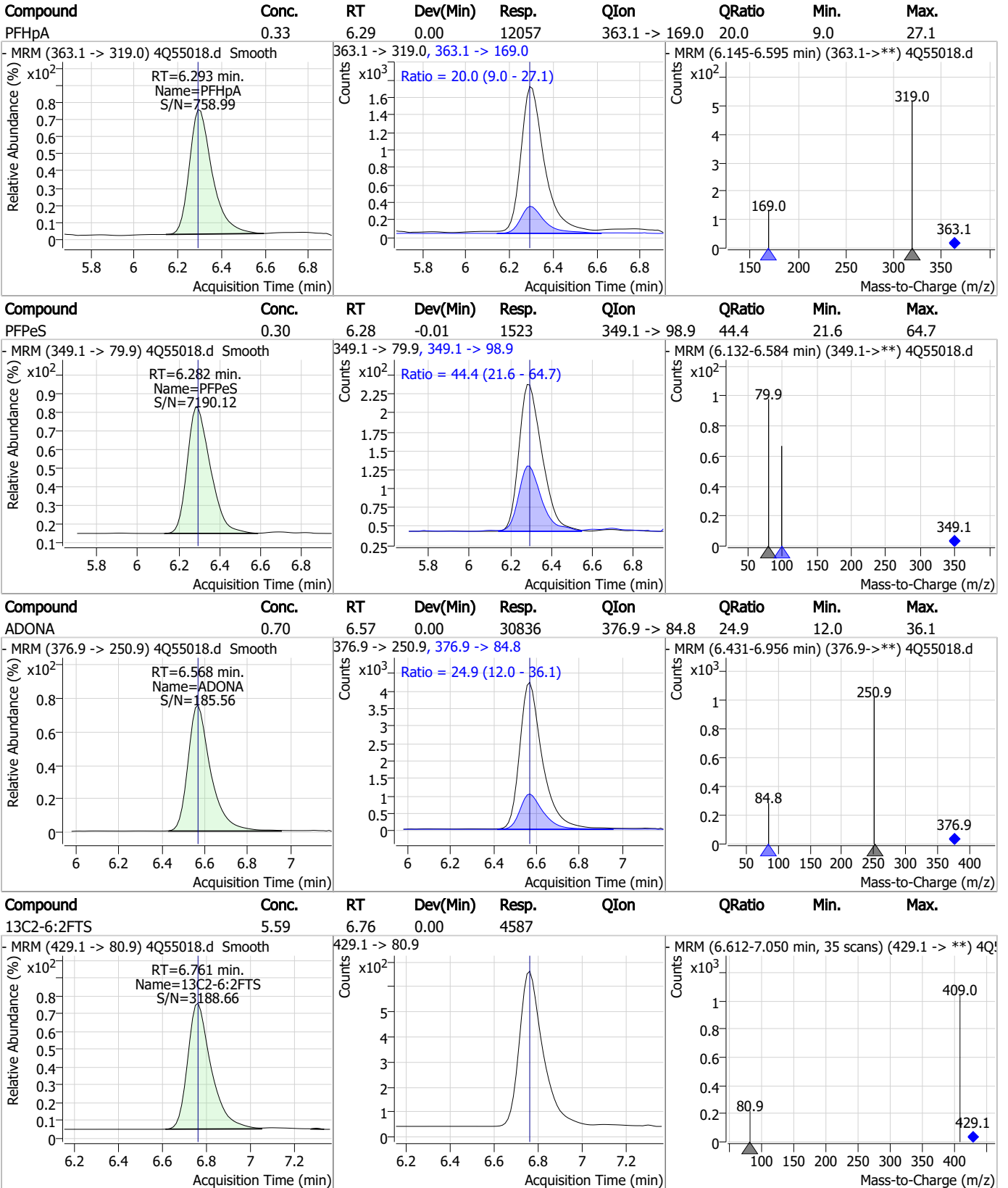
Perfluorinated Compounds by LC/MS/MS



7.7.3

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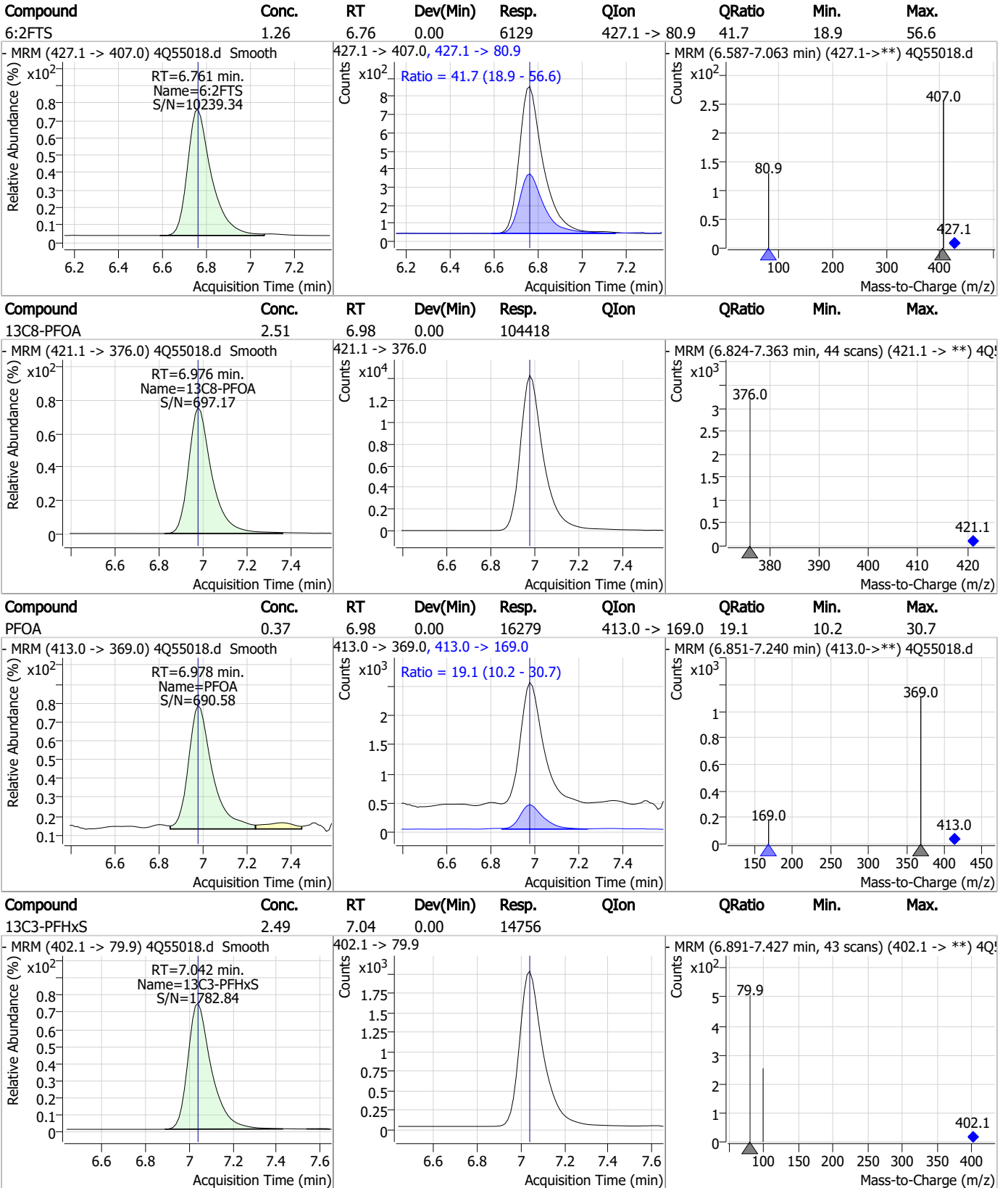
Perfluorinated Compounds by LC/MS/MS



7.7.3

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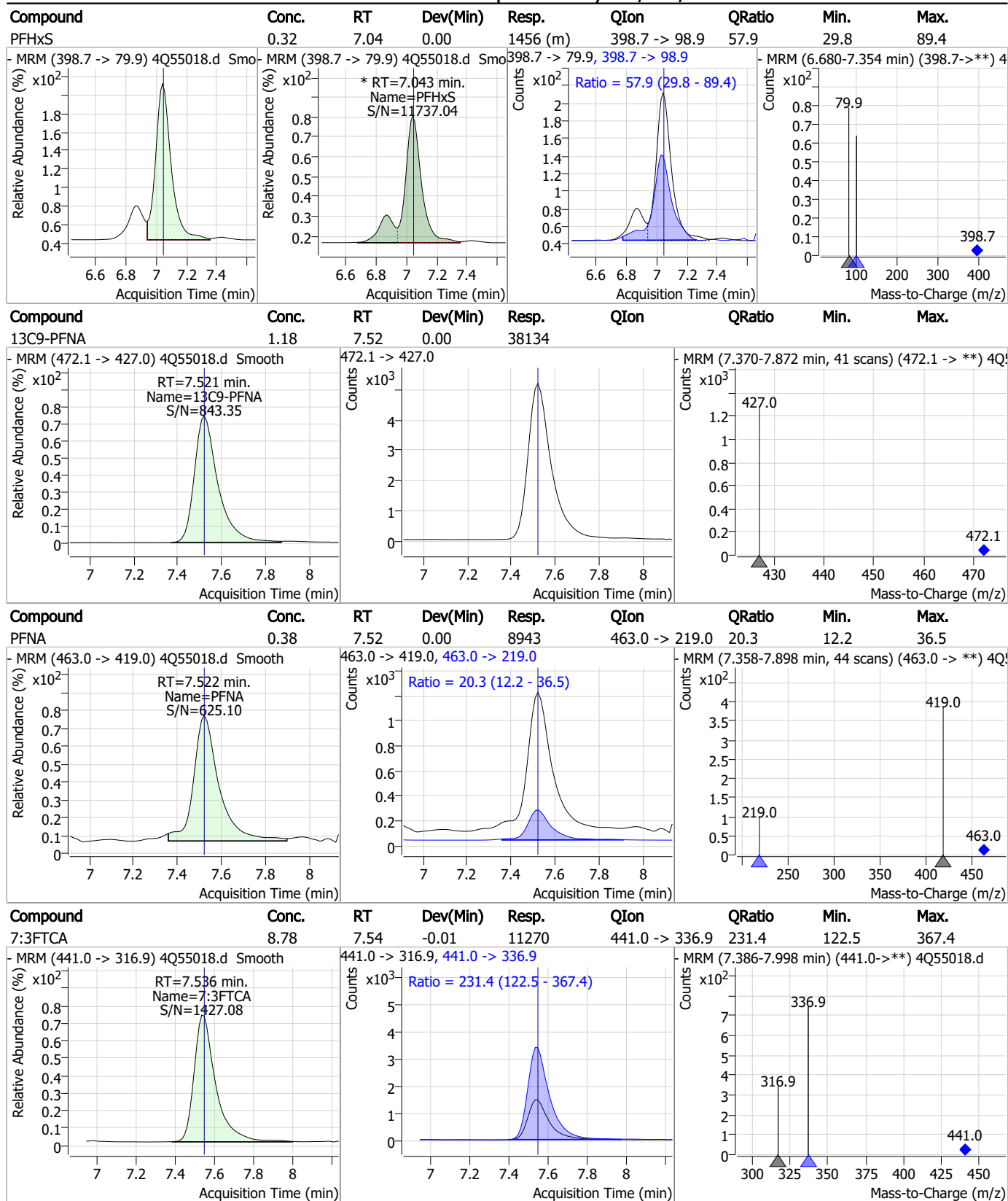
Perfluorinated Compounds by LC/MS/MS



7.7.3

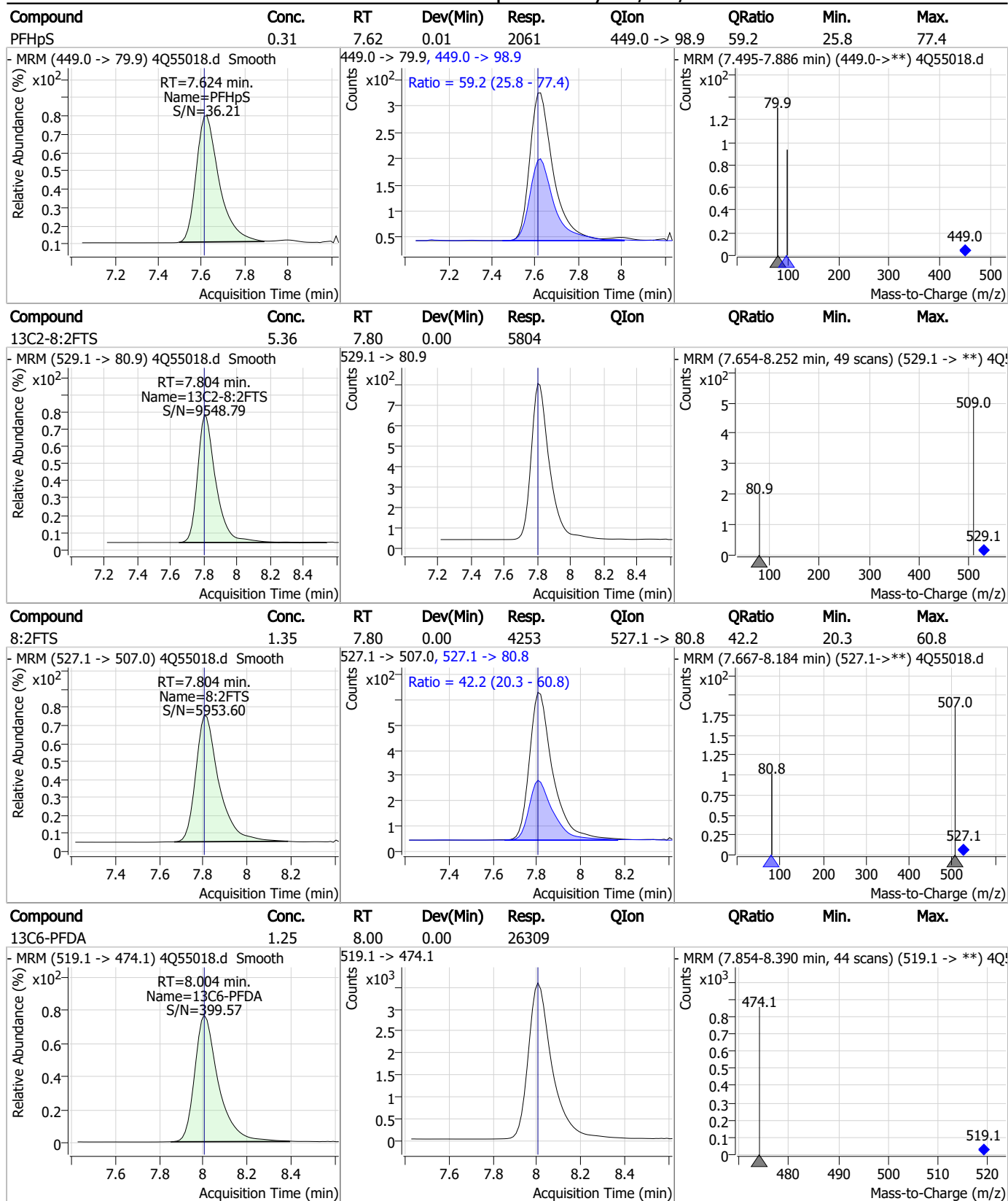
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Perfluorinated Compounds by LC/MS/MS



7.7.3
7

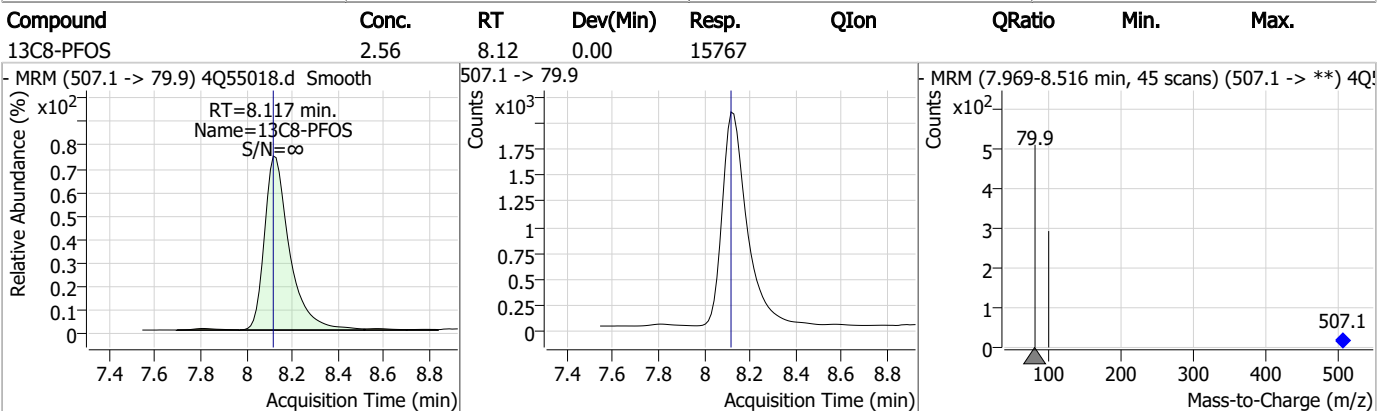
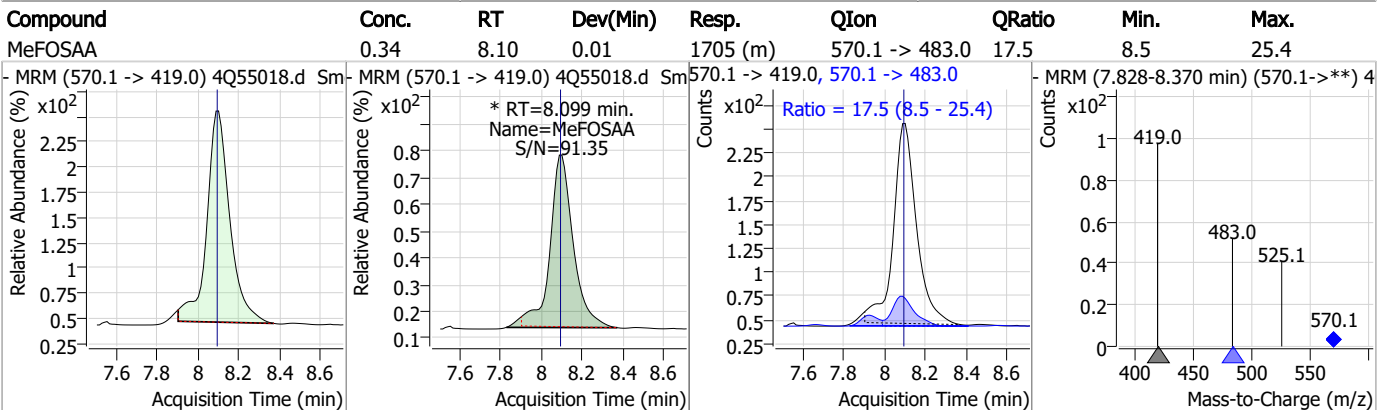
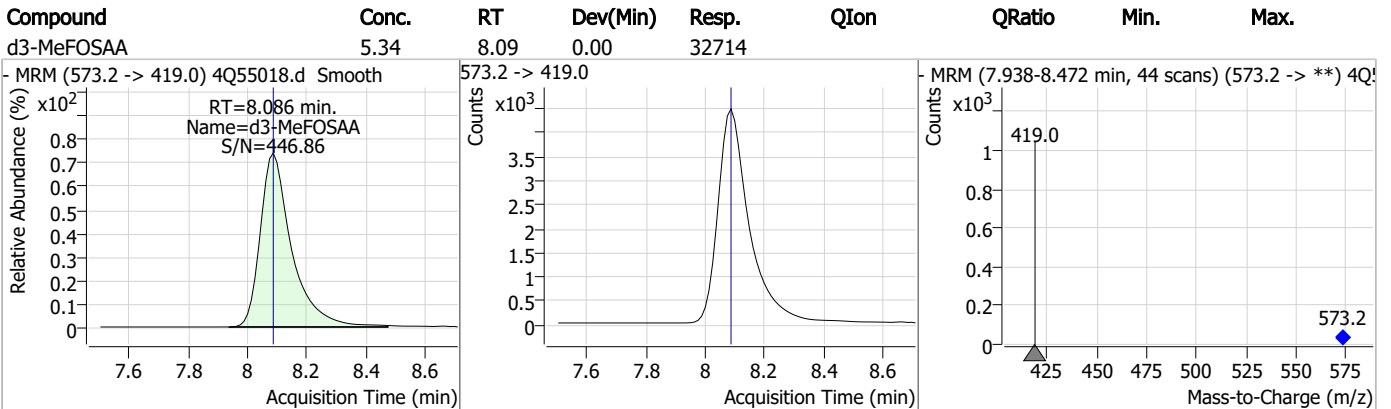
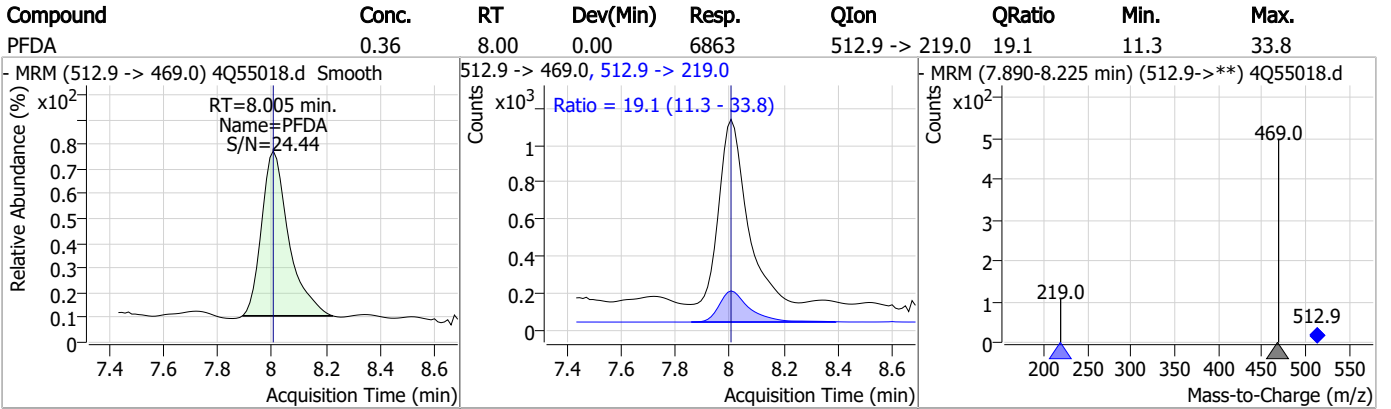
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Perfluorinated Compounds by LC/MS/MS

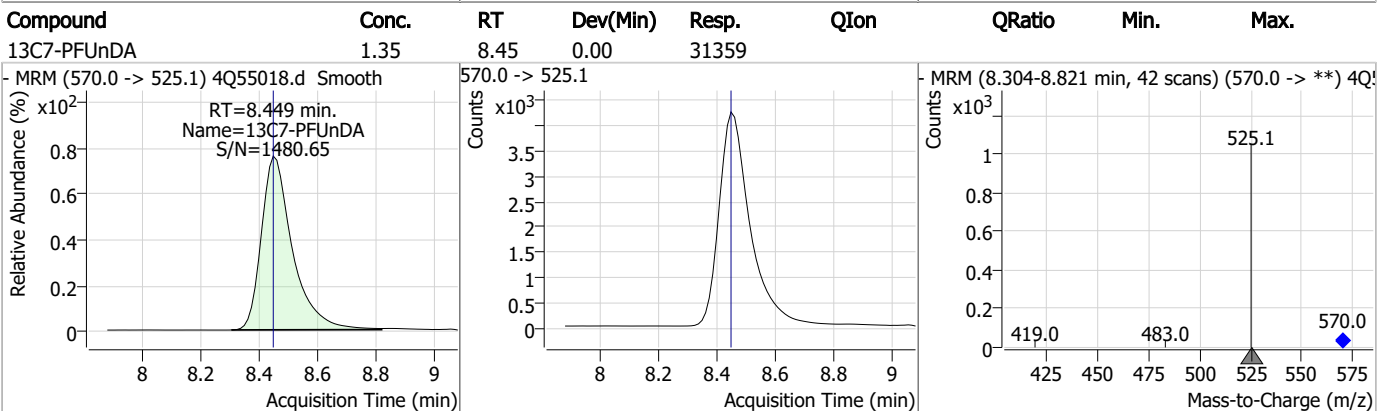
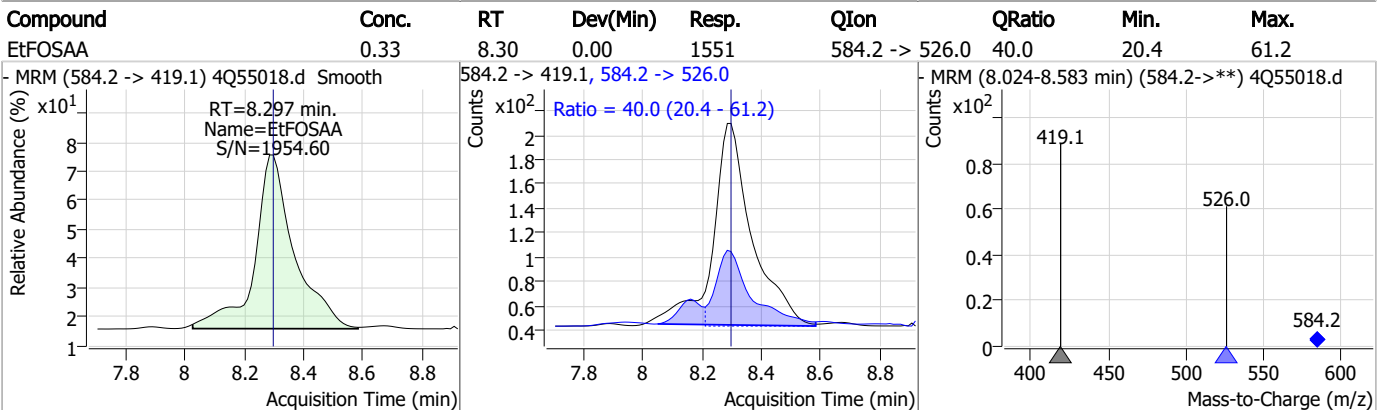
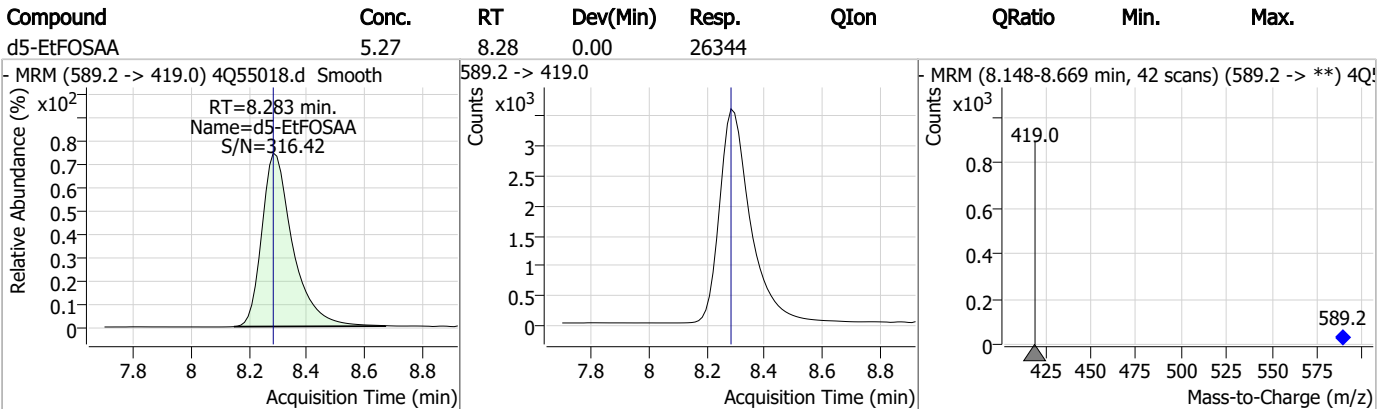
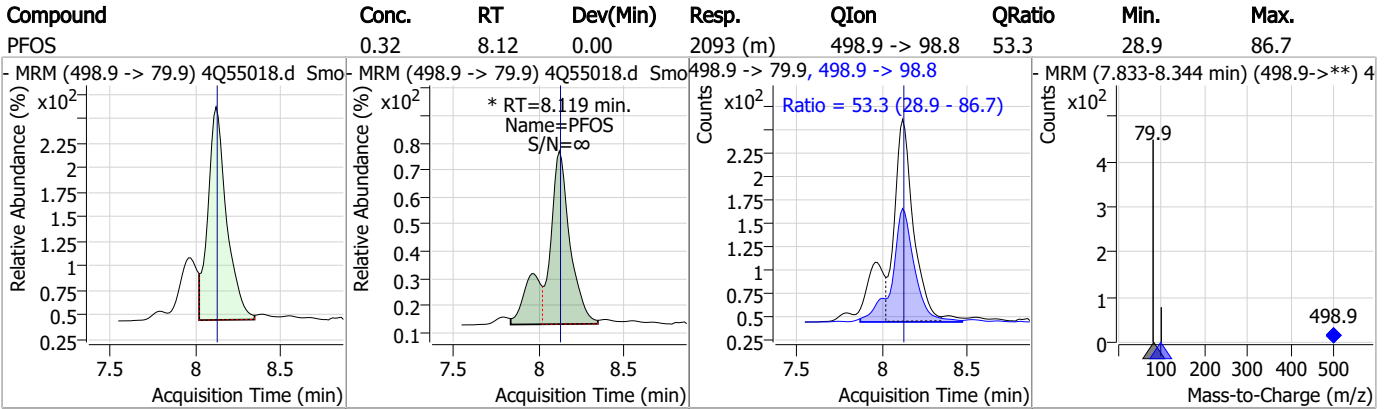


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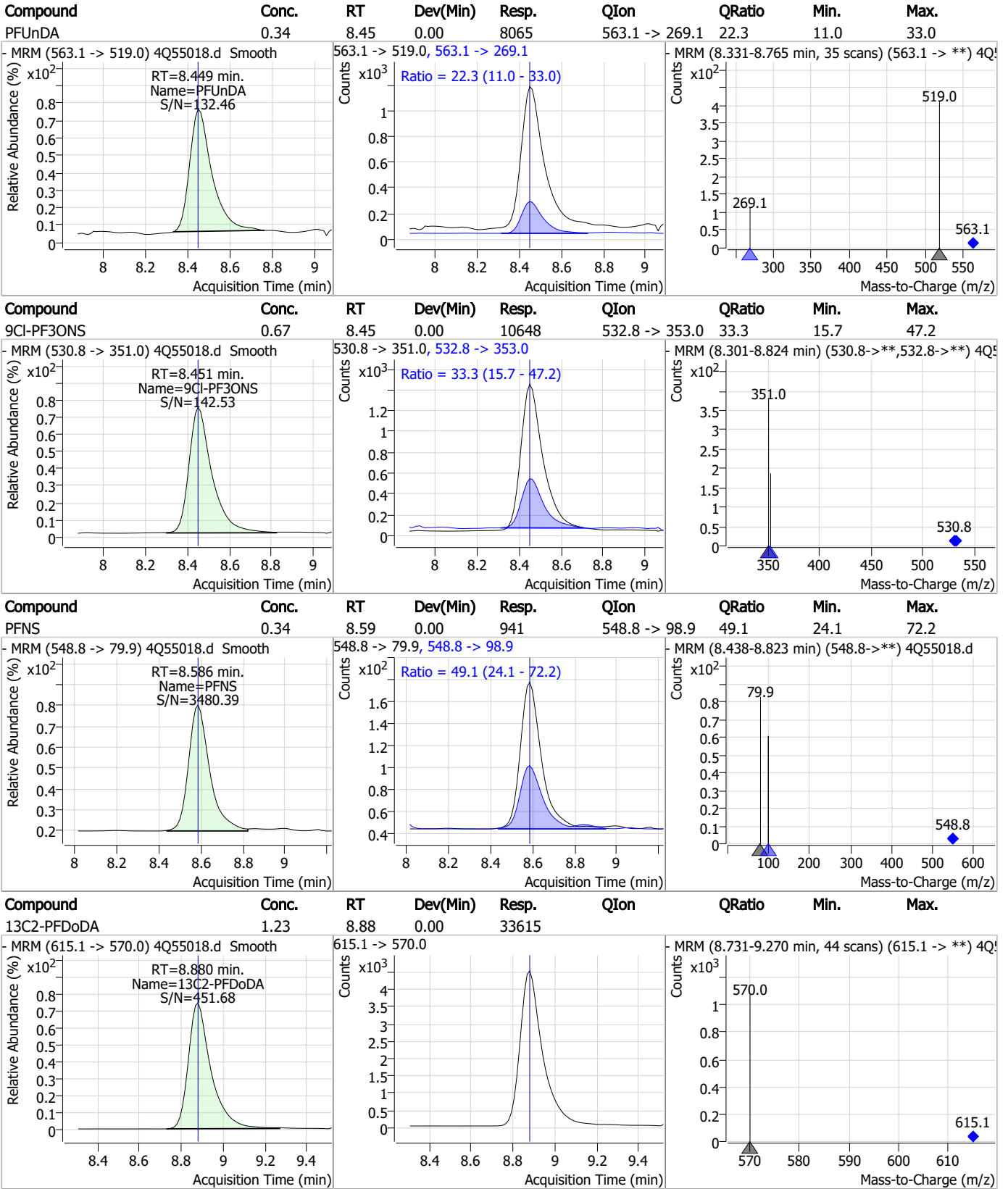
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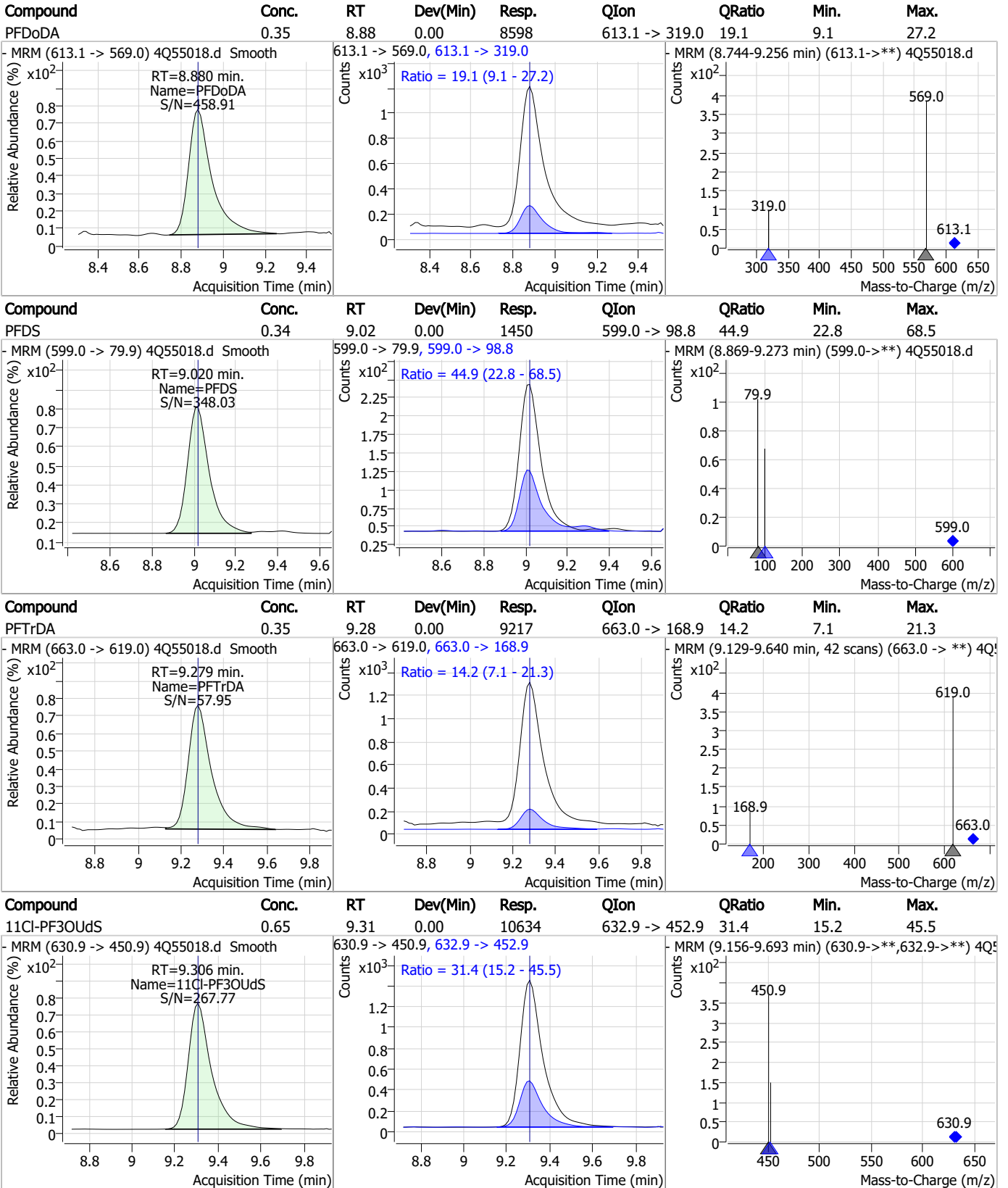
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

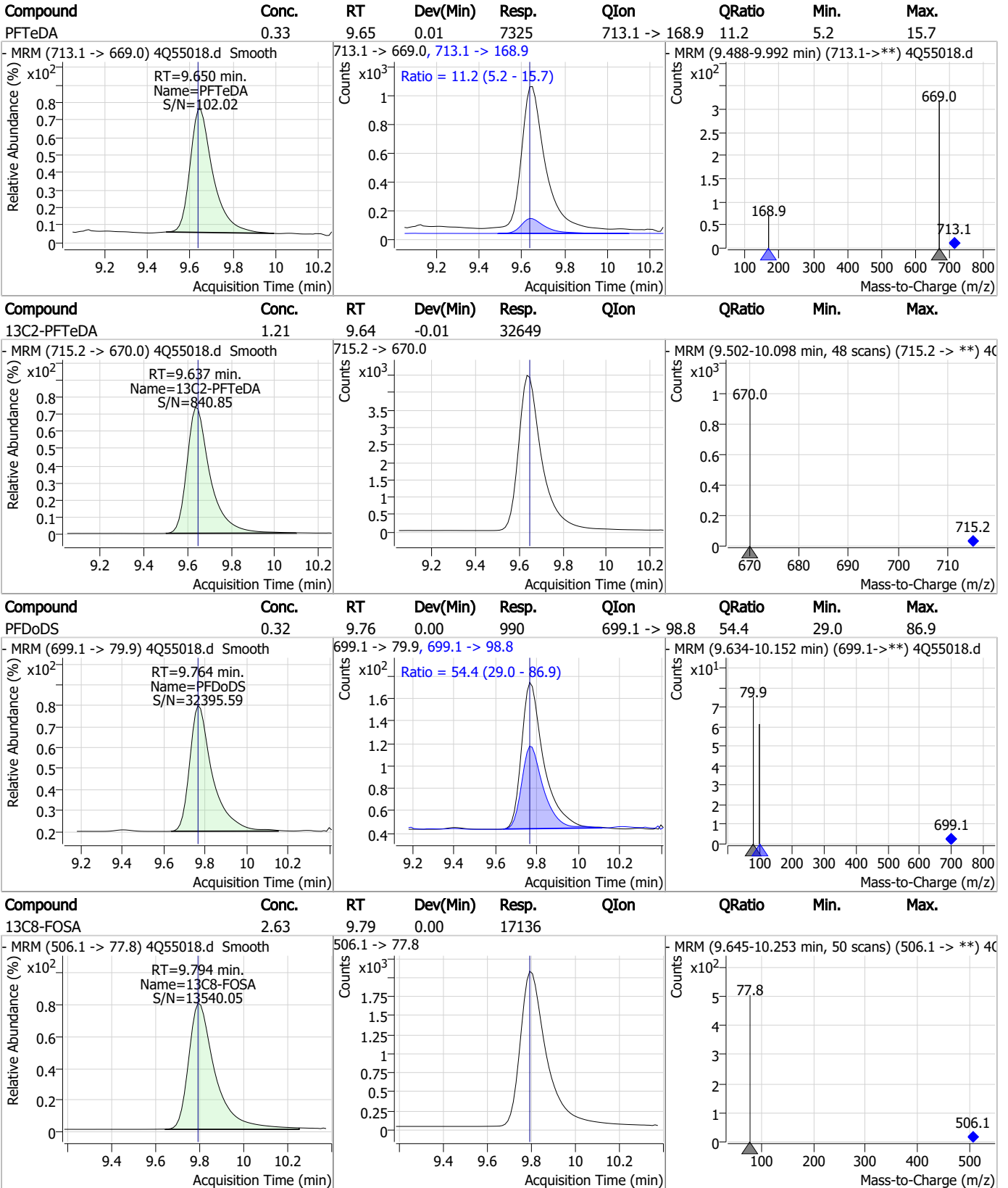


Perfluorinated Compounds by LC/MS/MS



7.7.3
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Perfluorinated Compounds by LC/MS/MS

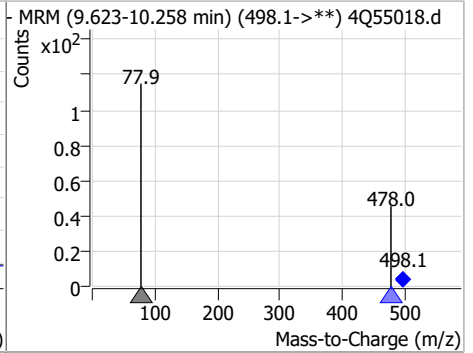
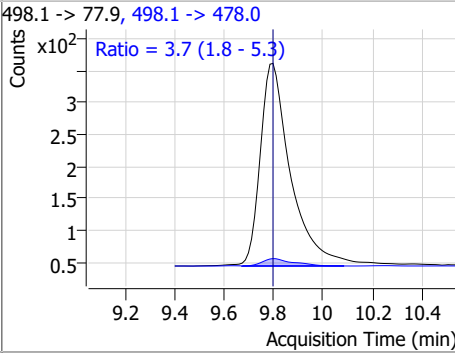
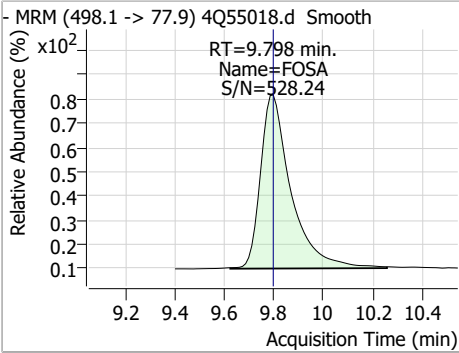


7.7.3
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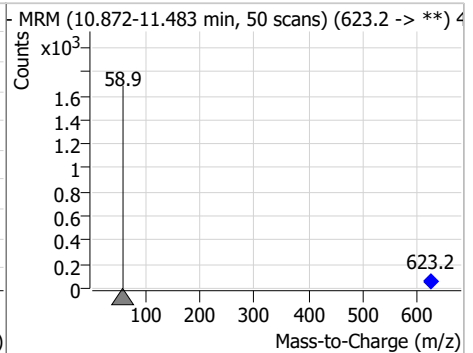
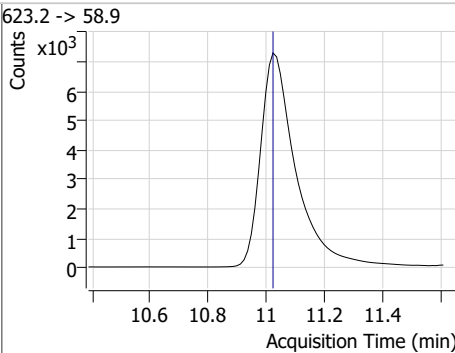
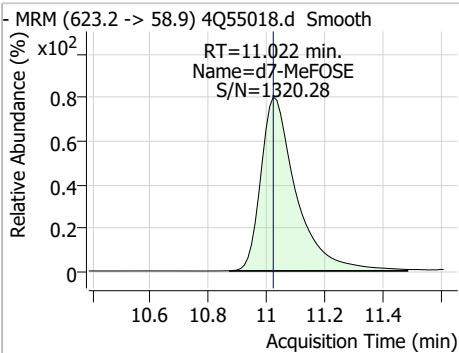


Perfluorinated Compounds by LC/MS/MS

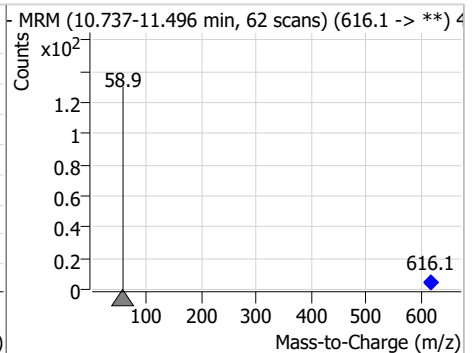
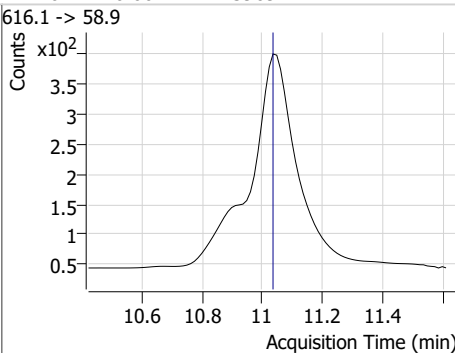
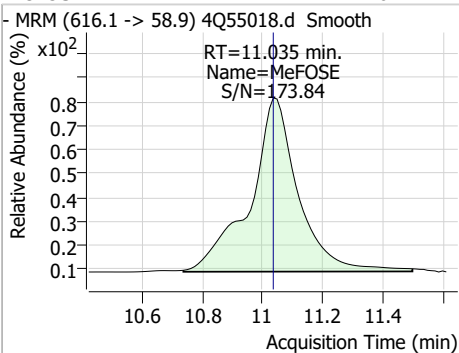
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.35	9.80	0.00	2739	498.1 -> 478.0	3.7	1.8	5.3



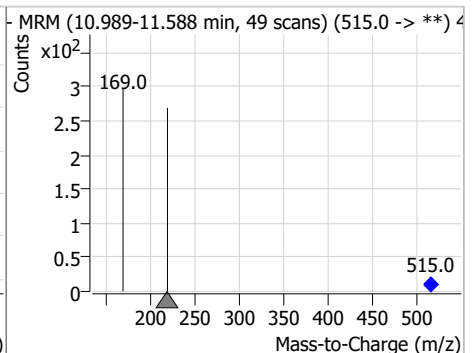
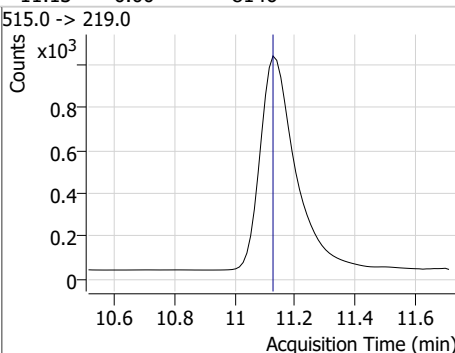
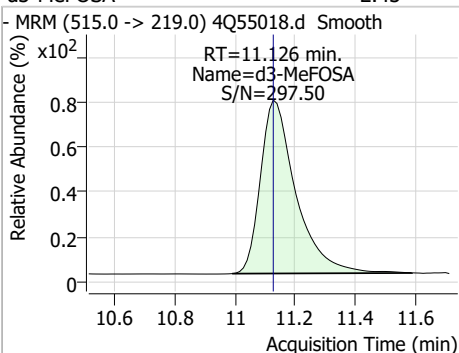
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.99	11.02	0.00	61084				



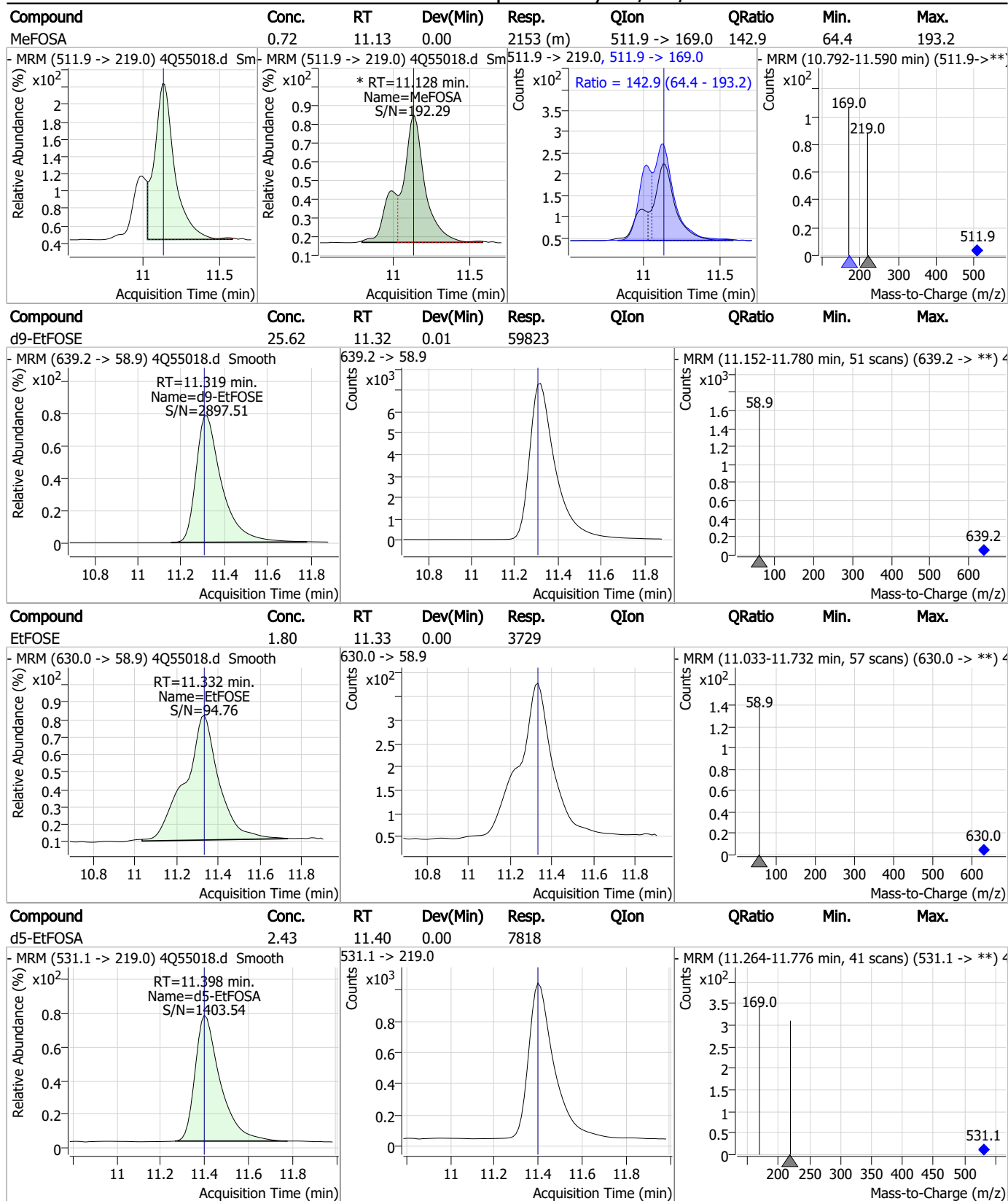
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.67	11.04	0.00	3969				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.43	11.13	0.00	8146				

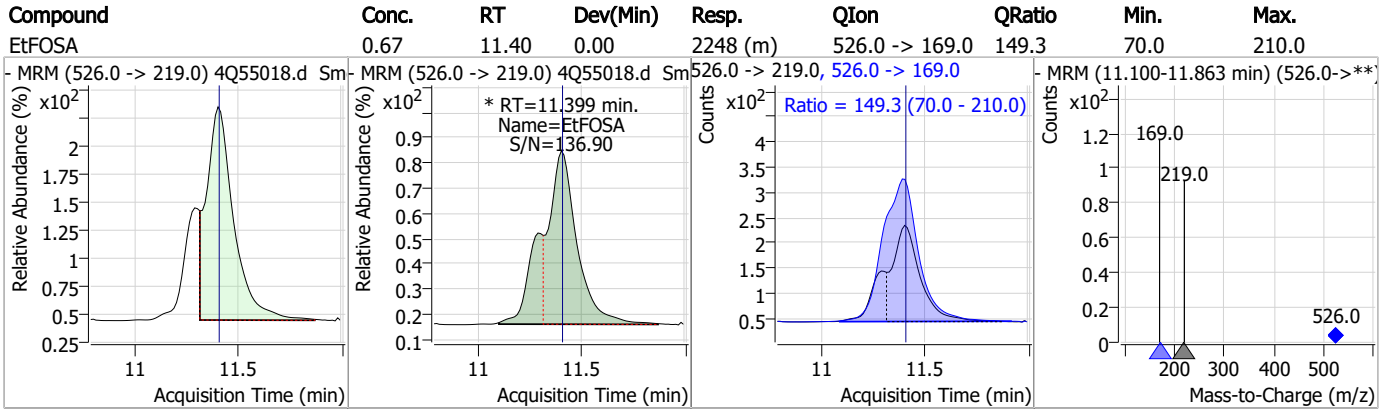


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S4Q806-IC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55018.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 15:10 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
MeFOSAA	2355-31-9		8.10	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
MeFOSA	31506-32-8		11.13	Split peak
EtFOSA	4151-50-2		11.40	Split peak

7.7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55019.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 3:25:07 PM
 Sample Name : ic806-3
 Vial : P1-A4
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.711	216.8 -> 171.9	236435	10.00 µg/L	0.012
M5-PFPeA	4.187	268.3 -> 223.0	105338	5.00 µg/L	0.012
M5-PFHxA	5.347	318.0 -> 273.0	88690	2.50 µg/L	0.000
M4-PFHpA	6.304	367.1 -> 322.0	86058	2.50 µg/L	0.012
M8-PFOA	6.976	421.1 -> 376.0	133884	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	49601	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	34664	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	40764	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	44077	1.25 µg/L	0.000
M2-PFTeDA	9.649	715.2 -> 670.0	43468	1.25 µg/L	0.000
M8-FOSA	9.806	506.1 -> 77.8	21693	2.50 µg/L	0.012
M3-PFBS	5.215	302.1 -> 79.9	24953	2.50 µg/L	0.012
M3-PFHxS	7.042	402.1 -> 79.9	19730	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	20550	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	2707	5.00 µg/L	0.000
M2-6:2FTS	6.761	429.1 -> 80.9	6012	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	7534	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	41837	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	80440	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	35184	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	81488	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	78278	25.00 µg/L	0.000
M5-EtFOSA	11.398	531.1 -> 219.0	10794	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	10973	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	15599	2.50 µg/L	0.000
13C3-PFBA	2.716	216.0 -> 172.0	109157	5.00 µg/L	0.012
18O2-PFHxS	7.041	403.0 -> 83.9	11862	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	147018	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	38660	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	50470	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	96760	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	2707	5.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.0%		
13C2-6:2FTS	6.761	429.1 -> 80.9	6012	5.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 118.6%		
13C2-8:2FTS	7.804	529.1 -> 80.9	7534	5.63 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.7%		
13C2-PFDoDA	8.880	615.1 -> 570.0	44077	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C2-PFTeDA	9.649	715.2 -> 670.0	43468	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFBS	5.215	302.1 -> 79.9	24953	2.65 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C3-PFHxS	7.042	402.1 -> 79.9	19730	2.70 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 = 107.9%		
13C4-PFBA	2.711	216.8 -> 171.9	236435	10.06 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C4-PFHpA	6.304	367.1 -> 322.0	86058	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C5-PFHxA	5.347	318.0 -> 273.0	88690	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C5-PFPeA	4.187	268.3 -> 223.0	105338	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C6-PFDA	8.004	519.1 -> 474.1	34664	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C7-PFUnDA	8.448	570.0 -> 525.1	40764	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C8-FOSA	9.806	506.1 -> 77.8	21693	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C8-PFOA	6.976	421.1 -> 376.0	133884	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C8-PFOS	8.117	507.1 -> 79.9	20550	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C9-PFNA	7.521	472.1 -> 427.0	49601	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
d3-MeFOSAA	8.086	573.2 -> 419.0	41837	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C3-HFPO-DA	5.702	286.9 -> 168.9	80440	9.75 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
d3-MeFOSA	11.126	515.0 -> 219.0	10973	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.9%		
d5-EtFOSAA	8.283	589.2 -> 419.0	35184	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
d7-MeFOSE	11.022	623.2 -> 58.9	81488	25.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.8%		
d9-EtFOSE	11.306	639.2 -> 58.9	78278	24.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
d5-EtFOSA	11.398	531.1 -> 219.0	10794	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	22369	4.56 µg/L	99
		327.1 -> 80.9	9070		
6:2FTS	6.761	427.1 -> 407.0	28827	4.51 µg/L	99
		427.1 -> 80.9	10741		
8:2FTS	7.804	527.1 -> 507.0	20233	4.96 µg/L	96
		527.1 -> 80.8	7682		
EtFOSAA	8.297	584.2 -> 419.1	7445	1.20 µg/L	m 96
		584.2 -> 526.0	2874		
FOSA	9.798	498.1 -> 77.9	12301	1.25 µg/L	100
		498.1 -> 478.0	412		
MeFOSAA	8.087	570.1 -> 419.0	8166	1.26 µg/L	90
		570.1 -> 483.0	1725		
PFBA	2.720	212.8 -> 168.9	36977	4.92 µg/L	100
PFBS	5.216	298.7 -> 79.9	7852	1.05 µg/L	100
		298.7 -> 98.8	3070		
PFDA	8.005	512.9 -> 469.0	30769	1.22 µg/L	95
		512.9 -> 219.0	6227		
PFDODA	8.880	613.1 -> 569.0	41771	1.28 µg/L	98
		613.1 -> 319.0	7124		
PFDS	9.020	599.0 -> 79.9	6324	1.15 µg/L	90

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3306			
PFHpA	6.305	363.1 -> 319.0	60468	1.24	µg/L	97
		363.1 -> 169.0	10104			
PFHpS	7.612	449.0 -> 79.9	9962	1.14	µg/L	99
		449.0 -> 98.9	5186			
PFHxA	5.350	313.0 -> 269.0	34682	1.22	µg/L	99
		313.0 -> 118.9	1222			
PFHxS	7.043	398.7 -> 79.9	7060	1.15	µg/L	m 91
		398.7 -> 98.9	3744			
PFNA	7.522	463.0 -> 419.0	39052	1.28	µg/L	98
		463.0 -> 219.0	9120			
PFNS	8.586	548.8 -> 79.9	4623	1.29	µg/L	91
		548.8 -> 98.9	2514			
PFOA	6.978	413.0 -> 369.0	69400	1.23	µg/L	100
		413.0 -> 169.0	14132			
PFOS	8.119	498.9 -> 79.9	9712	1.15	µg/L	m 83
		498.9 -> 98.8	4354			
PFPeA	4.189	263.0 -> 219.0	50176	2.46	µg/L	100
PFPeS	6.294	349.1 -> 79.9	7346	1.10	µg/L	99
		349.1 -> 98.9	3221			
PFTeDA	9.650	713.1 -> 669.0	37584	1.26	µg/L	100
		713.1 -> 168.9	3918			
PFTrDA	9.279	663.0 -> 619.0	45504	1.31	µg/L	99
		663.0 -> 168.9	6276			
PFUnDA	8.449	563.1 -> 519.0	37217	1.21	µg/L	99
		563.1 -> 269.1	7945			
11Cl-PF3OUdS	9.306	630.9 -> 450.9	51957	2.42	µg/L	99
		632.9 -> 452.9	16077			
9Cl-PF3ONS	8.451	530.8 -> 351.0	52136	2.51	µg/L	100
		532.8 -> 353.0	16319			
ADONA	6.568	376.9 -> 250.9	154953	2.69	µg/L	100
		376.9 -> 84.8	36922			
HFPO-DA	5.703	284.9 -> 168.9	19547	2.56	µg/L	100
		284.9 -> 184.9	1883			
3:3FTCA	3.642	241.0 -> 177.0	5636	5.93	µg/L	99
		241.0 -> 117.0	543			
5:3FTCA	6.033	341.0 -> 237.1	111580	30.92	µg/L	99
		341.0 -> 217.0	78999			
7:3FTCA	7.549	441.0 -> 316.9	53081	31.23	µg/L	97
		441.0 -> 336.9	127568			
EtFOSA	11.399	526.0 -> 219.0	11154	2.39	µg/L	98
		526.0 -> 169.0	15876			
EtFOSE	11.332	630.0 -> 58.9	16718	6.16	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	9712	2.42	µg/L	m 88
		511.9 -> 169.0	13809			
MeFOSE	11.035	616.1 -> 58.9	19284	6.08	µg/L	100
PFDoDS	9.777	699.1 -> 79.9	4821	1.18	µg/L	97
		699.1 -> 98.8	2683			
NFDHA	5.229	295.0 -> 201.0	5264	2.73	µg/L	96
		295.0 -> 84.9	1284			
PFMBA	4.591	279.0 -> 85.1	29118	2.47	µg/L	100
PFMPA	3.344	229.0 -> 84.9	29077	2.44	µg/L	100
PFEESA	5.734	314.8 -> 134.9	46586	2.23	µg/L	99
		314.8 -> 82.9	1506			

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

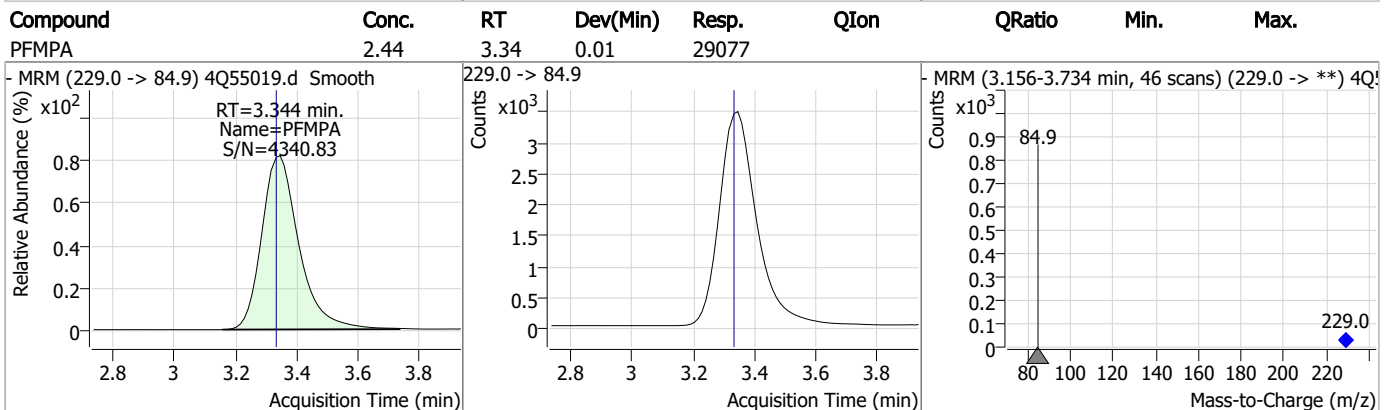
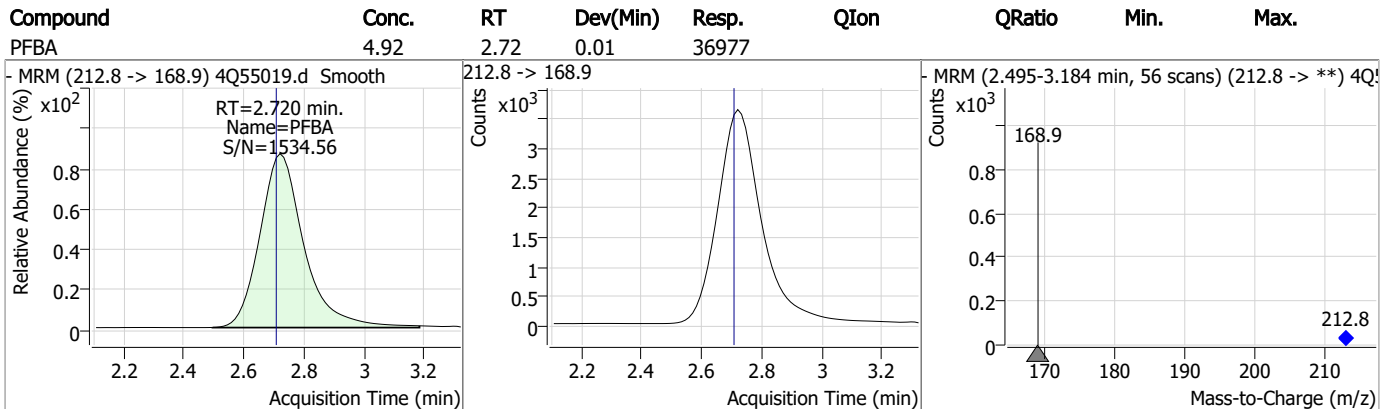
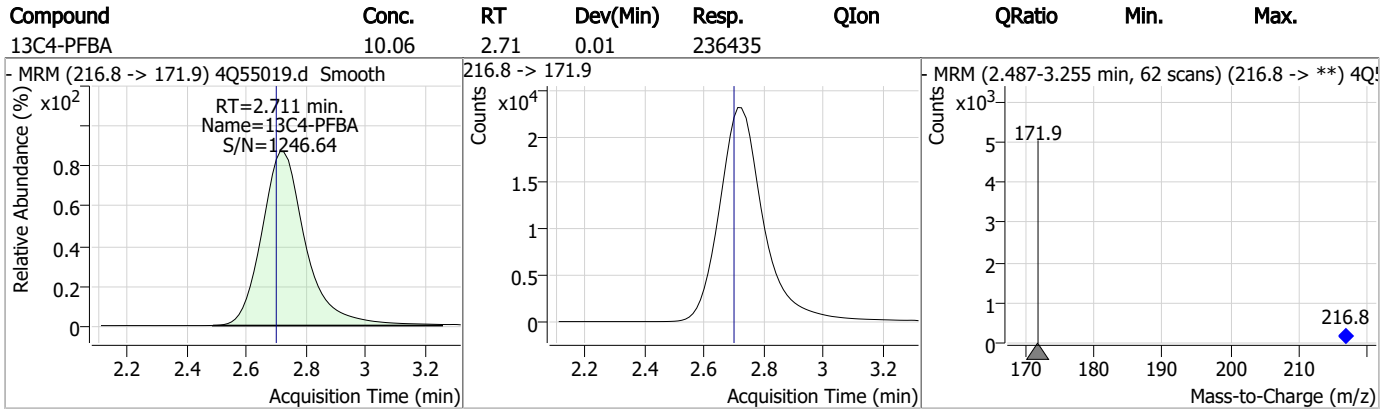
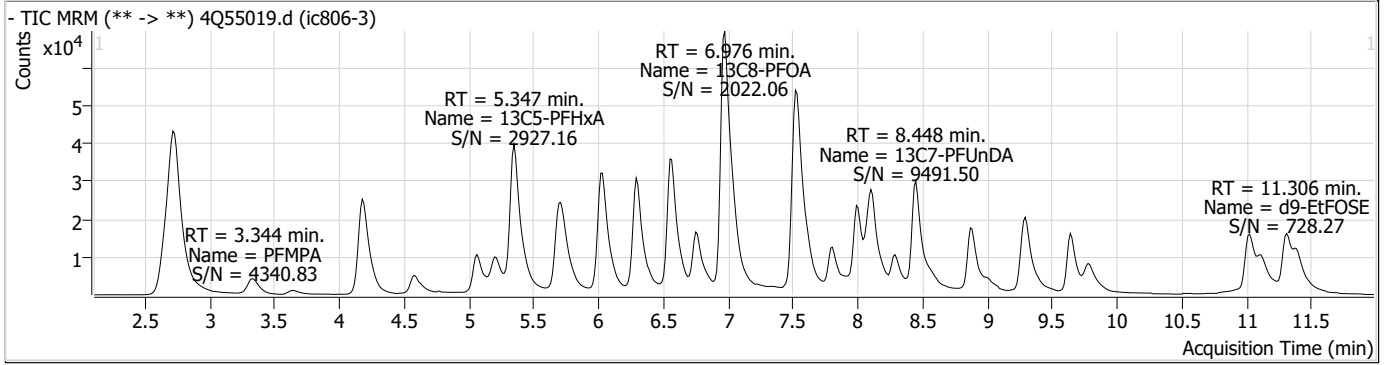
Perfluorinated Compounds by LC/MS/MS

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

7

Perfluorinated Compounds by LC/MS/MS

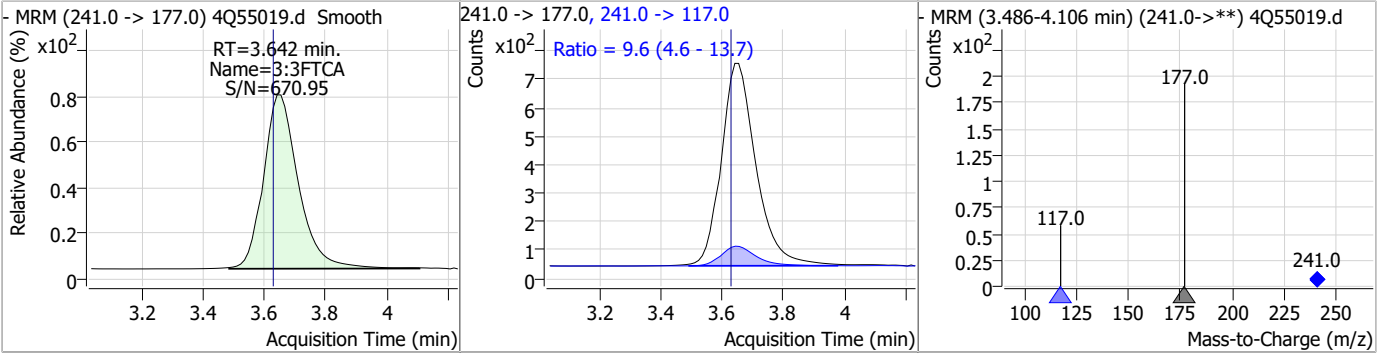


7.7.4

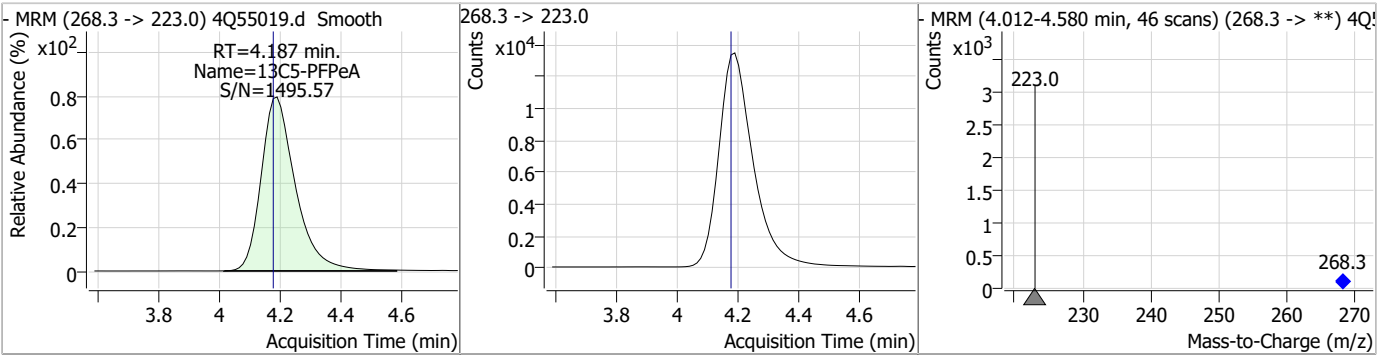
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Perfluorinated Compounds by LC/MS/MS

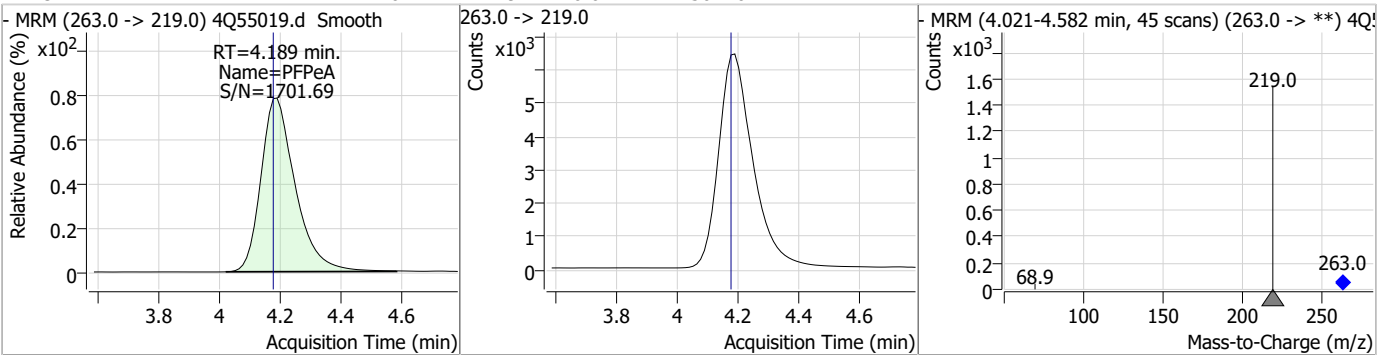
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	5.93	3.64	0.01	5636	241.0 -> 117.0	9.6	4.6	13.7



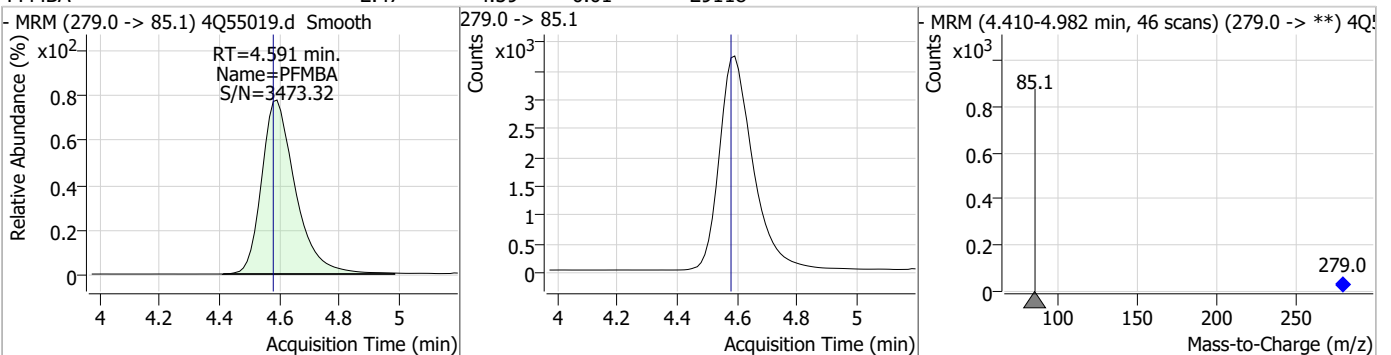
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.01	4.19	0.01	105338				



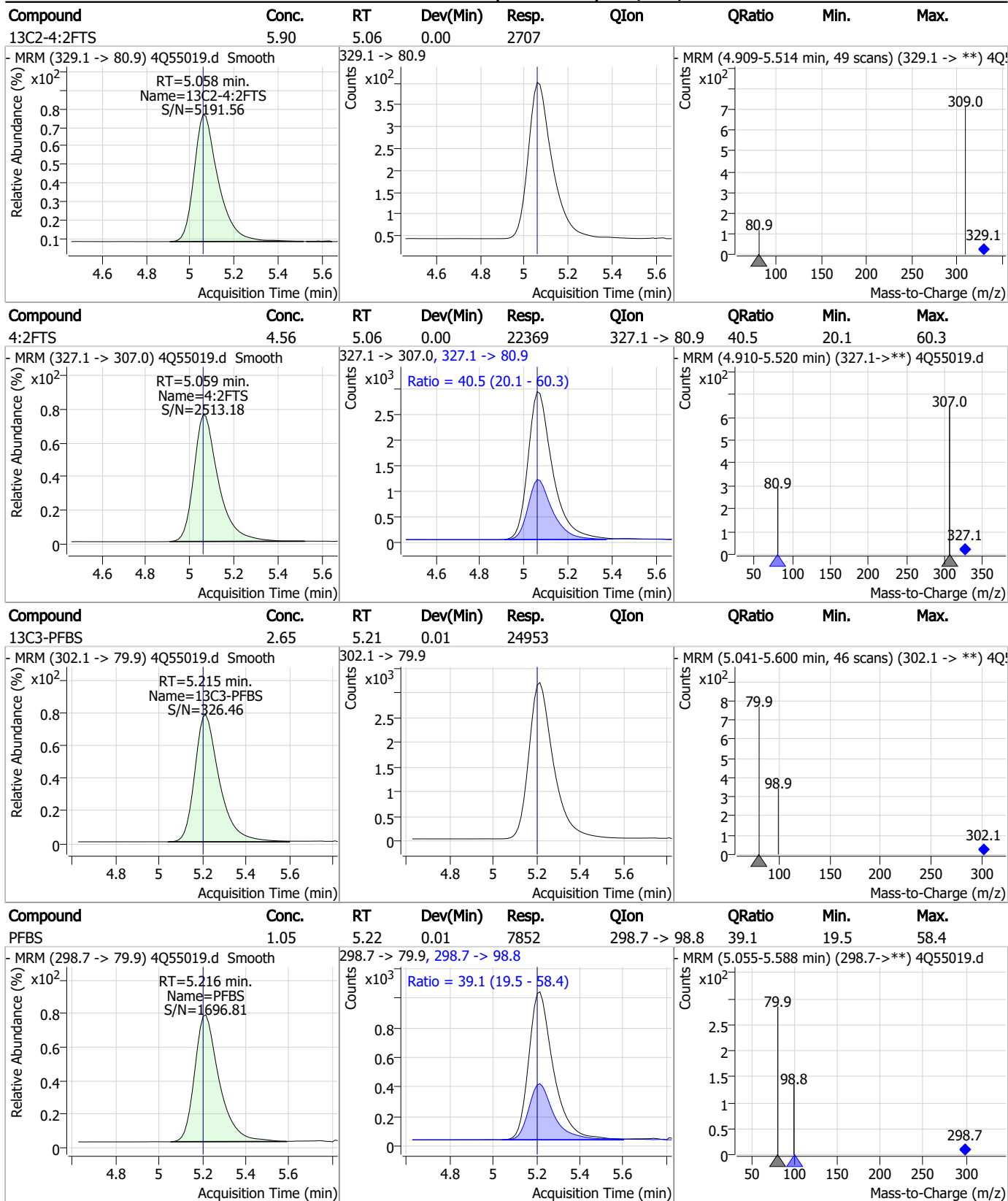
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.46	4.19	0.01	50176				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	2.47	4.59	0.01	29118				



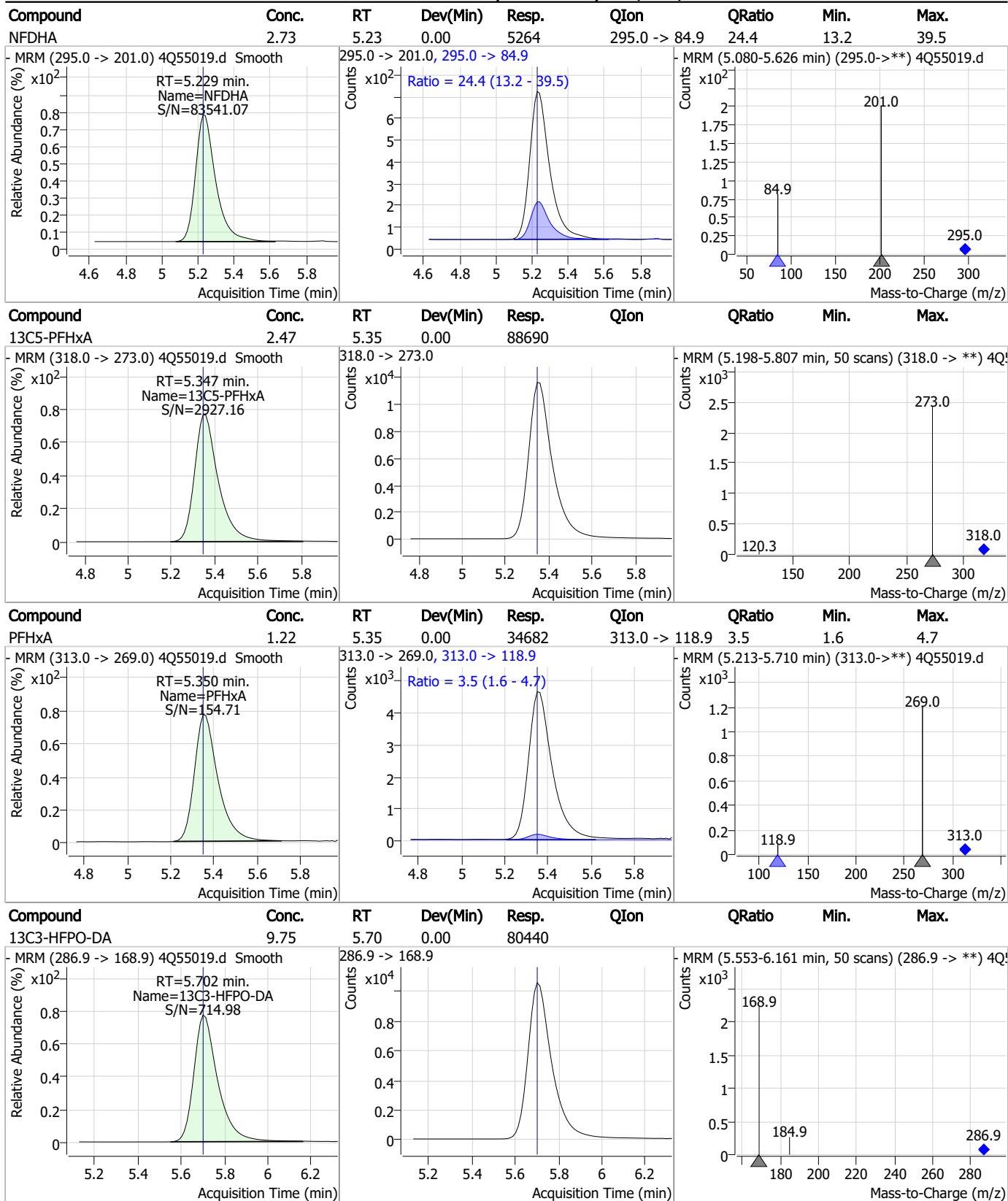
Perfluorinated Compounds by LC/MS/MS



7.7.4

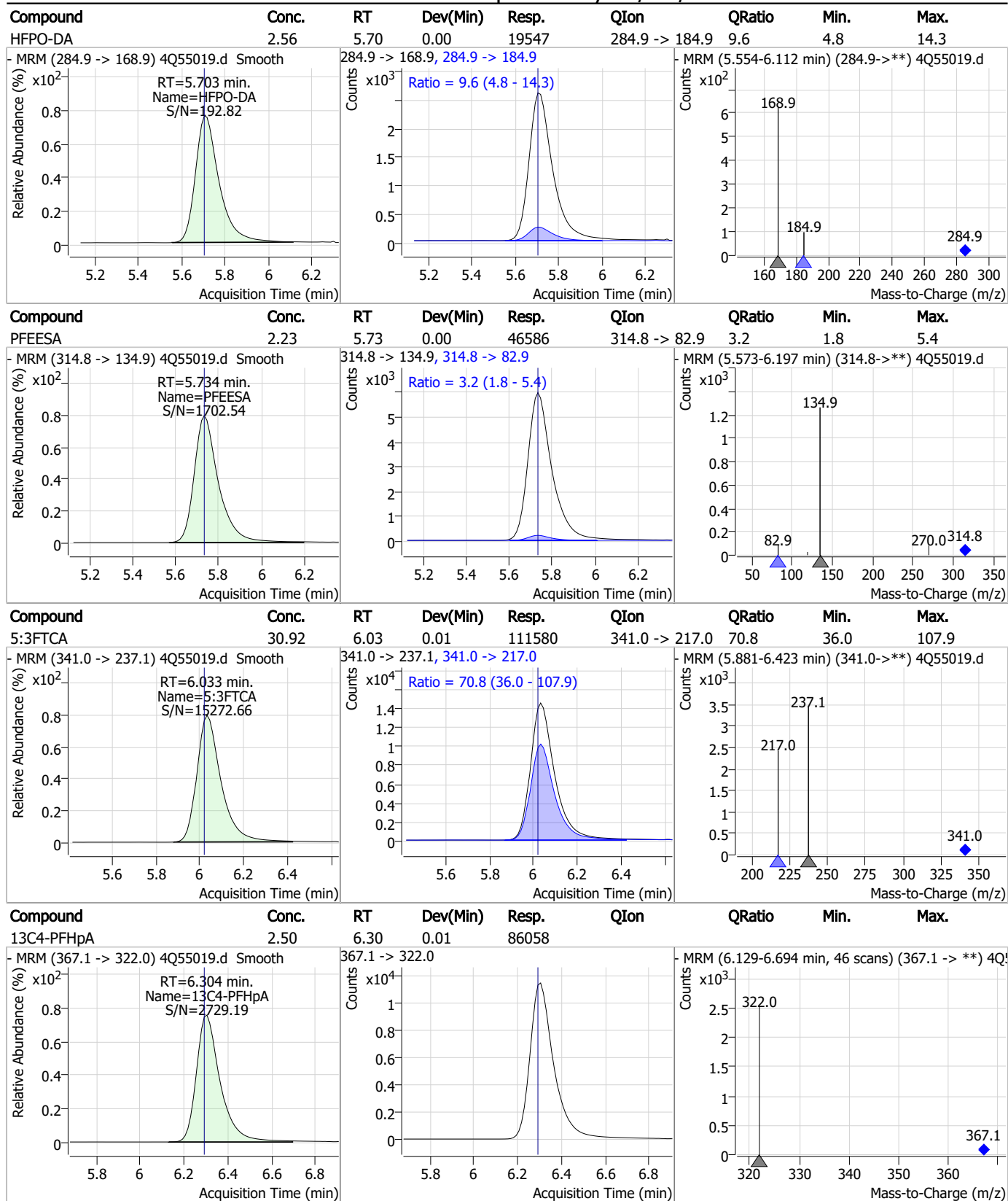
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Perfluorinated Compounds by LC/MS/MS



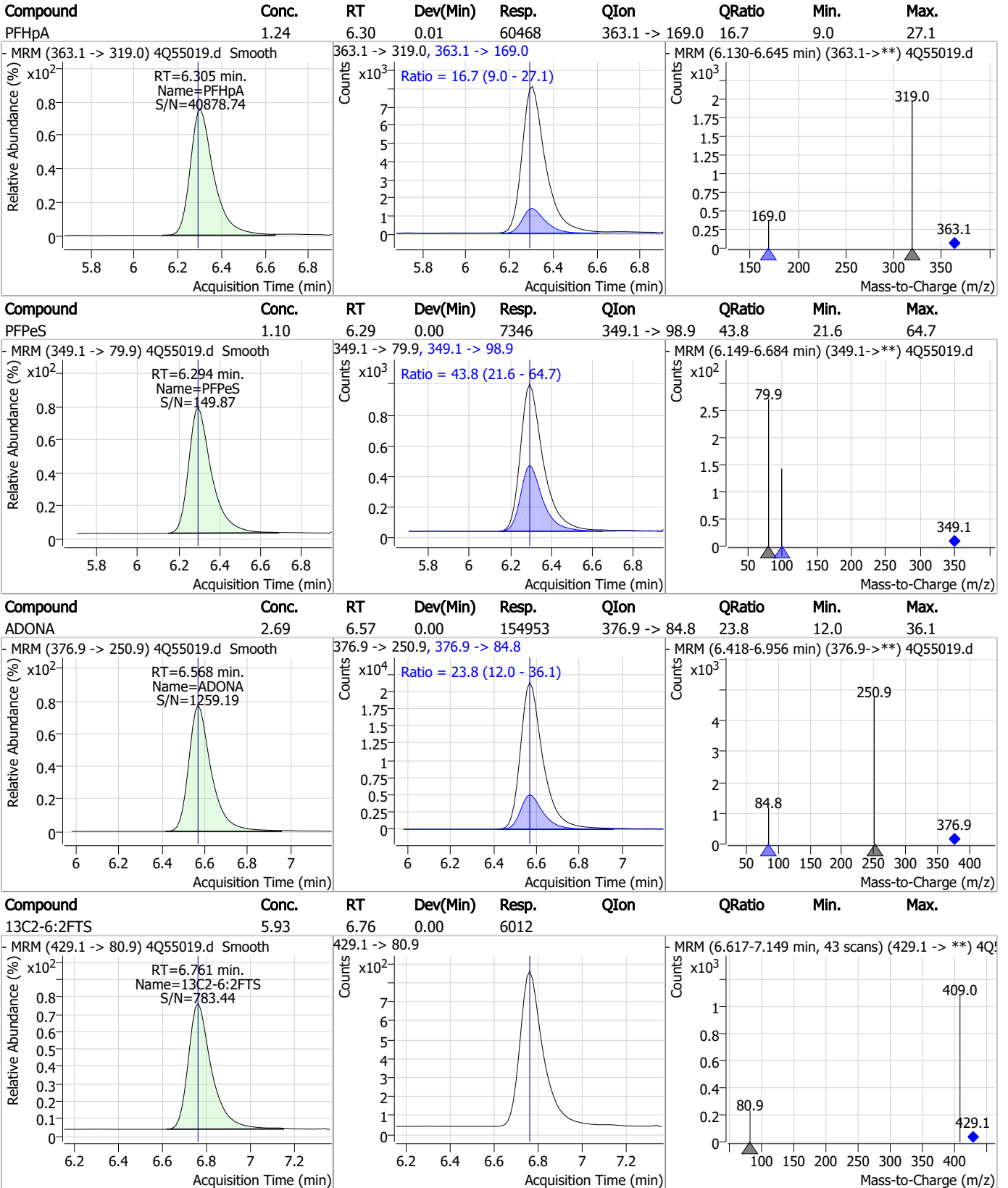
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
7

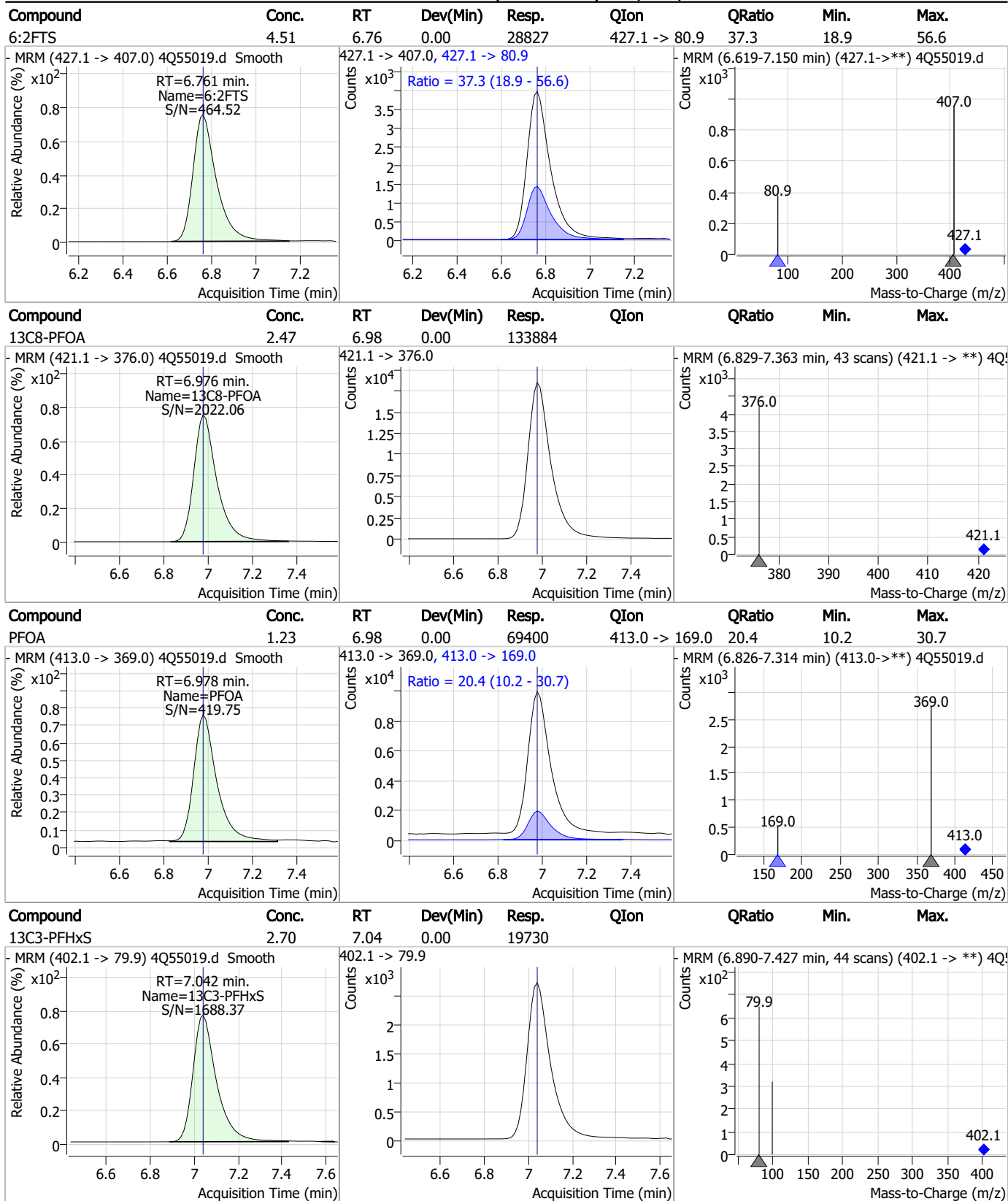
Perfluorinated Compounds by LC/MS/MS



7.7.4

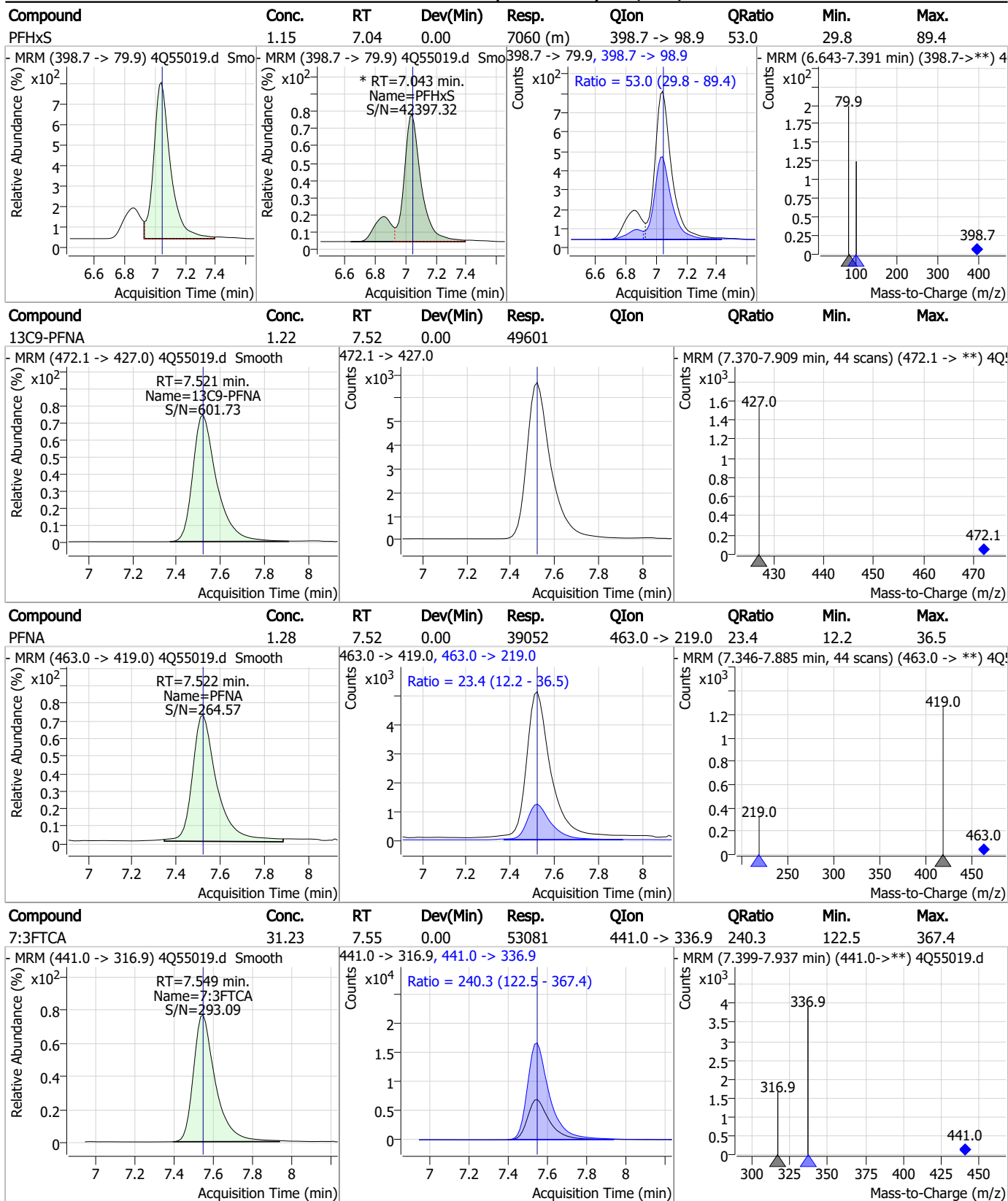
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Perfluorinated Compounds by LC/MS/MS



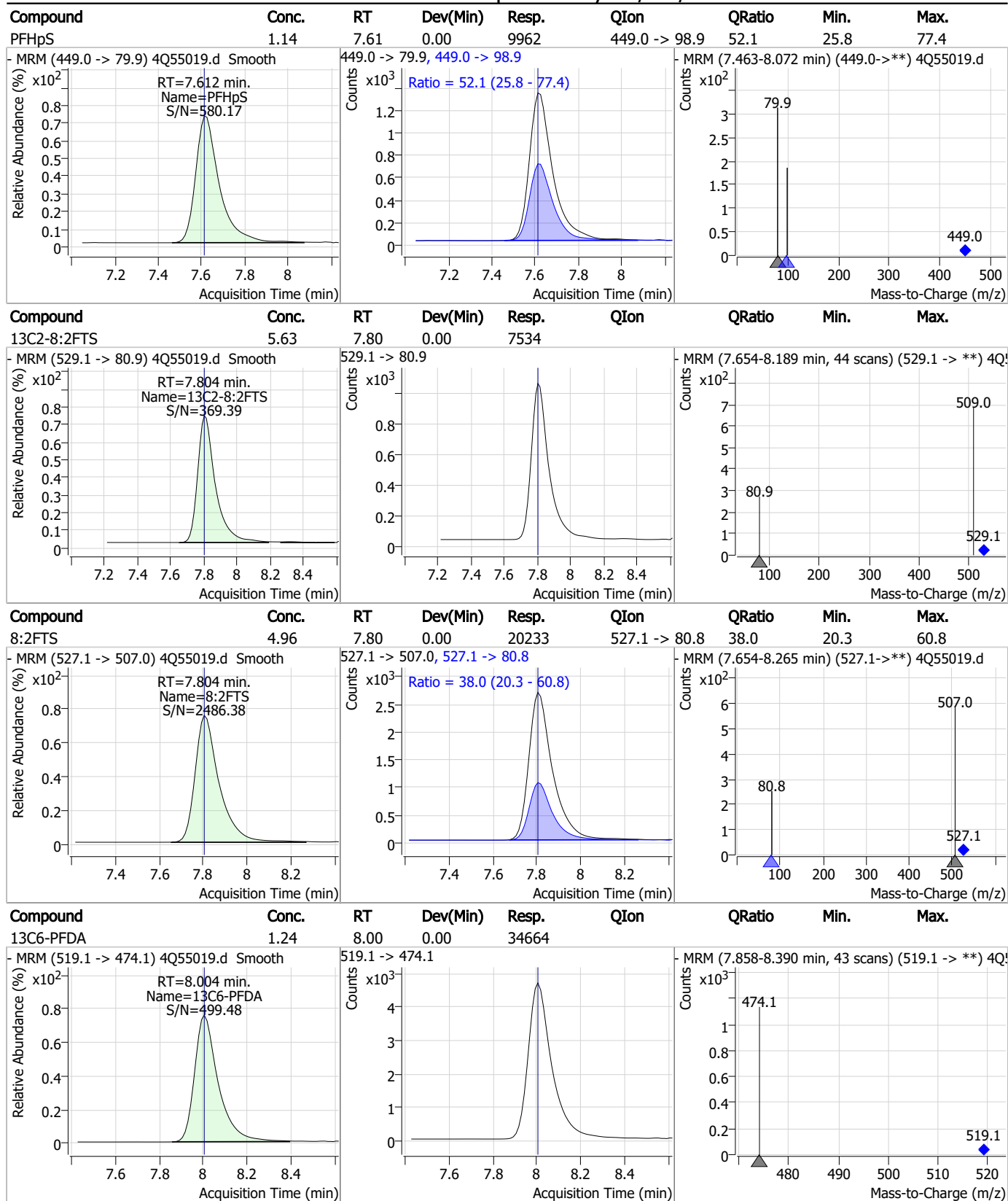
7.7.4
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Perfluorinated Compounds by LC/MS/MS



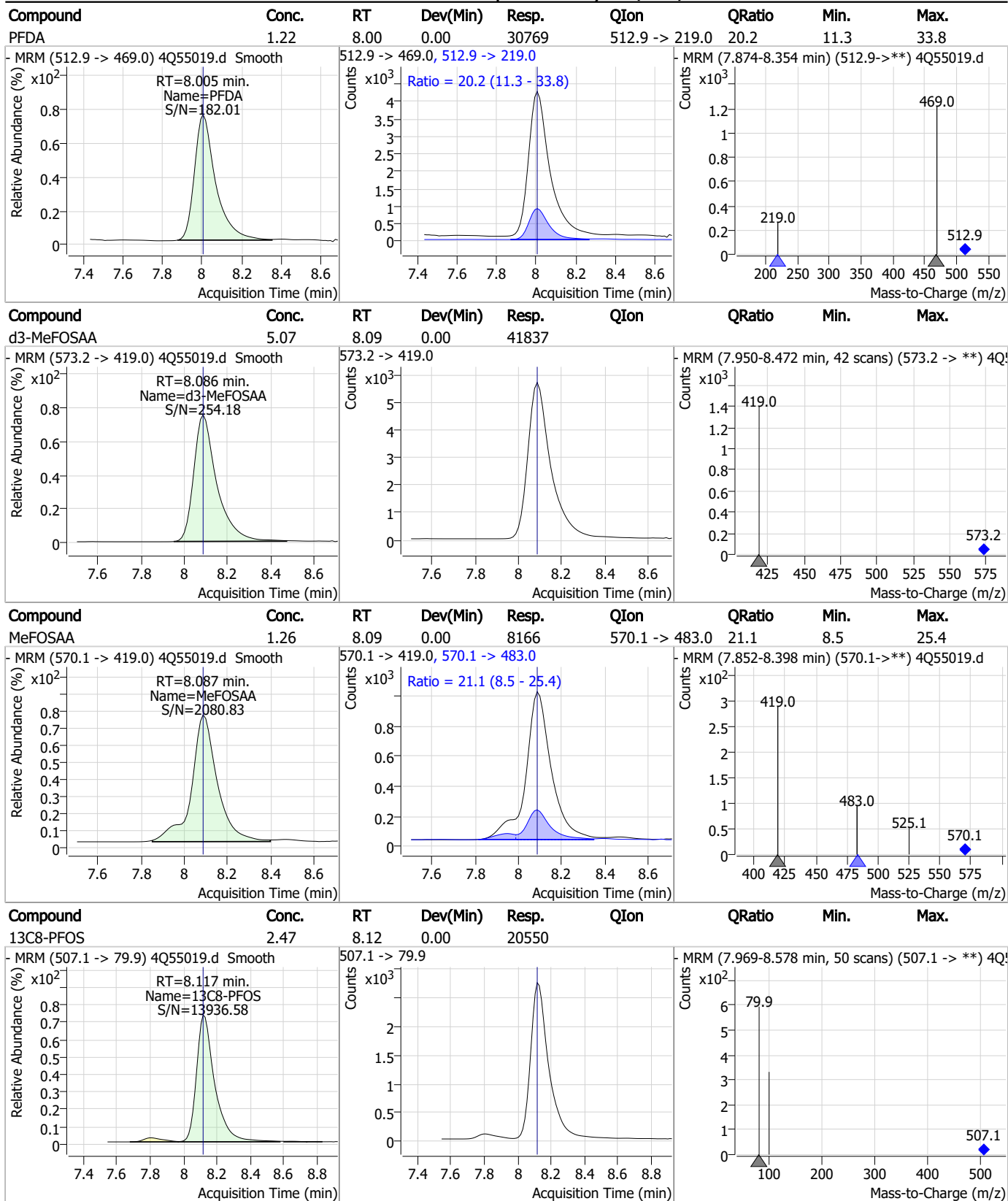
7.7.4
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Perfluorinated Compounds by LC/MS/MS



7.7.4
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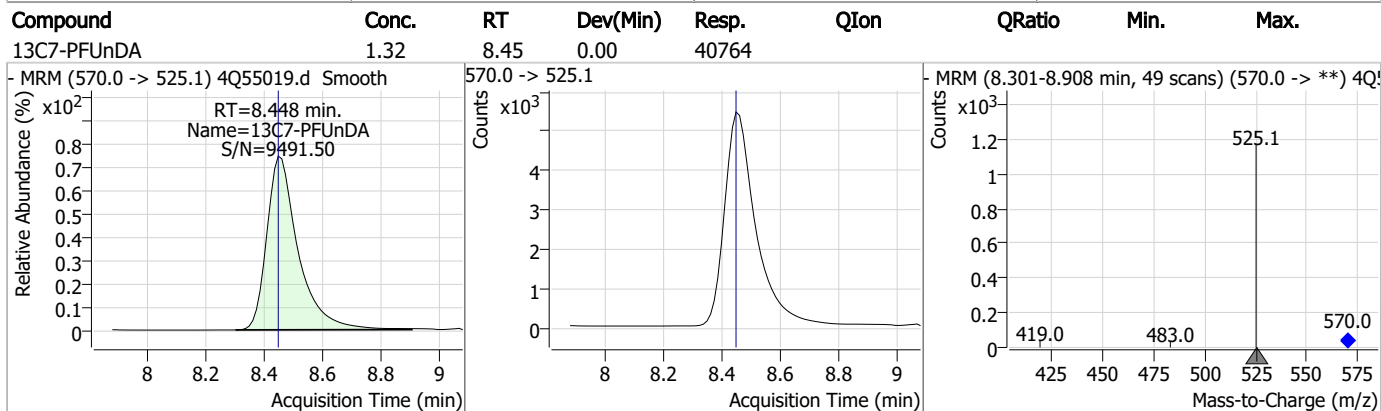
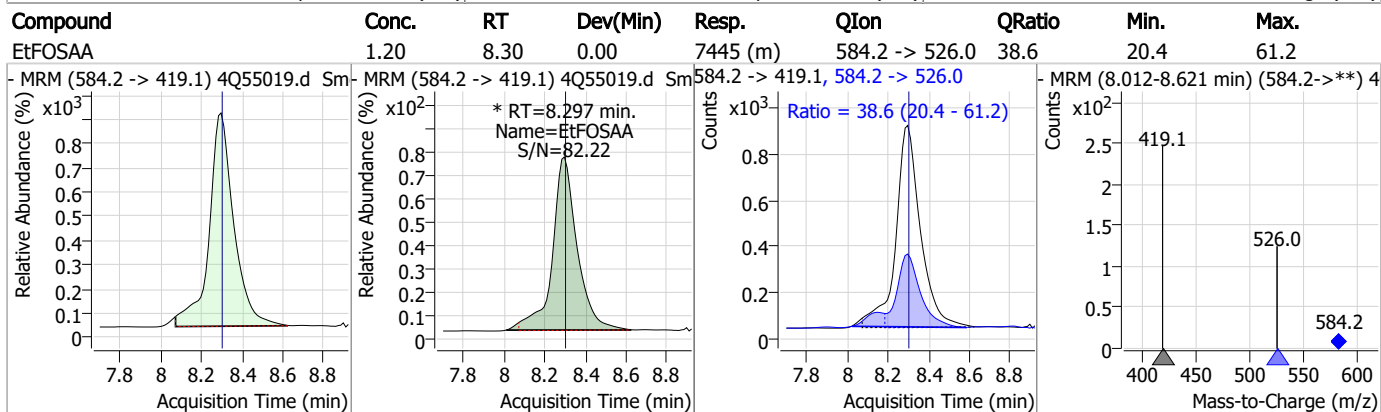
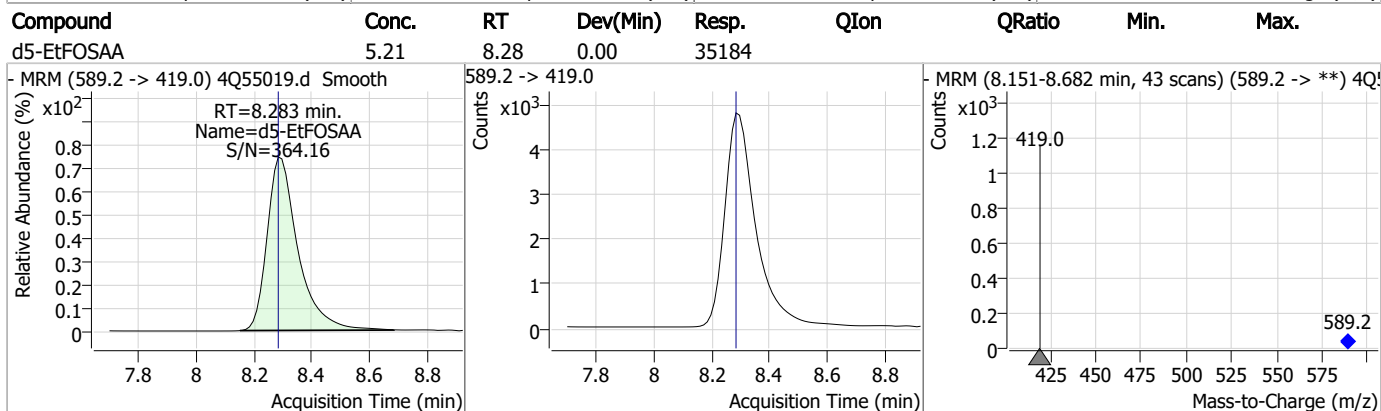
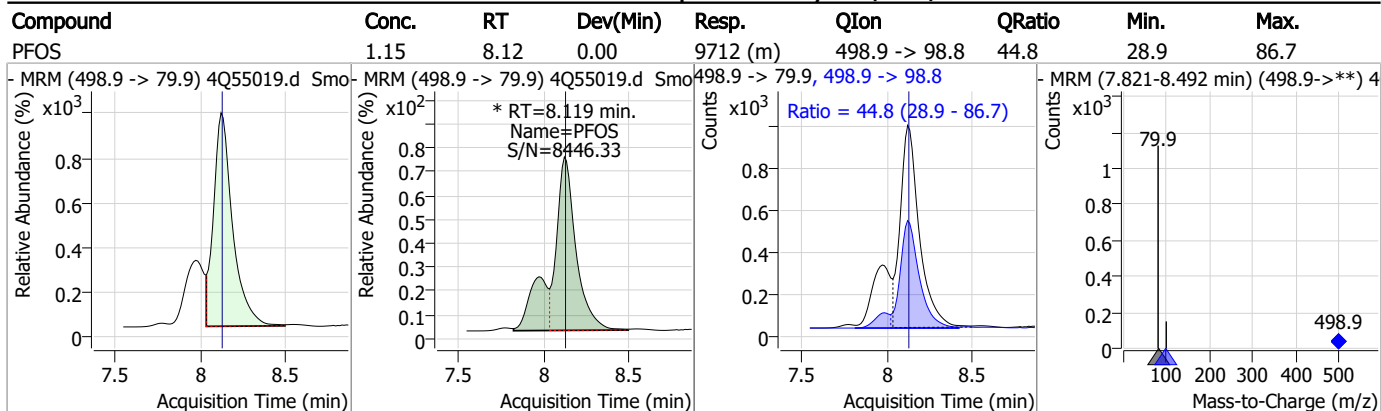
Perfluorinated Compounds by LC/MS/MS



7.7.4

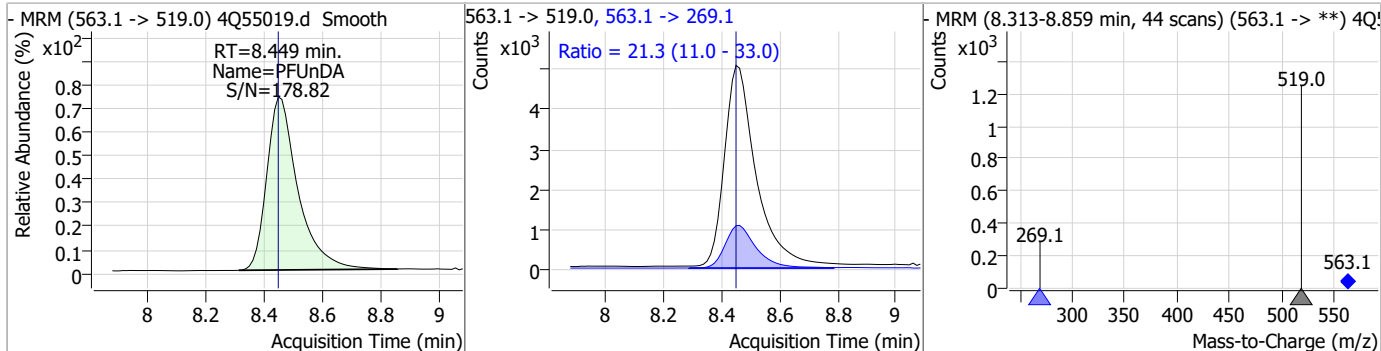
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Perfluorinated Compounds by LC/MS/MS

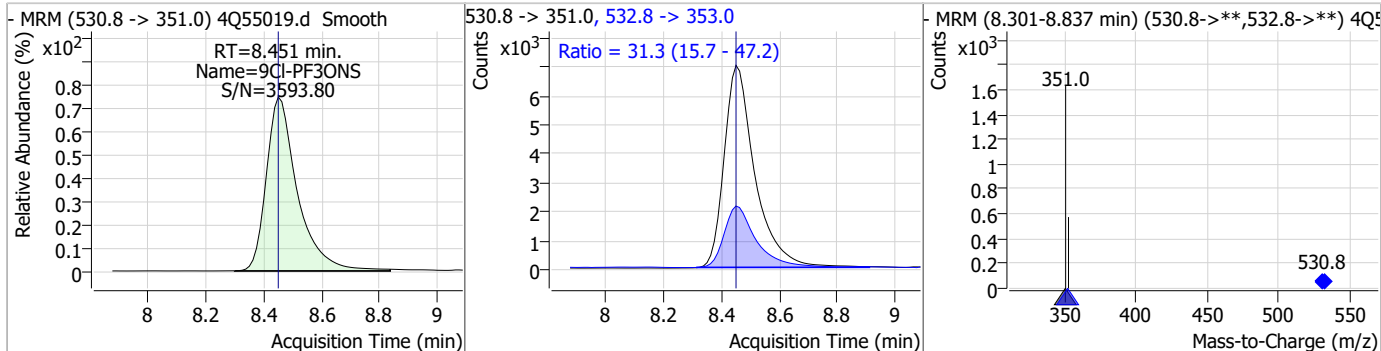


Perfluorinated Compounds by LC/MS/MS

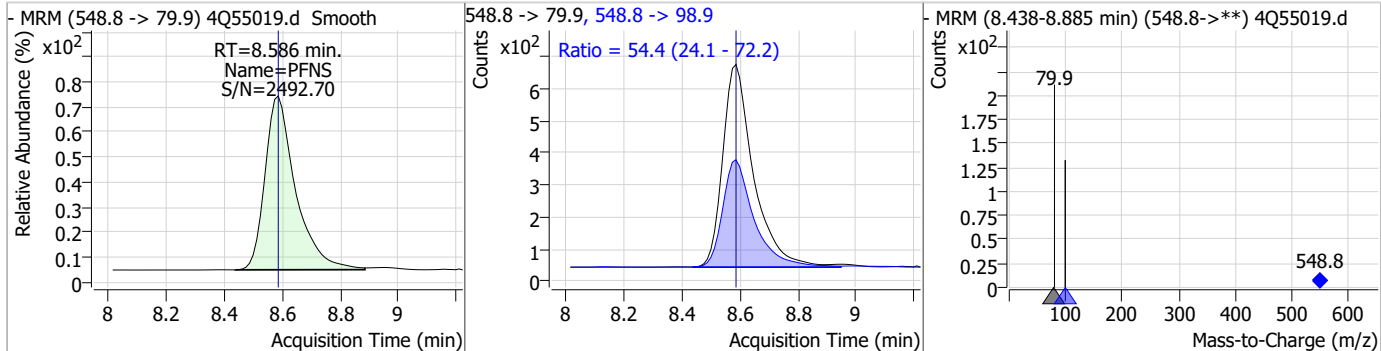
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.21	8.45	0.00	37217	563.1 -> 269.1	21.3	11.0	33.0



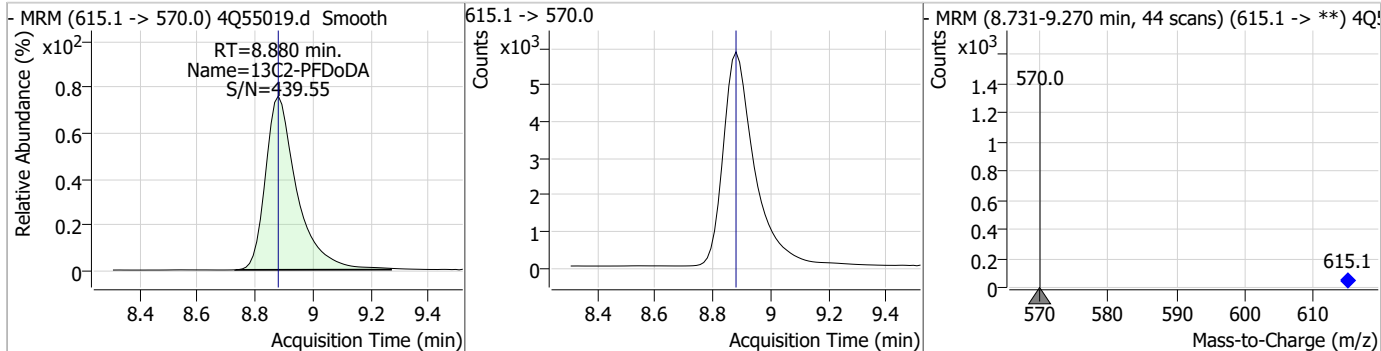
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	2.51	8.45	0.00	52136	532.8 -> 353.0	31.3	15.7	47.2



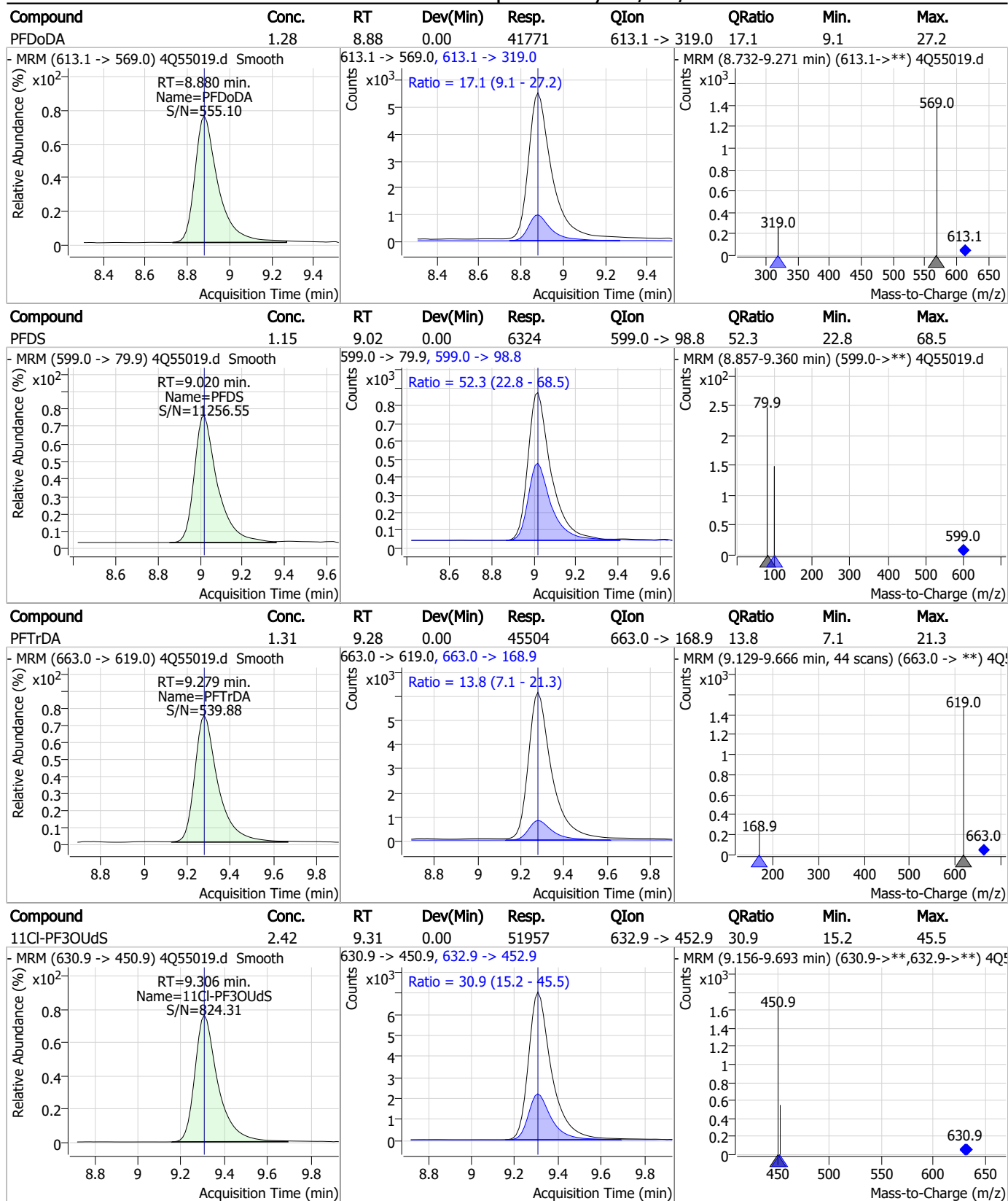
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.29	8.59	0.00	4623	548.8 -> 98.9	54.4	24.1	72.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.21	8.88	0.00	44077	615.1 -> 570.0			

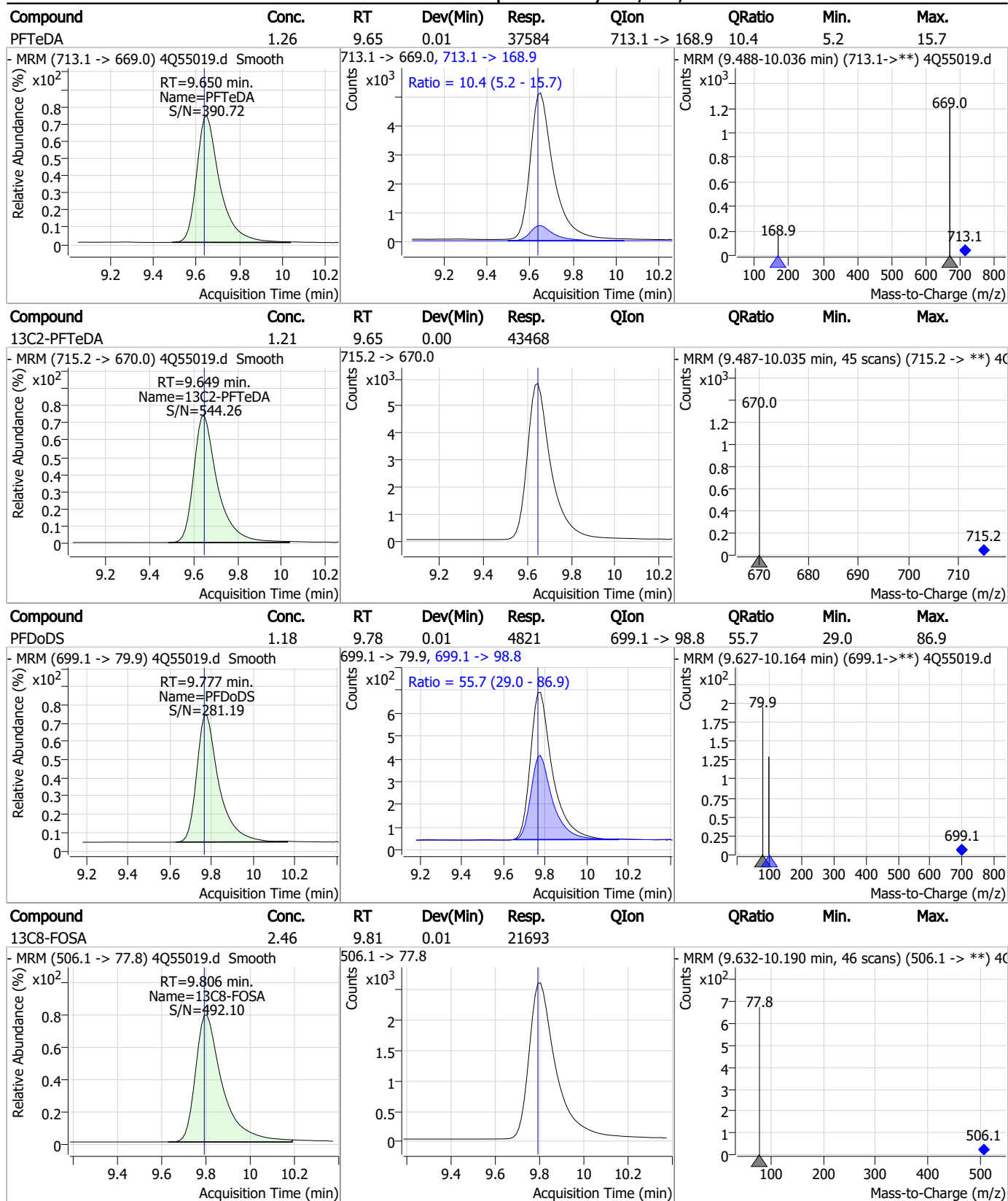


Perfluorinated Compounds by LC/MS/MS



7.7.4
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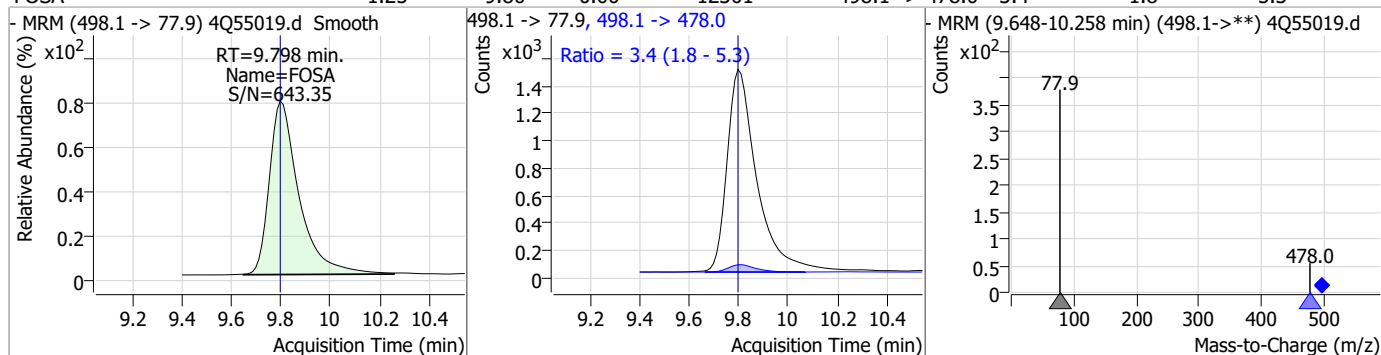
Perfluorinated Compounds by LC/MS/MS



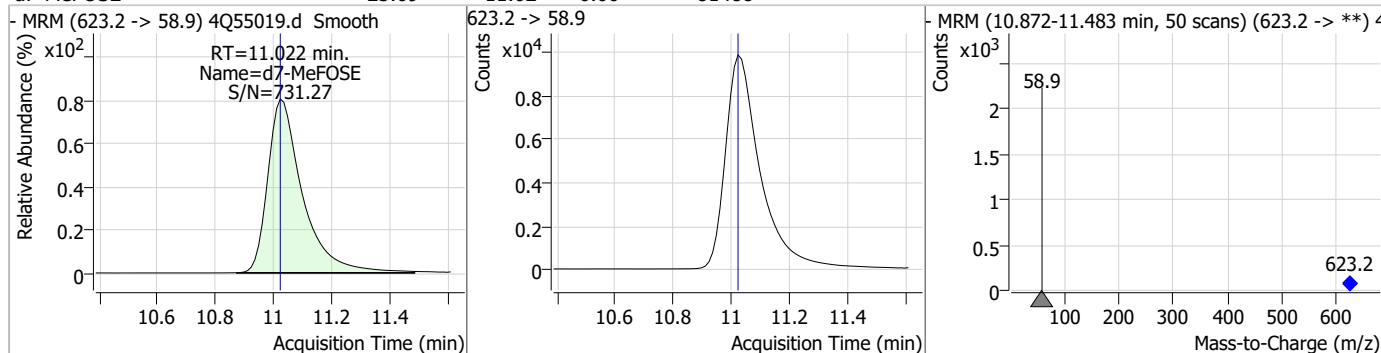
7.7.4
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Perfluorinated Compounds by LC/MS/MS

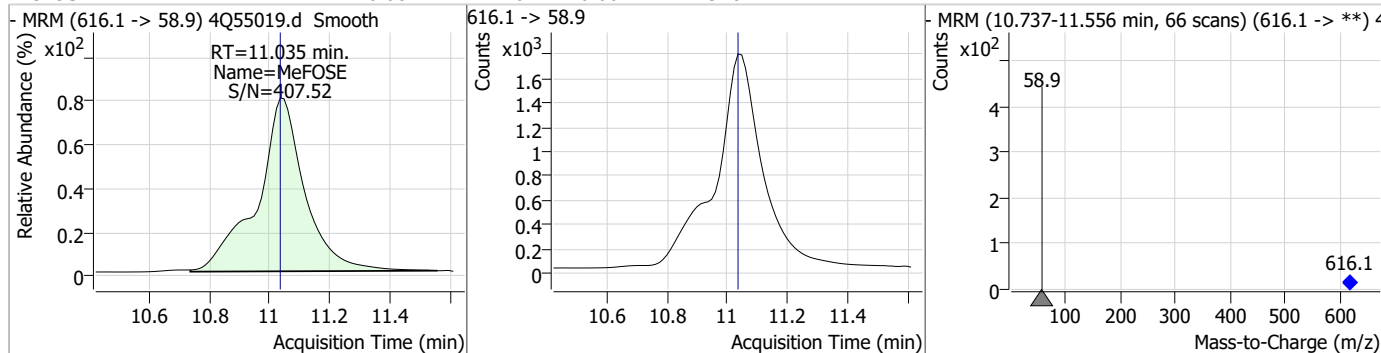
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.25	9.80	0.00	12301	498.1 -> 478.0	3.4	1.8	5.3



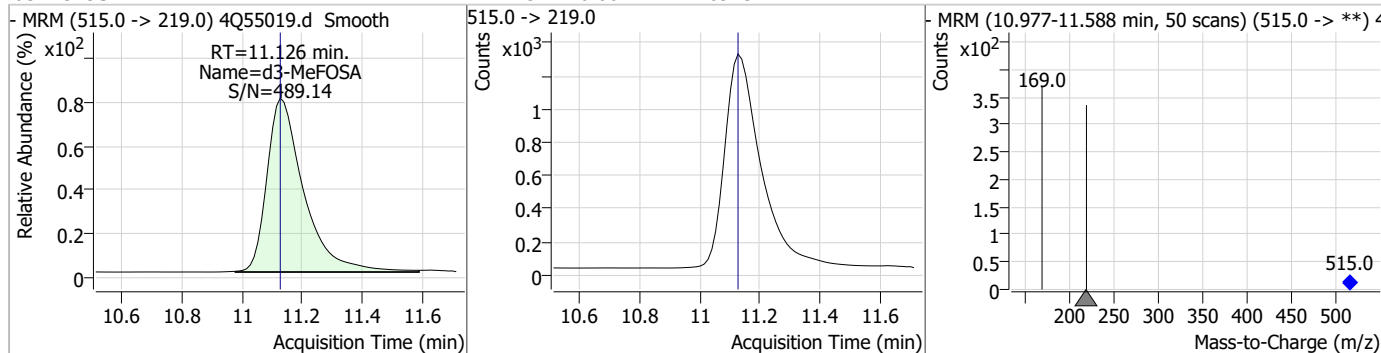
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.69	11.02	0.00	81488	623.2 -> 58.9			



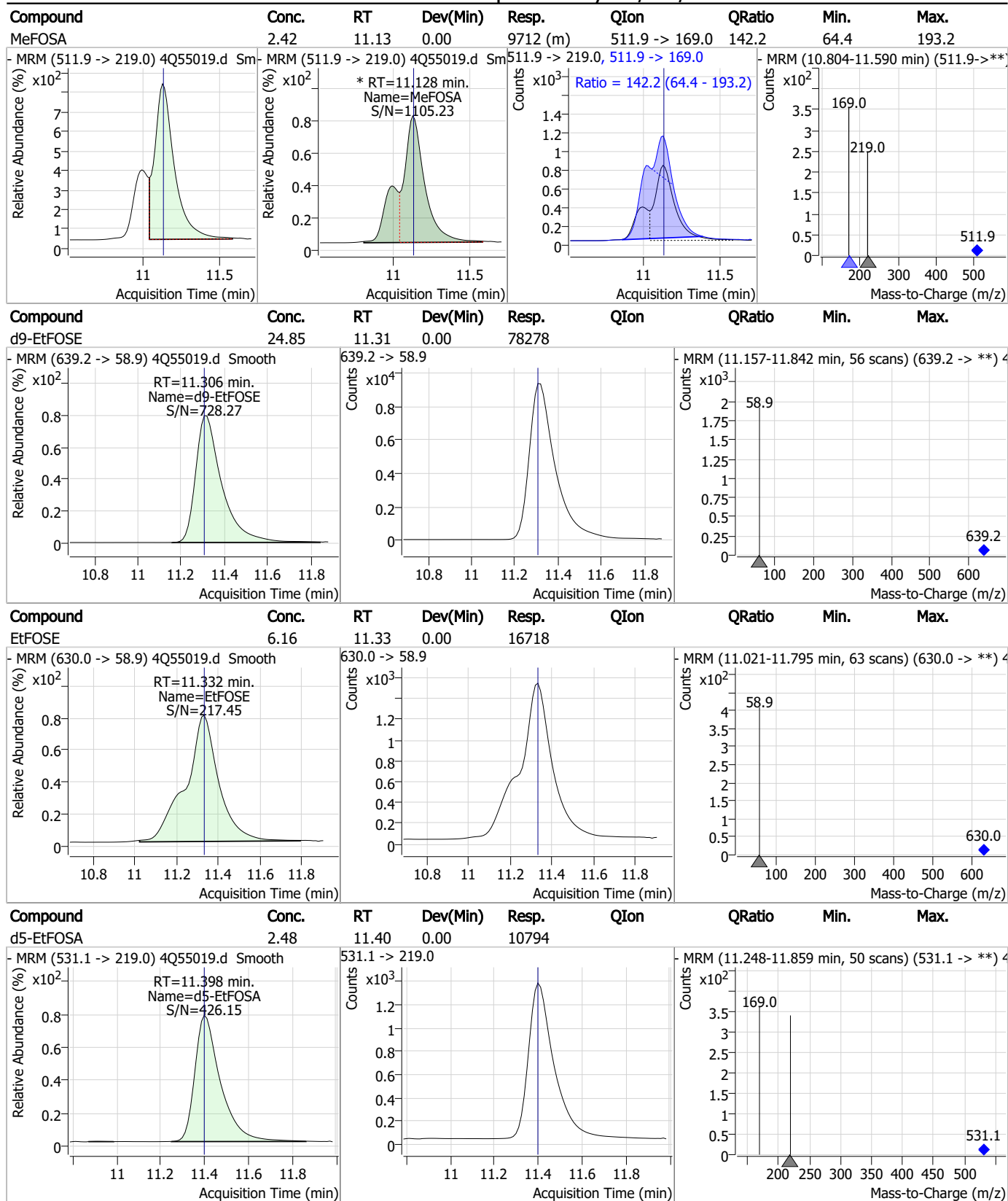
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	6.08	11.04	0.00	19284	616.1 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.42	11.13	0.00	10973	515.0 -> 169.0			

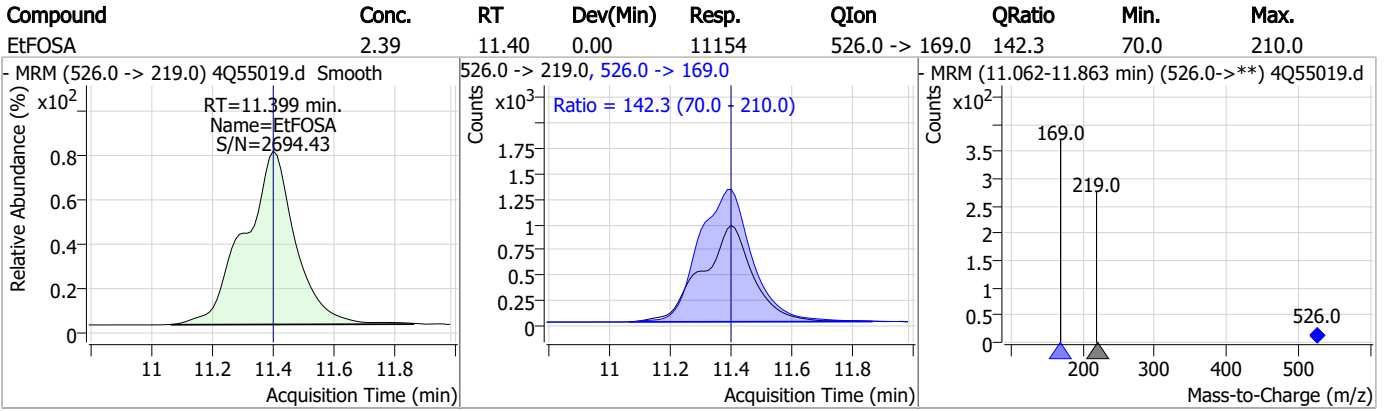


Perfluorinated Compounds by LC/MS/MS



7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4

7

Manual Integration Approval Summary

Sample Number: S4Q806-IC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55019.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 15:25 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSA	31506-32-8		11.13	Split peak

7.7.4.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55020.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 3:39:53 PM
 Sample Name : icc806-4
 Vial : P1-A5
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.699	216.8 -> 171.9	168893	10.00 µg/L	0.000
M5-PFPeA	4.175	268.3 -> 223.0	77313	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	66174	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	64064	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	100312	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	38712	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	25660	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	30077	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	33504	1.25 µg/L	0.000
M2-PFTeDA	9.649	715.2 -> 670.0	32192	1.25 µg/L	0.000
M8-FOSA	9.794	506.1 -> 77.8	16508	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	17813	2.50 µg/L	0.000
M3-PFHxS	7.042	402.1 -> 79.9	13896	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	14820	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1956	5.00 µg/L	0.000
M2-6:2FTS	6.761	429.1 -> 80.9	4467	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	5631	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	31791	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	60989	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	24767	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	58560	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	58475	25.00 µg/L	0.000
M5-EtFOSA	11.397	531.1 -> 219.0	7692	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7868	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11965	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	79864	5.00 µg/L	0.000
18O2-PFHxS	7.041	403.0 -> 83.9	9747	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	110130	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	28262	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	38657	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	72700	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1956	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-6:2FTS	6.761	429.1 -> 80.9	4467	5.36 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-8:2FTS	7.804	529.1 -> 80.9	5631	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-PFDoDA	8.880	615.1 -> 570.0	33504	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.649	715.2 -> 670.0	32192	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C3-PFBS	5.202	302.1 -> 79.9	17813	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.1%		
13C3-PFHxS	7.042	402.1 -> 79.9	13896	2.31 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 = 92.5%	
13C4-PFBA	2.699	216.8 -> 171.9	168893	9.82 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C4-PFHpA	6.292	367.1 -> 322.0	64064	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C5-PFHxA	5.347	318.0 -> 273.0	66174	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFPeA	4.175	268.3 -> 223.0	77313	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C6-PFDA	8.004	519.1 -> 474.1	25660	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	8.448	570.0 -> 525.1	30077	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C8-FOSA	9.794	506.1 -> 77.8	16508	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOA	6.976	421.1 -> 376.0	100312	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-PFOS	8.117	507.1 -> 79.9	14820	2.32 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
13C9-PFNA	7.521	472.1 -> 427.0	38712	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSAA	8.086	573.2 -> 419.0	31791	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	60989	9.84 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
d3-MeFOSA	11.126	515.0 -> 219.0	7868	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.6%	
d5-EtFOSAA	8.283	589.2 -> 419.0	24767	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d7-MeFOSE	11.022	623.2 -> 58.9	58560	24.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d9-EtFOSE	11.306	639.2 -> 58.9	58475	24.20 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d5-EtFOSA	11.397	531.1 -> 219.0	7692	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	31347	8.84 µg/L	100
		327.1 -> 80.9	12605		
6:2FTS	6.761	427.1 -> 407.0	40942	8.61 µg/L	100
		427.1 -> 80.9	15454		
8:2FTS	7.804	527.1 -> 507.0	27985	9.18 µg/L	100
		527.1 -> 80.8	11337		
EtFOSAA	8.297	584.2 -> 419.1	10157	2.32 µg/L	100
		584.2 -> 526.0	4142		
FOSA	9.798	498.1 -> 77.9	16703	2.23 µg/L	100
		498.1 -> 478.0	592		
MeFOSAA	8.087	570.1 -> 419.0	11401	2.31 µg/L	91
		570.1 -> 483.0	2387		
PFBA	2.707	212.8 -> 168.9	49878	9.29 µg/L	100
PFBS	5.203	298.7 -> 79.9	11187	2.10 µg/L	100
		298.7 -> 98.8	4355		
PFDA	8.005	512.9 -> 469.0	39637	2.12 µg/L	100
		512.9 -> 219.0	8919		
PFDoDA	8.880	613.1 -> 569.0	56771	2.29 µg/L	100
		613.1 -> 319.0	10303		
PFDS	9.020	599.0 -> 79.9	9350	2.35 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4270			
PFHpA	6.293	363.1 -> 319.0	83659	2.31	µg/L	100
		363.1 -> 169.0	15106			
PFHpS	7.612	449.0 -> 79.9	14428	2.30	µg/L	100
		449.0 -> 98.9	7449			
PFHxA	5.350	313.0 -> 269.0	47848	2.25	µg/L	100
		313.0 -> 118.9	1494			
PFHxS	7.043	398.7 -> 79.9	9490	2.20	µg/L	m 94
		398.7 -> 98.9	5212			
PFNA	7.522	463.0 -> 419.0	51515	2.17	µg/L	100
		463.0 -> 219.0	12537			
PFNS	8.586	548.8 -> 79.9	6453	2.49	µg/L	100
		548.8 -> 98.9	3107			
PFOA	6.978	413.0 -> 369.0	96187	2.28	µg/L	100
		413.0 -> 169.0	19665			
PFOS	8.119	498.9 -> 79.9	13084	2.15	µg/L	m 88
		498.9 -> 98.8	6416			
PFPeA	4.177	263.0 -> 219.0	69198	4.62	µg/L	100
PFPeS	6.294	349.1 -> 79.9	10660	2.27	µg/L	100
		349.1 -> 98.9	4600			
PFTeDA	9.637	713.1 -> 669.0	51860	2.35	µg/L	100
		713.1 -> 168.9	5428			
PFTrDA	9.279	663.0 -> 619.0	62210	2.35	µg/L	100
		663.0 -> 168.9	8834			
PFUnDA	8.449	563.1 -> 519.0	51957	2.30	µg/L	100
		563.1 -> 269.1	11423			
11CI-PF3OUdS	9.306	630.9 -> 450.9	72873	4.47	µg/L	100
		632.9 -> 452.9	22083			
9CI-PF3ONS	8.451	530.8 -> 351.0	72226	4.60	µg/L	100
		532.8 -> 353.0	22706			
ADONA	6.568	376.9 -> 250.9	215879	4.94	µg/L	100
		376.9 -> 84.8	51889			
HFPO-DA	5.703	284.9 -> 168.9	26594	4.59	µg/L	100
		284.9 -> 184.9	2541			
3:3FTCA	3.630	241.0 -> 177.0	7623	11.22	µg/L	100
		241.0 -> 117.0	695			
5:3FTCA	6.020	341.0 -> 237.1	155169	57.62	µg/L	100
		341.0 -> 217.0	111652			
7:3FTCA	7.549	441.0 -> 316.9	74947	59.10	µg/L	100
		441.0 -> 336.9	183552			
EtFOSA	11.399	526.0 -> 219.0	15557	4.68	µg/L	100
		526.0 -> 169.0	21781			
EtFOSE	11.332	630.0 -> 58.9	23438	11.56	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	13713	4.77	µg/L	m 84
		511.9 -> 169.0	20136			
MeFOSE	11.035	616.1 -> 58.9	26166	11.47	µg/L	100
PFDoDS	9.764	699.1 -> 79.9	6886	2.33	µg/L	100
		699.1 -> 98.8	3991			
NFDHA	5.229	295.0 -> 201.0	6593	4.58	µg/L	100
		295.0 -> 84.9	1736			
PFMBA	4.578	279.0 -> 85.1	40141	4.65	µg/L	100
PFMPA	3.332	229.0 -> 84.9	39552	4.53	µg/L	100
PFEESA	5.734	314.8 -> 134.9	64999	4.16	µg/L	100
		314.8 -> 82.9	2347			

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

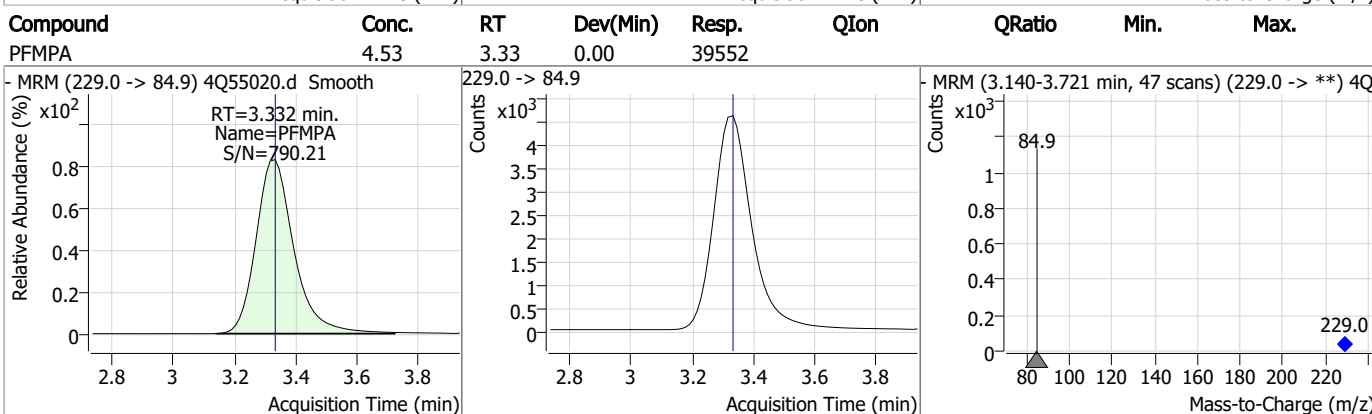
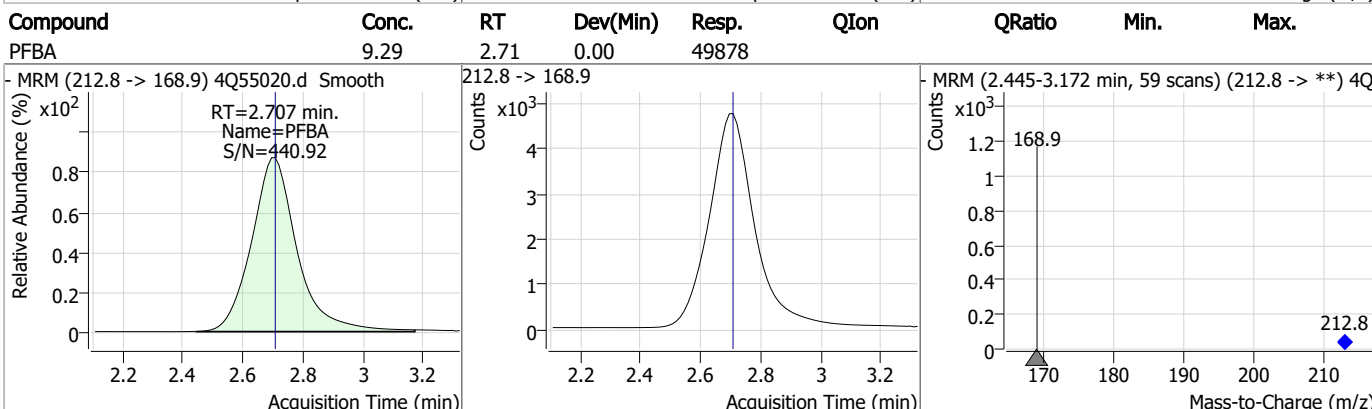
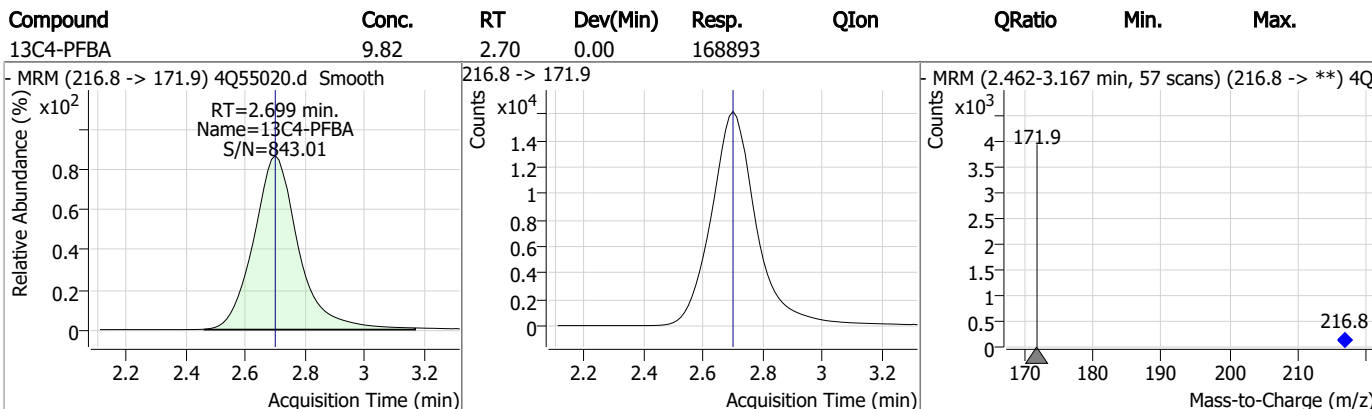
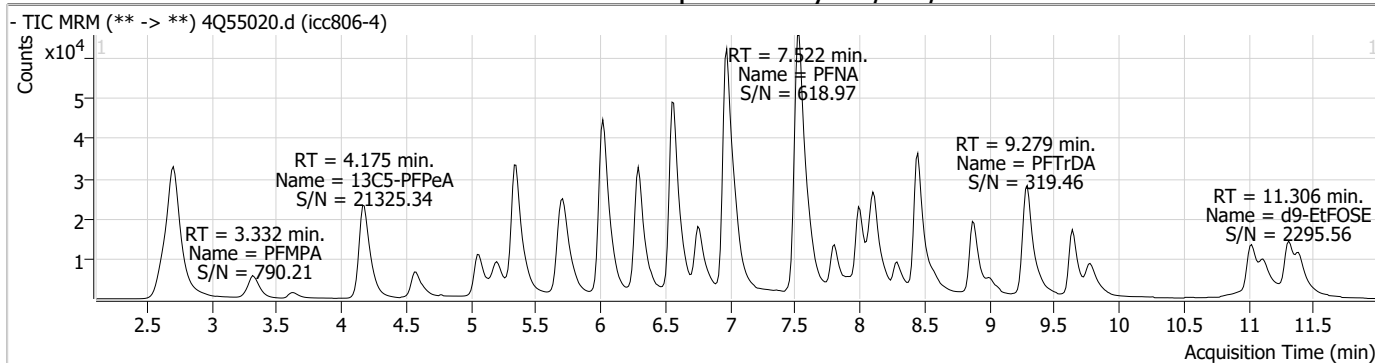
Perfluorinated Compounds by LC/MS/MS

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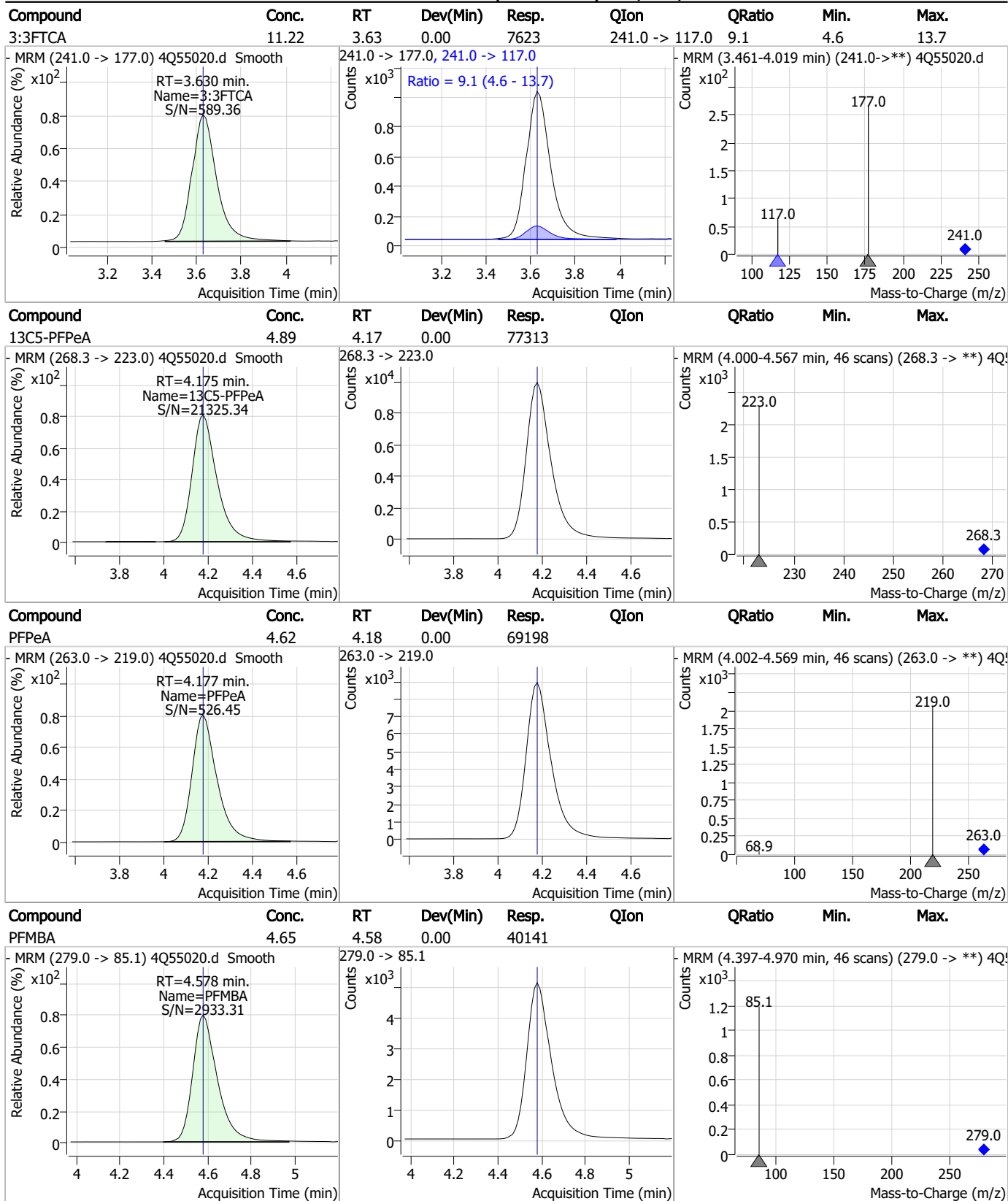
7.7.5

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Perfluorinated Compounds by LC/MS/MS

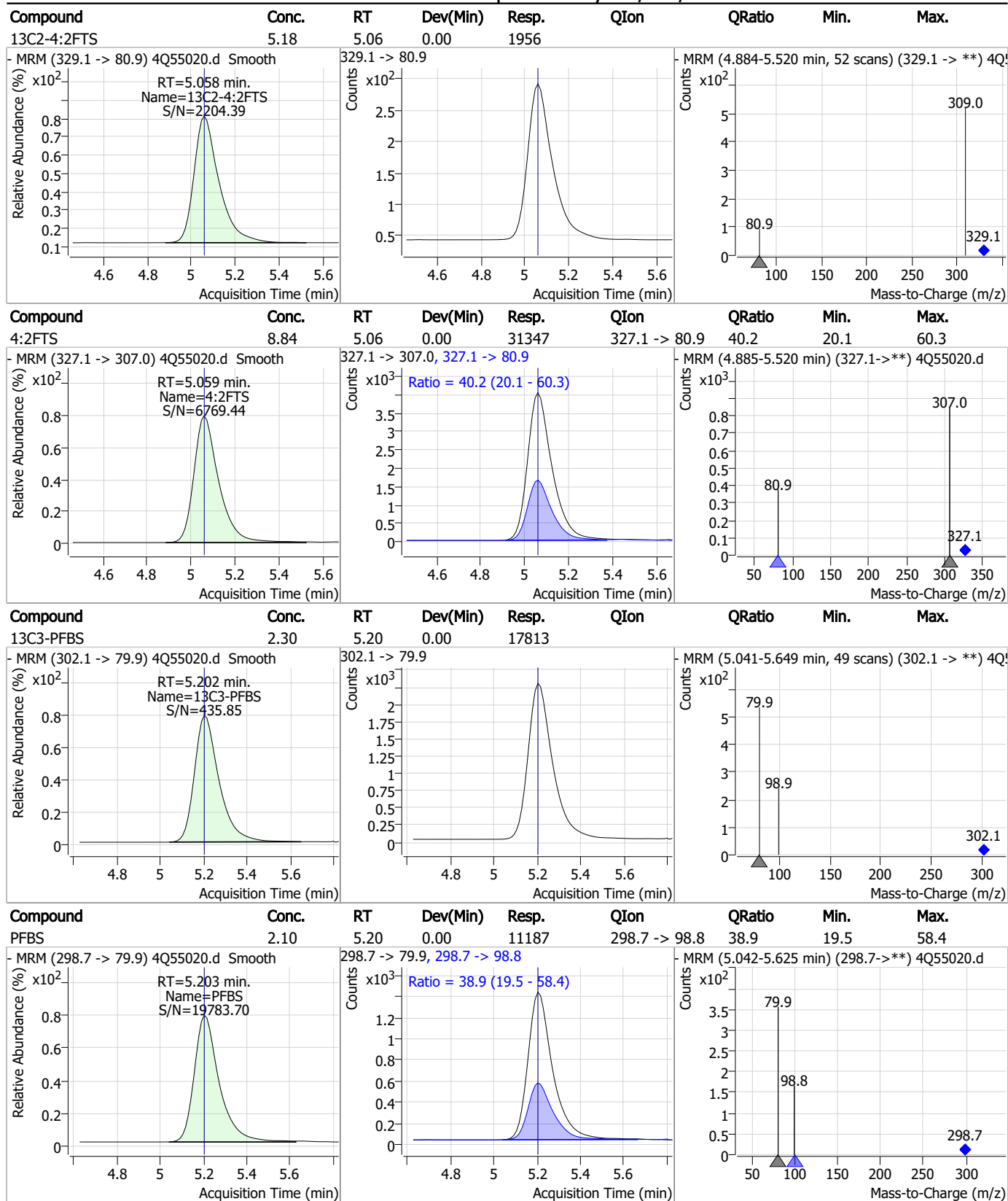


Perfluorinated Compounds by LC/MS/MS



7.7.5
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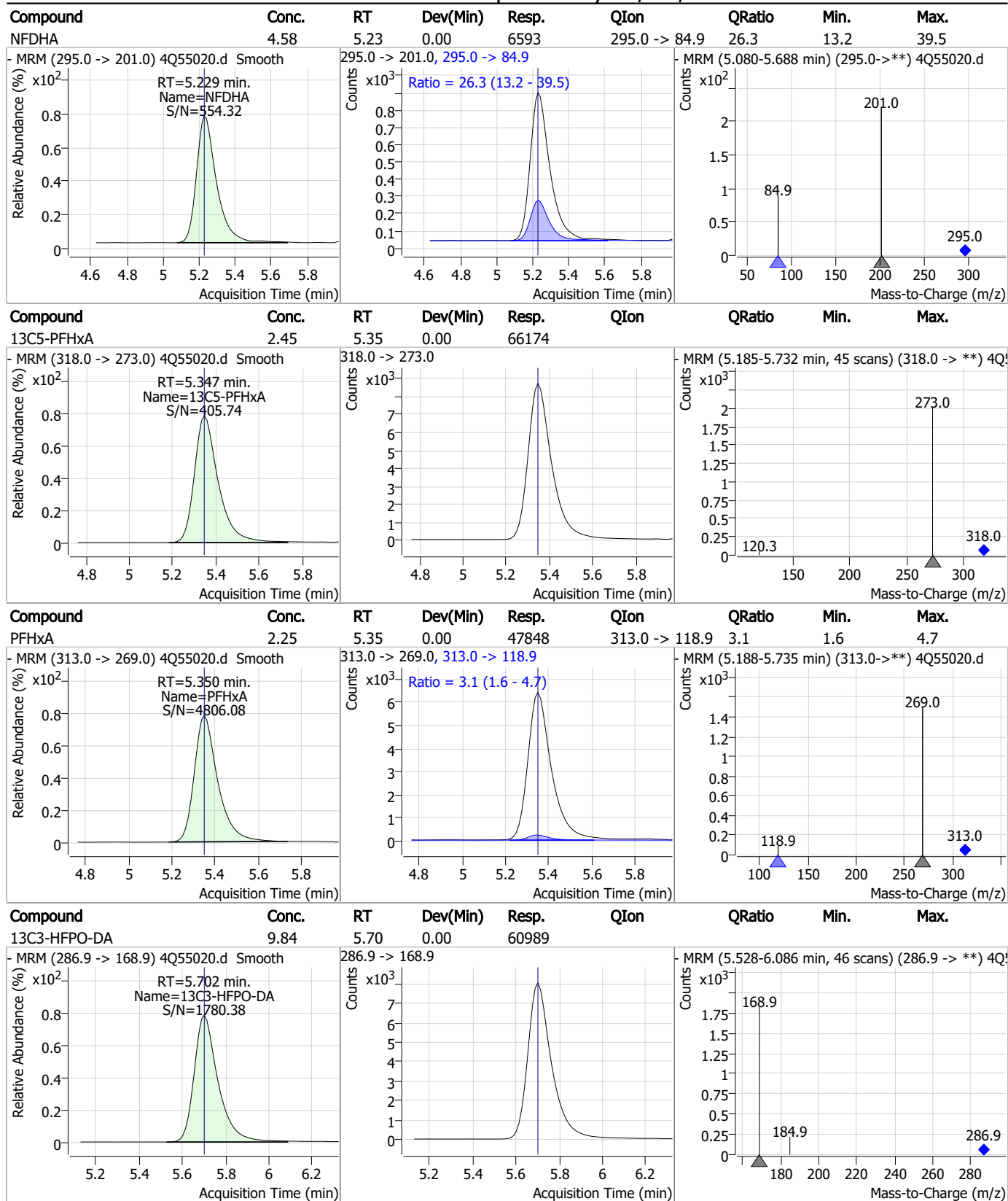
Perfluorinated Compounds by LC/MS/MS



7.7.5

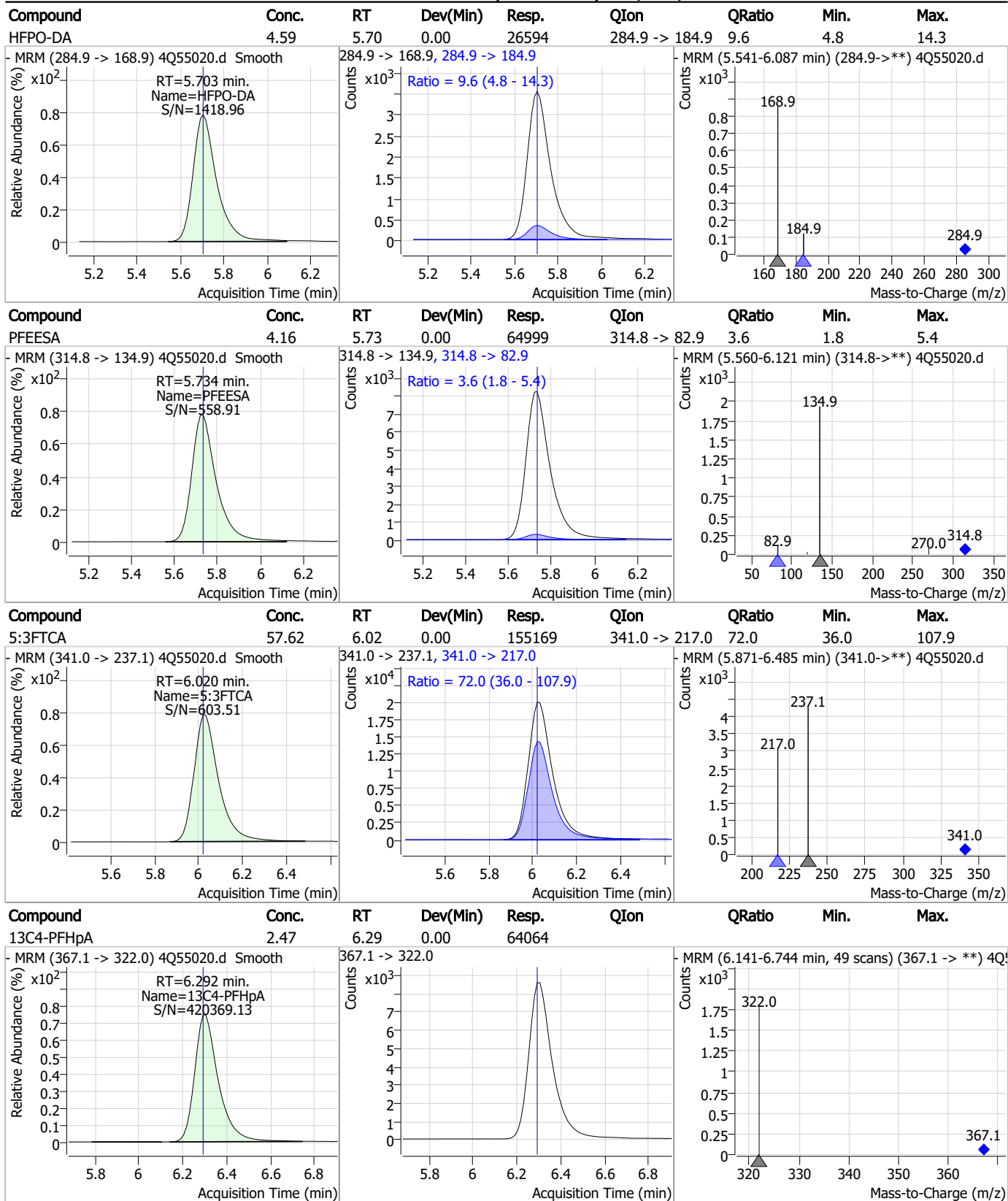
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Perfluorinated Compounds by LC/MS/MS



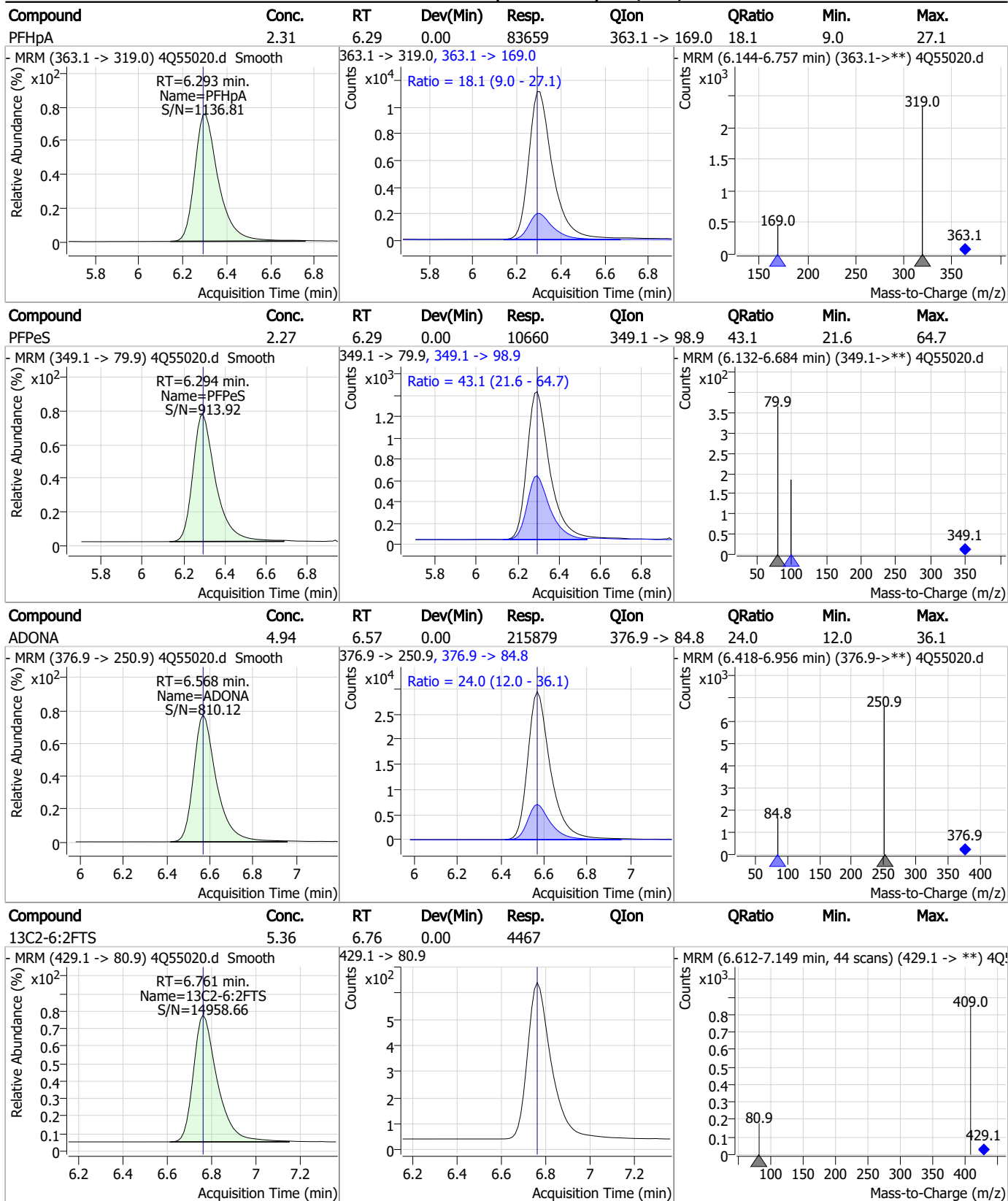
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Perfluorinated Compounds by LC/MS/MS



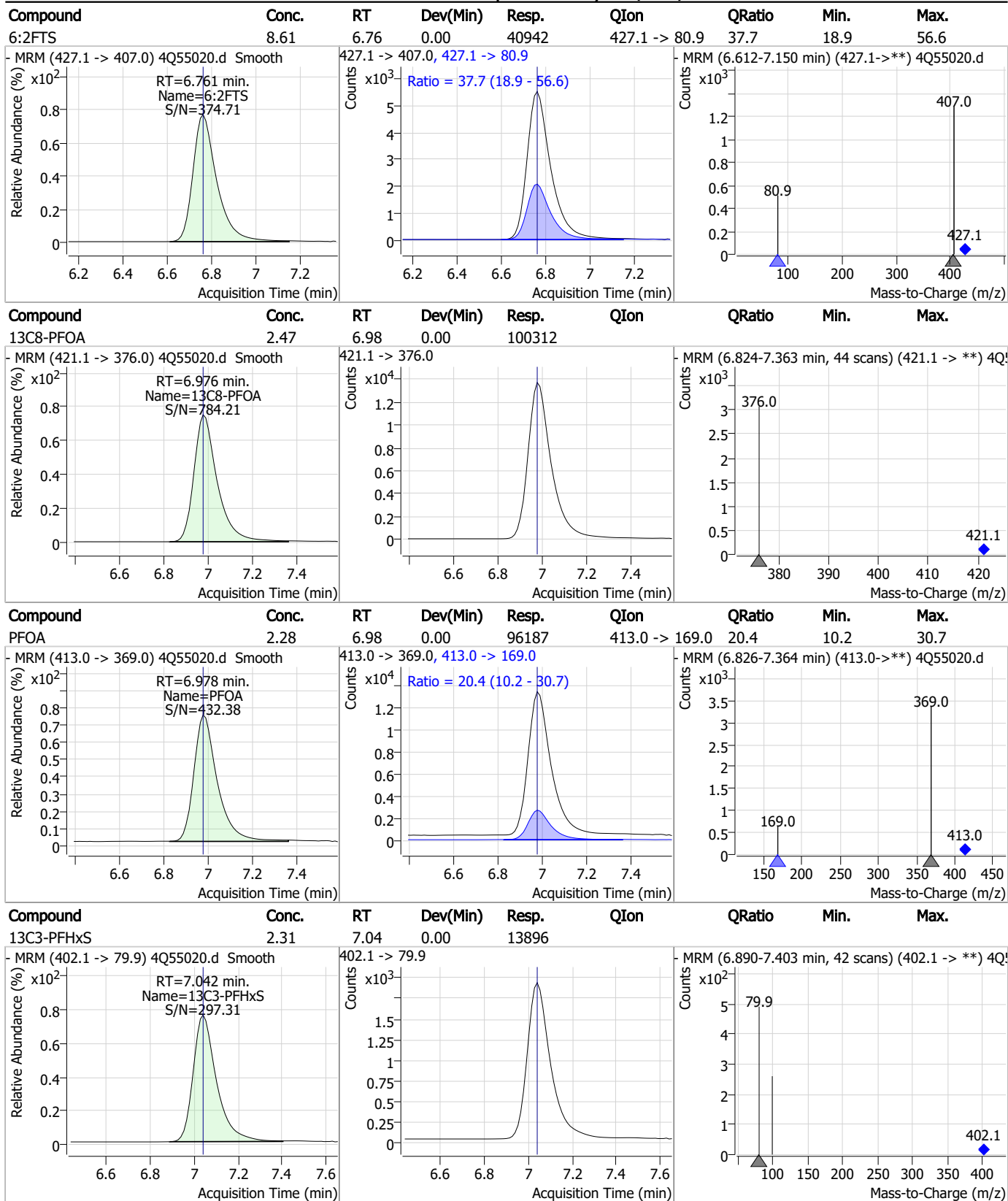
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Perfluorinated Compounds by LC/MS/MS



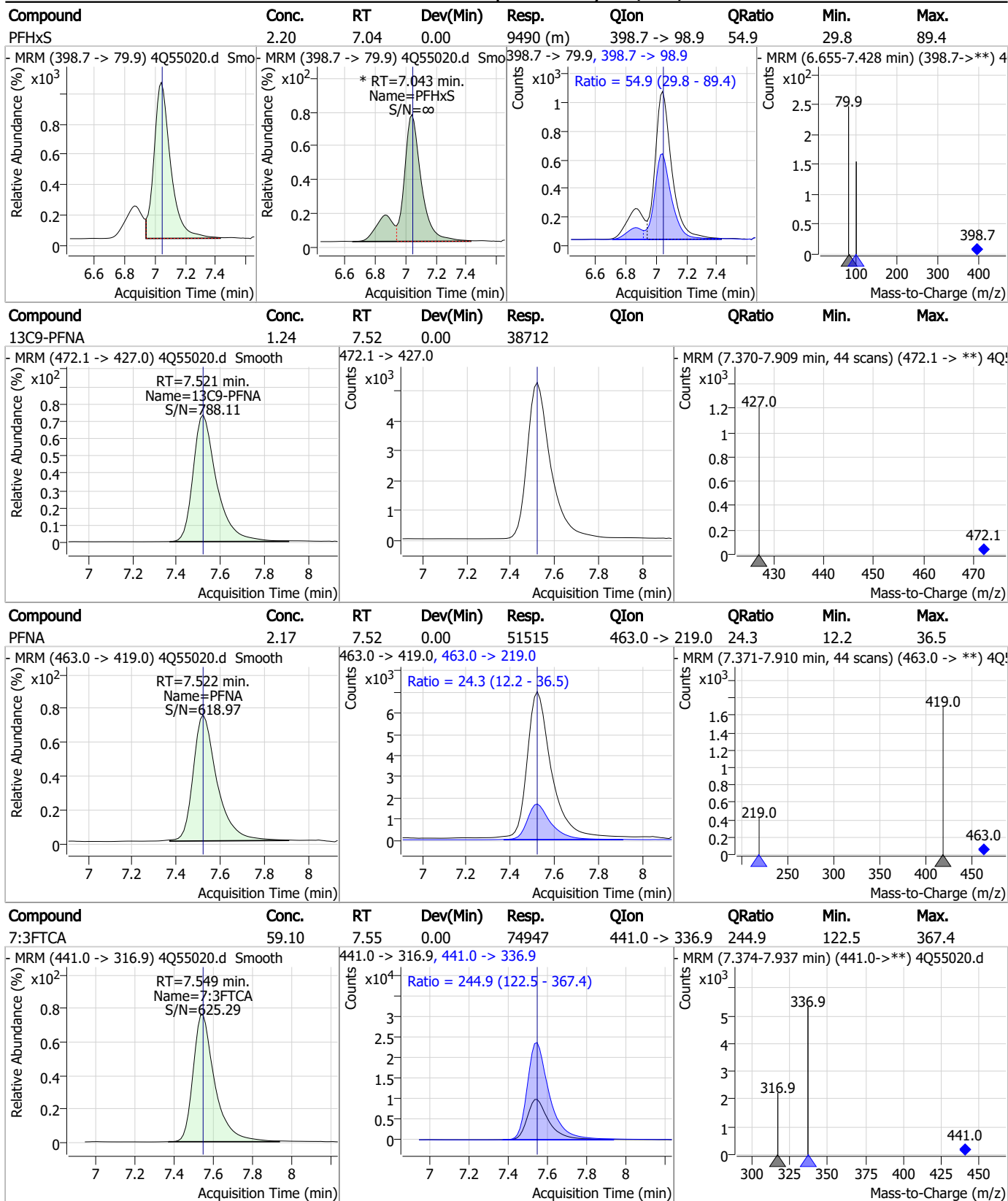
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Perfluorinated Compounds by LC/MS/MS



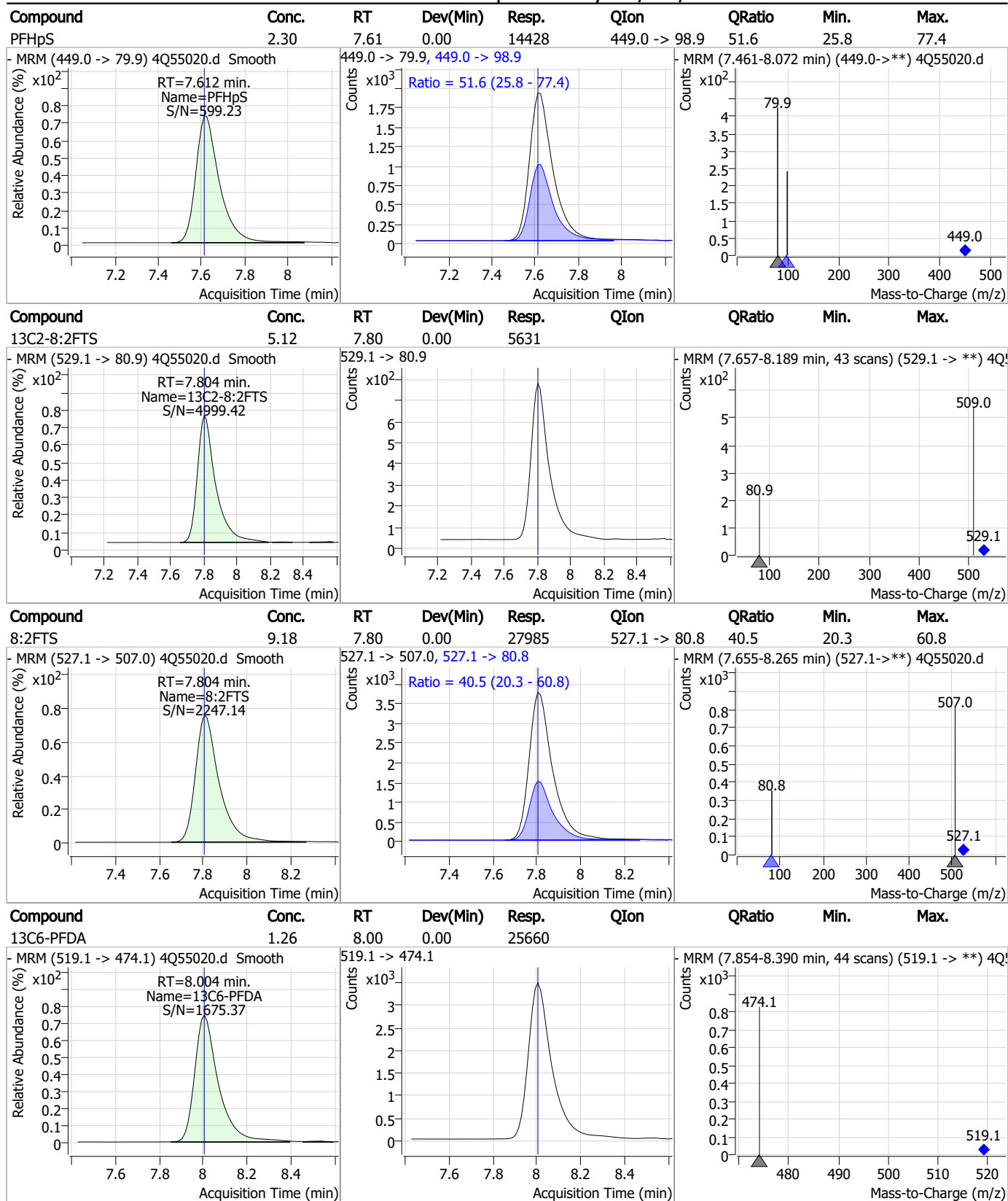
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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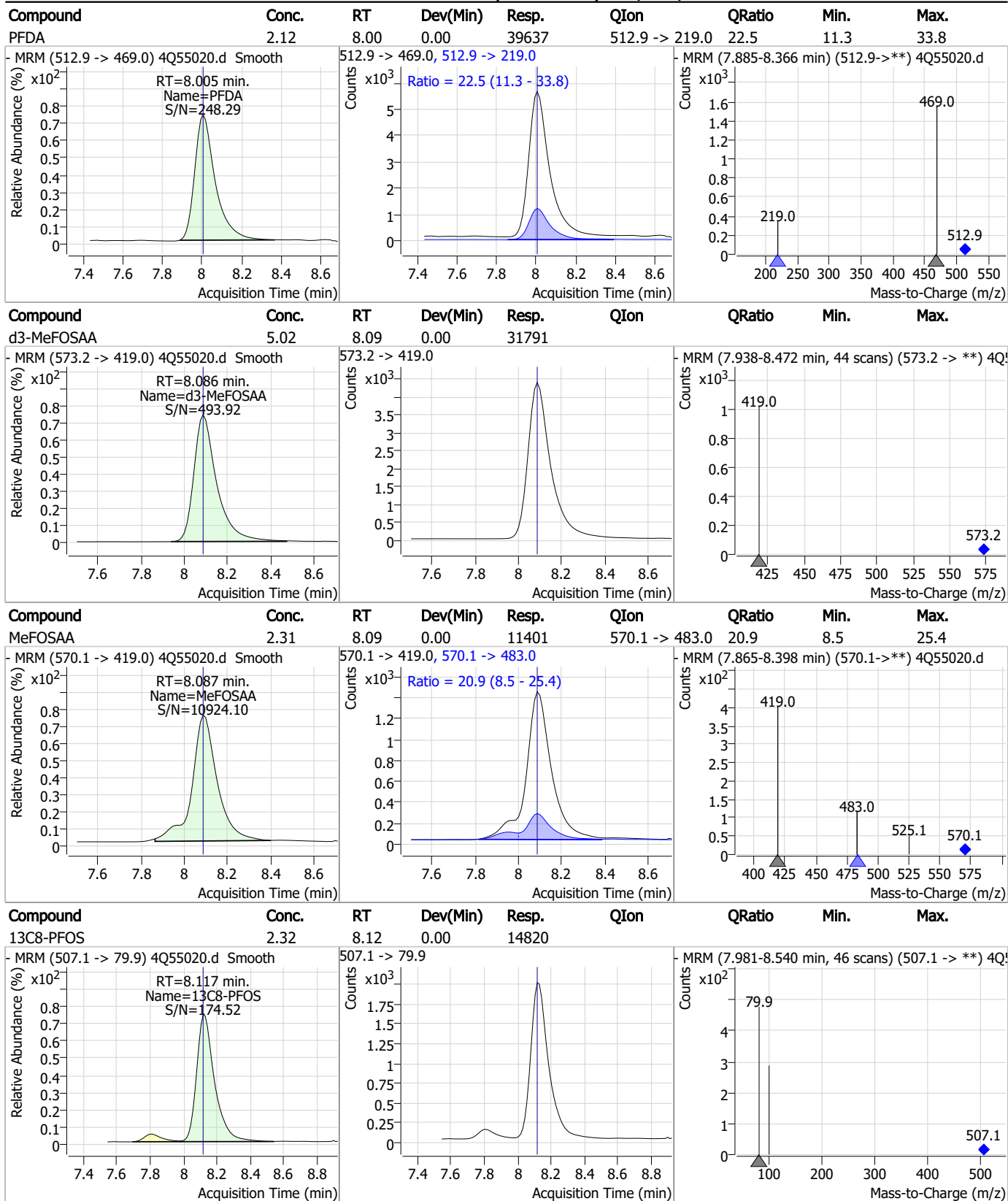
Perfluorinated Compounds by LC/MS/MS



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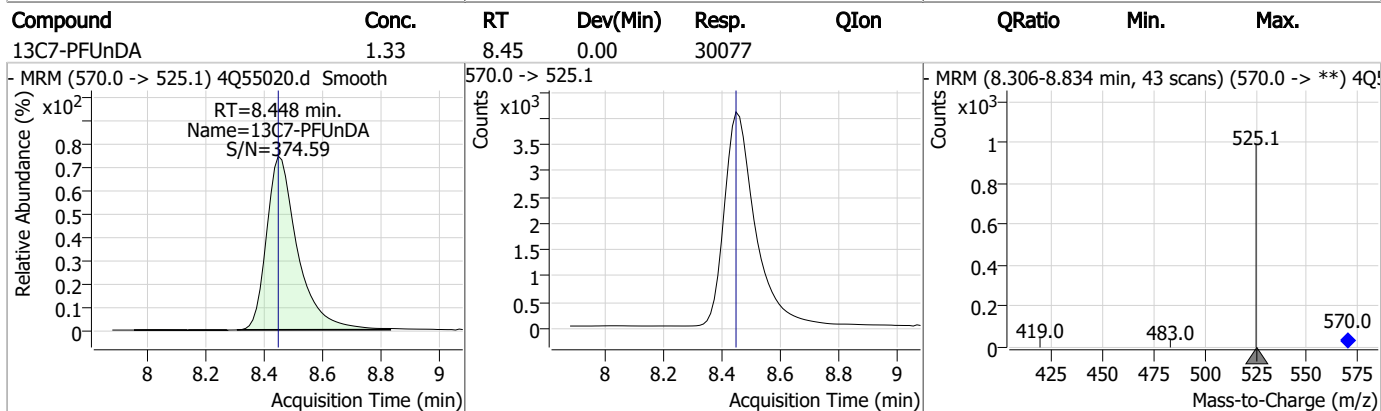
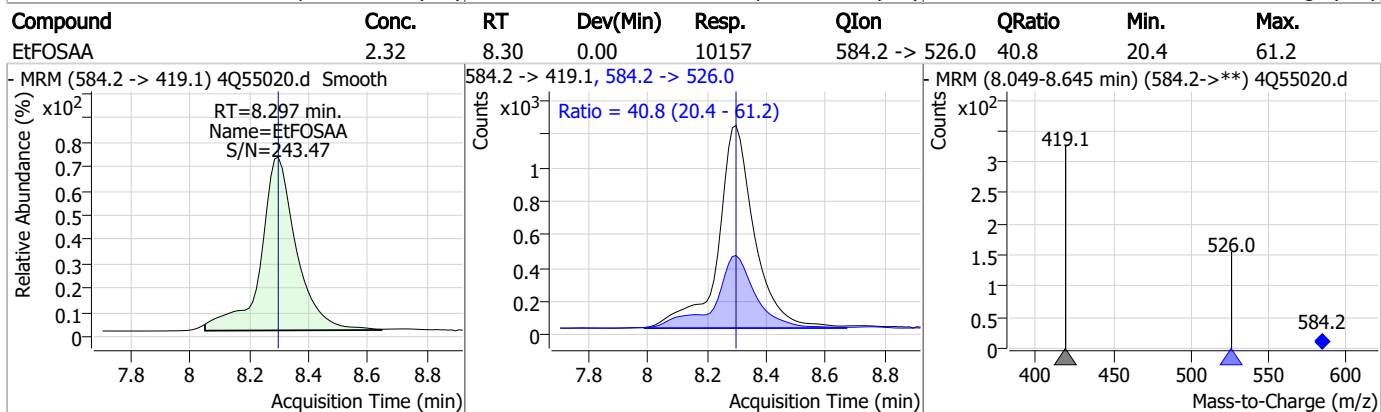
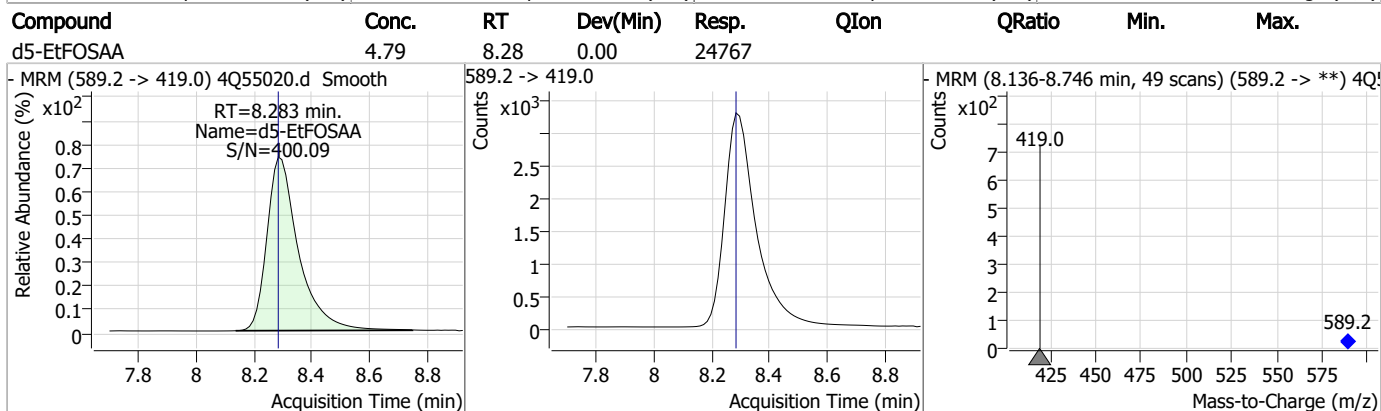
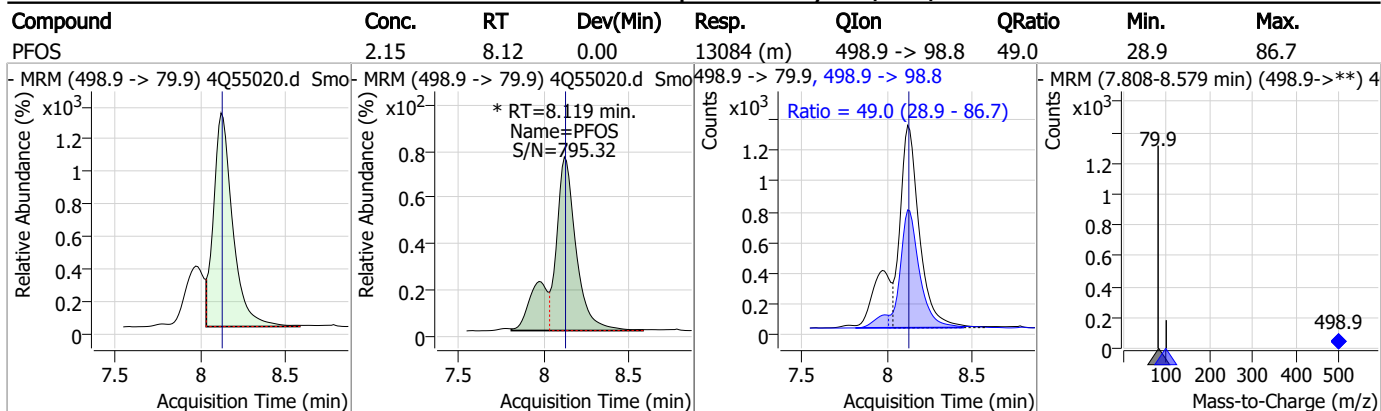
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Perfluorinated Compounds by LC/MS/MS



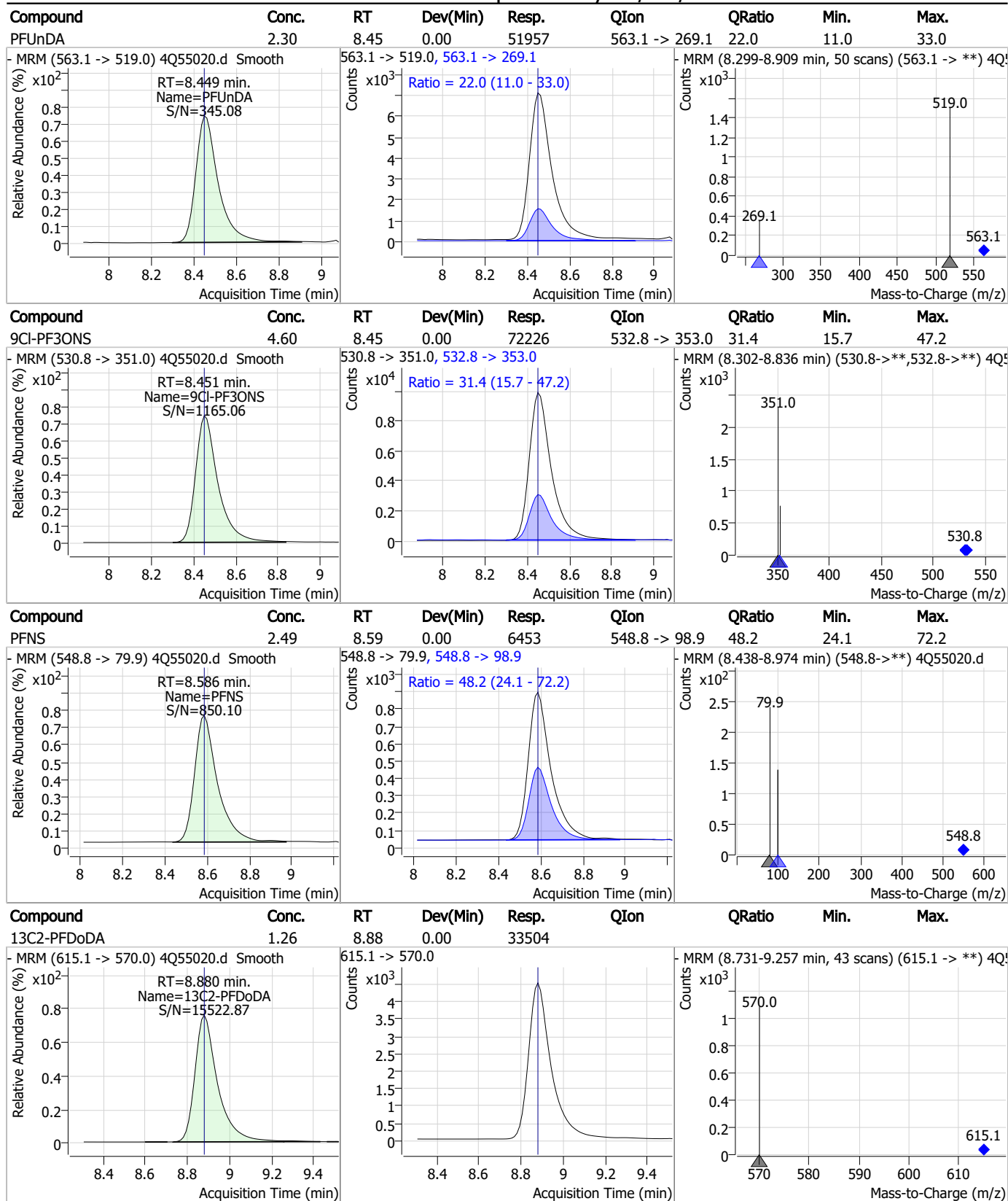
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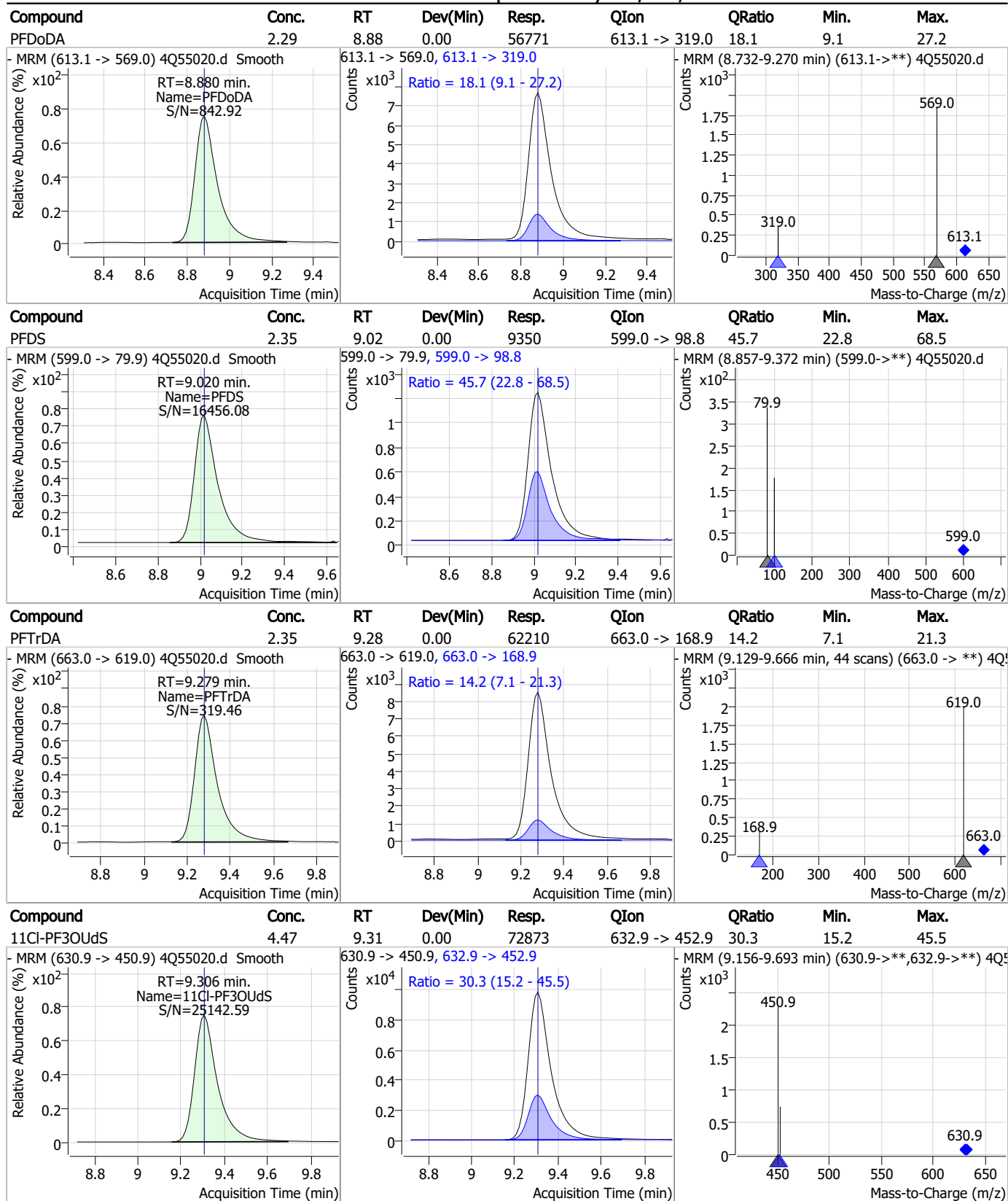
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Perfluorinated Compounds by LC/MS/MS



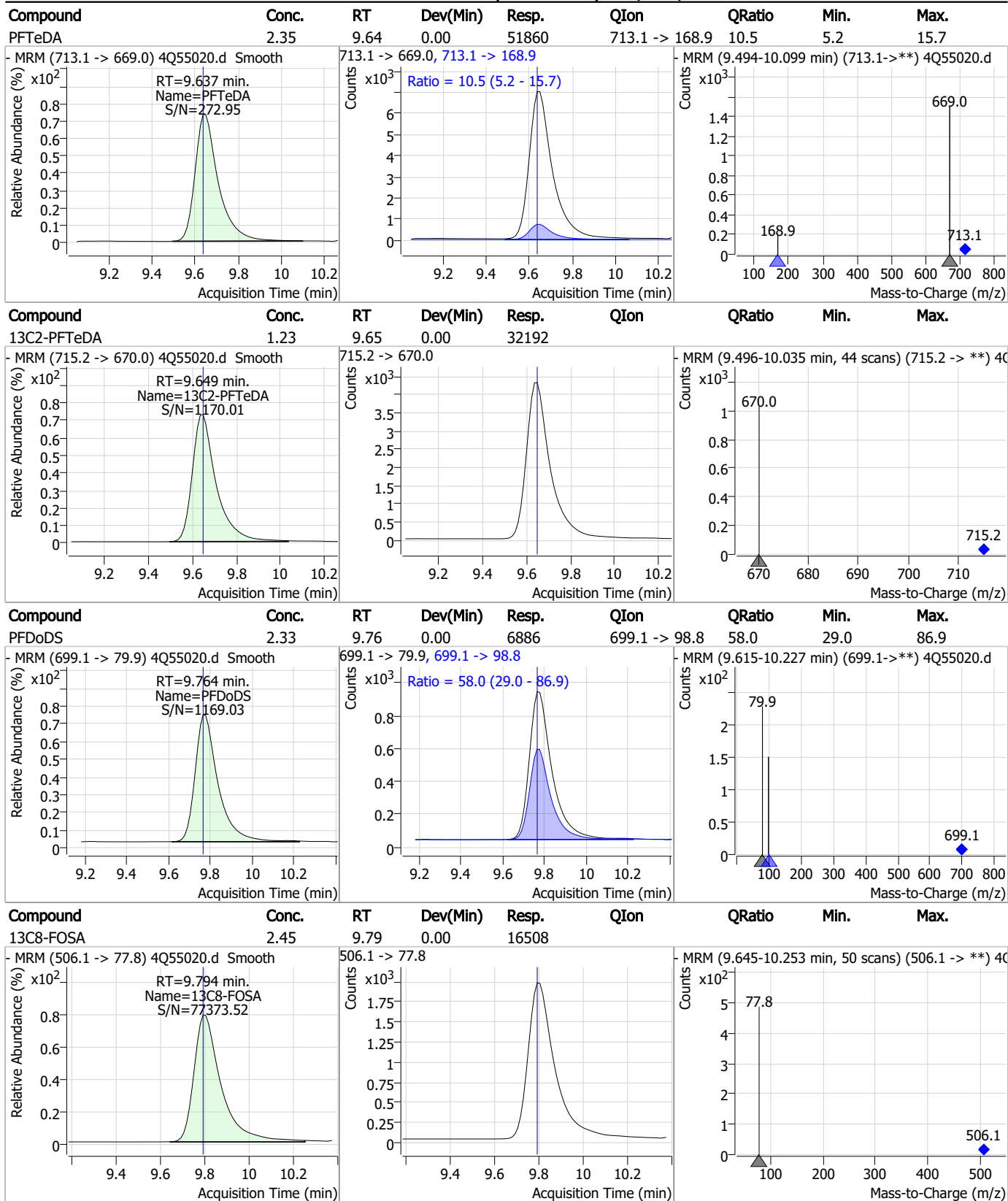
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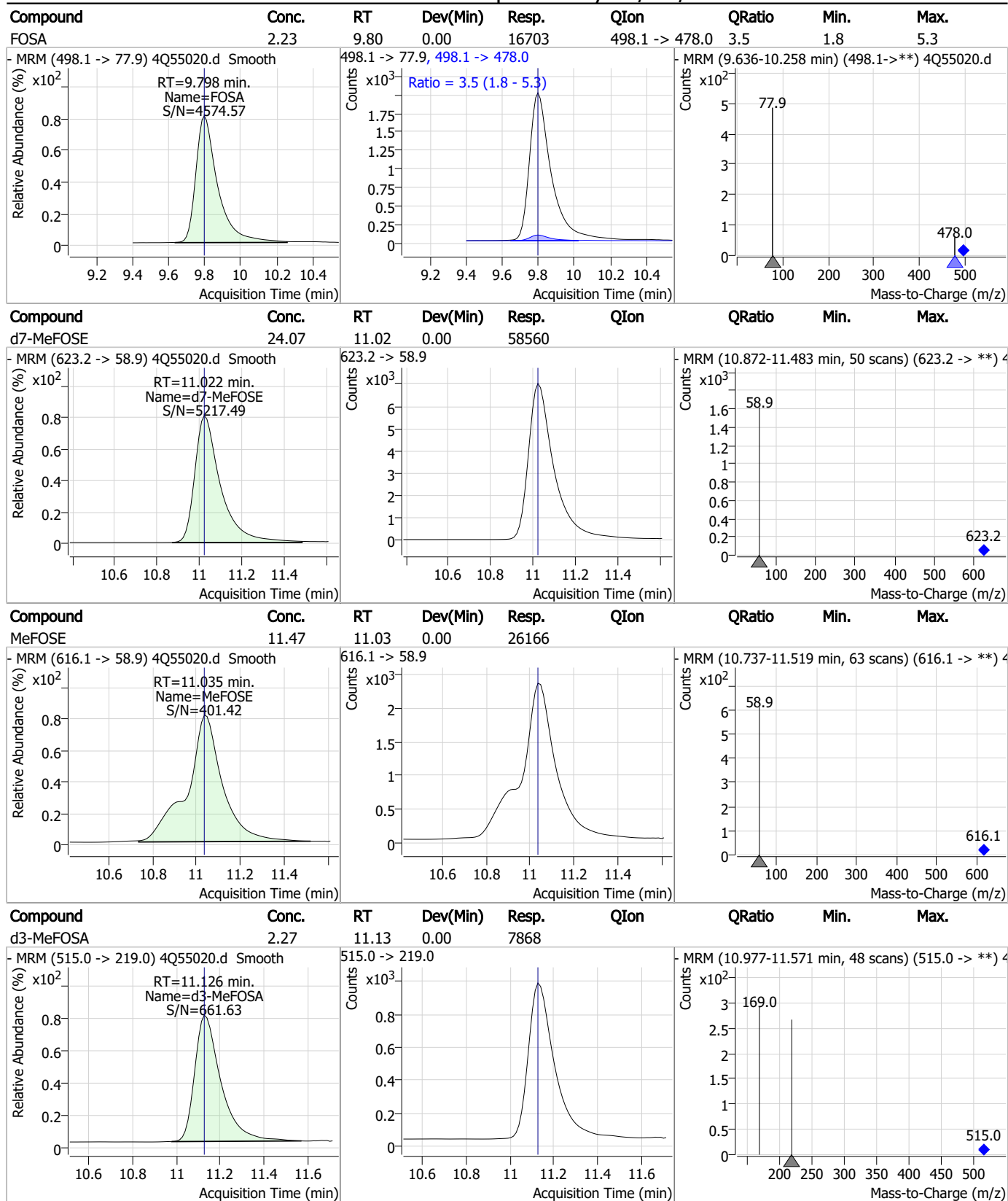
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Perfluorinated Compounds by LC/MS/MS



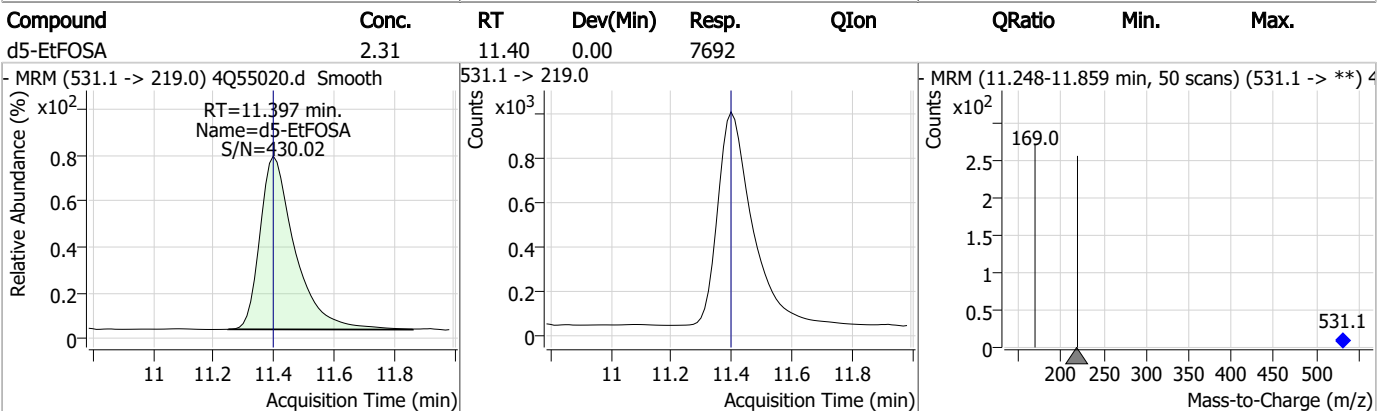
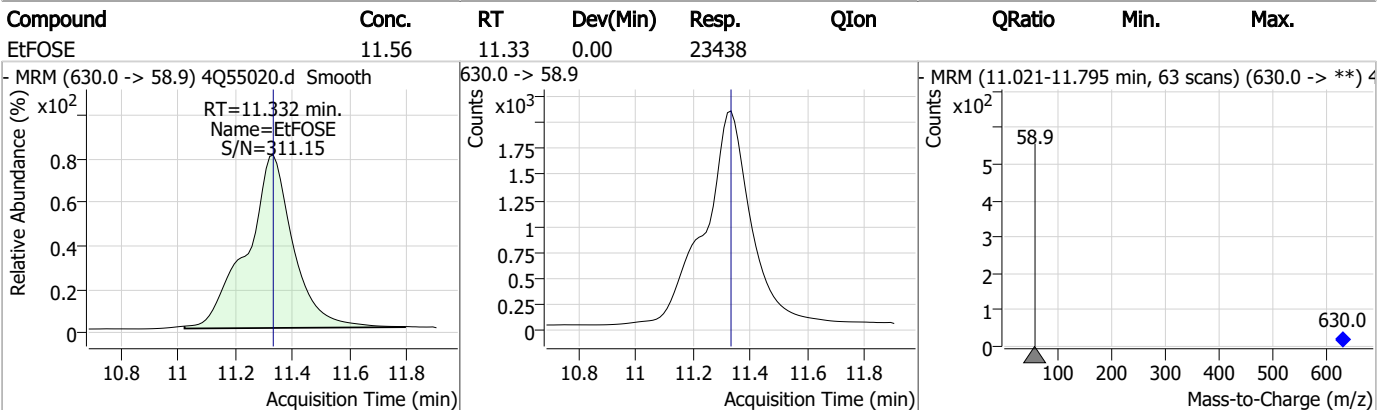
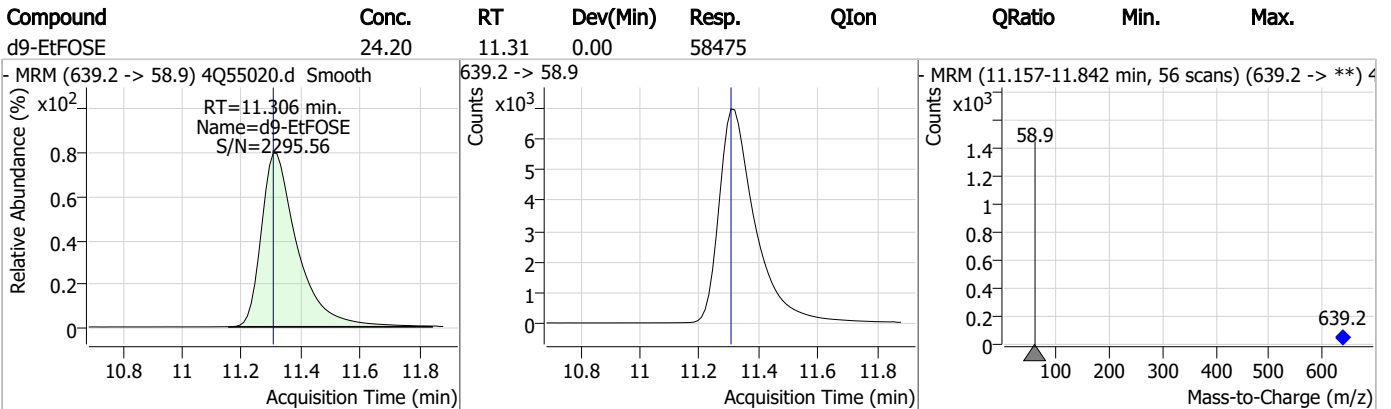
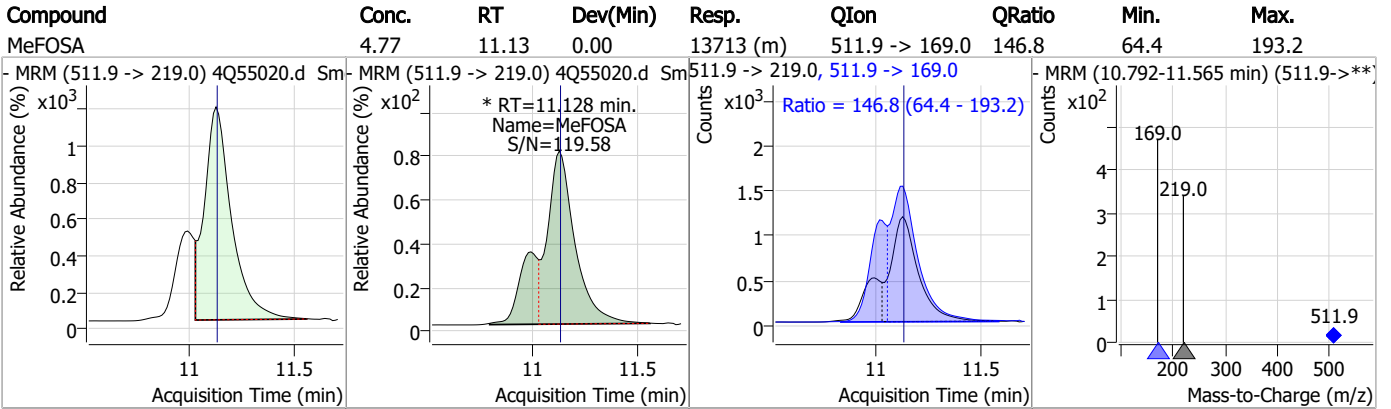
7.7.5
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Perfluorinated Compounds by LC/MS/MS



7.7.5
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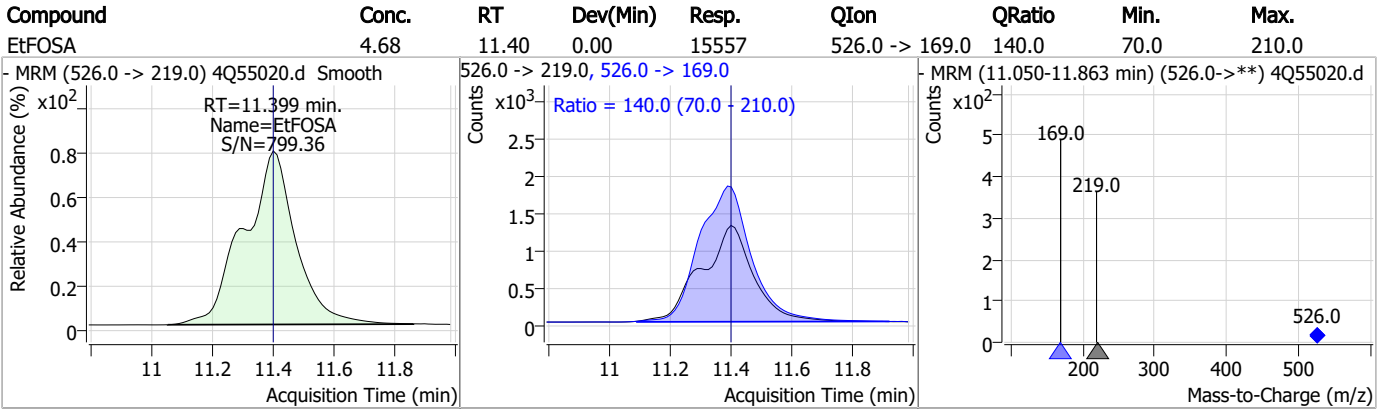
Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S4Q806-ICC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55020.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 15:39 Supervisor approved: 12/12/23 11:51 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
MeFOSA	31506-32-8		11.13	Split peak

7.7.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55021.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 3:54:38 PM
 Sample Name : ic806-5
 Vial : P1-A6
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.711	216.8 -> 171.9	221167	10.00 µg/L	0.012
M5-PFPeA	4.175	268.3 -> 223.0	98349	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	83388	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	79433	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	124375	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	48063	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	32387	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	36776	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	41022	1.25 µg/L	0.000
M2-PFTeDA	9.637	715.2 -> 670.0	39308	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	20285	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	23229	2.50 µg/L	0.000
M3-PFHxS	7.042	402.1 -> 79.9	17834	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	18754	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	2123	5.00 µg/L	0.000
M2-6:2FTS	6.761	429.1 -> 80.9	4880	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	6311	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	38348	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	77695	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	31083	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	80410	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	77401	25.00 µg/L	0.000
M5-EtFOSA	11.397	531.1 -> 219.0	10093	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	10265	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	14122	2.50 µg/L	0.000
13C3-PFBA	2.716	216.0 -> 172.0	101454	5.00 µg/L	0.012
18O2-PFHxS	7.041	403.0 -> 83.9	11505	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	133409	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	35840	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	47004	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	88960	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	2123	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.4%		
13C2-6:2FTS	6.761	429.1 -> 80.9	4880	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%		
13C2-8:2FTS	7.804	529.1 -> 80.9	6311	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFDoDA	8.880	615.1 -> 570.0	41022	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C2-PFTeDA	9.637	715.2 -> 670.0	39308	1.18 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C3-PFBS	5.202	302.1 -> 79.9	23229	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C3-PFHxS	7.042	402.1 -> 79.9	17834	2.51 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 = 100.6%	
13C4-PFBA	2.711	216.8 -> 171.9	221167	10.12 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C4-PFHpA	6.292	367.1 -> 322.0	79433	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C5-PFHxA	5.347	318.0 -> 273.0	83388	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFPeA	4.175	268.3 -> 223.0	98349	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C6-PFDA	8.004	519.1 -> 474.1	32387	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C7-PFUnDA	8.448	570.0 -> 525.1	36776	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-FOSA	9.794	506.1 -> 77.8	20285	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
13C8-PFOA	6.976	421.1 -> 376.0	124375	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C8-PFOS	8.117	507.1 -> 79.9	18754	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C9-PFNA	7.521	472.1 -> 427.0	48063	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
d3-MeFOSAA	8.086	573.2 -> 419.0	38348	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	77695	10.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d3-MeFOSA	11.126	515.0 -> 219.0	10265	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
d5-EtFOSAA	8.283	589.2 -> 419.0	31083	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
d7-MeFOSE	11.022	623.2 -> 58.9	80410	28.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 112.0%	
d9-EtFOSE	11.306	639.2 -> 58.9	77401	27.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
d5-EtFOSA	11.397	531.1 -> 219.0	10093	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	77925	20.25 µg/L	98
		327.1 -> 80.9	32194		
6:2FTS	6.761	427.1 -> 407.0	105007	20.22 µg/L	96
		427.1 -> 80.9	37332		
8:2FTS	7.804	527.1 -> 507.0	70951	20.78 µg/L	100
		527.1 -> 80.8	28897		
EtFOSAA	8.297	584.2 -> 419.1	27402	4.99 µg/L	95
		584.2 -> 526.0	10351		
FOSA	9.798	498.1 -> 77.9	45589	4.96 µg/L	99
		498.1 -> 478.0	1374		
MeFOSAA	8.087	570.1 -> 419.0	29857	5.02 µg/L	90
		570.1 -> 483.0	6395		
PFBA	2.720	212.8 -> 168.9	142163	20.22 µg/L	100
PFBS	5.216	298.7 -> 79.9	30687	4.41 µg/L	97
		298.7 -> 98.8	11432		
PFDA	8.005	512.9 -> 469.0	115532	4.89 µg/L	96
		512.9 -> 219.0	23511		
PFDoDA	8.880	613.1 -> 569.0	159559	5.26 µg/L	99
		613.1 -> 319.0	27911		
PFDS	9.020	599.0 -> 79.9	24355	4.84 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	11885			
PFHpA	6.293	363.1 -> 319.0	235835	5.26	µg/L	99
		363.1 -> 169.0	41797			
PFHpS	7.612	449.0 -> 79.9	39723	5.00	µg/L	99
		449.0 -> 98.9	20279			
PFHxA	5.350	313.0 -> 269.0	133810	5.00	µg/L	99
		313.0 -> 118.9	3881			
PFHxS	7.043	398.7 -> 79.9	26531	4.79	µg/L	m 86
		398.7 -> 98.9	13109			
PFNA	7.522	463.0 -> 419.0	145080	4.91	µg/L	98
		463.0 -> 219.0	33543			
PFNS	8.586	548.8 -> 79.9	17003	5.19	µg/L	98
		548.8 -> 98.9	8446			
PFOA	6.978	413.0 -> 369.0	255081	4.87	µg/L	100
		413.0 -> 169.0	51775			
PFOS	8.119	498.9 -> 79.9	35943	4.67	µg/L	m 85
		498.9 -> 98.8	16890			
PFPeA	4.177	263.0 -> 219.0	193832	10.17	µg/L	100
PFPeS	6.282	349.1 -> 79.9	27920	4.62	µg/L	97
		349.1 -> 98.9	12531			
PFTeDA	9.637	713.1 -> 669.0	143151	5.30	µg/L	99
		713.1 -> 168.9	14714			
PFTrDA	9.279	663.0 -> 619.0	169057	5.22	µg/L	99
		663.0 -> 168.9	22988			
PFUnDA	8.449	563.1 -> 519.0	138731	5.01	µg/L	99
		563.1 -> 269.1	29968			
11Cl-PF3OUdS	9.306	630.9 -> 450.9	202424	9.76	µg/L	98
		632.9 -> 452.9	63006			
9Cl-PF3ONS	8.451	530.8 -> 351.0	196805	9.83	µg/L	97
		532.8 -> 353.0	58958			
ADONA	6.568	376.9 -> 250.9	589232	10.58	µg/L	99
		376.9 -> 84.8	143874			
HFPO-DA	5.703	284.9 -> 168.9	73778	9.99	µg/L	98
		284.9 -> 184.9	7580			
3:3FTCA	3.642	241.0 -> 177.0	21627	24.32	µg/L	100
		241.0 -> 117.0	1999			
5:3FTCA	6.033	341.0 -> 237.1	435979	128.48	µg/L	98
		341.0 -> 217.0	308198			
7:3FTCA	7.549	441.0 -> 316.9	208173	130.28	µg/L	98
		441.0 -> 336.9	501042			
EtFOSA	11.399	526.0 -> 219.0	44875	10.30	µg/L	98
		526.0 -> 169.0	61722			
EtFOSE	11.320	630.0 -> 58.9	66898	24.92	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	38309	10.21	µg/L	m 84
		511.9 -> 169.0	56534			
MeFOSE	11.035	616.1 -> 58.9	74967	23.93	µg/L	100
PFDoDS	9.764	699.1 -> 79.9	18262	4.89	µg/L	96
		699.1 -> 98.8	10086			
NFDHA	5.229	295.0 -> 201.0	18995	10.48	µg/L	99
		295.0 -> 84.9	4870			
PFMBA	4.591	279.0 -> 85.1	110119	10.02	µg/L	100
PFMPA	3.332	229.0 -> 84.9	112625	10.14	µg/L	100
PFEESA	5.734	314.8 -> 134.9	180777	9.19	µg/L	99
		314.8 -> 82.9	6151			

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

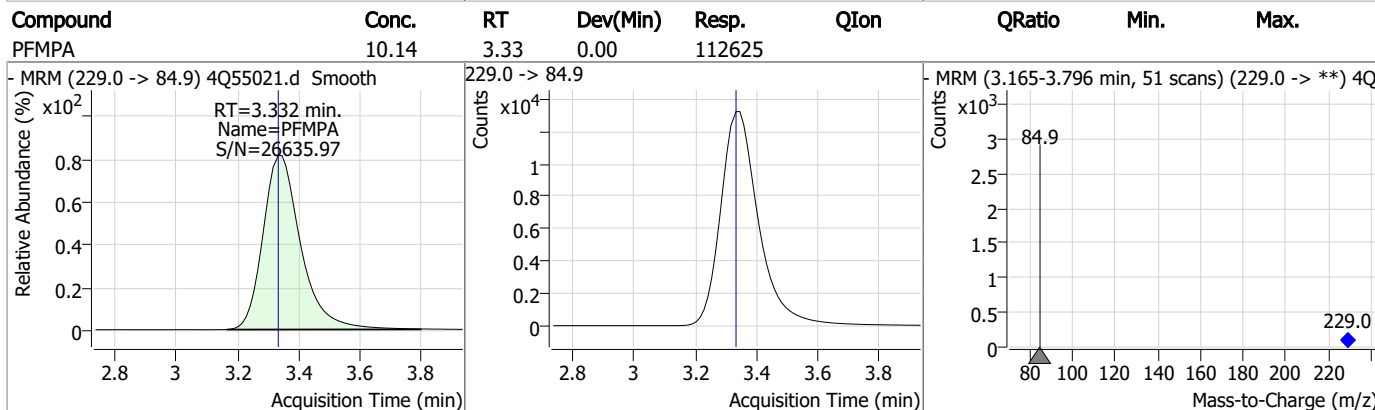
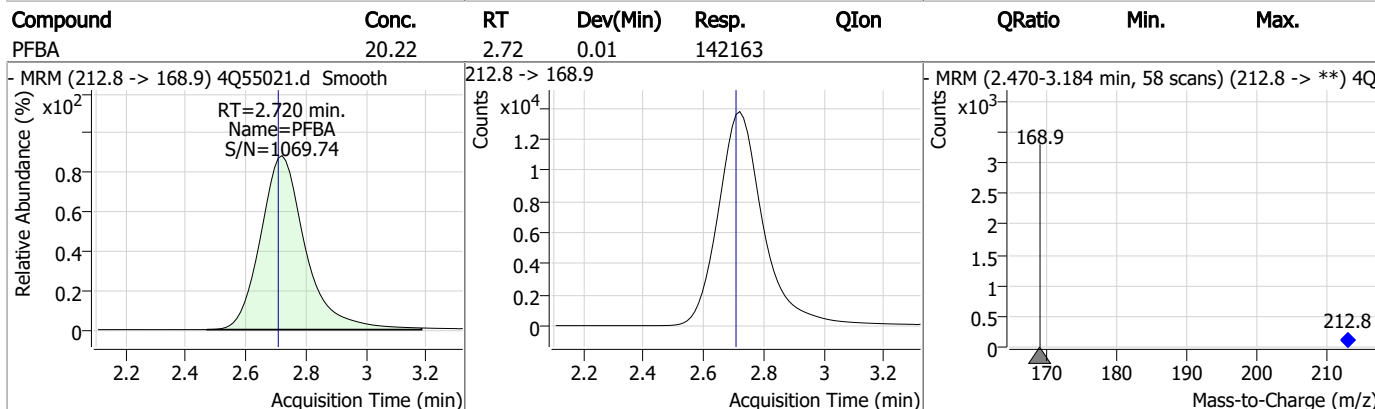
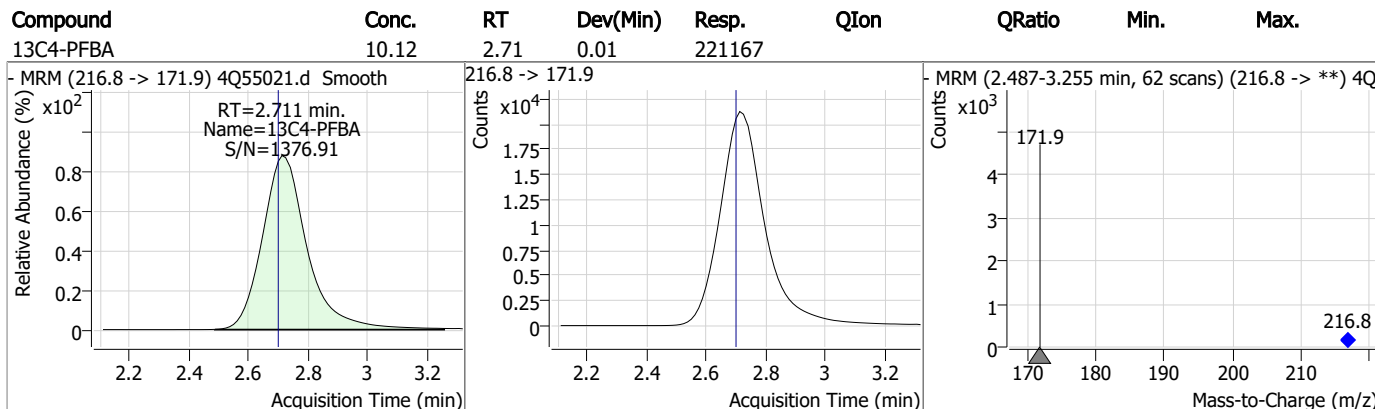
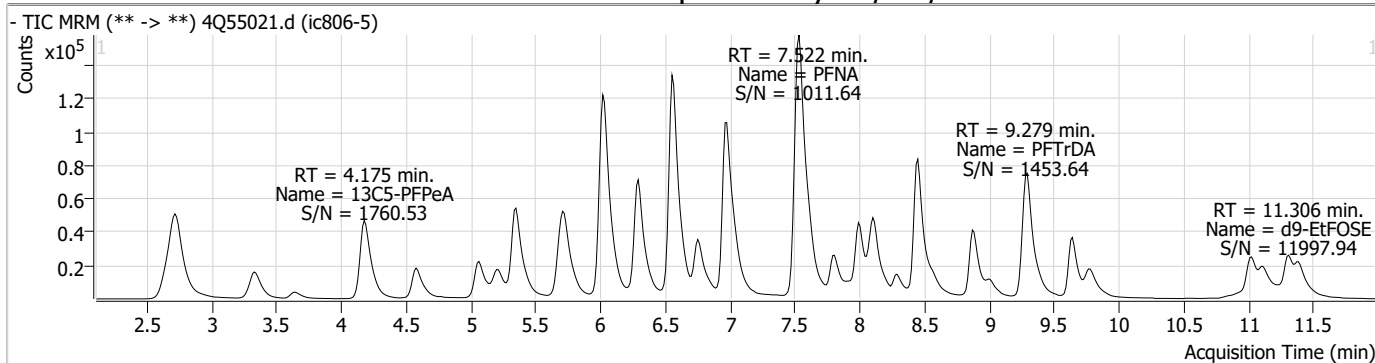
Perfluorinated Compounds by LC/MS/MS

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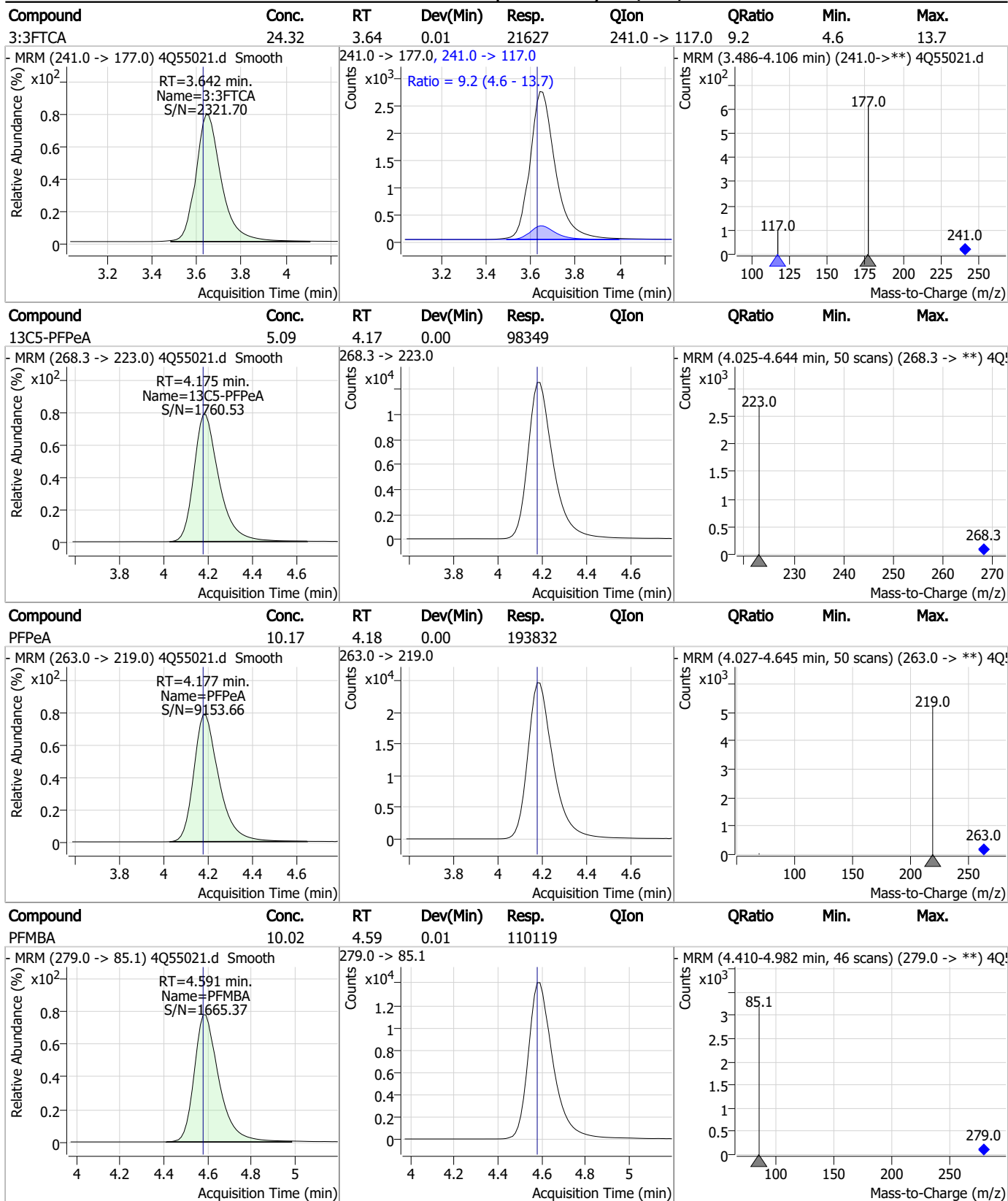
7.7.6

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Perfluorinated Compounds by LC/MS/MS



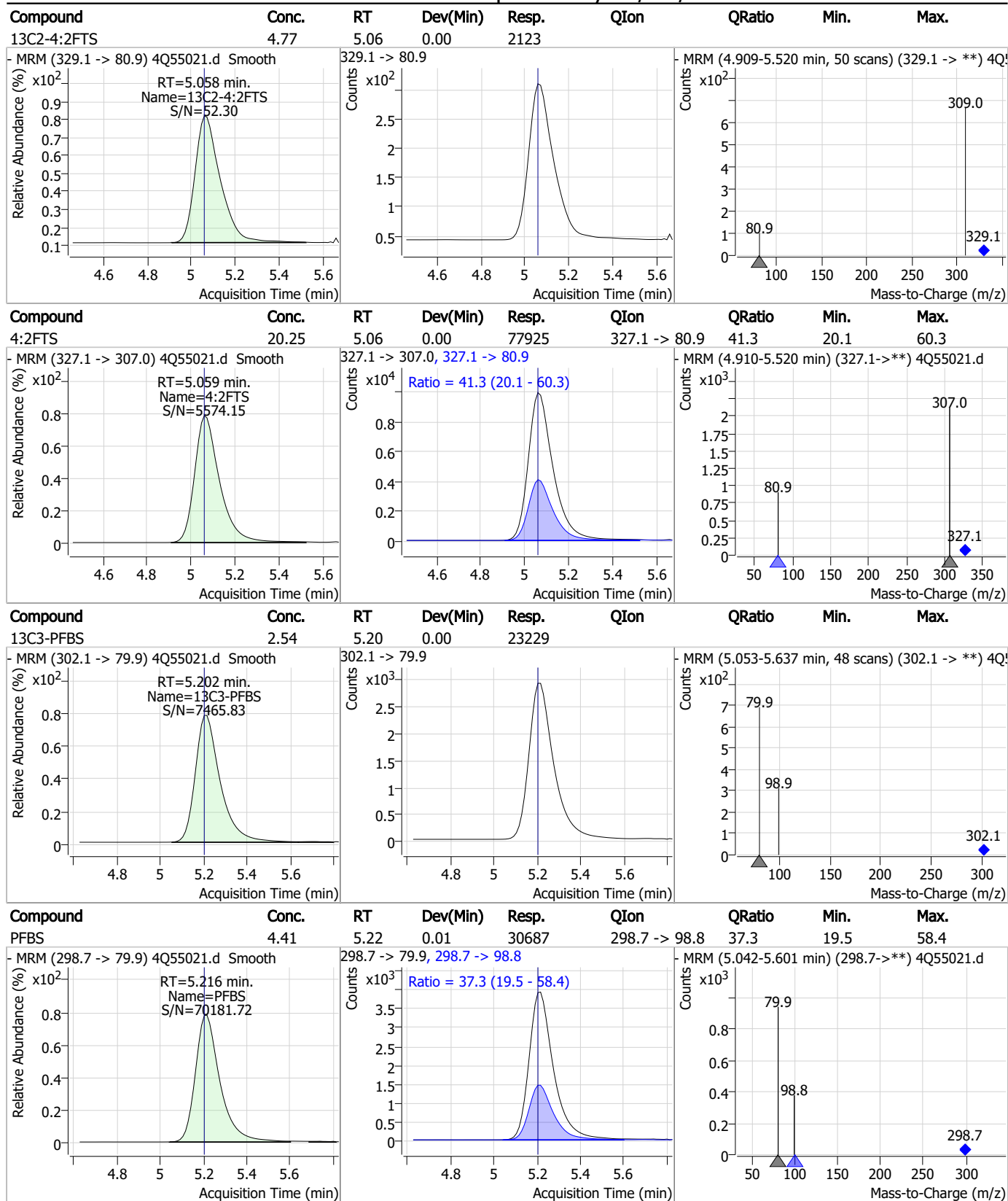
Perfluorinated Compounds by LC/MS/MS



7.7.6

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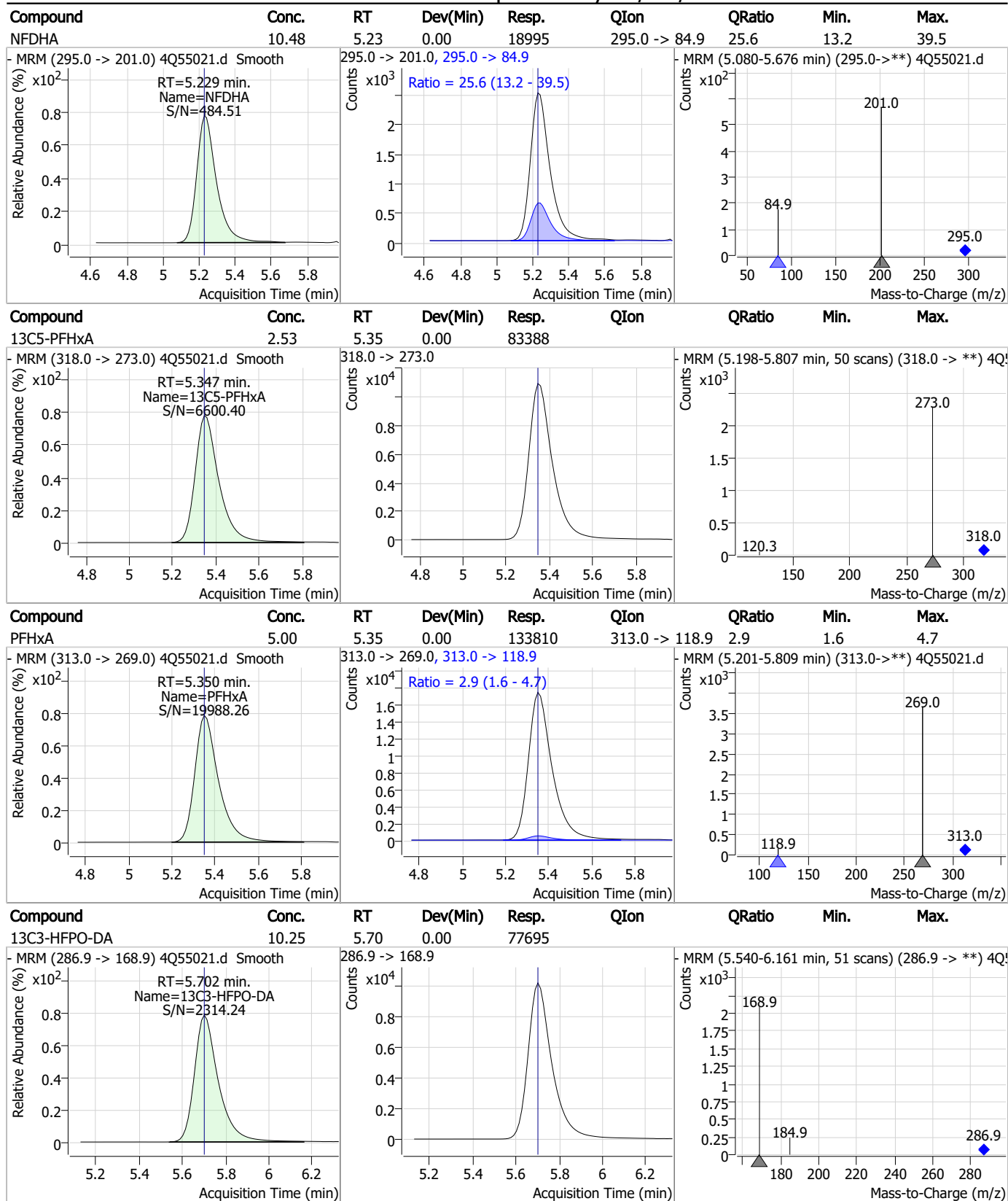
Perfluorinated Compounds by LC/MS/MS



7.7.6

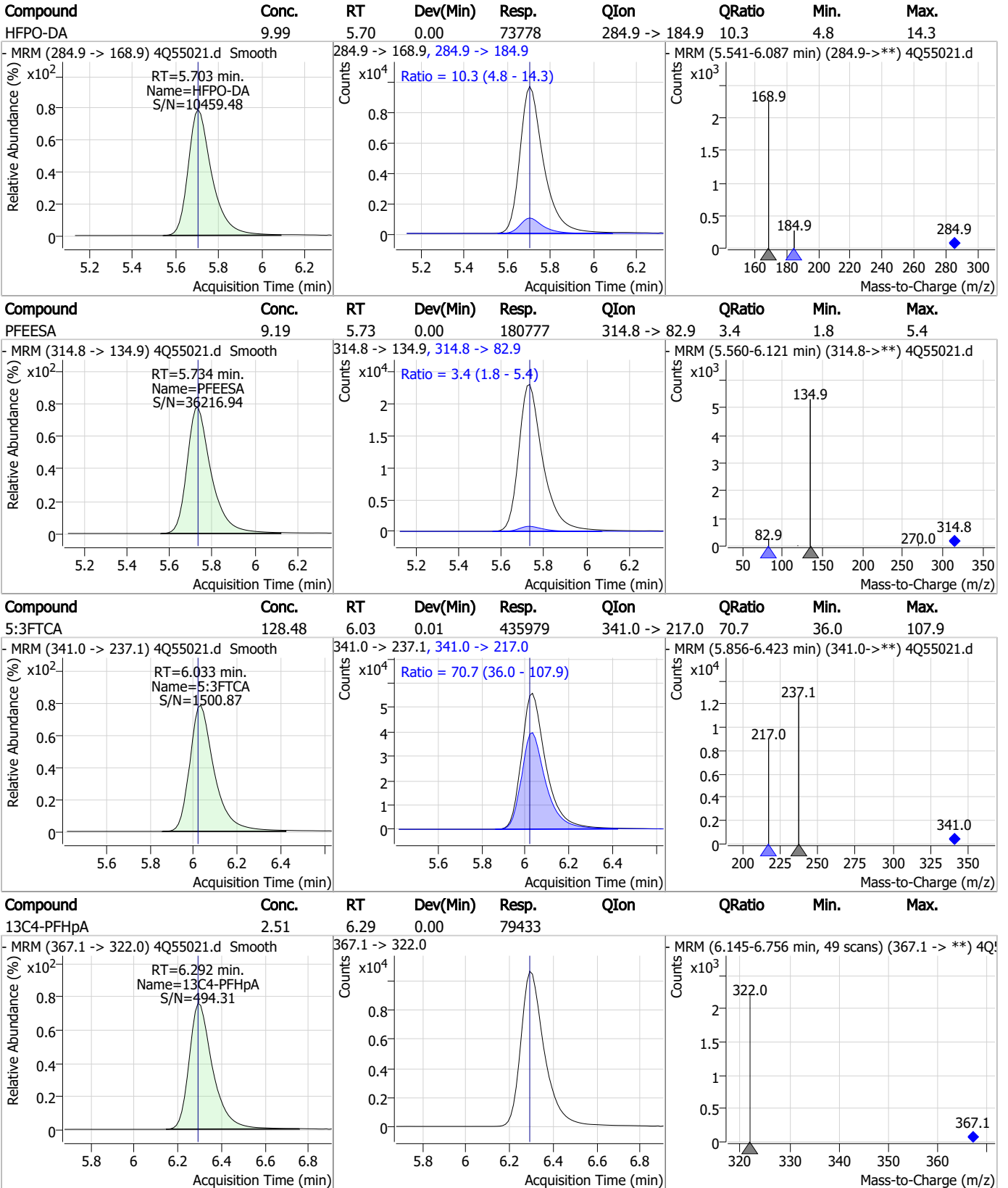
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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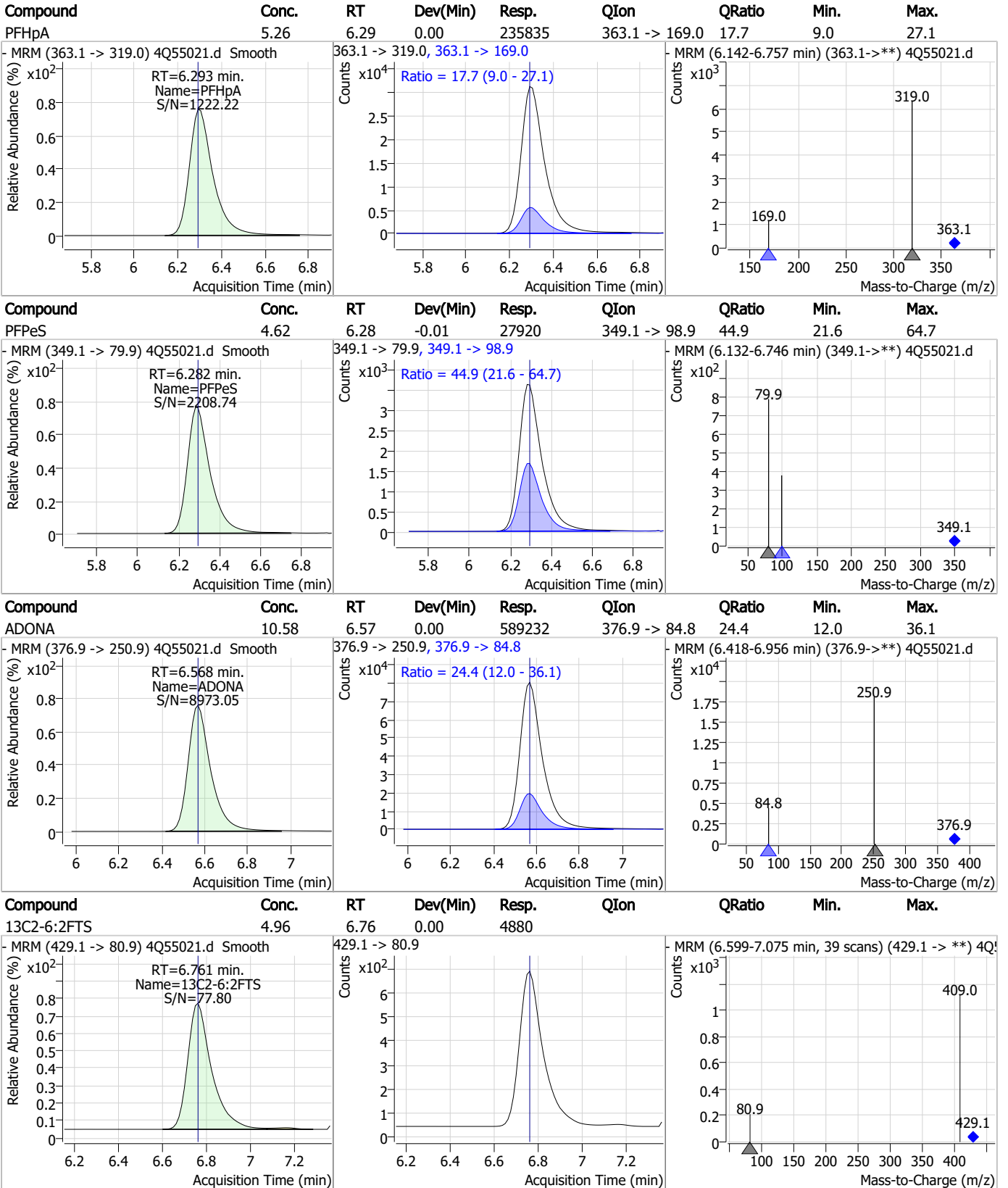
Perfluorinated Compounds by LC/MS/MS



7.7.6

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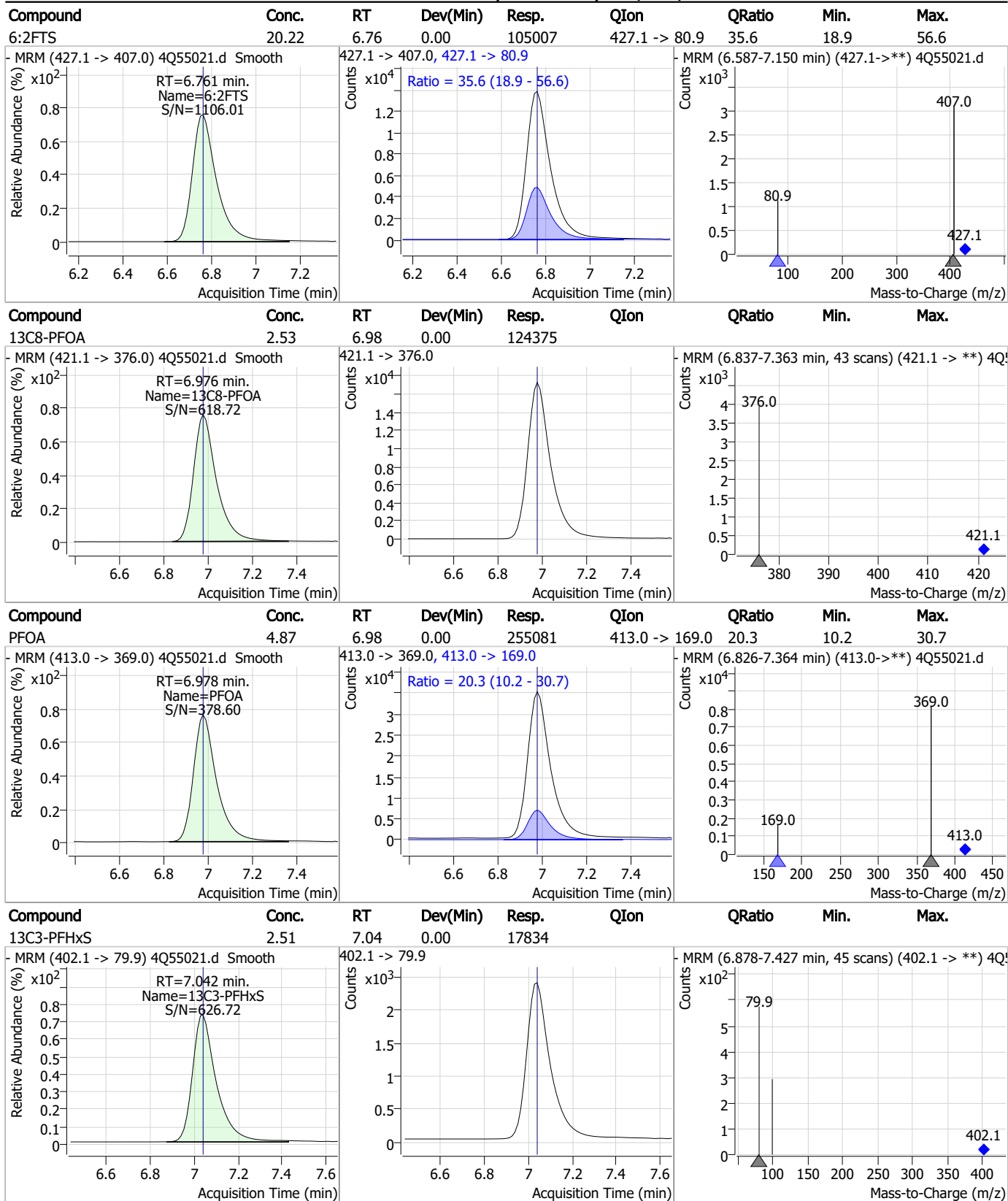
Perfluorinated Compounds by LC/MS/MS



7.7.6

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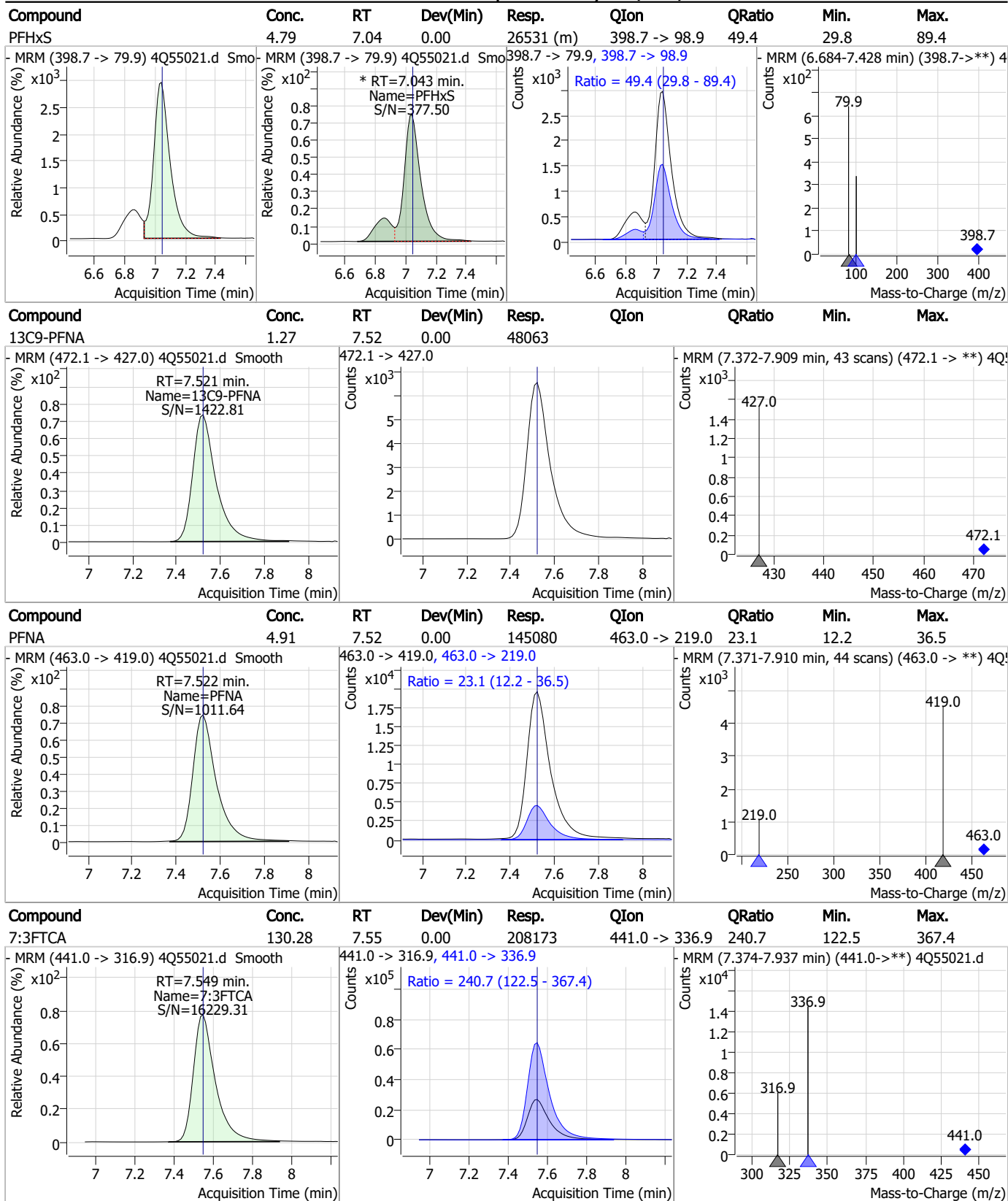
Perfluorinated Compounds by LC/MS/MS



7.7.6

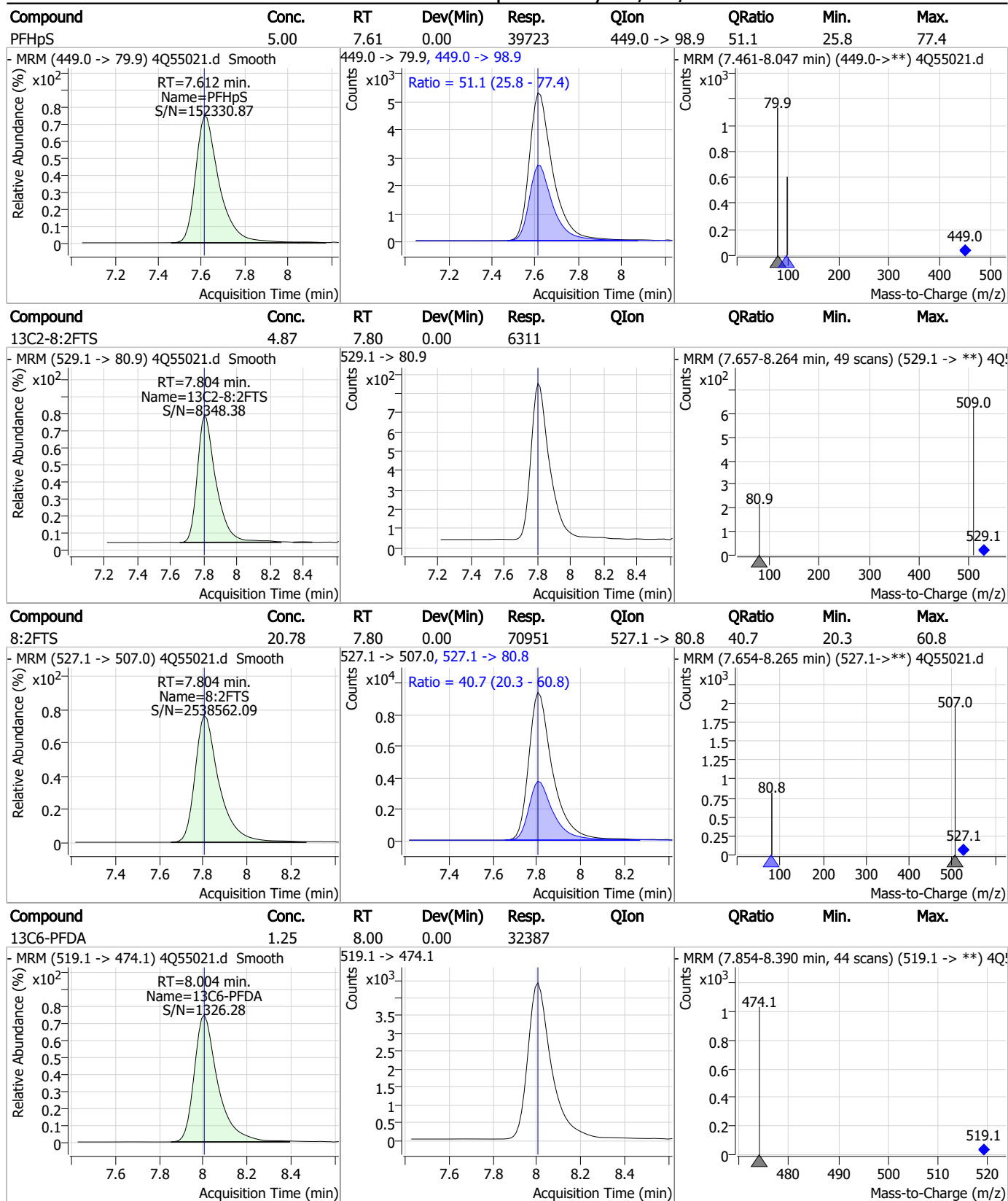
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Perfluorinated Compounds by LC/MS/MS



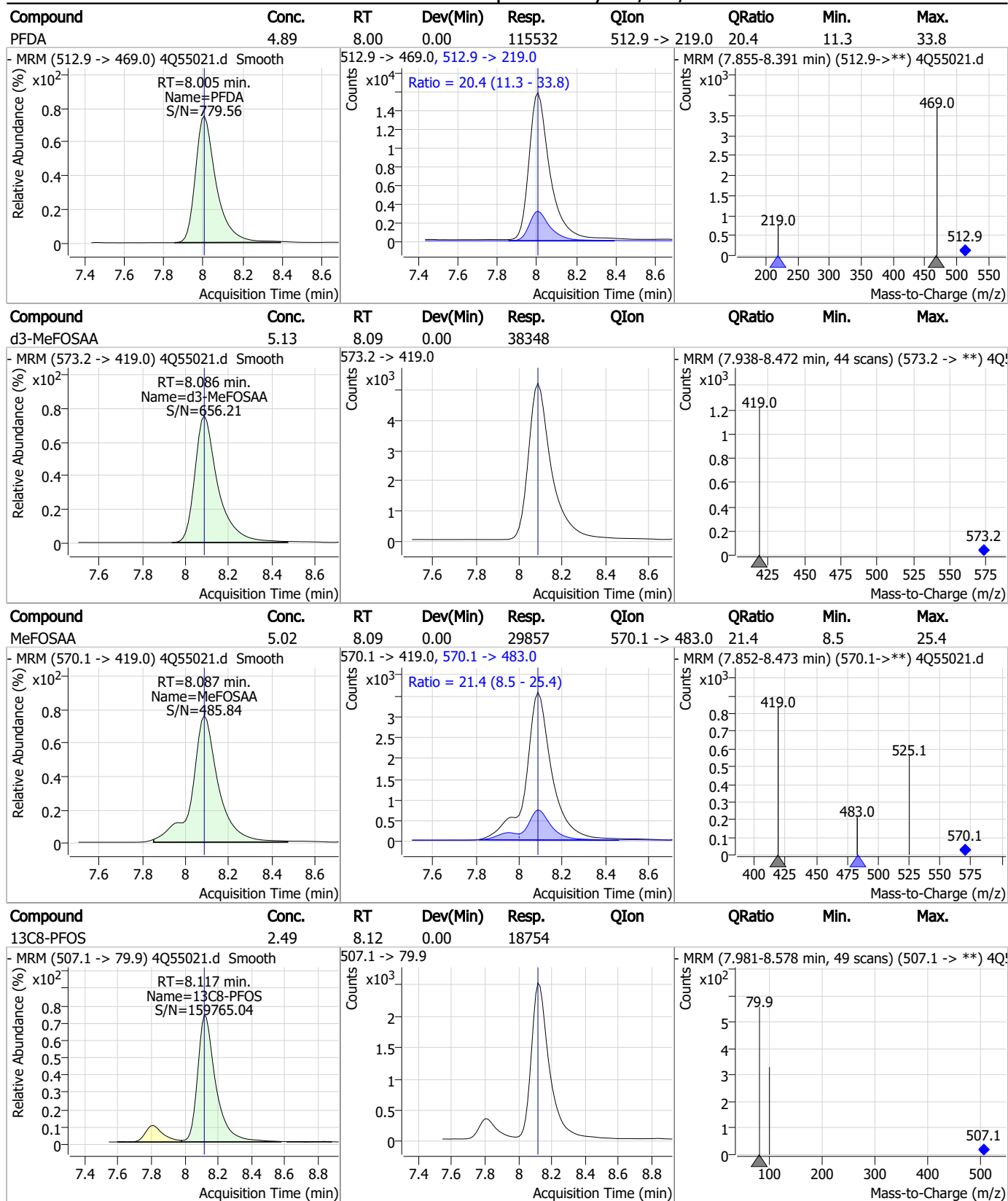
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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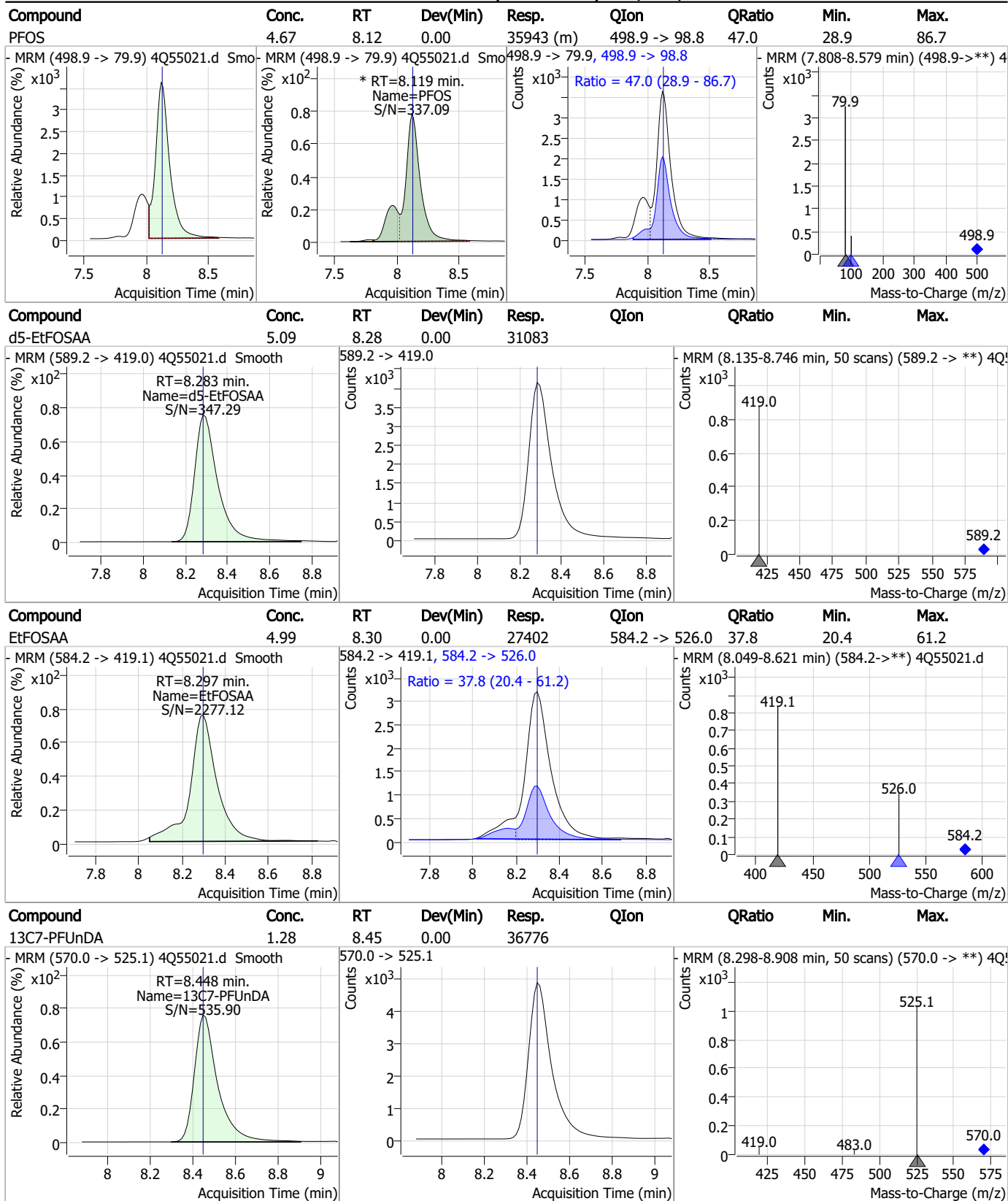
Perfluorinated Compounds by LC/MS/MS



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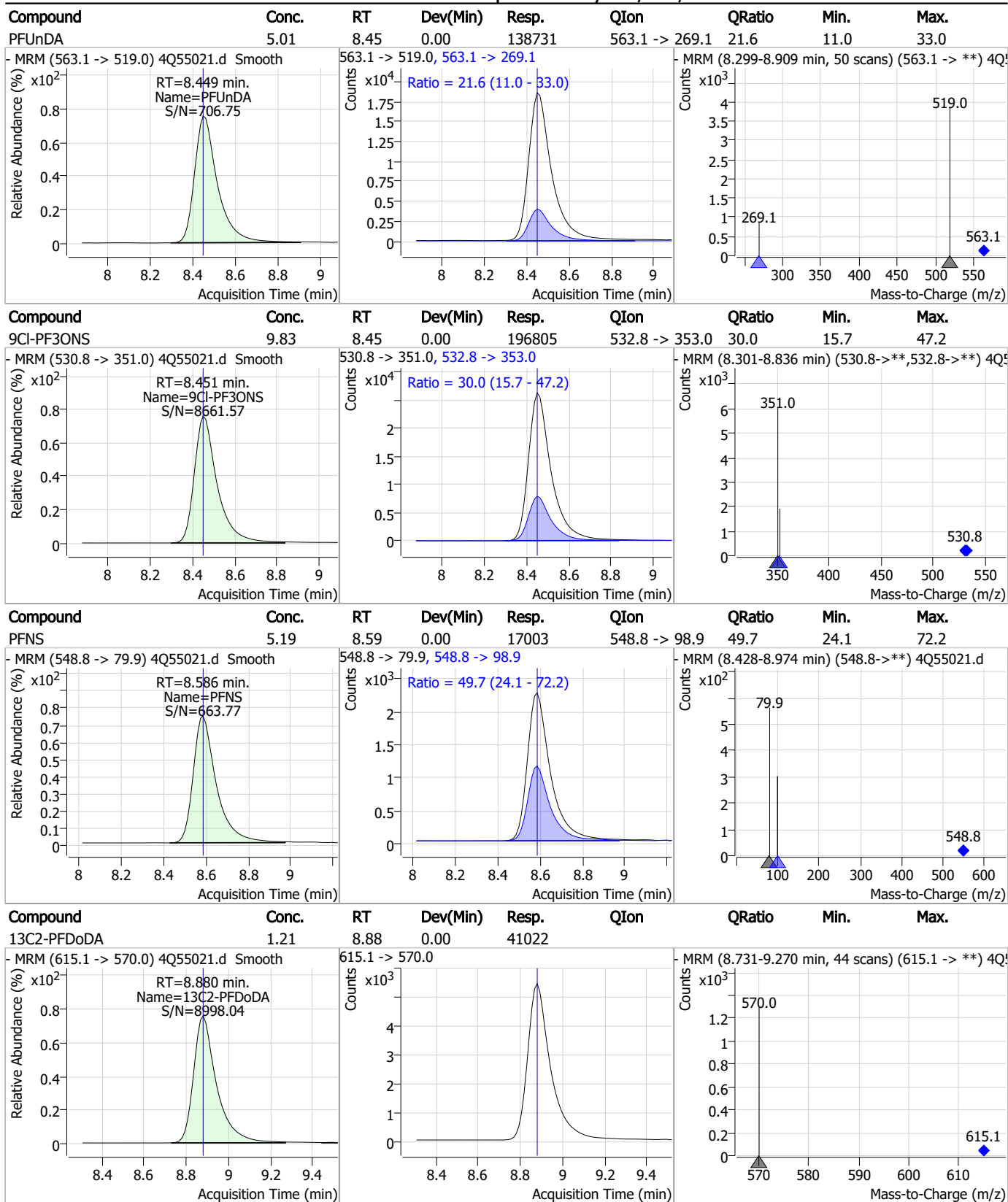
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Perfluorinated Compounds by LC/MS/MS



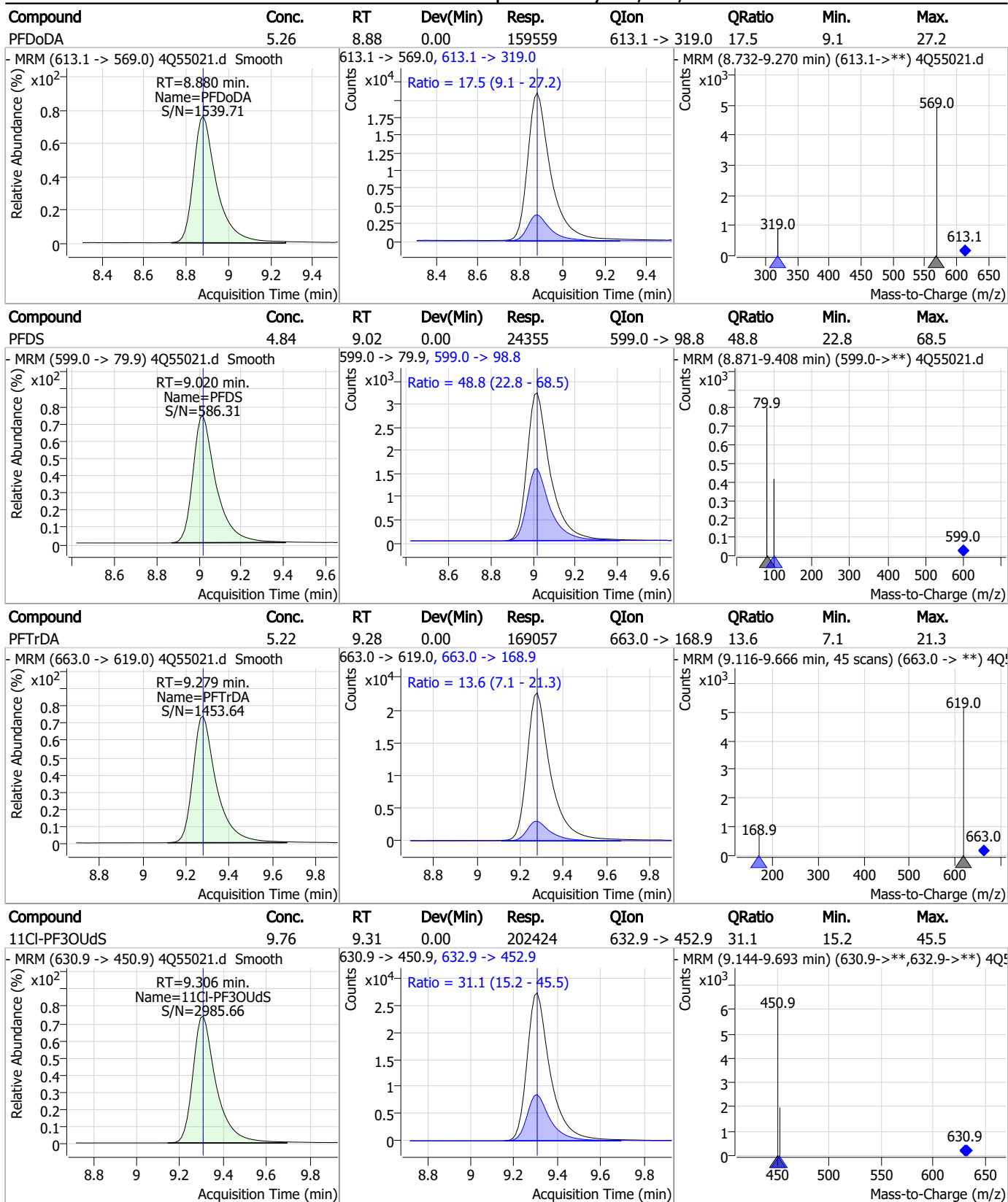
7.7.6
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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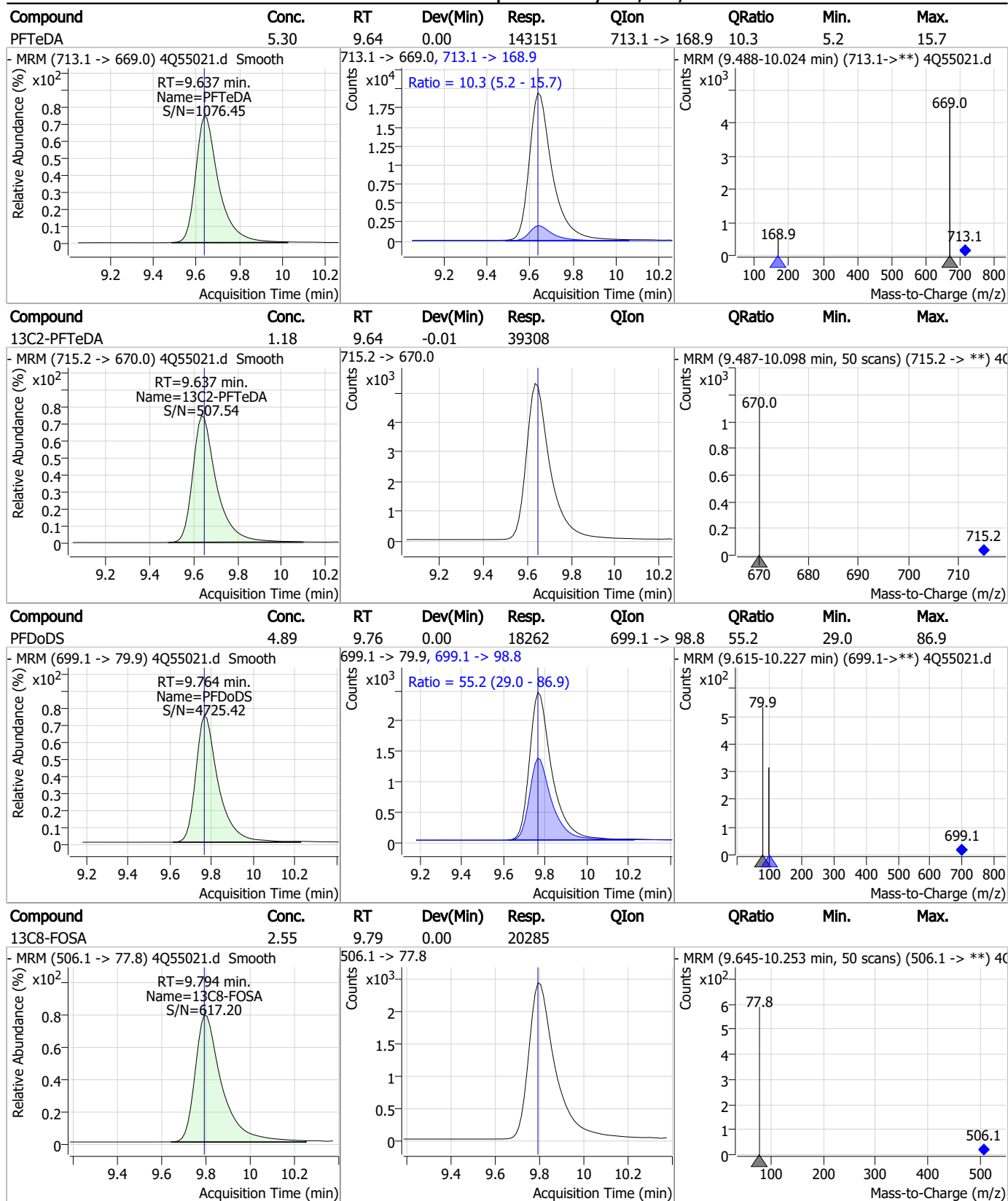
Perfluorinated Compounds by LC/MS/MS



7.7.6

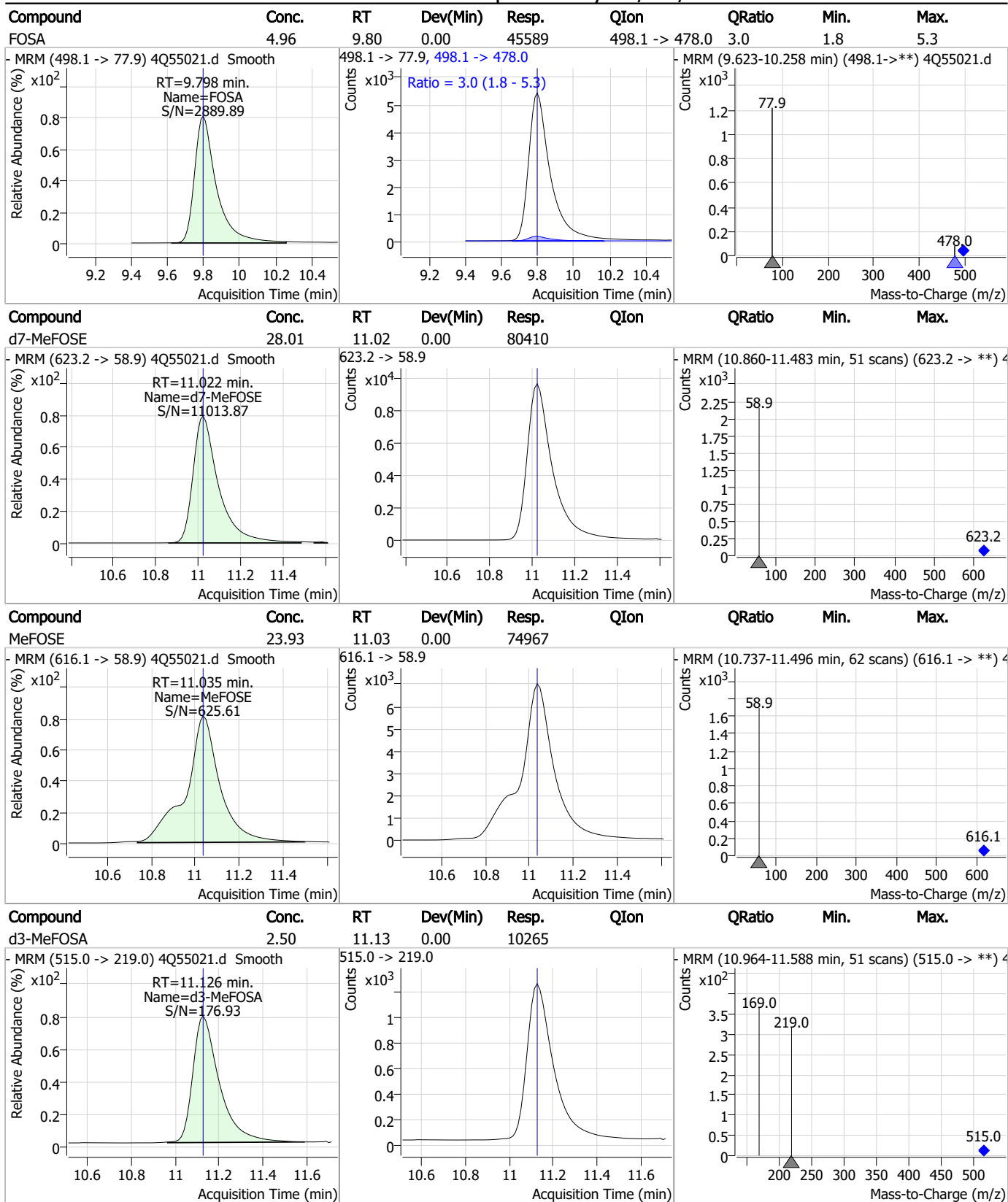
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Perfluorinated Compounds by LC/MS/MS



7.7.6
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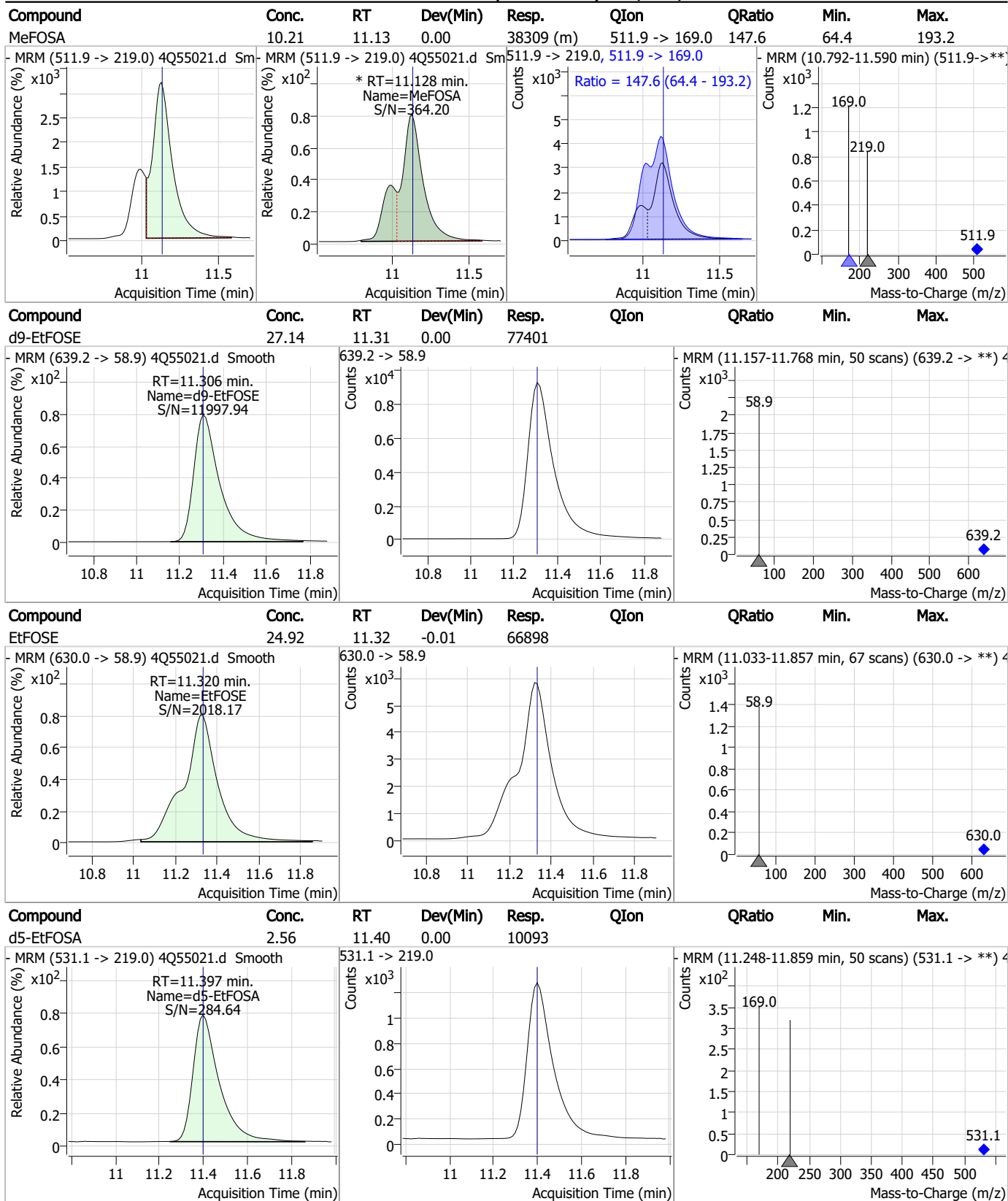
Perfluorinated Compounds by LC/MS/MS



7.7.6

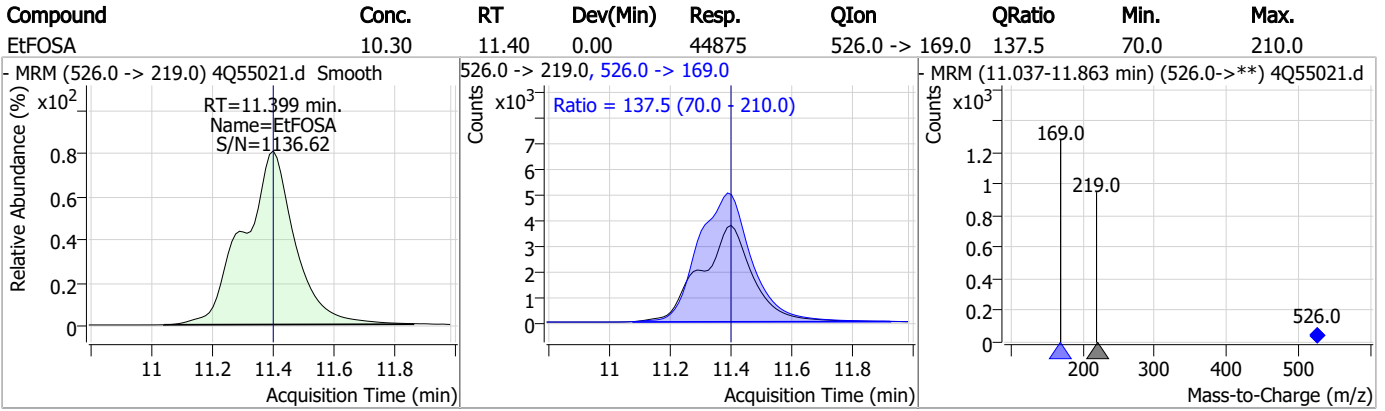
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Perfluorinated Compounds by LC/MS/MS



7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6

7

Manual Integration Approval Summary

Sample Number: S4Q806-IC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55021.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 15:54 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
MeFOSA	31506-32-8		11.13	Split peak

7.7.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55022.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 4:09:25 PM
 Sample Name : ic806-6
 Vial : P1-A7
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.699	216.8 -> 171.9	158779	10.00 µg/L	0.000
M5-PFPeA	4.175	268.3 -> 223.0	75114	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	64563	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	61851	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	93745	2.50 µg/L	0.000
M9-PFNA	7.509	472.1 -> 427.0	37230	1.25 µg/L	-0.012
M6-PFDA	7.992	519.1 -> 474.1	24775	1.25 µg/L	-0.012
M7-PFUnDA	8.448	570.0 -> 525.1	26008	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	31636	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	30094	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	14816	2.50 µg/L	0.000
M3-PFBS	5.215	302.1 -> 79.9	17634	2.50 µg/L	0.012
M3-PFHxS	7.029	402.1 -> 79.9	13745	2.50 µg/L	-0.012
M8-PFOS	8.117	507.1 -> 79.9	14864	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1550	5.00 µg/L	0.000
M2-6:2FTS	6.748	429.1 -> 80.9	3832	5.00 µg/L	-0.012
M2-8:2FTS	7.804	529.1 -> 80.9	4765	5.00 µg/L	0.000
M3-MeFOSAA	8.074	573.2 -> 419.0	28711	5.00 µg/L	-0.012
M3-HFPO-DA	5.702	286.9 -> 168.9	60322	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	23725	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	53934	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	53132	25.00 µg/L	0.000
M5-EtFOSA	11.397	531.1 -> 219.0	7587	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7734	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11044	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	74380	5.00 µg/L	0.000
18O2-PFHxS	7.041	403.0 -> 83.9	8748	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	101795	2.50 µg/L	0.000
13C2-PFDA	7.992	515.1 -> 470.1	26056	1.25 µg/L	-0.012
13C5-PFNA	7.509	468.0 -> 423.0	36205	1.25 µg/L	-0.012
13C2-PFHxA	5.348	315.1 -> 270.0	70580	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1550	4.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.6%		
13C2-6:2FTS	6.748	429.1 -> 80.9	3832	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-8:2FTS	7.804	529.1 -> 80.9	4765	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-PFDoDA	8.867	615.1 -> 570.0	31636	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFTeDA	9.637	715.2 -> 670.0	30094	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-PFBS	5.215	302.1 -> 79.9	17634	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.029	402.1 -> 79.9	13745	2.55 µg/L	-0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C4-PFBA	2.699	216.8 -> 171.9	158779	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C4-PFHpA	6.292	367.1 -> 322.0	61851	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFHxA	5.347	318.0 -> 273.0	64563	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C5-PFPeA	4.175	268.3 -> 223.0	75114	4.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C6-PFDA	7.992	519.1 -> 474.1	24775	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C7-PFUnDA	8.448	570.0 -> 525.1	26008	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-FOSA	9.794	506.1 -> 77.8	14816	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C8-PFOA	6.976	421.1 -> 376.0	93745	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-PFOS	8.117	507.1 -> 79.9	14864	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C9-PFNA	7.509	472.1 -> 427.0	37230	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%	
d3-MeFOSAA	8.074	573.2 -> 419.0	28711	4.91 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	60322	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d3-MeFOSA	11.126	515.0 -> 219.0	7734	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
d5-EtFOSAA	8.283	589.2 -> 419.0	23725	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
d7-MeFOSE	11.022	623.2 -> 58.9	53934	24.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.1%	
d9-EtFOSE	11.306	639.2 -> 58.9	53132	23.82 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
d5-EtFOSA	11.397	531.1 -> 219.0	7587	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	146356	52.07 µg/L	99
		327.1 -> 80.9	59741		
6:2FTS	6.749	427.1 -> 407.0	196099	48.09 µg/L	96
		427.1 -> 80.9	68679		
8:2FTS	7.804	527.1 -> 507.0	129054	50.05 µg/L	96
		527.1 -> 80.8	49161		
EtFOSAA	8.284	584.2 -> 419.1	52447	12.52 µg/L	m 98
		584.2 -> 526.0	21944		
FOSA	9.785	498.1 -> 77.9	87016	12.96 µg/L	98
		498.1 -> 478.0	2613		
MeFOSAA	8.075	570.1 -> 419.0	59181	13.29 µg/L	94
		570.1 -> 483.0	11531		
PFBA	2.695	212.8 -> 168.9	266310	52.75 µg/L	100
PFBS	5.216	298.7 -> 79.9	60433	11.43 µg/L	99
		298.7 -> 98.8	23226		
PFDA	7.992	512.9 -> 469.0	222485	12.32 µg/L	95
		512.9 -> 219.0	44265		
PFDoDA	8.868	613.1 -> 569.0	311810	13.32 µg/L	99
		613.1 -> 319.0	55082		
PFDS	9.008	599.0 -> 79.9	48495	12.15 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	23707			
PFHpA	6.293	363.1 -> 319.0	466294	13.35	µg/L	99
		363.1 -> 169.0	81480			
PFHpS	7.612	449.0 -> 79.9	76550	12.15	µg/L	99
		449.0 -> 98.9	39006			
PFHxA	5.350	313.0 -> 269.0	267423	12.90	µg/L	100
		313.0 -> 118.9	8065			
PFHxS	7.030	398.7 -> 79.9	47332	11.09	µg/L	m 96
		398.7 -> 98.9	26640			
PFNA	7.510	463.0 -> 419.0	287626	12.58	µg/L	97
		463.0 -> 219.0	66007			
PFNS	8.574	548.8 -> 79.9	31938	12.31	µg/L	93
		548.8 -> 98.9	16920			
PFOA	6.978	413.0 -> 369.0	492913	12.49	µg/L	99
		413.0 -> 169.0	98861			
PFOS	8.119	498.9 -> 79.9	67412	11.05	µg/L	m 88
		498.9 -> 98.8	32896			
PFPeA	4.177	263.0 -> 219.0	385559	26.48	µg/L	100
PFPeS	6.282	349.1 -> 79.9	56009	12.04	µg/L	96
		349.1 -> 98.9	25693			
PFTeDA	9.637	713.1 -> 669.0	285879	13.83	µg/L	100
		713.1 -> 168.9	29510			
PFTrDA	9.267	663.0 -> 619.0	332579	13.32	µg/L	99
		663.0 -> 168.9	45508			
PFUnDA	8.449	563.1 -> 519.0	258102	13.18	µg/L	99
		563.1 -> 269.1	55600			
11Cl-PF3OUdS	9.294	630.9 -> 450.9	394730	24.51	µg/L	98
		632.9 -> 452.9	123269			
9Cl-PF3ONS	8.438	530.8 -> 351.0	378567	24.35	µg/L	98
		532.8 -> 353.0	115162			
ADONA	6.568	376.9 -> 250.9	1177486	27.24	µg/L	100
		376.9 -> 84.8	281296			
HFPO-DA	5.703	284.9 -> 168.9	148745	25.95	µg/L	99
		284.9 -> 184.9	14870			
3:3FTCA	3.630	241.0 -> 177.0	42130	65.98	µg/L	100
		241.0 -> 117.0	3820			
5:3FTCA	6.020	341.0 -> 237.1	863002	328.48	µg/L	99
		341.0 -> 217.0	614084			
7:3FTCA	7.536	441.0 -> 316.9	404473	326.94	µg/L	96
		441.0 -> 336.9	963149			
EtFOSA	11.399	526.0 -> 219.0	84413	25.76	µg/L	99
		526.0 -> 169.0	118708			
EtFOSE	11.320	630.0 -> 58.9	121316	65.83	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	72601	25.68	µg/L	m 87
		511.9 -> 169.0	104409			
MeFOSE	11.035	616.1 -> 58.9	139241	66.28	µg/L	100
PFDoDS	9.752	699.1 -> 79.9	35781	12.08	µg/L	99
		699.1 -> 98.8	20419			
NFDHA	5.241	295.0 -> 201.0	37393	26.64	µg/L	97
		295.0 -> 84.9	9260			
PFMBA	4.578	279.0 -> 85.1	218557	26.05	µg/L	100
PFMPA	3.332	229.0 -> 84.9	220312	25.98	µg/L	100
PFEESA	5.734	314.8 -> 134.9	353725	23.23	µg/L	99
		314.8 -> 82.9	11955			

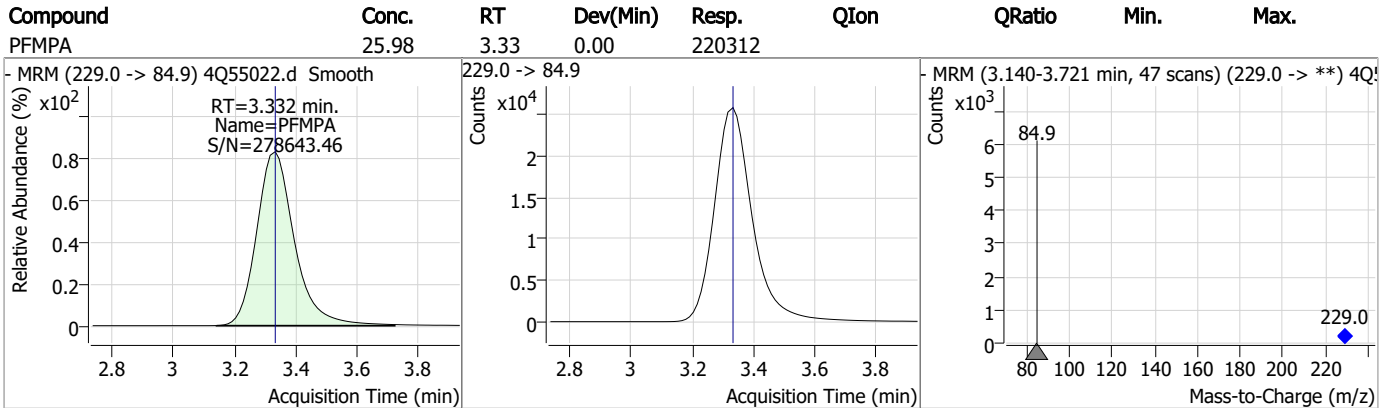
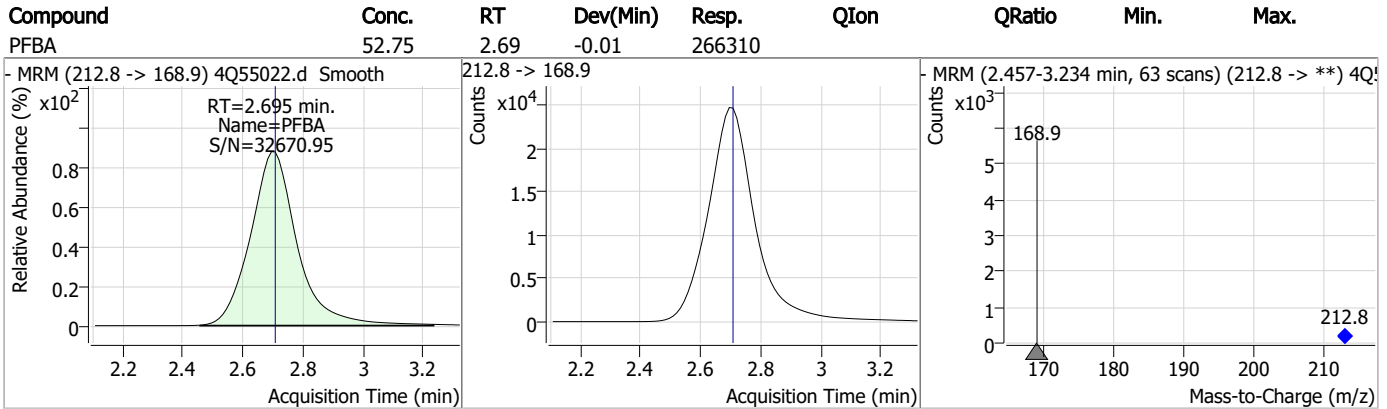
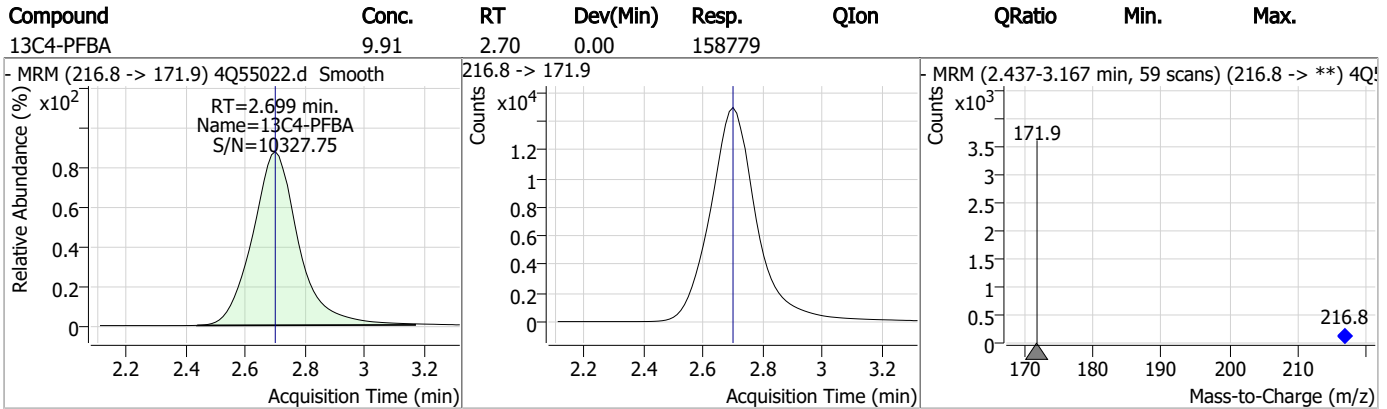
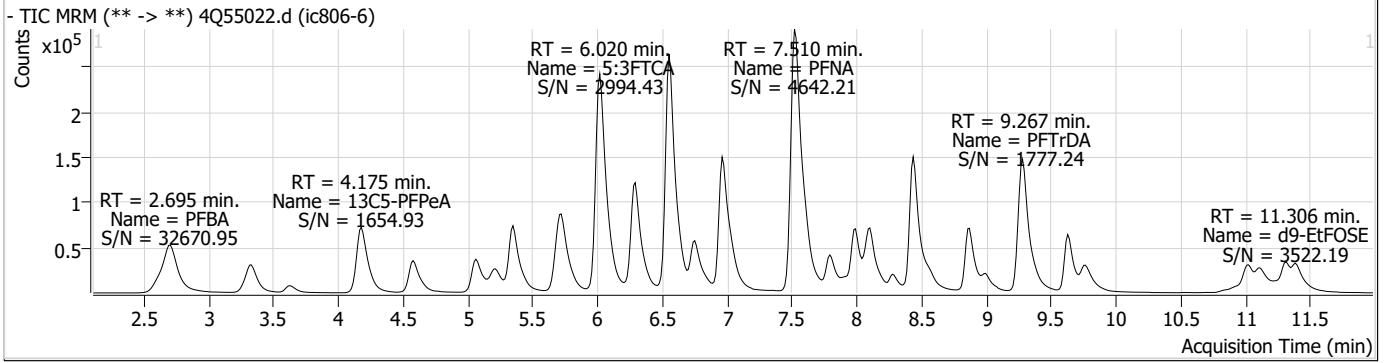
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

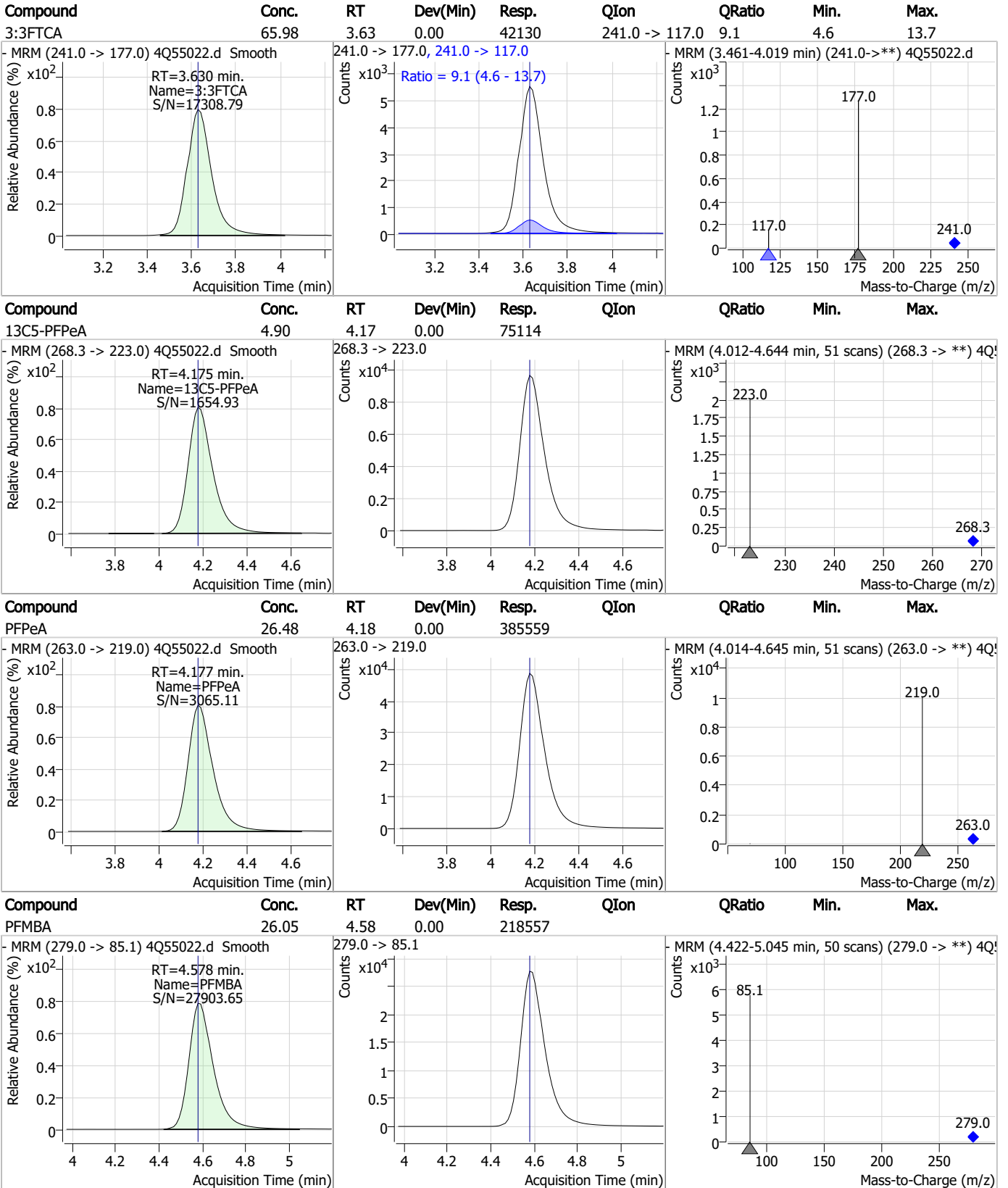
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
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7.7.7
7

Perfluorinated Compounds by LC/MS/MS

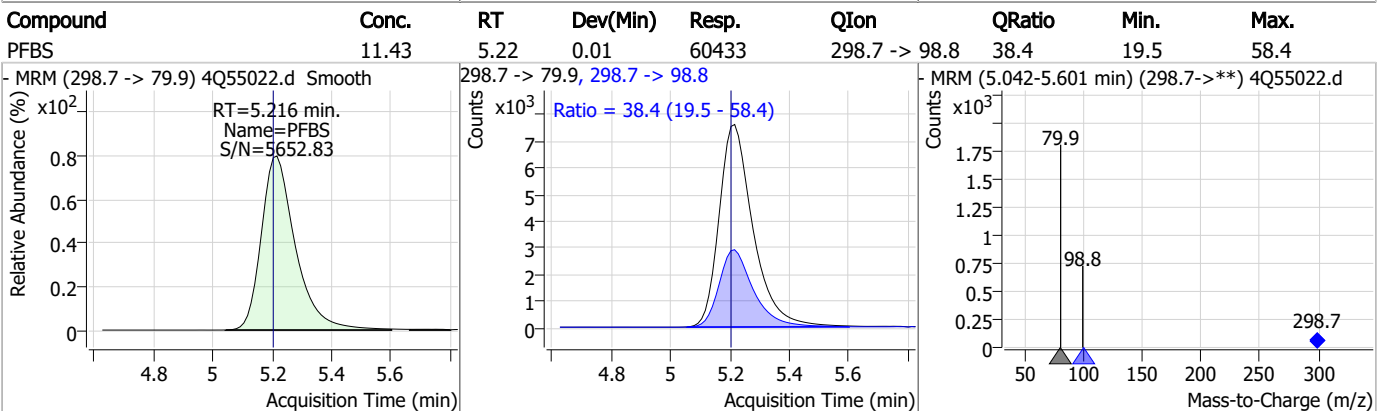
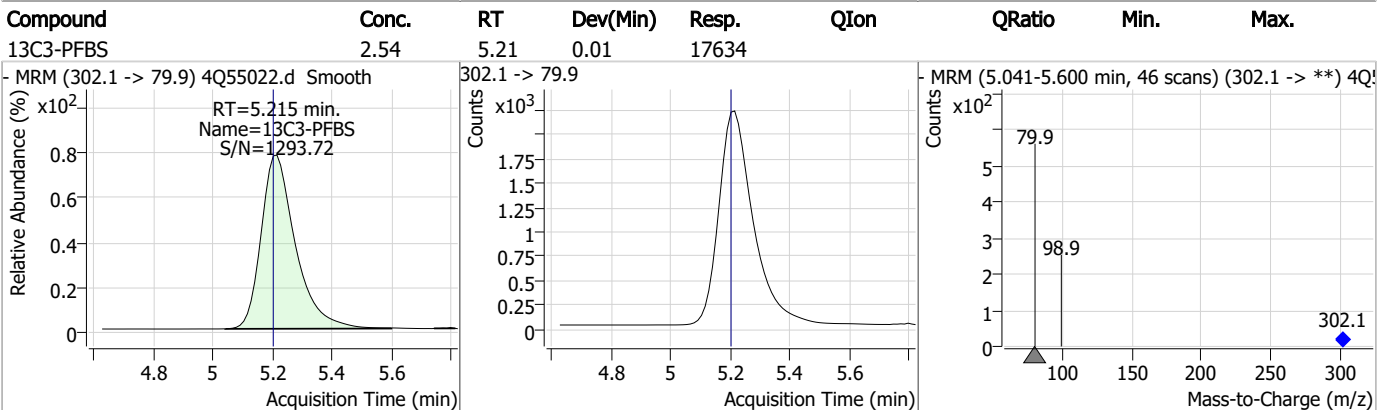
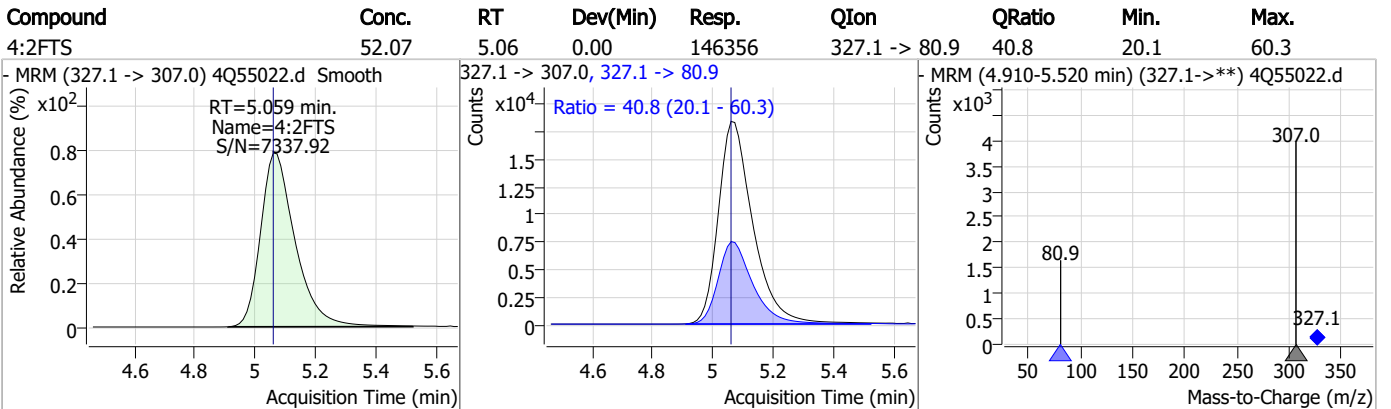
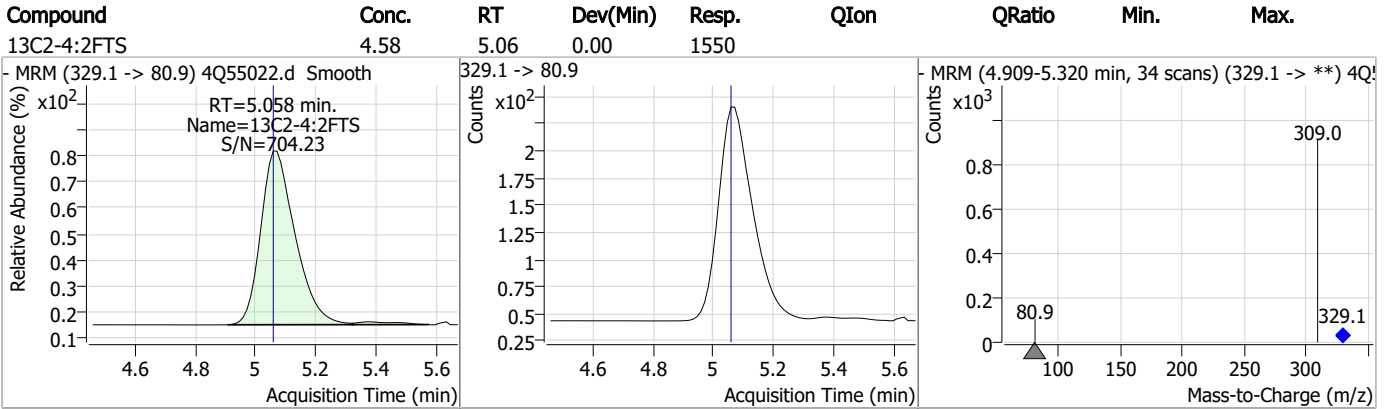


Perfluorinated Compounds by LC/MS/MS

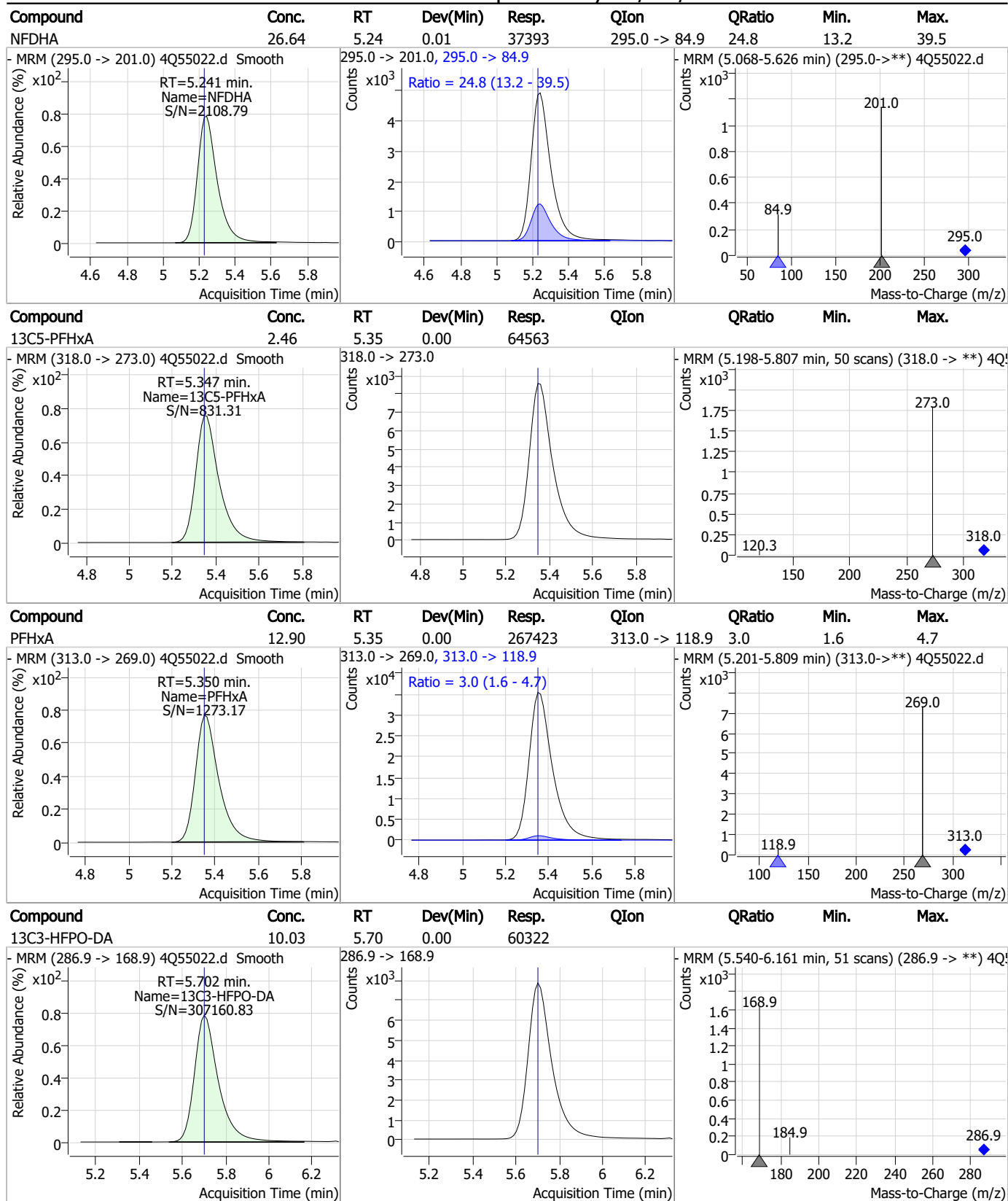


7.7.7
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Perfluorinated Compounds by LC/MS/MS

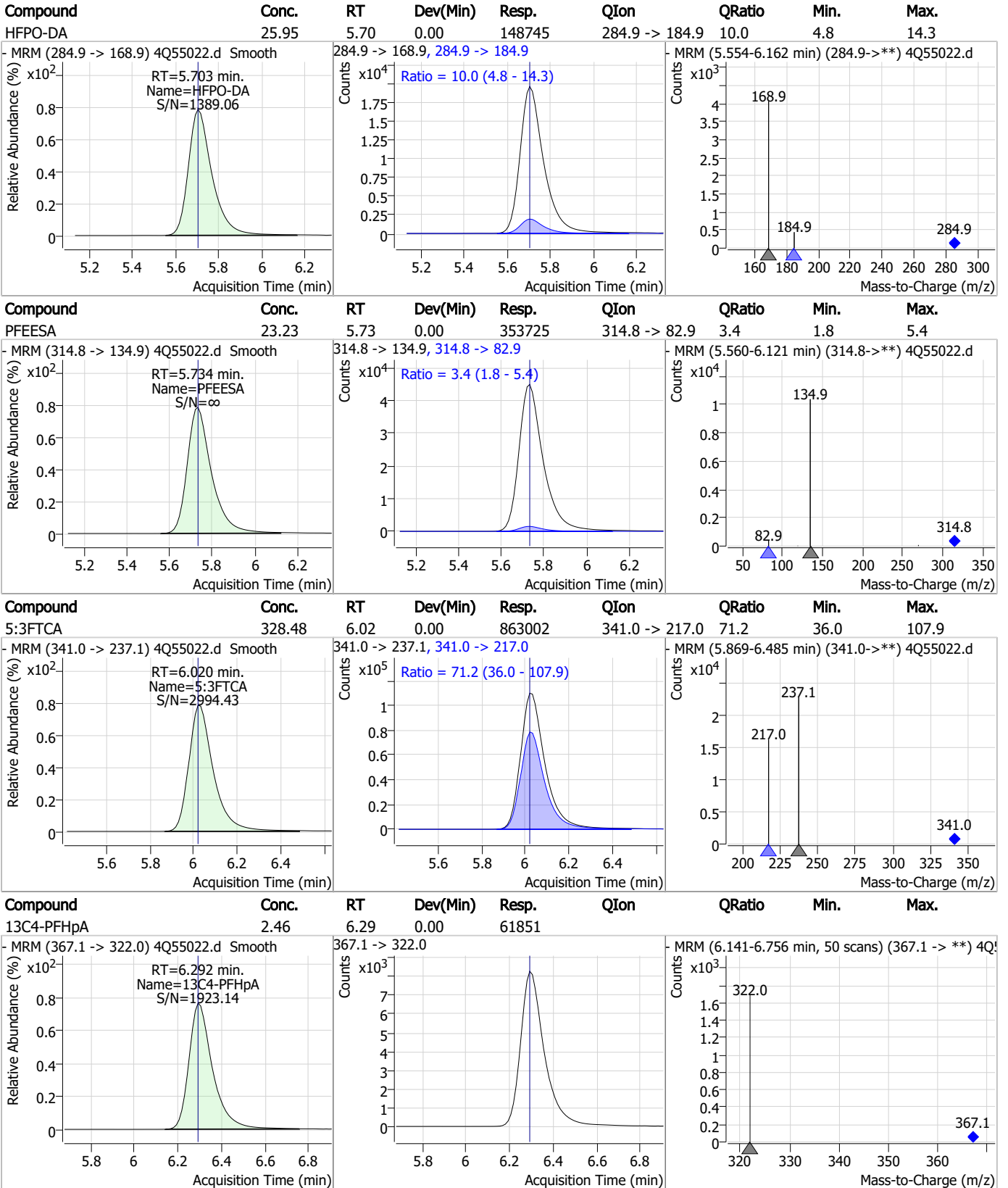


Perfluorinated Compounds by LC/MS/MS



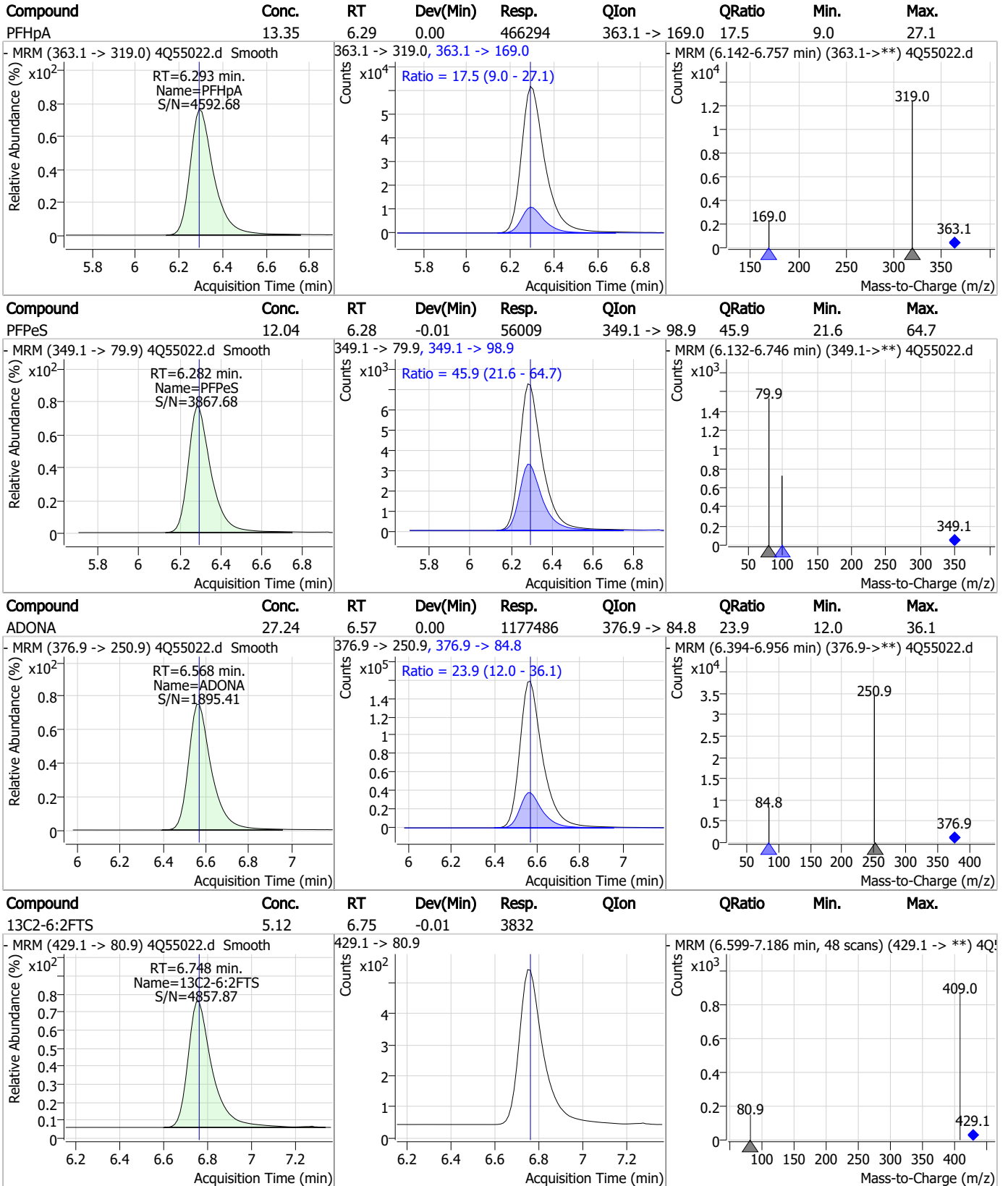
7.7.7
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Perfluorinated Compounds by LC/MS/MS



7.7.7
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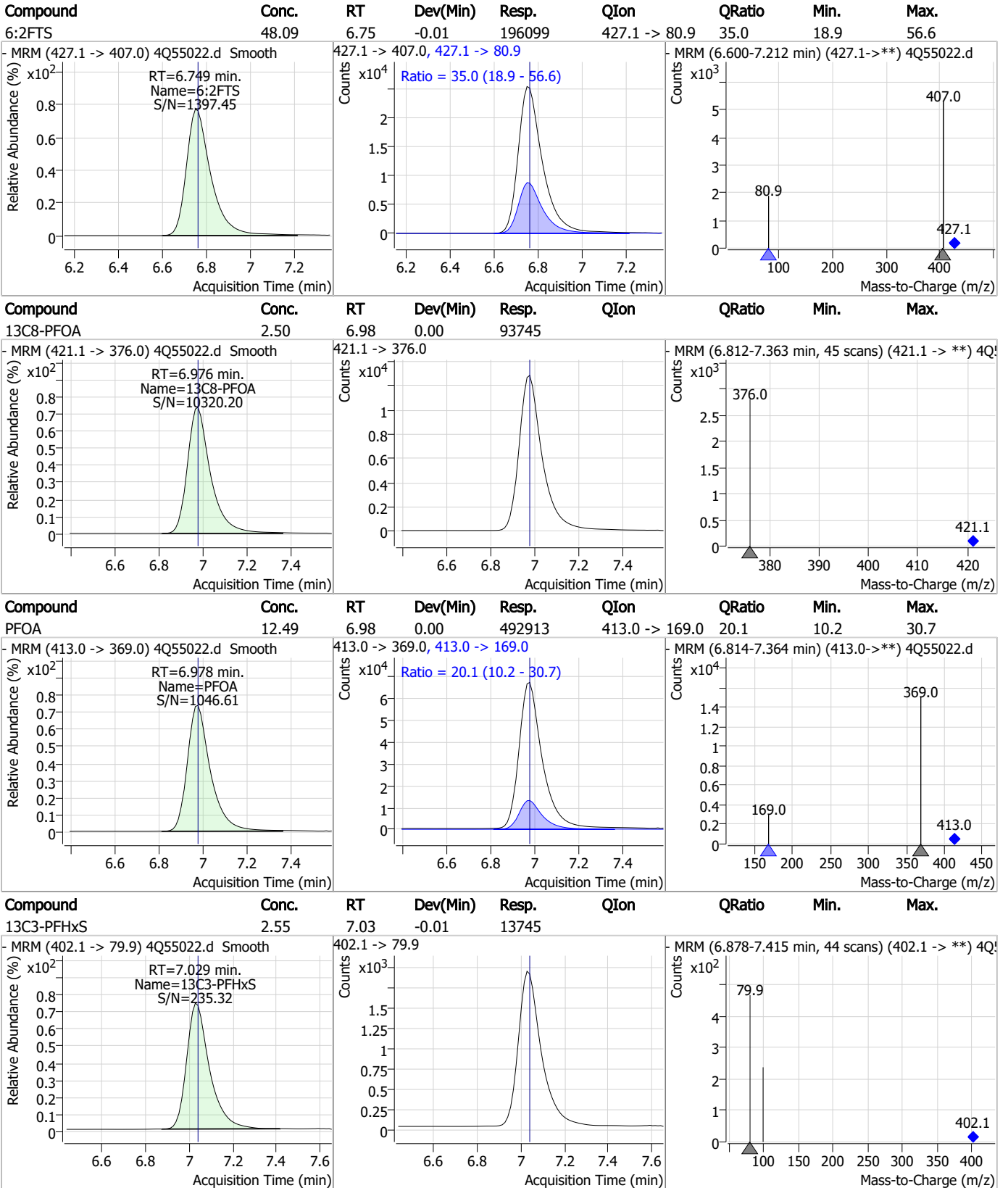
Perfluorinated Compounds by LC/MS/MS



7.7.7

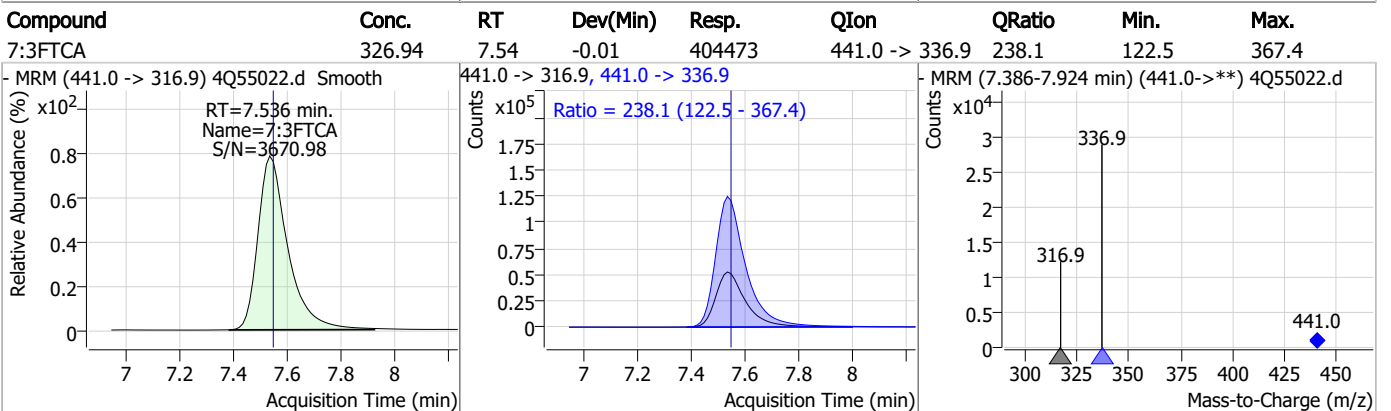
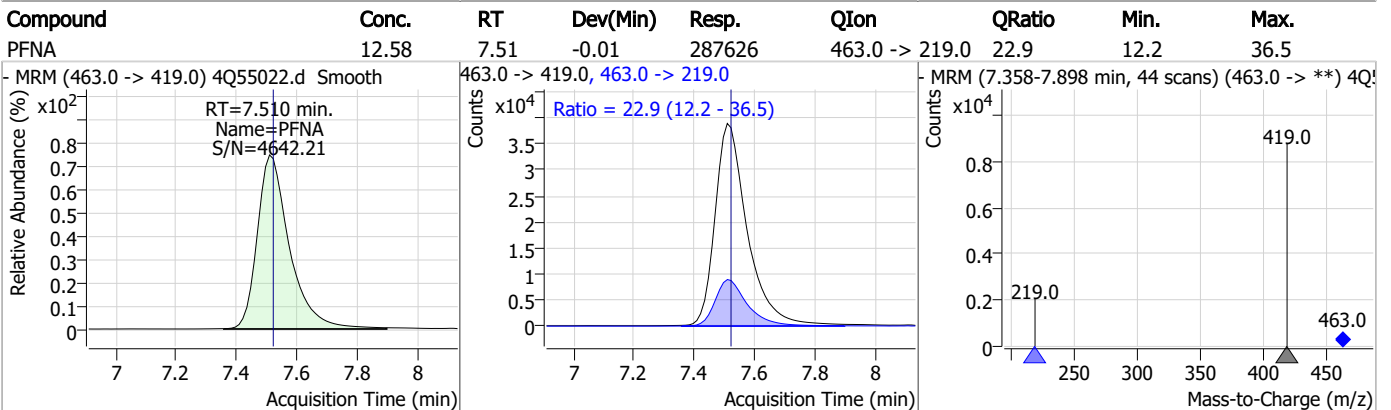
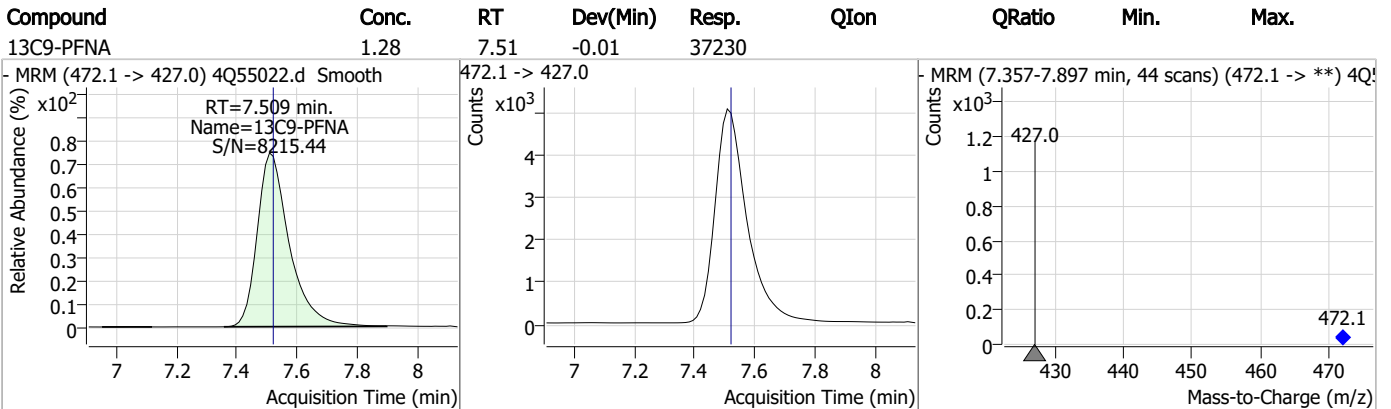
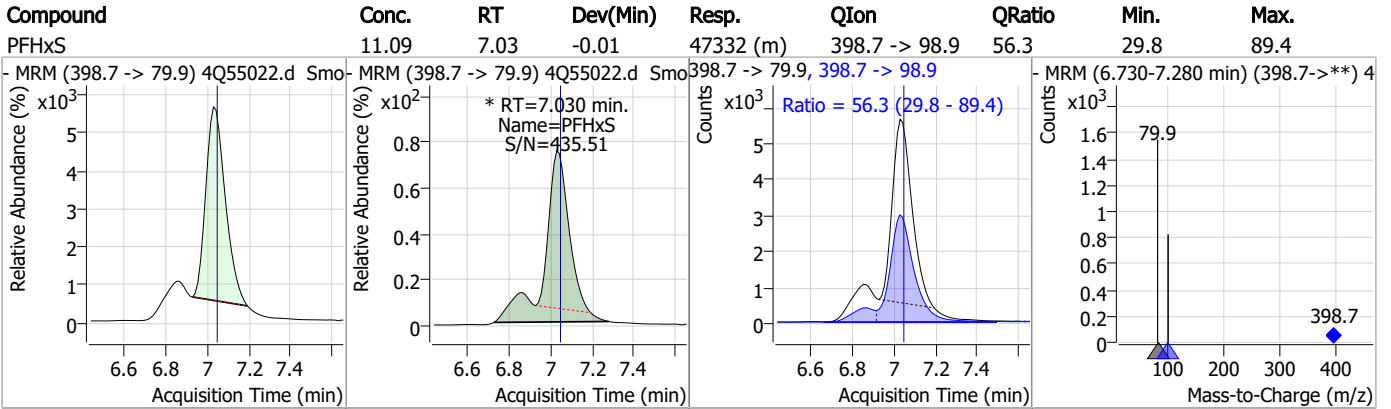
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Perfluorinated Compounds by LC/MS/MS

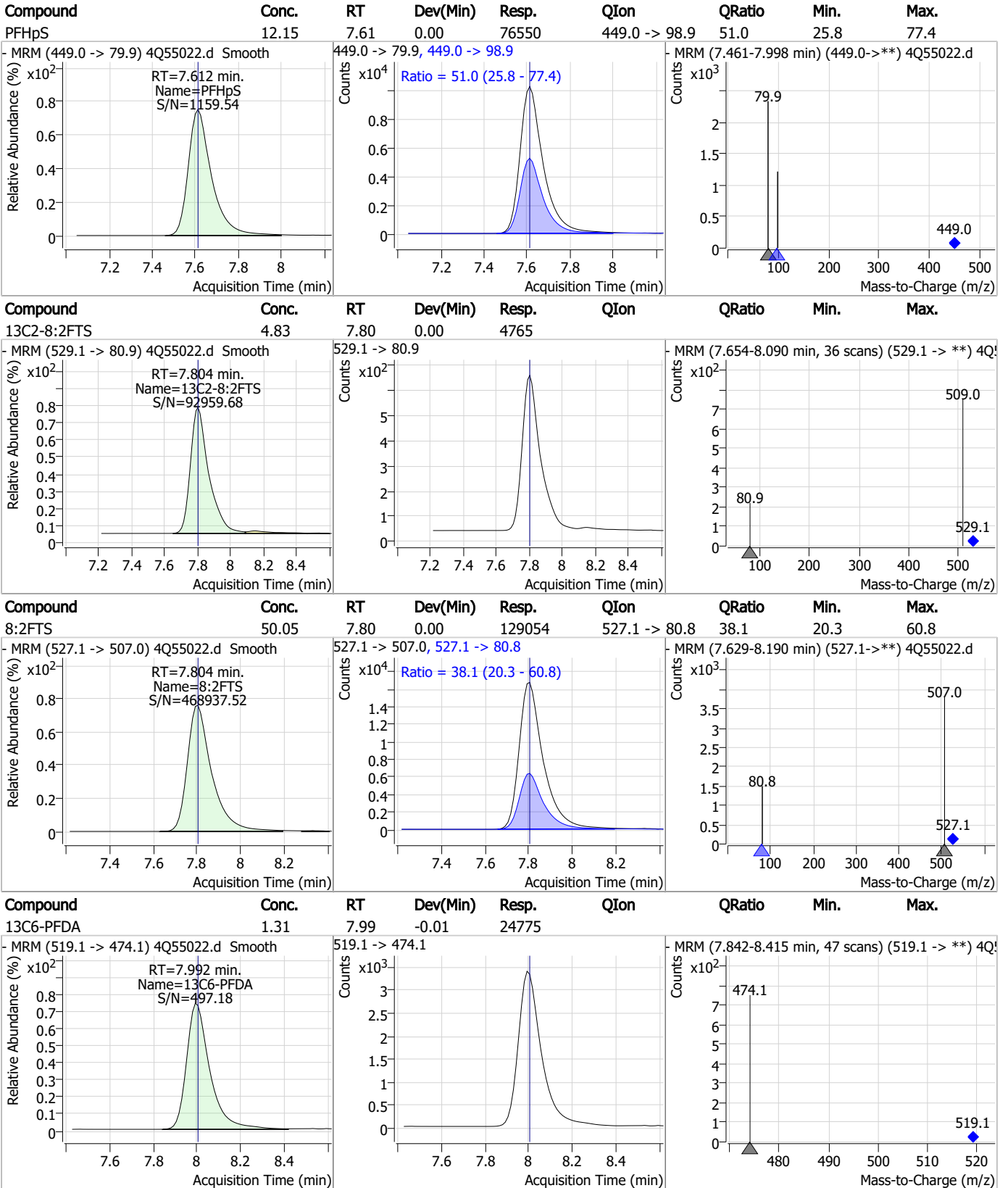


7.7.7
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Perfluorinated Compounds by LC/MS/MS

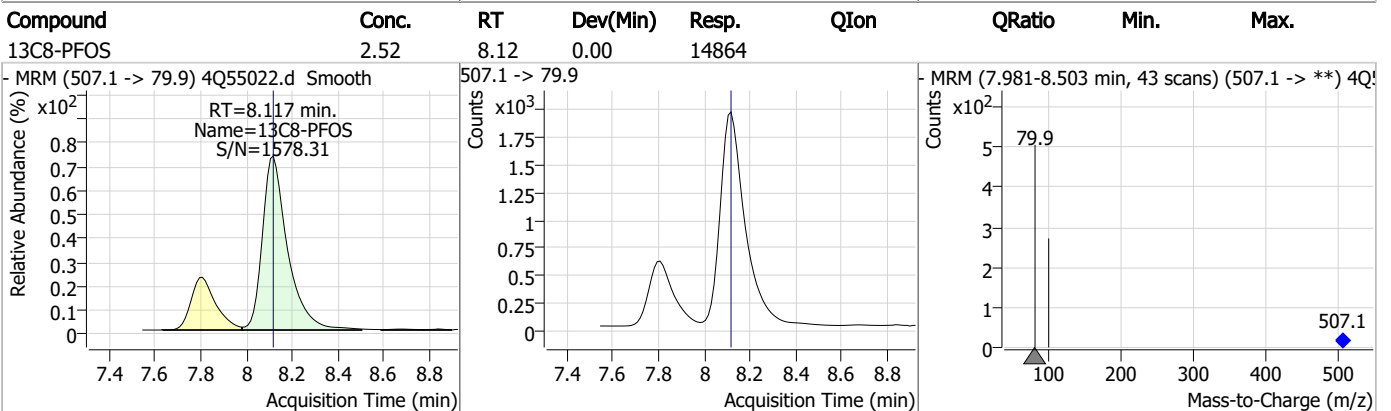
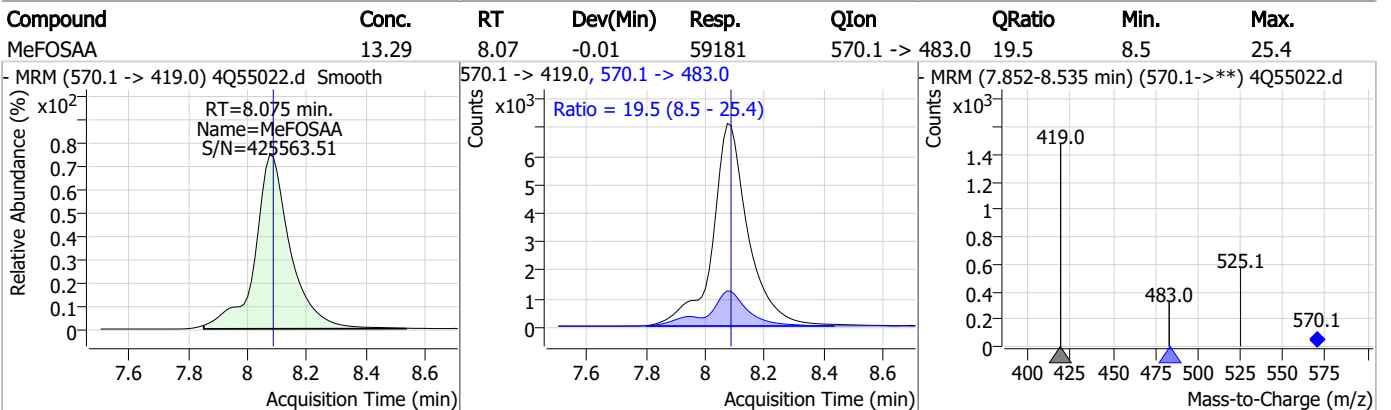
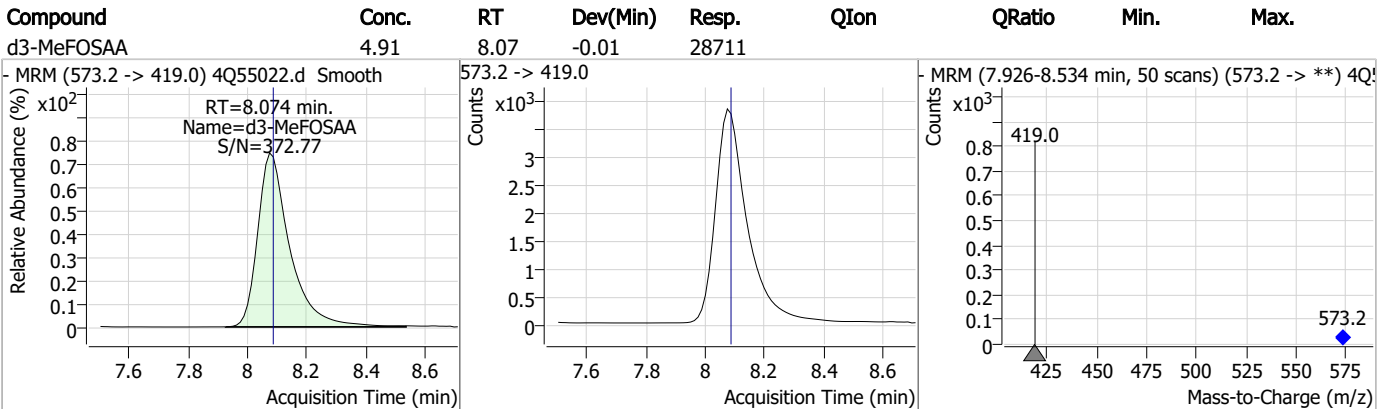
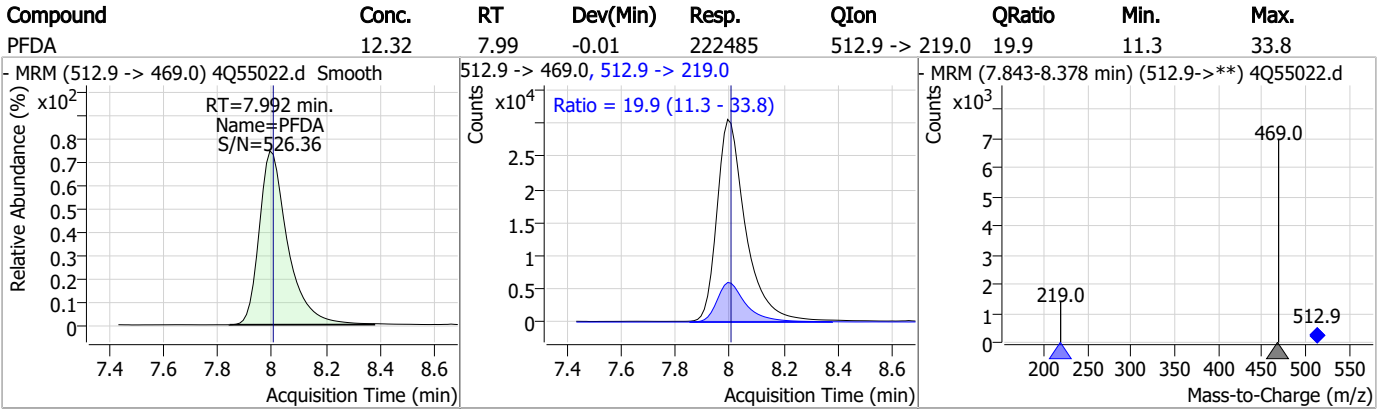


Perfluorinated Compounds by LC/MS/MS

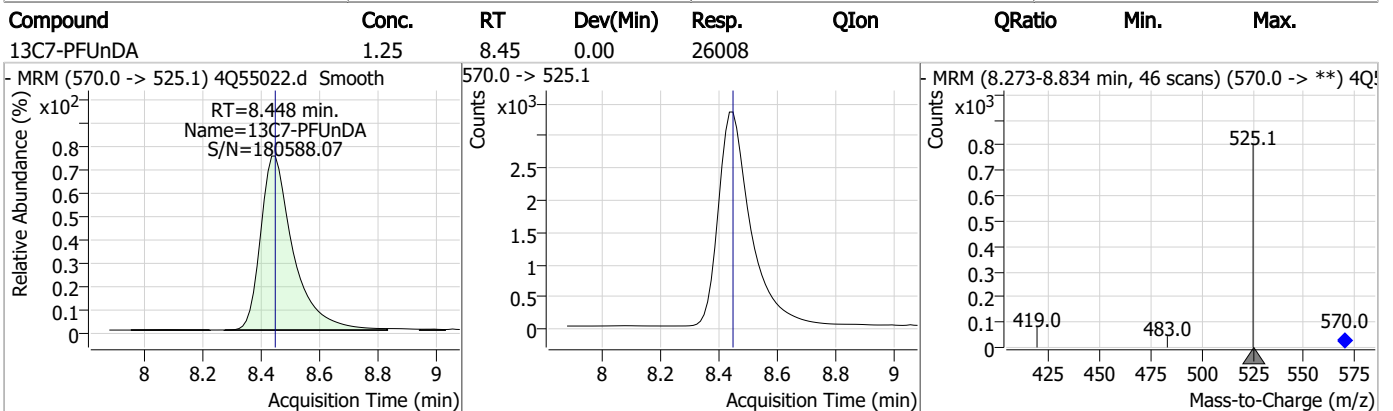
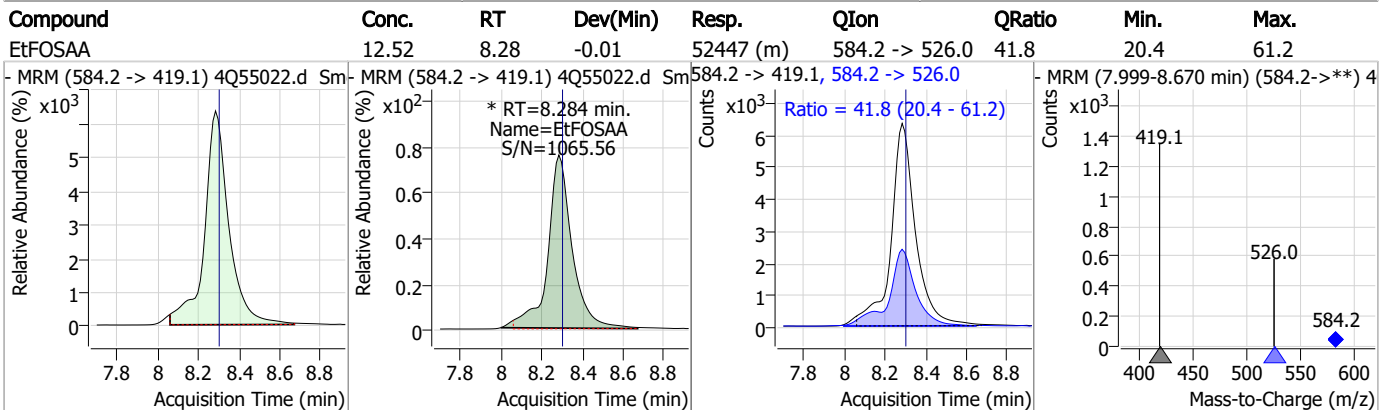
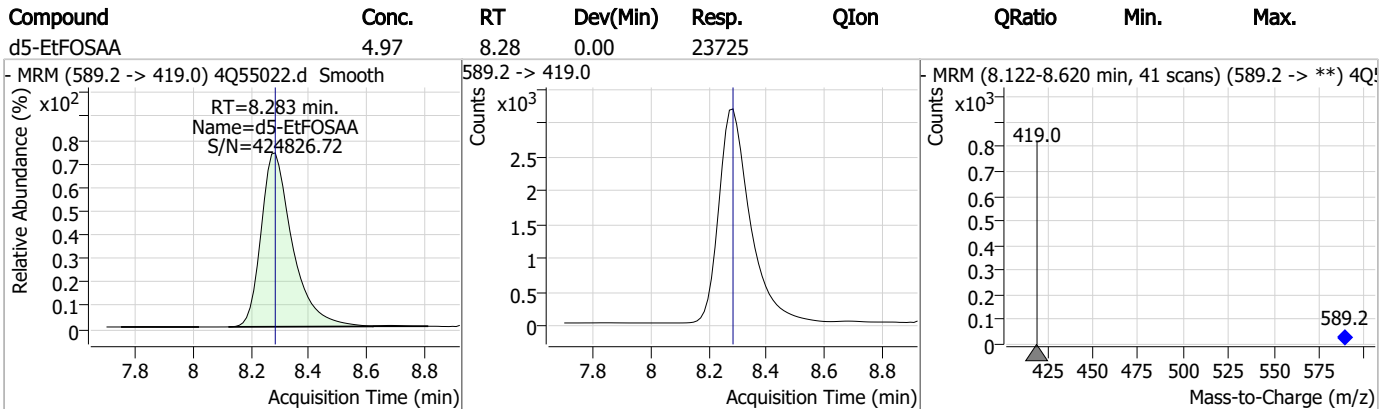
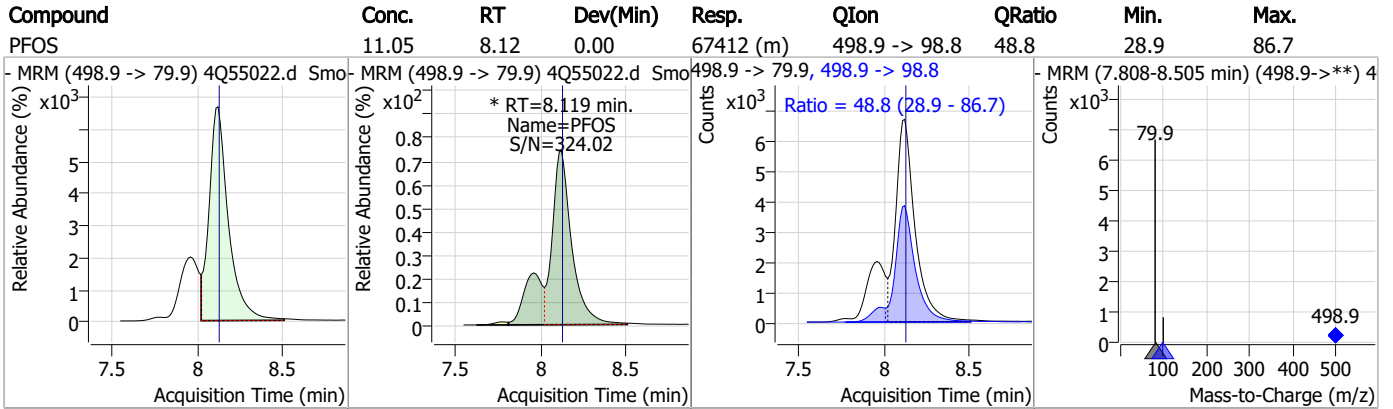


7.7.7
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Perfluorinated Compounds by LC/MS/MS

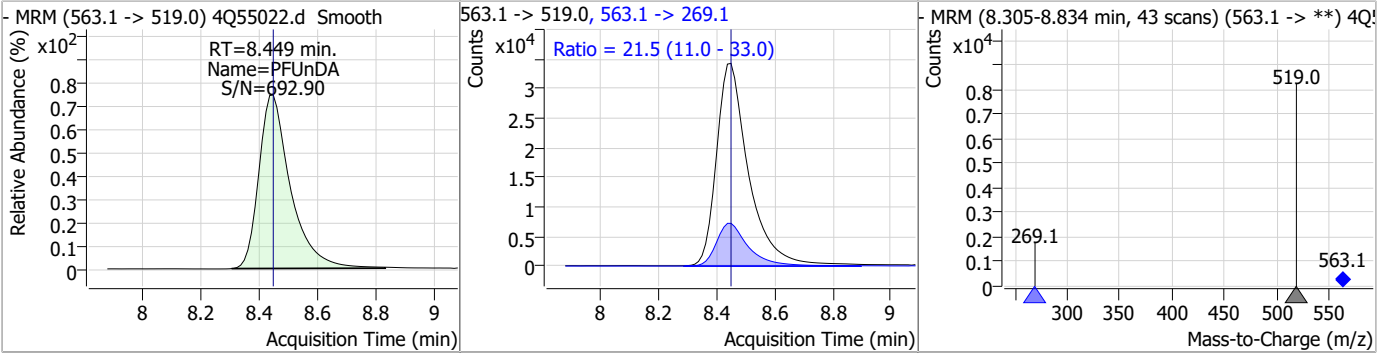


Perfluorinated Compounds by LC/MS/MS

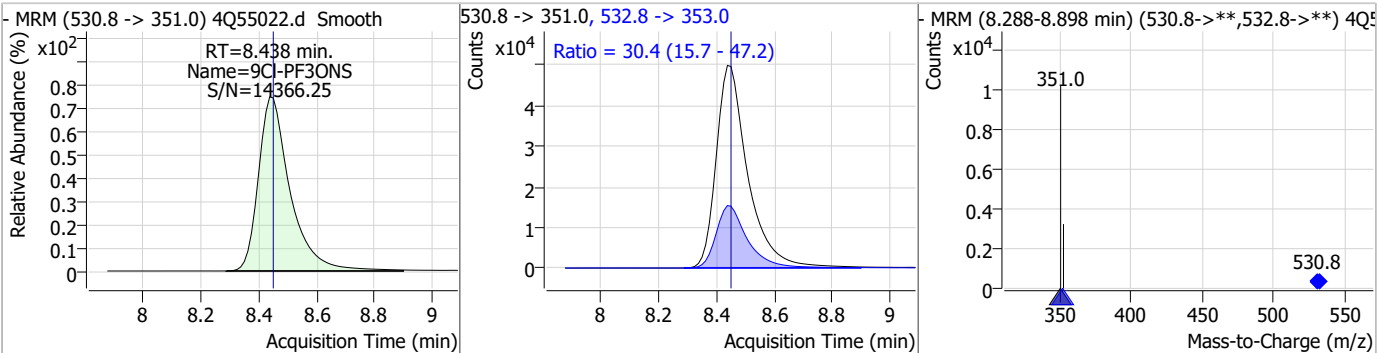


Perfluorinated Compounds by LC/MS/MS

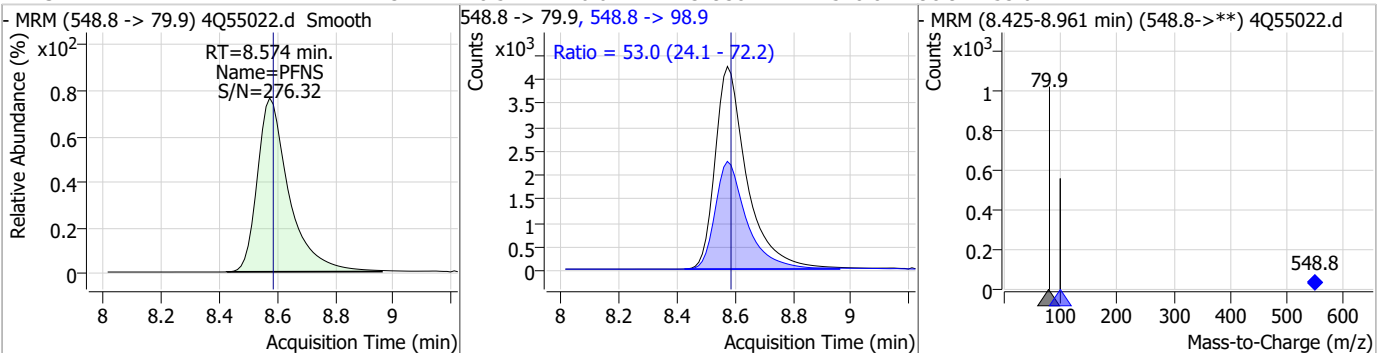
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.18	8.45	0.00	258102	563.1 -> 269.1	21.5	11.0	33.0



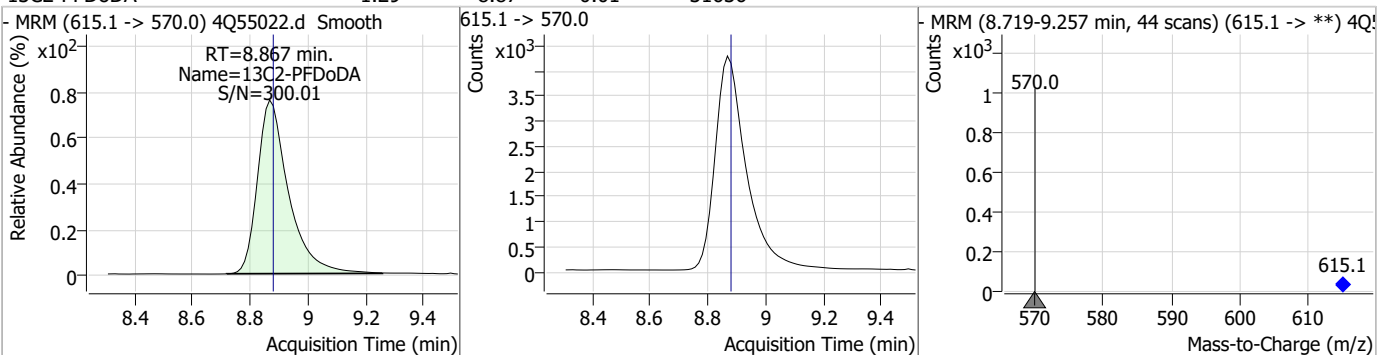
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	24.35	8.44	-0.01	378567	532.8 -> 353.0	30.4	15.7	47.2



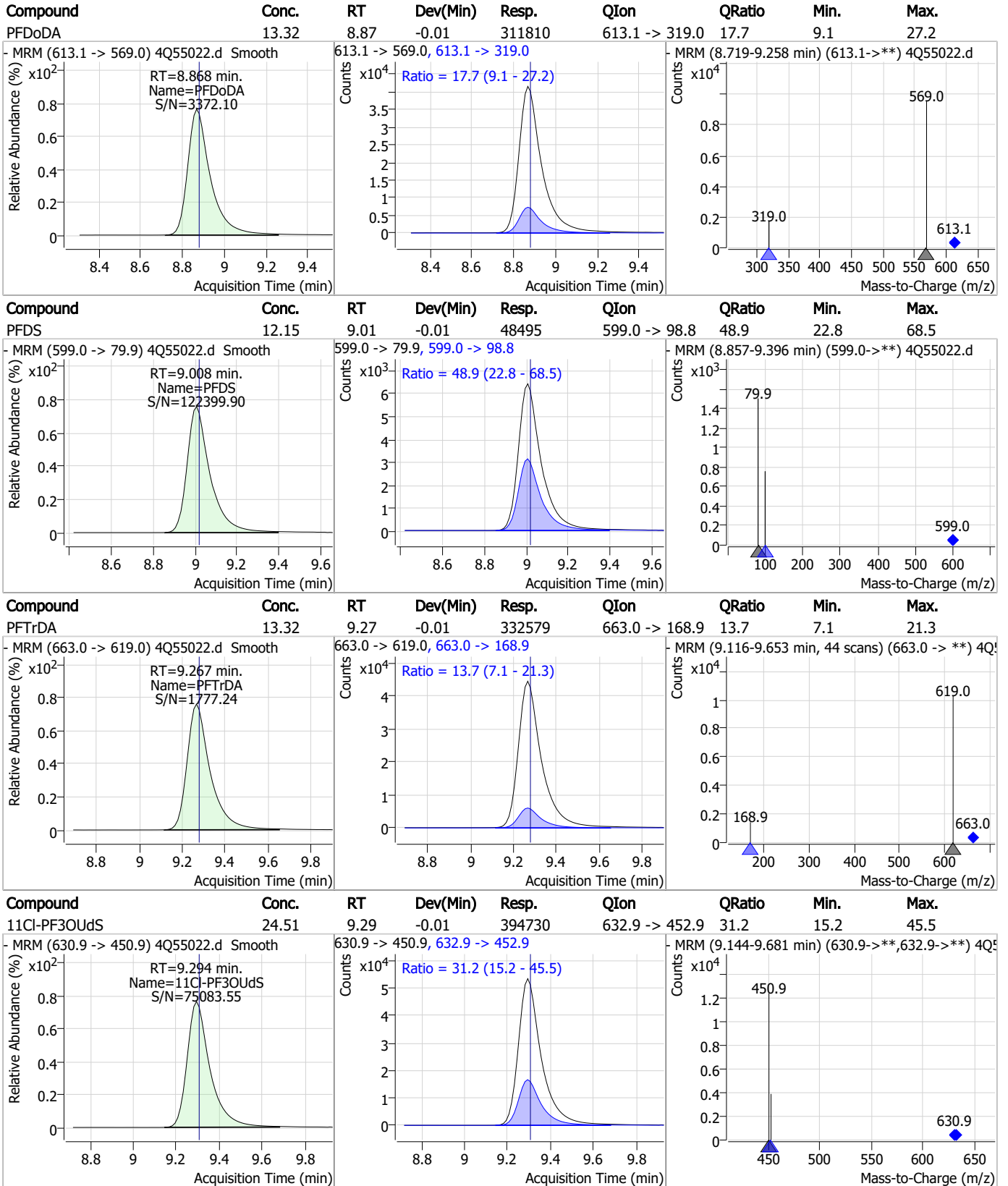
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	12.31	8.57	-0.01	31938	548.8 -> 98.9	53.0	24.1	72.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.29	8.87	-0.01	31636	615.1 -> 570.0			

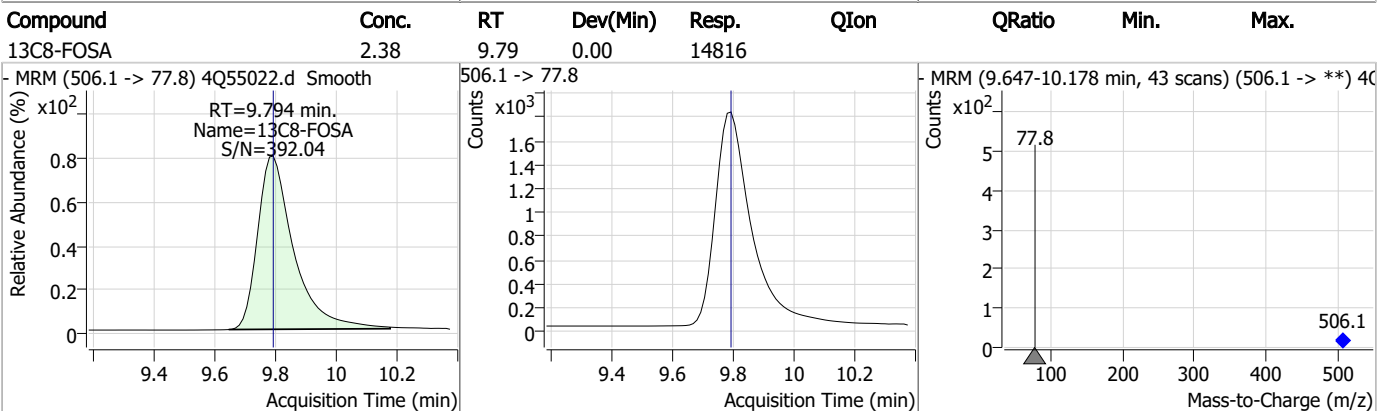
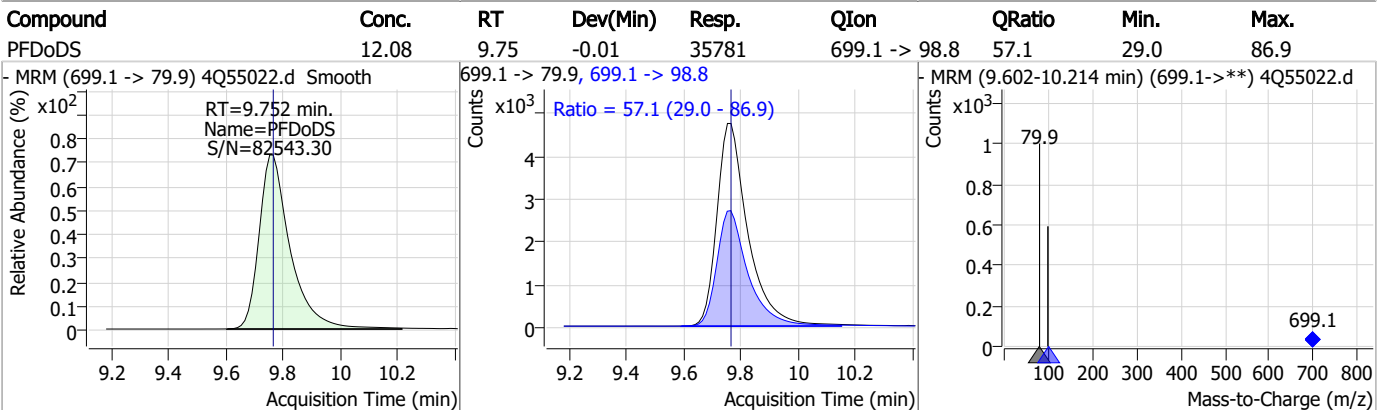
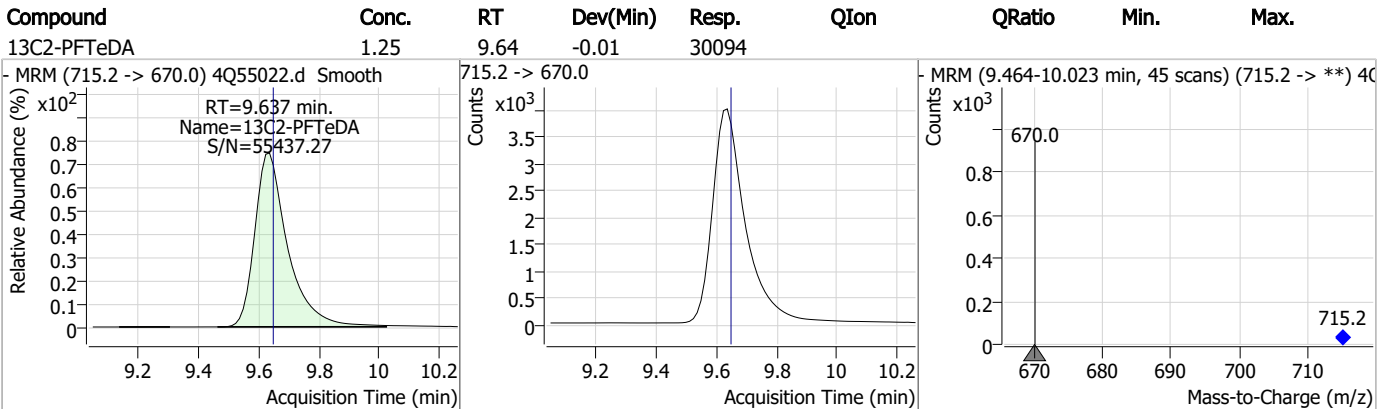
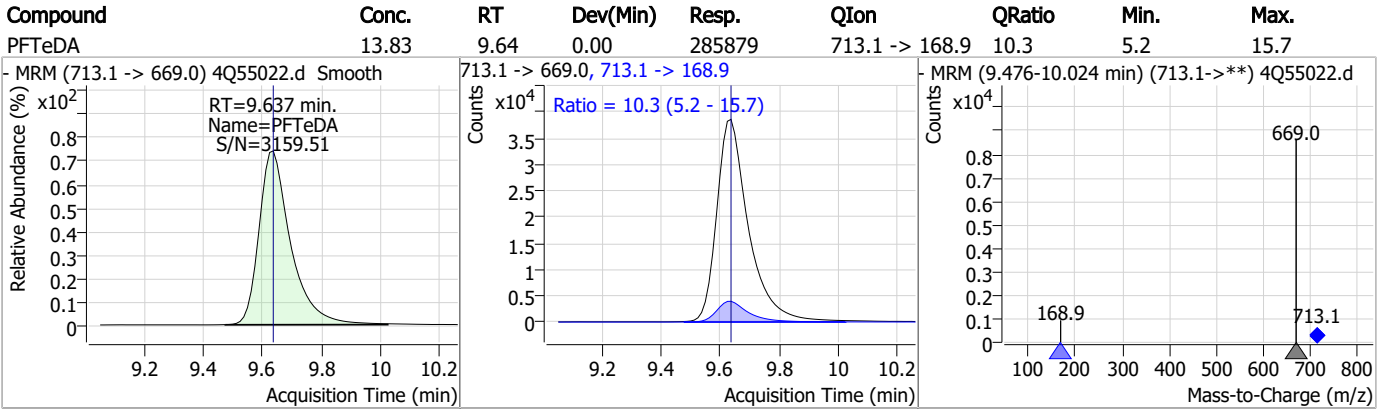


Perfluorinated Compounds by LC/MS/MS

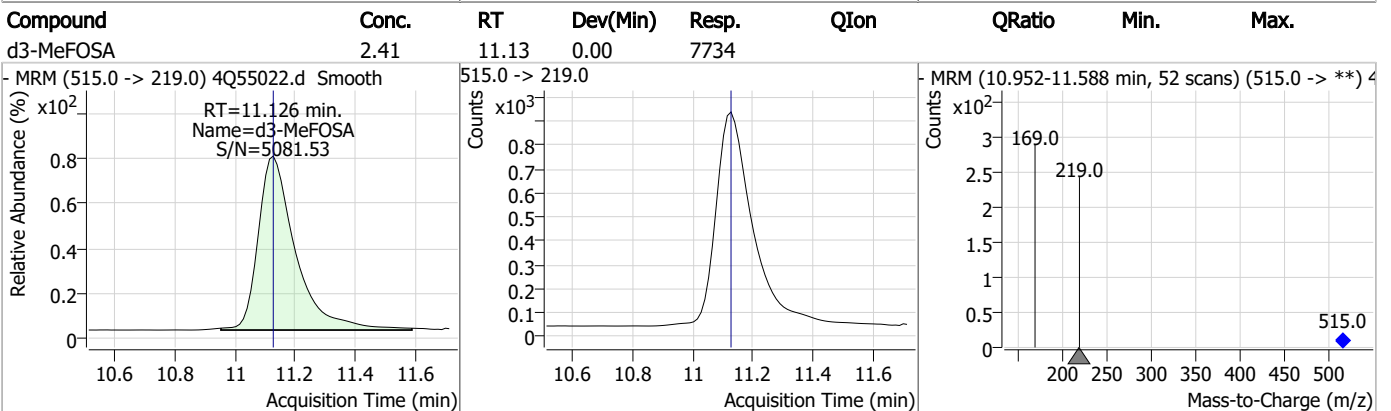
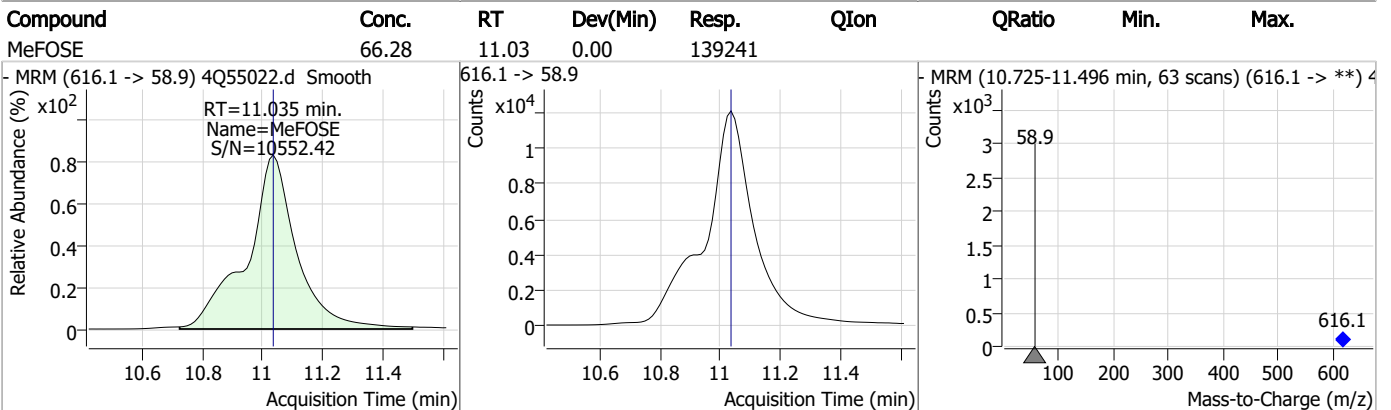
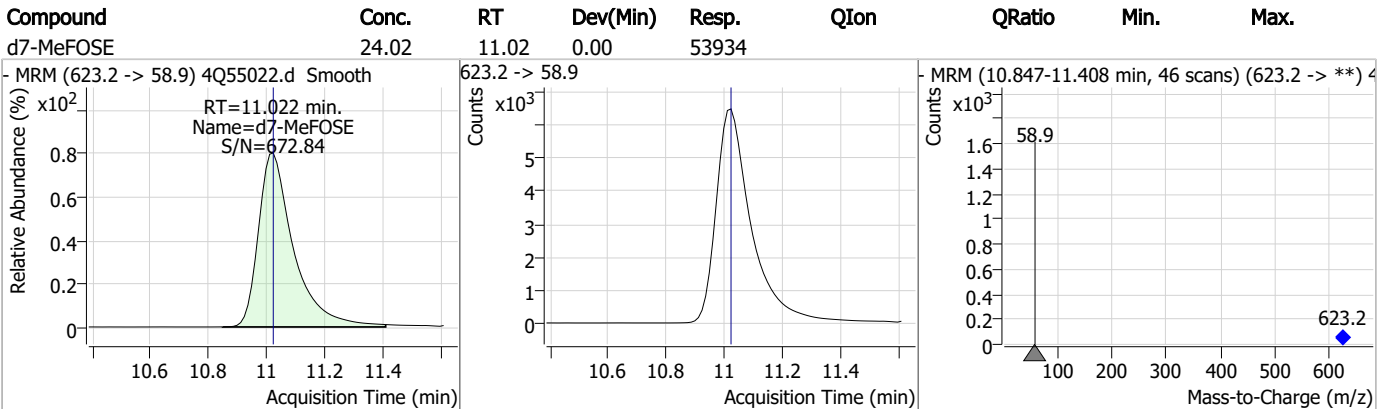
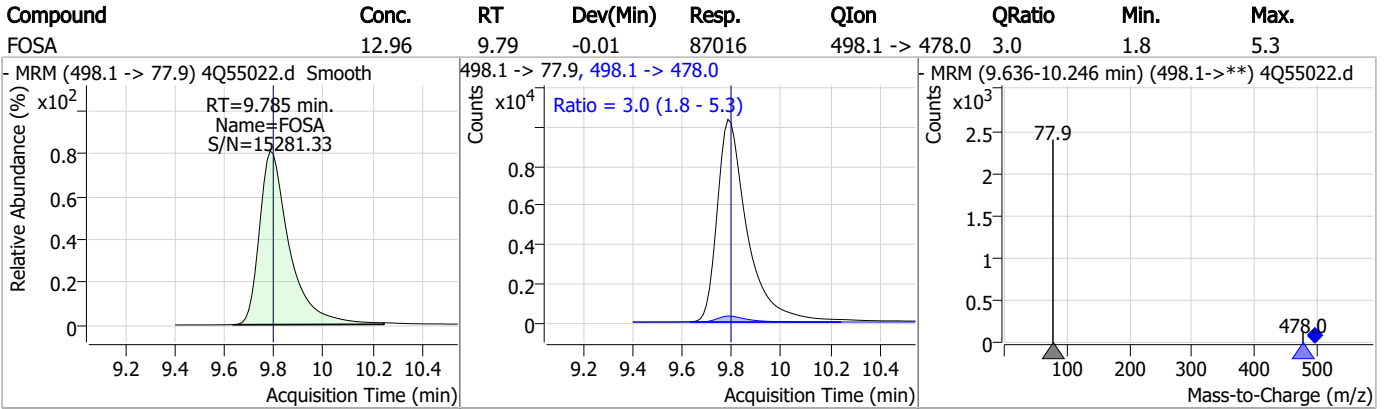


7.7.7
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Perfluorinated Compounds by LC/MS/MS



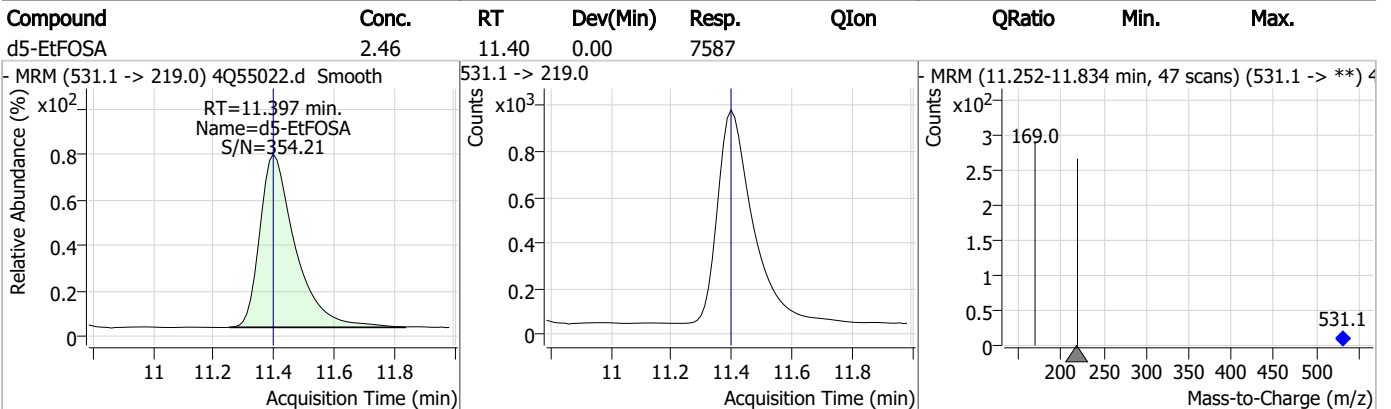
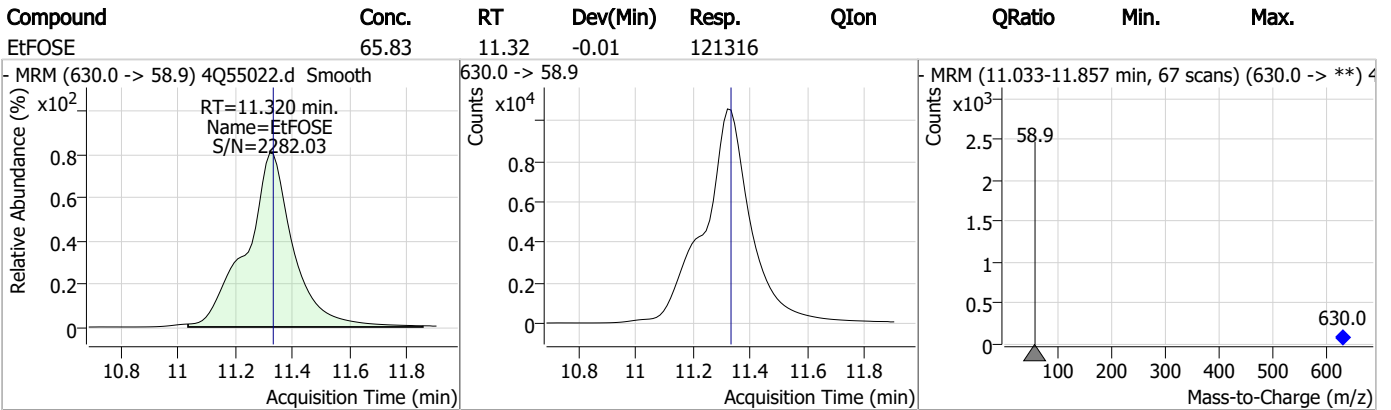
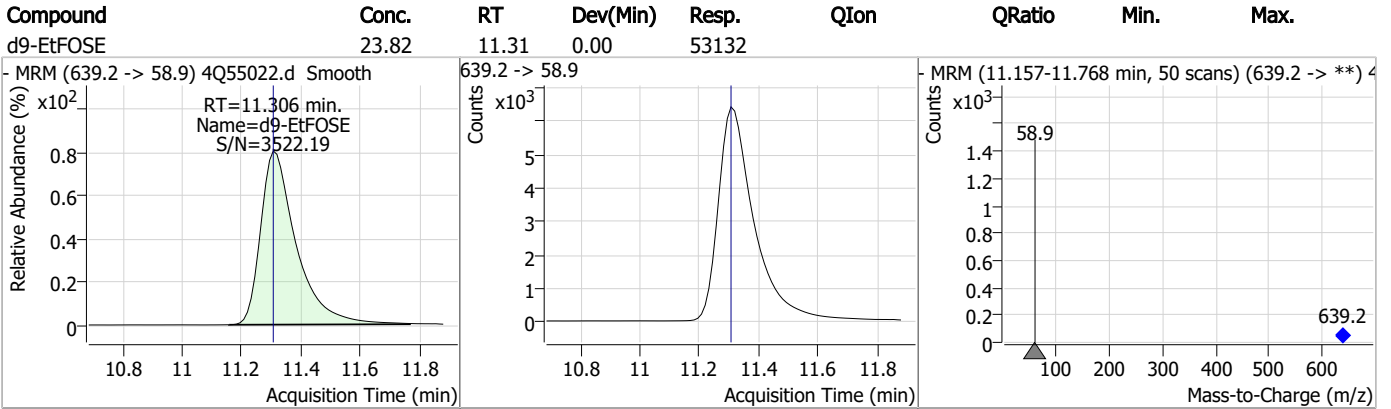
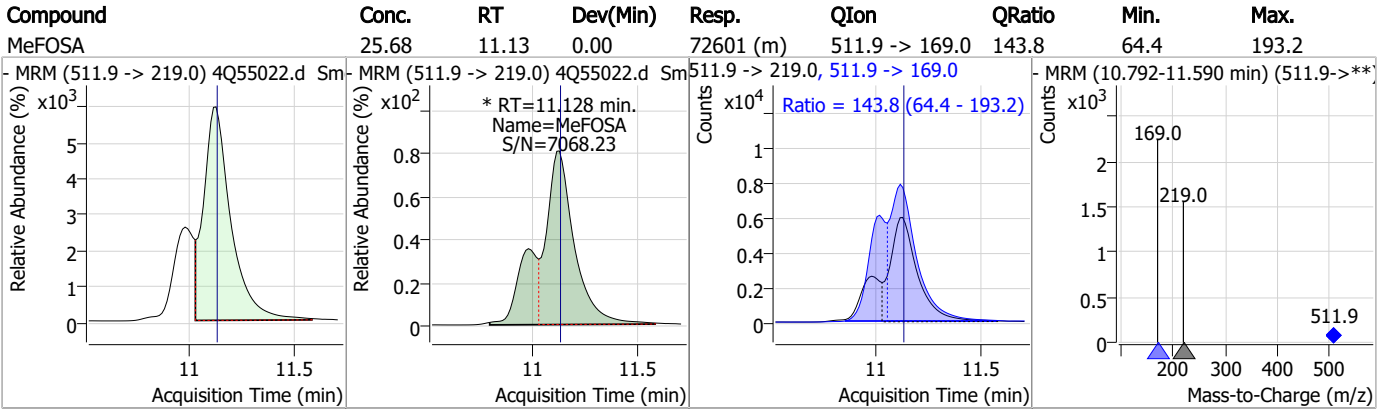
Perfluorinated Compounds by LC/MS/MS



7.7.7

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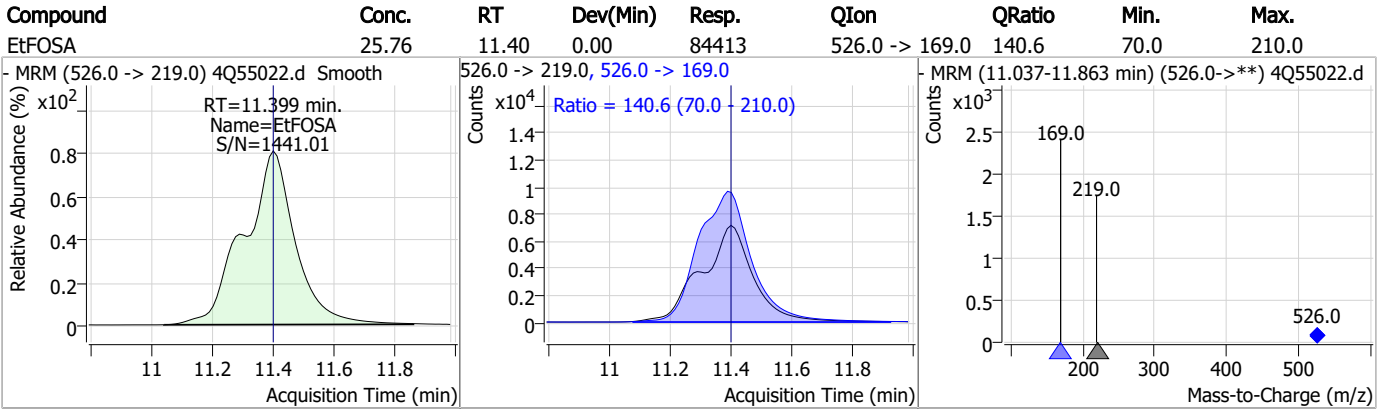
Perfluorinated Compounds by LC/MS/MS



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: S4Q806-IC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55022.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 16:09 Supervisor approved: 12/12/23 11:51 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.03	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
EtFOSAA	2991-50-6		8.28	Split peak
MeFOSA	31506-32-8		11.13	Split peak

7.7.7.1

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Manual Integrations
APPROVED
 (compounds with "m" flag)

Natasha Gumtje
 12/12/23 11:51

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55023.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 4:24:11 PM
 Sample Name : ic806-7
 Vial : P1-A8
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.699	216.8 -> 171.9	148685	10.00 µg/L	0.000
M5-PFPeA	4.175	268.3 -> 223.0	69938	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	59370	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	57872	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	83353	2.50 µg/L	0.000
M9-PFNA	7.509	472.1 -> 427.0	34773	1.25 µg/L	-0.012
M6-PFDA	7.992	519.1 -> 474.1	21341	1.25 µg/L	-0.012
M7-PFUnDA	8.436	570.0 -> 525.1	21883	1.25 µg/L	-0.012
M2-PFDoDA	8.867	615.1 -> 570.0	29435	1.25 µg/L	-0.012
M2-PFTeDA	9.624	715.2 -> 670.0	28729	1.25 µg/L	-0.025
M8-FOSA	9.781	506.1 -> 77.8	13749	2.50 µg/L	-0.012
M3-PFBS	5.202	302.1 -> 79.9	16512	2.50 µg/L	0.000
M3-PFHxS	7.029	402.1 -> 79.9	12539	2.50 µg/L	-0.012
M8-PFOS	8.117	507.1 -> 79.9	13498	2.50 µg/L	0.000
M2-4:2FTS	5.046	329.1 -> 80.9	1280	5.00 µg/L	-0.012
M2-6:2FTS	6.748	429.1 -> 80.9	3003	5.00 µg/L	-0.012
M2-8:2FTS	7.804	529.1 -> 80.9	4131	5.00 µg/L	0.000
M3-MeFOSAA	8.074	573.2 -> 419.0	25197	5.00 µg/L	-0.012
M3-HFPO-DA	5.702	286.9 -> 168.9	55058	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	20792	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	47601	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	48875	25.00 µg/L	0.000
M5-EtFOSA	11.398	531.1 -> 219.0	7053	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7046	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	9303	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	68659	5.00 µg/L	0.000
18O2-PFHxS	7.041	403.0 -> 83.9	8334	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	91413	2.50 µg/L	0.000
13C2-PFDA	7.992	515.1 -> 470.1	24729	1.25 µg/L	-0.012
13C5-PFNA	7.509	468.0 -> 423.0	33544	1.25 µg/L	-0.012
13C2-PFHxA	5.348	315.1 -> 270.0	64347	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.046	329.1 -> 80.9	1280	3.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.4%		
13C2-6:2FTS	6.748	429.1 -> 80.9	3003	4.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.3%		
13C2-8:2FTS	7.804	529.1 -> 80.9	4131	4.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.9%		
13C2-PFDoDA	8.867	615.1 -> 570.0	29435	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.0%		
13C2-PFTeDA	9.624	715.2 -> 670.0	28729	1.25 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C3-PFBS	5.202	302.1 -> 79.9	16512	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C3-PFHxS	7.029	402.1 -> 79.9	12539	2.44 µg/L	-0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C4-PFBA	2.699	216.8 -> 171.9	148685	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.292	367.1 -> 322.0	57872	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFHxA	5.347	318.0 -> 273.0	59370	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFPeA	4.175	268.3 -> 223.0	69938	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C6-PFDA	7.992	519.1 -> 474.1	21341	1.19 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C7-PFUnDA	8.436	570.0 -> 525.1	21883	1.10 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.3%	
13C8-FOSA	9.781	506.1 -> 77.8	13749	2.62 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-PFOA	6.976	421.1 -> 376.0	83353	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-PFOS	8.117	507.1 -> 79.9	13498	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C9-PFNA	7.509	472.1 -> 427.0	34773	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
d3-MeFOSAA	8.074	573.2 -> 419.0	25197	5.12 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	55058	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
d3-MeFOSA	11.126	515.0 -> 219.0	7046	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
d5-EtFOSAA	8.283	589.2 -> 419.0	20792	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
d7-MeFOSE	11.022	623.2 -> 58.9	47601	25.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
d9-EtFOSE	11.306	639.2 -> 58.9	48875	26.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.1%	
d5-EtFOSA	11.398	531.1 -> 219.0	7053	2.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.8%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	247506	106.68 µg/L	98
		327.1 -> 80.9	101853		
6:2FTS	6.749	427.1 -> 407.0	316507	99.03 µg/L	96
		427.1 -> 80.9	111067		
8:2FTS	7.804	527.1 -> 507.0	218137	97.59 µg/L	98
		527.1 -> 80.8	85972		
EtFOSAA	8.284	584.2 -> 419.1	100457	27.37 µg/L	m 95
		584.2 -> 526.0	37575		
FOSA	9.785	498.1 -> 77.9	163165	26.18 µg/L	99
		498.1 -> 478.0	4919		
MeFOSAA	8.075	570.1 -> 419.0	105184	26.92 µg/L	97
		570.1 -> 483.0	19220		
PFBA	2.707	212.8 -> 168.9	506060	107.05 µg/L	100
PFBS	5.203	298.7 -> 79.9	114552	23.15 µg/L	100
		298.7 -> 98.8	44601		
PFDA	7.992	512.9 -> 469.0	408368	26.25 µg/L	95
		512.9 -> 219.0	82378		
PFDoDA	8.868	613.1 -> 569.0	576136	26.45 µg/L	99
		613.1 -> 319.0	102695		
PFDS	9.008	599.0 -> 79.9	89725	24.76 µg/L	94

7.7.8

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	44433			
PFHpA	6.293	363.1 -> 319.0	886746	27.14	µg/L	99
		363.1 -> 169.0	157728			
PFHpS	7.612	449.0 -> 79.9	144822	25.32	µg/L	99
		449.0 -> 98.9	75680			
PFHxA	5.350	313.0 -> 269.0	517806	27.15	µg/L	99
		313.0 -> 118.9	14956			
PFHxS	7.030	398.7 -> 79.9	88095	22.62	µg/L	m 93
		398.7 -> 98.9	47927			
PFNA	7.510	463.0 -> 419.0	533890	24.99	µg/L	99
		463.0 -> 219.0	126271			
PFNS	8.574	548.8 -> 79.9	59371	25.20	µg/L	95
		548.8 -> 98.9	30825			
PFOA	6.978	413.0 -> 369.0	906679	25.83	µg/L	99
		413.0 -> 169.0	182629			
PFOS	8.106	498.9 -> 79.9	129006	23.29	µg/L	m 84
		498.9 -> 98.8	59366			
PFPeA	4.177	263.0 -> 219.0	730185	53.87	µg/L	100
PFPeS	6.282	349.1 -> 79.9	108446	25.55	µg/L	99
		349.1 -> 98.9	47613			
PFTeDA	9.625	713.1 -> 669.0	539406	27.34	µg/L	99
		713.1 -> 168.9	55281			
PFTrDA	9.267	663.0 -> 619.0	600121	25.82	µg/L	98
		663.0 -> 168.9	81248			
PFUnDA	8.437	563.1 -> 519.0	442017	26.84	µg/L	99
		563.1 -> 269.1	95794			
11Cl-PF3OUdS	9.294	630.9 -> 450.9	744830	50.66	µg/L	98
		632.9 -> 452.9	233322			
9Cl-PF3ONS	8.438	530.8 -> 351.0	673839	47.49	µg/L	99
		532.8 -> 353.0	206691			
ADONA	6.556	376.9 -> 250.9	2223510	56.36	µg/L	99
		376.9 -> 84.8	539335			
HFPO-DA	5.703	284.9 -> 168.9	286240	54.71	µg/L	100
		284.9 -> 184.9	27812			
3:3FTCA	3.630	241.0 -> 177.0	82104	137.32	µg/L	99
		241.0 -> 117.0	7076			
5:3FTCA	6.020	341.0 -> 237.1	1645844	681.25	µg/L	99
		341.0 -> 217.0	1170355			
7:3FTCA	7.536	441.0 -> 316.9	764214	671.74	µg/L	95
		441.0 -> 336.9	1804130			
EtFOSA	11.399	526.0 -> 219.0	161770	53.11	µg/L	99
		526.0 -> 169.0	225210			
EtFOSE	11.320	630.0 -> 58.9	224381	132.35	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	138965	53.96	µg/L	m 86
		511.9 -> 169.0	202107			
MeFOSE	11.035	616.1 -> 58.9	251258	135.51	µg/L	100
PFDoDS	9.752	699.1 -> 79.9	67202	24.99	µg/L	99
		699.1 -> 98.8	38550			
NFDHA	5.229	295.0 -> 201.0	70119	54.33	µg/L	97
		295.0 -> 84.9	17323			
PFMBA	4.578	279.0 -> 85.1	416681	53.33	µg/L	100
PFMPA	3.332	229.0 -> 84.9	422180	53.46	µg/L	100
PFEESA	5.722	314.8 -> 134.9	670278	47.87	µg/L	99
		314.8 -> 82.9	22124			

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

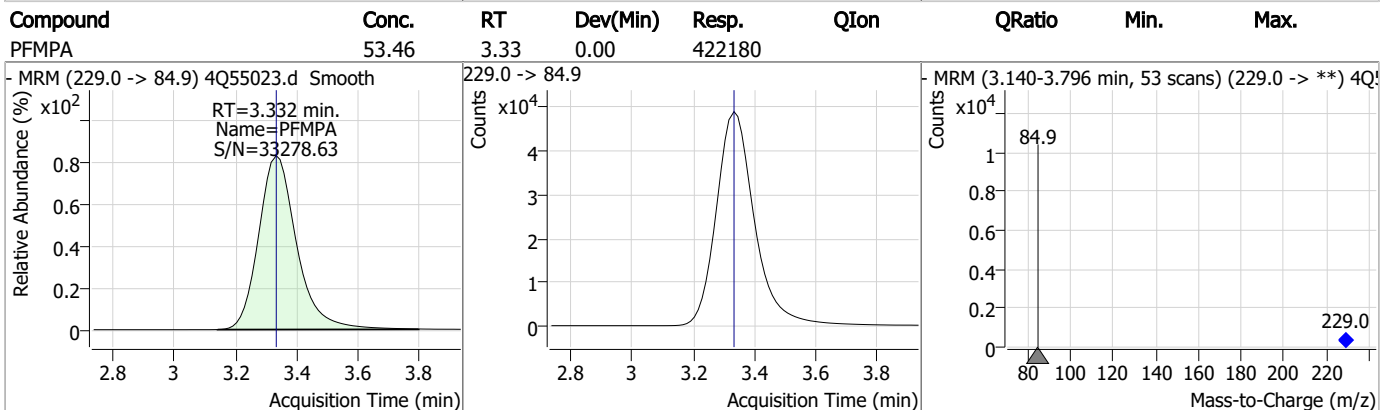
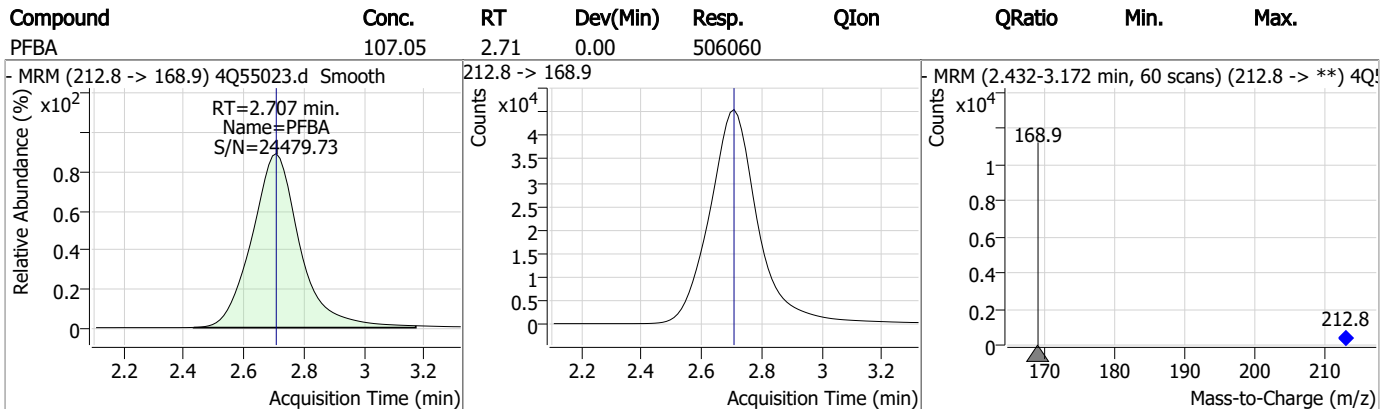
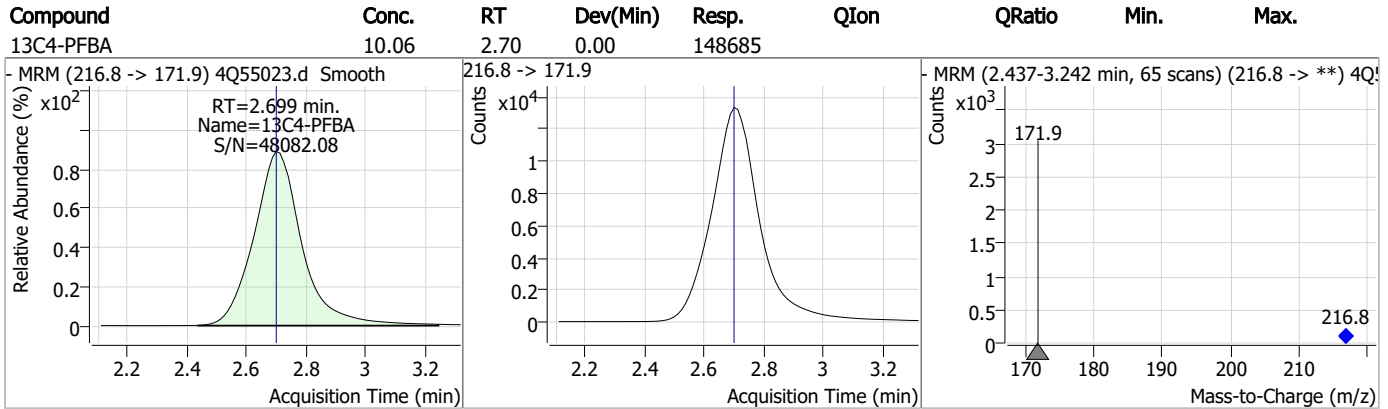
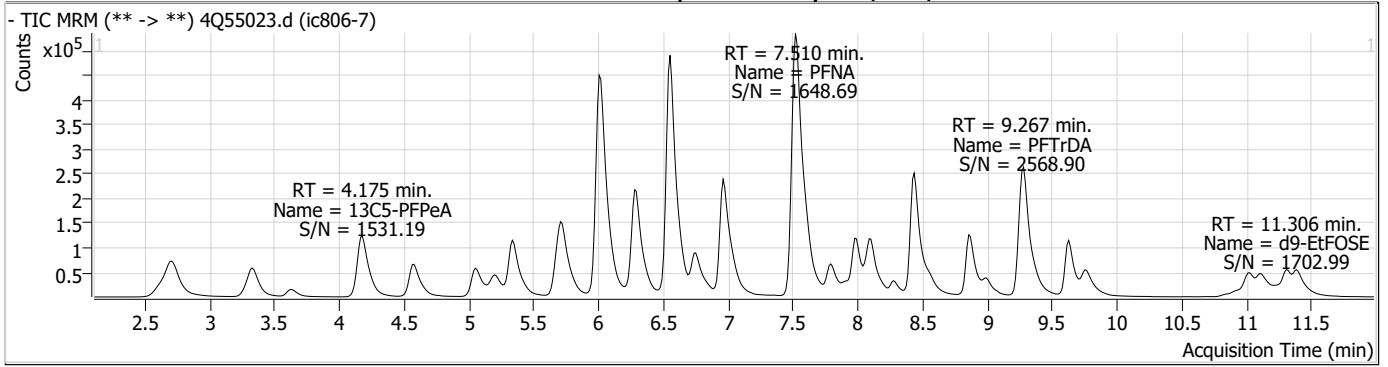
Perfluorinated Compounds by LC/MS/MS

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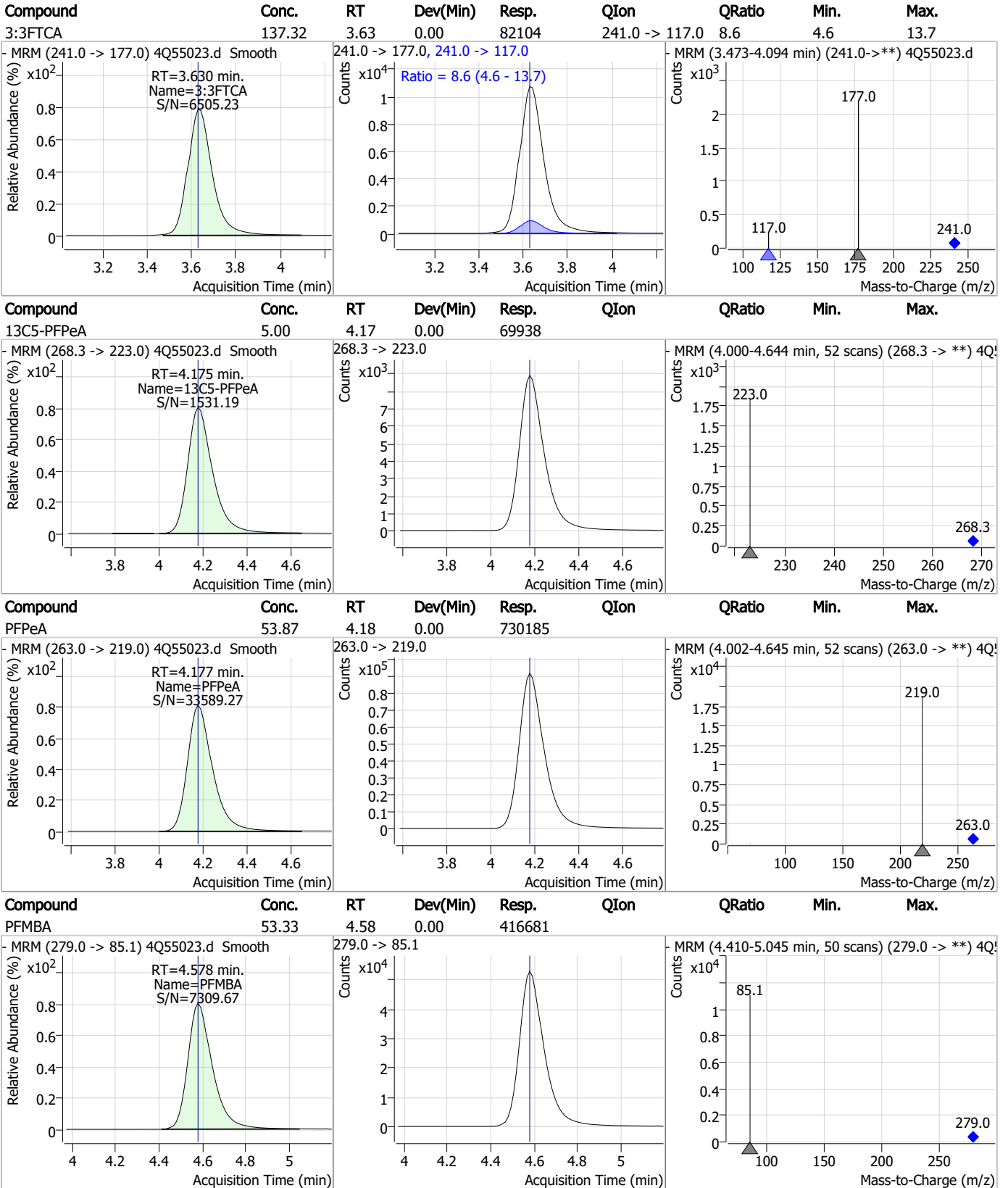
7.7.8
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Perfluorinated Compounds by LC/MS/MS



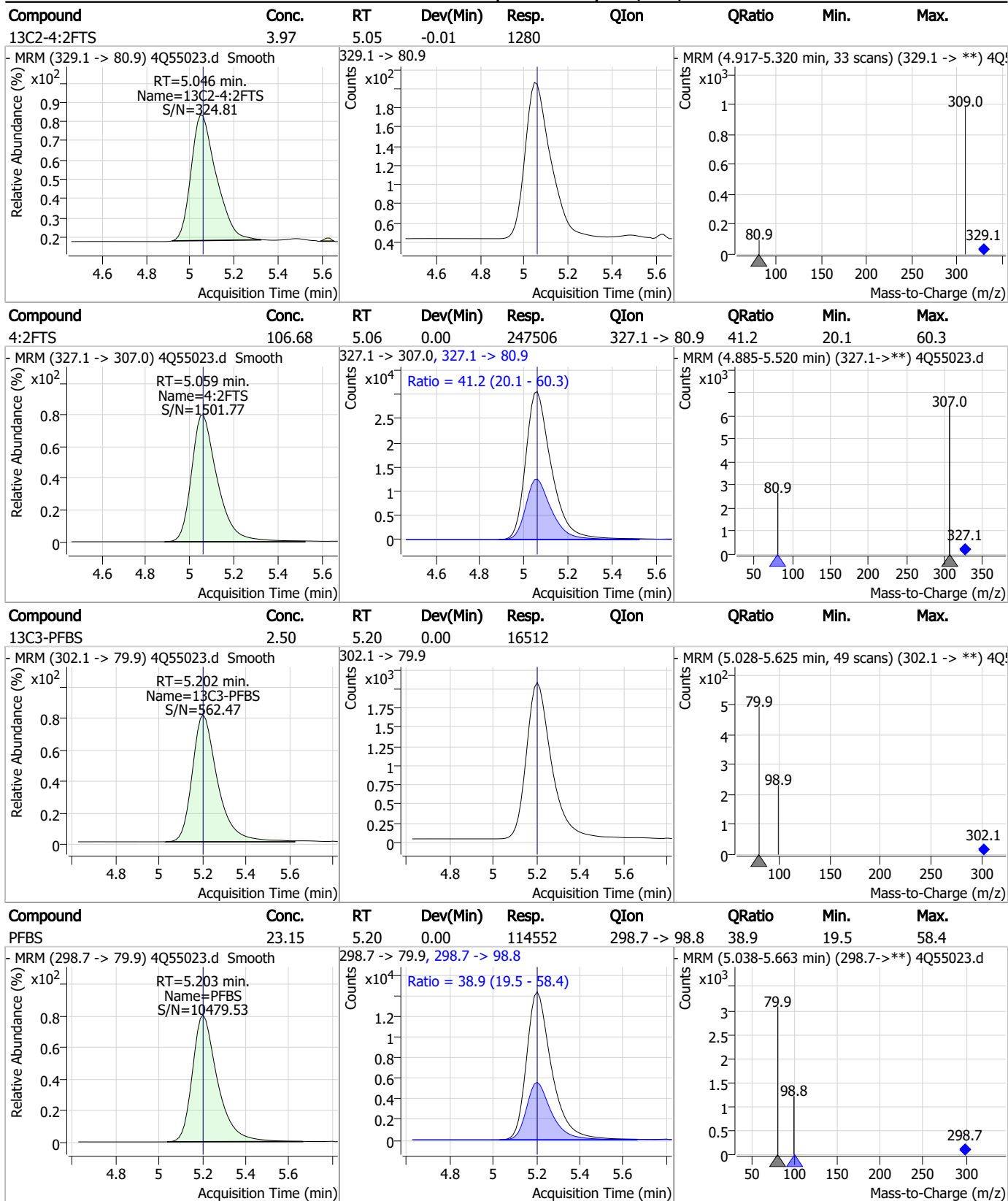
Perfluorinated Compounds by LC/MS/MS



7.7.8

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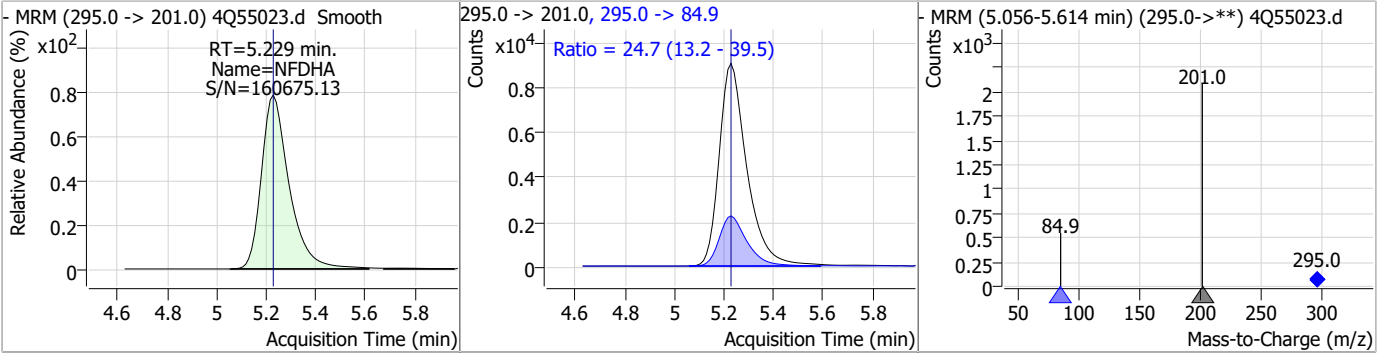
Perfluorinated Compounds by LC/MS/MS



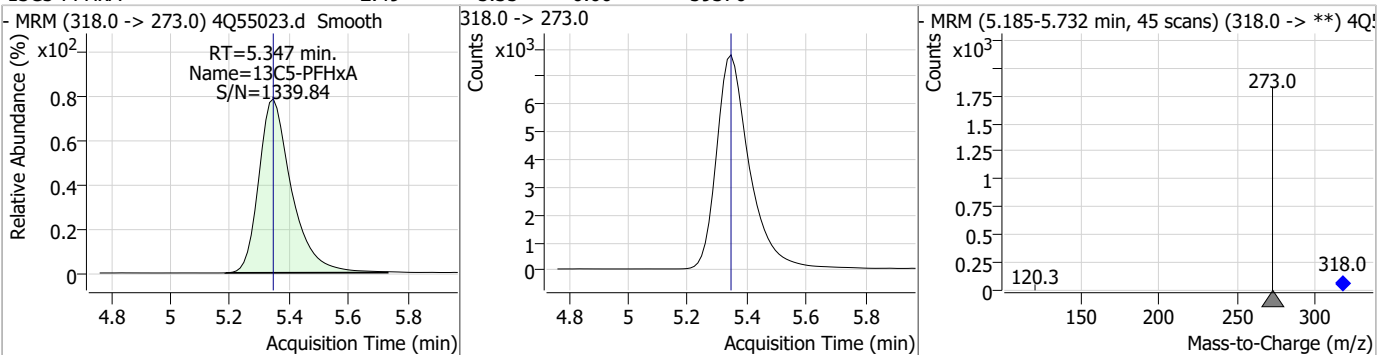
7.7.8
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Perfluorinated Compounds by LC/MS/MS

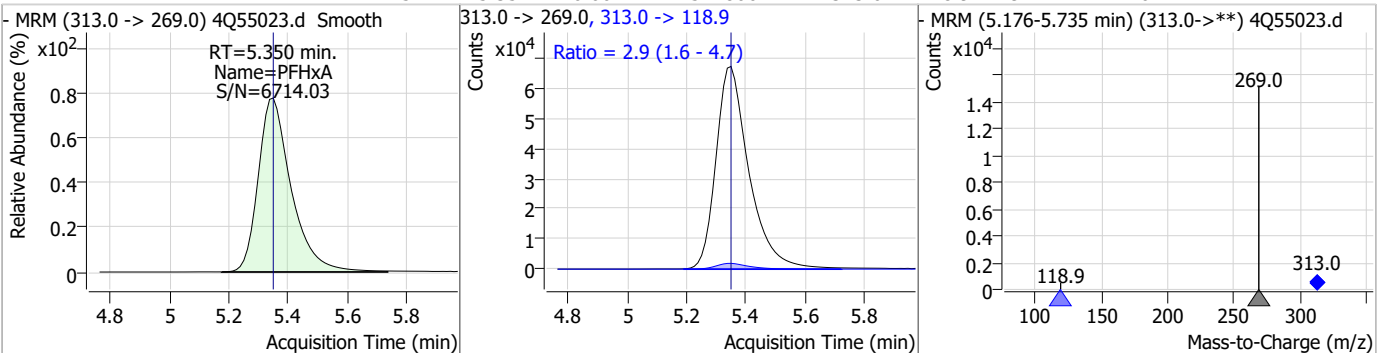
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
NFDHA	54.33	5.23	0.00	70119	295.0 -> 84.9	24.7	13.2	39.5



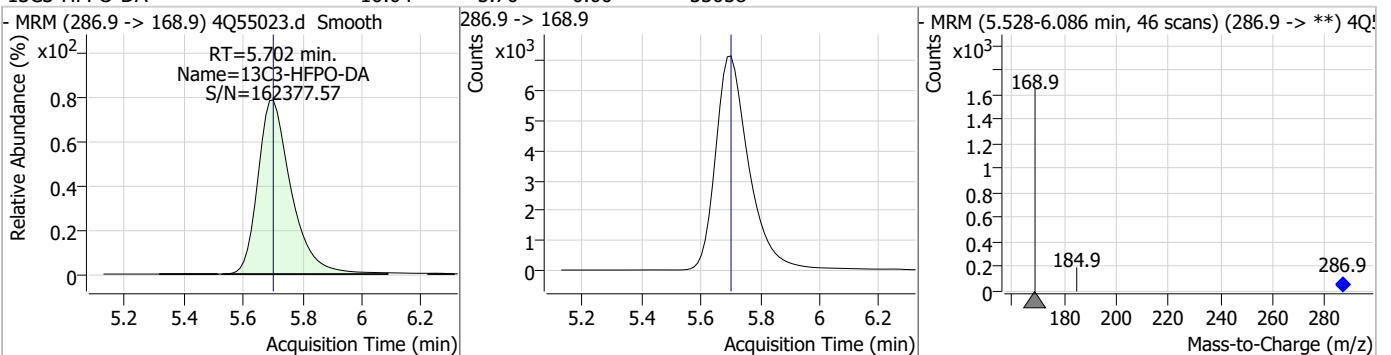
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.35	0.00	59370				



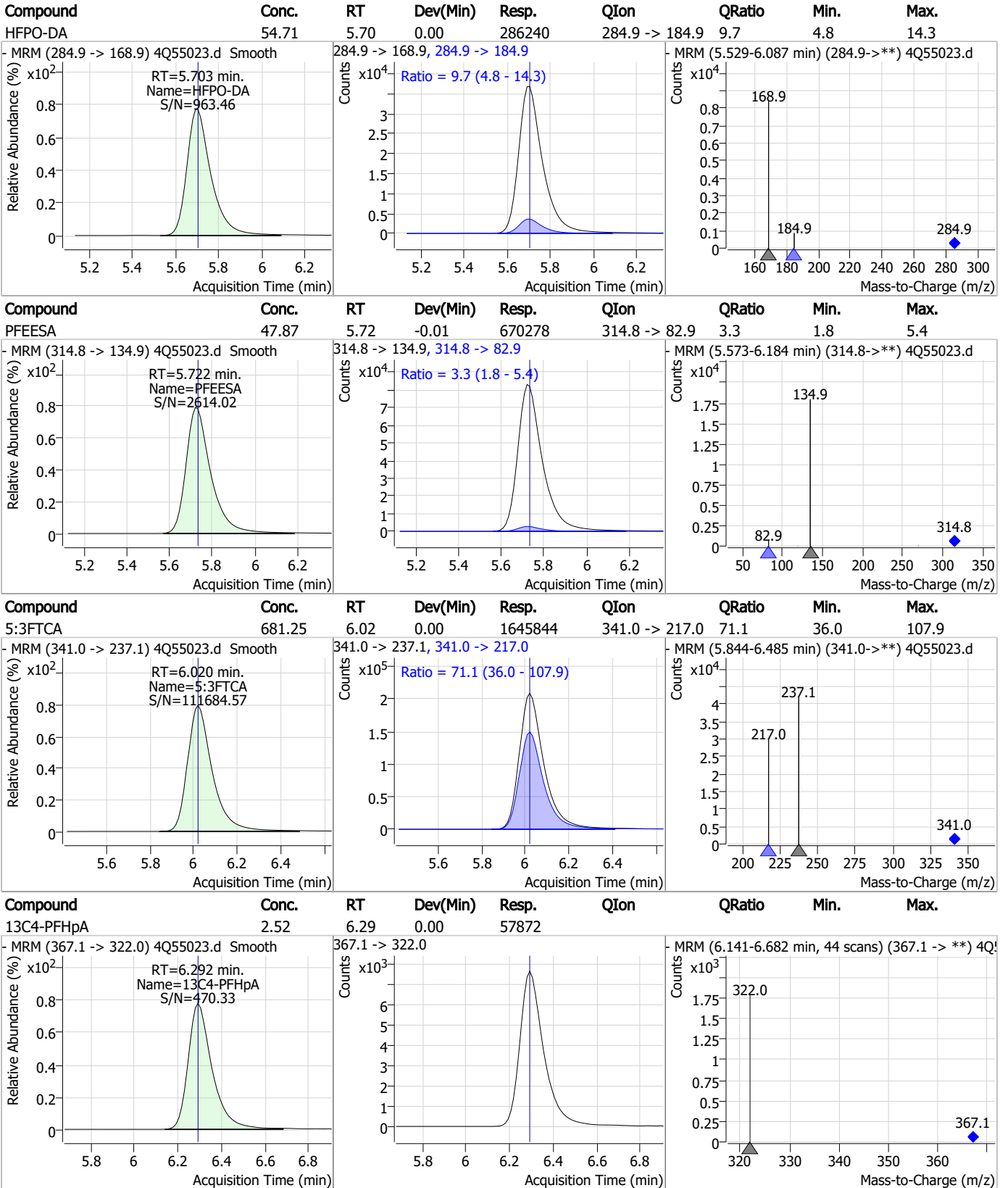
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	27.15	5.35	0.00	517806	313.0 -> 118.9	2.9	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.04	5.70	0.00	55058				



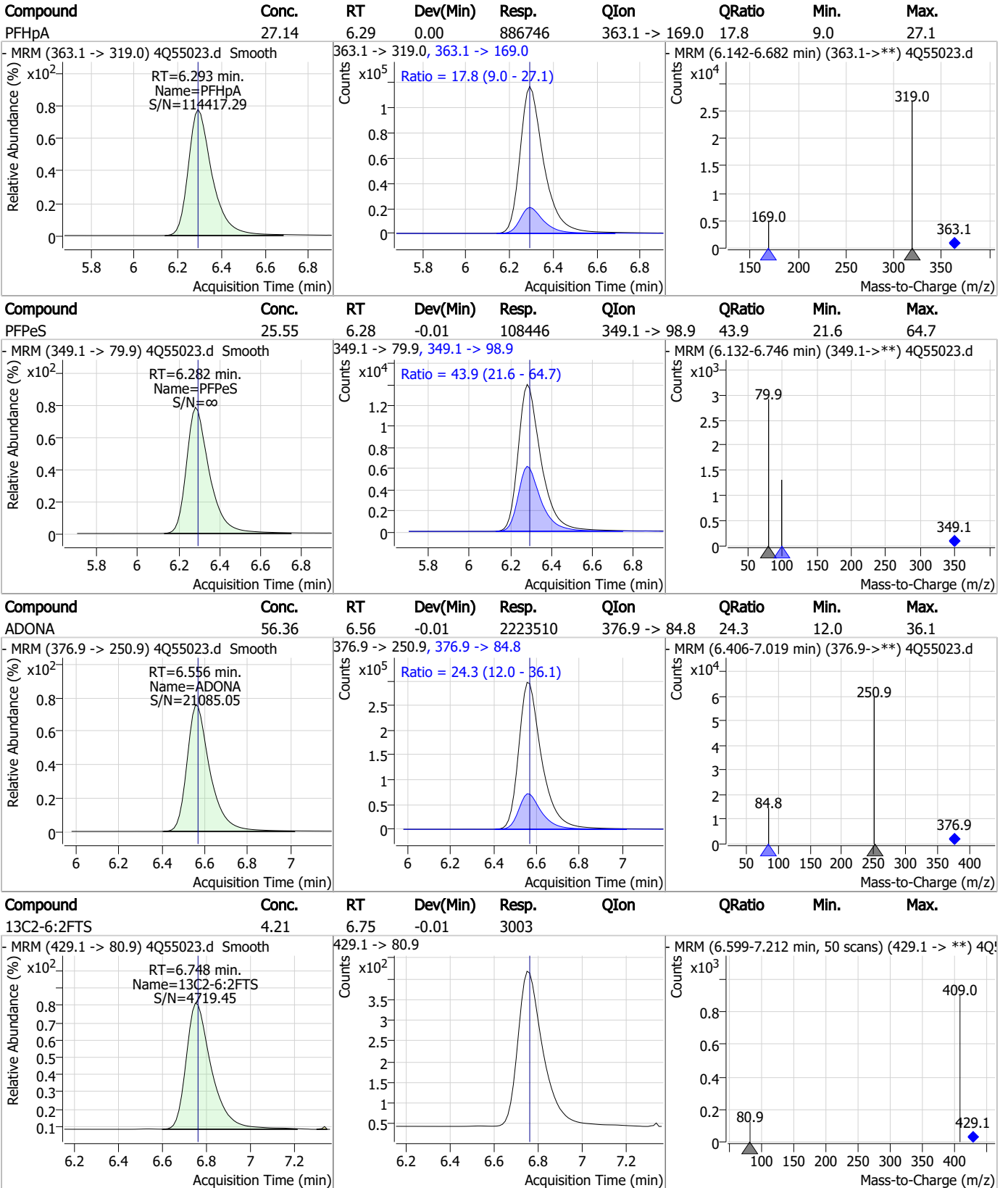
Perfluorinated Compounds by LC/MS/MS



7.7.8

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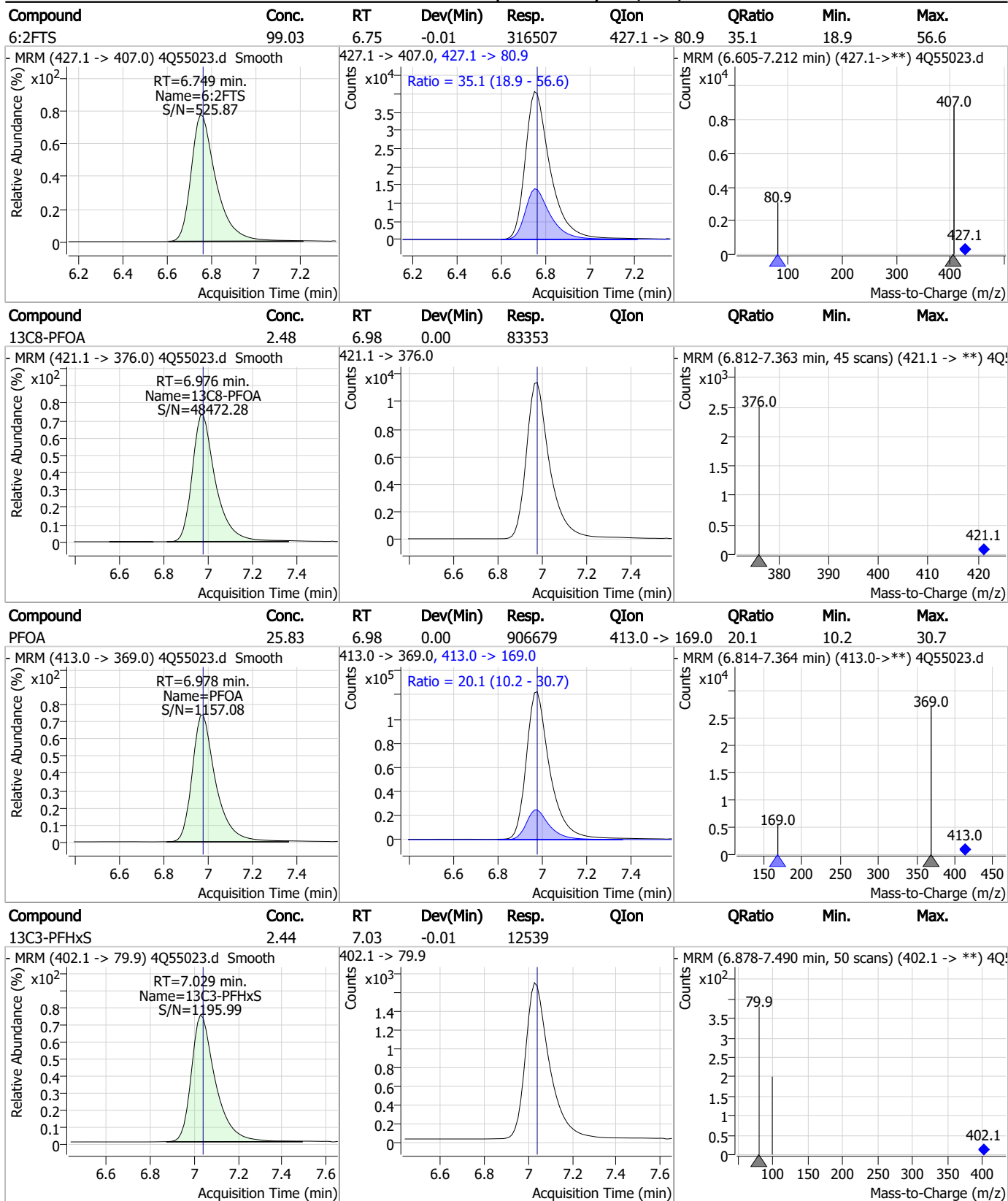
Perfluorinated Compounds by LC/MS/MS



7.7.8

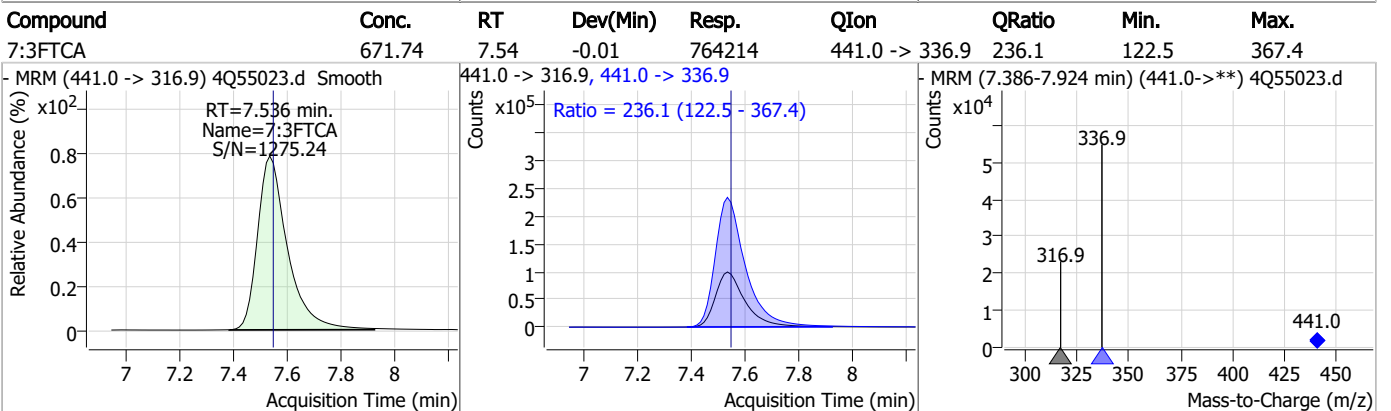
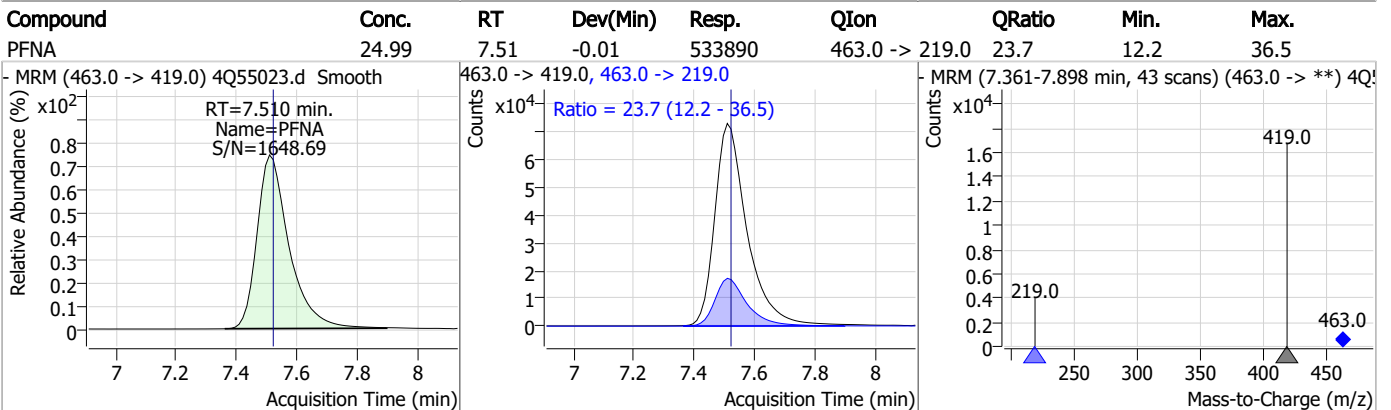
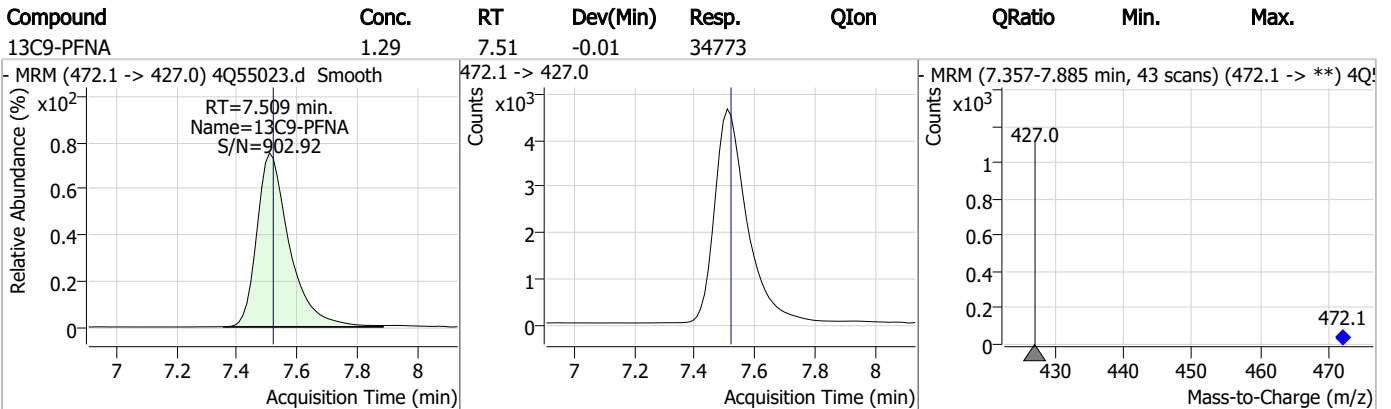
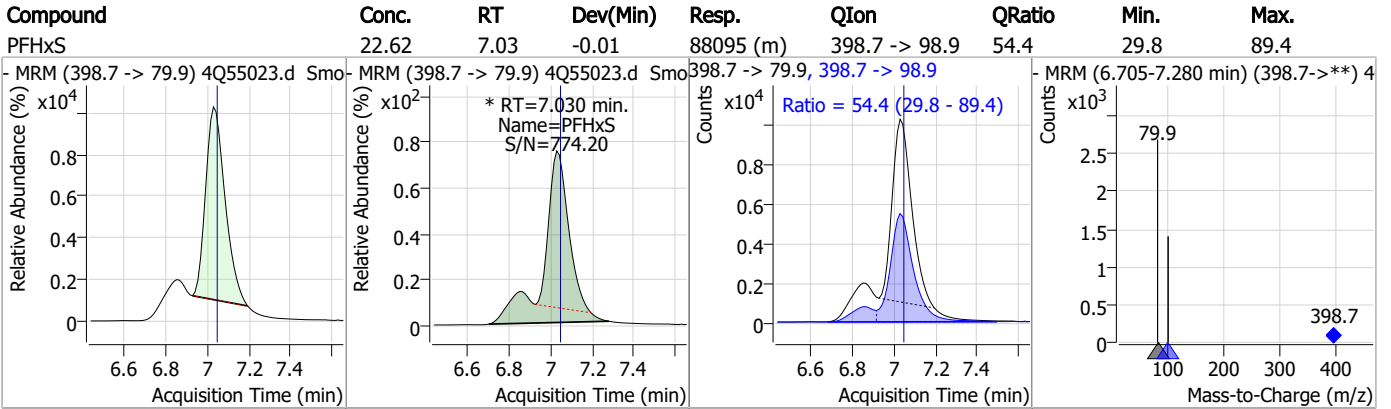
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Perfluorinated Compounds by LC/MS/MS

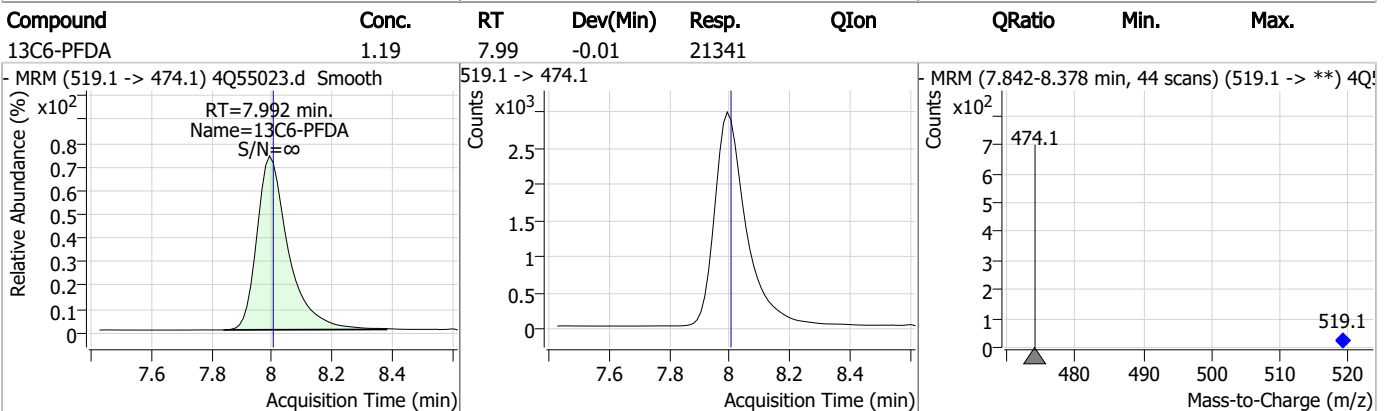
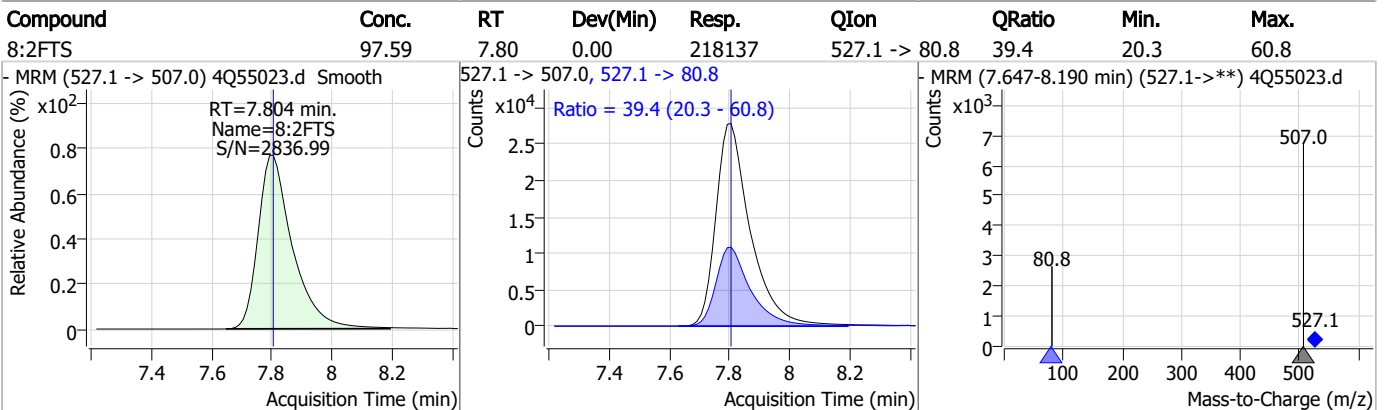
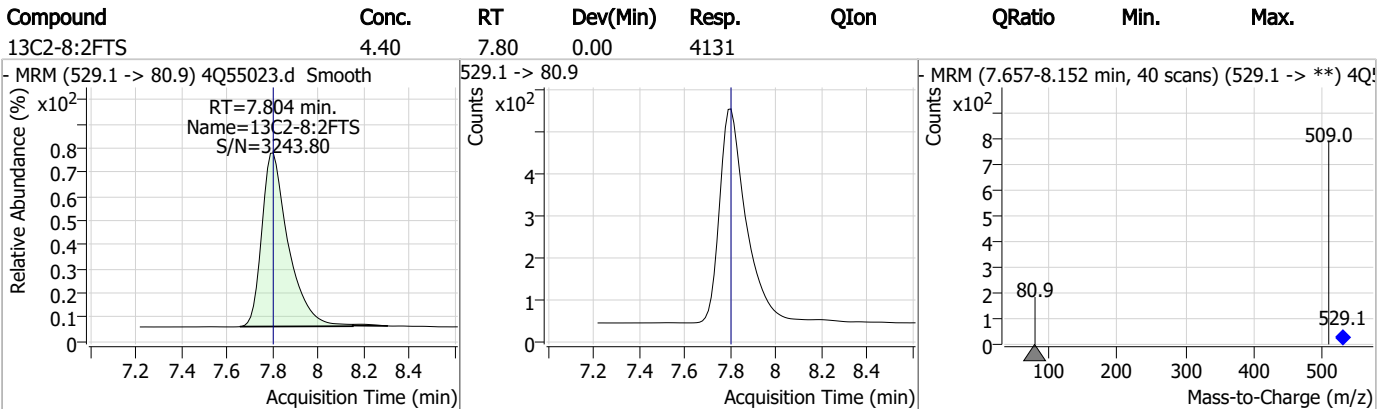
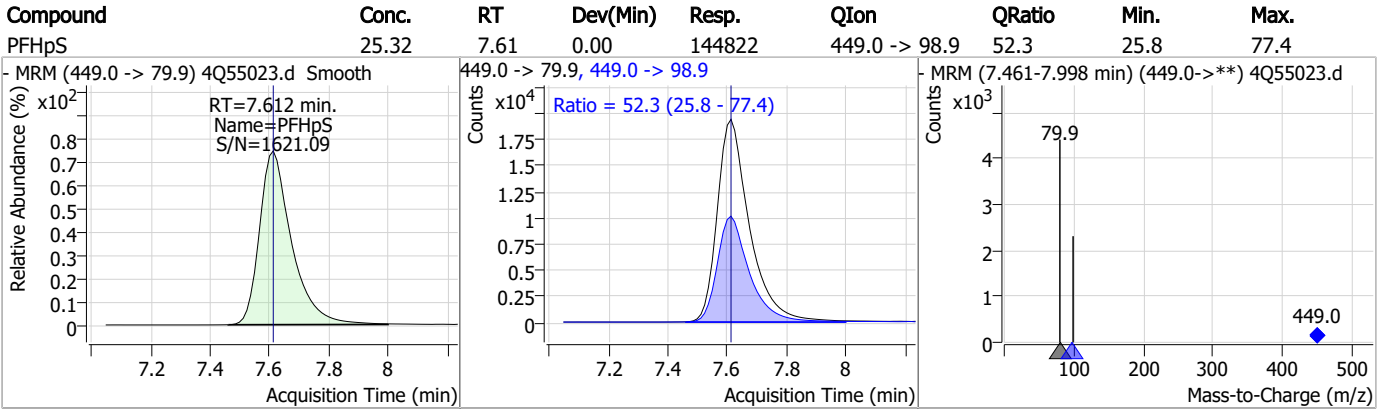


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Perfluorinated Compounds by LC/MS/MS



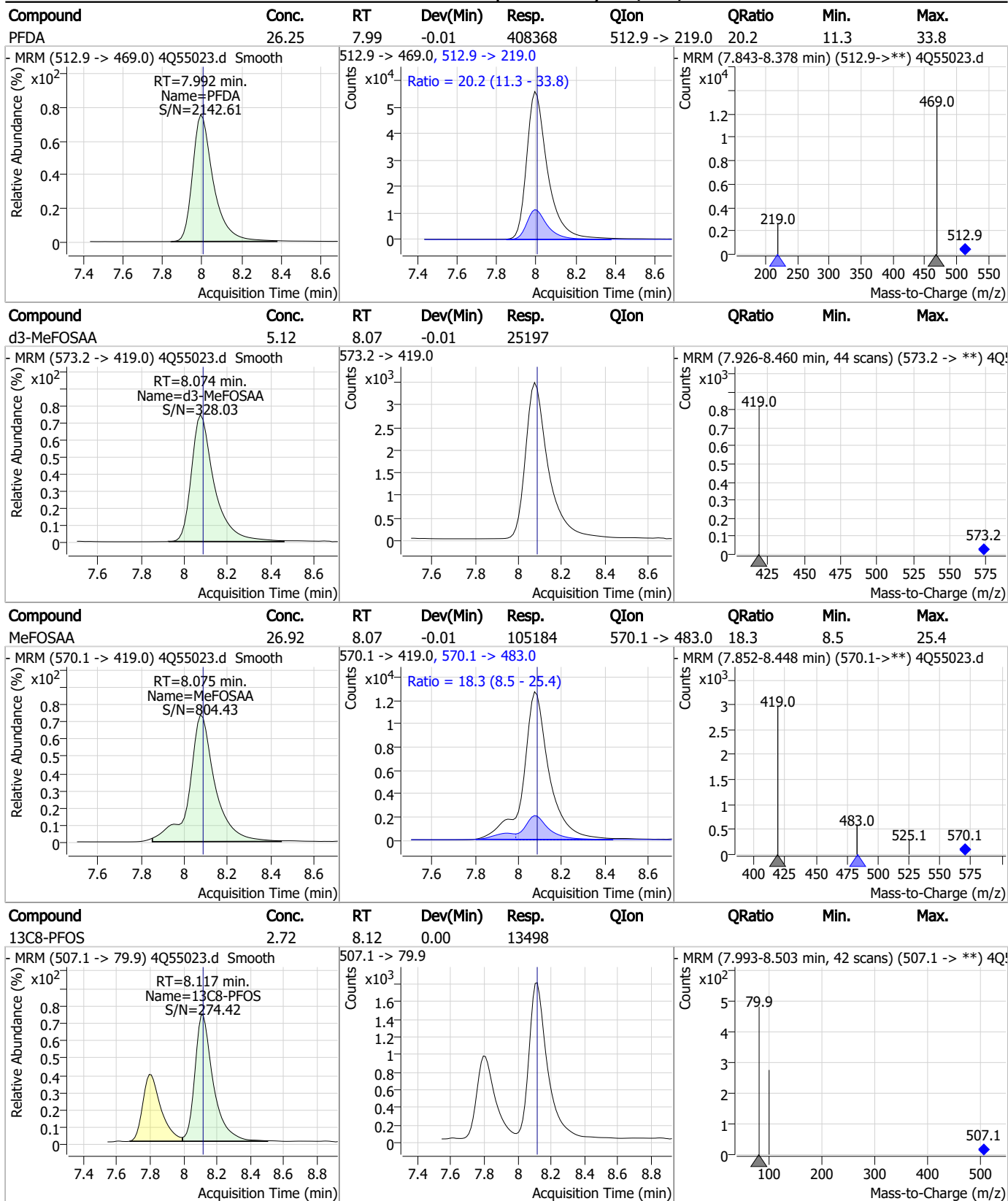
Perfluorinated Compounds by LC/MS/MS



7.7.8

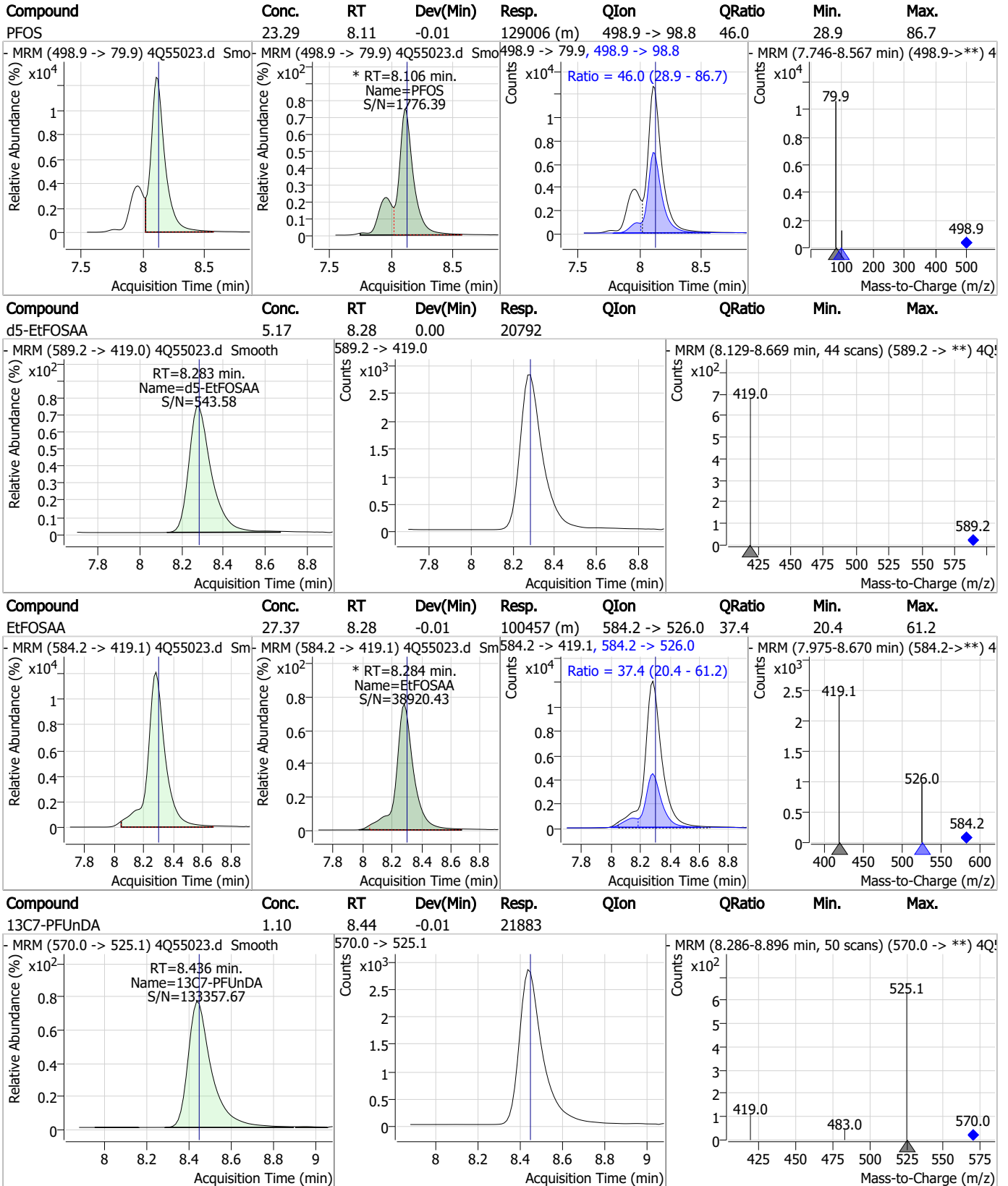
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



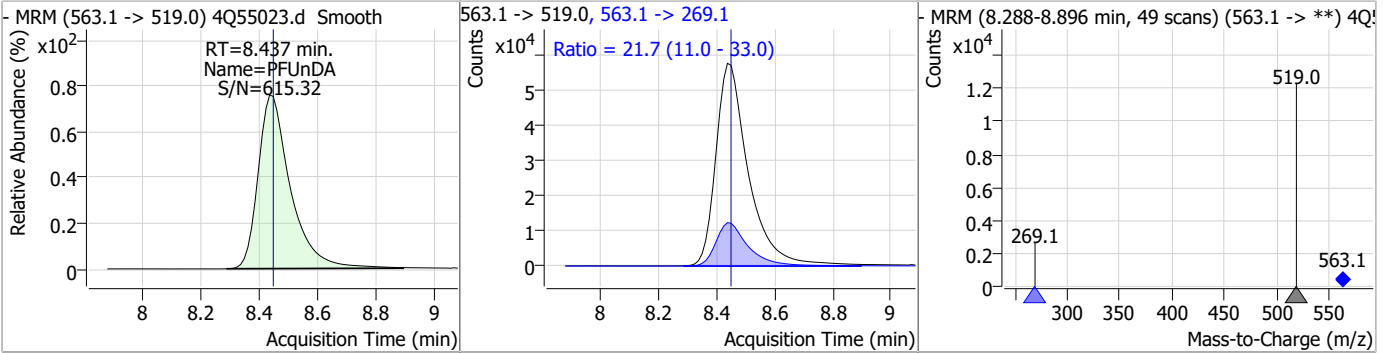
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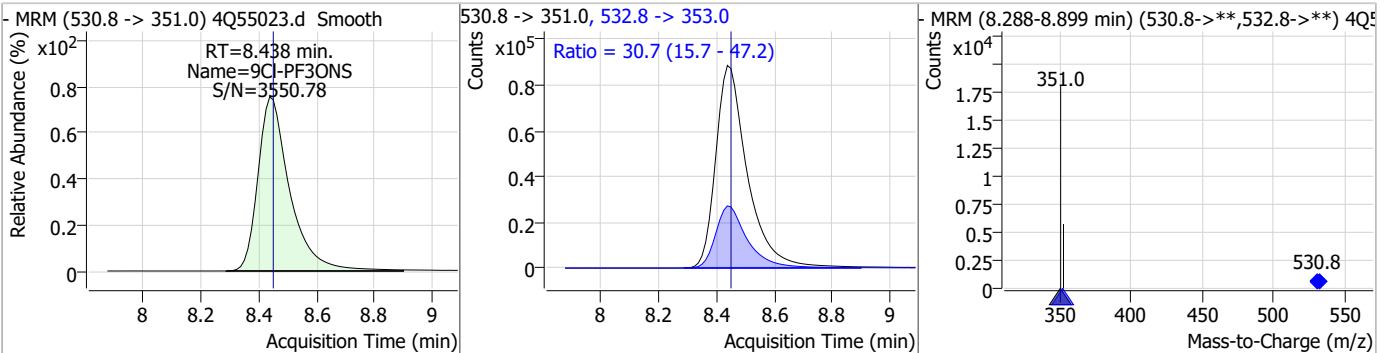


Perfluorinated Compounds by LC/MS/MS

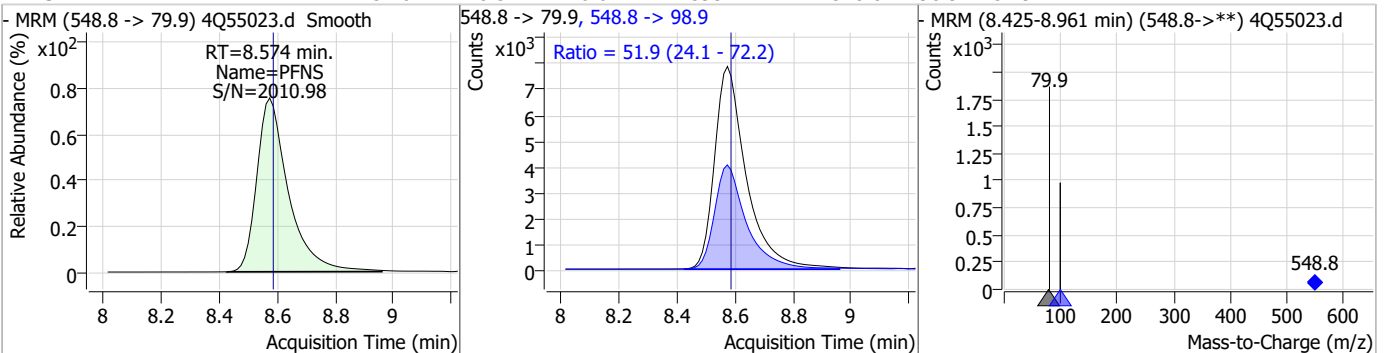
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	26.84	8.44	-0.01	442017	563.1 -> 269.1	21.7	11.0	33.0



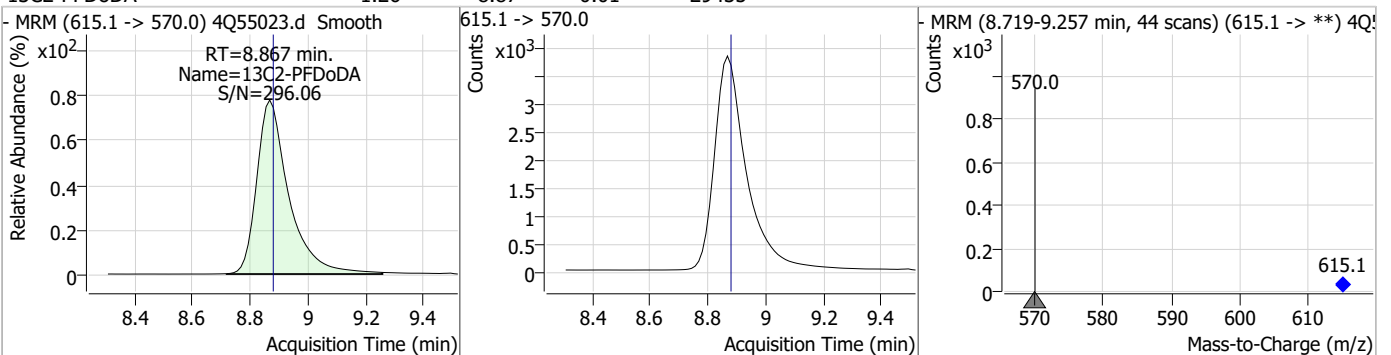
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	47.49	8.44	-0.01	673839	532.8 -> 353.0	30.7	15.7	47.2



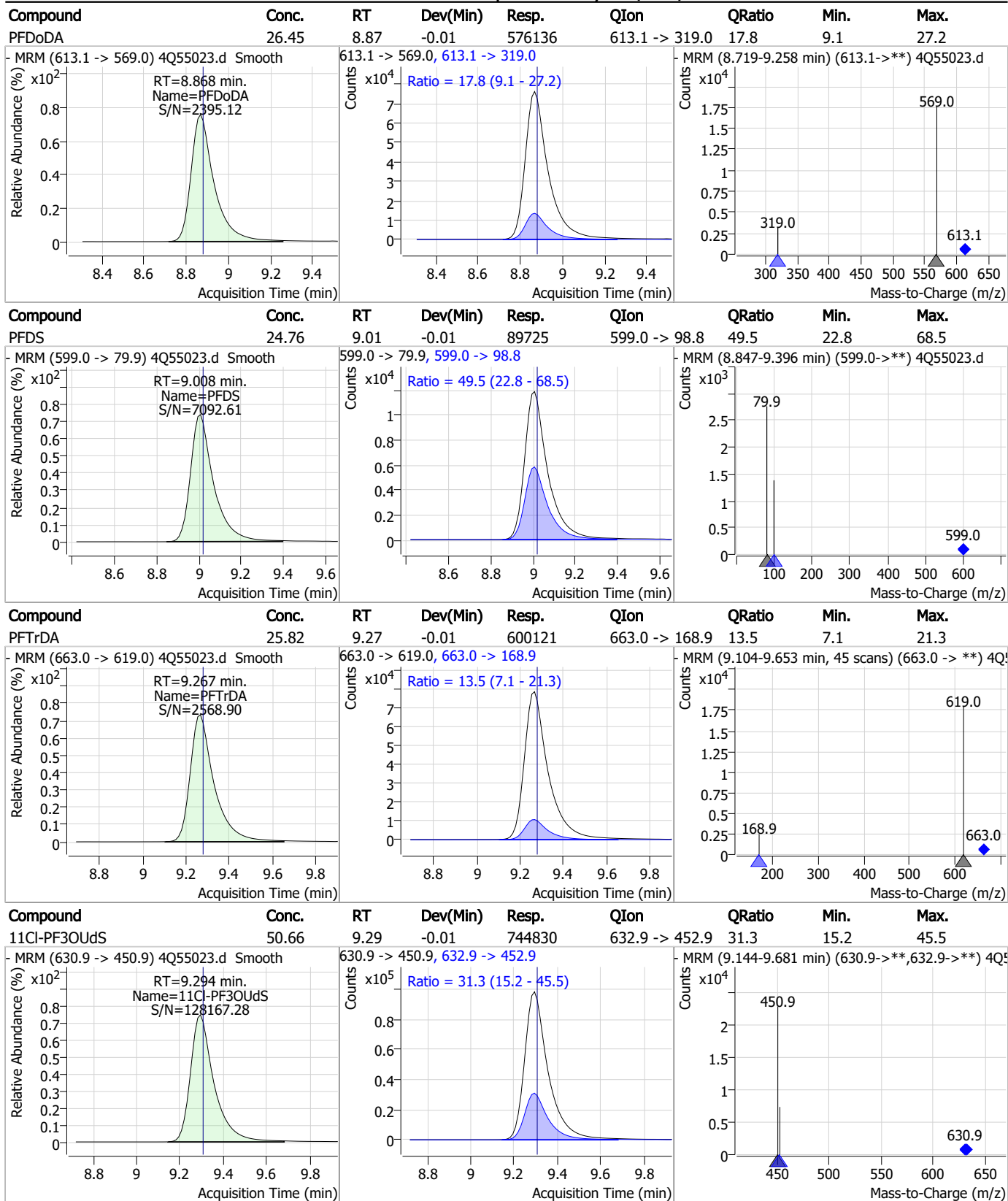
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	25.20	8.57	-0.01	59371	548.8 -> 98.9	51.9	24.1	72.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.26	8.87	-0.01	29435	615.1 -> 570.0			

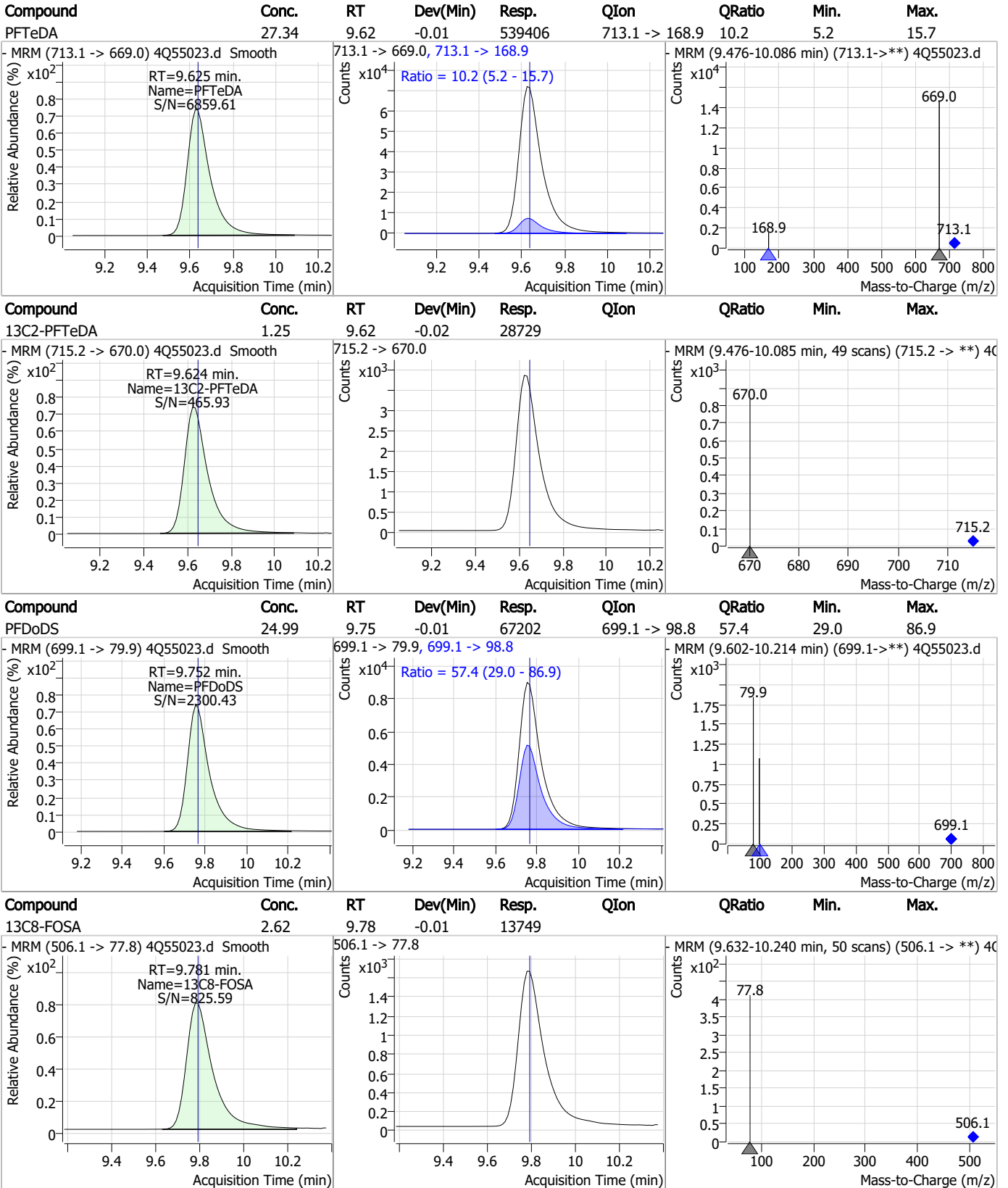


Perfluorinated Compounds by LC/MS/MS



7.7.8
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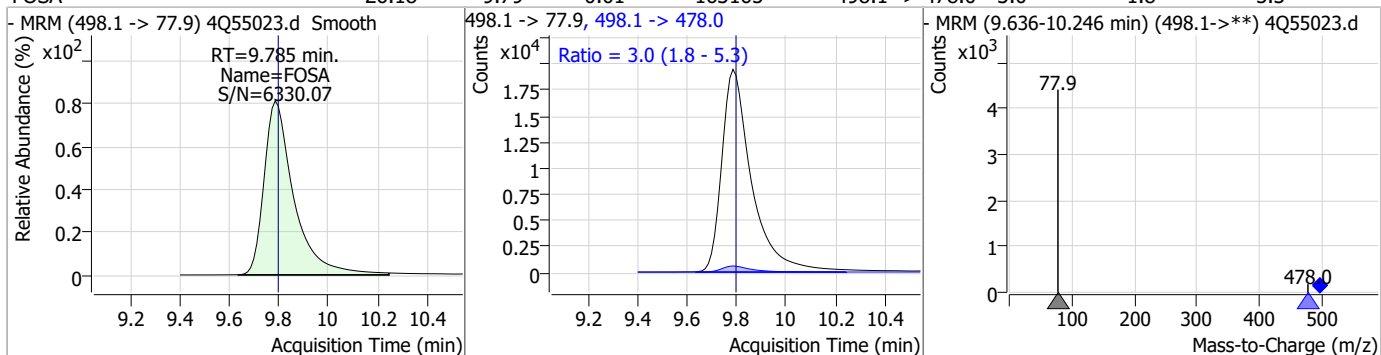
Perfluorinated Compounds by LC/MS/MS



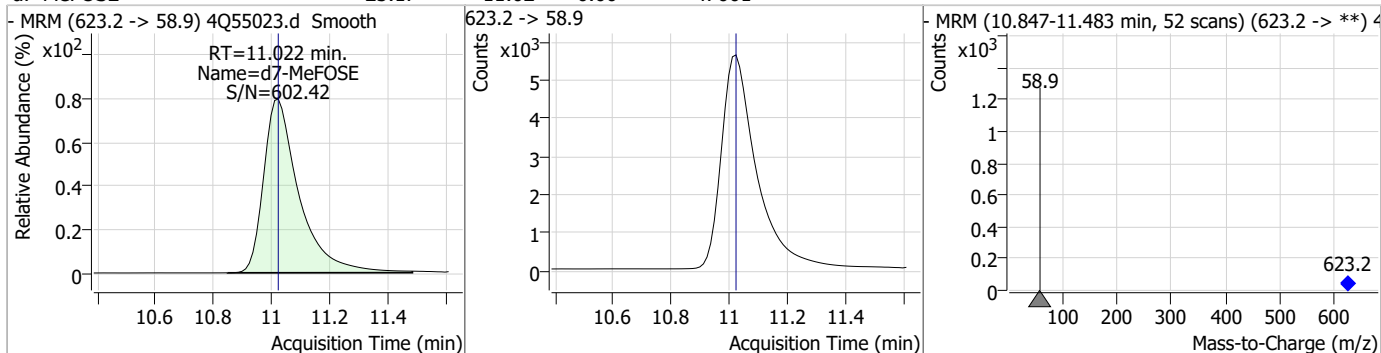
7.7.8
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Perfluorinated Compounds by LC/MS/MS

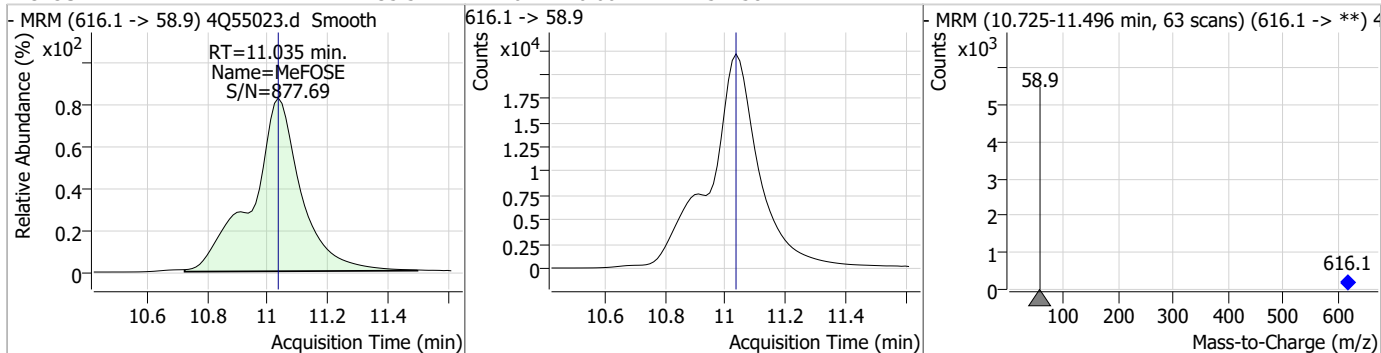
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	26.18	9.79	-0.01	163165	498.1 -> 478.0	3.0	1.8	5.3



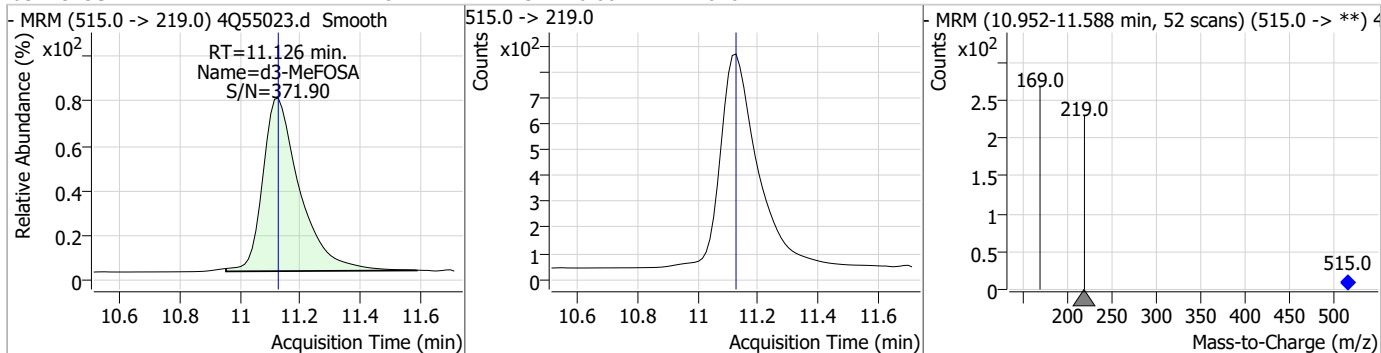
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.17	11.02	0.00	47601				



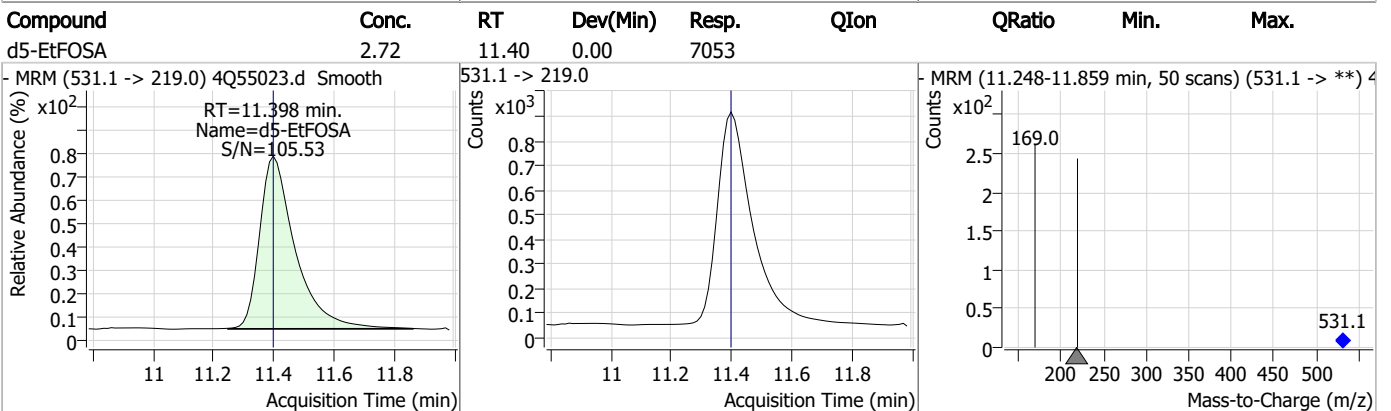
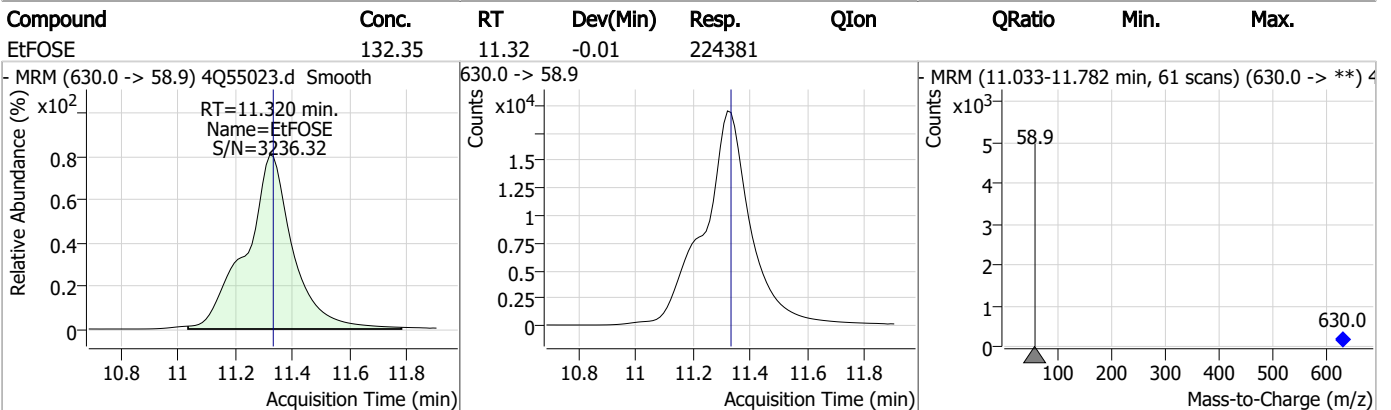
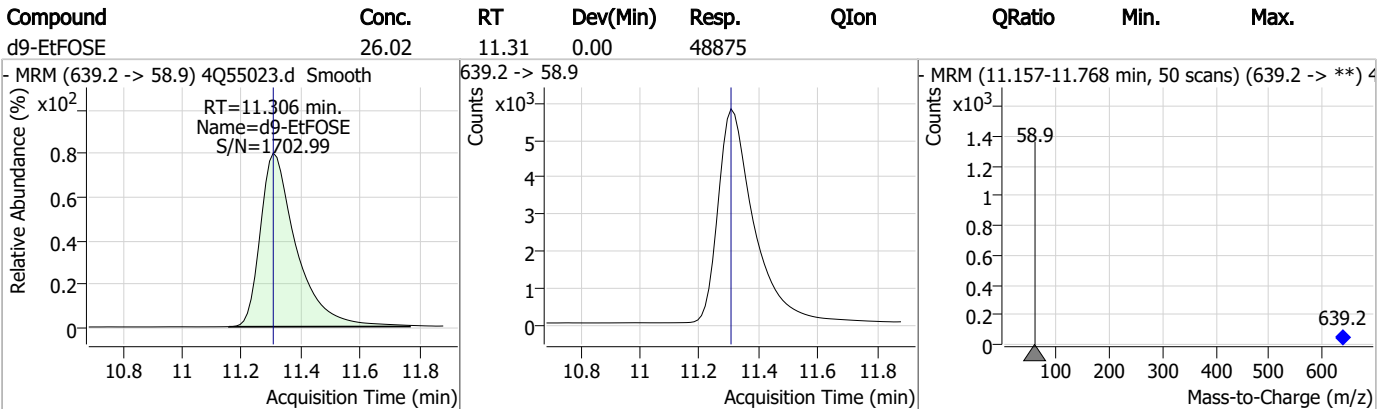
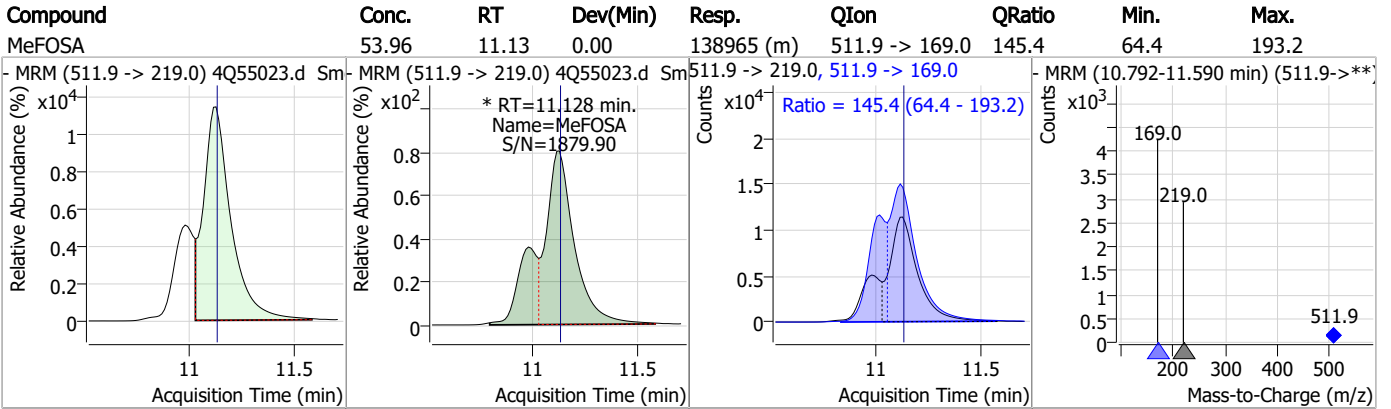
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	135.51	11.04	0.00	251258				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.61	11.13	0.00	7046				



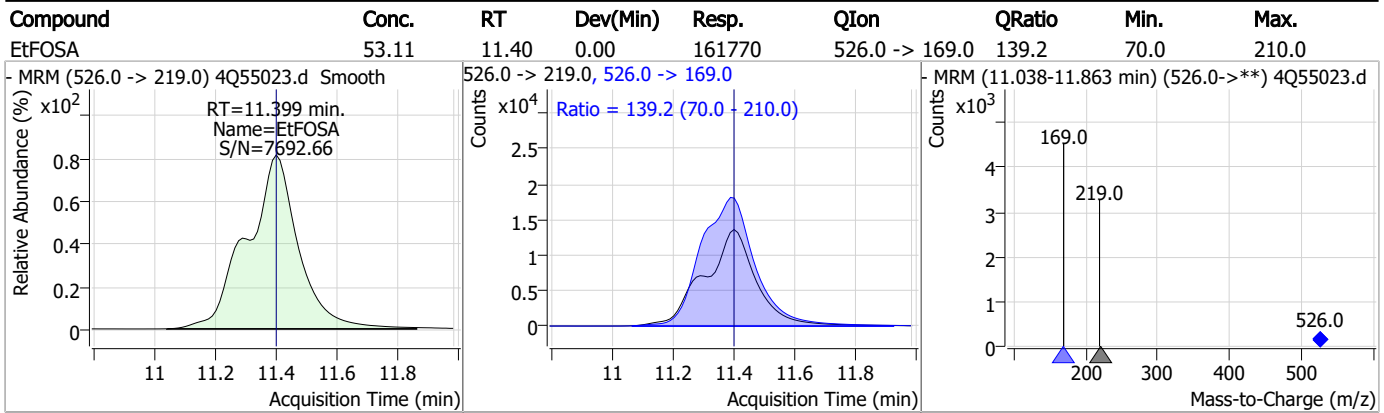
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q806-IC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55023.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 16:24 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.03	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.11	Split peak
EtFOSAA	2991-50-6		8.28	Split peak
MeFOSA	31506-32-8		11.13	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55024.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 4:43:36 PM
 Sample Name : ic806-8
 Vial : P1-A9
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.765	216.8 -> 171.9	150933	10.00 µg/L	0.066
M5-PFPeA	4.200	268.3 -> 223.0	67895	5.00 µg/L	0.025
M5-PFHxA	5.359	318.0 -> 273.0	59903	2.50 µg/L	0.012
M4-PFHpA	6.304	367.1 -> 322.0	54569	2.50 µg/L	0.012
M8-PFOA	6.976	421.1 -> 376.0	75667	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	32781	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	19187	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	16623	1.25 µg/L	0.000
M2-PFDoDA	8.880	615.1 -> 570.0	26132	1.25 µg/L	0.000
M2-PFTeDA	9.649	715.2 -> 670.0	28503	1.25 µg/L	0.000
M8-FOSA	9.818	506.1 -> 77.8	12728	2.50 µg/L	0.025
M3-PFBS	5.227	302.1 -> 79.9	15399	2.50 µg/L	0.025
M3-PFHxS	7.042	402.1 -> 79.9	11516	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	12147	2.50 µg/L	0.000
M2-4:2FTS	5.071	329.1 -> 80.9	1221	5.00 µg/L	0.012
M2-6:2FTS	6.761	429.1 -> 80.9	2333	5.00 µg/L	0.000
M2-8:2FTS	7.816	529.1 -> 80.9	3742	5.00 µg/L	0.012
M3-MeFOSAA	8.086	573.2 -> 419.0	20102	5.00 µg/L	0.000
M3-HFPO-DA	5.714	286.9 -> 168.9	53551	10.00 µg/L	0.013
M5-EtFOSAA	8.296	589.2 -> 419.0	17633	5.00 µg/L	0.012
M7-MeFOSE	11.034	623.2 -> 58.9	42302	25.00 µg/L	0.012
M9-EtFOSE	11.319	639.2 -> 58.9	44326	25.00 µg/L	0.012
M5-EtFOSA	11.410	531.1 -> 219.0	7003	2.50 µg/L	0.012
M3-MeFOSA	11.139	515.0 -> 219.0	8059	2.50 µg/L	0.012
13C4-PFOS	8.118	502.8 -> 79.9	8890	2.50 µg/L	0.000
13C3-PFBA	2.768	216.0 -> 172.0	69682	5.00 µg/L	0.065
18O2-PFHxS	7.041	403.0 -> 83.9	7568	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	81661	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	21737	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	31574	1.25 µg/L	0.000
13C2-PFHxA	5.360	315.1 -> 270.0	64981	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.071	329.1 -> 80.9	1221	4.17 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.4%		
13C2-6:2FTS	6.761	429.1 -> 80.9	2333	3.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 72.1%		
13C2-8:2FTS	7.816	529.1 -> 80.9	3742	4.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 87.7%		
13C2-PFDoDA	8.880	615.1 -> 570.0	26132	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFTeDA	9.649	715.2 -> 670.0	28503	1.41 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 113.1%		
13C3-PFBS	5.227	302.1 -> 79.9	15399	2.56 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C3-PFHxS	7.042	402.1 -> 79.9	11516	2.47 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C4-PFBA	2.765	216.8 -> 171.9	150933	10.06 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.304	367.1 -> 322.0	54569	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C5-PFHxA	5.359	318.0 -> 273.0	59903	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C5-PFPeA	4.200	268.3 -> 223.0	67895	4.81 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C6-PFDA	8.004	519.1 -> 474.1	19187	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C7-PFUnDA	8.448	570.0 -> 525.1	16623	0.95 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 76.3%	
13C8-FOSA	9.818	506.1 -> 77.8	12728	2.54 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C8-PFOA	6.976	421.1 -> 376.0	75667	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C8-PFOS	8.117	507.1 -> 79.9	12147	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C9-PFNA	7.521	472.1 -> 427.0	32781	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSAA	8.086	573.2 -> 419.0	20102	4.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 85.4%	
13C3-HFPO-DA	5.714	286.9 -> 168.9	53551	9.67 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d3-MeFOSA	11.139	515.0 -> 219.0	8059	3.12 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 124.9%	
d5-EtFOSAA	8.296	589.2 -> 419.0	17633	4.59 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.7%	
d7-MeFOSE	11.034	623.2 -> 58.9	42302	23.40 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
d9-EtFOSE	11.319	639.2 -> 58.9	44326	24.69 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
d5-EtFOSA	11.410	531.1 -> 219.0	7003	2.83 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.0%	
Target Compounds					QValue
4:2FTS	5.072	327.1 -> 307.0	517033	233.59 µg/L	100
		327.1 -> 80.9	208847		
6:2FTS	6.761	427.1 -> 407.0	635855	256.08 µg/L	95
		427.1 -> 80.9	222411		
8:2FTS	7.804	527.1 -> 507.0	456976	225.67 µg/L	95
		527.1 -> 80.8	170805		
EtFOSAA	8.297	584.2 -> 419.1	230713	74.12 µg/L	m 97
		584.2 -> 526.0	90305		
FOSA	9.810	498.1 -> 77.9	400613	69.43 µg/L	99
		498.1 -> 478.0	12840		
MeFOSAA	8.087	570.1 -> 419.0	229260	73.54 µg/L	95
		570.1 -> 483.0	43294		
PFBA	2.758	212.8 -> 168.9	1367285	284.92 µg/L	100
PFBS	5.216	298.7 -> 79.9	292779	63.44 µg/L	99
		298.7 -> 98.8	111589		
PFDA	8.005	512.9 -> 469.0	955370	68.29 µg/L	95
		512.9 -> 219.0	193805		
PFDoDA	8.880	613.1 -> 569.0	1387466	71.76 µg/L	99
		613.1 -> 319.0	246955		
PFDS	9.020	599.0 -> 79.9	231291	70.92 µg/L	95

7.7.9
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.305	599.0 -> 98.8	113506	73.48	µg/L	99
		363.1 -> 319.0	2263790			
PFHpS	7.624	363.1 -> 169.0	403473	72.24	µg/L	99
		449.0 -> 79.9	371802			
PFHxA	5.362	449.0 -> 98.9	188621	72.76	µg/L	99
		313.0 -> 269.0	1399873			
PFHxS	7.043	313.0 -> 118.9	40739	65.37	µg/L	m
		398.7 -> 79.9	233807			
PFNA	7.522	398.7 -> 98.9	119038	68.10	µg/L	99
		463.0 -> 419.0	1371217			
PFNS	8.586	463.0 -> 219.0	327890	66.39	µg/L	97
		548.8 -> 79.9	140749			
PFOA	6.978	548.8 -> 98.9	71127	69.48	µg/L	100
		413.0 -> 369.0	2213623			
PFOS	8.119	413.0 -> 169.0	450839	62.50	µg/L	m
		498.9 -> 79.9	311538			
PFPeA	4.202	498.9 -> 98.8	144636	145.14	µg/L	100
		263.0 -> 219.0	1909995			
PFPeS	6.294	349.1 -> 79.9	284587	73.00	µg/L	98
		349.1 -> 98.9	127029			
PFTeDA	9.650	713.1 -> 669.0	1366155	69.80	µg/L	99
		713.1 -> 168.9	140499			
PFTrDA	9.279	663.0 -> 619.0	1346889	65.29	µg/L	99
		663.0 -> 168.9	185401			
PFUnDA	8.449	563.1 -> 519.0	925255	73.95	µg/L	99
		563.1 -> 269.1	200127			
11Cl-PF3OUdS	9.306	630.9 -> 450.9	1764468	123.40	µg/L	98
		632.9 -> 452.9	550933			
9Cl-PF3ONS	8.451	530.8 -> 351.0	1492627	108.15	µg/L	99
		532.8 -> 353.0	464125			
ADONA	6.568	376.9 -> 250.9	5701919	148.59	µg/L	100
		376.9 -> 84.8	1357861			
HFPO-DA	5.715	284.9 -> 168.9	722884	142.06	µg/L	100
		284.9 -> 184.9	70694			
3:3FTCA	3.704	241.0 -> 177.0	241123	397.27	µg/L	99
		241.0 -> 117.0	20897			
5:3FTCA	6.058	341.0 -> 237.1	4277607	1754.82	µg/L	99
		341.0 -> 217.0	3043191			
7:3FTCA	7.562	441.0 -> 316.9	1956371	1704.33	µg/L	95
		441.0 -> 336.9	4632782			
EtFOSA	11.412	526.0 -> 219.0	418972	138.53	µg/L	99
		526.0 -> 169.0	581159			
EtFOSE	11.332	630.0 -> 58.9	542179	352.63	µg/L	100
		511.9 -> 219.0	361531			
MeFOSA	11.128	511.9 -> 169.0	527813	122.73	µg/L	m
		616.1 -> 58.9	628243			
MeFOSE	11.047	699.1 -> 79.9	173910	381.26	µg/L	m
		699.1 -> 98.8	98708			
PFDoDS	9.777	295.0 -> 201.0	164426	126.27	µg/L	97
		295.0 -> 84.9	40829			
NFDHA	5.254	279.0 -> 85.1	1109936	146.33	µg/L	100
		229.0 -> 84.9	1173595			
PFMBA	3.369	314.8 -> 134.9	1646075	153.09	µg/L	100
		314.8 -> 82.9	54948			
PFEESA	5.747			116.51	µg/L	99

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

7.7.9
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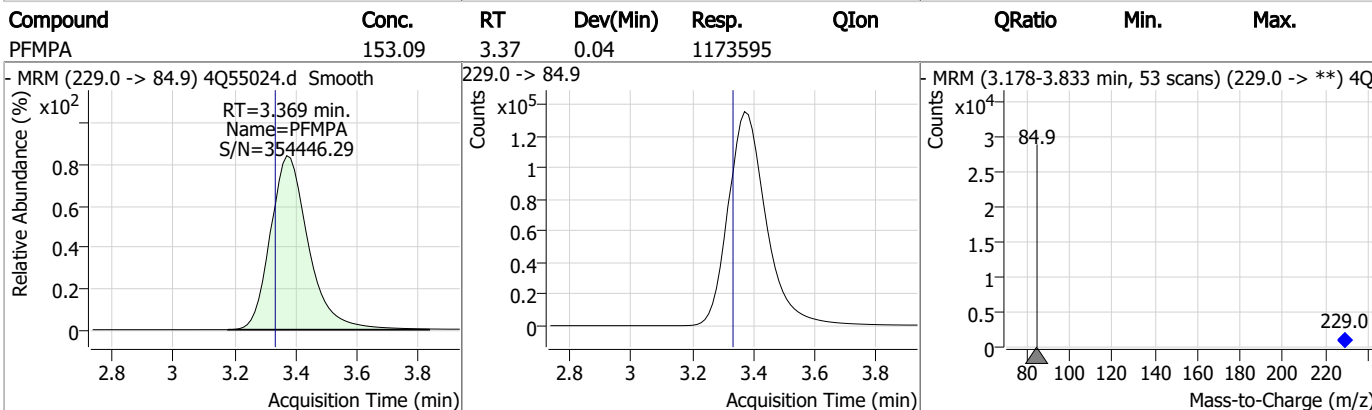
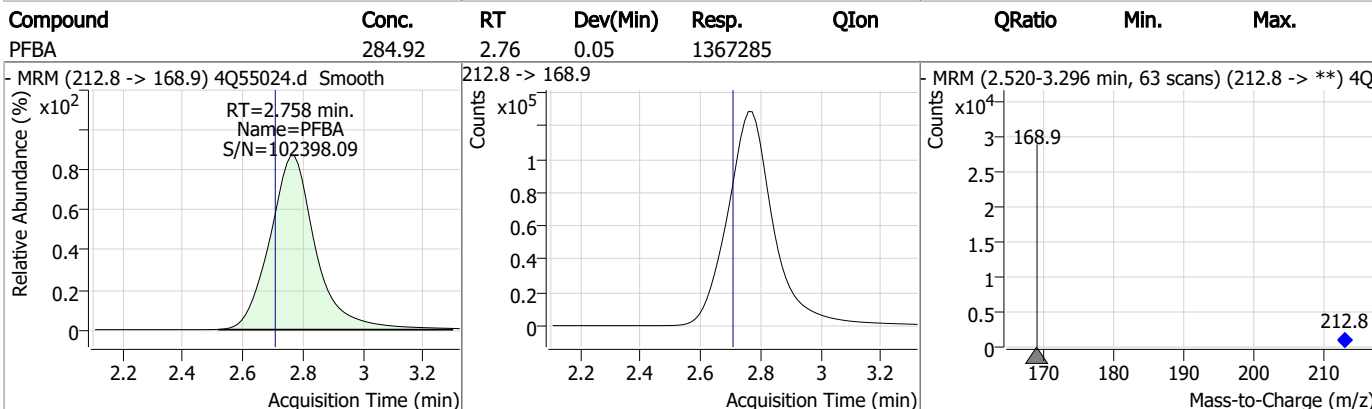
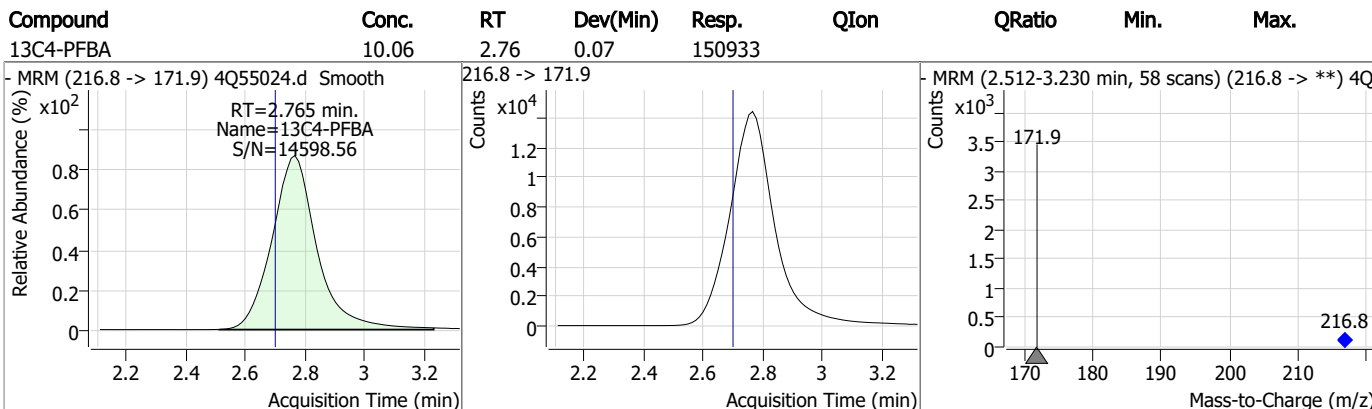
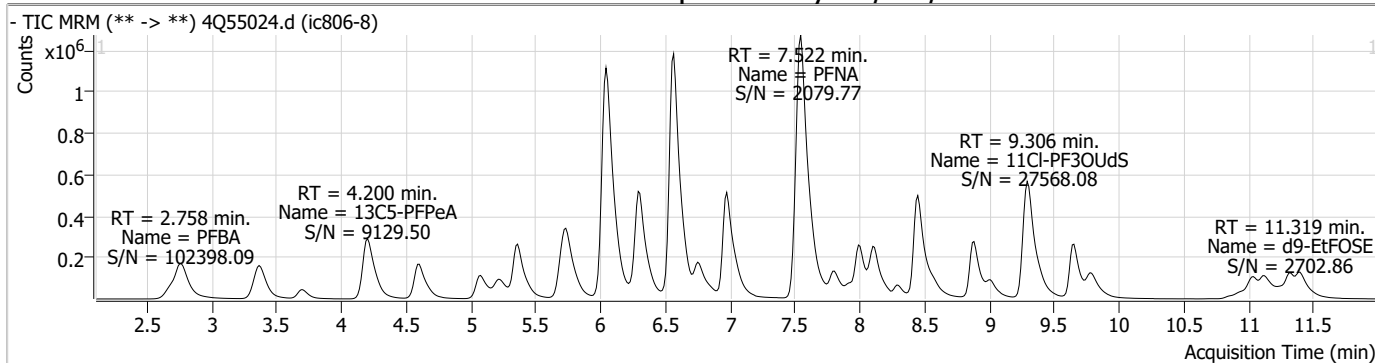
Perfluorinated Compounds by LC/MS/MS

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

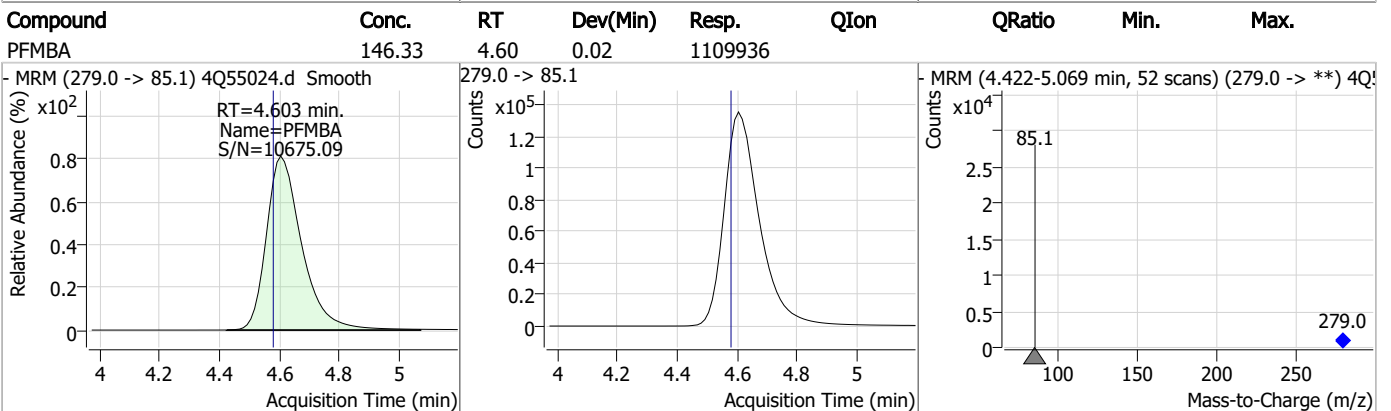
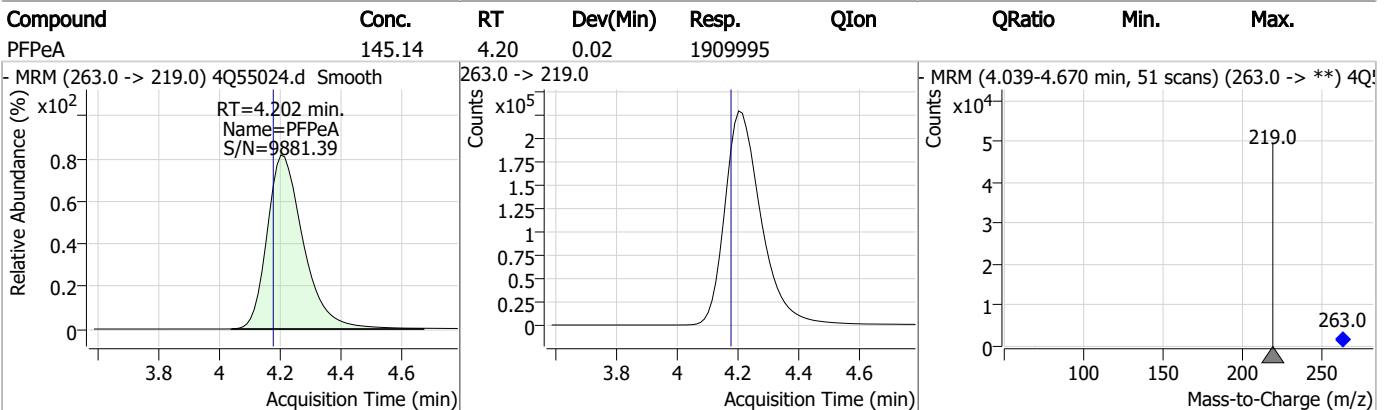
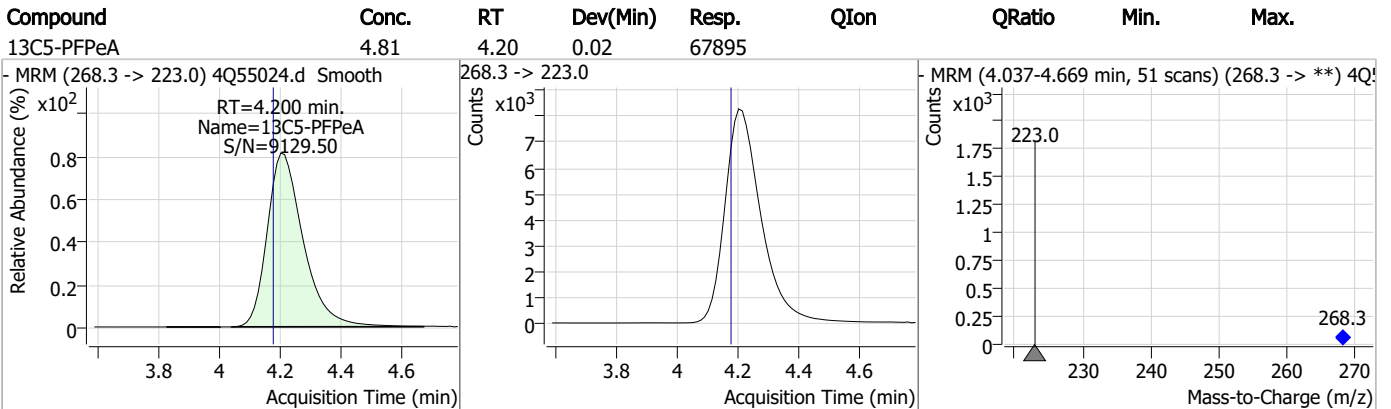
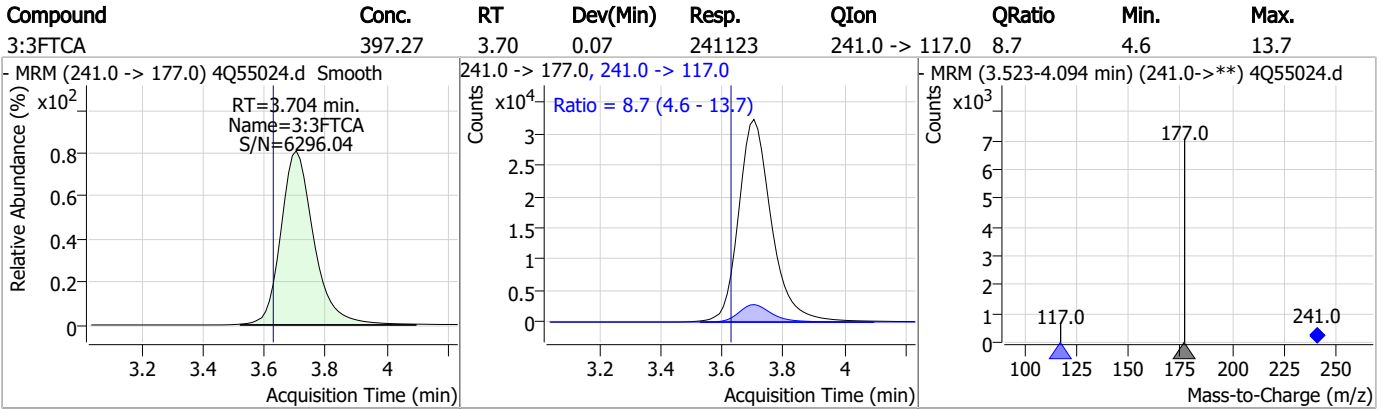
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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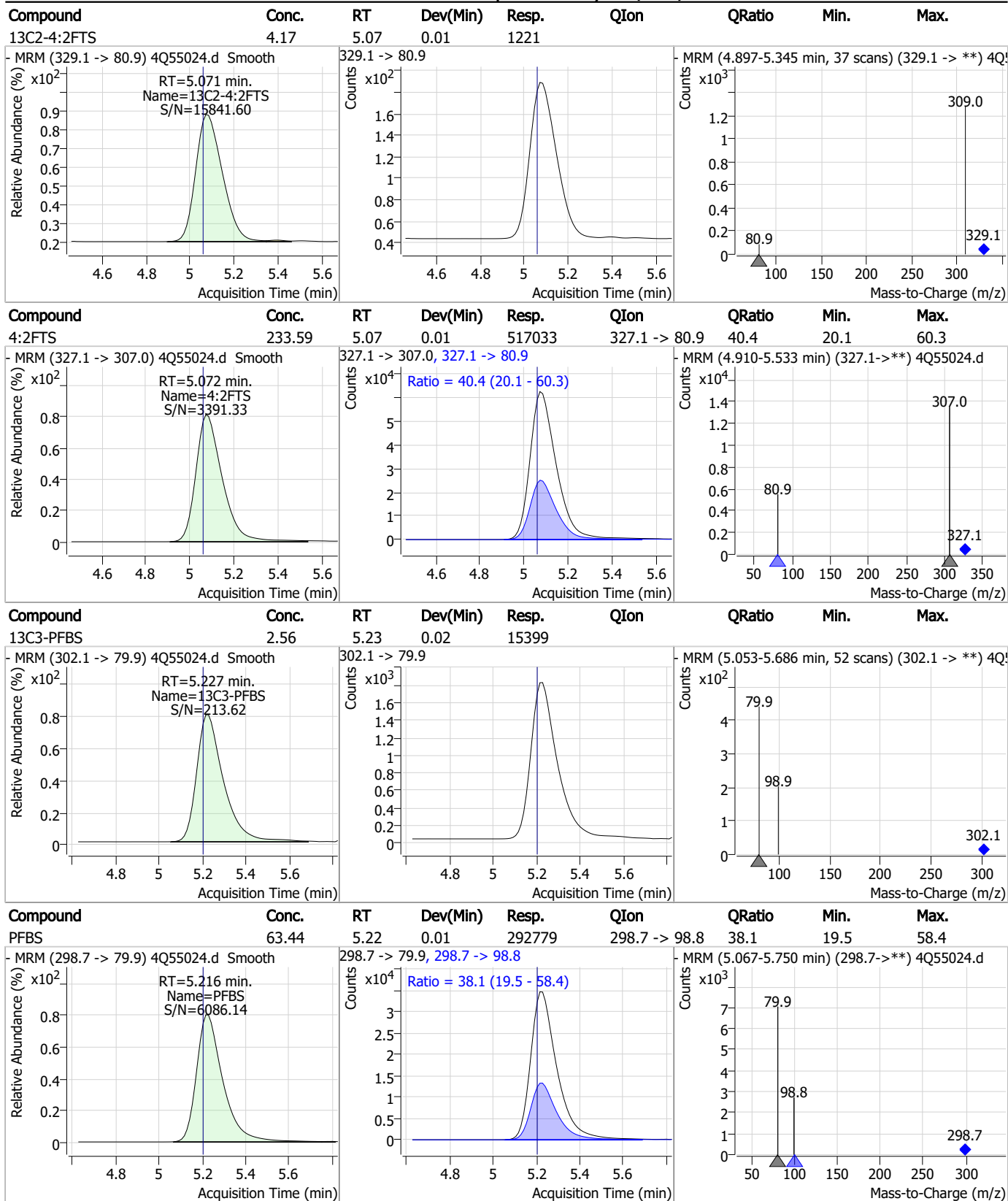
Perfluorinated Compounds by LC/MS/MS



7.7.9

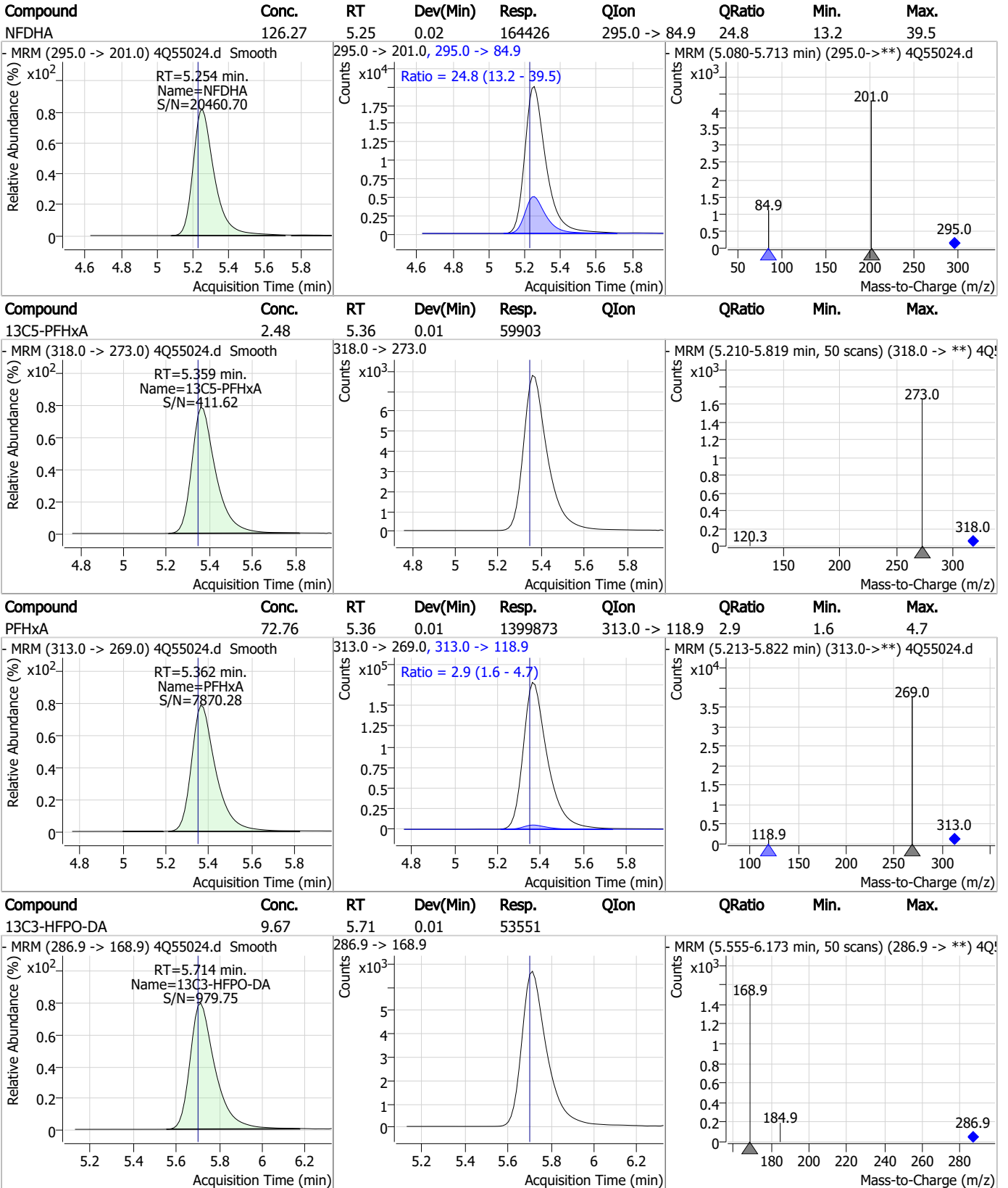
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Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

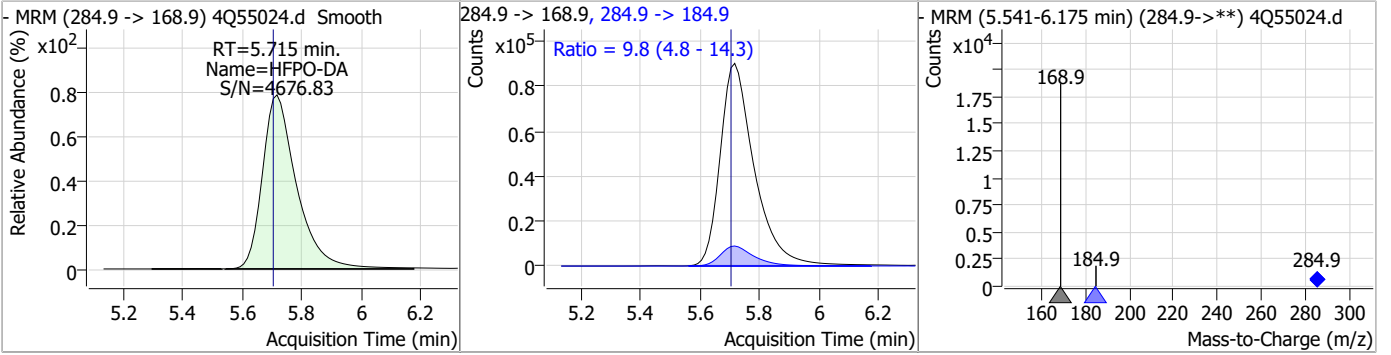


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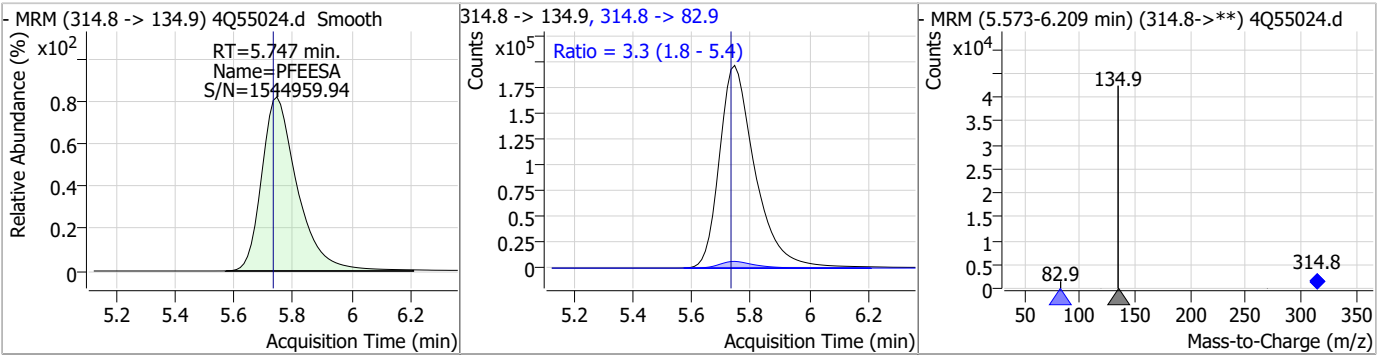
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Perfluorinated Compounds by LC/MS/MS

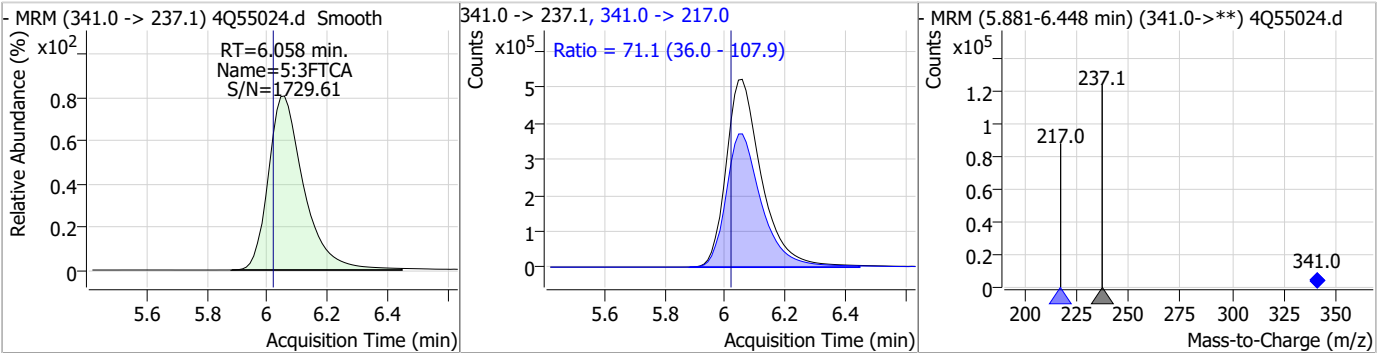
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	142.06	5.72	0.01	722884	284.9 -> 184.9	9.8	4.8	14.3



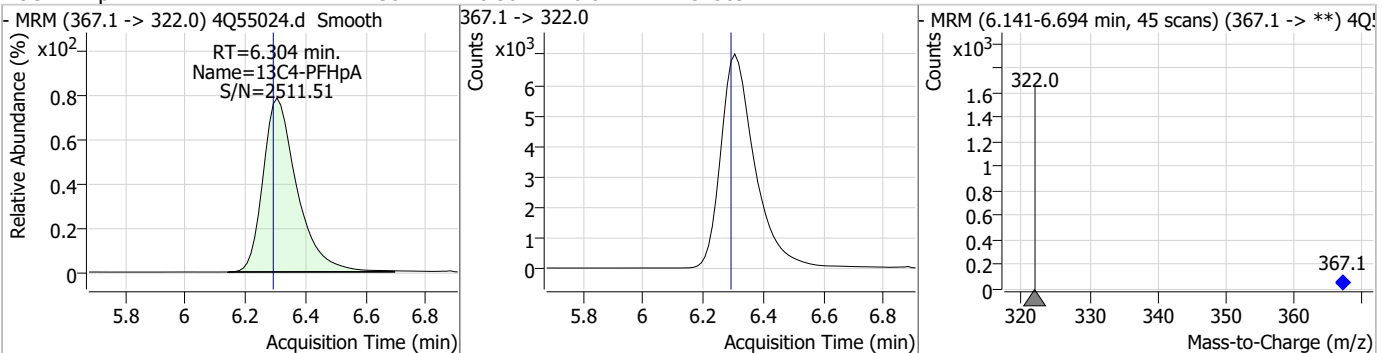
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	116.51	5.75	0.01	1646075	314.8 -> 82.9	3.3	1.8	5.4



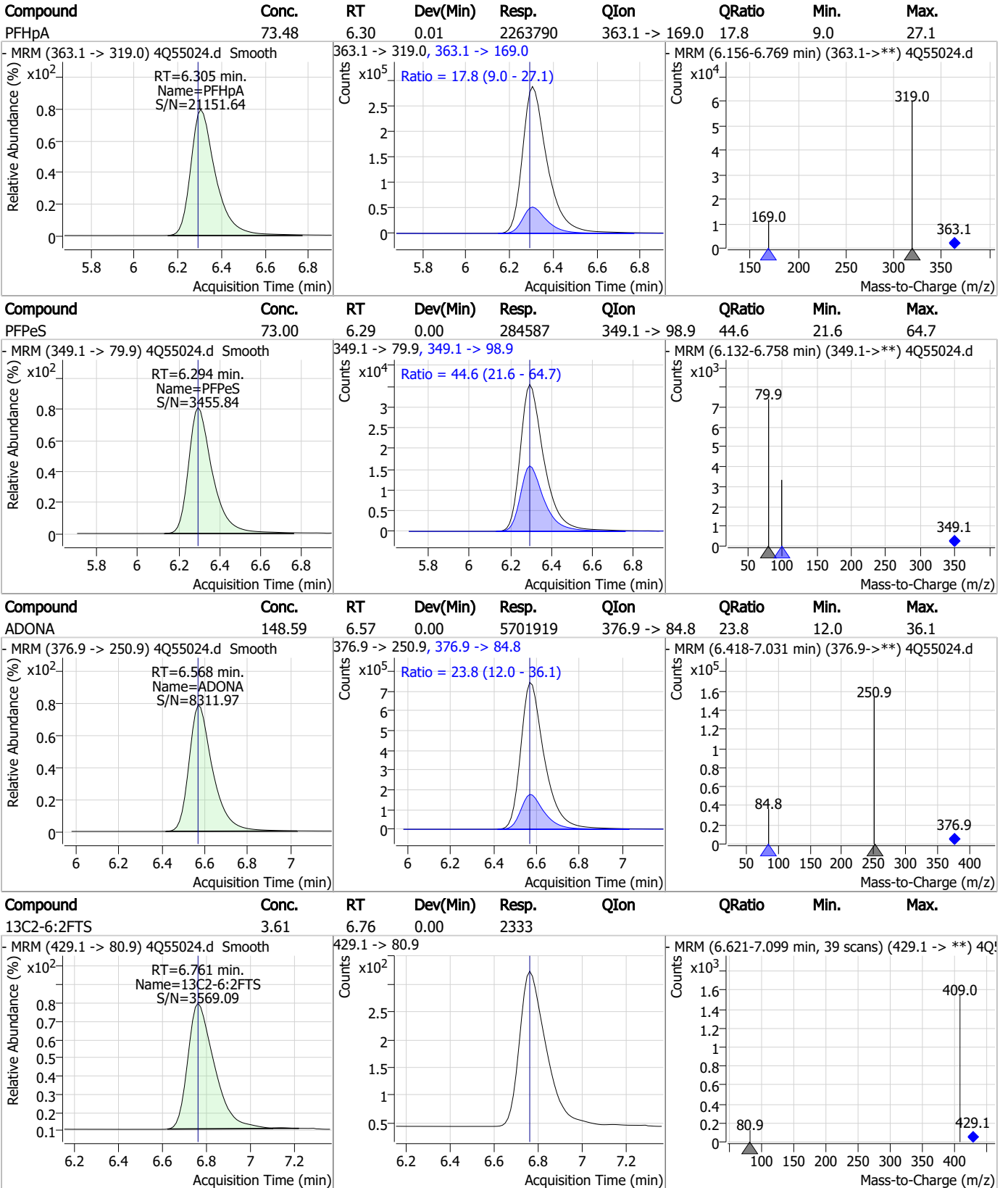
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1754.82	6.06	0.04	4277607	341.0 -> 217.0	71.1	36.0	107.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.36	6.30	0.01	54569	367.1 -> 322.0	-	-	-



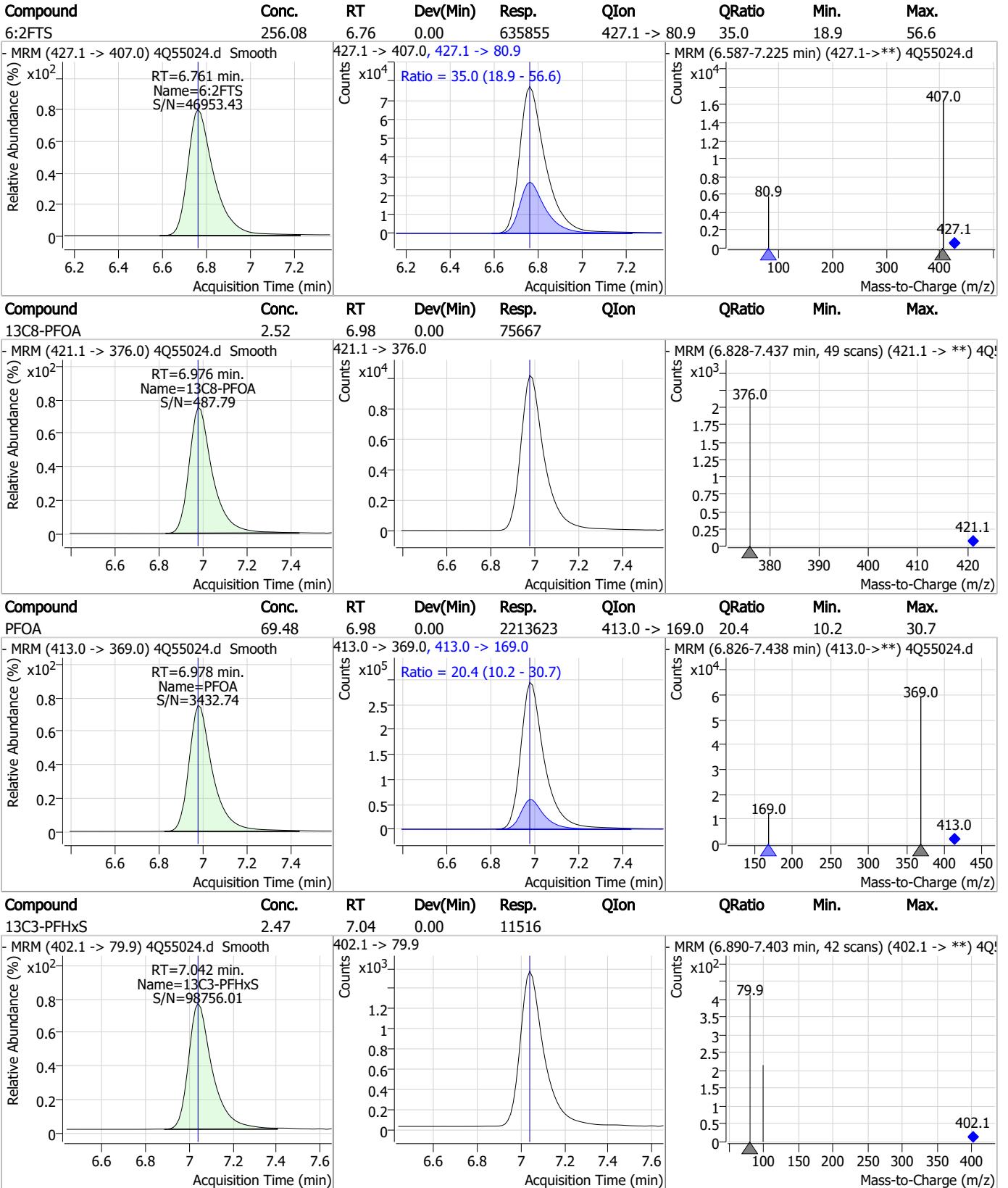
Perfluorinated Compounds by LC/MS/MS



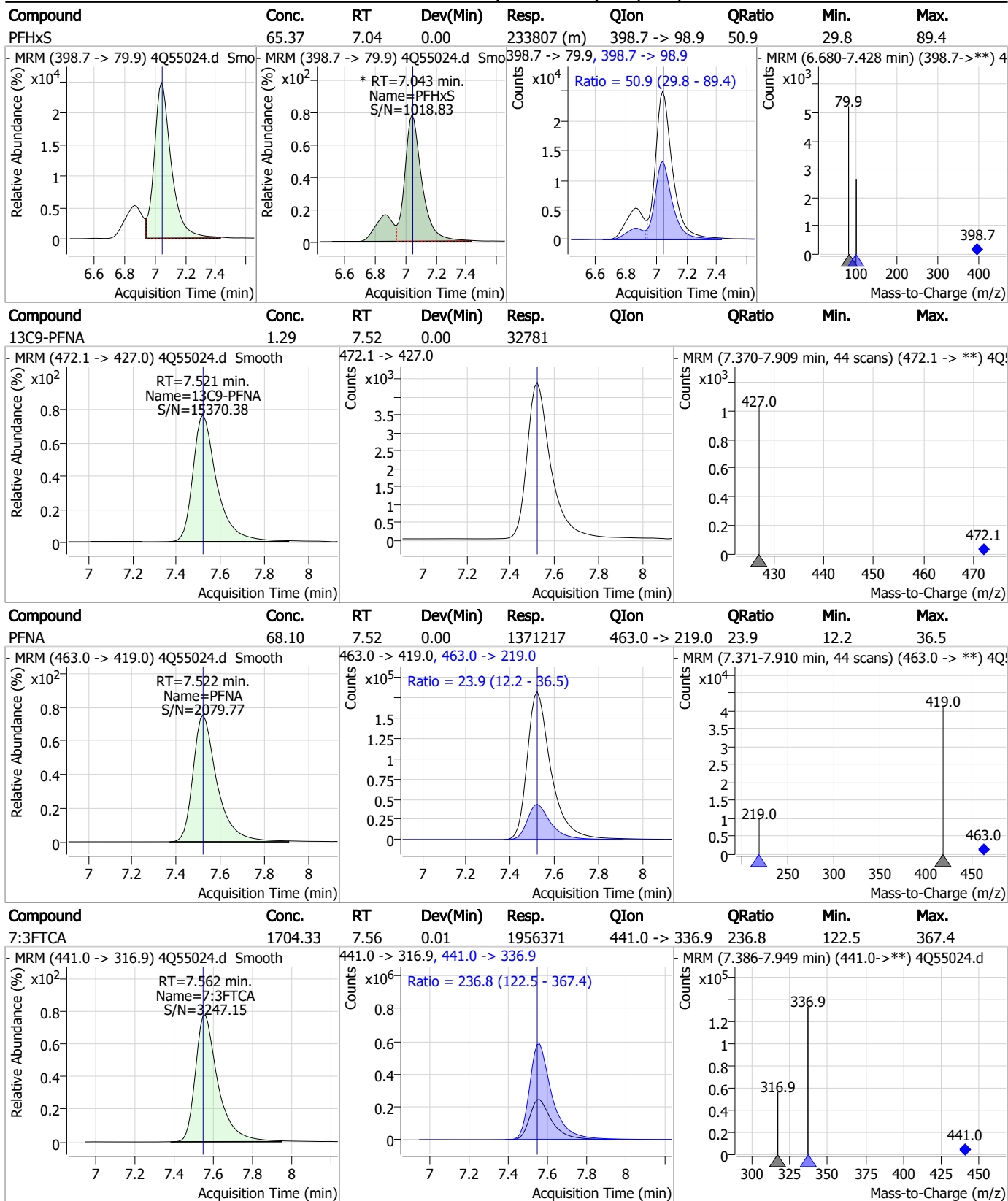
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Perfluorinated Compounds by LC/MS/MS

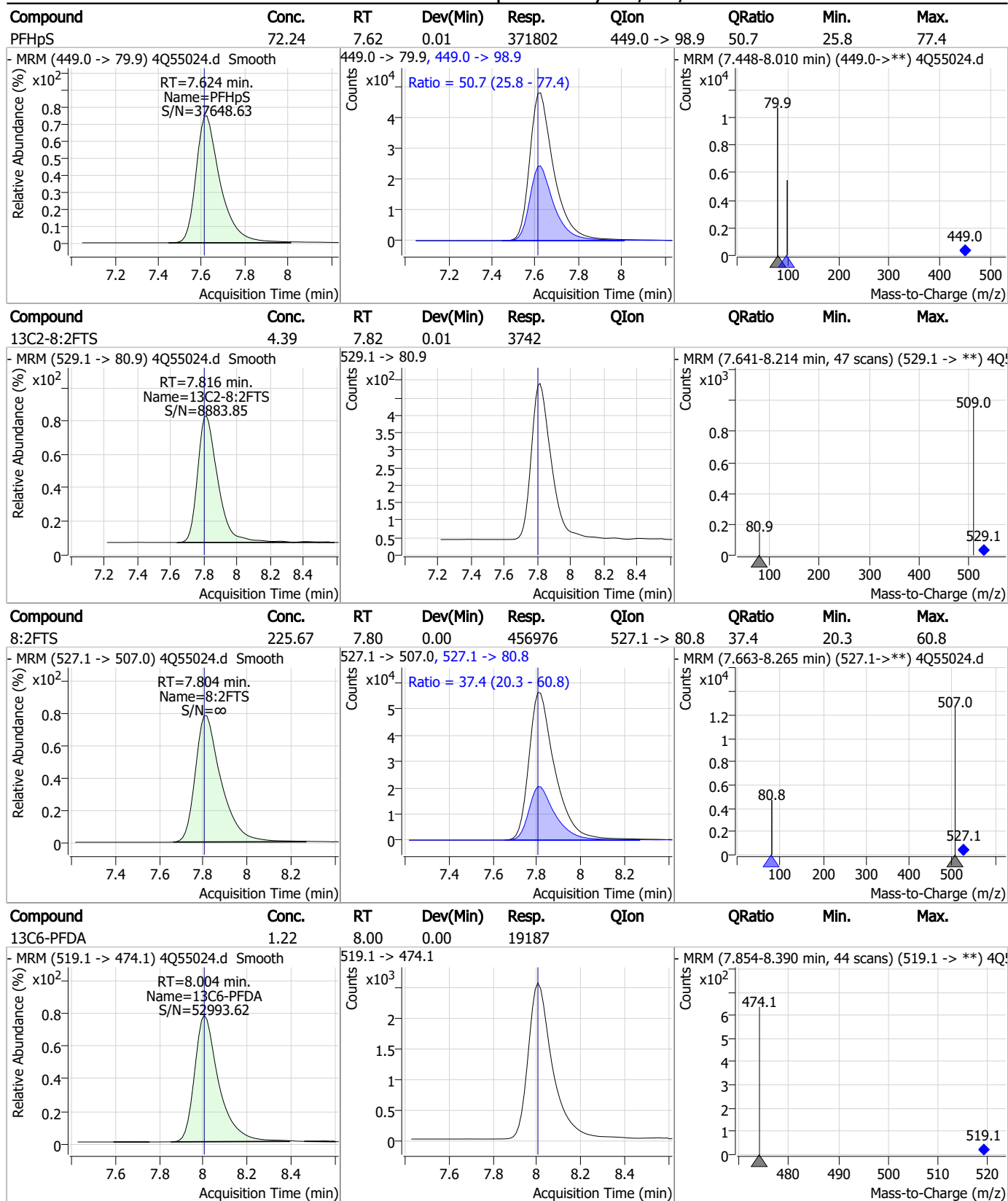


Perfluorinated Compounds by LC/MS/MS



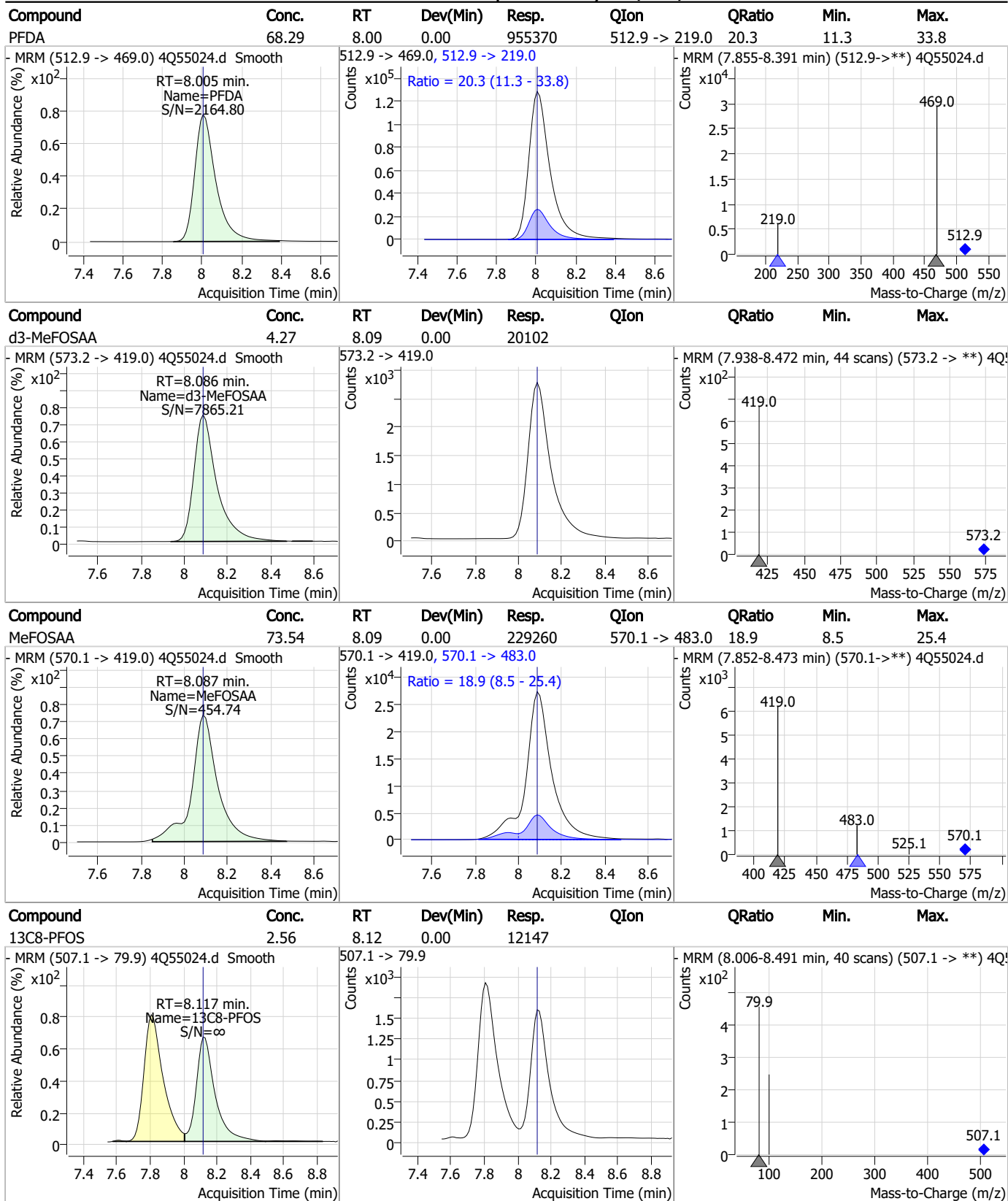
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Perfluorinated Compounds by LC/MS/MS



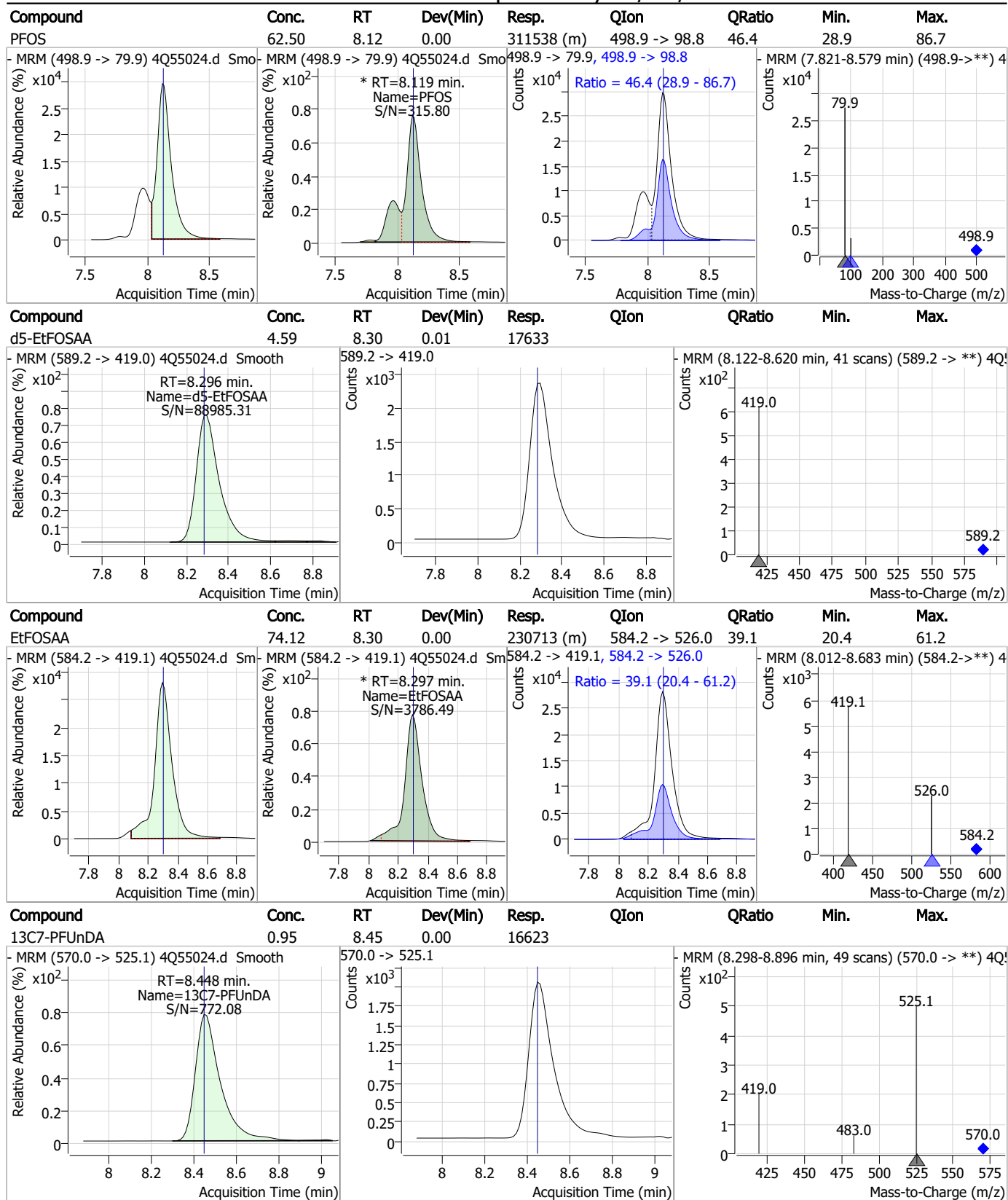
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Perfluorinated Compounds by LC/MS/MS



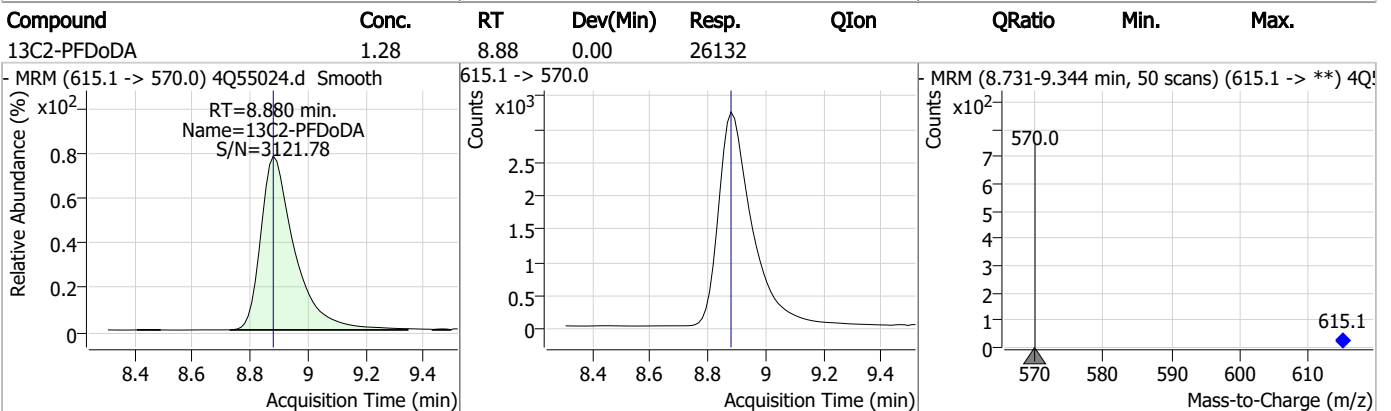
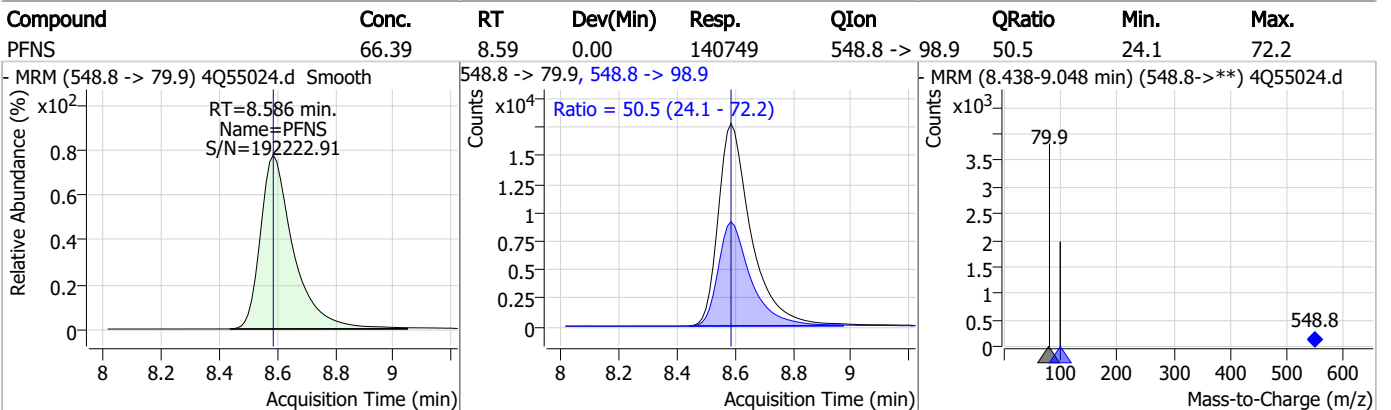
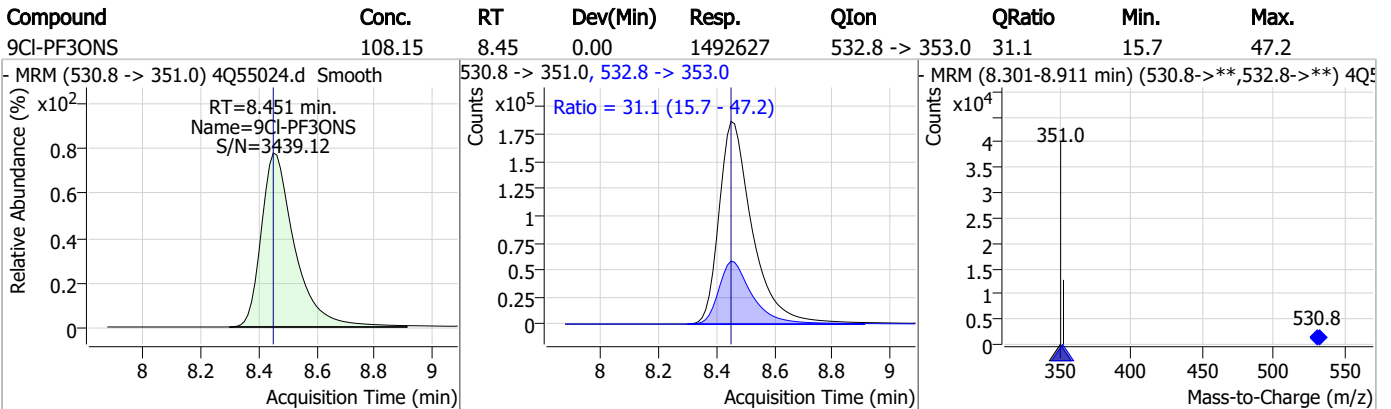
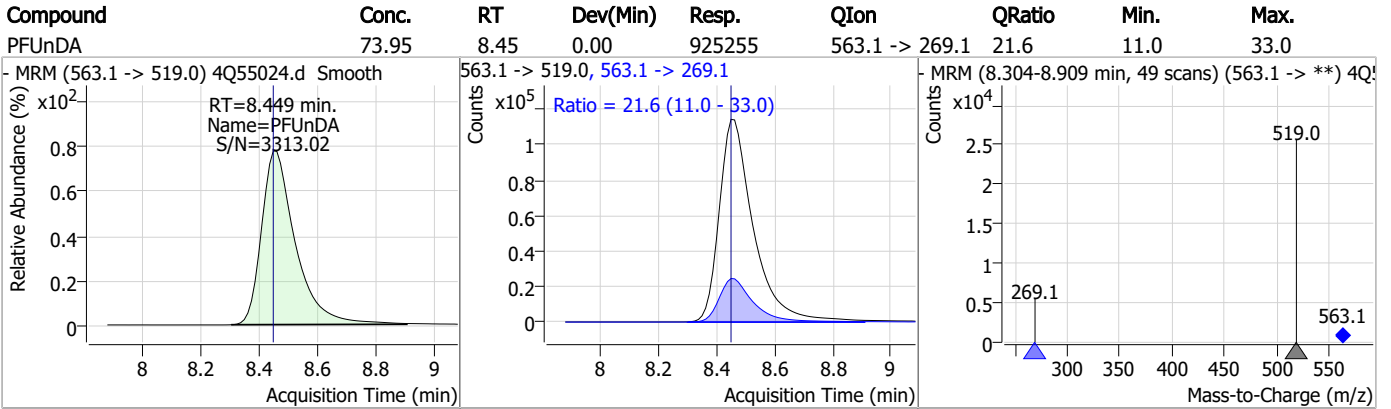
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Perfluorinated Compounds by LC/MS/MS

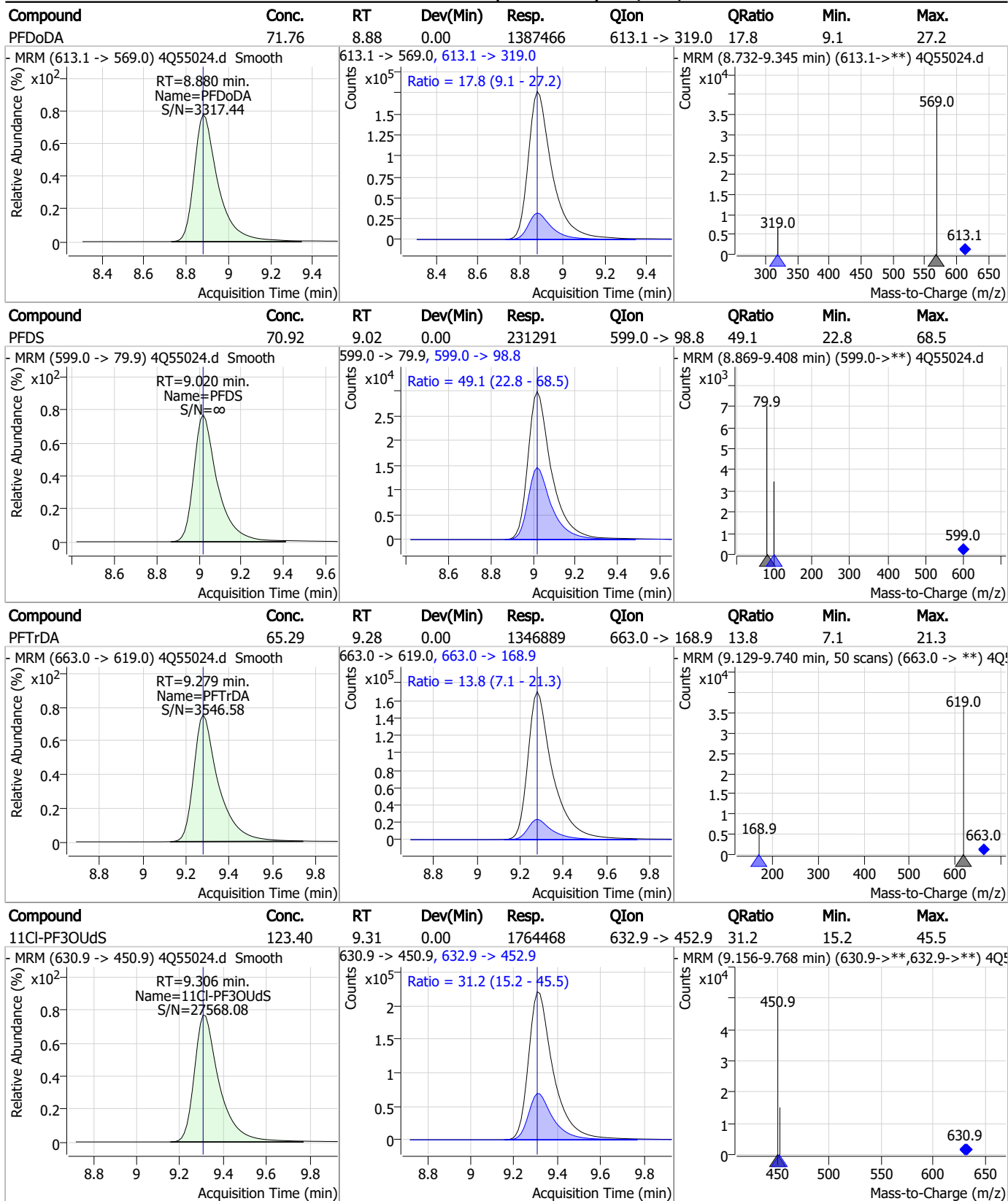


7.7.9
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Perfluorinated Compounds by LC/MS/MS

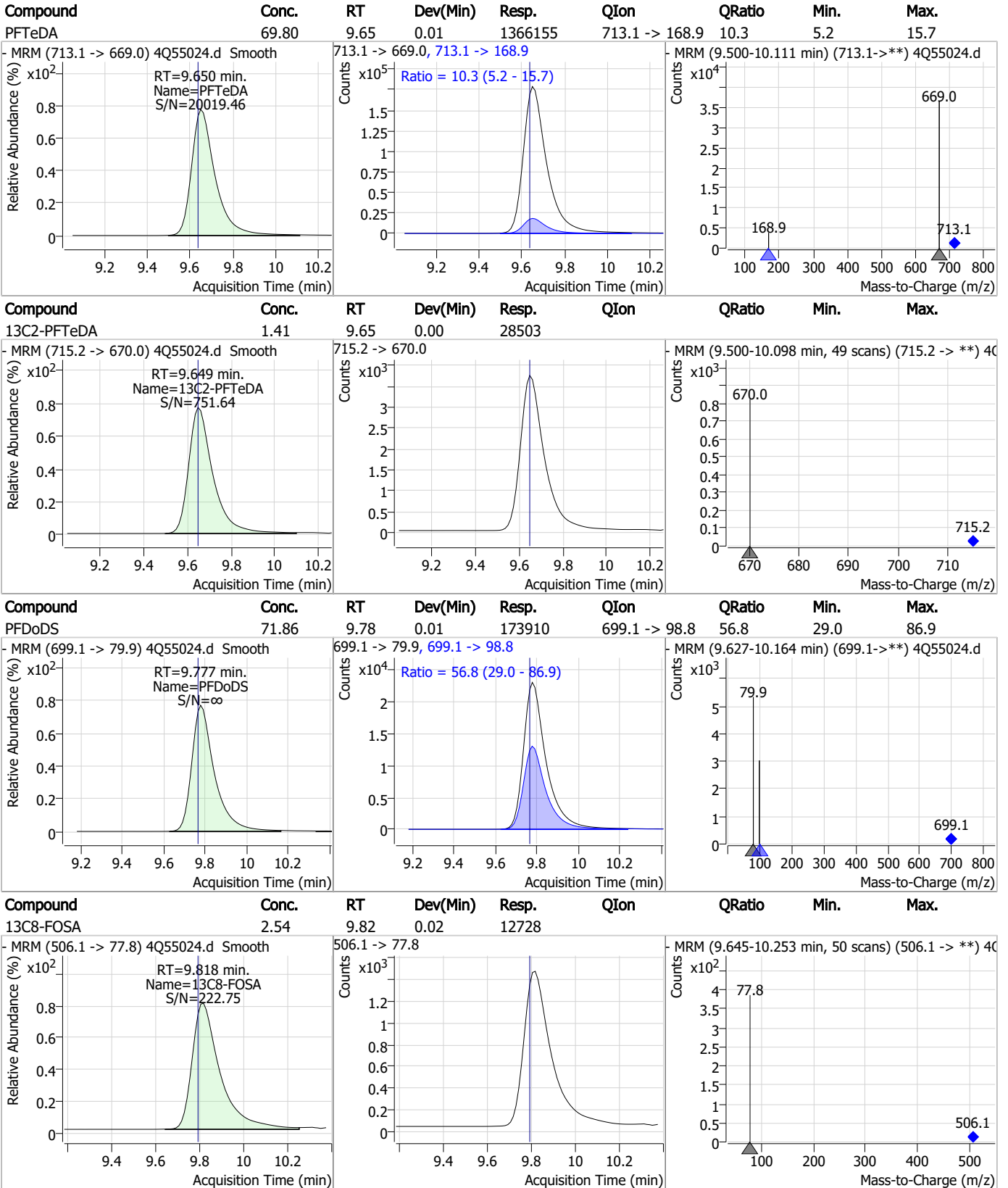


Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS

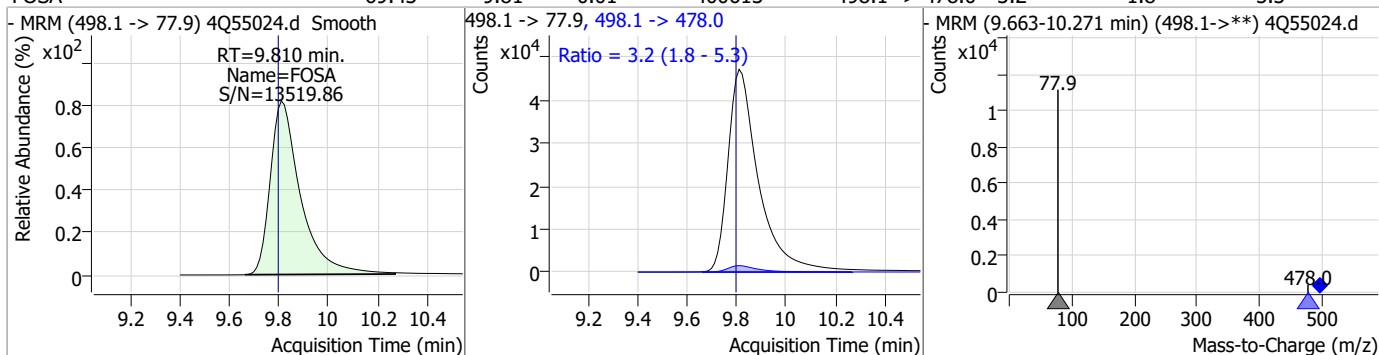


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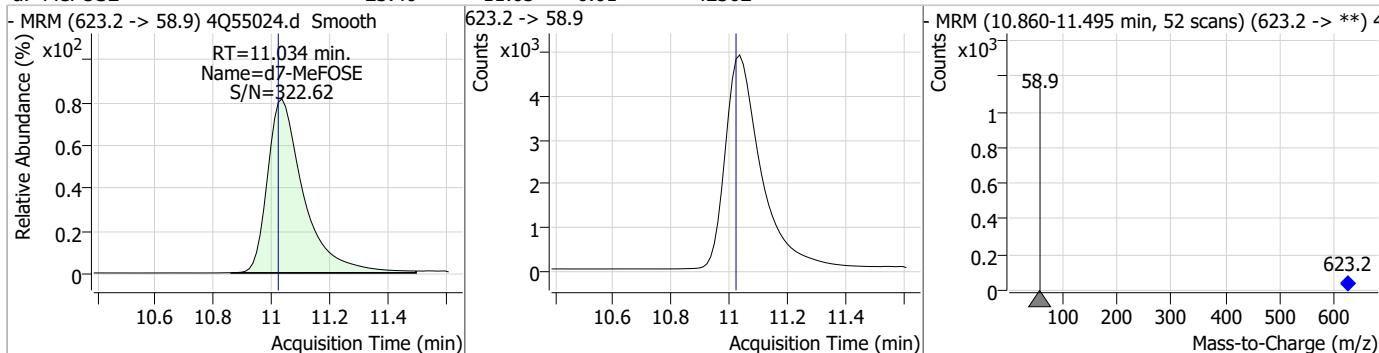
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Perfluorinated Compounds by LC/MS/MS

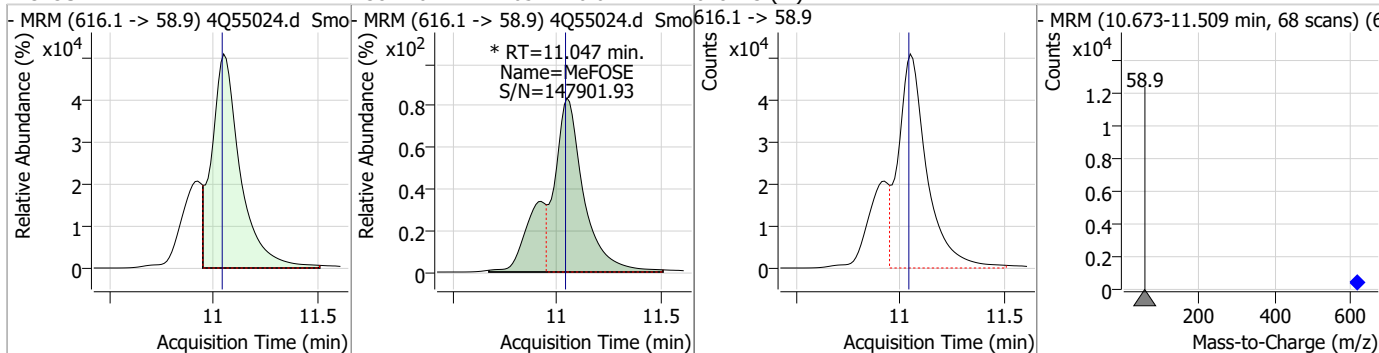
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	69.43	9.81	0.01	400613	498.1 -> 478.0	3.2	1.8	5.3



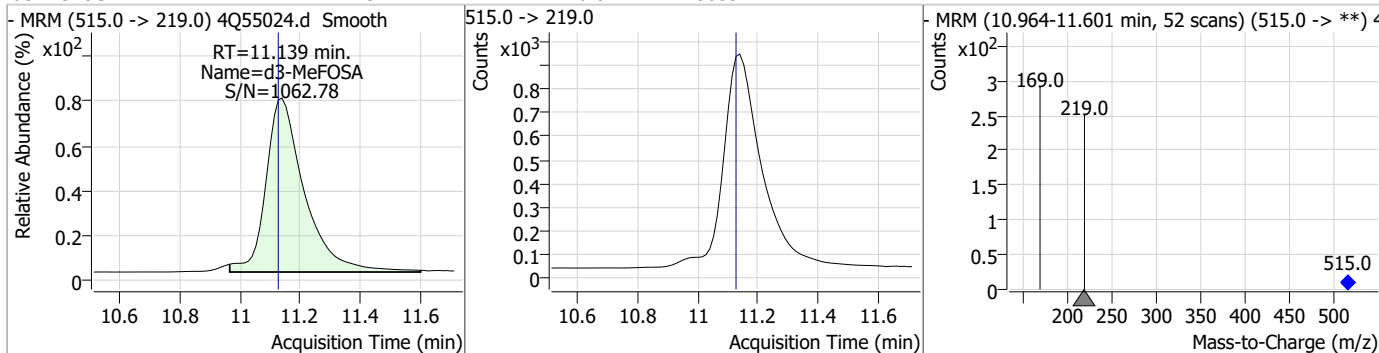
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.40	11.03	0.01	42302				



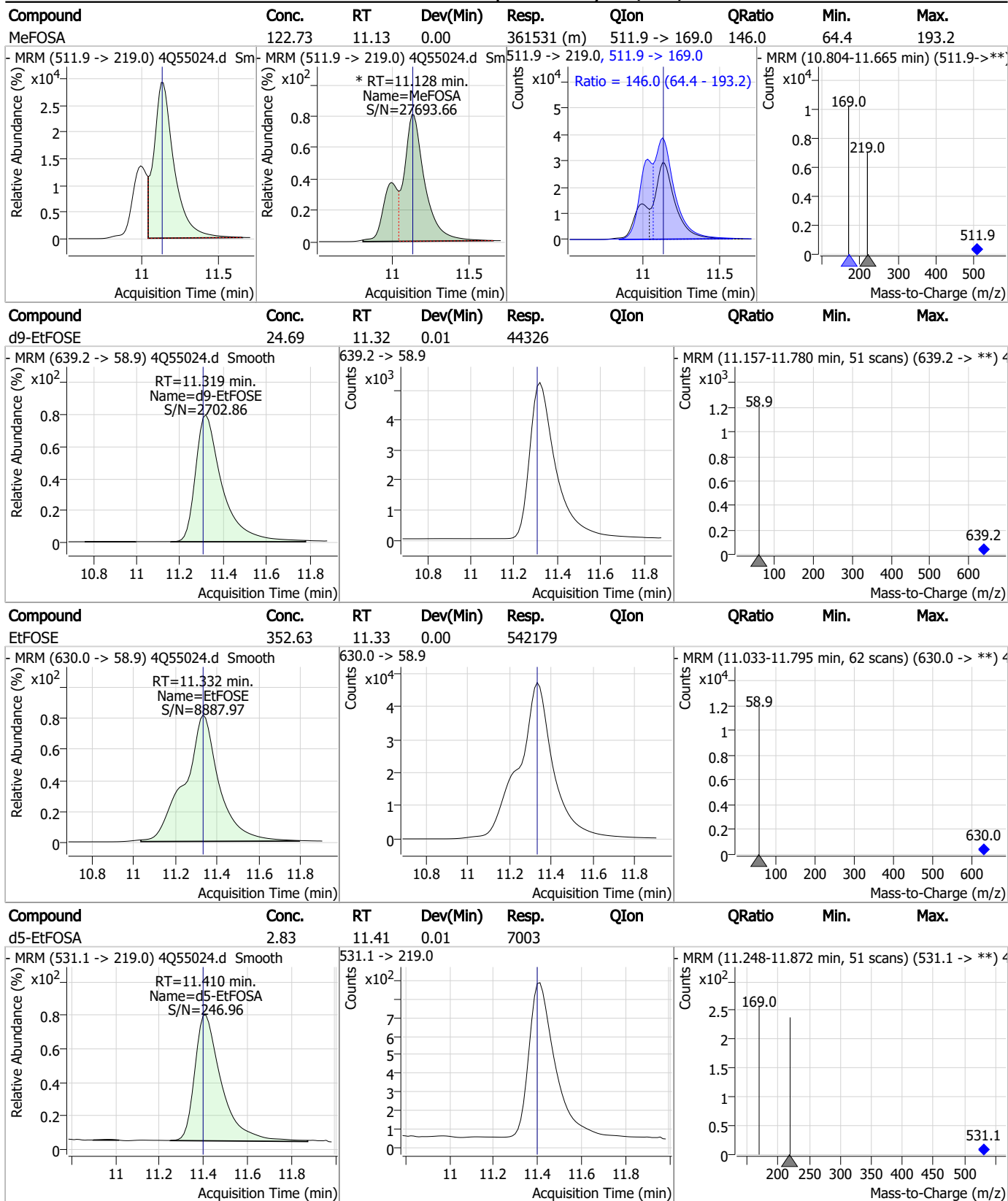
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	381.26	11.05	0.01	628243 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	3.12	11.14	0.01	8059				

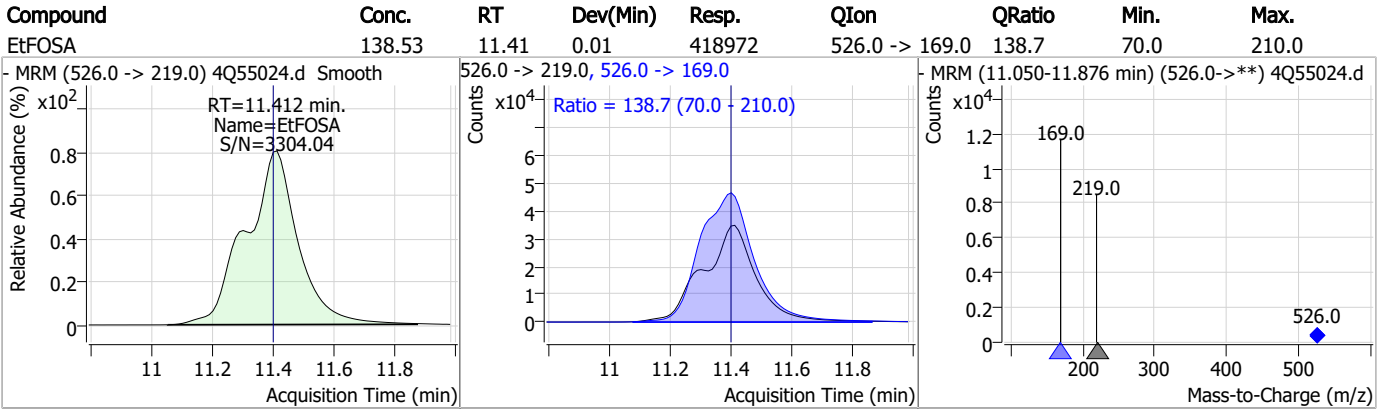


Perfluorinated Compounds by LC/MS/MS



7.7.9
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Perfluorinated Compounds by LC/MS/MS



7.7.9

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Manual Integration Approval Summary

Sample Number: S4Q806-IC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55024.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 16:43 Supervisor approved: 12/12/23 11:51 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSE	24448-09-7		11.05	Split peak
MeFOSA	31506-32-8		11.13	Split peak

7.7.9.1
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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55026.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 5:13:07 PM
 Sample Name : icv806-4
 Vial : P1-B3
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.699	216.8 -> 171.9	167763	10.00 µg/L	0.000
M5-PFPeA	4.175	268.3 -> 223.0	76410	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	65521	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	63704	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	99709	2.50 µg/L	0.000
M9-PFNA	7.509	472.1 -> 427.0	38335	1.25 µg/L	-0.012
M6-PFDA	7.992	519.1 -> 474.1	24902	1.25 µg/L	-0.012
M7-PFUnDA	8.448	570.0 -> 525.1	28375	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	32429	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	30922	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	15730	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	18206	2.50 µg/L	0.000
M3-PFHxS	7.029	402.1 -> 79.9	14635	2.50 µg/L	-0.012
M8-PFOS	8.117	507.1 -> 79.9	15008	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	2009	5.00 µg/L	0.000
M2-6:2FTS	6.748	429.1 -> 80.9	4045	5.00 µg/L	-0.012
M2-8:2FTS	7.804	529.1 -> 80.9	5035	5.00 µg/L	0.000
M3-MeFOSAA	8.074	573.2 -> 419.0	29614	5.00 µg/L	-0.012
M3-HFPO-DA	5.702	286.9 -> 168.9	60479	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	24721	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	55429	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	53717	25.00 µg/L	0.000
M5-EtFOSA	11.397	531.1 -> 219.0	7602	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7886	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11870	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	77875	5.00 µg/L	0.000
18O2-PFHxS	7.028	403.0 -> 83.9	8899	2.50 µg/L	-0.012
13C4-PFOA	6.977	417.1 -> 372.0	109667	2.50 µg/L	0.000
13C2-PFDA	7.992	515.1 -> 470.1	27273	1.25 µg/L	-0.012
13C5-PFNA	7.509	468.0 -> 423.0	37595	1.25 µg/L	-0.012
13C2-PFHxA	5.348	315.1 -> 270.0	70913	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	2009	5.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C2-6:2FTS	6.748	429.1 -> 80.9	4045	5.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-8:2FTS	7.804	529.1 -> 80.9	5035	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-PFDoDA	8.867	615.1 -> 570.0	32429	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-PFTeDA	9.637	715.2 -> 670.0	30922	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFBS	5.202	302.1 -> 79.9	18206	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C3-PFHxS	7.029	402.1 -> 79.9	14635	2.67 µg/L	-0.012

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 = 106.7%	
13C4-PFBA	2.699	216.8 -> 171.9	167763	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.292	367.1 -> 322.0	63704	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFHxA	5.347	318.0 -> 273.0	65521	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFPeA	4.175	268.3 -> 223.0	76410	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C6-PFDA	7.992	519.1 -> 474.1	24902	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C7-PFUnDA	8.448	570.0 -> 525.1	28375	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C8-FOSA	9.794	506.1 -> 77.8	15730	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C8-PFOA	6.976	421.1 -> 376.0	99709	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOS	8.117	507.1 -> 79.9	15008	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C9-PFNA	7.509	472.1 -> 427.0	38335	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
d3-MeFOSAA	8.074	573.2 -> 419.0	29614	4.71 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	60479	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSA	11.126	515.0 -> 219.0	7886	2.29 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.6%	
d5-EtFOSAA	8.283	589.2 -> 419.0	24721	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d7-MeFOSE	11.022	623.2 -> 58.9	55429	22.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.9%	
d9-EtFOSE	11.306	639.2 -> 58.9	53717	22.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
d5-EtFOSA	11.397	531.1 -> 219.0	7602	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.9%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	28962	7.95 µg/L	98
		327.1 -> 80.9	11989		
6:2FTS	6.749	427.1 -> 407.0	38754	9.00 µg/L	97
		427.1 -> 80.9	13852		
8:2FTS	7.804	527.1 -> 507.0	25647	9.41 µg/L	99
		527.1 -> 80.8	10275		
EtFOSAA	8.284	584.2 -> 419.1	10093	2.31 µg/L	m 99
		584.2 -> 526.0	4081		
FOSA	9.785	498.1 -> 77.9	16969	2.38 µg/L	98
		498.1 -> 478.0	464		
MeFOSAA	8.087	570.1 -> 419.0	10863	2.37 µg/L	92
		570.1 -> 483.0	2220		
PFBA	2.707	212.8 -> 168.9	50209	9.41 µg/L	100
PFBS	5.203	298.7 -> 79.9	11408	2.09 µg/L	100
		298.7 -> 98.8	4417		
PFDA	7.992	512.9 -> 469.0	42875	2.36 µg/L	96
		512.9 -> 219.0	8867		
PFDoDA	8.868	613.1 -> 569.0	58608	2.44 µg/L	98
		613.1 -> 319.0	10092		
PFDS	9.008	599.0 -> 79.9	8709	2.16 µg/L	92

7.7.10
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4417			
PFHpA	6.293	363.1 -> 319.0	85459	2.38	µg/L	99
		363.1 -> 169.0	15012			
PFHpS	7.612	449.0 -> 79.9	14475	2.28	µg/L	96
		449.0 -> 98.9	7031			
PFHxA	5.350	313.0 -> 269.0	49986	2.38	µg/L	100
		313.0 -> 118.9	1540			
PFHxS	7.030	398.7 -> 79.9	10134	2.23	µg/L	m 86
		398.7 -> 98.9	4999			
PFNA	7.510	463.0 -> 419.0	53621	2.28	µg/L	99
		463.0 -> 219.0	12680			
PFNS	8.574	548.8 -> 79.9	6557	2.50	µg/L	93
		548.8 -> 98.9	3489			
PFOA	6.978	413.0 -> 369.0	97283	2.32	µg/L	99
		413.0 -> 169.0	19611			
PFOS	8.119	498.9 -> 79.9	13607	2.21	µg/L	m 86
		498.9 -> 98.8	6444			
PFPeA	4.177	263.0 -> 219.0	71363	4.82	µg/L	100
PFPeS	6.282	349.1 -> 79.9	10218	2.06	µg/L	97
		349.1 -> 98.9	4584			
PFTeDA	9.637	713.1 -> 669.0	51892	2.44	µg/L	100
		713.1 -> 168.9	5443			
PFTrDA	9.267	663.0 -> 619.0	60933	2.38	µg/L	99
		663.0 -> 168.9	8835			
PFUnDA	8.449	563.1 -> 519.0	53478	2.50	µg/L	97
		563.1 -> 269.1	11081			
11Cl-PF3OUdS	9.294	630.9 -> 450.9	73760	4.57	µg/L	97
		632.9 -> 452.9	23374			
9Cl-PF3ONS	8.451	530.8 -> 351.0	75124	4.82	µg/L	97
		532.8 -> 353.0	22338			
ADONA	6.556	376.9 -> 250.9	219458	5.06	µg/L	99
		376.9 -> 84.8	52042			
HFPO-DA	5.703	284.9 -> 168.9	27587	4.80	µg/L	99
		284.9 -> 184.9	2728			
3:3FTCA	3.630	241.0 -> 177.0	7692	11.40	µg/L	99
		241.0 -> 117.0	715			
5:3FTCA	6.020	341.0 -> 237.1	157902	59.22	µg/L	98
		341.0 -> 217.0	110923			
7:3FTCA	7.536	441.0 -> 316.9	75922	60.47	µg/L	96
		441.0 -> 336.9	180428			
EtFOSA	11.399	526.0 -> 219.0	14979	4.56	µg/L	m 100
		526.0 -> 169.0	21008			
EtFOSE	11.332	630.0 -> 58.9	22146	11.89	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	13203	4.58	µg/L	90
		511.9 -> 169.0	18592			
MeFOSE	11.035	616.1 -> 58.9	25615	11.86	µg/L	100
PFDoDS	9.764	699.1 -> 79.9	6663	2.23	µg/L	100
		699.1 -> 98.8	3858			
NFDHA	5.229	295.0 -> 201.0	7089	4.98	µg/L	100
		295.0 -> 84.9	1867			
PFMBA	4.578	279.0 -> 85.1	40220	4.71	µg/L	100
PFMPA	3.332	229.0 -> 84.9	40928	4.74	µg/L	100
PFEESA	5.722	314.8 -> 134.9	66264	4.29	µg/L	99
		314.8 -> 82.9	2068			

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

7.7.10
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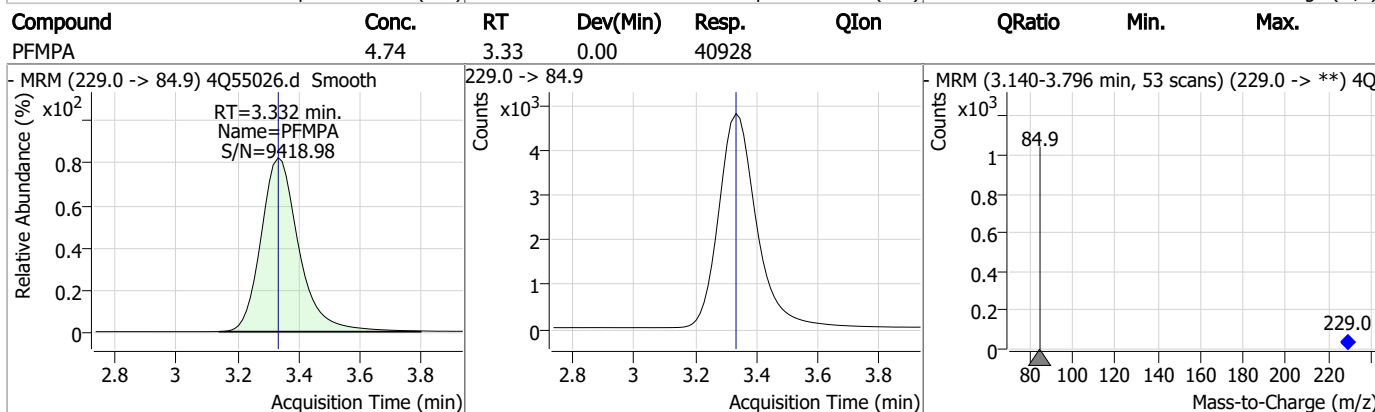
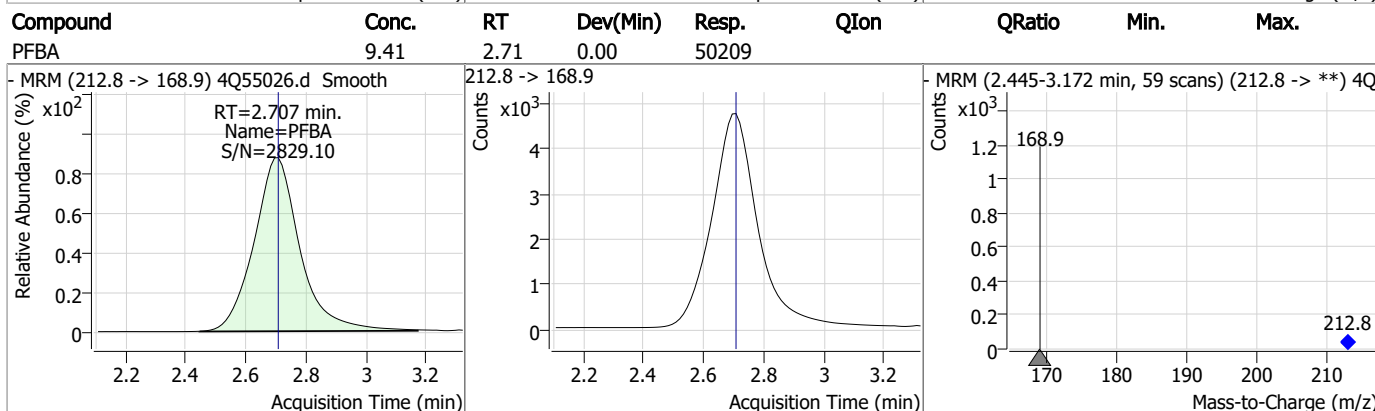
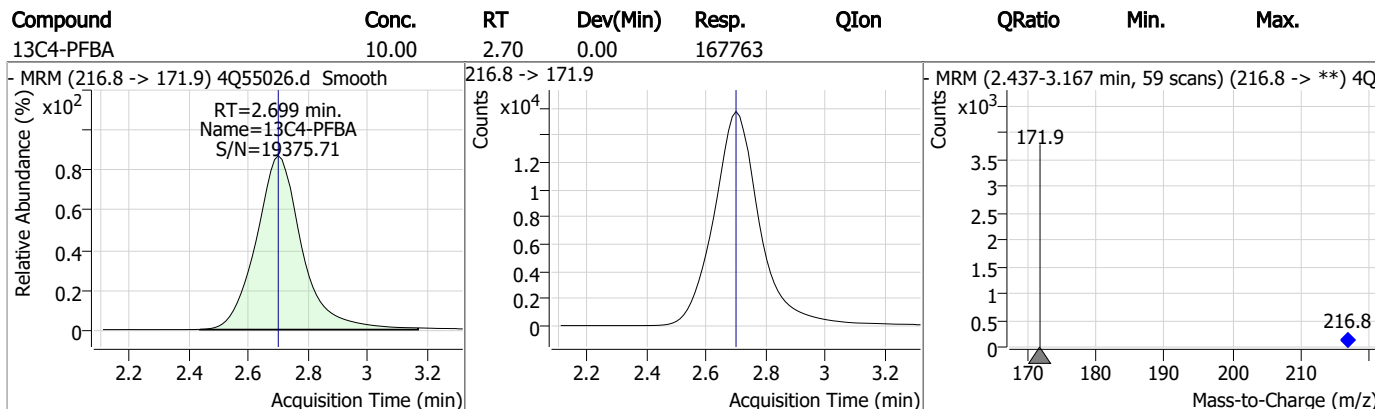
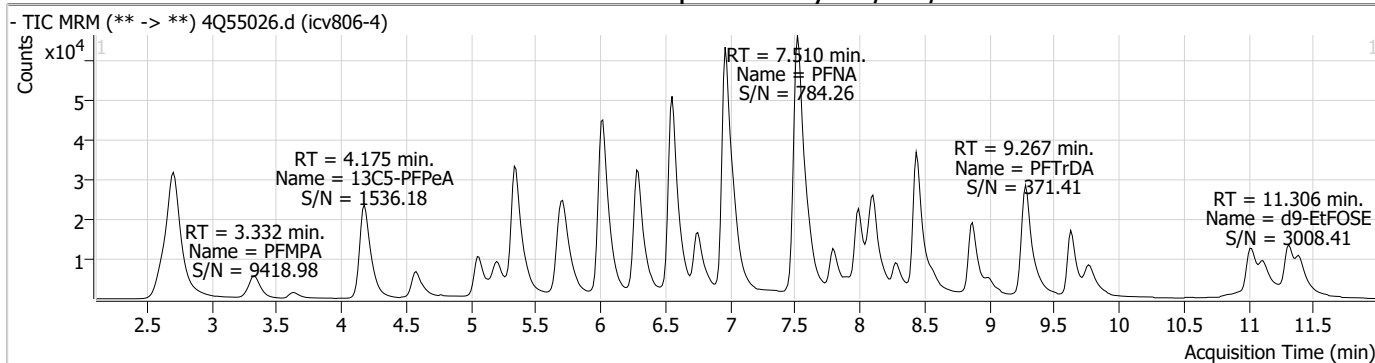
Perfluorinated Compounds by LC/MS/MS

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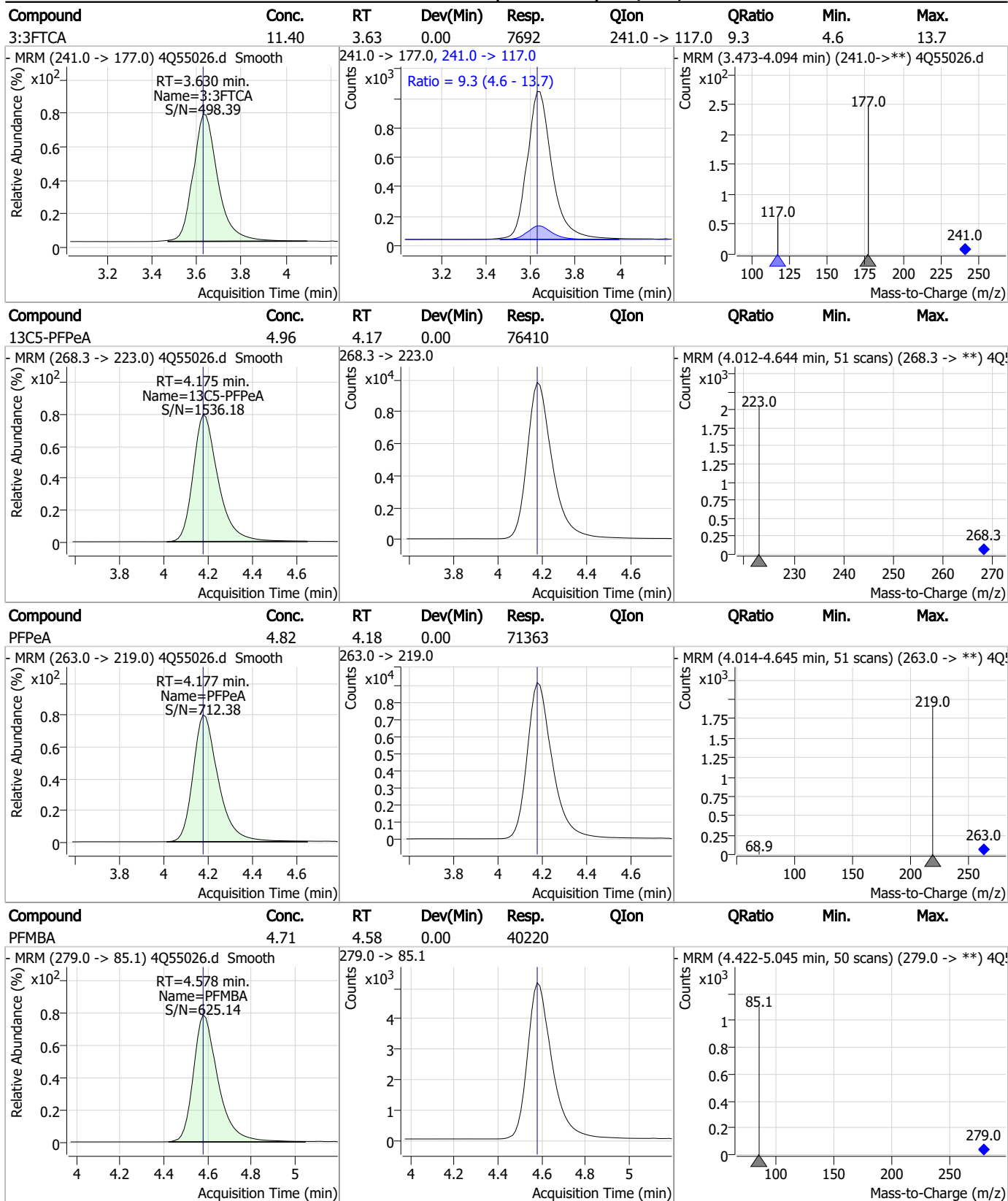
7.7.10

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Perfluorinated Compounds by LC/MS/MS

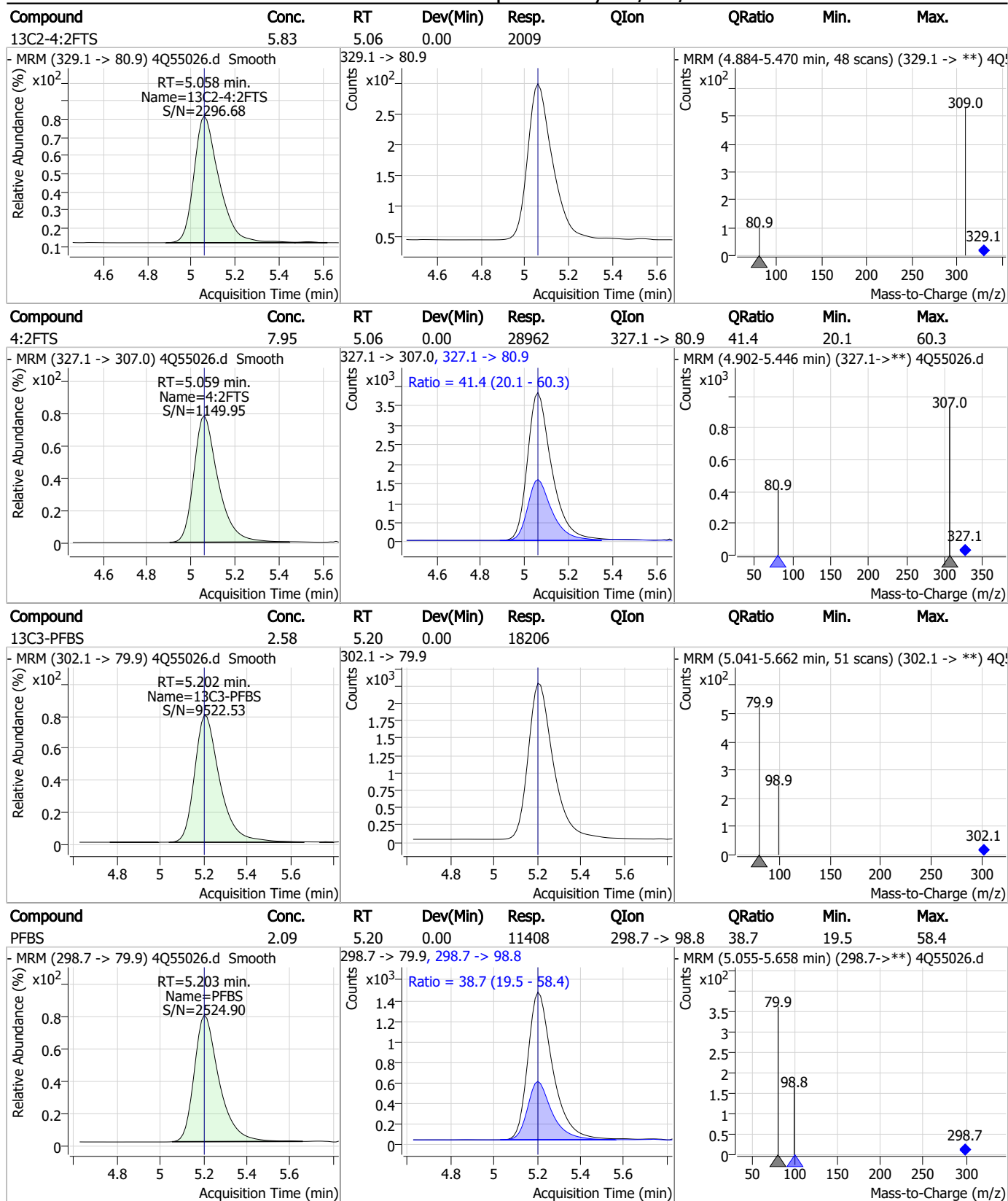


Perfluorinated Compounds by LC/MS/MS



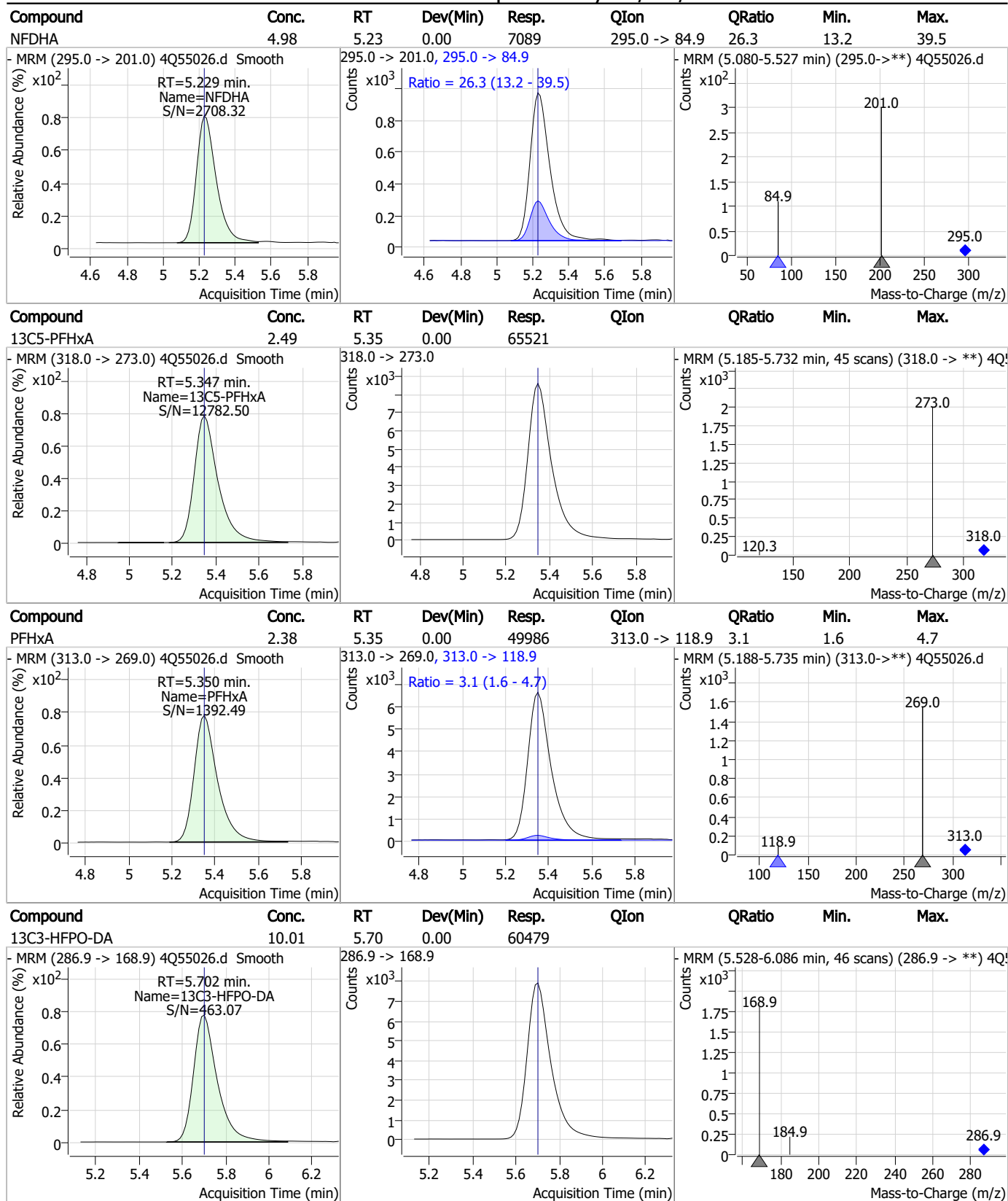
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Perfluorinated Compounds by LC/MS/MS



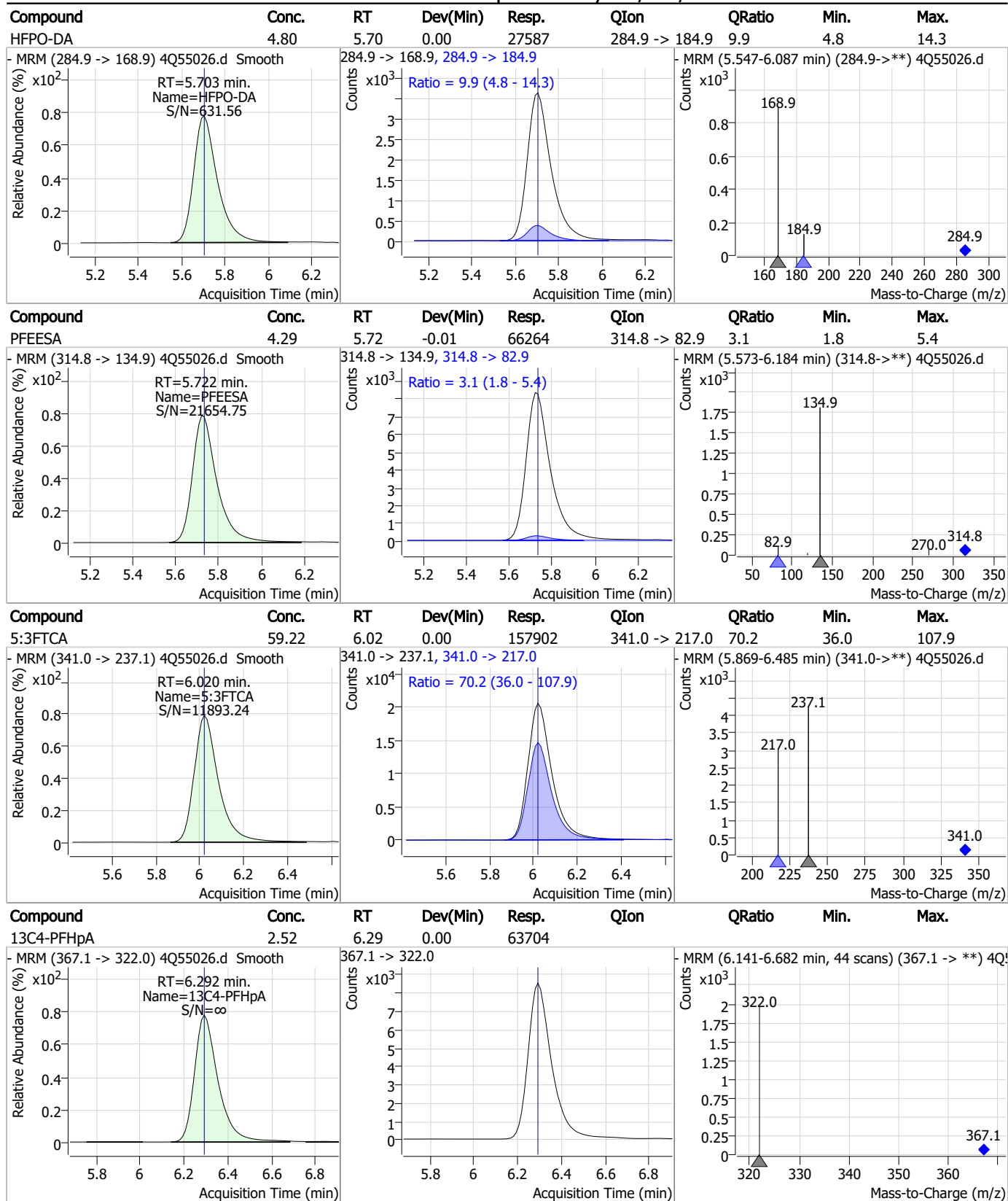
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Perfluorinated Compounds by LC/MS/MS



7.7.10
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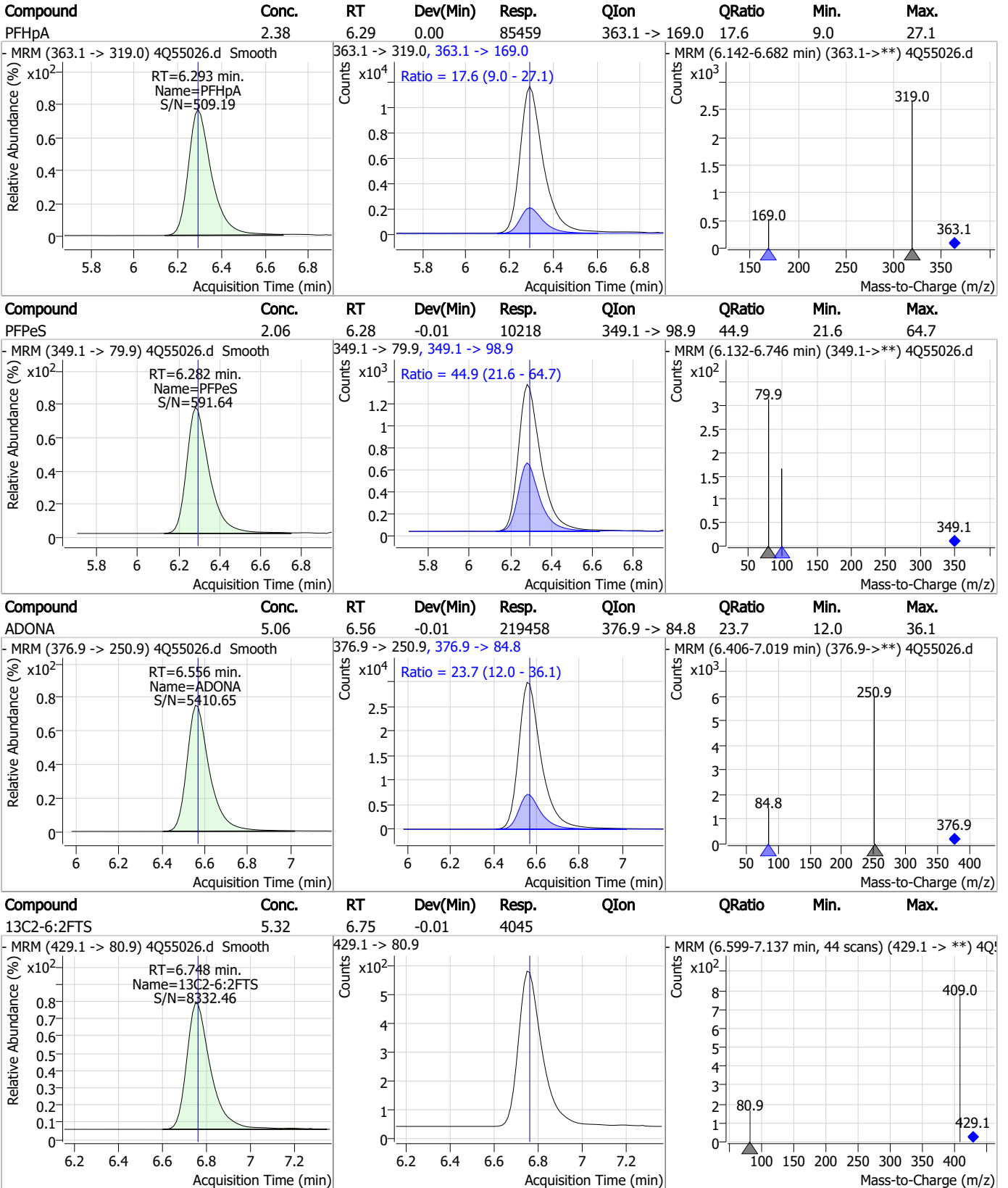
Perfluorinated Compounds by LC/MS/MS



7.7.10

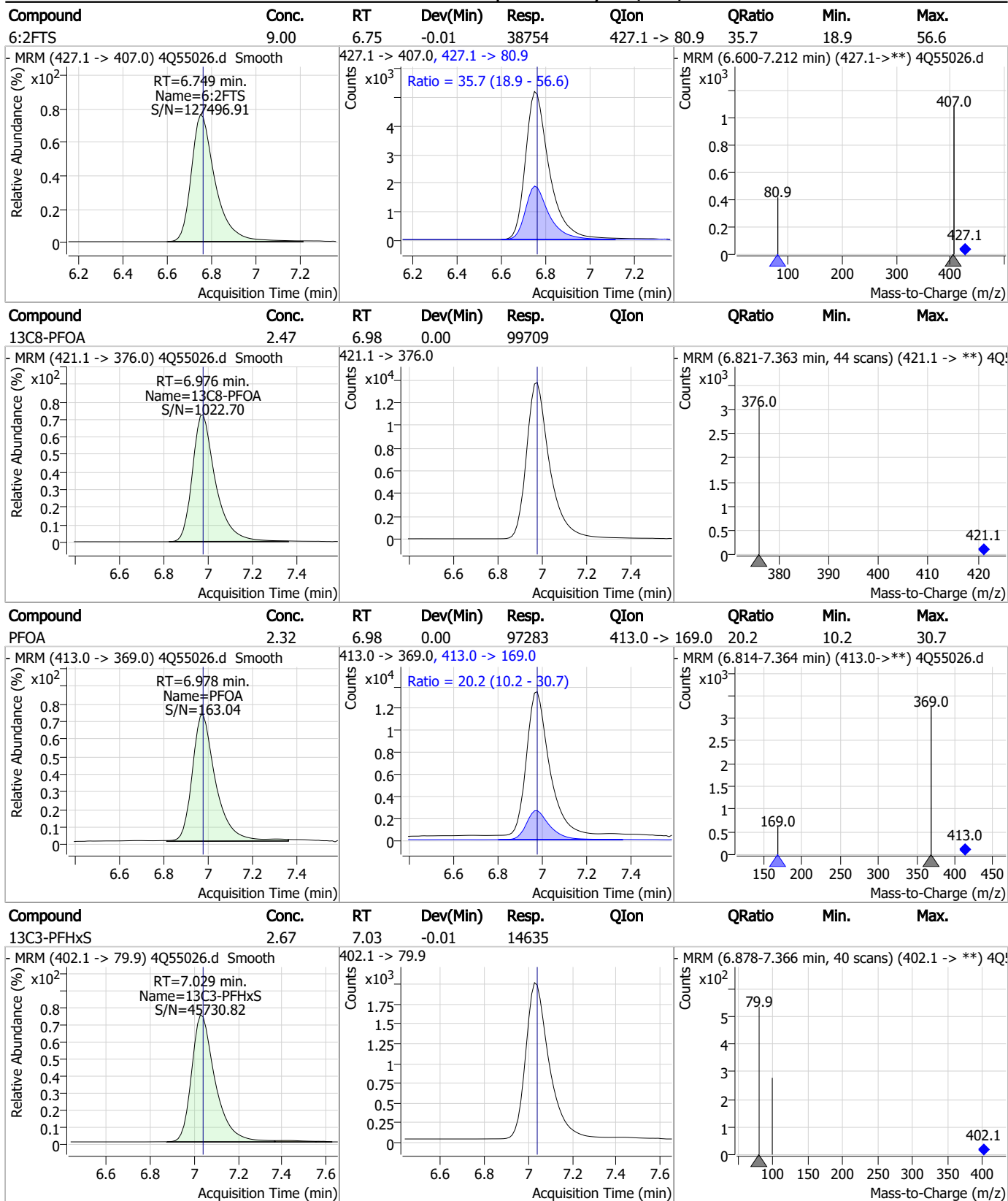
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Perfluorinated Compounds by LC/MS/MS



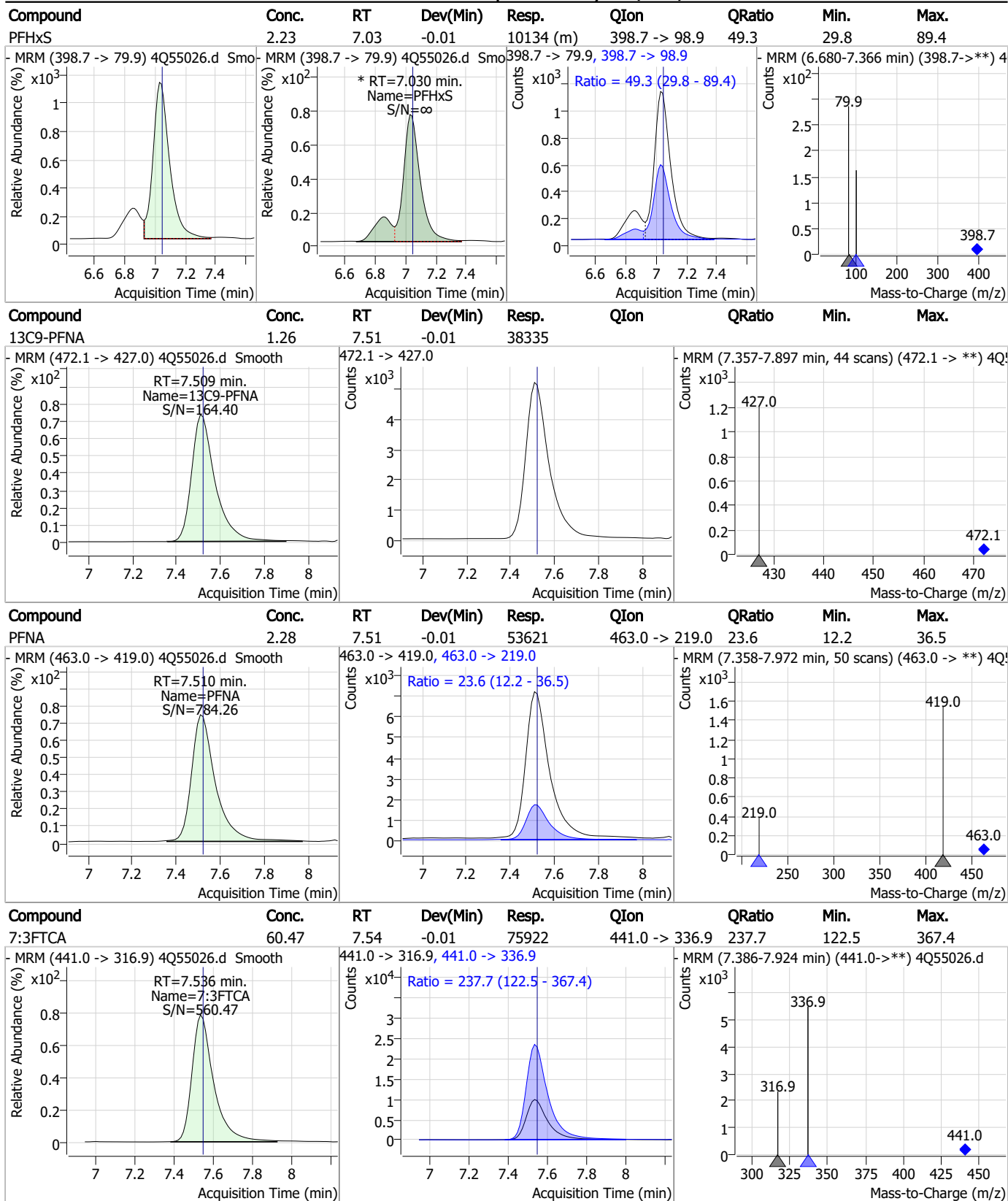
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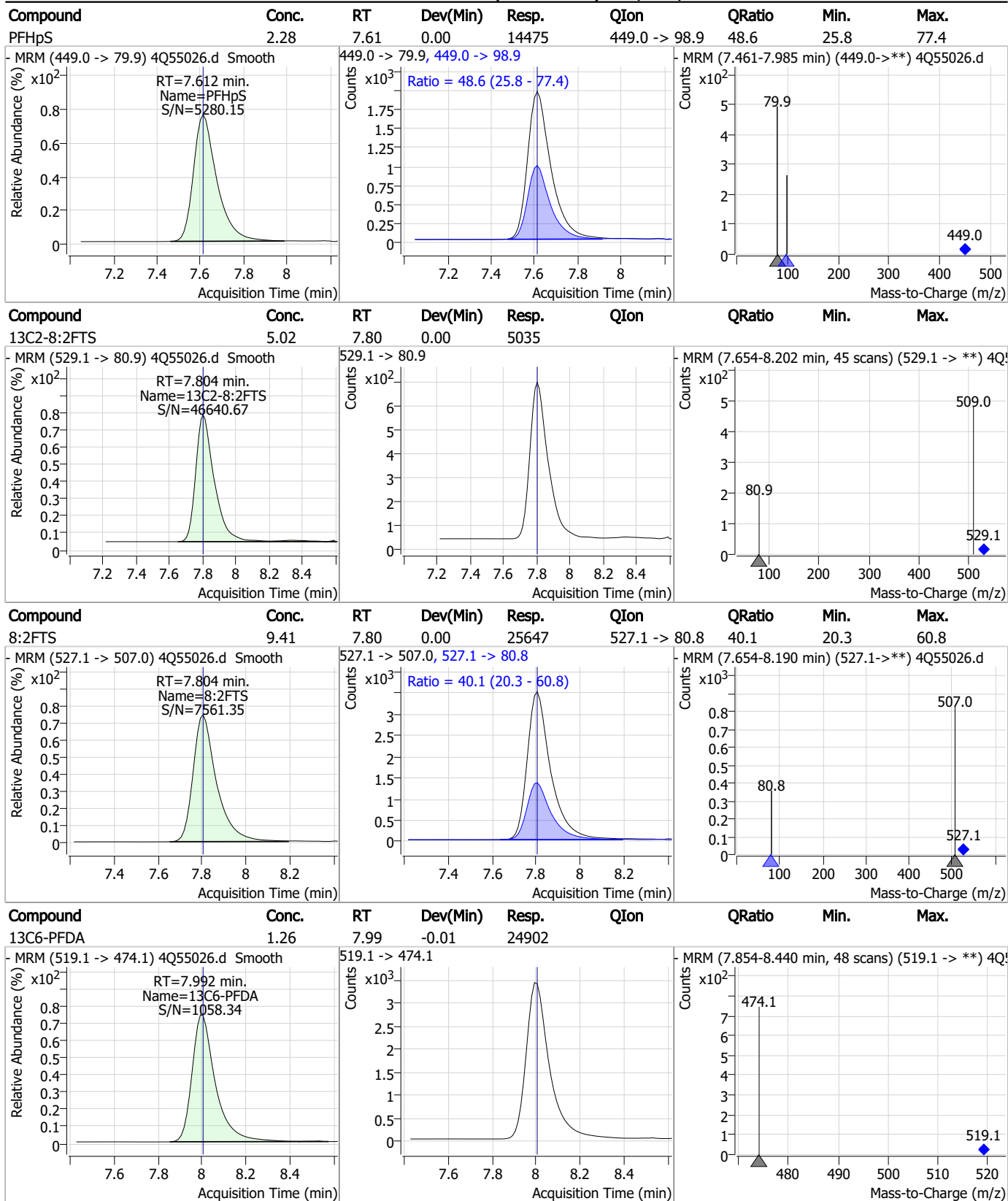
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Perfluorinated Compounds by LC/MS/MS



7.7.10
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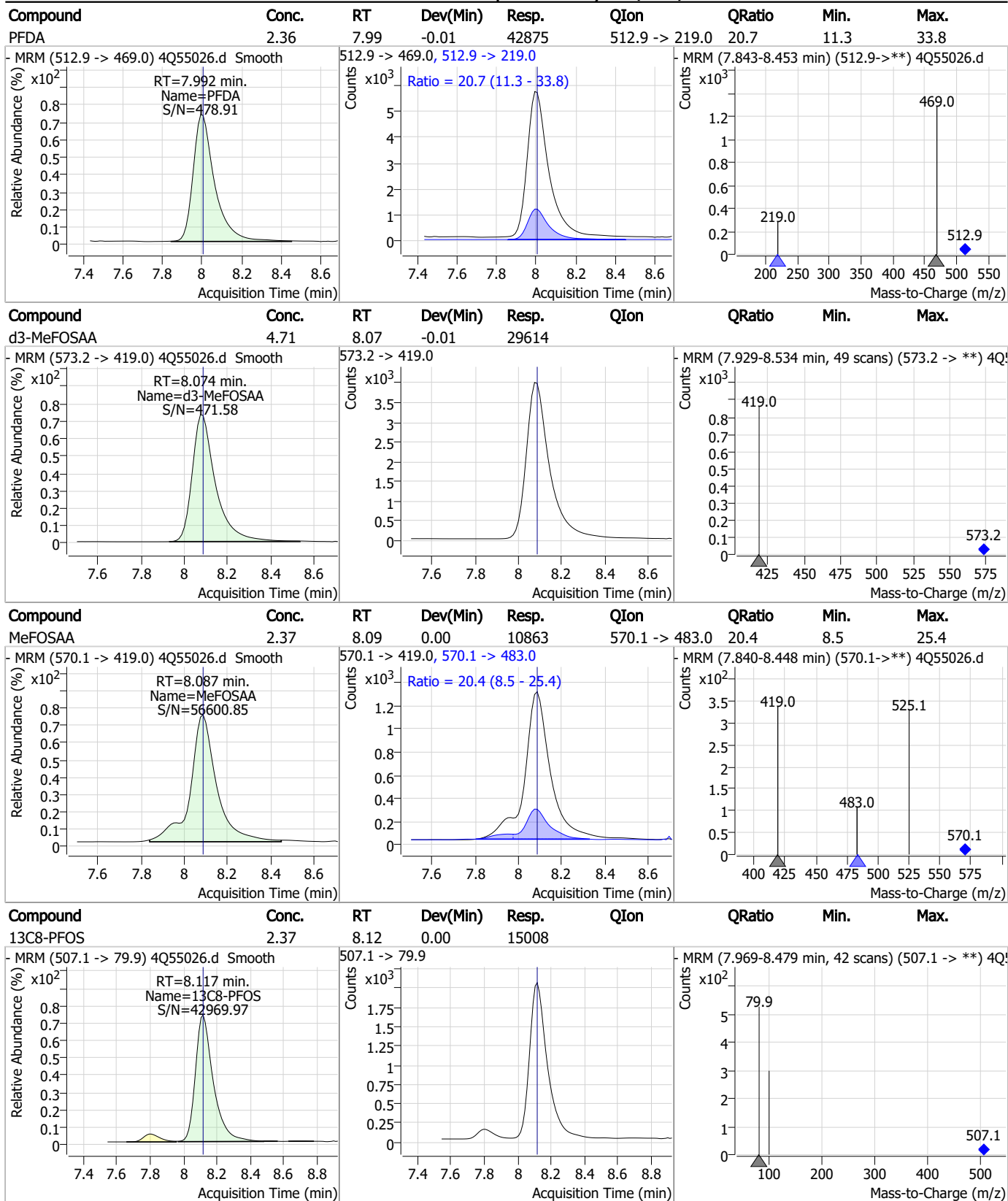
Perfluorinated Compounds by LC/MS/MS



7.7.10 7

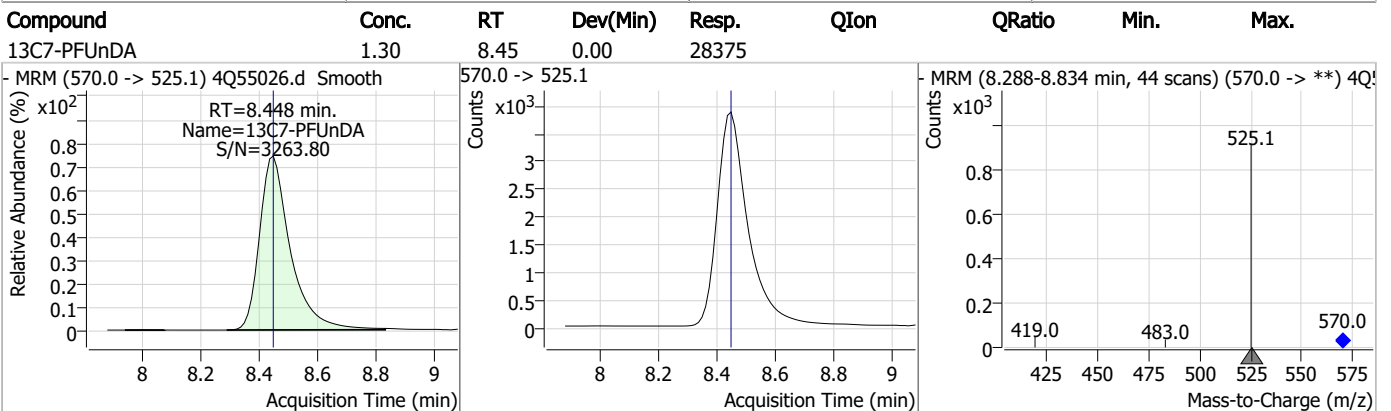
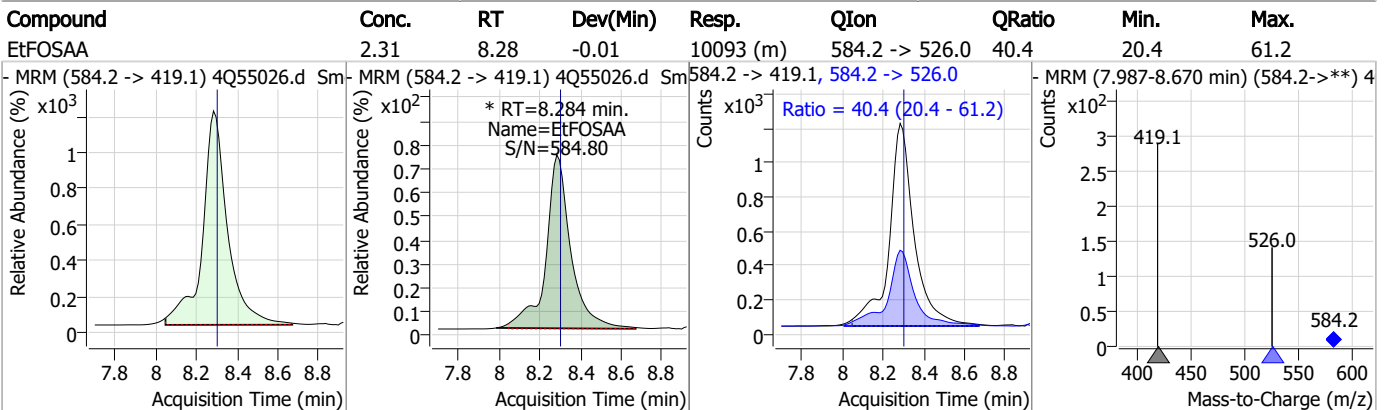
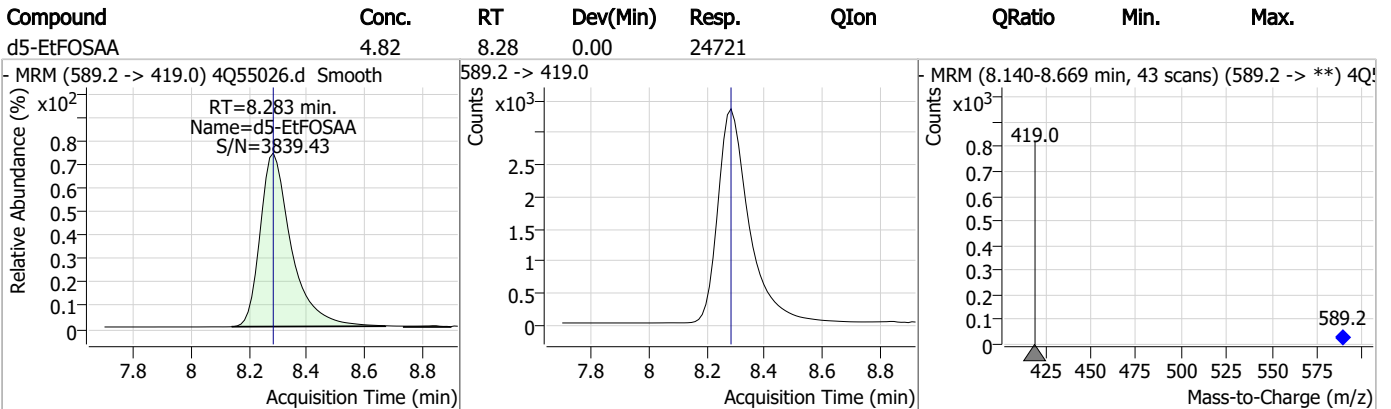
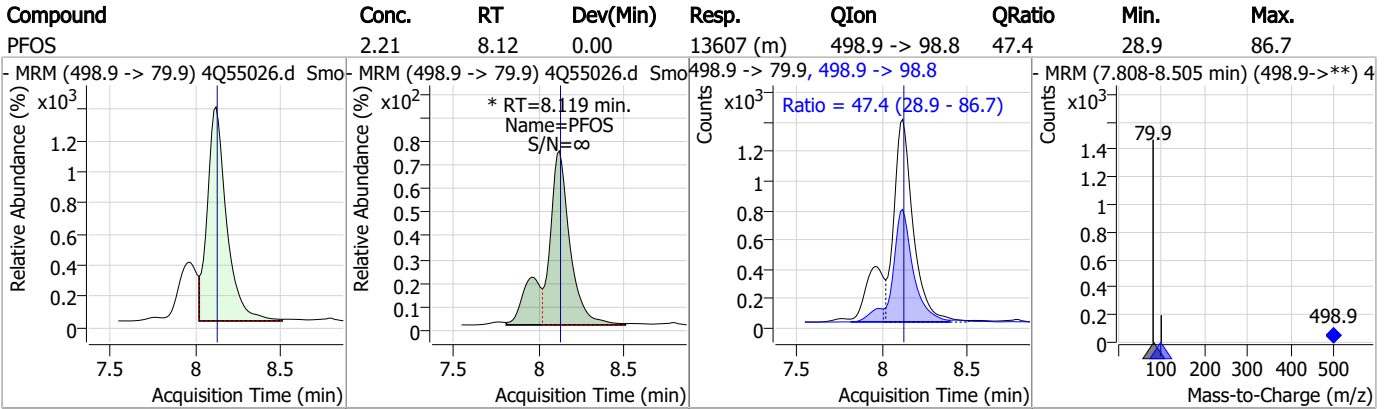


Perfluorinated Compounds by LC/MS/MS

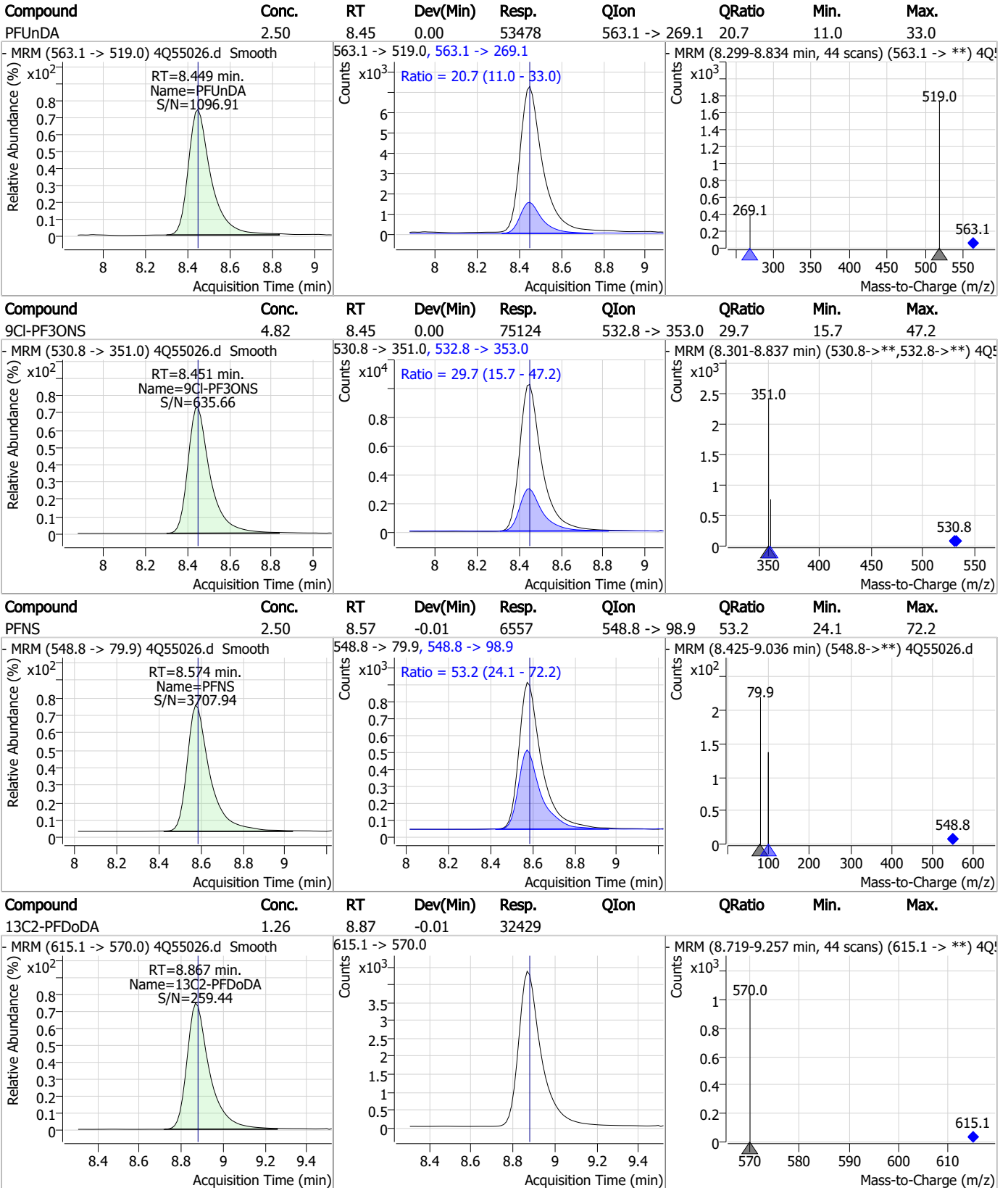


7.7.10
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Perfluorinated Compounds by LC/MS/MS

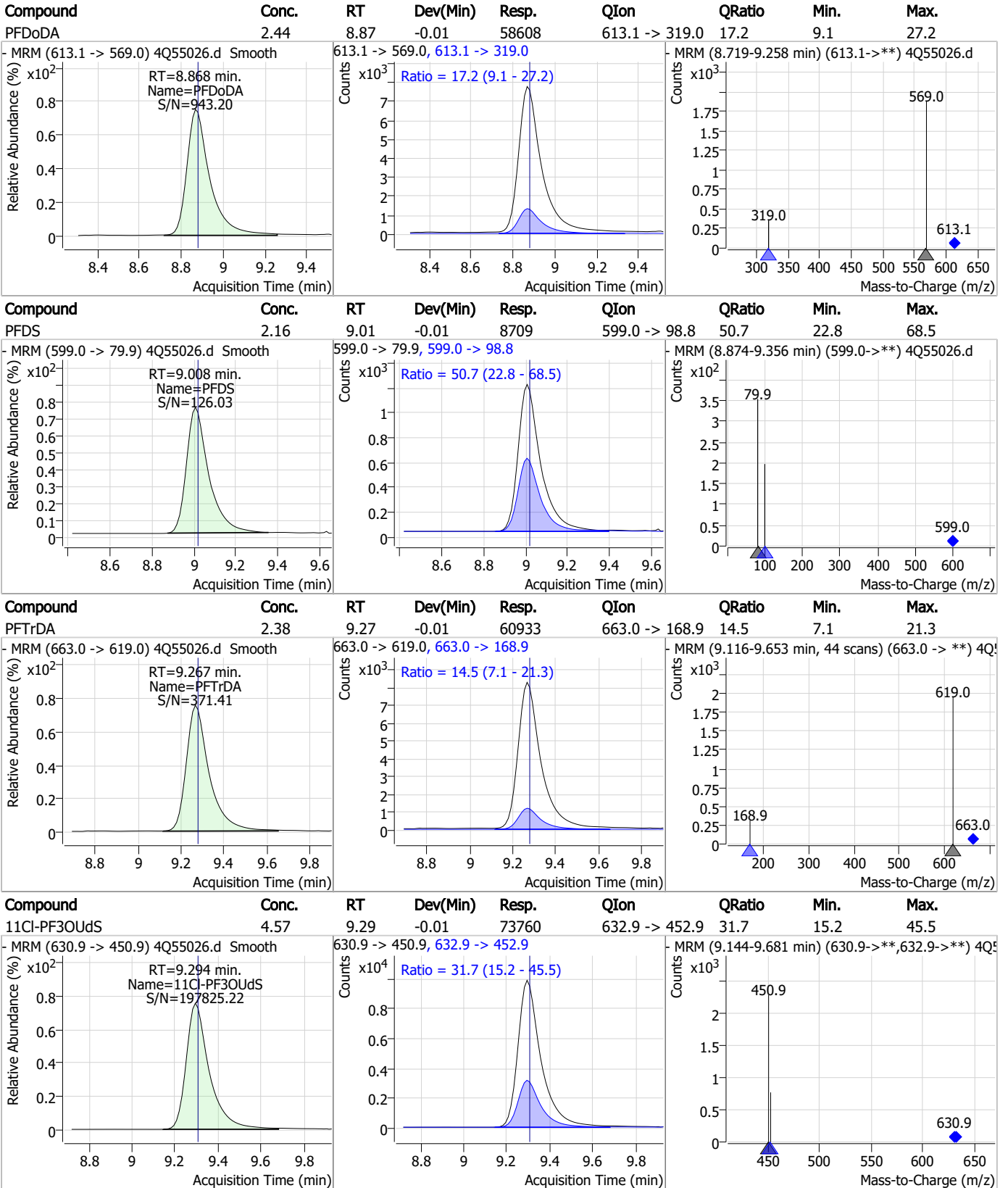


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

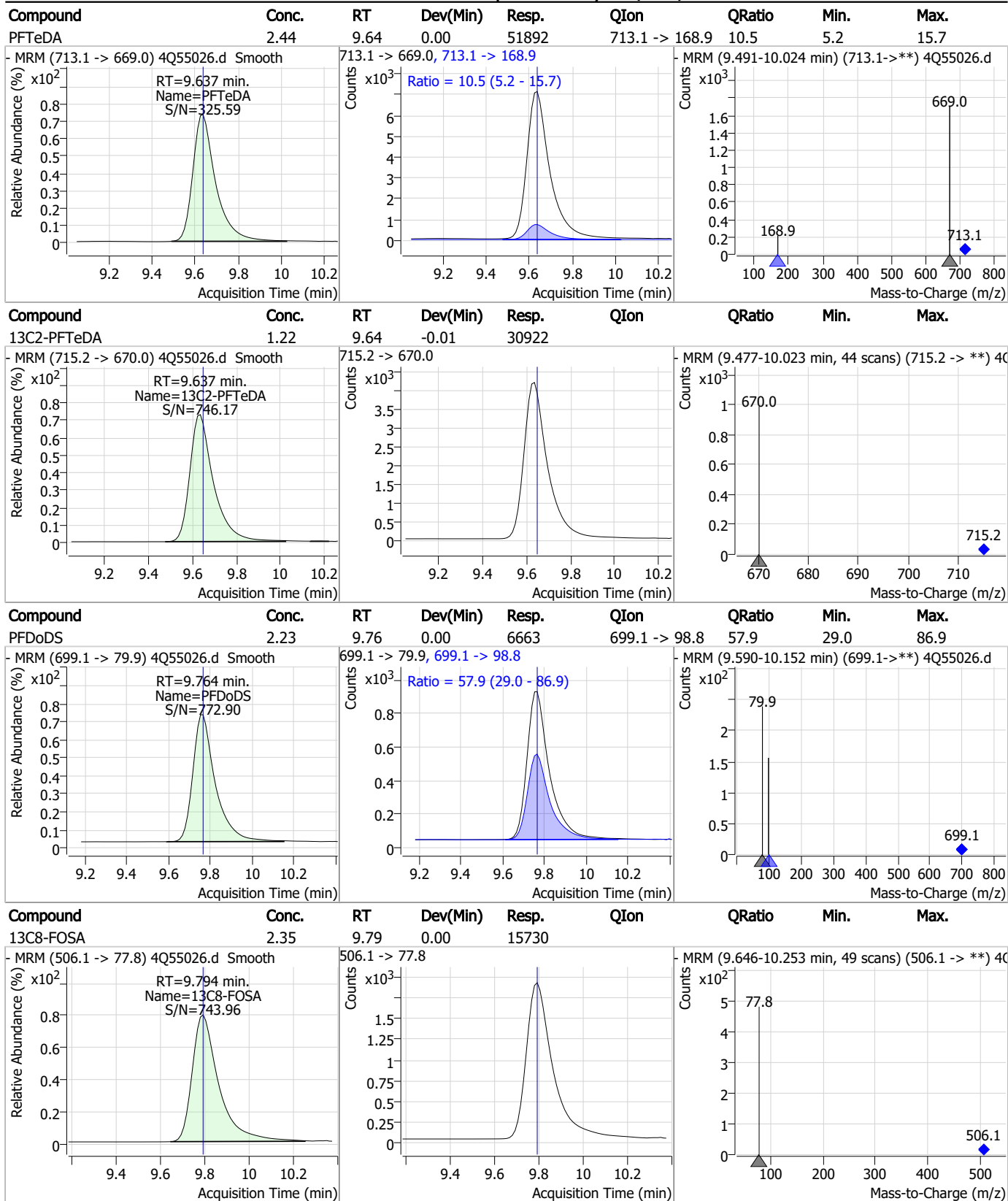
Perfluorinated Compounds by LC/MS/MS



7.7.10
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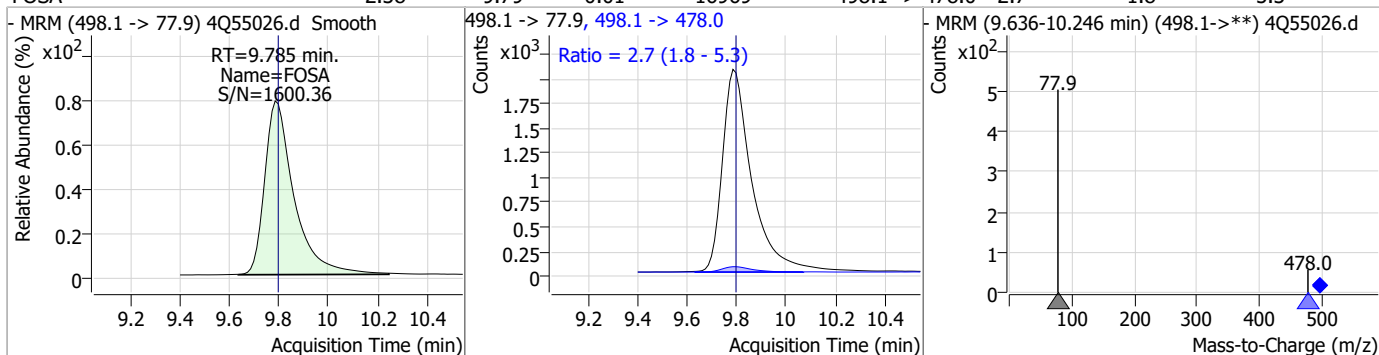
Perfluorinated Compounds by LC/MS/MS



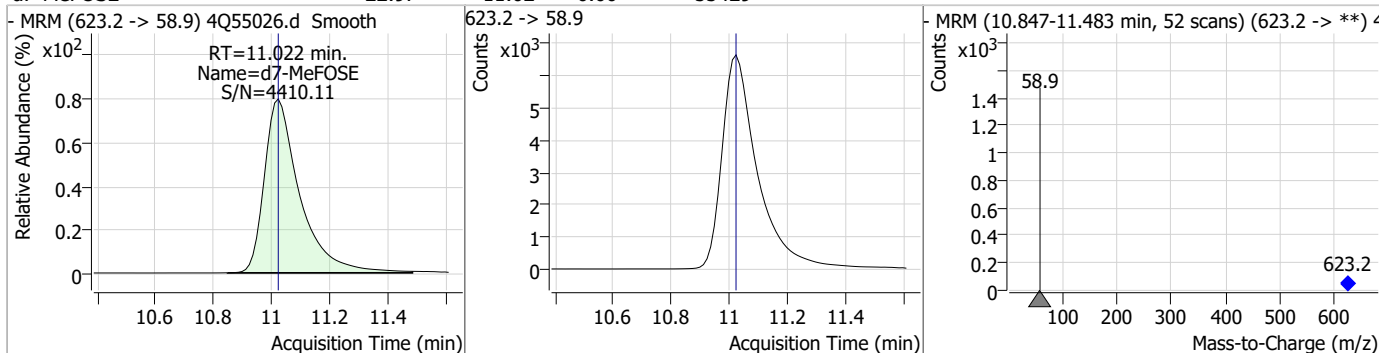
7.7.10
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Perfluorinated Compounds by LC/MS/MS

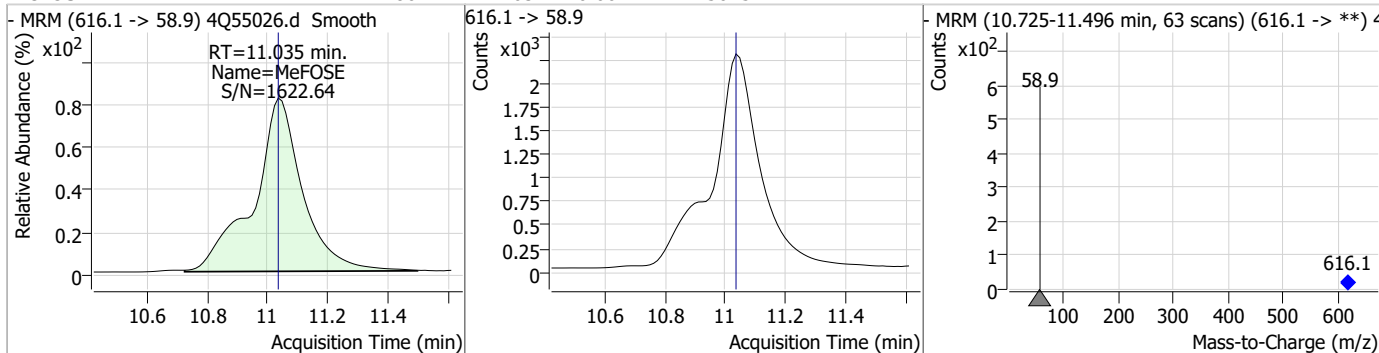
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.38	9.79	-0.01	16969	498.1 -> 478.0	2.7	1.8	5.3



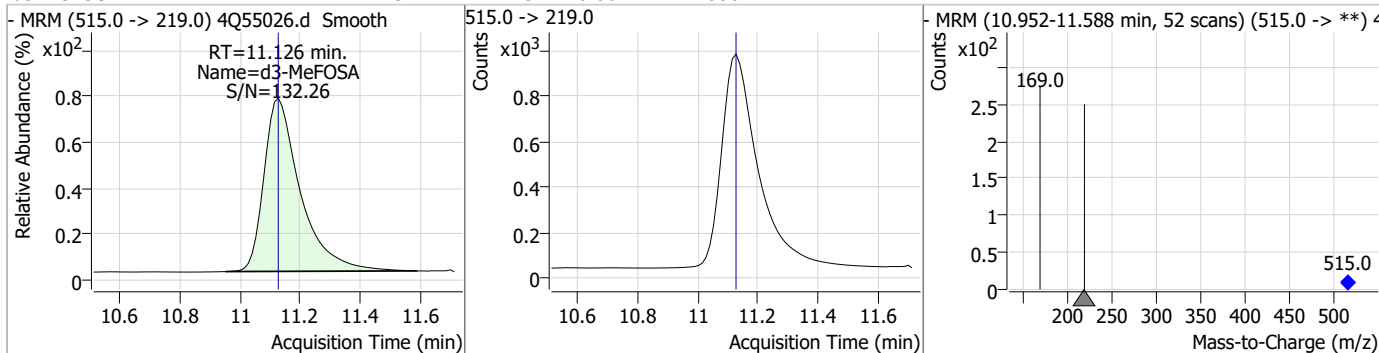
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.97	11.02	0.00	55429	623.2 -> 58.9			



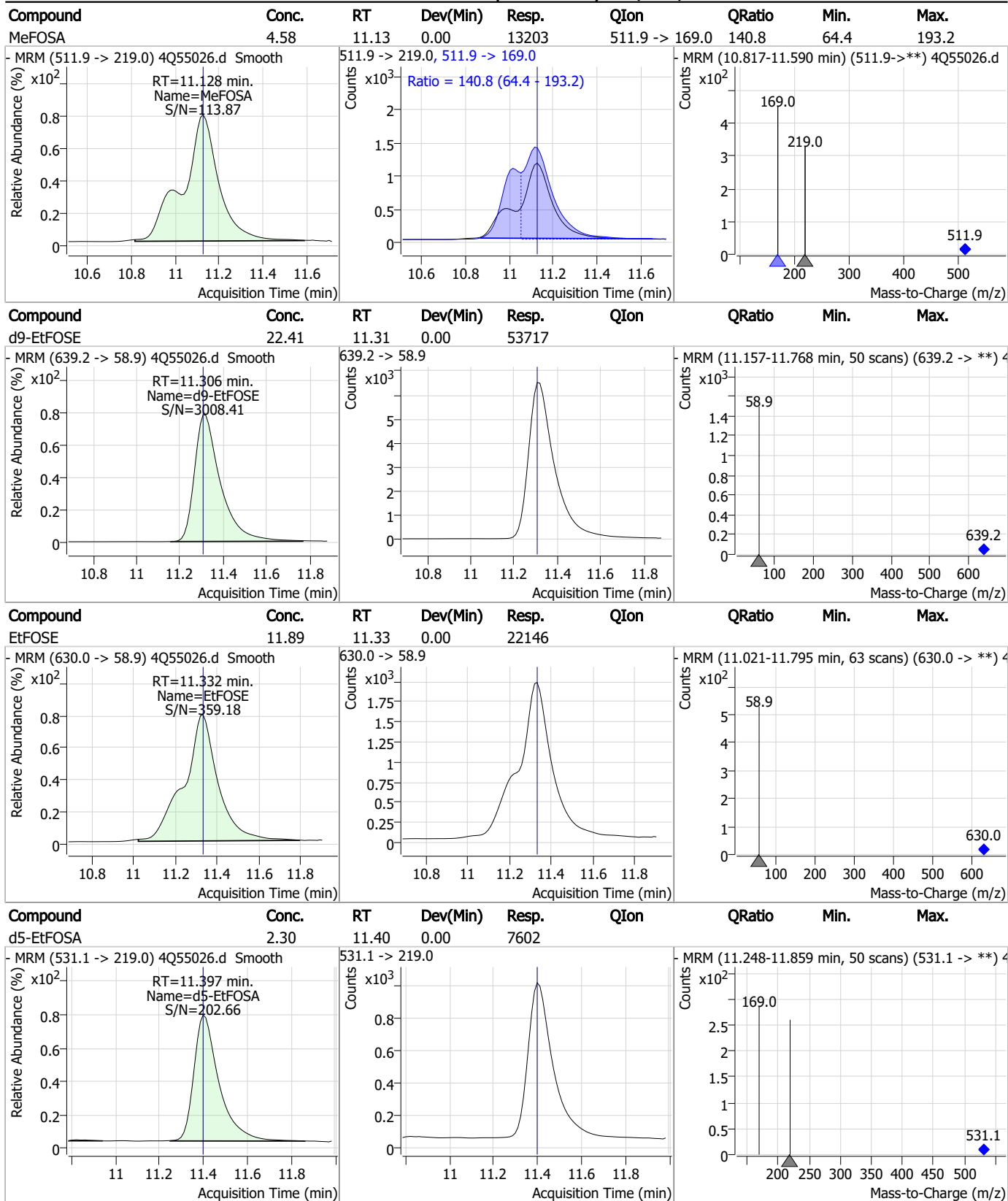
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.86	11.03	0.00	25615	616.1 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.29	11.13	0.00	7886	515.0 -> 219.0			



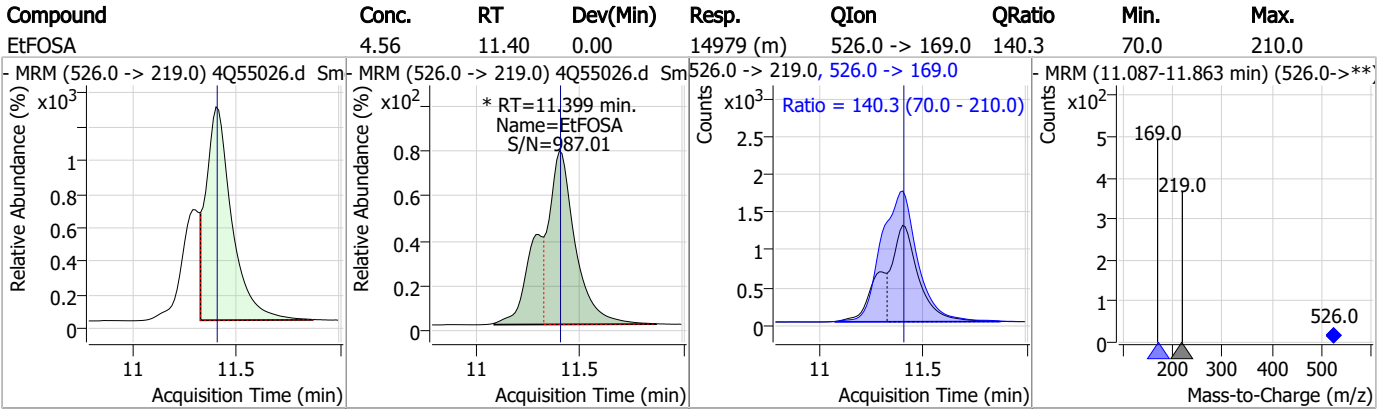
Perfluorinated Compounds by LC/MS/MS



7.7.10 7



Perfluorinated Compounds by LC/MS/MS



7.7.10

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Manual Integration Approval Summary

Sample Number: S4Q806-ICV806 Method: EPA DRAFT 1633
Lab FileID: 4Q55026.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 17:13 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.03	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
EtFOSAA	2991-50-6		8.28	Split peak
EtFOSA	4151-50-2		11.40	Split peak

7.7.10.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55027.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 5:27:53 PM
 Sample Name : icv806-20
 Vial : P1-B4
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.699	216.8 -> 171.9	176287	10.00 µg/L	0.000
M5-PFPeA	4.187	268.3 -> 223.0	78778	5.00 µg/L	0.012
M5-PFHxA	5.347	318.0 -> 273.0	65501	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	63925	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	97455	2.50 µg/L	0.000
M9-PFNA	7.509	472.1 -> 427.0	38328	1.25 µg/L	-0.012
M6-PFDA	7.992	519.1 -> 474.1	24544	1.25 µg/L	-0.012
M7-PFUnDA	8.449	570.0 -> 525.1	26080	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	31052	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	32291	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	14911	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	18342	2.50 µg/L	0.000
M3-PFHxS	7.029	402.1 -> 79.9	14170	2.50 µg/L	-0.012
M8-PFOS	8.117	507.1 -> 79.9	14905	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1689	5.00 µg/L	0.000
M2-6:2FTS	6.748	429.1 -> 80.9	3802	5.00 µg/L	-0.012
M2-8:2FTS	7.804	529.1 -> 80.9	4936	5.00 µg/L	0.000
M3-MeFOSAA	8.074	573.2 -> 419.0	29050	5.00 µg/L	-0.012
M3-HFPO-DA	5.702	286.9 -> 168.9	61736	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	22759	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	55736	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	55547	25.00 µg/L	0.000
M5-EtFOSA	11.398	531.1 -> 219.0	7599	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	8036	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11150	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	79733	5.00 µg/L	0.000
18O2-PFHxS	7.028	403.0 -> 83.9	8366	2.50 µg/L	-0.012
13C4-PFOA	6.977	417.1 -> 372.0	105431	2.50 µg/L	0.000
13C2-PFDA	7.992	515.1 -> 470.1	28061	1.25 µg/L	-0.012
13C5-PFNA	7.509	468.0 -> 423.0	36216	1.25 µg/L	-0.012
13C2-PFHxA	5.348	315.1 -> 270.0	72785	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1689	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-6:2FTS	6.748	429.1 -> 80.9	3802	5.32 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-8:2FTS	7.804	529.1 -> 80.9	4936	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-PFDoDA	8.867	615.1 -> 570.0	31052	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C2-PFTeDA	9.637	715.2 -> 670.0	32291	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C3-PFBS	5.202	302.1 -> 79.9	18342	2.76 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C3-PFHxS	7.029	402.1 -> 79.9	14170	2.75 µg/L	-0.012

7.7.11
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C4-PFBA	2.699	216.8 -> 171.9	176287	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C4-PFHpA	6.292	367.1 -> 322.0	63925	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C5-PFHxA	5.347	318.0 -> 273.0	65501	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C5-PFPeA	4.187	268.3 -> 223.0	78778	4.98 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C6-PFDA	7.992	519.1 -> 474.1	24544	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C7-PFUnDA	8.449	570.0 -> 525.1	26080	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C8-FOSA	9.794	506.1 -> 77.8	14911	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C8-PFOA	6.976	421.1 -> 376.0	97455	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-PFOS	8.117	507.1 -> 79.9	14905	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.509	472.1 -> 427.0	38328	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
d3-MeFOSAA	8.074	573.2 -> 419.0	29050	4.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	61736	9.95 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSA	11.126	515.0 -> 219.0	8036	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
d5-EtFOSAA	8.283	589.2 -> 419.0	22759	4.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 94.4%	
d7-MeFOSE	11.022	623.2 -> 58.9	55736	24.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d9-EtFOSE	11.306	639.2 -> 58.9	55547	24.67 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d5-EtFOSA	11.398	531.1 -> 219.0	7599	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	63328	20.68 µg/L	100
		327.1 -> 80.9	25590		
6:2FTS	6.749	427.1 -> 407.0	82125	20.30 µg/L	95
		427.1 -> 80.9	28271		
8:2FTS	7.804	527.1 -> 507.0	49757	18.63 µg/L	100
		527.1 -> 80.8	20019		
EtFOSAA	8.284	584.2 -> 419.1	79721	19.84 µg/L	99
		584.2 -> 526.0	32113		
FOSA	9.785	498.1 -> 77.9	125227	18.53 µg/L	99
		498.1 -> 478.0	3926		
MeFOSAA	8.087	570.1 -> 419.0	87177	19.35 µg/L	95
		570.1 -> 483.0	16499		
PFBA	2.707	212.8 -> 168.9	100219	17.88 µg/L	100
PFBS	5.203	298.7 -> 79.9	104232	18.96 µg/L	100
		298.7 -> 98.8	40510		
PFDA	7.992	512.9 -> 469.0	341147	19.06 µg/L	95
		512.9 -> 219.0	68541		
PFDoDA	8.868	613.1 -> 569.0	398064	17.33 µg/L	99
		613.1 -> 319.0	69539		
PFDS	9.008	599.0 -> 79.9	75051	18.76 µg/L	94

7.7.11
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.293	599.0 -> 98.8	37043	18.69	µg/L	100
		363.1 -> 319.0	674450			
PFHpS	7.612	363.1 -> 169.0	121496	18.45	µg/L	98
		449.0 -> 79.9	116510			
PFHxA	5.350	449.0 -> 98.9	58400	20.64	µg/L	100
		313.0 -> 269.0	434197			
PFHxS	7.030	313.0 -> 118.9	12995	20.19	µg/L	86
		398.7 -> 79.9	88876			
PFNA	7.510	398.7 -> 98.9	43793	18.67	µg/L	98
		463.0 -> 419.0	439555			
PFNS	8.574	463.0 -> 219.0	103032	18.34	µg/L	95
		548.8 -> 79.9	47696			
PFOA	6.978	548.8 -> 98.9	24762	17.89	µg/L	100
		413.0 -> 369.0	733925			
PFOS	8.119	413.0 -> 169.0	148800	17.22	µg/L	79
		498.9 -> 79.9	105348			
PFPeA	4.189	498.9 -> 98.8	44668	18.91	µg/L	100
		263.0 -> 219.0	288755			
PFPeS	6.282	349.1 -> 79.9	95303	19.87	µg/L	97
		349.1 -> 98.9	42909			
PFTeDA	9.637	713.1 -> 669.0	460057	20.75	µg/L	99
		713.1 -> 168.9	47210			
PFTrDA	9.267	663.0 -> 619.0	456637	18.63	µg/L	99
		663.0 -> 168.9	63812			
PFUnDA	8.449	563.1 -> 519.0	373140	19.01	µg/L	98
		563.1 -> 269.1	79068			
11Cl-PF3OUdS	9.294	630.9 -> 450.9	314214	19.06	µg/L	99
		632.9 -> 452.9	96976			
9Cl-PF3ONS	8.451	530.8 -> 351.0	293409	18.44	µg/L	99
		532.8 -> 353.0	90004			
ADONA	6.556	376.9 -> 250.9	936875	21.18	µg/L	100
		376.9 -> 84.8	226284			
HFPO-DA	5.703	284.9 -> 168.9	112150	19.12	µg/L	99
		284.9 -> 184.9	11208			
3:3FTCA	3.642	241.0 -> 177.0	13149	18.55	µg/L	99
		241.0 -> 117.0	1146			
5:3FTCA	6.020	341.0 -> 237.1	55108	20.68	µg/L	95
		341.0 -> 217.0	37513			
7:3FTCA	7.536	441.0 -> 316.9	22778	18.15	µg/L	94
		441.0 -> 336.9	53611			
EtFOSA	11.399	526.0 -> 219.0	57352	17.48	µg/L	79
		526.0 -> 169.0	65633			
EtFOSE	11.332	630.0 -> 58.9	184429	95.72	µg/L	100
		511.9 -> 219.0	53151			
MeFOSA	11.128	511.9 -> 169.0	61820	18.09	µg/L	89
		616.1 -> 58.9	219230			
MeFOSE	11.035	699.1 -> 79.9	53686	100.98	µg/L	100
		699.1 -> 98.8	29913			
PFDoDS	9.764	295.0 -> 201.0	28234	18.08	µg/L	97
		295.0 -> 84.9	7118			
NFDHA	5.229	279.0 -> 85.1	167490	19.83	µg/L	98
		229.0 -> 84.9	170815			
PFMBA	4.578	314.8 -> 134.9	274868	17.79	µg/L	99
		314.8 -> 82.9	9346			

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



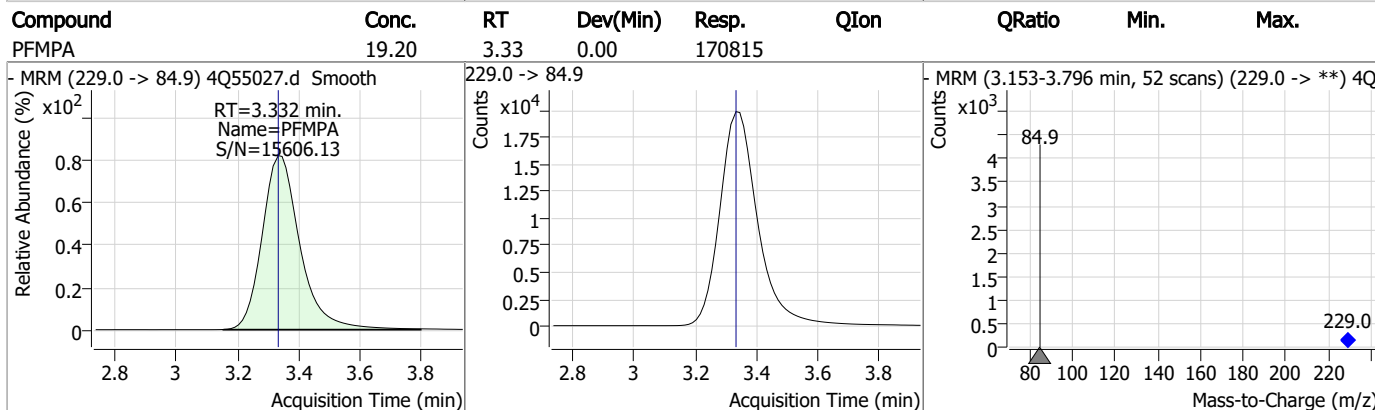
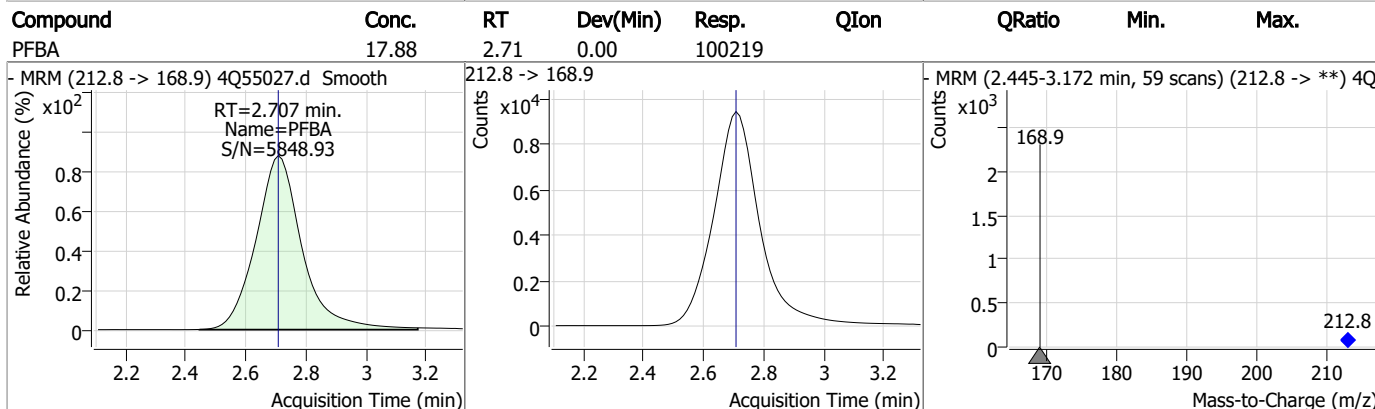
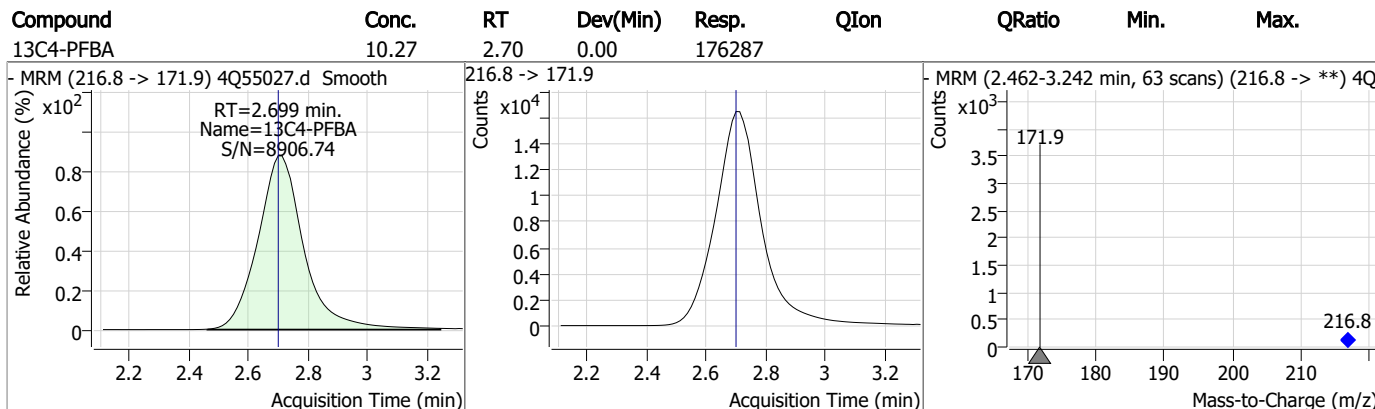
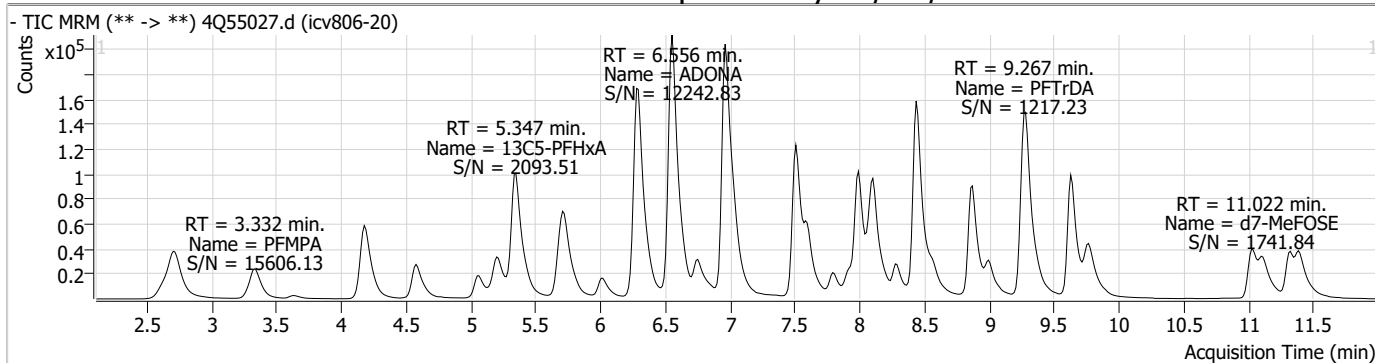
Perfluorinated Compounds by LC/MS/MS

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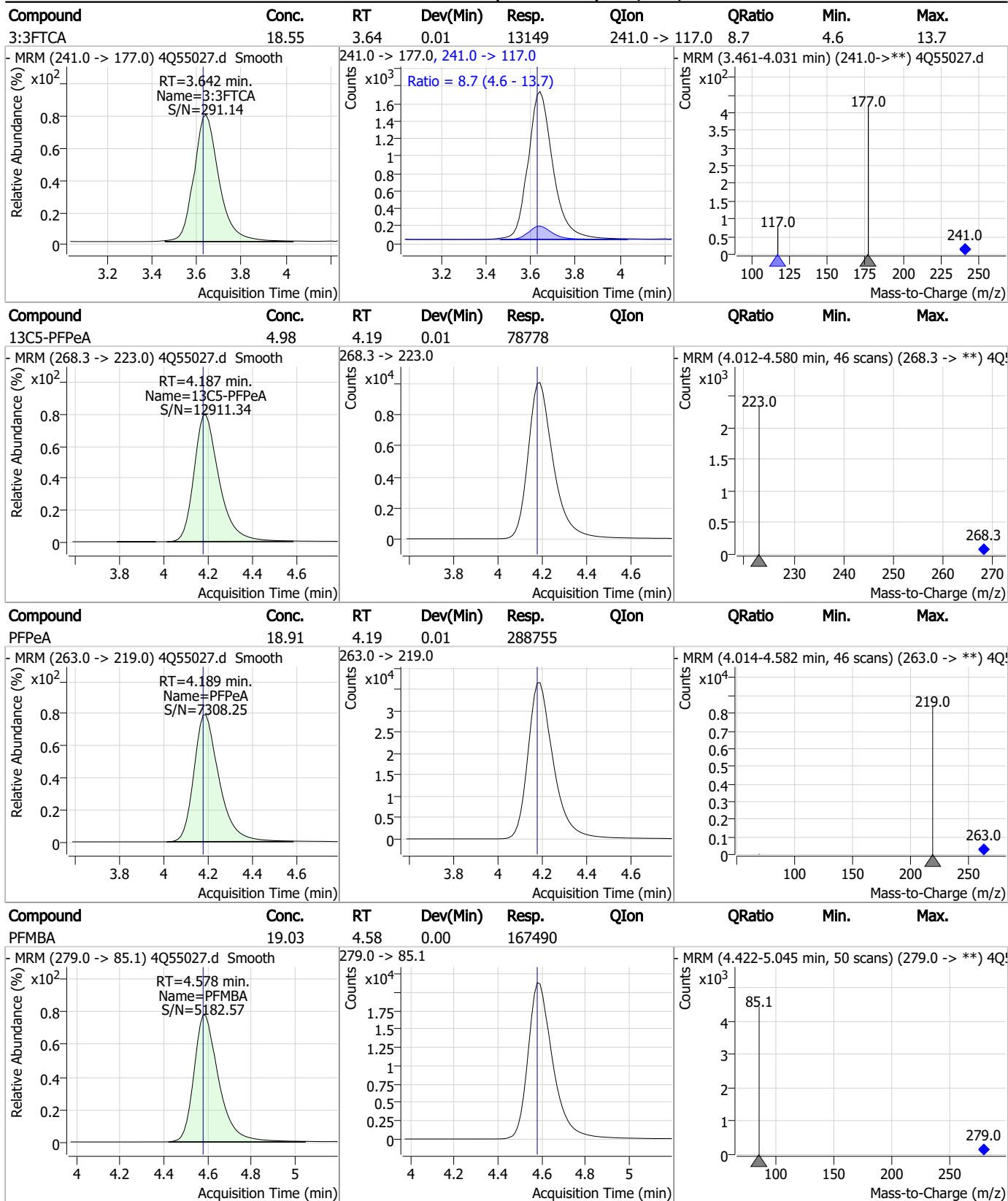
7.7.11

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Perfluorinated Compounds by LC/MS/MS

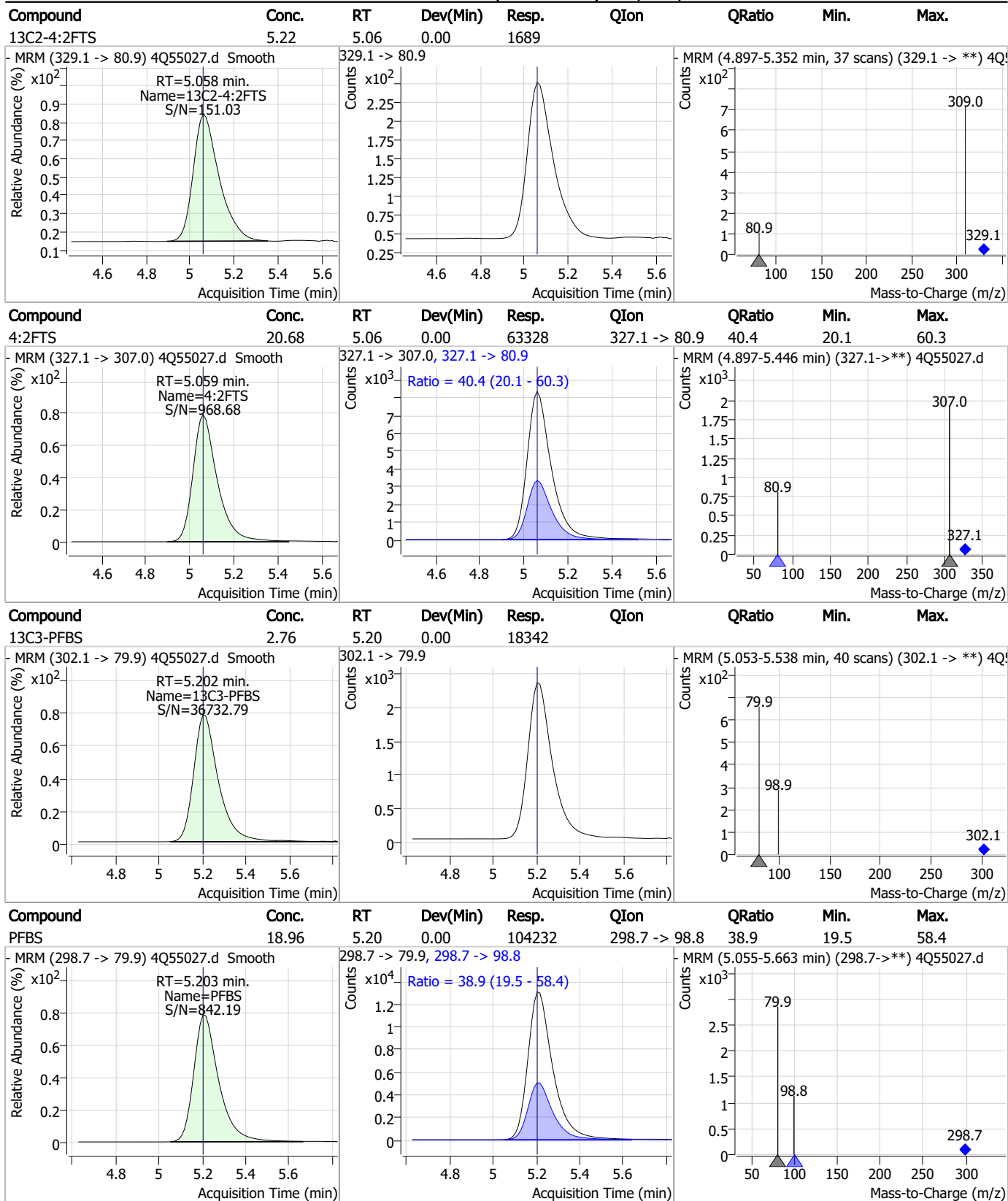


Perfluorinated Compounds by LC/MS/MS



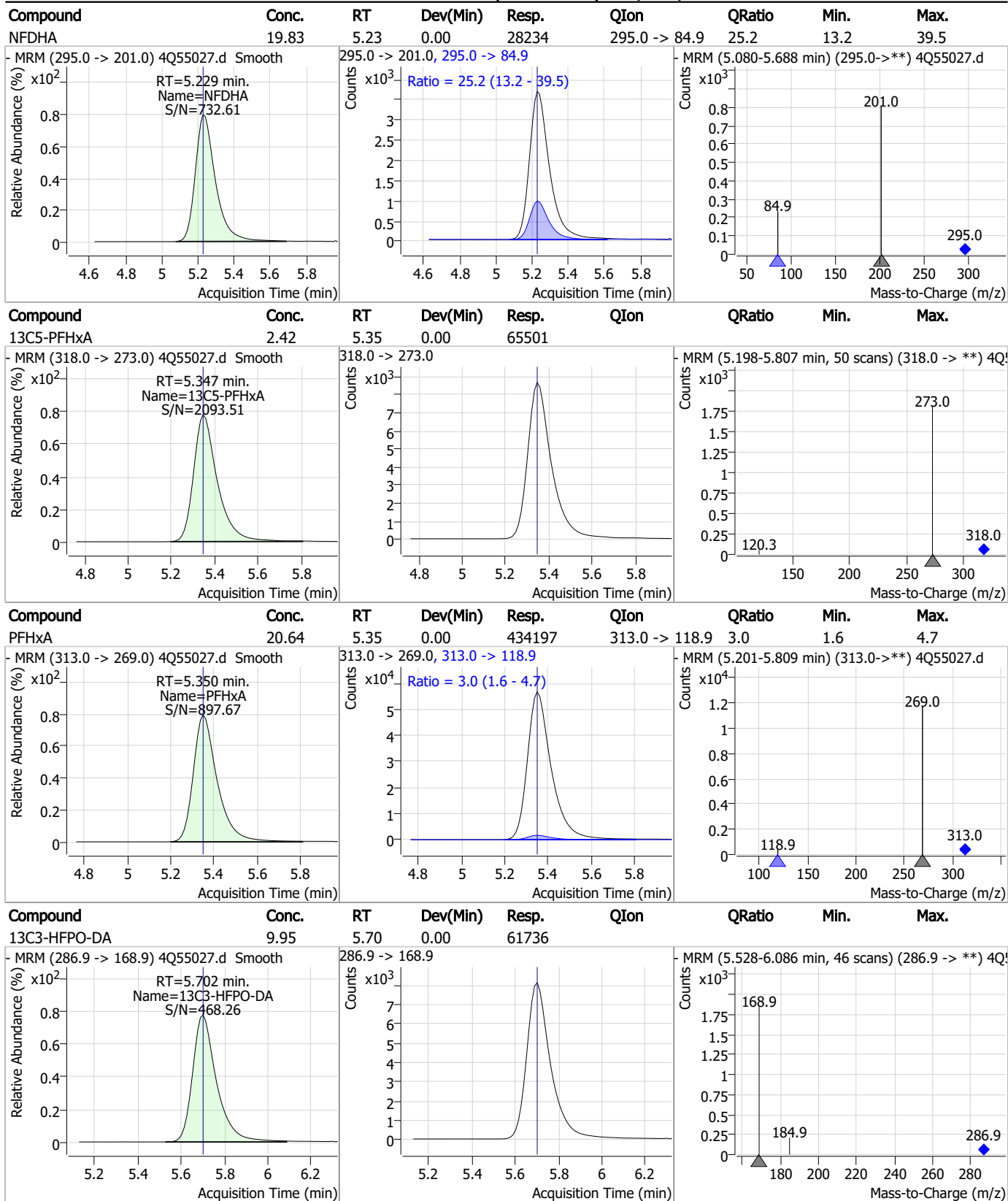
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Perfluorinated Compounds by LC/MS/MS



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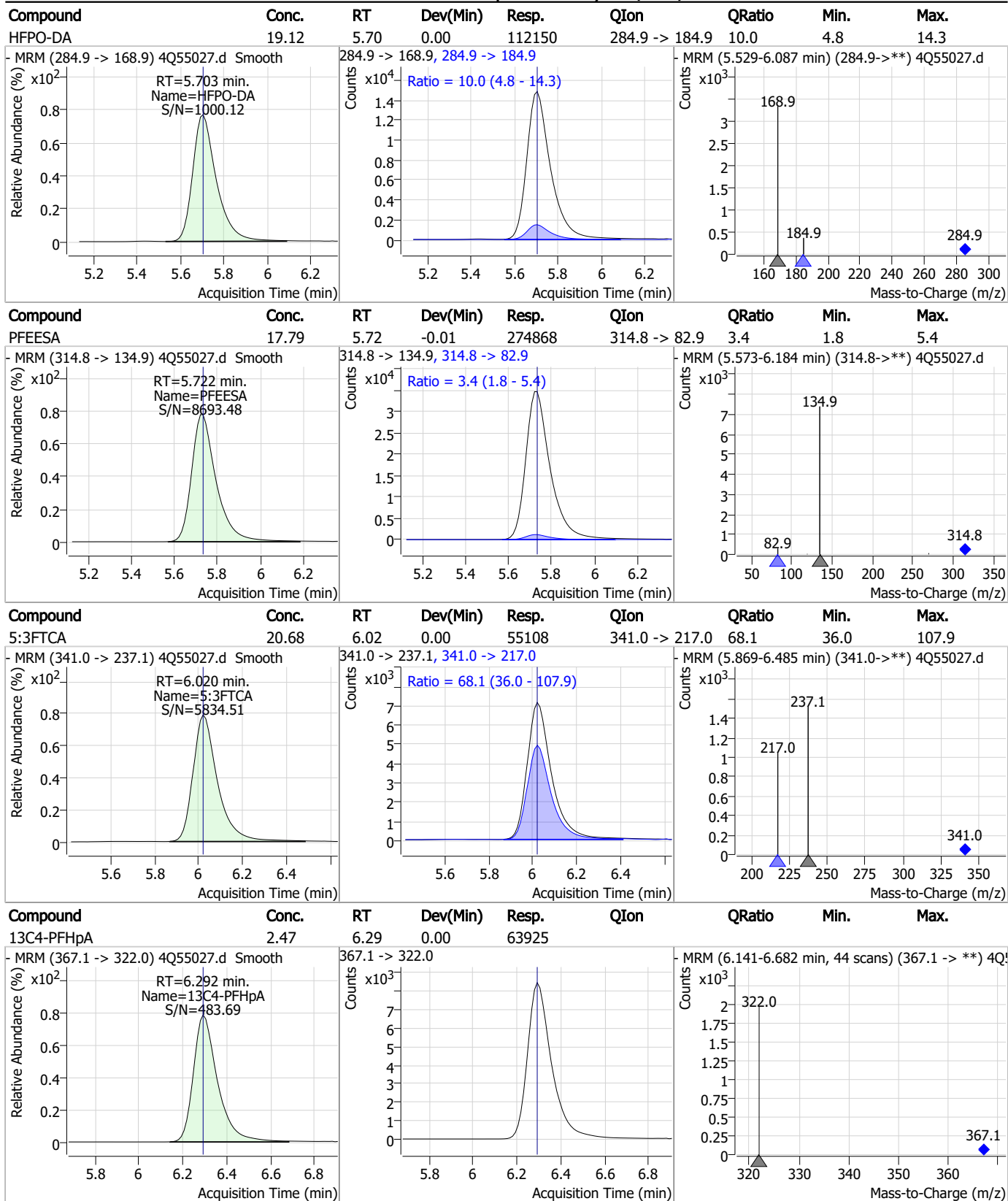
Perfluorinated Compounds by LC/MS/MS



7.7.11
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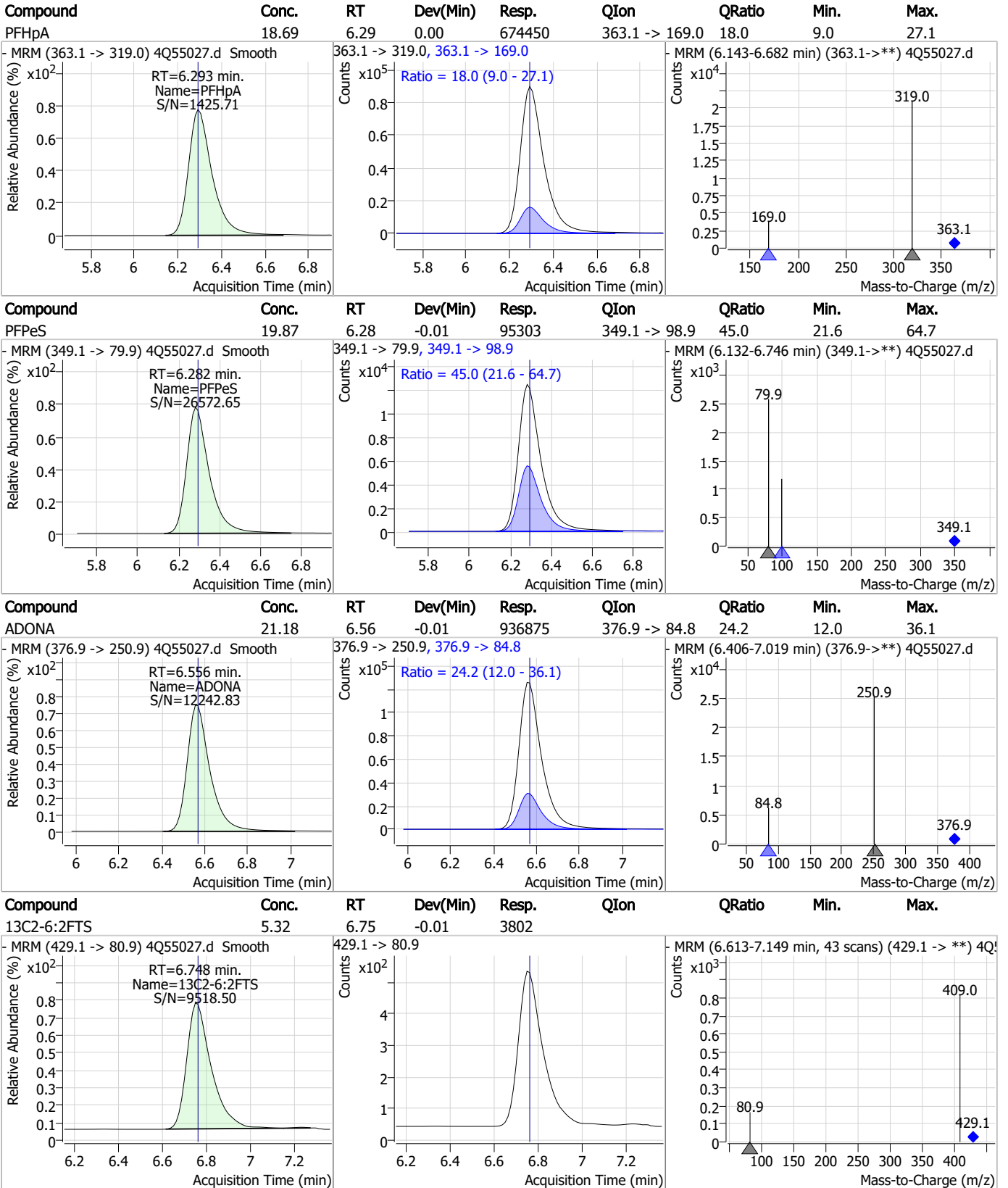


Perfluorinated Compounds by LC/MS/MS



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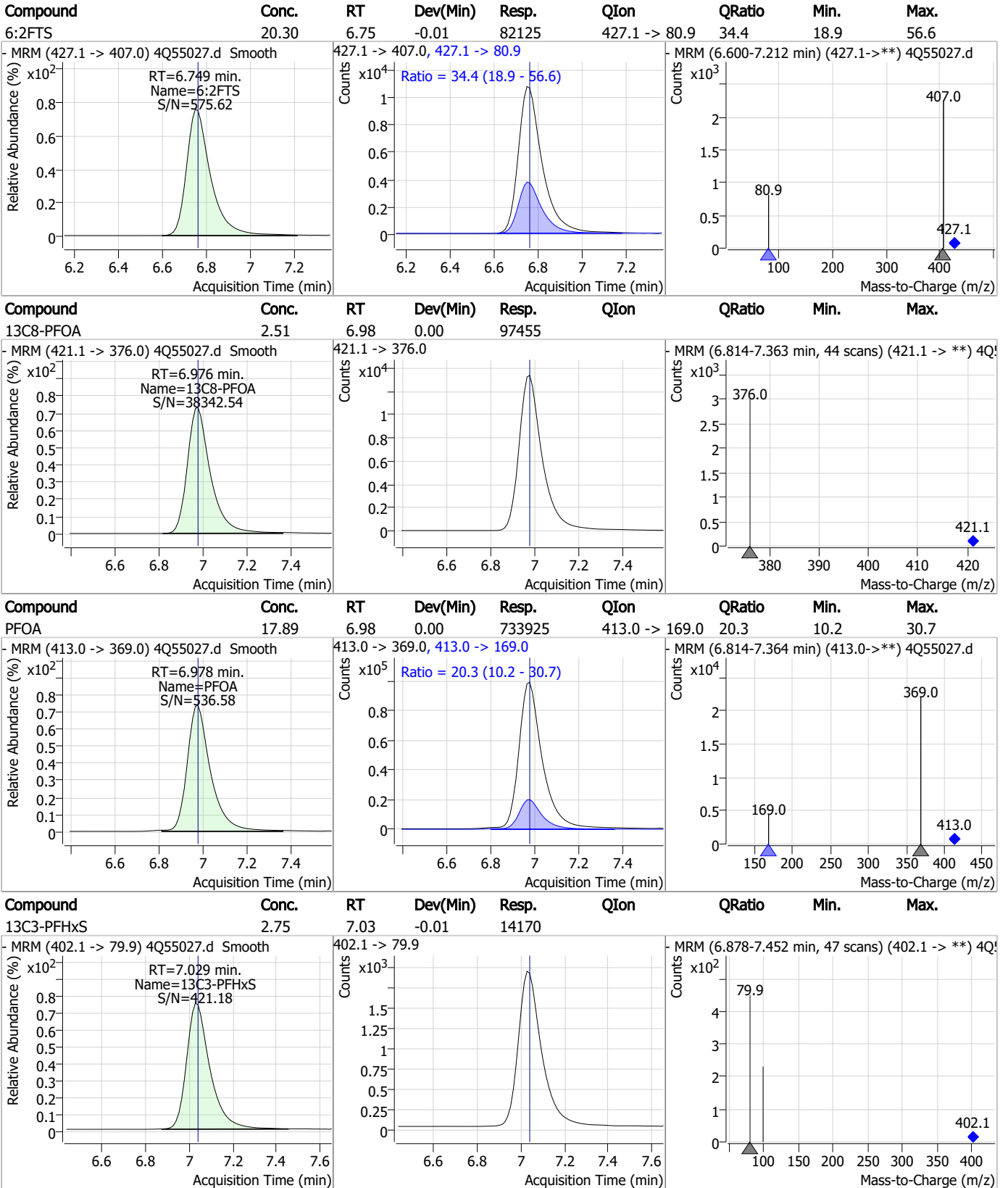
Perfluorinated Compounds by LC/MS/MS



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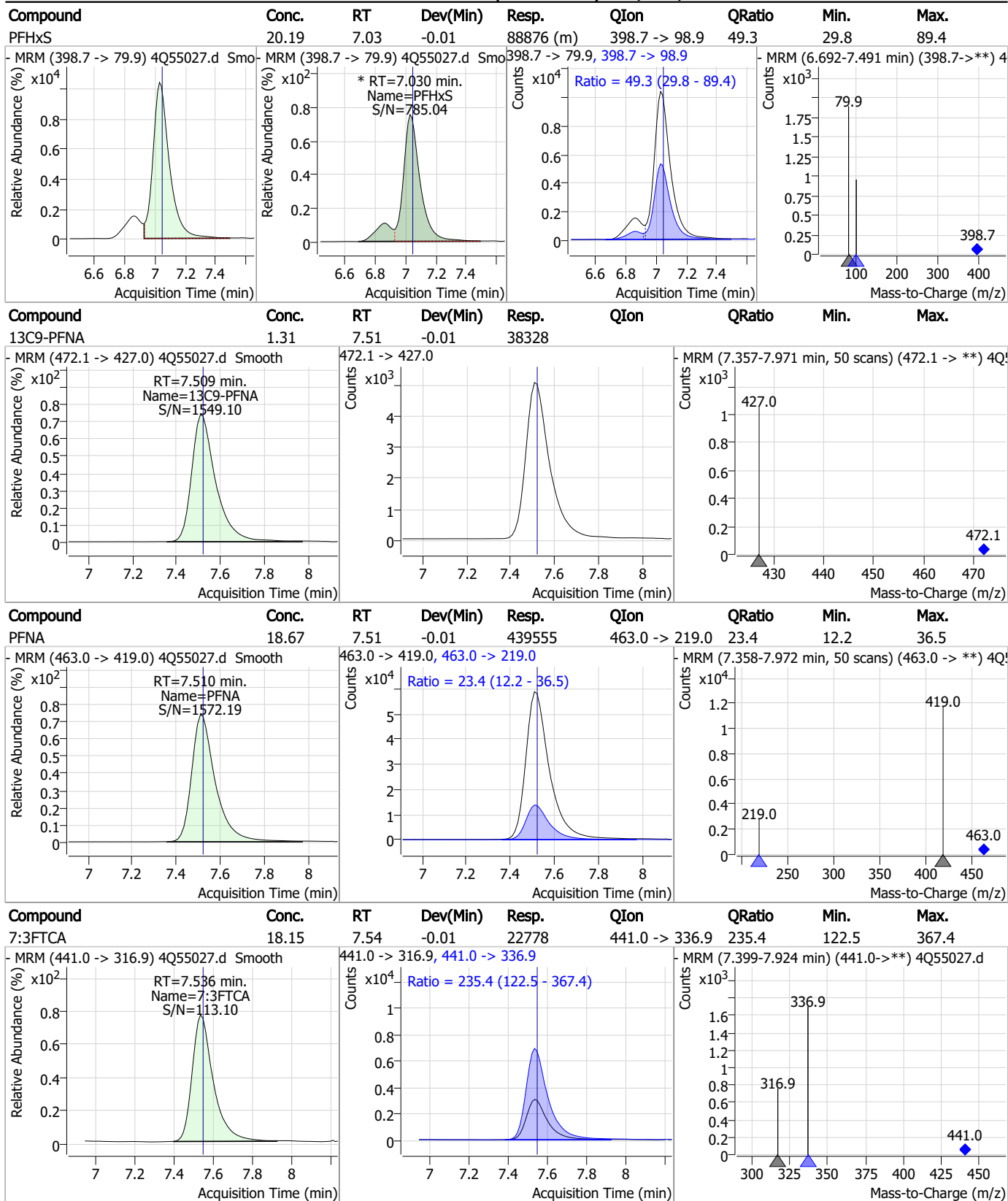
Perfluorinated Compounds by LC/MS/MS



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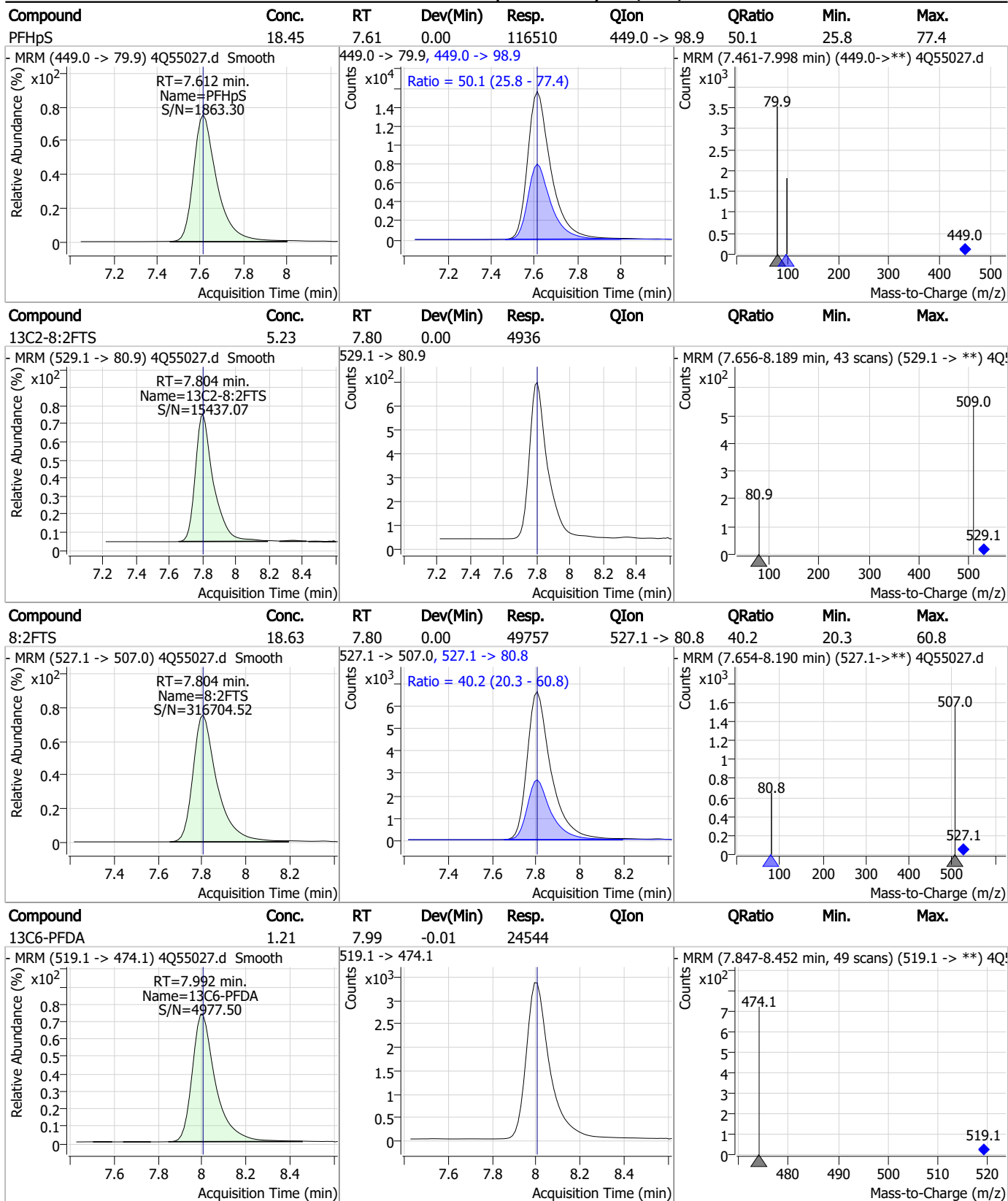
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Perfluorinated Compounds by LC/MS/MS



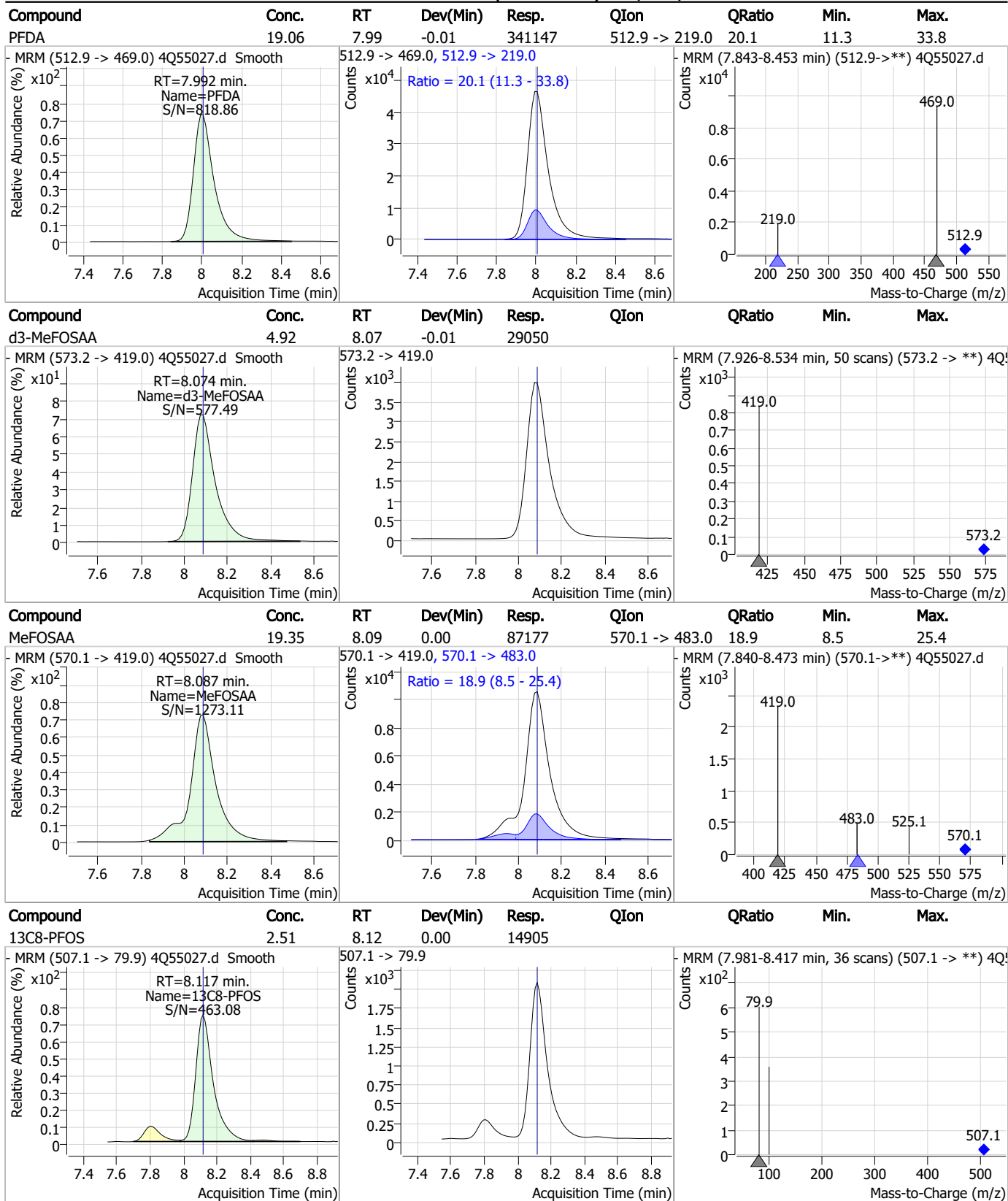
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Perfluorinated Compounds by LC/MS/MS



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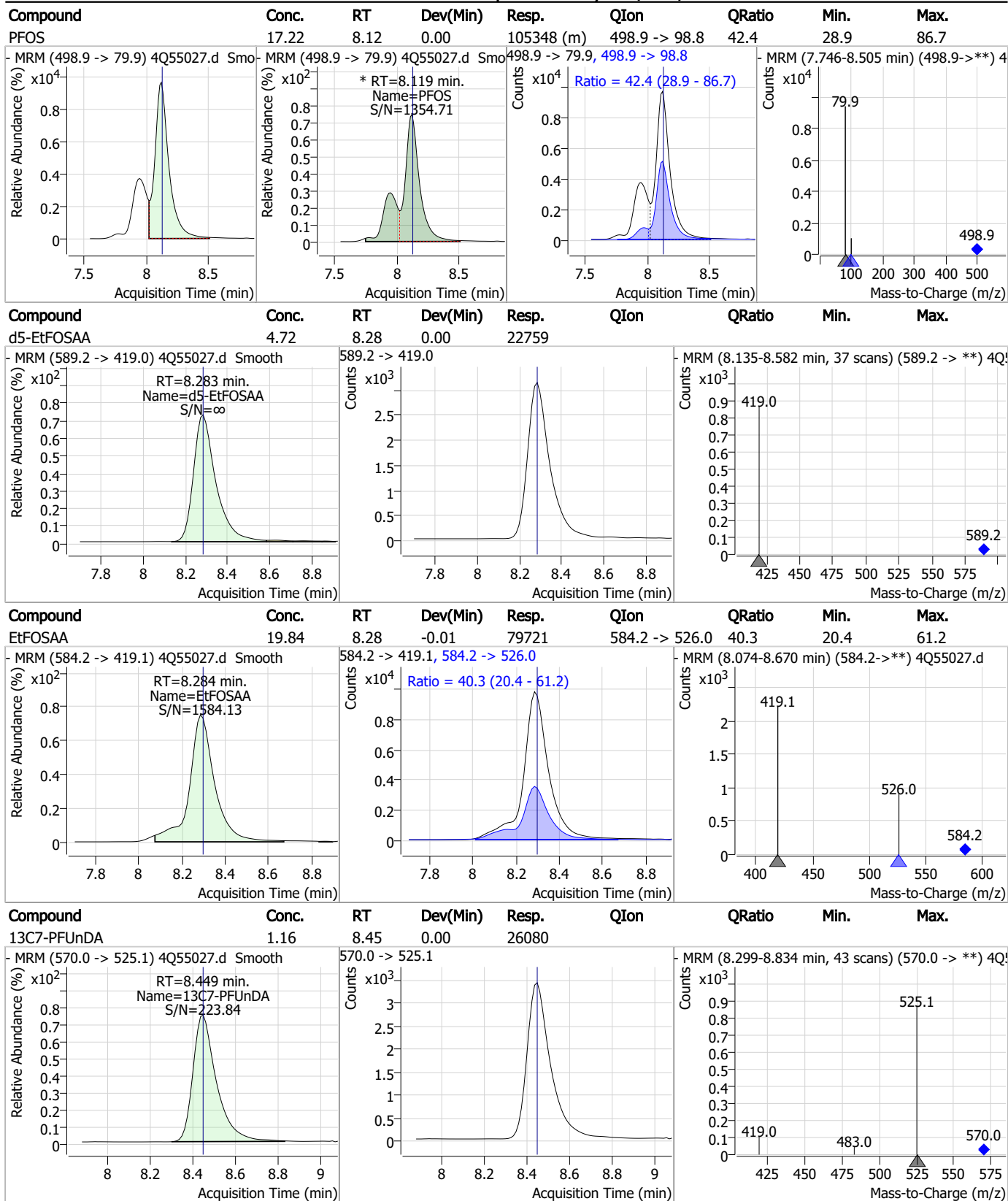
Perfluorinated Compounds by LC/MS/MS



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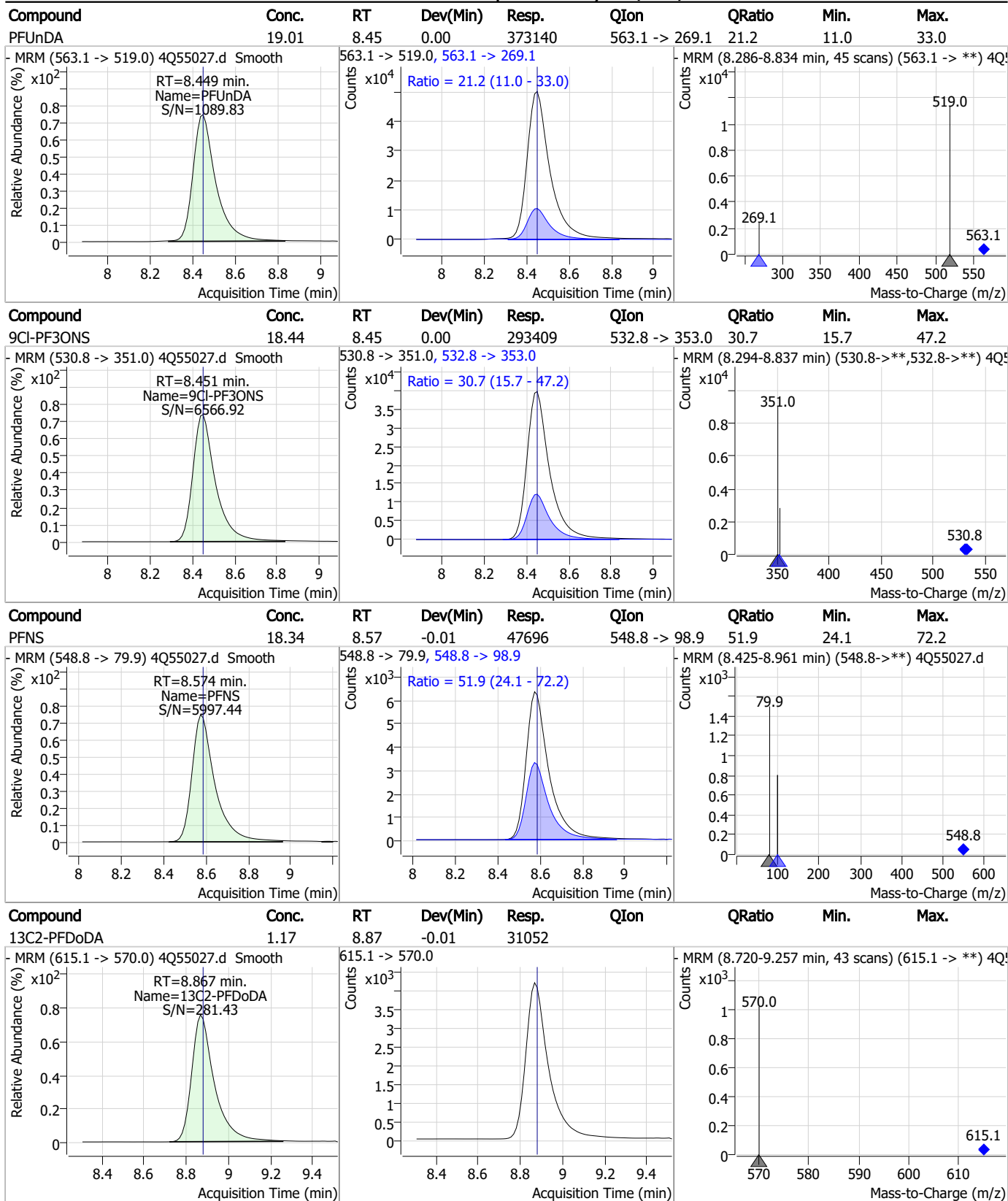


Perfluorinated Compounds by LC/MS/MS



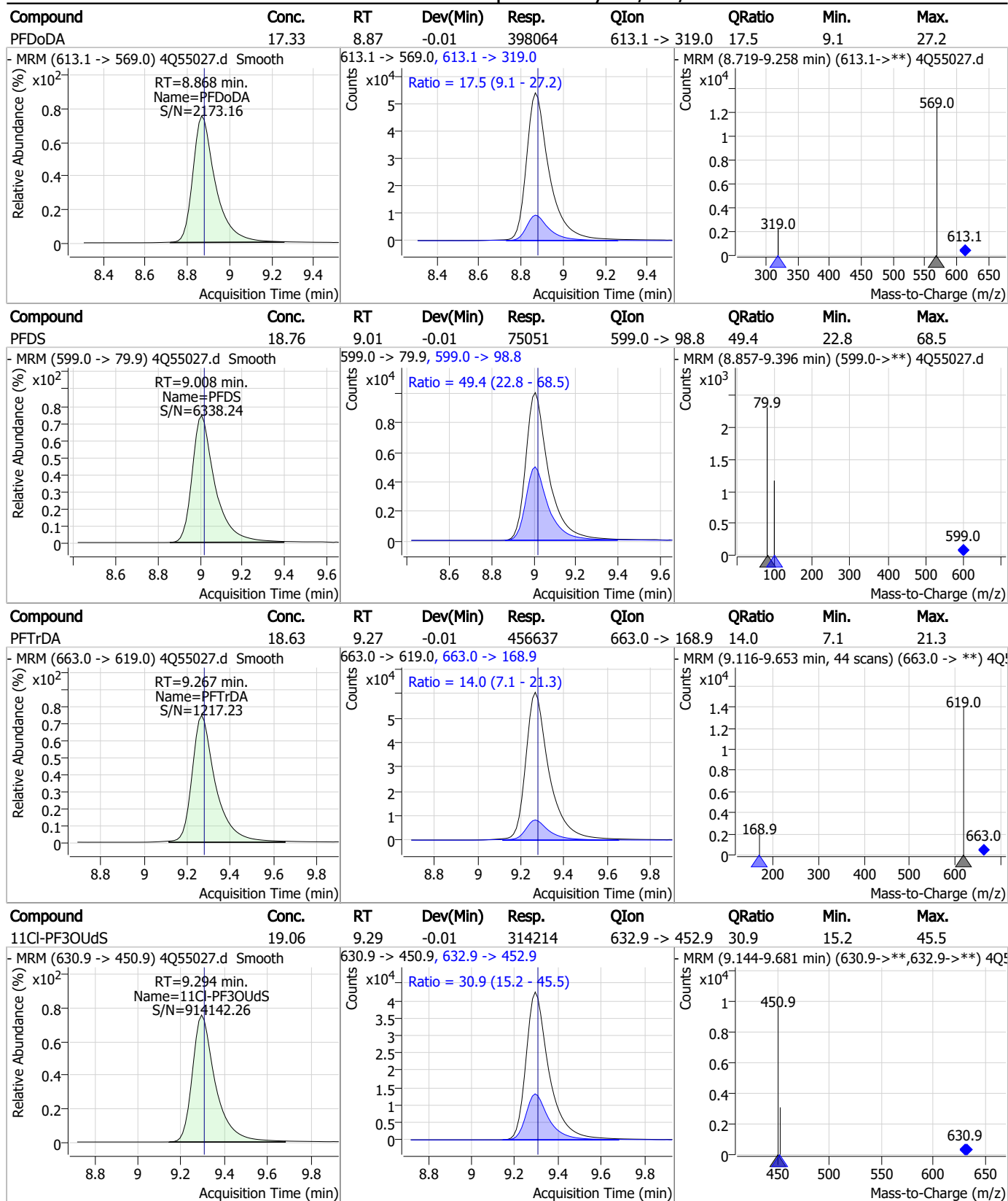
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

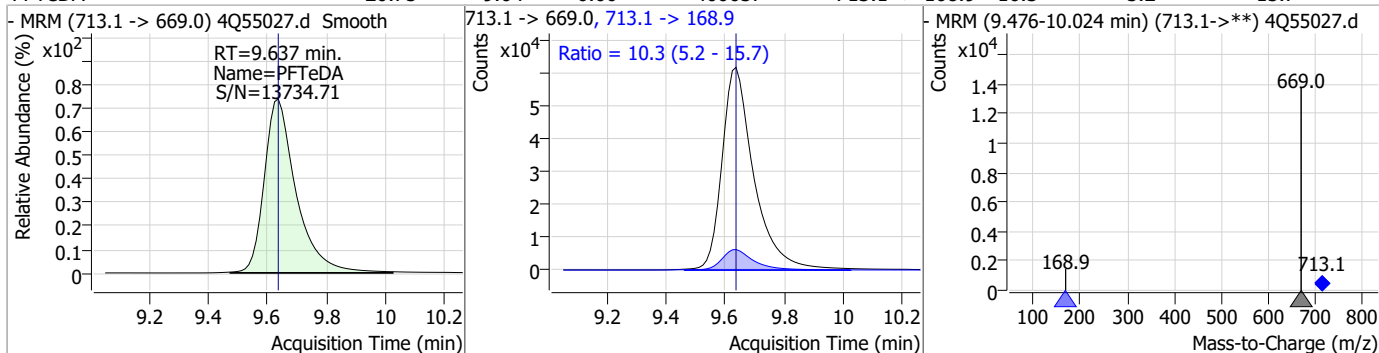


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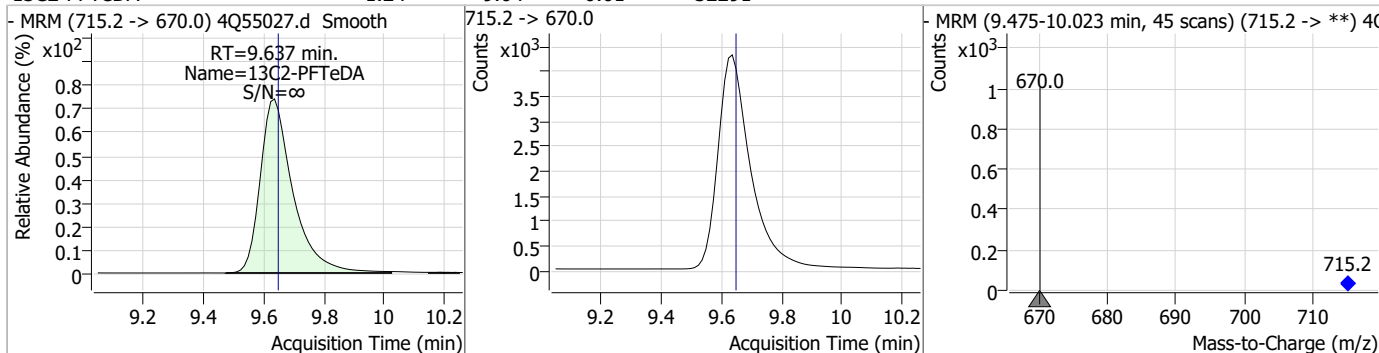


Perfluorinated Compounds by LC/MS/MS

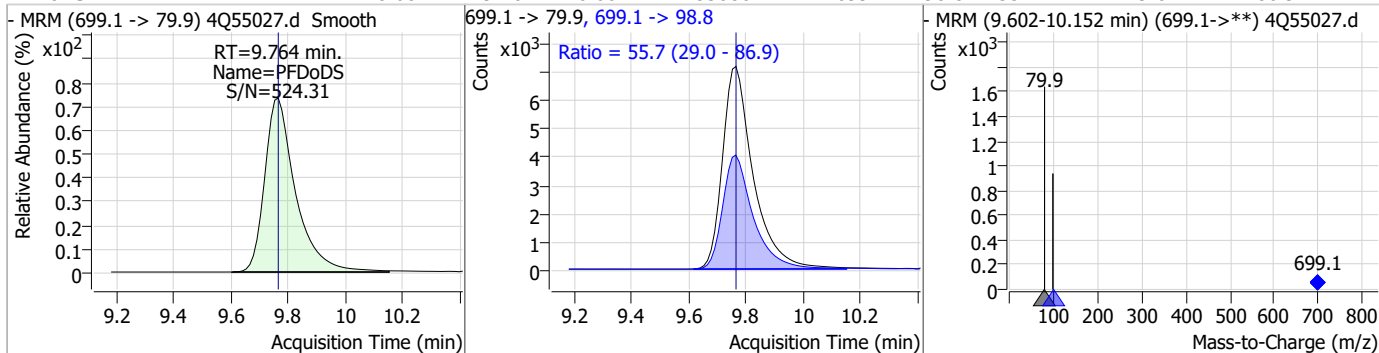
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.75	9.64	0.00	460057	713.1 -> 168.9	10.3	5.2	15.7



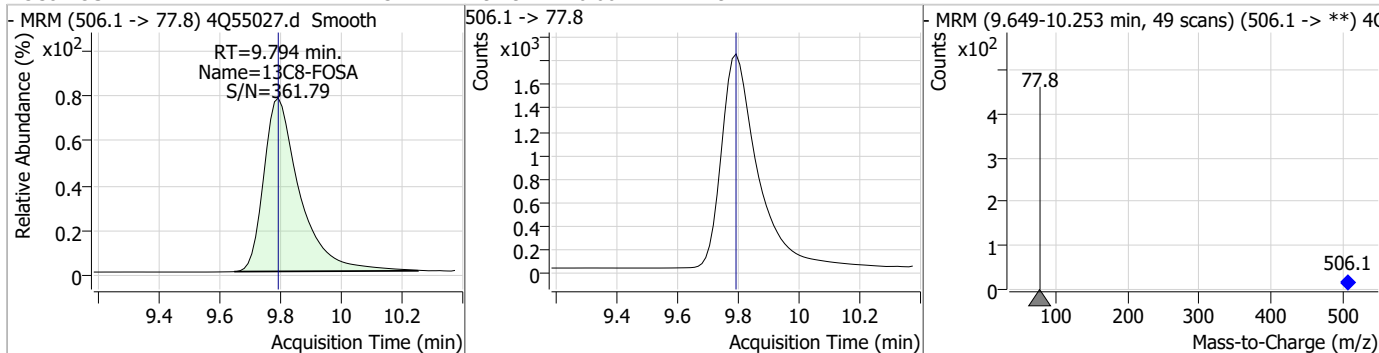
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.64	-0.01	32291				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	18.08	9.76	0.00	53686	699.1 -> 98.8	55.7	29.0	86.9

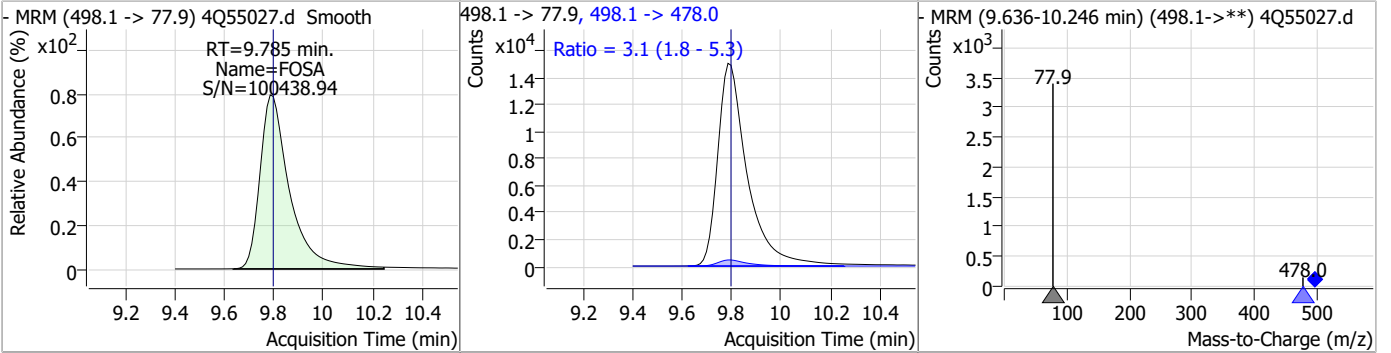


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.37	9.79	0.00	14911				

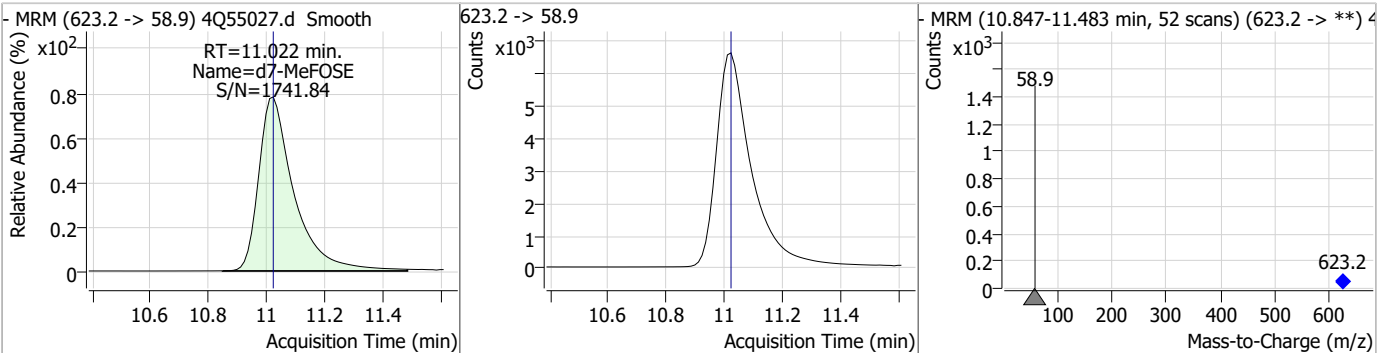


Perfluorinated Compounds by LC/MS/MS

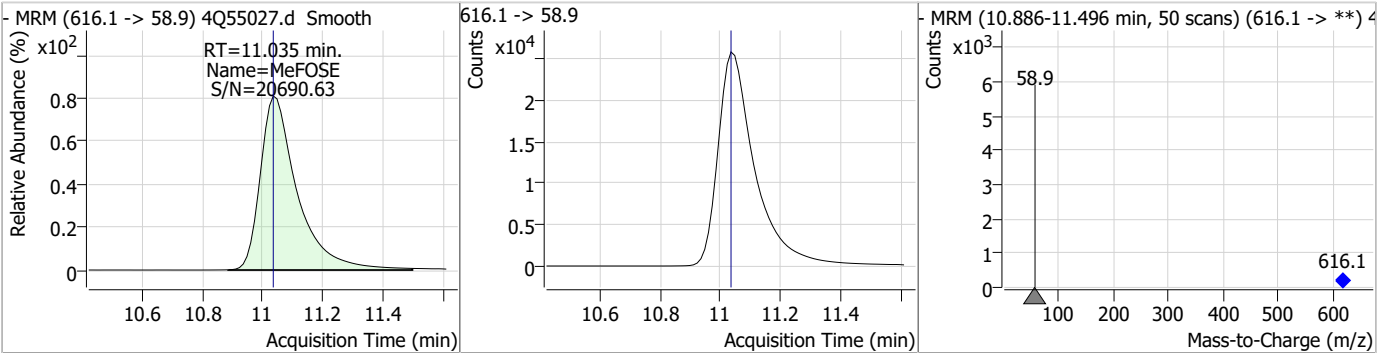
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	18.53	9.79	-0.01	125227	498.1 -> 478.0	3.1	1.8	5.3



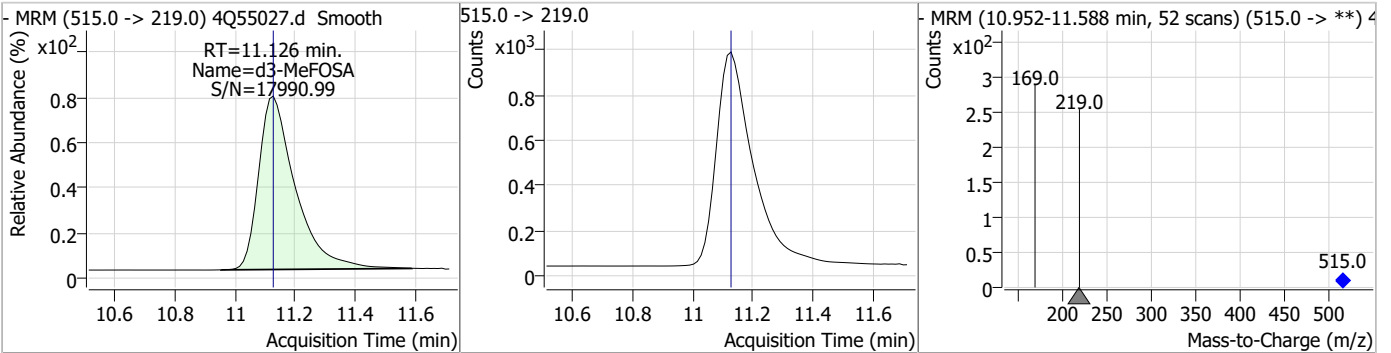
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.59	11.02	0.00	55736				



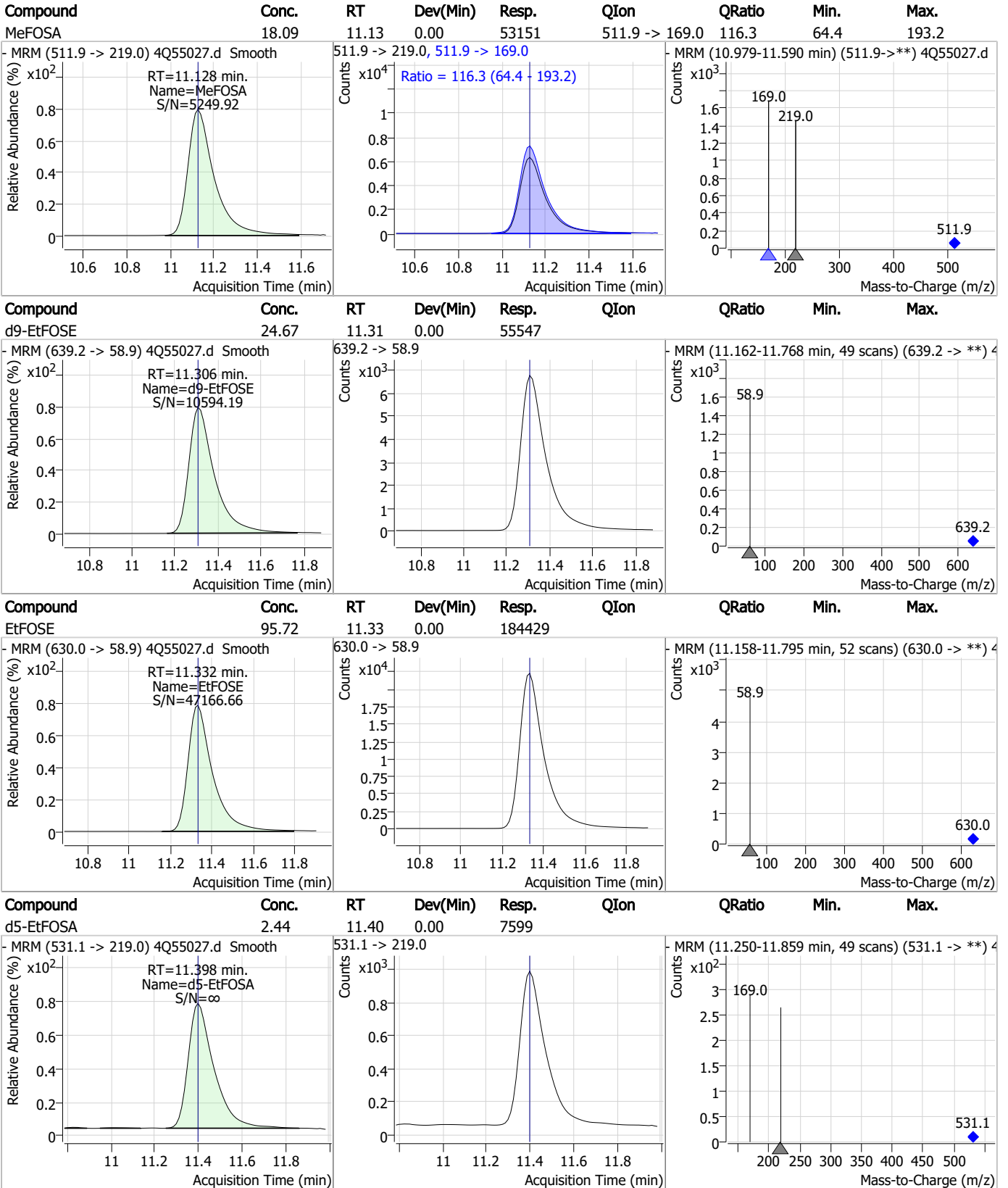
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	100.98	11.04	0.00	219230				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.48	11.13	0.00	8036				



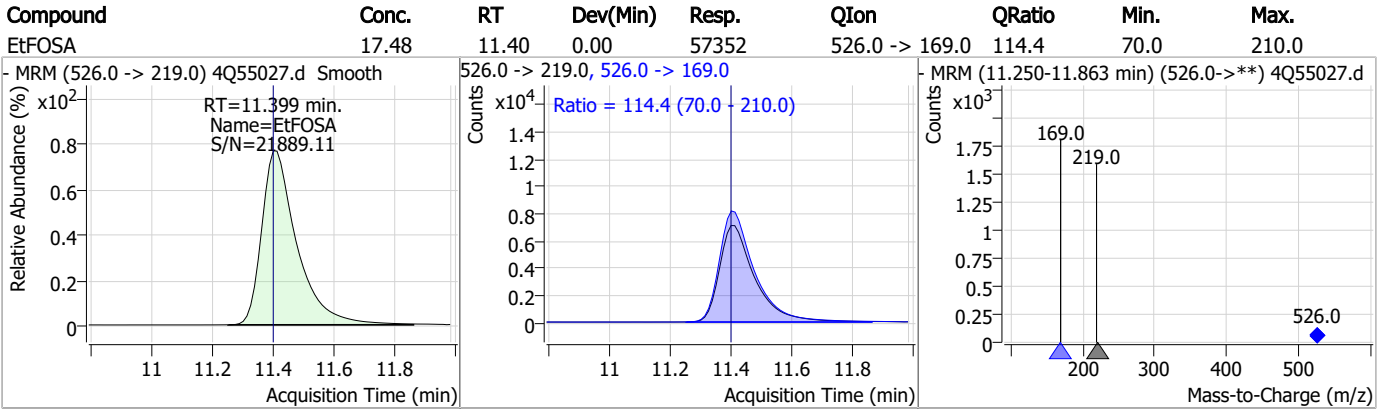
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q806-ICV806 Method: EPA DRAFT 1633
Lab FileID: 4Q55027.D Analyst approved: 12/12/23 10:07 Anna Ludwig
Injection Time: 12/11/23 17:27 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.03	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak

7.7.11.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55028.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 5:42:37 PM
 Sample Name : cc806-4
 Vial : P1-A5
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.699	216.8 -> 171.9	169217	10.00 µg/L	0.000
M5-PFPeA	4.175	268.3 -> 223.0	77729	5.00 µg/L	0.000
M5-PFHxA	5.347	318.0 -> 273.0	64695	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	64686	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	97281	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	39297	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	24381	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	28375	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	32461	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	31648	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	15911	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	17981	2.50 µg/L	0.000
M3-PFHxS	7.029	402.1 -> 79.9	14582	2.50 µg/L	-0.012
M8-PFOS	8.117	507.1 -> 79.9	14940	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1852	5.00 µg/L	0.000
M2-6:2FTS	6.748	429.1 -> 80.9	3937	5.00 µg/L	-0.012
M2-8:2FTS	7.804	529.1 -> 80.9	5109	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	30223	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	60603	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	24026	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	56959	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	55399	25.00 µg/L	0.000
M5-EtFOSA	11.397	531.1 -> 219.0	7612	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7825	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11398	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	80585	5.00 µg/L	0.000
18O2-PFHxS	7.028	403.0 -> 83.9	9266	2.50 µg/L	-0.012
13C4-PFOA	6.977	417.1 -> 372.0	111439	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	27690	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	37882	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	72195	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1852	5.16 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-6:2FTS	6.748	429.1 -> 80.9	3937	4.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-8:2FTS	7.804	529.1 -> 80.9	5109	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C2-PFDoDA	8.867	615.1 -> 570.0	32461	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-PFTeDA	9.637	715.2 -> 670.0	31648	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFBS	5.202	302.1 -> 79.9	17981	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFHxS	7.029	402.1 -> 79.9	14582	2.55 µg/L	-0.012

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C4-PFBA	2.699	216.8 -> 171.9	169217	9.75 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C4-PFHpA	6.292	367.1 -> 322.0	64686	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFHxA	5.347	318.0 -> 273.0	64695	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C5-PFPeA	4.175	268.3 -> 223.0	77729	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.004	519.1 -> 474.1	24381	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C7-PFUnDA	8.448	570.0 -> 525.1	28375	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-FOSA	9.794	506.1 -> 77.8	15911	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-PFOA	6.976	421.1 -> 376.0	97281	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C8-PFOS	8.117	507.1 -> 79.9	14940	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C9-PFNA	7.521	472.1 -> 427.0	39297	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.9%	
d3-MeFOSAA	8.086	573.2 -> 419.0	30223	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	60603	9.85 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.5%	
d3-MeFOSA	11.126	515.0 -> 219.0	7825	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
d5-EtFOSAA	8.283	589.2 -> 419.0	24026	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
d7-MeFOSE	11.022	623.2 -> 58.9	56959	24.58 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d9-EtFOSE	11.306	639.2 -> 58.9	55399	24.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d5-EtFOSA	11.397	531.1 -> 219.0	7612	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	28165	8.39 µg/L	96
		327.1 -> 80.9	11983		
6:2FTS	6.749	427.1 -> 407.0	37809	9.02 µg/L	97
		427.1 -> 80.9	13582		
8:2FTS	7.804	527.1 -> 507.0	24043	8.70 µg/L	96
		527.1 -> 80.8	10292		
EtFOSAA	8.297	584.2 -> 419.1	9977	2.35 µg/L	93
		584.2 -> 526.0	4486		
FOSA	9.798	498.1 -> 77.9	16581	2.30 µg/L	99
		498.1 -> 478.0	518		
MeFOSAA	8.087	570.1 -> 419.0	10660	2.27 µg/L	94
		570.1 -> 483.0	2075		
PFBA	2.695	212.8 -> 168.9	49620	9.22 µg/L	100
PFBS	5.203	298.7 -> 79.9	11085	2.06 µg/L	98
		298.7 -> 98.8	4472		
PFDA	8.005	512.9 -> 469.0	40758	2.29 µg/L	95
		512.9 -> 219.0	8128		
PFDODA	8.868	613.1 -> 569.0	55878	2.33 µg/L	99
		613.1 -> 319.0	9838		
PFDS	9.008	599.0 -> 79.9	8977	2.24 µg/L	95

7.7.12
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.293	599.0 -> 98.8	4376	2.28	µg/L	99
		363.1 -> 319.0	83421			
PFHpS	7.612	363.1 -> 169.0	14695	2.29	µg/L	98
		449.0 -> 79.9	14510			
PFHxA	5.350	449.0 -> 98.9	7295	2.33	µg/L	98
		313.0 -> 269.0	48451			
PFHxS	7.030	313.0 -> 118.9	1237	2.19	µg/L	m
		398.7 -> 79.9	9929			
PFNA	7.522	398.7 -> 98.9	4997	2.13	µg/L	99
		463.0 -> 419.0	51386			
PFNS	8.586	463.0 -> 219.0	12693	2.32	µg/L	94
		548.8 -> 79.9	6051			
PFOA	6.978	548.8 -> 98.9	3160	2.30	µg/L	100
		413.0 -> 369.0	94250			
PFOS	8.119	413.0 -> 169.0	19167	2.05	µg/L	m
		498.9 -> 79.9	12545			
PFPeA	4.177	498.9 -> 98.8	6449	4.60	µg/L	100
		263.0 -> 219.0	69300			
PFPeS	6.282	349.1 -> 79.9	10339	2.09	µg/L	99
		349.1 -> 98.9	4532			
PFTeDA	9.637	713.1 -> 669.0	51613	2.37	µg/L	99
		713.1 -> 168.9	5639			
PFTrDA	9.267	663.0 -> 619.0	61192	2.39	µg/L	99
		663.0 -> 168.9	8540			
PFUnDA	8.449	563.1 -> 519.0	52943	2.48	µg/L	99
		563.1 -> 269.1	11380			
11CI-PF3OUdS	9.294	630.9 -> 450.9	72271	4.47	µg/L	97
		632.9 -> 452.9	23043			
9CI-PF3ONS	8.451	530.8 -> 351.0	71820	4.60	µg/L	99
		532.8 -> 353.0	22057			
ADONA	6.556	376.9 -> 250.9	215708	4.97	µg/L	100
		376.9 -> 84.8	52109			
HFPO-DA	5.703	284.9 -> 168.9	27205	4.72	µg/L	100
		284.9 -> 184.9	2647			
3:3FTCA	3.642	241.0 -> 177.0	7641	11.23	µg/L	100
		241.0 -> 117.0	701			
5:3FTCA	6.020	341.0 -> 237.1	154026	58.51	µg/L	100
		341.0 -> 217.0	110781			
7:3FTCA	7.536	441.0 -> 316.9	75399	60.82	µg/L	92
		441.0 -> 336.9	174653			
EtFOSA	11.399	526.0 -> 219.0	15716	4.78	µg/L	98
		526.0 -> 169.0	21642			
EtFOSE	11.320	630.0 -> 58.9	22397	11.66	µg/L	100
		511.9 -> 219.0	13467			
MeFOSA	11.128	511.9 -> 169.0	19548	4.71	µg/L	m
		616.1 -> 58.9	26244			
MeFOSE	11.035	699.1 -> 79.9	6695	11.83	µg/L	100
		699.1 -> 98.8	3577			
PFDoDS	9.764	295.0 -> 201.0	7009	2.25	µg/L	94
		295.0 -> 84.9	1675			
NFDHA	5.229	279.0 -> 85.1	39400	4.98	µg/L	95
		229.0 -> 84.9	40068			
PFMBA	4.578	314.8 -> 134.9	65942	4.57	µg/L	100
		314.8 -> 82.9	2269			
PFMPA	3.332			4.32	µg/L	100
PFEESA	5.722			4.32	µg/L	100

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



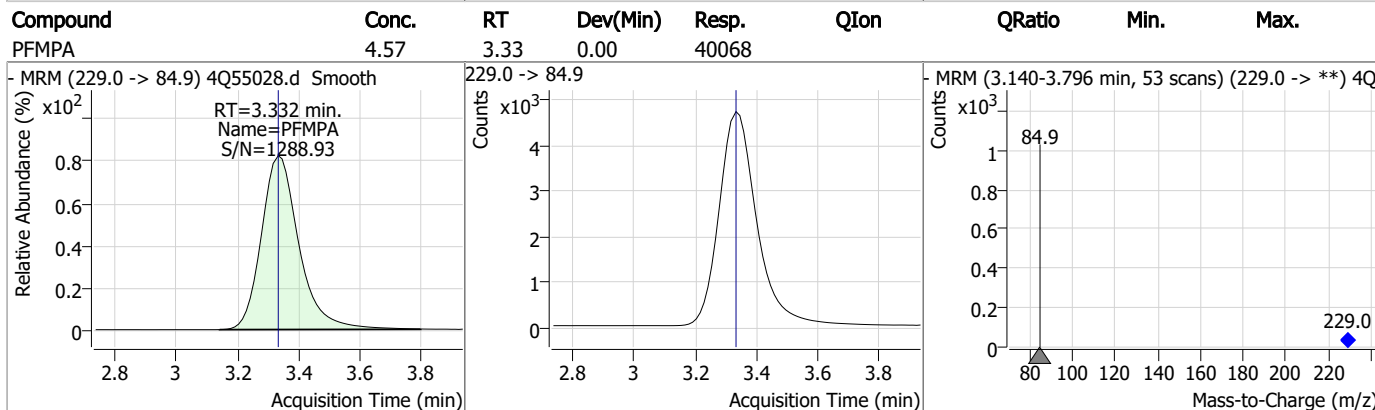
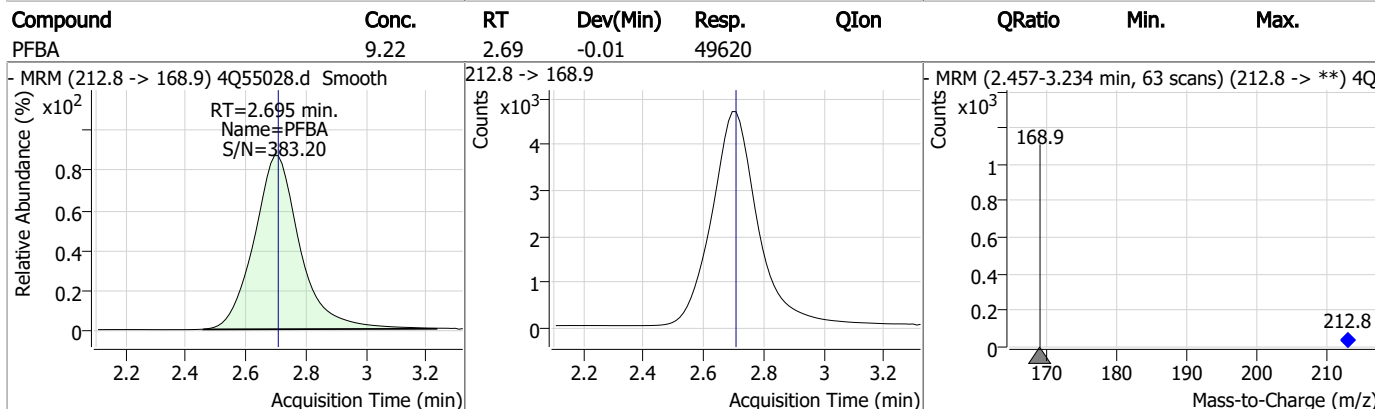
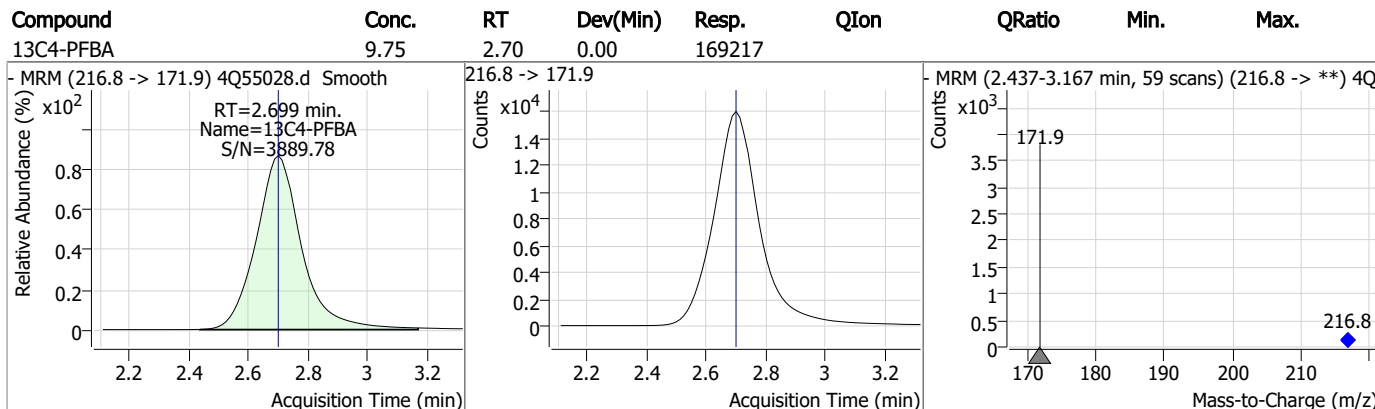
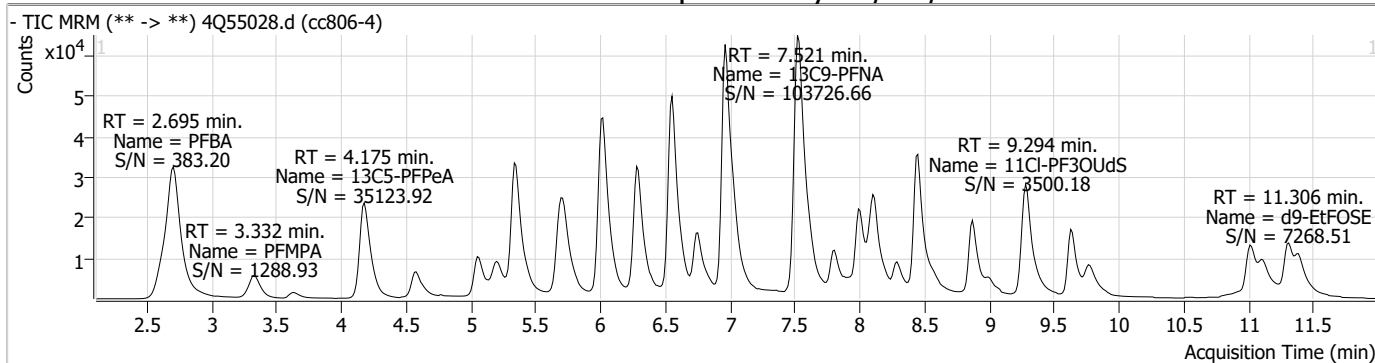
Perfluorinated Compounds by LC/MS/MS

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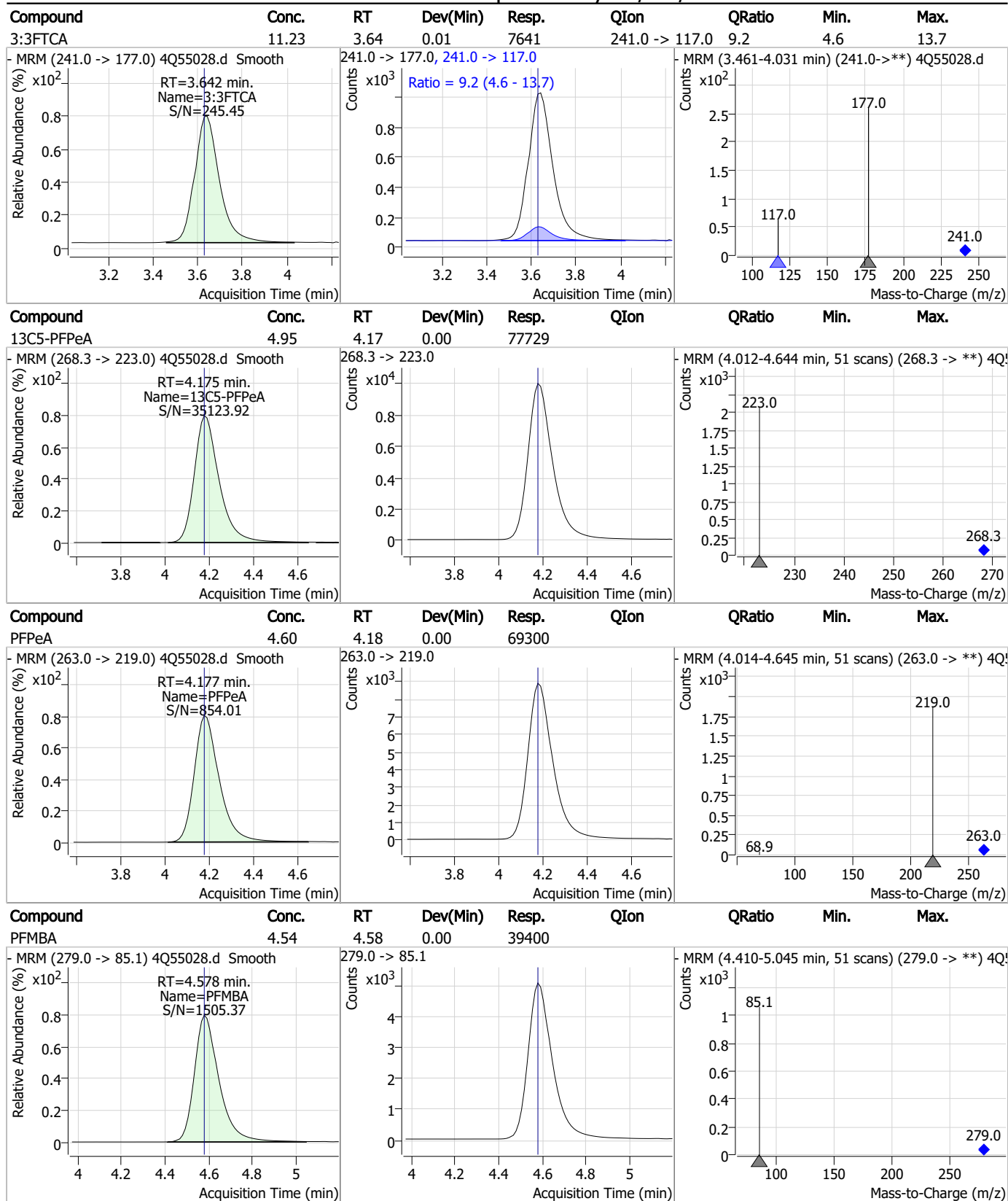
7.7.12

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Perfluorinated Compounds by LC/MS/MS

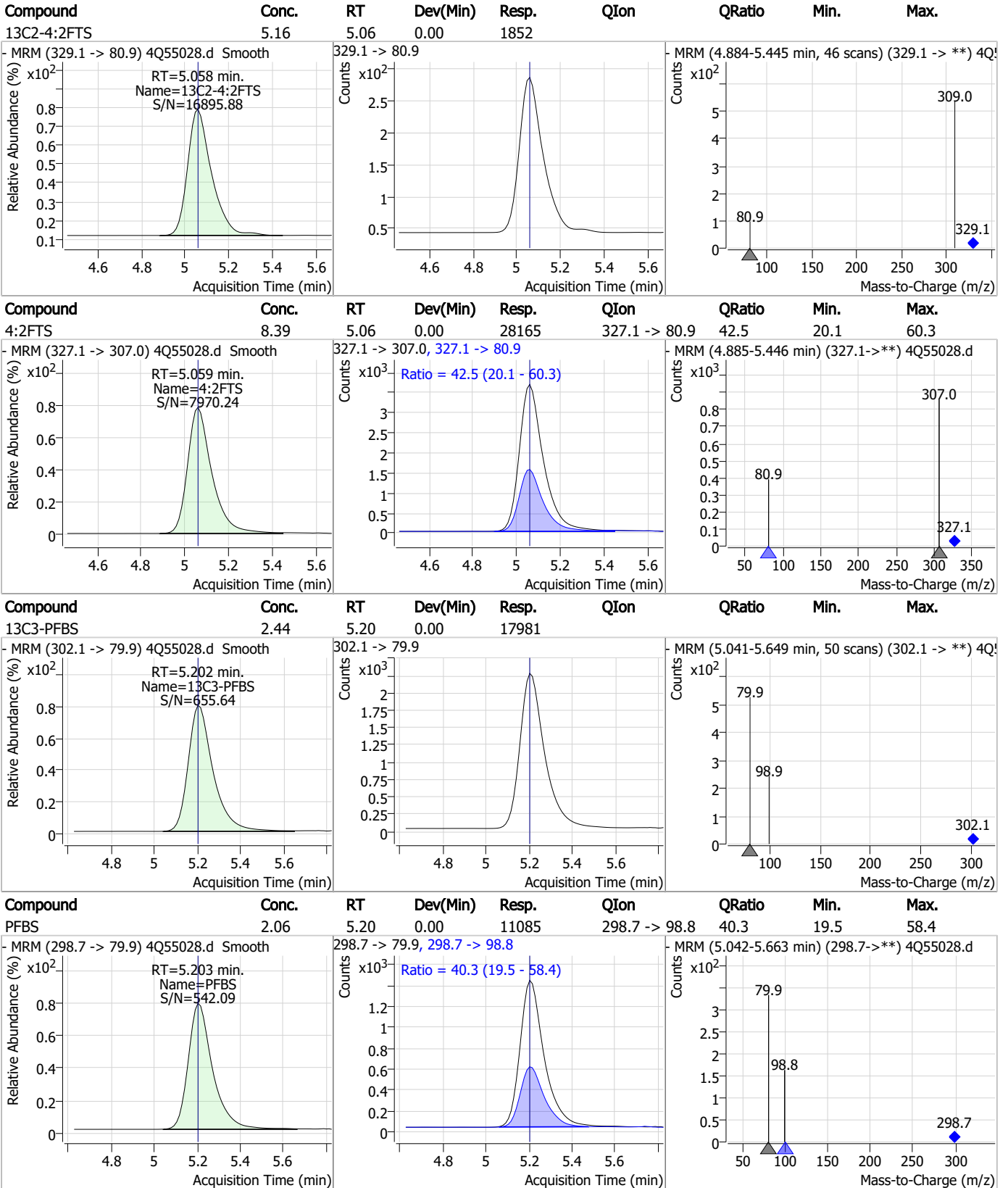


Perfluorinated Compounds by LC/MS/MS



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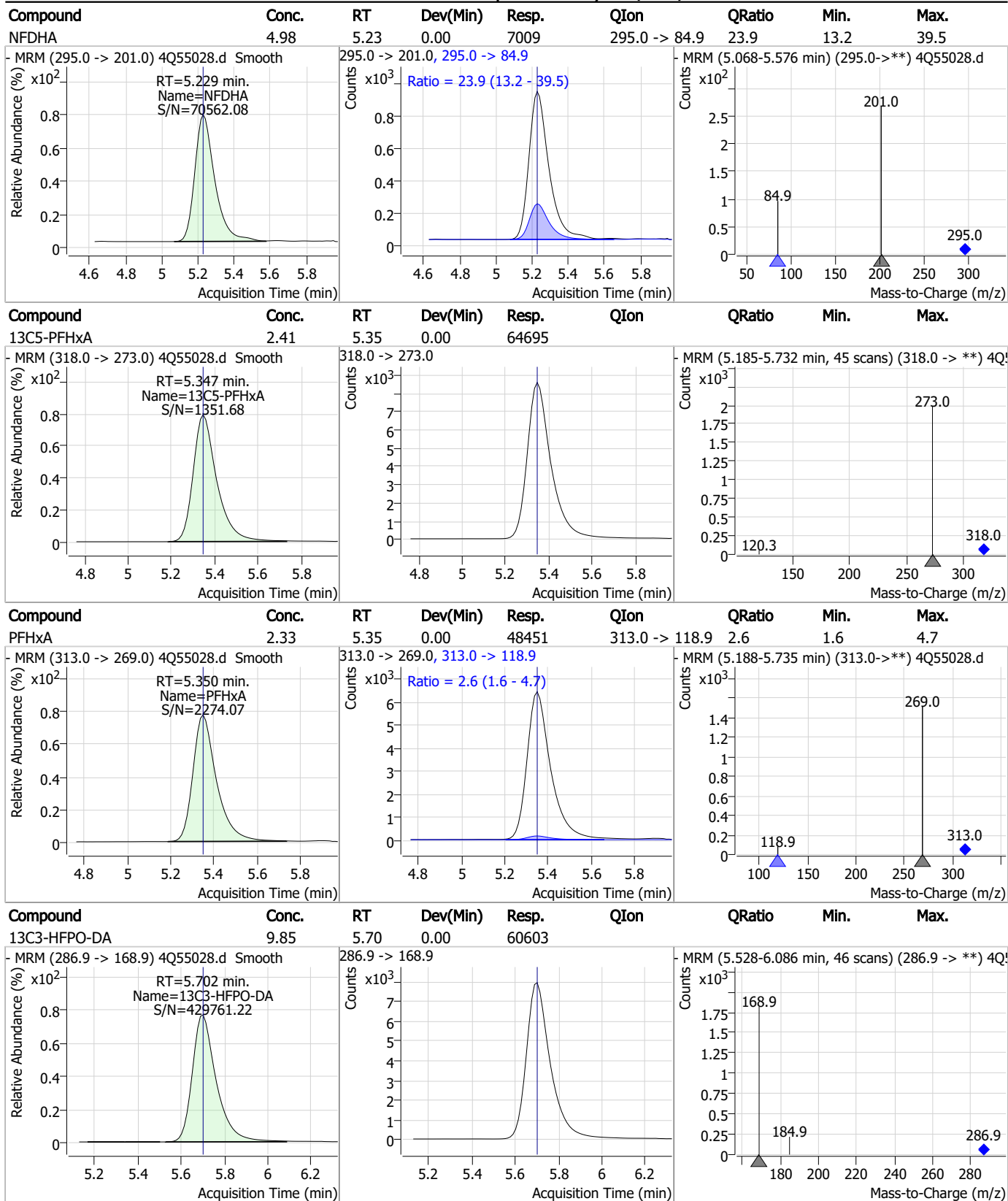
Perfluorinated Compounds by LC/MS/MS



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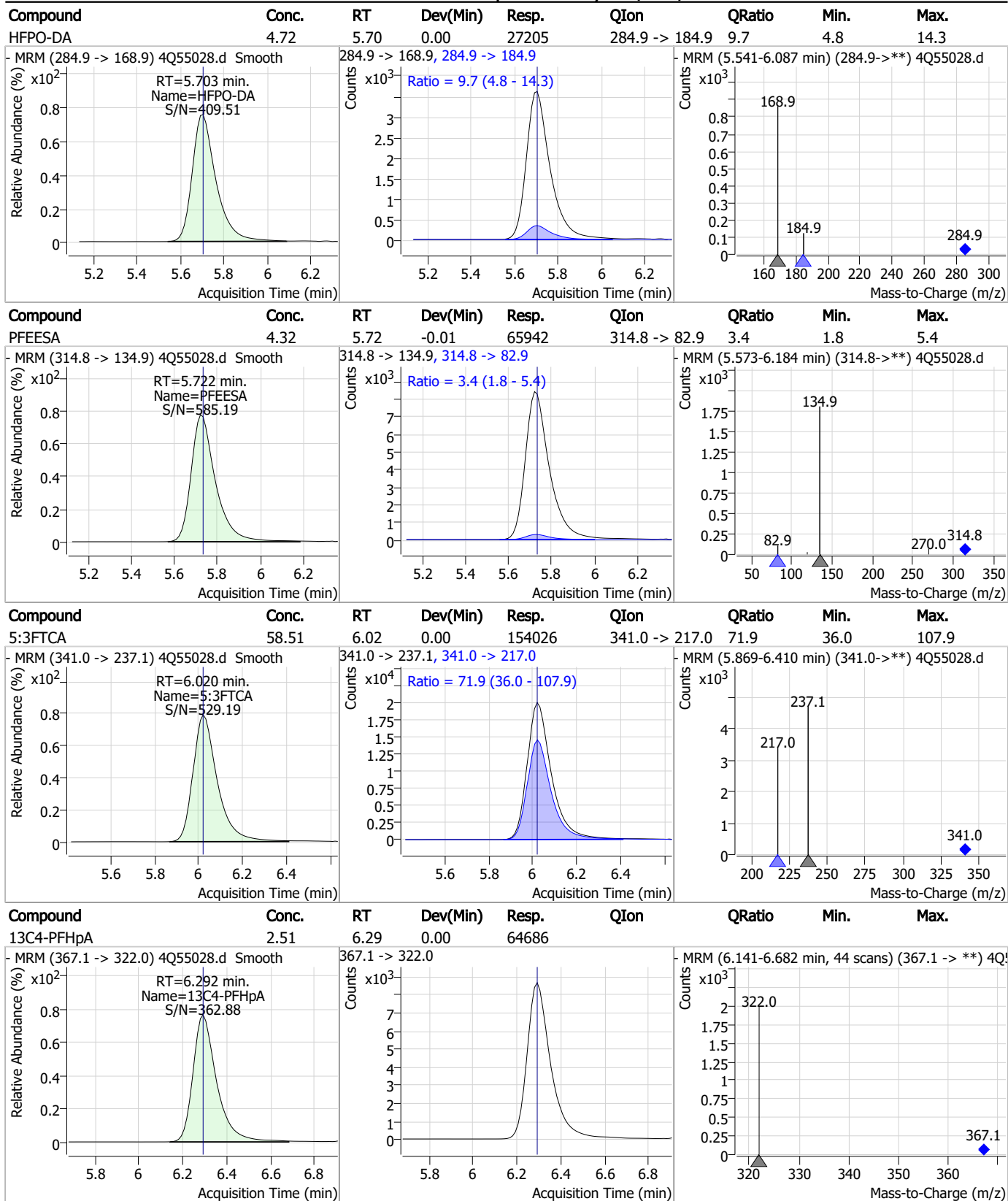
Perfluorinated Compounds by LC/MS/MS



7.7.12
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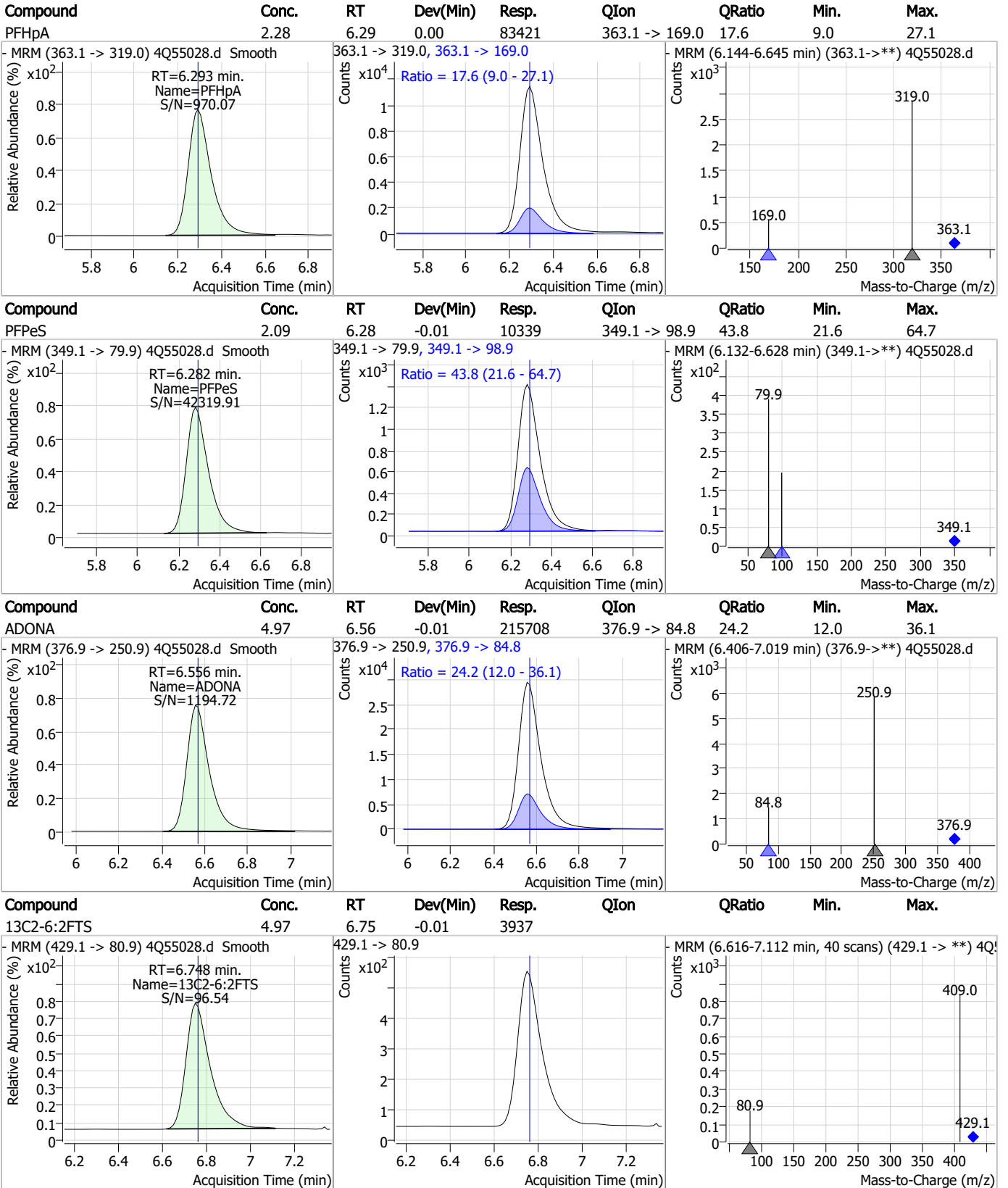


Perfluorinated Compounds by LC/MS/MS



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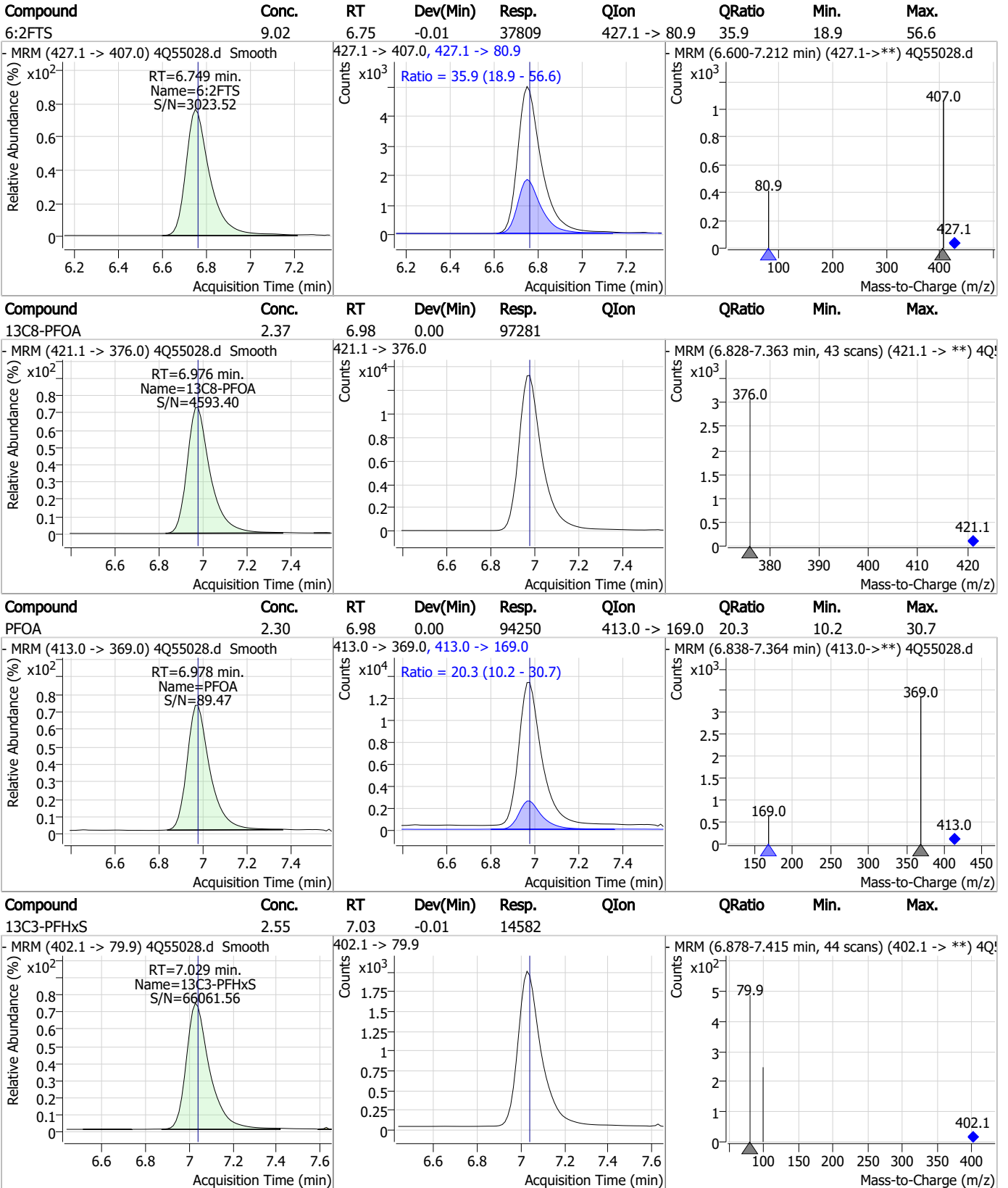
Perfluorinated Compounds by LC/MS/MS



7.7.12 7



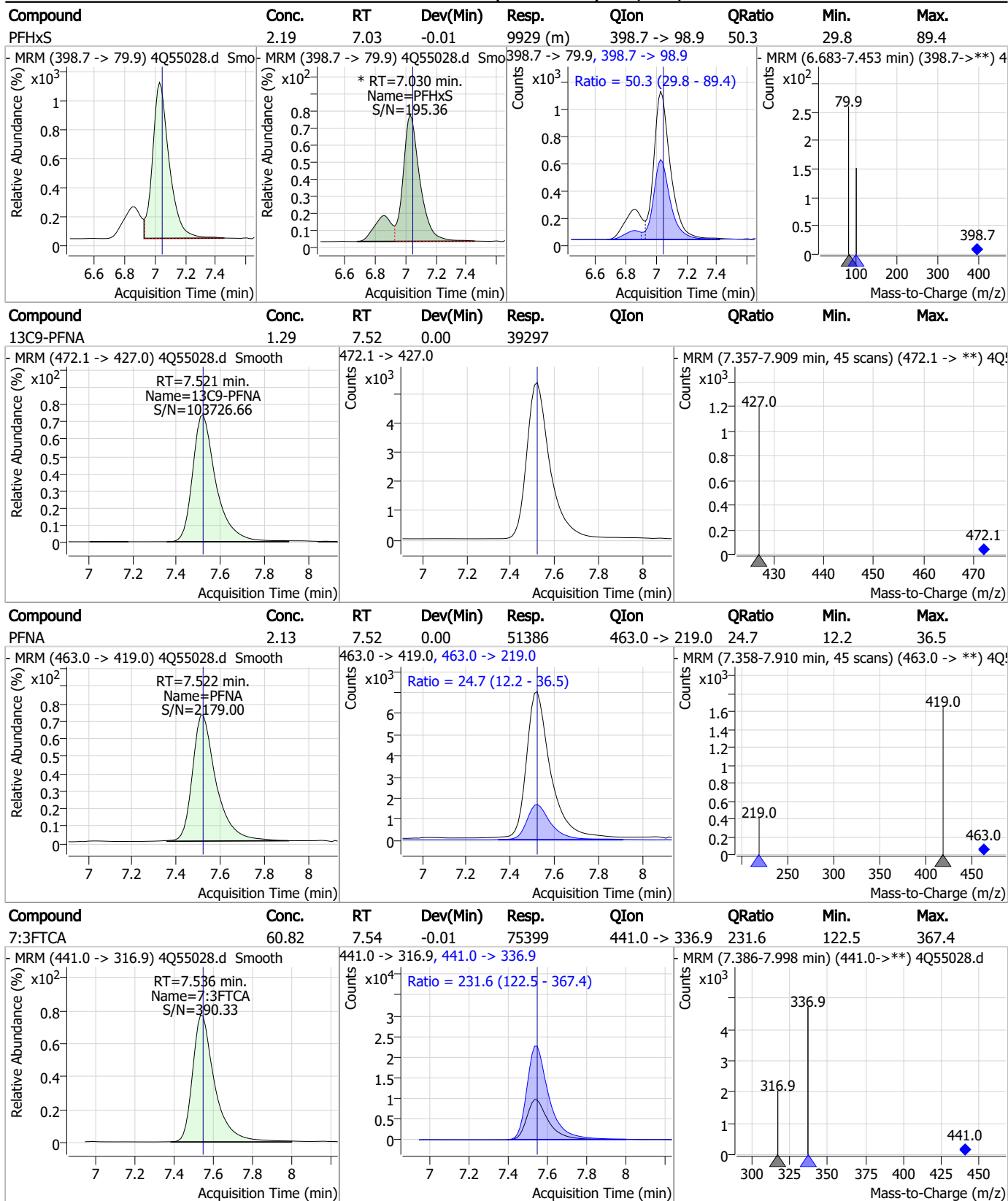
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7.7.12 7

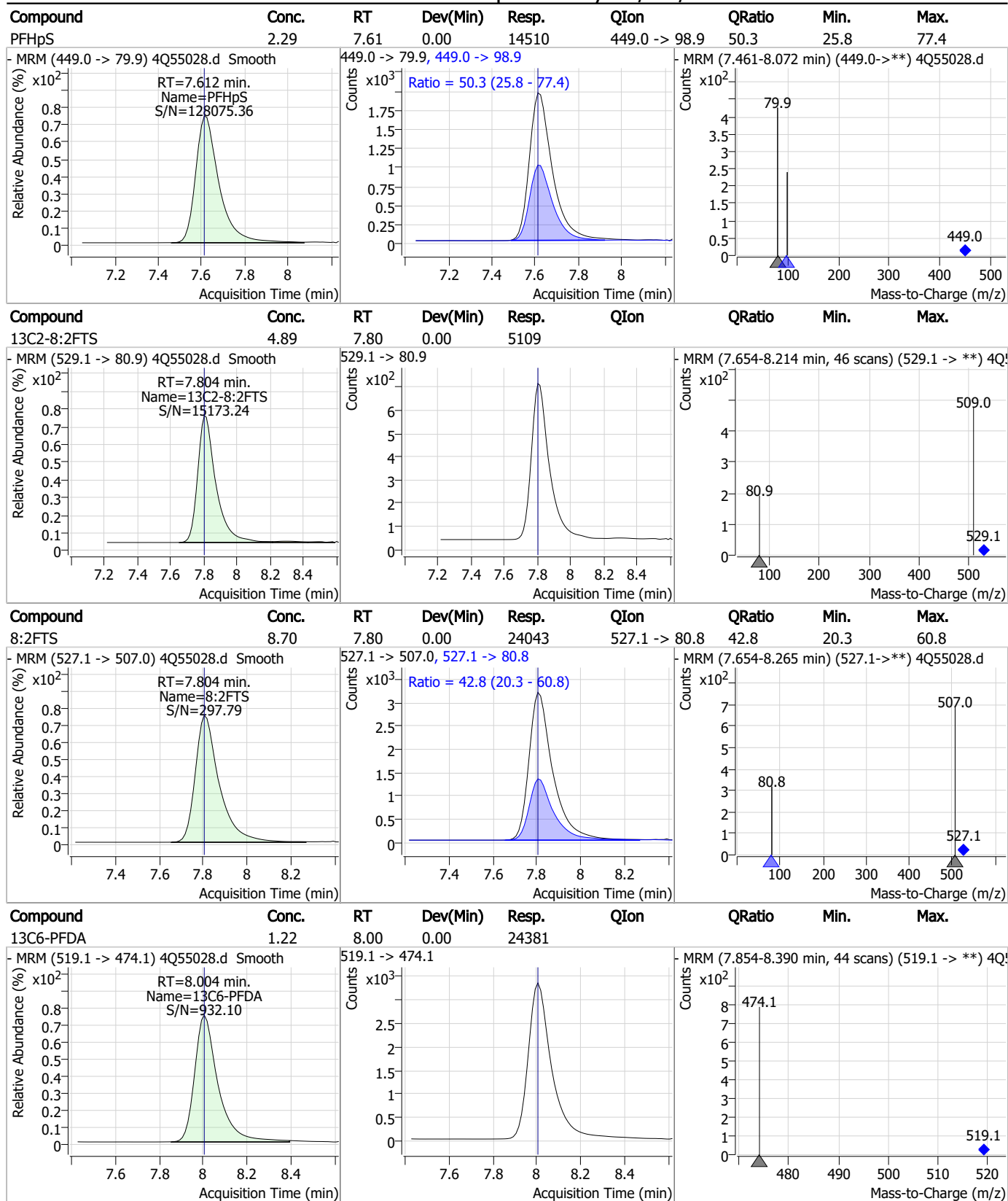


Perfluorinated Compounds by LC/MS/MS



7.7.12
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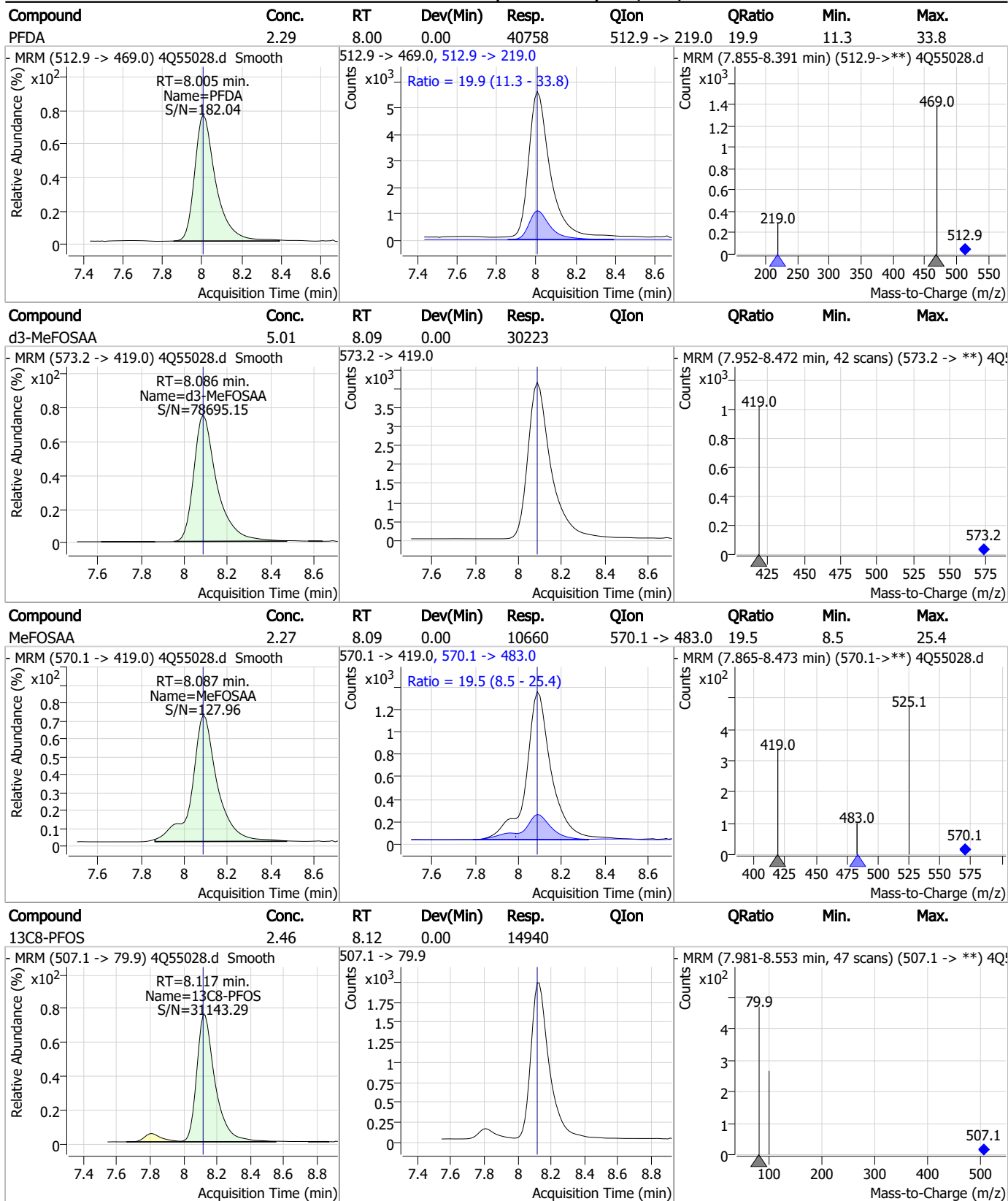
Perfluorinated Compounds by LC/MS/MS



7.7.12
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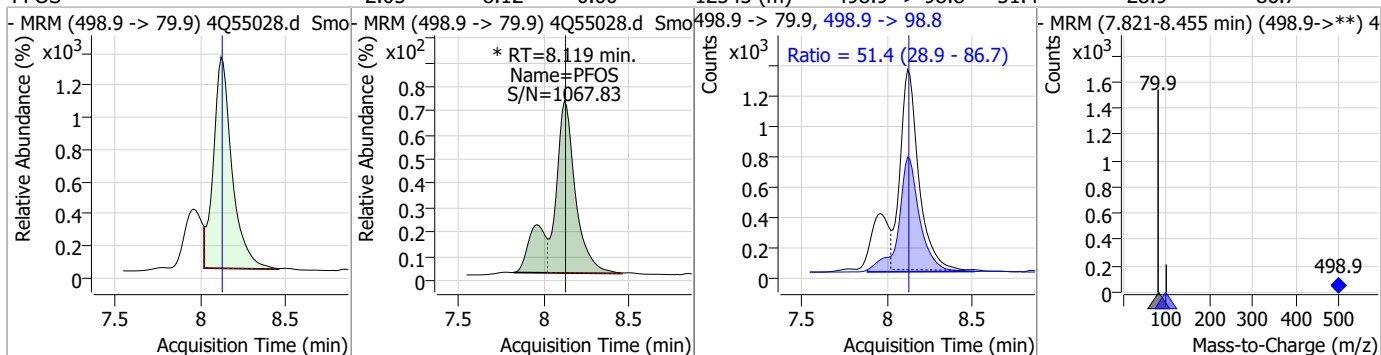
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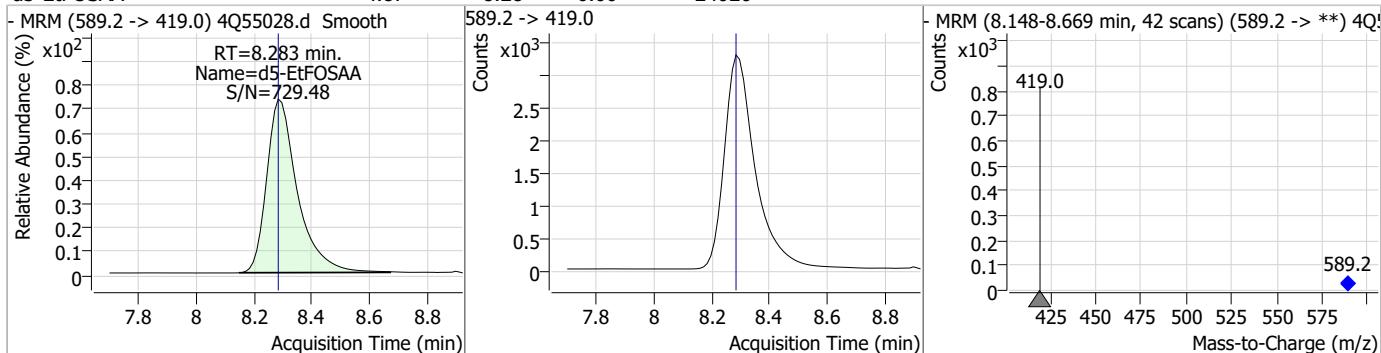
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Perfluorinated Compounds by LC/MS/MS

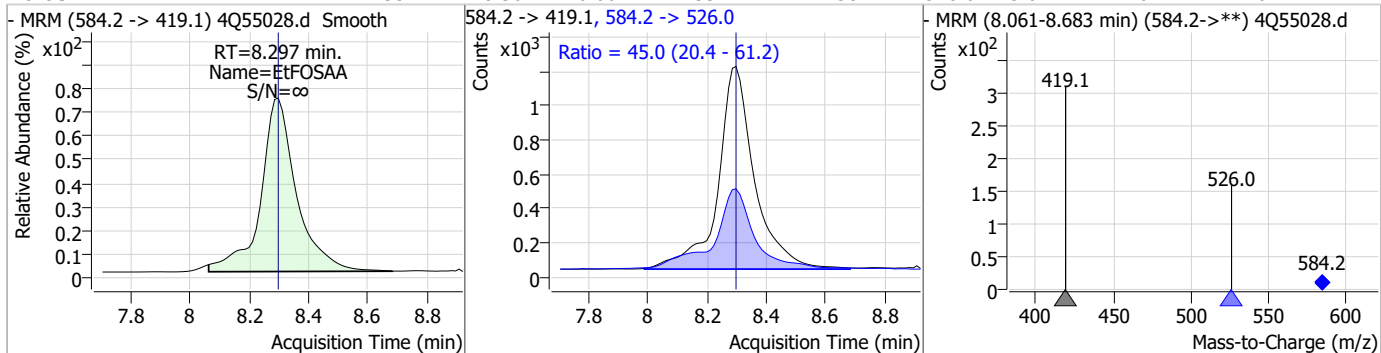
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.05	8.12	0.00	12545 (m)	498.9 -> 98.8	51.4	28.9	86.7



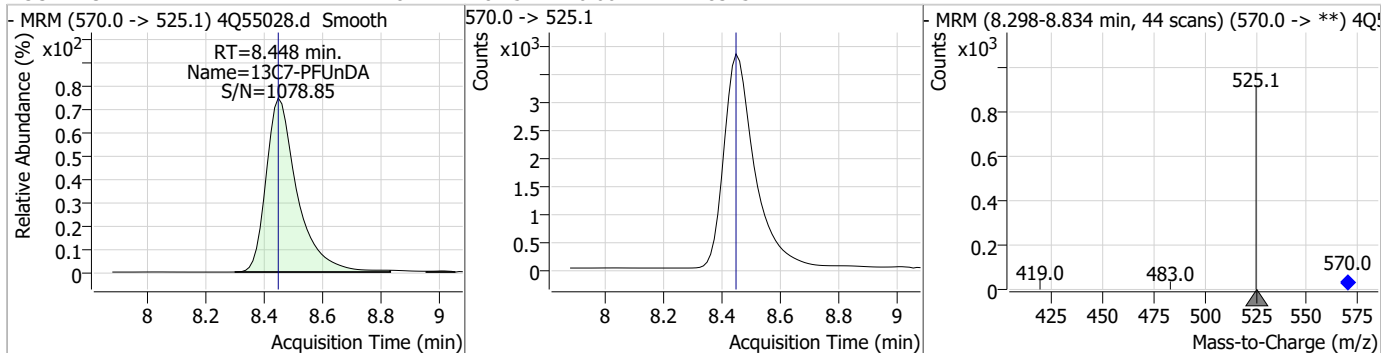
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.87	8.28	0.00	24026				



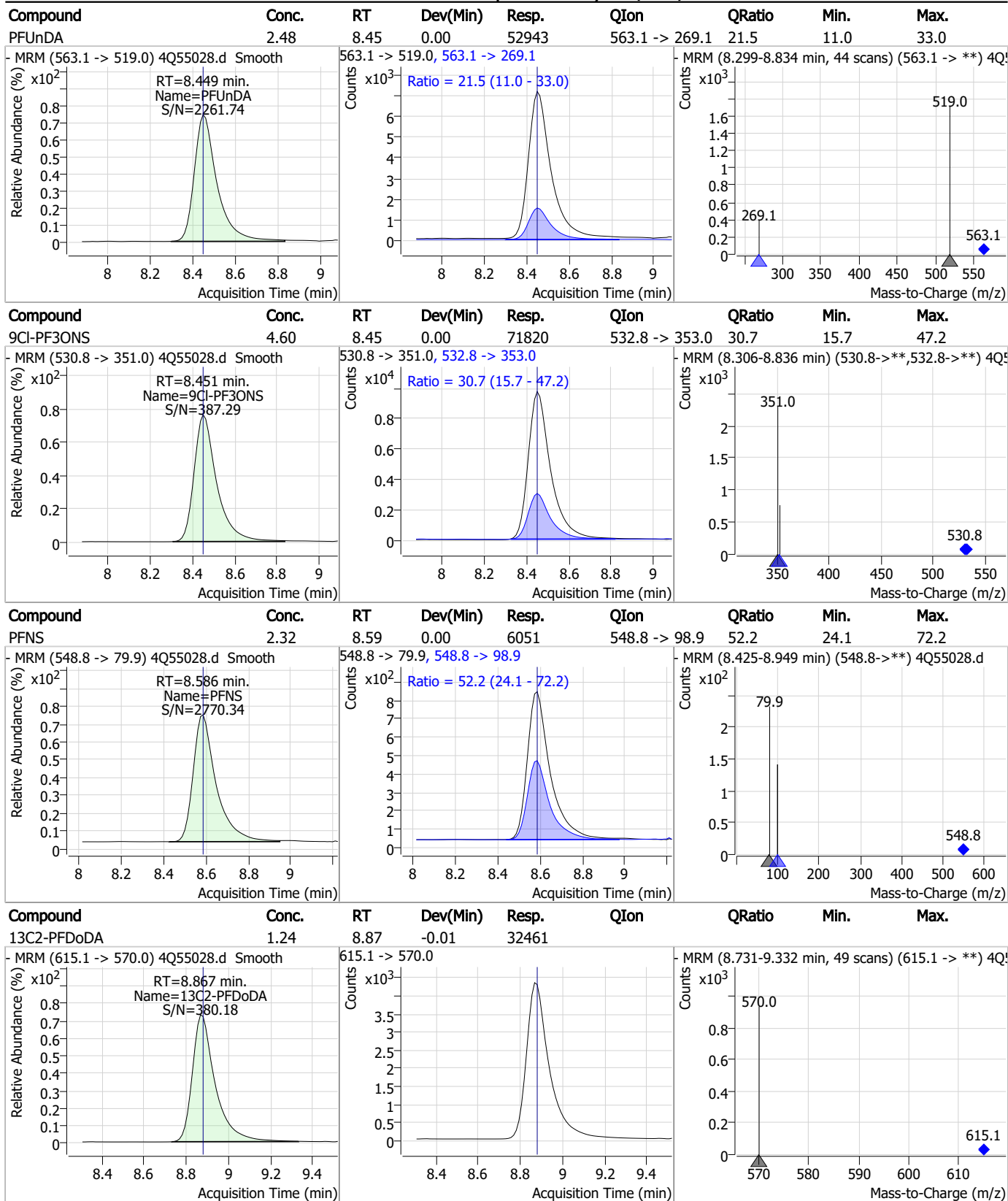
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.35	8.30	0.00	9977	584.2 -> 526.0	45.0	20.4	61.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.45	0.00	28375				



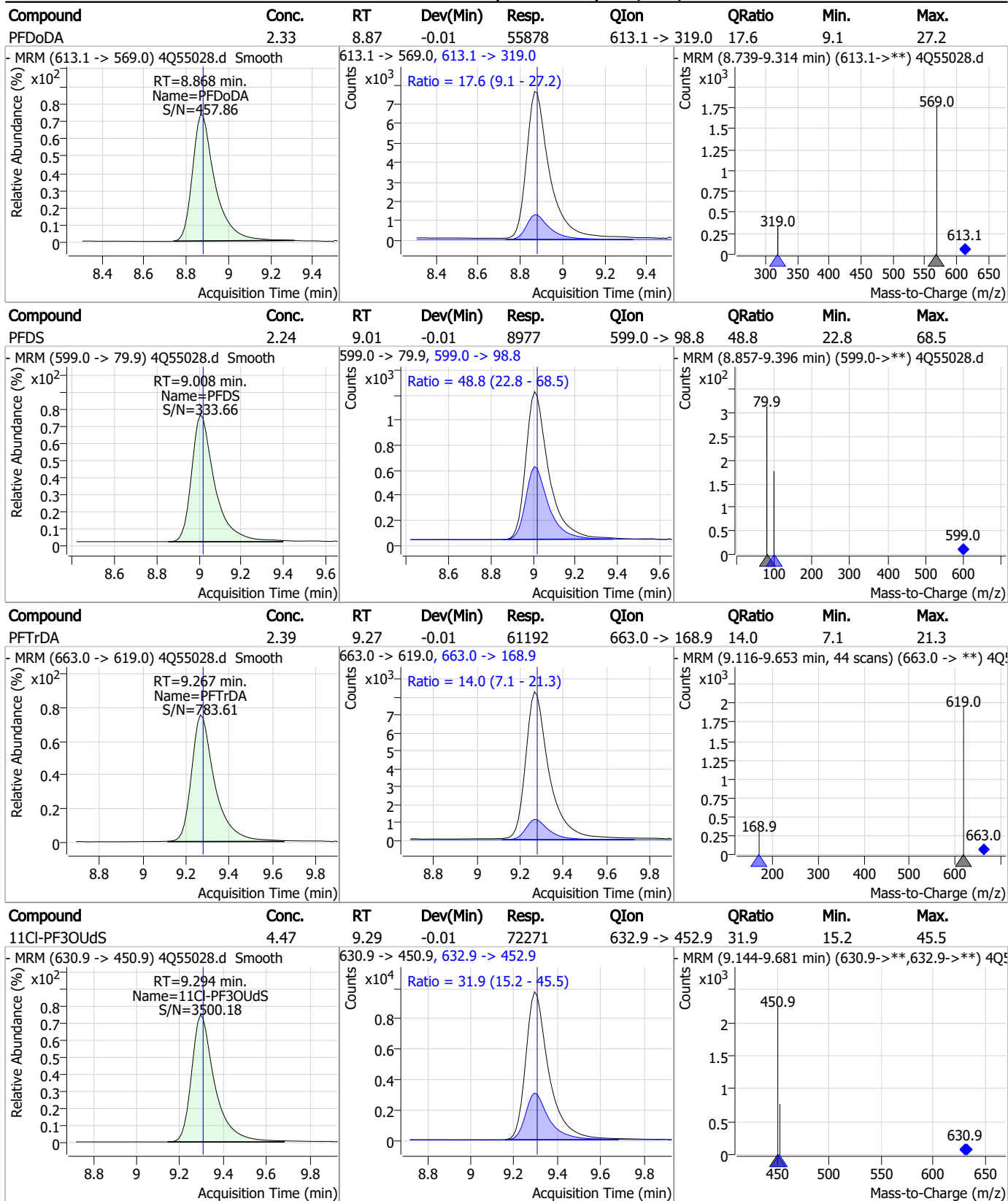
Perfluorinated Compounds by LC/MS/MS



7.7.12
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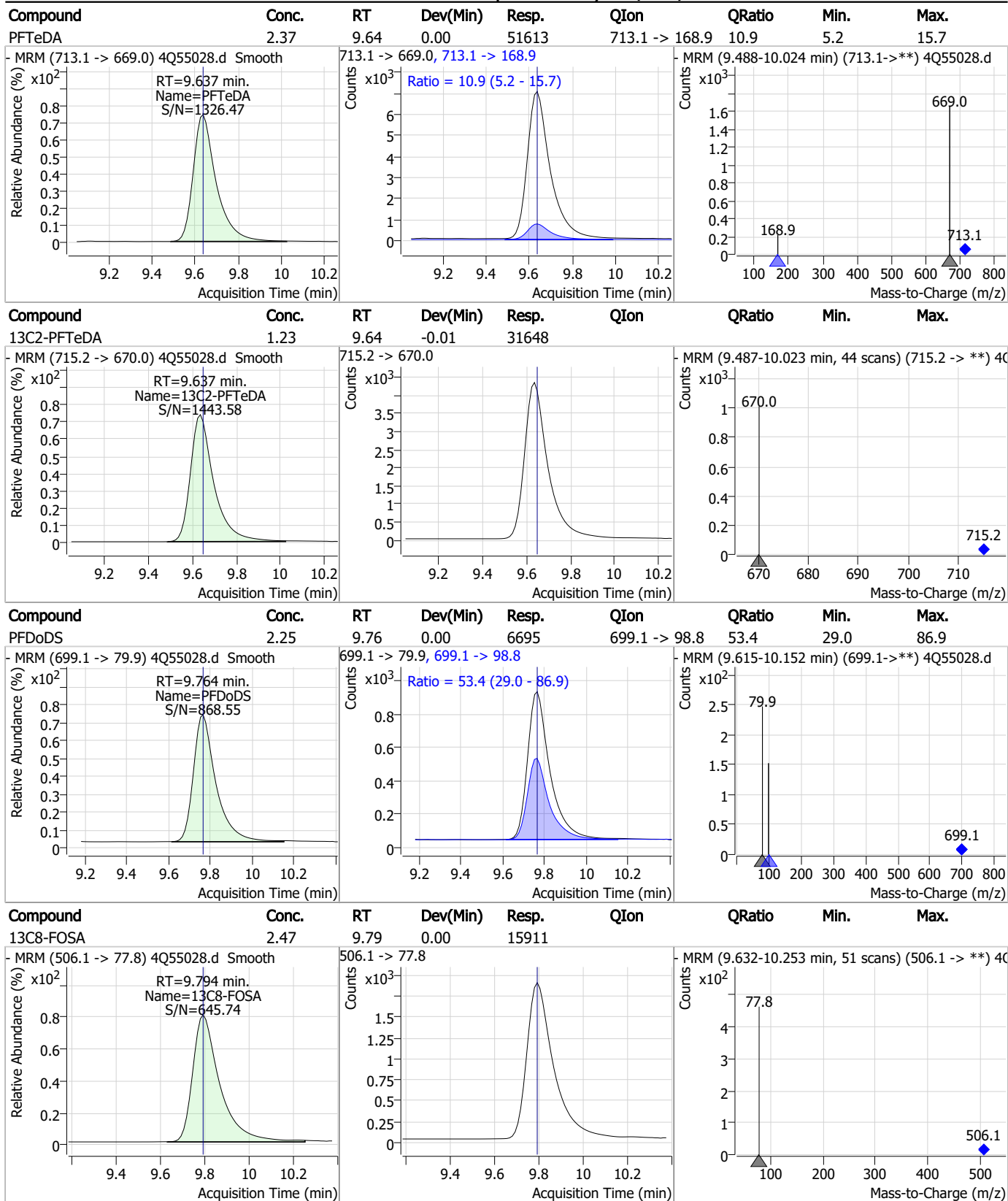


Perfluorinated Compounds by LC/MS/MS



7.7.12
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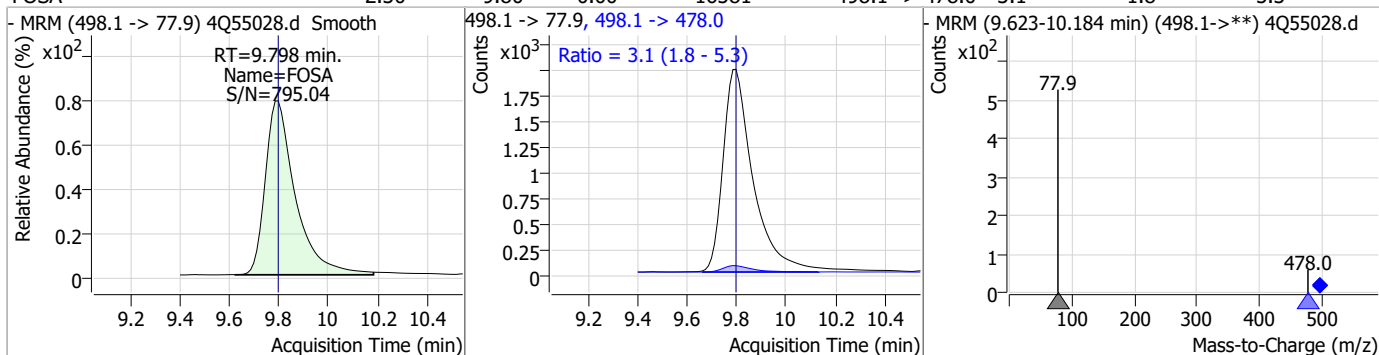
Perfluorinated Compounds by LC/MS/MS



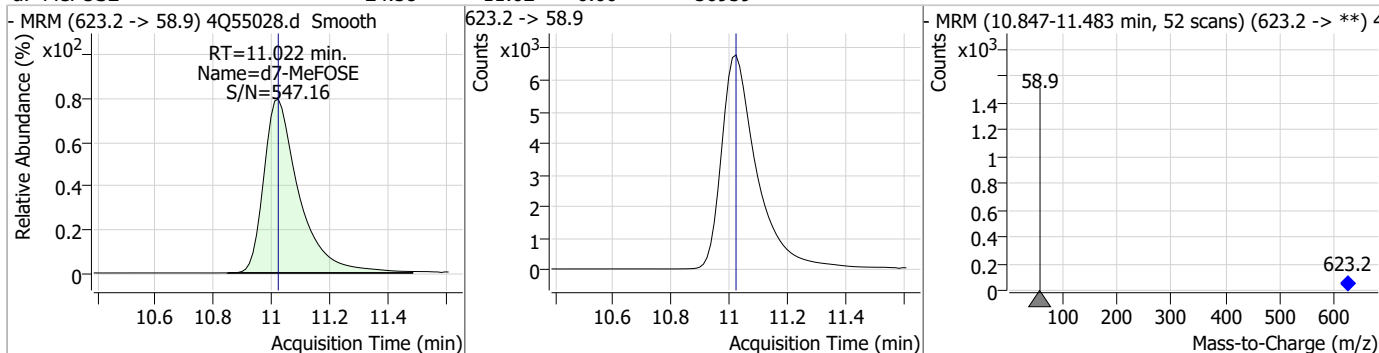
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Perfluorinated Compounds by LC/MS/MS

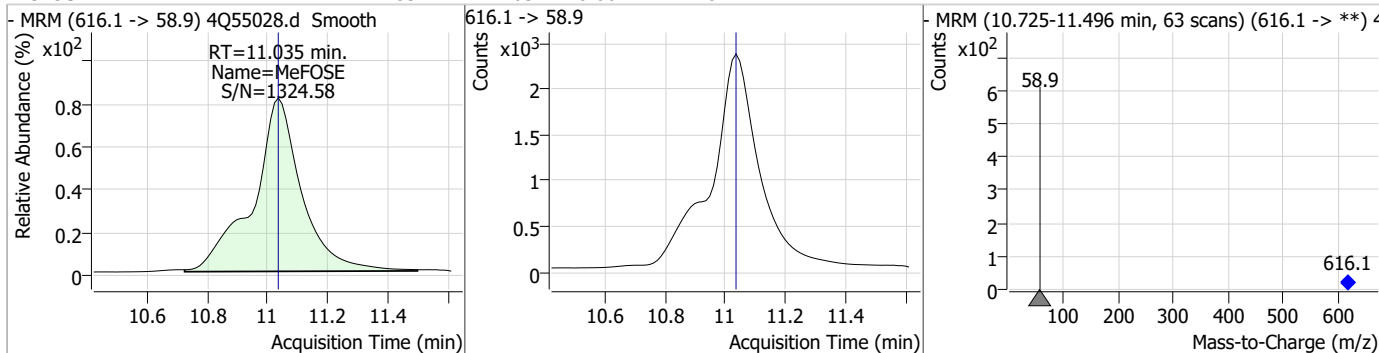
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.30	9.80	0.00	16581	498.1 -> 478.0	3.1	1.8	5.3



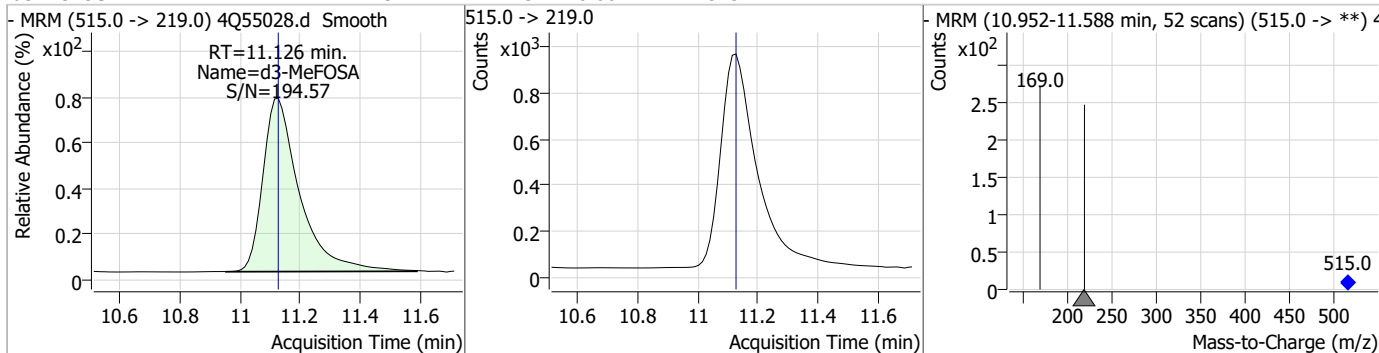
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.58	11.02	0.00	56959	623.2 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.83	11.03	0.00	26244	616.1 -> 58.9			

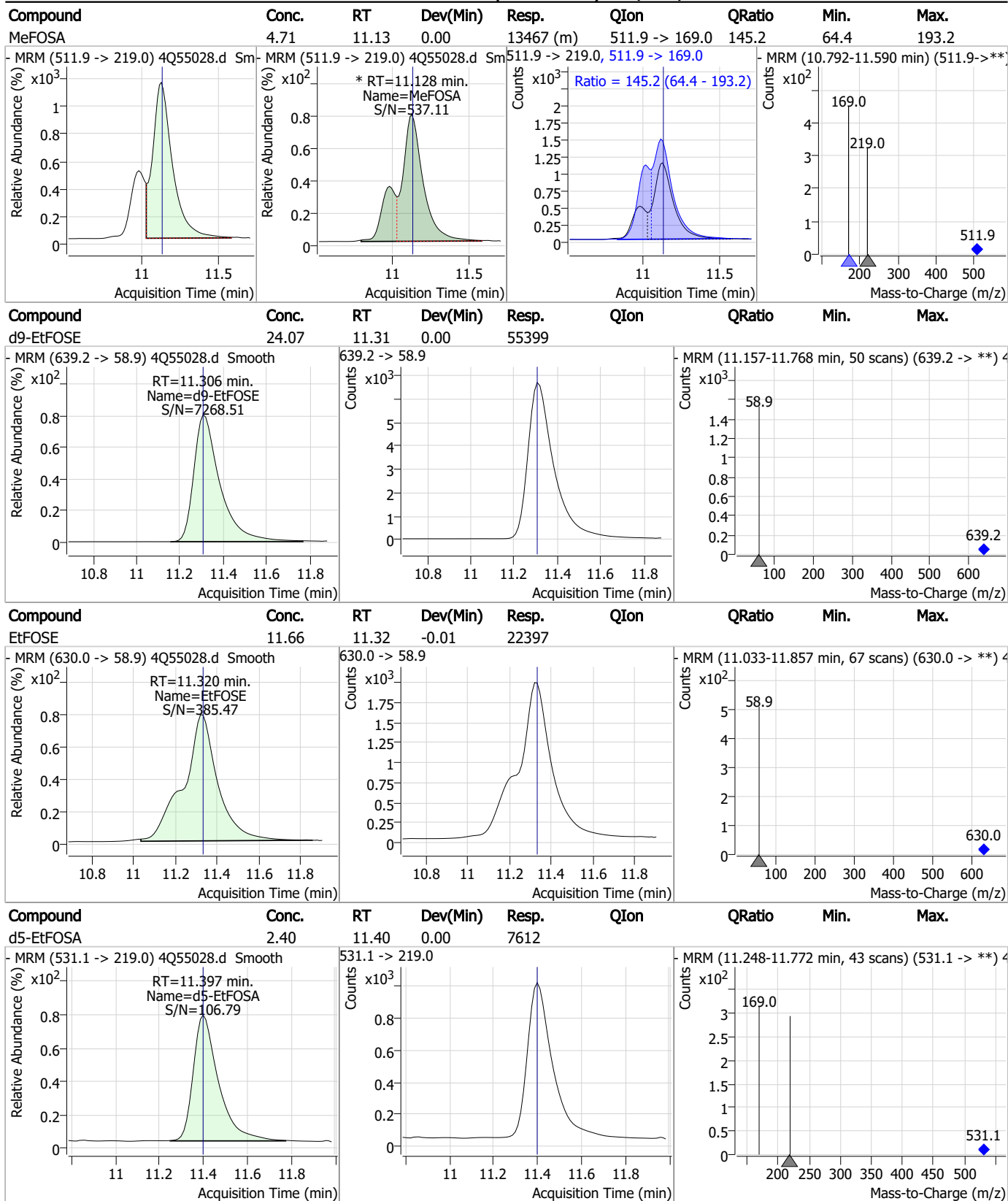


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.37	11.13	0.00	7825	515.0 -> 169.0			



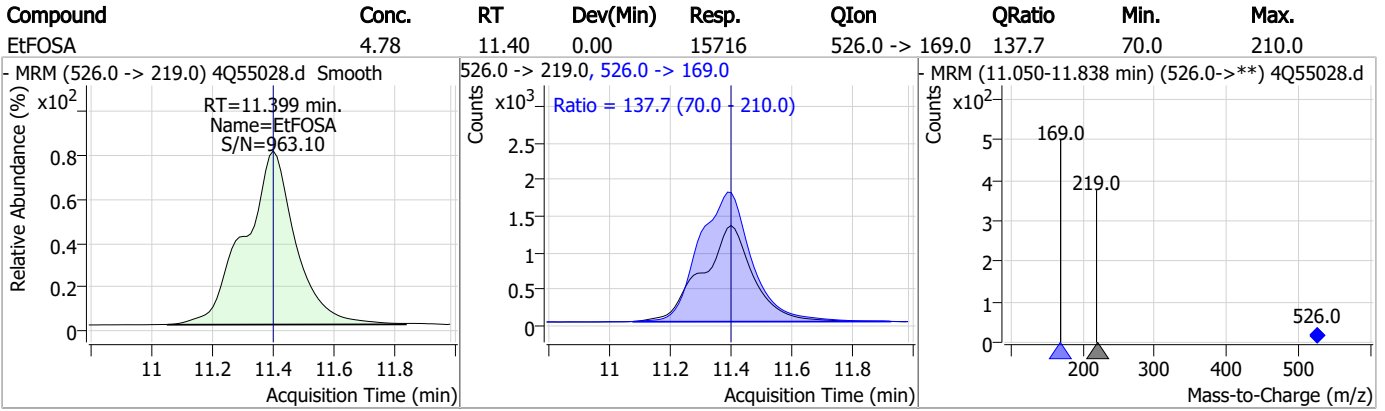
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



7.7.12
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Perfluorinated Compounds by LC/MS/MS



7.7.12
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Manual Integration Approval Summary

Sample Number: S4Q806-CC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55028.D Analyst approved: 12/12/23 11:03 Anna Ludwig
Injection Time: 12/11/23 17:42 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.03	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
MeFOSA	31506-32-8		11.13	Split peak

7.7.12.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55029.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 5:57:23 PM
 Sample Name : cc806-1.0LL
 Vial : P1-A2
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.699	216.8 -> 171.9	168289	10.00 µg/L	0.000
M5-PFPeA	4.187	268.3 -> 223.0	76490	5.00 µg/L	0.012
M5-PFHxA	5.347	318.0 -> 273.0	64426	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	63480	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	100011	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	38293	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	25290	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	29625	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	32653	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	30517	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	15952	2.50 µg/L	0.000
M3-PFBS	5.202	302.1 -> 79.9	18350	2.50 µg/L	0.000
M3-PFHxS	7.029	402.1 -> 79.9	14954	2.50 µg/L	-0.012
M8-PFOS	8.117	507.1 -> 79.9	15400	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1878	5.00 µg/L	0.000
M2-6:2FTS	6.748	429.1 -> 80.9	4059	5.00 µg/L	-0.012
M2-8:2FTS	7.804	529.1 -> 80.9	5374	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	30098	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	59376	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	23836	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	56264	25.00 µg/L	0.000
M9-EtFOSE	11.306	639.2 -> 58.9	54951	25.00 µg/L	0.000
M5-EtFOSA	11.397	531.1 -> 219.0	7555	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7571	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	11943	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	77804	5.00 µg/L	0.000
18O2-PFHxS	7.028	403.0 -> 83.9	9084	2.50 µg/L	-0.012
13C4-PFOA	6.977	417.1 -> 372.0	109027	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	28191	1.25 µg/L	0.000
13C5-PFNA	7.509	468.0 -> 423.0	36684	1.25 µg/L	-0.012
13C2-PFHxA	5.348	315.1 -> 270.0	68761	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1878	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.9%		
13C2-6:2FTS	6.748	429.1 -> 80.9	4059	5.23 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-8:2FTS	7.804	529.1 -> 80.9	5374	5.25 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-PFDoDA	8.867	615.1 -> 570.0	32653	1.23 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C2-PFTeDA	9.637	715.2 -> 670.0	30517	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.4%		
13C3-PFBS	5.202	302.1 -> 79.9	18350	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C3-PFHxS	7.029	402.1 -> 79.9	14954	2.67 µg/L	-0.012

7.7.13
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C4-PFBA	2.699	216.8 -> 171.9	168289	10.04 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C4-PFHpA	6.292	367.1 -> 322.0	63480	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.347	318.0 -> 273.0	64426	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFPeA	4.187	268.3 -> 223.0	76490	5.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C6-PFDA	8.004	519.1 -> 474.1	25290	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C7-PFUnDA	8.448	570.0 -> 525.1	29625	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.9%	
13C8-FOSA	9.794	506.1 -> 77.8	15952	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C8-PFOA	6.976	421.1 -> 376.0	100011	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C8-PFOS	8.117	507.1 -> 79.9	15400	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C9-PFNA	7.521	472.1 -> 427.0	38293	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.6%	
d3-MeFOSAA	8.086	573.2 -> 419.0	30098	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	59376	10.13 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
d3-MeFOSA	11.126	515.0 -> 219.0	7571	2.18 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.4%	
d5-EtFOSAA	8.283	589.2 -> 419.0	23836	4.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
d7-MeFOSE	11.022	623.2 -> 58.9	56264	23.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.7%	
d9-EtFOSE	11.306	639.2 -> 58.9	54951	22.78 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 91.1%	
d5-EtFOSA	11.397	531.1 -> 219.0	7555	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.8%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	2348	0.69 µg/L	99
		327.1 -> 80.9	927		
6:2FTS	6.761	427.1 -> 407.0	3234	0.75 µg/L	98
		427.1 -> 80.9	1174		
8:2FTS	7.804	527.1 -> 507.0	2214	0.76 µg/L	96
		527.1 -> 80.8	844		
EtFOSAA	8.284	584.2 -> 419.1	904	0.21 µg/L	76
		584.2 -> 526.0	235		
FOSA	9.798	498.1 -> 77.9	1480	0.20 µg/L	98
		498.1 -> 478.0	62		
MeFOSAA	8.087	570.1 -> 419.0	1111	0.24 µg/L	96
		570.1 -> 483.0	206		
PFBA	2.707	212.8 -> 168.9	4089	0.76 µg/L	100
PFBS	5.203	298.7 -> 79.9	948	0.17 µg/L	86
		298.7 -> 98.8	447		
PFDA	7.992	512.9 -> 469.0	3389	0.18 µg/L	92
		512.9 -> 219.0	625		
PFDODA	8.868	613.1 -> 569.0	4445	0.18 µg/L	93
		613.1 -> 319.0	942		
PFDS	9.008	599.0 -> 79.9	724	0.18 µg/L	89

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.293	599.0 -> 98.8	383	0.18	µg/L	95
		363.1 -> 319.0	6622			
PFHpS	7.624	363.1 -> 169.0	1341	0.17	µg/L	99
		449.0 -> 79.9	1092			
PFHxA	5.350	449.0 -> 98.9	575	0.18	µg/L	96
		313.0 -> 269.0	3662			
PFHxS	7.043	313.0 -> 118.9	71	0.20	µg/L	96
		398.7 -> 79.9	909			
PFNA	7.522	398.7 -> 98.9	518	0.22	µg/L	95
		463.0 -> 419.0	5130			
PFNS	8.574	463.0 -> 219.0	1115	0.21	µg/L	93
		548.8 -> 79.9	558			
PFOA	6.978	548.8 -> 98.9	293	0.20	µg/L	100
		413.0 -> 369.0	8544			
PFOS	8.119	413.0 -> 169.0	1733	0.21	µg/L	74
		498.9 -> 79.9	1314			
PFPeA	4.189	498.9 -> 98.8	504	0.38	µg/L	100
		263.0 -> 219.0	5621			
PFPeS	6.282	349.1 -> 79.9	747	0.15	µg/L	81
		349.1 -> 98.9	414			
PFTeDA	9.637	713.1 -> 669.0	4079	0.19	µg/L	96
		713.1 -> 168.9	484			
PFTrDA	9.267	663.0 -> 619.0	5113	0.20	µg/L	99
		663.0 -> 168.9	714			
PFUnDA	8.449	563.1 -> 519.0	4157	0.19	µg/L	95
		563.1 -> 269.1	1006			
11CI-PF3OUdS	9.294	630.9 -> 450.9	6041	0.38	µg/L	96
		632.9 -> 452.9	1714			
9CI-PF3ONS	8.451	530.8 -> 351.0	5801	0.38	µg/L	98
		532.8 -> 353.0	1881			
ADONA	6.556	376.9 -> 250.9	16849	0.40	µg/L	99
		376.9 -> 84.8	4116			
HFPO-DA	5.703	284.9 -> 168.9	2173	0.39	µg/L	96
		284.9 -> 184.9	237			
3:3FTCA	3.642	241.0 -> 177.0	647	0.96	µg/L	98
		241.0 -> 117.0	54			
5:3FTCA	6.020	341.0 -> 237.1	11858	4.52	µg/L	98
		341.0 -> 217.0	8300			
7:3FTCA	7.536	441.0 -> 316.9	5664	4.59	µg/L	94
		441.0 -> 336.9	13275			
EtFOSA	11.399	526.0 -> 219.0	1213	0.37	µg/L	80
		526.0 -> 169.0	2001			
EtFOSE	11.332	630.0 -> 58.9	2207	1.16	µg/L	100
MeFOSA	11.115	511.9 -> 219.0	1209	0.44	µg/L	96
		511.9 -> 169.0	1497			
MeFOSE	11.035	616.1 -> 58.9	2113	0.96	µg/L	100
PFDoDS	9.764	699.1 -> 79.9	543	0.18	µg/L	96
		699.1 -> 98.8	331			
NFDHA	5.229	295.0 -> 201.0	612	0.44	µg/L	85
		295.0 -> 84.9	114			
PFMBA	4.591	279.0 -> 85.1	3157	0.37	µg/L	100
PFMPA	3.332	229.0 -> 84.9	3305	0.38	µg/L	100
PFEESA	5.722	314.8 -> 134.9	5480	0.36	µg/L	98
		314.8 -> 82.9	158			

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

7.7.13
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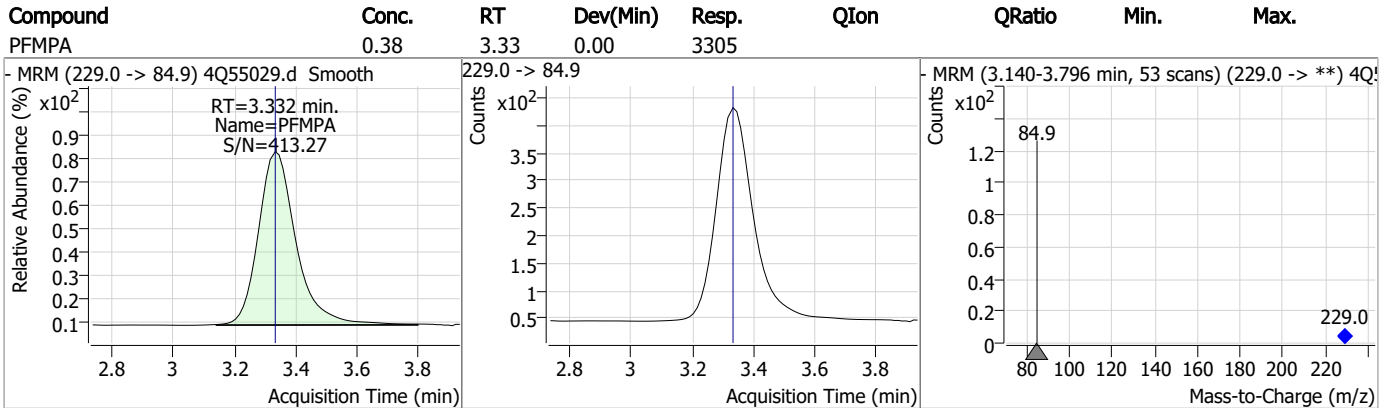
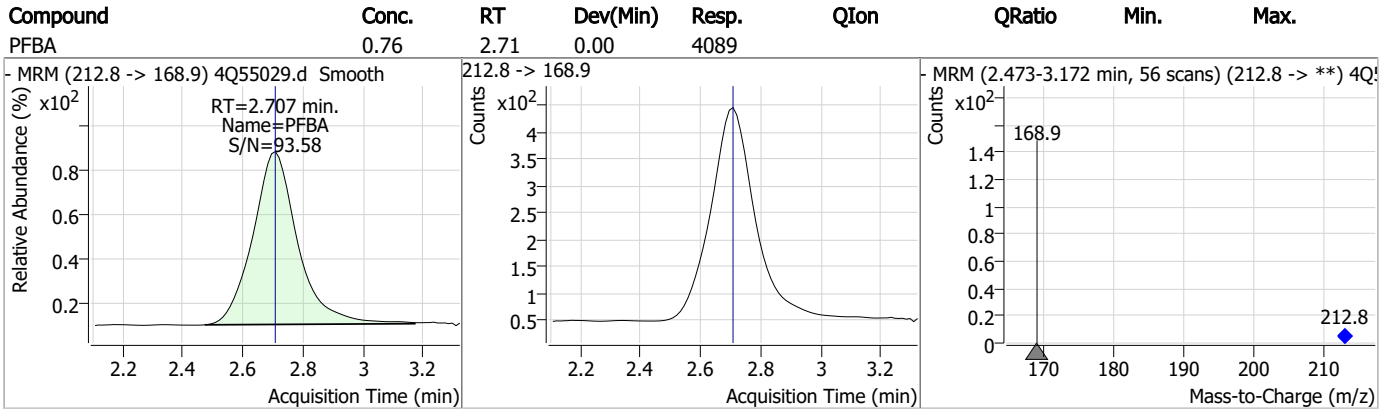
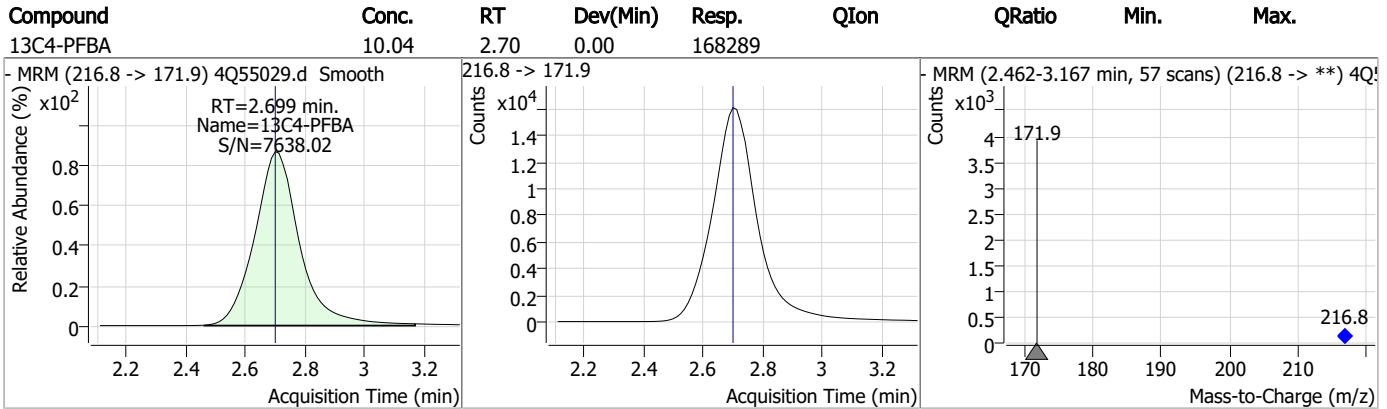
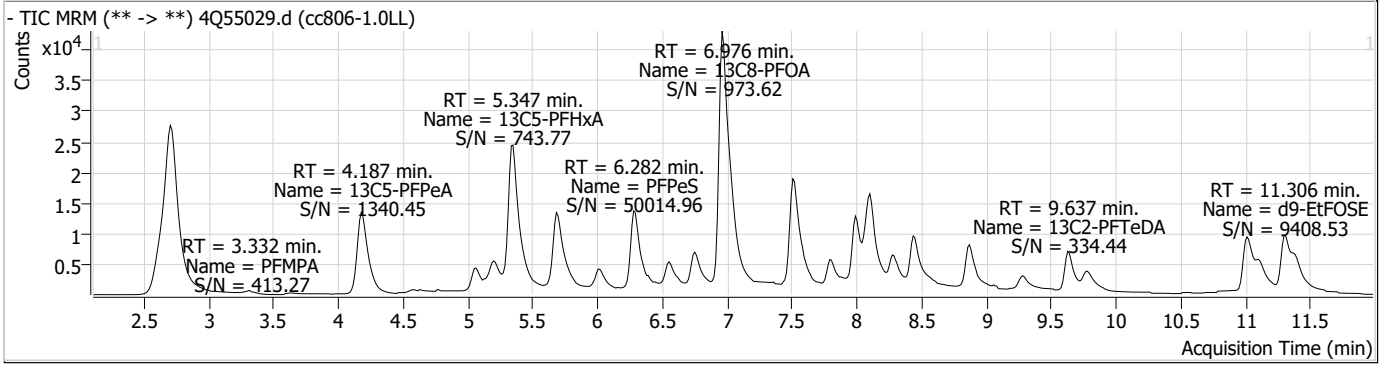
Perfluorinated Compounds by LC/MS/MS

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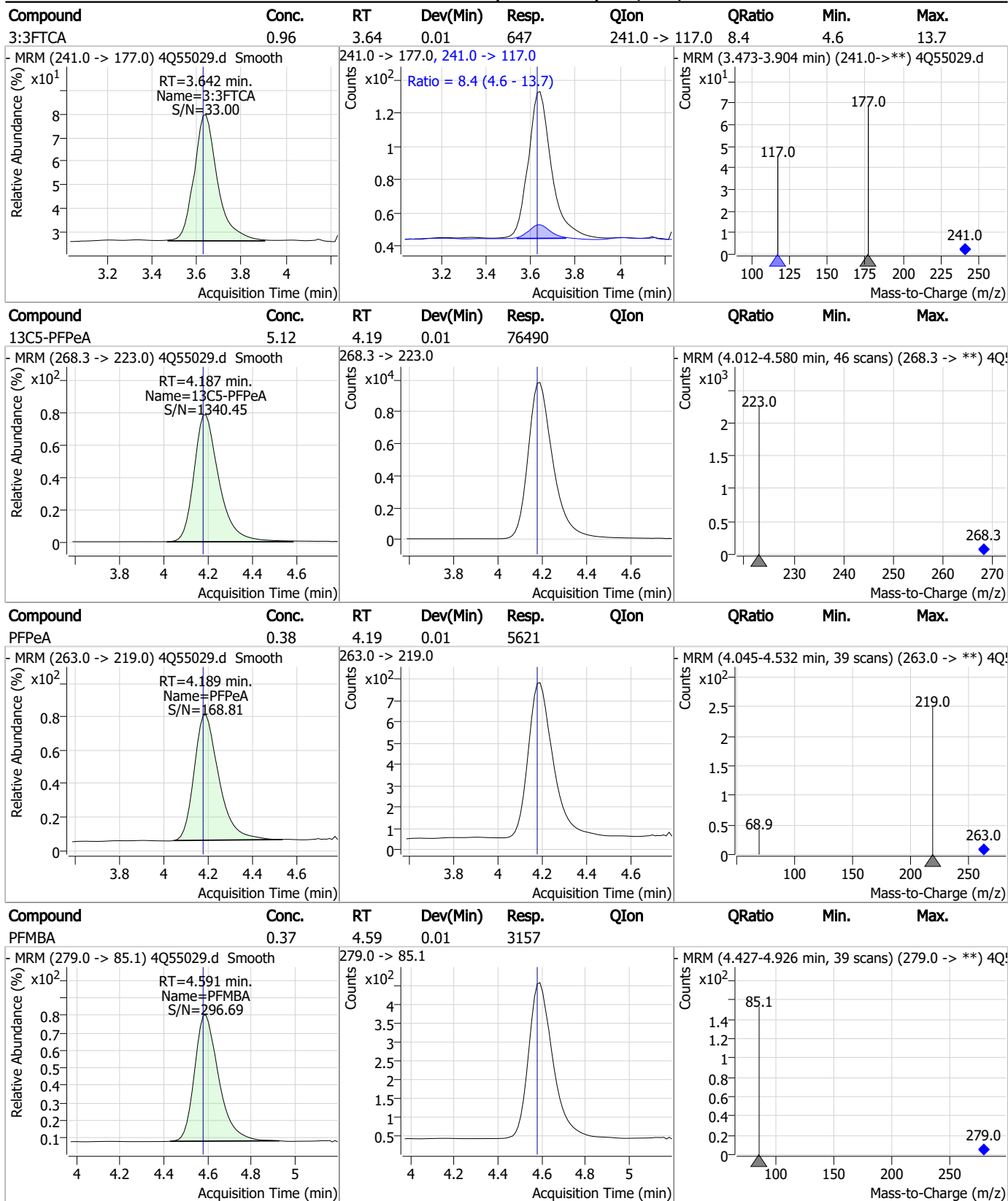
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Perfluorinated Compounds by LC/MS/MS



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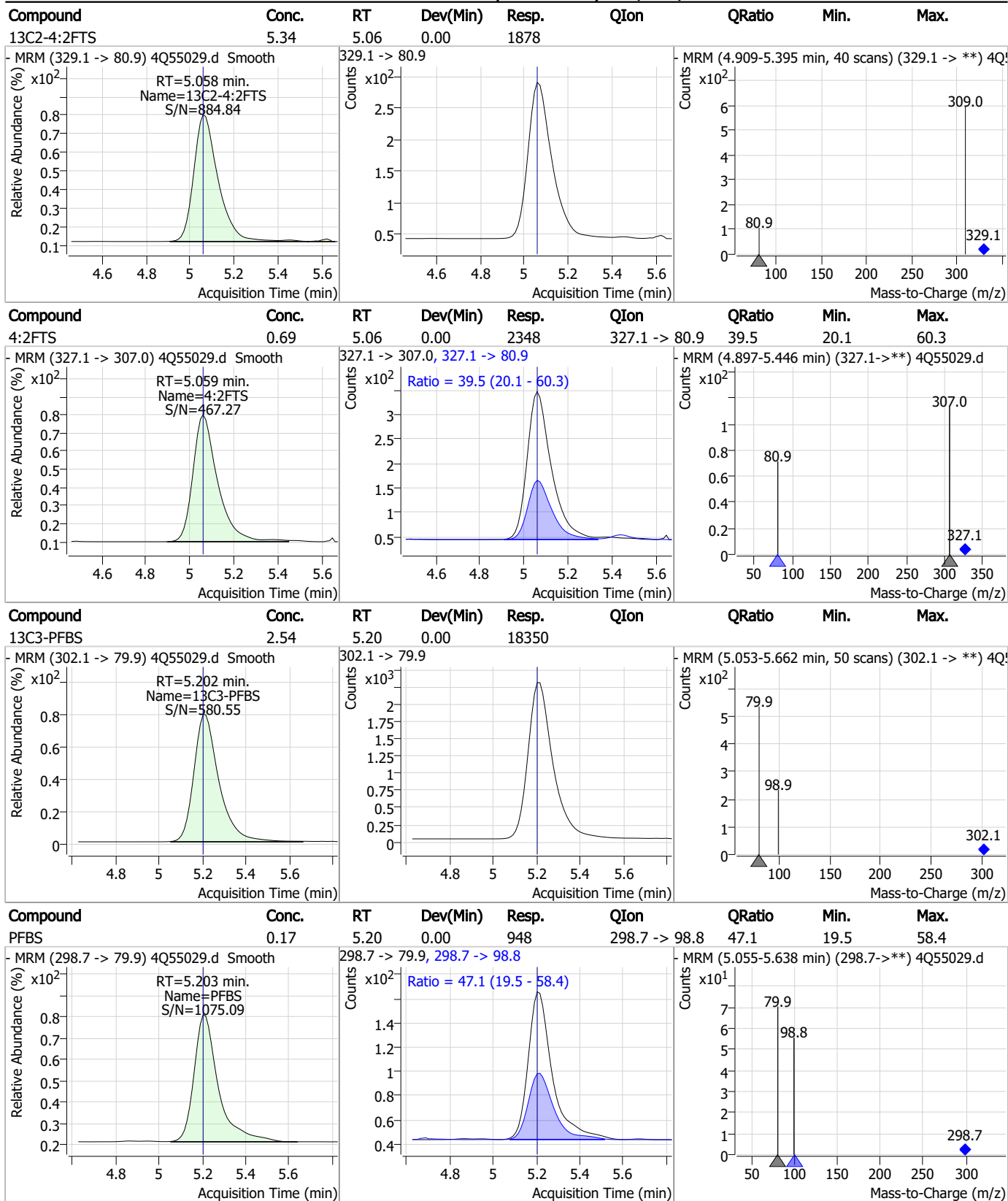
Perfluorinated Compounds by LC/MS/MS



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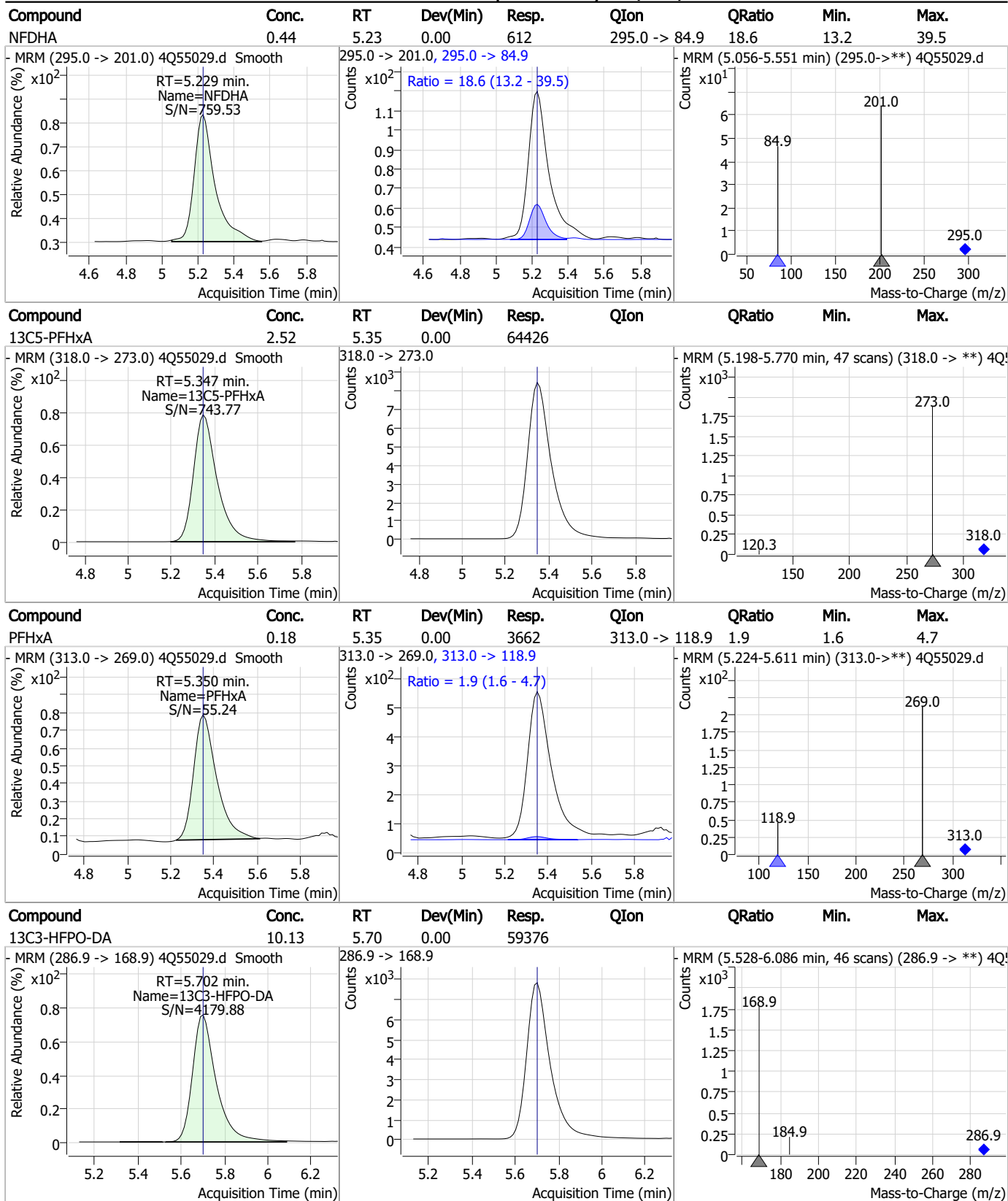
Perfluorinated Compounds by LC/MS/MS



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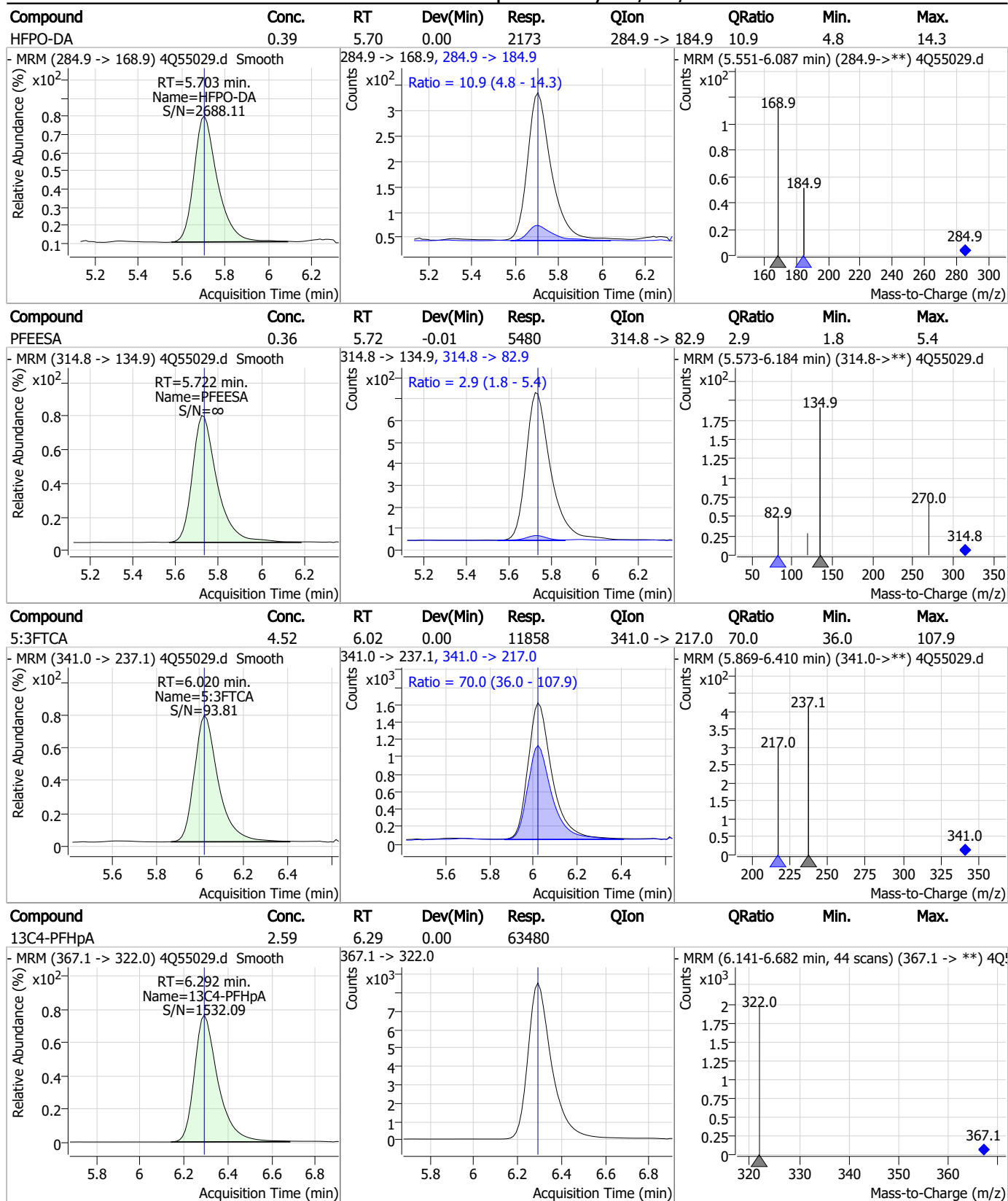
Perfluorinated Compounds by LC/MS/MS



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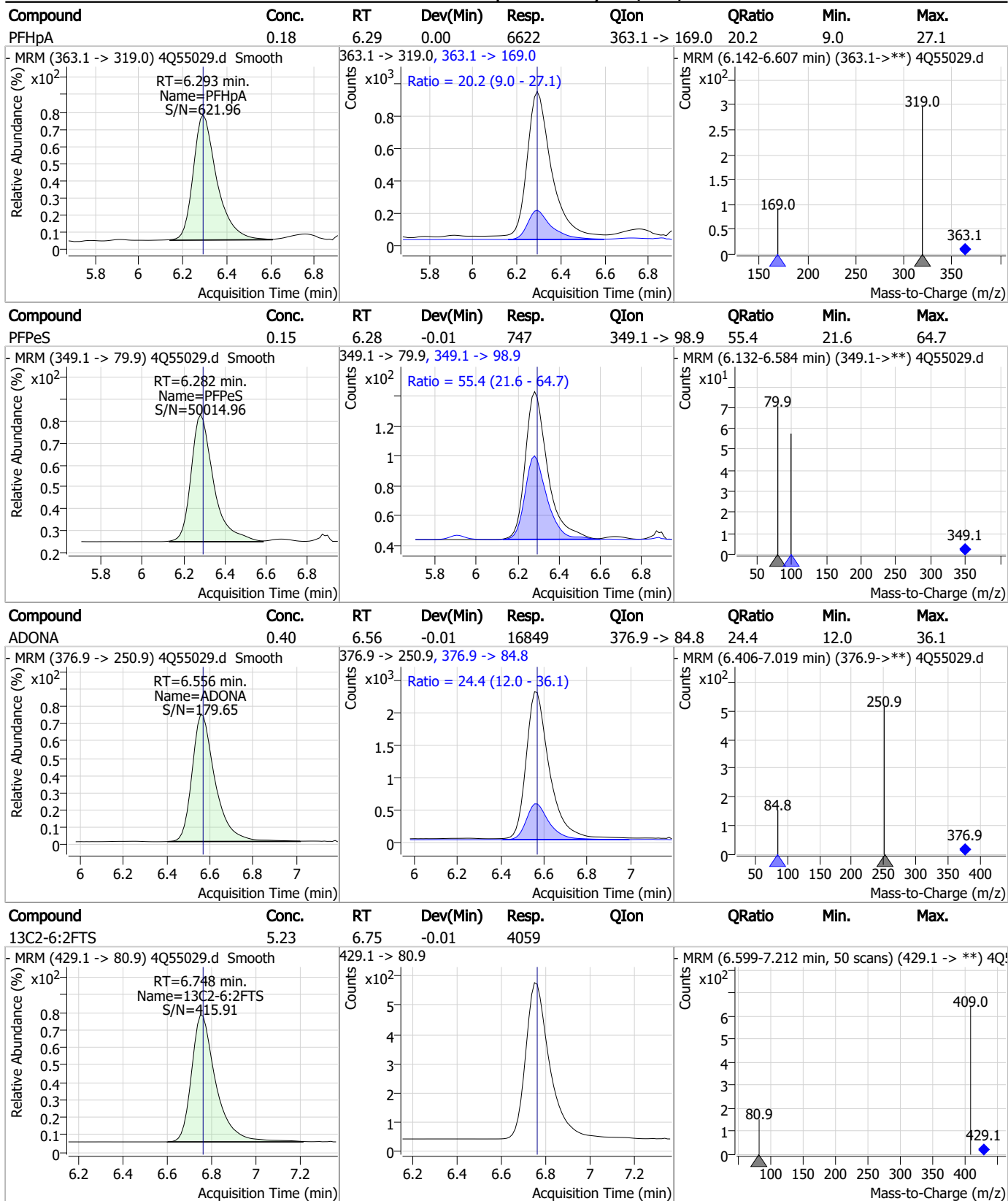
Perfluorinated Compounds by LC/MS/MS



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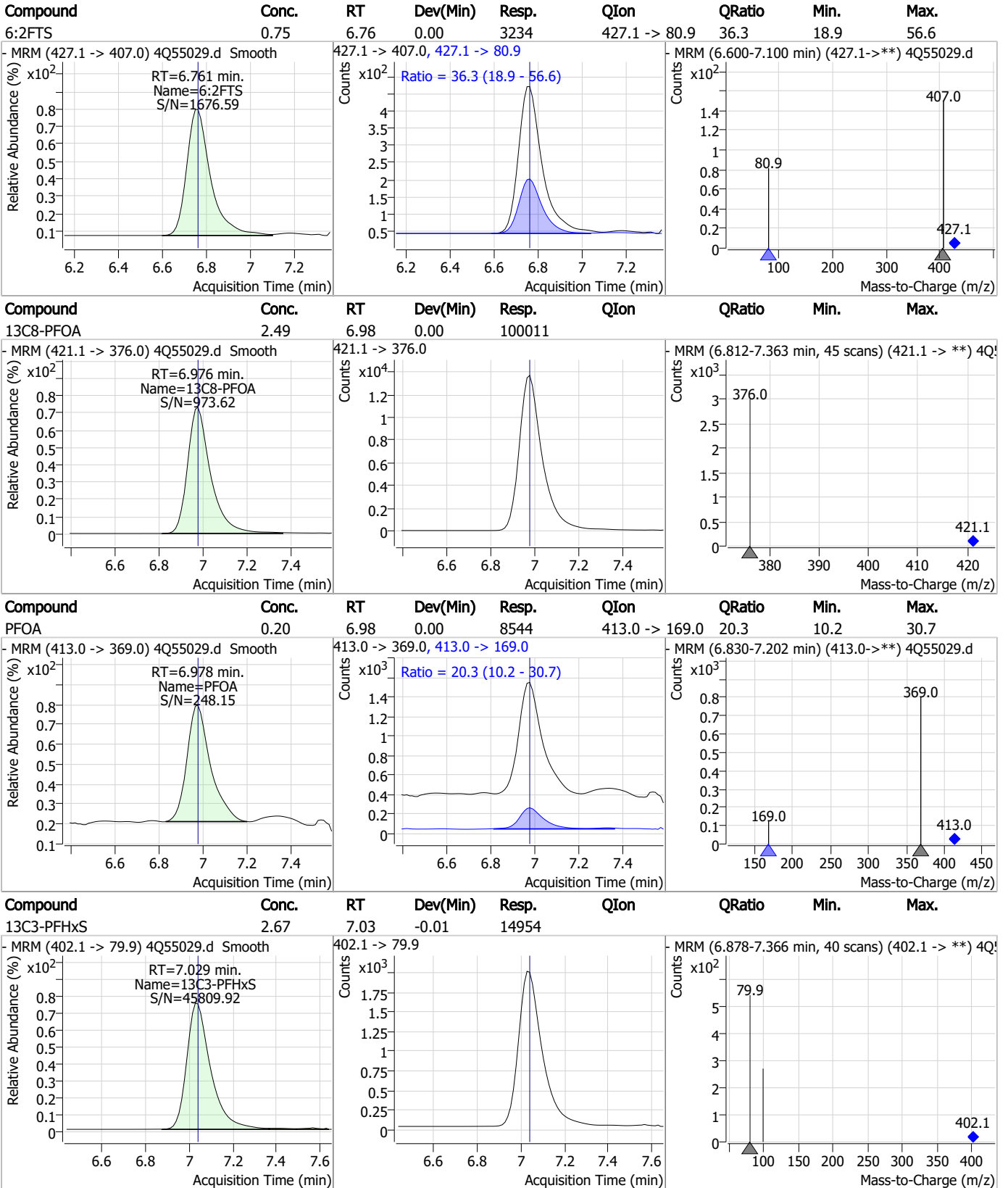
Perfluorinated Compounds by LC/MS/MS



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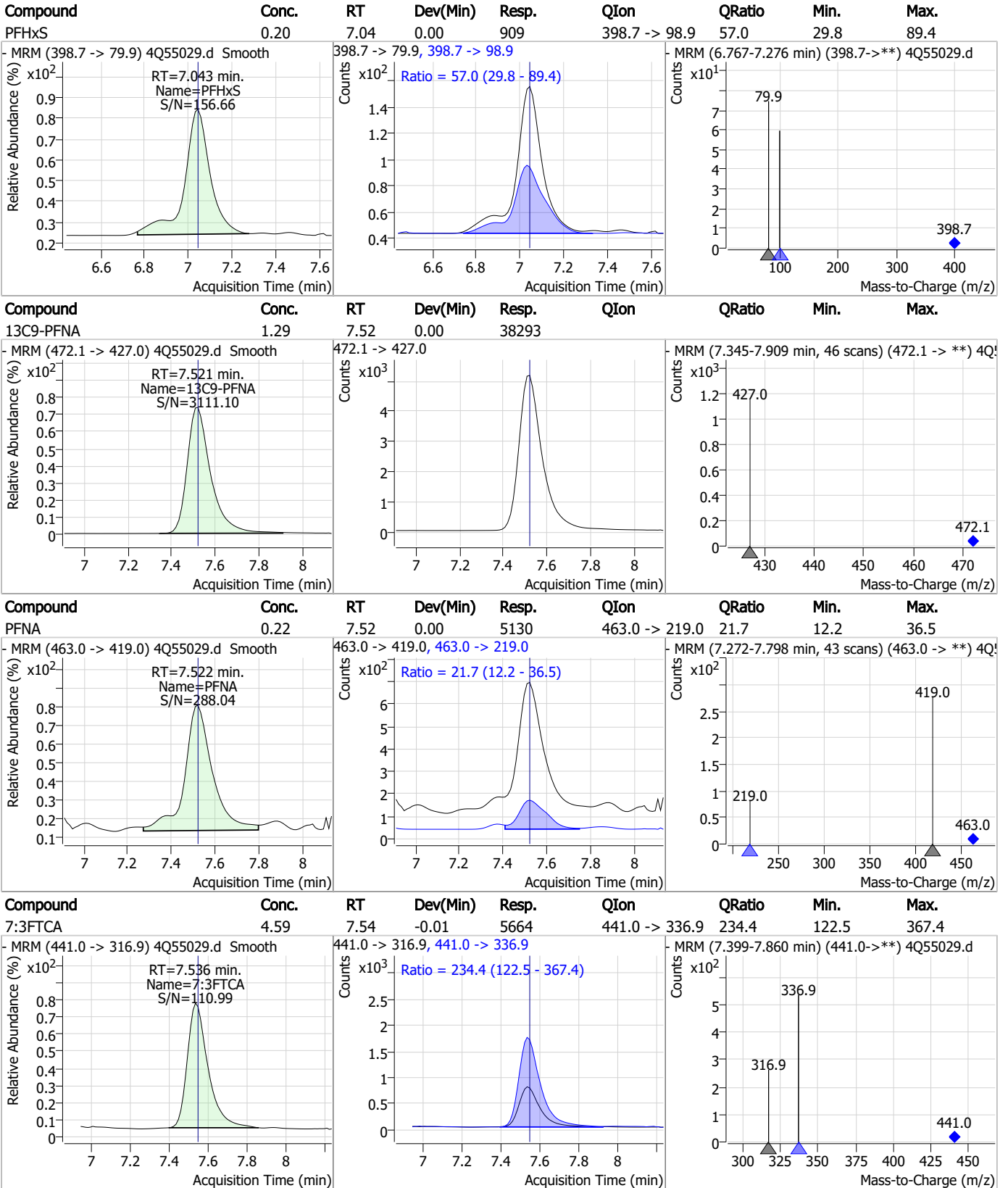
Perfluorinated Compounds by LC/MS/MS



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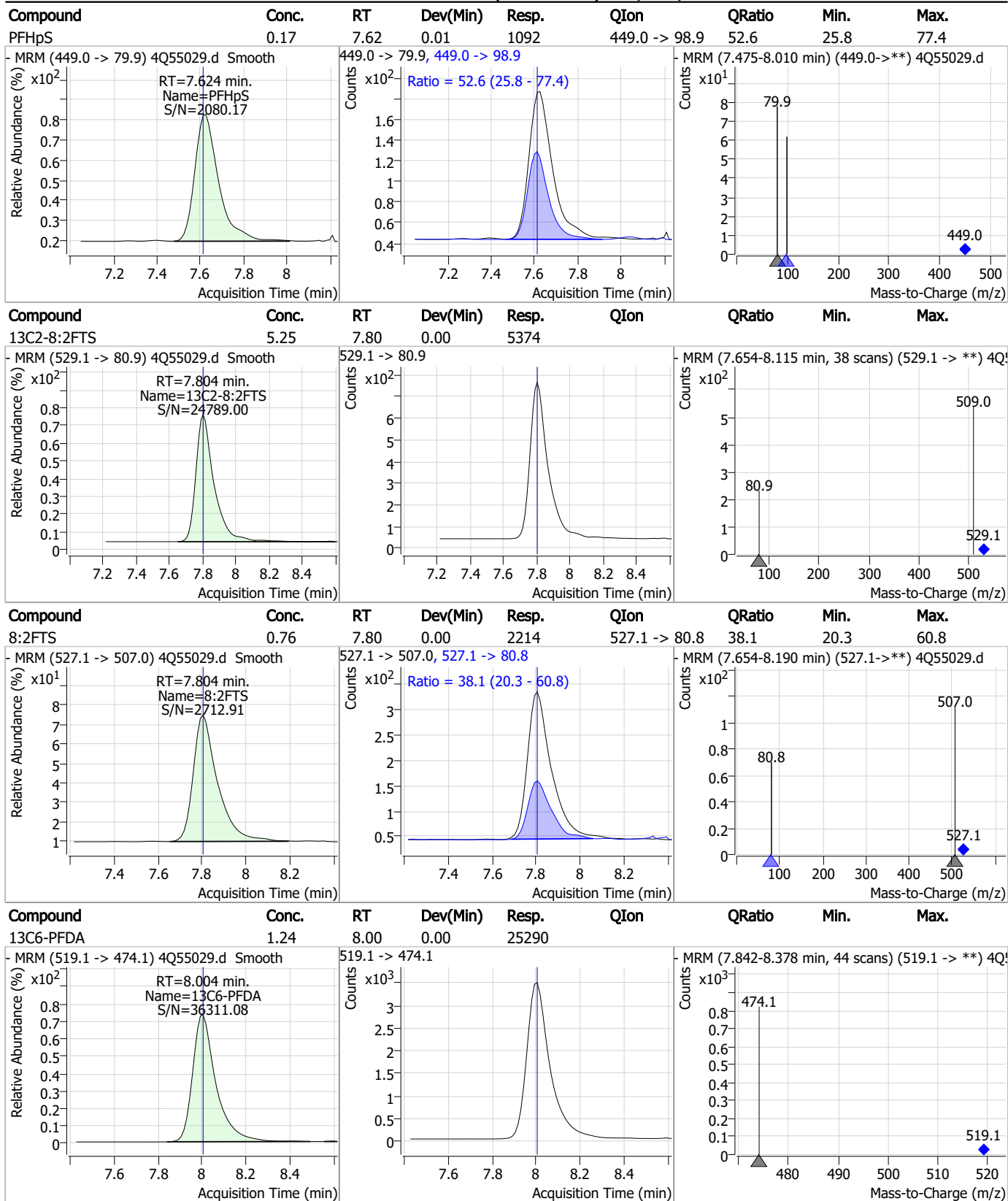
Perfluorinated Compounds by LC/MS/MS



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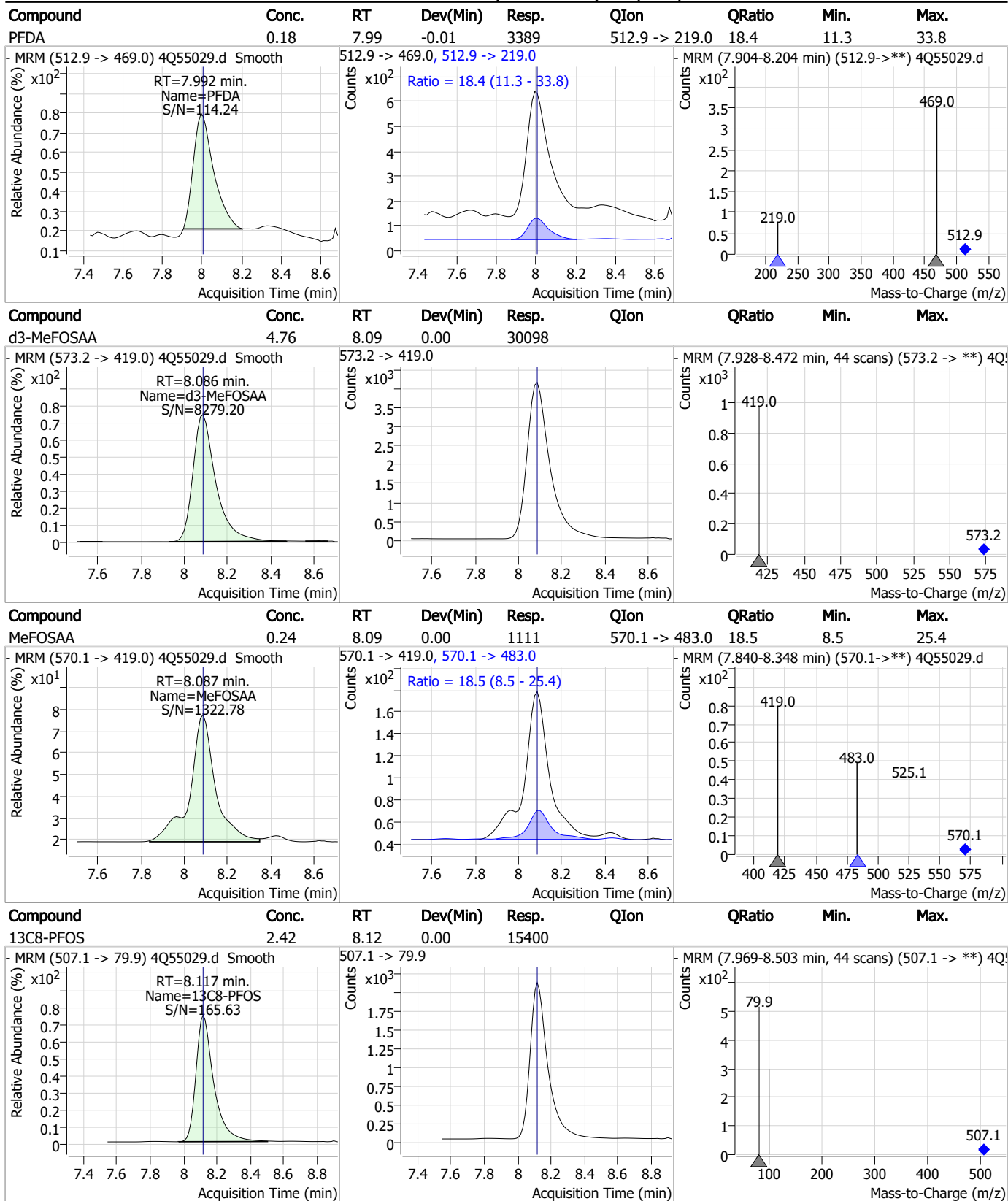


Perfluorinated Compounds by LC/MS/MS



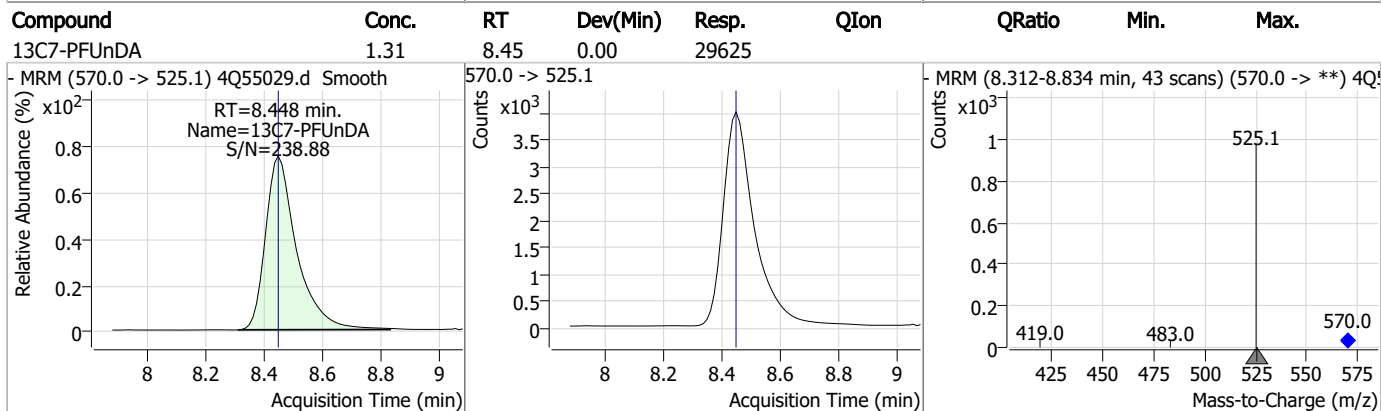
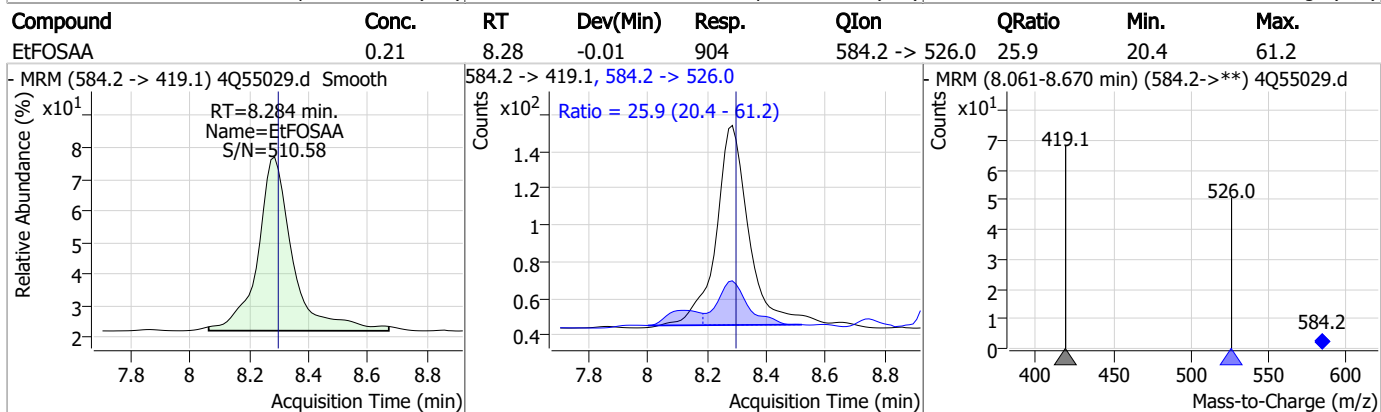
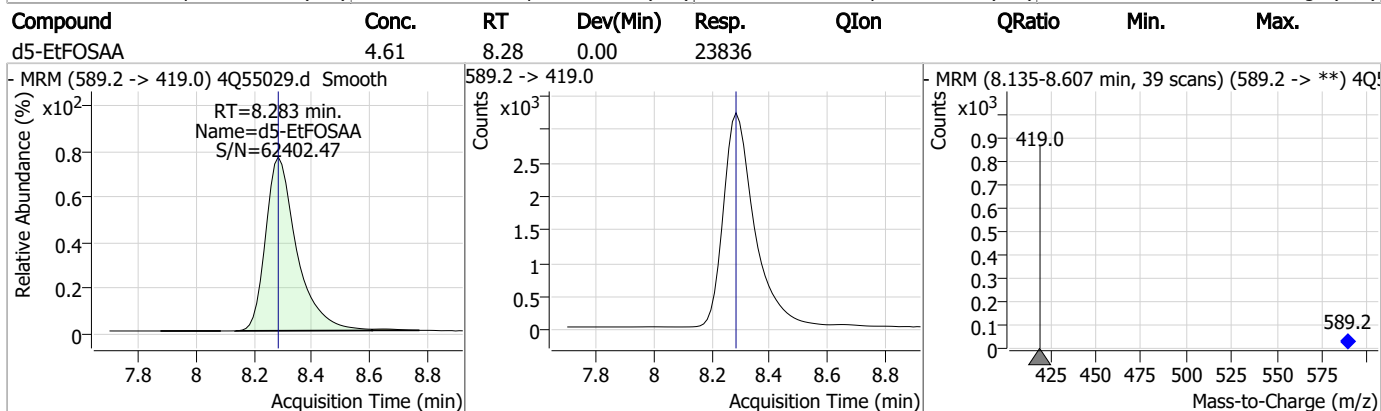
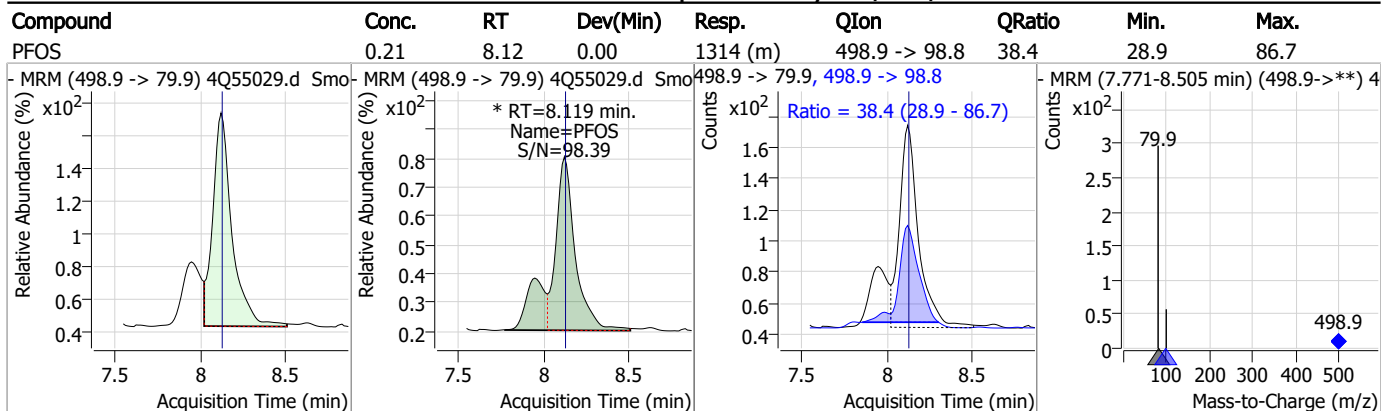
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Perfluorinated Compounds by LC/MS/MS

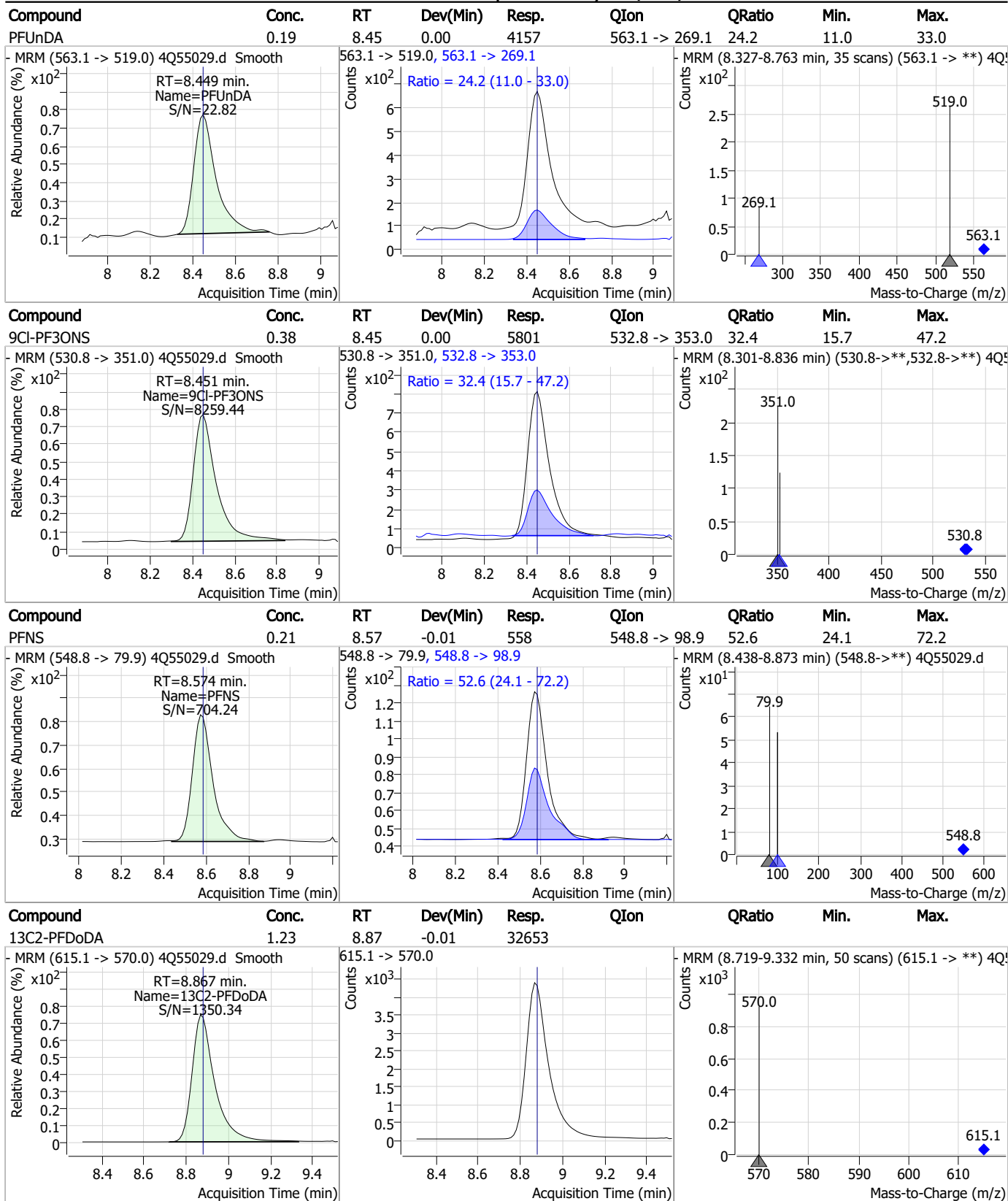


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Perfluorinated Compounds by LC/MS/MS



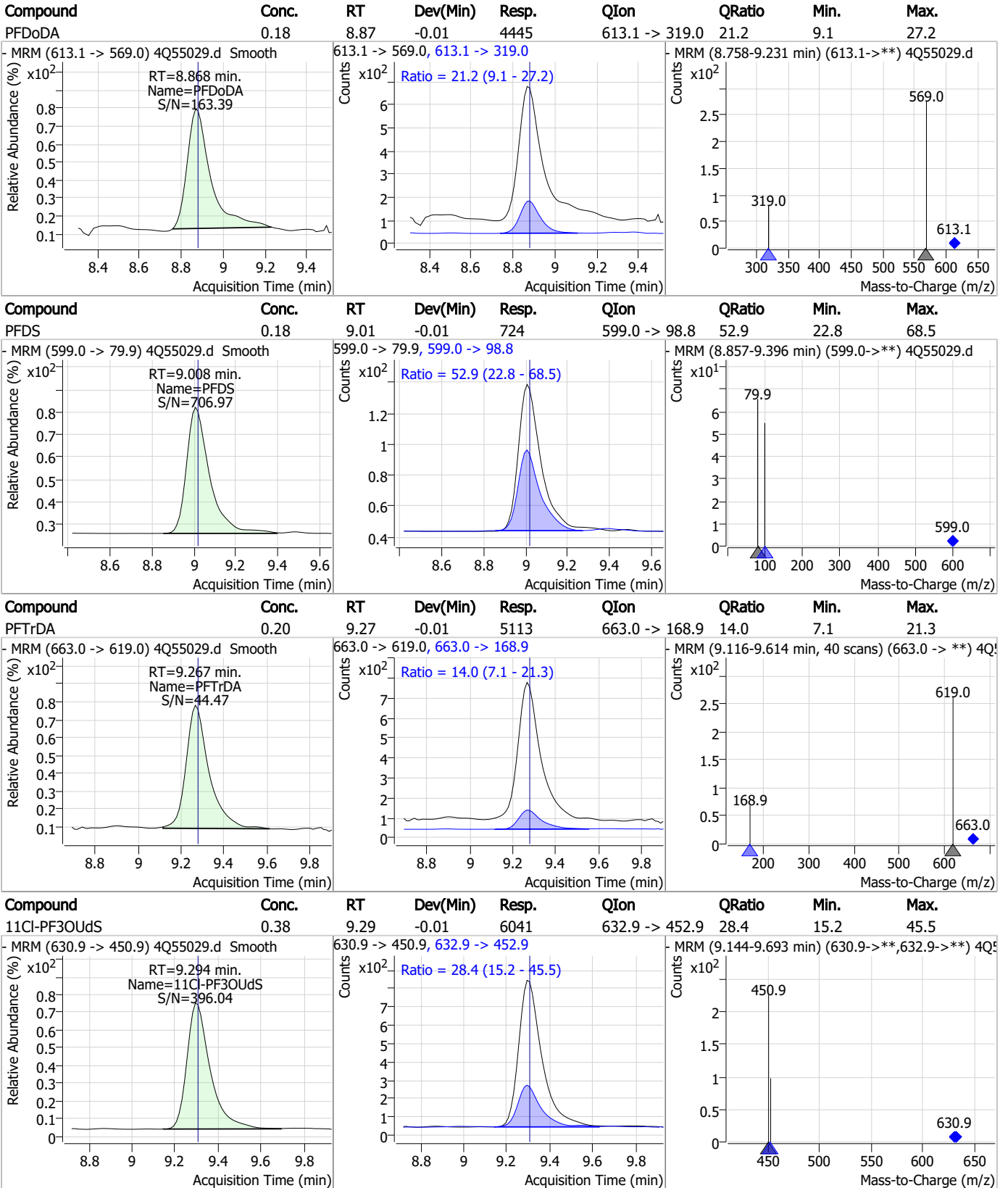
Perfluorinated Compounds by LC/MS/MS



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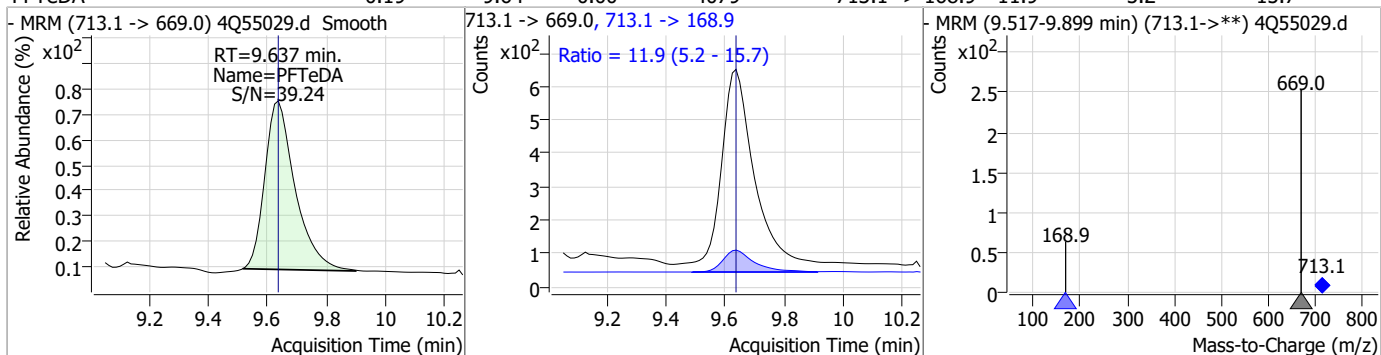
Perfluorinated Compounds by LC/MS/MS



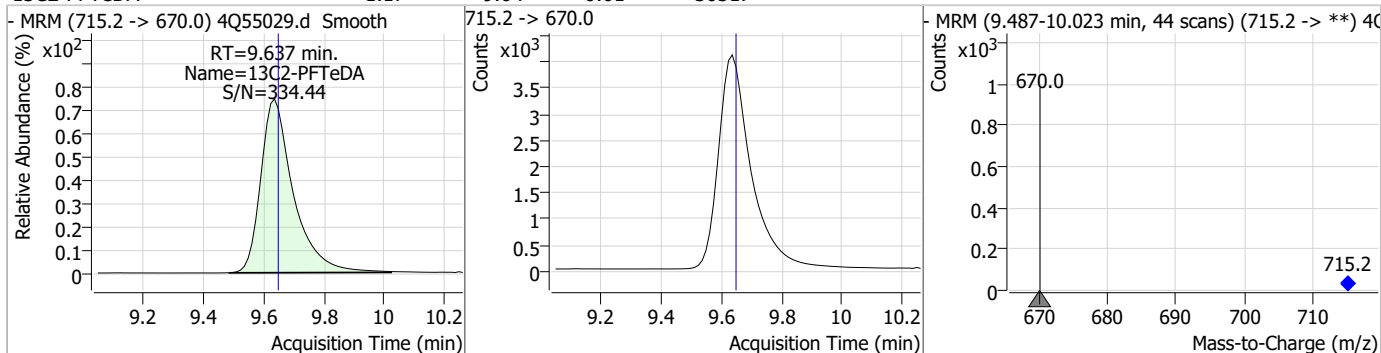
7.7.13 7

Perfluorinated Compounds by LC/MS/MS

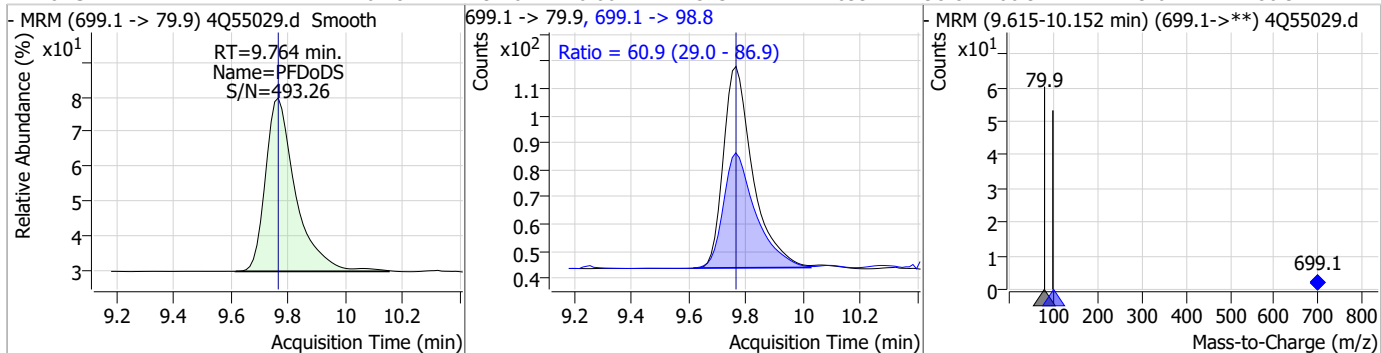
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.64	0.00	4079	713.1 -> 168.9	11.9	5.2	15.7



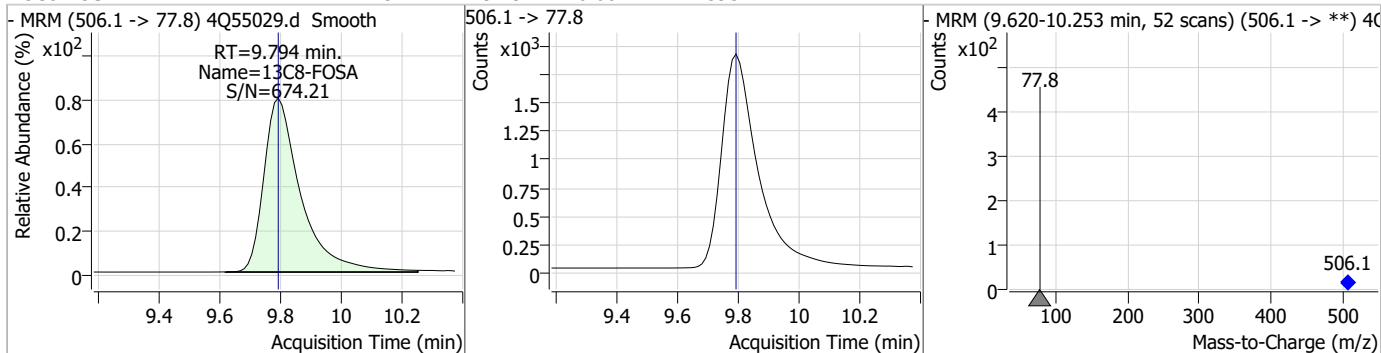
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.17	9.64	-0.01	30517				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.18	9.76	0.00	543	699.1 -> 98.8	60.9	29.0	86.9

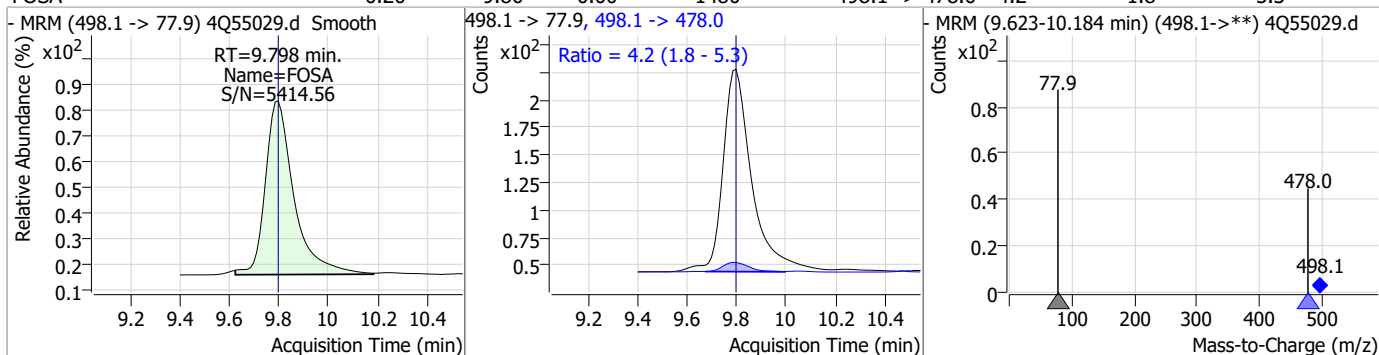


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.37	9.79	0.00	15952				

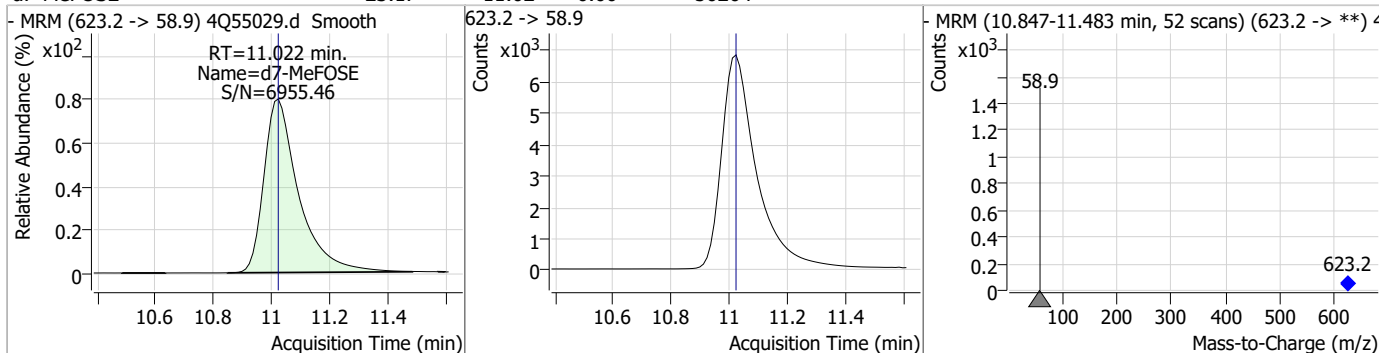


Perfluorinated Compounds by LC/MS/MS

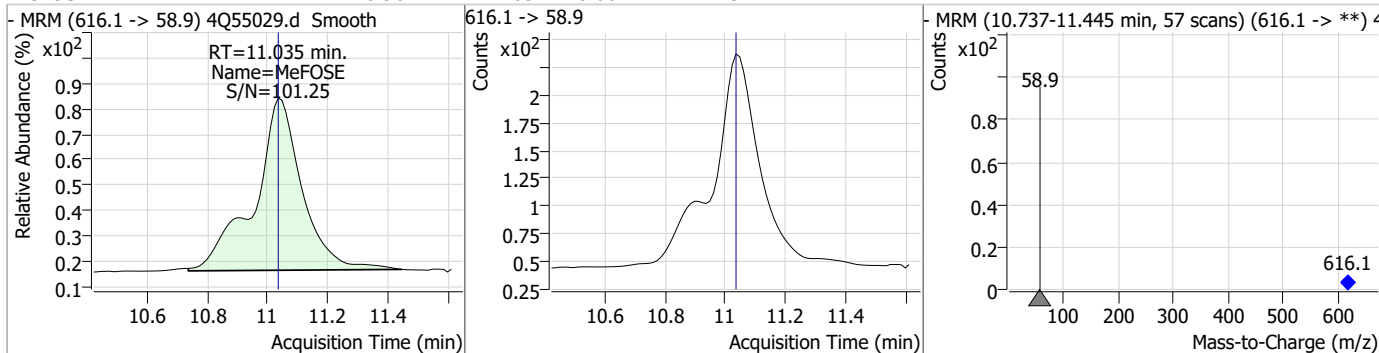
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.20	9.80	0.00	1480	498.1 -> 478.0	4.2	1.8	5.3



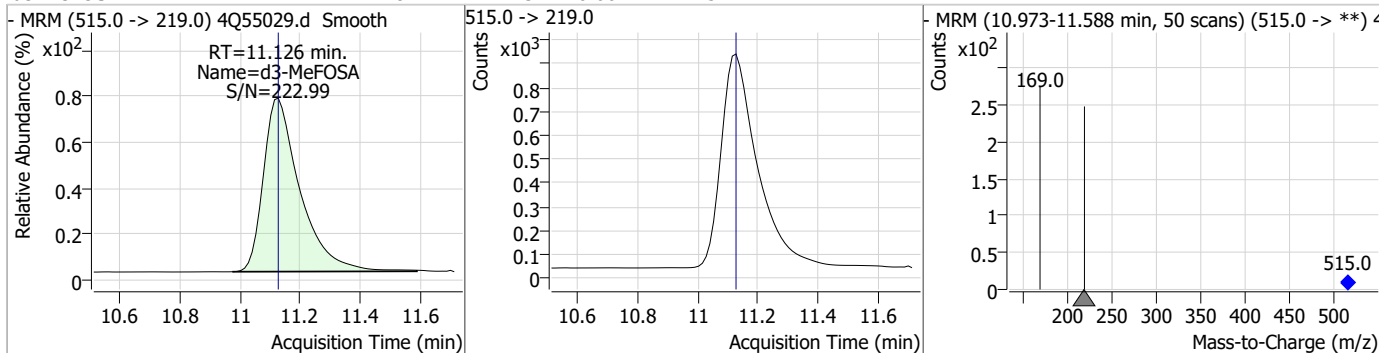
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.17	11.02	0.00	56264				



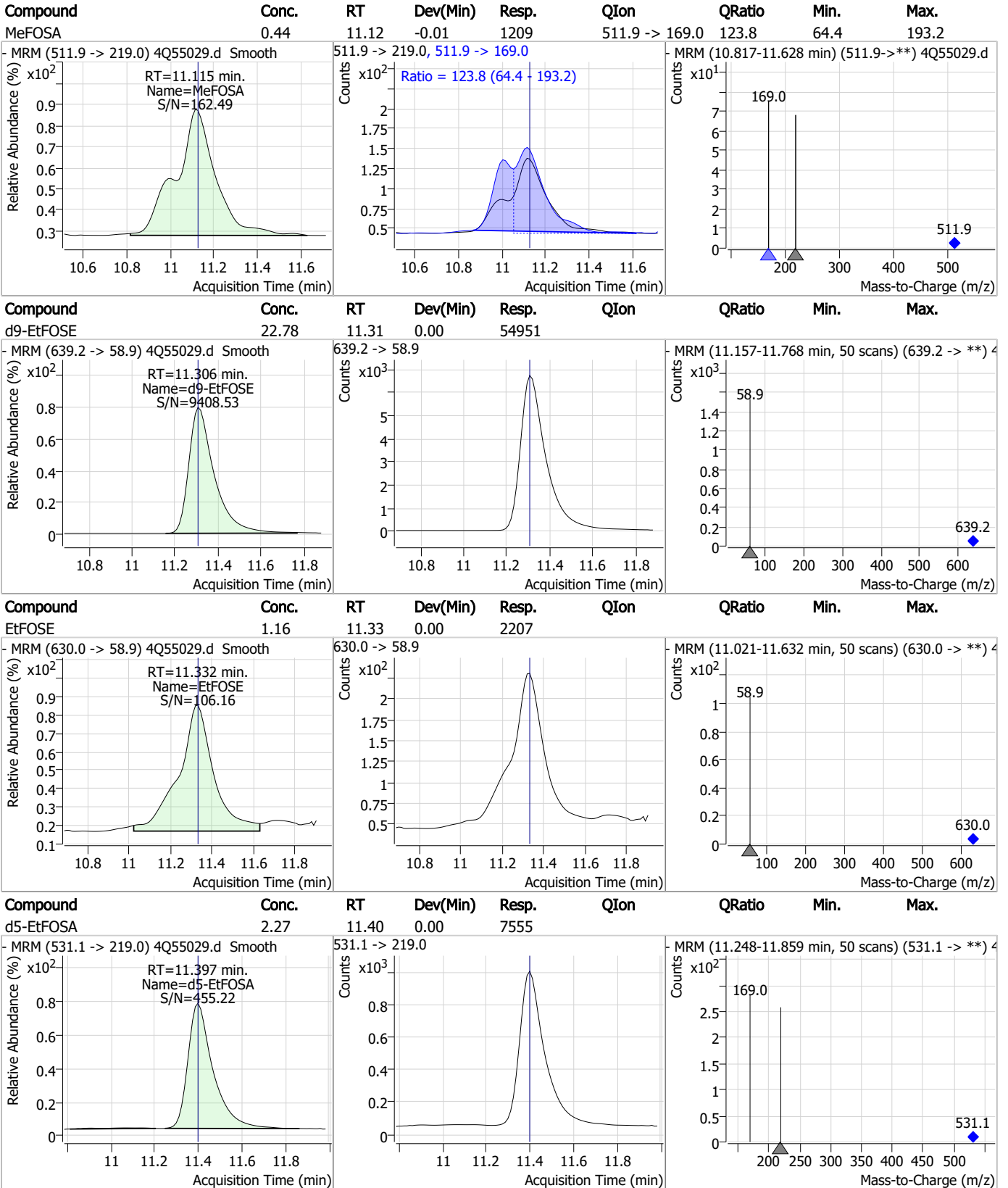
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.96	11.03	0.00	2113				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.18	11.13	0.00	7571				

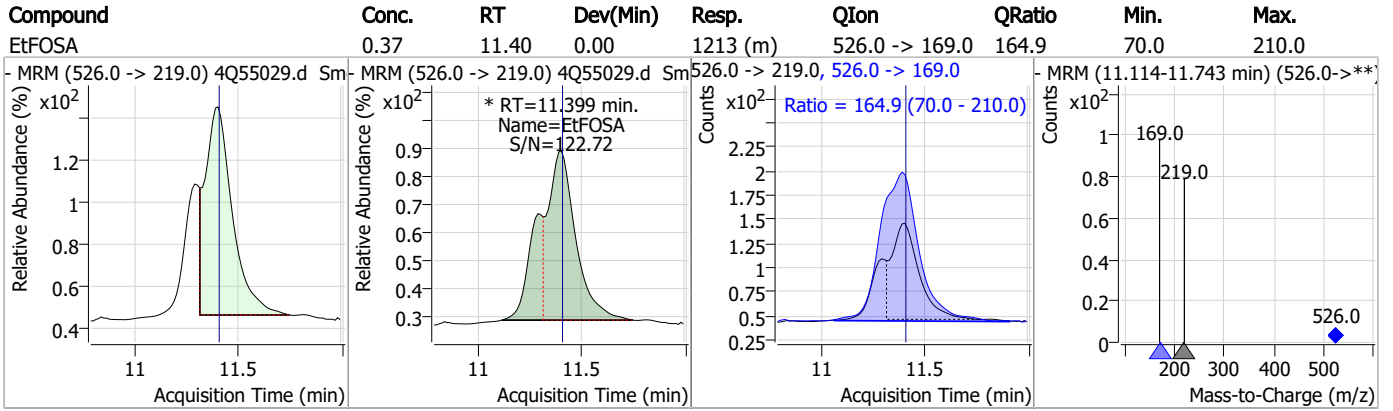


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q806-CC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55029.D Analyst approved: 12/12/23 11:03 Anna Ludwig
Injection Time: 12/11/23 17:57 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
EtFOSA	4151-50-2		11.40	Split peak

7.7.13.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55036.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 7:40:36 PM
 Sample Name : cc806-4
 Vial : P1-A5
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.711	216.8 -> 171.9	171773	10.00 µg/L	0.012
M5-PFPeA	4.187	268.3 -> 223.0	78141	5.00 µg/L	0.012
M5-PFHxA	5.347	318.0 -> 273.0	65349	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	64633	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	99847	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	38149	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	26461	1.25 µg/L	0.000
M7-PFUnDA	8.448	570.0 -> 525.1	29849	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	33599	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	31814	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	15760	2.50 µg/L	0.000
M3-PFBS	5.215	302.1 -> 79.9	19138	2.50 µg/L	0.012
M3-PFHxS	7.042	402.1 -> 79.9	14909	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	15726	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1858	5.00 µg/L	0.000
M2-6:2FTS	6.761	429.1 -> 80.9	3909	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	4921	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	29845	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	61057	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	24043	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	56779	25.00 µg/L	0.000
M9-EtFOSE	11.319	639.2 -> 58.9	54976	25.00 µg/L	0.012
M5-EtFOSA	11.397	531.1 -> 219.0	7854	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	7777	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	12083	2.50 µg/L	0.000
13C3-PFBA	2.716	216.0 -> 172.0	80266	5.00 µg/L	0.012
18O2-PFHxS	7.041	403.0 -> 83.9	9701	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	111638	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	28480	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	39063	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	72141	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1858	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-6:2FTS	6.761	429.1 -> 80.9	3909	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.3%		
13C2-8:2FTS	7.804	529.1 -> 80.9	4921	4.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.0%		
13C2-PFDoDA	8.867	615.1 -> 570.0	33599	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.637	715.2 -> 670.0	31814	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFBS	5.215	302.1 -> 79.9	19138	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C3-PFHxS	7.042	402.1 -> 79.9	14909	2.49 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFBA	2.711	216.8 -> 171.9	171773	9.94 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFHpA	6.292	367.1 -> 322.0	64633	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFHxA	5.347	318.0 -> 273.0	65349	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C5-PFPeA	4.187	268.3 -> 223.0	78141	4.98 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C6-PFDA	8.004	519.1 -> 474.1	26461	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C7-PFUnDA	8.448	570.0 -> 525.1	29849	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-FOSA	9.794	506.1 -> 77.8	15760	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C8-PFOA	6.976	421.1 -> 376.0	99847	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%	
13C8-PFOS	8.117	507.1 -> 79.9	15726	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C9-PFNA	7.521	472.1 -> 427.0	38149	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSAA	8.086	573.2 -> 419.0	29845	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	61057	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.3%	
d3-MeFOSA	11.126	515.0 -> 219.0	7777	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.7%	
d5-EtFOSAA	8.283	589.2 -> 419.0	24043	4.60 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.0%	
d7-MeFOSE	11.022	623.2 -> 58.9	56779	23.11 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.4%	
d9-EtFOSE	11.319	639.2 -> 58.9	54976	22.53 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.1%	
d5-EtFOSA	11.397	531.1 -> 219.0	7854	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	28265	8.39 µg/L	99
		327.1 -> 80.9	11538		
6:2FTS	6.761	427.1 -> 407.0	37928	9.12 µg/L	95
		427.1 -> 80.9	13228		
8:2FTS	7.804	527.1 -> 507.0	23350	8.77 µg/L	98
		527.1 -> 80.8	9760		
EtFOSAA	8.297	584.2 -> 419.1	10453	2.46 µg/L	97
		584.2 -> 526.0	4474		
FOSA	9.798	498.1 -> 77.9	16837	2.36 µg/L	98
		498.1 -> 478.0	464		
MeFOSAA	8.087	570.1 -> 419.0	11162	2.41 µg/L	96
		570.1 -> 483.0	2088		
PFBA	2.707	212.8 -> 168.9	50558	9.26 µg/L	100
PFBS	5.216	298.7 -> 79.9	11136	1.94 µg/L	99
		298.7 -> 98.8	4238		
PFDA	8.005	512.9 -> 469.0	41466	2.15 µg/L	95
		512.9 -> 219.0	8427		
PFDODA	8.868	613.1 -> 569.0	56990	2.29 µg/L	99
		613.1 -> 319.0	9981		
PFDS	9.008	599.0 -> 79.9	8884	2.10 µg/L	94

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4394			
PFHpA	6.293	363.1 -> 319.0	85203	2.33	µg/L	98
		363.1 -> 169.0	14501			
PFHpS	7.612	449.0 -> 79.9	15293	2.30	µg/L	96
		449.0 -> 98.9	7490			
PFHxA	5.350	313.0 -> 269.0	48367	2.30	µg/L	100
		313.0 -> 118.9	1472			
PFHxS	7.043	398.7 -> 79.9	9864	2.13	µg/L	m 91
		398.7 -> 98.9	5206			
PFNA	7.522	463.0 -> 419.0	51683	2.21	µg/L	100
		463.0 -> 219.0	12541			
PFNS	8.574	548.8 -> 79.9	6519	2.38	µg/L	97
		548.8 -> 98.9	3275			
PFOA	6.978	413.0 -> 369.0	95229	2.27	µg/L	100
		413.0 -> 169.0	19305			
PFOS	8.119	498.9 -> 79.9	13587	2.11	µg/L	m 87
		498.9 -> 98.8	6494			
PFPeA	4.189	263.0 -> 219.0	70569	4.66	µg/L	100
PFPeS	6.294	349.1 -> 79.9	10389	2.06	µg/L	94
		349.1 -> 98.9	4878			
PFTeDA	9.637	713.1 -> 669.0	52191	2.39	µg/L	99
		713.1 -> 168.9	5698			
PFTrDA	9.267	663.0 -> 619.0	61665	2.32	µg/L	100
		663.0 -> 168.9	8638			
PFUnDA	8.449	563.1 -> 519.0	51587	2.30	µg/L	100
		563.1 -> 269.1	11456			
11Cl-PF3OUdS	9.294	630.9 -> 450.9	75341	4.62	µg/L	100
		632.9 -> 452.9	22939			
9Cl-PF3ONS	8.451	530.8 -> 351.0	75098	4.77	µg/L	97
		532.8 -> 353.0	22529			
ADONA	6.568	376.9 -> 250.9	217274	4.97	µg/L	100
		376.9 -> 84.8	52436			
HFPO-DA	5.703	284.9 -> 168.9	27440	4.73	µg/L	99
		284.9 -> 184.9	2705			
3:3FTCA	3.642	241.0 -> 177.0	7762	11.24	µg/L	99
		241.0 -> 117.0	742			
5:3FTCA	6.020	341.0 -> 237.1	155336	58.41	µg/L	100
		341.0 -> 217.0	112484			
7:3FTCA	7.536	441.0 -> 316.9	76541	61.12	µg/L	95
		441.0 -> 336.9	180959			
EtFOSA	11.399	526.0 -> 219.0	15937	4.70	µg/L	m 96
		526.0 -> 169.0	21601			
EtFOSE	11.332	630.0 -> 58.9	22430	11.76	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	14134	4.97	µg/L	m 91
		511.9 -> 169.0	19752			
MeFOSE	11.035	616.1 -> 58.9	26148	11.82	µg/L	100
PFDoDS	9.764	699.1 -> 79.9	6939	2.21	µg/L	98
		699.1 -> 98.8	3903			
NFDHA	5.241	295.0 -> 201.0	7169	5.05	µg/L	99
		295.0 -> 84.9	1857			
PFMBA	4.591	279.0 -> 85.1	40027	4.59	µg/L	100
PFMPA	3.344	229.0 -> 84.9	40407	4.58	µg/L	100
PFEESA	5.734	314.8 -> 134.9	66605	4.32	µg/L	100
		314.8 -> 82.9	2414			

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



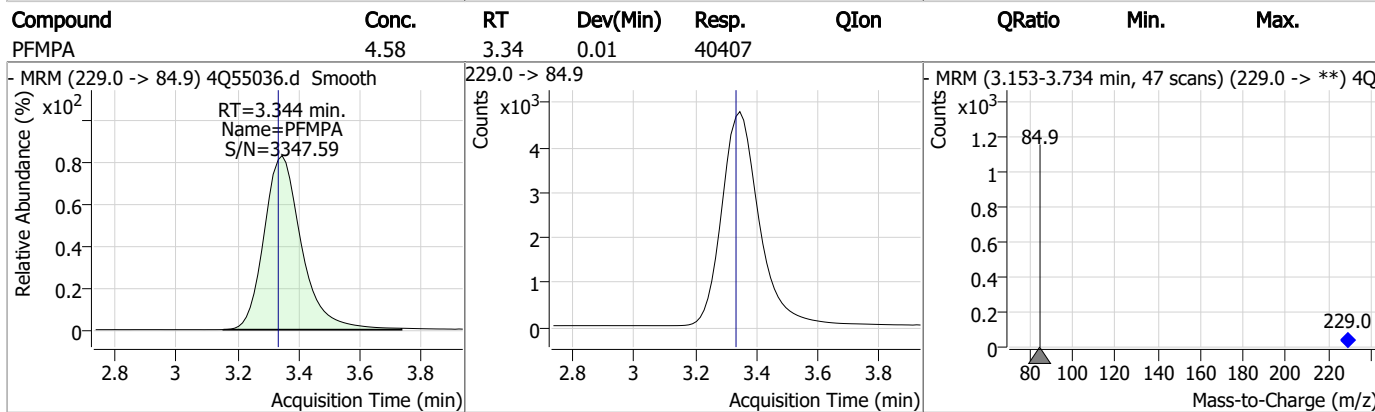
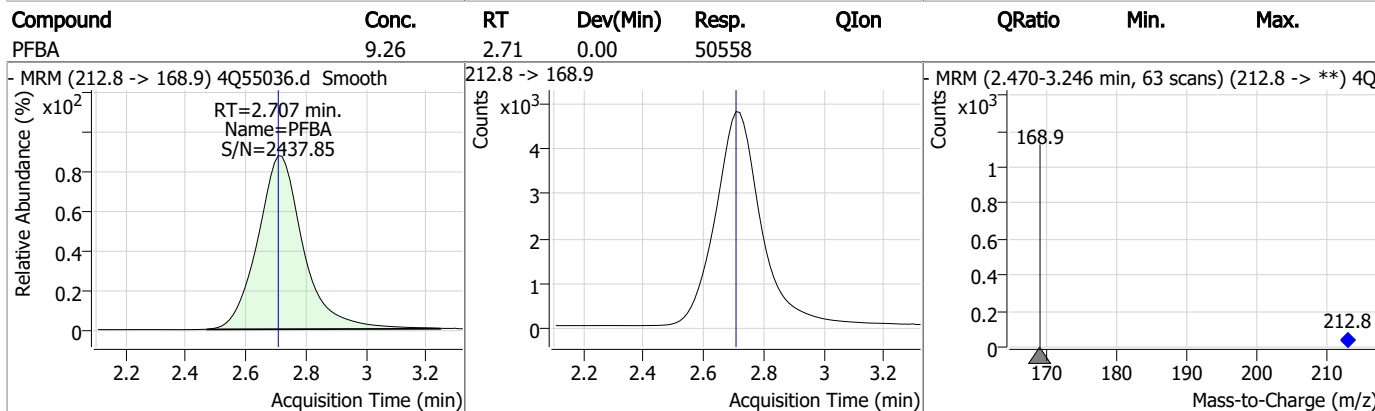
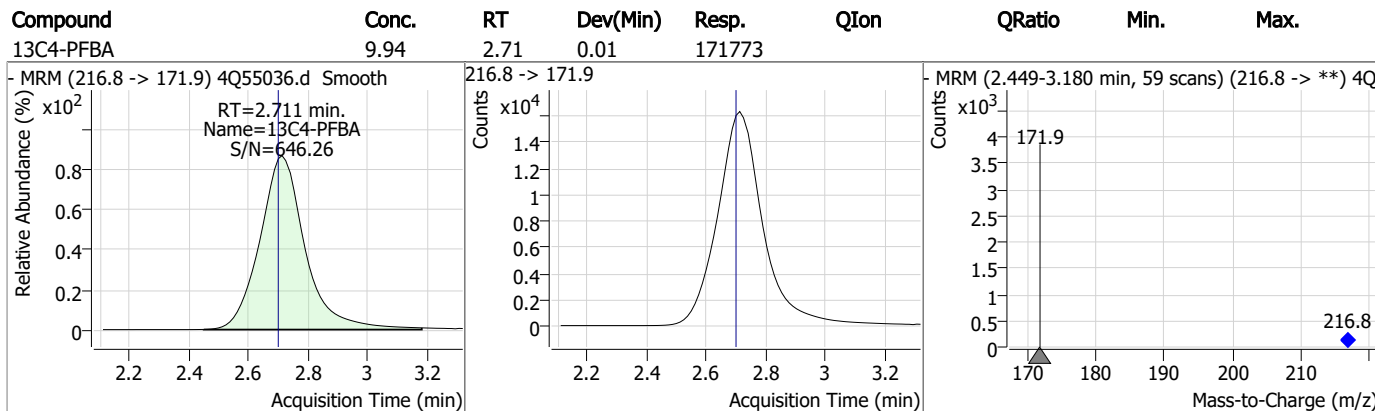
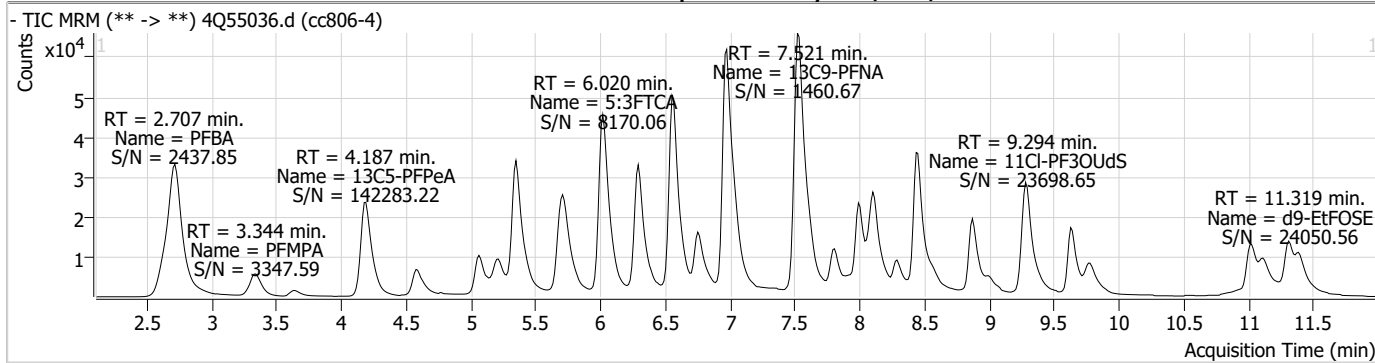
Perfluorinated Compounds by LC/MS/MS

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

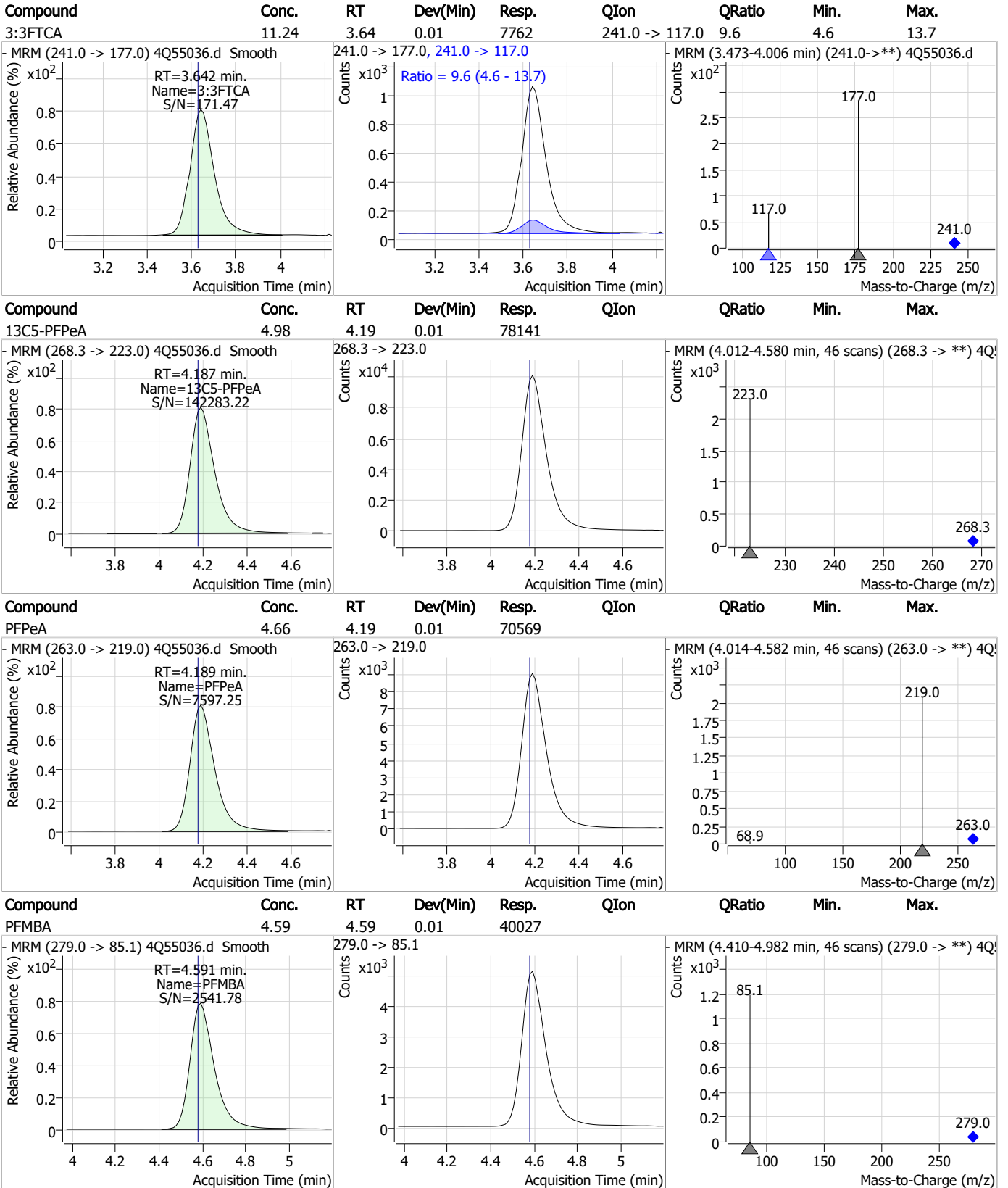
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Perfluorinated Compounds by LC/MS/MS



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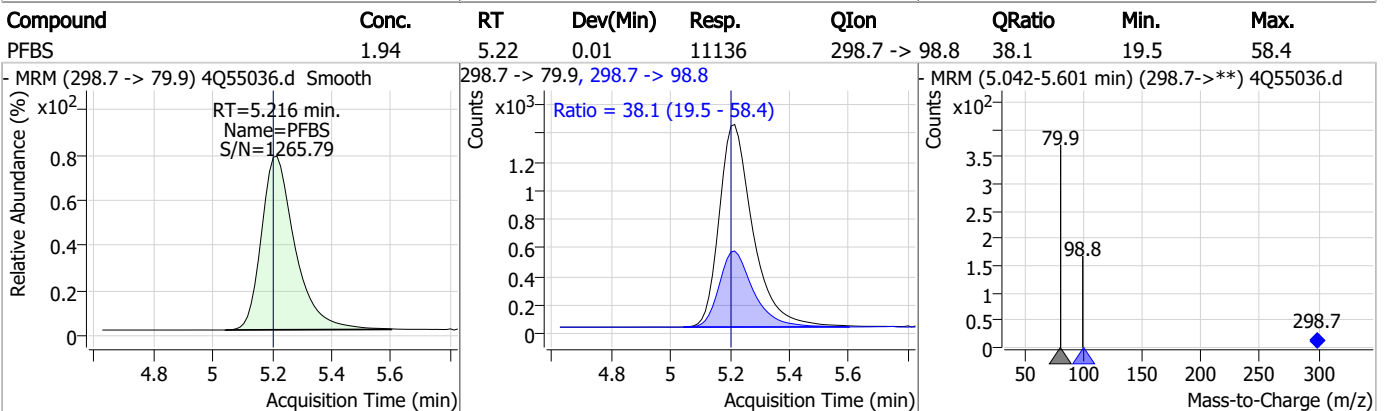
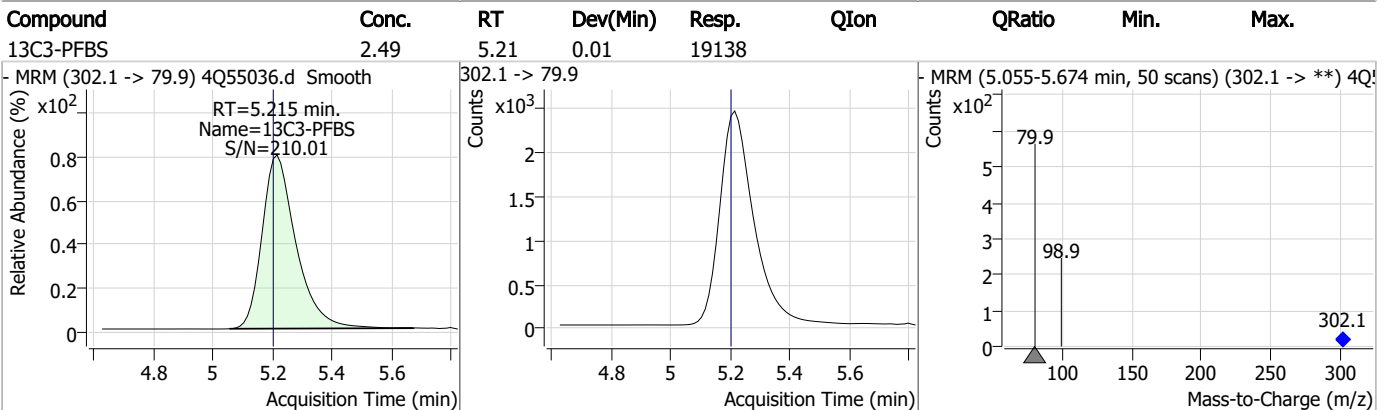
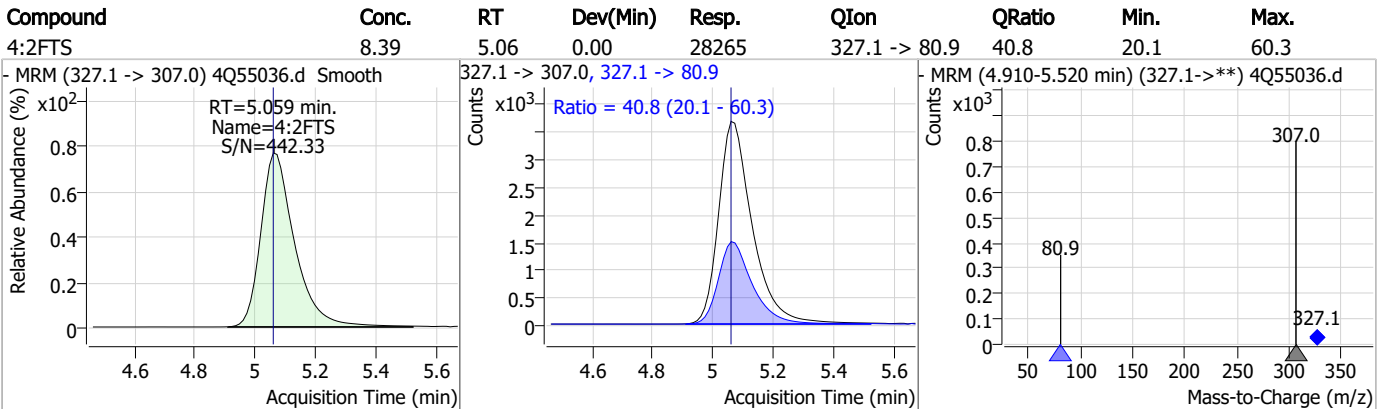
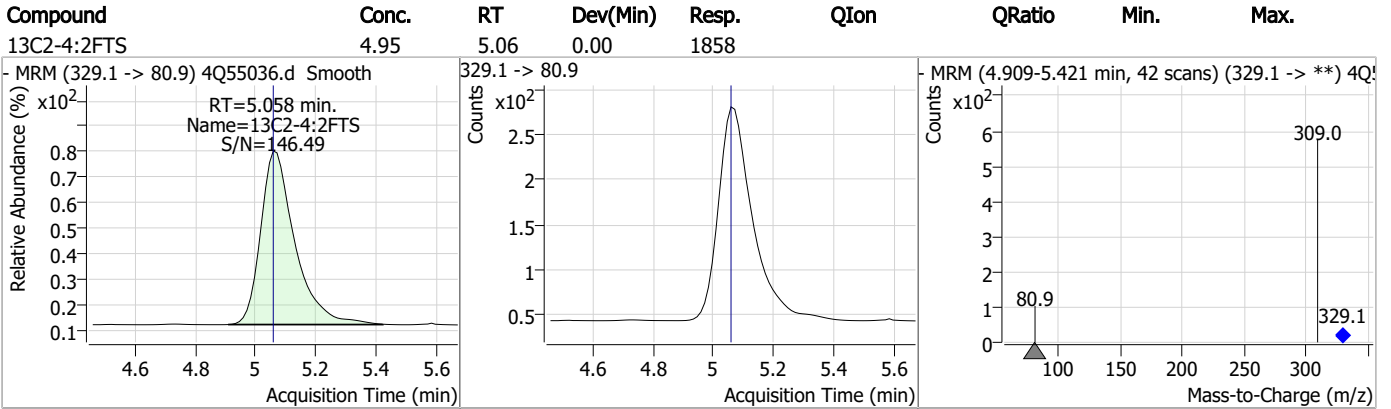
Perfluorinated Compounds by LC/MS/MS



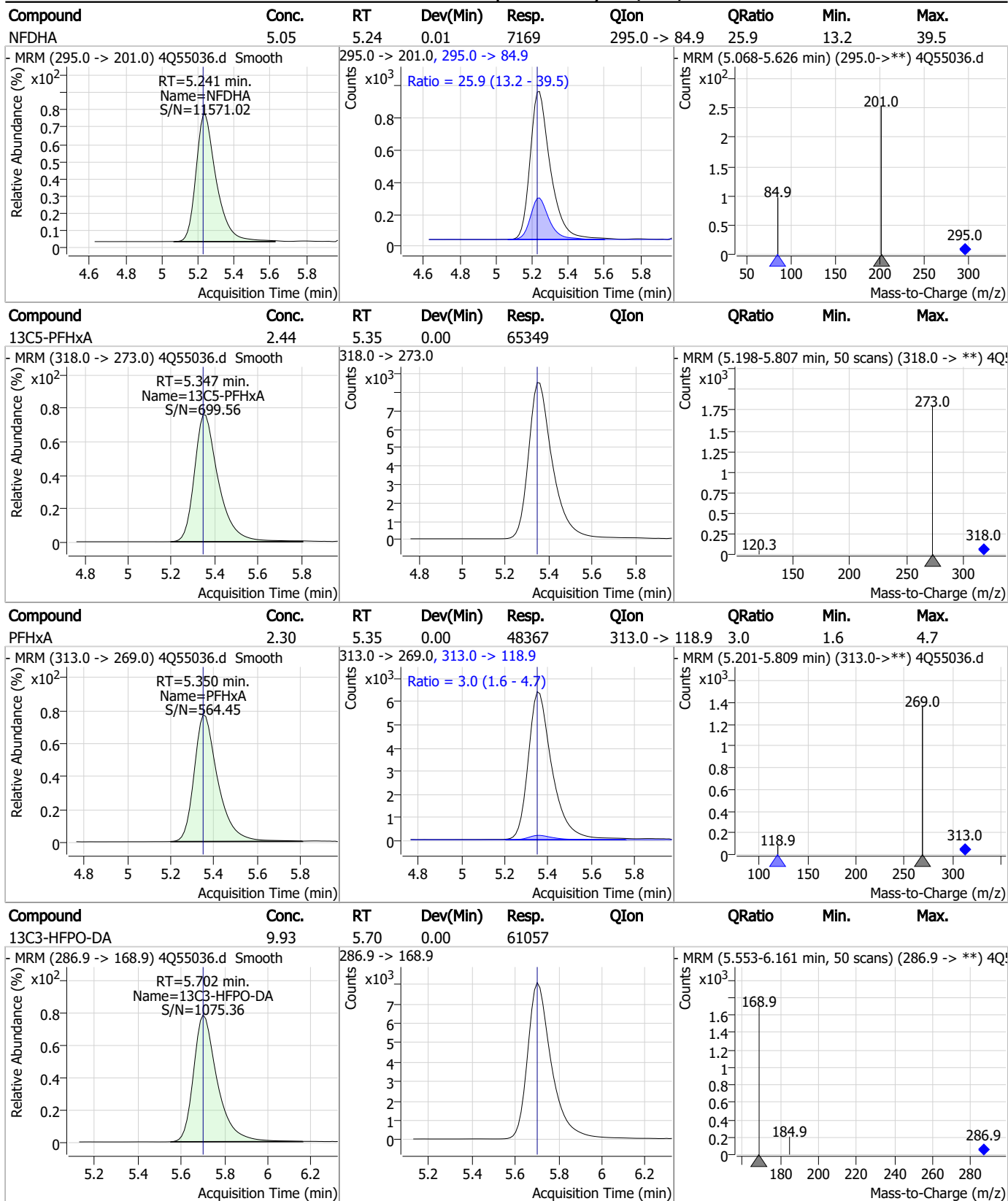
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Perfluorinated Compounds by LC/MS/MS

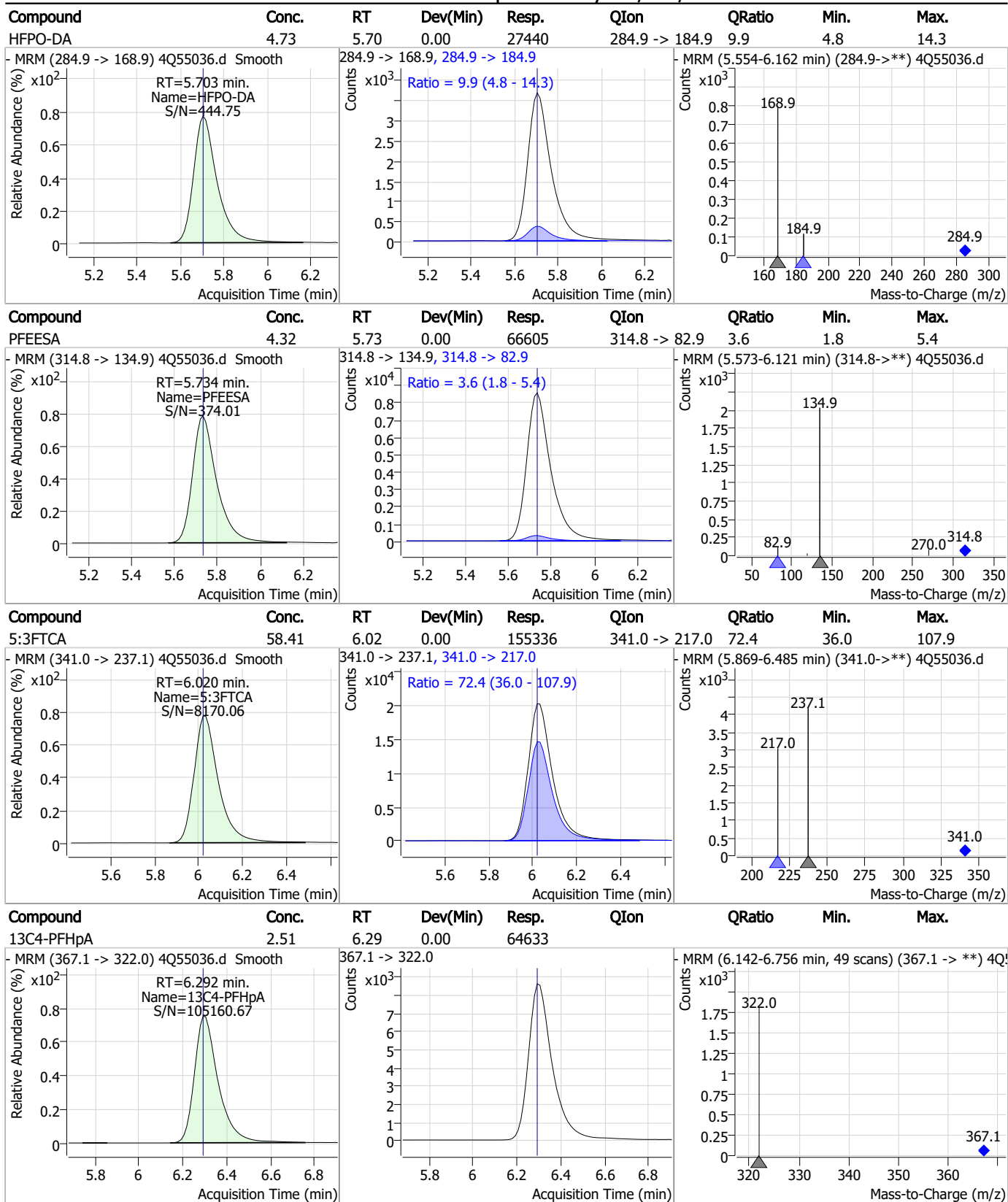


Perfluorinated Compounds by LC/MS/MS



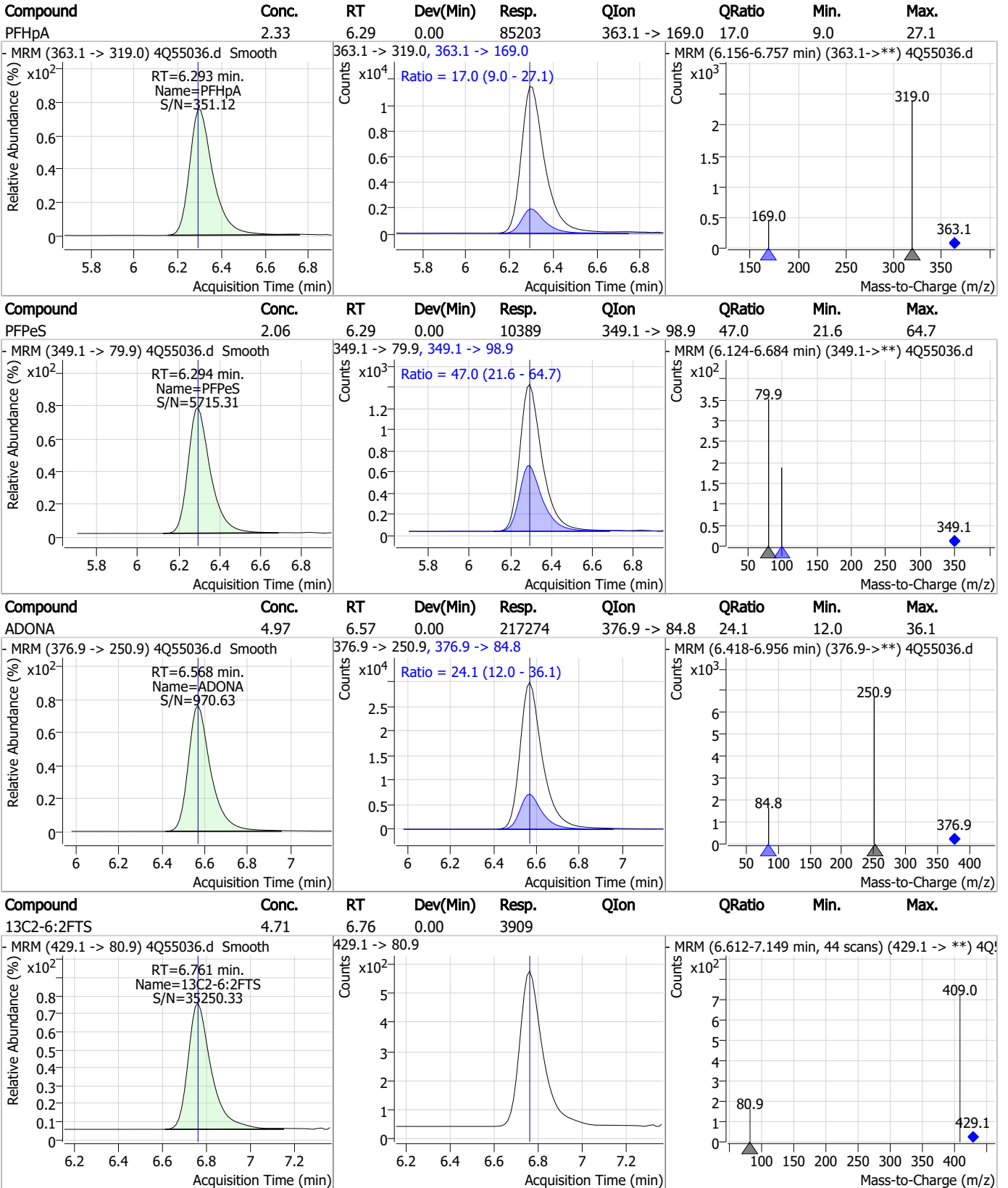
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Perfluorinated Compounds by LC/MS/MS



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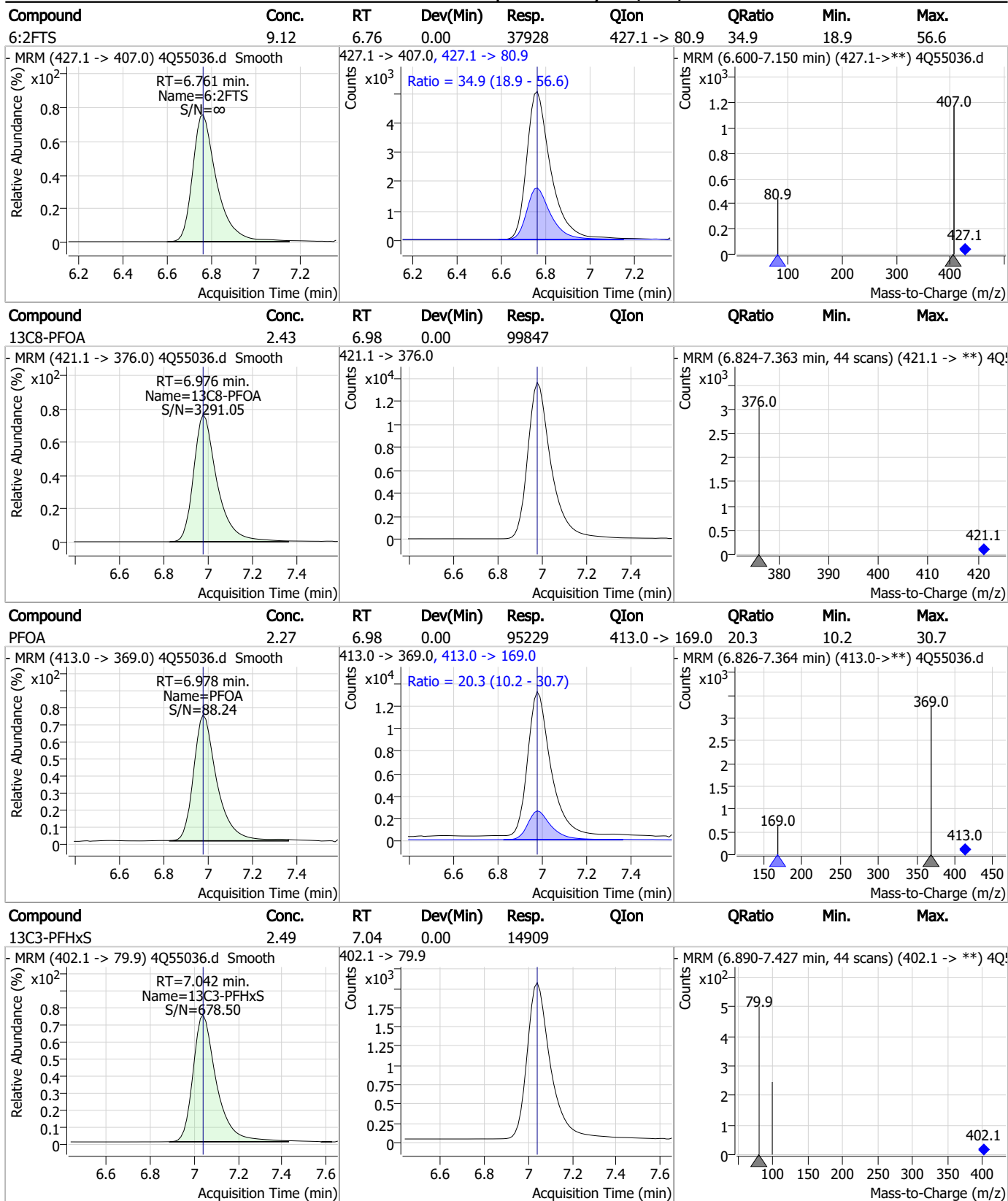
Perfluorinated Compounds by LC/MS/MS



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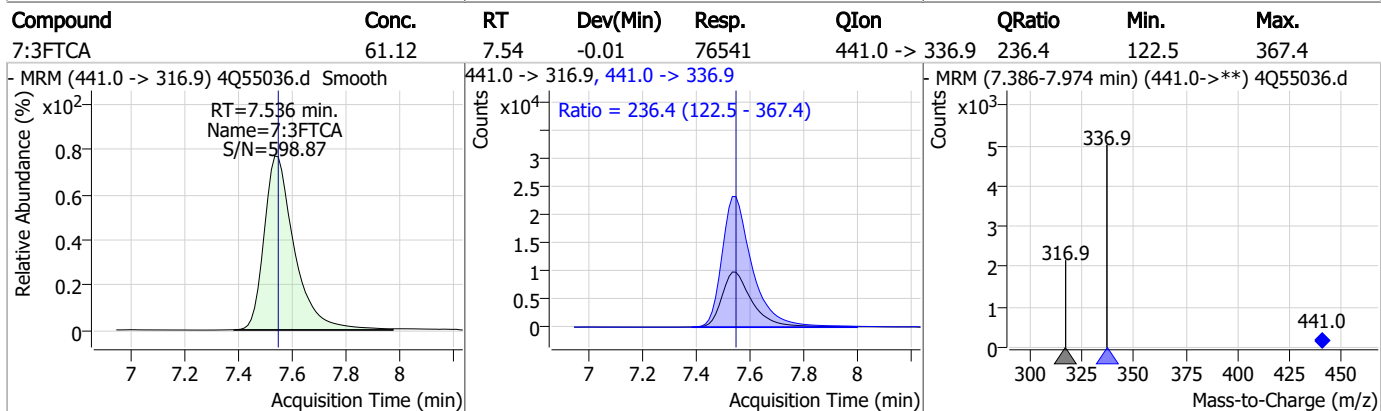
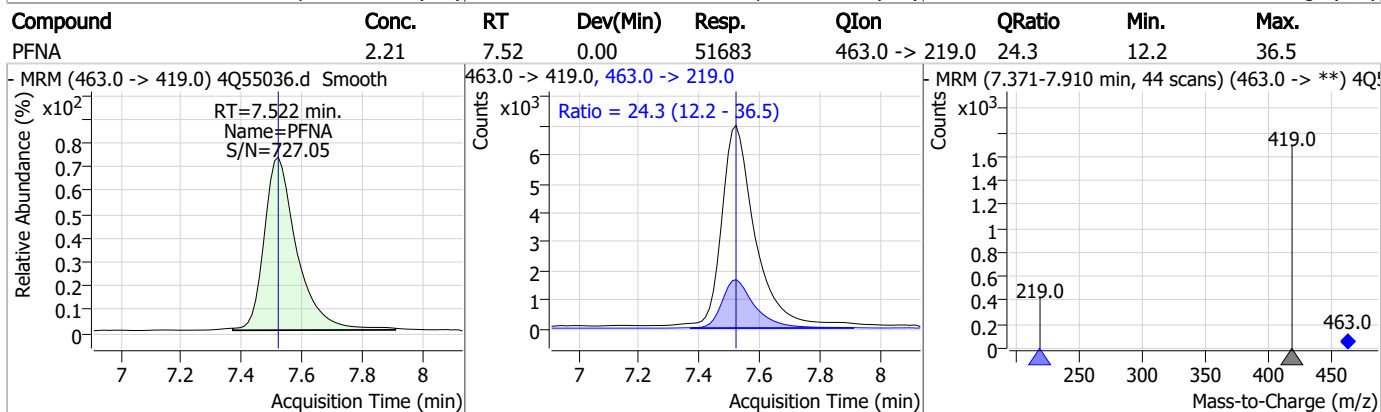
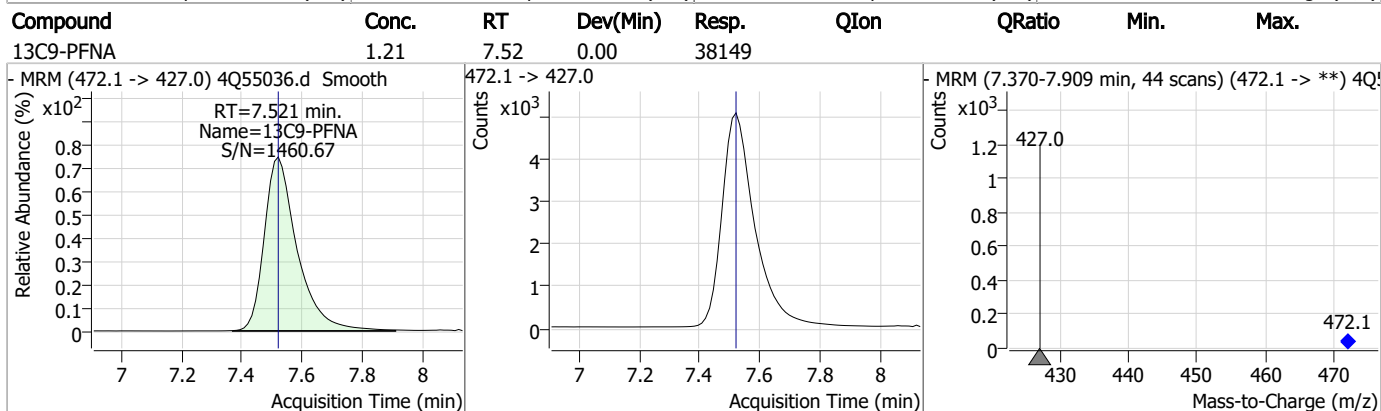
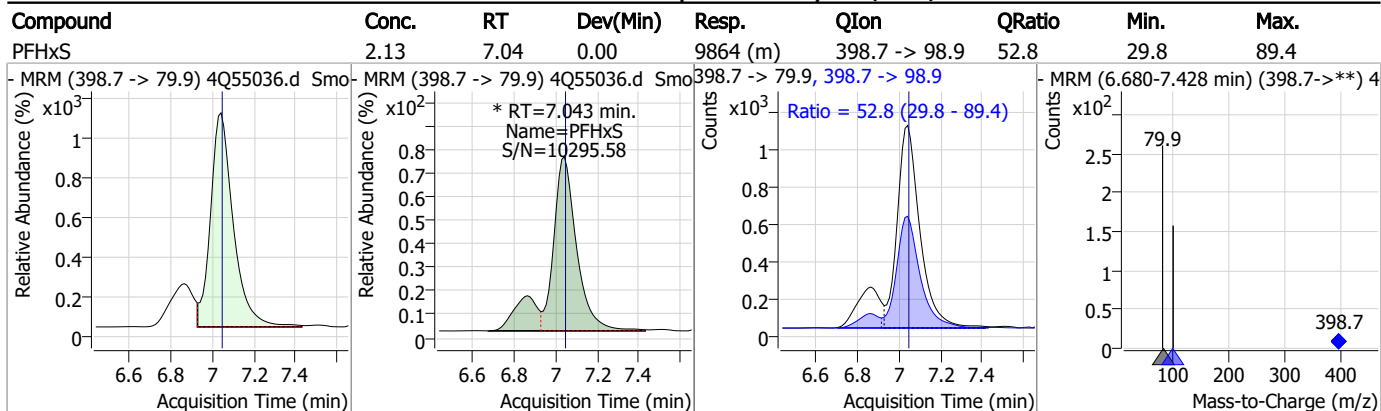


Perfluorinated Compounds by LC/MS/MS



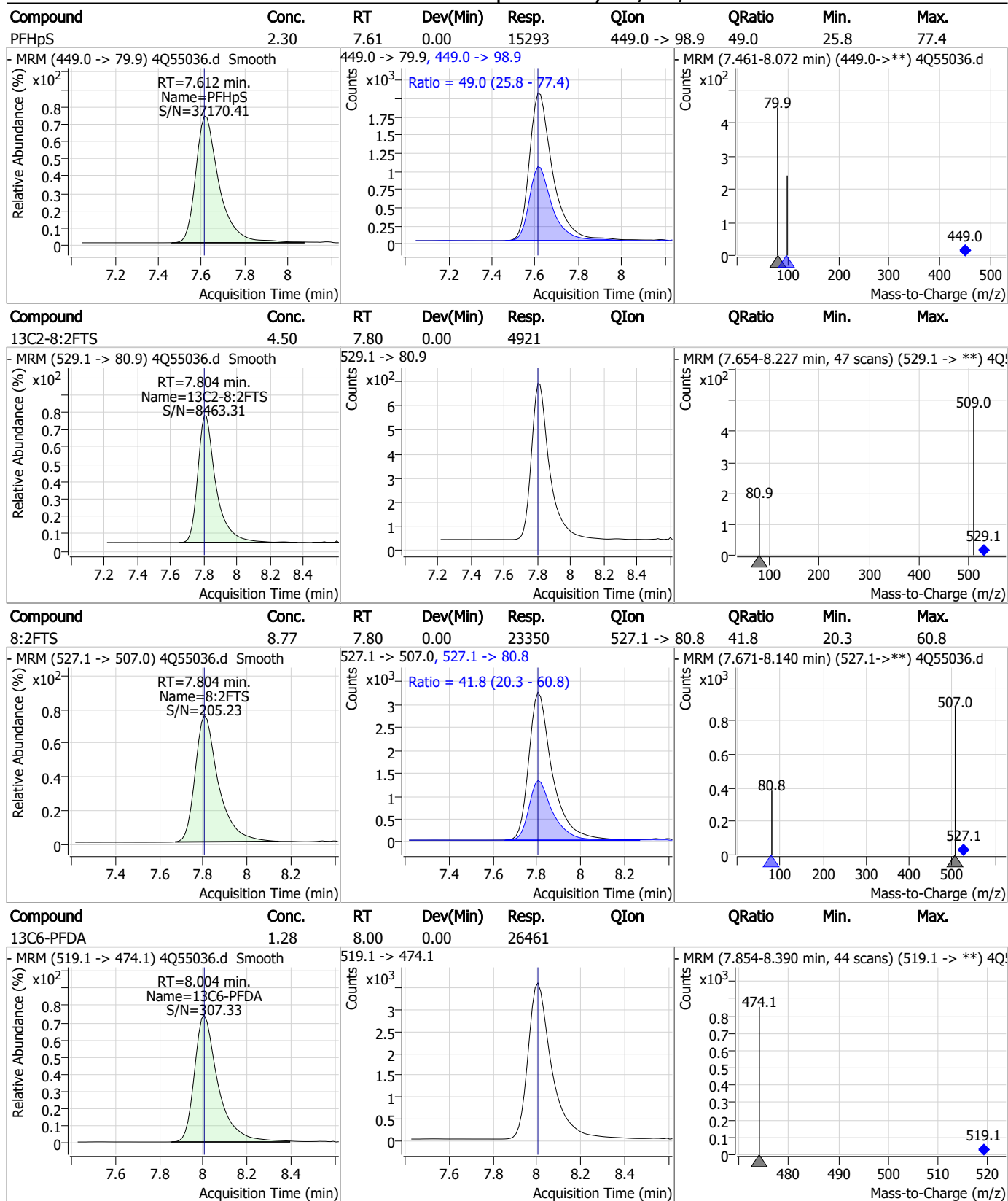
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Perfluorinated Compounds by LC/MS/MS



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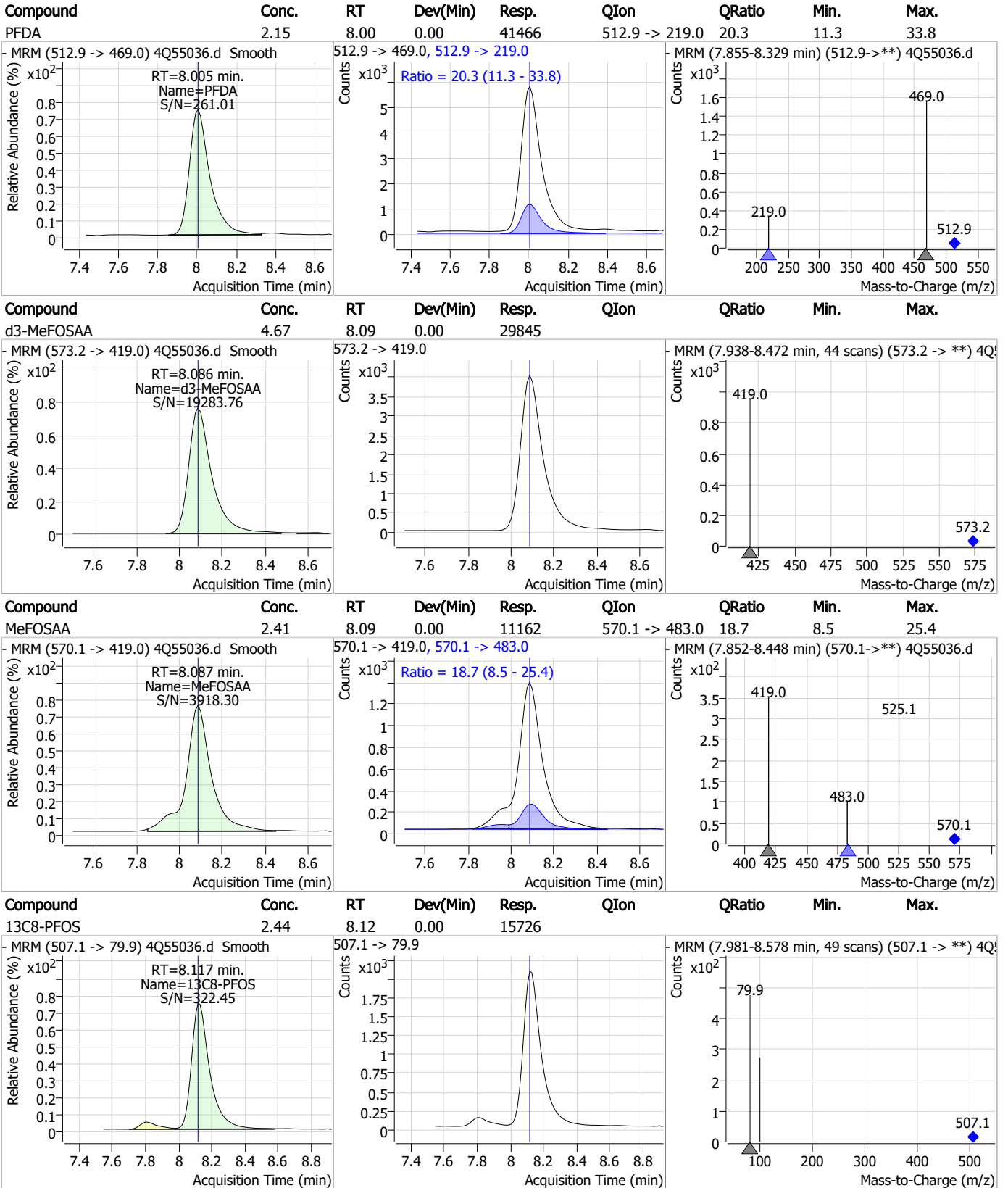
Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

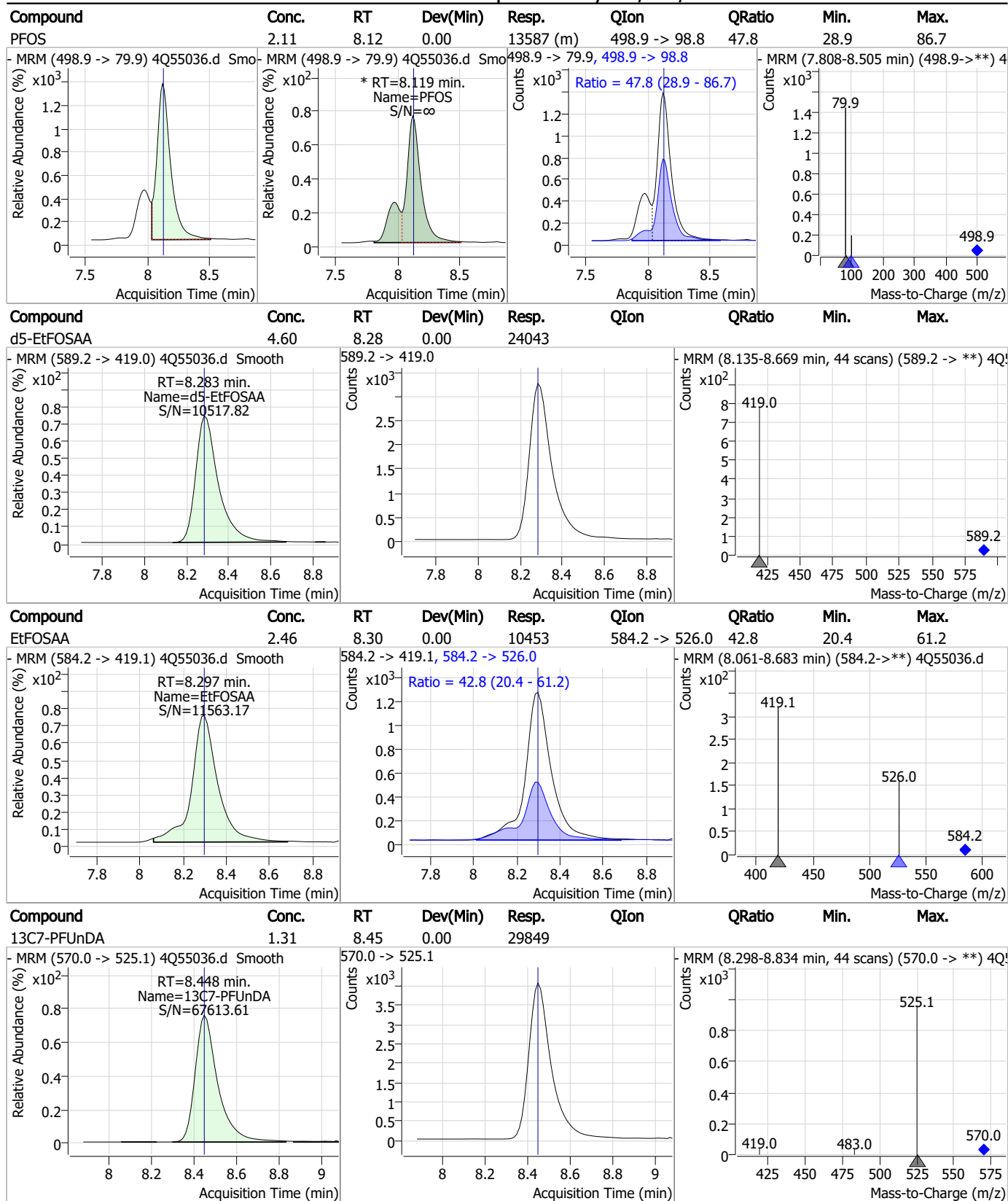


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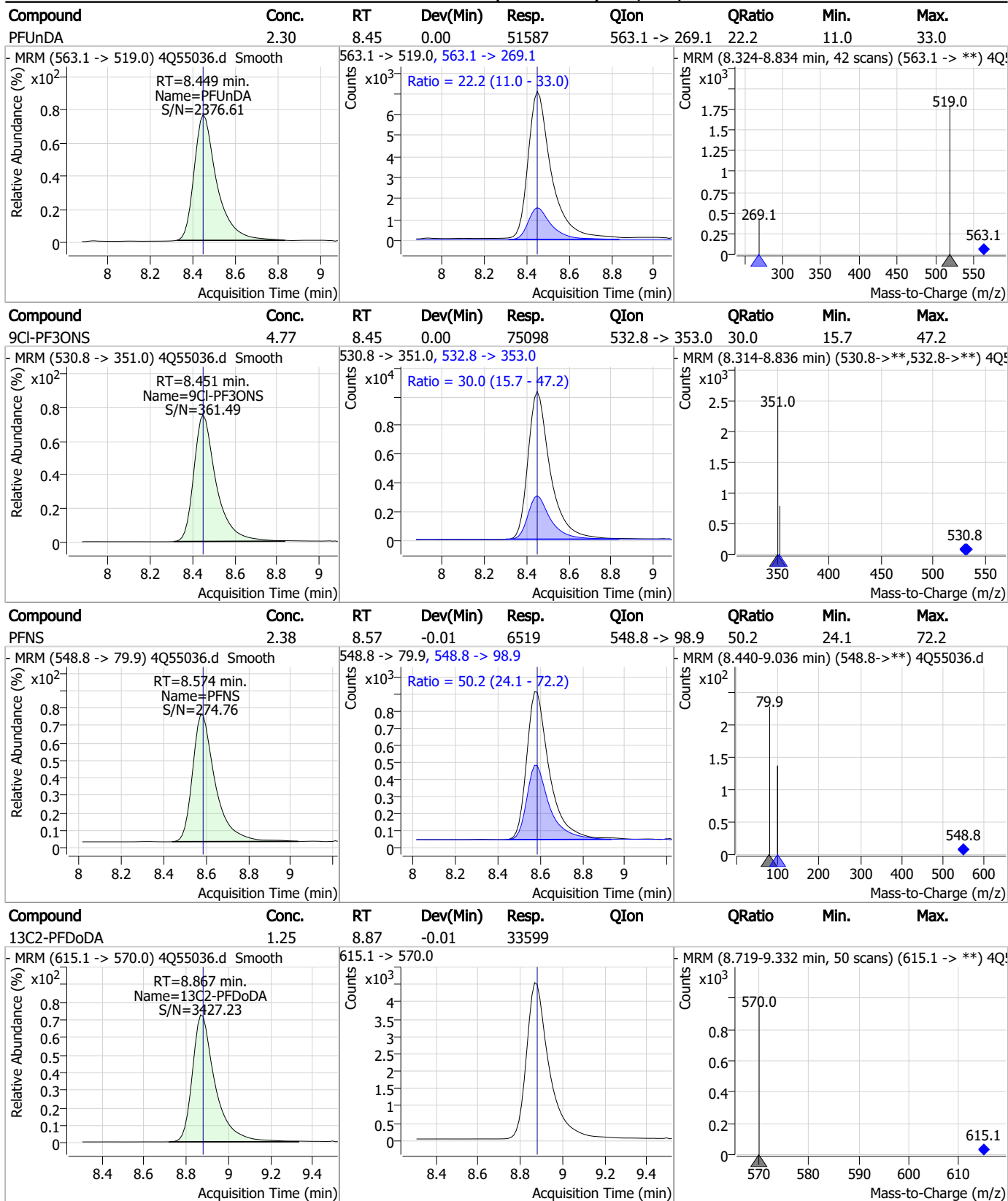


Perfluorinated Compounds by LC/MS/MS



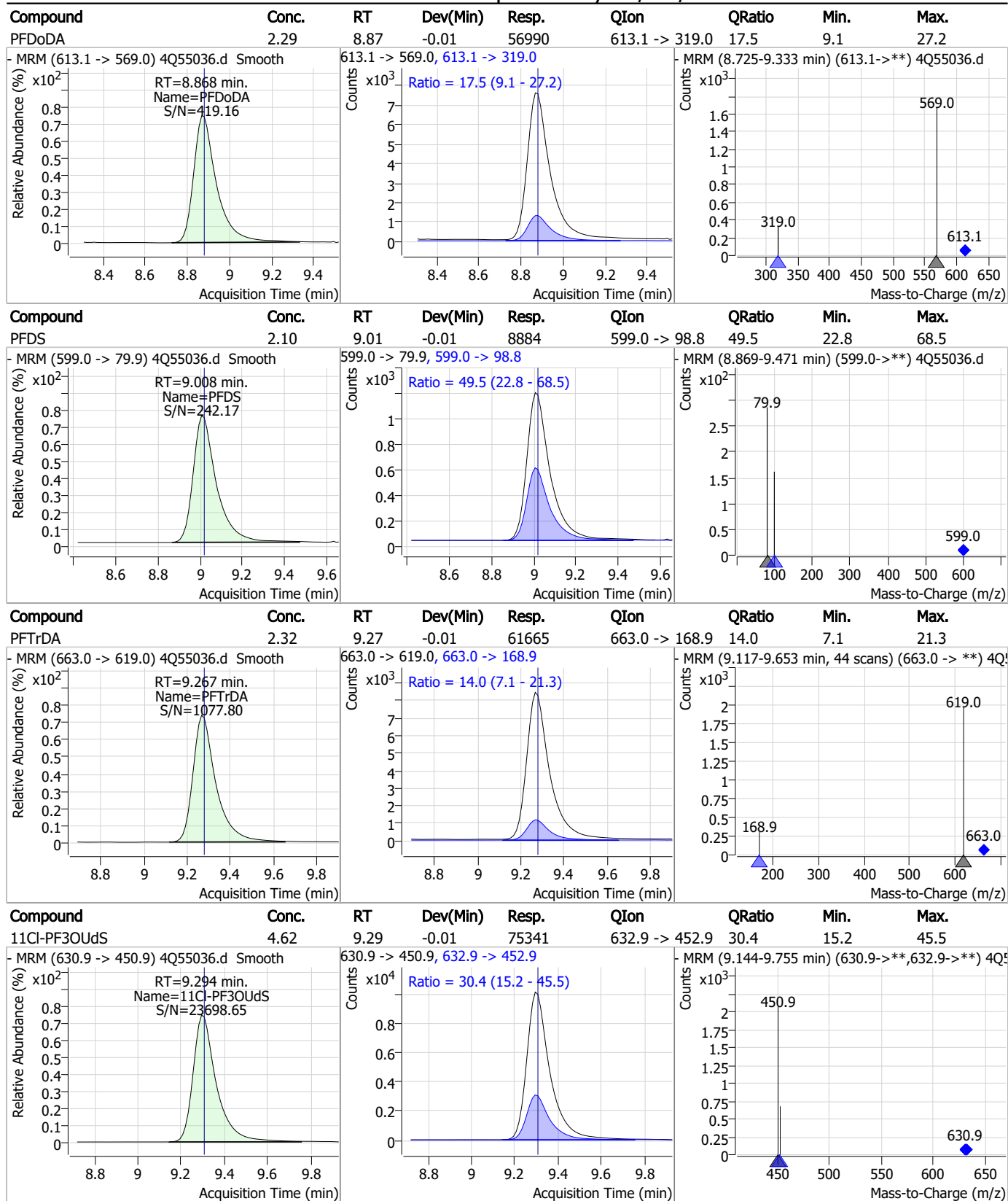
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Perfluorinated Compounds by LC/MS/MS



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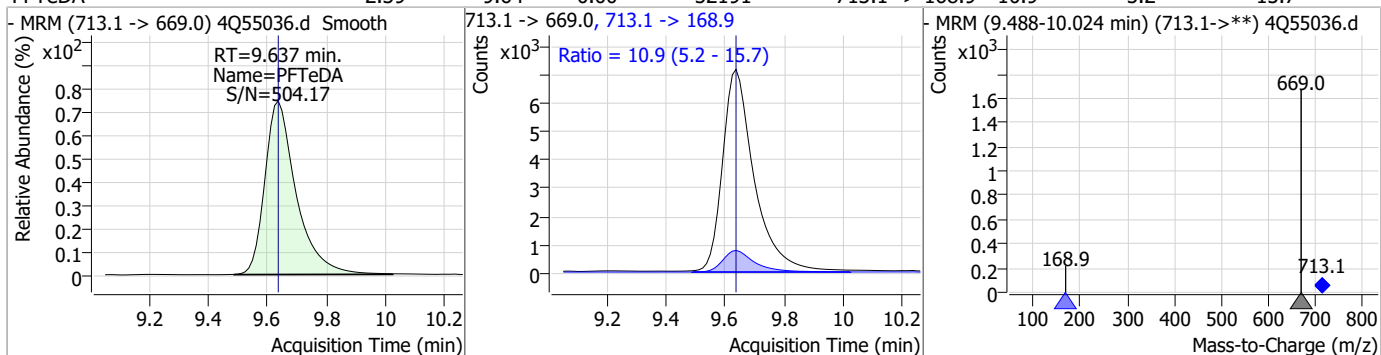
Perfluorinated Compounds by LC/MS/MS



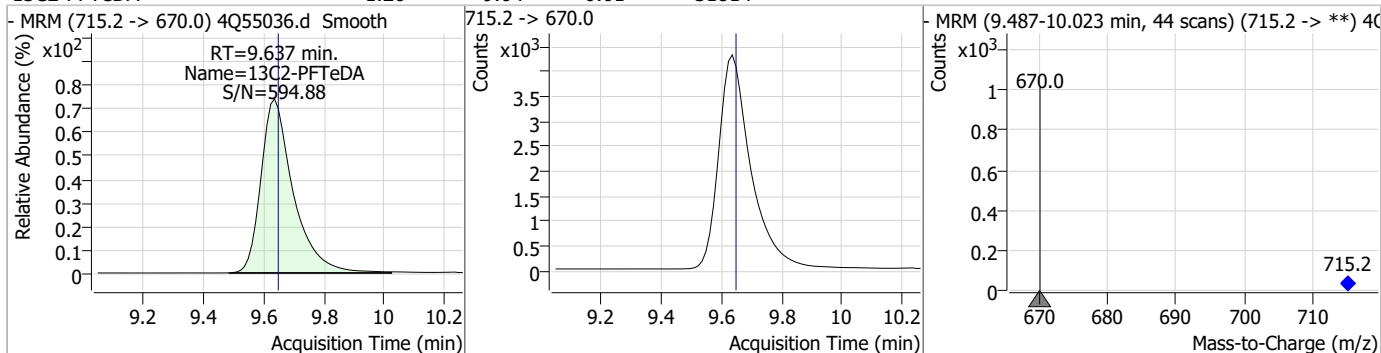
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Perfluorinated Compounds by LC/MS/MS

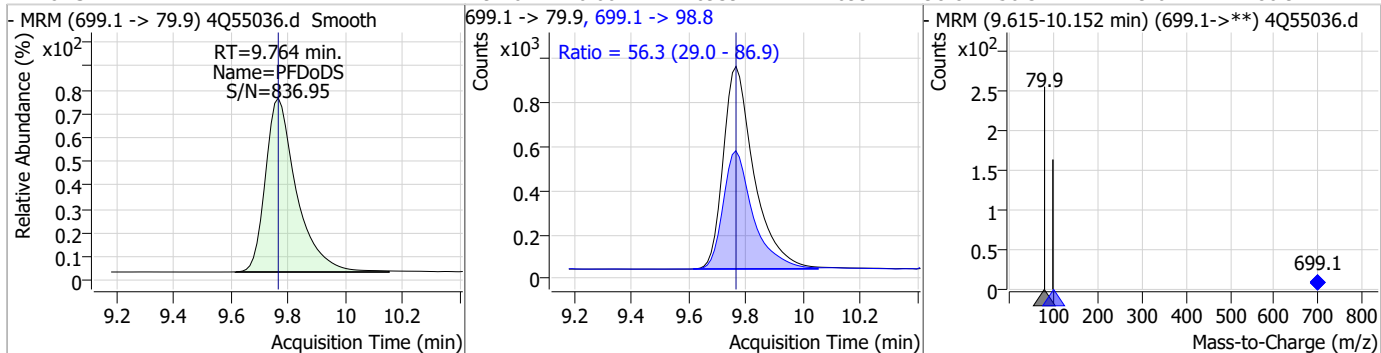
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.39	9.64	0.00	52191	713.1 -> 168.9	10.9	5.2	15.7



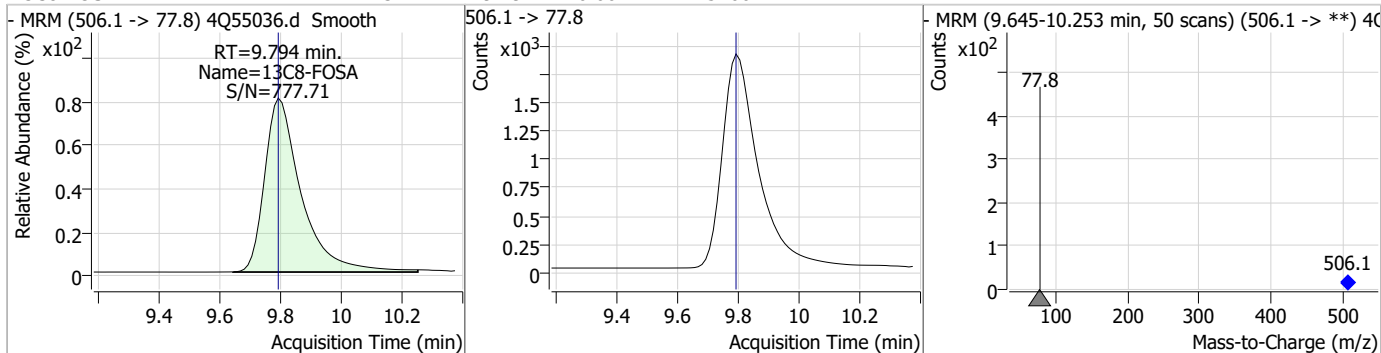
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	9.64	-0.01	31814				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.21	9.76	0.00	6939	699.1 -> 98.8	56.3	29.0	86.9

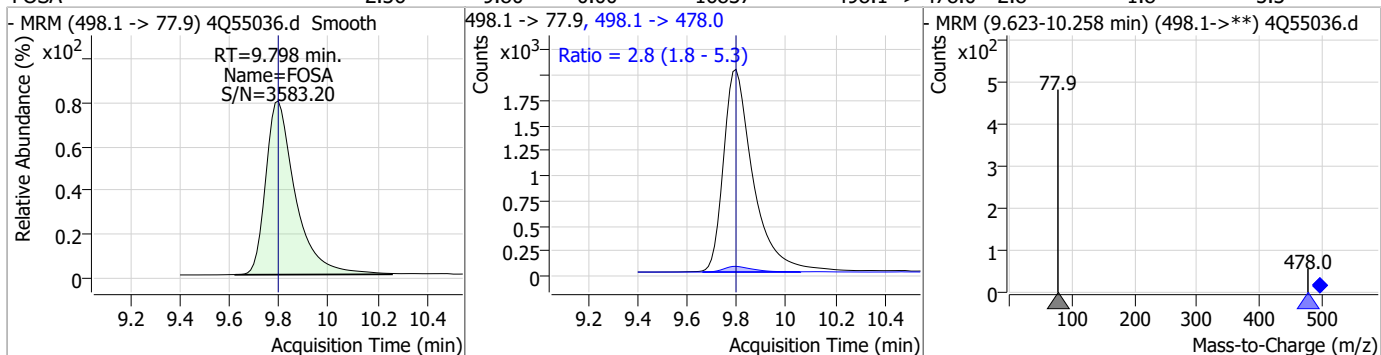


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.31	9.79	0.00	15760				

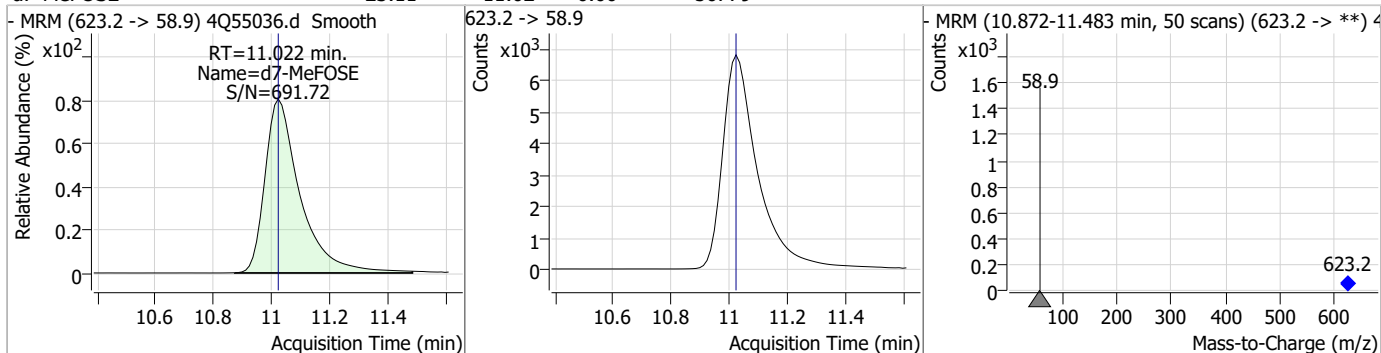


Perfluorinated Compounds by LC/MS/MS

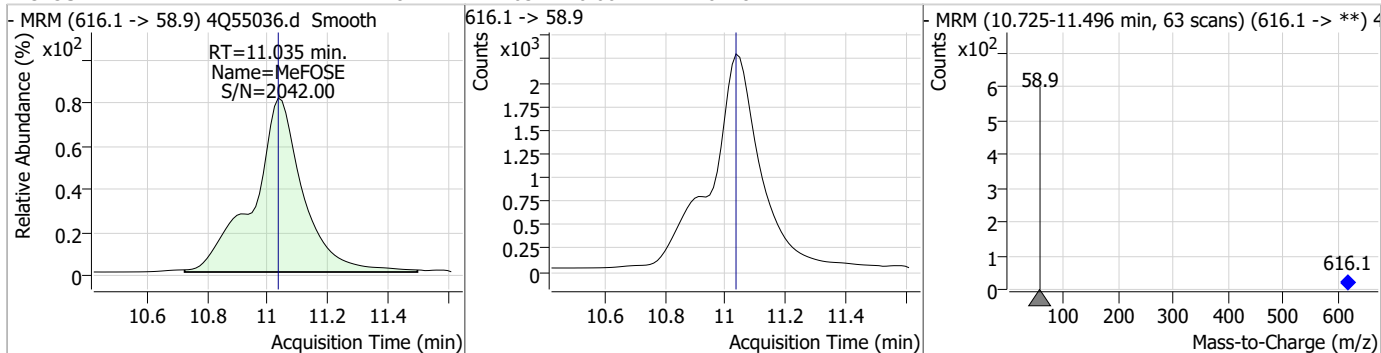
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.36	9.80	0.00	16837	498.1 -> 478.0	2.8	1.8	5.3



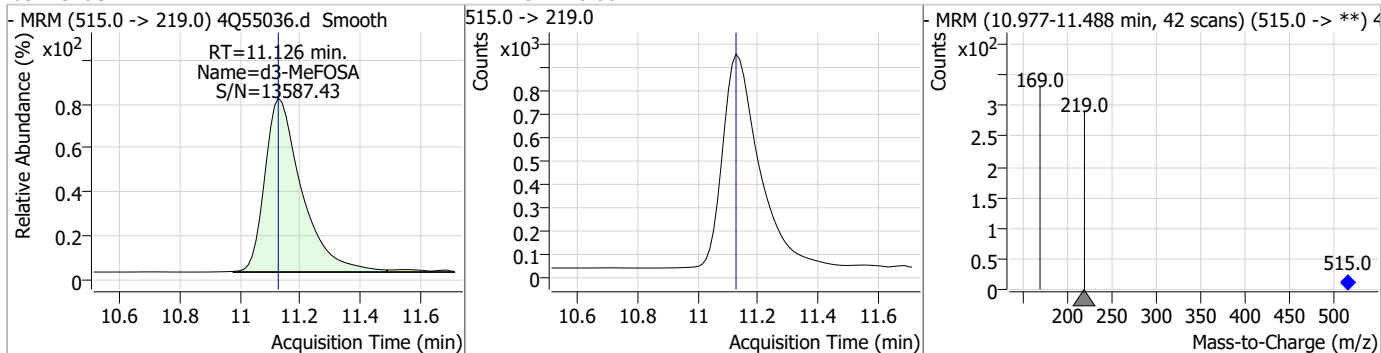
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.11	11.02	0.00	56779				



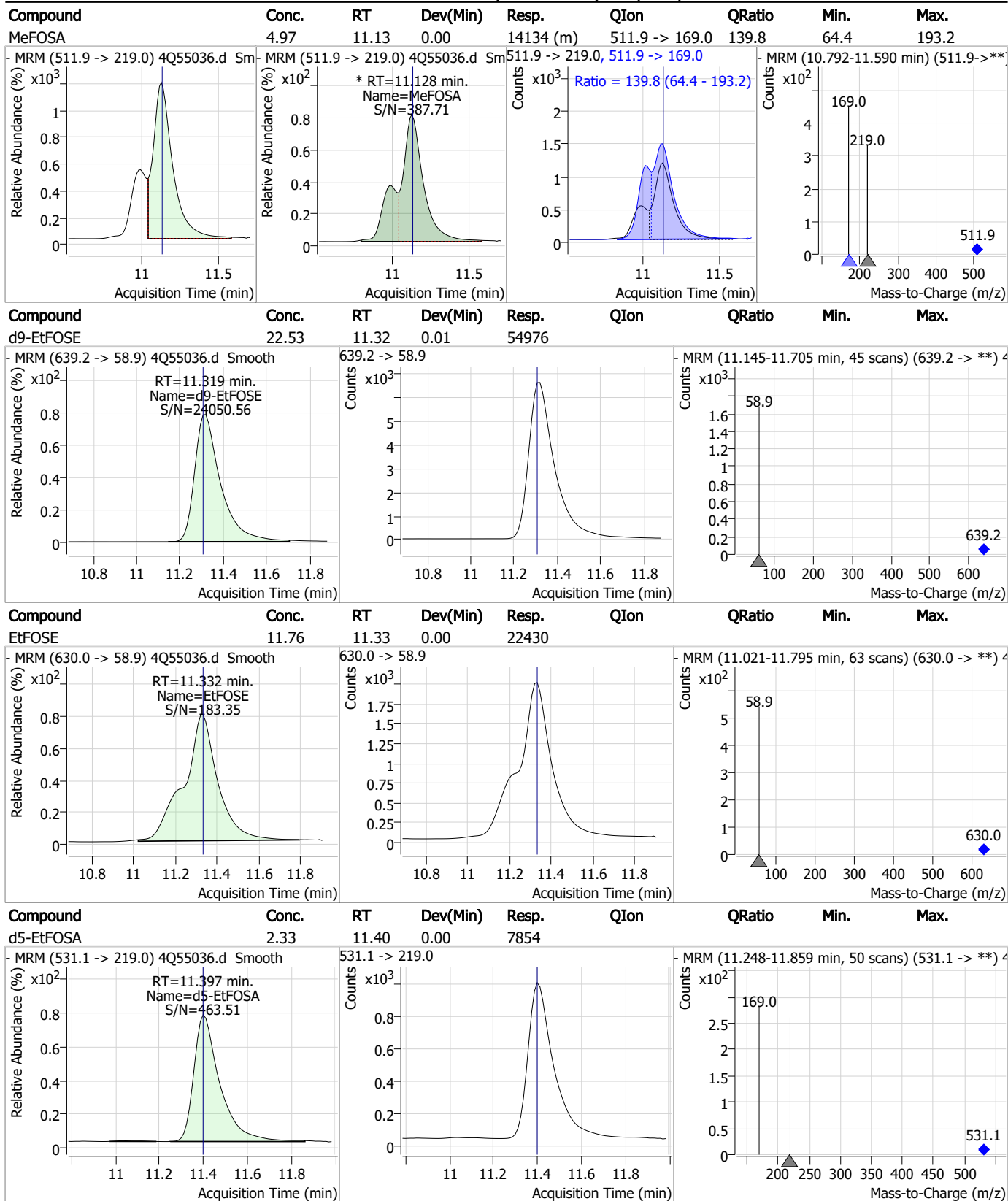
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.82	11.03	0.00	26148				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.22	11.13	0.00	7777				

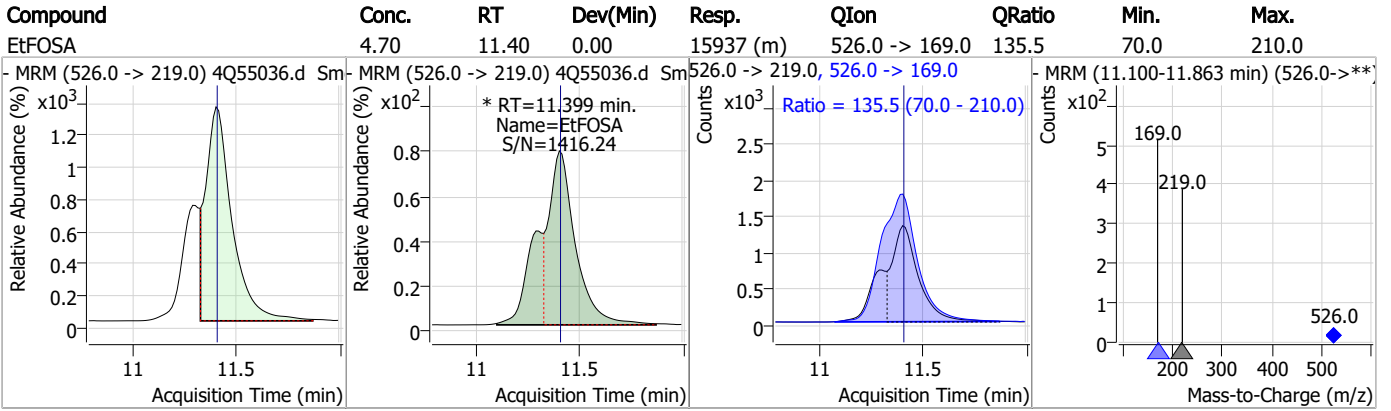


Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS



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Manual Integration Approval Summary

Sample Number: S4Q806-CC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55036.D Analyst approved: 12/12/23 11:03 Anna Ludwig
Injection Time: 12/11/23 19:40 Supervisor approved: 12/12/23 11:51 Natasha Guntie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
MeFOSA	31506-32-8		11.13	Split peak
EtFOSA	4151-50-2		11.40	Split peak

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Perfluorinated Compounds by LC/MS/MS

Data File : 4Q55046.d
 Operator : annal
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 12/11/2023 10:07:59 PM
 Sample Name : ecc806-4
 Vial : P1-A5
 DA Method File : 1633_121123_S4Q806.quantmethod.xml
 Batch Name : s4q806.batch.bin
 Sample Information : OP99999,S4Q806,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.711	216.8 -> 171.9	176035	10.00 µg/L	0.012
M5-PFPeA	4.187	268.3 -> 223.0	79385	5.00 µg/L	0.012
M5-PFHxA	5.347	318.0 -> 273.0	67718	2.50 µg/L	0.000
M4-PFHpA	6.292	367.1 -> 322.0	66858	2.50 µg/L	0.000
M8-PFOA	6.976	421.1 -> 376.0	102479	2.50 µg/L	0.000
M9-PFNA	7.521	472.1 -> 427.0	39909	1.25 µg/L	0.000
M6-PFDA	8.004	519.1 -> 474.1	25970	1.25 µg/L	0.000
M7-PFUnDA	8.449	570.0 -> 525.1	29288	1.25 µg/L	0.000
M2-PFDoDA	8.867	615.1 -> 570.0	33636	1.25 µg/L	-0.012
M2-PFTeDA	9.637	715.2 -> 670.0	32488	1.25 µg/L	-0.012
M8-FOSA	9.794	506.1 -> 77.8	16316	2.50 µg/L	0.000
M3-PFBS	5.215	302.1 -> 79.9	19192	2.50 µg/L	0.012
M3-PFHxS	7.042	402.1 -> 79.9	15002	2.50 µg/L	0.000
M8-PFOS	8.117	507.1 -> 79.9	16163	2.50 µg/L	0.000
M2-4:2FTS	5.058	329.1 -> 80.9	1874	5.00 µg/L	0.000
M2-6:2FTS	6.761	429.1 -> 80.9	3735	5.00 µg/L	0.000
M2-8:2FTS	7.804	529.1 -> 80.9	4699	5.00 µg/L	0.000
M3-MeFOSAA	8.086	573.2 -> 419.0	29944	5.00 µg/L	0.000
M3-HFPO-DA	5.702	286.9 -> 168.9	61186	10.00 µg/L	0.000
M5-EtFOSAA	8.283	589.2 -> 419.0	24556	5.00 µg/L	0.000
M7-MeFOSE	11.022	623.2 -> 58.9	58464	25.00 µg/L	0.000
M9-EtFOSE	11.319	639.2 -> 58.9	57713	25.00 µg/L	0.012
M5-EtFOSA	11.398	531.1 -> 219.0	8481	2.50 µg/L	0.000
M3-MeFOSA	11.126	515.0 -> 219.0	8113	2.50 µg/L	0.000
13C4-PFOS	8.118	502.8 -> 79.9	12097	2.50 µg/L	0.000
13C3-PFBA	2.703	216.0 -> 172.0	83315	5.00 µg/L	0.000
18O2-PFHxS	7.041	403.0 -> 83.9	9793	2.50 µg/L	0.000
13C4-PFOA	6.977	417.1 -> 372.0	112405	2.50 µg/L	0.000
13C2-PFDA	8.004	515.1 -> 470.1	28701	1.25 µg/L	0.000
13C5-PFNA	7.522	468.0 -> 423.0	39980	1.25 µg/L	0.000
13C2-PFHxA	5.348	315.1 -> 270.0	73902	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.058	329.1 -> 80.9	1874	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.9%		
13C2-6:2FTS	6.761	429.1 -> 80.9	3735	4.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.2%		
13C2-8:2FTS	7.804	529.1 -> 80.9	4699	4.26 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.1%		
13C2-PFDoDA	8.867	615.1 -> 570.0	33636	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C2-PFTeDA	9.637	715.2 -> 670.0	32488	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C3-PFBS	5.215	302.1 -> 79.9	19192	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C3-PFHxS	7.042	402.1 -> 79.9	15002	2.48 µg/L	0.000

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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C4-PFBA	2.711	216.8 -> 171.9	176035	9.81 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C4-PFHpA	6.292	367.1 -> 322.0	66858	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFHxA	5.347	318.0 -> 273.0	67718	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C5-PFPeA	4.187	268.3 -> 223.0	79385	4.94 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.004	519.1 -> 474.1	25970	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C7-PFUnDA	8.449	570.0 -> 525.1	29288	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.794	506.1 -> 77.8	16316	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C8-PFOA	6.976	421.1 -> 376.0	102479	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C8-PFOS	8.117	507.1 -> 79.9	16163	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.521	472.1 -> 427.0	39909	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSAA	8.086	573.2 -> 419.0	29944	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C3-HFPO-DA	5.702	286.9 -> 168.9	61186	9.71 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.1%	
d3-MeFOSA	11.126	515.0 -> 219.0	8113	2.31 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.4%	
d5-EtFOSAA	8.283	589.2 -> 419.0	24556	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
d7-MeFOSE	11.022	623.2 -> 58.9	58464	23.77 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
d9-EtFOSE	11.319	639.2 -> 58.9	57713	23.63 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 94.5%	
d5-EtFOSA	11.398	531.1 -> 219.0	8481	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
Target Compounds					QValue
4:2FTS	5.059	327.1 -> 307.0	28008	8.24 µg/L	96
		327.1 -> 80.9	11890		
6:2FTS	6.761	427.1 -> 407.0	35928	9.04 µg/L	99
		427.1 -> 80.9	13755		
8:2FTS	7.804	527.1 -> 507.0	24527	9.65 µg/L	98
		527.1 -> 80.8	9666		
EtFOSAA	8.284	584.2 -> 419.1	10129	2.34 µg/L	98
		584.2 -> 526.0	4258		
FOSA	9.785	498.1 -> 77.9	16733	2.26 µg/L	99
		498.1 -> 478.0	546		
MeFOSAA	8.087	570.1 -> 419.0	10485	2.26 µg/L	89
		570.1 -> 483.0	2278		
PFBA	2.707	212.8 -> 168.9	51849	9.26 µg/L	100
PFBS	5.216	298.7 -> 79.9	11162	1.94 µg/L	98
		298.7 -> 98.8	4495		
PFDA	8.005	512.9 -> 469.0	42516	2.25 µg/L	95
		512.9 -> 219.0	8605		
PFDoDA	8.868	613.1 -> 569.0	59430	2.39 µg/L	99
		613.1 -> 319.0	10455		
PFDS	9.008	599.0 -> 79.9	9420	2.17 µg/L	95

7.7.15
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Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4591			
PFHpA	6.293	363.1 -> 319.0	86786	2.30	µg/L	99
		363.1 -> 169.0	15254			
PFHpS	7.612	449.0 -> 79.9	14393	2.10	µg/L	100
		449.0 -> 98.9	7458			
PFHxA	5.350	313.0 -> 269.0	49623	2.28	µg/L	100
		313.0 -> 118.9	1617			
PFHxS	7.043	398.7 -> 79.9	10126	2.17	µg/L	m 90
		398.7 -> 98.9	5299			
PFNA	7.522	463.0 -> 419.0	53984	2.20	µg/L	98
		463.0 -> 219.0	12635			
PFNS	8.574	548.8 -> 79.9	6528	2.31	µg/L	99
		548.8 -> 98.9	3210			
PFOA	6.978	413.0 -> 369.0	96869	2.24	µg/L	99
		413.0 -> 169.0	19330			
PFOS	8.119	498.9 -> 79.9	13807	2.08	µg/L	m 87
		498.9 -> 98.8	6651			
PFPeA	4.189	263.0 -> 219.0	72452	4.71	µg/L	100
PFPeS	6.294	349.1 -> 79.9	10778	2.12	µg/L	99
		349.1 -> 98.9	4576			
PFTeDA	9.637	713.1 -> 669.0	51350	2.30	µg/L	100
		713.1 -> 168.9	5306			
PFTrDA	9.267	663.0 -> 619.0	62593	2.36	µg/L	100
		663.0 -> 168.9	8913			
PFUnDA	8.449	563.1 -> 519.0	53375	2.42	µg/L	98
		563.1 -> 269.1	11288			
11CI-PF3OUdS	9.294	630.9 -> 450.9	75662	4.63	µg/L	99
		632.9 -> 452.9	22712			
9CI-PF3ONS	8.451	530.8 -> 351.0	74641	4.73	µg/L	100
		532.8 -> 353.0	23308			
ADONA	6.568	376.9 -> 250.9	220891	5.04	µg/L	100
		376.9 -> 84.8	53058			
HFPO-DA	5.703	284.9 -> 168.9	27944	4.81	µg/L	97
		284.9 -> 184.9	2940			
3:3FTCA	3.642	241.0 -> 177.0	7977	11.27	µg/L	99
		241.0 -> 117.0	746			
5:3FTCA	6.020	341.0 -> 237.1	161938	58.77	µg/L	97
		341.0 -> 217.0	112961			
7:3FTCA	7.549	441.0 -> 316.9	75404	58.11	µg/L	99
		441.0 -> 336.9	183266			
EtFOSA	11.399	526.0 -> 219.0	17040	4.65	µg/L	95
		526.0 -> 169.0	22877			
EtFOSE	11.332	630.0 -> 58.9	22641	11.31	µg/L	100
MeFOSA	11.128	511.9 -> 219.0	13486	4.55	µg/L	m 83
		511.9 -> 169.0	20039			
MeFOSE	11.035	616.1 -> 58.9	26968	11.84	µg/L	100
PFDoDS	9.764	699.1 -> 79.9	6902	2.14	µg/L	94
		699.1 -> 98.8	3671			
NFDHA	5.229	295.0 -> 201.0	7402	5.03	µg/L	96
		295.0 -> 84.9	1806			
PFMBA	4.591	279.0 -> 85.1	41035	4.63	µg/L	100
PFMPA	3.344	229.0 -> 84.9	41255	4.60	µg/L	100
PFEESA	5.734	314.8 -> 134.9	67669	4.24	µg/L	100
		314.8 -> 82.9	2410			

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

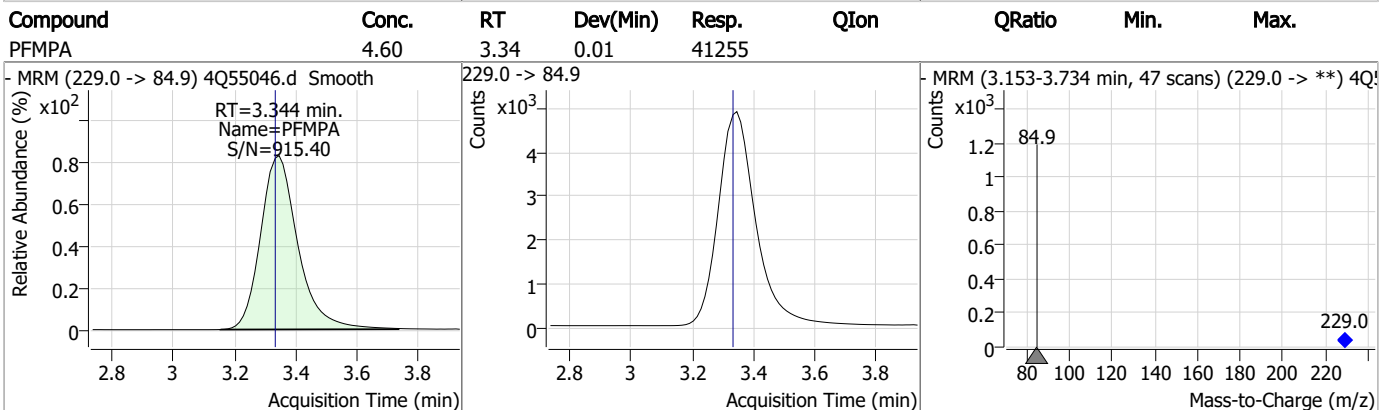
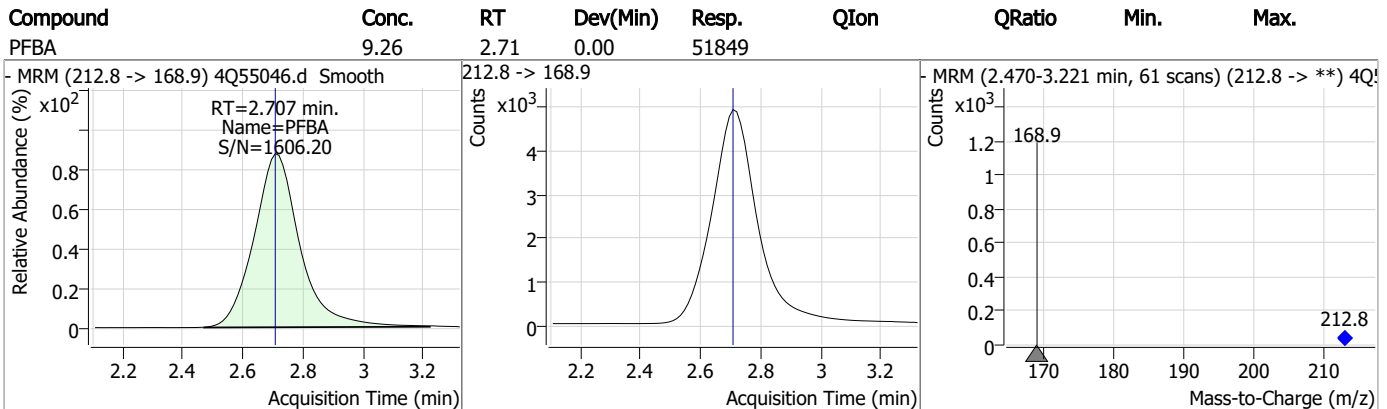
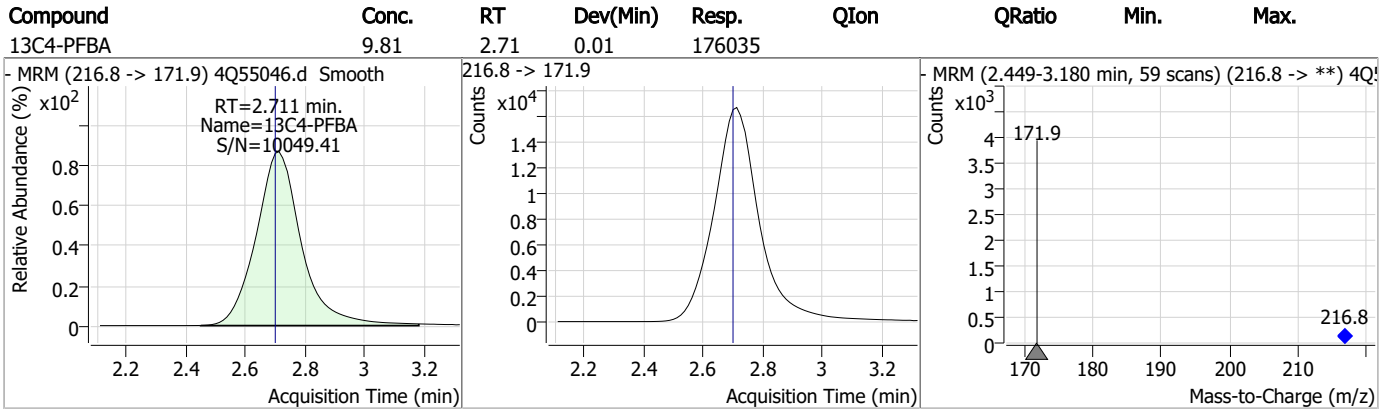
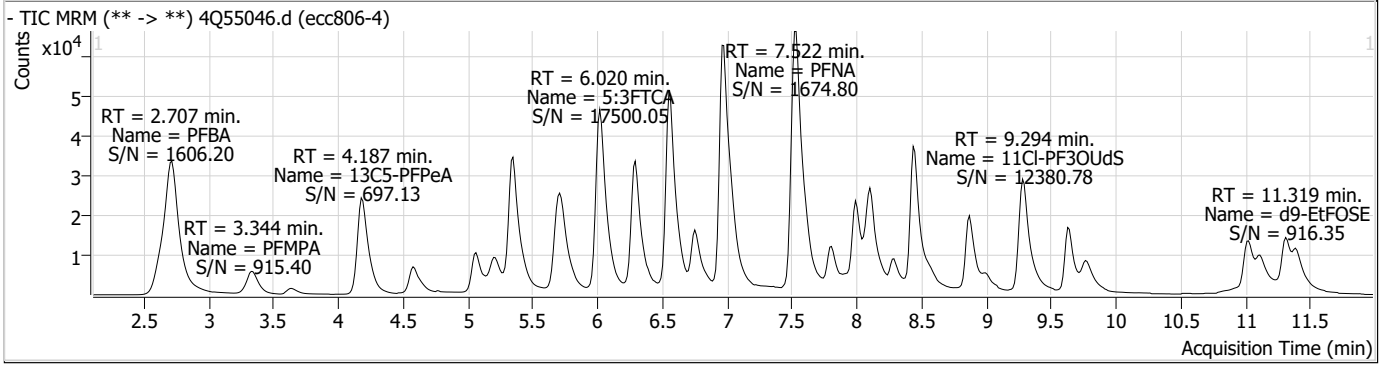
Perfluorinated Compounds by LC/MS/MS

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

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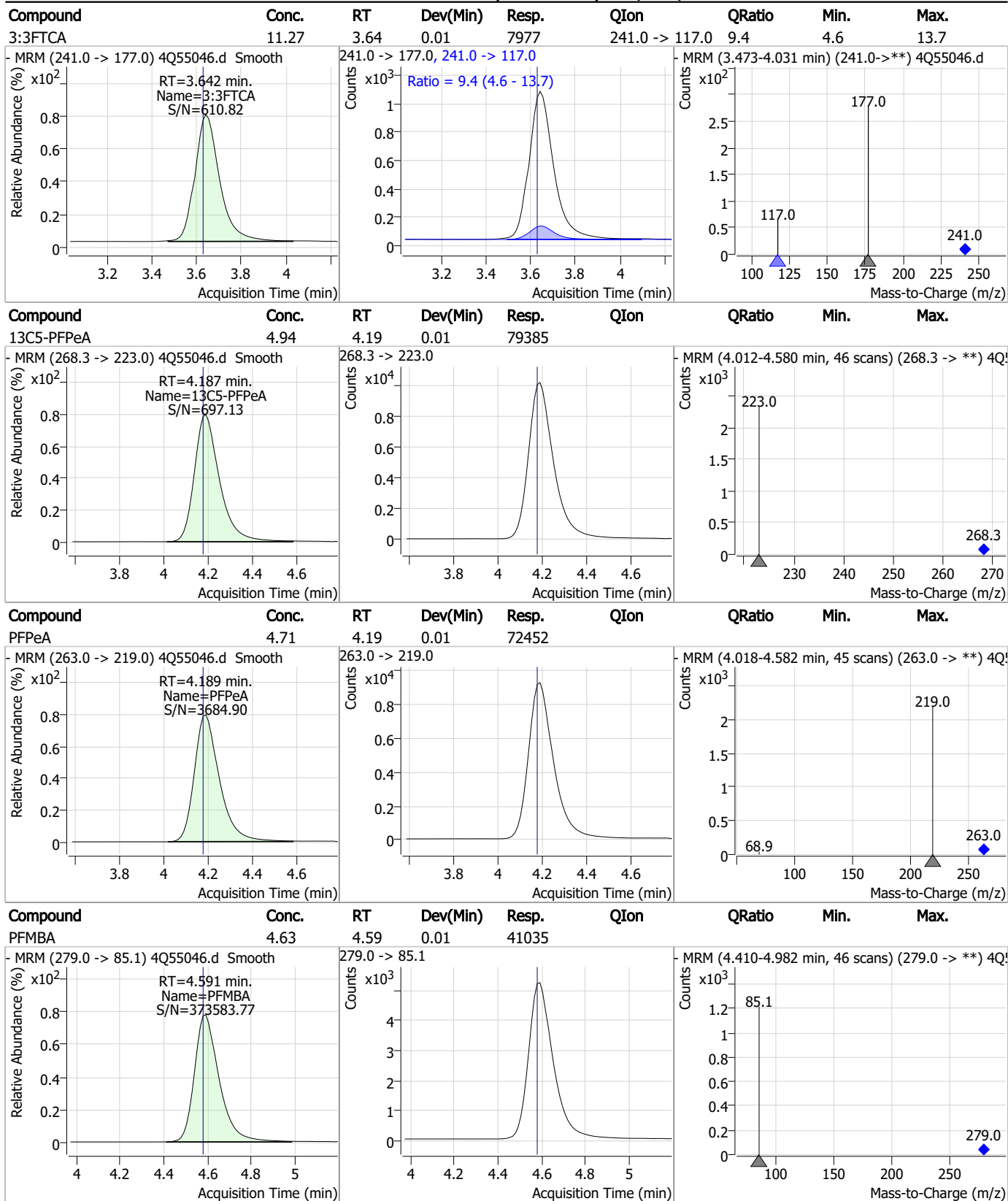
Perfluorinated Compounds by LC/MS/MS



7.7.15

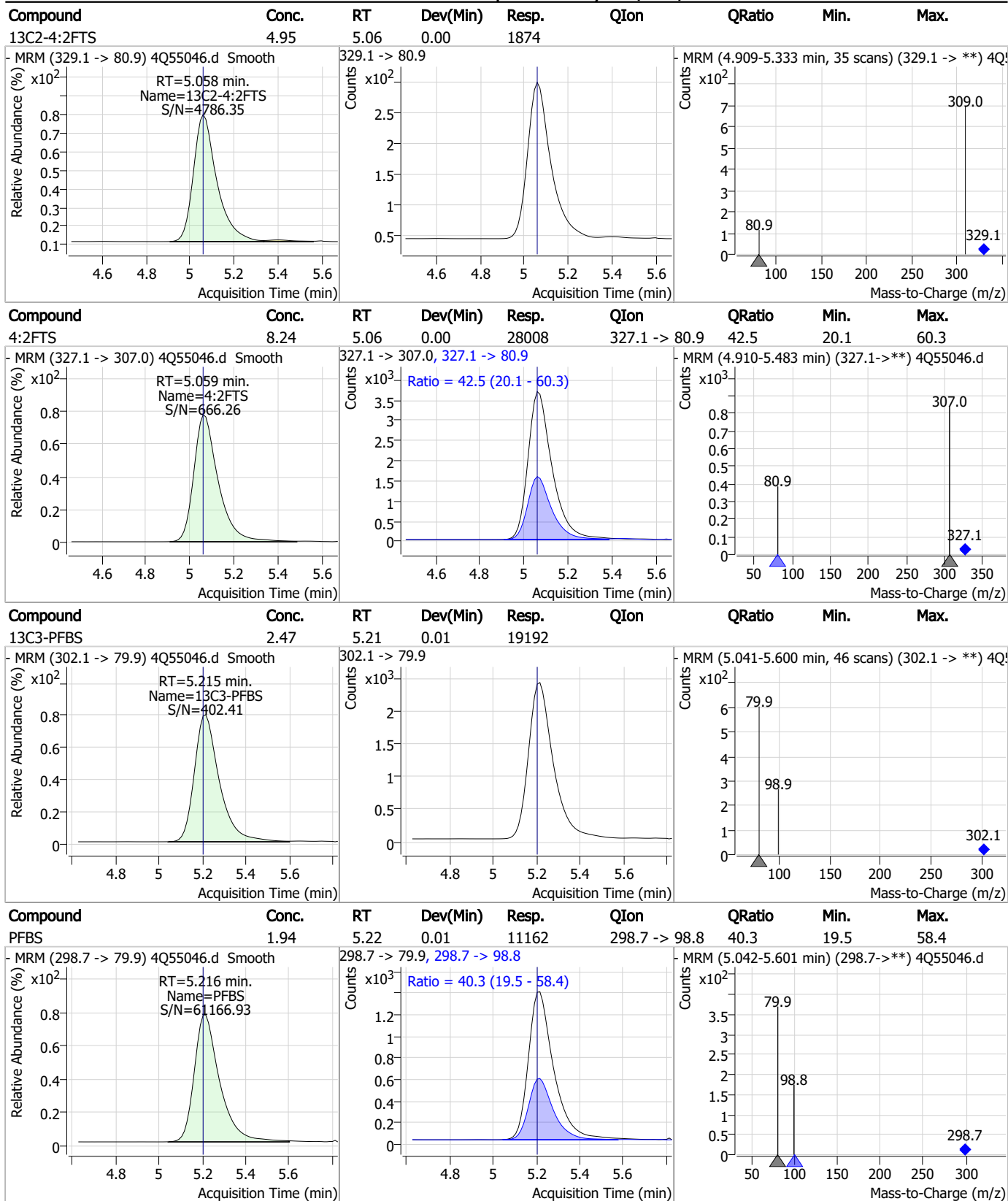
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Perfluorinated Compounds by LC/MS/MS



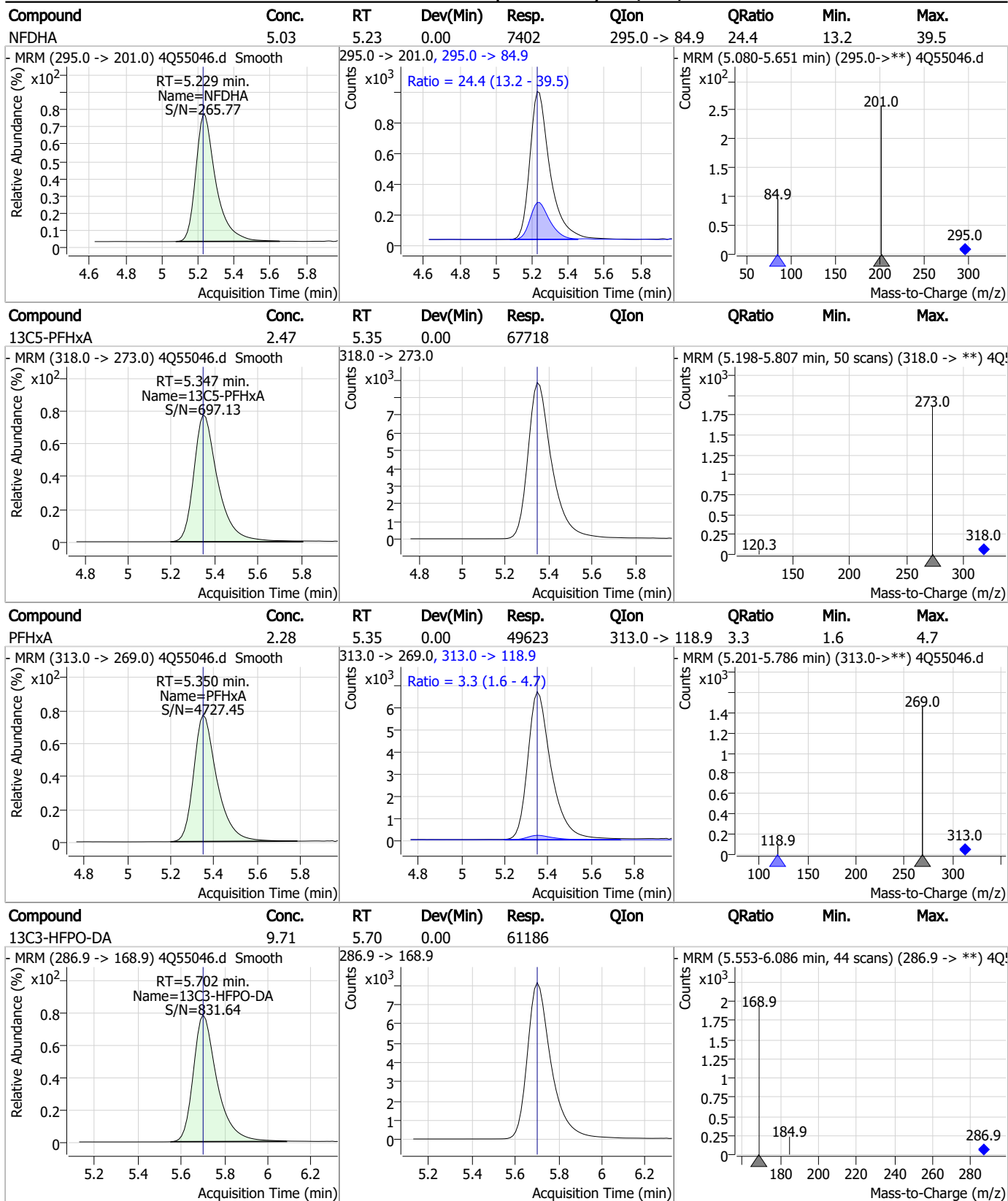
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Perfluorinated Compounds by LC/MS/MS



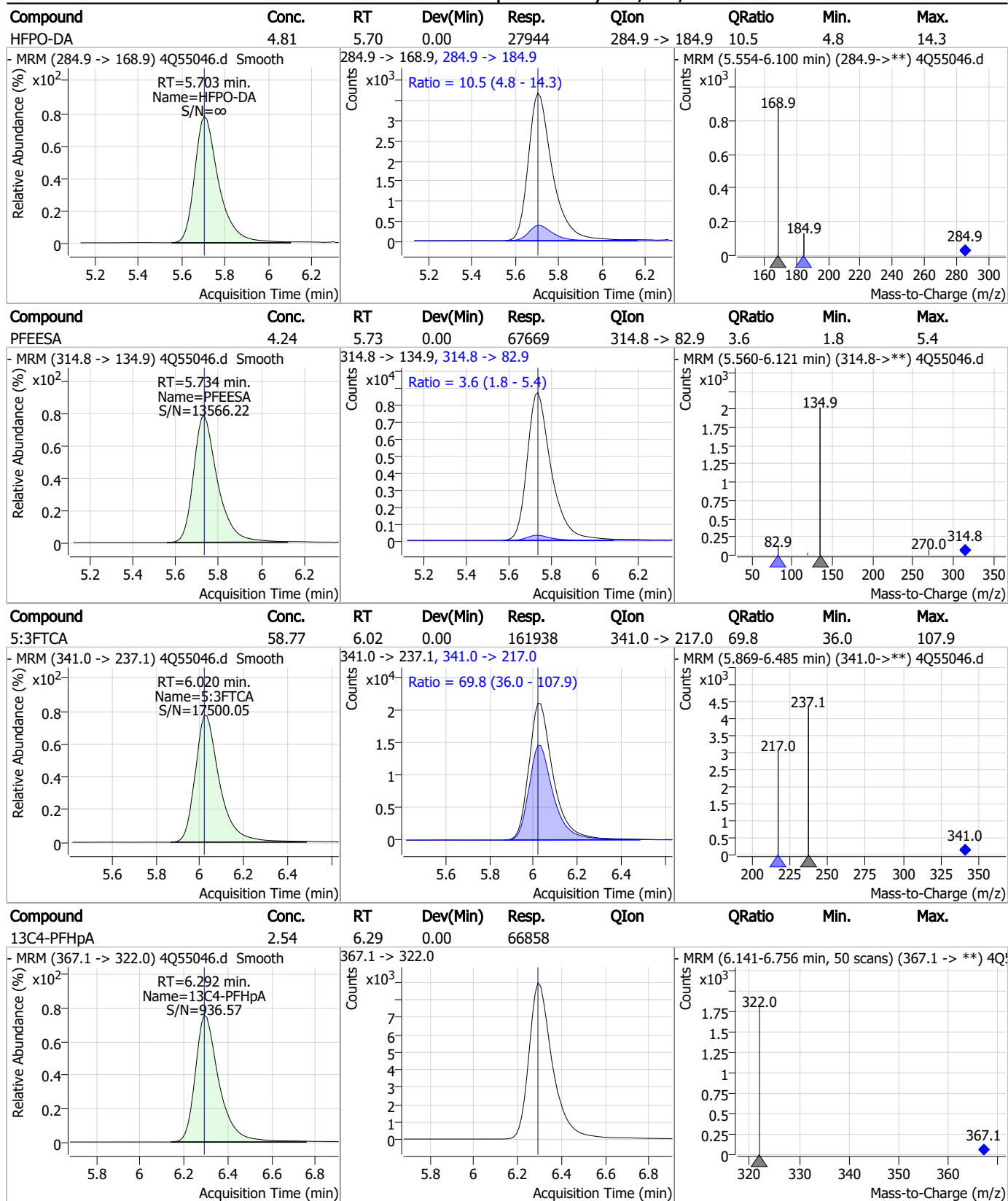
7.7.15
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Perfluorinated Compounds by LC/MS/MS



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Perfluorinated Compounds by LC/MS/MS

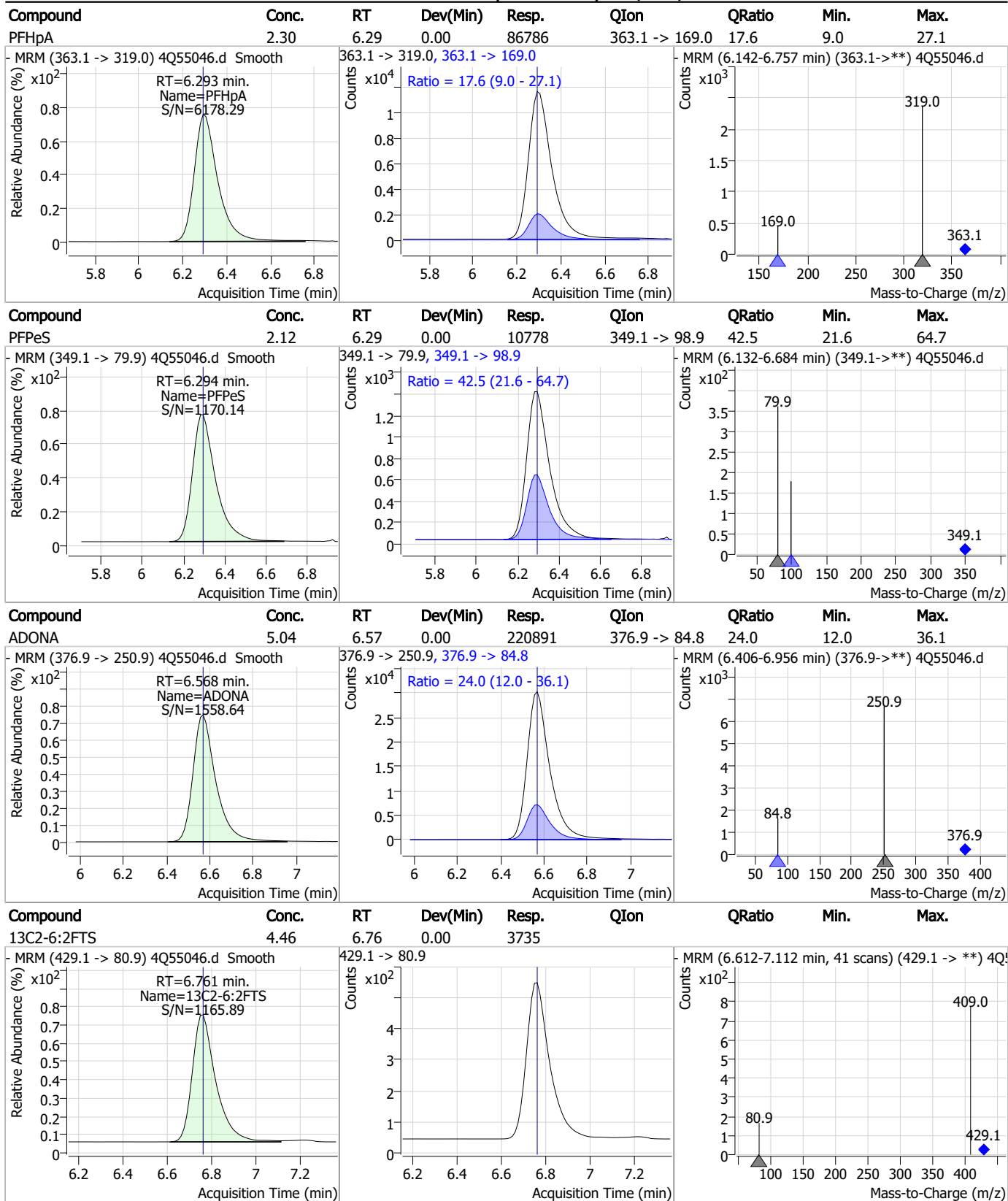


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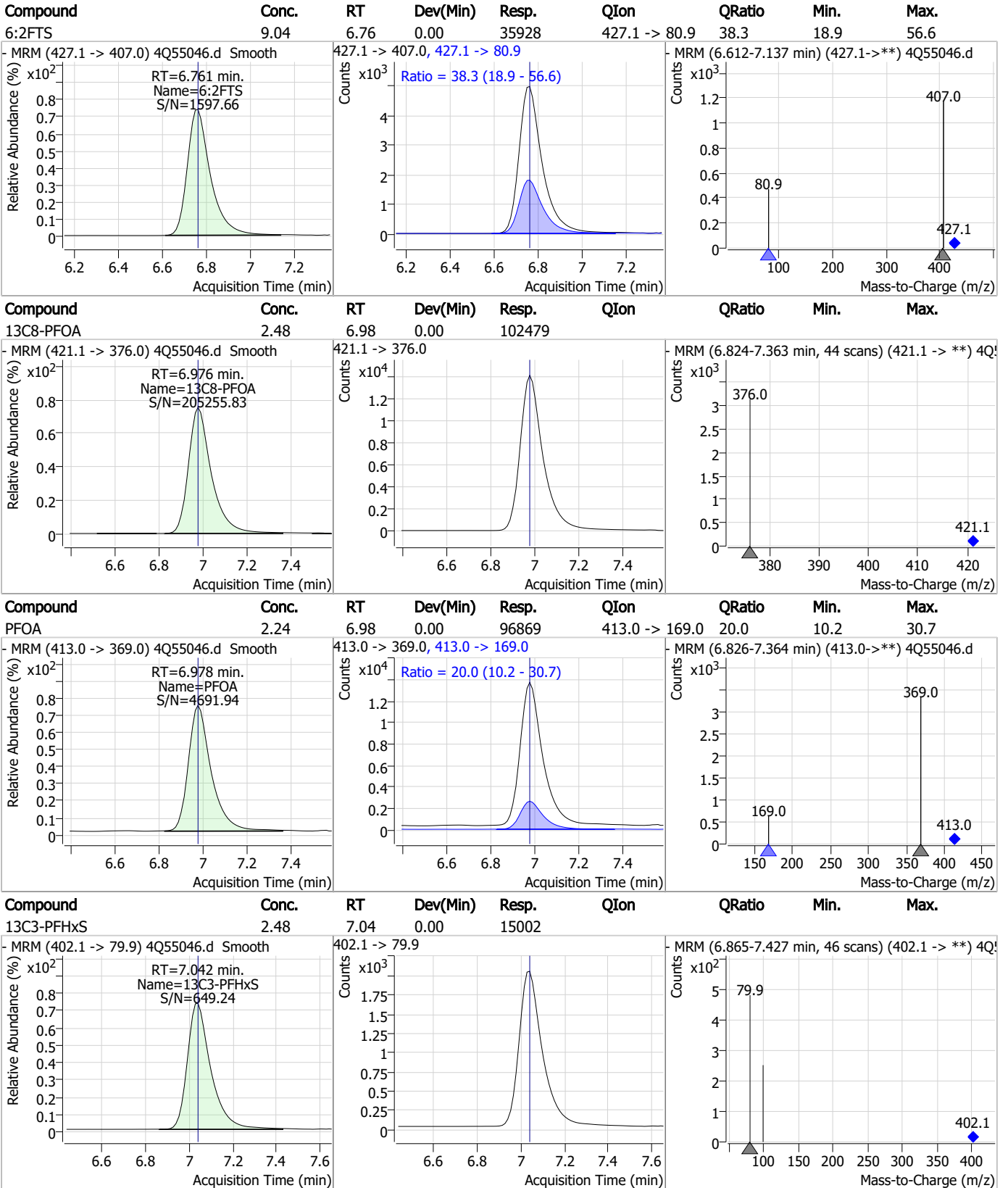


Perfluorinated Compounds by LC/MS/MS



7.7.15
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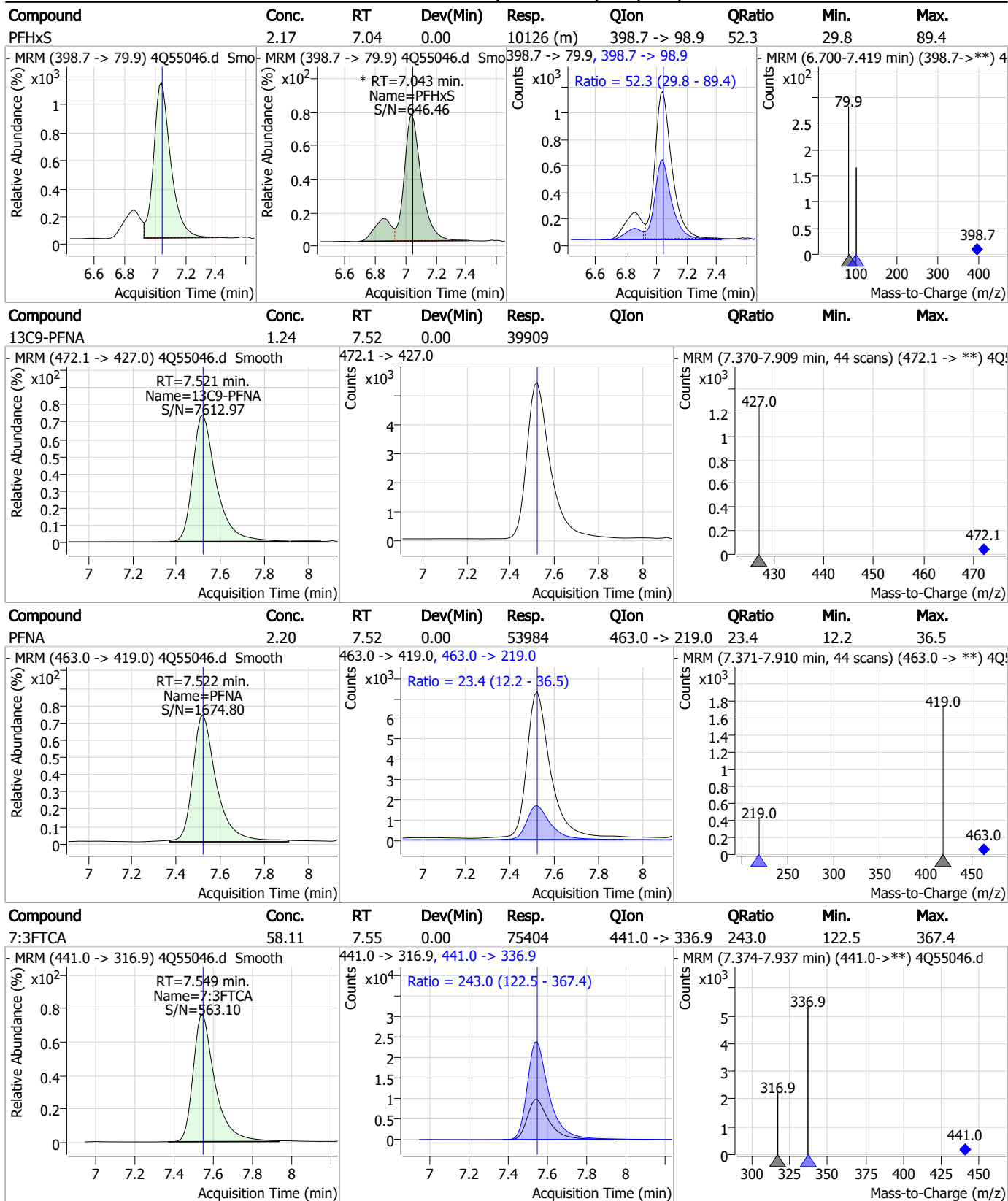
Perfluorinated Compounds by LC/MS/MS



7.7.15

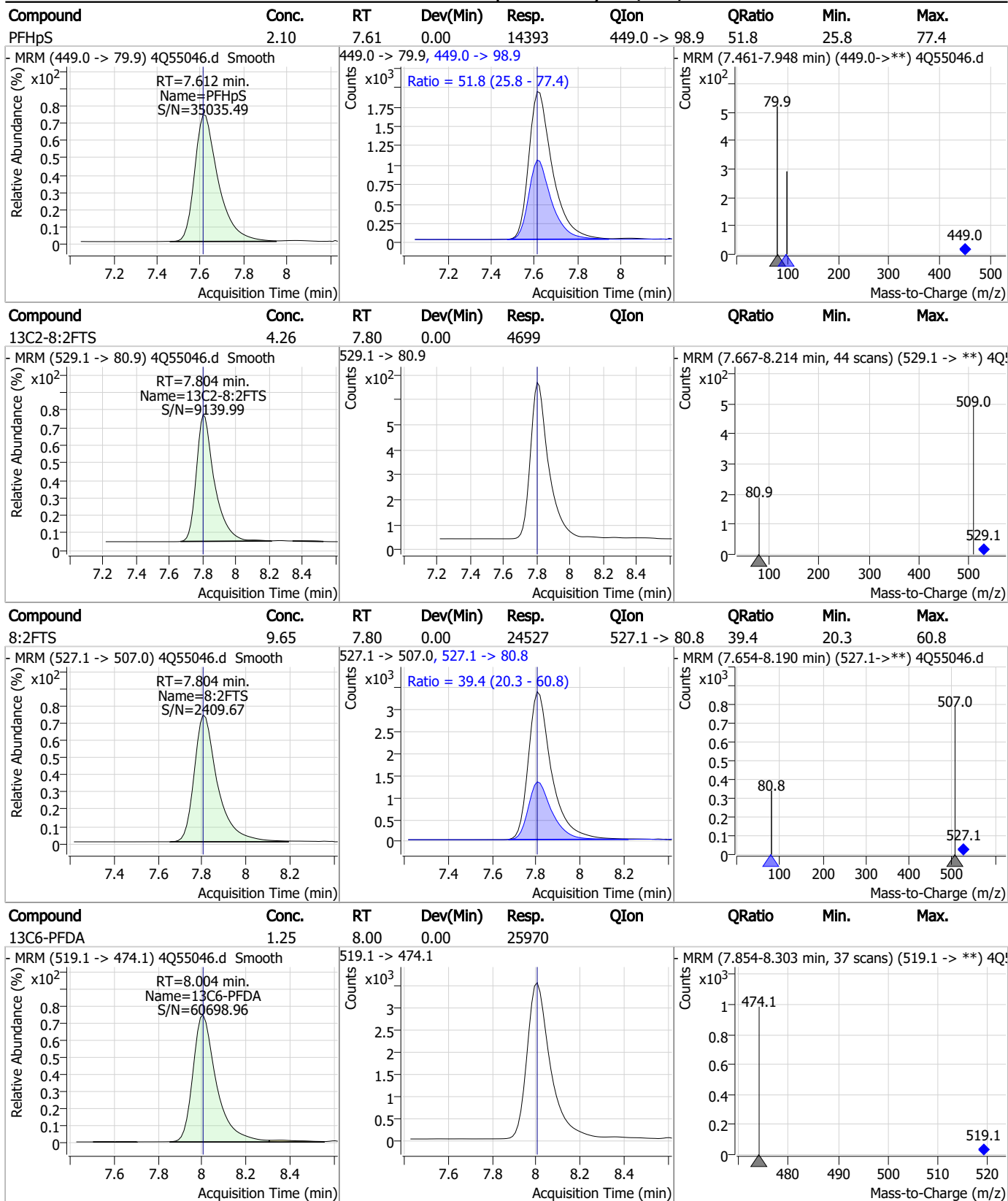
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Perfluorinated Compounds by LC/MS/MS



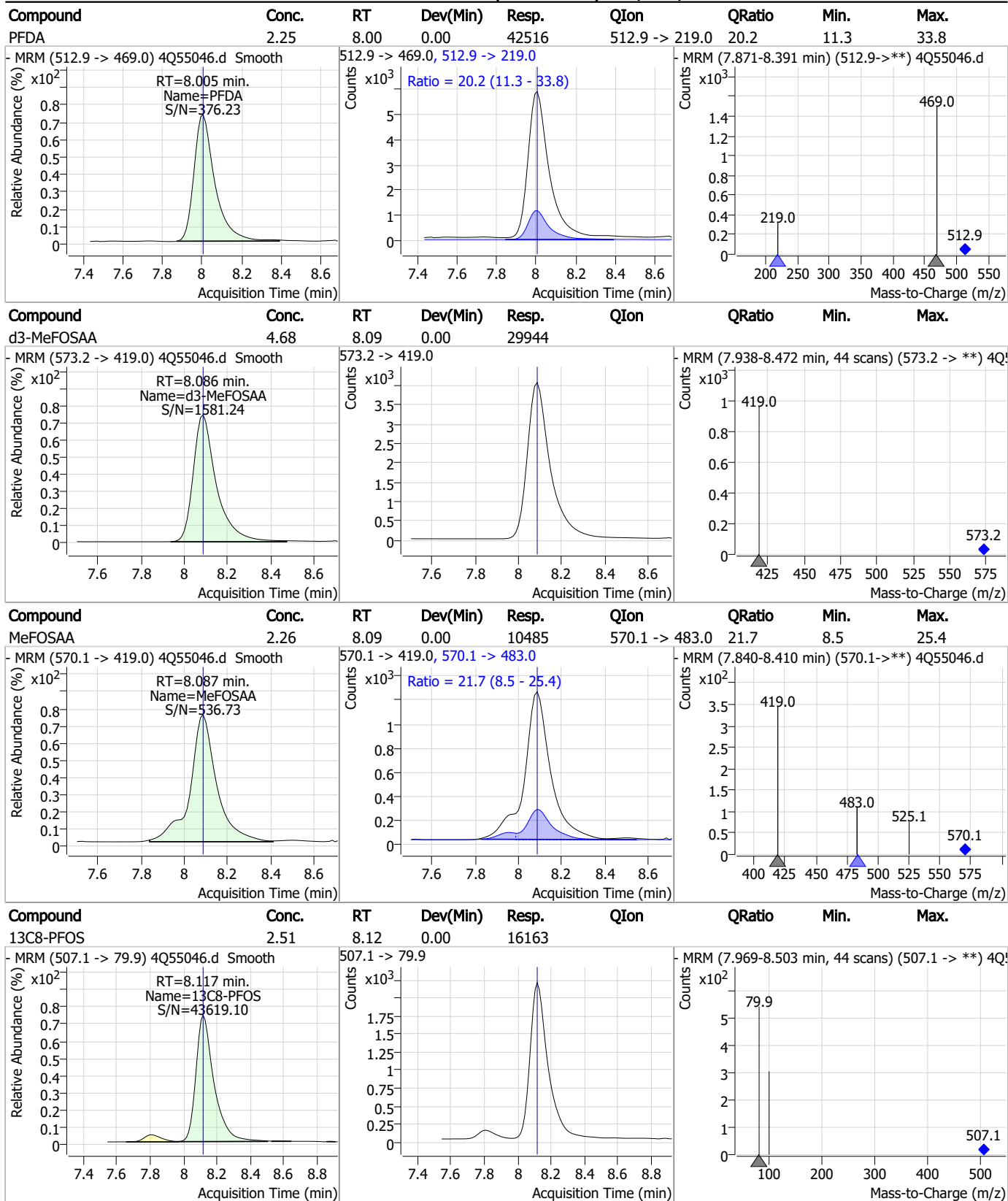
7.7.15

Perfluorinated Compounds by LC/MS/MS



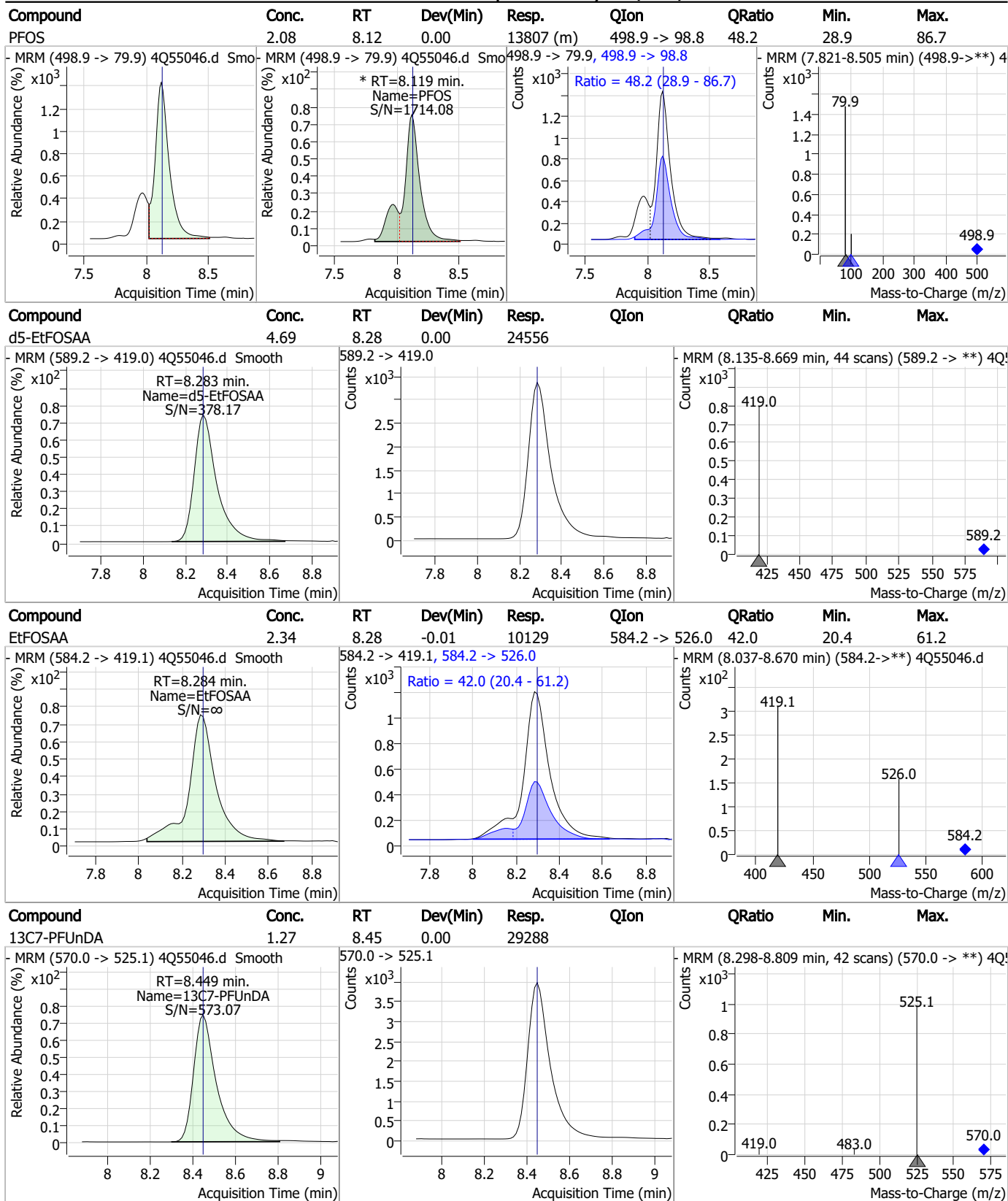
7.7.15

Perfluorinated Compounds by LC/MS/MS



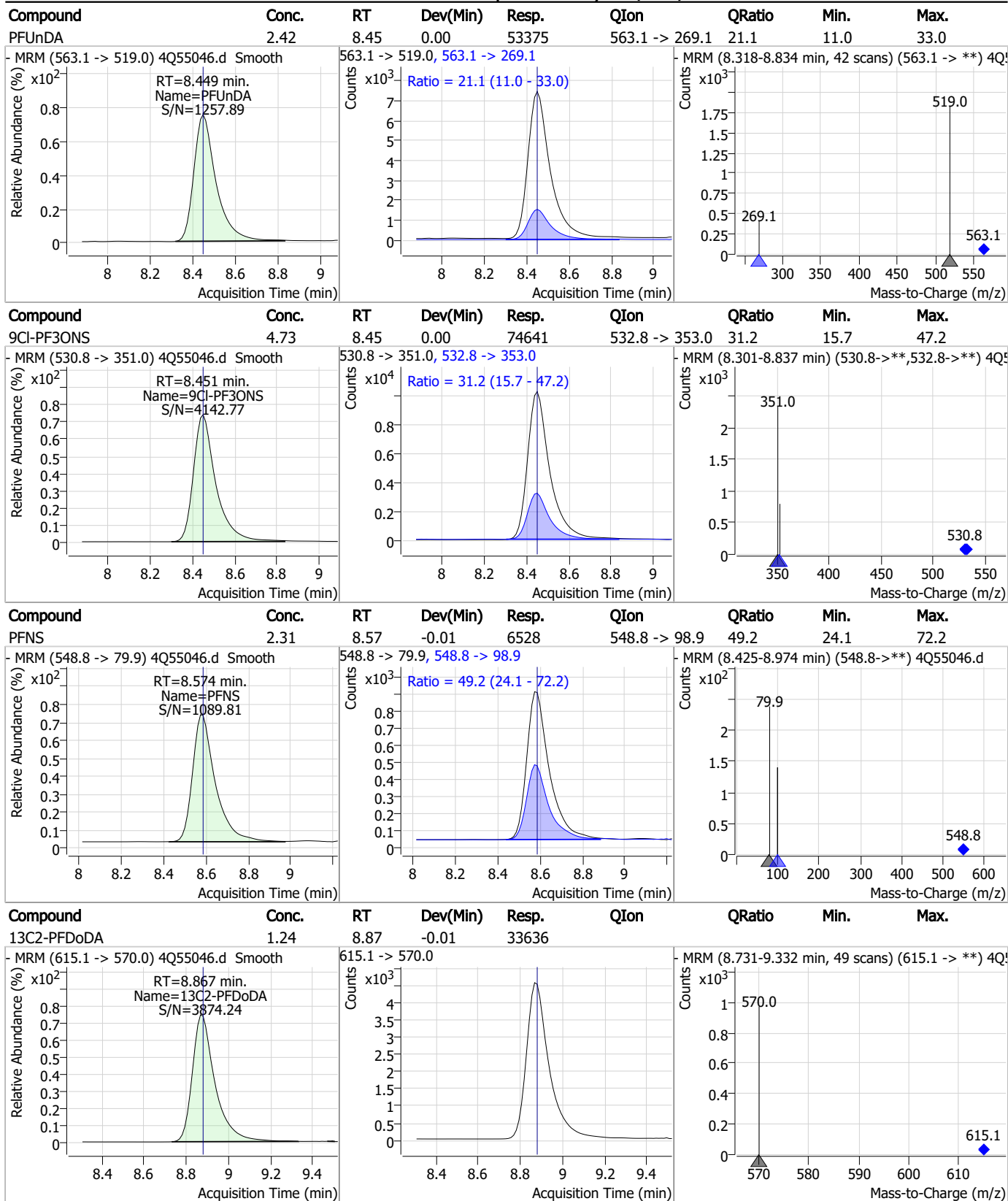
7.7.15
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Perfluorinated Compounds by LC/MS/MS



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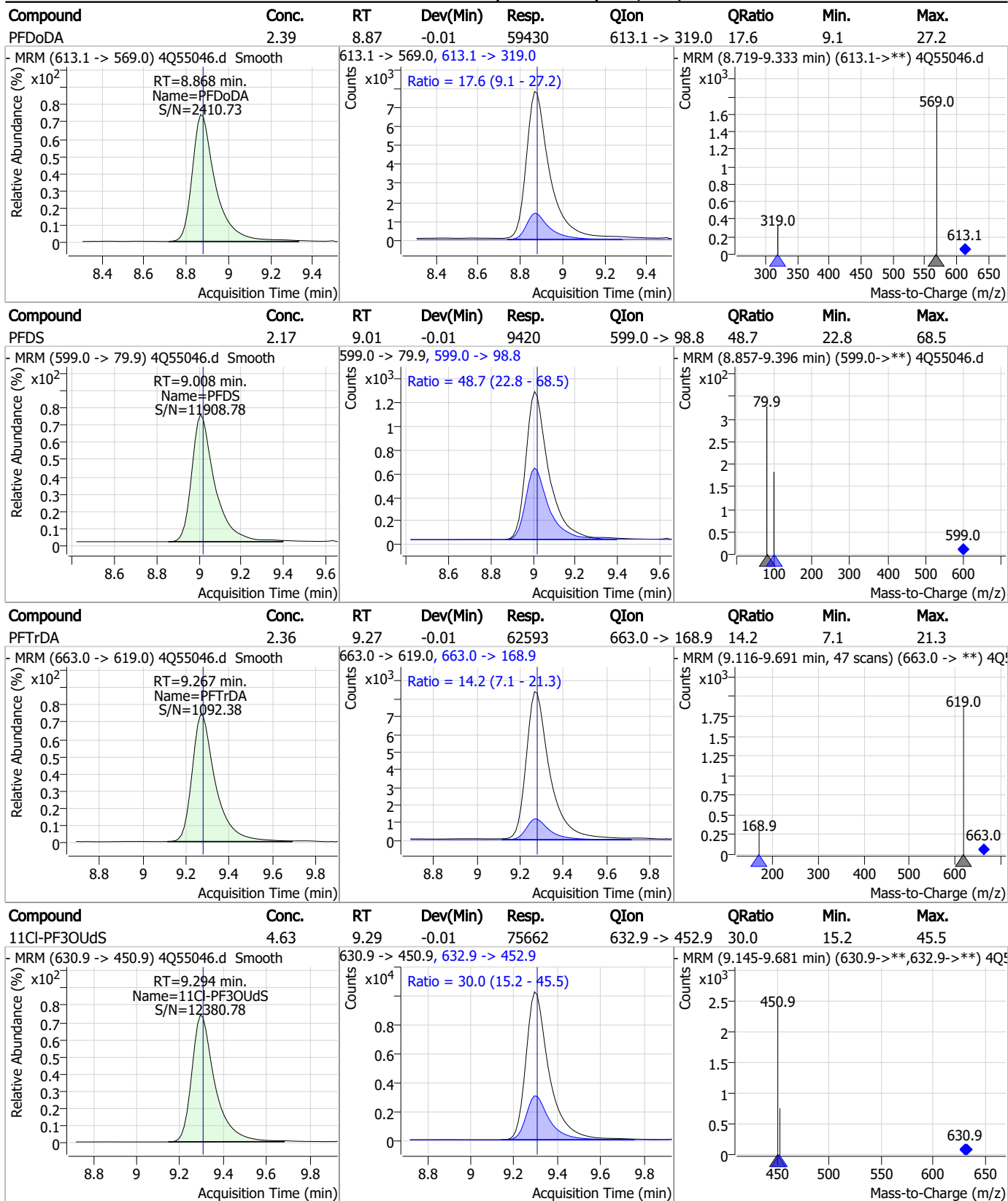
Perfluorinated Compounds by LC/MS/MS



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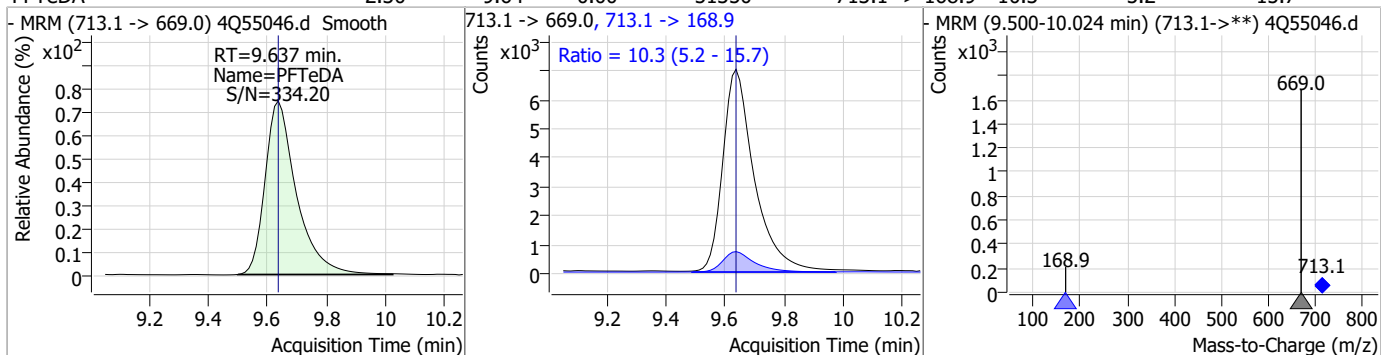
Perfluorinated Compounds by LC/MS/MS



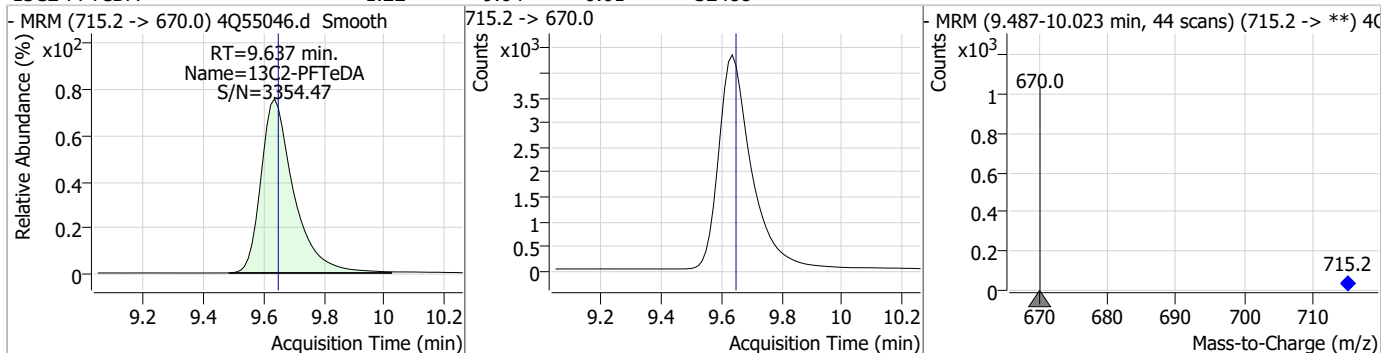
7.7.15
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Perfluorinated Compounds by LC/MS/MS

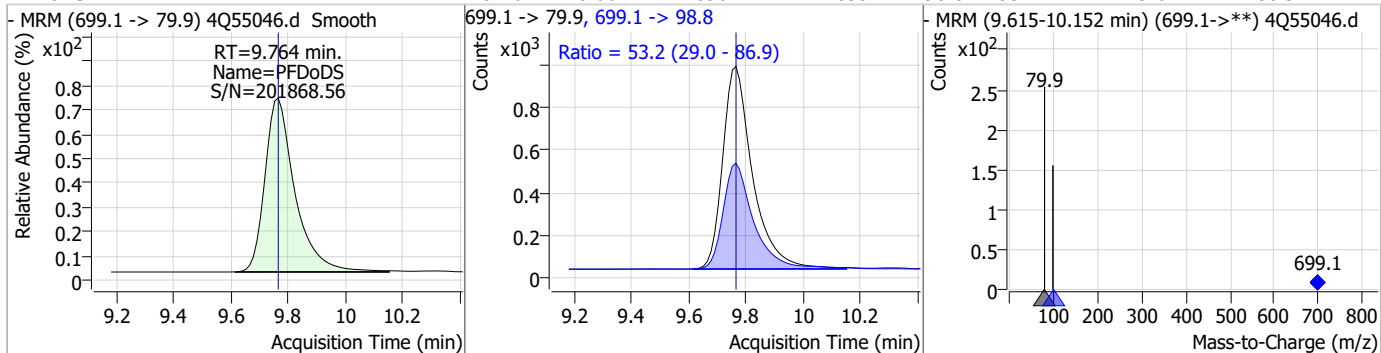
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.30	9.64	0.00	51350	713.1 -> 168.9	10.3	5.2	15.7



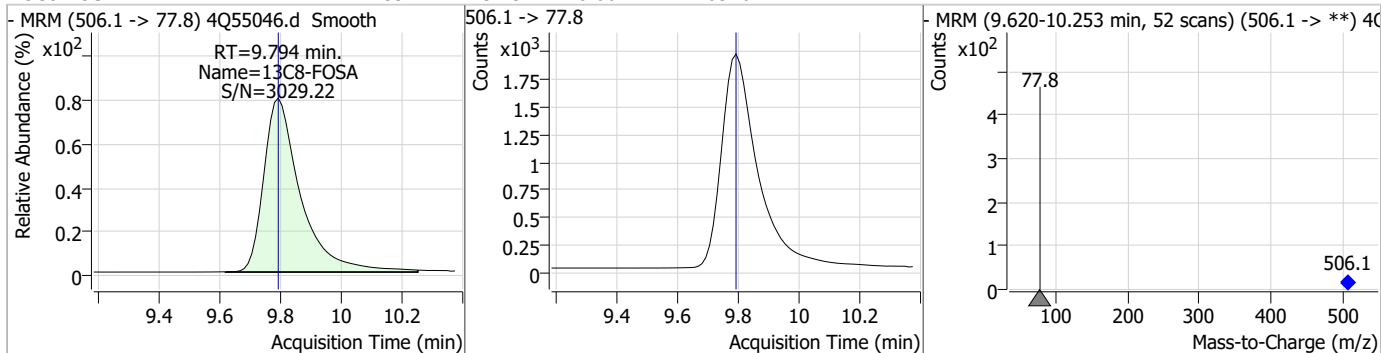
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.64	-0.01	32488				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.14	9.76	0.00	6902	699.1 -> 98.8	53.2	29.0	86.9

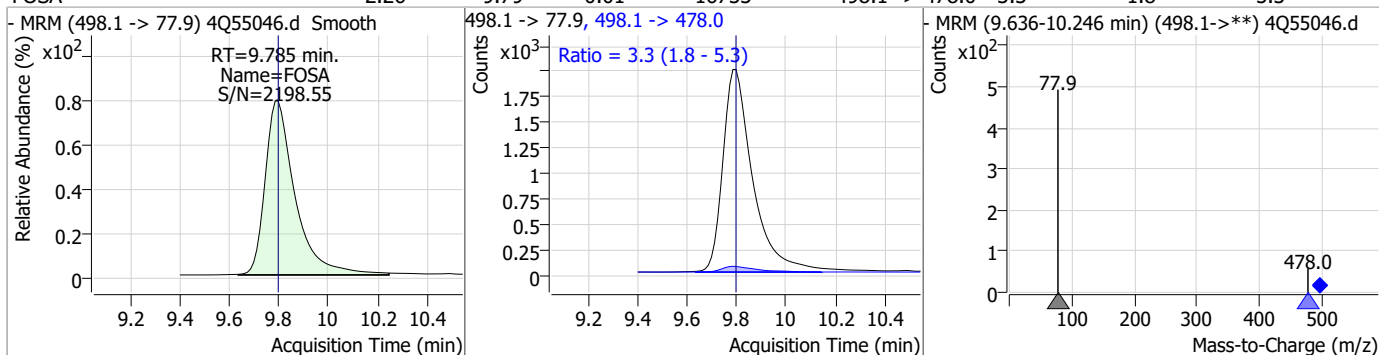


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.39	9.79	0.00	16316				

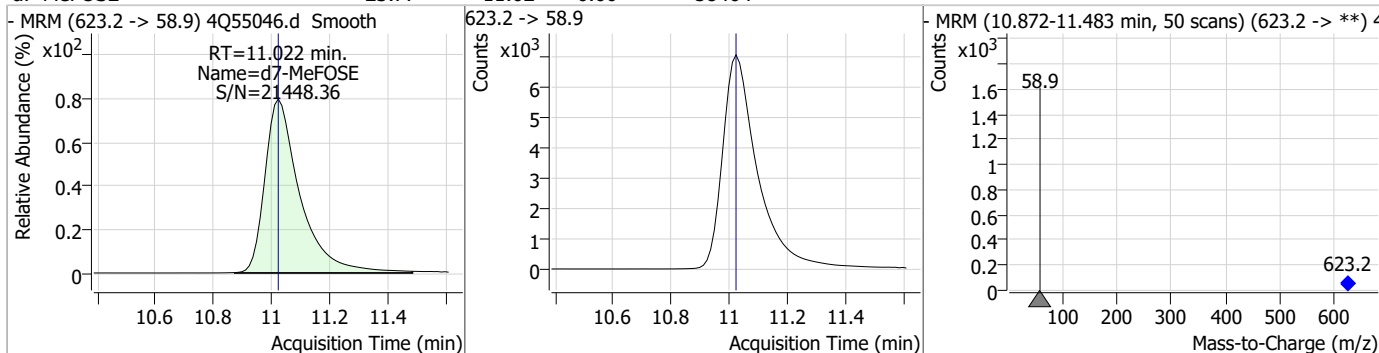


Perfluorinated Compounds by LC/MS/MS

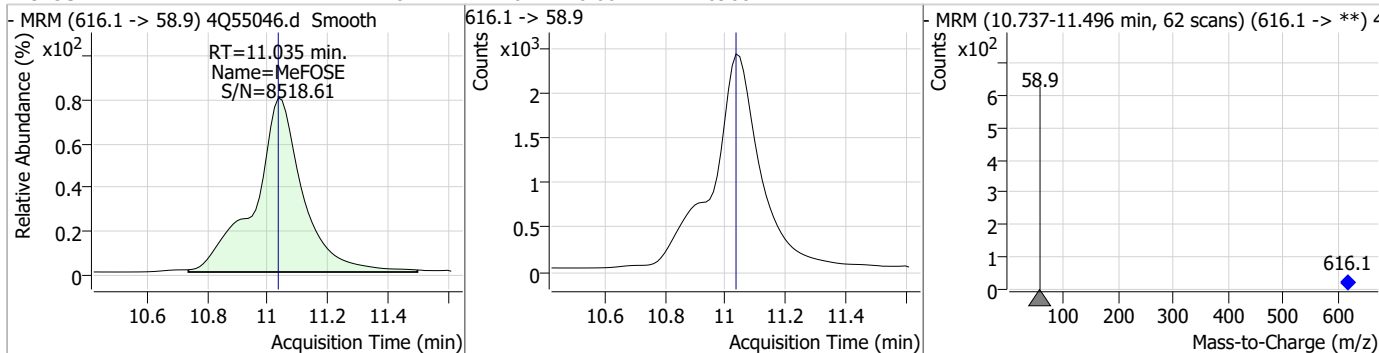
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.26	9.79	-0.01	16733	498.1 -> 478.0	3.3	1.8	5.3



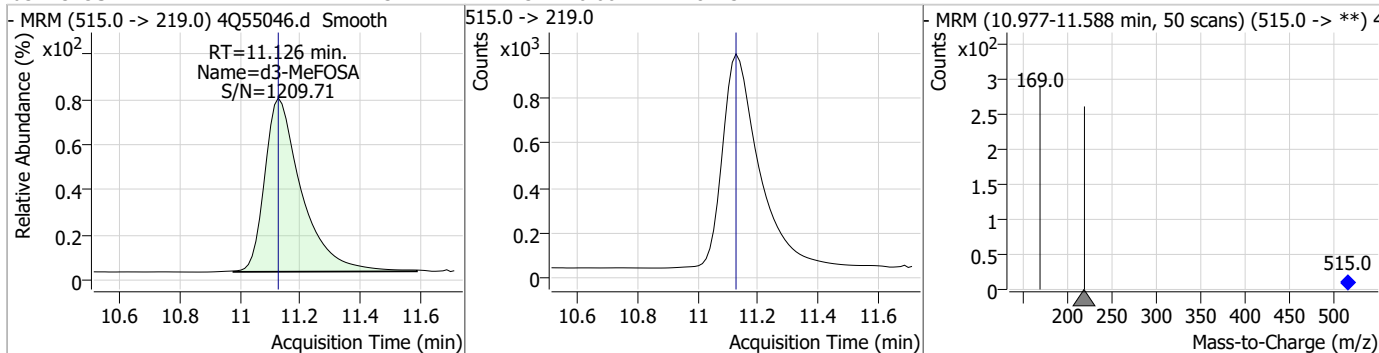
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.77	11.02	0.00	58464				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.84	11.04	0.00	26968				

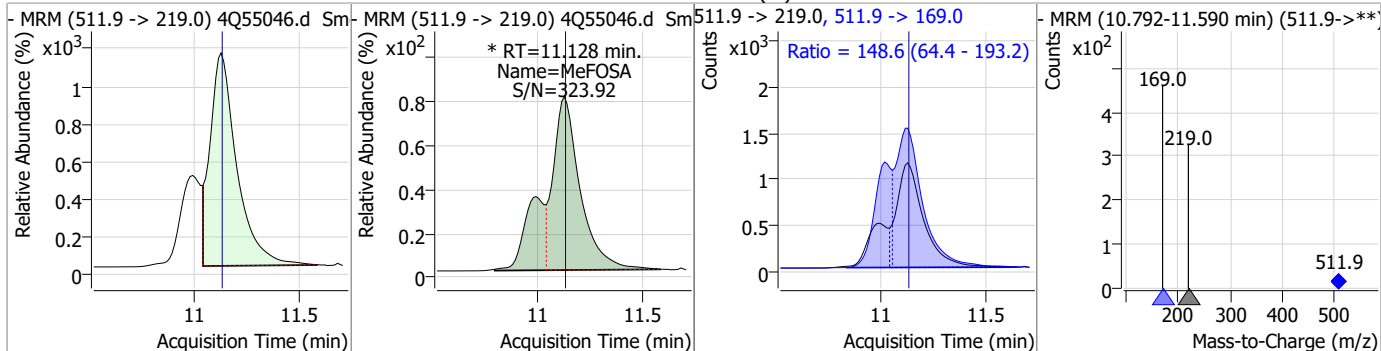


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	11.13	0.00	8113				

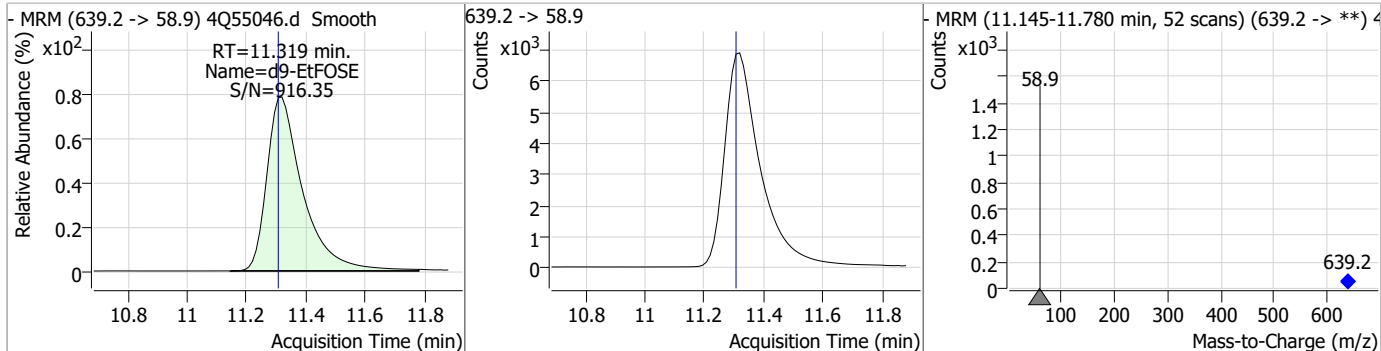


Perfluorinated Compounds by LC/MS/MS

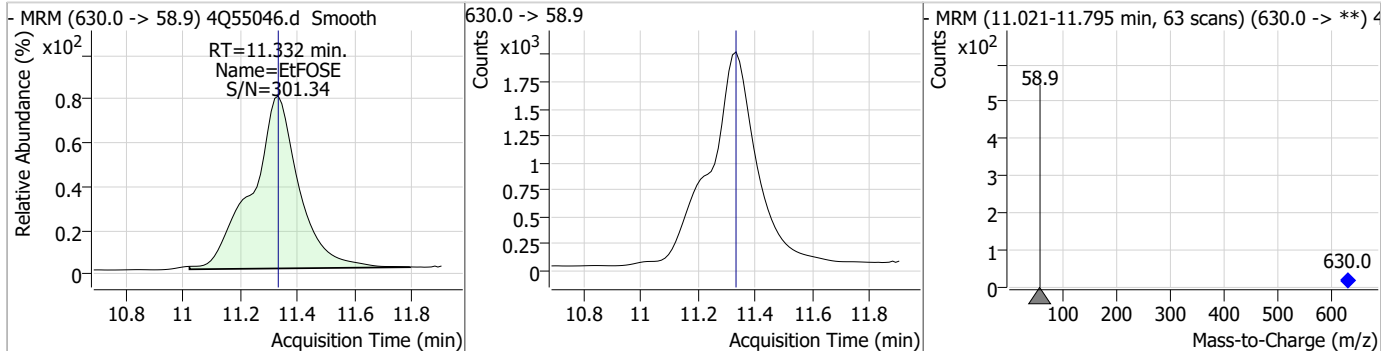
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.55	11.13	0.00	13486 (m)	511.9 -> 169.0	148.6	64.4	193.2



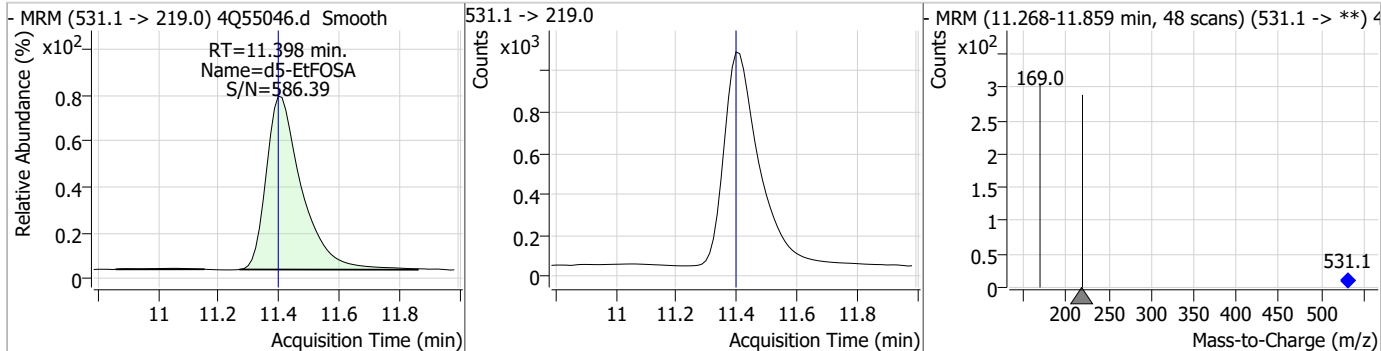
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.63	11.32	0.01	57713				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.31	11.33	0.00	22641				

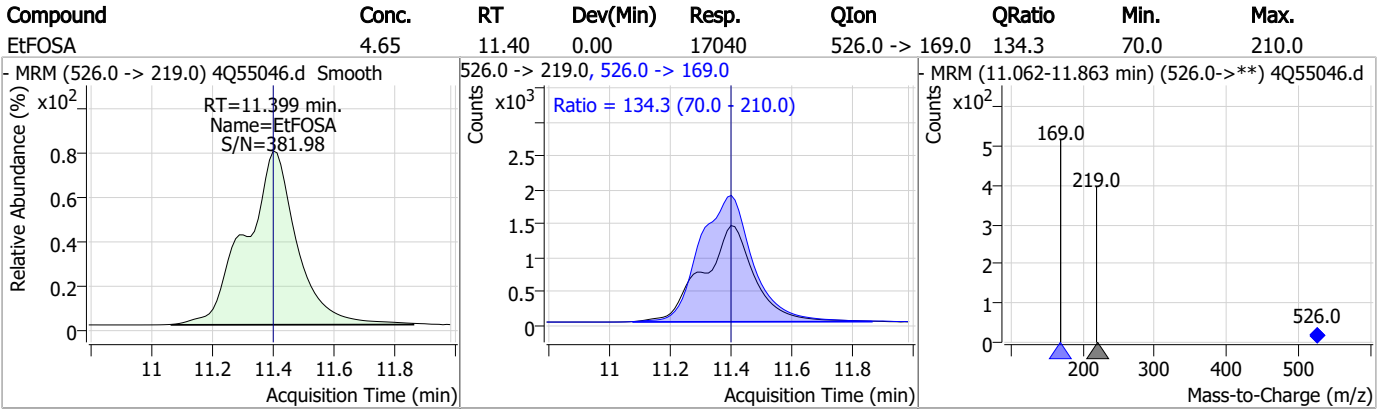


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.52	11.40	0.00	8481				



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Perfluorinated Compounds by LC/MS/MS



7.7.15
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Manual Integration Approval Summary

Sample Number: S4Q806-ECC806 Method: EPA DRAFT 1633
Lab FileID: 4Q55046.D Analyst approved: 12/12/23 11:03 Anna Ludwig
Injection Time: 12/11/23 22:07 Supervisor approved: 12/12/23 11:51 Natasha Gumtie

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.04	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.12	Split peak
MeFOSA	31506-32-8		11.13	Split peak

7.7.15.1

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SGS ORLANDO

DATE:	12/11/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_121123_S4Q806
CAL DATE:	12/11/23
ANALYST:	AL
RUN BATCH:	S4Q806

ELUENT A LOT #:	233675 W5%ACN 226166 2mMAMAC. 11706
ELUENT B LOT #:	ACN 226166
IC/CC STD LOT #:	LCMS 2212G
ICV STD LOT #:	LCMS 2211
ISTD/D STD LOT #:	12087D + 12030I

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q55002.d	P1-B9	ccb	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	nd
2	4Q55003.d	P1-B9	ccb	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	nd
3	4Q55004.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	pass
4	4Q55005.d	P1-B2	RT BR_LN	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	pass
5	4Q55006.d	P1-A9	high std	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	pass
6	4Q55007.d	P1-A1	iblk	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	nd
7	4Q55008.d	P1-A5	cc804-4	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	recal
8	4Q55009.d	P1-A2	cc804-1.0LL	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	recal
9	4Q55010.d	P4-A6	fc11645-24	1633full_4Q.m	Sample		OP523,S4Q806,550,,,5.0,1,water	recal
10	4Q55011.d	P4-A7	fc11645-22	1633full_4Q.m	Sample		OP523,S4Q806,530,,,5.0,5,water	recal
11	4Q55012.d	P1-B9	ccb	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	nd
12	4Q55013.d	P1-B9	ccb	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	nd
13	4Q55014.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	pass
14	4Q55015.d	P1-B2	RT BR_LN	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	pass
15	4Q55016.d	P1-A1	ic806-0	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	check tune file
16	4Q55017.d	P1-A2	ic806-1	1633full_4Q.m	Calibration	1.6/500	OP99999,S4Q806,500,,,5.0,1,water	pass
17	4Q55018.d	P1-A3	ic806-2	1633full_4Q.m	Calibration	3.2/500	OP99999,S4Q806,500,,,5.0,1,water	pass
18	4Q55019.d	P1-A4	ic806-3	1633full_4Q.m	Calibration	10/500	OP99999,S4Q806,500,,,5.0,1,water	pass
19	4Q55020.d	P1-A5	icc806-4	1633full_4Q.m	Calibration	20/500	OP99999,S4Q806,500,,,5.0,1,water	pass
20	4Q55021.d	P1-A6	ic806-5	1633full_4Q.m	Calibration	40/500	OP99999,S4Q806,500,,,5.0,1,water	pass
21	4Q55022.d	P1-A7	ic806-6	1633full_4Q.m	Calibration	100/500	OP99999,S4Q806,500,,,5.0,1,water	pass
22	4Q55023.d	P1-A8	ic806-7	1633full_4Q.m	Calibration	200/500	OP99999,S4Q806,500,,,5.0,1,water	pass
23	4Q55024.d	P1-A9	ic806-8	1633full_4Q.m	Calibration	1x	OP99999,S4Q806,500,,,5.0,1,water	pass
24	4Q55025.d	P1-A1	iblk	1633full_4Q.m	Sample		OP99999,S4Q806,500,,,5.0,1,water	nd
25	4Q55026.d	P1-B3	icv806-4	1633full_4Q.m	QC	20/500	OP99999,S4Q806,500,,,5.0,1,water	pass
26	4Q55027.d	P1-B4	icv806-20	1633full_4Q.m	QC	100/500	OP99999,S4Q806,500,,,5.0,1,water	pass
27	4Q55028.d	P1-A5	cc806-4	1633full_4Q.m	QC	20/500	OP99999,S4Q806,500,,,5.0,1,water	pass
28	4Q55029.d	P1-A2	cc806-1.0LL	1633full_4Q.m	QC	1.6/500	OP99999,S4Q806,500,,,5.0,1,water	pass
29	4Q55030.d	P4-A6	fc11645-24	1633full_4Q.m	Sample		OP523,S4Q806,550,,,5.0,1,water	✓
30	4Q55031.d	P4-A7	fc11645-22	1633full_4Q.m	Sample		OP523,S4Q806,530,,,5.0,5,water	✓
31	4Q55032.d	P4-A8	op523-dup	1633full_4Q.m	Sample		OP523,S4Q806,550,,,5.0,5,water	✓
32	4Q55033.d	P4-A9	fc11645-23	1633full_4Q.m	Sample		OP523,S4Q806,550,,,5.0,5,water	✓
33	4Q55034.d	P4-B1	fc11753-3	1633full_4Q.m	Sample		OP524,S4Q806,560,,,5.0,5,water	✓
34	4Q55035.d	P4-B2	op524-ms	1633full_4Q.m	Sample		OP524,S4Q806,550,,,5.0,5,water	✓
35	4Q55036.d	P1-A5	cc806-4	1633full_4Q.m	QC	20/500	OP99999,S4Q806,500,,,5.0,1,water	pass

Printed 12/12/2023 @ 12:20 PM

LCMS4-4Q ANALYSIS LOG

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36	4Q55037.d	P1-A1	iccb	1633full_4Q.m	Sample	OP99999,S4Q806,500,,,5.0,1,water	nd
37	4Q55038.d	P4-B3	op552-bs	1633full_4Q.m	Sample	OP552,S4Q806,500,,,5.0,1,water	✓
38	4Q55039.d	P4-B4	op552-lbs:3	1633full_4Q.m	Sample	OP552,S4Q806,500,,,5.0,1,water	✓
39	4Q55040.d	P4-B5	op552-mb	1633full_4Q.m	Sample	OP552,S4Q806,500,,,5.0,1,water	✓
40	4Q55041.d	P4-B6	fc11787-1	1633full_4Q.m	Sample	OP552,S4Q806,555,,,5.0,1,water	✓
41	4Q55042.d	P4-B7	op552-dup	1633full_4Q.m	Sample	OP552,S4Q806,525,,,5.0,1,water	✓
42	4Q55043.d	P4-B8	fc11787-2	1633full_4Q.m	Sample	OP552,S4Q806,545,,,5.0,1,water	✓
43	4Q55044.d	P4-B9	op552-ms	1633full_4Q.m	Sample	OP552,S4Q806,550,,,5.0,1,water	✓
44	4Q55045.d	P4-C1	fc11678-20	1633full_4Q.m	Sample	OP552,S4Q806,520,,,5.0,1,water	✓
45	4Q55046.d	P1-A5	ecc806-4	1633full_4Q.m	QC	20/500	pass
46	4Q55047.d	P1-A1	iccb	1633full_4Q.m	Sample	OP99999,S4Q806,500,,,5.0,1,water	nd

Printed 12/12/2023 @ 12:20 PM

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 2211	Full List 40 Spike (Coal mix)	12006 / 12047A	PFOA-DOD (28 Comp)	Absolute	06/26/28	09/19/24	1.0 ppm	400 µL	4.0 mL	100 ppb	95% MeOH 5% H ₂ O	10/18/23	02/07/24	JR
LCMS 2210	↓	LCMS 2210	40 List Add-mob	-	-	02/08/24	↓	↓	↓	↓	↓	↓	↓	↓
LCMS 2156	↓	LCMS 2156	40 List Add-mob	-	-	02/07/24	↓	↓	↓	↓	↓	↓	↓	↓
LCMS 2193	↓	LCMS 2193	FOSE Std.	-	-	03/25/24	5.0 ppm	↓	↓	500 ppb	↓	↓	↓	↓
LCMS 2198	1633 Cal old Spike	LCMS 2198	Br-LN Et-me	SGS LABO	4/4	4/4/24	2 ppm	250 µL	4 mL	125 312.5 ppb	1033 mix (2088 µL)	10/22/23	4/4/24	MW
LCMS 12032	↓	12032	PFAC MXH	Wellington	4/19/28	10/15/24 10/22/24	1-H ppm	↓	↓	62.5 125 250 ppb	↓	↓	↓	↓
LCMS 12005	↓	12005	PFAC MXF	↓	3/24/26	10/15/24 10/22/24	2 ppm	↓	↓	125 ppb	↓	↓	↓	↓
LCMS 12034	↓	12034	PFAC MXG	↓	7/27/28	10/15/24 10/22/24	2 ppm	↓	↓	125 250 ppb	↓	↓	↓	↓
LCMS 12091	↓	12091	PFAC MXJ	↓	3/28/28	10/15/24 10/22/24	4-20 ppm	312 µL	↓	312 1160 ppb	↓	↓	↓	↓
LCMS 2208	PFAC MDL Spike	LCMS 2208	PFAC Spike	-	-	03/13/24	400 ppb	100 µL	1.0 mL	400 ppb	95% MeOH 5% H ₂ O	10/18/23	03/13/24	NG
LCMS 2214	6850 STD	11755	pachlorate	Absolute	07/16/24	07/16/24	100 ppm	50 µL	50 mL	100 ppb	HPLC H ₂ O 233 G75	10/24/23	04/24/24	AL
LCMS 2215	1633 Br-LN Me/EtFosa:metEtFose	11777	br-N Me:FOSA	Wellington	8/23/27	10/14/24	50 ppm	200 µL	5 mL	2 ppm	1633 mix (3.600 µL)	10/25/23	4/4/24	MW
LCMS 11798	↓	11798	br-N ETFOSA	↓	10/4/27	10/4/24	↓	↓	↓	2 ppm	↓	↓	↓	↓
LCMS 12070A	↓	12070A	br-N MeFOSE	↓	10/7/27	10/4/24	↓	500 µL	↓	5 ppm	↓	↓	↓	↓
LCMS 12071A	↓	12071A	br-N ETFOSE	↓	10/7/27	10/4/24	↓	↓	↓	5 ppm	↓	↓	↓	↓
						09/19/24	10/30/23							

LCMS 2211
LCMS 2210
LCMS 2156
LCMS 2193
LCMS 2198
LCMS 12032
LCMS 12005
LCMS 12034
LCMS 12091

*JR
01/18/24

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



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2196	PFC 1D Std	12006	PFOA-DOB (250amp)	Absolute	04/24/28	09/19/24	1.0 ppm	400 mL	4.0 mL	100 ppb	95/1107 5:15-0	09/28/23	12/13/24	JR
LCMS 2196		11432	N-Me FOXA-M	Wellington Labs	02/28/27	03/13/24	50 ppm	8 mL						
LCMS 2196		11793	PBSA-1		02/01/28	08/08/24								
LCMS 2196		11792	PHSA-1		12/01/27	08/08/24								
LCMS 2196		11332	PECHS		03/28/27	04/18/24								
LCMS 2197AD	1033 CAL std. (DPIKE)	LCMS 2191	Br-LN Et-ME	SGS LABO	N/A	12/28/23	2ppm 5ppm	250NL	4mL	125 312.5ppb	1033 MIX (2500NL)	10/1/23	12/28/23	MV
LCMS 2198		11908	PFAC	Wellington	4-19-28	9-24-24	1-4 ppm	250NL		125 250ppb				
LCMS 2198		11989	MXH		3-24-26	9-24-24	2ppm	250NL		125ppb				
LCMS 2198		11990	PFAC MXF		12/1/27	10/1/24	2ppm	250NL		125ppb				
LCMS 2198		11918B	PFAC		3/28/28	9/24/24	420 ppm	312NL		312 1100ppb				
LCMS 2198		11970	MXG			10/1/24								
LCMS 2198		12014A	PFAC			9/24/24								
LCMS 2198		12016B	MXJ			10/1/24								
LCMS 2198	1033BR-LN Me/Et/Isop/Me/Et/FOSE	11797	br-N MeFOA	Wellington	8/23/27	10/14/24	50ppm	200NL	5mL	2ppm	1033 mix (5000 mL)	10/4/23	4/4/24	NW
LCMS 2198		11798	br-N EtFOA		10/7/27	10/14/24		200NL		2ppm				
LCMS 2198		12070A	br-N MeFOE		10/7/27	10/14/24		500NL		5ppm				
LCMS 2198		12071A	br-N EtFOE		10/7/27	10/14/24		500NL		5ppm				

* 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 2210	40 List Std Add-on #1	11049	PFS	Wellington Labs	12/01/27	08/07/24	50 ppm	80 mL	4.0 mL	1.0 ppm	95% MeOH 5% H ₂ O	10/18/23	02/08/24	JR
		11461	L- PFDOs		02/08/27 04/02/27	10/18/24								
		11710	N-Me FOSR-M		11/11/27	08/07/24								
		12122	N-Et FOSR-M		09/19/28	10/18/24								
		11481	PFHxDA		02/23/27	10/18/24								
		11462	PFODA		07/05/27	10/18/24								
		11116B	5:3FTCA FP-PA		02/05/27	02/08/24								
		11994	5:3FTCA MSFP2A		08/02/27	09/05/24								
		11116A	3:3FTCA FHPA		11/12/25	02/08/24								
		11794	PFECHS		03/14/28	08/07/24								
		11464	PFEESA		11/22/27	10/18/24								
		11465	PFMDA		08/02/27	08/07/24								
		11648	PFHPA		08/02/27	09/07/24								
		11467	PF4PA PF4PA NFHDA 5:3 OFHMA		04/08/27	10/18/24								
						JR								
						10/18/23								

std
on
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01/6

*JR 10/18/23 * based on date opened as specified in each SGS - Orlando SOP.

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2156	List 40 ADD ON #2	11513	FBSA-1	Wellington	11/10/26	4/18/24	50 ppm	800ul	4.0ml	1ppm	95% meth 5% H ₂ O	8/7/23	2/7/24	MW
		11514	FHXSA1		12/29/26	4/18/24					(3760)			
		11140B	1-PFAS		7/12/26	5/9/24								
LCMS 2157	1633 RT BR-LN	11496	br-Fosa	Wellington	10/7/27	12/28/23	50 ppm	10NL 5µL	5ml	100ppb	1633 mix	8/7/23	12/28/23	MW
		11497	br-N meFosa		8/23/27			10NL			(4930)			
		11498	br-N ETFOA		10/7/27									
		11494	br-N meFose		10/7/27									
		11495	br-N ETFOSe		10/7/27									
		11502	T-PFOA		01/27/27									
		11527	IP PFNA		01/10/27									
LCMS 2158 AE	1633 Cul std. Spike	11930	Br-LN ET-me LABO	SGS	N/A	12/28/23	2ppm 5ppm	250ul	4ml	125 312.5ppb	1633 mix	8/7/23	12/28/23	MW
		11930	PFAC MXH	Wellington	4/19/28	7/31/24 8/7/24	1-4 ppm			62.5 125 250ppb	2088ul			
		11921A	PFAC MX F		3/24/26	7-31-24 8-7-24	2ppm			125ppb				
		11907	PFAC MX G		12/1/27	7-31-24 8-7-24	2ppm			125ppb				
		11933A	PFAC MX J		3-28-28	7-31-24 8-7-24	4-20 ppm	312NL		312 1160ppb				

* 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 2192A-1	1033 Cal. std. (spike)	LCMS 2191	PFAC ^{ant} BE-IN PE-ME	SGS Labs	N/A	12/28/23	2ppm	250uL	4mL	125 312.5ppb	1633 1634 1635 1636 1637 1638	9/24/23	12/28/23 12/29/23 12/30/23 12/31/23 1/1/24 1/2/24	MW
		11940	PFAC	Washington	4-19-28	9/21/23	1-4 ppm	250uL		62.5 125 250ppb				
		11947B	PFAC		3-24-26	9/15/24	2ppm	250uL		125ppb				
		11964	MX-F		12-1-27	9/24/24	2ppm	250uL		125ppb				
		11948A	PFAC		3-28-28	9/15/24	4-20 ppm	312 uL		312 1100 ppb				
		11948B	MX-G		05/19/27	09/25/24	50ppm	200 uL	2.0 mL	5ppb	95/Meth 5/H ₂ O	09/25/23	03/25/24	JR
LCMS 2193	FOSE Std	11409	N-ET-FOSE	Wilmington Labs	05/19/27	09/25/24	↓	↓	↓	↓				JR
↓	↓	11410	N-Me-FOSE	↓	05/19/27	09/25/24	↓	↓	↓	↓				↓
LCMS 2194	Full List 40 Spike (cal. std)	11904/ 12006	PFAC- DOP 28 Comp	Absolute	03/19/28	09/11/24	1.0 ppm	400 uL	4.0 mL	100ppb	95/Meth 5/H ₂ O	09/25/23	10/18/23	JR
		LCMS 2179	40 List Add-m#1	SGS Std	-	10/18/23	↓	↓	↓	↓				↓
		LCMS 2156	40 List Add-m#2	↓	-	02/07/24	↓	↓	↓	↓				↓
		LCMS 2195	FOSE Std.	↓	-	03/25/24	5.0 ppm	↓	↓	500ppb				↓
LCMS 2195	PFC Spike	12006	PFAC- DOP 28 Comp	Absolute	06/26/28	09/19/24	1.0 ppm	2 mL	5.0 mL	400ppb	95/Meth 5/H ₂ O	09/28/23	03/19/24	JR
		11432	N-Me FOSA-M	Wilmington Labs	02/28/27	03/19/24	50ppm	40 uL						
		11793	FOSA-1	↓	04/01/28	08/08/24	↓	↓	↓	↓				↓
		11712	FH-SA-1	↓	12/01/27	08/08/24	↓	↓	↓	↓				↓
		11332	PFC-HS	↓	03/28/27	04/18/24	↓	↓	↓	↓				↓

retail
29
9/25

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

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



1116 A.B ^{mw}

1116B on the back mw



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

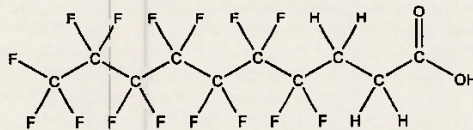
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

MOLECULAR WEIGHT:

442.12

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

11/12/2020

EXPIRY DATE: (mm/dd/yyyy)

11/12/2025

RECOMMENDED STORAGE:

Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

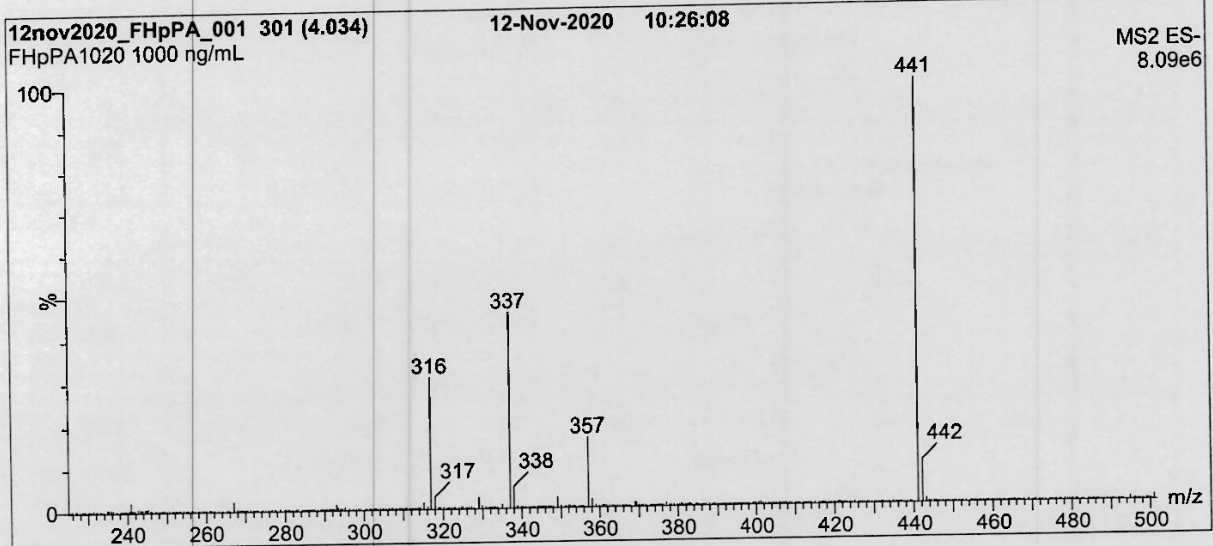
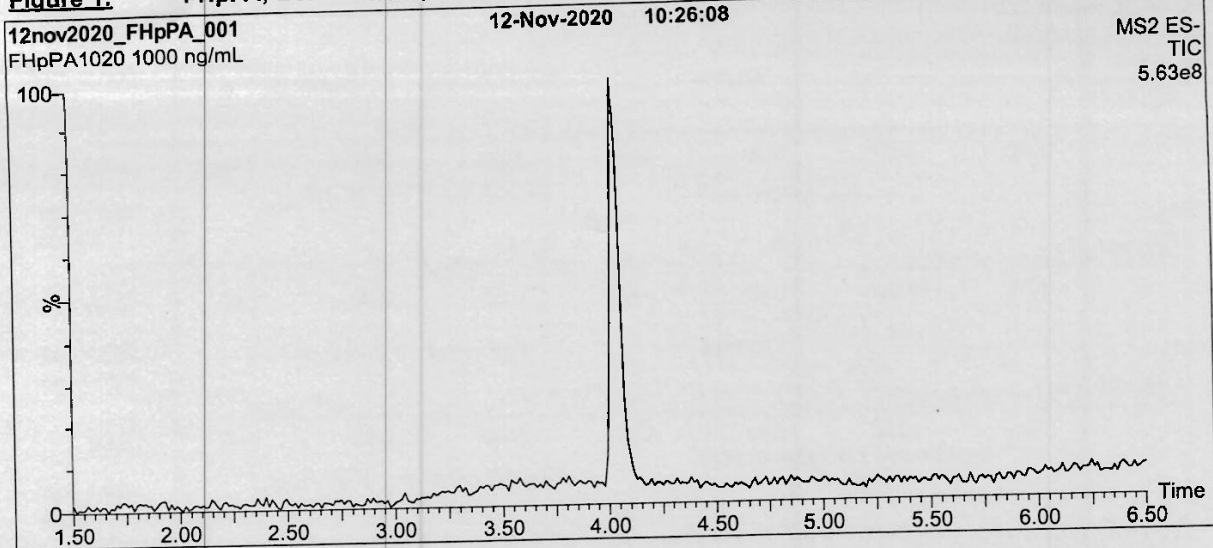
Date: 11/27/2020

(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)
rev0

Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 μ L/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature ($^{\circ}$ C) = 500
Desolvation Gas Flow (L/hr) = 1000

FPrPA(3:3FTCA) 1116 B



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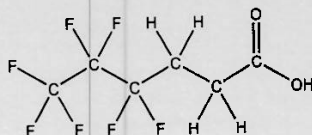
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0122

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: C₆H₅F₇O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/03/2022
EXPIRY DATE: (mm/dd/yyyy) 02/03/2027
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 242.09
SOLVENT(S): Methanol

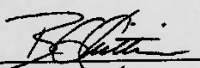
DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid (C₆H₃F₇O₂) as an impurity determined by ¹⁹F NMR.

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Certified By: 
B.G. Chittim, General Manager

Date: 02/04/2022
(mm/dd/yyyy)

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11140



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

L-PFPrS

LOT NUMBER:

LPFPrS0721

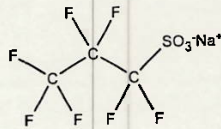
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

CONCENTRATION:

50.0 ± 2.5 µg/mL (Na salt)
 46.0 ± 2.3 µg/mL (PFPrS acid)
 45.8 ± 2.3 µg/mL (PFPrS anion)

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

07/12/2021

EXPIRY DATE: (mm/dd/yyyy)

07/12/2026

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 08/04/2021
(mm/dd/yyyy)

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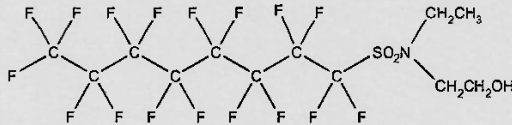
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

n, 09/27/2

PRODUCT CODE: N-EtFOSE-M **LOT NUMBER:** NEtFOSE0622M
COMPOUND: 2-(N-ethylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE: **CAS #:** 1691-99-2



11409

MOLECULAR FORMULA: C₁₂H₁₆F₁₇NO₃S **MOLECULAR WEIGHT:** 571.25
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/13/2022 (HRGC/LRMS)
05/13/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy) 05/13/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim, General Manager **Date:** 07/13/2022
(mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

NEtFOSE0622M (1 of 5)
rev0

7.9.1
7

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CERTIFICATE OF ANALYSIS DOCUMENTATION

7.9.1
7

PRODUCT CODE:

L-PFDoS

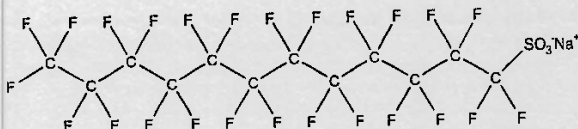
LOT NUMBER: LPFDoS0422

COMPOUND:

Sodium perfluoro-1-dodecanesulfonate

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA:

C₁₂F₂₅SO₃Na

MOLECULAR WEIGHT: 722.14

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)

SOLVENT(S): Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

04/20/2022

EXPIRY DATE: (mm/dd/yyyy)

04/20/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:

B.G. Chittim, General Manager

Date: 05/16/2022

(mm/dd/yyyy)

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11464

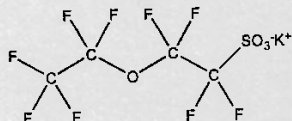

WELLINGTON
 LABORATORIES

CERTIFICATE OF ANALYSIS
 DOCUMENTATION
PRODUCT CODE:

PFEESA

LOT NUMBER: PFEESA1121**COMPOUND:**

Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE:**CAS #:** 117205-07-9**MOLECULAR FORMULA:** $C_4F_9SO_4K$ **MOLECULAR WEIGHT:** 354.19**CONCENTRATION:**

50.0 ± 2.5 µg/mL (K salt)
 44.6 ± 2.2 µg/mL (PFEESA acid)
 44.5 ± 2.2 µg/mL (PFEESA anion)

SOLVENT(S): Methanol**CHEMICAL PURITY:**

>98%

LAST TESTED: (mm/dd/yyyy)

11/22/2021

EXPIRY DATE: (mm/dd/yyyy)

11/22/2026

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 ~0.2% of perfluoro-n-octanoic acid (PFOA).

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Certified By:

 B.G. Chittim, General Manager
Date: 11/29/2021
(mm/dd/yyyy)
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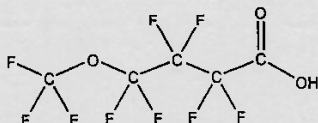
11465



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA **LOT NUMBER:** PF5OHxA0722
COMPOUND: Perfluoro-5-oxahexanoic acid
SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)
STRUCTURE: **CAS #:** 863090-89-5



MOLECULAR FORMULA: C₆H₂F₉O₃ **MOLECULAR WEIGHT:** 280.05
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
 Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/02/2022
EXPIRY DATE: (mm/dd/yyyy) 08/02/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 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: 08/26/2022
 (mm/dd/yyyy)

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11467



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

LOT NUMBER:

36OPFHpA0522

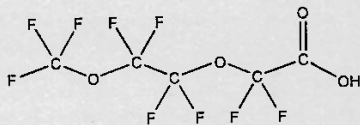
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₇H₀F₁₀O₄

MOLECULAR WEIGHT:

296.04

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

06/08/2022

EXPIRY DATE: (mm/dd/yyyy)

06/08/2027

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 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: 06/27/2022

(mm/dd/yyyy)

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7.9.1
7

11481 rec'd 10/21/22

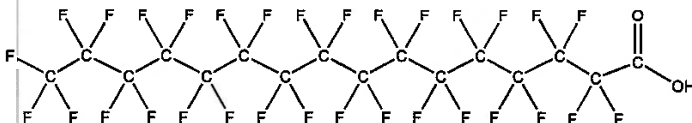


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0222
COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆H₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/23/2022
EXPIRY DATE: (mm/dd/yyyy) 02/23/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 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:** 03/08/2022
B.G. Chittim, General Manager (mm/dd/yyyy)

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Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

PFHxDA0222 (1 of 4)
rev0

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7

11514 rec'd 11/14/22

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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

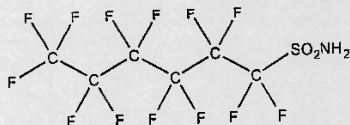
LOT NUMBER: FHxSA1221I

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)

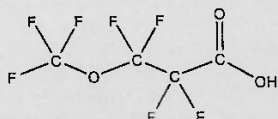
11648 Rec. 02/13/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA **LOT NUMBER:** PF4OPeA0722
COMPOUND: Perfluoro-4-oxapentanoic acid
SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA) **CAS #:** 377-73-1
STRUCTURE:



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) 08/02/2022
EXPIRY DATE: (mm/dd/yyyy) 08/02/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

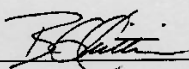
DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 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: 08/15/2022
(mm/dd/yyyy)

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11649 Rec. 02/13/23

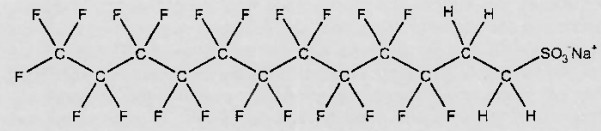


WELLINGTON LABORATORIES

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

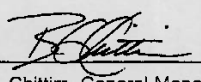
DOCUMENTATION/ DATA ATTACHED:

- 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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11794
rec'd: 05/15/23



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFECHS

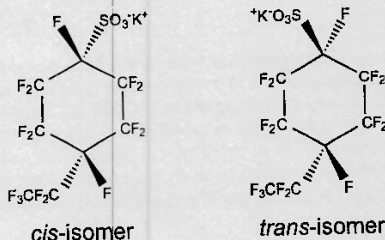
LOT NUMBER: PFECHS0223

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).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 03/16/2023
(mm/dd/yyyy)

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11797
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide Isomeric Mix

PRODUCT CODE: br-NMeFOSA
LOT NUMBER: brNMeFOSA0822
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 08/18/2022
LAST TESTED: (mm/dd/yyyy) 08/23/2022
EXPIRY DATE: (mm/dd/yyyy) 08/23/2027
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

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

brNMeFOSA0822 (1 of 6)
rev1

117a8
rec'd: 05/15/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

**N-Ethylperfluorooctanesulfonamide
Isomeric Mix**

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

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

brNEtFOSA0922 (1 of 6)
rev1

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11994
rec'd: 08/13/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FPePA (5:3)

LOT NUMBER:

FPePA0722

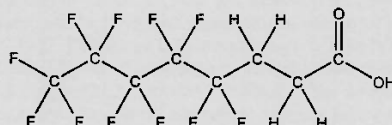
COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:

CAS #:

914637-49-3



MOLECULAR FORMULA:

$C_8H_5F_{11}O_2$

MOLECULAR WEIGHT:

342.11

CONCENTRATION:

$50.0 \pm 2.5 \mu\text{g/mL}$

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/02/2022

EXPIRY DATE: (mm/dd/yyyy)

08/02/2027

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 <0.5% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by $^1\text{H NMR}$.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/10/2022

(mm/dd/yyyy)

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Certified Reference Material CRM

CERTIFIED WEIGHT REPORT

Part Number: 64029
Lot Number: 062623
Description: PFOA-DOD
3 components
Prepaz (p-C)
J.D.
007B

Expiration Date:
Recommended Storage:
Nominal Concentration (g/mL):
NIST Test Date:

Substrate(s):
Methanol (1 mL (M))
2-Propanol (2%)

Lot #: 040729 (96%)
39500 (2%)

Formulated By: Prakash Chakraborty
Reviewed By: Adelle Rios

DATE: 062623
DATE: 062623

Formulated By: Prakash Chakraborty
Reviewed By: Adelle Rios

DATE: 062623
DATE: 062623

Volume(s) shown below were combined and diluted to (mL):
Note: All assigned values are mean concentrations.

Component	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Final Conc. (g/mL)	Initial Conc. (g/mL)	Final Uncertainty (g/mL)	Assigned Value (g/mL)	Uncertainty (g/mL)	Source Information (CAS#)	Lot #
1. Perfluoro-n-butanoic acid (PFBA)	95242	110422	0.02	2.00	0.017	50.1	1.00	0.02	375.29-4	N/A	N/A	N/A
2. Perfluoro-pentanoic acid (PFPA)	95243	011722	0.02	2.00	0.017	50.3	1.00	0.02	378.29-3	N/A	N/A	N/A
3. Perfluoro-hexanoic acid (PFHA)	91199	071023	0.02	2.00	0.017	50.2	1.00	0.02	377.29-4	N/A	N/A	N/A
4. Perfluoro-heptanoic acid (PFHPA)	91197	110622	0.02	2.00	0.017	50.1	1.00	0.02	376.29-3	N/A	N/A	N/A
5. Perfluoro-octanoic acid (PFOPA)	95202	09522	0.02	2.00	0.017	50.2	1.00	0.02	375.29-1 (L)	N/A	N/A	Isotec (Methoxy)
6. Perfluoro-nonoic acid (PFNA)	95200	110622	0.02	2.00	0.017	50.1	1.00	0.02	374.29-1	N/A	N/A	Isotec (Methoxy)
7. Perfluoro-decanoic acid (PFDA)	91195	110622	0.02	2.00	0.017	50.0	1.00	0.02	373.29-1	N/A	N/A	Isotec (Methoxy)
8. Perfluoro-undecanoic acid (PFUA)	95205	052423	0.02	2.00	0.017	50.2	1.00	0.02	372.29-1	N/A	N/A	N/A
9. Perfluoro-dodecanoic acid (PFDA)	91198	052423	0.02	2.00	0.017	50.1	1.00	0.02	371.29-1	N/A	N/A	N/A
10. Perfluoro-tridecanoic acid (PFDA)	95204	110622	0.02	2.00	0.017	50.1	1.00	0.02	370.29-1	N/A	N/A	N/A
11. Perfluoro-tetradecanoic acid (PFDA)	95203	03022	0.02	2.00	0.017	50.1	1.00	0.02	369.29-1	N/A	N/A	N/A
12. Perfluoro-1-iododecyltetrafluoroethane sulfonic acid (PFDA)	3677	PFDA1221	0.02	2.00	0.017	50.0	1.00	0.02	368.29-1	N/A	N/A	N/A
13. Methylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (PFDA)	4162	PFDA1221	0.02	2.00	0.017	50.0	1.00	0.02	367.29-1	N/A	N/A	N/A
14. Methylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (PFDA)	4163	PFDA1221	0.02	2.00	0.017	50.0	1.00	0.02	366.29-1	N/A	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	91194	060522	0.02	2.00	0.017	50.2	1.00	0.02	365.29-1	N/A	N/A	N/A
16. Perfluoropentanesulfonic acid (PFPS)	95244	091522	0.02	2.00	0.017	50.1	1.00	0.02	364.29-1	N/A	N/A	N/A
17. Perfluorohexanesulfonic acid (PFHPS)	91196	060623	0.02	2.00	0.017	50.0	1.00	0.02	363.29-1	N/A	N/A	N/A
18. Perfluoroheptanesulfonic acid (PFHPS)	3672	LFPHS0622	0.02	2.00	0.017	49.8	1.00	0.02	362.29-1	N/A	N/A	N/A
19. Heptafluoroisobutanesulfonic acid (PFOS)	95201	050923	0.02	2.00	0.017	50.1	1.00	0.02	361.29-1	N/A	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LFPS1122	0.02	2.00	0.017	49.0	1.00	0.02	360.29-1	N/A	N/A	N/A
21. Perfluoro-1-dodecanesulfonic acid (PFDS)	3671	LPDS1122	0.02	2.00	0.017	48.2	1.00	0.02	359.29-1	N/A	N/A	N/A
22. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (4:2 FTB)	6571	060522	0.02	2.00	0.017	50.2	1.00	0.02	371.17-2	N/A	N/A	N/A
23. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (6:2 FTB)	6572	031023	0.02	2.00	0.017	50.2	1.00	0.02	371.17-2	N/A	N/A	N/A
24. 1H,1H,2H,2H-Perfluorododecane sulfonic acid (8:2 FTB)	3682	PFPS0423	0.02	2.00	0.017	49.2	1.00	0.02	370.29-1	N/A	N/A	N/A
25. 2-Hexafluoroethyl-2,2,3,3-tetrafluoropropyl sulfonic acid (PFPS-DA)	39565	050523	0.02	2.00	0.017	49.2	1.00	0.02	369.29-1	N/A	N/A	N/A
26. 1-Chlorooctadecyl-2,2,2,2-tetrafluoroethyl sulfonic acid (1D-PFO-DA)	4165	1D-PFO-DA02	0.02	2.00	0.017	47.1	1.00	0.02	368.29-1	N/A	N/A	N/A
27. 9-Chlorooctadecyl-2,2,2,2-tetrafluoroethyl sulfonic acid (9C-PFO-DA)	4164	9C-PFO-DA02	0.02	2.00	0.017	46.8	1.00	0.02	367.29-1	N/A	N/A	N/A
28. Dodecafluoro-3H,4,4,4-trifluorobutane sulfonic acid (ADONA)	4163	NBCDFONA02	0.02	2.00	0.017	47.1	1.00	0.02	366.29-1	N/A	N/A	N/A
Perfluorooctanoic acid (linear)*	95202	060522	0.02	2.00	0.004	49.6	0.99	0.010	355-67-1 (L)	N/A	N/A	Isotec (Methoxy)
Perfluorodecanoic acid (branched isomer)*	95202	060522	0.02	2.00	0.004	0.5	0.01	0.001	355-67-1 (L)	N/A	N/A	Isotec (Methoxy)
Perfluorohexanesulfonic acid (linear)*	91196	030923	0.02	2.00	0.017	44.0	0.98	0.02	355-68-4 (L)	N/A	N/A	N/A
Perfluorooctanesulfonic acid (branched isomer)*	91196	030923	0.02	2.00	0.017	0.0	0.12	0.0020	355-68-4 (L)	N/A	N/A	N/A
Heptafluoroisobutanesulfonic acid (linear)*	95201	030923	0.02	2.00	0.017	38.1	0.76	0.02	1783-29-1 (L)	N/A	N/A	N/A
Heptafluorooctanesulfonic acid (branched isomer)*	95201	030923	0.02	2.00	0.017	7.5	0.15	0.003	1783-29-1 (L)	N/A	N/A	N/A
Heptafluorodecane sulfonic acid (branched isomer)*	95201	030923	0.02	2.00	0.017	4.0	0.08	0.002	1783-29-1 (L)	N/A	N/A	N/A
Heptafluorododecane sulfonic acid (branched isomer)*	95201	030923	0.02	2.00	0.017	0.5	0.010	0.0002	1783-29-1 (L)	N/A	N/A	N/A
M-Methylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (linear)*	4162	PFDA1221	0.02	2.00	0.017	38.0	0.72	0.04	2555-31-9 (L)	N/A	N/A	N/A
N-Methylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (branched)*	4162	PFDA1221	0.02	2.00	0.017	0.5	0.13	0.011	2555-31-9 (L)	N/A	N/A	N/A
N-Methylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (branched)*	4162	PFDA1221	0.02	2.00	0.017	5.0	0.10	0.005	2555-31-9 (L)	N/A	N/A	N/A
N-Methylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (branched)*	4162	PFDA1221	0.02	2.00	0.017	2.5	0.05	0.0029	2555-31-9 (L)	N/A	N/A	N/A
N-Ethylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (linear)*	4163	PFDA1221	0.02	2.00	0.017	36.5	0.73	0.04	2961-59-3 (L)	N/A	N/A	N/A
N-Ethylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (branched)*	4163	PFDA1221	0.02	2.00	0.017	7.7	0.15	0.009	2961-59-3 (L)	N/A	N/A	N/A
N-Ethylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (branched)*	4163	PFDA1221	0.02	2.00	0.017	5.3	0.11	0.005	2961-59-3 (L)	N/A	N/A	N/A
N-Ethylparfluoro-1-iododecyltetrafluoroethane sulfonic acid (branched)*	4163	PFDA1221	0.02	2.00	0.017	0.4	0.007	0.0006	2961-59-3 (L)	N/A	N/A	N/A

*Concentrations for branched and linear isomers are based on LC/MS chromatographic analysis only.

*Qualitative standard (Sect. 3.13) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers. The linear 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 noted.
*Standard deviations are given in parentheses with the value in brackets in NIST units.
*All standards, after opening amples, should be stored with caps tight and under nitrogen atmosphere.
*Certification Reference Material (CRM) is a material that is certified by NIST to represent the concentration of the component in the material.
*NIST Reference Standard (NIST-RS) is a material that is certified by NIST to represent the concentration of the component in the material.

12006
Rec'd: 09/07/23

16'Z

12013 A-B
rec'd: 09/11/23

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXH
<u>LOT NUMBER:</u>	PFACMXH0423
<u>SOLVENT(S):</u>	Methanol/Isopropanol (2%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	04/06/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	04/19/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	04/19/2028
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, 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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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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

PFACMXH0423 (1 of 11)
rev1

7.9.1
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⊃ A:

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

7.9.1
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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 *	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-Ethylperfluorooctanesulfonamidoacetic acid †	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanefulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ‡	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate §	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

* See Table B for percent composition of linear and branched N-MeFOSAA isomers.
 † See Table C for percent composition of linear and branched N-EtFOSAA isomers.
 ‡ See Table D for percent composition of linear and branched PFHxSK isomers.
 § 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)

12015A-B
rec'd: 09/11/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic
Acids and Sulfonate Solution/Mixture

PRODUCT CODE: PFAC-MXG
LOT NUMBER: PFACMXG0723
SOLVENT(S): Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 07/27/2023
LAST TESTED: (mm/dd/yyyy) 07/27/2023
EXPIRY DATE: (mm/dd/yyyy) 07/27/2028
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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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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

PFACMXG0723 (1 of 5)
rev0

7.9.1

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Peak A:

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

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 08/11/2023
(mm/dd/yyyy)

7.9.1

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12032
rec'd: 09/18/23



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

PFACMXH0423 (1 of 11)
rev1

7.9.1
7



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

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUdA	1000		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

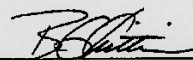
^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

^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)

12033
rec'd: 09/18/23



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 (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.

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

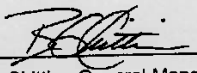
7.9.1
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Table A: PFAC-MXF; Components and Concentrations (ng/mL; \pm 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-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)

12034
rec'd: 09/18/23



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>	PFACMXG0723
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	07/27/2023
<u>LAST TESTED:</u> (mm/dd/yyyy)	07/27/2023
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	07/27/2028
<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

PFACMXG0723 (1 of 5)
rev0

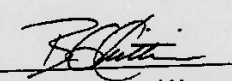
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PFAS-XRG Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))

Table A

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 08/11/2023
(mm/dd/yyyy)

7.9.1
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12065 rec'd: 09/28/23



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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 519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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

PFACMXF0323 (1 of 5)
rev0

7.9.1
7



Tab. 1A: PFAC-MXF; Components and Concentrations (ng/mL; \pm 5% in Methanol/Water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroicosadecafluoro-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)

12070 A-B
rec'd: 10/02/23



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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Revision#: 9, Revised 2020-12-23

brNMeFOSE0922 (1 of 7)
rev 1

7.9.1

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12071 A-B
rec'd 10/02/22



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

7.9.1

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12091
rec'd: 10/11/23



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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Revision#: 9, Revised 2020-12-23

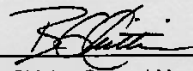
PFACMXJ0323 (1 of 5)
rev0

7.9.1
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Table 1: 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)



PFAC-MXJ

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

12/20
rec'd: 10/18/23

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 (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)



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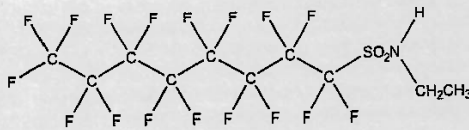
12122
rec'd: 10/18/23
NEIFOSA0923M

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-Ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEIFOSA0923M

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA: C₁₀H₆F₁₇NO₂S
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/19/2023
EXPIRY DATE: (mm/dd/yyyy) 09/19/2028
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 527.20
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: 10/04/2023
(mm/dd/yyyy)

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7.9.1
7

12030 A-5
rec'd: 09/18/23



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 (C₈ and C₉). 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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Revision#: 9, Revised 2020-12-23

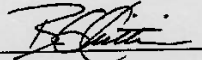
MPFACHIFIS0723 (1 of 5)
rev0

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Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 
 B.G. Chittim, General Manager

Date: 07/07/2023
(mm/dd/yyyy)

7.9.1
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12087 A-J
rec'd: 10/11/23

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 (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctanesulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (¹³C₅-GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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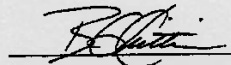
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7.9.1
7

Tab. : 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 ₆)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₂)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 ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		23
N-Methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-Ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		17
2-(N-Methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d7-N-MeFOSE	5000		20
2-(N-Ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₄ -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)

SGS - ORLANDO

Date/Time: 12/11/23
Started (mm/dd/yyyy 24:00)

8:40

SPE LIQUID SAMPLE PREP REPORT

Method: EPA 1633 Draft

12440 QSM

Date/Time: 12/11/23 1640
Finished (mm/dd/yyyy 24:00)

Balance ID: _____

Batch#: OP552

Ext. By: _____

Conc. By: _____

Vialed By: _____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 552 MB		500	7	NA	25		5	C	
OP 552 BS		500							
OP 552 LLBS		500				200			
FC11787-1	2	555				60			
FC11787-2	2	465							
FC11678-20	2	520	7	NA	25		5	C	545 extracted amt.
JCR 12/11/23									
OP FC11787-2 MS	3	550	7	NA	25	200	5	C	
OP FC11787-2 MSD	3								
OP FC11787-1 DUP	3	525	7	NA	25		5	C	

JCR
12/11/23

JCR
12/11/23

7.10.1

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Comments:

EIS (SURR) ID: 12179 D-F Conc: 250-5000ng/ml Exp. Date: 11/30/24 Inj. By: JCR Ver. By: MV
 SPIKE 1 ID: LMS 2228-A Conc: varied Exp. Date: 4/4/24 Inj. By: JCR Ver. By: MV
 SPIKE 2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 12174 A-B Conc: 250-1000ng/ml Exp. Date: 12/08/24 Inj. By: AL Ver. By: LR

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 232043 1% NH4OH MeOH PF754 SPE Lot # 604-0-07
 Water Lot# DI H2O 0.3M Formic Acid PF749 Syringe filter Lot #
 Acetic Acid# 194003 3% NH4OH Sol pH paper Lot# 205423
 0.1M Formic: PF745 5% Formic Acid Carbon Lot# 99687

Relinquished By: [Signature]
 Accepted By: [Signature]

Date: 12/11/23
 Date: 12/11/23